



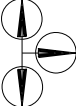
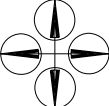












TRAFFIC SIGNAL HEAD SYMBOLS

- 
- 12" L.E.D. VEHICLE TRAFFIC SIGNAL (ONE WAY)
- 
- BAGGED OR COVERED 12" L.E.D. VEHICLE TRAFFIC SIGNAL (ONE WAY)
- 
- 12" L.E.D. VEHICLE TRAFFIC SIGNAL (ONE WAY) WITH SPECIAL TURNING MOVEMENT (LEFT TURN SHOWN)
- 
- 12" L.E.D. VEHICLE TRAFFIC SIGNAL (TWO WAY: BACK TO BACK)
- 
- 12" L.E.D. VEHICLE TRAFFIC SIGNAL (THREE WAY)
- 
- 12" L.E.D. VEHICLE TRAFFIC SIGNAL (FOUR WAY)
- 
- 12" L.E.D. PROGRAMMABLE VEHICLE TRAFFIC SIGNAL (ONE WAY)




PEDESTRIAN RELATED SYMBOLS

- 
- 12" L.E.D. PEDESTRIAN TRAFFIC SIGNAL (ONE WAY)
- 
- 12" L.E.D. PEDESTRIAN TRAFFIC SIGNAL (TWO WAY: AT ANGLE TO EACH OTHER)
- 
- PEDESTRIAN PUSHBUTTON



IN GROUND TRAFFIC SIGNAL EQUIPMENT

- 
- 30 INCH ROUND PRECAST TRAFFIC SIGNAL HANDHOLE
- 
- 36 INCH ROUND PRECAST TRAFFIC SIGNAL HANDHOLE
- 
- OTHER TRAFFIC SIGNAL HANDHOLE
- 
- ALUMINUM PEDESTRIAN PEDESTAL
- 
- ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION (POLE LENGTH & FOUNDATION SIZE AS CALLED OUT)
- 
- MAST ARM POLE (SIZE AS CALLED FOR ON PLAN SHEET)








TRAFFIC CONTROLLER SYMBOLS

- 
- BASE MOUNTED TRAFFIC CONTROLLER
- 
- POLE MOUNTED TRAFFIC CONROLLER
- 
- GLOBAL POSITIONING SYSTEM (GPS) MODULE





CASE SIGN SYMBOLS

- 
- CASE SIGN (1 WAY OR 2 WAY)
- 
- CASE SIGN (3 WAY OR 4 WAY)

VEHICLE DETECTION SYMBOLS

- 
- VEHICLE DETECTION CAMERA
- 
- OMNI-DIRECTIONAL ANTENNA
- 
- RADIO RECEIVER FOR WIRELESS VEHICLE DETECTION
- 
- UNI-DIRECTIONAL ANTENNA
- 
- WIRELESS VEHICLE DETECTION SENSOR
- 
- TRAFFIC VEHICLE DETECTION LOOP
- 
- OPTICOM PRE-EMPTION







MISCELLANEOUS (PLAN VIEW)

- 
- ROAD SIGN WITH FLASHING SIGN OPTICAL (ONE WAY)
- 
- SIDEWALK TURNING SPACE, PROPOSED. (2% MAX GRADE WITH 2% MAX CROSS SLOPE)
- 
- A.D.A DETECTABLE WARNING SURFACE
- 
- PUSHBUTTON LANDING, PROPOSED. (2% MAX GRADE WITH 2% MAX CROSS SLOPE) POSITION WITH SIDEWALK DIRECTION



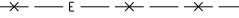










RAILROAD SYMBOLS

- 
- RAILROAD CONTROL BOX
- 
- RAIL ROAD SIGNAL ON POLE
- 
- RAIL ROAD SIGNAL ON CANTILEVER

CABLE DIAGRAM SYMBOLS

- 
- COILED UP WIRE (FOR CONNECTION BY OTHERS)
- 
- STAINLESS STEEL SERVICE DISCONNECT
- 
- METERED ELECTRIC SERVICE
- 
- ELECTRIC GROUND
- T.S. # 
- SIGNAL HEAD
- C.S. # 
- ILLUMINATED CASE SIGN

ELECTRICAL LINE STYLES

- 
- CABLE, OVERHEAD
- 
- CABLE, DIRECT BURIAL
- 
- CABLE, EXISTING TO BE REMOVED
- 
- CABLE, EXISTING TO BE ABANDONED
- 
- CABLE, TWISTED PAIR
- 
- CONDUIT, EXISTING
- 
- CONDUIT, EXISTING, UNDER GROUND
- 
- CONDUIT, EXISTING TO BE ABANDONED
- 
- CONDUIT, EXISTING, SUSPENDED
- 
- CONDUIT, PROPOSED, DIRECT BURIAL
- 
- CONDUIT, PROPOSED, ENCASED
- 
- CONDUIT, PROPOSED, DIRECTIONAL BORED
- 
- CONDUIT, IN BRIDGE



PLAN REVISIONS (SUBMITTAL DATE:)							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

HURON-CLINTON METROPARKS
LOWER HURON METROPARK
VAN BUREN TOWNSHIP, WAYNE COUNTY

DATE:08/24/21
DRAWN BY:K. RAMAKERS CHECKED BY: K. MAZUREK
FILE:Legend_Sheet.dgn



NO SCALE

TRAFFIC SIGNAL LEGEND SHEET
HAGGERTY ROAD AND HURON RIVER DRIVE
VAN BUREN TOWNSHIP, WAYNE COUNTY

DRAWING	SHEET
SIGNAL 001	SECT 1

GENERAL NOTES

UTILITIES

MISS DIG/UNDERGROUND UTILITY NOTIFICATION

For the protection of underground utilities and in conformance with MCL 460.171 et seq, the Contractor shall contact MISS DIG System, Inc. by phone at 811 or 800-482-7171 or via the web at either elocate.missdig.org for single address or rte.missdig.org, a minimum of 3 work days prior to excavating, excluding weekends and holidays.

SIGNALS

PREVIOUS GENERAL NOTES

Some notes previously included in “General Notes” are now located within the Frequently Used Special Provision titled “Traffic Signal Work - Construction Methods”.

MAINTAINING AGENCY CONTACT INFORMATION

- Wayne County Department of Public Services: (734-955-2346)

NOTIFICATIONS TO MAINTAINING AGENCIES

Contact Wayne County Department of Public Services seven working days prior to start of construction and seven working days prior to signal activation.

CABINET SET UP AND CONTROLLER TIMING

Contractor shall deliver where required to the appropriate maintaining agency, the T.S. Cabinet and Controller for set up and timing. Contractor shall pick-up cabinet from the appropriate maintaining agency when ready for installation.

FACILITIES NOT ON PLANS

Existing O.H. & T.S. facilities are not necessarily shown on plans.

CONTINUOUS TRAFFIC SIGNAL OPERATION

Proposed T.S. shall be put into operation at time of removal of existing T.S. facilities, contractor shall notify Wayne County Department of Public Services if unable to maintain T.S. in an operable condition at all times.

UNDERGROUND UTILITY SEPARATION

A minimum clearance of 3'-6" horizontal & 1'-0" vertical must be maintained between proposed facilities & existing U.G. water facilities.

SIGNAL EQUIPMENT DISPOSAL

Disposal of all traffic signal equipment is included in the removal pay items and shall also include the following:

- Notification to Wayne County Department of Public Services that traffic signal equipment is being removed.
- Temporary storage of equipment in a dumpster on site (or as directed by the Engineer) allowing Wayne County Department of Public Services 48 hours to salvage any equipment.
- Proper disposal of any equipment containing environmentally sensitive materials (mercury relay switches for example)
- Disabling or destruction of all remaining equipment to the satisfaction of the engineer such that it cannot be reused or resold.
- Proper disposal of all remaining equipment.

PLAN DEVIATIONS DURING CONSTRUCTION

No changes from plans in location of supporting structures signal head placement or traffic signal equipment will be allowed without prior approval of the Wayne County Department of Public Services (734-955-2346).

POLE BAND CLAMP ACCEPTANCE

The current basis of acceptance for this material is now part of the QPL (Qualified Product List). This can be found in the materials Acceptance Requirements Table, published in the MQAP and repeated for convenience in the Materials Source Guide.

INNERDUCT

Contractor must install a continuous flexible non-metallic tubing (innerduct) for low voltage communication type cable from the device to the controller cabinet. Innerduct is not required if communication cable is 600V rated.

SIGNAL HEAD LANDING POINT

Ensure each traffic signal head assembly has its own landing point with all neutrals connected together with a metal type jumper.

ENVIRONMENTAL

PROTECTED TURTLES

Historical records for protected turtles exist within or near this project. These turtle species warrant special consideration as they are rare in Michigan. In the event turtles are observed within the construction zone, move the turtle(s) into adjacent vegetative cover, away from physical work activities. If possible, please take a photo and immediately contact the Engineer.

MAINTENANCE OF TRAFFIC

TRAFFIC CONTROL

Contractor shall be responsible for all necessary construction staging and traffic control devices required for constructing the plans as shown, and will not be paid for separately.

NOTES APPLYING TO STANDARD PLANS


Where the following items are called for on the plans, they are to be constructed according to the standard plan listed below opposite each item unless otherwise indicated.

Title	Plan No.
STATEWIDE TRAFFIC SIGNALS	
WOOD POLE GUYS AND SETTING DEPTH	SIG-050-A *
CONTROLLER CABINET MOUNTED ON STEEL OR WOOD POLES	SIG-100-A *
POLE MOUNTED TS CONTROLLER CABINET	SIG-111-A *
GLOBAL POSITIONING SYSTEM (GPS) MODULE	SIG-120-A *
HANDHOLE- PRECAST, POLYMER CONCRETE	SIG-240-A *
CONDUIT (DIRECT BURIAL/ENCASED)	SIG-250-A *
PEDESTAL MOUNTED SIGNAL DISPLAYS	SIG-330-A *
PEDESTRIAN PUSH BUTTON DETAILS	SIG-400-A *
WAYNE COUNTY TRAFFIC SIGNALS	
COLOR CODE WIRING / EQUIPMENT GROUNDING	WC-026-A *
COLOR CODE FOR WIRING CONNECTING SIGNAL LAMPS	WC-026-B *
PEDESTAL FOUNDATION & SIGNAL MOUNTING DETAILS	WC-028-B *
TYPICAL POLE MTD PEDESTRIAN SIGNALS	WC-029-C *

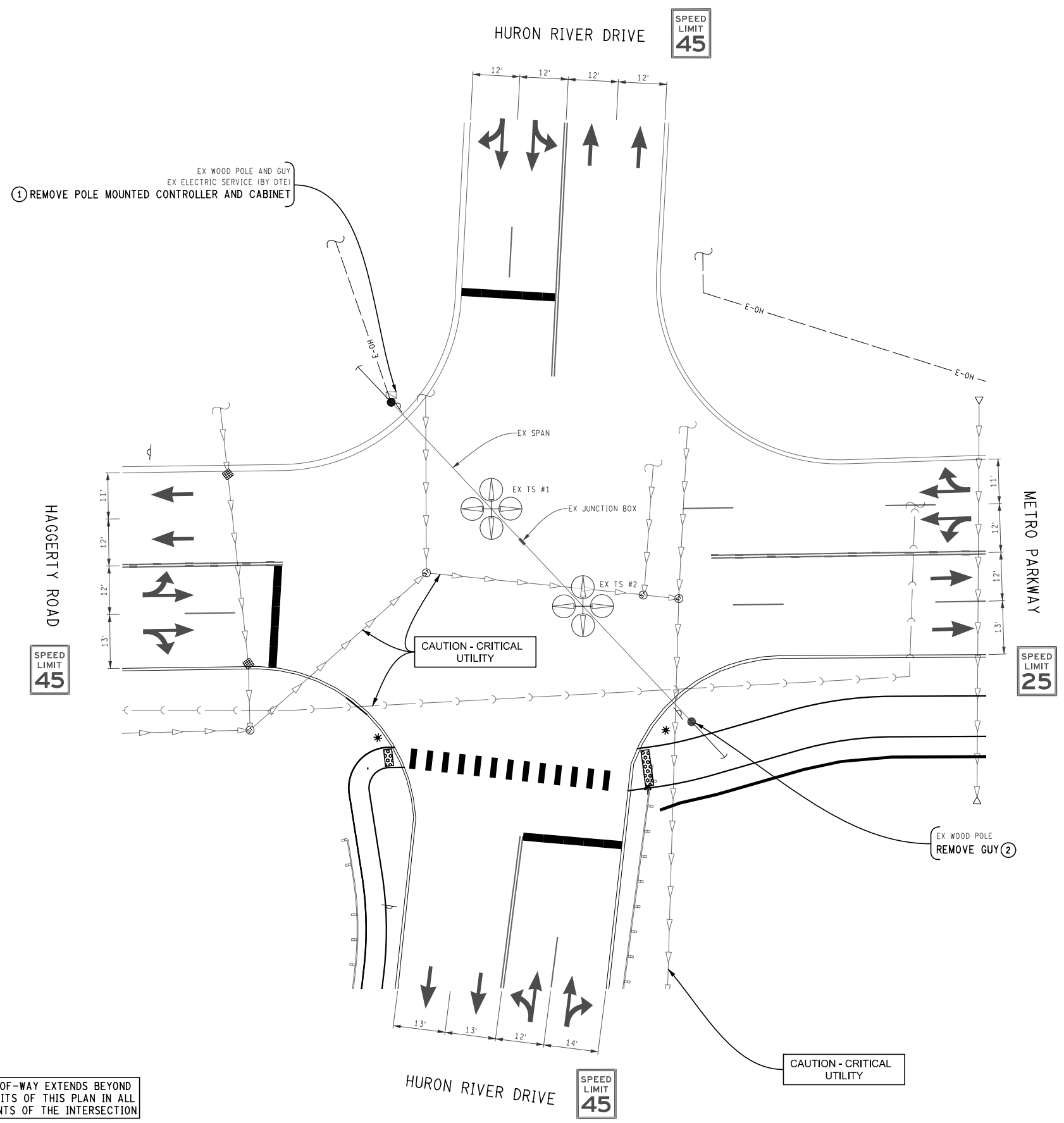
* Denotes Special Detail

SHEET INDEX

Section 1 - Road Plans	
Title Sheet	1
General Notes	2
Signal Removal Plan	3
Signal Install Plan	4
Standard Details	5 - 25

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)								 TETRA TECH		NO SCALE		DATE: 08/16/21		NOTE SHEET		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION					DESIGNED BY: K. RAMAKERS:		HAGGERTY ROAD AND HURON RIVER DRIVE		NOTE 002	SECT 1
												FILE: Note_Sheet 2012.doc		VAM BUREN TOWNSHIP, WAYNE COUNTY			
													CHECKED BY: K. MAZUREK				

① REMOVE POLE MOUNTED CONTROLLER AND CABINET

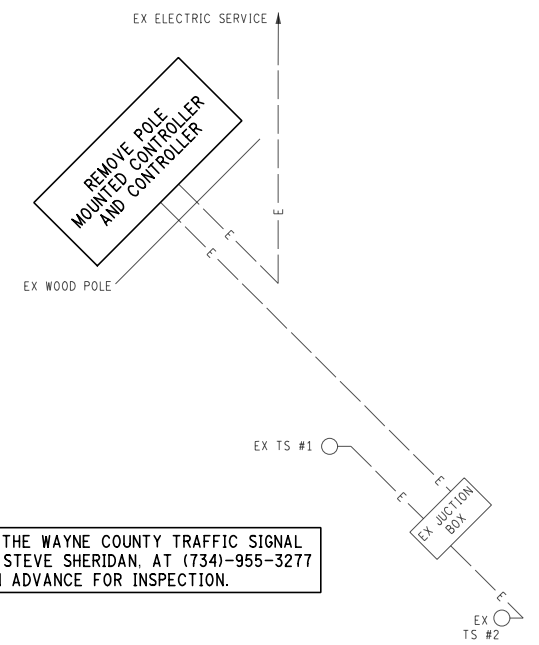
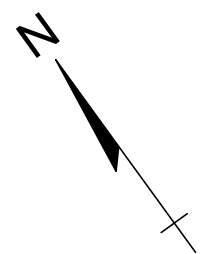


RIGHT-OF-WAY EXTENDS BEYOND THE LIMITS OF THIS PLAN IN ALL QUADRANTS OF THE INTERSECTION

EX
TS #1
TS #2

R
Y
G

FACING NORTH
FACING SOUTH
FACING EAST
FACING WEST

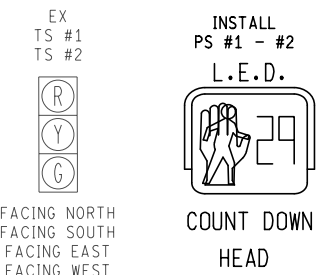
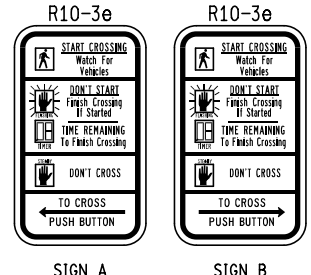
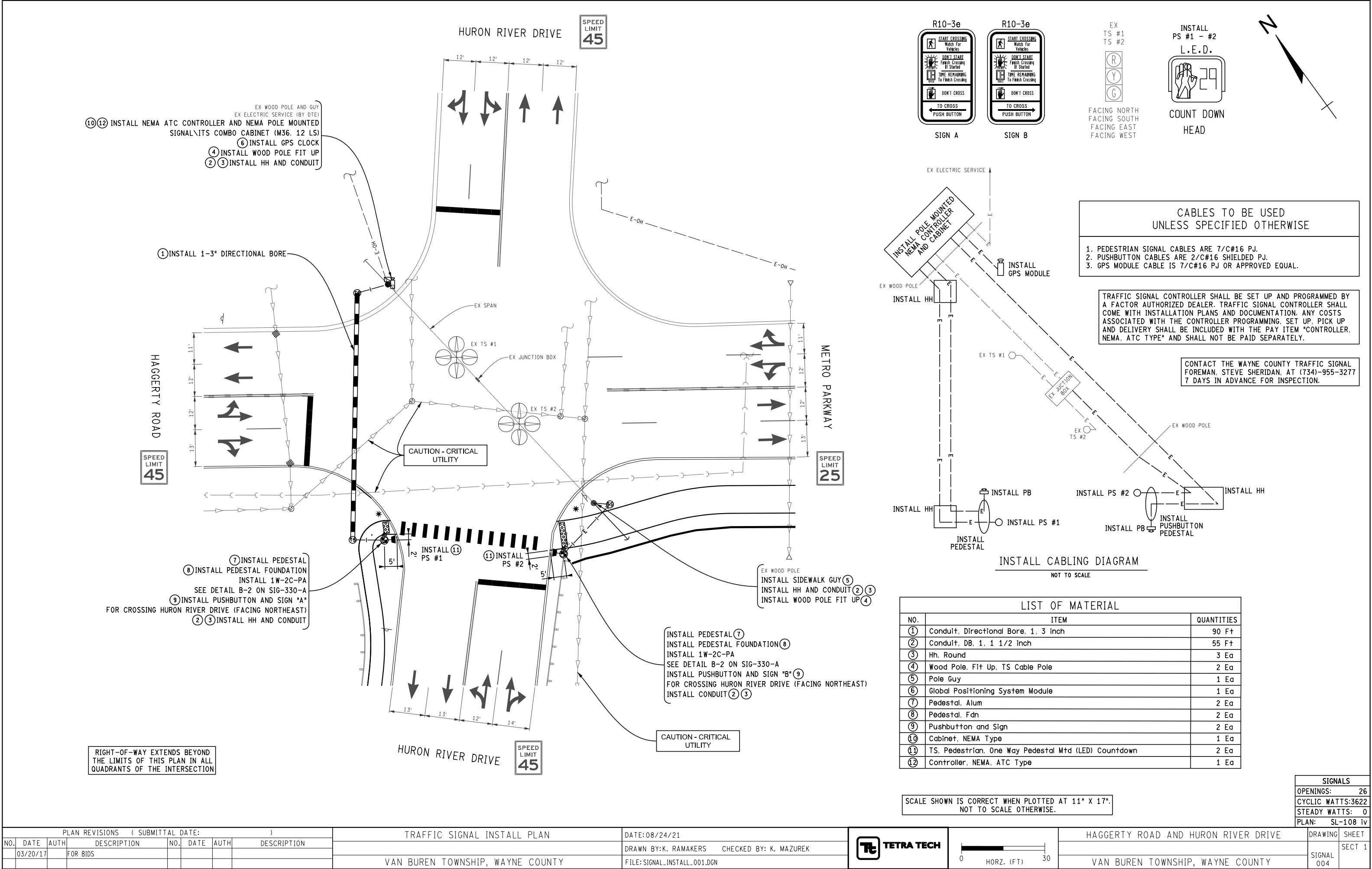


CONTACT THE WAYNE COUNTY TRAFFIC SIGNAL FOREMAN, STEVE SHERIDAN, AT (734)-955-3277 7 DAYS IN ADVANCE FOR INSPECTION.

REMOVAL CABLING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL		
NO.	ITEM	QUANTITIES
①	Controller and Cabinet, Rem	1 Ea
②	Guy, Rem	1 Ea

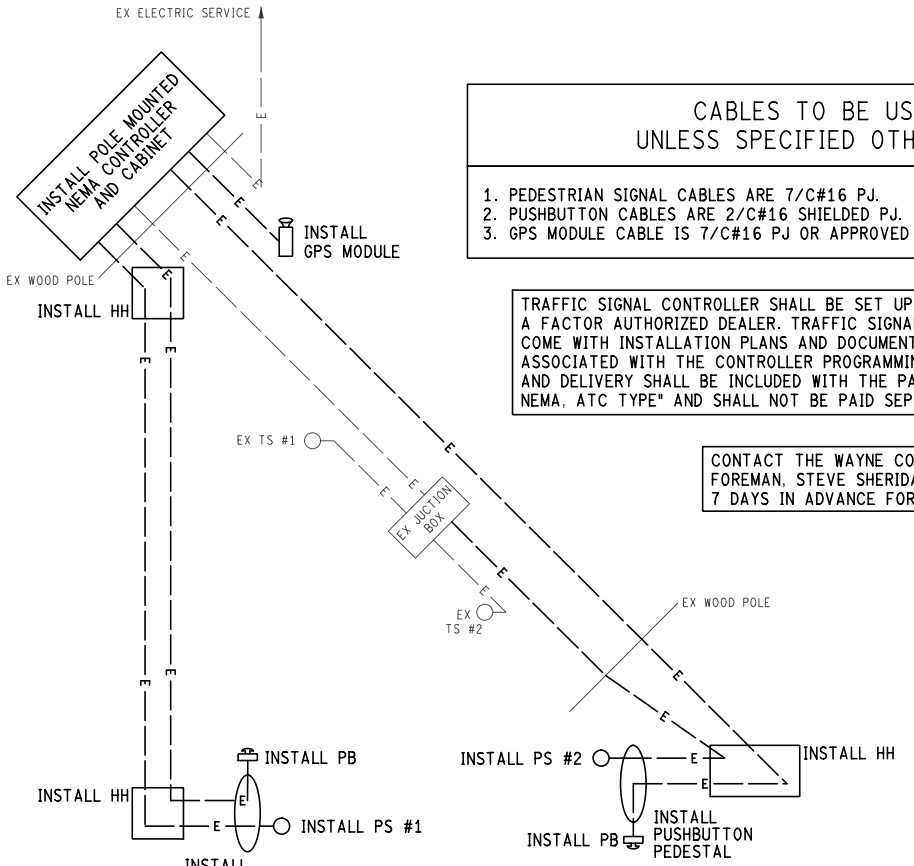
SCALE SHOWN IS CORRECT WHEN PLOTTED AT 11" X 17".
NOT TO SCALE OTHERWISE.



- CABLES TO BE USED UNLESS SPECIFIED OTHERWISE
- 1. PEDESTRIAN SIGNAL CABLES ARE 7/C#16 PJ.
 - 2. PUSHBUTTON CABLES ARE 2/C#16 SHIELDED PJ.
 - 3. GPS MODULE CABLE IS 7/C#16 PJ OR APPROVED EQUAL.

TRAFFIC SIGNAL CONTROLLER SHALL BE SET UP AND PROGRAMMED BY A FACTOR AUTHORIZED DEALER. TRAFFIC SIGNAL CONTROLLER SHALL COME WITH INSTALLATION PLANS AND DOCUMENTATION. ANY COSTS ASSOCIATED WITH THE CONTROLLER PROGRAMMING, SET UP, PICK UP AND DELIVERY SHALL BE INCLUDED WITH THE PAY ITEM "CONTROLLER, NEMA, ATC TYPE" AND SHALL NOT BE PAID SEPARATELY.

CONTACT THE WAYNE COUNTY TRAFFIC SIGNAL FOREMAN, STEVE SHERIDAN, AT (734)-955-3277 7 DAYS IN ADVANCE FOR INSPECTION.




INSTALL CABLING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL		
NO.	ITEM	QUANTITIES
①	Conduit, Directional Bore, 1, 3 inch	90 Ft
②	Conduit, DB, 1, 1 1/2 inch	55 Ft
③	Hh, Round	3 Ea
④	Wood Pole, Fit Up, TS Cable Pole	2 Ea
⑤	Pole Guy	1 Ea
⑥	Global Positioning System Module	1 Ea
⑦	Pedestal, Alum	2 Ea
⑧	Pedestal, Fdn	2 Ea
⑨	Pushbutton and Sign	2 Ea
⑩	Cabinet, NEMA Type	1 Ea
⑪	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	2 Ea
⑫	Controller, NEMA, ATC Type	1 Ea

SCALE SHOWN IS CORRECT WHEN PLOTTED AT 11" X 17".
NOT TO SCALE OTHERWISE.

SIGNALS	
OPENINGS:	26
CYCLIC WATTS:	3622
STEADY WATTS:	0
PLAN:	SL-108 iv

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									FILE:	TSC:	JN:			




MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN		(SPECIAL DETAIL) FHWA APPROVAL DATE	WC-026-A	SHEET 3 of 6
File: PW:RD/TR/Signals/Web/WC SD/Final		Rev. 10/21/14 PLAN DATE		

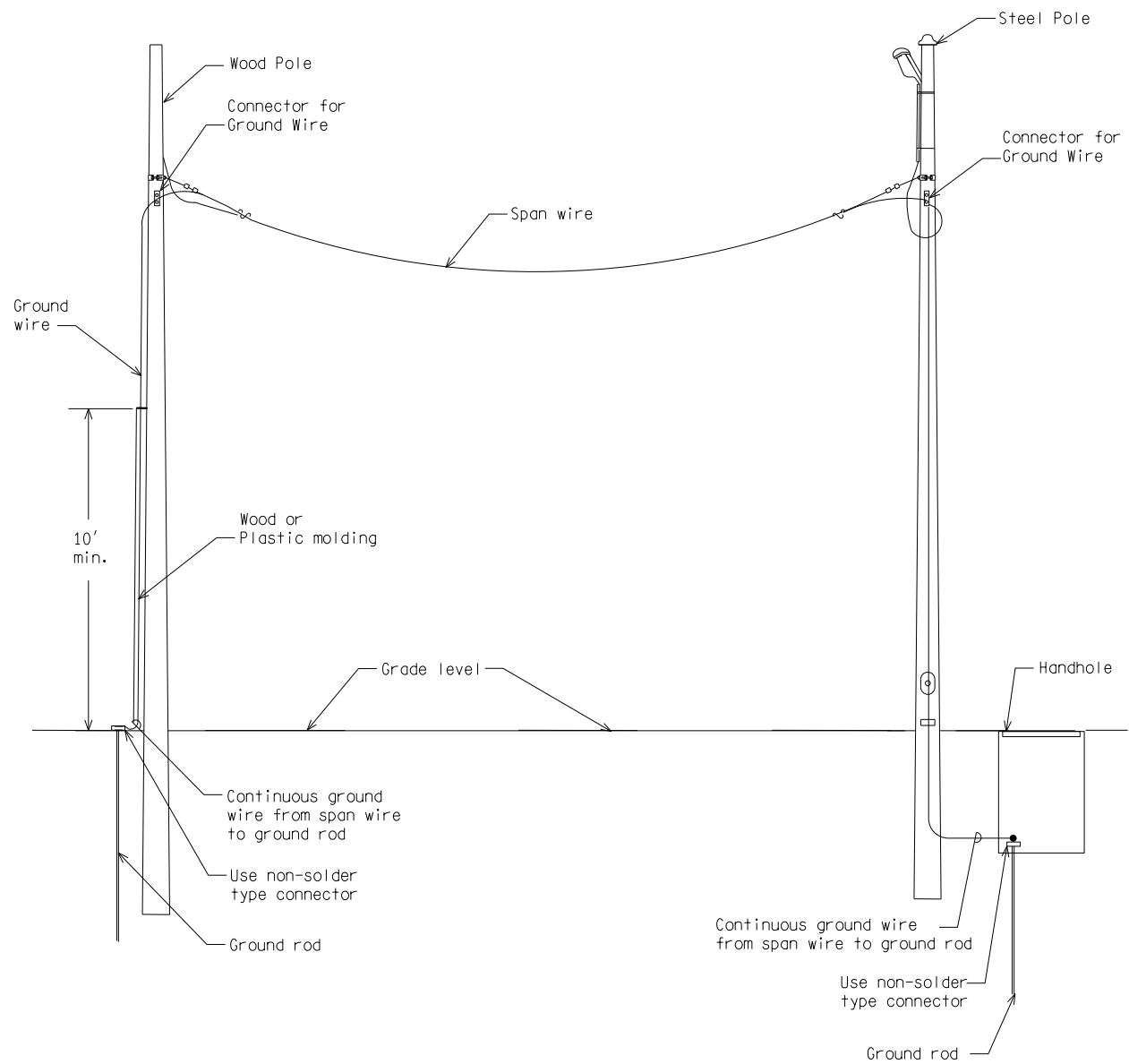


Ground wire from disconnect to ground rod to be in moulding (wood pole or post) or inside the pole (steel). Ground wire from disconnect to controller cabinet to be in conduit (wood pole, wood post, and steel pole).

CONTROLLER CABINET GROUNDING DETAIL

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE		WC-026-A	SHEET 4 of 6
File: PW:RD/TR/Signals/Web/WC SD/Final	Rev. 10/21/14	PLAN DATE		

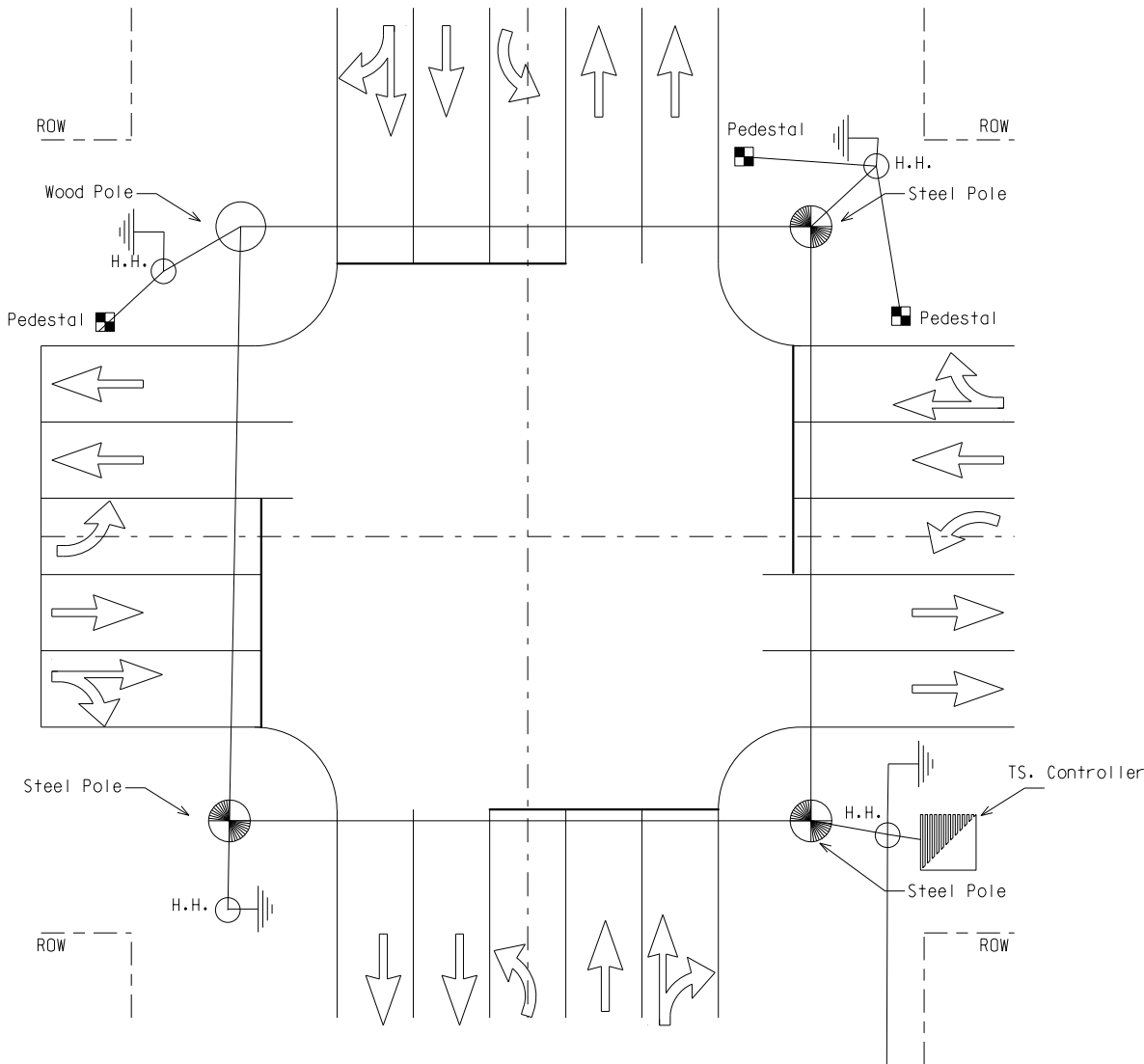
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SPAN WIRE GROUNDING DETAIL

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN				(SPECIAL DETAIL) FHWA APPROVAL DATE			WC-026-A	SHEET 5 of 6
File: PW:RD/TR/Signals/Web/WC SD/Final				Rev. 10/21/14		PLAN DATE		



- 1) All ground rods shall be 3/4" x 10' in length copperclad.
- 2) Ground rods shall be drive straight down, so that only the required portions of of the ground rod is exposed to attach the ground wires.
- 3) All ground rods shall be connected to each other or to a span wire with a single #6 AWG copper conductor.
- 4) Each ground wire attaching to a ground rod shall have its own approved acorn type connector.
- 5) Do not install any ground rods within 10' of any other ground rods from other grounding.
- 6) The grounding system shall measure 10 ohms or less.
- 7) A separate #6 AWG copper ground is required from the service disconnect (safety switch) to the ground bussbar in the controller cabinet.
- 8) Ground rod for each steel pole, wood pole, pedestal and/or traffic signal controller cabinet shall be located in the adjacent handhole as indicated on the plans or as directed by the Engineer.
- 9) All metal bases must be connected to a ground rod with a #6 ground wire.

SYSTEM GROUNDING DETAL

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN				(SPECIAL DETAIL) FHWA APPROVAL DATE			WC-026-A	SHEET 6 of 6
File: PW:RD/TR/Signals/Web/WC SD/Final				Rev. 10/21/14		PLAN DATE		

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CONDUCTOR COLOR	7/C	12/C	16/C	20/C
GREEN	A Ø GREEN	A Ø GREEN	A Ø GREEN	A Ø GREEN
ORANGE	A Ø YELLOW	A Ø YELLOW	A Ø YELLOW	A Ø YELLOW
RED	A Ø RED	A Ø RED	A Ø RED	A Ø RED
WHITE W/ BLACK TRACER	B Ø GREEN	B Ø GREEN	B Ø GREEN	B Ø GREEN
BLUE	B Ø YELLOW	B Ø YELLOW	B Ø YELLOW	B Ø YELLOW
BLACK	B Ø RED	B Ø RED	B Ø RED	B Ø RED
WHITE	COMMON	COMMON	COMMON	COMMON
GREEN W/ BLACK TRACER		C Ø GREEN	C Ø GREEN	C Ø GREEN
ORANGE W/ BLACK TRACER		C Ø YELLOW	C Ø YELLOW	C Ø YELLOW
RED W/ BLACK TRACER		C Ø RED	C Ø RED	C Ø RED
BLUE W/ BLACK TRACER		CASE SIGN COMMON	CASE SIGN COMMON	CASE SIGN COMMON
BLACK W/ WHITE TRACER		CASE SIGN	CASE SIGN	CASE SIGN
GREEN W/ WHITE TRACER			W-1	W-1
RED W/ WHITE TRACER			DW-1	DW-1
BLUE W/ WHITE TRACER			W-2	W-2
BLACK W/ RED TRACER			DW-2	DW-2
WHITE W/ RED TRACER				D Ø GREEN
ORANGE W/ RED TRACER				D Ø YELLOW
BLUE W/ RED TRACER				D Ø RED
RED W/GREEN TRACER				FLASHING YELLOW

WHEN USING CABLES FOR PEDESTRIAN SIGNALS, USE GREEN & RED FOR **W-1** WALK AND DON'T WALK, AND USE WHITE W/ BLACK TRACER AND BLACK FOR **W-2** WALK AND DON'T WALK

NOT TO SCALE

File:PW:RD/TR/Signals/Web/WC SD/FinalRev. 10/21/14



PREPARED BY
TRAFFIC AND SAFETY

DRAWN BY:

CHECKED BY:

ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT

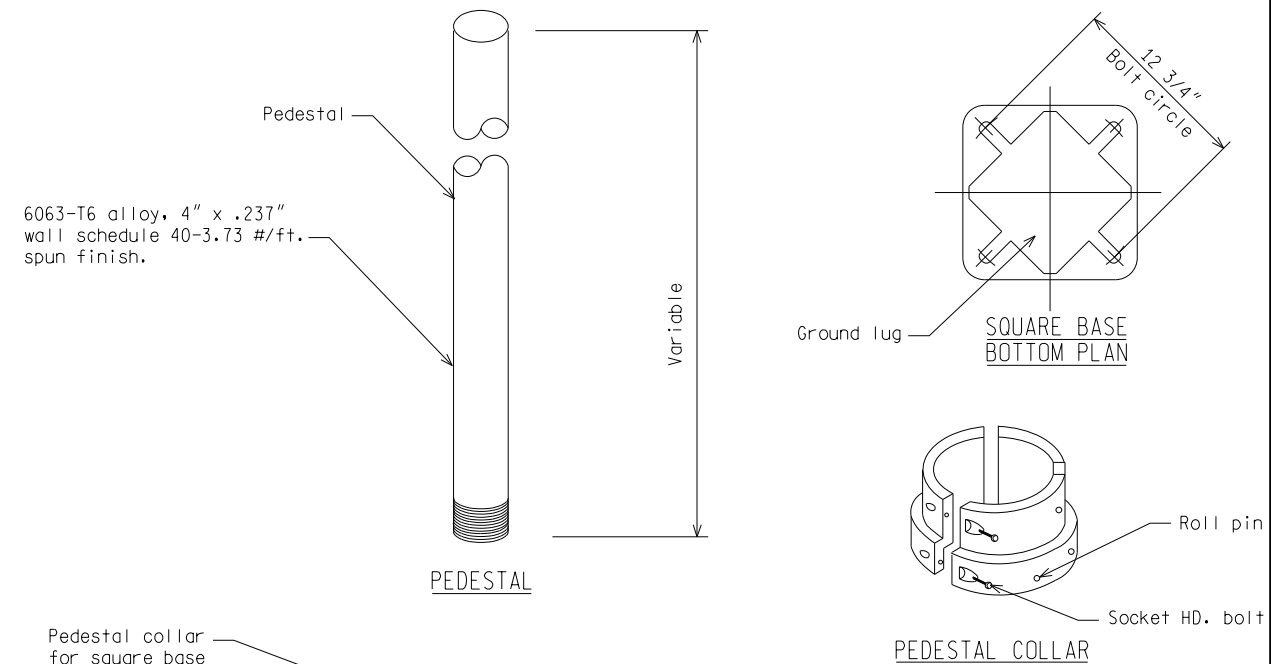
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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR
COLOR CODE FOR WIRING
CONNECTING SIGNAL LAMPS

PLAN DATE

WC-026-B

SHEET
1 of 1



TRAFFIC/PEDESTRIAN SIGNAL MOUNTING HARDWARE

File: PW:RD/TR/Signals/Web/WC SD/Final

Rev. 10/21/14



ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT

(SPECIAL DETAIL)

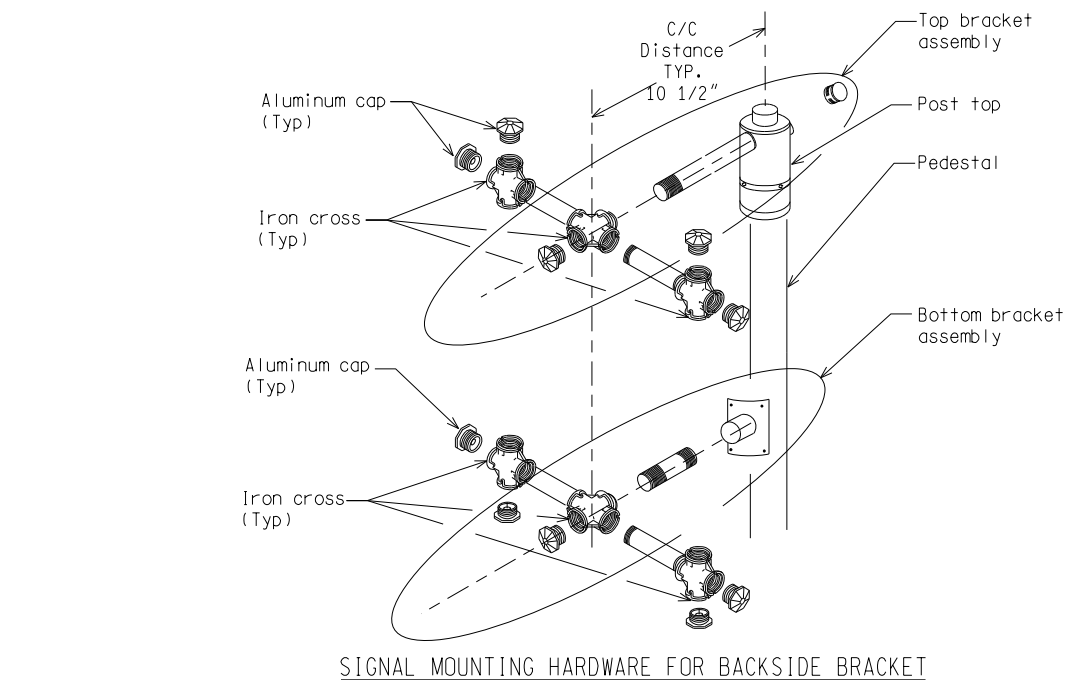
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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR
PEDESTAL FOUNDATION AND
SIGNAL MOUNTING DETAILS

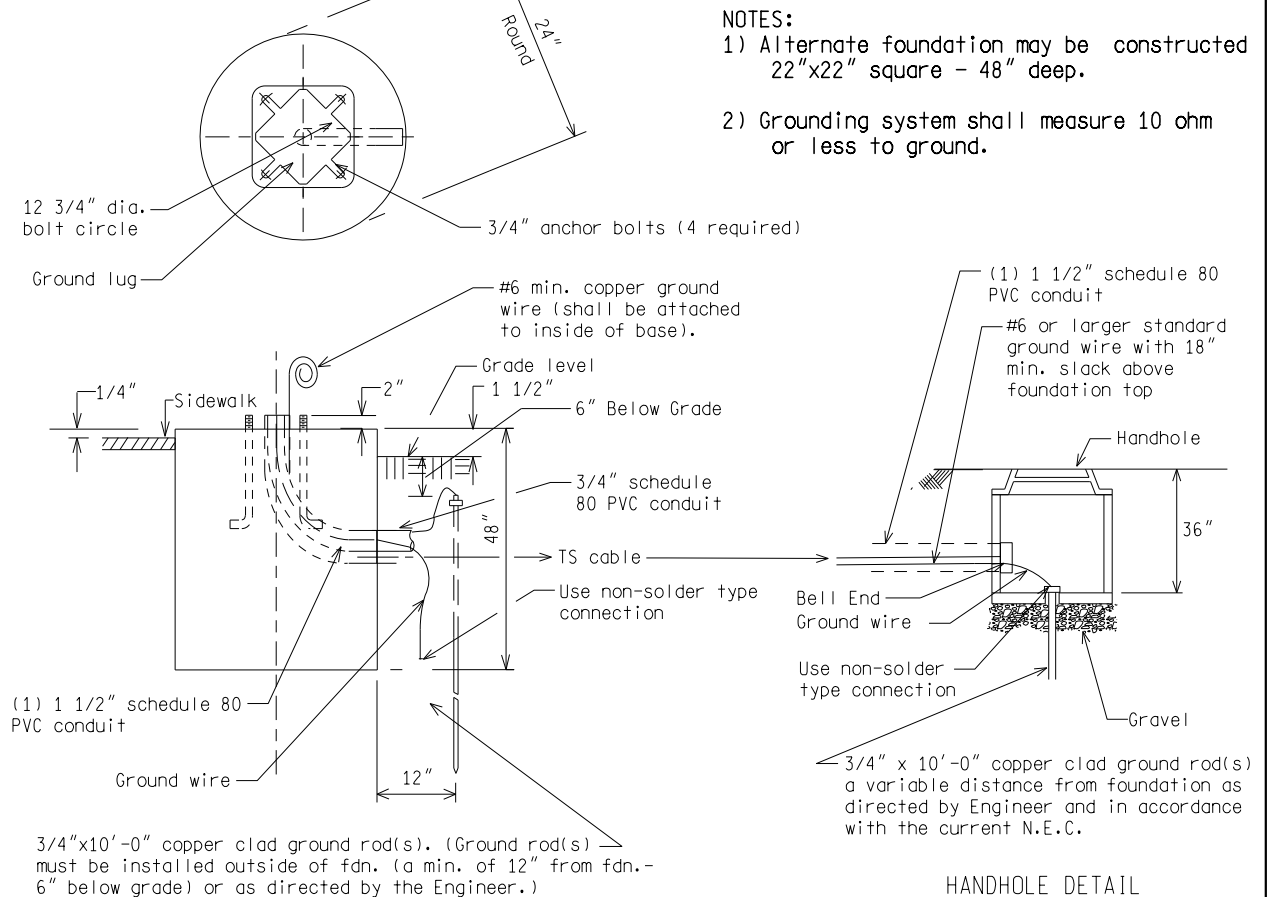
WC-028-B

SHEET
1 of 3



SIGNAL MOUNTING HARDWARE FOR BACKSIDE BRACKET

- 1) Alternate foundation may be constructed 22"x22" square - 48" deep.
- 2) Grounding system shall measure 10 ohm or less to ground.



NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

(SPECIAL DETAIL)
FHWA APPROVAL DATE

File: PW:RD/TR/Signals/Web/WC SD/Final

Rev. 10/21/14

PLAN DATE	
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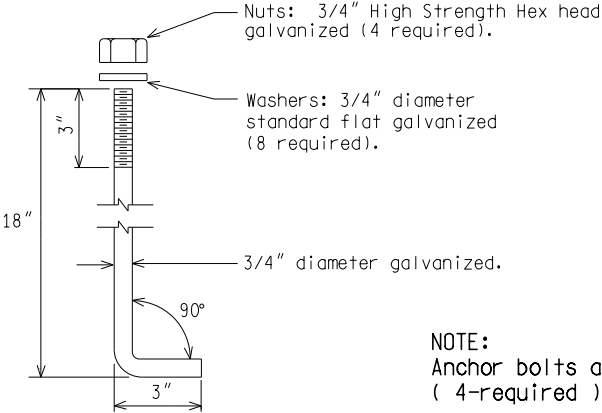
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SHEET
2 of 3

AS-LET PLAN REVISIONS							
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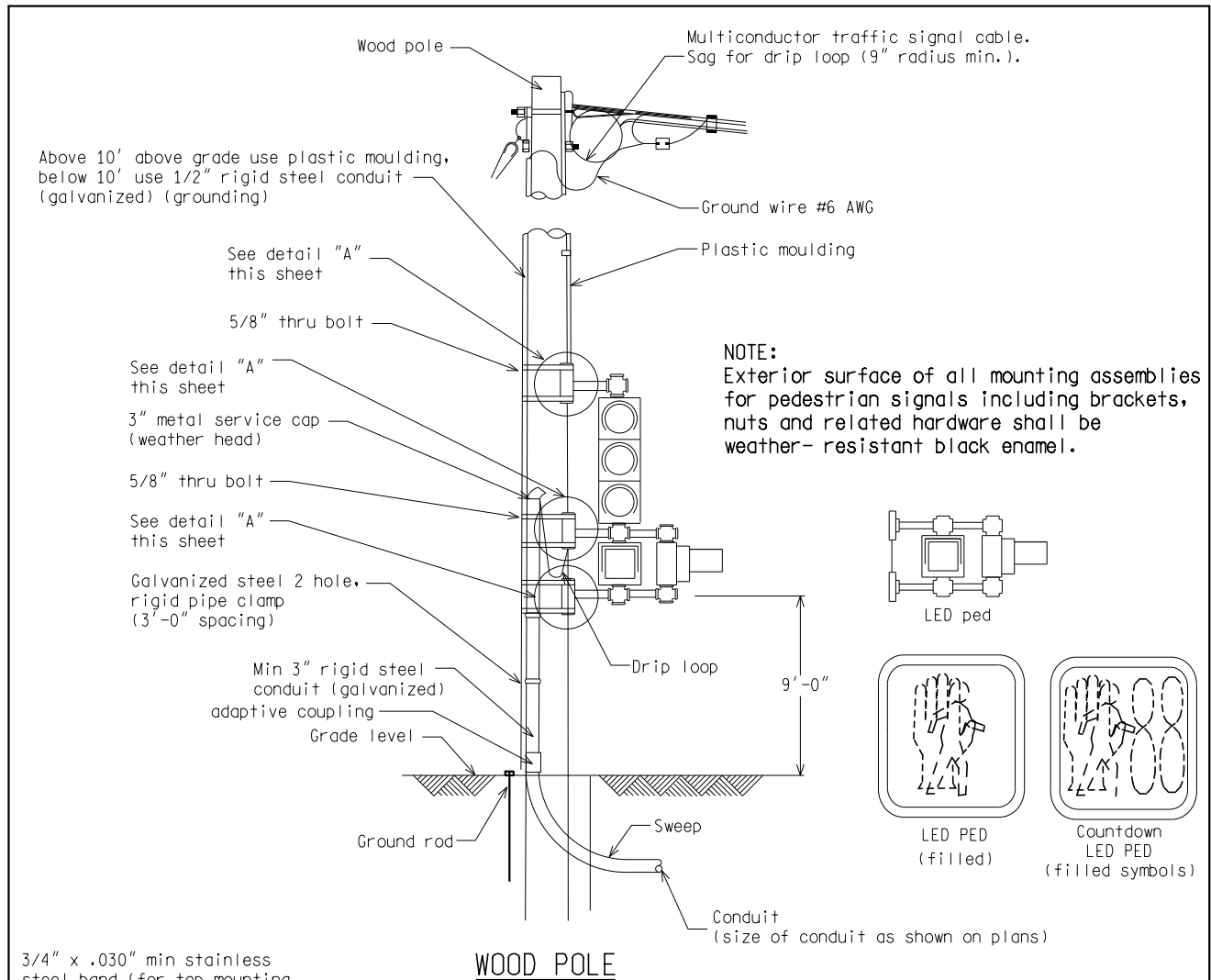
NOTE:
Anchor bolts are to be ASTM A-307 steel
(4-required)

ANCHOR BOLT DETAIL

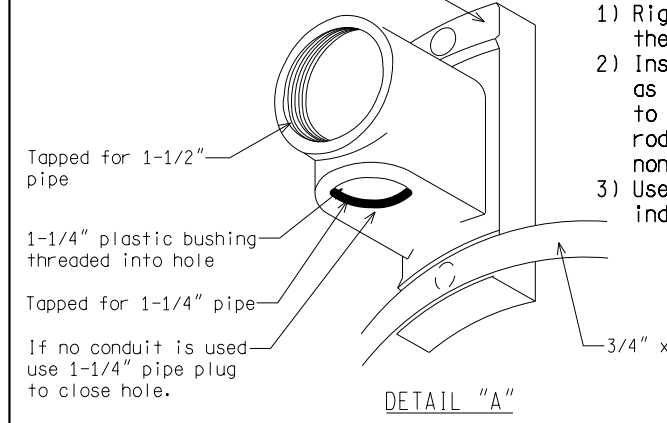
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN		(SPECIAL DETAIL) FHWA APPROVAL DATE		WC-028-B	SHEET 3 of 3
File: PW:RD/TR/Signals/Web/WC SD/Final		Rev. 10/21/14	PLAN DATE		


AS-LET PLAN REVISIONS								 Michigan Department of Transportation				DATE:	CS:		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION					DESIGN UNIT:	JN:			
										FILE:	TSC:					

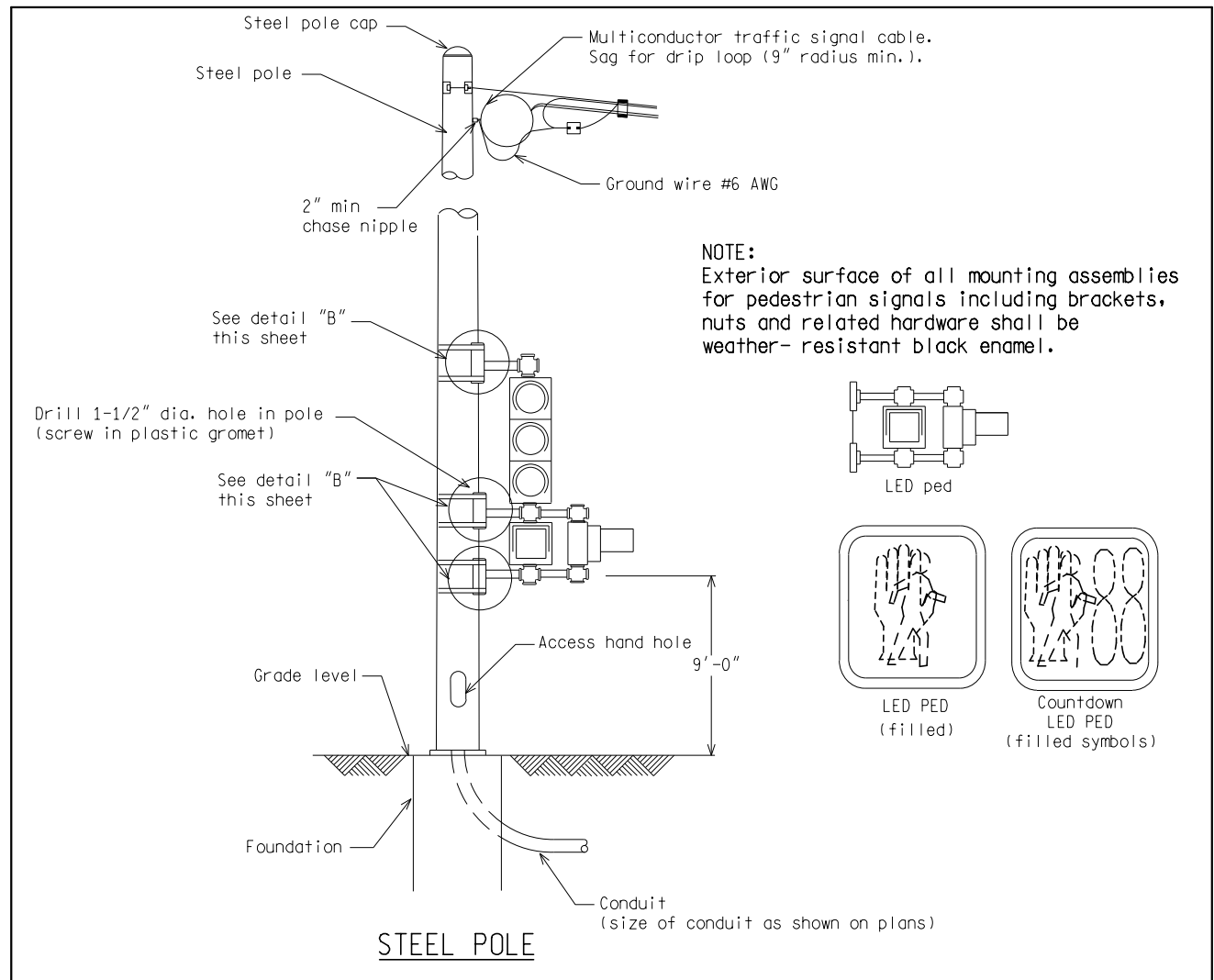


3/4" x .030" min stainless steel band (for top mounting bracket use 5/8" thru-bolt on top, use band on bottom. See "wood pole" detail this sheet)

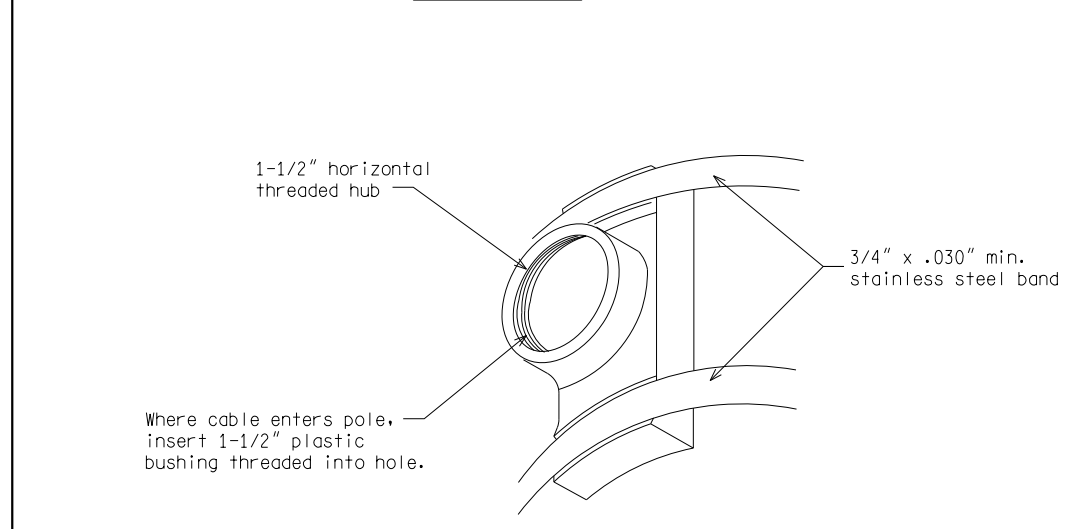



- NOTES:
- 1) Rigid metal conduit must be bonded according to the current N.E.C.
 - 2) Install 3/4" x 10'-0" copper clad ground rod (s) as required to provide less than 10 ohm resistance to ground. Install #6 min. copper wires from ground rod (s) to span wire at each supporting pole using non-solder type connections for span wire ground.
 - 3) Use conduit size specified (min.) unless current N.E.C. indicates a larger size is required.


NOT TO SCALE		File: PW:RD/TR/Signals/WC SD/Final		Rev. 10/21/14	
 Michigan Department of Transportation		ENGINEER OF DELIVERY		MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR	
PREPARED BY TRAFFIC AND SAFETY		ENGINEER OF DEVELOPMENT		TYPICAL POLE MOUNTED PEDESTRIAN SIGNALS	
DRAWN BY: DJF		(SPECIAL DETAIL)		WC-029-C	
CHECKED BY:		FHWA APPROVAL DATE		SHEET 1 of 4	



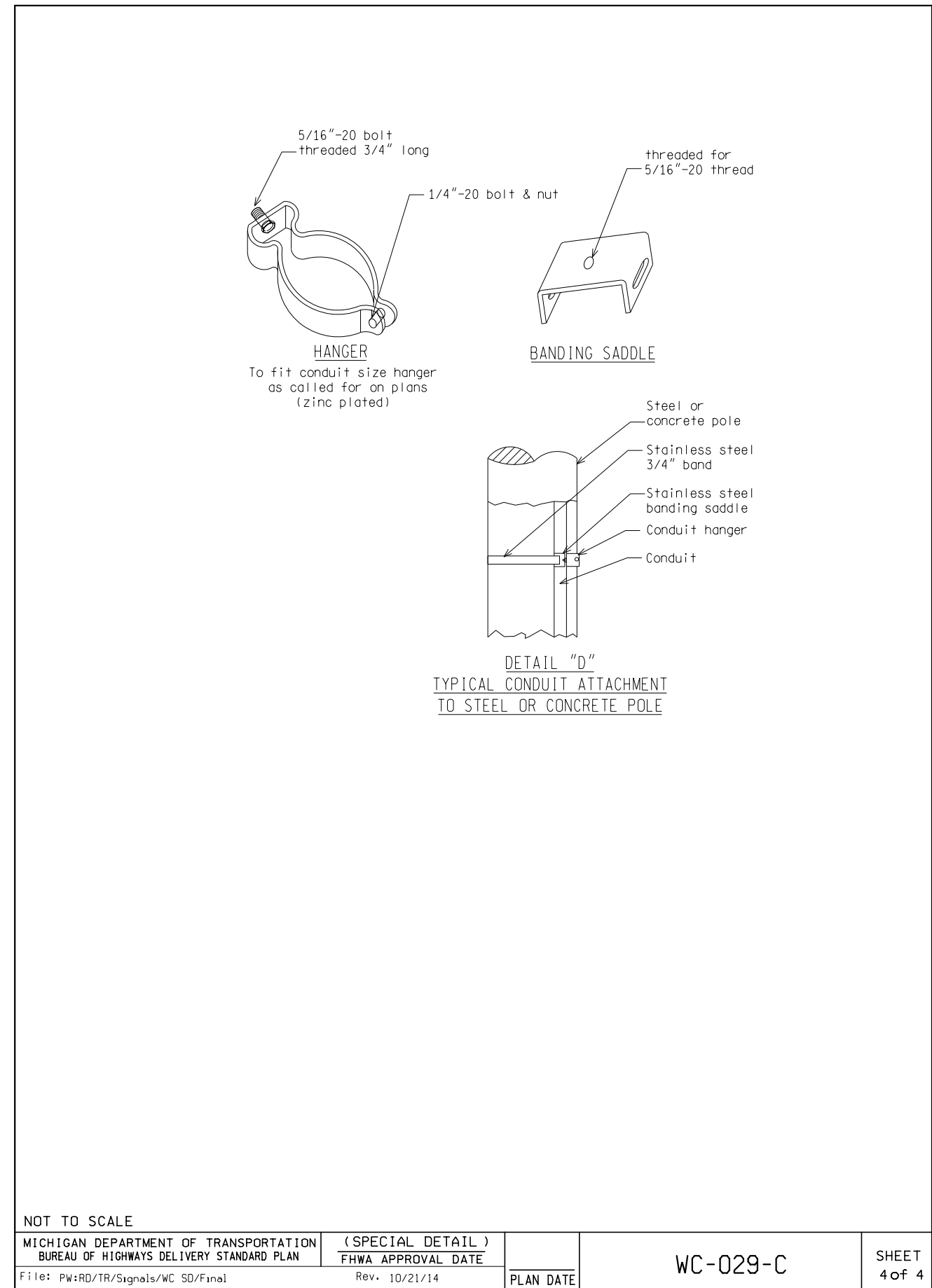
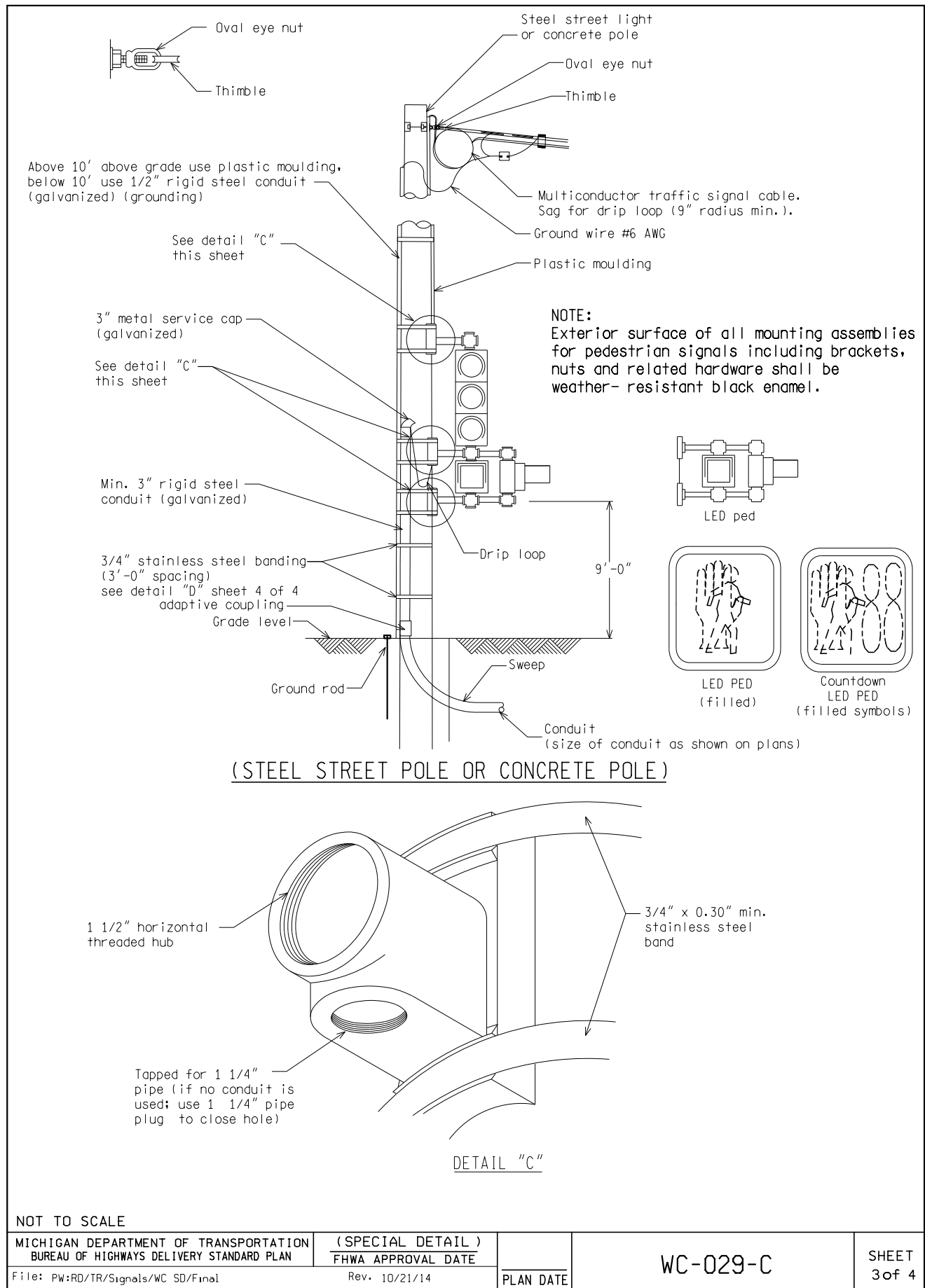
Drill 1-1/2" dia. hole in pole (screw in plastic gromet)



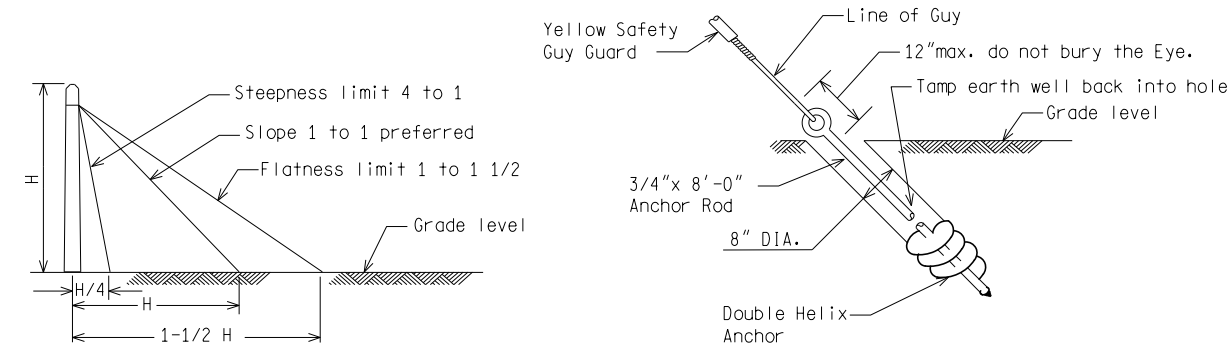
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 Michigan Department of Transportation		ENGINEER OF DELIVERY		MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR	
PREPARED BY TRAFFIC AND SAFETY		ENGINEER OF DEVELOPMENT		(SPECIAL DETAIL) FHWA APPROVAL DATE	
DRAWN BY: DJF		(SPECIAL DETAIL)		WC-029-C	
CHECKED BY:		FHWA APPROVAL DATE		SHEET 2 of 4	

AS-LET PLAN REVISIONS						 Michigan Department of Transportation	DATE:	CS:	DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH				

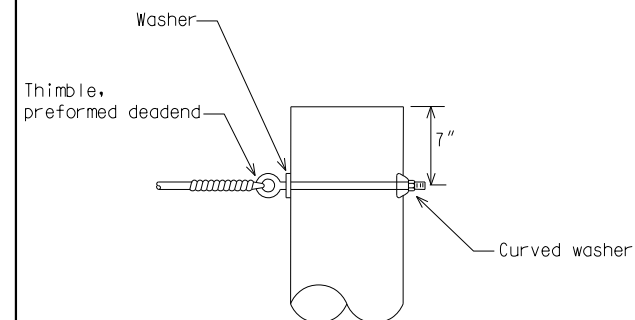
FILE:	DESIGN UNIT:	JN:	
	TSC:		



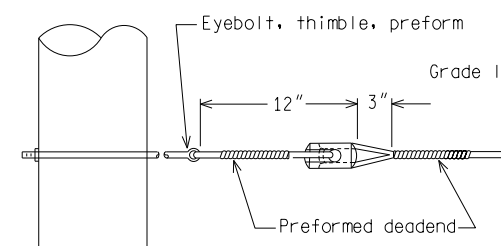
AS-LET PLAN REVISIONS								MDOT Michigan Department of Transportation	FILE:	DATE:	CS:	DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION						



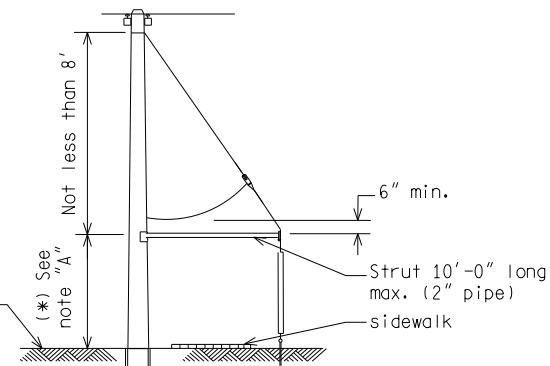
SLOPE LIMITS FOR ANCHOR GUYS



POLE GUY

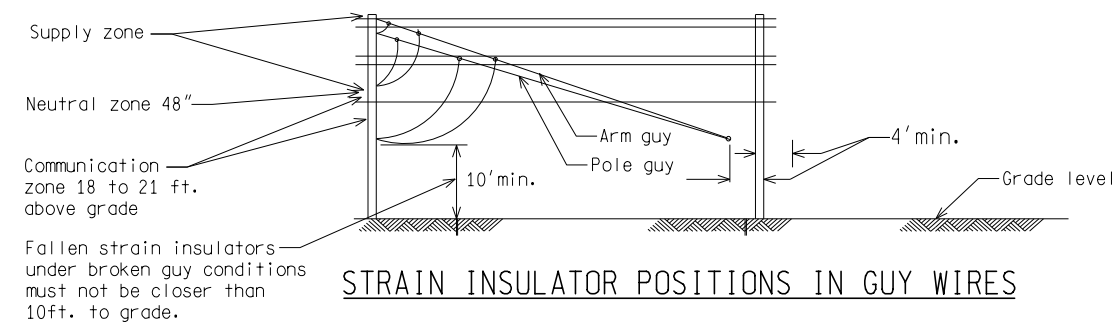


ARM GUY



GUY STRUT


(*) NOTE: "A"
This dimension to be 10' unless otherwise specified.

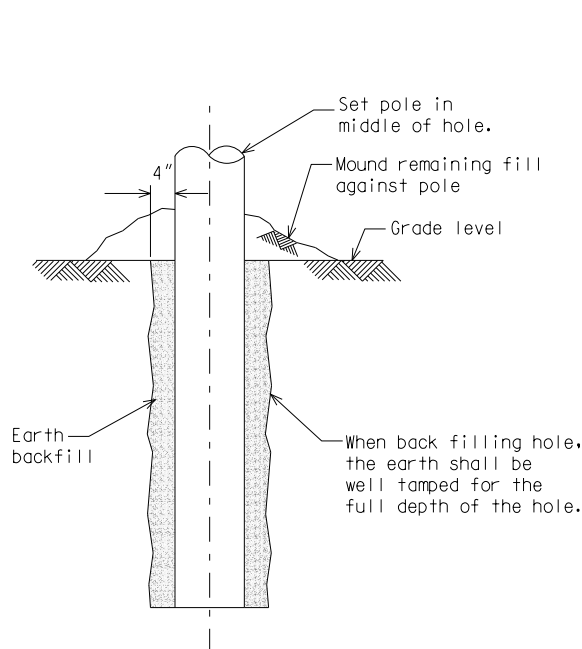


STRAIN INSULATOR POSITIONS IN GUY WIRES

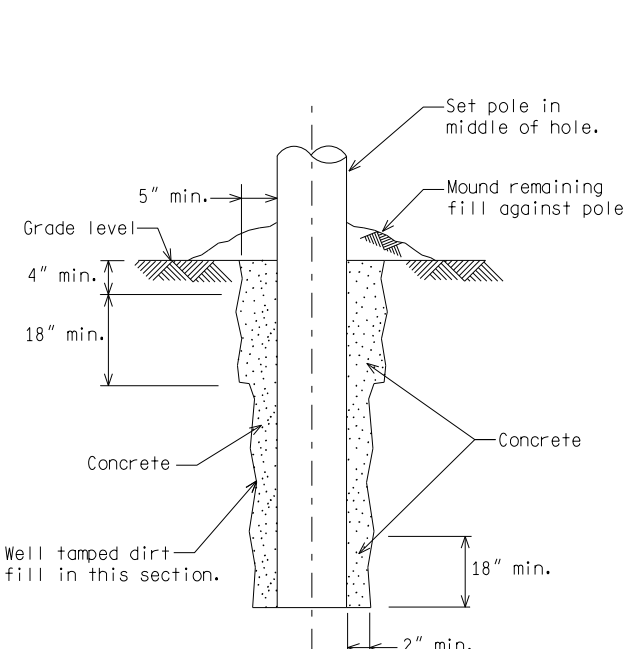
NOT TO SCALE

File: RefDoc/TR/Signals/Web/Sp Det/FIn/SIG050A.dgn Rev. 02/16/17

 Michigan Department of Transportation PREPARED BY TRAFFIC AND SAFETY DRAWN BY: DJF CHECKED BY:	ENGINEER OF DELIVERY	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR	
	ENGINEER OF DEVELOPMENT	WOOD POLE GUYS AND SETTING DEPTH	
	(SPECIAL DETAIL) FHWA APPROVAL DATE	SIG-050-A	SHEET 1 of 2
	PLAN DATE		



WOOD POLE INSTALLATION



SELF SUPPORTING WOOD POLE
IN CONCRETE


POLE HEIGHT	SETTING DEPTH
30'	6.0'
35'	6.0'
40'	6.0'
45'	6.5'
50'	7.0'
55'	7.5'
60'	8.0'

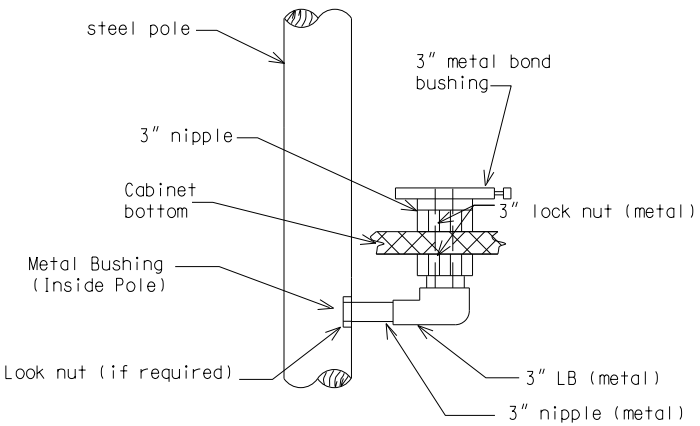
WOOD POLE SETTING DEPTHS

Reference Standard Specification for Construction Section 819.03

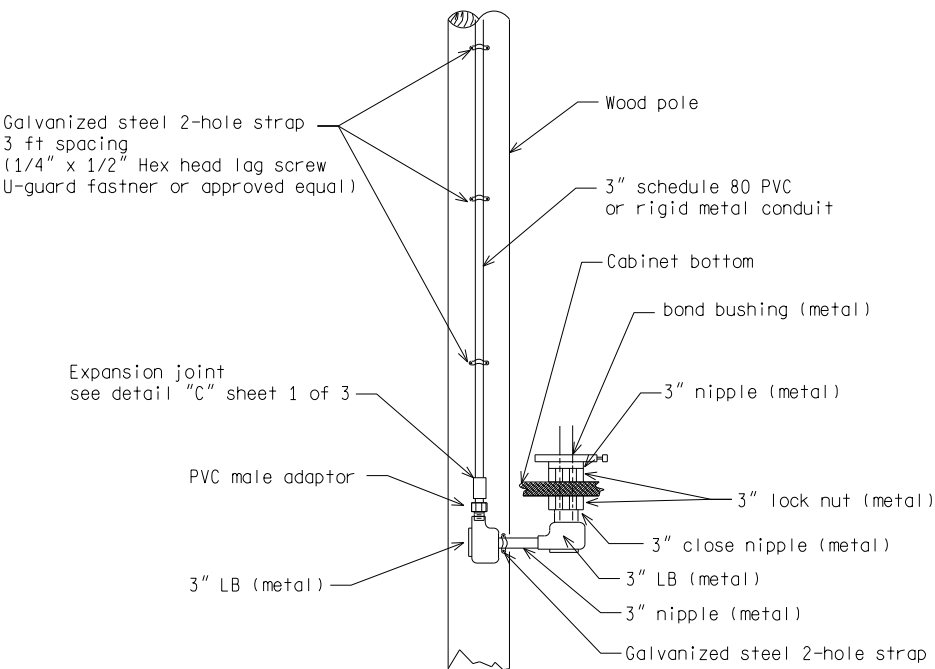
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE		SIG-050-A	SHEET 2 of 2
File: RefDoc/TR/Signals/Web/Sp Det/FIn/SIG050A.dgn Rev. 02/16/17	PLAN DATE			

AS-LET PLAN REVISIONS								 Michigan Department of Transportation	FILE:	DATE:	CS:	DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION						



CONTROLLER CABINET MOUNTED ON STEEL POLE DETAIL "A"




CONTROLLER CABINET MOUNTED ON WOOD POLE DETAIL "B"

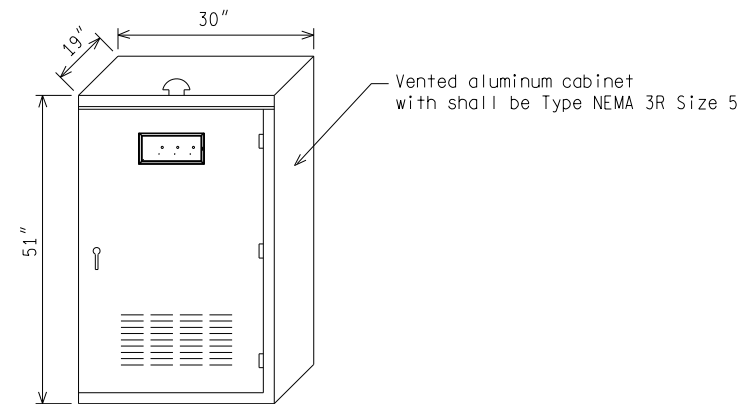
NOTE:
The distance between LB's as shown on this detail is for clarity of the drawing only. Actual distance between LB's shall be minimized as is practical to the installation.

NOTE:
If rigid metal conduit is used, the conduit must be bonded according to the current N.E.C.

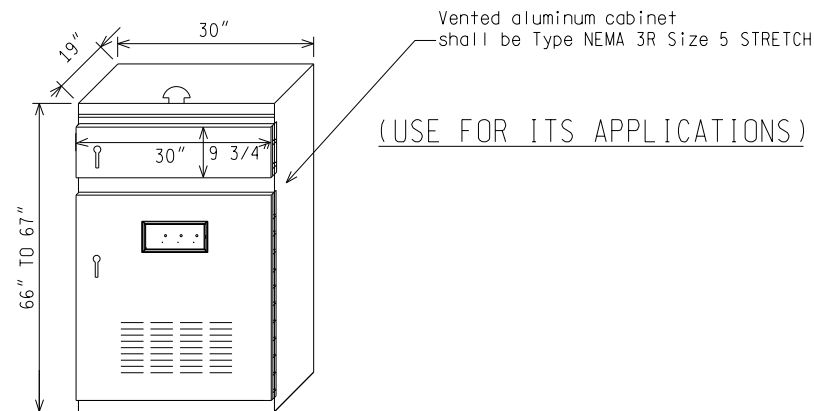
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN				(SPECIAL DETAIL) FHWA APPROVAL DATE			SIG-100-A	SHEET 3 of 3
File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG100A.dgn				Rev. 02/16/17		PLAN DATE		

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													JN:				
										FILE:	TSC:						



POLE MOUNTED TRAFFIC SIGNAL CONTROLLER CABINET



POLE MOUNTED TRAFFIC SIGNAL ITS CONTROLLER CABINET (IF USED)

NOT TO SCALE

File: RefDoc/TR/Signals/Web/Sp_Det/Fin/SIG111A.dgn Rev: 02/16/17



PREPARED BY
TRAFFIC AND SAFETY

DRAWN BY:
CHECKED BY:

ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT
(SPECIAL DETAIL)
FHWA APPROVAL DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR
POLE MOUNTED T.S.
CONTROLLER CABINET/FOUNDATIONS

PLAN DATE
SIG-111-A

SHEET
1 of 1

AS-LET PLAN REVISIONS							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION

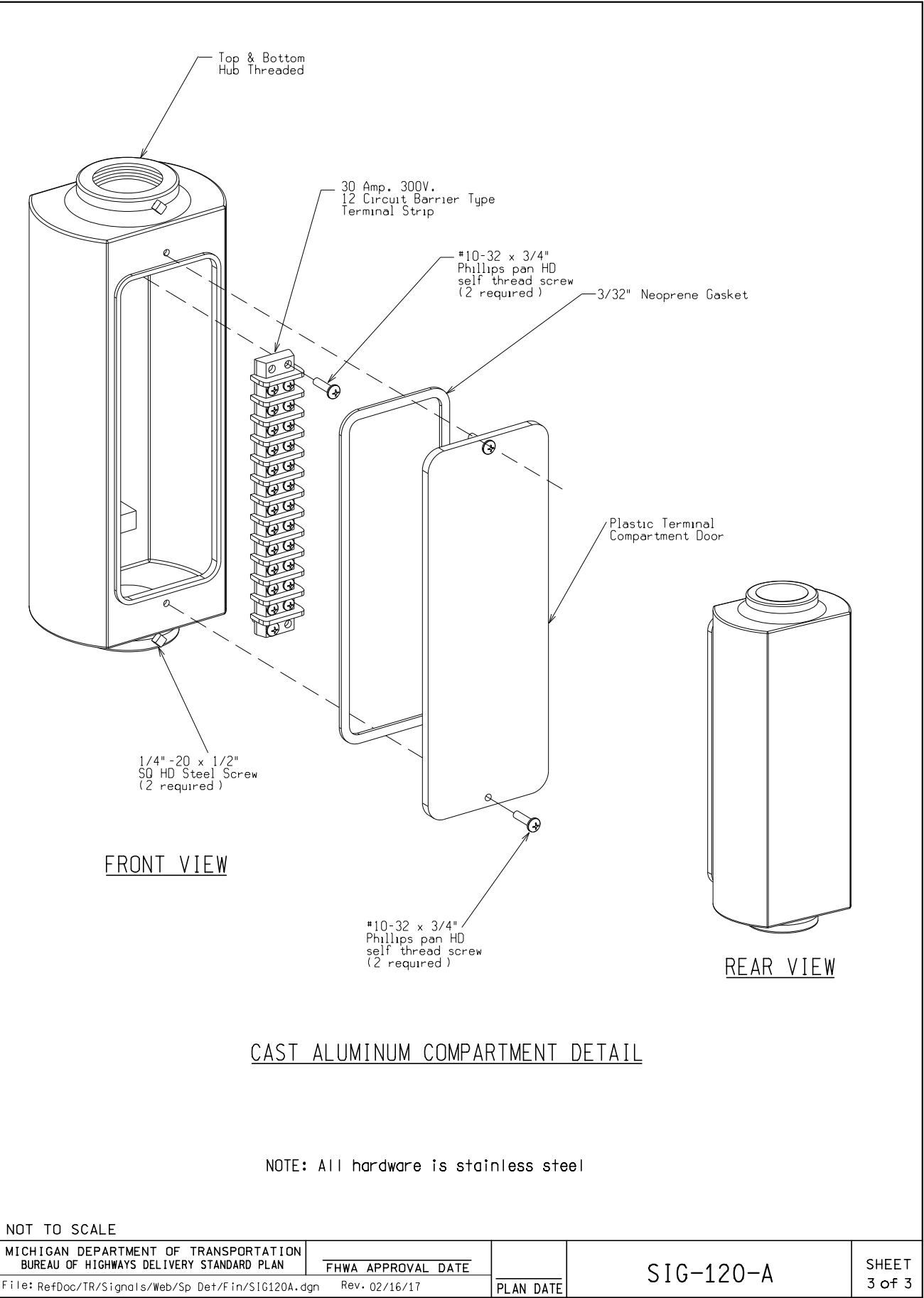


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DRAWING SHEET



AS-LET PLAN REVISIONS							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



FILE:

DATE:

DESIGN UNIT:

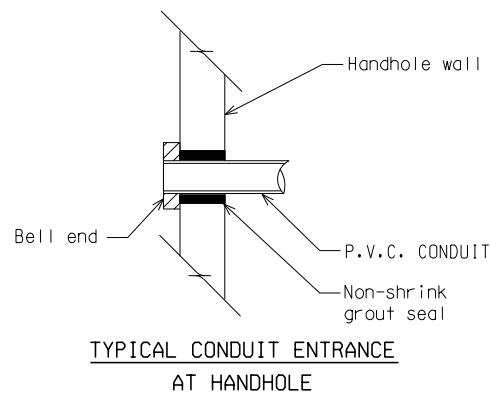
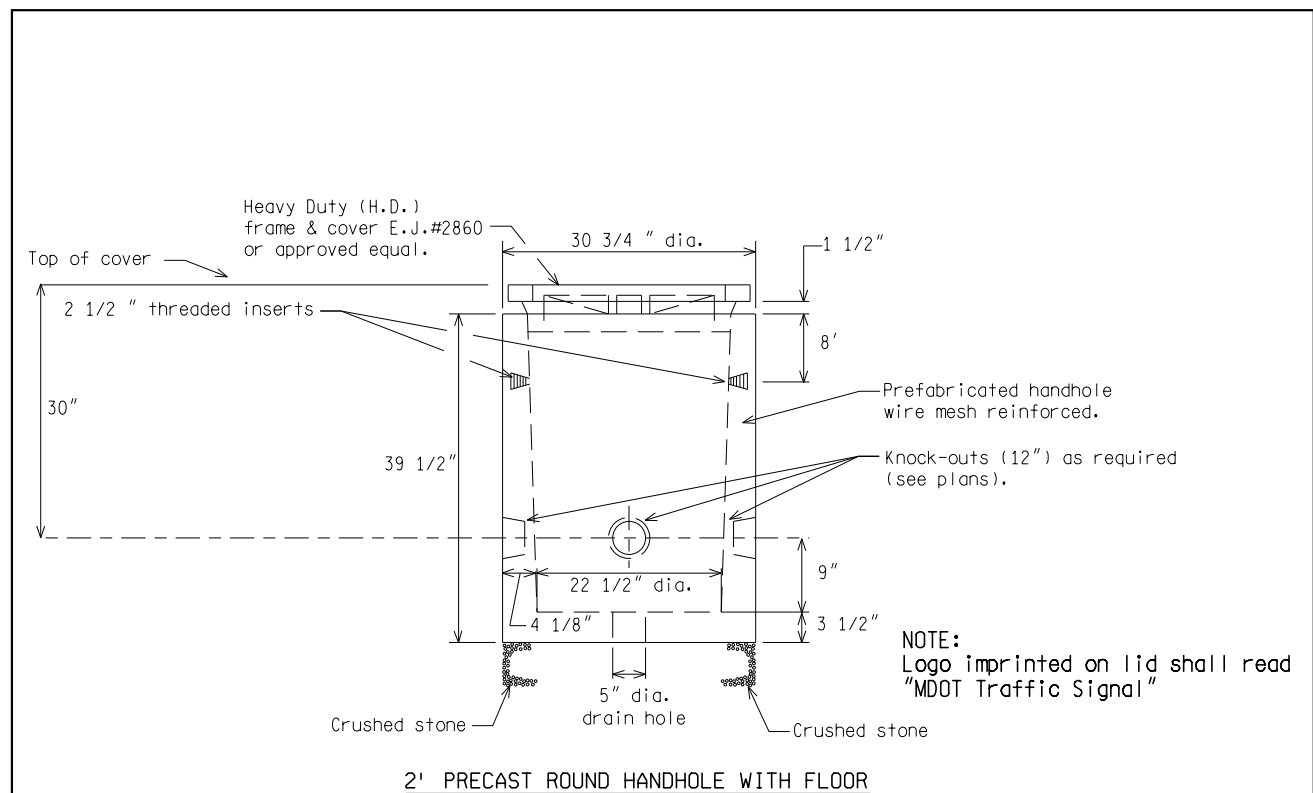
TSC:

CS:

JN:

DRAWING

SHEET



NOT TO SCALE

File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG240A.dgn Rev. 02/16/17



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TRAFFIC AND SAFETY

DRAWN BY: DJF

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ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT

(SPECIAL DETAIL)

FHWA APPROVAL DATE

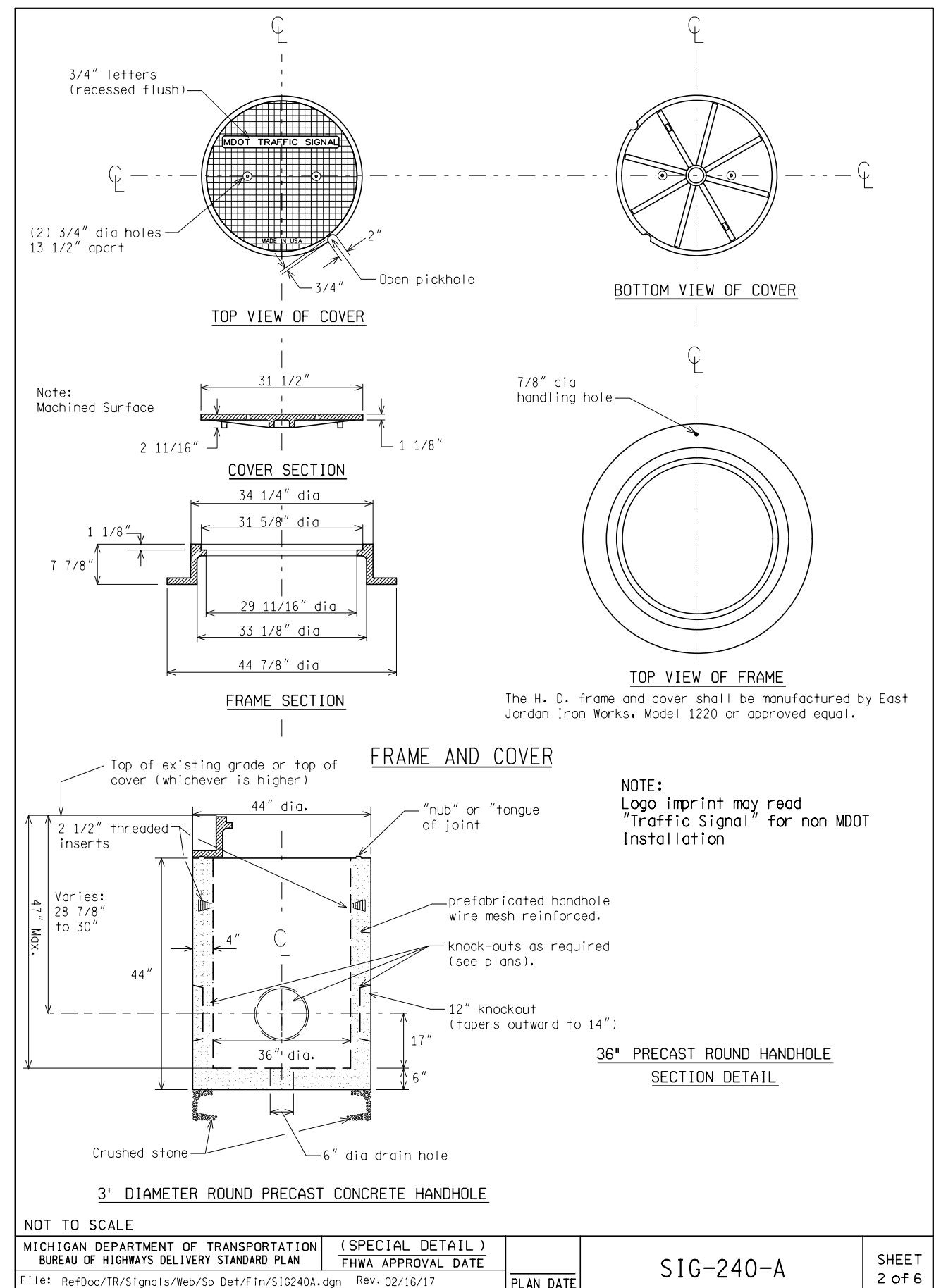
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR

**HANDHOLE- PRECAST,
POLYMER CONCRETE**

PLAN DATE

SIG-240-A

SHEET
1 of 6



AS-LET PLAN REVISIONS

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



FILE:

DATE:

DESIGN UNIT:

TSC:

CS:

JN:

DRAWING SHEET

MDOT
TRAFFIC SIGNAL

3/8" -16NC stainless steel
Hex bolt & washer

— Grade level

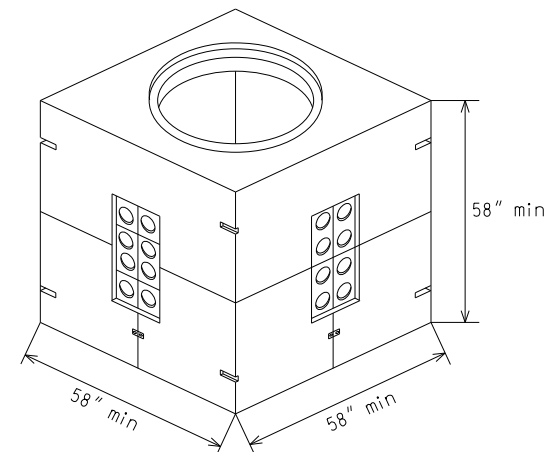
Crushed stone—

—P.V.C.
conduit

POLYMER CONCRETE HANDHOLE

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE		SIG-240-A	SHEET 3 of 6
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	Length	Width	Height
Inside	48	48	48
Outside	58	58	58
Recommended Hole size	82	82	--

	<u>Min Thickness</u>		<u>Min Weight lbs</u>
Wall	5	Top	3300
Roof	5	Bottom	3850
Floor	5	Total	7150

Technical drawing of a 1 1/2 inch diameter pipe flange. The drawing shows a cross-section of the flange with three concentric circles representing the outer diameter (O.D.), the diameter of the central opening (dia), and the inner diameter (I.D.). The dimensions are labeled as follows:

- Outer Diameter (O.D.): 51 1/2
- Diameter of central opening (dia): 46 1/2
- Inner Diameter (I.D.): 39


Dimensions	
A	Min Wt. (lbs)
6	440
9	650
12	860

GRADE RING WITH 39" I.D. &
46 1/2" RECESS

4' x 4' x 4' PRECAST CONCRETE HANDHOLE

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN		(SPECIAL DETAIL) FHWA APPROVAL DATE			SIG-240-A	SHEET 4 of 6
File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG240A.dgn Rev. 02/16/17			PLAN DATE			

AS-LET PLAN REVISIONS										DATE:	CS:		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION			DESIGN UNIT:				
											JN:			
									FILE:	TSC:				

Technical drawings of a traffic signal cover, showing top, bottom, and side views with dimensions and material specifications.

Top View:

- 7/8" Handling hole
- Frame E.J. #12201 or approved equal gray iron (ASTM A48CL35)
- 3/4" letters (recesses flush)
- Cover E.J. #122042 or approved equal gray iron (ASTM A48CL35)
- (1) Open pickhole
- 2"
- 3/4"
- MDOT TRAFFIC SIGNAL
- (2) 3/4" dia holes 13 1/2" apart

Bottom View OF COVER:

- 33 1/4" dia
- 1 1/8"
- 7 7/8"
- 29 1/2" dia
- 31 5/8" dia
- 45" dia
- 31 1/2" dia
- 1 1/8"
- 2 11/16"

NOTE:
Machined surface

NOTE:
Machined surface

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	<div style="text-align: center; font-size: 2em; font-weight: bold;">SIG-240-A</div>	<div style="text-align: center; font-weight: bold;">SHEET 5 of 6</div>
File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG240A.dgn Rev. 02/16/17			

The diagram illustrates the dimensions for a traffic signal assembly. It features a central rectangular box labeled "Traffic Signal". This box is surrounded by a larger rectangular area with diagonal hatching, representing the signal housing. The entire assembly is contained within a larger rectangular frame. Dimensions are indicated on the right and bottom sides:

- Right Side Dimensions:**
 - The total height of the assembly is $2' - 8"$.
 - The height of the central signal box is $2' - 0"$.
 - The height of the hatched housing area is $4"$.
- Bottom Side Dimensions:**
 - The total width of the assembly is $2' - 8"$.
 - The width of the central signal box is $2' - 0"$.
 - The width of the hatched housing area is $4"$.

Architectural drawing of a square stone block, likely a pedestal or base, showing dimensions in feet and inches. The drawing includes a top view and a side elevation.

Top View Dimensions:

- Overall width: 3' - 0"
- Overall height: 3' - 6"
- Inner square opening: 1' - 4"
- Top flange thickness: 5"
- Side flange thickness: 6"
- Bottom flange thickness: 6"
- Bottom flange width (from center line): 4", 3", 5", 7", 5", 3", 4"

Side Elevation Dimensions:

- Overall height: 3' - 0"
- Inner square opening height: 1' - 4"
- Top flange thickness: 5"
- Side flange thickness: 6"
- Bottom flange thickness: 6"


Technical drawing of a 3' x 6' metal enclosure. The drawing shows a side elevation of the enclosure with the following dimensions and features:

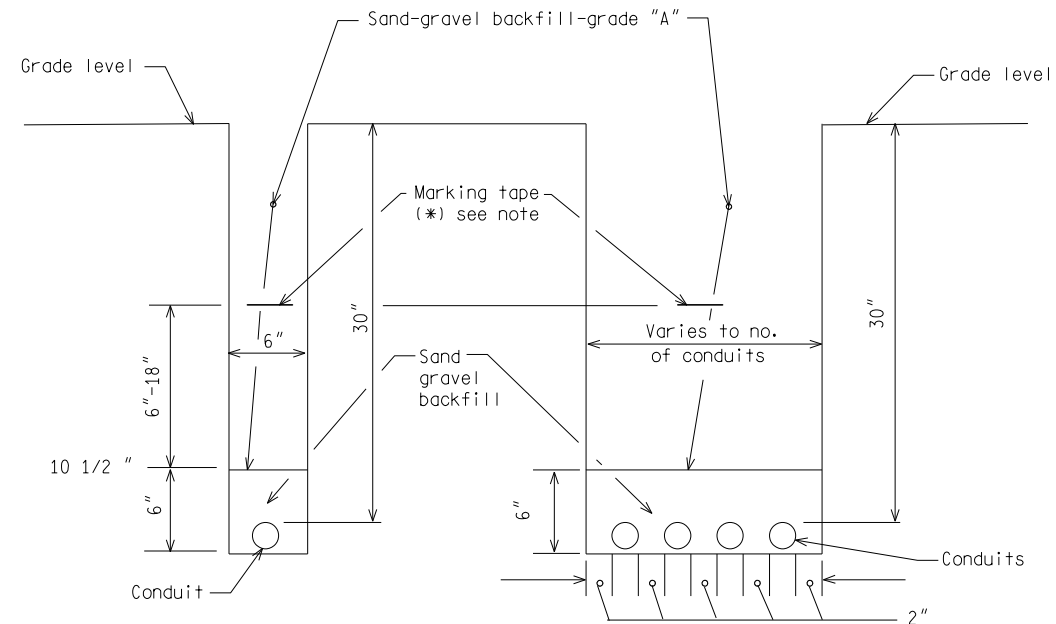
- Overall Dimensions:** 3'-0" wide and 6'-0" high.
- Internal Dimensions:** The interior is 1'-0" wide and 3'-0" high.
- Top:** East Jordan Iron Works #8308 Heavy Duty (H.D.) frame & cover with "Traffic Signal" logo imprinted on lid.
- Front Wall:** 1'-0" x 1'-0" knockout window (typ. each wall).
- Bottom:** 5" sump opening.
- Material:** The enclosure walls are made of 1'-0" x 1'-0" knockout window (typ. each wall).

For use on Oakland County roads only.

NOT TO SCALE

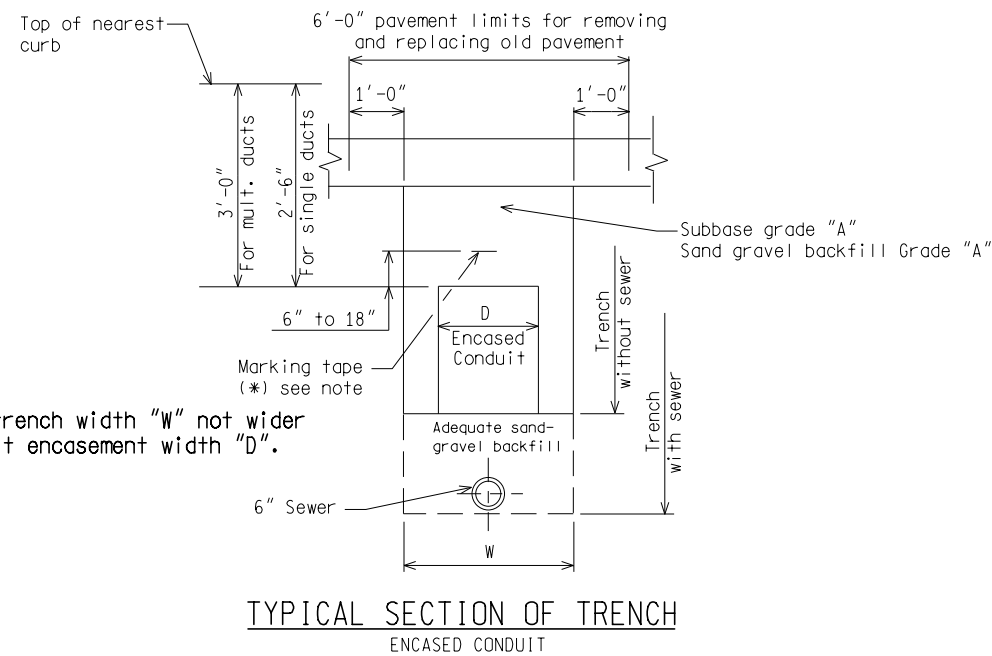
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE		SIG-240-A	SHEET 6 of 6
File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG240A.dgn Rev. 02/16/17		PLAN DATE		

AS-LET PLAN REVISIONS									<div> <div>DATE:</div> <div>DESIGN UNIT:</div> <div>FILE:</div> </div> <div> <div>TSC:</div> </div>		<div> <div>CS:</div> <div>JN:</div> </div>		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION							



(*) NOTE:
Marking tape shall have proper logo as supplied
by the Engineer and installed by the Contractor.

DIRECT BURIAL CONDUIT(S)/CABLE(S)



NOTE:
Preferred trench width "W" not wider
than conduit encasement width "D".

TYPICAL SECTION OF TRENCH ENCASED CONDUIT

NOT TO SCALE

File: RefDoc/TR/Signals/Web/Sp Det/F in/SIG250A.dgn Rev. 02/16/17



PREPARED BY
TRAFFIC AND SAFETY

DRAWN BY: DJF

CHECKED BY:

ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT

(SPECIAL DETAIL)

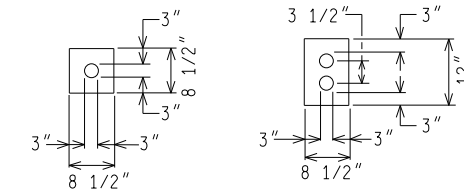
FWHA APPROVAL DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR
CONDUIT
(DIRECT BURIAL/ENCASED)

PLAN DATE

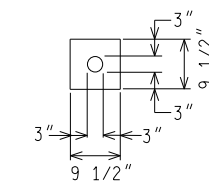
SIG-250-A

SHEET
1 of 2

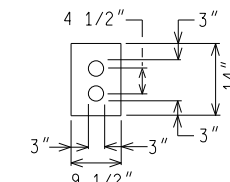


1 2" CONDUIT

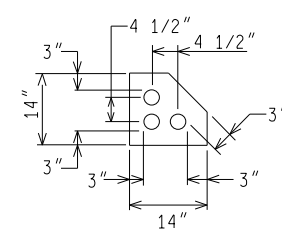
2 2" CONDUIT



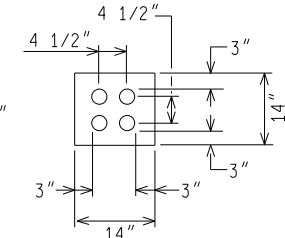
ONE
2 1/2" CONDUIT



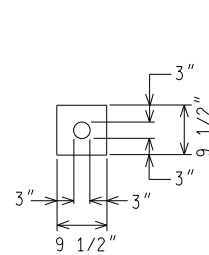
TWO
2 1/2" CONDUIT



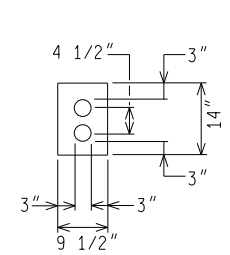
THREE
2 1/2" CONDUIT



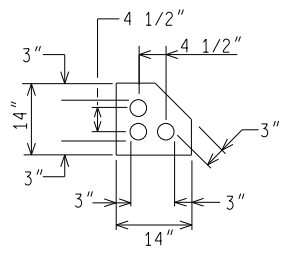
FOUR
2 1/2" CONDUIT



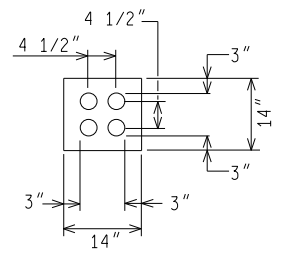
1 3" CONDUIT



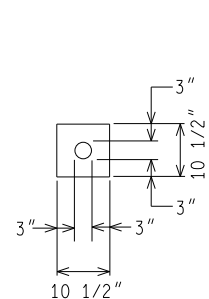
2 3" CONDUIT



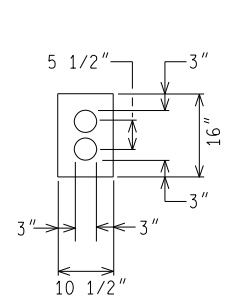
3 3" CONDUIT



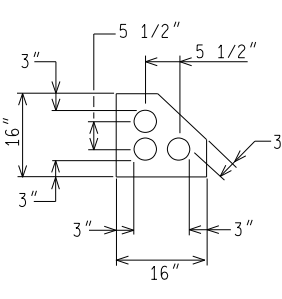
4 3" CONDUIT



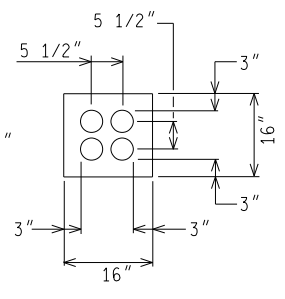
1 4" CONDUIT



2 4" CONDUIT



3 4" CONDUIT



4 4" CONDUIT

ENCASED CONDUIT SECTIONS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

(SPECIAL DETAIL)
FWHA APPROVAL DATE

File: RefDoc/TR/Signals/Web/Sp Det/F in/SIG250A.dgn Rev. 02/16/17

PLAN DATE

SIG-250-A

SHEET
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AS-LET PLAN REVISIONS

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



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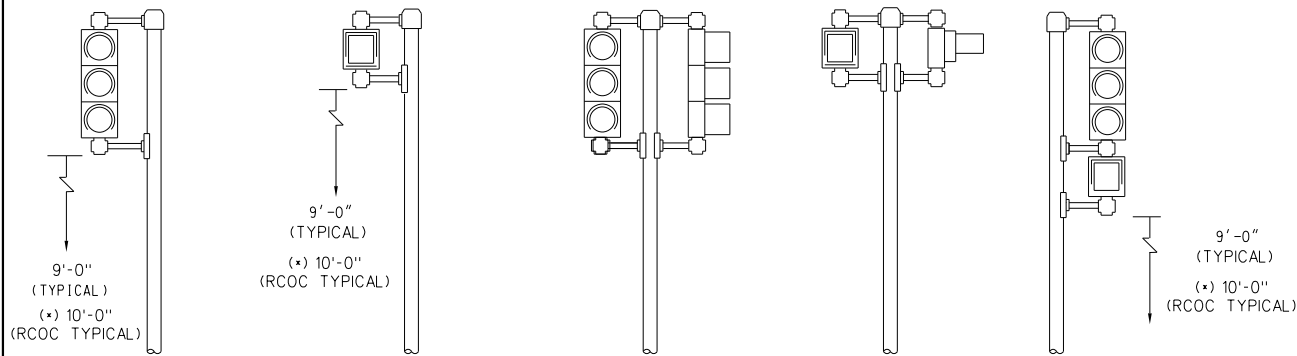
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DRAWING SHEET

(*) Refer to Note 4 on Sheet 2 of 2.



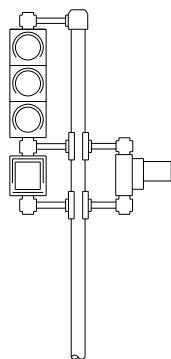
DETAIL "A-2"

DETAIL "B-2"

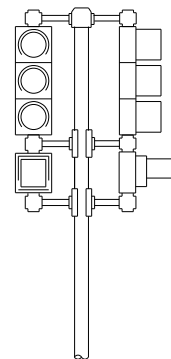
DETAIL "C-2"

DETAIL "D-2"

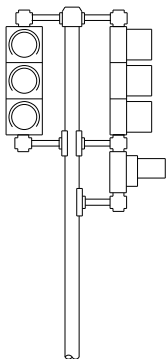
DETAIL "E-2"



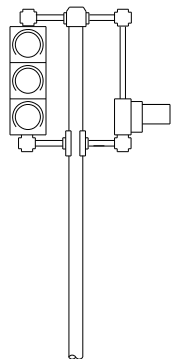
DETAIL "F-2"



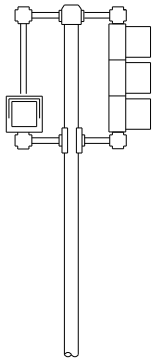
DETAIL "G-2"



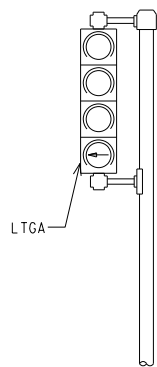
DETAIL "H-2"



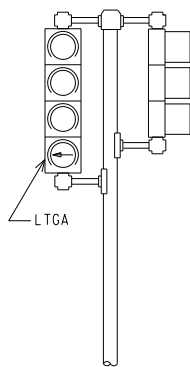
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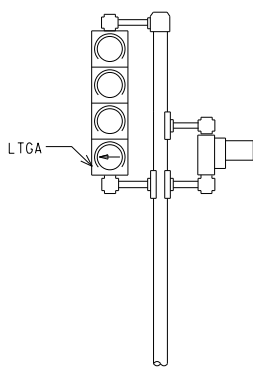
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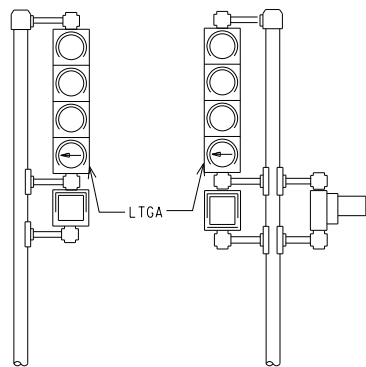
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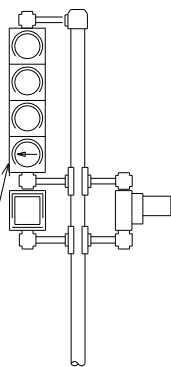
DETAIL "L-2"



DETAIL "M-2"



DETAIL "N-2"



DETAIL "O-2"

Left Turn Green Arrow (LTGA)

NOT TO SCALE

File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG330A.dgn Rev. 02/16/17



PREPARED BY
TRAFFIC AND SAFETY

DRAWN BY:
CHECKED BY:

ENGINEER OF DELIVERY

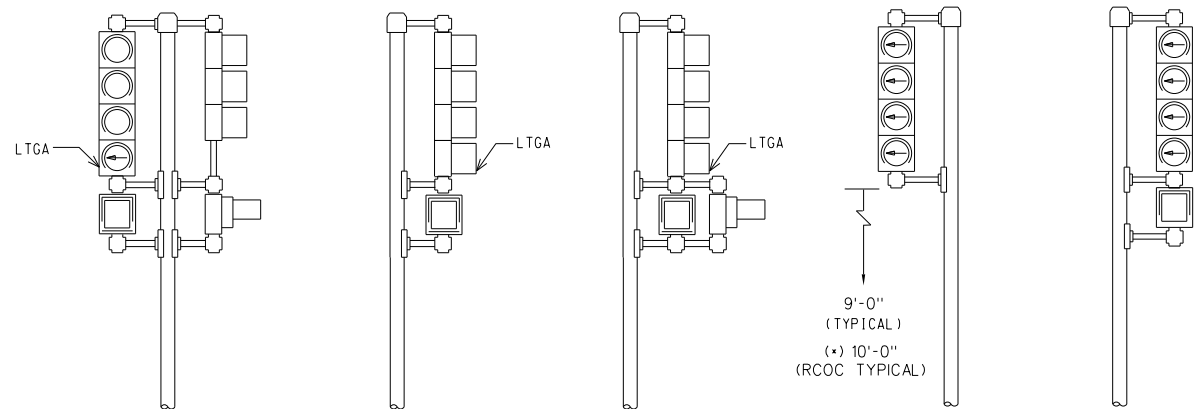
ENGINEER OF DEVELOPMENT
(SPECIAL DETAIL)
FHWA APPROVAL DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR

PEDESTAL MOUNTED
SIGNAL DISPLAYS

SIG-330-A

SHEET
1 of 2



DETAIL "P-2"

DETAIL "Q-2"

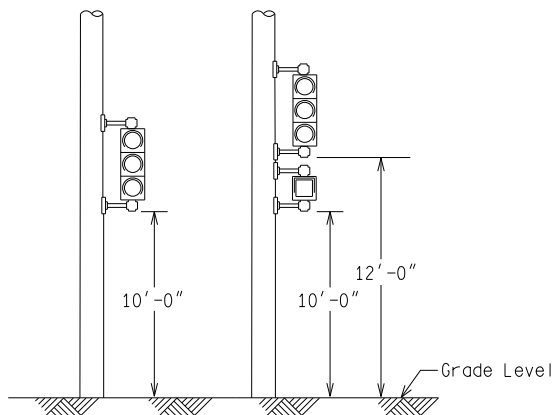
DETAIL "R-2"

DETAIL "S-2"

DETAIL "T-2"

Left Turn Green Arrow (LTGA)

Flashing Yellow Arrow (FYA)



RCOC Mounting Detail (*) see note

DETAIL "U-2"

DETAIL "V-2"

DETAIL "Typical"

NOTE:

- 1) Pipe assembly shall be such length and height as to accommodate traffic signals and pedestrian signals for proper maintenance and clear vehicular and pedestrian viewing.
- 2) Pipe assembly shall be of such length and height as to accommodate an illuminated (12"x27") case sign for proper maintenance and clear vehicular viewing.
- 3) Bracket lengths are 16 inches for LED pedestrian signals and for LED pedestrian countdown signals.
- 4) Tolerance within +/- 1/8" for bracketing.

(*) For projects maintained by the Road Commission for Oakland County (RCOC), use the bottom heights and bracket assemblies as shown for the RCOC mounting detail.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

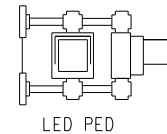
(SPECIAL DETAIL)
FHWA APPROVAL DATE

File: RefDoc/TR/Signals/Web/Sp Det/Fin/SIG330A.dgn Rev. 02/16/17

PLAN DATE

SIG-330-A

SHEET
2 of 2

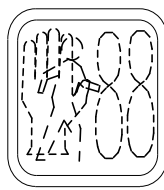


LED PED

NOTE:
Walking person and
hand symbol are filled.



LED PED
(filled)



Countdown
LED PED
(filled symbols)

AS-LET PLAN REVISIONS							
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



FILE:

DATE:

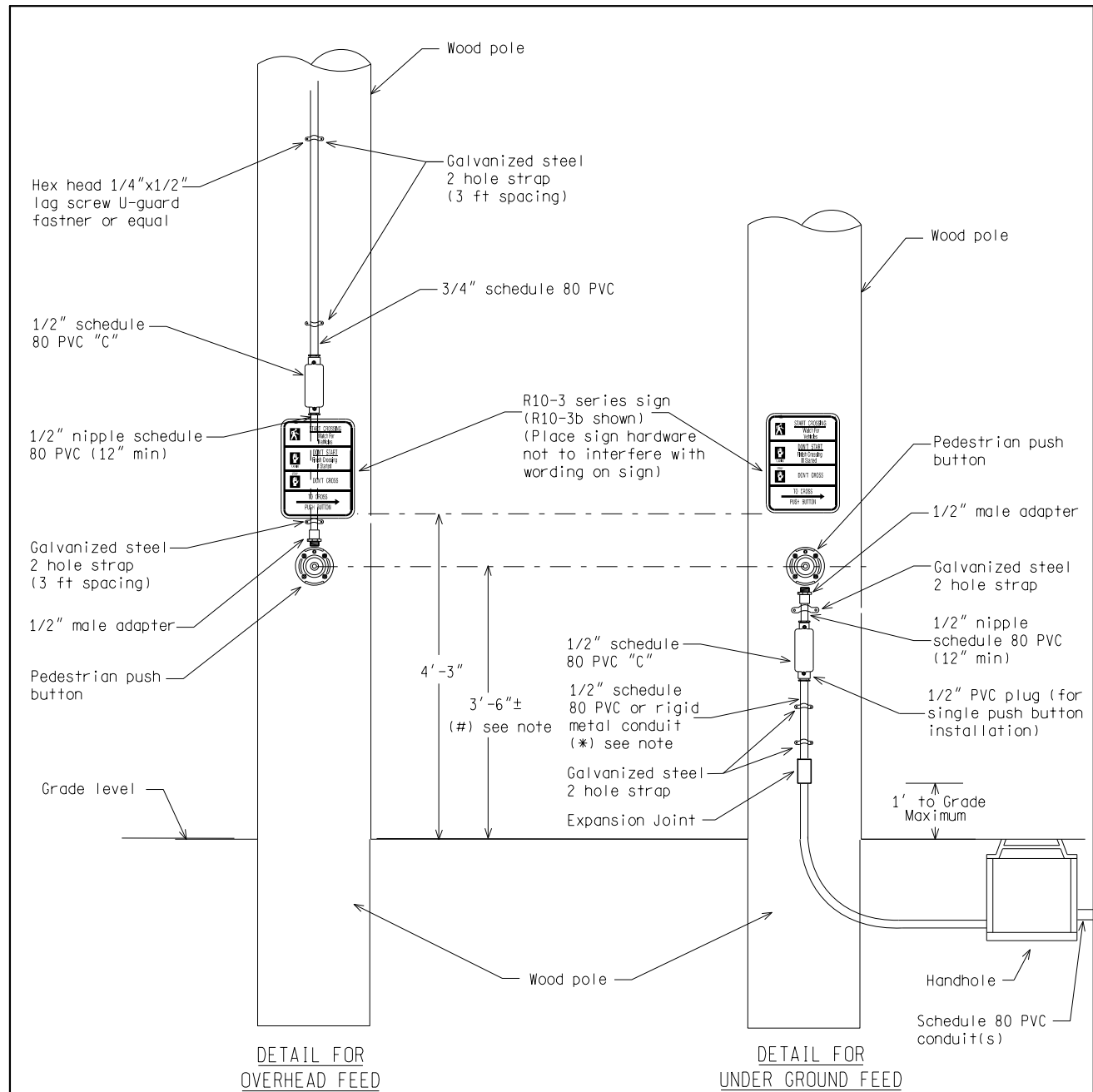
DESIGN UNIT:

TSC:

CS:

JN:

DRAWING SHEET



Note: (*) For projects maintained by the Wayne Co. Department of Public Services (WCDPS), use rigid metal for conduit(s) from grade level to 10' (min.) above grade or as directed by the Engineer.

(#) If pushbutton is from 10" to 24" from edge of sidewalk an acceptable range is 38" to 46"

PEDESTRIAN PUSH BUTTON DETAILS ON WOOD POLE

NOT TO SCALE

File: RefDoc/TR/Signals/Web/Sp Det/FIn/SIG400A.dgn Rev. 02/16/17



PREPARED BY
TRAFFIC AND SAFETY

DRAWN BY:
CHECKED BY:

ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT

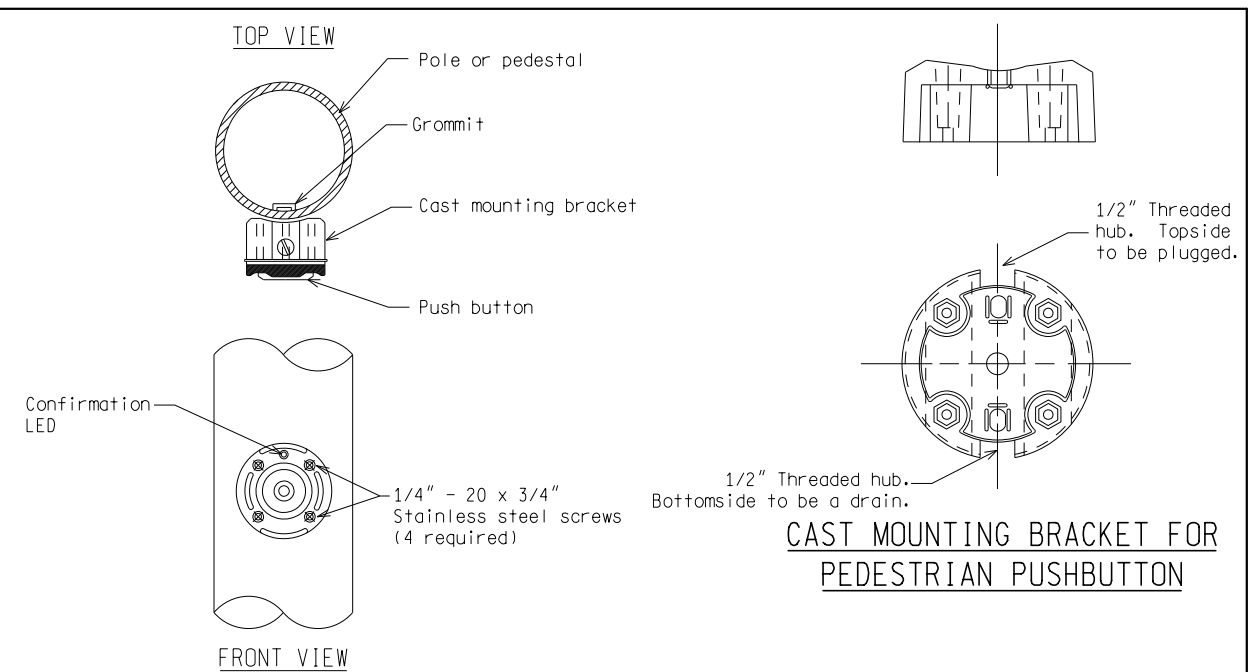
(SPECIAL DETAIL)
FHWA APPROVAL DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR

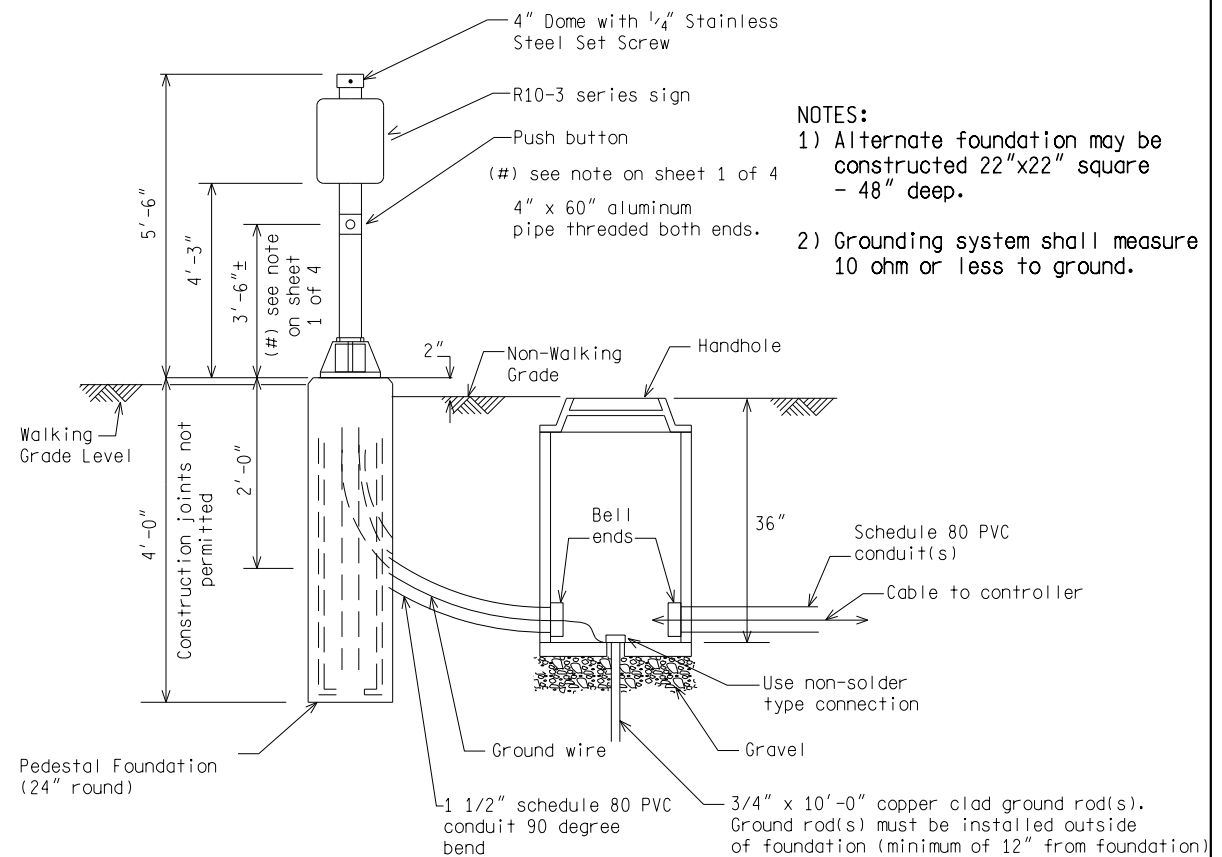
PEDESTRIAN PUSH BUTTON DETAILS

SIG-400-A

SHEET
1 of 4



PEDESTRIAN PUSHBUTTON INSTALLATION ON STEEL POLE OR PEDESTAL



- NOTES:
- 1) Alternate foundation may be constructed 22"x22" square - 48" deep.
 - 2) Grounding system shall measure 10 ohm or less to ground.

NOT TO SCALE

PUSH BUTTON PEDESTAL

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

(SPECIAL DETAIL)
FHWA APPROVAL DATE

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PLAN DATE

SIG-400-A

SHEET
2 of 4

AS-LET PLAN REVISIONS

NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION



FILE:

DATE:

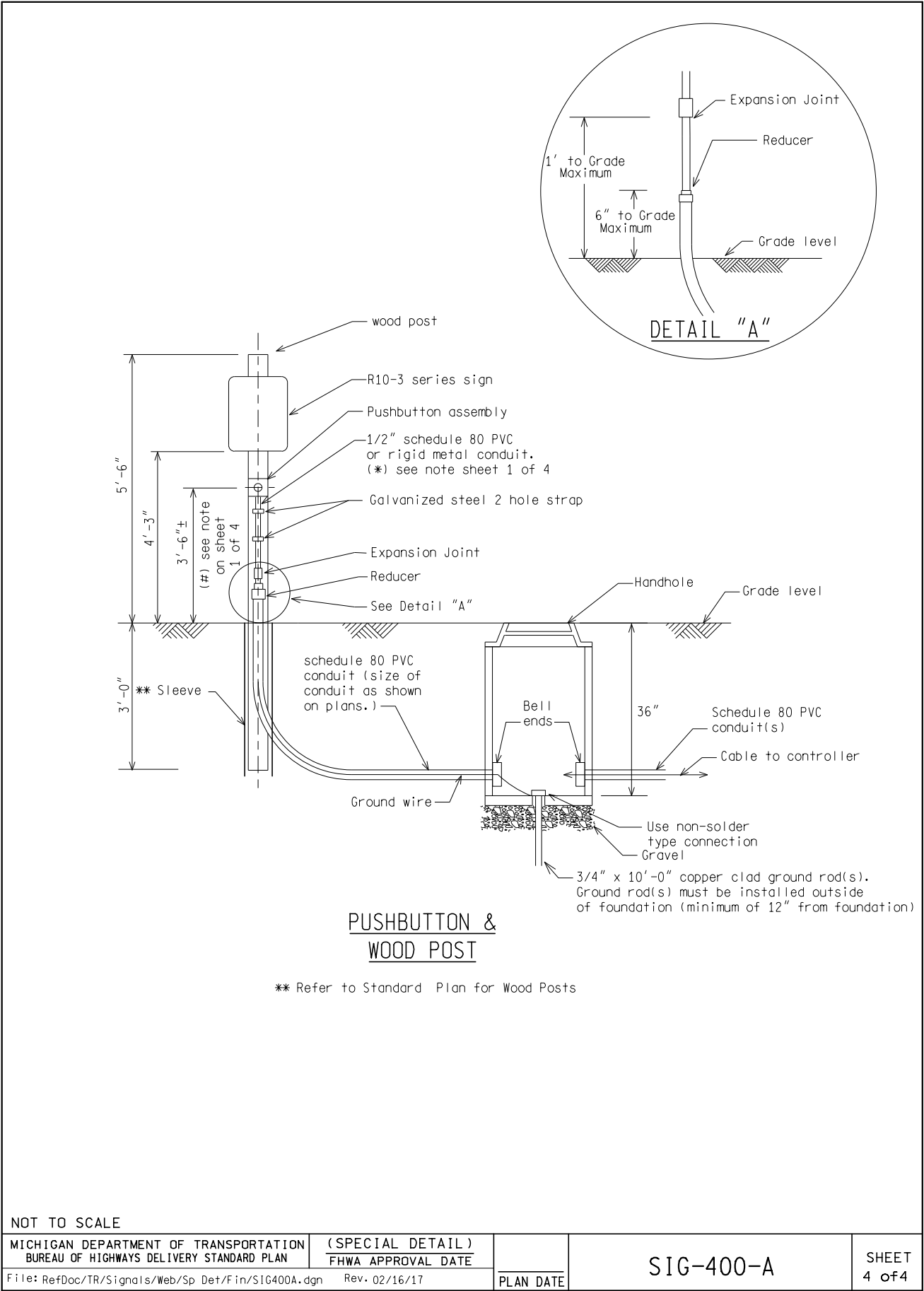
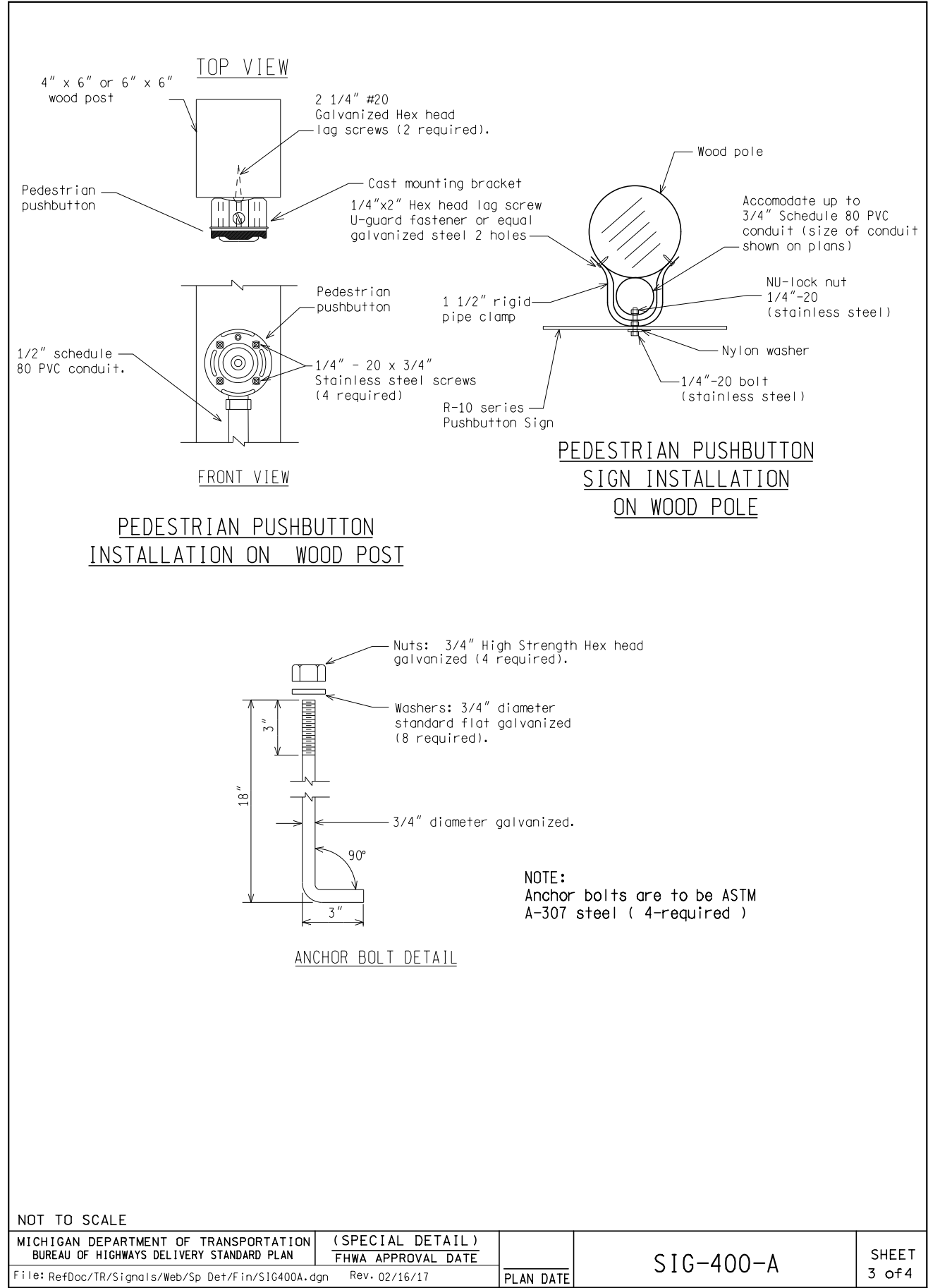
DESIGN UNIT:


TSC:

CS:

JN:

DRAWING SHEET



AS-LET PLAN REVISIONS												DATE:	CS:		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION					DESIGN UNIT:				
									FILE:	TSC:	JN:					