

ANTI-ICING SYSTEM PHASE I

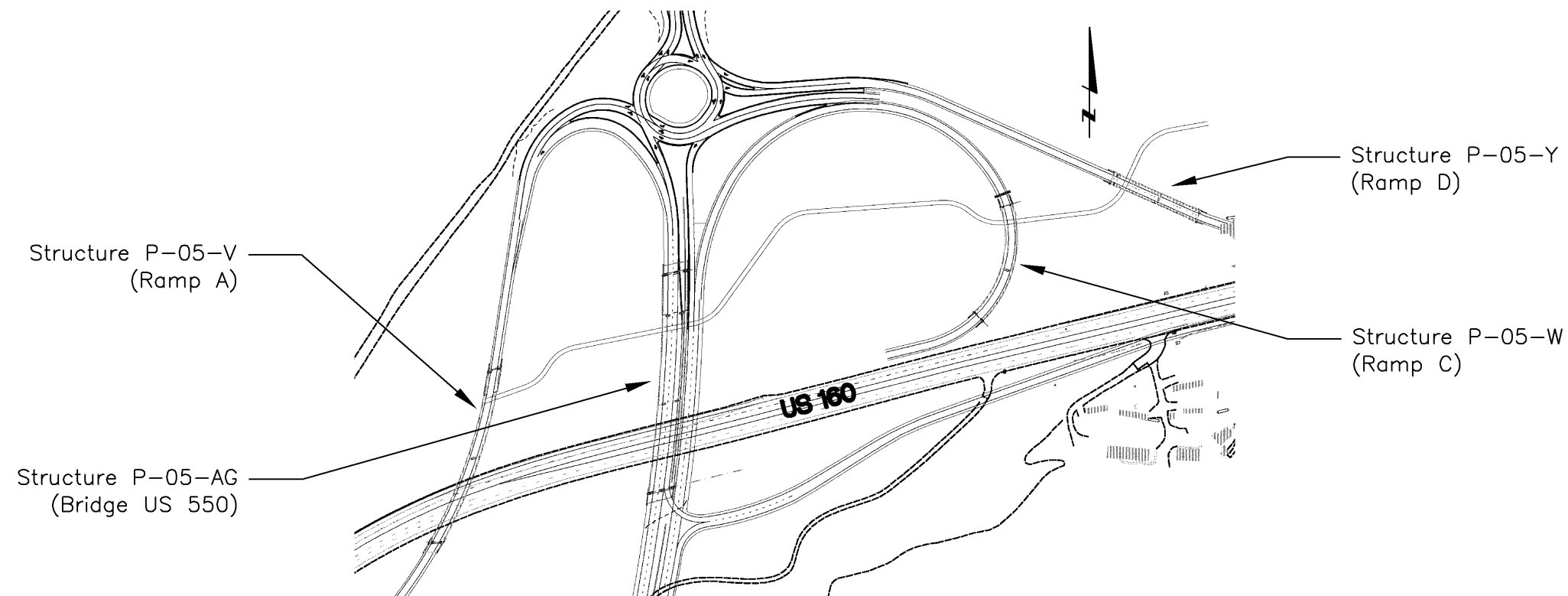
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GENERAL NOTES

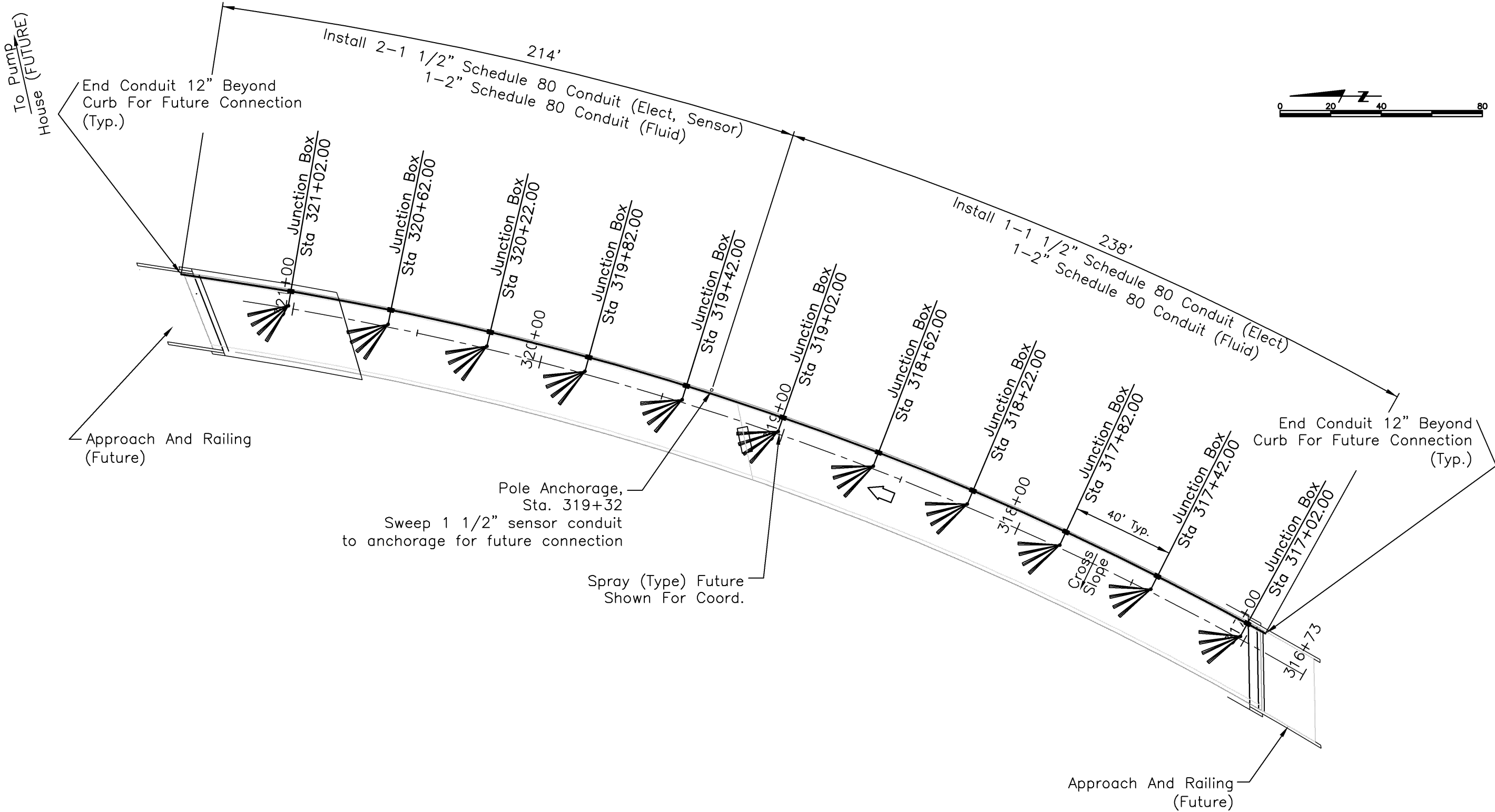
1. The Anti-Icing System Phase I construction drawings include information for the installation of the basic components and shall include conduits, junction boxes, and sensor anchorage to accommodate the future components of an operational system.
2. Conduit shall have a high point placed at the midpoint of the junction boxes to facilitate drainage of the conduits.
3. Spray nozzle and spray pattern on layout are for information only.
4. Unless otherwise indicated, junction boxes shall be placed on the upstream side of super elevation or normal cross slope.

Structure P-05-V RAMP A OVER US 160 RELEASED FOR CONSTRUCTION



Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By	07/08	RJK	07/08	Quantities By	XXX
Checked By	07/25	DDH	07/25	Checked By	XXX

Print Date: Wednesday, September 01, 2010		Sheet Revisions			Colorado Department of Transportation		As Constructed		Project No./Code	
File Name: 0208005.08P101-RAMP A.DWG		Date:	Comments	Init.	3803 North Main Avenue		No Revisions: 11/1/09		NH 1602-114	
Horiz. Scale: As Noted Vert. Scale: As Noted		(R-X)			Suite 200		Revised:		GENERAL NOTES	
Unit Information Unit Leader Initials		(O)			Durango, CO 81301		Void:		Designer: Daniel Hull Structure P-05-V	
Lamp, Rynearson & Associates, Inc. ENVIROTECH		(O)			Phone: 970-385-1440 FAX: 970-385-8365				Detailer: Rick Keller Structure Numbers	
Region 5 EJA		(O)							Sheet Subset: Anti-Icing Subset Sheets: AIS1 of AIS5	
									Sheet Number	

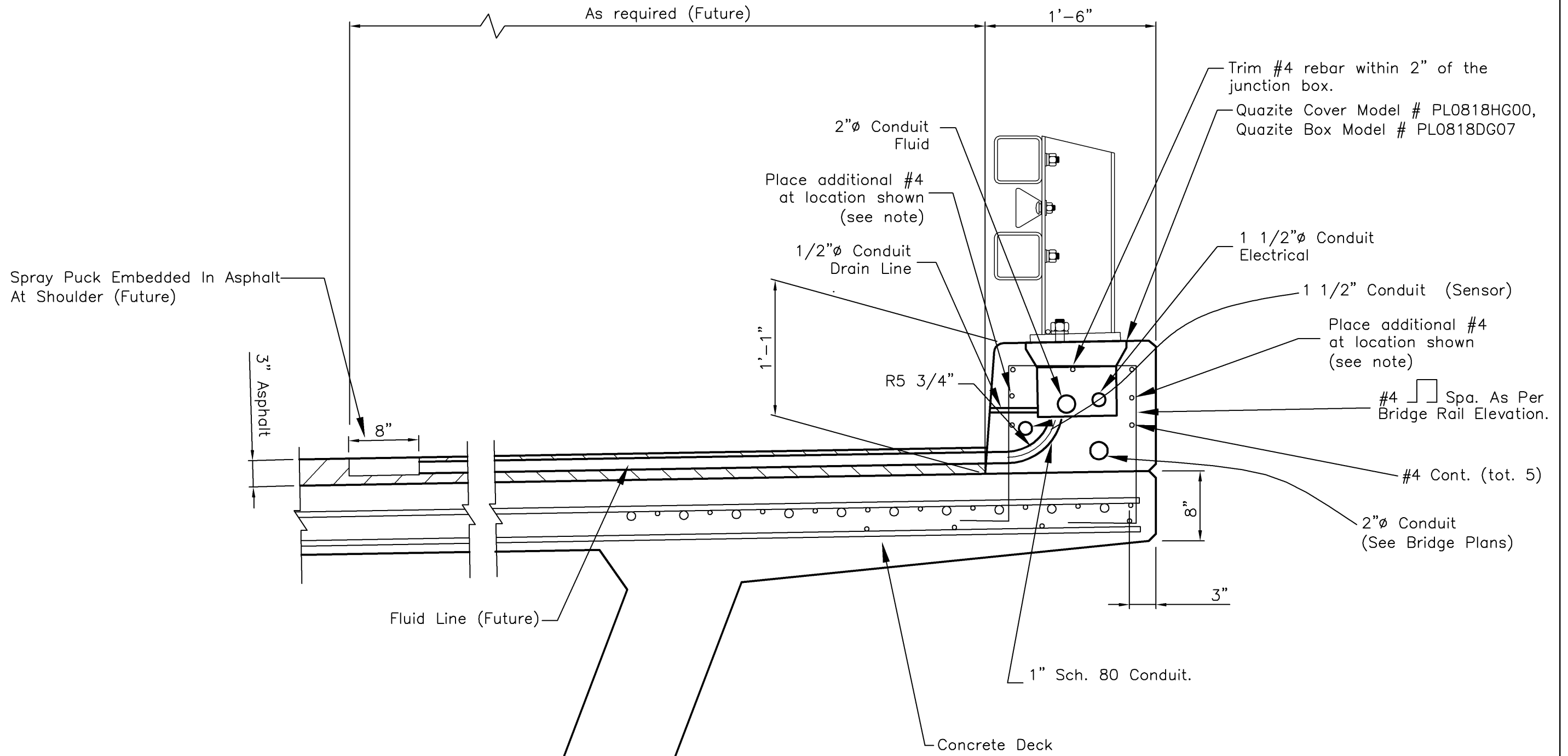


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INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By	07/08	Detailed By	07/08	Quantities By	07/08
Checked By	DDH	Checked By	DDH	Checked By	XXX

NOTE: See Bridge Cross Section For Junction Box Installation.

Print Date: Wednesday, September 01, 2010		Sheet Revisions		Colorado Department of Transportation		As Constructed		BRIDGE LAYOUT		Project No./Code	
File Name: 0208005.08P101-RAMP A.DWG		Date:	Comments	Init.	3803 North Main Avenue		No Revisions: 11/1/09		NH 1602-114		
Horiz. Scale: 1:40 Vert. Scale: As Noted					Suite 200		Revised:		Designer: Daniel Hull	Structure	P-05-V
Unit Information Unit Leader Initials					Durango, CO 81301		Void:		Detailer: Rick Keller	Numbers	16042
Lamp, Rynconson & Associates, Inc. WWW.LRA-INC.COM					Phone: 970-385-1440 FAX: 970-385-8365		Sheet Subset: Anti-Icing		Subset Sheets: AIS2 of AIS5		Sheet Number
ENVIROTECH					Region 5 EJA						

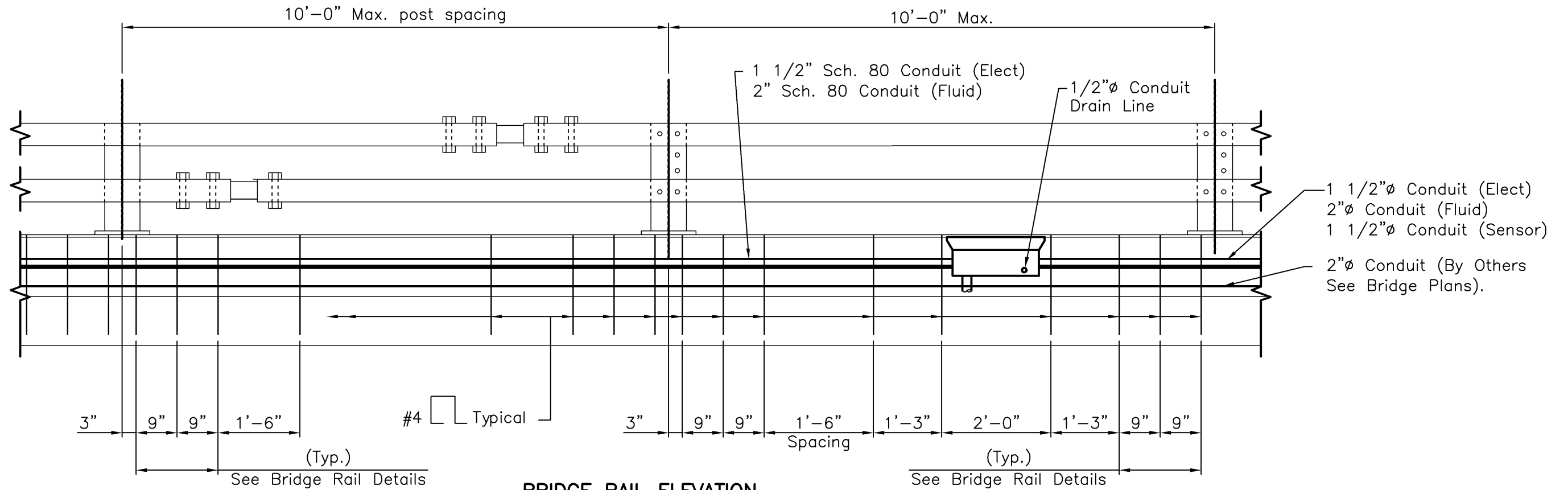
Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By	07/08	Detailed By	07/08	Quantities By	07/08
Checked By	DDH	Checked By	DDH	Checked By	XXX



Note: The length of the additional #4 rebar shall be 2'-6" + Length of #4 rebar trimmed out for junction box.

BRIDGE SECTION
Scale: 1/2" = 1'-0"

Print Date: Wednesday, September 01, 2010		Sheet Revisions			Colorado Department of Transportation		As Constructed		BRIDGE CROSS SECTION		Project No./Code	
File Name: 0208005.08P101-RAMP A.DWG		Date:	Comments	Init.	3803 North Main Avenue		No Revisions: 11/1/09		Designer: Daniel Hull		NH 1602-114	
Horiz. Scale: As Noted Vert. Scale: As Noted					Suite 200		Revised:		Detailer: Rick Keller		Structure P-05-V	
Unit Information Unit Leader Initials					Durango, CO 81301		Void:		Sheet Subset: Anti-Icing		16042	
Lamp, Rynerson & Associates, Inc. 1140 20th Avenue, Suite F1, Durango, Colorado 81301					Phone: 970-385-1440 FAX: 970-385-8365				Subset Sheets: AIS3 of AIS5		Sheet Number	
ENVIROTECH BUSINESS INC.					Region 5 EJA							



BRIDGE RAIL ELEVATION
Scale" 1/2" = 1'-0"

Design		Detail		Quantities	
INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
Designed By JMH	07/08	Detailed By RJK	07/08	Quantities By XXX	MM/YY
Checked By DDH	07/25	Checked By DDH	07/25	Checked By XXX	MM/YY

Print Date: Wednesday, September 01, 2010	
File Name: 0208005.08P101-RAMP A.DWG	
Horiz. Scale: As Noted	Vert. Scale: As Noted
Unit Information	Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.
(R-X)		

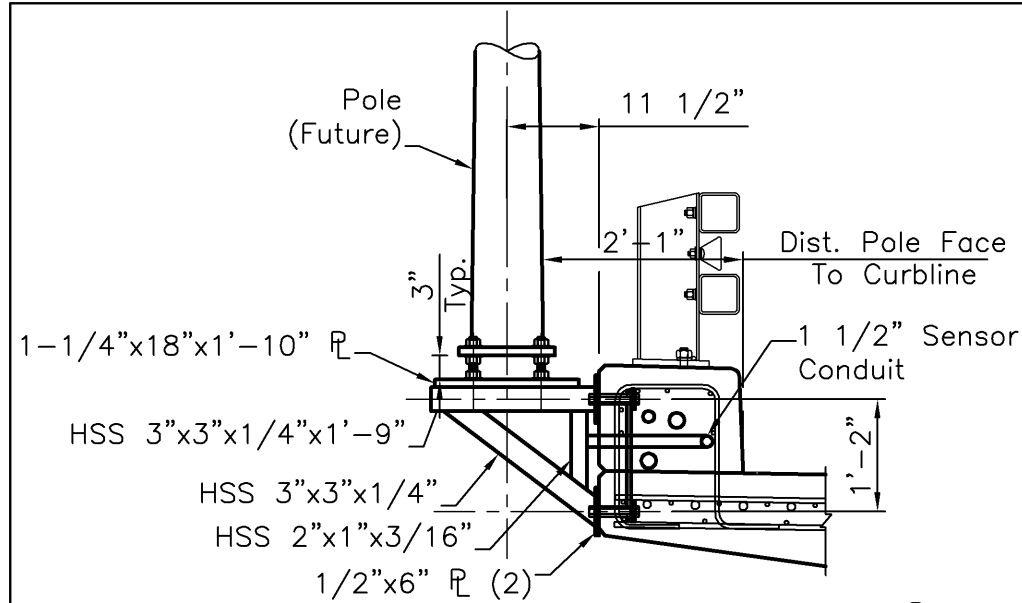
Colorado Department of Transportation
3803 North Main Avenue
Suite 200
Durango, CO 81301
Phone: 970-385-1440 FAX: 970-385-8365
Region 5 EJA

As Constructed
No Revisions: 11/1/09
Revised:
Void:

BRIDGE RAIL ELEVATION			
Designer: Daniel Hull	Structure Numbers	P-05-V	
Detailer: Rick Keller			
Sheet Subset: Anti-Icing	Subset Sheets: AIS4 of AIS5		

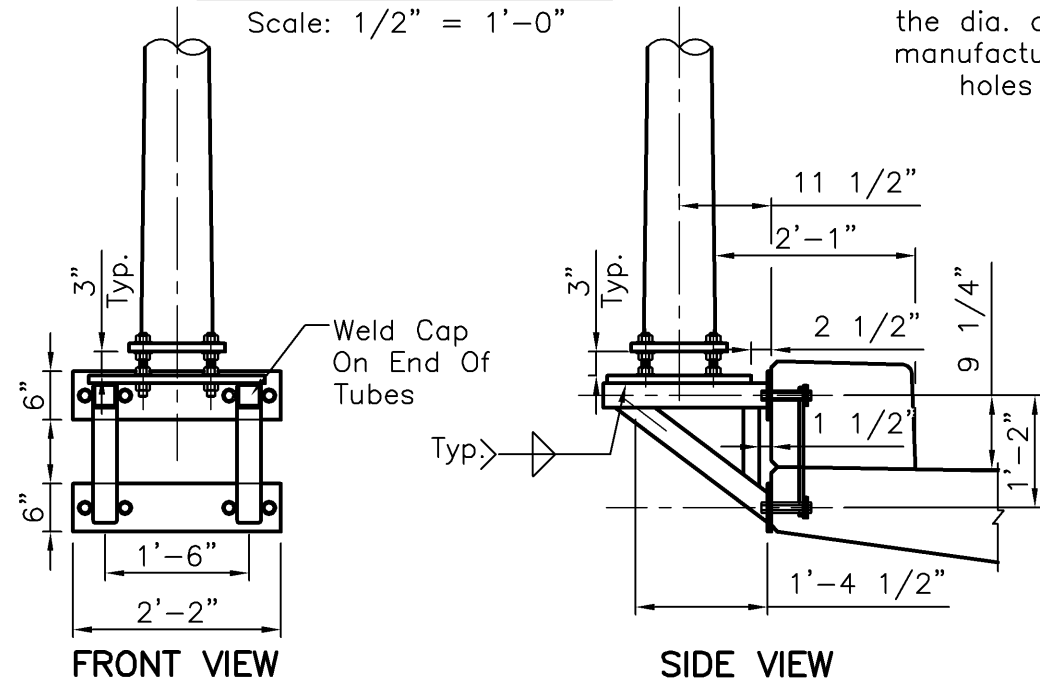
Project No./Code
NH 1602-114
16042
Sheet Number

Design	INITIAL	DATE	Checked By	Checked By
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Detail	INITIAL	DATE	Checked By	Checked By
	DDH	07/25		
Quantities	INITIAL	DATE	Checked By	Checked By
	XXX	MM/YY		



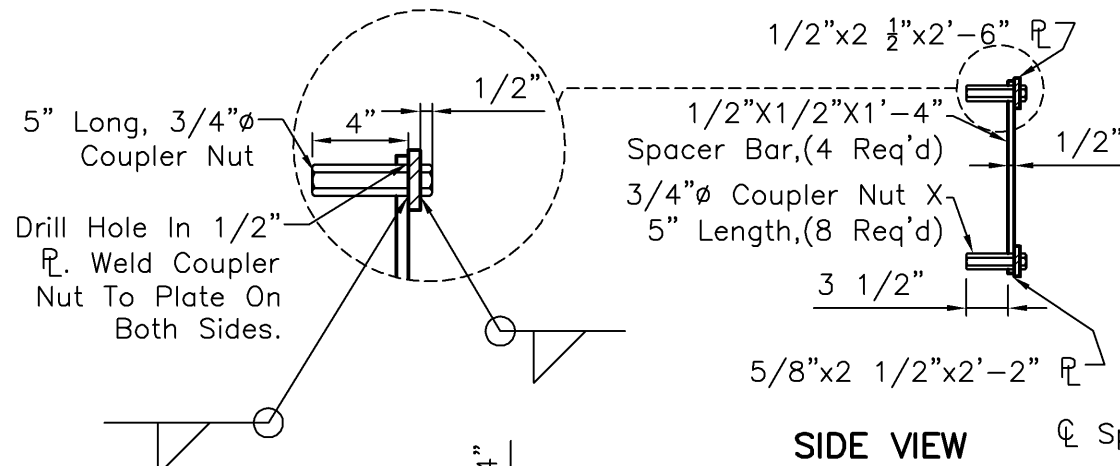
POST MOUNTING DETAIL

Scale: 1/2" = 1'-0"

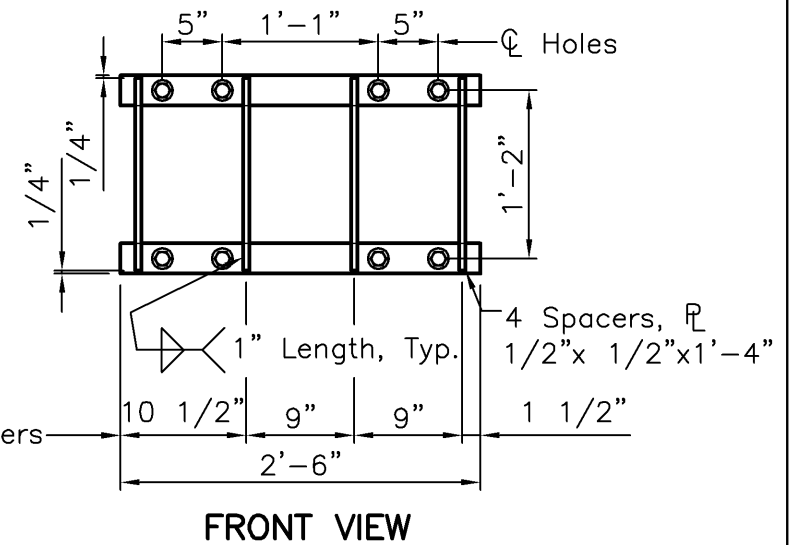


OUTSIDE MOUNTING BRACKET

Scale: 1/2" = 1'-0"



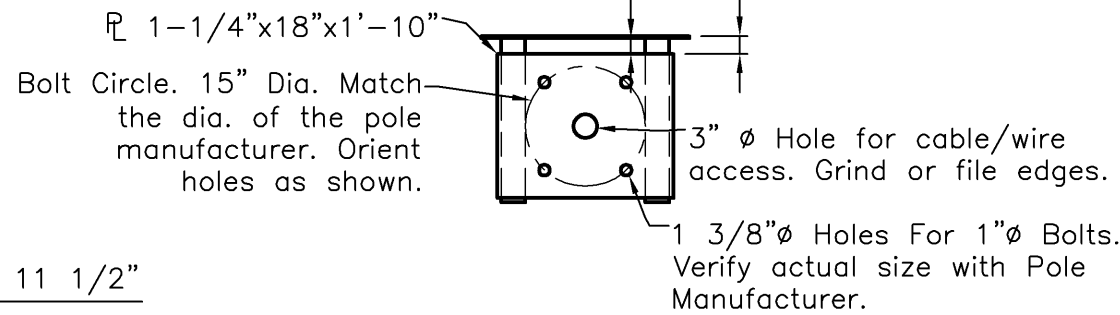
SIDE VIEW



FRONT VIEW

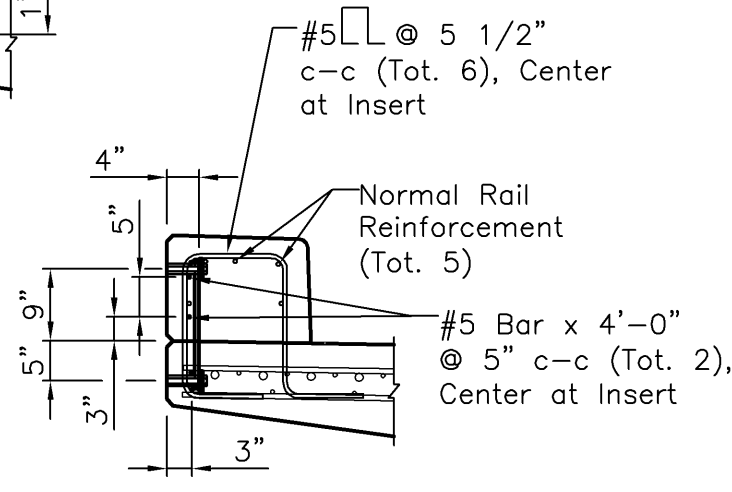
BARRIER INSERT DETAIL

Scale: 3/4" = 1'-0"



PLAN VIEW OF MOUNTING BRACKET

Scale: 1/2" = 1'-0"



BARRIER WITH BRACKET INSERTS

Scale: 1/2" = 1'-0"

STRUCTURAL STEEL AND METAL EMBEDMENTS FOR CONCRETE STRUCTURES

- Miscellaneous steel items in the structures shall be fabricated from structural steel conforming to ASTM A36 or A572. Welding shall meet requirements of AWS D1.1. The finished fabrication shall be hot-dip galvanized in accordance with ASTM A123.
- All Bolts, Nuts and Washers shall be A325, and shall be galvanized.
- All HSS Round or Rectangular Sections shall conform to ASTM A500, Grade B or C structural tubing.
- All welds shall be 1/4" minimum effective throat welds, or to the thickness of the smaller material being welded, whichever is smaller, based on 70 ksi electrode strength. HSS members may require flare bevel welds.
- 3/4" Coupler Nuts shall be 5" minimum in length, and shall meet the requirements of A325.
- Bolts to connect the Bracket to the barrier shall be 3 1/2" in length with washers.
- Pole Mounting Bracket is designed for following conditions:
 - Maximum wind velocity of 100 mph.
 - Maximum height of pole not to exceed 30 feet from top of mounting bracket plate.
 - Top of pole shall not exceed 100 feet as measured above the local ground elevation.
 - Horizontal projected area of installed equipment shall not exceed 4.5 SF mounted at 27 Feet above the top of the mounting plate (or equivalent produced moment).
 - Base of the pole shall not exceed 8" diameter, Bolt circle shall not exceed 15".

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Sheet Revisions		
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(O)		
(O)		

Colorado Department of Transportation
 3803 North Main Avenue
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No Revisions: 11/1/09
Revised:
Void:

SENSOR POLE ANCHORAGE			
Designer: Daniel Hull	Structure: P-05-V	Project No./Code: NH 1602-114	
Detailer: Rick Keller	Numbers:	16042	
Sheet Subset: Anti-Icing	Subset Sheets: AIS6 of AIS5	Sheet Number	