RESOLUTION NO. 2016-042

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ELK GROVE ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING REPORTING PROGRAM (MMRP) FOR THE SHELDON ROAD / BRADSHAW ROAD INTERSECTION IMPROVEMENT PROJECT (PT0137) AND APPROVING THE PROJECT

WHEREAS, the Sheldon Road/Bradshaw Road Intersection Improvement Project (PT0137) (Project) will improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure, realigning Laguna Creek, and intersection control modification; and

WHEREAS, the City prepared an Initial Study/Mitigated Negative Declaration pursuant to CEQA, attached hereto as Exhibit A and incorporated herein by reference, evaluating the potential environmental effects of the Project; and

WHEREAS, the City determined that the mitigation measures identified in the Initial Study/Mitigated Negative Declaration would reduce environmental impacts to a less than significant level; and

WHEREAS, based on staff's review of the Project, no special circumstances exist that would create a reasonable possibility that this Project will have a significant effect on the environment beyond what was analyzed in the Mitigated Negative Declaration prepared for the Project and disclosed; and

WHEREAS, a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the preferred alternative in accordance with CEQA, attached hereto as Exhibit B and incorporated herein by reference, which is designed to ensure compliance with the identified mitigation measures during project implementation and operation; and

WHEREAS, the City distributed the Notice of Intent to Adopt the Mitigated Negative Declaration on December 4, 2015. It was posted at the Sacramento County Clerk's office, distributed through State Clearinghouse and at the City offices, pursuant to Section 15072 of Chapter 3 of Title 14 of the California Code of Regulations (State CEQA Guidelines). A 30-day review and comment period was opened on December 4, 2015 and closed on January 14, 2016. The Mitigated Negative Declaration was made available to the public during this review period; and

WHEREAS, the City received written comment letters within the 30-day public review period and responded to those comments in the project staff report; and

WHEREAS, the City has considered the comments received during the public review period, and they do not alter the conclusions in the Initial Study and Mitigated Negative Declaration; and

WHEREAS, the City Council has considered the written and oral comments on the proposed project and the Mitigated Negative Declaration; and

WHEREAS, the City of Elk Grove, Development Services, Planning Department, located 8401 Laguna Palms Way, Elk Grove, California 95758 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based; and

WHEREAS, the City Council has reviewed the Initial Study, the Mitigated Negative Declaration, and the Mitigation Monitoring and Reporting Program and find that these documents reflect their independent judgment.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Elk Grove hereby adopts the Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program for the preferred alternative for the Sheldon Road/Bradshaw Road Intersection Improvement Project attached hereto and incorporated herein by this reference based on the following findings:

1) On the basis of the whole record, there is no substantial evidence that the Project as designed and mitigated will have a significant effect on the environment. A Mitigated Negative Declaration has been prepared and completed in accordance with the California Environmental Quality Act (CEQA). The changes to the project by the removal of the full pedestrian paths does not constitute a "substantial revision" to the Project requiring recirculation of the Mitigated Negative Declaration pursuant to the criteria set forth in CEQA Guidelines Section 15073.5.The Mitigated Negative Declaration reflects the independent judgment and analysis of the City.

2) Pursuant to Public Resources Code, Section 21081 and CEQA Guidelines, Section 15091, all of the proposed mitigation measures described in the Mitigated Negative Declaration are feasible, and therefore shall become binding upon the City.

3) To the extent that these findings conclude that various proposed mitigation measures outlined in the Mitigated Negative Declaration are feasible and have not been modified, superseded or withdrawn, the City Council hereby binds itself and their assigns and successors in interest to implement those measures. These findings are not merely informational, but constitute a binding set of obligations that will come into effect when the City constructs the Project.

Evidence: Pursuant to CEQA and the CEQA guidelines, staff prepared an Initial Environmental Study for the Sheldon Road/ Bradshaw Road Intersection Improvement Project and mitigation measures have been developed that will reduce potential environmental impacts to less than significant levels. The Initial Environmental Study identified potentially significant adverse effects in the areas of aesthetics, biological resources, cultural resources, hazardous materials, and noise. Mitigation measures that avoid or mitigate the potentially significant effects to a point where no significant effects would occur were identified in the Initial Study and staff prepared a Mitigated Negative Declaration. Preparation of a Mitigation Monitoring and Reporting Program (MMRP) is required in accordance with the City of Elk Grove regulations and is designed to ensure

compliance during project implementation. The City distributed the Notice of Intent to Adopt the Mitigated Negative Declaration on December 4, 2015. It was posted at the Sacramento County Clerk's office, distributed through State Clearinghouse and at the City offices, pursuant to Section 15072 of Chapter 3 of Title 14 of the California Code of Regulations (State CEQA Guidelines). A 30-day review and comment period was opened on December 4, 2015 and closed on January 14, 2016. The Mitigated Negative Declaration was made available to the public during this review period. The City received written comment letters within the 30-day public review period. These comments do not alter the conclusions of the Initial Study/Mitigated Negative Declaration.

On the basis of the Mitigated Negative Declaration, environmental analysis, and the whole record, there is no substantial evidence that the project, as revised with the removal of the full pedestrian paths, will have a significant adverse impact on the environment above those addressed within the adopted Mitigated Negative Declaration. A Mitigation Monitoring and Reporting Program (MMRP) for the preferred alternative, which is incorporated herein by this reference has been prepared to ensure compliance during project implementation. The City of Elk Grove, Development Services Planning Department, located at 8401 Laguna Palms Way, Elk Grove, California 95758 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based.

BE IT FURTHER RESOLVED that the City Council hereby approves the Project.

PASSED AND ADOPTED by the City Council of the City of Elk Grove this 9th day of March 2016.

GARY DAVIS, MAYOR of the
CITY OF ELK GROVE

ATTEST:

JASON LINDGREN, CITY CLERK

APPROVED AS TO FORM:

JONATHAN P. HOBBS,
CITY ATTORNEY

EXHIBIT A

CITY OF ELK GROVE

SHELDON ROAD/BRADSHAW ROAD INTERSECTION IMPROVEMENT PROJECT

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

CITY OF ELK GROVE

PROUD HERITAGE. BRIGHT FUTURE.

Prepared by:

CITY OF ELK GROVE
DEVELOPMENT SERVICES-PLANNING
8401 LAGUNA PALMS WAY
ELK GROVE, CA 95758

DECEMBER 2015

CITY OF ELK GROVE

SHELDON ROAD/BRADSHAW ROAD INTERSECTION IMPROVEMENT PROJECT

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Prepared by:

CITY OF ELK GROVE
DEVELOPMENT SERVICES-PLANNING
8401 LAGUNA PALMS WAY
ELK GROVE, CA 95758

DECEMBER 2015

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is an Initial Study (IS) with supporting environmental studies, which provides justification for a Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) for the Sheldon Road/Bradshaw Road Intersection Improvement Project.

The IS/MND is a public document to be used by the City of Elk Grove (City), acting as the CEQA lead agency, to determine whether the Project may have a significant effect on the environment pursuant to CEQA. If the lead agency finds substantial evidence that any aspect of the Project, either individually or cumulatively, may have a significant effect on the environment that cannot be mitigated, regardless of whether the overall effect of the Project is adverse or beneficial, the lead agency is required to prepare an environmental impact report (EIR), use a previously prepared EIR and supplement that EIR, or prepare a subsequent EIR to analyze the project at hand (Public Resources Code Sections 21080(d) and 21082.2(d)).

If the agency finds no substantial evidence that the Project or any of its aspects may cause a significant impact on the environment with mitigation, a MND shall be prepared with a written statement describing the reasons why the proposed Project, which is not exempt from CEQA, would not have a significant effect on the environment and therefore why it does not require the preparation of an EIR (State CEQA Guidelines Section 15371).

According to State CEQA Guidelines Section 15070, a negative declaration shall be prepared for a project subject to CEQA when either:

1) *The IS shows there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or*

2) *The initial study identifies potentially significant effects, but:*

   a) *Revisions in the project plans or proposals made by, or agreed to by the applicant before the proposed MND and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and*

   b) *There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.*

This IS/MND has been prepared in accordance with CEQA, Public Resources Code Section 21000 et seq., and the State CEQA Guidelines Title 14 California Code of Regulations (CCR) Section 15000 et seq.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers." The City of Elk Grove Public Works Department has initiated preliminary design of the Project and requires approval from the Elk Grove City Council. Therefore, based on the criteria described above, the lead agency for the proposed Project is the City.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this IS/MND is to evaluate the potential environmental impacts of the proposed Sheldon Road/Bradshaw Road Intersection Improvement Project. Mitigation measures have also been established that reduce or eliminate any identified significant and/or potentially significant impacts. This document is divided into the following sections:

1.0 INTRODUCTION

This section provides an introduction and describes the purpose and organization of this document.

2.0 PROJECT DESCRIPTION

This section provides the Project background, a detailed description of the proposed Project, and the process used for notifying and involving the public during Project planning, and describes coordination with relevant agencies and organizations.

3.0 INITIAL STUDY CHECKLIST

This section describes the environmental setting for each of the environmental subject areas, evaluates a range of impacts classified as "no impact," "less than significant impact," "less than significant impact with mitigation incorporated," or "potentially significant impact" in response to the environmental checklist; provides mitigation measures, where appropriate, to mitigate potentially significant impacts to a less than significant level; and provides an environmental determination for the Project.

4.0 SUMMARY OF MITIGATION MEASURES

This section provides a summary of mitigation measures for the proposed Project.

5.0 LIST OF PREPARERS

This section identified staff and consultants responsible for preparation of this document.

6.0 LIST OF ABBREVIATIONS

This section is an alphabetical list of abbreviations used throughout this document.

7.0 REFERENCES

This section identifies resources used in the preparation of this document.

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed Project is located at the intersection of Sheldon Road and Bradshaw Road in the Rural Sheldon Area of Elk Grove, Sacramento County, California (**Figure 2.0-1**). The Sheldon Road/Bradshaw Road intersection is located in the northeastern area of the City and currently functions as a stop sign–controlled intersection as well as a bridge structure, crossing Laguna Creek. The Project location is shown in **Figure 2.0-2.**

2.2 PROJECT PURPOSE AND NEED

PURPOSE

The purpose of the proposed Project is to:

- Improve Hydraulic Capacity and Reduce Flooding. The Project will improve the hydraulic capacity of the East Branch Laguna Creek Bridge and reduce flooding in the surrounding area by replacing the functionally obsolete East Branch Laguna Creek Bridge with a new structure with adequate hydraulic capacity and realigning Laguna Creek north and south of the Sheldon Road/Bradshaw Road intersection.

- Relieve Congestion and Improve Traffic Flow. The Project will relieve traffic congestion and reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.

- Pedestrian Safety. The Project will provide pedestrian access within the proposed Project area.

- Help Achieve the Transportation Goals of Local Planning Documents. The Project will support the City of Elk Grove General Plan by accommodating future widening of Sheldon Road and Bradshaw Road to the planned number of traffic lanes and improving the Sheldon Road/Bradshaw Road intersection to meet the City's roadway and intersection service standards.

NEED

Improve Hydraulic Capacity and Reduce Flooding

The Structure and Maintenance Investigations Report prepared by Caltrans (September 2013) indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection according to Federal Highway Administration (FHWA) criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Sheldon Road/Bradshaw Road intersection was given a sufficiency rating of 65.3 percent on a scale of 0 percent to 100 percent, where 100 percent represents an entirely sufficient bridge and 0 percent represents an entirely deficient bridge. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to flooding that can cause damage to overlying roadways and surrounding areas in the event of a flood.

Relieve Congestion and Improve Traffic Flow

Growth in Elk Grove and surrounding developing areas creates the need for operational improvements to improve circulation in the area. The Sheldon Road/Bradshaw Road intersection is currently operating at level of service (LOS) F under both AM and PM peak-hour traffic conditions. The increasing population in the City and surrounding area will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign–controlled intersection configuration and the number of traffic lanes on Sheldon Road and Bradshaw Road, thereby further increasing the need for traffic relief at the intersection.

Pedestrian Safety

No pedestrian facilities exist within the Project area. Currently, Sheldon Road and Bradshaw Road in the Project area do not provide safe pedestrian access, as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access within the City as set forth in the goals of the Elk Grove Bicycle, Pedestrian, and Trails Master Plan.

Help Achieve the Transportation Goals of Local Planning Documents

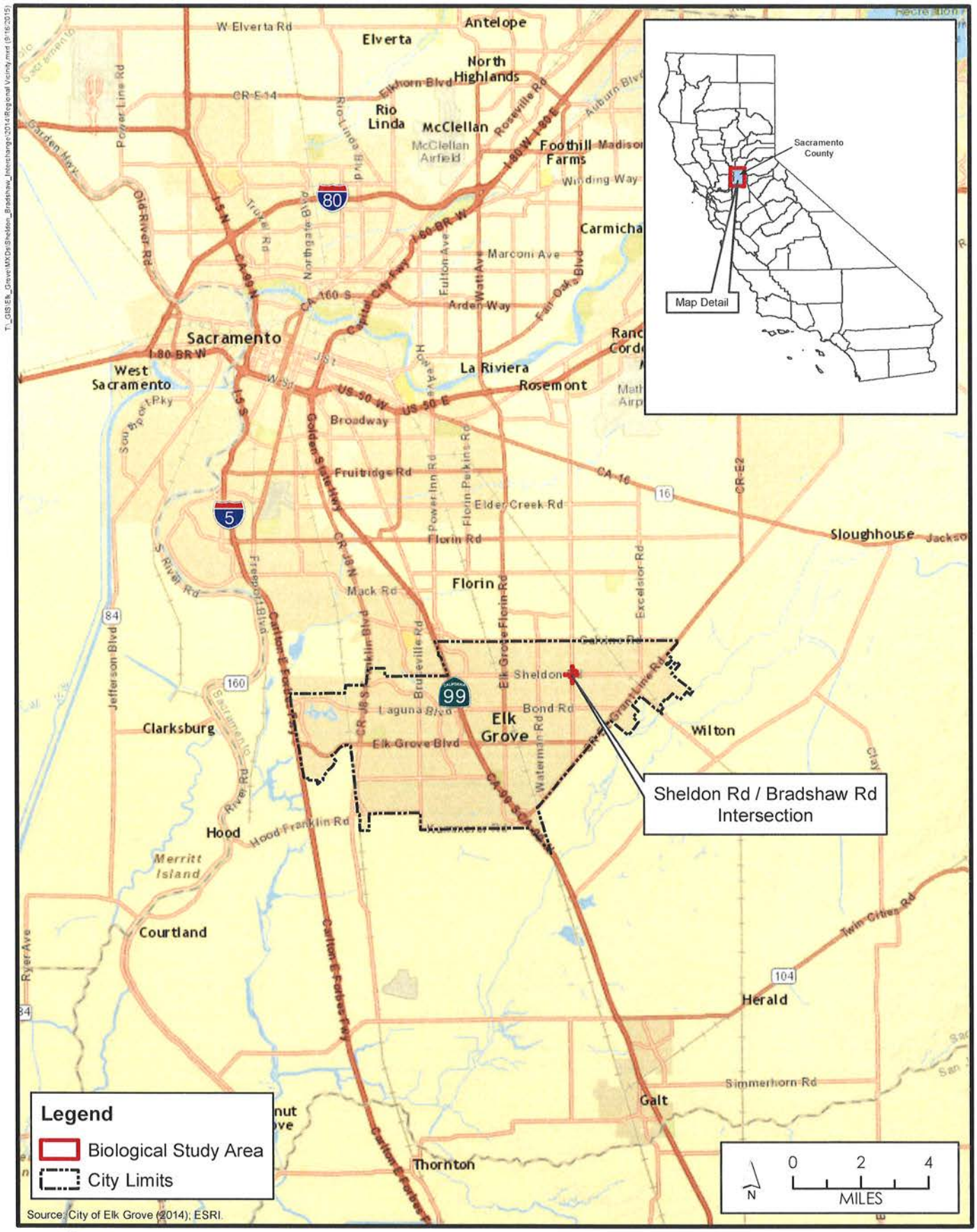
City of Elk Grove General Plan (2003)

Figure C1-2 in the General Plan Circulation Element shows Bradshaw Road with an ultimate planned width as a six-lane arterial and Sheldon Road with an ultimate planned width as a four-lane arterial west of Bradshaw Road and as a two-lane road with expanded right-of-way east of Bradshaw Road. The General Plan circulation policies for roadways indicate a minimum standard of LOS D at all times for all roadways and intersections in the City. According to the Traffic Operations Analysis Report prepared by Fehr & Peers (2015) for the proposed Project, under existing conditions, the Sheldon Road/Bradshaw Road intersection as an all-way stop sign–controlled intersection operates at LOS F during both AM and PM peak-hour traffic. This level of service is unacceptable to achieving the transportation goals in the City's General Plan.

2.3 PROJECT DESCRIPTION

EXISTING SETTING

The Project is located in a rural area of Elk Grove. The surrounding area is zoned for agriculture and low-density residential uses such as single-family residential dwelling units, agricultural activities, and local roadways. The lot size in the surrounding area is 2 acres or larger per one primary residential unit. Sheldon Road runs east–west as a two-lane road approaching the intersection, and Bradshaw Road runs north–south as a two-lane road approaching the intersection. Laguna Creek runs along the east side of Bradshaw Road north of the Sheldon Road/Bradshaw Road intersection and along the west side of Bradshaw Road south of the intersection. The Sheldon Road/Bradshaw Road intersection acts as a bridge structure over Laguna Creek. Two bridge railings exist at the intersection where Laguna Creek flows under the bridge structure.

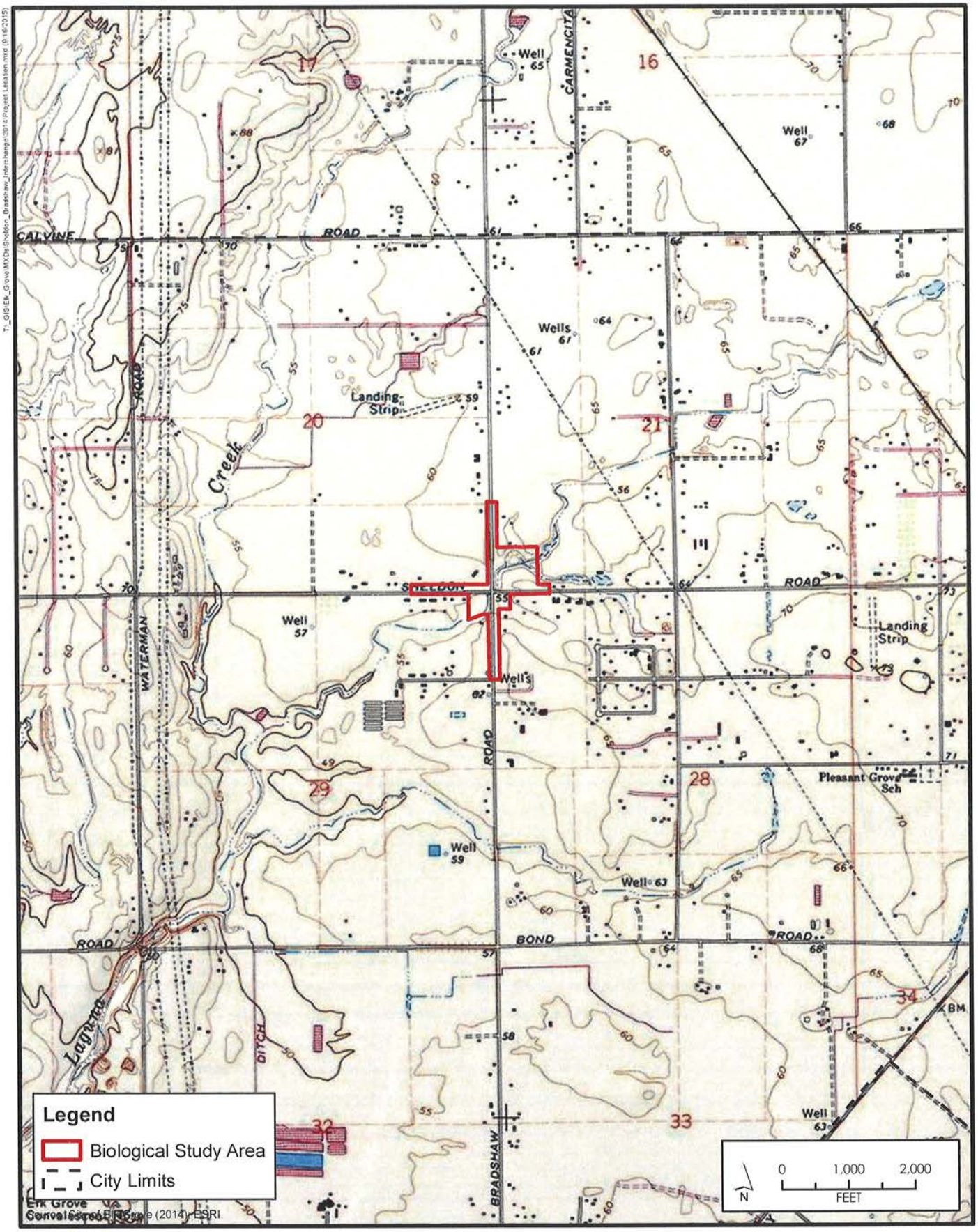


Source: City of Elk Grove (2014); ESRI.

City of Elk Grove
Development Services

Figure 2.0-1

Regional Vicinity



City of Elk Grove
Development Services

Figure 2.0-2

Project Location

PROPOSED PROJECT

The Sheldon Road/Bradshaw Road intersection is currently a stop sign–controlled intersection located in the Rural Sheldon Area of Elk Grove. Sheldon Road is an east–west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw Road is a north–south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest under the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road. Laguna Creek 100-year flows currently overtop the existing bridge at the Sheldon Road/Bradshaw Road intersection. The Project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete).

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The Project will provide operational improvements by reconstructing the bridge and the intersection to current standards. The future widening planned with the Project will be based on the predicted traffic volumes 20 years after Project completion. Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection. The second build alternative includes a signalized intersection. The signalized intersection improvement would add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the Project. In accordance with the City's General Plan and Bicycle, Pedestrian, and Trails Master Plan, the proposed Project will add pedestrian and bicycle facilities along Sheldon and Bradshaw roads within the Project limits. Pedestrians and bicyclists will also be accommodated in the improved intersection.

In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities that are currently in conflict with the proposed improvements, including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed Project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows. **Figure 2.0-3** is a depiction of the design for the roundabout configuration alternative; **Figure 2.0-4** is a depiction of the design for the signalized intersection alternative.

RIGHT-OF-WAY

Additional right-of-way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel. Relocation of existing utilities may require additional easement rights. Traffic control during Project construction would require staged or full closure of the intersection for demolition and construction of the new culverts.

FUNDING

The proposed Project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

2.4 PROJECT CONSTRUCTION

The proposed Project is anticipated to begin construction in summer 2017 and be completed within 18 months. Analysis contained in this IS/MND has taken into consideration activities within the entire Project area, including proposed contractor staging areas, and all mitigation measures included as part the Project would be implemented throughout these areas.

2.5 REQUIRED PROJECT APPROVALS

In order for the Project to be implemented, a series of actions and approvals would be required from agencies. Anticipated Project approvals/actions would include but are not limited to the following:

- Elk Grove City Council – adoption of the MND, Mitigation Monitoring and Reporting Program (MMRP), and other actions associated with Project approval
- Caltrans – issuance of National Environmental Policy Act (NEPA) Categorical Exclusion (CE)
- US Fish and Wildlife Service (USFWS) Section 7 Consultation

Additional permits would be required prior to construction. These include but are not limited to:

- Central Valley Regional Water Quality Control Board (RWQCB) – 401 Water Quality Certification, National Pollutant Discharge Elimination System (NPDES) Permit
- US Army Corps of Engineers (USACE) – Section 404 Permit
- California Department of Fish and Wildlife (CDFW) – 1602 Streambed Alteration Agreement


BRADSHAW
SHELDON ROAD
CLASS II BIKE LANE AND PEDESTRIAN PATH
CHANNEL REALIGNMENT
VARIOUS OAK TREES TO BE REMOVED
ACCOMODATE DRIVEWAY ACCESS (TYP)
CLASS II BIKE LANE AND PEDESTRIAN PATH
OVERHEAD DISTRIBUTION POWER POLES TO BE RELOCATED (VARIOUS)
PROVIDE FOR PEDESTRIAN CROSSING AND PED PATH CIRCULATION
ACCOMODATE DRIVEWAY ACCESS (TYP)
CLASS II BIKE LANE AND PEDESTRIAN PATH
CHANNEL REALIGNMENT
ACCOMODATE DRIVEWAY ACCESS (TYP)


BRADSHAW
SHELDON ROAD
CLASS II BIKE LANE AND PEDESTRIAN PATH
CHANNEL REALIGNMENT
VARIOUS OAK TREES TO BE REMOVED
ACCOMODATE DRIVEWAY ACCESS (TYP)
CLASS II BIKE LANE AND PEDESTRIAN PATH
OVERHEAD DISTRIBUTION POWER POLES TO BE RELOCATED (VARIOUS)
ACCOMODATE DRIVEWAY ACCESS (TYP)
PROVIDE FOR PEDESTRIAN CROSSING AND PED PATH CIRCULATION
CHANNEL REALIGNMENT
CLASS II BIKE LANE AND PEDESTRIAN PATH
ACCOMODATE DRIVEWAY ACCESS (TYP)

2.6 OTHER PROJECT ASSUMPTIONS

This IS/MND assumes compliance with all applicable State, federal, and local codes and regulations including but not limited to the City of Elk Grove Improvement Standards, the Sacramento County Water Agency Code, the Guidance Manual for On-Site Stormwater Quality Control Measures, the California Health and Safety Code, and the California Public Resources Code.

2.7 TECHNICAL STUDIES

The following technical studies were conducted as part of this IS/MND and are included as Appendices A through I:

- Traffic Operations Analysis Report, Fehr & Peers, January 2015
- Noise Study Report, AMBIENT, August 2015
- Air Quality Report, PMC, April 2015
- Initial Site Assessment, Acacia Consultants and Engineers, August 2015
- Location Hydraulic Study, West Yost Associates, October 2014
- Summary Floodplain Encroachment Report, West Yost Associates, July 2014
- Natural Environment Assessment, PMC, January 2015
- Biological Assessment, PMC, January 2015
- Visual Impact Assessment Memorandum, Michael Baker International, September 2014
- Historic Property Survey Report and Archaeological Survey Report, Cogstone Resource Management, September 2014

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3.0 Initial Study Checklist

The environmental factors checked below would be potentially affected by this Project as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Population and Housing
☐ Agriculture and Forestry Resources	☐ Hazards and Hazardous Materials	☐ Public Services
☐ Air Quality	☐ Hydrology/Water Quality	☐ Recreation
☐ Biological Resources	☐ Land Use and Planning	☐ Transportation/Traffic
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Geology and Soils	☐ Noise	☒ Mandatory Findings of Significance

DETERMINATION

On behalf of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to the earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date
Jessica Jordan, Environmental Project Manager	City of Elk Grove Development Services-Planning
Printed Name	For

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.1.	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d)	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

A Visual Impact Assessment Memorandum (VIA memo) was prepared for the Project in September 2014 (**Appendix A**). The Project is located at the intersection of Sheldon Road and Bradshaw Road in the Rural Sheldon Area of Elk Grove. Sheldon Road is a two-lane roadway that runs east to west and Bradshaw Road is a two-lane roadway that runs north to south. The Project site is surrounded by agricultural-residential land uses. A tributary channel of Laguna Creek, one of the main hydrologic features of the City's Planning Area, runs along the east side of Bradshaw Road north of the Sheldon Road/Bradshaw Road intersection and along the west side of Bradshaw Road south of the intersection. Laguna Creek has been previously altered by development in the City (City of Elk Grove 2003b). The Sheldon Road/Bradshaw Road intersection functions as a bridge structure over the Laguna Creek tributary channel. There are no designated State scenic highways in or near the Project site.

DISCUSSION OF IMPACTS

a) *Would the project have a substantial adverse effect on a scenic vista?*

No Impact.

Roundabout Configuration Alternative

Views from the Project site are primarily of Sheldon Road and Bradshaw Road and the surrounding agricultural-residential area over a relatively flat landscape. The Elk Grove General Plan does not identify any scenic vistas in or adjacent to the Project site. According to the VIA memo prepared for the Project, the Project site does not provide any aesthetic resources that would be considered a scenic vista. Therefore, no impact would occur.

Signalized Intersection Alternative

Refer to discussion under the roundabout configuration alternative. Impacts would be the same under the signalized intersection alternative as discussed under the roundabout configuration alternative. The Project site is not in or adjacent to a scenic vista, and no impact would occur.

b) *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

No Impact.

Roundabout Configuration Alternative

The nearest State highway is State Route (SR) 99, which is located approximately 3.5 miles west of the Project site and does not have a scenic designation in Sacramento County. Therefore, the Project would not damage any scenic resources within a State scenic highway, and there would be no impact.

Signalized Intersection Alternative

Refer to discussion under the roundabout configuration alternative. Impacts would be the same under the signalized intersection alternative as those discussed under the roundabout configuration alternative. There would be no impact.

c) *Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

This build alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The Project would result in vegetation and tree removal, alterations to the Laguna Creek tributary channel, and acquisition of right-of-way, which may alter the visual character of the area.

However, according to the VIA memo prepared for the Project, reconstruction of an existing intersection, replacement of an existing intersection/bridge structure, and realignment of a creek in generally the same area is not anticipated to be seen by roadway users and surrounding residents as a considerable alteration of the area. The proposed improvements will comply with the City's Rural Road Improvement Policy and Rural Road Improvement Standards.

Although the Project would require the removal of a limited number of trees that would alter views from some adjacent residences, the surrounding area contains numerous mature trees, so the local loss of trees would not substantially degrade the rural character of the area. Furthermore, in accordance with Elk Grove Municipal Code (Elk Grove Municipal Code) Chapter 19.12 (Tree Preservation and Protection), the Project would be required to implement an approved tree mitigation plan to mitigate for the loss of trees. Potential mitigation could include replacement of trees either on- or off-site, relocation either on- or off-site, or payment of an in-lieu fee to fund citywide tree preservation programs.

Implementation of mitigation measures **MM 3.1.1** through **MM 3.1.4** would further reduce impacts to less than significant by avoiding tree removal where feasible and by helping

to restore the vegetation and creek channel in a manner that will blend with the surrounding natural landscape.

Signalized Intersection Alternative

This build alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. Impacts of the signalized intersection alternative to visual character or quality of the Project site and its surroundings would be the same as those discussed under the roundabout configuration alternative. The proposed improvements will comply with the City's Rural Road Improvement Policy and Rural Road Improvement Standards. Implementation of mitigation measures **MM 3.1.1** through **MM 3.1.4** would further reduce impacts to less than significant by helping to restore the surrounding environment in a manner that will blend with the surrounding natural landscape.

d) *Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?*

Less Than Significant Impact with Mitigation Incorporated. Under existing conditions, the primary source of day and nighttime lighting and glare in the Project area is from vehicle headlights, as there are no streetlights at the Project site.

Roundabout Configuration Alternative

The roundabout configuration alternative includes the addition of streetlights at the roundabout for traffic and pedestrian safety. Mitigation measure **MM 3.1.5** requires the Project to comply with the City's lighting standards (Elk Grove Municipal Code Chapter 23.56). Elk Grove Municipal Code Chapter 23.56 provides standards for light fixture shielding, level of illumination, height of freestanding fixtures, and hours of illumination as well as prohibits certain types of lighting in order to limit glare and light pollution. Compliance with these standards would reduce the Project's lighting impacts on adjacent properties and the night sky to a less than significant level.

Signalized Intersection Alternative

The signalized intersection alternative includes the addition of a traffic signal at the intersection of Sheldon Road and Bradshaw Road and streetlights for traffic and pedestrian safety. Mitigation measure **MM 3.1.5** requires the Project to comply with the City's lighting standards (Elk Grove Municipal Code Chapter 23.56). Elk Grove Municipal Code Chapter 23.56 provides standards for light fixture shielding, level of illumination, height of freestanding fixtures, and hours of illumination as well as prohibits certain types of lighting in order to limit glare and light pollution. Compliance with these standards would reduce the Project's lighting impacts on adjacent properties and the night sky to a less than significant level.

Mitigation Measures

MM 3.1.1 All areas disturbed or used for staging of vehicles and equipment shall be hydroseeded and restored to their preconstruction condition upon completion of the Project. This can be best accomplished by loosening and recontouring the area's soil before applying erosion control (hydroseed).

Timing/Implementation: *During and after Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.2 The removal of established vegetation, including trees, shall be minimized and avoided where feasible. The areas where trees are present should be protected to reduce damage to the tree's root systems. Where it is possible to save and preserve existing trees (of significant size and maturity), care and caution should be implemented during the construction phase. Environmentally sensitive area fencing shall be installed to demarcate areas where vegetation is being preserved.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.3 All disturbed areas during each construction season shall utilize best management practices which will include temporary erosion control consisting of a native seed mix at the end of each construction season.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.4 Contour grading and slope rounding shall be utilized on all cut and fill slopes in order to help restore the environment in a manner that will blend with the surrounding natural landscape.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.5 The Project shall comply with the City's lighting standards contained in City of Elk Grove Municipal Code Section 23.56.

Timing/Implementation: *During Project design and construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.2. AGRICULTURE AND FORESTRY RESOURCES. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of forestland (as defined in Public Resources Code Section 1220(g)), timberland (as defined by Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Agriculture has historically been an important part of Elk Grove's land use and economy. However, the majority of existing land zoned for agricultural uses within the City limits is considered fallow (vacant or underutilized). Few crops are grown in the city itself, and there are no major intensive agricultural operations (though small family farm activities do exist) that occur within the city limits. According to the 2012 Sacramento County Important Farmland map provided by the California Department of Conservation's Farmland Mapping and Monitoring Program, land surrounding the Project site is designated as Urban and Built-Up Land and Other Land. There is no forestland in the Project vicinity.

DISCUSSION OF IMPACTS

a) *Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?*

No Impact.

Roundabout Configuration Alternative

The Project site is surrounded by Urban and Built-Up Land and Other Land, as shown on the 2012 Sacramento County Important Farmland map (DOC 2012). The proposed roundabout configuration alternative would not convert any designated Farmland to nonagricultural use. Therefore, no impact would occur.

Signalized Intersection Alternative

The Project site is surrounded by Urban and Built-Up Land and Other Land, as shown on the 2012 Sacramento County Important Farmland map (DOC 2012). The proposed signalized intersection alternative would not convert any designated Farmland to nonagricultural use. Therefore, no impact would occur.

b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact.

Roundabout Configuration Alternative

According to the Sacramento County Williamson Act map for fiscal year 2011/2012, no parcels in the Project vicinity are enrolled in a Williamson Act contract (DOC 2014). Land surrounding the Project site is identified as Urban and Built-Up Land and Non-Enrolled Land (DOC 2012). Parcels in the Project vicinity are zoned Agricultural-Residential (AR-2 and AR-5) (City of Elk Grove 2015). These zoning districts accommodate low-density single-family development with agricultural and accessory uses. There are no parcels zoned exclusively for agriculture in the Project area. No impact would occur.

Signalized Intersection Alternative

Existing zoning for agricultural use and the existing status of Williamson Act contracts in the Project vicinity is the same under the signalized intersection alternative as discussed under the roundabout configuration alternative. Therefore, no impact would occur.

c) *Would the project conflict with existing zoning for, or cause rezoning of, forestland, timberland, or timberland zoned Timberland Production?*

No Impact.

Roundabout Configuration Alternative

There is no forestland, timberland, or timberland zoned Timberland Production in the Project vicinity. Therefore, no impact would occur.

Signalized Intersection Alternative

There is no forestland, timberland, or timberland zoned Timberland Production in the Project vicinity. Therefore, no impact would occur.

d) *Would the project result in the loss of forestland or conversion of forestland to non-forest use?*

No Impact.

Roundabout Configuration Alternative

There is no forestland in the vicinity of the Project site. Therefore, the roundabout configuration alternative would not result in the loss of forestland or conversion of forestland to non-forest use. No impact would occur.

Signalized Intersection Alternative

There is no forestland in the vicinity of the Project site. Therefore, the signalized intersection alternative would not result in the loss of forestland or conversion of forestland to non-forest use. No impact would occur.

e) *Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forestland to non-forest use?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative does not involve any changes or alterations to the existing environment that could result in the conversion of forestland to non-forest use, as there is no forestland present in the surrounding area. Furthermore, the Project will not result in the conversion of Farmland to nonagricultural use. No impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative does not involve any changes or alterations to the existing environment that could result in the conversion of forestland to non-forest use, as there is no forestland present in the surrounding area. Furthermore, the Project will not result in the conversion of Farmland to nonagricultural use. No impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.3. AIR QUALITY. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The Project area is located in the Sacramento Valley. The Sacramento Valley is located between two mountain ranges to the east and the west and is bordered at its northern end by more mountains. This topography is conducive to trapping air pollutants. The problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas.

Both the US Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone, carbon monoxide (CO), particulate matter (PM), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The Elk Grove portion of the Sacramento Valley has been designated a nonattainment area for federal ozone and fine particulate matter ($PM_{2.5}$) air quality standards as well as for State ozone and coarse particulate matter (PM_{10}) standards, and has been designated an attainment or unclassified area for all other State ambient air quality standards (CARB 2013).

REGULATORY SETTING

Air quality in the Sacramento Valley Air Basin is regulated by several jurisdictions including the EPA, CARB, and the Sacramento Metropolitan Air Quality Management District (SMAQMD). Each

of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. State and local regulations must be as stringent as EPA regulations and may be more stringent.

Pollutants subject to federal ambient standards are referred to as criteria pollutants because the EPA publishes criteria documents to justify the choice of standards. One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, known as sensitive receptors. The term *sensitive receptors* refers to specific population groups as well as the land uses where they would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses are residences, schools, playgrounds, childcare centers, retirement homes or convalescent homes, hospitals, and clinics. Criteria air pollutants, common sources, and associated effects are summarized in **Table 3.3-1**. The federal and State standards for the criteria pollutants and other State-regulated air pollutants are shown in **Table 3.3-2**.

Federal Air Quality Regulations

At the federal level, the EPA has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was signed into law in 1970. Congress substantially amended the CAA in 1977 and again in 1990.

TABLE 3.3-1
CRITERIA AIR POLLUTANTS
SUMMARY OF COMMON SOURCES AND EFFECTS

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (NOx) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Particulate Matter (PM_{10} & $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO_2)	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. Damage crops and vegetation. Impairs visibility.

Source: CAPCOA 2011

TABLE 3.3-2
SUMMARY OF AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3) [2]	1 hour 8 hours 8 hours (conformity process [5])	0.09 ppm 0.070 ppm —	— [4] 0.075 ppm [6] 0.08 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic volatile organic compounds (VOC) may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases (ROG)/VOCs and nitrogen oxides (NOx) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm [1] 6 ppm	35 ppm 9 ppm —	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scales.
Respirable Particulate Matter (PM_{10}) [2]	24 hours Annual	50 µg/m³ 20 µg/m³	150 µg/m³ — [2]	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).
Fine Particulate Matter ($PM_{2.5}$) [2]	24 hours Annual 24 hours (conformity process [5])	— 12 µg/m³ —	35 µg/m³ 15.0 µg/m³ 65 µg/m³ (4th highest in 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter—a toxic air contaminant—is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm [7] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the NOx group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.
Sulfur Dioxide (SO_2)	1 hour 3 hours	0.25 ppm —	0.075 ppm [8] (98th percentile over 3 years) 0.5 ppm 0.14 ppm 0.030 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources
	24 hours Annual	0.04 ppm —			
Lead[3]	Monthly Quarterly Rolling 3-month average	1.5 µg/m^3 — —	— 1.5 µg/m^3 0.15 µg/m^3	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.
Sulfate	24 hours	25 µg/m^3	—	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	—	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more at relative humidity less than 70%	—	Reduces visibility. Produces haze. Note: Not related to the Regional Haze program under the federal Clean Air Act, which is oriented primarily toward visibility issues in national parks and other "Class I" areas.	See particulate matter above.
Vinyl Chloride[3]	24 hours	0.01 ppm	—	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

Source CARB 2013

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter; ppb=parts per billion (thousand million)

1. *Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the federal standard occurs at 9.5 ppm due to integer rounding.*
2. *Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. In September 2009 the EPA began reconsidering the $PM_{2.5}$ NAAQS; the 2006 action was partially vacated by a court decision.*
3. *CARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both CARB and the EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effects due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong. Lead NAAQS are not required to be considered in Transportation Conformity analysis.*
4. *Prior to June 2005, the 1-hour NAAQS was 0.12 ppm. The 1-hour NAAQS is still used only in 8-hour ozone early action compact areas, of which there are none in California. However, emission budgets for 1-hour ozone may still be in use in some areas where 8-hour ozone emission budgets have not been developed.*
5. *The 65 µg/m^3 $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or State Implementation Plan amendments for the newer NAAQS are completed.*
6. *As of September 16, 2009, the EPA is reconsidering the 2008 8-hour ozone NAAQS (0.075 ppm); on December 17, 2014, the EPA proposed a revision to the primary and secondary ozone standards to a level within a range of 0.065 to 0.070 ppm.*
7. *Final 1-hour NO_2 NAAQS published in the Federal Register on February 9, 2010, effective March 9, 2010. Project-level hot-spot analysis requirements, while not yet required for conformity purposes, are expected.*
8. *The EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010.*
9. *State standards are "not to exceed" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as noted above.*

The federal and State ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and State standards differ in some cases. In general, the California standards are more stringent. This is particularly true for ozone, $PM_{2.5}$, and PM_{10}.

The Clean Air Act required the EPA to establish national ambient air quality standards (NAAQS) and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions.

California Air Quality Regulations

The California Clean Air Act (CCAA), 1988, requires that all air districts in the State endeavor to achieve and maintain California ambient air quality standards (CAAQS) for ozone, CO, SO_2, and NO_2 by the earliest practical date. Plans for attaining CAAQS were to be submitted to CARB by June 30, 1991. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive three-year periods, in district-wide emissions of each nonattainment pollutant or its precursors, or (2) provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both State and federal planning requirements. Any additional development in the region would impede the reduction goals of the CCAA.

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. Other CARB duties include monitoring air quality (in conjunction with air quality monitoring networks maintained by air pollution control districts and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), and setting emissions standards for new motor vehicles. The emissions standards established for motor vehicles differ depending on various factors including the model year and the type of vehicle, fuel, and engine used.

Sacramento Metropolitan Air Quality Management District

The SMAQMD coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and with SMAQMD rules and regulations, and conducts long-term planning related to air quality.

As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the Clean Air Act Amendments. These milestone reports include compliance demonstrations that the requirements have been met for the Sacramento nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce reactive organic gases (ROG), nitrous oxides (NO_x), and PM_{10} emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations, enhancement of CEQA participation, implementation of a new and modified indirect source review program, adoption of local air quality plans, and stationary, mobile, and indirect source control measures.

Sacramento Area Regional Ozone Attainment Plan

As previously stated, the region is nonattainment for both federal and State ozone standards (see **Table 3.3-2** for federal and State numeric standards). The federal 8-hour ozone regulations require that areas classified as serious or above submit a reasonable further progress demonstration plan that shows a minimum of 18 percent volatile organic compound (and/or NO_x) emission reductions over the first six years following the 2002 baseline year and then an average of 3 percent reductions per year for each subsequent three-year period out to the attainment year. (The 2002 baseline emissions for volatile organic compounds and NO_x in the Sacramento Valley Air Basin equaled 97 tons per day and 109 tons per day, respectively.) The Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan (SMAQMD 2008b) includes the information and analyses to fulfill Clean Air Act requirements for demonstrating reasonable further progress toward attaining the 8-hour ozone NAAQS for the Sacramento region. In addition, this plan establishes an updated emissions inventory and maintains existing motor vehicle emission budgets for transportation conformity purposes.

Section 181(b)(3) of the Clean Air Act permits a state to request that the EPA reclassify or "bump up" a nonattainment area to a higher classification and extend the time allowed for attainment. This bump-up process is appropriate for areas that must rely on longer-term strategies to achieve the emission reductions needed for attainment. The air districts in the Sacramento region submitted a letter to CARB in February 2008 to request a voluntary reclassification (bump-up) of the Sacramento federal nonattainment area from a serious to a severe 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019. On May 5, 2010, the EPA approved the request effective June 4, 2010.

Sacramento Area Regional PM_{10} Attainment Plan and $PM_{2.5}$ State Implementation Plan

As previously stated, the region is nonattainment for federal ozone and $PM_{2.5}$ standards and State O_3 and PM_{10} standards (CARB 2013). (See **Table 3.3-2** for federal and State numeric standards.) The SMAQMD (2010) prepared the PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County in compliance with the federal Clean Air Act requirements pertaining to PM_{10} nonattainment areas. The purpose of this plan is to fulfill the requirements for the EPA to redesignate Sacramento County from nonattainment to attainment of the PM_{10} national ambient air quality standards by preparing the following plan elements and tasks:

- Document the extent of the PM_{10} problem in Sacramento County.
- Determine the emission inventory sources contributing to the PM_{10} problem.
- Identify the appropriate control measures that achieved attainment of the PM_{10} NAAQS.
- Demonstrate maintenance of the PM_{10} NAAQS.
- Request formal redesignation to attainment of the PM_{10} NAAQS.

The $PM_{2.5}$ State Implementation Plan (2013) attempts to fulfill the requirements of the EPA to redesignate Sacramento County from nonattainment to attainment of the $PM_{2.5}$ NAAQS.

The SMAQMD has also adopted various rules and regulations pertaining to the control of emissions from area and stationary sources. Some of the more pertinent regulatory requirements applicable to the proposed Project are identified as follows (SMAQMD 2011):

- *Rule 402: Nuisance*. The purpose of this rule is to limit emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- Rule 403: *Fugitive Dust*. The purpose of this rule is to require that reasonable precautions be taken so as not to cause or allow the emissions of fugitive dust from non-combustion sources from being airborne beyond the property line from which the emission originates.

- Rule 442: The purpose of this rule is to limit the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the district.

Ambient Air Quality

Attainment Status for Criteria Air Pollutants

Areas with air quality that exceed adopted air quality standards are designated as nonattainment areas for the relevant air pollutants. Areas that comply with air quality standards are designated as attainment areas for the relevant air pollutants. Unclassified areas are those with insufficient air quality monitoring data to support a designation of attainment or nonattainment, but are generally presumed to comply with the ambient air quality standard. State Implementation Plans must be prepared by states for areas designated as federal nonattainment areas to demonstrate how the area will come into attainment of the exceeded national ambient air quality standard. The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the State and federal standards presented in **Table 3.3-2**. **Table 3.3-3** shows the national and California attainment status for Sacramento County. The region is nonattainment for federal ozone and fine particulate matter ($PM_{2.5}$) standards and State ozone and coarse particulate matter (PM_{10}) standards (CARB 2013).

TABLE 3.3-3
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY ATTAINMENT STATUS FOR SACRAMENTO COUNTY

Pollutant	National	California
1-Hour Ozone (O_3)	Nonattainment	Nonattainment
8-Hour Ozone (O_3)	No Standard	Nonattainment
Coarse Particulate Matter (PM_{10})	Attainment	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Attainment
Carbon Monoxide (CO)	Unclassified/Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO_2)	Unclassified	Attainment

Source: CARB 2013

Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (e.g., irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast-food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the State nor the federal governments have adopted any rules or regulations for the control of odor sources. The SMAQMD does not have an individual rule or regulation that specifically addresses odors; however, odors would be applicable to SMAQMD's Rule 402, Nuisance. Any actions related to odors would be based on citizen complaints to local governments and the SMAQMD. No major stationary sources of odors have been identified in the vicinity of the Project site.

Toxic Air Contaminants

Toxic air contaminants (TACs) are not considered criteria pollutants in that the Clean Air Act and the California Clean Air Act do not address them specifically through the setting of NAAQS or CAAQS. Instead, the EPA and CARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with SMAQMD rules, they establish the regulatory framework for TACs. At the national level, the EPA has established National Emission Standards for HAPs (NESHAPs), as required by the Clean Air Act Amendments. Technology-based source-specific regulations limit allowable emissions of HAPs.

At the State level, CARB has authority for the regulation of emissions, including TACs, from motor vehicles, fuels, and consumer products. In California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807 sets forth a formal procedure for CARB to designate substances as toxic air contaminants including research, public participation, and scientific peer review. When looking at all controlled TACs, emissions of diesel-exhaust PM are estimated to be responsible for about 70 percent of the total ambient TAC risk. As a result, CARB has made the reduction of the

public's exposure to diesel-exhaust PM one of its highest priorities, with an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles (CARB 2005).

At the local level, air districts have authority over stationary or industrial sources. All projects that require air quality permits from the SMAQMD are evaluated for TAC emissions. The SMAQMD limits emissions and public exposure to TACs through a number of programs. The air district prioritizes TAC-emitting stationary sources, based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. The SMAQMD requires a comprehensive health risk assessment for facilities that are classified in the significant risk category, pursuant to AB 2588.

DISCUSSION OF IMPACTS

Thresholds of Significance

For the purpose of this analysis, the following thresholds of significance, as identified by the SMAQMD or the State CEQA Guidelines (Appendix G), have been used to determine whether implementation of the proposed Project would result in significant air quality impacts. Implementation of the proposed Project would result in significant air quality impacts if it would result in:

- Short-Term Emissions of Criteria Air Pollutants. Construction-generated criteria air pollutant or precursor emissions exceed the SMAQMD-recommended threshold of 85 pounds per day (lbs/day) for NO_X or substantially contribute to emissions concentrations (e.g., PM_{10}) that exceed the NAAQS or CAAQS. When emissions of NO_X can be reduced to below 85 lbs/day with implementation of all feasible mitigation measures and offsets, other construction-generated mobile-source pollutants can be considered to be less than significant (SMAQMD 2004). The SMAQMD significance threshold for construction-generated PM_{10} is 50 $\mu g/m^3$ over a 24-hour period for PM_{10} fugitive dust combined with PM_{10} exhaust. [$\mu g/m^3$ = micrograms per cubic meter]

- Long-Term Emissions of Criteria Air Pollutants. Long-term regional criteria air pollutant or precursor emissions exceed the SMAQMD-recommended threshold of 65 lbs/day for ROG and NO_X, or substantially contribute to emissions concentrations (e.g., PM_{10}) that exceed the NAAQS or CAAQS.

- Local Carbon Monoxide Concentrations. Local mobile-source emissions exceed or substantially contribute to CO concentrations that violate the 1-hour ambient air quality standard of 20 parts per million (ppm) or the 8-hour standard of 9 ppm.

- Local Toxic Air Contaminant Concentrations. Exposure of sensitive receptors to TAC emissions exceeds 10 in one million for the Maximally Exposed Individual to contract cancer and/or a Hazard Index of one for the Maximally Exposed Individual.

- Local Odor Concentrations. Frequent exposure of a substantial number of individuals to odorous emissions would be considered significant.

a) *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

No Impact.

Roundabout Configuration Alternative

The SMAQMD coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and with SMAQMD rules and regulations, and conducts long-term planning related to air quality.

As previously stated, the Elk Grove portion of the Sacramento Valley has been designated a nonattainment area for federal and State ozone, State PM_{10}, and federal $PM_{2.5}$ air quality standards (CARB 2013). Since Sacramento County is classified as a nonattainment area for federal air quality standards, the SMAQMD is required to submit air quality plans and rate-of-progress milestone evaluations in accordance with the CAA. The SMAQMD air quality attainment plans and reports, which include the Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan (2008), the $PM_{2.5}$ State Implementation Plan, and the PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County (2010), present comprehensive strategies to reduce the ozone precursor pollutants (ROG and NO_x) as well as PM emissions from stationary, area, mobile, and indirect sources. The Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan includes information and analyses to fulfill CAA requirements for demonstrating reasonable further progress toward attaining the 8-hour ozone NAAQS for the Sacramento region. In addition, this plan establishes an updated emissions inventory and maintains existing motor vehicle emission budgets for transportation conformity purposes. The $PM_{2.5}$ State Implementation Plan attempts to fulfill EPA requirements to redesignate Sacramento County from nonattainment to attainment of the $PM_{2.5}$ NAAQS, and the PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County attempts to maintain PM_{10} attainment status.

According to SMAQMD guidance (2011), if the Project results in a change in a designated land use and corresponding substantial increases in vehicle miles traveled (VMT), the resultant increase in VMT may be unaccounted for in regional emissions inventories contained in the regional air quality control plans described above, which are based on local planning documents and general plans. Substantial increases in VMT that are not accounted for in the emissions inventory of these air quality plans may conflict with these air quality plans and therefore result in a contribution to the region's existing air quality nonattainment and/or maintenance status.

Roadway improvements do not directly generate vehicle trips. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The roundabout configuration alternative would not result in increases in the rate of trips or VMT. Rather, the proposed traffic facility improvements under this alternative provide improved access to an area with existing and anticipated congestion. The Project is considered necessary in order to reduce future congestion anticipated as approved development builds out in the City. Therefore, the Project mitigates the potential adverse impacts associated with planned growth on the existing system by improving system efficiency and reducing forecast congestion levels. As a result, implementation of the roundabout configuration alternative would not result in an increase in VMT beyond levels assumed in the City General Plan. Therefore, no impact would occur.

Signalized Intersection Alternative

As discussed under the roundabout intersection alternative discussion, the signalized intersection alternative consists of roadway improvements which would not directly generate vehicle trips, nor would it result in increases in the rate of trips or VMT. The proposed traffic facility improvements under this alternative provide improved access to an area with existing and anticipated congestion. The Project is considered necessary in order to reduce future congestion anticipated as approved development builds out in the City. Therefore, the Project mitigates the potential adverse impacts associated with planned growth on the existing system by improving system efficiency and reducing forecast congestion levels. As a result, implementation of the signalized intersection alternative would not result in an increase in VMT beyond levels assumed in the City General Plan. Therefore, no impact would occur.

b) *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Construction Emissions

Implementation of the roundabout configuration alternative would result in short-term emissions from construction activities. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. Implementation of the proposed roundabout configuration alternative would result in the temporary generation of emissions resulting from the construction activities occurring during the construction phases listed in **Table 3.3-4**. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Emissions of airborne PM are largely dependent on the amount of ground disturbance associated with site preparation activities. Construction equipment is often diesel-powered and can be a substantial source of NO_X emissions in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions.

The predicted maximum daily construction-generated emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with the construction of the roundabout configuration alternative are summarized in **Table 3.3-4**. Construction-related criteria pollutant and precursor emissions are the same for the roundabout configuration alternative as for the signalized intersection alternative. The projected criteria pollutant emissions resulting from construction activities were estimated by Michael Baker International using the California Emissions Estimator Model (CalEEMod). CalEEMod contains default values for much of the information needed to calculate emissions. However, project-specific user-supplied information can also be used when it is available. Results of the modeling conducted by Michael Baker International are included in **Appendix B**.

TABLE 3.3-4
CONSTRUCTION-RELATED CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (POUNDS PER DAY)

Construction Phases	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO_2)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Dewater Creek Segment	2.00	15.61	11.69	0.01	1.21	1.15
New Creek Channel Excavation	5.23	55.17	42.31	0.03	21.70	12.75
Existing Bridge Demolition	4.35	45.85	35.94	0.03	2.46	2.17
New Intersection/Bridge Structure Construction	4.09	36.02	21.83	0.03	2.41	2.19
Pavement Finishing of New Bridge	2.25	22.95	16.19	0.02	1.43	1.21
Roadwork on Sheldon & Bradshaw Roads (includes pedestrian path)	6.97	69.65	47.66	0.06	10.96	6.56
Roadwork Paving (includes pedestrian path)	1.95	20.33	15.36	0.02	1.24	1.07
Ancillary Facility & Utility Installation	3.15	26.44	18.76	0.02	1.89	1.70
Habitation Revegetation	2.15	22.84	14.98	0.01	7.73	4.43
SMAQMD Potentially Significant Impact Threshold	—	85 pounds/day	—	—	—	—
Exceed SMAQMD Threshold?	—	**No**	—	—	—	—

*Source: CalEEMod version 2013.2.2. See **Appendix B** for model inputs.*
Note: Construction-related criteria pollutant and precursor emissions are the same for the roundabout configuration alternative and the signalized intersection alternative.

It is important to note that actual daily emissions would vary from day to day and would be dependent on the activities occurring. Based on the modeling conducted, estimated short-term daily emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ associated with construction activities for the roundabout configuration alternative would not exceed SMAQMD significance thresholds. Furthermore, construction of the Project would be required to comply with all SMAQMD rules, ordinances, and regulations for air quality restrictions, as well as with air quality regulations contained in the California Department of Transportation's (Caltrans) Standard Specifications Section 14-9.01, General Air Quality, and Section 14-9.02, Air Pollution Control, which contain mechanisms for effective dust control. These regulations would further reduce the potential for construction emissions to result in significant impacts. Therefore, this impact would be considered less than significant.

Operational Emissions

The proposed roundabout configuration alternative does not include the provision of new permanent stationary or mobile sources of emissions; therefore, by its very nature, it will not generate quantifiable criteria emissions during operations. The roundabout configuration alternative does not propose any buildings and therefore no permanent source or stationary source emissions. In addition, roadway improvements do not directly

generate vehicle trips, a predominant source of air pollutant emissions. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The proposed roundabout configuration alternative would not result in increases in the rate of vehicle trips. Rather, the proposed improvements would provide improved circulation at the Sheldon Road/Bradshaw Road intersection, which is operating at level of service (LOS) F under current conditions, which is considered unacceptable under City of Elk Grove General Plan Policy CI-13, which requires require that all roadways and intersections in Elk Grove operate at a minimum LOS D at all times. Once the proposed improvements are implemented, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. Furthermore, the proposed roundabout configuration alternative would result in the largest amount of emissions reductions, as shown in **Table 3.3-5**.

TABLE 3.3-5
OPERATIONAL (IDLING) CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (POUNDS)

Time	Volume	Delay (sec)	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Existing Conditions (2015)							
AM Peak	1,616	172	22.0	61.8	138.4	1.2	0.6
PM Peak	1,831	224	32.5	91.2	204.2	1.8	0.9
Total of AM & PM Peak Periods			***54.6***	***153.1***	***342.5***	***3.0***	***1.5***
SMAQMD Significance Threshold			65 lbs/day	65 lbs/day	—	—	—
Exceed SMAQMD Threshold?			**No**	**Yes**	—	—	—
Year 2017 Traffic Signal Option							
AM Peak	1,713	27	3.3	9.3	20.0	0.1	0.1
PM Peak	1,942	34	4.7	13.2	28.5	0.1	0.1
Total of AM & PM Peak Periods			***7.9***	***22.5***	***48.5***	***0.2***	***0.2***
Comparison to Existing Conditions			*-46.7*	*-130.6*	*-294.0*	*-2.8*	*-1.3*
Year 2017 Roundabout Option							
AM Peak	1,713	16	1.9	5.5	11.8	0.1	0.1
PM Peak	1,942	14	1.9	5.4	11.7	0.1	0.1
Total of AM & PM Peak Periods			***3.8***	***10.9***	***23.6***	***0.1***	***0.1***
Comparison to Existing Conditions			*-50.8*	*-142.2*	*-318.9*	*-2.9*	*-1.4*
Year 2037 Traffic Signal Option							
AM Peak	2,684	37	4.6	9.6	23.8	0.0	0.0
PM Peak	3,038	36	5.1	10.6	26.3	0.1	0.1
Total of AM & PM Peak Periods			***9.7***	***20.2***	***50.1***	***0.1***	***0.1***
Comparison to Existing Conditions			*-44.9*	*-132.9*	*-292.4*	*-2.9*	*-1.4*
Year 2037 Roundabout Option							
AM Peak	2,684	17	2.1	4.4	11.0	0.0	0.0

Time	Volume	Delay (sec)	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
PM Peak	3,038	34	4.8	10.0	24.8	0.1	0.1
Total of AM & PM Peak Periods			***6.9***	***14.4***	***35.8***	***0.1***	***0.1***
Comparison to Existing Conditions			*-47.7*	*-138.7*	*-306.7*	*-2.9*	*-1.4*
Year 2037 No Build[1]							
AM Peak	2,684	172	21.4	44.7	110.8	0.2	0.2
PM Peak	3,038	224	31.5	66.0	163.4	0.3	0.3
Total of AM & PM Peak Periods			***52.8***	***110.7***	***274.2***	***0.5***	***0.5***
Comparison to Existing Conditions			*-2.1*	*-42.4*	*-68.3*	*-2.5*	*-1.0*

*Source: CalEEMod version 2013.2.2. See **Appendix B** for model inputs.*

1. The No Build scenario accounts for the same seconds of delay as existing conditions due to lack of additional information.

As shown in **Table 3.3-5**, air pollutant emissions are projected to decrease under the roundabout configuration alternative compared with existing conditions. The roundabout configuration alternative would not result in new permanent stationary or mobile sources of emissions, and as shown in **Table 3.3-4**, construction activities would not exceed SMAQMD significance thresholds. As a result, this impact would be considered less than significant.

Signalized Intersection Alternative

Construction Emissions

Implementation of the signalized intersection alternative would result in short-term emissions from construction activities. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. Implementation of the signalized intersection alternative would result in the temporary generation of emissions resulting from the construction activities occurring during the construction phases listed in **Table 3.3-4**. Construction-related criteria pollutant and precursor emissions are the same for the signalized intersection alternative as for the roundabout configuration alternative. Refer to the discussion of emissions commonly associated with construction activities for the roundabout configuration alternative, as they are the same for the signalized intersection alternative.

The predicted maximum daily construction-generated emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ associated with construction of the signalized intersection alternative are summarized in **Table 3.3-4**. The projected criteria pollutant emissions resulting from construction activities were estimated by Michael Baker International using the California Emissions Estimator Model (CalEEMod). CalEEMod contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available. Results of the modeling conducted by Michael Baker International are included in **Appendix B**.

It is important to note that actual daily emissions would vary from day to day and would be dependent on the activities occurring. Based on the modeling conducted, estimated

short-term daily emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ associated with construction activities for the signalized intersection alternative would not exceed SMAQMD significance thresholds.

Operational Emissions

The proposed signalized intersection alternative does not include the provision of new permanent stationary or mobile sources of emissions; therefore, by its very nature, it will not generate quantifiable criteria emissions from operations. The signalized intersection alternative does not propose any buildings and therefore no permanent source or stationary source emissions. In addition, roadway improvements do not directly generate vehicle trips, a predominant source of air pollutant emissions. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The proposed signalized intersection alternative would not result in increases in the rate of vehicle trips. Rather, the proposed improvements would provide improved circulation at the Sheldon Road/Bradshaw Road intersection, which is operating at LOS F under current conditions, which is considered unacceptable under City of Elk Grove General Plan Policy CI-13, which requires that all roadways and intersections in Elk Grove operate at a minimum LOS D at all times. Once the proposed improvements are implemented, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. Furthermore, the proposed signalized intersection alternative would result in the largest amount of emissions reductions as shown in **Table 3.3-5**.

As shown in **Table 3.3-5**, air pollutant emissions are projected to decrease under the signalized intersection alternative compared with existing conditions. The signalized intersection alternative would not result in new permanent stationary or mobile sources of emissions and as shown in **Table 3.3-4**, construction activities would not exceed SMAQMD significance thresholds. As a result, this impact would be considered less than significant.

c) *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Due to the region's nonattainment status for ozone and PM, the SMAQMD considers projects that are consistent with all applicable air quality plans intended to bring the basin into attainment for all criteria pollutants, and below SMAQMD significance thresholds of the ozone precursor pollutants (i.e., ROG and NO_x), to have less than significant cumulative impacts. As discussed in issue a), the proposed roundabout configuration alternative would not conflict with the Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan, the $PM_{2.5}$ State Implementation Plan, or the PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County since the roundabout configuration alternative would not result in an increase in VMT. As discussed in issue b), predicted emissions attributable to the roundabout configuration alternative would not exceed SMAQMD significance thresholds. Therefore, cumulative impacts would be less than significant per the SMAQMD significance threshold, since the

roundabout configuration alternative would not conflict with applicable air quality plans or exceed SMAQMD significance thresholds. This alternative's contribution would not be cumulatively considerable, and the impact would be considered less than significant.

Signalized Intersection Alternative

Due to the region's nonattainment status for ozone and PM, the SMAQMD considers projects that are consistent with all applicable air quality plans intended to bring the basin into attainment for all criteria pollutants, and below SMAQMD significance thresholds of the ozone precursor pollutants (i.e., ROG and NO_x), to have less than significant cumulative impacts. As discussed in issue a), the proposed signalized intersection alternative would not conflict with the Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan, the $PM_{2.5}$ State Implementation Plan, or the PM_{10} Implementation/Maintenance Plan and Redesignation Request for Sacramento County since the signalized intersection alternative would not result in an increase in VMT. As discussed in issue b), predicted emissions attributable to the proposed signalized intersection alternative would not exceed SMAQMD significance thresholds. Therefore, cumulative impacts would be less than significant per the SMAQMD significance threshold, since the signalized intersection alternative would not conflict with applicable air quality plans or exceed SMAQMD significance thresholds. This alternative's contribution would not be cumulatively considerable, and the impact would be considered less than significant.

d) *Would the project expose sensitive receptors to substantial pollutant concentrations?*

The closest sensitive receptors in the Project area are the residences along Sheldon Road and Bradshaw Road near the Sheldon Road/Bradshaw Road intersection.

Less Than Significant Impact.

Roundabout Configuration Alternative

Sensitive land uses are generally defined as locations where people reside or where the presence of air emissions could adversely affect the use of the land. Typical sensitive receptors include residents, schoolchildren, hospital patients, and the elderly. The City of Elk Grove General Plan considers residences to be sensitive receptors in relation to air quality issues. The proposed intersection improvements would occur near residential land uses in Elk Grove.

Construction activities would involve the use of a variety of gasoline- and diesel-powered equipment that emits exhaust fumes. Sensitive receptors in the Project vicinity could be exposed to nuisance dust and heavy equipment emissions (i.e., diesel exhaust) during construction. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to toxic air contaminant emission levels that exceed applicable standards). Construction activities would be subject to SMAQMD Rule 403, which requires taking reasonable precautions, such as using water or chemicals for control of dust during construction operations to prevent the emissions of the air toxic fine particulate matter. In addition, as discussed above, construction activities would be subject to the air quality regulations contained in Caltrans' Standard Specifications Section 14-9.01, General Air Quality, and Section 14-9.02, Air Pollution Control, which contain mechanisms for effective dust control. Implementation of Rule 403 and Caltrans'

Standard Specifications would ensure the construction of the roundabout configuration alternative would result in less than significant dust-related impacts. Health-related risks associated with diesel exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. Concentrations of mobile-source diesel exhaust emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. Due to the short, temporary nature of constructing the roundabout configuration alternative, potential health risk impacts from diesel exhaust would be less than significant.

Once the roundabout configuration alternative is constructed, there would be no greater potential for substantial pollutant concentrations than currently exist. This is because implementation of the roundabout configuration alternative would not result in new permanent stationary or mobile sources of emissions. The roundabout configuration alternative does not propose any buildings and therefore no permanent source of stationary source emissions. In addition, roadway improvements do not directly generate vehicle trips. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The roundabout configuration alternative would not result in increases in the rate of trips or VMT, and thus would not result in increases in mobile-source air toxics. This impact is less than significant.

Signalized Intersection Alternative

Refer to the discussion for the roundabout configuration alternative. Impacts to sensitive receptors would be the same for the signalized intersection alternative as for the roundabout configuration alternative discussed above. Therefore, impacts would be less than significant.

e) *Would the project create objectionable odors affecting a substantial number of people?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

Construction of the proposed roundabout configuration alternative would involve the use of a variety of gasoline- or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel exhaust, may be considered objectionable by some people. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly with increasing distance from the source. Additionally, SMAQMD Rule 402 addresses the exposure of emissions that may cause nuisance to any substantial number of people. The proposed roundabout configuration alternative would be subject to Rule 402, and any objectionable odors

resulting from the roundabout configuration alternative would be short term and limited to the construction period. Furthermore, idling times of construction equipment would be minimized as required by the State airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations). As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. In addition, the roundabout configuration alternative would not result in the installation of any equipment that would be considered major odor-emission sources. As a result, potential exposure of sensitive receptors to odorous emissions would be considered less than significant.

Signalized Intersection Alternative

Refer to the discussion of objectionable odor impacts of the roundabout configuration alternative. Construction of the proposed signalized intersection alternative would involve the use of a variety of gasoline- and diesel-powered equipment that would emit exhaust fumes. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly with increasing distance from the source. Additionally, SMAQMD Rule 402 addresses the exposure of emissions that may cause nuisance to any substantial number of people. The proposed signalized intersection alternative would be subject to Rule 402, and any objectionable odors resulting from the signalized intersection alternative would be short term and limited to the construction period. Furthermore, idling times of construction equipment would be minimized as required by the State airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations). As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. In addition, the signalized intersection alternative would not result in the installation of any equipment that would be considered major odor-emission sources. As a result, potential exposure of sensitive receptors to odorous emissions would be considered less than significant.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.4 BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

This section describes the natural resources present within and immediately surrounding the Project site and includes a discussion of the special-status species and sensitive habitats potentially occurring in the area. Also included is an analysis of impacts that could occur to biological resources due to implementation of the proposed Project and appropriate mitigation measures to reduce or avoid those impacts. The analysis of biological resources presented in this section is based on a review of the current Project description and the Natural Environment Study, Biological Assessment, and Wetland Delineation prepared for the Project (included in **Appendix C**) and available literature, as well as site visits and surveys conducted by Michael Baker International biologists.

ENVIRONMENTAL SETTING

A Michael Baker International biologist (subcontractor to the City) conducted an evaluation of the Project to characterize the environmental setting on and adjacent to the Project site. The evaluation involved a thorough query of available data and literature from local, State, federal,

and nongovernmental agencies and site surveys to collect site-specific data regarding habitat suitability for special-status species and identify any potentially jurisdictional waters.

Database searches were performed on the following websites:

- US Fish and Wildlife Service (USFWS) Sacramento Office Species List (2014a)
- USFWS Critical Habitat Portal (2014b)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (2014a)
- California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (2014)

A search of the USFWS Sacramento office's Species Lists database was performed for the Sloughhouse, Clay Elk Grove, Florin, Bruceville, Galt, Buffalo Creek, Sacramento East, and Carmichael, California, US Geological Survey (USGS) 7.5-minute quadrangles (quads) to identify federally listed species under USFWS jurisdiction that may be affected by the proposed Project. In addition, a query of the USFWS's Critical Habitat Portal was conducted to identify any designated critical habitat on or in the vicinity of the Project area. The CNDDB provided a list of processed and unprocessed occurrences of special-status species identified in the aforementioned USGS quads. The CNPS database was also queried to identify special-status plant species with the potential to occur in the aforementioned USGS quads. The raw data returned from the database queries is provided in **Appendix C**.

The area of potential effect (APE), further defined in subsection 3.5, Cultural Resources, was used as the biological study area (BSA) for the proposed Project (**Figure 3.4-1**). The boundary of the BSA includes all areas that could be impacted by the Project, plus a buffer to accommodate any changes to Project limits and design that may occur during Project development. The BSA is characterized by rural residential/urban development and active agricultural lands. Most of these areas have been modified from their former natural condition and are currently subject to routine disturbance from ongoing drainage channel maintenance activities and nearby urban and residential uses.

REGULATORY SETTING

Federal

Endangered Species Act

The Endangered Species Act of 1973 (ESA), as amended, provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code (USC) Sections 1531–1544). The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Title 50, Part 222, of the Code of Federal Regulations (50 CFR Section 222) further defines "harm" to include "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including feeding, spawning, rearing, migrating, feeding, or sheltering."

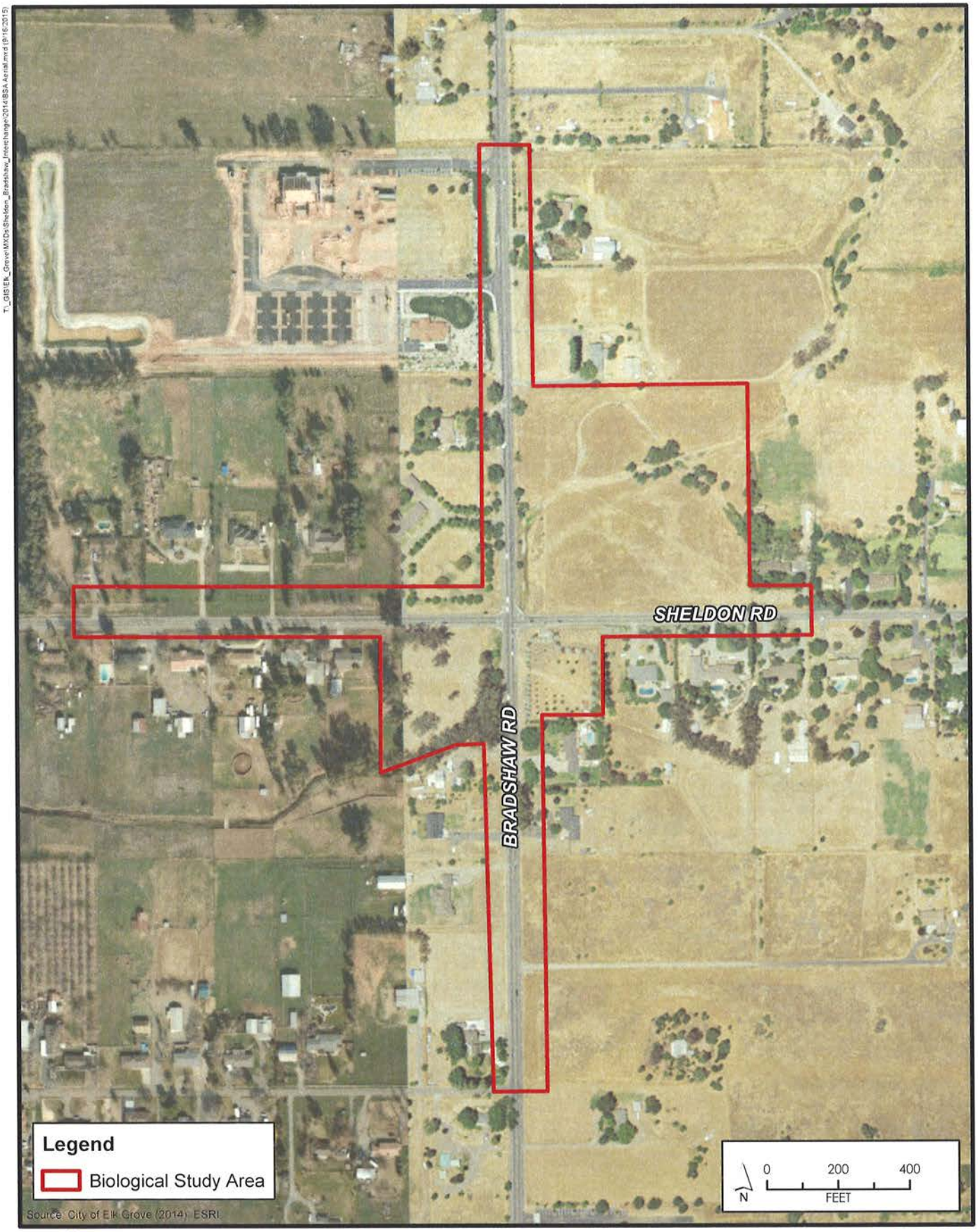

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Figure 3.4-1

Biological Study Area

ESA Section 7(a)(1) requires federal agencies to utilize their authority to further the conservation of listed species. ESA Section 7(a)(2) requires consultation with the USFWS or the National Marine Fisheries Service (NMFS) if a federal agency undertakes, funds, permits, or authorizes (termed the federal nexus) any action that may affect endangered or threatened species, or designated critical habitat. For projects that may result in the incidental take of threatened or endangered species, or critical habitat, and that lack a federal nexus, a Section 10(a)(1)(b) incidental take permit can be obtained from the USFWS and/or the NMFS.

Clean Water Act

The basis of the Clean Water Act (CWA) was established in 1948; however, it was referred to as the Federal Water Pollution Control Act. The act was reorganized and expanded in 1972 (33 USC Section 1251), and at that time the Clean Water Act became the act's commonly used name. The basis of the CWA is the regulation of pollutant discharges into waters of the United States, as well as the establishment of surface water quality standards.

Section 404

CWA Section 404 (33 USC Section 1344) established the program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Under this regulation, certain activities proposed in waters of the United States require that a permit be obtained prior to initiation. These activities include but are not limited to placement of fill for the purposes of development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and bridges), and mining operations.

The primary objective of this program is to ensure that the discharge of dredged or fill material is not permitted if a practicable alternative to the proposed activities exists that results in less impact to waters of the United States, or the proposed activity would result in significant adverse impacts to these waters. To comply with these objectives, a permittee must document the measures taken to avoid and minimize impacts to waters of the United States and provide compensatory mitigation for any unavoidable impacts.

The EPA and the USFWS are assigned roles and responsibilities in the administration of this program; however, the US Army Corps of Engineers (USACE) is the lead agency in the administration of day-to-day activities, including issuance of permits. The agencies will typically assert jurisdiction over the following waters: (1) traditional navigable waters (TNW); (2) wetlands adjacent to TNWs; (3) relatively permanent waters (RPW) that are non-navigable tributaries to TNWs and have relatively permanent flow or seasonally continuous flow (typically three months); and (4) wetlands that directly abut RPWs. Case-by-case investigations are usually conducted by the agencies to ascertain their jurisdiction over waters that are non-navigable tributaries and do not contain relatively permanent or seasonal flow, wetlands adjacent to the aforementioned features, and wetlands adjacent to but not directly abutting RPWs (USACE 2007). Jurisdiction is not generally asserted over swales or erosional features (e.g., gullies or small washes characterized by low volume/short duration flow events) or ditches constructed wholly within and draining only uplands that do not have relatively permanent flows.

The extent of jurisdiction in waters of the United States that lack adjacent wetlands is determined by the ordinary high water mark, which is defined in 33 CFR Section 328.3(e) as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." Wetlands are further defined under 33

CFR Section 328.3 and 40 CFR Section 230.3 as "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" and typically include "swamps, marshes, bogs, and similar areas." The 1987 Corps of Engineers Wetland Delineation Manual (1987 Manual) sets forth a standardized methodology for delineating the extent of wetlands under federal jurisdiction (USACE 1987).

The 1987 Manual outlines three parameters that all wetlands, under normal circumstances, must contain positive indicators to be considered jurisdictional. These parameters include (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils (USACE 1987). In 2006, the USACE issued a series of regional supplements to address regional differences that are important to the functioning and identification of wetlands. The supplements present "wetland indicators, delineation guidance, and other information" that is specific to the region. The USACE requires that wetland delineations submitted after June 5, 2007, be conducted in accordance with both the 1987 Manual and the applicable supplement.

Section 401

Under CWA Section 401 (33 USC Section 1341), federal agencies are not authorized to issue a permit and/or license for any activity that may result in discharges to waters of the United States, unless a state or tribe where the discharge originates either grants or waives CWA Section 401 certification. CWA Section 401 provides states or tribes with the ability to grant, grant with conditions, deny, or waive certification. Granting certification, with or without conditions, allows the federal permit/license to be issued and remain consistent with any conditions set forth in the CWA Section 401 certification. Denial of the certification prohibits the issuance of the federal license or permit, and waiver allows the permit/license to be issued without state or tribal comment. Decisions made by states or tribes are based on a project's compliance with EPA water quality standards as well as applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and any other appropriate requirements of state or tribal law. In California, the State Water Resources Control Board is the primary regulatory authority for CWA Section 401 requirements (additional details below).

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). The majority of birds found in the Project vicinity would be protected under the MBTA.

Executive Order 11990, Protection of Wetlands (42 FR 26961, 25 May 1977)

Executive Order 11990 requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid undertaking or providing support for new construction located in wetlands unless (1) no practicable alternative exists, and (2) all practical measures have been taken to minimize harm to wetlands.

Fish and Wildlife Coordination Act of 1958 (16 USC 661 et seq.)

The Fish and Wildlife Coordination Act requires that whenever any body of water is proposed or authorized to be impounded, diverted, or otherwise controlled or modified, the lead federal

agency must consult with the USFWS, the state agency responsible for fish and wildlife management, and the NMFS. Section 662(b) of the act requires the lead federal agency to consider the recommendations of the USFWS and other agencies. The recommendations may include proposed measures to mitigate or compensate for potential damages to wildlife and fisheries associated with a modification of a waterway.

Executive Order 13112 – Invasive Species

This executive order directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, the USFWS and the USACE would issue permits and therefore would be responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

State

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code [FGC] Section 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of "species of special concern," which serve as species "watch lists."

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present and determine whether a proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of the CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from the CDFW would be in the form of an incidental take permit.

California Fish and Game Code

Streambed Alteration Agreement (FGC Sections 1600–1607)

State and local public agencies are subject to FGC Section 1602, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as waters of the State by the CDFW. Under FGC Section 1602, a discretionary Streambed Alteration Agreement must be issued by the CDFW to the project proponent prior to the initiation of construction activities on lands under CDFW jurisdiction. As a general rule, this requirement applies to any work undertaken in the 100-year floodplain of a stream or river containing fish or wildlife resources.

Native Plant Protection Act

The Native Plant Protection Act (FGC Sections 1900–1913) prohibits the taking, possessing, or sale in the State of any plants with a State designation of rare, threatened, or endangered (as defined by the CDFW). An exception in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFW and give that agency at least 10 days to retrieve the plants before they are plowed under or otherwise destroyed (FGC Section 1913). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the project.

Birds of Prey

Under FGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Fully Protected Species

California statutes also afford "fully protected" status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit. FGC Section 3505 makes it unlawful to take "any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird." FGC Section 3511 protects from take the following fully protected birds: (a) American peregrine falcon (*Falco peregrinus anatum*); (b) brown pelican (*Pelecanus occidentalis*); (c) California black rail (*Laterallus jamaicensis coturniculus*); (d) California clapper rail (*Rallus longirostris obsoletus*); (e) California condor (*Gymnogyps californianus*); (f) California least tern (*Sterna albifrons browni*); (g) golden eagle (*Aquila chrysaetos)*; (h) greater sandhill crane (*Grus canadensis tabida*); (i) light-footed clapper rail (*Rallus longirostris levipes*); (j) southern bald eagle (*Haliaeetus leucocephalus leucocephalus*); (k) trumpeter swan (*Cygnus buccinator*); (l) white-tailed kite (*Elanus leucurus*); and (m) Yuma clapper rail (*Rallus longirostris yumanensis*).

FGC Section 4700 identifies the following fully protected mammals that cannot be taken: (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); (b) bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*); (c) Guadalupe fur seal (*Arctocephalus townsendi*); (d) ring-tailed cat (genus *Bassariscus*); (e) Pacific right whale (*Eubalaena sieboldi*); (f) salt-marsh harvest mouse (*Reithrodontomys raviventris*); (g) southern sea otter (*Enhydra lutris nereis*); and (h) wolverine (*Gulo gulo*).

FGC Section 5050 protects from take the following fully protected reptiles and amphibians: (a) blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*); (b) San Francisco garter snake (*Thamnophis sirtalis tetrataenia*); (c) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); (d) limestone salamander (*Hydromantes brunus*); and (e) black toad (*Bufo boreas exsul*).

FGC Section 5515 identifies certain fully protected fish that cannot lawfully be taken, even with an incidental take permit. The following species are protected in this fashion: (a) Colorado River squawfish (*Ptychocheilus lucius*); (b) thicktail chub (*Gila crassicauda*); (c) Mohave chub (*Gila mohavensis*); (d) Lost River sucker (*Catostomus luxatus*); (e) Modoc sucker (*Catostomus microps*); (f) shortnose sucker (*Chasmistes brevirostris*); (g) humpback sucker (*Xyrauchen*

texanus); (h) Owens River pupfish (*Cyprinoden radiosus*); (i) unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*); and (j) rough sculpin (*Cottus asperrimus*).

California Wetlands and Other Waters Policies

The California Resources Agency and its various departments do not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all of the following conditions are met:

- The project is water-dependent.
- No other feasible alternative is available.
- The public trust is not adversely affected.
- Adequate compensation is proposed as part of the project.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; California Code of Regulations [CCR] Title 23, Chapter 3, Subchapter 15) is the primary State regulation that addresses water quality. The requirements of the act are implemented by the State Water Resources Control Board at the State level and at the local level by the Regional Water Quality Control Board (RWQCB). The RWQCB carries out planning, permitting, and enforcement activities related to water quality in California. The act provides waste discharge requirements and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Clean Water Act, Section 401 Water Quality Certification

CWA Section 401 (33 USC Section 1341) requires that any applicant for a federal license or permit that may result in a pollutant discharge to waters of the United States obtain a certification that the discharge will comply with EPA water quality standards. The State or tribal agency responsible for issuance of the Section 401 certification may also require compliance with additional effluent limitations and water quality standards set forth in State/tribal laws. In California, the RWQCB is the primary regulatory authority for CWA Section 401 requirements.

The Central Valley RWQCB is responsible for enforcing water quality criteria and protecting water resources in the Project area. In addition, the RWQCB is responsible for controlling discharges to surface waters of the State by issuing waste discharge requirements (WDR) or commonly by issuing conditional waivers to WDR. The RWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for CWA Section 404 permits issued by the US Army Corps of Engineers.

Delegated Permit Authority

California has been delegated permit authority for the National Pollutant Discharge Elimination System (NPDES) permit program including stormwater permits for all areas except tribal lands. Issuance of CWA Section 404 dredge and fill permits remains the responsibility of the USACE; however, the State actively uses its CWA Section 401 certification authority to ensure CWA Section 404 permits are in compliance with State water quality standards.

State Definition of Covered Waters

Under California law, "waters of the State" means any surface water or groundwater, including saline waters, within the boundaries of the State. Therefore, water quality laws apply to both surface water and groundwater. After the US Supreme Court decision in *Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, the Office of Chief Counsel of the State Water Resources Control Board released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act (Porter-Cologne), discharges to wetlands and other waters of the State are subject to State regulation, and this includes isolated wetlands. In general, the SWRCB regulates discharges to isolated waters in much the same way as it does for waters of the United States, using Porter-Cologne rather than Clean Water Act authority.

Local

City of Elk Grove Tree Preservation and Protection Code (Elk Grove Municipal Code Chapter 19.12)

Chapter 19.12 of the Elk Grove Municipal Code, Tree Preservation and Protection, strives to protect and preserve trees of local importance, including coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), blue oak (*Q. douglasii*), interior live oak (*Q. wislizeni*), oracle oak (*Q. x moreha*), California sycamore (*Platanus racemosa*), and black walnut (*Juglans hindsii*) with a single trunk 6 inches diameter at breast height or greater or a multi-trunk with a combined diameter at breast height of 6 inches or greater. Chapter 19.12 requires mitigation for the removal of trees of local importance with the dimensions described above, trees that have been selected for preservation, all portions of adjacent off-site native trees that have driplines that extend onto a project site, and all off-site native trees that may be impacted by utility installation and/or improvements associated with a project. Current policies require that every inch lost will be mitigated by an inch planted or equivalent credit obtained from a tree mitigation bank.

City of Elk Grove Swainson's Hawk Impact Mitigation Fees (Elk Grove Municipal Code Chapter 16.130)

Chapter 16.130 Elk Grove Municipal Code, Swainson's Hawk Impact Mitigation Fees, requires mitigation for the loss of Swainson's hawk habitat at a 1:1 ratio. Mitigation can be achieved through the payment of a fee, which is used to fund the City's Swainson's hawk habitat restoration program. Other options for achieving mitigation through the code include the direct transfer to the City of a Swainson's hawk habitat conservation easement along with an easement monitoring endowment or the purchase of credits at a CDFW-approved conservation bank. The site must be surveyed to determine whether it is suitable Swainson's hawk foraging habitat.

City of Elk Grove General Plan

The City's General Plan identifies specific goals, objectives, and policies regarding natural resources (City of Elk Grove 2003a). The General Plan serves as the overall guiding policy document for land use, development, and environmental quality for the City. The Conservation and Air Quality Element and the Parks, Trails, and Open Space Element include goals and policies to preserve, protect, enhance, and promote the City's valuable natural resources. The General Plan identifies specific goals and policies regarding biological and natural resources. The following policies are applicable to the proposed Project:

Policy CAQ-8: Large trees (both native and non-native) are an important aesthetic (and in some cases, biological) resource. Trees which function as an important part of the City's or a neighborhood's aesthetic character or as natural habitat should be retained to the extent possible during the development of new structures, roadways (public and private, including roadway widening), parks, drainage channels, and other uses and structures.

Policy CAQ-9: Wetlands, vernal pools, marshland, and riparian (streamside) areas are considered to be important resources. Impacts to these resources shall be avoided unless shown to be technically infeasible. The City shall seek to ensure that no net loss of wetland areas occurs, which may be accomplished by avoidance, re-vegetation and restoration on-site or creation of riparian habitat corridors.

Policy PTO-5: The City views open space lands of all types as an important resource which should be preserved in the region, and supports the establishment of multipurpose open space areas to address a variety of needs, including, but not limited to:

- Maintenance of agricultural uses
- Wildlife habitat
- Recreational open space
- Aesthetic benefits
- Flood control

To the extent possible, lands protected in accordance with this policy should be in proximity to Elk Grove to facilitate use of these areas by Elk Grove residents, assist in mitigation of habitat loss within the City, and provide an open space resource close to the urbanized areas of Elk Grove.

Nongovernmental Agency

California Native Plant Society

The CNPS is a nongovernmental agency that classifies native plant species according to current population distribution and threat level in regard to extinction. The CNPS utilizes the data to create/maintain a list of native California plants that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2014). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

The following identifies the definitions of the CNPS listings:

List 1A: Plants believed to be extinct

List 1B: Plants that are rare, threatened, or endangered in California and elsewhere

List 2B: Plants that are rare, threatened, or endangered in California, but are more numerous elsewhere

All of the plant species on List 1 and 2 meet the requirements of the Native Plant Protection Act, Section 1901, Chapter 10, or FGC Sections 2062 and 2067, and are eligible for State listing. Plants appearing on List 1 or 2 are considered to meet the criteria of CEQA Section 15380, and effects on these species are considered "significant." Classifications for plants on List 3 (plants about which more information is needed) and/or List 4 (plants of limited distribution), as defined by the CNPS, are not currently protected under State or federal law. Therefore, no detailed descriptions are provided or impact analysis was performed on species with these classifications.

DISCUSSION OF IMPACTS

a) *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?*

Less Than Significant Impact With Mitigation Incorporated. Candidate, sensitive, or special-status species are commonly characterized as species that are at potential risk to their persistence in a given area or across their range. These species have been identified and assigned a status ranking by governmental agencies such as the CDFW, the USFWS, and nongovernmental organizations such as the CNPS. The degree to which a species is at risk of extinction is the determining factor in the assignment of a status ranking. Some common threats to a species' or population's persistence include habitat loss, degradation, and fragmentation, as well as human conflict and intrusion. For the purposes of this biological review, special-status species are defined by the following codes:

1) Listed, proposed, or candidates for listing under the federal Endangered Species Act (50 CFR 17.11 – listed; 61 Federal Register [FR] 7591, February 28, 1996, candidates)

2) Listed or proposed for listing under the California Endangered Species Act (FGC 1992 Section 2050 et seq.; 14 CCR Section 670.1 et seq.)

3) Designated as Species of Special Concern by the CDFW

4) Designated as Fully Protected by the CDFW (FGC Sections 3511, 4700, 5050, and 5515)

5) Species that meet the definition of rare or endangered under CEQA (14 CCR Section15380) including CNPS List Rank 1B and 2

Roundabout Configuration Alternative

The query of the USFWS, CNPS, and CNDDB databases, combined with site visits and surveys, identified habitat for special-status species with the potential to occur in the BSA. Refer to **Figure 3.4-2** for the roundabout configuration alternative impact map and to **Figure 3.4-3** for a depiction of CNDDB occurrences within 1 mile of the BSA. The Natural Environment Study prepared for the proposed Project and included in **Appendix C** provides a summary of all special-status species identified in the search results, a description of the habitat requirements for each species, and conclusions regarding the potential for each species to be impacted by the roundabout configuration alternative.

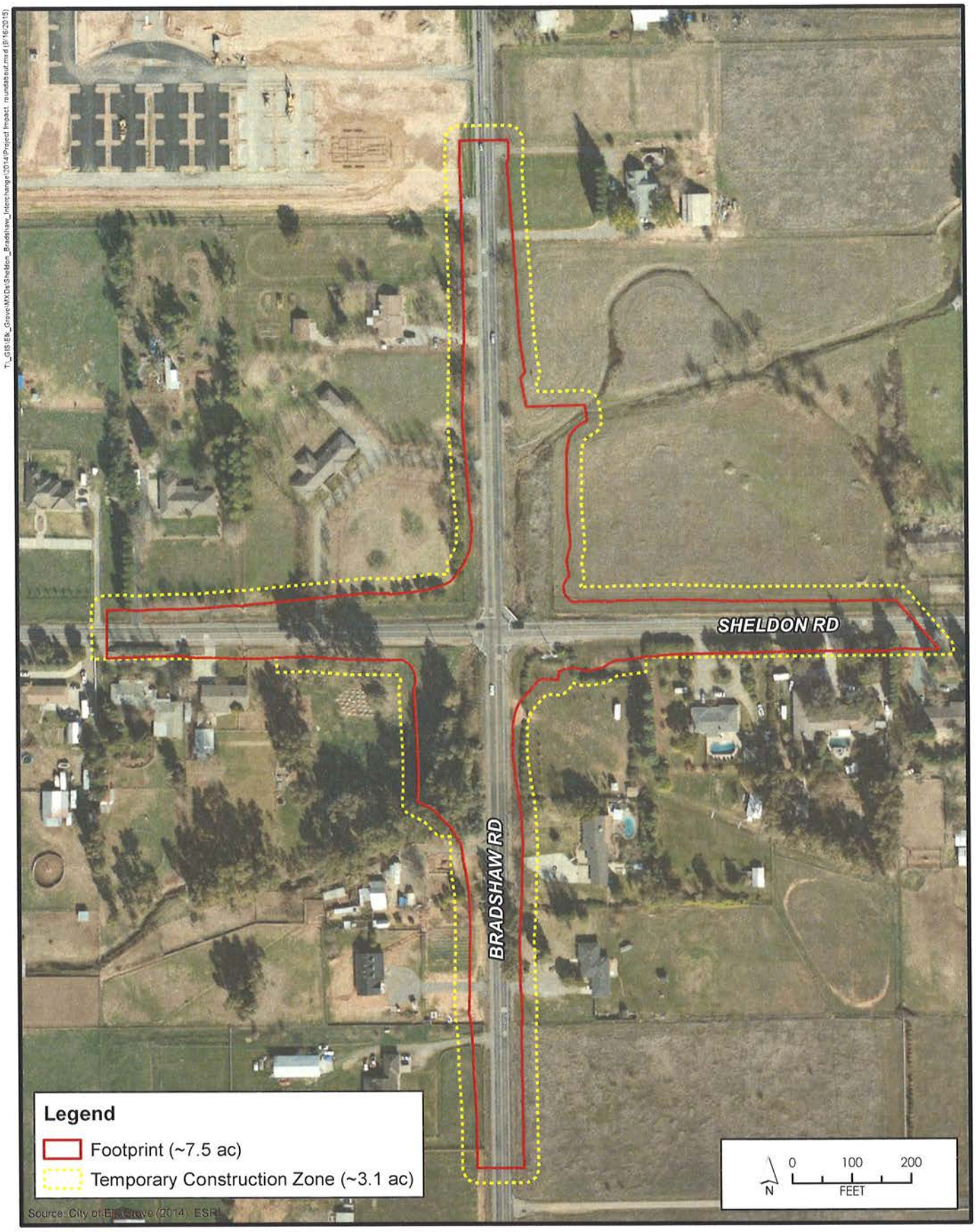

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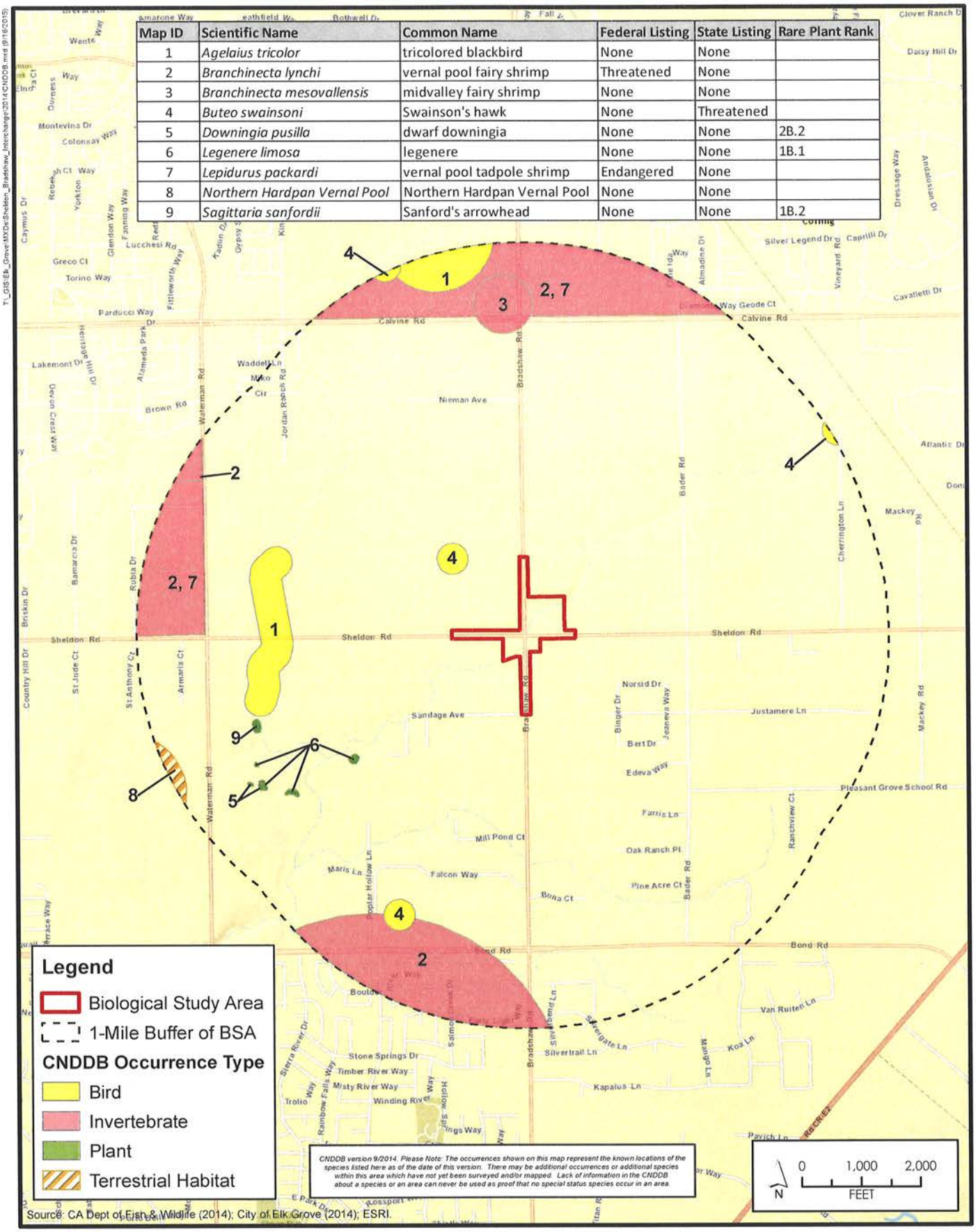
Figure 3.4-2

Roundabout Configuration Alternative Impact



City of Elk Grove
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Figure 3.4-3
CNDDB Occurrences of Special-Status Species
Within 1 Mile of Biological Study Area

Special-Status Plant Species

One special-status plant species was identified as having the potential to occur in the BSA: Sanford's arrowhead (*Sagittaria sanfordii*). Focused rare plant surveys have not been conducted for the Project, so it is unknown whether Sanford's arrowhead occurs in the BSA. If Sanford's arrowhead is present in the roundabout configuration alternative footprint and/or temporary construction zone (TCZ), individuals may be directly impacted by trampling, compaction, or removal. Sanford's arrowhead generally may occur below the ordinary high water mark (OHWM) of Laguna Creek or along the edges of the creek in the Project area. The proposed roundabout configuration alternative would result in 0.06 acre of direct impact and 0.3 acre of temporary impact to Laguna Creek. In addition, if dewatering occurs, these activities may also indirectly impact Sanford's arrowhead if present in the area of the creek that will be dewatered.

Implementation of mitigation measure **MM 3.4.1** will result in avoidance of the species where possible though Project design. Mitigation measure **MM 3.4.2** will require surveys prior to Project grading to identify whether the species persists in the Project area. Mitigation measures **MM 3.4.3** and **MM 3.4.4** will ensure the species, if present, will be avoided and is further protected through exclusionary fencing and contractor's awareness training. Implementation of mitigation measure **MM 3.4.5** will be applicable if the species cannot be avoided. Mitigation measure **MM 3.4.5** will result in preserving the population or genome of the population through salvage, transplantation, and/or propagation. Therefore, implementation of mitigation measures **MM 3.4.1** through **MM 3.4.5** will reduce impacts to special-status plant species to less than significant.

Special-Status Animal Species

Based on the results of the literature review and habitat assessment, six special-status wildlife species have the potential to occur in the vicinity of the BSA: giant garter snake (*Thamnophis gigas*), western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and western red bat (*Lasiurus blossevillii*) (Caltrans 2015b). Individual discussions of these species or guilds are presented below.

Giant Garter Snake

The giant garter snake is federally and State-listed as threatened. The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, other waterways, agricultural wetlands, such as irrigation and drainage canals and rice fields, and adjacent uplands (USFWS 2014). The main stem of Laguna Creek, approximately one-half mile southwest of the BSA, is the closest feature that provides all essential habitat components for giant garter snakes. The portion of Laguna Creek in the BSA lacks an adequate hydroperiod to support giant garter snakes during their active period. The closest occurrence of giant garter snake is approximately 3.2 miles southwest of the action area for the Project and east of State Route 99 (CDFW 2014b). Refer to **Figure 3.4-4** for a map of giant garter snake occurrences in the vicinity of the BSA. This occurrence is located near Elk Grove Creek, which is separated from Laguna Creek by extensive development. No aquatic features containing essential habitat components connect Laguna Creek and Elk Grove Creek, east of SR 99. The closest extant occurrence of giant garter snake on Laguna Creek is located approximately 9.8 river miles west of the action area for the Project. There are two possibly extirpated occurrences on Laguna Creek west of the action area for the Project and SR 99.

Because of the distance between the barriers (e.g., roads) between this occurrence and the action area for the Project, as well as the lack of suitable dispersal habitat between the action area for the Project and the extant occurrence near Elk Grove Creek, the presence of giant garter snake in the action area for the Project is considered unlikely.

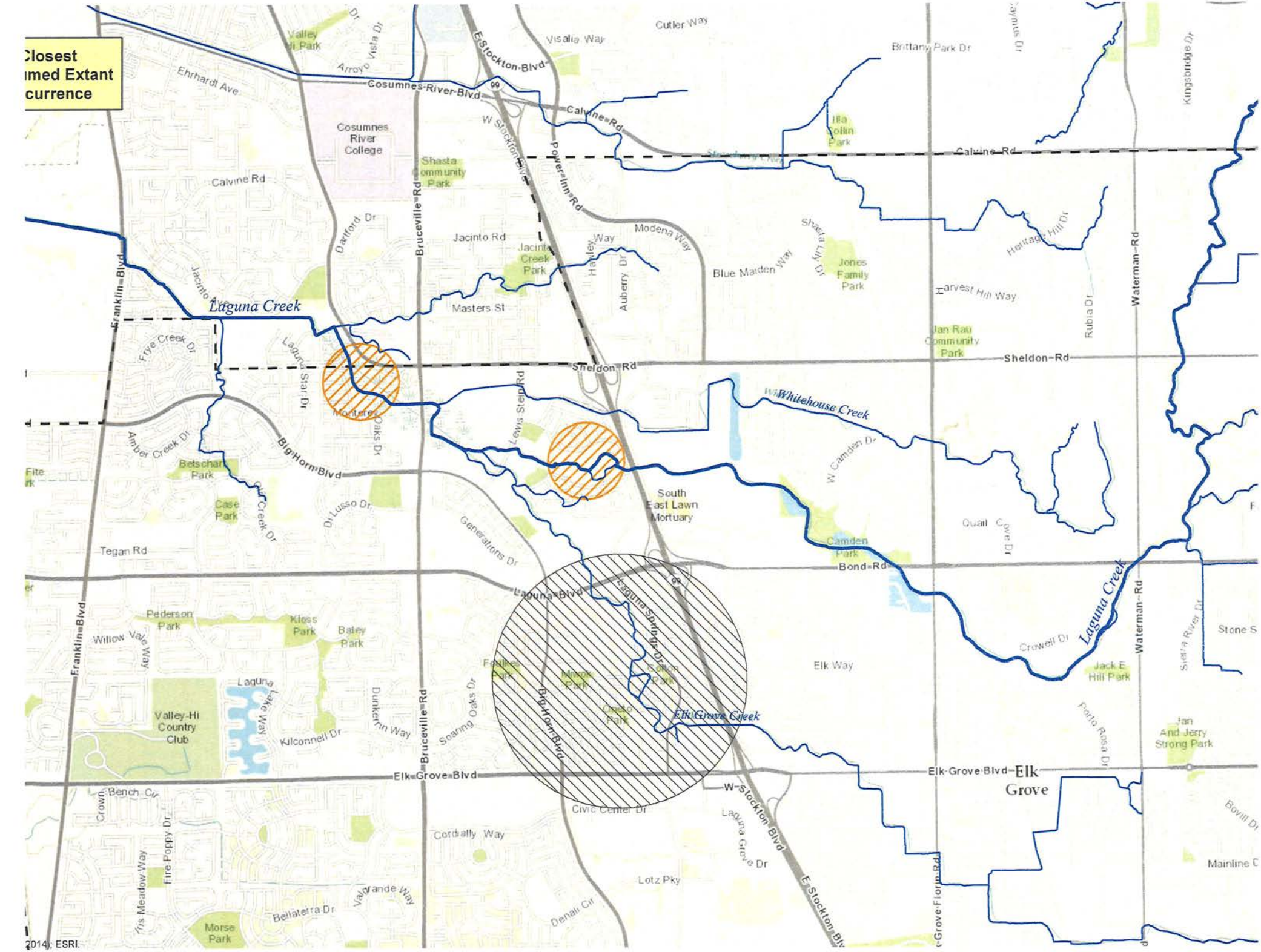
The proposed roundabout configuration alternative will result in permanent impacts to Laguna Creek as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur in Laguna Creek as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of Laguna Creek. Implementation of **MM 3.4.1** through **MM 3.4.4** will ensure avoidance of the species through surveys, site design, and exclusionary fencing (see discussion under Special-Status Plant Species above).

Implementation of mitigation measure **MM 3.4.22** will ensure initial ground-disturbing activities will occur during the snake's active period, reducing the potential to harm snakes taking shelter underground. Implementation of mitigation measures **MM 3.4.23** and **MM 3.4.24** will protect the species by requiring surveys and monitoring to determine if snakes persist on the site or if snakes have entered the Project site during construction. If giant garter snakes are observed on-site, the USFWS will be contacted to determine appropriate procedures for removal of the snake. Implementation of mitigation measure **MM 3.4.25** will ensure the safety of a snake, should one be on-site, by maintaining a slow speed limit throughout the Project site. Implementation of mitigation measure **MM 3.4.26** will ensure that the creek is dry when work begins. Giant garter snakes are aquatic foragers and will be discouraged from utilizing the area, further minimizing the risk of encounters with giant garter snakes. Mitigation measure **MM 3.4.27** ensures that the Project uses appropriate erosion control matting that will not trap or entangle snakes. Implementation of mitigation measures **MM 3.4.1** through **MM 3.4.4** and **MM 3.4.22** through **MM 3.4.27** will minimize the opportunity for effects to giant garter snake and result in a less than significant impact to the species.

Raptors and Migratory Birds

Various migratory birds and raptor species have the potential to inhabit the Project vicinity. Western burrowing owl, Swainson's hawk, northern harrier, and white-tailed kite are afforded additional protection under State law. Swainson's hawk is listed in California as a threatened species under the CESA. The western burrowing owl and northern harrier are California species of special concern. The white-tailed kite is a California fully protected species. Some raptor and migratory bird species, such as red-tailed hawk, American kestrel, and oak titmouse, are not considered special-status species because they are not rare or protected under the Endangered Species Act or the CESA; however, the nests of all raptor species are protected under the Migratory Bird Treaty Act and FGC Section 3503.5.

The nests of all migratory birds are protected under the MBTA, which makes it illegal to destroy any active migratory bird nest. The trees found in the BSA and in the vicinity provide potential nesting habitat for raptors and migratory birds that occur in the region. In addition, the annual grasslands located within and adjacent to the BSA represent suitable foraging habitat for the Swainson's hawk and other raptor species, as well as suitable nesting habitat for western burrowing owl.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Cosumnes River College
Shasta Community Park
Calvine Rd
Jacinto Creek Park
Laguna Creek
Masters St
Sheldon Rd
Whitehouse Creek
Betschart Park
Case Park
Big Horn Blvd
South East Lawn Mortuary
Tegan Rd
Bond Rd
Laguna Blvd
Pederson Park
Kloss Park
Baley Park
Valley-Hi Country Club
Laguna Lake Park
Elk Grove Creek
Elk Grove Blvd
Elk Grove
Civic Center Dr
Cordially Way
Lotz Pky
Morse Park
Jack E. Hill Park
Jan And Jerry Strong Park
Jan Rau Community Park
Jones Family Park
Camden Park
Franklin Blvd
Bruceville Rd
Waterman Rd
E Stockton Blvd
W Stockton Blvd
Power Inn Rd
Cosumnes River Blvd
Ehrhardt Ave
Visalia Way
Cutler Way
Brittany Park Dr
Kingsbridge Dr
Modena Way
Blue Maiden Way
Harvest Hill Way
Heritage Hill Dr
Rubia Dr
Auberry Dr
Hayley Way
Jacinto Rd
Darford Dr
Laguna Star Dr
Monterey Oaks Dr
Lewis Stein Rd
W Camden Dr
Quail Cove Dr
Crowell Dr
Sierra River Dr
Stone S
Elk Way
Generations Dr
Di Lusso Dr
Amber Creek Dr
Frye Creek Dr
Willow Valley Way
Kilconnell Dr
Dunkerrin Way
Soaring Oaks Dr
Crown Bench Cir
Fire Poppy Dr
Iris Meadow Way
Bellaterra Dr
Valverde Way
Denali Cir
Laguna Grove Dr
Porto Rosa Dr
Bovill Dr
Mainline D
Laguna Springs Dr
Orion Park
Nimrod Park
Omelo Park
Foothills Park
Arroyo Vista Dr
Valley Hi Park
2014), ESRI.

The BSA contains several large trees suitable for nesting, which may be removed during construction activities. If nesting migratory birds and/or raptors are present during Project construction, the proposed roundabout configuration alternative may cause direct mortality through the removal of trees that contain active nests. Excessive noise, disturbance, and vibrations can cause nesting raptors and birds to abandon their nests. The loss of active nests or direct mortality is prohibited by the MBTA and FGC Section 3503.5. The proposed roundabout configuration alternative would result in 1.4 acres of permanent impact and 0.9 acre of temporary impacts to annual grassland (see **Figure 3.4-5**). Impacts to annual grassland habitat would result in the loss of suitable foraging habitat for Swainson's hawk, as well as the loss of suitable nesting habitat for western burrowing owl. The proposed roundabout configuration alternative could result in indirect impacts to migratory birds and raptors through habitat degradation and removal of trees suitable for nesting, as well as from additional traffic and increased human presence. Implementation of mitigation measures **MM 3.4.1** through **MM 3.4.4** ensures avoidance of the species through surveys, site design, and exclusionary fencing (see discussion under Special-Status Plant Species above). Implementation of mitigation measure **MM 3.4.28** will protect nesting birds by ensuring preconstruction nesting surveys are conducted if work will occur during the nesting season. Mitigation measure **MM 3.4.29** establishes work exclusion zones around active nests to ensure the nests are not abandoned due to site activity. Mitigation measure **MM 3.4.30** requires that any trees containing active bird nests be removed during the non-breeding season (September 1–January 1) in order to ensure protection of active nests. Mitigation measure **MM 3.4.31** requires the implementation of avoidance and minimization measures, as outlined by the CDFW when an active burrowing owl nest is found on-site. These measures will ensure nests are not abandoned due to construction activity on the Project site. Mitigation measure **MM 3.4.32** requires financial compensation for the permanent loss of Swainson's hawk foraging habitat; the fees ensure the protection of foraging habitat in the vicinity. Implementation of mitigation measures **MM 3.4.1** through **3.4.4** and **MM 3.4.28** through **MM 3.4.32** will reduce impacts to raptors and migratory birds to less than significant.

Special-Status Bat Species

Bats, including western red bat, are known to occur in the vicinity of the BSA. These species are California species of special concern due to recent population declines. Habitat for bat species consists of foraging habitat, night-roosting cover, maternity roost sites, and winter hibernacula. These bat species may forage in a variety of habitats. In general the CDFW is most concerned about the loss of maternity roosting sites. Suitable roosting sites in these habitats include caves, rock crevices, cliffs, buildings, tree bark, and snags. Potential maternity and night-roosting sites occur in snags, under bark, and in human structures (i.e., bridges) in the BSA. Precautions must be taken to avoid the deliberate killing or injury of bats. The most common and effective method of avoiding these offenses is to carry out the work at an appropriate time of year. The great majority of roosts are used only seasonally, so there is usually some period when bats are not present. Although there are differences between species, maternity sites are generally occupied between May and September and hibernation sites between October and March, depending on the weather. An adequate survey and good understanding of the seasonal activity patterns of the particular species involved will help in determining the optimum time to carry out the proposed work. The recommended times shown in **Table 3.4-1** should be modified in light of site-specific species information.

TABLE 3.4-1
ANNUAL BAT ACTIVITY

Bat Usage of Site	Optimum Period for Carrying Out Work (Some Variation Between Species)
Maternity	October 1–May 1
Summer (not a proven maternity site)	September 1–May 1
Hibernation	May 1–October 1
Mating/swarming	November 1–August 1

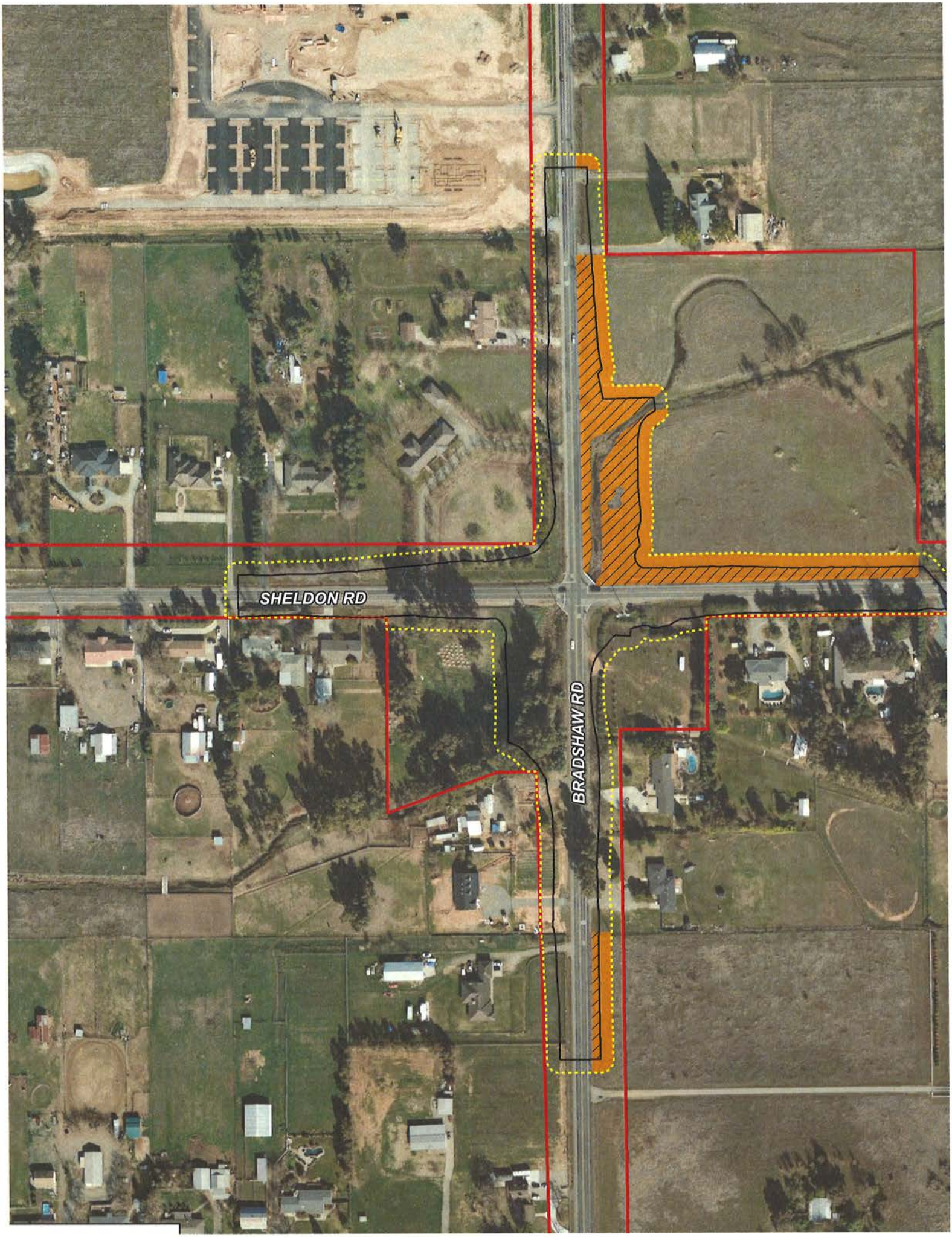
If maternity roost sites are located in the BSA during construction activities, the proposed roundabout configuration alternative has the potential to directly and indirectly impact special-status bat species. Bats are at their most vulnerable in buildings or other roost sites during the summer, when large numbers may be gathered together and young bats, unable to fly, may be present. Removal of maternity roost sites may cause direct mortality of numerous bats. Noise and dust from construction could indirectly impact bat species during construction. Implementation of mitigation measures **MM 3.4.1** through **MM 3.4.4** ensures avoidance of the species through surveys, site design, and exclusionary fencing (see discussion under Special-Status Plant Species above). Implementation of mitigation measure **MM 3.4.33** ensures a bat survey will be conducted prior to the removal of trees or structures. Any bats observed roosting on-site will be flushed prior to the roosting season. If maternity or nursery roosts are observed on-site and the Project can be constructed without disturbance to the roost, mitigation measure **MM 3.4.34** ensures buffer zones will be implemented to guarantee the continued success of the roosts. However, mitigation measure **MM 3.4.35** requires that, if the Project is unable to avoid a maternity roost, the bats will be excluded prior to the start of maternity roosting season to ensure no disturbance to active roosts. Implementation of mitigation measures **MM 3.4.1** through **MM 3.4.4** and **MM 3.4.33** through **MM 3.4.35** will reduce impacts to special-status bat species to less than significant.

Signalized Intersection Alternative

The query of the USFWS, CNPS, and CNDDB databases, combined with site visits and surveys, identified habitat for special-status species with the potential to occur in the BSA. Refer to **Figure 3.4-6** for the signalized intersection alternative impact map and to **Figure 3.4-3** for a depiction of CNDDB occurrences within 1 mile of the BSA. The Natural Environment Study prepared for the proposed Project and included in **Appendix C** provides a summary of all special-status species identified in the search results, a description of the habitat requirements for each species, and conclusions regarding the potential for each species to be impacted by the signalized intersection alternative.

Special-Status Plant Species

As discussed under the roundabout configuration alternative, one special-status plant species was identified as having the potential to occur in the BSA: Sanford's arrowhead. Focused rare plant surveys have not been conducted for the Project, so it is unknown whether Sanford's arrowhead occurs in the BSA. If Sanford's arrowhead is present in the signalized intersection alternative footprint and/or TCZ, individuals may be directly impacted by trampling, compaction, or removal. Sanford's arrowhead generally may


SHELDON RD
BRADSHAW RD

City of Elk Grove
Development Services

Figure 3.4-6

Signalized Intersection Alternative Impact

occur below the OHWM of Laguna Creek or along the edges of the creek in the Project area. The proposed signalized intersection alternative would result in 0.05 acre of direct impact and 0.28 acre of temporary impact to Laguna Creek. In addition, if dewatering occurs, these activities may also indirectly impact Sanford's arrowhead if present in the area of the creek that will be dewatered. Implementation of mitigation measures **MM 3.4.1** through **MM 3.4.5** will reduce impacts to special-status plant species to less than significant by minimizing the footprint of proposed construction activities, requiring preconstruction rare plant surveys, requiring avoidance of plants outside the Project footprint, requiring implementation of a Worker Environmental Awareness Program to educate workers on plant identification and avoidance, and requiring implementation of mitigation measures when special-status plants cannot be avoided.

Special-Status Animal Species

Based on the results of the literature review and habitat assessment, six special-status wildlife species have the potential to occur in the vicinity of the BSA: giant garter snake, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, and western red bat. Individual discussions of these species or guilds are presented below.

Giant Garter Snake

Refer to the giant garter snake discussion under the roundabout configuration alternative for information on this special-status species. The main stem of Laguna Creek, approximately one-half mile southwest of the BSA, is the closest feature that provides all essential habitat components for giant garter snakes.

The portion of Laguna Creek within the BSA lacks an adequate hydroperiod to support giant garter snakes during their active period. Refer to the discussion of giant garter snake under the roundabout configuration alternative and to **Figure 3.4-4** for information on the closest giant garter snake occurrences in the vicinity of the BSA. Because of the distance between the barriers (e.g., roads) between this occurrence and the action area for the Project, as well as the lack of suitable dispersal habitat between the action area for the Project and the extant occurrence near Elk Grove Creek, the presence of giant garter snake in the action area for the Project is considered unlikely.

The proposed signalized intersection alternative will result in permanent impacts to Laguna Creek as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur in Laguna Creek as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of Laguna Creek. Implementation of mitigation measures **MM 3.4.1, MM 3.4.4,** and **MM 3.4.22** through **3.4.27** will further reduce impacts to giant garter snake by minimizing the footprint of proposed construction activities, requiring implementation of a worker Environmental Awareness Program to educate workers on identification and avoidance of giant garter snakes, limiting the timing of construction activities to outside the snake's active season, requiring preconstruction surveys to ensure no snakes are present, requiring biological monitoring to ensure proper handling of any snakes encountered, limiting vehicle speeds on-site to avoid harming snakes, requiring dewatering of aquatic habitat for snakes, and requiring use of tightly woven erosion control matting which will not trap or entangle snakes. With implementation of these mitigation measures, this impact would be less than significant.

Raptors and Migratory Birds

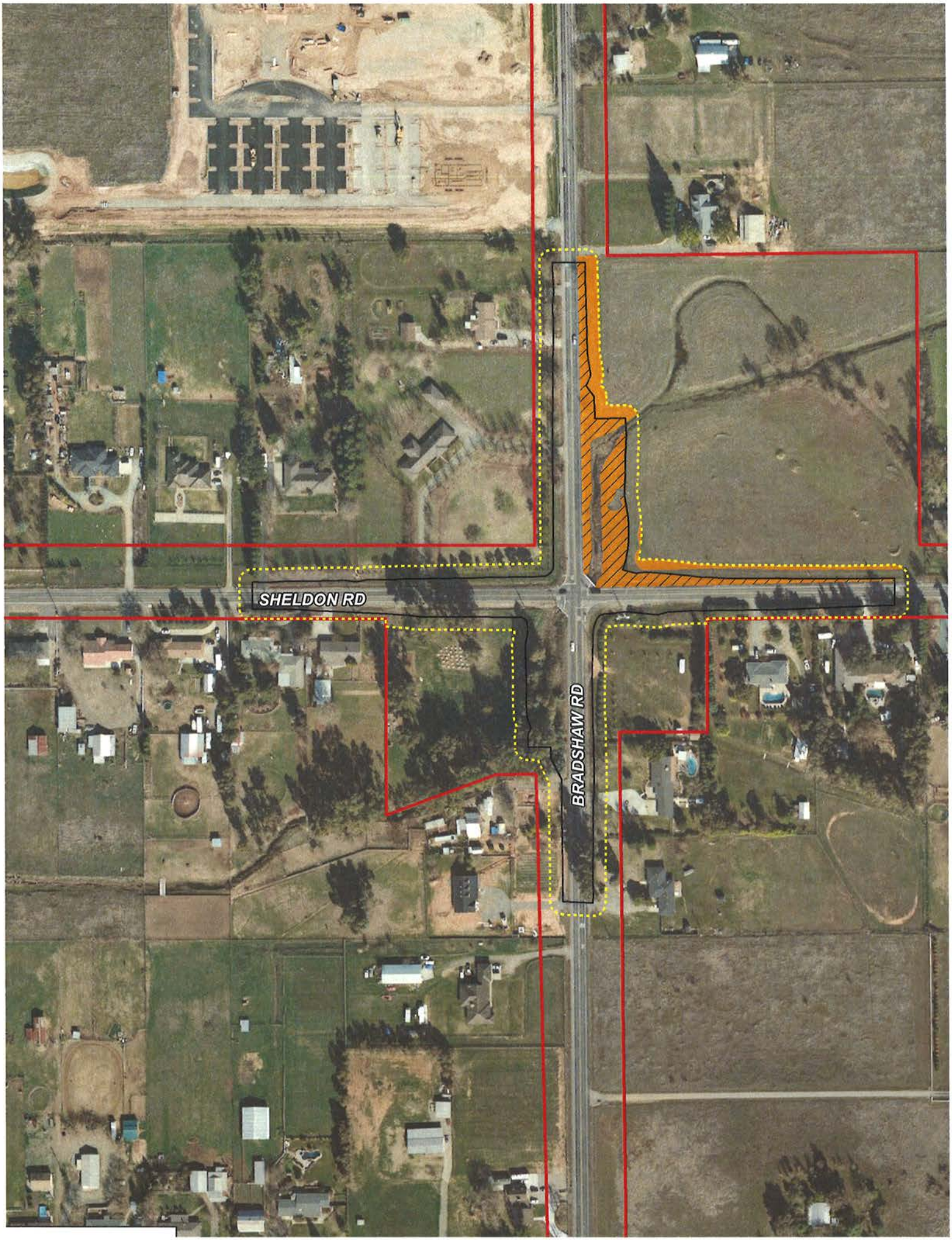
Western burrowing owl, Swainson's hawk, northern harrier, and white-tailed kite have the potential to inhabit the Project vicinity and are afforded additional protection under State law. Refer to the discussion of raptors and migratory birds under the roundabout configuration alternative for more information on migratory birds and raptor species afforded additional protection under State law that have the potential to inhabit the Project vicinity.

The BSA contains several large trees suitable for nesting, which may be removed during construction activities. If nesting migratory birds and/or raptors are present during Project construction, the proposed signalized intersection alternative may cause direct mortality through the removal of trees that contain active nests. Excessive noise, disturbance, and vibrations can cause nesting raptors and birds to abandon their nests. The loss of active nests or direct mortality is prohibited by the MBTA and FGC Section 3503.5. The proposed signalized intersection alternative would result in 0.7 acre of permanent impact and 0.3 acre of temporary impacts to annual grassland (see **Figure 3.4-7**). Impacts to annual grassland habitat would result in the loss of suitable foraging habitat for Swainson's hawk as well as suitable nesting habitat for western burrowing owl. The proposed signalized intersection alternative could result in indirect impacts to migratory birds and raptors through habitat degradation and removal of trees suitable for nesting, as well as from additional traffic and increased human presence. Implementation of mitigation measures **MM 3.4.1, MM 3.4.4,** and **MM 3.4.28** through **MM 3.4.32** will reduce impacts to raptors and migratory birds by minimizing the footprint of proposed construction activities, requiring implementation of a Worker Environmental Awareness Program to educate workers on identification and avoidance of raptors and migratory birds, requiring preconstruction surveys if construction is to occur during the raptor nesting season, restricting construction activities in the vicinity of any identified nests to avoid disturbance, requiring trees proposed for removal and containing nests to be removed during the non-breeding season, requiring implementation of CDFW-approved avoidance measures if burrowing owl burrows are present, and requiring payment of applicable fees to mitigate for the permanent loss of Swainson's hawk foraging habitat. With implementation of these mitigation measures, impacts would be reduced to less than significant.

Special-Status Bat Species

Bats, including western red bat, are known to occur in the vicinity of the BSA. Refer to the special-status bat species discussion under the roundabout configuration alternative for more information on bats, including western red bats. Potential maternity and night-roosting sites occur in snags, under bark, and in human structures (i.e., bridges) in the BSA. Precautions must be taken to avoid the deliberate killing or injury of bats. The most common and effective method of avoiding these offenses is to carry out the work at an appropriate time of year. The great majority of roosts are used only seasonally, so there is usually some period when bats are not present. Although there are differences between species, maternity sites are generally occupied between May and September and hibernation sites between October and March, depending on the weather.

An adequate survey and good understanding of the seasonal activity patterns of the particular species involved will help in determining the optimum time to carry out the proposed work. The recommended times shown in **Table 3.4-1** should be modified in light of site-specific species information.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If maternity roost sites are located in the BSA during construction activities, the proposed signalized intersection alternative has the potential to directly and indirectly impact special-status bat species. Bats are at their most vulnerable in buildings or other roost sites during the summer, when large numbers may be gathered together and young bats, unable to fly, may be present. Removal of maternity roost sites may cause direct mortality of numerous bats. Noise and dust from construction could indirectly impact bat species during construction. However, implementation of mitigation measures **MM 3.4.1, MM 3.4.4,** and **MM 3.4.33** through **MM 3.4.35** will reduce impacts to special-status bat species to less than significant by minimizing the footprint of proposed construction activities, requiring implementation of a Worker Environmental Awareness Program to educate workers on identification and avoidance of bats, requiring preconstruction surveys for bat roosts and proper handling of any identified roosts by qualified biologists, and requiring replacement of lost roosting habitat.

b) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?*

Less Than Significant Impact with Mitigation Incorporated. Sensitive habitats include (a) areas of special concern to resource agencies; (b) areas protected under CEQA; (c) areas designated as sensitive natural communities by the CDFW; (d) areas outlined in FGC Section 1600; (e) areas regulated under CWA Section 404; and (f) areas protected under local regulations and policies. Annual grassland, eucalyptus, and urban habitats are not considered to be natural communities of special concern; however, annual grassland may provide potential habitat for special-status species, which is discussed in issue a) above.

Roundabout Configuration Alternative

Two natural communities of concern are present in the BSA: intermittent creek (Laguna Creek) and seasonal wetland. The proposed roundabout configuration alternative will result in permanent and temporary impacts to intermittent creek and seasonal wetland communities. These impacts are summarized in **Table 3.4-2** in the discussion of issue c) below and are depicted on **Figure 3.4-7**. Implementation of mitigation measures **MM 3.4.1**, **MM 3.4.6** through **MM 3.4.10,** and **MM 3.4.36** will reduce impacts to less than significant by minimizing the footprint of proposed construction activities, requiring work to occur during the dry season and the creek to be diverted around work areas, requiring implementation of best management practices (BMPs) to minimize water quality degradation, implementing sediment-tracking reduction measures, requiring revegetation of disturbed areas with native plant species, and requiring replacement of permanently affected wetlands at a 2:1 ratio.

Signalized Intersection Alternative

Two natural communities of concern are present in the BSA: intermittent creek (Laguna Creek East) and seasonal wetland. The proposed roundabout configuration alternative will result in permanent and temporary impacts to intermittent creek and seasonal wetland communities. These impacts are summarized in **Table 3.4-3** in the discussion of issue c) below and are depicted on **Figure 3.4-8.** Implementation of mitigation measures **MM 3.4.1**, **MM 3.4.6** through **MM 3.4.10,** and **MM 3.4.36** will reduce impacts to less than significant by minimizing the footprint of proposed construction activities, requiring work to occur during the dry season and the creek to be diverted around work areas, requiring implementation of BMPs to minimize water quality degradation, implementing

sediment-tracking reduction measures, requiring revegetation of disturbed areas with native plant species, and requiring replacement of permanently affected wetlands at a 2:1 ratio.

c) *Would the project have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means?*

Less Than Significant Impact with Mitigation Incorporated. One 0.9-acre intermittent creek (Laguna Creek), one 0.02-acre seasonal wetland, and 0.02 acre of roadside ditches occur within the BSA. All features are considered waters of the United States and are therefore subject to CWA regulations. Impacts to these features will require a CWA 404 nationwide permit from the USACE and CWA 401 water quality certification from the RWQCB. In addition, the intermittent creek will be subject to, and the roadside ditches may be subject to, FGC Sections 1600–1607. As a result, impacts to these features will also require authorization from the CDFW via a streambed alteration agreement.

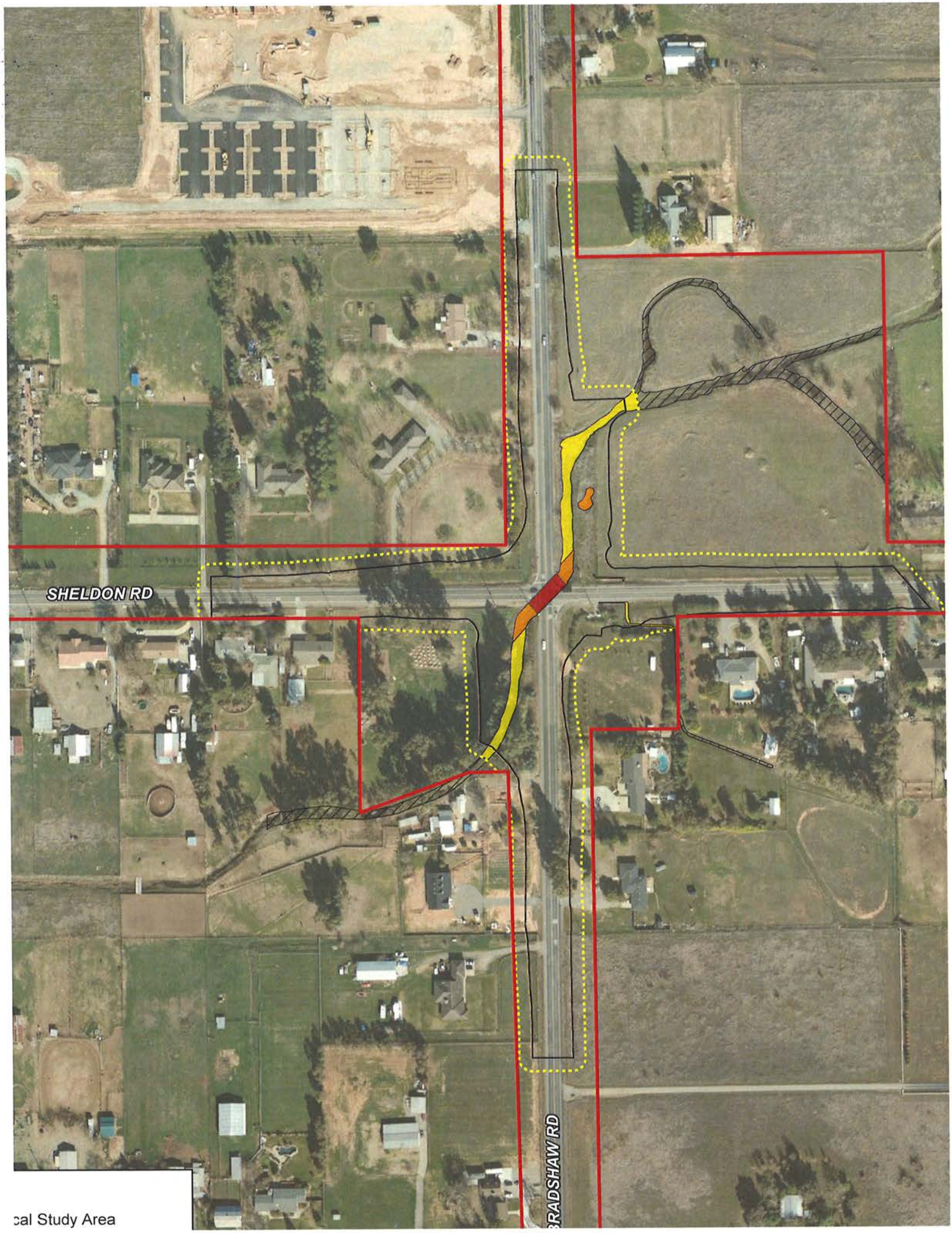
Roundabout Configuration Alternative

The proposed roundabout configuration alternative will result in permanent impacts to Laguna Creek (intermittent creek) as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur to Laguna Creek as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of the creek. In addition, the proposed roundabout configuration alternative will result in temporary impacts to roadside ditches and permanent impacts to seasonal wetland. These impacts are summarized in **Table 3.4-2** and are depicted on **Figure 3.4-8**.

TABLE 3.4-2
ROUNDABOUT CONFIGURATION ALTERNATIVE IMPACT TO JURISDICTIONAL FEATURES

Feature Type	Total Acres in the BSA	Acres Permanently Impacted	Acres Temporarily Impacted
Intermittent Creek (Laguna Creek)	0.90	0.06	0.30
Seasonal Wetland	0.02	0.02	0
Ditches	0.02	0	0.02
Total	**0.94**	**0.08**	**0.32**

As shown in **Table 3.4-2**, a total of 0.06 acre of intermittent creek and 0.02 acre of seasonal wetland are anticipated to be permanently impacted and a total of 0.3 acre of intermittent creek and 0.02 acre of roadside ditches are anticipated to be temporarily impacted by the proposed roundabout configuration alternative. Implementation of mitigation measures **MM 3.4.1**, **MM 3.4.6** through **MM 3.4.10,** and **MM 3.4.36** will reduce impacts to less than significant by minimizing the footprint of proposed construction activities, requiring work to occur during the dry season and for the creek to be diverted around work areas, requiring implementation of BMPs to minimize water quality degradation, implementing sediment-tracking reduction measures, requiring revegetation of disturbed areas with native plant species, and requiring replacement of permanently affected wetlands at a 2:1 ratio.



cal Study Area

Signalized Intersection Alternative

The proposed signalized intersection alternative will result in permanent impacts to Laguna Creek (intermittent creek) as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur to Laguna Creek as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of the creek. In addition, the proposed signalized intersection alternative will result in temporary impacts to roadside ditches and permanent impacts to seasonal wetland. These impacts are summarized in **Table 3.4-3** and are depicted on **Figure 3.4-9**.

TABLE 3.4-3
SIGNALIZED INTERSECTION ALTERNATIVE IMPACT TO JURISDICTIONAL FEATURES

Feature Type	Total Acres in the BSA	Acres Permanently Impacted	Acres Temporarily Impacted
Intermittent Creek (Laguna Creek)	0.90	0.05	0.28
Seasonal Wetland	0.02	0.02	0
Ditches	0.02	0	0.01
Total	**0.94**	**0.07**	**0.29**

As shown in **Table 3.4-3**, a total of 0.05 acre of intermittent creek and 0.02 acre of seasonal wetland are anticipated to be permanently impacted and a total of 0.28 acre of intermittent creek and 0.01 acre of roadside ditches are anticipated to be temporarily impacted by the proposed signalized intersection alternative. Implementation of mitigation measures **MM 3.4.1**, **MM 3.4.6** through **MM 3.4.10,** and **MM 3.4.36** will reduce impacts to less than significant by minimizing the footprint of proposed construction activities, requiring work to occur during the dry season and for the creek to be diverted around work areas, requiring implementation of BMPs to minimize water quality degradation, implementing sediment-tracking reduction measures, requiring revegetation of disturbed areas with native plant species, and requiring replacement of permanently affected wetlands at a 2:1 ratio.

d) *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

No Impact.

Roundabout Configuration Alternative

A review of the CDFW Biogeographic Information & Observation System (BIOS) (CDFW 2014c) was performed for the Project to determine whether the BSA is located within an Essential Connectivity Area. The review indicated that the BSA does not occur within an Essential Connectivity Area; therefore, the roundabout configuration alternative is not likely to adversely affect migratory corridors. No impact is anticipated.

Signalized Intersection Alternative

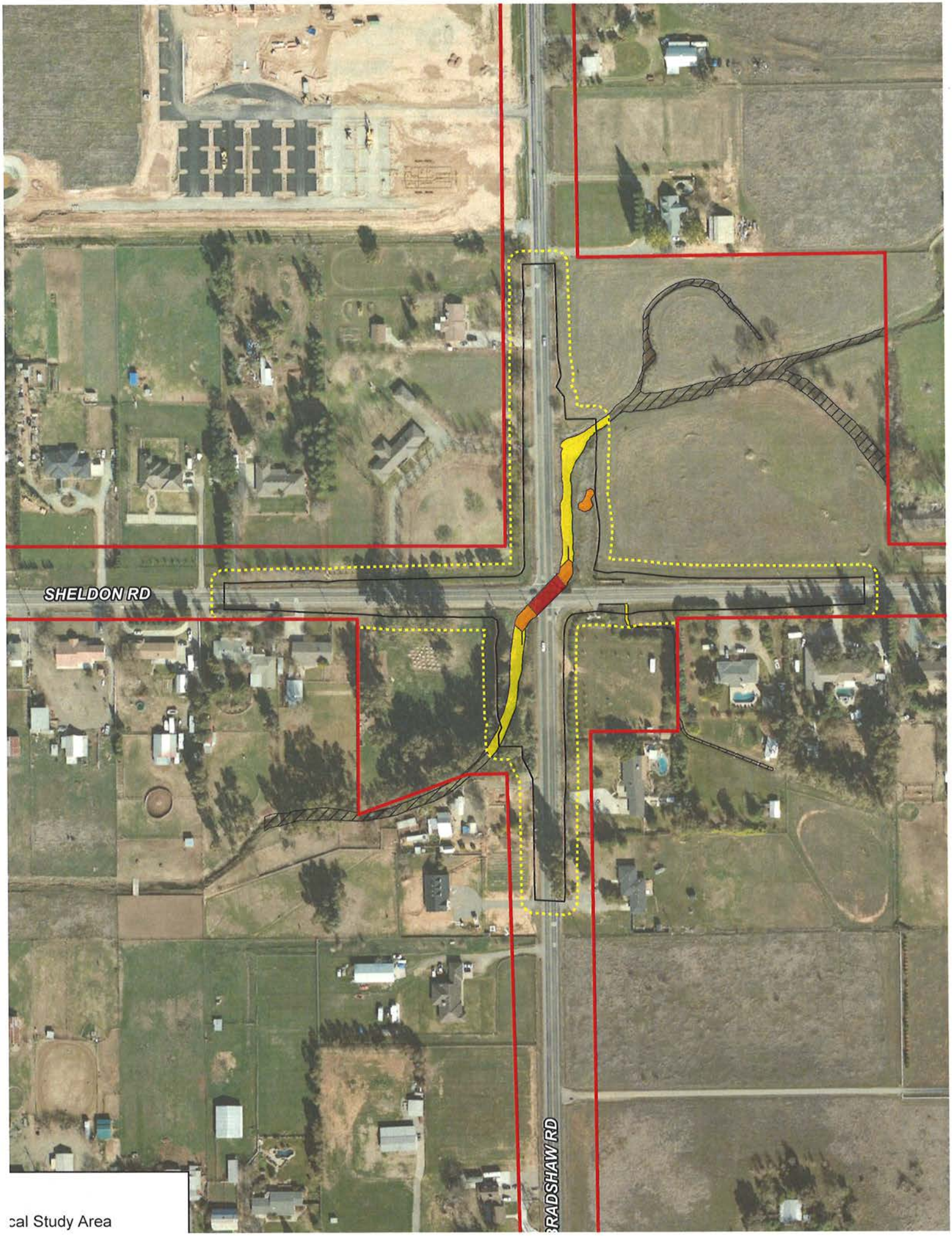
A review of the CDFW Biogeographic Information & Observation System (BIOS) (CDFW 2014c) was performed for the Project to determine whether the BSA is located within an Essential Connectivity Area. The review of the BIOS viewer indicated that the BSA does not occur within an Essential Connectivity Area; therefore, the signalized intersection alternative is not likely to adversely affect migratory corridors. No impact is anticipated.

e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Less Than Significant Impact with Mitigation Incorporated.

The City of Elk Grove protects all trees of local importance, including native oak trees, California sycamores, and California black walnut trees with a single trunk of 6 inches at 4.5 feet from grade (dbh) or larger or multiple trunks with an aggregate of 6 inches dbh or larger, through Elk Grove Municipal Code Title 19, Chapter 19.12. The Elk Grove Municipal Code also protects landmark trees determined to be of high value to the community because of their species, size, age, form, historical significance, or some other professional criterion (City of Elk Grove Municipal Code, Title 19, Section 19.12.030). Chapter 19.12 does not typically require protection for any tree designated as unhealthy or hazardous by a certified arborist.

The BSA contains 244 trees that are over 6 inches dbh or larger. All native trees were positively identified. Species composition includes two almond (*Prunus dulcis*) totaling approximately 48 aggregate diameter inches (adi); three ash (*Fraxinus* sp.) totaling approximately 45 adi; six black walnut totaling approximately 142 adi; 15 camphor (*Cinnamomum camphora*) totaling approximately 169 adi; five cedar (*Cedrus* sp.) totaling approximately 98 adi; one cottonwood (*Populus fremontii*) totaling approximately 19 inches dbh; three English walnut (*Juglans regia*) totaling approximately 48 adi; 91 eucalyptus (*Eucalyptus* sp.) totaling approximately 2,284 adi; two fir (*Abies* sp.) totaling approximately 21 adi; three plum (*Prunus* sp.) totaling approximately 53 adi; one Italian cypress (*Cupressus sempervirens*) totaling approximately 16 inches dbh; 13 liquidambar (*Liquidambar styraciflua*) totaling approximately 194 adi; one interior live oak totaling approximately 20 inches dbh; four mulberry (*Morus* sp.) totaling approximately 68 adi; one fan palm (*Washingtonia* sp.) totaling approximately 17 inches dbh; five pecan (*Carya illinoensis*) totaling approximately 69 adi; one pepper (*Schinus* sp.) totaling approximately 11 inches dbh; six pine (*Pinus* sp.) totaling approximately 112 adi; one pistachio (*Pistacia vera*) totaling approximately 21 inches dbh; one red ironbark (*Eucalyptus sideroxylon*) totaling approximately 31 inches dbh; 16 redwood (*Sequoia sempervirens*) totaling approximately 266 adi; 38 valley oak totaling approximately 655 adi; two magnolias (*Magnolia grandiflora*) totaling approximately 12 adi; and 23 unidentified non-native ornamentals totaling approximately 346 adi. A map of all tree locations can be found in **Appendix C**.



cal Study Area

Roundabout Configuration Alternative

The proposed roundabout configuration alternative would result in direct and indirect impacts to protected trees. These impacts are summarized in **Table 3.4-4** and are depicted on **Figure 3.4-10**.

TABLE 3.4-4
ROUNDABOUT CONFIGURATION ALTERNATIVE IMPACTS TO PROTECTED TREES

Common Name	Trees Directly Impacted		Trees Indirectly Impacted	
	Number of Trees	dbh Sum (inches)	Number of Trees	dbh Sum (inches)
Interior Live Oak	1	18	0	0
Valley Oak	13	254	1	9
Black Walnut	3	58	0	0
Total	**17**	**330**	**1**	**9**

As shown in **Table 3.4-4**, 17 protected trees are anticipated to be directly impacted and one protected tree is anticipated to be indirectly impacted by the proposed roundabout configuration alternative. Implementation of mitigation measures **MM 3.4.1** and **MM 3.4.11** through **MM 3.4.21** will reduce impacts to protected trees to less than significant by minimizing the footprint of proposed construction activities, prohibiting trimming of branches to reduce the dripline of protected trees, requiring installation of protective fencing around protected trees to avoid damage to the trees and their root systems, placing restrictions on vehicle parking, material storage, grading, trenching, impervious surfaces, irrigation systems, and landscaping within the driplines of protected trees, prohibiting drainage from being redirected over the driplines of protected trees, requiring all tree pruning to be completed by a certified arborist, and prohibiting the attachment of signs, ropes, cables, and other items to protected trees.

Signalized Intersection Alternative

The proposed signalized intersection alternative would result in direct and indirect impacts to protected trees. These impacts are summarized in **Table 3.4-5** and are depicted on **Figure 3.4-11**.

TABLE 3.4-5
SIGNALIZED INTERSECTION ALTERNATIVE IMPACTS TO PROTECTED TREES

Common Name	Trees Directly Impacted		Trees Indirectly Impacted	
	Number of Trees	dbh Sum (inches)	Number of Trees	dbh Sum (inches)
Interior Live Oak	1	18	0	0
Valley Oak	12	242	1	9
Black Walnut	1	13	2	45
Total	**14**	**273**	**3**	**54**

As shown in **Table 3.4-5**, 14 protected trees are anticipated to be directly impacted and three protected trees are anticipated to be indirectly impacted by the proposed signalized intersection alternative. Implementation of mitigation measures **MM 3.4.1** and **MM 3.4.11** through **MM 3.4.21** will reduce impacts to protected trees to less than

significant by minimizing the footprint of proposed construction activities, prohibiting trimming of branches to reduce the dripline of protected trees, requiring installation of protective fencing around protected trees to avoid damage to the trees and their root systems, placing restrictions on vehicle parking, material storage, grading, trenching, impervious surfaces, irrigation systems, and landscaping within the driplines of protected trees, prohibiting drainage from being redirected over the driplines of protected trees, requiring all tree pruning to be completed by a certified arborist, and prohibiting the attachment of signs, ropes, cables, and other items to protected trees.

f) *Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan, and no impact is anticipated. No avoidance or minimization measures are proposed.

Signalized Intersection Alternative

The proposed signalized intersection alternative would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan, and no impact is anticipated. No avoidance and minimization measures are proposed.

Mitigation Measures

MM 3.4.1 During Project development, the work area will be reduced to the smallest footprint feasible in sensitive habitat areas.

Timing/Implementation: *During Project development*

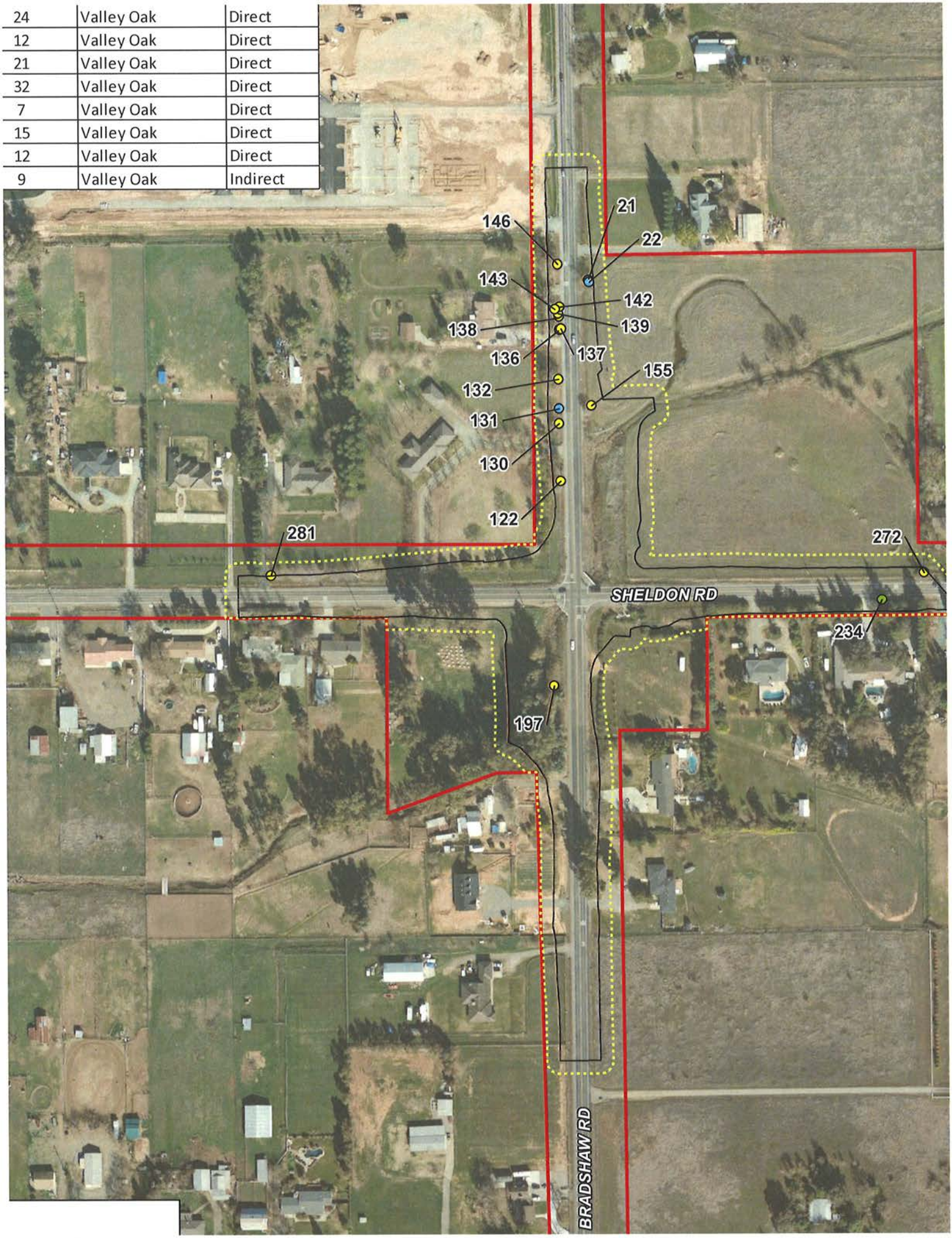
Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.2 Prior to any vegetation removal or ground-disturbing activities, focused surveys shall be conducted to determine if Sanford's arrowhead occurs in the Project footprint and/or TCZ. Surveys shall be conducted in accordance with the CDFW's (2009) Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities. These guidelines require rare plant surveys to be conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Surveys shall be scheduled to coincide with known blooming periods and/or during periods of physiological development that are necessary to identify the plant species of concern. If no special-status plant species are found, the Project will not have any impacts to the species and no additional mitigation measures are necessary.

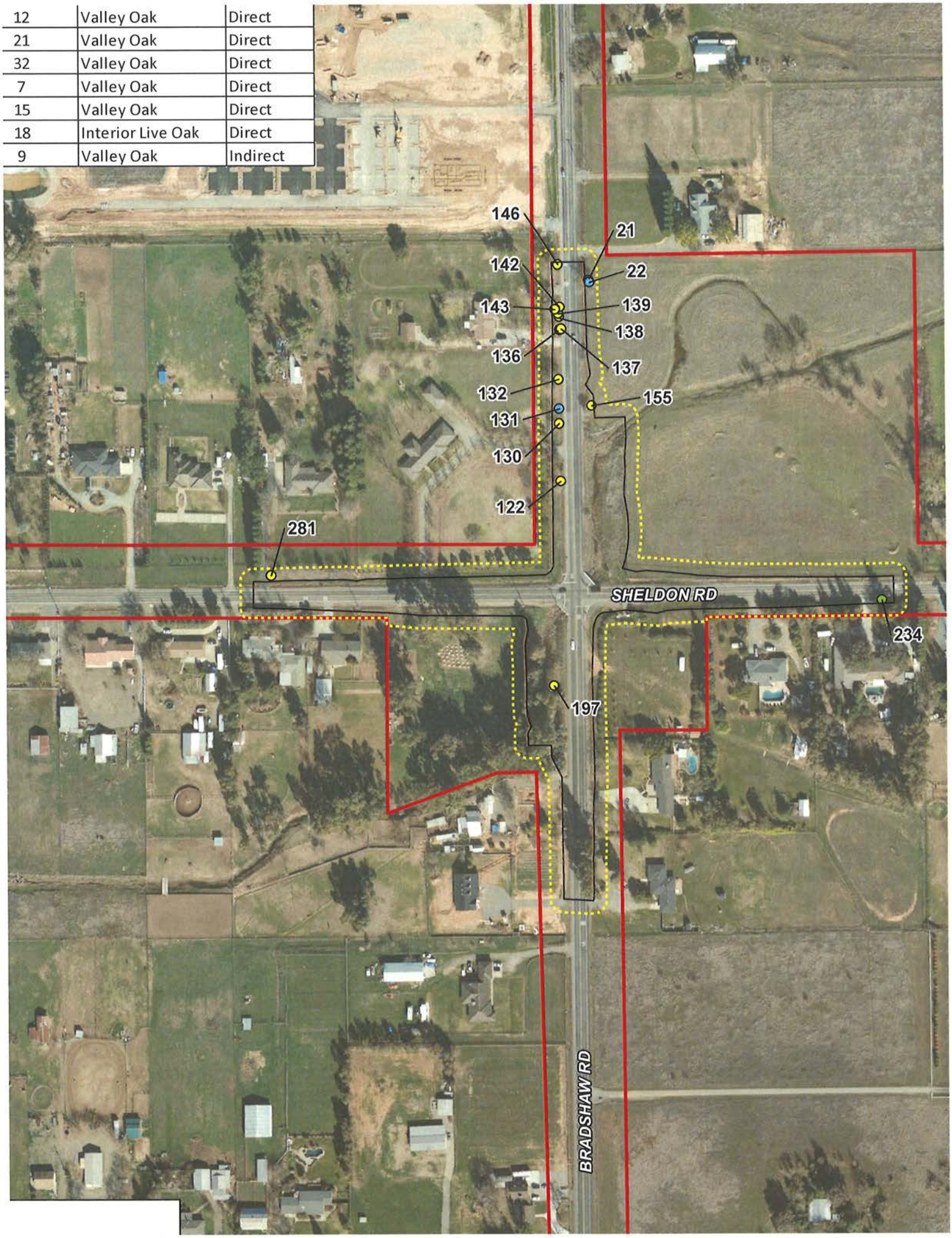
Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

24	Valley Oak	Direct
12	Valley Oak	Direct
21	Valley Oak	Direct
32	Valley Oak	Direct
7	Valley Oak	Direct
15	Valley Oak	Direct
12	Valley Oak	Direct
9	Valley Oak	Indirect



12	Valley Oak	Direct
21	Valley Oak	Direct
32	Valley Oak	Direct
7	Valley Oak	Direct
15	Valley Oak	Direct
18	Interior Live Oak	Direct
9	Valley Oak	Indirect



MM 3.4.3 If special-status plant species are located within the BSA but outside the Project footprint, the plants shall be avoided by installing protective fencing and warning construction personnel of their presence.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.4 A Worker Environmental Awareness Program (WEAP) shall be implemented to educate construction workers about the presence of special-status species and sensitive biological resources in and/or near the Project area and to instruct them on proper avoidance.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.5 If any special-status plant species are found on-site and cannot be avoided, the City shall consult with the USFWS and/or the CDFW, as applicable, to determine appropriate mitigation for special-status plants, which may include but is not limited to the following measures:

- Salvage portions of the habitat or plant populations that will be lost as a result of implementation of the proposed Project.
- Transplant the plants that would be adversely affected by the proposed Project for either re-establishment after construction is complete or for planting in a new area, in appropriate habitat.
- Develop a propagation program for the salvage and transfer of rare, threatened, or endangered plant populations from the Project site before the initiation of construction activities.

Qualified biologists shall be involved in the propagation and transport of rare, threatened, or endangered plant species. (Note: Propagation methods for the salvaged plant population must be developed on a case-by-case basis and must include the involvement of local conservation easements, preserves, and/or open space, where applicable.) The propagation and transfer of individual plant species must be performed at the correct time of year and successfully completed before the Project's construction activities eliminate or disturb the plants and habitats of concern.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.6 Work shall coincide with the driest time in the creek. If water is present at the time of construction, water shall be diverted around the work area and work shall resume after the site is dry. Work in the dry portion of the creek shall be timed with awareness of precipitation forecasts and likely increases in water flows and flood stages. Construction activities in the creek shall cease prior to storm events until all reasonable erosion control measures have been

implemented. Construction equipment and material shall be removed from the floodplain if inundation is likely. Revegetation, restoration, and erosion control work shall not be confined to this time period.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.7 If work in the flowing portion of the creek is unavoidable, the entire stream flow shall be diverted around or through the work area during excavation and/or construction operations. Flows shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to FGC Section 5937. Any temporary dam or other artificial obstruction constructed shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.8 Prior to initiation of construction activities within jurisdictional features, construction best management practices (BMPs) shall be employed on-site to prevent degradation to on-site and off-site waters of the United States. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering jurisdictional features, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. All erosion control methods shall be maintained until all on-site soils are stabilized.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.9 Standard staging area practices for sediment-tracking reduction shall be implemented where necessary and may include vehicle washing and street sweeping.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.10 All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities shall be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered

with broadcast straw and/or jute netted (monofilament erosion blankets are not permitted).

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.11 A circle with a radius measurement from the trunk of the tree to the tip of its longest limb shall constitute the dripline protection area of each tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each tree. Removing limbs that make up the dripline does not change the protected area.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.12 Protective fencing shall be installed at the driplines of the protected trees prior to the start of any construction work (including grading or placement of vehicles on-site) in order to avoid damage to the trees and their root systems. This fencing may be installed around the outermost dripline of clusters of trees proposed for protection, rather than individual trees. Fencing shall be shown on all Project plans.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.13 No vehicles, construction equipment, mobile home/office, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the driplines of protected trees. A laminated sign indicating such shall be attached to fencing surrounding trees on-site.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.14 No grading (grade cuts or fills) shall be allowed within the driplines of protected trees.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.15 Drainage patterns on the site shall not be modified so that water collects or stands within, or is diverted across, the dripline of any protected tree.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.16 No trenching shall be allowed within the driplines of protected trees. If it is absolutely necessary to install underground utilities within the dripline of a protected tree, the utility line shall be bored and jacked under the supervision of a certified arborist.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.17 The construction of impervious surfaces within the driplines of protected trees shall be stringently minimized. When it is absolutely necessary, a piped aeration system shall be installed under the supervision of a certified arborist. Whenever possible, pervious concrete shall be used as an alternative to traditional concrete when it is required under tree driplines.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.18 No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the driplines of protected trees. An aboveground drip irrigation system is recommended.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.19 Landscaping beneath protected trees may include non-plant materials such as bark mulch or wood chips. The only plant species that shall be planted within the driplines of protected trees are those that are tolerant of the natural environs of the trees. Limited drip irrigation approximately twice per summer is recommended for the understory plants.

Timing/Implementation: *During Project design and construction and after Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.20 Any protected trees on the site that require pruning shall be pruned by a certified arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute A300 pruning standards and ISA's tree-pruning guidelines.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.21 No signs, ropes, cables (except those which may be installed by an arborist to provide limb support), or any other items shall be attached to the protected trees.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.22 The applicant is proposing to work outside of the giant garter snake's active season and anticipates that work will be completed in 10 to 15 months. Construction and ground-disturbing activities will be initiated during the active season and will be commenced prior to September 15.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.23 Twenty-four hours prior to the commencement of construction activities, the Project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the USFWS with a written report that adequately documents the monitoring efforts within 24 hours of commencement of construction activities. The Project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.24 A qualified biologist will inspect and monitor all construction-related activities in the Project area to attempt to minimize take of giant garter snake or the destruction of its habitat. If snakes are encountered during construction activities, the biologist will notify the USFWS immediately to determine the appropriate procedures related to the collection and relocation of the snakes. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone at (916) 414-6600 and by electronic mail or written letter addressed to the Chief, Sacramento Valley Division, within one working day of the incident.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.25 Project-related vehicles will observe a 20 mile per hour (mph) speed limit in construction areas, except on existing paved roads, where they will adhere to the posted speed limits.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.26 Aquatic habitat for giant garter snake will be dewatered and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the USFWS shall be contacted to determine what additional measures may be necessary to minimize effects to the giant garter snake.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.27 Tightly woven erosion control matting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the Project site to ensure that giant garter snakes are not trapped or do not become entangled by the erosion control material. The edge of the material shall be buried in the ground to prevent giant garter snakes from crawling underneath the material. The City or contractor will prohibit the use of plastic, monofilament, jute, or similar erosion control netting with mesh sizes larger than 0.25 inch that could entangle snakes at the Project site.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.28 If clearing and/or construction activities would occur during the raptor nesting season (January 15–August 15), preconstruction surveys to identify active nests shall be conducted by a qualified biologist within 14 days of construction initiation. Surveys must be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites in the proposed impact area, including construction access routes and a 250-foot buffer (if feasible). If no active nests are found, no further mitigation is required. Surveys shall be repeated if construction activities are delayed or postponed for more than 30 days.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.29 If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 30 meters (100 feet) around an active raptor nest and a 15-meter (50-foot) radius around an active migratory bird nest) or alteration of the construction schedule. Activities permitted in exclusion zones and the size may be adjusted through consultation with the CDFW and/or the City.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.30 Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the non-breeding season (September 1–January 1). Swainson's hawks are State and federally listed as threatened species; therefore, impacts to Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.31 If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the City shall implement the avoidance, minimization, and mitigation methodologies outlined in the CDFW's (2012) Staff Report on Burrowing Owl Mitigation prior to initiating Project-related activities that may impact burrowing owls.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.32 The City shall mitigate for the permanent loss of 0.616 acre of Swainson's hawk foraging habitat at a 1:1 ratio. Mitigation can be accomplished through the City of Elk Grove Swainson's Hawk Impact Mitigation Fees Ordinance or other method acceptable to the CDFW. No additional mitigation is proposed, as implementation of avoidance and minimization measures is sufficient to compensate for potential impacts to migratory birds and raptors.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.33 Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the City shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to August) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September), they must remain undisturbed until a qualified biologist has determined that the young bats are no longer roosting. If roosting is found to occur on-site, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites removed. If no bat roosts are detected, no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, an additional survey shall be conducted 30 days prior to removal to ensure that a new colony has not established itself.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.34 If a female or maternity colony of bats are found on the Project site, and the Project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after July 31 and before March 1).

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.35 If active nursery roost is documented on-site and the Project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after July 31 and before March 1 to prevent the formation of maternity colonies. Non-breeding bats shall be safely evicted, under the direction of a bat specialist.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.36 For every acre of intermittent creek and seasonal wetland permanently affected by the proposed Project, the City shall replace the affected acreage at a 2:1 ratio (i.e., 2 acres for every 1 acre of impact) or another approved ratio as determined by the USACE. Impacts shall be offset through the dedication of mitigation credit(s) in a USACE-approved mitigation bank or through the payment of in-lieu fees to an approved conservation bank.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.37 For every acre of intermittent creek temporarily affected and roadside ditch permanently or temporarily affected by the proposed Project, the City shall replace the affected acreage at a 1:1 ratio or another approved ratio as determined by the USACE. Impacts shall be offset through the restoration and relocation of the intermittent creek and roadside ditches in the Project area.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.38 Any trees protected by the City's tree ordinance and requiring removal for Project construction will either be compensated for by replacement, purchase of habitat conservation areas to protect existing woodland habitats, through contribution to tree planting programs or in-lieu fee programs in the area, or through some combination of these options to achieve no net loss of trees from the Project.

Prior to any groundbreaking activities, the City's Planning Department will determine which trees would be suitable candidates for protection and which trees will need to be mitigated if removed. Trees that will be removed or otherwise harmed by the Project shall be mitigated for as described above.

Prior to any groundbreaking activity, a Replacement Tree Planting Plan shall be prepared by an arborist or landscape architect. The plan shall follow the standards set forth in the City of Elk Grove Municipal Code and shall include the following minimum elements:

- Species, size, and locations of all replacement plantings.
- Method of irrigation

- A tree planting detail, including a 10-foot depth-boring hole to provide for adequate drainage.
- Planting, irrigation, and maintenance schedules.
- Identification of the maintenance entity and a written agreement with that entity, if other than the City of Elk Grove, to provide care and irrigation to the trees for a five-year establishment period and to replace any of the replacement trees which do not survive during that period.

Replacement inches will be calculated based on the following size categories.

- A 1-gallon container or seedling-sized containerized tree = 1 inch dbh
- A 15-gallon container = 1 inch dbh
- A 24-inch box = 2 inches dbh
- A 36-inch box = 2 inches dbh
- A 60-inch box = 2 inches dbh
- A 72-inch box = 2 inches dbh

In order to meet some of the mitigation requirements, existing native trees on-site proposed for removal that are less than 6 inches dbh and are in fair or better condition may be transplanted to the new planting area. If existing trees are successfully transplanted, mitigation requirements may be reduced.

No replacement tree shall be planted within 15 feet of a building foundation or other known areas of future ground disturbance. The minimum spacing for replacement trees shall be 15 feet on center. J-pots may be planted closer at the discretion of the City Arborist or the consulting arborist.

Timing/Implementation: *Prior to and during Project construction*

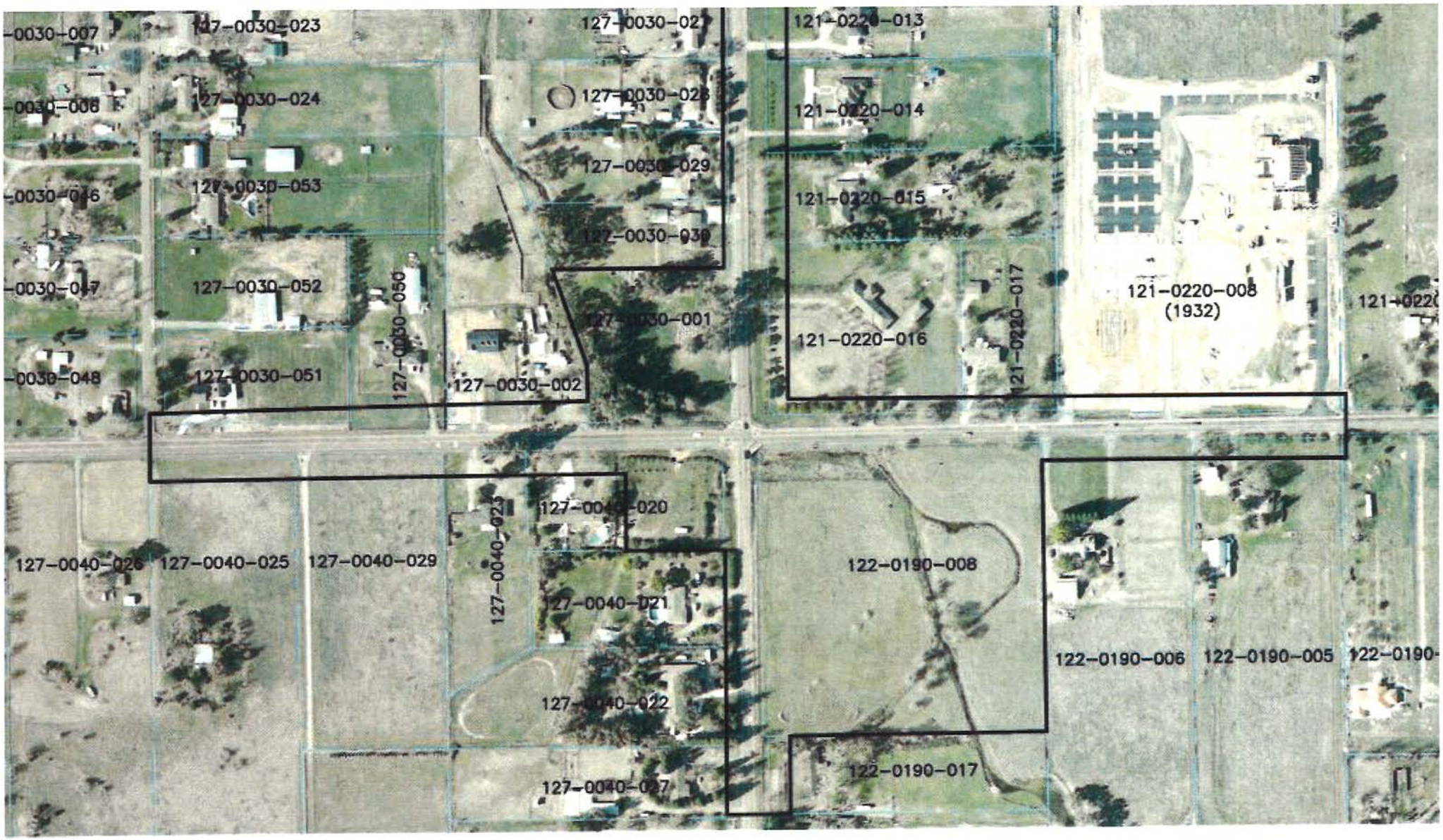
Enforcement/Monitoring: *City of Elk Grove Planning Department*

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.5. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

A Historic Property Survey Report (HPSR) and an Archaeological Survey Report (ASR) were prepared for the Project in September 2014. The HPSR for the Project is included in **Appendix D**; however, the ASR contains confidential information regarding sensitive cultural resources and will be bound separately and labeled as confidential. Areas along rivers and creeks in Sacramento County are known to contain cultural resources because of the villages built by Native Americans over periods of hundreds of years (City of Elk Grove 2003b). Approximately eight Plains Miwok tribelets existed along the Cosumnes River drainage and Sacramento River in the Elk Grove Planning Area. The majority of the prehistoric and historic Native American archaeological sites in Elk Grove are village mounds (City of Elk Grove 2003b). A tributary channel of Laguna Creek runs through the Project site. The City of Elk Grove General Plan EIR Cultural Resources Sensitivity Map identifies areas surrounding Laguna Creek as sensitive for cultural resources. The California Office of Historic Preservation does not identify any listed historic resources in the Project vicinity.

The area of potential effect (APE) for a project encompasses the geographic area in which a project may result in impacts to cultural resources. The APE for the proposed Project includes approximately 26 acres in boundaries determined by Caltrans and the City of Elk Grove. The APE includes right-of-way acquisition slivers from adjacent properties on Sheldon Road and Bradshaw Road. The APE map for the Project is provided in **Figure 3.5-1**.



LEGEND

Area of Potential Effects

Property Boundary

300 150 0

SCALE:

BACKGROUND

A record and information search of the Project area was conducted with the North Central Information Center of the California Historical Resources Information System. This included a review of:

- The National Register of Historic Places (NRHP; 1979–2002 and supplements)
- Historic USGS topographic maps
- Historic US Department of Agriculture aerial photographs
- The California Register of Historical Resources (1992–2010)
- The California Historical Resources Inventory (1976–2010)
- The California Historical Landmarks (1995 and supplements to 2010)
- The California Points of Historical Interest (1992–2010)
- Caltrans Historic Bridge Inventory (Caltrans 2013)
- Local Historical Register Listings
- Bureau of Land Management General Land Office Records
- An AB 52 consultation Letter was sent out to interested tribes on October 8, 2015

The record search and literature review revealed that three cultural resources studies have been previously completed within a portion of the APE and 22 cultural resources studies have been completed within a 1-mile radius of the APE. No cultural resources have been previously recorded within or immediately adjacent to the APE; however, two prehistoric resources and six historic architectural resources have been previously recorded within a 1-mile radius of the APE. A pedestrian-level survey of the APE was conducted on August 20, 2013, which did not identify any previously unknown cultural resources within or immediately adjacent to the APE. Native American consultation was conducted for the Project. A letter was sent to the Native American Heritage Commission (NAHC) on August 1, 2013, requesting a sacred lands file search and current contact list. The NAHC responded to the letters stating that the search of the sacred lands file failed to indicate the presence of cultural resources within a 0.5-mile radius of the APE. Letters were also sent to Native American Tribes, groups, and individuals on August 7, 2013, requesting information related to cultural resources or heritage sites within or adjacent to the Project site. One response was received on August 29, 2013, requesting additional information, which was later provided by the HPSR and ASR preparer. No further responses were received following this communication.

DISCUSSION OF IMPACTS

a) *Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?*

No Impact.

Roundabout Configuration Alternative

The HPSR and ASR prepared for the Project determined that one non-archaeological historic resource is present within the APE (the East Branch Laguna Creek Bridge [No. 24C0308]); however, this bridge has been evaluated by Caltrans and it was determined not eligible for NRHP listing (Cogstone 2014b). Furthermore, although Sheldon Road and Bradshaw Road both appear as unnamed roads on the historic 1909 topographic map,

the roadways have been heavily modified over the last century (Cogstone 2014a). Therefore, no impact would occur.

Signalized Intersection Alternative

Impacts of the signalized intersection alternative to historical resources would be the same as those discussed under the roundabout configuration alternative. No impact would occur.

b) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

Construction of the roundabout configuration alternative would involve grading activities and excavation to a maximum depth of 10 feet for installation of the box culverts and a maximum depth of 5 feet for the other proposed improvements. According to the HPSR and ASR prepared for the Project, site-specific factors indicate that the potential is low for discovery of archaeological deposits, materials, or features through implementation of this Project. No cultural resources have been previously recorded in or adjacent to the APE, and no previously unknown cultural resources were identified in or immediately adjacent to the APE during the pedestrian-level survey conducted for the Project on August 20, 2013 (Cogstone 2014b). Therefore, the roundabout configuration alternative would not be expected to impact any archaeological resources. Per Policy HR-6-Action 2 of the City's General Plan, requirements would be included in the construction contract requiring immediate notification of the Planning Department if any archaeological resource is uncovered during construction. In the event of this type of discovery, construction would stop and an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology would be retained to evaluate the finds and recommend appropriate action. Adherence to the City policy and implementation of mitigation measure **MM 3.5.1** will further reduce impacts to less than significant by ensuring any buried archaeological and/or paleontological resources encountered during construction of the proposed Project are handled properly and in accordance with California Public Resources Code Section 5097.5.

Signalized Intersection Alternative

Refer to discussion of impacts to archaeological resources under the roundabout configuration alternative. The signalized intersection alternative would be constructed within the same APE as the roundabout configuration alternative; thus, impacts of the signalized intersection alternative would be the same as those discussed under the roundabout configuration alternative. The signalized intersection alternative would not be expected to impact any archaeological resources. Adherence to Policy HR-6-Action 2 of the City's General Plan and implementation of mitigation measure **MM 3.5.1** will further reduce impacts to less than significant by ensuring that any buried archaeological and/or paleontological resources encountered during construction of the proposed Project are handled properly and in accordance with California Public Resources Code Section 5097.5.

c) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

According to the HPSR and ASR prepared for the Project, no cultural resources have been previously recorded in or adjacent to the APE, and no previously unknown cultural resources were identified in or immediately adjacent to the APE during the pedestrian-level survey conducted for the Project on August 20, 2013 (Cogstone 2014b). Therefore, discovery of paleontological resources or sites or unique geologic features is not anticipated within the APE. Per Policy HR-6-Action 2 of the City's General Plan, requirements would be included in the construction contract that the Planning Division shall be notified immediately if any paleontological artifact is uncovered during construction. The City's implementation of this policy, according to the State CEQA Guidelines, would result in less than significant impacts to paleontological resources. Adherence to the City policy and implementation of mitigation measure **MM 3.5.1** will further reduce impacts to less than significant by ensuring that any buried archaeological and/or paleontological resources encountered during constriction of the proposed Project are handled properly and in accordance with California Public Resources Code Section 5097.5.

Signalized Intersection Alternative

Refer to discussion of impacts to archaeological resources under the roundabout configuration alternative. The signalized intersection alternative would be constructed within the same APE as the roundabout configuration alternative; thus, impacts of the signalized intersection alternative would be the same as those discussed under the roundabout configuration alternative. The signalized intersection alternative would not be expected to impact any paleontological resources or sites or unique geologic features. Adherence to Policy HR-6-Action 2 of the City's General Plan and implementation of mitigation measure **MM 3.5.1** will further reduce impacts to less than significant by ensuring that any buried archaeological and/or paleontological resources encountered during constriction of the proposed Project are handled properly and in accordance with California Public Resources Code Section 5097.5.

d) *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

Less than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

Archaeological investigations for the Project did not identify any human remains within or adjacent to the APE; therefore, the roundabout configuration alternative would not be expected to impact any human remains. However, the potential to discover or disturb human remains exists during any ground-disturbing activity. Implementation of mitigation measure **MM 3.5.2** will be required to further reduce impacts to less than significant by ensuring that any buried human remains encountered during constriction of the proposed Project are handled properly and in accordance with California Health and Safety Code Section 7050.5(b).

Signalized Intersection Alternative

Archaeological investigations for the Project did not identify any human remains within or adjacent to the APE; therefore, the signalized intersection alternative would not be expected to impact any human remains. However, the potential to discover or disturb human remains exists during any ground-disturbing activity. Implementation of mitigation

measure **MM 3.5.2** will be required to further reduce impacts to less than significant by ensuring that any buried human remains encountered during constriction of the proposed Project are handled properly and in accordance with California Health and Safety Code Section 7050.5(b).

Mitigation Measures

MM 3.5.1 In accordance with California Public Resources Code Section 5097.5, which prohibits knowing and willful excavation of undiscovered cultural resources without permission from the appropriate public agency with jurisdiction over the lands, and in order to mitigate for the potential discovery of archaeological or paleontological resources, the following measure will be implemented during construction and included in the construction contract:

> If buried archaeological and/or paleontological resources, such as chipped or ground stone, historic debris, building foundations, human bone, or fossils, are unexpectedly discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can access the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City and all other appropriate agencies.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Public Works Department*

MM 3.5.2 In order to mitigate for the potential discovery or disturbance of any human remains, the protocol of California Health and Safety Code Section 7050.5(b) will be adhered to as follows:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) or Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

If the remains are determined to be Native American, City policy would dictate that the procedures outlined in CEQA Section 15064.5(d) and (e) be followed.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Public Works Department*

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.6. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Regional Geology

Elk Grove is located in the Great Valley geomorphic province, which is primarily described as a relatively flat alluvial plain, about 50 miles wide and 400 miles long, with thick sequences of sedimentary deposits of Jurassic through Holocene age. The Great Valley geomorphic province is bounded on the north by the Klamath and Cascade mountain ranges, on the east by the Sierra Nevada, and on the west by the California Coast Mountain Range.

Topography

The Project area is located in the Sacramento Valley, which is primarily flat land with no hills or valleys. The Project site is located in an area of relatively level terrain at approximately 55 to 65 feet above mean sea level (USDA 2015). A tributary channel of Laguna Creek runs along the

east side of Bradshaw Road north of the Sheldon Road/Bradshaw Road intersection and along the west side of Bradshaw Road south of the intersection. The creek creates a naturally formed depression in the landscape where it flows.

Faults and Seismicity

No known active faults or Alquist-Priolo earthquake hazard zones occur in the City, although several inactive subsurface faults are identified in the Delta. According to the Fault Activity Map of California, the nearest faults to the City with activity within the last 200 years are the Concord, Hayward, and Cleveland Hill faults (DOC 2010). The closest known fault to the City is the Willows fault zone, located approximately 10 miles to the north. The Sacramento County General Plan Safety Element (2011) identified two major subsurface fault zones on the eastern and western sides Elk Grove. The Midland Fault Zone is located approximately 20 miles west, while the Bear Mountain Fault Zone is located approximately 20 miles east. The closest known active subsurface fault is the Dunnigan Hills fault, located approximately 25 miles northwest of the City.

Ground Shaking

In populated areas, the greatest potential for loss of life and property damage is a result of ground shaking from a nearby earthquake. Because the Project site is not located in an area near any active faults or fault zones, the potential for ground shaking in the immediate area is diminished. However, major seismic events occurring in adjacent areas, especially the San Francisco Bay Area, could cause the Project site to experience ground shaking activity.

Liquefaction

Liquefaction is the loss of soil strength due to seismic forces generating various types of ground failure. The potential for liquefaction must account for soil types and density, the groundwater table, and the duration and intensity of ground shaking.

Soils

According to the Web Soil Survey prepared by the US Department of Agriculture, Natural Resources Conservation Service, the Project area is underlain by San Joaquin silt loam (0 to 1 percent slopes, 0 to 3 percent slopes, and 3 to 8 percent slopes) and San Joaquin-Durixeralfs complex (0 to 1 percent slopes) (USDA-NRCS 1993). The soil types underlying the Project site are moderately well drained with low erosion potential (City of Elk Grove 2003b).

DISCUSSION OF IMPACTS

a) *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:*

   i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

   No Impact.

Roundabout Configuration Alternative

No known active faults or Alquist-Priolo earthquake hazard zones occur in the vicinity of the Project site. Therefore, the roundabout configuration alternative would have no impact concerning fault rupture hazards.

Signalized Intersection Alternative

No known active faults or Alquist-Priolo earthquake hazard zones occur in the vicinity of the Project site. Therefore, the signalized intersection alternative would have no impact concerning fault rupture hazards.

ii) Strong seismic ground shaking?

Less Than Significant Impact.

Roundabout Configuration Alternative

The Project site is not located in an Alquist-Priolo earthquake hazard zone; however, major seismic events occurring in adjacent areas, especially the San Francisco Bay Area, could cause the Project area to experience ground-shaking activity. The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. This alternative would not result in the development of habitable structures or other development that would typically cause an increase in population that could be adversely affected by seismic ground shaking. The improvements would be designed in accordance with the City of Elk Grove Design Guidelines and Standard Construction Specifications. Therefore, the impact is considered less than significant.

Signalized Intersection Alternative

Impacts of the signalized intersection alternative related to seismic ground shaking would be the same as those discussed under the roundabout configuration alternative. The improvements would be designed in accordance with the City of Elk Grove Design Guidelines and Standard Construction Specifications. Impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

No Impact.

Roundabout Configuration Alternative

Liquefaction is most likely to occur in deposits of water-saturated alluvium or similar deposits of artificial fill. The Project site is located on San Joaquin silt loam and San Joaquin-Durixeralfs complex soils (USDA-NRCS 1993). These soils are known to be moderately well drained. Additionally, Elk Grove is not in an area of Sacramento County known to be susceptible to liquefaction. No impact would occur.

Signalized Intersection Alternative

Impacts of the signalized intersection alternative related to liquefaction would be the same as those discussed under the roundabout configuration alternative. No impact would occur.

iv) *Landslides?*

No Impact.

Roundabout Configuration Alternative

The Project site and surrounding area are relatively flat; therefore, the occurrence of a landslide is unlikely. No impact would occur.

Signalized Intersection Alternative

The Project site and surrounding area are relatively flat; therefore, the occurrence of a landslide is unlikely. No impact would occur.

b) *Would the project result in substantial soil erosion or the loss of topsoil?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The Project site is underlain by San Joaquin silt loam and San Joaquin-Durixeralfs complex soils, which typically have a low erosion potential. Construction of the roundabout configuration alternative would involve grading for construction of the proposed improvements. This activity may result in short-term wind-driven erosion of soils. Elk Grove Municipal Code Chapter 16.44, Land Grading and Erosion Control, establishes procedures to minimize erosion and sedimentation during construction activities. The Regional Water Quality Control Board (RWQCB) requires that a National Pollutant Discharge Elimination System (NPDES) construction activity permit be issued prior to construction. The permit requires that the City impose water quality and watershed protection measures for all development projects, including erosion control. Compliance with Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with soil erosion to less than significant.

Signalized Intersection Alternative

The Project site is underlain by San Joaquin silt loam and San Joaquin-Durixeralfs complex soils, which typically have a low erosion potential. Construction of the roundabout configuration alternative would involve grading for construction of the proposed improvements. This activity may result in short-term wind-driven erosion of soils. Compliance with Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with soil erosion to less than significant.

c) *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The Project area is relatively flat, and landslides are not anticipated. The potential for soil liquefaction under earthquake shaking is considered minimal due to the depth to groundwater beneath the Project site at approximately 30 to 40 feet below mean sea level and therefore approximately 85 to 105 feet below ground surface (City of Elk Grove 2003b). Furthermore, the potential for differential settlement or lateral spreading occurring during or after seismic events at the Project site is considered low. This is because the potential for earthquake hazard in the Project area is considered low. Therefore, the proposed roundabout configuration alternative would have a less than significant impact related to landslide, lateral spreading, subsidence, liquefaction, or collapse.

Signalized Intersection Alternative

Impacts of the signalized intersection alternative would be the same as those discussed under the roundabout alternative, as the proposed improvements would occur in generally the same area. Therefore, impacts would be less than significant.

d) *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

Less Than Significant Impact.

Roundabout Configuration Alternative

According to soil data for the Project area provided by the USDA-NRCS, the Project site is underlain by San Joaquin silt loam and San Joaquin-Durixeralfs complex soils. Soils with high clay content are usually expansive. Minerals in certain clays swell with increased moisture content and then contract during dry periods. These soils contain approximately 5 inches of claypan in the subsoil (City of Elk Grove 2003b). Due to the high percentage of claypan, the shrink-swell potential for the soil types in the Project area is high; however, since these soils are located at shallow depths, they are conducive to urban development. Properly designed roads can help prevent potential damage caused by a high shrink-swell potential. The proposed roundabout configuration alternative would be designed so that grades are constructed in such a way as to prevent water from collecting on or adjacent to pavement, thereby discouraging soil saturation along the roadway. Therefore, impacts would be less than significant.

Signalized Intersection Alternative

Impacts of the signalized intersection alternative would be the same as those discussed under the roundabout alternative, as the proposed improvements would occur in generally the same area. The proposed signalized intersection alternative would be designed so that grades are constructed in such a way as to prevent water from collecting on or adjacent to pavement, thereby discouraging soil saturation along the roadway. Therefore, impacts would be less than significant.

e) *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact.

Roundabout Configuration Alternative

The roundabout configuration alternative does not propose the use or construction of septic tanks or alternative wastewater disposal systems; therefore, there would be no impact.

Signalized Intersection Alternative

The signalized intersection alternative does not propose the use or construction of septic tanks or alternative wastewater disposal systems; therefore, there would be no impact.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.7. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

Since the early 1990s, scientific consensus holds that the world's population is releasing greenhouse gases (GHGs) faster than the earth's natural systems can absorb them. These gases are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to a warming of the earth and has the potential to severely impact the earth's climate system.

While often used interchangeably, there is a difference between the terms *climate change* and *global warming*. According to the National Academy of Sciences, climate change refers to any significant, measurable change of climate lasting for an extended period of time that can be caused by both natural factors and human activities. Global warming, on the other hand, is an average increase in the temperature of the atmosphere caused by increased GHG emissions. The use of the term *climate change* is becoming more prevalent because it encompasses all changes to the climate, not just temperature.

To fully understand global climate change, it is important to recognize the naturally occurring greenhouse effect and to define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs associated with land use development that are contributing to the greenhouse effect are CO_2, CH_4, and N_2O.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. For instance, methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weighs each gas by its global warming potential. Expressing GHG emissions in CO_2e takes

the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

REGULATORY SETTING

California has adopted various administrative initiatives and also enacted a variety of legislation relating to climate change, much of which sets aggressive goals for GHG emissions reductions in the State. The most important initiative is the California Global Warming Solutions Act of 2006 (AB 32) (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599), which was signed into law in September 2006 after considerable study and expert testimony before the legislature. The law instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a GHG emission limit based on 1990 levels, to be achieved by 2020. The adoption of AB 32 provided a clear mandate that climate change should be included in the environmental review process for development proposals.

DISCUSSION OF IMPACTS

a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Construction Emissions

Implementation of the proposed Project would result in short-term GHG emissions from construction activities at the Project site. Emissions resulting from construction of the proposed Project are presented in **Table 3.7-1**. As shown in **Table 3.7-1**, construction of the proposed Project could produce 301 metric tons of CO_2e during the first year of construction and 241 metric tons of CO_2e during the second year. The SMAQMD significance threshold for construction-generated CO_2e is 1,100 metric tons per year; thus, the proposed Project would not exceed the SMAQMD significance threshold for GHG emissions. Once construction of the proposed traffic facility improvements is complete, the generation of GHG emissions would cease.

TABLE 3.7-1
CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS (METRIC TONS PER YEAR)

Construction Phases	Carbon Dioxide Equivalents (CO_2e)
Dewater Creek Segment (Year One Construction)	2
New Creek Channel Excavation (Year One Construction)	19
Existing Bridge Demolition (Year One Construction)	39
New Intersection/Bridge Structure Construction (Year One Construction)	240
Pavement Finishing of New Bridge (Year One Construction)	1
Year One Total	**301**
Pavement Finishing of New Bridge (Year Two Construction)	33
Roadwork on Sheldon & Bradshaw Roads (Includes Pedestrian Path) (Year Two Construction)	133
Roadwork Paving (Includes Pedestrian Path) (Year Two Construction)	49
Ancillary Facility & Utility Installation (Year Two Construction)	19
Habitation Revegetation (Year Two Construction)	7
Year Two Total	**241**
SMAQMD Potentially Significant Impact Threshold	*1,100 Metric Tons Annually*
Exceed SMAQMD Threshold?	**No**

*Source: CalEEMod version 2013.2.2. See **Appendix I** for model inputs.*
Note: Construction-related GHG emissions are the same for the roundabout configuration alternative and the signalized intersection alternative.

Operational Emissions

The proposed roundabout configuration alternative does not include the provision of new permanent stationary or mobile sources of emissions. Therefore, by its very nature, it will not generate quantifiable GHG emissions from operations. The roundabout configuration alternative does not propose any buildings and therefore no permanent source or stationary source emissions. In addition, roadway improvements do not directly generate vehicle trips, a predominant source of GHG emissions. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The proposed roundabout configuration alternative would not result in increases in the rate of vehicle trips. Rather, the proposed improvements would provide improved circulation at the Sheldon Road/Bradshaw Road intersection, which is operating at LOS F under current conditions, which is considered unacceptable under Elk Grove General Plan Policy CI-13, which requires that all roadways and intersections in Elk Grove operate at a minimum LOS D at all times. Once the proposed improvements are implemented, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. Furthermore, the proposed roundabout configuration alternative would result in the largest amount of emissions reductions, as shown in **Table 3.7-2**.

TABLE 3.7-2
OPERATIONAL (IDLING) GREENHOUSE GAS EMISSIONS (METRIC TONS)

	Carbon Dioxide Equivalents (CO_2e)
Existing Conditions (2015)	
Total of AM & PM Peak Periods	***25***
SMAQMD Significance Threshold	*1,100 Metric Tons Annually*
Exceed SMAQMD Threshold?	**No**
Year 2017 Traffic Signal Option	
Total of AM & PM Peak Periods	***3***
Comparison to Existing Conditions	*-22*
Year 2017 Roundabout Option	
Total of AM & PM Peak Periods	***1***
Comparison to Existing Conditions	*-24*
Year 2037 Traffic Signal Option	
Total of AM & PM Peak Periods	***4***
Comparison to Existing Conditions	*-21*
Year 2037 Roundabout Option	
Total of AM & PM Peak Periods	***3***
Comparison to Existing Conditions	*-22*
Year 2037 No Build[1]	
Total of AM & PM Peak Periods	***21***
Comparison to Existing Conditions	*-4*

*Source: CalEEMod version 2013.2.2. See **Appendix I** for model inputs.*

1. The No Build scenario accounts for the same seconds of delay as existing conditions due to lack of additional information.

As shown in **Table 3.7-2**, GHG emissions are projected to decrease under the roundabout configuration alternative compared with existing conditions and the year 2037 no build alternative. The roundabout configuration alternative would not result in new permanent stationary or mobile sources of emissions and as shown in **Table 3.7-1**, construction activities would not exceed SMAQMD GHG significance thresholds. As a result, this impact would be considered less than significant.

Signalized Intersection Alternative

Construction Emissions

Implementation of the signalized intersection alternative would result in short-term GHG emissions from construction activities. Implementation of the signalized intersection alternative would result in the temporary generation of GHG emissions resulting from the construction activities occurring during the construction phases listed in **Table 3.7-1**. Construction-related GHG emissions are the same for the signalized intersection alternative as for the roundabout configuration alternative. Refer to the discussion of

emissions commonly associated with the construction activities for the roundabout configuration alternative, as they are the same for the signalized intersection alternative.

The predicted construction-generated emissions of CO_2e associated with construction of the signalized intersection alternative are summarized in **Table 3.7-1**. Based on the modeling conducted, estimated short-term emissions of CO_2e associated with construction activities for the signalized intersection alternative would not exceed SMAQMD significance thresholds.

Operational Emissions

The proposed signalized intersection alternative does not include the provision of new permanent stationary or mobile sources of emissions. Therefore, by its very nature, it will not generate quantifiable GHG emissions from operations. The signalized intersection alternative does not propose any buildings and therefore no permanent source or stationary source emissions. In addition, roadway improvements do not directly generate vehicle trips, a predominant source of air pollutant emissions. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The proposed signalized intersection alternative would not result in increases in the rate of vehicle trips. Rather, the proposed improvements would provide improved circulation at the Sheldon Road/Bradshaw Road intersection, which is operating at LOS F under current conditions, which is considered unacceptable under Elk Grove General Plan Policy CI-13, which requires require that all roadways and intersections in Elk Grove operate at a minimum LOS D at all times. Once the proposed improvements are implemented, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. Furthermore, the proposed signalized intersection alternative would result in emissions reductions in comparison to existing conditions and the 2037 no build alternative as shown in **Table 3.7-2.**

As shown in **Table 3.7-2**, GHG emissions are projected to decrease under the signalized intersection alternative compared with existing conditions and the 2037 no build alternative. The signalized intersection alternative would not result in new permanent stationary or mobile sources of emissions, and as shown in **Table 3.7-1**, construction activities would not exceed SMAQMD significance thresholds. As a result, this impact would be considered less than significant.

b) *Would the project conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration and Signalized Intersection Alternatives

Both alternatives allowed under the proposed Project are subject to compliance with Assembly Bill (AB 32). AB 32 is a legal mandate requiring that statewide GHG emissions be reduced to 1990 levels by 2020. In adopting AB 32, the State Legislature determined the necessary GHG reductions for California to make in order to sufficiently offset its contribution to the cumulative climate change problem to reach 1990 levels. AB 32 is the only legally mandated requirement for the reduction of GHG emissions. As such, compliance with AB 32 is the adopted basis on which a lead agency can base its significance threshold for evaluating a project's GHG impacts. As identified above, neither of the proposed Project alternatives would surpass the SMAQMD's construction-related

GHG significance threshold of 1,100 metric tons per year of CO_2e, which was developed with the purpose of complying with the requirements of AB 32. SMAQMD thresholds were developed based on substantial evidence that such thresholds represent quantitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA. Compliance with such thresholds will be part of the solution to the cumulative GHG emissions problem, rather than hinder the State's ability to meet its goals of reduced statewide GHG emissions under AB 32. In addition, operational GHG emissions are projected to decrease under both the roundabout and signalized intersection alternatives compared with existing conditions and the 2037 no build alternative. Therefore, the proposed Project would not conflict with AB 32, and there is no significant impact.

Both alternatives analyzed for the proposed Project are also subject to compliance with the Elk Grove Climate Action Plan (CAP), which is a strategic planning document that identifies sources of GHG emissions in the City's boundary and reduces emissions through energy use, transportation, land use, water use, and solid waste strategies (referred to as "measures" in the CAP). The policy provisions contained in the CAP were prepared with the purpose of complying with the requirements of AB 32 and achieving the goals of the AB 32 Scoping Plan. The City considers a specific project proposal consistent with the Elk Grove CAP if it complies with the GHG reduction measures contained in the adopted CAP.

There is only one mandatory GHG reduction measure in the Elk Grove CAP that applies to the proposed Project alternatives. RC-1 – Waste Reduction requires construction and demolition activities in the City to divert 65 percent of the waste generated from such activities. Mitigation measure **MM 3.7.1** is required to ensure consistency with CAP greenhouse gas reduction measure RC-1. (In addition, the roundabout configuration alternative is consistent with CAP reduction measure TACM-12, which seeks to encourage traffic circles over four- or two-way stop signs at residential intersections where feasible.)

The proposed roundabout configuration and traffic signal alternatives would comply with the applicable GHG reduction measure included in the Elk Grove CAP with implementation of mitigation measure **MM 3.7.1**. Furthermore, either Project alternative would reduce future congestion anticipated as approved development builds out. Once the proposed traffic facility improvements are implemented, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. As a result, the proposed Project would be consistent with the AB 32 strategies to help California reach its emissions reduction targets. Therefore, implementation of mitigation measure **MM 3.7.1** will further reduce this impact to less than significant.

Mitigation Measures

MM 3.7.1 The City of Elk Grove Planning Department shall require that the Project divert 65 percent of the waste generated during the demolition of existing pavement and construction of new traffic improvement facilities, consistent with CAP measure RC-1.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project in the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The proposed Project is located in the northeastern portion of Elk Grove. No known hazardous material or hazardous waste sites exist in the vicinity of the Project (City of Elk Grove 2003). The nearest hazardous material or hazardous waste site to the proposed Project is a Federal Aviation Administration Remote Repeater site located on Rodgers Road at least 2 miles northwest of the Project site. Sunset Skyranch Airport, a privately owned airport, is located approximately 3 miles south of the proposed Project site; however, this facility is no longer in operation. Mather Airport, a public use airport facility, is located approximately 9 miles northeast of the Project site.. There are no private airstrips in the vicinity of the proposed Project.

REGULATORY SETTING

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in California Code of Regulations (CCR), Title 22, Section 66260.10 as follows:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.*

Chemical and physical properties that cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity, are defined in the CCR, Title 22, Sections 66261.20–66261.24. Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility. In addition, the release of hazardous materials into the environment could potentially contaminate soils, surface water, and groundwater supplies.

Under Government Code Section 65962.5, the California Department of Toxic Substances Control (DTSC) maintains a list of hazardous substance sites. This list, referred to as the Cortese List, includes CALSITE hazardous material sites, sites with leaking underground storage tanks, and landfills with evidence of groundwater contamination. In addition, the Sacramento County Environmental Management Department (SCEMD) maintains records of toxic or hazardous material incidents, and the RWQCB keeps files on hazardous material sites.

Most hazardous materials regulation and enforcement in Elk Grove is overseen by the SCEMD, which refers large cases of hazardous materials contamination or violations to the Central Valley RWQCB and the DTSC. It is not at all uncommon for other agencies such as the SMAQMD and both the federal and California Occupational Safety and Health Administrations (OSHA) to become involved when issues related to hazardous materials arise.

CURRENT AND PAST LAND USES

Historical aerial photographs and topographic maps were reviewed to evaluate past land use at the site and in the surrounding area and to supplement information obtained from regulatory agency database records. In 1909, the Project site was primarily undeveloped, with Stockton Boulevard located in the center of the site oriented northwest–southeast. Elk Grove Creek was depicted as a drainage to the south of its current location. By 1961, the creek had moved to its current location and State Route 99 had been constructed, with West Stockton Boulevard and East Stockton Boulevard in their respective alignments, east and west of the freeway. Land use in the surrounding area was predominantly agricultural and rural residential from 1937 through 1953. By 1968 and 1975, some commercial and residential development had occurred to the east of SR 99.

Today, the agricultural and rural properties previously found along the creek corridor have been replaced by single-family residences and commercial enterprises. At the western end of the Project area, Laguna Springs Drive crosses Elk Grove Creek via a bridge as does Emerald Vista Drive at the eastern end. Both are residential collector roads.

RECORDS SEARCH

The Initial Site Assessment (ISA) report prepared by Acacia Consultants & Engineers, Inc., in August 2015 (**Appendix E**) reviewed the following websites and databases:

- California Department of Conservation, Division of Oil, Gas, and Geothermal Resources website, databases, and maps in an effort to determine if there have been oil/gas production or test wells drilled within the Project site boundaries or in the immediate vicinity
- State Water Resources Control Board GeoTracker database for site investigation or cleanup locations that may impact the Project site
- California Department of Toxics Substances Control EnviroStor database for site investigation or cleanup locations that may impact the Project site

The report identified no wells mapped on the property or in the immediate vicinity. Furthermore, no GeoTracker or EnviroStor investigation or cleanup sites were mapped within 1 mile of the Project site (Acacia 2015).

Additionally, EDR performed a search of federal, tribal, State, and local databases regarding the Project site and nearby properties. Details regarding the databases searched by EDR are provided in the ISA (**Appendix E**). However, the EDR search determined that the Project site is not listed on the federal, State, or local ASTM Standard or supplemental sources (Acacia 2015).

DISCUSSION OF IMPACTS

a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed Project would not include the routine transportation, use, or disposal of hazardous materials that could create a significant hazard to the public. Small amounts of hazardous materials would be used during construction activities (i.e., equipment maintenance, fuel, solvents, etc.). Any use of hazardous materials would be in compliance with all applicable local, State, and federal standards associated with the handling of hazardous materials. Therefore, this impact is considered less than significant.

Signalized Intersection Alternative

The impacts associated with the signalized intersection alternative would be the same as those under the roundabout configuration alternative as described above in regard to the routine transport, use or disposal of hazardous materials. Although small amounts of hazardous materials would be used during construction activities, the Project would be required to be in compliance with all applicable local, State, and federal standards associated with the handling of hazardous materials. Therefore, this impact is considered less than significant.

b) *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

The ISA report prepared by Acacia Consultants & Engineers, Inc. in August 2015 for the Project site presented the following conclusions.

Hazardous Materials Release During Construction

The proposed Project would not create a significant hazard to the public or the environment. However, construction activities associated with the Project would include refueling and minor maintenance of construction equipment on location, which could lead to minor fuel and oil spills. The use and handling of hazardous materials during construction activities would occur in accordance with applicable federal, State, and local laws including California Occupational Health and Safety Administration (Cal/OSHA) requirements, thereby minimizing the extent of any spill. Should any fuel and/or oil spills occur, these could take place in areas that are near sensitive receptors, including waterways. Although any potential spill would be minor, such spills could be considered potentially significant. Mitigation measure **MM 3.8.1** is required to reduce the impact to less than significant.

Aerially Deposited Lead

Given the age of the roadways in the Project area, the potential exists for elevated concentrations of aerially deposited lead along the unpaved edges of the roadways. Therefore, implementation of mitigation measure **MM 3.8.2** is required.

Asbestos-Containing Materials

The existing box culvert (bridge) located in the Project area was constructed at a time when asbestos-containing materials may have been utilized and may be found in areas including but not limited to bridge joints and concrete piping. Mitigation measure **MM 3.8.3** is required to reduce the impact to less than significant.

Yellow Thermoplastic Traffic Stripes

Yellow traffic markings (thermoplastic and paint), which have the potential to contain hazardous levels of lead and chromium, were found along Laguna Springs Drive and Emerald Vista Drive. Removal of these yellow traffic markings may create residues that exceed regulatory thresholds for lead. These striping materials may also emit toxic fumes when heated. Mitigation measure **MM 3.8.4** is required to reduce the impact to less than significant.

Residual Pesticides

The area around the Project site has historically been used for agricultural production and may contain concentrations of persistent pesticides. Sediments in the roadside drainage ditch as well as the creek bottom crossing the Project site may contain

concentrations of persistent pesticides. Therefore, implementation of mitigation measure **MM 3.8.5** is required.

Kinder Morgan Petroleum Pipeline

A Kinder Morgan petroleum pipeline is located along the western shoulder of Bradshaw Road. It is unknown whether this section of pipeline has had any history of leaks or investigations. Therefore, mitigation measure **MM 3.8.6** is required to reduce the impact to less than significant.

Transformers with Polychlorinated Biphenyls (PCBs)

Several pole-mounted transformers associated with structures exist in the Project area. Removal or relocation of these poles during construction activities could result in exposure and disposal of PCBs. The City would work with the Sacramento Municipal Utility District (SMUD) in relocating any of the power poles or power lines required with the Project. If the PCB content of any of the transformers is unknown, they would be checked for the presence of PCBs prior to relocation. If PCBs are present, the transformers would be disposed of in accordance with current regulations. With adherence to applicable regulations, impacts associated with transformers are expected to be less than significant.

c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact.

Roundabout Configuration Alternative

Currently there are no existing or proposed daycares or preschools or elementary, middle, or high schools within one-quarter mile of the proposed Project area. Therefore, there would be no impact related to hazardous emissions, materials, substances, or waste near schools.

Signalized Intersection Alternative

Currently there are no existing or proposed daycares or preschools or elementary, middle, or high schools within one-quarter mile of the proposed Project area. Therefore, there would be no impact related to hazardous emissions, materials, substances, or waste near schools.

d) *Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact.

Roundabout Configuration Alternative

The provisions in Government Code Section 65962.5 are commonly referred to as the Cortese List. An online search of the Cortese List found no records within or adjacent to the proposed Project site. No impact would occur.

Signalized Intersection Alternative

An online search of the Cortese List found no records within or adjacent to the proposed Project site. No impact would occur.

e) *For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?*

No Impact.

Roundabout Configuration Alternative

The nearest airport in operation is Mather Airport, located approximately 9 miles northeast of the proposed Project site. The proposed Project is not located within an airport land use plan area or within 2 miles of a public airport or public use airport. Furthermore, the proposed Project would not result in a safety hazard for people residing or working in the Project area. Additionally, the proposed Project does not include any structures or equipment that would obstruct navigable airspace. Therefore, no impact would occur.

Signalized Intersection Alternative

The proposed Project is not located within an airport land use plan area or within 2 miles of a public airport or public use airport. Furthermore, the proposed Project would not result in a safety hazard for people residing or working in the Project area. Additionally, the proposed Project does not include any structures or equipment that would obstruct navigable airspace. Therefore, no impact would occur.

f) *For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No Impact.

Roundabout Configuration Alternative

The proposed Project is not located in the vicinity of any private airstrips. Therefore, the Project would not result in any safety hazards for people residing or working in the Project area. No impact would occur.

Signalized Intersection Alternative

The proposed Project is not located in the vicinity of any private airstrips. Therefore, the Project would not result in any safety hazards for people residing or working in the Project area. No impact would occur.

g) *Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?*

No Impact.

Roundabout Configuration Alternative

Upon incorporation, the City adopted the Sacramento County Multi-Hazard Disaster Plan (SCMDP), which was established to address planned response to extraordinary emergency situations associated with natural disasters and technological incidents. The SCMDP focuses on operational concepts relative to large-scale disasters, which can pose major threats to life and property requiring unusual emergency responses. Additionally, the City adopted the Sacramento County Area Plan, which is used as a guideline for hazardous material–related accidents or occurrences. The purpose of the Sacramento County Area Plan is to delineate responsibilities and actions by various agencies in Sacramento County required to meet the obligation to protect the health and welfare of the populace, natural resource (environment), and the public and private properties involving hazardous materials. The proposed Project would not impede or conflict with the objectives or policies of identified emergency response plans and evacuation plans.

Signalized Intersection Alternative

The impacts associated with the signalized intersection alternative would be the same as those under the roundabout configuration alternative as described above in regard to the objectives or policies of identified emergency response plans and evacuation plans. No impact would occur.

h) *Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed Project site is located in a primarily rural setting, surrounded by residential and agricultural properties. While there is some vacant land in the area, the risk of loss, injury, or death due to wildland fires is considered low. Elk Grove is not located in a designated Fire Hazard Severity Zone (Cal Fire 2008). Furthermore, the proposed Project consists of bridge replacement and intersection improvements and would not result in new development that would induce population growth in the area. Emergency access would be maintained throughout construction. In the event of a fire, the Cosumnes Fire Department would provide fire and emergency services in the Project area (refer to subsection 3.14, Public Services). Impacts are considered less than significant.

Signalized Intersection Alternative

The impacts associated with the signalized intersection alternative would be the same as those under the roundabout configuration alternative as described above in regard to wildland fires. This alternative would not result in new development that would induce population growth in the area. Emergency access would be maintained throughout construction. In the event of a fire, the Cosumnes Fire Department would provide fire and emergency services in the Project area (refer to subsection 3.14, Public Services). Therefore, impacts are considered less than significant.

Mitigation Measures

MM 3.8.1 Prior to the start of construction, the construction contractor shall designate staging areas where fueling and oil changing activities will take place. The staging area(s) shall be reviewed and approved by City's Planning Department and the Stormwater Pollution Prevention Plan (SWPPP) Manager prior to the start of construction. No fueling and oil changing activities shall be permitted outside the designated staging areas. The staging areas, as much as practicable, shall be located on level terrain and away from sensitive land uses such as residences, day care facilities, and schools. Staging areas shall not be located near any stream, channel, or wetlands. The proposed staging areas shall be identified in the SWPPP.

Timing/Implementation: *Prior to start of construction and throughout construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department in consultation with the Central Valley Regional Water Quality Control Board (RWQCB)*

MM 3.8.2 An aerially deposited lead survey shall be completed during the final Project design process, prior to approval of improvement plans and/or grading plans. If substances are detected at concentrations that could pose a health hazard and/or violate local, State, or federal health standards, remediation of the affected areas shall be undertaken in accordance with the requirements of all local, State, and federal regulations.

Timing/Implementation: *Prior to approval of improvement plans and/or grading plans*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.8.3 A pre-demolition asbestos survey shall be completed prior to the commencement of construction. Any identified asbestos-containing materials present shall be removed under acceptable engineering methods and work practices by a licensed asbestos abatement contractor prior to removal. The process shall be designed and monitored by a California Certified Asbestos Consultant. The abatement and monitoring plan shall be developed and submitted for review and approval by the Sacramento Metropolitan Air Quality Management District.

Timing/Implementation: *Prior to construction.*

Enforcement/Monitoring: *City of Elk Grove Planning Department; Sacramento Metropolitan Air Quality Management District*

MM 3.8.4 Prior to the commencement of construction, a hazardous materials compliance plan shall be prepared by a certified industrial hygienist to address the metals content of the yellow and white roadway striping found in the Project area. This plan shall be prepared in accordance with Caltrans Guidance for SSP 14-11.07–Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.

Timing/Implementation: *Prior to construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.8.5 Prior to approval of improvement plans and/or a grading permit for the Project, soils testing shall be conducted to determine the presence of concentrations of persistent pesticides. If contamination is identified, cleanup shall proceed in accordance with all State, federal, and local requirements. Hazardous materials and wastes shall be disposed of at appropriate hazardous waste acceptance facilities.

Timing/Implementation: *Prior to approval of improvement plans and/or a grading permit*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.8.6 Prior to approval of improvement plans and/or a grading permit for the Project, consultation shall be completed with Kinder Morgan regarding the history of leaks with the pipeline along the western shoulder of Bradshaw Road. If consultation results in a determination that the Project site contains soil contamination, cleanup shall proceed in accordance with all State, federal, and local requirements. Hazardous materials and wastes shall be disposed of at appropriate hazardous waste acceptance facilities.

Timing/Implementation: *Prior to approval of improvement plans and/or a grading permit*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.9. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Surface Water

A Hydraulic Analysis Report and a Location Hydraulic Study were prepared for the Project in July 2014 and are included in **Appendix F**. Elk Grove is part of the Sacramento River watershed, a 27,000-square-mile watershed including portions of the Sacramento River and the Cosumnes River. A tributary channel of Laguna Creek runs through the Project site along the east side of Bradshaw Road north of the intersection, underneath the Sheldon Road/Bradshaw Road

intersection/bridge structure, and along the west side of Bradshaw Road south of the intersection. Laguna Creek is part of the Morrison Creek Stream Group and is one of the main hydrologic features in the City Planning Area and the main creek that flows through Elk Grove. Portions of the creek have been previously altered by development.

Groundwater

The depth to groundwater beneath the Project site at approximately 30 to 40 feet below mean sea level and therefore approximately 85 to 105 feet below ground surface (City of Elk Grove 2003b). General groundwater depth may be influenced by local pumping, rainfall, and irrigation patterns. The Project site is underlain by the Sacramento Valley Groundwater Basin and more specifically, the South American Subbasin (DWR 2004). This groundwater subbasin is defined by the American River to the north, the Cosumnes and Mokelumne rivers to the south, the Sierra Nevada to the east, and the Sacramento River to the west.

Floodplain

A Summary Floodplain Encroachment Report was prepared for the Project in July 2014 and is included in **Appendix F**. According to this report, the proposed Project is located along Laguna Creek Tributary No. 1. This creek has a 100-year floodplain width of approximately 150 feet upstream of the Project and 370 feet downstream based on Federal Emergency Management Agency (FEMA) floodplain mapping.

REGULATORY SETTING

The State Water Resources Control Board (SWRCB) and the RWQCBs enforce State statutes, which are equivalent to or more stringent than the federal statutes. The RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. In the proposed Project area, the Central Valley RWQCB is responsible for protecting surface waters and groundwater from both point sources of pollution (i.e., discharge from a pipe, ditch, or other well-defined source), and non-point sources (i.e., diffuse sources with no discernible distinct point of source, often referred to as runoff or polluted runoff from agriculture, urban areas, mining, construction sites, and other sites). The City of Elk Grove has a current NPDES General Permit, reissued by the Central Valley RWQCB in 2008, which regulates stormwater discharges associated with construction activities. Preparation of a stormwater pollution prevention plan (SWPPP) would be required for the proposed Project to minimize polluted runoff during construction.

DISCUSSION OF IMPACTS

a) Would the project violate any water quality standards or waste discharge requirements?

Less Than Significant Impact.

Roundabout Configuration Alternative

Construction Water Quality Impacts

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and

exiting the intersection. The SWRCB requires dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit 99-08-DWQ). The Project footprint will increase the amount of impervious surface at the Project site. Therefore, the Project will need to obtain coverage under Construction General Permit Order 2009-0009-DWQ adopted September 2, 2009. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation.

The Construction General Permit requires the development and implementation of a SWPPP. The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list best management practices (BMPs) the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of the BMPs.

In addition, measures would be included in the grading plans to minimize erosion potential and water quality degradation of the Project area in accordance with Elk Grove Municipal Code Title 16, Chapter 16.44, Land Grading and Erosion Control. Chapter 16.44 establishes administrative procedures, minimum standards for review, and implementation and enforcement procedures for controlling erosion, sedimentation, disruption of existing drainage, and related environmental damage caused by land clearing activities, grading, filling, and land excavation. Additionally, the State has published a set of BMPs for both pre- and post-construction periods, which would be applied to the Project. The City would identify the appropriate BMPs for the Project. Compliance with the provisions of the best management practices and with Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with water quality standards and discharge requirements to a less than significant level.

Operational Water Quality Impacts

The proposed roundabout configuration alternative consists of replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The required length of the box culverts under the roundabout configuration alternative is 278 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a). The roundabout configuration alternative would result in an increase in impervious surfaces due to the reconstructed intersection and widened roadways approaching the intersection. Thus, the types, quantities, and timing of contaminant discharges in stormwater runoff would be slightly altered relative to existing conditions. The amount of contaminants discharged in stormwater drainage varies based on a variety of factors, including pollutants on trail surfaces and the amount of rainfall.

Development of the proposed Project would be subject to the requirements of NPDES Stormwater Permit No. CAS617002, which requires that the City impose water quality and watershed protection measures for all development projects and prohibits discharges from causing violations of applicable water quality standards or from resulting in

conditions that create a nuisance or water quality impairment in receiving waters. The NPDES permit requires a SWPPP to be developed and implemented and the SWPPP to identify best management practices for construction and operation in Project design for new development. Implementation of the City's NPDES permit would reduce water quality impacts to a less than significant level.

Signalized Intersection Alternative

Refer to discussion of construction water quality impacts and operational water quality impacts under the roundabout configuration alternative. The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The required length of the box culverts under the signalized intersection alternative is 165 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a). Construction water quality impacts and operational water quality impacts under the signalized intersection alternative would be similar to those discussed under the roundabout configuration alternative.

The Project footprint under the signalized intersection alternative would increase the amount of impervious surface at the Project site. Therefore, the Project will need to obtain coverage under Construction General Permit Order 2009-0009-DWQ adopted September 2, 2009. The Construction General Permit requires the development and implementation of a SWPPP. In addition, measures would be included in the grading plans to minimize erosion potential and water quality degradation of the Project area in accordance with Elk Grove Municipal Code Title 16, Chapter 16.44, Land Grading and Erosion Control. The City would identify the appropriate BMPs for the Project. Compliance with the provisions of the best management practices and with Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with water quality standards and discharge requirements to a less than significant level.

The amount of increased impervious surfaces at the Project site under the signalized intersection alternative would be slightly less than under the roundabout configuration alternative. Development of the proposed Project would be subject to the requirements of NPDES Stormwater Permit No. CAS617002. The NPDES permit requires a SWPPP to be developed and implemented and the SWPPP to identify best management practices for construction and operation in Project design for new development. Implementation of the City's NPDES permit would reduce water quality impacts to a less than significant level.

b) *Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the

intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The proposed improvements would result in an increase in impervious surfaces, which would alter the rate of infiltration at the Project site. However, impacts to groundwater resources would be minimal, as the proposed roundabout configuration does not contain elements that would add to or draw from groundwater supplies. Additionally, the proposed roundabout configuration alternative would not be constructed immediately above any preexisting wells, nor would areas known to contain wells be disturbed by Project construction. Therefore, impacts to groundwater supplies would be less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The proposed improvements would result in an increase in impervious surfaces, which would alter the rate of infiltration at the Project site. However, impacts to groundwater resources would be minimal, as the proposed signalized intersection alternative does not contain elements that would add to or draw from groundwater supplies. Additionally, the proposed signalized intersection alternative would not be constructed immediately above any preexisting wells, nor would areas known to contain wells be disturbed by Project construction. Therefore, impacts to groundwater supplies would be less than significant.

c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The required length of the box culverts under the roundabout configuration alternative is 278 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a). A tributary channel of Laguna Creek would be relocated to the east, north of the intersection, and to the west, south of the intersection. The tributary channel would be relocated farther away from the existing roadway under the roundabout configuration alternative than under the signalized intersection alternative.

The proposed improvements would result in an increase in impervious surfaces, which would alter the existing drainage pattern of the Project site. The proposed roundabout configuration alternative would be required to meet the existing NPDES permit obligations, requiring that the City prepare a SWPPP for the Project and submit it to the Central Valley RWQCB in support of NPDES regulations. The SWPPP would identify activities that may cause pollutant discharge (including sediment) during storms and the appropriate BMPs, and would identify the erosion and sedimentation control measures to implement during construction.

The roundabout configuration alternative would also be subject to Elk Grove Municipal Code Chapter 16.44, which establishes administrative procedures, minimum standards for review, and implementation and enforcement procedures for controlling erosion, sedimentation, disruption of existing drainage and related environmental damage caused by land clearing activities, grading, filling, and land excavation. Compliance with the provisions of the NPDES, stormwater pollution prevention plan, best management practices, and Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with erosion and siltation to less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The required length of the box culverts under the signalized intersection alternative is 165 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a). A tributary channel of Laguna Creek would be relocated to the east, north of the intersection, and to the west, south of the intersection. The tributary channel would be relocated closer to the existing roadway under the signalized intersection alternative than under the roundabout configuration alternative.

The proposed improvements would result in an increase in impervious surfaces, which would alter the existing drainage pattern of the Project site. The proposed signalized intersection alternative would be required to meet the existing NPDES permit obligations, requiring that the City prepare a stormwater pollution prevention plan for the Project and submit it to the Central Valley RWQCB in support of NPDES regulations. The SWPPP would identify activities that may cause pollutant discharge (including sediment) during storms and the appropriate BMPs, and would identify the erosion and sedimentation control measures to implement during construction.

The signalized intersection alternative would also be subject to Elk Grove Municipal Code Chapter 16.44, which establishes administrative procedures, minimum standards for review, and implementation and enforcement procedures for controlling erosion, sedimentation, disruption of existing drainage and related environmental damage caused by land clearing activities, grading, filling, and land excavation. Compliance with the provisions of the NPDES, stormwater pollution prevention plan, best management practices, and Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with erosion and siltation to less than significant.

d) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and

exiting the intersection. A tributary channel of Laguna Creek would be relocated to the east, north of the intersection, and to the west, south of the intersection. The required length of the box culverts under the roundabout configuration alternative is 278 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a).

Modeling conducted for the hydraulic analysis report determined that under the roundabout configuration alternative, 10-year peak flows in Laguna Creek would be essentially unchanged from existing conditions, and tor the 100-year storm, peak flows are predicted to increase from 12 to 16 cubic feet per second (a maximum of 1.5 percent) near the intersection. This is not considered a significant increase in peak flows over existing conditions. Modeling also determined that water surface elevations for this alternative would decrease slightly from existing conditions and would increase between 0.08 and 0.18 feet upstream for a 10-year storm event. Water surface elevations would increase by a maximum of 0.02 feet downstream of the culverts and would range from 0.06 feet lower to 0.01 feet higher than existing conditions for a 100-year storm event (West Yost Associates 2014a). According to the Hydraulic Analysis Report prepared for the Project, under the roundabout configuration alternative, the box culverts would be submerged during a 10-year storm event (West Yost Associates 2014a). This situation was discussed with Caltrans, and it was determined that submergence of the box culverts during a 10-year storm event is considered acceptable for the specific site conditions.

The relocated tributary channel of Laguna Creek would be designed to safely convey design storm flows. Furthermore, the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection was identified as functionally obsolete in Caltrans' Structure and Maintenance Investigations Report prepared in September 2013. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood. No substantial change to water surface level, volume, or velocity as a result of Project implementation would occur. Construction would not affect the floodplain elevation and would not result in increased risk of flooding in the area. Therefore, impacts would be less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. A tributary channel of Laguna Creek would be relocated to the east, north of the intersection, and to the west, south of the intersection. The required length of the box culverts under the roundabout configuration alternative is 165 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a).

Modeling conducted for the Hydraulic Analysis Report determined that under the signalized intersection alternative, 10-year peak flows in the creek would be essentially unchanged from existing conditions, and for the 100-year storm, peak flows are predicted to increase from 12 to 16 cubic feet per second (a maximum of 1.5 percent) near the intersection. This is not considered a significant increase in peak flows over existing conditions. Modeling also determined that water surface elevations for this alternative would increase a maximum of 0.03 feet downstream for both the 10-year and 100-year storm events. Upstream, water surface elevations are predicted to increase

between 0.04 to 0.16 feet for the 10-year storm event and are predicted to decrease by a maximum of 0.26 feet just upstream of the bridge/culvert and trend toward existing levels for the 100-year storm event. According to the Hydraulic Analysis Report prepared for the Project, under the signalized intersection alternative, the box culverts would be submerged during a 10-year storm event (West Yost Associates 2014a). This situation was discussed with Caltrans, and it was determined that submergence of the box culverts during a 10-year storm event is considered acceptable for the specific site conditions.

The relocated tributary channel of Laguna Creek would be designed to safely convey design storm flows. Furthermore, the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection was identified as functionally obsolete in Caltrans' Structure and Maintenance Investigations Report prepared in September 2013. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood. No substantial change to water surface level, volume, or velocity as a result of Project implementation would occur. Construction would not affect the floodplain elevation and would not result in increased risk of flooding in the area. Therefore, impacts would be less than significant.

e) *Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative would increase impervious surfaces at the Project site, which would result in an increase in the quantity of runoff generated in a storm event. The quantity of additional runoff generated from the Project would not be substantial. The Project is not expected to contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems in the Project vicinity. Compliance with the provisions of the NPDES, SWPPP, and Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with runoff to less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative would increase impervious surfaces at the Project site, which would result in an increase in the quantity of runoff generated in a storm event. The quantity of additional runoff generated from the Project would not be substantial. The Project is not expected to contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems in the Project vicinity. Compliance with the provisions of the NPDES, SWPPP, and Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with runoff to less than significant.

f) *Would the project otherwise substantially degrade water quality?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Refer to discussion of issue a) of this subsection. The proposed roundabout configuration alternative is not anticipated to substantially degrade water quality once completed and once implementation of the City's NPDES permit occurs. Compliance with the provisions of the NPDES stormwater pollution prevention plan, best management practices, and Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with water quality to a less than significant level.

Signalized Intersection Alternative

Refer to discussion of issue a) of this subsection. The proposed signalized intersection alternative is not anticipated to substantially degrade water quality once completed and once implementation of the City's NPDES permit occurs. Compliance with the provisions of the NPDES stormwater pollution prevention plan, best management practices, and Elk Grove Municipal Code Chapter 16.44 would reduce impacts associated with water quality to a less than significant level.

g) *Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No Impact.

Roundabout Configuration Alternative

Although portions of the Project are located in a 100-year flood hazard area, the roundabout configuration alternative does not include a housing component. Therefore, no impact would occur.

Signalized Intersection Alternative

Although portions of the Project are located in a 100-year flood hazard area, the signalized intersection alternative does not include a housing component. Therefore, no impact would occur.

h) *Would the project place structures within a 100-year flood hazard area that would impede or redirect flood flows?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. A tributary channel of Laguna Creek would be relocated to the east, north of the intersection, and to the west, south of the intersection. The required length of the box culverts under the roundabout configuration alternative is 278 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a).

Portions of the Project site are located in the 100-year and 500-year flood hazard areas. Modeling conducted for the Hydraulic Analysis Report determined that under the roundabout configuration alternative, 100-year peak flows are predicted to increase from 12 to 16 cubic feet per second (a maximum of 1.5 percent) near the intersection, which is not considered a significant increase in peak flows over existing conditions. Modeling also determined that water surface elevations would increase by a maximum of 0.02 feet downstream of the culverts and would range from 0.06 feet lower to 0.01 feet higher than existing conditions for a 100-year storm event (West Yost and Associates 2014a).

The existing East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection was identified as functionally obsolete in Caltrans' Structure and Maintenance Investigations Report prepared in September 2013. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood. No substantial change to water surface level, volume, or velocity as a result of Project implementation would occur. Construction would not affect the floodplain elevation and would not impede or redirect flood flows in the area. Therefore, impacts would be less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. A tributary channel of Laguna Creek would be relocated to the east, north of the intersection, and to the west, south of the intersection. The required length of the box culverts under the roundabout configuration alternative is 165 feet. Model tests for this alternative determined that 9-foot-wide by 6-foot-high box culverts would be adequate (West Yost Associates 2014a).

Portions of the Project site are located in the 100-year and 500-year flood hazard areas. Modeling conducted for the Hydraulic Analysis Report determined that under the roundabout configuration alternative, 100-year peak flows are predicted to increase from 12 to 16 cubic feet per second (a maximum of 1.5 percent) near the intersection, which is not considered a significant increase in peak flows over existing conditions. Modeling also determined that water surface elevations for this alternative would increase a maximum of 0.03 feet downstream for 100-year storm events. Upstream, water surface elevations are predicted to decrease by a maximum of 0.26 feet just upstream of the bridge/culvert and trend toward existing levels for the 100-year storm event (West Yost and Associates 2014a).

The existing East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection was identified as functionally obsolete in Caltrans' Structure and Maintenance Investigations Report prepared in September 2013. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood. No substantial change to water surface level, volume, or velocity as a result of Project implementation would occur. Construction would not affect the floodplain elevation and would not impede or redirect flood flows in the area. Therefore, impacts would be less than significant.

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam?

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The proposed roundabout configuration alternative does not include any housing or other habitable structures. Furthermore, the Project site is located outside the Folsom Dam Failure Flood Area. Therefore, the proposed roundabout configuration alternative would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam. No impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The proposed signalized intersection alternative does not include any housing or other habitable structures. Furthermore, the Project site is located outside the Folsom Dam Failure Flood Area. Therefore, the proposed signalized intersection alternative would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam. No impact would occur.

j) Would the project be subject to inundation by seiche, tsunami, or mudflow?

No Impact.

Roundabout Configuration Alternative

The Project area is not located near any ocean coast or seiche hazard areas and would not involve the development of residential or other sensitive land uses in or near these areas. Therefore, the roundabout configuration alternative would not expose people to potential impacts involving seiche or tsunami. No potential for mudflows is anticipated. No impact would occur.

Signalized Intersection Alternative

The Project area is not located near any ocean coast or seiche hazard areas and would not involve the development of residential or other sensitive land uses in or near these areas. Therefore, the signalized intersection alternative would not expose people to potential impacts involving seiche or tsunami. No potential for mudflows is anticipated. No impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.10 LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The proposed Project is located in the Rural Sheldon Area in Elk Grove. The Project site is surrounded by agricultural-residential land uses (see **Figure 3.10-1**). According to the City's online General Map Viewer, the Project site is surrounded by land zoned Agricultural-Residential (AR-2 and AR-5). The City designates the land surrounding the Project site as Rural Residential (RR) (City of Elk Grove 2003a). Undeveloped land and residential properties, generally 2 acres or larger, can be seen from the Sheldon Road/Bradshaw Road intersection and roadways. A tributary channel of Laguna Creek runs along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection.

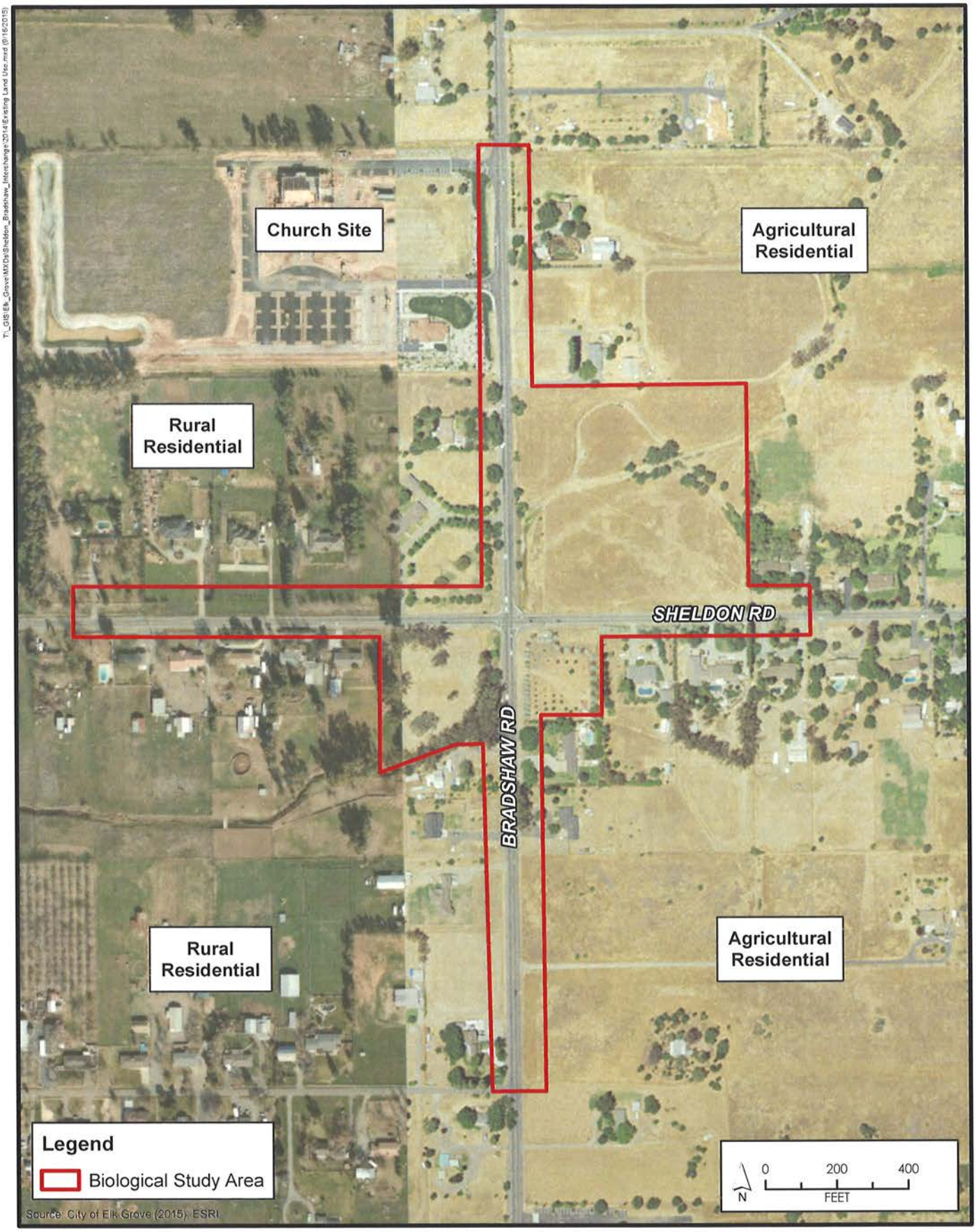
REGULATORY SETTING

City of Elk Grove General Plan

The General Plan (adopted November 2003 and reflecting amendments through March 2015) is a broad framework for planning the future of the City. It is the official policy statement of the City Council to guide the private and public development of Elk Grove in a manner to gain the maximum social and economic benefit to the citizens. All other City codes and standards, including Specific Plans and the Development Code, must be consistent with the General Plan. The City's General Plan includes policies that relate to the proposed Project. **Table 3.10-1** summarizes applicable policies and the Project's consistency with these policies.

TABLE 3.10-1
ELK GROVE GENERAL PLAN LAND USE CONSISTENCY WITH THE SHELDON ROAD/BRADSHAW ROAD INTERSECTION IMPROVEMENT PROJECT

General Plan Policy (as adopted)	Consistency with Project	Analysis
Policy LU-18: Land uses within the "Sheldon" area (generally encompassing the area designated for Rural Residential uses in the eastern part of Elk Grove) shall be consistent with the community's rural character, emphasizing lot sizes of at least two gross acres, roadways which preserve the area's mature trees, and limited commercial services.	Yes	The proposed roundabout configuration alternative and the proposed signalized intersection alternative are located in the Rural Sheldon Area of Elk Grove and will comply with the Rural Road Improvement Policy and the Rural Road Improvement Standards established by the City.
Policy CI-1: Circulation planning for all modes of travel (vehicle, transit, bicycle, pedestrian, etc.) shall be coordinated with efforts to reduce air pollution.	Yes	The proposed roundabout configuration alternative and the proposed signalized intersection alternative include accommodations for pedestrians and bicyclists at the intersection. In addition, the proposed alternatives will relieve congestion and idling at the intersection, which may reduce air pollution.
Policy CI-5-Action 3: The City will support positive incentives such as carpool and vanpool parking, bus turnouts, and pedestrian-friendly project designs to promote the use of transportation alternatives.	Yes	The proposed roundabout configuration alternative and the proposed signalized intersection alternative include accommodations for pedestrians and bicyclists at the Sheldon Road/Bradshaw Road intersection where pedestrian access is currently not provided.
Policy CI-13: The City shall require that all roadways and intersections in Elk Grove operate at a minimum level of service "D" at all times.	Yes	Under existing conditions, the Sheldon Road/Bradshaw Road intersection operates at LOS F during both the AM and PM peak hours. The proposed roundabout configuration alternative and the proposed signalized intersection alternative would relieve congestion and improve traffic flow at the Sheldon Road/Bradshaw Road intersection consistent with the City's Rural Roads Improvement Policy's value-based approach from incremental, rather than ultimate, road improvements that solve specific traffic issues.



City of Elk Grove
Development Services

Figure 3.10-1

Existing Land Use

DISCUSSION OF IMPACTS

a) *Would the project physically divide an established community?*

No Impact.

Roundabout Configuration Alternative

The Project site is located at the intersection of Sheldon Road and Bradshaw Road and on Sheldon Road and Bradshaw Road approaching the intersection. No barriers to movement through existing and planned communities in the surrounding areas would be installed. Rather, the proposed roundabout configuration alternative would provide pedestrian and bicycle access at the Sheldon Road/Bradshaw Road intersection, which currently does not provide pedestrian access. Improved pedestrian and bicycle access at the intersection would improve community continuity. Additionally, the roundabout configuration alternative is anticipated to improve local traffic circulation in the area. Therefore, no impact would occur.

Signalized Intersection Alternative

The Project site is located at the intersection of Sheldon Road and Bradshaw Road and on Sheldon Road and Bradshaw Road approaching the intersection. No barriers to movement through existing and planned communities in the surrounding areas would be installed. Rather, the proposed signalized intersection alternative would provide pedestrian and bicycle access at the Sheldon Road/Bradshaw Road intersection, which currently does not provide pedestrian and bicycle access. Improved pedestrian and bicycle access at the intersection would improve community continuity. Additionally, the signalized intersection alternative is anticipated to improve local traffic circulation in the area. Therefore, no impact would occur.

b) *Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. This alternative would require right-of-way for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadways and for the relocated Laguna Creek tributary channel. Existing land uses in the Project area include agricultural-residential. The Project is consistent with local plans, policies, and regulations. Therefore, impacts would be less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. This alternative would require right-of-way for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadways and for the relocated Laguna Creek tributary channel. Existing land uses in the Project area include agricultural-residential. The Project is consistent with local plans, policies, and regulations. Therefore, impacts would be less than significant.

c) *Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact.

Roundabout Configuration Alternative

Currently, no habitat conservation plans or natural community conservation plans are in place in the Project region or applicable to the Project site. The South Sacramento Habitat Conservation Plan is a planned conservation plan that will cover the City, including the Project location. However, no habitat conservation plans or natural community conservation plans applicable to the Project area have been adopted to date. Therefore, no impact would occur.

Signalized Intersection Alternative

Refer to the above discussion of impacts of the roundabout configuration alternative. The signalized intersection alternative is located in the same location as the roundabout configuration alternative. No impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.11. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Surface Mining and Reclamation Act of 1975 (SMARA) requires the State Geologist to inventory and classify selected mineral resources in California. The proposed Project is located in a rural setting on land covered by the MRZ-3 classification for mineral resources. The MRZ-3 classification covers areas "containing aggregate deposits, the significance of which cannot be evaluated from available data" (City of Elk Grove 2003). No mineral extraction activities occur in the vicinity of the Project site. None of the roadways in the Project vicinity serve as routes for traffic involved in mineral extraction activities.

DISCUSSION OF IMPACTS

a) *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative would not result in the use or extraction of any mineral or energy resources and would not restrict access to known mineral resource areas. The Project would not conflict with energy conservation plans, use non-renewable resources in a wasteful manner, or result in the loss of availability of a known mineral resource. Therefore, no impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative would not result in the use or extraction of any mineral or energy resources and would not restrict access to known mineral resource areas. The Project would not conflict with energy conservation plans, use non-renewable resources in a wasteful manner, or result in the loss of availability of a known mineral resource. Therefore, no impact would occur.

b) *Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

No Impact.

Roundabout Configuration Alternative

Refer to issue a) above. The proposed Project would have no impact on mineral resources. No impact would occur.

Signalized Intersection Alternative

Refer to issue a) above. The proposed Project would have no impact on mineral resources. No impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.12. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Acoustic Fundamentals

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz) or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds in that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. **Table 3.12-1** describes typical A-weighted noise levels for various noise sources.

TABLE 3.12-1
TYPICAL A-WEIGHTED NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments.

Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound would generally be perceived as barely detectable.

Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

- Equivalent Sound Level (L_{eq}): Represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($L_{eq}[h]$) is the energy average of A-weighted sound levels occurring during a one-hour period and is the basis for noise abatement criteria (NAC) used by Caltrans and the Federal Highway Administration (FHWA).

- Percentile-Exceeded Sound Level (Lxx): Represents the sound level exceeded for a given percentage of a specified period (e.g., L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time).

- Maximum Sound Level (L_{max}): The highest instantaneous sound level measured during a specified period.

- Day-Night Level (L_{dn}): The energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

- Community Noise Equivalent Level (CNEL): Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

Existing Noise Environment

Noise-Sensitive Land Uses

Noise-sensitive land uses generally include those uses where exposure to noise would result in adverse effects, as well as uses where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other noise-sensitive land uses include hospitals, convalescent facilities, parks, hotels, churches, libraries, and other uses where low interior noise levels are essential.

Noise-sensitive land uses located near the Project site consist of residential land uses and two churches. Residential dwellings are located at various distances from the roadways along Sheldon Road and Bradshaw Road. Numerous residential dwellings within one-quarter mile of the Sheldon Road/Bradshaw Road intersection are located within 100 feet of Sheldon Road or

Bradshaw Road. New Life Christian Fellowship is located approximately one-third mile south of the Sheldon Road/Bradshaw Road intersection, St. Maria Goretti Parish is located approximately one-quarter mile north and The Rock Church is located approximately three-quarters of a mile north of the intersection.

REGULATORY SETTING

Local Plans, Policies, Regulations, and Ordinances

Since operation of the proposed Project does not include any transportation uses, this section focuses on the regulatory setting as it relates to construction-related noise.

City of Elk Grove General Plan

The General Plan Noise Element contains policies designed to protect the community from the harmful and annoying effects of exposure to excessive noise. General Plan policies applicable to the proposed Project are summarized below.

> **Policy NO-3:** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table NO-A as measured immediately within the property line of lands designated for noise-sensitive uses.
>
> **NO-3-Action 1:** Limit construction activity to the hours of 7 a.m. to 7 p.m. whenever such activity is adjacent to residential uses.
>
> **NO-3-Action 3:** The City shall require that stationary construction equipment and construction staging areas be set back from existing noise-sensitive land uses.

The City's General Plan also includes maximum allowable noise standards for projects affected by non-transportation noise sources. Noise compatibility of proposed development is determined in comparison to these standards. The City's noise standards for projects affected by stationary (i.e., non-transportation) noise sources are shown in **Table 3.12-2**.

TABLE 3.12-2
PERFORMANCE STANDARDS FOR STATIONARY (NON-TRANSPORTATION) NOISE SOURCES

Source	Noise Level (Hourly L_{eq}, dBA)	
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Part 1: Typical Sources[1]	55	45
Part 2: Sources Which Are Tonal, Impulsive, Repetitive, or Consist Primarily of Speech or Music[2]	50	40

Source: City of Elk Grove 2003a, Table NO-A

1. *The standards above will apply generally to noise sources that are not tonal, impulsive, or repetitive in nature. Typical noise sources in this category would include HVAC systems, cooling towers, fans, blowers, etc.*
2. *The standards in Part 2 apply to noises which are tonal in nature, impulsive or repetitive, or which consist primarily of speech or music (e.g., humming sounds, outdoor speaker systems, etc.). Typical noise sources in this category include pile drivers, drive-through speaker boxes, punch presses, steam valves, and transformer stations.*

These noise level standards in Parts 1 and 2 above do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

The City may impose noise level standards which are more or less restrictive than those specified above based upon determination of existing low or high ambient noise levels.

As depicted in **Table 3.12-2**, the City's maximum acceptable exterior noise standard for residential land uses affected by non-transportation noise sources is 55 dBA L_{eq} during the

daytime hours (i.e., 7 a.m. to 10 p.m.) and 45 dBA during the nighttime hours (i.e., 10 p.m. to 7 a.m.). To account for increased annoyance potential, non-transportation sources with tonal, impulsive, or repetitive noise characteristics (i.e., a pile driver) are reduced by 5 dBA.

City of Elk Grove Noise Code (Elk Grove Municipal Code, Chapter 6.32)

Elk Grove Municipal Code Title 6, Chapter 6.32, Noise Control, regulates noise generated by non-transportation sources. Section 6.32.100, Exemptions, restricts construction activities to the hours between 6 a.m. and 8 p.m., Monday through Friday, and between 7 a.m. and 8 p.m. on Saturday and Sunday.

DISCUSSION OF IMPACTS

The below discussion is based on the Noise Study Report (Caltrans 2015c) prepared for the Project, which summarizes the traffic noise modeling results for existing conditions and design-year conditions with and without implementation of the proposed build alternatives (i.e., roundabout and signalized intersection, respectively). Predicted design-year traffic noise levels with the Project are compared to existing conditions and to design-year no-project conditions.

a) *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Based on the modeling conducted for the Noise Study Report (**Appendix G**), predicted design-year noise levels at and nearby residential land uses with implementation of the roundabout configuration alternative would be approximately 65 dBA L_{eq} or less (see **Figure 3.12-1**). Predicted design-year noise levels for this alternative would not approach or exceed the exterior NAC of 67 dBA L_{eq}. Predicted design-year noise levels at St. Maria Goretti Parish would likewise not be projected to exceed the applicable exterior or interior NAC of 67 dBA L_{eq} and 52 dBA L_{eq}, respectively, of the roundabout configuration alternative. Predicted increases in traffic noise levels at nearby land uses would be 5 dBA or less. Therefore, traffic noise impacts are not predicted to occur and consideration of noise abatement is not required. This impact would be less than significant.

Signalized Intersection Alternative

Based on the modeling conducted for the Noise Study Report (**Appendix G**), predicted design-year noise levels at and nearby residential land uses with implementation of the signalized intersection alternative would be approximately 65 dBA L_{eq} or less (see **Figure 3.12-2**). Predicted design-year noise levels for this alternative would not approach or exceed the exterior NAC of 67 dBA L_{eq}. Predicted design-year noise levels at St. Maria Goretti Parish would likewise not be projected to exceed the applicable exterior or interior NAC of 67 dBA L_{eq} and 52 dBA L_{eq}, respectively, of the signalized intersection alternative. Predicted increases in traffic noise levels at nearby land uses would be 5 dBA, or less. Therefore, traffic noise impacts are not predicted to occur and consideration of noise abatement is not required. This impact would be less than significant.

FIGURE 3.12-1
PREDICTED FUTURE NOISE LEVELS – ROUNDABOUT INTERSECTION ALTERNATIVE

Table B-1. Predicted Future Noise Levels: Roundabout Intersection Build Alternative

Receiver I.D.	Area	Barrier I.D.	Land Use	Number of Dwelling Units	Address	Existing Noise Level $L_{eq}(h)$, dBA	Roundabout Intersection - Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																										
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions Leq(h), dBA	Design Year Noise Level with Project Minus No Project Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																			
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	58	62	63	4	1	C (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	38	42	43	4	1	D (52)*	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	A	NA	RESIDENTIAL	1	8756 BRADSHAW	58	61	61	3	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	D	NA	RESIDENTIAL	1	8830 BRADSHAW	54	58	59	4	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	D	NA	RESIDENTIAL	1	8858 BRADSHAW	56	60	61	4	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5	C	NA	RESIDENTIAL	1	8845 BRADSHAW	57	59	61	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	C	NA	RESIDENTIAL	1	8825 BRADSHAW	57	58	60	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	B	NA	RESIDENTIAL	1	8785 BRADSHAW	54	59	59	5	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	A	NA	RESIDENTIAL	1	9635 SHELDON	52	53	55	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	A	NA	RESIDENTIAL	1	9647 SHELDON	54	55	56	1	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	A	NA	RESIDENTIAL	1	9659 SHELDON	54	55	57	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11	A	NA	RESIDENTIAL	1	9689 SHELDON	55	57	57	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	B	NA	RESIDENTIAL	1	9753 SHELDON	61	62	64	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
13	B	NA	RESIDENTIAL	1	9771 SHELDON	62	62	64	0	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
14	C	NA	RESIDENTIAL	1	9780 SHELDON	57	59	61	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	C	NA	RESIDENTIAL	1	9770 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	C	NA	RESIDENTIAL	1	9750 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17	C	NA	RESIDENTIAL	1	9730 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	D	NA	RESIDENTIAL	1	9666 SHELDON	62	61	63	-1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	D	NA	RESIDENTIAL	1	9656 SHELDON	62	62	64	0	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	D	NA	RESIDENTIAL	1	9640 SHELDON	63	63	64	0	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
21	D	NA	RESIDENTIAL	1	9630 SHELDON	63	63	65	0	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

** Represents interior NAC. Interior NAC is based on predicted exterior traffic noise levels minus 20 dB exterior-to-interior noise reduction. All other NAC are based on exterior traffic noise levels.*

Source: Caltrans 2015c

FIGURE 3.12-2
PREDICTED FUTURE NOISE LEVELS – SIGNALIZED INTERSECTION ALTERNATIVE

Table B-2. Predicted Future Noise Levels: Signalized Intersection Build Alternative

Receiver I.D.	Area	Barrier I.D.	Land Use	Number of Dwelling Units	Address	Existing Noise Level $L_{eq}(h)$, dBA	Signalized Intersection - Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA						Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																	
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions Leq(h), dBA	Design Year Noise Level with Project Minus No Project Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	58	61	64	3	3	C (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	38	41	44	3	3	D (52)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	A	NA	RESIDENTIAL	1	8756 BRADSHAW	58	60	63	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	D	NA	RESIDENTIAL	1	8830 BRADSHAW	54	57	61	3	4	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	D	NA	RESIDENTIAL	1	8858 BRADSHAW	56	58	63	2	5	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5	C	NA	RESIDENTIAL	1	8845 BRADSHAW	57	60	63	3	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	C	NA	RESIDENTIAL	1	8825 BRADSHAW	57	59	62	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	B	NA	RESIDENTIAL	1	8785 BRADSHAW	54	56	59	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	A	NA	RESIDENTIAL	1	9635 SHELDON	52	54	54	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	A	NA	RESIDENTIAL	1	9647 SHELDON	54	56	55	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	A	NA	RESIDENTIAL	1	9659 SHELDON	54	56	56	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11	A	NA	RESIDENTIAL	1	9689 SHELDON	55	57	59	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	B	NA	RESIDENTIAL	1	9753 SHELDON	61	63	62	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
13	B	NA	RESIDENTIAL	1	9771 SHELDON	62	64	63	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
14	C	NA	RESIDENTIAL	1	9780 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	C	NA	RESIDENTIAL	1	9770 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	C	NA	RESIDENTIAL	1	9750 SHELDON	57	59	61	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17	C	NA	RESIDENTIAL	1	9730 SHELDON	57	59	62	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	D	NA	RESIDENTIAL	1	9666 SHELDON	62	64	64	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	D	NA	RESIDENTIAL	1	9656 SHELDON	62	64	64	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	D	NA	RESIDENTIAL	1	9640 SHELDON	63	65	64	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
21	D	NA	RESIDENTIAL	1	9630 SHELDON	63	65	64	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

** Represents interior NAC. Interior NAC is based on predicted exterior traffic noise levels minus 20 dB exterior-to-interior noise reduction. All other NAC are based on exterior traffic noise levels.*

Source: Caltrans 2015c

b) *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

Construction activities associated with the proposed Project would include pile driving. The vibration that would result from pile-driving activities could exceed thresholds established in the City's General Plan. Although these activities would be temporary in nature and no persons would be exposed to this noise/vibration for an extended period of time, it would be considered a significant impact unless mitigation is incorporated. With implementation of mitigation measures **MM 3.12.1** through **MM 3.12.3**, short-term construction-related noise impacts would be reduced to a less than significant level.

Signalized Intersection Alternative

Refer to discussion under the roundabout configuration alternative. Impacts would be the same under the signalized intersection alternative as discussed under the roundabout configuration alternative and would require the same mitigation measures.

c) *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less Than Significant Impact.

See discussion under issue a) above. Predicted increases in traffic noise levels at nearby land uses would be 5 dBA or less. Therefore, traffic noise impacts are not predicted to occur and consideration of noise abatement is not required. This impact would be less than significant for both alternatives.

d) *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less Than Significant Impact with Mitigation Incorporated.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative would result in temporary increased ambient noise levels in the vicinity of the Project site during construction due to construction vehicles and activities. **Table 3.12-3** summarizes noise levels produced by construction equipment commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

TABLE 3.12-3
CONSTRUCTION EQUIPMENT NOISE

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration 2006.
See also http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

These noise increases would be temporary, intermittent, and limited to daytime hours. Because sensitive land uses are located adjacent to the Project area, temporary construction noise is considered potentially significant unless mitigation is incorporated. With implementation of mitigation measures **MM 3.12.4** through **MM 3.12.7**, short-term construction-related noise impacts would be reduced to a less than significant level.

Signalized Intersection Alternative

Refer to discussion under the roundabout configuration alternative. Impacts would be the same under the signalized intersection alternative as discussed under the roundabout configuration alternative and would require the same mitigation measures.

e) *For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative is not located within an airport land use plan or within 2 miles of a public airport. Therefore, no impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative is not located within an airport land use plan or within 2 miles of a public airport. Therefore, no impact would occur.

f) *For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative is not located in the vicinity of a private airstrip. Therefore, no impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative is not located in the vicinity of a private airstrip. Therefore, no impact would occur.

Mitigation Measures

MM 3.12.1 "Quiet" pile-driving technology based on soils and structural requirements, as feasible (i.e., hydraulic or vibration pile drivers versus impact pile drivers), shall be used.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.2 Surrounding residents (minimum 300-foot radius) shall be provided at least 30 days written notice of the start date and duration of pile driving noise. Notices shall include contact information for a construction representative who shall be available to hear resident questions and concerns during pile driving activities.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.3 Pile driving activities shall only take place Monday through Friday between the hours of 7 a.m. and 7 p.m. per the City's General Plan. Pile driving shall not occur on Saturday or Sunday unless approved by the City of Elk Grove Planning Department and residents notified.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.4 Noise-generating construction operations shall be limited to between the hours of 7 a.m. and 7 p.m. in accordance with Elk Grove General Plan Noise Policy NO-3-Action-1.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.5 Construction equipment and equipment staging areas shall be located at the farthest distance possible from adjacent sensitive land uses.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.6 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.7 When not in use, motorized construction equipment shall not be left idling.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.13. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

In the 10 years prior to the incorporation of the City of Elk Grove in July 2000, the population increased by 70.5 percent, which equates to a 7 percent average annual increase. The City began to rapidly develop as a result of an increase in jobs to the Sacramento County region and the availability of land outside the downtown Sacramento area. The 2014 population of the City was approximately 160,688 persons (DOF 2015). The City's General Plan EIR (2003b) projects that the population will grow to 168,465 by the year 2025. Growth in population causes an increased demand for housing. New housing developments are planned in the Elk Grove Planning Area; however, these planned housing developments are not located in the vicinity of the Project site.

DISCUSSION OF IMPACTS

a) *Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative does not include the construction of new homes or businesses, nor does it include the extension or construction of new roadways that could potentially induce growth. This alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The Project would improve the hydraulic capacity of the bridge structure and reduce flooding, relieve congestion and improve traffic flow at the intersection, provide pedestrian access in the Project area, and help to achieve the transportation goals of the City's General Plan. The Project is not anticipated to induce growth. Therefore, no impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative does not include the construction of new homes or businesses, nor does it include the extension or construction of new roadways that could potentially induce growth. This alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The Project would improve the hydraulic capacity of the bridge structure and reduce flooding, relieve congestion and improve traffic flow at the intersection, provide pedestrian access in the Project area, and help to achieve the transportation goals of the City's General Plan. The Project is not anticipated to induce growth. Therefore, no impact would occur.

b) *Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact.

Roundabout Configuration Alternative

No residential structures would be displaced as a result of the Project. No impact would occur.

Signalized Intersection Alternative

No residential structures would be displaced as a result of the Project. No impact would occur.

c) *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No Impact.

Roundabout Configuration Alternative

As discussed in issue b) above, the Project would not involve the removal or relocation of any housing. The Project would not displace any people or necessitate the construction of any replacement housing. Therefore, no impact would occur.

Signalized Intersection Alternative

As discussed in issue b) above, the Project would not involve the removal or relocation of any housing. The Project would not displace any people or necessitate the construction of any replacement housing. Therefore, no impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.14 PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Project site is located in Elk Grove at the intersection of Sheldon Road and Bradshaw Road and along Sheldon Road and Bradshaw Road approaching the intersection. The City of Elk Grove receives general public safety and law enforcement services from the Elk Grove Police Department. The Cosumnes Fire Department provides fire protection and emergency services to the City. The Elk Grove Unified School District provides educational services in the area surrounding the Project site. Additionally, the City provides maintenance of public facilities.

DISCUSSION OF IMPACTS

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

a, b) Fire protection, police protection?

Less Than Significant Impact. The proposed build alternatives would not induce population growth and do not include any components that would result in an increased demand for fire protection or police protection. Establishment of additional facilities to maintain acceptable service ratios for the public would not be necessary.

Roundabout Configuration Alternative

This alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The Project would add pedestrian and bicycle facilities along Sheldon Road and Bradshaw Road in the Project limits. Traffic handling during construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The City will coordinate with the local fire and police departments before road closures to ensure

both departments are aware of temporary road closures and detours ahead of time. Therefore, this impact is considered less than significant.

Signalized Intersection Alternative

This alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The Project would add pedestrian and bicycle facilities along Sheldon Road and Bradshaw Road in the Project limits. Traffic handling during construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The City will coordinate with the local fire and police departments before road closures to ensure both departments are aware of temporary road closures and detours ahead of time. Therefore, this impact is considered less than significant.

c–e) *Schools, parks, other public facilities?*

No Impact.

Roundabout Configuration Alternative

The Project would not induce population growth and does not include any components that would result in an increase in demand for schools, parks, or other public services, as discussed in issues a, b). Establishment of additional facilities to maintain acceptable service ratios for the public would not be necessary. No impact would occur.

Signalized Intersection Alternative

The Project would not induce population growth and does not include any components that would result in an increase in demand for schools, parks, or other public services, as discussed in issues a, b). Establishment of additional facilities to maintain acceptable service ratios for the public would not be necessary. No impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.15. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The City's General Plan contains goals and policies established to conserve existing national, State, and regional recreation areas, as well as encouragement for the development of additional recreational opportunities to meet the City's needs. In addition, the City's Bicycle, Pedestrian, and Trails Master Plan (2014) includes goals that encourage an exceptional public parks network throughout the City and public use of all available pedestrian and bicycle trails. No parks or recreational facilities exist in the Project vicinity.

DISCUSSION OF IMPACTS

a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

No Impact.

Roundabout Configuration Alternative

This alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The Project does not include a residential or commercial component that would increase human presence in the area which could result in increased use of existing parks or recreational facilities. Therefore, no impact would occur.

Signalized Intersection Alternative

This alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The Project does not include a residential or commercial component that would increase human presence in the area which could result in increased use of existing parks or recreational facilities. Therefore, no impact would occur.

b) *Does the project include recreational facilities, or require the construction or expansion of existing facilities, which might have an adverse physical effect on the environment?*

No Impact.

Roundabout Configuration Alternative

Refer to issue a) above. The Project does not include recreational facilities or require the construction or expansion of existing recreational facilities. No impact would occur.

Signalized Intersection Alternative

Refer to issue a) above. The Project does not include recreational facilities or require the construction or expansion of existing recreational facilities. No impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.16 TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

A Traffic Operations Analysis Report was prepared for the Project in January 2015 and is provided in **Appendix H**. According to the report, the Sheldon Road/Bradshaw Road intersection operates at LOS F during both the AM and PM peak hours. The Project would improve the existing stop sign–controlled intersection at Sheldon Road and Bradshaw Road, replace the intersection/bridge structure with box culverts, and widen the roadways approaching the intersection. Currently, no pedestrian facilities exist in the Project area. Sheldon Road and Bradshaw Road in the Project area do not provide safe pedestrian access, as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. The Project does not involve the construction of new roadways.

DISCUSSION OF IMPACTS

a) *Would the project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. According to the Traffic Operations Analysis Report prepared for the Project, the Sheldon Road/Bradshaw Road intersection is currently operating at LOS F during both the AM and PM peak hours, which is considered unacceptable under Elk Grove General Plan Policy CI-13, which requires that all roadways and intersection in the City operate at a minimum LOS D at all times.

The roundabout configuration alternative is projected to maintain acceptable level of service under existing and construction year conditions with two-lane approaches on Bradshaw Road and single-lane approaches on Sheldon Road (Fehr & Peers 2015). However, under design year conditions, two-lane approaches would need to be added to Sheldon Road to achieve LOS D or better. The proposed roundabout configuration alternative is consistent with the City's Rural Roads Improvement Policy's value-based approach from incremental, rather than ultimate, road improvements that solve specific traffic issues. Furthermore, the roundabout configuration alternative does not include the construction of new roadways, nor does it include a housing or commercial component that would necessitate additional trips to the area which would increase traffic on Sheldon and Bradshaw roads. The proposed roundabout configuration alternative is anticipated to relieve congestion and improve traffic flow at the Sheldon Road/Bradshaw Road intersection. For these reasons, impacts would be considered less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. According to the Traffic Operations Analysis Report prepared for the Project, the Sheldon Road/Bradshaw Road intersection is currently operating at LOS F during both the AM and PM peak hours, which is considered unacceptable under Elk Grove General Plan Policy CI-13, which requires that all roadways and intersection in the City operate at a minimum LOS D at all times.

The signalized intersection alternative is projected to maintain acceptable level of service with a shared through/right turn lane and a left turn pocket on all approaches under existing and construction year conditions (Fehr & Peers 2015). However, under design year conditions, a separated right turn pocket is needed on all approaches to achieve LOS D. The proposed signalized intersection alternative is consistent with the City's Rural Roads Improvement Policy's value-based approach from incremental, rather

than ultimate, road improvements that solve specific traffic issues. Furthermore, the signalized intersection alternative does not include the construction of new roadways, nor does it include a housing or commercial component that would necessitate additional trips to the area which would increase traffic on Sheldon and Bradshaw roads. The proposed signalized intersection alternative is anticipated to relieve congestion and improve traffic flow at the Sheldon Road/Bradshaw Road intersection. For these reasons, impacts would be considered less than significant.

b) *Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Under existing conditions, the all-way stop-controlled Sheldon Road/Bradshaw Road intersection operates at LOS F during both the AM and PM peak hours, which is considered unacceptable under Elk Grove General Plan Policy CI-13, which requires that all roadways and intersection in the City operate at a minimum LOS D at all times. As discussed in issue a) above, the proposed roundabout configuration alternative is projected to maintain acceptable level of service under existing and construction year conditions with two-lane approaches on Bradshaw Road and single-lane approaches on Sheldon Road. However, under design year conditions, two-lane approaches would need to be added to Sheldon Road to achieve LOS D or better, as shown in **Table 3.16-1** (Fehr & Peers 2015).

TABLE 3.16-1
PEAK-HOUR INTERSECTION LEVEL OF SERVICE AND DELAY – ROUNDABOUT CONFIGURATION ALTERNATIVE

Scenario/Traffic Volumes[1]	AM Peak Hour		PM Peak Hour		Lane Configurations
	Delay[2]	LOS	Delay[2]	LOS	
Existing	19 (25)	C (25)	34 (61)	D (**F**)	All Approaches – One Lane
	11 (14)	B (B)	11 (13)	B (B)	Bradshaw – Two Lanes Sheldon – One Lane
Construction Year (2017)	11 (16)	B (C)	12 (14)	B (B)	Bradshaw – Two Lanes Sheldon – One Lane
Design Year (2037)	**35 (85)**	**E (F)**	**55 (76)**	**F (F)**	Bradshaw – Two Lanes Sheldon – One Lane
	14 (17)	B (C)	22 (34)	C (D)	Bradshaw – Two Lanes Sheldon – Two Lanes

Source: Fehr & Peers 2015
Notes: Bold text indicates unacceptable operations
1. *The construction year (2017) and design year (2037) traffic volumes were developed using the existing traffic volumes and a 3 percent annual growth rate, which was developed based on forecast growth in travel demand on Bradshaw Road and Sheldon Road from a modified version of SACOG's SACMET model developed for the Metropolitan Transportation Plan/Sustainable Communities Strategy.*
2. *Delay is reported in seconds per vehicle for the overall intersection (worst approach) for unsignalized or roundabout intersections*

If improvements to the Sheldon Road/Bradshaw Road intersection are not constructed, the intersection would continue to operate at LOS F under construction year and design

year conditions, which is considered unacceptable under General Plan Policy CI-13. The proposed roundabout configuration alternative is consistent with the City's Rural Roads Improvement Policy's value-based approach from incremental, rather than ultimate, road improvements that solve specific traffic issues. Therefore, impacts are considered less than significant.

Signalized Intersection Alternative

Under existing conditions, the all-way stop-controlled Sheldon Road/Bradshaw Road intersection operates at LOS F during both the AM and PM peak hours, which is considered unacceptable under Elk Grove General Plan Policy CI-13, which requires that all roadways and intersection in the City operate at a minimum LOS D at all times. As discussed in issue a) above, the signalized intersection alternative is projected to maintain acceptable level of service with a shared through/right turn lane and a left turn pocket on all approaches under existing and construction year conditions. However, under design year conditions, a separated right turn pocket is needed on all approaches to achieve LOS D (Fehr & Peers 2015). **Table 3.16-2** shows the peak-hour intersection level of service and delay for the Sheldon Road/Bradshaw Road intersection under the proposed signalized intersection alternative.

TABLE 3.16-2
PEAK-HOUR INTERSECTION LEVEL OF SERVICE AND DELAY – SIGNALIZED INTERSECTION ALTERNATIVE

Scenario/Traffic Volumes	AM Peak Hour		PM Peak Hour		Lane Configurations
	Delay[1]	LOS	Delay[1]	LOS	
Existing	24	C	31	C	All Approaches – Left, Shared Through/Right
Construction Year (2017)	27	C	24	C	All Approaches – Left, Shared Through/Right
Design Year (2037)	**64**	**E**	**93**	**F**	All Approaches – Left, Shared Through/Right
	37	D	36	D	All Approaches – Left, Through, Right
	27	C	32	C	Bradshaw – Left, Through, Shared Through/Right Sheldon – Left, Through, Right

Source: Fehr & Peers 2015
Notes: Bold text indicates unacceptable operations
1. *The construction year (2017) and design year (2037) traffic volumes were developed using the existing traffic volumes and a 3 percent annual growth rate, which was developed based on forecast growth in travel demand on Bradshaw Road and Sheldon Road from a modified version of SACOG's SACMET model developed for the Metropolitan Transportation Plan/Sustainable Communities Strategy.*
2. *Delay is reported in seconds per vehicle for the overall intersection for signalized intersections.*

If improvements to the Sheldon Road/Bradshaw Road intersection are not constructed, the intersection would continue to operate at LOS F under construction year and design year conditions, which is considered unacceptable under General Plan Policy CI-13. The proposed signalized intersection alternative is consistent with the City's Rural Roads Improvement Policy's value-based approach from incremental, rather than ultimate, road improvements that solve specific traffic issues. Therefore, impacts are considered less than significant.

c) *Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

No Impact.

Roundabout Configuration Alternative

Mather Airport is the closest airport in proximity to the Project, located approximately 9 miles northeast of the Project site. The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The proposed roundabout configuration alternative does not propose any structures that would impede a height limitation in close proximity to an airport. Therefore, no impact would occur.

Signalized Intersection Alternative

Mather Airport is the closest airport in proximity to the Project, located approximately 9 miles northeast of the Project site. The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The proposed signalized intersection alternative does not propose any structures that would impede a height limitation in close proximity to an airport. Therefore, no impact would occur.

d) *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The Project would improve pedestrian safety as it will provide pedestrian accommodates where currently no pedestrian facilities exist. The proposed roundabout configuration alternative will be designed in accordance with the City's Design and Improvement Standards. Impacts would be less than significant.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The Project would improve pedestrian safety as it will provide pedestrian accommodates where currently no pedestrian facilities exist. The proposed signalized intersection alternative will be designed in accordance with the City's Design and Improvement Standards. Impacts would be less than significant.

e) *Would the project result in inadequate emergency access?*

Less Than Significant Impact.

Roundabout Configuration Alternative

During operation of the proposed roundabout configuration alternative, traffic operations would be improved from existing conditions, which could potentially reduce delays for emergency vehicles. Traffic control during Project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The City will coordinate with the local fire and police departments before road closures to ensure both departments are aware of temporary road closures and detours ahead of time. Therefore, this impact is considered less than significant.

Signalized Intersection Alternative

During operation of the proposed signalized intersection alternative, traffic operations would be improved from existing conditions, which could potentially reduce delays for emergency vehicles. Traffic control during Project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The City will coordinate with the local fire and police departments before road closures to ensure both departments are aware of temporary road closures and detours ahead of time. Therefore, this impact is considered less than significant.

f) *Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*

No Impact.

Roundabout Configuration Alternative

The proposed roundabout configuration alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection. The proposed roundabout configuration alternative does not conflict with adopted policies, plans, or programs supporting alternative transportation including the City's General Plan and Bicycle, Pedestrian, and Trails Master Plan. Furthermore, the proposed roundabout configuration would encourage the use of alternative transportation, as it would add pedestrian and bicycle facilities along Sheldon Road and Bradshaw Road in the Project limits. Therefore, no impact would occur.

Signalized Intersection Alternative

The proposed signalized intersection alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection. The proposed roundabout configuration alternative does not conflict with adopted policies, plans, or programs supporting alternative transportation including the City's General Plan and Bicycle, Pedestrian, and Trails Master Plan. Furthermore, the proposed roundabout configuration would encourage the use of alternative transportation, as it would add pedestrian and bicycle facilities along Sheldon Road and Bradshaw Road in the Project limits. Therefore, no impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Water

Water services within the Elk Grove City limits are supplied by the Sacramento County Water Agency and Elk Grove Water Service. The proposed Project area receives water services from both, as areas north of Sheldon Road are served by the Sacramento County Water Agency and areas south of Sheldon Road are served by the Sacramento County Water Agency and Elk Grove Water District. Private service areas also exist in the City limits.

Wastewater Service

Urbanized portions of Sacramento County, such as Elk Grove, receive wastewater service from the Sacramento Regional County Sanitation District (SRCSD), which is a publicly owned wastewater agency. Over one million people in the Sacramento metropolitan area receive wastewater services from the SRCSD. Three agencies—the City of Folsom, the City of Sacramento, and Sacramento County Sanitation District 1—contribute to the wastewater services provided by the SRCSD. The proposed Project area is in the Sacramento County Sanitation District 1 service area.

Solid Waste Service

Solid waste services in the City are provided by the Sacramento County Public Works Agency, Waste Management and Recycling. The Central Valley Waste Services provide solid waste services to single-family residential customers. Solid waste collected in the City limits is typically delivered to the Kiefer Landfill, the primary municipal solid waste disposal facility in Sacramento County, located at the intersection of Grant Line Road and Kiefer Boulevard. Waste is accepted from the general public, businesses, and private waste haulers.

At present, the Kiefer Landfill, which comprises approximately 1,084 acres, is the only landfill within the jurisdiction of Sacramento County that is permitted to accept solid waste for disposal. The Kiefer Landfill is allowed to accept a maximum of 10,815 tons per day, with an average intake of 6,362 tons per day. The landfill has a total capacity of 117 million cubic yards (58 million tons). The Kiefer Landfill is classified as a major landfill, which is defined as a facility that receives more than 50,000 tons of solid waste per year. The Kiefer Landfill has been operating below permitted capacity and is projected to have capacity for about the next 20 to 30 years (City of Elk Grove 2003b).

Electrical, Telephone, and Natural Gas Services

Electrical services in the City limits are provided by the Sacramento Municipal Utility District. Telephone services in Elk Grove are provided by Frontier Communications (formerly Citizens Communications) and AT&T (formerly Pacific Bell). Natural gas services to customers in the City limits are provided by the Pacific Gas and Electric Company.

Utility Relocations

Overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines in conflict with the proposed improvements would be relocated for the Project.

DISCUSSION OF IMPACTS

a) *Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact.

Roundabout Configuration Alternative

This alternative involves replacement of the intersection/bridge structure with box culverts and a roundabout configuration with two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection, and does not include any uses that would generate wastewater. Furthermore, the roundabout configuration alternative does not include any components that would result in an increased demand for wastewater treatment. Therefore, wastewater treatment requirements of the Regional Water Quality Control Board would not be exceeded and no impact would occur.

Signalized Intersection Alternative

This alternative involves replacement of the intersection/bridge structure with box culverts, construction of new left turn lanes for all intersection approaches, and signalization of the intersection, and does not include any uses that would generate wastewater. Furthermore, the signalized intersection alternative does not include any components that would result in an increased demand for wastewater treatment. Therefore, wastewater treatment requirements of the Regional Water Quality Control Board would not be exceeded and no impact would occur.

b) *Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No Impact.

Roundabout Configuration Alternative

The roundabout configuration alternative does not include any uses that would generate wastewater, nor does it include new development for habitation or new businesses. Population growth would not result from the roundabout configuration alternative that would require or result in the construction or expansion of new water or wastewater treatment facilities. No impact would occur.

Signalized Intersection Alternative

The signalized intersection alternative does not include any uses that would generate wastewater, nor does it include new development for habitation or new businesses. Population growth would not result from the signalized intersection alternative that would require or result in the construction or expansion of new water or wastewater treatment facilities. No impact would occur.

c) *Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less Than Significant Impact.

Roundabout Configuration Alternative

The roundabout configuration alternative would result in an increase of impervious surfaces at the intersection of Sheldon Road and Bradshaw Road and along both Sheldon Road and Bradshaw Road approaching the intersection. Stormwater runoff at the Project site is collected by roadside ditches and may flow over the intersection/bridge structure into the Laguna Creek tributary channel. Under the roundabout configuration alternative, the existing intersection/bridge structure would be replaced with box culverts sized to convey 10-year storm runoff flows with 1 foot of freeboard and convey 100-year storm runoff flows without overtopping roadways. The Project is not anticipated to require the expansion of existing facilities. Therefore, impacts are considered less than significant.

Signalized Intersection Alternative

The signalized intersection alternative would result in an increase of impervious surfaces at the intersection of Sheldon Road and Bradshaw Road and along both Sheldon Road and Bradshaw Road approaching the intersection. Stormwater runoff at the Project site is collected by roadside ditches and may flow over the intersection/bridge structure into the Laguna Creek tributary channel. Under the signalized intersection alternative, the existing intersection/bridge structure would be replaced with box culverts sized to convey 10-year storm runoff flows with 1 foot of freeboard and convey 100-year storm runoff flows without overtopping roadways. The Project is not anticipated to require the expansion of existing facilities. Therefore, impacts are considered less than significant.

d) *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

No Impact.

Roundabout Configuration Alternative

No increase in demand for water would occur as a result of the roundabout configuration alternative. There would be a temporary need for water during construction to control dust. However, this would not be expected to result in the need for water supply beyond what is currently available and no increase in demand for long-term water supply would be generated. Therefore, no impact would occur.

Signalized Intersection Alternative

No increase in demand for water would occur as a result of the signalized intersection alternative. There would be a temporary need for water during construction to control dust. However, this would not be expected to result in the need for water supply beyond what is currently available and no increase in demand for long-term water supply would be generated. Therefore, no impact would occur.

e) *Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?*

No Impact.

Roundabout Configuration Alternative

The roundabout configuration alternative does not include any uses that would generate wastewater and would therefore not affect the capacity of the local wastewater treatment provider. No impact would occur.

Signalized Intersection Alternative

The signalized intersection alternative does not include any uses that would generate wastewater and would therefore not affect the capacity of the local wastewater treatment provider. No impact would occur.

f) *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

Less Than Significant Impact.

Roundabout Configuration Alternative

Solid waste generated from construction of the roundabout configuration alternative would be transported to the Kiefer Landfill, which has been operating below permitted capacity and is projected to have capacity for about the next 20 to 30 years (City of Elk Grove 2003b). Therefore, impacts would be less than significant.

Signalized Intersection Alternative

Solid waste generated from construction of the signalized intersection alternative would be transported to the Kiefer Road Landfill which has been operating below permitted capacity and is projected to have capacity for about the next 20 to 30 years (City of Elk Grove 2003b). Therefore, impacts would be less than significant.

g) *Would the project comply with federal, state, and local statutes and regulations related to solid waste?*

No Impact.

Roundabout Configuration Alternative

The roundabout configuration alternative would comply with all applicable State, federal, and local solid waste regulations including the California Integrated Waste Management Act of 1989 (AB 939) and the California Solid Waste Re-Use and Recycling Access Act of 1991 (Public Resources Code Sections 42900–42911). No Impact would occur.

Signalized Intersection Alternative

The signalized intersection alternative would comply with all applicable State, federal, and local solid waste regulations including the California Integrated Waste Management Act of 1989 (AB 939) and the California Solid Waste Re-Use and Recycling Access Act of 1991 (Public Resources Code Sections 42900–42911). No Impact would occur.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3.18. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?*

Less Than Significant Impact with Mitigation Incorporated. The Project would have the potential to impact several special-status plant and wildlife species and their habitat; however, with implementation of mitigation measures included in subsection 3.4, Biological Resources, of this IS/MND, impacts to special-status species and their habitat would be reduced to a less than significant level. The potential for discovery or disturbance of historical, archaeological, or paleontological resources, or human remains, is not anticipated. Should such discovery occur, City policy would be followed and appropriate measures implemented to ensure a less than significant impact to these resources. Therefore, the Project would not be expected to degrade the quality of the environment, reduce the habitat or population of any plant or wildlife species, or eliminate important examples of California history or prehistory.

b) *Does the project have impacts that are individually limited, but cumulatively considerable?*

Less Than Significant Impact. CEQA Guidelines Section 15064(i) states that a lead agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must therefore be conducted in connection with the effects of past projects, other current projects, and probable future projects.

The purpose of the proposed Project is to extend the City's bicycle/pedestrian trail network, and as such, it would make no significant contribution to cumulatively adverse impacts associated with existing or proposed development projects in the Elk Grove area. Construction of the proposed Project, along with other construction in the Elk Grove area, would contribute to cumulative environmental impacts. However, the proposed Project's contribution would be minimal, and impacts are considered less than cumulatively considerable.

c) *Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?*

Less Than Significant Impact with Mitigation Incorporated. The proposed Project, in and of itself, would not create a significant hazard to the public or the environment.

During construction, a temporary increase in air pollutants may occur; however, this impact would be short term in duration and is considered less than significant.

Construction activities associated with the Project would include refueling and minor maintenance of construction equipment on location, which could result in minor fuel and oil spills and is considered a significant impact unless mitigation is incorporated. Implementation of mitigation measure **MM 3.8.1** would reduce impacts to a less than significant level by requiring the establishment of construction staging areas within which all fueling and oil changing activities must take place in accordance with an approved SWPPP and by requiring such staging areas to be located on level terrain, away from sensitive land uses and waterways.

Construction activities associated with the Project would include noise and vibration generating activities in excess of established standards, which is considered a significant impact unless mitigation is incorporated. Implementation of mitigation measures **MM 3.12.1** through **MM 3.12.7** would reduce impacts to a less than significant level by requiring the Project to utilize "quiet" pile-driving technology, notifying surrounding residents of proposed construction activities, limiting pile driving activities to weekdays and all construction activities to daytime hours, locating construction equipment and equipment staging areas away from sensitive receptors, requiring construction equipment to be properly maintained and equipped with noise-reducing mufflers and shrouds, and prohibiting idling of equipment when not in use.

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4.0 List of Mitigation Measures

AESTHETICS (SUBSECTION 3.1)

MM 3.1.1 All areas disturbed or used for staging of vehicles and equipment shall be hydroseeded and restored to their preconstruction condition upon completion of the Project. This can be best accomplished by loosening and recontouring the area's soil before applying erosion control (hydroseed).

Timing/Implementation: *During and after Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.2 The removal of established vegetation, including trees, shall be minimized and avoided where feasible. The areas where trees are present should be protected to reduce damage to the tree's root systems. Where it is possible to save and preserve existing trees (of significant size and maturity), care and caution should be implemented during the construction phase. Environmentally sensitive area fencing shall be installed to demarcate areas where vegetation is being preserved.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.3 All disturbed areas during each construction season shall utilize best management practices which will include temporary erosion control consisting of a native seed mix at the end of each construction season.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.4 Contour grading and slope rounding shall be utilized on all cut and fill slopes in order to help restore the environment in a manner that will blend with the surrounding natural landscape.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.1.5 The Project shall comply with the City's lighting standards contained in City of Elk Grove Municipal Code Section 23.56.

Timing/Implementation: *During Project design and construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

BIOLOGICAL RESOURCES (SUBSECTION 3.4)

MM 3.4.1 During Project development, the work area will be reduced to the smallest footprint feasible in sensitive habitat areas.

Timing/Implementation: *During Project development*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.2 Prior to any vegetation removal or ground-disturbing activities, focused surveys shall be conducted to determine if Sanford's arrowhead occurs in the Project footprint and/or TCZ. Surveys shall be conducted in accordance with the CDFW's (2009) Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities. These guidelines require rare plant surveys to be conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Surveys shall be scheduled to coincide with known blooming periods and/or during periods of physiological development that are necessary to identify the plant species of concern. If no special-status plant species are found, the Project will not have any impacts to the species and no additional mitigation measures are necessary.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.3 If special-status plant species are located within the BSA but outside the Project footprint, the plants shall be avoided by installing protective fencing and warning construction personnel of their presence.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.4 A Worker Environmental Awareness Program (WEAP) shall be implemented to educate construction workers about the presence of special-status species and sensitive biological resources in and/or near the Project area and to instruct them on proper avoidance.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.5 If any special-status plant species are found on-site and cannot be avoided, the City shall consult with the USFWS and/or the CDFW, as applicable, to determine appropriate mitigation for special-status plants, which may include but is not limited to the following measures:

- Salvage portions of the habitat or plant populations that will be lost as a result of implementation of the proposed Project.
- Transplant the plants that would be adversely affected by the proposed Project for either re-establishment after construction is complete or for planting in a new area, in appropriate habitat.
- Develop a propagation program for the salvage and transfer of rare, threatened, or endangered plant populations from the Project site before the initiation of construction activities.

Qualified biologists shall be involved in the propagation and transport of rare, threatened, or endangered plant species. (Note: Propagation methods for the salvaged plant population must be developed on a case-by-case basis

and must include the involvement of local conservation easements, preserves, and/or open space, where applicable.) The propagation and transfer of individual plant species must be performed at the correct time of year and successfully completed before the Project's construction activities eliminate or disturb the plants and habitats of concern.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.6 Work shall coincide with the driest time in the creek. If water is present at the time of construction, water shall be diverted around the work area and work shall resume after the site is dry. Work in the dry portion of the creek shall be timed with awareness of precipitation forecasts and likely increases in water flows and flood stages. Construction activities in the creek shall cease prior to storm events until all reasonable erosion control measures have been implemented. Construction equipment and material shall be removed from the floodplain if inundation is likely. Revegetation, restoration, and erosion control work shall not be confined to this time period.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.7 If work in the flowing portion of the creek is unavoidable, the entire stream flow shall be diverted around or through the work area during excavation and/or construction operations. Flows shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to FGC Section 5937. Any temporary dam or other artificial obstruction constructed shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.8 Prior to initiation of construction activities within jurisdictional features, construction best management practices (BMPs) shall be employed on-site to prevent degradation to on-site and off-site waters of the United States. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering jurisdictional features, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. All erosion control methods shall be maintained until all on-site soils are stabilized.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.9 Standard staging area practices for sediment-tracking reduction shall be implemented where necessary and may include vehicle washing and street sweeping.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.10 All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities shall be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or jute netted (monofilament erosion blankets are not permitted).

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.11 A circle with a radius measurement from the trunk of the tree to the tip of its longest limb shall constitute the dripline protection area of each tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each tree. Removing limbs that make up the dripline does not change the protected area.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.12 Protective fencing shall be installed at the driplines of the protected trees prior to the start of any construction work (including grading or placement of vehicles on-site) in order to avoid damage to the trees and their root systems. This fencing may be installed around the outermost dripline of clusters of trees proposed for protection, rather than individual trees. Fencing shall be shown on all Project plans.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.13 No vehicles, construction equipment, mobile home/office, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the driplines of protected trees. A laminated sign indicating such shall be attached to fencing surrounding trees on-site.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.14 No grading (grade cuts or fills) shall be allowed within the driplines of protected trees.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.15 Drainage patterns on the site shall not be modified so that water collects or stands within, or is diverted across, the dripline of any protected tree.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.16 No trenching shall be allowed within the driplines of protected trees. If it is absolutely necessary to install underground utilities within the dripline of a protected tree, the utility line shall be bored and jacked under the supervision of a certified arborist.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.17 The construction of impervious surfaces within the driplines of protected trees shall be stringently minimized. When it is absolutely necessary, a piped aeration system shall be installed under the supervision of a certified arborist. Whenever possible, pervious concrete shall be used as an alternative to traditional concrete when it is required under tree driplines.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.18 No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the driplines of protected trees. An aboveground drip irrigation system is recommended.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.19 Landscaping beneath protected trees may include non-plant materials such as bark mulch or wood chips. The only plant species that shall be planted within the driplines of protected trees are those that are tolerant of the natural environs of the trees. Limited drip irrigation approximately twice per summer is recommended for the understory plants.

Timing/Implementation: *During Project design and construction and after Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.20 Any protected trees on the site that require pruning shall be pruned by a certified arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute A300 pruning standards and ISA's tree-pruning guidelines.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.21 No signs, ropes, cables (except those which may be installed by an arborist to provide limb support), or any other items shall be attached to the protected trees.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.22 The applicant is proposing to work outside of the giant garter snake's active season and anticipates that work will be completed in 10 to 15 months. Construction and ground-disturbing activities will be initiated during the active season and will be commenced prior to September 15.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.23 Twenty-four hours prior to the commencement of construction activities, the Project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the USFWS with a written report that adequately documents the monitoring efforts within 24 hours of commencement of construction activities. The Project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.24 A qualified biologist will inspect and monitor all construction-related activities in the Project area to attempt to minimize take of giant garter snake or the destruction of its habitat. If snakes are encountered during construction activities, the biologist will notify the USFWS immediately to determine the appropriate procedures related to the collection and relocation of the snakes. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone at (916) 414-6600 and by electronic mail or written letter addressed to the Chief, Sacramento Valley Division, within one working day of the incident.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.25 Project-related vehicles will observe a 20 mile per hour (mph) speed limit in construction areas, except on existing paved roads, where they will adhere to the posted speed limits.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.26 Aquatic habitat for giant garter snake will be dewatered and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the USFWS shall be contacted to determine what additional measures may be necessary to minimize effects to the giant garter snake.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.27 Tightly woven erosion control matting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the Project site to ensure that giant garter snakes are not trapped or do not become entangled by the erosion control material. The edge of the material shall be buried in the ground to prevent giant garter snakes from crawling underneath the material. The City or contractor will prohibit the use of plastic, monofilament, jute, or similar erosion control netting with mesh sizes larger than 0.25 inch that could entangle snakes at the Project site.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.28 If clearing and/or construction activities would occur during the raptor nesting season (January 15–August 15), preconstruction surveys to identify active nests shall be conducted by a qualified biologist within 14 days of construction initiation. Surveys must be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites in the proposed impact area, including construction access routes and a 250-foot buffer (if feasible). If no active nests are found, no further mitigation is required. Surveys shall be repeated if construction activities are delayed or postponed for more than 30 days.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.29 If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 30 meters (100 feet) around an active raptor nest and a 15-meter (50-foot) radius around an active migratory bird nest) or alteration of

the construction schedule. Activities permitted in exclusion zones and the size may be adjusted through consultation with the CDFW and/or the City.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.30 Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the non-breeding season (September 1–January 1). Swainson's hawks are State and federally listed as threatened species; therefore, impacts to Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.31 If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the City shall implement the avoidance, minimization, and mitigation methodologies outlined in the CDFW's (2012) Staff Report on Burrowing Owl Mitigation prior to initiating Project-related activities that may impact burrowing owls.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.32 The City shall mitigate for the permanent loss of 0.616 acre of Swainson's hawk foraging habitat at a 1:1 ratio. Mitigation can be accomplished through the City of Elk Grove Swainson's Hawk Impact Mitigation Fees Ordinance or other method acceptable to the CDFW. No additional mitigation is proposed, as implementation of avoidance and minimization measures is sufficient to compensate for potential impacts to migratory birds and raptors.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.33 Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the City shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to August) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September), they must remain undisturbed until a qualified biologist has determined that the young bats are no longer roosting. If roosting is found to occur on-site, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites removed. If no bat roosts are detected, no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, an additional survey shall be

conducted 30 days prior to removal to ensure that a new colony has not established itself.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.34 If a female or maternity colony of bats are found on the Project site, and the Project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after July 31 and before March 1).

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.35 If active nursery roost is documented on-site and the Project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after July 31 and before March 1 to prevent the formation of maternity colonies. Non-breeding bats shall be safely evicted, under the direction of a bat specialist.

Timing/Implementation: *During Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.36 For every acre of intermittent creek and seasonal wetland permanently affected by the proposed Project, the City shall replace the affected acreage at a 2:1 ratio (i.e., 2 acres for every 1 acre of impact) or another approved ratio as determined by the USACE. Impacts shall be offset through the dedication of mitigation credit(s) in a USACE-approved mitigation bank or through the payment of in-lieu fees to an approved conservation bank.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.37 For every acre of intermittent creek temporarily affected and roadside ditch permanently or temporarily affected by the proposed Project, the City shall replace the affected acreage at a 1:1 ratio or another approved ratio as determined by the USACE. Impacts shall be offset through the restoration and relocation of the intermittent creek and roadside ditches in the Project area.

Timing/Implementation: *Prior to Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.4.38 Any trees protected by the City's tree ordinance and requiring removal for Project construction will either be compensated for by replacement, purchase of habitat conservation areas to protect existing woodland habitats, through contribution to tree planting programs or in-lieu fee programs in the area, or through some combination of these options to achieve no net loss of trees from the Project.

Prior to any groundbreaking activities, the City's Planning Department will determine which trees would be suitable candidates for protection and which trees will need to be mitigated if removed. Trees that will be removed or otherwise harmed by the Project shall be mitigated for as described above.

Prior to any groundbreaking activity, a Replacement Tree Planting Plan shall be prepared by an arborist or landscape architect. The plan shall follow the standards set forth in the City of Elk Grove Municipal Code and shall include the following minimum elements:

- Species, size, and locations of all replacement plantings.
- Method of irrigation
- A tree planting detail, including a 10-foot depth-boring hole to provide for adequate drainage.
- Planting, irrigation, and maintenance schedules.
- Identification of the maintenance entity and a written agreement with that entity, if other than the City of Elk Grove, to provide care and irrigation to the trees for a five-year establishment period and to replace any of the replacement trees which do not survive during that period.

Replacement inches will be calculated based on the following size categories.

- A 1-gallon container or seedling-sized containerized tree = 1 inch dbh
- A 15-gallon container = 1 inch dbh
- A 24-inch box = 2 inches dbh
- A 36-inch box = 2 inches dbh
- A 60-inch box = 2 inches dbh
- A 72-inch box = 2 inches dbh

In order to meet some of the mitigation requirements, existing native trees on-site proposed for removal that are less than 6 inches dbh and are in fair or better condition may be transplanted to the new planting area. If existing trees are successfully transplanted, mitigation requirements may be reduced.

No replacement tree shall be planted within 15 feet of a building foundation or other known areas of future ground disturbance. The minimum spacing for

replacement trees shall be 15 feet on center. J-pots may be planted closer at the discretion of the City Arborist or the consulting arborist.

Timing/Implementation: *Prior to and during Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

CULTURAL RESOURCES (SUBSECTION 3.5)

MM 3.5.1 In accordance with California Public Resources Code Section 5097.5, which prohibits knowing and willful excavation of undiscovered cultural resources without permission from the appropriate public agency with jurisdiction over the lands, and in order to mitigate for the potential discovery of archaeological or paleontological resources, the following measure will be implemented during construction and included in the construction contract:

> If buried archaeological and/or paleontological resources, such as chipped or ground stone, historic debris, building foundations, human bone, or fossils, are unexpectedly discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can access the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City and all other appropriate agencies.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Public Works Department*

MM 3.5.2 In order to mitigate for the potential discovery or disturbance of any human remains, the protocol of California Health and Safety Code Section 7050.5(b) will be adhered to as follows:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) or Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

If the remains are determined to be Native American, City policy would dictate that the procedures outlined in CEQA Section 15064.5(d) and (e) be followed.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Public Works Department*

GREENHOUSE GASES (SUBSECTION 3.7)

MM 3.7.1 The City of Elk Grove Planning Department shall require that the Project divert 65 percent of the waste generated during the demolition of existing pavement and construction of new traffic improvement facilities, consistent with CAP measure RC-1.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

HAZARDOUS MATERIALS (SUBSECTION 3.8)

MM 3.8.1 Prior to the start of construction, the construction contractor shall designate staging areas where fueling and oil changing activities will take place. The staging area(s) shall be reviewed and approved by City's Planning Department and the Stormwater Pollution Prevention Plan (SWPPP) Manager prior to the start of construction. No fueling and oil changing activities shall be permitted outside the designated staging areas. The staging areas, as much as practicable, shall be located on level terrain and away from sensitive land uses such as residences, day care facilities, and schools. Staging areas shall not be located near any stream, channel, or wetlands. The proposed staging areas shall be identified in the SWPPP.

Timing/Implementation: *Prior to start of construction and throughout construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department in consultation with the Central Valley Regional Water Quality Control Board (RWQCB)*

MM 3.8.2 An aerially deposited lead survey shall be completed during the final Project design process, prior to approval of improvement plans and/or grading plans. If substances are detected at concentrations that could pose a health hazard and/or violate local, State, or federal health standards, remediation of the affected areas shall be undertaken in accordance with the requirements of all local, State, and federal regulations.

Timing/Implementation: *Prior to approval of improvement plans and/or grading plans*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.8.3 A pre-demolition asbestos survey shall be completed prior to the commencement of construction. Any identified asbestos-containing materials present shall be removed under acceptable engineering methods and work practices by a licensed asbestos abatement contractor prior to removal. The process shall be designed and monitored by a California Certified Asbestos Consultant. The abatement and monitoring plan shall be developed and submitted for review and approval by the Sacramento Metropolitan Air Quality Management District.

Timing/Implementation: *Prior to construction.*

Enforcement/Monitoring: *City of Elk Grove Planning Department; Sacramento Metropolitan Air Quality Management District*

MM 3.8.4 Prior to the commencement of construction, a hazardous materials compliance plan shall be prepared by a certified industrial hygienist to address the metals content of the yellow and white roadway striping found in the Project area. This plan shall be prepared in accordance with Caltrans Guidance for SSP 14-11.07–Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.

Timing/Implementation: *Prior to construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.8.5 Prior to approval of improvement plans and/or a grading permit for the Project, soils testing shall be conducted to determine the presence of concentrations of persistent pesticides. If contamination is identified, cleanup shall proceed in accordance with all State, federal, and local requirements. Hazardous materials and wastes shall be disposed of at appropriate hazardous waste acceptance facilities.

Timing/Implementation: *Prior to approval of improvement plans and/or a grading permit*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.8.6 Prior to approval of improvement plans and/or a grading permit for the Project, consultation shall be completed with Kinder Morgan regarding the history of leaks with the pipeline along the western shoulder of Bradshaw Road. If consultation results in a determination that the Project site contains soil contamination, cleanup shall proceed in accordance with all State, federal, and local requirements. Hazardous materials and wastes shall be disposed of at appropriate hazardous waste acceptance facilities.

Timing/Implementation: *Prior to approval of improvement plans and/or a grading permit*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

NOISE (SUBSECTION 3.12)

MM 3.12.1 "Quiet" pile-driving technology based on soils and structural requirements, as feasible (i.e., hydraulic or vibration pile drivers versus impact pile drivers), shall be used.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.2 Surrounding residents (minimum 300-foot radius) shall be provided at least 30 days written notice of the start date and duration of pile driving noise. Notices shall include contact information for a construction representative who shall be available to hear resident questions and concerns during pile driving activities.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.3 Pile driving activities shall only take place Monday through Friday between the hours of 7 a.m. and 7 p.m. per the City's General Plan. Pile driving shall not occur on Saturday or Sunday unless approved by the City of Elk Grove Planning Department and residents notified.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.4 Noise-generating construction operations shall be limited to between the hours of 7 a.m. and 7 p.m. in accordance with Elk Grove General Plan Noise Policy NO-3-Action-1.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.5 Construction equipment and equipment staging areas shall be located at the farthest distance possible from adjacent sensitive land uses.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.6 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

MM 3.12.7 When not in use, motorized construction equipment shall not be left idling.

Timing/Implementation: *Throughout Project construction*

Enforcement/Monitoring: *City of Elk Grove Planning Department*

5.0 List of Preparers

5.1 LIST OF PREPARERS

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6.0 List of Abbreviations

AB	Assembly Bill
adi	aggregate diameter inches
APE	area of potential effect
ASR	Archaeological Survey Report
BMP	best management practice
BSA	biological study area
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
Cal Fire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CE	Categorical Exclusion
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dbh	diameter at breast height
DOC	California Department of Conservation
DOF	California Department of Finance
DTSC	California Department of Toxic Substances Control
EGMC	Elk Grove Municipal Code

EIR	environmental impact report
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FGC	Fish and Game Code
FHWA	Federal Highway Administration
FR	Federal Register
GHG	greenhouse gas
HPSR	Historic Property Survey Report
Hz	Hertz
IS	Initial Study
ISA	Initial Site Assessment
lbs/day	pounds per day
L_{dn}	Day-Night Noise Level
L_{eq}	Equivalent Noise Level
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level
LOS	level of service
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
mph	miles per hour
NAAQS	national ambient air quality standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
N_2O	nitrous oxide
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration

O_3	ozone
PCB	polychlorinated biphenyls
PM	particulate matter
ppb	parts per billion
ppm	parts per million
ROG	reactive organic gases
RPW	relatively permanent waters
RWQCB	Regional Water Quality Control Board
SCEMD	Sacramento County Environmental Management Department
SCMDP	Sacramento County Multi-Hazard Disaster Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SOx	sulfur oxides
SPL	sound pressure level
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCZ	temporary construction zone
TNW	traditionally navigable waters
USACE	US Army Corps of Engineers
USC	United States Code
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VIA	Visual Impact Assessment
VMT	vehicle miles traveled
VOC	volatile organic compound
WDR	waste discharge requirements
WEAP	Worker Environmental Awareness Program

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APPENDICES

APPENDIX A: VISUAL IMPACT MEMORANDUM

VISUAL IMPACT MEMORANDUM

Sheldon Road/Bradshaw Road Intersection Improvement Project

September 2014

California Department of Transportation
&
City of Elk Grove

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

CITY OF ELK GROVE
CALIFORNIA

Statement of Compliance: Produced in compliance with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

1. Project Description

1.1 Project Location

The Sheldon Road/Bradshaw Road Intersection Improvement Project (Project) is located at the intersection of Sheldon Road and Bradshaw Road, which is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City of Elk Grove (City). **Figures 1** and **2** illustrate the regional vicinity and project location.

1.2 Project Setting

The Sheldon Road/Bradshaw Road intersection is surrounded by agricultural and low-density residential uses. The rural setting of the area is composed of agricultural residential lots, generally two acres or larger, and annual grasslands covering a relatively flat landscape. Laguna Creek runs parallel to Bradshaw Road, with the creek on the east side of Bradshaw Road north of the intersection and on the west side of Bradshaw Road south of the intersection. The Sheldon Road/Bradshaw Road intersection/bridge structure provides a stream crossing over Laguna Creek.

1.3 Project Description

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw Road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

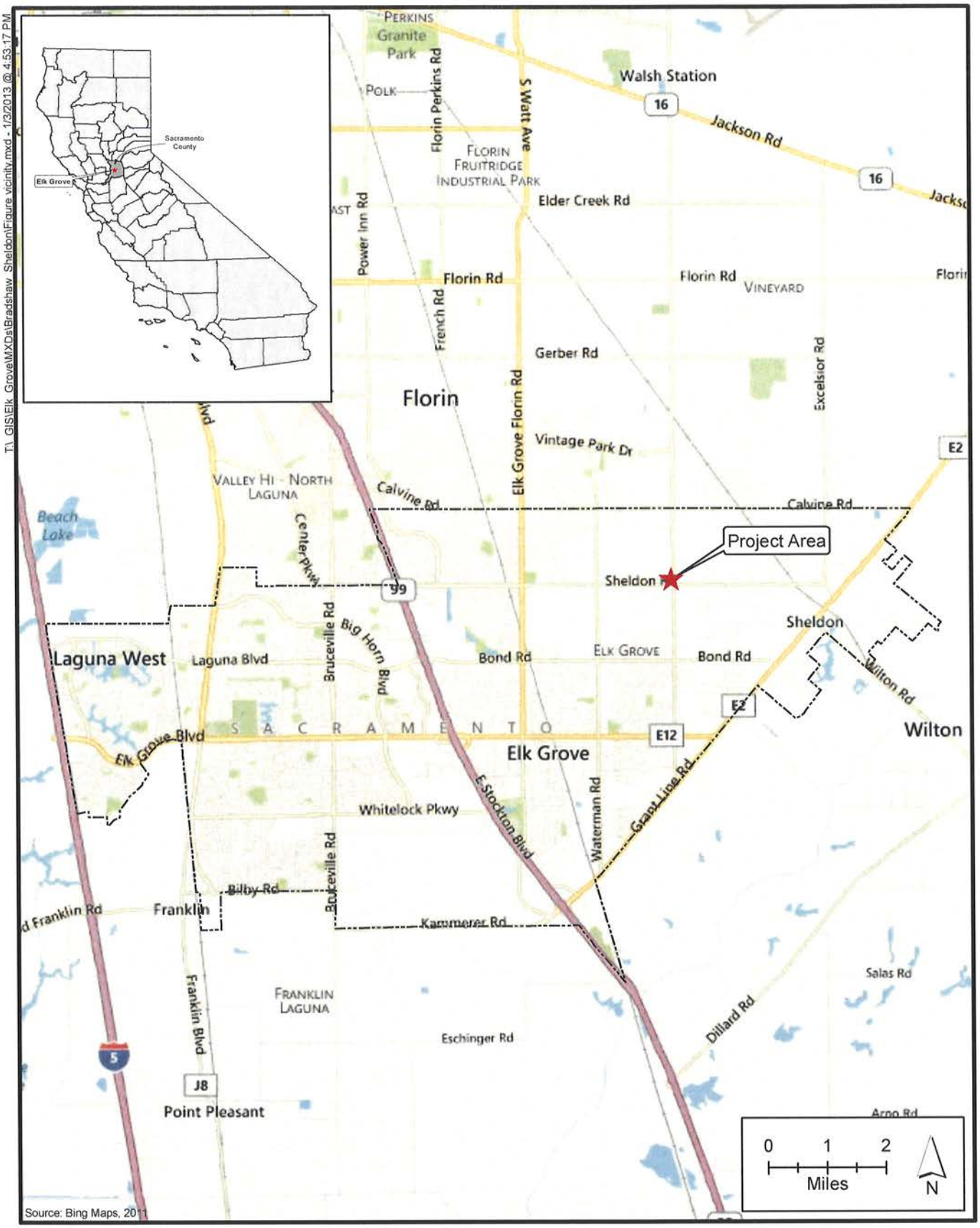
Laguna Creek 100-year flows currently overtop the existing bridge at the Sheldon Road/Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes 20 years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes southbound and northbound on Bradshaw Road entering and exiting the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the project. In accordance with the City's General Plan and the Bicycle, Pedestrian, and Trails Master Plan, the proposed project will add pedestrian and bicycle facilities along Sheldon and Bradshaw Roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed project will realign the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows.

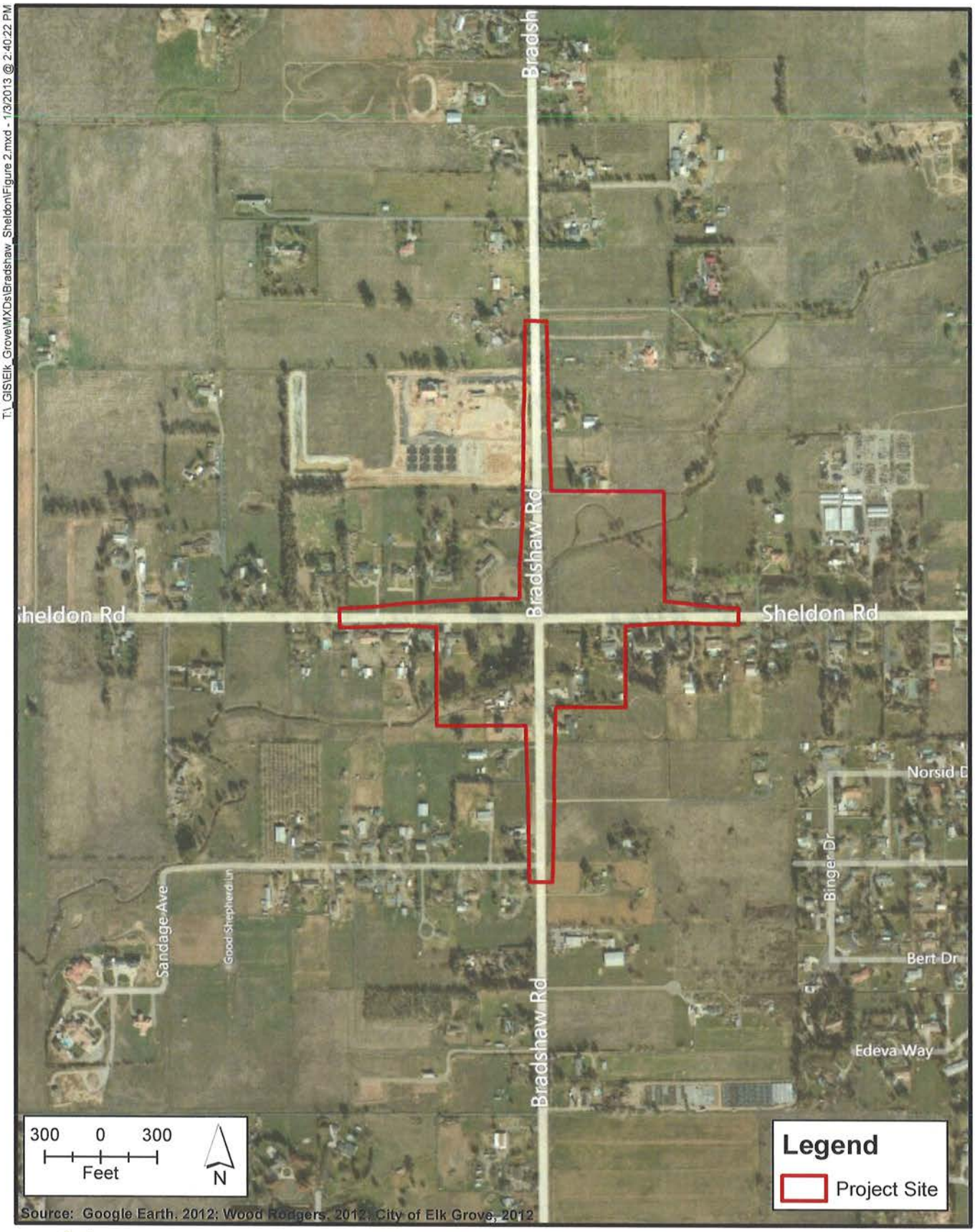
Additional right of way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the realigned Laguna Creek tributary channel. Relocation of existing utilities may require additional easements rights. Traffic control during project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.



City of Elk Grove
Development Services

Figure 1

Regional Vicinity



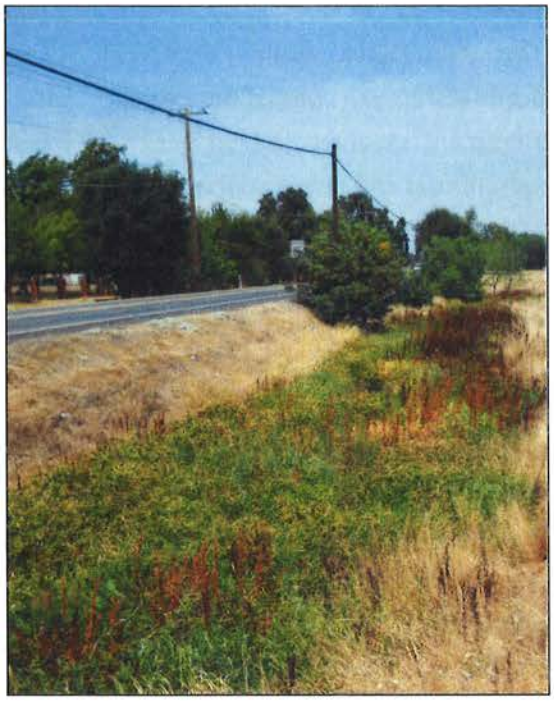
City of Elk Grove
Development Services

Figure 2

Project Location Map

2. Existing Visual Setting

The majority of the land surrounding the Project site is characterized by agricultural and residential uses. East of Bradshaw Road, a tributary channel of Laguna Creek runs north, parallel to the roadway until it begins to move east through a parcel covered by annual grasses. The photo to the right depicts the alignment of the creek along Bradshaw Road, north of the Sheldon Road/Bradshaw Road intersection. The east branch of Laguna Creek flows underneath the Sheldon Road/Bradshaw Road intersection through the bridge structure and continues south along the west side of Bradshaw Road. The area surrounding the Project site is dominated by annual grasslands, and trees are found along the riparian areas of Laguna Creek and scattered within the surrounding residential parcels.

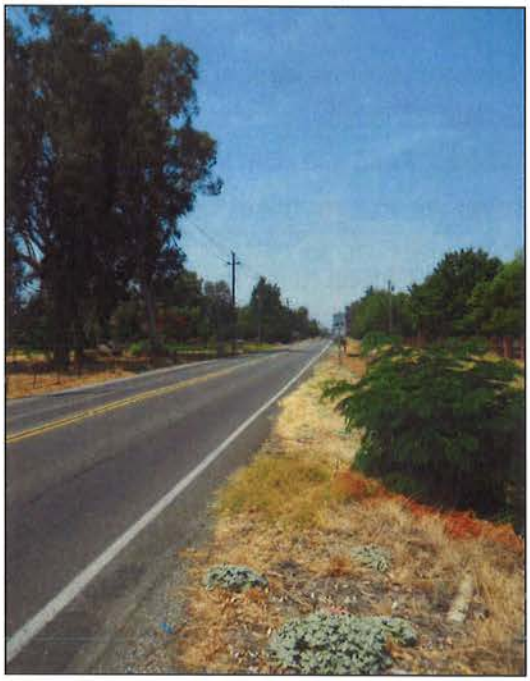


Roadway users of Sheldon Road and Bradshaw Road have views of residential properties, agricultural activities, overhead utilities, annual grasses, and various types of trees. Utility poles and overhead utility lines extend north/south along Bradshaw Road and east/west along Sheldon Road. The topography of both the Project site and surrounding area are relatively flat.

Closest to the intersection, a vacant lot covered by annual grasses and bisected by Laguna Creek is viewable from Sheldon Road and Bradshaw Road. This is the largest area of vacant land visible from the Sheldon Road/Bradshaw Road intersection. The photo to the left shows the vacant lot as viewed from Sheldon Road, adjacent to and northeast of the Sheldon Road/Bradshaw Road intersection. The northeastern

portion of the Project alignment is characterized primarily by agricultural uses and open space with few occurrences of residential structures.

The southeastern, southwestern, and northwestern portions of the Project alignment are characterized by agricultural and residential uses. More residential structures and trees are seen in these portions of the alignment than in the northeastern portion. Laguna Creek extends into the southwestern portion of the alignment. Two bridge railings are located diagonally along the intersection – at the northeastern and southwestern portions of the Project alignment. The above photo shows a bridge railing as viewed from the intersection looking northeast.



Trees and vegetation are distributed along Sheldon Road and Bradshaw Road and throughout the surrounding landscape, visibile from the Sheldon Road/Bradshaw Road intersection and along Sheldon and Bradshaw Roads. The photo to the left shows examples of plants and trees seen along Sheldon Road. Generally, vegetation of the surrounding area appears similar as viewed from the Sheldon Road/Bradshaw Road intersection looking in all directions.

The most common trees identified within the Project study area include valley oak (*Quercus lobata*), black walnut (*Juglans hindsii*), redwood (*Sequoia sempervirens*), ornamental (spp.), pine (*Pinus* sp.), eucalyptus (*Eucalyptus* sp.), camphor (*Cinnamomum camphora*), liquidambar (*Liquidambar styraciflua*), plum (*Prunus* sp.), pecan (*Carya illinoensis*), English walnut (*Juglans regia*), and mulberry (*Morus* sp.).

3. Project Impacts

The proposed Project would reconstruct the Sheldon Road/Bradshaw Road intersection, replace the intersection/bridge structure with box culverts, add pedestrian and bicycle facilities along Sheldon Road and Bradshaw Road within the Project limits, and realign the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection. The roundabout alternative for the proposed Project would include two lanes southbound and northbound on Bradshaw Road entering and existing the intersection and one lane eastbound and westbound on Sheldon Road entering and exiting the intersection, while the signalized intersection alternative for the proposed Project would add new left turn lanes for all approaches and a new traffic signal. Right of way will be required for the proposed improvements and some existing utilities will be relocated.

The Project site itself does not provide any aesthetic resources that would be considered a scenic vista. The agricultural/residential and vacant parcels do not provide scenery of remarkable character. The City of Elk Grove General Plan identifies Laguna Creek as an aesthetic resource in the City. The realignment of the Laguna Creek tributary channel for the proposed Project will not result in a significant alteration of an aesthetic resource, as the creek will still flow through the same general area. Although the Project site is located in the Rural Sheldon Area of the City and the surrounding parcels are characterized as agricultural/residential, the Project site does not contain resources that are exemplary of the agricultural history of the area. There are no state-designated scenic highway segments adjacent to the Project site.

Implementation of the proposed Project will not significantly change the character of the Project area. Reconstruction of an existing intersection, replacement of an existing intersection/bridge structure, and realignment of a creek in generally the same area will not be seen by roadway users as a considerable alteration of the area. Therefore, impacts to visual resources are considered less than significant. Implementation of minimization measures listed in this memorandum will further reduce potential impacts.

4. Cumulative Impacts

Bradshaw Road is planned as a six-lane arteiral and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road, as identified in the Circulation Element of the City of Elk Grove General Plan. These roadway improvements will extend north, east, south, and west from the Project site. These planned roadway improvements are accounted for in the City of Elk Grove General Plan and the City of Elk Grove General Plan Environmental Impact Report. Neither the City of Elk Grove General Plan nor the City's Active Project Report identify planned development on parcels adjacent to the Project site.

The majority of visual impacts associated with the planned roadway improvements in the Project vicinity would be the result of vegetation and tree removal, alterations to Laguna Creek, and right-of-way requirements in the Rural Sheldon Area. The following policies applicable to proposed Project and planned roadway improvements are included in the City of Elk Grove General Plan, in part, for the protection of visual resources:

> Policy CAQ-8: Large trees (both native and non-native) are an important aesthetic (and, in some cases, biological) resource. Trees which function as an important part of the City's or a neighborhood's aesthetic character or as natural habitat should be retained to the extent possible duirng the development of new structures, roadways (public and private, including roadway widening), parks, drainage channels, and other uses and structures. If trees cannot be preserved onsite, offsite mitigation or payment of an in-lieu fee may be required by the City. Where possible, trees planted for mitigation should be located in the same watershed as the trees, which were removed. Trees that cannot be protected shall be replaced either on-site or off-site as required by the City.
>
> Policy CAQ-22: Stream crossings shall be minimized and be aesthetically compatible with the natural appearance of the stream channel. The use of bridges and other stream crossings with natural (unpaved) bottoms shall be encouraged to minimize impacts to natural habitat.
>
> Policy LU-18: Land uses within the "Sheldon" area (generally encompassing the area designated for Rural Residential uses in the eastern portion of Elk Grove) shall be consistent with the community's rural character, emphasizing lot sizes of at least two gross acres, roadways which preserve the area's mature trees, and limited commercial services.

Planned roadway improvements in the surrounding area are anticipated to result in alterations to the existing visual character of the area due to vegetation and tree removal, alterations to Laguna Creek, and acquisition of right-of-way. The Project will comply with applicable General Plan policies. Compliance with these policies and implementation of the mitigation measures listed within this memorandum will ensure that potential cumulative visual impacts will be less than significant.

5. Recommendations for the Minimization of Impacts

- All areas disturbed or used for staging of vehicles and equipment shall be hydroseeded and restored to their preconstruction condition upon completion of the Project. This can best be accomplished by loosening and recontouring the area's soil before applying erosion control (hydroseed).

- The removal of established vegetation, including trees, shall be minimized and avoided where feasible. The areas where trees are present should be protected to reduce damage to the tree's root systems. Where it is possible to save and preserve existing trees (of significant size and maturity), care and caution should be implemented during the construction phase. Environmentally sensitive area fencing shall be installed to demarcate areas where vegetation is being preserved.

- All disturbed areas during each construction season shall utilize best management practices which will include temporary erosion control consisting of a native seed mix at the end of each construction season.

- Contour grading and slope rounding shall be utilized on all cut and fill slopes in order to help restore the environment in a manner that will blend with the surrounding natural landscape.

APPENDIX B: AIR QUALITY REPORT

SHELDON ROAD/BRADSHAW ROAD INTERSECTION IMPROVEMENT PROJECT

AIR QUALITY REPORT

PREPARED BY

PMC

JULY 2015

1.0 INTRODUCTION

2.0 AIR QUALITY

3.0 REFERENCES

FIGURES

TABLES

APPENDICES

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This report documents the results of an air quality analysis completed for the Sheldon Road/Bradshaw Road Intersection Improvement Project, a transportation facility improvement undertaking that would replace the existing intersection/bridge structure at the intersection with box culverts (reinforced concrete) underneath an improved intersection configuration, in addition to other roadway improvements to accommodate the future widening of Bradshaw Road and Sheldon Road as planned in the City of Elk Grove General Plan. The construction zone containing the proposed improvements encompasses 62.5 acres.

1.1 PROJECT LOCATION

The proposed Project is located in the City of Elk Grove, Sacramento County, California at the Sheldon Road/Bradshaw Road intersection. The Sheldon Road/Bradshaw Road intersection is located in the northeastern area of the City of Elk Grove in the Rural Sheldon Area and currently functions as a stop-sign controlled intersection as well as a bridge structure, crossing Laguna Creek. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw Road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along Sheldon Road or Bradshaw Road. The unimproved shoulders that can be used by pedestrians are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest under the intersection. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection.

1.2 PROJECT DESCRIPTION

The Project proposes to demolish the existing Sheldon Road/Bradshaw Road intersection/bridge structure, known as the East Branch Laguna Creek Bridge, and reconstruct it to current standards in response to a Structure and Maintenance Investigations report prepared by Caltrans (2013). The Structure and Maintenance Investigations report indicated the functionally obsolete status for the East Branch Laguna Creek Bridge intersection according to Federal Highway Administration (FHWA) criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Bradshaw Road/Sheldon Road intersection was given a sufficiency rating of 65.3 percent on a scale of zero percent to 100 percent, where 100 percent represents an entirely sufficient bridge and zero percent represents an entirely deficient bridge. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Bradshaw Road/Sheldon Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood. Indeed, Laguna Creek 100-year flows currently overtop the existing East Branch Laguna Creek Bridge at the Bradshaw Road/Sheldon Road intersection. The Project will provide operational improvements by reconstructing the bridge and intersection to current standards with box culverts (reinforced concrete) underneath an improved intersection configuration.

In addition, as part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road. The General Plan circulation

policies for roadways indicate a minimum standard of level of service[1] (LOS) D at all times for all roadways and intersections in the City of Elk Grove. According to the Transportation Operations Analysis prepared for the Project (Fehr & Peers 2015), the Sheldon Road/Bradshaw Road intersection currently operates at LOS F during both AM and PM peak hours as an all-way stop-sign controlled intersection. This LOS is unacceptable based on the City's LOS standards. The Project proposes roadway improvements within 1,000 feet of the intersection in each direction to partially accommodate the future widening of Bradshaw Road and Sheldon Road as planned in the City of Elk Grove General Plan. The future widening planned with the Project is based on the predicted traffic volumes twenty years after completion of the Project. The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the Project. In accordance with the City's General Plan, and Bicycle, Pedestrian and Trails Master Plan, the proposed Project will add pedestrian and bicycle facilities along Sheldon and Bradshaw roads within the Project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build options are being considered by the City. The first build option includes a roundabout configuration for the Sheldon Road/Bradshaw Road intersection and the second build option includes a signalized intersection. The roundabout improvement would include two lanes southbound and northbound on Bradshaw entering and exiting the intersection and one lane eastbound and west bound on Sheldon Road entering and exiting the intersection. The signalized intersection improvement would add new left turn lanes for all approaches including sufficient length for vehicle queues. (Refer to **Appendix A** for Project Design Layouts.)

In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. Furthermore, the proposed Project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows. The creek and surrounding wetlands will then be restored using a combination of seeding with native and non-native grasses to provide slope and water quality protection during storm events.

Regardless of which build option is implemented, the construction zone containing the proposed improvements will encompass 62.5 acres and Project construction would last approximately 10-15 months. Once the Project is complete, the Sheldon Road/Bradshaw Road intersection/bridge structure will possess adequate hydraulic capacity as a result of attaining FHWA standards coupled with the realignment of Laguna Creek north and south of the intersection, traffic congestion will be relieved and traffic flow improved resulting in reduced

[1] Level of service (LOS) is a measure used by traffic engineers to determine the effectiveness of transportation infrastructure. LOS is most commonly used to analyze intersections by categorizing traffic flow with corresponding safe driving conditions. LOS A is considered the most efficient level of service and LOS F the least efficient.

traffic delays and thus reduced vehicle emissions, pedestrian access to the area will be provided, and City of Elk Grove General Plan goals will be achieved.
The list of Project components, described above, includes:

- Dewatering Laguna Creek.
- Excavation of new creek channel and new intersection/bridge structure footprint.
- Demolition of existing intersection/bridge structure.
- Construction of new intersection/bridge structure with box culverts (reinforced concrete).
- Pavement finishing on top of new intersection/bridge structure.
- Creek flows returned to the realigned creek channel and wetland habitat restoration.
- Sheldon Road and Bradshaw Road facility work improvements within 1,000 feet of the intersection in each direction, including final grading, deposit of road base, paving, pedestrian path installation, utility relocation, and installation of ancillary traffic facilities such as signs, signals, street lighting, and traffic striping.

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2.1 AIR QUALITY SETTING

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Sacramento Valley Air Basin, which encompasses the proposed Project, pursuant to the regulatory authority of the Sacramento Metropolitan Air Quality Management District (SMAQMD).

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Folsom area.

AIR BASIN CHARACTERISTICS

Sacramento Valley Air Basin

The Sheldon Road/Bradshaw Road Intersection Improvement Project is located in the Sacramento Valley Air Basin (SVAB), which is under the jurisdiction of the SMAQMD. The air basin is relatively flat, bordered by mountains to the east, west, and north and by the San Joaquin Valley to the south. Air flows into the SVAB through the Carquinez Strait, moving across the Sacramento Delta, and bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storm systems. From May to October, the region's intense heat and sunlight lead to high ozone pollutant concentrations. Summer inversions are strong and frequent but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Meteorological Influences on Air Quality

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the SVAB can create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical air flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground (SMAQMD 2011).

The ozone season (May through October) in the valley is characterized by stagnant morning air or light winds, with the delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north and carry the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle

back south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento area, which exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards (SMAQMD 2011).

REGIONAL AMBIENT AIR QUALITY

Motor vehicle transportation, including automobiles, trucks, transit buses, and other modes of transportation, is the major contributor to regional air pollution. Stationary sources were once important contributors to both regional and local pollution; however, their role has been substantially reduced in recent years by pollution control programs.

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3) and particulate matter (PM) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. In the Elk Grove region, O_3 and PM are of particular concern. Health effects commonly associated with criteria pollutants are summarized in **Table 2-1.**

TABLE 2-1
CRITERIA AIR POLLUTANTS SUMMARY OF COMMON SOURCES AND EFFECTS

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (NOx) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Particulate Matter (PM_{10} & $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO_2)	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. Damage crops and vegetation. Impairs visibility.

Source: CAPCOA 2011

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Diesel Particulate Matter

According to the California Almanac of Emissions and Air Quality (CARB 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance. Rather, the exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. Diesel engine particulate has been identified as a human carcinogen. Studies show that diesel PM concentrations are much higher near heavily traveled highways and intersections. Off-road construction equipment and heavy-duty trucks are considered major sources of diesel-related emissions.

Ambient Air Quality

Ambient air quality at the Sheldon Road/Bradshaw Road intersection can be deduced from ambient air quality measurements conducted at air quality monitoring stations. There is one air quality monitoring station in the City located at Elk Grove-Bruceville Road, which monitors ambient concentrations of O_3. Concentrations of O_3 and airborne particulate matter were obtained from a nearby monitoring station located in the City of Sacramento (Sacramento-T Street air monitoring station) (see **Table 2-2**). Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered representative of ambient concentrations affecting the Project area.

Table 2-2 summarizes the last three years of published data from the Elk Grove-Bruceville Road monitoring station and the Sacramento-T Street air monitoring station. As depicted in **Table 2-2**, state and federal ozone standards have been exceeded on several occasions during the last three years of available data.

TABLE 2-2
AMBIENT AIR QUALITY MONITORING DATA FOR THE INTERSECTION IMPROVEMENT SITE

Pollutant Standards	2011	2012	2013
Elk Grove-Bruceville Road Air Quality Monitoring Station			
Ozone			
Max 1-hour concentration (ppm)	0.097	0.093	0.086
Max 8-hour concentration (ppm) (state/federal)	0.081/0.080	0.087/0.086	0.069 / 0.068
Number of days above state 1-hr standard	1	0	0
Number of days above state/federal 8-hour standard	6/1	11/5	0/0
Sacramento-T Street Air Quality Monitoring Station			
Ozone			
Max 1-hour concentration (ppm)	0.100	0.104	0.091
Max 8-hour concentration (ppm) (state/federal)	5/1	0.093/0.092	0.068 / 0.068
Number of days above state 1-hr standard	1	1	0
Number of days above state/federal 8-hour standard	5/1	9/4	0/0
Respirable Particulate Matter (PM_{10})			
Max 24-hour concentration ($\mu g/m3$) (state/federal)	42.2/38.8	36.7/36.2	92.3 / 53.1
Number of days above state/federal standard	0/0	0/0	* / *
Fine Particulate Matter ($PM_{2.5}$)			
Max 24-hour concentration ($\mu g/m3$) (state/federal)	50.5/50.5	40.8/27.1	40.2 / 39.2
Number of days above federal standard	18.4	0	6.1

Source: CARB 2014

$\mu g/m3$ = micrograms per cubic meter; ppm = parts per million

Ambient Air Quality Attainment Status

As detailed further under the Regulatory Framework subsection below, both the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) have established air pollution standards in an effort to protect human health and welfare. Areas with air quality that exceed adopted air quality standards are designated as nonattainment areas for the relevant air pollutants. Areas that comply with air quality standards are designated as attainment areas for the relevant air pollutants. Unclassified areas are those with insufficient air quality monitoring data to support a designation of attainment or nonattainment, but are generally presumed to comply with the ambient air quality standard. State Implementation Plans must be prepared by states for areas designated as federal nonattainment areas to demonstrate how the area will come into attainment of the exceeded national ambient air quality standard. The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in **Table 2-3**. **Table 2-4** shows the national and California attainment status for Sacramento County. The region is nonattainment for federal O_3 and fine particulate matter ($PM_{2.5}$) standards and state O_3 and coarse particulate matter (PM_{10}) standards (CARB 2013).

TABLE 2-3
STATE AND NATIONAL CRITERIA POLLUTANT STANDARDS

Pollutant	Averaging Time	California Standards	National Standards
Ozone	8 Hour	0.070 ppm (137$\mu g/m^3$)	0.075 ppm
	1 Hour	0.09 ppm (180 $\mu g/m^3$)	—
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide	1 Hour	0.18 ppm (339 $\mu g/m^3$)	100 ppb
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	53 ppb (100 $\mu g/m^3$)
Sulfur Dioxide	24 Hour	0.04 ppm (105 $\mu g/m^3$)	N/A
	3 Hour	—	N/A
	1 Hour	0.25 ppm (665 $\mu g/m^3$)	75 ppb
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	N/A
	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$
Particulate Matter – Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$
	24 Hour	N/A	35 $\mu g/m^3$
Sulfates	24 Hour	25 $\mu g/m^3$	N/A
Lead	Calendar Quarter	N/A	1.5 $\mu g/m^3$
	30 Day Average	1.5 $\mu g/m^3$)	N/A
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	N/A
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 $\mu g/m^3$)	N/A
Visibility-Reducing Particles	8 Hour (10:00 to 18:00 PST)	—	N/A

Source: Source: CARB 2013

Notes: ppm = parts per million; ppb = parts per billion; $\mu g/m^3$ = micrograms per cubic meter

TABLE 2-4
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY ATTAINMENT STATUS FOR SACRAMENTO COUNTY

Pollutant	National	California
1-Hour Ozone (O_3)	Nonattainment	Nonattainment
8-Hour Ozone (O_3)	No Standard	Nonattainment
Coarse Particulate Matter (PM_{10})	Attainment	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Attainment
Carbon Monoxide (CO)	Unclassified/Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO_2)	Unclassified	Attainment

Source: CARB 2013

2.2 REGULATORY FRAMEWORK

The federal Clean Air Act of 1971 and Clean Air Act Amendments (1977) established the national ambient air quality standards (NAAQS), which are promulgated by the EPA. The State of California has also adopted its own California ambient air quality standards (CAAQS), which are promulgated by CARB. The proposed intersection improvements would occur in the SVAB, which is under the air quality regulatory jurisdiction of the SMAQMD and is subject to the rules and regulations adopted by the air district to achieve attainment with the NAAQS and CAAQS.

Sacramento Metropolitan Air Quality Management District

The SMAQMD coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and with SMAQMD rules and regulations, and conducts long-term planning related to air quality.

As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the Clean Air Act Amendments. These milestone reports include compliance demonstrations that the requirements have been met for the Sacramento nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce reactive organic gases (ROG), nitrous oxides (NO_X), and PM_{10} emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations, enhancement of California Environmental Quality Act (CEQA) participation, implementation of a new and modified indirect source review program, adoption of local air quality plans, and stationary-, mobile-, and indirect-source control measures.

Sacramento Area Regional Ozone Attainment Plan

As previously stated, the region is nonattainment for both federal and State O_3 standards (see **Table 2-3** for federal and State numeric standards). The federal 8-hour ozone regulations require that areas classified as serious or above submit a reasonable further progress demonstration plan that shows a minimum of 18 percent volatile organic compound (and/or NO_X) emission reductions over the first six years following the 2002 baseline year and then an average of 3

percent reductions per year for each subsequent three-year period out to the attainment year. (The 2002 baseline emissions for volatile organic compounds and NO_x in the Sacramento Valley Air Basin equaled 97 tons per day and 109 tons per day, respectively.) The Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan (SMAQMD 2008) includes the information and analyses to fulfill Clean Air Act requirements for demonstrating reasonable further progress toward attaining the 8-hour ozone NAAQS for the Sacramento region. In addition, this plan establishes an updated emissions inventory and maintains existing motor vehicle emission budgets for transportation conformity purposes.

Section 181(b)(3) of the Clean Air Act permits a state to request that the EPA reclassify or "bump up" a nonattainment area to a higher classification and extend the time allowed for attainment. This bump-up process is appropriate for areas that must rely on longer-term strategies to achieve the emission reductions needed for attainment. The air districts in the Sacramento region submitted a letter to CARB in February 2008 to request a voluntary reclassification (bump-up) of the Sacramento federal nonattainment area from a serious to a severe 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019. On May 5, 2010, the EPA approved the request effective June 4, 2010.

Sacramento Area Regional PM_{10} Attainment Plan and $PM_{2.5}$ State Implementation Plan

As previously stated, the region is nonattainment for federal O_3 and $PM_{2.5}$ standards and state O_3 and PM_{10} standards (CARB 2013). (See **Table 2-3** for federal and State numeric standards.) The SMAQMD (2010) prepared the PM_{10} Implementation/Maintenance Plan and Re-Designation Request for Sacramento County in compliance with the federal Clean Air Act requirements pertaining to PM_{10} nonattainment areas. The purpose of this plan is to fulfill the requirements for the EPA to redesignate Sacramento County from nonattainment to attainment of the PM_{10} national ambient air quality standards by preparing the following plan elements and tasks:

- Document the extent of the PM_{10} problem in Sacramento County.
- Determine the emission inventory sources contributing to the PM_{10} problem.
- Identify the appropriate control measures that achieved attainment of the PM_{10} NAAQS.
- Demonstrate maintenance of the PM_{10} NAAQS.
- Request formal redesignation to attainment of the PM_{10} NAAQS.

The $PM_{2.5}$ State Implementation Plan (2013) attempts to fulfill the requirements of the EPA to re-designate Sacramento County from nonattainment to attainment of the $PM_{2.5}$ NAAQS.

The SMAQMD has also adopted various rules and regulations pertaining to the control of emissions from area and stationary sources. Some of the more pertinent regulatory requirements applicable to the proposed Project are identified as follows (SMAQMD 2011):

- *Rule 402: Nuisance*. The purpose of this rule is to limit emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- Rule 403: *Fugitive Dust*. The purpose of this rule is to require that reasonable precautions be taken so as not to cause or allow the emissions of fugitive dust from non-combustion sources from being airborne beyond the property line from which the emission originates.

- Rule 442: The purpose of this rule is to limit the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the district.

Toxic Air Contaminant Regulations

In 1983, the California legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal Clean Air Act (42 United States Code Section 7412[b]) is a TAC. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate best available control technology to minimize emissions. CARB has, to date, established formal control measures for eleven TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

Since the last update to the TAC list in December 1999, CARB has designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

California Diesel Risk Reduction Plan

In September 2000, CARB adopted the Diesel Risk Reduction Plan (DRRP), which recommends many control measures to reduce the risks associated with diesel PM and achieve a goal of reducing diesel PM emissions by 85 percent from 2000 levels by 2020. The DRRP incorporates measures to reduce emissions from diesel-fueled vehicles and stationary diesel-fueled engines. Ongoing efforts by CARB to reduce diesel-exhaust emissions from these sources include the development of specific statewide regulations, which are designed to further reduce diesel PM

emissions. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

Since the initial adoption of the DRRP in September 2000, CARB has adopted numerous rules related to the reduction of diesel PM from mobile sources, as well as the use of cleaner-burning fuels. Transportation sources addressed by these rules include public transit buses, school buses, on-road heavy-duty trucks, and off-road heavy-duty equipment.

2.3 POTENTIAL AIR QUALITY IMPACTS

PMC calculated the resultant air pollutant emissions associated with the construction of the Sheldon Road/Bradshaw Road Intersection Improvement Project using the California Emissions Estimator Model (CalEEMod), version 2013.2.2, computer program (see **Appendix B**). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for the use of government agencies, land use planners, and environmental professionals. Particulate matter concentration and dispersion was modeled for the construction of the transportation facility improvements using the EPA's AERMOD air toxic dispersion model (see **Appendix C**). AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The impacts of the Project from mobile-source air quality emissions during the post-construction operations was evaluated based upon AM and PM peak hour vehicle traffic numbers coupled with their estimated idling times at the Sheldon Road/Bradshaw Road intersection. Emissions were calculated by multiplying automobile-idling vehicle emissions factors generated by CARB's EMFAC2014 emission program by the number of peak hour vehicles and by the seconds of delay experienced per vehicle, both identified in the Transportation Operations Analysis (Fehr & Peers 2015). The EMFAC2014 emissions model was developed by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California. The analysis was conducted for existing conditions (year 2015), the construction/opening year (year 2017), and the horizon/design year (year 2037). The option to employ a traffic signal at the intersection and a roundabout are both considered. Additionally, a No Build scenario is evaluated for the year 2037. The output of the spreadsheet model used to calculate emissions is included in **Appendix D**. The California Project-Level Carbon Monoxide Protocol (CO Protocol) was used to analyze "carbon monoxide hotspot" impacts for the Project. CALINE-4 computer models of existing Sheldon Road/Bradshaw Road intersection operations (year 2015) and the proposed Project scenarios were created to estimate concentrations of CO at existing sensitive receptors surrounding the Sheldon Road/Bradshaw Road intersection (see **Appendix E**).

CONSTRUCTION-GENERATED NITROGEN OXIDE EMISSIONS

Three basic sources of short-term emissions will be generated through construction of the proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive particulate matter emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation.

Construction activities would be subject to SMAQMD Rule 403 that requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals, where possible, for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways, or the clearing of land, and applying asphalt, oil, water, or suitable chemicals on dirt roads, materials, stockpiles, and other surfaces that can give rise to airborne dust.

Projected daily emissions from construction of the proposed Project have been estimated and are summarized in **Table 2-5**.

TABLE 2-5
CONSTRUCTION-RELATED CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (POUNDS PER DAY)

Construction Phases	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_X)	Carbon Monoxide (CO)	Sulfur Dioxide (SO_2)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Pounds per Day						
Dewater Creek Segment	2.00	15.61	11.69	0.01	1.21	1.15
New Creek Channel Excavation	5.23	55.17	42.31	0.03	21.70	12.75
Existing Bridge Demolition	4.35	45.85	35.94	0.03	2.46	2.17
New Intersection/Bridge Structure Construction	4.09	36.02	21.83	0.03	2.41	2.19
Pavement Finishing of new Bridge	2.25	22.95	16.19	0.02	1.43	1.21
Roadwork on Sheldon & Bradshaw Roads (Includes Pedestrian Path)	6.97	69.65	47.66	0.06	10.96	6.56
Roadwork Paving (Includes Pedestrian Path)	1.95	20.33	15.36	0.02	1.24	1.07
Ancillary Facility & Utility Installation	3.15	26.44	18.76	0.02	1.89	1.70
Habitation Re-Vegetation	2.15	22.84	14.98	0.01	7.73	4.43
SMAQMD Potentially Significant Impact Threshold	—	85 pounds/day	—	—	—	—
Exceed SMAQMD Threshold?	—	No	—	—	—	—

*Source: CalEEMod version 2013.2.2. See **Appendix B** for model inputs.*

As shown in **Table 2-5**, Project emissions resulting from construction would not exceed the SMAQMD significance criterion of 85 pounds per day of NO_X.

CONSTRUCTION-GENERATED PARTICULATE MATTER EMISSIONS

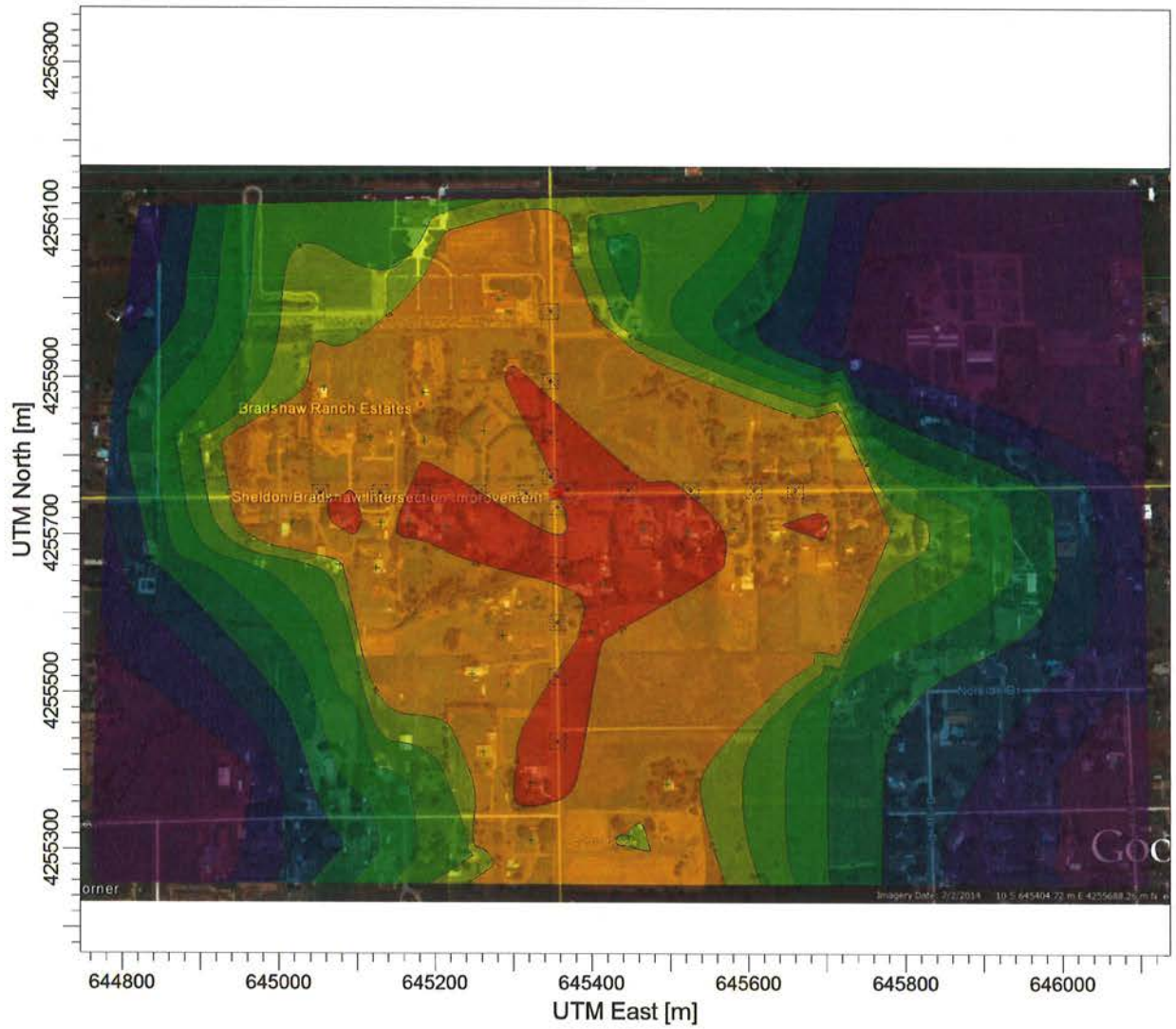
Particulate matter is a pollutant of great concern with respect to construction activities. The construction site is currently surrounded by rural residential land uses and thus, construction activities could potentially expose on-site residents to substantial construction-generated particulate matter concentrations associated with both diesel exhaust from construction

equipment and fugitive dust. Therefore, PM_{10} concentrations from diesel exhaust and construction-generated fugitive dust associated with implementation of the proposed intersection improvements were modeled, in accordance with applicable SMAQMD guidance, as being released by 40 equally spaced volume sources (see **Appendix C**). Particulate matter emission factors and estimated number of off-road construction equipment pieces were obtained from the CalEEMod software and 66 discrete receptors surrounding the Project site were marked. **Figure 2-1** presents the calculated particulate matter concentrations in the vicinity of the development site. The AERMOD program generated an estimate of 24-hour average concentrations using a 1-year data file of hourly weather observations recorded at Sacramento International Airport.

The model results were compared to the SMAQMD significance threshold of 50 $\mu g/m^3$ over a 24-hour period for construction-generated PM_{10} fugitive dust combined with PM_{10} exhaust. ($\mu g/m^3$ = micrograms per cubic meter.) As shown in **Figure 2-1**, toxic concentrations at the sensitive receptors in the Project site vicinity would not reach a level beyond the health risk threshold of 50 $\mu g/m^3$ over a 24-hour period (SMAQMD threshold). As shown, the maximum 24-hour period concentration would reach 24.9 $\mu g/m^3$.

PROJECT TITLE:

C:\Emissions Models\Elk Grove\Sheldon-Bradshaw\AERMOD\Sheldon Bradsh



PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 24.9 [ug/m^3] at (645323.85, 4255385.29)

2.1 4.0 5.0 6.0 7.0 8.0 9.0 10.0 20.0 24.9

COMMENTS:	SOURCES: **40**	COMPANY NAME:	
	RECEPTORS: **66**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:8,741 (0 — 0.3 km)	
	MAX: **24.9 ug/m^3**	DATE: **4/10/2015**	PROJECT NO.:

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OPERATIONAL EMISSIONS

The roundabout option and the traffic signal option proposed for the Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by their very nature, will not generate new criteria emissions from Project operations. The roundabout option and the traffic signal option for the proposed Project do not propose any buildings and therefore no permanent source of stationary source emissions. In addition, roadway improvements do not directly generate vehicle trips, a predominant source of air pollutant emissions. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The proposed Project would not result in increases in the rate of vehicle trips. Rather, the proposed traffic facility improvements provide improved access through an area with existing and anticipated congestion. The Project is considered necessary in order to reduce future congestion anticipated as approved development builds out. At the same time the Project would change the amount of time vehicles idle at the Sheldon Road/Bradshaw Road intersection under both the roundabout option and the traffic signal option. The longer a vehicle idles in a single location, the more air pollutant emissions are generated over the course of its travel than would otherwise have been emitted with reduced idling.

Project operational impacts on regional air quality were evaluated based upon AM and PM peak hour vehicle traffic numbers coupled with their estimated idling times at the Sheldon Road/Bradshaw Road intersection. Emissions were calculated by multiplying idling vehicle emissions factors generated by CARB's EMFAC2014 emission program by the number of peak hour vehicles by the seconds of delay experienced per vehicle, both identified in the Transportation Operations Analysis (Fehr & Peers 2015). The analysis was conducted for existing conditions (year 2015), the year 2017, and 2037. The option to employ a traffic signal at the intersection and a roundabout are both considered. Additionally, a No Build scenario is evaluated for the year 2037. The output of the spreadsheet model used to calculate emissions is included in **Appendix D**. The results are shown in **Table 2-6**.

As shown in **Table 2-6**, the emissions currently generated under existing conditions from idling vehicles queuing at the Sheldon Road/Bradshaw Road intersection during the AM and PM peak hours (combined) equal 54.6 pounds per day of ROG, 153.1 pounds per day of NOx, 342.5 pounds per day of CO, 3.0 pounds per day of PM_{10}, and 1.5 pounds per day of $PM_{2.5}$. As shown, NOx emissions currently exceed the SMAQMD significance threshold.

Projected emissions would be substantially reduced under every Project scenario, as well as the No Build scenario. Emissions reductions attributed to the No Build scenario result exclusively from future automobile fleet efficiency increases. The reductions attributed to both the Traffic Signal and Roundabout options result from future fleet modernization as well as reduced delays, and thus less time spent idling. The largest amount of emissions reductions would result from implementing the Roundabout option, which as shown would reduce ROG by 50.8 pounds, NOx by 142.2 pounds, CO by 318.9 pounds, PM_{10} by 2.9 pounds, and $PM_{2.5}$ by 1.4 pounds in the year 2017, compared with existing conditions. Emission reductions in the year 2037 would equal 47.7 pounds of ROG, 138.7 pounds of NOx, 306.7 pounds of CO, 2.9 pounds of PM_{10}, and 1.4 pounds of $PM_{2.5}$ compared with existing conditions. Emissions reductions experienced under the Traffic Signal option are very similar to the Roundabout option, though slightly less.

TABLE 2-6
OPERATIONAL (IDLING) CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (POUNDS)

Time	Volume	Delay (sec)	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Existing Conditions (2015)							
AM Peak	1,616	172	22.0	61.8	138.4	1.2	0.6
PM Peak	1,831	224	32.5	91.2	204.2	1.8	0.9
Total of AM & PM Peak Periods			***54.6***	***153.1***	***342.5***	***3.0***	***1.5***
SMAQMD Significance Threshold			65 Lbs/day	65 Lbs/day	—	—	—
Exceed SMAQMD Threshold?			**No**	**Yes**	—	—	—
Year 2017 Traffic Signal Option							
AM Peak	1,713	27	3.3	9.3	20.0	0.1	0.1
PM Peak	1,942	34	4.7	13.2	28.5	0.1	0.1
Total of AM & PM Peak Periods			***7.9***	***22.5***	***48.5***	***0.2***	***0.2***
Comparison to Existing Conditions			*-46.7*	*-130.6*	*-294.0*	*-2.8*	*-1.3*
Year 2017 Roundabout Option							
AM Peak	1,713	16	1.9	5.5	11.8	0.1	0.1
PM Peak	1,942	14	1.9	5.4	11.7	0.1	0.1
Total of AM & PM Peak Periods			***3.8***	***10.9***	***23.6***	***0.1***	***0.1***
Comparison to Existing Conditions			*-50.8*	*-142.2*	*-318.9*	*-2.9*	*-1.4*
Year 2037 Traffic Signal Option							
AM Peak	2,684	37	4.6	9.6	23.8	0.0	0.0
PM Peak	3,038	36	5.1	10.6	26.3	0.1	0.1
Total of AM & PM Peak Periods			***9.7***	***20.2***	***50.1***	***0.1***	***0.1***
Comparison to Existing Conditions			*-44.9*	*-132.9*	*-292.4*	*-2.9*	*-1.4*
Year 2037 Roundabout Option							
AM Peak	2,684	17	2.1	4.4	11.0	0.0	0.0
PM Peak	3,038	34	4.8	10.0	24.8	0.1	0.1
Total of AM & PM Peak Periods			***6.9***	***14.4***	***35.8***	***0.1***	***0.1***
Comparison to Existing Conditions			*-47.7*	*-138.7*	*-306.7*	*-2.9*	*-1.4*
Year 2037 No Build[1]							
AM Peak	2,684	172	21.4	44.7	110.8	0.2	0.2
PM Peak	3,038	224	31.5	66.0	163.4	0.3	0.3
Total of AM & PM Peak Periods			***52.8***	***110.7***	***274.2***	***0.5***	***0.5***
Comparison to Existing Conditions			*-2.1*	*-42.4*	*-68.3*	*-2.5*	*-1.0*

*Source: Emfac2014. See **Appendix D** for model inputs. [1]The No Build scenario accounts for the same seconds of delay as existing conditions due to lack of additional information.*

As shown in **Table 2-6**, air pollutant emissions are projected to decrease under each Project scenario compared with existing conditions.

CARBON MONOXIDE HOTSPOTS

The primary mobile-source criteria pollutant of local concern is carbon monoxide (CO). As noted previously, Sacramento County, and thus Elk Grove, is currently designated attainment for both California and national CO ambient air quality standards, and the county typically experiences low background CO concentrations.

Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hotspots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. Modeling is therefore typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours.

The California Project-Level Carbon Monoxide Protocol (CO Protocol) was used to analyze CO impacts for the Project. CALINE-4 computer models of existing Sheldon Road/Bradshaw Road intersection operations (year 2015) and the proposed Project build scenarios were created to estimate concentrations of CO at existing sensitive receptors surrounding the Sheldon Road/Bradshaw Road intersection. CO hotspot modeling was conducted based on PM peak-hour traffic volumes for operating conditions. To ensure a conservative analysis, predicted 1-hour and 8-hour CO concentrations were calculated assuming background CO concentrations of 2.4 and 2.0 parts per million (ppm), respectively, based on the most recent available data obtained from the nearest monitoring station that monitors CO.[2] A persistence factor of 0.7 was used to convert predicted hourly concentrations to 8-hour concentrations. Fleet average emission factors for existing conditions (2015), year 2017, and year 2037 were obtained from CARB's EMFAC2014 emissions model and equal 13.5 grams, 11.7 grams, and 6.5 grams, respectively. Twenty discrete receptors were identified in the yards of the houses closest to the intersection. The assumptions used in the hot-spot analysis are consistent with those used in the regional emissions analysis. The assumptions made in running the program were:

- Windspeed: 0.5 meter per second
- Wind Direction: Worst Case
- Sigma Theta: 5 degrees
- Temperature: 46 degrees Fahrenheit

The predicted 1-hour and 8-hour CO concentrations for existing conditions and all Project scenarios are summarized in **Table 2-7**.

[2] 1-hour and 8-hour background concentrations are based on the most recent measurements (year 2013, respectively) at the air quality monitoring station located at El Camino and Watt avenues.

TABLE 2-7
PREDICTED LOCAL MOBILE SOURCE CARBON MONOXIDE CONCENTRATIONS

Project Scenario	Predicted CO Concentration (ppm)	
	1-Hour	8-Hour
Sheldon Road/Bradshaw Road Intersection		
Existing Conditions	4.4	3.4
Year 2017 Traffic Signal Scenario	4.3	3.3
Year 2017 Roundabout Scenario	4.3	3.3
Year 2037 Traffic Signal Scenario	4.0	3.1
Year 2037 Roundabout Scenario	4.0	3.1
Year 2037 No Build	4.0	3.1
California Ambient Air Quality Standards (CAAQS)	*20*	*9*
Predicted Concentrations Exceed CAAQS?	**No**	**No**

Source: CALINE4 model. Note: Predicted CO concentrations are the sums of a background component, which includes the cumulative effects of CO sources in the Project area vicinity and the proposed Project's contribution. Results based on emissions modeling conducted using the CALINE4 computer program. CALINE4 outputs are included as ***Appendix E****.*

As shown, concentrations would remain well below the applicable state and federal standards under all scenarios. The severity of localized CO concentrations in the Project area is predicted to be reduced, primarily due to future automobile fleet efficiency projections (as previously described, fleet average emission factors for existing conditions (2015), year 2017, and year 2037 were obtained from CARB's EMFAC2014 emissions model and equal 13.5 grams, 11.7 grams, and 6.5 grams, respectively). The modeling results shown in **Appendix E** indicate that Project-related CO emissions would not cause or contribute to any new or worsened localized violations of the federal 1-hour or 8-hour CO ambient standards.

ODORS

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

Construction of the proposed Project would involve the use of a variety of gasoline- or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel exhaust, may be considered objectionable by some people. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. Additionally, SMAQMD Rule 402 addresses the exposure of emissions that may cause nuisance to any substantial number of people. The proposed Project would be subject to Rule 402 and any objectionable odors resulting from the proposed Project would be short-term and limited to the construction period. Furthermore, idling times of construction equipment would be minimized as required by the state airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations). As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. In addition, the proposed Project would not result in the installation of any equipment that would be considered major odor-emission sources. As a result, potential exposure of sensitive receptors to odorous emissions would be considered less than significant.

FEDERAL CONFORMITY

Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. A proposed project subject to the transportation conformity rule must conform at both levels to be approved.

Regional Conformity

Regional level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, regional transportation plans are developed that include all of the transportation projects planned for a region over a period of years, usually 20. Based on the projects included in the regional transportation plans, an air quality model is run to determine whether or not the implementation of those projects would result in a violation of the Clean Air Act, including non-federal regionally-significant projects. If no violations would occur, then the regional planning organization (the Sacramento Area Council of Governments) and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the Clean Air Act, and all projects that are part of the Regional Transportation Plan are deemed to be in conformity at the regional level.

The current regional transportation plan is the 2035 Metropolitan Transportation Plan / Sustainable Communities Strategy (MTP / SCS). On April 19, 2012, the Sacramento Area Council of Governments (SACOG) made a determination that the 2035 MTP conforms with the State Implementation Plan and on December 13, 2012, the Federal Highway Administration determined that the MTP conforms to the State Implementation Plan. The proposed Project is part of the 2035 MTP, and thus was found to also be in conformity. The page of the MTP where the Project is listed is included in **Appendix F.**

Project Level Conformity

Conformity at the project-level is also required for localized pollutants. The region is classified nonattainment for federal standards of the localized pollutant, $PM_{2.5}$. In addition, the region is classified attainment-maintenance for CO.

The Transportation Project-Level Carbon Monoxide Protocol[3] identifies two types of criteria for determination of conformity:

- All projects involving federal funding and/or approval are subject to the National Environmental Policy Act (NEPA). According to NEPA, the Project must not violate any national ambient air quality standard or the Project must incorporate all practicable means to avoid or minimize expected exceedances of the national ambient air quality standards.

- All projects involving federal funding and/or approval, and not otherwise exempt, require a federal conformity determination. Within federal nonattainment and maintenance areas, a project must not cause or contribute to any new localized CO violations or increase the frequency or severity of any existing CO violations.

The analysis of CO impacts (detailed above) indicates that the Project meets the above criteria for carbon monoxide.

Federal regulations also require qualitative hot-spot analyses to determine transportation conformity in PM_{10} or $PM_{2.5}$ non-attainment areas. Such analyses are only required, however, for a "project of air quality concern". Guidance developed by the U.S. Environmental Protection Agency and the Federal Highway Administration identifies examples of projects that would be "projects of air quality concern" and "projects that are not an air quality concern".[4] Projects of concern are generally those that would substantially increase diesel truck or bus traffic. Projects that are not a concern are those that do not result in a significant increase in truck/bus traffic or that improve highway operations.

The proposed Project is not a project of air quality concern for PM_{10} or $PM_{2.5}$ (POAQC) because it does not meet the definition of a POAQC as defined in EPA Transportation Conformity Guidance. The Project would not result in an increase of diesel truck or bus traffic. Furthermore, the proposed Project, as with all projects in Elk Grove, is subject to the SMAQMD's $PM_{2.5}$ State Implementation Plan, and the PM_{10} Implementation/Maintenance Plan and Re-Designation Request for Sacramento County (2010). Construction of the Project must comply with all SMAQMD rules, ordinances, and regulation for air quality restrictions. Additionally, the Project is subject to air quality regulations contained in Caltrans' Standard Specification Section 14-9.01, General Air Quality Section, and Section 14-9.02, Air Pollution Control, which contain mechanisms for effective dust control. The proposed Project location is not identified as a site of PM_{10} or $PM_{2.5}$ violations within either of these air quality plans. Nor is there a site in the vicinity of the proposed Project identified as posing a possible violation.

---

[3] Garza, Vincente J.; Peter Granly; Daniel Sperling, *Transportation Project-Level Carbon Monoxide Protocol*, Institute of Transportation Studies, University of California, Davis; Report UCD-ITS-RR-97-21, December 1997.

[4] U.S. Environmental Protection Agency, Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas, EPA 410-B-13-053, November 2013.

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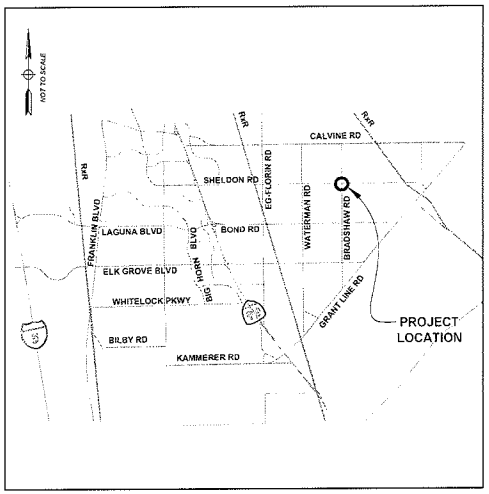
APPENDIX A – PROJECT CONCEPT PLAN & DESIGN LAYOUTS



VICINITY MAP
CITY OF ELK GROVE, CA

CITY OF ELK GROVE

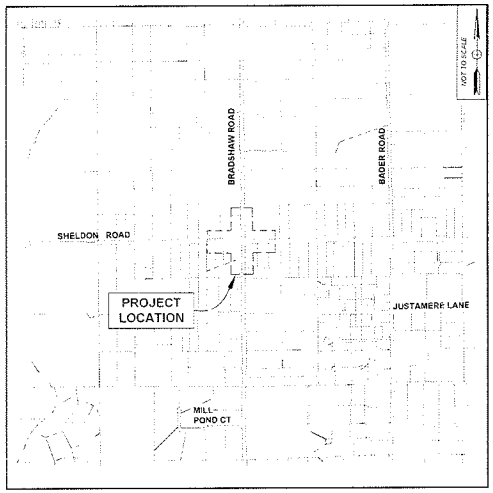
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY • ELK GROVE, CALIFORNIA 95758

IMPROVEMENT PLANS FOR:

SHELDON ROAD AND BRADSHAW ROAD RURAL INTERSECTION

FEDERAL AID PROJECT NO. BRLS-5479(012), BRIDGE NO. 24C0308

TO BE SUPPLEMENTED BY CITY OF ELK GROVE IMPROVEMENT STANDARDS AND STANDARD CONSTRUCTION SPECIFICATION DATED OCTOBER, 2007, CALTRANS STANDARD PLANS AND STANDARD SPECIFICATION DATED MAY 2006



LOCATION MAP

INDEX OF SHEETS

ABBREVIATION LIST

ASPH	ASPHALT
AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
BC	BEGIN CURVE
BCR	BEGIN CURB RETURN
BEG	BEGIN
℄	CENTERLINE
CLVT	CULVERT
CONC	CONCRETE
EC	END CURVE
ECR	END CURB RETURN
ELEV	ELEVATION
EP	EDGE-OF-PAVEMENT
EX	EXISTING
FG	FINISHED GRADE
FL	FLOWLINE
GB	GRADE BREAK
HP	HINGE POINT/ HIGH POINT
LP	LOW POINT
LT	LEFT
OG	ORIGINAL GRADE
PED	PEDESTRIAN
RD	ROAD
RT	RIGHT
SW	SIDEWALK
VAR	VARIES

811 Know what's below. Call before you dig.

CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

APPROVED BY:

RICHARD R. CARTER, P.E. - #C55382 — DATE
CAPITAL PROGRAM MANAGER

SUBMITTED BY:

JENNIFER MAXWELL, P.E. - #C54366 — DATE
SUPPORT SERVICES MANAGER

REVIEWED BY:

JOHN R. SCOTT — DATE
CONTRACT MANAGER, MAINTENANCE & OPERATIONS

PREPARED BY:

KENNETH C. TAYLOR, P.E. - #56185 — DATE
DIRECTOR OF ENGINEERING
WILLDAN ENGINEERING

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KENNETH C. TAYLOR — R.C.E. 56185 — DATE

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DRAWN BR
CHECKED CS

REGISTERED PROFESSIONAL ENGINEER — KENNETH C. TAYLOR — NO. 56185 — CIVIL ENGINEER — STATE OF CALIFORNIA

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DEPARTMENT OF PUBLIC WORKS
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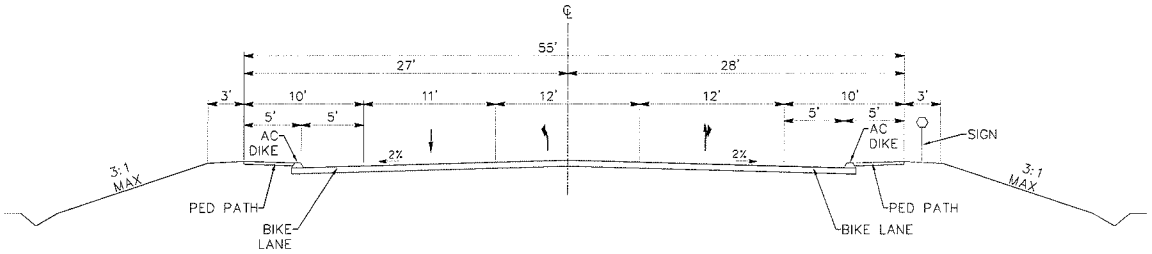
SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION

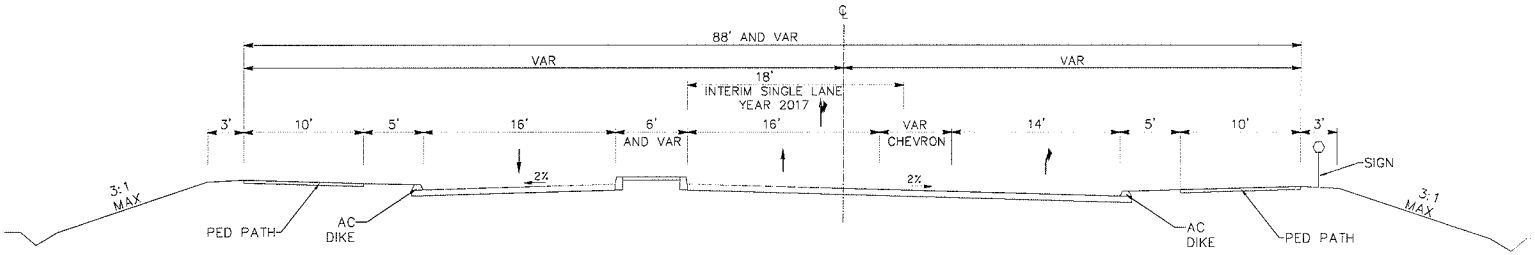
TITLE SHEET/LEGEND/ABBREVIATIONS

DATE July 24, 2014
SCALE PER PLAN
PROJECT No PT0137
SHEET 1 OF 14
DWG No T-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4



TYPICAL SECTION- SIGNALIZED INTERSECTION
SHELDON ROAD AND BRADSHAW ROAD
YEAR 2017



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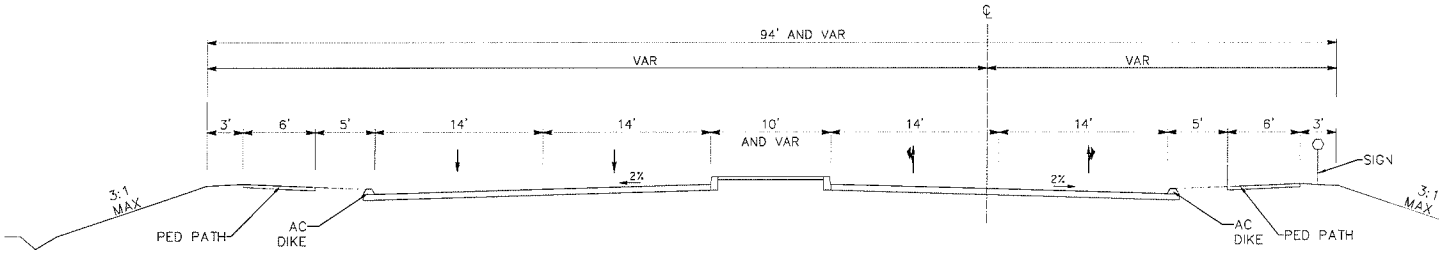
SHELDON ROAD - WEST OF INTERSECTION
YEAR 2017



TYPICAL SECTION - DOUBLE ROUNDABOUT INTERSECTION
BRADSHAW ROAD
YEAR 2017

CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

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SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION

TYPICAL SECTIONS

DATE: July 24, 2014
SCALE: PER PLAN
PROJECT No: PT0137
SHEET: 2 OF 14
DWG No: X-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

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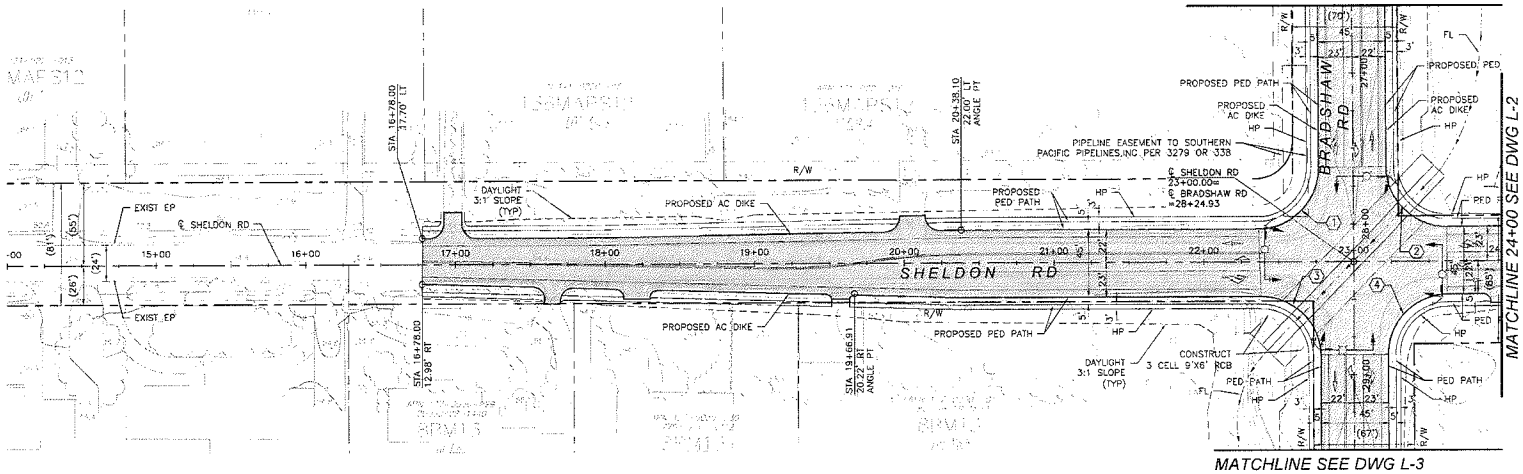

CURVE DATA				
CURVE NO	RADIUS (FT)	DELTA	LENGTH (FT)	TANGENT (FT)
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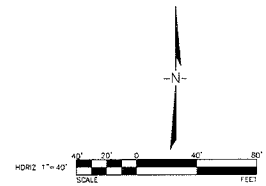
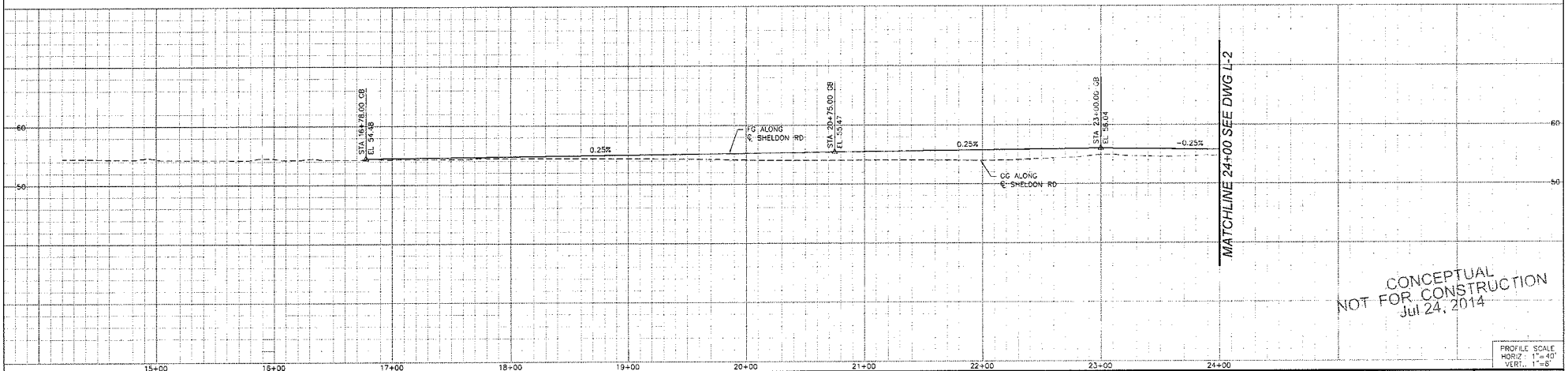
2	40.00	89°48'56"	62.70	39.87
3	40.00	89°51'09"	62.73	39.90
4	40.00	89°48'56"	62.70	39.87

LEGEND:

NEW PAVEMENT SECTION





CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

PROFILE SCALE
HORIZ. 1"= 40'
VERT. 1"= 8'

NO.	REVISION	BY	DATE

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PREPARED UNDER THE SUPERVISION OF

KENNETH C. TAYLOR R.C.E. 56193 DATE

DESIGNED	TP
DRAWN	BR
CHECKED	CS

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SHELDON ROAD AND BRADSHAW ROAD RURAL INTERSECTION

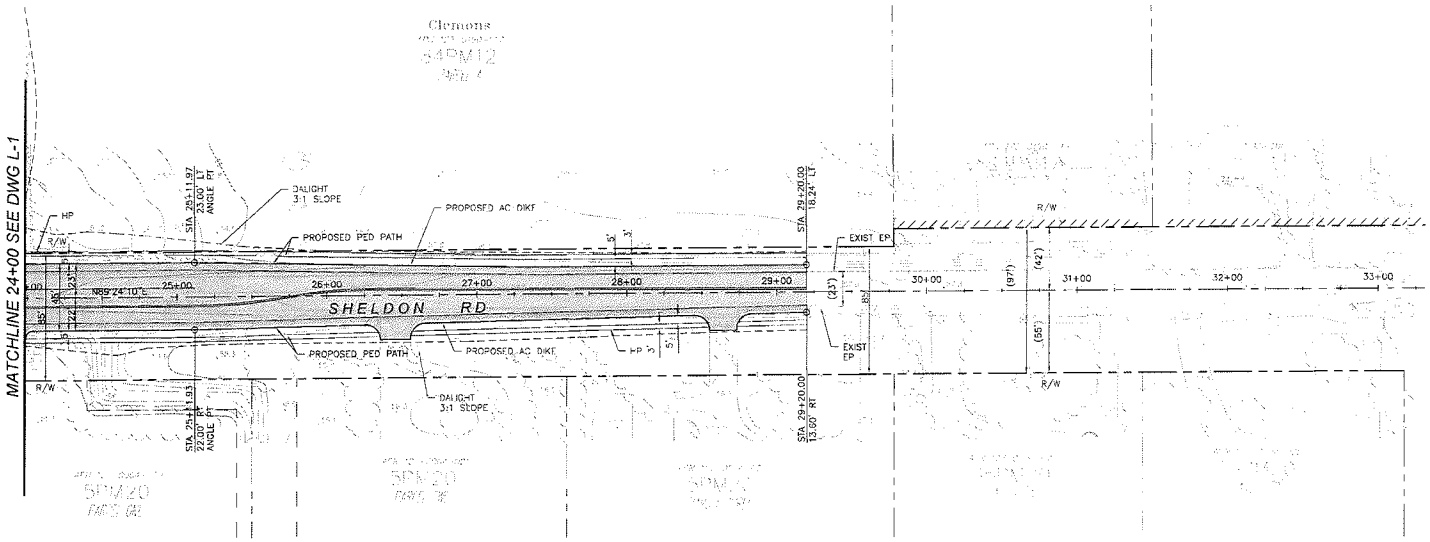
TRAFFIC SIGNAL INTERSECTION PLAN AND PROFILE

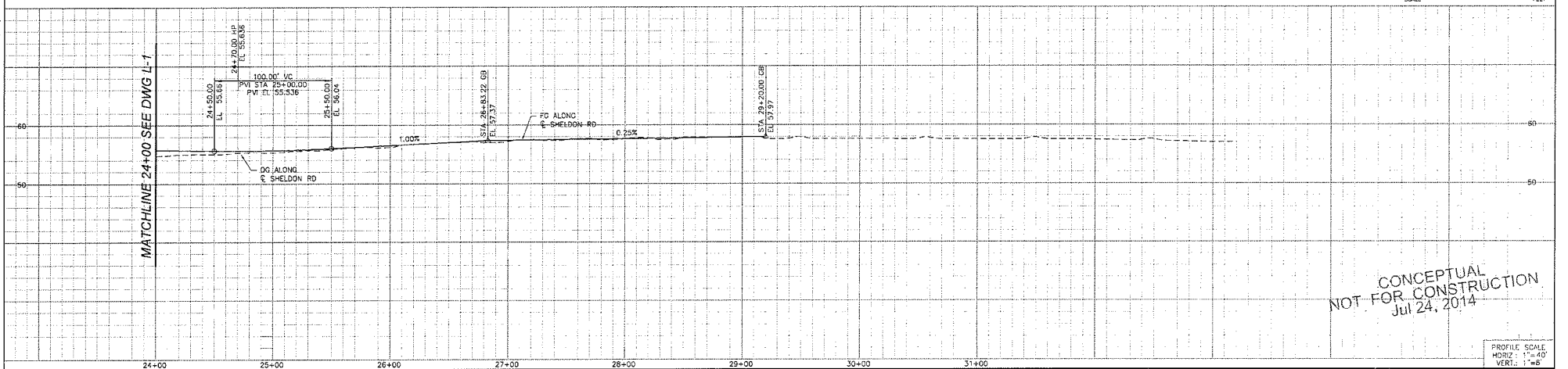
SHELDON ROAD – 16+78 TO 24+00

DATE	July 24, 2014
SCALE	PER PLAN
PROJECT No	PT0137
SHEET	3 OF 14
DWG No	L-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

\\ANH-DC1\Data\110079-DAGove-Sheldon-Bradshaw-Proj\Vol3\PS&E\PS&E\Plans\PL-03-ROAD.dwg Jul 24, 2014 - 4:07pm Plotted By: bryce





CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

NO.	REVISION	BY	DATE

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714/978-8200 fax 714/978-8299

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KENNETH D. SKYLOP — R.C.E. 35193 — DATE

DESIGNED	TP
DRAWN	BR
CHECKED	CS

CITY OF ELK GROVE
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD RURAL INTERSECTION

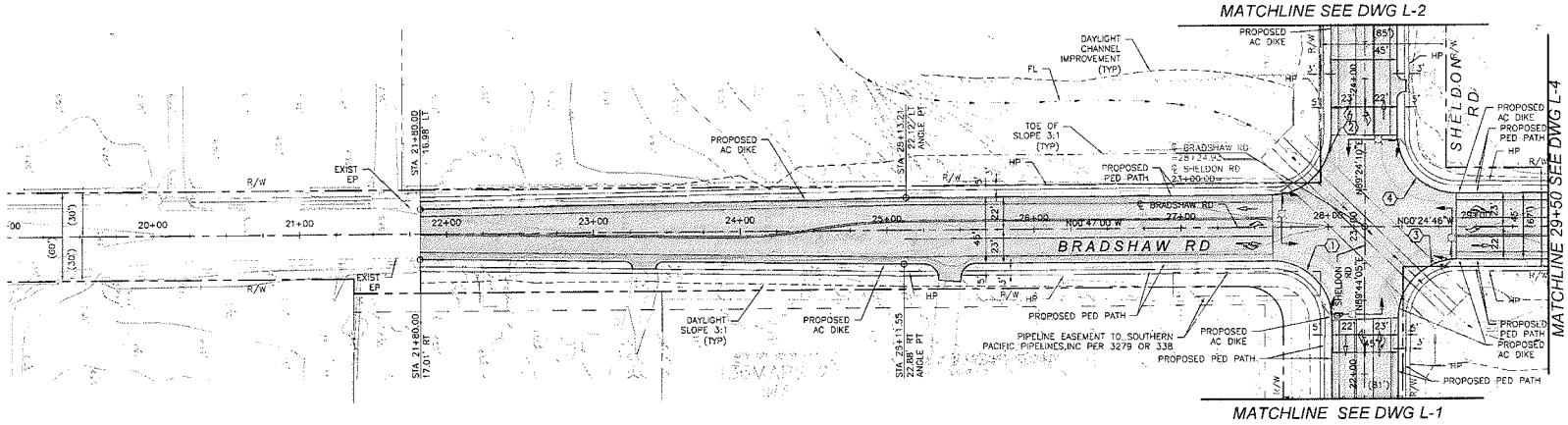
TRAFFIC SIGNAL INTERSECTION PLAN AND PROFILE

SHELDON ROAD – 24+00 TO 29+20

DATE	July 24, 2014
SCALE	PER PLAN
PROJECT No	PT0137
SHEET	4 OF 14
DWG No	L-2

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

\\KHM-DC1\Division\16079-ElkGrove-Sheldon-Bradshaw-Prelim\900-PS&E\901-Plans\PL-01-1060.dwg Jul 24, 2014 - 4:07pm Plotted By: bhayes

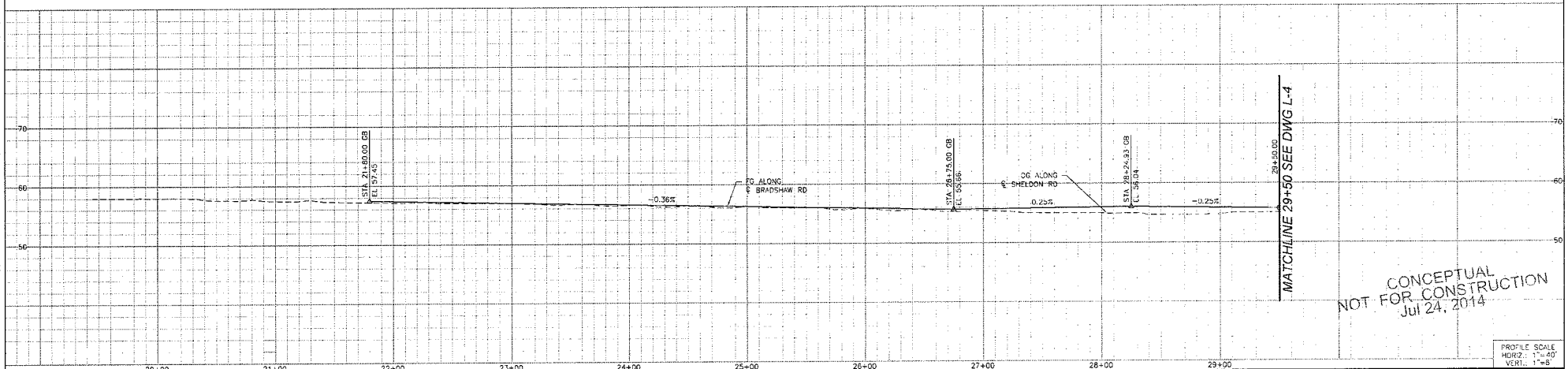


CURVE DATA				
CURVE NO	RADIUS (FT)	DELTA	LENGTH (FT)	TANGENT (FT)
1	40.00	90°31'04"	63.19	40.36
2	40.00	89°48'50"	52.70	39.87
3	40.00	89°51'09"	52.73	39.90
4	40.00	89°48'56"	52.70	39.87

LEGEND:

NEW PAVEMENT SECTION

HORIZ 1"=40'
SCALE
FEET



CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

PROFILE SCALE
HORIZ.: 1"=40'
VERT.: 1"=8'

NO.	REVISION	BY	DATE

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KENNETH C. TAYLOR R.C.E. 58165 DATE

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CHECKED	CS

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DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

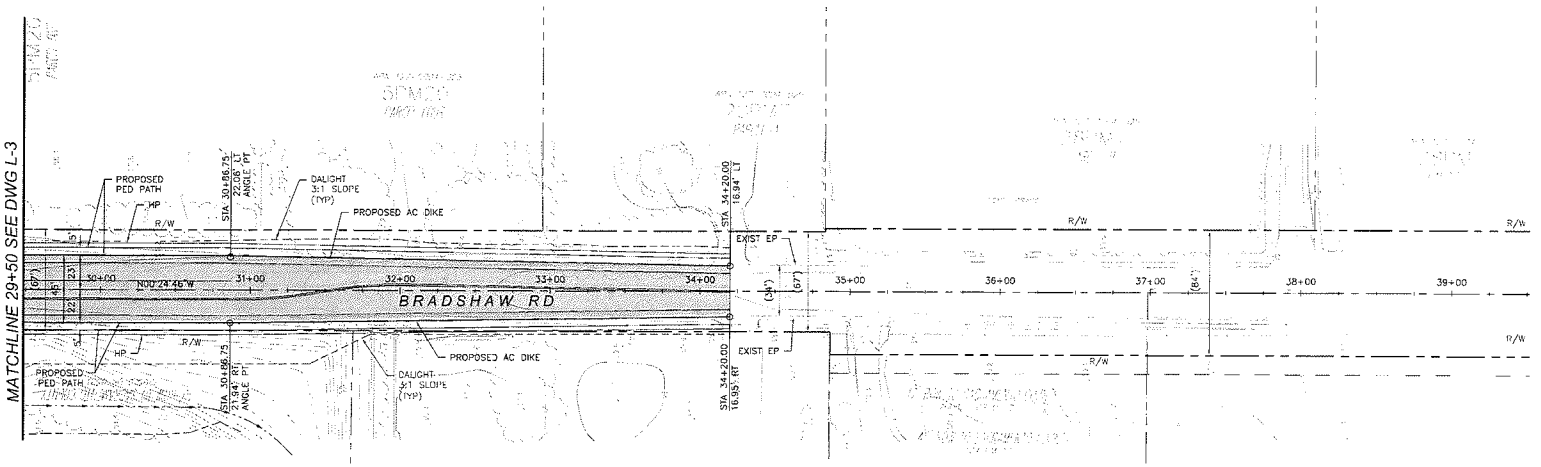
SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION

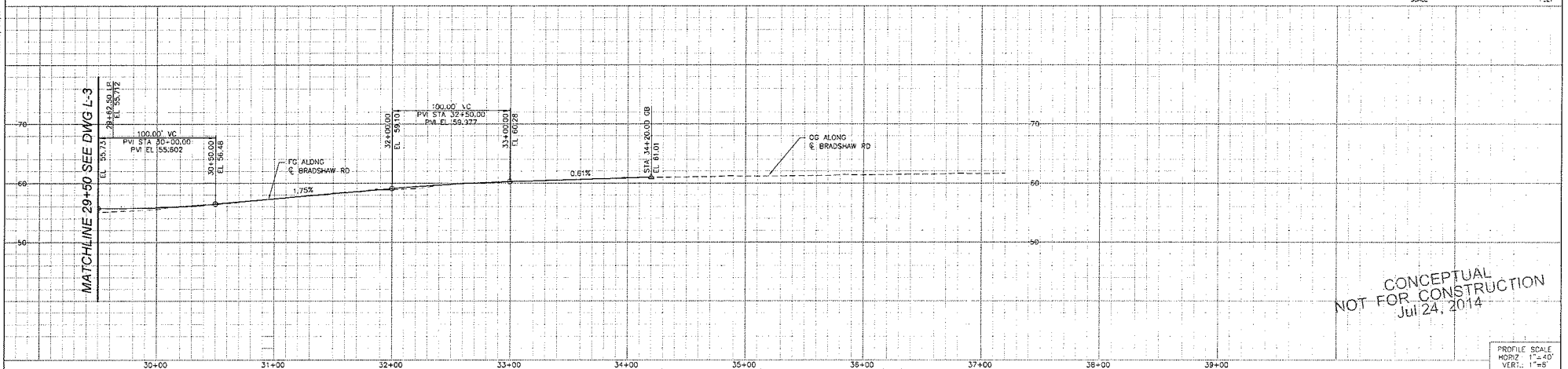
TRAFFIC SIGNAL INTERSECTION
PLAN AND PROFILE
BRADSHAW ROAD – 21+80 TO 29+50

DATE	July 24, 2014
SCALE	PER PLAN
PROJECT No	PT0137
SHEET	5 OF 14
DWG No	L-3

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

\\ANH-DC1\Civil\T0679-DWGs\Sheldon-Bradshaw-Ped\Sig\900-PSR&TS\931-Plans\PL-05-1000.dwg Jul 24, 2014 - 4:07pm Plotted By: BRENTS





HORIZ 1"=40'
SCALE
FEET

CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

PROFILE SCALE
HORIZ 1"=40'
VERT. 1"=8'

NO.	REVISION	BY	DATE

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KENNETH C. TAYLOR R.C.E. 58195 DATE

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CHECKED	CS

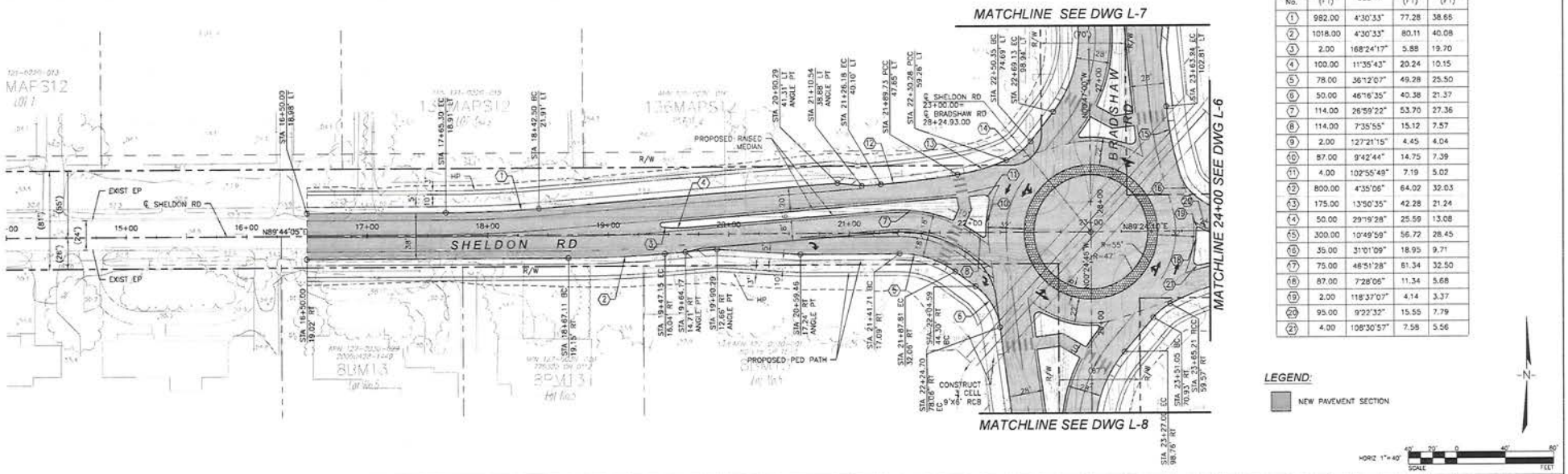
CITY OF ELK GROVE
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
TRAFFIC SIGNAL INTERSECTION
PLAN AND PROFILE
BRADSHAW ROAD – 29+50 TO 34+20

DATE	July 24, 2014
SCALE	PER PLAN
PROJECT No	PT0137
SHEET	6 of 14
DWG No	L-4

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

\\AMH-DCTV\Documents\100679-Elk Grove-Sheldon-Bradshaw-Trfc Sig\300-PS&E\301-Plans\VFL-06-7000.dwg Jul 24, 2014 - 4:08pm Plotted By: bravo

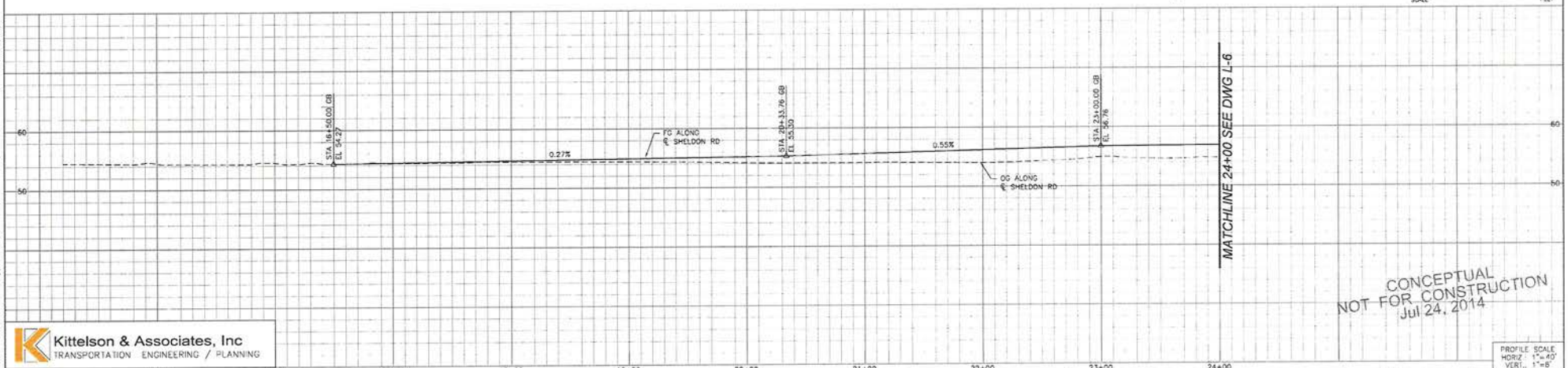


CURVE DATA				
CURVE No.	RADIUS (FT)	DELTA	LENGTH (FT)	TANGENT (FT)
1	982.00	4°30'33"	77.28	38.65
2	1018.00	4°30'33"	80.11	40.08
3	2.00	168°24'17"	5.88	19.70
4	100.00	11°35'43"	20.24	10.15
5	78.00	36°12'07"	49.28	25.50
6	50.00	46°16'35"	40.38	21.37
7	114.00	26°59'22"	53.70	27.36
8	114.00	7°35'55"	15.12	7.57
9	2.00	127°21'15"	4.45	4.04
10	87.00	9°42'44"	14.75	7.39
11	4.00	102°55'49"	7.19	5.02
12	800.00	4°35'06"	64.02	32.03
13	175.00	13°50'35"	42.28	21.24
14	50.00	29°19'28"	25.59	13.08
15	300.00	10°49'59"	56.72	28.45
16	35.00	31°01'09"	18.95	9.71
17	75.00	46°51'28"	61.34	32.50
18	87.00	7°28'06"	11.34	5.68
19	2.00	118°37'07"	4.14	3.37
20	95.00	9°22'32"	15.55	7.79
21	4.00	108°30'57"	7.58	5.56

LEGEND:

NEW PAVEMENT SECTION

HORIZ 1"=40'



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TRANSPORTATION ENGINEERING / PLANNING

PROFILE SCALE HORIZ 1"=40' VERT. 1"=8'

NO.	REVISION	BY	DATE

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CHECKED CS

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DEPARTMENT OF PUBLIC WORKS
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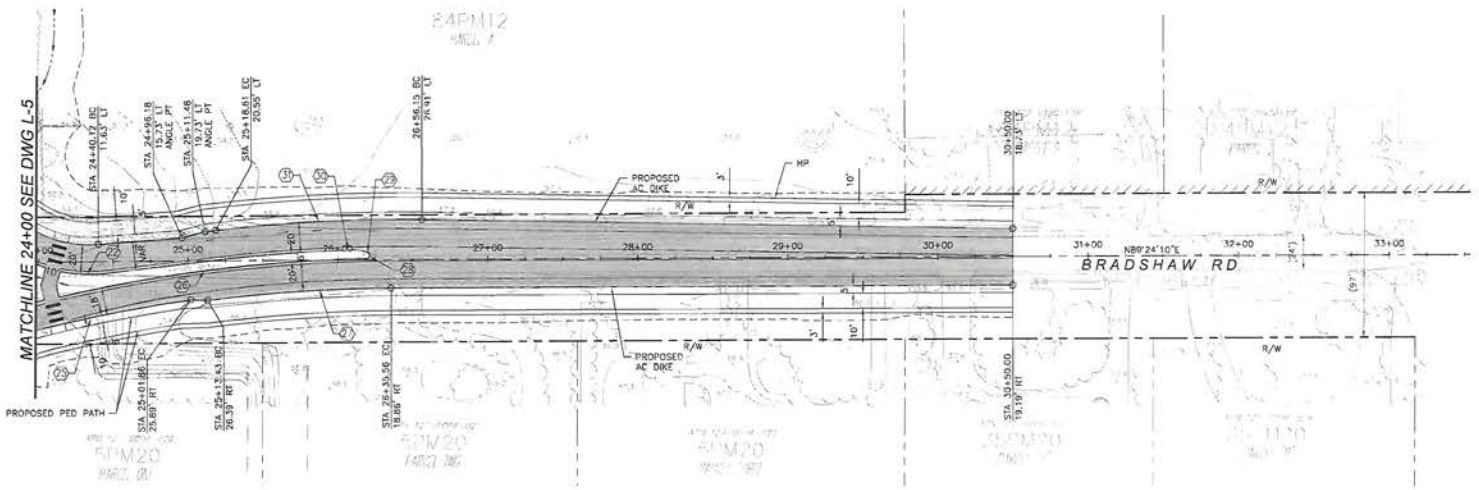
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
ROUNDABOUT INTERSECTION
PLAN AND PROFILE
SHELDON ROAD – 16+50 TO 24+00

DATE July 24, 2014
SCALE PER PLAN
PROJECT No PT0137
SHEET 7 OF 14
DWG No L-5

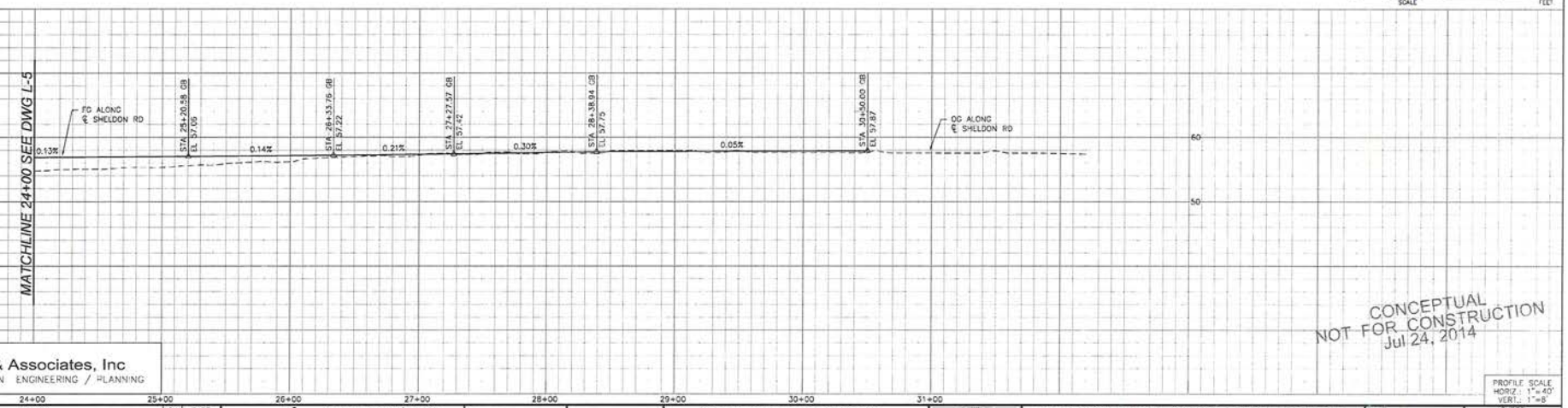
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

\\KNK-DC1\Division\10619-DivDrive-Division-Bradshaw-Proj\KNK\931-Plans\PL-07-ROAD.dwg Jul 24, 2014 - 4:08pm Plotted By: bmyers



CURVE DATA				
CURVE No.	RADIUS (FT)	DELTA	LENGTH (FT)	TANGENT (FT)
22	95.00	18°03'28"	29.94	15.10
23	50.00	20°54'36"	18.25	9.23
24	175.00	14°55'19"	45.58	22.92
25	984.00	5°34'46"	95.82	47.95
26	1002.00	10°42'28"	187.26	93.90
27	982.00	7°08'38"	122.44	61.30
28	2.00	156°11'54"	5.45	9.49
29	25.00	24°20'33"	10.62	5.39
30	1008.00	5°06'02"	89.74	44.90
31	1028.00	7°42'56"	138.43	69.32

LEGEND:
NEW PAVEMENT SECTION



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Jul 24, 2014

Kittelson & Associates, Inc
TRANSPORTATION ENGINEERING / PLANNING

NO.	REVISION	BY	DATE

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714/978-8200 fax 714/978-8299
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KENNETH D. TAYLOR — R.C.E. 58165 — DATE

DESIGNED TP
DRAWN BR
CHECKED CS

CITY OF ELK GROVE
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

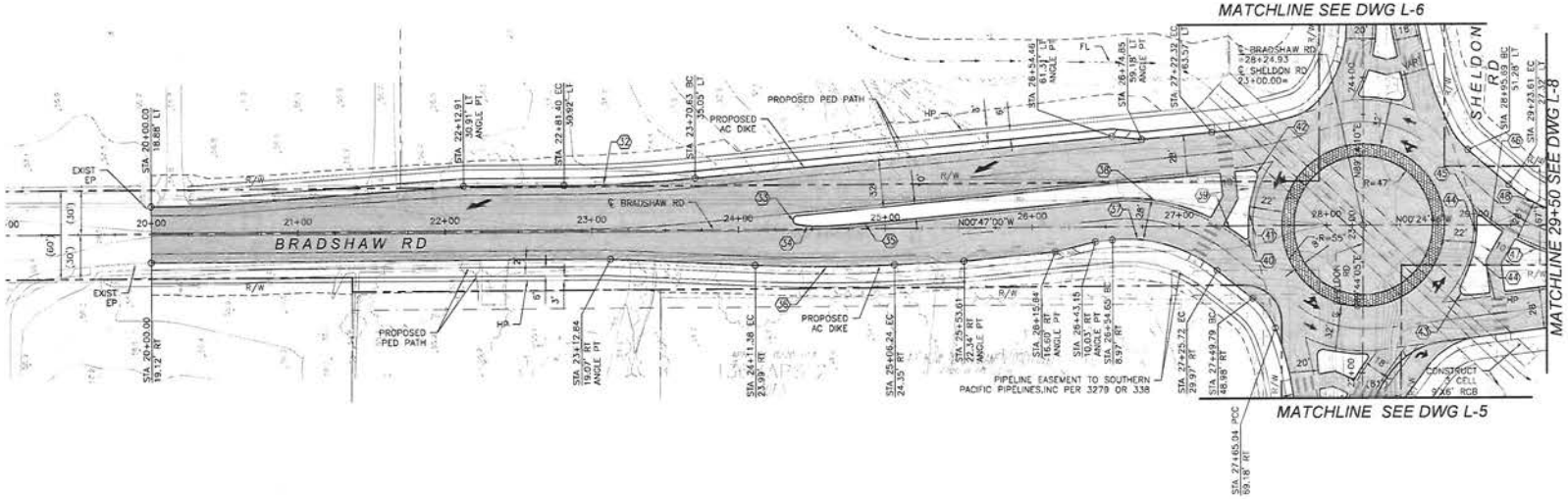
SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
ROUNDABOUT INTERSECTION
PLAN AND PROFILE
SHELDON ROAD – 24+00 TO 30+50

DATE July 24, 2014
SCALE PER PLAN
PROJECT No PT0137
SHEET 8 OF 14
DWG No L-6

PROFILE SCALE
HORIZ.: 1"=40'
VERT.: 1"=8'

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

Plotted By: bryan



CURVE DATA				
CURVE No.	RADIUS (FT)	DELTA	LENGTH (FT)	TANGENT (FT)
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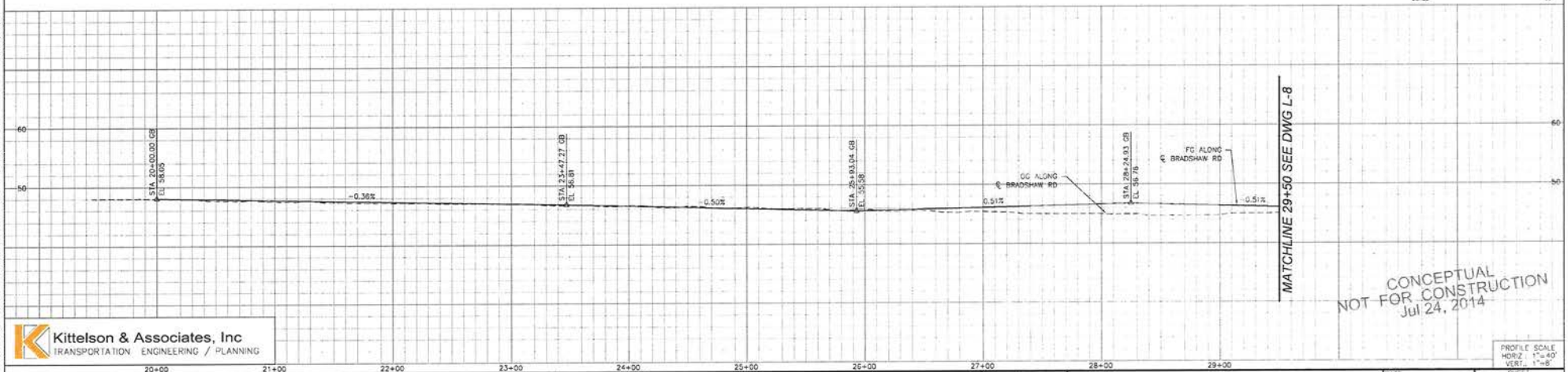
33	3.00	163°19'19"	8.55	20.17
34	75.00	14°02'59"	18.39	9.24
35	998.00	2°37'43"	45.78	22.90
36	1030.00	5°16'43"	94.85	47.48
37	100.00	43°34'33"	76.05	39.97
38	128.00	31°37'11"	70.64	36.24
39	128.00	7°05'53"	15.86	7.94
40	2.00	133°54'38"	4.67	4.70
41	78.00	20°22'06"	27.72	14.01
42	4.00	119°24'37"	8.34	6.85
43	4.00	11°49'48"	8.23	8.63
44	77.00	26°24'11"	35.48	18.06
45	2.00	134°07'23"	4.68	4.73
46	128.00	7°28'23"	16.70	8.36
47	128.00	35°18'54"	78.89	40.75
48	100.00	48°07'11"	83.98	44.65

LEGEND:

NEW PAVEMENT SECTION

HORIZ 1"=40'



CONCEPTUAL NOT FOR CONSTRUCTION Jul 24, 2014

PROFILE SCALE HORIZ 1"=40' VERT. 1"=8'

Kittelson & Associates, Inc
TRANSPORTATION ENGINEERING / PLANNING

NO.	REVISION	BY	DATE

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PREPARED UNDER THE SUPERVISION OF
KENNETH C. TAYLOR R.C.E. 54165 DATE

DESIGNED TP
DRAWN BR
CHECKED CS

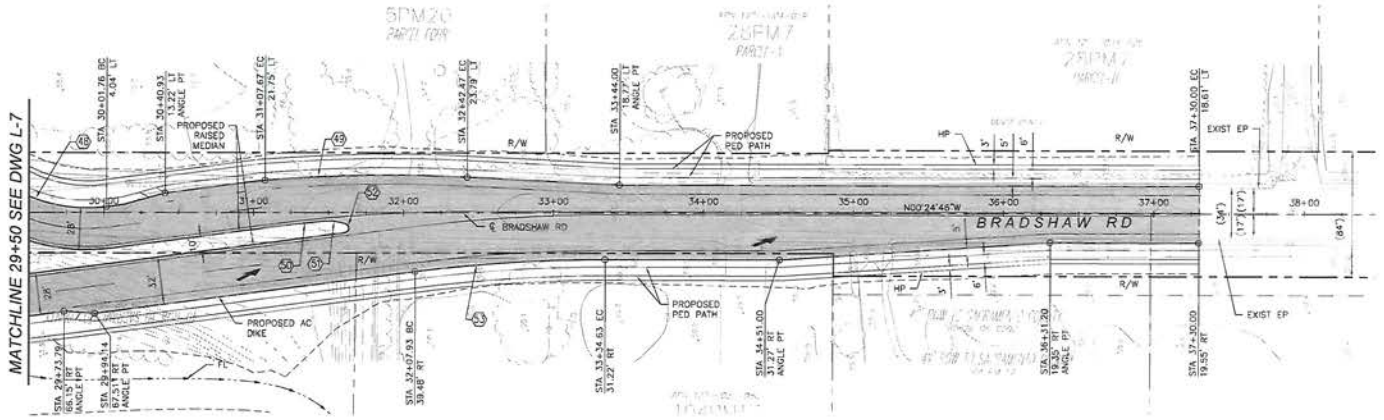
CITY OF ELK GROVE
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
ROUNDABOUT INTERSECTION
PLAN AND PROFILE
BRADSHAW ROAD – 20+00 TO 29+50

DATE July 24, 2014
SCALE PER PLAN
PROJECT No PT0137
SHEET 9 OF 14
DWG No L-7

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

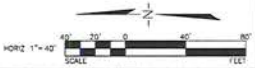
\\AMH-DCT\Drives\100278-CityElkGrove-SheldonBradshaw-Roundabout\930-PS&E\931-Plans\PS-09-1040.dwg Jul 24, 2014 - 4:08pm Plotted By: bnash

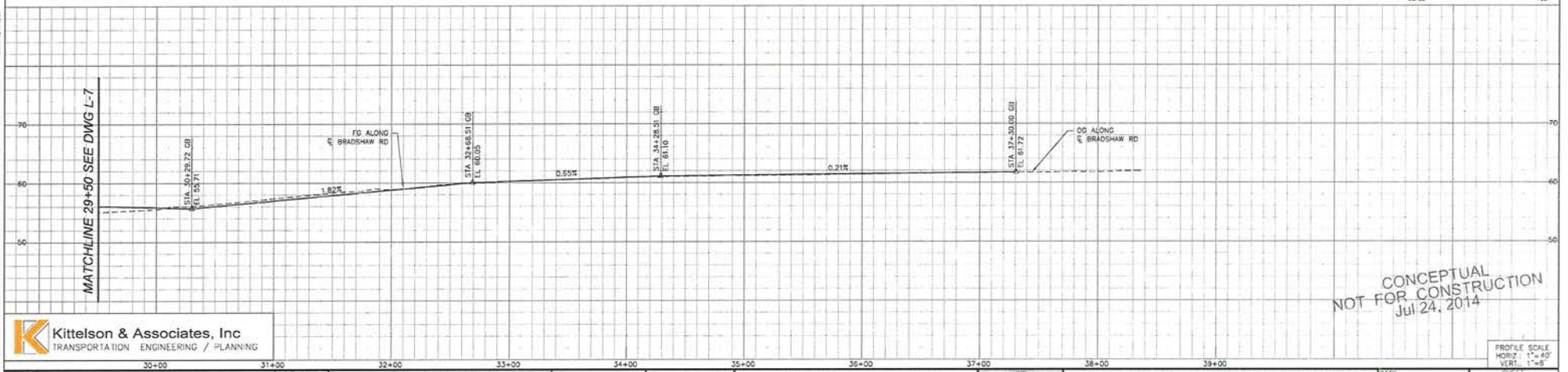


CURVE DATA				
CURVE No.	RADIUS (FT)	DELTA	LENGTH (FT)	TANGENT (FT)
48	100.00	48°07'11"	83.98	44.65
49	1030.00	7°30'18"	134.92	67.56
50	998.00	1°59'51"	34.79	17.40
51	35.00	24°42'49"	15.10	7.67
52	3.00	153°17'21"	8.03	12.84
53	970.00	7°30'18"	127.06	63.62

LEGEND:

NEW PAVEMENT SECTION





CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

PROFILE SCALE
HORIZ.: 1"=40'
VERT.: 1"=8'

Kittelson & Associates, Inc
TRANSPORTATION ENGINEERING / PLANNING

NO.	REVISION	BY	DATE

WILLDAN Engineering — extending your reach
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714/978-8200 fax 714/978-8299
PREPARED UNDER THE SUPERVISION OF:
KENNETH E. TAYLOR R.C.E. 56165 DATE

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CHECKED CS

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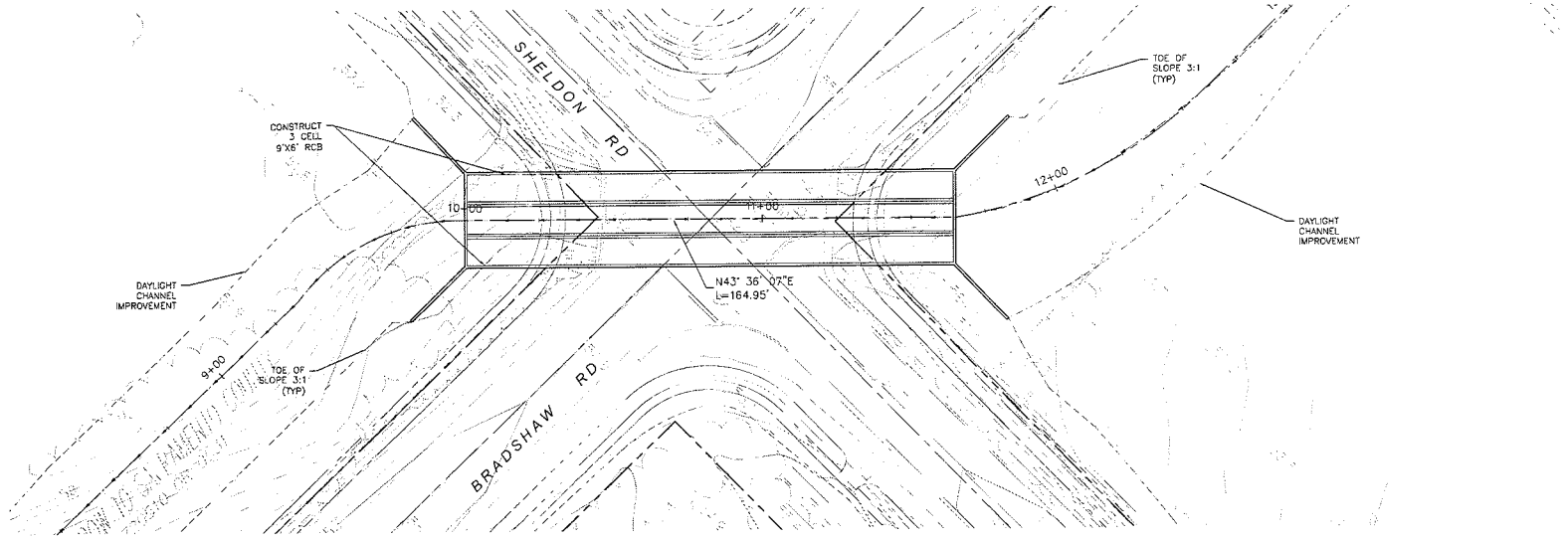
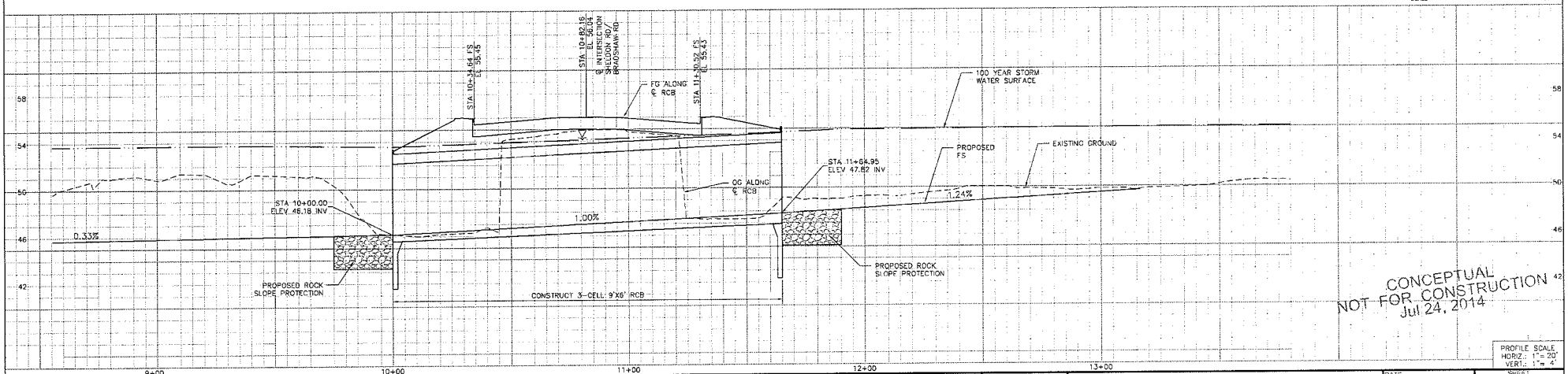
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
ROUNDABOUT INTERSECTION
PLAN AND PROFILE
BRADSHAW ROAD – 29+50 TO 37+30

DATE: July 24, 2014
SCALE: PER PLAN
PROJECT No: PT0137
SHEET: 10 OF 14
DWG No: L-8

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4





CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

PROFILE SCALE
HORIZ.: 1"= 20'
VERT.: 1"= 4'

NO.	REVISION	BY	DATE

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KENNETH C. TAYLOR — R.C.E. 56185 — DATE

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

DESIGNED	TP
DRAWN	BR
CHECKED	CS

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DEPARTMENT OF PUBLIC WORKS
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ELK GROVE, CALIFORNIA 95758
916.683.7111

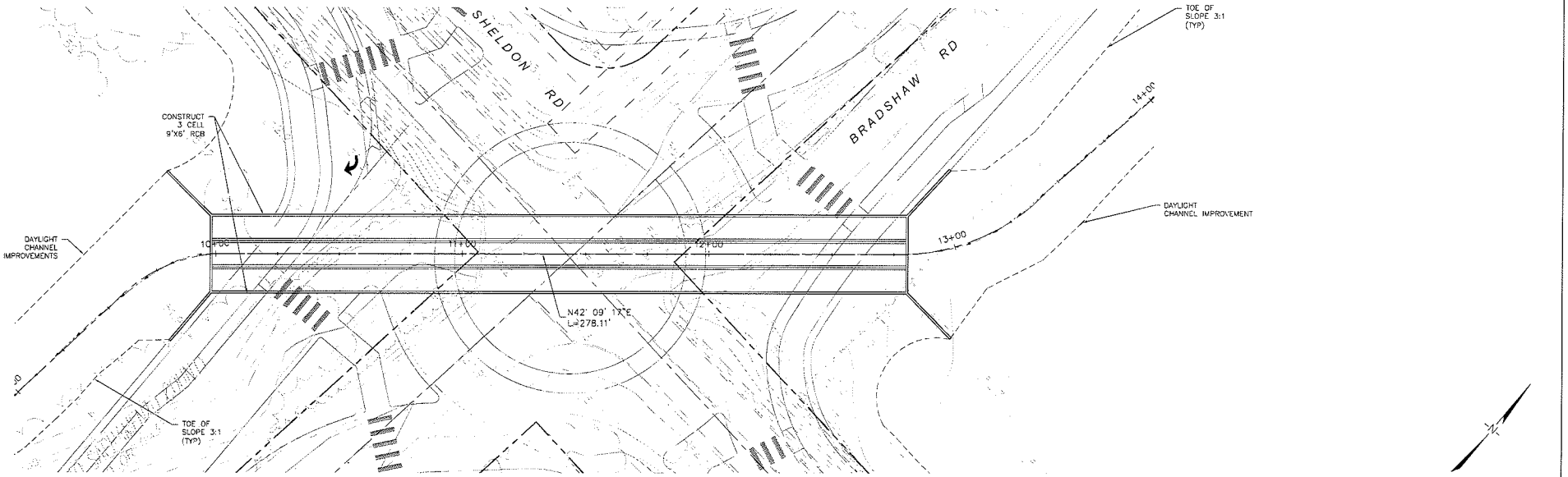
SHELDON ROAD AND BRADSHAW ROAD RURAL INTERSECTION

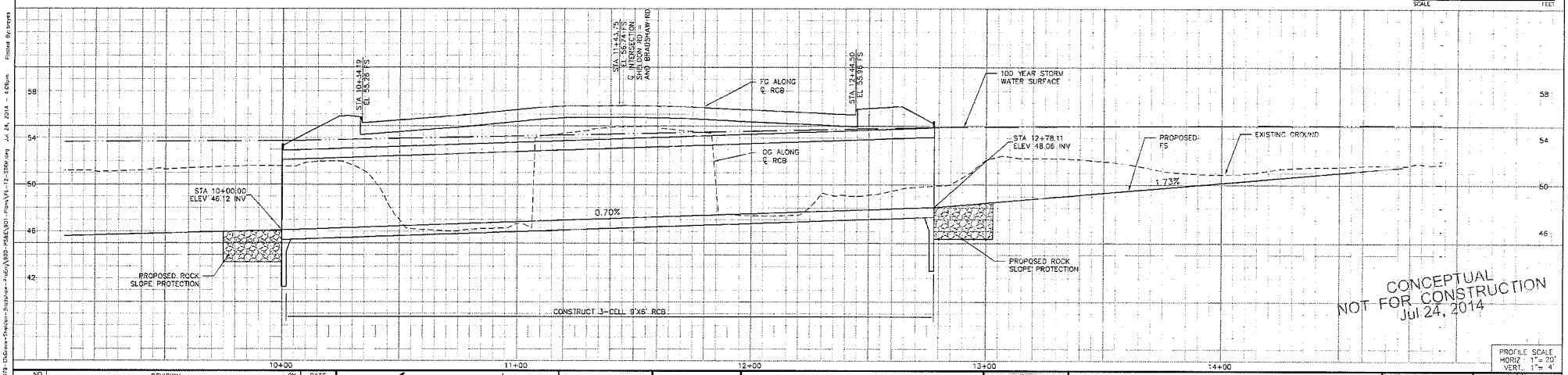
TRAFFIC SIGNAL INTERSECTION PLAN AND PROFILE

STORM DARIN IMPROVEMENTS

DATE	July 24, 2014
SCALE	PER PLAN
PROJECT No	PT0137
SHEET	11 OF 14
DWG No	SD-1

\\Ank-dc1\Division\10679-ElkGrove-Sheldon-Bradshaw-Proj\Plan\300-PS&E\SD1-PlanVPL-11-STRM.dwg Jul 24, 2014 - 4:09pm Plotted By: bryan





CONCEPTUAL
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Jul 24, 2014

PROFILE SCALE
HORIZ 1"= 20'
VERT. 1"= 4'

NO.	REVISION	BY	DATE

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PREPARED UNDER THE SUPERVISION OF
KENNETH C. TAYLOR R.C.E. 56765 DATE

DESIGNED	TP
DRAWN	BR
CHECKED	CS

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

CITY OF ELK GROVE
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

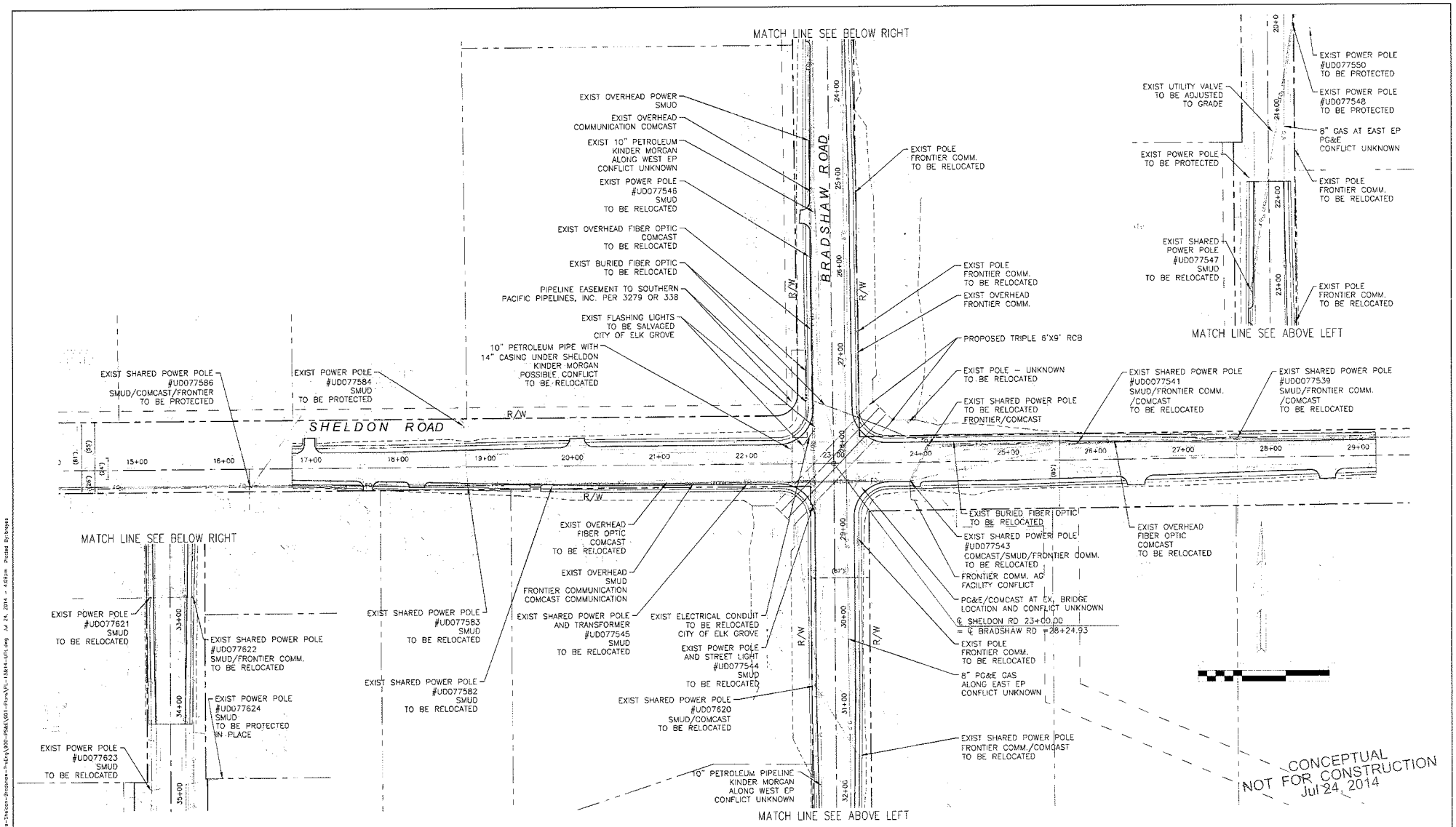
SHELDON ROAD AND BRADSHAW ROAD RURAL INTERSECTION

ROUNDABOUT INTERSECTION PLAN AND PROFILE

STORM DRAIN IMPROVEMENTS

DATE	July 24, 2014
SCALE	PER PLAN
PROJECT No	PT0137
SHEET	12 of 14
DWG No	SD-2

\\WIN-DCTV\Drive\VD0979-DiGrassi-Pledger-Bradshaw-Sheldon\VD979-PS&E\PD\Plans\VD979-12-STRM.dwg Jul 24, 2014 - 4:05pm Plotted By: breyes



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714/978-8200 fax 714/978-8299
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KENNETH C. TAYLOR — R.C.E. 36185 — DATE

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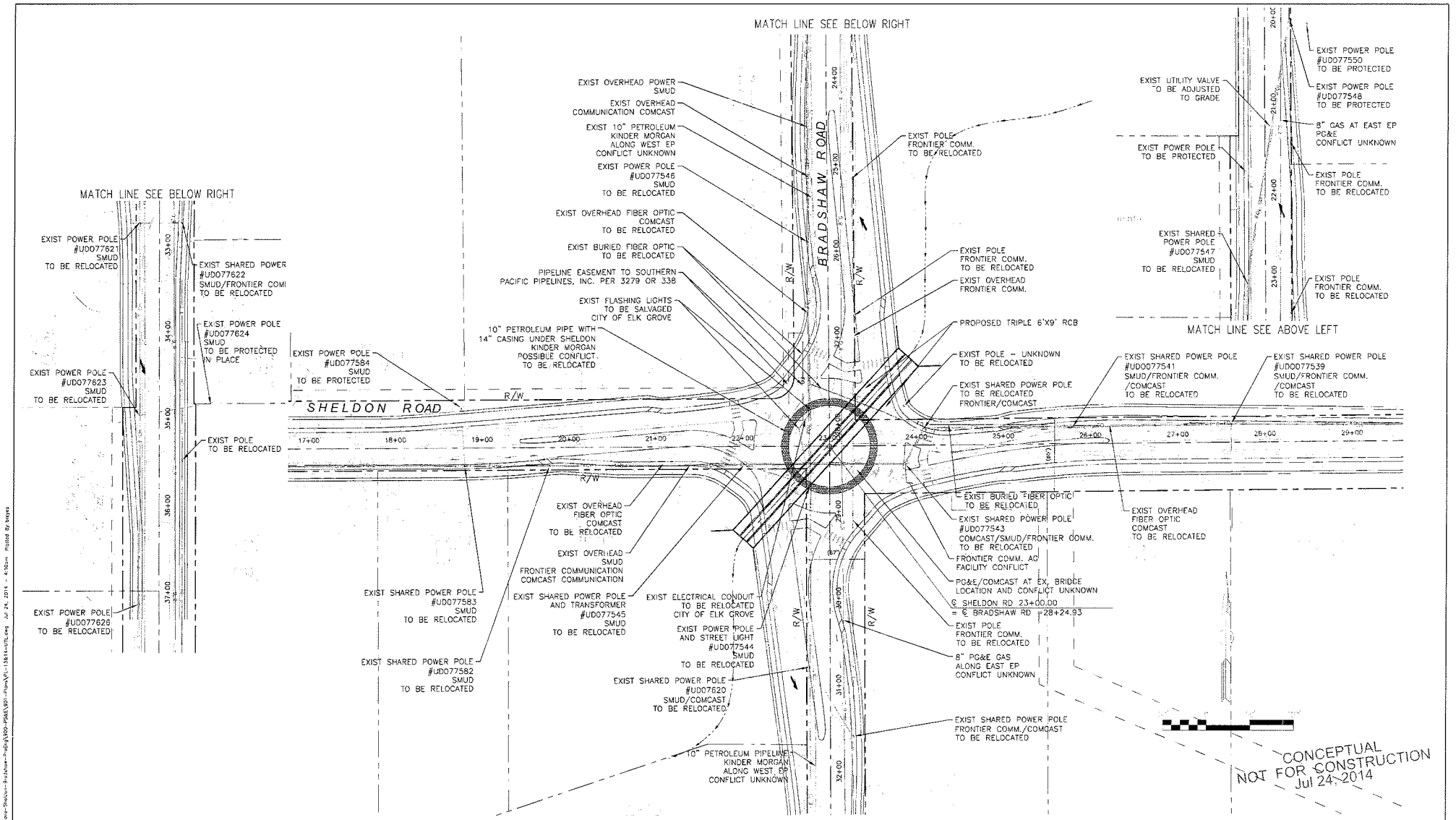
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
TRAFFIC SIGNAL INTERSECTION
EXISTING UTILITIES

DATE July 24, 2014
SCALE PER PLAN
PROJECT No. PT0137
SHEET 13 OF 14
DWG No. U-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4



CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

NO.	REVISION	BY	DATE

WILLDAN Engineering — extending your reach
2401 East Katella Ave, Suite 450, Anaheim, California 92806
714/978-6200 fax 714/978-6299
PREPARED UNDER THE SUPERVISION OF
KENNETH C. TAYLOR R.C.E. 58185 DATE

DESIGNED TP
DRAWN BR
CHECKED CS

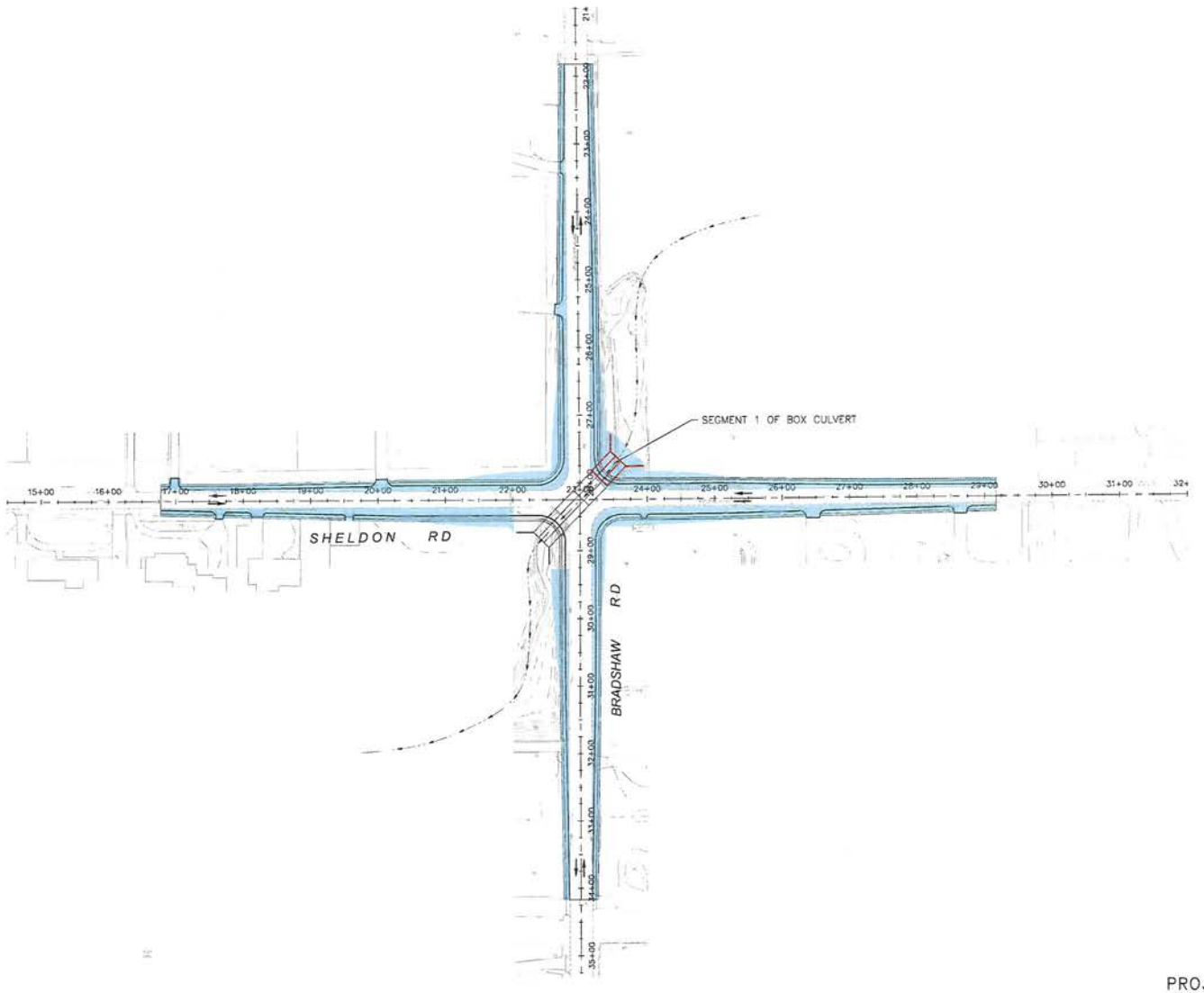
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

CITY OF ELK GROVE
DEPARTMENT OF PUBLIC WORKS
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD RURAL INTERSECTION
ROUNDABOUT INTERSECTION EXISTING UTILITIES

DATE July 24, 2014
SCALE PER PLAN
PROJECT No PT0137
SHEET 14 OF 14
DWG No U-2

\\WW-DC10\Civil\70079-Elkgrove-Sheldon-Bradshaw-Proj\300-PS&E\301-Plans\PT-13614-UTL.dwg Jul 24, 2014 - 4:18pm Plotted By tneyes



NOTES:

1. EXISTING ROADWAY OPERATIONS MAINTAINED
2. CONSTRUCT SEGMENT 1 OF BOX CULVERT
3. CONSTRUCT WIDENING PORTION

LEGEND:

UNDER CONSTRUCTION - STAGE 1

DIRECTION OF TRAVEL ON 12' LANES

CONCEPTUAL
NOT FOR CONSTRUCTION
May 02, 2014

PROJECT #PT0137

PROFILE SCALE
HORIZ. 1"= 80'
VERT. 1"= 16'

NO.	REVISION	BY	DATE

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714/978-8200 fax 714/978-8299
PREPARED UNDER THE SUPERVISION OF
KENNETH C. TAYLOR R.C.E. 56185 DATE

DESIGNED TP
DRAWN BR
CHECKED CS

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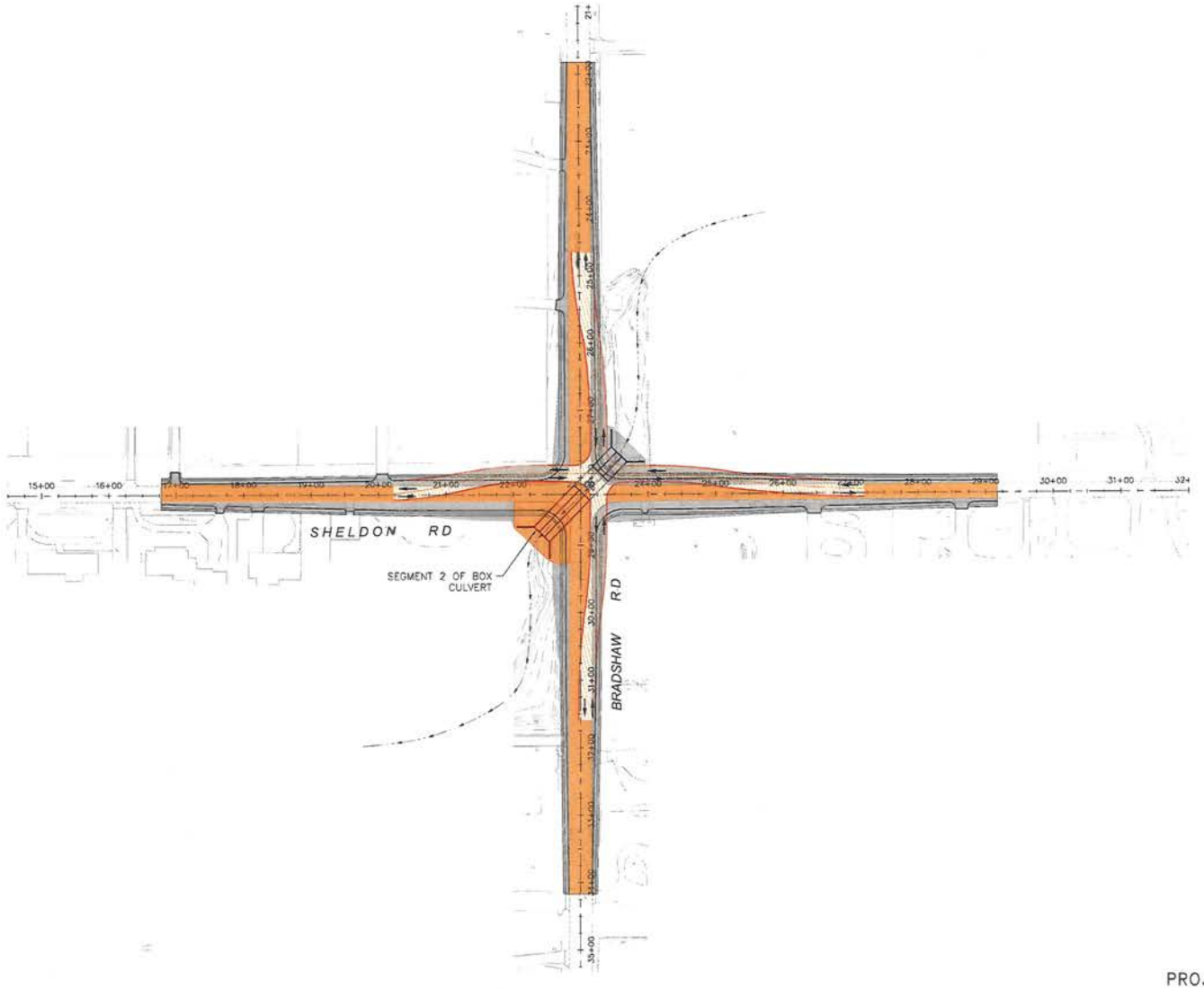
8401 LAGUNA PALMS WAY
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
STAGE CONSTRUCTION
STAGE 1

DATE May 2, 2014
SCALE PER PLAN
PROJECT No.

SHEET 3 OF 12
DWG No. L-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4



NOTES:

1. CONSTRUCT SEGMENT 2 OF BOX CULVERT

LEGEND:

- CONSTRUCTED PORTION– STAGE 1
- UNDER CONSTRUCTION – STAGE 2
- DIRECTION OF TRAVEL ON 12' LANES

CONCEPTUAL
NOT FOR CONSTRUCTION
May 02, 2014

PROJECT #PT0137

PROFILE SCALE
HORIZ.: 1"=80'
VERT.: 1"=16'

NO.	REVISION	BY	DATE

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DEPARTMENT OF PUBLIC WORKS
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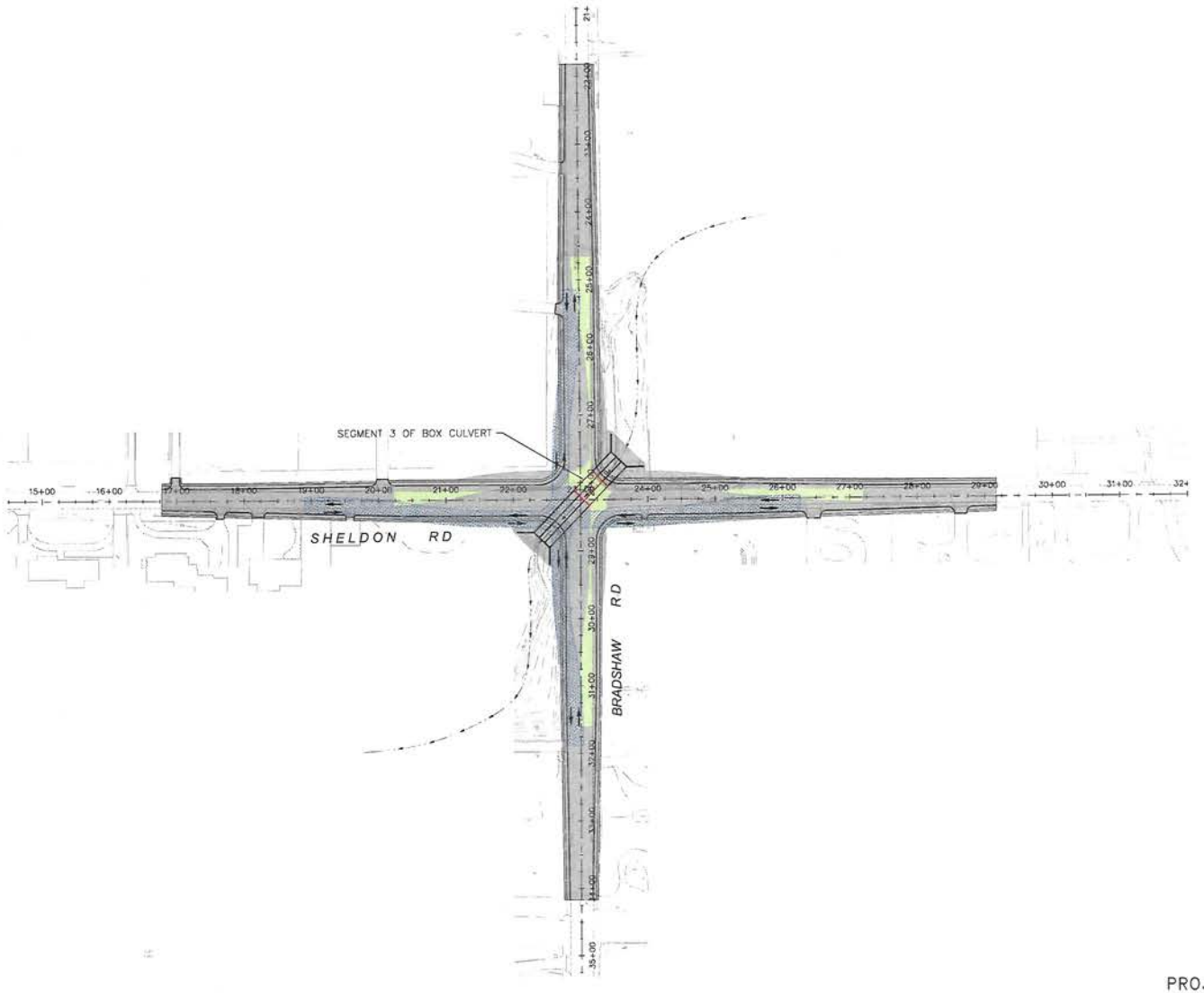
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
STAGE CONSTRUCTION
STAGE 2

DATE: May 2, 2014
SCALE: PER PLAN
PROJECT No.:

SHEET 3 OF 12
DWG No. L-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4



NOTES:

1. CONSTRUCT SEGMENT 3 OF BOX CULVERT

LEGEND:

- CONSTRUCTED PORTION– STAGE 1 & 2
- UNDER CONSTRUCTION – STAGE 3
- DIRECTION OF TRAVEL ON 12' LANES

CONCEPTUAL
NOT FOR CONSTRUCTION
May 02, 2014

PROJECT #PT0137

PROFILE SCALE
HORIZ.: 1"=80'
VERT.: 1"=16'

NO.	REVISION	BY	DATE

WILLDAN Engineering
PREPARED UNDER THE SUPERVISION OF
KENNETH C. TAYLOR R.C.E. 36185

DESIGNED TP
DRAWN BR
CHECKED DS

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DEPARTMENT OF PUBLIC WORKS
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ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
STAGE CONSTRUCTION
STAGE 3

DATE May 2, 2014
SCALE PER PLAN
PROJECT No.

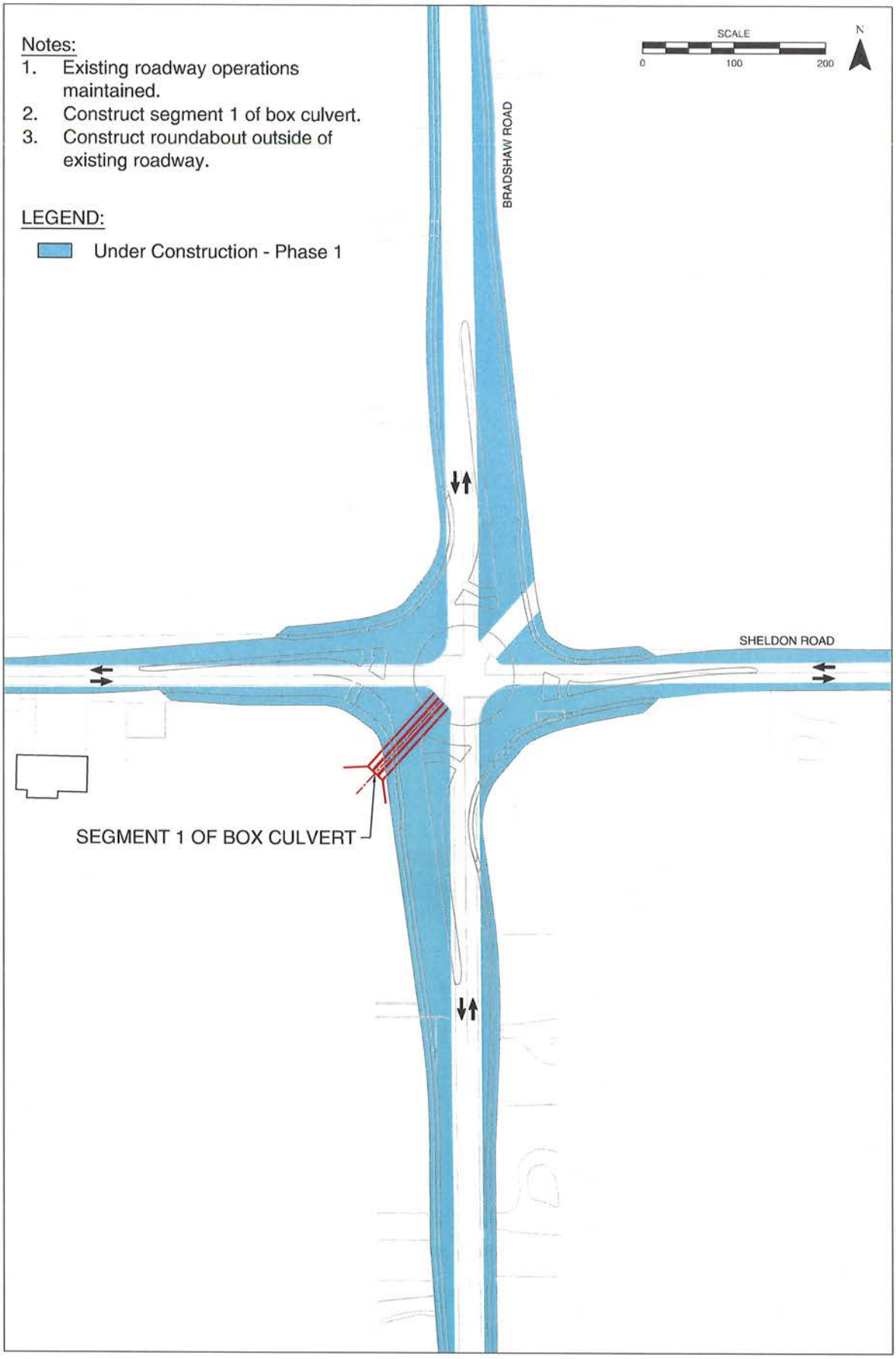
SHEET 3 OF 12
DWG No. L-1

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

Notes:
1. Existing roadway operations maintained.
2. Construct segment 1 of box culvert.
3. Construct roundabout outside of existing roadway.

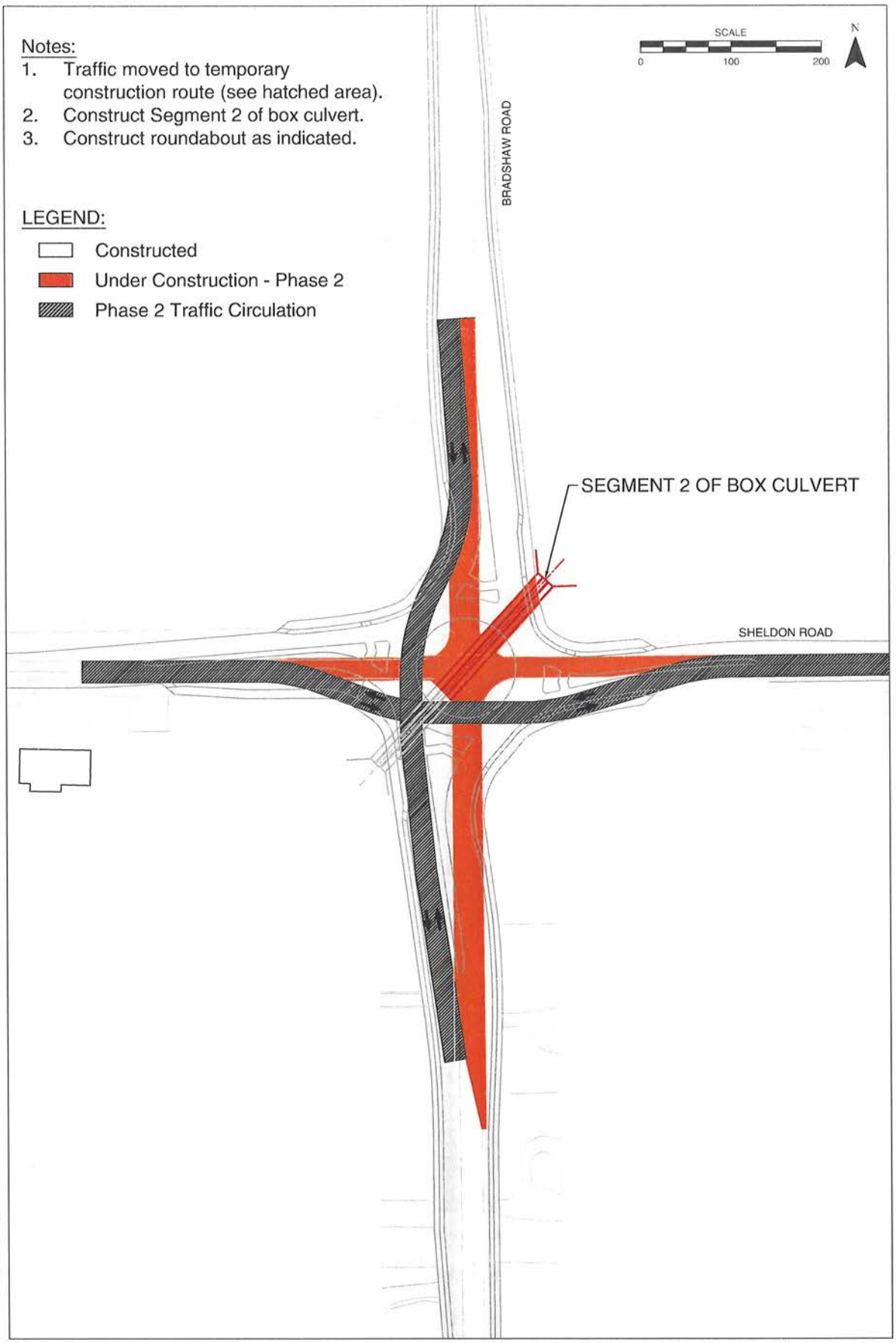
LEGEND:

Under Construction - Phase 1



Phase 1
Elk Grove, CA

FIGURE
1

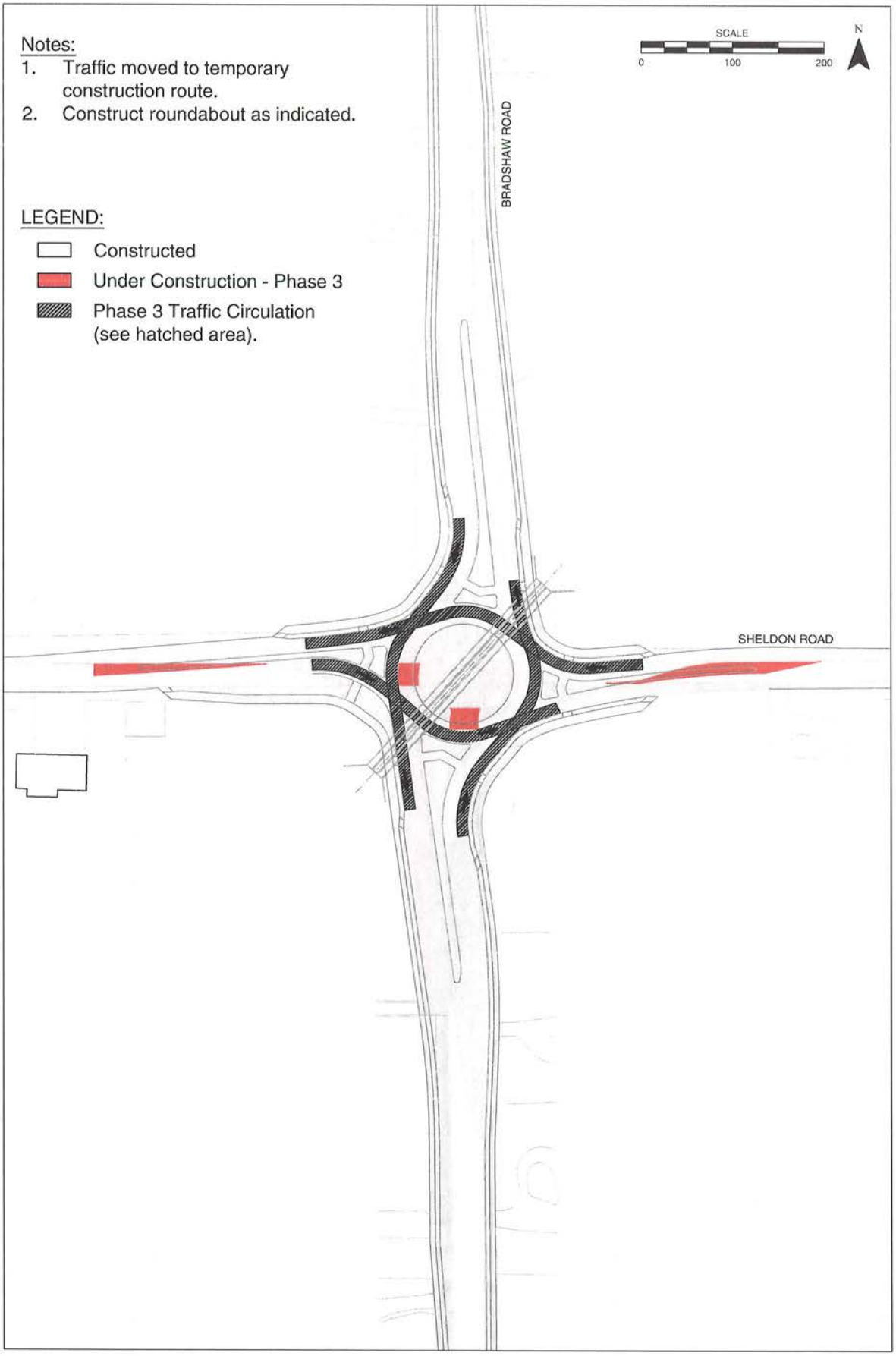


Phase 2
Elk Grove, CA

FIGURE
2

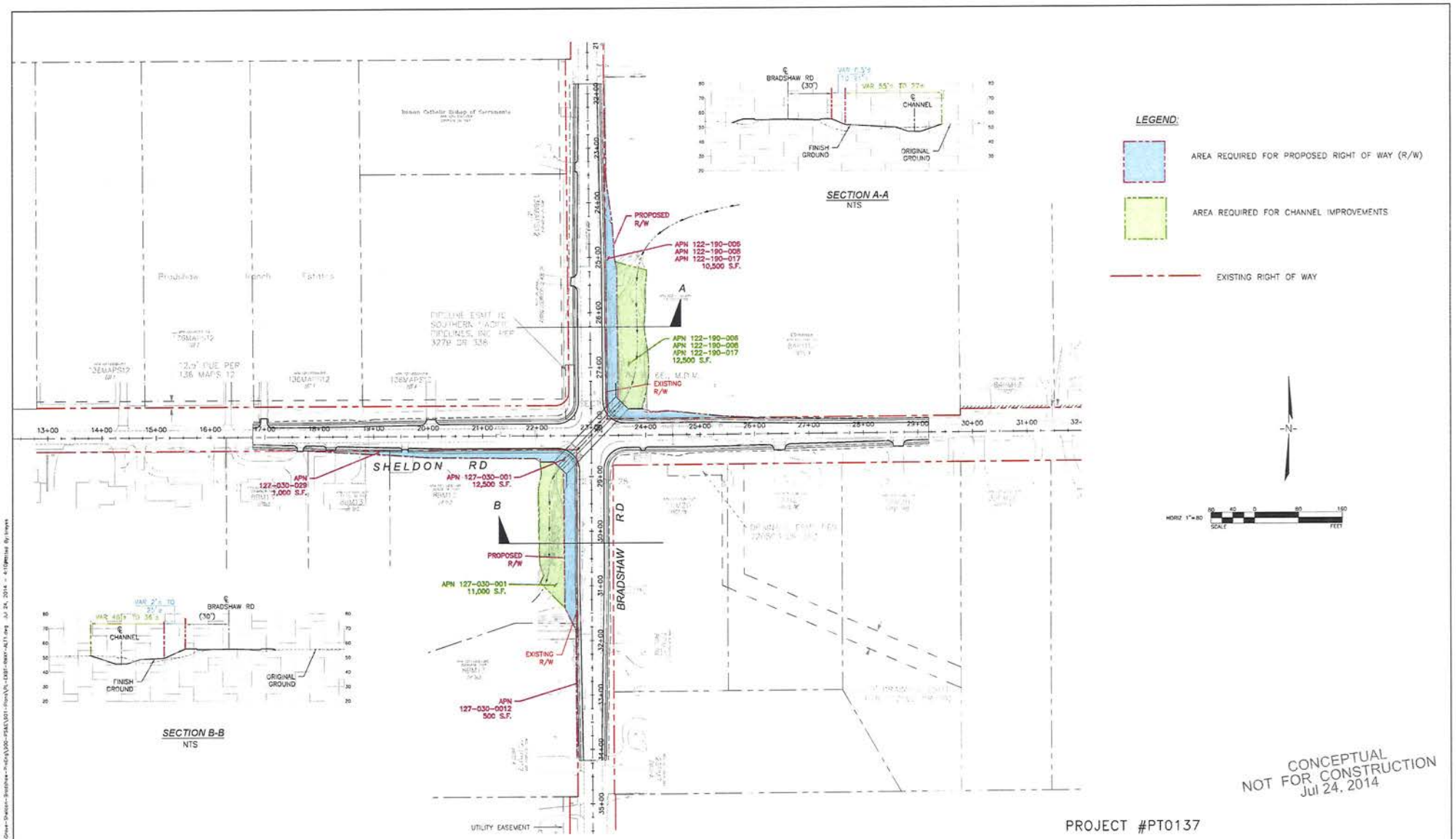
Notes:
1. Traffic moved to temporary construction route.
2. Construct roundabout as indicated.

LEGEND:
- Constructed
- Under Construction - Phase 3
- Phase 3 Traffic Circulation (see hatched area).



Phase 3
Elk Grove, CA

FIGURE
3



CONCEPTUAL
NOT FOR CONSTRUCTION
Jul 24, 2014

PROJECT #PT0137

NO.	REVISION	BY	DATE

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DESIGNED TP
DRAWN BR
CHECKED CS

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DEPARTMENT OF PUBLIC WORKS
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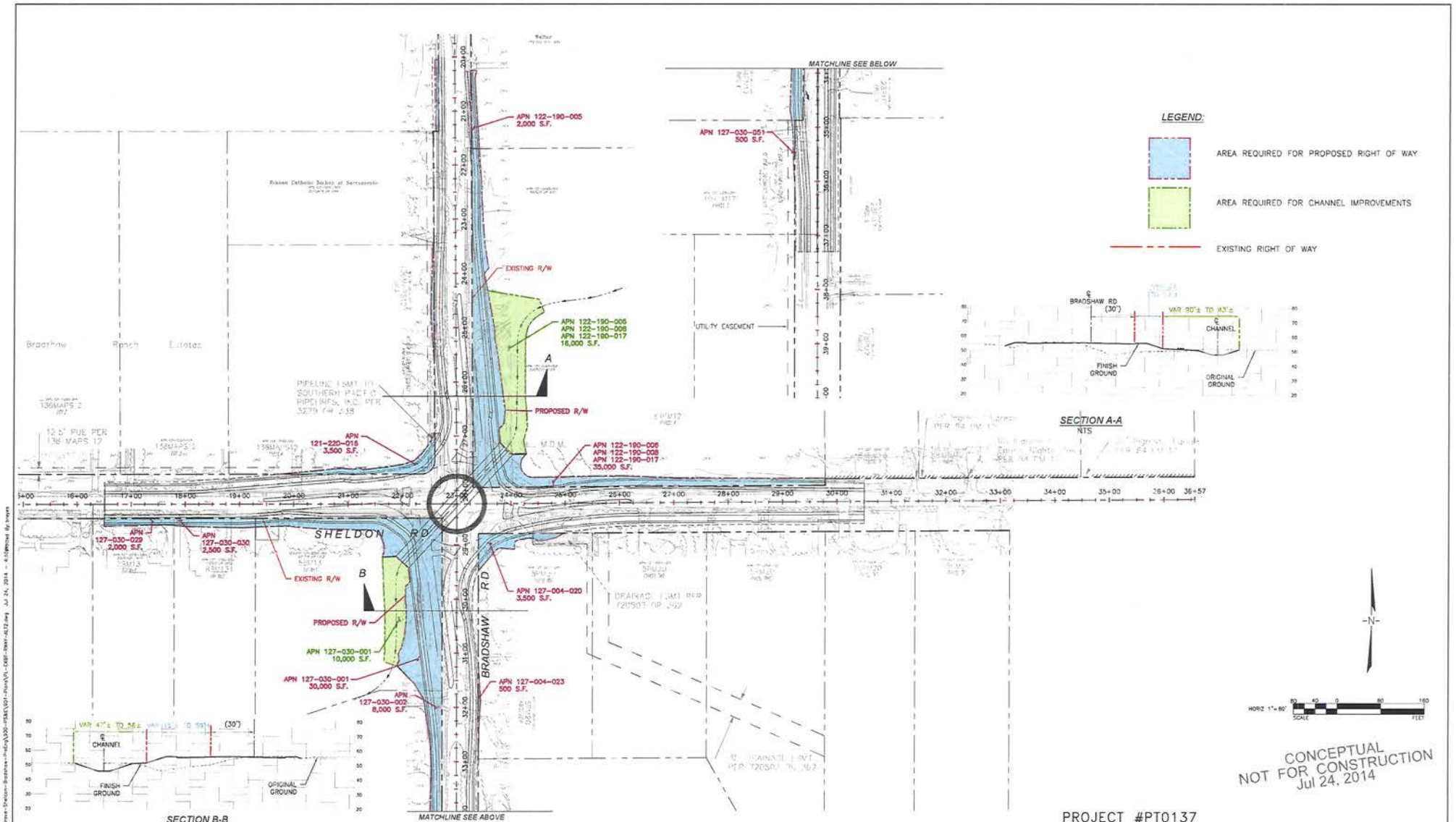
ELK GROVE, CALIFORNIA 95758
916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
PRELIMINARY RIGHT OF WAY ACQUISITION
EXHIBIT – SIGNALIZED INTERSECTION

DATE: July 24, 2014
SCALE: PER PLAN
PROJECT No: PT0137
SHEET: 1 OF 2
DWG No.

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4



NO.	REVISION	BY	DATE

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916.683.7111

SHELDON ROAD AND BRADSHAW ROAD
RURAL INTERSECTION
RIGHT OF WAY ACQUISITION
EXHIBIT – ROUNDABOUT

DATE July 24, 2014
SCALE PER PLAN
PROJECT No. PT0137
DWG No.
SHEET 2 OF 2

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

APPENDIX B – DAILY CONSTRUCTION EMISSIONS

(CALEEMOD OUTPUT FILES)

Sheldon-Bradshaw Intersection Improvements - Construction Emissions

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	62.50	Acre	62.50	2,722,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2018
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Construction Phase - Construction schedule per BRA description

Off-road Equipment - Equipment per BRA description and model defaults

Trips and VMT - Demolition hauling based on CalEEMod User's Guide which estimates 16 cubic yards of material per haul truck. CalEEMod glitched on 'construction' worker trips. No vendor trips assumed.

Demolition - Tons of demolition debris based on square footage of existing bridge and an estimated depth of one foot of material. Cubic feet were converted to cubic yards, which CalEEMod estimates to weigh 0.5 ton individually

Grading - Total acres disturbed 'double counted' in order to account for land worked multiple times

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,110.00	2.00
tblConstructionPhase	NumDays	1,110.00	160.00
tblConstructionPhase	NumDays	1,110.00	15.00
tblConstructionPhase	NumDays	70.00	20.00
tblConstructionPhase	NumDays	110.00	45.00
tblConstructionPhase	NumDays	110.00	10.00
tblConstructionPhase	NumDays	75.00	30.00
tblConstructionPhase	NumDays	75.00	45.00
tblConstructionPhase	NumDays	40.00	10.00
tblGrading	AcresOfGrading	112.50	62.50
tblGrading	AcresOfGrading	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	HaulingTripNumber	5.00	12.00
tblTripsAndVMT	VendorTripNumber	446.00	0.00
tblTripsAndVMT	VendorTripNumber	446.00	0.00
tblTripsAndVMT	VendorTripNumber	446.00	0.00
tblTripsAndVMT	WorkerTripNumber	1,143.00	5.00
tblTripsAndVMT	WorkerTripNumber	1,143.00	15.00
tblTripsAndVMT	WorkerTripNumber	1,143.00	15.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	5.2312	55.1739	42.3215	0.0418	18.7487	2.9586	21.7072	10.0283	2.7234	12.7517						
2017	6.1706	69.6564	47.6691	0.0637	7.6471	3.3183	10.9654	3.5096	3.0528	6.5624						
Total	**11.4018**	**124.8303**	**89.9906**	**0.1054**	**26.3958**	**6.2768**	**32.6726**	**13.5379**	**5.7762**	**19.3141**						

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Dewater Creek Segment	Building Construction	4/6/2016	4/7/2016	5	2	
2	New Creek Channel Excavation	Site Preparation	4/8/2016	4/21/2016	5	10	
3	Existing Bridge Demolition	Demolition	4/22/2016	5/19/2016	5	20	
4	New RCB Structure Installation	Building Construction	5/20/2016	12/29/2016	5	160	
5	Pavement Finishing on Bridge	Paving	12/30/2016	2/9/2017	5	30	
6	Roadwork Final Grading - includes ped path	Grading	2/10/2017	4/13/2017	5	45	
7	Roadwork Paving - includes ped path	Paving	4/14/2017	6/15/2017	5	45	
8	Ancillary Facility & Utility Installation	Building Construction	6/16/2017	7/6/2017	5	15	
9	Habitat Re-vegetation	Grading	7/7/2017	7/20/2017	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Dewater Creek Segment	Cranes	0	7.00	226	0.29
Dewater Creek Segment	Forklifts	3	8.00	89	0.20
Dewater Creek Segment	Generator Sets	1	8.00	84	0.74
Dewater Creek Segment	Pumps	1	8.00	84	0.74
Dewater Creek Segment	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Dewater Creek Segment	Welders	0	8.00	46	0.45
New Creek Channel Excavation	Dumpers/Tenders	1	8.00	16	0.38
New Creek Channel Excavation	Rubber Tired Dozers	3	8.00	255	0.40
New Creek Channel Excavation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Existing Bridge Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Existing Bridge Demolition	Excavators	3	8.00	162	0.38
Existing Bridge Demolition	Rubber Tired Dozers	2	8.00	255	0.40
New RCB Structure Installation	Cranes	2	7.00	226	0.29
New RCB Structure Installation	Forklifts	3	8.00	89	0.20
New RCB Structure Installation	Generator Sets	1	8.00	84	0.74
New RCB Structure Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
New RCB Structure Installation	Welders	1	8.00	46	0.45
Pavement Finishing on Bridge	Pavers	2	8.00	125	0.42
Pavement Finishing on Bridge	Paving Equipment	2	8.00	130	0.36
Pavement Finishing on Bridge	Plate Compactors	2	8.00	8	0.43
Pavement Finishing on Bridge	Rollers	2	8.00	80	0.38
Roadwork Final Grading - includes ped path	Excavators	2	8.00	162	0.38
Roadwork Final Grading - includes ped path	Graders	1	8.00	174	0.41

Roadwork Final Grading - includes ped path	Rubber Tired Dozers	1	8.00	255	0.40
Roadwork Final Grading - includes ped path	Scrapers	2	8.00	361	0.48
Roadwork Final Grading - includes ped path	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Roadwork Paving - includes ped path	Pavers	2	8.00	125	0.42
Roadwork Paving - includes ped path	Paving Equipment	2	8.00	130	0.36
Roadwork Paving - includes ped path	Rollers	2	8.00	80	0.38
Ancillary Facility & Utility Installation	Cranes	1	7.00	226	0.29
Ancillary Facility & Utility Installation	Forklifts	3	8.00	89	0.20
Ancillary Facility & Utility Installation	Generator Sets	1	8.00	84	0.74
Ancillary Facility & Utility Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Ancillary Facility & Utility Installation	Welders	1	8.00	46	0.45
Habitat Re-vegetation	Excavators	0	8.00	162	0.38
Habitat Re-vegetation	Graders	1	8.00	174	0.41
Habitat Re-vegetation	Rubber Tired Dozers	1	8.00	255	0.40
Habitat Re-vegetation	Scrapers	0	8.00	361	0.48
Habitat Re-vegetation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Dewater Creek Segment	5	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
New Creek Channel Excavation	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Existing Bridge Demolition	6	15.00	0.00	12.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
New RCB Structure Installation	10	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Pavement Finishing on Bridge	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Roadwork Final Grading - includes ped	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Roadwork Paving - includes ped path	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Ancillary Facility & Utility Installation	9	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Habitat Re-vegetation	2	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Dewater Creek Segment - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9887	15.6039	11.4545	0.0177		1.1851	1.1851		1.1459	1.1459						
Total	**1.9887**	**15.6039**	**11.4545**	**0.0177**		**1.1851**	**1.1851**		**1.1459**	**1.1459**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0200	0.0180	0.2413	4.9000e-004	0.0380	2.8000e-004	0.0383	0.0101	2.6000e-004	0.0104						
Total	**0.0200**	**0.0180**	**0.2413**	**4.9000e-004**	**0.0380**	**2.8000e-004**	**0.0383**	**0.0101**	**2.6000e-004**	**0.0104**						

3.3 New Creek Channel Excavation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.5965	0.0000	18.5965	9.9879	0.0000	9.9879						
Off-Road	5.1511	55.1018	41.3564	0.0398		2.9574	2.9574		2.7224	2.7224						
Total	**5.1511**	**55.1018**	**41.3564**	**0.0398**	**18.5965**	**2.9574**	**21.5540**	**9.9879**	**2.7224**	**12.7103**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0802	0.0721	0.9651	1.9500e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414						
Total	**0.0802**	**0.0721**	**0.9651**	**1.9500e-003**	**0.1521**	**1.1200e-003**	**0.1533**	**0.0404**	**1.0300e-003**	**0.0414**						

3.4 Existing Bridge Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0530	0.0000	0.0530	8.0200e-003	0.0000	8.0200e-003						
Off-Road	4.2876	45.6559	35.0303	0.0399		2.2921	2.2921		2.1365	2.1365						
Total	**4.2876**	**45.6559**	**35.0303**	**0.0399**	**0.0530**	**2.2921**	**2.3451**	**8.0200e-003**	**2.1365**	**2.1446**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0143	0.1476	0.1883	4.3000e-004	0.0104	2.2900e-003	0.0127	2.8500e-003	2.1100e-003	4.9500e-003						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0601	0.0541	0.7239	1.4600e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310						
Total	**0.0744**	**0.2016**	**0.9121**	**1.8900e-003**	**0.1245**	**3.1300e-003**	**0.1276**	**0.0331**	**2.8800e-003**	**0.0360**						

3.5 New RCB Structure Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0363	35.9714	21.1184	0.0318		2.3061	2.3061		2.1601	2.1601						
Total	**4.0363**	**35.9714**	**21.1184**	**0.0318**		**2.3061**	**2.3061**		**2.1601**	**2.1601**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0601	0.0541	0.7239	1.4600e-003	0.1141	8.4000e-004	0.1149	0.0303	7.7000e-004	0.0310						
Total	**0.0601**	**0.0541**	**0.7239**	**1.4600e-003**	**0.1141**	**8.4000e-004**	**0.1149**	**0.0303**	**7.7000e-004**	**0.0310**						

3.6 Pavement Finishing on Bridge - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1700	22.8885	15.2386	0.0233		1.2805	1.2805		1.1796	1.1796						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**2.1700**	**22.8885**	**15.2386**	**0.0233**		**1.2805**	**1.2805**		**1.1796**	**1.1796**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0802	0.0721	0.9651	1.9500e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414						
Total	**0.0802**	**0.0721**	**0.9651**	**1.9500e-003**	**0.1521**	**1.1200e-003**	**0.1533**	**0.0404**	**1.0300e-003**	**0.0414**						

3.6 Pavement Finishing on Bridge - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9876	20.7990	15.1480	0.0233		1.1579	1.1579		1.0669	1.0669						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**1.9876**	**20.7990**	**15.1480**	**0.0233**		**1.1579**	**1.1579**		**1.0669**	**1.0669**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0715	0.0645	0.8640	1.9500e-003	0.1521	1.0800e-003	0.1532	0.0404	1.0000e-003	0.0414						
Total	**0.0715**	**0.0645**	**0.8640**	**1.9500e-003**	**0.1521**	**1.0800e-003**	**0.1532**	**0.0404**	**1.0000e-003**	**0.0414**						

3.7 Roadwork Final Grading - includes ped path - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4950	0.0000	7.4950	3.4693	0.0000	3.4693						
Off-Road	6.0991	69.5920	46.8050	0.0617		3.3172	3.3172		3.0518	3.0518						
Total	**6.0991**	**69.5920**	**46.8050**	**0.0617**	**7.4950**	**3.3172**	**10.8122**	**3.4693**	**3.0518**	**6.5211**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0715	0.0645	0.8640	1.9500e-003	0.1521	1.0800e-003	0.1532	0.0404	1.0000e-003	0.0414						
Total	**0.0715**	**0.0645**	**0.8640**	**1.9500e-003**	**0.1521**	**1.0800e-003**	**0.1532**	**0.0404**	**1.0000e-003**	**0.0414**						

3.8 Roadwork Paving - includes ped path - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9074	20.2964	14.7270	0.0223		1.1384	1.1384		1.0473	1.0473						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**1.9074**	**20.2964**	**14.7270**	**0.0223**		**1.1384**	**1.1384**		**1.0473**	**1.0473**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0536	0.0483	0.6480	1.4600e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310						
Total	**0.0536**	**0.0483**	**0.6480**	**1.4600e-003**	**0.1141**	**8.1000e-004**	**0.1149**	**0.0303**	**7.5000e-004**	**0.0310**						

3.9 Ancillary Facility & Utility Installation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730						
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0536	0.0483	0.6480	1.4600e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310						
Total	**0.0536**	**0.0483**	**0.6480**	**1.4600e-003**	**0.1141**	**8.1000e-004**	**0.1149**	**0.0303**	**7.5000e-004**	**0.0310**						

3.10 Habitat Re-vegetation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675						
Off-Road	2.1429	22.8340	14.7786	0.0151		1.1544	1.1544		1.0621	1.0621						
Total	**2.1429**	**22.8340**	**14.7786**	**0.0151**	**6.5523**	**1.1544**	**7.7068**	**3.3675**	**1.0621**	**4.4296**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0179	0.0161	0.2160	4.9000e-004	0.0380	2.7000e-004	0.0383	0.0101	2.5000e-004	0.0103						
Total	**0.0179**	**0.0161**	**0.2160**	**4.9000e-004**	**0.0380**	**2.7000e-004**	**0.0383**	**0.0101**	**2.5000e-004**	**0.0103**						

APPENDIX C – PARTICULATE MATTER DISPERSION & CONCENTRATION
(AERMOD OUTPUT FILES)

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 8.8.9
** Lakes Environmental Software Inc.
** Date: 4/10/2015
** File: C:\Emissions Models\Elk Grove\Sheldon-Bradshaw\AERMOD
\Sheldon Bradshaw\Sheldon Bradshaw.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
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CO STARTING
   TITLEONE C:\Emissions Models\Elk Grove\Sheldon-Bradshaw\AERMOD
\Sheldon Bradsh
   MODELOPT CONC FLAT
   AVERTIME 24 PERIOD
   POLLUTID PM_10
   FLAGPOLE 1.80
   RUNORNOT RUN
   ERRORFIL "Sheldon Bradshaw.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
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0.0
   LOCATION FUG2          VOLUME     645130.000  4255754.000
0.0
   LOCATION FUG3          VOLUME     645184.000  4255754.000
0.0
   LOCATION FUG4          VOLUME     645255.000  4255754.000
0.0
   LOCATION FUG5          VOLUME     645317.000  4255754.000
0.0
   LOCATION FUG6          VOLUME     645348.000  4255065.000
0.0
   LOCATION FUG7          VOLUME     645348.000  4255985.000
0.0
   LOCATION FUG8          VOLUME     645348.000  4255896.000
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0.0
   LOCATION FUG10         VOLUME     645348.000  4255775.000
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   LOCATION FUG11         VOLUME     645660.000  4255758.000
0.0
   LOCATION FUG12         VOLUME     645607.000  4255758.000
0.0
   LOCATION FUG13         VOLUME     645526.000  4255758.000
0.0
   LOCATION FUG14         VOLUME     645447.000  4255758.000
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   LOCATION FUG15         VOLUME     645370.000  4255758.000
0.0
   LOCATION FUG16         VOLUME     645357.000  4255438.000
0.0
   LOCATION FUG17         VOLUME     645357.000  4255521.000
0.0
   LOCATION FUG18         VOLUME     645357.000  4255589.000
0.0
   LOCATION FUG19         VOLUME     645357.000  4255662.000
0.0
   LOCATION FUG20         VOLUME     645357.000  4255736.000
0.0
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   LOCATION EX2           VOLUME     645130.000  4255754.000
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   LOCATION EX3           VOLUME     645184.000  4255754.000
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   LOCATION EX4           VOLUME     645255.000  4255754.000
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   LOCATION EX5           VOLUME     645317.000  4255754.000
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   LOCATION EX6           VOLUME     645348.000  4255065.000
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   LOCATION EX7           VOLUME     645348.000  4255985.000
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   LOCATION EX8           VOLUME     645348.000  4255896.000
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   LOCATION EX9           VOLUME     645348.000  4255831.000
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   LOCATION EX10          VOLUME     645348.000  4255775.000
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   LOCATION EX11          VOLUME     645660.000  4255758.000
0.0
   LOCATION EX12          VOLUME     645607.000  4255758.000
0.0
   LOCATION EX13          VOLUME     645526.000  4255758.000
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   LOCATION EX14          VOLUME     645447.000  4255758.000
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   LOCATION EX17          VOLUME     645357.000  4255521.000
0.0
   LOCATION EX18          VOLUME     645357.000  4255589.000
0.0
   LOCATION EX19          VOLUME     645357.000  4255662.000
0.0
   LOCATION EX20          VOLUME     645357.000  4255736.000
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   SRCPARAM FUG3              0.004      0.000      4.651      1.000
   SRCPARAM FUG4              0.004      0.000      4.651      1.000
   SRCPARAM FUG5              0.004      0.000      4.651      1.000
   SRCPARAM FUG6              0.004      0.000      4.651      1.000
   SRCPARAM FUG7              0.004      0.000      4.651      1.000
   SRCPARAM FUG8              0.004      0.000      4.651      1.000
   SRCPARAM FUG9              0.004      0.000      4.651      1.000
   SRCPARAM FUG10             0.004      0.000      4.651      1.000
   SRCPARAM FUG11             0.004      0.000      4.651      1.000
   SRCPARAM FUG12             0.004      0.000      4.651      1.000
   SRCPARAM FUG13             0.004      0.000      4.651      1.000
   SRCPARAM FUG14             0.004      0.000      4.651      1.000
   SRCPARAM FUG15             0.004      0.000      4.651      1.000
   SRCPARAM FUG16             0.004      0.000      4.651      1.000
   SRCPARAM FUG17             0.004      0.000      4.651      1.000
   SRCPARAM FUG18             0.004      0.000      4.651      1.000
   SRCPARAM FUG19             0.004      0.000      4.651      1.000
   SRCPARAM FUG20             0.004      0.000      4.651      1.000
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   SRCPARAM EX2              0.0005      5.000      4.651      1.000
   SRCPARAM EX3              0.0005      5.000      4.651      1.000
   SRCPARAM EX4              0.0005      5.000      4.651      1.000
   SRCPARAM EX5              0.0005      5.000      4.651      1.000
   SRCPARAM EX6              0.0005      5.000      4.651      1.000
   SRCPARAM EX7              0.0005      5.000      4.651      1.000
   SRCPARAM EX8              0.0005      5.000      4.651      1.000
   SRCPARAM EX9              0.0005      5.000      4.651      1.000
   SRCPARAM EX10             0.0005      5.000      4.651      1.000
   SRCPARAM EX11             0.0005      5.000      4.651      1.000
   SRCPARAM EX12             0.0005      5.000      4.651      1.000
   SRCPARAM EX13             0.0005      5.000      4.651      1.000
   SRCPARAM EX14             0.0005      5.000      4.651      1.000
   SRCPARAM EX15             0.0005      5.000      4.651      1.000
   SRCPARAM EX16             0.0005      5.000      4.651      1.000
   SRCPARAM EX17             0.0005      5.000      4.651      1.000
   SRCPARAM EX18             0.0005      5.000      4.651      1.000
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   SRCPARAM EX20              0.0005      5.000      4.651      1.000
   SRCGROUP ALL
SO FINISHED
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** AERMOD Receptor Pathway
**********************************
**
**
RE STARTING
** DESCRREC "" ""
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   DISCCART    645725.08   4255939.19    1.80
   DISCCART    646099.67   4255954.28    1.80
   DISCCART    646085.47   4255803.38    1.80
   DISCCART    646105.00   4255733.26    1.80
   DISCCART    646070.38   4255543.30    1.80
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   DISCCART    645323.85   4255385.29    1.80
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   DISCCART    645187.15   4255296.52    1.80
   DISCCART    645194.25   4255390.62    1.80
   DISCCART    645119.69   4255371.09    1.80
   DISCCART    645072.64   4255306.29    1.80
   DISCCART    645071.75   4255367.54    1.80
   DISCCART    645023.82   4255367.54    1.80
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   DISCCART    645214.67   4255711.06    1.80
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   DISCCART    645009.62   4255820.25    1.80
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   DISCCART    646084.58   4256069.26    1.80
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   DISCCART    646110.79   4255255.62    1.80
RE FINISHED
**
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** AERMOD Meteorology Pathway
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11N1MD.SFC"
   PROFFILE "..\..\..\..\Folsom\Mangini Ranch\AERMOD\Int07-
11N1MD.PFL"
   SURFDATA 93225 2007
   UAIRDATA 23230 2007 OAKLAND/WSO_AP
   PROFBASE 0.0 METERS
ME FINISHED
**
**********************************
** AERMOD Output Pathway
**********************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 24 1ST
** Auto-Generated Plotfiles
```

```
   PLOTFILE 24 ALL 1ST "Sheldon Bradshaw.AD\24H1GALL.PLT" 31
   PLOTFILE PERIOD ALL "Sheldon Bradshaw.AD\PE00GALL.PLT" 32
   SUMMFILE "Sheldon Bradshaw.sum"
OU FINISHED

 **********************************
 *** SETUP Finishes Successfully ***
 **********************************
```

```
 *** AERMOD - VERSION  14134 ***   *** C:\Emissions Models\Elk
Grove\Sheldon-Bradshaw\AERMOD\Sheldon Bradsh ***        04/10/15
 *** AERMET - VERSION  14134 ***   ***
***        15:06:07

PAGE   1
 **MODELOPTs:   NonDFAULT CONC      FLAT      FLGPOL

                                                ***     MODEL SETUP
OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration
Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses RURAL Dispersion Only.

 **Model Allows User-Specified Options:
         1. Stack-tip Downwash.
         2. Model Assumes Receptors on FLAT Terrain.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR
     and Calculates PERIOD Averages

 **This Run Includes:     40 Source(s);       1 Source Group(s);
and      66 Receptor(s)

 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  14134

 **Output Options Selected:
          Model Outputs Tables of PERIOD Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by
Receptor (RECTABLE Keyword)
          Model Outputs External File(s) of High Values for
Plotting (PLOTFILE Keyword)
          Model Outputs Separate Summary File of High Ranked
```

Values (SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values:
c for Calm Hours

m for Missing Hours

b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) =
0.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC
; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.5 MB of
RAM.

**Detailed Error/Message File: Sheldon Bradshaw.err
**File for Summary of Results: Sheldon Bradshaw.sum

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** VOLUME SOURCE DATA ***

RELEASE SOURCE ID	NUMBER PART. CATS.	EMISSION RATE INIT. (GRAMS/SEC)	INIT. SOURCE	URBAN SCALAR VARY BY	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	SY (METERS)	SZ (METERS)
FUG1	0	0.40000E-02	1.00	NO	645053.0	4255754.0	0.0	0.00	4.65	
FUG2	0	0.40000E-02	1.00	NO	645130.0	4255754.0	0.0	0.00	4.65	
FUG3	0	0.40000E-02	1.00	NO	645184.0	4255754.0	0.0	0.00	4.65	
FUG4	0	0.40000E-02	1.00	NO	645255.0	4255754.0	0.0	0.00	4.65	
FUG5	0	0.40000E-02	1.00	NO	645317.0	4255754.0	0.0	0.00	4.65	
FUG6	0	0.40000E-02	1.00	NO	645348.0	4255065.0	0.0	0.00	4.65	
FUG7	0	0.40000E-02	1.00	NO	645348.0	4255985.0	0.0	0.00	4.65	
FUG8	0	0.40000E-02	1.00	NO	645348.0	4255896.0	0.0	0.00	4.65	
FUG9	0	0.40000E-02	1.00	NO	645348.0	4255831.0	0.0	0.00	4.65	
FUG10	0	0.40000E-02	1.00	NO	645348.0	4255775.0	0.0	0.00	4.65	
FUG11	0	0.40000E-02	1.00	NO	645660.0	4255758.0	0.0	0.00	4.65	
FUG12	0	0.40000E-02	1.00	NO	645607.0	4255758.0	0.0	0.00	4.65	
FUG13	0	0.40000E-02	1.00	NO	645526.0	4255758.0	0.0	0.00	4.65	
FUG14	0	0.40000E-02	1.00	NO	645447.0	4255758.0	0.0	0.00	4.65	
FUG15	0	0.40000E-02	1.00	NO	645370.0	4255758.0	0.0	0.00	4.65	
FUG16	0	0.40000E-02			645357.0	4255438.0	0.0			

```
0.00      4.65      1.00      NO
 FUG17              0    0.40000E-02  645357.0 4255521.0      0.0
0.00      4.65      1.00      NO
 FUG18              0    0.40000E-02  645357.0 4255589.0      0.0
0.00      4.65      1.00      NO
 FUG19              0    0.40000E-02  645357.0 4255662.0      0.0
0.00      4.65      1.00      NO
 FUG20              0    0.40000E-02  645357.0 4255736.0      0.0
0.00      4.65      1.00      NO
 EX1                0    0.50000E-03  645053.0 4255754.0      0.0
5.00      4.65      1.00      NO
 EX2                0    0.50000E-03  645130.0 4255754.0      0.0
5.00      4.65      1.00      NO
 EX3                0    0.50000E-03  645184.0 4255754.0      0.0
5.00      4.65      1.00      NO
 EX4                0    0.50000E-03  645255.0 4255754.0      0.0
5.00      4.65      1.00      NO
 EX5                0    0.50000E-03  645317.0 4255754.0      0.0
5.00      4.65      1.00      NO
 EX6                0    0.50000E-03  645348.0 4255065.0      0.0
5.00      4.65      1.00      NO
 EX7                0    0.50000E-03  645348.0 4255985.0      0.0
5.00      4.65      1.00      NO
 EX8                0    0.50000E-03  645348.0 4255896.0      0.0
5.00      4.65      1.00      NO
 EX9                0    0.50000E-03  645348.0 4255831.0      0.0
5.00      4.65      1.00      NO
 EX10               0    0.50000E-03  645348.0 4255775.0      0.0
5.00      4.65      1.00      NO
 EX11               0    0.50000E-03  645660.0 4255758.0      0.0
5.00      4.65      1.00      NO
 EX12               0    0.50000E-03  645607.0 4255758.0      0.0
5.00      4.65      1.00      NO
 EX13               0    0.50000E-03  645526.0 4255758.0      0.0
5.00      4.65      1.00      NO
 EX14               0    0.50000E-03  645447.0 4255758.0      0.0
5.00      4.65      1.00      NO
 EX15               0    0.50000E-03  645370.0 4255758.0      0.0
5.00      4.65      1.00      NO
 EX16               0    0.50000E-03  645357.0 4255438.0      0.0
5.00      4.65      1.00      NO
 EX17               0    0.50000E-03  645357.0 4255521.0      0.0
5.00      4.65      1.00      NO
 EX18               0    0.50000E-03  645357.0 4255589.0      0.0
5.00      4.65      1.00      NO
 EX19               0    0.50000E-03  645357.0 4255662.0      0.0
5.00      4.65      1.00      NO
 EX20               0    0.50000E-03  645357.0 4255736.0      0.0
5.00      4.65      1.00      NO
```

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	FUG1 , FUG2 , FUG3 , FUG4 , FUG5 , FUG6 , FUG7 , FUG8 ,
	FUG9 , FUG10 , FUG11 , FUG12 , FUG13 , FUG14 , FUG15 , FUG16 ,
	FUG17 , FUG18 , FUG19 , FUG20 , EX1 , EX2 , EX3 , EX4 ,
	EX5 , EX6 , EX7 , EX8 , EX9 , EX10 , EX11 , EX12 ,
	EX13 , EX14 , EX15 , EX16 , EX17 , EX18 , EX19 , EX20 ,

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** DISCRETE CARTESIAN RECEPTORS ***

(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)

(METERS)

```
     ( 645456.1, 4255964.9,       0.0,       0.0,       1.8);
( 645725.1, 4255939.2,       0.0,       0.0,       1.8);
     ( 646099.7, 4255954.3,       0.0,       0.0,       1.8);
( 646085.5, 4255803.4,       0.0,       0.0,       1.8);
     ( 646105.0, 4255733.3,       0.0,       0.0,       1.8);
( 646070.4, 4255543.3,       0.0,       0.0,       1.8);
     ( 646065.9, 4255412.8,       0.0,       0.0,       1.8);
( 646015.3, 4255284.1,       0.0,       0.0,       1.8);
     ( 645967.4, 4255388.8,       0.0,       0.0,       1.8);
( 645858.2, 4255312.5,       0.0,       0.0,       1.8);
     ( 645721.5, 4255495.4,       0.0,       0.0,       1.8);
( 645782.8, 4255706.6,       0.0,       0.0,       1.8);
     ( 645693.1, 4255714.6,       0.0,       0.0,       1.8);
( 645628.3, 4255713.7,       0.0,       0.0,       1.8);
     ( 645581.3, 4255709.3,       0.0,       0.0,       1.8);
( 645521.8, 4255704.8,       0.0,       0.0,       1.8);
     ( 645466.8, 4255709.3,       0.0,       0.0,       1.8);
( 645411.7, 4255638.3,       0.0,       0.0,       1.8);
     ( 645401.1, 4255577.0,       0.0,       0.0,       1.8);
( 645495.2, 4255383.5,       0.0,       0.0,       1.8);
     ( 645446.4, 4255317.8,       0.0,       0.0,       1.8);
( 645323.9, 4255312.5,       0.0,       0.0,       1.8);
     ( 645323.9, 4255385.3,       0.0,       0.0,       1.8);
( 645238.6, 4255295.6,       0.0,       0.0,       1.8);
     ( 645262.6, 4255424.3,       0.0,       0.0,       1.8);
( 645187.2, 4255296.5,       0.0,       0.0,       1.8);
     ( 645194.2, 4255390.6,       0.0,       0.0,       1.8);
( 645119.7, 4255371.1,       0.0,       0.0,       1.8);
     ( 645072.6, 4255306.3,       0.0,       0.0,       1.8);
( 645071.8, 4255367.5,       0.0,       0.0,       1.8);
     ( 645023.8, 4255367.5,       0.0,       0.0,       1.8);
( 644953.7, 4255387.1,       0.0,       0.0,       1.8);
     ( 645293.7, 4255509.6,       0.0,       0.0,       1.8);
( 645287.5, 4255572.6,       0.0,       0.0,       1.8);
     ( 645248.4, 4255523.8,       0.0,       0.0,       1.8);
( 645214.7, 4255711.1,       0.0,       0.0,       1.8);
     ( 645166.7, 4255715.5,       0.0,       0.0,       1.8);
```

```
( 645125.0, 4255657.8,        0.0,        0.0,        1.8);
     ( 645131.2, 4255715.5,        0.0,        0.0,        1.8);
( 645078.0, 4255662.2,        0.0,        0.0,        1.8);
     ( 645081.5, 4255719.0,        0.0,        0.0,        1.8);
( 645015.8, 4255716.4,        0.0,        0.0,        1.8);
     ( 644823.2, 4255658.7,        0.0,        0.0,        1.8);
( 644765.5, 4255487.4,        0.0,        0.0,        1.8);
     ( 644785.0, 4255853.1,        0.0,        0.0,        1.8);
( 644872.0, 4255823.8,        0.0,        0.0,        1.8);
     ( 645009.6, 4255820.2,        0.0,        0.0,        1.8);
( 645064.7, 4255835.3,        0.0,        0.0,        1.8);
     ( 645117.0, 4255824.7,        0.0,        0.0,        1.8);
( 645187.2, 4255820.2,        0.0,        0.0,        1.8);
     ( 645263.5, 4255832.7,        0.0,        0.0,        1.8);
( 645299.9, 4255906.3,        0.0,        0.0,        1.8);
     ( 645186.3, 4255881.5,        0.0,        0.0,        1.8);
( 645058.4, 4255887.7,        0.0,        0.0,        1.8);
     ( 645282.6, 4256000.3,        0.0,        0.0,        1.8);
( 645430.2, 4256067.3,        0.0,        0.0,        1.8);
     ( 644826.2, 4256005.2,        0.0,        0.0,        1.8);
( 645810.8, 4256069.3,        0.0,        0.0,        1.8);
     ( 646084.6, 4256069.3,        0.0,        0.0,        1.8);
( 645176.8, 4256116.8,        0.0,        0.0,        1.8);
     ( 644820.4, 4256116.8,        0.0,        0.0,        1.8);
( 646099.1, 4256145.0,        0.0,        0.0,        1.8);
     ( 644906.8, 4255279.9,        0.0,        0.0,        1.8);
( 645863.2, 4255257.6,        0.0,        0.0,        1.8);
     ( 644760.2, 4255255.6,        0.0,        0.0,        1.8);
( 646110.8, 4255255.6,        0.0,        0.0,        1.8);
```

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING *** (1=YES; 0=NO)

```
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1       1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
                1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\..\..\..\Folsom\Mangini Ranch\AERMOD\Int07-11N1MD.SFC Met Version: 14134
Profile file: ..\..\..\..\Folsom\Mangini Ranch\AERMOD\Int07-11N1MD.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 93225 Upper air station no.: 23230
Name: UNKNOWN Name: OAKLAND/WSO_AP
Year: 2007 Year: 2007

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
07	01	01	1	01	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.06	0.69	1.00	0.00	0.	10.0	275.9	2.0
07	01	01	1	02	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.06	0.69	1.00	0.00	0.	10.0	275.4	2.0
07	01	01	1	03	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.06	0.69	1.00	0.00	0.	10.0	276.4	2.0
07	01	01	1	04	-5.4	0.073	-9.000	-9.000	-999.	45.	6.5	0.08	0.69	1.00	1.76	293.	10.0	274.2	2.0
07	01	01	1	05	-30.3	0.259	-9.000	-9.000	-999.	303.	52.3	0.07	0.69	1.00	3.86	323.	10.0	275.4	2.0
07	01	01	1	06	-25.3	0.216	-9.000	-9.000	-999.	231.	36.3	0.08	0.69	1.00	3.36	292.	10.0	275.4	2.0
07	01	01	1	07	-50.3	0.431	-9.000	-9.000	-999.	651.	145.6	0.06	0.69	1.00	5.96	335.	10.0	276.4	2.0
07	01	01	1	08	-9.0	0.093	-9.000	-9.000	-999.	275.	8.2	0.06	0.69	1.00	2.36	999.	10.0	275.9	2.0
07	01	01	1	09	11.9	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.06	0.69	0.41	0.00	0.	10.0	277.0	2.0
07	01	01	1	10	32.8	0.167	0.478	0.012	122.	157.	-13.0	0.06	0.69	0.28	1.76	351.	10.0	279.2	2.0
07	01	01	1	11	62.9	0.552	0.800	0.006	297.	942.	-243.3	0.06	0.69	0.24	6.96	334.	10.0	285.9	2.0
07	01	01	1	12	79.2	0.573	0.948	0.005	392.	998.	-216.9								

```
0.07   0.69   0.22    6.96  326.   10.0  287.0    2.0
 07 01 01   1 13   82.1  0.629  0.989  0.005  430. 1146.   -276.0
0.06   0.69   0.22    7.96  333.   10.0  289.2    2.0
 07 01 01   1 14   70.5  0.734  0.963  0.005  462. 1445.   -511.1
0.07   0.69   0.23    9.06  319.   10.0  289.2    2.0
 07 01 01   1 15   45.9  0.744  0.848  0.005  483. 1476.   -817.0
0.06   0.69   0.26    9.56  332.   10.0  289.9    2.0
 07 01 01   1 16   10.2  0.655  0.515  0.005  487. 1229.  -2509.3
0.06   0.69   0.35    8.46  334.   10.0  289.2    2.0
 07 01 01   1 17  -54.1  0.535 -9.000 -9.000 -999.  915.    258.3
0.07   0.69   0.61    6.96  321.   10.0  287.0    2.0
 07 01 01   1 18  -60.0  0.533 -9.000 -9.000 -999.  895.    229.6
0.07   0.69   1.00    6.96  307.   10.0  285.4    2.0
 07 01 01   1 19  -10.4  0.097 -9.000 -9.000 -999.  447.      8.0
0.03   0.69   1.00    2.86   34.   10.0  283.8    2.0
 07 01 01   1 20   -9.4  0.096 -9.000 -9.000 -999.  149.      8.7
0.07   0.69   1.00    2.36  167.   10.0  282.0    2.0
 07 01 01   1 21  -16.7  0.146 -9.000 -9.000 -999.  128.     16.9
0.07   0.69   1.00    2.86  170.   10.0  280.9    2.0
 07 01 01   1 22  -24.7  0.215 -9.000 -9.000 -999.  229.     36.6
0.07   0.69   1.00    3.36  162.   10.0  280.4    2.0
 07 01 01   1 23   -8.0  0.087 -9.000 -9.000 -999.   70.      7.4
0.04   0.69   1.00    2.36  130.   10.0  279.2    2.0
 07 01 01   1 24  -27.0  0.234 -9.000 -9.000 -999.  260.     43.1
0.04   0.69   1.00    3.86  120.   10.0  278.8    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW
sigmaV
 07 01 01 01   10.0 1 -999.  -99.00   276.0   99.0  -99.00  -
99.00

 F indicates top of profile (=1) or below (=0)
```

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** THE PERIOD (43824 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): FUG1 , FUG2 , FUG3 , FUG4 , FUG5 , FUG6 , FUG7 , FUG8 , FUG9 , FUG10 , FUG11 , FUG12 , FUG13 , FUG14 , FUG15 , FUG16 , FUG17 , FUG18 , FUG19 , FUG20 , EX1 , EX2 , EX3 , EX4 , EX5 , EX6 , EX7 , EX8 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
645456.11	4255964.94	1.73530	645725.08	4255939.19	0.52484
646099.67	4255954.28	0.10212	646085.47	4255803.38	0.11604
646105.00	4255733.26	0.13215	646070.38	4255543.30	0.21552
646065.94	4255412.81	0.25723	646015.34	4255284.10	0.30781
645967.41	4255388.84	0.35307	645858.23	4255312.50	0.45238
645721.53	4255495.36	0.77784	645782.78	4255706.63	0.63928
645693.12	4255714.61	2.47712	645628.32	4255713.73	2.97705
645581.27	4255709.29	2.45752	645521.80	4255704.85	2.66463
645466.77	4255709.29	3.76337	645411.73	4255638.28	3.90065
645401.08	4255577.03	3.66493	645495.17	4255383.52	1.20841
645446.35	4255317.83	1.08964	645323.85	4255312.50	0.83243
645323.85	4255385.29	1.22959			

645238.64 4255295.64 0.63171
645262.60 4255424.35 0.99840
645187.15 4255296.52 0.52097
645194.25 4255390.62 0.63973
645119.69 4255371.09 0.46645
645072.64 4255306.29 0.35381
645071.75 4255367.54 0.39433
645023.82 4255367.54 0.33846
644953.70 4255387.07 0.28347
645293.67 4255509.56 2.13598
645287.46 4255572.59 2.56057
645248.40 4255523.77 1.47476
645214.67 4255711.06 3.83587
645166.74 4255715.50 3.57392
645125.01 4255657.80 1.61044
645131.23 4255715.50 2.87076
645077.97 4255662.24 1.26944
645081.52 4255719.05 3.11599
645015.83 4255716.39 1.06288
644823.21 4255658.69 0.28039
644765.51 4255487.37 0.18647
644785.04 4255853.09 0.34480
644872.03 4255823.80 0.49075
645009.62 4255820.25 1.95442
645064.65 4255835.34 2.29769
645117.03 4255824.69 3.25887
645187.15 4255820.25 3.59245
645263.49 4255832.67 4.34320
645299.88 4255906.35 4.45586
645186.26 4255881.50 2.57959
645058.44 4255887.71 1.70914
645282.59 4256000.33 2.77747
645430.17 4256067.32 1.29257
644826.25 4256005.18 0.47730
645810.78 4256069.26 0.27010
646084.58 4256069.26 0.10193
645176.75 4256116.84 1.25722
644820.42 4256116.84 0.45619
646099.14 4256145.00 0.09810
644906.83 4255279.89 0.20714
645863.21 4255257.56 0.42436
644760.22 4255255.62 0.14054
646110.79 4255255.62 0.24493

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL *** INCLUDING SOURCE(S): FUG1 , FUG2 , FUG3 , FUG4 , FUG5 , FUG6 , FUG7 , FUG8 , FUG9 , FUG10 , FUG11 , FUG12 , FUG13 , FUG14 , FUG15 , FUG16 , FUG17 , FUG18 , FUG19 , FUG20 , EX1 , EX2 , EX3 , EX4 , EX5 , EX6 , EX7 , EX8 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
645456.11	4255964.94	8.04315m	(10040524)
645725.08	4255939.19	3.89728b	(07112524)
646099.67	4255954.28	2.64117b	(07022824)
646085.47	4255803.38	3.80212b	(07022824)
646105.00	4255733.26	3.87970c	(11112724)
646070.38	4255543.30	4.52454c	(08021024)
646065.94	4255412.81	2.81738b	(08022724)
646015.34	4255284.10	3.72262b	(07020224)
645967.41	4255388.84	4.43562b	(07020224)
645858.23	4255312.50	4.89884b	(07020224)
645721.53	4255495.36	6.64133b	(07020224)
645782.78	4255706.63	9.89541c	(08021024)
645693.12	4255714.61	21.35903c	(08111724)
645628.32	4255713.73	19.66580b	(10031624)
645581.27	4255709.29	19.30288b	(07020224)
645521.80	4255704.85	24.09326c	(09012224)
645466.77	4255709.29	23.48422c	(08021024)
645411.73	4255638.28	20.63564b	(10031624)
645401.08	4255577.03	20.85402c	(08021024)
645495.17	4255383.52	10.77442c	(08111724)
645446.35	4255317.83	9.59000c	(08100824)
645323.85	4255312.50	13.21946c	(08120424)

```
        645323.85   4255385.29       24.94943c (08120424)
645238.64   4255295.64        8.63669c (08120424)
        645262.60   4255424.35       10.81479c (08120424)
645187.15   4255296.52        8.14585c (08120424)
        645194.25   4255390.62        8.43919c (08120424)
645119.69   4255371.09        7.13674c (08120424)
        645072.64   4255306.29        5.79839c (08120424)
645071.75   4255367.54        6.75035c (08120424)
        645023.82   4255367.54        5.30098c (08120424)
644953.70   4255387.07        3.68941b (09020924)
        645293.67   4255509.56       16.07911c (08120424)
645287.46   4255572.59       15.17343b (09020324)
        645248.40   4255523.77       11.60661c (08120424)
645214.67   4255711.06       22.25131c (08111724)
        645166.74   4255715.50       22.45292b (07020224)
645125.01   4255657.80       14.93124c (08120424)
        645131.23   4255715.50       17.45837c (07020324)
645077.97   4255662.24        9.41084c (09122824)
        645081.52   4255719.05       22.74170c (08111724)
645015.83   4255716.39       12.57676b (07010924)
        644823.21   4255658.69        5.54046b (07012224)
644765.51   4255487.37        3.21949c (07021424)
        644785.04   4255853.09        5.74237c (08011924)
644872.03   4255823.80        8.09751c (11122024)
        645009.62   4255820.25       13.08896b (07022324)
645064.65   4255835.34       11.48589c (07011524)
        645117.03   4255824.69       15.93161c (09031124)
645187.15   4255820.25       19.18790c (09121824)
        645263.49   4255832.67       17.42134c (09121824)
645299.88   4255906.35       20.76631c (07011824)
        645186.26   4255881.50       12.56367b (10020324)
645058.44   4255887.71       10.46760b (07022324)
        645282.59   4256000.33       14.45054b (11030824)
645430.17   4256067.32        7.51297c (11012624)
        644826.25   4256005.18        4.65835c (09031124)
645810.78   4256069.26        2.60584b (07112524)
        646084.58   4256069.26        2.40660b (07112524)
645176.75   4256116.84        7.99549c (08092524)
        644820.42   4256116.84        3.97317c (08121024)
646099.14   4256145.00        2.08097b (07112524)
        644906.83   4255279.89        3.15370c (08120424)
645863.21   4255257.56        4.82253b (07020224)
        644760.22   4255255.62        3.03801b (09020924)
646110.79   4255255.62        3.14463b (07020224)
```

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** THE SUMMARY OF MAXIMUM PERIOD (43824 HRS) RESULTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

NETWORK GROUP ID RECEPTOR	(XR, YR, ZELEV, ZHILL, ZFLAG)	AVERAGE CONC OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	4.45586 AT (	645299.88, 4255906.35, 0.00, 0.00, 1.80) DC
	2ND HIGHEST VALUE IS	4.34320 AT (	645263.49, 4255832.67, 0.00, 0.00, 1.80) DC
	3RD HIGHEST VALUE IS	3.90065 AT (	645411.73, 4255638.28, 0.00, 0.00, 1.80) DC
	4TH HIGHEST VALUE IS	3.83587 AT (	645214.67, 4255711.06, 0.00, 0.00, 1.80) DC
	5TH HIGHEST VALUE IS	3.76337 AT (	645466.77, 4255709.29, 0.00, 0.00, 1.80) DC
	6TH HIGHEST VALUE IS	3.66493 AT (	645401.08, 4255577.03, 0.00, 0.00, 1.80) DC
	7TH HIGHEST VALUE IS	3.59245 AT (	645187.15, 4255820.25, 0.00, 0.00, 1.80) DC
	8TH HIGHEST VALUE IS	3.57392 AT (	645166.74, 4255715.50, 0.00, 0.00, 1.80) DC
	9TH HIGHEST VALUE IS	3.25887 AT (	645117.03, 4255824.69, 0.00, 0.00, 1.80) DC
	10TH HIGHEST VALUE IS	3.11599 AT (	645081.52, 4255719.05, 0.00, 0.00, 1.80) DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_10 IN MICROGRAMS/M**3 **

NETWORK GROUP ID RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	AVERAGE CONC OF TYPE	DATE (YYMMDDHH) GRID-ID
ALL HIGH 1ST HIGH VALUE IS (645323.85, 4255385.29, 0.00, 0.00, 1.80)	24.94943c	ON 08120424: AT DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 12 Warning Message(s)
A Total of 9087 Informational Message(s)

A Total of 43824 Hours Were Processed

A Total of 7169 Calm Hours Identified

A Total of 1918 Missing Hours Identified (4.38 Percent)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
MX W441 40471 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081407
MX W441 40472 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081408
MX W441 40473 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081409
MX W441 40474 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081410
MX W441 40475 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081411
MX W441 40476 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081412
MX W441 40477 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081413
MX W441 40478 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081414
MX W441 40479 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081415
MX W441 40480 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081416
MX W441 40481 METQA: Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 11081417
MX W441 40482 METQA: Vert Pot Temp Grad abv ZI set to

```
min .005, KURDAT=     11081418

     ************************************
     *** AERMOD Finishes Successfully ***
     ************************************
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APPENDIX D – OPERATIONAL EMISSIONS
(EMFAC OUTPUT FILES & CALCULATIONS)

Operational Mobile Emissions

Spreadsheet to Calculate Peak Period Emissions

Scenario: Existing Conditions

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	1616	172	0.036	0.101	0.226	0.002	0.001	22.0	61.8	138.4	1.2	0.6
								22.0	**61.8**	**138.4**	**1.2**	**0.6**

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	1831	224	0.036	0.101	0.226	0.002	0.001	32.5	91.2	204.2	1.8	0.9
								32.5	**91.2**	**204.2**	**1.8**	**0.9**
Total of AM and PM Peak Periods								**54.6**	**153.1**	**342.5**	**3.0**	**1.5**

Scenario: Year 2017 - Project
Traffic Signal Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	1713	27	0.032	0.091	0.196	0.001	0.001	3.3	9.3	20.0	0.1	0.1
								3.3	**9.3**	**20.0**	**0.1**	**0.1**

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	1942	34	0.032	0.091	0.196	0.001	0.001	4.7	13.2	28.5	0.1	0.1
								4.7	**13.2**	**28.5**	**0.1**	**0.1**
Total of AM and PM Peak Periods								**7.9**	**22.5**	**48.5**	**0.2**	**0.2**

Scenario: Year 2017 - Project
Roundabout Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	1713	16	0.032	0.091	0.196	0.001	0.001	1.9	5.5	11.8	0.1	0.1
								1.9	**5.5**	**11.8**	**0.1**	**0.1**

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	1942	14	0.032	0.091	0.196	0.001	0.001	1.9	5.4	11.7	0.1	0.1
								1.9	**5.4**	**11.7**	**0.1**	**0.1**
Total of AM and PM Peak Periods								**3.8**	**10.9**	**23.6**	**0.1**	**0.1**

Operational Mobile
Emissions

Scenario: Year 2037 - Project
Traffic Signal Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	2684	37	0.021	0.044	0.109	0.0002	0.0002	4.6	9.6	23.8	0.0	0.0
								4.6	**9.6**	**23.8**	**0.0**	**0.0**

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	3038	36	0.021	0.044	0.109	0.0002	0.0002	5.1	10.6	26.3	0.0	0.0
								5.1	**10.6**	**26.3**	**0.0**	**0.0**
Total of AM and PM Peak Periods								**9.7**	**20.2**	**50.1**	**0.1**	**0.1**

Scenario: Year 2037 - Project
Roundabout Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	2684	17	0.021	0.044	0.109	0.0002	0.0002	2.1	4.4	11.0	0.0	0.0
								2.1	**4.4**	**11.0**	**0.0**	**0.0**

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	3038	34	0.021	0.044	0.109	0.0002	0.0002	4.8	10.0	24.8	0.0	0.0
								4.8	**10.0**	**24.8**	**0.0**	**0.0**
Total of AM and PM Peak Periods								**6.9**	**14.4**	**35.8**	**0.1**	**0.1**

Scenario: Year 2037 - No Build

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	2684	172	0.021	0.044	0.109	0.0002	0.0002	21.4	44.7	110.8	0.2	0.2
								21.4	**44.7**	**110.8**	**0.2**	**0.2**

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)					Emissions (pounds)				
			ROG	Nox	CO	PM10	PM2.5	ROG	Nox	CO	PM10	PM2.5
Intersection	3038	224	0.021	0.044	0.109	0.0002	0.0002	31.5	66.0	163.4	0.3	0.3
								31.5	**66.0**	**163.4**	**0.3**	**0.3**
Total of AM and PM Peak Periods								**52.8**	**110.7**	**274.2**	**0.5**	**0.5**

EMFAC Idling Emissions Rates
Existing Conditions

Year	Season	Subarea	Vehicle Class	Temperature	Relative Humidity	Process	Speed	Pollutant	Emission Rate
2015	Annual	Sacramento	LDA	60	63	RUNEX	5	CO	2.434664
2015	Annual	Sacramento	LDA	60	63	RUNEX	5	NOx	0.199189
2015	Annual	Sacramento	LDA	60	63	RUNEX	5	ROG	0.187621
2015	Annual	Sacramento	LDA	60	63	RUNEX	5	PM10	0.012699
2015	Annual	Sacramento	LDA	60	63	RUNEX	5	PM2_5	0.011727
2015	Annual	Sacramento	LDT1	60	63	RUNEX	5	CO	7.03262
2015	Annual	Sacramento	LDT1	60	63	RUNEX	5	NOx	0.516775
2015	Annual	Sacramento	LDT1	60	63	RUNEX	5	ROG	0.526522
2015	Annual	Sacramento	LDT1	60	63	RUNEX	5	PM10	0.025289
2015	Annual	Sacramento	LDT1	60	63	RUNEX	5	PM2_5	0.023405
2015	Annual	Sacramento	LDT2	60	63	RUNEX	5	CO	3.099439
2015	Annual	Sacramento	LDT2	60	63	RUNEX	5	NOx	0.350977
2015	Annual	Sacramento	LDT2	60	63	RUNEX	5	ROG	0.226311
2015	Annual	Sacramento	LDT2	60	63	RUNEX	5	PM10	0.011313
2015	Annual	Sacramento	LDT2	60	63	RUNEX	5	PM2_5	0.01042
2015	Annual	Sacramento	LHD1	60	63	RUNEX	5	CO	4.115753
2015	Annual	Sacramento	LHD1	60	63	RUNEX	5	NOx	2.250597
2015	Annual	Sacramento	LHD1	60	63	RUNEX	5	ROG	0.592798
2015	Annual	Sacramento	LHD1	60	63	RUNEX	5	PM10	0.072816
2015	Annual	Sacramento	LHD1	60	63	RUNEX	5	PM2_5	0.069445
2015	Annual	Sacramento	LHD2	60	63	RUNEX	5	CO	3.449517
2015	Annual	Sacramento	LHD2	60	63	RUNEX	5	NOx	2.379326
2015	Annual	Sacramento	LHD2	60	63	RUNEX	5	ROG	0.620015
2015	Annual	Sacramento	LHD2	60	63	RUNEX	5	PM10	0.077641
2015	Annual	Sacramento	LHD2	60	63	RUNEX	5	PM2_5	0.074168
2015	Annual	Sacramento	MCY	60	63	RUNEX	5	CO	67.57977
2015	Annual	Sacramento	MCY	60	63	RUNEX	5	NOx	1.377512
2015	Annual	Sacramento	MCY	60	63	RUNEX	5	ROG	13.57392
2015	Annual	Sacramento	MCY	60	63	RUNEX	5	PM10	0.008043
2015	Annual	Sacramento	MCY	60	63	RUNEX	5	PM2_5	0.007598
2015	Annual	Sacramento	MDV	60	63	RUNEX	5	CO	4.562756
2015	Annual	Sacramento	MDV	60	63	RUNEX	5	NOx	0.566041
2015	Annual	Sacramento	MDV	60	63	RUNEX	5	ROG	0.373585

EMFAC Idling Emissions Rates
Existing Conditions

2015	Annual	Sacramento	MDV	60	63	RUNEX	5	PM10	0.012172
2015	Annual	Sacramento	MDV	60	63	RUNEX	5	PM2_5	0.011224
2015	Annual	Sacramento	MH	60	63	RUNEX	5	CO	23.20756
2015	Annual	Sacramento	MH	60	63	RUNEX	5	NOx	4.581679
2015	Annual	Sacramento	MH	60	63	RUNEX	5	ROG	1.508799
2015	Annual	Sacramento	MH	60	63	RUNEX	5	PM10	0.114184
2015	Annual	Sacramento	MH	60	63	RUNEX	5	PM2_5	0.108805
2015	Annual	Sacramento	Motor Coach	60	63	RUNEX	5	CO	5.292497
2015	Annual	Sacramento	Motor Coach	60	63	RUNEX	5	NOx	22.8138
2015	Annual	Sacramento	Motor Coach	60	63	RUNEX	5	ROG	2.599113
2015	Annual	Sacramento	Motor Coach	60	63	RUNEX	5	PM10	0.274212
2015	Annual	Sacramento	Motor Coach	60	63	RUNEX	5	PM2_5	0.26235
2015	Annual	Sacramento	OBUS	60	63	RUNEX	5	CO	6.492893
2015	Annual	Sacramento	OBUS	60	63	RUNEX	5	NOx	1.515709
2015	Annual	Sacramento	OBUS	60	63	RUNEX	5	ROG	0.757712
2015	Annual	Sacramento	OBUS	60	63	RUNEX	5	PM10	0.004804
2015	Annual	Sacramento	OBUS	60	63	RUNEX	5	PM2_5	0.004426
2015	Annual	Sacramento	SBUS	60	63	RUNEX	5	CO	8.311889
2015	Annual	Sacramento	SBUS	60	63	RUNEX	5	NOx	16.60236
2015	Annual	Sacramento	SBUS	60	63	RUNEX	5	ROG	1.788591
2015	Annual	Sacramento	SBUS	60	63	RUNEX	5	PM10	0.230834
2015	Annual	Sacramento	SBUS	60	63	RUNEX	5	PM2_5	0.220608
2015	Annual	Sacramento	UBUS	60	63	RUNEX	5	CO	27.45423
2015	Annual	Sacramento	UBUS	60	63	RUNEX	5	NOx	19.84952
2015	Annual	Sacramento	UBUS	60	63	RUNEX	5	ROG	3.291576
2015	Annual	Sacramento	UBUS	60	63	RUNEX	5	PM10	0.223348
2015	Annual	Sacramento	UBUS	60	63	RUNEX	5	PM2_5	0.213596

EMFAC Idling Emissions Rates
Existing Conditions

EMFAC Fleet Mix Totals - 5 Miles Per Hour Emission Rates (grams/mile)

CO	NOx	ROG	PM10	PM2.5
163	72.4	25.7	1.1	1.0

5 Miles Per Hour Emissions Rates (grams/mile) Conveted to Idling Emissions Rates
"Run" Exhaust Rate to Idling Exhaust Rate Conversion [(grams/mile x miles/hour = grams/hour)]
(California Air Resources Board. 2012. "Emfac Website: Emfac2011 Idling Emissions Rates." Feb 8, 2012)

EMFAC Fleet Mix Totals - Idling Emissions (grams/hour)

CO	NOx	ROG	PM10	PM2.5
815	362	128.5	5.5	5.1

EMFAC Fleet Mix Totals - Idling Emissions (grams/second)

CO	NOx	ROG	PM10	PM2.5
0.226	0.101	0.036	0.002	0.001

EMFAC Fleet Idling Emissions
Year 2017 Scenario

Year	Season	Subarea	Vehicle Class	Temperature	Relative Humidity	Process	Speed	Pollutant	Emission Rate
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CO	1.812501
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	NOx	0.1547
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	ROG	0.132569
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	PM10	0.011991
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	PM2_5	0.011059
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CO	5.041339
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	NOx	0.411625
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	ROG	0.346674
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	PM10	0.021397
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	PM2_5	0.019766
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CO	2.379503
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	NOx	0.269401
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	ROG	0.168456
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	PM10	0.011103
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	PM2_5	0.010218
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CO	3.820358
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	NOx	2.131033
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	ROG	0.581602
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	PM10	0.070409
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	PM2_5	0.067164
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CO	3.060285
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	NOx	2.054058
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	ROG	0.597727
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	PM10	0.068606
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	PM2_5	0.065539
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CO	63.03553
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	NOx	1.423017
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	ROG	13.3805
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	PM10	0.008695
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	PM2_5	0.008184
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CO	4.020909
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	NOx	0.472514
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	ROG	0.323784

EMFAC Fleet Idling Emissions
Year 2017 Scenario

2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	PM10	0.012
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	PM2_5	0.011062
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CO	17.44215
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	NOx	4.41117
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	ROG	1.221552
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	PM10	0.106798
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	PM2_5	0.101783
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CO	4.480797
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	NOx	19.95087
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	ROG	1.678861
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	PM10	0.122947
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	PM2_5	0.117629
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CO	5.061758
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	NOx	1.235257
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	ROG	0.610965
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	PM10	0.004855
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	PM2_5	0.004469
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CO	4.040178
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	NOx	15.38312
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	ROG	1.183221
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	PM10	0.194648
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	PM2_5	0.186104
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CO	26.74379
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	NOx	17.51628
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	ROG	2.962541
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	PM10	0.187879
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	PM2_5	0.17966

EMFAC Fleet Idling Emissions
Year 2017 Scenario

EMFAC Fleet Mix Totals - 5 Miles Per Hour Emission Rates (grams/mile)

CO	NOx	ROG	PM10	PM2.5
140.9	65.4	23.2	0.8	0.8

5 Miles Per Hour Emissions Rates (grams/mile) Conveted to Idling Emissions Rates
"Run" Exhaust Rate to Idling Exhaust Rate Conversion [(grams/mile x miles/hour = grams/hour)]
(California Air Resources Board. 2012. "Emfac Website: Emfac2011 Idling Emissions Rates." Feb 8, 2012)

EMFAC Fleet Mix Totals - Idling Emissions (grams/hour)

CO	NOx	ROG	PM10	PM2.5
704.7	327.1	115.9	4.1	3.9

EMFAC Fleet Mix Totals - Idling Emissions (grams/second)

CO	NOx	ROG	PM10	PM2.5
0.196	0.091	0.032	0.001	0.001

EMFAC Idling Emissions Rates
Year 2037

Year	Season	Subarea	Vehicle Class	Temperature	Relative Humidity	Process	Speed	Pollutant	Emission Rate
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CO	0.501904
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	NOx	0.034955
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	ROG	0.023731
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	PM10	0.005138
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	PM2_5	0.004725
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CO	0.651022
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	NOx	0.051305
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	ROG	0.034855
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	PM10	0.006496
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	PM2_5	0.005974
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CO	0.753931
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	NOx	0.054004
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	ROG	0.037581
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	PM10	0.006256
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	PM2_5	0.005752
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CO	2.352006
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	NOx	0.519332
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	ROG	0.499057
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	PM10	0.021328
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	PM2_5	0.0203
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CO	2.420244
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	NOx	0.242524
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	ROG	0.53641
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	PM10	0.015023
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	PM2_5	0.014291
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CO	44.17226
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	NOx	1.615438
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	ROG	12.62518
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	PM10	0.01342
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	PM2_5	0.012512
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CO	1.012517
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	NOx	0.083903
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	ROG	0.057621

EMFAC Idling Emissions Rates

Year 2037

2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	PM10	0.00658
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	PM2_5	0.006053
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CO	0.892271
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	NOx	2.616227
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	ROG	0.246611
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	PM10	0.023371
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	PM2_5	0.02214
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CO	3.021359
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	NOx	17.46531
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	ROG	0.511681
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	PM10	0.009637
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	PM2_5	0.00922
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CO	0.451197
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	NOx	0.193525
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	ROG	0.07598
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	PM10	0.007685
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	PM2_5	0.007066
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CO	0.866525
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	NOx	5.559383
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	ROG	0.176154
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	PM10	0.007501
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	PM2_5	0.007068
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CO	21.59917
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	NOx	3.579616
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	ROG	0.611847
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	PM10	0.022759
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	PM2_5	0.021641

EMFAC Idling Emissions Rates
Year 2037

EMFAC Fleet Mix Totals - 5 Miles Per Hour Emission Rates (grams/mile)

CO	NOx	ROG	PM10	PM2.5
78.7	32.0	15.4	0.1	0.1

5 Miles Per Hour Emissions Rates (grams/mile) Conveted to Idling Emissions Rates
"Run" Exhaust Rate to Idling Exhaust Rate Conversion [(grams/mile x miles/hour = grams/hour)]
(California Air Resources Board. 2012. "Emfac Website: Emfac2011 Idling Emissions Rates." Feb 8, 2012)

EMFAC Fleet Mix Totals - Idling Emissions (grams/hour)

CO	NOx	ROG	PM10	PM2.5
393.5	160.1	77.2	0.7	0.7

EMFAC Fleet Mix Totals - Idling Emissions (grams/second)

CO	NOx	ROG	PM10	PM2.5
0.109	0.044	0.021	0.0002	0.0002

APPENDIX E – CARBON MONOXIDE HOTSPOTS

(CALINE4 OUTPUT FILES)

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Sheldon-Bradshaw Intersection Improvemen
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	18.3 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	300. M	AMB=	0.0 PPM		
SIGTH=	5. DEGREES	TEMP=	8.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. Sheldon Rd	*	-50	5	50	5	* AG	1241	13.5	0.0	86.0
B. Bradshaw	*	-5	50	-5	-50	* AG	1536	13.5	0.0	86.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. Recpt 1	*	-50	20	1.8
2. Recpt 2	*	-40	20	1.8
3. Recpt 3	*	-30	20	1.8
4. Recpt 4	*	-20	20	1.8
5. Recpt 5	*	-10	20	1.8
6. Recpt 6	*	-55	-2	1.8
7. Recpt 7	*	-45	-2	1.8
8. Recpt 8	*	-35	-2	1.8
9. Recpt 9	*	-28	-2	1.8
10. Recpt 10	*	-20	-2	1.8
11. Recpt 11	*	-15	-2	1.8
12. Recpt 12	*	-20	40	1.8
13. Recpt 13	*	-15	35	1.8
14. Recpt 14	*	10	40	1.8
15. Recpt 15	*	15	25	1.8
16. Recpt 16	*	-10	20	1.8
17. Recpt 17	*	20	8	1.8
18. Recpt 18	*	20	-1	1.8
19. Recpt 19	*	10	-1	1.8
20. Recpt 20	*	5	-10	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION

JOB: Sheldon-Bradshaw Intersection Improvemen
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B
1. Recpt 1	119.	2.0	0.9	1.2
2. Recpt 2	125.	2.0	0.9	1.1
3. Recpt 3	127.	1.8	0.8	1.0
4. Recpt 4	138.	1.7	0.7	1.0
5. Recpt 5	144.	1.5	0.7	0.9
6. Recpt 6	66.	2.0	0.9	1.1
7. Recpt 7	65.	1.9	0.8	1.1
8. Recpt 8	58.	1.8	0.8	1.0
9. Recpt 9	56.	1.7	0.8	0.9
10. Recpt 10	52.	1.5	0.7	0.8
11. Recpt 11	50.	1.5	0.7	0.8
12. Recpt 12	145.	2.0	0.9	1.1
13. Recpt 13	147.	1.9	0.9	1.0
14. Recpt 14	215.	2.0	0.9	1.1
15. Recpt 15	222.	1.8	0.7	1.1
16. Recpt 16	144.	1.5	0.7	0.9
17. Recpt 17	235.	1.7	0.7	1.0
18. Recpt 18	306.	1.7	0.7	1.0
19. Recpt 19	310.	1.5	0.7	0.8
20. Recpt 20	321.	1.5	0.7	0.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Sheldon-Bradshaw Intersection 2017
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	18.3 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	300. M	AMB=	0.0 PPM		
SIGTH=	5. DEGREES	TEMP=	8.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. Sheldon Rd	*	-50	5	50	5	* AG	1316	11.7	0.0	86.0
B. Bradshaw	*	-5	50	-5	-50	* AG	1629	11.7	0.0	86.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. Recpt 1	*	-50	20	1.8
2. Recpt 2	*	-40	20	1.8
3. Recpt 3	*	-30	20	1.8
4. Recpt 4	*	-20	20	1.8
5. Recpt 5	*	-10	20	1.8
6. Recpt 6	*	-55	-2	1.8
7. Recpt 7	*	-45	-2	1.8
8. Recpt 8	*	-35	-2	1.8
9. Recpt 9	*	-28	-2	1.8
10. Recpt 10	*	-20	-2	1.8
11. Recpt 11	*	-15	-2	1.8
12. Recpt 12	*	-20	40	1.8
13. Recpt 13	*	-15	35	1.8
14. Recpt 14	*	10	40	1.8
15. Recpt 15	*	15	25	1.8
16. Recpt 16	*	-10	20	1.8
17. Recpt 17	*	20	8	1.8
18. Recpt 18	*	20	-1	1.8
19. Recpt 19	*	10	-1	1.8
20. Recpt 20	*	5	-10	1.8

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Sheldon-Bradshaw Intersection 2017
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B
1. Recpt 1	119.	1.9	0.8	1.1
2. Recpt 2	125.	1.8	0.8	1.0
3. Recpt 3	127.	1.7	0.8	0.9
4. Recpt 4	138.	1.5	0.6	0.9
5. Recpt 5	144.	1.4	0.6	0.8
6. Recpt 6	66.	1.8	0.8	1.0
7. Recpt 7	65.	1.8	0.8	1.0
8. Recpt 8	58.	1.7	0.7	0.9
9. Recpt 9	56.	1.6	0.7	0.9
10. Recpt 10	52.	1.4	0.7	0.8
11. Recpt 11	50.	1.3	0.6	0.7
12. Recpt 12	145.	1.8	0.8	1.0
13. Recpt 13	147.	1.7	0.8	0.9
14. Recpt 14	215.	1.8	0.8	1.0
15. Recpt 15	222.	1.7	0.7	1.0
16. Recpt 16	144.	1.4	0.6	0.8
17. Recpt 17	235.	1.5	0.6	0.9
18. Recpt 18	306.	1.5	0.6	0.9
19. Recpt 19	310.	1.4	0.6	0.8
20. Recpt 20	321.	1.4	0.6	0.7

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Sheldon-Bradshaw Intersection 2037
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	18.3 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	300. M	AMB=	0.0 PPM		
SIGTH=	5. DEGREES	TEMP=	8.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. Sheldon Rd	*	-50	5	50	5	* AG	1989	6.5	0.0	86.0
B. Bradshaw	*	-5	50	-5	-50	* AG	2549	6.5	0.0	86.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. Recpt 1	*	-50	20	1.8
2. Recpt 2	*	-40	20	1.8
3. Recpt 3	*	-30	20	1.8
4. Recpt 4	*	-20	20	1.8
5. Recpt 5	*	-10	20	1.8
6. Recpt 6	*	-55	-2	1.8
7. Recpt 7	*	-45	-2	1.8
8. Recpt 8	*	-35	-2	1.8
9. Recpt 9	*	-28	-2	1.8
10. Recpt 10	*	-20	-2	1.8
11. Recpt 11	*	-15	-2	1.8
12. Recpt 12	*	-20	40	1.8
13. Recpt 13	*	-15	35	1.8
14. Recpt 14	*	10	40	1.8
15. Recpt 15	*	15	25	1.8
16. Recpt 16	*	-10	20	1.8
17. Recpt 17	*	20	8	1.8
18. Recpt 18	*	20	-1	1.8
19. Recpt 19	*	10	-1	1.8
20. Recpt 20	*	5	-10	1.8

♀

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Sheldon-Bradshaw Intersection 2037
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B
1. Recpt 1	119.	1.6	0.7	0.9
2. Recpt 2	125.	1.6	0.7	0.9
3. Recpt 3	127.	1.4	0.6	0.8
4. Recpt 4	138.	1.3	0.5	0.8
5. Recpt 5	144.	1.2	0.5	0.7
6. Recpt 6	66.	1.5	0.7	0.9
7. Recpt 7	65.	1.5	0.6	0.9
8. Recpt 8	58.	1.4	0.6	0.8
9. Recpt 9	56.	1.3	0.6	0.8
10. Recpt 10	52.	1.2	0.6	0.7
11. Recpt 11	50.	1.2	0.5	0.6
12. Recpt 12	145.	1.6	0.7	0.9
13. Recpt 13	147.	1.5	0.7	0.8
14. Recpt 14	215.	1.5	0.7	0.9
15. Recpt 15	222.	1.4	0.6	0.8
16. Recpt 16	144.	1.2	0.5	0.7
17. Recpt 17	235.	1.3	0.5	0.8
18. Recpt 18	306.	1.3	0.5	0.8
19. Recpt 19	310.	1.2	0.5	0.7
20. Recpt 20	321.	1.2	0.5	0.6

♀

APPENDIX F – SACOG METROPOLITAN TRANSPORTATION PLAN PROJECT LIST

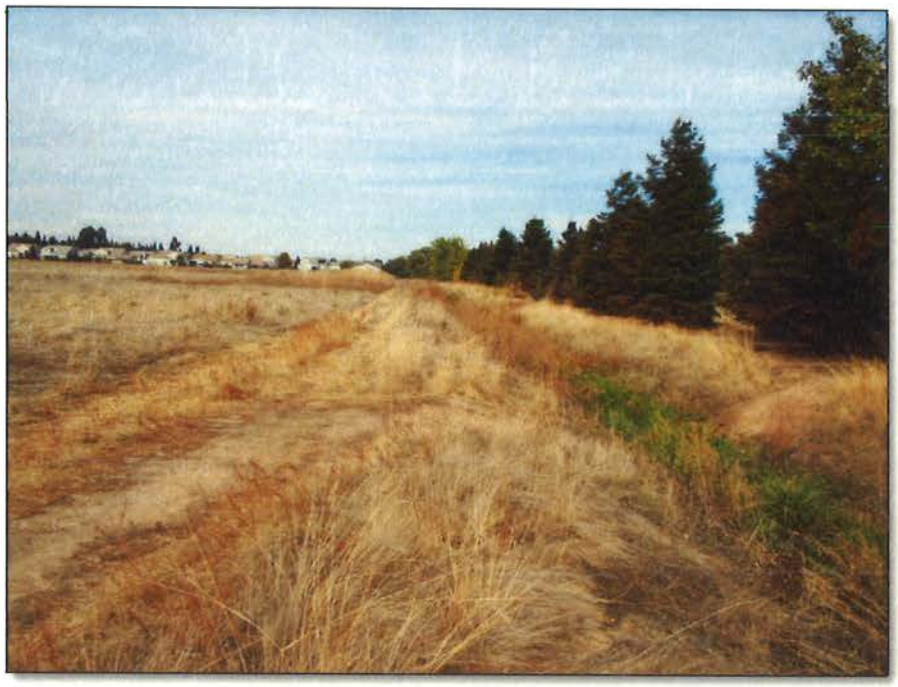
Final Metropolitan Transportation Plan / Sustainable Communities Strategy Project List

/1/ Project Analysis projects are anticipated to begin early stages of development including project design, preliminary engineering, environmental clearance, and ROW acquisition by 2035. These projects remain eligible to seek federal and state funding, but under the financial constraint requirements for projecting revenues, the construction phase is not covered. If/when additional revenues for these projects become available, these projects will require future amendments to the MTP/SCS to reflect full construction costs.

COUNTY	LEAD AGENCY	TITLE	PROJECT DESCRIPTION	TOTAL COST (2010 DOLLARS)	TOTAL COST (YEAR OF EXPENDITURE DOLLARS)	MTP/SCS Status
Sacramento	City of Citrus Heights	Sunrise Blvd./Sungarden Dr. Safety Improvements	At Sunrise Blvd. and Sungarden Dr.: Install traffic signals and sidewalks. HSIP4-03-003	*MTIP Project: Year of Expenditure Costs Only*	$ 1,113,900	**Project complete by 2020**
Sacramento	City of Citrus Heights	Sunrise Boulevard Complete Streets - Phase 1	In City of Citrus Heights: Sunrise Blvd between Oak Avenue and Antelope Road; complete streets.	*MTIP Project: Year of Expenditure Costs Only*	$ 5,216,000	**Project complete by 2020**
Sacramento	City of Elk Grove Dept of Public Works	Big Horn Blvd Extension	In Elk Grove, between Whitelock Parkway and Kammerer Road: Construct Big Horn Blvd as a new four lane roadway.	$ 643,250	$ 881,636	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bilby Rd.	Construct New Road: from Bruceville Rd. to McMillan (perpendicular to Kammerer).	$ 610,000	$ 836,063	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bond Rd	Center 2 lanes & median; traffic signal from Waterman to Bradshaw	$ 552,300	$ 689,592	**Project complete by 2035**
Sacramento	City of Elk Grove Dept of Public Works	Bond Road Widening	In Elk Grove, between Bradshaw Road and Grant Line Road: Widen from 2 to 4 lanes.	$ 648,170	$ 888,379	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw / Sheldon Intersection & Bridge	In Elk Grove, at the intersection of Bradshaw and Sheldon Roads. Intersection improvements. Replace and widen existing 2 lane bridge spanning East Branch of Laguna Creek with a 4 lane bridge.	*MTIP Project: Year of Expenditure Costs Only*	$ 8,414,000	**Project complete by 2020**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw Rd.	Widen: 4 lanes from Sheldon Rd. to Calvine Rd.	$ 6,200,200	$ 7,741,456	**Project complete by 2035**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw Rd.	Widen: 6 lanes from Grant Line Rd. to Bond Rd.	$ 620,000	$ 849,769	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw Rd.	Widen: 6 lanes from Sheldon Rd. to Calvine Rd.	$ 380,000	$ 520,826	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw Rd.	Widen: 6 lanes from Bond Rd. to Sheldon Rd.	$ 370,000	$ 507,120	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw Road Widening	In Elk Grove, from Grant Line Road to Bond Road, widen from 2 to 4 lanes.	$ 1,043,550	$ 1,430,285	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bradshaw Road Widening	In Elk Grove, between Bond Road and Sheldon Road: Widen from 2 to 4 lanes.	$ 696,120	$ 954,099	**Project Analysis /1/**
Sacramento	City of Elk Grove Dept of Public Works	Bruceville Rd.	Widen: 4 lanes from Sheldon Rd. to Laguna Blvd.	$ 3,770,700	$ 4,708,027	**Project complete by 2020**
Sacramento	City of Elk Grove Dept of Public Works	Bruceville Rd.	Widen: 6 lanes from Whitelock Pkwy. to Bilby Rd.	$ 1,845,900	$ 2,529,982	**Project Analysis /1/**

APPENDIX C: BIOLOGICAL RESOURCES

Sheldon Road/Bradshaw Road
Intersection Improvement Project **BA**



Biological Assessment

Intersection of Sheldon Road and Bradshaw Road
City of Elk Grove, Sacramento County, California
District 3
Federal Project Number: BRLS-5479(012)

January 2015

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

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Biological Assessment

Intersection of Sheldon Road and Bradshaw Road
City of Elk Grove, Sacramento County, California
District 3
Federal Project Number: BRLS-5479(012)

January 2015

STATE OF CALIFORNIA
Department of Transportation
City of Elk Grove

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Summary of Findings, Conclusions and Determinations

The City of Elk Grove (City) is proposing to improve the Sheldon Road/Bradshaw Road intersection. Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration (Alternative A) for the intersection, and the second build alternative (Alternative B) includes a signalized intersection. Alternative A is the preferred alternative; therefore, for the purposes of this assessment, impacts resulting from this configuration are discussed herein. The proposed improvements include reconstructing the bridge and intersection to current standards, and the addition of pedestrian and bicycle facilities.

This document identifies and quantifies resources that may be affected by project implementation. Various studies were undertaken to identify and map biological resources in the project vicinity. The following impacts on biological resources may result from the proposed project.

Federally Listed Species Impacts and Mitigation

Giant Garter Snake (*Thamnophis gigas*)

The preferred alternative (Alternative A) will result in 0.06 acre of permanent impact and 0.3 acre of temporary impact to Laguna Creek East. The project, however, ***is not likely to adversely affect*** giant garter snake. Laguna Creek East does not currently contain all essential habitat components for this species, as it lacks adequate water levels during the snake's active season. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** through **BIO-12** identified in Section 1.3.4.1.

No critical habitat has been designated in the action area for this species; therefore, no impact to critical habitat is expected.

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List of Abbreviated Terms

APE	area of potential effect
BA	biological assessment
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
FHWA	Federal Highway Administration
LOS	level of service
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
RCB	reinforced concrete box
SWPPP	stormwater pollution prevention plan
TCZ	temporary construction zone
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WoUS	waters of the U.S.

Chapter 1. Introduction

The purpose of this biological assessment (BA) is to provide technical information and to review the proposed project in sufficient detail to determine to what extent the project may affect federally threatened, endangered, or proposed species. The BA is prepared in accordance with legal requirements found in Section 7(a)(2) of the Endangered Species Act (16 U.S. Code 1536(c)) and with Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans) regulation, policy, and guidance. The document presents technical information upon which later decisions regarding project impacts are developed.

1.1. Consultation History

No consultation with the U.S. Fish and Wildlife Service (USFWS) has occurred to date for the current proposed project.

1.2. Project Purpose and Need

1.2.1. Purpose

The purpose of the proposed project is to:

- Improve Hydraulic Capacity and Reduce Flooding. Improve hydraulic capacity of the East Branch Laguna Creek Bridge and reduce flooding in the surrounding area by replacing the functionally obsolete bridge with a new structure with adequate hydraulic capacity and realigning the east branch of Laguna Creek (Laguna Creek East) north and south of the Sheldon Road/Bradshaw Road intersection.

- Relieve Congestion and Improve Traffic Flow. Relieve traffic congestion and reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.

- Pedestrian Safety. Provide pedestrian access within the proposed project area.

- Help Achieve the Transportation Goals of Local Planning Documents. Support the City of Elk Grove (City) General Plan by accommodating future widening of Sheldon Road and Bradshaw Road to the planned

number of traffic lanes and improving the Sheldon Road/Bradshaw Road intersection to meet the City's roadway and intersection service standards.

1.2.2. Need

Improve Hydraulic Capacity and Reduce Flooding

The Structure and Maintenance Investigations report, prepared by Caltrans in September 2013, indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection according to FHWA criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Sheldon Road/Bradshaw Road intersection was given a sufficiency rating of 65.3 percent on a scale of zero percent to 100 percent, where 100 percent represents an entirely sufficient bridge and zero percent represents an entirely deficient bridge. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, may result in flooding in the surrounding area and damage to overlying roadways in the event of a flood.

Relieve Congestion and Improve Traffic Flow

Growth in the City and surrounding developing areas creates the need for operational improvements to improve circulation in the area. The Sheldon Road/Bradshaw Road intersection is currently operating at level of service (LOS) F under both AM and PM peak hour traffic conditions. The increasing population of the City and surrounding area will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign-controlled intersection configuration and number of traffic lanes on Sheldon Road and Bradshaw Road, thereby further increasing the need for traffic relief at the intersection.

Pedestrian Safety

No pedestrian facilities exist within the project area. Currently, Sheldon Road and Bradshaw Road in the project area do not provide safe pedestrian access as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access in the City as put forth in the goals of the Bicycle, Pedestrian and Trails Master Plan.

Help Achieve the Transportation Goals of Local Planning Documents

Figure C1-2 in the Circulation Element of the City's General Plan shows Bradshaw Road with an ultimate planned width as a six-lane arterial and Sheldon Road with an ultimate planned width as a four-lane arterial west of Bradshaw Road and as a two-lane road with expanded right-of-way east of Bradshaw Road. The General Plan circulation policies for roadways indicate a minimum standard of LOS D at all times for all roadways and intersections in the City of Elk Grove. According to the Traffic Operations Analysis Report prepared by Fehr & Peers for the proposed project, under existing conditions, the Sheldon Road/Bradshaw Road intersection as an all-way stop sign-controlled intersection operates at LOS F during both AM and PM peak hour traffic. This level of service is unacceptable to achieving the transportation goals in the City's General Plan.

1.3. Description of the Proposed Action

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw Road is a north/south two-lane rural road. Sheldon Road is 25 feet wide and Bradshaw Road is 32 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The Laguna Creek East crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek East runs parallel along the east side of Bradshaw Road, north of the intersection, and along the west side of Bradshaw Road south of the intersection. As part of the City's General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

Laguna Creek East 100-year flows currently overtop the existing bridge at the Sheldon Road/Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes 20 years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes each direction southbound and northbound (four lanes total) on Bradshaw entering and exiting the intersection, and one lane each direction eastbound and westbound (two lanes total) on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area. The lane configuration in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the project. In accordance with the City's General Plan and Bicycle, Pedestrian and Trails Master Plan, the proposed project will add pedestrian and bicycle facilities along Sheldon and Bradshaw Roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration (Alternative A) for the intersection and the second build alternative (Alternative B) includes a signalized intersection. Alternative A is the preferred alternative for the purposes of this BA. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed project will relocate the existing Laguna Creek East tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows.

Additional right-of-way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the

relocated Laguna Creek East tributary channel. Relocation of existing utilities may require additional easements rights. Traffic control during project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. Additional partial road closures or staging will be required for roadway construction. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

1.3.1. Project Location

The proposed project is located in the City of Elk Grove, Sacramento County, California (**Figures 1** and **2**). More specifically the project is located at the intersection of Sheldon Road and Bradshaw Road in Sections 20, 21, 28, and 29; Township 7 North; and Range 6 East. Land uses within the action area are designated as Rural Residential according to the City's General Plan Land Use Policy Map.

1.3.2. Construction Schedule

The proposed Sheldon Road/Bradshaw Road intersection improvements will replace the existing bridge structure to accommodate the additional intersection width for a roundabout style of traffic control. New reinforced concrete box culverts (RCB) will be the replacement structure for the existing bridge. The RCB opening will be sized to pass stream flows from anticipated design flood events, which will require that the roadway profile be raised about 2 feet.

Typical construction equipment will include bull-dozers, self-propelled demolition equipment, motor graders, cranes, wheeled compactors (for paving and earthwork), backhoes, asphalt pavers, concrete extrusion equipment, miscellaneous tractors with various attachments, dump trucks (delivery and removal of materials), delivery trucks (highway), concrete transit mixers, pickups and flatbed trucks, miscellaneous equipment such as air compressors, concrete saws, etc. The contractor will set up a temporary yard for equipment and material storage which will likely be fenced. Major equipment items are usually delivered and used at the site for a specific purpose and when that function is done, they are removed. For example, a crane will be delivered and set up for placement of the RCBs (if pre-cast) or placement of RCB form materials (cast in place). Some equipment may reside at the site for the duration of the project.

The bridge replacement and new RCB construction will require temporary dewatering of the Laguna Creek East within the limits of the project. Vehicular traffic will be

temporarily detoured around the work zones to allow for construction of the improvements in two phases. An alternate approach for vehicular detour is to completely close the intersection for several months (during the summer) to allow for expeditious construction of the new RCBs.

The first order of physical work will be implementation of the Stormwater Pollution Prevention Plan (SWPPP) to be developed for the project. The SWPPP imposes storm water and pollution prevention requirements on the contractor. The SWPPP will be based upon State Water Resources Control Board Construction General Permit and also comply with City requirements. The SWPPP will establish good site housekeeping measures that will generally include: erosion control, siltation control, creek diversion, dust control, preventing off-tracking by vehicles, sweeping/mud cleanup, etc.; pollution control requirements for construction materials, such as concrete, asphalt, paints, etc.; sanitary facilities for workers; equipment maintenance and fueling requirements; and monitoring requirements, record keeping, and adjustments in SWPPP practices. The SWPPP is a public document with required annual reporting. The work area will be ringed with fencing to exclude small mammals and other wildlife from entering the work area.

One of the first items of work will be the installation of a conduit to temporarily reroute the creek and dewater the creek bed in the project area. The conduit will likely be a corrugated metal pipe, a high-density polyethylene pipe, or a hose and pump system. The diversion conduit will be sized to adequately convey anticipated flows, as calculated based on historical flows recorded for the east branch of Laguna Creek in this area. It is anticipated that the creek diversion will temporarily divert flows through the northwest quadrant of the intersection, to allow for realignment of the creek channel and bridge removal and RCB construction. A temporary impoundment will be constructed upstream of the realigned channel to allow for damming and collection of flows and diversion into the temporary diversion system.

Once the creek channel is dewatered, the proposed channel relocation will be excavated, with the excess materials generated being used as embankment in construction of the widened intersection. Depending on suitability of the excavated materials and grading balance calculations, additional import materials may be required for embankment fill along the existing roadways. Temporary roadways will be constructed within the existing right of way adjacent to the existing pavement surface to allow for temporary bypass of traffic through the work zone. Portions of the

new RCB culvert may be constructed in advance of the bridge demolition to provide for a temporary roadway bypass of the work area.

The existing structure foundation elements are anticipated to be spread footings, limiting the depth of the excavation to 3–5 feet below the invert of the channel. The existing channel along the new RCB alignment will be concurrently excavated. Upon completion of the bridge removal, construction of the new RCB culvert structure will begin. The creek channel will be excavated 2–3 feet below its current level to accommodate aggregate base foundation materials and RCB wall thickness. The inside invert of the RCB will be placed near the same elevation as the existing channel. Reinforced concrete headwalls will be constructed at either end of the RCB. Riprap slope protection will be placed for about 10–20 feet within the creek channel adjacent to the headwalls to provide erosion protection.

The finished pavement surface of the road crossing over the RCBs will be about 2 feet higher than the existing roadway to prevent overtopping of the roadway by the 100-year storm flows. After completion of the new RCBs, the creek diversion devices will be removed and existing flows will be returned to the realigned creek channel. Next, the creek and surrounding wetlands will be restored using a combination of seeding with native and non-native grasses to provide slope and water quality protection during storm events. Appropriate native plants and wetland plant plugs, as identified by a wetland restoration specialist, will also be planted to speed wetland habitat recovery. The restoration work will be completed prior to the onset of the rainy season (usually by October 15) in order to allow for germination and growth in sync with the natural weather cycle.

Work on the roadway will continue once the new RCBs are in place. This work includes final grading, road base construction, paving, concrete forming and placement, traffic signal and electrical work, street lighting, traffic signs, pedestrian paths, traffic striping, and other related work necessary to produce a complete project.

Total project construction duration will be 10 to 15 months depending on traffic detour/staging of construction and method of new RCB construction (pre-cast or cast-in-place). Pre-cast RCBs construction requires about two months per segment (about half the total RCB length) whereas cast-in-place RCBs construction requires about three months per segment. The pre-cast RCBs are more expensive and use of this method will be balanced against budget constraints. The shortest duration combination is use of pre-cast RCBs and complete closure of the intersection for the entire RCB

construction period. The longest combination duration is use of cast-in-place RCB construction with two temporary bypass/detours to allow traffic through the work limits and direct it around the active work zone.

1.3.3. Operations and Maintenance

It is anticipated that minor repair/maintenance work will likely start several years after completion of construction and/or after any major storm event.

1.3.4. Proposed Avoidance, Minimization, and Conservation Measures

1.3.4.1. Avoidance and Minimization Measures

BIO-1: The applicant is proposing to work outside of the snake's active season and anticipates that work will be completed in 10 to 15 month. Construction and ground disturbing activities will be initiated during the active season and will be commenced prior to September 15th.

BIO-2: Twenty-four-hours prior to the commencement of construction activities, the project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the USFWS with a written report that adequately documents the monitoring efforts within 24-hours of commencement of construction activities. The project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.

BIO-3: A Worker Environmental Awareness Training Program for construction personnel shall be conducted by a qualified biologist for all construction workers, including contractors, prior to the commencement of construction activities.

BIO-4: During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.

BIO-5: A qualified biologist will inspect and monitor all construction-related activities within the project area to attempt to minimize take of the snake or the destruction of its habitat. If snakes are encountered during construction activities, the biologist will notify the USFWS immediately to determine the appropriate procedures related to the collection and relocation of the snake. A report will be submitted, including date(s), location(s), habitat

description, and any corrective measures taken to protect the snake, within one (1) business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone at 916-414-6600 and by electronic mail or written letter addressed to the Chief, Sacramento Valley Division, within one (1) working day of the incident.

BIO-6: Project-related vehicles will observe a 20-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.

BIO-7: Aquatic habitat for the snake will be dewatered, and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the USFWS will be contacted to determine what additional measures may be necessary to minimize effects to the snake.

BIO-8: Prior to October 1st and after aquatic habitat has been dewatered, high visibility fencing will be erected around the habitats of the snake to identify and protect these areas from encroachment of personnel and equipment. These areas will be avoided by all construction personnel. The fencing shall be inspected by the Contractor before the start of each work day and maintained by the Contractor until completion of the project. Fencing will be established in the uplands immediately adjacent to aquatic snake habitat and extending up to 200 feet from construction activities. Snake exclusionary fencing will be buried at least six inches below the ground to prevent snakes from attempting to burrow or move under the fence.

BIO-9: Best Management Practices (BMPs) will be implemented to minimize the potential for erosion and sedimentation into nearby waterbodies.

BIO-10: After completion of construction activities, temporary fill and construction debris will be removed and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with a seed mix similar to pre-project conditions.

BIO-11: Tightly woven erosion control matting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the project site to ensure that snakes are not trapped or become entangled by

the erosion control material. The edge of the material shall be buried in the ground to prevent giant garter snakes from crawling underneath the material. The City or contractor will prohibit the use of plastic, monofilament, jute, or similar erosion control netting with mesh sizes larger than 0.25 inch that could entangle snakes at the project site.

BIO-12: A photo documentation report showing pre- and post-project area conditions will be submitted to the USFWS one (1) month after the implementation of the restoration.

1.3.4.2. CONSERVATION MEASURES

Due to a lack of suitable habitat within the action area, no project-related impacts to giant garter snake are anticipated; therefore, no conservation measures are proposed..

1.3.5. Interrelated and Interdependent Actions

Section 7 of the Endangered Species Act requires a federal agency to examine the effects of a proposed federal action on federally listed species including direct, indirect, and other effects from activities that are interrelated and interdependent with the action. Interrelated actions are defined as those that are part of a larger action and depend upon the proposed action for their justification. Interdependent actions are defined as those that would not occur but for the proposed action.

The proposed action/project is not interrelated or interdependent on any other actions; therefore, no further analysis of interrelated or interdependent effects is provided.

1.3.6. Action Area

The action area for this project was defined using the area of potential effect (APE) (**Figure 3**). This boundary was chosen due to the potential for giant garter snakes to be present in proximity to the project footprint. This boundary includes all areas that could be impacted by the project, plus a buffer to accommodate any changes to project limits and project design that may occur during project development. **Figure 4** depicts the action area limits along with the project impact area (footprint and TCZ).

1.4. Document Preparation History

The initial draft of this document was prepared by PMC senior biologist Summer Pardo and reviewed by City of Elk Grove senior project manager Michael Karoly for technical content.

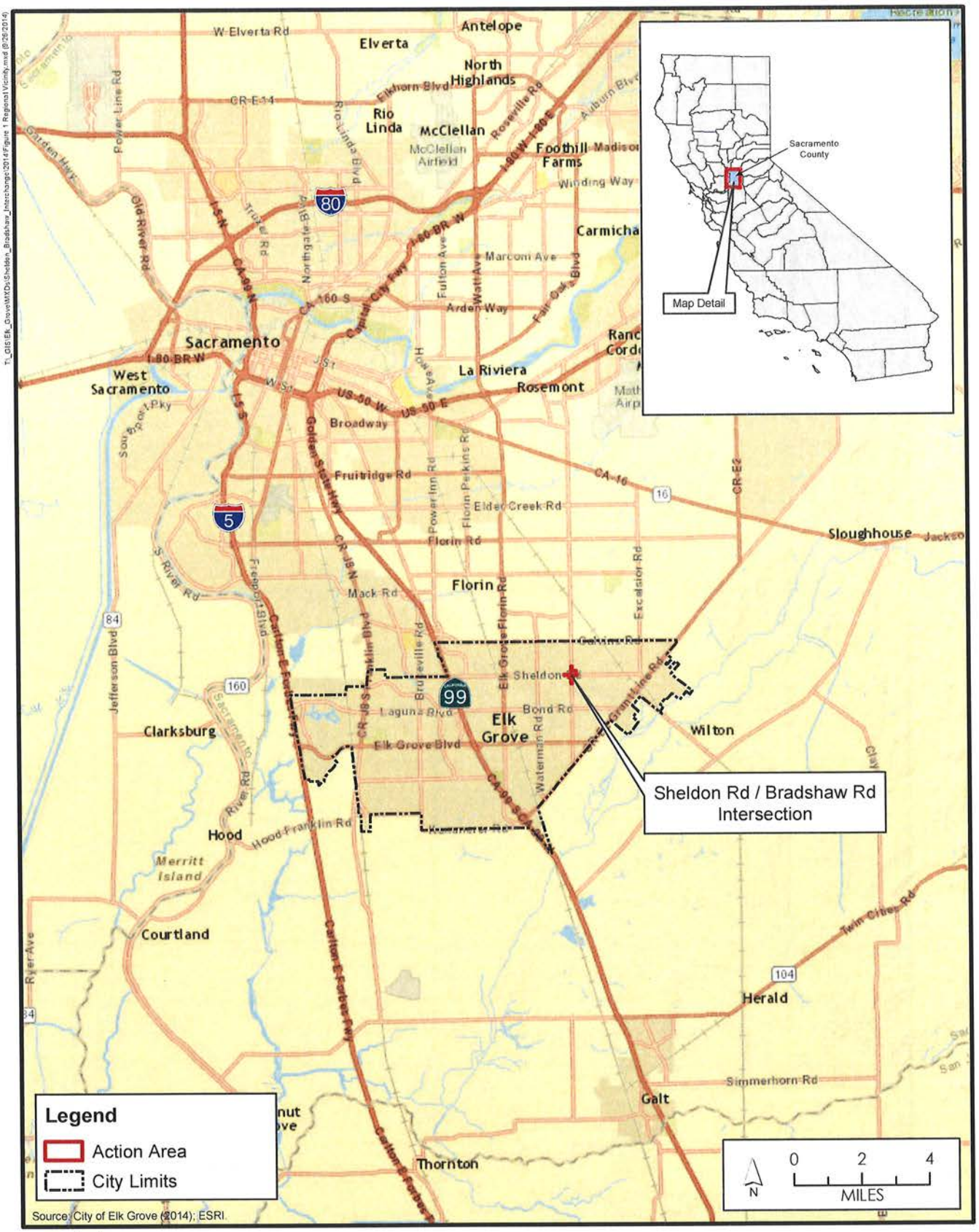

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Figure 1

Regional Vicinity Map

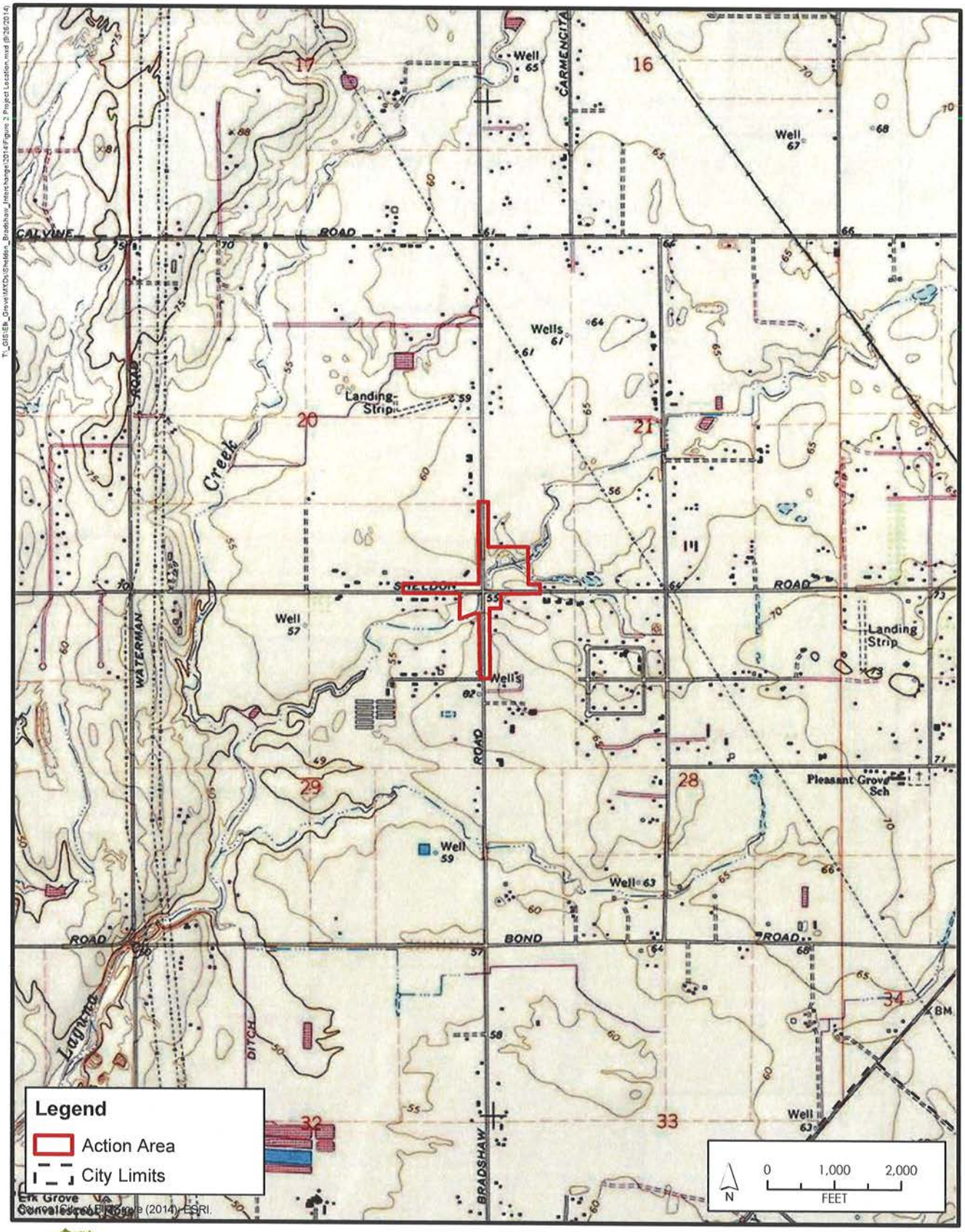

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Figure 2

Project Location Map

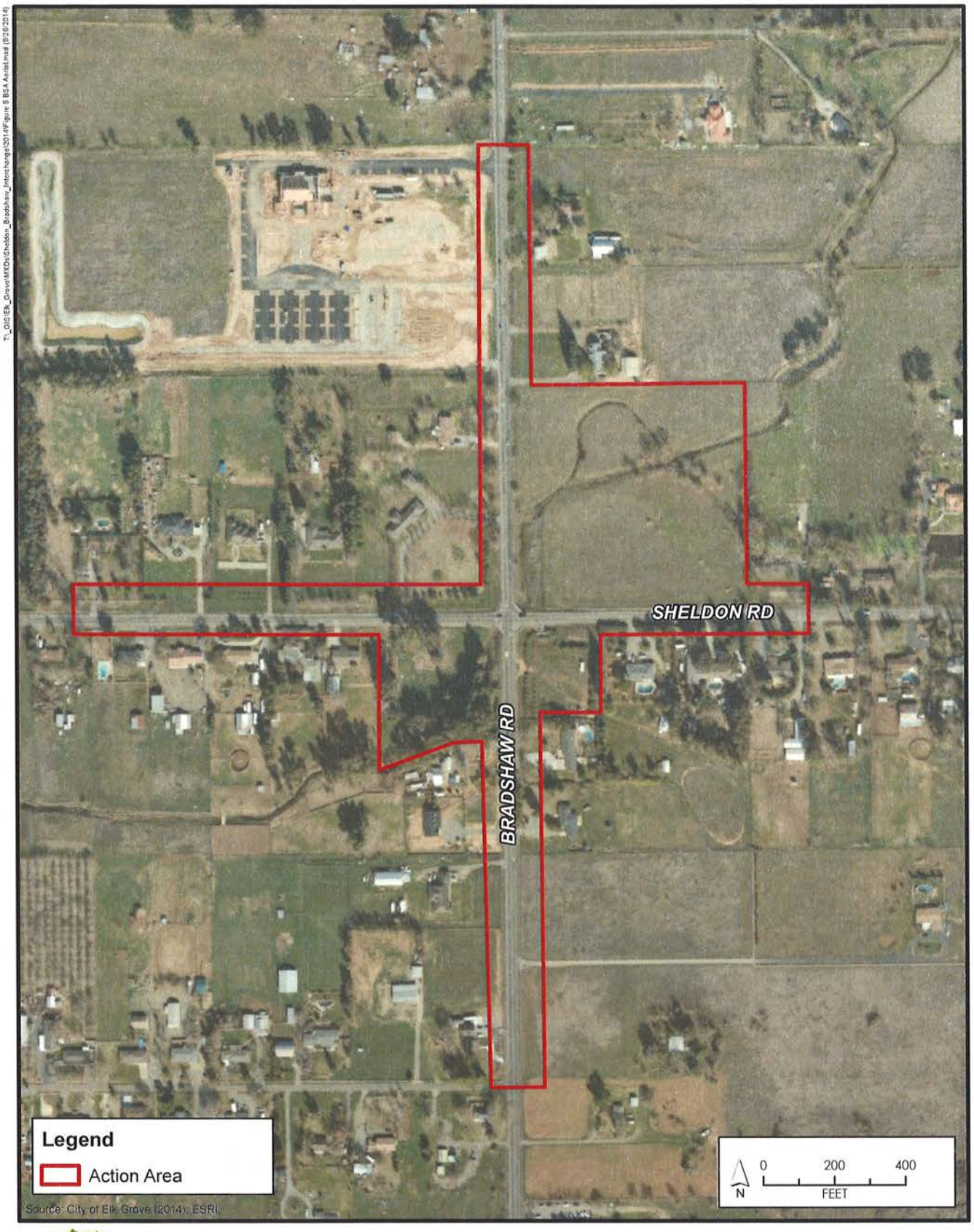

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Figure 3

Action Area

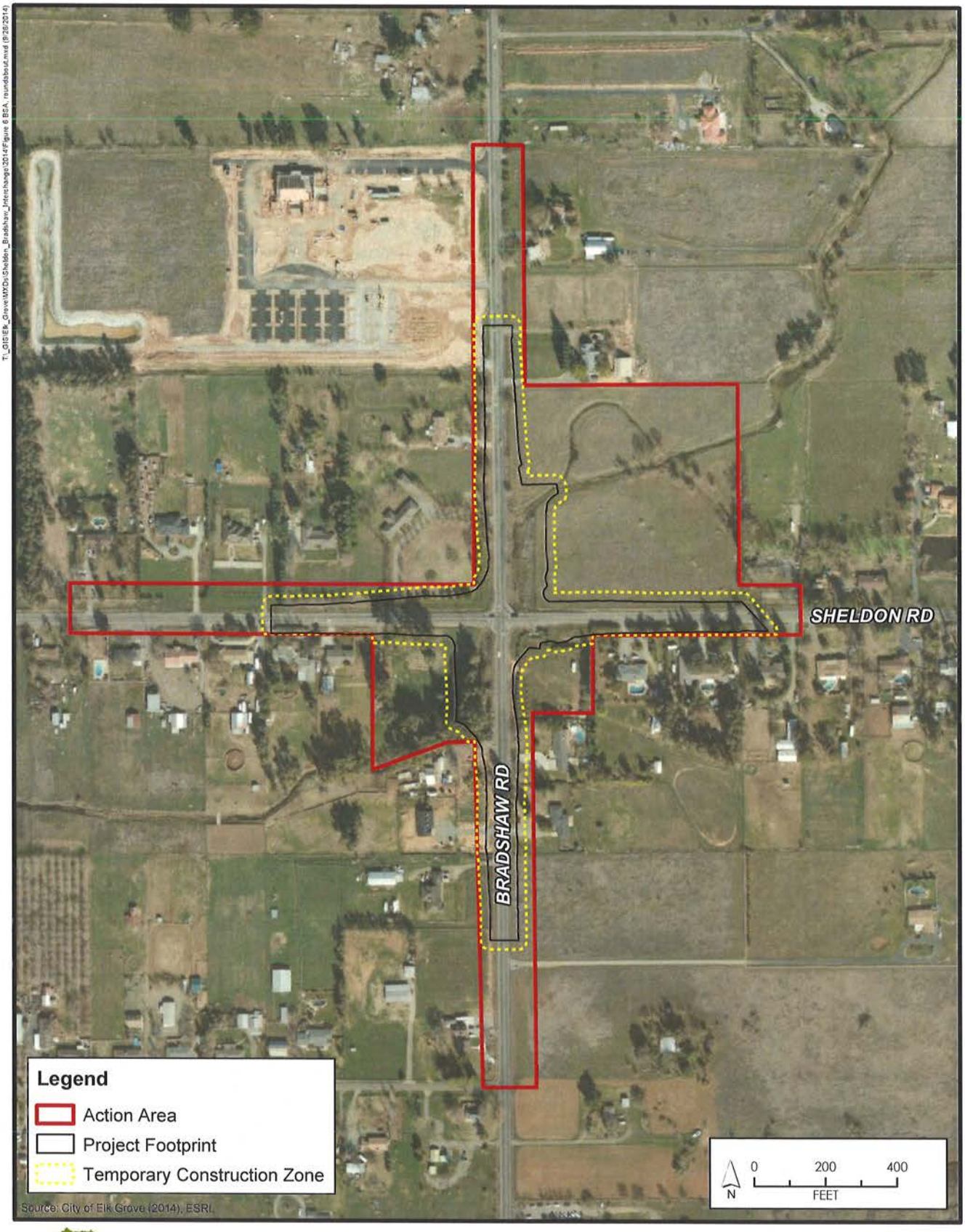

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Figure 4
Action Area and Project Impact Map

Chapter 2. Study Methods

This chapter summarizes the technical studies performed to date.

2.1. Studies Required

Biologists reviewed the project description and conceptual design plans, performed literature reviews and database searches, and conducted reconnaissance-level biological surveys to obtain information regarding habitat quality and the potential presence of federally listed plant and wildlife species within the action area.

2.1.1. Literature Review

A list of federally listed species and critical habitats that have the potential to occur within the action area or project vicinity was prepared using information obtained from the USFWS (2014a) Sacramento office's Species Lists, the USFWS (2014b) Critical Habitat Portal, the California Department of Fish and Wildlife (CDFW) (2014a) California Natural Diversity Database (CNDDB), and the California Native Plant Society (CNPS) (2014) Inventory of Rare and Endangered Plants of California.

A search of the USFWS Sacramento office's Species Lists database was performed for the Sloughhouse, Clay, Elk Grove, Florin, Bruceville, Galt, Buffalo Creek, Sacramento East, and Carmichael, California, U.S. Geological Survey (USGS) 7.5-minute quadrangles (quads) to identify federally listed species under USFWS jurisdiction that may be affected by the proposed project. In addition, a query of the USFWS's Critical Habitat Portal was conducted to identify any designated critical habitat on or in the vicinity of the action area. The CNDDB provided a list of processed and unprocessed occurrences of federally listed species identified in the aforementioned USGS quads. The CNPS database was also queried to identify federally listed plant species with the potential to occur in the aforementioned USGS quads. Please see **Appendix A** for the raw data returned from the database queries.

2.1.2. Habitat Assessment

Reconnaissance-level surveys were conducted to assess the biological resources that may be impacted as part of the proposed project, map vegetative communities on and adjacent to the action area, and evaluate the potential suitability of those communities for special-status species returned in the literature review. A habitat layer was created for areas in the action area using the geographic information system ArcView program based on aerial photo-interpretation and data collected during reconnaissance-level

surveys. Habitat classifications were assigned using A Guide to Wildlife Habitats of California (CDFW 2014b).

2.1.3. Wetland Delineation

An approved wetland delineation was obtained from the USACE on April 19, 2007; however, project delays resulted in the expiration of the delineation in 2012. On June 20, 2013, PMC biologists reviewed the project site to verify if the data collected and presented in the original delineation was still consistent with current site conditions. The site review revealed that the original delineation was still consistent with current site conditions, and a request to reverify the delineation was submitted to the USACE. On October 9, 2013, the USACE issued a preliminary jurisdictional determination concurring with the amount and location of wetlands and other water bodies in the project area. A copy of the approved delineation map and verification letter from the USACE is provided in **Appendix B**.

2.1.4. Impact Assessment

The impact assessment is based on information provided in the project description, environmental setting, and conceptual plans; federal, state, and local regulatory requirements regarding impacts to biological resources; and data collected from the literature review, habitat assessment, and wetland delineation. When information about the presence of a particular federally listed species is unknown, but suitable habitat is present, the impact analysis takes a conservative approach and presence is inferred. This impact assessment considers permanent and temporary impacts in addition to cumulative and indirect impacts of each federally listed species being analyzed. Impacts to each species are identified and appropriate avoidance, minimization, and conservation measures are discussed further in Chapter 4.

2.2. Personnel and Survey Dates

PMC biologists Brandon Amrhein, Jeannette Owen, and Rochelle Wicky-Amrhein surveyed the project area on January 17, 19, 31, 2006, and February 3, 2006. An additional plant survey was conducted on June 12, 2006. Initial visits were conducted to characterize the action area and identify areas of potential biological concern. Subsequent visits were conducted for directed surveys, habitat assessments, and tree surveys.

PMC biologists Summer Pardo (PWS #2188) and Leslie Parker conducted site surveys to reverify the original delineation and update the tree survey on January 31 and February 3, 2014.

2.3. Agency Coordination and Professional Contacts

The following is a summary of all documented agency coordination involving natural resources for the project study area to date.

- September 22, 2005: Preliminary design consultation meeting with USACE. Contact: Paul Maniccia.
- June 9, 2006: Follow-up design consultation meeting with USACE. Contact: Paul Maniccia.
- June 13, 2006: Wetland delineation submitted to USACE for verification. Contact: Paul Maniccia.
- December 24, 2006: Revised wetland delineation submitted to USACE for verification, addressing comments made by Paul Maniccia during initial November 20, 2006, field verification visit.
- April 19, 2007: USACE revised wetland delineation verification letter sent to City of Elk Grove.
- September 4, 2013: Request for reverification of delineation verified in 2007 sent to USACE. Contact: Paul Maniccia.
- October 9, 2013: USACE issued preliminary jurisdictional determination letter to the City of Elk Grove.
- April 11, 2014: Site review with Lisa Gibson of USACE, Maureen Doyle of Caltrans, and PMC biologists Summer Pardo and Leslie Parker to discuss impacts to federally listed species.

2.4. Limitations That May Influence Results

No limitations to the assessment efforts or information collected to date have been identified. Standard protocols were used for biological surveys that were conducted; surveys were conducted during appropriate seasons and under appropriate weather conditions. The presence of potentially occurring federally listed species is inferred in suitable habitat within and adjacent to the action area until protocol-level and/or preconstruction surveys are completed, as necessary.

Chapter 3. Environmental Baseline

This chapter describes the region in which the project will occur, including a concise description of the area's topography, soils, vegetation, aquatic resources, and level of human or natural disturbance.

3.1. Description of Existing Biological and Physical Conditions

The following descriptions of the existing biological and physical conditions are described in relation to the action area boundaries. The action area was used as the limit for biological studies conducted in support of the project and will be used when determining potential impacts to federally listed species as described in Chapter 4.

3.1.1. Physical Conditions

3.1.1.1. TOPOGRAPHY

The action area is located in the Sacramento Valley, which is primarily flat land with no hills or valleys. The only significant topographical feature within the action area is the Laguna Creek East. There are also various roadside ditches paralleling the roads that vary in depth in the action area. These features are discussed in more detail below.

3.1.1.2. HYDROLOGY

Hydrologic features in the action area include the aforementioned roadside ditches and Laguna Creek East. The roadside ditches convey stormwater runoff from Sheldon and Bradshaw Roads into Laguna Creek East. The reaches of Laguna Creek East that are upstream of the action area are fed by drainages east and northeast of the city limits. Downstream of the action area, Laguna Creek East converges with the main stem of Laguna Creek. During the winter season, this feature conveys storm flows south and west to Laguna Creek; however, during the summer months flows are greatly diminished or reduced to nothing. Intermittent water flow through this feature in the summer is provided primarily by urban and agricultural irrigation runoff.

3.1.1.3. SOILS

The Natural Resources Conservation Service (NRCS) Web Soil Survey was consulted to define the on-site soil characteristics (USDA 2014). Four soil map units occur in the action area (**Figure 5**): **San Joaquin silt loam,** 0 to 1 percent slopes (map unit symbol **213**); **San Joaquin silt loam**, 0 to 3 percent slopes (**214**); **San Joaquin silt loam,** 3 to 8 percent slopes (**215**); and **San Joaquin-Durixeralfs complex**, 0 to 1 percent slopes (**216**). The soil series in which these soil units are found are discussed below.

- **San Joaquin silt loam (213, 214, 215)** series consists of moderately deep, moderately well-drained soils on low terraces. All three soil map units (213, 214, and 215) are on the Hydric Soils List for Sacramento County, California (USDA 2012). Permeability is very slow and available water capacity is low. The shrink-swell potential is high. Runoff is very slow to medium, increasing as the slope increases. Water erosion is a slight hazard or not a hazard at all to moderate depending again on the slope.

- **San Joaquin-Durixeralfs complex (216)** is on low terraces. This unit is approximately 55 percent San Joaquin soil and 35 percent Durixeralfs. San Joaquin soil is in areas that have been left relatively undisturbed when leveled. The Durixeralfs are in cut areas from which most or the entire original surface layer has been removed. San Joaquin soil is moderately deep and well drained. Permeability is very slow in the San Joaquin soil complex and available water capacity is low. Runoff is very slow. Water erosion is a slight hazard or not a hazard at all. The Durixeralfs are shallow or moderately deep, well drained, and altered. Permeability is slow or very slow and available water capacity is very low or low. Runoff is very slow. Water erosion hazard is slight or not a hazard at all. This soil is on hydric Soils List for Sacramento County, California (USDA 2012).

3.1.2. Vegetative Communities

Vegetative communities are assemblages of plant species that occur in the same area and are defined by species composition and relative abundance. The action area consists of urban land uses, annual grassland, seasonal wetland, and intermittent creek (**Figure 6**). Each community is described below and is based on descriptions obtained from the CDFW's A Guide to Wildlife Habitats of California (2014b).

3.1.2.1. URBAN

Urban habitat is characterized by the presence of both native and exotic species maintained in a relatively static composition within a downtown, residential, or suburban setting. Species richness in these areas depends greatly on community design (i.e., open space considerations) and proximity to the natural environment.

The California Wildlife Habitat Relationships system classifies urban habitat into five different vegetation types: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves refer to conditions typically found in city parks, greenbelts, and cemeteries. These areas vary in tree height, spacing, crown shape, and understory

conditions; however, they have a continuous canopy. Street strip vegetation, located roadside, varies with species type but typically includes a ground cover of grass. Shade trees and lawns refer to characteristic residential landscape, which is reminiscent of natural savannas. Lawns are composed of a variety of grasses, maintained at a uniform height with continuous ground cover through irrigation and fertilization. Shrub cover refers to areas commonly landscaped and maintained with hedges, as typically found in commercial districts. All five types of urban habitat are generally found in combination, creating considerable edge effect, which can be more valuable to wildlife than any one individual unit. All five types of urban habitat are present in the action area and include all the urban development and associated infrastructure, as well as all landscaped areas.

3.1.2.2. ANNUAL GRASSLAND

Annual grassland within the action area is a mixture of non-native and native species. The dominant grasses are bromes (i.e., *Bromus mollis, B. catharticus,* and *B. tectorum*), rye (*Lolium multiflorum*), and wild oat (*Avena fatua*). Common forbs include clover (*Medicago sp.*), filaree (*Erodium spp.*), wild radish (*Raphanus sativus*), mustards (i.e. *Brassica nigra*), winter vetch (*Vicia villosa*), field bindweed (*Convolvulus arvensis*), and milk thistle (*Silybum marianum*). Annual grasslands may also support seasonally wet wetlands (as described below).

3.1.2.3. SEASONAL WETLAND

The USACE defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987). Wetlands generally include swamps, marshes, bogs, and seasonally saturated or inundated areas such as vernal pools; as a result, plant species found within seasonal wetlands are adapted to withstand short periods of inundation. One seasonal wetland occurs within the action area and is characterized by vegetation such as perennial ryegrass (*Lolium sp.*), nutsedge (*Cyperus eragrostis*), and curly dock (*Rumex crispus*).

3.1.2.4. INTERMITTENT CREEK (LAGUNA CREEK EAST)

Laguna Creek East is an intermittent creek that runs through the action area. This creek is a low-gradient channel, low-velocity creek that supports species such as arroyo willow (*Salix lasiolepis.*), cattails (*Typha latifolia*), spike rush (*Eleocharis macrostachya*), sheep sorrel (*Rumex acetosella*), curly dock, fiddle dock (*Rumex*

pulcher L.), tule/bulrush (*Scirpus* sp.), nutsedge, yellow waterprimrose (*Ludwigia peploides*), and duckweed (*Lemna minuscula*).

3.1.3. Habitat Connectivity

The CDFW Biogeographic Information & Observation System (2014c) was reviewed to determine if the action area is located within an Essential Connectivity Area. The action area does not occur within an Essential Connectivity Area; therefore, the project is not likely to adversely affect migratory corridors.

3.2. Listed and Proposed Species Potentially in the Biological Study Area

The results of the database queries identified several federally listed species and critical habitats with the potential to be impacted by the proposed project. **Figure 7** depicts CNDDB occurrence data for federally listed species within 5 miles of the action area. **Table 1** provides a summary of all federally listed species identified in the search results, a description of the habitat requirements for each species, and conclusions regarding the potential for each species to be impacted by the proposed project.

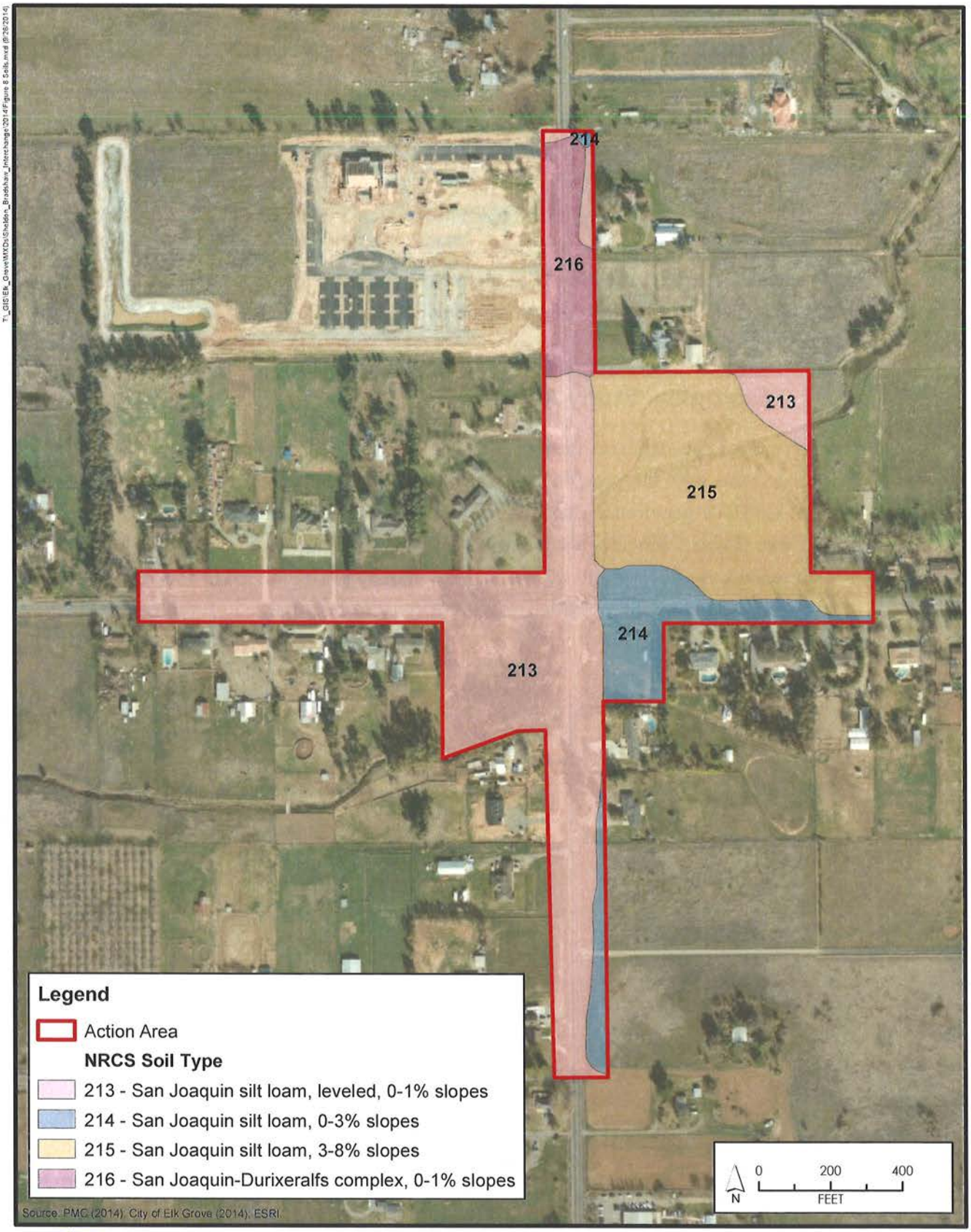

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Figure 5

NRCS Soils Map

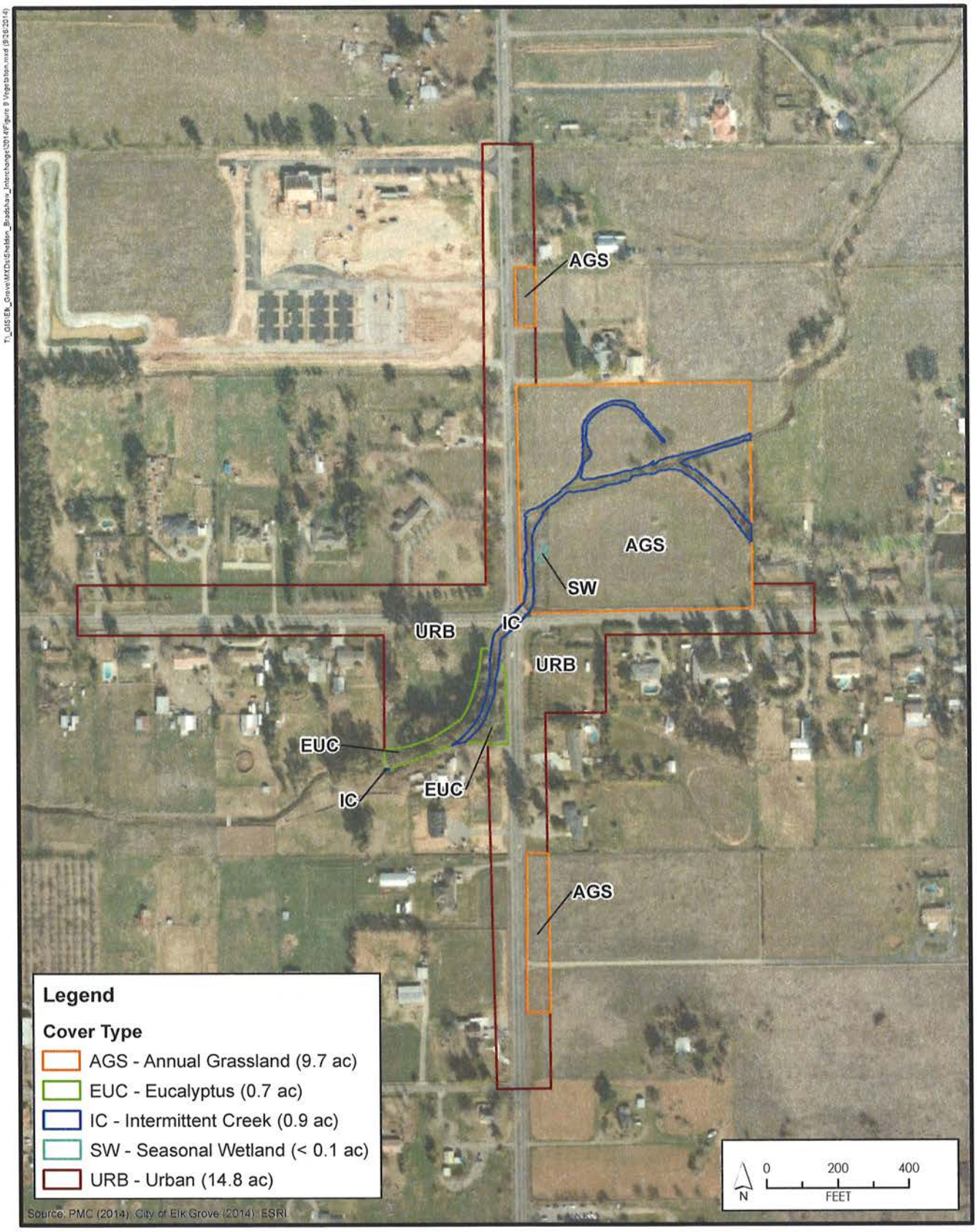

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Figure 6

Vegetative Communities Map

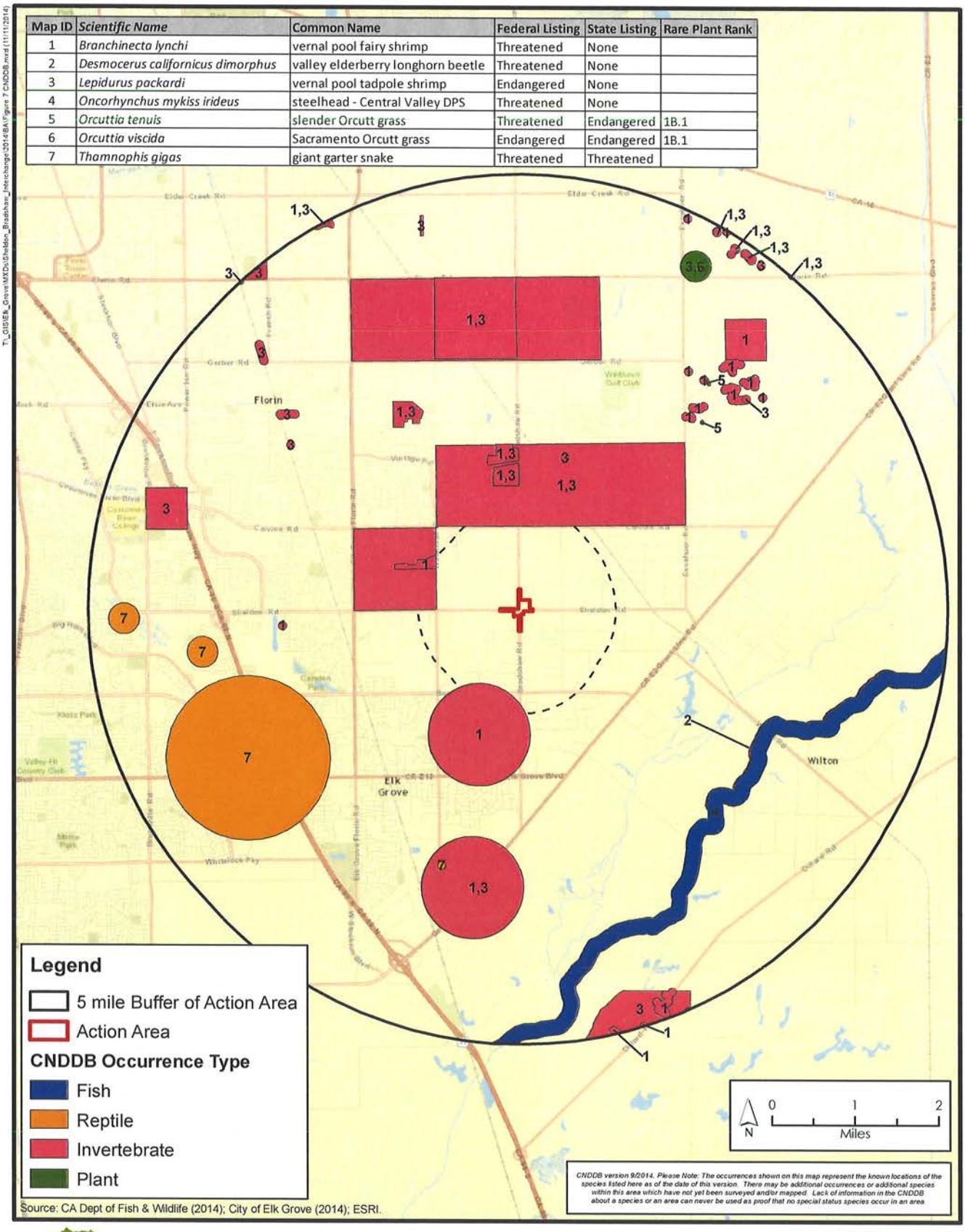

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Figure 7
CNDDB Occurrences within 5 Miles of the Action Area

Table 1: Listed, Proposed Species and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Plants					
Castilleja campestris ssp. *succulenta*	succulent owl's-clover	FT	Acidic vernal pools. Elev: 164–2,461 feet (50–750 m). Blooms: April–May (CNPS 2014).	A	**No effect.** Action area below elevation range.
	Critical Habitat, succulent owl's-clover	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Orcuttia tenuis	slender Orcutt grass	FT	Vernal pools. Elev: 115–5,774 feet (35–1,760 m). Blooms: May–Oct (CNPS 2014).	A	**No effect**. Action area below elevation range.
	Critical Habitat, slender Orcutt grass	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Orcuttia viscida	Sacramento Orcutt grass	FE	Vernal pools. Elev: 98–328 feet (30–100 m). Blooms: April–Sept (CNPS 2014).	A	**No effect**. Action area below elevation range.
	Critical Habitat, Sacramento Orcutt grass	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Invertebrates					
Branchinecta conservatio	conservancy fairy shrimp	FE	Vernal pools, often large and turbid pools (USFWS 2005b).	A	**No effect.** Species not known to occur in this part of the Central Valley.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Branchinecta lynchi	vernal pool fairy shrimp	FT	Found in vernal pools and ephemeral wetlands. Distributed throughout the Central Valley, including Sacramento County (USFWS 2005b).	HP	**No effect**. Suitable habitat not present. Seasonal wetland does not have adequate hydrology to support this species.
	Critical Habitat, vernal pool fairy shrimp	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	Dependent on hostplant, elderberry (*Sambucus* spp.), which generally grows in riparian woodlands and upland habitats of the Central Valley. Current distribution in the Central Valley from Shasta County to Fresno County (USFWS 1999).	A	**No effect**. Hostplant not present within action area.
	Critical Habitat, valley elderberry longhorn beetle	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Lepidurus packardi	vernal pool tadpole shrimp	FE	Wide variety of ephemeral wetland habitats, including vernal pools. Distributed throughout Central Valley and San Francisco Bay Area (USFWS 2005b).	A	**No effect**. Suitable habitat not present. Seasonal wetland does not have adequate hydrology to support this species.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
	Critical Habitat, vernal pool tadpole shrimp	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Fish					
Acispenser medirostris	green sturgeon	FT	Entire coast of California. Spawning occurs in Sacramento River and Klamath River (USFWS 1996). Oceanic waters, bays, and estuaries during non-spawning season. Spawning habitat = deep pools in large, turbulent, freshwater mainstems (National Marine Fisheries Service (NMFS) 2005).	A	**No effect**. Creek inaccessible to anadromous fish species due to fish passage barriers.
Hypomesus transpacificus	delta smelt	FT	Distribution includes the Sacramento River below Isleton, San Joaquin River below Mossdale, and Suisun Bay. Spawning areas include the Sacramento River below Sacramento, Mokelumne River system, Cache Slough, the delta, and Montezuma Slough (USFWS 1996).	A	**No effect**. Creek inaccessible to anadromous fish species due to fish passage barriers.
	Critical Habitat, delta smelt	X		A	**No effect**. Action area not located within Critical Habitat Unit.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Oncorhynchus mykiss	Central Valley steelhead	FT	Spawning habitat = gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning = estuarine, marine waters (Busby et al. 1996).	A	**No effect**. Creek inaccessible to anadromous fish species due to fish passage barriers.
	Critical Habitat, Central Valley steelhead	X		A	**No effect**. Action area not located within Critical Habitat Unit.
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	FT	Spawning habitat = fast-moving, freshwater streams and rivers. Juvenile habitat = brackish estuaries. Non-spawning = marine waters (Myers et al. 1998).	A	**No effect**. Creek inaccessible to anadromous fish species due to fish passage barriers.
	Critical Habitat, Central Valley spring-run chinook salmon	X		A	**No effect**. Action area not located within Critical Habitat Unit.
	winter-run chinook salmon, Sacramento River	FE		A	**No effect**. Creek inaccessible to anadromous fish species due to fish passage barriers.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Spirinchus thaleichthys	longfin smelt	FC	Adults and juveniles require salt or brackish estuary waters. Spawning takes place in freshwater over sandy-gravel substrates, rocks, and aquatic plants (Moyle et al. 1995).	A	**No effect.** Suitable habitat not present.
Amphibians					
Ambystoma californiense	California tiger salamander, central population	FT	Occurs in grasslands of the Central Valley and oak savannah communities in the Central Valley, the Sierra Nevada and Coast ranges, and the San Francisco Bay Area. Needs seasonal or semi-permanent wetlands to reproduce, and terrestrial habitat with active ground squirrel or gopher burrows (Bolster 2010).	A	**No effect**. Action area outside known range in Sacramento County.
	Critical Habitat, CA tiger salamander, central population	X		A	**No effect**. Action area not located within Critical Habitat Unit.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Rana draytonii	California red-legged frog	FT	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Breeding habitat is in permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Ephemeral wetland habitats require animal burrows or other moist refuges for aestivation when the wetlands are dry. From sea level to 5,000 feet (1,525 m) (Nafis 2014).	A	**No effect.** Suitable habitat not present.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Reptiles					
Thamnophis gigas	giant garter snake	FT	Marshes, sloughs, ponds, small lakes, low-gradient streams, irrigation and drainage canals, rice fields and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November– mid March). Ranges in the Central Valley from Butte County to Buena Vista Lake in Kern County. Endemic to valley floor wetlands (USFWS 2012).	HP	**May affect**. Suitable habitat present.
Birds					
Coccyzus americanus occidentalis	western yellow-billed cuckoo	PT	Requires large, dense tracts of riparian woodland with well-developed understories. Occurs in deciduous trees or shrubs. Prefers willow, but will also nest in orchards adjacent to streams in Sacramento Valley. Restricted to moist habitats along slow-moving waterways during breeding season (CDFW 2014c).	A	**No effect**. Suitable habitat not present. This species shows increased occupancy with increased patch size (>20 hectares) (Laymon 1998). Riparian habitat within action area <1 hectare.

Scientific Name	Common Name	Federal Status	Habitat	Habitat Present/ Absent	Potential to Occur
Sternula antillarum browni	California least tern	FE	Nests and roosts in colonies on open beaches, forages near shore ocean waters and in shallow estuaries ad lagoons (USFWS 2006).	A	**No effect.** Suitable habitat not present.

Key	
Federal Status	**Habitat Present/Absent**
(FC) Federal Candidate	(A) No habitat present and no further work needed.
(FD) Federally Delisted	(HP) Habitat is or may be present. The species may be present.
(FE) Federal Endangered	(P) Species is present.
(FP) Fully Protected	(CH) Project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.
(FT) Federal Threatened	
(PT) Proposed Threatened	
(X) Federally Designated Critical Habitat	

Chapter 4. Effects of the Action

This chapter of the BA discusses impacts to federally listed or candidate species that have the potential to occur in the action area. Potential effects to species are based on the current project description and conceptual design plans, likelihood of each species to occur within the action area, and each species' biological growth, reproduction, feeding, resting, and cover requirements as appropriate. Each species is discussed, including results of surveys for the species; designated critical habitat for the species within the action area (if applicable); expected or potential project-related effects to the species; avoidance, minimization, and conservation measures proposed to avoid or reduce project-related impacts to the species; and cumulative effects to the species when considered with other proposed, completed, or reasonably foreseeable projects in the vicinity of the action area. Project-related effects to plant and wildlife species can be direct, indirect, permanent, temporary, and/or cumulative. Direct impacts are those caused by the proposed project and occur at the time of project construction or implementation. Indirect effects are those that are caused by the proposed project and are reasonably certain to occur, but at a later time.

4.1. Federally Listed/Proposed Plant Species

No federally listed or proposed plant species have the potential to occur in the action area.

4.2. Federally Listed or Proposed Animal Species Occurrences

Based on the results of the database queries and habitat assessment, one federally listed animal species has the potential to occur in the action area or vicinity: giant garter snake. A discussion of this species is presented below. The following discussion details the extent of known and/or potential habitat within the action area, potential impacts to this species from the construction of the proposed project, recommended measures to avoid, minimize, and mitigate for project-related impacts, and the cumulative effects the proposed project will have on the continued existence of this species. According to the results of the database searches, surveys, or historic records, no other federally listed animal species have potential to occur in the action area.

4.2.1. Discussion of "Giant Garter Snake"

Giant garter snake is federally listed as threatened. The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low-gradient streams, other waterways, agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands (USFWS 2012). Essential habitat components consist of:

- Adequate water during the snake's active period (i.e., early spring through mid-fall) to provide a prey base and cover;
- Emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat;
- Upland habitat for basking, cover, and retreat sites; and
- Higher elevation uplands for cover and refuge from floodwaters.

4.2.1.1. SURVEY RESULTS

The main stem of Laguna Creek, ±0.5 mile southwest of the action area, is the closest feature that provides all essential habitat components for giant garter snakes. The portion of Laguna Creek East within the action area lacks an adequate hydroperiod to support giant garter snakes during their active period. Currently during the winter season, this feature conveys storm flows south and west to Laguna Creek; however, during the summer months (active season) flows are greatly diminished or reduced to nothing. Intermittent water flow through this feature in the summer season is provided primarily by urban and agricultural irrigation run-off.

The closest occurrence (#169) of giant garter snake is ±3.2 miles southwest of the action area (CDFW 2014d) and east of State Route 99 (SR 99). This occurrence is located near Elk Grove Creek, which is separated from the Laguna Creek East by extensive development. No aquatic features containing the essential habitat components connect Laguna Creek East and Elk Grove Creek, east of SR 99.

The closest extant occurrence (#198) on Laguna Creek is located approximately 9.8 river miles west of the action area, near the Sacramento County Wastewater Treatment Plant (**Figure 8**). There are two possibly extirpated occurrences (#14 and #84) on Laguna Creek west of the action area and SR 99. Due to the distance between the extant occurrence on Laguna Creek to the west and the presence of potential dispersal barriers (e.g., roads) between this occurrence and the action area, as well as the lack of suitable dispersal habitat between the action area and the extant occurrence near Elk Grove Creek, the presence of this species within the action area is considered unlikely.

4.2.1.2. CRITICAL HABITAT

No critical habitat has been designated for this species within the action area; therefore, no impact to this species' critical habitat is expected.

4.2.1.3. PROJECT EFFECTS

The proposed project will result in 0.06 acre of permanent impact and 0.3 acre of temporary impact to Laguna Creek East as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur in Laguna Creek East as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. These impacts, however, are not anticipated to adversely affect giant garter snake due to a lack of suitable habitat within this segment of Laguna Creek East.

4.2.1.4. AVOIDANCE AND MINIMIZATION MEASURES

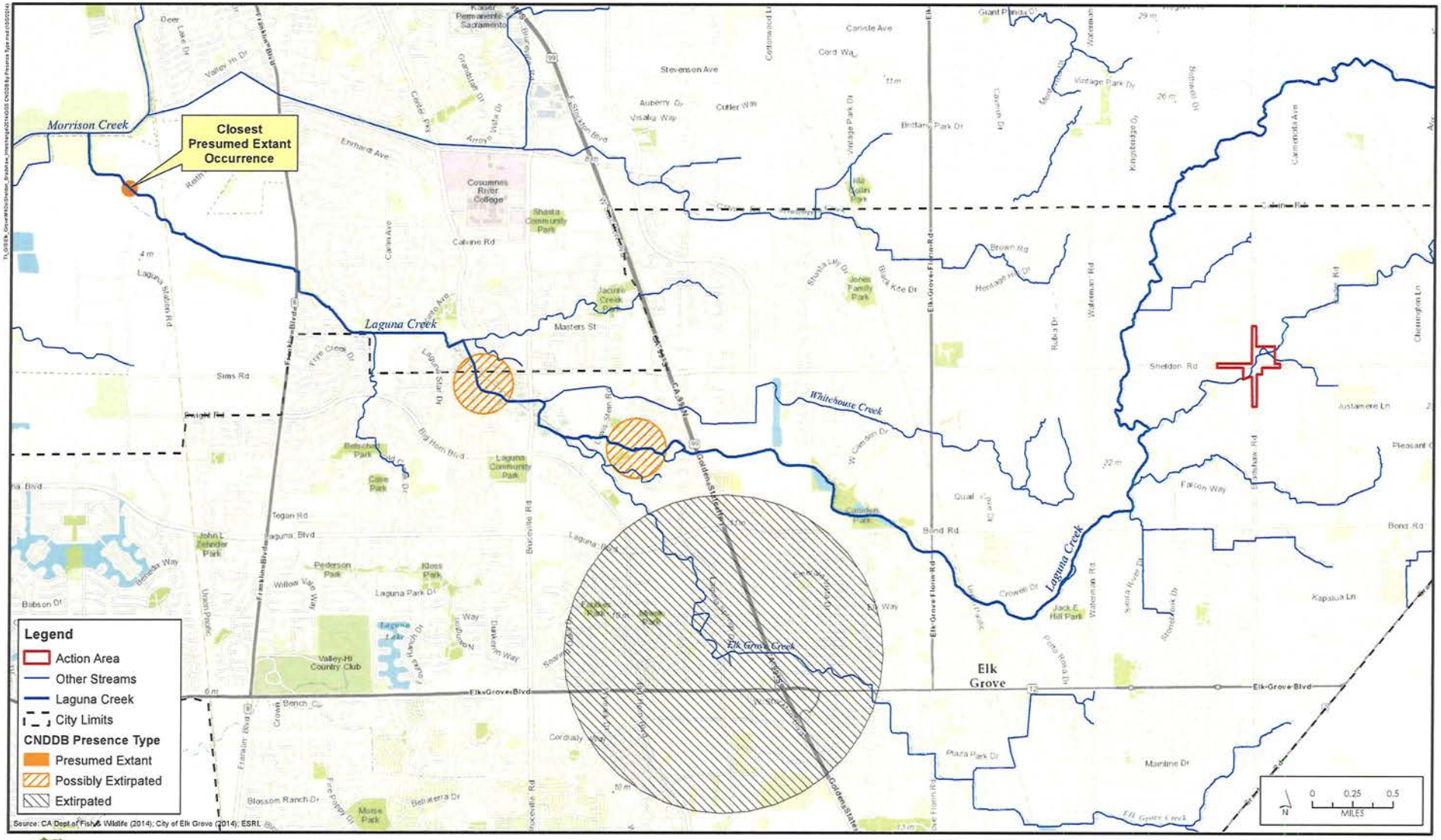
Implementation of avoidance and minimization measures **BIO-1** through **BIO-12** listed under Section 1.3.4.1 are recommended to minimize impacts to giant garter snake habitat during construction.

4.2.1.5. CONSERVATION MEASURES

Due to a lack of suitable habitat within the action area, no project-related impacts to giant garter snake are anticipated; therefore, no conservation measures are proposed.

4.2.1.6. CUMULATIVE EFFECTS

Implementation of the avoidance, minimization, and conservation measures outlined above will ensure that the loss of giant garter snake habitat is fully compensated for; therefore, the project will not substantially contribute to cumulative impacts to this species.



City of Elk Grove
Development Services

Figure 8
Giant Garter Snake CNDDB Occurrences in the Vicinity of the Action Area

Chapter 5. Conclusions and Determination

5.1. Conclusions

The proposed project ***is not likely to adversely affect*** the giant garter snake. All effects to potentially occurring species or their habitat will be minimized and conservation measures will be implemented.

5.2. Determination

The determination of effect for each federally listed species that may occur in the action area is provided below. Determinations are based on potential for the species to occur; the potential impacts to the species as a result of project implementation; and proposed avoidance, minimization, and conservation measures for each species. The potential determination categories are as follows: no effect; may affect, not likely to adversely affect; or may affect, likely to adversely affect.

5.2.1. Giant Garter Snake

The proposed project will result in 0.06 acre of permanent impact and 0.3 acre of temporary impact to Laguna Creek East as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur in Laguna Creek East as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of Laguna Creek East.

The project, however, is not likely to adversely affect giant garter snake. Laguna Creek East does not currently contain all essential habitat components for this species, as it lacks adequate water levels during the snake's active season. In addition, due to the distance between the extant occurrence on Laguna Creek to the west and the presence of potential dispersal barriers (e.g., roads) between this occurrence and the action area, as well as the lack of suitable dispersal habitat between the action area and the extant occurrence near Elk Grove Creek, the presence of this species within the action area is considered unlikely.

The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** through **BIO-12**. Implementation of the proposed

avoidance and minimization measures will ensure that the proposed project ***is not likely to adversely affect*** this species.

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Appendix A Database Search Results

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 140616081717

Current as of: June 16, 2014

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio
- Conservancy fairy shrimp (E)

Branchinecta lynchi
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
- Critical habitat, valley elderberry longhorn beetle (X)
- valley elderberry longhorn beetle (T)

Lepidurus packardi
- Critical habitat, vernal pool tadpole shrimp (X)
- vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Hypomesus transpacificus
- Critical habitat, delta smelt (X)
- delta smelt (T)

Oncorhynchus mykiss
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
- Central Valley spring-run chinook salmon (T) (NMFS)
- Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
- winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)
- Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
- California red-legged frog (T)

Reptiles

Thamnophis gigas
- giant garter snake (T)

Plants

Castilleja campestris ssp. succulenta
- Critical habitat, succulent (=fleshy) owl's-clover (X)
- succulent (=fleshy) owl's-clover (T)

Orcuttia tenuis
- Critical habitat, slender Orcutt grass (X)

slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Quads Containing Listed, Proposed or Candidate Species:

SLOUGHHOUSE (495B)
CLAY (495C)
ELK GROVE (496A)
FLORIN (496B)
BRUCEVILLE (496C)
GALT (496D)
BUFFALO CREEK (511C)
SACRAMENTO EAST (512C)
CARMICHAEL (512D)

County Lists

Sacramento County

Listed Species

Invertebrates

Apodemia mormo langei
Lange's metalmark butterfly (E)

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
Critical habitat, valley elderberry longhorn beetle (X)
valley elderberry longhorn beetle (T)

Elaphrus viridis
delta green ground beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Arctostaphylos myrtifolia
Ione manzanita (T)

Calystegia stebbinsii
Stebbins's morning-glory (E)

Castilleja campestris ssp. succulenta
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

Ceanothus roderickii
Pine Hill ceanothus (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Eriogonum apricum var. apricum
Ione buckwheat (E)

Eriogonum apricum var. prostratum
Irish Hill buckwheat (E)

Erysimum capitatum ssp. angustatum
Contra Costa wallflower (E)
Critical Habitat, Contra Costa wallflower (X)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Lasthenia conjugens
Contra Costa goldfields (E)

Neostapfia colusana
Colusa grass (T)

Oenothera deltoides ssp. howellii
Antioch Dunes evening-primrose (E)
Critical habitat, Antioch Dunes evening-primrose (X)

Orcuttia tenuis
Critical habitat, slender Orcutt grass (X)
slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Sidalcea keckii
Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 14, 2014.

CNDDB 9-Quad Species List 266 records.

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3812132	Clay	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3812133	Galt	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3812142	Sloughhouse	Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812142	Sloughhouse	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812152	Buffalo Creek	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812154	Sacramento East	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812143	Elk Grove	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812144	Florin	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812142	Sloughhouse	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812143	Elk Grove	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812133	Galt	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812132	Clay	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812153	Carmichael	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Birds - Emberizidae - Ammodramus savannarum

Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Emberizidae - Ammodramus savannarum
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Birds - Emberizidae - Ammodramus savannarum
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812133	Galt	Mapped	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812154	Sacramento East	Mapped	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812142	Sloughhouse	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812133	Galt	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812132	Clay	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Baeolophus inornatus	oak titmouse	ABPAW01100	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Paridae - Baeolophus inornatus

Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3812153	Carmichael	Mapped	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3812144	Florin	Mapped	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812144	Florin	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812143	Elk Grove	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812142	Sloughhouse	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812132	Clay	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812133	Galt	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812134	Bruceville	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812154	Sacramento East	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812153	Carmichael	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812152	Buffalo Creek	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Cardinalis cardinalis	northern cardinal	ABPBX60010	None	None	WL	-	3812133	Galt	Unprocessed	Animals - Birds - Cardinalidae - Cardinalis cardinalis
Animals - Birds	Chaetura vauxi	Vaux's swift	ABNUA03020	None	None	SSC	-	3812153	Carmichael	Unprocessed	Animals - Birds - Apodidae - Chaetura vauxi
Animals - Birds	Chondestes grammacus	lark sparrow	ABPBX96010	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Emberizidae - Chondestes grammacus
Animals - Birds	Circus cyaneus	northern harrier	ABNKC11010	None	None	SSC	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Accipitridae - Circus cyaneus
Animals - Birds	Circus cyaneus	northern harrier	ABNKC11010	None	None	SSC	-	3812142	Sloughhouse	Unprocessed	Animals - Birds - Accipitridae - Circus cyaneus
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Proposed Threatened	Endangered	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Dendroica occidentalis	hermit warbler	ABPBX03090	None	None	-	-	3812133	Galt	Unprocessed	Animals - Birds - Parulidae - Dendroica occidentalis
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812142	Sloughhouse	Mapped	Animals - Birds - Accipitridae - Elanus leucurus

Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812143	Elk Grove	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812134	Bruceville	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812133	Galt	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812144	Florin	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Falco mexicanus	prairie falcon	ABNKD06090	None	None	WL	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Falconidae - Falco mexicanus
Animals - Birds	Grus canadensis canadensis	lesser sandhill crane	ABNMK01011	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Birds - Gruidae - Grus canadensis canadensis
Animals - Birds	Grus canadensis tabida	greater sandhill crane	ABNMK01014	None	Threatened	FP	-	3812134	Bruceville	Unprocessed	Animals - Birds - Gruidae - Grus canadensis tabida
Animals - Birds	Grus canadensis tabida	greater sandhill crane	ABNMK01014	None	Threatened	FP	-	3812144	Florin	Unprocessed	Animals - Birds - Gruidae - Grus canadensis tabida
Animals - Birds	Ixobrychus exilis	least bittern	ABNGA02010	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Birds - Ardeidae - Ixobrychus exilis
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812154	Sacramento East	Mapped	Animals - Birds - Emberizidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812144	Florin	Mapped	Animals - Birds - Emberizidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812134	Bruceville	Mapped	Animals - Birds - Emberizidae - Melospiza melodia
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812133	Galt	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812153	Carmichael	Unprocessed	Animals - Birds - Accipitridae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812134	Bruceville	Unprocessed	Animals - Birds - Accipitridae - Pandion haliaetus

Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812134	Bruceville	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Pica nuttalli	yellow-billed magpie	ABPAV09020	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Corvidae - Pica nuttalli
Animals - Birds	Picoides nuttallii	Nuttall's woodpecker	ABNYF07020	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Picidae - Picoides nuttallii
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Progne subis
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812154	Sacramento East	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812153	Carmichael	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812142	Sloughhouse	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Spinus lawrencei	Lawrence's goldfinch	ABPBY06100	None	None	-	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Fringillidae - Spinus lawrencei
Animals - Birds	Spizella breweri	Brewer's sparrow	ABPBX94040	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Emberizidae - Spizella breweri
Animals - Birds	Sternula antillarum browni	California least tern	ABNNM08103	Endangered	Endangered	FP	-	3812144	Florin	Unprocessed	Animals - Birds - Laridae - Sternula antillarum browni
Animals - Birds	Xanthocephalus xanthocephalus	yellow-headed blackbird	ABPBXB3010	None	None	SSC	-	3812144	Florin	Mapped	Animals - Birds - Icteridae - Xanthocephalus xanthocephalus
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi

Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812133	Galt	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Dumontia oregonensis	hairy water flea	ICBRA23010	None	None	-	-	3812152	Buffalo Creek	Mapped	Animals - Crustaceans - Dumontiidae - Dumontia oregonensis
Animals - Crustaceans	Dumontia oregonensis	hairy water flea	ICBRA23010	None	None	-	-	3812153	Carmichael	Mapped	Animals - Crustaceans - Dumontiidae - Dumontia oregonensis
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi

Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus

Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hysterocarpus traski traski	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traski traski
Animals - Fish	Hysterocarpus traski traski	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traski traski
Animals - Fish	Lampetra ayresii	river lamprey	AFBAA02030	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra ayresii
Animals - Fish	Lavinia exilicauda exilicauda	Central Valley hitch	AFCJB19012	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812154	Sacramento East	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812144	Florin	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812153	Carmichael	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812133	Galt	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812134	Bruceville	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812142	Sloughhouse	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812143	Elk Grove	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha
Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha
Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha

Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812144	Florin	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812144	Florin	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Insects	Andrena blennospermatis	Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	-	-	3812142	Sloughhouse	Mapped	Animals - Insects - Andrenidae - Andrena blennospermatis
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812142	Sloughhouse	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812143	Elk Grove	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812134	Bruceville	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812133	Galt	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812152	Buffalo Creek	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812152	Buffalo Creek	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812153	Carmichael	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812134	Bruceville	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Mammals	Lasiurus blossevillii	western red bat	AMACC05060	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus blossevillii

Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Myotis ciliolabrum	western small-footed myotis	AMACC01140	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis ciliolabrum
Animals - Mammals	Myotis lucifugus	little brown bat	AMACC01010	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis lucifugus
Animals - Mammals	Myotis lucifugus	little brown bat	AMACC01010	None	None	-	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis lucifugus
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis yumanensis
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis yumanensis
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812134	Bruceville	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812153	Carmichael	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812144	Florin	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812154	Sacramento East	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812133	Galt	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812132	Clay	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812134	Bruceville	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812142	Sloughhouse	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812143	Elk Grove	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812144	Florin	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812153	Carmichael	Mapped	Animals - Reptiles - Emydidae - Emys marmorata

Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812144	Florin	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812143	Elk Grove	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812142	Sloughhouse	Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812134	Bruceville	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Community - Terrestrial	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Coastal and Valley Freshwater Marsh
Community - Terrestrial	Elderberry Savanna	Elderberry Savanna	CTT63440CA	None	None	-	-	3812154	Sacramento East	Mapped	Community - Terrestrial - Elderberry Savanna
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Great Valley Valley Oak Riparian Forest
Community - Terrestrial	Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	-	-	3812143	Elk Grove	Mapped	Community - Terrestrial - Great Valley Valley Oak Riparian Forest
Community - Terrestrial	Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	-	-	3812133	Galt	Mapped	Community - Terrestrial - Great Valley Valley Oak Riparian Forest
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812133	Galt	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812132	Clay	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812143	Elk Grove	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812142	Sloughhouse	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812144	Florin	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812152	Buffalo Creek	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool

Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812153	Carmichael	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Valley Oak Woodland	Valley Oak Woodland	CTT71130CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Valley Oak Woodland
Community - Terrestrial	Valley Oak Woodland	Valley Oak Woodland	CTT71130CA	None	None	-	-	3812133	Galt	Mapped	Community - Terrestrial - Valley Oak Woodland
Plants - Vascular	Brasenia schreberi	watershield	PDCAB01010	None	None	-	2B.3	3812134	Bruceville	Mapped	Plants - Vascular - Cabombaceae - Brasenia schreberi
Plants - Vascular	Carex comosa	bristly sedge	PMCYP032Y0	None	None	-	2B.1	3812134	Bruceville	Mapped	Plants - Vascular - Cyperaceae - Carex comosa
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812134	Bruceville	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812144	Florin	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Cicuta maculata var. bolanderi	Bolander's water-hemlock	PDAPI0M051	None	None	-	2B.1	3812134	Bruceville	Mapped	Plants - Vascular - Apiaceae - Cicuta maculata var. bolanderi
Plants - Vascular	Cuscuta obtusiflora var. glandulosa	Peruvian dodder	PDCUS01111	None	None	-	2B.2	3812144	Florin	Mapped	Plants - Vascular - Cuscutaceae - Cuscuta obtusiflora var. glandulosa
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812133	Galt	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812132	Clay	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812143	Elk Grove	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812144	Florin	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812152	Buffalo Creek	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812153	Carmichael	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812142	Sloughhouse	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812143	Elk Grove	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Hesperevax caulescens	hogwallow starfish	PDASTE5020	None	None	-	4.2	3812144	Florin	Unprocessed	Plants - Vascular - Asteraceae - Hesperevax caulescens
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis

Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812144	Florin	Mapped	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juncus leiospermus var. ahartii	Ahart's dwarf rush	PMJUN011L1	None	None	-	1B.2	3812152	Buffalo Creek	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. ahartii
Plants - Vascular	Juncus leiospermus var. ahartii	Ahart's dwarf rush	PMJUN011L1	None	None	-	1B.2	3812153	Carmichael	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. ahartii
Plants - Vascular	Lasthenia ferrisiae	Ferris' goldfields	PDAST5L070	None	None	-	4.2	3812134	Bruceville	Unprocessed	Plants - Vascular - Asteraceae - Lasthenia ferrisiae
Plants - Vascular	Lathyrus jepsonii var. jepsonii	Delta tule pea	PDFAB250D2	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Fabaceae - Lathyrus jepsonii var. jepsonii
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812144	Florin	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812153	Carmichael	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812152	Buffalo Creek	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812143	Elk Grove	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812142	Sloughhouse	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812132	Clay	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812133	Galt	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812134	Bruceville	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
Plants - Vascular	Lilaeopsis masonii	Mason's lilaeopsis	PDAPI19030	None	Rare	-	1B.1	3812134	Bruceville	Mapped	Plants - Vascular - Apiaceae - Lilaeopsis masonii
Plants - Vascular	Limosella australis	Delta mudwort	PDSCR10050	None	None	-	2B.1	3812134	Bruceville	Mapped	Plants - Vascular - Scrophulariaceae - Limosella australis
Plants - Vascular	Navarretia eriocephala	hoary navarretia	PDPLM0C060	None	None	-	4.3	3812143	Elk Grove	Unprocessed	Plants - Vascular - Polemoniaceae - Navarretia eriocephala
Plants - Vascular	Orcuttia tenuis	slender Orcutt grass	PMPOA4G050	Threatened	Endangered	-	1B.1	3812143	Elk Grove	Mapped	Plants - Vascular - Poaceae - Orcuttia tenuis
Plants - Vascular	Orcuttia tenuis	slender Orcutt grass	PMPOA4G050	Threatened	Endangered	-	1B.1	3812152	Buffalo Creek	Mapped	Plants - Vascular - Poaceae - Orcuttia tenuis
Plants - Vascular	Orcuttia viscida	Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	-	1B.1	3812152	Buffalo Creek	Mapped	Plants - Vascular - Poaceae - Orcuttia viscida
Plants - Vascular	Orcuttia viscida	Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	-	1B.1	3812153	Carmichael	Mapped	Plants - Vascular - Poaceae - Orcuttia viscida
Plants - Vascular	Orcuttia viscida	Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	-	1B.1	3812143	Elk Grove	Mapped	Plants - Vascular - Poaceae - Orcuttia viscida

Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812133	Galt	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812142	Sloughhouse	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812143	Elk Grove	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812154	Sacramento East	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812153	Carmichael	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Scutellaria galericulata	marsh skullcap	PDLAM1U0J0	None	None	-	2B.2	3812134	Bruceville	Mapped	Plants - Vascular - Lamiaceae - Scutellaria galericulata
Plants - Vascular	Scutellaria lateriflora	side-flowering skullcap	PDLAM1U0Q0	None	None	-	2B.2	3812134	Bruceville	Mapped	Plants - Vascular - Lamiaceae - Scutellaria lateriflora
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Fabaceae - Trifolium hydrophilum
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Fabaceae - Trifolium hydrophilum

CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

24 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 38121D3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb	2B.3	S2	G5
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	2B.1	S2	G5
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	4.2	S3.2	G3T3
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	2B.1	S2	G5T3T4
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	2B.2	SH	G5T4T5
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	4.2	S3.2	G3
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb	1B.2	S2	G5T2
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	1B.1	S1	G1
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	4.2	S3.2	G3
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	1B.2	S2.2	G5T2
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	1B.2	S2	G4T2
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	1B.1	S2	G2
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	2B.1	S2	G4G5
Navarretia eriocephala	hoary navarretia	Polemoniaceae	annual herb	4.3	S3.3	G3
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae		1B.2	S3	G3

			perennial rhizomatous herb			
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S2	G5
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S1	G5
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2

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Appendix B Wetland Delineation

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

October 9, 2013

Regulatory Division SPK-2005-00956

Michael Karoly
City of Elk Grove, Public Works Dept.
8401 Laguna Palms Way
Elk Grove, California 95758

Dear Mr. Karoly:

We are responding to your consultant's September 4, 2013 request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Sheldon/Bradshaw Road Intersection Expansion Project site. The approximately 33-acre site is located along the east branch of Laguna Creek, in Sections 20, 21, 28 and 29, Township 7 North, Range 6 East, Mount Diablo Meridian, Latitude 38.43814°, Longitude -121.33371°, in Elk Grove, Sacramento County, California.

Based on available information, **we concur with the amount and location of wetlands and other water bodies (east branch of Laguna Creek, and several ditches) on the site, as depicted on the enclosed copy of the December 21, 2006 Sheldon/Bradshaw Intersection Improvement Project drawing prepared by City of Elk Grove Development Services**. The approximately **2.00 acres** of wetlands and other water bodies (consisting of 0.02 acre of seasonal wetlands, and 1.98 acres of creeks/ditches) present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal form is enclosed to notify you of your options with this determination. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2005-00956 in any correspondence concerning this project. If you have any questions, please contact me at U.S. Army Corps of Engineers, Regulatory Division, California South Branch, 1325 J Street, Room 1350, Sacramento, California 95814-2922, email *Mary.R.Pakenham-Walsh@usace.army.mil*, or telephone 916-557-7718. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Mary R. Pakenham-Walsh
Senior Project Manager,
California South Branch

Enclosures

cc: w/o encls

Mr. Paul Jones, U.S. Environmental Protection Agency, Wetlands Program, 75 Hawthorne Street (WTR-8), San Francisco, California 94105
Ms. Elizabeth Lee, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Ms. Summer Pardo, PMC, 2729 Prospect Park Drive, Suite 220, Rancho Cordova, California 95670

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
Sacramento District

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Regulatory Branch: **California South** File/ORM #: **SPK-2005-00956** PJD Date: **October 9, 2013**

State: **CA** City/County: **Elk Grove, Sacramento County**
Nearest Waterbody: **Laguna Creek**

Location (Lat/Long): **38.43814°, -121.33371°**

Size of Review Area: **32.98** acres

Name/Address Of Property Owner/ Potential Applicant: **City of Elk Grove, Public Works Dept.**
Attn: Michael Karoly
8401 Laguna Palms Way
Elk Grove, California 95758

Identify (Estimate) Amount of Waters in the Review Area

Non-Wetland Waters:
linear feet ft wide **1.98** acre(s)
Stream Flow: **Mixed**

Wetlands: **0.02** acre(s) Cowardin Class: **Palustrine, emergent**

Name of any Water Bodies on the site identified as Section 10 Waters: Tidal: Non-Tidal:

☒ Office (Desk) Determination
☐ Field Determination:
Date(s) of Site Visit(s):

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Dated December 21, 2006**
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
- ☐ Data sheets prepared by the Corps.
- ☐ Corps navigable waters' study.
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24K; CA-ELK GROVE**
- ☒ USDA Natural Resources Conservation Service Soil Survey.
- ☐ National wetlands inventory map(s).
- ☐ State/Local wetland inventory map(s).
- ☐ FEMA/FIRM maps.
- ☐ 100-year Floodplain Elevation (if known):
- ☒ Photographs: ☒ Aerial ☐ Other
- ☒ Previous determination(s). File no. and date of response letter: **Same file #, April 19, 2007.**
- ☒ Other information (please specify): **PMC field-checked site on 6/20/13; no mapping updates to 4/19/07's JD.**

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Mary R. Paterson-Wilk Oct. 9, 2013

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

T:\GIS\Elk_Grove\PROJECTS\bradshaw_sheldon\MXDs\wetland_delineation\WD_12_18_06_01.mxd

Sources: City of Elk Grove 2006; AerPhotoUSA, 2004

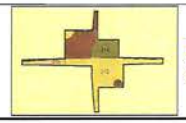
Figure 3: Delineation of Waters of the U.S. Including Wetlands

Sheldon/Bradshaw Intersection Improvement Project

Legend

- Data Point
- Project Toe of Slope
- Contour (2 foot interval)

Map Feature	ID	Type	Linear Feet	Acres
	1	Intermittent Creek	N/A	1.12
	2	Seasonal Wetland	N/A	0.02
	3	Intermittent Drainage Ditch	66	0.01
	4	Intermittent Drainage Ditch	571	0.05
	N/A	Culvert	101	N/A
	N/A	Irrigation Ditch	118	0.01
	N/A	Roadside Ditch	7645	0.79
	N/A	Project Study Area	N/A	32.98



Delineated By: Jeannette Owen, Brandon Amrhein

Drafted By: John DeMartino, Bob Noyes

Date: December 21, 2006

City of Elk Grove
Development Services

Sheldon Road/Bradshaw Road
Intersection Improvement Project ***NES***

Natural Environment Study

Intersection of Sheldon Road and Bradshaw Road

City of Elk Grove, Sacramento County, California

Caltrans District 3

Federal Project Number: BRLS-5479(012)

January 2015

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Natural Environment Study

STATE OF CALIFORNIA
Department of Transportation
City of Elk Grove

Prepared By: _____ Date: 1/29/15
Summer Pardo, Senior Biologist
(916) 617-4496
2729 Prospect Park Drive, Suite 220, Rancho Cordova, CA 95670
PMC

Recommended
for Approval By: _____ Date: 2/2/15
Maureen Doyle
Associate Biologist/Botanist
(530) 741-4470
Environmental Management Branch, M-1
Caltrans/District 3

Approved By: _____ Date: 2/2/15
for Susan D. Bauer, Branch Chief
(530) 741-7113
Environmental Management Branch, M-1
Caltrans/District 3

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Maureen Doyle, District 3, 703 B Street, Marysville, CA 95991, (530) 741-4470 (Voice); or use the California Relay Service TTY number, (530) 741-4509, or use California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711

Summary

The City of Elk Grove (City) is proposing to improve the Sheldon Road/Bradshaw Road intersection. Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration (Alternative A) for the intersection and the second build alternative (Alternative B) includes a signalized intersection. The proposed improvements include reconstructing the bridge and intersection to current standards, and the addition of pedestrian and bicycle facilities.

This document identifies and quantifies resources that may be affected by project implementation. Various studies were undertaken to identify and map biological resources within the project vicinity. The following impacts on biological resources may result from the proposed project.

Special-Status Species Impacts

- The project may adversely affect protected trees including black walnut (*Juglans hindsii*), interior live oak (*Quercus wislizeni*), and valley oak (*Quercus lobata*). Alternative A would result in direct impacts to a total of 17 trees (330 aggregate inches diameter at breast height [dbh]), and indirect impacts to 1 tree (9 inches dbh). Alternative B would result in direct impacts to a total of 14 trees (273 aggregate inches dbh), and indirect impacts to 3 trees (54 aggregate inches dbh). The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** and **BIO-7** through **BIO-17**, combined with conservation measure **CM-3**.

- The project may adversely affect Sanford's arrowhead (*Sagittaria sanfordii*) if present in Laguna Creek East. Alternative A would result in 0.06 acre of direct impact and 0.3 acre of temporary impact to Laguna Creek East, while Alternative B would result in 0.05 acre of direct impact and 0.28 acre of temporary impact to Laguna Creek East. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** and **BIO-18** through **BIO-20**, combined with conservation measure **CM-4**.

- The project is not likely to adversely affect giant garter snake (*Thamnophis gigas*). Laguna Creek East does not currently contain all essential habitat components for this species, as it lacks adequate water levels during the snake's active season. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** and **BIO-20** through **BIO-26**.

- The project may adversely affect Swainson's hawk (*Buteo swainsoni*) nesting and foraging habitat, a State-listed threatened species. Alternative A would result in 1.4 acres of permanent impact and 0.9 acre of temporary impact to annual grassland habitat that could provide foraging habitat for Swainson's hawk, while Alternative B would result in 0.7 acre of permanent impact and 0.3 acre of temporary impact to annual grassland habitat. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** and **BIO-20** and **BIO-26** through **BIO-28**, combined with conservation measure **CM-5**.

- The project may adversely affect suitable nesting/foraging habitat for migratory birds and raptors (including western burrowing owl [*Athene cunicularia hypugaea*]). Direct mortality could occur through the removal of trees or burrows that contain active nests. Indirect impacts could result through habitat degradation, removal of suitable nesting habitat, and increased human disturbance. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** and **BIO-20** and **BIO-27** through **BIO-30**.

- The project may adversely affect suitable habitat for special-status bat species. Removal of maternity roosts, if present, may cause direct mortality to numerous bats, while indirect impacts to bats may occur from noise and dust created by construction activities. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** and **BIO-20** and **BIO-31** through **BIO-33**.

Jurisdictional Features

The project may result in the loss of a small amount of U.S. Army Corps of Engineers (USACE) jurisdictional features including 0.06 acre of permanent and 0.30 acre of temporary impact to intermittent creek (Laguna Creek East), 0.02 acre of permanent impact to seasonal wetlands, and 0.02 acre of temporary impact to roadside ditches as a result of Alternative A. Alternative B would result in 0.05 acre of permanent and 0.28 acre of temporary impact to intermittent creek (Laguna Creek East), 0.01 acre of permanent impact to seasonal wetlands, and 0.02 acre of temporary impact to roadside ditches. The mitigation strategy proposed includes implementation of the avoidance and minimization measures **BIO-1** through **BIO-6**, combined with the following proposed conservation measures:

CM-1: For every acre of intermittent creek and seasonal wetland permanently affected by the proposed project, the City shall replace the affected acreage at a 2:1 ratio (i.e., 2 acres for every 1 acre of impact), or another approved ratio as determined by the USACE. Impacts shall be offset through the dedication of mitigation credit(s) within a USACE-approved mitigation bank or through the payment of in-lieu fees to an approved program.

CM-2: For every acre of intermittent creek temporarily affected and roadside ditch permanently or temporarily affected by the proposed project, the City shall replace the affected acreage at a 1:1 ratio, or another approved ratio as determined by the USACE. Impacts shall be offset through the restoration and relocation of the intermittent creek and roadside ditches within the project area.

Permitting

Permits will be required prior to implementation of the proposed project including:

- A Section 404 permit from the USACE.
- A Section 401 Water Quality Certification from the state Regional Water Quality Control Board.
- A 1602 Streambed Alteration Agreement from the California Department of Fish and Wildlife.

A Biological Assessment is being prepared to evaluate impacts to the federally listed giant garter snake.

Table of Contents

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List of Abbreviated Terms

ADI	aggregrate diameter inches
APE	area of potential effect
BMP	best management practice
BSA	Biological Study Area
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
dbh	diameter at breast height
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act (federal)
FGC	Fish and Game Code
FHWA	Federal Highway Administration
ISA	International Society of Arboriculture
LOS	level of service
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OHWM	ordinary high water mark
RPW	relatively permanent waters
RWQCB	Regional Water Quality Control Board
TCZ	temporary construction zone
TNW	traditional navigable waters
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program
WoUS	waters of the U.S.
WRCB	State Water Resources Control Board

Chapter 1 – Introduction

The purpose of this Natural Environment Study (NES) is to describe the existing biological environment and to review the proposed Sheldon Road/Bradshaw Road Intersection Improvement project in sufficient detail to determine to what extent the project may affect biological resources. This NES summarizes technical documents, related to the effects on biological resources in the Biological Study Area (BSA), for use in the environmental document. This document presents technical information upon which later decisions regarding project design are developed.

Project History

PURPOSE

The purpose of the proposed project is to:

- Improve Hydraulic Capacity and Reduce Flooding. Improve hydraulic capacity of the East Branch Laguna Creek Bridge and reduce flooding in the surrounding area by replacing the functionally obsolete East Branch Laguna Creek Bridge with a new structure with adequate hydraulic capacity and realigning Laguna Creek East north and south of the Sheldon Road/Bradshaw Road intersection.

- Relieve Congestion and Improve Traffic Flow. Relieve traffic congestion and reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.

- Pedestrian Safety. Provide pedestrian access within the proposed project area.

- Help Achieve the Transportation Goals of Local Planning Documents. Support the City of Elk Grove General Plan by accommodating future widening of Sheldon Road and Bradshaw Road to the planned number of traffic lanes and improving the Sheldon Road/Bradshaw Road intersection to meet the City's roadway and intersection service standards.

NEED

Improve Hydraulic Capacity and Reduce Flooding

The Structure and Maintenance Investigations report, prepared by Caltrans in September 2013, indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection according to Federal Highway Administration (FHWA) criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Sheldon Road/Bradshaw Road intersection was given a sufficiency rating of 65.3 percent on a scale of zero percent to 100 percent, where 100 percent represents an entirely sufficient bridge and zero percent represents an entirely

deficient bridge. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, may result in flooding in the surrounding area and damage to overlying roadways in the event of a flood.

Relieve Congestion and Improve Traffic Flow

Growth in the City of Elk Grove (City) and surrounding developing areas creates the need for operational improvements to improve circulation in the area. The Sheldon Road/Bradshaw Road intersection is currently operating at level of service (LOS) F under both AM and PM peak hour traffic conditions. The increasing population of the City and surrounding area will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign-controlled intersection configuration and number of traffic lanes on Sheldon Road and Bradshaw Road, thereby further increasing the need for traffic relief at the intersection.

Pedestrian Safety

No pedestrian facilities exist within the project area. Currently, Sheldon Road and Bradshaw Road in the project area do not provide safe pedestrian access as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access within the City as put forth in the goals of the Bicycle, Pedestrian and Trails Master Plan.

Help Achieve the Transportation Goals of Local Planning Documents

Figure C1-2 in the Circulation Element of the City of Elk Grove General Plan shows Bradshaw Road with an ultimate planned width as a six-lane arterial and Sheldon Road with an ultimate planned width as a four-lane arterial west of Bradshaw Road and as a two-lane road with expanded right-of-way east of Bradshaw Road. The General Plan circulation policies for roadways indicate a minimum standard of LOS D at all times for all roadways and intersections in the City of Elk Grove. According to the Traffic Operations Analysis Report prepared by Fehr & Peers for the proposed project, under existing conditions, the Sheldon Road/Bradshaw Road intersection as an all-way stop sign-controlled intersection operates at LOS F during both AM and PM peak hour traffic. This level of service is unacceptable to achieving the transportation goals in the City's General Plan.

Project Description

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City (**Figures 1** and **2**). Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw Road is a north/south two-lane rural road. Sheldon Road is 25 feet wide and Bradshaw Road is 32 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek (Laguna Creek East) crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek East runs parallel along the east side of Bradshaw Road, north of the intersection, and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road

is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

Laguna Creek East 100-year flows currently overtop the existing bridge at the Sheldon Road/Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes 20 years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes each direction southbound and northbound (four lanes total) on Bradshaw entering and exiting the intersection, and one lane each direction eastbound and westbound (two lanes total) on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area. The lane configuration in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the project. In accordance with the City's General Plan and Bicycle, Pedestrian and Trails Master Plan, the proposed project will add pedestrian and bicycle facilities along Sheldon and Bradshaw Roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration (Alternative A) for the intersection and the second build alternative (Alternative B) includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed project will relocate the existing Laguna Creek East tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows.

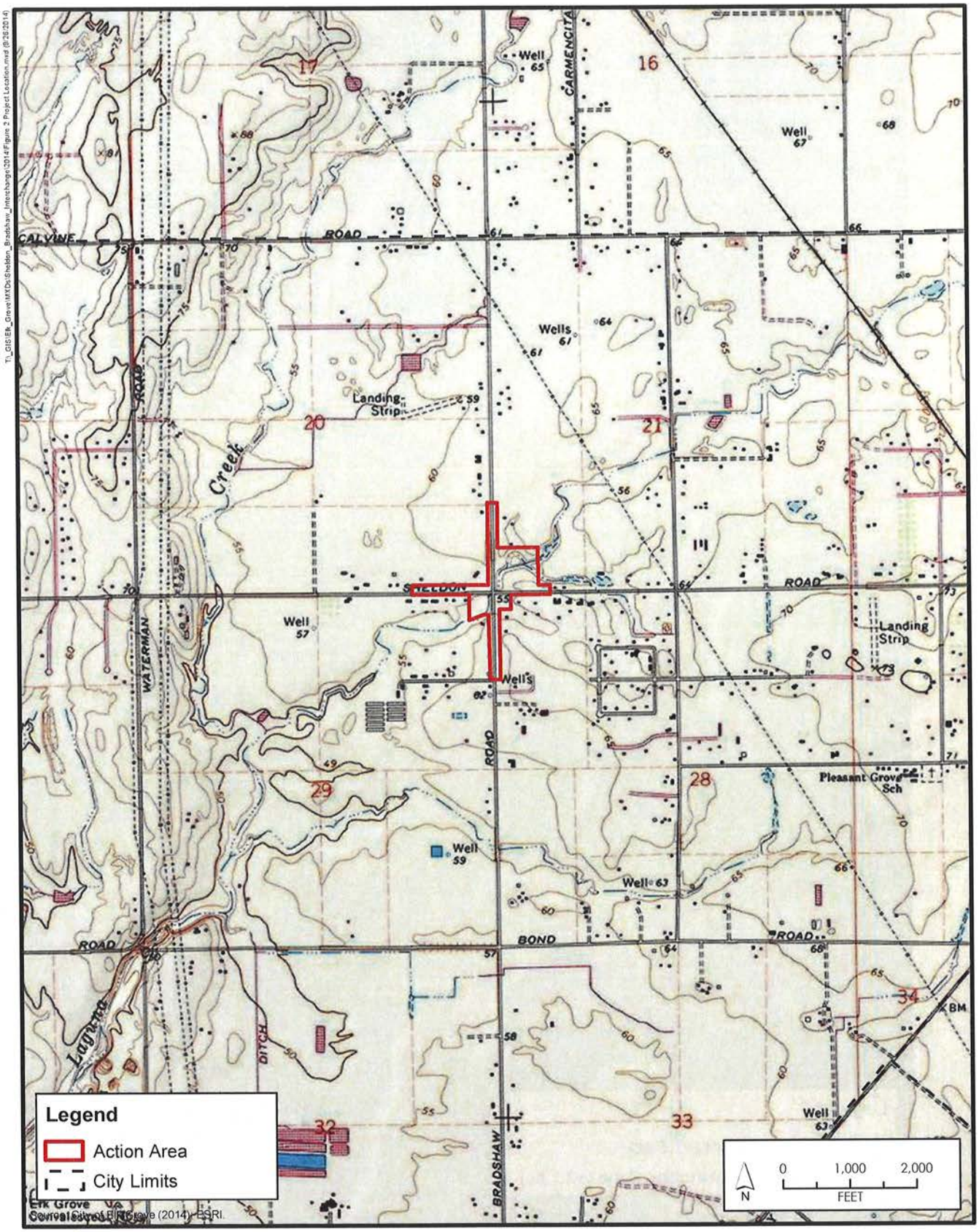
Additional right-of-way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the relocated Laguna Creek East tributary channel. Relocation of existing utilities may require additional easements rights. Traffic control during project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. Additional partial road closures or staging will be required for roadway construction. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

Figure 3 depicts the project impact area for Alternative A (roundabout) and **Figure 4** depicts the project impact area for Alternative B (signal). Each figure identifies the permanent impact area as defined by the project footprint and the temporary impact area as defined by the temporary construction zone (TCZ).

City of Elk Grove
Development Services

Figure 1

Regional Vicinity Map



City of Elk Grove
Development Services

Figure 2

Project Location Map

City of Elk Grove
Development Services

Figure 3

Alternative A Project Impact Map

City of Elk Grove
Development Services

Figure 4

Alternative B Project Impact Map

Chapter 2 – Study Methods

Regulatory Requirements

The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) require consideration of impacts to biological resources. In addition, other types of legislation address biological resources. Relevant laws and guidelines are described below.

FEDERAL LAWS AND REGULATIONS

Endangered Species Act

The federal Endangered Species Act (ESA), as amended, provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code (USC) Sections 1531–1544). The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Title 50, Part 222, of the Code of Federal Regulations (50 CFR Section 222) further defined "harm" to include "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including feeding, spawning, rearing, migrating, feeding, or sheltering."

ESA Section 7(a)(1) requires federal agencies to utilize their authority to further the conservation of listed species. ESA Section 7(a)(2) requires consultation with the US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) if a federal agency undertakes, funds, permits, or authorizes (termed the federal nexus) any action that may affect endangered or threatened species, or designated critical habitat. For projects that may result in the incidental take of threatened or endangered species, or critical habitat, and that lack a federal nexus, a Section 10(a)(1)(b) incidental take permit can be obtained from the USFWS and/or the NMFS.

Clean Water Act

The basis of the Clean Water Act (CWA) was established in 1948; however, it was referred to as the Federal Water Pollution Control Act. The act was reorganized and expanded in 1972 (33 USC Section 1251), and at this time the CWA became the act's commonly used name. The basis of the CWA is the regulation of pollutant discharges into waters of the U.S. (WoUS), as well as the establishment of surface water quality standards.

Section 404

CWA Section 404 (33 USC Section 1344) established the program to regulate the discharge of dredged or fill material into WoUS, including wetlands. Under this regulation, certain activities proposed within WoUS require the obtainment of a permit prior to initiation. These activities include, but are not limited to, placement of fill for the purposes of development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and bridges), and mining operations.

The primary objective of this program is to ensure that the discharge of dredged or fill material is not permitted if a practicable alternative to the proposed activities exists that results in less impact to WoUS or the proposed activity would result in significant adverse impacts to these waters. To comply with these objectives, a permittee must document the measures taken to avoid and minimize impacts to WoUS and provide compensatory mitigation for any unavoidable impacts.

The U.S. Environmental Protection Agency (EPA) and the USFWS are assigned roles and responsibilities in the administration of this program; however, the U.S. Army Corps of Engineers (USACE) is the lead agency in the administration of day-to-day activities, including issuance of permits. The agencies will typically assert jurisdiction over the following waters: (1) traditional navigable waters (TNW); (2) wetlands adjacent to TNWs; (3) relatively permanent waters (RPW) that are non-navigable tributaries to TNWs and have relatively permanent flow or seasonally continuous flow (typically three months); and (4) wetlands that directly abut RPWs. Case-by-case investigations are usually conducted by the agencies to ascertain their jurisdiction over waters that are non-navigable tributaries and do not contain relatively permanent or seasonal flow, wetlands adjacent to the aforementioned features, and wetlands adjacent to but not directly abutting RPWs (USACE 2007). Jurisdiction is not generally asserted over swales or erosional features (e.g., gullies or small washes characterized by low-volume/short-duration flow events) or ditches constructed wholly within and draining only uplands that do not have relatively permanent flows.

The extent of jurisdiction within WoUS, which lack adjacent wetlands, is determined by the ordinary high water mark (OHWM). The OHWM is defined in 33 CFR Section 328.3(e) as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." Wetlands are further defined under 33 CFR Section 328.3 and 40 CFR Section 230.3 as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions," and typically include "swamps, marshes, bogs, and similar areas." The 1987 Corps of Engineers Wetland Delineation Manual (1987 Manual) sets forth a standardized methodology for delineating the extent of wetlands under federal jurisdiction (Environmental Laboratory 1987).

The 1987 Manual outlines three parameters that all wetlands, under normal circumstances, must contain positive indicators for to be considered jurisdictional. These parameters include (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils. In 2006, the USACE issued a series of Regional Supplements to address regional differences that are important to the functioning and identification of wetlands. The supplements present "wetland indicators, delineation guidance, and other information" that is specific to the region. The USACE requires that wetland delineations submitted after June 5, 2007, be conducted in accordance with both the 1987 Manual and the applicable supplement.

Section 401

Under CWA Section 401 (33 USC Section 1341), federal agencies are not authorized to issue a permit and/or license for any activity that may result in discharges to WoUS, unless a state or tribe where the discharge originates either grants or waives CWA Section 401 certification. CWA Section 401 provides states or tribes with the ability to grant, grant with conditions, deny, or waive certification. Granting certification, with or without conditions, allows the federal permit/license to be issued and remain consistent with any conditions set forth in the CWA Section 401 certification. Denial of the certification prohibits the issuance of the federal license or permit, and waiver allows the permit/license to be issued without state or tribal comment. Decisions made by states or tribes are based on the proposed project's compliance with EPA water quality standards as well as applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and any other appropriate requirements of state or tribal law. In California, the State Water Resources Control Board (WRCB) is the primary regulatory authority for CWA Section 401 requirements (additional details below).

Migratory Bird and Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). The majority of birds found in the project vicinity would be protected under the MBTA.

Bald and Golden Eagle Protection Act

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 USC Sections 668–668c). Under the act, it is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest, or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

Executive Order 13112 – Invasive Species

This executive order directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, the USFWS and USACE would issue permits and therefore would be responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

Executive Order 11990 Protection of Wetlands (42 FR 26961, May 25, 1977)

Executive Order 11990 requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid undertaking or providing support for new construction located in wetlands unless (1) no practicable alternative exists and (2) all practical measures have been taken to minimize harm to wetlands.

Fish and Wildlife Coordination Act of 1958 (16 USC 661 et seq.)

The Fish and Wildlife Coordination Act requires that whenever any body of water is proposed or authorized to be impounded, diverted, or otherwise controlled or modified, the lead federal agency must consult with the USFWS, the state agency responsible for fish and wildlife management, and the NMFS. Section 662(b) of the act requires the lead federal agency to consider the recommendations of the USFWS and other agencies. The recommendations may include proposed measures to mitigate or compensate for potential damages to wildlife and fisheries associated with a modification of a waterway.

STATE LAWS AND REGULATIONS

California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Department of Fish and Wildlife (CDFW) has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code (FGC) Section 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of "species of special concern," which serve as a species "watch list."

Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from the CDFW would be in the form of an incidental take permit.

California Fish and Game Code

<u>Streambed Alteration Agreement (FGC Sections 1600–1607)</u>

State and local public agencies are subject to FGC Section 1602, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as waters of the state by the CDFW. Under FGC Section 1602, a discretionary Streambed Alteration Agreement must be issued by the CDFW to the project proponent prior to the initiation of construction activities within lands under CDFW jurisdiction. As a

general rule, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources.

Native Plant Protection Act

The Native Plant Protection Act (FGC Sections 1900–1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by the CDFW). An exception in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFW, and give that state agency at least 10 days to retrieve the plants before they are plowed under or otherwise destroyed (FGC Section 1913). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

Birds of Prey

Under FGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Fully Protected Species

California statutes also afford "fully protected" status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit. FGC Section 3505 makes it unlawful to take "any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird." FGC Section 3511 protects from take the following fully protected birds: (a) American peregrine falcon (*Falco peregrinus anatum*); (b) brown pelican (*Pelecanus occidentalis*); (c) California black rail (*Laterallus jamaicensis coturniculus*); (d) California clapper rail (*Rallus longirostris obsoletus*); (e) California condor (*Gymnogyps californianus*); (f) California least tern (*Sterna albifrons browni*); (g) golden eagle (*Aquila chrysaetos)*; (h) greater sandhill crane (*Grus canadensis tabida*); (i) light-footed clapper rail (*Rallus longirostris levipes*); (j) southern bald eagle (*Haliaeetus leucocephalus leucocephalus*); (k) trumpeter swan (*Cygnus buccinator*); (l) white-tailed kite (*Elanus leucurus*); and (m) Yuma clapper rail (*Rallus longirostris yumanensis*).

FGC Section 4700 identifies the following fully protected mammals that cannot be taken: (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); (b) bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*); (c) Guadalupe fur seal (*Arctocephalus townsendi*); (d) ring-tailed cat (genus *Bassariscus*); (e) Pacific right whale (*Eubalaena sieboldi*); (f) salt-marsh harvest mouse (*Reithrodontomys raviventris*); (g) southern sea otter (*Enhydra lutris nereis*); and (h) wolverine (*Gulo gulo*).

FGC Section 5050 protects from take the following fully protected reptiles and amphibians: (a) blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*); (b) San Francisco garter snake (*Thamnophis sirtalis tetrataenia*); (c) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); (d) limestone salamander (*Hydromantes brunus*); and (e) black toad (*Bufo boreas exsul*).

FGC Section 5515 identifies certain fully protected fish that cannot lawfully be taken, even with an incidental take permit. The following species are protected in this fashion: (a) Colorado River squawfish (*Ptychocheilus lucius*); (b) thicktail chub (*Gila crassicauda*); (c) Mohave chub (*Gila mohavensis*); (d) Lost River sucker (*Catostomus luxatus*); (e) Modoc sucker (*Catostomus microps*); (f) shortnose sucker (*Chasmistes brevirostris*); (g) humpback sucker (*Xyrauchen texanus*); (h) Owens River pupfish (*Cyprinoden radiosus*); (i) unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*); and (j) rough sculpin (*Cottus asperrimus*).

California Wetlands and Other Water Policies

The California Natural Resources Agency and its various departments do not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all of the following conditions are met:

- The project is water-dependent.
- No other feasible alternative is available.
- The public trust is not adversely affected.
- Adequate compensation is proposed as part of the project.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; California Code of Regulations (CCR) Title 23, Chapter 3, Subchapter 15) is the primary state regulation that addresses water quality. The requirements of the act are implemented by the WRCB at the state level and at the local level by the Regional Water Quality Control Board (RWQCB). The RWQCB carries out planning, permitting, and enforcement activities related to water quality in California. The act provides for waste discharge requirements (WDR) and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Clean Water Act, Section 401 Water Quality Certification

CWA Section 401 (33 USC Section 1341) requires that any applicant for a federal license or permit, which may result in a pollutant discharge to WoUS, obtain a certification that the discharge will comply with EPA water quality standards. The state or tribal agency responsible for issuance of the Section 401 certification may also require compliance with additional effluent limitations and water quality standards set forth in state/tribal laws. In California, the RWQCB is the primary regulatory authority for CWA Section 401 requirements.

The Central Valley RWQCB is responsible for enforcing water quality criteria and protecting water resources in the project area. In addition, the RWQCB is responsible for controlling discharges to surface waters of the state by issuing WDRs or commonly by issuing conditional waivers to WDRs. The RWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for CWA Section 404 permits issued by the USACE. A request for water quality certification (including WDRs) by the RWQCB and an application for a General Permit for Storm Water Discharges

Associated with Construction Activities are prepared and submitted following completion of the CEQA environmental document and submittal of the wetland delineation to the USACE.

Delegated Permit Authority

California has been delegated permit authority for the National Pollutant Discharge Elimination System (NPDES) permit program, including stormwater permits for all areas except tribal lands. Issuance of CWA Section 404 dredge and fill permits remains the responsibility of the USACE; however, the state actively uses its CWA Section 401 certification authority to ensure CWA Section 404 permits are in compliance with state water quality standards.

State Definition of Covered Waters

Under California state law, waters of the state means "any surface water or groundwater, including saline waters, within the boundaries of the state." Therefore, water quality laws apply to both surface water and groundwater. After the U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, the Office of Chief Counsel of the WRCB released a legal memorandum confirming the state's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act, discharges to wetlands and other waters of the state are subject to state regulation, and this includes isolated wetlands. In general, the WRCB regulates discharges to isolated waters in much the same way as it does for WoUS, using the Porter-Cologne Water Quality Control Act rather than CWA authority.

CALIFORNIA NATIVE PLANT SOCIETY

The California Native Plant Society (CNPS) is a nongovernmental agency that classifies native plant species according to current population distribution and threat level in regard to extinction. These data are utilized by the CNPS to create/maintain a list of native California plants that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

The following identifies the definitions of the CNPS listings:

- List 1A: Plants believed to be extinct
- List 1B: Plants that are rare, threatened, or endangered in California and elsewhere
- List 2: Plants that are rare, threatened, or endangered in California, but are more numerous elsewhere

All of the plant species on List 1 and 2 meet the requirements of the Native Plant Protection Act Section 1901, Chapter 10, or FGC Section 2062 and Section 2067 and are eligible for state listing. Plants appearing on List 1 or 2 are considered to meet the criteria of CEQA Section 15380, and effects on these species are considered

"significant." Classifications for plants on List 3 (plants about which we need more information) and/or List 4 (plants of limited distribution), as defined by the CNPS, are not currently protected under state or federal law. Therefore, no detailed descriptions or impact analysis was performed on species with these classifications.

LOCAL POLICIES AND ORDINANCES

City of Elk Grove Tree Preservation and Protection Code

Chapter 19.12 of the City Municipal Code, Tree Preservation and Protection, strives to protect and preserve trees of local importance, including coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizeni*), oracle oak (*Quercus x moreha*), California sycamore (*Platanus racemosa*), and black walnut (*Juglans hindsii*) with a single trunk 6 inches diameter at breast height (dbh) or greater or a multi-trunk with a combined dbh of 6 inches or greater. Chapter 19.12 requires mitigation for the removal of trees of local importance with dimensions described above; trees that have been selected for preservation; all portions of adjacent offsite native trees that have driplines that extend onto the project site; and all offsite native trees that may be impacted by utility installation and/or improvements associated with the project. Current policies require that every inch lost will be mitigated by an inch planted or equivalent credit obtained from a tree mitigation bank.

City of Elk Grove Swainson's Hawk Impact Mitigation Fees

Chapter 16.130 of the City Municipal Code, Swainson's Hawk Impact Mitigation Fees, requires mitigation for the loss of Swainson's hawk habitat at a 1:1 ratio. Mitigation can be achieved through the payment of a fee, which is used to fund the City's Swainson's hawk habitat restoration program. Other options for achieving mitigation through the code include the direct transfer to the City of a Swainson's hawk habitat conservation easement along with an easement monitoring endowment or the purchase of credits at a CDFW-approved conservation bank. The site must be surveyed to determine whether it is suitable Swainson's hawk foraging habitat.

City of Elk Grove General Plan

The City's General Plan identifies specific goals, objectives, and policies regarding natural resources (City of Elk Grove 2009). The General Plan serves as the overall guiding policy document for land use, development, and environmental quality for the City. The Conservation and Air Quality Element and the Parks, Trails, and Open Space Elelment of the General Plan include goals and policies to preserve, protect, enhance, and promote the City's valuable natural resources. The General Plan identifies specific goals and policies regarding biological and natural resources. The following policies are applicable to the proposed project.

CAQ-8: Large trees (both native and non-native) are an important aesthetic (and, in some cases, biological) resource. Trees which function as an important part of the City's or a neighborhood's aesthetic character or as natural habitat should be retained to the extent possible during the development of new structures, roadways (public and private, including roadway widening), parks, drainage channels, and other uses and structures.

CAQ-9: Wetlands, vernal pools, marshland and riparian (streamside) areas are considered to be important resources. Impacts to these resources shall be avoided unless shown to be technically infeasible. The City shall seek to ensure that no net loss of wetland areas occurs, which may be accomplished by avoidance, re-vegetation and restoration onsite or creation of riparian habitat corridors.

PTO-5: The City views open space lands of all types as an important resource which should be preserved in the region, and supports the establishment of multi-purpose open space areas to address a variety of needs, including, but not limited to:

- Maintenance of agricultural uses
- Wildlife habitat
- Recreational open space
- Aesthetic benefits
- Flood control

To the extent possible, lands protected in accordance with this policy should be in proximity to Elk Grove, to facilitate use of these areas by Elk Grove residents, assist in mitigation of habitat loss within the city, and provide an open space resource close to the urbanized areas of Elk Grove.

South Sacramento County Habitat Conservation Plan

The South Sacramento County Habitat Conservation Plan is in the process of being prepared and will address the conservation and development of lands in this portion of the county. The purpose of the plan is to encourage and simplify the process of conserving sensitive habitats for special-status species. Once the plan is approved, it will allow for incidental take of covered species with the requirement of mitigation for lost habitat at approved ratios. Only some of the total listed species analysis that will be included in the plan are complete and include white-tailed kite, northern harrier (*Circus cyaneus*), tricolored blackbird (*Agelaius tricolor*), giant garter snake (*Thamnophis gigas*), vernal pool fairy shrimp (*Branchinecta lynchi*), and Sanford's arrowhead (*Sagittaria sanfordii*). The complete list can be found on the Sacramento County, Planning and Community Development Department website (Sacramento County 2006).

Studies Required

The area of potential effect (APE) was used as the BSA for this project (**Figure 5**). This boundary includes all areas that could be impacted by the project, plus a buffer to accommodate any changes to project limits and project design that may occur during project development. Biologists reviewed the project description and conceptual design plans, performed literature reviews and database searches, and conducted reconnaissance-level biological surveys to obtain information regarding habitat quality and the potential presence of sensitive plant and wildlife species within the BSA.

LITERATURE REVIEW

A list of special-status species and habitats that have the potential to occur within the BSA or in the project vicinity was prepared using information obtained from the USFWS (2014a) Sacramento office's Species Lists, the USFWS (2014b) Critical Habitat Portal, the CDFW (2014a) California Natural Diversity Database (CNDDB), and the CNPS (2014) Inventory of Rare and Endangered Plants of California.

A search of the USFWS Sacramento office's Species Lists database was performed for the Sloughhouse, Clay, Elk Grove, Florin, Bruceville, Galt, Buffalo Creek, Sacramento East, and Carmichael, California, U.S. Geological Survey (USGS) 7.5-minute quadrangles (quads) to identify special-status species under USFWS jurisdiction that may be affected by the proposed project. In addition, a query of the USFWS's Critical Habitat Portal was conducted to identify any designated critical habitat on or in the vicinity of the BSA. The CNDDB provided a list of processed and unprocessed occurrences of special-status species identified within the aforementioned USGS quads. The CNPS database was also queried to identify special-status plant species with the potential to occur in the aforementioned USGS quads. Please see **Appendix A** for the raw data returned from the database queries.

HABITAT ASSESSMENT

Reconnaissance-level surveys were conducted to assess the biological resources that may be impacted as part of the proposed project, map vegetative communities on and adjacent to the BSA, and evaluate the potential suitability of those communities for special-status species returned in the literature review. A habitat layer was created for areas within the BSA using the geographic information system ArcView program based on aerial photo-interpretation and data collected during reconnaissance-level surveys. Habitat classifications were assigned using A Guide to Wildlife Habitats of California (CDFW 2014b).

WETLAND DELINEATION

An approved wetland delineation was obtained from the USACE on April 19, 2007; however, project delays resulted in the expiration of the delineation in 2012. On June 20, 2013, PMC biologists reviewed the project site to verify if the data collected and presented in the original delineation was still consistent with current site conditions. The site review revealed that the original delineation was still consistent with current site conditions, and a request to reverify the delineation was submitted to the USACE. On October 9, 2013, the USACE issued a preliminary jurisdictional determination concurring with the amount and location of wetlands and other water bodies within the project area. A copy of the approved delineation map and verification letter from the USACE is provided in **Appendix B**.

TREE SURVEY

PMC staff International Society of Arboriculture (ISA) Certified Arborist Rochelle Wicky Amrhein (#WE-6783A) surveyed the project January 31 and February 3, 2006, to document native and landmark trees that would potentially sustain impacts from the proposed project (**Appendix C**). On June 20, 2013, PMC biologists updated the original tree survey. All previously identified trees were verified, new trees were added, and

current dbh measured (**Appendix C**). All native trees with a minimum 6-inch dbh were included in the survey.

IMPACT ASSESSMENT

The impact assessment is based on information provided in the project description, environmental setting, and conceptual plans; federal, state, and local regulatory requirements regarding impacts to biological resources; and data collected from the literature review, habitat assessment, and wetland delineation. When information about the presence of a particular special-status species is unknown, but suitable habitat is present, the impact analysis takes a conservative approach and presence is inferred. This impact assessment considers permanent and temporary impacts in addition to cumulative and indirect impacts of each biological resource being analyzed. Impacts to specific biological resources are identified and appropriate avoidance, minimization, compensation, and/or mitigation measures are discussed further in Chapter 4.

Personnel and Survey Dates

PMC biologists Brandon Amrhein, Jeannette Owen, and Rochelle Wicky-Amrhein, surveyed the project area on January 17, 19, 31, 2006, and February 3, 2006. An additional plant survey was conducted on June 12, 2006. Initial visits were conducted to characterize the BSA and identify areas of potential biological concern. Subsequent visits were conducted for directed surveys, habitat assessments, and tree surveys.

PMC biologists Summer Pardo (PWS #2188) and Leslie Parker conducted site surveys to reverify the original delineation and update the tree survey on January 31 and February 3, 2014.

Agency Coordination and Professional Contacts

The following is a summary of all documented agency coordination involving natural resources for the project study area to date.

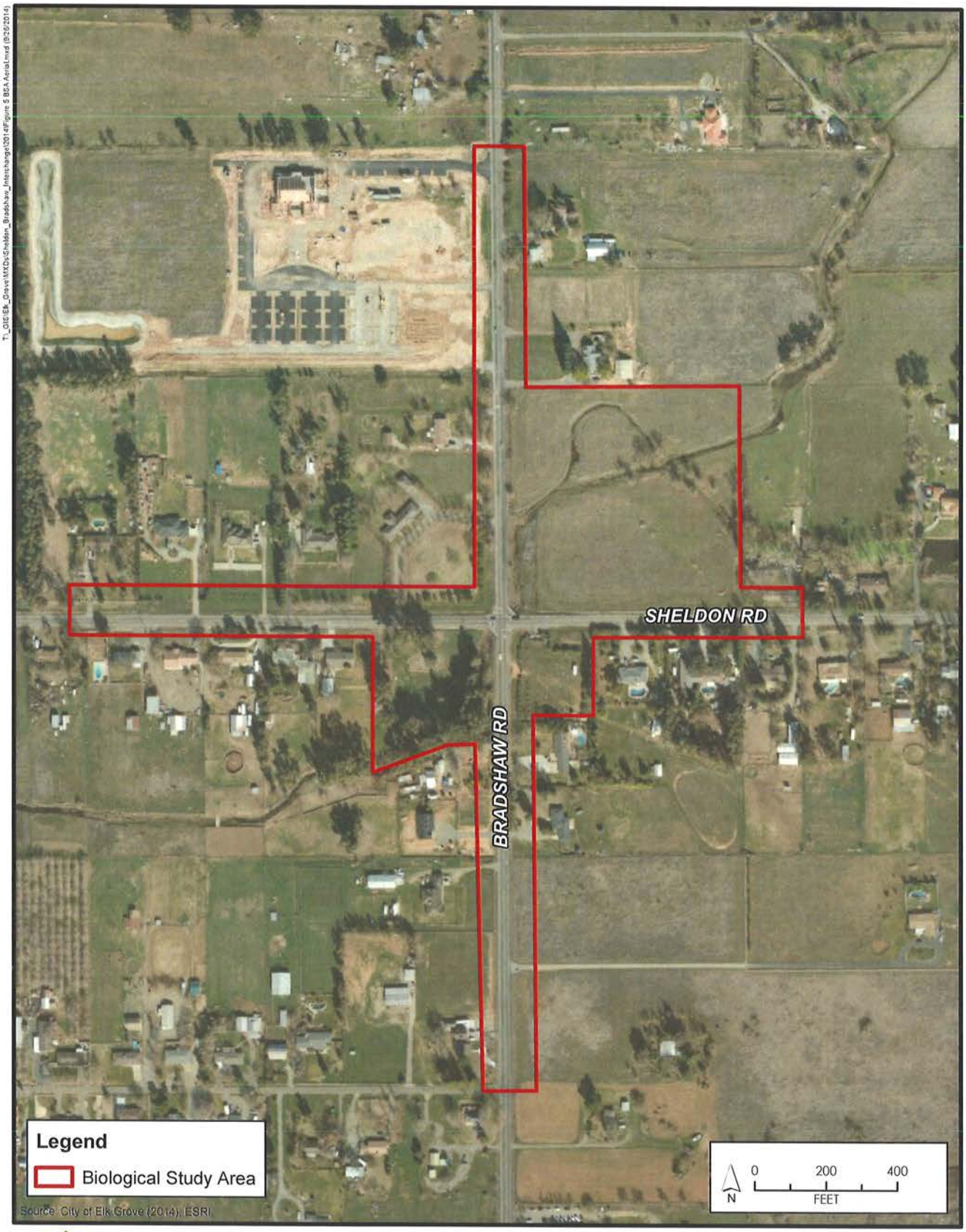
- September 22, 2005: Preliminary Design Consultation meeting with USACE. Contact: Paul Maniccia.
- June 9, 2006: Follow-up Design Consultation meeting with USACE. Contact: Paul Maniccia.
- June 13, 2006: Wetland delineation submitted to USACE for verification. Contact: Paul Maniccia.
- December 24, 2006: Revised Wetland Delineation submitted to USACE for verification, addressing comments made by Paul Maniccia during initial November 20, 2006, field verification visit.
- April 19, 2007: USACE revised wetland delineation verification letter sent to City of Elk Grove.
- September 4, 2013: Request for reverification of delineation verified in 2007 sent to USACE. Contact: Paul Maniccia.

- October 9, 2013: USACE issued preliminary jurisdictional determination letter to the City of Elk Grove.

- April 11, 2014: Site review with Lisa Gibson of USACE, Maureen Doyle of Caltrans, and PMC biologists Summer Pardo and Leslie Parker to discuss impacts to federally listed species.

Limitations That May Influence Results

No limitations to the assessment efforts or information collected to date have been identified. Standard protocols were used for biological surveys that were conducted; surveys were conducted during appropriate seasons and under appropriate weather conditions. The presence of potentially occurring special-status species is inferred in suitable habitat within and adjacent to the BSA until protocol-level and/or preconstruction surveys are completed, as necessary.



City of Elk Grove
Development Services

Figure 5

Biological Study Area

Chapter 3 – Results: Environmental Setting

This chapter describes the region in which the project will occur, including a concise description of the area's topography, soils, vegetation, aquatic resources, and level of human or natural disturbance.

Description of the Existing Biological and Physical Conditions

The following descriptions of the existing biological and physical conditions are described in relation to the BSA boundaries. The BSA was used as the limit for biological studies conducted in support of the project and will be used when determining potential impacts to special-status species as described in Chapter 4.

STUDY AREA

The proposed project will analyze impacts that may result from two design alternatives: Alternative A represents a roundabout configuration and Alterative B represents a signalized intersection. The BSA was delimited using the APE, as it encompasses the footprint and TCZ for Alternative A (**Figure 6**) and Alternative B (**Figure 7**). The BSA is characterized by rural residential/urban development and active agricultural lands. Most of these areas have been modified from their former natural condition and are currently subject to routine disturbance from ongoing drainage channel maintenance activities and nearby urban and residential uses.

PHYSICAL CONDITIONS

Topography

The BSA is located in the Sacramento Valley, which is primarily flat land with no hills or valleys. The only significant topographical feature within the BSA is the east branch of Laguna Creek (Laguna Creek East). There are also various roadside ditches paralleling the roads that vary in depth in the BSA. These features are discussed in more detail below.

Hydrology

Hydrologic features in the BSA include the aforementioned roadside ditches and Laguna Creek East. The roadside ditches convey stormwater runoff from Sheldon and Bradshaw Roads into Laguna Creek East. The reaches of Laguna Creek East that are upstream of the BSA are fed by drainages east and northeast of the city limits. Downstream of the BSA, Laguna Creek East converges with the main stem of Laguna Creek. During the winter season, this feature conveys storm flows south and west to Laguna Creek; however, during the summer months flows are greatly diminished or reduced to nothing. Intermittent water flow through this feature in the summer is provided primarily by urban and agricultural irrigation runoff.

Soils

The Natural Resources Conservation Service (NRCS) Web Soil Survey was consulted to define the onsite soil characteristics (USDA 2014). Four soil map units occur within the BSA (**Figure 8**): **San Joaquin silt loam,** 0 to 1 percent slopes (map unit symbol **213**); **San Joaquin silt loam**, 0 to 3 percent slopes (**214**); **San Joaquin silt loam,** 3 to 8 percent slopes (**215**); and **San Joaquin-Durixeralfs complex**, 0 to 1 percent slopes (**216**). The soil series in which these soil units are found are discussed below.

- **San Joaquin silt loam (213, 214, 215)** series consists of moderately deep, moderately well drained soils on low terraces. All three soil map units (213, 214, and 215) are on the Hydric Soils List for Sacramento County, California (USDA 2012). Permeability is very slow and available water capacity is low. The shrink-swell potential is high. Runoff is very slow to medium, increasing as the slope increases. Water erosion is a slight hazard or not a hazard at all to moderate depending again on the slope.

- **San Joaquin-Durixeralfs complex (216)** is on low terraces. This unit is approximately 55 percent San Joaquin soil and 35 percent Durixeralfs. San Joaquin soil is in areas that have been left relatively undisturbed when leveled. The Durixeralfs are in cut areas from which most or the entire original surface layer has been removed. San Joaquin soil is moderately deep and well drained. Permeability is very slow in the San Joaquin soil complex and available water capacity is low. Runoff is very slow. Water erosion is a slight hazard or not a hazard at all. The Durixeralfs are shallow or moderately deep, well drained and altered. Permeability is slow or very slow and available water capacity is very low or low. Runoff is very slow. Water erosion hazard is slight or not a hazard at all. This soil is on hydric Soils List for Sacramento County, California (USDA 2012).

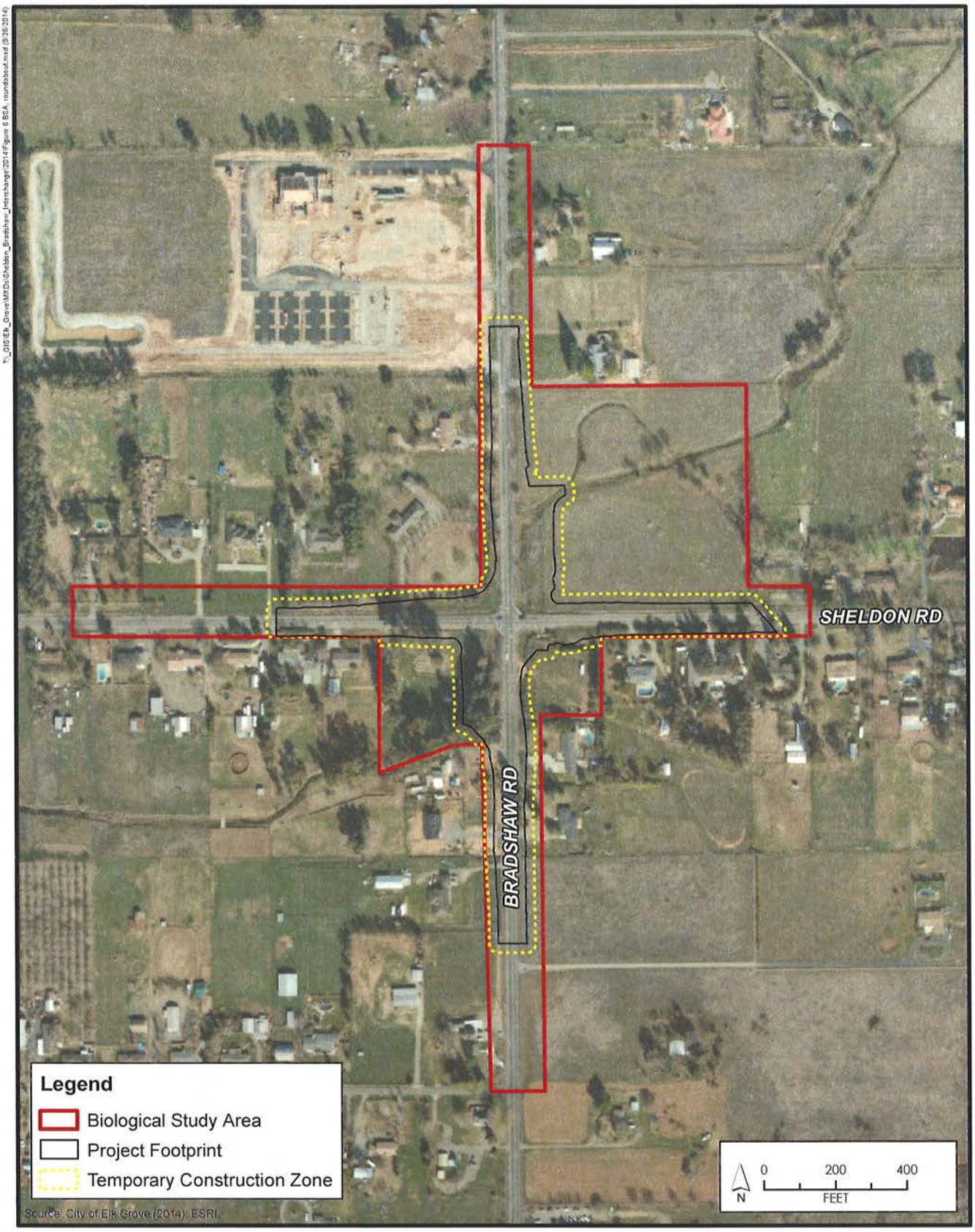
BIOLOGICAL CONDITIONS IN THE BIOLOGICAL STUDY AREA

Vegetative communities are assemblages of plant species that occur in the same area and are defined by species composition and relative abundance. The BSA consists of urban land uses, annual grassland, a seasonal wetland, and an intermittent creek (Laguna Creek East) (**Figure 9**). Each community is described below and is based on descriptions obtained from the CDFW's A Guide to Wildlife Habitats of California (2014b).

Vegetative Communities

Urban

Urban habitat is characterized by the presence of both native and exotic species maintained in a relatively static composition within a downtown, residential, or suburban setting. Species richness in these areas depends greatly on community design (i.e., open space considerations) and proximity to the natural environment.



City of Elk Grove
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Figure 6
Alternative A Biological Study Area
and Project Impact Map

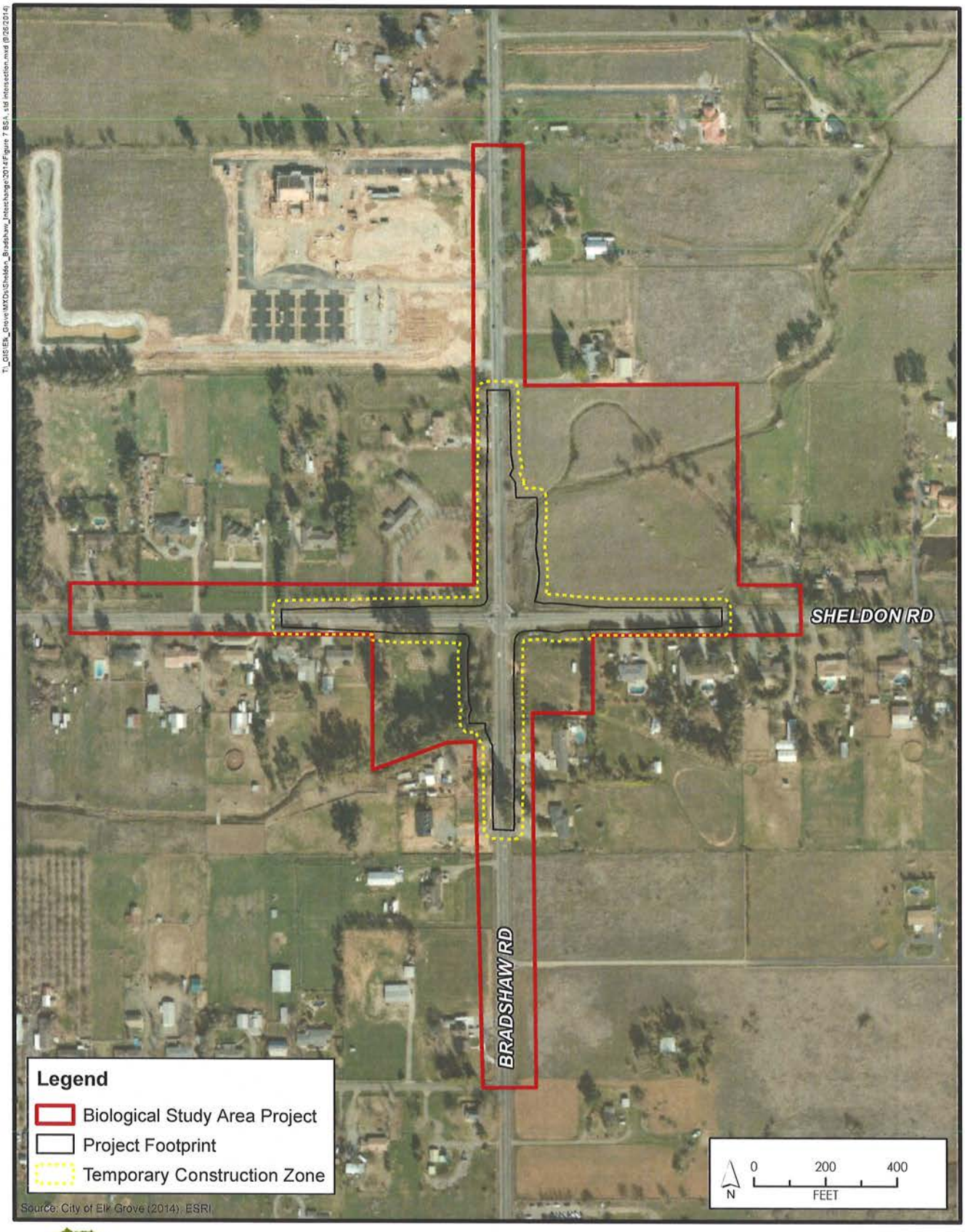

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Figure 7
Alternative B Biological Study Area and Project Impact Map

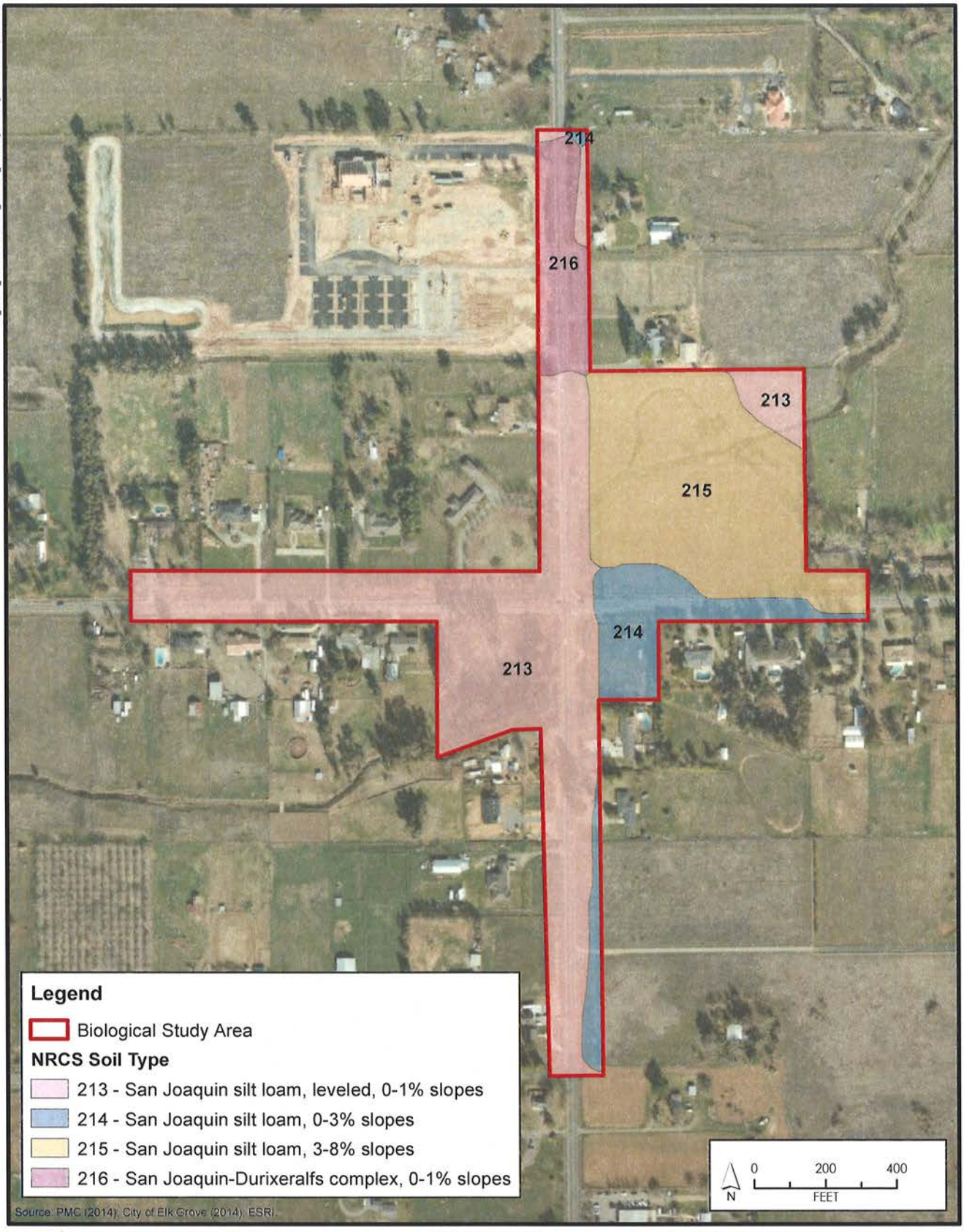

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Figure 8

NRCS Soils Map

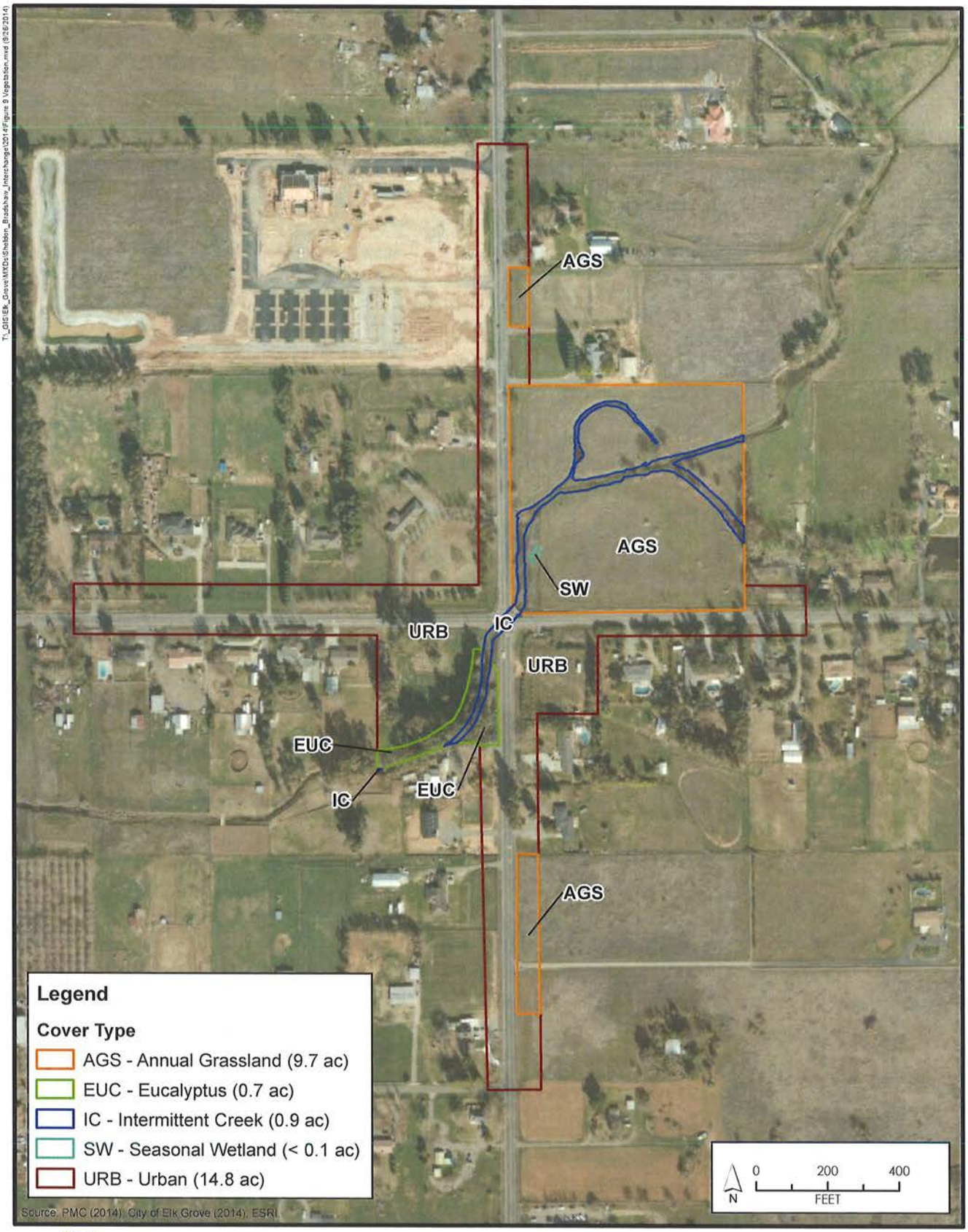

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Figure 9

Vegetative Communities Map

The California Wildlife Habitat Relationships system classifies urban habitat into five different vegetation types: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves refer to conditions typically found in city parks, greenbelts, and cemeteries. These areas vary in tree height, spacing, crown shape, and understory conditions; however, they have a continuous canopy. Street strip vegetation, located roadside, varies with species type but typically includes a ground cover of grass. Shade trees and lawns refer to characteristic residential landscape, which is reminiscent of natural savannas. Lawns are composed of a variety of grasses, maintained at a uniform height with continuous ground cover through irrigation and fertilization. Shrub cover refers to areas commonly landscaped and maintained with hedges, as typically found in commercial districts. All five types of urban habitat are generally found in combination, creating considerable edge effect, which can be more valuable to wildlife than any one individual unit. All five types of urban habitat are present in the BSA.

Annual Grassland

Annual grassland within the BSA is a mixture of non-native and native species. The dominant grasses are bromes (i.e., *Bromus mollis, B. catharticus,* and *B. tectorum*), rye (*Lolium multiflorum*), and wild oat (*Avena fatua*). Common forbs include clover (*Medicago sp.*), filaree (*Erodium spp.*), wild radish (*Raphanus sativus*), mustards (i.e. *Brassica nigra*), winter vetch (*Vicia villosa*), field bindweed (*Convolvulus arvensis*), and milk thistle (*Silybum marianum*). Annual grasslands may also support seasonally wet wetlands (as described below).

Seasonal Wetland

The USACE defines wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987). Wetlands generally include swamps, marshes, bogs, and seasonally saturated or inundated areas such as vernal pools; as a result, plant species found within seasonal wetlands are adapted to withstand short periods of inundation. One seasonal wetland occurs within the BSA and is characterized by vegetation such as perennial ryegrass (*Lolium sp.*), nutsedge (*Cyperus eragrostis*), and curly dock (*Rumex crispus*).

Intermittent Creek (Laguna Creek East)

Laguna Creek East is an intermittent creek that runs through the BSA. This creek is a low gradient channel, low velocity creek that supports species such as arroyo willow (*Salix lasiolepis.*), cattails (*Typha latifolia*), spike rush (*Eleocharis macrostachya*), sheep sorrel (*Rumex acetosella*), curly dock, fiddle dock (*Rumex pulcher L.*), tule/bulrush (*Scirpus* sp.), nutsedge, yellow waterprimrose (*Ludwigia peploides*), and duckweed (*Lemna minuscula*).

Laguna Creek East represents suitable habitat for several animal species. Wildlife observed during reconnaissance-level surveys include common moorhen (*Gallinula chloropus*), cliff swallow (*Petrochelidon pyrrhonota),* great egret (*Ardea alba*), red-winged blackbird (*Agelaius phoeniceus*), and great-tailed grackle (*Quiscalus mexicanus*).

Habitat Connectivity

The CDFW Biogeographic Information & Observation System (2014c) was reviewed to determine if the BSA is located within an Essential Connectivity Area. The BSA does not occur within an Essential Connectivity Area; therefore, the project is not likely to adversely affect migratory corridors.

Regional Species and Habitats and Natural Communities of Concern

Habitats of concern include areas of special concern to resource agencies, areas protected under CEQA, areas designated as sensitive natural communities by the CDFW, areas outlined in Section 1600 of the FGC, areas regulated under Section 404 of the federal CWA, and areas protected under local regulations and policies. Sensitive habitats identified in or adjacent to the BSA include seasonal wetlands and Laguna Creek East.

Candidate, sensitive, or special-status species are commonly characterized as species that are at potential risk or actual risk to their persistence in a given area or across their native habitat. These species have been identified and assigned a status ranking by governmental agencies such as the CDFW and the USFWS, and private organizations such as the CNPS. The degree to which a species is at risk of extinction is the determining factor in the assignment of a status ranking. Some common threats to a species' or a population's persistence include habitat loss, degradation, and fragmentation, as well as human conflict and intrusion. For the purposes of this NES, special-status species are defined by the following codes:

- Listed, proposed, or candidates for listing under the ESA (50 CFR Section 17.11 – listed; 61 Federal Register Section 7591, February 28, 1996, candidates)
- Listed or proposed for listing under CESA (FGC 1992 Section 2050 et seq.; 14 California CCR Section 670.1 et seq.)
- Designated as Species of Special Concern by the CDFW
- Designated as Fully Protected by the CDFW (FGC Sections 3511, 4700, 5050, 5515)
- Species that meet the definition of rare or endangered under CEQA (14 CCR Section 15380), including CNPS List 1 and 2

The result of the USFWS, CNDDB, and CNPS database queries identified several special-status species with the potential to be impacted by the proposed project. **Figure 10** depicts CNDDB occurrence data within 1 mile of the BSA. **Table 1** provides a summary of all species identified in the search results, a description of the habitat requirements for each species, and conclusions regarding the potential for each species to be impacted by the proposed project.

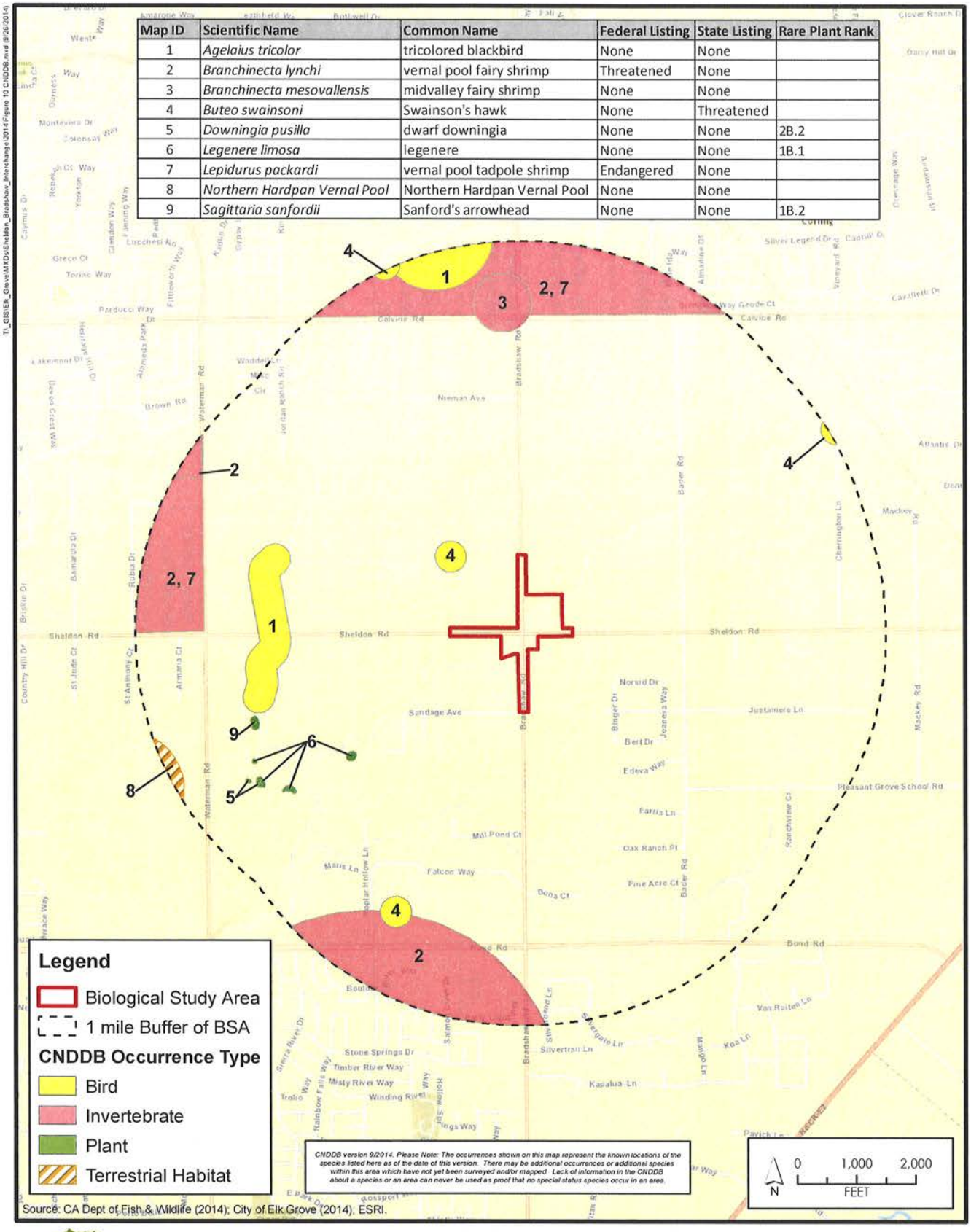

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Figure 10
CNDDB Occurrences within 1 mile of the BSA

Table 1: Special-Status Species and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Plants							
Brasenia schreberi	watershield	-	-	2B.3	Freshwater marshes and swamps. Elev: 98-7,218 ft. (30-2,200 m.) Blooms: June-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Carex comosa	bristly sedge	-	-	2B.1	Marshes, swamps and lake margins. Elev: 0-2,051 ft. (0-625 m.) Blooms: May-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Castilleja campestris ssp. succulenta	succulent owl's-clover	FT	SE	1B.1	Acidic vernal pools. Elev: 164-2,461 ft. (50-750 m.). Blooms: April-May (CNPS 2014).	A	**Not likely to affect** Suitable habitat not present.
	Critical Habitat, succulent owl's-clover	X	-	-		A	**No effect.** BSA not located within Critical Habitat Unit.
Cicuta maculata var. bolanderi	Bolander's water-hemlock	-	-	2B.1	Coastal, fresh or brackish marshes and swamps. Elev: 0-656 ft. (0-200 m.) Blooms: July-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	-	-	2B.2	Freshwater marshes and swamps. Elev: 49-919 ft. (15-280 m.) Blooms: July-Oct. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Downingia pusilla	dwarf downingia	-	-	2B.2	Vernal pools and mesic valley and foothill grasslands. Elev: 3-1,459 ft. (1-445 m.) Blooms: March-May (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Gratiola heterosepala	Boggs Lake hedge-hyssop	-	SE	1B.2	Clay soils in marshes, swamps, lake margins and vernal pools. Elev: 33-7,792 ft. (10-2,375 m.) Blooms: April-August (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	-	-	1B.2	Freshwater marshes and swamps. Elev: 0-394 ft. (0-120 m.) Blooms: June-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Juglans hindsii	Northern California black walnut	-	-	1B.1	Riparian forest/woodland. Elev: 0-1,444 ft. (0-440 m.) Blooms: April-May (CNPS 2014).	P	**May affect.** Species present within BSA.
Juncus leiospermus var. ahartii	Ahart's dwarf rush	-	-	1B.2	Mesic valley and foothill grasslands. Elev: 98-751 ft. (30-229 m.) Blooms: March-May (CNPS 2014).	A	**Not likely to affect.** Suitable soils not present. Mapped soil units within BSA all defined as moderately well drained (USDA 2014).
Lathyrus jepsonii var. jepsonii	Delta tule pea	-	-	1B.2	Freshwater and brackish marshes and swamps. Elev: 0-13 ft. (0-4 m.) Blooms: May-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Legenere limosa	legenere	-	-	1B.1	Vernal pools. Elev: 3-2,887 ft. (1-880 m.) Blooms: April-June (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Lepidium latipes var. heckardii	Heckard's pepper-grass	-	-	1B.2	Alkaline flats in valley and foothill grasslands. Elev: 7-656 ft. (2-200 m.) Blooms: March-May (CNPS 2014).	A	**Not likely to affect.** Alkaline soils not present within BSA (USDA 2014).

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Lilaeopsis masonii	Mason's lilaeopsis	-	SR	1B.1	Riparian scrub, and brackish or freshwater marshes and swamps. Elev: 3-33 ft. (0-10 m.) Blooms: April-Nov. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Limosella australis	Delta mudwort	-	-	2B.1	Usually mud banks in riparian scrub, and freshwater or brackish marshes and swamps. Elev: 0-10 ft. (0-3 m.) Blooms: May-Aug. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Orcuttia tenuis	slender Orcutt grass	FT	SE	1B.1	Vernal pools. Elev: 115-5,774 ft. (35-1,760 m.) Blooms: May-Oct. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
	Critical Habitat, slender Orcutt grass	X	-	-		A	**No effect.** BSA not located within Critical Habitat Unit.
Orcuttia viscida	Sacramento Orcutt grass	FE	SE	1B.1	Vernal pools. Elev: 98-328 ft. (30-100 m.) Blooms: April-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
	Critical Habitat, Sacramento Orcutt grass	X	-	-		A	**No effect.** BSA not located within Critical Habitat Unit.
Sagittaria sanfordii	Sanford's arrowhead	-	-	1B.2	Assorted shallow freshwater marshes and swamps. Elev: 0-2,133 ft. (0-650 m.) Blooms: May-Oct. (CNPS 2014).	P	**May affect.** Portions of Laguna Creek East immediately upstream of the existing box culvert may provide suitable habitat.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Scutellaria galericulata	marsh skullcap	-	-	2B.2	Lower montane coniferous forest, meadows, seeps, marshes, and swamps. Elev: 0-6,890 ft. (0-2,100 m.) Blooms: June-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Scutellaria laterifolia	side-flowering skullcap	-	-	2B.2	Marshes, swamps, mesic meadows and seeps. Elev: 0-1,640 ft. (0-500 m.) Blooms: July-Sept. (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Trifolium hydrophilum	saline clover	-	-	1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. Elev: 0-984 ft. (0-300 m.) Blooms: April-June (CNPS 2014).	A	**Not likely to affect.** Suitable habitat not present.
Invertebrates							
Branchinecta conservatio	conservancy fairy shrimp	FE	-		Vernal pools, often large and turbid pools (USFWS 2005).	A	**Not likely to affect.** Suitable habitat not present. Seasonal wetland hydroperiod inadequate to support vernal pool crustaceans.
Branchinecta lynchi	vernal pool fairy shrimp	FT	-		Found only in vernal pools and ephemeral wetlands. Distributed throughout the Central Valley, including Sacramento County (USFWS 2005).	A	**Not likely to affect.** Suitable habitat not present. Seasonal wetland hydroperiod inadequate to support vernal pool crustaceans.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
	Critical Habitat, vernal pool fairy shrimp	X	-			A	**No effect.** BSA not located within Critical Habitat Unit.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	-		Dependent on hostplant, elderberry (*Sambucus* spp.), which generally grows in riparian woodlands and upland habitats of the Central Valley. Current distribution in the Central Valley from Shasta County to Fresno County (USFWS 1999a).	A	**No effect.** Host plant not present within BSA.
	Critical Habitat, valley elderberry longhorn beetle	X	-			A	**No effect.** BSA not located within Critical Habitat Unit.
Lepidurus packardi	vernal pool tadpole shrimp	FE	-		Wide variety of ephemeral wetland habitats, including vernal pools. Distributed throughout Central Valley and San Francisco Bay area (USFWS 2005).	A	**Not likely to affect.** Suitable habitat not present. Seasonal wetland hydroperiod inadequate to support vernal pool crustaceans.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
	Critical Habitat, vernal pool tadpole shrimp	X	-			A	**No effect.** BSA not located within Critical Habitat Unit.
Fish							
Acispenser medirostris	green sturgeon	FT	SSC		Entire coast of California. Spawning occurs in Sacramento River and Klamath River (USFWS 1996). Oceanic waters, bays, and estuaries during non-spawning season. Spawning habitat = deep pools in large, turbulent, freshwater mainstems (NMFS 2005).	A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.
Hypomesus transpacificus	delta smelt	FT	SE		Distribution includes the Sacramento River below Isleton, San Joaquin River below Mossdale, and Suisun Bay. Spawning areas include the Sacramento River below Sacramento, Mokelumne River system, Cache Slough, the delta, and Montezuma Slough (USFWS 1996).	A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.
	Critical Habitat, delta smelt	X	-			A	**No effect.** BSA not located within Critical Habitat Unit.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Lampetra ayresii	river lamprey	-	SSC		Adults require clean, gravelly riffles in permanent streams for spawning, while the ammocoetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 25°C (Moyle et al. 1995).	A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.
Mylopharodon conocephalus	hardhead	-	SSC		Small to large streams in a low to mid-elevation environment. May also inhabit lakes or reservoirs. Their preferred stream temperature might easily exceed 20°C, though these fish do not favor low dissolved oxygen levels. Therefore the hardhead minnow is usually found in clear deep streams with a slow but present flow. Though spawning may occur in pools, runs, or riffles, the bedding area will typically be characterized by gravel and rocky substrate (CalFish 2014).	A	**No effect.** Segment of Laguna Creek East does not contain adequate flows, hydroperiod, or bed material to support this species.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Oncorhynchus mykiss	Central Valley steelhead	FT	-		Spawning habitat = gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning = estuarine, marine waters (Busby et al. 1996).	A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.
	Critical Habitat, Central Valley steelhead	X	-			A	**No effect.** BSA not located within Critical Habitat Unit.
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	FT	ST		Spawning habitat = fast moving, freshwater streams and rivers. Juvenile habitat = brackish estuaries. Non-spawning = marine waters (Myers et al. 1998).	A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.
	Critical Habitat, Central Valley spring-run chinook salmon	X	-			A	**No effect.** BSA not located within Critical Habitat Unit.
	winter-run chinook salmon, Sacramento River	FE	SE			A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
	chinook salmon, Central Valley fall/late fall-run ESU	-	SSC			A	**No effect.** Segment of Laguna Creek East within BSA inaccessible to anadromous fish species due to fish passage barriers.
Pogonichthys macrolepidotus	Sacramento splittail	-	SSC		Prefers slow-moving sections of freshwater rivers and sloughs. Most abundant in Suisun Bay and Marsh region. Largely absent from Sacramento River except during spawning (USFWS 1996).	A	**No effect.** Project outside species range.
Spirinchus thaleichthys	longfin smelt	FC	ST/SSC		Adults and juveniles require salt or brackish estuary waters. Spawning takes place in freshwater over sandy-gravel substrates, rocks, and aquatic plants (Moyle et al. 1995).	A	**No effect.** Suitable habitat not present.
Amphibians							
Ambystoma californiense	California tiger salamander, central population	FT	ST		Occurs in grasslands of the Central Valley and oak savannah communities in the Central Valley, the Sierra Nevada and Coast ranges,	A	**Not likely to affect.** Suitable habitat not present. BSA outside known range in Sacramento County.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
	Critical Habitat, CA tiger salamander, central population	X	-		and the San Francisco Bay Area. Needs seasonal or semi-permanent wetlands to reproduce, and terrestrial habitat with active ground squirrel or gopher burrows (Bolster 2010).	A	**No effect.** BSA not located within Critical Habitat Unit.
Rana draytonii	California red-legged frog	FT	SSC		Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Breeding habitat is in permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Ephemeral wetland habitats require animal burrows or other moist refuges for aestivation when the wetlands are dry. From sea level to 5,000 ft. (1,525 m.) (Nafis 2014).	A	**Not likely to affect.** Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Spea hammondii	western spadefoot	-	SSC		Open areas with sandy/gravelly soils. Variable habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding (Nafis 2014).	A	**Not likely to affect.** Soils within BSA characterized as silt/clay loams (USDA 2014). Seasonal wetland does not have adequate hydroperiod [30 days minimum (Nafis 2014)]. Portions of Laguna Creek East with adequate hydroperiod contain predators.
Reptiles							
Emys marmorata	western pond turtle	-	SSC		Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. Found at elevations from sea level to over 5,900 ft. (1,800 m.). (Nafis 2014).	A	**Not likely to affect**. Intermittent hydroperiod of Laguna Creek East inadequate to support this species.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Thamnophis gigas	giant garter snake	FT	ST		Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, rice fields and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November–mid-March). Ranges in the Central Valley from Butte County to Buena Vista Lake in Kern County. Endemic to valley floor wetlands (USFWS 2012).	P	**May affect**. Marginally suitable habitat present.
Birds							
Agelaius tricolor	tricolored blackbird	-	SSC		Nests in wetlands or in dense vegetation near open water. Dominant nesting substrates: cattails, bulrushes, blackberry, agricultural silage. Nesting substrate must either be flooded, spinous, or in some way defended against predators (Hamilton 2004).	A	**Not likely to affect.** Suitable nesting substrate not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Ammodramus savannarum	grasshopper sparrow	-	SSC		In the foothills and lowlands west of the Cascades/Sierras. Dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present. Grassland is composed of heavily grazed weedy annual species. Shrubs are absent.
Aquila chrysaetos	golden eagle	-	FP		Uncommon resident and migrant throughout California, except center of Central Valley. Habitat typically rolling foothills, mountain areas, sage-juniper flats, desert (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present.
Athene cunicularia	western burrowing owl	-	SSC		Open, flat expanses with short, sparse vegetation and few shrubs, level to gentle topography and well-drained soils. Requires underground burrows or cavities for nesting and roosting. Can use rock cavities, debris piles, pipes and culverts if burrows unavailable. Habitats include grassland, shrub steppe, desert, agricultural land, vacant lots and pastures (CDFW 2014d).	P	**May affect.** Suitable habitat present. Species not previously documented on-site; however, presence of suitable habitat results in potential for future colonization.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Buteo swainsoni	Swainson's hawk	-	ST		Nests in stands with few trees in riparian areas, juniper-sage flats, and oak savannah in the Central Valley. Forages in adjacent grasslands, agricultural fields and pastures (CDFW 2014d).	P	**May affect.** Suitable foraging and nesting habitat present.
Chaetura vauxi	Vaux's swift	-	SSC		Prefers redwood and Douglas fir habitats with nest sites in large hollow trees and snags, especially tall, burnt-out stubs (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present.
Circus cyaneus	northern harrier	-	SSC		Nests on the ground in patches of dense, tall vegetation in undisturbed areas. Breeds and forages in variety of open habitats such as marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, croplands, sagebrush flats and desert sinks (Shuford and Gardali 2008).	P	**May affect.** Suitable habitat present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Coccyzus americanus occidentalis	western yellow-billed cuckoo	PT	SE		Requires large, dense tracts of riparian woodland with well-developed understories. Occurs in deciduous trees or shrubs. Prefers willow, but will also nest in orchards adjacent to streams in Sacramento Valley. Restricted to moist habitats along slow-moving waterways during breeding season (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present. This species shows increased occupancy with increased patch size (>20 hectares) (Laymon 1998). Riparian habitat within BSA <1 hectare.
Elanus leucurus	white-tailed kite	-	FP		Typically nests in the upper third of trees that may be 10–160 ft. (33-525 m.) tall. These can be open-country trees growing in isolation, or at the edge of or within a forest (CDFW 2014d).	P	**May affect.** Suitable foraging and nesting habitat present.
Grus canadensis canadensis	lesser sandhill crane	-	SSC		In summer, occurs in and near wet meadow, shallow lacustrine, and fresh emergent wetland habitats. In winter, frequents moist croplands with rice or corn stubble, and open, emergent wetlands. Prefers treeless plains. Nests in remote portions of extensive wetlands or sometimes shortgrass prairies (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present.
Grus canadensis tabida	greater sandhill crane	-	ST/FP			A	**Not likely to affect.** Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Ixobrychus exilis	least bittern	-	SSC		Large, freshwater wetlands with dense emergent vegetation (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present.
Lanius ludovicianus	loggerhead shrike	-	SSC		Breeds in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground (Shuford and Gardali 2008).	A	**Not likely to affect.** Suitable habitat not present.
Melospiza melodia	song sparrow ("Modesto" population)	-	SSC		Breeds and winters in riparian, fresh or saline emergent wetland, and wet meadows. Breeds in riparian thickets of willows, other shrubs, vines, tall herbs, and fresh or saline emergent vegetation (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present.
Progne subis	purple martin	-	SSC		Woodland and forest habitats with numerous suitable nest cavities, open air space above nest sites, and aerial insect prey (Shuford and Gardali 2008).	A	**Not likely to affect.** Suitable habitat not present.
Riparia riparia	bank swallow	-	ST		Riparian areas with sandy, vertical bluffs, or riverbanks. Also nests in earthen banks and bluffs, as well as sand and gravel pits (CDFW 2014d).	A	**Not likely to affect.** Suitable habitat not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Potential to Occur
Sternula antillarum browni	California least tern	FE	SE/FP		Nests and roosts in colonies on open beaches, forages near shore ocean waters and in shallow estuaries and lagoons (USFWS 2006).	A	**No effect.** Suitable habitat not present.
Xanthocephalus xanthocephalus	yellow-headed blackbird	-	SSC		Nests in marshes with tall, emergent vegetation (e.g., tules and cattails) adjacent to deepwater (Shuford and Gardali 2008).	A	**Not likely to affect.** Suitable habitat not present.
Mammals							
Lasiurus blossevillii	western red bat	-	SSC		Roosting habitat includes forests and woodlands, often in edge habitats adjacent to streams, fields, or urban areas (CDFW 2014b).	P	**May affect.** Suitable habitat present.
Taxidea taxus	American badger	-	SSC		Open shrub, forest and herbaceous habitats with friable soils. Associated with treeless regions, prairies, park lands and cold desert areas. Range includes most of California, except the North Coast (CDFW 2014b).	A	**Not likely to affect.** Grasslands provide suitable habitat; however, it is unlikely this species would den so close to the road. In addition, species is highly mobile and is likely to leave area at signs of disturbance.

Key
Federal & State Status
(FC) Federal Candidate
(FD) Federally Delisted
(FE) Federal Endangered
(FP) Fully Protected
(FT) Federal Threatened
(PT) Proposed Threatened
(SCE) State Candidate Endangered
(SCT) State Candidate Threatened
(SE) State Endangered
(SR) State Rare
(SSC) State Species of Special Concern
(ST) State Threatened
(X) Federally Designated Critical Habitat
CNPS Rare Plant Rank
Rareness Ranks
(1A) Presumed Extinct in California
(1B) Rare, Threatened, or Endangered in California and Elsewhere
(2B) Rare, Threatened, or Endangered in California, But More Common Elsewhere
Threat Ranks
(0.1) Seriously threatened in California
(0.2) Fairly threatened in California
(0.3) Not very threatened in California

Chapter 4 – Results: Biological Resources, Discussion of Impacts and Mitigation

Habitats and Natural Communities of Special Concern

Natural communities of special concern are habitats that have been determined by natural resource agencies such as the CDFW to be sensitive or rare. Two natural communities of concern, intermittent creek (Laguna Creek East) and seasonal wetland are present within the BSA; therefore, these communities are considered in this analysis. In addition, several native trees afforded protection under Chapter 19.12 of the City Municipal Code, Tree Preservation and Protection, occur within the BSA. Impacts to protected trees are also considered in this analysis.

Annual grassland, eucalyptus, and urban habitats are not considered to be natural communities of special concern and, therefore, will not be discussed further unless in the context of habitat for special-status species. **Table 2** lists the potential quantitative effects of the project to these communities. Permanent impacts include the area within the project footprint (i.e., areas that will be graded or paved), whereas temporary impacts include the area within the TCZ and staging areas.

Table 2: Potential Quantitative Effects of the Project on Upland Communities

Feature Type	Total Acres in the BSA	Acres Permanently Affected		Acres Temporarily Affected	
		Alt. A	Alt. B	Alt. A	Alt. B
Urban	14.8	5.33	3.20	2.17	1.89
Annual Grassland	9.7	1.40	0.70	0.90	0.30
Eucalyptus	0.7	0.38	0.25	0.05	0.11

DISCUSSION OF "JURISDICTIONAL FEATURES"

Survey Results

One 0.9 acre intermittent creek (Laguna Creek East), one 0.02 acre seasonal wetland, and 0.02 acre of roadside ditches occur within the BSA. All features are considered WoUS and are, therefore, subject to CWA regulations. Impacts to these features will require a CWA 404 nationwide permit from the USACE, and CWA 401 water quality certification from the RWQCB. In addition, the intermittent creek will be subject to, and the roadside ditches may be subject to, FGC Sections 1600-1607. As a result, impacts to these features will also require authorization from CDFW via a streambed alteration agreement.

Project Impacts

The proposed project will result in permanent impacts to Laguna Creek East (intermittent creek) as a result of the construction of a new box culvert under the intersection. In

addition, temporary impacts will occur to Laguna Creek East as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of Laguna Creek East. In addition, the proposed project will result in temporary impacts to roadside ditches and permanent impacts to the seasonal wetland. These impacts are summarized in **Table 3** below and are depicted on **Figures 11** and **12**.

Table 3: Impacts to Jurisdictional Features

Feature Type	Total Acres in the BSA	Acres Permanently Impacted		Acres Temporarily Impacted	
		Alt. A	Alt. B	Alt. A	Alt. B
Intermittent Creek	0.90	0.06	0.05	0.30	0.28
Seasonal Wetland	0.02	0.02	0.02	0	0
Ditches	0.02	0	0	0.02	0.01
Total	0.94	0.08	0.07	0.32	0.29

Avoidance and Minimization Efforts

The following protective measures are recommended to minimize impacts to jurisdictional features during construction:

BIO-1: During project development, the work area will be reduced to the smallest footprint feasible in sensitive habitat areas.

BIO-2: Work shall coincide with the driest time in the creek. If water is present at the time of construction, water shall be diverted around the work area and work shall resume after the site is dry. Work within the dry portion of the creek shall be timed with awareness of precipitation forecasts and likely increases in water flows and flood stages. Construction activities within the creek shall cease prior to storm events until all reasonable erosion control measures have been implemented. Construction equipment and material shall be removed from the floodplain if inundation is likely. Revegetation, restoration, and erosion control work shall not be confined to this time period.

BIO-3: If work in the flowing portion of the creek is unavoidable, the entire stream flow shall be diverted around or through the work area during excavation and/or construction operations. Flows shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to FGC Section 5937. Any temporary dam or other artificial obstruction constructed shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.

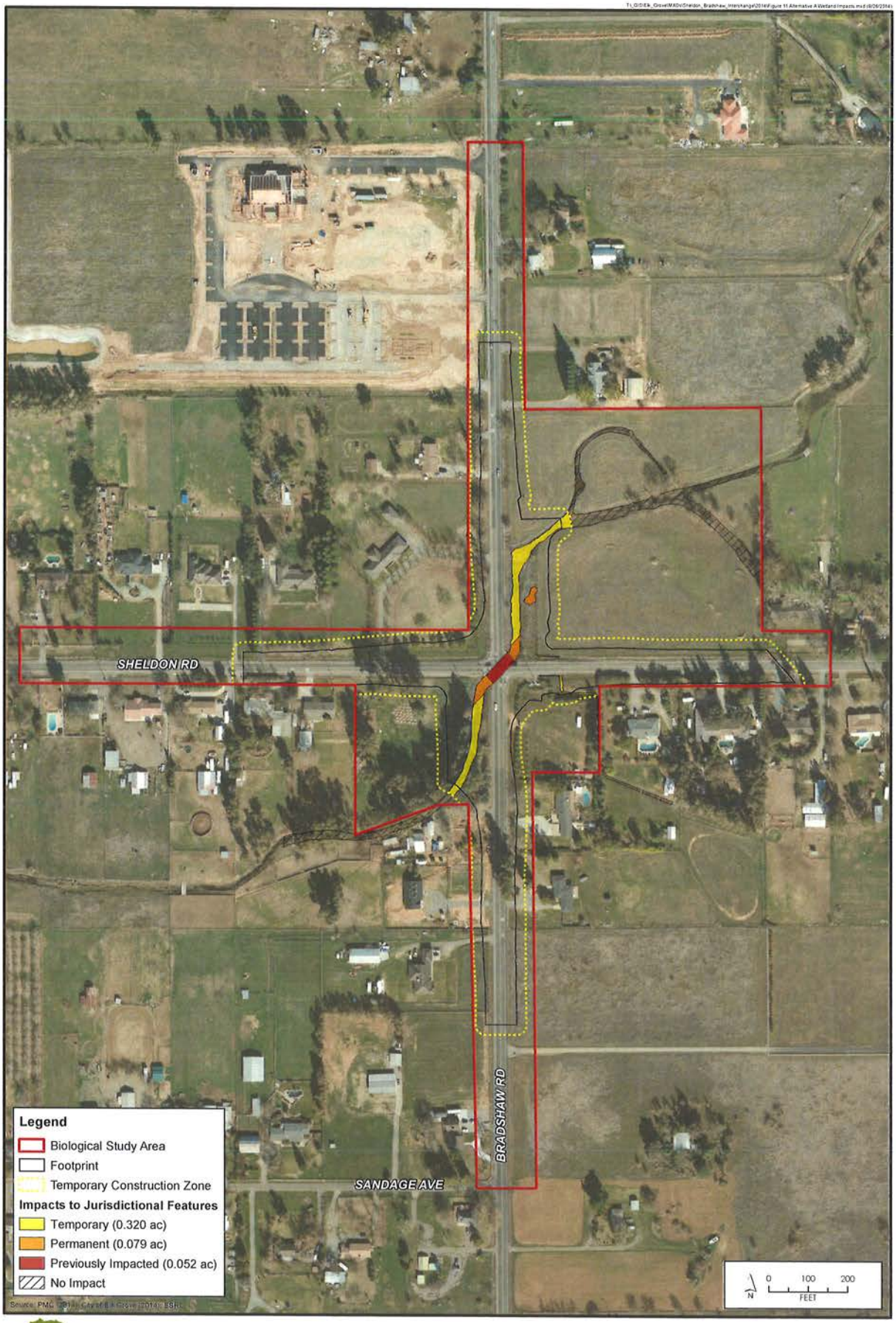

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Figure 11
Alternative A Jurisdictional Feature Impacts

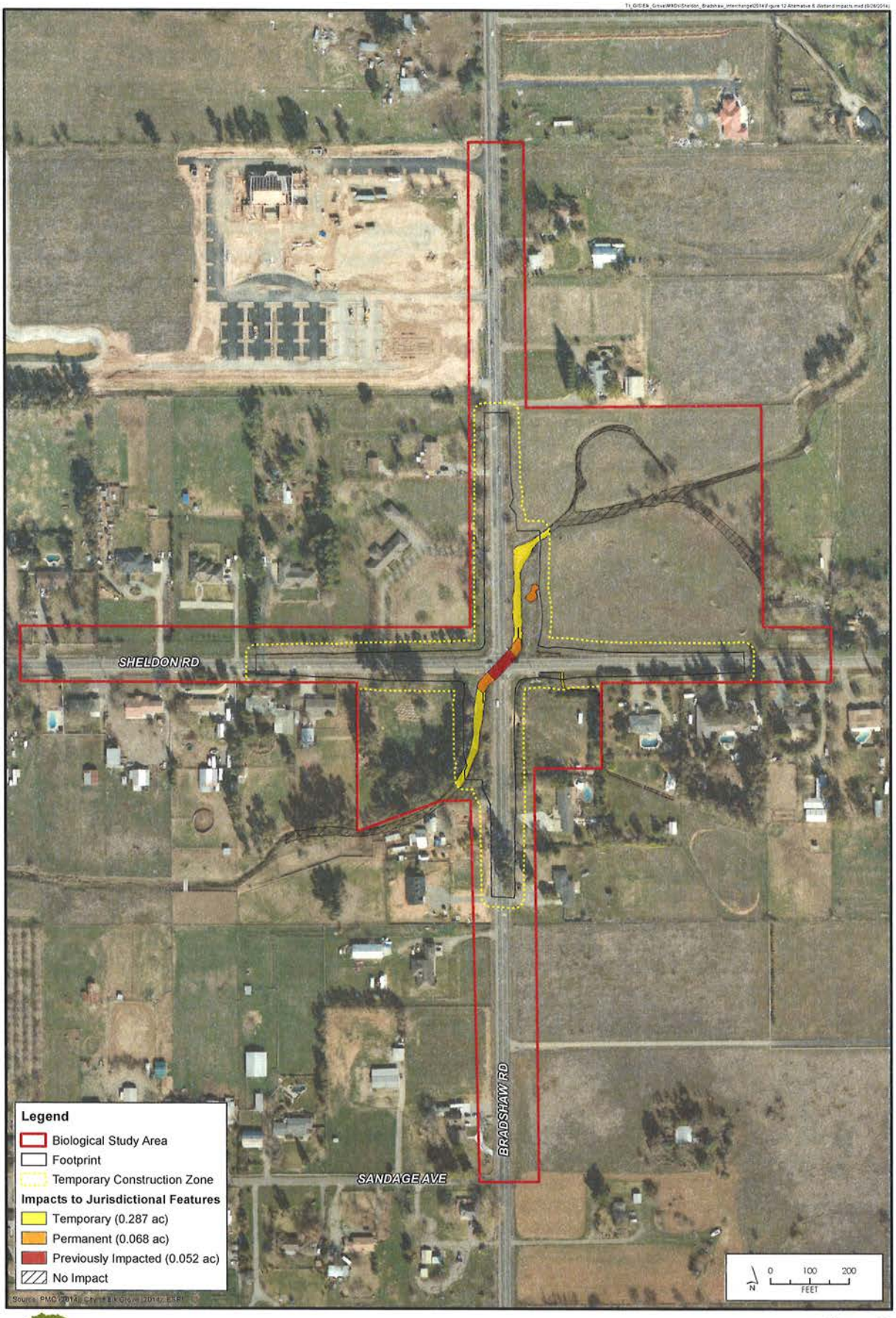

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Figure 12
Alternative B Jurisdictional Feature Impacts

BIO-4: Prior to initiation of construction activities within jurisdictional features, construction best management practices (BMPs) shall be employed onsite to prevent degradation to onsite and offsite WoUS. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering jurisdictional features, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. All erosion control methods shall be maintained until all onsite soils are stabilized.

BIO-5: In addition, standard staging area practices for sediment-tracking reduction shall be implemented where necessary and may include vehicle washing and street sweeping.

BIO-6: All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities shall be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick-growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or jute netted (monofilament erosion blankets are not permitted).

Compensatory Mitigation

In addition to the avoidance and minimization measures **BIO-1** through **BIO-6**, the following conservation measures are proposed:

CM-1: For every acre of intermittent creek and seasonal wetland permanently affected by the proposed project, the City shall replace the affected acreage at a 2:1 ratio (i.e., 2 acres for every 1 acre of impact), or another approved ratio as determined by the USACE. Impacts shall be offset through the dedication of mitigation credit(s) within a USACE-approved mitigation bank or through the payment of in-lieu fees to an approved conservation bank.

CM-2: For every acre of intermittent creek temporarily affected and roadside ditch permanently or temporarily affected by the proposed project, the City shall replace the affected acreage at a 1:1 ratio, or another approved ratio as determined by the USACE. Impacts shall be offset through the restoration and relocation of the intermittent creek and roadside ditches within the project area.

Cumulative Impacts

No current or foreseeable actions will contribute to the cumulative effect on jurisdictional features within the BSA. Although there will be some permanent impacts to intermittent creek and seasonal wetland habitat due to the proposed project, these features already exhibit signs of degradation. Permanent impacts will be mitigated through implementation of the above compensatory mitigation strategy; therefore, no cumulative impacts to jurisdictional features are anticipated.

DISCUSSION OF "PROTECTED TREES"

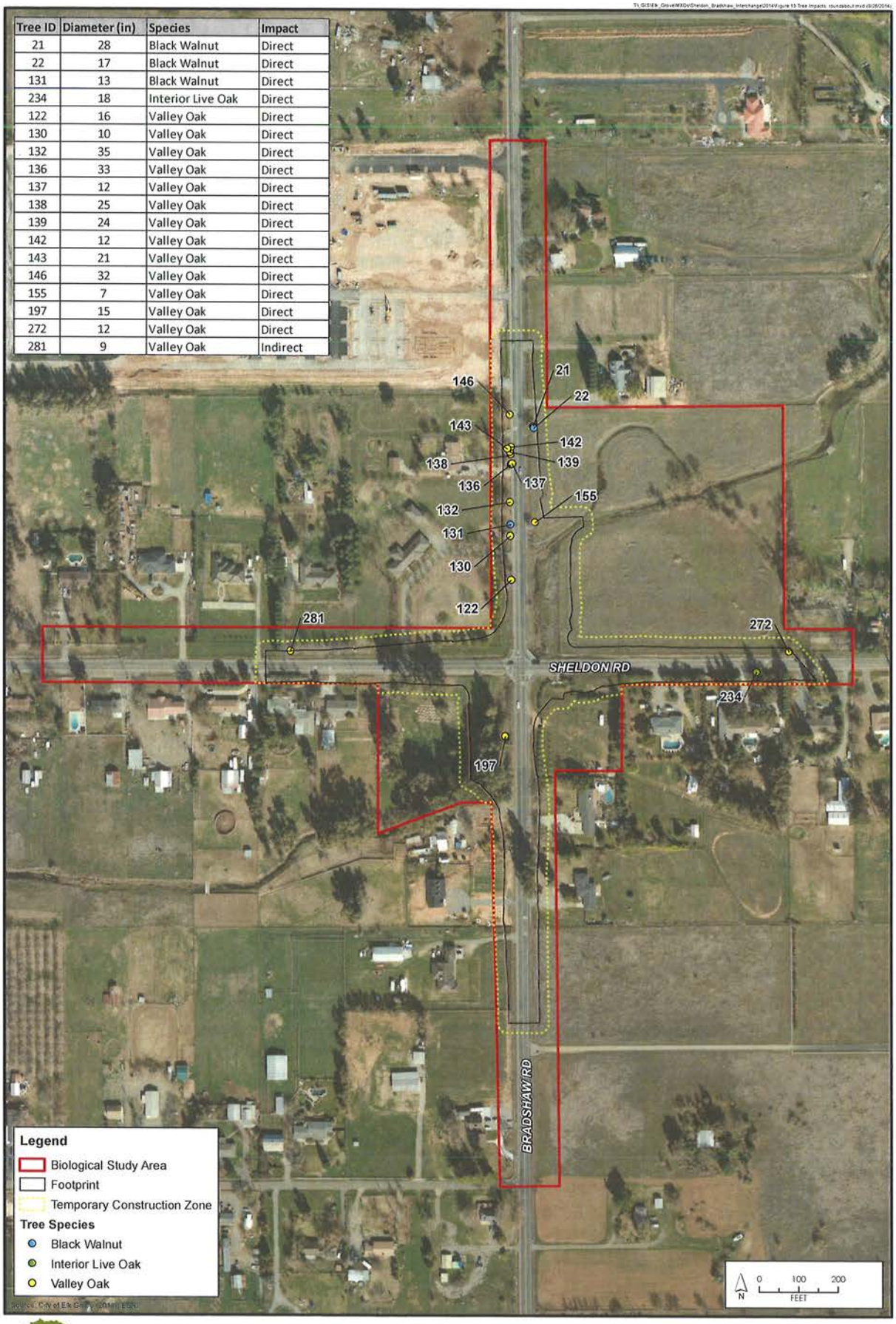
Survey Results

The City of Elk Grove protects all Trees of Local Importance, including native oak trees California sycamore, and California black walnut trees with a single trunk of 6 inches at 4.5 feet from grade (dbh) or larger or multiple trunks with an aggregate of 6 inches dbh or larger, through Title 19, Chapter 19.12 of the City's Municipal Code. The Municipal Code also protects landmark trees determined to be of high value to the community because of their species, size, age, form, historical significance, or some other professional criterion (Municipal Code, Title 19, Chapter 19.12.030). Chapter 19.12 of the Municipal Code does not typically require protection for any tree designated as unhealthy or hazardous by a certified arborist.

The BSA contains 244 trees that are over 6 inches dbh or larger. All native trees were positively identified. Species composition includes two almond (*Prunus dulcis*) totaling approximately 48 aggregate diameter inches (adi); three ash (*Fraxinus* sp.) totaling approximately 45 adi; six black walnut (*Juglans hindsii*) totaling approximately 142 adi; 15 camphor (*Cinnamomum camphora*) totaling approximately 169 adi; five cedar (*Cedrus* sp.) totaling approximately 98 adi; one cottonwood (*Populus fremontii*) totaling approximately 19 inches dbh; three English walnut (*Juglans regia*) totaling approximately 48 adi; 91 eucalyptus (*Eucalyptus* sp.) totaling approximately 2,284 adi; two fir (*Abies* sp.) totaling approximately 21 adi; three plum (*Prunus* sp.) totaling approximately 53 adi; one Italian cypress (*Cupressus sempervirens*) totaling approximately 16 inches dbh; 13 liquidambar (*Liquidambar styraciflua*) totaling approximately 194 adi; one interior live oak totaling approximately 20 inches dbh; four mulberry (*Morus* sp.) totaling approximately 68 adi; one fan palm (*Washingtonia* sp.) totaling approximately 17 inches dbh; five pecan (*Carya illinoensis*) totaling approximately 69 adi; one pepper (*Schinus* sp.) totaling approximately 11 inches dbh; six pine (*Pinus* sp.) totaling approximately 112 adi; one pistachio (*Pistacia vera*) totaling approximately 21 inches dbh; one red ironbark (*Eucalyptus sideroxylon*) totaling approximately 31 inches dbh; 16 redwood (*Sequoia sempervirens*) totaling approximately 266 adi; 38 valley oak totaling approximately 655 adi; two magnolias (*Magnolia grandiflora*) totaling approximately 12 adi; and 23 unidentified non-native ornamentals totaling approximately 346 adi. A map of all tree locations can be found in **Appendix C**.

Project Impacts

Direct impacts were calculated by identifying all trees wholly within the project footprint. In addition, project-related construction activities within the dripline of an oak tree would compact the roots; therefore, direct impacts were also calculated for trees with driplines that overlap the project footprint. Indirect impacts were calculated by identifying all trees wholly within or trees with driplines that overlap the TCZ. These impacts are summarized in **Table 4** below and are depicted on **Figures 13** and **14**.

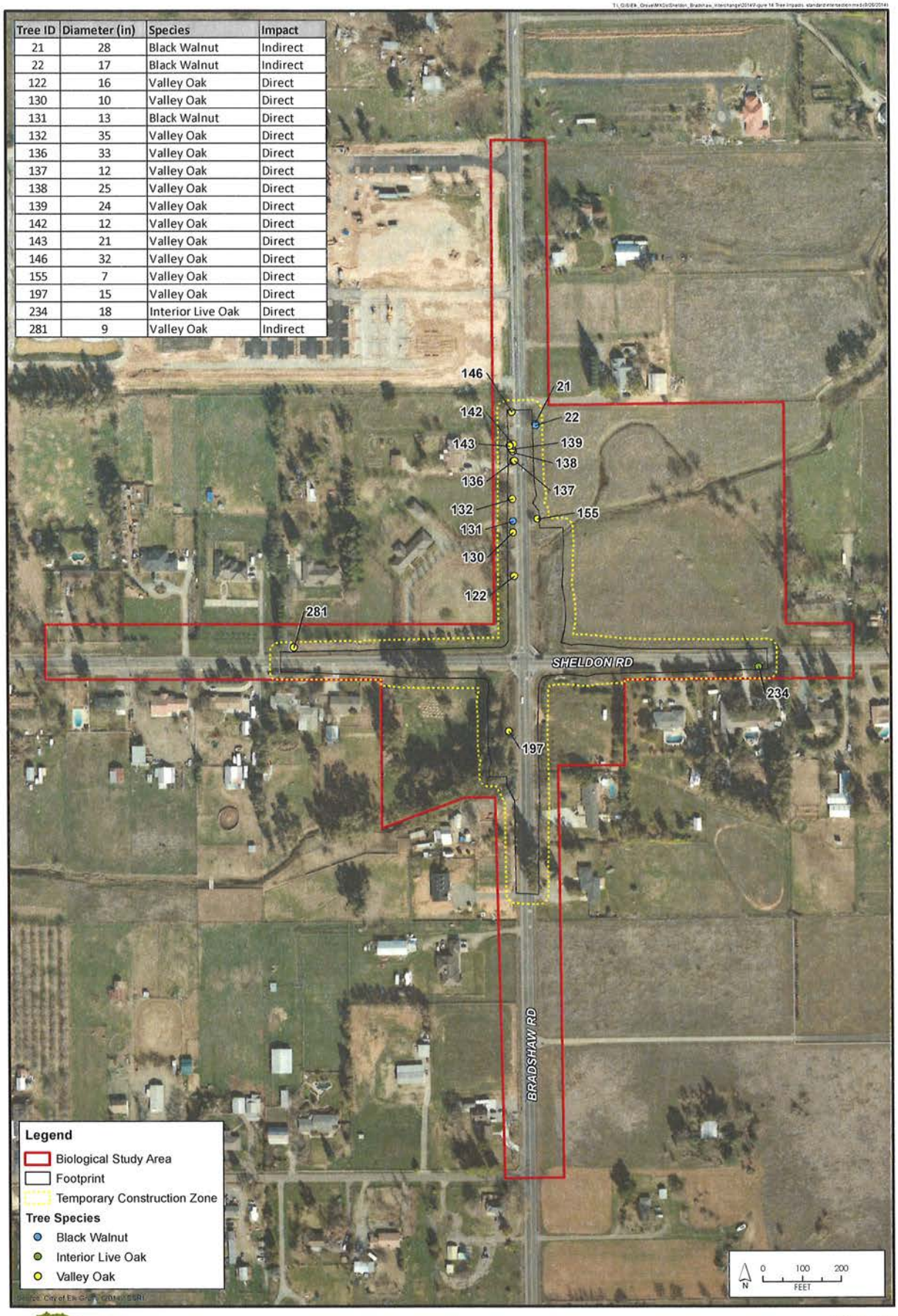


Tree ID	Diameter (in)	Species	Impact
21	28	Black Walnut	Direct
22	17	Black Walnut	Direct
131	13	Black Walnut	Direct
234	18	Interior Live Oak	Direct
122	16	Valley Oak	Direct
130	10	Valley Oak	Direct
132	35	Valley Oak	Direct
136	33	Valley Oak	Direct
137	12	Valley Oak	Direct
138	25	Valley Oak	Direct
139	24	Valley Oak	Direct
142	12	Valley Oak	Direct
143	21	Valley Oak	Direct
146	32	Valley Oak	Direct
155	7	Valley Oak	Direct
197	15	Valley Oak	Direct
272	12	Valley Oak	Direct
281	9	Valley Oak	Indirect

City of Elk Grove
Development Services

Figure 13
Alternative A Protected Tree Impacts

Tree ID	Diameter (in)	Species	Impact
21	28	Black Walnut	Indirect
22	17	Black Walnut	Indirect
122	16	Valley Oak	Direct
130	10	Valley Oak	Direct
131	13	Black Walnut	Direct
132	35	Valley Oak	Direct
136	33	Valley Oak	Direct
137	12	Valley Oak	Direct
138	25	Valley Oak	Direct
139	24	Valley Oak	Direct
142	12	Valley Oak	Direct
143	21	Valley Oak	Direct
146	32	Valley Oak	Direct
155	7	Valley Oak	Direct
197	15	Valley Oak	Direct
234	18	Interior Live Oak	Direct
281	9	Valley Oak	Indirect



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Development Services

Figure 14
Alternative B Protected Tree Impacts

Table 4: Impacts to Protected Trees

Common Name	Alternative A				Alternative B			
	Trees Directly Impacted		Trees Indirectly Impacted		Trees Directly Impacted		Trees Indirectly Impacted	
	# of Trees	dbh Sum (inches)	# of Trees	dbh Sum (inches)	# of Trees	dbh Sum (inches)	# of Trees	dbh Sum (inches)
Interior Live Oak	1	18	0	0	1	18	0	0
Valley Oak	13	254	1	9	12	242	1	9
Black Walnut	3	58	0	0	1	13	2	45
Total	17	330	1	9	14	273	3	54

Avoidance and Minimization Efforts

The following protective measures and **BIO-1** are recommended to minimize damage to trees proposed for preservation during construction:

BIO-7: A circle with a radius measurement from the trunk of the tree to the tip of its longest limb shall constitute the dripline protection area of each tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each tree. Removing limbs that make up the dripline does not change the protected area.

BIO-8: Protective fencing shall be installed at the driplines of the protected trees prior to the start of any construction work (including grading or placement of vehicles onsite) in order to avoid damage to the trees and their root systems. This fencing may be installed around the outermost dripline of clusters of trees proposed for protection, rather than individual trees. Fencing shall be shown on all project plans.

BIO-9: No vehicles, construction equipment, mobile home/office, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the driplines of protected trees. A laminated sign indicating such shall be attached to fencing surrounding trees onsite.

BIO-10: No grading (grade cuts or fills) shall be allowed within the driplines of protected trees.

BIO-11: Drainage patterns on the site shall not be modified so that water collects or stands within, or is diverted across, the dripline of any protected tree.

BIO-12: No trenching shall be allowed within the driplines of protected trees. If it is absolutely necessary to install underground utilities within the dripline of a protected tree, the utility line shall be bored and jacked under the supervision of a certified arborist.

BIO-13: The construction of impervious surfaces within the driplines of protected trees shall be stringently minimized. When it is absolutely necessary, a piped aeration system shall be installed under the supervision of a certified arborist. Wherever possible, pervious concrete shall be used as an alternative to traditional concrete when it is required under tree driplines.

BIO-14: No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the driplines of protected trees. An aboveground drip irrigation system is recommended.

BIO-15: Landscaping beneath protected trees may include non-plant materials such as bark mulch or wood chips. The only plant species that shall be planted within the driplines of protected trees are those that are tolerant of the natural environs of the trees. Limited drip irrigation approximately twice per summer is recommended for the understory plants.

BIO-16: Any protected trees on the site that require pruning shall be pruned by a certified arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute A300 pruning standards and ISA's tree-pruning guidelines.

BIO-17: No signs, ropes, cables (except those which may be installed by an arborist to provide limb support), or any other items shall be attached to the protected trees.

Compensatory Mitigation

CM-3: Any trees protected by the tree ordinance requiring removal for project construction will either be compensated for by replacement, purchase of habitat conservation areas to protect existing woodland habitats, through contribution to tree planting programs or in-lieu fee programs in the area, or through some combination of these options to achieve no net loss of trees from the project.

Prior to any groundbreaking activities, the City Planning Department will determine which trees would be suitable candidates for protection, and which trees will need to be mitigated if removed. Trees that will be removed or otherwise harmed by the project shall be mitigated for as described above.

Prior to any groundbreaking activity, a Replacement Tree Planting Plan shall be prepared by an arborist or landscape architect. The Replacement Tree Planting Plan shall follow the standards set forth in the City of Elk Grove Municipal Code, and shall include the following minimum elements:

- Species, size, and locations of all replacement plantings.
- Method of irrigation.
- A tree planting detail, including a 10-foot depth-boring hole to provide for adequate drainage.
- Planting, irrigation, and maintenance schedules.

- Identification of the maintenance entity and a written agreement with that entity, if other than the City of Elk Grove, to provide care and irrigation of the trees for a five-year establishment period and to replace any of the replacement trees which do not survive during that period.

Replacement inches will be calculated based on the following size categories.

- A one (1) gallon container or seedling-sized containerized tree = one (1") inch dbh.
- A fifteen (15) gallon container = one (1") inch dbh.
- A twenty-four (24") inch box = two (2") inch dbh.
- A thirty-six (36") inch box = two (2") inch dbh.
- A sixty (60") inch box = two (2") inch dbh.
- A seventy-two (72") inch box = two (2") inch dbh.

In order to meet some of the mitigation requirement, existing native trees on-site proposed for removal that are less than 6 inches dbh and are in fair or better condition may be transplanted to the new planting area. If existing trees are successfully transplanted, mitigation requirements may be reduced.

No replacement tree shall be planted within 15 feet of a building foundation or other known areas of future ground disturbance. The minimum spacing for replacement trees shall be 15 feet on-center. J-pots may be planted closer at the discretion of the City Arborist or the consulting arborist.

Cumulative Impacts

No current or foreseeable actions will contribute to the cumulative effect on protected trees within the BSA. Although some protected trees will be removed as part of the proposed project, these impacts will be mitigated through the implementation of the above mitigation strategy. Therefore, no cumulative impacts to protected trees are anticipated.

Special-Status Plant Species

One special-status plant species was identified as having the potential to occur within the BSA: Sanford's arrowhead. Sanford's arrowhead is a CNPS List 1B species. Its blooming period is between May and October. This plant species grows in shallow, standing fresh water and sluggish waterways associated with marshes, swamps, ponds, vernal pools, lakes, reservoirs, sloughs, ditches, canals, and other water bodies.

This species is discussed further below, which includes a discussion of the extent of known and/or potential habitat within the BSA, potential impacts to the species from the construction of the proposed project, recommended measures to avoid, minimize, and mitigate for project-related impacts, and the cumulative effects the proposed project will have on the continued existence of the species. According to the results of the database

searches, surveys, or historic records, no other special-status plant species have potential to occur within the BSA.

DISCUSSION OF "SANFORD'S ARROWHEAD"

Survey Results

Focused rare plant surveys for the proposed project have not been conducted to date, so it is unknown whether Sanford's arrowhead occurs in the BSA. However, suitable habitat is present below the OHWM of Laguna Creek East. The presence of suitable habitat combined with documented occurrences within 1 mile of the BSA (CDFW 2014e) results in the conclusion that project-related activities have the potential to impact Sanford's arrowhead.

Project Impacts

If Sanford's arrowhead is present within the project footprint and/or TCZ, individuals may be directly impacted by trampling, compaction, or removal. This species generally may occur below the OHWM of the creek or along the edges of the creek. Alternative A would result in 0.06 acre of direct impact and 0.3 acre of temporary impact to Laguna Creek East, while Alternative B would result in 0.05 acre of direct impact and 0.28 acre of temporary impact to Laguna Creek East. In addition, if dewatering occurs, then these activities may also indirectly impact Sanford's arrowhead if present in the area of the creek that will be dewatered.

Avoidance and Minimization Efforts

The following protective measures and **BIO-1** are recommended to minimize impacts to Sanford's arrowhead during construction:

BIO-18: Prior to any vegetation removal or ground-disturbing activities, focused surveys shall be conducted to determine if Sanford's arrowhead occurs within the project footprint and/or TCZ. Surveys shall be conducted in accordance with CDFW Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2009). These guidelines require rare plant surveys to be conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Surveys shall be scheduled to coincide with known blooming periods, and/or during periods of physiological development that are necessary to identify the plant species of concern. If no special-status plant species are found, then the project will not have any impacts to the species and no additional mitigation measures are necessary.

BIO-19: If special-status species are located within the BSA but outside the project footprint, then the plants shall be avoided by installing protective fencing and warning construction personnel of their presence.

BIO-20: If Sanford's arrowhead is present within the BSA, a Worker Environmental Awareness Program (WEAP) shall be implemented to educate construction workers about the presence of special-status plant species in and/or near the project area and to instruct them on proper avoidance.

Compensatory Mitigation

If any of the species are found onsite and cannot be avoided, the City shall consult with the USFWS and/or CDFW, as applicable, to determine appropriate mitigation for special-status plants, which may include but is not limited to the following measures:

CM-4: Salvage portions of the habitat or plant populations that will be lost as a result of implementation of the proposed project.

Transplant the plants that would be adversely affected by the proposed project for either re-establishment after construction is complete or for planting in a new area, in appropriate habitat.

Develop a propagation program for the salvage and transfer of rare, threatened, or endangered plant populations from the project site before the initiation of construction activities.

Qualified biologists shall be involved in the propagation and transport of rare, threatened, or endangered plant species. (Note: Propagation methods for the salvaged plant population must be developed on a case-by-case basis and must include the involvement of local conservation easements, preserves, and/or open space, where applicable). The propagation and transfer of individual plant species must be performed at the correct time of year and successfully completed before the project's construction activities eliminate or disturb the plants and habitats of concern.

Cumulative Impacts

The avoidance and minimization measures in addition to the compensatory mitigation would effectively mitigate any potential impacts to special-status plant species and, therefore, would not substantially contribute to cumulative impacts to special-status plant species.

Special-Status Animal Species Occurrences

Based on the results of the literature review and habitat assessment, six special-status wildlife species have the potential to occur in the vicinity of the BSA and include giant garter snake, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, and western red bat. Individual discussions of these species or guilds are presented below. The following discussions detail the extent of known and/potential habitat within the BSA, potential impacts to these species from the construction of the proposed project, recommended measures to avoid, minimize, and mitigate for project-related impacts, and a discussion of the cumulative effects the proposed project will have on the continued existence of these species. According to the results of the database searches, surveys, or historic records, no other special-status wildlife species have potential to occur within the BSA.

DISCUSSION OF "GIANT GARTER SNAKE"

The giant garter snake is federally and state-listed as threatened. The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, other waterways,

agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands (USFWS 2012). Essential habitat components consist of:

- Adequate water during the snake's active period (i.e., early spring through mid-fall) to provide a prey base and cover;
- Emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat;
- Upland habitat for basking, cover, and retreat sites; and
- Higher elevation uplands for cover and refuge from floodwaters.

Survey Results

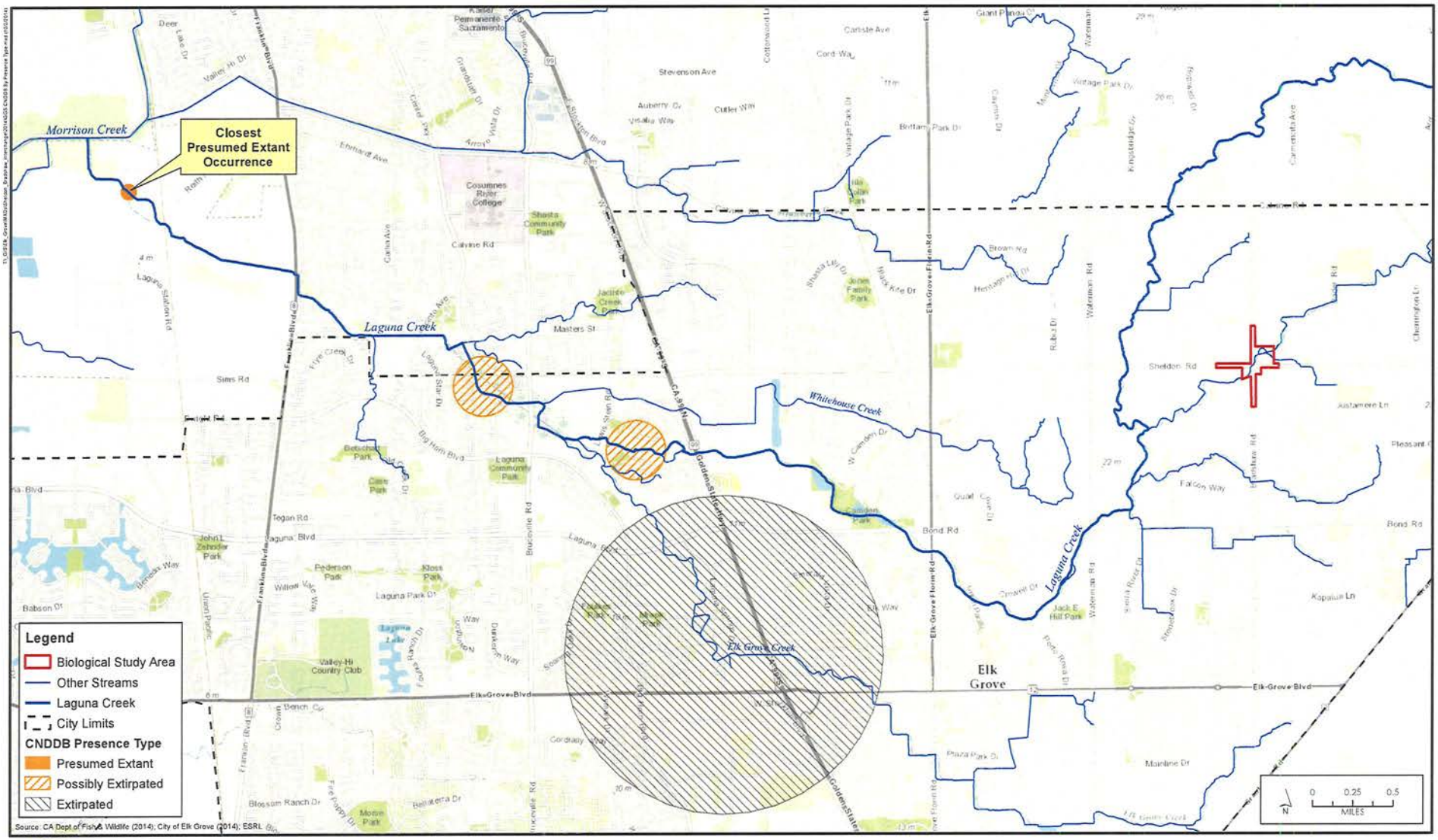
The main stem of Laguna Creek, ±0.5 mile southwest of the BSA, is the closest feature that provides all essential habitat components for giant garter snakes. The portion of Laguna Creek East within the BSA lacks an adequate hydroperiod to support giant garter snakes during their active period. Currently during the winter season, this feature conveys storm flows south and west to Laguna Creek; however, during the summer months (active season) flows are greatly diminished or reduced to nothing. Intermittent water flow through this feature in the summer season is provided primarily by urban and agricultural irrigation run-off.

The closest occurrence (#169) of giant garter snake is ±3.2 miles southwest of the action area (CDFW 2014e) and east of State Route 99 (SR 99). This occurrence is located near Elk Grove Creek, which is separated from the Laguna Creek East by extensive development. No aquatic features containing the essential habitat components connect Laguna Creek East and Elk Grove Creek, east of SR 99.

The closest extant occurrence (#198) on Laguna Creek is located approximately 9.8 river miles west of the action area, near the Sacramento County Wastewater Treatment Plant (**Figure 15**). There are two possibly extirpated occurrences (#14 and #84) on Laguna Creek west of the action area and SR 99. Due to the distance between the extant occurrence on Laguna Creek to the west and the presence of potential dispersal barriers (e.g., roads) between this occurrence and the action area, as well as the lack of suitable dispersal habitat between the action area and the extant occurrence near Elk Grove Creek, the presence of this species within the action area is considered unlikely.

Project Impacts

The proposed project will result in permanent impacts to Laguna Creek East as a result of the construction of a new box culvert under the intersection. In addition, temporary impacts will occur in Laguna Creek East as a result of the expanded road footprint and realignment of the creek segments upstream and downstream of the new box culvert. The realigned creek will restore and improve flows through this segment of Laguna Creek East.



City of Elk Grove
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Figure 15
Giant Garter Snake CNDDB Occurrencesin the Vicinity of Biological Study Area

Avoidance and Minimization Efforts

To avoid and minimize impacts to giant garter snake the following measures are recommended, as well as **BIO-1** and **BIO-20** (WEAP to include discussion regarding giant garter snakes).

BIO-21: The applicant is proposing to work outside of the snake's active season and anticipates that work will be completed in 10 to 15 month. Construction and ground disturbing activities will be initiated during the active season and will be commenced prior to September 15th.

BIO-22: Twenty-four-hours prior to the commencement of construction activities, the project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the USFWS with a written report that adequately documents the monitoring efforts within 24-hours of commencement of construction activities. The project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.

BIO-23: A qualified biologist will inspect and monitor all construction-related activities within the project area to attempt to minimize take of the snake or the destruction of its habitat. If snakes are encountered during construction activities, the biologist will notify the USFWS immediately to determine the appropriate procedures related to the collection and relocation of the snake. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one (1) business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone at 916-414-6600 and by electronic mail or written letter addressed to the Chief, Sacramento Valley Division, within one (1) working day of the incident.

BIO-24: Project-related vehicles will observe a 20-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.

BIO-25: Aquatic habitat for the snake will be dewatered, and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the USFWS will be contacted to determine what additional measures may be necessary to minimize effects to the snake.

BIO-26: Tightly woven erosion control matting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the project site to ensure that snakes are not trapped or become entangled by the erosion control material. The edge of the material shall be buried in the ground to prevent giant garter snakes from crawling underneath the material. The City or contractor will prohibit the use of plastic, monofilament, jute, or similar erosion control netting with mesh sizes larger than 0.25 inch that could entangle snakes at the project site.

Compensatory Mitigation

The lack of adequate water during the snake's active period results in the determination that Laguna Creek East does not provide suitable habitat for giant garter snakes; therefore, impacts to this feature are not likely to adversely affect the species. Impacts to Laguna Creek East will be fully mitigated through the compensatory mitigation proposed above under the Discussion of Natural Community "Jurisdictional Features."

Cumulative Impacts

Laguna Creek East does not provide all the essential habitat components for giant garter snake; as a result, impacts to this feature would not substantially contribute to cumulative impacts to the species.

DISCUSSION OF "RAPTORS AND MIGRATORY BIRDS"

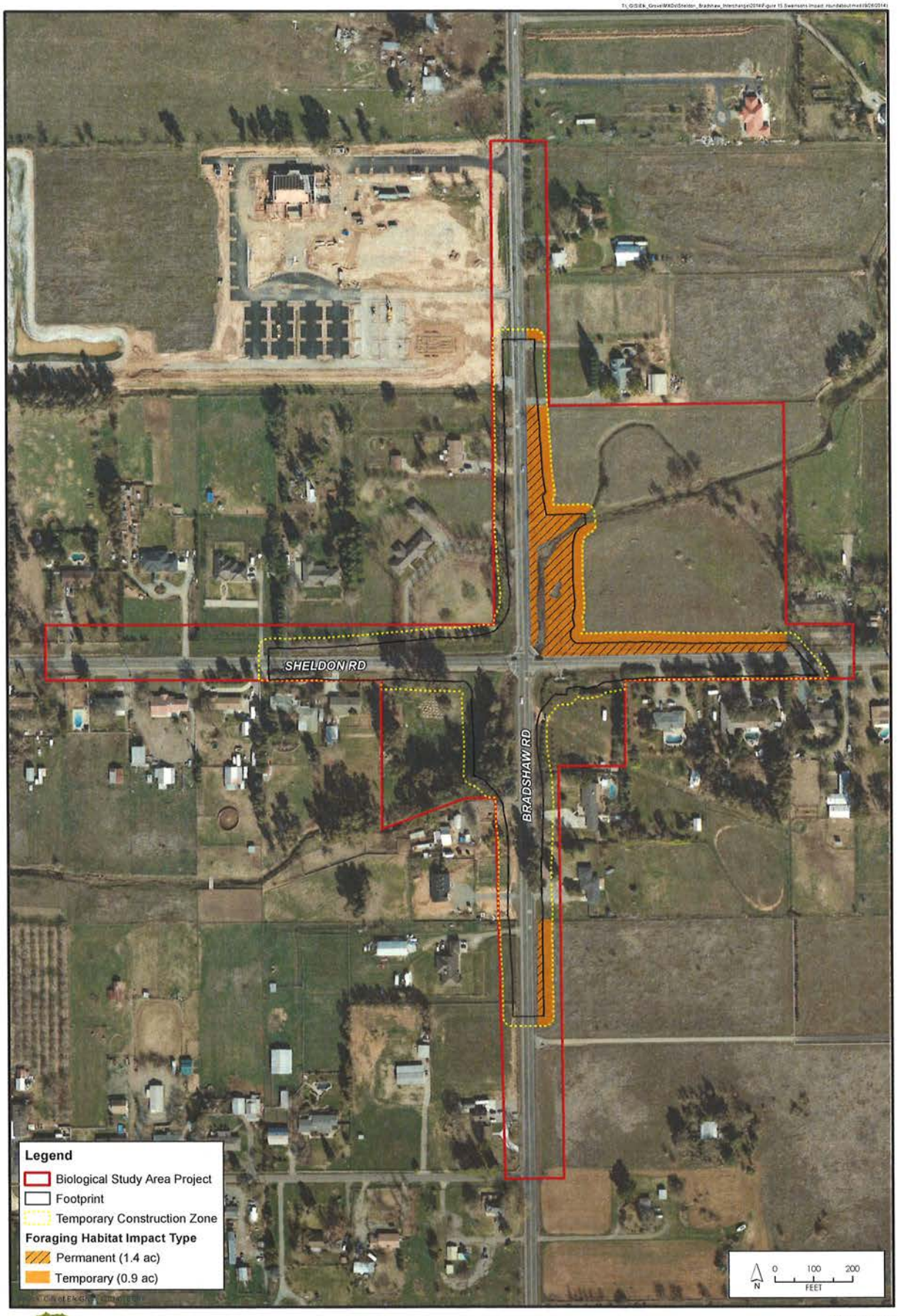
Survey Results

Various migratory birds and raptor species have the potential to inhabit the project vicinity. Western burrowing owl, Swainson's hawk, northern harrier, and white-tailed kite are afforded additional protection from state laws. Swainson's hawk is listed in California as a threatened species under CESA. The western burrowing owl and northern harrier are California species of special concern. The white-tailed kite is a California fully protected species. Some raptor and migratory bird species, such as red-tailed hawk, American kestrel, and oak titmouse, are not considered special-status species because they are not rare or protected under the ESA or CESA; however, the nests of all raptor species are protected under the MBTA and Section 3503.5 of the FGC. The nests of all migratory birds are protected under the MBTA, which makes it illegal to destroy any active migratory bird nest. The trees found in the BSA and within the vicinity provide potential nesting habitat for raptors and migratory birds that occur in the region. In addition, the annual grasslands located within and adjacent to the BSA represent suitable foraging habitat for the Swainson's hawk and other raptor species, as well as suitable nesting habitat for western burrowing owl.

Project Impacts

The BSA contains several large trees suitable for nesting, which may be removed during construction activities. If nesting migratory birds and/or raptors are present during project construction, the proposed project may cause direct mortality through the removal of trees that contain active nests. Excessive noise, disturbance, and vibrations can cause nesting raptors and birds to abandon their nests. The loss of active nests or direct mortality is prohibited by the MBTA and FGC Section 3503.5.

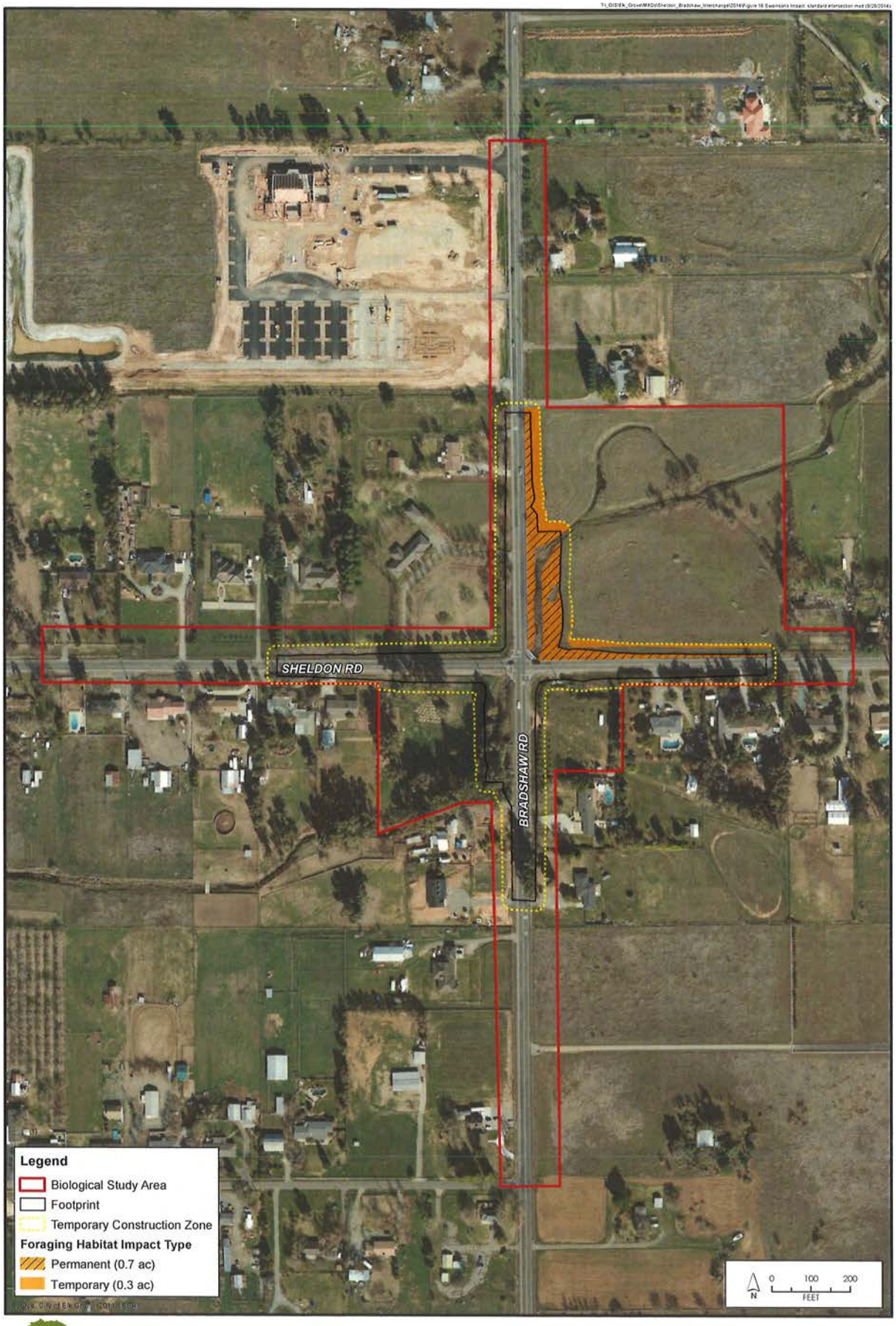
Alternative A would result in 1.4 acres of permanent impact and 0.9 acre of temporary impacts to annual grassland, while Alternative B would result in 0.7 acre of permanent impact and 0.3 acre of temporary impact to annual grassland habitat (**Figures 16** and **17**). Impacts to annual grassland habitat would result in the loss of suitable foraging habitat for Swainson's hawk, as well as suitable nesting habitat for western burrowing owl.



City of Elk Grove
Development Services

Figure 16

Alternative A Swainson's Hawk Foraging Habitat Impacts



City of Elk Grove
Development Services

Figure 17
Alternative B Swainson's Hawk Foraging Habitat Impacts

The proposed project could result in indirect impacts to migratory birds and raptors through habitat degradation and removal of trees suitable for nesting, as well as from additional traffic and increased human presence.

Avoidance and Minimization Efforts

To avoid and minimize impacts to potential migratory birds and raptor species, the following measures are recommended, as well as **BIO-1** and **BIO-20** (WEAP to include discussion regarding migratory birds and raptors).

BIO-27: If clearing and/or construction activities would occur during the raptor nesting season (January 15–August 15), preconstruction surveys to identify active nests shall be conducted by a qualified biologist within 14 days of construction initiation. Surveys must be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites within the proposed impact area, including construction access routes and a 250-foot buffer (if feasible). If no active nests are found, no further mitigation is required. Surveys shall be repeated if construction activities are delayed or postponed for more than 30 days.

BIO-28: If an active nest (excluding western burrowing owl) is located during pre-construction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 30 meters (100 feet) around an active raptor nest and a 15-meter (50-foot) radius around an active migratory bird nest) or alteration of the construction schedule. Activities permitted within exclusion zones and the size may be adjusted through consultation with the CDFW and/or the City.

BIO-29: Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September 1–January 1). Swainson's hawks are state and federally listed as threatened species; therefore, impacts to Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.

BIO-30: If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the City shall implement the avoidance, minimization, and mitigation methodologies outlined in CDFW's (2012) Staff Report on Burrowing Owl Mitigation prior to initiating project-related activities that may impact burrowing owls.

Compensatory Mitigation

CM-5: The City shall mitigate for the permanent loss of 0.616 acre Swainson's hawk foraging habitat at a 1:1 ratio. Mitigation can be accomplished through the City of Elk Grove Swainson's Hawk Impact Mitigation Fees Ordinance or other method acceptable to the CDFW. No additional mitigation is proposed, as implementation of avoidance and minimization measures is sufficient to compensate for potential impacts to migratory birds and raptors.

No additional mitigation is proposed, as implementation of **BIO-27** through **BIO-30** is sufficient to compensate for potential impacts to migratory birds and raptors.

Cumulative Impacts

Although potential foraging habitat could be directly impacted, other suitable foraging habitat is available in proximity to the proposed project, and non-native grassland (foraging habitat) will be replaced to ensure no net loss. Therefore, it is not anticipated that construction of the proposed project will substantially contribute to cumulative impacts to migratory birds and raptors.

DISCUSSION OF "SPECIAL-STATUS BAT SPECIES"

Survey Results

Bats, including western red bat, are known to occur in the vicinity of the BSA. These species are California species of special concern due to recent population declines. Habitat for bat species consists of foraging habitat, night-roosting cover, maternity roost sites, and winter hibernacula. These bat species may forage in a variety of habitats. In general, the CDFW is most concerned about the loss of maternity roosting sites. Suitable roosting sites within these habitats include caves, rock crevices, cliffs, buildings, tree bark, and snags. Potential maternity and night-roosting sites occur in snags, under bark, and in human structures (i.e., bridges) within the BSA.

Precautions must be taken to avoid the deliberate killing or injury of bats. The most common and effective method of avoiding these offenses is to carry out the work at an appropriate time of the year. The great majority of roosts are used only seasonally, so there is usually some period when bats are not present. Although there are differences between species, maternity sites are generally occupied between May and September and hibernation sites between October and March, depending on the weather. An adequate survey and good understanding of the seasonal activity patterns of the particular species involved will help in determining the optimum time to carry out the proposed work. The recommended times shown in **Table 5** should be modified in light of site-specific species information.

Table 5: Annual Bat Activity

Bat Usage of Site	Optimum Period for Carrying Out Work (Some Variation Between Species)
Maternity	October 1 – May 1
Summer (not a proven maternity site)	September 1 – May 1
Hibernation	May 1 – October 1
Mating/swarming	November 1 – August 1

Project Impacts

If maternity roost sites are located within the BSA during construction activities, the proposed project has the potential to directly and indirectly impact special-status bat species. Bats are at their most vulnerable in buildings or other roost sites during the summer, when large numbers may be gathered together and young bats, unable to fly, may be present. Removal of maternity roost sites may cause direct mortality of

numerous bats. Noise and dust from construction could indirectly impact bat species during construction.

Avoidance and Minimization Efforts

To avoid and minimize impacts to potential special-status bat species the following measures are recommended, as well as **BIO-1** and **BIO-20** (WEAP to include discussion regarding special-status bat species).

BIO-31: Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the City shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to August) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September) they must remain undisturbed until a qualified biologist has determined the young bats are no longer roosting. If roosting is found to occur onsite, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites removed. If no bat roosts are detected, then no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, then an additional survey shall be conducted 30 days prior to removal to ensure that a new colony has not established itself.

BIO-32: If a female or maternity colony of bats are found on the project site, and the project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after July 31 and before March 1).

BIO-33: If an active nursery roost is documented onsite and the project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after July 31 and before March 1 to prevent the formation of maternity colonies. Non-breeding bats shall be safely evicted, under the direction of a bat specialist.

Compensatory Mitigation

The avoidance and minimization measures outlined above are sufficient to compensate for potential impacts to special-status bats.

Cumulative Impacts

The proposed project is not anticipated to cause cumulative effects to special-status bat species since habitat loss is minimal and the implementation of mitigation measures will ensure that this species is avoided during construction.

Chapter 5 – Conclusions and Regulatory Determinations

Federal Endangered Species Act Consultation Summary

The US Congress passed the ESA in 1973 to protect those species that are endangered or threatened with extinction. The ESA is intended to operate in conjunction with NEPA to help protect the ecosystems upon which endangered and threatened species depend.

The ESA prohibits the take of endangered or threatened wildlife species. Take is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct [ESA Section 3(3)(19)]. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR Section 222). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR Section 222). Actions that result in take can result in civil or criminal penalties.

The ESA directs all federal agencies to participate in endangered species conservation. Specifically, Section 7 of the ESA charges federal agencies to aid in the conservation of listed species [Section 7(a)(1)] and requires federal agencies to ensure that the actions they fund, authorize, permit, or otherwise carry out are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitats [Section 7(a)(2)].

In the context of the proposed project, ESA consultation with the USFWS would be initiated if development could result in take of a threatened or endangered species or adversely modify critical habitat of such a species. Consultation with the USFWS with regard to potential impacts to giant garter snake is anticipated. A Biological Assessment is being prepared to evaluate impacts to this species.

California Endangered Species Act Consultation Summary

The State of California enacted CESA in 1984. CESA is similar to the federal ESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents. The purpose is to ensure that the state lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (FGC Section 2080). CESA directs agencies to consult with the CDFW on projects or actions that could affect listed species, directs the CDFW to determine whether jeopardy would occur, and allows the CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows the CDFW to authorize exceptions to the state's prohibition against take of a listed species if the take of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (FGC Section 2081). Consultation with the CDFW may be required in regard to giant garter snake, Swainson's hawk, western burrowing owl, and special-status bat species. Additional consultation with the CDFW will be necessary if active migratory bird/raptor nests are identified prior to construction as having the potential to be impacted by construction activities.

Wetlands and Other Waters Coordination Summary

FEDERALLY JURISDICTIONAL WATERS

The USACE regulates discharge of dredged or fill material into WoUS under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into WoUS, including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; or fill for intake and outfall pipes and subaqueous utility lines [33 CFR §328.2(f)]. In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into WoUS to obtain a certification from the RWQCB that the discharge will comply with the applicable effluent limitations and water quality standards.

WoUS include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present. Methods for delineating wetlands and non-tidal waters are described below.

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 CFR §328.3(b)]. Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site. The lateral extent of non-tidal waters is determined by delineating the OHWM [33 CFR §328.4(c)(1)]. The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 CFR §328.3(e)].

Prior to construction of the proposed project the City will obtain CWA Section 401 and 404 permits from the RWQCB and USACE, respectively. The CWA permit that would be required is a nationwide permit 14 (linear transportation projects).

STATE JURISDICTIONAL WATERS

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the FGC. Under Section 1602, a party must notify the CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, except when the department has been notified pursuant to Section 1602." If an existing fish or wildlife resource may be substantially adversely affected by the activity, the CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the party, they may enter into an agreement with the CDFW identifying the approved activities and associated mitigation measures. Prior to construction of the proposed project, the City shall obtain a Streambed Alteration Agreement from the CDFW for impacts to Laguna Creek East.

Invasive Species

Executive Order 13112 directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. The proposed action will comply with Executive Order 13112 as necessary.

Chapter 6 – References

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Appendix A – Database Search Results

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 140616081717

Current as of: June 16, 2014

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio
- Conservancy fairy shrimp (E)

Branchinecta lynchi
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
- Critical habitat, valley elderberry longhorn beetle (X)
- valley elderberry longhorn beetle (T)

Lepidurus packardi
- Critical habitat, vernal pool tadpole shrimp (X)
- vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Hypomesus transpacificus
- Critical habitat, delta smelt (X)
- delta smelt (T)

Oncorhynchus mykiss
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
- Central Valley spring-run chinook salmon (T) (NMFS)
- Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
- winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)
- Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
- California red-legged frog (T)

Reptiles

Thamnophis gigas
- giant garter snake (T)

Plants

Castilleja campestris ssp. succulenta
- Critical habitat, succulent (=fleshy) owl's-clover (X)
- succulent (=fleshy) owl's-clover (T)

Orcuttia tenuis
- Critical habitat, slender Orcutt grass (X)

slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Quads Containing Listed, Proposed or Candidate Species:

SLOUGHHOUSE (495B)
CLAY (495C)
ELK GROVE (496A)
FLORIN (496B)
BRUCEVILLE (496C)
GALT (496D)
BUFFALO CREEK (511C)
SACRAMENTO EAST (512C)
CARMICHAEL (512D)

County Lists

Sacramento County

Listed Species

Invertebrates

Apodemia mormo langei
Lange's metalmark butterfly (E)

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
Critical habitat, valley elderberry longhorn beetle (X)
valley elderberry longhorn beetle (T)

Elaphrus viridis
delta green ground beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Arctostaphylos myrtifolia
Ione manzanita (T)

Calystegia stebbinsii
Stebbins's morning-glory (E)

Castilleja campestris ssp. succulenta
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

Ceanothus roderickii
Pine Hill ceanothus (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Eriogonum apricum var. apricum
Ione buckwheat (E)

Eriogonum apricum var. prostratum
Irish Hill buckwheat (E)

Erysimum capitatum ssp. angustatum
Contra Costa wallflower (E)
Critical Habitat, Contra Costa wallflower (X)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Lasthenia conjugens
Contra Costa goldfields (E)

Neostapfia colusana
Colusa grass (T)

Oenothera deltoides ssp. howellii
Antioch Dunes evening-primrose (E)
Critical habitat, Antioch Dunes evening-primrose (X)

Orcuttia tenuis
Critical habitat, slender Orcutt grass (X)
slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Sidalcea keckii
Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 14, 2014.

CNDDB 9-Quad Species List 266 records.

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3812132	Clay	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3812133	Galt	Mapped and Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	3812142	Sloughhouse	Unprocessed	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812142	Sloughhouse	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812152	Buffalo Creek	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812154	Sacramento East	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812143	Elk Grove	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812144	Florin	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812142	Sloughhouse	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812143	Elk Grove	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812133	Galt	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812132	Clay	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812153	Carmichael	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	None	SSC	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Birds - Emberizidae - Ammodramus savannarum

Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Emberizidae - Ammodramus savannarum
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Birds - Emberizidae - Ammodramus savannarum
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812133	Galt	Mapped	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812154	Sacramento East	Mapped	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812142	Sloughhouse	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812133	Galt	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812132	Clay	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Baeolophus inornatus	oak titmouse	ABPAW01100	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Paridae - Baeolophus inornatus

Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3812153	Carmichael	Mapped	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3812144	Florin	Mapped	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812144	Florin	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812143	Elk Grove	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812142	Sloughhouse	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812132	Clay	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812133	Galt	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812134	Bruceville	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812154	Sacramento East	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812153	Carmichael	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812152	Buffalo Creek	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Cardinalis cardinalis	northern cardinal	ABPBX60010	None	None	WL	-	3812133	Galt	Unprocessed	Animals - Birds - Cardinalidae - Cardinalis cardinalis
Animals - Birds	Chaetura vauxi	Vaux's swift	ABNUA03020	None	None	SSC	-	3812153	Carmichael	Unprocessed	Animals - Birds - Apodidae - Chaetura vauxi
Animals - Birds	Chondestes grammacus	lark sparrow	ABPBX96010	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Emberizidae - Chondestes grammacus
Animals - Birds	Circus cyaneus	northern harrier	ABNKC11010	None	None	SSC	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Accipitridae - Circus cyaneus
Animals - Birds	Circus cyaneus	northern harrier	ABNKC11010	None	None	SSC	-	3812142	Sloughhouse	Unprocessed	Animals - Birds - Accipitridae - Circus cyaneus
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Proposed Threatened	Endangered	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Dendroica occidentalis	hermit warbler	ABPBX03090	None	None	-	-	3812133	Galt	Unprocessed	Animals - Birds - Parulidae - Dendroica occidentalis
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812142	Sloughhouse	Mapped	Animals - Birds - Accipitridae - Elanus leucurus

Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812143	Elk Grove	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812134	Bruceville	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812133	Galt	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812144	Florin	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Falco mexicanus	prairie falcon	ABNKD06090	None	None	WL	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Falconidae - Falco mexicanus
Animals - Birds	Grus canadensis canadensis	lesser sandhill crane	ABNMK01011	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Birds - Gruidae - Grus canadensis canadensis
Animals - Birds	Grus canadensis tabida	greater sandhill crane	ABNMK01014	None	Threatened	FP	-	3812134	Bruceville	Unprocessed	Animals - Birds - Gruidae - Grus canadensis tabida
Animals - Birds	Grus canadensis tabida	greater sandhill crane	ABNMK01014	None	Threatened	FP	-	3812144	Florin	Unprocessed	Animals - Birds - Gruidae - Grus canadensis tabida
Animals - Birds	Ixobrychus exilis	least bittern	ABNGA02010	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Birds - Ardeidae - Ixobrychus exilis
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812154	Sacramento East	Mapped	Animals - Birds - Emberizidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812144	Florin	Mapped	Animals - Birds - Emberizidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812134	Bruceville	Mapped	Animals - Birds - Emberizidae - Melospiza melodia
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812133	Galt	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812153	Carmichael	Unprocessed	Animals - Birds - Accipitridae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812134	Bruceville	Unprocessed	Animals - Birds - Accipitridae - Pandion haliaetus

Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812134	Bruceville	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812144	Florin	Mapped and Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Pica nuttalli	yellow-billed magpie	ABPAV09020	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Corvidae - Pica nuttalli
Animals - Birds	Picoides nuttallii	Nuttall's woodpecker	ABNYF07020	None	None	-	-	3812144	Florin	Unprocessed	Animals - Birds - Picidae - Picoides nuttallii
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Progne subis
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812154	Sacramento East	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812153	Carmichael	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812142	Sloughhouse	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Spinus lawrencei	Lawrence's goldfinch	ABPBY06100	None	None	-	-	3812152	Buffalo Creek	Unprocessed	Animals - Birds - Fringillidae - Spinus lawrencei
Animals - Birds	Spizella breweri	Brewer's sparrow	ABPBX94040	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Birds - Emberizidae - Spizella breweri
Animals - Birds	Sternula antillarum browni	California least tern	ABNNM08103	Endangered	Endangered	FP	-	3812144	Florin	Unprocessed	Animals - Birds - Laridae - Sternula antillarum browni
Animals - Birds	Xanthocephalus xanthocephalus	yellow-headed blackbird	ABPBXB3010	None	None	SSC	-	3812144	Florin	Mapped	Animals - Birds - Icteridae - Xanthocephalus xanthocephalus
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi

Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812133	Galt	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Dumontia oregonensis	hairy water flea	ICBRA23010	None	None	-	-	3812152	Buffalo Creek	Mapped	Animals - Crustaceans - Dumontiidae - Dumontia oregonensis
Animals - Crustaceans	Dumontia oregonensis	hairy water flea	ICBRA23010	None	None	-	-	3812153	Carmichael	Mapped	Animals - Crustaceans - Dumontiidae - Dumontia oregonensis
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi

Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812144	Florin	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812134	Bruceville	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812142	Sloughhouse	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812143	Elk Grove	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus

Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hysterocarpus traski traski	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traski traski
Animals - Fish	Hysterocarpus traski traski	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traski traski
Animals - Fish	Lampetra ayresii	river lamprey	AFBAA02030	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra ayresii
Animals - Fish	Lavinia exilicauda exilicauda	Central Valley hitch	AFCJB19012	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812154	Sacramento East	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812144	Florin	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812153	Carmichael	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812133	Galt	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812134	Bruceville	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812142	Sloughhouse	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812143	Elk Grove	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus
Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha
Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha
Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha

Animals - Fish	Oncorhynchus tshawytscha	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812144	Florin	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812134	Bruceville	Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812144	Florin	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Insects	Andrena blennospermatis	Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	-	-	3812142	Sloughhouse	Mapped	Animals - Insects - Andrenidae - Andrena blennospermatis
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812142	Sloughhouse	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812143	Elk Grove	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812134	Bruceville	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812133	Galt	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812154	Sacramento East	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812153	Carmichael	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812152	Buffalo Creek	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812152	Buffalo Creek	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812153	Carmichael	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812134	Bruceville	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Mammals	Lasiurus blossevillii	western red bat	AMACC05060	None	None	SSC	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus blossevillii

Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Myotis ciliolabrum	western small-footed myotis	AMACC01140	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis ciliolabrum
Animals - Mammals	Myotis lucifugus	little brown bat	AMACC01010	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis lucifugus
Animals - Mammals	Myotis lucifugus	little brown bat	AMACC01010	None	None	-	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis lucifugus
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	3812144	Florin	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis yumanensis
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	3812134	Bruceville	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis yumanensis
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812134	Bruceville	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812153	Carmichael	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812144	Florin	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812154	Sacramento East	Mapped	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812133	Galt	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812132	Clay	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812134	Bruceville	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812142	Sloughhouse	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812143	Elk Grove	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812144	Florin	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812152	Buffalo Creek	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812153	Carmichael	Mapped	Animals - Reptiles - Emydidae - Emys marmorata

Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812154	Sacramento East	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812144	Florin	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812143	Elk Grove	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812142	Sloughhouse	Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812134	Bruceville	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812132	Clay	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant garter snake	ARADB36150	Threatened	Threatened	-	-	3812133	Galt	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Community - Terrestrial	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Coastal and Valley Freshwater Marsh
Community - Terrestrial	Elderberry Savanna	Elderberry Savanna	CTT63440CA	None	None	-	-	3812154	Sacramento East	Mapped	Community - Terrestrial - Elderberry Savanna
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Great Valley Valley Oak Riparian Forest
Community - Terrestrial	Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	-	-	3812143	Elk Grove	Mapped	Community - Terrestrial - Great Valley Valley Oak Riparian Forest
Community - Terrestrial	Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	-	-	3812133	Galt	Mapped	Community - Terrestrial - Great Valley Valley Oak Riparian Forest
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812133	Galt	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812132	Clay	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812143	Elk Grove	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812142	Sloughhouse	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812144	Florin	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812152	Buffalo Creek	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool

Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812153	Carmichael	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Valley Oak Woodland	Valley Oak Woodland	CTT71130CA	None	None	-	-	3812134	Bruceville	Mapped	Community - Terrestrial - Valley Oak Woodland
Community - Terrestrial	Valley Oak Woodland	Valley Oak Woodland	CTT71130CA	None	None	-	-	3812133	Galt	Mapped	Community - Terrestrial - Valley Oak Woodland
Plants - Vascular	Brasenia schreberi	watershield	PDCAB01010	None	None	-	2B.3	3812134	Bruceville	Mapped	Plants - Vascular - Cabombaceae - Brasenia schreberi
Plants - Vascular	Carex comosa	bristly sedge	PMCYP032Y0	None	None	-	2B.1	3812134	Bruceville	Mapped	Plants - Vascular - Cyperaceae - Carex comosa
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812134	Bruceville	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812144	Florin	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Cicuta maculata var. bolanderi	Bolander's water-hemlock	PDAPI0M051	None	None	-	2B.1	3812134	Bruceville	Mapped	Plants - Vascular - Apiaceae - Cicuta maculata var. bolanderi
Plants - Vascular	Cuscuta obtusiflora var. glandulosa	Peruvian dodder	PDCUS01111	None	None	-	2B.2	3812144	Florin	Mapped	Plants - Vascular - Cuscutaceae - Cuscuta obtusiflora var. glandulosa
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812133	Galt	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812132	Clay	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812143	Elk Grove	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812144	Florin	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812152	Buffalo Creek	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812153	Carmichael	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812142	Sloughhouse	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812143	Elk Grove	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Hesperevax caulescens	hogwallow starfish	PDASTE5020	None	None	-	4.2	3812144	Florin	Unprocessed	Plants - Vascular - Asteraceae - Hesperevax caulescens
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis

Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812144	Florin	Mapped	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juncus leiospermus var. ahartii	Ahart's dwarf rush	PMJUN011L1	None	None	-	1B.2	3812152	Buffalo Creek	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. ahartii
Plants - Vascular	Juncus leiospermus var. ahartii	Ahart's dwarf rush	PMJUN011L1	None	None	-	1B.2	3812153	Carmichael	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. ahartii
Plants - Vascular	Lasthenia ferrisiae	Ferris' goldfields	PDAST5L070	None	None	-	4.2	3812134	Bruceville	Unprocessed	Plants - Vascular - Asteraceae - Lasthenia ferrisiae
Plants - Vascular	Lathyrus jepsonii var. jepsonii	Delta tule pea	PDFAB250D2	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Fabaceae - Lathyrus jepsonii var. jepsonii
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812144	Florin	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812153	Carmichael	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812152	Buffalo Creek	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812143	Elk Grove	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812142	Sloughhouse	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812132	Clay	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812133	Galt	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812134	Bruceville	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
Plants - Vascular	Lilaeopsis masonii	Mason's lilaeopsis	PDAPI19030	None	Rare	-	1B.1	3812134	Bruceville	Mapped	Plants - Vascular - Apiaceae - Lilaeopsis masonii
Plants - Vascular	Limosella australis	Delta mudwort	PDSCR10050	None	None	-	2B.1	3812134	Bruceville	Mapped	Plants - Vascular - Scrophulariaceae - Limosella australis
Plants - Vascular	Navarretia eriocephala	hoary navarretia	PDPLM0C060	None	None	-	4.3	3812143	Elk Grove	Unprocessed	Plants - Vascular - Polemoniaceae - Navarretia eriocephala
Plants - Vascular	Orcuttia tenuis	slender Orcutt grass	PMPOA4G050	Threatened	Endangered	-	1B.1	3812143	Elk Grove	Mapped	Plants - Vascular - Poaceae - Orcuttia tenuis
Plants - Vascular	Orcuttia tenuis	slender Orcutt grass	PMPOA4G050	Threatened	Endangered	-	1B.1	3812152	Buffalo Creek	Mapped	Plants - Vascular - Poaceae - Orcuttia tenuis
Plants - Vascular	Orcuttia viscida	Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	-	1B.1	3812152	Buffalo Creek	Mapped	Plants - Vascular - Poaceae - Orcuttia viscida
Plants - Vascular	Orcuttia viscida	Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	-	1B.1	3812153	Carmichael	Mapped	Plants - Vascular - Poaceae - Orcuttia viscida
Plants - Vascular	Orcuttia viscida	Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	-	1B.1	3812143	Elk Grove	Mapped	Plants - Vascular - Poaceae - Orcuttia viscida

Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812133	Galt	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812142	Sloughhouse	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812143	Elk Grove	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812154	Sacramento East	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812153	Carmichael	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Scutellaria galericulata	marsh skullcap	PDLAM1U0J0	None	None	-	2B.2	3812134	Bruceville	Mapped	Plants - Vascular - Lamiaceae - Scutellaria galericulata
Plants - Vascular	Scutellaria lateriflora	side-flowering skullcap	PDLAM1U0Q0	None	None	-	2B.2	3812134	Bruceville	Mapped	Plants - Vascular - Lamiaceae - Scutellaria lateriflora
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812134	Bruceville	Mapped	Plants - Vascular - Fabaceae - Trifolium hydrophilum
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812144	Florin	Mapped	Plants - Vascular - Fabaceae - Trifolium hydrophilum

CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

24 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 38121D3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb	2B.3	S2	G5
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	2B.1	S2	G5
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	4.2	S3.2	G3T3
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	2B.1	S2	G5T3T4
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	2B.2	SH	G5T4T5
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	4.2	S3.2	G3
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb	1B.2	S2	G5T2
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	1B.1	S1	G1
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	4.2	S3.2	G3
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	1B.2	S2.2	G5T2
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	1B.2	S2	G4T2
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	1B.1	S2	G2
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	2B.1	S2	G4G5
Navarretia eriocephala	hoary navarretia	Polemoniaceae	annual herb	4.3	S3.3	G3
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae		1B.2	S3	G3

			perennial rhizomatous herb			
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S2	G5
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	2B.2	S1	G5
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2

Suggested Citation

CNPS, Rare Plant Program. 2014. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 16 June 2014].

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Appendix B – Wetland Delineation

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

October 9, 2013

Regulatory Division SPK-2005-00956

Michael Karoly
City of Elk Grove, Public Works Dept.
8401 Laguna Palms Way
Elk Grove, California 95758

Dear Mr. Karoly:

We are responding to your consultant's September 4, 2013 request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Sheldon/Bradshaw Road Intersection Expansion Project site. The approximately 33-acre site is located along the east branch of Laguna Creek, in Sections 20, 21, 28 and 29, Township 7 North, Range 6 East, Mount Diablo Meridian, Latitude 38.43814°, Longitude -121.33371°, in Elk Grove, Sacramento County, California.

Based on available information, **we concur with the amount and location of wetlands and other water bodies (east branch of Laguna Creek, and several ditches) on the site, as depicted on the enclosed copy of the December 21, 2006 Sheldon/Bradshaw Intersection Improvement Project drawing prepared by City of Elk Grove Development Services**. The approximately **2.00 acres** of wetlands and other water bodies (consisting of 0.02 acre of seasonal wetlands, and 1.98 acres of creeks/ditches) present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act.

A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal form is enclosed to notify you of your options with this determination. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2005-00956 in any correspondence concerning this project. If you have any questions, please contact me at U.S. Army Corps of Engineers, Regulatory Division, California South Branch, 1325 J Street, Room 1350, Sacramento, California 95814-2922, email *Mary.R.Pakenham-Walsh@usace.army.mil*, or telephone 916-557-7718. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Mary R. Pakenham-Walsh
Senior Project Manager,
California South Branch

Enclosures

cc: w/o encls

Mr. Paul Jones, U.S. Environmental Protection Agency, Wetlands Program, 75 Hawthorne Street (WTR-8), San Francisco, California 94105
Ms. Elizabeth Lee, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Ms. Summer Pardo, PMC, 2729 Prospect Park Drive, Suite 220, Rancho Cordova, California 95670

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
Sacramento District

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Regulatory Branch: **California South** File/ORM #: **SPK-2005-00956** PJD Date: **October 9, 2013**

State: **CA** City/County: **Elk Grove, Sacramento County**
Nearest Waterbody: **Laguna Creek**

Location (Lat/Long): **38.43814°, -121.33371°**

Size of Review Area: **32.98** acres

Name/Address Of Property Owner/ Potential Applicant: **City of Elk Grove, Public Works Dept. Attn: Michael Karoly 8401 Laguna Palms Way Elk Grove, California 95758**

Identify (Estimate) Amount of Waters in the Review Area

Non-Wetland Waters:
linear feet ft wide **1.98** acre(s)
Stream Flow: **Mixed**

Wetlands: **0.02** acre(s) Cowardin Class: **Palustrine, emergent**

Name of any Water Bodies Tidal:
on the site identified as
Section 10 Waters: Non-Tidal:

☒ Office (Desk) Determination
☐ Field Determination:
Date(s) of Site Visit(s):

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Dated December 21, 2006**
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Data sheets prepared by the Corps.
☐ Corps navigable waters' study.
☐ U.S. Geological Survey Hydrologic Atlas:
  ☐ USGS NHD data.
  ☐ USGS HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:24K; CA-ELK GROVE**
☒ USDA Natural Resources Conservation Service Soil Survey.
☐ National wetlands inventory map(s).
☐ State/Local wetland inventory map(s).
☐ FEMA/FIRM maps.
☐ 100-year Floodplain Elevation (if known):
☒ Photographs: ☒ Aerial
  ☐ Other
☒ Previous determination(s). File no. and date of response letter: **Same file #, April 19, 2007.**
☒ Other information (please specify): **PMC field-checked site on 6/20/13; no mapping updates to 4/19/07's JD.**

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Mary R. Paterson-Wilk Oct. 9, 2013

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

Figure 3: Delineation of Waters of the U.S. including Wetlands

Sheldon/Bradshaw Intersection Improvement Project

Legend

- Data Point
- Project Toe of Slope
- Contour (2 foot interval)

Map Feature	ID	Type	Linear Feet	Acres
	1	Intermittent Creek	N/A	1.12
	2	Seasonal Wetland	N/A	0.02
	3	Intermittent Drainage Ditch	66	0.01
	4	Intermittent Drainage Ditch	571	0.05
	N/A	Culvert	101	N/A
	N/A	Irrigation Ditch	118	0.01
	N/A	Roadside Ditch	7645	0.79
	N/A	Project Study Area	N/A	32.98

Delineated By: Jeannette Owen, Brandon Amrhein

Drafted By: John DeMartino, Bob Noyes

Date: December 21, 2006

City of Elk Grove
Development Services

Appendix C – Tree Survey

PMC®

BIOLOGICAL MEMORANDUM

Date: September 3, 2013

To: Michael Karoly, Senior Project Engineer

From: Leslie Parker, Biologist

Cc: Joyce Hunting; Summer Pardo

RE: **SHELDON-BRADSHAW INTERSECTION TREE SURVEY UPDATE**

On January 31 and February 3, 2006, Brandon Amrhein and Rochelle Wicky Amrhein (ISA Certified Arborist #WE-6783A) conducted a site visit of the Bradshaw/Sheldon Intersection project site located within the City of Elk Grove (County of Sacramento), California. The purpose of this site visit was to conduct a field inspection and collect data on all trees on the proposed project site required by the City of Elk Grove Tree Preservation and Protection Ordinance (Tree Ordinance). The Tree Ordinance requires an inventory and field identification of any single-trunked native oak 6" diameter at breast height (dbh) and larger, or multi-trunked native oak having an aggregate diameter of 6" dbh and larger. In order to ensure that landmark trees (particularly significant trees) were not overlooked, all trees 6" dbh and larger in the City right-of-way were surveyed. Native trees and other potentially significant trees that did not appear to be located in a private yard were identified with oblong metal tags with the numbers 117 through 257. For your reference, there are two sets of numbers utilized in this report; the first is the tree number as found on the map and the second is the number associated with the tag that was affixed to the tree.

On June 20, 2013, PMC biologists updated the original tree survey. Presence of trees was verified, new trees were added, and dbh was measured. Thirty-four trees have been removed from the area since the original survey in 2006. Removed trees are included in **Table 1**, but are shown with a strikethrough.

The study area contains 246 trees that are over 6" dbh or larger. All native trees were positively identified. Species composition includes two almond (*Prunus dulcis*) totaling approximately 48 aggregate diameter inches (adi); three ash (*Fraxinus* sp.) totaling approximately 45 adi; six black walnut (*Juglans hindsii*) totaling approximately 142 adi; fifteen camphor (*Cinnamomum camphora*) totaling approximately 169 adi; five cedar (*Cedrus* sp.) totaling approximately 98 adi; one cottonwood (*Populus fremontii*) totaling approximately 19" dbh; three English walnut (*Juglans regia*) totaling approximately 48 adi; ninety-one eucalyptus (*Eucalyptus* sp.) totaling approximately 2,284 adi; two fir (*Abies* sp.) totaling approximately 21 adi; three plum (*Prunus* sp.) totaling approximately 53 adi; one Italian cypress (*Cupressus sempervirens*)

totaling approximately 16" dbh; thirteen liquidambar (*Liquidambar styraciflua*) totaling approximately 194 adi; one interior live oak (*Quercus wislizenii*) totaling approximately 20" dbh; four mulberry (*Morus* sp.) totaling approximately 68 adi; one fan palm (*Washingtonia* sp.) totaling approximately 17" dbh; five pecan (*Carya illinoensis*) totaling approximately 69 adi; one pepper (*Schinus* sp.) totaling approximately 11" dbh; six pine (*Pinus* sp.) totaling approximately 112 adi; one pistachio (*Pistacia vera*) totaling approximately 21" dbh; one red ironbark (*Eucalyptus sideroxylon*) totaling approximately 31" dbh; sixteen redwood (*Sequoia sempervirens*) totaling approximately 266 adi; thirty-eight valley oak (*Quercus lobata*) totaling approximately 655 adi; two magnolias (*Magnolia grandiflora)* totaling approximately 12 adi; and twenty-three unidentified non-native ornamentals totaling approximately 346 adi. The mapped locations of all trees are identified in **Figure 1**.

In addition to information recorded in the field pertaining to each tree (including species, dbh, and overall condition), the attached table gives recommendations for each tree. The term "Multi," heading column six, refers to trees with multiple trunks; the dbh listed for these trees is the sum of all trunks. In 2006, in order to determine impacts to potentially significant trees, the dripline radius was also recorded for all tagged trees. All trees in poor, diseased, dying, declining, or dead condition are recommended for removal. Although some of these trees may be located in areas where they could be protected, it is recommended that they be removed because they may pose a hazard to nearby traffic and pedestrians. If, however, trees recommended for removal are on private property, any removals that are not required to complete the project should be at the discretion of the private property owner.

All trees in fair or good condition are recommended for preservation. Not all trees recommended for preservation are considered special or important biological resources, or are not protected by the City's Tree Ordinance. Therefore, all trees recommended for protection are also given a second classification denoting whether mitigation will be required if the tree is removed.

The original tree survey data can be found in **Appendix A**.

TABLE 1 – UPDATED TREE SURVEY DATA (2013)

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
1	117	Valley oak	*Quercus lobata*	14	no	12	fair	protect/mitigate
2	118	Valley oak	*Quercus lobata*	20	yes	13	fair	protect/mitigate
3	119	Valley oak	*Quercus lobata*	12	no	15	fair	protect/mitigate
4	120	Valley oak	*Quercus lobata*	7	no	9	fair	protect/mitigate
5	121	Valley oak	*Quercus lobata*	10	no	8	fair	protect/mitigate
6	122	Valley oak	*Quercus lobata*	17	no	15	fair/good	protect/mitigate
7	123	Valley oak	*Quercus lobata*	8	no	10	fair	protect/mitigate
8	124	Valley oak	*Quercus lobata*	11	no	12	fair/good	protect/mitigate
9	125	Valley oak	*Quercus lobata*	10	no	11	fair/good	protect/mitigate
10	126	Valley oak	*Quercus lobata*	16	yes	10	fair	protect/mitigate
11	127	Valley oak	*Quercus lobata*	15	no	15	fair/good	protect/mitigate
12	128	Valley oak	*Quercus lobata*	13	no	12	fair/good	protect/mitigate
13	129	Valley oak	*Quercus lobata*	16	no	13	fair/good	protect/mitigate
14	130	Valley oak	*Quercus lobata*	9	no	7	fair	protect/mitigate
15	131	Valley oak	*Quercus lobata*	16	no	16	fair/good	protect/mitigate
16	132	Valley oak	*Quercus lobata*	26	yes	21	fair	protect/mitigate
17	133	Valley oak	*Quercus lobata*	14	no	10	fair/good	protect/mitigate
18	134	Valley oak	*Quercus lobata*	18	yes	15	fair	protect/mitigate
19	135	Valley oak	*Quercus lobata*	11	yes	9	fair	protect/mitigate
20	136	Valley oak	*Quercus lobata*	19	no	24	fair/good	protect/mitigate
21	137	Black walnut	*Juglans hindsii*	30	yes	25	fair	protect/mitigate
22	138	Black walnut	*Juglans hindsii*	17	no	27	fair	protect/mitigate
23	139	Black walnut	*Juglans hindsii*	17	no	15	poor	remove
24	140	Pepper	*Schinus sp.*	11	no	15	fair	protect/no mitigation
25	141	Black walnut	*Juglans hindsii*	27	no	21	poor	remove
26	142	Red ironbark	*Eucalyptus sideroxylon*	31	yes	15	fair	protect/no mitigation
27	143	Fir	*Abies sp.*	13	no	12	fair/good	protect/no mitigation
28	144	Redwood	*Sequoia sempervirens*	15	no	9	fair	protect/no mitigation
29	145	Ash	*Fraxinus sp.*	10	no	10	fair	protect/no mitigation
30	146	Ash	*Fraxinus sp.*	17	no	12	poor/fair	protect/no mitigation
31	147	Pine	*Pinus sp.*	18	no	21	fair	protect/no mitigation
32	148	Pine	*Pinus sp.*	19	no	21	poor/fair	protect/no mitigation
33	149	Ash	*Fraxinus sp.*	18	no	18	fair	protect/no mitigation

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
~~34~~	~~150~~	~~Hawthorn~~	~~*Crataegus sp.*~~	~~37~~	~~yes~~	~~18~~	~~poor~~	~~remove~~
~~35~~	~~151~~	~~Black walnut~~	~~*Juglans hindsii*~~	~~21~~	~~no~~	~~7~~	~~poor~~	~~remove~~
~~36~~	~~152~~	~~Valley oak~~	~~*Quercus lobata*~~	~~12~~	~~no~~	~~10~~	~~fair~~	~~protect/mitigate~~
~~37~~	~~153~~	~~Valley oak~~	~~*Quercus lobata*~~	~~8~~	~~no~~	~~10~~	~~fair~~	~~protect/mitigate~~
~~38~~	~~154~~	~~Black walnut~~	~~*Juglans hindsii*~~	~~22~~	~~yes~~	~~10~~	~~fair~~	~~protect/mitigate~~
~~39~~	~~155~~	~~Hawthorn~~	~~*Crataegus sp.*~~	~~43~~	~~yes~~	~~12~~	~~fair~~	~~protect/no mitigation~~
~~40~~	~~224~~	~~Ornamental~~	~~*Spp.*~~	~~7~~	~~no~~	~~10~~	~~poor~~	~~remove~~
~~41~~	~~225~~	~~Eucalyptus~~	~~*Eucalyptus sp.*~~	~~10~~	~~no~~	~~15~~	~~poor~~	~~remove~~
42	226	Eucalyptus	*Eucalyptus sp.*	25	no	20	fair	protect/no mitigation
43		Eucalyptus	*Eucalyptus sp.*	20	no		fair	protect/no mitigation
44		Eucalyptus	*Eucalyptus sp.*	25	yes		fair	protect/no mitigation
45		Eucalyptus	*Eucalyptus sp.*	13	no		fair	protect/no mitigation
46		Eucalyptus	*Eucalyptus sp.*	11	no		fair	protect/no mitigation
47		Eucalyptus	*Eucalyptus sp.*	10	no		fair	protect/no mitigation
48		Eucalyptus	*Eucalyptus sp.*	14	no		fair	protect/no mitigation
49		Eucalyptus	*Eucalyptus sp.*	16	no		fair	protect/no mitigation
50		Eucalyptus	*Eucalyptus sp.*	9	no		fair	protect/no mitigation
51		Eucalyptus	*Eucalyptus sp.*	22	no		poor	remove
52		Eucalyptus	*Eucalyptus sp.*	38	no		poor	remove
53		Eucalyptus	*Eucalyptus sp.*	20	no		fair	protect/no mitigation
54		Eucalyptus	*Eucalyptus sp.*	27	no		fair	protect/no mitigation
55		Eucalyptus	*Eucalyptus sp.*	33	yes		fair	protect/no mitigation
56		Eucalyptus	*Eucalyptus sp.*	47	yes		fair	protect/no mitigation
57		Eucalyptus	*Eucalyptus sp.*	12	no		fair	protect/no mitigation
58		Eucalyptus	*Eucalyptus sp.*	37	yes		fair	protect/no mitigation
59		Eucalyptus	*Eucalyptus sp.*	32	no		fair	protect/no mitigation
60		Eucalyptus	*Eucalyptus sp.*	33	yes		fair	protect/no mitigation
61		Eucalyptus	*Eucalyptus sp.*	32	no		fair	protect/no mitigation
62		Eucalyptus	*Eucalyptus sp.*	56	yes		fair	protect/no mitigation
63		Eucalyptus	*Eucalyptus sp.*	19	no		fair	protect/no mitigation
64		Eucalyptus	*Eucalyptus sp.*	49	yes		fair	protect/no mitigation
65		Eucalyptus	*Eucalyptus sp.*	31	no		fair	protect/no mitigation
66		Eucalyptus	*Eucalyptus sp.*	14	no		fair	protect/no mitigation
67		Eucalyptus	*Eucalyptus sp.*	24	yes		fair	protect/no mitigation
68		Eucalyptus	*Eucalyptus sp.*	17	no		fair	protect/no mitigation

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
69		Eucalyptus	*Eucalyptus sp.*	35	yes		fair	protect/no mitigation
70		Eucalyptus	*Eucalyptus sp.*	19	yes		fair	protect/no mitigation
71		Eucalyptus	*Eucalyptus sp.*	13	no		fair	protect/no mitigation
72		Eucalyptus	*Eucalyptus sp.*	17	no		fair	protect/no mitigation
73		Eucalyptus	*Eucalyptus sp.*	13	no		fair	protect/no mitigation
74		Eucalyptus	*Eucalyptus sp.*	14	no		fair	protect/no mitigation
75		Eucalyptus	*Eucalyptus sp.*	44	no		fair	protect/no mitigation
76		Eucalyptus	*Eucalyptus sp.*	44	no		fair	protect/no mitigation
77		Eucalyptus	*Eucalyptus sp.*	41	no		fair	protect/no mitigation
78	227	Eucalyptus	*Eucalyptus sp.*	48	yes	40	fair	protect/no mitigation
79	228	Eucalyptus	*Eucalyptus sp.*	34	no	30	fair	protect/no mitigation
80		Eucalyptus	*Eucalyptus sp.*	39	no		fair	protect/no mitigation
81	232	Eucalyptus	*Eucalyptus sp.*	42	no	45	fair	protect/no mitigation
82	231	Eucalyptus	*Eucalyptus sp.*	40	no	57	fair	protect/no mitigation
83	230	Eucalyptus	*Eucalyptus sp.*	27	no	35	fair	protect/no mitigation
84	229	Eucalyptus	*Eucalyptus sp.*	39	no	30	fair	protect/no mitigation
85		Eucalyptus	*Eucalyptus sp.*	19	yes		fair	protect/no mitigation
86		Incense cedar	*Calocedrus decurrens*	18	no	12	fair	protect/no mitigation
87		Incense cedar	*Calocedrus decurrens*	22	no	15	fair	protect/no mitigation
88		Pine	*Pinus sp.*	18	no	12	fair	protect/no mitigation
89		Redwood	*Sequoia sempervirens*	15	no	9	fair	protect/no mitigation
~~90~~		~~Redwood~~	~~*Sequoia sempervirens*~~	~~10~~	~~no~~	~~10~~	~~fair~~	~~protect/no mitigation~~
91		Ornamental	*Spp.*	11	yes		fair	protect/no mitigation
92		Ornamental	*Spp.*	13	yes		fair	protect/no mitigation
93		Ornamental	*Spp.*	14	yes		fair	protect/no mitigation
94		Ornamental	*Spp.*	9	no		fair	protect/no mitigation
95		Ornamental	*Spp.*	14	yes		fair	protect/no mitigation
96		Ornamental	*Spp.*	18	yes		fair	protect/no mitigation
97		Camphor	*Cinnamomum camphora*	9	no		fair	protect/no mitigation
98		Ornamental	*Spp.*	14	no		fair	protect/no mitigation
99		Ornamental	*Spp.*	14	no		fair	protect/no mitigation
100		Liquidambar	*Liquidambar styraciflua*	10	no		fair	protect/no mitigation
101		Liquidambar	*Liquidambar styraciflua*	11	no		fair	protect/no mitigation
102		Ornamental	*Spp.*	8	no		fair	protect/no mitigation
103		Camphor	*Cinnamomum camphora*	9	no		fair	protect/no mitigation

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
104		Camphor	*Cinnamomum camphora*	10	no		fair	protect/no mitigation
105		Camphor	*Cinnamomum camphora*	11	no		fair	protect/no mitigation
106		Camphor	*Cinnamomum camphora*	11	no		fair	protect/no mitigation
107		Camphor	*Cinnamomum camphora*	10	no		fair	protect/no mitigation
108		Camphor	*Cinnamomum camphora*	9	no		fair	protect/no mitigation
109		Camphor	*Cinnamomum camphora*	10	no		fair	protect/no mitigation
110		Camphor	*Cinnamomum camphora*	21	yes		fair	protect/no mitigation
111		Pine	*Pinus sp.*	15	yes		fair	protect/no mitigation
112		Camphor	*Cinnamomum camphora*	17	yes		fair	protect/no mitigation
113		Camphor	*Cinnamomum camphora*	12	yes		fair	protect/no mitigation
114		Ornamental	*Spp.*	13	no		fair	protect/no mitigation
115		Camphor	*Cinnamomum camphora*	8	no		fair	protect/no mitigation
116		Pine	*Pinus sp.*	14	no		fair	protect/no mitigation
117		Camphor	*Cinnamomum camphora*	11	no		fair	protect/no mitigation
118		Liquidambar	*Liquidambar styraciflua*	12	no		fair	protect/no mitigation
119		Liquidambar	*Liquidambar styraciflua*	14	no		fair	protect/no mitigation
120		Liquidambar	*Liquidambar styraciflua*	9	no		fair	protect/no mitigation
121		Camphor	*Cinnamomum camphora*	13	yes		fair	protect/no mitigation
122	233	Valley oak	*Quercus lobata*	30	yes	8	fair	protect/mitigate
~~123~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
124		Ornamental	*Spp.*	13	yes		fair	protect/no mitigation
~~125~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~poor~~	~~remove~~
126		Plum	*Prunus sp.*	14	yes		fair	protect/no mitigation
127		Plum	*Prunus sp.*	23	yes		fair	protect/no mitigation
~~128~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
~~129~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
130	234	Valley oak	*Quercus lobata*	18	yes	9	fair	protect/mitigate
131	235	Black walnut	*Juglans hindsii*	15	no	6	poor	remove
132	236	Valley oak	*Quercus lobata*	37	no	18	fair	protect/mitigate
~~133~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
134		Ornamental	*Spp.*	9	no		fair	protect/no mitigation
135		Ornamental	*Spp.*	9	no		fair	protect/no mitigation
136	237	Valley oak	*Quercus lobata*	33	yes	21	fair	protect/mitigate
137	238	Valley oak	*Quercus lobata*	12	no	17	fair	protect/mitigate
138	239	Valley oak	*Quercus lobata*	28	yes	20	fair	protect/mitigate

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
139	240	Valley oak	*Quercus lobata*	25	yes	24	fair	protect/mitigate
140		Ornamental	*Spp.*	15	no		fair	protect/no mitigation
141		Ornamental	*Spp.*	11	no		fair	protect/no mitigation
142	241	Valley oak	*Quercus lobata*	13	no	10	fair	protect/mitigate
143	242	Valley oak	*Quercus lobata*	25	no	24	fair	protect/mitigate
144		Ornamental	*Spp.*	11	no		fair	protect/no mitigation
~~145~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
146	243	Valley oak	*Quercus lobata*	34	no	30	fair	protect/mitigate
~~147~~	~~244~~	~~Black walnut~~	~~*Juglans hindsii*~~	~~12~~	~~no~~	~~9~~	~~poor~~	~~remove~~
~~148~~		~~Maple~~	~~*Acer sp.*~~	~~13~~	~~yes~~	~~7~~	~~fair~~	~~protect/no mitigation~~
~~149~~	~~245~~	~~Black walnut~~	~~*Juglans hindsii*~~	~~9~~	~~no~~	~~5~~	~~poor~~	~~remove~~
~~150~~		~~Ornamental~~	~~*Spp.*~~	~~28~~	~~yes~~		~~poor~~	~~remove~~
~~151~~	~~246~~	~~Black walnut~~	~~*Juglans hindsii*~~	~~19~~	~~yes~~	~~12~~	~~poor~~	~~remove~~
~~152~~		~~Hawthorn~~	~~*Crataegus sp.*~~	~~28~~	~~yes~~	~~15~~	~~fair~~	~~protect/no mitigation~~
~~153~~	~~247~~	~~Valley oak~~	~~*Quercus lobata*~~	~~8~~	~~no~~	~~7~~	~~fair~~	~~protect/mitigate~~
~~154~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
155	248	Valley oak	*Quercus lobata*	10	no	8	fair	protect/mitigate
156		Pecan	*Carya illinoensis*	11	no		fair	protect/no mitigation
157		Pecan	*Carya illinoensis*	11	no		fair	protect/no mitigation
158		Pecan	*Carya illinoensis*	9	no		fair	protect/no mitigation
159		Pistachio	*Pistacia vera*	21	yes		poor	remove
160		Pecan	*Carya illinoensis*	21	yes		poor	remove
161		Pecan	*Carya illinoensis*	17	no		fair	protect/no mitigation
162		Eucalyptus	*Eucalyptus sp.*	15	yes		fair	protect/no mitigation
163		Eucalyptus	*Eucalyptus sp.*	15	no		fair	protect/no mitigation
164		Eucalyptus	*Eucalyptus sp.*	12	no		fair	protect/no mitigation
165		Eucalyptus	*Eucalyptus sp.*	11	no		fair	protect/no mitigation
166		Eucalyptus	*Eucalyptus sp.*	41	no		poor	remove
167		Eucalyptus	*Eucalyptus sp.*	16	no		fair	protect/no mitigation
168	249	Valley oak	*Quercus lobata*	21	no	24	fair	protect/mitigate
169	250	Valley oak	*Quercus lobata*	19	no	18	fair	protect/mitigate
170		Ornamental	*Spp.*	12	yes		fair	protect/no mitigation
171		English walnut	*Juglans regia*	12	no		fair	protect/no mitigation
172		Ornamental	*Spp.*	14	yes		fair	protect/no mitigation
173		Eucalyptus	*Eucalyptus sp.*	9	no		fair	protect/no mitigation

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
174	251	Eucalyptus	*Eucalyptus sp.*	113	yes	57	fair	protect/mitigate
175		Eucalyptus	*Eucalyptus sp.*	18	no		fair	protect/no mitigation
176		Eucalyptus	*Eucalyptus sp.*	14	no		fair	protect/no mitigation
177		Eucalyptus	*Eucalyptus sp.*	11	no		fair	protect/no mitigation
178		Eucalyptus	*Eucalyptus sp.*	21	no		fair	protect/no mitigation
179		Eucalyptus	*Eucalyptus sp.*	10	no		fair	protect/no mitigation
180		Eucalyptus	*Eucalyptus sp.*	18	yes		fair	protect/no mitigation
181		Eucalyptus	*Eucalyptus sp.*	11	no		fair	protect/no mitigation
182		Eucalyptus	*Eucalyptus sp.*	13	no		fair	protect/no mitigation
183		Eucalyptus	*Eucalyptus sp.*	20	yes		fair	protect/no mitigation
184		Eucalyptus	*Eucalyptus sp.*	19	yes		poor	remove
185		Eucalyptus	*Eucalyptus sp.*	38	yes		poor	remove
186		Eucalyptus	*Eucalyptus sp.*	53	yes		poor	remove
~~187~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
188		Eucalyptus	*Eucalyptus sp.*	38	yes		poor	remove
189		Eucalyptus	*Eucalyptus sp.*	86	yes		poor	remove
190		Eucalyptus	*Eucalyptus sp.*	12	no		fair	protect/no mitigation
191		Eucalyptus	*Eucalyptus sp.*	12	no		poor	remove
192		Eucalyptus	*Eucalyptus sp.*	16	yes		fair	protect/no mitigation
193		Eucalyptus	*Eucalyptus sp.*	28	yes		fair	protect/no mitigation
194		Eucalyptus	*Eucalyptus sp.*	9	no		fair	protect/no mitigation
195		Eucalyptus	*Eucalyptus sp.*	13	no		fair	protect/no mitigation
196		Eucalyptus	*Eucalyptus sp.*	21	no		fair	protect/no mitigation
197	252	Valley oak	*Quercus lobata*	17	no	17	fair	protect/mitigate
~~198~~		~~Incense cedar~~	~~*Calocedrus decurrens*~~	~~36~~	~~yes~~		~~poor~~	~~remove~~
~~199~~		~~Mulberry~~	~~*Morus sp.*~~	~~20~~	~~no~~		~~fair~~	~~protect/no mitigation~~
~~200~~		~~Mulberry~~	~~*Morus sp.*~~	~~21~~	~~yes~~		~~fair~~	~~protect/no mitigation~~
201		Mulberry	*Morus sp.*	18	no		fair	protect/no mitigation
202		Mulberry	*Morus sp.*	17	no		fair	protect/no mitigation
203		Mulberry	*Morus sp.*	14	no		fair	protect/no mitigation
204		Mulberry	*Morus sp.*	19	no		fair	protect/no mitigation
205		Ornamental	*Spp.*	20	yes		fair	protect/no mitigation
206		Eucalyptus	*Eucalyptus sp.*	49	yes		poor	remove
207		Eucalyptus	*Eucalyptus sp.*	13	no		fair	protect/no mitigation
208		Eucalyptus	*Eucalyptus sp.*	15	no		fair	protect/no mitigation

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
209		Eucalyptus	*Eucalyptus sp.*	11	no		fair	protect/no mitigation
210		Eucalyptus	*Eucalyptus sp.*	25	yes		fair	protect/no mitigation
211		Eucalyptus	*Eucalyptus sp.*	22	yes		fair	protect/no mitigation
212		Eucalyptus	*Eucalyptus sp.*	13	no		poor	remove
213		Eucalyptus	*Eucalyptus sp.*	33	yes		fair	protect/no mitigation
214		Eucalyptus	*Eucalyptus sp.*	21	no		fair	protect/no mitigation
215	253	Black walnut	*Juglans hindsii*	36	no	20	fair	protect/mitigate
216		Ornamental	*Spp.*	50	yes		fair	protect/no mitigation
217		Plum	*Prunus sp.*	16	no		fair	protect/no mitigation
218		Liquidambar	*Liquidambar styraciflua*	25	no		fair	protect/no mitigation
219		Liquidambar	*Liquidambar styraciflua*	27	no		fair	protect/no mitigation
220		Liquidambar	*Liquidambar styraciflua*	27	no		fair	protect/no mitigation
221		Eucalyptus	*Eucalyptus sp.*	17	yes		fair	protect/no mitigation
222		Eucalyptus	*Eucalyptus sp.*	19	yes		fair	protect/no mitigation
223		Eucalyptus	*Eucalyptus sp.*	9	no		fair	protect/no mitigation
224		Eucalyptus	*Eucalyptus sp.*	15	no		fair	protect/no mitigation
225		Eucalyptus	*Eucalyptus sp.*	9	no		fair	protect/no mitigation
226		Eucalyptus	*Eucalyptus sp.*	13	yes		fair	protect/no mitigation
227		Eucalyptus	*Eucalyptus sp.*	35	yes		fair	protect/no mitigation
228		Eucalyptus	*Eucalyptus sp.*	19	no		fair	protect/no mitigation
229		Redwood	*Sequoia sempervirens*	13	no		fair	protect/no mitigation
230		Redwood	*Sequoia sempervirens*	16	no		fair	protect/no mitigation
231		Redwood	*Sequoia sempervirens*	15	no		fair	protect/no mitigation
232		Redwood	*Sequoia sempervirens*	16	no		fair	protect/no mitigation
233		Redwood	*Sequoia sempervirens*	13	no		fair	protect/no mitigation
234		Interior live oak	*Quercus wislizenii*	20	yes	15	fair	protect/mitigate
235		Redwood	*Sequoia sempervirens*	31	no		fair	protect/mitigate
236		Redwood	*Sequoia sempervirens*	23	no		fair	protect/no mitigation
237		Redwood	*Sequoia sempervirens*	19	no		fair	protect/no mitigation
238	254	Cottonwood	*Populus fremontii*	19	no	15	poor	remove
239		Redwood	*Sequoia sempervirens*	18	no		fair	protect/no mitigation
240		Redwood	*Sequoia sempervirens*	18	no		fair	protect/no mitigation
~~241~~		~~Eucalyptus~~	~~*Eucalyptus sp.*~~	~~18~~	~~no~~		~~fair~~	~~protect/no mitigation~~
~~242~~		~~Eucalyptus~~	~~*Eucalyptus sp.*~~	~~16~~	~~no~~		~~fair~~	~~protect/no mitigation~~
~~243~~		~~Ornamental~~	~~*Spp.*~~	~~15~~	~~no~~		~~fair~~	~~protect/no mitigation~~

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
244		Italian cypress	*Cupressus sempervirens*	16	yes		fair	protect/no mitigation
245		Ornamental	*Spp.*	28	yes		poor	remove
246		Ornamental	*Spp.*	14	no		fair	protect/no mitigation
247		Eucalyptus	*Eucalyptus sp.*	19	no		fair	protect/no mitigation
~~248~~		~~Cypress~~	~~*Cupressus sp.*~~	~~15~~	~~yes~~		~~fair~~	~~protect/no mitigation~~
249		Redwood	*Sequoia sempervirens*	16	no		fair	protect/no mitigation
~~250~~		~~Cypress~~	~~*Cupressus sp.*~~	~~24~~	~~yes~~		~~fair~~	~~protect/no mitigation~~
251		Redwood	*Sequoia sempervirens*	15	no		fair	protect/no mitigation
~~252~~		~~Cypress~~	~~*Cupressus sp.*~~	~~20~~	~~yes~~		~~fair~~	~~protect/no mitigation~~
253		Redwood	*Sequoia sempervirens*	11	no		fair	protect/no mitigation
~~254~~		~~Ornamental~~	~~*Spp.*~~	~~30~~	~~yes~~		~~fair~~	~~protect/no mitigation~~
255		Fir	*Abies sp.*	8	no		fair	protect/no mitigation
256		Pine	*Pinus sp.*	28	no		fair	protect/mitigate
257		Ornamental	*Spp.*	12	yes		fair	protect/no mitigation
258	255	Valley oak	*Quercus lobata*	7	no	20	fair	protect/mitigate
259	256	Valley oak	*Quercus lobata*	19	yes	20	fair	protect/mitigate
260		Cedar	*Cedrus sp.*	22	no		fair	protect/no mitigation
261		Fan palm	*Washingtonia sp.*	17	no		fair	protect/no mitigation
262		Cedar	*Cedrus sp.*	15	no		fair	protect/no mitigation
263		Cedar	*Cedrus sp.*	21	no		fair	protect/no mitigation
264		Cedar	*Cedrus sp.*	21	no		fair	protect/no mitigation
265		Cedar	*Cedrus sp.*	19	no		fair	protect/no mitigation
~~266~~		~~Cedar~~	~~*Cedrus sp.*~~	~~15~~	~~no~~		~~fair~~	~~protect/no mitigation~~
267		English walnut	*Juglans regia*	11	no		fair	protect/no mitigation
268		English walnut	*Juglans regia*	25	yes		fair	protect/no mitigation
~~269~~		~~English walnut~~	~~*Juglans regia*~~	~~7~~	~~no~~		~~fair~~	~~protect/no mitigation~~
~~270~~		~~English walnut~~	~~*Juglans regia*~~	~~14~~	~~yes~~		~~poor~~	~~remove~~
~~271~~		~~English walnut~~	~~*Juglans regia*~~	~~13~~	~~yes~~		~~fair~~	~~protect/no mitigation~~
272	257	Valley oak	*Quercus lobata*	16	no	12	fair	protect/mitigate
~~273~~		~~Hawthorn~~	~~*Crataegus sp.*~~		~~yes~~		~~fair~~	~~protect/no mitigation~~
274		Almond	*Prunus dulcis*	20	yes		fair	protect/no mitigation
275		Almond	*Prunus dulcis*	28	yes		fair	protect/no mitigation
~~276~~		~~Ornamental~~	~~*Spp.*~~				~~poor/dying~~	~~remove~~
~~277~~		~~Black walnut~~	~~*Juglans hindsii*~~				~~dead~~	~~remove~~
278		Magnolia	*Magnolia grandiflora*	6	no		fair	protect/no mitigation

Tree ID #	Tree Tag #	Common Name	Scientific Name	dbh	Multi	Dripline*	Condition	Recommendation
279		Magnolia	*Magnolia grandiflora*	6	no		fair	protect/no mitigation
280		Camphor	*Cinnamomum camphora*	8	no		fair	protect/no mitigation
281		Valley oak	*Quercus lobata*	9	no		fair	protect/mitigate
282		Liquidambar	*Liquidambar styraciflua*	15	no		fair	protect/no mitigation
283		Liquidambar	*Liquidambar styraciflua*	13	no		fair	protect/no mitigation
284		Liquidambar	*Liquidambar styraciflua*	9	no		fair	protect/no mitigation
285		Liquidambar	*Liquidambar styraciflua*	13	no		fair	protect/no mitigation
286		Liquidambar	*Liquidambar styraciflua*	9	no		fair	protect/no mitigation
287		Redwood	*Sequoia sempervirens*	12	no		fair	protect/no mitigation

**** Dripline radius values are from 2006 survey***

Figure 1
Tree Survey

City of Elk Grove
Development Services

MEMO

To: Brandon Amrhein
PACIFIC MUNICIPAL CONSULTANTS

From: Rochelle Wicky Amrhein
ISA CERTIFIED ARBORIST WE-6783A

Cc:

Date: February 16, 2006

Re: Arborist Report for the Bradshaw/Sheldon Intersection Project

☐ **CHICO**
140 Independence Circle
Suite C
Chico, CA 95973
(530) 894-3469
Fax (530) 894-6459

☐ **DAVIS**
231 G Street
Suite 22
Davis, CA 95616
(530) 750-7076
Fax (530) 750-2811

☐ **MONTEREY**
585 Cannery Row, Suite 304
Monterey, CA 93940
(831) 644-9174
Fax (831) 644-7696

☐ **MT. SHASTA**
612 N. Mt. Shasta Blvd.
Suite D
Mt. Shasta, CA 96067
(530) 926-4059
Fax (530) 926-4279

☐ **OAKLAND**
1440 Broadway
Suite 1008
Oakland, CA 94612
(510) 272-4491
Fax (510) 268-9207

☒ **RANCHO CORDOVA**
10461 Old Placerville Road
Suite 110
Rancho Cordova, CA 95827
(916) 361-8384
Fax (916) 361-1574

☐ **SAN DIEGO**
10951 Sorrento Valley Road
Suite 1-A
San Diego, CA 92121
(858) 453-3602
Fax (858) 453-3628

Mr. Amrhein:

January 31 and February 3, 2006, Brandon Amrhein and Rochelle Wicky Amrhein (ISA Certified Arborist #WE-6783A) conducted a site visit of the Bradshaw/Sheldon Intersection project site located within the City of Elk Grove (County of Sacramento), California. The purpose of this site visit was to conduct a field inspection and collect data on all trees on the proposed project site required by the City of Elk Grove Tree Preservation and Protection Ordinance (Tree Ordinance). The Tree Ordinance requires an inventory and field identification of any single-trunked native oak 6" dbh and larger, or multi-trunked native oak having an aggregate diameter of 10" dbh and larger, as well as any significant trees 19" dbh and larger. In order to ensure that landmark trees (particularly significant trees) were not overlooked, all trees 6" dbh and larger were surveyed. Because hawthorns are large shrubs that can become tree-like, all hawthorns were surveyed. However, the dbh was only recorded for hawthorns with a stem(s) of 5" dbh or greater. Native trees and other potentially significant trees that did not appear to be located in a private yard were identified with oblong metal tags with the numbers 117 through 257. For your reference, there are two sets of numbers utilized in this report; the first is the tree number as found on the map and the second is the number associated with the tag that was affixed to the tree.

The study area contains 277 trees, that are over 6" dbh or larger. As that the survey was conducted in late winter, many trees had few to no leaves or fruit and no flowers, therefore all trees could not be precisely identified. All native trees were positively identified. Species composition includes two almond (*Prunus dulcis*) totaling approximately 43 aggregate diameter inches, three ash (*Fraxinus* sp.) totaling approximately 43 aggregate diameter inches, twelve (12) black walnut (*Juglans hindsii*) totaling approximately 218 aggregate diameter inches, fourteen camphor (*Cinnamomum camphora*) totaling approximately 135 aggregate diameter inches, nine (9) cedar (*Cedrus* sp.) totaling approximately 170 aggregate diameter inches, one cottonwood (*Populus fremontii*) totaling approximately 15" dbh, three cypress (*Cupressus* sp.) totaling approximately 59 aggregate diameter inches, six (6) English walnut (*Juglans regia*)totaling approximately 75 aggregate diameter inches, ninety-three (93) eucalyptus (*Eucalyptus* sp.) totaling approximately 1981 aggregate diameter inches, two fir (*Abies* sp.) totaling approximately 19 aggregate diameter inches, six (6) large hawthorn (*Crataegus* sp.) totaling approximately 161 aggregate diameter inches and ten (10) additional shrub-like hawthorn with multiple stems no larger than 4" dbh, one Italian cypress (*Cupressus sempervirens*) totaling approximately 13" dbh, eight (8) liquidambar (*Liquidambar styraciflua*) totaling approximately 119 aggregate diameter inches, one interior live oak (*Quercus wislizenii*) totaling approximately 18" dbh, one maple (*Acer* sp.) totaling approximately 13" dbh,

six mulberry (*Morus* sp.) totaling approximately 106 aggregate diameter inches, one fan palm (*Washingtonia* sp.) totaling approximately 15" dbh, five pecan (*Carya illinoensis*) totaling approximately 59 aggregate diameter inches, two pepper (*Schinus* sp.) totaling approximately 19 aggregate diameter inches, six (6) pine (*Pinus* sp.) totaling approximately 100 aggregate diameter inches, one pistachio (*Pistacia vera*) totaling approximately 19" dbh, one red ironbark (*Eucalyptus sideroxylon*) totaling approximately 28" dbh, sixteen (16) redwood (*Sequoia sempervirons*) totaling approximately 196 aggregate diameter inches, forty (40) valley oak (*Quercus lobata*) totaling approximately 557 aggregate diameter inches, and twenty-seven (27) unidentified non-native ornamentals totaling approximately 372 aggregate diameter inches. The mapped locations of all trees are identified in Figure 1.

In addition to information recorded in the field pertaining to each tree (including species, dbh, and overall condition), the attached table gives recommendations for each tree. The term "Multi", heading column five, refers to trees with multiple trunks; the dbh listed for these trees is the sum of all trunks. In order to determine impacts to potentially significant trees, the dripline radius was also recorded for all tagged trees. All trees in poor, diseased, dying, declining, or dead condition are recommended for removal. Although some of these trees may be located in areas where they could be protected, it is recommended that they be removed as that they may pose a hazard to nearby traffic and pedestrians. If, however, trees recommended for removal are on private property, any removals that are not required to complete the project should be at the discretion of the private property owner.

All trees in fair or good condition are recommended for preservation. Not all trees recommended for preservation are considered special or important biological resources, or are not protected by the City's Tree Ordinance. Therefore, all trees recommended for protection are also given a second classification denoting whether mitigation will be required if the tree is removed.

Please feel free to give me a call if you have any questions or require additional information.

Sincerely,

Rochelle Wicky Amrhein
ISA Certified Arborist WE-6783A

Tree ID #	Tree tag #	Common Name	Scientific Name	dbh	Multi	Dripline	Condition	Recommendation
1	117	Valley oak	Quercus lobata	11	no	12	fair	protect/mitigate
2	118	Valley oak	Quercus lobata	15	yes	13	fair	protect/mitigate
3	119	Valley oak	Quercus lobata	9	no	15	fair	protect/mitigate
4	120	Valley oak	Quercus lobata	7	no	9	fair	protect/mitigate
5	121	Valley oak	Quercus lobata	6	no	8	fair	protect/mitigate
6	122	Valley oak	Quercus lobata	13	no	15	fair/good	protect/mitigate
7	123	Valley oak	Quercus lobata	6	no	10	fair	protect/mitigate
8	124	Valley oak	Quercus lobata	8	no	12	fair/good	protect/mitigate
9	125	Valley oak	Quercus lobata	8	no	11	fair/good	protect/mitigate
10	126	Valley oak	Quercus lobata	8	no	10	fair	protect/mitigate
11	127	Valley oak	Quercus lobata	13	no	15	fair/good	protect/mitigate
12	128	Valley oak	Quercus lobata	9	no	12	fair/good	protect/mitigate
13	129	Valley oak	Quercus lobata	12	no	13	fair/good	protect/mitigate
14	130	Valley oak	Quercus lobata	7	no	7	fair	protect/mitigate
15	131	Valley oak	Quercus lobata	12	no	16	fair/good	protect/mitigate
16	132	Valley oak	Quercus lobata	22	yes	21	fair	protect/mitigate
17	133	Valley oak	Quercus lobata	10	no	10	fair/good	protect/mitigate
18	134	Valley oak	Quercus lobata	16	yes	15	fair	protect/mitigate
19	135	Valley oak	Quercus lobata	10	yes	9	fair	protect/mitigate
20	136	Valley oak	Quercus lobata	17	no	24	fair/good	protect/mitigate
21	137	Black walnut	Juglans hindsii	28	yes	25	fair	protect/mitigate
22	138	Black walnut	Juglans hindsii	17	no	27	fair	protect/mitigate
23	139	Black walnut	Juglans hindsii	17	no	15	poor/fair	protect/mitigate
24	140	Pepper	Schinus sp.	10	no	15	fair	protect/no mitigation
25	141	Black walnut	Juglans hindsii	26	no	21	fair	protect/mitigate
26	142	Red ironbark	Eucalyptus sideroxylon	28	yes	15	fair	protect/no mitigation
27	143	Fir	Abies sp.	13	no	12	fair/good	protect/no mitigation
28	144	Redwood	Sequoia sempervirens	12	no	9	fair	protect/no mitigation
29	145	Ash	Fraxinus sp.	9	no	10	fair	protect/no mitigation
30	146	Ash	Fraxinus sp.	16	no	12	poor/fair	protect/no mitigation
31	147	Pine	Pinus sp.	16	no	21	fair	protect/no mitigation
32	148	Pine	Pinus sp.	19	no	21	poor/fair	protect/no mitigation
33	149	Ash	Fraxinus sp.	18	no	18	fair	protect/no mitigation
34	150	Hawthorn	Crataegus sp.	37	yes	18	poor	remove
35	151	Black walnut	Juglans hindsii	21	no	7	poor	remove
36	152	Valley oak	Quercus lobata	12	no	10	fair	protect/mitigate
37	153	Valley oak	Quercus lobata	8	no	10	fair	protect/mitigate
38	154	Black walnut	Juglans hindsii	22	yes	10	fair	protect/mitigate
39	155	Hawthorn	Crataegus sp.	43	yes	12	fair	protect/no mitigation
40	224	Ornamental	Spp.	7	no	10	poor	remove
41	225	Eucalyptus	Eucalyptus sp.	10	no	15	poor	remove
42	226	Eucalyptus	Eucalyptus sp.	21	no	20	fair	protect/no mitigation
43		Eucalyptus	Eucalyptus sp.	18	no		fair	protect/no mitigation
44		Eucalyptus	Eucalyptus sp.	19	yes		fair	protect/no mitigation
45		Eucalyptus	Eucalyptus sp.	12	no		fair	protect/no mitigation
46		Eucalyptus	Eucalyptus sp.	9	no		fair	protect/no mitigation
47		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation
48		Eucalyptus	Eucalyptus sp.	13	no		fair	protect/no mitigation
49		Eucalyptus	Eucalyptus sp.	14	no		fair	protect/no mitigation
50		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation

Tree ID #	Tree tag #	Common Name	Scientific Name	dbh	Multi	Dripline	Condition	Recommendation
51		Eucalyptus	Eucalyptus sp.	22	no		poor	remove
52		Eucalyptus	Eucalyptus sp.	37	no		poor	remove
53		Eucalyptus	Eucalyptus sp.	16	no		fair	protect/no mitigation
54		Eucalyptus	Eucalyptus sp.	25	no		fair	protect/no mitigation
55		Eucalyptus	Eucalyptus sp.	27	yes		fair	protect/no mitigation
56		Eucalyptus	Eucalyptus sp.	43	yes		fair	protect/no mitigation
57		Eucalyptus	Eucalyptus sp.	10	no		fair	protect/no mitigation
58		Eucalyptus	Eucalyptus sp.	32	yes		fair	protect/no mitigation
59		Eucalyptus	Eucalyptus sp.	31	no		fair	protect/no mitigation
60		Eucalyptus	Eucalyptus sp.	28	yes		fair	protect/no mitigation
61		Eucalyptus	Eucalyptus sp.	29	no		fair	protect/no mitigation
62		Eucalyptus	Eucalyptus sp.	53	yes		fair	protect/no mitigation
63		Eucalyptus	Eucalyptus sp.	18	no		fair	protect/no mitigation
64		Eucalyptus	Eucalyptus sp.	47	yes		fair	protect/no mitigation
65		Eucalyptus	Eucalyptus sp.	31	no		fair	protect/no mitigation
66		Eucalyptus	Eucalyptus sp.	11	no		fair	protect/no mitigation
67		Eucalyptus	Eucalyptus sp.	18	yes		fair	protect/no mitigation
68		Eucalyptus	Eucalyptus sp.	14	no		fair	protect/no mitigation
69		Eucalyptus	Eucalyptus sp.	28	yes		fair	protect/no mitigation
70		Eucalyptus	Eucalyptus sp.	16	yes		fair	protect/no mitigation
71		Eucalyptus	Eucalyptus sp.	9	no		fair	protect/no mitigation
72		Eucalyptus	Eucalyptus sp.	16	no		fair	protect/no mitigation
73		Eucalyptus	Eucalyptus sp.	11	no		fair	protect/no mitigation
74		Eucalyptus	Eucalyptus sp.	13	no		fair	protect/no mitigation
75		Eucalyptus	Eucalyptus sp.	40	no		fair	protect/no mitigation
76		Eucalyptus	Eucalyptus sp.	42	no		fair	protect/no mitigation
77		Eucalyptus	Eucalyptus sp.	38	no		fair	protect/no mitigation
78	227	Eucalyptus	Eucalyptus sp.	43	yes	40	fair	protect/no mitigation
79	228	Eucalyptus	Eucalyptus sp.	33	no	30	fair	protect/no mitigation
80		Eucalyptus	Eucalyptus sp.	35	no		fair	protect/no mitigation
81	232	Eucalyptus	Eucalyptus sp.	32	no	45	fair	protect/no mitigation
82	231	Eucalyptus	Eucalyptus sp.	34	no	57	fair	protect/no mitigation
83	230	Eucalyptus	Eucalyptus sp.	20	no	35	fair	protect/no mitigation
84	229	Eucalyptus	Eucalyptus sp.	29	no	30	fair	protect/no mitigation
85		Eucalyptus	Eucalyptus sp.	14	yes		fair	protect/no mitigation
86		Incense cedar	Calocedrus decurrens	18	no	12	fair	protect/no mitigation
87		Incense cedar	Calocedrus decurrens	20	no	15	fair	protect/no mitigation
88		Pine	Pinus sp.	15	no	12	fair	protect/no mitigation
89		Redwood	Sequoia sempervirens	9	no	9	fair	protect/no mitigation
90		Redwood	Sequoia sempervirens	10	no	10	fair	protect/no mitigation
91		Ornamental	Spp.	8	yes		fair	protect/no mitigation
92		Ornamental	Spp.	12	yes		fair	protect/no mitigation
93		Ornamental	Spp.	11	yes		fair	protect/no mitigation
94		Ornamental	Spp.	9	no		fair	protect/no mitigation
95		Ornamental	Spp.	12	yes		fair	protect/no mitigation
96		Ornamental	Spp.	16	yes		fair	protect/no mitigation
97		Camphor	Cinnamomum camphora	7	no		fair	protect/no mitigation
98		Ornamental	Spp.	13	no		fair	protect/no mitigation
99		Ornamental	Spp.	12	no		fair	protect/no mitigation
100		Liquidambar	Liquidambar styraciflua	8	no		fair	protect/no mitigation
101		Liquidambar	Liquidambar styraciflua	8	no		fair	protect/no mitigation
102		Ornamental	Spp.	8	no		fair	protect/no mitigation

Tree ID #	Tree tag #	Common Name	Scientific Name	dbh	Multi	Dripline	Condition	Recommendation
103		Camphor	Cinnamomum camphora	8	no		fair	protect/no mitigation
104		Camphor	Cinnamomum camphora	7	no		fair	protect/no mitigation
105		Camphor	Cinnamomum camphora	9	no		fair	protect/no mitigation
106		Camphor	Cinnamomum camphora	10	no		fair	protect/no mitigation
107		Camphor	Cinnamomum camphora	8	no		fair	protect/no mitigation
108		Camphor	Cinnamomum camphora	7	no		fair	protect/no mitigation
109		Camphor	Cinnamomum camphora	9	no		fair	protect/no mitigation
110		Camphor	Cinnamomum camphora	18	yes		fair	protect/no mitigation
111		Pine	Pinus sp.	10	yes		fair	protect/no mitigation
112		Camphor	Cinnamomum camphora	14	yes		fair	protect/no mitigation
113		Camphor	Cinnamomum camphora	10	yes		fair	protect/no mitigation
114		Ornamental	Spp.	13	no		fair	protect/no mitigation
115		Camphor	Cinnamomum camphora	7	no		fair	protect/no mitigation
116		Pine	Pinus sp.	12	no		fair	protect/no mitigation
117		Camphor	Cinnamomum camphora	9	no		fair	protect/no mitigation
118		Liquidambar	Liquidambar styraciflua	12	no		fair	protect/no mitigation
119		Liquidambar	Liquidambar styraciflua	12	no		fair	protect/no mitigation
120		Liquidambar	Liquidambar styraciflua	7	no		fair	protect/no mitigation
121		Camphor	Cinnamomum camphora	12	yes		fair	protect/no mitigation
122	233	Valley oak	Quercus lobata	16	yes	8	fair	protect/mitigate
123		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
124		Ornamental	Spp.	9	yes		fair	protect/no mitigation
125		Hawthorn	Crataegus sp.		yes		poor	remove
126		Hawthorn	Crataegus sp.	14	yes		fair	protect/no mitigation
127		Hawthorn	Crataegus sp.	23	yes		fair	protect/no mitigation
128		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
129		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
130	234	Valley oak	Quercus lobata	10	no	9	fair	protect/mitigate
131	235	Black walnut	Juglans hindsii	13	no	6	poor	remove
132	236	Valley oak	Quercus lobata	35	no	18	fair	protect/mitigate
133		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
134		Ornamental	Spp.	7	no		fair	protect/no mitigation
135		Ornamental	Spp.	9	no		fair	protect/no mitigation
136	237	Valley oak	Quercus lobata	33	yes	21	fair	protect/mitigate
137	238	Valley oak	Quercus lobata	12	no	17	fair	protect/mitigate
138	239	Valley oak	Quercus lobata	25	yes	20	fair	protect/mitigate
139	240	Valley oak	Quercus lobata	24	yes	24	fair	protect/mitigate
140		Ornamental	Spp.	11	no		fair	protect/no mitigation
141		Ornamental	Spp.	8	no		fair	protect/no mitigation
142	241	Valley oak	Quercus lobata	12	no	10	fair	protect/mitigate
143	242	Valley oak	Quercus lobata	21	no	24	fair	protect/mitigate
144		Pepper	Schinus sp.	9	no		fair	protect/no mitigation
145		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
146	243	Valley oak	Quercus lobata	32	no	30	fair	protect/mitigate
147	244	Black walnut	Juglans hindsii	12	no	9	poor	remove
148		Maple	Acer sp.	13	yes	7	fair	protect/no mitigation
149	245	Black walnut	Juglans hindsii	9	no	5	poor	remove
150		Ornamental	Spp.	28	yes		poor	remove
151	246	Black walnut	Juglans hindsii	19	yes	12	poor	remove
152		Hawthorn	Crataegus sp.	28	yes	15	fair	protect/no mitigation
153	247	Valley oak	Quercus lobata	8	no	7	fair	protect/mitigate

Tree ID #	Tree tag #	Common Name	Scientific Name	dbh	Multi	Dripline	Condition	Recommendation
154		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
155	248	Valley oak	Quercus lobata	7	no	8	fair	protect/mitigate
156		Pecan	Carya illinoensis	9	no		fair	protect/no mitigation
157		Pecan	Carya illinoensis	10	no		fair	protect/no mitigation
158		Pecan	Carya illinoensis	6	no		fair	protect/no mitigation
159		Pistachio	Pistacia vera	19	yes		poor	remove
160		Pecan	Carya illinoensis	20	yes		poor	remove
161		Pecan	Carya illinoensis	14	no		fair	protect/no mitigation
162		Eucalyptus	Eucalyptus sp.	9	yes		fair	protect/no mitigation
163		Eucalyptus	Eucalyptus sp.	11	no		fair	protect/no mitigation
164		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation
165		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation
166		Eucalyptus	Eucalyptus sp.	38	no		poor	remove
167		Eucalyptus	Eucalyptus sp.	13	no		fair	protect/no mitigation
168	249	Valley oak	Quercus lobata	17	no	24	fair	protect/mitigate
169	250	Valley oak	Quercus lobata	17	no	18	fair	protect/mitigate
170		Ornamental	Spp.	9	yes		fair	protect/no mitigation
171		English walnut	Juglans regia	10	no		fair	protect/no mitigation
172		Ornamental	Spp.	11	yes		fair	protect/no mitigation
173		Eucalyptus	Eucalyptus sp.	6	no		fair	protect/no mitigation
174	251	Eucalyptus	Eucalyptus sp.	107	yes	57	fair	protect/mitigate
175		Eucalyptus	Eucalyptus sp.	16	no		fair	protect/no mitigation
176		Eucalyptus	Eucalyptus sp.	8	no		fair	protect/no mitigation
177		Eucalyptus	Eucalyptus sp.	8	no		fair	protect/no mitigation
178		Eucalyptus	Eucalyptus sp.	19	no		fair	protect/no mitigation
179		Eucalyptus	Eucalyptus sp.	6	no		fair	protect/no mitigation
180		Eucalyptus	Eucalyptus sp.	13	yes		fair	protect/no mitigation
181		Eucalyptus	Eucalyptus sp.	10	no		fair	protect/no mitigation
182		Eucalyptus	Eucalyptus sp.	9	no		fair	protect/no mitigation
183		Eucalyptus	Eucalyptus sp.		yes		fair	protect/no mitigation
184		Eucalyptus	Eucalyptus sp.	18	yes		poor	remove
185		Eucalyptus	Eucalyptus sp.	34	yes		poor	remove
186		Eucalyptus	Eucalyptus sp.	51	yes		poor	remove
187		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
188		Eucalyptus	Eucalyptus sp.	34	yes		poor	remove
189		Eucalyptus	Eucalyptus sp.	84	yes		poor	remove
190		Eucalyptus	Eucalyptus sp.	8	no		fair	protect/no mitigation
191		Eucalyptus	Eucalyptus sp.	9	no		poor	remove
192		Eucalyptus	Eucalyptus sp.	9	yes		fair	protect/no mitigation
193		Eucalyptus	Eucalyptus sp.	23	yes		fair	protect/no mitigation
194		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation
195		Eucalyptus	Eucalyptus sp.	10	no		fair	protect/no mitigation
196		Eucalyptus	Eucalyptus sp.	17	no		fair	protect/no mitigation
197	252	Valley oak	Quercus lobata	15	no	17	fair	protect/mitigate
198		Incense cedar	Calocedrus decurrens	36	yes		poor	remove
199		Mulberry	Morus sp.	20	no		fair	protect/no mitigation
200		Mulberry	Morus sp.	21	yes		fair	protect/no mitigation
201		Mulberry	Morus sp.	18	no		fair	protect/no mitigation
202		Mulberry	Morus sp.	16	no		fair	protect/no mitigation
203		Mulberry	Morus sp.	12	no		fair	protect/no mitigation
204		Mulberry	Morus sp.	19	no		fair	protect/no mitigation
205		Ornamental	Spp.	18	yes		fair	protect/no mitigation

Tree ID #	Tree tag #	Common Name	Scientific Name	dbh	Multi	Dripline	Condition	Recommendation
206		Eucalyptus	Eucalyptus sp.	44	yes		poor	remove
207		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation
208		Eucalyptus	Eucalyptus sp.	12	no		fair	protect/no mitigation
209		Eucalyptus	Eucalyptus sp.	9	no		fair	protect/no mitigation
210		Eucalyptus	Eucalyptus sp.	18	yes		fair	protect/no mitigation
211		Eucalyptus	Eucalyptus sp.	16	yes		fair	protect/no mitigation
212		Eucalyptus	Eucalyptus sp.	11	no		poor	remove
213		Eucalyptus	Eucalyptus sp.	26	yes		fair	protect/no mitigation
214		Eucalyptus	Eucalyptus sp.	19	no		fair	protect/no mitigation
215	253	Black walnut	Juglans hindsii	34	no	20	fair	protect/mitigate
216		Ornamental	Spp.	49	yes		fair	protect/no mitigation
217		Hawthorn	Crataegus sp.	16	no		fair	protect/no mitigation
218		Liquidambar	Liquidambar styraciflua	24	no		fair	protect/no mitigation
219		Liquidambar	Liquidambar styraciflua	24	no		fair	protect/no mitigation
220		Liquidambar	Liquidambar styraciflua	24	no		fair	protect/no mitigation
221		Eucalyptus	Eucalyptus sp.	11	yes		fair	protect/no mitigation
222		Eucalyptus	Eucalyptus sp.	15	yes		fair	protect/no mitigation
223		Eucalyptus	Eucalyptus sp.	7	no		fair	protect/no mitigation
224		Eucalyptus	Eucalyptus sp.	12	no		fair	protect/no mitigation
225		Eucalyptus	Eucalyptus sp.	6	no		fair	protect/no mitigation
226		Eucalyptus	Eucalyptus sp.	8	yes		fair	protect/no mitigation
227		Eucalyptus	Eucalyptus sp.	28	yes		fair	protect/no mitigation
228		Eucalyptus	Eucalyptus sp.	18	no		fair	protect/no mitigation
229		Redwood	Sequoia sempervirens	8	no		fair	protect/no mitigation
230		Redwood	Sequoia sempervirens	12	no		fair	protect/no mitigation
231		Redwood	Sequoia sempervirens	9	no		fair	protect/no mitigation
232		Redwood	Sequoia sempervirens	12	no		fair	protect/no mitigation
233		Redwood	Sequoia sempervirens	7	no		fair	protect/no mitigation
234		Interior live oak	Quercus wislizenii	18	yes	15	fair	protect/mitigate
235		Redwood	Sequoia sempervirens	29	no		fair	protect/mitigate
236		Redwood	Sequoia sempervirens	20	no		fair	protect/no mitigation
237		Redwood	Sequoia sempervirens	14	no		fair	protect/no mitigation
238	254	Cottonwood	Populus fremontii	15	no	15	poor	remove
239		Redwood	Sequoia sempervirens	15	no		fair	protect/no mitigation
240		Redwood	Sequoia sempervirens	15	no		fair	protect/no mitigation
241		Eucalyptus	Eucalyptus sp.	18	no		fair	protect/no mitigation
242		Eucalyptus	Eucalyptus sp.	16	no		fair	protect/no mitigation
243		Ornamental	Spp.	15	no		fair	protect/no mitigation
244		Italian cypress	Cupressus sempervirens	13	yes		fair	protect/no mitigation
245		Ornamental	Spp.	26	yes		poor	remove
246		Ornamental	Spp.	11	no		fair	protect/no mitigation
247		Eucalyptus	Eucalyptus sp.	14	no		fair	protect/no mitigation
248		Cypress	Cupressus sp.	15	yes		fair	protect/no mitigation
249		Redwood	Sequoia sempervirens	9	no		fair	protect/no mitigation
250		Cypress	Cupressus sp.	24	yes		fair	protect/no mitigation
251		Redwood	Sequoia sempervirens	9	no		fair	protect/no mitigation
252		Cypress	Cupressus sp.	20	yes		fair	protect/no mitigation
253		Redwood	Sequoia sempervirens	6	no		fair	protect/no mitigation
254		Ornamental	Spp.	30	yes		fair	protect/no mitigation
255		Fir	Abies sp.	6	no		fair	protect/no mitigation
256		Pine	Pinus sp.	28	no		fair	protect/mitigate

Tree ID #	Tree tag #	Common Name	Scientific Name	dbh	Multi	Dripline	Condition	Recommendation
257		Ornamental	Spp.	10	yes		fair	protect/no mitigation
258	255	Valley oak	Quercus lobata	6	no	20	fair	protect/mitigate
259	256	Valley oak	Quercus lobata	16	yes	20	fair	protect/mitigate
260		Cedar	Cedrus sp.	20	no		fair	protect/no mitigation
261		Fan palm	Washingtonia sp.	15	no		fair	protect/no mitigation
262		Cedar	Cedrus sp.	14	no		fair	protect/no mitigation
263		Cedar	Cedrus sp.	16	no		fair	protect/no mitigation
264		Cedar	Cedrus sp.	14	no		fair	protect/no mitigation
265		Cedar	Cedrus sp.	17	no		fair	protect/no mitigation
266		Cedar	Cedrus sp.	15	no		fair	protect/no mitigation
267		English walnut	Juglans regia	8	no		fair	protect/no mitigation
268		English walnut	Juglans regia	23	yes		fair	protect/no mitigation
269		English walnut	Juglans regia	7	no		fair	protect/no mitigation
270		English walnut	Juglans regia	14	yes		poor	remove
271		English walnut	Juglans regia	13	yes		fair	protect/no mitigation
272	257	Valley oak	Quercus lobata	12	no	12	fair	protect/mitigate
273		Hawthorn	Crataegus sp.		yes		fair	protect/no mitigation
274		Almond	Prunus dulcis	18	yes		fair	protect/no mitigation
275		Almond	Prunus dulcis	25	yes		fair	protect/no mitigation
276		Ornamental	Spp.				poor/dying	remove
277		Black walnut	Juglans hindsii				dead	remove

Figure 1


BRADSHAW RD
SHELDON RD
N

APPENDIX D: CULTURAL RESOURCES

Attachment D. ASR

Cogstone Project Number: 2374-001

ARCHAEOLOGICAL SURVEY REPORT FOR THE SHELDON ROAD/BRADSHAW ROAD INTERSECTION IMPROVEMENT PROJECT, CITY OF ELK GROVE, SACRAMENTO COUNTY, CALIFORNIA

Federal Project No. HSIPL – BRLS-5479(012)

Prepared for
California Department of Transportation – District 3
703 B Street, Maryville, CA 95901

Prepared by: _____ Sept. 16, 2014

Nancy E. Sikes, Ph.D., RPA
Principal Investigator – Cultural Resources
Cogstone Resource Management Inc.
813 Harbor Boulevard, Ste. 321, West Sacramento, CA 95691

Date

Authors: Nancy E. Sikes, Ph.D., and Molly Valasik, M.A.

Reviewed by: _____ _____

Erin Dwyer
Associate Environmental Planner (Archaeology) (PQS)
Environmental Branch M1, Caltrans District 3

Date

Approved by: _____ _____

Susan D. Bauer, Branch Chief
Environmental Branch M1, Caltrans District 3

Date

USGS 7.5-Mniute Quadrangle: Elk Grove 1968 (PR 1979)
26 Acres (10.5 Hectares)

September 2014

Cogstone Project Number: 2374-001

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SUMMARY OF FINDINGS

The purpose of this study is to determine the potential effects on cultural resources of construction-related activities for the Sheldon Road/Bradshaw Road Intersection Improvement Project. The City of Elk Grove, in conjunction with the California Department of Transportation (Caltrans), proposes to improve the Sheldon Road/Bradshaw Road intersection in Sacramento County, California. The proposed Project consists of replacing the existing bridge spanning the East Branch of Laguna Creek (Bridge No. 24C0308) with a bridge with adequate hydraulic capacity, realigning Laguna Creek north and south of the intersection, and improving the intersection to include either a roundabout or traffic signals.

The project falls under the regulatory authority of the Federal Highway Administration and requires compliance with the January 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it pertains to the Administration of the Federal-Aid Highway Program in California* (PA). Caltrans District 3 is the federal lead agency for this project.

Cogstone Resource Management Inc. was retained by PMC to complete the cultural resources inventory of the Area of Potential Effects (APE) for the Project. Identification efforts by Cogstone for this Archaeological Survey Report (ASR) included a review of existing literature and historic maps, review of a record search conducted by the North Central Information Center, and intensive pedestrian survey. Native American consultations were conducted with the Native American Heritage Commission and six individuals.

The records search indicates three cultural resources studies have been previously completed within a portion of the APE for the Project, while 22 additional studies have been completed within a one-mile radius of the APE. The results of these studies indicate there are no known archaeological or historical architectural resources within the APE within or immediately adjacent to the APE, although two prehistoric isolates and six historical architectural resources have been previously recorded within a one-mile radius of the APE. The East Branch Laguna Creek Bridge (No. 24C0308) has been inventoried by Caltrans and determined not eligible for listing in the National Register of Historic Places.

An intensive-level pedestrian survey of the 26-acre APE was completed on August 20, 2013. Within the APE, outside the hardscaped segments of Bradshaw Road and Sheldon Road, ground visibility ranged from poor to excellent depending on the density of vegetation coverage. No

previously unknown cultural resources were identified within or immediately adjacent to the APE during the survey.

The surface soils in the APE are underlain by Holocene and Pleistocene alluvial sediments. As indicated by a recently completed geoarchaeological study for Caltrans District 3, the potential for buried archaeological deposits within these sediments is low to very low. Subsurface impact by the proposed Project will be minimal with an anticipated maximum depth of ground-disturbing activities of approximately 10 feet (3 meters) for the box culverts and 5 feet (1.5 meters) for the other improvements. Based on site-specific factors—such as historic stream flow, flooding and human history, including prehistoric and ethnographic settlement preferences on stable landforms and near reliable water sources, as well as disturbance by construction of the existing roadways and bridge, underground utilities, agricultural pactices, and residential parcel landscaping—indicate the potential for discovery of archaeological deposits, including buried archaeological deposits, materials, or features, by implementation of this Project is low.

It is Caltrans' policy to avoid cultural resources whenever possible. Further investigations may be needed if the sites cannot be avoided by the project. If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional survey will be required if the project changes to include areas not previously surveyed.

This report will be filed with Caltrans District 3; the North Central Information Center at California State University, Sacramento; and Cogstone. All field notes and other documentation related to the study are on file at the West Sacramento and Orange, California, offices of Cogstone.

INTRODUCTION

The purpose of this study is to determine the potential effects on cultural resources of construction-related activities for the Sheldon Road/Bradshaw Road Intersection Improvement Project. The City of Elk Grove, in conjunction with the California Department of Transportation (Caltrans), proposes to improve the Sheldon Road/Bradshaw Road intersection in Sacramento County, California (Figure 1). The proposed Project consists of replacing the existing bridge spanning the East Branch of Laguna Creek (Bridge No. 24C0308) with a bridge with adequate hydraulic capacity, realigning Laguna Creek north and south of the intersection, and improving the intersection to include either a roundabout or traffic signals. Built in 1940 and improved in 1970, the bridge has been previously evaluated by Caltrans as a Category 5 bridge (Caltrans 2013). Category 5 bridges are not eligible for listing in the National Register of Historic Places (NRHP).

REGULATORY SETTING

The Project is funded by the Federal Highway Bridge Program and local matching funds. The Project falls under the regulatory authority of the Federal Highway Administration (FHWA), with project oversight delegated by that agency to Caltrans. Under the 2014 Programmatic Agreement (PA) among the FHWA, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer (SHPO), and Caltrans regarding compliance with Section 106 of the National Historic Preservation Act (NHPA), as it pertains to the administration of the Federal-Aid Highway Program in California, Caltrans is responsible for Section 106 compliance. Accordingly, the current study was completed in accordance with Section 106 of the NHPA and its amending regulations (36 Code of Federal Regulations [CFR] 800), and according to the guidelines and recommended procedures outlined in Volume 2, Cultural Resources, of Caltrans' Standard Environmental Reference (SER) Handbook. Caltrans District 3 is the federal lead agency for this project.

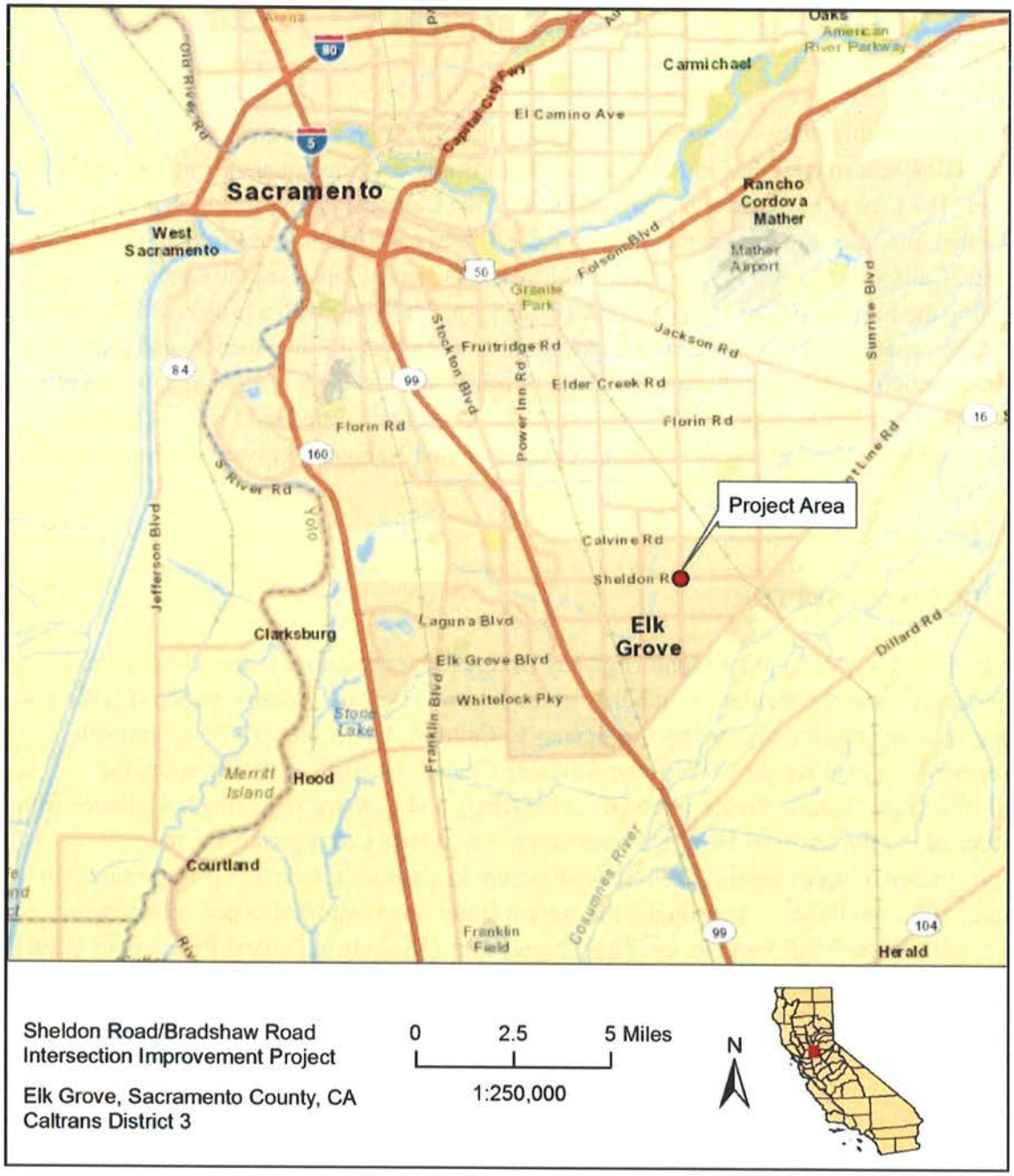

Figure 1. Project Vicinity Map

PROJECT PERSONNEL

All personnel meet or exceed the Secretary of the Interior's Standards for Archaeology and Historic Preservation (36 CFR Part 61). Nancy Sikes served as Cogstone's Principal Investigator

and Project Manager; she also contributed to and edited this report and wrote the background, results, and recommendation sections. Dr. Sikes is a Registered Professional Archaeologist (RPA) who holds a Ph.D. in Anthropology from the University of Illinois at Urbana-Champaign and a B.A. in Anthropology from the University of Nevada, Reno. Dr. Sikes has more than 20 years of experience with the cultural resources of California and the Great Basin.

Molly Valasik prepared portions of this report, including the sources consulted and prepared all maps for this report. Ms. Valasik is a RPA and holds a M.A. in Anthropology from Kent State University in Kent, Ohio. She has more than four years of experience in California archaeology. Brian Marks performed the pedestrian survey of the project APE on August 20, 2013. Dr. Marks is a RPA and holds a Ph.D. in Anthropology from Florida State University in Tallahassee. He has more than three years experience in California archaeology. Qualifications of Cogstone personnel are provided (Appendix A).

PROJECT LOCATION AND DESCRIPTION

The proposed Project involves replacing the existing bridge spanning the East Branch of Laguna Creek with a bridge with adequate hydraulic capacity, realigning Laguna Creek north and south of the intersection, and improving the intersection to include either a roundabout or traffic signals. The Project is located in the City of Elk Grove, Sacramento County, California (Figure 2). Specifically, the Project is depicted on the Elk Grove 7.5-minute quadrangle in Sections 20, 21, 28, and 29 of Township 7 North, Range 6 East, Mount Diablo Baseline and Meridian (see Figure 2).

PROPOSED ACTION

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City of Elk Grove. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The East Branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

Laguna Creek 100-year flows currently overtop the existing bridge at the Sheldon Road/ Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes twenty years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes southbound and northbound on Bradshaw entering and exiting the intersection and one lane eastbound and west bound on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the Project. In accordance with the City's General Plan, and Bicycle, Pedestrian and Trails Master Plan, the proposed Project will add pedestrian and bicycle facilities along Sheldon and Bradshaw roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed Project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows.

Additional right of way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel (APNs 122-0190-008 and 127-0030-001). Relocation of existing

utilities may require additional easements rights. Traffic control during Project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The proposed Project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

EXISTING BRIDGE

The East Branch Laguna Creek Bridge, built in 1940 and widened in 1970, is a four-lane bridge, approximately 32 feet long and 80 feet wide, supporting two lanes on Sheldon Road and two lanes on Bradshaw Road. The bridge is constructed of a continuous reinforced concrete slab over reinforced concrete 4-column bents and on reinforced concrete abutments.

AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) includes all potential direct and indirect effects to cultural resources that may result from the proposed Project (Figure 3). The APE includes right of way acquisition slivers from adjacent properties on Sheldon Road and Bradshaw Road.

The vertical limits of the APE are anticipated to have a maximum depth from the existing ground surface of 10 feet (3 meters) for the box culverts and 5 feet (1.5 meters) for the other improvements. Ground disturbance for the proposed Project includes widening the existing roadway, replacing the existing bridge, realigning the creek in the northeast and southwest quadrants, vegetation and tree removal, road cut/fill, drainage/culvert installation, and relocation of buried and overhead utilities within the right of way.

The APE map was signed on July 22, 2013, by Erin Dwyer, Associate Environmental Planner (Archaeology) (PQS) and Harminder Basi, Local Assistance Project Enineer for Caltrans District 3.

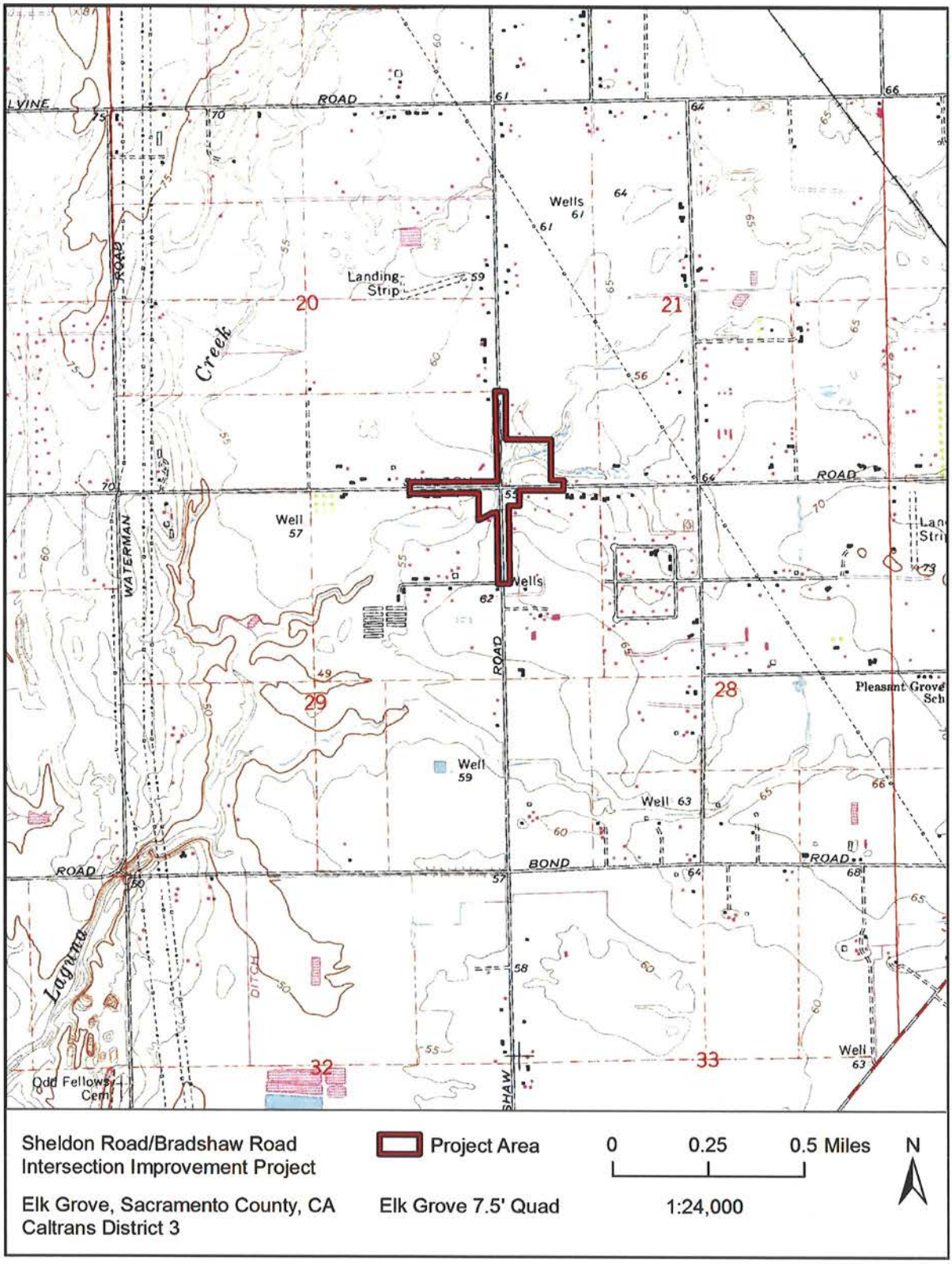

Figure 2. Project Location Map

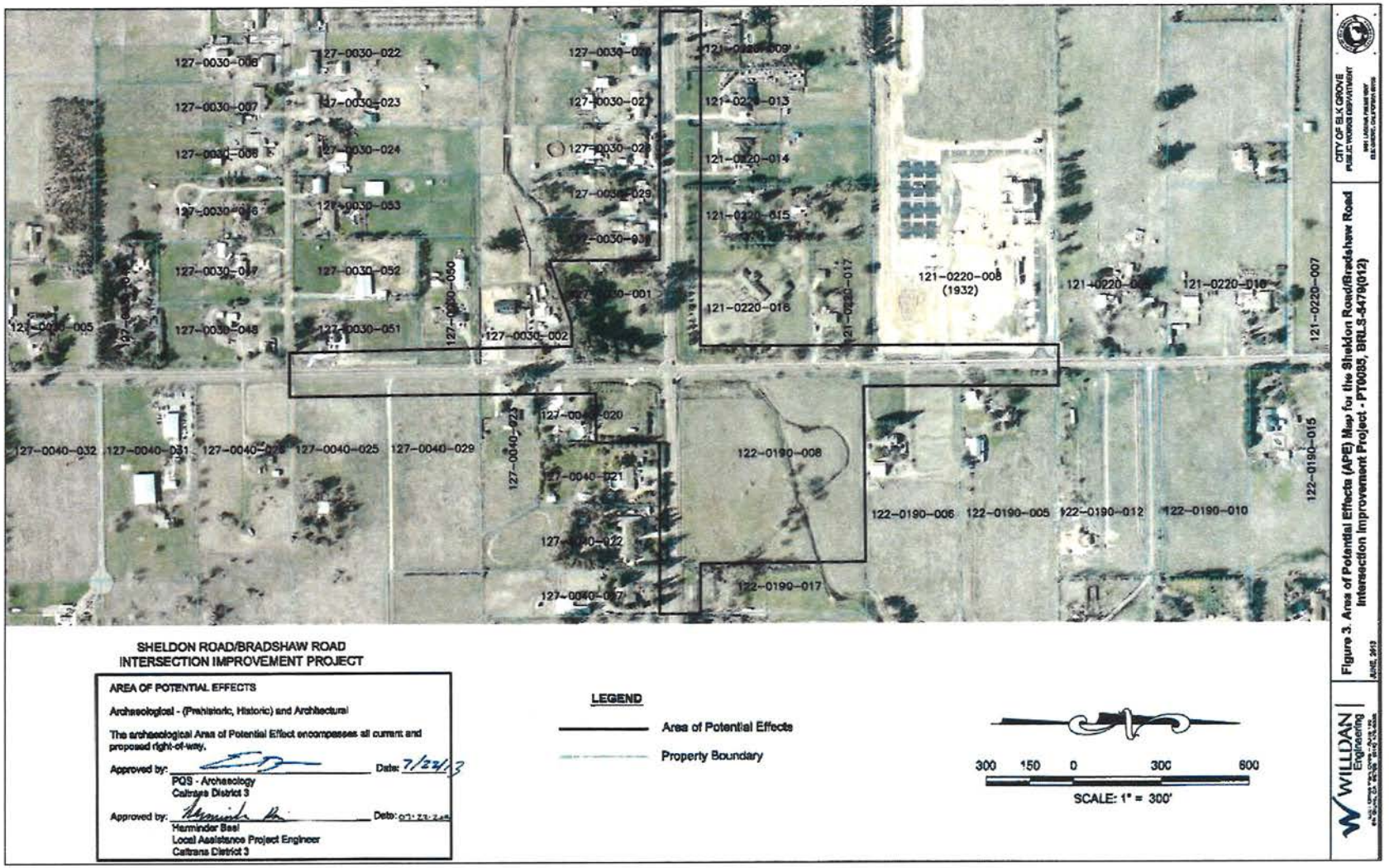

Figure 3. APE Boundaries

SOURCES CONSULTED

CALIFORNIA HISTORIC RESOURCES INVENTORY SYSTEM

A search for archaeological and historical records was completed by the North Central Information Center (NCIC) of the California Historical Resources Inventory System (CHRIS) on August 6, 2013 (NCIC File No. SAC-13-89) (Appendix B). The record search covered a one-mile radius around the APE boundaries. The records search indicates a total of 22 cultural resources investigations have been completed previously within a one-mile radius of the APE (Table 1). Of these, three studies included a portion of the APE, three were completed within a 0.25-mile radius of the APE, one investigation was completed within a 0.5-mile radius of the APE, and 15 studies were undertaken between a 0.5-mile and 1-mile radius of the APE.

Table 1. Previous Studies within one-mile Radius of APE

Author	Report Number	Report Title	Date	USGS Quad	Proximity to APE
Johnson, Jerald J.	88	Reconnaissance Archaeological Survey of the Morrison Stream Group in Sacramento County, California	1974	Bruceville, Carmichael, Clarksburg, Courtland, Elk Grove, Florin, Sacramento East	Within APE
Scully, Margaret E.	406	An Archaeological Survey of the Perry Ranch Estates Project (Control No. 87-GP-1265)	1989	Elk Grove	Within 1 Mile
Peak, Ann S. and Associates	418	Cultural Resource Assessment of Sacramento Municipal Utility District's Project A, Phase I, 230kV Transmission Line, Sacramento County, California	1979	Carmichael, Elk Grove, Galt	Within 1 Mile
Derr, Eleanor H.	479	An Intensive Archaeological Survey of the Clavine Road Project, Elk Grove, California	1980	Elk Grove	Within 1 Mile
Warner, Laurie	1874	Draft Environmental Impact Report For Elk Ridge Estates, General Plan Amendment, Community Plan Amendment, Rezone and Subdivision Map (Control No.: 91-GPB-CZB-SDP-0829)	1993	Elk Grove	Within 1 Mile
Peak, Melinda A. & Robert A. Gerry	2518	Cultural Resources Assessment of the Elk Grove Unified School District's High School and Middle School Site, City of Elk Grove, California	2000	Elk Grove	Within 1/2 Mile
Peak, Melinda A.	5916	Determination of Eligibility and Effect for the Bradshaw Christian School	2004	Elk Grove	Within 1 Mile
Peak & Associates, Inc.	5917	Cultural Resource Assessment of the Hanson and Newland Properties	2003	Elk Grove	Within 1/4 Mile

Author	Report Number	Report Title	Date	USGS Quad	Proximity to APE
Peak & Associates, Inc.	5920	Cultural Resource Assessment of the Vineyard Springs Comprehensive Plan Area	1996	Elk Grove	Within 1 Mile
Peak & Associates, Inc.	5924	The East Elk Grove Specific Plan Area: Addendum Report on Cultural Resources Sacramento County, California	1994	Elk Grove	Within 1 Mile
PAR Environmental Services, Inc.	5929	Cultural Resources Inventory of the Proposed Sheldon Lakes Project	2002	Elk Grove	Within 1/4 Mile
Rugroden, Sandie	5937	Cingular Wireless Antenna Locations	2001	Elk Grove	Within APE
Pacific Municipal Consultants	5942	Archaeological and Historic Investigations for the Thompson Rezone Project	2004	Elk Grove	Within 1/4 Mile
Woodward-Clyde Consultants	6154	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	1995	Buffalo Creek, Charmichael, Clay, Elk Grove, Florin, Galt, Sacramento East, Sloughhouse	Within APE
Bonner, Michael	6561	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidates ST-505-01 (Bradshaw & Bond), 9607 Bond Road, Elk Grove, Sacramento, CA 95624	2005	Elk Grove	Within 1 Mile
EarthTouch, Inc.	6901	Collocation ("CO") Submission Packet FCC Form 621 EG Fire Station #73 SC-15336	2006	Elk Grove	Within 1 Mile
Peak, Melinda	7223	Determination of Eligibility and Effect for the Grammercy Park Subdivision, Sacramento County, California	2006	Elk Grove	Within 1 Mile
Ecorp Consulting	8062	Cultural Resources Survey and Evaluation North Vineyard Station Off-Site (WBIG) Project	2006	Carmichael, Elk Grove, Florin, Sacramento East	Within 1 Mile
Nelson, Wendy J. & Kimberley Carpenter	9188	Cultural Resources Survey for Right-of-Way Maintenance Along the Western Area Power Administration Transmission	2002	Carmichael, Elk Grove, Folsom, Galt, Lodi North, Pleasant Grove, Rio Linda, Rocklin, Roseville, Sacramento East	Within 1 Mile
Wills, Carrie	11151	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SC06855A (Waterman/Sheldon Rd.), 9345 Sheldon Road, Elk Grove, Sacramento County, California	2012	Elk Grove	Within 1 Mile

Author	Report Number	Report Title	Date	USGS Quad	Proximity to APE
Wills, Carrie	11152	Cultural Resource Records Search and Site Visit Results for T-Mobile West, LLC Candidate SC06011A (Grant Line), 9000 Ranchview Court, Elk Grove, Sacramento County, California	2012	Elk Grove	Within 1 Mile
Crawford, Kathleen	11153	Direct APE Historic Architectural Assessment for T-Mobile West LLC Candidate SC06011A (Grant Line), 9000 Ranchview Court, Elk Grove, Sacramento County, California	2012	Elk Grove	Within 1 Mile

The results of these studies indicate there are no known archaeological or historical architectural resources within the APE. A total of eight cultural resources have been previously documented outside the APE within the one-mile search radius (Table 2). Of these eight resources outside the APE, two are prehistoric isolates and six are historical architectural resources. The prehistoric isolates include a chisel-ended pestle and an unshaped cobble pestle. The historical architectural resources include three buildings, two linear resources (a road and a transmission line), and one structure (a transmission tower). None of the previously recorded archaeological resources are listed in the Archaeological Determinations of Eligibility maintained by the California Office of Historic Preservation (OHP). None of the previously recorded architectural resources are listed in the Historical Resources Inventory. All of the documented resources are located between a 0.5-mile and 1-mile radius of the APE.

Table 2. Previously Recorded Cultural Resources within one-mile Radius Outside APE

Primary No. (P-34-)	Trinomial (CA-SAC-)	Site Description	Date Recorded	USGS Quad	Proximity to APE
548	n/a	Historic residence and farming complex, 9531 Bond Road.	2000	Elk Grove	Within 1 Mile
699	544H	Historic Calvine Road.	1993	Elk Grove, Florin	Within 1 Mile
1101H	753H	Historic Residence and Dairy Complex, 9350 Sheldon Road.	2002	Elk Grove	Within 1 Mile
1102H	n/a	Historic Segment of Hurley-Tracy Transmission Line No. 1.	2001	Elk Grove	Within 1 Mile
1103	n/a	Prehistoric chisel-ended pestle.	2002	Elk Grove	Within 1 Mile
1104	n/a	Prehistoric unshaped cobble pestle.	2002	Elk Grove	Within 1 Mile
1379H	n/a	Historic residence, 8970 Bond Road	2003	Elk Grove	Within 1 Mile
4513	n/a	Historic T-Mobile West LLC SC06011A/Grant Line or PG&E Tower #36/248/R10-0S0-Lockford, 9000 Ranchview Court.	2012	Elk Grove	Within 1 Mile

OTHER SOURCES

In addition to the records at the NCIC, a variety of sources were consulted by Molly Valasik in August 2013 to obtain information regarding the APE (Table 3). Sources include the National Register of Historical Places (NRHP), California Register of Historical Resources (CRHR), California Historical Resources Inventory (CHRI), California Historical Landmarks (CHL), California Points of Historical Interest (CPHI) and local historical registers. Specific information about the APE, obtained from historic maps and aerial photographs, is presented in the Project Area History.

The Elk Grove Historic District, a NRHP listed property, is located 2.4 miles southwest of the APE. Multiple calls were made to the Elk Grove Historical Society and City Planning Department to solicit additional information about listings on the City's local register, but no return calls have been received.

Table 3. Additional Sources Consulted

Source	Results
National Register of Historic Places (NRHP; 1979-2002 & supplements)	Negative
Historic USGS Topographic Maps	1909 topo shows unnamed Sheldon and Bradshaw Roads. Two structures are shown near but outside the APE.
Historic US Department of Agriculture Aerial Photographs	1957 aerial, the earliest available, shows structures adjacent to but outside the APE on parcel 127-0030-002.
California Register of Historical Resources (CRHR; 1992-2010)	Negative
California Historical Resources Inventory (CHRI; 1976-2010)	Negative
California Historical Landmarks (CHL; 1995 & supplements to 2010)	Negative
California Points of Historical Interest (CPHI; 1992 to 2010)	Negative
Caltrans Historic Bridge Inventory (Caltrans 2013)	Positive
Local Historical Register Listings	Negative
Bureau of Land Management (BLM) General Land Office Records	2 land patents were granted for portions of the APE

A search of the BLM General Land Office Records available online revealed that two land patents were issued in 1866 for portions of the APE (BLM n.d., Table 4).

Table 4. BLM land patents for proposed APE

Name	Year	Aliquots	Section	Township	Range
Edmund Lewis & William Long	1866	SE ¼	20	7N	6E
State of California	1866	NW ¼	28	7N	6E
		E ½	29	7N	6E

NATIVE AMERICAN CONSULTATION

A sacred lands record search was requested by Cogstone from the Native American Heritage Commission (NAHC) on August 1, 2013. The Commission responded on August 6, 2013 that there are no known sacred lands within a one-half mile of the APE. The NAHC requested that six Native American tribes or individuals be contacted for further information regarding the general Project vicinity.

Cogstone subsequently sent letters to the six Native American contacts on August 7, 2013, requesting any information related to cultural resources or heritage sites within or adjacent to the Project area. Additional attempts at contact by letter, email or phone call were made on August 28, 2013, and September 11, 2013.

Mr. Steven Hutchason of the Wilton Rancheria responded by email on August 29, 2013 requesting additional information to determine if the Project could affect cultural resources that may be important to the tribe. Cogstone responded by email on the same day, indicating no cultural resources have been found in the Project area, and inquired via email on September 11, 2013 if Wilton Rancheria has any further comments. As of the date of this report, no further communication has been received on behalf of the tribe. No response has been received from the other individuals or tribes on the contact list.

All consultation correspondence and a contact log are provided as Appendix C to this ASR.

BACKGROUND

ENVIRONMENT

GEOLOGY, HYDROLOGY, AND SOILS

The Project is located in the Sacramento Valley within the Great Valley Geomorphic Province. The Great Valley Province is a long, narrow northwest-trending alluvial valley that lies between the Sierra Nevada Range to the east and the Coast Ranges to the west (Wagner 2002). The

Sacramento Valley is located in the northern portion of the Great Valley and is bounded by the Klamath Mountains to the north and the Stockton Arch to the south. This region formed as a forearc basin during the subduction of the Pacific plate underneath the North American plate. Valley sediments range from Jurassic to Holocene in age and record a history of alternating marine and terrestrial depositional environments (McPherson and Garven 1999).

The Cosumnes River is located approximately 3.4 miles southeast of the APE, the American River 9.5 miles to the north, and the Sacramento River 8.7 miles to the west. The project vicinity contains a number of creek drainages, including Deer, Elder, Laguna, and Morrison creeks. The East Branch of Laguna Creek bisects the APE on a northeast to southwest bearing, flowing southwestward. The tributary joins Laguna Creek approximately 1 mile southwest of the Project area. The APE is located within the lower reaches of the Laguna Creek Watershed, which encompasses approximately 65 square miles of land draining to Laguna Creek and its tributaries (Brown et al. 2009:2.1). Laguna Creek is approximately 25 miles long, extending southwestward to its termination within the City limits at Morrison Creek. Morrison Creek empties into the Sacramento River. The Morrison Creek Stream Group drainage basin, which includes Laguna Creek and its tributaries, covers 192 square miles.

The Project area is best characterized as a broad, low-relief alluvial plain, with an elevation of 60 feet above mean sea level. It is underlain by recent Holocene alluvium and by alluvial fan deposits of the Pleistocene Riverbank Formation (Helley and Harwood 1985; Page 1986; Wagner et al. 1981). These alluvial deposits vary in thickness from a few centimeters to 10 meters (30 feet). Such deposits typically form levees along the major rivers in this region, and are comprised primarily of a mixture of unweathered gravel, sand, and silt of Holocene age.

The Laguna Creek drainage flows across broad floodplains and terraces created by the ancestral American and Sacramento Rivers. The creek channel generally follows topographic lows and valleys, and is cut into these ancient deposits. The ancient deposits are comprised of young and old alluvium left from several hundred-thousand years ago to a million years ago by the ancestral rivers. Historically, Laguna Creek occupied multiple channels along the floodplains, but decades of agriculture use have reduced the creek to mainly one primary channel (Brown et al. 2009:2.3-2.4; Geosyntec Consultants 2007:2.1-2.4; Thompson and West 1880). Also, the creek was historically seasonal with summer dry periods reflected by high soil-water deficiency. The lower reaches of the watershed flooded during periods of high rainfall, but the historic lagoon habitat was reduced to seasonal wetland pools during the dry season. Today, the upper reaches of the creek and its tributaries are considered ephemeral in some places and intermittent in others, while the lower reaches generally west of Eagles Nest Road are perennial. The perennial nature of the creek is due primarily to irrigation runoff from the surrounding land uses and associated groundwater seepage (Geosyntec Consultants 2007:2.1-2.4). According to the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area (SFHA) maps, the

drainage area crossed by the APE has a one percent annual chance of flooding and is in the 100-year flood zone (FEMA 2014).

The present-day soil horizons and indurated sublayers in the Laguna Creek watershed and the Project area were formed as the ancient ancestral riverine deposits were weathered, cemented, and modified (Geosyntec Consultants 2007:2.5). Soils in the Project area are San Joaquin silt loam formed on terraces from alluvium derived from granite (California Soil Resource Lab 2013; Soil Survey Staff 2013). The soils are moderately well-drained with a depth to the duripan of from 28 to 54 inches. A typical profile includes a plow zone but no buried soil: silt loam from the surface to 23 inches, clay loam from 23 to 28 inches, an indurated layer from 28 to 54 inches, and a stratified sandy loam to loam from 54 to 60 inches below the surface. Such soils are suitable for a wide range of crops, livestock grazing, pasturage, vineyards, or orchards.

Climate, Flora/Fauna, and Current Land Use

The Mediterranean climate near the project area is characterized by hot, dry summers and warm, moist winters. The project area falls within a climate region where the winter precipitation falls as rain, with rare snowfalls. Average annual rainfall is about 20 inches, with the rainy season generally from November through March. The temperature ranges from 20 to 115 degrees Fahrenheit during the year. Summer highs are usually in the 90s, while winter lows only occasionally are below freezing. When California initially was occupied, the climate was moister and cooler than today's Mediterranean climate (Major 1988).

The current land uses in the Project vicinity are for mixed rural/residential with single-family residential parcels and agricultural lands, some of which are used for livestock grazing. The residential parcels include landscaping with non-native plants. Historically the region was also used for row crops, field crops, orchards, and small vineyards (Brown et al. 2009:2-5; Thompson and West 1880). The project vicinity is characterized by natural vegetation communities that included grasslands, seasonal vernal pools, riparian vegetation, and oak and cottonwood woodlands. With this mosaic of ecological communities, and in view of the ethnographic descriptions of the Plains Mi-wuk (Kroeber 1925; Levy) who historically occupied the project area, it would appear the project vicinity would have provided a very productive environment for its prehistoric occupants, one well suited to a hunting-gathering economy with a variety of fish, water birds, small and large mammals, and edible plant species.

Potential for Buried Archaeological Deposits

Located in the lower reaches of the Laguna Creek Watershed at the East Branch of Laguna Creek, which runs directly under the bridge proposed for replacement at the Sheldon Road/Bradshaw Road intersection, soils in the APE formed mixed alluvium that overlies recent Holocene alluvium and alluvial fan deposits of the Pleistocene Riverbank Formation. It is likely

that Holocene alluvial deposits buried many prehistoric sites, if present, in this area, particularly those older than 2,000 to 3,000 years (Meyer and Rosenthal 2008:167; Rosenthal and Meyer 2004a, 2004b). Throughout the central California lowlands there were periods of climate change and associated alluvial deposition at the end of the Pleistocene (approximately 9050 cal B.C.) and the early Middle Holocene (approximately 5550 cal B.C.), and the Middle Holocene episode buried many of the earliest known archaeology sites in central California (Rosenthal et al. 2007:151). The beginning of the Middle Holocene also witnessed the development of the Sacramento–San Joaquin Delta (Atwater and Belknap 1980; Goman and Wells 2000), after which there was renewed alluvial fan and floodplain deposition during the Late Holocene after approximately 1000 cal B.C. (Rosenthal et al. 2007:155-156).

Geoarchaeological research in Caltrans District 3, including Sacramento County, indicates there is a low to very low potential for buried archaeological deposits in approximately 74 percent of the geographic area included in District 3 (Sacramento Valley and Coast and Sierra-Cascade Ranges) (Meyer and Rosenthal 2008:160-161, Map 1). Within the APE, the probability of discovery of buried archaeological deposits in the underlying Pleistocene sediments (estimated at 1.9 million to 22,000 years old) is mapped as very low. As noted by Meyer and Rosenthal (2008:162), however, the discovery of buried cultural features or deposits depends on site-specific variables, such as distance to watercourses, micro-topographic variation (e.g., the presence of buried stream channels, former sloughs, springs, or natural levees), and the geomorphic context of known buried archaeological deposits. Prehistoric occupation sites, for example, are mainly found in association with level or nearly level landforms and near stream confluences where at least one stream is perennial (Meyer et al. 2010:140-141).

In the late 1800s, Laguna Creek was noted as being dry in summer but providing ample water during the rainly season for the agricultural activities intiated by non-native settlers (Thompson and West 1880). The earliest topographic map that includes the APE also shows the lower reaches of the stream as intermittent (1909 Elk Grove USGS 1:31,680). This indicates stream flow in the dry summer months in Laguna Creek near the APE would have ceased each year. However, archival records also indicate the lowermost portions of the Laguna Creek Watershed near the APE but west of SR 99 formed an extensive lagoon (Magoon Slough) during periods of high rainfall when much of the low-lying Central Valley was transformed into a shallow lake (see Brown et al. 2009:2.4). Localized flooding in some sections of the drainage continues to occur and resembles historic conditions. The APE is within the 100-year flood zone and has a one percent annual chance of flooding (FEMA 2014).

Prehistoric and ethnographic habitation sites in this part of the Central Valley are primarily found along major watercourses on low, natural rises and elevated natural levees (see e.g., Levy 1978; Moratto 1984:206; Rosenthal et al. 2007:147, 149). Near the APE, Plains Mi-wuk villages have been recorded to the south on the southern bank of the Cosumnes River (Kroeber 1925:Plate 37).

The District 3 geoarchaeological study also indicates the closest known buried sites to the APE are along the Cosumnes River (CA-SAC-126 and CA-SAC-168) (Meyer and Rosenthal 2008:154, Table 27, Figure 60). No buried sites have been reported along the Laguna Creek drainage, nor was surface evidence found during survey of the Morrison Creek Stream Group Basin of historic or prehistoric mound, midden, housepit, village, or satellite village sites along the Morrison and Laguna Creek drainage systems east of the Sacramento River (Johnson 1974:2, 6). Admittedly by the time of Johnson's survey the drainage basin had been disturbed by historic-era agricultural activities, but since Laguna Creek was not a stable, dependable water source during the summer months and its lower reaches, including the APE, flooded during the rainy season, it seems likely that during the prehistoric and ethnohistoric periods, the area along Laguna Creek may have been traversed by hunting and collecting groups, but was not a favorable locale for temporary or permanent habitation.

Considering the history of flooding and the geoarchaeological assessment, as well as prehistoric and ethnographic settlement data and that the majority of the APE is situated within previously disturbed areas for roadway construction, underground utilities, agricultural activities, and landscaped residential parcels, the potential for discovery of archaeological deposits, including buried archaeological deposits, materials, or features, by implementation of this Project is considered low. Subsurface impact by the proposed Project will be minimal with an anticipated maximum depth of ground-disturbing activities of approximately 10 feet (3 meters) for the box culverts and 5 feet (1.5 meters) for the other improvements. In addition, the prehistoric and ethnographic settlement data indicate a preference within this region for occupation near watercourses on high ridges, knolls, elevated natural levees, such as found along the Cosumnes River, not on more unstable landforms like the Laguna Creek floodplain.

ETHNOGRAPHY

The Plains Mi-wuk (also spelled Miwok) historically occupied the Project area (Kroeber 1925; Levy 1978). They are one of four other Eastern Mi-wuk groups (Bay, Northern Sierra, Central Sierra, and Southern Sierra) whose Eastern Miwok language is a subfamily of the Miwokan branch of the Utian language family, Penutian stock. Prior to Euro-American contact, Plains Mi-wuk territory included the lower Mokelumne River, Cosumnes River, and the Sacramento River from Rio Vista to Freeport (Levy 1978:398-399). Neighboring groups included the Washoe to the east, Northern Valley Yokuts to the south, Patwin and Bay Miwok to the west, and the Nisenan to the north.

The Sacramento–San Joaquin Delta and surrounding areas provided the Plains Miwok with an abundance of natural resources. Seasonally mobile hunter-gatherers, their semi-permanent settlements or winter villages were located on high ridges or knolls near watercourses or on the

sandy islands in the Delta. They also established hunting and fishing base camps on the Delta islands.

Political units among the Plains Mi-wuk were structured by similarities in language and ethnicity, and villages were divided into "tribelets" (Levy 1978:410). Tribelets averaged 300 to 500 individuals, and controlled specific lands and the natural resources within that territory. Each tribelet's territory included a main village and smaller satellite villages. In the main village, a large semi-subterranean structure or a simpler circular brush structure served as the dance or assembly house (Kroeber 1925:447). Villages also contained dwellings, acorn granaries, conical sweathouses, and winter grinding houses (Levy 1978:408-409). Their dwellings were either aboveground conical houses made with tule-matting or were semi-subterranean. Cremation, rather than interment, was practiced by the Plains Mi-wuk (Kroeber 1925:452).

Ethnohistoric accounts from the Spanish colonial period have provided some information on tribelet locations along the west bank of the Sacramento River, the south bank of the Cosumnes River, and the banks of the Mokelumne River (Levy 1978:399; Kroeber 1925:444, Plate 37). In the Project vicinity, the principal tribelet villages included *Mayeman*, *Sukididi*, and *Yomit* along the Cosumnes River south of the Project area.

Similar to many other Native American groups in California, the acorn was the primary food staple of the Plains Mi-wuk, supplemented by fish, shellfish, waterfowl, and large and small mammals (Bennyhoff 1977; Levy 1978:402-403). Acorns from the prevalent valley oak (*Quercus lobata*) were collected in the late fall/early winter, plant greens and roots in the spring; and nuts and seeds in the spring, summer, and early fall. Acorns were stored in the conical-shaped granaries prior to processing. Large and small animals regularly hunted by the Plains Mi-wuk included mule deer, tule elk, pronghorn, rabbits, squirrels, beaver, and woodrats. Salmon were an important fish resource, along with sturgeon and lamprey.

The Plains Mi-wuk employed a variety of tools, implements, and enclosures for hunting and collecting natural resources (Levy 1978:403-404, 406). These included the bow and arrow, snares, traps, nets, and enclosures or blinds were used for hunting land mammals and birds, and nets, seines, hook and line, harpoons, and basketry traps for fishing. On navigable rivers, the principal water craft was the tule balsa canoe. They made both twined and coiled basketry, and used woven burden baskets were used to transport the seeds, roots, or nuts for processing or storage.

The array of tools and implements used by the Plains Mi-wuk to process food resources included bedrock mortars, cobblestone pestles, anvils, and portable stone mortars and pestles to grind or mill acorns and seeds (Levy 1978:405). During food preparation, a variety of knives, leaching

and boiling baskets, woven strainers and winnowers, and woven drying trays, among others, were employed. Earth ovens were used to bake acorn bread.

Plains Mi-wuk participated in an extensive east-west trade network between the coast and the Great Basin (Levy 1978:411-412). They obtained marine shell (*Olivella* and abalone) and steatite from coastal groups. Basketry was an important trade item and moved in both directions. Salt and obsidian from the Sierras and Great Basin were traded westward.

The Native American population in the Sacramento Valley came into contact with Spanish explorers in the late 1700s as the Franciscan missions sought to convert interior peoples with the dwindling of coastal indigenous populations (Levy 1978:400). Plains Mi-wuk converts were transported to Mission San José in the early 1800s, although many resisted and tried to return to their villages in the Delta. Many Plains Mi-wuk labored on the large ranchos awarded during the Mexican period (Levy 1978:400-402), although in the 1820s and 1830s, many tribelets banded together to repel the invaders and with neighboring Yokuts, attacked Mexican coastal settlements.

During two epidemics in 1830 and 1837, foreign diseases decimated the indigenous populations in the Sacramento Valley (Cook 1955). Soon after the discovery in 1848 of gold in the Sierran foothills and the ensuing Gold Rush, the number of non-indigenous peoples into the California interior and Plains Mi-wuk territory increased exponentially. Population estimates show a momentous decline in Eastern Mi-wuk numbers from nearly 20,000 in 1805 to only 3,000 by 1856 (Cook 1943). With the resulting loss of the majority of their traditional lands, population numbers, and experiencing drastic alterations of their traditional lifeways, surviving Mi-wuk labored for the growing mining, ranching, farming, and lumber industries.

During the first half of the 1900s, the federal government acquired lands and established *rancherias* (reservations) from two acres to more than 300 acres), for the Plains Mi-wuk, Northern Sierra Mi-wuk and Central Sierra Mi-wuk (Levy 1978:401). Between 1934 and 1972, the U.S. Bureau of Indian Affairs terminated relations with most of these rancherias, but beginning in 1984, status to the majority has been restored.

At present, there are eight federally-recognized tribal rancherias with Eastern Mi-wuk populations. These include: Auburn Rancheria (Sierran Miwok, Placer County), Buena Vista (Plains Me-wuk, Amador County), Chicken Ranch (Central Sierra division of Eastern Me-wuk, Tuolumne County), Ione (Northern Sierra and Plains Miwok, Amador County), Jackson (Northern Sierra and Plains Me-wuk, Amador County), California Valley (formerly Sheep Ranch; Northern Sierra Miwok, Calaveras County), Shingle Springs (Plains Miwok, El Dorado County), Tuolumne (Central Sierra Me-wuk, Tuolumne County), and Wilton Rancheria (Plains and Sierra Miwok, Sacramento County) (BIA 2012).

PREHISTORY

The archaeology of California's Central Valley is divided into five temporal periods (Fredrickson 1973, 1974, 1994; Rosenthal et al. 2007) (Table 5). Variation in climate and environment generally coincide with these broad chronological divisions. The transition from the Paleoindian to Lower Archaic periods, for example, corresponds to the drying of Pleistocene pluvial lakes. Within the greater project region, the cultural framework is also divided into three regionally based "patterns" that mark changes in distinct artifact types, subsistence orientation, and settlement patterns.

The Windmiller, Berkeley, and Augustine patterns generally conform to the Middle Archaic, Upper Archaic, and Emergent temporal divisions, and were defined four decades ago by Fredrickson (1973, 1974). Fredrickson initially identified each pattern at specific archaeological sites in the region; namely, the Windmiller site (CA-SAC-107) near the Cosumnes River in Sacramento County, the West Berkeley site (CA-ALA-307) in Alameda County on the east side of the Bay, and the Augustine site (CA-SAC-127) in the Sacramento–San Joaquin Delta. Each pattern or cultural tradition represents a general expression of resource exploitation that began circa 5,550 cal B.C. during the Middle Archaic Period and lasted until historic contact in the early 1800s.

Table 5. Cultural Periods for the Central Valley

Period	Regional Pattern	Dates *
Paleoindian		11,500–8,550 cal B.C.
Lower Archaic		8,550–5,550 cal B.C.
Middle Archaic	Windmiller	5,550–550 cal B.C.
Upper Archaic	Berkeley	550 cal B.C.–cal A.D. 1100
Emergent Period	Augustine	cal A.D. 1100–Historic Contact

* Timeframes are adjusted for modern calibration curves for radiocarbon dates (cal=calibrated).

PALEOINDIAN AND LOWER ARCHAIC PERIODS (11,500–5,550 CAL B.C.)

Few archaeological sites that predate 5,000 years ago have been discovered in the region. Near the end of the Pleistocene (approximately 9,050 cal B.C.) and during the early Middle Holocene (approximately 5,550 cal B.C.), there were periods of climate change and associated alluvial deposition throughout the central California lowlands (Rosenthal et al. 2007:151). The change in climate and rising sea levels at the start of the Middle Holocene also led to the development of the extensive marshland known as the Sacramento–San Joaquin Delta (Atwater and Belknap 1980). Recent geoarchaeological studies (e.g., Meyer and Rosenthal 2008; Rosenthal and Meyer 2004a, 2004b; White 2003) have verified that large segments of the Late Pleistocene landscape were removed or buried by periodic episodes of deposition or erosion during the Middle

Holocene. These studies confirm estimates advanced by Moratto (1984:214) that Paleoindian and Lower Archaic sites were buried during the last 5,000 to 6,000 years by deposits of Holocene alluvium up to 10 meters thick along the lower stretches of the Sacramento River and San Joaquin River drainage systems.

One of the few Early Holocene sites in the region was discovered buried approximately two meters below the surface within an alluvial fan (Meyer and Rosenthal 1998). Located just above the valley floor in the foothills of eastern Contra Costa County, CA-CCO-637 has a record of human occupation dating to 8,500 years ago during the Lower Archaic Period. Other Lower Archaic Period sites have been excavated in the foothills of Calaveras County, notably at the Skyrocket site (CA-CAL-629/630) (LaJeunesse and Pryor 1996).

MIDDLE ARCHAIC PERIOD/WINDMILLER PATTERN (5550–550 CAL B.C.)

Middle Archaic Period archaeological sites are more common in the foothills, particularly in buried contexts between circa 4,050 and 2,050 cal B.C., and are relatively scarce on the valley floor (Rosenthal et al. 2007:153). The archaeological record indicates Windmiller Pattern populations followed a seasonal foraging strategy and exploited a wide range of natural resources, including a variety of large and small mammals, fish, waterfowl, and plant resources (Fredrickson 1973; Heizer 1949; Ragir 1972; Moratto 1984). It is also likely that populations occupied higher elevations in the summer and shifted to lower elevations during the winters (Moratto1984:206), and that residential stability along river corridors within the Central Valley increased during this period (Rosenthal et al. 2007:153).

Faunal remains recovered from Windmiller Pattern sites include tule elk, deer, pronghorn, and rabbits, while fish remains include salmon, sturgeon, and smaller fishes. Seeds or acorns apparently formed an important part of the diet during this period (Moratto 1984:201; Rosenthal et al. 2007:153, 155). The remains of acorns and pine nuts have been recovered from foothill sites in Calaveras (CA-CAL-629/630 and CA-CAL-789) and Fresno (CAL-FRE-61) counties, and milling implements found at Windmiller Pattern sites include grinding slabs (metates) and handstones (manos), as well as mortar fragments.

Projectile points common at Windmiller Pattern sites are classified within the Sierra Contracting Stem and Houx Contracting Stem series (Justice 2002:266, 276). Spears, angling hooks, composite bone hooks, and baked clay artifacts that may have been used as net or line sinkers represent the variety of fishing implements found at sites dating to this period. Other baked clay items include pipes and discoids, as well as cooking "stones." Impressions of twined basketry, bone tools, shell beads, and ground and polished charmstones have also been recovered. A variety of grave goods accompanied burials in cemetery areas, which were separate from habitation areas.

The presence during the Middle Archaic of an established trade network is indicated by a variety of exotic cultural materials, including obsidian tools, quartz crystals, and *Olivella* shell beads. Obsidian sources during this period included quarries in the eastern Sierra, Cascades, and North Coast Ranges (Rosenthal et al. 2007:153, 155).

UPPER ARCHAIC PERIOD/BERKELEY PATTERN (550 CAL B.C.–CAL A.D. 1100)

The Windmiller Pattern shifted to a more specialized, adaptive pattern over a 1,000-year period during the Upper Archaic. An increase in mortars and pestles, accompanied by a decrease in slab milling stones and handstones, indicates a shift to a greater reliance on acorns as a dietary staple during the Berkeley Pattern (Fredrickson 1974:125; Moratto 1984:209; Wohlgemuth 2004; Rosenthal et al. 2007:156). Archaeologists generally agree that milling slabs and handstones may have been used primarily for grinding wild grass grains and seeds, while mortars and pestles are better suited to crushing and grinding acorns (Moratto 1984:209–210).

Berkeley Pattern populations continued to exploit a variety of natural resources. Subsistence strategies varied regionally, focusing on seasonally available resources suited for harvesting in bulk, such as salmon, shellfish, deer, rabbits, and acorns (Rosenthal et al. 2007:156). Numerous large shell mounds dating to this period are located near fresh or salt water and indicate exploitation of a variety of aquatic resources was relatively intensive. The artifact assemblage also demonstrates hunting persisted as an important aspect of food procurement (Fredrickson 1973:125-126). Specialized technologies proliferated, producing numerous types of bone tools, *Olivella* shell beads, *Haliotis* ornaments, and ceremonial blades, among other cultural items.

The accumulations of cultural debris and habitation features, such as rock-lined ovens, house floors, burials, hearths and fire-cracked rock, reflect long-term residential occupation (Bouey 1995:348-349). Mortuary practices continued to be dominated by interment, although a few cremations have been discovered from Berkeley Pattern sites. The stratigraphic record at CA-SAC-107 in the eastern delta shows replacement of the Windmiller Pattern by the Berkeley tradition.

The subsistence pattern characteristic of the Berkeley tradition may have developed initially in the San Francisco Bay region, and then spread to the surrounding coastal areas and central California. As suggested by Moratto (1984:207-211), the Berkeley Pattern is likely related to Eastern Miwok population expansion, spreading from the San Francisco Bay area to the Sacramento Valley and Sierran foothills.

EMERGENT PERIOD/AUGUSTINE PATTERN (CAL A.D. 1100–HISTORIC CONTACT)

A growth in population accompanies a substantial increase in the intensity of subsistence exploitation associated with the Augustine Pattern during the Emergent Period (Moratto 1984:211-214; Rosenthal et al. 2007:157-159). Fishing, hunting, and gathering plant foods continue as the foci of subsistence practices, including intensive harvesting of acorns. The Emergent Period is marked by the introduction of the bow and arrow. Small Gunther barbed series projectile points are present early in the period, with Desert-side notched points occurring later in the period (Rosenthal et al. 2007:158). A unique arrow point style (Stockton serrated) also developed during this period.

The Augustine Pattern toolkit also included bone fish hooks, harpoons, and gorge hooks for fishing. Hopper mortars and shaped mortars and pestles, as well as bone awls used for producing coiled baskets, are also common components of the artifact assemblages. Cosumnes Brownware has been recovered from sites in some parts of the lower Sacramento Valley. The appearance of ceramics is likely an outgrowth and direct improvement on the prior baked clay industry, although baked clay balls, which were probably used for cooking in the absence of stone, remain common.

Accompanying the increase in sedentism and population growth during this period is the development of social stratification, including an elaborate ceremonial and social organization. Cultural items associated with ceremonials and rituals include flanged tubular pipes and baked clay effigies representing humans and animals, among others. Clamshell disk beads were used as a form of currency and accompanied the development of extensive exchange networks. Mortuary practices included flexed burials, the cremation of high-status individuals, and pre-interment burning of offerings in grave pits (Fredrickson 1973:127-129; Moratto 1984:211). House floors or other structural remains have been discovered at Augustine Pattern sites in the valley and foothills, including ones in Calaveras and Sacramento counties (CA-CAL-1180/H, CA-SAC-29, CA-SAC-267) (Rosenthal et al. 2007:158).

The cultural patterns known from historic period Native American groups in the region are reflected in the subsistence and land use patterns practiced during the Emergent Period, as well as in the increase in sedentism and the development of social stratification typical of the Augustine Pattern (Rosenthal et al. 2007:157-158). According to Moratto (1984:211-214), the Augustine Pattern may represent the southward expansion of Wintu populations. In addition, many of the large villages with house pits that developed along the rivers, major tributaries, and the Delta have been attributed to known ethnographic settlements.

HISTORY

SPANISH PERIOD (1769-1822)

Exploration between 1529 and 1769 of Alta (upper) California by Spanish expeditions was limited. The spring of 1769 marks the true beginning of Spanish settlement with the establishment by Gaspar de Portolá at San Diego of the first of 21 missions to be built along the California coast by the Spanish and Franciscan Order between 1769 and 1823. In the fall of 1769, Portolá reached San Francisco Bay. Later expeditions by Pedro Fages in 1772 and Juan Bautista De Anza in 1776 explored the land east of San Francisco Bay and into the vast plains to the east (Gunsky 1989:2-3).

The first expedition into the Sacramento Valley was led by Spanish Lieutenant Gabriel Moraga in 1808. Scouting for new mission locations and also searching for runaway Native American neophytes from the coastal missions, they traveled south as far as the Merced River and explored parts of the American, Calaveras, Cosumnes, Feather, Mokelumne, Sacramento, and Stanislaus Rivers to the north. Luis Arguello led the final Spanish expedition into the interior of Alta California in 1817. They traveled up the Sacramento River, past today's City of Sacramento, to the mouth of the Feather River, before returning to the coast (Beck and Haase 1974:18, 20; Gunsky 1989:3-4).

MEXICAN PERIOD (1822-1848)

After Mexico gained independence from Spain in 1822, the Mission lands were secularized under the Secularization Act of 1833, but much of the land was transferred to political appointees. A series of large land grants (ranchos) that transferred Mission properties to private ownership were awarded by the various governors of California. Land grants were also awarded in the interior to increase the population away from the coastal areas that were settled during the Spanish Period. Captain John Sutter received the two largest land grants in the Sacramento Valley. In 1839, Sutter founded a trading and agricultural empire called *New Helvetia*, which was headquartered at Sutter's Fort near the divergence of the Sacramento and American Rivers, in Valley Nisenan territory.

The Mexican Period also marks the exploration by American fur trappers west of the Sierra Nevada Mountains. Jedediah Smith was the first trapper to enter California; his small party trapped and explored along the Sierra Nevadas in 1826 and then entered the Sacramento Valley in 1827. They traveled along the American and Cosumnes rivers, and camped near the Rosemont section of modern-day Sacramento and Wilton. The explorations by Smith and other trappers resulted in the creation and then circulation of maps of the Sacramento Valley in the 1830s (Gunsky 1989:9-11).

AMERICAN PERIOD (1848-PRESENT)

The Mexican-American War followed on the heels of the Bear Flag Revolt of June 1846 (Ohles 1997). General Andrés Pico and John C. Frémont signed the Articles of Capitulation in December 1847, and with the signing of Treaty of Guadalupe Hidalgo in February 1848, hostilities ended and Mexico relinquished California to the United States. Under the treaty, Mexico ceded the lands of present-day California, New Mexico and Texas to the U.S. for $15 million (Fogelson 1993:10). Within two years following the treaty, California applied for admission as a state.

Gold was discovered in 1848 on the American River at Sutter's Mill near Coloma. One year later, nearly 90,000 people had journeyed to the gold fields of California. California became the 31st state in 1850, and three years later the population of the state exceeded 300,000. In 1854, Sacramento became the state capital. Thousands of new settlers and immigrants poured into the state after the transcontinental railroad was completed in 1869, spurring California's economic growth. The fertile soils in the vast Central Valley combined with the rise in the number of irrigation canals promoted the state's role as a national leader in agricultural production. Products included fruits, vegetables, and nuts, field crops, such as barley, cotton, hay, and rice, and livestock (cattle and sheep).

LOCAL HISTORY

Rancho Omochumnes, which consists of 18,662 acres, is located 1.5 miles southeast of the Project area along the north bank of the Cosumnes River (Figure 4). The land grant was awarded to Jared Dixon Sheldon in 1844 by Mexican Governor Manuel Micheltorena. Sheldon and his partner, William Daylor, divided the grant into three parcels: Sheldon Ranch, Upper Daylor Ranch, and Lower Daylor Ranch (Pinkerton 2007). Sheldon and Daylor ranched and farmed the area, and with the discovery of gold in 1848 in the nearby foothills at Coloma, they profited from the variety of goods and services they provided to the miners and early settlers (Hoover et al. 2002:306). In 1870, the land grant was patented to Sheldon's widow, Catherine Rhoads. The alignment of Grant Line Road, which marks the western boundary of the rancho (see Figure 4), is a physical remnant of the Mexican Period.

James Watson Hall is credited with founding Elk Grove in 1850 (Elk Grove Historical Society 2013). Hall built a hotel (Elk Grove House) that was among the finest stage stops along Upper Stockton Road (today's State Route 99) between Sacramento and Stockton. In 1868, when the Sacramento-Stockton line of the Central Pacific Railroad was constructed about one mile east of the town, the community moved to its current location alongside the railroad. The new post office at Elk Grove Station was in place by 1869 (Pinkerton 2002). Julius Everson founded the Elk Grove Building Company in 1876 and within two years, established a variety of businesses in the new town (Davis 1890). Over the course of a ten-year period, the business association built

two hotels, a flour mill, general store, hardware store, meat market, furniture manufactory, a carriage and wagon manufactory, dressmaker and milliner shops, and a grain warehouse (Thompson and West 1880:234). By 1887, the businesses along Main Street, as well as high crop yields, particularly from wheat, contributed substantially to the town's growing economy.

Patent records show that one land patent was granted to Edmund Lewis and William Long for a portion of the Project area in 1866. Lewis was an immigrant from Wales who belonged to the Church of Jesus Christ of Latter-day Saints. He and his family owned a farm within the E ½ of Section 29, Township 7 North, Range 6 East (Welsh Mormon History, n.d.). No historical information was found on William Long.

The town of Elk Grove, the railroad line, the community of Sheldon, the Pleasant Grove School, and the Upper Stockton Road, as well as intersection of present-day Sheldon and Bradshaw roads within the APE, are shown on the historic 1909 Elk Grove USGS topographic map (1:31,680 scale). Like other roads established during this period (e.g., Elk Grove Boulevard, Bond Road, Waterman Road), Sheldon Road and Bradshaw Road developed along the boundaries of section lines. Two structures are also shown near but outside the APE on the 1909 map. Aerial imagery dating to 1957 shows additional structures adjacent to but outside the APE on parcel 127-0030-002 on Bradshaw Road.

Today, the City's Planning Area includes several place names that represent early place names or schools, such as Sheldon, Sloughhouse, Franklin, and Pleasant Grove. In the 1950s, suburban and commercial developments near cities such as Elk Grove expanded at the expense of agricultural lands. The incorporation of the City of Elk Grove in 2000 highlights the residential and commercial development of formerly rural areas surrounding Sacramento. Currently, the City and its surrounding area are experiencing a rapid expansion of residential units and businesses. This expansion has precipitated the need for the Sheldon Road/Bradshaw Road Intersection Improvement Project.

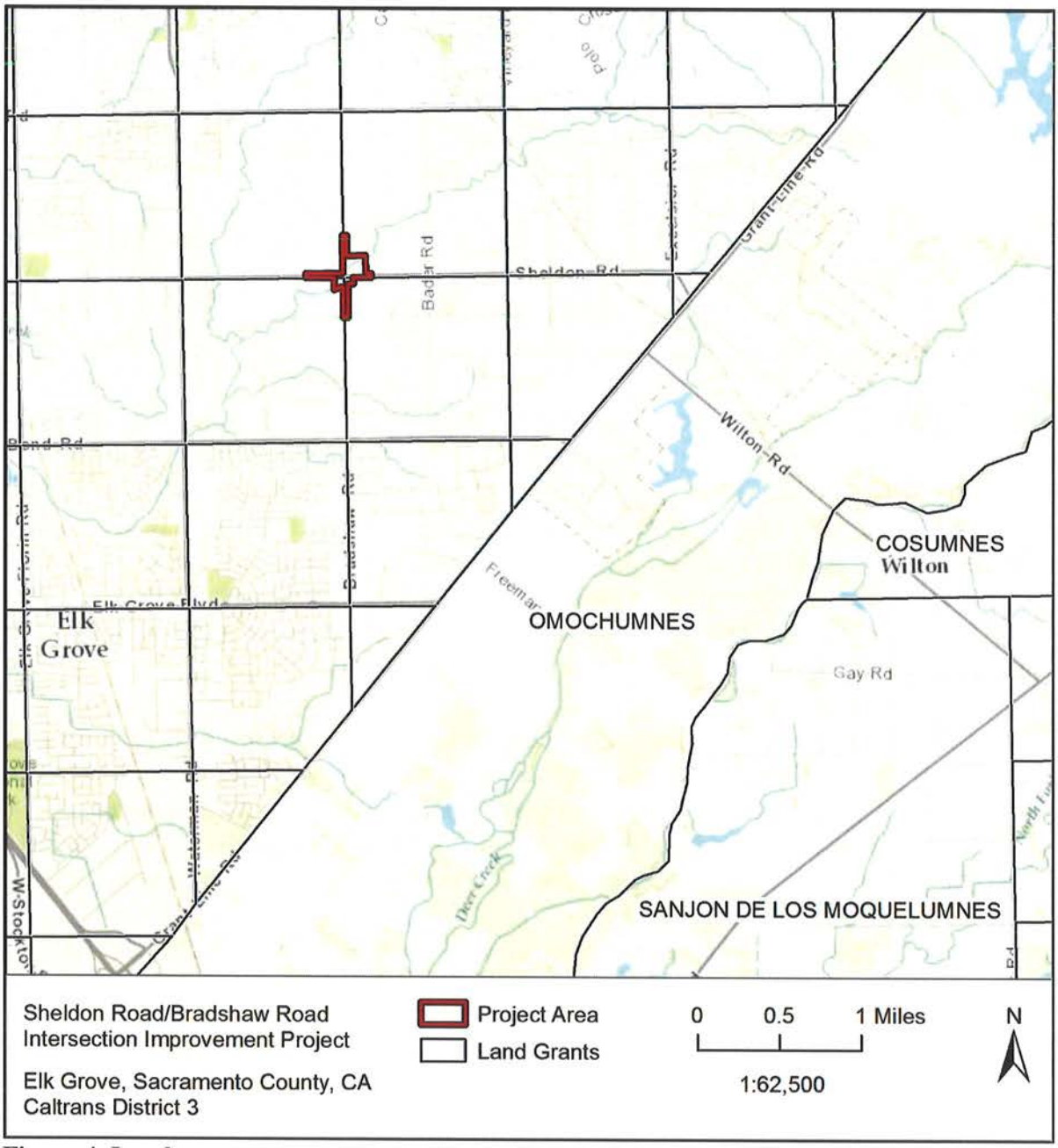

Figure 4. Land grant map

FIELD SURVEY METHODS AND RESULTS

The cultural resources survey stage is important in a Project's environmental assessment phase to verify the exact location of each identified cultural resource, the condition or integrity of the resource, and the proximity of the resource to areas of other areas of cultural resources sensitivity. Brian S. Marks, Cogstone Staff Archaeologist, completed an intensive-level pedestrian survey of the entire 26-acre APE on August 20, 2013. The survey consisted of walking parallel transects, spaced at no greater than 15-meter intervals within the APE while closely inspecting the ground surface. Existing disturbances (e.g., rodent burrows, cut banks) were examined for artifacts or buried cultural deposits.

The existing segments of Bradshaw Road and Sheldon Road within the APE are completely hardscaped; thus, visibility within the paved roadways was negligible (Figure 5). Ground surface visibility was excellent (80-100 percent) within road shoulder and drainage ditches along the roadways. Ground surface visibility within the vacant parcels within the APE was very good (60-100 percent) (Figure 6), though visibility by the creek was poor (0-20 percent) due to overgrown vegetation (Figure 7). Visibility within the segments of the residential parcels within the APE varied from poor (0-60 percent) in the lawns and garden areas to very good (60-80 percent) in the dirt driveways (Figure 8). Vegetation within the vacant parcels consists of low-lying grasses, with eucalyptus trees along the creek by Bradshaw Road and oak trees in the vacant parcels.

The vacant parcel to the northeast of the intersection is currently used for livestock grazing, while the vacant parcel to the southwest of the intersection has been disked and plowed multiple times. The remaining parcels had some form of residence and landscaping within their confines. This landscaping varied from bare dirt with some decorative plants (e.g., oleander) to full manicured lawns with rock borders and paved driveways. Typical road rubbish was observed along the ditches and road shoulders, and the parcel to the southwest of the intersection contains several rubbish piles comprised of concrete and brick, lumber, and vegetation.

No previously unknown cultural resources were observed within or immediately adjacent to the APE. While Bradshaw Road and Sheldon Road both appear as unnamed roads on the historic 1909 topographic map, the roadways have been heavily modified over the last century. The bridge over the creek was constructed in 1940 and improved in 1970 (and determined by Caltrans to be not eligible for NRHP listing) (Figure 9); the roads have been paved and maintained. Additionally, the setting of the roads has changed from strictly rural to mixed rural/residential. Therefore these roadways were not considered to be historic resources and were not documented as such.

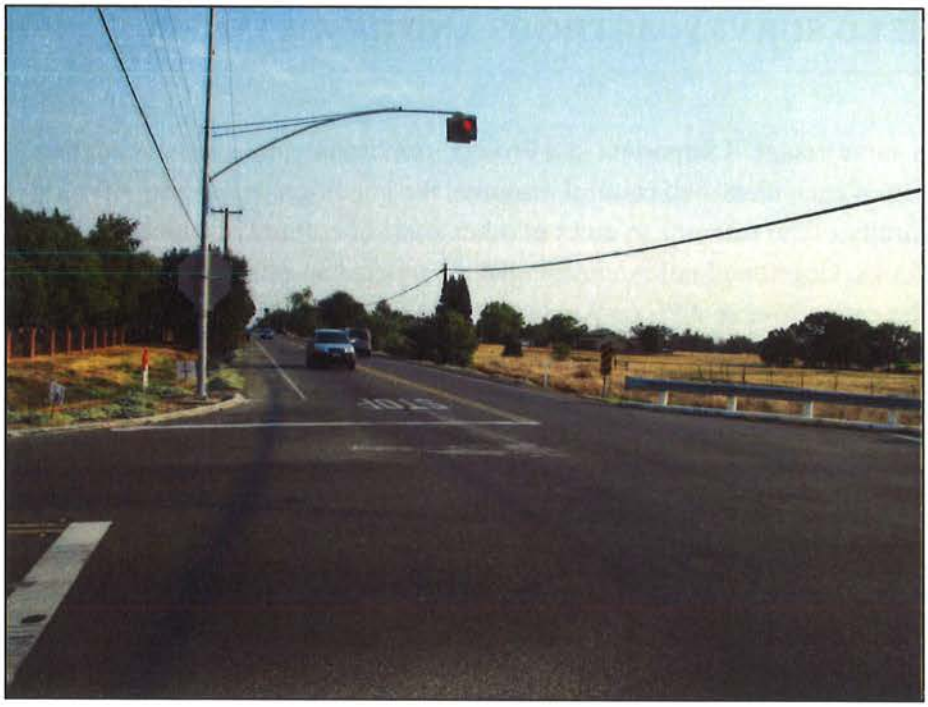

Figure 5. Typical view of hardscaping in the APE (view to north)

Figure 6. Typical view of vacant parcels (view to northeast)

Figure 7. View of the creek within APE (view to south)

Figure 8. Typical view of residential landscaping in the APE (view to north)

Figure 9. View of East Branch Laguna Creek Bridge (24C0308) (view to southeast)

STUDY FINDINGS AND CONCLUSIONS

No prehistoric or historical archaeological resources were observed within or immediately adjacent to the APE during the survey.

OTHER RESOURCES

One non-archaeological, linear historic-era resource is present within the APE. The existing East Branch Laguna Creek Bridge (No. 24C0308), which is proposed for replacement by the current Project, has been evaluated by Caltrans as a Category 5 bridge and determined not eligible for NRHP listing (Caltrans 2013) (see Historic Bridge Inventory provided as Appendix D).

UNIDENTIFIED CULTURAL MATERIALS

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

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APPENDIX A. QUALIFICATIONS

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PALEONTOLOGY · ARCHAEOLOGY · HISTORY

NANCY SIKES, PH.D.
Registered Professional Archaeologist

EDUCATION

1995	Ph.D., Anthropology, University of Illinois, Urbana-Champaign
1990	M.A., Anthropology, University of Illinois, Urbana-Champaign
1985	B.A. with distinction, Anthropology/Museology, University of Nevada, Reno

SUMMARY QUALIFICATIONS

Dr. Sikes is a Registered Professional Archaeologist (RPA) with over 20 years of experience as a principal investigator and project manager—completing hundreds of projects and technical reports in compliance with federal, state, and local regulations and agencies throughout California, including Caltrans, with additional experience in Nevada, Utah, Washington, Wyoming, and East Africa. She comprehends the maze of NEPA, Section 106 and CEQA regulations, and has completed numerous cultural resources sections for EIRs, EISs, EAs, and ISs. Dr. Sikes meets national standards in archaeology set by the Secretary of Interior and Bureau of Land Management and her credentials are accepted by the California Historical Resources Information System in both prehistoric and historical archaeology. She also has a wide range of technical knowledge in geophysics (remote sensing) and geochemistry (stable isotope analysis of various materials such as bone/teeth, soils and sediments to reconstruct prehistoric diets and environments).

SELECTED PROJECTS

US 101 Express Lanes Project. Caltans District 4. Prepared Archaeological Survey Report (ASR) for 37-mile improvements project in Santa Clara County. Literature and Sacred Lands searches, survey, and ASR conducted in compliance with Section 106. Principal Investigator/Archaeology. Phase III Data Recovery Plan for six National Register eligible sites submitted for review. 2012-present

Vineyard Road Bridge Replacement. Caltrans District 3. Project for Sacramento County Department of Transportation entailing road widening and bridge replacement in Sacramento County. Literature and Sacred Lands searches, survey, and technical reports (HPSR and ASR) completed in compliance with Section 106 and CEQA. Principal Investigator. 2010

California High Speed Train EIS/EIR. Comprehensive archaeological and architectural settings and records searches for project-level EIS/EIR, Merced to Fresno Section, Fresno, Madera and Merced Counties. Section 106/CEQA compliance. Principal Investigator. 2010-present

SR 99 – Manteca 6-Lane Widening Project. Caltrans District 10. Literature and Sacred Lands searches, intensive survey of >1,000 acres, and technical reports (HPSR, ASR and HRER) for SR 99 widening between Stockton and Manteca, San Joaquin County. Section 106 compliance. Principal Investigator. 2008-2009

Dillard School Expansion Project. Background research, survey, and assessment report on presence of and sensitivity for cultural and paleontological resources within Elk Grove Unified School District project in Sacramento County. CEQA compliance. Contributor and Quality Control. 2011-12

Projects for County of Sacramento Department of Environmental Review and Assessment. Over 65 projects involving cultural resources survey, testing, inventory, and reporting. Compliance with Section 106, CEQA, Caltrans, Bureau of Reclamation, U.S. Army Corps of Engineers. Principal Investigator. 2005-10

Celebration Community Fellowship Project. Completed artifact analysis and technical report from excavation of multi-component, National and California Register-eligible site in Placer County, California. Lead agency: U.S. Army Corps of Engineers; Section 106 compliance. Principal Investigator. 2009

Levee Repair Projects. Survey of 36 Locations in Colusa, Glenn, Sacramento, Solano, Sutter, Tehama, Yolo, and Yuba Counties. Section 106 and U.S. Army Corps of Engineers oversight. Principal Investigator. 2008

Qwest Communications Project. Final report covering >1,400 miles throughout 36 of California's 58 counties, including Sacramento and neighboring counties (Butte, Placer, Sutter, Yuba, etc.). CEQA compliance; California Public Utilities Commission (CPUC) as lead agency. Principal Investigator. 2006

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PALEONTOLOGY · ARCHAEOLOGY · HISTORY

MOLLY VALASIK
Registered Professional Archaeologist

EDUCATION

2009 M.A., Anthropology, Kent State University, Kent, Ohio

2006 B.A., Anthropology, Ohio State University, Columbus, Ohio

SUMMARY QUALIFICATIONS

Valasik is a Registered Professional Archaeologist with six years of professional field and academic research experience. She has completed more than 24 hours of paleontological cross training and logged four years as a dual archaeology/paleontology monitor. Valasik is GIS proficient and currently supervises digitizing and mapping at Cogstone with the use of advanced Trimble software in addition to serving as Principal Archaeologist.

SELECTED PROJECTS

Trabuco Road at Monroe Avenue Project, City of Irvine/Caltrans District 12, Irvine. Prepared archaeological literature study including record search, Native American consultation, analysis and recommendations for a traffic signal improvement project. Principal Investigator. 2013

Santiago Canyon Bridges Project, Orange County Parks, south Orange County. Prepared archaeological Phase I assessment including record search, Native American consultation, survey, impact analysis and recommendations for nine bridge rehabilitation projects. Principal Investigator. 2013

13th Street Bridge Replacement Project, San Diego County Department of Public Works/Caltrans District 11, Ramona. Prepared Archaeological Survey Report and Historic Properties Survey Report including record search, survey, impact analysis and recommendations for bridge replacement. Principal Investigator. 2013

Rose Creek Bike Trail, SANDAG, San Diego. Prepared archaeological Phase I assessment including record search, Native American consultation, survey, impact analysis and recommendations for new bike trail along creek. Principal Investigator. 2013

Gopher Canyon Restoration Project, Santa Monica Mountains Conservancy, Chatsworth. Prepared archaeological Phase I assessment including record search, survey, impact analysis and recommendations for stream restoration project. Principal Investigator. 2013

Sun Ranch, City of San Juan Capistrano. Directed archaeological and Native American monitoring of a City water system improvement project over several months and prepared final monitoring compliance report. Principal Investigator. 2012

Placentia Metrolink Station Project, OCTA, Orange County. Performed an archaeological records search and field survey, prepared GIS maps and sections of the Archaeological Survey Report for expanded station. Archaeologist, GIS Specialist & Report Contributor. 2012

Uptown Newport Village Project, Orange County. Conducted an archaeological records search and NAHC consultation, prepared GIS maps, and authored the Prehistoric and Historic Background section and the Record Search section of a combined Archaeological and Paleontological Assessment Report for a 25-acre residential development project in the City of Newport Beach. GIS Specialist & Report Contributor. 2011-2012

Conrad N. Hilton Foundation Headquarters Project, Agoura Hills. Conducted paleontological and archaeological resources monitoring, supervised archaeological excavations and artifact recovery, prepared GIS maps, and wrote portions of the mitigation compliance report. A total of 372 artifacts were recovered during monitoring and testing. Field Supervisor & GIS Specialist. 2011-2012

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PALEONTOLOGY · ARCHAEOLOGY · HISTORY

BRIAN MARKS, PH.D., RPA
Archaeologist

EDUCATION

2006	Ph.D., Anthropology, Florida State University
2002	M.S., Anthropology, Florida State University
1998	B.S., Underwater Archaeology, minor in History, University of California, Davis

SUMMARY QUALIFICATIONS

Dr. Marks is a Registered Professional Archaeologist with more than 11 years of professional and academic experience involving terrestrial and underwater archaeology in California, Nevada, Washington, Florida and Georgia. He has served as a project supervisor and lead archaeologist involving CEQA, NEPA and NHPA Section 106 compliance for federal, state and local projects in the energy, water and transportation sectors. He conducts assessments and prepares technical reports to Caltrans, USACE, and CPUC standards. Dr. Marks meets or exceeds the qualifications required by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation.*

SELECTED PROJECTS

Transmission Line Wood to Steel Pole Replacement, Fulton-Calistoga, Pacific Gas & Electric. Conducted a field survey and assessment. Sub to ICF Archaeologist. 2013

DWR North Bay Aqueduct Alternate Intake Project EIR, Solano County, CA. Led a crew of archaeologists conducting a survey along a proposed pipeline easement from the Sacramento River to Fairfield, CA. Ensured the project met Section 106 guidelines as well as CEQA regulations; wrote the technical report; and prepared the EIR. Lead Archaeologist.

La Grange Road and Dry Creek Bridge Replacement, Merced County, CA. Conducted the field survey and found several groups of bedrock mortars directly beneath the bridge. Prepared a Caltrans Archaeological Survey Report (ASR) and recommended monitoring during the removal of the bridge. Lead Archaeologist.

Biological/Cultural Resources Study, El Dorado Union High School District, El Dorado Hills, El Dorado County. CA. The El Dorado UHSD proposed a sixth high school south of El Dorado Hills. Surveyed the project area and prepared a technical report update to a 2001 EIR. Relocated the two previously recorded sites and located two more sites and two isolated finds. Recommended avoiding all resources until they can undergo evaluation. Lead Archaeologist.

On-Call Environmental Support Services, San Joaquin County Department of Public Works-Mormon Slough, San Joaquin, CA. The project involved widening the channel downstream of the Bellota Fish Weir. During the field survey, found lithic debris in a gravel bar within the river channel that was mentioned in the report written in support of the USACE 404 permit. Recommended that the material came from a washed out site up stream. Lead Archaeologist.

RD2035 Intake, Davis-Woodland Water Supply Project EIR, Water Right Acquisition Support and Permitting, Davis and Woodland, Yolo County CA. Conducted a cultural resources survey of the proposed project area. Responsible for ensuring the project meets Section 106 guidelines as well as CEQA regulations. As no resources were encountered during the survey, there will be no negative effect from this project. Lead Archaeologist.

Outpatient Clinic and Community Living Center Environmental Consulting Services, Veterans Administration, Stockton, CA. Conducted a cultural resources study and surveyed two potential sites. Wrote the technical reports. Archaeologist.

APPENDIX B. CONFIDENTIAL CHRIS RECORD SEARCH RESULTS

NORTH CENTRAL INFORMATION CENTER

916-278-6217 ncic@csus.edu FAX 916-278-5162
CSU-SACRAMENTO - 6000 J STREET, FOLSOM HALL-STE. 2042-SACRAMENTO, CA 95819-6100
Amador, El Dorado, Nevada, Placer, Sacramento, and Yuba Counties

August 6, 2013 NCIC File No.: SAC-13-89

Molly Valasik
Cogstone Resource Management
1518 West Taft Ave.
Orange, CA 92865

Records Search Results
Sheldon Road/Bradshaw Road Project
T 7N/R 6E, Sections 20, 21, 28, 29
USGS 7.5' Elk Grove Quadrangle, Sacramento County

NCIC Resources Within 1 Mile of Project Area:

P-34-000548	P-34-001104
P-34-000699 (CA-SAC-544/H)	P-34-001379
P-34-001101 (CA-SAC-753/H)	P-34-001554
P-34-001102	P-34-004513
P-34-001103	

Copies of resource records and detail listing enclosed.

NCIC Reports Within 1 Mile of Project Area:

88	5917	6561	11153
406	5920	6901	
418	5924	7223	
479	5929	8062	
1874	5937	9188	
2518	5942	11151	
5916	6154	11152	

Detail listing enclosed.

- **OHP Historic Property Data File (2012):** Elk Grove properties enclosed.
- **Determination of Eligibility (2012):** Nothing listed.
- **NRHP/CRHR listings (2008 & updates):** Nothing listed.
- **California Inventory of Historic Resources (1976):** Nothing listed.
- **California State Historical Landmarks (1996):** Nothing listed.
- **Points of Historic Interest (1992):** Nothing listed.
- **Caltrans Bridge Inventory:** Not requested* (listed properties within project area radius can be found on the included printout of the 1952 Elk Grove 7.5' Quadrangle).
- **Shipwreck Inventory:** Not requested.
- **Historic Maps:** Elk Grove 7.5' Quadrangle (1952).

Thank you for using our services. An invoice confidentiality agreement is enclosed; please sign and return a copy for our files.

APPENDIX C. NATIVE AMERICAN OUTREACH LETTERS

STATE OF CALIFORNIA — Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd.
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

August 6, 2013

Sherri Gust
1518 W. Taft Avenue
Orange, CA 92865

By Fax: 714-974-8303

Number of Pages 2

Re: Sheldon Road/Bradshaw Road Intersection Improvement project, Sacramento County

Dear Ms. Gust:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3713.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American C
Sacramento County
August 8, 2013

Randy Yonemura
4305 - 39th Avenue Miwok
Sacramento , CA 95824
honortraditions@mail.com
(916) 421-1600
(916) 601-4069-cell

Wilton Rancheria
Steven Hutchason, Director of Cultural Preservation
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
shutchason@wiltonrancheria-nsn.gov
916-683-6000
916-683-6015

Buena Vista Rancheria
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 Me-Wuk / Miwok
Sacramento , CA 95811
rhonda@buenavistatribe.com
916 491-0011
916 491-0012 - fax

Ione Band of Miwok Indians
Yvonne Miller, Chairperson
PO Box 699 Miwok
Plymouth , CA 95669
(209) 274-6753
(209) 274-6636 Fax

Ione Band of Miwok Indians Cultural Committee
Anthony Burris, Chairperson
PO Box 699 Miwok
Plymouth , CA 95699
(209) 274-6753
(209) 274-6636 Fax

Wilton Rancheria
Andrew Franklin, Chairperson
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
916-683-6000
916-683-6015

This list is current only as of the date of this document.

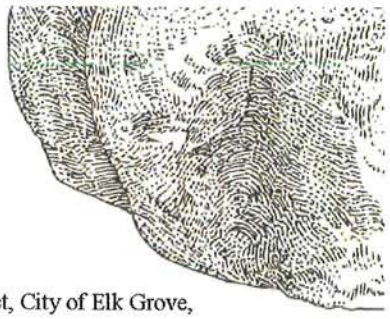
Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Sheldon Road/Bradshaw Road intersection improvement project, Sacramento County

SAMPLE CONSULTATION LETTER

cogstone

PALEONTOLOGY · ARCHAEOLOGY · HISTORY



August 7, 2013

Re: Sheldon Road/Bradshaw Road Intersection Improvement Project, City of Elk Grove, Sacramento County
Cogstone Project No. 2374-001

Dear Sir or Madam,

The City of Elk Grove is proposing to improve the Sheldon Road/Bradshaw Road intersection by replacing the existing 2-lane bridge spanning the East Branch of Laguna Creek with a 4-lane bridge and widening the intersection to its ultimate planned width of six lanes on Bradshaw Road and four lanes on Sheldon Road. A map of the project location and relevant information are attached.

The Native American Heritage Commission (NAHC) was contacted on August 1, 2013 to perform a search of the Sacred Lands file. The NAHC had no record of Native American sacred sites or heritage resources in the immediate vicinity of the project area. The NAHC also provided a list of Native American individuals/organizations that may have knowledge of cultural resources within the project area and recommended that we contact you, among others.

We would appreciate your providing any comments, issues and/or concerns relating to cultural resources within the project area. All information provided regarding cultural and historic sites or other areas of concern will be confidential. Please contact me by phone (714-974-8300), email (mvalasik@cogstone.com), or fax (714-974-8303). Your response within two weeks of receipt of this letter will be appreciated. Thank you for your assistance.

Sincerely,

Molly Valasik
Archaeologist

Attachment: Project Location Map

1518 West Taft Avenue
Orange, CA 92865
Office (714) 974-8300
Toll free (888) 497-0700
Fax (714) 974-8303

Branch Offices
West Sacramento - Morro Bay - Inland Empire - San Diego

cogstone.com

COGSTONE SACRED SITES INFO REQUEST	
DATE	August 7, 2013
COGSTONE PROJECT NUMBER	2539
COGSTONE PROJECT NAME:	Sheldon Road/Bradshaw Road Intersection Improvement Project
PROJECT DESCRIPTION:	Proposed improvements to the intersection
USGS 7.5' QUAD:	Elk Grove, 1970
COUNTY:	Sacramento
TOWNSHIP/SECTION:	T 7N R 6E Section 20, 21, 28, 29
ACRES:	26 acres


Sheldon Road/Bradshaw Road
Intersection Improvement Project
Elk Grove, Sacramento County, CA
Caltrans District 3
APE
0
0.25
0.5 Miles
1:20,000
N
Sacramento
WEST SACRAMENTO
RANCHO CORDO
FLORIN
Florin Rd
Jackson Rd
Sacramento Executive Airport
Jefferson Blvd
Clarksburg
ELK GROVE
Wilton
Hood
ELK GROVE
Sheldon Rd
Bradshaw Rd
Calvine Rd
Bond Rd
Waterman Rd
Norman Ave
Millpond Ct
Oak Ranch Pl
Pleasant Grove School Rd
Justamere Ln
Norsid Dr
Bert Dr
Edeva Way
Falcon Pl
Stone Springs Dr
Tumbleriver Way
Mill River Way
Early Light Way
SHIRLEY MEDEIROS MOHAMED ACRES

From: Molly Valasik
Sent: Thursday, August 29, 2013 4:24 PM
To: 'Steven Hutchason'
Subject: RE: Sheldon Road/Bradshaw Road Intersection Improvement Project

Thanks for your response Steven.

The record search results for this project indicate that there are no known archaeological resources within the Project area.

We recently conducted the survey and no cultural resources were observed within or immediately adjacent to the Project area. The Project area consists of the built Bradshaw Road and Sheldon Road with adjacent parcels used for livestock grazing, agriculture, and residences.

Molly Valasik

From: Steven Hutchason [mailto:shutchason@wiltonrancheria-nsn.gov]
Sent: Thursday, August 29, 2013 10:06 AM
To: Molly Valasik
Subject: RE: Sheldon Road/Bradshaw Road Intersection Improvement Project

Hello Molly,

Thank you for your letter dated August 7, 2013 on the above named project. Wilton Rancheria is comprised of Miwok people whose indigenous territory is in Sacramento and spans into Amador, El Dorado, San Joaquin and Yolo Counties. Wilton Rancheria is concerned about development within its indigenous territory that has potential to impact the lifeways and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects in your jurisdiction.

To determine whether or not the project could affect cultural resources that may be of importance to Wilton Rancheria. We would like to receive copies of any completed record searches. We would also like to request any archeological, cultural and environmental surveys and reports that have been, or will be, completed for the project. The information gathered will provide us with a better understanding of the project and cultural resources on site.

Thank you again for taking these matters into consideration,

Steven Hutchason

Sheldon Road/Bradshaw Road Intersection Improvement Project – Native American Tribes Consultation Log

Native American Group/Individual	Date(s) of 1st Contact Attempt	Date(s) of 2nd Contact Attempt	Date(s) of 3rd Contact Attempt	Date(s) of Replies Rec'd	Comments
Randy Yonemura	8/12/2013 Letter	08/28/2013 email	09/11/2013 phone		On August 12, 2013 a letter and map detailing the project were mailed to Mr. Yonemura. When no response was received, an email was sent and a phone call was placed with a message left. No response has been received.
Buena Vista Rancheria, Rhonda Morningstar Pope	8/12/2013 Letter	08/28/2013 email	09/11/2013 phone & email		On August 12, 2013 a letter and map detailing the project were mailed to Ms. Pope. When no response was received, an email was sent and a phone call was placed. The Buena Vista Rancheria receptionist provided the email of Roselynn Lwenya, the environmental manager. An email was then sent. No response has been received.
Ione Band of Miwok Indians, Yvonne Miller	8/12/2013 Letter	08/28/2013 phone	09/11/2013 phone		On August 12, 2013 a letter and map detailing the project were mailed to Ms. Miller. When no response was received, two phone calls were placed. No response has been received.
Ione Band of Miwok Indians, Cultural Committee, Anthony Burris	8/12/2013 Letter	08/28/2013 phone	09/11/2013 phone		On August 12, 2013 a letter and map detailing the project were mailed to Mr. Burris. When no response was received, two phone calls were placed. No response has been received.
Wilton Rancheria, Andrew Franklin	8/12/2013 Letter	08/28/2013 phone	09/11/2013 email		On August 12, 2013 a letter and map detailing the project were mailed to Mr. Franklin. When no response was received a phone call was placed. Mr. Hutchason of the Wilton Rancheria responded by email on 8/29/2013 requesting more information. Cogstone responded by email on 8/29/2013 with a summary of the record search results and field survey. No response was received. On 9/11/2013 Cogstone emailed Mr. Hutchason to ask if the Wilton Rancheria had any comments regarding the project. No response has been received
Wilton Rancheria, Steven Hutchason	8/12/2013 Letter	08/28/2013 email	09/11/2013 email	8/29/2013 email	On August 12, 2013 a letter and map detailing the project were mailed to Mr. Hutchason. When no response was received an email was sent. Mr. Hutchason responded by email on 8/29/2013 requesting more information. Cogstone responded by email on 8/29/2013 with a summary of the record search results and field survey. No response was received. On 9/11/2013 Cogstone emailed Mr. Hutchason to ask if the Wilton Rancheria had any comments regarding the project. No response has been received

APPENDIX D. HISTORIC BRIDGE INVENTORY

Structure Maintenance & Investigations

SM&I

Historical Significance - Local Agency Bridges

January 2013

District 03

Sacramento County

Bridge Number	Bridge Name	Location	Historical Significance	Year Built	Year Wid/Ext
24C0264	LINDA CREEK	.3 MI N GOLDEN GATE AV	5. Bridge not eligible for NRHP	1986	
24C0265	RIO LINDA CREEK	0.1 MI N OF E ST	5. Bridge not eligible for NRHP	1986	
24C0266	RIO LINDA CREEK	E ST IN RIO LINDA	5. Bridge not eligible for NRHP	1986	
24C0267	ARCADE CREEK	Near American River Cllge	5. Bridge not eligible for NRHP	1999	
24C0268	GOLD CREEK	0.1 MI W AMER RIVER CYN	2. Bridge is eligible for NRHP	1915	
24C0269	RILEY RAVINE	WEST OF RILEY STREET	5. Bridge not eligible for NRHP	1916	
24C0270	WILLOW CREEK	0.1 MI N BLUE RAVINE RD	5. Bridge not eligible for NRHP	1986	
24C0271	N FORK BADGER CREEK	1.1 MI N/O ARNO RD	5. Bridge not eligible for NRHP	1986	
24C0272	BADGER CREEK	0.2 MI NORTH OF ARNO RD	5. Bridge not eligible for NRHP	1987	
24C0275	PASTURE CREEK	0.1 MI W/O TAVERNOR RD	5. Bridge not eligible for NRHP	1945	
24C0276	HADSELVILLE CREEK	0.1 MI N/O SR 104	5. Bridge not eligible for NRHP	1960	1971
24C0277	BAT CREEK	0.2 MI E/O DILLARD	5. Bridge not eligible for NRHP	1935	2009
24C0278	LAGUNA CREEK	1.3 MI N/O CALVINE	5. Bridge not eligible for NRHP	1982	
24C0284	FLORIN CREEK	0.2 MI W STOCKTON BLVD	5. Bridge not eligible for NRHP	1973	
24C0285	LAGUNA CREEK	EAST WATERMAN RD	5. Bridge not eligible for NRHP	1981	2005
24C0286	LAGUNA CREEK	SOUTH OF BOND RD	5. Bridge not eligible for NRHP	1981	2005
24C0287	HIGHLINE CANAL	.45 MI W/O NORTHGATE BLVD	5. Bridge not eligible for NRHP	1970	
24C0288	HIGHLINE CANAL	.05 mi e/o Montview Way	5. Bridge not eligible for NRHP	1970	
24C0289	SOUTH SACRAMENTO DRAIN	100' E/O RTE 5	5. Bridge not eligible for NRHP	1970	
24C0291	FLORIN CREEK	0.2 MI E FRANKLIN BL	5. Bridge not eligible for NRHP	1970	
24C0292	MAIN CANAL	.7 MI W/O FLORIN RD	5. Bridge not eligible for NRHP	1979	
24C0293	ELDER CREEK	0.1 MI N OF MACK ROAD	5. Bridge not eligible for NRHP	1966	
24C0294	UNION HOUSE CREEK	0.1 MI W BRUCEVILLE RD	5. Bridge not eligible for NRHP	1975	
24C0295	EXECUTIVE DRAIN	FREEPORT BLVD	5. Bridge not eligible for NRHP	1940	
24C0296	MORRISON CREEK	0.3 MI N ELDER CREEK RD	5. Bridge not eligible for NRHP	1975	
24C0299	STRAWBERRY CREEK	Just N of Cosumnes Blvd	5. Bridge not eligible for NRHP	1975	1993
24C0300	SUTTERVILLE ROAD OH	AT 24TH ST	5. Bridge not eligible for NRHP	1955	
24C0302	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1955	
24C0303	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1955	
24C0304	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1965	
24C0305	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1955	
24C0306	LAGUNA CREEK	0.4 MI N OF SR 104	5. Bridge not eligible for NRHP	1940	
24C0307	LAGUNA CREEK	3.5 MI N OF SR 104	5. Bridge not eligible for NRHP	1940	1972
24C0308	EAST BRANCH LAGUNA CREEK	BRADSHAW RD & SHELDON RD	5. Bridge not eligible for NRHP	1940	1970
24C0309	BROWNS CREEK	1.2 MI N OF SR 104	5. Bridge not eligible for NRHP	1950	1970
24C0310	RIO LINDA CREEK	AT C Street	5. Bridge not eligible for NRHP	2002	
24C0311	SOUTH CHANNEL DRY CREEK	0.25 MI N ELKHORN BL	5. Bridge not eligible for NRHP	1965	
24C0312	NORTH CHANNEL DRY CREEK	0.6 MI N ELKHORN BLVD	5. Bridge not eligible for NRHP	1966	
24C0313	RIO LINDA CREEK	1/4 MI E OF 16TH ST	5. Bridge not eligible for NRHP	1986	
24C0314	NATOMAS EAST TRIBUTARY NO 1	0.4 MI N RIO LINDA BLVD	5. Bridge not eligible for NRHP	1984	
24C0315	NORTH CHANNEL DRY CREEK	AT 16TH ST	5. Bridge not eligible for NRHP	1959	
24C0316	SOUTH CHANNEL DRY CREEK	18TH STREET	5. Bridge not eligible for NRHP	1959	
24C0318	CRIPPLE CREEK	0.8 MI N AUBURN BL	5. Bridge not eligible for NRHP	1960	

State of California Transportation Agency | Department of Transportation

HISTORIC PROPERTY SURVEY REPORT

1. UNDERTAKING DESCRIPTION AND LOCATION

District	County	Route	Post Miles	Unit	E-FIS Project Number	Phase

District	*County*	*Funding Source*	*Federal-Aid Proj. No.*	*Location*	*E-FIS Proj. No*	*Phase*
3	*SAC*	*HBP*	*HSIPL-BRLS-5479(012)*	*City of Elk Grove, Sheldon/Bradshaw Roads*		

For Local Assistance projects off the highway system, use headers in italics

Project Description:

The City of Elk Grove, in conjunction with the California Department of Transportation (Caltrans), proposes to improve the Sheldon Road/Bradshaw Road intersection in Sacramento County, California (Attachment A: Figures 1 and 2, Vicinity and Location Maps).The proposed Project consists of replacing the existing bridge spanning the East Branch of Laguna Creek (Bridge No. 24C0308) with a bridge with adequate hydraulic capacity, realigning Laguna Creek north and south of the intersection, and improving the intersection to include either a roundabout or traffic signals.

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City of Elk Grove. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The East Branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

Laguna Creek 100-year flows currently overtop the existing bridge at the Sheldon Road/ Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes twenty years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes southbound and northbound on Bradshaw entering and exiting the intersection and one lane eastbound and west bound on Sheldon Road

entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the Project. In accordance with the City's General Plan, and Bicycle, Pedestrian and Trails Master Plan, the proposed Project will add pedestrian and bicycle facilities along Sheldon and Bradshaw roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed Project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows.

Additional right of way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel (APN 122-0190-008 and 127-0030-001). Relocation of existing utilities may require additional easements rights. Traffic control during project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

The project falls under the regulatory authority of the Federal Highway Administration and requires compliance with the January 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it pertains to the Administration of the Federal-Aid Highway Program in California* (PA). Caltrans District 3 is the federal lead agency for this project.

2. AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) for the project was established in consultation with Erin Dwyer, Associate Environmental Planner (Archaeology) (PQS) and Harminder Basi, Local Assistance Project Engineer on July 22, 2013. Maps of the project Location and the APE maps are located in Attachment A to this Historic Property Survey Report.

The APE was established as approximately 26 acres within Sections 20, 21, 28, and 29 of Township 7 North, Range 6 East as depicted on the USGS 7.5-minute Elk Grove quadrangle (Mount Diablo Baseline and Meridian). Boundaries were set by Caltrans District 3 and the City of Elk Grove. The APE includes right of way acquisition slivers from adjacent properties on Sheldon Road and Bradshaw Road.

The vertical APE is an anticipated depth from the existing ground surface of 10 feet (3 meters) for the box culverts and 5 feet (1.5 meters) for the other improvements. Ground disturbance for the proposed project includes widening the existing roadway, replacing the existing bridge, realigning the creek in the northeast and southwest quadrants, vegetation and tree removal, road cut/fill, drainage/culvert installation, and relocation of buried and overhead utilities within the right of way.

3. CONSULTING PARTIES / PUBLIC PARTICIPATION

x Local Government

- City of Elk Grove Planning Department: No response.

x Native American Tribes, Groups and Individuals

- Letters requesting any information related to cultural resources or heritage sites within or adjacent to the Project were sent on August 7, 2013. Follow-up letters, emails or phone calls were made on August 28, 2013, and September 11, 2013. One response has been received. All consultation correspondence and a contact log are provided in Appendix C to the Archaeology Survey Report (ASR).
- Randy Yonemura: No response.
- Buena Vista Rancheria, Rhonda Morningstar Pope, Chairperson: No response.
- Ione Band of Miwok Indians, Yvonne Miller, Chairperson: No response.
- Ione Band of Miwok Indians, Anthony Burris, Chairperson: No response.
- Wilton Rancheria, Andrew Franklin, Chairperson: No response.
- Wilton Rancheria, Steven Hutchason, Director of Cultural Preservation: Responded by email on August 29, 2013 requesting additional information to determine if the project could affect cultural resources that may be important to the tribe. Cogstone responded by email on the same day, indicating no cultural resources have been found in the project area, and inquired via email on September 11, 2013 if Wilton Rancheria has any further comments. No further communication has been received on behalf of the tribe.

x Native American Heritage Commission (see Attachment B)

- Letter sent August 1, 2013 requesting sacred lands file search and current contact list.
- Response received August 6, 2013: no known sacred lands within one-half mile radius of APE.

x Local Historical Society / Historic Preservation Group

- Elk Grove Historical Society: No response.

4. SUMMARY OF IDENTIFICATION EFFORTS

x National Register of Historic Places
x California Register of Historical Resources
x California Inventory of Historic Resources
x California Historical Landmarks
x California Points of Historical Interest
x California Historical Resources Information System (CHRIS)
x Caltrans Historic Highway Bridge Inventory
_ Caltrans Cultural Resources Database (CCRD)

x Archaeological Site Records

- North Central Information Center (NCIC): August 6, 2013 (NCIC File No. SAC-13-89)

x Other Sources consulted

- Elk Grove Historical Society: No response.

x **Results:**

- Three cultural resources studies have been previously completed within a portion of the APE; 22 additional studies have been completed within a one-mile radius of the APE.
- No cultural resources have been previously recorded within or immediately adjacent to the APE; two prehistoric isolates and six historical architectural resources have been previously recorded within a one-mile radius of the APE.
- The East Branch Laguna Creek Bridge (No. 24C0308) has been inventoried by Caltrans and determined not eligible for listing in the National Register of Historic Places (Appendix B: Historic Bridge Inventory Sheet).
- No previously unknown cultural resources were identified within or immediately adjacent to the APE during intensive-level pedestrian survey on August 20, 2013; surface visibility outside the hardscaped roadway segments ranged from poor to excellent depending on the density of vegetation coverage.
- Site-specific variables indicate the potential for discovery of buried archaeological deposits is low in the anticipated maximum depth of ground-disturbing activities of approximately 10 feet (3 meters) for the box culverts and 5 feet (1.5 meters) for the other improvements. In a low-lying basin floodplain, the APE is underlain by Holocene and Pleistocene alluvial deposits, including historic floods of Laguna Creek. Prehistoric and ethnographic land-use patterns and prior archaeological and geoarchaeological research, coupled with previous disturbance by roadway and bridge construction, underground utilities, agricultural practices and residential landscaping, support the low potential conclusion.

5. PROPERTIES IDENTIFIED

x **Bridges listed as Category 5** in the Caltrans Historic Highway Bridge Inventory are present within the APE. Appropriate pages from the Caltrans Historic Bridge Inventory are attached

- 24C0308: East Branch Laguna Creek Bridge at Bradshaw Road and Sheldon Road; built in 1940; widened in 1970; category 5 (Attachment C).

6. HPSR to District File

x Caltrans, in accordance with Section 106 Programmatic Agreement Stipulation IX.A, has determined a **Finding of No Historic Properties Affected** is appropriate for this undertaking.

7. HPSR to SHPO

x Not applicable.

8. HPSR to CSO

x Not applicable.

9. Findings for State-Owned Properties

x Not applicable; project does not involve Caltrans right-of-way or Caltrans-owned property.

10. CEQA Considerations

x Not applicable; Caltrans is not the lead agency under CEQA.

HISTORIC PROPERTY SURVEY REPORT

11. List of Attached Documentation

x Project Vicinity, Location, and APE Maps
- Attachment A (Figures 1, 2, 3)
- Attachment B: Native American consultation correspondence

x California Historic Bridge Inventory sheet
- Attachment C

x Archaeological Survey Report (ASR)
- Attachment D: Nancy E. Sikes, Ph.D., and Molly Valasik, M.A.; September 16, 2014. Peer reviewed by Erin Dwyer, PQS Associate Environmental Planner (Archaeology), September _____ 2014.

12. HPSR Preparation and Caltrans Approval

Prepared by: *(sign on line)*		September 16, 2014
Consultant / discipline:	*Nancy E. Sikes, Ph.D., Principal Archaeologist*	Date
Affiliation	*Cogstone Resource Management Inc.* *813 Harbor Boulevard, #321* *West Sacramento, CA 95691*	
Reviewed for approval by: *(sign on line)*		
District 3 Caltrans PQS discipline/level:	*Erin Dwyer, PQS Associate Environmental Planner, Archaeology*	Date
Approved by: *(sign on line)*		
District 3 EBC:	*Susan D. Bauer, Branch Chief* *Environmental Branch M1*	Date

ATTACHMENT A: MAP EXHIBITS

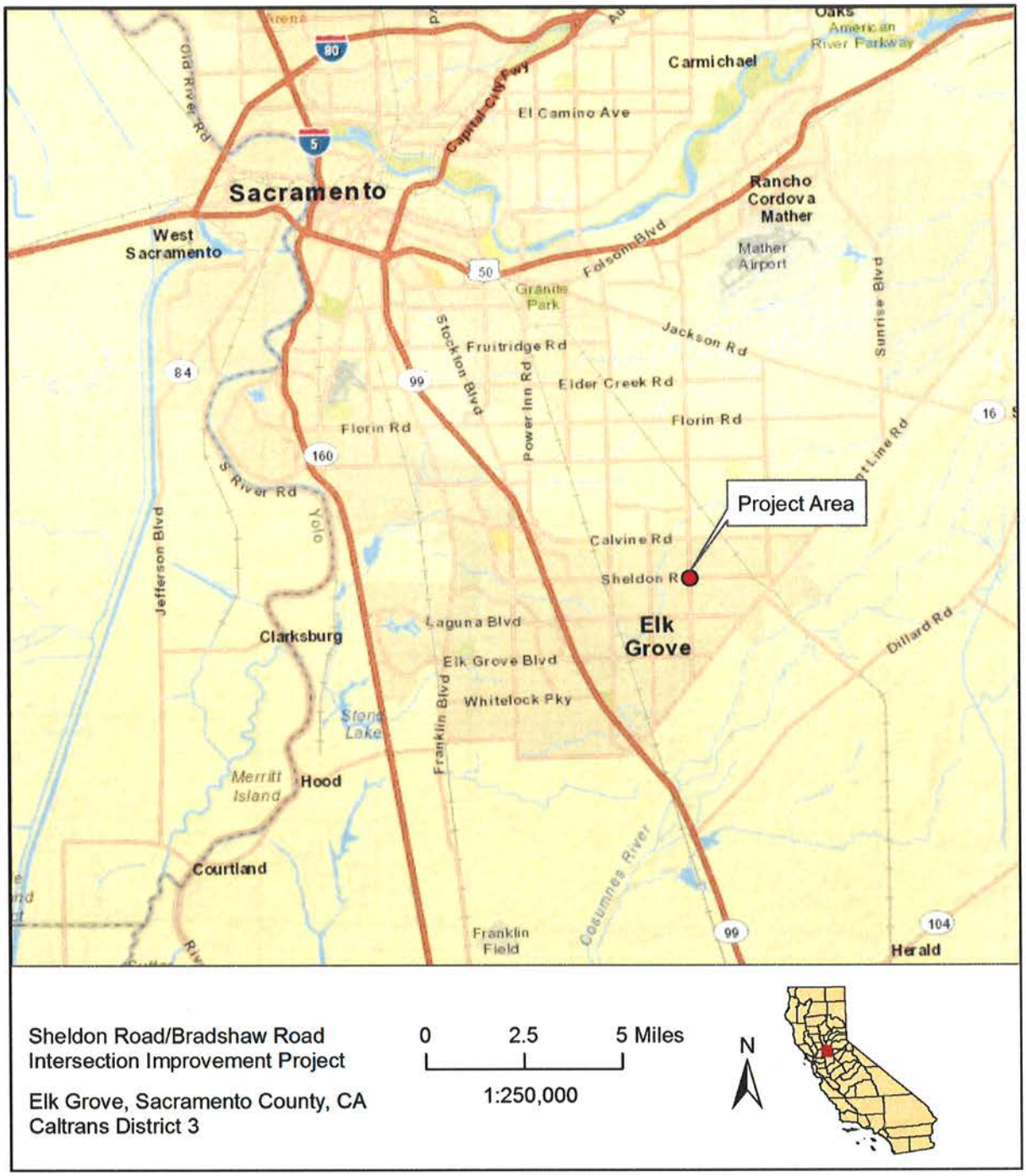


Figure 1. Project Vicinity Map

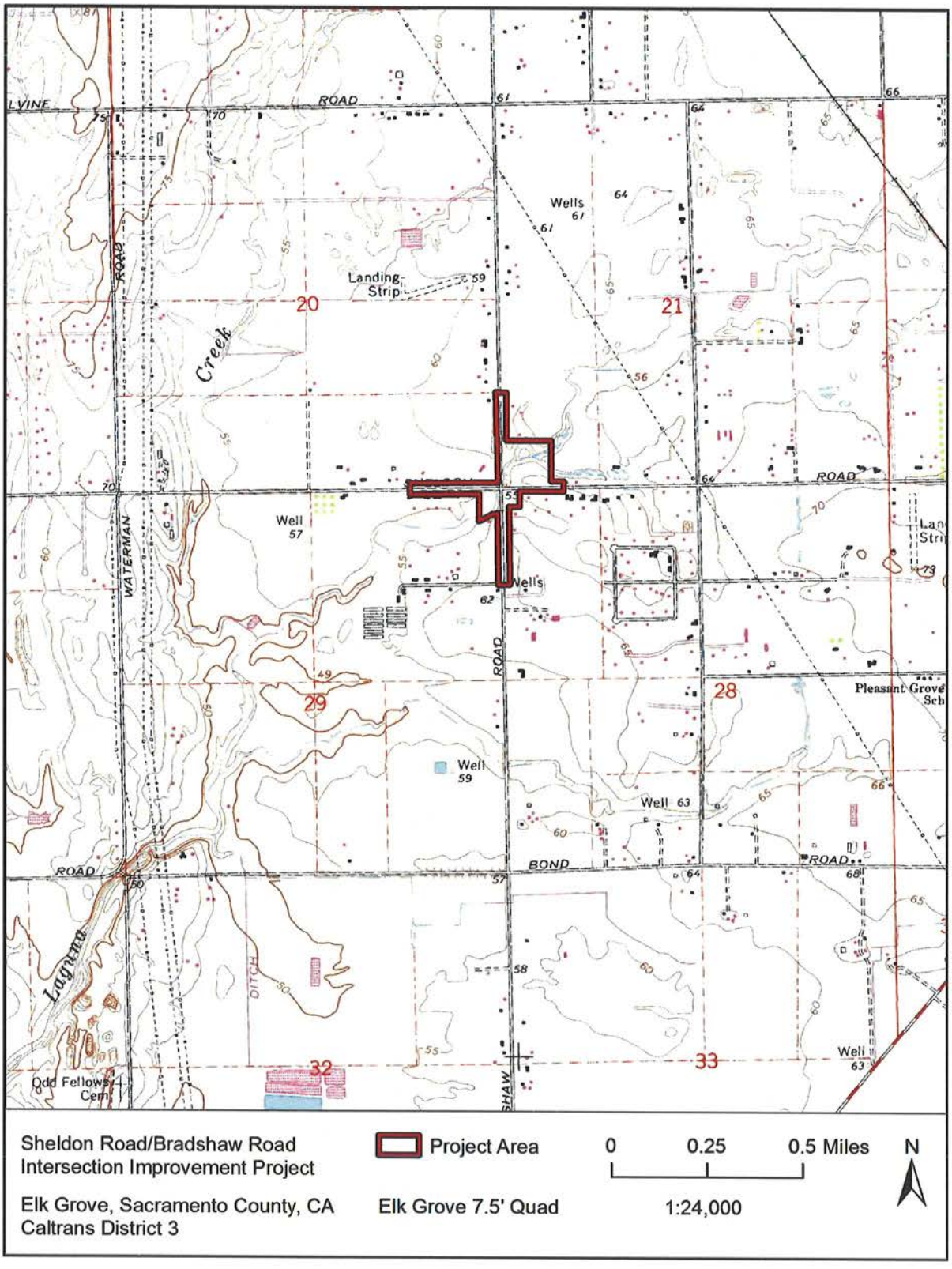


Figure 2. Project Location Map

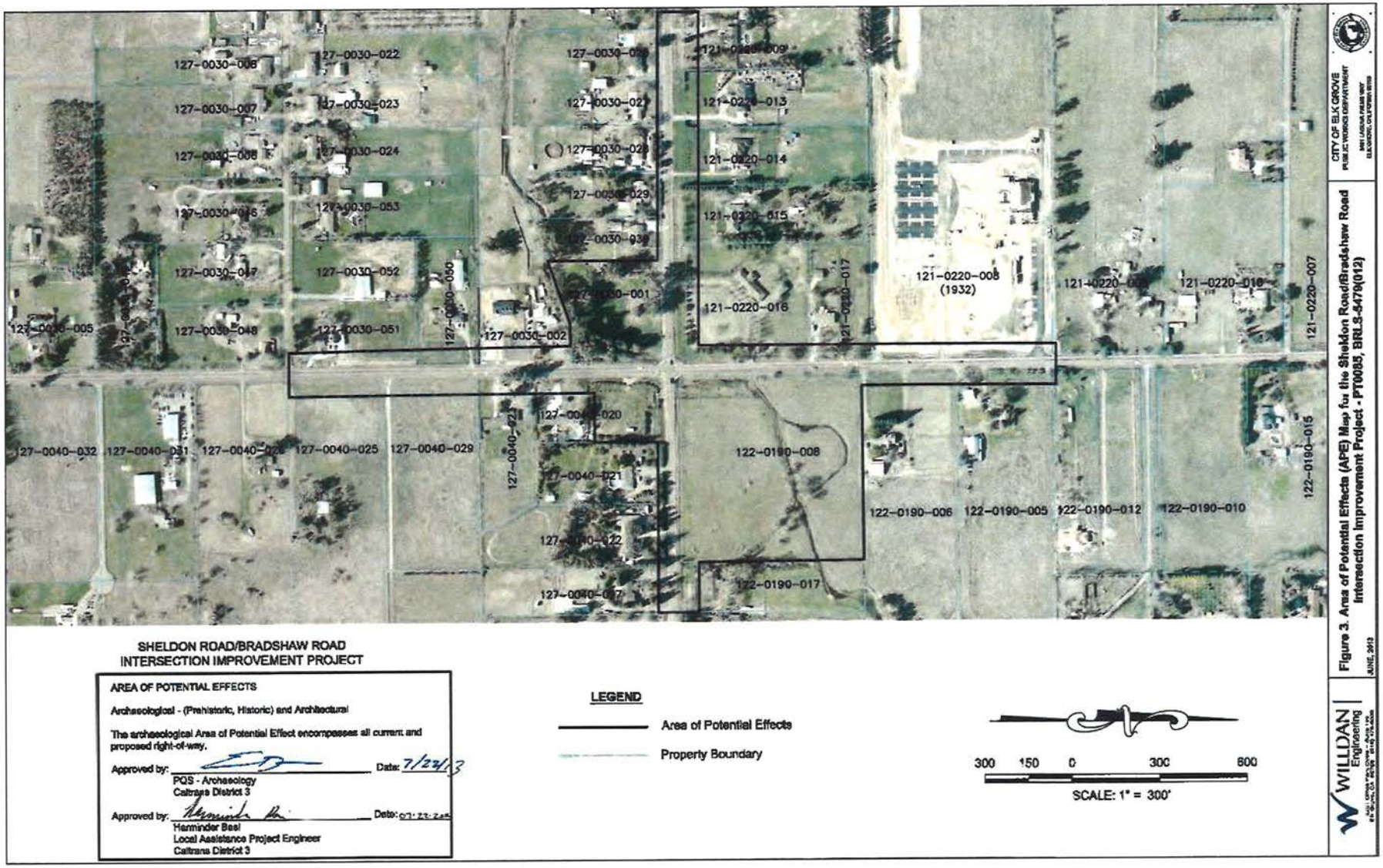


Figure 3. Project APE

ATTACHMENT B: NATIVE AMERICAN CONSULTATION

STATE OF CALIFORNIA — Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd.
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

August 6, 2013

Sherri Gust
1518 W. Taft Avenue
Orange, CA 92865

By Fax: 714-974-8303

Number of Pages 2

Re: Sheldon Road/Bradshaw Road Intersection Improvement project, Sacramento County

Dear Ms. Gust:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3713.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Sacramento County
August 8, 2013

Randy Yonemura
4305 - 39th Avenue Miwok
Sacramento , CA 95824
honortraditions@mail.com
(916) 421-1600
(916) 601-4069-cell

Wilton Rancheria
Steven Hutchason, Director of Cultural Preservation
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
shutchason@wiltonrancheria-nsn.gov
916-683-6000
916-683-6015

Buena Vista Rancheria
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 Me-Wuk / Miwok
Sacramento , CA 95811
rhonda@buenavistatribe.com
916 491-0011
916 491-0012 - fax

Ione Band of Miwok Indians
Yvonne Miller, Chairperson
PO Box 699 Miwok
Plymouth , CA 95669
(209) 274-6753
(209) 274-6636 Fax

Ione Band of Miwok Indians Cultural Committee
Anthony Burris, Chairperson
PO Box 699 Miwok
Plymouth , CA 95699
(209) 274-6753
(209) 274-6636 Fax

Wilton Rancheria
Andrew Franklin, Chairperson
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
916-683-6000
916-683-6015

This list is current only as of the date of this document.

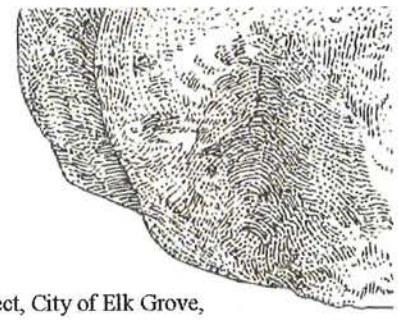
Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Sheldon Road/Bradshaw Road intersection improvement project, Sacramento County

SAMPLE CONSULTATION LETTER

cogstone

PALEONTOLOGY - ARCHAEOLOGY - HISTORY



August 7, 2013

Re: Sheldon Road/Bradshaw Road Intersection Improvement Project, City of Elk Grove, Sacramento County
Cogstone Project No. 2374-001

Dear Sir or Madam,

The City of Elk Grove is proposing to improve the Sheldon Road/Bradshaw Road intersection by replacing the existing 2-lane bridge spanning the East Branch of Laguna Creek with a 4-lane bridge and widening the intersection to its ultimate planned width of six lanes on Bradshaw Road and four lanes on Sheldon Road. A map of the project location and relevant information are attached.

The Native American Heritage Commission (NAHC) was contacted on August 1, 2013 to perform a search of the Sacred Lands file. The NAHC had no record of Native American sacred sites or heritage resources in the immediate vicinity of the project area. The NAHC also provided a list of Native American individuals/organizations that may have knowledge of cultural resources within the project area and recommended that we contact you, among others.

We would appreciate your providing any comments, issues and/or concerns relating to cultural resources within the project area. All information provided regarding cultural and historic sites or other areas of concern will be confidential. Please contact me by phone (714-974-8300), email (mvalasik@cogstone.com), or fax (714-974-8303). Your response within two weeks of receipt of this letter will be appreciated. Thank you for your assistance.

Sincerely,

Molly Valasik
Archaeologist

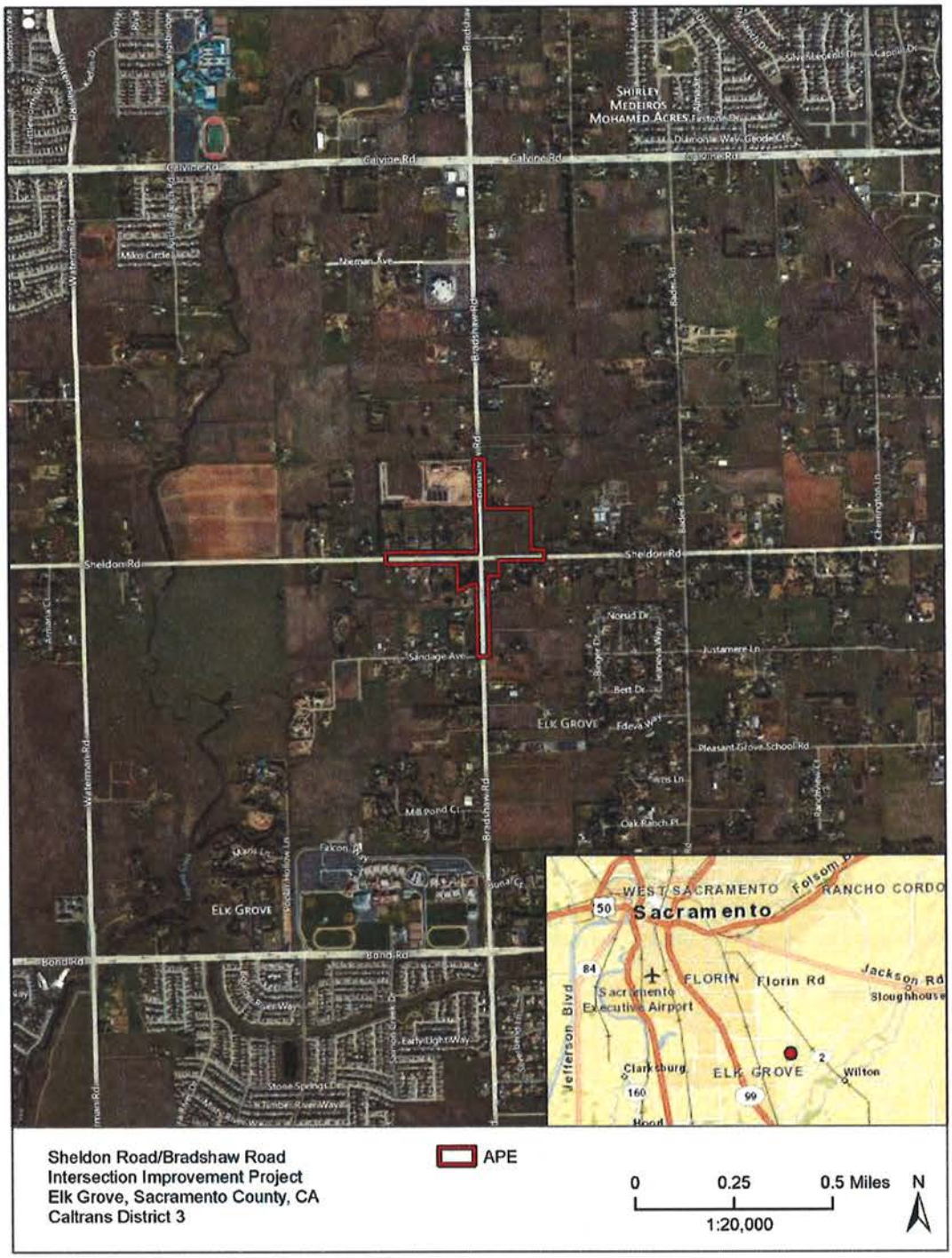
Attachment: Project Location Map

1518 West Taft Avenue
Orange, CA 92865
Office (714) 974-8300
Toll free (888) 497-0700
Fax (714) 974-8303

Branch Offices
West Sacramento - Morro Bay - Inland Empire - San Diego

cogstone.com

COGSTONE SACRED SITES INFO REQUEST	
DATE	August 7, 2013
COGSTONE PROJECT NUMBER	2539
COGSTONE PROJECT NAME:	Sheldon Road/Bradshaw Road Intersection Improvement Project
PROJECT DESCRIPTION:	Proposed improvements to the intersection
USGS 7.5' QUAD:	Elk Grove, 1970
COUNTY:	Sacramento
TOWNSHIP/SECTION:	T 7N R 6E Section 20, 21, 28, 29
ACRES:	26 acres



Sheldon Road/Bradshaw Road
Intersection Improvement Project
Elk Grove, Sacramento County, CA
Caltrans District 3

From: Molly Valasik
Sent: Thursday, August 29, 2013 4:24 PM
To: 'Steven Hutchason'
Subject: RE: Sheldon Road/Bradshaw Road Intersection Improvement Project

Thanks for your response Steven.

The record search results for this project indicate that there are no known archaeological resources within the Project area.

We recently conducted the survey and no cultural resources were observed within or immediately adjacent to the Project area. The Project area consists of the built Bradshaw Road and Sheldon Road with adjacent parcels used for livestock grazing, agriculture, and residences.

Molly Valasik

From: Steven Hutchason [mailto:shutchason@wiltonrancheria-nsn.gov]
Sent: Thursday, August 29, 2013 10:06 AM
To: Molly Valasik
Subject: RE: Sheldon Road/Bradshaw Road Intersection Improvement Project

Hello Molly,

Thank you for your letter dated August 7, 2013 on the above named project. Wilton Rancheria is comprised of Miwok people whose indigenous territory is in Sacramento and spans into Amador, El Dorado, San Joaquin and Yolo Counties. Wilton Rancheria is concerned about development within its indigenous territory that has potential to impact the lifeways and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects in your jurisdiction.

To determine whether or not the project could affect cultural resources that may be of importance to Wilton Rancheria. We would like to receive copies of any completed record searches. We would also like to request any archeological, cultural and environmental surveys and reports that have been, or will be, completed for the project. The information gathered will provide us with a better understanding of the project and cultural resources on site.

Thank you again for taking these matters into consideration,

Steven Hutchason

Sheldon Road/Bradshaw Road Intersection Improvement Project – Native American Tribes Consultation Log

Native American Group/Individual	Date(s) of 1st Contact Attempt	Date(s) of 2nd Contact Attempt	Date(s) of 3rd Contact Attempt	Date(s) of Replies Rec'd	Comments
Randy Yonemura	8/12/2013 Letter	08/28/2013 email	09/11/2013 phone		On August 12, 2013 a letter and map detailing the project were mailed to Mr. Yonemura. When no response was received, an email was sent and a phone call was placed with a message left. No response has been received.
Buena Vista Rancheria, Rhonda Morningstar Pope	8/12/2013 Letter	08/28/2013 email	09/11/2013 phone & email		On August 12, 2013 a letter and map detailing the project were mailed to Ms. Pope. When no response was received, an email was sent and a phone call was placed. The Buena Vista Rancheria receptionist provided the email of Roselynn Lwenya, the environmental manager. An email was then sent. No response has been received.
Ione Band of Miwok Indians, Yvonne Miller	8/12/2013 Letter	08/28/2013 phone	09/11/2013 phone		On August 12, 2013 a letter and map detailing the project were mailed to Ms. Miller. When no response was received, two phone calls were placed. No response has been received.
Ione Band of Miwok Indians, Cultural Committee, Anthony Burris	8/12/2013 Letter	08/28/2013 phone	09/11/2013 phone		On August 12, 2013 a letter and map detailing the project were mailed to Mr. Burris. When no response was received, two phone calls were placed. No response has been received.
Wilton Rancheria, Andrew Franklin	8/12/2013 Letter	08/28/2013 phone	09/11/2013 email		On August 12, 2013 a letter and map detailing the project were mailed to Mr. Franklin. When no response was received a phone call was placed. Mr. Hutchason of the Wilton Rancheria responded by email on 8/29/2013 requesting more information. Cogstone responded by email on 8/29/2013 with a summary of the record search results and field survey. No response was received. On 9/11/2013 Cogstone emailed Mr. Hutchason to ask if the Wilton Rancheria had any comments regarding the project. No response has been received
Wilton Rancheria, Steven Hutchason	8/12/2013 Letter	08/28/2013 email	09/11/2013 email	8/29/2013 email	On August 12, 2013 a letter and map detailing the project were mailed to Mr. Hutchason. When no response was received an email was sent. Mr. Hutchason responded by email on 8/29/2013 requesting more information. Cogstone responded by email on 8/29/2013 with a summary of the record search results and field survey. No response was received. On 9/11/2013 Cogstone emailed Mr. Hutchason to ask if the Wilton Rancheria had any comments regarding the project. No response has been received

ATTACHMENT C. HISTORIC BRIDGE INVENTORY

Structure Maintenance & Investigations

SM&I

January 2013

Historical Significance - Local Agency Bridges

District 03

Sacramento County

Bridge Number	Bridge Name	Location	Historical Significance	Year Built	Year Wid/Ext
24C0264	LINDA CREEK	.3 MI N GOLDEN GATE AV	5. Bridge not eligible for NRHP	1986	
24C0265	RIO LINDA CREEK	0.1 MI N OF E ST	5. Bridge not eligible for NRHP	1986	
24C0266	RIO LINDA CREEK	E ST IN RIO LINDA	5. Bridge not eligible for NRHP	1986	
24C0267	ARCADE CREEK	Near American River Cllge	5. Bridge not eligible for NRHP	1999	
24C0268	GOLD CREEK	0.1 MI W AMER RIVER CYN	2. Bridge is eligible for NRHP	1915	
24C0269	RILEY RAVINE	WEST OF RILEY STREET	5. Bridge not eligible for NRHP	1916	
24C0270	WILLOW CREEK	0.1 MI N BLUE RAVINE RD	5. Bridge not eligible for NRHP	1986	
24C0271	N FORK BADGER CREEK	1.1 MI N/O ARNO RD	5. Bridge not eligible for NRHP	1986	
24C0272	BADGER CREEK	0.2 MI NORTH OF ARNO RD	5. Bridge not eligible for NRHP	1987	
24C0275	PASTURE CREEK	0.1 MI W/O TAVERNOR RD	5. Bridge not eligible for NRHP	1945	
24C0276	HADSELVILLE CREEK	0.1 MI N/O SR 104	5. Bridge not eligible for NRHP	1960	1971
24C0277	BAT CREEK	0.2 MI E/O DILLARD	5. Bridge not eligible for NRHP	1935	2009
24C0278	LAGUNA CREEK	1.3 MI N/O CALVINE	5. Bridge not eligible for NRHP	1982	
24C0284	FLORIN CREEK	0.2 MI W STOCKTON BLVD	5. Bridge not eligible for NRHP	1973	
24C0285	LAGUNA CREEK	EAST WATERMAN RD	5. Bridge not eligible for NRHP	1981	2005
24C0286	LAGUNA CREEK	SOUTH OF BOND RD	5. Bridge not eligible for NRHP	1981	2005
24C0287	HIGHLINE CANAL	.45 MI W/O NORTHGATE BLVD	5. Bridge not eligible for NRHP	1970	
24C0288	HIGHLINE CANAL	.05 mi e/o Montview Way	5. Bridge not eligible for NRHP	1970	
24C0289	SOUTH SACRAMENTO DRAIN	100' E/O RTE 5	5. Bridge not eligible for NRHP	1970	
24C0291	FLORIN CREEK	0.2 MI E FRANKLIN BL	5. Bridge not eligible for NRHP	1970	
24C0292	MAIN CANAL	.7 MI W/O FLORIN RD	5. Bridge not eligible for NRHP	1979	
24C0293	ELDER CREEK	0.1 MI N OF MACK ROAD	5. Bridge not eligible for NRHP	1966	
24C0294	UNION HOUSE CREEK	0.1 MI W BRUCEVILLE RD	5. Bridge not eligible for NRHP	1975	
24C0295	EXECUTIVE DRAIN	FREEPORT BLVD	5. Bridge not eligible for NRHP	1940	
24C0296	MORRISON CREEK	0.3 MI N ELDER CREEK RD	5. Bridge not eligible for NRHP	1975	
24C0299	STRAWBERRY CREEK	Just N of Cosumnes Blvd	5. Bridge not eligible for NRHP	1975	1993
24C0300	SUTTERVILLE ROAD OH	AT 24TH ST	5. Bridge not eligible for NRHP	1955	
24C0302	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1955	
24C0303	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1955	
24C0304	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1965	
24C0305	ANDERSON DRAIN	0.1 MI S OF FLORIN RD	5. Bridge not eligible for NRHP	1955	
24C0306	LAGUNA CREEK	0.4 MI N OF SR 104	5. Bridge not eligible for NRHP	1940	
24C0307	LAGUNA CREEK	3.5 MI N OF SR 104	5. Bridge not eligible for NRHP	1940	1972
24C0308	EAST BRANCH LAGUNA CREEK	BRADSHAW RD & SHELDON RD	5. Bridge not eligible for NRHP	1940	1970
24C0309	BROWNS CREEK	1.2 MI N OF SR 104	5. Bridge not eligible for NRHP	1950	1970
24C0310	RIO LINDA CREEK	AT C Street	5. Bridge not eligible for NRHP	2002	
24C0311	SOUTH CHANNEL DRY CREEK	0.25 MI N ELKHORN BL	5. Bridge not eligible for NRHP	1965	
24C0312	NORTH CHANNEL DRY CREEK	0.6 MI N ELKHORN BLVD	5. Bridge not eligible for NRHP	1966	
24C0313	RIO LINDA CREEK	1/4 MI E OF 16TH ST	5. Bridge not eligible for NRHP	1986	
24C0314	NATOMAS EAST TRIBUTARY NO 1	0.4 MI N RIO LINDA BLVD	5. Bridge not eligible for NRHP	1984	
24C0315	NORTH CHANNEL DRY CREEK	AT 16TH ST	5. Bridge not eligible for NRHP	1959	
24C0316	SOUTH CHANNEL DRY CREEK	18TH STREET	5. Bridge not eligible for NRHP	1959	
24C0318	CRIPPLE CREEK	0.6 MI N AUBURN BL	5. Bridge not eligible for NRHP	1960	

APPENDIX E: INITIAL SITE ASSESSMENT

Acacia CE
Consultants & Engineers

INITIAL SITE ASSESSMENT REPORT

Sheldon Road/Bradshaw Road Intersection Improvement Project Elk Grove, California

Submitted to:

Ms. Kelly Jackson
PMC
2729 Prospect Park Drive
Suite 220
Rancho Cordova, CA 95670

Prepared by:

Acacia Consultants & Engineers, Inc.

August 24, 2015

Project Number: AC188.02.02

3025 Venture Road, Placerville, CA 95667 tel 530.748.1336 fax 530.621.4837 www.acaciace.com

Acacia CE
Consultants & Engineers

Ms. Kelly Jackson
PMC
2729 Prospect Park Drive, Suite 220
Rancho Cordova, CA 95670

Subject: Sheldon Road/Bradshaw Road
Intersection Improvements
Elk Grove, California

INITIAL SITE ASSESSMENT

Dear Ms. Jackson:

Acacia Consultants & Engineers, Inc. (ACE) is pleased to present our Initial Site Assessment of the Sheldon Road and Bradshaw Road Intersection Improvement project, located in Elk Grove, California (Property). The attached report includes a description of the site assessment activities, along with ACE findings, opinions, and conclusions regarding the Property.

ACE has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed an initial site assessment in general conformance with California Department of Transportation guidelines.

We are pleased to serve you on this project. If you have any questions regarding the contents of our report, please contact us at (530) 748-1336 ext. 40.

Sincerely,
Acacia Consultants & Engineers, Inc.

Katie Farrell
President

William Kenney, PE
Principal Engineer

TABLE OF CONTENTS

Letter of Transmittal

TABLE OF CONTENTS (Continued)

REFERENCES

EXECUTIVE SUMMARY

Acacia Consultants & Engineers, Inc. (ACE) conducted an Initial Site Assessment (ISA) for the proposed improvements to the Sheldon Road and Bradshaw Road intersection in Elk Grove, California. The proposed improvements extend approximately ¼-mile in each direction along both Sheldon Road and Bradshaw Road and include the bridge bisecting the intersection.

The study included a review of local, state and federal environmental record sources, standard historical sources, aerial photographs, physical setting sources, and a reconnaissance of the Property.

The site reconnaissance and records review did not find documentation or physical evidence of soil or groundwater impairments associated with the use of the Property. A review of regulatory databases maintained by county, state, and federal agencies found no documentation of hazardous materials violations or discharge on the Property.

Based on the findings of this assessment, four recognized Environmental Conditions (RECs) or historical RECs were identified for the Property as follows:

- Given the age of the roadways within the Property, there exists the potential for elevated concentrations of aerially deposited lead along the unpaved edges of the roadways. At this point, the project is not fully designed so it is not possible to quantify the potential for impact. We recommend that an aerially deposited lead survey be completed during the final design process.
- The existing bridge located within the Property was constructed at a time when asbestos containing materials may have been utilized and may be found in areas including but not limited to bridge joints and concrete piping. A pre-demolition lead and asbestos survey should be completed during the final design. Lead and asbestos containing materials found during this process should be disposed of in a manner approved by Cal-OSHA.
- The yellow and white thermoplastic pavement markings present at the proposed project study area may contain chromium and lead-based paint. Prior to construction, a hazardous materials compliance plan should be prepared by a Certified Industrial Hygienist to address the metals content of the yellow and white roadway stripping found within the project area. (Perform this effort during final design per City of Elk Grove comments). This plan should be prepared in accordance with Caltrans Guidance for SSP 14-11.07 – Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue EPA test method 6010B.
- The area around the Property has historically been utilized for agricultural production and may contain concentrations of persistent pesticides. Sediments within the roadside drainage ditch as well as the creek bottom crossing the Property may contain concentrations of persistent pesticides. An additional assessment should be completed within these areas prior to construction so as to determine if there will be any specialized materials handling requirements. (Perform this effort during final design per City of Elk Grove comments).

Based on the Results of this study we recommend the following;

- A Kinder Morgan petroleum pipeline is located within the western shoulder of Bradshaw Road. It is unknown if this section of pipeline has had any history of leaks or investigations. We recommend that consultation be completed with Kinder Morgan prior to the completion of the project design. This consultation should be completed during the final design process and should include discussion as to the potential need to characterize soils within the proposed project footprint as they relate to the petroleum pipeline. Vapors from this pipeline are also possible due to leakage and should be consulted with owner Kinder Morgan petroleum pipeline.

- Several pole mounted transformers were observed throughout the Property. SMUD needs to confirm if these poles with transformer boxes contain PCB cooling oils. If SMUD does not confirm we recommend that further assessments be conducted. These assessments shall determine if the transformers contain PCB's and if the there is no record of spills from these units. If PCB's are identified, the maintenance and/or disposal of the transformers should be subject to the regulations of the Toxic Substances Control Act. The responsibility for the process would be that of the owner of the equipment. In this case, the likely owner is the Sacramento Municipal Utility District.

ACE conducted an initial site assessment (ISA) including a tier 1 Vapor encroachment Screening for the Property in general conformance with the scope and limitations of ASTM E 1527-13 *Standard Practice for Environmental Site Assessments* and USEPA *Standards and Practices for All Appropriate Inquires,* 40 CFR Part 312. The Tier 1 Vapor Encroachment Screening included within this ISA was completed in general conformance with ATM E2600-10, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.*

ACE has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. We declare that, to the best of our professional knowledge and belief, the responsible charge for this study meets the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312 and ASTM 1527-13.

1.0 INTRODUCTION

ACE conducted this Initial Site Assessment (ISA) for the Property that includes the proposed improvements to the Sheldon Road and Bradshaw Road intersection in Elk Grove, California (Figure 1.0). The proposed improvements extend both directions on both Sheldon Road and Bradshaw Road approximately ¼-mile in each direction and include the existing bridge bisecting the intersection.

1.1 PURPOSE OF INITIAL SITE ASSESSMENT

This assessment was performed at the request of PMC for the purpose of supporting the environmental permitting of the proposed transportation improvement project. The objective of this ISA is to identify recognized environmental conditions associated with the Property. As defined in the ASTM Standard Practice E 1527-13, a REC is "*the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment 2) under conditions indicative of release to the environment under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions".*

The Tier 1 VES included within this ISA was completed in general conformance with ASTM E2600-10, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions.* The VES is performed utilizing existing and historic data to screen the property for the potential for sol vapor contamination and associated indoor air contaminant risks from historic site use and potential impacts from nearby contaminated sites.

1.2 DETAILED SCOPE OF SERVICES

The scope of services performed included the following:

- A review of publicly available and practically reviewable standard local, state, tribal, and federal environmental record sources.
- A review of publicly available and practically reviewable standard historical sources, aerial photographs, fire insurance maps and physical setting sources.
- A reconnaissance of the Property to review site use and current conditions. The reconnaissance was conducted to check for the storage, use, production or disposal of hazardous or potentially hazardous materials.

- Interviews with owners/occupants and public sector officials.
- Preparation of this report with our findings, opinions, and conclusions.

1.3 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

The professional staff at ACE strives to perform its services in a proper and professional manner with reasonable care and competence. The recommendations and conclusions presented in this report were based on the findings of our study, which were developed solely from the contracted services. The findings of the report are based in part on contracted database research, out-of-house reports and personal communications. The opinions formed by ACE are based on the assumed accuracy of the relied upon data in conjunction with our relevant professional experience related to such data interpretation. ACE assumes no liability for the validity of the materials relied upon in the preparation of this report.

This document must not be subject to unauthorized reuse; that is, reuse without written authorization of ACE. Such authorization is essential because it requires ACE to evaluate the document's applicability given new circumstances, not the least of which is passage of time. The findings from an initial site assessment are valid for one year after completion of the report. Updates of portions of the assessment may be necessary after a period of 180 days after completion.

This initial site assessment is not intended to represent a complete soil or groundwater characterization, nor define the depth or extent of soil or groundwater contamination. It is intended to provide an evaluation of potential environmental concerns associated with the use of the Property. A more extensive assessment that would include subsurface exploration with laboratory testing of soil and groundwater samples could provide more definitive information concerning site-specific conditions. If additional assessment activities are considered for the Property and if other entities are retained to provide such services, ACE cannot be held responsible for any and all claims arising from or resulting from the performance of such services by other persons or entities. ACE can also not be held responsible from any and all claims arising or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

1.4 SPECIAL TERMS AND CONDITIONS

ACE has prepared this report for the exclusive use of our client, PMC, the project proponent, and the lead agency for environmental permitting purposes. It is recognized and agreed that ACE has assumed responsibility only for undertaking the study for the client. The responsibility for disclosures or reports to a third party and for remedial or mitigative action shall be solely that of the Client. The assessment did not include an asbestos survey, lead survey, a radon evaluation, or a mold survey.

This report is based upon field and other conditions discovered at the time of preparation of ACE's assessment. Visual observations referenced in this report are intended only to represent conditions at the time of the reconnaissance. ACE would not be aware of site contamination, such as dumping and/or accidental spillage that occurred subsequent to the reconnaissance conducted by ACE personnel

2.0 PROPERTY INFORMATION

2.1 SITE LOCATION

The Property includes the proposed improvements to the Sheldon Road and Bradshaw Road intersection in Elk Grove, California.

2.2 SITE AND VICINITY CHARACTERISTICS

No buildings are located within the Property. The Property Latitude 38:4382°N Longitude 121.3345°W Sheldon Road and Bradshaw Road intersection a bridge crossing the intersection diagonally, and roadway frontage with associated drainage ditches (Figure 2.0).

According to published topographic maps, the Property ranges in elevation from approximately 50 feet above mean sea level (msl) in the north to approximately 65 feet above (msl) to the south (Figure 3.0).

According to MAP MF-1790 Geologic Map of the late Cenozoic Deposits of the Sacramento Valley, Qrl – Riverbank Formation Lower Member Northern Sierra Foothills. Helley & Harwood.

Geocheck – Physical Setting Source Summary of the Environmental Resources Data report (Appendix E) indicated eight United States Geological Survey (USGS) wells located within one mile of the Property. None of these wells reported a depth to water. The site-specific depth to groundwater and direction of groundwater flow was not determined as part of this assessment. Fluctuations in groundwater levels may occur seasonally and over a period of years due to variations in precipitation, temperature, irrigation and other factors.

2.3 CURRENT USE OF PROPERTY/DESCRIPTION OF SITE IMPROVEMENTS

No buildings are located within the Property. The Property is generally occupied by the existing Sheldon Road and Bradshaw Road intersection a bridge crossing the intersection diagonally, and roadway frontage with associated drainage ditches.

2.4 CURRENT USE OF ADJOINING PROPERTIES

The adjoining properties are generally occupied by rural single family residences, undeveloped land, and one church.

3.0 RECORDS REVIEW

3.1 PREVIOUS ENVIRONMENTAL REPORTS

We were provided with an Initial Site Assessment report for the Bradshaw Road/Sheldon Road Intersection Improvements. The Report was prepared by Kleinfelder, Inc. dated June 9, 2005 (Kleinfelder Project Number 56139-001). The report identified the following seven areas of concern that may require additional evaluation:

- The potential for aerially deposited lead from historic gasoline additives to be found within the roadway margins and sediment from the unlined drainage ditches and creek within the proposed project footprint.
- The pavement markings and striping may contain elevated concentrations of lead and chromium.
- The area around the Property has historically been utilized for agricultural production and may contain concentrations of persistent pesticides.
- A Kinder Morgan petroleum pipeline is located within the western shoulder of Bradshaw Road. It is unknown if this section of pipeline has had any history of leaks or investigations.
- An area of stained pavement was observed within the Property.
- Several pole mounted transformers were observed throughout the Property.
- Multiple domestic water wells are known to be located near the Property.

3.2 PROPERTY RECORDS

3.2.1 Environmental Liens

We requested a Preliminary Title Report including an environmental lien search. At the time of completion of this report, ACE has not received a Preliminary Title Report for the Property. In Lieu of the Title Report ACE used the detailed project description and schematic drawing provided by PMC and

The City of Elk Grove. The Project Description provided to ACE located in Appendix G states, "Additional right of way will be required for the proposed improvements, generally in the northeast and northwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel. Relocation of existing utilities may require additional easements rights."

3.2.2 Title Report/Ownership

The Title Report lists recorded land title detail, ownership fees, leases, land contracts, easements, liens, deficiencies, and other encumbrances attached to or recorded against a subject property. Laws and regulations pertaining to land trusts vary from state to state and the detail of information presented in a Title Report can vary greatly by jurisdiction. As a result, ACE utilizes a Title Report, when provided to us, as a supplement to other historical record sources. At the time of completion of this report, ACE has not received a Preliminary Title Report for the Property. In lieu of the Title Report ACE was provided a detailed project description and schematic drawing from PMC and The City of Elk Grove. The Project Description provided to ACE located in Appendix G states, "Additional right of way will be required for the proposed improvements, generally in the northeast and northwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel. Relocation of existing utilities may require additional easements rights."

3.3 HISTORICAL RECORD SOURCES

The purpose of the historical record review is to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to recognized environmental conditions on the Property.

3.3.1 Historical Topographic Maps

Historical USGS topographic maps were reviewed to determine if discernible changes in topography or improvements pertaining to the Property had been recorded. The following maps were provided to ACE through an EDR Historical Topographic Map Report, presented in Appendix A.

Quad	Year	Series	Scale
Lodi	1894	30'	1:125,000
Elk Grove	1909/1952/1968/1975/1979	7.5'	Various
Galt	1947	15'	1:50,000

We outline below the features associated within the Property found on the topographic maps listed above:

1894 through 1909 Topographic Maps: 1894 Central Pacific Rail exists at the East of the Quad. In 1909 Reese School is located to the North of the intersection. In 1909 Pleasant Grove School is located South and East of the Quad. Surrounding property is occupied by roads generally consistent in location and alignment with the existing Sheldon Road and Bradshaw Road.

1947 through 1952 Topographic Maps: A Pacific Gas and Electric overhead electrical transmission line is mapped crossing the vicinity of the Property from northwest to southeast. In 1947 map the Cal Northern Pacific Traction Railway line runs through the North to North East of the Quad.

1968 through 1979 Topographic Maps: Numerous small structures are now mapped within the immediate vicinity of the Property along with multiple water wells and other surface streets. These features are generally consistent with the existing rural residences currently found in the immediate vicinity of the Property. On the 1968 Map a two landing strips exist. One North East of Quad and a second landing strip exists in the East portion of the Quad.

3.3.2 Aerial Photographs

The following aerial photographs, provided by EDR, were reviewed for information regarding past conditions and land use at the Property and in the immediate vicinity. These photographs are presented in Appendix B.

Source	Year	Scale
Lava	1937	1:800
USGS	1947	1:800
Cartwright	1957	1:800
Cartwright	1964	1:800
Cartwright	1971 x 2	1:800
Cartwright	1971-Multiple	1:1,000
USGS	1987	1:800
USGS	1993	1:800
USGS/DOQQ	1998 x 2	1:500
USDA/NAIP	2005	1:500
USDA/NAIP	2006 x 2	1:500
USDA/NAIP	2009 x 2	1:500
USDA/NAIP	2010 x 2	1:500
USDA/NAIP	2012 x 2	1:500

We outline below the features associated within the Property found on the aerial photographs listed above:

1937-1961 Photographs – Paved roadways are visible in the approximate present day alignment of Sheldon Road and Bradshaw Road. Sporadic small structures are visible within the vicinity of the Property generally consistent with rural residences. Ground markings within the undeveloped area surrounding the Property consist largely of typical harvest patterns from dry farming activities.

1971-2010 Photographs – The Property remains relatively unchanged. Large numbers of new small structures consistent with rural residences and associated out buildings are visible throughout the timeframe covered by these aerial photographs.

2012 Photograph - The Property remains relatively unchanged with the exception of a New Church fully built on Bradshaw road about a ¼ mile north of the intersection.

3.3.3 Fire Insurance Maps

EDR prepared a Sanborn Fire insurance map search for the Property and surrounding properties. EDR reported that no maps were available for the Property and surrounding properties.

3.3.4 City Directory

EDR prepared a City Directory Abstract for the Property and surrounding properties. In preparing the abstract, EDR reviewed a variety of business directories including city, cross reference, and telephone directories. The area surrounding the Property appears to have been historically listed for generally residential and commercial uses. A copy of the City Directory report can be found in Appendix D of this report.

3.3.6 Government Agencies

The following agencies were contacted pertaining to possible past development and/or activity at the Property.

- California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)

- California Regional Water Quality Control Board
- California Department of Toxic Substances Control

We reviewed the State of California, Department of Conservation, Division of Oil, Gas, and Geothermal Resources web site, databases, and maps in an effort to determine if there have been oil/gas production or test wells drilled within the Property boundaries or the immediate vicinity. The database identified no wells mapped within the Property and the immediate vicinity.

We reviewed the California Regional Water Quality Control Board Geotracker database for site investigation or cleanup locations that may impact the Property. No sites are mapped within one mile of the Property.

We reviewed the California Department of Toxics Substance Control Envirostor database for site investigation or cleanup locations that may impact the Property. No sites are mapped within one mile of the Property.

3.4 ENVIRONMENTAL RECORD SOURCES

EDR performed a search of federal, tribal, state, and local databases regarding the Property and nearby properties. Details regarding the databases searched by EDR are provided in Appendix A. A list of the facilities documented by EDR within the approximate minimum search distance of the Property is provided below:

3.4.1 Federal ASTM Standard/Supplemental Sources

3.4.1.1 Subject Property

The Property is not listed on the Federal ASTM Standard or supplemental sources.

3.4.1.2 Other Properties

No other facilities were listed within the appropriate ASTM search distances of the Property on Federal ASTM Standard or supplemental sources.

3.4.2 State ASTM Standard/Supplemental Sources

3.4.2.1 Subject Property

The Property is not listed on the State ASTM Standard or supplemental sources.

3.4.2.2 Other Properties

The Pleasant Grove High School and Katherine Albiani Middle School sites are listed approximately 1-mile south of the Property as having had a Preliminary Endangerment Assessment completed. This Preliminary Endangerment Assessment was completed due to historic agricultural activities and has been completed and certified.

3.4.3 Local ASTM Supplemental Sources

3.4.3.1 Subject Property

The Property is not listed on Local ASTM supplemental databases.

3.4.3.2 Other Properties

Cornflower Farms is listed approximately ¼-mile east of the Property as having stored motor oil and other lubricants as part of the routine maintenance of the on-site farm equipment. No storage tanks or violations were listed.

The properties listed within the EDR database search have either achieved regulatory closure or do not have the potential to impact the proposed activities within the Property. Properties that are on the "Orphan Summary" list appear to be located beyond the ASTM recommended radius search criteria.

4.0 SITE RECONNAISSANCE

4.1 METHODOLOGY

ACE conducted a visual reconnaissance of the Property in April 2015. The Property was viewed for hazardous materials storage, superficial staining or discoloration, debris, stressed vegetation, or other conditions that may be indicative of potential sources of soil or groundwater contamination. The site was also checked for evidence of fill/ventilation pipes, ground subsidence, or other evidence of existing or preexisting underground storage tanks.

4.2 GENERAL SITE SETTING

The Property is generally vacant of structures. The Property is generally occupied by the existing Sheldon Road and Bradshaw Road intersection a bridge crossing the intersection diagonally, and roadway frontage with associated drainage ditches. Signage for a Kinder Morgan petroleum pipeline was observed along the western side of Bradshaw Road. Photographs taken during the site reconnaissance presented in Figures 4.0 - 4.17.

4.3 EXTERIOR OBSERVATIONS

Structures. No buildings were observed within the Property at the time of our reconnaissance.

Hazardous Substances and Petroleum Products in Connection with Identified Uses. No hazardous substances or petroleum products were observed within the Property during the site reconnaissance.

Storage Tanks. No above-ground storage tanks or evidence of existing underground storage tanks were observed during the site reconnaissance.

Odors. No odors indicative of hazardous materials or petroleum material impacts were noted at the time of the reconnaissance.

Pools of Potentially Hazardous Liquid. No pools of potentially hazardous liquid were observed within the Property at the time of our reconnaissance.

Drums. No drums were observed on the Property at the time of the reconnaissance.

Hazardous Substance and Petroleum Product Containers. No hazardous substance or petroleum product containers were observed on the Property at the time of our reconnaissance.

Polychlorinated Biphenyls (PCBs). Multiple pole mounted power lines with transformers are located throughout the Property. These lines and transformers provide power to the adjacent residences.

Pits, Ponds and Lagoons. No pits, ponds or lagoons were observed within the Property at the time of our reconnaissance.

Stained Soil/Pavement. No stained soil or pavement was observed within the Property at the time of our reconnaissance.

Stressed Vegetation. No signs of stressed vegetation were observed on the Property at the time of our reconnaissance.

Solid Waste/Debris. No disposal of solid waste was observed at the subject property.

Wastewater. No wastewater conveyance, storage, or treatment facilities were observed at the Property during the reconnaissance.

Wells. No wells were found within the Property during our reconnaissance.

Septic Systems. No septic systems were found within the Property during our reconnaissance.

4.4 INTERIOR OBSERVATIONS

With the exception of the bridge structure crossing the intersection, no other structures were observed within the Property at the time of completion of this report.

4.5 ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT

An asbestos and lead-based paint survey was not conducted as part of this assessment. The existing bridge/viaduct located within the Property was constructed at a time when asbestos containing materials may have been utilized during the construction and may be found in areas including but not limited to bridge joints and concrete piping. A pre-demolition lead and asbestos survey should be completed during the final design. Lead and asbestos containing materials found during this process should be disposed of in a manner approved by Cal-OSHA.

4.6 INDOOR AIR QUALITY

An evaluation of indoor air quality, mold, or radon was not included as part of this assessment. The California Department of Health Services has conducted studies of radon risks throughout the state, sorted by zip code. Results of the studies indicate that thirteen tests were conducted within the Property zip code, with one test exceeding the current EPA action level of 4 picocuries per liter [pCi/L]1). The average test result within the zip code was listed as 3.0 pCi/L.

5.0 INTERVIEWS

We forwarded copies of environmental questionnaires for both the end-user client and the current owner/key site manager at the inception of this project.

6.0 FINDINGS

The reconnaissance and records research did not find documentation or physical evidence of soil or groundwater impairments associated with the current or past use of the Property. A review of regulatory databases maintained by county, state and federal agencies found no documentation of hazardous materials violations or discharge on the Property. We outline below the findings that have the potential to impact the proposed project within the Property.

- Given the age of the roadways within the Property, there exists the potential for elevated concentrations of aerially deposited lead along the unpaved edges of the roadways.
- The existing bridge located within the Property was constructed at a time when asbestos containing materials may have been utilized during the construction and may be found in areas including but not limited to bridge joints and concrete piping.
- The yellow and white thermoplastic pavement markings present at the proposed project study area may contain chromium and lead-based paint.
- The area around the Property has historically been utilized for agricultural production and may contain concentrations of persistent pesticides. Sediments within the roadside drainage ditch as well as the creek bottom crossing the Property may contain concentrations of persistent pesticides.
- A Kinder Morgan petroleum pipeline is located within the western shoulder of Bradshaw Road. It is unknown if this section of pipeline has had any history of leaks or investigations.
- Several pole mounted transformers were observed throughout the Property. These are of an age that would indicate that PCB cooling oils are likely to be found in use.
- Multiple domestic water wells are known to be located near the Property.

7.0 OPINIONS AND DATA GAPS

It is our opinion that the findings of this study are based on a sufficient level of information obtained during our contracted scope of services to render a conclusion as to whether additional appropriate investigation is required to identify the presence or likely presence of a REC.

The following data gaps have been identified during our completion of this report:

- Sanborn Maps were not available.

The data gaps identified during this process, do not affect the conclusions as to the presence or lack of presence of RECs at the Property.

8.0 CONCLUSIONS

The study included a review of local, state and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources, a reconnaissance of the Property.

The site reconnaissance and records review did not find documentation or physical evidence of soil or groundwater impairments associated with the use of the Property. A review of regulatory databases maintained by county, state, and federal agencies found no documentation of hazardous materials violations or discharge on the Property.

Based on the findings of this assessment, three Recognized Environmental Conditions (RECs) or historical RECs were identified for the Property as follows:

- Given the age of the roadways within the Property, there exists the potential for elevated concentrations of aerially deposited lead along the unpaved edges of the roadways. At this point, the project is not fully designed so it is not possible to quantify the potential for impact. We recommend that an aerially deposited lead survey be completed during the final design process.

- The existing box culvert (bridge) located within the Property was constructed at a time when asbestos containing materials may have been utilized and may be found in areas including but not limited to bridge joints and concrete piping. A pre-demolition lead and asbestos survey should be completed prior to the commencement of construction. (Perform this effort during final design per City of Elk Grove comments) Lead and asbestos containing materials found during this process should be disposed of in a manner approved by Cal-OSHA.

- The yellow and white thermoplastic pavement markings present at the proposed project study area may contain chromium and lead-based paint. Prior to construction, a hazardous materials compliance plan should be prepared by a Certified Industrial Hygienist to address the metals content of the yellow and white roadway stripping found within the project area. (Perform this effort during final design per City of Elk Grove comments). This plan should be prepared in accordance with Caltrans Guidance for SSP 14-11.07 – Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.

  The area around the Property has historically been utilized for agricultural production and may contain concentrations of persistent pesticides. Sediments within the roadside drainage ditch as well as the creek bottom crossing the Property may contain concentrations of persistent pesticides. An additional assessment should be completed within these areas prior to construction so as to determine if there will be any specialized materials handling requirements. (Perform this effort during final design per City of Elk Grove comments).

Based on the Results of this study we recommend the following;

- A Kinder Morgan petroleum pipeline is located within the western shoulder of Bradshaw Road. It is unknown if this section of pipeline has had any history of leaks or investigations. We recommend that consultation be completed with Kinder Morgan prior to the completion of the

project design. This consultation should be completed during the final design process and should include discussion as to the potential need to characterize soils within the proposed project footprint as they relate to the petroleum pipeline.

- Several pole mounted transformers were observed throughout the Property. These are of an age that would indicate that PCB cooling oils are likely to be found in use. We recommend that these transformers be collected for appropriate disposal if they are removed. The responsibility for the process would be that of the owner of the equipment. In this case, the likely owner is the Sacramento Municipal Utility District.

ACE conducted an initial site assessment of the Property in general conformance with the scope and limitations of ASTM E 1527-13 Standard Practice for Environmental Site Assessments and USEPA Standards and Practices for All Appropriate Inquires, 40 CFR Part 312.

ACE has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. We declare that, to the best of our professional knowledge and belief, the responsible charge for this study meets the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312 and ASTM 1527-13.

SELECTED REFERENCES

Rudolph G. Strand, James B. Koenig, 1965, *Geologic Map of California, Sacramento Sheet*, California Geologic Survey, 1:250,000.

State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Maps W1-7 and W1-8, http://www.conservation.ca.gov/dog/Pages/Index.aspx

Google Maps (http://maps.google.com)

State of California, Department of Water Resources, http://wdl.water.ca.gov

Microsoft TerraServer USA, http://www.terraserver.microsoft.com

State of California, Environmental Protection Agency, Department of Toxics Substances Control, Envirostor Database, http://www.envirostor.dtsc.ca.gov/public/

State of California, Environmental Protection Agency, State Water Resources Control Board, Geotracker Database, http://geotracker.waterboards.ca.gov/

Topozone, http://www.topozone.com

United States of America, Environmental Protection Agency, Indoor Air Quality Website, http://ww2.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf

United States of America, Department of the Interior, United States Geologic Survey, Topographic Maps, USGS 15' Galt Quadrangle-Map dated 1947

United States of America, Department of the Interior, United States Geologic Survey, Topographic Maps, USGS 7.5' Elk Grove Quadrangle-Maps dated 1909, 1952, 1968, 1975, and 1979

United States of America, Department of the Interior, United States Geologic Survey, Topographic Maps, USGS 30' Lodi Quadrangle-Map dated 1894

LIST OF FIGURES

N	Note: Site Locations are Approximate	Source: Google Maps Accessed April 2015	0 1/4 1/2 APPROXIMATE SCALE IN MILES

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SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

VICINITY MAP

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		1.0
REVISION	-		
DRAWN SW	CHECKED KF		

N

Note: Site Locations are Approximate

Source: Google Maps Accessed February 2013

0 500 1000

APPROXIMATE SCALE IN FEET

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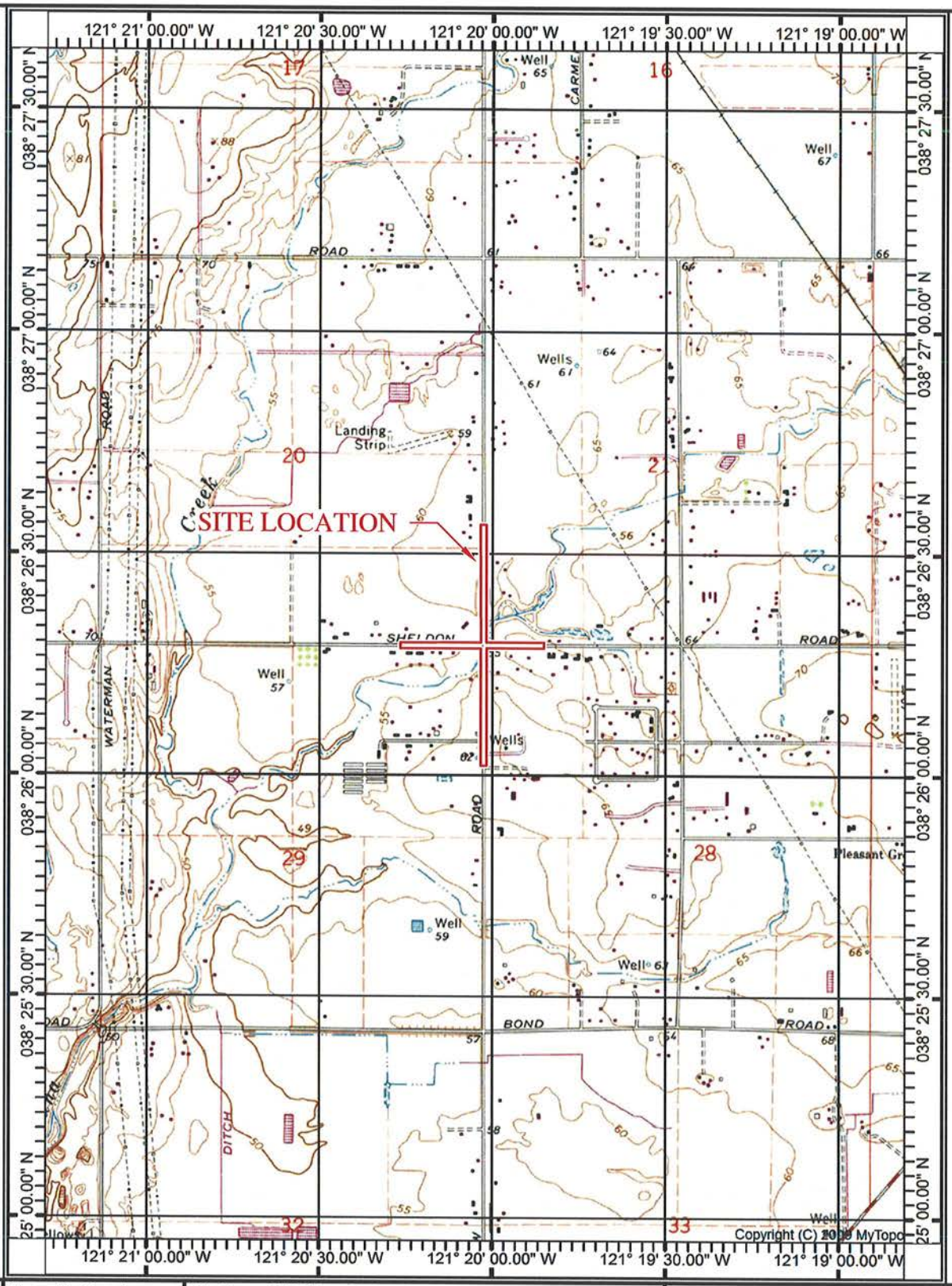
AERIAL PHOTOGRAPH

PROJECT NO.	AC188.02.2
DATE	APRIL 2015
REVISION	-
DRAWN SW	CHECKED KF

FIGURE NO. 2.0



Note: Site Location are Approximate

Source: USGS Topo

Elk Grove 7.5 Minute Series Date: 1968 Contour Interval: 5ft

0 2000 4000

APPROXIMATE SCALE IN FEET

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TOPOGRAPHIC MAP

PROJECT NO.	AC188.02.2
DATE	APRIL 2015
REVISION	-
DRAWN SW	CHECKED KF

FIGURE NO. 3.0

N

Note: Site Locations are Approximate

Source: Google Maps Accessed February 2013

0 200 400

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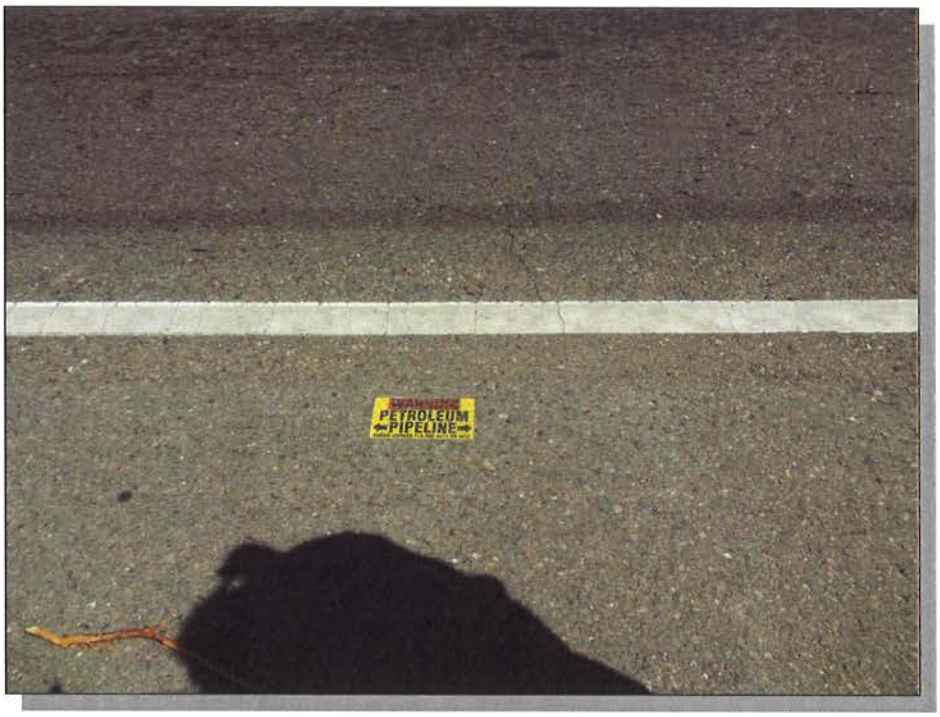
SITE PHOTOGRAPH LOCATION MAP

PROJECT NO.	AC188.02.2
DATE	APRIL 2015
REVISION	-
DRAWN SW	CHECKED KF

FIGURE NO. 4.0

SITE PHOTO 1	
DATE	March 25, 2015
LAT.	38.44025° N
LONG.	121.334749° W
DATUM	WGS-84
HEADING	183°
MAP	NOT TO SCALE



SITE PHOTO 2	
DATE	March 25, 2015
LAT.	38.439066° N
LONG.	121.334782° W
DATUM	WGS-84
HEADING	58°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.1
REVISION	-		
DRAWN SW		CHECKED KF	

SITE PHOTO 3	
DATE	March 25, 2015
LAT.	38.438729° N
LONG.	121.334761° W
DATUM	WGS-84
HEADING	162°
MAP	NOT TO SCALE

SITE PHOTO 4	
DATE	March 25, 2015
LAT.	38.438142° N
LONG.	121.334774° W
DATUM	WGS-84
HEADING	255°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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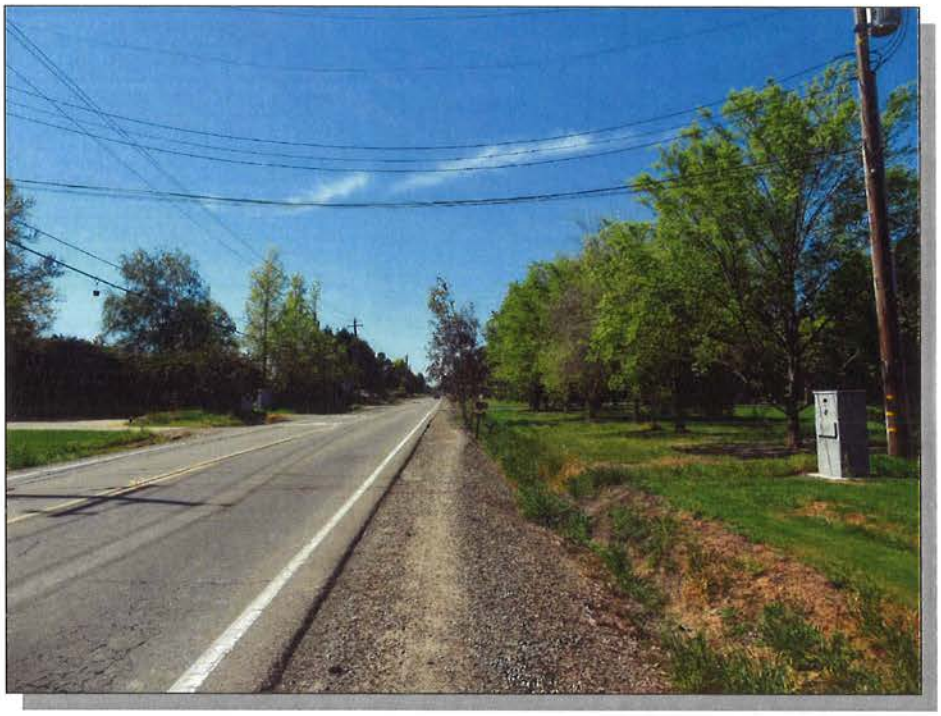
SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.2
REVISION	-		
DRAWN SW	CHECKED KF		

SITE PHOTO 5	
DATE	March 25, 2015
LAT.	38.438157° N
LONG.	121.334763° W
DATUM	WGS-84
HEADING	102°
MAP	NOT TO SCALE



SITE PHOTO 6	
DATE	March 25, 2015
LAT.	38.438172° N
LONG.	121.336018° W
DATUM	WGS-84
HEADING	266°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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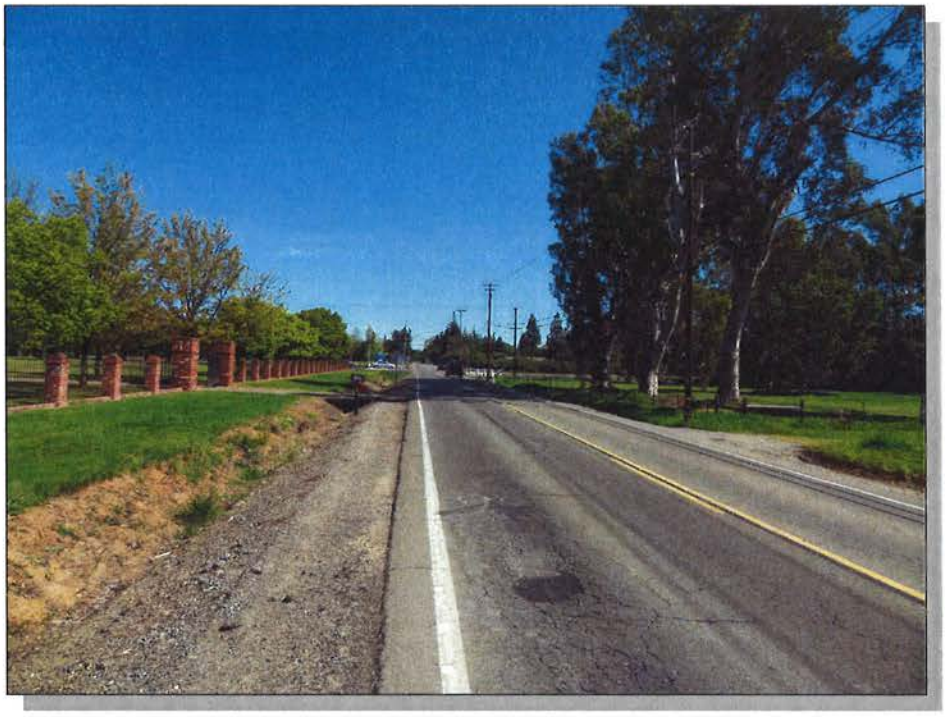
SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.3
REVISION	-		
DRAWN SW		CHECKED KF	



SITE PHOTO 7	
DATE	March 25, 2015
LAT.	38.438145° N
LONG.	121.336086° W
DATUM	WGS-84
HEADING	100°
MAP	NOT TO SCALE

SITE PHOTO 8	
DATE	March 25, 2015
LAT.	38.438089° N
LONG.	121.335748° W
DATUM	WGS-84
HEADING	121°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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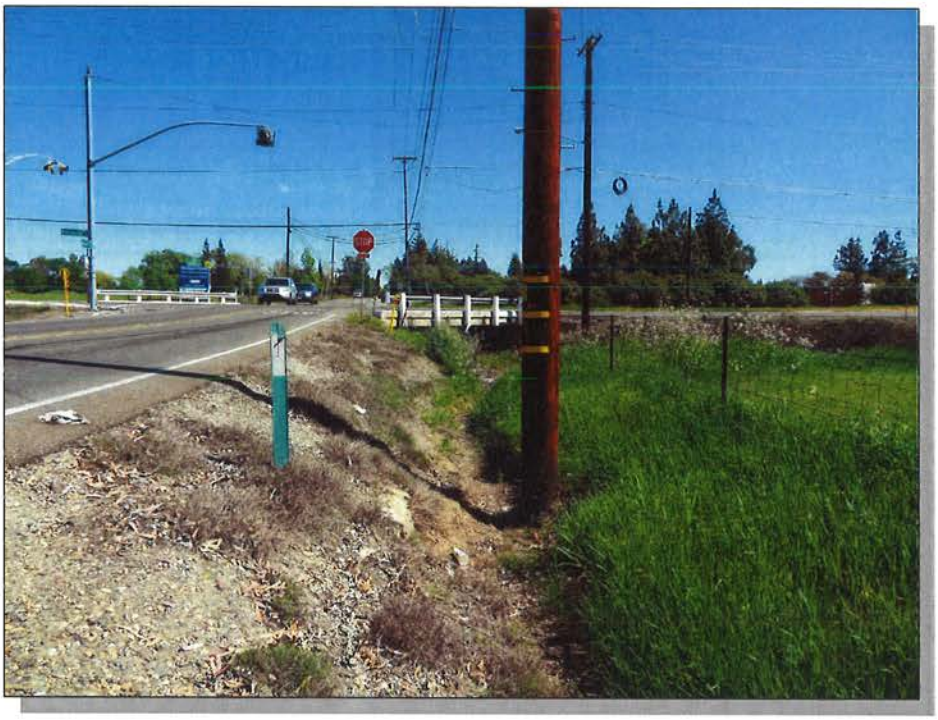
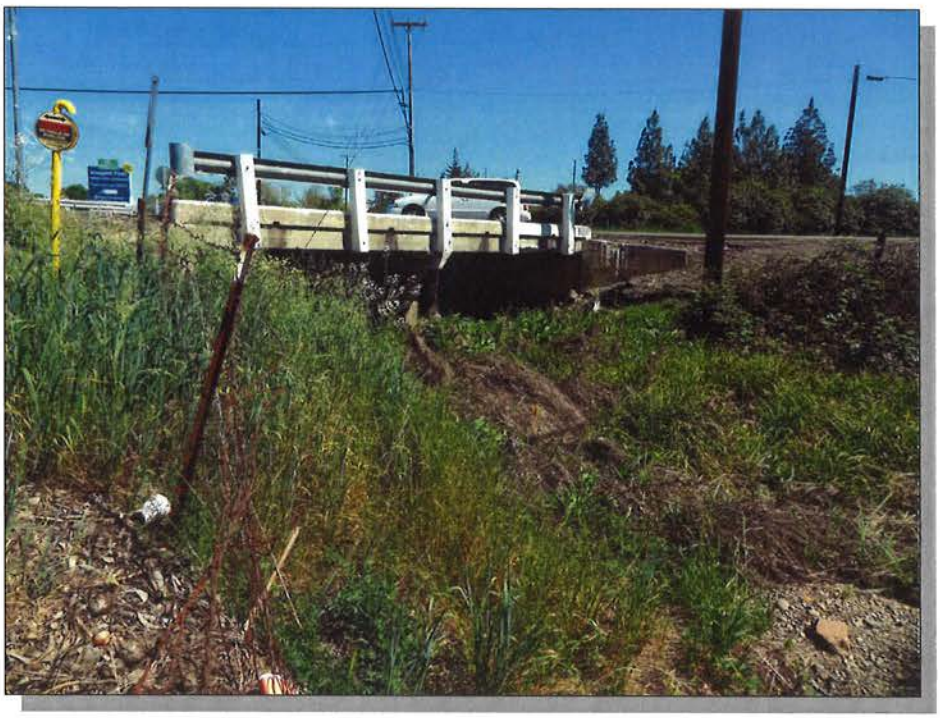
SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.4
REVISION	-		
DRAWN SW	CHECKED KF		



SITE PHOTO 9	
DATE	March 25, 2015
LAT.	38.438099° N
LONG.	121.335079° W
DATUM	WGS-84
HEADING	78°
MAP	NOT TO SCALE



SITE PHOTO 10	
DATE	March 25, 2015
LAT.	38.438043° N
LONG.	121.334936° W
DATUM	WGS-84
HEADING	91°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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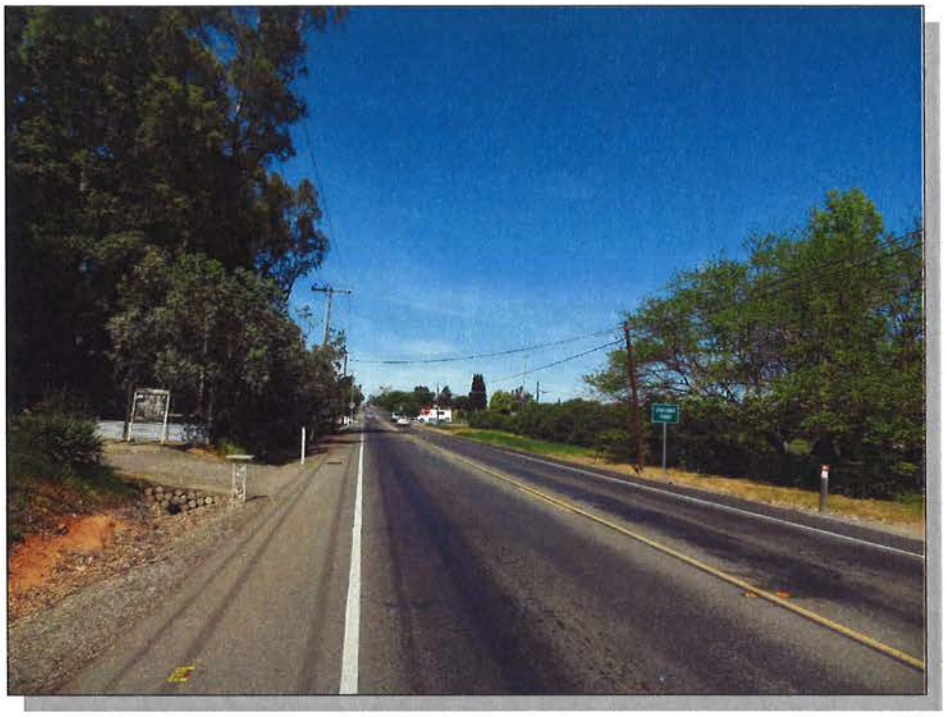
Placerville, CA 95667
Tel: 530.748.1336
www.acaciace.com

SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.5
REVISION	-		
DRAWN SW		CHECKED KF	



SITE PHOTO 11	
DATE	March 25, 2015
LAT.	38.436948° N
LONG.	121.334797° W
DATUM	WGS-84
HEADING	346°
MAP	NOT TO SCALE

SITE PHOTO 12	
DATE	March 25, 2015
LAT.	38.436924° N
LONG.	121.334771° W
DATUM	WGS-84
HEADING	155°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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Consultants & Engineers
3025 Venture Road, Ste. 100
Placerville, CA 95667
Tel: 530.748.1336
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SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.6
REVISION	-		
DRAWN SW		CHECKED KF	

SITE PHOTO 13	
DATE	March 25, 2015
LAT.	38.437478° N
LONG.	121.334735° W
DATUM	WGS-84
HEADING	4°
MAP	NOT TO SCALE

SITE PHOTO 14	
DATE	March 25, 2015
LAT.	38.437587° N
LONG.	121.334726° W
DATUM	WGS-84
HEADING	147°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.7
REVISION	-		
DRAWN SW		CHECKED KF	

SITE PHOTO 15	
DATE	March 25, 2015
LAT.	38.437594° N
LONG.	121.334727° W
DATUM	WGS-84
HEADING	85°
MAP	NOT TO SCALE

SITE PHOTO 16	
DATE	March 25, 2015
LAT.	38.438087° N
LONG.	121.33452° W
DATUM	WGS-84
HEADING	81°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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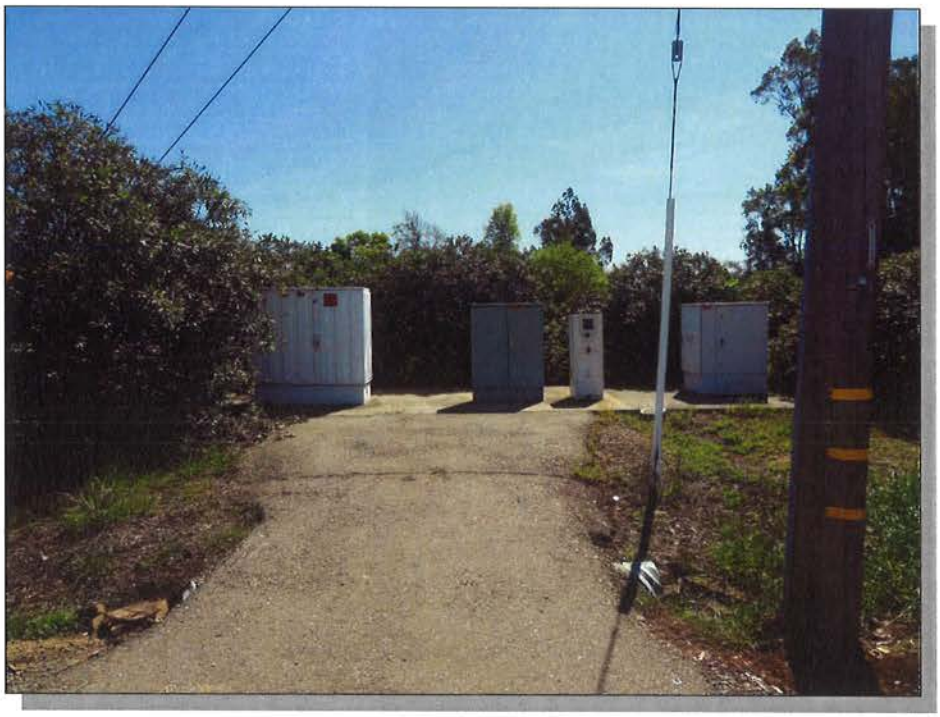
SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.8
REVISION	-		
DRAWN SW	CHECKED KF		

SITE PHOTO 17	
DATE	March 25, 2015
LAT.	38.438078° N
LONG.	121.334449° W
DATUM	WGS-84
HEADING	279°
MAP	NOT TO SCALE



SITE PHOTO 18	
DATE	March 25, 2015
LAT.	38.438065° N
LONG.	121.334338° W
DATUM	WGS-84
HEADING	167°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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Placerville, CA 95667
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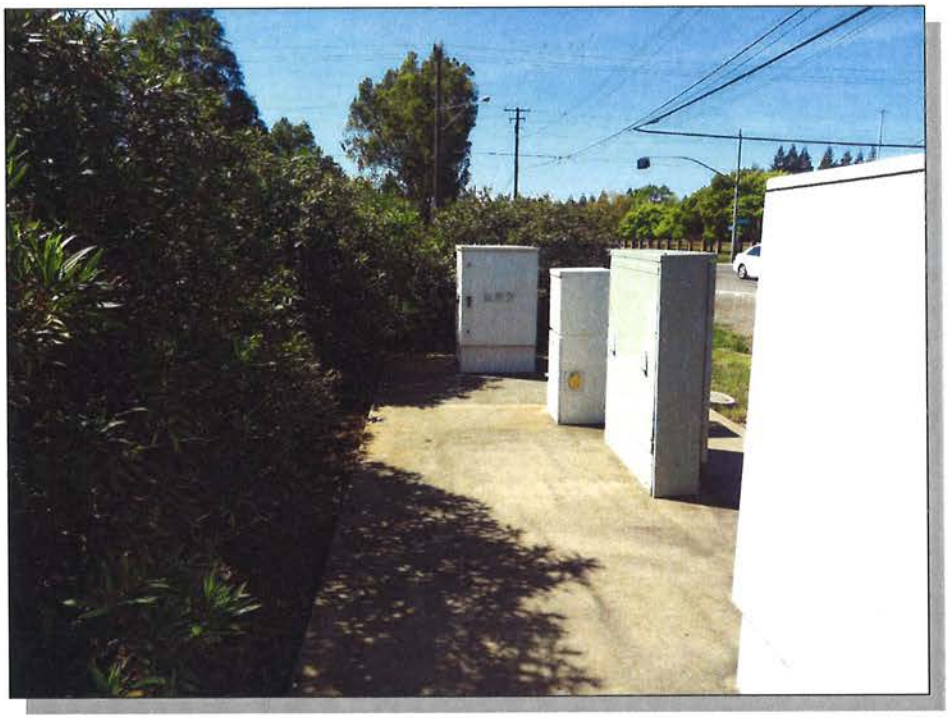
www.acaciace.com

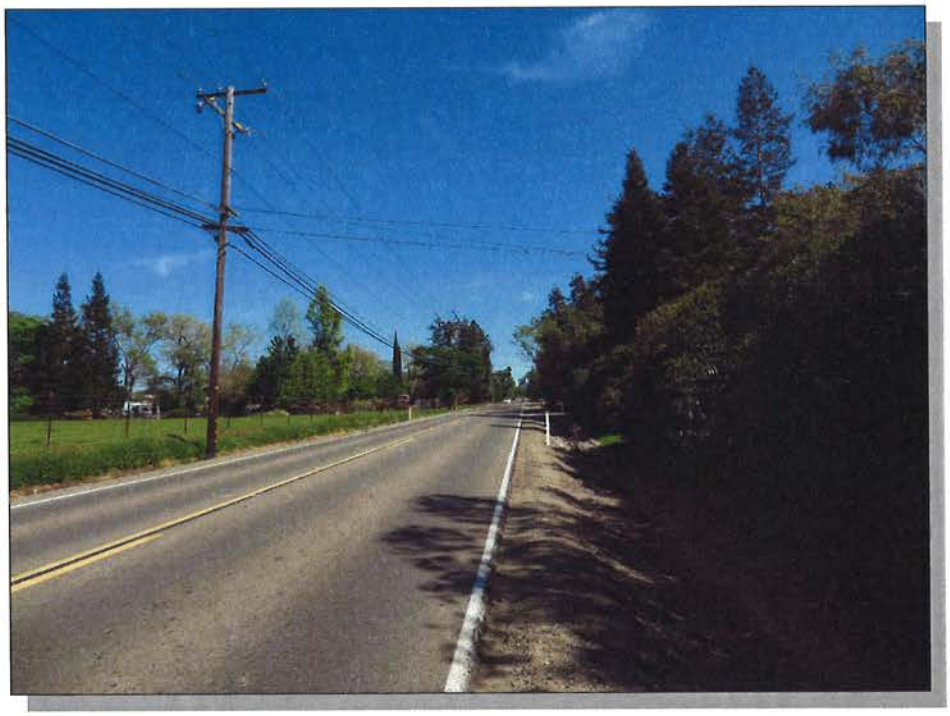
SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.9
REVISION	-		
DRAWN SW		CHECKED KF	



SITE PHOTO 19	
DATE	March 25, 2015
LAT.	38.437982° N
LONG.	121.334281° W
DATUM	WGS-84
HEADING	286°
MAP	NOT TO SCALE



SITE PHOTO 20	
DATE	March 25, 2015
LAT.	38.438001° N
LONG.	121.333266° W
DATUM	WGS-84
HEADING	84°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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Placerville, CA 95667
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SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.10
REVISION	-		
DRAWN SW	CHECKED KF		

SITE PHOTO 21	
DATE	March 25, 2015
LAT.	38.438048° N
LONG.	121.333292° W
DATUM	WGS-84
HEADING	278°
MAP	NOT TO SCALE

SITE PHOTO 22	
DATE	March 25, 2015
LAT.	38.438203° N
LONG.	121.33322° W
DATUM	WGS-84
HEADING	259°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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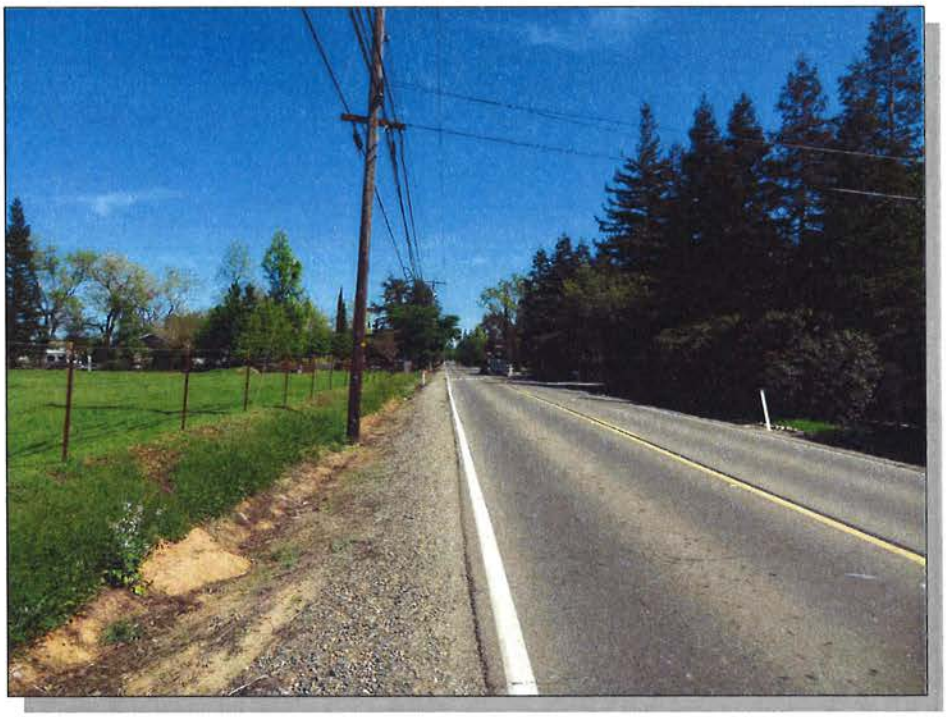
SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.11
REVISION	-		
DRAWN SW		CHECKED KF	



SITE PHOTO 23	
DATE	March 25, 2015
LAT.	38.438161° N
LONG.	121.333226° W
DATUM	WGS-84
HEADING	112°
MAP	NOT TO SCALE

SITE PHOTO 24	
DATE	March 25, 2015
LAT.	38.438146° N
LONG.	121.333353° W
DATUM	WGS-84
HEADING	355°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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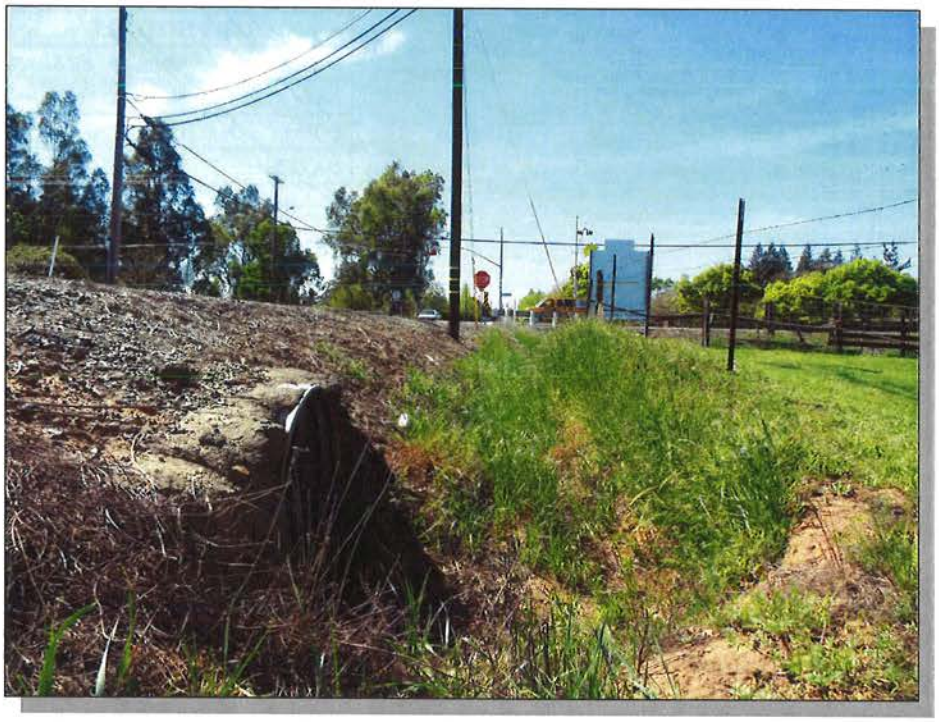
SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.12
REVISION	-		
DRAWN SW	CHECKED KF		



SITE PHOTO 25	
DATE	March 25, 2015
LAT.	38.4382° N
LONG.	121.334108° W
DATUM	WGS-84
HEADING	270°
MAP	NOT TO SCALE

SITE PHOTO 26	
DATE	March 25, 2015
LAT.	38.438213° N
LONG.	121.334357° W
DATUM	WGS-84
HEADING	277°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2
DATE	APRIL 2015
REVISION	-
DRAWN SW	CHECKED KF

FIGURE NO. 4.13

SITE PHOTO 27	
DATE	March 25, 2015
LAT.	38.438223° N
LONG.	121.334391° W
DATUM	WGS-84
HEADING	207°
MAP	NOT TO SCALE

SITE PHOTO 28	
DATE	March 25, 2015
LAT.	38.438278° N
LONG.	121.33435° W
DATUM	WGS-84
HEADING	251°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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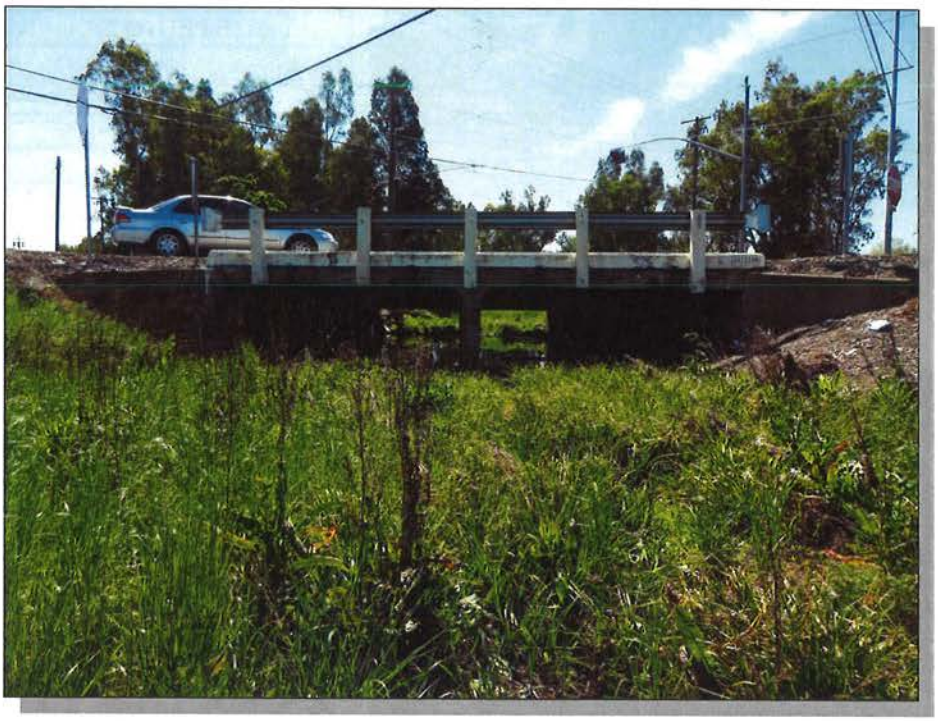
SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.14
REVISION	-		
DRAWN SW	CHECKED KF		



SITE PHOTO 29	
DATE	March 25, 2015
LAT.	38.438344° N
LONG.	121.334466° W
DATUM	WGS-84
HEADING	227°
MAP	NOT TO SCALE

SITE PHOTO 30	
DATE	March 25, 2015
LAT.	38.438347° N
LONG.	121.334454° W
DATUM	WGS-84
HEADING	245°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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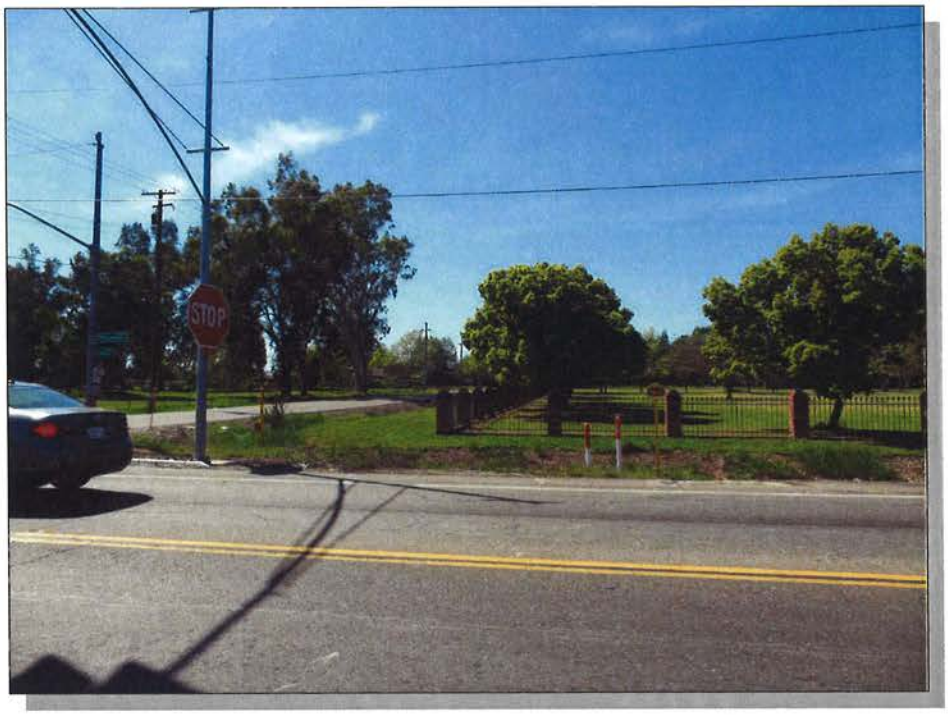
SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.15
REVISION	-		
DRAWN SW		CHECKED KF	

SITE PHOTO 31	
DATE	March 25, 2015
LAT.	38.438244° N
LONG.	121.334617° W
DATUM	WGS-84
HEADING	351°
MAP	NOT TO SCALE



SITE PHOTO 32	
DATE	March 25, 2015
LAT.	38.438313° N
LONG.	121.334627° W
DATUM	WGS-84
HEADING	256°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.16
REVISION	-		
DRAWN SW	CHECKED KF		

SITE PHOTO 33	
DATE	March 25, 2015
LAT.	38.438391° N
LONG.	121.334626° W
DATUM	WGS-84
HEADING	348°
MAP	NOT TO SCALE

Camera: Sony DSC-HX9V

Note: Photograph statistics taken from file metadata.

FIGURE IS DIAGRAMMATIC
NOT TO SCALE

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Consultants & Engineers
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Placerville, CA 95667
Tel: 530.748.1336
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SHELDON/BRADSHAW ISA
INTERCHANGE MODIFICATION PROJECT

SITE PHOTOGRAPHS

PROJECT NO.	AC188.02.2		FIGURE NO.
DATE	APRIL 2015		4.17
REVISION	-		
DRAWN SW	CHECKED KF		

APPENDIX A

Environmental Data Resources, Inc.
Historic Topographic Map Report

SHELDON BRADSHAW INTERSECTION ROUNDABOUT
Sheldon Rd. and Bradshaw Rd.
Elk Grove, CA 95624

Inquiry Number: 4177237.4
January 09, 2015

EDR Historical Topographic Map Report

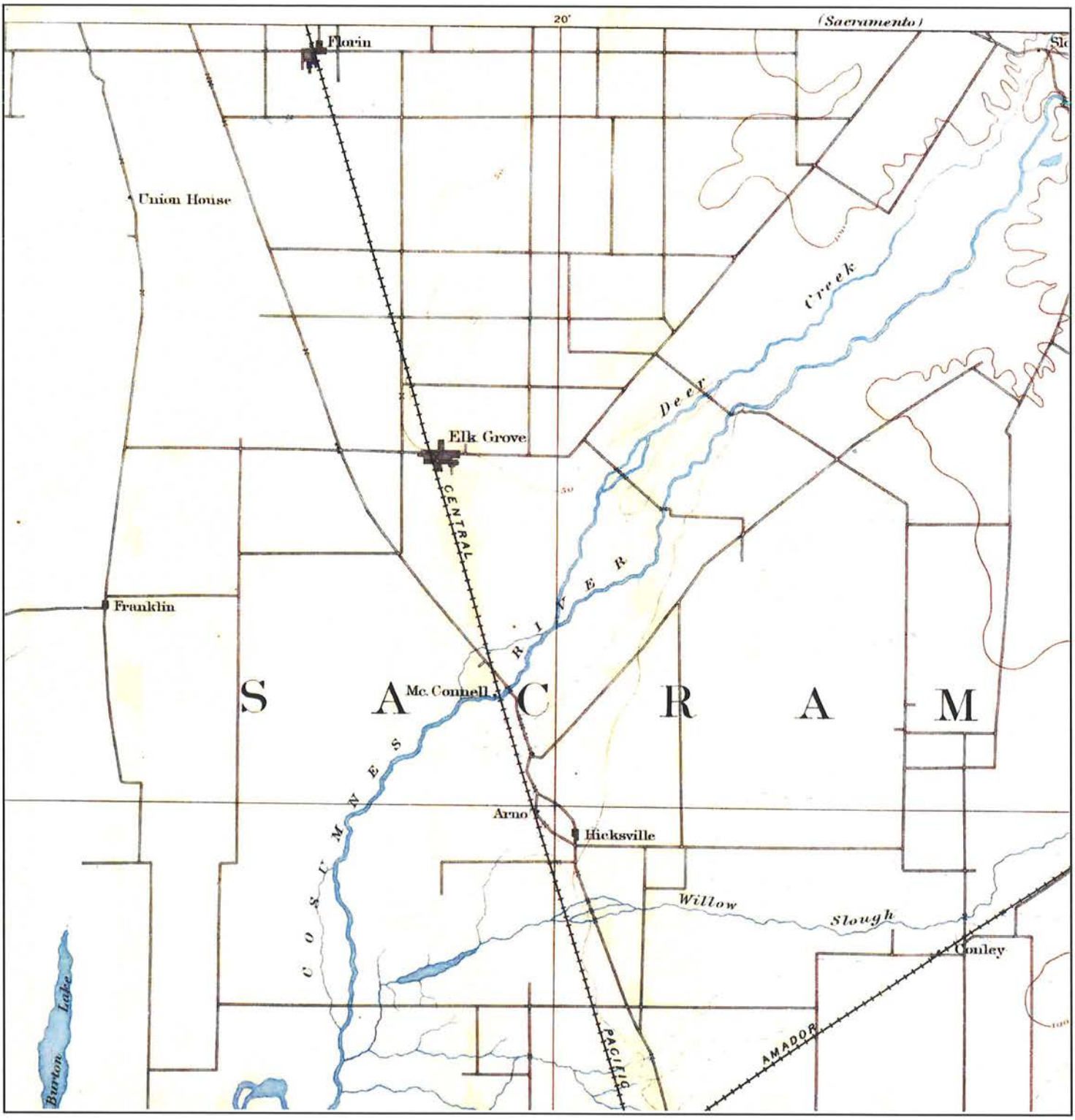
6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

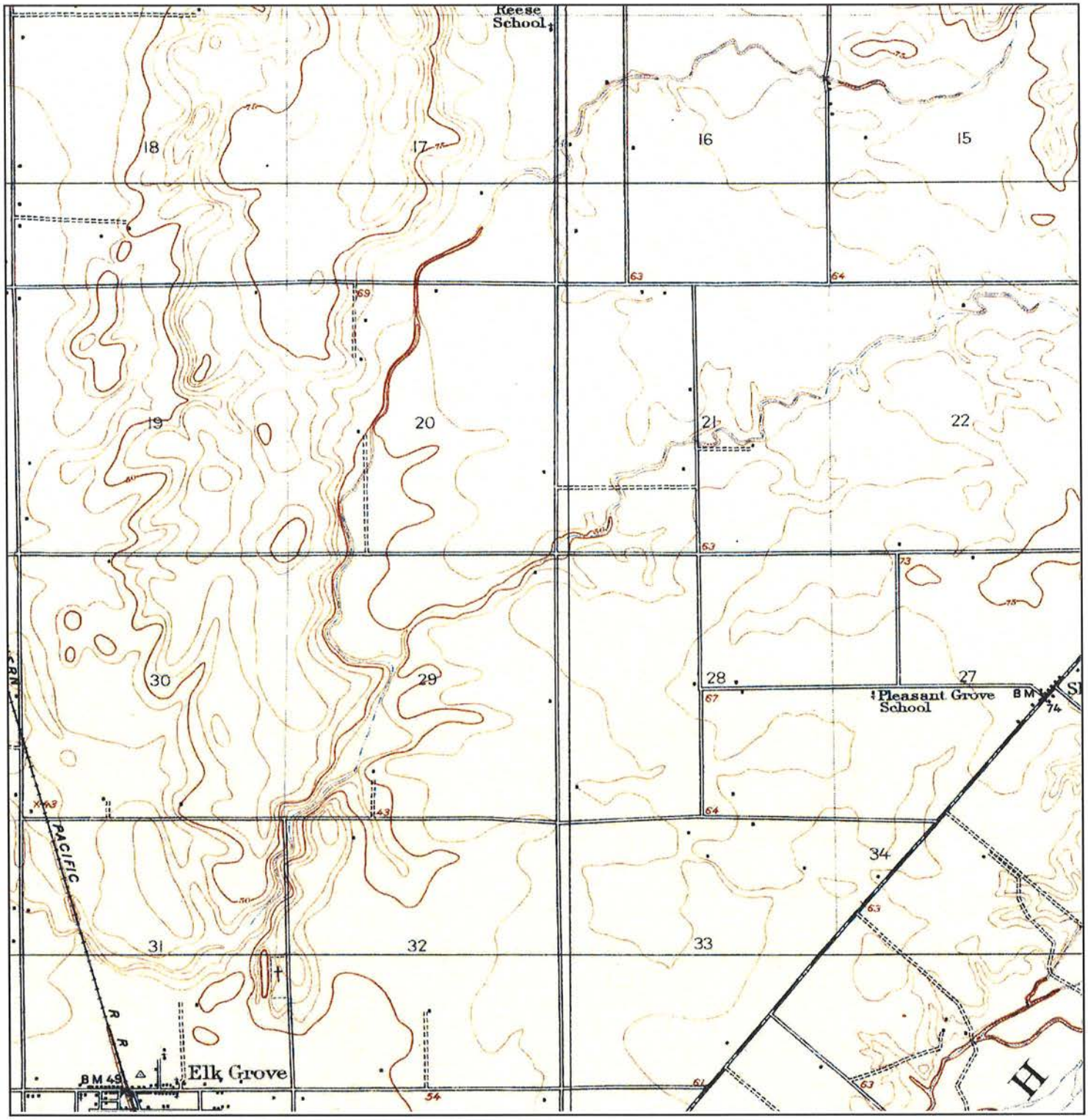
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map



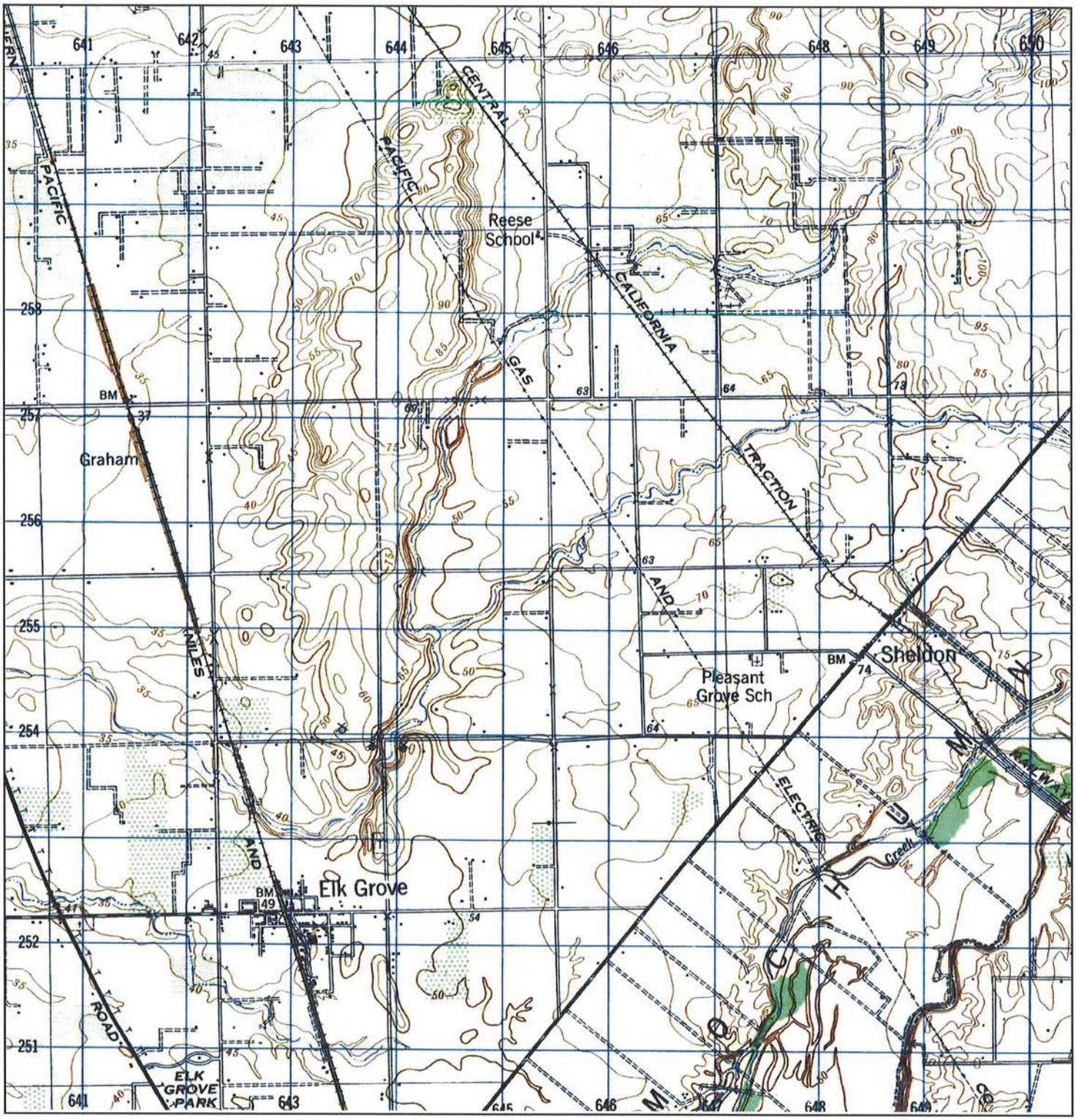
N	TARGET QUAD NAME: LODI MAP YEAR: 1894 SERIES: 30 SCALE: 1:125000	SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove, CA 95624 LAT/LONG: 38.4381 / -121.3347	CLIENT: Acacia CE CONTACT: Katie Farrell INQUIRY#: 4177237.4 RESEARCH DATE: 01/09/2015

Historical Topographic Map



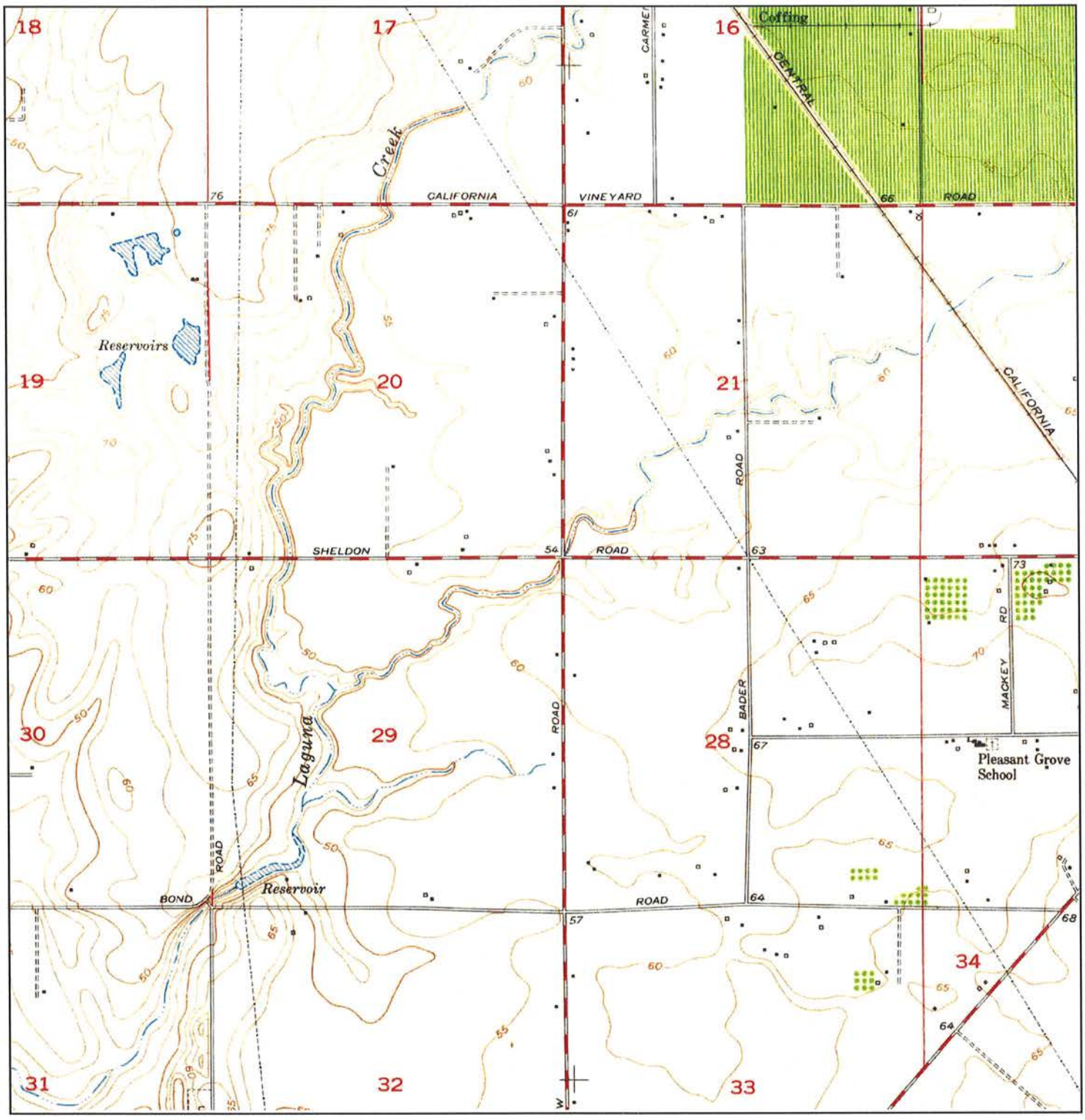
N			
	TARGET QUAD NAME: ELK GROVE MAP YEAR: 1909 SERIES: 7.5 SCALE: 1:31680	SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove, CA 95624 LAT/LONG: 38.4381 / -121.3347	CLIENT: Acacia CE CONTACT: Katie Farrell INQUIRY#: 4177237.4 RESEARCH DATE: 01/09/2015

Historical Topographic Map



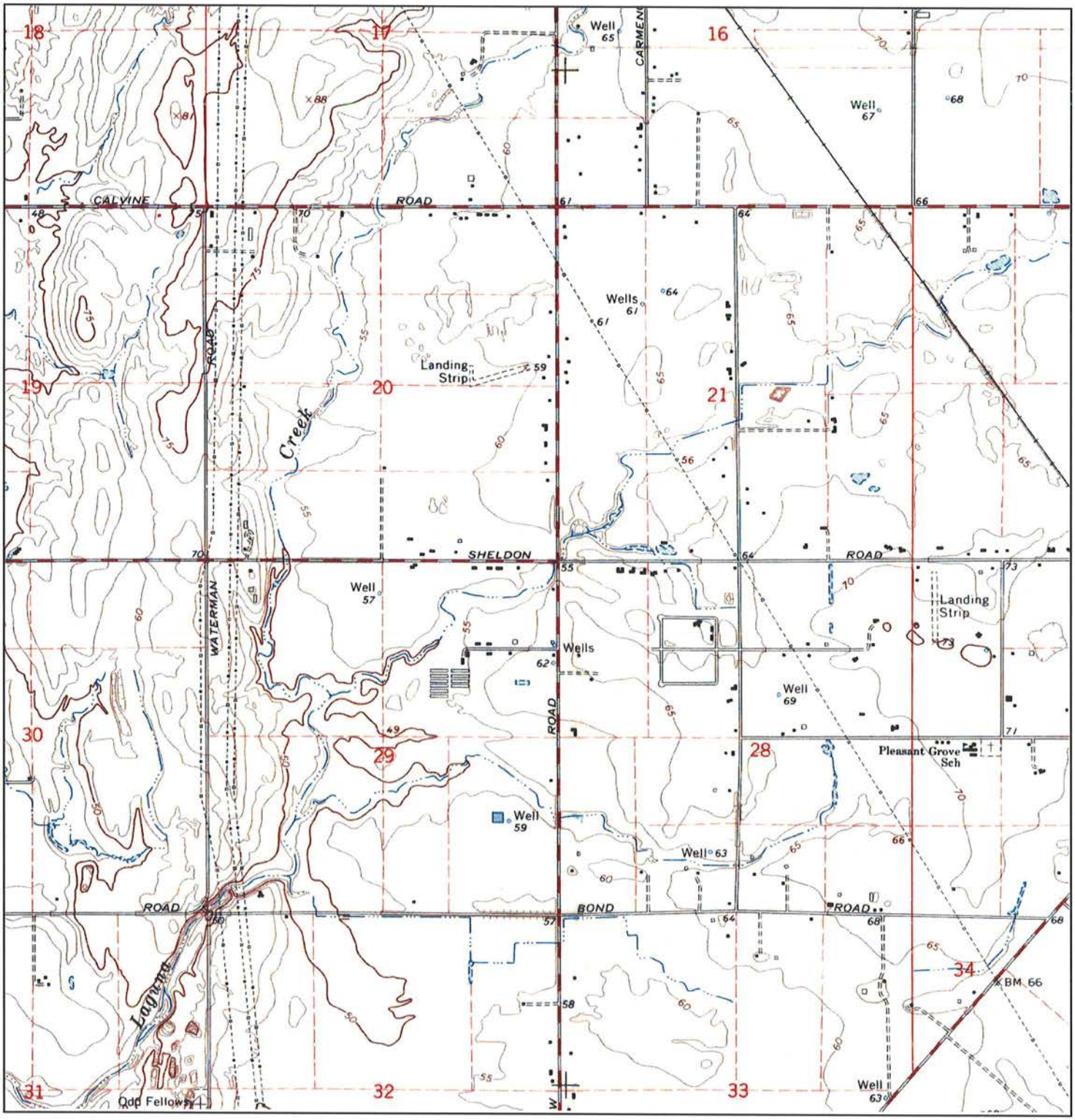
N			
	TARGET QUAD NAME: GALT MAP YEAR: 1947 SERIES: 15 SCALE: 1:50000	SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove, CA 95624 LAT/LONG: 38.4381 / -121.3347	CLIENT: Acacia CE CONTACT: Katie Farrell INQUIRY#: 4177237.4 RESEARCH DATE: 01/09/2015

Historical Topographic Map



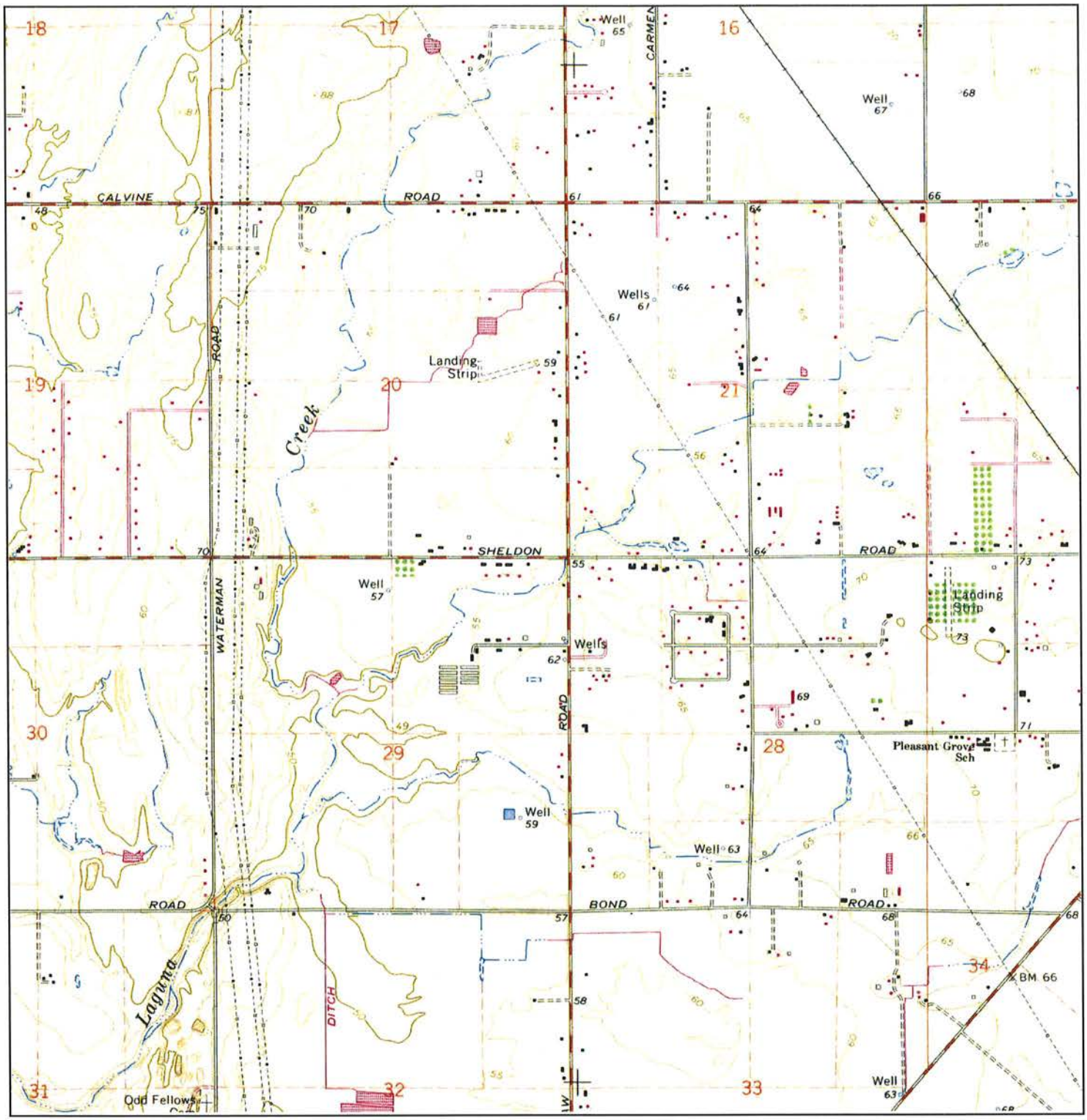
N	TARGET QUAD NAME: ELK GROVE MAP YEAR: 1952 SERIES: 7.5 SCALE: 1:24000	SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove, CA 95624 LAT/LONG: 38.4381 / -121.3347	CLIENT: Acacia CE CONTACT: Katie Farrell INQUIRY#: 4177237.4 RESEARCH DATE: 01/09/2015

Historical Topographic Map



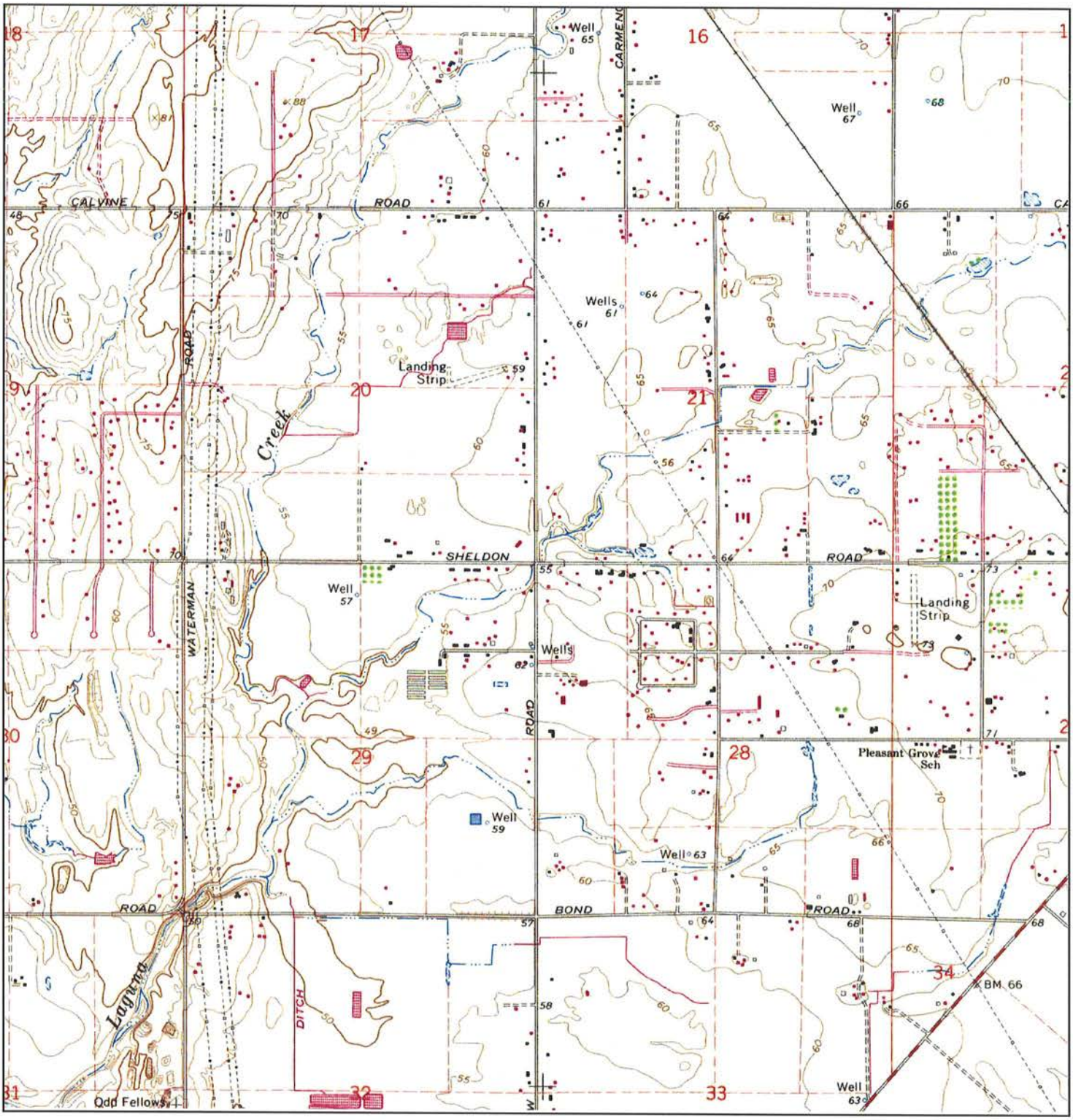
N	TARGET QUAD NAME: ELK GROVE MAP YEAR: 1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove, CA 95624 LAT/LONG: 38.4381 / -121.3347	CLIENT: Acacia CE CONTACT: Katie Farrell INQUIRY#: 4177237.4 RESEARCH DATE: 01/09/2015

Historical Topographic Map



N	TARGET QUAD	SITE NAME:	SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT:	Acacia CE
	NAME: ELK GROVE			CONTACT:	Katie Farrell
	MAP YEAR: 1975	ADDRESS:	Sheldon Rd. and Bradshaw Rd.	INQUIRY#:	4177237.4
	PHOTOREVISED FROM :1968		Elk Grove, CA 95624	RESEARCH DATE:	01/09/2015
	SERIES: 7.5	LAT/LONG:	38.4381 / -121.3347		
	SCALE: 1:24000				

Historical Topographic Map



N			
	TARGET QUAD NAME: ELK GROVE MAP YEAR: 1979 PHOTOREVISED FROM :1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove, CA 95624 LAT/LONG: 38.4381 / -121.3347	CLIENT: Acacia CE CONTACT: Katie Farrell INQUIRY#: 4177237.4 RESEARCH DATE: 01/09/2015

APPENDIX B

Environmental Data Resources, Inc.
Aerial Photograph Decade Package

SHELDON BRADSHAW INTERSECTION ROUNDABOUT

Sheldon Rd. and Bradshaw Rd.

Elk Grove, CA 95624

Inquiry Number: 4177237.12

January 13, 2015

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

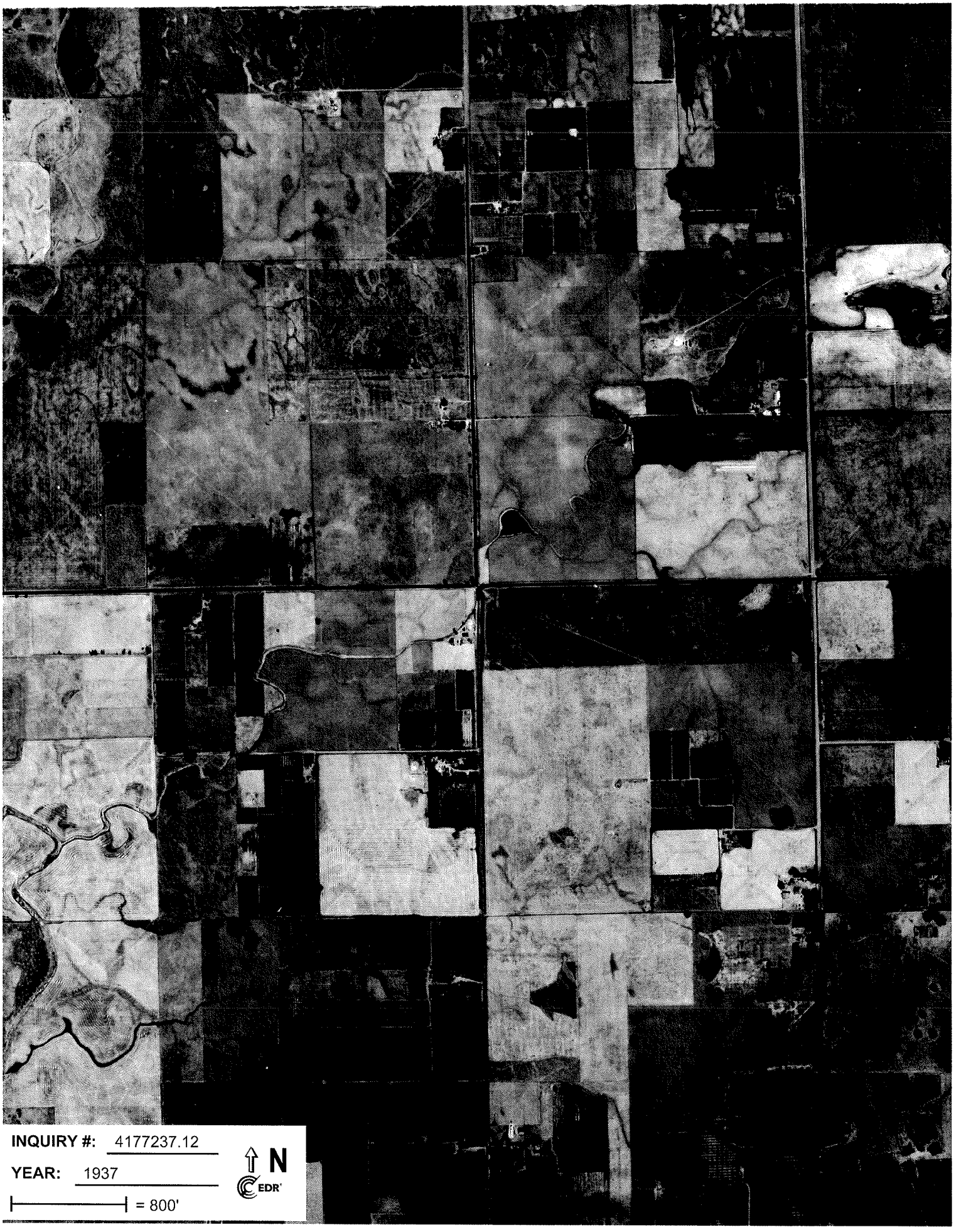
Aerial Photography January 13, 2015

Target Property:

Sheldon Rd. and Bradshaw Rd.
Elk Grove, CA 95624

Year	*Scale*	*Details*	*Source*
1937	Aerial Photograph. Scale: 1"=800'	Flight Year: 1937	Laval
1947	Aerial Photograph. Scale: 1"=800'	Flight Year: 1947	USGS
1957	Aerial Photograph. Scale: 1"=800'	Flight Year: 1957	Cartwright
1964	Aerial Photograph. Scale: 1"=800'	Flight Year: 1964	Cartwright
1971	Aerial Photograph. Scale: 1"=800'	Flight Year: 1971 Best Copy Available from original source	Cartwright
1971	Aerial Photograph. Scale: 1"=800'	Flight Year: 1971 Best Copy Available from original source	Cartwright
1987	Aerial Photograph. Scale: 1"=800'	Flight Year: 1987	USGS
1993	Aerial Photograph. Scale: 1"=800'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1998	USGS/DOQQ
1998	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1998	USGS/DOQQ
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP

Year	*Scale*	*Details*	*Source*
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP



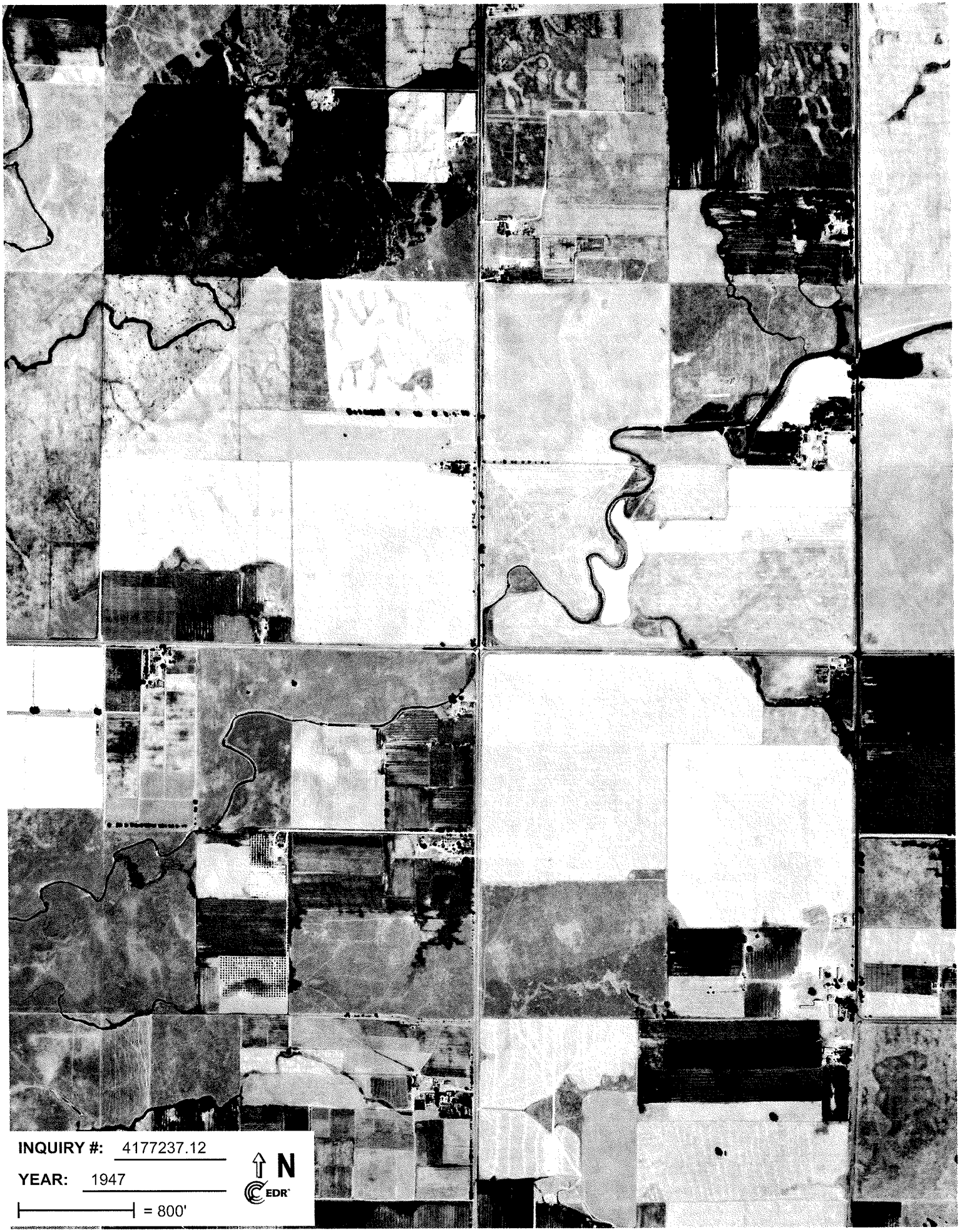
INQUIRY #: 4177237.12

YEAR: 1937

= 800'

N

EDR



INQUIRY #: 4177237.12

YEAR: 1947

= 800'

N

EDR


INQUIRY #: 4177237.12
YEAR: 1957
= 800'
N
EDR

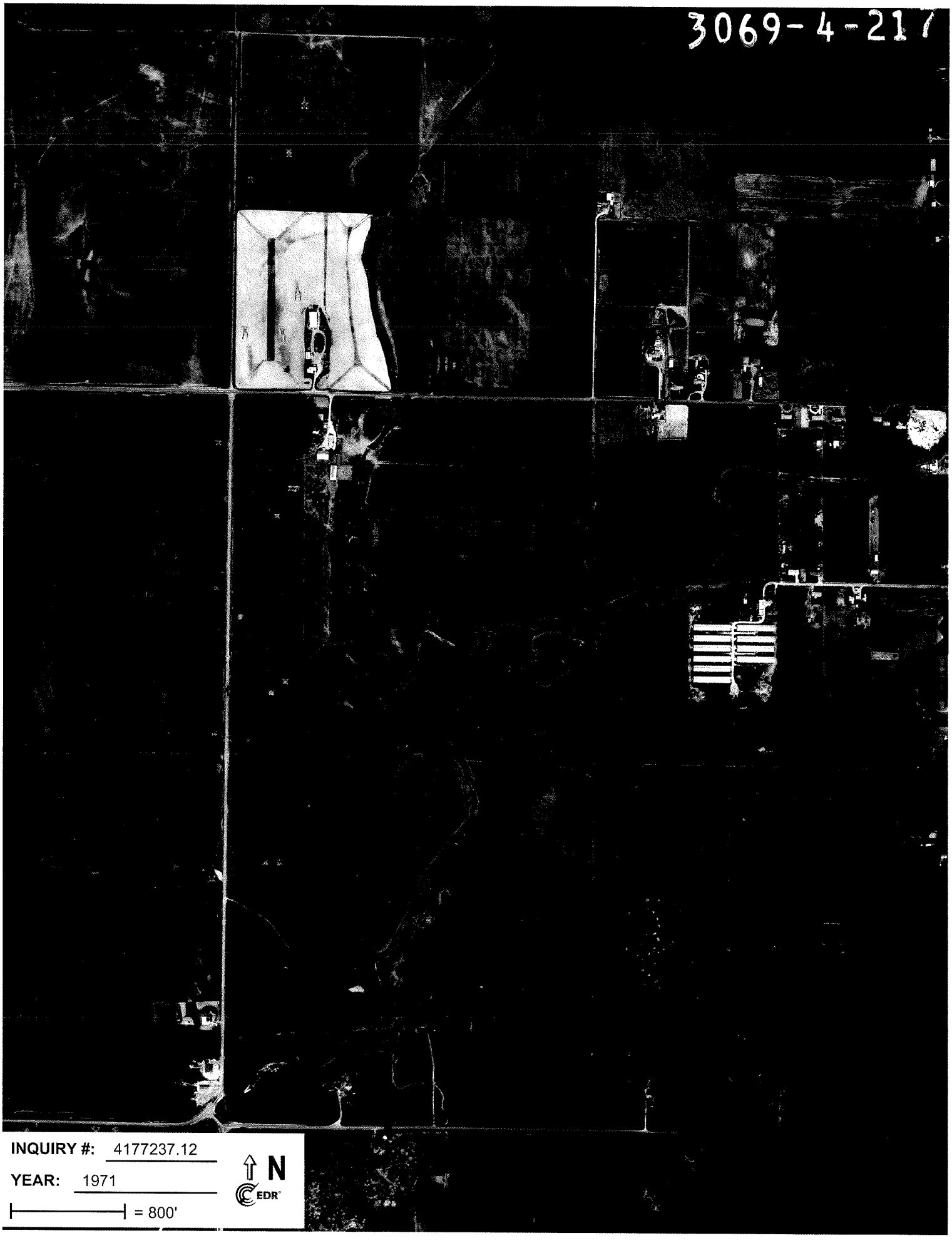
INQUIRY #: 4177237.12

YEAR: 1964

= 800'

N

EDR



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YEAR: 1971

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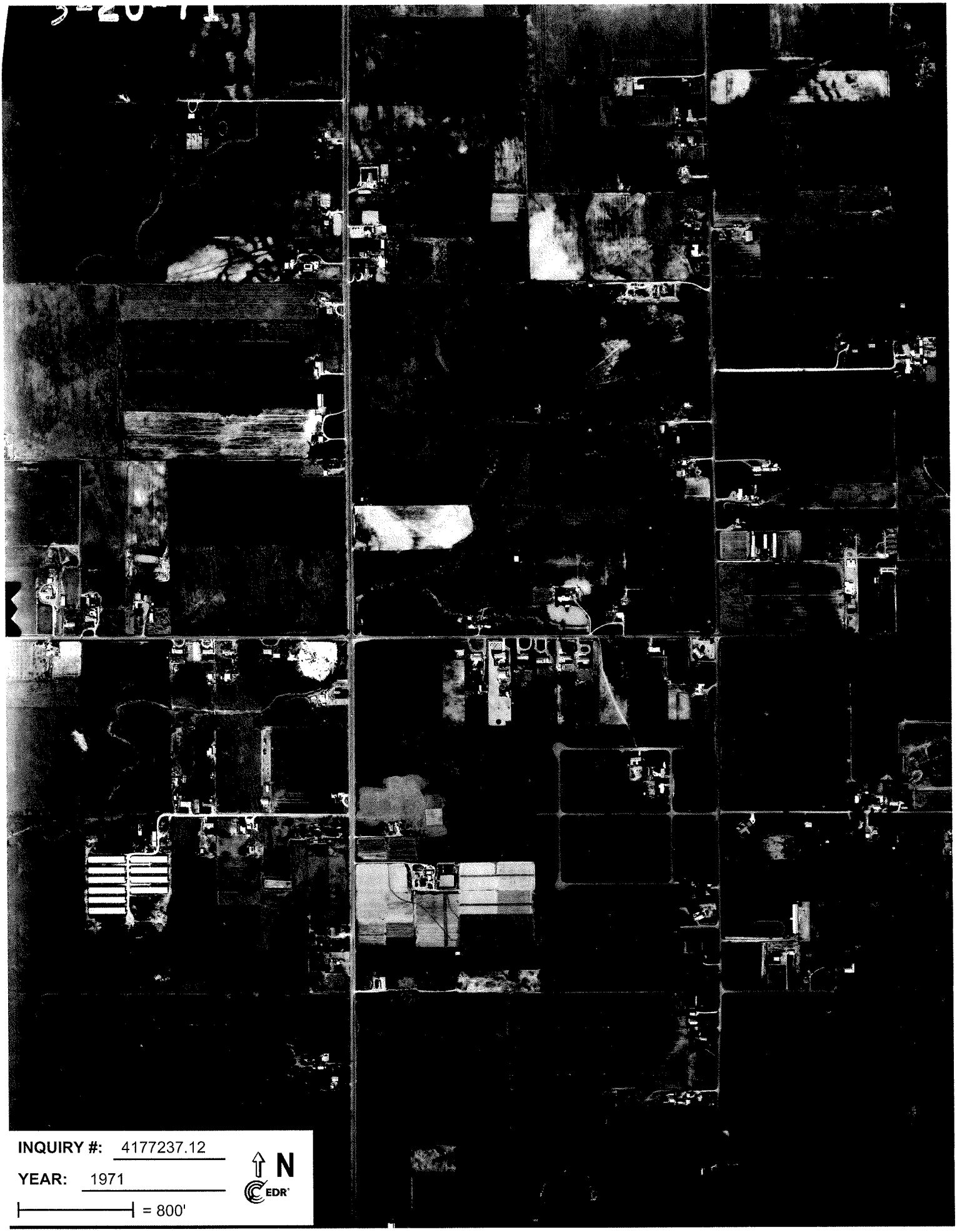
N

EDR



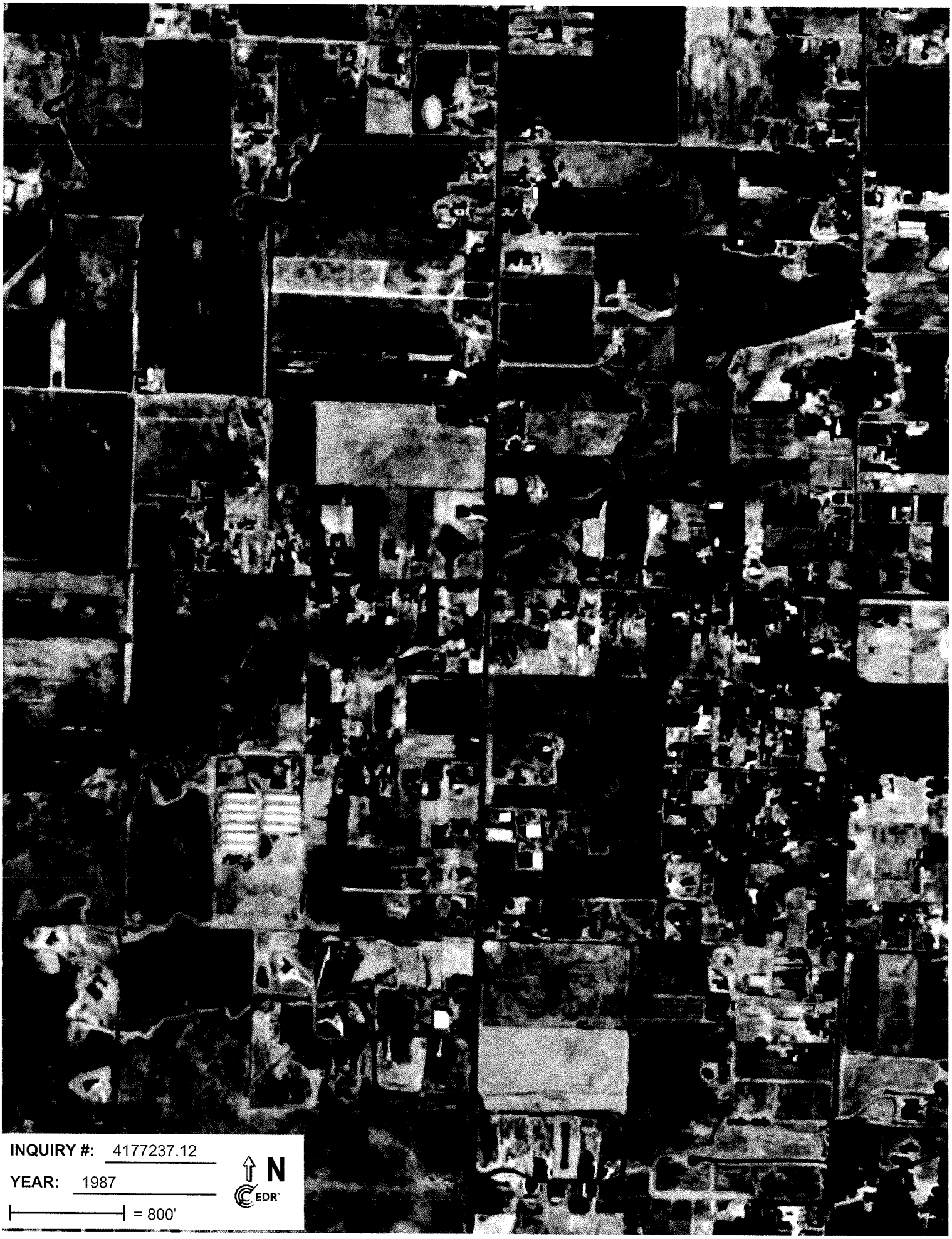
INQUIRY #: 4177237.12

YEAR: 1971

= 800'

N

EDR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YEAR: 1987
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EDR


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YEAR: 1993
= 800'
N
EDR


INQUIRY #: 4177237.12
YEAR: 1998
= 500'
N
EDR


INQUIRY #: 4177237.12
YEAR: 1998
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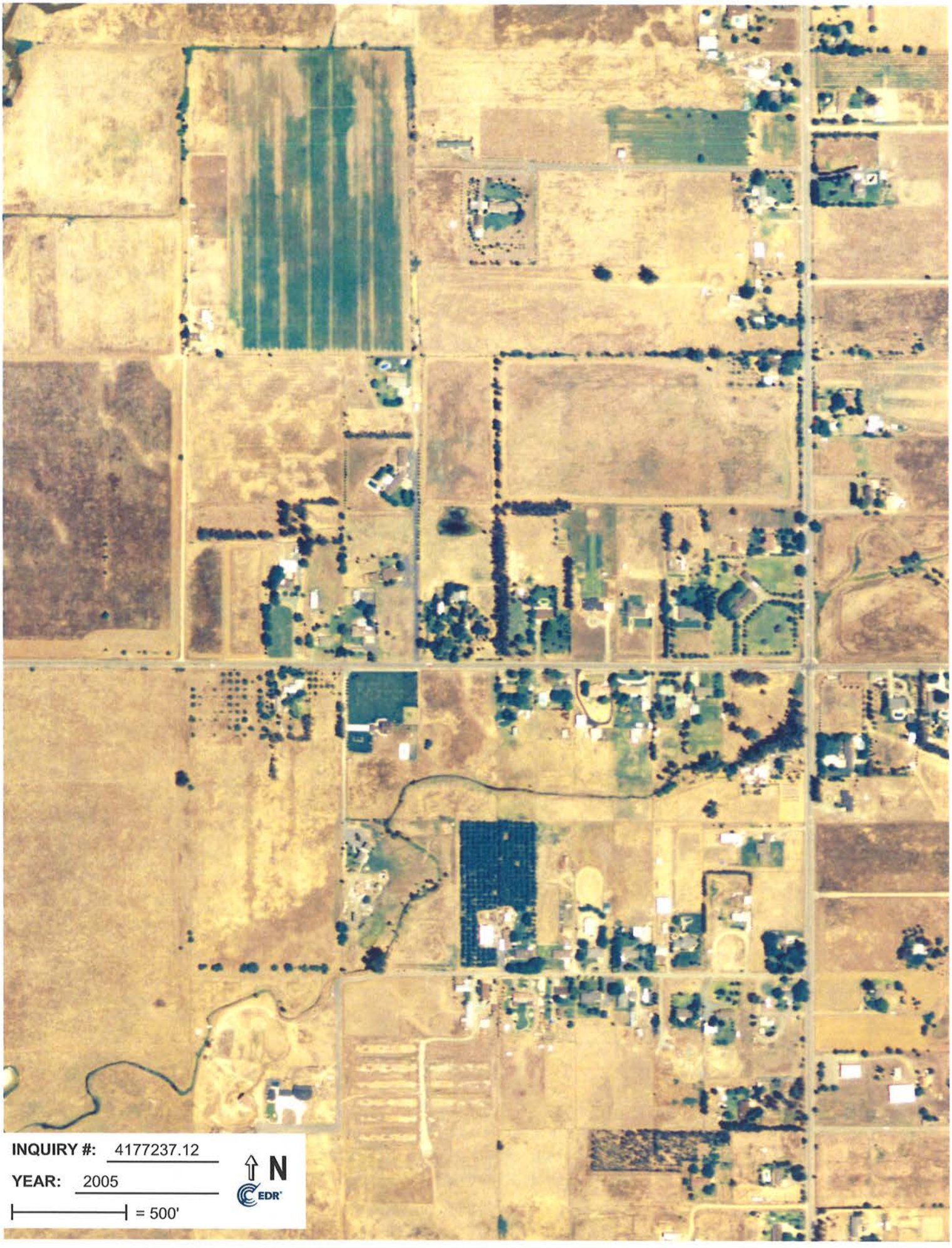
N
EDR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YEAR: 2005
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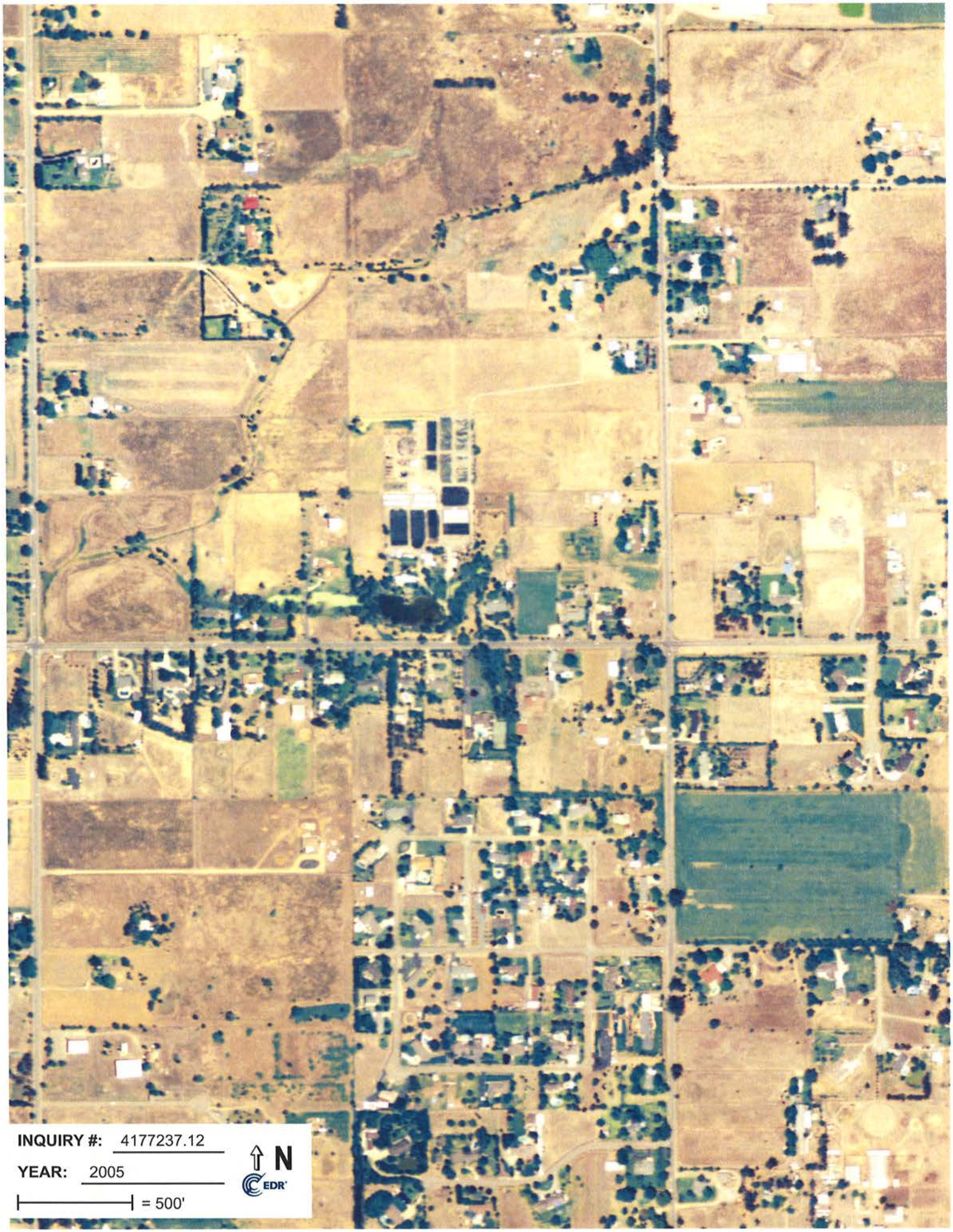
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YEAR: 2005
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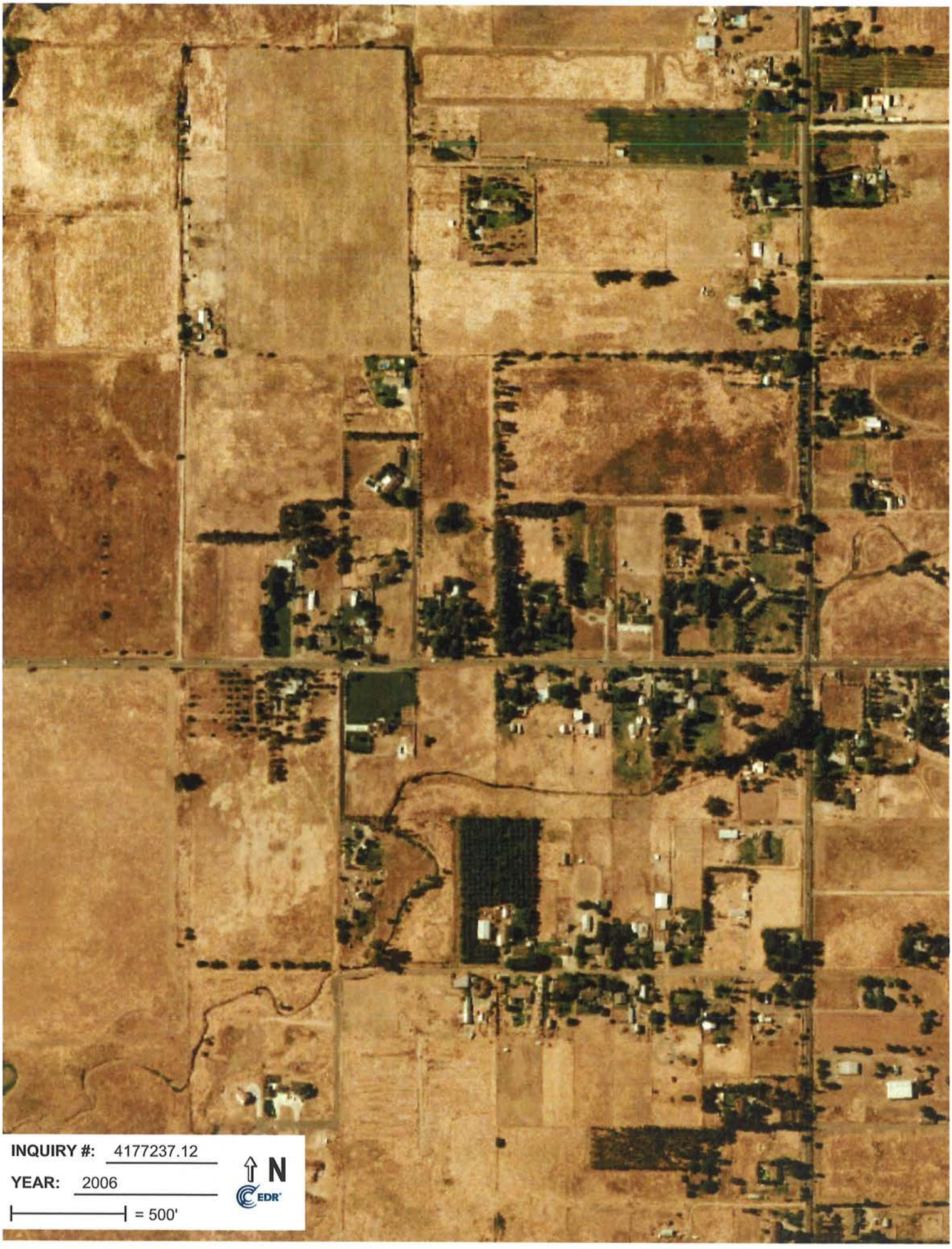
EDR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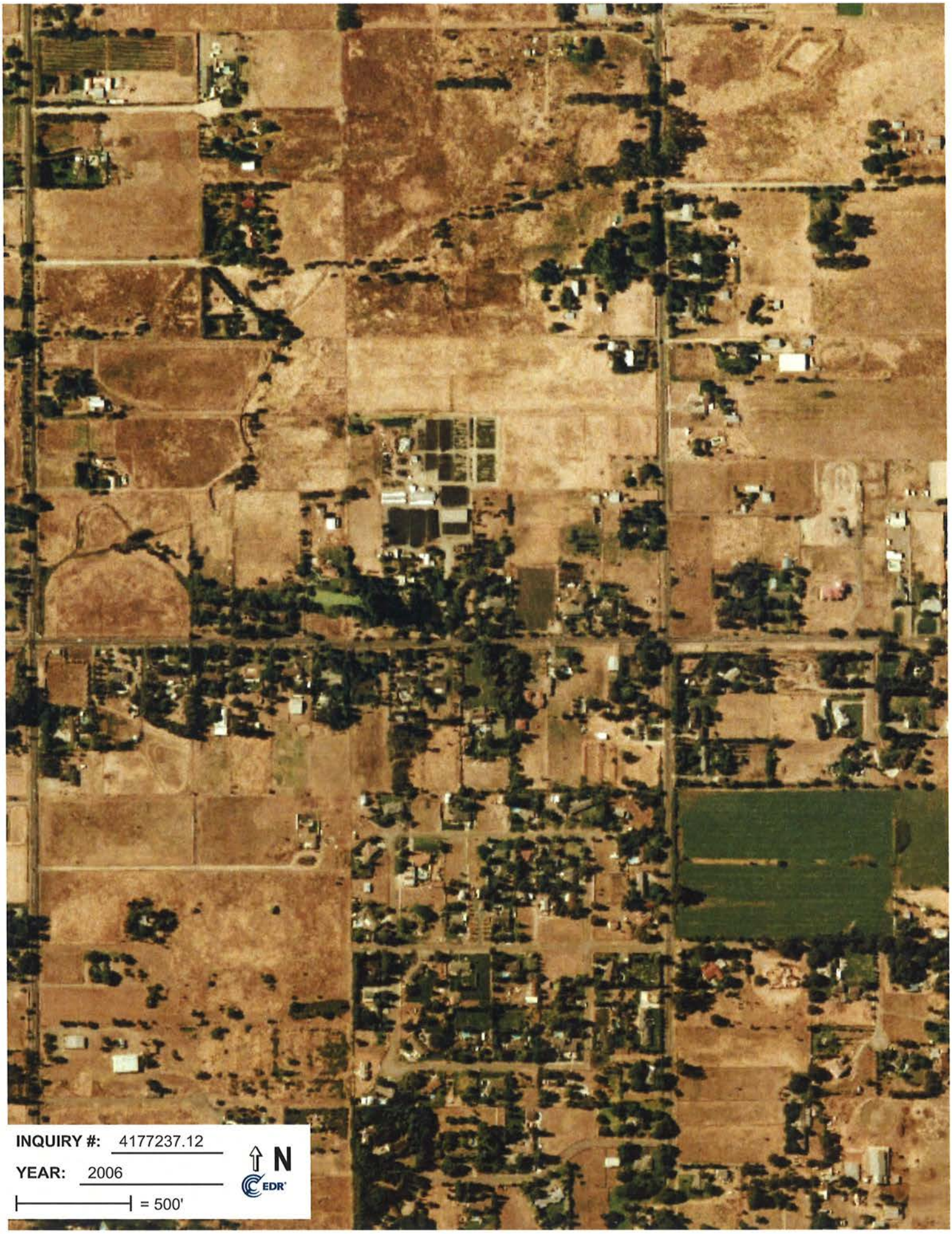
N
EDR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YEAR: 2006
= 500'
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EDR


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YEAR: 2009
= 500'
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EDR


INQUIRY #: 4177237.12
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 4177237.12
YEAR: 2010
= 500'
N
EDR


INQUIRY #: 4177237.12
YEAR: 2010
= 500'
N
EDR


INQUIRY #: 4177237.12
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 4177237.12
YEAR: 2012
= 500'
N
EDR

APPENDIX C

Environmental Data Resources, Inc., Sanborn Map Report

(None Available)

APPENDIX D

Environmental Data Resources, Inc.
City Directory Report

SHELDON BRADSHAW INTERSECTION ROUNDABOUT
Sheldon Rd. and Bradshaw Rd.
Elk Grove, CA 95624

Inquiry Number: 4177237.5
January 12, 2015

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2013	☑	☐	Cole Information Services
2008	☑	☐	Cole Information Services
2003	☑	☐	Cole Information Services
1999	☑	☐	Cole Information Services
1995	☑	☐	Cole Information Services
1992	☑	☐	Cole Information Services
1989	☑	☐	Haines Criss-Cross Directory
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1974	☑	☐	Haines Criss-Cross Directory
1970	☑	☐	Haines Criss-Cross Directory

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FINDINGS

TARGET PROPERTY STREET

Sheldon Rd. and Bradshaw Rd.
Elk Grove, CA 95624

Year	*CD Image*	*Source*	
BRADSHAW RD			
2013	pg A2	Cole Information Services	
2008	pg A12	Cole Information Services	
2003	pg A19	Cole Information Services	
1999	pg A25	Cole Information Services	
1995	pg A32	Cole Information Services	
1992	pg A37	Cole Information Services	
1989	pg A41	Haines Criss-Cross Directory	
1985	pg A43	Haines Criss-Cross Directory	
1985	pg A44	Haines Criss-Cross Directory	
1980	pg A46	Haines Criss-Cross Directory	
1980	pg A47	Haines Criss-Cross Directory	
1974	pg A49	Haines Criss-Cross Directory	
1970	pg A51	Haines Criss-Cross Directory	
SHELDON RD			
2013	pg A5	Cole Information Services	
2008	pg A14	Cole Information Services	
2003	pg A21	Cole Information Services	
1999	pg A27	Cole Information Services	
1995	pg A34	Cole Information Services	
1992	pg A39	Cole Information Services	
1989	pg A42	Haines Criss-Cross Directory	
1985	pg A45	Haines Criss-Cross Directory	
1980	pg A48	Haines Criss-Cross Directory	
1974	pg A50	Haines Criss-Cross Directory	
1970	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	Cole Information Services

BRADSHAW RD 2013

1	007 EMERGENCY TOWING
8401	DEXTER BEAVER
8415	AMOS GONZALES
8433	WALLACE SHAY
8434	CVS PHARMACY
	DEAN ANDERSON
	ROCK CHURCH
	UNIVERS HOPE INTERNATIONAL
8456	TRAVIS LEWIS
8465	ROSAMOND BEYDA
8491	JAGDISH RAJU
8551	TIMOTHY INOUYE
8567	JEFFREY CAMBEIS
8574	DAVID RODRIGUEZ
8585	ANGELICA GUTIERREZ
	HOWARD GIANG
	JUSTIN HOGUE
	VICTOR VALDIVIA
8595	LAURA MAYES
8610	FLORENCE GRAVES
8621	LARRY FENNER
	OCCUPANT UNKNOWN
8633	TERRY DEGARMO
8645	VIJAY SHARMA
8648	OCCUPANT UNKNOWN
8654	MATTHEW SATOW
8660	HECTOR ESPINOZA
8673	DONG NGUYEN
8683	SANDY WELLS
8690	RANDY PERKINS
8695	OCCUPANT UNKNOWN
8700	SAINT MARIA GORETTI PARISH
8711	L WALTER
8721	MCCLELLAN SANDLIN
8756	JEFFREY MACK
8785	DON PASQUETTI
8825	JERRY CHANDLER
8830	WILLIAM STEVENS
8845	MICHAEL DAMON
8858	BILL BRADLEY
8873	FELIX GREGORCYK
8890	SANDRA SINGH
8900	MOHINDERJIT SINGH
8901	FRANK YAMANAKA
8933	NEW LIFE CHRISTIAN FELLOWSHIP
8934	ANTONIO RAMIREZ
8949	RHONDA MONDAY
8950	HONG LE
8976	ROY YOKOI
8978	PATRICIA CLEMENT

BRADSHAW RD 2013 (Cont'd)

8980	KENNETH ASTON
8985	JEREMY EDWARDS
8995	ARMANDO MARQUEZ
9020	DEWEY BRAZEAL
9050	TERESA LE
9140	ELK GROVE UNIFIED SCHOOL DISTRICT
9159	PRESCOTT BUSH
9340	BLANCA CERVANTES
9355	DENISE SASSMAN
9380	OCCUPANT UNKNOWN
9390	OCCUPANT UNKNOWN
9395	DEREK GLANTZ
9415	JARED NEWLAND
9417	ENGEL NAVEA
9421	RONNIE SOMMERS
9451	HECTOR GARCIA
9469	EDWARD BORGERT
9481	SERGIO GUILLEN
9483	CORONA LANDSCAPING
9485	GENARO CASTRO
9486	CORDELL DANIEL
	DANIEL ALLEN REV
9489	YVONNE CHOATE
9506	RAY SCHULTZE
9515	ROY SWEHLA
	SWEHLA ROOFING
9520	KATHRYN BIEBER
9534	JOHNNIE DAVIS
9535	RICHARD SIHNER
9546	CHI VUONG
9555	DOUGLAS ANDERSEN
9560	DENNIS SEYFER
9571	DANIEL WELBAUM
9576	OCCUPANT UNKNOWN
9609	ALLISON DINA A DVM
	BLANKE ALAN R DVM BRADSHAW VETERINAR
	COIT CARRIE DVM
	GOEMANN KATHLEEN A DVM
	JOHNSON MICHAEL G DVM
	PARVIN BETH W DVM BRADSHAW VETERINAR
	RUNYAN ROBERT A DVM
	SCHROEDER DIANE C DVM BRADSHAW VETER
	VANCE KARL DVM
	VCA ANIMAL HOSPITALS
	VCA BRADSHAW
	VCA BRADSHAW ANIMAL HOSPITAL
	ZATKIN CAMI DVM
9656	MARLA DAILEY
9691	OCCUPANT UNKNOWN
9707	SHELLEY GOODE

BRADSHAW RD 2013 (Cont'd)

9721	ANTHONY AURIEMMA
9737	JEFFREY MAHAN
9779	ISSA DAWUD
9820	OCCUPANT UNKNOWN
9850	ROBERT NIEMEYER

Target Street	Cross Street	Source
✔	-	Cole Information Services

SHELDON RD 2013

5900	THOMAS KEE
7401	RAFAS MEXICAN FOOD
7405	JIFFY LUBE
7515	ADINA RAY
	AKIRA DAVIS
	ALFIO CHAVEZ
	ANDREA ABARA
	ANIL KUMAR
	ANNA FOLKES
	ANTHONY HALL
	ANTHONY WATKINS
	ARIENE CLARK
	BARBARA BARTHOLOMEW
	BOB AFAMASAGA
	BUENROSTRO LINETTE
	CAROLYN HARVEY
	CHING TAM
	CHRISTINA PATRICK
	CHRISTINA TRUJILLO
	CHRISTOPHER YUEN
	CONNIE CHONG
	DANIEL DWELLE
	DANIEL RIVERA
	DANIELLE CORRALES
	DANNY BENJAMIN
	DAVID HOPKINS
	DAVID MCINTYRE
	DAVID RATHJEN
	DWAYNE THOMAS
	EMILY KLOVER
	ERIC MCPROUTY
	ERIK PEREIRA
	FRANCINE STEVENS
	GABRIEL LEGGETT
	GABRIELA ACCETTOLA
	GABRIELLA GARCIA
	GENA COOPER
	GENEANNE FRANKLIN
	GINA LATOUR
	HAIGUANG CHU
	HEATHER HEISE
	HECTOR BARAJAS
	HOK TSOI
	JACIE TOUART
	JAMIE CARROLL
	JASON DYKES
	JASON GONZALES
	JERRY TRITT
	JOANN MCINTYRE
	JOHN JOHNSON

SHELDON RD 2013 (Cont'd)

7515 JOHN MANONGDO
JOHN MOFIDI
JOHN SCHROM
JOHN TORRES
JOSHUA HALL
JOSHUA WATSON
KAO SAETERN
KASEY BAKER
KATHLEEN MENTON
KELLY KIRSTEN
KEVIN BUFORD
KIMHOAN DINH
KRISTEN NGO
LAKETIA WELLS
LAREN FERGUSON
LATAISHA HENDERSON
LAWRENCE HAMMON
LEANDRA MEKATA
LEROY JOHNSON
LESLIE YIP
LLOYD MAY-COLE
LORRAINE BRYANT-WILSON
LYNN BARRINGER
LYNN HO
MARIA SOTELO
MARY CONKLIN
MERRILL PHAN
MICHAEL DAMPER
MICHAEL STEELE
MINAO SAKO
MISTY CALDERON
MONTY NOTT
NAPOLEON GACUTAN
NAZAR HELMAND
NGA NGUYEN
NICOLE FANT
NICOLE PENNINGTON
NORMAN JAOJOCO
NYENBEKU GEORGE
NYREE JACKSON
OSCAR OCHOA
PATRICIA RAMIREZ
PETRA ROBB
PHILLIP CHEN
PHUONG HA
PRISCILLA FELTON
QUITHA OWENS
RENEE AVILLA
RENEE PECKHAM
RICHARD THOMPSON

Target Street	Cross Street	Source
✓	-	Cole Information Services

SHELDON RD 2013 (Cont'd)

7515	RONALD ESCALA
	RUBILENE ANDERSON
	RYAN SSIEMANTEL
	SANDRA WASHINGTON
	SELWYN WESTERN
	SHALINA OWENS
	SHERRI LAWSON
	SHITAL SAINI
	STEPHEN MUMA
	TAKISHA EADDY
	TAM DANG
	TANYA BUENROSTRO
	THANH NGUYEN
	THOMAS NGUYEN
	TIARRA EARLS
	TIEN DINH
	TRACEE WATTS
	TRACY HEINSEN
	TRAVIS THURMAN
	TROY LEMONS
	VANESSA FULCHER
	VICTOR SENGMANY
	VU PHAM
	WILLIAM TERRELL
	XIAO LIN
7615	GELDERMAN KELLEY DVM
7725	GOLDEN VALLEY ACADEMY
8100	AIRPORT SHUTTLE
	SHELDON ROAD CHEVRON
8106	MANA BEENA INC
8112	KWIK N SAVE INC
	LA BEAUTY SALON
	LYNNS NAILS
	SHELDON DENTAL CENTER
	TOBACCO MAN
8126	ICANDY
	METROPCS
8140	CARL KARCHER ENTERPRISES
8142	WINCO FOODS
8159	JOHN HARPER
8160	TUTOR TIME
8165	WILLARD BAILEY
8170	TACO BELL
8320	CHURCH OF CHRIST ELK GROVE
8340	CLAUDE ROUTT
	ROUTT ROOFING
8360	OCCUPANT UNKNOWN
8361	CARRIE CEREZO
8364	EDA SCHEUFFELE
8365	BRIAN SMITH

SHELDON RD 2013 (Cont'd)

8365	E G UPHOLSTERY
8372	MARIA BECERRA
8380	JASON WOLFE
8385	DENNIS REUB
8386	LAGUNA COUNTRY GROOMERS
	OCCUPANT UNKNOWN
8398	NORMAN NEWLAND
8400	BETTY WALSH
	SHELDON ROAD GROOMERS
8422	HUGH WILSON
8476	ADELAIDA FONTANILLA
	ALBERT MYATT
	ANN BRIGGS
	AULTA DUHAIN
	BARBARA CLARK
	BERTHA KRAUS
	BETTY WAGNER
	BEVERLY GREENE
	CAMDEM SPRINGS
	CARDULLO JOANNE
	CHARLES GOODENOW
	D RAMSELL
	DANIEL CRADDOCK
	DEBORAH SCHINDLER
	DELORIS KALINOSKI
	E METZLER
	ELFREDA PICCOTTO
	ERICH NEUPERT
	EUGENE COTTRELL
	FRIEDRICH GRAEF
	G DAMES
	GERALD MEREDITH
	HELEN BAKER
	HORACE MCFALL
	IMA CASTLEMAN
	INDIANOAL WETTERSTROM
	J CASTLENAN
	JACK BOWMAN
	JAMES GEORGE
	JEANETTE RUSH
	JOAN DEBOY
	JOANNE CARDULLO
	JOE COVINGTON
	KAREN HARTLEY
	KATHLEEN CURREY
	LEE SAE
	LOIE WESTBERRY
	LOIS PATTERSON
	MARILYN DRAKE
	MARTIN CASTILLO

SHELDON RD 2013 (Cont'd)

8476	MARVIN GLAZE
	MIKIE CHAVEZ
	MYRTLE RAILEY
	NANCY COMSTOCK
	NORMA WHITE
	OCTAVIO ROMAN
	PATRICK ZAHLER
	PEGGY GALUT
	RAY WHITAKER
	RAY WILDE
	RITA STELTER
	ROBERT HUNTER
	ROBERT MORTON
	ROBERT STANDLEY
	ROSEMARY FEASTER
	RUSSELL MUNSON
	SAM RINELLI
	SUSAN TURNER
	THELMA BENNETT
	THOMAS KANNO
	THOMAS KENNELLY
	THOMAS MCGEE
	TODD RUPP
	TWILA OSULLIVAN
	VERNA DILL
	VIRGINIA BOWERS
	VIRGINIA REED
8604	WORLDS FAME PET GROOMING SALON
8645	NORMA GOULART
8651	TODD WOODS
	WOODS ELECTRIC
8665	HAROLD WITT
8679	OCCUPANT UNKNOWN
8693	SAM LAW
8821	J J & R CAFE
	LAGUNA DENTAL LAB
8829	AKIN CHIROPRACTIC OFFICE
	BRADSHAW OPTOMETRY
	LUXI SPA & SALON
	TOPS YOGURT & SMOOTHIES
	UTOPIA CLEANERS
8835	ANDREA CERVANTES DDS
	SMOKE IMAGE
8839	ELK GROVE BUFFALO WINGS LLC
8890	SENTRY STORAGE
8901	LOREN STUMP
8904	TAMI HOLM
8940	AC CURBS INC
	LONNIE LEONARD
9001	TAM DO

Target Street	Cross Street	Source
✓	-	Cole Information Services

SHELDON RD 2013 (Cont'd)

9019	DANIEL VO
9089	JAMES BURNIS
9116	OCCUPANT UNKNOWN
9184	MUKTIYAR SINGH
9187	OCCUPANT UNKNOWN
9258	BRENT CROCKETT
9272	OCCUPANT UNKNOWN
9286	RICHARD BISNETT
9345	ALLEN NEWLAND
9350	FERNANDO SILVA
9501	RASHELL JACKSON
9529	LEO FASSLER
9530	NICHOLAS PETERSON
9534	OCCUPANT UNKNOWN
9557	MATT MEUSER
9561	LAURA RANDLE
9567	L WALLACE
9569	DARRELL TONINI
9589	CALDER REID
9600	WARREN MARTIN
9610	JOHN CAVIN
9611	OCCUPANT UNKNOWN
9630	MANUEL SILVA
9635	DON CASTELLANO
9640	OCCUPANT UNKNOWN
9647	N SEDMAK
9656	CERTIFIED FARMERS MARKETS OF SACRAM
	DANIEL BEST
9659	KENNETH KERFOOT
9666	KEVIN SPEASE
9689	MASAKO UYEYAMA
9730	DENISE WALTERS
9750	FRANK BAETA
9753	OCCUPANT UNKNOWN
9770	JONATHAN BENVENUTI
9771	RICHARD MCLACHLAN
9780	HAL NEDVED
9788	CHRIS BEEBE
9794	ANDREW MAUCK
9797	RICHARD TAMAYO
9800	THOMAS BOWMAN
9811	OCCUPANT UNKNOWN
9816	OCCUPANT UNKNOWN
9845	IAN BALDWIN
9850	MANUEL CAMACHO
9851	MOSHMI KUMAR
9860	ROBERT WALKER
9870	DOUGLAS KNIERIEM
9871	NICK DONALDSON
9880	CHARLES ARGENTINE

SHELDON RD 2013 (Cont'd)

9921	J MANDALLA
9933	JOHN VOTAW
9947	NIKOLAY DEREBENSKIY
9953	SHANNON KELLY
9987	JOSHUA HUGHES
9999	DIN QAWAM
10021	DENNIS ALBIANI
10075	ANDREW STRADAN
10100	DARRELL MOSIER
10104	R LLOYD
10117	ALBERT BECKER
10127	KEWAL BOLINA
10132	DAVE SCHUH
10133	LORI OLSON
10136	DARRELL SCHUH
10150	OCCUPANT UNKNOWN
10171	A HELTWOOD
10179	EDWARD JOHNS
10188	OCCUPANT UNKNOWN
10221	GILBERT ALBIANI
10241	MARLENE KATZAKLAN
10256	OCCUPANT UNKNOWN
10265	TIM STONE
10269	JAMES GRAY
10273	MARJORY GRAY
10275	RAFINA KHAN
10284	OCCUPANT UNKNOWN
10290	ALAN NIELSEN
10291	MC BYRD
10300	WILLIAM MYERS
10345	OCCUPANT UNKNOWN
10364	DIANNE PINKSTON
10370	OCCUPANT UNKNOWN
10384	DIANE PAVEY-BENTLEY
10388	LYLE BENTLEY
10410	PRESTON HANFORD
10412	JENNIFER JENKINS
10426	CHARLIE SNYDER
10446	STEVEN HOWARD
10460	MAYME JACOBSON
10474	RONALD INGLESTON
10496	KLAUS HUBER
10500	RALPH ASKIN
10510	BERNARD MUNNS
10511	FELIX GONZALEZ
10527	LINDA KELLER
	OL FARM HOUSE
10529	CLAUDE MYERS
10560	BEE VANG
10576	MARK PURCELL

Target Street	Cross Street	Source
✓	-	Cole Information Services

BRADSHAW RD 2008

8401	DEXTER BEAVER
8415	AMOS GONZALES
8433	WALLACE SHAY
8434	OCCUPANT UNKNOWN
	THE ROCK CHURCH
8456	TALMADGE FRENCH
8465	7D CREATIVE
8491	BUSINESS PC SUPPORT
	OCCUPANT UNKNOWN
8520	APOSTOLIC STUDIES GROUP
8551	TIMOTHYD INOUYE
8567	OCCUPANT UNKNOWN
8574	OCCUPANT UNKNOWN
8585	JUSTIN HOGUE
	MARIO GUTIERREZ
8590	EDDIE MENEES
8595	KATHY SMITH
8610	CARSON & SONS ENTERPRISES
	FLORENCE GRAVES
8621	JAY SCHONAUER
	LAURIE JORDAN-FENNER
	OCCUPANT UNKNOWN
	ROBERT JORDAN
8633	TERRY DEGARMO
8645	VIJAY SHARMA
8648	OCCUPANT UNKNOWN
8654	MICHELLE DINH
8660	HECTOR ESPINOZA
8673	BE NGUYEN
8683	SANDY RAHEB
8695	OCCUPANT UNKNOWN
8711	WALTER DEWEY
8721	NANCY TURNER
8756	JEFFREY MACK
8785	DON PASQUETTI
8800	ROBERT SAINI
8825	JERRY CHANDLER
8830	WILLIAM STEVENS
8845	JOY SILVA
8858	BILL BRADLEY
	RACEWAY EXPRESS
8873	ROBERT MANNE
8900	WILLIAM TOWE
8901	FRANK YAMANAKA
8933	NEW LIFE CHRISTIAN FELLOWSHIP
8949	MATTY MONDAY
8950	D FORREST
8976	ROY YOKOI
8980	KENNETH ASTON
8985	OCCUPANT UNKNOWN

BRADSHAW RD 2008 (Cont'd)

8995	ARMANDO MARQUEZ
9020	BRAZEAL SPECIALTY CTING CONSTRUCTION
	CIRCLE FOUR 4
	TIFFANY KENNEDY
9050	OCCUPANT UNKNOWN
9080	OCCUPANT UNKNOWN
9159	PRESCOTT BUSH
9310	GLENN GILKERSON
9355	DALE SASSMAN
9380	OCCUPANT UNKNOWN
9390	JAMES FENIS
9395	DEREK GLANTZ
9417	JENNIFER FRENCH
9419	OCCUPANT UNKNOWN
9421	RONNIE SOMMERS
9451	HECTOR GARCIA
9469	EDWARD BORGERT
	PRODUCT DEVELOPMENT GROUP
9481	SERGIO GUILLEN
9483	CORONA LANDSCAPING
	OCCUPANT UNKNOWN
9485	KNEADING TO RELAX
	OCCUPANT UNKNOWN
9486	ALLEN DANIEL
9489	COUNTRY ELEGANCE INC
	OCCUPANT UNKNOWN
9506	RAY SCHULTZE
9515	ROY SWEHLA
	SWEHLA ROOFING
9520	BRNADI SMOAK
9534	JOHNNIE DAVIS
9535	HOWARD SIHNER
9546	LAN VUONG
9555	OCCUPANT UNKNOWN
9560	SHIRLEY OKADA
9571	NORM WELBAUM
9576	OCCUPANT UNKNOWN
9609	BRADSHAW VETERINARY CLINIC INC
	GRAY ANNE DVM
	MICHAEL G JOHNSON DVM
9691	CLASSY GLASS DECOR
	STEVEN LOCKE
9721	ANTHONY AURIEMMA
9737	CAROL HESS
9779	BILLY DAWUD
9820	OCCUPANT UNKNOWN
9850	ROBERT NIEMEYER

Target Street	Cross Street	Source
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SHELDON RD 2008

7401	LOS PRIMOS MEXICAN FOOD
7405	JIFFY LUBE
7515	ALEXIS VASSAR
	AMANDA GAREIS
	ANDREA ABARA
	ANNE DAWES
	ANTHONY WATKINS
	BARBARA BARTHOLOMEW
	BOB AFAMASAGA
	BRANNON NYBORG
	BUMTREE BOARDING CO
	CAM VAN
	CHRISTOPHER PEREZ
	CONG HA
	CYNTHIA EVANS
	DANIELLE WILLIAMS
	DEHUI WENG
	DELLANA HOYER
	DONALD SEVERANCE
	DR & HORTON
	DWAYNE THOMAS
	FRANCINE STEVENS
	GABRIELA ACCETTOLA
	GEMILLA MAHINAN
	GINA LATOUR
	HALIMAN BISHOP
	HECTOR BARAJAS
	HOK TSOI
	ISAIAH LOPEZ
	JASON GRAY
	JERRY TRITT
	JOHN OROZCO
	KATHLEEN MENTON
	KENNETH JACKSON
	KIMHOAN DINH
	LATAISHA HENDERSON
	LAURA WILDER
	LAWRENCE HAMMON
	LAWRENCE PICARD
	LEANDRA MEKATA
	LEONARD RATHJEN
	LESLIE JOHNSON
	LOAN LE
	LYNN BARRINGER
	LYNN HO
	MARY CONKLIN
	MARY STEPHENS
	MICHAEL GRIFFIN
	MICHAEL STEELE
	MISTY CALDERON

SHELDON RD 2008 (Cont'd)

7515	NICOLE ETEROVICH
	NICOLE PASTRE
	PATRICIA RAMIREZ
	PHYLLIS HAAG
	PHYLLIS THOMAS
	PHYLLIS WASHINGTON
	RUTH CORNEJO
	SANDRA WASHINGTON
	SHAUN PIONTEK
	SHERRI LAWSON
	STACY HAWKINSON
	STEPHEN MUMA
	T LELOAN
	TENEANE SMITH
	THANH NGUYEN
	THOMAS NGUYEN
7615	HATTON VETERINARY HOSPITAL
7725	ANWER SIERRA
	GOLDEN VALLEY ACADEMY
	TORGERSONCRAIG ENTERPRISES
8100	Y J K ENTERPRISES INC
8106	BANK OF WEST
8112	FRESH CLEANERS SHELDON
	LA BEAUTY SALON
	LYNNS NAILS
	MOHAMED HASSAN DDS INC
	SHELDON DENTAL CENTER
	TOBACCO MAN
8140	CARL KARCHER ENTERPRISES INC
	CARLS JR
8142	WINCO FOODS
8151	GYAN KALWANI
8160	BLOCKBUSTER VIDEO
8169	L MCALISTER
8300	THETAN PARTNERS LLC
8340	CLAUDE ROUTT
8353	BRONYA STUBBS
8359	GAIL SMITHMANIZAK
8360	ALPHA OMEGA PAVING
	HOAN BUI
8364	EDA SCHEUFFELE
8365	ABRAHAM CEREZO
8372	MARIA BECERRA
8380	JASON WOLFE
8385	DENNIS REUB
8386	LAGUNA COUNTRY GROOMERS
	OCCUPANT UNKNOWN
8398	NORMAN NEWLAND
8400	BETTY WALSH
	NEWLAND DRILLING

Target Street	Cross Street	Source
✓	-	Cole Information Services

SHELDON RD 2008 (Cont'd)

8400 SHELDON ROAD GROOMERS
8422 OCCUPANT UNKNOWN
8437 ROBERT PELTS
8474 YIU WONG
8476 SCOTT LEE
8545 JUSTIN BRADFORD
8604 WORLDS FAME PET GROOMING SALON
8645 BOULOS BARBER SHOP
NORMA GOULART
8651 AVERY WOODS
WOODS ELECTRIC
8665 HAROLD WITT
8693 LAW RENTAL PROPERTIES
SAM LAW
8829 AKIN CHIROPRACTIC OFFICE
KIM PAUL OD
8835 SHELDON GROVE FAMILY DENTAL
SULCAS CARPETS INC
8890 SENTRY STORAGE
SUSAN NAUSLAR
TAMMY BULLOCKDIVINE
8901 LOREN STUMP
8904 TAMI HOLM
8940 AC CURBS INC
LONNIE LEONARD
8942 VICTORIA NAVARRO
8990 MALINDA ROBERTS
9001 TAM DO
9019 ANHTHU DO
9089 CAROLE BURNIS
9116 OCCUPANT UNKNOWN
9184 MUKTIYAR SINGH
9187 OSARUMWENSE OSEMWINGIE
9272 MOHAMMAD AHMADI
9286 RICHARD BISNETT
9350 FERNANDO SILVA
9501 OCCUPANT UNKNOWN
9529 LEO FASSLER
9530 OCCUPANT UNKNOWN
9534 RUDY VALENCIA
9549 OCCUPANT UNKNOWN
9557 OCCUPANT UNKNOWN
9560 EMPIRE AIR
9561 RON HOWARD
9567 A GORDON
9569 WILLIAM DIXON
9589 RAYMOND REID
9610 JOHN CAVIN
9611 ESTHER YORK
9630 MANUEL SILVA

Target Street	Cross Street	Source
✓	-	Cole Information Services

SHELDON RD 2008 (Cont'd)

9635	DON CASTELLANO
9640	GERALD MOORE
9647	JOHN SEDMAK
9656	CERTIFID FARMERS MARKET F SACRAMENTO
	DANIEL BEST
9659	KENNETH KERFOOT
9666	DAVID SPEASE
	DAVID SPEASE
9689	BOB UYEYAMA
9730	TERRY STEFFAN
9750	FRANK BAETA
9753	OCCUPANT UNKNOWN
9770	DAVID BABCOCK
9771	HEATHER MCLACHLAN
	RICH MCLACHLAN
9780	HAL NEDVED
9788	CHRIS BEEBE
9794	ANDREW MAUCK
9797	RICHARD TAMAYO
9811	ANN CHANDLER
	CORNFLOWER FARMS
9845	IAN BALDWIN
9850	MANUEL CAMACHO
9851	OCCUPANT UNKNOWN
	WESTERN SHINE & CLEAN
9860	ROBERT WALKER
9870	DOUGLAS KNIERIEM
9871	BRET DONALDSON
9880	CHARLES ARGENTINE
9921	J MANDALLA
9933	JOHN VOTAW
9947	OCCUPANT UNKNOWN
9953	SHANNON KELLY
9998	ANTHONY ROMANO
9999	FRED FORD
	FREEDOM REAL ESTATE INVESTORS INC
10021	DENNIS ALBIANI
10075	ANDREW STRADAN
10095	ROSEMARY CHANDLER
10100	EARL MOSIER
10104	R LLOYD
10117	ADOLF SCHENDEL
10127	KEWAL BOLINA
10132	DARRELL SCHUH
10133	LORI OLSON
10150	OCCUPANT UNKNOWN
10171	A HELTWOOD
10179	KENNETH STONE
10187	OCCUPANT UNKNOWN
10188	JOHN HILDEBRAND

SHELDON RD 2008 (Cont'd)

10221	GILBERT ALBIANI
10240	JOHN AGUERO
10241	ARTHUR KATZAKIAN
	ET MATERIALS LLC
10256	JOSEPH KIASER
10259	JEFFERSON SMITH
10265	TIM STONE
10273	OCCUPANT UNKNOWN
10275	MOHAMMED RAHIM
10278	BENJAMIN HERR
10284	OCCUPANT UNKNOWN
10290	ALAN NIELSEN
10291	MC BYRD
10300	WILLIAM MYERS
10364	DIANNE PINKSTON
10370	OCCUPANT UNKNOWN
10388	LYLE BENTLEY
10412	ELK GROVE WASTE SERVICES
	JENKINS CONCRETE INC
	MARK JENKINS
10446	STEVEN HOWARD
10460	M JACOBSON
10474	RONALD INGLESTON
10496	KIMBAL HUBER
10500	C ASKIN
10510	BERNARD MUNNS
10511	ARMANDO MARQUEZ
10560	OCCUPANT UNKNOWN
10576	MARK PURCELL

Target Street	Cross Street	Source
✓	-	Cole Information Services

BRADSHAW RD 2003

8401 J DEXTER
8415 AMOS GONZALES
8434 GOLDEN WEST ACADEMY
8456 AYE DECLAIR EMBELLISHMENTS
MICHAEL HARPER
8465 GERRY MALLORY
8491 ABDUL NATTAH
8526 OCCUPANT UNKNOWN
8567 B WILLIAM
8574 DAVID RODRIGUEZ
8585 RICHARD DAVIS
8590 ROBERT WTONGE
8610 FLORENCE GRAVES
8613 ABDELHAMID HAMOUDI
8621 LAURIE JORDAN-FENNER
OCCUPANT UNKNOWN
8633 TERRY DEGARMO
8638 PAMELA NELSON
8645 VIJAY SHARMA
8648 DAVID MEDICH
8660 HECTOR ESPINOZA
8673 ROBERT NGUYEN
8683 SANDY RAHEB
8690 LLOYD WALKER
8695 OCCUPANT UNKNOWN
8711 WALTER DEWEY
8721 OCCUPANT UNKNOWN
8785 DON PASQUETTI
8800 ROBERT SAINI
8825 JERRY CHANDLER
8830 WILLIAM STEVENS
8845 JOHN SILVA
8858 DELLA BRADLEY
RACEWAY EXPRESS
8873 ROBERT MANNE
8890 JACK FLOCK
8900 DENNY BURNETT
8901 FRANK YAMANAKA
8933 NEW LIFE CHRISTIAN FELLOWSHIP
OCCUPANT UNKNOWN
8934 BEN MARCIANTI
8950 OCCUPANT UNKNOWN
8976 ROY YOKOI
8978 JAMES MARSHALL
8980 KENNETH ASTON
8985 JEREMY EDWARDS
8995 L DALE
9020 BRAZEAL SPECIALTY COATING
MONNA AYERS
9050 LISA DIXON

BRADSHAW RD 2003 (Cont'd)

9050	WHIMSICAL FARMS
9080	AARON WILLIAMS
9159	PRESCOTT BUSH
9310	AKIRA IWATSURU
9340	NICK KASTANES
9355	DALE SASSMAN
	LOVES POODLE GROOMING
9380	CANDELARIO ARELLANO
9390	JAMES FENIS
9395	ORLAND GLANTZ
9415	VERNON NEWLAND
9419	ROBERT HANSON
9421	RONNIE SOMMERS
9451	HECTOR GARCIA
9469	EDWARD BORGERT
	PRODUCT DEVELOPMENT GROUP
9481	SERGIO GUILLEN
9483	RALPH NIX
9486	ALLEN DANIEL
9506	RAY SCHULTZE
9515	ROY SWEHLA
9520	RONALD BIEBER
9534	JOHNNIE DAVIS
9535	HOWARD SIHNER
9555	DOUGLAS ANDERSEN
9560	DENNIS SEYFER
9571	NORMAN WELBAUM
9576	WAYNE RAMOS
9609	ALLISON DINA N DVM
	BRADSHAW VETERINARY CLINIC INC
	OCCUPANT UNKNOWN
	ZEHNDER THOMAS E DVM
9656	OCCUPANT UNKNOWN
9691	STEVEN LOCKE
9696	HAL BARTHOLOMEW
9707	RICHARD BARGE
9737	CAROL NIELSEN
9779	MUSTAFA DAWUD
9820	OCCUPANT UNKNOWN
9850	ROBERT NIEMEYER
9921	ANTHONY AURIEMMA

Target Street	Cross Street	Source
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SHELDON RD 2003

7515	OCCUPANT UNKNOWN
7615	HATTON VETERINARY HOSPITAL
	OCCUPANT UNKNOWN
7725	GOLDEN VALLEY ACADEMY
	KIM HIGGS
8119	FAMILY GOLF CNTR AT ELK GROVE
	LAGUNA CREEK HIGH SCHOOL
	SHELDON GOLF CTR
	WAYNE SMITH
8140	CARLS JR
	OCCUPANT UNKNOWN
8142	WINCO
8151	GYAN KALWANI
8159	RAM KUNWAR
8165	WILLARD BAILEY
8169	NEVILLE BOWEN
8300	OCCUPANT UNKNOWN
	S & S FENCE CO
8310	OCCUPANT UNKNOWN
8320	ELK GROVE CHURCH OF CHRIST
	JACK BILLS
8340	CLAUDE ROUTT
	ROUTT ROOFING
8353	DELLA WILLIAMS
8359	GAIL SMITHMANIZAK
8360	JASWINDER SINGH
8364	EDA SCHEUFFELE
8365	EG UPHOLSTERY & INTERIORS
	WESLEY HUFT
	WHOLESALE BLIND MFG
8372	MARIA BECERRA
8386	KATHY WOLFE
8398	NORMAN NEWLAND
8400	DAVID HOLTZCLAW
	NEWLAND LIVESTOCK HAULING
	SHELDON ROAD GROOMERS
8422	RANDALL THIER
8437	ROBERT PELTS
8450	OCCUPANT UNKNOWN
8476	ALCINO QUARESMA
8545	JUSTIN BRADFORD
8604	GERALD STRICKLING
	WORLDS FAME PET GROOMING SALON
8645	BOULOS BARBER SHOP
	FAYEZ BOULOS
8651	AVERY WOODS
	WOODS ELECTRIC
8665	HAROLD WITT
	OCCUPANT UNKNOWN
8679	A GRETCHEN

SHELDON RD 2003 (Cont'd)

8688	ELK GROVE RACQUET CLUB
8693	SAM LAW
8890	SENTRY STORAGE STORAGE MINI
8901	LOREN STUMP
8940	OCCUPANT UNKNOWN
9019	PATRICIA YERETZIAN
9089	CAROLE BURNIS
9116	EURAL SMOTHERS
9184	SALENS LANDSCAPING INC
	SURINDRA SINGH
9187	OCCUPANT UNKNOWN
9272	DANNY HARVEY
9286	RICHARD BISNETT
9350	GLORIA JARAMILLO
9501	JOHN QUICK
9529	OCCUPANT UNKNOWN
9530	MICHAEL THOMPSON
9534	RUDY VALENCIA
9549	JANE LYKINS
9557	ROBERT JORDAN
9560	JON BARNABY
9561	GORDON KNUTSON
9569	DARRELL TONINI
9589	PICCADILLY FARMS
	RAYMOND REID
9600	WARREN MARTIN
9610	JOANN CAVIN
9611	JAMES YORK
9630	MANUEL SILVA
9635	DON CASTELLANO
9640	GERALD MOORE
9647	JAMES BURICH
9656	CERTIFIED FARMERS
	DANIEL BEST
9659	KENNETH KERFOOT
9666	DAVID SPEASE
	SPEASE CONSTRUCTION
9689	BOB UYEYAMA
9730	TERRY STEFFAN
9750	FRANK BAETA
9753	MICHAEL CLEMONS
9770	DAVID BABCOCK
9771	RICH MCLACHLAN
	RICH MCLACHLAN
9780	HAL NEDVED
9788	ROBERT GEBAN
9794	ANDREW MAUCK
9797	RICHARD TAMAYO
9800	OCCUPANT UNKNOWN
9811	CORNFLOWER FARMS

SHELDON RD 2003 (Cont'd)

9811	F ANN
9816	JAMES FOX
9845	IAN BALDWIN
9850	MANUEL CAMACHO
	P MANUEL
9851	DAVID YODER
9860	ROBERT WALKER
9870	DOUGLAS KNIERIEM
9871	BRET DONALDSON
9880	CHARLES ARGENTINE
9921	J MANDALLA
9933	JOHN VOTAW
9945	MARK MOON
	SULLIVAN RIDING SCHOOL
9987	HOMER LEWINGS
9999	ANTHONY ROMANO
10075	OCCUPANT UNKNOWN
10095	S ROSEMARY
10100	VIRGINIA MOSIER
10104	OCCUPANT UNKNOWN
10127	KEWAL BOLINA
10132	DAVID SCHUH
10133	A LORI
10150	ANTHONY BERTOLDI
10171	A HELTWOOD
10179	KENNETH STONE
10187	OCCUPANT UNKNOWN
10188	JOHN HILDEBRAND
10221	MICHAEL ALBIANI
10240	JOHN AGUERO
10241	ARTHUR KATZAKIAN
10256	JOSEPH KIASER
10265	JOHN QUINN
10269	JAMES GRAY
10273	J MARJORY
10275	J WANDA
10278	OCCUPANT UNKNOWN
10284	WILLIAM COSBIE
10290	BILLIE NIELSEN
10291	MC BYRD
10300	WILLIAM MYERS
10345	MICHAEL DAVIS
	PROFESSIONAL EQUINE TRAINING
10364	DIANNE PINKSTON
10370	OCCUPANT UNKNOWN
10388	LYLE BENTLEY
10410	PRESTON HANFORD
10412	MARK JENKINS
10426	RODNEY PERRY
10446	STEVEN HOWARD

SHELDON RD 2003 (Cont'd)

10460	MICHAEL ALBIANI
10474	RONALD INGLESTON
10496	KLAUS HUBER
10500	OCCUPANT UNKNOWN
10510	BERNARD MUNNS
10511	CORINE DEWEES
10527	PAUL EMMERICH
	SHELDON FARMS
10529	KENNETH KOOTSTRA
10543	SURJIT JOHL
10560	WILLIS SCHOONMAKER
10576	MARK PURCELL

Target Street	Cross Street	Source
✓	-	Cole Information Services

BRADSHAW RD 1999

7750	PAULS GARDENING
8415	AMOS GONZALES
8433	HOLLY WALLACE
	OCCUPANT UNKNOWN
8434	GOLDEN WEST ACADEMY
	THE ROCK CHURCH GOLDEN WEST ACADEMY
8456	OCCUPANT UNKNOWN
	TALMADGE FRENCH
8465	JBC LANDSCAPE INCORPORATED
	OCCUPANT UNKNOWN
8526	OCCUPANT UNKNOWN
8551	MARGARET INOUYE
	OCCUPANT UNKNOWN
8567	WILLIAM OGILVIE
8574	OCCUPANT UNKNOWN
8585	MARIO GUTIERREZ
8595	KATHY SMITH
	LAURA MAYES
8610	FLORENCE GRAVES
8613	SAPUTO TOM JR LINOLM
8621	JAY SCHONAUER
	ROBERT JORDAN
8633	TERRY DEGARMO
8645	VIJAY SHARMA
8654	MICHELLE DINH
8660	HECTOR ESPINOZA
	OCCUPANT UNKNOWN
8673	BE NGUYEN
8695	OCCUPANT UNKNOWN
8711	MICHAEL DEWEY
8721	NANCY TURNER
8756	JEFFREY MACK
8785	DON PASQUETTI
8825	JERRY CHANDLER
8830	OCCUPANT UNKNOWN
	WILLIAM STEVENS
8845	JOY SILVA
8858	BILL BRADLEY
8900	WILLIAM TOWE
8901	FRANK YAMANAKA
8933	ARMANDO MARQUEZ
	GREEN PARADISE GROWERS
	NEW LIFE CHRISTIAN FELLOWSHIP
8976	ROY YOKOI
8985	JEREMY EDWARDS
9020	BRAZEAL SPECIALITY COATING & CONSTRUCTION
	DEWEY BRAZEAL
9050	ROGERS BOARDING STABLES
9159	PRESCOTT BUSH
9310	BETTY MASCORELLA

BRADSHAW RD 1999 (Cont'd)

9310	GLENN GILKERSON
9340	OCCUPANT UNKNOWN
9355	DALE SASSMAN
9395	DEREK GLANTZ
9417	JENNIFER FRENCH
	ROBERT HANSON
9419	ROBERT HANSON
9421	RONNIE SOMMERS
9451	HECTOR GARCIA
9469	EDWARD BORGERT
	OCCUPANT UNKNOWN
9481	SERGIO GUILLEN
9485	GENARO CASTRO
9486	ALLEN DANIEL
	OCCUPANT UNKNOWN
9506	RAY SCHULTZE
9515	ROY SWEHLA
9520	KATHIE BIEBER
9534	JOHNNIE DAVIS
9535	HOWARD SIHNER
9546	VICTORIA VUONG
9555	FERMIN SALDANA
9571	NORM WELBAUM
9576	WAYNE RAMOS
9609	BLANKE ALAN R DVM BRADSHAW VETERINARY CLINIC INCORPORATED
	BRADSHAW VETERINARY CLINIC INCORPORATED HOUSEHOLD PETS
	GOEMANN KATHLEEN A DVM
	JOHNSON MICHAEL G DVM BRADSHAW VETRNRY CLINIC INCORPORATED
	PARVIN BETH W DVM BRADSHAW VETERINARY CLINIC INCORPORATED
	RAMOS GREG DVM
	SCHLOEDER LANE M DVM
	SCHROEDER DIANE C DVM BRADSHAW VETRNRY CLINIC INCORPORATED
	VANCE KARL DVM
	WOOD STEVE L DVM
	ZATKIN CAMI DVM
	ZEHNDER THOMAS E DVM
9656	MARLA DAILEY
	OCCUPANT UNKNOWN
9691	STEVEN LOCKE
9707	OCCUPANT UNKNOWN
9737	CAROL HESS
9820	OCCUPANT UNKNOWN
9850	ROBERT NIEMEYER
9921	ANTHONY AURIEMMA

Target Street	Cross Street	Source
✓	-	Cole Information Services

SHELDON RD 1999

7515	ANIL KUMAR
	ANNA FOLKES
	ANNE DAWES
	ANTHONY WATKINS
	ARMANDO JAOJOCO
	BOB AFAMASAGA
	BRANNON NYBORG
	BRIAN GRABERT
	CAM VAN
	CHRISTINA PATRICK
	CHRISTOPHER PEREZ
	CYNTHIA EVANS
	DANIELLE WILLIAMS
	DELLANA HOYER
	DUFFNEY WILLIAMSON
	DWAYNE THOMAS
	ERIN KANEMOTO
	FRANCINE STEVENS
	GABRIELA ACCETTOLA
	GENELLE MCCREARY
	GINA LATOUR
	HALIMAN BISHOP
	HECTOR BARAJAS
	HOK TSOI
	ISAIAH LOPEZ
	JASON GONZALES
	JASON GRAY
	JERRY TRITT
	JOHN JOHNSON
	JOHN OROZCO
	JOHN PANION
	JOHN TORRES
	KATHARINE REID
	KATHLEEN MENTON
	KEISHA BONNER
	KELLY KIRSTEN
	KENNETH JACKSON
	KIMHOAN DINH
	LATAISHA HENDERSON
	LAWRENCE PICARD
	LEANDRA MEKATA
	LEONARD RATHJEN
	LEROY JOHNSON
	LESLIE JOHNSON
	LESLIE YIP
	LOAN LE
	LOVE DAVIS
	LYNN BARRINGER
	LYNN HO
	MARIA SOTELLO

SHELDON RD 1999 (Cont'd)

7515	MARY CONKLIN
	MELISSA LOWREY
	MICHAEL GRIFFIN
	MICHAEL STEELE
	MORGAN TOLAND
	MORRIS SPAGNER
	NAPOLEON GACUTAN
	NICHOLAS HODAPP
	NICHOLAS KANEMOTO
	NICOLE ETEROVICH
	NYREE JACKSON
	PATRICIA RAMIREZ
	RENEE AVILLA
	RENEE PECKHAM
	ROBBIE FOLKES
	RONALD ESCALA
	RUTH CORNEJO
	SABRINA ROBB
	SANDRA WASHINGTON
	SELWYN WESTERN
	SHAUN PIONTEK
	SHERRI LAWSON
	STEPHEN MUMA
	TAKISHA EADDY
	TENEANE SMITH
	TERRIE HIGGINS
	THANH NGUYEN
	THOMAS NGUYEN
	VANESSA FULCHER
	WILMA WILLIAMS
7615	HATTON VETERINARY HOSPITAL
7725	GOLDEN VALLEY ACADEMY
8119	LAGUNA CREEK GOLF CENTER
	SHELDON LAKES GOLF COURSE
8159	HARPER JOHN
	OCCUPANT UNKNOWN
8169	L MCALISTER
8320	CHURCH OF CHRIST ELK GROVE
	ELK GROVE CHURCH OF CHRIST
	RITA OCONNOR
8353	OCCUPANT UNKNOWN
	ROSALIND STUBBS
8359	GAIL SMITHMANIZAK
8360	OCCUPANT UNKNOWN
8372	MARIA BECERRA
8380	JASON WOLFE
8385	DENNIS REUB
8386	LAGUNA COUNTRY GROOMERS
	OCCUPANT UNKNOWN
8398	NORMAN NEWLAND

SHELDON RD 1999 (Cont'd)

8400	BETTY WALSH
	NEWLAND LIVESTOCK HAULING
	OCCUPANT UNKNOWN
8422	OCCUPANT UNKNOWN
8437	OCCUPANT UNKNOWN
8474	YIU WONG
8476	OCCUPANT UNKNOWN
8513	OCCUPANT UNKNOWN
8519	OCCUPANT UNKNOWN
8545	JUSTIN BRADFORD
	OCCUPANT UNKNOWN
8604	OCCUPANT UNKNOWN
	WORLDS FAME PET GROOMING SALON
8645	NORMA GOULART
8651	AVERY WOODS
	WOODS ELECTRIC
8665	HAROLD WITT
8679	BILL MOHR
8688	ELK GROVE RACQUET CLUB
8693	SAM LAW
8890	ELK GROVE STORAGE 1
	SENTRY STORAGE
8901	LOREN STUMP
8904	TAMI HOLM
8940	ALBERT WATKINS
8942	VICTORIA NAVARRO
8990	MALINDA ROBERTS
9001	ALAN THIELEN
9019	ANHTHU DO
9089	CAROLE BURNIS
9184	MUKTIYAR SINGH
9187	OSARUMWENSE OSEMWINGIE
9286	RICHARD BISNETT
9345	WILLIAM HANSEN
9501	OCCUPANT UNKNOWN
9529	LAWRENCE SCHULTZ
9534	RUDY VALENCIA
9557	OCCUPANT UNKNOWN
9561	RON HOWARD
9567	GORDON KNUTSON
9589	PICCADILLY FARMS
	RAYMOND REID
9600	OCCUPANT UNKNOWN
9610	JOHN CAVIN
	OCCUPANT UNKNOWN
9611	JAMES YORK
	OCCUPANT UNKNOWN
9630	MANUEL SILVA
9635	DON CASTELLANO
9640	GERALD MOORE

SHELDON RD 1999 (Cont'd)

9640	OCCUPANT UNKNOWN
9656	DANIEL BEST
9659	KENNETH KERFOOT
9666	S & J CONSTRUCTION
9689	BOB UYEYAMA
	OCCUPANT UNKNOWN
9730	TERRY STEFFAN
9750	BATH & KITCHEN PLUMBING
	BRENT ORICK
	OCCUPANT UNKNOWN
9753	MICHAEL CLEMONS
9770	DAVID BABCOCK
9771	RICHARD MCLACHLAN
9780	HAL NEDVED
9788	CHRIS BEEBE
9794	ANDREW MAUCK
9797	RICHARD TAMAYO
9800	OCCUPANT UNKNOWN
9811	JEFFREY CHANDLER
9816	OCCUPANT UNKNOWN
9845	IAN BALDWIN
9850	MANUEL CAMACHO
9851	OCCUPANT UNKNOWN
9860	ROBERT WALKER
9870	DOUGLAS KNIERIEM
9871	BRET DONALDSON
	OCCUPANT UNKNOWN
9880	CHARLES ARGENTINE
9933	JOHN VOTAW
9953	SHANNON KELLY
9998	ANTHONY ROMANO
9999	FRED FORD
10021	DENNIS ALBIANI
10075	ANDREW STRADAN
10095	ROSEMARY CHANDLER
10100	EARL MOSIER
10117	ADOLF SCHENDEL
	OCCUPANT UNKNOWN
10127	KEWAL BOLINA
10132	DARRELL SCHUH
10133	LORI OLSON
10171	A HELTWOOD
10179	EDWARD JOHNS
	STONE KENNETH
10187	OCCUPANT UNKNOWN
10188	BEATRICE HILDEBRAND
10221	GILBERT ALBIANI
10240	JOHN AGUERO
10241	ARTHUR KATZAKIAN
10256	JOSEPH KIASER

SHELDON RD 1999 (Cont'd)

10259	J MARJORY
	JEFFERSON SMITH
10265	OCCUPANT UNKNOWN
	TIM STONE
10269	JAMES GRAY
	OCCUPANT UNKNOWN
10273	OCCUPANT UNKNOWN
10278	OCCUPANT UNKNOWN
10290	ALAN NIELSEN
10291	MC BYRD
10300	WILLIAM MYERS
10345	BAUMER GARY TRAINING STABLES
10364	DIANNE PINKSTON
10388	LYLE BENTLEY
10410	PRESTON HANFORD
10412	MARK JENKINS
10446	OCCUPANT UNKNOWN
	STEVEN HOWARD
10460	J RODRIGUEZ
10474	RONALD INGLESTON
10496	KIMBAL GRIFFITH
10500	C ASKIN
10510	BERNARD MUNNS
10525	OCCUPANT UNKNOWN
10527	SHELDON COUNTRY FARMS
10530	OCCUPANT UNKNOWN
10560	GIG TANG
10576	MARK PURCELL

Target Street	Cross Street	Source
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BRADSHAW RD 1995

8433	OCCUPANT UNKNOWNN
8434	ROCK CHURCH
8456	MALONE, STEVE
8465	CIOLI, G M
8491	TAUTFEST, WILLIAM H
8526	OCCUPANT UNKNOWNN
8551	INOUYE, TAKAJI D
8567	OCCUPANT UNKNOWNN
8574	JOHNSTON, LEONARD W
8585	MAES, FRED R
8590	TONGE, ROBERT
8595	MAYES, RICHARD E
8610	BLANKENSHIP, DELMER B
	GRAVES, RICHARD S
8613	SAPUTO, TOM JR
8621	OCCUPANT UNKNOWNN
8633	DEGARMO, TERRY D
8638	OCCUPANT UNKNOWNN
8642	WONG, HELEN Y
8645	DOSANJH, AVTAR
8648	PERRY, ALBERT W
8660	WONG, SETH G
8673	OCCUPANT UNKNOWNN
8690	WALKER, LLOYD E
8711	DEWEY, WALTER L
8721	OCCUPANT UNKNOWNN
8756	MACK, JEFFREY J
8785	PASQUETTI, DON
8800	SAINI, ROBERT M
8825	CHANDLER, JERRY
8830	STEVENS, WILLIAM
8845	SILVA, JOHN J
8858	BRADLEY, BILL
8890	BUTLER, PAUL W
8900	BURNETT, DENNY
	TOWE, WILLIAM D
8901	YAMANAKA, FRANK
8933	FUJIKAWA, KENT
	LIGHTHOUSE MINISTRIES
8934	OTTO, IRENE C
8950	ERWIN, CINDI E
8976	YOKOI, ROY M
8978	DAVIS, THOMAS
8980	ASTON, NATALIE C
8985	EDWARDS, JEREMY
9020	AYERS, COY A
9050	GOLD, JEFF
9310	JONES, DAWN
9340	OCCUPANT UNKNOWNN
9355	OCCUPANT UNKNOWNN

BRADSHAW RD 1995 (Cont'd)

9380	ARELLANO, C
9390	FENIS, RONALD C
9395	GLANTZ, ORLAN D
9415	NEWLAND, VERNON B
9417	HANSON, ROBERT E
9419	B JS TROPHIES & AWARDS
	HANSON, ROBERT
9421	SOMMERS, RONNIE
9451	GARCIA, HECTOR N
9469	BORGERT, EDWARD F
9486	DANIEL, ALLEN
9489	MITCHELL, JOE M
9506	SCHULTZE, RAY
9515	SWEHLA, GENE
9535	MCFALL, JACK
	SIHNER, HOWARD
9546	HAYES, P
9553	ANDERSON, CHRIS
9555	ANDERSEN, DOUGLAS G
9560	ROSS, BILL
9571	WELBAUM, NORM
9576	FERNANDES, RONALD J
9609	BETH W PARVIN DVM
	BRADSHAW VETERINARY CLINIC INC
	DIANE C SCHROEDER DVM
	MICHAEL G JOHNSON DVM
	ROBERT A RUNYAN DVM
9656	KAMMERER, ED
9691	BEAR, MAXINE
9707	JIMENA, JOSEPH
9737	OCCUPANT UNKNOWNN
9779	OCCUPANT UNKNOWNN
9820	SAKAMOTO, MARY H
9850	NIEMEYER, ROBERT L
9921	AURIEMMA, ANTHONY

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SHELDON RD 1995

0	WILLIS, K
7615	HATTON VETERINARY HOSPITAL
	MEAD, SUZANNE
7725	GOLDEN VALLEY ACADEMY
8119	LAGUNA CREEK GOLF CTR
8151	MONTOYA, GINGER
8159	HARPER, JOHN
8163	BATES, THOMAS
8165	BAILEY, WILLARD III
8169	OCCUPANT UNKNOWNN
8310	OCCUPANT UNKNOWNN
8320	BILLS, JACK R
	CHURCH OF CHRIST
8340	ROUTT, J
8359	SMITH, GAIL J
8360	SMITH, HERBERT
8364	SCHEUFFELE, MARVIN E
8372	OCCUPANT UNKNOWNN
8386	BROWN, ROBERT J
8398	NEWLAND, NORMAN D
8400	HUDSON, ADAM
8422	OCCUPANT UNKNOWNN
8430	OCCUPANT UNKNOWNN
8450	DAVIS, CHARLES P
8476	QUARESMA, ALCINO
8533	DOUNG, NGUYET
8545	BARNES, ALBERT H
8645	BOULOS, FAYEZ
8651	WOODS, AVERY C
8665	WITT, HAROLD
8679	MOHR, MAYNARD V
8688	ELK GROVE RACQUET CLUB
8693	LAW, SAM
8890	SENTRY STORAGE
9001	THIELEN, ALAN
9089	JONES, JEFFREY M
9116	SMOTHERS, EURAL A
9187	JOHNSON, A
9258	LINO, FRANK C
9272	OCCUPANT UNKNOWNN
9286	BISNETT, RICHARD
9345	HANSEN, WILLIAM E
9350	SHELDON LAKES GOLF COURSE
	SILVA, F
9501	HODGSON, BRIAN
9529	MULLIN, DEBRAN
9534	VALENCIA, RUDOLPH
9549	LYKINS, OLLIE S
9557	MEUSER, MATT
9561	OCCUPANT UNKNOWNN

SHELDON RD 1995 (Cont'd)

9567 KNUTSON, DONALD J
9569 TONINI, DARRELL W
9589 PICCADILLY FARMS
9600 MARTIN, WARREN T
9610 CAVIN, JOANN
9611 YORK, JAMES P
9630 BORTOLAZZO, MARIO
9647 BURICH, JAMES A
9656 LAROCK, VERN P
9659 KERFOOT, KENNETH S
9666 S & J LANDSCAPE CONSTRUCTION
SPEASE, DAVID J
9689 OCCUPANT UNKNOWNN
9730 JAMES, JOHN L
9750 BATH & KITCHEN PLUMBING
ORICK, BRENT
9753 OCCUPANT UNKNOWNN
9770 NAIL, SHIRLEY J
9771 MCLACHAN, LINDA R
9774 NAIL, ROBERT
9780 NEDVED, HAL
9788 GEBAN, ROBERT M
9794 MAUCK, ANDREW
9797 TAMAYO, RICHARD
9800 BOWMAN, ALVA A
9811 FISHER, ANN E
9816 MUNOZ, DINORA
9845 BALDWIN, IAN
9850 CAMACHO, MANUEL
9851 OCCUPANT UNKNOWNN
9870 KNIERIEM, DOUG
9871 HAM, SUE
SHEPPERD, BARBARA
9880 ARGENTINE, CHARLES
9890 HEGUIAGARAY, GREGORY A
9921 MANDALLA, MICHELE J
9933 VOTAW, DEANA
9945 OCCUPANT UNKNOWNN
SHELDON FARMS
9987 YELVERTON, DONALD K
9999 BONNIE, E F
10075 STRADAN, ROY
10100 MOSIER, EARL
10104 MOUSER, DEAN
10117 ADAMS, C P
10127 BOLINA JANITORIAL SVC
BOLINA, KEWAL
10132 SCHUH, DARRELL
10133 OCCUPANT UNKNOWNN
10150 OCCUPANT UNKNOWNN

SHELDON RD 1995 (Cont'd)

10171 HELTWOOD, A S
10177 STONE, KENNETH
10179 NIGHTHORSE FARM
STONE, A
10187 OCCUPANT UNKNOWNN
10188 HILDEBRAND, JOHN F
10221 ALBIANI, GILBERT A
10240 CUNNINGHAM, RUSSELL K
10241 ECOTECH
KATZAKIAN, ARTHUR JR
10256 KIASER, JOSEPH E
10259 GRAY, MARJORY
10265 PARKER, JEFF
10269 OCCUPANT UNKNOWNN
10275 FLEMING, WANDA J
10278 OCCUPANT UNKNOWNN
10291 BYRD, M J
10300 MYERS, WILLIAM E
10345 BAUMER, GARY A
GARY BAUMER TRAINING STABLES
10364 PINKSTON, LEO C
10370 BODINE, NEIL P
10410 OCCUPANT UNKNOWNN
10426 PERRY, ROD
ROD PERRY CB & AMATUER RADIO
10440 MOODY, MILDRED J
10446 TORGERSON, WESLEY M
10460 FISCHER, ALBERT
10474 INGLESTON, RONALD G
10496 GRIFFITH, KIMBAL
10500 ASKIN, RALPH J
10510 SCHWICKERATH, ALAN
10511 CHURCH, GENE
10527 OCCUPANT UNKNOWNN
10529 WILSON, W F
10560 SCHOONMAKER, WILLIS

Target Street	Cross Street	Source
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BRADSHAW RD 1992

0	MARSH CARPET
8434	THE ROCK CHURCH
8465	CIOLI&SONS
8551	INOUYE, TAKAJI D
8574	JOHNSTON, LEONARD W
8595	MAYES, RICHARD E
8610	BLANKENSHIP, DELMER B
	CARSON&SONS
	GRAVES, RICHARD S
8613	SAPUTO, TOM JR
8645	DOSANJH, AVTAR
8690	WALKER, LLOYD E
8711	DEWEY, WALTER L
8785	PASQUETTI, DON
8825	CHANDLER, JERRY
8830	STEVENS, WILLIAM
8845	JOHN SILVA PLASTRNG
8858	BRADLEY, BILL
8900	BURNETT, DENNY
	TOWE, WILLIAM D
8901	YAMANAKA, FRANK
8933	FUJIKAWA, KENT
	LIGHTHOUSE MINISTRY
8978	DAVIS, THOMAS
8985	EDWARDS, JEREMY
9020	AYERS, COY A
9310	AFFORDABLE REPAIR
9355	SASSMAN, DALE
9380	ARELLANO, C
9395	GLANTZ, ORLAN D
9419	B JS TROPHIES&AWARD
9421	SOMMERS, RONNIE
9486	DANIEL, ALLEN
9489	MITCHELL, JOE M
9506	SCHULTZE, RAY
9515	SWEHLA, GENE
9535	MCFALL, JACK
	SIHNER, HOWARD
9546	HAYES, P
9555	CAMPER, EUGENE W
9576	FERNANDES, RONALD J
9609	BRADSHAW VETERINRY
	PARVIN, BETH W
	RUNYAN ROBERT A DVM
	RUNYAN, ROBERT A
	SCHMIDT, LELAND V
	SCHOEDER, LANE M
9656	KAMMERER, ED
9691	BEAR, R
9707	JIMENA, JOSEPH

BRADSHAW RD 1992 (Cont'd)

9737 NIELSEN, CAROL H
9921 AURIEMMA, ANTHONY
HARRIS, ROY H

Target Street	Cross Street	Source
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SHELDON RD 1992

0	ASKIN, RALPH
	FASSLER, LEO
	NEWLAND, NORMAN
	SCHEUFFELE, MARVIN E
	WILLIS, K
7725	GOLDEN VLY ACADEMY
8119	LAGUNA CRK GLF CNTR
8159	HARPER, JOHN
8165	BAILEY, WILLARD III
8320	BILLS, JACK R
	CHURCH OF CHRIST
8340	ROUTT, J
8360	SMITH, HERBERT
8372	BECERRA, H C
8386	BROWN, ROBERT J
8400	HUDSON, ADAM
8476	QUARESMA, ALCINO
8645	BOULOS, FAYEZ
8665	WITT, HAROLD
8688	ELK GRV RACQUET CUB
8693	LAW, SAM
8890	ELK GRV STORAGE
9001	THIELEN, ALAN
9089	JONES, JEFFREY M
9184	LEGRANDE, LARRY
9286	BISNETT, RICHARD
9345	HANSEN, WILLIAM E
9350	SILVA JOE
9534	VALENCIA, RUDOLPH
9549	LYKINS, OLLIE S
9557	JORDAN TRENCHING
9561	FAMILY CHILD CARE
9569	TONINI, DARRELL W
9589	PICCADILLY FARMS
9630	MARIOS BACKHOE SERV
9656	LAROCK, VERN P
9666	S&J LANDSCAPE CONST
	SPEASE, DAVID J
9730	JAMES, JOHN L
9750	BAETA, FRANK R
	BATH&KITCHEN PLMBG
9780	NEDVED, HAL
9794	MAUCK, ANDREW
9797	TAMAYO, RICHARD
9800	BOWMAN, ALVA A
9816	FOX, FRED
9845	BALDWIN, IAN
9850	CAMACHO, MANUEL
9851	YODER, DAVID W
9870	KNIERIEM, DOUG

SHELDON RD 1992 (Cont'd)

9871 GRAVES, CHUCK
HAM, SUE
9880 ARGENTINE, CHARLES
9933 FIRE ATTACK INC
9945 BRANDT, JEFFREY
PENNER, TRACY A
SHELDON FARMS
10075 REED, ANDREW
STRADAN, ROY
10100 MOSIER, EARL
10127 BOLINA JANITORL SRV
BOLINA, KEWAL
10132 SCHUH, DARRELL
10171 HELTWOOD, A S
10177 STONE, KENNETH
10179 NIGHTHORSE FARM
STONE, GREGORY
10221 ALBIANI, GILBERT A
10240 JACOBI, SUE
10241 ECOTECH
KATZAKIAN, ARTHUR JR
10256 KIASER, JOSEPH E
10345 BAUMER G TRNG STBLS
10364 ARNOLD, WALTER L
10410 UNDERWOOD RANCH
UNDERWOOD, SUZANN
10446 TORGERSON, WESLEY M
10474 INGLESTON, RONALD G
10510 MUNNS, BERNARD A
10511 CHURCH, GENE
10527 MARTICUS ELECTRIC
MUNOZ, ARTHUR
10529 MURDOCH, SAM W
10560 SCHOONMAKER, WILLIS

Target Street	Cross Street	Source
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BRADSHAW RD 1989

BRADSHAW RD 95624
ELK GROVE

8415	XXXX	00	
8433	RODERICK Alan	423-1685	6
8434	***THE ROCK CHURCH**	**689-7625**	**+9**
8465	***CIOLI&SONS**	**423-2136**	**4**
8526	EGAN Richard A	682-7506	7
	EGAN Richard A	423-1521	7
8551	INOUYE Takaji Dan	682-2665	
8567	XXXX	00	
8574	JOHNSTON Lawrence	682-2519	
8585	MAES Fred	682-2619	8
8590	XXXX	00	
8595	MAYES Richard E	682-2721	6
8610	BLANKENSHIP Delmer	682-2438	
	GRAVES Richard S	682-2438	
8613	SAPUTO Tom Jr	423-1057	3
8638	REED Larry R	682-1023	+9
8690	WALKER Lloyd E	682-3420	
8711	DEWEY Walter L	682-2808	
8721	SANDLIN Mcclellan	682-6240	+9
8756	XXXX	00	
8785	PASQUETTI Don	682-3408	1
8825	XXXX	00	
8830	STEVENS William	682-2352	3
8845	***JOHN SILVA PLASTRNG**	**685-9116**	
8890	XXXX	00	
8900	BURNETT Denny	685-9867	4
	TOWE William D	685-8458	4
8901	YAMANAKA Frank	685-4651	
8933	***COUNTRY CHRISTN CTR**	**685-1668**	**8**
8950	EDWARDS Daniel W	685-7910	7
8976	XXXX	00	
8978	DAVIS Thomas	685-1702	8
8980	XXXX	00	
8985	EDWARDS Jeremy	685-5282	7
8990	XXXX	00	
8995	XXXX	00	
9020	AYERS Coy A	685-1227	5
9050	BLODGETT Raymond E	685-9489	
9151	HAXTON Chas R	685-3135	
9271	XXXX	00	
9300	XXXX	00	
9310	***AFFORDABLE REPAIR**	**685-1361**	**7**
9340	XXXX	00	
9355	SASSMAN Dale	685-4509	
9380	ARELLANO C	685-4482	
9395	GLANTZ Orlan D	685-3744	4
9415	XXXX	00	
9417	XXXX	00	
9419	HANSON Robert	686-5566	6
9421	SOMMERS Ronnie	685-6855	4
9469	XXXX	00	
9486	DANIEL Allen Rev	685-9001	6
	DANIEL Allen Rev	685-9296	7
9489	MITCHELL Joe M	686-5636	6
9506	SCHULTZE Ray	685-9541	
9515	SWEHLA Gene	685-7415	8
	SWEHLA Roy	685-9394	
9535	MCFALL Jack	685-4540	8
	SIHNER Howard	685-3078	
9546	HAYES P	685-2367	2
9555	CAMPER Eugene W	685-5993	5
9560	ROSS Bill	685-6233	
9571	WELBAUM Mary	685-2155	+9
	WELBAUM Norm	685-2155	+9
9576	FERNANDES Ronald J	685-6633	
9609	***BRADSHAW VETERINRY**	**685-2494**	
	***FARRAR MARK A DVM**	**685-2494**	**+9**
	***GOEMANN K A DVM**	**685-2494**	**2**
	***JOHNSON MICHAEL DVM**	**685-2494**	
	***PEYSER KAREN G DVM**	**685-2494**	**7**
	***SCHMIDT LELAND DVM**	**685-2494**	
	***SCHROEDER DIANE DVM**	**685-2494**	
	***ZEHNDER THOMAS DVM**	**685-2494**	**2**
9656	KAMMERER Ed	685-4340	
9691	BEAR Roosevelt	685-4077	
9707	JIMENA Joseph	685-3828	+9
9737	NIELSEN Carol	685-8759	4
9779	XXXX	00	
9850	XXXX	00	
9921	AURIEMMA Anthony	685-3275	
	HARRIS Roy H	685-5576	1
NO #	***MARSH CARPET**	**366-9387**	**0**
NO #	SCHULZ Dan	682-2420	

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SHELDON RD 1989

9001	THIELEN Alan	682-20
9089	XXXX	00
9184	LEGRANDE Judy	682-35
	LEGRANDE Larry	682-35
9187	XXXX	00
9258	XXXX	00
9272	LAMB R	689-46
9286	BISNETT Richard	682-32
9345	HANSEN Wm E	682-20
9350	SILVA Fernando	682-81
	***SILVA JOE**	**682-36**
	SILVA Joe	682-89
	SILVA Liz	682-89
9501	JOERGER Lorraine	682-54
9534	VALENCIA Rudolph	682-714
9549	LYKINS O S	682-267
9557	XXXX	00
9561	***CHILD CARE&FMLY SV**	**689-215**
	***PLEASANT DAY PRESCH**	**689-215**
9565	XXXX	00
9569	TONINI Darrell W	689-965
9589	***PICCADILLY FARMS**	**682-322**
9600	XXXX	00
9610	XXXX	00
9630	***MARIOS BACKHOE SERV**	**682-931**
9640	XXXX	00
9656	XXXX	00
9659	XXXX	00
9666	***S&J LANDSCAPE CONST**	**689-863**
	SPEASE David J	682-7463
9686	XXXX	00
9689	XXXX	00
9730	JAMES John L	682-970
9750	BAETA Frank R	682-6555
	***BATH&KITCHEN PLMBG**	**682-6556**
9770	XXXX	00
9771	XXXX	00
9775	XXXX	00
9780	NEDVED Hal	682-2372
9788	XXXX	00
9794	MAUCK Andrew	682-7232
9797	TAMAYO Richard	689-7085
9800	BOWMAN A A	682-2968
9811	JESSUP David A	689-1015
9816	FOX Fred	682-2067
9820	XXXX	00
9845	BALDWIN Ian	682-1069
9850	CAMACHO Manuel	682-2369
9851	YODER David W	682-2250
9870	KNIERIEM Doug	682-6696
9871	JACOBS David	689-1896
9880	ARGENTINE Charles	682-
	KOLL Shelley	682-
9890	XXXX	00
9921	XXXX	00
9945	BRANDT Jeffrey	682-3
	BRANDT Tracy	682-3
	PENNER Tracy A	682-3
	***SHELDON FARMS**	**682-3**
9987	XXXX	00
9998	XXXX	00
9999	XXXX	00

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BRADSHAW RD 1985

BRADSHAW RD 95624
ELK GROVE

8415	DEOLIVEIRA ROSEMARY	689-6017	+5
	ROSEMARYS REFINISHN	423-2183	+5
8433	RODERICK JOSEPH	682-2866	9
8465	CIOLI&SONS	423-2136	4
8526	SMITH VIRGIL	682-2310	1
8551	INOUYE TAKAJI DAN	682-2665	
8567	XXXX	00	
8574	JOHNSTON LAWRENCE	682-2519	
8590	MCANALLY ROGER	682-2521	2
8610	BLANKENSHIP DELMER	682-2438	9
	GRAVES RICHARD S	682-2438	9
8613	SAPUTO TOM JR	423-1057	3
8690	WALKER LLOYD E	682-3420	6
8711	DEWEY WALTER L	682-2808	
	KURTZE LLOYD R	689-4998	+5
8721	XXXX	00	
8756	XXXX	00	
8785	PASQUETTI DON	682-3408	1
	PASQUETTI PETE	682-8541	2
8825	XXXX	00	
8830	STEVENS WILLIAM	682-2352	3
8845	JOHN SILVA PLASTRNG	685-9116	8
8890	WALKER PAULINE	685-3239	
	WALKER VAN	685-3239	6
8900	BURNETT DENNY	685-9867	4
	TOWE WILLIAM D	685-8458	4
8901	YAMANAKA FRANK	685-4651	
8933	SONODA NURSERY	685-2194	8
8950	EDWARDS DANIEL	685-5282	6
	EDWARDS JEREMY	685-5282	
8976	XXXX	00	
8980	DUNNETT DENNIS	685-4323	6
8985	XXXX	00	
8990	XXXX	00	
8995	NEWBOLD DALE	685-3233	6
9020	AYERS COY A	685-1227	+5
9050	BLODGETT RAYMOND E	685-9489	7
9151	HAXTON CHAS R	685-3135	
9271	XXXX	00	
9300	XXXX	00	
9340	XXXX	00	
9355	SASSMAN DALE	685-4509	
9380	ARELLANO C	685-4482	7

Target Street	Cross Street	Source
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BRADSHAW RD 1985

BRADSHAW RD		95624 CONT	
9395	GLANTZ ORLAN D	685-3744	4
9415	XXXX	00	
9417	HANSON ROBERT	685-2343	9
9421	SOMMERS RONNIE	685-6855	4
9469	XXXX	00	
9486	DANIEL ALLEN REV	685-9296	+5
9489	MITCHELL JOE M	685-5028	7
9506	SCHULTZE RAY	685-9541	
9515	SWEHLA GENE	685-7554	1
	SWEHLA ROY	685-9394	
9535	SIMNER HOWARD	685-3C78	
9546	HAYES P	685-2367	2
9555	CAMPER EUGENE W	685-5993	+5
9560	ROSS BILL	685-6233	9
9571	XXXX	00	
9576	FERNANDES RONALD J	685-6633	9
9609	**BRADSHAW VETERINRY**	**685-2494**	7
	GOEMANN K A DVM	**685-2494**	2
	JOHNSON MICHAEL DVM	**685-2494**	9
	MICHELSEN PAUL DVM	**685-2494**	+5
	SCHMIDT LELAND DVM	**685-2494**	7
	ZEHNDER THOMAS DVM	**685-2494**	2
9656	KAMMERER ED	685-4340	
9691	BEAR ROOSEVELT	685-4077	6
9737	NIELSEN MIKE	685-8759	4
9779	HOOK RONALD O	685-9172	0
9850	XXXX	00	
9921	AURIEMMA ANTHONY	685-3275	
	HARRIS ROY H	685-5576	1
NO #	MAES FRED	682-2619	
NO #	MAYES RICHARD E	682-2721	
NO #	SCHULZ DAN	682-2420	
*	10 BUS 65 RES	7 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SHELDON RD 1985

8901	BURKES ARABIANS	682-8832	0
9001	XXXX	00	
9089	THOLE DONALD	682-2588	8
	THOLE TERRY	682-6648	2
9184	LEGRANDE LARRY	682-3557	0
9187	XXXX	00	
9258	BRAZILWALTON M	689-1392	4
	WALTON CHARLES	689-1392	4
9272	LAMB R	689-4621	+5
9286	BISNETT RICHARD	682-3295	8
9345	HANSEN WM E	682-2035	0
9350	SILVA FERNANDO	682-8144	1
	SILVA JOE	682-3617	+5
9534	XXXX	00	
9549	LYKINS O S	682-2672	
9557	XXXX	00	
9561	PLEASANT DAY PRESCH	689-2150	+5
9565	XXXX	00	
9569	TONINI DARRELL W	689-9655	4
9589	PICCADILLY FARMS	682-3229	1
	THRASHER JUDY	682-3725	1
9600	XXXX	00	
9610	CAVIN JOHN	689-6149	+5
9630	BORTOLAZZO MARIO	682-9311	7
9640	XXXX	00	
9656	GOVER MELFORD	682-2341	0
9666	SPEASE DAVID J	682-7465	8
9686	XXXX	00	
9689	XXXX	00	
9730	JAMES JOHN L	682-9709	8
9750	BAETA FRANK R	682-6555	2
9770	XXXX	00	
9771	XXXX	00	
9775	XXXX	00	
9780	NEDVED HAL	682-2372	
9788	XXXX	00	
9794	MAUCK ANDREW	682-7232	7
9800	BOWMAN A A	682-2968	
9811	JESSUP DAVID A	689-1015	4
9816	FOX FRED	682-2067	2
9820	XXXX	00	
9845	MARLOWE LESTER W	682-3982	7
9850	CAMACHO MANUEL	682-2369	0
9851	YODER DAVID W	682-2250	
9870	KNIERIEM DOUG	685-6698	1
9871	POPHAM DAVID G	682-2759	6
9880	ARGENTINE CHARLES	682-2705	
	KOLL SHELLEY	682-2611	6
9890	XXXX	00	
9921	XXXX	00	
9945	HOOVER CULLEN	682-3921	0
9987	XXXX	00	
9998	XXXX	00	
9999	HUNTER VAUGHN	689-6230	+5

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BRADSHAW RD 1980

BRADSHAW RD 95624 ELK GROVE

8491	TAUTFEST BILL H	682-9156	+0
2386	PASQUETTI DON	682-3408	
8551	INOUYE TAKAJI DAN	682-2665	
8567	XXXX	00	
8574	JOHNSTON LAWRENCE	682-2519	4
8610	BLANKENSHIP DELMER	682-2438	9
	GRAVES RICHARD S	682-2438	9
8690	WALKER LLOYD E	682-3420	6
8711	DEWEY WALTER L	682-2808	5
8721	FOX CECIL F	682-8509	+0
8756	MCANALLY ROGER	682-2521	4
8825	XXXX	00	
8845	JOHN SILVA PLASTRNG	685-9116	8
8890	WALKER PAULINE	685-3239	6
	WALKER VAN	685-3239	6
	WALKER VANDI	685-5732	+0
8900	HAMILTON ROBERT	685-3142	
8901	YAMANAKA FRANK	685-4651	5
8933	SONODA NURSERY	685-2194	8
8950	EDWARDS JEREMY	685-5282	6
8976	SHIMMIN ROBERT M	685-5396	8
8980	DUNNETT DENNIS	685-4323	6
8985	SONODA M	685-3133	+0
8990	XXXX	00	
8995	NEWBOLD DALE	685-3233	6
9020	AYERS COY A	383-0780	9
9050	BLODGETT RAYMOND E	685-9489	7
9151	HAXTON CHAS R	685-3135	
9271	KOHAYA GENE	685-5754	6
9300	XXXX	00	
9340	OKAMOTO JEFF	685-2924	7
9355	SASSMAN DALE	685-4509	5

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BRADSHAW RD 1980

BRADSHAW RD		95624 CONT.
9380	ARELLANO C	685-4482
9395	GLANTZ ORLAN D	685-3744
9415	SMITH PAUL	685-3327
9417	HANSON ROBERT	685-2343
9469	BAKER PATRICK N	685-9614
9486	DANIEL ALLEN REV	685-9001
9489	MITCHELL JOE M	685-5028
9506	SCHULTZE RAY	685-9541
9515	SWEHLA ROY	685-9394
9535	SIHNER HOWARD	685-3078
9546	DINWIDDLE R A	685-3655
9555	XXXX	00
9560	ROSS BILL	685-6233
9571	**CNTRL VLLY LNDSCPNG**	**685-3334**
	SMITH EDGAR G	685-3334
9576	FERNANDES RONALD J	685-6633
9609	**BRADSHAW VETERINRY**	**685-2494**
	JOHNSON MICHAEL DVM	**685-2494**
	SCHMIDT LELAND DVM	**685-2494**
9656	KAMMERER ED	685-4340
9691	BEAR ROOSEVELT	685-4077
9737	REINHARDT ERIC	685-2634
9779	HOOK RONALD O	685-9172
9850	XXXX	00
9921	AURIEMMA ANTHONY	685-3275
NO #	MAES FRED	682-2619
NO #	MAYES RICHARD E	682-2721
NO #	SCHULZ DAN	682-2420
NO #	STEVENS WILLIAM	682-2352
★	6 BUS 55 RES	9 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SHELDON RD 1980

9001	VALENTE FRANK	682-2029	8
9089	THOLE DONALD	682-2588	8
9184	LEGRANDE LARRY	682-3557	+0
9187	XXXX	00	
9258	XXXX	00	
9272	DITTRICH ANDREW	682-3583	7
9286	BISNETT RICHARD	682-3295	8
9345	HANSEN WM E	682-2035	+0
9350	SILVA JOE	682-3617	9
9534	XXXX	00	
9549	LYKINS O S	682-2672	5
9557	WORK NICK	682-2737	+0
9565	ALLEN L J	682-2516	5
9600	XXXX	00	
9610	CAVIN JOHN	682-2726	5
9630	BORTOLAZZO MARIO	682-9311	7
9640	MOORE G A	682-2993	6
9656	GOVER MELFORD	682-2341	+0
9666	SPEASE DAVID J	682-7465	8
9686	BALAS STEVE	682-9072	9
9730	JAMES JOHN L	682-9709	8
9750	BATH&KITCHEN SERVIC	421-3286	+0
9770	NAIL ROBERT	682-3866	+0
9771	KNUTH ROBERT	682-2093	+0
9775	KNUTH ELIZABETH	682-2464	+0
9780	NEDVED HAL	682-2372	
9788	XXXX	00	
9794	MAUCK ANDREW	682-7232	7
9800	BOWMAN A A	682-2968	4
9820	FOX FRED	682-2067	
9845	MARLOWE LESTER W	682-3982	7
9850	CAMACHO MANUEL	682-2369	+0
9851	YODER DAVID W	682-2250	4
9871	POPHAM DAVID G	682-2759	6
9880	ARGENTINE CHARLES	682-2705	4
	KOLL SHELLEY	682-2611	6
9890	CAPLES ROBERT K	685-4444	1
9921	XXXX	00	
9945	HILDRETH PAULINE	682-3845	
	HOOVER CULLEN	682-3921	+0
	TRANSCARE	682-7316	+0
9998	WINTER DALE D	682-9387	6

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BRADSHAW RD 1974

BRADSHAW RD 95624 ELK GROVE

8990	BJORGE ARTHUR	685-3785
8995	NEWBOLD DALE	685-3233
9506	SCHULTZE RAY	685-9541 3
9515	SWEHLA ROY	685-9394+4
9535	SIHNER HOWARD	685-3078+4
9555	CAMPER EUGENE W	685-4320+4
9571	GANGL JOSEPH	685-3661 3
9850	FANTON WALLACE D	685-9637 1
9921	AURIEMMA ANTHONY	685-3275 3
NO #	ARELLANO CANDELARIO	685-4482
NO #	ASTA VINCENT J	363-6173
NO #	BETTS EDGAR	685-9886
NO #	BLODGETT RAYMOND E	685-9489+4
NO #	CARSON F	383-7362+4
NO #	CARSON FLORENCE	682-2280 3
NO #	CHENOWETH LEONA	685-4359 3
NO #	FENIS RONALD	685-4681
NO #	GLANTZ ORLAN D	685-3744 2
NO #	*GULF OIL CO DISPTCH	362-1177+4
NO #	HAMILTON ROBERT	685-3142
NO #	HAXTON CHARLES R	685-3135
NO #	KAMMERER ED	685-4340
NO #	MAES FRED	682-2619
NO #	MAYES RICHARD E	682-2721
NO #	NANCE HENRY REV	682-2435
NO #	NELSON GALE A	685-9096 2
NO #	OTANI EDWARD N	685-3594
NO #	OTANI WILLIAM M	685-4725
NO #	POTTER LESTER	685-3288
NO #	SASSMAN DALE	685-4509
NO #	SCHULZ DAN	682-2420
NO #	SONODA M	685-3133
NO #	SONODA THOMAS	685-3728 3
NO #	STEVENS WILLIAM	682-2352
NO #	YAMANAKA GEORGE	685-4651

* 1 BUS 34 RES 6 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SHELDON RD 1974

8400	SNYDER DAVID R	682-2557
	SNYDER NEDRA	682-2557
9600	MARTIN WARREN	682-2872 2
9630	MOORE G A	682-2993 3
9730	RICHARDSON HENRY M	383-4210+4
9750	HARRISON RICHARD	381-2307+4
9780	NEDVED HAL	682-2372
9788	SILVEIRA JESSE J	363-3627 1
	SILVEIRA JESSE	682-2056 1
9794	MILLER DAVID	682-2869+4
9800	BOWMAN A A	682-2968+4
9820	FOX FRED	682-2067
9851	YODER DAVID W	682-2250+4
9880	ARGENTINE CHARLES	682-2705+4
9921	MANDALLA MICHELE J	682-2855+4

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BRADSHAW RD 1970

BRADSHAW RD 95624 ELK GROVE

7594	*GOOBER HUT	682-9198
7672	ALONZO SAM	682-2238
7718	LEONARD LARRY A	682-2736
7745	NUDO ROBERT J	682-2762
7841	NUDO BOB JOE	682-7265
7891	VANLONE GEORGE	682-2336
7920	COULTER JAMES P	682-2681
7933	COUNTS THOMAS L REV	682-2283
	*CYPRESS BAPTIST CH	682-2283
7984	CAIRE R J	682-2930
8051	TSUKAMOTO SAM	682-2236
8325	CURTSINGER W H	682-2756
8415	MILLER DAN DR	682-2734
8433	MAFFEI AL	682-2275
8519	SMITH VIRGIL	682-2310
8551	INOUYE TAKAJI DAN	682-2665
8990	BJORGE ARTHUR	685-3785
8995	NEWBOLD DALE	685-3233
NO #	ARELLANO CANDELARIO	685-4482
NO #	ASTA VINCENT J	363-6173
NO #	BETTS EDGAR	685-9886
NO #	BIEBER RON	685-3036
NO #	CARSON WILLIAM G JR	682-2280
NO #	CHENOWETH LEE	685-4359
NO #	FENIS RONALD	685-4681
NO #	FLATT TRURMAN R	363-4063
NO #	GREEN FOREST	685-4858
NO #	HAMILTON ROBERT	685-3142
NO #	HAXTON CHARLES R	685-3135
NO #	HOWELL ORLEN C	685-4733

APPENDIX E

Environmental Data Resources, Inc.
Radius Map Report

SHELDON BRADSHAW INTERSECTION ROUNDABOUT
Sheldon Rd. and Bradshaw Rd.
Elk Grove, CA 95624

Inquiry Number: 4177237.2s
January 09, 2015

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

SHELDON RD. AND BRADSHAW RD.
SACRAMENTO County, CA 95624

COORDINATES

Latitude (North):	38.4381000 - 38° 26' 17.16"
Longitude (West):	121.3347000 - 121° 20' 4.92"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	645343.2
UTM Y (Meters):	4255531.5
Elevation:	58 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38121-D3 ELK GROVE, CA
Most Recent Revision:	1979

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120628
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
SLIC..... Statewide SLIC Cases
Sacramento Co. CS..... Toxic Site Clean-Up List
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Active UST Facilities

AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
WMUDS/SWAT ..... Waste Management Unit Database

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
Toxic Pits ..... Toxic Pits Cleanup Act Sites
CDL ..... Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LIENS ..... Environmental Liens Listing
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators / No Longer Regulated
DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees

EXECUTIVE SUMMARY

ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
NPDES	NPDES Permits Listing
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
2020 COR ACTION	2020 Corrective Action Program List
COAL ASH DOE	Steam-Electric Plant Operation Data
US AIRS	Aerometric Information Retrieval System Facility Subsystem
WDS	Waste Discharge System
HWP	EnviroStor Permitted Facilities Listing
LEAD SMELTERS	Lead Smelter Sites
HWT	Registered Hazardous Waste Transporter Database
PROC	Certified Processors Database
Financial Assurance	Financial Assurance Information Listing
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
MWMP	Medical Waste Management Program Listing
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PRP	Potentially Responsible Parties

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List

EXECUTIVE SUMMARY

RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 11/03/2014 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PLEASANT GROVE HI/KATHERINE AL Status: Certified	***BOND ROAD/BRADSHAW ROAD***	***1/2 - 1 (0.648 mi.)***	***11***	***14***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FRED FOX	***9816 SHELDON RD***	***0 - 1/8 (0.000 mi.)***	***A6***	***11***
LEO A. FASSLER	***9529 SHELDON RD***	***0 - 1/8 (0.000 mi.)***	***B8***	***12***

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FRED FOX	9816 SHELDON RD	0 - 1/8 (0.000 mi.)	A1	8
LEO A. FASSLER	9529 SHELDON RD	0 - 1/8 (0.000 mi.)	B7	12

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FRED FOX	***9816 SHELDON RD***	***0 - 1/8 (0.000 mi.)***	***A6***	***11***
LEO A. FASSLER	***9529 SHELDON RD***	***0 - 1/8 (0.000 mi.)***	***B8***	***12***

Other Ascertainable Records

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, and dated 08/05/2014 has revealed that there is 1 US MINES site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CURTIS HANFORD SAND & GRAVEL		SW 1/8 - 1/4 (0.165 mi.)	9	13

Sacramento Co. ML: Sacramento County Master List. Any business that has hazardous materials on site - hazardous materials storage sites, underground storage tanks, waste generators.

A review of the Sacramento Co. ML list, as provided by EDR, and dated 10/21/2014 has revealed that there are 6 Sacramento Co. ML sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CORNFLOWER FARMS	***9811 SHELDON RD***	***0 - 1/8 (0.000 mi.)***	***2***	***8***
PICCADILLY FARMS	9589 SHELDON RD	0 - 1/8 (0.000 mi.)	3	9
ELK GROVE WALNUT	9601 SANDAGE AVE	0 - 1/8 (0.000 mi.)	4	10
PLANTECH LANDSCAPES	9827 BERT DR	0 - 1/8 (0.000 mi.)	5	10
LEO A. FASSLER	***9529 SHELDON RD***	***0 - 1/8 (0.000 mi.)***	***B8***	***12***
GIBLIN RESIDENCE	9020 BADER RD	SE 1/8 - 1/4 (0.204 mi.)	10	14

EXECUTIVE SUMMARY

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency

A review of the HAZNET list, as provided by EDR, and dated 12/31/2013 has revealed that there is 1 HAZNET site within approximately 0.001 miles of the target property.

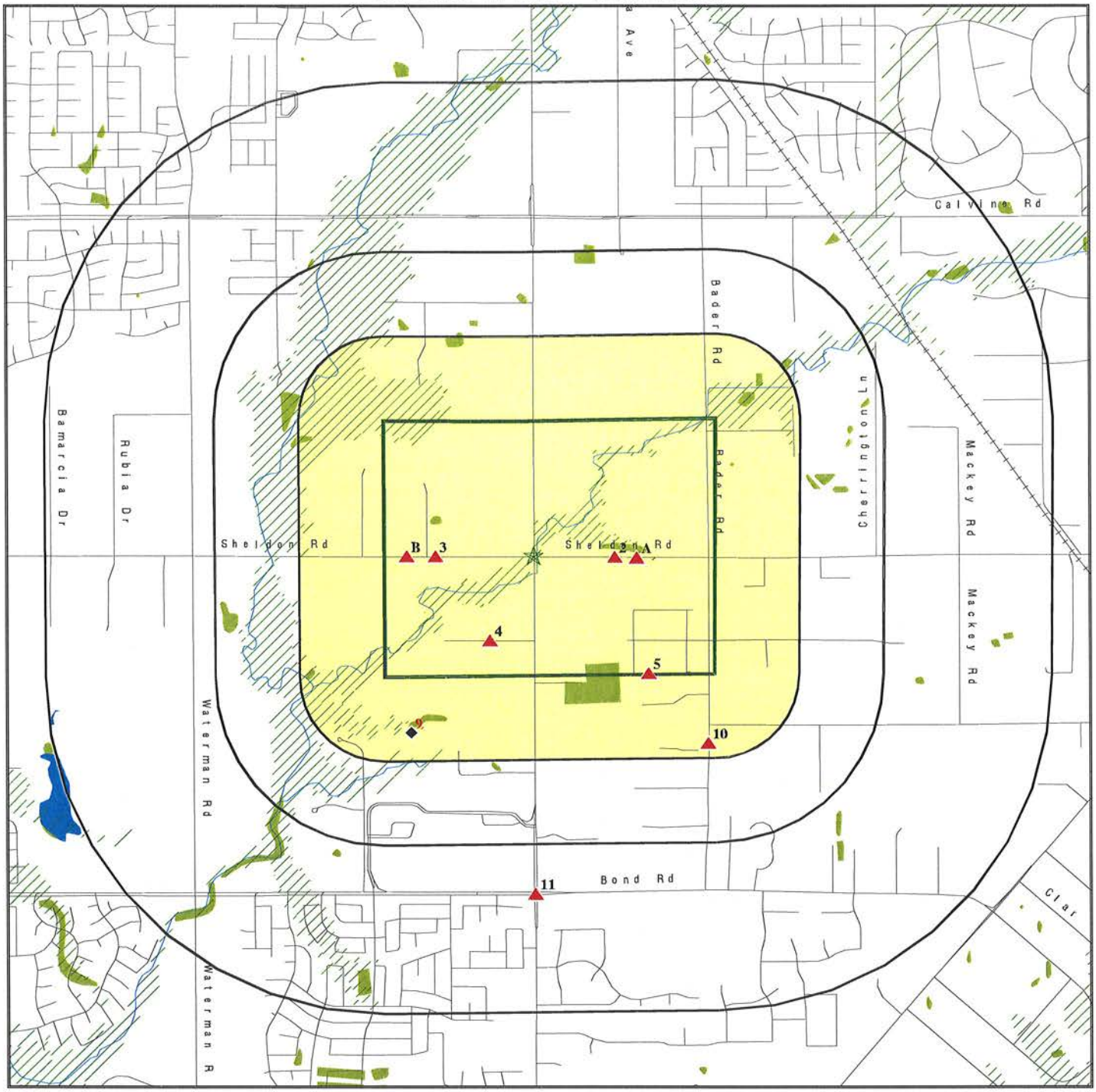
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CORNFLOWER FARMS	*9811 SHELDON RD*	*0 - 1/8 (0.000 mi.)*	*2*	*8*

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
BUCHANAN TRUCKING	Sacramento Co. CS, Sacramento Co. ML

OVERVIEW MAP - 4177237.2S



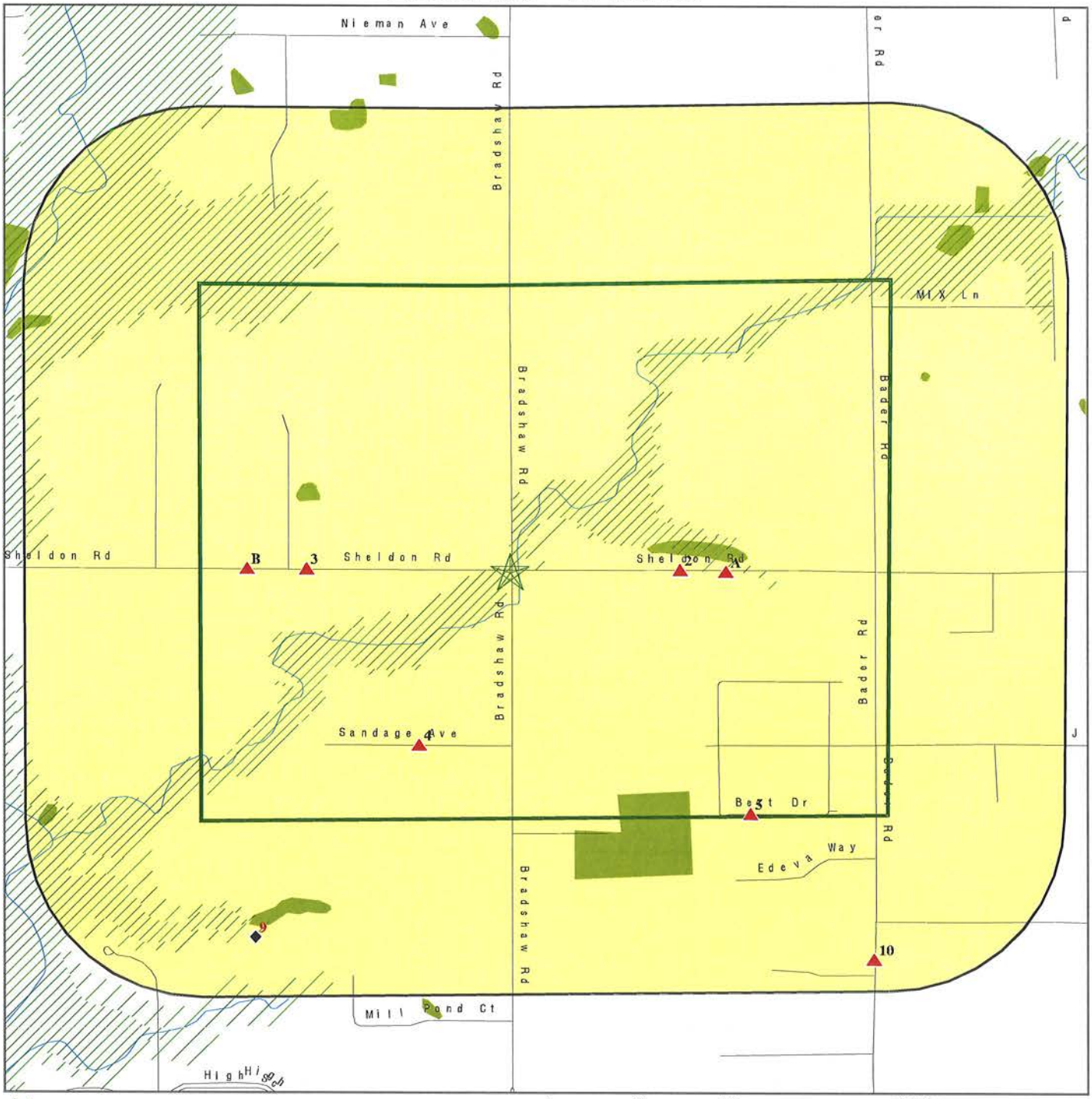
0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT:	Acacia CE
ADDRESS:	Sheldon Rd. and Bradshaw Rd. Elk Grove CA 95624	CONTACT:	Katie Farrell
		INQUIRY #:	4177237.2s
LAT/LONG:	38.4381 / 121.3347	DATE:	January 09, 2015 12:54 pm

DETAIL MAP - 4177237.2S



0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

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ADDRESS:	Sheldon Rd. and Bradshaw Rd. Elk Grove CA 95624	CONTACT:	Katie Farrell
LAT/LONG:	38.4381 / 121.3347	INQUIRY #:	4177237.2s
		DATE:	January 09, 2015 12:54 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
Sacramento Co. CS	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
US HIST CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		2	0	NR	NR	NR	2
HIST UST	0.250		2	0	NR	NR	NR	2
SWEEPS UST	0.250		2	0	NR	NR	NR	2
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
LIENS	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	1	NR	NR	NR	1
TRIS	0.001		0	NR	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Sacramento Co. ML	0.250		5	1	NR	NR	NR	6
HAZNET	0.001		1	NR	NR	NR	NR	1
EMI	0.001		0	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **FRED FOX** **HIST UST** **U001612780**
9816 SHELDON RD **N/A**
< 1/8 **ELK GROVE, CA 95624**
1 ft.

Site 1 of 2 in cluster A

Relative: HIST UST:
Higher

Region:	STATE
Facility ID:	00000049865
Actual: Facility Type:	Other
61 ft. Other Type:	FARM
Contact Name:	F. FOX
Telephone:	9166822067
Owner Name:	FRED FOX
Owner Address:	9816 SHELDON RD.
Owner City,St,Zip:	ELK GROVE, CA 95624
Total Tanks:	0001
Tank Num:	001
Container Num:	9816
Year Installed:	Not reported
Tank Capacity:	00000300
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	3/16
Leak Detection:	Visual, Stock Inventor

---

2 **CORNFLOWER FARMS** **Sacramento Co. ML** **S105808209**
9811 SHELDON RD **HAZNET** **N/A**
< 1/8 **ELK GROVE, CA 95624**
1 ft.

Sacramento Co. ML:

Relative:

Higher Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Actual: Billing Codes BP:	A
60 ft. Billing Codes UST:	Not reported
WG Bill Code:	A
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported
Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks

CORNFLOWER FARMS (Continued) **S105808209**

WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

HAZNET:

envid:	S105808209
Year:	2013
GEPAID:	CAL000257843
Contact:	LIZ GHORMLEY
Telephone:	9166891015
Mailing Name:	Not reported
Mailing Address:	PO BOX 896
Mailing City,St,Zip:	ELK GROVE, CA 957590000
Gen County:	Sacramento
TSD EPA ID:	CAD044003556
TSD County:	Yolo
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.14595
Facility County:	Not reported

---

3 **PICCADILLY FARMS** **Sacramento Co. ML** **S105808208**
9589 SHELDON RD **N/A**
< 1/8 **ELK GROVE, CA 95624**
1 ft.

Relative:
Higher

Actual:
59 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0

PICCADILLY FARMS (Continued) **S105808208**

UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

---

4 **ELK GROVE WALNUT** **Sacramento Co. ML** **S113408473**
9601 SANDAGE AVE **N/A**
< 1/8 **ELK GROVE, CA 95624**
1 ft.

Relative:
Higher

Actual:
62 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Not reported
FD:	Not reported
Billing Codes BP:	A
Billing Codes UST:	Not reported
WG Bill Code:	I
Target Property Bill Cod:	Not reported
Food Bill Code:	Not reported
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	Not reported
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

---

5 **PLANTECH LANDSCAPES** **Sacramento Co. ML** **S105268151**
9827 BERT DR **N/A**
< 1/8 **ELK GROVE, CA 95624**
1 ft.

Relative:
Higher

Actual:
68 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	Not reported
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0

PLANTECH LANDSCAPES (Continued) **S105268151**

UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

A6
< 1/8
1 ft.

FRED FOX **CA FID UST S101627781**
9816 SHELDON RD **SWEEPS UST N/A**
ELK GROVE, CA 95624

Site 2 of 2 in cluster A

Relative: Higher

Actual: 61 ft.

CA FID UST:

Facility ID:	34007193
Regulated By:	UTNKA
Regulated ID:	00049865
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9166822067
Mail To:	Not reported
Mailing Address:	9816 SHELDON RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	ELK GROVE 95624
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

SWEEPS UST:

Status:	Active
Comp Number:	49865
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	9816
SWRCB Tank Id:	34-000-049865-000001
Tank Status:	A
Capacity:	300
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	1

B7 **LEO A. FASSLER** **HIST UST** **U001612796**
9529 SHELDON RD **N/A**
< 1/8 **ELK GROVE, CA 95624**
1 ft.

Site 1 of 2 in cluster B

Relative:
Higher

Actual:
59 ft.

HIST UST:

Region:	STATE
Facility ID:	00000022822
Facility Type:	Other
Other Type:	FARM
Contact Name:	OWNER
Telephone:	9166822718
Owner Name:	LEO A. FASSLER
Owner Address:	9529 SHELDON RD.
Owner City,St,Zip:	ELK GROVE, CA 95624
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000400
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	1/4"
Leak Detection:	Visual

B8 **LEO A. FASSLER** **CA FID UST** **S101627792**
9529 SHELDON RD **SWEEPS UST** **N/A**
< 1/8 **ELK GROVE, CA 95624** **Sacramento Co. ML**
1 ft.

Site 2 of 2 in cluster B

Relative:
Higher

Actual:
59 ft.

CA FID UST:

Facility ID:	34006987
Regulated By:	UTNKA
Regulated ID:	00022822
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9166822718
Mail To:	Not reported
Mailing Address:	9529 SHELDON RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	ELK GROVE 95624
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

SWEEPS UST:

Status:	Active
Comp Number:	22822
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported

LEO A. FASSLER (Continued) **S101627792**

Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	34-000-022822-000001
Tank Status:	A
Capacity:	400
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	1

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Farm-No Fee
Billing Codes UST:	Farm-No Fee
WG Bill Code:	Farm-No Fee
Target Property Bill Cod:	53
Food Bill Code:	53
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	1
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

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9 **CURTIS HANFORD SAND & GRAVEL** **US MINES** **1011128188**
SW **N/A**
1/8-1/4 **SACRAMENTO (County), CA**
0.165 mi.
872 ft.

Relative:
Lower

Actual:
53 ft.

US MINES:

Mine ID:	0402728
SIC code(s):	142900 000000 000000 000000 000000 000000
Entity name:	HANFORD
Company:	CURTIS HANFORD SAND & GRAVEL
State FIPS code:	CA
County FIPS code:	SACRAMENTO
Status:	4
Status date:	19990708
Operation Class:	non-Coal Mining
Number of shops:	0
Number of plants:	0
Latitude:	00 00 00
Longitude:	000 00 00

10
SE
1/8-1/4
0.204 mi.
1079 ft.

GIBLIN RESIDENCE
9020 BADER RD
ELK GROVE, CA 95624

Sacramento Co. ML **S102312476**
N/A

Relative:
Higher

Actual:
68 ft.

Sacramento Co. ML:

Facility Id:	Not reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not reported
HAZMAT Permit Date:	Not reported
HAZMAT Inspection Date:	Not reported
Hazmat Date BP Received:	Not reported
UST Permit Dt:	Not reported
UST Inspection Date:	Not reported
UST Tank Test Date:	Not reported
Number of Tanks:	0
UST Tank Test Date:	Not reported
SIC Code:	Not reported
Tier Permitting:	Not reported
AST Bill Code:	Not reported
CALARP Bill Code:	Not reported

11
South
1/2-1
0.648 mi.
3421 ft.

PLEASANT GROVE HI/KATHERINE ALBIANI MID
BOND ROAD/BRADSHAW ROAD
ELK GROVE, CA 95624

SCH **S105628811**
ENVIROSTOR **N/A**

Relative:
Higher

Actual:
59 ft.

SCH:

Facility ID:	34020002
Site Type:	School Cleanup
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	107
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Kamili Siglowide
Supervisor:	Jose Salcedo
Division Branch:	Northern California Schools & Santa Susana
Site Code:	104163
Assembly:	09
Senate:	06, 14
Special Program Status:	Not reported
Status:	Certified
Status Date:	11/07/2003
Restricted Use:	NO
Funding:	School District
Latitude:	38.42582
Longitude:	-121.3392
APN:	NONE SPECIFIED

PLEASANT GROVE HI/KATHERINE ALBIANI MID (Continued) **S105628811**

Past Use:	AGRICULTURAL - LIVESTOCK
Potential COC:	Lead, Polychlorinated biphenyls (PCBs
Confirmed COC:	Polychlorinated biphenyls (PCBs, Lead
Potential Description:	SOIL
Alias Name:	ELK GROVE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	ELK GROVE USD-PLSNT GRV HS/K ALBIANI MS
Alias Type:	Alternate Name
Alias Name:	ELK GROVE USD-PLSNT GRV HS/K. ALBIANI MS
Alias Type:	Alternate Name
Alias Name:	HIGH/MIDDLE SCHOOL #8
Alias Type:	Alternate Name
Alias Name:	PLEASANT GROVE HI/KATHERINE ALBIANI MID
Alias Type:	Alternate Name
Alias Name:	110033611606
Alias Type:	EPA (FRS #)
Alias Name:	104148
Alias Type:	Project Code (Site Code)
Alias Name:	104163
Alias Type:	Project Code (Site Code)
Alias Name:	34020002
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	03/26/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Voluntary Cleanup Agreement
Completed Date:	03/07/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	06/26/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	08/11/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Completion Report
Completed Date:	05/21/2004
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Workplan
Completed Date:	11/07/2003

PLEASANT GROVE HI/KATHERINE ALBIANI MID (Continued) **S105628811**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 03/05/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 02/20/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 05/21/2004
Comments: Issued Certification package and letter.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 06/08/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 04/18/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Public Participation
Completed Date: 10/21/2003
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

ENVIROSTOR:
Facility ID: 34020002
Status: Certified
Status Date: 11/07/2003
Site Code: 104163
Site Type: School Cleanup
Site Type Detailed: School
Acres: 107
NPL: NO

PLEASANT GROVE HI/KATHERINE ALBIANI MID (Continued) **S105628811**

Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Kamili Siglowide
Supervisor: Jose Salcedo
Division Branch: Northern California Schools & Santa Susana
Assembly: 09
Senate: 06, 14
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 38.42582
Longitude: -121.3392
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - LIVESTOCK
Potential COC: Lead Polychlorinated biphenyls (PCBs
Confirmed COC: Polychlorinated biphenyls (PCBs Lead
Potential Description: SOIL
Alias Name: ELK GROVE UNIFIED SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: ELK GROVE USD-PLSNT GRV HS/K ALBIANI MS
Alias Type: Alternate Name
Alias Name: ELK GROVE USD-PLSNT GRV HS/K. ALBIANI MS
Alias Type: Alternate Name
Alias Name: HIGH/MIDDLE SCHOOL #8
Alias Type: Alternate Name
Alias Name: PLEASANT GROVE HI/KATHERINE ALBIANI MID
Alias Type: Alternate Name
Alias Name: 110033611606
Alias Type: EPA (FRS #)
Alias Name: 104148
Alias Type: Project Code (Site Code)
Alias Name: 104163
Alias Type: Project Code (Site Code)
Alias Name: 34020002
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/26/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 03/07/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/26/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

PLEASANT GROVE HI/KATHERINE ALBIANI MID (Continued) **S105628811**

Completed Document Type: Phase 1
Completed Date: 08/11/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 05/21/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 11/07/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 03/05/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 02/20/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 05/21/2004
Comments: Issued Certification package and letter.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 06/08/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 04/18/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Public Participation
Completed Date: 10/21/2003
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported

PLEASANT GROVE HI/KATHERINE ALBIANI MID (Continued) **S105628811**

Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 1 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SACRAMENTO	S102431283	BUCHANAN TRUCKING	BRADSHAW RD	95829	Sacramento Co. CS, Sacramento Co. ML

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 11/24/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing
A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/07/2014
Next Scheduled EDR Contact: 01/19/2015
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 11/24/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/03/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/03/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/29/2014
Date Data Arrived at EDR: 10/09/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 11

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 12/24/2014
Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 73

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 05/22/2014
Date Data Arrived at EDR: 08/22/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 27

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 19

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/17/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/24/2014
Number of Days to Update: 37

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 08/20/2014
Date Data Arrived at EDR: 08/22/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 27

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/15/2014
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/14/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/31/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/22/2014
Date Data Arrived at EDR: 09/23/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/24/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 43

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/12/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/29/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 41

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2014
Date Data Arrived at EDR: 09/02/2014
Date Made Active in Reports: 09/24/2014
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/19/2015
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 41

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 10/02/2014
Date Data Arrived at EDR: 10/03/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 42

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/27/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 12/10/2014
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/29/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2014
Date Data Arrived at EDR: 09/04/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 74

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/07/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/16/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/14/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 36

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 50

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/28/2014
Date Data Arrived at EDR: 07/03/2014
Date Made Active in Reports: 08/21/2014
Number of Days to Update: 49

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 30

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 35

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 03/25/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 34

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/18/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 06/04/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 12/29/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: N/A

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/14/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 11/14/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 10/31/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/28/2014
Date Data Arrived at EDR: 10/30/2014
Date Made Active in Reports: 12/10/2014
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/04/2014
Date Data Arrived at EDR: 09/04/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/11/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/20/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 43

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/17/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/14/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/18/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 41

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/21/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/21/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 38

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 09/24/2014
Number of Days to Update: 15

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 11/20/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/07/2015
Number of Days to Update: 44

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 11/06/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 43

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/11/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 24

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 01/06/2015
Number of Days to Update: 48

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 38

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/14/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 36

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 09/10/2014
Date Data Arrived at EDR: 09/11/2014
Date Made Active in Reports: 09/25/2014
Number of Days to Update: 14

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/22/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/19/2014
Number of Days to Update: 37

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/21/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 35

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/20/2014
Date Data Arrived at EDR: 10/21/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 76

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/20/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/17/2014
Number of Days to Update: 41

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/14/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/20/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 51

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/22/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/17/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/07/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/25/2014
Number of Days to Update: 28

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/17/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 10/20/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 54

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/20/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 07/28/2014
Date Data Arrived at EDR: 07/28/2014
Date Made Active in Reports: 08/20/2014
Number of Days to Update: 23

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 03/27/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 32

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 10/02/2014
Date Data Arrived at EDR: 10/03/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 48

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 33

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 09/02/2014
Date Data Arrived at EDR: 09/05/2014
Date Made Active in Reports: 09/24/2014
Number of Days to Update: 19

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 28

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/18/2014
Date Made Active in Reports: 09/25/2014
Number of Days to Update: 7

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 30

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 30

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/10/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 35

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/10/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/22/2014
Date Data Arrived at EDR: 09/23/2014
Date Made Active in Reports: 11/21/2014
Number of Days to Update: 59

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/10/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 41

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 01/05/2015
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/10/2014
Date Made Active in Reports: 11/25/2014
Number of Days to Update: 46

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/06/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/07/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 10/21/2014
Date Data Arrived at EDR: 10/28/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 48

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/06/2014
Date Data Arrived at EDR: 08/07/2014
Date Made Active in Reports: 09/30/2014
Number of Days to Update: 54

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 11/10/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/20/2014
Date Data Arrived at EDR: 06/23/2014
Date Made Active in Reports: 07/11/2014
Number of Days to Update: 18

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/21/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 36

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/10/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 40

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/15/2014
Date Data Arrived at EDR: 09/16/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 36

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/11/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 34

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/10/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 35

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/31/2014
Number of Days to Update: 36

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/18/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 34

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SOLANO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 42

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/11/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/19/2014
Date Data Arrived at EDR: 06/26/2014
Date Made Active in Reports: 07/25/2014
Number of Days to Update: 29

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/11/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/02/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 49

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/01/2014
Date Data Arrived at EDR: 10/03/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 48

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/24/2014
Number of Days to Update: 45

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/28/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 44

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 10/29/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 35

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 44

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/26/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/28/2014
Number of Days to Update: 41

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/25/2014
Number of Days to Update: 56

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/18/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 42

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/24/2014
Number of Days to Update: 19

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/20/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 08/07/2014
Number of Days to Update: 48

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SHELDON BRADSHAW INTERSECTION ROUNDABOUT
SHELDON RD. AND BRADSHAW RD.
ELK GROVE, CA 95624

TARGET PROPERTY COORDINATES

Latitude (North):	38.4381 - 38° 26' 17.16"
Longitude (West):	121.3347 - 121° 20' 4.92"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	645343.2
UTM Y (Meters):	4255531.5
Elevation:	58 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38121-D3 ELK GROVE, CA
Most Recent Revision:	1979

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

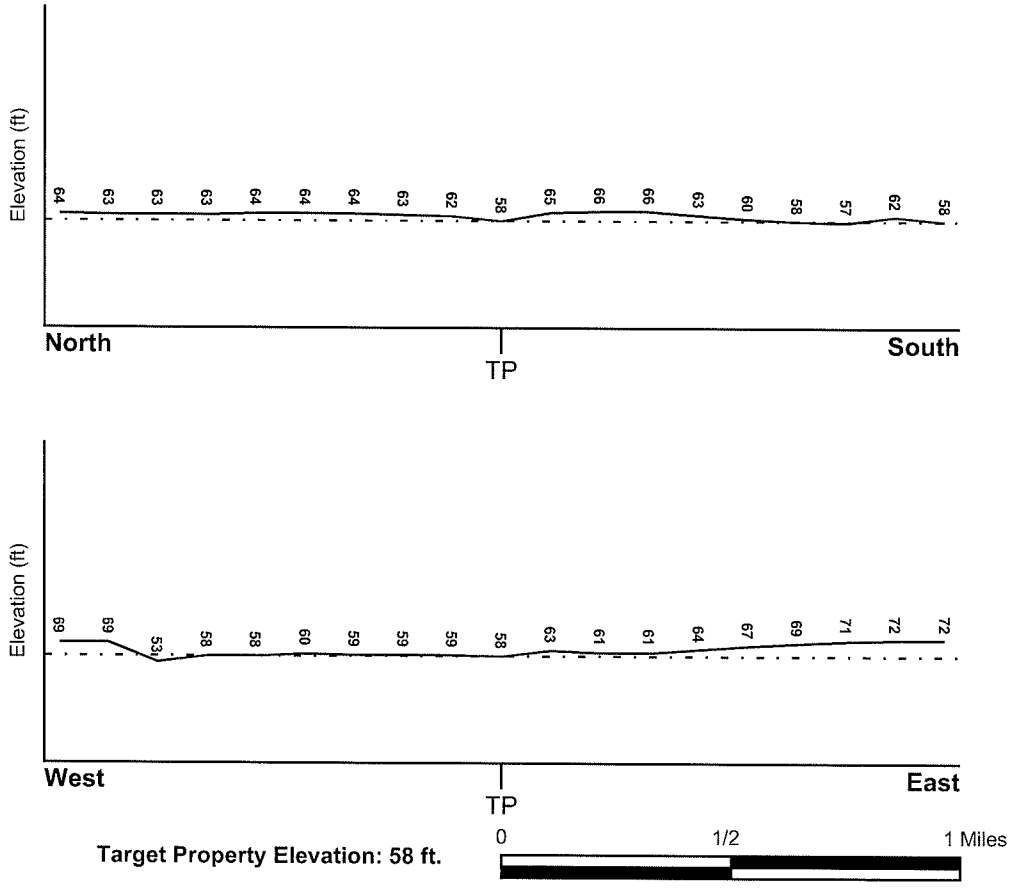
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SACRAMENTO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0602620330C - FEMA Q3 Flood data

Additional Panels in search area: 0602620340C - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ELK GROVE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

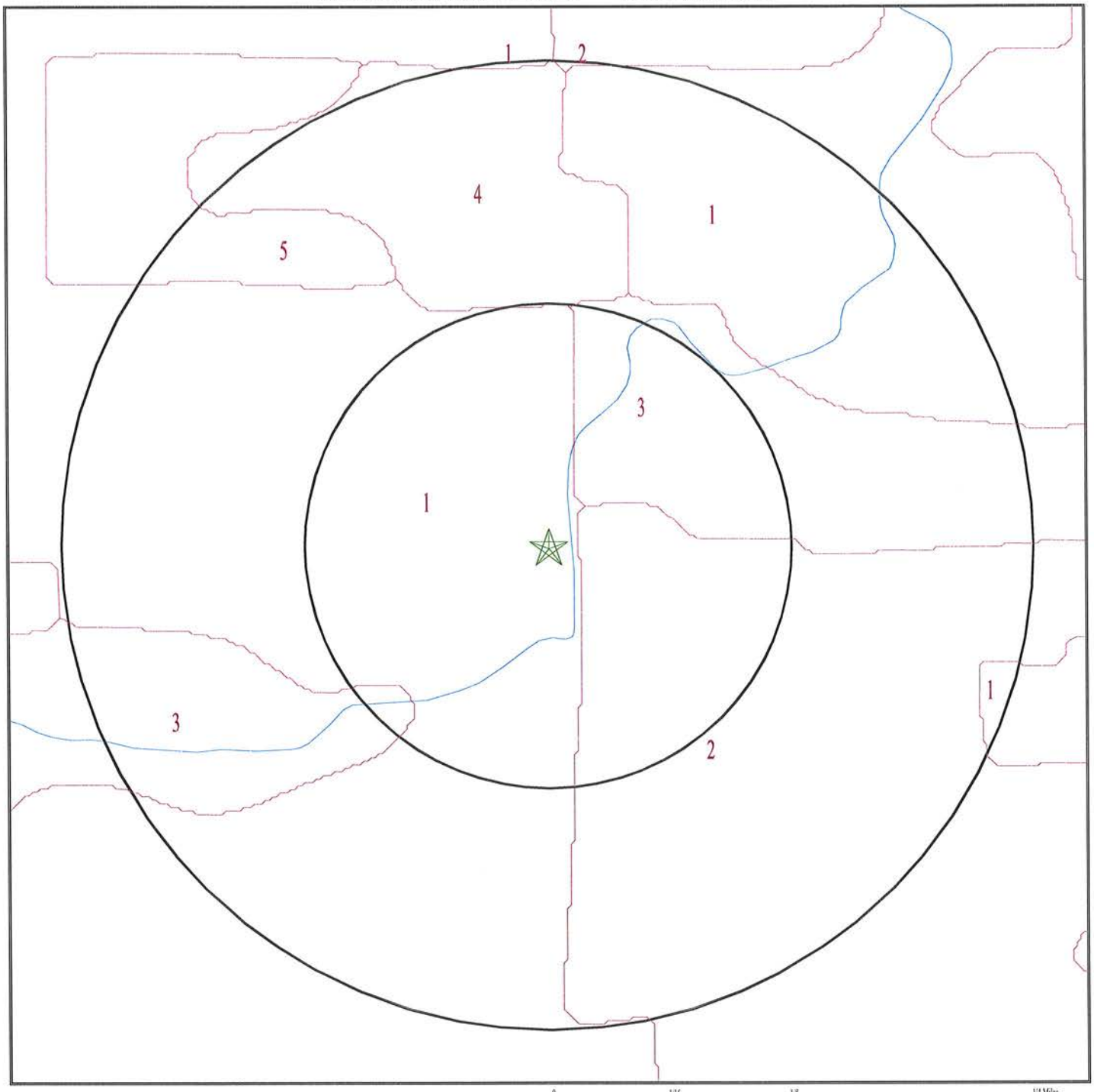
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4177237.2s



SITE NAME:	SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT:	Acacia CE
ADDRESS:	Sheldon Rd. and Bradshaw Rd. Elk Grove CA 95624	CONTACT:	Katie Farrell
		INQUIRY #:	4177237.2s
LAT/LONG:	38.4381 / 121.3347	DATE:	January 09, 2015 12:55 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 4

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 5

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000188323	0 - 1/8 Mile SE
3	USGS40000188348	1/4 - 1/2 Mile North
4	USGS40000188357	1/4 - 1/2 Mile North
5	USGS40000188331	1/2 - 1 Mile ENE
6	USGS40000188320	1/2 - 1 Mile West
7	USGS40000188284	1/2 - 1 Mile South
8	USGS40000188296	1/2 - 1 Mile SE
9	USGS40000188379	1/2 - 1 Mile NE
10	USGS40000188399	1/2 - 1 Mile NNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

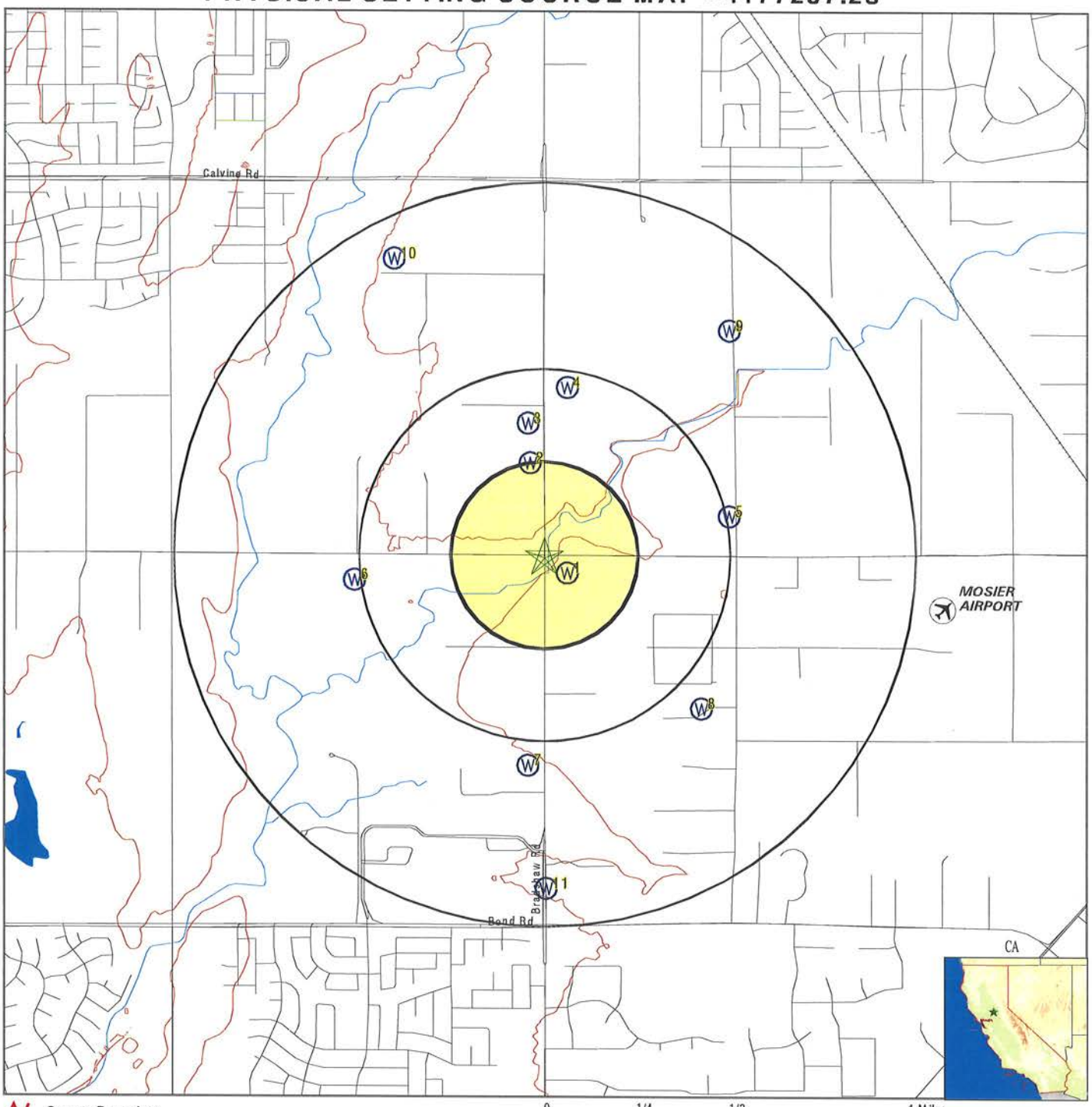
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	CADW50000031705	1/4 - 1/2 Mile North
11	CADW50000031665	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 4177237.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT:	Acacia CE
ADDRESS:	Sheldon Rd. and Bradshaw Rd.	CONTACT:	Katie Farrell
	Elk Grove CA 95624	INQUIRY #:	4177237.2s
LAT/LONG:	38.4381 / 121.3347	DATE:	January 09, 2015 12:55 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **SE** **0 - 1/8 Mile** **Higher**	**FED USGS**	**USGS40000188323**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382615121195701		
Monloc name:	007N006E28D002M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4374097
Longitude:	-121.3335615	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	57.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19720101	Welldepth:	140
Welldepth units:	ft	Wellholedepth:	180
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1972-01-01	90.00	

	Database	EDR ID Number
2 **North** **1/4 - 1/2 Mile** **Higher**	**CA WELLS**	**CADW50000031705**

Latitude :	38.4417		
Longitude :	121.3354		
Site code:	384417N1213354W001	Casgem sta:	07N06E20J001M
Local well:	SCGA #8	Casgem s 1:	Irrigation
County id:	34		
Basin cd:	5-21.65	Basin desc:	South American
Org unit n:	North Central Region Office	Site id:	CADW50000031705

	Database	EDR ID Number
3 **North** **1/4 - 1/2 Mile** **Higher**	**FED USGS**	**USGS40000188348**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382636121200401		
Monloc name:	007N006E20J003M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4432428
Longitude:	-121.335506	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	62.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19620717	Welldepth:	258
Welldepth units:	ft	Wellholedepth:	258
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

4
North
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000188357**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382641121195701		
Monloc name:	007N006E21M001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4446317
Longitude:	-121.3335615	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	62.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19791026	Welldepth:	198
Welldepth units:	ft	Wellholedepth:	280
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1982-07-21	108.78		1979-10-26	105.00	

5
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000188331**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382623121192801		
Monloc name:	007N006E21P001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4396319
Longitude:	-121.3255057	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	62.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19720101	Welldepth:	145
Welldepth units:	ft	Wellholedepth:	195
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1972-01-01	91.00	

6
West
1/2 - 1 Mile
Higher

FED USGS **USGS40000188320**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382614121203501		
Monloc name:	007N006E29C001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4371319
Longitude:	-121.3441173	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	57.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Merten Formation (Pliocene-Miocene)		
Aquifer type:	Not Reported		
Construction date:	19810409	Welldepth:	670
Welldepth units:	ft	Wellholedepth:	709
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1981-04-09	106.00	

7
South
1/2 - 1 Mile
Higher

FED USGS **USGS40000188284**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382548121200401		
Monloc name:	007N006E29J001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4299099
Longitude:	-121.3355059	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	57.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19720101	Welldepth:	140
Welldepth units:	ft	Wellholedepth:	180
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel
1982-07-20	106.29	
1972-01-01	84.00	

8
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000188296**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382556121193301		
Monloc name:	007N006E28F001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4321321
Longitude:	-121.3268946	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	65.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19780419	Welldepth:	200
Welldepth units:	ft	Wellholedepth:	230
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1982-07-19	108.23		1978-04-19	87.00	

9
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000188379**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382649121192801		
Monloc name:	007N006E21F001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4468539
Longitude:	-121.3255058	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	63.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19800101	Welldepth:	190
Welldepth units:	ft	Wellholedepth:	355
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1980-01-01	112.00	

10
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000188399**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-382659121202801		
Monloc name:	007N006E20B001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020109	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.4496315
Longitude:	-121.3421729	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	57.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19771116	Welldepth:	160
Welldepth units:	ft	Wellholedepth:	230
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1977-11-16	95.00	

11
South
1/2 - 1 Mile
Higher

CA WELLS **CADW50000031665**

Latitude :	38.4251		
Longitude :	121.3346		
Site code:	384251N1213346W001	Casgem sta:	07N06E28N001M
Local well:	Not Reported	Casgem s 1:	Irrigation
County id:	34		
Basin cd:	5-21.65	Basin desc:	South American
Org unit n:	North Central Region Office	Site id:	CADW50000031665

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95624	18	1

Federal EPA Radon Zone for SACRAMENTO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95624

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	3.000 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

APPENDIX F

Environmental Data Resources, Inc. (VEC) Vapor Encroachment Report

SHELDON BRADSHAW INTERSECTION ROUNDABOUT
Sheldon Rd. and Bradshaw Rd.
Elk Grove, CA 95624

Inquiry Number: 4177237.9s
April 13, 2015

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600-10).

STANDARD ENVIRONMENTAL RECORDS	Maximum Search Distance*	Summary: property	1/10	1/10 - 1/3
Federal NPL	0.333	0	0	0
Federal CERCLIS	0.333	0	0	0
Federal RCRA CORRACTS facilities list	0.333	0	0	0
Federal RCRA TSD facilities list	0.333	0	0	0
Federal RCRA generators list	property	0	-	-
Federal institutional controls / engineering controls registries	0.333	0	0	0
Federal ERNS list	property	0	-	-
State and tribal - equivalent NPL	0.333	0	0	0
State and tribal - equivalent CERCLIS	0.333	0	0	0
State and tribal landfill / solid waste disposal	0.333	0	0	0
State and tribal leaking storage tank lists	0.333	0	0	0
State and tribal registered storage tank lists	property	0	-	-
State and tribal institutional control / engineering control registries	not searched	-	-	-
State and tribal voluntary cleanup sites	0.333	0	0	0
State and tribal Brownfields sites	not searched	-	-	-
Other Standard Environmental Records	0.333	0	5	1

HISTORICAL USE RECORDS				
Former manufactured Gas Plants	0.333	0	0	0
Historical Gas Stations	0.25	0	0	0
Historical Dry Cleaners	0.25	0	0	0
Exclusive Recovered Govt. Archives	property	0	-	-

*Each category may include several separate databases, each having a different search distance. For each category, the table reports the maximum search distance applied. See the section 'Record Sources and Currency' for information on individual databases.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

SHELDON BRADSHAW INTERSECTION ROUNDABOUT
SHELDON RD. AND BRADSHAW RD.
ELK GROVE, CA 95624

COORDINATES

Latitude (North):	38.4381 - 38° 26′ 17.156067″
Longitude (West):	121.3347 - 121° 20′ 4.925537″
Elevation:	58 ft. above sea level

EXECUTIVE SUMMARY

PHYSICAL SETTING INFORMATION

Flood Zone:	Available
NWI Wetlands:	Available

AQUIFLOW®

Search Radius: 0.333 Mile.

No Aquiflow sites reported.

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name:	SAN JOAQUIN
Soil Surface Texture:	silt loam
Hydrologic Group:	Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class:	Moderately well drained
Hydric Status:	Partially hydric
Corrosion Potential - Uncoated Steel:	Moderate
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 2

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 3

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 4

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 5

Soil Component Name: Water

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 6

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

EXECUTIVE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

Soil Map ID: 7

Soil Component Name: HICKSVILLE

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

EXECUTIVE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	12 inches	42 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.1
3	42 inches	64 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.8 Min: 6.1

Soil Map ID: 8

Soil Component Name: REDDING

Soil Surface Texture: gravelly loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

EXECUTIVE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Clayey Gravel	Max: 14 Min: 4	Max: 6.5 Min: 5.1
2	7 inches	20 inches	gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 6.5 Min: 5.1
3	20 inches	27 inches	gravelly clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 6.5 Min: 5.6
4	27 inches	66 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 9

Soil Component Name: SAN JOAQUIN

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

EXECUTIVE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	22 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.8 Min: 6.1
3	27 inches	53 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:
4	53 inches	59 inches	stratified sandy loam to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.8 Min: 6.1

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

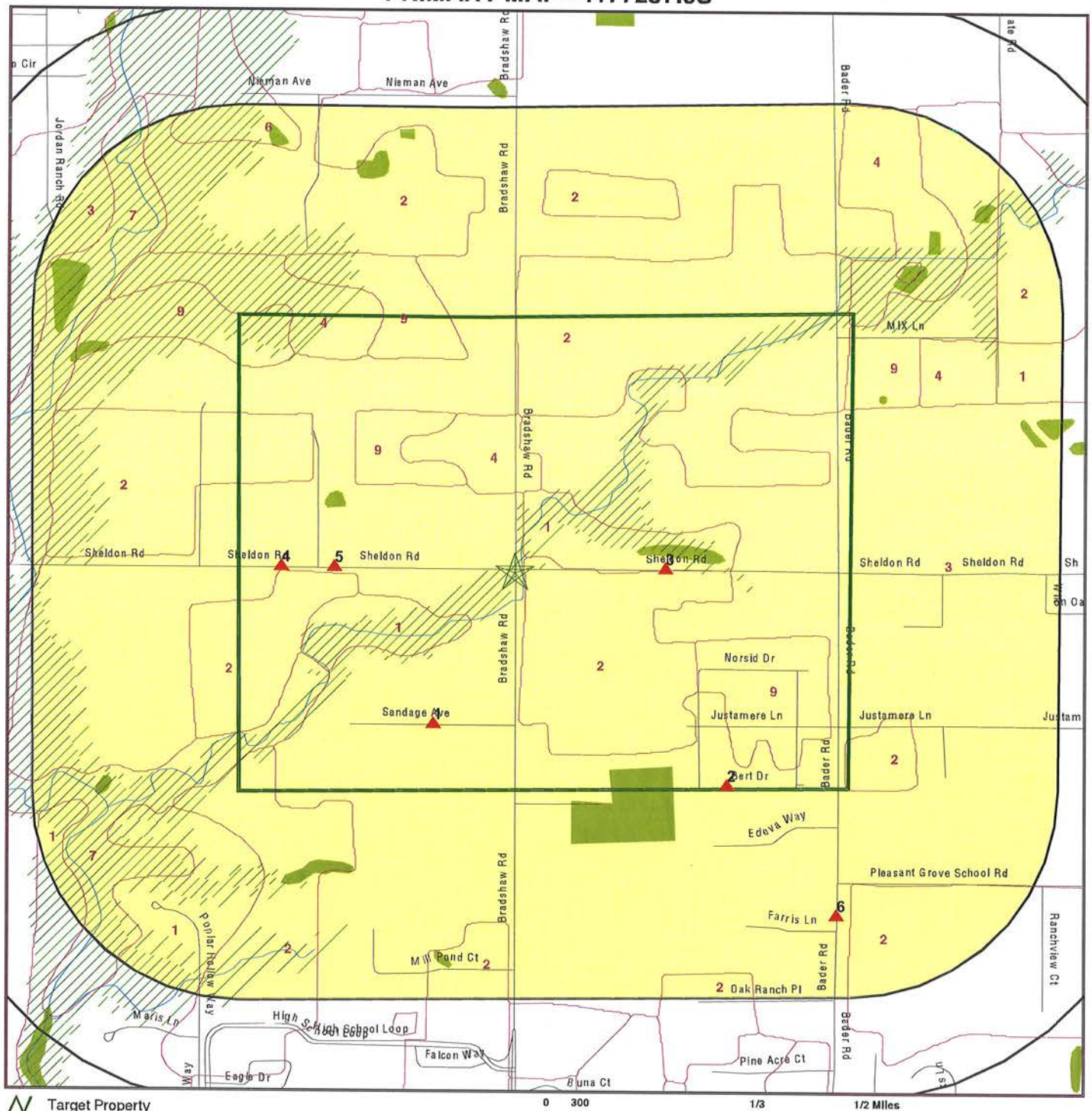
STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
ELK GROVE WALNUT Sacramento Co. ML: Other Standard Environmental Records	9601 SANDAGE AVE	<1/10 SSW	▲ 1	17
PLANTECH LANDSCAPES Sacramento Co. ML: Other Standard Environmental Records	9827 BERT DR	<1/10 SE	▲ 2	18
CORNFLOWER FARMS HAZNET: Other Standard Environmental Records Sacramento Co. ML: Other Standard Environmental Records	9811 SHELDON RD	<1/10 E	▲ 3	19
LEO A. FASSLER SWEEPS UST: State and tribal registered storage tank lists CA FID UST: State and tribal registered storage tank lists Sacramento Co. ML: Other Standard Environmental Records	9529 SHELDON RD	<1/10 W	▲ 4	21
PICCADILLY FARMS Sacramento Co. ML: Other Standard Environmental Records	9589 SHELDON RD	<1/10 W	▲ 5	23
GIBLIN RESIDENCE Sacramento Co. ML: Other Standard Environmental Records	9020 BADER RD	1/10 - 1/3 SE	▲ 6	24

HISTORICAL USE RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 4177237.9S

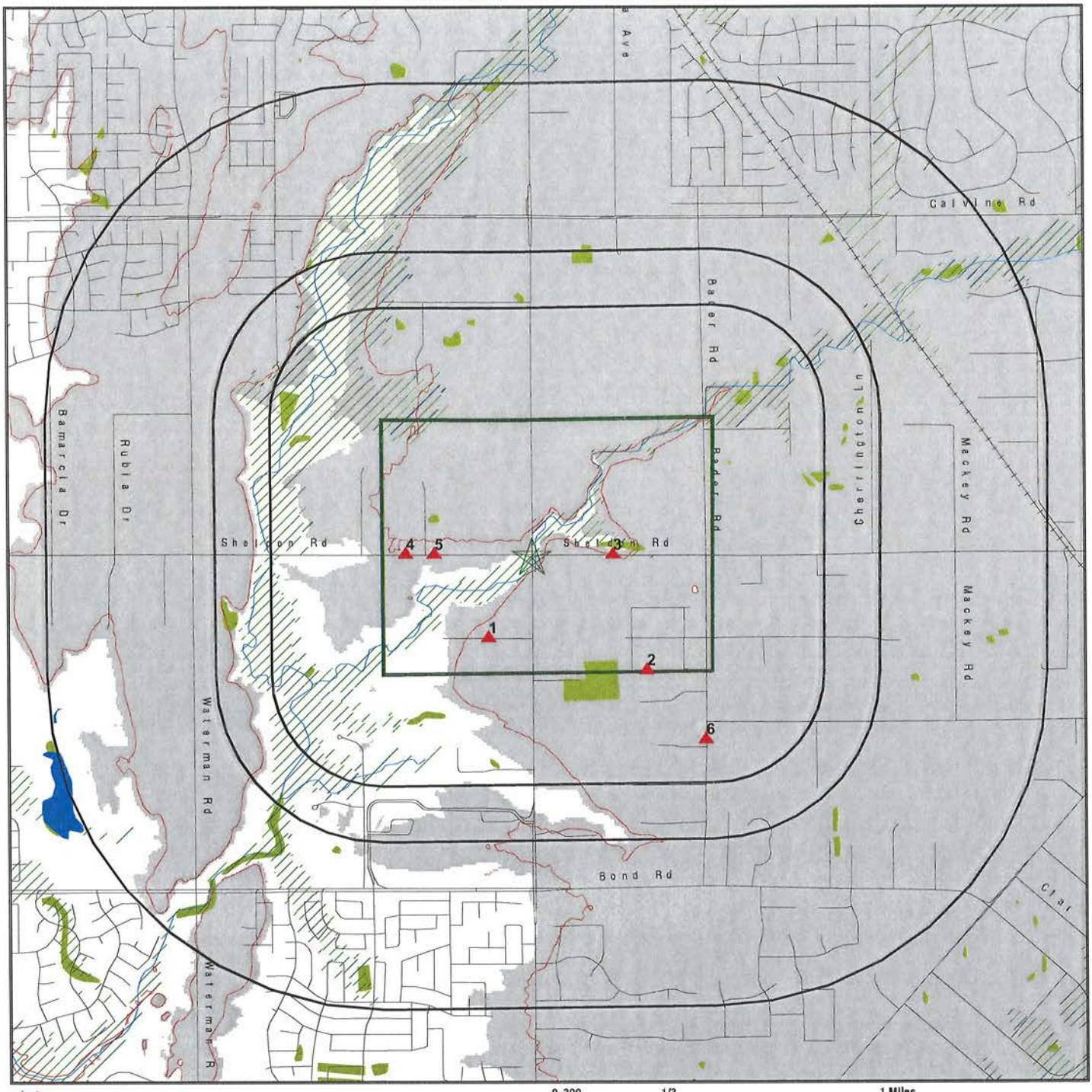


0 300 1/3 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- SSURGO Soil
- Areas of Concern

SITE NAME: SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT: Acacia CE
ADDRESS: Sheldon Rd. and Bradshaw Rd. Elk Grove CA 95624	CONTACT: Katie Farrell
LAT/LONG: 38.4381 / 121.3347	INQUIRY #: 4177237.9s
	DATE: January 09, 2015 1:43 pm

SECONDARY MAP - 4177237.9S



0 300 1/3 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Contour Lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Upgradient Area
- Areas of Concern

SITE NAME:	SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT:	Acacia CE
ADDRESS:	Sheldon Rd. and Bradshaw Rd. Elk Grove CA 95624	CONTACT:	Katie Farrell
		INQUIRY #:	4177237.9s
LAT/LONG:	38.4381 / 121.3347	DATE:	January 09, 2015 1:41 pm

AERIAL PHOTOGRAPHY - 4177237.9s

SITE NAME:	SHELDON BRADSHAW INTERSECTION ROUNDABOUT	CLIENT:	Acacia CE
ADDRESS:	Sheldon Rd. and Bradshaw Rd. Elk Grove CA 95624	CONTACT:	Katie Farrell
LAT/LONG:	38.4381 / 121.3347	INQUIRY #:	4177237.9s
		DATE:	January 09, 2015 1:46 pm

MAP FINDINGS

LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**			**EDR SITE ID NUMBER**
▼ MAP ID#	Direction Distance Range Relative Elevation	(Distance feet / miles) Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.
Worksheet: **Comments:** Comments may be added on the online Vapor Encroachment Worksheet.			

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

ELK GROVE WALNUT 9601 SANDAGE AVE, ELK GROVE, CA, 95624			S113408473
▲ 1	SSW <1/10	(0 ft. / 0 mi.)	Other Standard Environmental Records
	4 ft. Higher Elevation	62 ft. Above Sea Level	

Worksheet:

Sacramento Co. ML: Other Standard Environmental Records

Facility Id:	Not Reported
Facility Status:	Not Reported
FD:	Not Reported
Billing Codes BP:	A
Billing Codes UST:	Not Reported
WG Bill Code:	I
Target Property Bill Cod:	Not Reported
Food Bill Code:	Not Reported
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported
UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	Not Reported
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported

MAP FINDINGS

PLANTECH LANDSCAPES 9827 BERT DR, ELK GROVE, CA, 95624			S105268151
▲ 2	SE <1/10	(0 ft. / 0 mi.)	Other Standard Environmental Records
	10 ft. Higher Elevation	68 ft. Above Sea Level	

Worksheet:

Impact on Target Property: VEC Can Be Ruled Out

Sacramento Co. ML: Other Standard Environmental Records

Facility Id:	Not Reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	Not Reported
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported
UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	0
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported

MAP FINDINGS

CORNFLOWER FARMS 9811 SHELDON RD, ELK GROVE, CA, 95624			S105808209
▲ 3	E <1/10	(0 ft. / 0 mi.)	Other Standard Environmental Records
	2 ft. Higher Elevation	60 ft. Above Sea Level	

Worksheet:

Impact on Target Property: VEC Cannot Be Ruled Out

Preferential Pathway:

Other: YES

Geological Attributes - Hydraulic Barrier:

Other: YES

Geological Attributes - Physical Barrier:

Impermeable soil layer: YES

Geological Attributes - Soil Geology:

Silty-clay, low-permeability soil: YES

HAZNET: Other Standard Environmental Records

envid:	S105808209
Year:	2013
GEPAID:	CAL000257843
Contact:	LIZ GHORMLEY
Telephone:	9166891015
Mailing Name:	Not Reported
Mailing Address:	PO BOX 896
Mailing City,St,Zip:	ELK GROVE, CA 957590000
Gen County:	Sacramento
TSD EPA ID:	CAD044003556
TSD County:	Yolo
Waste Category:	Not Reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.14595
Facility County:	Not Reported

Sacramento Co. ML: Other Standard Environmental Records

Facility Id:	Not Reported
Facility Status:	Not Reported
FD:	Not Reported
Billing Codes BP:	A
Billing Codes UST:	Not Reported
WG Bill Code:	A
Target Property Bill Cod:	Not Reported
Food Bill Code:	Not Reported
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported

CORNFLOWER FARMS, 9811 SHELDON RD, ELK GROVE, CA 95624 (Continued)

UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	Not Reported
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported
Facility Id:	Not Reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported
UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	0
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported

MAP FINDINGS

LEO A. FASSLER 9529 SHELDON RD, ELK GROVE, CA, 95624			S101627792
▲ 4	W <1/10	(0 ft. / 0 mi.)	State and tribal registered storage tank lists Other Standard Environmental Records
	1 ft. Higher Elevation	59 ft. Above Sea Level	

Worksheet:

Impact on Target Property: VEC Cannot Be Ruled Out
Comments: Based on records the status of tank is inactive due to no longer being updated. If still intact
Conditions:

Chemicals of Concern: YES

SWEEPS UST: State and tribal registered storage tank lists

Status:	Active
Comp Number:	22822
Number:	9
Board Of Equalization:	Not Reported
Referral Date:	07-01-85
Action Date:	Not Reported
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	34-000-022822-000001
Tank Status:	A
Capacity:	400
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	1

CA FID UST: State and tribal registered storage tank lists

Facility ID:	34006987
Regulated By:	UTNKA
Regulated ID:	00022822
Cortese Code:	Not Reported
SIC Code:	Not Reported
Facility Phone:	9166822718
Mail To:	Not Reported
Mailing Address:	9529 SHELDON RD
Mailing Address 2:	Not Reported
Mailing City,St,Zip:	ELK GROVE 95624
Contact:	Not Reported
Contact Phone:	Not Reported
DUNs Number:	Not Reported
NPDES Number:	Not Reported
EPA ID:	Not Reported
Comments:	Not Reported
Status:	Active

LEO A. FASSLER, 9529 SHELDON RD, ELK GROVE, CA 95624 (Continued)

Sacramento Co. ML: Other Standard Environmental Records

Facility Id:	Not Reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Farm-No Fee
Billing Codes UST:	Farm-No Fee
WG Bill Code:	Farm-No Fee
Target Property Bill Cod:	53
Food Bill Code:	53
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported
UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	1
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported

MAP FINDINGS

PICCADILLY FARMS 9589 SHELDON RD, ELK GROVE, CA, 95624			S105808208
▲ 5	W <1/10	(0 ft. / 0 mi.)	Other Standard Environmental Records
	1 ft. Higher Elevation	59 ft. Above Sea Level	

Worksheet:

Impact on Target Property: VEC Can Be Ruled Out

Sacramento Co. ML: Other Standard Environmental Records

Facility Id:	Not Reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Disclaimer
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	50
Food Bill Code:	50
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported
UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	0
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported

MAP FINDINGS

GIBLIN RESIDENCE 9020 BADER RD, ELK GROVE, CA, 95624			S102312476
▲ 6	SE 1/10 - 1/3	(1079 ft. / 0.204 mi.)	Other Standard Environmental Records
	10 ft. Higher Elevation	68 ft. Above Sea Level	

Worksheet:

Impact on Target Property: VEC Can Be Ruled Out

Sacramento Co. ML: Other Standard Environmental Records

Facility Id:	Not Reported
Facility Status:	Inactive. Included on a listing no longer updated.
FD:	G
Billing Codes BP:	Out of Business
Billing Codes UST:	No Tanks
WG Bill Code:	Oil Changed by Outside Company-No Fee
Target Property Bill Cod:	51
Food Bill Code:	51
CUPA Permit Date:	Not Reported
HAZMAT Permit Date:	Not Reported
HAZMAT Inspection Date:	Not Reported
Hazmat Date BP Received:	Not Reported
UST Permit Dt:	Not Reported
UST Inspection Date:	Not Reported
UST Tank Test Date:	Not Reported
Number of Tanks:	0
UST Tank Test Date:	Not Reported
SIC Code:	Not Reported
Tier Permitting:	Not Reported
AST Bill Code:	Not Reported
CALARP Bill Code:	Not Reported

RECORD SOURCES AND CURRENCY

To maintain currency of the following databases, EDR contacts the appropriate agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

PRP: Potentially Responsible Parties
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Number of Days to Update: 3
Last EDR Contact :12/29/2015

Source: EPA
Telephone: 202-564-6023

RMP: Risk Management Plans
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2014
Number of Days to Update: 86
Last EDR Contact :10/27/2014

Source: Environmental Protection Agency
Telephone: 202-564-8600

ALAMEDA CO. UST: Underground Tanks
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Alameda county.

Date of Government Version: 10/21/2014
Number of Days to Update: 38
Last EDR Contact :12/29/2014

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

AST: Aboveground Petroleum Storage Tank Facilities
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Number of Days to Update: 21
Last EDR Contact :12/23/2014

Source: California Environmental Protection Agency
Telephone: 916-327-5092

Alameda County CS: Contaminated Sites
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

RECORD SOURCES AND CURRENCY

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/21/2014
Number of Days to Update: 35
Last EDR Contact :12/29/2014

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

CA BOND EXP. PLAN: Bond Expenditure Plan

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Number of Days to Update: 6
Last EDR Contact :05/31/1994

Source: Department of Health Services
Telephone: 916-255-2118

CA FID UST: Facility Inventory Database

Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Number of Days to Update: 24
Last EDR Contact :12/28/1998

Source: California Environmental Protection Agency
Telephone: 916-341-5851

CA LA LF: City of Los Angeles Landfills

Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Number of Days to Update: 29
Last EDR Contact :10/17/2014

Source: Engineering & Construction Division
Telephone: 213-473-7869

CDL: Clandestine Drug Labs

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2014
Number of Days to Update: 22
Last EDR Contact :10/10/2014

Source: Department of Toxic Substances Control
Telephone: 916-255-6504

CHMIRS: California Hazardous Material Incident Report System

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

RECORD SOURCES AND CURRENCY

Date of Government Version: 10/27/2014
Number of Days to Update: 42
Last EDR Contact :10/29/2014

Source: Office of Emergency Services
Telephone: 916-845-8400

CONTRA COSTA CO. SITE LIST: Site List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2014
Number of Days to Update: 48
Last EDR Contact :11/03/2014

Source: Contra Costa Health Services Department
Telephone: 925-646-2286

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/29/2014
Number of Days to Update: 50
Last EDR Contact :12/29/2014

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400

CUPA AMADOR: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility List

Date of Government Version: 09/08/2014
Number of Days to Update: 15
Last EDR Contact :12/05/2014

Source: Amador County Environmental Health
Telephone: 209-223-6439

CUPA BUTTE: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 11/20/2014
Number of Days to Update: 44
Last EDR Contact :11/06/2014

Source: Public Health Department
Telephone: 530-538-7149

CUPA CALVERAS: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility Listing

Date of Government Version: 10/06/2014
Number of Days to Update: 43
Last EDR Contact :12/29/2014

Source: Calveras County Environmental Health
Telephone: 209-754-6399

CUPA COLUSA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 06/11/2014
Number of Days to Update: 24

Source: Health & Human Services
Telephone: 530-458-0396

Last EDR Contact :11/07/2014

CUPA DEL NORTE: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility list

Date of Government Version: 11/03/2014
Number of Days to Update: 38
Last EDR Contact :11/03/2014
Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426

CUPA EL DORADO: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility list.

Date of Government Version: 11/19/2014
Number of Days to Update: 38
Last EDR Contact :11/03/2014
Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623

CUPA FRESNO: CUPA Resources List
Standard Environmental Record Source: Other Standard Environmental Records
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 09/30/2014
Number of Days to Update: 36
Last EDR Contact :01/05/2015
Source: Dept. of Community Health
Telephone: 559-445-3271

CUPA HUMBOLDT: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility list.

Date of Government Version: 09/10/2014
Number of Days to Update: 14
Last EDR Contact :11/26/2014
Source: Humboldt County Environmental Health
Telephone: Not Reported

CUPA IMPERIAL: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 11/03/2014
Number of Days to Update: 38
Last EDR Contact :10/27/2014
Source: San Diego Border Field Office
Telephone: 760-339-2777

CUPA INYO: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list.

Date of Government Version: 09/10/2013
Number of Days to Update: 33
Last EDR Contact :11/19/2014
Source: Inyo County Environmental Health Services
Telephone: 760-878-0238

CUPA KINGS: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records

RECORD SOURCES AND CURRENCY

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/21/2014
Number of Days to Update: 35
Last EDR Contact :11/21/2014

Source: Kings County Department of Public Health
Telephone: 559-584-1411

CUPA LAKE: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

Cupa facility list

Date of Government Version: 10/20/2014
Number of Days to Update: 76
Last EDR Contact :10/20/2014

Source: Lake County Environmental Health
Telephone: 707-263-1164

CUPA MADERA: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 10/02/2014
Number of Days to Update: 48
Last EDR Contact :11/26/2014

Source: Madera County Environmental Health
Telephone: 559-675-7823

CUPA MERCED: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

CUPA facility list.

Date of Government Version: 11/25/2014
Number of Days to Update: 33
Last EDR Contact :11/21/2014

Source: Merced County Environmental Health
Telephone: 209-381-1094

CUPA MONO: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

CUPA Facility List

Date of Government Version: 09/02/2014
Number of Days to Update: 19
Last EDR Contact :11/26/2014

Source: Mono County Health Department
Telephone: 760-932-5580

CUPA MONTEREY: CUPA Facility Listing

Standard Environmental Record Source: Other Standard Environmental Records

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/09/2014
Number of Days to Update: 28
Last EDR Contact :11/26/2014

Source: Monterey County Health Department
Telephone: 831-796-1297

CUPA NEVADA: CUPA Facility List

Standard Environmental Record Source: Other Standard Environmental Records

CUPA facility list.

Date of Government Version: 09/16/2014
Number of Days to Update: 7
Last EDR Contact :12/15/2014

Source: Community Development Agency
Telephone: 530-265-1467

CUPA SAN LUIS OBISPO: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility List.

Date of Government Version: 11/21/2014
Number of Days to Update: 36
Last EDR Contact :11/21/2014

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596

CUPA SANTA BARBARA: CUPA Facility Listing
Standard Environmental Record Source: Other Standard Environmental Records
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Number of Days to Update: 28
Last EDR Contact :11/19/2014

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167

CUPA SANTA CLARA: Cupa Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list

Date of Government Version: 11/25/2014
Number of Days to Update: 34
Last EDR Contact :11/21/2014

Source: Department of Environmental Health
Telephone: 408-918-1973

CUPA SANTA CRUZ: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility listing.

Date of Government Version: 11/24/2014
Number of Days to Update: 36
Last EDR Contact :11/21/2014

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761

CUPA SHASTA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility List.

Date of Government Version: 09/16/2014
Number of Days to Update: 34
Last EDR Contact :11/26/2014

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789

CUPA SONOMA: Cupa Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa Facility list

Date of Government Version: 09/30/2014
Number of Days to Update: 49
Last EDR Contact :12/29/2014

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174

RECORD SOURCES AND CURRENCY

CUPA TUOLUMNE: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Cupa facility list

Date of Government Version: 10/28/2014
Number of Days to Update: 44
Last EDR Contact :10/27/2014

Source: Divison of Environmental Health
Telephone: 209-533-5633

CUPA YUBA: CUPA Facility List
Standard Environmental Record Source: Other Standard Environmental Records
CUPA facility listing for Yuba County.

Date of Government Version: 11/17/2014
Number of Days to Update: 42
Last EDR Contact :11/17/2014

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523

DEED: Deed Restriction Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/08/2014
Number of Days to Update: 42
Last EDR Contact :12/09/2014

Source: DTSC and SWRCB
Telephone: 916-323-3400

DRYCLEANERS: Cleaner Facilities
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/28/2014
Number of Days to Update: 49
Last EDR Contact :12/22/2014

Source: Department of Toxic Substance Control
Telephone: 916-327-4498

EL SEGUNDO UST: City of El Segundo Underground Storage Tank
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in El Segundo city.

Date of Government Version: 10/20/2014
Number of Days to Update: 54
Last EDR Contact :10/20/2014

Source: City of El Segundo Fire Department
Telephone: 310-524-2236

EMI: Emissions Inventory Data
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012
Number of Days to Update: 34
Last EDR Contact :12/24/2014

Source: California Air Resources Board
Telephone: 916-322-2990

ENF: Enforcement Action Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/10/2014
Number of Days to Update: 30
Last EDR Contact :11/07/2014

Source: State Water Resoruces Control Board
Telephone: 916-445-9379

ENVIROSTOR: EnviroStor Database

Standard Environmental Record Source: State and tribal - equivalent CERCLIS
Search Distance: 0.333 Mile

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 11/03/2014
Number of Days to Update: 38
Last EDR Contact :11/04/2014

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

HAULERS: Registered Waste Tire Haulers Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of registered waste tire haulers.

Date of Government Version: 09/08/2014
Number of Days to Update: 43
Last EDR Contact :11/12/2014

Source: Integrated Waste Management Board
Telephone: 916-341-6422

HAZNET: Facility and Manifest Data

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2013
Number of Days to Update: 35
Last EDR Contact :10/15/2014

Source: California Environmental Protection Agency
Telephone: 916-255-1136

HIST CAL-SITES: Calsites Database

Standard Environmental Record Source: State and tribal - equivalent CERCLIS

RECORD SOURCES AND CURRENCY

Search Distance: 0.333 Mile

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Number of Days to Update: 21
Last EDR Contact :02/23/2009

Source: Department of Toxic Substance Control
Telephone: 916-323-3400

HIST CORTESE: Hazardous Waste & Substance Site List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Number of Days to Update: 76
Last EDR Contact :01/22/2009

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Number of Days to Update: 22
Last EDR Contact :03/23/2009

Source: Santa Clara Valley Water District
Telephone: 408-265-2600

HIST UST: Hazardous Substance Storage Container Database

Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Number of Days to Update: 18
Last EDR Contact :07/26/2001

Source: State Water Resources Control Board
Telephone: 916-341-5851

HWP: EnviroStor Permitted Facilities Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/24/2014
Number of Days to Update: 35
Last EDR Contact :11/25/2014

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

HWT: Registered Hazardous Waste Transporter Database

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/14/2014
Number of Days to Update: 35
Last EDR Contact :10/15/2014

Source: Department of Toxic Substances Control
Telephone: 916-440-7145

KERN CO. UST: Underground Storage Tank Sites & Tank Listing
Standard Environmental Record Source: State and tribal registered storage tank lists
Kern County Sites and Tanks Listing.

Date of Government Version: 07/22/2014
Number of Days to Update: 37
Last EDR Contact :11/05/2014

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700

LA Co. Site Mitigation: Site Mitigation List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/07/2014
Number of Days to Update: 28
Last EDR Contact :10/17/2014

Source: Community Health Services
Telephone: 323-890-7806

LDS: Land Disposal Sites Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/12/2014
Number of Days to Update: 21
Last EDR Contact :12/15/2014

Source: State Water Qualilty Control Board
Telephone: 866-480-1028

LIENS: Environmental Liens Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 10/02/2014
Number of Days to Update: 48
Last EDR Contact :12/05/2014

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

LONG BEACH UST: City of Long Beach Underground Storage Tank
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 07/28/2014
Number of Days to Update: 23
Last EDR Contact :10/27/2014

Source: City of Long Beach Fire Department
Telephone: 562-570-2563

LOS ANGELES CO. HMS: HMS: Street Number List

RECORD SOURCES AND CURRENCY

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/31/2014
Number of Days to Update: 41
Last EDR Contact :10/14/2014

Source: Department of Public Works
Telephone: 626-458-3517

LOS ANGELES CO. LF: List of Solid Waste Facilities
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/20/2014
Number of Days to Update: 51
Last EDR Contact :10/22/2014

Source: La County Department of Public Works
Telephone: 818-458-5185

LUST: Geotracker's Leaking Underground Fuel Tank Report
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/12/2014
Number of Days to Update: 21
Last EDR Contact :12/15/2014

Source: State Water Resources Control Board
Telephone: see region list

LUST REG 1: Active Toxic Site Investigation
Standard Environmental Record Source: State and tribal leaking storage tank lists
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Number of Days to Update: 29
Last EDR Contact :08/01/2011

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769

LUST REG 2: Fuel Leak List
Standard Environmental Record Source: State and tribal leaking storage tank lists
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Number of Days to Update: 30
Last EDR Contact :09/19/2011

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433

LUST REG 3: Leaking Underground Storage Tank Database
Standard Environmental Record Source: State and tribal leaking storage tank lists
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786

Last EDR Contact :07/18/2011

LUST REG 4: Underground Storage Tank Leak List

Standard Environmental Record Source: State and tribal leaking storage tank lists

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Source: California Regional Water Quality Control Board Los Angeles Region (4)
Number of Days to Update: 35
Telephone: 213-576-6710
Last EDR Contact :09/06/2011

LUST REG 5: Leaking Underground Storage Tank Database

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Source: California Regional Water Quality Control Board Central Valley Region (5)
Number of Days to Update: 9
Telephone: 916-464-4834
Last EDR Contact :07/01/2011

LUST REG 6L: Leaking Underground Storage Tank Case Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Source: California Regional Water Quality Control Board Lahontan Region (6)
Number of Days to Update: 27
Telephone: 530-542-5572
Last EDR Contact :09/12/2011

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Number of Days to Update: 22
Telephone: 760-241-7365
Last EDR Contact :09/12/2011

LUST REG 7: Leaking Underground Storage Tank Case Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Number of Days to Update: 27
Telephone: 760-776-8943
Last EDR Contact :08/01/2011

LUST REG 8: Leaking Underground Storage Tanks

Standard Environmental Record Source: State and tribal leaking storage tank lists

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Source: California Regional Water Quality Control Board Santa Ana Region (8)

Number of Days to Update: 41
Last EDR Contact :08/15/2011
Telephone: 909-782-4496

LUST REG 9: Leaking Underground Storage Tank Report
Standard Environmental Record Source: State and tribal leaking storage tank lists
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Number of Days to Update: 28
Last EDR Contact :09/26/2011
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595

LUST SANTA CLARA: LOP Listing
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Number of Days to Update: 13
Last EDR Contact :11/25/2014
Source: Department of Environmental Health
Telephone: 408-918-3417

MARIN CO. UST: Underground Storage Tank Sites
Standard Environmental Record Source: State and tribal registered storage tank lists
Currently permitted USTs in Marin County.

Date of Government Version: 10/08/2014
Number of Days to Update: 54
Last EDR Contact :01/05/2015
Source: Public Works Department Waste Management
Telephone: 415-499-6647

MCS: Military Cleanup Sites Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/12/2014
Number of Days to Update: 21
Last EDR Contact :12/15/2014
Source: State Water Resources Control Board
Telephone: 866-480-1028

MED WASTE VENTURA: Medical Waste Program List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2014
Number of Days to Update: 44
Last EDR Contact :10/27/2014
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813

MWMP: Medical Waste Management Program Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

RECORD SOURCES AND CURRENCY

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/20/2014
Number of Days to Update: 43
Last EDR Contact :12/09/2014

Source: Department of Public Health
Telephone: 916-558-1784

NAPA CO. LUST: Sites With Reported Contamination
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Number of Days to Update: 63
Last EDR Contact :11/25/2014

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

NAPA CO. UST: Closed and Operating Underground Storage Tank Sites
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Number of Days to Update: 23
Last EDR Contact :11/25/2014

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

NOTIFY 65: Proposition 65 Records
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Number of Days to Update: 18
Last EDR Contact :12/18/2014

Source: State Water Resources Control Board
Telephone: 916-445-3846

NPDES: NPDES Permits Listing
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/17/2014
Number of Days to Update: 40
Last EDR Contact :11/19/2014

Source: State Water Resources Control Board
Telephone: 916-445-9379

ORANGE CO. LUST: List of Underground Storage Tank Cleanups
Standard Environmental Record Source: State and tribal leaking storage tank lists
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/01/2014
Number of Days to Update: 30
Last EDR Contact :11/05/2014

Source: Health Care Agency
Telephone: 714-834-3446

ORANGE CO. UST: List of Underground Storage Tank Facilities
Standard Environmental Record Source: State and tribal registered storage tank lists

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/01/2014
Number of Days to Update: 35
Last EDR Contact :11/10/2014

Source: Health Care Agency
Telephone: 714-834-3446

Orange Co. Industrial Site: List of Industrial Site Cleanups
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Petroleum and non-petroleum spills.

Date of Government Version: 11/01/2014
Number of Days to Update: 30
Last EDR Contact :11/05/2014

Source: Health Care Agency
Telephone: 714-834-3446

PLACER CO. MS: Master List of Facilities
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/22/2014
Number of Days to Update: 59
Last EDR Contact :12/05/2014

Source: Placer County Health and Human Services
Telephone: 530-745-2363

PROC: Certified Processors Database
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

A listing of certified processors.

Date of Government Version: 09/16/2014
Number of Days to Update: 36
Last EDR Contact :12/15/2014

Source: Department of Conservation
Telephone: 916-323-3836

RESPONSE: State Response Sites
Standard Environmental Record Source: State and tribal - equivalent NPL
Search Distance: 0.333 Mile

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 11/03/2014
Number of Days to Update: 38
Last EDR Contact :11/04/2014

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

RIVERSIDE CO. LUST: Listing of Underground Tank Cleanup Sites
Standard Environmental Record Source: State and tribal leaking storage tank lists
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/08/2014
Number of Days to Update: 41
Last EDR Contact :12/22/2014

Source: Department of Environmental Health
Telephone: 951-358-5055

RIVERSIDE CO. UST: Underground Storage Tank Tank List

Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/08/2014
Number of Days to Update: 46
Last EDR Contact :12/22/2014

Source: Department of Environmental Health
Telephone: 951-358-5055

SAN DIEGO CO. HMMD: Hazardous Materials Management Division Database
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Number of Days to Update: 23
Last EDR Contact :12/04/2014

Source: Hazardous Materials Management Division
Telephone: 619-338-2268

SAN DIEGO CO. LF: Solid Waste Facilities
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2014
Number of Days to Update: 38
Last EDR Contact :10/27/2014

Source: Department of Health Services
Telephone: 619-338-2209

SAN DIEGO CO. SAM: Environmental Case Listing
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Number of Days to Update: 24
Last EDR Contact :12/04/2014

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371

SAN FRANCISCO CO. LUST: Local Oversite Facilities
Standard Environmental Record Source: State and tribal leaking storage tank lists
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Number of Days to Update: 10
Last EDR Contact :11/05/2014

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920

SAN FRANCISCO CO. UST: Underground Storage Tank Information
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920

RECORD SOURCES AND CURRENCY

Last EDR Contact :11/05/2014

SAN JOSE HAZMAT: Hazardous Material Facilities

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/10/2014
Number of Days to Update: 35
Last EDR Contact :11/07/2014

Source: City of San Jose Fire Department
Telephone: 408-535-7694

SAN MATEO CO. LUST: Fuel Leak List

Standard Environmental Record Source: State and tribal leaking storage tank lists

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/15/2014
Number of Days to Update: 36
Last EDR Contact :12/11/2014

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921

SCH: School Property Evaluation Program

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 11/03/2014
Number of Days to Update: 38
Last EDR Contact :11/04/2014

Source: Department of Toxic Substances Control
Telephone: 916-323-3400

SLIC: Statewide SLIC Cases

Standard Environmental Record Source: State and tribal leaking storage tank lists

Search Distance: 0.333 Mile

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/12/2014
Number of Days to Update: 21
Last EDR Contact :12/15/2014

Source: State Water Resources Control Board
Telephone: 866-480-1028

SLIC REG 1: Active Toxic Site Investigations

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Number of Days to Update: 18
Last EDR Contact :08/01/2011

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Number of Days to Update: 30
Telephone: 510-286-0457
Last EDR Contact :09/19/2011

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Source: California Regional Water Quality Control Board Central Coast Region (3)
Number of Days to Update: 28
Telephone: 805-549-3147
Last EDR Contact :07/18/2011

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Source: Region Water Quality Control Board Los Angeles Region (4)
Number of Days to Update: 47
Telephone: 213-576-6600
Last EDR Contact :07/01/2011

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Source: Regional Water Quality Control Board Central Valley Region (5)
Number of Days to Update: 16
Telephone: 916-464-3291
Last EDR Contact :09/12/2011

SLIC REG 6L: SLIC Sites

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Source: California Regional Water Quality Control Board, Lahontan Region
Number of Days to Update: 35
Telephone: 530-542-5574
Last EDR Contact :08/15/2011

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Source: Regional Water Quality Control Board, Victorville Branch
Number of Days to Update: 22
Telephone: 619-241-6583
Last EDR Contact :08/15/2011

SLIC REG 7: SLIC List

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Source: California Regional Quality Control Board, Colorado River Basin Region
Number of Days to Update: 36
Telephone: 760-346-7491
Last EDR Contact :08/01/2011

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Source: California Region Water Quality Control Board Santa Ana Region (8)
Number of Days to Update: 11
Telephone: 951-782-3298
Last EDR Contact :09/12/2011

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

Standard Environmental Record Source: State and tribal leaking storage tank lists

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Source: California Regional Water Quality Control Board San Diego Region (9)
Number of Days to Update: 17
Telephone: 858-467-2980
Last EDR Contact :08/08/2011

SOLANO CO. LUST: Leaking Underground Storage Tanks

Standard Environmental Record Source: State and tribal leaking storage tank lists

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/17/2014
Source: Solano County Department of Environmental Management
Number of Days to Update: 42
Telephone: 707-784-6770
Last EDR Contact :12/11/2014

SOLANO CO. UST: Underground Storage Tanks

Standard Environmental Record Source: State and tribal registered storage tank lists

Underground storage tank sites located in Solano county.

Date of Government Version: 06/19/2014
Source: Solano County Department of Environmental Management
Number of Days to Update: 29
Telephone: 707-784-6770
Last EDR Contact :12/11/2014

SONOMA CO. LUST: Leaking Underground Storage Tank Sites

Standard Environmental Record Source: State and tribal leaking storage tank lists

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/01/2014
Source: Department of Health Services
Number of Days to Update: 48
Telephone: 707-565-6565
Last EDR Contact :12/29/2014

SUTTER CO. UST: Underground Storage Tanks

Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Sutter county.

Date of Government Version: 09/08/2014
Number of Days to Update: 45
Last EDR Contact :12/05/2014

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500

SWEEPS UST: SWEEPS UST Listing
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Number of Days to Update: 35
Last EDR Contact :06/03/2005

Source: State Water Resources Control Board
Telephone: Not Reported

SWF/LF (SWIS): Solid Waste Information System
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Search Distance: 0.333 Mile

Active, Closed and Inactive Landfills.SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills.These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteriafor solid waste landfills or disposal sites.

Date of Government Version: 11/17/2014
Number of Days to Update: 35
Last EDR Contact :11/19/2014

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320

SWRCY: Recycler Database
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Search Distance: 0.333 Mile

A listing of recycling facilities in California.

Date of Government Version: 09/16/2014
Number of Days to Update: 36
Last EDR Contact :12/15/2014

Source: Department of Conservation
Telephone: 916-323-3836

Sacramento Co. CS: Toxic Site Clean-Up List
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/06/2014
Number of Days to Update: 21
Last EDR Contact :01/07/2015

Source: Sacramento County Environmental Management
Telephone: 916-875-8406

Sacramento Co. ML: Master Hazardous Materials Facility List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

RECORD SOURCES AND CURRENCY

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 10/21/2014
Number of Days to Update: 48
Last EDR Contact :01/05/2015

Source: Sacramento County Environmental Management
Telephone: 916-875-8406

San Bern. Co. Permit: Hazardous Material Permits

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/06/2014
Number of Days to Update: 54
Last EDR Contact :11/10/2014

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041

San Mateo Co. BI: Business Inventory

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 10/06/2014
Number of Days to Update: 40
Last EDR Contact :12/15/2014

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921

TORRANCE UST: City of Torrance Underground Storage Tank

Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/13/2014
Number of Days to Update: 32
Last EDR Contact :10/10/2014

Source: City of Torrance Fire Department
Telephone: 310-618-2973

TOXIC PITS: Toxic Pits Cleanup Act Sites

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Number of Days to Update: 27
Last EDR Contact :01/26/2009

Source: State Water Resources Control Board
Telephone: 916-227-4364

UIC: UIC Listing

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/14/2014
Number of Days to Update: 36

Source: Deaprtment of Conservation
Telephone: 916-445-2408

Last EDR Contact :12/15/2014

UST: Active UST Facilities
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/17/2014
Number of Days to Update: 37
Last EDR Contact :12/15/2014
Source: SWRCB
Telephone: 916-341-5851

UST MENDOCINO: Mendocino County UST Database
Standard Environmental Record Source: State and tribal registered storage tank lists
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Number of Days to Update: 8
Last EDR Contact :12/24/2014
Source: Department of Public Health
Telephone: 707-463-4466

UST SAN JOAQUIN: San Joaquin Co. UST
Standard Environmental Record Source: State and tribal registered storage tank lists
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/20/2014
Number of Days to Update: 18
Last EDR Contact :01/05/2015
Source: Environmental Health Department
Telephone: Not Reported

VCP: Voluntary Cleanup Program Properties
Standard Environmental Record Source: State and tribal voluntary cleanup sites
Search Distance: 0.333 Mile

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 11/03/2014
Number of Days to Update: 38
Last EDR Contact :11/04/2014
Source: Department of Toxic Substances Control
Telephone: 916-323-3400

VENTURA CO. BWT: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 10/29/2014
Number of Days to Update: 35
Last EDR Contact :11/17/2014
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813

VENTURA CO. LF: Inventory of Illegal Abandoned and Inactive Sites
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Number of Days to Update: 49
Source: Environmental Health Division
Telephone: 805-654-2813

Last EDR Contact :01/05/2015

VENTURA CO. LUST: Listing of Underground Tank Cleanup Sites
Standard Environmental Record Source: State and tribal leaking storage tank lists
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Number of Days to Update: 37
Last EDR Contact :11/17/2014
Source: Environmental Health Division
Telephone: 805-654-2813

VENTURA CO. UST: Underground Tank Closed Sites List
Standard Environmental Record Source: State and tribal registered storage tank lists
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/26/2014
Number of Days to Update: 41
Last EDR Contact :12/15/2014
Source: Environmental Health Division
Telephone: 805-654-2813

WDS: Waste Discharge System
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Number of Days to Update: 9
Last EDR Contact :11/19/2014
Source: State Water Resources Control Board
Telephone: 916-341-5227

WIP: Well Investigation Program Case List
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Number of Days to Update: 13
Last EDR Contact :12/23/2014
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726

WMUDS/SWAT: Waste Management Unit Database
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Number of Days to Update: 30
Last EDR Contact :11/05/2014
Source: State Water Resources Control Board
Telephone: 916-227-4448

YOLO CO. UST: Underground Storage Tank Comprehensive Facility Report
Standard Environmental Record Source: State and tribal registered storage tank lists
Underground storage tank sites located in Yolo county.

Date of Government Version: 09/23/2014
Number of Days to Update: 56
Last EDR Contact :12/18/2014

Source: Yolo County Department of Health
Telephone: 530-666-8646

2020 COR ACTION: 2020 Corrective Action Program List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.25 Mile

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Number of Days to Update: 7
Last EDR Contact :11/14/2014

Source: Environmental Protection Agency
Telephone: 703-308-4044

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

Standard Environmental Record Source: Federal CERCLIS
Search Distance: 0.333 Mile

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Number of Days to Update: 94
Last EDR Contact :11/24/2014

Source: EPA
Telephone: 703-412-9810

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Number of Days to Update: 94
Last EDR Contact :11/24/2014

Source: EPA
Telephone: 703-412-9810

COAL ASH DOE: Sleam-Electric Plan Operation Data

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Number of Days to Update: 76
Last EDR Contact :10/17/2014

Source: Department of Energy
Telephone: 202-586-8719

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Number of Days to Update: 40
Last EDR Contact :12/12/2014

Source: Environmental Protection Agency
Telephone: Not Reported

CONSENT: Superfund (CERCLA) Consent Decrees
Standard Environmental Record Source: Federal NPL
Search Distance: 0.333 Mile

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Number of Days to Update: 31
Last EDR Contact :12/24/2014

Source: Department of Justice, Consent Decree Library
Telephone: Varies

CORRACTS: Corrective Action Report
Standard Environmental Record Source: Federal RCRA CORRACTS facilities list
Search Distance: 0.333 Mile

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/10/2014
Number of Days to Update: 78
Last EDR Contact :12/29/2014

Source: EPA
Telephone: 800-424-9346

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
Standard Environmental Record Source: State and tribal landfill / solid waste disposal
Search Distance: 0.333 Mile

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Number of Days to Update: 137
Last EDR Contact :10/24/2014

Source: EPA, Region 9
Telephone: 415-947-4219

DELISTED NPL: National Priority List Deletions
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/29/2014
Number of Days to Update: 40
Last EDR Contact :01/08/2015

Source: EPA
Telephone: Not Reported

DOT OPS: Incident and Accident Data
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012

Source: Department of Transporation, Office of Pipeline Safety

Number of Days to Update: 42
Last EDR Contact :11/04/2014
Telephone: 202-366-4595

EPA WATCH LIST: EPA WATCH LIST

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Number of Days to Update: 88
Last EDR Contact :11/14/2014
Source: Environmental Protection Agency
Telephone: 617-520-3000

ERNS: Emergency Response Notification System

Standard Environmental Record Source: Federal ERNS list

Search Distance: Property

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Number of Days to Update: 37
Last EDR Contact :12/29/2014
Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180

FEMA UST: Underground Storage Tank Listing

Standard Environmental Record Source: State and tribal registered storage tank lists

Search Distance: Property

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Number of Days to Update: 55
Last EDR Contact :10/10/2014
Source: FEMA
Telephone: 202-646-5797

FINDS: Facility Index System/Facility Registry System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/16/2014
Number of Days to Update: 40
Last EDR Contact :12/09/2014
Source: EPA
Telephone: Not Reported

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

RECORD SOURCES AND CURRENCY

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Number of Days to Update: 25
Last EDR Contact :11/19/2014

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Standard Environmental Record Source: Other Standard Environmental Records

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Number of Days to Update: 25
Last EDR Contact :11/19/2014

Source: EPA
Telephone: 202-566-1667

FUDS: Formerly Used Defense Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Number of Days to Update: 8
Last EDR Contact :12/12/2014

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Number of Days to Update: 40
Last EDR Contact :12/17/2007

Source: Environmental Protection Agency
Telephone: 202-564-2501

HMIRS: Hazardous Materials Information Reporting System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2014
Number of Days to Update: 36
Last EDR Contact :12/30/2014

Source: U.S. Department of Transportation
Telephone: 202-366-4555

ICIS: Integrated Compliance Information System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

RECORD SOURCES AND CURRENCY

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2014
Number of Days to Update: 8
Last EDR Contact :10/10/2014

Source: Environmental Protection Agency
Telephone: 202-564-5088

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
Search Distance: 0.333 Mile

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Number of Days to Update: 184
Last EDR Contact :10/31/2014

Source: EPA Region 1
Telephone: 617-918-1313

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/20/2014
Number of Days to Update: 73
Last EDR Contact :10/27/2014

Source: EPA Region 10
Telephone: 206-553-2857

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Number of Days to Update: 10
Last EDR Contact :10/27/2014

Source: EPA Region 4
Telephone: 404-562-8677

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/03/2014
Number of Days to Update: 12
Last EDR Contact :10/27/2014

Source: EPA, Region 5
Telephone: 312-886-7439

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/06/2014
Number of Days to Update: 19
Last EDR Contact :10/27/2014

Source: EPA Region 6
Telephone: 214-665-6597

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 05/22/2014

Source: EPA Region 7

Number of Days to Update: 27
Telephone: 913-551-7003
Last EDR Contact :10/27/2014

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/04/2014
Source: EPA Region 8
Number of Days to Update: 10
Telephone: 303-312-6271
Last EDR Contact :10/27/2014

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal leaking storage tank lists
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Source: Environmental Protection Agency
Number of Days to Update: 42
Telephone: 415-972-3372
Last EDR Contact :12/09/2014

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Source: Environmental Protection Agency
Number of Days to Update: 52
Telephone: 703-308-8245
Last EDR Contact :10/29/2014

INDIAN UST R1: Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal registered storage tank lists
Search Distance: Property

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Source: EPA, Region 1
Number of Days to Update: 271
Telephone: 617-918-1313
Last EDR Contact :10/31/2014

INDIAN UST R10: Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal registered storage tank lists
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/20/2014
Source: EPA Region 10
Number of Days to Update: 66
Telephone: 206-553-2857
Last EDR Contact :10/27/2014

INDIAN UST R4: Underground Storage Tanks on Indian Land
Standard Environmental Record Source: State and tribal registered storage tank lists
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Source: EPA Region 4

Number of Days to Update: 10
Last EDR Contact :10/27/2014
Telephone: 404-562-9424

INDIAN UST R5: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/03/2014
Number of Days to Update: 12
Last EDR Contact :10/27/2014
Source: EPA Region 5
Telephone: 312-886-6136

INDIAN UST R6: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/06/2014
Number of Days to Update: 8
Last EDR Contact :10/27/2014
Source: EPA Region 6
Telephone: 214-665-7591

INDIAN UST R7: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 08/20/2014
Number of Days to Update: 27
Last EDR Contact :10/27/2014
Source: EPA Region 7
Telephone: 913-551-7003

INDIAN UST R8: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/04/2014
Number of Days to Update: 10
Last EDR Contact :10/27/2014
Source: EPA Region 8
Telephone: 303-312-6137

INDIAN UST R9: Underground Storage Tanks on Indian Land

Standard Environmental Record Source: State and tribal registered storage tank lists

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/14/2014
Number of Days to Update: 7
Last EDR Contact :10/27/2014
Source: EPA Region 9
Telephone: 415-972-3368

INDIAN VCP R1: Voluntary Cleanup Priority Listing

Standard Environmental Record Source: State and tribal voluntary cleanup sites

Search Distance: 0.333 Mile

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Number of Days to Update: 36
Source: EPA, Region 1
Telephone: 617-918-1102

Last EDR Contact :12/31/2014

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

Standard Environmental Record Source: State and tribal voluntary cleanup sites

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Number of Days to Update: 27
Last EDR Contact :04/20/2009

Source: EPA, Region 7
Telephone: 913-551-7365

LEAD SMELTER 1: Lead Smelter Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of former lead smelter site locations.

Date of Government Version: 06/04/2014
Number of Days to Update: 46
Last EDR Contact :01/05/2015

Source: Environmental Protection Agency
Telephone: 703-603-8787

LEAD SMELTER 2: Lead Smelter Sites

Standard Environmental Record Source: Other Standard Environmental Records

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Number of Days to Update: 36
Last EDR Contact :12/02/2009

Source: American Journal of Public Health
Telephone: 703-305-6451

LIENS 2: CERCLA Lien Information

Standard Environmental Record Source: Federal CERCLIS

Search Distance: Property

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Number of Days to Update: 37
Last EDR Contact :10/27/2014

Source: Environmental Protection Agency
Telephone: 202-564-6023

LUCIS: Land Use Control Information System

Standard Environmental Record Source: Federal institutional controls / engineering controls registries

Search Distance: 0.333 Mile

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/29/2014
Number of Days to Update: 11
Last EDR Contact :11/17/2014

Source: Department of the Navy
Telephone: 843-820-7326

MLTS: Material Licensing Tracking System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

RECORD SOURCES AND CURRENCY

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Number of Days to Update: 91
Last EDR Contact :12/04/2014

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169

NPL: National Priority List

Standard Environmental Record Source: Federal NPL

Search Distance: 0.333 Mile

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/29/2014
Number of Days to Update: 40
Last EDR Contact :01/08/2015

Source: EPA
Telephone: Not Reported

NPL Site Boundaries

Sources:

EPA"s Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-566-0690

EPA Region 1
Telephone: 617-918-1102

EPA Region 2
Telephone: 212-637-4293

EPA Region 3
Telephone: 215-814-5418

EPA Region 4
Telephone: 404-562-8681

EPA Region 5
Telephone: 312-353-1063

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6118

EPA Region 9
Telephone: 415-947-4579

EPA Region 10
Telephone: 206-553-4479

NPL LIENS: Federal Superfund Liens

Standard Environmental Record Source: Federal NPL

Search Distance: Property

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267

Last EDR Contact :08/15/2011

ODI: Open Dump Inventory

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Number of Days to Update: 39
Last EDR Contact :06/09/2004

Source: Environmental Protection Agency
Telephone: 800-424-9346

PADS: PCB Activity Database System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Number of Days to Update: 33
Last EDR Contact :10/15/2014

Source: EPA
Telephone: 202-566-0500

PCB TRANSFORMER: PCB Transformer Registration Database

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Number of Days to Update: 83
Last EDR Contact :10/31/2014

Source: Environmental Protection Agency
Telephone: 202-566-0517

Proposed NPL: Proposed National Priority List Sites

Standard Environmental Record Source: Federal NPL

Search Distance: 0.333 Mile

A site that has been proposed for listing on the NationalPriorities List through the issuance of a proposed rule in the Federal Register.EPA then accepts public comments on the site, responds to the comments,and places on the NPL those sites that continue to meet therequirements for listing.

Date of Government Version: 09/29/2014
Number of Days to Update: 40
Last EDR Contact :01/08/2015

Source: EPA
Telephone: Not Reported

RAATS: RCRA Administrative Action Tracking System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104

RECORD SOURCES AND CURRENCY

Last EDR Contact :06/02/2008

RADINFO: Radiation Information Database

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/07/2014
Source: Environmental Protection Agency
Number of Days to Update: 12
Telephone: 202-343-9775
Last EDR Contact :01/08/2015

RCRA NonGen / NLR: RCRA - Non Generators

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/10/2014
Source: Environmental Protection Agency
Number of Days to Update: 78
Telephone: 703-308-8895
Last EDR Contact :12/29/2014

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

Standard Environmental Record Source: Federal RCRA generators list

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Source: Environmental Protection Agency
Number of Days to Update: 78
Telephone: 703-308-8895
Last EDR Contact :12/29/2014

RCRA-LQG: RCRA - Large Quantity Generators

Standard Environmental Record Source: Federal RCRA generators list

Search Distance: Property

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Source: Environmental Protection Agency
Number of Days to Update: 78
Telephone: 703-308-8895
Last EDR Contact :12/29/2014

RCRA-SQG: RCRA - Small Quantity Generators

Standard Environmental Record Source: Federal RCRA generators list

Search Distance: Property

RECORD SOURCES AND CURRENCY

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/10/2014
Number of Days to Update: 78
Last EDR Contact :12/29/2014

Source: Environmental Protection Agency
Telephone: 703-308-8895

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

Standard Environmental Record Source: Federal RCRA TSD facilities list

Search Distance: 0.333 Mile

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/10/2014
Number of Days to Update: 78
Last EDR Contact :12/29/2014

Source: Environmental Protection Agency
Telephone: 703-308-8895

ROD: Records Of Decision

Standard Environmental Record Source: Federal NPL

Search Distance: 0.333 Mile

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Number of Days to Update: 74
Last EDR Contact :12/12/2014

Source: EPA
Telephone: 703-416-0223

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Number of Days to Update: 54
Last EDR Contact :11/18/2014

Source: Environmental Protection Agency
Telephone: 615-532-8599

SSTS: Section 7 Tracking Systems

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203

Last EDR Contact :10/27/2014

TRIS: Toxic Chemical Release Inventory System

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Number of Days to Update: 44
Last EDR Contact :11/26/2014

Source: EPA
Telephone: 202-566-0250

TSCA: Toxic Substances Control Act

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Number of Days to Update: 64
Last EDR Contact :12/22/2014

Source: EPA
Telephone: 202-260-5521

UMTRA: Uranium Mill Tailings Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Number of Days to Update: 146
Last EDR Contact :11/26/2014

Source: Department of Energy
Telephone: 505-845-0011

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Number of Days to Update: 17
Last EDR Contact :12/23/2014

Source: EPA
Telephone: 202-564-2496

US AIRS MINOR: Air Facility System Data

Standard Environmental Record Source: Other Standard Environmental Records

A listing of minor source facilities.

Date of Government Version: 10/16/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496

Last EDR Contact :12/23/2014

US BROWNFIELDS: A Listing of Brownfields Sites

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: 0.333 Mile

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/22/2014
Number of Days to Update: 27
Last EDR Contact :12/22/2014

Source: Environmental Protection Agency
Telephone: 202-566-2777

US CDL: Clandestine Drug Labs

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/25/2014
Number of Days to Update: 41
Last EDR Contact :11/25/2014

Source: Drug Enforcement Administration
Telephone: 202-307-1000

US ENG CONTROLS: Engineering Controls Sites List

Standard Environmental Record Source: Federal institutional controls / engineering controls registries

Search Distance: Property

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Number of Days to Update: 31
Last EDR Contact :12/03/2014

Source: Environmental Protection Agency
Telephone: 703-603-0695

US FIN ASSUR: Financial Assurance Information

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/04/2014
Number of Days to Update: 46
Last EDR Contact :11/11/2014

Source: Environmental Protection Agency
Telephone: 202-566-1917

US HIST CDL: National Clandestine Laboratory Register

Standard Environmental Record Source: Other Standard Environmental Records

Search Distance: Property

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/25/2014
Number of Days to Update: 41
Last EDR Contact :11/25/2014

Source: Drug Enforcement Administration
Telephone: 202-307-1000

US INST CONTROL: Sites with Institutional Controls

Standard Environmental Record Source: Federal institutional controls / engineering controls registries
Search Distance: Property

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Number of Days to Update: 31
Last EDR Contact :12/03/2014

Source: Environmental Protection Agency
Telephone: 703-603-0695

US MINES: Mines Master Index File

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2014
Number of Days to Update: 74
Last EDR Contact :12/30/2014

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

AOCONCERN: San Gabriel Valley Areas of Concern

Standard Environmental Record Source: State and tribal - equivalent CERCLIS
Search Distance: 0.333 Mile

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Number of Days to Update: 206
Last EDR Contact :12/18/2014

Source: EPA Region 9
Telephone: 415-972-3178

DOD: Department of Defense Sites

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: 0.333 Mile

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Number of Days to Update: 62
Last EDR Contact :11/07/2014

Source: USGS
Telephone: 888-275-8747

INDIAN RESERV: Indian Reservations

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

RECORD SOURCES AND CURRENCY

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Number of Days to Update: 34
Last EDR Contact :11/07/2014

Source: USGS
Telephone: 202-208-3710

PWS: Public Water System Data

Standard Environmental Record Source: Other Standard Environmental Records
Search Distance: Property

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 12/17/2013
Number of Days to Update: 279
Last EDR Contact :12/03/2014

Source: EPA
Telephone: Not Reported

RECORD SOURCES AND CURRENCY

HISTORICAL USE RECORDS

RGA LF: Recovered Government Archive Solid Waste Facilities List

Standard Environmental Record Source: Exclusive Recovered Govt. Archives

Search Distance: Property

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: Not Reported
Number of Days to Update: 196
Last EDR Contact :06/01/2012

Source: Department of Resources Recycling and Recovery
Telephone: Not Reported

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

Standard Environmental Record Source: Exclusive Recovered Govt. Archives

Search Distance: Property

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: Not Reported
Number of Days to Update: 182
Last EDR Contact :06/01/2012

Source: State Water Resources Control Board
Telephone: Not Reported

EDR MGP: EDR Proprietary Manufactured Gas Plants

Standard Environmental Record Source: Former manufactured Gas Plants

Search Distance: 0.333 Mile

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: 08/28/2009
Number of Days to Update: 55
Last EDR Contact :11/30/2012

Source: EDR, Inc.
Telephone: Not Reported

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

Standard Environmental Record Source: Historical Gas Stations

Search Distance: 0.25 Mile

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: 02/20/2007
Number of Days to Update: 42
Last EDR Contact :02/21/2007

Source: EDR, Inc.
Telephone: Not Reported

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

Standard Environmental Record Source: Historical Dry Cleaners

RECORD SOURCES AND CURRENCY

Search Distance: 0.25 Mile

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: 02/20/2007
Number of Days to Update: 42
Last EDR Contact :02/21/2007

Source: EDR, Inc.
Telephone: Not Reported

RECORD SOURCES AND CURRENCY

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5' minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW® Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW® Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services. The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

STREET AND ADDRESS INFORMATION

APPENDIX G

Sheldon/Bradshaw Road Intersection
Detailed Project Description with Schematic Drawing
(Title Report Not Available)

Sheldon Road/Bradshaw Road Intersection Improvement Project

Project Description

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City of Elk Grove. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

Laguna Creek 100-year flows currently overtop the existing bridge at the Sheldon Road/Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes twenty years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes southbound and northbound on Bradshaw entering and exiting the intersection and one lane eastbound and west bound on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the project. In accordance with the City's General Plan, and Bicycle, Pedestrian and Trails Master Plan, the proposed project will add pedestrian and bicycle facilities along Sheldon and Bradshaw roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also

be relocated under the roundabout alternative. The proposed project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows.

Additional right of way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel. Relocation of existing utilities may require additional easements rights. Traffic control during project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

Purpose and Need

Purpose

The purpose of the proposed project is to:

- Improve Hydraulic Capacity and Reduce Flooding. Improve hydraulic capacity of the East Branch Laguna Creek Bridge and reduce flooding in the surrounding area by replacing the functionally obsolete East Branch Laguna Creek Bridge with a new structure with adequate hydraulic capacity and realigning Laguna Creek north and south of the Sheldon Road/Bradshaw Road intersection.

- Relieve Congestion and Improve Traffic Flow. Relieve traffic congestion and reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.

- Pedestrian Safety. Provide pedestrian access within the proposed project area.

- Help Achieve the Transportation Goals of Local Planning Documents. Support the City of Elk Grove General Plan by accommodating future widening of Sheldon Road and Bradshaw Road to the planned number of traffic lanes and improving the Sheldon Road/Bradshaw Road intersection to meet the City's roadway and intersection service standards.

Need

Improve Hydraulic Capacity and Reduce Flooding

The Structure and Maintenance Investigations report prepared by Caltrans (September 2013) indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection according to Federal Highway Administration (FHWA) criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Sheldon Road/Bradshaw Road intersection was given a sufficiency rating of 65.3 percent on a scale of zero percent to 100 percent, where 100 percent represents an entirely sufficient bridge and zero percent represents an entirely deficient bridge. Functionally obsolete and less sufficient bridge structures, such as

the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood.

Relieve Congestion and Improve Traffic Flow

Growth in the City of Elk Grove and surrounding developing areas creates the need for operational improvements to improve circulation in the area. The Sheldon Road/Bradshaw Road intersection is currently operating at level of service (LOS) F under both AM and PM peak hour traffic conditions. The increasing population of the City and surrounding area will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign-controlled intersection configuration and number of traffic lanes on Sheldon Road and Bradshaw Road; thereby further increasing the need for traffic relief at the intersection.

Pedestrian Safety

No pedestrian facilities exist within the project area. Currently, Sheldon Road and Bradshaw Road in the project area do not provide safe pedestrian access as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access within the City as put forth in the goals of the Bicycle, Pedestrian and Trails Master Plan.

Help Achieve the Transportation Goals of Local Planning Documents.

City of Elk Grove General Plan (2003)
Figure C1-2 in the Circulation Element of the City of Elk Grove General Plan shows Bradshaw Road with an ultimate planned width as a six lane arterial and Sheldon Road with an ultimate planned width as a four lane arterial west of Bradshaw Road and as a two lane road with expanded right-of-way east of Bradshaw Road. The General Plan circulation policies for roadways indicate a minimum standard of level of service (LOS) "D" at all times for all roadways and intersections in the City of Elk Grove. According to the Traffic Operations Analysis Report prepared by Fehr and Peers for the proposed project, under existing conditions, the Sheldon Road/Bradshaw Road intersection as an all-way stop sign-controlled intersection operates at LOS F during both AM and PM peak hour traffic. This level of service is unacceptable to achieving the transportation goals within the City's General Plan.

Ultimate Multilane Roundabout Design Concept
Elk Grove, CA

FIGURE
1

APPENDIX H

Owner Questionnaire

Acacia CE
Consultants & Engineers

ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE FOR PROPERTY OWNER OR THEIR REPRESENTATIVE

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be completed by the current property owner, or owner's representative, owner's leasing agent, or other responsible person having good knowledge of the uses and physical characteristics of the property (Key Site Manager).

PART I

1. Property Address/Location and Assessor's Parcel Number (APN):

APN: n/a – public road right of way

2. Current property owner (name, address, telephone, and fax numbers):

Name: City of Elk Grove

Address: 8401 Laguna Palms Way, Elk Grove, CA 95758

Telephone: (916) 683-7111 Fax: (916) 691-3173

3. Date current property owner was granted title of property:

Varies – portions have been in the public domain for over 100 years

4. Current property development/improvements:

Public road improvements, including bridge over branch of Laguna Creek. Utilities within the road right of way include overhead power and telecommunications, underground utilities include natural gas pipe, petroleum pipe and telecommunications facilities.

PART II - The following questions should be answered to the best of your knowledge. If a "Yes" response was provided to any of the above questions, please provide details below or on a separate typed page:

1. Past property use, development/improvements:

Native environment or agricultural uses prior to dedication for public road purposes.

2. Adjoining property uses:

Rural Residential

3. Is or has the *property* or any adjoining property used or been used for industrial purposes?

Yes X No

4/30/15
Owner initial and date

4. Has the *property* or any adjoining property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

Yes X No

5. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in total, stored on or used at the *property* or at the facility?

Yes X No

6. Has soil or fill been brought onto the property at any time? If yes, estimated quantity is_____ cubic yards.

Yes No NONE KNOWN BUT POSSIBLE DURING ROAD CONSTRUCTION

7. Has soil or fill been brought onto the property that originated from a known origin?

Yes X No

8. Are there currently, or have there been previously, any pits, ponds, or lagoons located on the *property* in connection with waste treatment or waste disposal on the property?

Yes X No

9. Is there currently, or has there been previously, any stained soil on the *property*?

Yes X No

10. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or below ground) located on the *property*?

Yes X No

11. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*?

Yes X No

12. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors on the Property?

Yes X No

13. Are there any domestic, irrigation or monitoring wells on the property?

Yes X No

4/24/15
Owner initial and date

Acacia CE Consultants & Engineers

14. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental or health agency?

Yes No N/A

15. Have you been informed of the past or current existence of *hazardous substances* or *petroleum products* or environmental violations with respect to the *property* or any facility located on the *property*?

Yes X No

16. Have there been any *environmental site assessments* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?

Yes X No

17. Have there been any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?

Yes X No

18. Has there been any past agricultural use of the *property*, such as orchards, plant nurseries, or seed crop cultivation?

Yes No NONE KNOWN BUT POSSIBLE

19. Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above ground, buried and/or burned on the *property*?

Yes No NONE KNOWN, AUTOMOTIVE SPILLS POSSIBLE

20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs on the Property?

Yes X No

Respondent acknowledges that the information provided herein is true and correct to the best of my knowledge and belief as of the date signed below.

Name (Printed/Typed): RICHARD R CARTER.

Signature: [signature] Date: April 30, 2015

@ 4/30/15
Owner initial and date

APPENDIX I

Qualifications and Resumes of Professionals

WILLIAM KENNEY CE, GE

PRINCIPAL ENGINEER

EDUCATION

B.S. Civil Engineering-Geotechnical, 1990
California State University, Sacramento

REGISTRATIONS & CERTIFICATIONS

Civil Engineer, California (CE #56345)

Geotechnical Engineer, California (GE #2760)

40 Hour Hazardous Waste Training Course (Updated Annually)

PROFESSIONAL AFFILIATIONS

Cal-GEO – California Geotechnical engineers Association

ASCE – American Society of Civil Engineers

AGC-CA—Associated General Contractors-California

DFI-Deep Foundation Institute

USGBC-United States Green Building Council

Since 1988, Bill has managed several projects dealing with multiple aspects of public infrastructure and private development including NAVY, US Coast Guard, Caltrans, BART, Water and Waste Water treatment plants, master-planned communities, residential subdivisions, schools and universities, churches, commercial properties, and heavy industrial facilities.

At Acacia CE, Bill provides principal in charge services in multiple engineering disciplines including these specializations:

- Geotechnical Feasibility, Design, and Engineering
- Foundation Design, Engineering, and Cost Estimating
- Asset Protection Services including
    - Site and Building Photo Survey,
    - Site and Building Condition Assessment, and
    - Construction Effects Monitoring
- Environmental Site Assessments
- Construction Management
- Civil Engineering
- Water Planning and Storm Drainage Design
- Water Supply Assessments/pump tests

RELEVANT JOB EXPERIENCE

Colorado Desert Preserve, Riverside County, CA
Bill provided principal oversight and assisted in the completion of thirteen separate Phase One Environmental Site Assessments on approximately 2,500 acres of proposed mitigation land in Riverside County, California. This proposed mitigation bank, connected Joshua Tree National Park and the Orocopia Wilderness area and is habitat for the desert tortoise among many other species. Complicating the assessments was historic use of several parcels as US Navy boming ranges.

Dolan Ranch, Colusa County, CA
Bill provided principal oversight and assisted in the completion of a Phase One Environmental Site Assessment for the Property located along the east side of Highway 20 and east of the intersection of Highway 20 and Niagara Avenue in Colusa, California. The approximately 252-acre Property is currently and historically used for livestock grazing. The completion of this report was complicated due to the natural gas exploration seismic charges that were abandoned in place within the boundary of the Property.

Yosemite Square, Manteca, CA
Bill completed a peer review of an existing Phase One Environmental Site Assessment for this proposed 144-acre development in the southwest area of Manteca, California. Issues identified on this proposed project included agriculture/domestic supply wells, septic systems, historic agricultural usage, lead and asbestos impacts, and aerially deposited lead. This peer review was completed in support of

the CEQA documentation for the proposed project that includes 761 residential units and 475,675 square feet of business park uses.

Heisig Sharp Property, San Bernardino County, CA
Bill provided principal oversite of a Phase One Environmental Site Assessment for the Property located along the California/Nevada border in the Ivanpah valley near Nipton, California. The approximately 200-acre Property is proposed as habitat mitigation land to be used in support of the solar power generation projects currently under construction in the valley.

West Island, Sacramento, CA
Bill completed a review of environmental documents for this approximately 156-acre island Property located in the middle of the San Joaquin River channel along the Sacramento County/Contra Costa County boundary and approximately ¾-mile west of the Highway 160/Antioch bridge. The documents reviewed included a Phase II Investigation report and Preliminary Endangerment Assessment report that were previously completed in the eastern area of the Property under oversight of the State of California, Department of Toxic Substances Control (DTSC). The purpose of these investigations was to evaluate the potential for hazardous materials on the island associated with industrial discharge pipes crossing the island for discharge into the main river channel. Our review of these documents in addition to the title documents for the Property found that the work previously completed did not investigate and evaluate the portion of the island created from dredge material from the Port of Stockton.

Leadership Public Schools, Oakland, CA
Bill completed review a Phase One Environmental Site Assessment for this proposed charter school in Oakland, California. This proposed school would be located in and existing commercial office building owned by the Port of Oakland. This work was completed in support of the site acquisition and CEQA review process.

North Central Roseville Specific Plan, Roseville, California
Bill provided a variety geological/geotechnical and construction management support within the North Central Roseville Specific Plan and associated infrastructure. This 2,330 acre mixed use project included 4,100 residential dwelling units, commercial, regional commercial/retail, and retail.

KATIE FARRELL

PRESIDENT

CERTIFICATIONS
WBE DBE (DOT) CUCP # 40298
SBE DGS # 150072

EDUCATION

B.S. from College of Agricultural and Environmental Sciences at University of California, Davis 1995

COMMUNITY INVOLVEMENT

BOARD MEMBER & CAMPUS ADVISORY COUNCIL- CALIFORNIA MONTESSORI-SINCE 2009

PROFESSIONAL AFFILIATIONS

USGBC-United States Green Building Council

AIA-American Institute of Architects

NAPW- NATIONAL ASSOCIATION OF PROFESSIONAL WOMEN

NAWBO- NATIONAL ASSOCIATION OF WOMEN BUSINESS OWNERS

SMPS - Society of Marketing Professionals

SEAOC - Structural Engineers Association of California

RECON - Real Estate and Construction Networking

CGEA - California Geotechnical Engineers Association

Since 1994, Katie has worked in multiple roles within the AE/Design-Build industry. Prior to founding Acacia CE, Katie gained experience in multiple aspects of running a business within the AE/Design-Build industry. Here prior business experience in the industry includes: general administration, contract administration, human resources management, business development, general marketing, construction management, labor union negotiation, controller, chief financial officer, and public agency negotiation.

In addition to the business experience, Katie has obtained a multi-faceted background on design and construction projects within the industry. Her prior project experience within the industry includes: construction management, public agency negotiation, and operations management. Katie obtained this experience by working on projects with the US Navy, schools/universities, churches, city/state government, water/waste water treatment facilities, commercial properties, parking structures, and industrial facilities.

Within the last 19 years Katie has negotiated with many business affiliations to provide a stable business environment for her employees, including negotiations for contract performance, contract enforcement, employee medical benefits, professional insurances, lending agencies, bonding requirements, and unions.

As the Owner of Acacia CE, Katie oversees and provides representation for project management for multiple disciplines within the water management, environmental, civil, and site planning disciplines, including specializations such as:

- Stormwater Pollution Prevention Plans
- Municipal Stormwater Management Planning/Permitting
- Environmental Site Assessments
- Geotechnical Feasibility Studies
- Land Development Consultation
- Land Development Constraints Analysis

SAM WARREN
CAD / BIM MANAGER

EDUCATION

B.S. Civil Engineering
Sacramento State University
May 2014

PROFESSIONAL EXPERIENCE

Ten Years CAD drafting and design in the fields of:

- Civil
- Structural
- Architectural
- Mechanical
- Geotechnical

PROGRAM KNOWLEDGE

3ds Max Design
Adobe Photoshop CS6
ArcGIS
AutoCAD
AutoCAD Civil 3D
AutoCAD Map
AutoCAD Raster Design
AutoCAD Revit Architecture
AutoCAD Revit Structure
AutoCAD WS
Autodesk Inventor
Autodesk Maya
Microsoft Office Suite
SAFE
RISA 3D
RISA Foundation
SAFE
Solidworks

PROGRAMING LANGUAGES

C++, F#, Ruby, VisualLISP, AutoLISP, Python, VBA

Sam, a CAD / BIM expert with over 10 years of professional work experience and 4 years of undergraduate studies, is responsible for oversight and production of design documents and CAD and BIM models for various projects at Acacia CE.

At Acacia CE, Sam provides CAD and BIM expertise for the design team and analytical review of design documents with specialization in:

- Building Information Modeling (BIM)
- Seismic Hazard Analysis and Retrofit Solutions
- Geotechnical Analysis, Feasibility, and Engineering
- Foundation Design and Value Engineering
- Asset Protection Assessment and Repair Services
- Environmental Assessments
- Construction Management
- Civil Engineering
- Civil / Storm Water Design
- Water Planning and Storm Drainage Design
- Water Supply Assessments
- Ground Improvement Design and Documentation
- Structural Steel and Reinforced Concrete Design
- Structural Detailing and FEA Modeling

RELEVANT JOB EXPERIENCE

Acacia CE, Placerville, CA
Sam supervised the production of all structural, civil, and geotechnical CAD and BIM designs. Project duties also included engineering work related to structural steel, reinforced concrete, and ground improvement design. Project types as noted above CAD production.

Farrell Design-Build Companies, Inc., Placerville, CA
Sam provided a variety of CAD production, documentation, quality control and project coordination duties. Project types as noted above CAD production.

Shive-Hattery
Sam drafted telecommunication solutions for major cellular service providers and small investors. Other responsibilities included 'Photo-Simulation' drawings of future equipment set in pre-construction site photos using Photoshop.

Smith & Co. Engineers
As an Civil drafter, Sam provided assistance on various projects, including the Highway 67 improvement project, stretching from St. Louis, Missouri to Poplar Bluff, Mo, a biodiesel production plant, small retail stores and other civil designs.

Nicor Gas Company
Sam performed design documentation at a large natural gas company in Naperville, IL. He and his team were responsible for drawings of over 30,000 miles of natural gas pipeline.

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Consultants & Engineers

APPENDIX F: HYDRAULIC ANALYSIS

LOCATION HYDRAULIC STUDY FORM

Dist. 03 Co. Sacramento Rte. n/a K.P. n/a EA: n/a
Federal-Aid Project Number: BRLS-5479(012) Bridge No. 24C0308

Floodplain Description:
The proposed project is located along Laguna Creek Tributary No. 1. This creek has a 100-year floodplain width of approximately 150 upstream of the project and 370 feet downstream of the project based on FEMA floodplain mapping.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The project will replace the existing bridge with a new reinforced concrete box culverts. The existing bridge is 82' long and the new culverts will be 165' long for an improved signalized intersection or will be 280' long for a new roundabout intersection. The new culverts will be 3 each 6' high X 9' wide RCBs or equivalent configuration to be determined during final design. Roadway improvements will extend 800 feet east and west and 900 feet north and south of the Bradshaw Road and Sheldon Road intersection, as measured from the center of the intersection.

2. ADT: Current: 20,000 Projected: 30,000

3. Hydraulic Data: Base Flood Q100== 26.9 m^3 / s per FEMA, 30.1 m^3 / s per local study.
WSE100= 56 feet (NAVD 88) per FEMA. Local study produces same result at downstream end of bridge.
The flood of record, if greater than Q100: Q=_____ m^3 / s WSE= _____
Overtopping flood Q= Estimated at 31.1 m^3 / s WSE= 57.5 feet (NAVD88)

Are NFIP maps and studies available? NO _____ YES X

4. Is the highway location alternative within a regulatory floodway? NO_YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain. See attached FIRM Panels.

Potential Q100 backwater damages:

A. Residences? NO_____YES X – One structure is located adjacent to the floodplain approximately upstream of the project. Project is designed to avoid impacts at this location.
B. Other Bldgs? NO_____YES X – Same property as residence noted above.
C. Crops? NO X YES_____
D. Natural and beneficial Floodplain values? NO_____YES X

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO_____YES X
B. Emergency vehicle access? NO_____YES X
C. Practicable detour available? NO_____YES X
D. School bus or mail route? NO_____YES X
7. Estimated duration of traffic interruption for 100-year event hours: None with project.
8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ None with project.
B Property $ None with project.
Total $ None with project.
9. Assessment of Level of Risk Low X
Moderate_____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

LOCATION HYDRAULIC STUDY FORM cont.

Dist. 03 Co. Sacramento Rte. n/a K.P. n/a
Federal-Aid Project Number: BRLS-5479(012) EA n/a Bridge No. 24C0308

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

Mark Kubik *Date* 10-27-14
Local Agency/Consulting Hydraulic Engineer – Mark Kubik, PE *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES _____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

Michael Karoly *Date* 11-3-14
Local Agency Project Engineer – Michael Karoly, PE – City of Elk Grove *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and 'on' system projects)*

Michael Karoly *Date* 11-3-14
Local Agency Project Manager – Michael Karoly, PE – City of Elk Grove *(Local Assistance projects)*

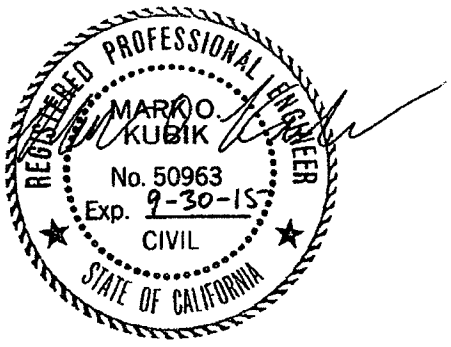
_____ *Date* _____
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

_____ *Date* _____
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

WEST YOST
ASSOCIATES
Consulting Engineers



TECHNICAL MEMORANDUM

DATE: July 8, 2014 Project No.: 448-00-13-07

TO: Michael Karoly, City of Elk Grove

FROM: Mark Kubik, R.C.E. #50963

SUBJECT: Hydraulic Analysis for Bridge Replacement at Sheldon and Bradshaw Roads

INTRODUCTION

The City of Elk Grove (City) is planning to construct roadway improvements at the intersection of Sheldon Road and Bradshaw Road (see Figure 1 for the project location). As a part of the project, the existing bridge over Laguna Creek Tributary No. 1 (Trib 1) will be replaced. To assist with the design of the replacement structure, West Yost Associates performed a hydraulic analysis to define the required size and configuration. The evaluation was performed for two alternative intersection configurations that are being considered: 1) a standard signalized intersection; and 2) a roundabout intersection. This Technical Memorandum (TM) includes the following sections:

- Introduction
- Design and Evaluation Criteria
- Modeling Approach
- Analysis and Results
- Caltrans Location Hydraulic Study

DESIGN AND EVALUATION CRITERIA

Because Caltrans will be providing funding for the project, the bridge replacement must meet their requirements. As discussed later in this TM, the existing bridge is proposed to be replaced by box culverts and the following Caltrans criteria apply:

- The culvert should pass a 10-year flood unsubmerged.
- The culvert should pass the 100-year flood without objectionable backwater or outlet velocities.

In addition, each project alternative was configured to minimize potential increases in peak flows and water surface elevations upstream or downstream of the project site.

The hydrologic and hydraulic analyses were performed in accordance with the Sacramento City/County Drainage Manual, Volume 2, Hydrology Standards and the City Improvement Standards.

MODELING APPROACH

A hydraulic model for Trib 1 was previously prepared by David Ford Consulting Engineers in support of the City's 2011 Storm Drainage Master Plan (SDMP). The hydraulic model was configured to calculate flows and water surface elevations in the creek for the 100-year, 24-hour storm only. The elevation data in the model is based on the National Geodetic Vertical Datum of 1929 (NGVD29) and all of the elevations referenced in this TM are based on that vertical datum. The 100-year flood flow hydrographs used as input into the HEC-RAS model were developed by Harris & Associates for the City's East Area Storm Drainage Master Plan, November 2005. The HEC-RAS model was used as the starting point for this study. Revisions were made to refine the model for existing conditions in the vicinity of the project site and to evaluate alternative bridge configurations, as described below.

Revised Existing Conditions HEC-RAS Model

For this study, the existing conditions HEC-RAS model was refined by updating the cross sections in the vicinity of the bridge using detailed topographic data developed for the project (Sections 5275.58 and 5486.56). In addition, two new cross sections were added to the model, one upstream of the bridge (Section 5634) and one downstream of the bridge (Section 5112). The locations of the HEC-RAS cross sections for existing conditions in the vicinity of the bridge are shown on Figure 1.

The HEC-RAS model was also revised to allow evaluation of the 10-year, 24-hour storm event. To create the 10-year model, inflow hydrographs for the 10-year storm event were obtained from the modeling performed by Harris & Associates for the 2005 East Area study and were input into the HEC-RAS model. In addition, at the downstream end of the model at the confluence with Laguna Creek, a 10-year stage hydrograph for Laguna Creek was obtained from modeling that was prepared for the City's SDMP and it was input into the HEC-RAS model.

Post-Project HEC-RAS Model

The HEC-RAS model for existing conditions was modified to evaluate bridge replacement structures. In consultation with Willdan Engineering, the designer for the proposed improvements, it was determined that box culverts would be used to replace the existing bridge. Therefore, we used the HEC-RAS model to determine the required number and size of box culverts and to assess the potential impacts of the project on flows and water surface elevations in the creek. Road widening at the intersection is also a part of the project and this widening will require that a portion of the existing creek be realigned. Therefore, the HEC-RAS model was also used to evaluate the proposed creek realignment. The roadway will also be raised slightly to prevent flooding during a 100-year event.

The proposed culvert and channel improvements were evaluated for both the signalized intersection and roundabout intersection alternatives. From a hydraulic standpoint, the main difference between these intersection configurations is that the roundabout intersection requires longer culverts. Figure 2 and Figure 3 show the layout and HEC-RAS cross section locations for the signalized intersection and roundabout intersection, respectively.

ANALYSIS AND RESULTS

Using the HEC-RAS models, the 10-year and 100-year flows and water surface elevations in Trib 1 were calculated for existing conditions, the signalized intersection alternative, and the roundabout intersection alternative. The results for each of these scenarios are discussed below.

Existing Conditions

The calculated 10-year and 100-year peak flows in the vicinity of the bridge are presented on Table 1. The approximate 100-year floodplain limits, as calculated for this study, are shown on Figure 1. Note that all tables and figures in this TM are provided at the end of the text. Tables 2 and 3 present the calculated water surface elevations and velocities, respectively. As indicated in Table 1, the calculated peak flow at the bridge under existing conditions is 656 cfs for the 10-year storm and 1,062 for the 100-year storm. As indicated in Table 2, the water surface elevations just upstream of the bridge are 53.23 feet (NGVD29) and 54.95 feet (NGVD29) for the 10-year and 100-year storms, respectively. The road surface elevations at the bridge range from 54.3 feet (NGVD29) to 54.9 feet (NGVD29), so the results indicate that the existing bridge does not have capacity and portions of the road are predicted to flood during a 100-year storm under existing conditions. Peak flow velocities at the bridge are just over 3 feet per second for the 10-year storm and range from 4 to 5 feet per second for the 100-year storm. Summary output from the HEC-RAS model for both the 10-year and 100-year storm events is provided as Attachment A. Attachment A includes both the standard HEC-RAS output tables and water surface profiles.

The Federal Emergency Management Agency (FEMA) has also performed an analysis of existing floodplain conditions along Trib 1. The FEMA floodplain maps are included in Attachment B of this TM. As shown on those maps, FEMA has determined that the 100-year water surface elevations near the bridge range from 56.0 feet (NAVD88) to 57.0 feet (NAVD88). Note that the FEMA water surface elevations are based on a different vertical datum. According to the Flood Insurance Study prepared by FEMA, 2.43 feet should be subtracted from the elevations based on NAVD88 to convert to NGVD29. Therefore, the FEMA elevations in the vicinity of the bridge are approximately 53.6 feet to 54.6 feet using the same vertical datum that was used for this study (NGVD29). These values are similar to those calculated for this study. The FEMA data also indicates that the existing bridge does not have capacity to prevent the road from flooding.

It will be necessary to process a Letter of Map Revision (LOMR) with FEMA after the project is constructed. Because there is a floodway defined in this area, it is recommended that a Conditional LOMR application be processed with FEMA prior to construction of the project to assure that the project is acceptable to FEMA. Because much of the floodplain information developed by FEMA is relatively old, the City is considering processing LOMRs with FEMA to update the hydraulic modeling and floodplain mapping along many of its creeks, including Trib 1. It may be possible to incorporate the project facilities into a larger LOMR for the entire creek.

Signalized Intersection

A general layout of the signalized intersection alternative is shown on Figure 2. Model tests indicate that three 9' x 6' (width by height) box culverts, with lengths of 165 feet, will provide adequate flood protection at the intersection without causing significant impacts to flows or water surface elevations. It is proposed that a low flow channel be constructed that is 3 feet deep, has an 8 foot bottom width, and 3 to 1 (horizontal to vertical) side slopes. On the road side, from the top of bank of the low flow channel, a 20 to 1 slope will be constructed until it intersects with the roadway embankment. On the opposite side, the 3 to 1 slope will be continued until it intersects with the existing ground. A cross section is provided as Figure 4. It is anticipated that a transition distance of 25 feet will be used between the proposed channel and the face of the proposed culverts, but this distance can be modified based on design considerations.

As shown in Table 1, the 10-year peak flows in the creek are essentially unchanged from existing conditions. For the 100-year storm, the peak flows are predicted to increase from 12 to 16 cfs (a maximum of 1.5 percent) near the intersection.

Predicted changes to peak water surface elevations downstream of the intersection are very small (0.03 feet maximum) for both the 10-year and 100-year storm (see Table 2). Upstream of the intersection, the predicted increases in water surface elevations range from 0.04 to 0.16 feet for the 10-year event. For the 100-year event, the maximum water surface elevations are predicted to decrease by a maximum of 0.26 feet just upstream of the bridge/culvert and trending toward existing levels in the upstream direction. The reason that the 10-year water surface elevations increase while the 100-year water surface elevations decrease appears to be due to the fact that under existing conditions the bridge deck is submerged during the 100-year event, but not during the 10-year event. This pressure flow condition during the 100-year event significantly increases the head loss and the upstream water surface elevations during the 100-year event. For the proposed conditions, the culverts will flow under pressure for both the 10-year and 100-year storms. For the 10-year storm, this causes a slight increase in the head loss under the proposed condition. For the 100-year storm, this is not a significant change from existing conditions because the bridge deck is submerged under existing conditions. Because the Manning's n value for the culverts is lower than that for the creek bed, the overall head loss is reduced for the proposed condition during the 100-year storm. The approximate 100-year floodplain limits for the signalized intersection alternative, as calculated for this study, are shown on Figure 2. The floodplain limits are very similar to those for existing conditions except near the roadway where the roadway grading will reshape the floodplain.

Because the proposed culverts will be submerged during the 10-year storm, the Caltrans criterion related to the 10-year storm will not be met. The depth of the flow at the downstream face of the proposed culverts is controlled by creek conditions downstream and cover requirements prevent the use of taller culverts without raising the road more than what is feasible. Because of this, it is not feasible to meet the Caltrans 10-year criterion. This was discussed with Caltrans staff via email (Dennis Jagoda, Hydraulics Branch Chief, Office of Engineering Services) and Caltrans indicated that the submergence would be acceptable given the specific site conditions.

It is anticipated that by the year 2035, the roadways at this intersection will be widened by 12 feet. Although the culverts constructed with this project will be built to the ultimate required length, additional fill will be placed in the floodplain when the future road widening occurs. The hydraulic model was modified to represent this additional fill to determine whether the proposed drainage facilities will work for the ultimate roadway conditions. Model results indicate that the additional fill will cause an increase in the 100-year water surface elevations between 0.03 feet and 0.06 feet upstream of the intersection, but they will still be lower than those for existing conditions. A maximum increase of 0.02 feet is predicted downstream of the intersection. These impacts are considered insignificant and the proposed drainage facilities are adequate for the ultimate condition.

Roundabout Intersection

For the roundabout intersection, the limits of the roadway are expanded beyond those for the signalized intersection. As a result, the required length of the culverts increases to 278 feet and the relocated creek is pushed further away from the existing roadway. Despite this, model tests determined that three 9' x 6' (width x height) box culverts are also adequate for this alternative. For the realigned channel, the cross section that is proposed for the signalized intersection would also be used for the roundabout alternative (see Figure 4).

As shown in Table 1, the peak flows in the creek for the roundabout alternative are very similar to those for signalized intersection for both the 10-year and 100-year storms. For both storms, there are no significant increases in peak flows over those for existing conditions. The resulting water surface elevations for this alternative are similar to those for the signalized intersection, but there are some differences. Downstream of the culverts, the 10-year water surface elevations for the roundabout intersection are slightly lower than those for existing conditions. Upstream, the 10-year water surface elevations increase between 0.08 to 0.18 feet. For the 100-year storm, the water surface elevations for this alternative increase by a maximum of 0.02 feet downstream of the culverts. Upstream of the culverts, the water surface elevations for this alternative range from 0.06 feet lower to 0.01 feet higher than those for existing conditions. These changes are considered insignificant. The approximate 100-year floodplain limits for the roundabout alternative, as calculated for this study, are shown on Figure 3. The floodplain limits are very similar to those for existing conditions and the signalized intersection except near the roadway where the roadway grading will reshape the floodplain.

As with the signalized intersection, the culverts will be submerged during the 10-year event. As indicated in the discussion for the signalized intersection, this situation was discussed with Caltrans and the submergence is considered acceptable for the specific site conditions.

For the roundabout alternative, the limits of roadway near the intersection would not need to be widened for the ultimate 2035 condition. Therefore, no additional analysis for ultimate roadway conditions was performed for this alternative.

CALTRANS LOCATION HYDRAULIC STUDY

The Caltrans Location Hydraulic Study form was also completed for this project and is included as Attachment B.

Table 1. Peak Flows in Cubic Feet per Second

Location	HEC-RAS Section No.	10-Year Storm			100-Year Storm		
		Existing Conditions	Three 9'x6' Box Culverts for Signalized Intersection	Three 9'x6' Box Culverts for Roundabout Intersection	Existing Conditions	Three 9'x6' Box Culverts for Signalized Intersection	Three 9'x6' Box Culverts for Roundabout Intersection
889' Upstream of Existing Bridge	6312.12	650	649	649	1,056	1,068	1,064
475' Upstream of Existing Bridge	5898.28	656	655	654	1,064	1,079	1,073
214' Upstream of Existing Bridge	5634	656	654	654	1,063	1,078	1,073
63' Upstream of Existing Bridge	5486.56	656	654	654	1,062	1,078	1,073
Upstream Face of Existing Bridge	5423.53	656	654	n/a[1]	1,062	1,078	n/a[1]
Downstream Face of Existing Bridge	5332.77	656	654	n/a[1]	1,062	1,078	n/a[1]
57' Downstream of Existing Bridge	5275.58	656	654	654	1,062	1,078	1,073
221' Downstream of Existing Bridge	5112	655	654	654	1,062	1,078	1,073
395' Downstream of Existing Bridge	4938.25	655	654	654	1,062	1,078	1,072
754' Downstream of Existing Bridge	4578.47	657	655	655	1,065	1,080	1,075

Notes:
1. For the roundabout alternative, the culvert faces coincide with cross sections 5486.56 (upstream) and 5275.58 (downstream).

Table 2. Peak Water Surface Elevations in Feet (NGVD29)

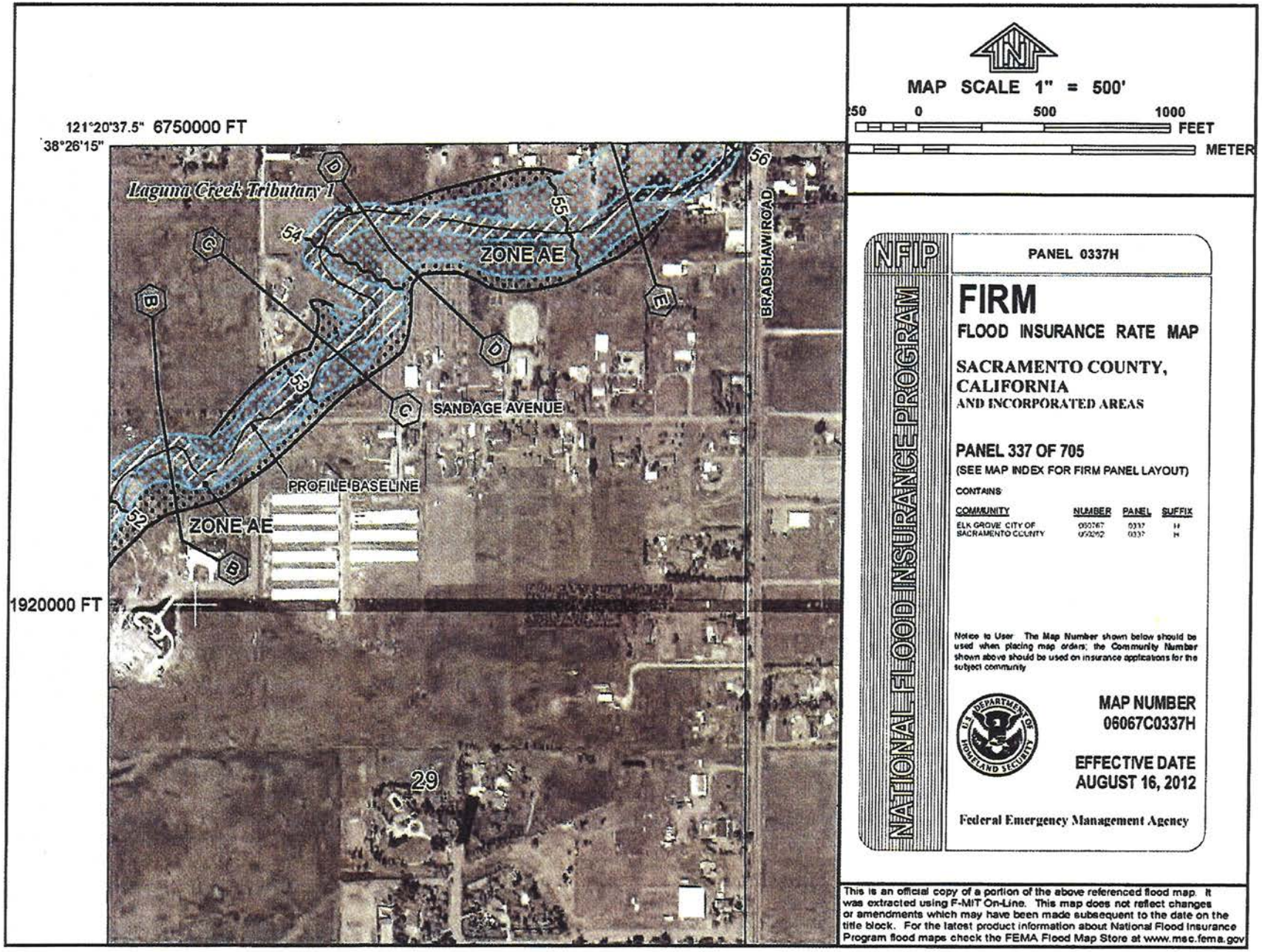
Location	HEC-RAS Section No.	10-Year Storm			100-Year Storm		
		Existing Conditions	Three 9'x6' Box Culverts for Signalized Intersection	Three 9'x6' Box Culverts for Roundabout Intersection	Existing Conditions	Three 9'x6' Box Culverts for Signalized Intersection	Three 9'x6' Box Culverts for Roundabout Intersection
889' Upstream of Existing Bridge	6312.12	53.92	54.04	54.05	55.40	55.28	55.41
475' Upstream of Existing Bridge	5898.28	53.69	53.85	53.87	55.31	55.18	55.32
214' Upstream of Existing Bridge	5634	53.55	53.67	53.63	55.23	55.05	55.17
63' Upstream of Existing Bridge	5486.56	53.46	53.50	53.37	55.17	54.92	54.83
Upstream Face of Existing Bridge	5423.53	53.23	53.38	n/a	54.95	54.69	n/a
Downstream Face of Existing Bridge	5332.77	53.04	53.05	n/a	53.60	53.59	n/a
57' Downstream of Existing Bridge	5275.58	53.08	53.09	52.98	53.71	53.74	53.56
221' Downstream of Existing Bridge	5112	53.00	53.00	53.00	53.63	53.65	53.64
395' Downstream of Existing Bridge	4938.25	52.74	52.73	52.73	53.37	53.38	53.38
754' Downstream of Existing Bridge	4578.47	52.13	52.12	52.12	52.76	52.78	52.78

Notes:
1. For the roundabout alternative, the culvert faces coincide with cross sections 5486.56 (upstream) and 5275.58 (downstream).

Table 3. Peak Velocities in Feet per Second

Location	HEC-RAS Section No.	10-Year Storm			100-Year Storm		
		Existing Conditions	Three 9'x6' Box Culverts for Signalized Intersection	Three 9'x6' Box Culverts for Roundabout Intersection	Existing Conditions	Three 9'x6' Box Culverts for Signalized Intersection	Three 9'x6' Box Culverts for Roundabout Intersection
889' Upstream of Existing Bridge	6312.12	1.77	1.61	1.60	1.30	1.38	1.30
475' Upstream of Existing Bridge	5898.28	1.41	1.32	1.31	1.28	1.36	1.28
214' Upstream of Existing Bridge	5634	2.11	2.70	2.70	2.01	2.66	2.61
63' Upstream of Existing Bridge	5486.56	1.73	2.32	3.31	1.76	2.43	4.40
Upstream Face of Existing Bridge	5423.53	3.61	3.20	n/a[1]	3.99	4.38	n/a[1]
Downstream Face of Existing Bridge	5332.77	3.47	3.07	n/a[1]	4.99	4.68	n/a[1]
57' Downstream of Existing Bridge	5275.58	1.96	2.64	3.01	2.61	3.50	4.55
221' Downstream of Existing Bridge	5112	1.86	2.05	1.77	2.21	2.44	2.20
395' Downstream of Existing Bridge	4938.25	3.30	3.30	3.30	3.73	3.73	3.73
754' Downstream of Existing Bridge	4578.47	2.53	2.53	2.53	2.77	2.79	2.78

Notes:
1. For the roundabout alternative, the culvert faces coincide with cross sections 5486.56 (upstream) and 5275.58 (downstream).



MAP SCALE 1" = 500'

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METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0337H

FIRM

FLOOD INSURANCE RATE MAP

SACRAMENTO COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 337 OF 705

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

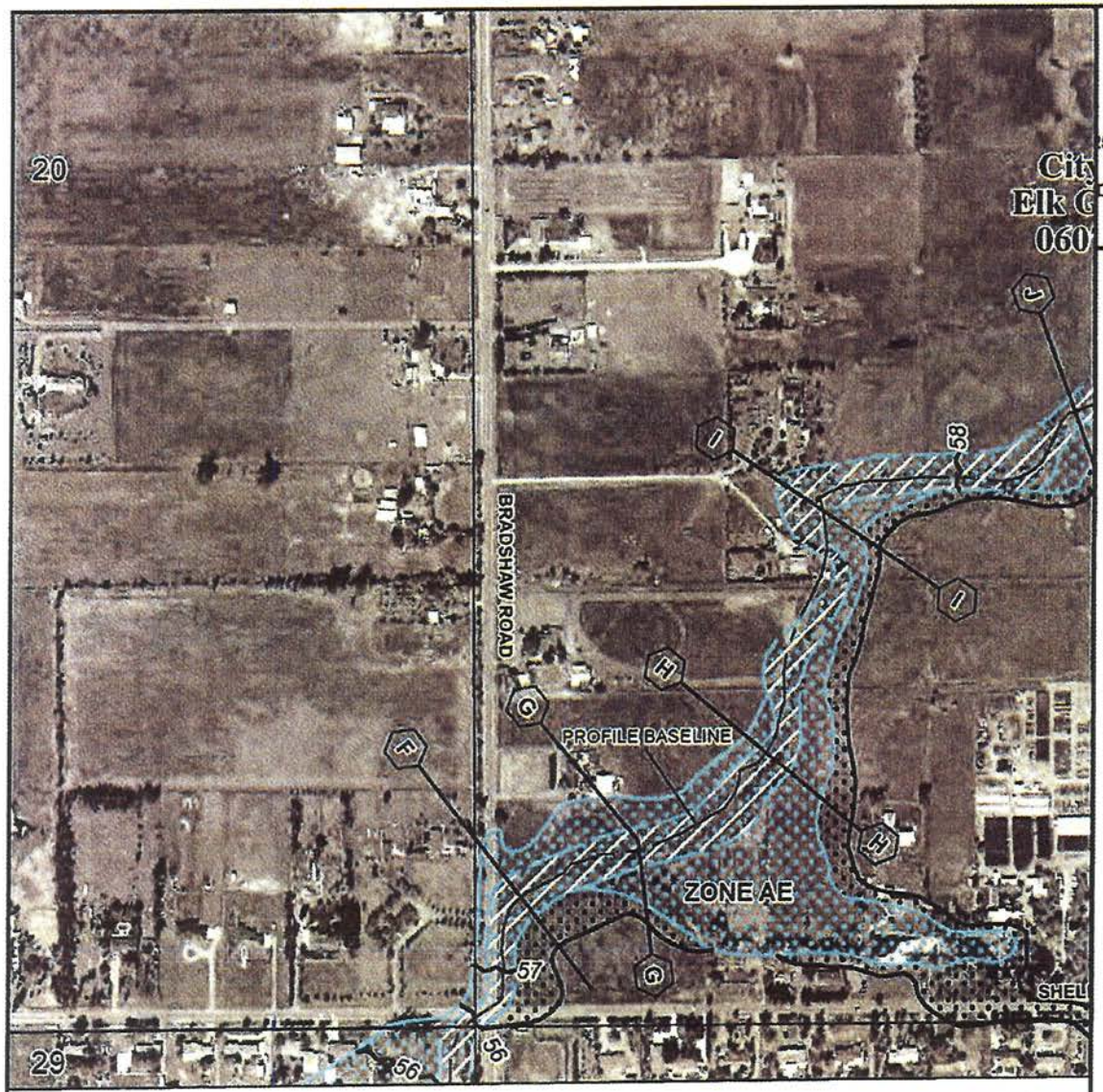
COMMUNITY	NUMBER	PANEL	SUFFIX
ELK GROVE, CITY OF	060767	0337	H
SACRAMENTO COUNTY	060262	0337	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06067C0337H

EFFECTIVE DATE
AUGUST 16, 2012

Federal Emergency Management Agency



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JOINS PANEL 03

MAP SCALE 1" = 500'

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FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0329H

FIRM

FLOOD INSURANCE RATE MAP

SACRAMENTO COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 329 OF 705

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
ELK GROVE, CITY OF	060767	0329	H
SACRAMENTO COUNTY	060262	0329	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
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EFFECTIVE DATE
AUGUST 16, 2012

Federal Emergency Management Agency

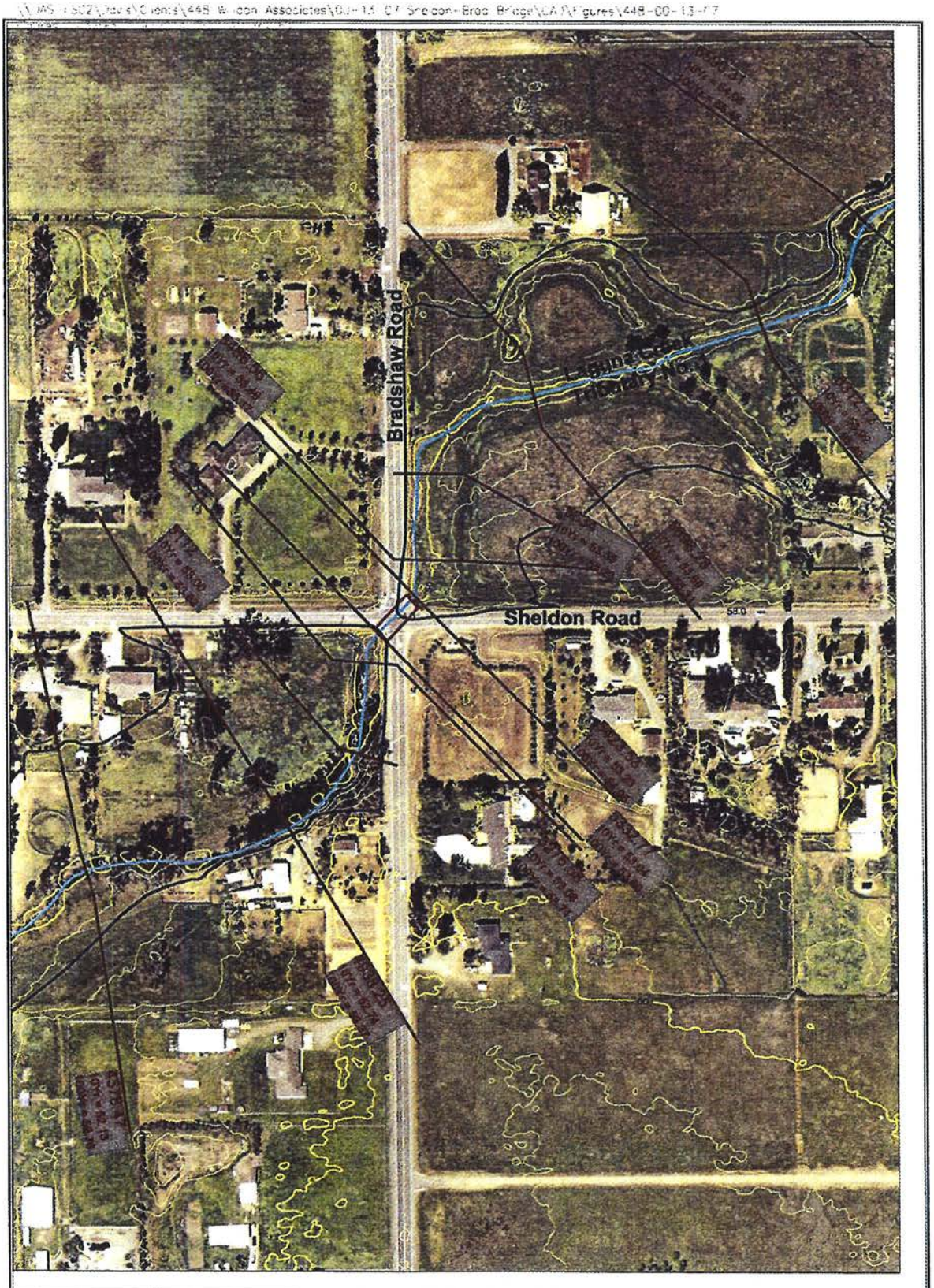

Figure 1

City of Elk Grove
Sheldon Rd & Bradshaw Rd Bridge
EXISTING CONDITIONS AND
HEC-RAS CROSS SECTIONS

WEST YOST ASSOCIATES

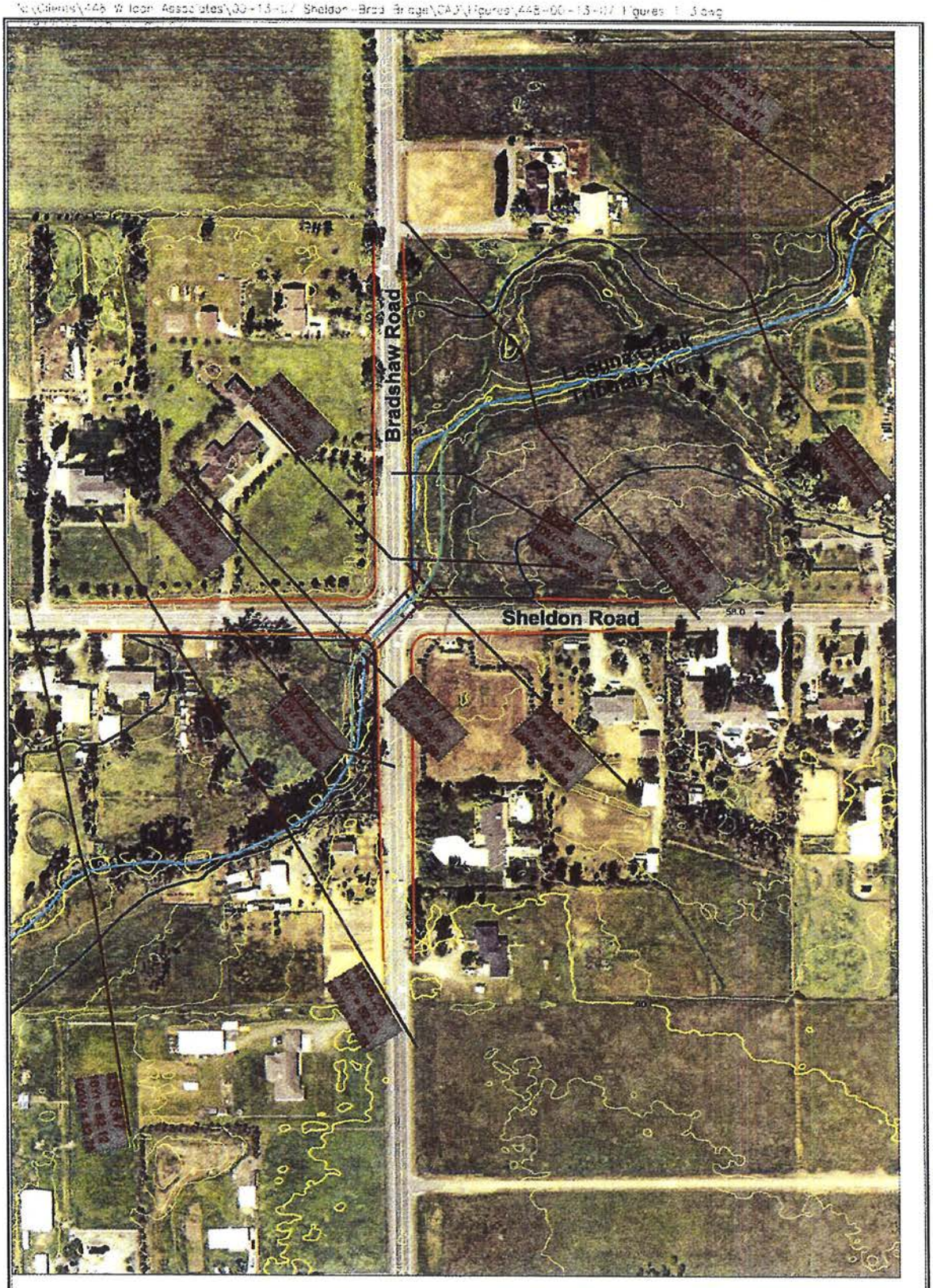

Figure 2

City of Elk Grove
Sheldon Rd & Bradshaw Rd Bridge
DRAINAGE SYSTEM LAYOUT FOR
SIGNALIZED INTERSECTION

WEST YOST ASSOCIATES

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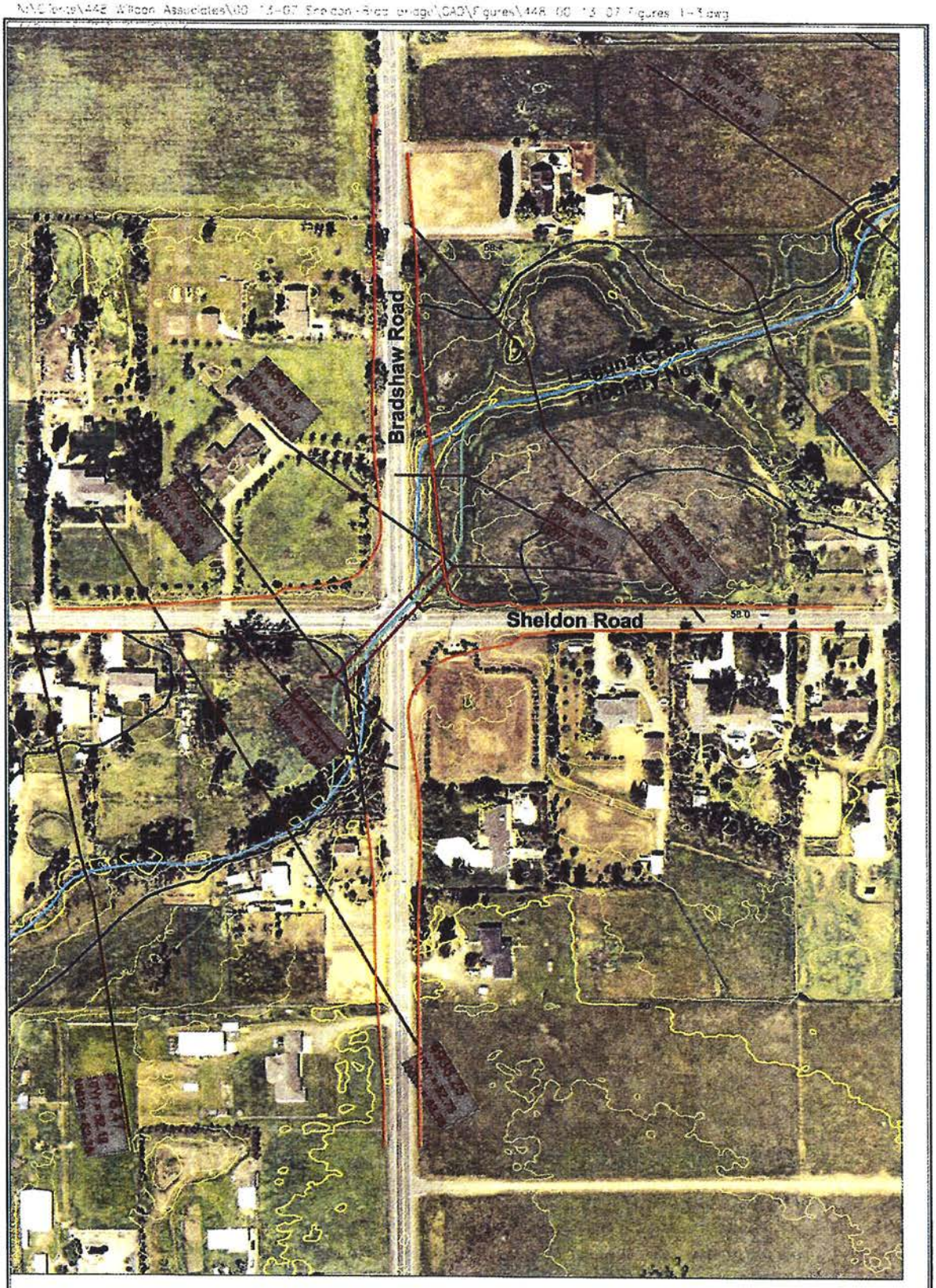

Figure 3

City of Elk Grove
Sheldon Rd & Bradshaw Rd Bridge
DRAINAGE SYSTEM LAYOUT FOR
ROUNDABOUT INTERSECTION

WEST YOST ASSOCIATES

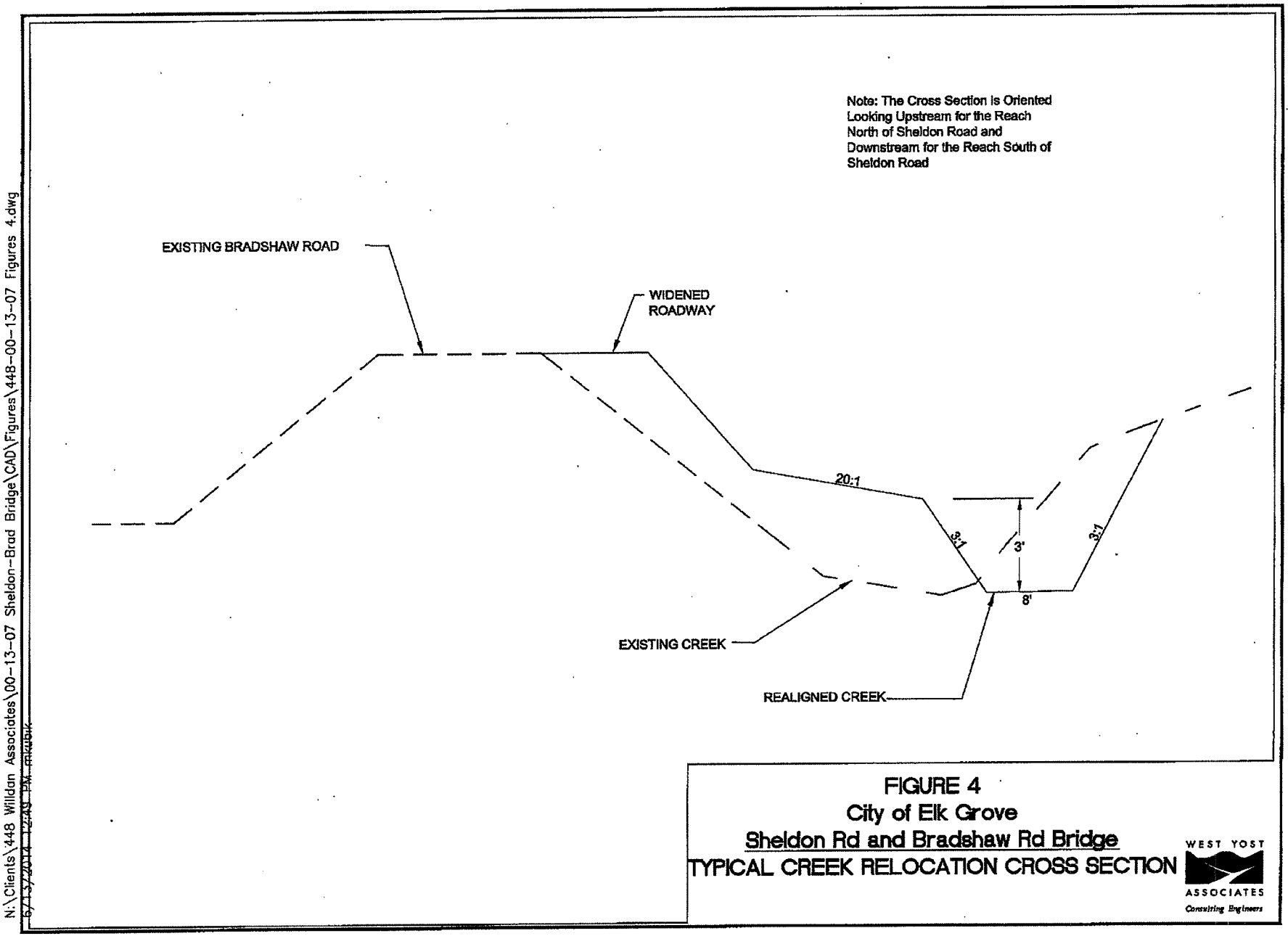

FIGURE 4
City of Elk Grove
Sheldon Rd and Bradshaw Rd Bridge
TYPICAL CREEK RELOCATION CROSS SECTION

WEST YOST ASSOCIATES
Consulting Engineers

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ATTACHMENT A

HEC-RAS Output

Attachment A1 - HEC-RAS Output for Existing Conditions

HEC-RAS Locations: User Defined Profile: Max WS

River	Reach	River Sta	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tributary 1	Tributary 1	6590.31	Rev Ex 10-Year	646.82	49.45	54.08		54.11	0.000395	1.48	897.41	499.29	0.13
Tributary 1	Tributary 1	6590.31	Rev Exist 100Yr	1045.01	49.45	55.46		55.47	0.000195	1.26	1454.63	718.20	0.10
Tributary 1	Tributary 1	6312.12	Rev Ex 10-Year	649.74	48.80	53.92		53.94	0.000885	1.77	619.80	406.62	0.18
Tributary 1	Tributary 1	6312.12	Rev Exist 100Yr	1051.14	48.80	55.40		55.41	0.000279	1.30	1317.34	530.75	0.11
Tributary 1	Tributary 1	5898.28	Rev Ex 10-Year	655.79	48.36	53.69		53.70	0.000363	1.41	703.38	311.80	0.12
Tributary 1	Tributary 1	5898.28	Rev Exist 100Yr	1062.59	48.36	55.31		55.32	0.000190	1.28	1303.83	406.82	0.09
Tributary 1	Tributary 1	5634	Rev Ex 10-Year	655.68	47.70	53.55		53.60	0.000636	2.11	460.39	197.24	0.17
Tributary 1	Tributary 1	5634	Rev Exist 100Yr	1062.50	47.70	55.23		55.27	0.000386	2.01	852.35	280.47	0.14
Tributary 1	Tributary 1	5486.56	Rev Ex 10-Year	655.66	47.20	53.46		53.51	0.000574	1.73	408.21	182.98	0.16
Tributary 1	Tributary 1	5486.56	Rev Exist 100Yr	1062.49	47.20	55.17		55.21	0.000367	1.76	738.28	243.22	0.13
Tributary 1	Tributary 1	5423.53	Rev Ex 10-Year	655.62	46.97	53.23	50.51	53.44	0.002378	3.61	181.76	43.72	0.31
Tributary 1	Tributary 1	5423.53	Rev Exist 100Yr	1062.48	46.97	54.85	51.46	55.19	0.002041	3.99	289.96	148.24	0.30
Tributary 1	Tributary 1	5375.53		Bridge									
Tributary 1	Tributary 1	5332.77	Rev Ex 10-Year	655.30	46.16	53.04		53.23	0.002085	3.47	188.75	57.26	0.29
Tributary 1	Tributary 1	5332.77	Rev Exist 100Yr	1062.00	46.16	53.60		53.98	0.003861	4.99	212.85	97.05	0.40
Tributary 1	Tributary 1	5275.58	Rev Ex 10-Year	655.40	45.93	53.08		53.13	0.000545	1.98	424.66	163.80	0.16
Tributary 1	Tributary 1	5275.58	Rev Exist 100Yr	1062.17	45.93	53.71		53.80	0.000821	2.61	529.02	168.48	0.19
Tributary 1	Tributary 1	5112	Rev Ex 10-Year	655.30	44.64	53.00		53.05	0.000580	1.86	519.10	354.04	0.16
Tributary 1	Tributary 1	5112	Rev Exist 100Yr	1062.12	44.64	53.63		53.68	0.000882	2.21	741.41	359.03	0.17
Tributary 1	Tributary 1	4938.25	Rev Ex 10-Year	655.04	47.42	52.74		52.83	0.002222	3.30	352.73	322.58	0.30
Tributary 1	Tributary 1	4938.25	Rev Exist 100Yr	1061.66	47.42	53.37		53.47	0.002315	3.73	591.39	425.58	0.31
Tributary 1	Tributary 1	4578.47	Rev Ex 10-Year	655.87	45.51	52.13		52.19	0.001140	2.53	467.21	330.36	0.22
Tributary 1	Tributary 1	4578.47	Rev Exist 100Yr	1063.80	45.51	52.76		52.83	0.001133	2.77	696.08	387.59	0.22
Tributary 1	Tributary 1	4059.48	Rev Ex 10-Year	655.09	45.34	51.76		51.79	0.000488	1.78	704.02	443.44	0.14
Tributary 1	Tributary 1	4059.48	Rev Exist 100Yr	1062.87	45.34	52.38		52.41	0.000543	2.04	996.55	495.57	0.15

Attachment A2 - HEC-RAS Output for Signalized Intersection

HEC-RAS Locations: User Defined Profile: Max WS

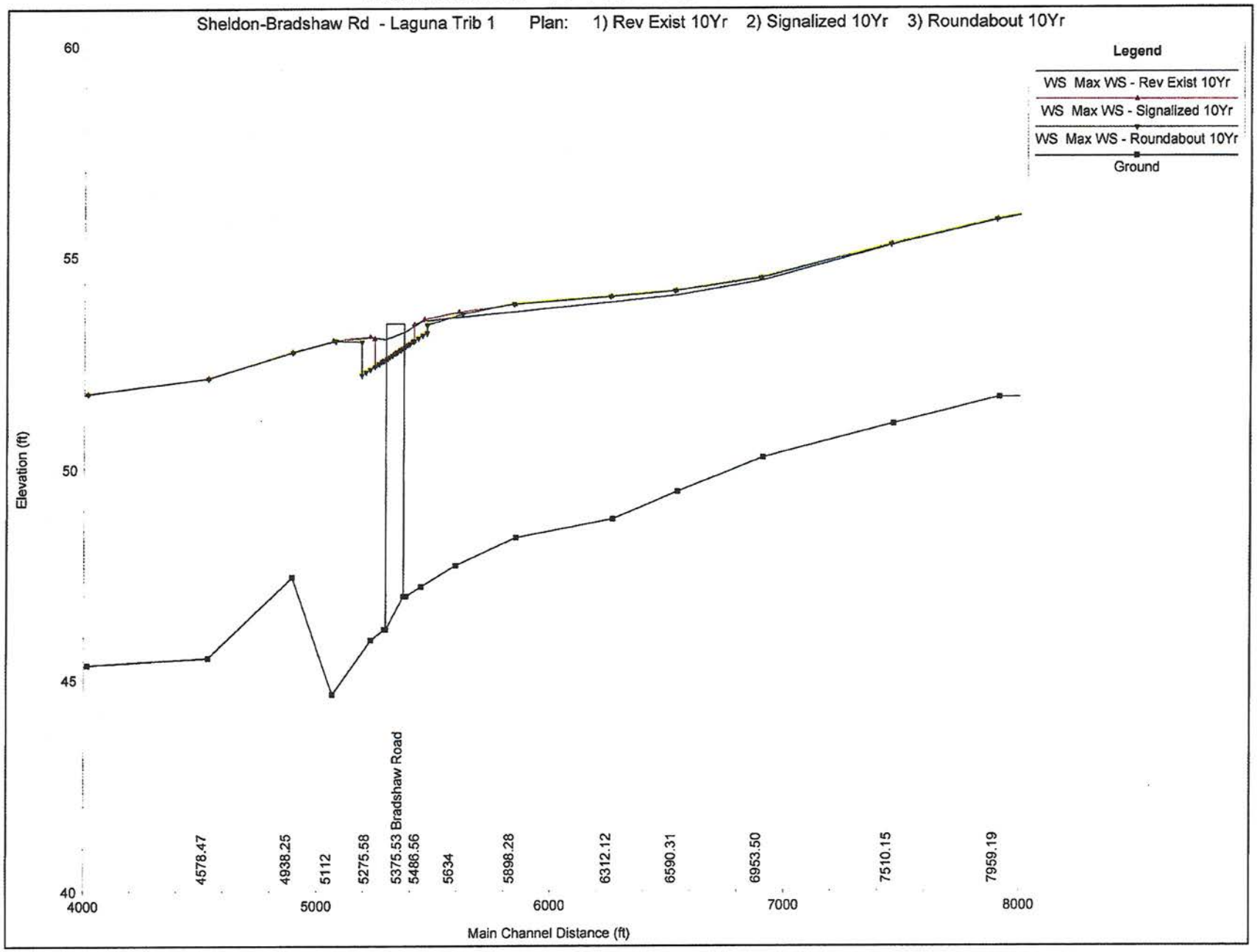
River	Reach	River Sta	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tributary 1	Tributary 1	6590.31	Alt A 10Yr Int	645.37	49.45	54.17		54.19	0.000346	1.40	739.72	505.88	0.12
Tributary 1	Tributary 1	6590.31	Alt A 100Yr Int	1059.40	49.45	55.35		55.37	0.000223	1.33	1385.25	701.14	0.10
Tributary 1	Tributary 1	6312.12	Alt A 10Yr Int	648.36	48.80	54.04		54.06	0.000698	1.61	869.69	412.70	0.18
Tributary 1	Tributary 1	6312.12	Alt A 100Yr Int	1065.78	48.80	55.28		55.30	0.000325	1.38	1256.78	525.52	0.12
Tributary 1	Tributary 1	5896.28	Alt A 10Yr Int	654.27	48.36	53.85		53.87	0.000301	1.32	756.70	330.82	0.11
Tributary 1	Tributary 1	5896.28	Alt A 100Yr Int	1078.07	48.36	55.18		55.20	0.000220	1.36	1251.77	400.90	0.10
Tributary 1	Tributary 1	5634	Alt A 10Yr Int	654.20	47.52	53.67		53.74	0.001016	2.70	395.19	188.49	0.21
Tributary 1	Tributary 1	5634	Alt A 100Yr Int	1077.95	47.52	55.05		55.11	0.000713	2.66	696.88	254.29	0.19
Tributary 1	Tributary 1	5486.56	Alt A 10Yr Int	654.14	47.10	53.50		53.58	0.001141	2.32	316.94	150.89	0.22
Tributary 1	Tributary 1	5486.56	Alt A 100Yr Int	1077.95	47.10	54.92		55.00	0.000900	2.43	559.22	200.39	0.19
Tributary 1	Tributary 1	5423.63	Alt A 10Yr Int	654.10	47.00	53.38		53.54	0.000981	3.20	204.23	44.45	0.22
Tributary 1	Tributary 1	5423.63	Alt A 100Yr Int	1077.93	47.00	54.69		54.99	0.001430	4.38	246.15	133.17	0.28
Tributary 1	Tributary 1	5375.53		Culvert									
Tributary 1	Tributary 1	5332.77	Alt A 10Yr Int	653.84	46.40	53.05		53.19	0.000856	3.07	212.72	66.44	0.21
Tributary 1	Tributary 1	5332.77	Alt A 100Yr Int	1077.32	46.40	53.59		53.93	0.001786	4.68	230.20	106.06	0.31
Tributary 1	Tributary 1	5275.58	Alt A 10Yr Int	653.91	46.10	53.09		53.18	0.000962	2.64	346.18	138.08	0.21
Tributary 1	Tributary 1	5275.58	Alt A 100Yr Int	1077.63	46.10	53.74		53.88	0.001427	3.50	436.79	141.35	0.26
Tributary 1	Tributary 1	5112	Alt A 10Yr Int	653.83	44.64	53.00		53.06	0.000652	2.05	490.90	343.32	0.17
Tributary 1	Tributary 1	5112	Alt A 100Yr Int	1077.53	44.64	53.65		53.71	0.000772	2.44	713.27	347.62	0.19
Tributary 1	Tributary 1	4938.25	Alt A 10Yr Int	653.54	47.42	52.73		52.83	0.002223	3.30	351.82	322.25	0.30
Tributary 1	Tributary 1	4938.25	Alt A 100Yr Int	1077.03	47.42	53.38		53.48	0.002302	3.73	598.71	425.89	0.31
Tributary 1	Tributary 1	4578.47	Alt A 10Yr Int	654.35	45.51	52.12		52.18	0.001140	2.53	486.31	329.60	0.22
Tributary 1	Tributary 1	4578.47	Alt A 100Yr Int	1078.89	45.51	52.78		52.85	0.001138	2.79	703.63	390.52	0.22
Tributary 1	Tributary 1	4059.49	Alt A 10Yr Int	653.55	45.34	51.76		51.78	0.000488	1.78	702.91	443.07	0.14
Tributary 1	Tributary 1	4059.49	Alt A 100Yr Int	1077.81	45.34	52.40		52.43	0.000543	2.04	1006.37	497.06	0.15

Attachment A3 - HEC-RAS Output for Roundabout Intersection

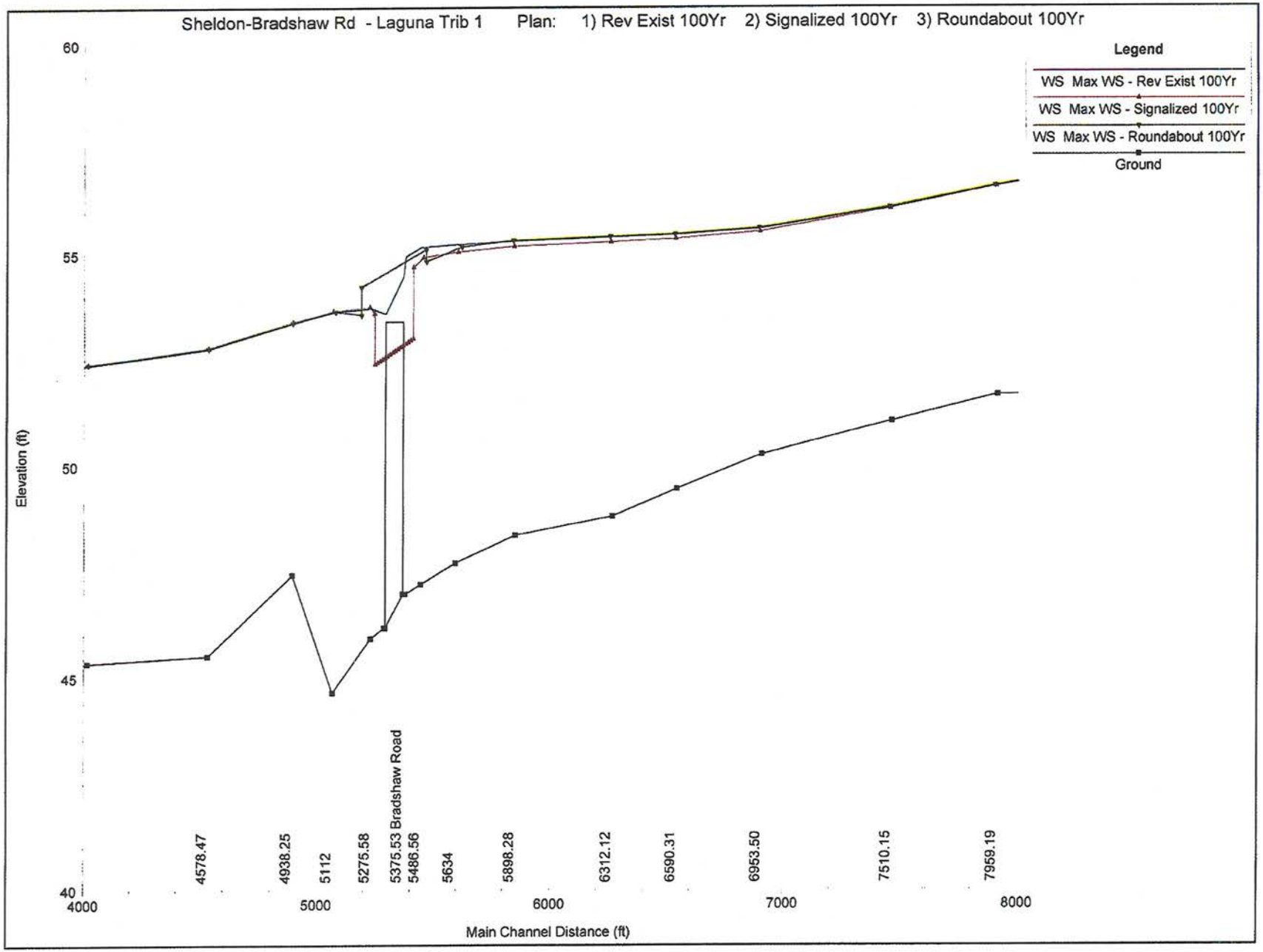
HEC-RAS Locations: User Defined Profile: Max WS

River	Reach	River Sta	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Tributary 1	Tributary 1	6590.31	Alt B 10 Ult	644.96	49.45	54.18		54.20	0.000342	1.40	742.95	506.02	0.12
Tributary 1	Tributary 1	6590.31	Alt B 100 Ult	1054.32	49.45	55.47		55.49	0.000195	1.27	1484.00	718.86	0.10
Tributary 1	Tributary 1	6312.12	Alt B 10 Ult	648.01	48.80	54.05		54.06	0.000684	1.80	673.39	412.96	0.16
Tributary 1	Tributary 1	6312.12	Alt B 100 Ult	1060.62	48.80	55.41		55.42	0.000279	1.30	1324.71	531.36	0.11
Tributary 1	Tributary 1	5898.26	Alt B 10 Ult	653.94	48.36	53.87		53.88	0.000297	1.31	760.63	332.62	0.11
Tributary 1	Tributary 1	5898.26	Alt B 100 Ult	1072.68	48.36	55.32		55.34	0.000191	1.28	1309.29	407.92	0.10
Tributary 1	Tributary 1	5834	Alt B 10 Ult	653.87	47.52	53.63		53.72	0.001419	2.70	314.90	150.84	0.24
Tributary 1	Tributary 1	5834	Alt B 100 Ult	1072.65	47.52	55.17		55.25	0.000845	2.61	600.81	225.37	0.20
Tributary 1	Tributary 1	5486.56	Alt B 10 Ult	653.81	47.20	53.37		53.54	0.001097	3.31	197.43	44.37	0.23
Tributary 1	Tributary 1	5486.56	Alt B 100 Ult	1072.62	47.20	54.83		55.13	0.001458	4.40	244.01	142.11	0.26
Tributary 1	Tributary 1	5375.53		Culvert									
Tributary 1	Tributary 1	5275.58	Alt B 10 Ult	653.59	46.20	52.98		53.12	0.000801	3.01	216.98	65.67	0.20
Tributary 1	Tributary 1	5275.58	Alt B 100 Ult	1072.09	46.20	53.58		53.88	0.001641	4.55	235.44	103.85	0.30
Tributary 1	Tributary 1	5112	Alt B 10 Ult	653.61	45.80	53.00		53.04	0.000418	1.77	546.39	302.12	0.14
Tributary 1	Tributary 1	5112	Alt B 100 Ult	1072.27	45.80	53.64		53.69	0.000576	2.20	740.43	306.42	0.16
Tributary 1	Tributary 1	4938.25	Alt B 10 Ult	653.32	47.42	52.73		52.83	0.002223	3.30	351.71	322.22	0.30
Tributary 1	Tributary 1	4938.25	Alt B 100 Ult	1071.78	47.42	53.38		53.48	0.002307	3.73	596.18	425.78	0.31
Tributary 1	Tributary 1	4578.47	Alt B 10 Ult	654.19	45.51	52.12		52.18	0.001140	2.53	486.22	329.52	0.22
Tributary 1	Tributary 1	4578.47	Alt B 100 Ult	1073.67	45.51	52.78		52.84	0.001136	2.78	701.00	389.69	0.22
Tributary 1	Tributary 1	4059.49	Alt B 10 Ult	653.40	45.34	51.76		51.78	0.000488	1.78	702.80	443.04	0.14
Tributary 1	Tributary 1	4059.49	Alt B 100 Ult	1072.63	45.34	52.40		52.43	0.000543	2.04	1002.94	496.54	0.15

Attachment A4 - 10-Year Water Surface Profiles



Attachment A5 - 100-Year Water Surface Profiles



ATTACHMENT B

CALTRANS Location Hydraulic Study

SUMMARY FLOODPLAIN ENCROACHMENT REPORT

Dist. 3 Co. Sacramento Rte. Intersection of Sheldon & Bradshaw Rds. K.P. _____
Federal-Aid Project Number *(Local Assistance)* BRLS-5479(012), Bridge No. 24C0308
Project No.: PT0137 Bridge No. 4C-308
Limits: Project extends approximately 600 feet north, 600 feet south, 600 feet east, and 600 feet west of the intersection of Sheldon Road and Bradshaw Road.
Floodplain Description: The proposed project is located along Laguna Creek Tributary No. 1. This creek has a 100-year floodplain width of approximately 150 feet upstream of the project and 370 feet downstream of the project based on FEMA floodplain mapping.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	X	___
2.	Are the risks associated with the implementation of the proposed action significant?	X	___
3.	Will the proposed action support probable incompatible floodplain development?	X	___
4.	Are there any significant impacts on natural and beneficial floodplain values?	X	___
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	X	___
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	X	___
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.	___	X

PREPARED BY:

Mark Kubik, R.C.E. #50963, West Yost Associates on behalf of the City of Elk Grove *Date* 7-11-14
Local Agency Project Engineer *(local assistance projects)*

CONCURRED BY:

FOR _____ *Date* 11-3-14
District Local Assistance Engineer *(Local Assistance projects)*

I concur that impacts to natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

Susan D. Bauer *Date* 11-3-14
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM cont.

Dist. 03 Co. Sacramento Rte. n/a K.P. n/a
Federal-Aid Project Number: BRLS-5479(012) EA n/a Bridge No. 24C0308

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 8, and 9 of this form is accurate.

_____ *Date* _____
District Hydraulic Engineer *(capital and 'on' system projects)*

Mark Kubik *Date* 10-27-14
Local Agency/Consulting Hydraulic Engineer – Mark Kubik, PE *(local assistance projects)*

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 7 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
District Project Engineer *(capital and 'on' system projects)*

Michael Karoly *Date* 11-3-14
Local Agency Project Engineer – Michael Karoly, PE – City of Elk Grove *(local assistance projects)*

CONCURRED BY:
I have reviewed the quality and adequacy of the floodplain submittal consistent with the attached checklist, and concur that the submittal is adequate to meet the mandates of 23 CFR 650.

_____ *Date* _____
District Project Manager *(capital and 'on' system projects)*

Michael Karoly *Date* 11-3-14
Local Agency Project Manager – Michael Karoly, PE – City of Elk Grove *(Local Assistance projects)*

for *Date* 11-3-14
District Local Assistance Engineer *(or District Hydraulic Branch for very complex projects or when required expertise is unavailable. Note: District Hydraulic Branch review of local assistance projects shall be based on reasonableness and concurrence with the information provided).*

I concur that the natural and beneficial floodplain values are consistent with the results of other studies prepared pursuant to 23 CFR 771, and that the NEPA document or determination includes environmental mitigation consistent with the Floodplain analysis.

Susan D. Bauer *Date* 11-3-14
District Senior Environmental Planner *(or Designee)*

Note: If a significant floodplain encroachment is identified as a result of floodplains studies, FHWA will need to approve the encroachment and concur in the Only Practicable Alternative Finding.

LOCATION HYDRAULIC STUDY FORM

Dist. 03 Co. Sacramento Rte. n/a K.P. n/a EA: n/a
Federal-Aid Project Number: BRLS-5479(012) Bridge No. 24C0308

Floodplain Description:
The proposed project is located along Laguna Creek Tributary No. 1. This creek has a 100-year floodplain width of approximately 150 upstream of the project and 370 feet downstream of the project based on FEMA floodplain mapping.

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The project will replace the existing bridge with a new reinforced concrete box culverts. The existing bridge is 82' long and the new culverts will be 165' long for an improved signalized intersection or will be 280' long for a new roundabout intersection. The new culverts will be 3 each 6' high X 9' wide RCBs or equivalent configuration to be determined during final design. Roadway improvements will extend 800 feet east and west and 900 feet north and south of the Bradshaw Road and Sheldon Road intersection, as measured from the center of the intersection.

2. ADT: Current: 20,000 Projected: 30,000

3. Hydraulic Data: Base Flood Q100== 26.9 m^3 / s per FEMA, 30.1 m^3 / s per local study.
WSE100= 56 feet (NAVD 88) per FEMA. Local study produces same result at downstream end of bridge.
The flood of record, if greater than Q100: Q=_____ m^3 / s WSE= _____
Overtopping flood Q= Estimated at 31.1 m^3 / s WSE= 57.5 feet (NAVD88)

Are NFIP maps and studies available? NO _____ YES X

4. Is the highway location alternative within a regulatory floodway? NO_ YES X
5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain. See attached FIRM Panels.

Potential Q100 backwater damages:

A. Residences? NO_____ YES X – One structure is located adjacent to the floodplain approximately upstream of the project. Project is designed to avoid impacts at this location.
B. Other Bldgs? NO_____ YES X – Same property as residence noted above.
C. Crops? NO X YES_____
D. Natural and beneficial Floodplain values? NO_____ YES X

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:
A. Emergency supply or evacuation route? NO_____ YES X
B. Emergency vehicle access? NO_____ YES X
C. Practicable detour available? NO_____ YES X
D. School bus or mail route? NO_____ YES X

7. Estimated duration of traffic interruption for 100-year event hours: None with project.
8. Estimated value of Q100 flood damages (if any) – moderate risk level.
A. Roadway $ None with project.
B Property $ None with project.
Total $ None with project.

9. Assessment of Level of Risk Low X
Moderate_____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

APPENDIX G: NOISE STUDY REPORT

Noise Study Report

Bradshaw Road/Sheldon Road Intersection Improvement Project

City of Elk Grove, CA

Caltrans District 3-SAC

SACOG ID SAC24072

August 2015

Caltrans

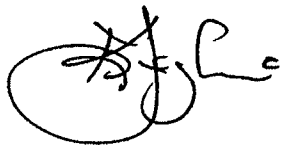
For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans – District 3, 703 B Street, P.O. Box 911, Marysville, CA 95901, (530) 741-4204 Voice, or use the California Relay Service TTY number, (800) 735-2929.

Noise Study Report

Bradshaw Road/Sheldon Road
Intersection Improvement Project

City of Elk Grove, CA
Caltrans District 3-SAC
SACOG ID SAC24072

June 2015



Prepared By: _____ Date: August 21, 2015

Kurt Legleiter, Principal
AMBIENT Air Quality & Noise Consulting
612 12th Street, Suite 201
Paso Robles, CA 93446
(805) 226.2727

Summary

The purpose of this Noise Study Report (NSR) is to evaluate traffic noise impacts and abatement under the requirements of Title 23, Part 772 of the Code of Federal Regulations (Title 23 CFR 772) "Procedures for Abatement of Highway Traffic Noise". Title 23 CFR 772 provides procedures for preparing operational and construction noise studies as well as evaluating noise abatement considered for federal and federal-aid highway projects. According to Title 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards.

The project site is located in the Rural Sheldon Area in the City of Elk Grove. The project is not considered a Type I project. The purpose and need of the proposed project are summarized, as follows:

Purpose

The purpose of the proposed project is to:

- Improve Hydraulic Capacity and Reduce Flooding. Improve hydraulic capacity of the East Branch Laguna Creek Bridge and reduce flooding in the surrounding area by replacing the functionally obsolete East Branch Laguna Creek Bridge with a new structure with adequate hydraulic capacity and realigning Laguna Creek north and south of the Sheldon Road/Bradshaw Road intersection.
- Relieve Congestion and Improve Traffic Flow. Relieve traffic congestion and reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.
- Pedestrian Safety. Provide pedestrian access within the proposed project area.
- Help Achieve the Transportation Goals of Local Planning Documents. Support the City of Elk Grove General Plan by accommodating future widening of Sheldon Road and Bradshaw Road to the planned number of traffic lanes and improving the Sheldon Road/Bradshaw Road intersection to meet the City's roadway and intersection service standards.

Need

The need for the proposed project is identified as:

- Improve Hydraulic Capacity and Reduce Flooding. The Structure and Maintenance Investigations report prepared by Caltrans (September 2013) indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection according to Federal Highway Administration (FHWA) criteria.

Functionally obsolete and less sufficient bridge structures are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood.

- Relieve Congestion and Improve Traffic Flow. The Sheldon Road/Bradshaw Road intersection is currently operating at level of service (LOS) F under both AM and PM peak hour traffic conditions. The increasing population of the City and surrounding area will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign-controlled intersection configuration and number of traffic lanes on Sheldon Road and Bradshaw Road; thereby further increasing the need for traffic relief at the intersection.
- Pedestrian Safety. No pedestrian facilities exist within the project area. Currently, Sheldon Road and Bradshaw Road in the project area do not provide safe pedestrian access as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access within the City as put forth in the goals of the Bicycle, Pedestrian and Trails Master Plan.
- Help Achieve the Transportation Goals of Local Planning Documents. According to the Traffic Operations Analysis Report prepared by Fehr and Peers for the proposed project, under existing conditions, the Sheldon Road/Bradshaw Road intersection as an all-way stop sign-controlled intersection operates at LOS F during both AM and PM peak hour traffic. This level of service is unacceptable to achieving the transportation goals within the City's General Plan.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows. Under the no-build alternative, no improvements to Sheldon Road or Bradshaw Road would occur.

The project area is relatively flat and consists predominantly of a mix of vacant, agricultural, and residential uses. In addition, St. Maria Goretti Parish is located approximately 0.13 miles north of the intersection, adjacent to and west of Bradshaw Road.

Short-term monitoring was conducted at five locations on Thursday, April 30, 2015 and Friday, June 1, 2015. A background noise measurement was also conducted on June 1, 2015, within the community located southwest of the project area at the terminus of Sandage Avenue.

Based on the noise measurements conducted, daytime noise levels at the property lines of nearby land uses ranged from approximately 63 to 67 A-weighted decibels (dBA) equivalent sound level (L_{eq}). The measured background daytime ambient noise level, which largely excludes vehicle traffic noise on Sheldon Road and Bradshaw Road, was 47 dBA L_{eq}. In comparison to daytime noise level, nighttime noise levels generally decrease by approximately 12 dBA. Noise levels were predominantly influenced by vehicle traffic on Sheldon Road and Bradshaw Road.

Based on the modeling conducted, predicted design-year noise levels at and nearby residential land uses, with implementation of either of the proposed build alternatives (i.e., roundabout intersection or signalized intersection), would be approximate 65 dBA L_{eq}, or less. Predicted design-year noise levels for either alternative would not approach or exceed the exterior NAC of 67 dBA L_{eq}. Predicted design-year noise levels St. Maria Goretti Parish would, likewise, not be projected to exceed applicable exterior or interior NAC of 67 dBA L_{eq} and 52 dBA L_{eq}, respectively, for either of the proposed build alternatives. For both build alternative, predicted increases in traffic noise levels at nearby land uses would be 5 dBA, or less. Therefore, traffic noise impacts are not predicted to occur and consideration of noise abatement is not required for either of the proposed build alternatives.

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction equipment is expected to generate maximum noise levels (L_{max}) ranging from 70 to 90 dBA at a distance of 50 feet. Noise produced by construction equipment decreases at a rate of about 6 dB per doubling of distance from the source.

Construction noise is regulated by Caltrans Standard Specifications Section 14-8.02, "Noise Control," of the Standard Specifications. Construction-generated noise would also be required to comply with local noise control requirements, including the City of Elk Grove's noise-control requirements. No significant adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans' Standard Specifications and would be short-term and intermittent.

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
dB	Decibels
FHWA	Federal Highway Administration
Hz	Hertz
kHz	Kilohertz
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
$L_{eq}^{(h)}$	Equivalent Sound Level over one hour
L_{max}	Maximum Sound Level
LOS	Level of Service
L_{xx}	Percentile-Exceeded Sound Level
mPa	Micro-Pascals
mph	Miles per Hour
NAC	Noise Abatement Criteria
NADR	Noise Abatement Decision Report
NEPA	National Environmental Policy Act
NSR	Noise Study Report
Protocol	Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects
SPL	Sound Pressure Level
TeNS	Caltrans' Technical Noise Supplement
TNM 2.5	FHWA Traffic Noise Model Version 2.5
v/c	Volume to Capacity

Chapter 1. Introduction

1.1. Purpose of the Noise Study Report

The purpose of this Noise Study Report (NSR) is to evaluate noise impacts and abatement under the requirements of Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise." 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. According to 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards. Compliance with 23 CFR 772 provides compliance with the noise impact assessment requirements of the National Environmental Policy Act (NEPA).

The Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol) (Caltrans 2011) provides Caltrans policy for implementing 23 CFR 772 in California. The Protocol outlines the requirements for preparing noise study reports (NSR). Noise impacts associated with this project under the California Environmental Quality Act (CEQA) are evaluated separately in the project's environmental document.

1.2. Project Purpose and Need

The Sheldon Road/Bradshaw Road Intersection Improvement Project is located in the Rural Sheldon Area in the City of Elk Grove. The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area in the City of Elk Grove. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

1.2.1. Purpose

The purpose of the proposed project is to:

- **Improve Hydraulic Capacity and Reduce Flooding**. Improve hydraulic capacity of the East Branch Laguna Creek Bridge and reduce flooding in the surrounding area by replacing the functionally obsolete East Branch Laguna Creek Bridge with a new structure with adequate hydraulic capacity and realigning Laguna Creek north and south of the Sheldon Road/Bradshaw Road intersection.
- **Relieve Congestion and Improve Traffic Flow**. Relieve traffic congestion and reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.
- **Pedestrian Safety**. Provide pedestrian access within the proposed project area.
- **Help Achieve the Transportation Goals of Local Planning Documents**. Support the City of Elk Grove General Plan by accommodating future widening of Sheldon Road and Bradshaw Road to the planned number of traffic lanes and improving the Sheldon Road/Bradshaw Road intersection to meet the City's roadway and intersection service standards.

1.2.2. Need

The project need is identified as:

Improve Hydraulic Capacity and Reduce Flooding

The Structure and Maintenance Investigations report prepared by Caltrans (September 2013) indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection according to Federal Highway Administration (FHWA) criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Sheldon Road/Bradshaw Road intersection was given a sufficiency rating of 65.3 percent on a scale of zero percent to 100 percent, where 100 percent represents an entirely sufficient bridge and zero percent represents an entirely deficient bridge. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Sheldon Road/Bradshaw Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood.

Relieve Congestion and Improve Traffic Flow

Growth in the City of Elk Grove and surrounding developing areas creates the need for operational improvements to improve circulation in the area. The Sheldon Road/Bradshaw Road intersection is currently operating at level of service (LOS) F under both AM and PM peak hour traffic conditions. The increasing population of the City and surrounding area will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign-controlled intersection configuration and number of traffic lanes on Sheldon Road and Bradshaw Road; thereby further increasing the need for traffic relief at the intersection.

Pedestrian Safety

No pedestrian facilities exist within the project area. Currently, Sheldon Road and Bradshaw Road in the project area do not provide safe pedestrian access as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access within the City as put forth in the goals of the Bicycle, Pedestrian and Trails Master Plan.

Help Achieve the Transportation Goals of Local Planning Documents

City of Elk Grove General Plan (2003)

Figure C1-2 in the Circulation Element of the City of Elk Grove General Plan shows Bradshaw Road with an ultimate planned width as a six lane arterial and Sheldon Road with an ultimate planned width as a four lane arterial west of Bradshaw Road and as a two lane road with expanded right-of-way east of Bradshaw Road. The General Plan circulation policies for roadways indicate a minimum standard of level of service (LOS) "D" at all times for all roadways and intersections in the City of Elk Grove. According to the Traffic Operations Analysis Report prepared by Fehr and Peers for the proposed project, under existing conditions, the Sheldon Road/Bradshaw Road intersection as an all-way stop sign-controlled intersection operates at LOS F during both AM and PM peak hour traffic. This level of service is unacceptable to achieving the transportation goals within the City's General Plan.

Chapter 2. Project Description

The Sheldon Road/Bradshaw Road Intersection Improvement Project is located in the Rural Sheldon Area in the City of Elk Grove. The project location is depicted in Figure xx.

2.1. Project Description

The Sheldon Road/Bradshaw Road intersection is currently a stop sign-controlled intersection. Sheldon Road is an east/west arterial that is two lanes at the intersection with Bradshaw Road, and Bradshaw road is a north/south two-lane rural road. Sheldon Road and Bradshaw Road are 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove General Plan, Bradshaw Road is planned as a six-lane arterial and Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and as a two-lane road with an expanded median east of Bradshaw Road.

Laguna Creek 100-year flows currently overtop the existing bridge at the Sheldon Road/Bradshaw Road intersection. The project proposes to improve the Sheldon Road/Bradshaw Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) sized to convey 10-year storm runoff flows with one foot of freeboard and convey 100-year storm runoff flows without overtopping roadways.

The bridge replacement will plan for partial future widening of Bradshaw Road and Sheldon Road although it will not accommodate the ultimate planned width of six lanes on Bradshaw Road and the ultimate planned width of four lanes on Sheldon Road. The project will provide operational improvements by reconstructing the bridge and intersection to current standards. The future widening planned with the project will be based on the predicted traffic volumes twenty years after completion of the project. The signalized intersection improvement will add new left turn lanes for all approaches including sufficient length for vehicle queues. The roundabout improvement would include two lanes southbound and northbound on Bradshaw entering and exiting the intersection and one lane eastbound and west bound on Sheldon Road entering and exiting the intersection.

The number of lanes on both Bradshaw Road and Sheldon Road would remain the same outside of the intersection reconstruction area, and the two lanes in the intersection would "neck-down" to one through lane in each direction within 1,000 feet of the intersection. Per the City's Rural

Roads Policy, the improvements will be limited to those required to meet current traffic demands upon completion of the project. In accordance with the City's General Plan, and Bicycle, Pedestrian and Trails Master Plan, the proposed project will add pedestrian and bicycle facilities along Sheldon and Bradshaw roads within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

2.2. Proposed Build Alternatives

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a signalized intersection. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Telecommunication utilities surface equipment at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed project will relocate the existing Laguna Creek tributary to the east, north of the intersection, and to the west, south of the intersection, which will be designed to safely convey design storm flows. The proposed roundabout intersection build alternative is depicted in Figure 2.2.The proposed signalized intersection build alternative is depicted in Figures 2-3.

Additional right of way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection for the roadway and for the relocated Laguna Creek tributary channel. Relocation of existing utilities may require additional easements rights. Traffic control during project construction would require staged or full closure of the intersection for demolition and construction of the new culverts. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

2.3. No-Build

Under the No-Build Alternative, no changes would be made to either Sheldon Road or Bradshaw Road.

Figure 2-1. Project Location and Area of Potential Effect

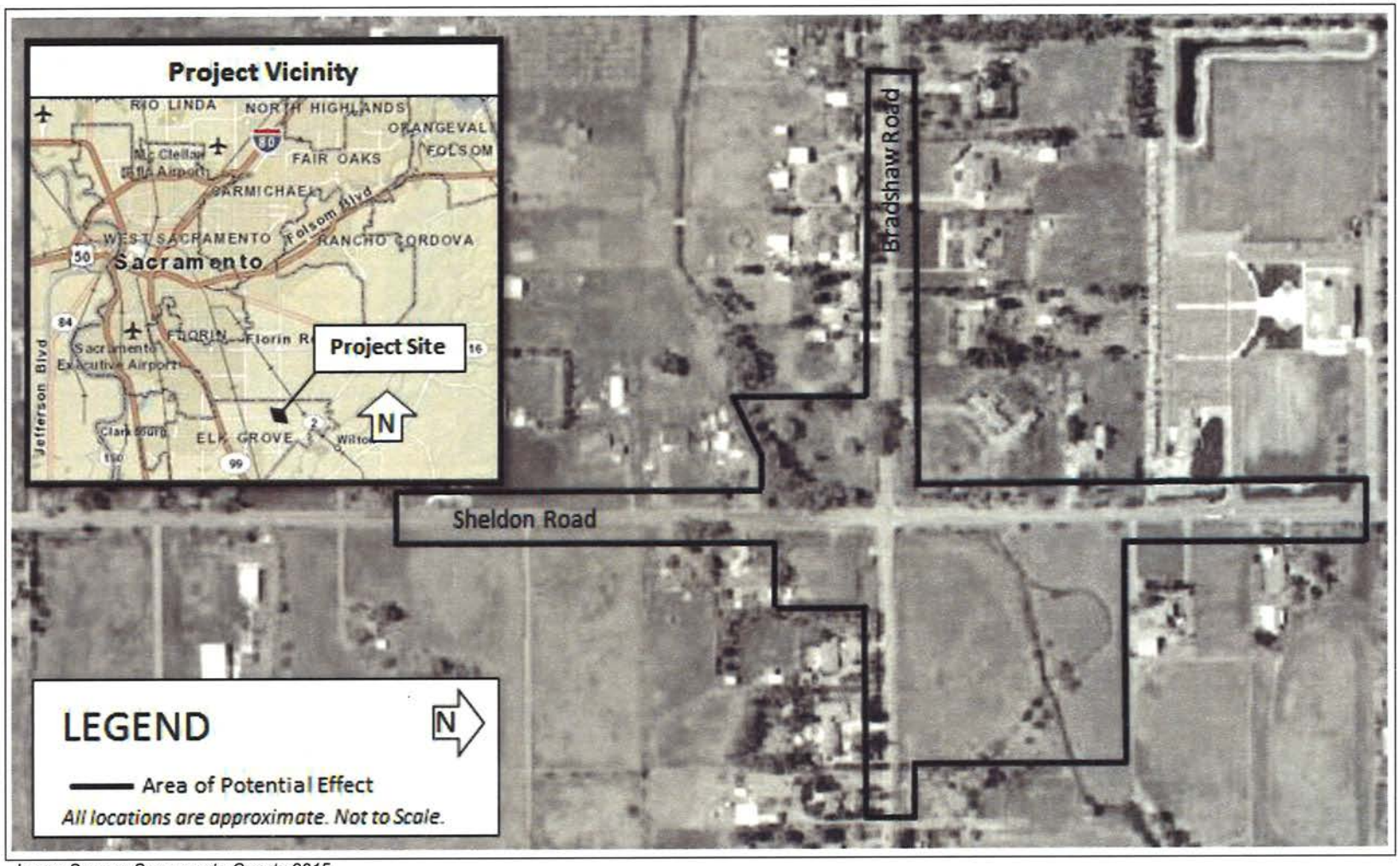


Image Source: Sacramento County 2015

Figure 2-2. Roundabout Intersection Build Alternative

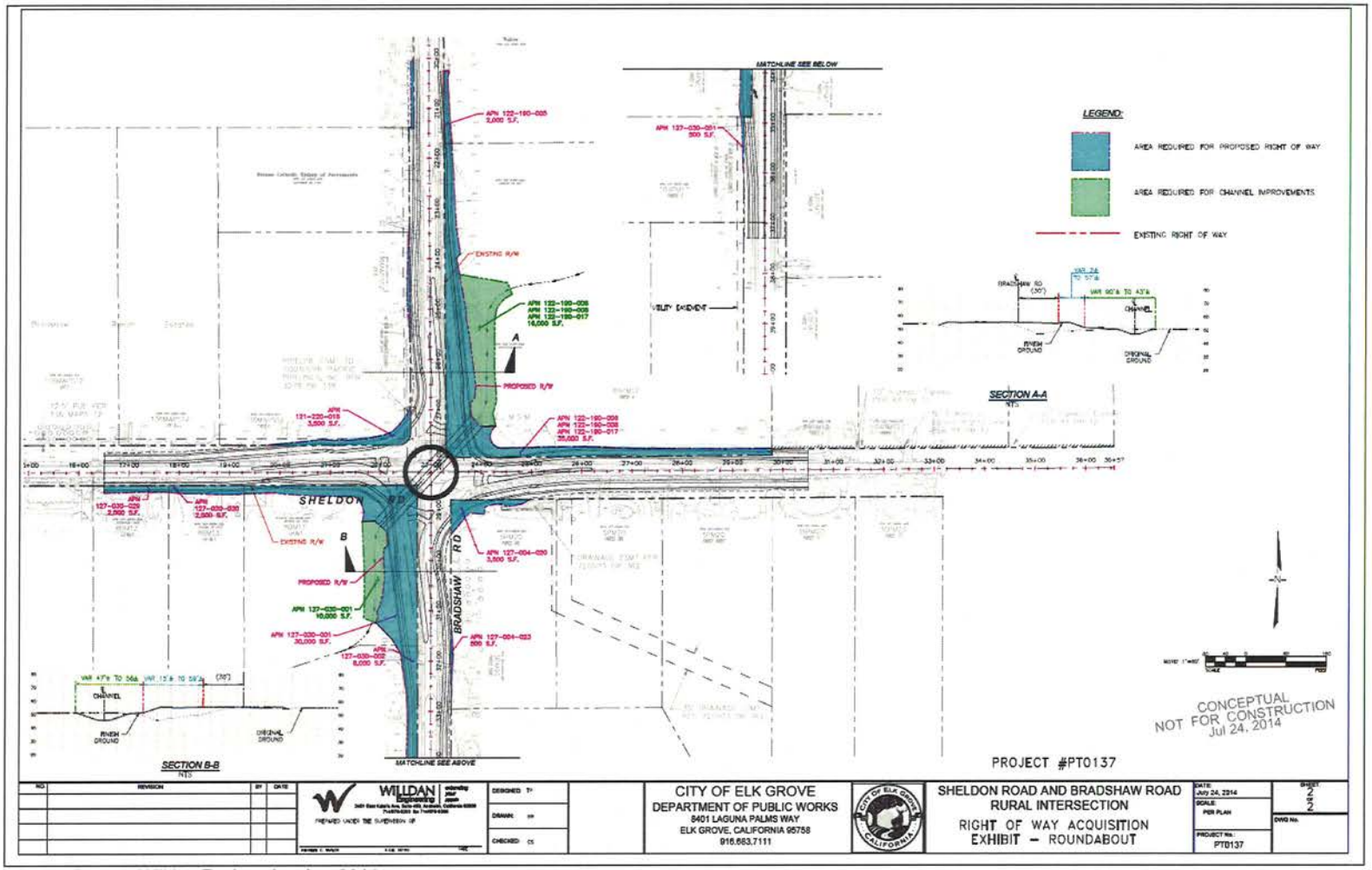


Image Source: Willdan Engineering, Inc. 2014

constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($L_{eq}^{[h]}$) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for noise abatement criteria (NAC) used by Caltrans and FHWA.
- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

3.7. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

3.7.1. Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

3.7.2. Ground Absorption

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

3.7.3. Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

3.7.4. Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receptor is rarely effective in reducing noise because it does not create a solid barrier.

Chapter 4. Federal Regulations and State Policies

This report focuses on the requirements of 23 CFR 772, as discussed below.

4.1. Federal Regulations

4.1.1. 23 CFR 772

23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. Under 23 CFR 772.7, projects are categorized as Type I, Type II, or Type III projects.

- FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment of the highway. The following projects are also considered to be Type I projects:
- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane,
- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane,
- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange,
- Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane,
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

If a project is determined to be a Type I project under this definition, the entire project area as defined in the environmental document is a Type I project. The proposed project build alternatives are not considered Type I projects.

A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III project is a project that does not meet the classifications of a Type I or Type II project. Type III projects do not require a noise analysis.

Under 23 CFR 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project

sponsor "consider" noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design-year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). 23 CFR 772 does not specifically define the terms "substantial increase" or "approach"; these criteria are defined in the Protocol, as described below.

Table 4-1 summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual or permitted land use in a given area.

4.1.2. Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects

The Protocol specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or Federal-aid highway projects. The Protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA or more. The Protocol also states that a sound level is considered to approach an NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

The Technical Noise Supplement to the Protocol provides detailed technical guidance for the evaluation of highway traffic noise. This includes field measurement methods, noise modeling methods, and report preparation guidance.

Table 4-1. Activity Categories and Noise Abatement Criteria (23 CFR 772)

Activity Category	Activity L_{eq} [h][1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	None	None	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	None	None	Undeveloped lands that are not permitted.

[1] The $L_{eq}^{(h)}$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

[2] Includes undeveloped lands permitted for this activity category.

4.2. State Regulations and Policies

4.2.1. California Environmental Quality Act

Noise analysis under the California Environmental Quality Act (CEQA) may be required regardless of whether or not the project is a Type I project. The CEQA noise analysis is completely independent of the 23 CFR 772 analysis done for NEPA. Under CEQA, the baseline noise level is compared to the build noise level. The assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

The significance of noise impacts under CEQA are addressed in the environmental document rather than the NSR. Even though the NSR (or noise technical memorandum) does not specifically evaluate the significance of noise impacts under CEQA, it must contain the technical information that is needed to make that determination in the environmental document.

4.2.2. Section 216 of the California Streets and Highways Code

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA-$L_{eq}^{(h)}$ in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. This requirement does not replace the "approach or exceed" NAC criterion for FHWA Activity Category E for classroom interiors, but it is a requirement that must be addressed in addition to the requirements of 23 CFR 772.

If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dBA-$L_{eq}^{(h)}$. If the noise levels generated from freeway and roadway sources exceed 52 dBA- $L_{eq}^{(h)}$ prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

Chapter 5. Study Methods and Procedures

5.1. Methods for Identifying Land Uses and Selecting Noise Measurement and Modeling Receiver Locations

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. Land uses in the project area were categorized by land use type, Activity Category as defined in Table 4-1, and the extent of frequent human use. As stated in the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Although all developed land uses are evaluated in this analysis, the focus is on locations of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. The geometry of the project relative to nearby existing and planned land uses was also identified.

Short-term measurement locations were selected to represent each major developed area within the project area. A single long term measurement site was selected to capture the diurnal traffic noise level pattern in the project area. Short-term measurement locations were also selected for purposes of calibrating the noise model. In addition, several other non-measurement locations were selected as modeling locations.

5.2. Field Measurement Procedures

Noise monitoring surveys were conducted in accordance with recommended procedures in TeNS. Short-term and long term monitoring locations, procedures, and corresponding sound level data are summarized, as follows:

5.2.1. Short-Term Measurements

Short-term measurements of traffic noise levels were conducted at five locations on Thursday, April 30, 2015 and Friday, June 1, 2015. A background noise measurement was also conducted on June 1, 2015, within the community located southwest of the project area at the terminus of Sandage Avenue. Noise monitoring locations are depicted in Figure 5-1.

Short-term monitoring was conducted using a Larson-Davis Model 820 Type 1 sound level meter (serial number 1430) fitted with a wind screen. During the short-term noise measurements, field staff attended the meter. Noise measurement data was logged manually, and dominant noise

Figure 5-1. Noise Measurement Locations and Nearby Land Uses

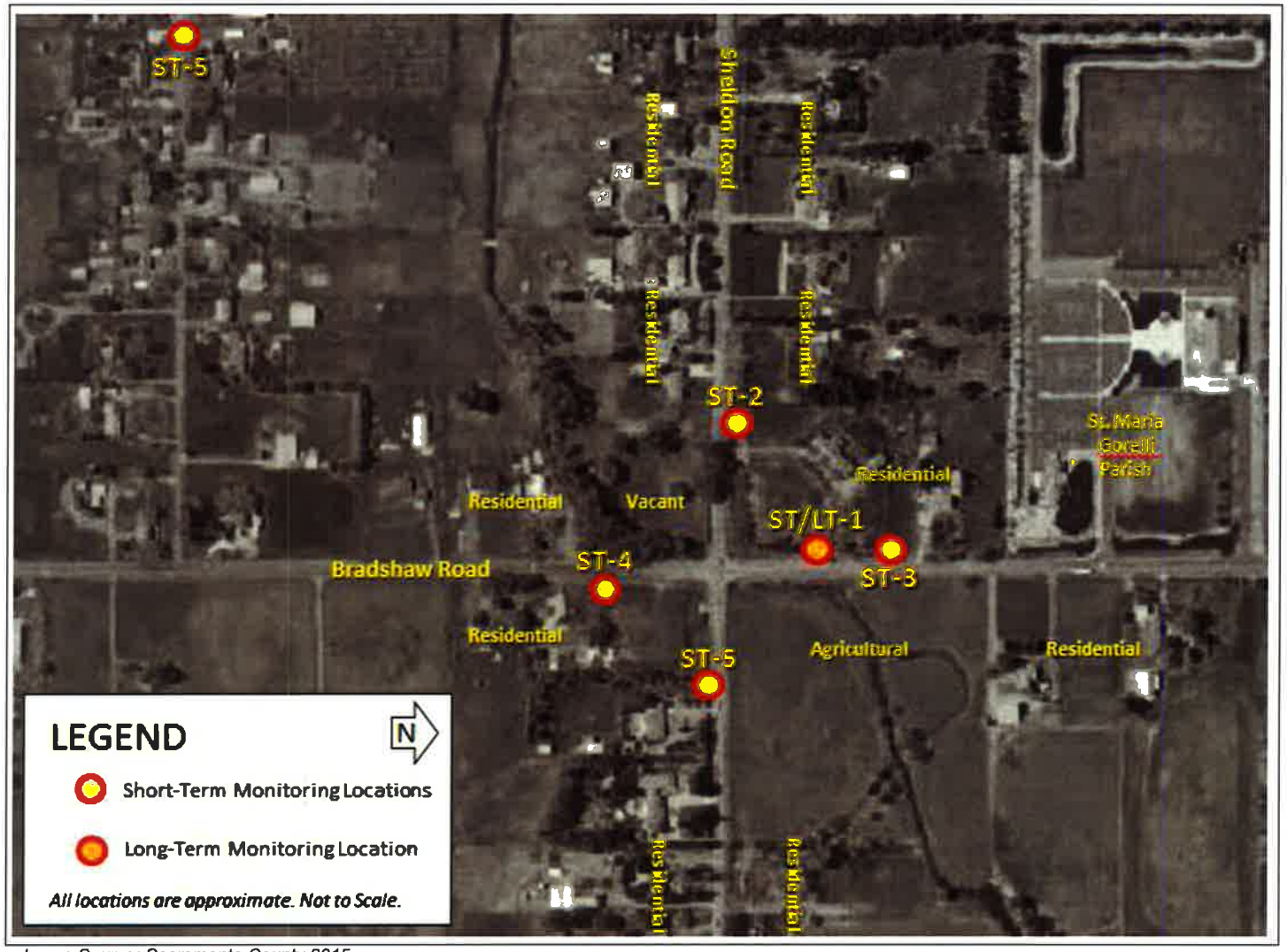


Image Source: Sacramento County 2015

sources observed during the measurement period were also identified and logged. Significant noise sources were observed and noted for each noise measurement survey. The calibration of the meter was checked before and after the short-term measurement surveys using a Larson-Davis Model CA200 calibrator (serial number 2744).

Temperature, wind speed, and humidity were recorded manually during the short-term measurement sessions using an Ambient Weather WM-4 portable weather station. During the short-term monitoring conducted, wind speeds ranged from 1 to 6 miles per hour (mph). Wind speeds did not exceed 10 mph during any of the noise monitoring surveys conducted. Temperatures recorded during the noise monitoring surveys ranged from 58–89 degrees Fahrenheit (°F) with relative humidity ranging from 26–42 percent.

Traffic on Sheldon Road and Bradshaw Road was classified and counted during short-term noise measurement surveys. Vehicles were classified as light-duty vehicles, medium-duty trucks, heavy-duty trucks, motorcycles, or buses. Light-duty vehicles were defined as a vehicle with two axles and four tires that are designed primarily to carry passengers. Small vans and light trucks were included in this category. Medium-duty trucks included all cargo vehicles with two axles and six tires. Heavy-duty trucks included all vehicles with three or more axles. The posted speed was 45 mph on Sheldon Road and 55 mph on Bradshaw. Observed vehicle speeds during the noise measurement periods were verified by use of a Bushnell Velocity Speed radar gun and by driving in the flow of traffic and checking the vehicle speedometer.

5.2.2. Long-Term Measurements

A long-term noise measurement survey was conducted using a Larson-Davis Model 820 Type 1 sound level meter (serial number 1332). The long-term measurement location is identified as location LT-1 in Figure 5-1. The calibration of the meter was checked before and after the measurement using a Larson-Davis Model CA200 calibrator (serial number 2744). The purpose of the long-term measurement was to identify variations in sound levels throughout the day. The long-term sound level data was collected over a 24-hour period, beginning Thursday, April 30, 2015 and ending Friday, May 1, 2015.

5.3. Traffic Noise Modeling Receiver Locations

In accordance with Protocol recommendations, modeled receivers were located at discrete exterior areas of frequent human use that would benefit from lowered noise levels. For Activity Category B and C land uses, a modeled receiver was located at the nearest building façade or outdoor activity area of the land use. For the Activity Category D land use, interior noise levels were calculated assuming an average exterior-to-interior noise reduction derived from Table 7 of the FHWA *Highway Traffic Noise: Analysis and Abatement Policy and Guidance* (1995). Receiver heights were modeled at heights of 1.5 meters above ground level. No land uses

described as Activity Category A, E, F or G were identified in the project area. (Refer to Section 6.1 for a discussion of land uses located within the project study area and associated Activity Categories. Activity Categories are defined in Table 4-1.) Modeled noise receivers are depicted in Figure 5-2.

5.4. Traffic Noise Levels Prediction Methods

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key inputs to the traffic noise model were the locations of roadways, shielding features (e.g., topography and buildings), ground type, and receivers. Three-dimensional representations of these inputs were developed using CAD drawings, aerials, and topographic contours. Traffic noise modeling took into account existing and proposed changes in horizontal and vertical alignments based on the conceptual improvement plans provided by the City of Elk Grove (Willdan Engineering 2014).

Traffic noise was evaluated for existing conditions and for future design year 2037 conditions, with and without implementation of the build alternative. For reporting purposes, traffic noise modeling was also conducted for interim year 2017 conditions, with and without the build alternative. Traffic volumes for input into the traffic noise model obtained from the traffic analysis prepared for this project (Fehr & Peers, Inc. 2015.) Based on the 24-hour noise monitoring survey conducted, the highest noise hour on occurs during the 6:00 a.m. hour, which were approximately 1 dB higher than 7:00 a.m. peak-commute hour. Therefore, the a.m. peak hour traffic volumes were used in the model with a 1 dB adjustment factor applied. Tables A-1 to A-3 in Appendix A summarize the traffic volumes and assumptions used for modeling traffic noise levels.

Deceleration zones and speeds for vehicles approaching the intersection and acceleration roadway segment lengths for vehicles departing the intersection were adjusted based on the travel distances and vehicle speeds identified in Appendix B of the *Final Technical Report: NCHRP 25-34 – Supplemental Guidance on the Application of FHWA's TNM* (2014.) Table A-4 in Appendix A summarize the traffic data applied to deceleration and acceleration roadway segments for modeled scenarios.

To validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. Traffic volumes counted during the short-term measurement periods for the modeled receptor locations were normalized to 1-hour volumes. These normalized volumes were then assigned to the corresponding project area roadway segments to simulate the noise source strength at the roadway segments occurring during the noise monitoring period. Modeled and measured sound levels were then compared to determine the accuracy of the model and if additional calibration of the model was necessary.

Figure 5-2. Modeled Noise Receiver Locations

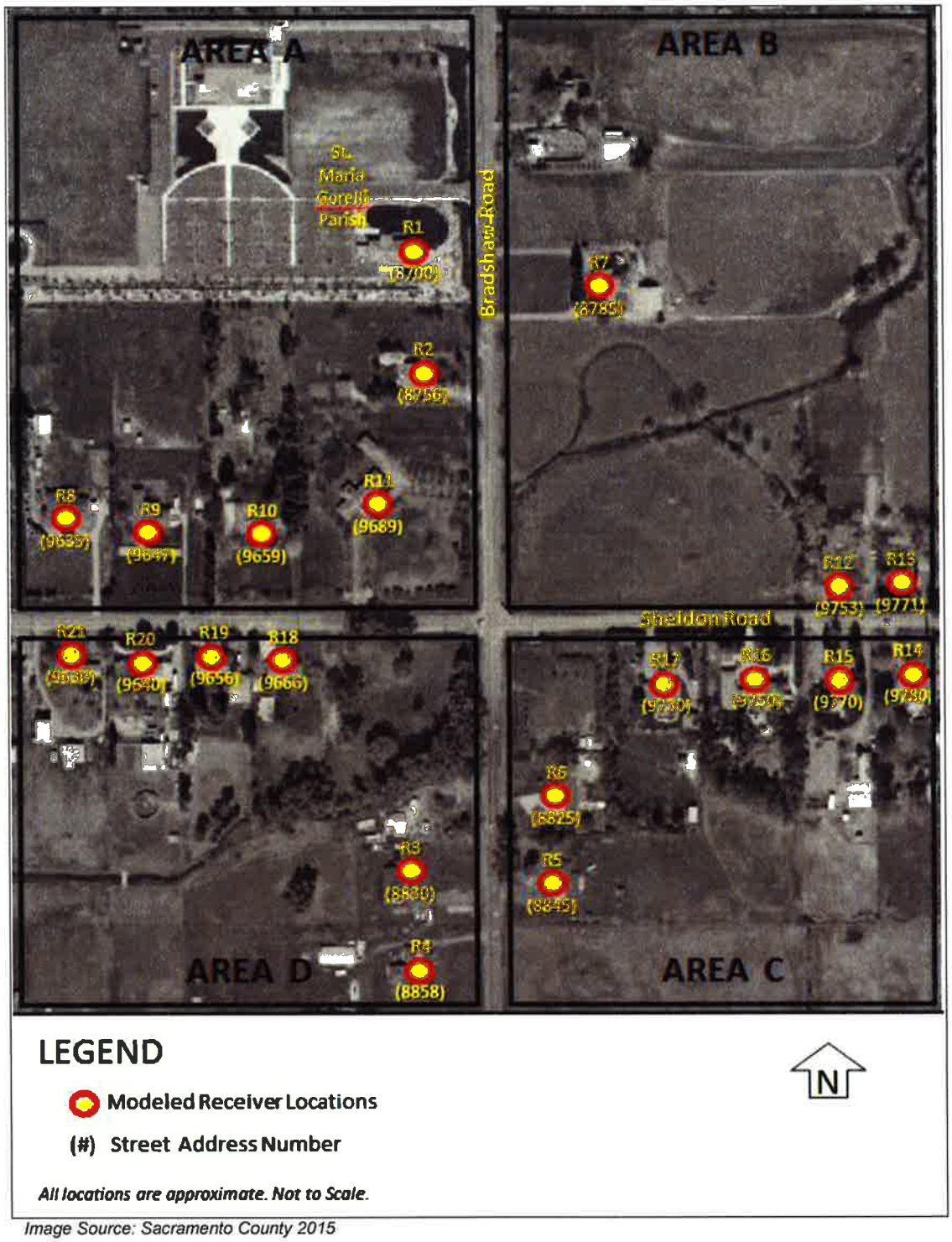


Image Source: Sacramento County 2015

5.5. Methods for Identifying Land Uses and Selecting Noise Measurement and Modeling Receiver Locations

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. Existing land uses in the project area were categorized by land use type and Activity Category as defined in Table 4-1, and the extent of frequent human use. As stated in the Protocol, noise abatement is only considered where frequent human use occurs and where a lowered noise level would be of benefit. Although all land uses are evaluated in this analysis, the focus is on locations of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. The geometry of the project relative to nearby existing and planned land uses was also identified.

Short-term measurement locations were selected to represent each major developed area within the project area. A single long term measurement site was selected to capture the diurnal traffic noise level pattern in the project area. Short-term measurement locations were selected to serve as representative modeling locations. Several other non-measurement locations were selected as modeling locations.

5.6. Methods for Identifying Traffic Noise Impacts and Consideration of Abatement

Traffic noise impacts are considered to occur at receptor locations where predicted design-year noise levels exceed existing noise levels by 12 dBA, or more, or where predicted design-year noise levels approach or exceed the NAC for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol.

According to the Protocol, abatement measures are considered acoustically feasible if a minimum noise reduction of 5 dB at impacted receptor locations is predicted with implementation of the abatement measures. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receptors, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations.

The overall reasonableness of noise abatement is determined by the following three factors:

- The noise reduction design goal.
- The cost of noise abatement.
- The viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

The Caltrans' acoustical design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one benefited receptor. This design goal applies to any receptor and is not limited to impacted receptors.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. Based on 2014 construction costs an allowance of $71,000 is provided for each benefited receptor (i.e., receptors that receive at least 5 dB of noise reduction from a noise barrier). The total allowance for each barrier is calculated by multiplying the number of benefited receptors by $71,000. The allowance should be adjusted annually based on the published Caltrans Construction Price Index (CPI) and a base 2011 allowance of $55,000. If the estimated construction cost of a barrier is less than the total calculated allowance for the barrier, the barrier is considered reasonable from a cost perspective. The viewpoints of benefits receptors are determined by a survey that is typically conducted after completion of the noise study report. The process for conducting the survey is described in detail in the Protocol.

The noise study report identifies traffic noise impacts and evaluates noise abatement for acoustical feasibility. It also reports information that will be used in the reasonableness analysis including if the 7 dB design goal reduction in noise can be achieved and the abatement allowances. The noise study report does not make any conclusions regarding reasonableness. The feasibility and reasonableness of noise abatement is reported in the Noise Abatement Decision Report.

Chapter 6. Existing Noise Environment

6.1. Existing Land Uses

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. The following land uses were identified in the project area:

- Single-family residences: Activity Category B
- Place of worship: Activity Category C (exterior), Activity Category D (interior)

Although all developed land uses are evaluated in this analysis, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. Land uses in the project area have been grouped into a series of lettered analysis areas that are identified in Figure 5-2. Each of these analysis areas is considered to be acoustically equivalent.

- **Area A:** Area A is located northwest of the Bradshaw Road/Sheldon Road intersection. Land uses in this area are predominantly residential uses (Activity Category B). One place of worship (i.e., St. Maria Goretti Parish) is also located in this area. Places of worship are Activity Category C (exterior) and Activity Category D (interior). This area is generally flat. Residential dwellings in this area face the adjacent roadway and rear-yard areas are generally shielded by the intervening residential structure. No existing sound barriers are located in this area. (Refer to Figure 5-2.)
- **Area B:** Area B is located northeast of the Bradshaw Road/Sheldon Road intersection. Land uses in this area are predominantly residential (Activity Category B). This area is generally flat. Residential dwellings in this area face the adjacent roadway and rear-yard areas are generally shielded by the intervening residential structure. No existing sound barriers are located in this area (Refer to Figure 5-2.)
- **Area C:** Area C is located southeast of the Bradshaw Road/Sheldon Road intersection. Land uses in this area are predominantly residential (Activity Category B). This area is generally flat. Residential dwellings in this area face the adjacent roadway and rear-yard areas are generally shielded by the intervening residential structure. No existing sound barriers are located in this area. (Refer to Figure 5-2.)
- **Area D:** Area D is located southwest of the Bradshaw Road/Sheldon Road intersection. Land uses in this area are predominantly residential (Activity Category B). This area is generally flat. Residential dwellings in this area face the adjacent roadway and rear-yard areas are generally shielded by the intervening residential structure. No existing sound barriers are located in this area. (Refer to Figure 5-2.)

6.2. Noise Measurement Results

The existing noise environment in the project area is characterized below based on the short- and long-term noise measurement surveys that were conducted.

6.2.1. Short-Term Measurements

Short-term measurements were conducted at five locations on Thursday, April 30, 2015 and Friday, June 1, 2015. A background noise measurement survey was also conducted on June 1, 2015, within the community located southwest of the project area at the terminus of Sandage Avenue. Noise monitoring locations are depicted in Figure 5-1.

Based on the noise measurements conducted, daytime noise levels at the property lines of nearby land uses ranged from approximately 63 to 67 dBA L_{eq}. The measured background daytime ambient noise level, which largely excludes vehicle traffic noise on Sheldon Road and Bradshaw Road, was 47 dBA L_{eq}. Background noise levels were more than 10 dB lower than measured traffic noise levels. In comparison to daytime noise levels, nighttime noise levels generally decrease by approximately 12 dBA. Noise levels were predominantly influenced by vehicle traffic on Sheldon Road and Bradshaw Road.

6.2.2. Long-Term Measurements

Long-term noise measurement data was collected over a 24-hour period, beginning Thursday, April 30, 2015, and ending Friday, May 1, 2015. Long-term measurement location LT-1 was located at 9689 Bradshaw Road approximately 220 feet north of Sheldon Road and 48 feet west of the centerline of Bradshaw Road (refer to Figure 5-1). This is the same location where ST-1 measurements were taken. The loudest-hour sound level measured was 66.7 dBA L_{eq} during the 6:00 a.m. hour. The 7:00 a.m. peak-commute hour was approximately 1 dB lower than the highest noise hour. The 5:00 p.m. peak-commute hour was approximately 4 dB lower than the highest noise hour. The average-daily noise level measured 68.7 dBA CNEL, which was approximately 2 dB lower than the highest hourly noise hour. Table 6-2 and Figure 6-1 summarize the results of the long-term noise measurement survey.

Table 6-1. Summary of Short-Term Measurements

Position	Location	Distance from Roadway Centerline (Feet)	Date	Start Time	Duration (Minutes)	Measured L_{eq}	LDA/T	MDT	HDT	MC	BUS/RV
ST-1	Bradshaw Road, approximately 220 feet north of Sheldon Road.		4/30/15	17:30	10	63.4	95.7	2.7	1.3	0.1	0.1
			5/1/15	10:00	60	63.6					
		48	5/1/15	11:00	10	63.3					
ST-2	Sheldon Road, approximately 315 feet west of Bradshaw Road.		4/30/15	14:30	20	65.9					
			4/30/15	15:00	20	64.1					
			4/30/15	17:00	10	63.8	96.3	3.1	0.2	0.2	0.2
		48	5/1/15	06:15	15	65.6					
ST-3	Bradshaw Road, approximately 415 feet north of Sheldon Road.		4/30/15	15:35	20	64.2					
			4/30/15	17:15	10	63.3					
		48	5/1/15	07:17	10	65.6					
ST-4	Bradshaw Road, approximately 270 feet south of Sheldon Road.		5/1/15	15:10	10	66.0					
		36	5/1/15	16:15	10	65.5	96.1	2.5	1.1	0.2	0.1
ST-5	Sheldon Road, approximately 230 feet east of Bradshaw Road.	27	5/1/15	16:35	10	66.8	95.8	3.4	0.2	0.3	0.2
ST-6	Background Noise Measurement Survey. Terminus of Sandage Avenue.	NA	5/1/15	17:20	10	47.2					

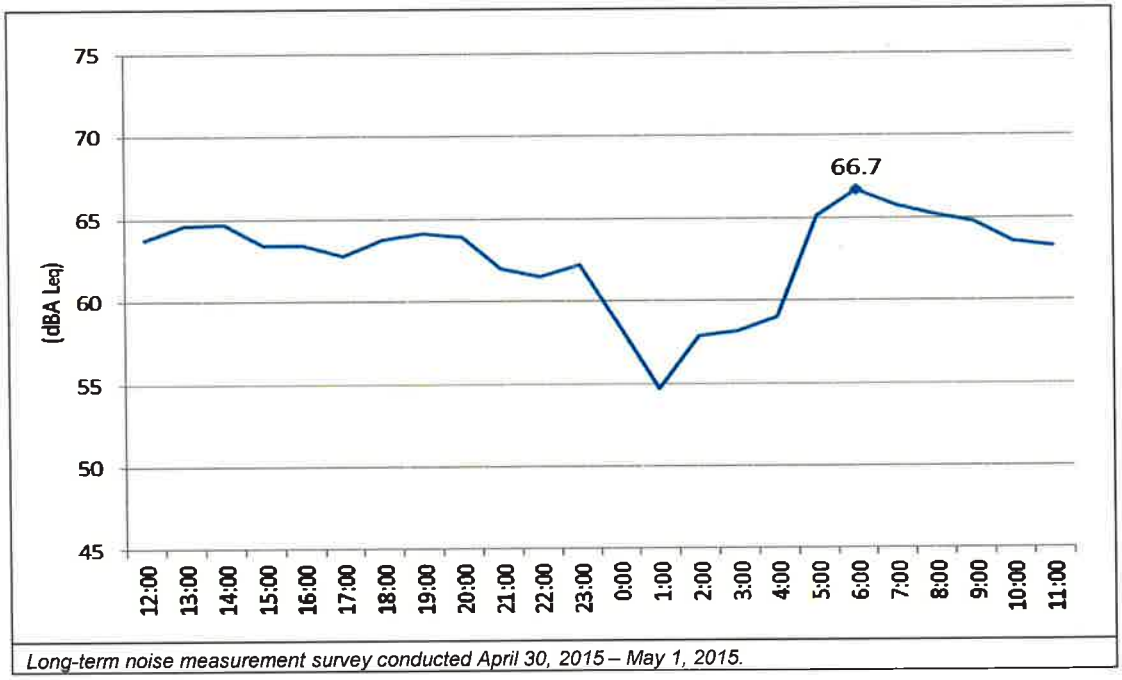
Note: Refer to Figure 5-1 for measurement locations.

Table 6-2. Summary of Long-Term Monitoring at Location LT-1

Hour Beginning	Hourly Average (dBA L_{eq})	Difference from Loudest Hour (dB)
12:00 p.m.	63.8	-2.9
1:00 p.m.	64.6	-2.1
2:00 p.m.	64.7	-2.0
3:00 p.m.	63.4	-3.3
4:00 p.m.	63.4	-3.3
5:00 p.m.	62.8	-3.9
6:00 p.m.	63.8	-2.9
7:00 p.m.	64.1	-2.6
8:00 p.m.	63.9	-2.8
9:00 p.m.	62.0	-4.7
10:00 p.m.	61.5	-5.2
11:00 p.m.	62.2	-4.5
12:00 a.m.	58.5	-8.2
1:00 a.m.	54.7	-12.0
2:00 a.m.	57.9	-8.8
3:00 a.m.	58.2	-8.5
4:00 a.m.	59.0	-7.7
5:00 a.m.	65.1	-1.6
6:00 a.m.	**66.7**	0
7:00 a.m.	65.8	-0.9
8:00 a.m.	65.2	-1.5
9:00 a.m.	64.8	-1.9
10:00 a.m.	63.6	-3.1
11:00 a.m.	63.3	-3.4

Note: Worst noise hour noise level is bolded.

Figure 6-1. Long-Term Monitoring at Location LT-1



Long-term noise measurement survey conducted April 30, 2015 – May 1, 2015.

6.2.3. Model Calibration

TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations ST-1 through ST-5 (see Figure 5-1). A comparison of measured and modeled noise levels at measurement locations is provided in Table 6-3. The predicted sound levels are within 2 dB of the measured sound levels and are, therefore, considered to be in reasonable agreement with the measured sound levels. Therefore, no further adjustment of the model was necessary.

Table 6-3. Comparison of Measured to Predicted Sound Levels in the TNM Model

Measurement Position	Measured Sound Level (dBA)	Predicted Sound Level (dBA)	Measured minus Predicted (dB)
ST-1	63.4	64.1	0.7
ST-2	63.8	64.6	0.8
ST-3	63.3	64.2	0.9
ST-4	65.5	66.3	0.8
ST-5	66.8	67.4	0.6

Chapter 7. Future Noise Environment, Impacts, and Considered Abatement

7.1. Future Noise Environment and Impacts

Tables B-1 and B-2 in Appendix B summarize the traffic noise modeling results for existing conditions and design-year conditions with and without implementation of the proposed build alternatives (i.e., roundabout and signalized intersection, respectively). Predicted design-year traffic noise levels with the project are compared to existing conditions and to design-year no-project conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts as defined under 23 CFR 772. The comparison to no-project conditions indicates the direct effect of the project.

As stated in the TeNS, modeling results are rounded to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between calculated sound levels of 64.4 and 64.5 dBA. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB.

Modeling results for the two proposed build alternatives (e.g., signalized intersection and roundabout intersection) are discussed below for each receptor area. Receptor areas and locations are depicted in Figure 5-2.

7.1.1. Area A

Area A includes St. Maria Goretti Parish as well as, residential uses. St. Maria Goretti Parish is represented in Figure 5-2 as Receiver R1. Places of worship are considered Activity Category C and D (refer to Table 4-1). Accordingly, the NACs for St. Maria Goretti Parish includes an exterior noise level of 67 dBA L_{eq} and an interior noise level of 52 dBA L_{eq}. Single-family residential land uses are represented in Figure 5-2 by Receivers R2 and R8-R11. Residential land uses are considered Activity Category B uses with an exterior NAC of 67 dBA L_{eq}.

7.1.1.1. Roundabout Intersection Build Alternative

St. Maria Goretti Parish

As indicated in Table B-1, the predicted exterior traffic noise levels at the nearest parish structure would be 63 dBA L_{eq} in the design-year and the increase in noise levels would be 1 dB. Because the predicted design-year noise level does not approach or exceed the 67 dBA L_{eq} NAC, no

exterior traffic noise impacts are predicted at St. Maria Goretti Parish. It is also important to note that no outdoor areas of frequent human exposure were identified for this land use.

Because the church has an interior noise abatement criterion in addition to the exterior criterion, interior noise must also be considered. From Table 6 in the *FHWA Highway Traffic Noise Analysis and Abatement Guidance* document, the building noise reduction factor for standard construction with ordinary windows closed is 20 dB. Based on this reduction and the exterior traffic noise level of 63 dBA L_{eq} noted above, the predicted interior noise level at the nearest parish structure in the design-year would be 43 dBA L_{eq}. Because the predicted interior noise level does not approach or exceed the interior NAC of 52 dBA L_{eq}, no interior traffic noise impacts are predicted at St. Maria Goretti Parish for this build alternative. As a result, the consideration of noise abatement is not required for this land use.

Residential Uses

With implementation of the roundabout intersection build alternative, predicted increases in traffic noise levels at residential uses in Area A (i.e., R2 and R8-R11) would be 2 dB, or less. These residential uses would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, predicted design-year with-project traffic noise levels for these same residential uses would range from 55 to 61 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-1.) As a result, no traffic noise impacts are predicted at Receivers R2 and R8-R11 and the consideration of noise abatement is not required for this build alternative.

7.1.1.2. SIGNALIZED INTERSECTION BUILD ALTERNATIVE

St. Maria Goretti Parish

The traffic noise modeling results in Table B-2 indicate exterior traffic noise levels at the nearest parish building would be 64 dBA L_{eq} in the design-year and that the increase in noise levels would be 3 dB. Because the predicted design-year noise level would not approach or exceed the 67 dBA L_{eq} NAC, no exterior traffic noise impacts are predicted at St. Maria Goretti Parish.

Assuming a building noise-reduction factor of 20 dB and the exterior noise level of 64 dBA L_{eq} noted above, the predicted interior noise level in the design-year would be 44 dBA L_{eq}. Because the predicted design-year noise level does not exceed the interior NAC of 52 dBA L_{eq}, no interior traffic noise impacts are predicted at St. Maria Goretti Parish for this build alternative. As a result, the consideration of noise abatement is not required for this land use.

Residential Uses

With implementation of the signalized intersection build alternative, predicted increases in traffic noise levels at residential uses in Area A (i.e., R2 and R8-R11) would be 3 dB. These residential

uses would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, predicted design-year with-project traffic noise level for these same residential uses would range from 54 to 63 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-2.) As a result, no traffic noise impacts are predicted at Receivers R2 and R8-R11 and the consideration of noise abatement is not required.

7.1.2. Area B

Land uses in Area B consist of residential uses, which are considered Activity Category B uses. These residential land uses are represented in Figure 5-2 by Receivers R7, R12 and R13.

7.1.2.1. Roundabout Intersection Build Alternative

With implementation of the roundabout intersection build alternative, predicted increases in traffic noise levels at residential uses in Area B (i.e., Receivers R7, R12 and R13) would be 2 dB, or less. These residential uses would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, predicted design-year with-project noise levels for residential uses located in Area B would range from 59 to 64 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-1.) As a result, no traffic noise impacts are predicted at Receivers R7, R12 and R13. The consideration of noise abatement is not required for this build alternative.

7.1.2.2. Signalized Intersection Build Alternative

With implementation of the signalized intersection build alternative, predicted increases in traffic noise levels at residential uses in Area B (i.e., Receivers R7, R12 and R13) would be 3 dB. Residential uses in Area B would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, the predicted design-year with-project noise level would range from 59 to 62 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-2.) As a result, no traffic noise impacts are predicted at Receivers R7, R12 and R13. The consideration of noise abatement is not required for this build alternative.

7.1.3. Area C

Land uses in Area C consist of residential uses, which are considered Activity Category B uses. These residential uses are represented in Figure 5-2 by Receivers R5, R6, and R14 – R17.

7.1.3.1. Roundabout Intersection Build Alternative

With implementation of the roundabout intersection build alternative, predicted increases in traffic noise levels at residential uses in Area C (i.e., Receivers R5, R6, and R14 – R17) would be 2 dB, or less. These residential uses would not experience a substantial increase (i.e., 12 dB or

greater) in traffic noise levels. In addition, predicted design-year with-project noise levels at these same residential uses would range from 60 to 61 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-1.) As a result, no traffic noise impacts are predicted at Receivers R5, R6, and R14 – R17. The consideration of noise abatement is not required for this build alternative.

7.1.3.2. SIGNALIZED INTERSECTION BUILD ALTERNATIVE

With implementation of the signalized intersection build alternative, predicted increases in traffic noise levels at residential uses in Area C (i.e., Receivers R5, R6, and R14 – R17) would be 3 dB, or less. These residential uses would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, predicted design-year with-project noise levels at these same residential uses would range from 60 to 63 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-2.) As a result, no traffic noise impacts are predicted at Receivers R5, R6, and R14 – R17. The consideration of noise abatement is not required for this build alternative.

7.1.4. Area D

Single-family residential land uses are represented in Figure 5-2 by Receivers R3, R4, and R18 – R21. Residential land uses are considered Activity Category B land uses. The NAC for Activity Category B land uses is an exterior noise level of 67 dBA L_{eq}.

7.1.4.1. ROUNDABOUT INTERSECTION BUILD ALTERNATIVE

With implementation of the roundabout intersection build alternative, predicted increases in traffic noise levels at residential uses in Area D (i.e., Receivers R3, R4, and R18 – R21) would be 2 dB, or less. These residential uses would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, predicted design-year with-project noise levels at these same residential uses would range from 59 to 65 dBA L_{eq}, which would not approach or exceed the NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-1.) As a result, no traffic noise impacts are predicted at Receivers R3, R4, and R18 – R21. The consideration of noise abatement is not required for this build alternative.

7.1.4.2. SIGNALIZED INTERSECTION BUILD ALTERNATIVE

With implementation of the signalized intersection build alternative, predicted increases in traffic noise levels at residential uses in Area D (i.e., Receivers R3, R4, and R18 – R21) would be 5 dB, or less. These residential uses would not experience a substantial increase (i.e., 12 dB or greater) in traffic noise levels. In addition, predicted design-year with-project noise levels at these same residential uses would range from 61 to 64 dBA L_{eq}, which would not approach or exceed the

NAC of 67 dBA L_{eq} (refer to Appendix B, Table B-2.) As a result, no traffic noise impacts are predicted at Receivers R3, R4, and R18 – R21. The consideration of noise abatement is not required for this build alternative.

7.2. Preliminary Noise Abatement Analysis

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. According to 23 CFR 772(13)(c) and 772(15)(c), federal funding may be used for the following abatement measures:

- Construction of noise barriers, including acquisition of property rights, either within or outside the highway right-of-way.
- Traffic management measures including, but not limited to, traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations.
- Alteration of horizontal and vertical alignments.
- Acquisition of real property or interests therein (predominantly unimproved property) to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise.
- Noise insulation of Activity Category D land use facilities listed in Table 1. Post-installation maintenance and operational costs for noise insulation are not eligible for Federal-aid funding.

As indicated in Table B-2 and discussed in Section 7.1 of this report, predicted design-year noise levels at and nearby residential land uses (i.e., Receivers R2 – R21), with implementation of either of the proposed build alternatives (i.e., roundabout intersection or signalized intersection), would be approximate 65 dBA L_{eq}, or less. Predicted design-year noise levels for either alternative would not approach or exceed the exterior NAC of 67 dBA L_{eq}. Predicted design-year noise levels St. Maria Goretti Parish (i.e., Receiver R1) would, likewise, not be projected to exceed applicable exterior or interior NAC of 67 dBA L_{eq} and 52 dBA L_{eq}, respectively, for either of the proposed build alternatives. For both build alternative, predicted increases in traffic noise levels at nearby land uses would be 5 dBA, or less. Therefore, traffic noise impacts are not predicted to occur and consideration of noise abatement is not required for either of the proposed build alternatives.

Chapter 8. Construction Noise

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by Caltrans Standard Specification Section 14-8.02, "Noise Control," which states the following:

- Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m.
- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Table 8-1 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006. See also: http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and somewhat overshadowed by local traffic noise.

Chapter 9. References

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Appendix A Traffic Data

Table A-1. Traffic Data for Existing Conditions

Roadway	Direction	Segment	Number of Thru Lanes	AM Peak Hour Volume	Auto		Medium Trucks		Heavy Trucks		MC		RV/Bus		Free Flow Speed (mph)
					%	Volume	%	Volume	%	Volume	%	Volume	%	Volume	
Bradshaw Road	NB	North of Sheldon Rd.	1	574	96.9%	556	1.3%	7	1.3%	7	0.1%	1	0.3%	2	55
Bradshaw Road	SB	North of Sheldon Rd.	1	389	96.9%	377	1.3%	5	1.3%	5	0.1%	1	0.3%	1	55
Bradshaw Road	NB	South of Sheldon Rd.	1	543	97.1%	527	1.2%	7	1.2%	7	0.1%	1	0.3%	2	55
Bradshaw Road	SB	South of Sheldon Rd.	1	378	97.1%	367	1.2%	5	1.2%	5	0.1%	1	0.3%	1	55
Sheldon Rd.	EB	East of Bradshaw Rd.	1	300	98.4%	295	1.0%	3	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	WB	East of Bradshaw Rd.	1	350	98.4%	344	1.0%	4	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	EB	West of Bradshaw Rd.	1	334	98.0%	327	1.1%	4	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	WB	West of Bradshaw Rd.	1	364	98.3%	358	1.1%	4	0.2%	1	0.2%	1	0.2%	1	45

Table A-2. Traffic Data for Year 2017 Conditions

Roadway	Direction	Segment	Number of Thru Lanes	AM Peak Hour Volume	Auto		Medium Trucks		Heavy Trucks		MC		RV/Bus		Free Flow Speed (mph)
					%	Volume	%	Volume	%	Volume	%	Volume	%	Volume	
Bradshaw Road	NB	North of Sheldon Rd.	1	608	96.9%	589	1.3%	8	1.3%	8	0.1%	1	0.3%	2	55
Bradshaw Road	SB	North of Sheldon Rd.	1	413	96.9%	400	1.3%	5	1.3%	5	0.1%	1	0.3%	1	55
Bradshaw Road	NB	South of Sheldon Rd.	1	576	97.1%	559	1.2%	7	1.2%	7	0.1%	1	0.3%	2	55
Bradshaw Road	SB	South of Sheldon Rd.	1	401	97.1%	389	1.2%	5	1.2%	5	0.1%	1	0.3%	1	55
Sheldon Rd.	EB	East of Bradshaw Rd.	1	318	98.4%	313	1.0%	3	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	WB	East of Bradshaw Rd.	1	371	98.4%	365	1.0%	4	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	EB	West of Bradshaw Rd.	1	353	98.0%	346	1.1%	4	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	WB	West of Bradshaw Rd.	1	386	98.3%	379	1.1%	4	0.2%	1	0.2%	1	0.2%	1	45

Table A-3. Traffic Data for Year 2037 Conditions

Roadway	Direction	Segment	Number of Thru Lanes	AM Peak Hour Volume	Auto		Medium Trucks		Heavy Trucks		MC		RV/Bus		Free Flow Speed (mph)
					%	Volume	%	Volume	%	Volume	%	[illegible]	%	Volume	
Bradshaw Road	NB	North of Sheldon Rd.	1	923	96.9%	894	1.3%	12	1.3%	12	0.1%	1	0.3%	3	55
Bradshaw Road	SB	North of Sheldon Rd.	1	646	96.9%	626	1.3%	8	1.3%	8	0.1%	1	0.3%	2	55
Bradshaw Road	NB	South of Sheldon Rd.	1	902	97.1%	876	1.2%	11	1.2%	11	0.1%	1	0.3%	3	55
Bradshaw Road	SB	South of Sheldon Rd.	1	628	97.1%	610	1.2%	8	1.2%	8	0.1%	1	0.3%	2	55
Sheldon Rd.	EB	East of Bradshaw Rd.	1	499	98.4%	491	1.0%	5	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	WB	East of Bradshaw Rd.	1	581	98.4%	572	1.0%	6	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	EB	West of Bradshaw Rd.	1	555	98.0%	544	1.1%	6	0.2%	1	0.2%	1	0.2%	1	45
Sheldon Rd.	WB	West of Bradshaw Rd.	1	604	98.3%	594	1.1%	7	0.2%	1	0.2%	1	0.2%	1	45

Table A-4. Traffic Data for Acceleration & Deceleration Roadway Segments, All Modeled Scenarios

Roadway	Direction	Segment	Acceleration Roadway Segment Lengths (Feet)	Deceleration Zone 1: Outer Approach Length (Feet)	Deceleration Zone 2: Inner Approach Length (Feet)	Deceleration Zone 1: Outer Approach Speed (mph)			Deceleration Zone 2: Inner Approach Speed (mph)		
						LDA/LDT/MC	MDT	HDT/Bus/RV	LDA/LDT/MC	MDT	HDT/Bus/RV
Bradshaw Road	NB	North of Sheldon Rd.	100								
Bradshaw Road	SB	North of Sheldon Rd.		500	100	41	36	33	18	13	10
Bradshaw Road	NB	South of Sheldon Rd.		500	100	41	36	33	18	13	10
Bradshaw Road	SB	South of Sheldon Rd.	100								
Sheldon Rd.	EB	East of Bradshaw Rd.	100								
Sheldon Rd.	WB	East of Bradshaw Rd.		400	100	38	34	31	18	13	10
Sheldon Rd.	EB	West of Bradshaw Rd.		400	100	38	34	31	18	13	10
Sheldon Rd.	WB	West of Bradshaw Rd.	100								

Based on recommended modeling criteria obtained from Appendix B of the Final Technical Report: NCHRP 25-34 – Supplemental Guidance on the Application of FHWA's TNM (2014.)

Appendix B Predicted Future Noise Levels

Table B-1. Predicted Future Noise Levels: Roundabout Intersection Build Alternative

Receiver I.D.	Area	Barrier I.D.	Land Use	Number of Dwelling Units	Address	Existing Noise Level $L_{eq}(h)$, dBA	Roundabout Intersection - Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																								
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions Leq(h), dBA	Design Year Noise Level with Project Minus No Project Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																		
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	58	62	63	4	1	C (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	38	42	43	4	1	D (52)*	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	A	NA	RESIDENTIAL	1	8756 BRADSHAW	58	61	61	3	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	D	NA	RESIDENTIAL	1	8830 BRADSHAW	54	58	59	4	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	D	NA	RESIDENTIAL	1	8858 BRADSHAW	56	60	61	4	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5	C	NA	RESIDENTIAL	1	8845 BRADSHAW	57	59	61	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	C	NA	RESIDENTIAL	1	8825 BRADSHAW	57	58	60	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	B	NA	RESIDENTIAL	1	8785 BRADSHAW	54	59	59	5	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	A	NA	RESIDENTIAL	1	9635 SHELDON	52	53	55	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	A	NA	RESIDENTIAL	1	9647 SHELDON	54	55	56	1	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	A	NA	RESIDENTIAL	1	9659 SHELDON	54	55	57	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11	A	NA	RESIDENTIAL	1	9689 SHELDON	55	57	57	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	B	NA	RESIDENTIAL	1	9753 SHELDON	61	62	64	1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
13	B	NA	RESIDENTIAL	1	9771 SHELDON	62	62	64	0	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
14	C	NA	RESIDENTIAL	1	9780 SHELDON	57	59	61	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	C	NA	RESIDENTIAL	1	9770 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	C	NA	RESIDENTIAL	1	9750 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17	C	NA	RESIDENTIAL	1	9730 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	D	NA	RESIDENTIAL	1	9666 SHELDON	62	61	63	-1	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	D	NA	RESIDENTIAL	1	9656 SHELDON	62	62	64	0	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	D	NA	RESIDENTIAL	1	9640 SHELDON	63	63	64	0	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
21	D	NA	RESIDENTIAL	1	9630 SHELDON	63	63	65	0	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

** Represents interior NAC. Interior NAC is based on predicted exterior traffic noise levels minus 20 dB exterior-to-interior noise reduction. All other NAC are based on exterior traffic noise levels.*

Table B-2. Predicted Future Noise Levels: Signalized Intersection Build Alternative

Receiver I.D.	Area	Barrier I.D.	Land Use	Number of Dwelling Units	Address	Existing Noise Level $L_{eq}(h)$, dBA	Signalized Intersection - Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																										
							Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions Leq(h), dBA	Design Year Noise Level with Project Minus No Project Conditions Leq(h), dBA	Activity Category (NAC)	Impact Type	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																				
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	58	61	64	3	3	C (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1	A	NA	ST MARIA PARISH	None	8700 BRADSHAW	38	41	44	3	3	D (52)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
2	A	NA	RESIDENTIAL	1	8756 BRADSHAW	58	60	63	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	D	NA	RESIDENTIAL	1	8830 BRADSHAW	54	57	61	3	4	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	D	NA	RESIDENTIAL	1	8858 BRADSHAW	56	58	63	2	5	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5	C	NA	RESIDENTIAL	1	8845 BRADSHAW	57	60	63	3	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	C	NA	RESIDENTIAL	1	8825 BRADSHAW	57	59	62	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7	B	NA	RESIDENTIAL	1	8785 BRADSHAW	54	56	59	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	A	NA	RESIDENTIAL	1	9635 SHELDON	52	54	54	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	A	NA	RESIDENTIAL	1	9647 SHELDON	54	56	55	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	A	NA	RESIDENTIAL	1	9659 SHELDON	54	56	56	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
11	A	NA	RESIDENTIAL	1	9689 SHELDON	55	57	59	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	B	NA	RESIDENTIAL	1	9753 SHELDON	61	63	62	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
13	B	NA	RESIDENTIAL	1	9771 SHELDON	62	64	63	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
14	C	NA	RESIDENTIAL	1	9780 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	C	NA	RESIDENTIAL	1	9770 SHELDON	57	59	60	2	1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	C	NA	RESIDENTIAL	1	9750 SHELDON	57	59	61	2	2	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
17	C	NA	RESIDENTIAL	1	9730 SHELDON	57	59	62	2	3	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	D	NA	RESIDENTIAL	1	9666 SHELDON	62	64	64	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	D	NA	RESIDENTIAL	1	9656 SHELDON	62	64	64	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	D	NA	RESIDENTIAL	1	9640 SHELDON	63	65	64	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
21	D	NA	RESIDENTIAL	1	9630 SHELDON	63	65	64	2	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

** Represents interior NAC. Interior NAC is based on predicted exterior traffic noise levels minus 20 dB exterior-to-interior noise reduction. All other NAC are based on exterior traffic noise levels.*

Appendix C Supplemental Data

Table C-1. Summary of Predicted Traffic Noise Levels

RECEIVER	ADDRESS	LAND USE	MODEL CALIBRATION				PREDICTED EXTERIOR PEAK-HOUR TRAFFIC NOISE LEVELS (L_{eq}) AT BUILDING FACADE								
							4-WAY STOP CONTROLLED			SIGNALIZED			ROUNDABOUT		
			MEAS.	MOD.	DIF.	ACCEPTABLE?	EXISTING	YR 2017	YR 2037	EXISTING	YR 2017	YR 2037	EXISTING	YR 2017	YR 2037
CAL SITE 1	BRADSHAW, NORTH		63.4	64.1	0.7	YES									
CAL SITE 2	SHELDON, WEST		63.8	64.6	0.8	YES									
CAL SITE 3	BRADSHAW, NORTH		63.3	64.2	0.9	YES									
CAL SITE 4	BRADSHAW, SOUTH		65.5	66.3	0.8	YES									
CAL SITE 5	SHELDON, EAST		66.8	67.4	0.6	YES									
1	8700 BRADSHAW	ST MARIA PARISH					58	59	61	62	62	64	61	62	63
2	8756 BRADSHAW	RESIDENTIAL					58	58	60	61	61	63	59	61	61
3	8830 BRADSHAW	RESIDENTIAL					54	55	57	58	59	61	57	58	59
4	8858 BRADSHAW	RESIDENTIAL					56	56	58	60	61	63	60	60	61
5	8845 BRADSHAW	RESIDENTIAL					57	58	60	61	61	63	59	59	61
6	8825 BRADSHAW	RESIDENTIAL					57	57	59	60	60	62	58	58	60
7	8785 BRADSHAW	RESIDENTIAL					54	54	56	57	57	59	57	59	59
8	9635 SHELDON	RESIDENTIAL					52	53	54	51	52	54	53	53	55
9	9647 SHELDON	RESIDENTIAL					54	54	56	53	53	55	54	55	56
10	9659 SHELDON	RESIDENTIAL					54	54	56	54	54	56	55	55	57
11	9689 SHELDON	RESIDENTIAL					55	55	57	57	57	59	55	57	57
12	9753 SHELDON	RESIDENTIAL					61	61	63	60	61	62	62	62	64
13	9771 SHELDON	RESIDENTIAL					62	62	64	61	61	63	62	62	64
14	9780 SHELDON	RESIDENTIAL					57	57	59	58	58	60	58	59	61
15	9770 SHELDON	RESIDENTIAL					57	57	59	58	59	60	58	59	60
16	9750 SHELDON	RESIDENTIAL					57	57	59	59	59	61	58	59	60
17	9730 SHELDON	RESIDENTIAL					57	58	59	60	60	62	58	59	60
18	9666 SHELDON	RESIDENTIAL					62	62	64	62	62	64	61	61	63
19	9656 SHELDON	RESIDENTIAL					62	63	64	62	62	64	62	62	64
20	9640 SHELDON	RESIDENTIAL					63	63	65	62	62	64	63	63	64
21	9630 SHELDON	RESIDENTIAL					63	63	65	62	62	64	63	63	65

Table C-2. Summary of Predicted Average-Daily Traffic Noise Levels and Increases Compared to No-Project Conditions

RECEIVER			PREDICTED CHANGES IN AVERAGE-DAILY TRAFFIC NOISE LEVELS (CNEL) IN OUTDOOR ACTIVITY AREAS														
			EXISTING CONDITIONS					YR 2017					YR 2037				
			4-WAY STOP	SIGNAL	CHANGE	ROUND-ABOUT	CHANGE	4-WAY STOP	SIGNAL	CHANGE	ROUND-ABOUT	CHANGE	4-WAY STOP	SIGNAL	CHANGE	ROUND-ABOUT	CHANGE
1	8700 BRADSHAW	ST MARIA PARISH															
2	8756 BRADSHAW	RESIDENTIAL	51	54	3	52	1	51	54	3	54	3	53	56	3	54	1
3	8830 BRADSHAW	RESIDENTIAL	47	51	4	50	3	48	52	4	51	3	50	54	4	52	2
4	8858 BRADSHAW	RESIDENTIAL	49	53	4	53	4	49	54	5	53	4	51	56	5	54	3
5	8845 BRADSHAW	RESIDENTIAL	50	54	4	52	2	51	54	3	52	1	53	56	3	54	1
6	8825 BRADSHAW	RESIDENTIAL	50	53	3	51	1	50	53	3	51	1	52	55	3	53	1
7	8785 BRADSHAW	RESIDENTIAL	47	50	3	50	3	47	50	3	52	5	49	52	3	52	3
8	9635 SHELDON	RESIDENTIAL	45	44	-1	46	1	46	45	-1	46	0	47	47	0	48	1
9	9647 SHELDON	RESIDENTIAL	47	46	-1	47	0	47	46	-1	48	1	49	48	-1	49	0
10	9659 SHELDON	RESIDENTIAL	47	47	0	48	1	47	47	0	48	1	49	49	0	50	1
11	9689 SHELDON	RESIDENTIAL	48	50	2	48	0	48	50	2	50	2	50	52	2	50	0
12	9753 SHELDON	RESIDENTIAL	54	53	-1	55	1	54	54	0	55	1	56	55	-1	57	1
13	9771 SHELDON	RESIDENTIAL	55	54	-1	55	0	55	54	-1	55	0	57	56	-1	57	0
14	9780 SHELDON	RESIDENTIAL	50	51	1	51	1	50	51	1	52	2	52	53	1	54	2
15	9770 SHELDON	RESIDENTIAL	50	51	1	51	1	50	52	2	52	2	52	53	1	53	1
16	9750 SHELDON	RESIDENTIAL	50	52	2	51	1	50	52	2	52	2	52	54	2	53	1
17	9730 SHELDON	RESIDENTIAL	50	53	3	51	1	51	53	2	52	1	52	55	3	53	1
18	9666 SHELDON	RESIDENTIAL	55	55	0	54	-1	55	55	0	54	-1	57	57	0	56	-1
19	9656 SHELDON	RESIDENTIAL	55	55	0	55	0	56	55	-1	55	-1	57	57	0	57	0
20	9640 SHELDON	RESIDENTIAL	56	55	-1	56	0	56	55	-1	56	0	58	57	-1	57	-1
21	9630 SHELDON	RESIDENTIAL	56	55	-1	56	0	56	55	-1	56	0	58	57	-1	58	0

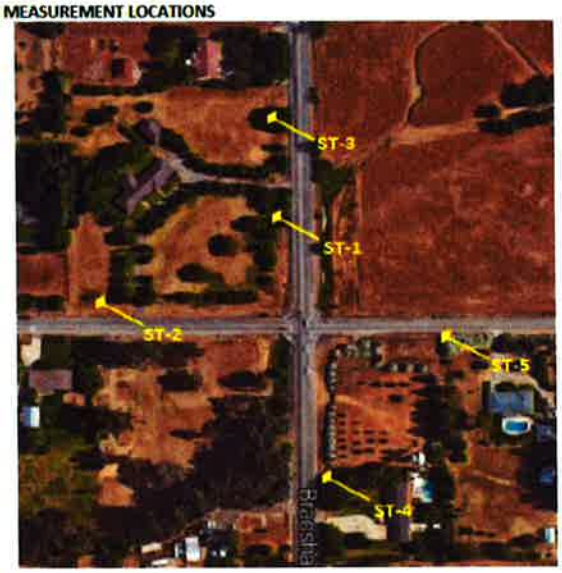
**Includes a -2dB adjustment factor for Leq to CNEL and a 5 dB reduction for increased setback to rear-yard areas and shielding provided by intervening structures.*

For CEQA purposes only.

AMBIENT
AIR QUALITY & NOISE CONSULTING

NOISE MONITORING SURVEY FORM

DATE: 4/30/15 - 5/1/15
PROJECT: SHELDON RD. & BRADSHAW RD. INTERSECTION IMPROVEMENT PROJECT
EQUIPMENT: LARSON DAVIS, TYPE I, MODEL 820 SOUND LEVEL METER
CALIBRATION PRIOR TO AND UPON COMPLETION OF SURVEYS?: YES
MEASUREMENTS CONDUCTED BY: AMBIENT AIR QUALITY & NOISE CONSULTING
EQUIPMENT OPERATOR: KURT LEGLEITER
MEASUREMENT LOCATIONS



MET & SITE CONDITIONS

Temperature:	58-89
Wind Speed:	1-6
Humidity:	26-42
Cloud Cover:	Clear
Visibility:	10 mi
Ground Conditions:	Dry

SHORT-TERM NOISE MEASUREMENT SURVEYS

Position	Location	Distance from Roadway Centerline (Feet)	Date	Start Time	Duration (Minutes)	Measured L_{eq}	TRAFFIC VOLUMES				
							LDA/T	MDT	HDT	MC	BUS/RV
ST-1	Bradshaw Road, approximately 220 feet north of Sheldon Road.	48	4/30/2015	1730	10	63.4	876	12	12	1	3
							96.9%	1.3%	1.3%	0.1%	0.3%
			5/1/2015	10:00	60	63.6					
			5/1/2015	11:00	10	63.3					
ST-2	Sheldon Road, approximately 315 feet west of Bradshaw Road.	48	4/30/2015	1430	20	65.9					
			4/30/2015	1500	20	64.1					
			4/30/2015	1700	10	63.8	528	6	1	1	3
							98.0%	1.1%	0.2%	0.2%	0.6%
			5/1/2015	615	15	65.6					
ST-3	Bradshaw Road, approximately 415 feet north of Sheldon Road.	48	4/30/2015	1535	20	64.2					
			4/30/2015	1715	10	63.3					
			5/1/2015	717	10	65.6					
ST-4	Bradshaw Road, approximately 270 feet south of Sheldon Road.	36	5/1/2015	1510	10	66					
			5/1/2015	1615	10	65.5	942	12	12	1	3
							97.1%	1.2%	1.2%	0.1%	0.3%
ST-5	Sheldon Road, approximately 230 feet east of Bradshaw Road.	27	5/1/2015	1635	10	66.8	570	6	1	1	1
							98.4%	1.0%	0.2%	0.2%	0.2%

APPENDIX H: TRAFFIC REPORT

Traffic Operations Analysis Report for

BRADSHAW ROAD/SHELDON ROAD INTERSECTION IMPROVEMENT PROJECT

January 2015

Prepared for:

City of Elk Grove
Department of Public Works

Submitted by:

FEHR & PEERS

2990 Lava Ridge Court
Suite 200
Roseville, CA 95661

RS13-3080

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Appendices

Appendix A: Existing Traffic Volumes and Lane Configurations

Appendix B: Existing Conditions Technical Calculations

Appendix C: Construction Year and Design Year Traffic Volumes and Lane Configurations

Appendix D: Construction Year and Design Year Conditions Technical Calculations

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INTRODUCTION

The purpose of this study is to determine the ultimate configuration of the Bradshaw Road/Sheldon Road intersection needed to accommodate design year (2037) traffic volumes. The City of Elk Grove has received funding to improve and widen the Laguna Creek Bridge at the Bradshaw Road/Sheldon Road intersection. The ultimate intersection configuration is needed to properly size the bridge to accommodate future traffic volumes. Analysis of interim year traffic volumes has also been conducted to support phased improvements at the intersection.

The remainder of this report contains the following three chapters:

- Chapter II – Analysis Methodology
- Chapter III – Existing Conditions
- Chapter IV – Construction Year and Design Year Conditions

Chapter II describes the methodology used to analyze traffic operations at the Bradshaw Road/Sheldon Road intersection. Chapter III describes existing intersection traffic operations and summarizes reported traffic accidents. Chapter IV presents construction year (2017) and design year (2037) traffic operations with two improvement alternatives, a traffic signal and a roundabout.

ANALYSIS METHODOLOGY

This chapter discusses the methodology used in the traffic operations analysis, including key inputs and assumptions, level of service definitions and criteria, and analysis evaluation criteria.

KEY INPUTS AND ASSUMPTIONS

The following key inputs and assumptions were used in the traffic analysis:

- The existing peak hour factors (PHF) based on the traffic counts collected in 2013 were used in the existing conditions analysis. The peak hour factors were adjusted proportionally with the traffic volumes for the construction year and design year analyses.
- A heavy vehicle percentage of 2% was used for all scenarios.
- The traffic operations analysis for the study intersection was conducted using the procedures and methodologies contained in the Transportation Research Board's *Highway Capacity Manual (HCM) 2000.*

METHODOLOGY

The operational performance of the roadway network is commonly described with the term level of service (LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free-flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the *HCM 2000* were used in this study. The HCM methods for calculating LOS for signalized intersections and unsignalized intersections are described below. These methodologies were applied using the Synchro traffic analysis software.

Signalized Intersections

Traffic operations at signalized intersections are evaluated using the LOS method described in Chapter 16 of the *HCM 2000.* A signalized intersection's LOS is based on the weighted average control delay measured in seconds per vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Table 1 summarizes the relationship between the control delay and LOS for signalized intersections.

Unsignalized Intersections

Chapter 17 of the *HCM 2000* describes the method for evaluating LOS and delay at unsignalized (side-street or all-way stop controlled) intersections. LOS at unsignalized intersections is also defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, delay is calculated for each stop-controlled movement and for the uncontrolled left turns, if any, from the main street. The delay and LOS for the intersection as a whole and for the worst movement are reported for side-street stop controlled intersections. The average delay for the overall intersection is reported for all-way stop controlled intersections. Table 1 summarizes the relationship between delay and LOS for unsignalized intersections. The delay ranges for unsignalized intersections are lower than for signalized intersections as drivers expect less delay at unsignalized intersections.

TABLE 1
INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Average Control Delay (seconds per vehicle)	
		Signalized Intersections[1]	Unsignalized Intersections[2]
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	> 10 to 20	> 10 to 15
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	> 20 to 35	> 15 to 25
D	Represents high-density, but stable flow.	35 to 55	> 25 to 35
E	Represents operating conditions at or near the capacity level.	55 to 80	> 35 to 50
F	Represents forced or breakdown flow.	> 80	> 50

Sources: 1.) *HCM 2000*, Chapter 16, Signalized Intersections
2.) *HCM 2000*, Chapter 17, Unsignalized Intersections

ANALYSIS EVALUATION CRITERIA

The City of Elk Grove's *General Plan* Circulation Element provides the following policy related to traffic operations for roadways and intersections:

Policy CI-13: The City shall require that all roadways and intersections in Elk Grove operate at a minimum Level of Service "D" at all times.

EXISTING TRAFFIC OPERATIONS

The existing conditions analysis presents the physical and operational characteristics of the study intersection. The existing intersection has all-way stop control with single lane approaches in all directions.

DATA COLLECTION

Intersection turning movement counts were collected during AM (7:00 – 9:00) peak hour in January 2013 and during the PM (4:00 – 6:00) peak hour in February 2013. The AM and PM peak hour turning movement counts and existing lane configurations at the Bradshaw Road/Sheldon Road intersection are provided in Appendix A.

Traffic accident data was obtained from the University of California, Berkeley (UC Berkeley) Transportation Injury Mapping System (TIMS) website for a 5-year period from January 2007 to December 2011. The TIMS website obtains collision data from the Statewide Integrated Traffic Records System (SWITRS) and provides spatial coordinates of the collision locations.

INTERSECTION OPERATIONS

Table 2 presents the existing conditions level of service and delay for the study intersection (see Appendix B for the technical calculations).

TABLE 2
PEAK HOUR INTERSECTION LEVEL OF SERVICE AND DELAY – EXISTING CONDITIONS

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		Delay[1]	LOS	Delay[1]	LOS
Bradshaw Road/Sheldon Road	All-Way Stop	**172**	**F**	**224**	**F**

Notes: 1.) Delay is reported in seconds per vehicle for the overall intersection for all-way stop controlled intersections.
Bold text indicates unacceptable operations.
Sources: Fehr & Peers, 2013

The results shown in Table 2 are consistent with field observations during both the AM and PM peak hours. The Bradshaw Road/Sheldon Road intersection operates at LOS F during the AM and PM peak hours.

TRAFFIC ACCIDENT DATA

Reported traffic accidents within 500 feet of the Bradshaw Road/Sheldon Road intersection were evaluated by reviewing data from the UC Berkeley TIMS website. For this project, a 5-year accident history was provided for the period from January 2007 to December 2011. The accident data is summarized in Table 3.

TABLE 3
5-YEAR ACCIDENT HISTORY – NUMBER OF ACCIDENTS BY TYPE

Location	Accident Type			Total
	Sideswipe	Broadside	Hit Object	
Bradshaw Road/Sheldon Road	1	2	2	5

Notes: Includes accident data within 500 feet of the Bradshaw Road/Sheldon Road intersection from January 2007 to December 2011.

Sources: University of California, Berkeley Transportation Injury Management System (TIMS); Fehr & Peers, 2013

For the 5-year period provided, there were a total of 5 accidents with 6 injuries and no fatalities. Seasonally, the accidents were generally evenly split throughout the year, which suggests that variations in weather, like fog in winter, were not a primary collision factor; however, weather conditions at the time of the accidents were not reported. Three of the five accidents occurred at the Bradshaw Road/Sheldon Road intersection. The other two accidents occurred on Bradshaw Road south of Sheldon Road.

TRANSIT SYSTEM

Transit service near the Bradshaw Road/Sheldon Road intersection is provided by the City of Elk Grove's "e-tran" transit service. Commuter Route 70 (Bradshaw Express) runs along Bradshaw Road from the Butterfield Light Rail Station on Folsom Boulevard to Elk Grove Boulevard. Two northbound morning trips are provided from 5:20 to 6:50 AM and two southbound afternoon trips are provided from 4:10 to 5:45 PM, Monday through Friday. Reverse Route 91 (Butterfield Light Rail Station to Elk Grove Express Route) provides one southbound morning trip along Bradshaw Road from Folsom Boulevard (Butterfield Station) to Bond Road from 6:55 to 7:40 AM, and one northbound afternoon trip (to Butterfield Station) from 4:55 to 5:37 PM. Weekend and holiday service is not provided for e-tran commuter routes.

BICYCLE AND PEDESTRIAN SYSTEM

There are no bicycle lanes on Bradshaw Road or Sheldon Road near the Bradshaw Road/Sheldon Road intersection; however, there are paved shoulders on Bradshaw Road with sufficient width to accommodate bicyclists. Sheldon Road does not have paved shoulders. There are no sidewalks for pedestrians on Bradshaw Road or Sheldon Road near the intersection.

CONSTRUCTION YEAR AND DESIGN YEAR TRAFFIC OPERATIONS

This chapter describes design alternatives for the Bradshaw Road/Sheldon Road intersection under construction year and design year conditions, discusses the development of traffic volume forecasts, and presents traffic operations analysis results.

PROPOSED IMPROVEMENTS

PROJECT DESCRIPTION

The Bradshaw Road/Sheldon Road intersection is currently a stop sign-controlled intersection located in the Rural Sheldon Area of the City of Elk Grove. Sheldon Road is an east-west arterial roadway with two lanes at the intersection with Bradshaw Road. Bradshaw Road is a north-south arterial roadway with two lanes. Sheldon Road and Bradshaw Road are approximately 25 feet wide without paved shoulders. There are no pedestrian or bicycle facilities along either roadway. Unimproved shoulders that can be used by pedestrians along Sheldon Road and Bradshaw Road are limited. The east branch of Laguna Creek crosses through the intersection at a diagonal from northeast to southwest through the East Branch Laguna Creek Bridge. Laguna Creek runs parallel along the east side of Bradshaw Road north of the intersection and along the west side of Bradshaw Road south of the intersection. As part of the City of Elk Grove *General Plan*, Sheldon Road is planned as a four-lane arterial west of Bradshaw Road and a two-lane road with an expanded median east of Bradshaw Road. Bradshaw Road is planned as a six-lane arterial.

Laguna Creek 100-year flows currently overtop the existing bridge at the Bradshaw Road/Sheldon Road intersection. The project proposes to improve the Bradshaw Road/Sheldon Road intersection by replacing the intersection/bridge structure with box culverts (reinforced concrete) underneath the improved intersection configuration, sized to convey 10-year storm runoff flows with one foot of freeboard and 100-year storm runoff flows without overtopping roadways.

The replacement of the bridge will coincide with the widening of the intersection to its ultimate planned width of six lanes on Bradshaw Road and four lanes on Sheldon Road. Interim lane configurations at the intersection will include two through lanes in each direction, as well as left- and right-turn lanes where necessary. Within 1,000 feet of the intersection, the number of lanes on Bradshaw Road and Sheldon Road will reduce down to one lane in each direction. Per the City's *Rural Road Improvement Policy*, the addition of traffic capacity improvements will be limited to those required to meet current traffic demands

upon completion of the project. In accordance with the City's *General Plan*, *Trails Master Plan*, and *Bicycle and Pedestrian Master Plan*, the proposed project will include pedestrian and bicycle facilities along Sheldon Road and Bradshaw Road within the project limits. Pedestrians and bicyclists will also be accommodated within the improved intersection.

Two build alternatives are being considered by the City. The first build alternative includes a roundabout configuration for the intersection and the second build alternative includes a traffic signal. In addition to the bridge replacement and intersection improvements, the City proposes to relocate existing utilities in conflict with the proposed improvements including overhead electric lines, overhead and underground telecommunication utilities, underground petroleum pipelines, and underground gas main lines. Surface equipment for telecommunication utilities at the southeast corner of the intersection would also be relocated under the roundabout alternative. The proposed project will relocate the existing Laguna Creek tributary east of its existing location on the north side of the intersection, and west of its existing location on the south side of the intersection, which will be designed to safely convey design storm flows.

Additional right-of-way will be required for the proposed improvements, generally in the northeast and southwest quadrants of the intersection, for the roadway and for the relocation of the Laguna Creek tributary channel. Relocation of existing utilities may require additional easements rights as well. Traffic control during project construction will require staged or full closure of the intersection for demolition and construction of the new culverts. The proposed project will be funded through federal and local funds with funding obtained through the Caltrans Highway Bridge Repair and Rehabilitation program and the City's Roadway Fee program.

PURPOSE AND NEED

Purpose

The purpose of the proposed project is to:

- Improve Hydraulic Capacity and Reduce Flooding - Replace the functionally obsolete East Branch Laguna Creek Bridge with a new structure with adequate hydraulic capacity and realign Laguna Creek north and south of the Bradshaw Road/Sheldon Road intersection.
- Relieve Congestion and Improve Traffic Flow - Reduce traffic delays at the Sheldon Road/Bradshaw Road intersection, thereby improving traffic flow and reducing vehicle emissions through the corridor.
- Pedestrian Safety - Provide pedestrian access within the proposed project area.
- Help Achieve the Transportation Goals of Local Planning Documents - Support the City of Elk Grove *General Plan* by accommodating widening of Sheldon Road and Bradshaw Road to the

planned number of traffic lanes and improving the Bradshaw Road/Sheldon Road intersection to meet the City's roadway and intersection level of service standards.

Need

Improve Hydraulic Capacity and Reduce Flooding

The Structure and Maintenance Investigations report prepared by Caltrans (September 2013) indicated a functionally obsolete status for the East Branch Laguna Creek Bridge at the Bradshaw Road/Sheldon Road intersection according to Federal Highway Administration (FHWA) criteria. The FHWA considers a bridge to be functionally obsolete when its structure no longer meets current standards, meaning the deck geometry, load carrying capacity, clearance, or approach roadway alignment no longer meet the usual criteria for the system in which the bridge is an integral part. The bridge structure at the Bradshaw Road/Sheldon Road intersection was given a sufficiency rating of 65.3 percent on a scale of zero percent to 100 percent, where 100 percent represents an entirely sufficient bridge and zero percent represents an entirely deficient bridge. Functionally obsolete and less sufficient bridge structures, such as the East Branch Laguna Creek Bridge at the Bradshaw Road/Sheldon Road intersection, are subject to result in flooding in the surrounding area and damage to overlying roadways in the event of a flood.

Relieve Congestion and Improve Traffic Flow

Growth in the City of Elk Grove and surrounding developing areas creates the need to relieve current and future traffic congestion and improve circulation in the area. The Bradshaw Road/Sheldon Road intersection currently operates at LOS F during both AM and PM peak hour traffic conditions. The increasing population of the City and surrounding areas will continue to increase traffic delays and worsen traffic flow with the current all-way stop sign-controlled intersection configuration and number of traffic lanes on Sheldon Road and Bradshaw Road; thereby further increasing the need for traffic relief at the intersection.

Pedestrian Safety

No pedestrian facilities exist within the project area. Currently, Sheldon Road and Bradshaw Road in the project area do not provide safe pedestrian access as the roadways offer little to no paved shoulder area before sloping down to ditches on either side. There is a need to provide safe pedestrian access within the City as put forth in the goals of the *Bicycle and Pedestrian Master Plan*.

Help Achieve the Transportation Goals of Local Planning Documents

City of Elk Grove General Plan (2003)

Figure C1-2 of the Circulation Element of the City of Elk Grove *General Plan* shows Bradshaw Road ultimately planned as a six-lane arterial, and Sheldon Road ultimately planned as a four-lane arterial west of Bradshaw Road and as a two-lane roadway with expanded right-of-way east of Bradshaw Road. The *General Plan* circulation policies for roadways indicate a minimum standard of LOS D at all times for all roadways and intersections in the City of Elk Grove. Based on the results in Table 2, the Bradshaw Road/Sheldon Road intersection currently operates at LOS F during both AM and PM peak hours as an all-way stop-sign controlled intersection. This level of service is unacceptable based on the City's LOS standards.

TRAFFIC VOLUME FORECASTS

The construction year (2017) and design year (2037) traffic volumes were developed using the existing traffic volumes and a 3 percent annual growth rate. The annual growth rate was developed based on forecasted growth in travel demand on Bradshaw Road and Sheldon Road from a modified version of SACOG's SACMET model developed for the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). Modifications to the model include build-out land use in the City of Elk Grove, including the Southeast Policy Area.

The construction year volumes generally correlate with the year 2017 based on a 3 percent annual growth rate, and the design year volumes generally correlate with the year 2037. However, intersection improvements should be built based on the actual growth in traffic volumes at the intersection, and not directly associated with the years (i.e., 2017 and 2037) assigned to the scenarios.

The design year and construction year traffic volumes are provided in Appendix C.

INTERSECTION OPERATIONS

Intersection operations analysis was performed for the construction year and design year scenarios assuming traffic signal and roundabout traffic control. The lane configurations associated with each control type under each analysis scenario were developed in order to accommodate the City of Elk Grove's level of service threshold (LOS D or better). Table 4 summarizes the analysis results and proposed lane configurations for each analysis scenario assuming a traffic signal is installed. Table 5 summarizes the

analysis results and proposed lane configurations for each analysis scenario assuming a roundabout is installed. The technical calculations are provided in Appendix D.

TABLE 4
PEAK HOUR INTERSECTION LEVEL OF SERVICE AND DELAY – TRAFFIC SIGNAL

Scenario/Traffic Volumes	AM Peak Hour		PM Peak Hour		Lane Configurations
	Delay[1]	LOS	Delay[1]	LOS	
Existing	24	C	31	C	All Approaches - Left, Shared Through/Right
Construction Year (2017)	27	C	34	C	All Approaches - Left, Shared Through/Right
Design Year (2037)	**64**	**E**	**93**	**F**	All Approaches - Left, Shared Through/Right
	37	D	36	D	All Approaches - Left, Through, Right
	27	C	32	C	Bradshaw - Left, Through, Shared Through/Right Sheldon - Left, Through, Right

Notes: 1.) Delay is reported in seconds per vehicle for the overall intersection for signalized intersections.
Bold text indicates unacceptable operations.
Sources: Fehr & Peers, 2013

As shown in Table 4, a traffic signal would operate acceptably with a shared through/right-turn lane and a left-turn pocket on all approaches under existing and construction year conditions. Under design year conditions, a separated right-turn pocket is needed on all approaches to achieve LOS D. The City of Elk Grove's *General Plan* includes widening of Bradshaw Road to six lanes. The intersection was analyzed with an additional through lane in each direction (four lanes total) on Bradshaw Road. As shown in the table, the intersection would operate at LOS C during the AM and PM peak hours with four lanes on Bradshaw Road. Based on this analysis, six lanes would not be needed on Bradshaw Road within the next 20 years (assuming 3 percent per year growth in traffic volumes).

TABLE 5
PEAK HOUR INTERSECTION LEVEL OF SERVICE AND DELAY – ROUNDABOUT

Scenario/Traffic Volumes	AM Peak Hour		PM Peak Hour		Lane Configurations
	Delay[1]	LOS	Delay[1]	LOS	
Existing	19 (25)	C (25)	34 **(61)**	D **(F)**	All Approaches - One Lane
	11 (14)	B (B)	11 (13)	B (B)	Bradshaw - Two Lanes; Sheldon - One Lane

TABLE 5
PEAK HOUR INTERSECTION LEVEL OF SERVICE AND DELAY – ROUNDABOUT

Scenario/Traffic Volumes	AM Peak Hour		PM Peak Hour		Lane Configurations
	Delay[1]	LOS	Delay[1]	LOS	
Construction Year (2017)	11 (16)	B (C)	12 (14)	B (B)	Bradshaw - Two Lanes; Sheldon - One Lane
Design Year (2037)	**35 (85)**	**E (F)**	**55 (76)**	**F (F)**	Bradshaw - Two Lanes; Sheldon - One Lane
	14 (17)	B (C)	22 (34)	C (D)	Bradshaw - Two Lanes; Sheldon - Two Lanes

Notes: 1.) Delay is reported in seconds per vehicle for the overall intersection (worst approach) for unsignalized or roundabout intersections.
Bold text indicates unacceptable operations.
Sources: Fehr & Peers, 2013

As shown in Table 5, the southbound Bradshaw Road approach would operate at LOS F under existing conditions with a single-lane roundabout. The intersection would operate acceptably under existing and construction year conditions with two-lane approaches on Bradshaw Road and single-lane approaches on Sheldon Road. Under design year conditions two-lane approaches would need to be added to Sheldon Road to achieve LOS D or better.

VEHICLE QUEUE LENGTHS AND REQUIRED STORAGE

Table 6 summarizes the maximum vehicle queue lengths and required storage lengths for the left- and right-turn pockets at the Bradshaw Road/Sheldon Road intersection under construction year and design year conditions with the proposed traffic signal improvements. The technical calculations are provided in Appendix D.

TABLE 6
MAXIMUM VEHICLE QUEUE LENGTHS WITH PROPOSED IMPROVEMENTS – TRAFFIC SIGNAL

Analysis Scenario – Lane Configurations	Approach	Movement	Maximum Queue Length (ft)[1]		Required Storage Length (ft)
			AM Peak	PM Peak	
Construction Year (2017): All Approaches - Left,	NB	Left	190	130	200
	SB	Left	60	240	250

TABLE 6
MAXIMUM VEHICLE QUEUE LENGTHS WITH PROPOSED IMPROVEMENTS – TRAFFIC SIGNAL

Analysis Scenario – Lane Configurations	Approach	Movement	Maximum Queue Length (ft)[1]		Required Storage Length (ft)
			AM Peak	PM Peak	
Shared Through/Right	EB	Left	130	140	150
	WB	Left	100	190	200
Design Year (2037): All Approaches - Left, Through, Right	NB	Left	250	180	275
		Right	160	90	175
	SB	Left	110	290	300
		Right	130	300	325
	EB	Left	200	190	225
		Right	160	110	175
	WB	Left	170	230	250
		Right	240	90	250

Notes: 1.) Maximum queue length based on SimTraffic micro-simulation results. Reported queue lengths are rounded to the nearest 10 feet.

Sources: Fehr & Peers, 2013

FUTURE YEAR NO BUILD CONDITIONS

The Bradshaw Road/Sheldon Road intersection currently operates at LOS F with existing lane configurations and traffic volumes. If improvements (i.e. traffic signal or roundabout) are not constructed at the intersection (no build conditions), the intersection would continue to operate at LOS F under construction year and design year conditions.

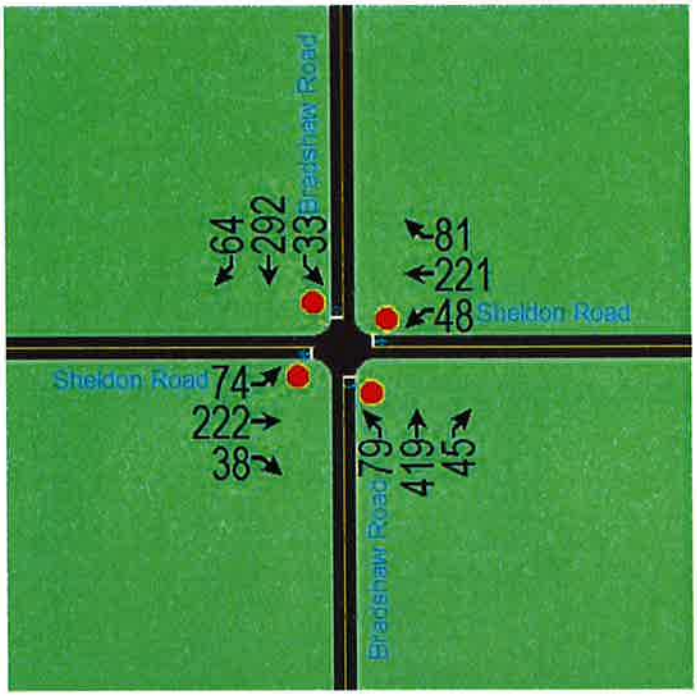
TRANSIT SYSTEM

As shown in Tables 5 and 6, the proposed intersection improvements will reduce delay at the study intersection under construction year and design year conditions compared to traffic operations with the existing intersection traffic control and lane configurations. Therefore, the proposed project will not disrupt or interfere with existing or planned transit service.

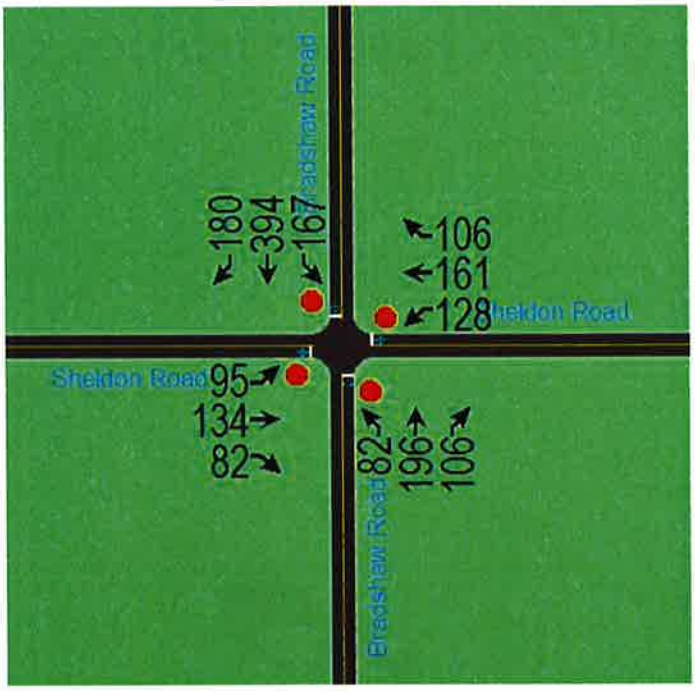
BICYCLE AND PEDESTRIAN SYSTEM

The City of Elk Grove's *Bicycle and Pedestrian Master Plan* includes proposed bicycle lanes on Bradshaw Road and Sheldon Road through the intersection. In addition, a multi-use off-street trail is proposed along Laguna Creek, which would travel through the study intersection from the southwest corner to the northeast corner. The design of the intersection improvements would accommodate the proposed bicycle facilities; therefore, the proposed project will not disrupt or interfere with existing or planned bicycle and pedestrian facilities.

APPENDIX A: EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS



Existing AM Peak Hour Traffic Volumes



Existing PM Peak Hour Traffic Volumes

APPENDIX B: EXISTING CONDITIONS TECHNICAL CALCULATIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	222	38	48	221	81	79	419	45	33	292	64
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	83	249	43	54	248	91	89	471	51	37	328	72

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	375	393	610	437
Volume Left (vph)	83	54	89	37
Volume Right (vph)	43	91	51	72
Hadj (s)	0.01	-0.08	0.01	-0.05
Departure Headway (s)	9.6	9.5	9.6	9.5
Degree Utilization, x	1.00	1.04	1.62	1.16
Capacity (veh/h)	375	383	380	382
Control Delay (s)	77.7	87.6	315.9	125.9
Approach Delay (s)	77.7	87.6	315.9	125.9
Approach LOS	F	F	F	F

Intersection Summary			
Delay	171.5		
HCM Level of Service	F		
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

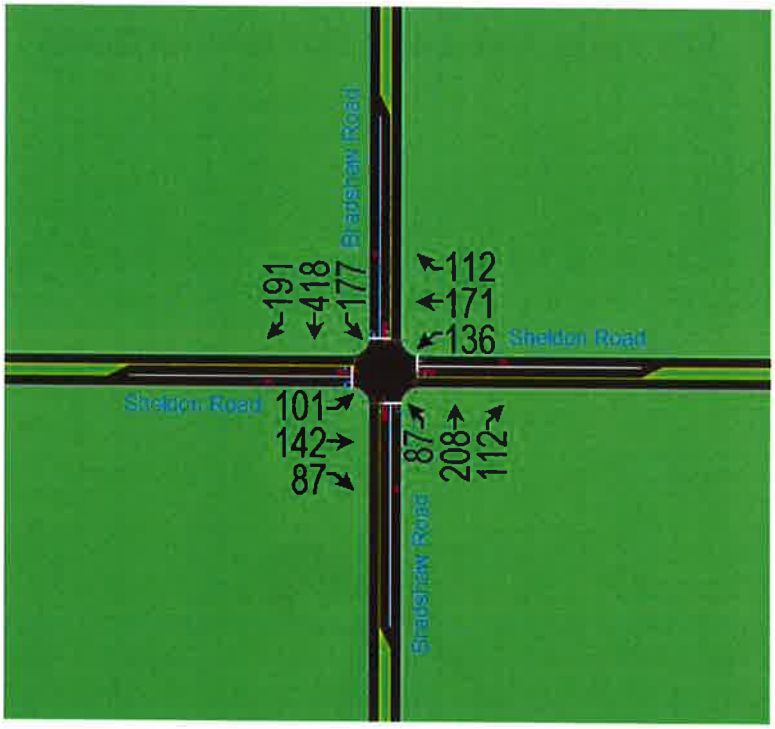
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	95	134	82	128	161	106	82	196	106	167	394	180
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	98	138	85	132	166	109	85	202	109	172	406	186

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	321	407	396	764
Volume Left (vph)	98	132	85	172
Volume Right (vph)	85	109	109	186
Hadj (s)	-0.06	-0.06	-0.09	-0.07
Departure Headway (s)	9.5	9.1	9.1	9.1
Degree Utilization, x	0.85	1.03	1.00	1.93
Capacity (veh/h)	375	387	396	401
Control Delay (s)	47.2	84.5	75.6	450.2
Approach Delay (s)	47.2	84.5	75.6	450.2
Approach LOS	E	F	F	F

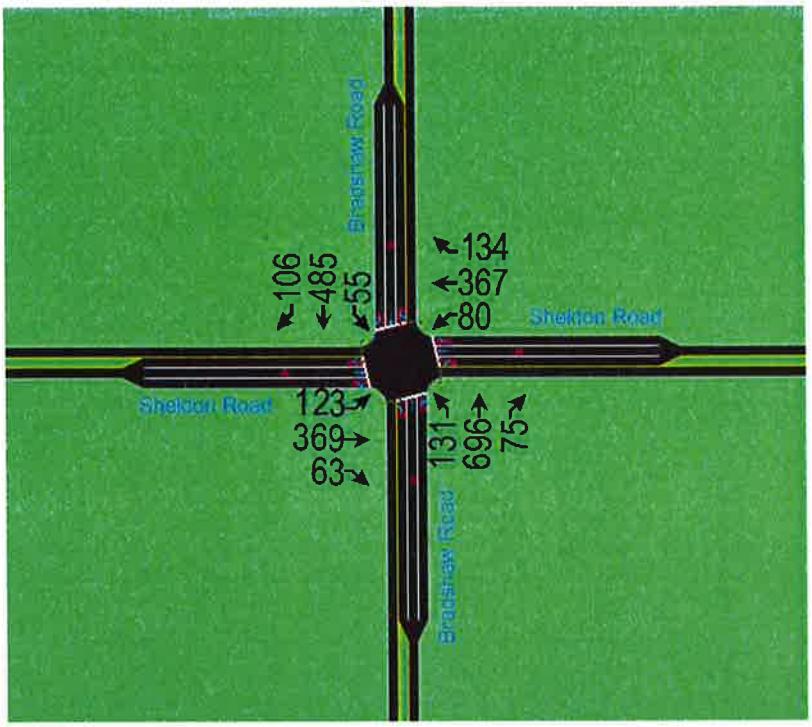
Intersection Summary			
Delay	224.3		
HCM Level of Service	F		
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

APPENDIX C: CONSTRUCTION YEAR AND DESIGN YEAR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

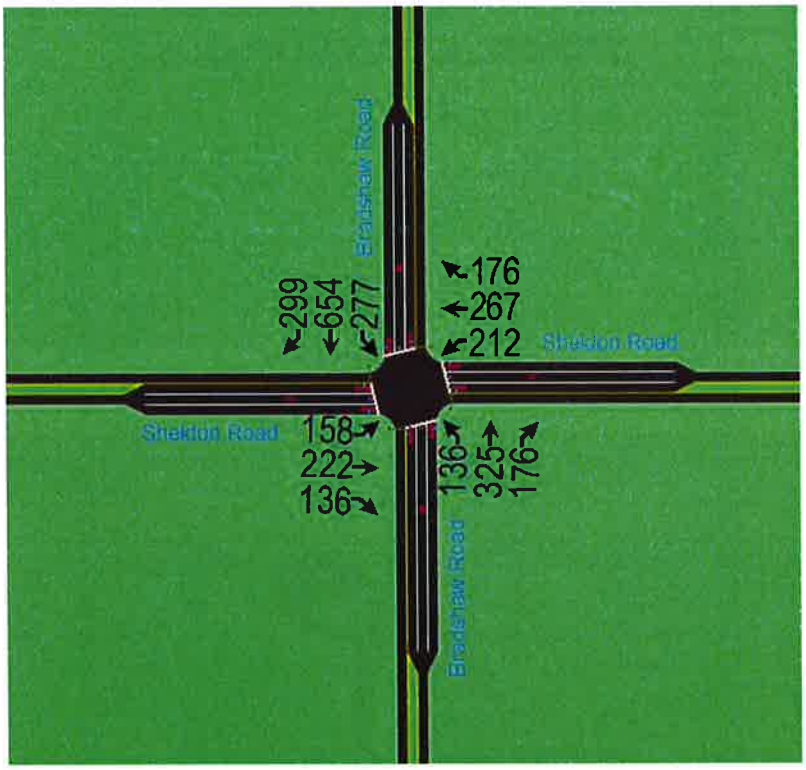
Construction Year (2017) AM Peak Hour Traffic Volumes



Construction Year (2017) PM Peak Hour Traffic Volumes



Design Year (2037) AM Peak Hour Traffic Volumes



Design Year (2037) PM Peak Hour Traffic Volumes

APPENDIX D: CONSTRUCTION YEAR AND DESIGN YEAR CONDITIONS TECHNICAL CALCULATIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	222	38	48	221	81	79	419	45	33	292	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822		1770	1788		1770	1835		1770	1812	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1822		1770	1788		1770	1835		1770	1812	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	83	249	43	54	248	91	89	471	51	37	328	72
RTOR Reduction (vph)	0	8	0	0	18	0	0	5	0	0	12	0
Lane Group Flow (vph)	83	284	0	54	321	0	89	517	0	37	388	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.3	15.6		4.0	15.3		4.3	22.5		2.8	21.0	
Effective Green, g (s)	4.3	15.6		4.0	15.3		4.3	22.5		2.8	21.0	
Actuated g/C Ratio	0.07	0.26		0.07	0.25		0.07	0.37		0.05	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	125	467		116	449		125	678		81	625	
v/s Ratio Prot	c0.05	0.16		0.03	c0.18		c0.05	c0.28		0.02	0.21	
v/s Ratio Perm												
v/c Ratio	0.66	0.61		0.47	0.71		0.71	0.76		0.46	0.62	
Uniform Delay, d1	27.6	20.0		27.4	20.8		27.7	16.9		28.3	16.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.5	2.2		2.9	5.3		17.4	5.1		4.0	1.9	
Delay (s)	40.1	22.2		30.4	26.2		45.1	21.9		32.4	18.6	
Level of Service	D	C		C	C		D	C		C	B	
Approach Delay (s)		26.2			26.7			25.3			19.7	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	134	82	128	161	106	82	196	106	167	394	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.94		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1756		1770	1752		1770	1765		1770	1775	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1756		1770	1752		1770	1765		1770	1775	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	98	138	85	132	166	109	85	202	109	172	406	186
RTOR Reduction (vph)	0	32	0	0	34	0	0	27	0	0	23	0
Lane Group Flow (vph)	98	191	0	132	241	0	85	284	0	172	569	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.2	12.0		5.6	13.4		4.2	20.6		7.0	23.4	
Effective Green, g (s)	4.2	12.0		5.6	13.4		4.2	20.6		7.0	23.4	
Actuated g/C Ratio	0.07	0.20		0.09	0.22		0.07	0.34		0.11	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	121	344		162	384		121	594		202	679	
v/s Ratio Prot	0.06	0.11		c0.07	c0.14		0.05	0.16		c0.10	c0.32	
v/s Ratio Perm												
v/c Ratio	0.81	0.55		0.81	0.63		0.70	0.48		0.85	0.84	
Uniform Delay, d1	28.1	22.2		27.3	21.6		27.9	16.1		26.6	17.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	31.5	1.9		25.9	3.2		16.8	0.6		27.5	8.9	
Delay (s)	59.6	24.1		53.2	24.8		44.7	16.7		54.1	26.1	
Level of Service	E	C		D	C		D	B		D	C	
Approach Delay (s)		35.0			34.0			22.7			32.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	235	40	51	234	86	84	444	48	35	310	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822		1770	1787		1770	1836		1770	1812	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1822		1770	1787		1770	1836		1770	1812	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	87	261	44	57	260	96	93	493	53	39	344	76
RTOR Reduction (vph)	0	6	0	0	14	0	0	4	0	0	10	0
Lane Group Flow (vph)	87	299	0	57	342	0	93	542	0	39	410	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.7	20.4		4.6	19.3		6.6	27.9		4.2	25.5	
Effective Green, g (s)	5.7	20.4		4.6	19.3		6.6	27.9		4.2	25.5	
Actuated g/C Ratio	0.08	0.28		0.06	0.26		0.09	0.38		0.06	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	138	508		111	472		160	701		102	632	
v/s Ratio Prot	c0.05	0.16		0.03	c0.19		c0.05	c0.30		0.02	0.23	
v/s Ratio Perm												
v/c Ratio	0.63	0.59		0.51	0.72		0.58	0.77		0.38	0.65	
Uniform Delay, d1	32.7	22.7		33.2	24.5		31.9	19.8		33.2	20.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.0	1.8		4.0	5.5		5.3	5.3		2.4	2.3	
Delay (s)	41.7	24.5		37.1	29.9		37.2	25.1		35.6	22.3	
Level of Service	D	C		D	C		D	C		D	C	
Approach Delay (s)		28.3			30.9			26.9			23.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	142	87	136	171	112	87	208	112	177	418	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.94		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1756		1770	1752		1770	1765		1770	1775	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1756		1770	1752		1770	1765		1770	1775	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	104	146	90	140	176	115	90	214	115	182	431	197
RTOR Reduction (vph)	0	24	0	0	25	0	0	22	0	0	18	0
Lane Group Flow (vph)	104	212	0	140	266	0	90	307	0	182	610	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.9	15.4		9.7	19.2		7.2	26.0		13.2	32.0	
Effective Green, g (s)	5.9	15.4		9.7	19.2		7.2	26.0		13.2	32.0	
Actuated g/C Ratio	0.07	0.19		0.12	0.24		0.09	0.32		0.16	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	130	337		214	419		159	571		291	707	
v/s Ratio Prot	0.06	0.12		c0.08	c0.15		0.05	0.17		c0.10	c0.34	
v/s Ratio Perm												
v/c Ratio	0.80	0.63		0.65	0.63		0.57	0.54		0.63	0.86	
Uniform Delay, d1	36.6	29.8		33.7	27.4		35.1	22.2		31.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.6	3.6		7.0	3.1		4.6	1.0		4.2	10.6	
Delay (s)	65.2	33.5		40.7	30.5		39.6	23.2		35.4	32.7	
Level of Service	E	C		D	C		D	C		D	C	
Approach Delay (s)		43.2			33.8			26.7			33.3	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	369	63	80	367	134	131	696	75	55	485	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822		1770	1788		1770	1835		1770	1813	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1822		1770	1788		1770	1835		1770	1813	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	126	377	64	82	374	137	134	710	77	56	495	108
RTOR Reduction (vph)	0	4	0	0	10	0	0	3	0	0	8	0
Lane Group Flow (vph)	126	437	0	82	501	0	134	784	0	56	595	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.9	28.3		8.6	27.0		9.0	46.5		7.4	44.9	
Effective Green, g (s)	9.9	28.3		8.6	27.0		9.0	46.5		7.4	44.9	
Actuated g/C Ratio	0.09	0.26		0.08	0.25		0.08	0.44		0.07	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	164	483		143	452		149	799		123	762	
v/s Ratio Prot	c0.07	0.24		0.05	c0.28		c0.08	c0.43		0.03	0.33	
v/s Ratio Perm												
v/c Ratio	0.77	0.90		0.57	1.11		0.90	0.98		0.46	0.78	
Uniform Delay, d1	47.3	37.9		47.3	39.9		48.5	29.7		47.8	26.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.2	20.1		5.5	74.8		44.7	27.1		2.7	5.2	
Delay (s)	66.5	58.0		52.8	114.7		93.2	56.9		50.4	31.9	
Level of Service	E	E		D	F		F	E		D	C	
Approach Delay (s)		59.9			106.2			62.1			33.5	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM Average Control Delay	64.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	106.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	222	136	212	267	176	136	325	176	277	654	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.94		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1757		1770	1752		1770	1765		1770	1775	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1757		1770	1752		1770	1765		1770	1775	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	222	136	212	267	176	136	325	176	277	654	299
RTOR Reduction (vph)	0	19	0	0	20	0	0	16	0	0	14	0
Lane Group Flow (vph)	158	339	0	212	423	0	136	485	0	277	939	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.0	22.0		14.0	26.0		9.0	46.5		21.5	59.0	
Effective Green, g (s)	10.0	22.0		14.0	26.0		9.0	46.5		21.5	59.0	
Actuated g/C Ratio	0.08	0.18		0.12	0.22		0.08	0.39		0.18	0.49	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	148	322		207	380		133	684		317	873	
v/s Ratio Prot	0.09	0.19		c0.12	c0.24		c0.08	0.27		0.16	c0.53	
v/s Ratio Perm												
v/c Ratio	1.07	1.05		1.02	1.11		1.02	0.71		0.87	1.08	
Uniform Delay, d1	55.0	49.0		53.0	47.0		55.5	31.0		47.9	30.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	93.1	64.9		69.0	80.8		84.2	3.4		22.3	53.0	
Delay (s)	148.1	113.9		122.0	127.8		139.7	34.4		70.3	83.5	
Level of Service	F	F		F	F		F	C		E	F	
Approach Delay (s)		124.4			125.9			56.9			80.5	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM Average Control Delay	92.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	369	63	80	367	134	131	696	75	55	485	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	126	377	64	82	374	137	134	710	77	56	495	108
RTOR Reduction (vph)	0	0	49	0	0	105	0	0	41	0	0	70
Lane Group Flow (vph)	126	377	15	82	374	32	134	710	36	56	495	38
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.8	19.0	19.0	7.4	18.6	18.6	8.9	32.1	32.1	5.1	28.3	28.3
Effective Green, g (s)	7.8	19.0	19.0	7.4	18.6	18.6	8.9	32.1	32.1	5.1	28.3	28.3
Actuated g/C Ratio	0.10	0.24	0.24	0.09	0.23	0.23	0.11	0.40	0.40	0.06	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	173	445	378	165	435	370	198	751	638	113	662	563
v/s Ratio Prot	c0.07	c0.20		0.05	0.20		c0.08	c0.38		0.03	0.27	
v/s Ratio Perm			0.01			0.02			0.02			0.02
v/c Ratio	0.73	0.85	0.04	0.50	0.86	0.09	0.68	0.95	0.06	0.50	0.75	0.07
Uniform Delay, d1	34.9	28.9	23.3	34.3	29.2	23.9	34.0	22.9	14.5	36.0	22.5	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.2	13.9	0.0	2.3	15.5	0.1	8.8	20.5	0.0	3.4	4.6	0.1
Delay (s)	49.1	42.8	23.3	36.7	44.7	24.0	42.8	43.4	14.5	39.4	27.1	17.0
Level of Service	D	D	C	D	D	C	D	D	B	D	C	B
Approach Delay (s)		42.0			38.8			40.9			26.5	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	222	136	212	267	176	136	325	176	277	654	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	222	136	212	267	176	136	325	176	277	654	299
RTOR Reduction (vph)	0	0	113	0	0	142	0	0	123	0	0	182
Lane Group Flow (vph)	158	222	23	212	267	34	136	325	53	277	654	117
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.4	14.0	14.0	12.5	16.1	16.1	8.8	25.6	25.6	16.4	33.2	33.2
Effective Green, g (s)	10.4	14.0	14.0	12.5	16.1	16.1	8.8	25.6	25.6	16.4	33.2	33.2
Actuated g/C Ratio	0.12	0.17	0.17	0.15	0.19	0.19	0.10	0.30	0.30	0.19	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	218	309	262	262	355	302	184	564	480	344	732	622
v/s Ratio Prot	0.09	0.12		c0.12	c0.14		0.08	0.17		c0.16	c0.35	
v/s Ratio Perm			0.01			0.02			0.03			0.07
v/c Ratio	0.72	0.72	0.09	0.81	0.75	0.11	0.74	0.58	0.11	0.81	0.89	0.19
Uniform Delay, d1	35.7	33.4	29.8	34.8	32.3	28.3	36.7	24.9	21.2	32.5	24.0	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	7.8	0.1	16.6	8.7	0.2	14.4	1.4	0.1	12.8	13.3	0.1
Delay (s)	47.0	41.1	30.0	51.4	41.0	28.4	51.1	26.3	21.3	45.4	37.3	17.0
Level of Service	D	D	C	D	D	C	D	C	C	D	D	B
Approach Delay (s)		40.0			41.0			30.2			34.2	
Approach LOS		D			D			C			C	

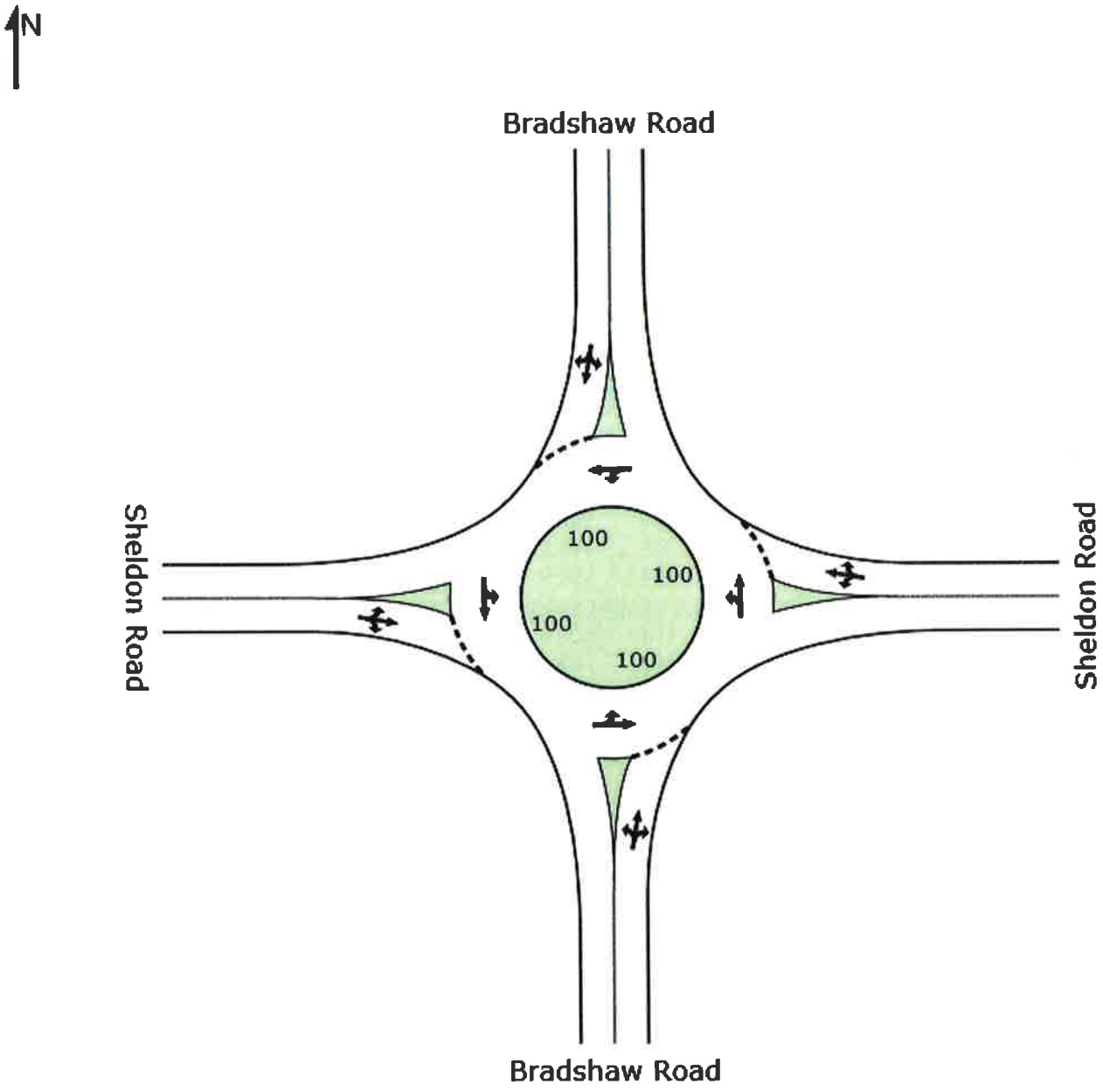
Intersection Summary			
HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	369	63	80	367	134	131	696	75	55	485	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3487		1770	3444	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	3487		1770	3444	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	126	377	64	82	374	137	134	710	77	56	495	108
RTOR Reduction (vph)	0	0	47	0	0	100	0	8	0	0	21	0
Lane Group Flow (vph)	126	377	17	82	374	37	134	779	0	56	582	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	7.6	20.3	20.3	7.2	19.9	19.9	9.7	26.3		4.8	21.4	
Effective Green, g (s)	7.6	20.3	20.3	7.2	19.9	19.9	9.7	26.3		4.8	21.4	
Actuated g/C Ratio	0.10	0.27	0.27	0.10	0.27	0.27	0.13	0.35		0.06	0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	180	507	431	171	497	422	230	1229		114	988	
v/s Ratio Prot	c0.07	c0.20		0.05	0.20		c0.08	c0.22		0.03	0.17	
v/s Ratio Perm			0.01			0.02						
v/c Ratio	0.70	0.74	0.04	0.48	0.75	0.09	0.58	0.63		0.49	0.59	
Uniform Delay, d1	32.4	24.8	20.0	31.9	25.1	20.5	30.5	20.1		33.7	22.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.3	5.8	0.0	2.1	6.4	0.1	3.7	1.1		3.3	0.9	
Delay (s)	43.7	30.6	20.0	34.0	31.4	20.6	34.3	21.2		37.0	23.7	
Level of Service	D	C	C	C	C	C	C	C		D	C	
Approach Delay (s)		32.3			29.3			23.1			24.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	74.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	222	136	212	267	176	136	325	176	277	654	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3353		1770	3373	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	3353		1770	3373	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	222	136	212	267	176	136	325	176	277	654	299
RTOR Reduction (vph)	0	0	110	0	0	137	0	78	0	0	58	0
Lane Group Flow (vph)	158	222	26	212	267	39	136	423	0	277	895	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	10.4	14.9	14.9	12.9	17.4	17.4	9.5	19.2		16.1	25.8	
Effective Green, g (s)	10.4	14.9	14.9	12.9	17.4	17.4	9.5	19.2		16.1	25.8	
Actuated g/C Ratio	0.13	0.19	0.19	0.16	0.22	0.22	0.12	0.24		0.20	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	233	351	298	289	410	348	213	814		360	1100	
v/s Ratio Prot	0.09	0.12		c0.12	c0.14		0.08	0.13		c0.16	c0.27	
v/s Ratio Perm			0.02			0.02						
v/c Ratio	0.68	0.63	0.09	0.73	0.65	0.11	0.64	0.52		0.77	0.81	
Uniform Delay, d1	32.8	29.6	26.5	31.5	28.1	24.7	33.2	26.0		29.7	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.6	3.7	0.1	9.3	3.7	0.1	6.2	0.6		9.5	4.7	
Delay (s)	40.4	33.3	26.6	40.7	31.8	24.8	39.3	26.5		39.3	29.2	
Level of Service	D	C	C	D	C	C	D	C		D	C	
Approach Delay (s)		33.7			32.8			29.3			31.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			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MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
Existing Traffic Volumes
AM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	89	2.0	0.803	25.1	LOS D	8.5	215.1	0.88	1.14	20.4
8	T	471	2.0	0.803	25.1	LOS D	8.5	215.1	0.88	1.08	21.2
18	R	51	2.0	0.803	25.1	LOS D	8.5	215.1	0.88	1.09	21.0
Approach		610	2.0	0.803	25.1	LOS D	8.5	215.1	0.88	1.09	21.0
East: Sheldon Road											
1	L	54	2.0	0.684	22.1	LOS C	4.4	112.5	0.79	1.11	21.1
6	T	248	2.0	0.684	22.1	LOS C	4.4	112.5	0.79	1.00	22.1
16	R	91	2.0	0.684	22.1	LOS C	4.4	112.5	0.79	1.02	22.0
Approach		393	2.0	0.684	22.1	LOS C	4.4	112.5	0.79	1.02	22.0
North: Bradshaw Road											
7	L	37	2.0	0.588	14.4	LOS B	3.7	94.2	0.68	1.04	23.7
4	T	328	2.0	0.588	14.4	LOS B	3.7	94.2	0.68	0.87	25.4
14	R	72	2.0	0.588	14.4	LOS B	3.7	94.2	0.68	0.90	25.1
Approach		437	2.0	0.588	14.4	LOS B	3.7	94.2	0.68	0.89	25.2
West: Sheldon Road											
5	L	83	2.0	0.519	12.8	LOS B	2.9	72.6	0.64	1.01	24.3
2	T	249	2.0	0.519	12.8	LOS B	2.9	72.6	0.64	0.83	26.1
12	R	43	2.0	0.519	12.8	LOS B	2.9	72.6	0.64	0.87	25.8
Approach		375	2.0	0.519	12.8	LOS B	2.9	72.6	0.64	0.87	25.6
All Vehicles		1816	2.0	0.803	19.3	LOS C	8.5	215.1	0.76	0.98	23.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

MOVEMENT SUMMARY

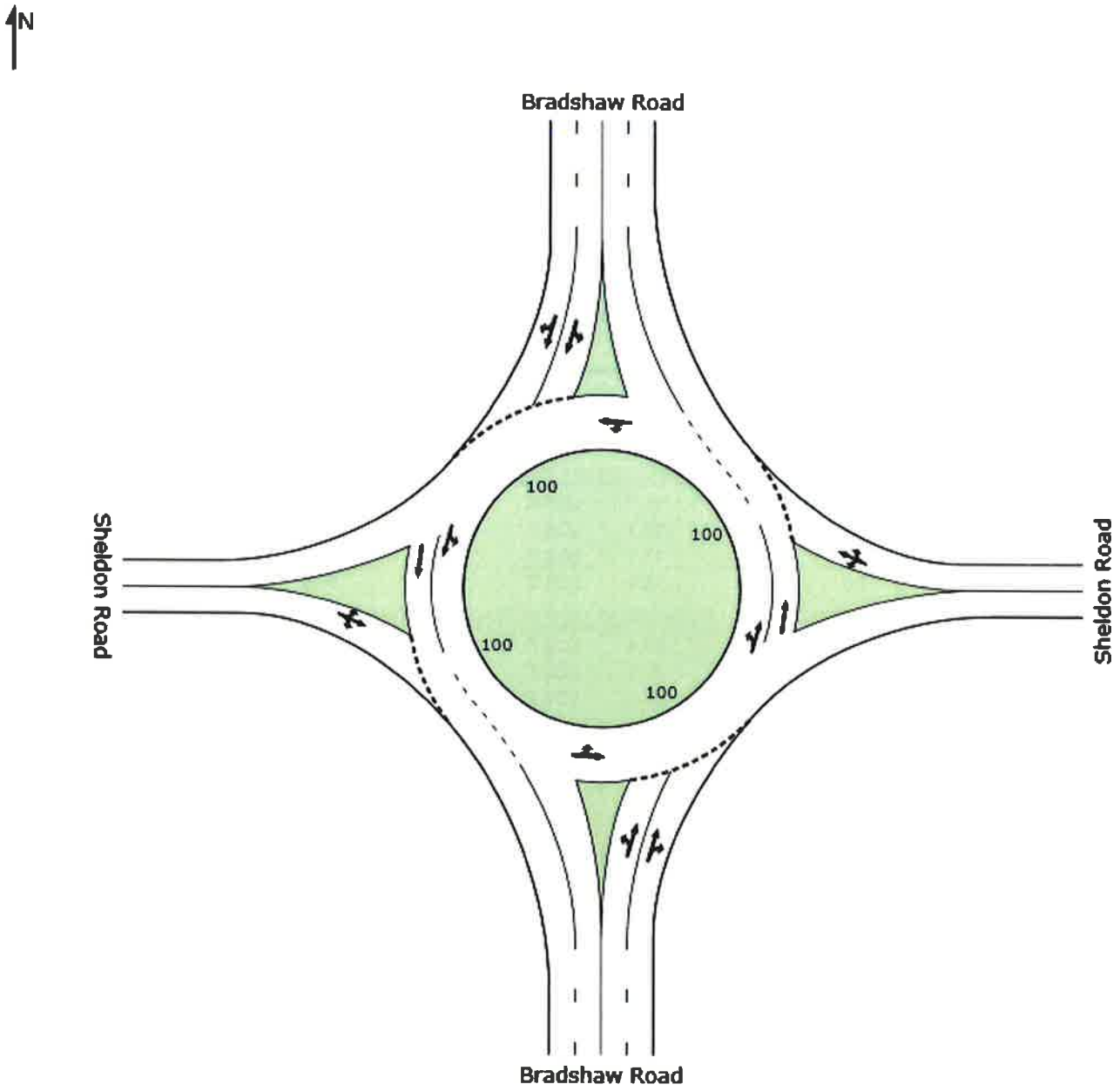
Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
Existing Traffic Volumes
PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	85	2.0	0.540	13.2	LOS B	3.1	78.8	0.65	1.01	24.1
8	T	202	2.0	0.540	13.2	LOS B	3.1	78.8	0.65	0.84	25.8
18	R	109	2.0	0.540	13.2	LOS B	3.1	78.8	0.65	0.87	25.6
Approach		396	2.0	0.540	13.2	LOS B	3.1	78.8	0.65	0.88	25.3
East: Sheldon Road											
1	L	132	2.0	0.544	13.1	LOS B	3.2	80.5	0.64	0.99	24.0
6	T	166	2.0	0.544	13.1	LOS B	3.2	80.5	0.64	0.82	25.8
16	R	109	2.0	0.544	13.1	LOS B	3.2	80.5	0.64	0.86	25.5
Approach		407	2.0	0.544	13.1	LOS B	3.2	80.5	0.64	0.89	25.1
North: Bradshaw Road											
7	L	172	2.0	1.019	61.1	LOS F	27.6	701.0	1.00	1.74	13.6
4	T	406	2.0	1.019	61.1	LOS F	27.6	701.0	1.00	1.74	13.5
14	R	186	2.0	1.019	61.1	LOS F	27.6	701.0	1.00	1.74	13.5
Approach		764	2.0	1.019	61.1	LOS F	27.6	701.0	1.00	1.74	13.5
West: Sheldon Road											
5	L	98	2.0	0.591	18.7	LOS C	3.2	81.2	0.75	1.06	22.1
2	T	138	2.0	0.591	18.7	LOS C	3.2	81.2	0.75	0.94	23.3
12	R	85	2.0	0.591	18.7	LOS C	3.2	81.2	0.75	0.96	23.1
Approach		321	2.0	0.591	18.7	LOS C	3.2	81.2	0.75	0.98	22.9
All Vehicles		1888	2.0	1.019	33.5	LOS D	27.6	701.0	0.81	1.25	18.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.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MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
Existing Traffic Volumes
AM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	89	2.0	0.401	9.9	LOS A	1.8	45.8	0.55	0.94	25.4
8	T	471	2.0	0.401	9.9	LOS A	1.8	45.8	0.55	0.72	27.7
18	R	51	2.0	0.401	9.9	LOS A	1.8	45.8	0.55	0.79	27.4
Approach		610	2.0	0.401	9.9	LOS A	1.8	45.8	0.55	0.76	27.3
East: Sheldon Road											
1	L	54	2.0	0.562	14.3	LOS B	2.4	62.1	0.61	1.02	23.7
6	T	248	2.0	0.562	14.3	LOS B	2.4	62.1	0.61	0.82	25.4
16	R	91	2.0	0.562	14.3	LOS B	2.4	62.1	0.61	0.86	25.1
Approach		393	2.0	0.562	14.3	LOS B	2.4	62.1	0.61	0.86	25.0
North: Bradshaw Road											
7	L	37	2.0	0.294	8.3	LOS A	1.2	29.7	0.51	0.94	26.2
4	T	328	2.0	0.294	8.3	LOS A	1.2	29.7	0.51	0.69	28.6
14	R	72	2.0	0.294	8.3	LOS A	1.2	29.7	0.51	0.76	28.2
Approach		437	2.0	0.294	8.3	LOS A	1.2	29.7	0.51	0.72	28.3
West: Sheldon Road											
5	L	83	2.0	0.457	10.3	LOS B	1.8	44.6	0.48	0.97	25.2
2	T	249	2.0	0.457	10.3	LOS B	1.8	44.6	0.48	0.71	27.4
12	R	43	2.0	0.457	10.3	LOS B	1.8	44.6	0.48	0.76	27.1
Approach		375	2.0	0.457	10.3	LOS B	1.8	44.6	0.48	0.77	26.8
All Vehicles		1816	2.0	0.562	10.6	LOS B	2.4	62.1	0.54	0.77	26.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
Existing Traffic Volumes
PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	85	2.0	0.271	8.1	LOS A	1.1	26.7	0.51	0.91	26.1
8	T	202	2.0	0.271	8.1	LOS A	1.1	26.7	0.51	0.68	28.6
18	R	109	2.0	0.271	8.1	LOS A	1.1	26.7	0.51	0.75	28.2
Approach		396	2.0	0.271	8.1	LOS A	1.1	26.7	0.51	0.75	27.9
East: Sheldon Road											
1	L	132	2.0	0.484	10.6	LOS B	2.0	49.6	0.48	0.94	25.0
6	T	166	2.0	0.484	10.6	LOS B	2.0	49.6	0.48	0.69	27.1
16	R	109	2.0	0.484	10.6	LOS B	2.0	49.6	0.48	0.75	26.8
Approach		407	2.0	0.484	10.6	LOS B	2.0	49.6	0.48	0.79	26.3
North: Bradshaw Road											
7	L	172	2.0	0.509	12.2	LOS B	2.8	70.8	0.62	0.97	24.4
4	T	406	2.0	0.509	12.2	LOS B	2.8	70.8	0.62	0.80	26.3
14	R	186	2.0	0.509	12.2	LOS B	2.8	70.8	0.62	0.85	26.1
Approach		764	2.0	0.509	12.2	LOS B	2.8	70.8	0.62	0.85	25.8
West: Sheldon Road											
5	L	98	2.0	0.481	12.7	LOS B	1.8	46.3	0.58	0.98	24.2
2	T	138	2.0	0.481	12.7	LOS B	1.8	46.3	0.58	0.79	26.0
12	R	85	2.0	0.481	12.7	LOS B	1.8	46.3	0.58	0.83	25.8
Approach		321	2.0	0.481	12.7	LOS B	1.8	46.3	0.58	0.86	25.4
All Vehicles		1888	2.0	0.509	11.1	LOS B	2.8	70.8	0.56	0.82	26.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
2017 Volumes
AM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	93	2.0	0.429	10.5	LOS B	2.0	51.4	0.58	0.97	25.1
8	T	493	2.0	0.429	10.5	LOS B	2.0	51.4	0.58	0.75	27.3
18	R	53	2.0	0.429	10.5	LOS B	2.0	51.4	0.58	0.83	27.0
Approach		640	2.0	0.429	10.5	LOS B	2.0	51.4	0.58	0.79	26.9
East: Sheldon Road											
1	L	57	2.0	0.602	15.9	LOS C	2.8	70.2	0.64	1.04	23.1
6	T	260	2.0	0.602	15.9	LOS C	2.8	70.2	0.64	0.85	24.7
16	R	96	2.0	0.602	15.9	LOS C	2.8	70.2	0.64	0.89	24.4
Approach		412	2.0	0.602	15.9	LOS C	2.8	70.2	0.64	0.88	24.4
North: Bradshaw Road											
7	L	39	2.0	0.315	8.8	LOS A	1.3	32.1	0.53	0.96	26.0
4	T	344	2.0	0.315	8.8	LOS A	1.3	32.1	0.53	0.71	28.4
14	R	76	2.0	0.315	8.8	LOS A	1.3	32.1	0.53	0.78	27.9
Approach		459	2.0	0.315	8.8	LOS A	1.3	32.1	0.53	0.74	28.0
West: Sheldon Road											
5	L	87	2.0	0.485	11.0	LOS B	2.0	49.6	0.50	0.98	24.9
2	T	261	2.0	0.485	11.0	LOS B	2.0	49.6	0.50	0.73	27.1
12	R	44	2.0	0.485	11.0	LOS B	2.0	49.6	0.50	0.78	26.7
Approach		392	2.0	0.485	11.0	LOS B	2.0	49.6	0.50	0.79	26.5
All Vehicles		1903	2.0	0.602	11.4	LOS B	2.8	70.2	0.56	0.80	26.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
2017 Volumes
PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	90	2.0	0.295	8.6	LOS A	1.2	29.3	0.53	0.93	25.9
8	T	214	2.0	0.295	8.6	LOS A	1.2	29.3	0.53	0.71	28.3
18	R	115	2.0	0.295	8.6	LOS A	1.2	29.3	0.53	0.78	27.8
Approach		420	2.0	0.295	8.6	LOS A	1.2	29.3	0.53	0.78	27.6
East: Sheldon Road											
1	L	140	2.0	0.522	11.6	LOS B	2.3	57.3	0.51	0.96	24.6
6	T	176	2.0	0.522	11.6	LOS B	2.3	57.3	0.51	0.73	26.6
16	R	115	2.0	0.522	11.6	LOS B	2.3	57.3	0.51	0.78	26.3
Approach		432	2.0	0.522	11.6	LOS B	2.3	57.3	0.51	0.82	25.8
North: Bradshaw Road											
7	L	182	2.0	0.553	13.6	LOS B	3.3	82.6	0.66	1.00	23.8
4	T	431	2.0	0.553	13.6	LOS B	3.3	82.6	0.66	0.84	25.6
14	R	197	2.0	0.553	13.6	LOS B	3.3	82.6	0.66	0.90	25.3
Approach		810	2.0	0.553	13.6	LOS B	3.3	82.6	0.66	0.89	25.1
West: Sheldon Road											
5	L	104	2.0	0.526	14.2	LOS B	2.1	53.4	0.61	1.00	23.6
2	T	146	2.0	0.526	14.2	LOS B	2.1	53.4	0.61	0.81	25.3
12	R	90	2.0	0.526	14.2	LOS B	2.1	53.4	0.61	0.86	25.1
Approach		340	2.0	0.526	14.2	LOS B	2.1	53.4	0.61	0.88	24.7
All Vehicles		2002	2.0	0.553	12.2	LOS B	3.3	82.6	0.59	0.85	25.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
2037 Volumes
AM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	134	2.0	0.734	23.6	LOS C	5.6	141.1	0.82	1.13	20.7
8	T	710	2.0	0.734	23.6	LOS C	5.6	141.1	0.82	1.04	21.7
18	R	77	2.0	0.734	23.6	LOS C	5.6	141.1	0.82	1.07	21.5
Approach		920	2.0	0.734	23.6	LOS C	5.6	141.1	0.82	1.05	21.5
East: Sheldon Road											
1	L	82	2.0	1.069	85.1	LOS F	22.4	567.9	1.00	2.16	11.1
6	T	374	2.0	1.069	85.1	LOS F	22.4	567.9	1.00	2.16	11.0
16	R	137	2.0	1.069	85.1	LOS F	22.4	567.9	1.00	2.16	10.9
Approach		593	2.0	1.069	85.1	LOS F	22.4	567.9	1.00	2.16	11.0
North: Bradshaw Road											
7	L	56	2.0	0.527	14.6	LOS B	2.8	70.4	0.69	1.05	23.6
4	T	495	2.0	0.527	14.6	LOS B	2.8	70.4	0.69	0.88	25.3
14	R	108	2.0	0.527	14.6	LOS B	2.8	70.4	0.69	0.93	24.9
Approach		659	2.0	0.527	14.6	LOS B	2.8	70.4	0.69	0.90	25.1
West: Sheldon Road											
5	L	126	2.0	0.800	26.2	LOS D	5.6	142.4	0.78	1.12	19.9
2	T	377	2.0	0.800	26.2	LOS D	5.6	142.4	0.78	1.01	20.8
12	R	64	2.0	0.800	26.2	LOS D	5.6	142.4	0.78	1.03	20.6
Approach		566	2.0	0.800	26.2	LOS D	5.6	142.4	0.78	1.04	20.5
All Vehicles		2739	2.0	1.069	35.3	LOS E	22.4	567.9	0.82	1.25	18.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

MOVEMENT SUMMARY

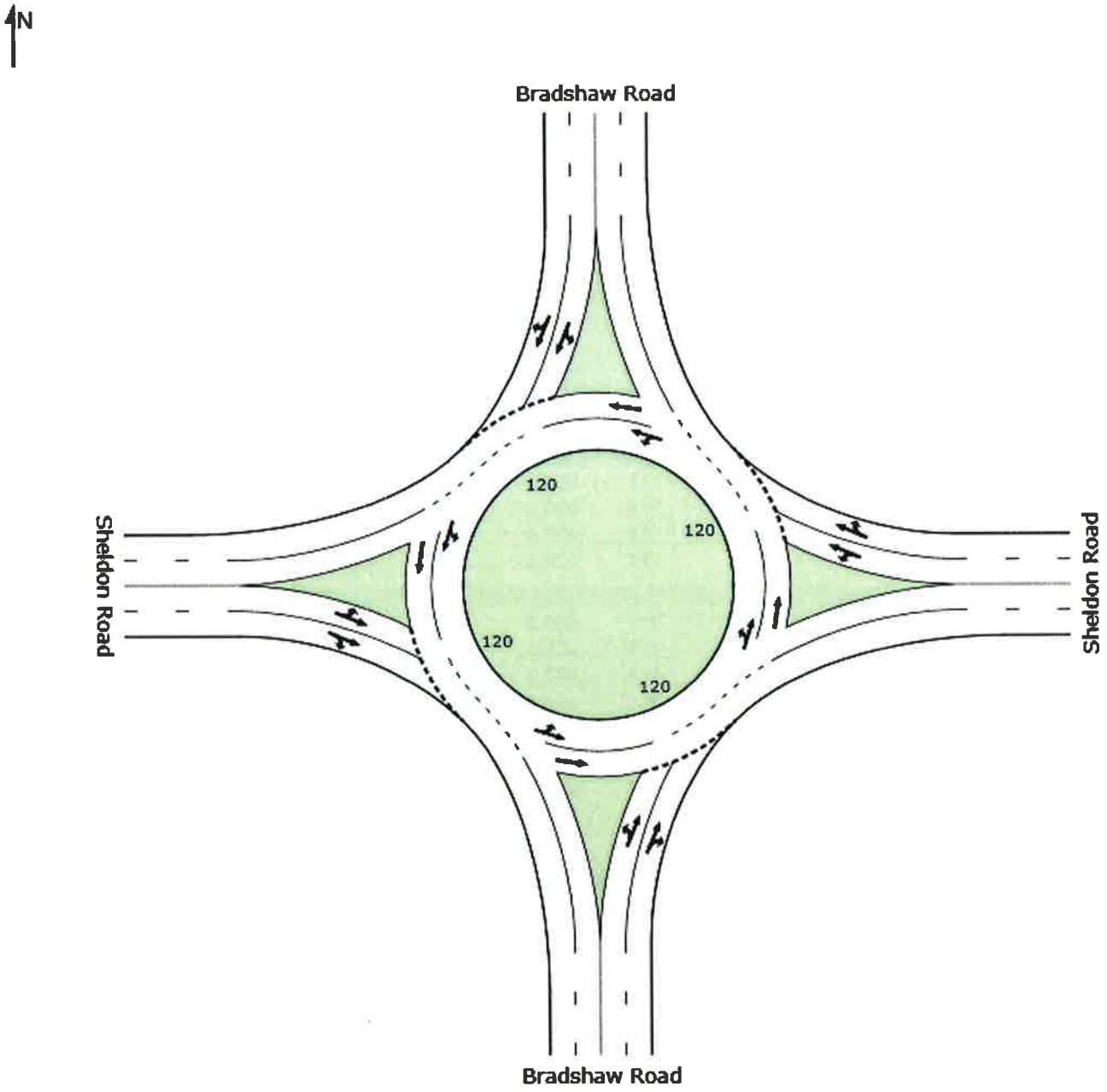
Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
2037 Volumes
PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	136	2.0	0.550	16.3	LOS C	2.9	73.5	0.72	1.04	22.9
8	T	325	2.0	0.550	16.3	LOS C	2.9	73.5	0.72	0.90	24.3
18	R	176	2.0	0.550	16.3	LOS C	2.9	73.5	0.72	0.95	24.1
Approach		637	2.0	0.550	16.3	LOS C	2.9	73.5	0.72	0.94	23.9
East: Sheldon Road											
1	L	212	2.0	0.917	40.2	LOS E	9.9	250.2	0.92	1.28	16.7
6	T	267	2.0	0.917	40.2	LOS E	9.9	250.2	0.92	1.24	17.0
16	R	176	2.0	0.917	40.2	LOS E	9.9	250.2	0.92	1.25	16.9
Approach		655	2.0	0.917	40.2	LOS E	9.9	250.2	0.92	1.26	16.9
North: Bradshaw Road											
7	L	277	2.0	1.040	74.1	LOS F	23.7	601.4	1.00	1.94	12.1
4	T	654	2.0	1.040	74.1	LOS F	23.7	601.4	1.00	1.94	12.0
14	R	299	2.0	1.040	74.1	LOS F	23.7	601.4	1.00	1.94	11.9
Approach		1230	2.0	1.040	74.1	LOS F	23.7	601.4	1.00	1.94	12.0
West: Sheldon Road											
5	L	158	2.0	1.027	76.1	LOS F	15.4	390.6	1.00	1.84	11.9
2	T	222	2.0	1.027	76.1	LOS F	15.4	390.6	1.00	1.84	11.8
12	R	136	2.0	1.027	76.1	LOS F	15.4	390.6	1.00	1.84	11.7
Approach		516	2.0	1.027	76.1	LOS F	15.4	390.6	1.00	1.84	11.8
All Vehicles		3038	2.0	1.040	55.0	LOS F	23.7	601.4	0.92	1.57	14.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.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MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
2037 Volumes
AM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	134	2.0	0.628	16.1	LOS C	3.3	83.4	0.65	1.04	23.0
8	T	710	2.0	0.628	15.9	LOS C	3.3	83.4	0.64	0.85	24.7
18	R	77	2.0	0.628	15.8	LOS C	3.1	79.9	0.63	0.91	24.5
Approach		920	2.0	0.628	15.9	LOS C	3.3	83.4	0.64	0.88	24.4
East: Sheldon Road											
1	L	82	2.0	0.548	17.5	LOS C	2.2	55.9	0.70	1.04	22.5
6	T	374	2.0	0.548	17.2	LOS C	2.2	55.9	0.69	0.88	24.1
16	R	137	2.0	0.548	16.8	LOS C	2.1	54.0	0.68	0.92	24.0
Approach		593	2.0	0.548	17.2	LOS C	2.2	55.9	0.69	0.91	23.8
North: Bradshaw Road											
7	L	56	2.0	0.460	11.7	LOS B	1.8	46.2	0.56	1.01	24.7
4	T	495	2.0	0.460	11.6	LOS B	1.8	46.2	0.55	0.77	26.8
14	R	108	2.0	0.460	11.4	LOS B	1.7	44.1	0.54	0.84	26.4
Approach		659	2.0	0.460	11.5	LOS B	1.8	46.2	0.55	0.80	26.5
West: Sheldon Road											
5	L	126	2.0	0.408	10.9	LOS B	1.5	37.7	0.55	0.96	24.9
2	T	377	2.0	0.408	10.7	LOS B	1.5	37.7	0.54	0.75	27.2
12	R	64	2.0	0.408	10.6	LOS B	1.4	36.0	0.53	0.82	26.9
Approach		566	2.0	0.408	10.8	LOS B	1.5	37.7	0.54	0.80	26.6
All Vehicles		2739	2.0	0.628	14.1	LOS B	3.3	83.4	0.61	0.85	25.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

MOVEMENT SUMMARY

Site: Bradshaw Road/Sheldon Road

Bradshaw Road/Sheldon Road Intersection Improvements
2037 Volumes
PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Bradshaw Road											
3	L	136	2.0	0.467	12.3	LOS B	1.8	46.7	0.58	0.99	24.5
8	T	325	2.0	0.467	12.2	LOS B	1.8	46.7	0.57	0.76	26.6
18	R	176	2.0	0.467	12.0	LOS B	1.8	44.7	0.56	0.82	26.4
Approach		637	2.0	0.467	12.2	LOS B	1.8	46.7	0.57	0.83	26.0
East: Sheldon Road											
1	L	212	2.0	0.467	12.0	LOS B	1.9	47.1	0.57	0.95	24.5
6	T	267	2.0	0.467	11.9	LOS B	1.9	47.1	0.56	0.75	26.7
16	R	176	2.0	0.467	11.7	LOS B	1.8	45.0	0.55	0.81	26.5
Approach		655	2.0	0.467	11.9	LOS B	1.9	47.1	0.56	0.83	25.9
North: Bradshaw Road											
7	L	277	2.0	0.875	34.7	LOS D	8.1	205.8	0.88	1.21	18.0
4	T	654	2.0	0.875	34.3	LOS D	8.1	205.8	0.87	1.14	18.6
14	R	299	2.0	0.875	33.9	LOS D	7.8	198.8	0.87	1.15	18.6
Approach		1230	2.0	0.875	34.3	LOS D	8.1	205.8	0.87	1.16	18.4
West: Sheldon Road											
5	L	158	2.0	0.542	19.3	LOS C	2.1	52.3	0.75	1.02	21.9
2	T	222	2.0	0.542	18.8	LOS C	2.1	52.3	0.74	0.90	23.5
12	R	136	2.0	0.542	18.4	LOS C	2.0	50.8	0.73	0.94	23.5
Approach		516	2.0	0.542	18.9	LOS C	2.1	52.3	0.74	0.95	23.0
All Vehicles		3038	2.0	0.875	22.2	LOS C	8.1	205.8	0.72	0.98	21.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used.

Intersection: 1: Sheldon Road & Bradshaw Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	134	249	97	265	191	389	62	252
Average Queue (ft)	66	134	47	171	82	228	31	167
95th Queue (ft)	144	246	106	278	184	388	69	259
Link Distance (ft)		451		644		518		564
Upstream Blk Time (%)		0						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)		1		2	0	6		1
Queuing Penalty (veh)		1		1	0	5		0

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: Sheldon Road & Bradshaw Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	141	222	193	318	132	258	240	562
Average Queue (ft)	81	133	114	190	66	156	132	345
95th Queue (ft)	154	237	212	326	135	260	249	578
Link Distance (ft)		451		644		518		564
Upstream Blk Time (%)								3
Queuing Penalty (veh)								0
Storage Bay Dist (ft)	250		250		250		250	
Storage Blk Time (%)		1	0	5		1	0	16
Queuing Penalty (veh)		1	0	7		1	1	29

Network Summary

Network wide Queuing Penalty: 39

Intersection: 1: Sheldon Road & Bradshaw Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	203	405	160	167	448	242	247	528	158	114	333	128
Average Queue (ft)	98	285	52	71	310	103	121	434	45	46	221	46
95th Queue (ft)	210	502	185	175	590	257	242	620	165	119	384	143
Link Distance (ft)		438			632			506			552	
Upstream Blk Time (%)		11			3			15			0	
Queuing Penalty (veh)		0			0			0			0	
Storage Bay Dist (ft)	250		250	250		250	250		250	250		250
Storage Blk Time (%)	0	20	0		17	0	0	30	0		4	0
Queuing Penalty (veh)	0	39	0		37	0	0	62	1		6	0

Network Summary

Network wide Queuing Penalty: 146

Intersection: 1: Sheldon Road & Bradshaw Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	186	229	108	226	214	92	183	292	88	286	513	297
Average Queue (ft)	111	144	57	161	135	47	106	181	46	177	348	109
95th Queue (ft)	199	246	109	250	223	102	202	320	96	273	559	293
Link Distance (ft)		438			632			506			552	
Upstream Blk Time (%)											1	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	350		350	350		350	350		350	350		350
Storage Blk Time (%)		0						0		0	4	0
Queuing Penalty (veh)		0						1		0	24	1

Network Summary

Network wide Queuing Penalty: 26

APPENDIX I: GREENHOUSE GAS EMMISIONS

Sheldon-Bradshaw Intersection Improvements

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	62.50	Acre	62.50	2,722,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2018
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per BRA description

Off-road Equipment -

Off-road Equipment - Equipment per BRA description and model defaults

Off-road Equipment -

Off-road Equipment - Equipment list per BRA description and model defaults

Off-road Equipment - Equipment per BRA description and model defaults

Off-road Equipment - Equipment list per BRA description and model defaults

Off-road Equipment - Equipment list per BRA description and model defaults

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Demolition hauling based on CalEEMod User's Guide which estimates 16 cubic yards of material per haul truck. CalEEMod glitched on 'construction' worker trips. No vendor trips assumed.

Demolition - Tons of demolition debris based on square footage of existing bridge and an estimated depth of one foot of material. Cubic feet were converted to cubic yards, which CalEEMod estimates to weigh 0.5 ton individually

Grading - Total acres disturbed 'double counted' in order to account for land worked multiple times

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,110.00	2.00
tblConstructionPhase	NumDays	1,110.00	160.00
tblConstructionPhase	NumDays	1,110.00	15.00
tblConstructionPhase	NumDays	70.00	20.00
tblConstructionPhase	NumDays	110.00	45.00
tblConstructionPhase	NumDays	110.00	10.00
tblConstructionPhase	NumDays	75.00	30.00
tblConstructionPhase	NumDays	75.00	45.00
tblConstructionPhase	NumDays	40.00	10.00
tblGrading	AcresOfGrading	112.50	62.50
tblGrading	AcresOfGrading	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2018
tblTripsAndVMT	HaulingTripNumber	5.00	12.00
tblTripsAndVMT	VendorTripNumber	446.00	0.00
tblTripsAndVMT	VendorTripNumber	446.00	0.00
tblTripsAndVMT	VendorTripNumber	446.00	0.00
tblTripsAndVMT	WorkerTripNumber	1,143.00	5.00
tblTripsAndVMT	WorkerTripNumber	1,143.00	15.00
tblTripsAndVMT	WorkerTripNumber	1,143.00	15.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016											0.0000	299.4040	299.4040	0.0760	0.0000	301.0006
2017											0.0000	238.9686	238.9686	0.0700	0.0000	240.4385
Total											**0.0000**	**538.3726**	**538.3726**	**0.1460**	**0.0000**	**541.4391**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016											0.0000	299.4037	299.4037	0.0760	0.0000	301.0003
2017											0.0000	238.9683	238.9683	0.0700	0.0000	240.4383
Total											**0.0000**	**538.3720**	**538.3720**	**0.1460**	**0.0000**	**541.4385**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	1.5500e-003	1.5500e-003	0.0000	0.0000	1.6400e-003
Energy											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**1.5500e-003**	**1.5500e-003**	**0.0000**	**0.0000**	**1.6400e-003**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	1.5500e-003	1.5500e-003	0.0000	0.0000	1.6400e-003
Energy											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**1.5500e-003**	**1.5500e-003**	**0.0000**	**0.0000**	**1.6400e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Dewater Creek Segment	Building Construction	4/6/2016	4/7/2016	5	2	
2	New Creek Channel Excavation	Site Preparation	4/8/2016	4/21/2016	5	10	
3	Existing Bridge Demolition	Demolition	4/22/2016	5/19/2016	5	20	
4	New RCB Structure Installation	Building Construction	5/20/2016	12/29/2016	5	160	
5	Pavement Finishing on Bridge	Paving	12/30/2016	2/9/2017	5	30	
6	Roadwork Final Grading - includes ped path	Grading	2/10/2017	4/13/2017	5	45	
7	Roadwork Paving - includes ped path	Paving	4/14/2017	6/15/2017	5	45	
8	Ancillary Facility & Utility Installation	Building Construction	6/16/2017	7/6/2017	5	15	
9	Habitat Re-vegetation	Grading	7/7/2017	7/20/2017	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Dewater Creek Segment	Cranes	0	7.00	226	0.29
Dewater Creek Segment	Forklifts	3	8.00	89	0.20
Dewater Creek Segment	Generator Sets	1	8.00	84	0.74
Dewater Creek Segment	Pumps	1	8.00	84	0.74
Dewater Creek Segment	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Dewater Creek Segment	Welders	0	8.00	46	0.45
New Creek Channel Excavation	Dumpers/Tenders	1	8.00	16	0.38
New Creek Channel Excavation	Rubber Tired Dozers	3	8.00	255	0.40

New Creek Channel Excavation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Existing Bridge Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Existing Bridge Demolition	Excavators	3	8.00	162	0.38
Existing Bridge Demolition	Rubber Tired Dozers	2	8.00	255	0.40
New RCB Structure Installation	Cranes	2	7.00	226	0.29
New RCB Structure Installation	Forklifts	3	8.00	89	0.20
New RCB Structure Installation	Generator Sets	1	8.00	84	0.74
New RCB Structure Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
New RCB Structure Installation	Welders	1	8.00	46	0.45
Pavement Finishing on Bridge	Pavers	2	8.00	125	0.42
Pavement Finishing on Bridge	Paving Equipment	2	8.00	130	0.36
Pavement Finishing on Bridge	Plate Compactors	2	8.00	8	0.43
Pavement Finishing on Bridge	Rollers	2	8.00	80	0.38
Roadwork Final Grading - includes ped path	Excavators	2	8.00	162	0.38
Roadwork Final Grading - includes ped path	Graders	1	8.00	174	0.41
Roadwork Final Grading - includes ped path	Rubber Tired Dozers	1	8.00	255	0.40
Roadwork Final Grading - includes ped path	Scrapers	2	8.00	361	0.48
Roadwork Final Grading - includes ped path	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Roadwork Paving - includes ped path	Pavers	2	8.00	125	0.42
Roadwork Paving - includes ped path	Paving Equipment	2	8.00	130	0.36
Roadwork Paving - includes ped path	Rollers	2	8.00	80	0.38
Ancillary Facility & Utility Installation	Cranes	1	7.00	226	0.29
Ancillary Facility & Utility Installation	Forklifts	3	8.00	89	0.20
Ancillary Facility & Utility Installation	Generator Sets	1	8.00	84	0.74
Ancillary Facility & Utility Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Ancillary Facility & Utility Installation	Welders	1	8.00	46	0.45
Habitat Re-vegetation	Excavators	0	8.00	162	0.38

Habitat Re-vegetation	Graders	1	8.00	174	0.41
Habitat Re-vegetation	Rubber Tired Dozers	1	8.00	255	0.40
Habitat Re-vegetation	Scrapers	0	8.00	361	0.48
Habitat Re-vegetation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Dewater Creek Segment	5	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
New Creek Channel Excavation	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Existing Bridge Demolition	6	15.00	0.00	12.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
New RCB Structure Installation	10	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Pavement Finishing on Bridge	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Roadwork Final Grading - includes ped	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Roadwork Paving - includes ped path	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Ancillary Facility & Utility Installation	9	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Habitat Re-vegetation	2	5.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Dewater Creek Segment - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1.5624	1.5624	2.4000e-004	0.0000	1.5674
Total											**0.0000**	**1.5624**	**1.5624**	**2.4000e-004**	**0.0000**	**1.5674**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0328	0.0328	0.0000	0.0000	0.0328
Total											**0.0000**	**0.0328**	**0.0328**	**0.0000**	**0.0000**	**0.0328**

3.2 Dewater Creek Segment - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1.5624	1.5624	2.4000e-004	0.0000	1.5674
Total											**0.0000**	**1.5624**	**1.5624**	**2.4000e-004**	**0.0000**	**1.5674**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0328	0.0328	0.0000	0.0000	0.0328
Total											**0.0000**	**0.0328**	**0.0328**	**0.0000**	**0.0000**	**0.0328**

3.3 New Creek Channel Excavation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.7150	18.7150	5.5900e-003	0.0000	18.8324
Total											**0.0000**	**18.7150**	**18.7150**	**5.5900e-003**	**0.0000**	**18.8324**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.6555	0.6555	4.0000e-005	0.0000	0.6562
Total											**0.0000**	**0.6555**	**0.6555**	**4.0000e-005**	**0.0000**	**0.6562**

3.3 New Creek Channel Excavation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.7150	18.7150	5.5900e-003	0.0000	18.8324
Total											**0.0000**	**18.7150**	**18.7150**	**5.5900e-003**	**0.0000**	**18.8324**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.6555	0.6555	4.0000e-005	0.0000	0.6562
Total											**0.0000**	**0.6555**	**0.6555**	**4.0000e-005**	**0.0000**	**0.6562**

3.4 Existing Bridge Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	37.0974	37.0974	0.0101	0.0000	37.3092
Total											**0.0000**	**37.0974**	**37.0974**	**0.0101**	**0.0000**	**37.3092**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.3944	0.3944	0.0000	0.0000	0.3944
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.9832	0.9832	5.0000e-005	0.0000	0.9843
Total											**0.0000**	**1.3776**	**1.3776**	**5.0000e-005**	**0.0000**	**1.3787**

3.4 Existing Bridge Demolition - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	37.0973	37.0973	0.0101	0.0000	37.3092
Total											**0.0000**	**37.0973**	**37.0973**	**0.0101**	**0.0000**	**37.3092**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.3944	0.3944	0.0000	0.0000	0.3944
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.9832	0.9832	5.0000e-005	0.0000	0.9843
Total											**0.0000**	**1.3776**	**1.3776**	**5.0000e-005**	**0.0000**	**1.3787**

3.5 New RCB Structure Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	230.9505	230.9505	0.0593	0.0000	232.1953
Total											**0.0000**	**230.9505**	**230.9505**	**0.0593**	**0.0000**	**232.1953**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	7.8655	7.8655	4.2000e-004	0.0000	7.8743
Total											**0.0000**	**7.8655**	**7.8655**	**4.2000e-004**	**0.0000**	**7.8743**

3.5 New RCB Structure Installation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	230.9502	230.9502	0.0593	0.0000	232.1950
Total											**0.0000**	**230.9502**	**230.9502**	**0.0593**	**0.0000**	**232.1950**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	7.8655	7.8655	4.2000e-004	0.0000	7.8743
Total											**0.0000**	**7.8655**	**7.8655**	**4.2000e-004**	**0.0000**	**7.8743**

3.6 Pavement Finishing on Bridge - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1.0820	1.0820	3.2000e-004	0.0000	1.0887
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**1.0820**	**1.0820**	**3.2000e-004**	**0.0000**	**1.0887**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0656	0.0656	0.0000	0.0000	0.0656
Total											**0.0000**	**0.0656**	**0.0656**	**0.0000**	**0.0000**	**0.0656**

3.6 Pavement Finishing on Bridge - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1.0820	1.0820	3.2000e-004	0.0000	1.0887
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**1.0820**	**1.0820**	**3.2000e-004**	**0.0000**	**1.0887**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0656	0.0656	0.0000	0.0000	0.0656
Total											**0.0000**	**0.0656**	**0.0656**	**0.0000**	**0.0000**	**0.0656**

3.6 Pavement Finishing on Bridge - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	30.9126	30.9126	9.2900e-003	0.0000	31.1076
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**30.9126**	**30.9126**	**9.2900e-003**	**0.0000**	**31.1076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8256	1.8256	9.0000e-005	0.0000	1.8276
Total											**0.0000**	**1.8256**	**1.8256**	**9.0000e-005**	**0.0000**	**1.8276**

3.6 Pavement Finishing on Bridge - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	30.9125	30.9125	9.2900e-003	0.0000	31.1076
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**30.9125**	**30.9125**	**9.2900e-003**	**0.0000**	**31.1076**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8256	1.8256	9.0000e-005	0.0000	1.8276
Total											**0.0000**	**1.8256**	**1.8256**	**9.0000e-005**	**0.0000**	**1.8276**

3.7 Roadwork Final Grading - includes ped path - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	128.8663	128.8663	0.0395	0.0000	129.6955
Total											**0.0000**	**128.8663**	**128.8663**	**0.0395**	**0.0000**	**129.6955**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.8329	2.8329	1.4000e-004	0.0000	2.8359
Total											**0.0000**	**2.8329**	**2.8329**	**1.4000e-004**	**0.0000**	**2.8359**

3.7 Roadwork Final Grading - includes ped path - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	128.8662	128.8662	0.0395	0.0000	129.6953
Total											**0.0000**	**128.8662**	**128.8662**	**0.0395**	**0.0000**	**129.6953**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.8329	2.8329	1.4000e-004	0.0000	2.8359
Total											**0.0000**	**2.8329**	**2.8329**	**1.4000e-004**	**0.0000**	**2.8359**

3.8 Roadwork Paving - includes ped path - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	46.5602	46.5602	0.0143	0.0000	46.8598
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**46.5602**	**46.5602**	**0.0143**	**0.0000**	**46.8598**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.1247	2.1247	1.1000e-004	0.0000	2.1269
Total											**0.0000**	**2.1247**	**2.1247**	**1.1000e-004**	**0.0000**	**2.1269**

3.8 Roadwork Paving - includes ped path - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	46.5601	46.5601	0.0143	0.0000	46.8597
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**46.5601**	**46.5601**	**0.0143**	**0.0000**	**46.8597**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.1247	2.1247	1.1000e-004	0.0000	2.1269
Total											**0.0000**	**2.1247**	**2.1247**	**1.1000e-004**	**0.0000**	**2.1269**

3.9 Ancillary Facility & Utility Installation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	17.9609	17.9609	4.4200e-003	0.0000	18.0538
Total											**0.0000**	**17.9609**	**17.9609**	**4.4200e-003**	**0.0000**	**18.0538**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.7082	0.7082	4.0000e-005	0.0000	0.7090
Total											**0.0000**	**0.7082**	**0.7082**	**4.0000e-005**	**0.0000**	**0.7090**

3.9 Ancillary Facility & Utility Installation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	17.9609	17.9609	4.4200e-003	0.0000	18.0537
Total											**0.0000**	**17.9609**	**17.9609**	**4.4200e-003**	**0.0000**	**18.0537**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.7082	0.7082	4.0000e-005	0.0000	0.7090
Total											**0.0000**	**0.7082**	**0.7082**	**4.0000e-005**	**0.0000**	**0.7090**

3.10 Habitat Re-vegetation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	7.0198	7.0198	2.1500e-003	0.0000	7.0650
Total											**0.0000**	**7.0198**	**7.0198**	**2.1500e-003**	**0.0000**	**7.0650**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.1574	0.1574	1.0000e-005	0.0000	0.1576
Total											**0.0000**	**0.1574**	**0.1574**	**1.0000e-005**	**0.0000**	**0.1576**

3.10 Habitat Re-vegetation - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	7.0198	7.0198	2.1500e-003	0.0000	7.0650
Total											**0.0000**	**7.0198**	**7.0198**	**2.1500e-003**	**0.0000**	**7.0650**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.1574	0.1574	1.0000e-005	0.0000	0.1576
Total											**0.0000**	**0.1574**	**0.1574**	**1.0000e-005**	**0.0000**	**0.1576**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504263	0.068212	0.178684	0.146863	0.044671	0.006294	0.020946	0.016568	0.002299	0.002275	0.006187	0.000564	0.002174

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	1.5500e-003	1.5500e-003	0.0000	0.0000	1.6400e-003
Unmitigated											0.0000	1.5500e-003	1.5500e-003	0.0000	0.0000	1.6400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	1.5500e-003	1.5500e-003	0.0000	0.0000	1.6400e-003
Total											**0.0000**	**1.5500e-003**	**1.5500e-003**	**0.0000**	**0.0000**	**1.6400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	1.5500e-003	1.5500e-003	0.0000	0.0000	1.6400e-003
Total											**0.0000**	**1.5500e-003**	**1.5500e-003**	**0.0000**	**0.0000**	**1.6400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Operational Mobile
GHG Emissions

Spreadsheet to Calculate Peak Period Emissions

Scenario: Existing Conditions

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	1616	172	0.003	0.024	36	37	1.8	14.7	22,040.2	22,652.5

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	1831	224	0.003	0.024	36	37	2.7	21.7	32,522.4	33,425.8

Total of AM and PM Peak Periods							4.5	36.4	54,562.7	56,078.3
							Metric Tons			
							0.00	0.02	24.75	25.44

Scenario: Year 2017 - Project
Traffic Signal Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	1713	27	0.003	0.022	22	23	0.3	2.2	2,241.2	2,343.1

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	1942	34	0.003	0.022	22	23	0.4	3.2	3,199.6	3,345.0

Total of AM and PM Peak Periods							0.7	5.4	5,440.8	5,688.1
							Metric Tons			
							0.00	0.00	2.47	2.58

Scenario: Year 2017 - Project
Roundabout Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	1713	16	0.003	0.022	22	23	0.2	1.3	1,328.1	1,388.5

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	1942	14	0.003	0.022	22	23	0.2	1.3	1,317.5	1,377.4

Total of AM and PM Peak Periods							0.4	2.6	2,645.6	2,765.9
							Metric Tons			
							0.00	0.00	1.20	1.25

Operational Mobile
GHG Emissions

Scenario: Year 2037 - Project
Traffic Signal Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	2684	37	0.001	0.012	17	18	0.2	2.6	3,718.6	3,937.3

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	3038	36	0.001	0.012	17	18	0.2	2.9	4,095.3	4,336.2

Total of AM and PM Peak Periods	0.5	5.5	7,813.9	8,273.5
Metric Tons				
	0.00	**0.00**	**3.54**	**3.75**

Scenario: Year 2037 - Project
Roundabout Option

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	2684	17	0.001	0.012	17	18	0.1	1.2	1,708.5	1,809.0

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	3038	34	0.001	0.012	17	18	0.2	2.7	3,867.8	4,095.3

Total of AM and PM Peak Periods	0.3	3.9	5,576.3	5,904.3
Metric Tons				
	0.00	**0.00**	**2.53**	**2.68**

Scenario: Year 2037 - No Build

AM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	2684	172	0.001	0.012	17	18	1.0	12.2	17,286.4	18,303.2

PM PEAK	Volume	Intersection Delay (secs)	Emission Factors (grams/second)				Emissions (pounds)			
			N2O	CH4	CO2	CO2e	N2O	CH4	CO2	CO2e
Intersection	3038	224	0.001	0.012	17	18	1.5	18.0	25,481.7	26,980.7

Total of AM and PM Peak Periods	2.5	30.2	42,768.1	45,283.9
Metric Tons				
	0.00	**0.01**	**19.40**	**20.54**

Year	Season	Subarea	Vehicle Class	Temperature	Relative Humidity	Process	Speed	Pollutant	Emission Rate
2015	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	NOx	0.199188619
2015	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CO2	1016.097105
2015	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CH4	0.061188641
2015	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	NOx	0.516774822
2015	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CO2	1185.886425
2015	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CH4	0.141409363
2015	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	NOx	0.350977435
2015	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CO2	1380.596315
2015	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CH4	0.077209835
2015	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	NOx	2.250596692
2015	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CO2	1360.007236
2015	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CH4	0.107395169
2015	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	NOx	2.379326197
2015	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CO2	1417.842032
2015	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CH4	0.072016846
2015	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	NOx	1.377511732
2015	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CO2	532.947976
2015	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CH4	2.09721054
2015	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	NOx	0.56604144
2015	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CO2	1788.555933
2015	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CH4	0.131275723
2015	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	NOx	4.581679218
2015	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CO2	3604.884734
2015	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CH4	0.32919469
2015	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	NOx	22.81379593
2015	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CO2	3516.152461
2015	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CH4	0.120722053
2015	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	NOx	1.515709362
2015	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CO2	3940.855809
2015	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CH4	0.291910126
2015	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	NOx	16.60235571
2015	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CO2	2235.167819
2015	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CH4	0.399024209

2015	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	NOx	19.84952359
2015	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CO2	3645.691455
2015	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CH4	13.12756926

EMFAC Fleet Mix Totals - 5 Miles Per Hour Emission Rates (grams/mile)

NOx
72.4

Nitrous oxide (N2O) emissions were calculated using an off-model adjustment provided by CARB in the AB 32 Technical Appendices.
The off-model adjustment uses a linear regression correlating N2O with NOx.

				GRAMS/MILE
N2O	**CH4**	**CO2**		**CO2e**
2.3	17.0	25625	Emissions combined & converted to CO2e	26740

5 Miles Per Hour Emissions Rates (grams/mile) Conveted to Idling Emissions Rates
"Run" Exhaust Rate to Idling Exhaust Rate Conversion [(grams/mile x miles/hour = grams/hour)]
(California Air Resources Board. 2012. "Emfac Website: Emfac2011 Idling Emissions Rates." Feb 8, 2012)

EMFAC Fleet Mix Totals - Idling Emissions (grams/hour)

				GRAMS/HR
N2O	**CH4**	**CO2**		**CO2e**
11.6	84.8	128123	Emissions combined & converted to CO2e	133698

EMFAC Fleet Mix Totals - Idling Emissions (grams/second)

				GRAMS/SEC
N2O	**CH4**	**CO2**		**CO2e**
0.003	0.024	36	Emissions combined & converted to CO2e	**37**

Year	Season	Subarea	Vehicle Class	Temperature	Relative Humidity	Process	Speed	Pollutant	Emission Rate
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	NOx	0.1547
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CO2	965.672
2017	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CH4	0.047329
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	NOx	0.411625
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CO2	1142.638
2017	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CH4	0.111461
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	NOx	0.269401
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CO2	1313.029
2017	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CH4	0.062011
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	NOx	2.131033
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CO2	1353.628
2017	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CH4	0.09577
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	NOx	2.054058
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CO2	1405.936
2017	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CH4	0.059488
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	NOx	1.423017
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CO2	539.4208
2017	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CH4	2.227117
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	NOx	0.472514
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CO2	1727.861
2017	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CH4	0.113646
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	NOx	4.41117
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CO2	3575.635
2017	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CH4	0.283029
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	NOx	19.95087
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CO2	3422.585
2017	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CH4	0.077979
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	NOx	1.235257
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CO2	3907.528
2017	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CH4	0.240183
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	NOx	15.38312
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CO2	2218.808
2017	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CH4	0.18539

2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	NOx	17.51628
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CO2	3614.51
2017	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CH4	12.35907

EMFAC Fleet Mix Totals - 5 Miles Per Hour Emission Rates (grams/mile)

NOx
65.4

Nitrous oxide (N2O) emissions were calculated using an off-model adjustment provided by CARB in the AB 32 Technical Appendices.
The off-model adjustment uses a linear regression correlating N2O with NOx.

N2O	**CH4**	**CO2**		GRAMS/MILE **CO2e**
2.1	15.9	15545	Emissions combined & converted to CO2e	16567

5 Miles Per Hour Emissions Rates (grams/mile) Conveted to Idling Emissions Rates
"Run" Exhaust Rate to Idling Exhaust Rate Conversion [(grams/mile x miles/hour = grams/hour)]
(California Air Resources Board. 2012. "Emfac Website: Emfac2011 Idling Emissions Rates." Feb 8, 2012)

EMFAC Fleet Mix Totals - Idling Emissions (grams/hour)

N2O	**CH4**	**CO2**		GRAMS/HR **CO2e**
10.5	79.3	77727	Emissions combined & converted to CO2e	82834

EMFAC Fleet Mix Totals - Idling Emissions (grams/second)

N2O	**CH4**	**CO2**		GRAMS/SEC **CO2e**
0.003	0.022	22	Emissions combined & converted to CO2e	**23**

Year	Season	Subarea	Vehicle Class	Temperature	Relative Humidity	Process	Speed	Pollutant	Emission Rate
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	NOx	0.034955242
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CO2	526.7542146
2037	Annual	Sacramento (SV)	LDA	60	63	RUNEX	5	CH4	0.009240474
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	NOx	0.051305443
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CO2	676.6363132
2037	Annual	Sacramento (SV)	LDT1	60	63	RUNEX	5	CH4	0.014020066
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	NOx	0.054004408
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CO2	660.4554366
2037	Annual	Sacramento (SV)	LDT2	60	63	RUNEX	5	CH4	0.014980646
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	NOx	0.519331627
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CO2	1209.711265
2037	Annual	Sacramento (SV)	LHD1	60	63	RUNEX	5	CH4	0.029671102
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	NOx	0.242523699
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CO2	1244.369711
2037	Annual	Sacramento (SV)	LHD2	60	63	RUNEX	5	CH4	0.027323802
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	NOx	1.61543788
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CO2	566.0576655
2037	Annual	Sacramento (SV)	MCY	60	63	RUNEX	5	CH4	2.714104305
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	NOx	0.083903456
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CO2	806.6376512
2037	Annual	Sacramento (SV)	MDV	60	63	RUNEX	5	CH4	0.02232696
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	NOx	2.616226648
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CO2	3319.437085
2037	Annual	Sacramento (SV)	MH	60	63	RUNEX	5	CH4	0.036222902
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	NOx	17.46531257
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CO2	3016.034218
2037	Annual	Sacramento (SV)	Motor Coach	60	63	RUNEX	5	CH4	0.023766269
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	NOx	0.193525405
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CO2	3665.039983
2037	Annual	Sacramento (SV)	OBUS	60	63	RUNEX	5	CH4	0.030701899
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	NOx	5.559382807
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CO2	1976.368019
2037	Annual	Sacramento (SV)	SBUS	60	63	RUNEX	5	CH4	0.01622569

2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	NOx	3.579615934
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CO2	3324.102774
2037	Annual	Sacramento (SV)	UBUS	60	63	RUNEX	5	CH4	5.984870873

EMFAC Fleet Mix Totals - 5 Miles Per Hour Emission Rates (grams/mile)

NOx
32

Nitrous oxide (N2O) emissions were calculated using an off-model adjustment provided by CARB in the AB 32 Technical Appendices.
The off-model adjustment uses a linear regression correlating N2O with NOx.

				GRAMS/MILE
N2O	**CH4**	**CO2**		**CO2e**
1.0	8.9	12125	Emissions combined & converted to CO2e	12656

5 Miles Per Hour Emissions Rates (grams/mile) Conveted to Idling Emissions Rates
"Run" Exhaust Rate to Idling Exhaust Rate Conversion [(grams/mile x miles/hour = grams/hour)]
(California Air Resources Board. 2012. "Emfac Website: Emfac2011 Idling Emissions Rates." Feb 8, 2012)

EMFAC Fleet Mix Totals - Idling Emissions (grams/hour)

				GRAMS/HR
N2O	**CH4**	**CO2**		**CO2e**
5.2	44.6	60625	Emissions combined & converted to CO2e	63282

EMFAC Fleet Mix Totals - Idling Emissions (grams/second)

				GRAMS/SEC
N2O	**CH4**	**CO2**		**CO2e**
0.001	0.012	17	Emissions combined & converted to CO2e	**18**

SHELDON ROAD/BRADSHAW ROAD INTERSECTION ROUNDABOUT PROJECT
MITIGATION MONITORING AND REPORTING PROGRAM

INTRODUCTION

The California Environmental Quality Act (CEQA) Guidelines, Section 15097, requires public agencies, as part of the certification of an environmental impact report or mitigated negative declaration, to adopt a reporting and monitoring program to ensure that changes made to the project as conditions of project approval to mitigate or avoid significant environmental effects are implemented. The Mitigation Monitoring and Reporting Program (MMRP) contained herein is intended to satisfy the requirements of CEQA as they relate to the Sheldon/Bradshaw Intersection Roundabout Project (Project) in the City of Elk Grove (City). The MMRP is intended to be used by City staff and mitigation monitoring personnel during implementation of the Project.

The MMRP will provide for monitoring of project activities as necessary, in-the-field identification and resolution of environmental concerns, and reporting to City staff. The MMRP will consist of the components described below.

COMPLIANCE CHECKLIST

Table 1 contains a compliance-monitoring checklist that identifies all newly adopted mitigation measures, identification of agencies responsible for enforcement and monitoring, and timing of implementation.

FIELD MONITORING OF MITIGATION MEASURE IMPLEMENTATION

During implementation of the Project, the City of Elk Grove's designated construction inspector will be responsible for monitoring the implementation of mitigation measures. The inspector will report to the City of Elk Grove Department of Public Works, and will be thoroughly familiar with all plans and requirements of the project. In addition, the inspector will be familiar with construction contract requirements, construction schedules, standard construction practices, and mitigation techniques. Aided by Table 1, the inspector will typically be responsible for the following activities:

1. On-site, day to day monitoring of project activities;
2. Reviewing construction plans to ensure conformance with adopted mitigation measures;
3. Ensuring contractor knowledge of and compliance with all appropriate conditions of project approval;
4. Evaluating the adequacy of construction impact mitigation measures, and proposing improvements to the contractors and City staff;
5. Requiring correction of activities that violate project mitigation measures, or that represent unsafe or dangerous conditions. The inspector shall have the ability and authority to secure compliance with the conditions or standards through the City of Elk Grove Public Works Department, if necessary;

6. Acting in the role of contact for property owners or any other affected persons who wish to register observations of violations of project mitigation measures, or unsafe or dangerous conditions. Upon receiving any complaints, the inspector shall immediately contact the construction representative. The inspector shall be responsible for verifying any such observations and for developing any necessary corrective actions in consultation with the construction representative and the City of Elk Grove Public Works Department;

7. Maintaining prompt and regular communication with City staff;

8. Obtaining assistance as necessary from technical experts, such as archaeologists and wildlife biologists, to develop site-specific procedures for implementing the mitigation measures adopted by the City for the Project; and

9. Maintaining a log of all significant interactions, violations of permit conditions or mitigation measures, and necessary corrective measures.

PLAN CHECK

Many mitigation measures will be monitored via plan check during Project implementation. City staff will be responsible for monitoring plan check mitigation measures.

MITIGATION MONITORING AND REPORTING PROGRAM

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
Initial Study Mitigation Measures:				
3.1.1	All areas disturbed or used for staging of vehicles and equipment shall be hydroseeded and restored to their preconstruction condition upon completion of the Project. This can be best accomplished by loosening and recontouring the area's soil before applying erosion control (hydroseed).	During and after Project construction	City of Elk Grove Planning Department	
3.1.2	The removal of established vegetation, including trees, shall be minimized and avoided where feasible. The areas where trees are present should be protected to reduce damage to the tree's root systems. Where it is possible to save and preserve existing trees (of significant size and maturity), care and caution should be implemented during the construction phase. Environmentally sensitive area fencing shall be installed to demarcate areas where vegetation is being preserved.	Prior to and during Project construction	City of Elk Grove Planning Department	
3.1.3	All disturbed areas during each construction season shall utilize best management practices which will include temporary erosion control consisting of a native seed mix at the end of each construction season.	During construction	City of Elk Grove Planning Department	
3.1.4	Contour grading and slope rounding shall be utilized on all cut and fill slopes in order to help restore the environment in a manner that will blend with the surrounding natural landscape.	During construction	City of Elk Grove Planning Department	
3.1.5	The Project shall comply with the City's lighting standards contained in City of Elk Grove Municipal Code Section 23.56.	During Project design and construction	City of Elk Grove Planning Department	
3.4.1	During Project development, the work area will be reduced to the	During Project	City of Elk	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	smallest footprint feasible in sensitive habitat areas.	development	Grove Planning Department	
3.4.2	Prior to any vegetation removal or ground-disturbing activities, focused surveys shall be conducted to determine if Sanford's arrowhead occurs in the Project footprint and/or TCZ. Surveys shall be conducted in accordance with the CDFW's (2009) Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities. These guidelines require rare plant surveys to be conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Surveys shall be scheduled to coincide with known blooming periods and/or during periods of physiological development that are necessary to identify the plant species of concern. If no special-status plant species are found, the Project will not have any impacts to the species and no additional mitigation measures are necessary.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.3	If special-status plant species are located within the BSA but outside the Project footprint, the plants shall be avoided by installing protective fencing and warning construction personnel of their presence.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.4	A Worker Environmental Awareness Program (WEAP) shall be implemented to educate construction workers about the presence of special-status species and sensitive biological resources in and/or near the Project area and to instruct them on proper avoidance.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.5	If any special-status plant species are found on-site and cannot be avoided, the City shall consult with the USFWS and/or the CDFW, as applicable, to determine appropriate mitigation for special-status plants, which may include but is not limited to the	Prior to and during Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	following measures: • Salvage portions of the habitat or plant populations that will be lost as a result of implementation of the proposed Project. • Transplant the plants that would be adversely affected by the proposed Project for either re-establishment after construction is complete or for planting in a new area, in appropriate habitat. • Develop a propagation program for the salvage and transfer of rare, threatened, or endangered plant populations from the Project site before the initiation of construction activities. Qualified biologists shall be involved in the propagation and transport of rare, threatened, or endangered plant species. (Note: Propagation methods for the salvaged plant population must be developed on a case-by-case basis and must include the involvement of local conservation easements, preserves, and/or open space, where applicable.) The propagation and transfer of individual plant species must be performed at the correct time of year and successfully completed before the Project's construction activities eliminate or disturb the plants and habitats of concern.			
3.4.6	Work shall coincide with the driest time in the creek. If water is present at the time of construction, water shall be diverted around the work area and work shall resume after the site is dry. Work in the dry portion of the creek shall be timed with awareness of precipitation forecasts and likely increases in water flows and flood stages. Construction activities in the creek shall cease prior to storm events until all reasonable erosion control measures have been implemented. Construction equipment and material shall	During Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	be removed from the floodplain if inundation is likely. Revegetation, restoration, and erosion control work shall not be confined to this time period.			
3.4.7	If work in the flowing portion of the creek is unavoidable, the entire stream flow shall be diverted around or through the work area during excavation and/or construction operations. Flows shall be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to FGC Section 5937. Any temporary dam or other artificial obstruction constructed shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.	During Project construction	City of Elk Grove Planning Department	
3.4.8	Prior to initiation of construction activities within jurisdictional features, construction best management practices (BMPs) shall be employed on-site to prevent degradation to on-site and off-site waters of the United States. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering jurisdictional features, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. All erosion control methods shall be maintained until all on-site soils are stabilized.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.9	Standard staging area practices for sediment-tracking reduction shall be implemented where necessary and may include vehicle	During Project construction	City of Elk Grove Planning	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	washing and street sweeping.		Department	
3.4.10	All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities shall be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or jute netted (monofilament erosion blankets are not permitted).	During Project construction	City of Elk Grove Planning Department	
3.4.11	A circle with a radius measurement from the trunk of the tree to the tip of its longest limb shall constitute the dripline protection area of each tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each tree. Removing limbs that make up the dripline does not change the protected area.	During Project construction	City of Elk Grove Planning Department	
3.4.12	Protective fencing shall be installed at the driplines of the protected trees prior to the start of any construction work (including grading or placement of vehicles on-site) in order to avoid damage to the trees and their root systems. This fencing may be installed around the outermost dripline of clusters of trees proposed for protection, rather than individual trees. Fencing shall be shown on all Project plans.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.13	No vehicles, construction equipment, mobile home/office, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the driplines of protected trees. A laminated sign indicating such shall be attached to fencing surrounding trees on-site.	During Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
3.4.14	No grading (grade cuts or fills) shall be allowed within the driplines of protected trees.	During Project construction	City of Elk Grove Planning Department	
3.4.15	Drainage patterns on the site shall not be modified so that water collects or stands within, or is diverted across, the dripline of any protected tree.	During Project construction	City of Elk Grove Planning Department	
3.4.16	No trenching shall be allowed within the driplines of protected trees. If it is absolutely necessary to install underground utilities within the dripline of a protected tree, the utility line shall be bored and jacked under the supervision of a certified arborist.	During Project construction	City of Elk Grove Planning Department	
3.4.17	The construction of impervious surfaces within the driplines of protected trees shall be stringently minimized. When it is absolutely necessary, a piped aeration system shall be installed under the supervision of a certified arborist. Whenever possible, pervious concrete shall be used as an alternative to traditional concrete when it is required under tree driplines.	During Project construction	City of Elk Grove Planning Department	
3.4.18	No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the driplines of protected trees. An aboveground drip irrigation system is recommended.	During Project construction	City of Elk Grove Planning Department	
3.4.19	Landscaping beneath protected trees may include non-plant materials such as bark mulch or wood chips. The only plant species that shall be planted within the driplines of protected trees are those that are tolerant of the natural environs of the trees. Limited drip irrigation approximately twice per summer is	During Project design and construction and after Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	recommended for the understory plants.			
3.4.20	Any protected trees on the site that require pruning shall be pruned by a certified arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute A300 pruning standards and ISA's tree-pruning guidelines.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.21	No signs, ropes, cables (except those which may be installed by an arborist to provide limb support), or any other items shall be attached to the protected trees.	During Project construction	City of Elk Grove Planning Department	
3.4.22	The applicant is proposing to work outside of the giant garter snake's active season and anticipates that work will be completed in 10 to 15 months. Construction and ground-disturbing activities will be initiated during the active season and will be commenced prior to September 15.	During Project construction	City of Elk Grove Planning Department	
3.4.23	Twenty-four hours prior to the commencement of construction activities, the Project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the USFWS with a written report that adequately documents the monitoring efforts within 24 hours of commencement of construction activities. The Project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.	During Project construction	City of Elk Grove Planning Department	
3.4.24	A qualified biologist will inspect and monitor all construction-related activities in the Project area to attempt to minimize take of giant garter snake or the destruction of its habitat. If snakes are encountered during construction activities, the biologist will notify the USFWS immediately to determine the appropriate procedures			

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	related to the collection and relocation of the snakes. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone at (916) 414-6600 and by electronic mail or written letter addressed to the Chief, Sacramento Valley Division, within one working day of the incident.	During Project construction	City of Elk Grove Planning Department	
3.4.25	Project-related vehicles will observe a 20 mile per hour (mph) speed limit in construction areas, except on existing paved roads, where they will adhere to the posted speed limits.	During Project construction	City of Elk Grove Planning Department	
3.4.26	Aquatic habitat for giant garter snake will be dewatered and then remain dry and absent of aquatic prey for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the USFWS shall be contacted to determine what additional measures may be necessary to minimize effects to the giant garter snake.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.27	Tightly woven erosion control matting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the Project site to ensure that giant garter snakes are not trapped or do not become entangled by the erosion control material. The edge of the material shall be buried in the ground to prevent giant garter snakes from crawling underneath the material. The City or contractor will prohibit the use of plastic, monofilament, jute, or similar erosion control netting with mesh sizes larger than 0.25 inch that could entangle snakes at the Project site.	During Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
3.4.28	If clearing and/or construction activities would occur during the raptor nesting season (January 15–August 15), preconstruction surveys to identify active nests shall be conducted by a qualified biologist within 14 days of construction initiation. Surveys must be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites in the proposed impact area, including construction access routes and a 250-foot buffer (if feasible). If no active nests are found, no further mitigation is required. Surveys shall be repeated if construction activities are delayed or postponed for more than 30 days.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.29	If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or a qualified biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 30 meters (100 feet) around an active raptor nest and a 15-meter (50-foot) radius around an active migratory bird nest) or alteration of the construction schedule. Activities permitted in exclusion zones and the size may be adjusted through consultation with the CDFW and/or the City.	During Project construction	City of Elk Grove Planning Department	
3.4.30	Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the non-breeding season (September 1–January 1). Swainson's hawks are State and federally listed as threatened species; therefore, impacts to Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.	During Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
3.4.31	If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the City shall implement the avoidance, minimization, and mitigation methodologies outlined in the CDFW's (2012) Staff Report on Burrowing Owl Mitigation prior to initiating Project-related activities that may impact burrowing owls.	Prior to and during Project construction	City of Elk Grove Planning Department	
3.4.32	The City shall mitigate for the permanent loss ~~of 0.616 acre~~ of Swainson's hawk foraging habitat at a ~~1~~ one acre:~~1~~one acre ratio. Mitigation can be accomplished through the City of Elk Grove Swainson's Hawk Impact Mitigation Fees Ordinance or other method acceptable to the CDFW. No additional mitigation is proposed, as implementation of avoidance and minimization measures is sufficient to compensate for potential impacts to migratory birds and raptors.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.33	Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the City shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to August) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September), they must remain undisturbed until a qualified biologist has determined that the young bats are no longer roosting. If roosting is found to occur on-site, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites removed. If no bat roosts are detected, no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, an additional survey shall be conducted 30 days prior to removal to ensure that a new colony has not established itself.	Prior to Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
3.4.34	If a female or maternity colony of bats are found on the Project site, and the Project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after July 31 and before March 1).	Prior to and during Project construction	City of Elk Grove Planning Department	
3.4.35	If active nursery roost is documented on-site and the Project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after July 31 and before March 1 to prevent the formation of maternity colonies. Non-breeding bats shall be safely evicted, under the direction of a bat specialist.	During Project construction	City of Elk Grove Planning Department	
3.4.36	For every acre of intermittent creek and seasonal wetland permanently affected by the proposed Project, the City shall replace the affected acreage at a 2:1 ratio (i.e., 2 acres for every 1 acre of impact) or another approved ratio as determined by the USACE. Impacts shall be offset through the dedication of mitigation credit(s) in a USACE-approved mitigation bank or through the payment of in-lieu fees to an approved conservation bank.	Prior to Project construction	City of Elk Grove Planning Department	
3.4.37	For every acre of intermittent creek temporarily affected and roadside ditch permanently or temporarily affected by the proposed Project, the City shall replace the affected acreage at a 1:1 ratio or another approved ratio as determined by the USACE. Impacts shall be offset through the restoration and relocation of the intermittent creek and roadside ditches in the	Prior to Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	Project area.			
3.4.38	Any trees protected by the City's tree ordinance and requiring removal for Project construction will either be compensated for by replacement, purchase of habitat conservation areas to protect existing woodland habitats, through contribution to tree planting programs or in-lieu fee programs in the area, or through some combination of these options to achieve no net loss of trees from the Project. Prior to any groundbreaking activities, the City's Planning Department will determine which trees would be suitable candidates for protection and which trees will need to be mitigated if removed. Trees that will be removed or otherwise harmed by the Project shall be mitigated for as described above. Prior to any groundbreaking activity, a Replacement Tree Planting Plan shall be prepared by an arborist or landscape architect. The plan shall follow the standards set forth in the City of Elk Grove Municipal Code and shall include the following minimum elements: • Species, size, and locations of all replacement plantings. • Method of irrigation • A tree planting detail, including a 10-foot depth-boring hole to provide for adequate drainage. • Planting, irrigation, and maintenance schedules. • Identification of the maintenance entity and a written agreement with that entity, if other than the City of Elk	Prior to and during Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	Grove, to provide care and irrigation to the trees for a five-year establishment period and to replace any of the replacement trees which do not survive during that period. Replacement inches will be calculated based on the following size categories. • A 1-gallon container or seedling-sized containerized tree = 1 inch dbh • A 15-gallon container = 1 inch dbh • A 24-inch box = 2 inches dbh • A 36-inch box = 2 inches dbh • A 60-inch box = 2 inches dbh • A 72-inch box = 2 inches dbh In order to meet some of the mitigation requirements, existing native trees on-site proposed for removal that are less than 6 inches dbh and are in fair or better condition may be transplanted to the new planting area. If existing trees are successfully transplanted, mitigation requirements may be reduced. No replacement tree shall be planted within 15 feet of a building foundation or other known areas of future ground disturbance. The minimum spacing for replacement trees shall be 15 feet on center. J-pots may be planted closer at the discretion of the City Arborist or the consulting arborist.			

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3.5.1	In accordance with California Public Resources Code Section 5097.5, which prohibits knowing and willful excavation of undiscovered cultural resources without permission from the appropriate public agency with jurisdiction over the lands, and in order to mitigate for the potential discovery of archaeological or paleontological resources, the following measure will be implemented during construction and included in the construction contract: If buried archaeological and/or paleontological resources, such as chipped or ground stone, historic debris, building foundations, human bone, or fossils, are unexpectedly discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can access the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City and all other appropriate agencies.	Throughout Project construction	City of Elk Grove Planning Department	
3.5.2	In order to mitigate for the potential discovery or disturbance of any human remains, the protocol of California Health and Safety Code Section 7050.5(b) will be adhered to as follows: In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) or Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the	Throughout Project construction	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. If the remains are determined to be Native American, City policy would dictate that the procedures outlined in CEQA Section 15064.5(d) and (e) be followed.			
3.7.1	The City of Elk Grove Planning Department shall require that the Project divert 65 percent of the waste generated during the demolition of existing pavement and construction of new traffic improvement facilities, consistent with CAP measure RC-1.	During construction	City of Elk Grove Planning Department	
3.8.1	Prior to the start of construction, the construction contractor shall designate staging areas where fueling and oil changing activities will take place. The staging area(s) shall be reviewed and approved by City's Planning Department and the Stormwater Pollution Prevention Plan (SWPPP) Manager prior to the start of construction. No fueling and oil changing activities shall be permitted outside the designated staging areas. The staging areas, as much as practicable, shall be located on level terrain and away from sensitive land uses such as residences, day care facilities, and schools. Staging areas shall not be located near any stream, channel, or wetlands. The proposed staging areas shall be identified in the SWPPP.	Prior to start of construction and throughout construction	City of Elk Grove Planning Department in consultation with the Central Valley Regional Water Quality Control Board (RWQCB)	
3.8.2	An aerially deposited lead survey shall be completed during the final Project design process, prior to approval of improvement plans and/or grading plans. If substances are detected at concentrations that could pose a health hazard and/or violate	Prior to approval of improvement plans and/or	City of Elk Grove Planning	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	local, State, or federal health standards, remediation of the affected areas shall be undertaken in accordance with the requirements of all local, State, and federal regulations.	grading plans	Department	
3.8.3	A pre-demolition asbestos survey shall be completed prior to the commencement of construction. Any identified asbestos-containing materials present shall be removed under acceptable engineering methods and work practices by a licensed asbestos abatement contractor prior to removal. The process shall be designed and monitored by a California Certified Asbestos Consultant. The abatement and monitoring plan shall be developed and submitted for review and approval by the Sacramento Metropolitan Air Quality Management District.	Prior to construction	City of Elk Grove Planning Department; Sacramento Metropolitan Air Quality Management District	
3.8.4	Prior to the commencement of construction, a hazardous materials compliance plan shall be prepared by a certified industrial hygienist to address the metals content of the yellow and white roadway striping found in the Project area. This plan shall be prepared in accordance with Caltrans Guidance for SSP 14-11.07–Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.	Prior to construction	City of Elk Grove Planning Department	
3.8.5	Prior to approval of improvement plans and/or a grading permit for the Project, soils testing shall be conducted to determine the presence of concentrations of persistent pesticides. If contamination is identified, cleanup shall proceed in accordance with all State, federal, and local requirements. Hazardous materials and wastes shall be disposed of at appropriate hazardous waste acceptance facilities.	Prior to approval of improvement plans and/or a grading permit	City of Elk Grove Planning Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
3.8.6	Prior to approval of improvement plans and/or a grading permit for the Project, consultation shall be completed with Kinder Morgan regarding the history of leaks with the pipeline along the western shoulder of Bradshaw Road. If consultation results in a determination that the Project site contains soil contamination, cleanup shall proceed in accordance with all State, federal, and local requirements. Hazardous materials and wastes shall be disposed of at appropriate hazardous waste acceptance facilities.	Prior to approval of improvement plans and/or a grading permit	City of Elk Grove Planning Department	
3.12.1	"Quiet" pile-driving technology based on soils and structural requirements, as feasible (i.e., hydraulic or vibration pile drivers versus impact pile drivers), shall be used.	Throughout Project construction	City of Elk Grove Planning Department	
3.12.2	Surrounding residents (minimum 300-foot radius) shall be provided at least 30 days written notice of the start date and duration of pile driving noise. Notices shall include contact information for a construction representative who shall be available to hear resident questions and concerns during pile driving activities.	Throughout Project construction	City of Elk Grove Planning Department	
3.12.3	Pile driving activities shall only take place Monday through Friday between the hours of 7 a.m. and 7 p.m. per the City's General Plan. Pile driving shall not occur on Saturday or Sunday unless approved by the City of Elk Grove Planning Department and residents notified.	Throughout Project construction	City of Elk Grove Planning Department	
3.12.4	Noise-generating construction operations shall be limited to between the hours of 7 a.m. and 7 p.m. in accordance with Elk Grove General Plan Noise Policy NO-3-Action-1.	Throughout Project construction	City of Elk Grove Planning Department	

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3.12.5	Construction equipment and equipment staging areas shall be located at the farthest distance possible from adjacent sensitive land uses.	Throughout Project construction	City of Elk Grove Planning Department	
3.12.6	Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.	Throughout Project construction	City of Elk Grove Planning Department	
3.12.7	When not in use, motorized construction equipment shall not be left idling.	Throughout Project construction	City of Elk Grove Planning Department	

CERTIFICATION
ELK GROVE CITY COUNCIL RESOLUTION NO. 2016-042

STATE OF CALIFORNIA)
COUNTY OF SACRAMENTO) ss
CITY OF ELK GROVE)

I, Jason Lindgren, City Clerk of the City of Elk Grove, California, do hereby certify that the foregoing resolution was duly introduced, approved, and adopted by the City Council of the City of Elk Grove at a regular meeting of said Council held on March 9, 2016 by the following vote:

AYES :	***COUNCILMEMBERS:***	***Davis, Ly, Detrick, Hume, Suen***
NOES:	***COUNCILMEMBERS:***	***None***
ABSTAIN :	***COUNCILMEMBERS:***	***None***
ABSENT:	***COUNCILMEMBERS:***	***None***

Jason Lindgren, City Clerk
City of Elk Grove, California