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Web: [www.elkgrovecity.org](http://www.elkgrovecity.org)

8401 Laguna Palms Way  
Elk Grove, California 95758



## Modification or Addition to Improvement Standards and Details

Modification Number: 2010-1

Effective Date of Change: 3-12-2010

### **Modification:**

1. **Standard Drawing T-7:** Modify detail to eliminate the use of bike push button post adjacent to bike lane. All designated bike lanes shall be provided with bike loops.
2. **Standard Drawing T-16:** Modify typical front detector loop layouts near the intersection limit lines from an array of four Type A loops to an array of two loops with a modified Type A loop for the front and Type A loop for the back, in each travel lane. Each detector loop shall be provided with its own detector lead in cable and connected in controller for operation. Modify type and placement of detector hand hole. Clarify and add notes to loop installation procedures.
3. **Standard Drawing T-17:** Remove note 7 regarding the use of Type A valve box (detector handhole).
4. **Standard Drawing T-19:** Clarify detail and note to identify the size of the pedestrian sign R10-4B to be 9"x12". Clarify note for pedestrian push button.
5. **Standard Construction Specifications, Section 49-2.06:** Modify 2<sup>nd</sup> paragraph to read: All new traffic signal interconnect pull boxes shall be No. 6.
6. **Standard Construction Specifications, Section 49-2.06:** Modify 4<sup>th</sup> paragraph to read: All new traffic signal pull boxes adjacent to controller cabinets shall be No. P44.
7. **Standard Construction Specifications, Section 49-5.01:** Modify 4<sup>th</sup> paragraph to read: All detector loops shall be 5' by 5'. **Detector loops near intersection limit lines** shall consist of an array of two loops for each lane, including right turn lane. The front loop shall be a modified Type A loop with four turns and the back loop is a Type A loop with three turns. Spacing between loops in the same lane shall be 10-feet. Each detector loop shall be provided with its own detector lead in cable and connected in controller for operation.
8. **Standard Construction Specifications, Section 49-5.01:** Remove the 9<sup>th</sup> paragraph and add: Detector handhole shall be Type "B".

Amended specifications are attached. Projects with preconstruction conference prior to effective date not subject to modification.

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### Effect of Modification:

1. New two-loop array near the intersection limit lines provides adequate vehicle detection area in each travel lane. Two-loop array is cost effective – cut construction time and cost in half, comparing with old 4-loop array setup
2. Modified Type A front loop in each travel lane provides effective detection to bicycles and motorcycles and is in compliant with the current Caltrans *Traffic Operations Policy Directive 09-06 to provide detection for bicycles and motorcycles at traffic signals*
3. Limit detector loop and detector handhole work to one lane at a time will minimize construction/lane closure time

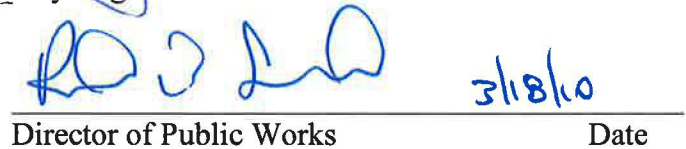
Request for Modification Initiated By:

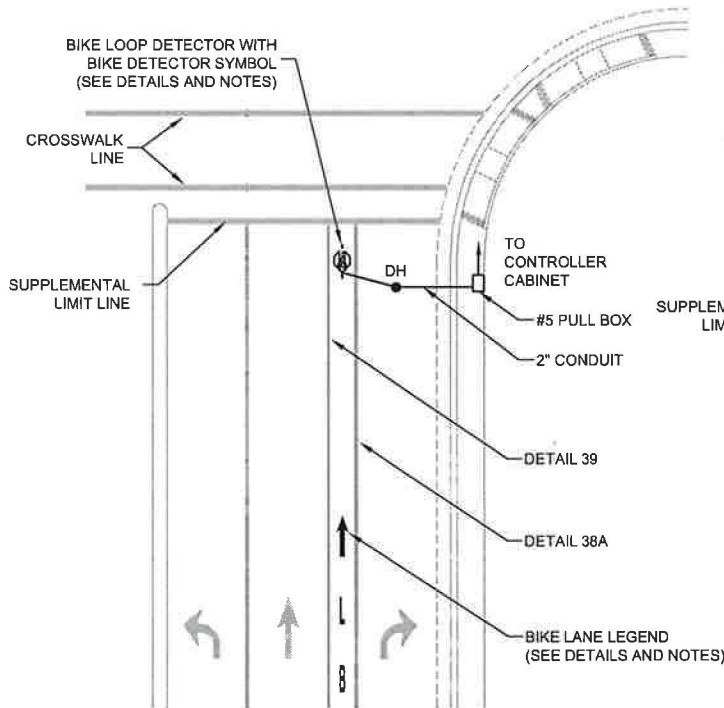
  
Date 3-11-2010

Modification Reviewed for Conformity and Consistency to Standards:

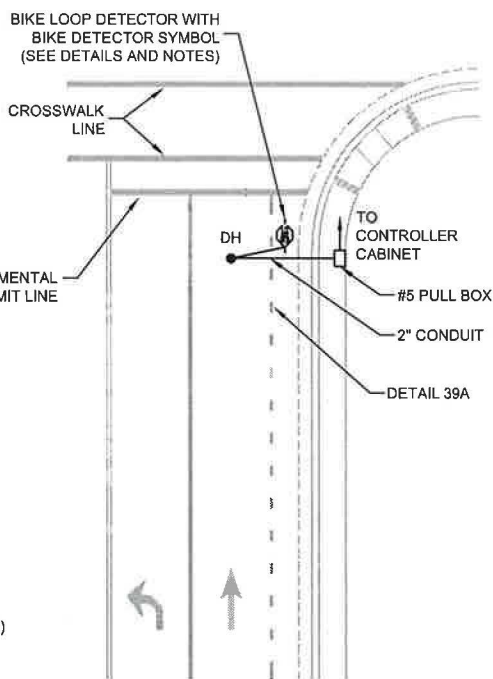
  
Date 3/17/10  
City Engineer

Modification to Improvement Standards Approved:

  
Date 3/18/10  
Director of Public Works

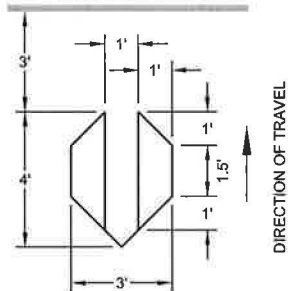


**BIKE LOOP INSTALLATION AT MAJOR INTERSECTION WITH RIGHT TURN LANE**

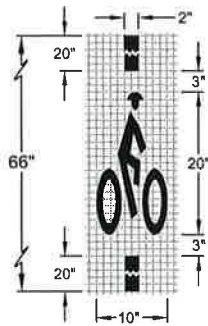


**BIKE LOOP INSTALLATION ADJACENT TO CURB AND GUTTER**

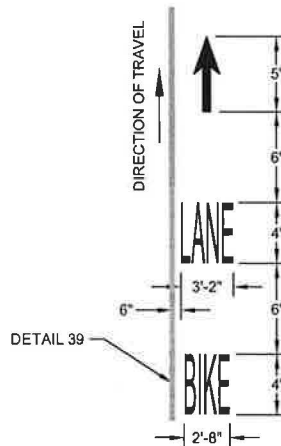
**SUPPLEMENTAL LIMIT LINE**



**BIKE LOOP DETECTOR DETAIL**  
NOT TO SCALE



**BIKE DETECTOR SYMBOL DETAIL**  
NOT TO SCALE



**BIKE LANE LEGEND DETAIL**  
NOT TO SCALE

**NOTES:**

1. BIKE LOOP SHALL BE INSTALLED WITH CONDUIT, DETECTOR HANDHOLE (DH) AND DETECTOR LEAD IN CABLE (DLC) AND CONNECTED IN CONTROLLER WITH SEPARATE CHANNEL FOR OPERATION, UNLESS OTHERWISE NOTED ON THE PLANS.
2. FOR BIKE LANE WITH LESS THAN 3 FEET IN WIDTH, MEASURING FROM BIKE LANE STRIPE AND LIP OF GUTTER, USE 3/4 SIZE OF BIKE LANE LEGEND.
3. BIKE LANE LEGENDS, ARROWS AND BIKE DETECTOR SYMBOLS SHALL BE 2 COATS WATER BASED WHITE PAINT PER SECTION 84-3.02 OF THE STATE STANDARD SPECIFICATIONS.

SEE MUTCD 2003, MUTCD 2003 CALIFORNIA SUPPLEMENT AND CALTRANS STD. PLAN A-24A AND A-24D FOR PAVEMENT MARKING, ARROW AND LEGEND.

DATE:  
02/12/2009

NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

CITY ENGINEER

REVISION	BY	APPROVED	DATE
1	DC	DY	06/09/2009
1	DC	LM	02/18/2010

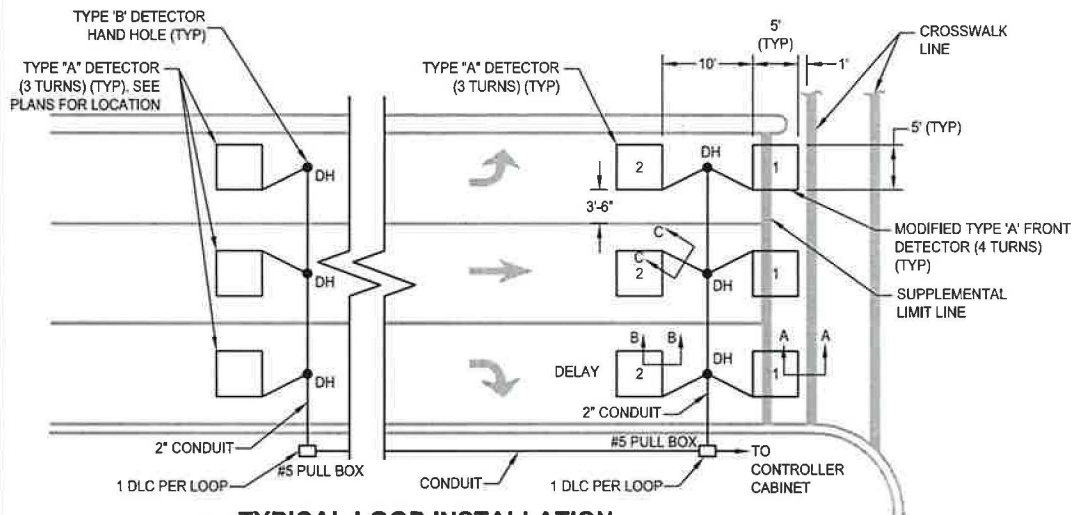
**BIKE LOOP AND BIKE LEGEND INSTALLATION DETAIL**



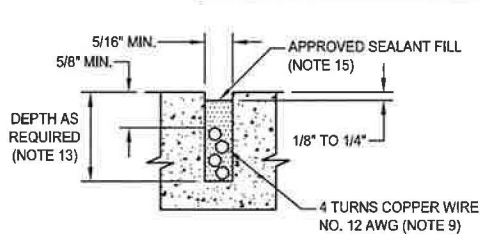
DRAWING NUMBER

**T - 7**

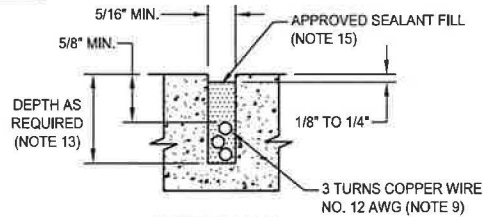




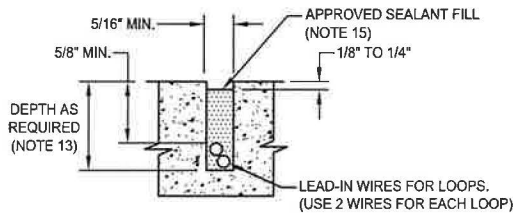
**TYPICAL LOOP INSTALLATION**



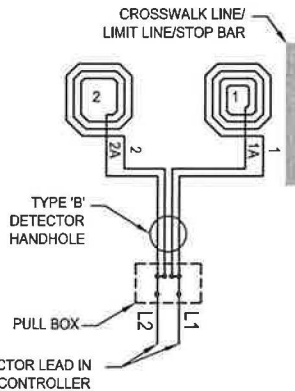
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**LOOP WINDING AND CONNECTION PATTERNS**

**LOOP INSTALLATION PROCEDURE**

1. ALL LOOP WORK SHALL CONFORM TO THE LATEST VERSION OF SECTION 49-5 "DETECTOR" OF THE CITY OF ELK GROVE STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS.
2. SEE CURRENT STATE STANDARD PLANS ES-5 SERIES FOR ADDITIONAL DETAILS.
3. THE PLACEMENT OF LOOPS SHALL BE CENTERED IN EACH LANE, WITH THE EXCEPTION OF: LEFT TURN LANE LESS THAN 11' WIDE, THE SEPARATION DISTANCE BETWEEN THE RIGHT EDGE OF EACH LOOP AND THE LANE ON THE RIGHT (THRU LANE) SHOULD BE 3'-6".
4. NEW OR REPLACEMENT LOOP SHALL BE MARKED ON PAVEMENT AND THEIR LOCATION APPROVED BY THE ENGINEER, PRIOR TO PAVEMENT CUTTING.
5. LOOP INSTALLATION SHALL INCLUDE NEW CONDUIT, DETECTOR HANDHOLE (DH) AND DETECTOR LEAD IN CABLE (DLC), UNLESS OTHERWISE NOTED ON THE PLANS.
6. EACH DETECTOR LOOP IN EACH TRAVEL LANE SHALL BE INSTALLED WITH ITS OWN DETECTOR LEAD IN CABLE AND CONNECTED IN CONTROLLER WITH SEPARATE DETECTOR CHANNEL FOR OPERATION, UNLESS OTHERWISE NOTED ON THE PLANS.
7. DETECTOR LEAD IN CABLES SHALL BE CONTINUOUS WITHOUT SPLICES BETWEEN LOOP TERMINATION PULL BOX AND CONTROLLER.
8. LOOP INSTALLATION 250' OR MORE FROM STOP BAR SHALL HAVE 4 TURNS.
9. DETECTOR LOOP CONDUCTOR SHALL BE TYPE RHW-USE NEOPRENE-JACKETED OR TYPE USE CROSSLINKED POLYPROPYLENE INSULATED NO. 12 STRANDED COPPER WIRE. CONDUCTOR INSULATION THICKNESS SHALL BE FORTY (40) MILS MINIMUM.
10. DISTANCE BETWEEN SIDE OF LOOP AND LEAD-IN SAW CUT SHALL BE 1'-0" MINIMUM.
11. LOOPS AND LEAD-IN CUTS SHALL BE LOCATED A MINIMUM OF 2 FEET FROM THE NEAREST EDGE OF MANHOLE COVER OR VALVE BOX.
12. WIDTH OF SAW CUTS SHALL BE 1/4" WIDER THAN THICKNESS OF THE CONDUCTOR.
13. DEPTH OF SAW CUTS SHALL BE SUCH THAT THE MINIMUM SEALANT COVER SHALL BE 1/2" WITH AN ADDITIONAL 1/8" TO 1/4" GAP BETWEEN TOP OF SEALANT AND SURFACE OF PAVEMENT.
14. TEST EACH LOOP CIRCUIT AT CONTROLLER CABINET (OR, IF THESE ARE NOT INSTALLED, TEST AT TERMINATION PULL BOX) BEFORE FILLING SLOTS. PERFORM A RESISTANCE TEST BETWEEN EACH CIRCUIT AND GROUND. INSULATION RESISTANCE SHALL NOT BE LESS THAN 100 MEGA OHMS. TEST EACH LOOP CIRCUIT FOR CONTINUITY. LOOP CIRCUIT RESISTANCE SHALL NOT EXCEED 0.5 OHMS PLUS 0.35 OHMS PER 100 FEET OF LEAD-IN CABLE.
15. SEALANT FOR LOOP DETECTORS SHALL BE 3M 5000 OR APPROVED EQUAL ELASTOMERIC SEALANT.
16. CONDUIT BETWEEN DETECTOR HANDHOLE AND PULL BOX SHALL BE INSTALLED 30" MINIMUM BELOW ROADSIDE DITCH OR SWALE.
17. DETECTOR HANDHOLE (DH) SHALL BE TYPE B (SEE STD DWG T - 17).
18. ANY DAMAGE TO EXISTING LOOPS, DETECTOR HANDHOLE, CONDUIT AND DETECTOR LEAD IN CABLE SHALL BE REPLACED PER THE REQUIREMENTS SET FORTH IN THIS DETAIL.

DATE: 01/17/2006		NOT TO SCALE	
REVISION	BY	APPROVED	DATE
1	DC	LM	01/12/2009
2	DC	LM	03/01/2010

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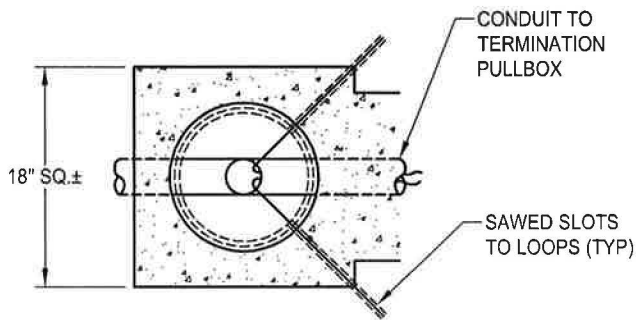
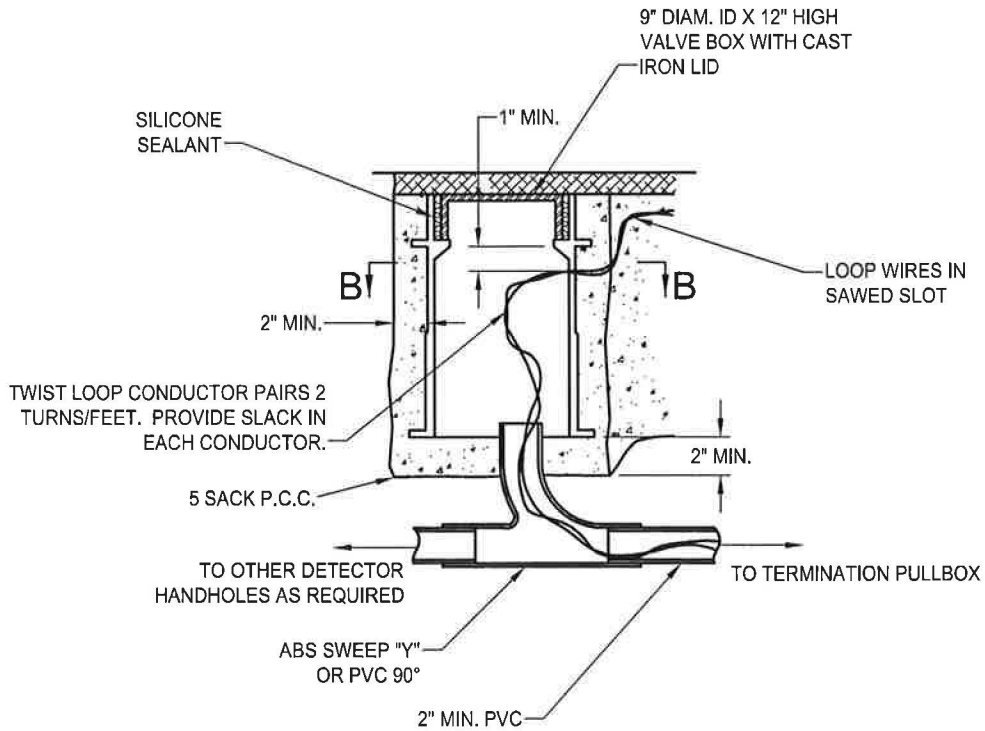
**TYPICAL DETECTOR LOOP LAYOUTS**

APPROVED BY:

CITY ENGINEER

DRAWING NUMBER

**T - 16**



**SECTION B-B**


**INSTALLATION REQUIREMENTS:**

1. 18" SQ.± P.C.C. ENCASUREMENT OUTLINE SHALL BE SAW CUT TO A MINIMUM DEPTH OF 3", EXCEPT WHERE AC OVERLAY IS TO BE PLACED.
2. THE PRECAST VALVE BOX WITH CAST IRON LID SHALL BE FABRICATED OF CALCIUM CARBONATE AND POLYESTER RESINS WITH FIBERGLASS REINFORCING AND DESIGNED FOR HEAVY TRAFFIC LOADS.
3. CAST IRON LID SHALL BE MARKED "DETECTOR" AND SHALL BE SECURED IN PLACE BY APPLYING SILICONE SEALANT. VALVE BOX LOCATION SHALL BE AS SHOWN ON THE PLANS.
4. THE EXCAVATION AROUND THE HANDHOLE SHALL BE BACKFILLED WITH 5 SACK P.C.C.
5. THE HANDHOLE SHALL BE PROTECTED WITH COLD PATCH OR OTHER SUITABLE PROTECTION UNTIL PERMANENT A.C. BACKFILL IS PLACED.
6. THE CEMENT USED TO JOIN THE ABS SWEEP "Y" TO THE PVC CONDUIT SHALL BE CAPABLE OF PROVIDING SOLVENT TYPE WELD BETWEEN THE TWO MATERIALS.


DATE: 01/17/2007		NOT TO SCALE	
REVISION	BY	APPROVED	DATE
1	DC	LM	03/01/2010

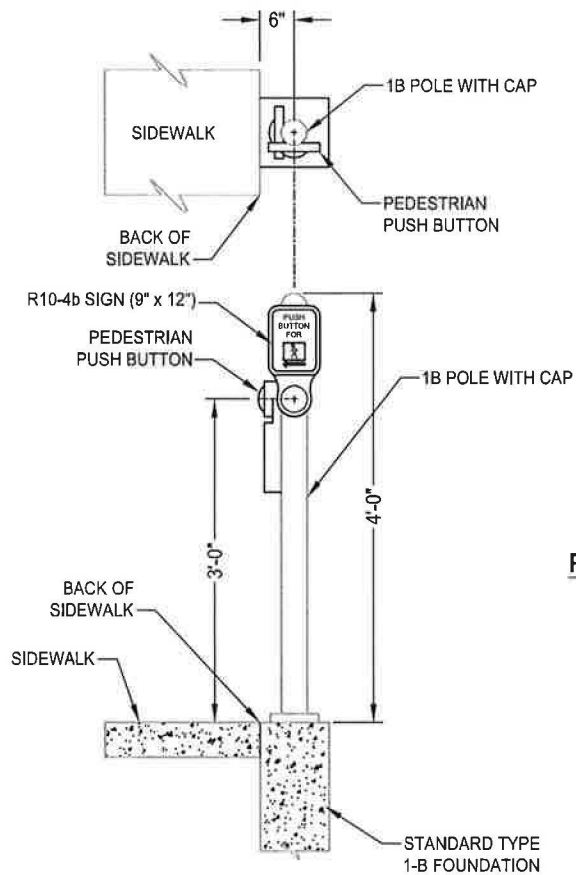
CITY OF ELK GROVE - PUBLIC WORKS

**TYPE "B" DETECTOR HANDHOLE  
DETAIL**

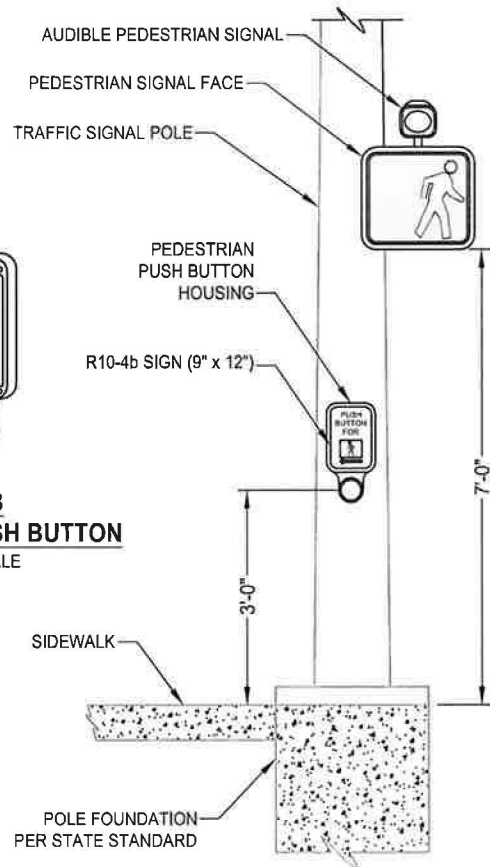
APPROVED BY:  
  
CITY ENGINEER

DRAWING NUMBER  
**T - 17**





**PEDESTRIAN PUSH BUTTON POLE**  
NOT TO SCALE

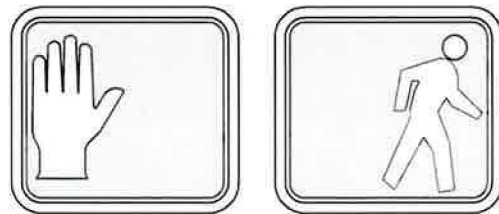


**COMBINED TRAFFIC SIGNAL  
PEDESTRIAN PUSH BUTTON POLE**  
NOT TO SCALE

**TYPE B  
PEDESTRIAN PUSH BUTTON**  
NOT TO SCALE

**NOTES:**

1. PEDESTRIAN PUSH BUTTON SHALL BE TYPE B, LARGE A.D.A. TYPE WITH A TWO-INCH (2") DIAMETER BUTTON. IT SHALL BE BUMBLEBEE OR APPROVED EQUAL.
2. PEDESTRIAN SIGNS SHALL BE METAL AND SHALL CONFORM TO STANDARD SIGN NO. R10-4b (9" x 12") OF THE MUTCD 2003 EDITION AND CALIFORNIA MUTCD EDITION.
3. PEDESTRIAN PUSH BUTTON HOUSING SHALL BE EITHER DIE-CAST OR PERMANENT MOLD CAST ALUMINUM.
4. AUDIBLE PEDESTRIAN SIGNAL SHALL BE MODEL APS-10 BY INDICATOR CONTROLS CORPORATION, OR APPROVED EQUAL.
5. ALL PEDESTRIAN SIGNAL HEADS SHALL BE THE "COUNTDOWN" VARIETY.
6. PEDESTRIAN HEADS SIGNAL DISPLAY SHALL BE HIGH INTENSITY L.E.D. AND MUST MEET THE STATE SPECIFICATIONS REQUIREMENTS FOR LUMINANCE. THE DISPLAY SHALL INCLUDE SOLID (FILLED IN) "WALKING PERSON" AND "RAISED HAND" SYMBOLS.

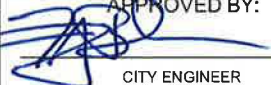


**PEDESTRIAN SIGNAL FACE**  
**SYMBOL TYPE**  
NOT TO SCALE

DATE: 07/31/2007		NOT TO SCALE	
REVISION	BY	APPROVED	DATE
1	DC	DY	12/31/2007
1	DC	LM	02/18/2010

CITY OF ELK GROVE - PUBLIC WORKS

**PEDESTRIAN PUSH BUTTON DETAIL**

APPROVED BY:  
  
CITY ENGINEER

DRAWING NUMBER  
**T - 19**

