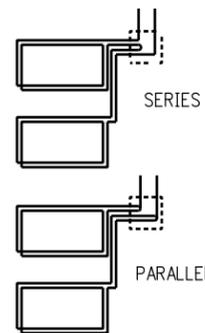


STANDARD LOOP - WIRING AND CONNECTION TABLE

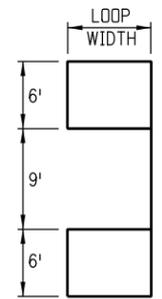
| NO. OF LOOPS | WIDTH OF LOOP (FEET) | | | | | | | | | |
|--------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24-36 | 40+ |
| 1 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| 2 | 3S | 3S | 3S | 3P | 2S | 2S | 2S | 2S | 2S | 2P |
| 3 | 3S | 3S | 2S | 2S | 3SP | 3SP | 3SP | 3SP | 2SP | 2P |
| 4 | 3SP | 3SP | 3SP | 2SP | 3SP | 3SP | 3SP | 2SP | 2SP | 2SP |

URNS PER LOOP AND TYPE CONNECTION
(S = SERIES, P = PARALLEL)

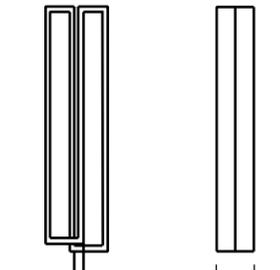
WIRE CONFIGURATION



LAYOUT



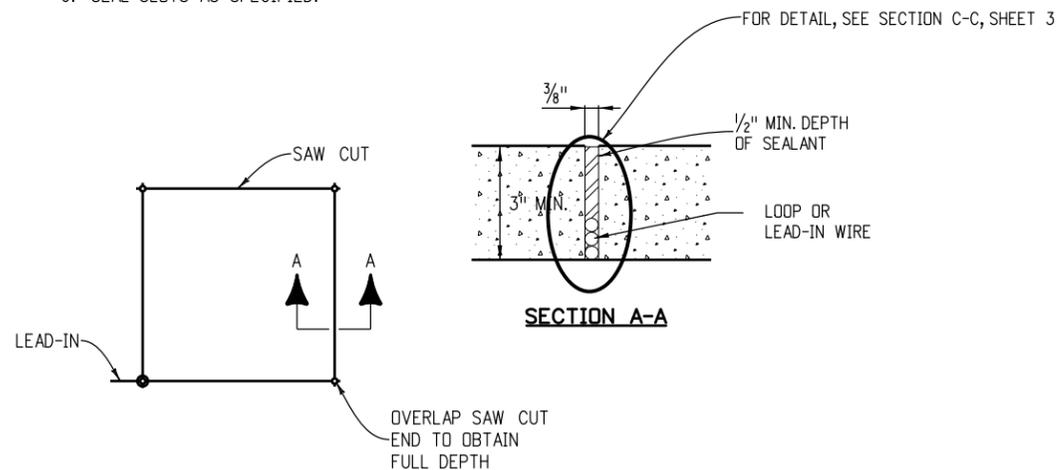
STANDARD LOOP



DUAL LOOP

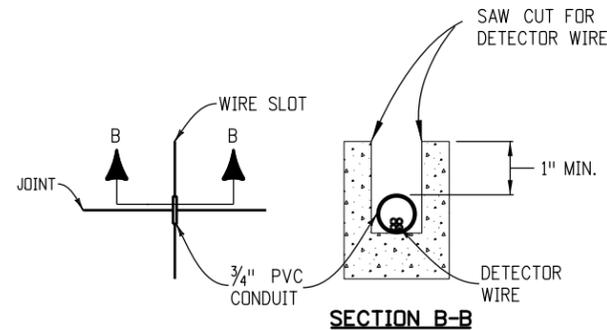
LOOP INSTALLATION PROCEDURE

1. CUT SLOTS IN PAVEMENT TO 3 IN. MINIMUM DEPTH.
2. CLEAN AND DRY SLOTS WITH OIL-FREE COMPRESSED AIR.
3. ONE CONTINUOUS LENGTH OF 14/1C, RHW, USE, XLPE, RHWN OR THWN WIRE SHALL BE USED FOR EACH LOOP FROM SIGNAL BASE OR PULL BOX AROUND THE LOOP WITH THE NUMBER OF TURNS SPECIFIED AND BACK TO THE SIGNAL BASE OR PULL BOX. LOOP WIRE SHALL BE DUCT TYPE.
4. USE A BLUNT, NON-METALLIC INSTRUMENT TO PUSH WIRE INTO SLOT. DO NOT COIL LEADS.
5. CONNECT DETECTOR AND TEST LOOP.
6. SEAL SLOTS AS SPECIFIED.



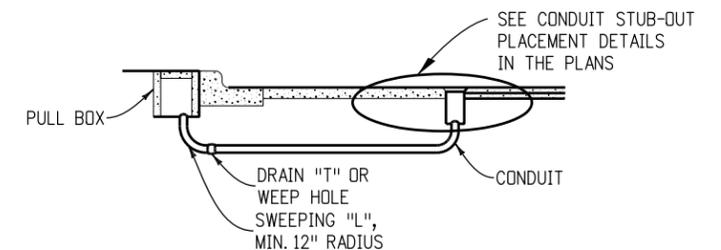
VEHICLE DETECTOR LOOP SAW CUT DETAILS

(FOR USE WITH VINYL TUBING ENCASED LOOP DETECTOR WIRE)



DETECTOR WIRE ACROSS BRIDGE JOINTS

DUAL LOOPS SHALL BE OF THE SIZE SHOWN UNLESS OTHERWISE ON THE PLANS.



LOOP DETECTOR LEAD-IN

Computer File Information

| | |
|--|---------------|
| Creation Date: 07/04/12 | Initials: KEN |
| Last Modification Date: | Initials: |
| Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans | (R-X) |
| Drawing File Name: S-614-43_1of10 | (R-X) |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | (R-X) |

Sheet Revisions

| Date: | Comments |
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Safety & Traffic Engineering Branch

KCM/KEN

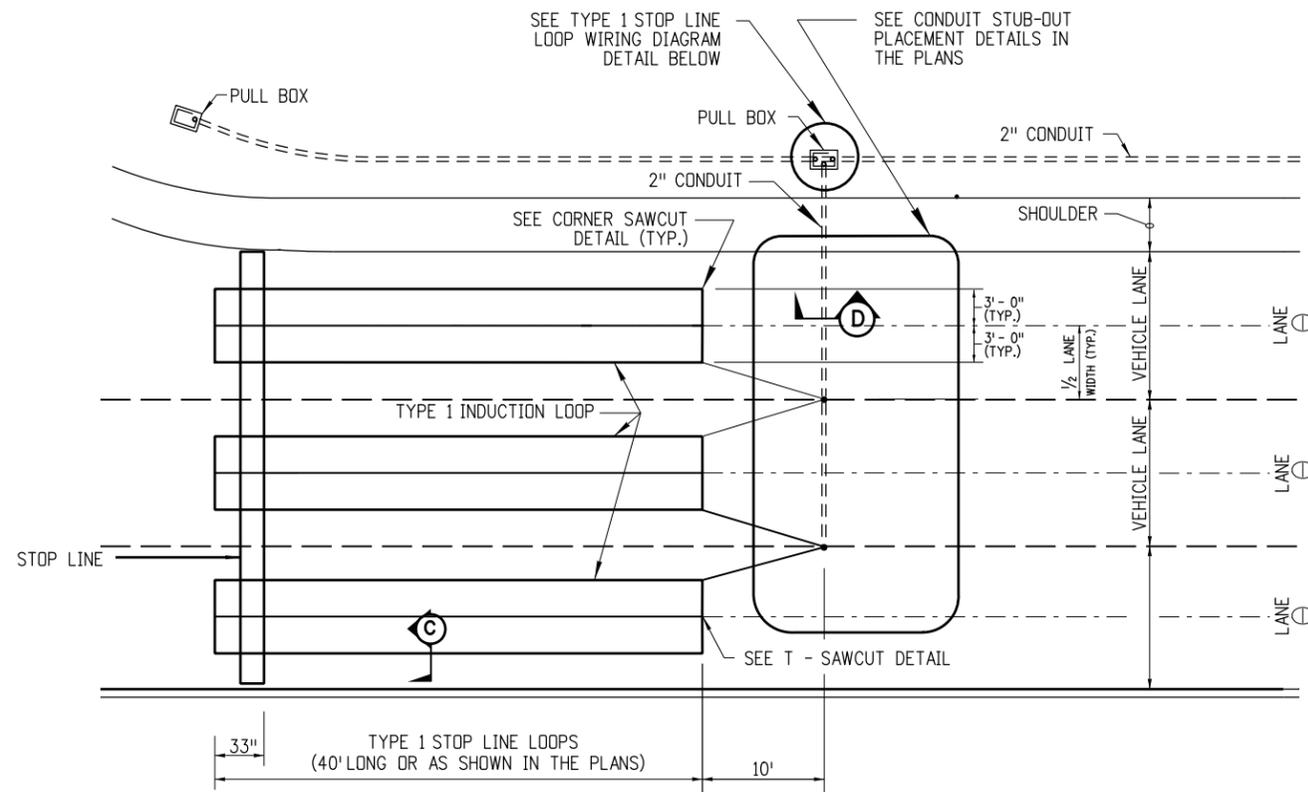
TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

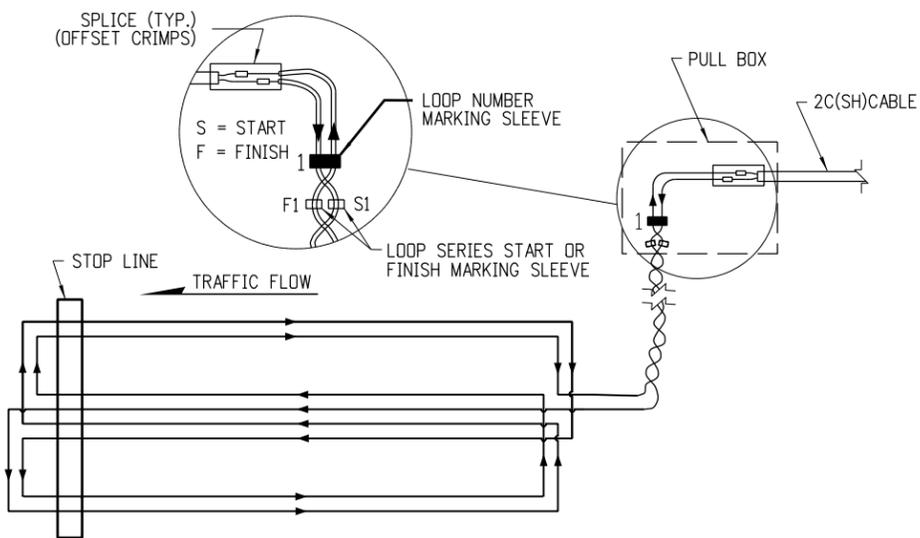
STANDARD PLAN NO.

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Sheet No. 1 of 10

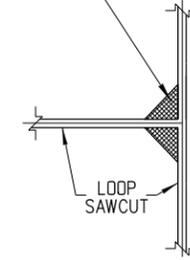


TYPE 1 STOP LINE LOOPS - PLAN VIEW



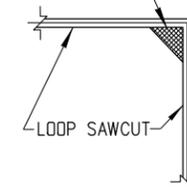
TYPE 1 STOP LINE LOOP WIRING DIAGRAM

CHISEL OUT 1/8" TO 1/2" CORNER REMOVE PAVEMENT TO SAWCUT DEPTH AND FILL WITH SEALANT (TYP.)

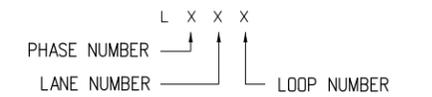


T - SAWCUT DETAIL

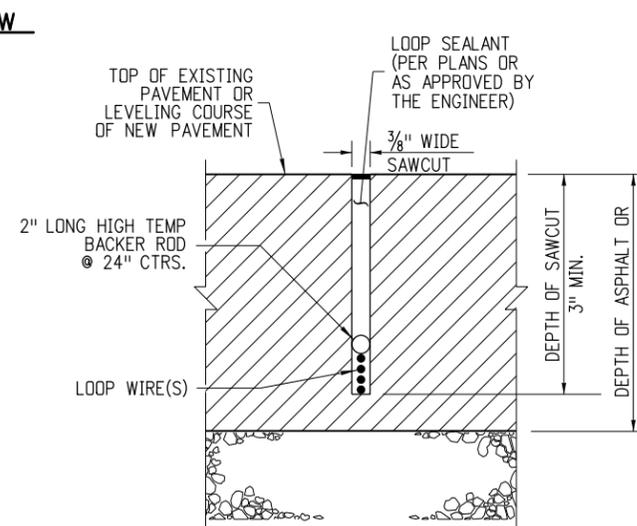
CHISEL OUT 1/8" TO 1/2" CORNER REMOVE PAVEMENT TO SAWCUT DEPTH AND FILL WITH SEALANT



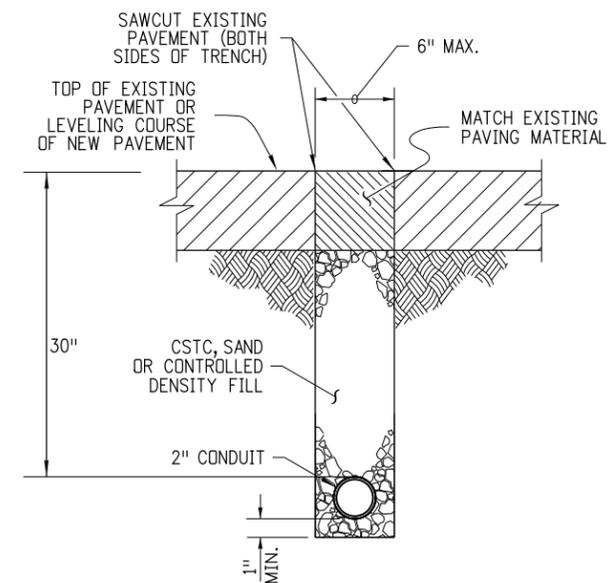
CORNER SAWCUT DETAIL



LOOP NUMBER MARKING DETAIL



SECTION C-C



SECTION D-D

TYPE 1 INDUCTION LOOP

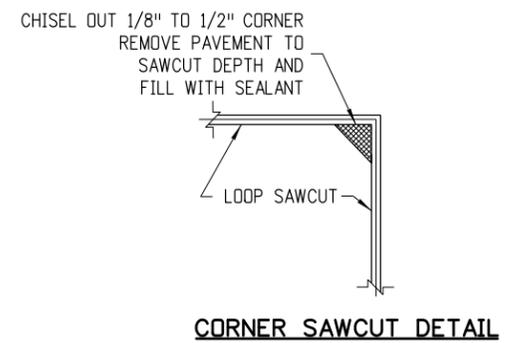
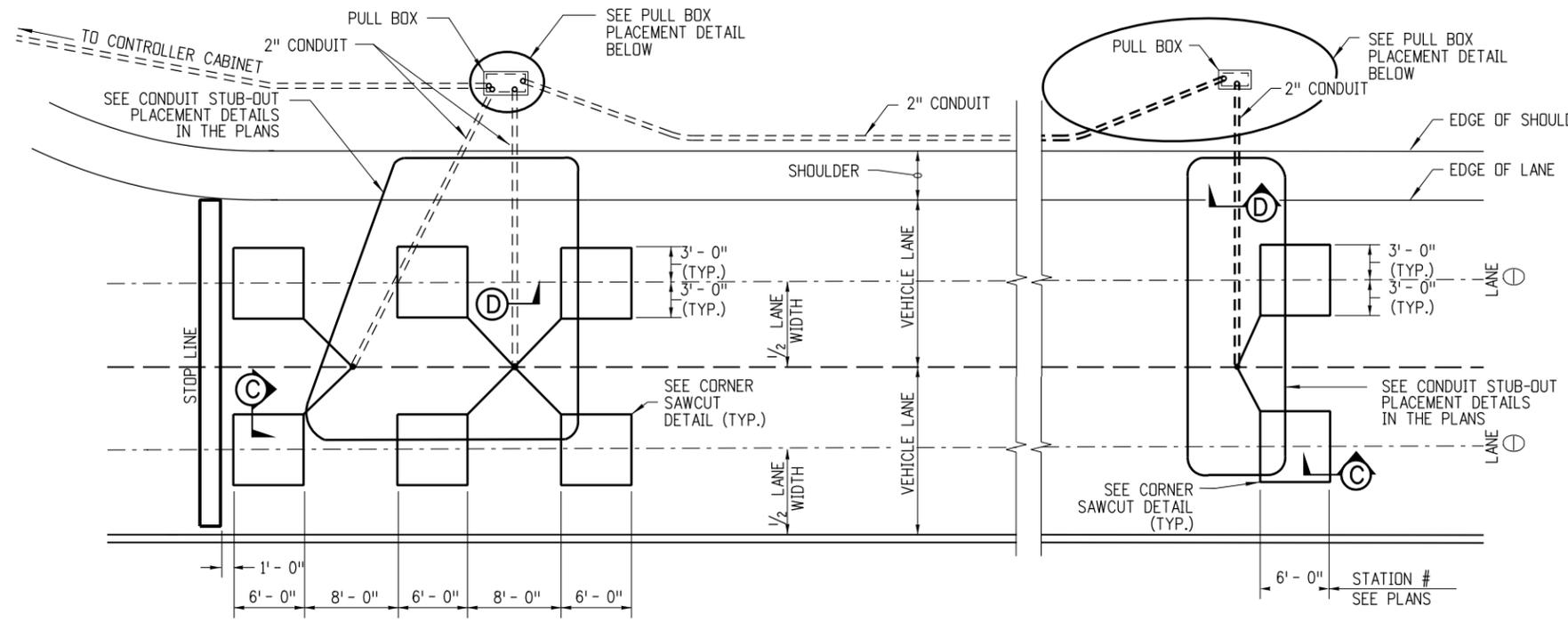
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| CAD Ver.: MicroStation V8 | Scale: Not to Scale Units: English |

| Sheet Revisions | |
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| (R-X) | |
| (R-X) | |
| (R-X) | |

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TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS
 Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
 S-614-43
 Sheet No. 2 of 10

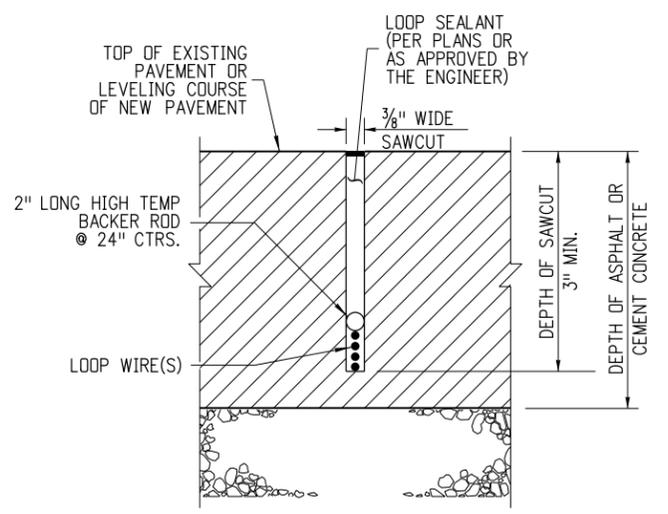


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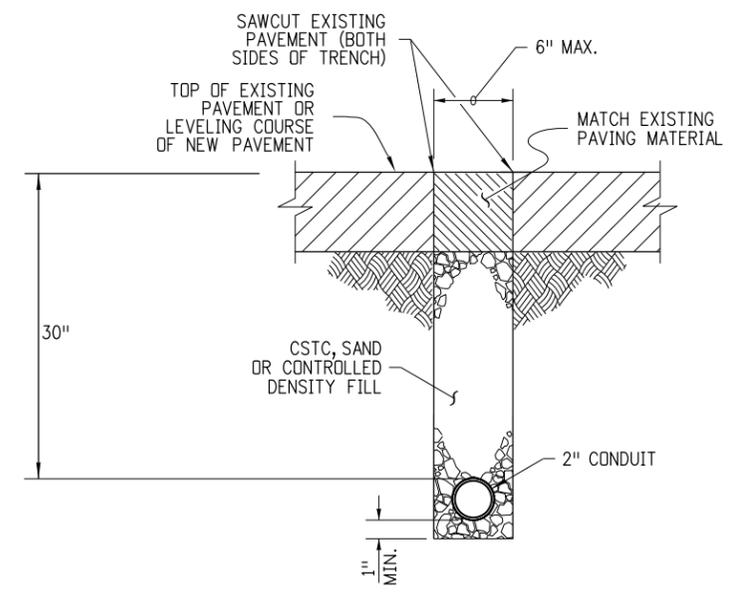
ALL OF THE LOOP LEAD-IN WIRES SHALL RETURN TO THE PULL BOX.

TYPE 2 STOP LINE LOOPS

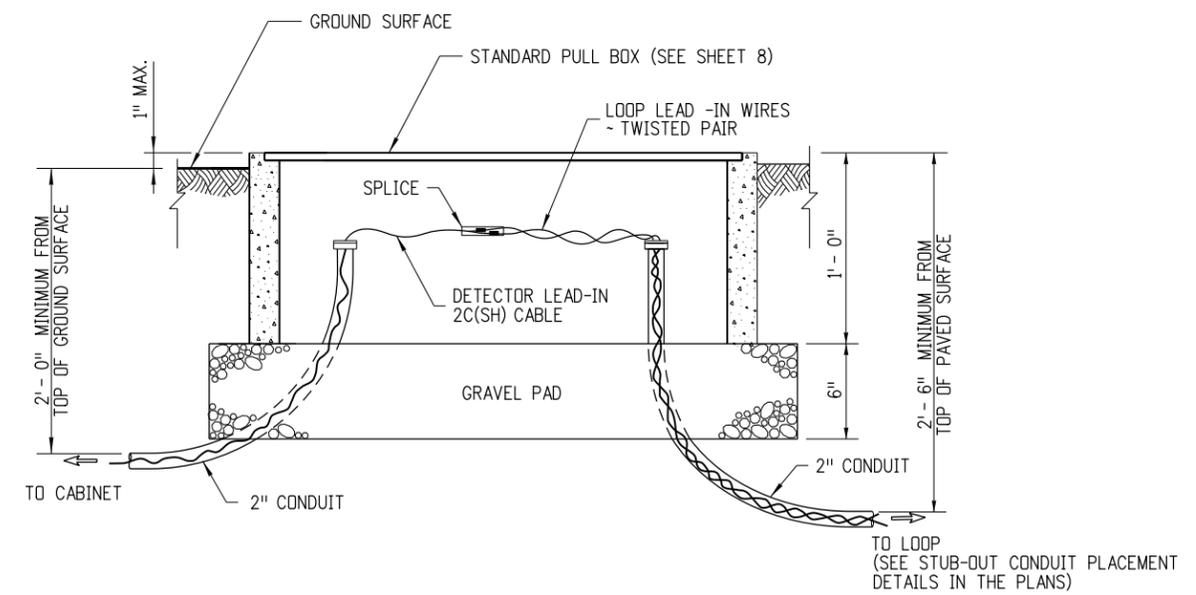
TYPE 2 ADVANCE LOOPS



SECTION C-C



SECTION D-D



PULL BOX PLACEMENT DETAIL

TYPE 2 INDUCTION LOOPS (FOR CONVENTIONAL HIGHWAYS)

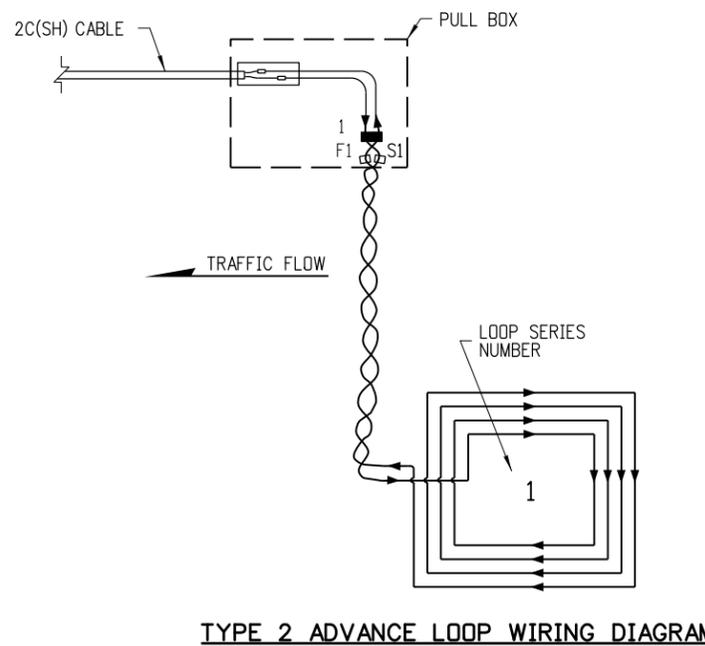
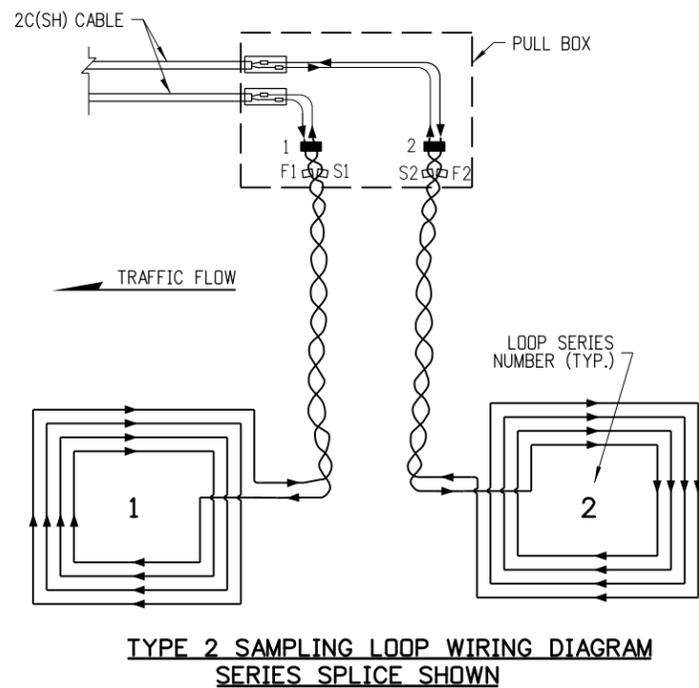
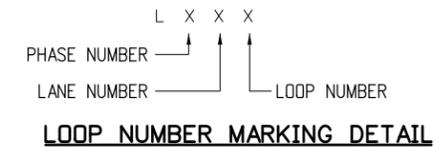
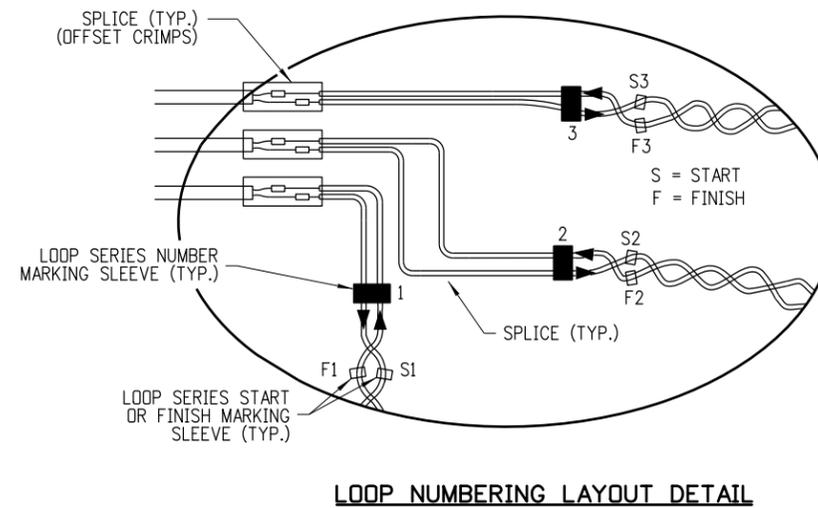
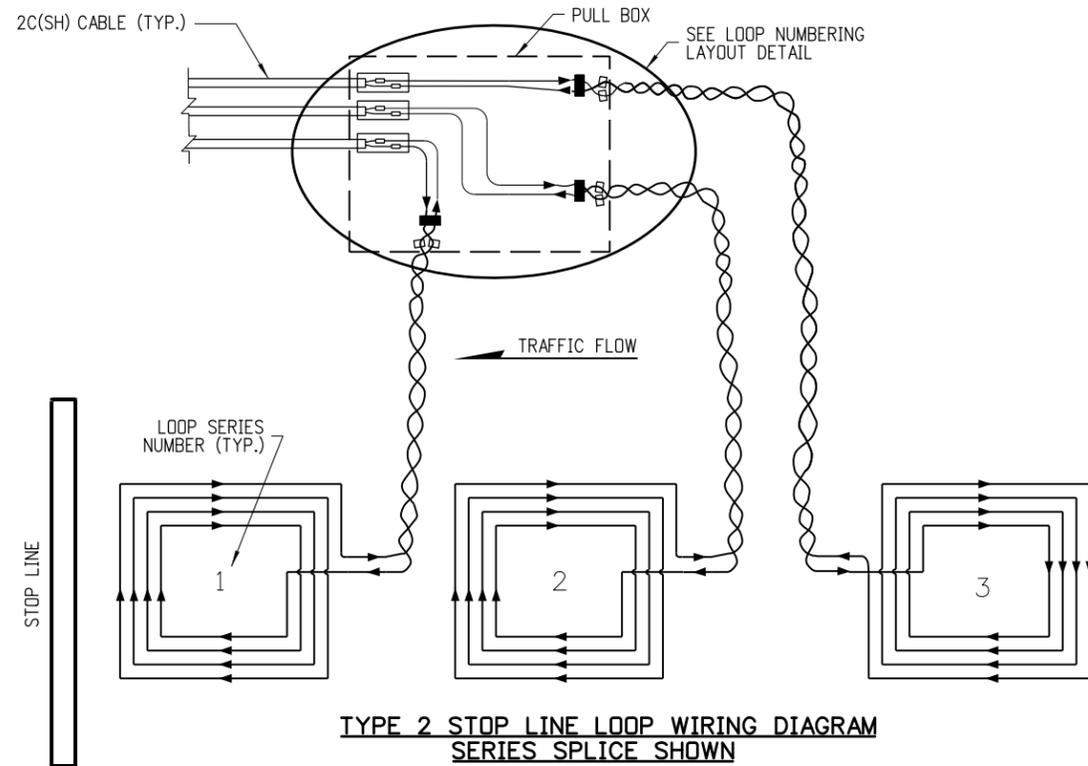
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| Drawing File Name: S-614-43_3of10 | |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | |

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| (R-X) | |
| (R-X) | |
| (R-X) | |

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TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS
 Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
 S-614-43
 Sheet No. 3 of 10

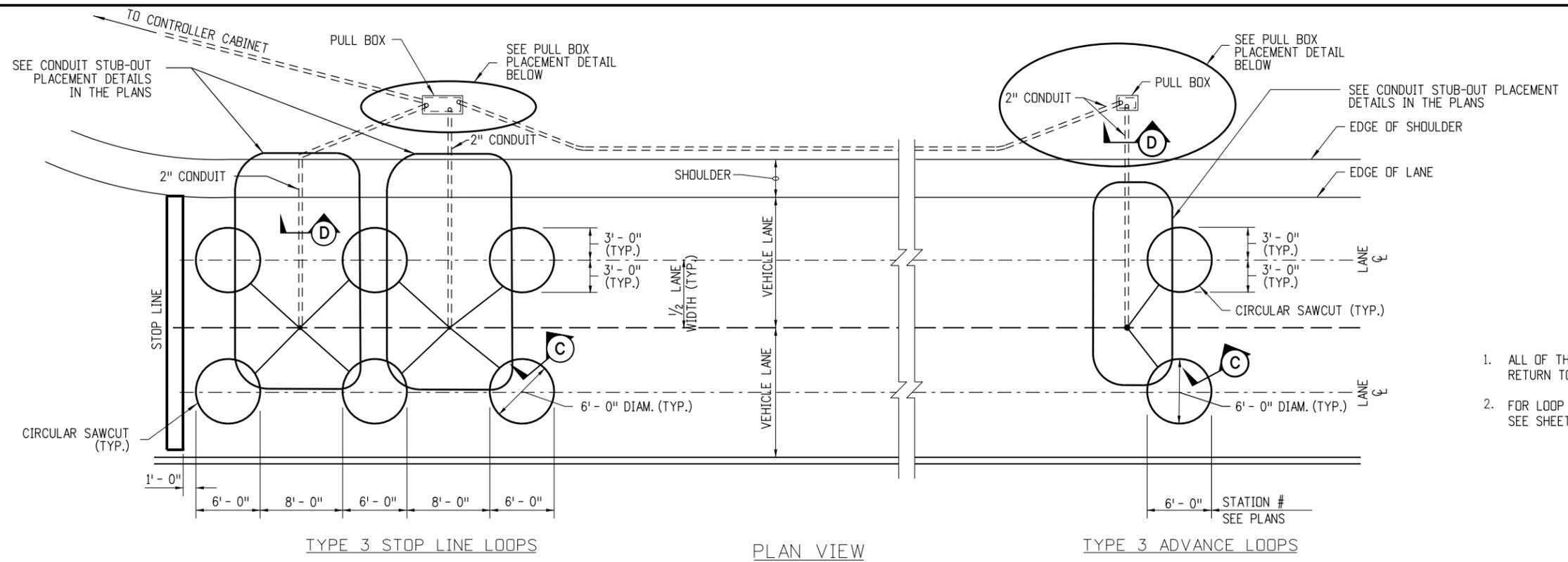


NOTE

FOR WIRING AND CONDUIT LAYOUT, SEE CONDUIT STUB-OUT PLACEMENT DETAIL IN THE PLANS.

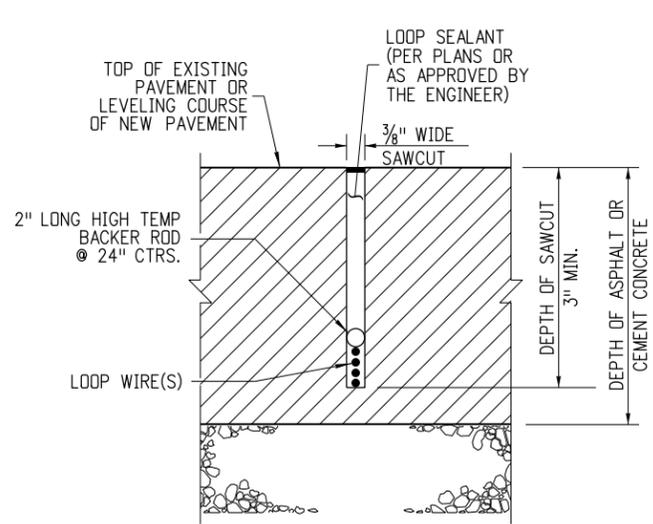
TYPE 2 INDUCTION LOOP

| | | | | | | | | | | |
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| Computer File Information | | Sheet Revisions | | Colorado Department of Transportation | | TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS | | STANDARD PLAN NO. | | |
| Creation Date: 07/04/12 | Initials: KEN | Date: | Comments: |  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219 | KCM/KEN | | Issued By: Safety & Traffic Engineering Branch July 4, 2012 | | S-614-43 | |
| Last Modification Date: | Initials: | | | | | | | | Sheet No. 4 of 10 | |
| Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans | | | | | | | | | | |
| Drawing File Name: S-614-43_4of10 | | | | | | | | | | |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | | | | | | | | | | |

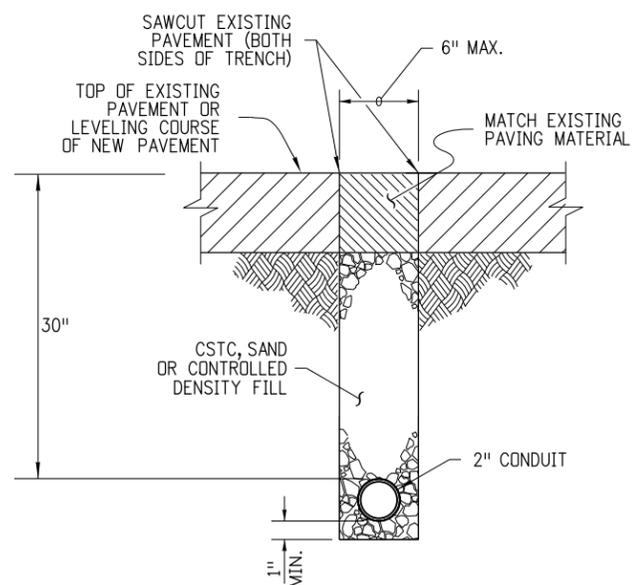


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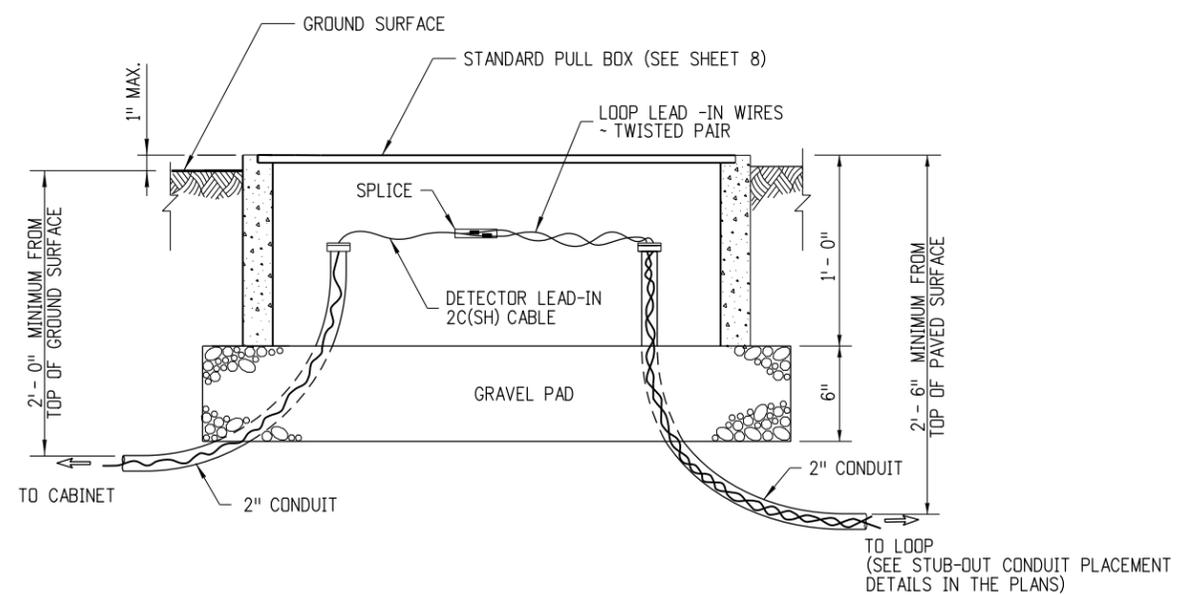
1. ALL OF THE LOOP LEAD-IN WIRES SHALL RETURN TO THE PULL BOX.
2. FOR LOOP NUMBERING LAYOUT DETAILS, SEE SHEET 7.



SECTION C-C



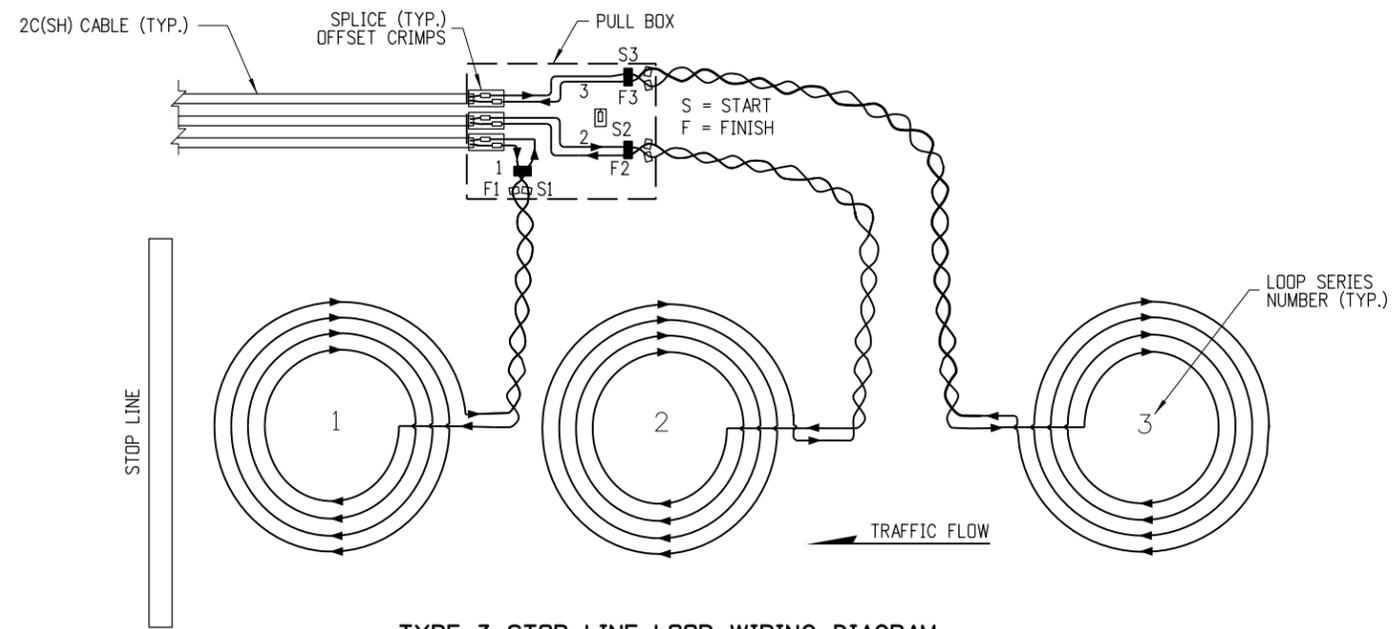
SECTION D-D



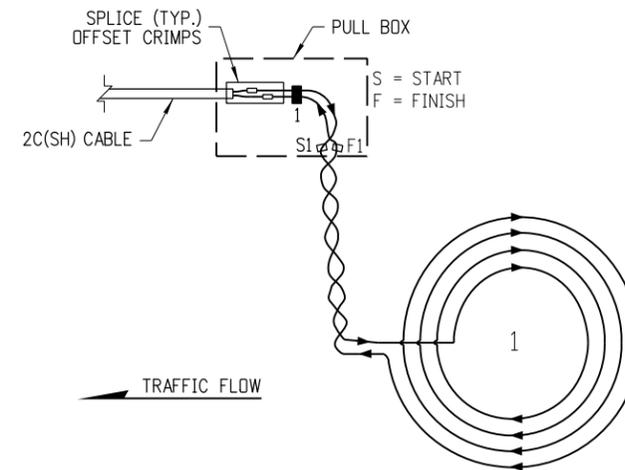
PULL BOX PLACEMENT

TYPE 3 INDUCTION LOOP (FOR CONVENTIONAL HIGHWAYS)

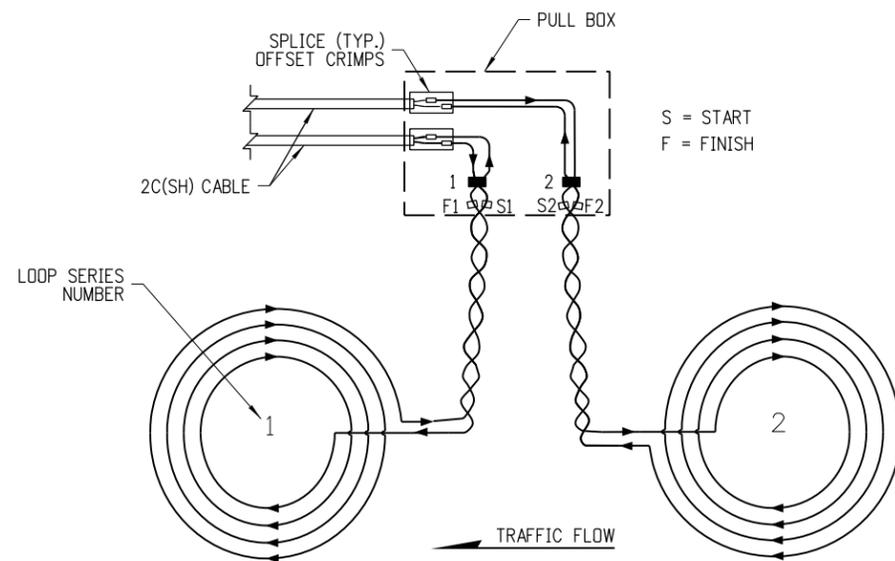
| Computer File Information Creation Date: 07/04/12 Initials: KEN Last Modification Date: Initials: Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans Drawing File Name: S-614-43_5of10 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | | Sheet Revisions <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>(R-X)</td> <td></td> </tr> <tr> <td>(R-X)</td> <td></td> </tr> <tr> <td>(R-X)</td> <td></td> </tr> <tr> <td>(R-X)</td> <td></td> </tr> </tbody> </table> | | Date: | Comments | (R-X) | | (R-X) | | (R-X) | | (R-X) | | Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219 Safety & Traffic Engineering Branch KCM/KEN | | TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS Issued By: Safety & Traffic Engineering Branch July 4, 2012 | | STANDARD PLAN NO. S-614-43 Sheet No. 5 of 10 | |
|---|----------|---|--|-------|----------|-------|--|-------|--|-------|--|-------|--|--|--|---|--|---|--|
| Date: | Comments | | | | | | | | | | | | | | | | | | |
| (R-X) | | | | | | | | | | | | | | | | | | | |
| (R-X) | | | | | | | | | | | | | | | | | | | |
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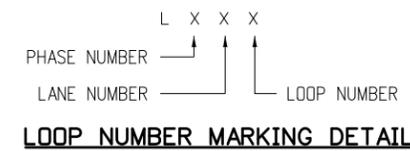
TYPE 3 STOP LINE LOOP WIRING DIAGRAM
SERIES SPLICE SHOWN



TYPE 3 ADVANCE LOOP WIRING DIAGRAM



TYPE 3 SAMPLING LOOP WIRING DIAGRAM
SERIES SPLICE SHOWN



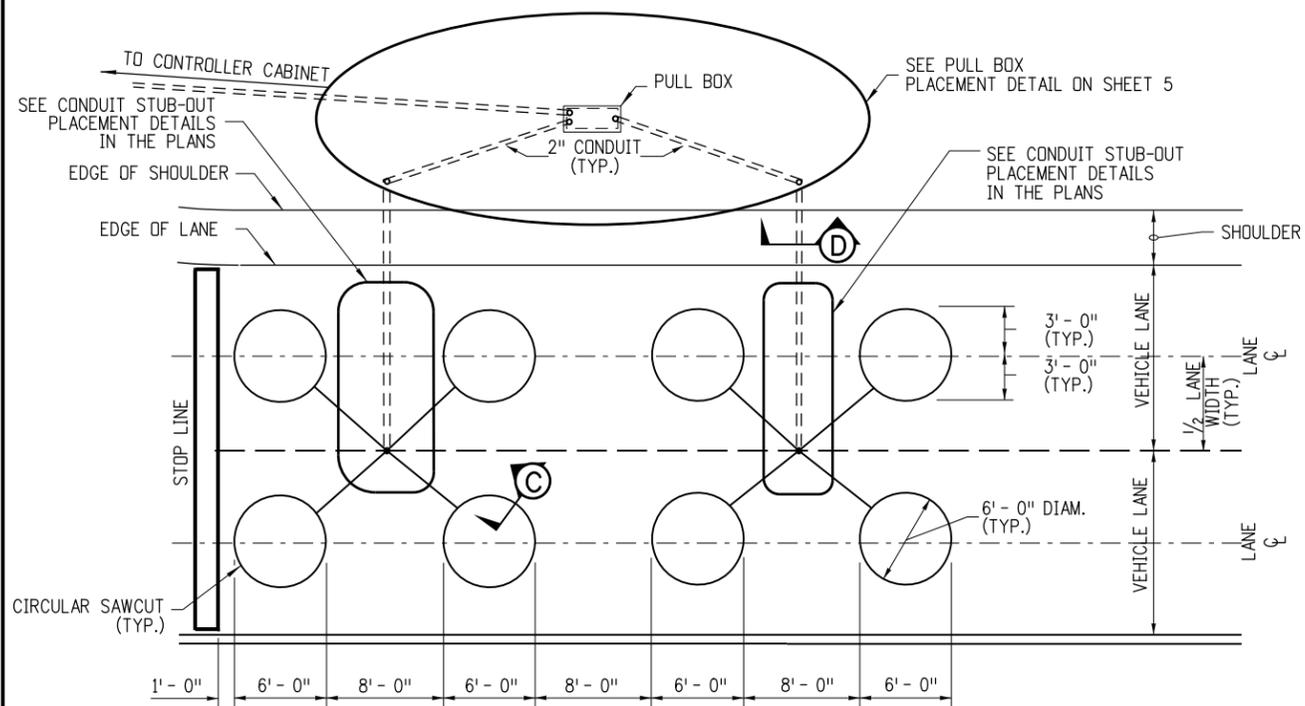
LOOP NUMBER MARKING DETAIL

NOTES

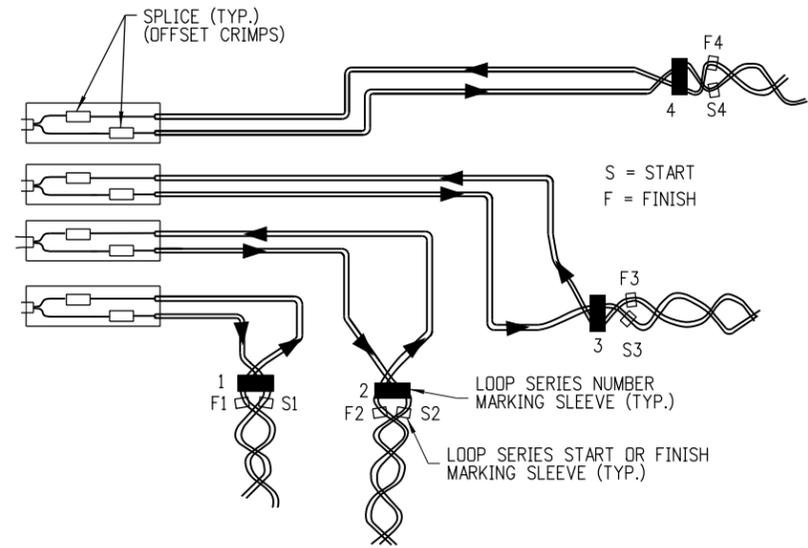
1. LOOP NUMBERING LAYOUT WILL BE SIMILAR TO LOOP NUMBERING LAYOUT DETAIL. SEE SHEET 7
2. FOR WIRING AND CONDUIT LAYOUT, SEE CONDUIT STUB-OUT PLACEMENT DETAIL IN THE PLANS.

TYPE 3 INDUCTION LOOP

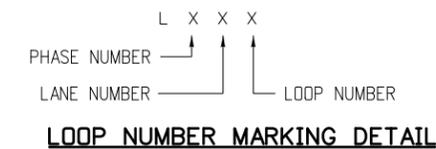
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| Creation Date: 07/04/12 | Initials: KEN | Date: | Comments: | | | S-614-43 |
| Last Modification Date: | Initials: | | | | | |
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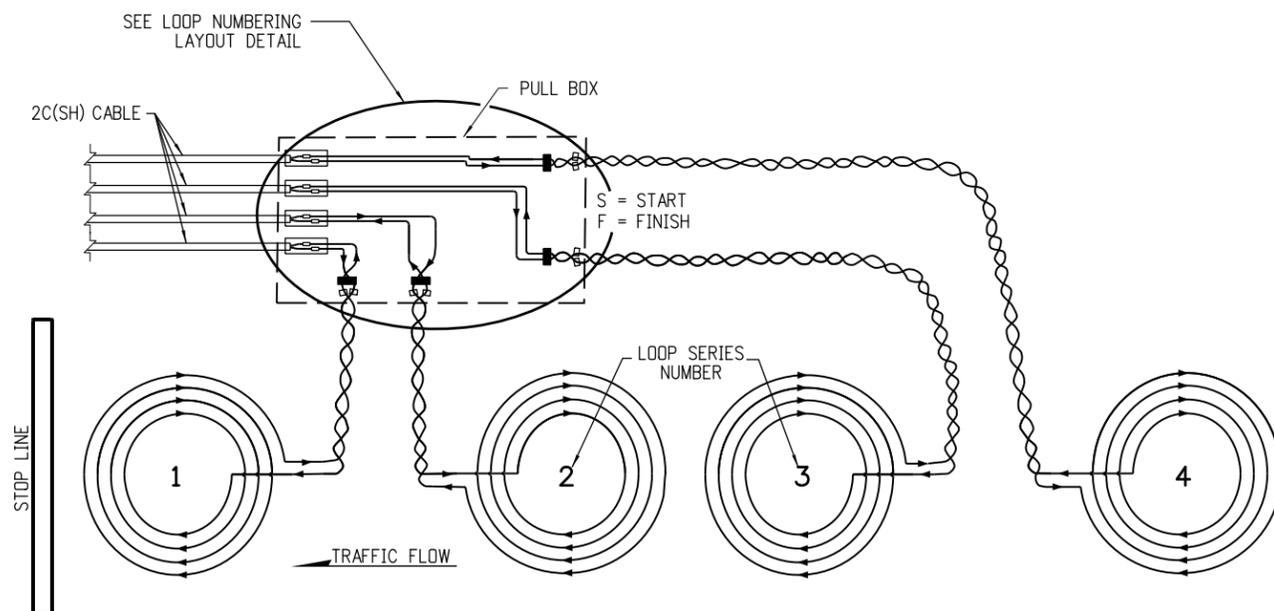
TYPE 3A STOP LINE LOOPS - PLAN VIEW



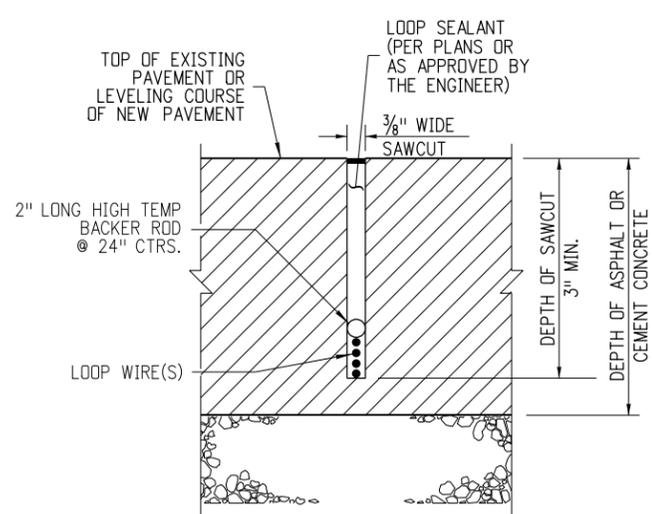
LOOP NUMBERING LAYOUT DETAIL



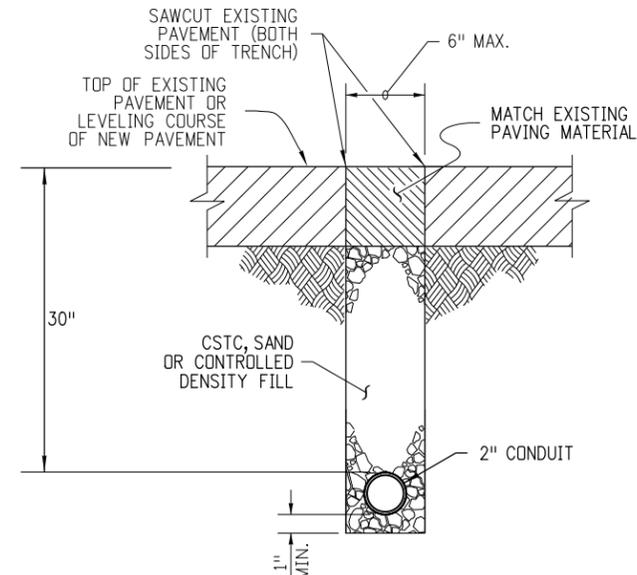
LOOP NUMBER MARKING DETAIL



**TYPE 3A STOP LINE LOOP WIRING DIAGRAM
SERIES SPLICE SHOWN**



SECTION C-C



SECTION D-D

TYPE 3 INDUCTION LOOP

| Computer File Information | |
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| Creation Date: 07/04/12 | Initials: KEN |
| Last Modification Date: | Initials: |
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| Drawing File Name: S-614-43_7of10 | |
| CAD Ver.: MicroStation V8 | Scale: Not to Scale Units: English |

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| Date: | Comments |
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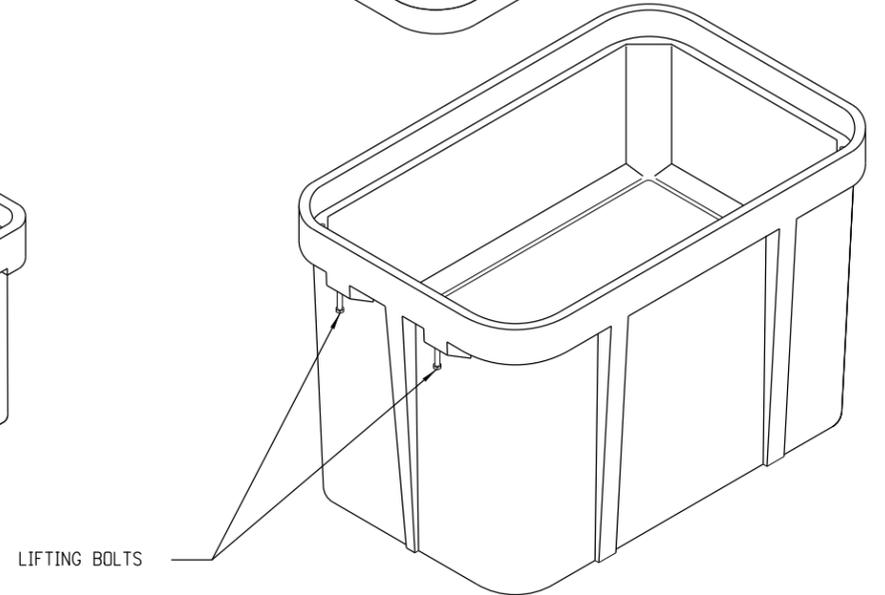
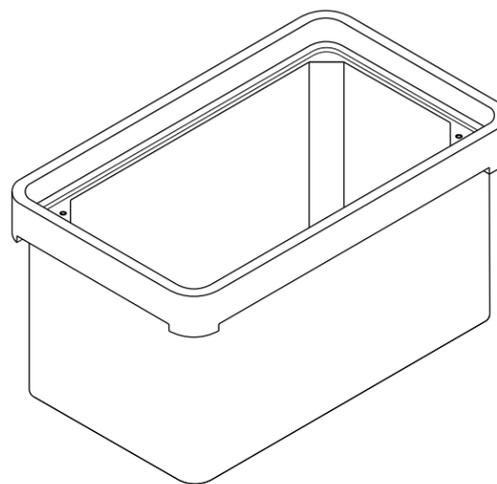
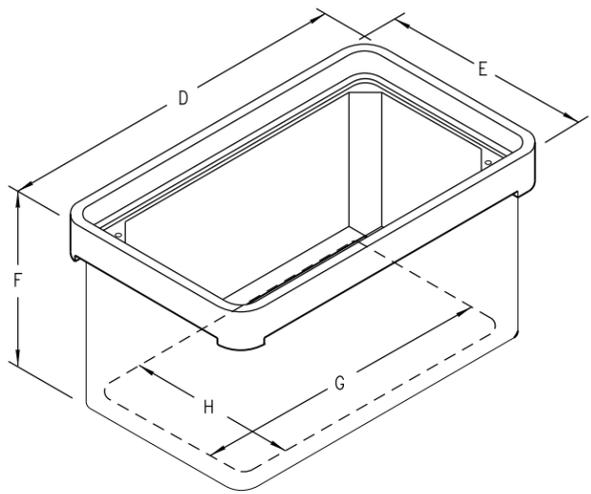
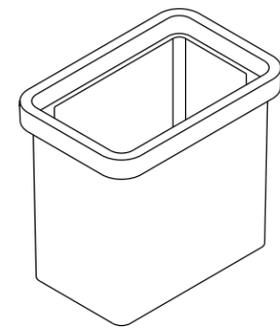
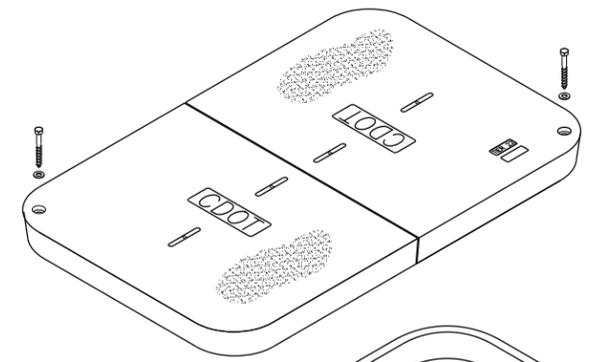
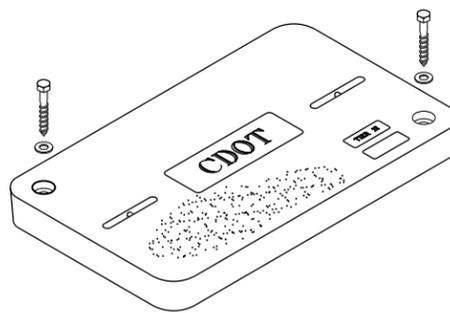
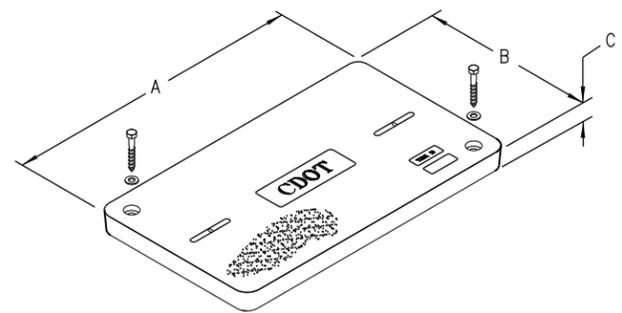
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**TRAFFIC LOOP AND
MISCELLANEOUS SIGNAL
DETAILS**

Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
S-614-43
Sheet No. 7 of 10



TYPE 1

TYPE 2

TYPE 3

TYPES 4 AND 5

NOTES

- PULL BOXES, PULL BOX COVERS AND EXTENSIONS SHALL BE MADE OF FIBERGLASS REINFORCED POLYMER CONCRETE. PULL BOXES SHALL BE VERIFIED BY A 3RD PARTY NATIONALLY-RECOGNIZED INDEPENDENT TESTING LABORATORY AS MEETING ALL TEST PROVISIONS OF THE LATEST ANSI/SCTE 77 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY, TIER 22 RATING. CERTIFICATION DOCUMENTS SHALL BE SUBMITTED WITH MATERIAL SUBMITTALS. THE PULL BOX SHALL HAVE A DETACHABLE COVER WITH A SKID-RESISTANT SURFACE AND HAVE THE WORDS "CDOT TRAFFIC" OR "CDOT COMM" CAST INTO THE SURFACE. PAINTING THE WORDS SHALL NOT BE ACCEPTED. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE BOX AND ON THE UNDER SIDE OF THE COVER. THE COVER SHALL BE ATTACHED TO THE PULL BOX BODY BY MEANS OF A MINIMUM 3/8" - 7 UNIFIED NATIONAL COURSE (UNC) STAINLESS STEEL PENTA HEAD BOLTS AND SHALL HAVE TWO LIFT SLOTS TO AID IN THE REMOVAL OF THE LID.
- PULL SLOTS SHALL BE RATED FOR A MINIMUM PULL OUT OF 3,000 POUNDS.
- TYPE 4 AND 5 PULL BOX COVERS SHALL BE A TWO-PIECE COVER.
- MAGNESIUM CHLORIDE TESTS SHOULD BE PERFORMED IN ACCORDANCE WITH THE LATEST ANSI/SCTE 77 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY, TIER 22 RATING.

TABLE OF DIMENSIONS (MINIMUMS)

| TYPE | DESCRIPTION | DIMENSIONS (IN.) | | | | | | | |
|------|------------------------------|------------------|--------|-------|--------|--------|----|--------|--------|
| | | A | B | C | D | E | F | G | H |
| 1 | PULL BOX - (11" X 18" X 12") | 18 1/8 | 11 1/4 | 1 3/4 | 20 1/4 | 13 3/8 | 12 | 15 3/4 | 8 7/8 |
| 2 | PULL BOX - (13" X 24" X 12") | 23 3/4 | 13 3/4 | 2 | 25 | 15 1/2 | 12 | 19 1/4 | 9 3/4 |
| 3 | PULL BOX - (17" X 30" X 12") | 30 1/2 | 17 1/2 | 2 | 32 1/4 | 19 1/4 | 12 | 26 1/2 | 13 1/2 |
| 4 | PULL BOX - (24" X 36" X 24") | 35 5/8 | 24 | 3 | 37 5/8 | 26 | 24 | 30 1/8 | 18 1/2 |
| 5 | PULL BOX - (30" X 48" X 24") | 47 5/8 | 30 | 3 | 49 5/8 | 32 1/8 | 24 | 45 5/8 | 28 1/8 |

STANDARD PULL BOXES

| Computer File Information | |
|--|---------------|
| Creation Date: 07/04/12 | Initials: KEN |
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| Drawing File Name: S-614-43_8of10 | |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | |

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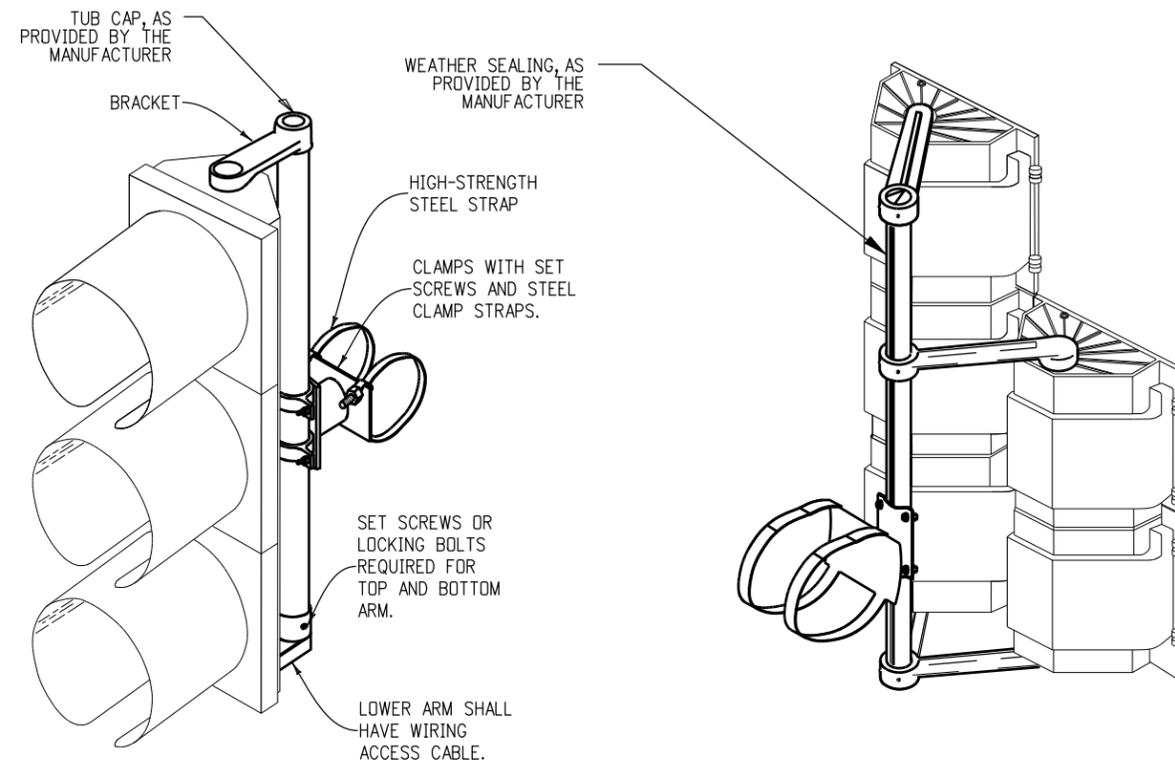
Colorado Department of Transportation
 4201 East Arkansas Avenue
 Denver, Colorado 80222
 Phone: (303) 757-9543
 Fax: (303) 757-9219
Safety & Traffic Engineering Branch **KCM/KEN**

TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS
 Issued By: Safety & Traffic Engineering Branch July 4, 2012

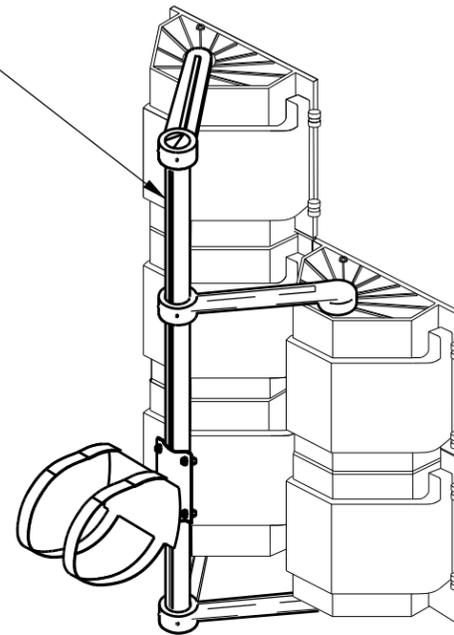
STANDARD PLAN NO.
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NOTES

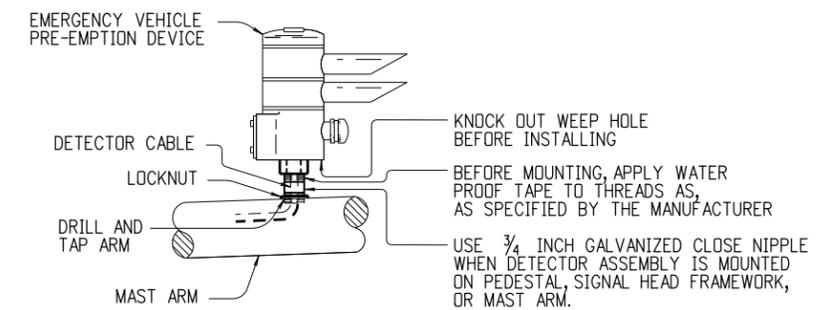
1. SIGNAL HEAD CONFIGURATIONS SHALL BE AS SHOWN ON PLANS
2. INSTALL MOUNTING BRACKETS ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
3. FOR MOUNTING OVERHEAD SIGNS, EXCEPT FOR LIGHTED STREET SIGNS, ON MAST ARMS, SEE STANDARD PLAN S-614-20, USING 3/4" INCH WIDE BANDING.
4. LIGHTED STREET NAME SIGNS SHALL UTILIZE ASTRO-TYPE MOUNTING BRACKETS DESIGNED FOR THE REQUIRED DESIGN LOADING AND BE FREE-SWINGING TO REDUCE WIND LOADING EFFECT.



ASTRO-TYPE MOUNTING BRACKET

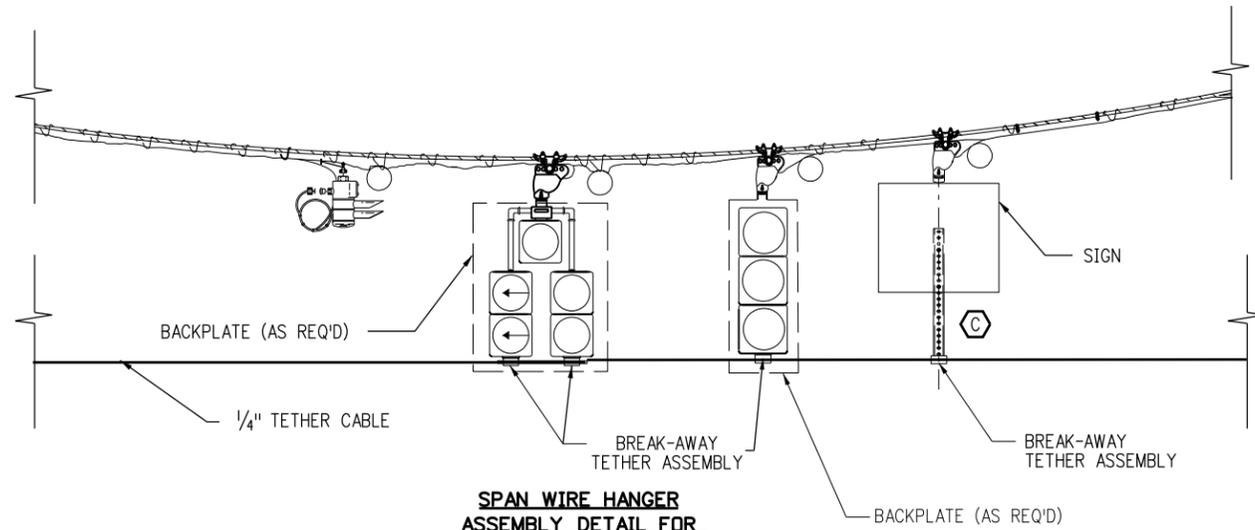


MAST-ARM MOUNTING BRACKETS



EMERGENCY VEHICLE PRE-EMPTION DEVICE MOUNTING DETAIL

| | | | | | | |
|--|---------------------|------------------------|-----------|---|---|--------------------------|
| Computer File Information | | Sheet Revisions | | Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219 Safety & Traffic Engineering Branch KCM/KEN | TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS | STANDARD PLAN NO. |
| Creation Date: 07/04/12 | Initials: KEN | Date: | Comments: | | | S-614-43 |
| Last Modification Date: | Initials: | | | | | |
| Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans | | | | | | |
| Drawing File Name: S-614-43_9of10 | | | | | | |
| CAD Ver.: MicroStation V8 | Scale: Not to Scale | Units: English | | | Issued By: Safety & Traffic Engineering Branch July 4, 2012 | Sheet No. 9 of 10 |

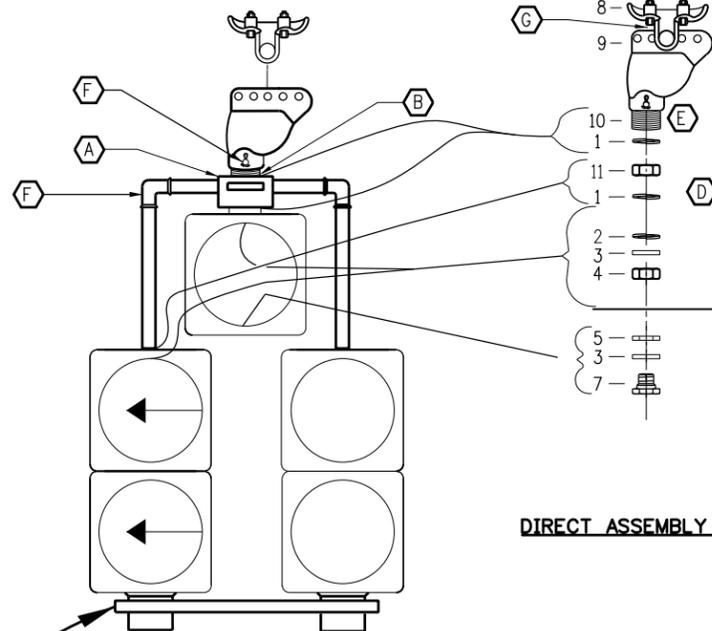


LEGEND

- A TOP BRACKET CENTER HUB SHALL BE MINIMUM 3.5 INCH SQUARE AND 3 INCHES DEEP OR EQUAL VOLUME. SERRATION CAST IN HUB, TABBED OR SERRATED LOCKRING, OPENINGS SHALL BE THREADED.
- B NIPPLE LENGTH DEPENDS ON SPAN HEIGHT.
- C SIGN SUPPORT BRACKET ASSEMBLY SHALL UTILIZE SPAN WIRE CLAMP ADJUSTMENT AND BE ADJUSTABLE TO ACCOMMODATE VARYING SPAN HEIGHT. TETHER SUPPORT BAR SHALL BE ATTACHED TO THE SIGN USING A MINIMUM OF TWO (2), 5/16 INCH BOLTS, SPACED A MINIMUM OF 6 INCHES APART.
- D APPLY SILICONE CAULK BETWEEN OR AROUND SERRATED LOCKRING AND HOUSING.
- E ALL THREAD
- F SETSCREW (SQUARE OR ALLEN) ON ALL FITTINGS.
- G INSTALL STAINLESS STEEL WASHER ON THE INSIDE OF THE COTTER PIN. COTTER PIN AND WASHER SHALL BE ON THE SIDE OF THE HANGER AWAY FROM THE SIGNAL CABLES.

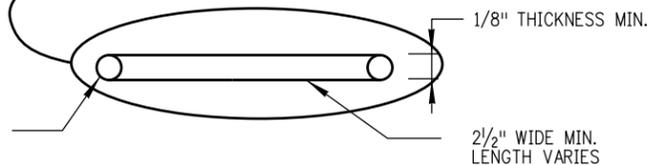
**SPAN WIRE HANGER
ASSEMBLY DETAIL FOR
TRAFFIC SIGNALS**

ITEM DESCRIPTION FOR ASSEMBLY DETAIL



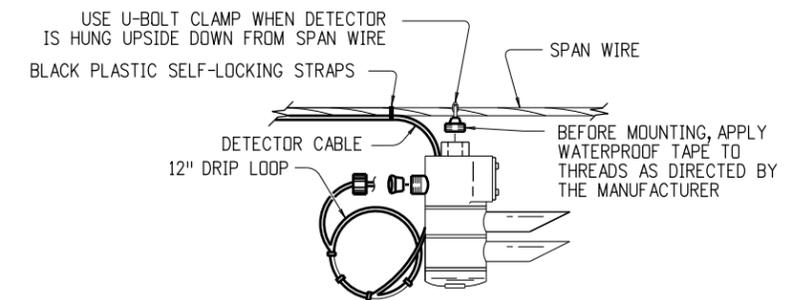
- 1 - SERRATED TABBED LOCKRING, ALUMINUM (TAB MUST BE FULL WIDTH OF RING)
- 2 - GASKET, NEOPRENE
- 3 - WASHER, STEEL
- 4 - HEX NUT, STEEL
- 5 - CONDUIT LOCKNUT, STEEL
- 6 - BUSHING PLASTIC (ONLY IN JUNCTION BOX OR NIPPLED DOWN TRAFFIC SIGNAL)
- 7 - OCTAGONAL CAP, ALUMINIUM
- 8 - SPAN WIRE CLAMP
- 9 - WIRE OUTLET BODY, STEEL, FEMALE ONLY
- 10 - NIPPLE, STEEL
- 11 - HEX NUT, STEEL, NOTCHED WITH SETSCREWS

DIRECT ASSEMBLY DETAIL



**BREAK-AWAY TETHER
ASSEMBLY DETAIL**

SPAN WIRE MOUNTING BRACKET DETAILS



**SPAN WIRE MOUNTING DETAIL
FOR EMERGENCY VEHICLE PRE-EMPTION DEVICE**

| Computer File Information | |
|--|---------------|
| Creation Date: 07/04/12 | Initials: KEN |
| Last Modification Date: | Initials: |
| Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans | |
| Drawing File Name: S-614-43_10of10 | |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | |

| Sheet Revisions | |
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