

WKE  
PROJECT ID:  
WITH: N/A

1060-10-72

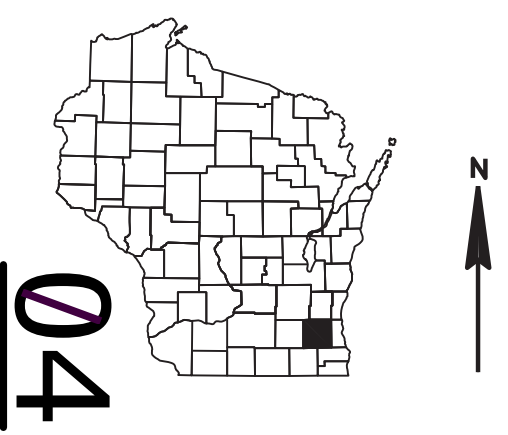
COUNTY:  
WAUKESHA

MAY 2023

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 438



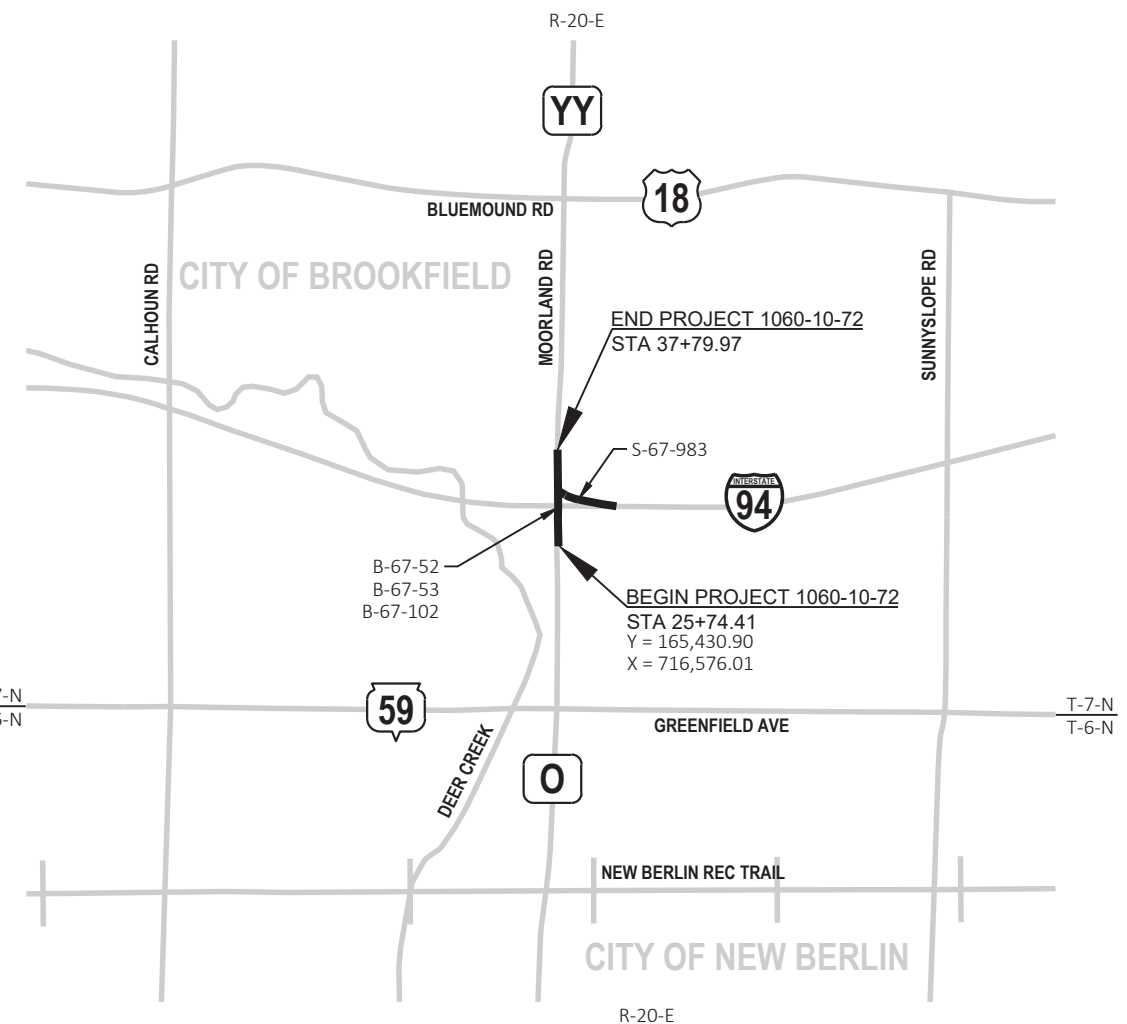
DESIGN DESIGNATION	MOORLAND RD	RAMP C
A.A.D.T.	2019 = 39,600	9,600
A.A.D.T.	2042 = 40,600	10,100
D.H.V.	= 4,350	1,085
D.D.	= 59/41	59/41
T.	= 6%	2.2%
DESIGN SPEED	= 40 MPH	50 MPH
ESALS	= N/A	1,500,000

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PLAN OF PROPOSED IMPROVEMENT  
IH 94 EAST WEST FREEWAY  
MOORLAND INTERCHANGE  
IH 94  
WAUKESHA COUNTY

STATE PROJECT NUMBER  
1060-10-72



LAYOUT  
SCALE 0 0.5 MI  
TOTAL NET LENGTH OF CENTERLINE = 0.228 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.  
ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1060-10-72		

ORIGINAL PLANS PREPARED BY

**raSmith**  
CREATIVITY BEYOND ENGINEERING  
rasmith.com

WISCONSIN PROFESSIONAL ENGINEER  
JOHN A. ELKIN II  
E-27876  
BROOKFIELD WI

1/25/2023 (Date) *John A. Elkin II* (Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	
Designer	RASMITH
Project Manager	AMANDA JOHANSEN
Regional Examiner	
Regional Supervisor	WAFA ELQAQ

APPROVED FOR THE DEPARTMENT

DATE: 1/26/2023 *Amanda Johansen* (Signature)

E

UTILITIES

COMMUNICATIONS

AT&T LEGACY
KENNETH NINE
110 N MAIN ST
CULVER, IN 46511
(574) 842-8830
knine@jmceainc.com

WATER

BROOKFIELD WATER UTILITY
DAN ERICKSON
2000 N CALHOUN RD
BROOKFIELD, WI 53005
(262) 787-3539
ericksond@ci.brookfield.wi.us

SEWER

CITY OF BROOKFIELD
DAN ERICKSON
2000 N CALHOUN RD
BROOKFIELD, WI 53005
(262) 787-3539
ericksond@ci.brookfield.wi.us

COMMUNICATIONS

SPECTRUM
NEAL LONG
1320 N DR MARTIN LUTHER KING JR DR
MILWAUKEE, WI 53212
(414) 430-7189
neal.long@charter.com

ELECTRIC

WE ENERGIES
PHIL MCDONNELL
500 S 116TH STREET
WEST ALLIS, WI 53214
(414) 944-5620
DISPATCH: (800) 662-4797
phil.mcdonnell@we-energies.com

COMMUNICATIONS

VERIZON BUSINESS
RJ CICATELLO JR.
15725 WEST RYERSON ROAD
NEW BERLIN, WI 53151
(262) 232-1323
randy.cicatello@verizon.com

STREET LIGHTING

WISCONSIN DEPARTMENT OF TRANSPORTATION
ERIC PEREA
141 NW BARSTOW STREET
WAUKESHA, WI 53188
(262) 574-5422
eric.perea@dot.wi.gov

COMMUNICATIONS

AT&T WISCONSIN
NATHAN GILBERT
411 7TH ST
RACINE, WI 53403
(262) 720-8235
ng952w@att.com

COMMUNICATIONS

EVERSTREAM
SHAD GARCIA
324 E WISCONSIN AVE, SUITE 730
MILWAUKEE, WI 53202
(414) 522-6685
sgarcia@everstream.net

COMMUNICATIONS

TDS METROCOM LLC
BRIAN SIMS
525 JUNCTION ROAD
MADISON, WI 53717
(541) 585-2965
brian.sims@tdstelecom.com

GAS

WE ENERGIES
JOE WOOD
S13W33800 HIGHWAY 18
DELAFIELD, WI 53018
(262) 365-6413
DISPATCH: (800) 261-5325
joseph.wood@we-energies.com

FTMS

WISCONSIN DEPARTMENT OF TRANSPORTATION
JOHN MITTELSTADT
433 W. ST. PAUL AVE STE. 300
MILWAUKEE, WI 53203-3007
(608) 205-7859
john.mittelstadt@dot.wi.gov

TRAFFIC SIGNALS

WISCONSIN DEPARTMENT OF TRANSPORTATION
JOYCE MURPHY
141 NW BARSTOW STREET
WAUKESHA, WI 53188
(262) 548-5933
joyce.murphy@dot.wi.gov

COMMUNICATIONS

WINDSTREAM
LORI KETTER
969 WAUBE LANE
GREEN BAY, WI 54302
(920) 410-6902
lori.ketter@windstream.com

GENERAL NOTES:

- 1. EROSION CONTROL DEVICES ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER REQUIRED.
2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
3. ALL DISTURBED/GRADED/SOIL STOCKPILE AREAS SHALL BE PERMANENTLY RESTORED WITHIN FOURTEEN (14) CALENDAR DAYS OF ANY CONTRACTOR DISTURBANCE. IF ANY DISTURBED/GRADED/SOIL STOCKPILE AREAS (INCLUDING ALL PARTIAL/FULL CUTS AND FILLS, ADJUSTED/REPLACEMENT STORM SEWER, SIDEWALKS, CURBS, ETC...) WILL NOT BE PERMANENTLY RESTORED WITHIN FOURTEEN (14) CALENDAR DAYS THEY SHALL BE RESTORED WITH TEMPORARY SEED AND EROSION MAT WITHIN FIVE (5) CALENDAR DAYS OF THE INITIAL & REPEATED DISTURBANCE.
4. STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS, AND WATERWAYS. STOCKPILED SOIL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS TO BE LEFT FOR MORE THAN FOURTEEN (14) DAYS, RESTORE THE STOCKPILE WITH TEMPORARY SEED AND MULCH.
5. RESHAPE, RESTORE, AND FINISH ALL PREVIOUSLY GRASSED AREAS DISTURBED OUTSIDE THE NORMAL CONSTRUCTION LIMITS AT NO EXPENSE TO THE DEPARTMENT.
6. PLACE TOPSOIL TO 1 INCH BELOW TOP OF ADJACENT CONCRETE CURBS OR SIDEWALKS IN SOD AREAS.
7. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS IN THE AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.
8. ALL CURB AND GUTTER RADII ARE MEASURED TO THE FLANGE LINE UNLESS OTHERWISE NOTED.
9. VERIFY EXISTING PAVEMENT ELEVATIONS AT ALL TIE-INS TO EXISTING PAVEMENT PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IF A DISCREPANCY IS FOUND BETWEEN PROPOSED PLAN ELEVATIONS AND EXISTING PAVEMENT ELEVATIONS.
10. SAWCUT EXISTING ASPHALT AND CONCRETE PAVEMENT AT THE MATCHLINE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
11. CONSTRUCT INSIDE EDGE OF SIDEWALK 1/2-INCH HIGHER THAN TOP OF CURB WHEN THEY ARE ADJACENT TO EACH OTHER.
12. CONTACT THE PROJECT ENGINEER AND THE SOUTHEASTERN REGIONAL PLANNING COMMISSION (SEWRPC) AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.
13. HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

Table with 2 columns: THICKNESS, LAYERS. Rows include 1.75-INCH, 2-INCH, 3.5-INCH, 4-INCH, 5-INCH with corresponding layer specifications.

DESIGN CONSULTANT

raSmith
JOHN ELKIN
16745 W BLUEMOUND RD
BROOKFIELD, WI 53005
(262) 317-3312
john.elkin@rasmith.com

WDNR LIAISON

WDNR LIASON
CRAIG WEBSTER
141 NW BARSTOW STREET
WAUKESHA, WI 53188
(262) 574-2141
craig.webster@wisconsin.gov

WISDOT REGION CONTACT

WISDOT SOUTHEAST REGION
AMANDA JOHANSEN
141 NW BARSTOW ST
WAUKESHA, WI 53188
(262) 521-4465
amanda.johansen@dot.wi.gov

SEWRPC CONTACT

SEWRPC
ROB MERRY
W239N1812 ROCKWOOD DRIVE
WAUKESHA, WI 53187-1607
(262) 953-4289
rmerry@sewrpc.org

ORDER OF SECTION 2 SHEETS

- GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
REMOVAL PLAN
PAVING DETAILS
PAVING GRADES
CURB RAMP DETAILS
EROSION CONTROL
STORM SEWER PLANS
EXISTING SIGN REMOVALS
PERMANENT SIGNING
TRAFFIC SIGNAL PLANS
LIGHTING PLANS
FTMS PLANS
PAVEMENT MARKING
TRAFFIC CONTROL PLANS
DETOUR PLAN
ALIGNMENT PLAN

STANDARD ABBREVIATIONS

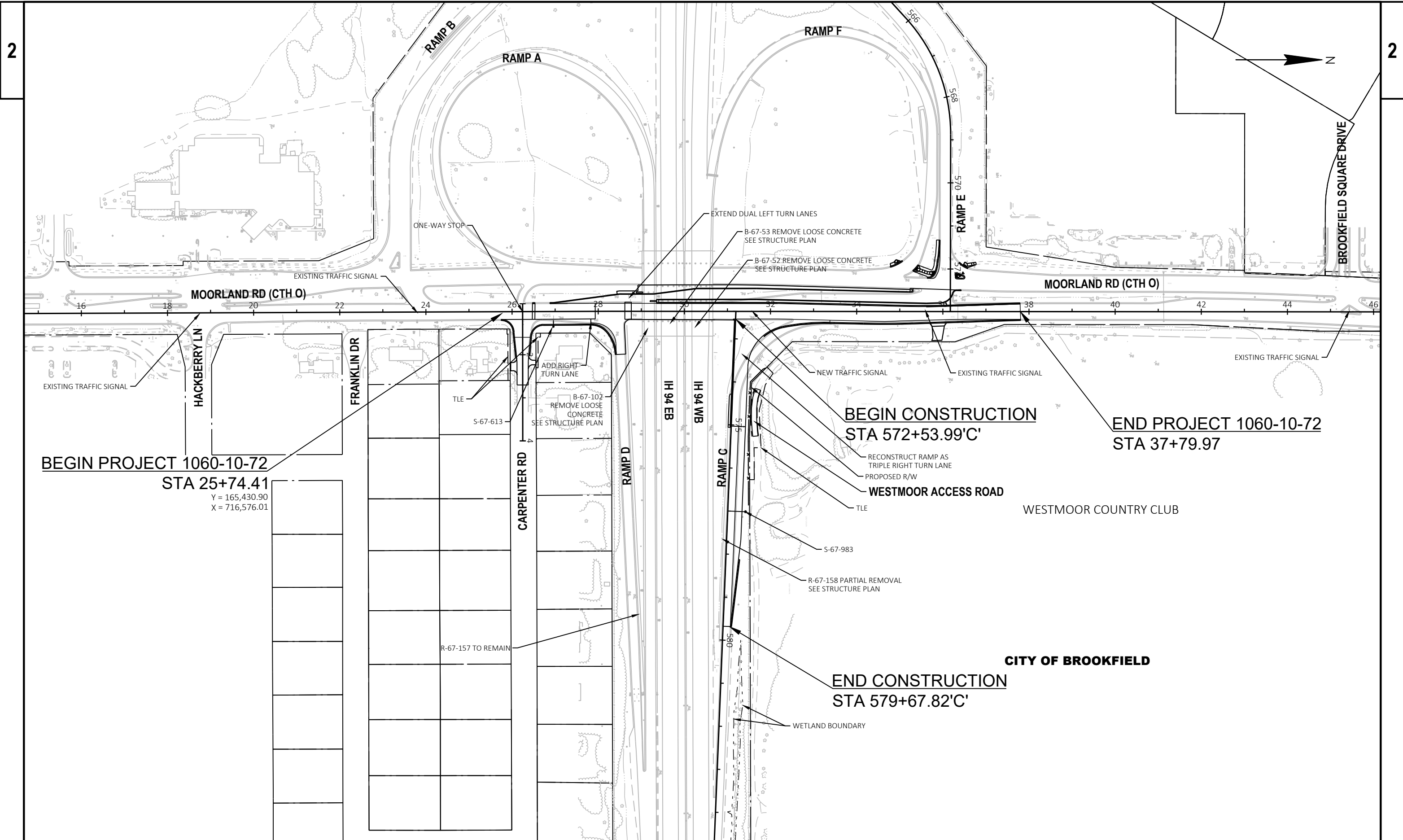
- AC ASPHALT CEMENT
ADJ ADJUST
BAD BASE AGGREGATE DENSE
CFS CUBIC FEET PER SECOND
FPS FEET PER SECOND
HP HIGH POINT
LP LOW POINT
MAX MAXIMUM
OH OVERHEAD
OPT OPTIONAL
PSF POUNDS PER SQUARE FOOT

THE FOLLOWING ENTITIES HAVE COMPLETED PLANS FOR THIS PROJECT:
- LIGHTING PLANS - WISDOT
- FTMS PLANS - WISDOT



Dial 811 or (800)242-8511

www.DiggersHotline.com



PROJECT NO: 1060-10-72

HWY: IH 94

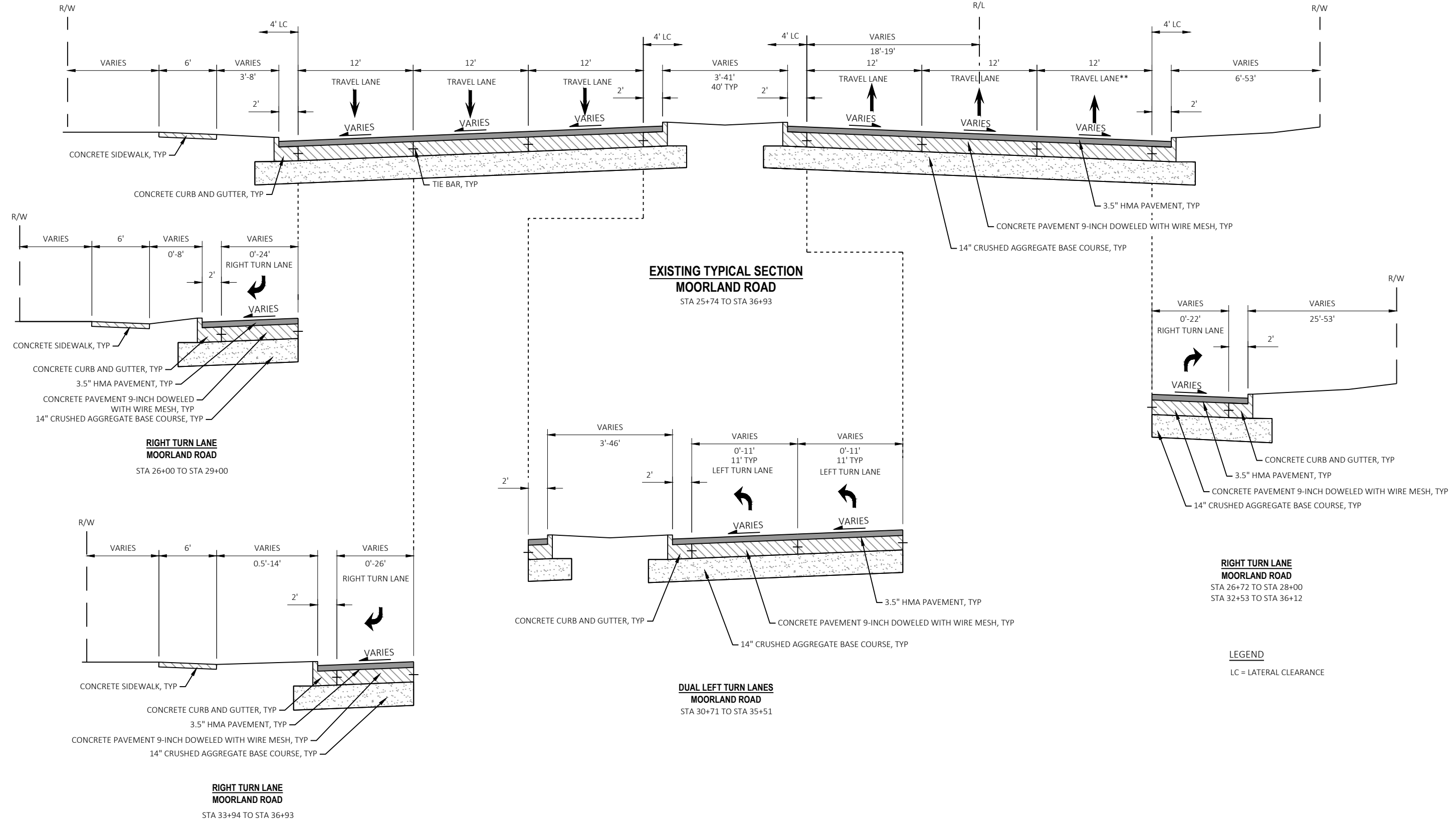
COUNTY: WAUKESHA

PROJECT OVERVIEW

SHEET

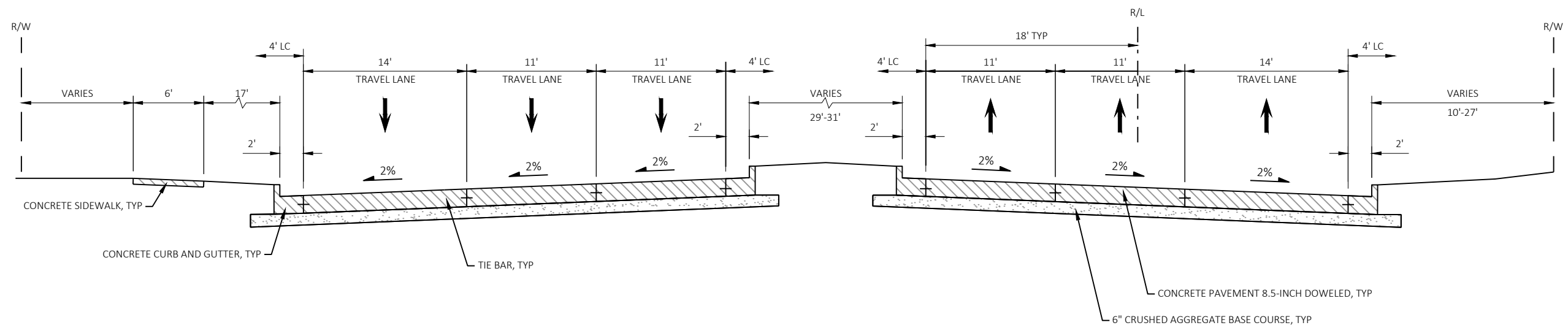
E

\*\* RIGHT TURN LANE FROM STA 25+74 TO STA 27+93  
AUXILIARY LANE FROM STA 27+93 TO 32+51



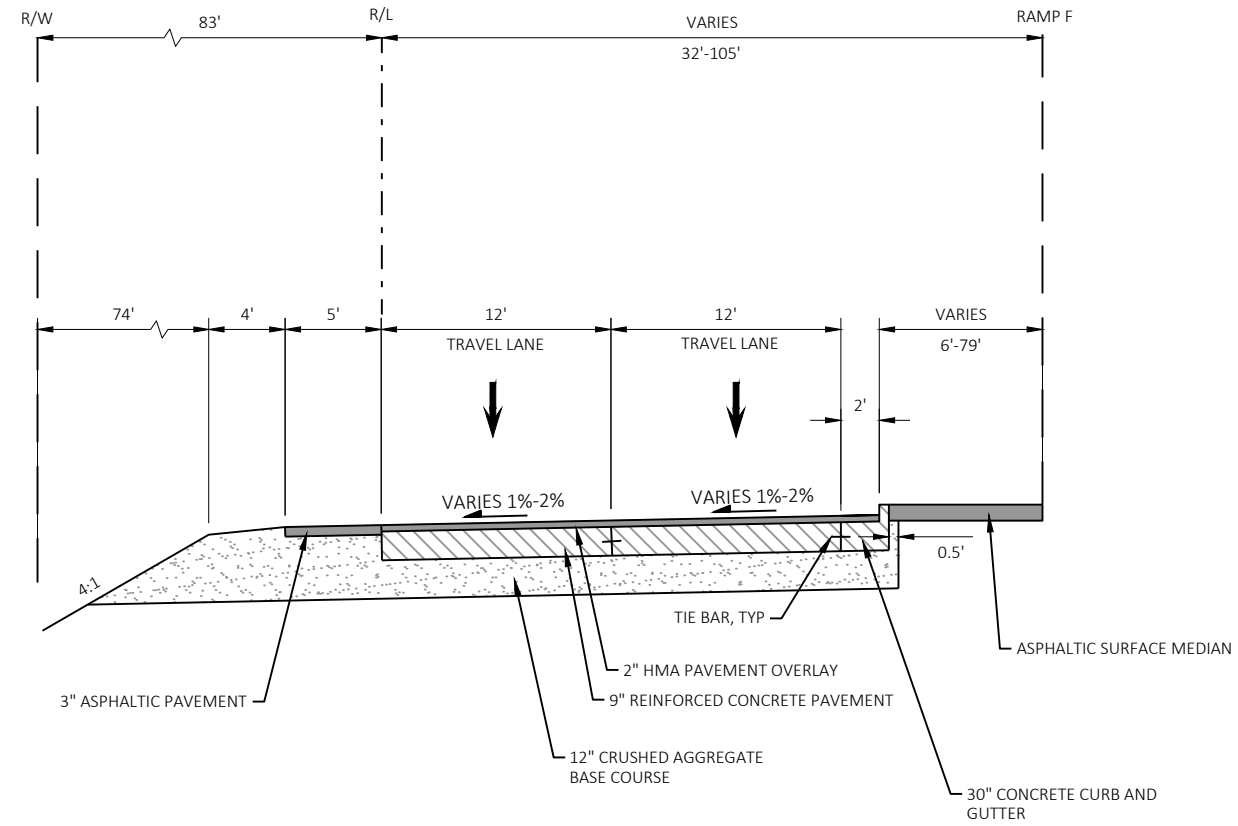
LEGEND  
LC = LATERAL CLEARANCE



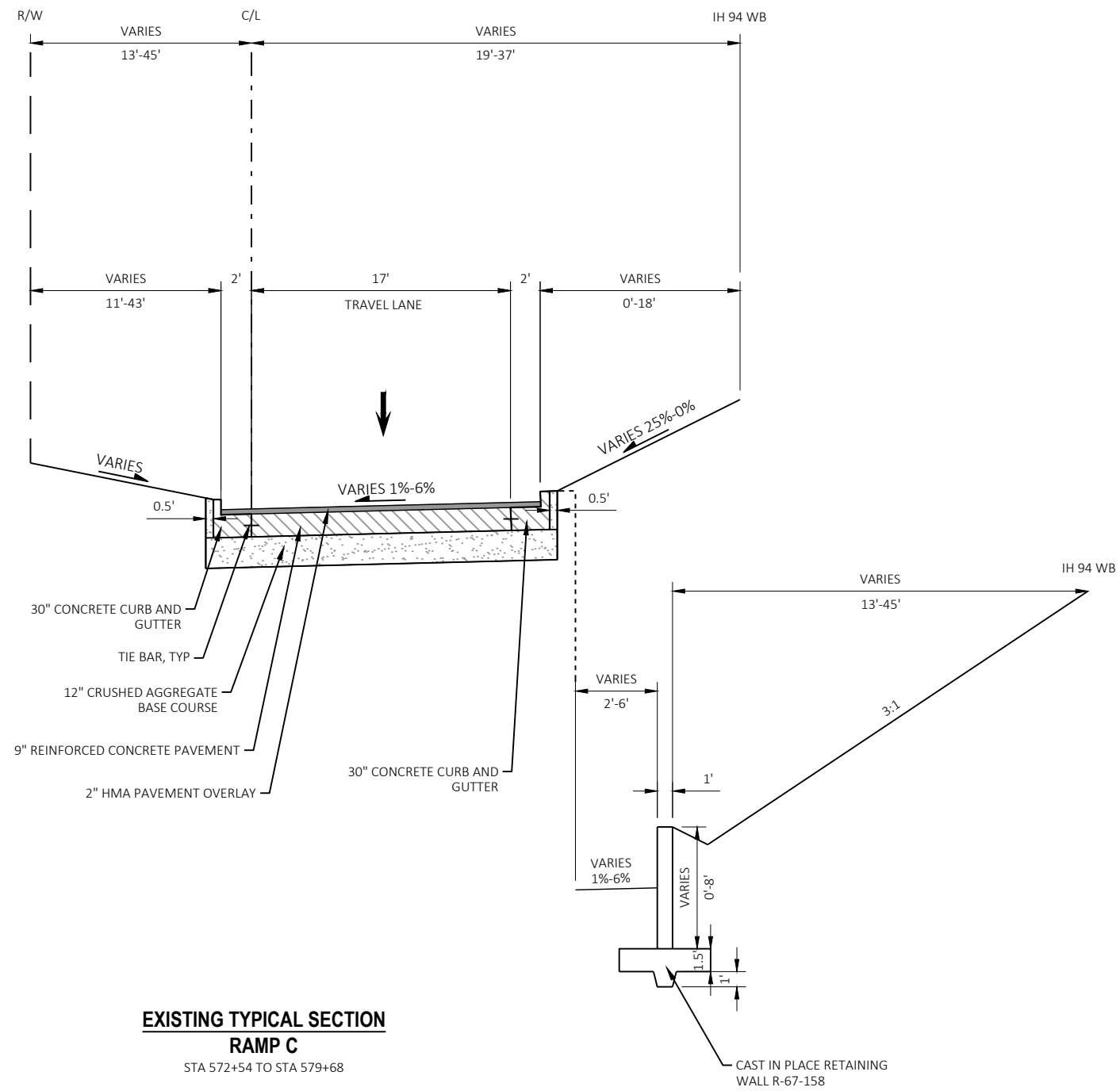


**EXISTING TYPICAL SECTION**  
**MOORLAND ROAD**  
 STA 36+93 TO STA 37+80

**LEGEND**  
 LC = LATERAL CLEARANCE

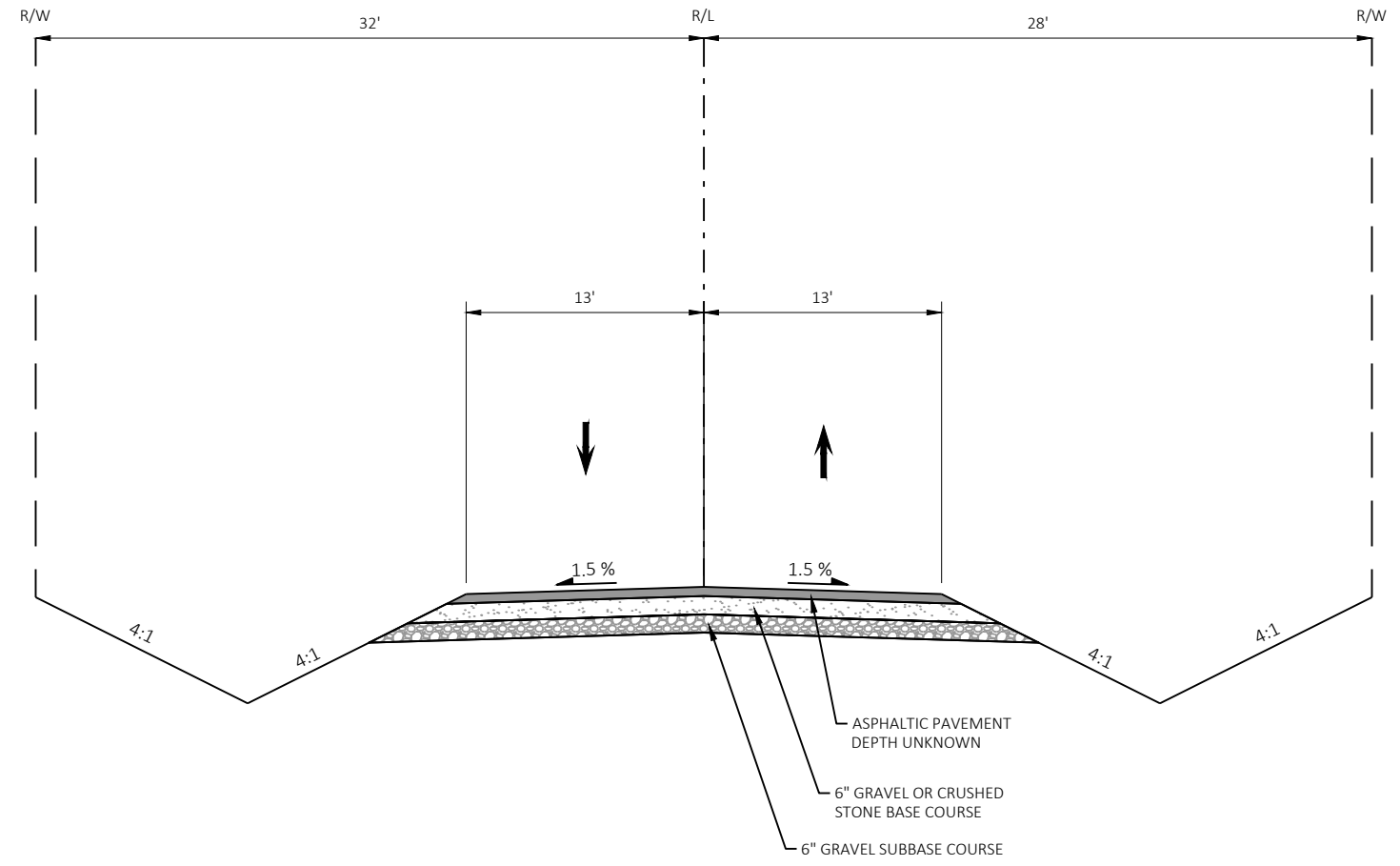


**EXISTING TYPICAL SECTION**  
**RAMP E**  
 STA 571+33 TO STA 572+21



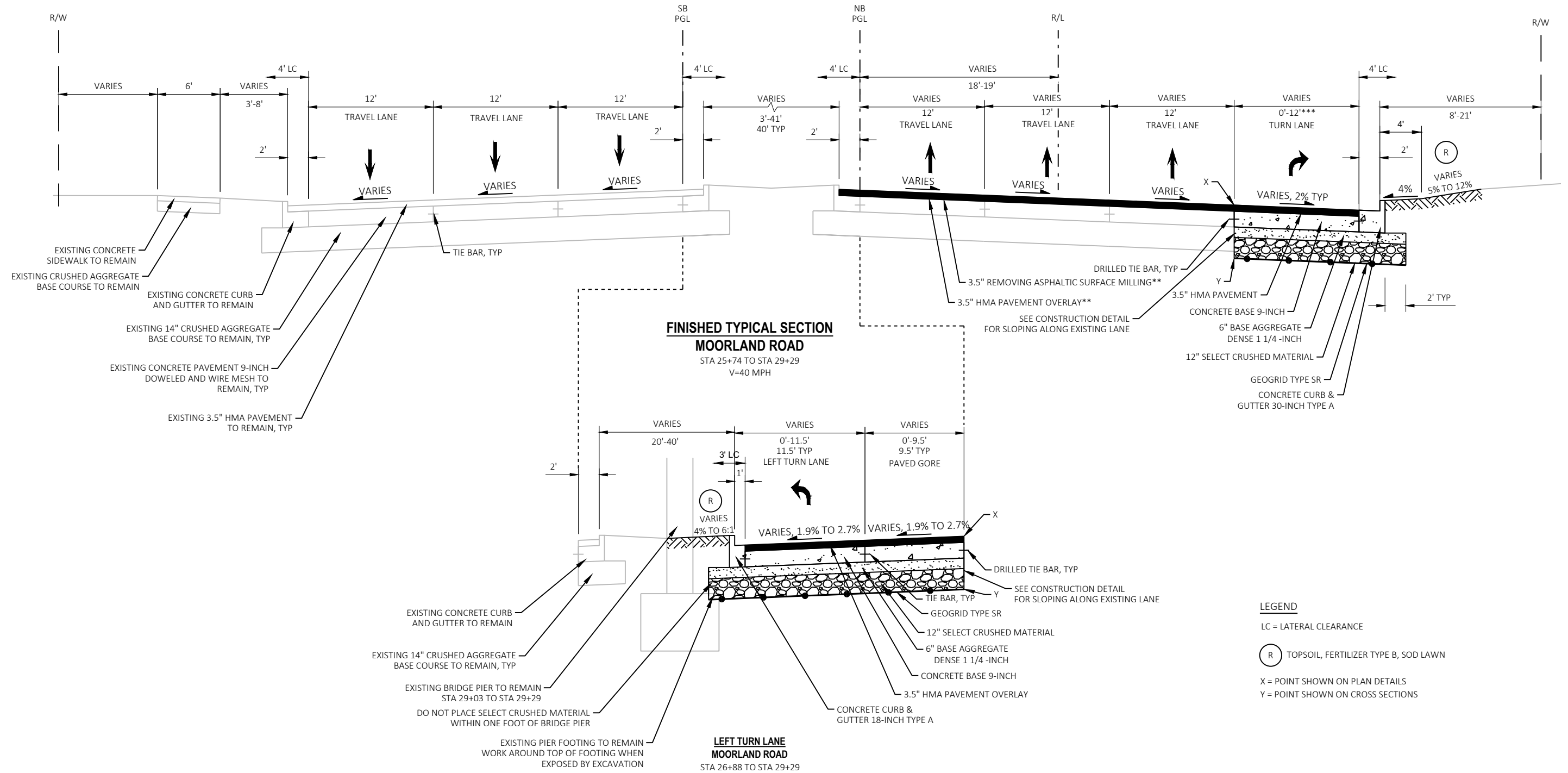
**EXISTING TYPICAL SECTION  
RAMP C**  
STA 572+54 TO STA 579+68

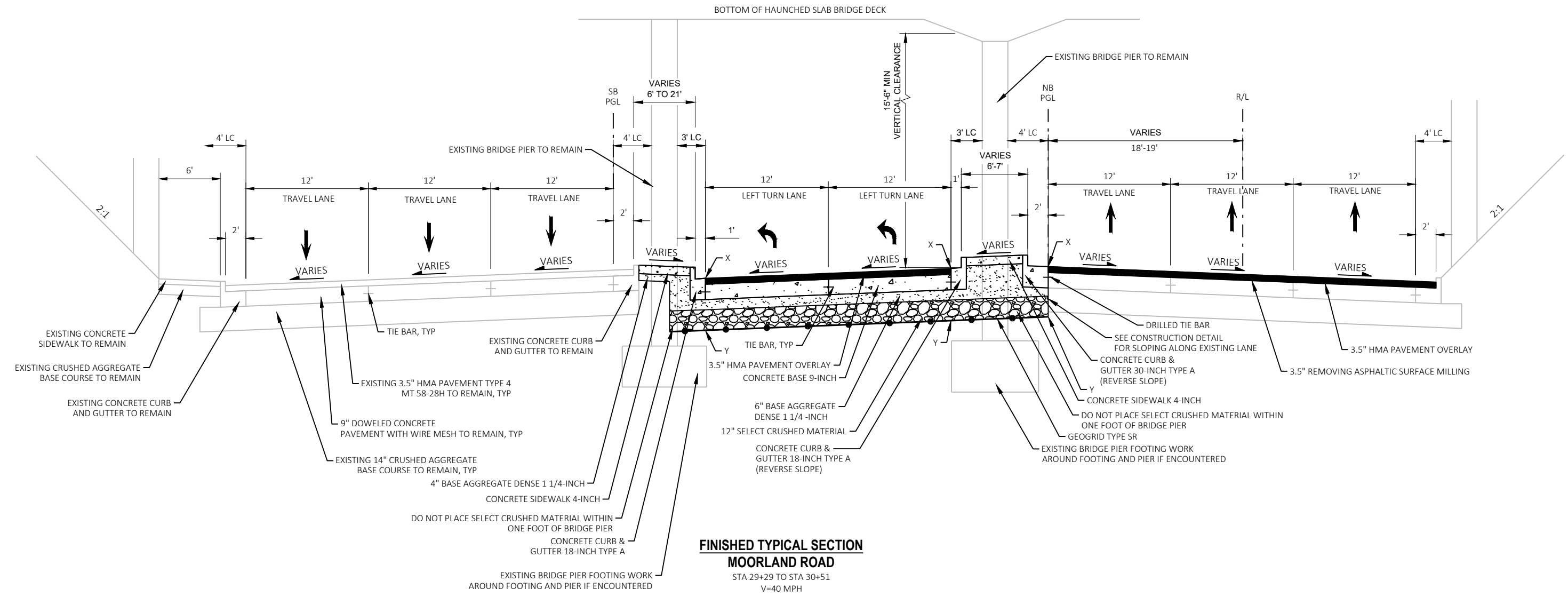
**RETAINING WALL  
RAMP C**  
STA 573+97 TO STA 579+68



**EXISTING TYPICAL SECTION**  
**CARPENTER ROAD**  
 STA 1+18 TO STA 2+70

\*\* 3.5" REMOVING ASPHALTIC SURFACE MILLING AND 3.5" HMA PAVEMENT OVERLAY ONLY FROM STA 27+93 TO STA 29+29. NO MILL AND OVERLAY OF NORTHBOUND THROUGH LANES STA 25+74 TO STA 27+93  
 \*\*\* NO RIGHT TURN LANE STA 28+74 TO STA 29+29

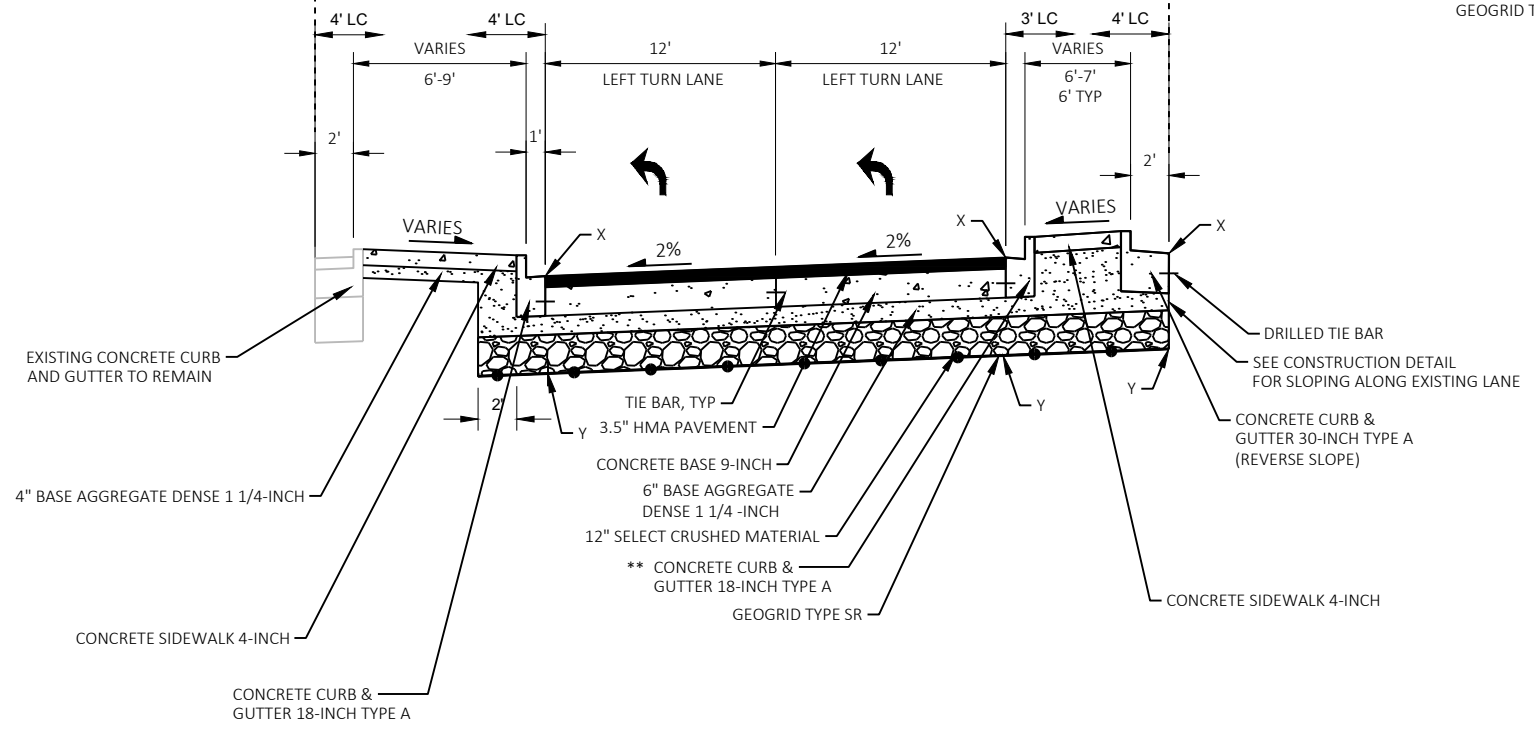
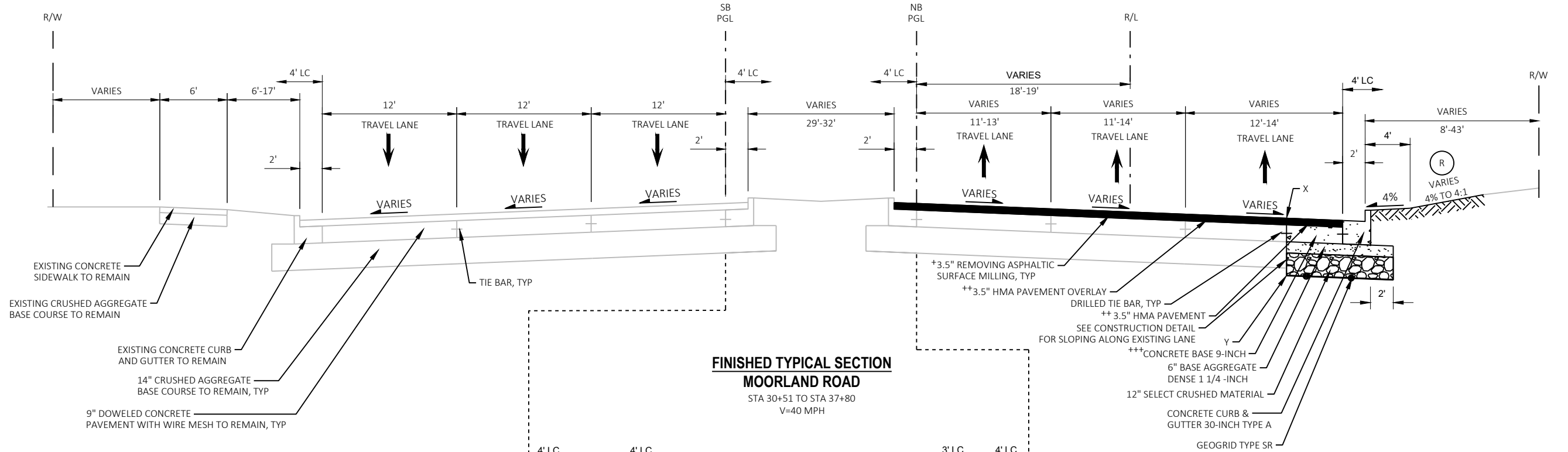




**FINISHED TYPICAL SECTION**  
**MOORLAND ROAD**  
 STA 29+29 TO STA 30+51  
 V=40 MPH

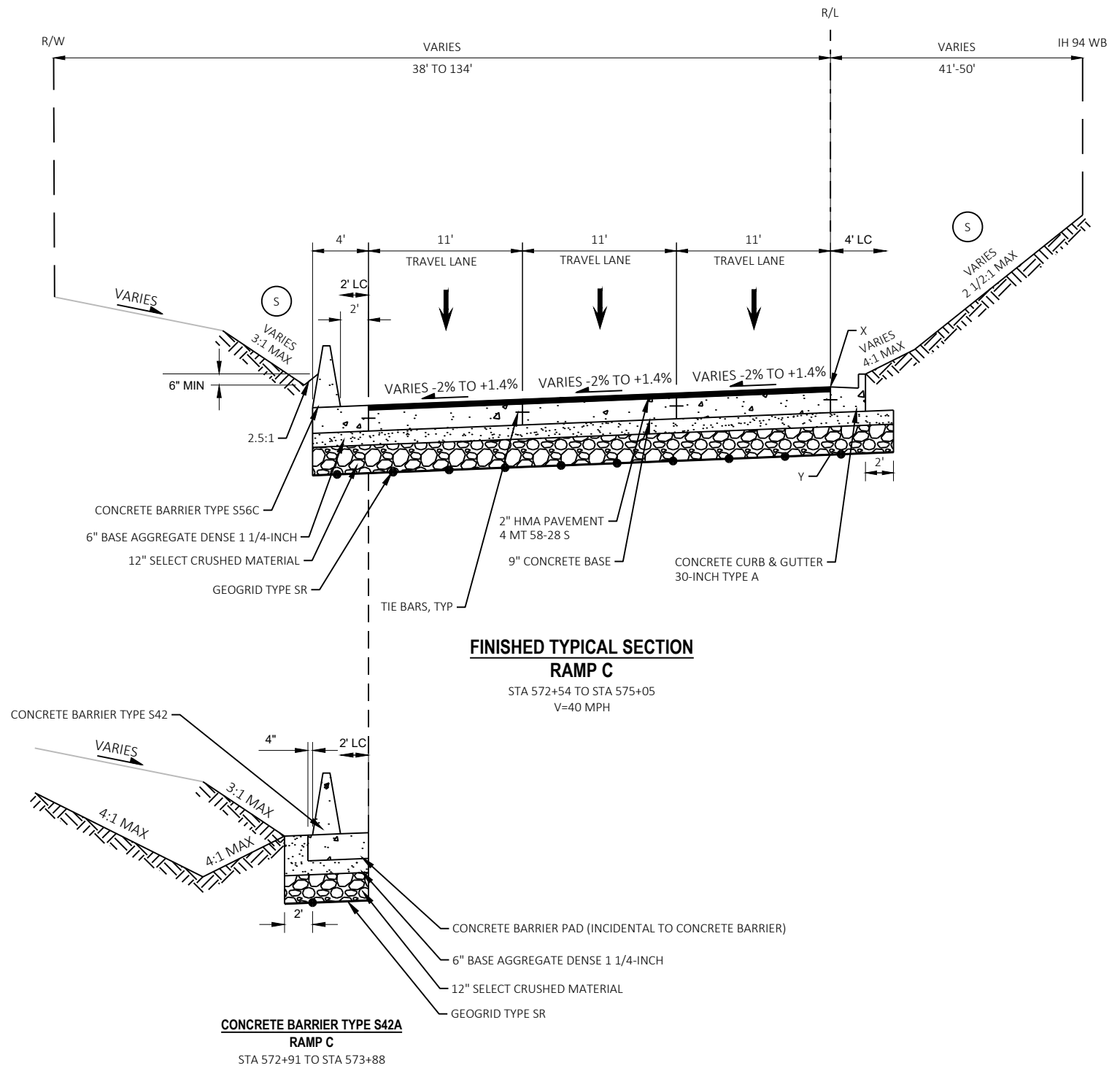
**LEGEND**

- LC = LATERAL CLEARANCE
- (R) TOPSOIL, FERTILIZER TYPE B, SOD LAWN
- X = POINT SHOWN ON PLAN DETAILS
- Y = POINT SHOWN ON CROSS SECTIONS



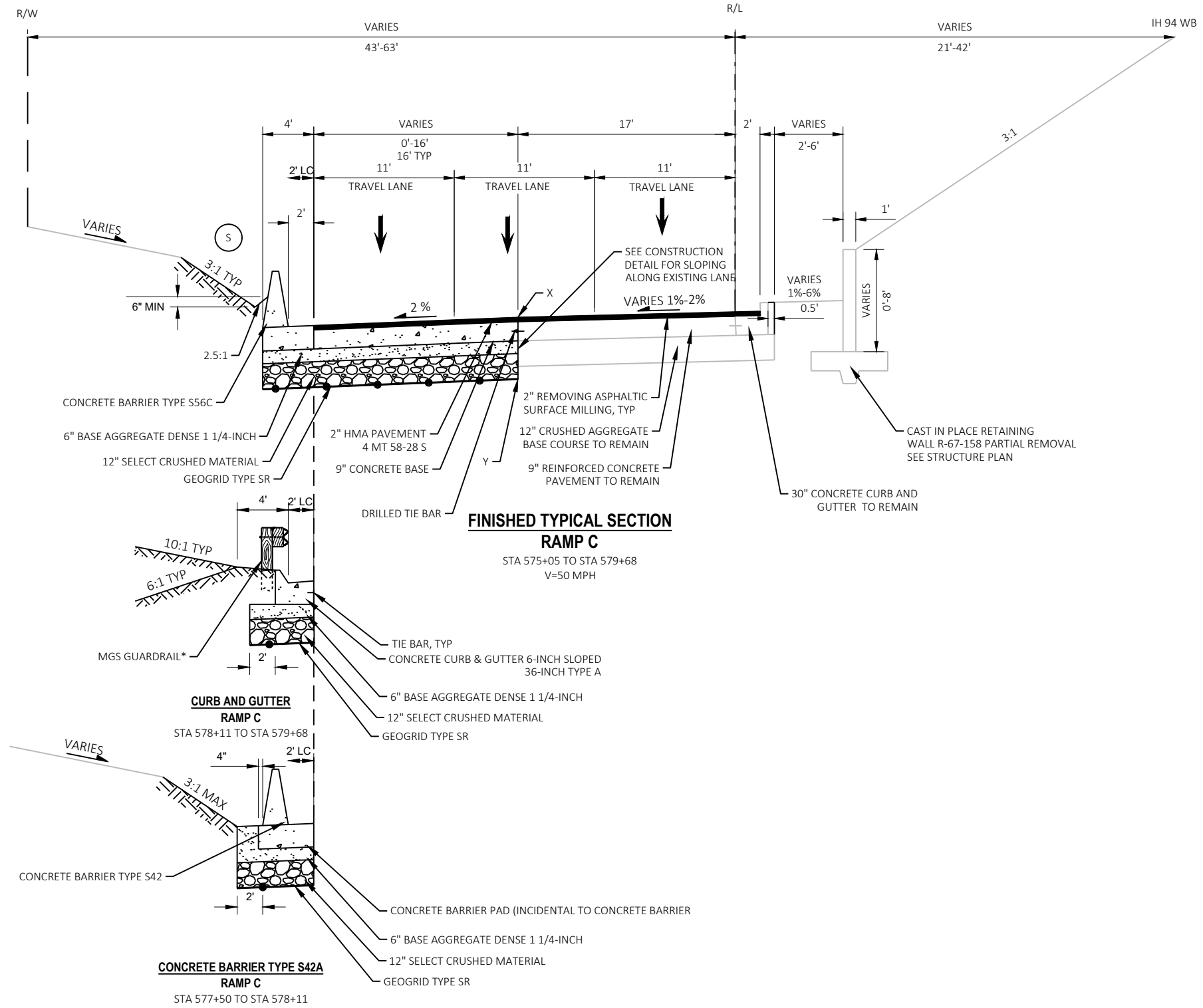
NOTES:  
 + NO REMOVING ASPHALTIC SURFACE MILLING STA 36+93 TO STA 37+80  
 ++ 1.75" HMA OVERLAY STA 36+93 TO STA 37+80  
 +++ CONCRETE BASE 8.5-INCH STA 36+93 TO STA 37+80  
 \*\* REVERSE SLOPE GUTTER STA 30+51 TO STA 31+50

**LEGEND**  
 LC = LATERAL CLEARANCE  
 (R) TOPSOIL, FERTILIZER TYPE B, SOD LAWN  
 X = POINT SHOWN ON PLAN DETAILS  
 Y = POINT SHOWN ON CROSS SECTIONS



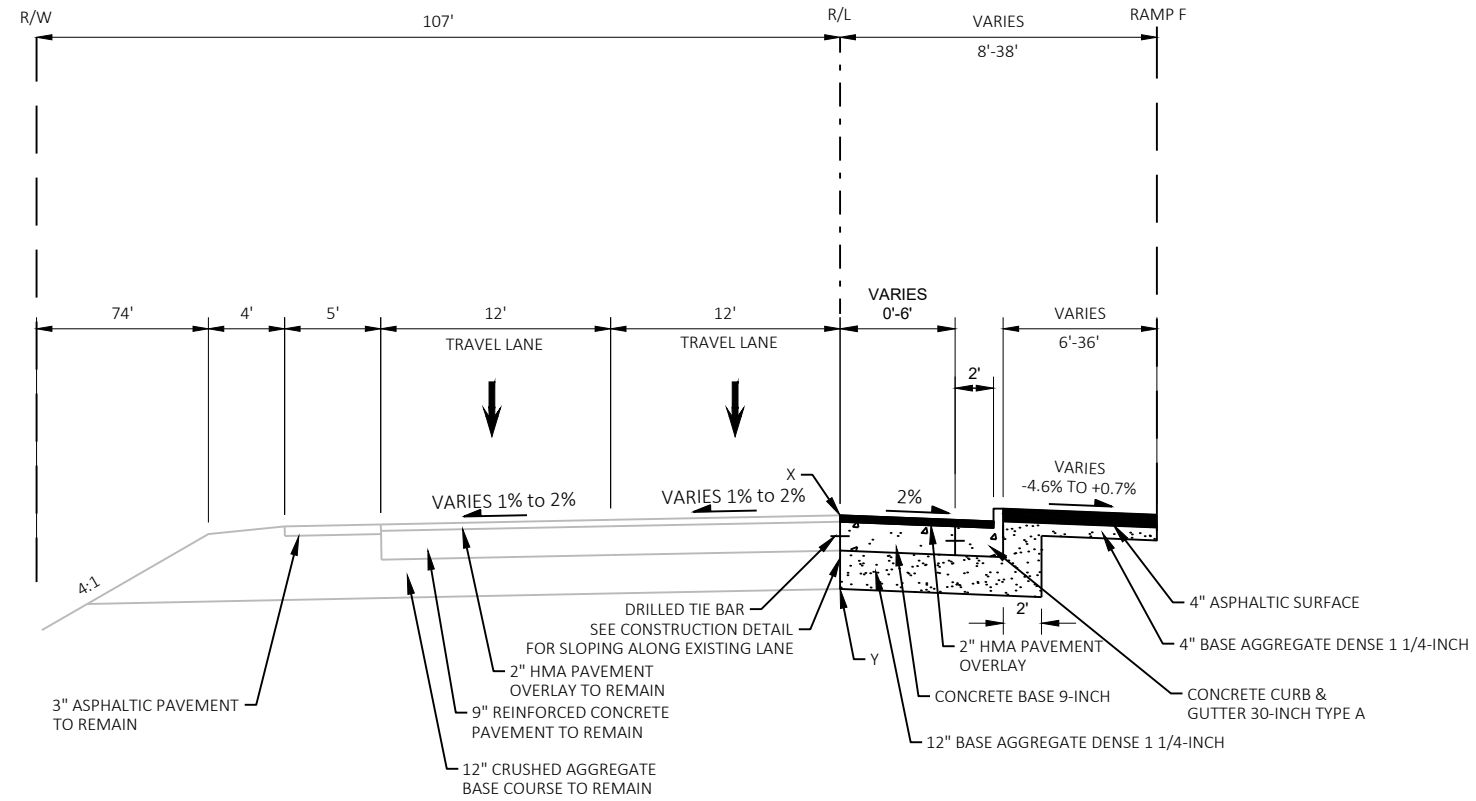
**LEGEND**  
 LC = LATERAL CLEARANCE  
 (S) TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE 30  
 X = POINT SHOWN ON PROFILE  
 Y = POINT SHOWN ON CROSS SECTIONS





\* MGS GUARDRAIL FROM STA 578+11 TO STA 579+01

**LEGEND**  
 LC = LATERAL CLEARANCE  
 (S) TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE 30  
 X = POINT SHOWN ON PROFILE  
 Y = POINT SHOWN ON CROSS SECTIONS



**FINISHED TYPICAL SECTION  
RAMP E**

STA 571+33 TO STA 572+21  
V=50 MPH

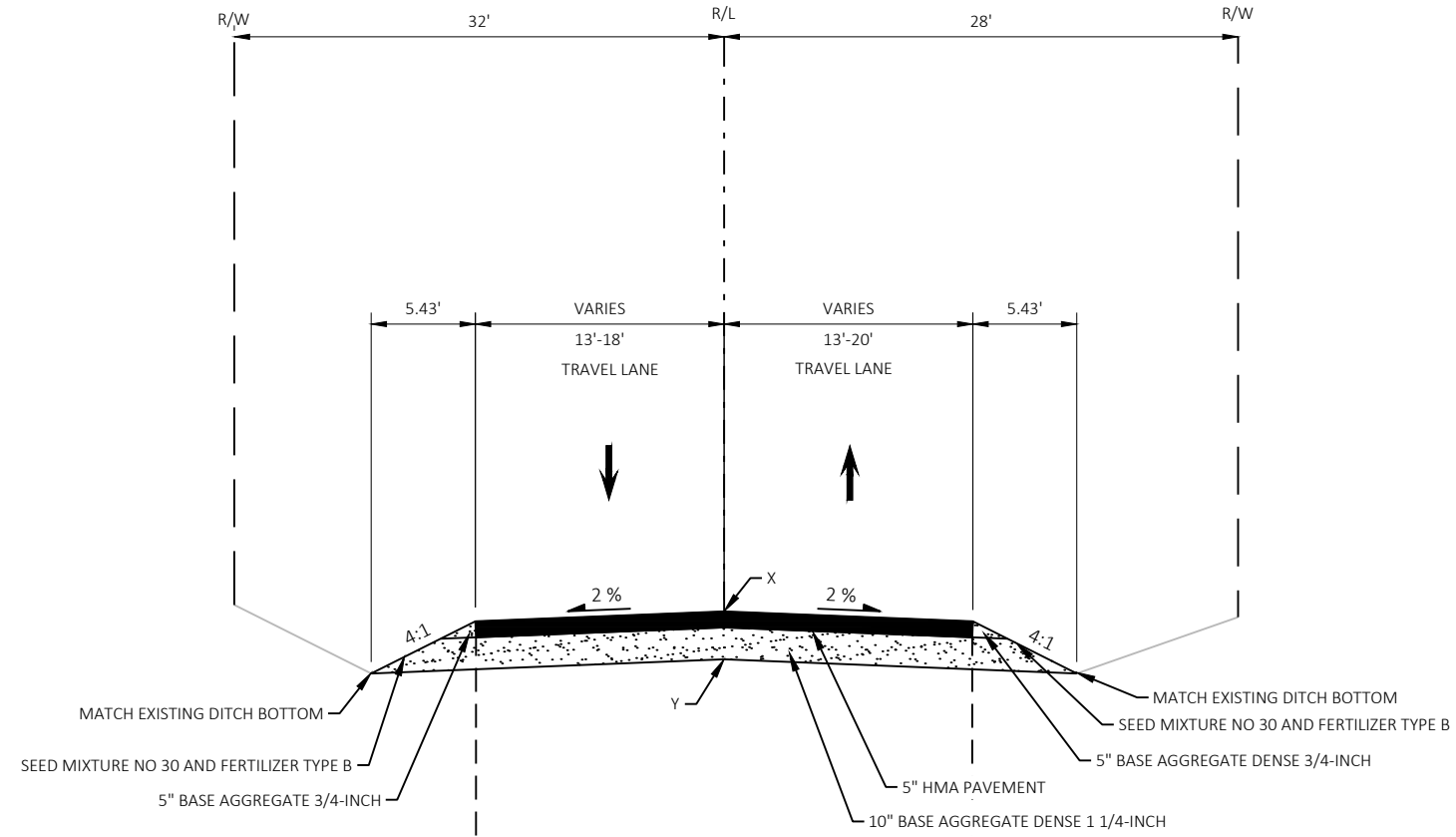
**LEGEND**

LC = LATERAL CLEARANCE

(R) TOPSOIL, FERTILIZER TYPE B, SOD LAWN

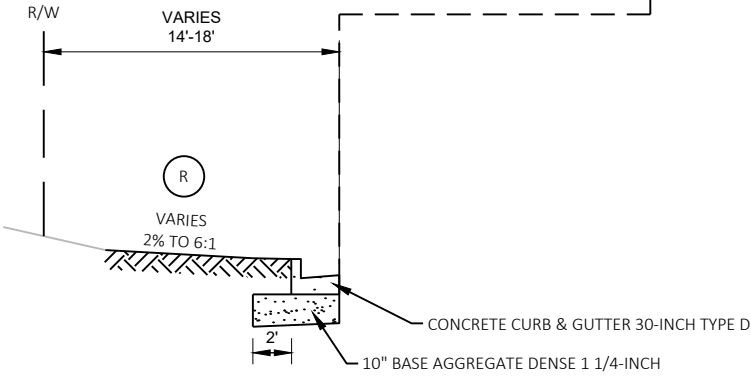
X = POINT SHOWN ON PLAN DETAILS

Y = POINT SHOWN ON CROSS SECTIONS



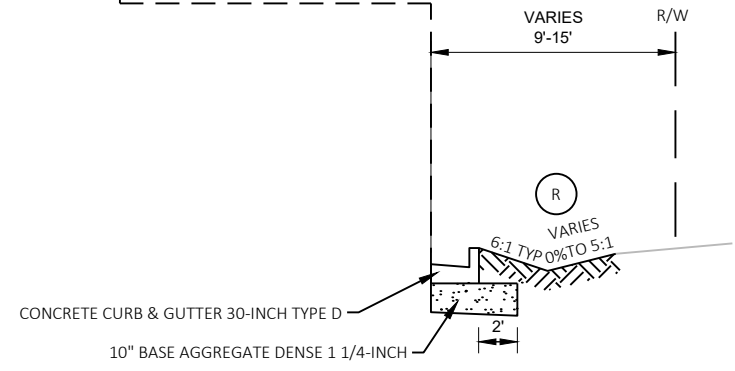
**FINISHED TYPICAL SECTION  
CARPENTER ROAD**

STA 1+18 TO STA 2+70  
V=30 MPH



**CURB AND GUTTER  
CARPENTER ROAD**

STA 1+18 TO STA 2+02 LT

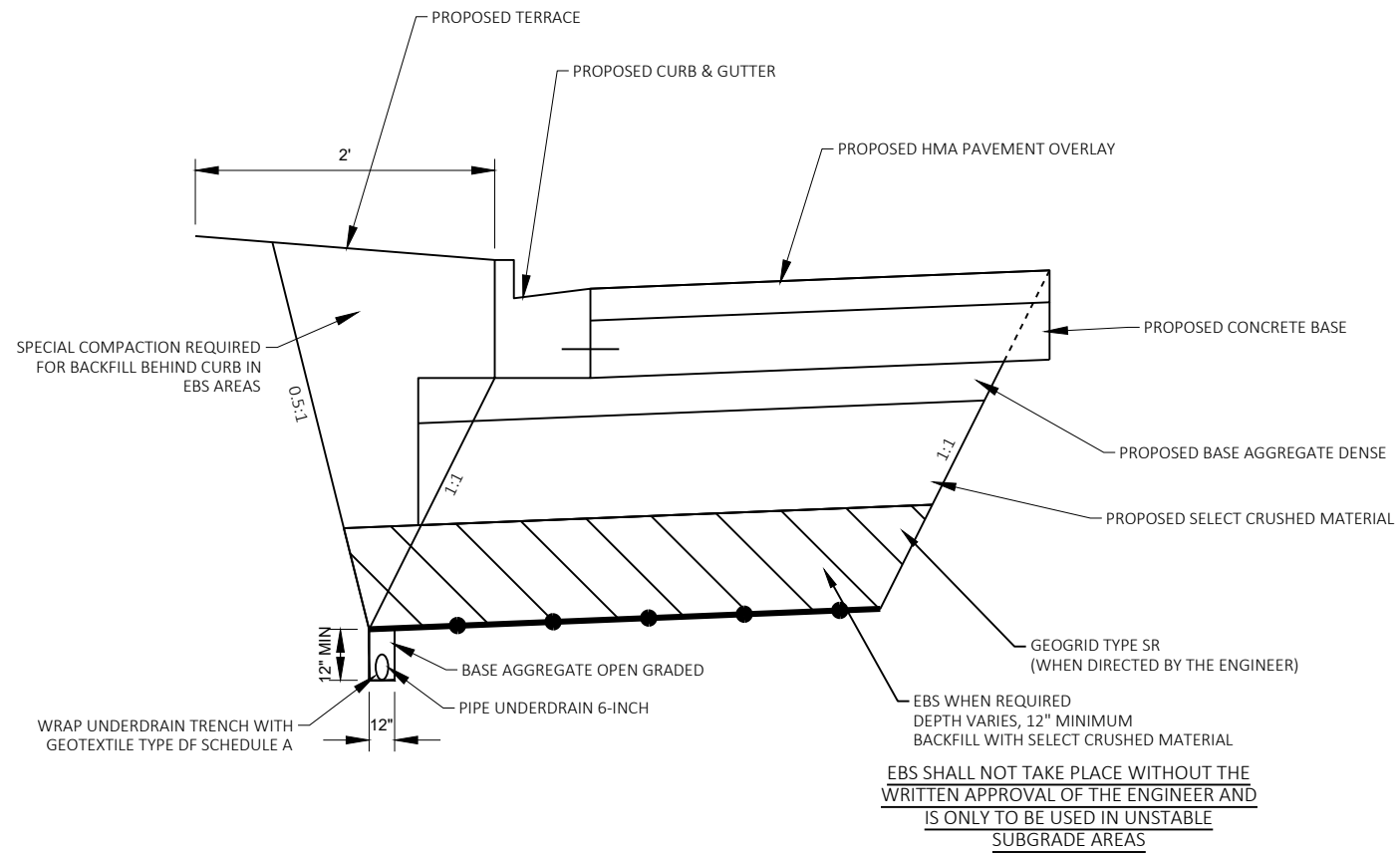


**CURB AND GUTTER  
CARPENTER ROAD**

STA 1+18 TO STA 2+07 RT

**LEGEND**

- LC = LATERAL CLEARANCE
- (R) TOPSOIL, FERTILIZER TYPE B, SOD LAWN
- X = POINT SHOWN ON PROFILE
- Y = POINT SHOWN ON CROSS SECTIONS

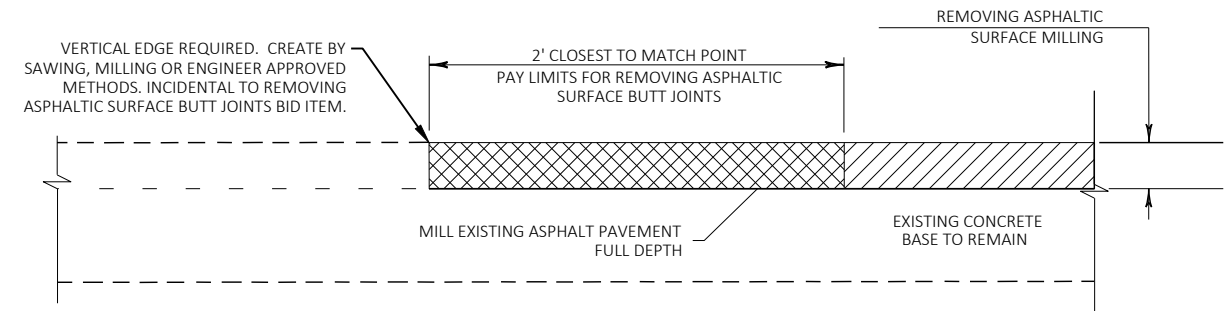


### EXCAVATION ADJACENT TO EXISTING PAVEMENT

#### NOTES FOR EXCAVATION BELOW SUBGRADE (EBS) AREAS ONLY:

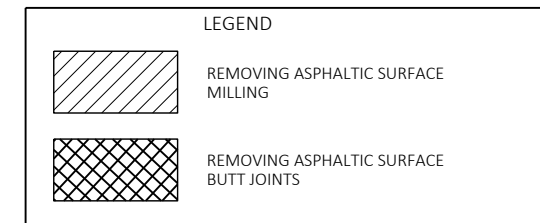
1. USE AS DIRECTED BY THE ENGINEER FOR AREAS OF UNSTABLE SUBGRADE.
2. EBS SHALL BE PAID FOR AS COMMON EXCAVATION.
3. EBS AREAS NOT ADJACENT TO EXISTING PAVEMENT SHALL FOLLOW THE DETAIL SHOWN ABOVE.
4. GEOGRID TYPE SR SHALL BE USED AT THE DISCRETION OF THE ENGINEER WHEN THE EBS DEPTH EXCEEDS 18 INCHES TO LIMIT THE DEPTH OF THE REQUIRED EBS. GEOGRID TYPE SR PLACED WITHOUT THE AUTHORIZATION OF THE ENGINEER SHALL NOT BE PAID FOR.
5. PROVIDE 20 FEET OF PIPE UNDERDRAIN UPSTREAM OF EACH INLET IN EBS AREAS. SEE UNDERDRAIN PLACEMENT AT INLET CONSTRUCTION DETAIL. AT LOW POINTS IN EBS AREAS UNDERDRAIN SHALL EXTEND PARALLEL TO THE CURB AND GUTTER IN BOTH DIRECTIONS FROM THE INLET.
6. WRAP THE UNDERDRAIN TRENCH WITH GEOTEXTILE TYPE DF SCHEDULE A. OVERLAP THE FABRIC BY 8" AT THE TOP OF THE TRENCH. TOTAL FABRIC WIDTH IS 5'-0" FOR PAYMENT.
7. SLOPE THE UNDERDRAIN PIPE AT 0.5% MINIMUM , 1.0% DESIRABLE.
8. CONNECT THE UNDERDRAIN TO THE INLET BY CORING A HOLE IN THE INLET STRUCTURE. MORTAR THE UNDERDRAIN TO THE INLET STRUCTURE. CORING A HOLE IN THE INLET STRUCTURE AND MORTARING THE UNDERDRAIN INTO THE INLET IS INCIDENTAL TO PIPE UNDERDRAIN 6-INCH.
9. THE BOTTOM OF THE PIPE UNDERDRAIN SHALL ENTER THE INLET STRUCTURE HIGHER THAN THE CROWN OF ANY STORM SEWER PIPES IN THE INLET STRUCTURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

EBS SHALL NOT TAKE PLACE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER AND IS ONLY TO BE USED IN UNSTABLE SUBGRADE AREAS



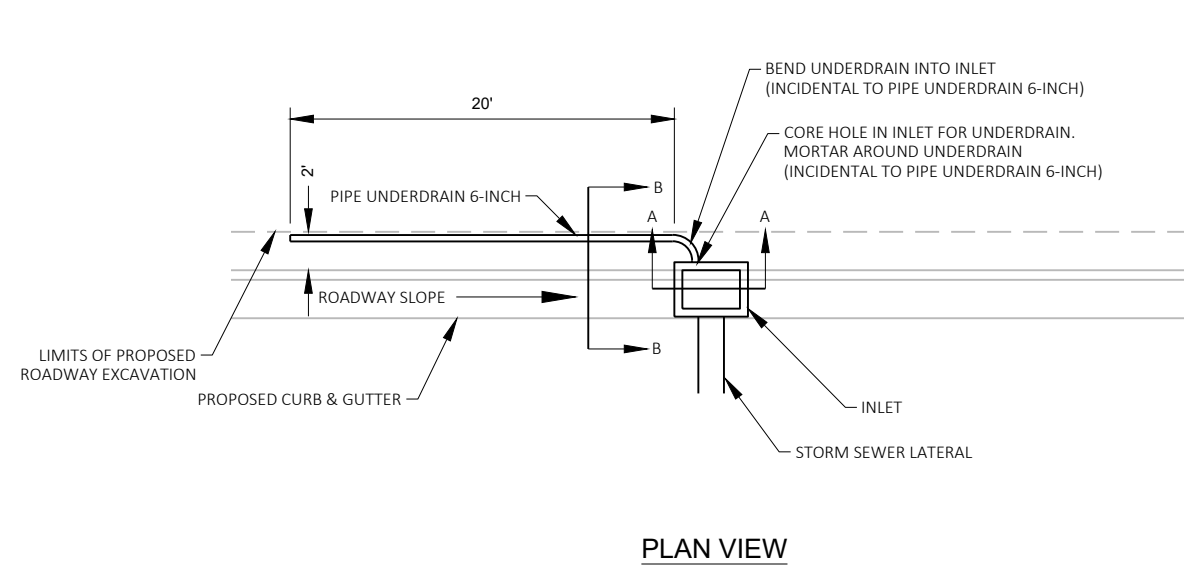
### MILLING DETAIL - NO PROFILE CHANGE

SEE PLAN DETAILS FOR LOCATIONS

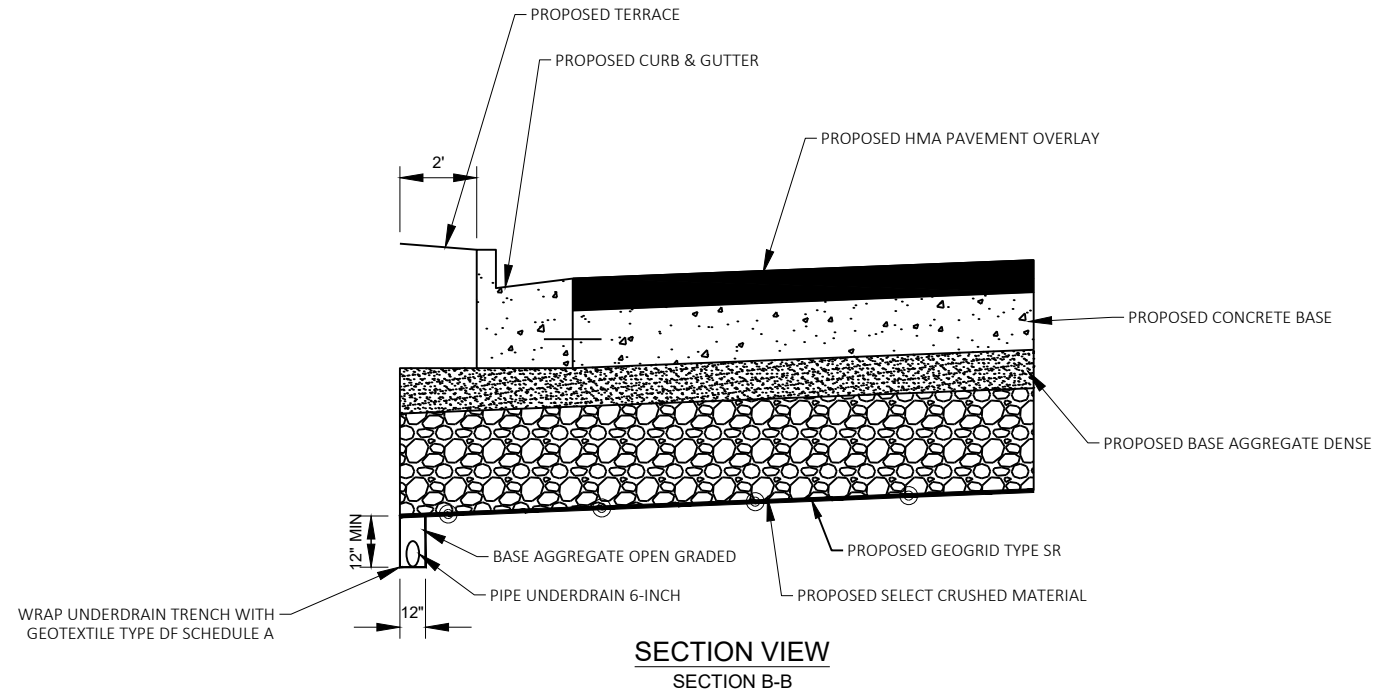


SEAL END WITH CONCRETE MASONRY OR BRICK & MORTAR SEAL

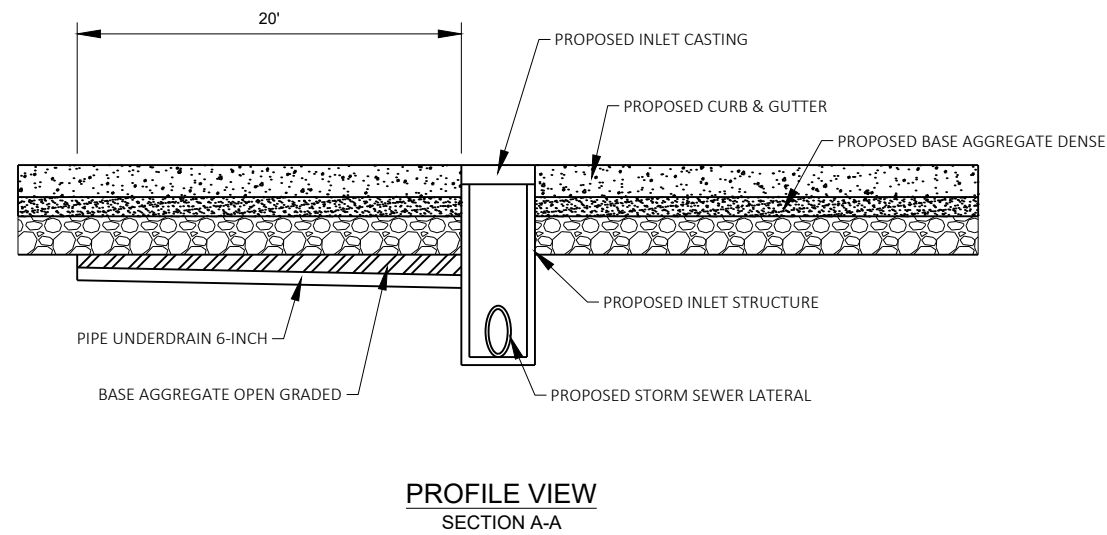
### ABANDONING SEWER DETAIL



PLAN VIEW



SECTION VIEW SECTION B-B

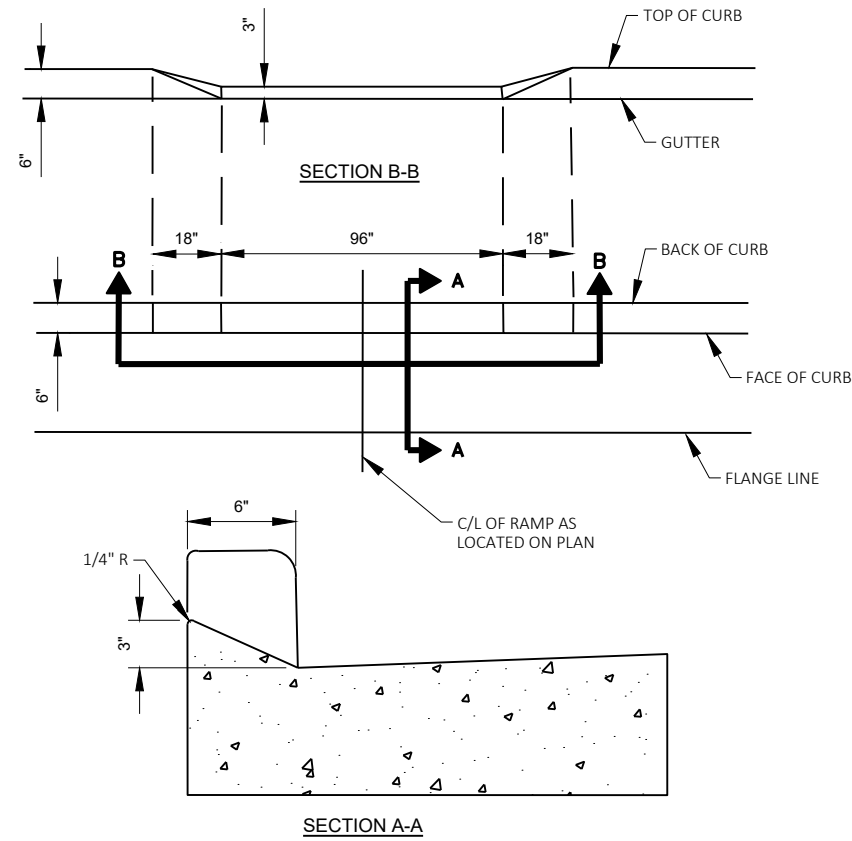


PROFILE VIEW SECTION A-A

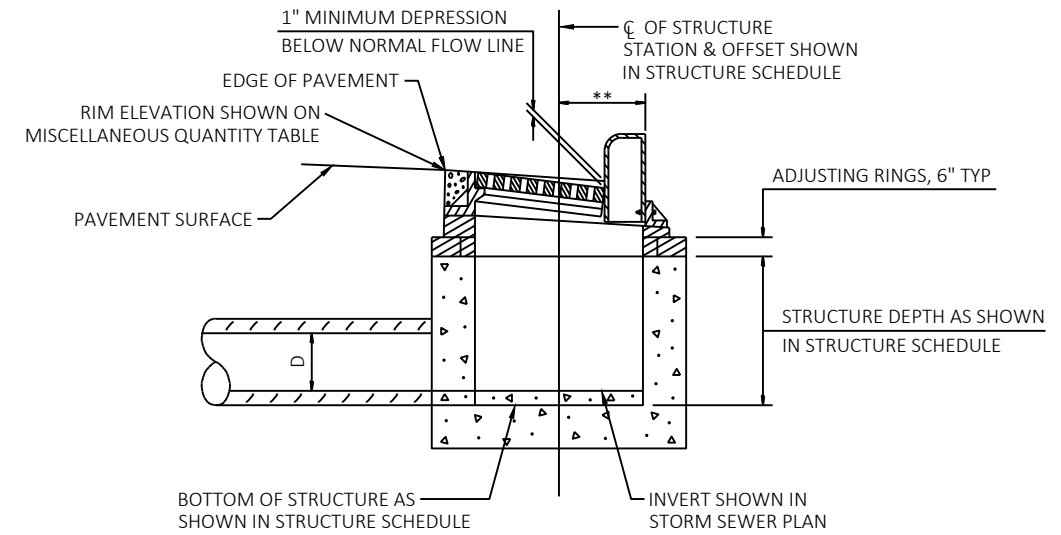
UNDERDRAIN PLACEMENT AT INLETS

NOTES:

1. PROVIDE 20 FEET OF PIPE UNDERDRAIN UPSTREAM OF EACH INLET. AT LOW POINTS UNDERDRAIN SHALL EXTEND PARALLEL TO THE CURB AND GUTTER IN BOTH DIRECTIONS FROM THE INLET.
2. WRAP THE UNDERDRAIN TRENCH WITH GEOTEXTILE TYPE DF SCHEDULE A. OVERLAP THE FABRIC BY 8" AT THE TOP OF THE TRENCH. TOTAL FABRIC WIDTH IS 5'-0" FOR PAYMENT.
3. SLOPE THE UNDERDRAIN PIPE AT 0.5% MINIMUM , 1.0% DESIRABLE.
4. CONNECT THE UNDERDRAIN TO THE INLET BY CORING A HOLE IN THE INLET STRUCTURE. MORTAR THE UNDERDRAIN TO THE INLET STRUCTURE. CORING A HOLE IN THE INLET STRUCTURE AND MORTARING THE UNDERDRAIN INTO THE INLET IS INCIDENTAL TO PIPE UNDERDRAIN 6-INCH.
5. THE BOTTOM OF THE PIPE UNDERDRAIN SHALL ENTER THE INLET STRUCTURE HIGHER THAN THE CROWN OF ANY STORM SEWER PIPES IN THE INLET STRUCTURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.



**SECTION A-A**  
**MAINTENANCE OPENING**  
 SEE PLAN DETAILS FOR LOCATIONS

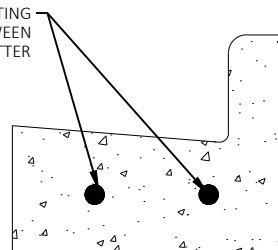


**DETAIL OF CURB AND GUTTER AT INLETS**

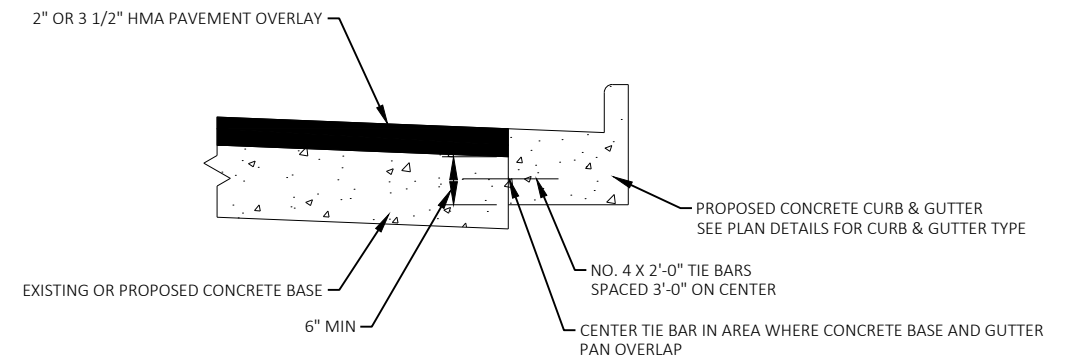
\*\* OFFSET TO CENTER OF STRUCTURE TO BACK OF CURB:

CASTING TYPE	OFFSET
S	18"
H	12"
HM	18"
Z	9"

DRILL TWO NO. 4 X 2'-0" TIE BARS INTO EXISTING CURB AND GUTTER AT MATCH POINTS BETWEEN EXISTING AND PROPOSED CURB AND GUTTER



**DRILLED TIE BARS AND CURB & GUTTER MATCH POINTS**  
 CONSTRUCT AT ALL LOCATIONS WHERE PROPOSED CURB & GUTTER MATCHES EXISTING CURB & GUTTER

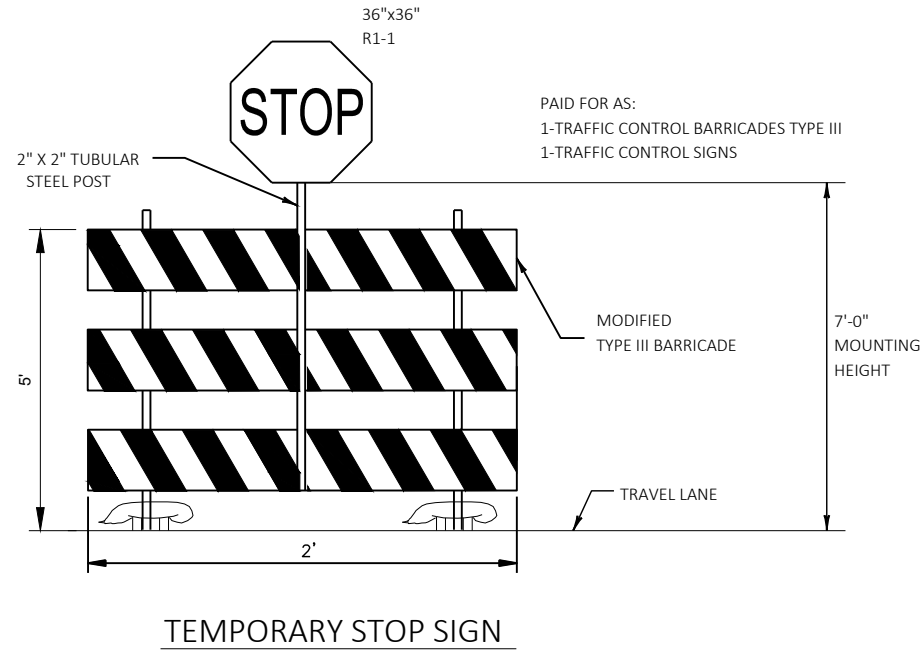


**CURB & GUTTER DETAIL IN CONCRETE BASE AREAS**

SEE PLAN DETAILS FOR LOCATIONS

**NOTES:**

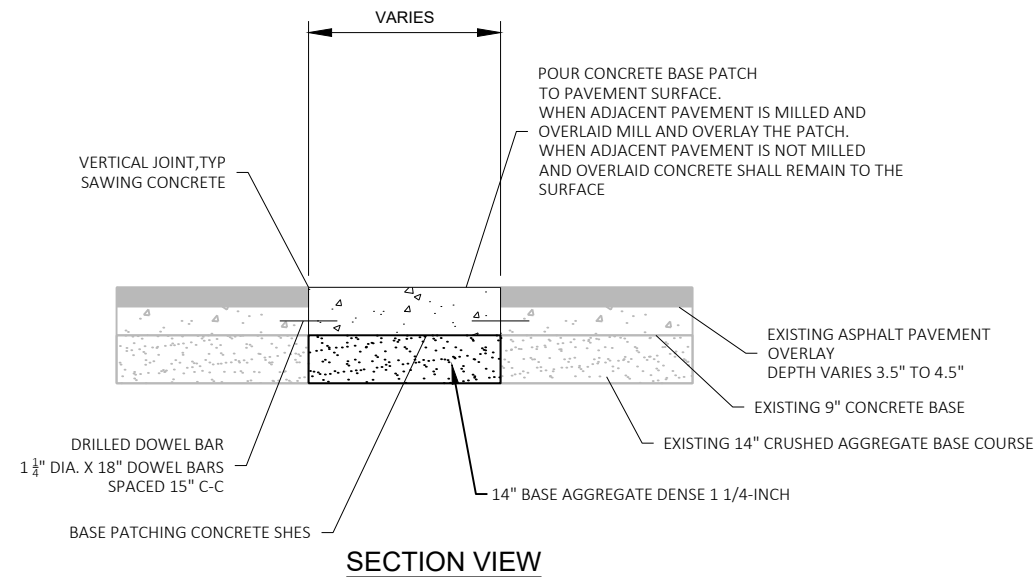
- GUTTER PAN TO EXTEND A MINIMUM OF 6" DOWN INTO CONCRETE BASE. CONTRACTOR MAY ELECT TO EXTEND BOTTOM OF CURB AND GUTTER TO BOTTOM OF CONCRETE BASE.
- BOTTOM OF CURB & GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE ADJACENT PAVEMENT.
- PAYMENT SHALL BE MADE USING THE FOLLOWING STANDARD CURB & GUTTER ITEMS. SEE PLAN DETAILS FOR THE LOCATIONS OF EACH CURB & GUTTER TYPE.
  - CONCRETE CURB & GUTTER 18-INCH TYPE A
  - CONCRETE CURB & GUTTER 30-INCH TYPE A
  - CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- WHEN CURB & GUTTER IS PLACED ADJACENT TO NEW CONCRETE BASE THE TIE BARS ARE INCIDENTAL TO CONSTRUCTION OF THE CONCRETE BASE.
- WHEN CURB AND GUTTER IS PLACED ADJACENT TO EXISTING CONCRETE BASE THE TIE BARS SHALL BE DRILLED INTO THE EXISTING CONCRETE BASE AND PAID FOR AS DRILLED TIE BARS.
- SEE SDD CONCRETE CURB AND GUTTER FOR ADDITIONAL DETAILS



RUNOFF COEFFICIENT TABLE

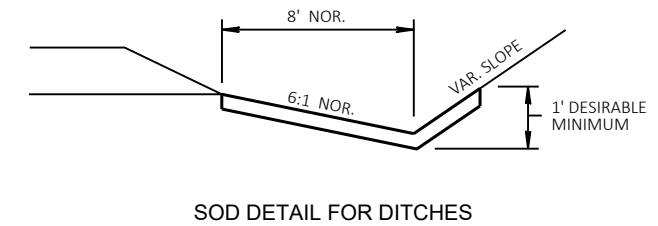
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE: TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 29.35 ACRES  
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.21 ACRES

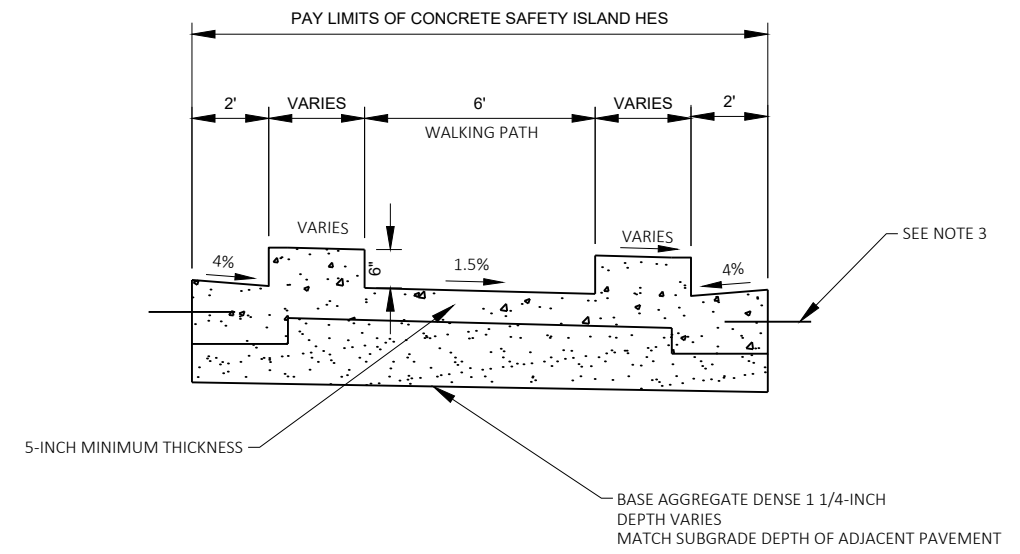
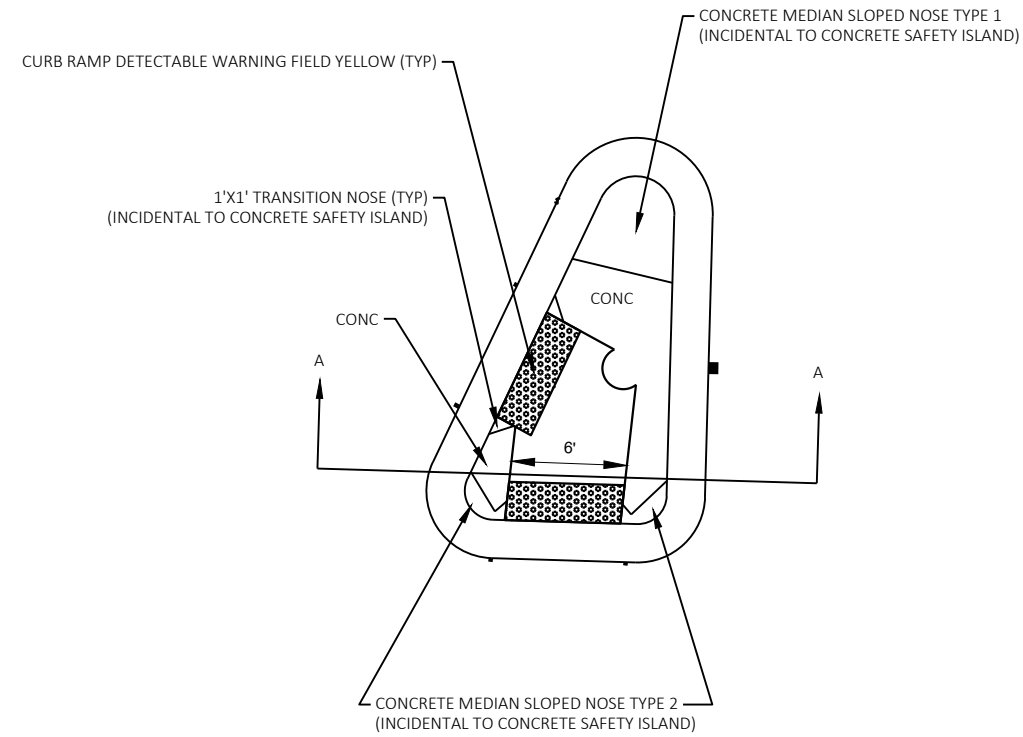


- NOTE:
1. CONSTRUCT IN ACCORDANCE WITH SDD "BASE PATCHING CONCRETE"
  2. PROVIDE NO. 6 X 12" TIE BARS SPACED 30" C-C INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT.

**BASE PATCHING CONCRETE SHES**  
 SEE PLAN DETAILS FOR LOCATIONS



**SOD DETAIL FOR DITCHES**



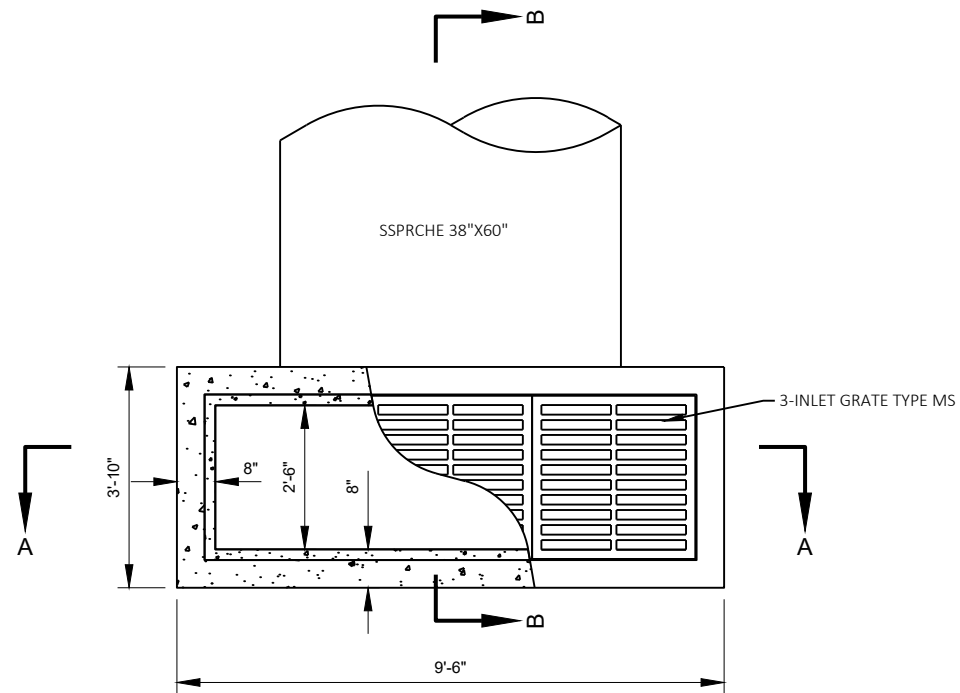
NOTES:

1. ENTIRE ISLAND INCLUDING WALKING PATH IS PAID FOR AS CONCRETE SAFETY ISLAND HES.
2. SIZE AND SHAPE OF INDIVIDUAL ISLANDS VARIES, SEE PLAN FOR DIMENSIONS OF EACH ISLAND.
3. #4X2' TIE BARS SPACE AT 3' CENTER TO CENTER. TIE BARS INCIDENTAL TO CONCRETE SAFETY ISLAND HES.
4. CONCRETE SAFETY ISLAND MAY BE CONSTRUCTED AS ONE MONOLITHIC SLAB OR INDIVIDUAL SECTIONS OF CURB & GUTTER, SIDEWALK, AND PEDESTRIAN CURB. PAYMENT SHALL BE THE SAME FOR BOTH METHODS OF CONSTRUCTION.
5. WALKING PATH SHALL MEET ADA REQUIREMENTS

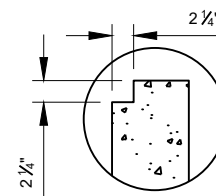
CONCRETE SAFETY ISLAND DETAIL

SEE PLAN FOR LOCATION





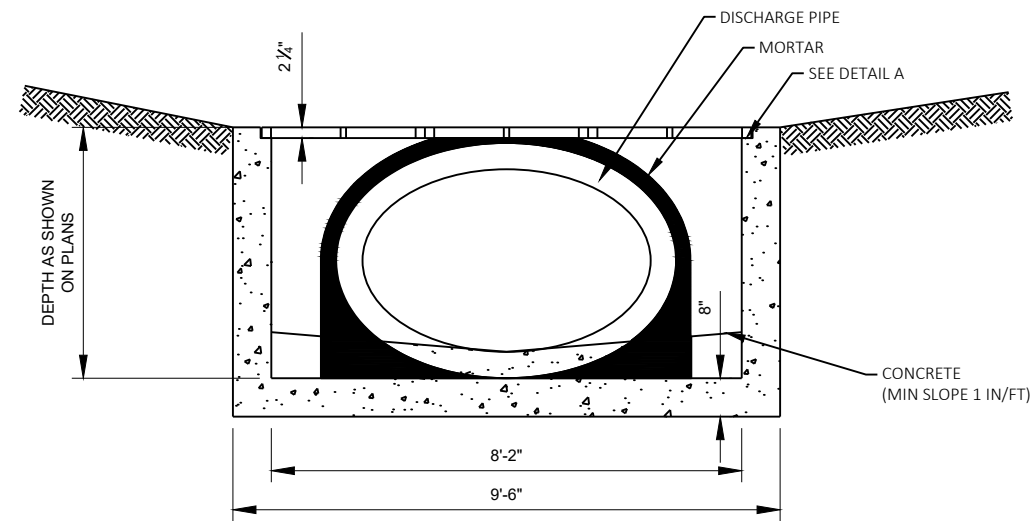
PLAN VIEW



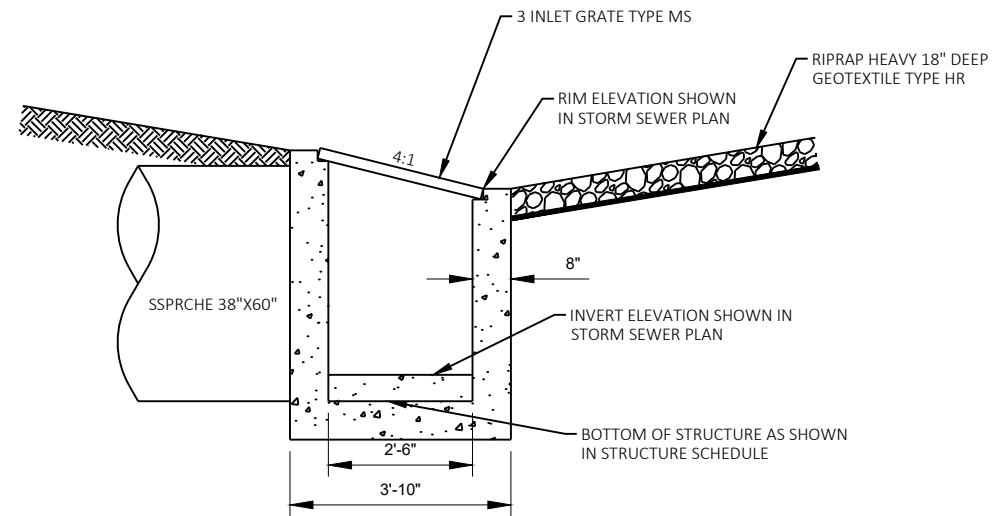
DETAIL A

NOTES

1. INLET SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SDD INLETS MEDIAN 1 AND 2 GRATE UNLESS OTHERWISE SPECIFIED IN THIS DETAIL.
2. REINFORCEMENT SHALL BE IN ACCORDANCE WITH SDD INLETS MEDIAN 1 AND 2 GRATE UNLESS OTHERWISE SPECIFIED.
3. INLET SHALL BE PRECAST SO THAT IT MAY BE INSTALLED AND PLACED INTO SERVICE DURING ONE WORKING DAY.
4. BYPASS PUMP FLOW FROM POND WHEN INSTALLING INLET AND PIPE.
5. STATION/OFFSET SHOWN ON PLAN MEASURED TO CENTER OF STRUCTURE. INLET ELEVATION MEASURED AS SHOWN IN SECTION B-B BELOW.



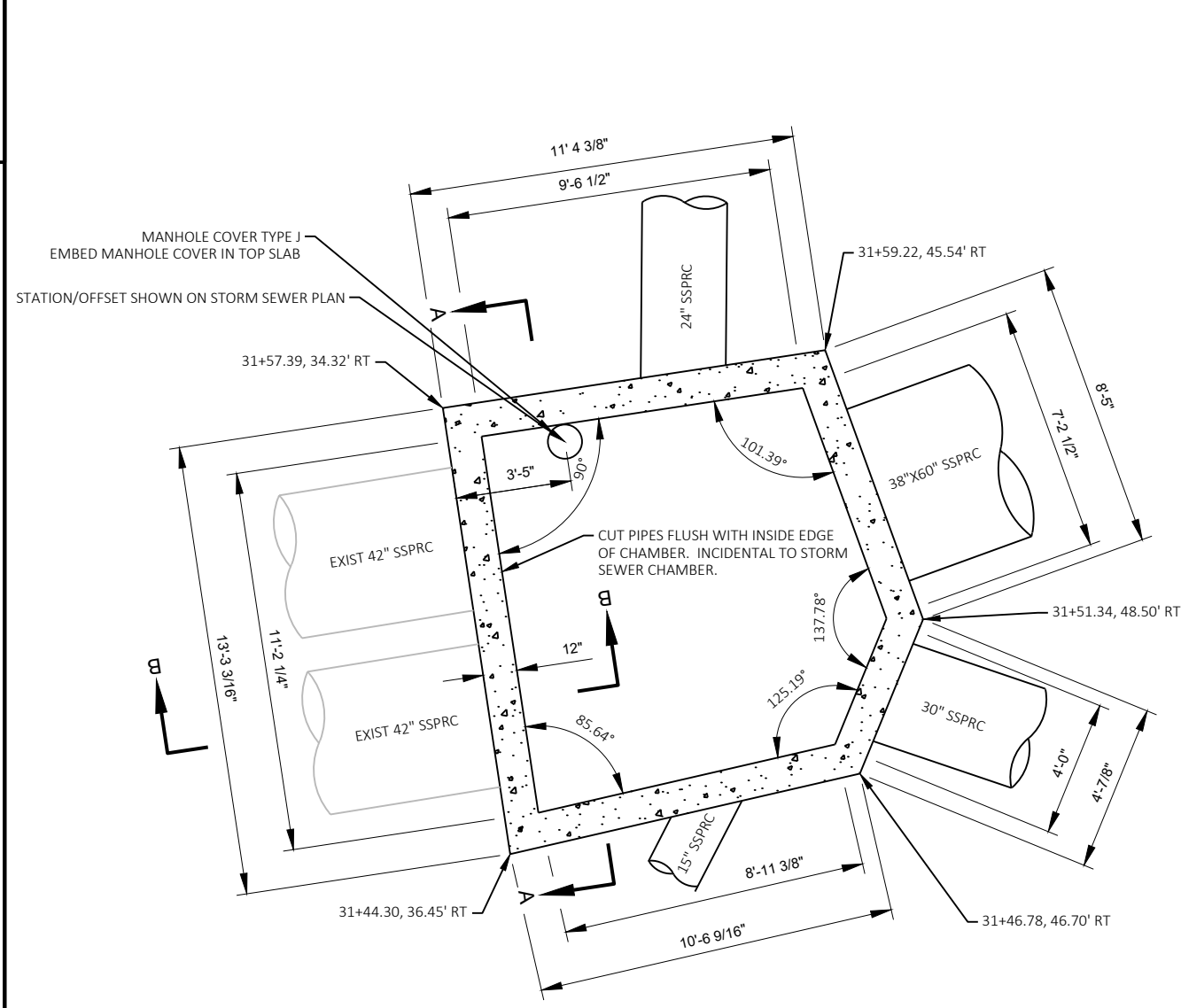
SECTION A-A



SECTION B-B

INLET MEDIAN 3 GRATE MODIFIED

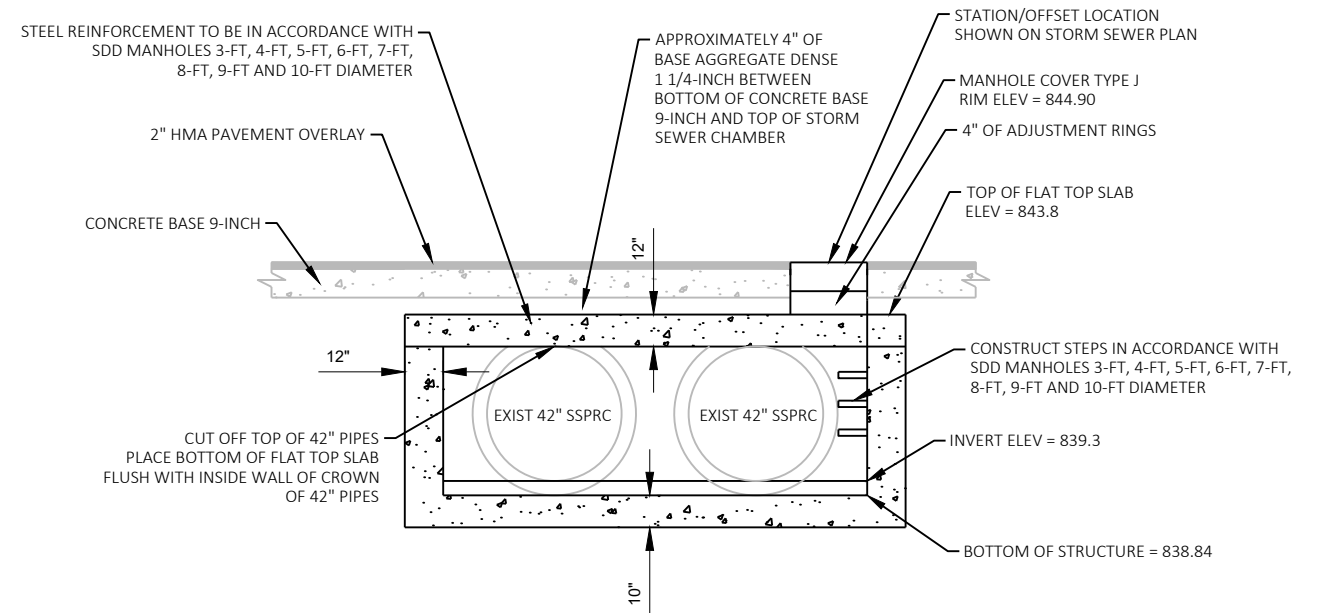
STA 573+32.80'C, 58.7' LT RAMP C



PLAN VIEW

STORM SEWER CHAMBER

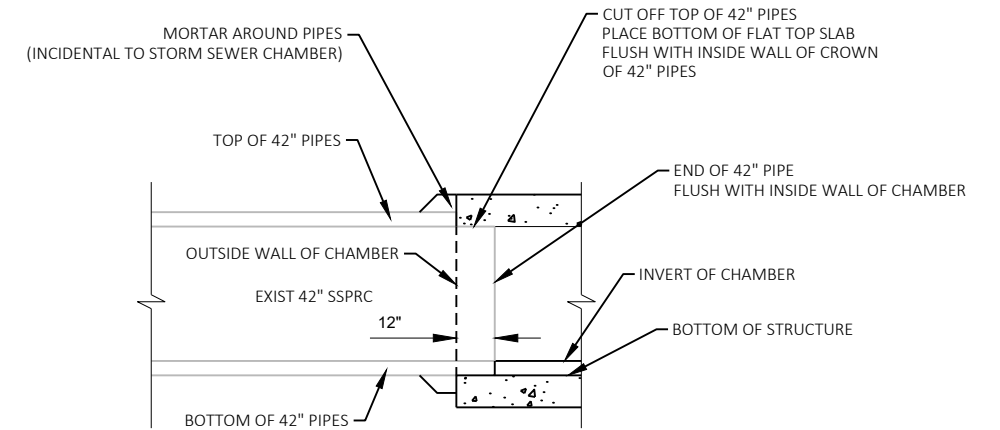
STA 572+72.80'C, 37.9' LT



SECTION A-A

NOTES:

1. CHAMBER SHALL BE CONSTRUCTED IN ACCORDANCE WITH SDD "MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER UNLESS OTHERWISE SPECIFIED IN THIS DETAIL.
2. FIELD VERIFY THE INVERT ELEVATIONS OF THE EXISTING 42-INCH PIPES PRIOR TO ORDERING STRUCTURE.
3. STRUCTURE SHALL BE PRECAST CONCRETE OR CONSTRUCTED ON THE PROJECT SITE SO THAT THE EXISTING STRUCTURE CAN BE REMOVED AND THE PROPOSED BOTTOM AND WALLS OF STRUCTURE ARE INSTALLED IN ONE WORKING DAY. CHAMBER TOP MAY BE INSTALLED AT A LATER DATE.
4. BYPASS PUMPING OR ANOTHER ENGINEER APPROVED METHOD WILL BE REQUIRED TO CONTROL THE FLOW OF WATER WHILE THE CHAMBER AND UPSTREAM PIPES ARE BEING INSTALLED. THE COST OF BYPASS PUMPING OR OTHER ENGINEER APPROVED METHODS SHALL BE INCIDENTAL TO CONSTRUCTION OF THE CHAMBER.
5. COMPRESSIVE STRENGTH OF THE CONCRETE (f'c) SHALL BE 5,000 PSI.
6. YIELD STRENGTH OF REINFORCING BARS (fy) SHALL BE 60 KSI. REBAR SHALL BE EPOXY COATED.
7. DESIGN OF THE STRUCTURE SHALL BE IN ACCORDANCE WITH ASTM C913 WITH DESIGN LOADS PER ASTM C890.
8. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND STRUCTURAL CALCULATIONS, PREPARED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF WISCONSIN FOR REVIEW. DO NOT ORDER PRECAST STRUCTURE OR CONSTRUCT STRUCTURE ON SITE UNTIL ENGINEER APPROVES SHOP DRAWINGS AND STRUCTURAL CALCULATIONS.
9. BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECS.



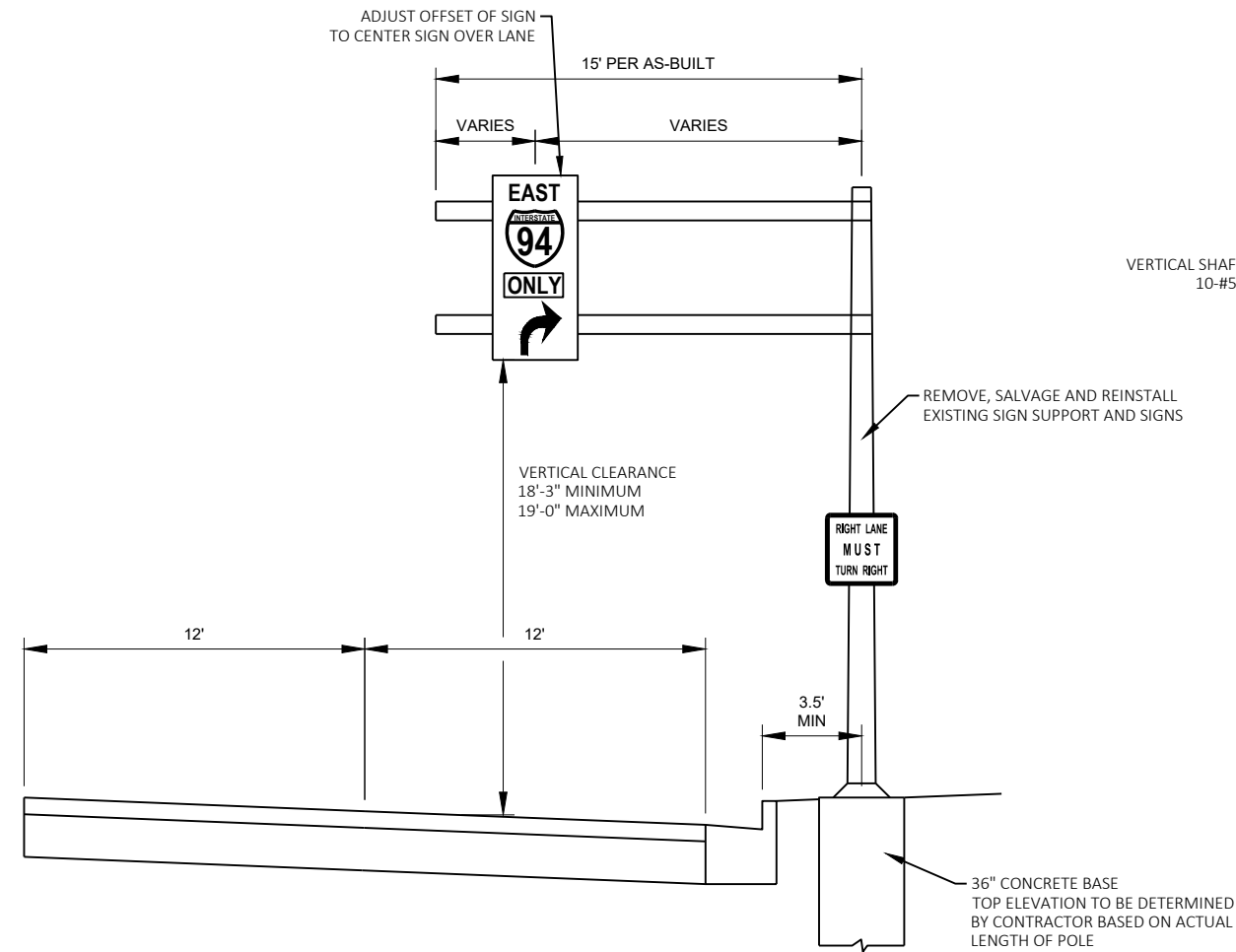
SECTION B-B

CONSTRUCTION NOTES:

1. REMOVE AND SALVAGE EXISTING OVERHEAD SIGN SUPPORT, SIGNS, AND SIGN CONNECTION HARDWARE AT BEGINNING OF STAGE 1.
2. STORE EXISTING OVERHEAD SIGN SUPPORT, SIGNS, AND SIGN CONNECTION HARDWARE DURING STAGE 1.
3. CONSTRUCT A NEW CONCRETE BASE AS SHOWN ON THIS DETAIL AFTER ADJACENT CURB AND GUTTER HAS BEEN CONSTRUCTED.
4. REINSTALL OVERHEAD SIGN SUPPORT, SIGNS, AND SIGN CONNECTION HARDWARE AT END OF STAGE 1 BEFORE TRAFFIC SWITCH TO STAGE 2 OCCURS.
5. PROVIDE NEW ALUMINUM I-BEAMS (INCIDENTAL TO OVERHEAD SIGN SUPPORT).
6. EXACT LOCATION OF OVERHEAD SIGN SUPPORT TO BE DETERMINED BY ENGINEER BASED ON LOCATION OF UNDERGROUND UTILITIES THAT ARE STILL ACTIVE. OUTSIDE EDGE OF CONCRETE BASE SHALL BE A MINIMUM OF 2 FEET FROM THE FACE OF CURB.
7. ADJUST LOCATION OF SIGN ON OVERHEAD SIGN SUPPORT SO THAT IT IS CENTERED OVER THE LANE. FIELD MEASURE AND DOCUMENT THE DIMENSIONS OF THE EXISTING SIGN SUPPORT.
8. SUBMIT SHOP DRAWINGS TO SOUTHEAST REGION SIGNING ENGINEER AND BUREAU OF STRUCTURES. SHOP DRAWINGS SHALL SHOW THE FIELD MEASURED DIMENSIONS OF THE OVERHEAD SIGN SUPPORT, LOCATION AND DIMENSION OF ALL SIGNS, VERTICAL CLEARANCE, OFFSET FROM FACE OF CURB TO CENTER OF POLE, ELEVATION OF TOP OF CONCRETE BASE, AND LAYOUT AND SPACING OF ALL REINFORCEMENT AND ANCHOR RODS.
10. MAINTAIN THE EXISTING STRUCTURE ID PLAQUE. REPLACEMENT OF DAMAGED ID PLAQUE IS INCIDENTAL TO CONSTRUCTION.
11. THE NUMBER OF ANCHOR RODS AND LAYOUT OF ANCHOR RODS SHALL MATCH THE LAYOUT OF THE EXISTING ANCHOR RODS.
12. REFER TO SIGN PLATE A4-7 FOR ATTACHMENT OF SIGNS TO OVERHEAD SIGN SUPPORT.
13. INSTALL ALL SIGNS ON OVERHEAD SIGN SUPPORT PRIOR TO OPENING LANE BELOW SIGN SUPPORT.
14. PAYMENT FOR THE NEW CONCRETE BASE IS INCLUDED IN THE BID ITEM REMOVE, SALVAGE, AND REINSTALL OVERHEAD SIGN SUPPORT. SEPARATE PAYMENT SHALL NOT BE MADE FOR THE CONCRETE BASE.

CONCRETE BASE GENERAL NOTES:

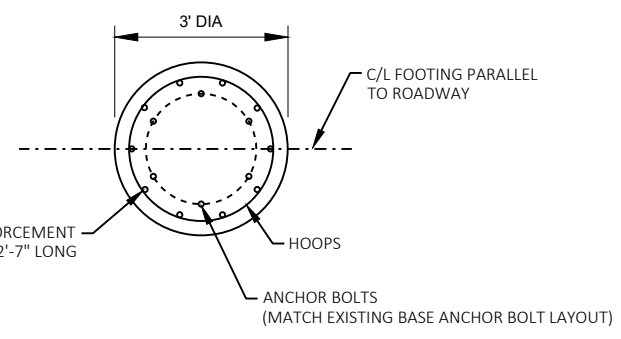
1. ALL DIMENSIONS, REINFORCEMENT DETAILS, AND ANCHOR BOLT DETAILS HAVE BEEN TAKEN FROM THE STANDARD DETAIL DRAWING THAT WAS IN USE WHEN SIGN SUPPORT WAS CONSTRUCTED IN 2011. IF EXISTING CONCRETE BASE DOES NOT MEET THE DETAILS SHOWN ON THIS SHEET NOTIFY THE ENGINEER IMMEDIATELY.
2. ORIENT ANCHOR BOLTS IN FOOTING AND PROVIDE ANCHOR BOLT STICK OUT ABOVE TOP OF CONCRETE FOOTING PER FABRICATION DRAWING.
3. BENDING DIMENSIONS FOR REINFORCING ARE OUT TO OUT.
4. USE 3" CLEAR FOR ALL REINFORCING UNLESS OTHERWISE NOTES.
5. SIGN SUPPORTS SHALL BE LOCATED NORMAL TO ROADWAY.
6. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
7. WELDING OF ANCHOR BOLTS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.
8. BAR CAGE TO BE ASSEMBLED USING TIE WIRES ONLY. WELDING WILL NOT BE PERMITTED.
9. BASES SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IN AREAS WHERE THE BASE IS IN CLOSE PROXIMITY TO UNDERGROUND UTILITIES HYDROEXCAVATION MAY BE REQUIRED FOR PART OF ALL OF THE BASE EXCAVATION. THE COST OF HYDROEXCAVATION IS INCIDENTAL TO THE COST OF CONSTRUCTING THE OVERHEAD SIGN SUPPORT.
10. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. ANY REQUIRED BACKFILL SHALL BE WELL COMPACTED IN LAYERS OF 1 FOOT OR LESS. COMPACTION SHALL BE BY MECHANICAL MEANS. CARE SHALL BE TAKEN SO THAT NO DAMAGE OCCURS TO THE CONCRETE BASE DURING COMPACTION.
11. EXCAVATION OF MATERIALS NOT OCCUPIED BY CONCRETE SHALL BE MINIMIZED TO REDUCE DISTURBANCE OF THE SURROUNDING SOILS.
12. THE BOTTOM OF THE DRILLED HOLE SHALL BE FIRM AND THOROUGHLY CLEANED SO NO LOOSE OR COMPRESSIBLE MATERIALS ARE PRESENT AT THE TIME OF THE CONCRETE PLACEMENT.
13. IF THE DRILLED HOLE CONTAINS STANDING WATER THE CONCRETE SHALL BE PLACED USING A TREME TO DISPLACE THE WATER.
14. THE REINFORCEMENT AND ANCHOR BOLTS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.
15. ANY DAMAGE TO THE CONCRETE BASE DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED AT THE ENGINEERS DIRECTION, AT THE EXPENSE OF THE CONTRACTOR.
16. MATERIALS PROVIDED SHALL MEET THE FOLLOWING REQUIREMENTS:  
 CONCRETE MASONRY.....fc = 3,500 psi  
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60.....fy = 60,000 psi  
 ANCHOR BOLTS.....AASHTO M314 GRADE 55



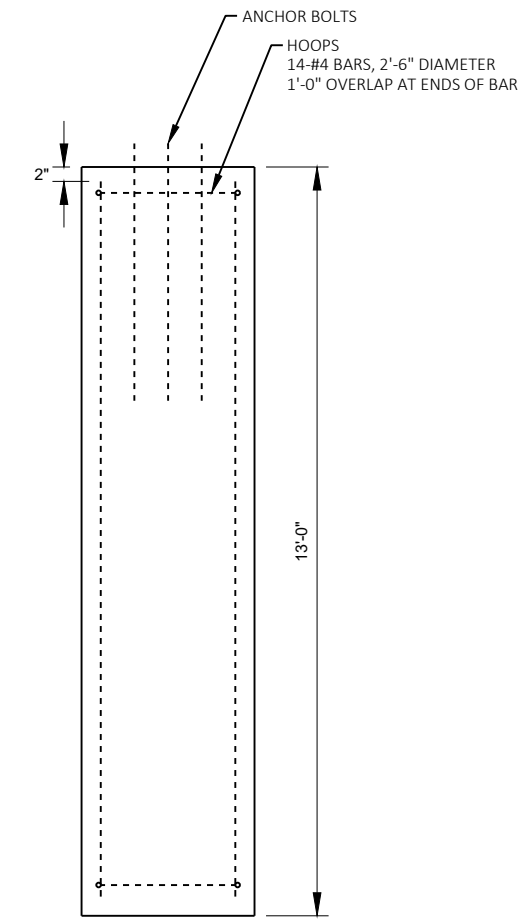
OVERHEAD SIGN SUPPORT DETAIL

S-67-613  
NORTHBOUND MOORLAND ROAD  
LOOKING NORTH

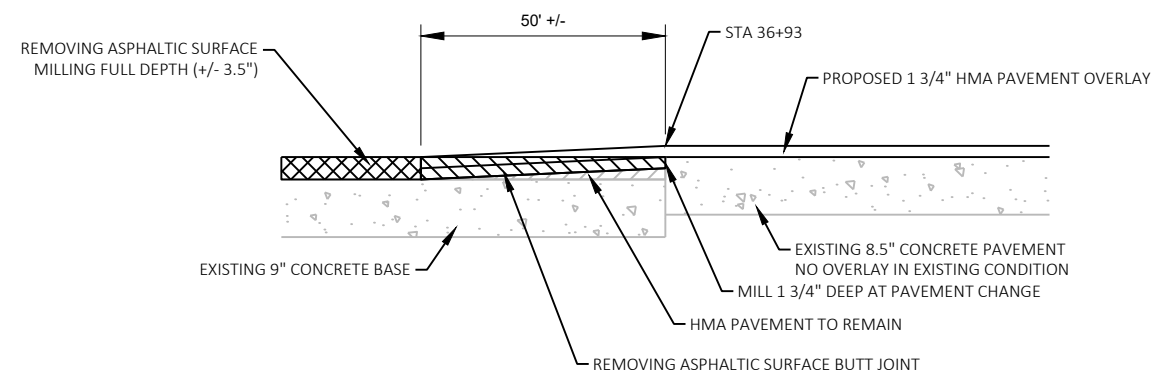
REMOVE, SALVAGE AND REINSTALL EXISTING SIGN SUPPORT AND SIGNS



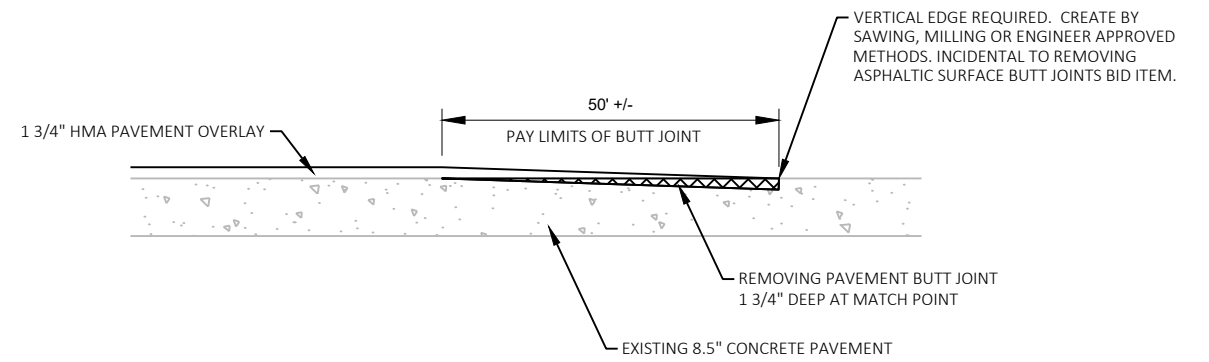
BASE PLAN VIEW



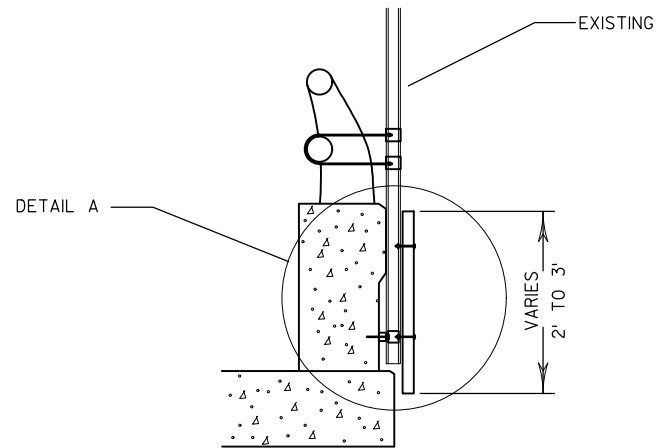
BASE ELEVATION VIEW



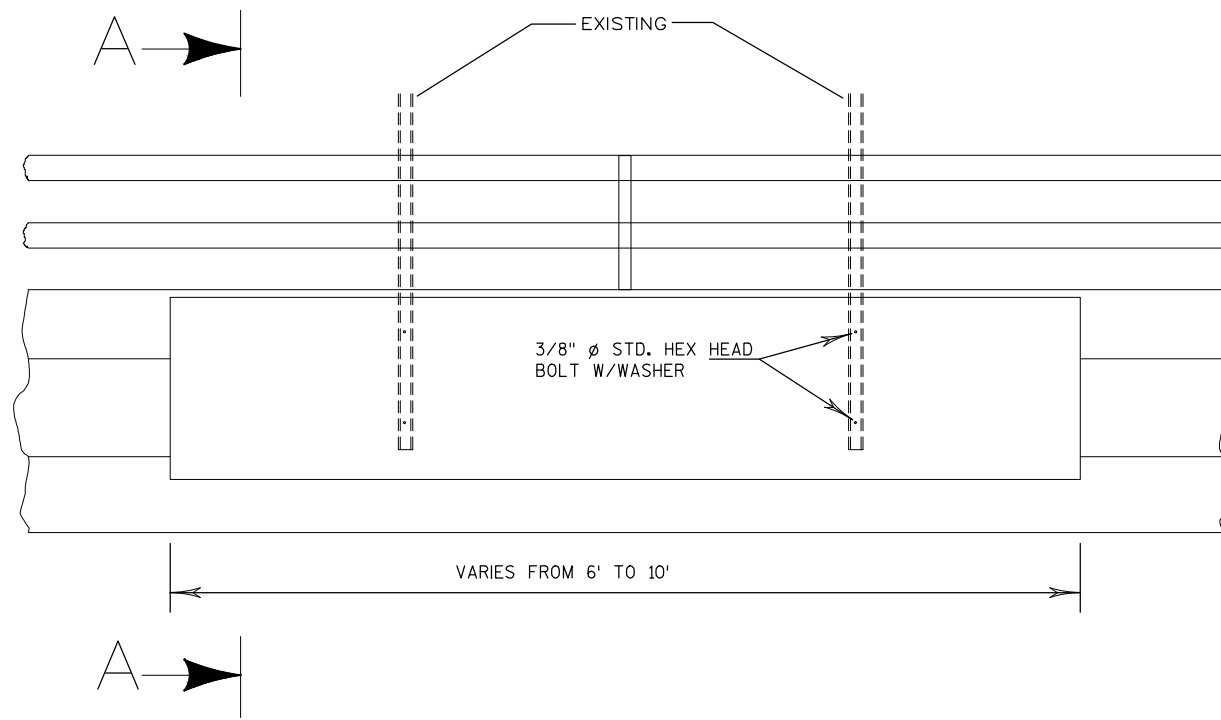
**MILLING DETAIL - 1 3/4" PROFILE CHANGE**  
 STA 36+93 NB MOORLAND ROAD



**REMOVING PAVEMENT BUTT JOINT**  
 STA 37+80 NB MOORLAND ROAD

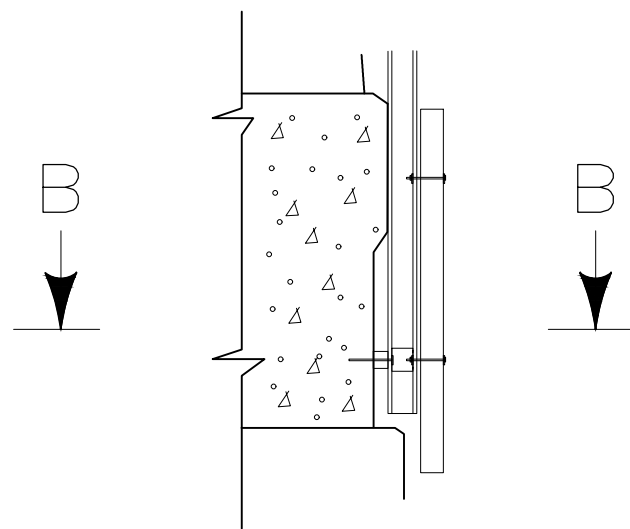


SECTION A-A  
SIDE VIEW

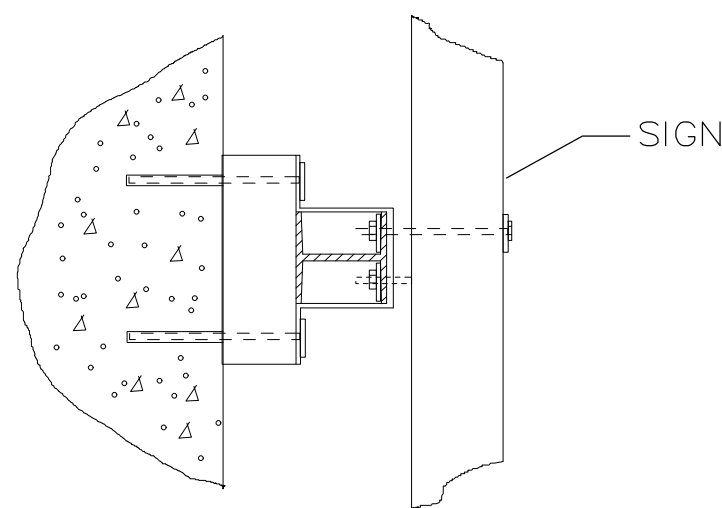


FRONT VIEW

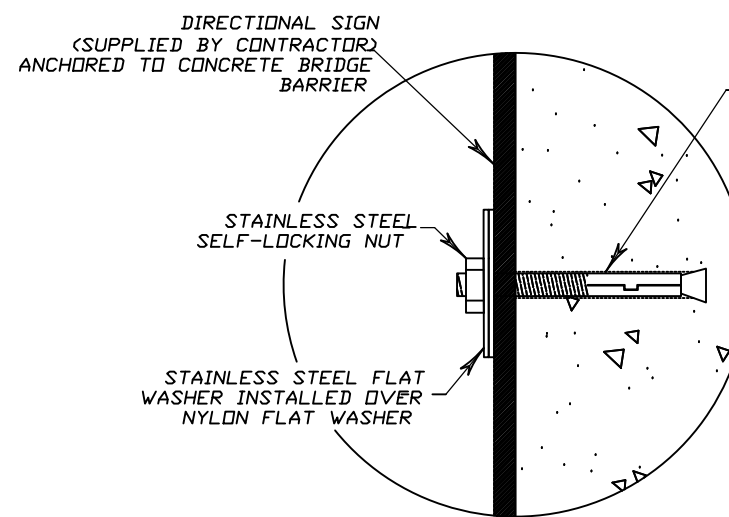
NOTES:  
 PROVIDE NEW BOLTS.  
 MOUNTING DETAIL COSTS ARE INCIDENTAL  
 TO PAY ITEM "TYPE II SIGNS, REFLECTIVE".



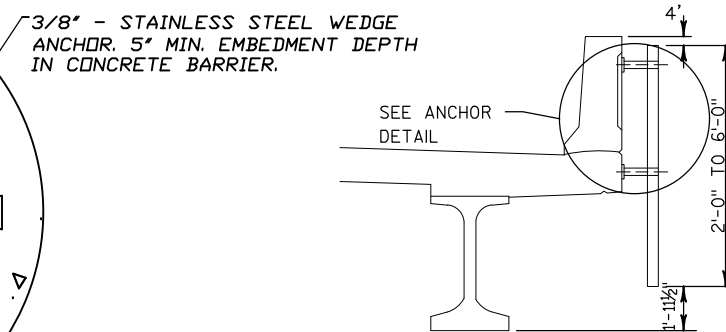
DETAIL A



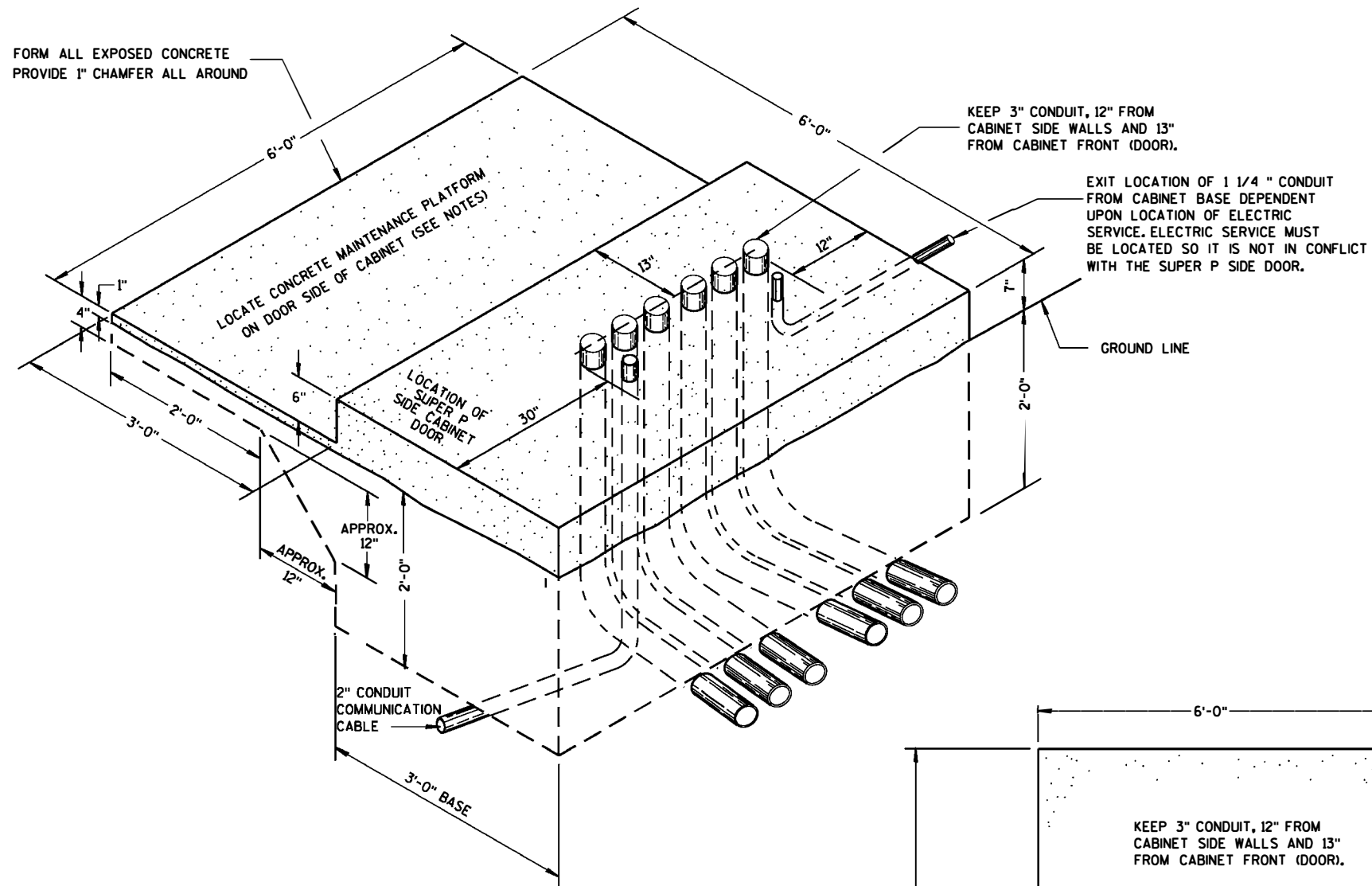
SECTION B-B  
TOP VIEW



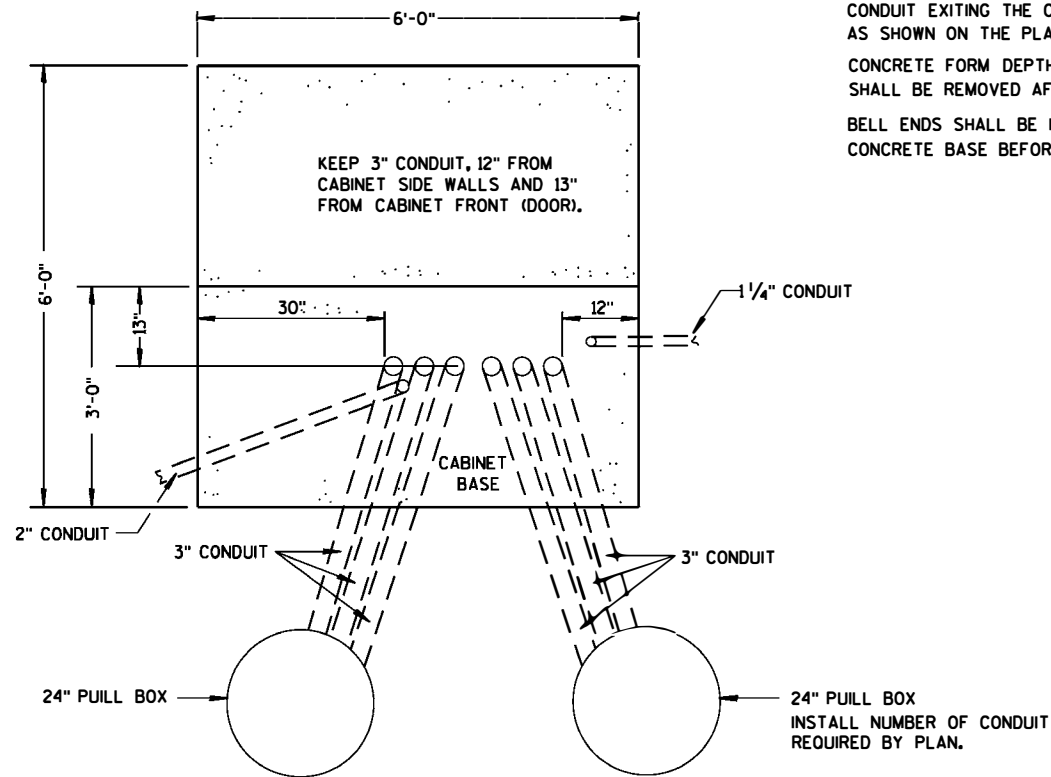
ANCHOR DETAIL  
N.T.S.



PARAPET OPTION  
WITHOUT RAIL



**ISOMETRIC VIEW**  
**TYPE 9, SPECIAL SUPER P**  
 (C.Y. CONCRETE = APPROX. 2.11)





















**PLAN VIEW**

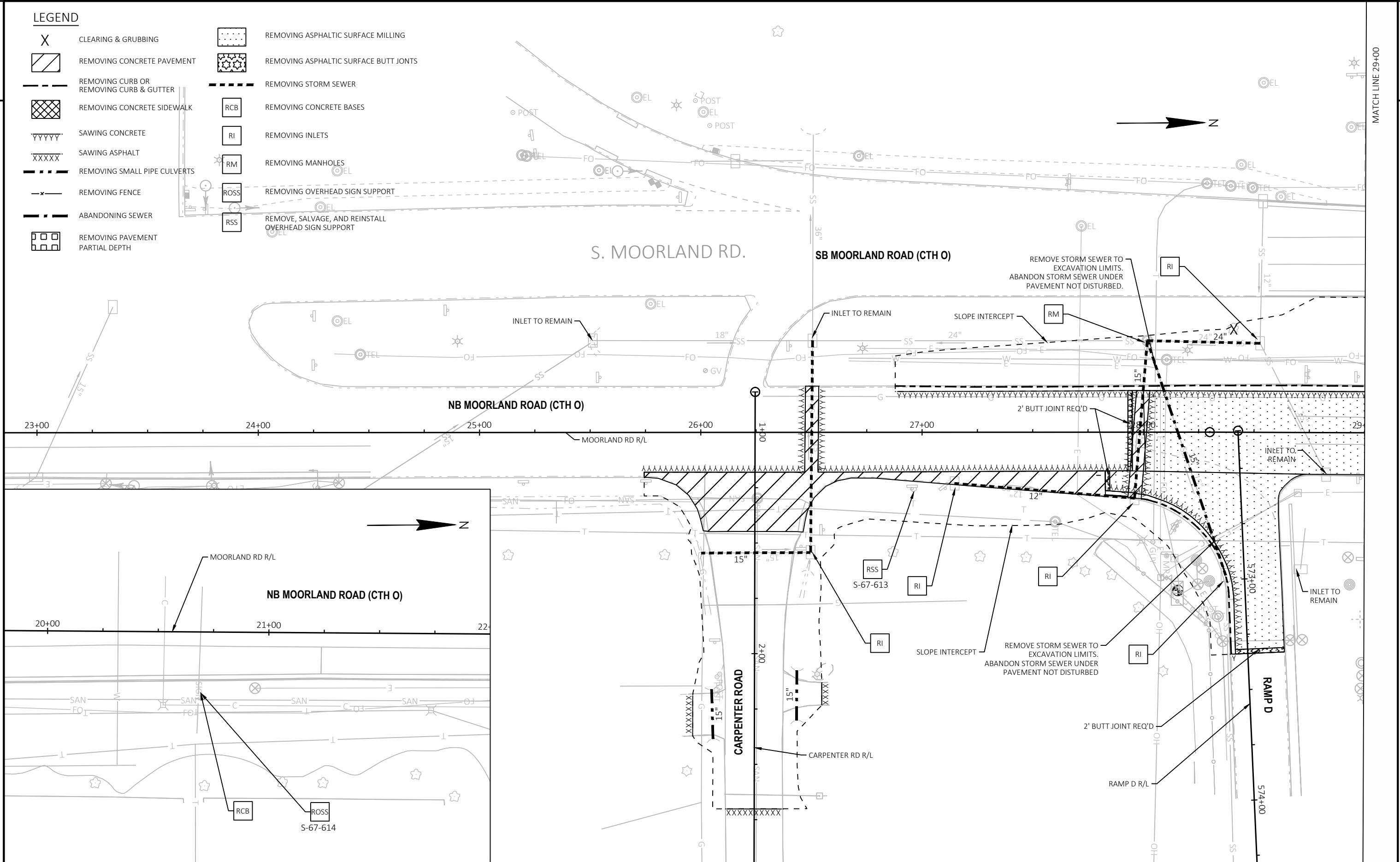
**CONCRETE CONTROL CABINET BASE, TYPE 9 SPECIAL SUPER P**

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- INSTALL FOUR 1/2 INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.
- WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.
- CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.
- DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.
- DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.
- ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
- CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.
- MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND BE LEVEL.
- MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.
- MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.
- ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.
- CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
- PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
- ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.
- CONDUIT EXITING THE CONCRETE BASE (SIX THREE INCH) SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.
- CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.
- BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

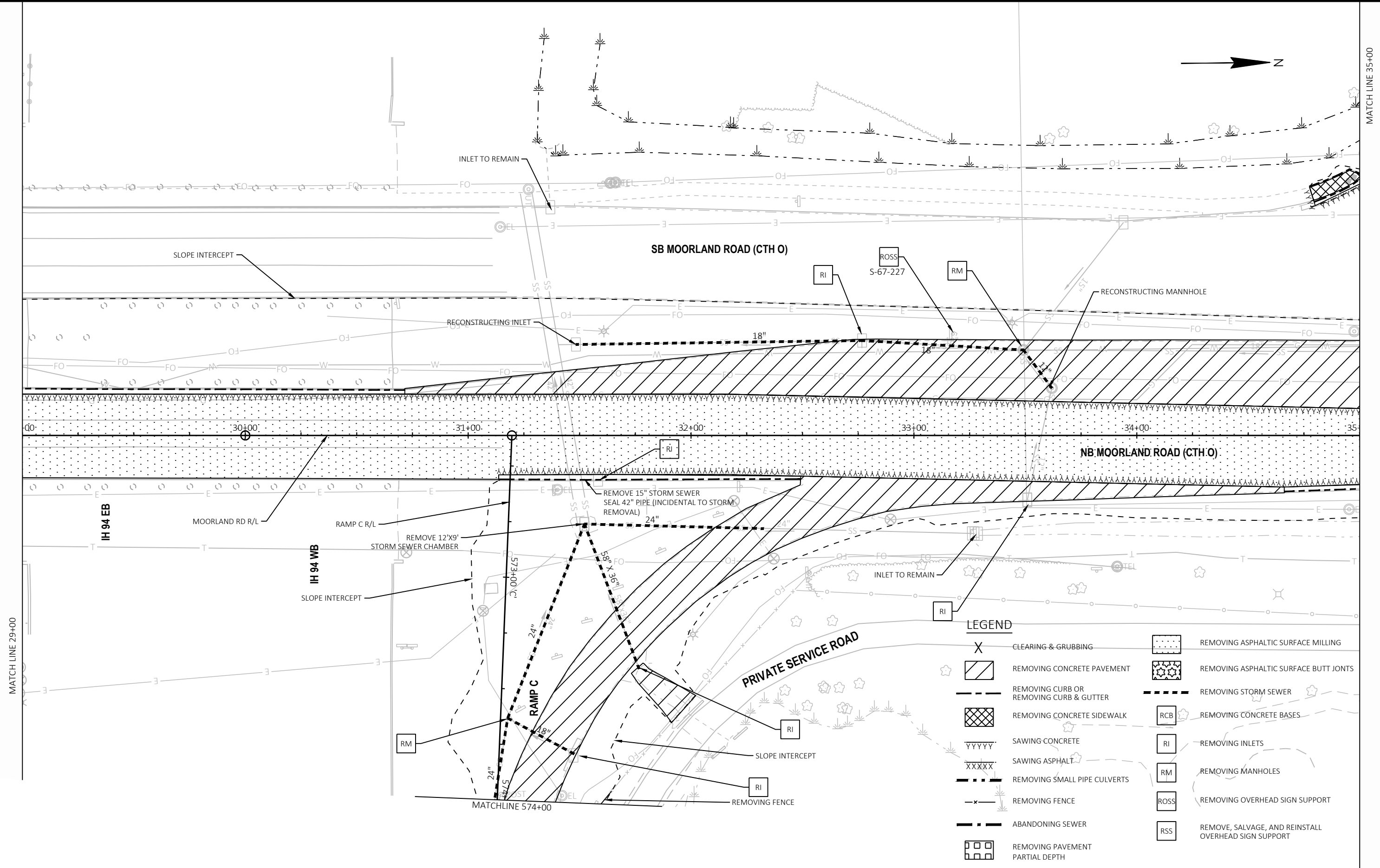
LEGEND

-  CLEARING & GRUBBING
-  REMOVING CONCRETE PAVEMENT
-  REMOVING CURB OR REMOVING CURB & GUTTER
-  REMOVING CONCRETE SIDEWALK
-  SAWING CONCRETE
-  SAWING ASPHALT
-  REMOVING SMALL PIPE CULVERTS
-  REMOVING FENCE
-  ABANDONING SEWER
-  REMOVING PAVEMENT PARTIAL DEPTH
-  REMOVING ASPHALTIC SURFACE MILLING
-  REMOVING ASPHALTIC SURFACE BUTT JOINTS
-  REMOVING STORM SEWER
-  REMOVING CONCRETE BASES
-  REMOVING INLETS
-  REMOVING MANHOLES
-  REMOVING OVERHEAD SIGN SUPPORT
-  REMOVE, SALVAGE, AND REINSTALL OVERHEAD SIGN SUPPORT



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	REMOVALS	SHEET
------------------------	------------	------------------	----------	-------

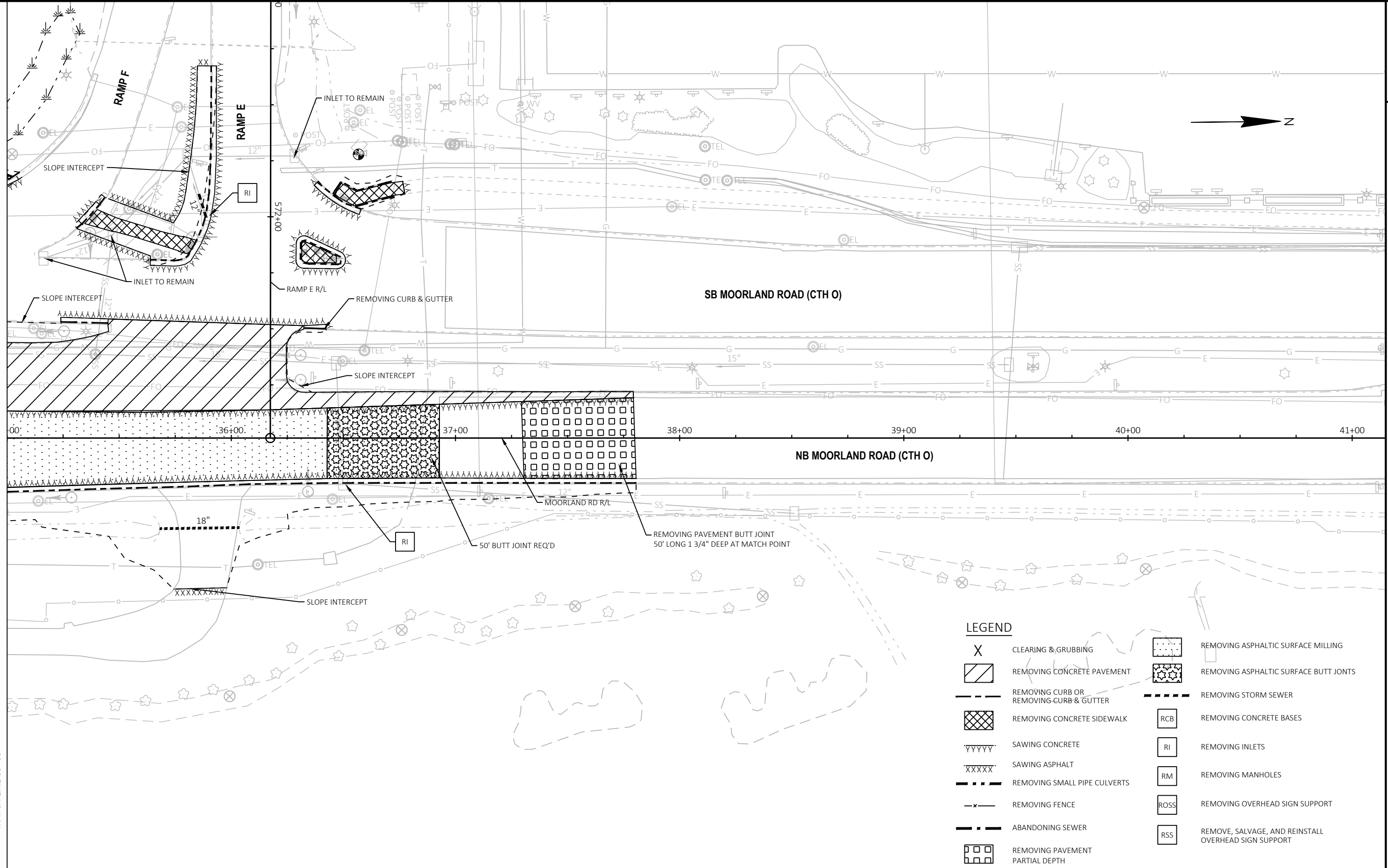
MATCH LINE 29+00



**LEGEND**

X	CLEARING & GRUBBING	[Pattern]	REMOVING ASPHALTIC SURFACE MILLING
[Pattern]	REMOVING CONCRETE PAVEMENT	[Pattern]	REMOVING ASPHALTIC SURFACE BUTT JOINTS
[Pattern]	REMOVING CURB OR REMOVING CURB & GUTTER	[Pattern]	REMOVING STORM SEWER
[Pattern]	REMOVING CONCRETE SIDEWALK	RCB	REMOVING CONCRETE BASES
YYYYYY	SAWING CONCRETE	RI	REMOVING INLETS
XXXXXX	SAWING ASPHALT	RM	REMOVING MANHOLES
[Pattern]	REMOVING SMALL PIPE CULVERTS	ROSS	REMOVING OVERHEAD SIGN SUPPORT
-x-	REMOVING FENCE	RSS	REMOVE, SALVAGE, AND REINSTALL OVERHEAD SIGN SUPPORT
[Pattern]	ABANDONING SEWER		
[Pattern]	REMOVING PAVEMENT PARTIAL DEPTH		

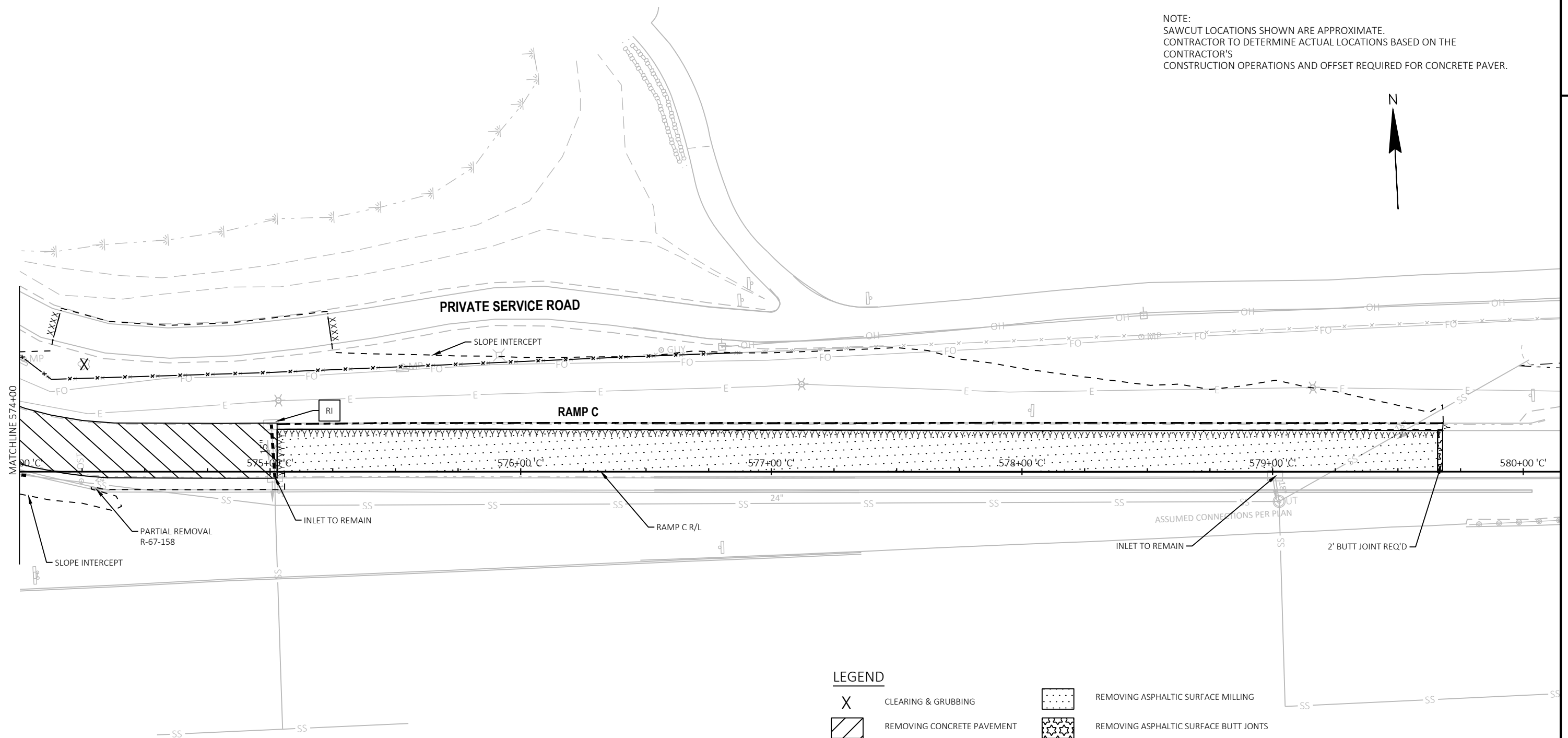




**LEGEND**

- CLEARING & GRUBBING
- REMOVING CONCRETE PAVEMENT
- REMOVING CURB OR REMOVING CURB & GUTTER
- REMOVING CONCRETE SIDEWALK
- SAWING CONCRETE
- SAWING ASPHALT
- REMOVING SMALL PIPE CULVERTS
- REMOVING FENCE
- ABANDONING SEWER
- REMOVING PAVEMENT PARTIAL DEPTH
- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS
- REMOVING STORM SEWER
- REMOVING CONCRETE BASES
- REMOVING INLETS
- REMOVING MANHOLES
- REMOVING OVERHEAD SIGN SUPPORT
- REMOVE, SALVAGE, AND REINSTALL OVERHEAD SIGN SUPPORT

NOTE:  
 SAWCUT LOCATIONS SHOWN ARE APPROXIMATE.  
 CONTRACTOR TO DETERMINE ACTUAL LOCATIONS BASED ON THE  
 CONTRACTOR'S  
 CONSTRUCTION OPERATIONS AND OFFSET REQUIRED FOR CONCRETE PAVER.



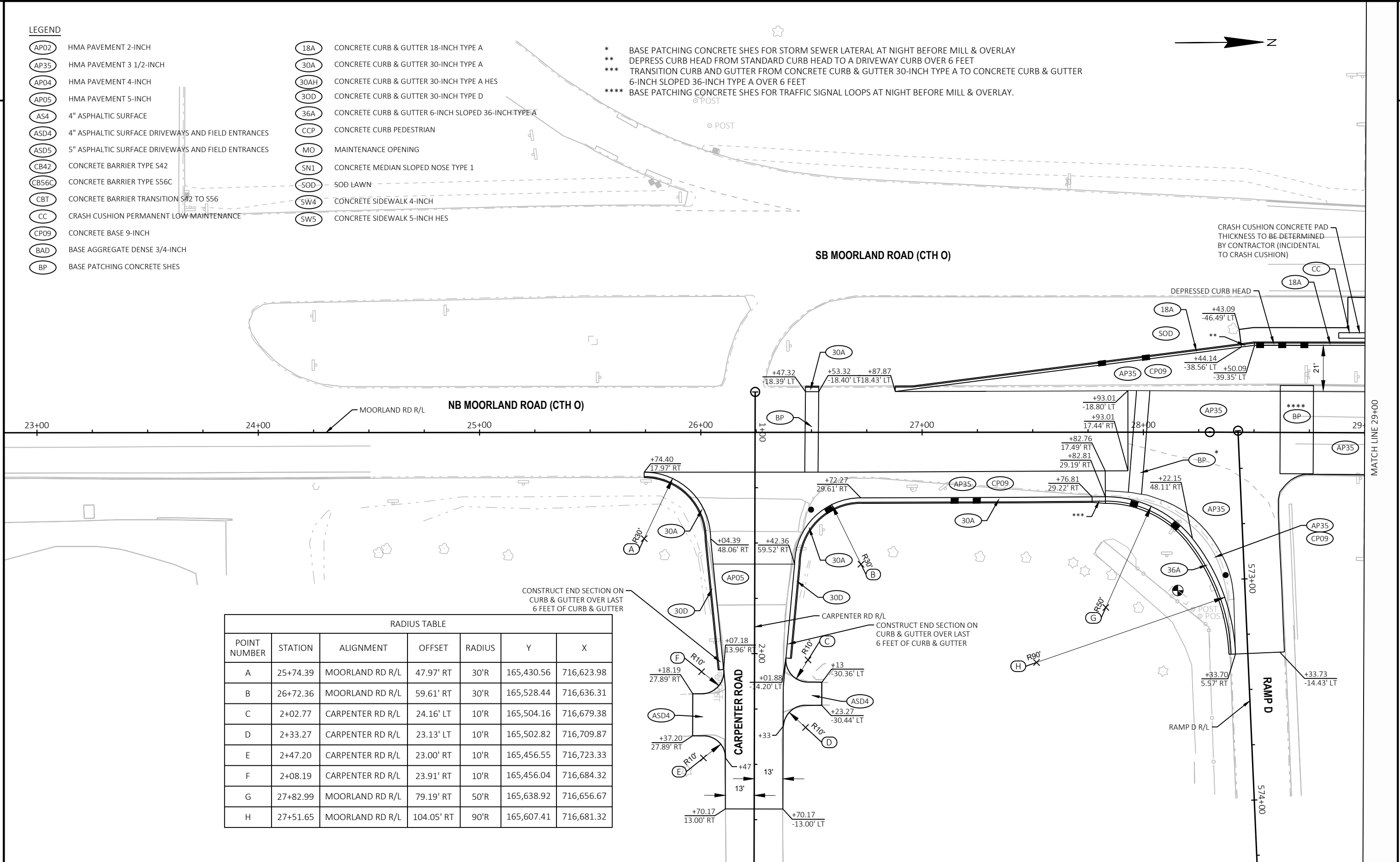
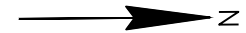
**LEGEND**

- |  |  |  |   |
|--|--|--|---|
|  | CLEARING & GRUBBING                        |  | REMOVING ASPHALTIC SURFACE MILLING                      |
|  | REMOVING CONCRETE PAVEMENT                 |  | REMOVING ASPHALTIC SURFACE BUTT JOINTS                  |
|  | REMOVING CURB OR<br>REMOVING CURB & GUTTER |  | REMOVING CONCRETE BASES                                 |
|  | REMOVING CONCRETE SIDEWALK                 |  | REMOVING INLETS   |
|  | SAWING CONCRETE                            |  | REMOVING MANHOLES                                       |
|  | REMOVING SMALL PIPE CULVERTS               |  | REMOVING OVERHEAD SIGN SUPPORT                          |
|  | REMOVING FENCE                             |  | REMOVE, SALVAGE, AND REINSTALL<br>OVERHEAD SIGN SUPPORT |
|  | ABANDONING SEWER                           |  |   |
|  | REMOVING PAVEMENT<br>PARTIAL DEPTH         |  |   |

LEGEND

- AP02 HMA PAVEMENT 2-INCH
- AP35 HMA PAVEMENT 3 1/2-INCH
- AP04 HMA PAVEMENT 4-INCH
- AP05 HMA PAVEMENT 5-INCH
- AS4 4" ASPHALTIC SURFACE
- ASD4 4" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- ASD5 5" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- CB42 CONCRETE BARRIER TYPE S42
- CB56C CONCRETE BARRIER TYPE S56C
- CBT CONCRETE BARRIER TRANSITION S42 TO S56
- CC CRASH CUSHION PERMANENT LOW-MAINTENANCE
- CP09 CONCRETE BASE 9-INCH
- BAD BASE AGGREGATE DENSE 3/4-INCH
- BP BASE PATCHING CONCRETE SHES
- 18A CONCRETE CURB & GUTTER 18-INCH TYPE A
- 30A CONCRETE CURB & GUTTER 30-INCH TYPE A
- 30AH CONCRETE CURB & GUTTER 30-INCH TYPE A HES
- 30D CONCRETE CURB & GUTTER 30-INCH TYPE D
- 36A CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- CCP CONCRETE CURB PEDESTRIAN
- MO MAINTENANCE OPENING
- SN1 CONCRETE MEDIAN SLOPED NOSE TYPE 1
- SOD SOD LAWN
- SW4 CONCRETE SIDEWALK 4-INCH
- SW5 CONCRETE SIDEWALK 5-INCH HES

- \* BASE PATCHING CONCRETE SHES FOR STORM SEWER LATERAL AT NIGHT BEFORE MILL & OVERLAY
- \*\* DEPRESS CURB HEAD FROM STANDARD CURB HEAD TO A DRIVEWAY CURB OVER 6 FEET
- \*\*\* TRANSITION CURB AND GUTTER FROM CONCRETE CURB & GUTTER 30-INCH TYPE A TO CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A OVER 6 FEET
- \*\*\*\* BASE PATCHING CONCRETE SHES FOR TRAFFIC SIGNAL LOOPS AT NIGHT BEFORE MILL & OVERLAY.



RADIUS TABLE

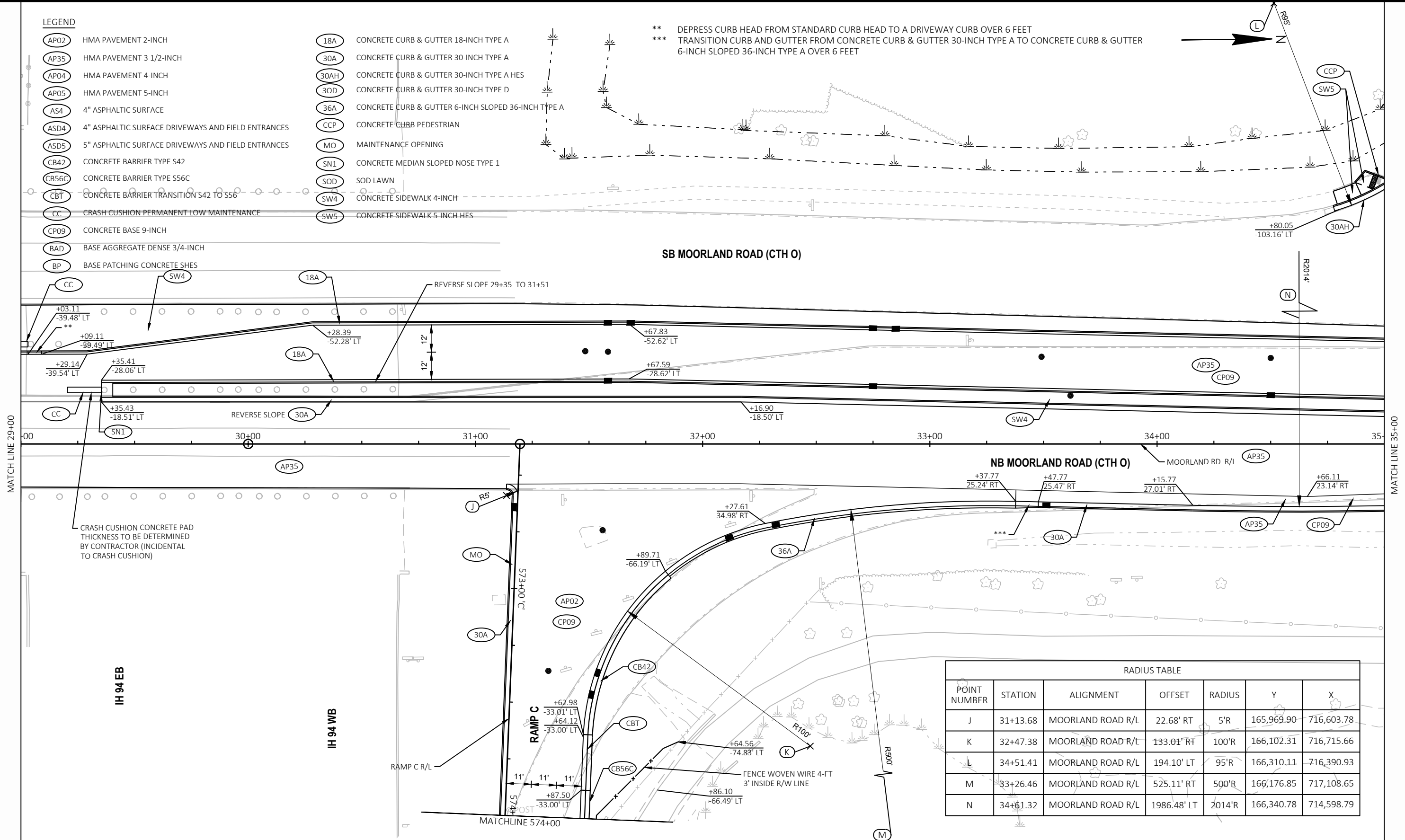
POINT NUMBER	STATION	ALIGNMENT	OFFSET	RADIUS	Y	X
A	25+74.39	MOORLAND RD R/L	47.97' RT	30'R	165,430.56	716,623.98
B	26+72.36	MOORLAND RD R/L	59.61' RT	30'R	165,528.44	716,636.31
C	2+02.77	CARPENTER RD R/L	24.16' LT	10'R	165,504.16	716,679.38
D	2+33.27	CARPENTER RD R/L	23.13' LT	10'R	165,502.82	716,709.87
E	2+47.20	CARPENTER RD R/L	23.00' RT	10'R	165,456.55	716,723.33
F	2+08.19	CARPENTER RD R/L	23.91' RT	10'R	165,456.04	716,684.32
G	27+82.99	MOORLAND RD R/L	79.19' RT	50'R	165,638.92	716,656.67
H	27+51.65	MOORLAND RD R/L	104.05' RT	90'R	165,607.41	716,681.32

LEGEND

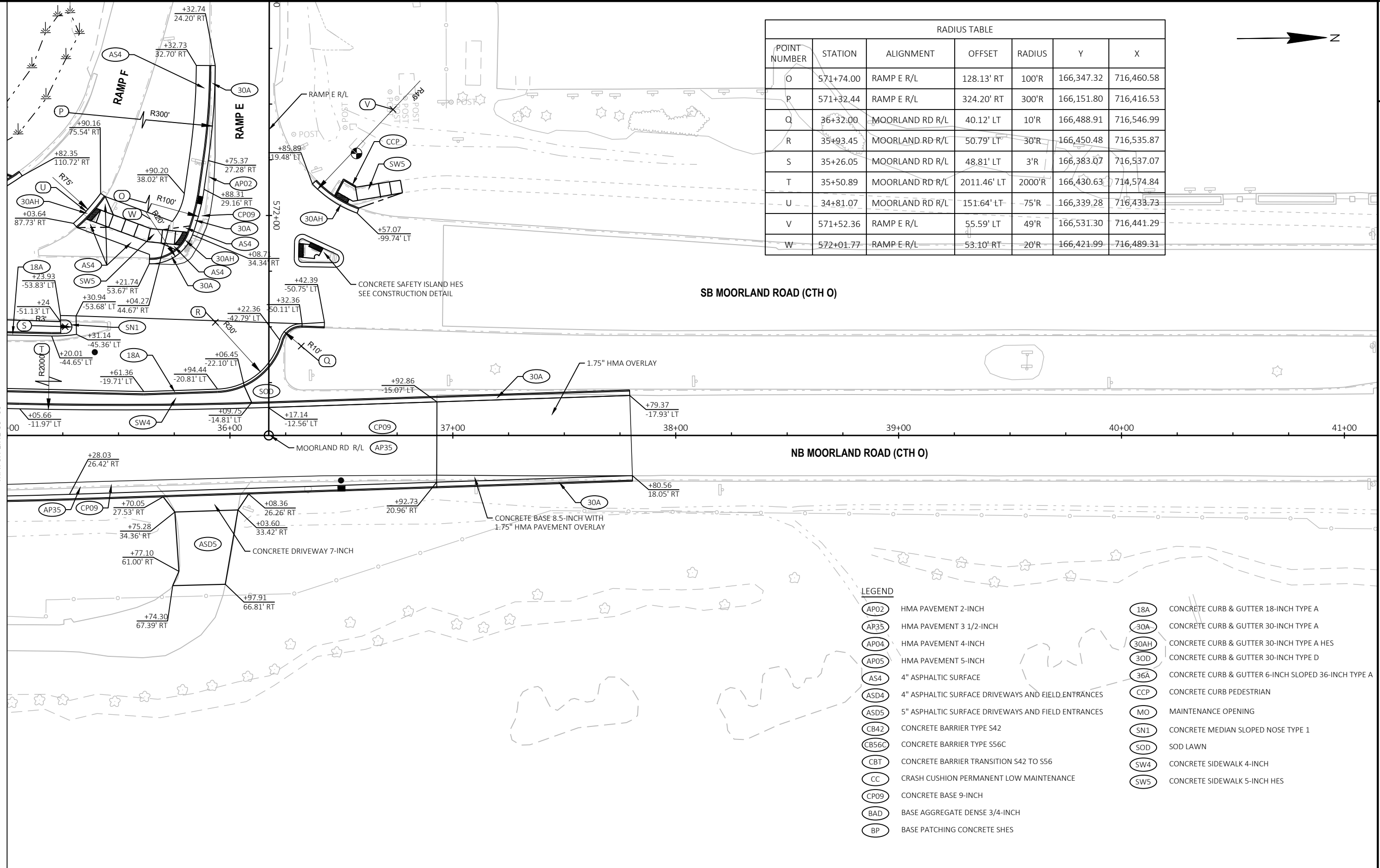
- (AP02) HMA PAVEMENT 2-INCH
- (AP35) HMA PAVEMENT 3 1/2-INCH
- (AP04) HMA PAVEMENT 4-INCH
- (AP05) HMA PAVEMENT 5-INCH
- (A54) 4" ASPHALTIC SURFACE
- (ASD4) 4" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- (ASD5) 5" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- (CB42) CONCRETE BARRIER TYPE S42
- (CB56C) CONCRETE BARRIER TYPE S56C
- (CBT) CONCRETE BARRIER TRANSITION S42 TO S56
- (CC) CRASH CUSHION PERMANENT LOW MAINTENANCE
- (CP09) CONCRETE BASE 9-INCH
- (BAD) BASE AGGREGATE DENSE 3/4-INCH
- (BP) BASE PATCHING CONCRETE SHES
- (18A) CONCRETE CURB & GUTTER 18-INCH TYPE A
- (30A) CONCRETE CURB & GUTTER 30-INCH TYPE A
- (30AH) CONCRETE CURB & GUTTER 30-INCH TYPE A HES
- (30D) CONCRETE CURB & GUTTER 30-INCH TYPE D
- (36A) CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- (CCP) CONCRETE CURB PEDESTRIAN
- (MO) MAINTENANCE OPENING
- (SN1) CONCRETE MEDIAN SLOPED NOSE TYPE 1
- (SOD) SOD LAWN
- (SW4) CONCRETE SIDEWALK 4-INCH
- (SW5) CONCRETE SIDEWALK 5-INCH HES

SB MOORLAND ROAD (CTH O)

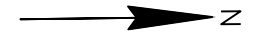
NB MOORLAND ROAD (CTH O)



RADIUS TABLE						
POINT NUMBER	STATION	ALIGNMENT	OFFSET	RADIUS	Y	X
J	31+13.68	MOORLAND ROAD R/L	22.68' RT	5'R	165,969.90	716,603.78
K	32+47.38	MOORLAND ROAD R/L	133.01' RT	100'R	166,102.31	716,715.66
L	34+51.41	MOORLAND ROAD R/L	194.10' LT	95'R	166,310.11	716,390.93
M	33+26.46	MOORLAND ROAD R/L	525.11' RT	500'R	166,176.85	717,108.65
N	34+61.32	MOORLAND ROAD R/L	1986.48' LT	2014'R	166,340.78	714,598.79



RADIUS TABLE						
POINT NUMBER	STATION	ALIGNMENT	OFFSET	RADIUS	Y	X
O	571+74.00	RAMP E R/L	128.13' RT	100'R	166,347.32	716,460.58
P	571+32.44	RAMP E R/L	324.20' RT	300'R	166,151.80	716,416.53
Q	36+32.00	MOORLAND RD R/L	40.12' LT	10'R	166,488.91	716,546.99
R	35+93.45	MOORLAND RD R/L	50.79' LT	30'R	166,450.48	716,535.87
S	35+26.05	MOORLAND RD R/L	48.81' LT	3'R	166,383.07	716,537.07
T	35+50.89	MOORLAND RD R/L	2011.46' LT	2000'R	166,430.63	714,574.84
U	34+81.07	MOORLAND RD R/L	151.64' LT	-75'R	166,339.28	716,433.73
V	571+52.36	RAMP E R/L	55.59' LT	49'R	166,531.30	716,441.29
W	572+01.77	RAMP E R/L	53.10' RT	20'R	166,421.99	716,489.31



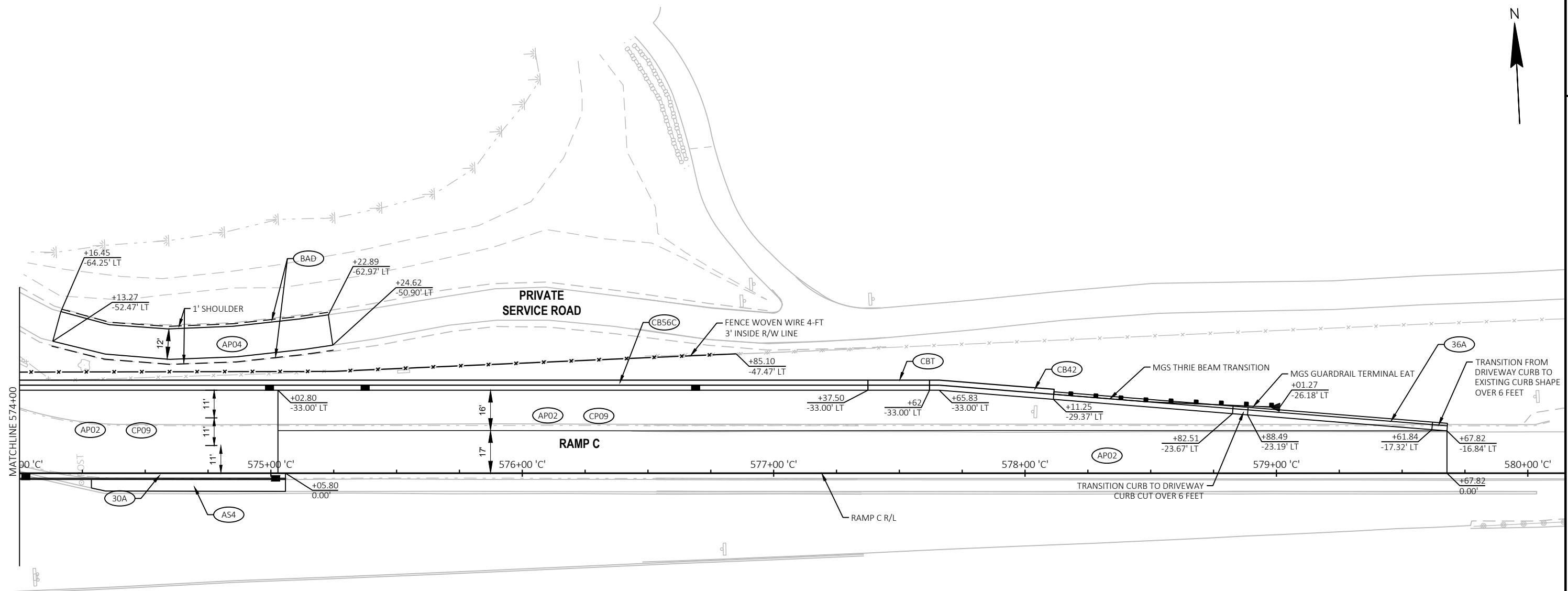
MATCH LINE 35+00

SB MOORLAND ROAD (CTH O)

NB MOORLAND ROAD (CTH O)

**LEGEND**

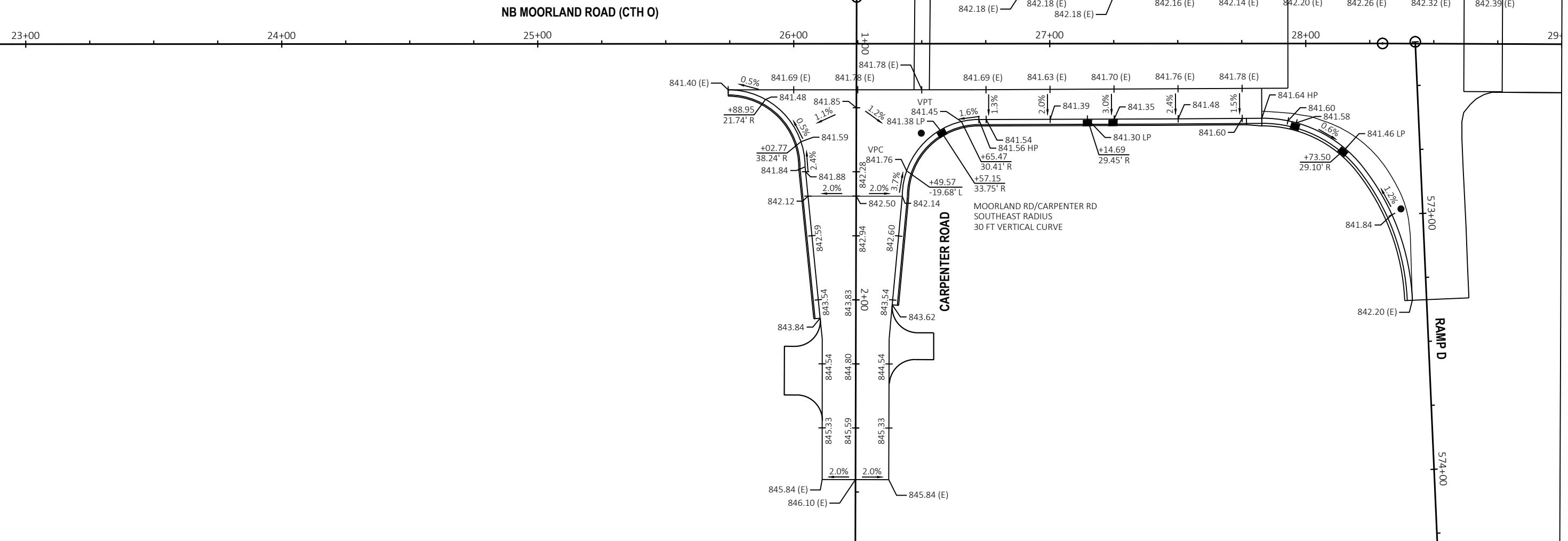
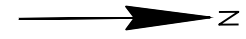
- (AP02) HMA PAVEMENT 2-INCH
- (AP35) HMA PAVEMENT 3 1/2-INCH
- (AP04) HMA PAVEMENT 4-INCH
- (AP05) HMA PAVEMENT 5-INCH
- (AS4) 4" ASPHALTIC SURFACE
- (ASD4) 4" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- (ASD5) 5" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES
- (CB42) CONCRETE BARRIER TYPE S42
- (CB56C) CONCRETE BARRIER TYPE S56C
- (CBT) CONCRETE BARRIER TRANSITION S42 TO S56
- (CC) CRASH CUSHION PERMANENT LOW MAINTENANCE
- (CP09) CONCRETE BASE 9-INCH
- (BAD) BASE AGGREGATE DENSE 3/4-INCH
- (BP) BASE PATCHING CONCRETE SHES
- (18A) CONCRETE CURB & GUTTER 18-INCH TYPE A
- (30A) CONCRETE CURB & GUTTER 30-INCH TYPE A
- (30AH) CONCRETE CURB & GUTTER 30-INCH TYPE A HES
- (30D) CONCRETE CURB & GUTTER 30-INCH TYPE D
- (36A) CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- (CCP) CONCRETE CURB PEDESTRIAN
- (MO) MAINTENANCE OPENING
- (SN1) CONCRETE MEDIAN SLOPED NOSE TYPE 1
- (SOD) SOD LAWN
- (SW4) CONCRETE SIDEWALK 4-INCH
- (SW5) CONCRETE SIDEWALK 5-INCH HES



LEGEND

- |   |   |
|---|---|
| (AP02) HMA PAVEMENT 2-INCH                                | (18A) CONCRETE CURB & GUTTER 18-INCH TYPE A               |
| (AP35) HMA PAVEMENT 3 1/2-INCH                            | (30A) CONCRETE CURB & GUTTER 30-INCH TYPE A               |
| (AP04) HMA PAVEMENT 4-INCH                                | (30AH) CONCRETE CURB & GUTTER 30-INCH TYPE A HES          |
| (AP05) HMA PAVEMENT 5-INCH                                | (30D) CONCRETE CURB & GUTTER 30-INCH TYPE D               |
| (AS4) 4" ASPHALTIC SURFACE                                | (36A) CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A |
| (ASD4) 4" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES | (CCP) CONCRETE CURB PEDESTRIAN                            |
| (ASD5) 5" ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES | (MO) MAINTENANCE OPENING                                  |
| (CB42) CONCRETE BARRIER TYPE S42                          | (SN1) CONCRETE MEDIAN SLOPED NOSE TYPE 1                  |
| (CB56C) CONCRETE BARRIER TYPE S56C                        | (SOD) SOD LAWN  |
| (CBT) CONCRETE BARRIER TRANSITION S42 TO S56              | (SW4) CONCRETE SIDEWALK 4-INCH                            |
| (CC) CRASH CUSHION PERMANENT LOW MAINTENANCE              | (SW5) CONCRETE SIDEWALK 5-INCH HES                        |
| (CP09) CONCRETE BASE 9-INCH                               |   |
| (BAD) BASE AGGREGATE DENSE 3/4-INCH                       |   |
| (BP) BASE PATCHING CONCRETE SHES                          |   |

- LEGEND**
- XXX.XX ELEVATION ON PAVEMENT OR ALONG GUTTER FLANGE
  - XXX.XX(E) EXISTING ELEVATION
  - HP HIGH POINT
  - LP LOW POINT



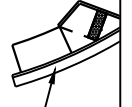
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	PAVING GRADES - MOORLAND ROAD	SHEET	<b>E</b>
------------------------	------------	------------------	-------------------------------	-------	----------

LEGEND

- XXX.XX ELEVATION ON PAVEMENT OR ALONG GUTTER FLANGE
- XXX.XX(E) EXISTING ELEVATION
- HP HIGH POINT
- LP LOW POINT



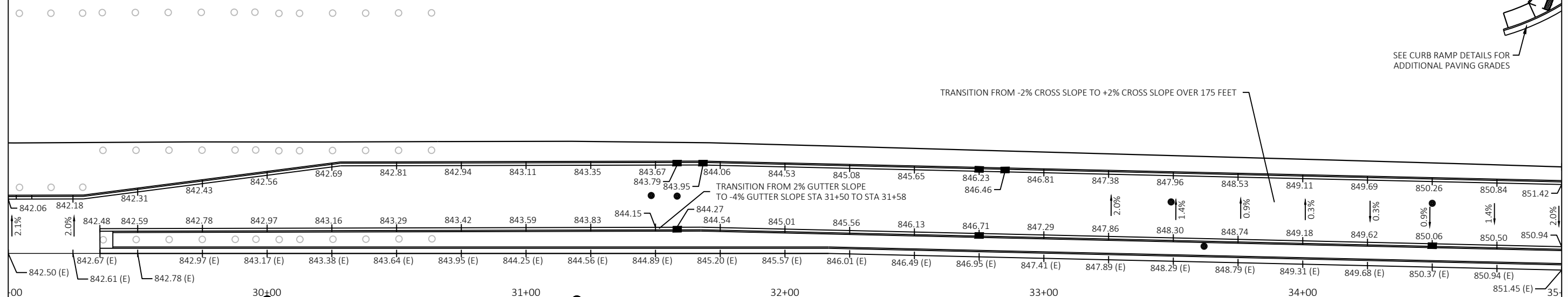
MATCH LINE 35+00



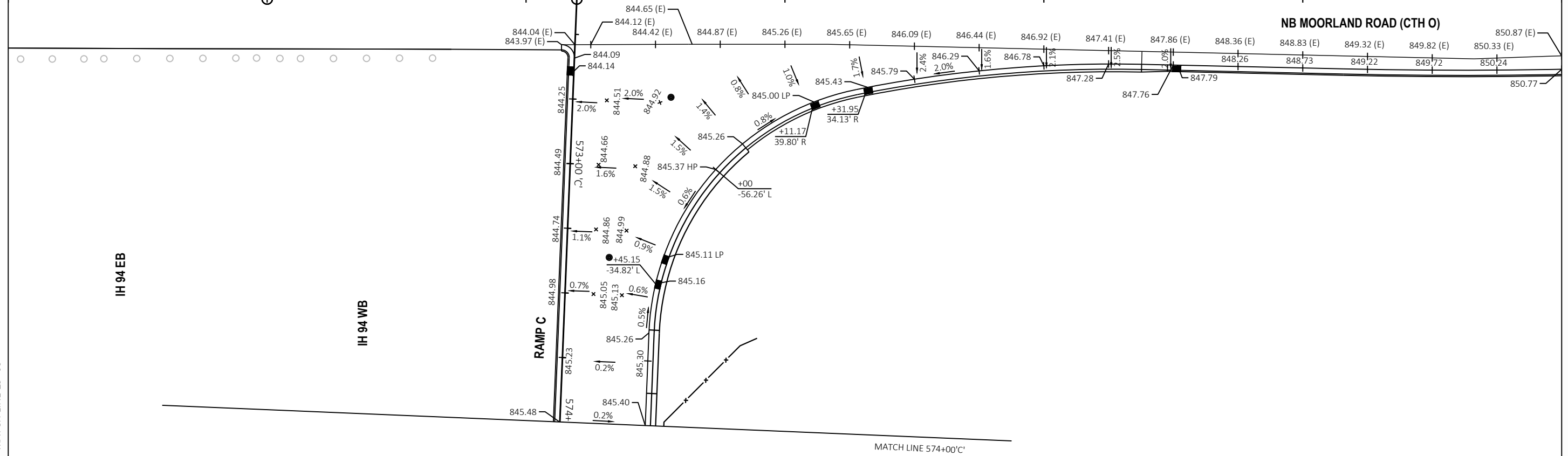
SEE CURB RAMP DETAILS FOR ADDITIONAL PAVING GRADES

TRANSITION FROM -2% CROSS SLOPE TO +2% CROSS SLOPE OVER 175 FEET

TRANSITION FROM 2% GUTTER SLOPE TO -4% GUTTER SLOPE STA 31+50 TO STA 31+58



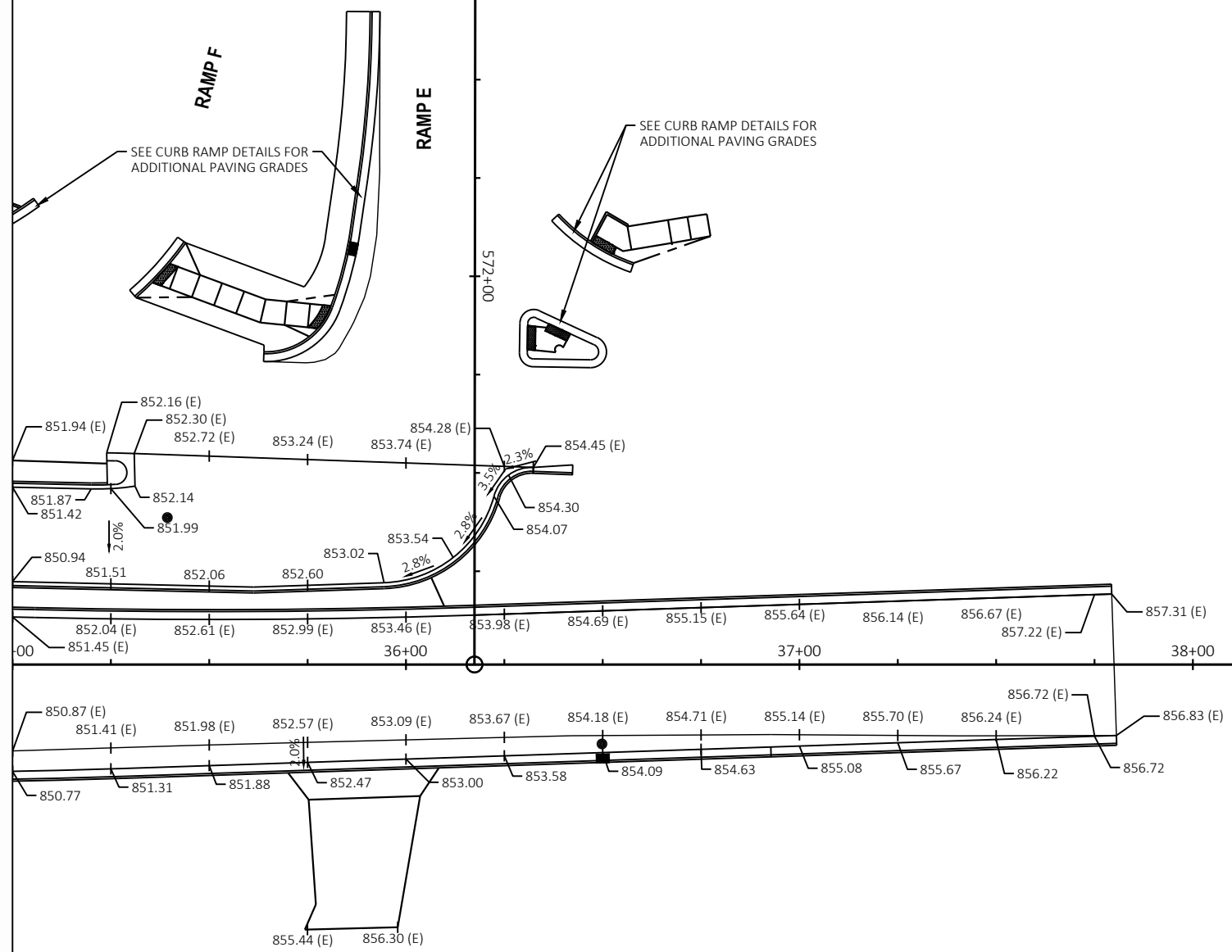
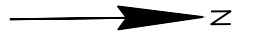
NB MOORLAND ROAD (CTH O)



MATCH LINE 29+00

MATCH LINE 574+00'C



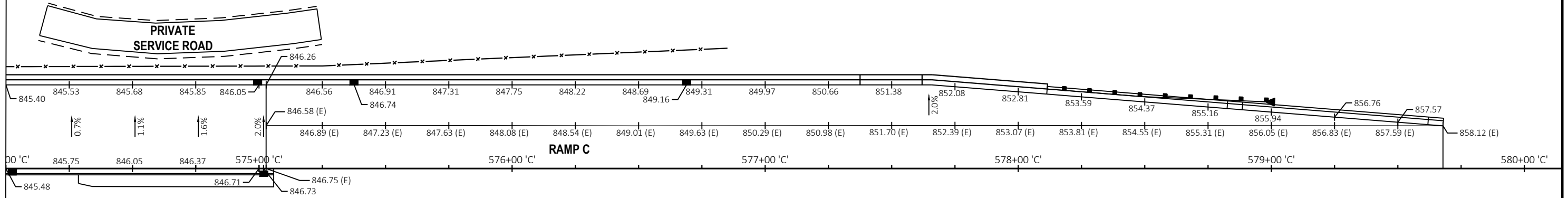


MATCH LINE 35+00

- LEGEND**
- XXX.XX ELEVATION ON PAVEMENT OR ALONG GUTTER FLANGE
  - XXX.XX(E) EXISTING ELEVATION
  - HP HIGH POINT
  - LP LOW POINT

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	PAVING GRADES - MOORLAND ROAD	SHEET	<b>E</b>
------------------------	------------	------------------	-------------------------------	-------	----------

**LEGEND**  
 XXX.XX ELEVATION ON PAVEMENT OR ALONG GUTTER FLANGE  
 XXX.XX(E) EXISTING ELEVATION  
 HP HIGH POINT  
 LP LOW POINT



MATCH LINE 574+00'C

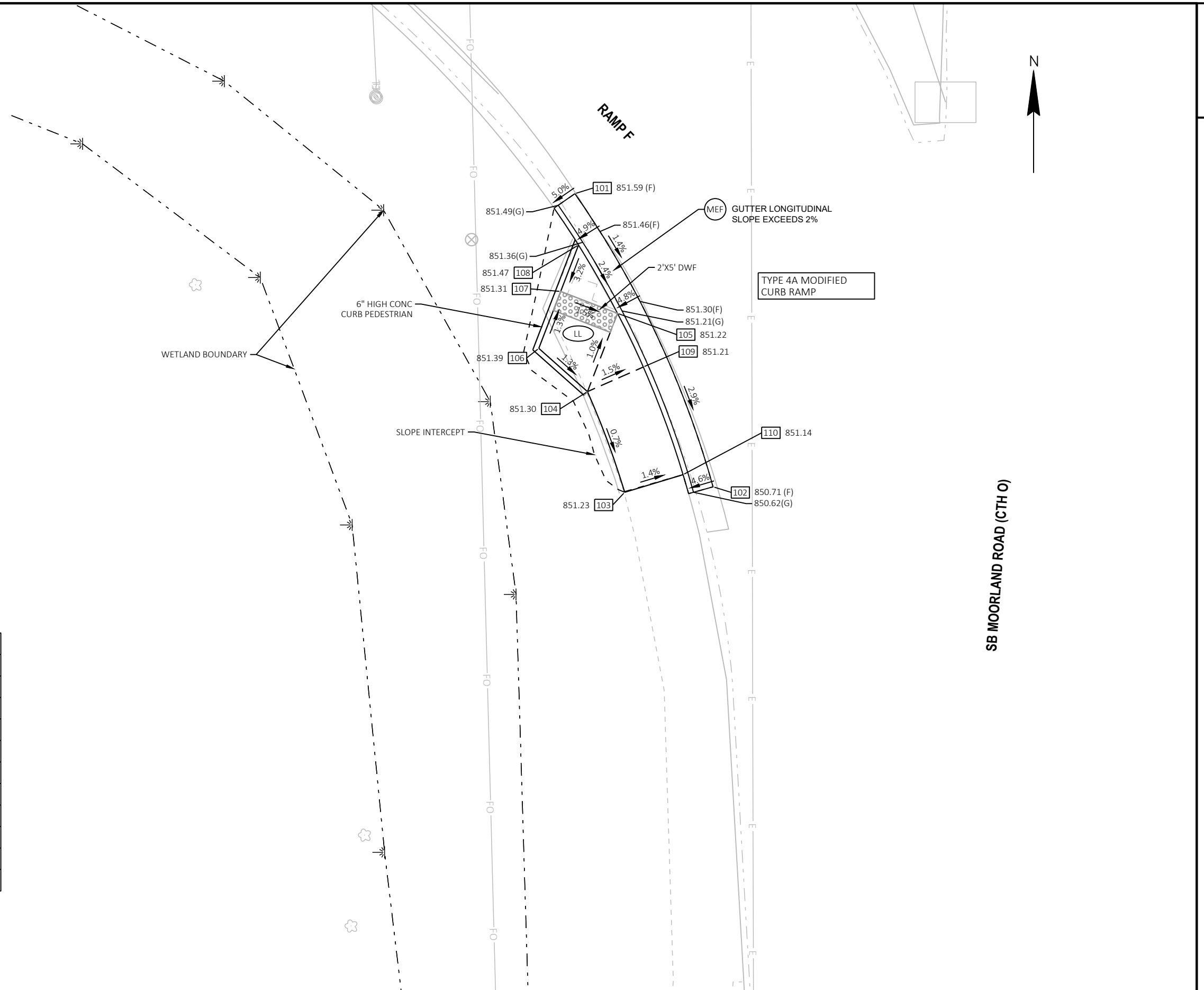
LEGEND

- XXX.XX    SIDEWALK ELEVATION
- XXX.XX(F)    C&G FLANGE ELEVATION
- XXX.XX(G)    C&G FLOWLINE ELEVATION
- XXX.XX(T)    TOP OF CURB ELEVATION
- (LL)    LEVEL LANDING
- (100)    POINT NUMBER
- - -    SLOPE INTERCEPTS
- (Grid Pattern)    DETECTABLE WARNING FIELD
- (MEF)    TECHNICAL INFEASIBILITY PRESENT  
CONSTRUCTED TO MAXIMUM EXTENT FEASIBLE  
SEE TECHNICAL INFEASIBILITY REPORT
- (P)    PAVED FLARE (10:1 MAX SLOPE)
- (G)    GRADED FLARE (6:1 MAX SLOPE)

NOTES

1. CONTRACTOR TO FIELD VERIFY ELEVATIONS, GRADES, SLOPES, LENGTHS, AND MATCH POINTS PRIOR TO CURB RAMP CONSTRUCTION.
2. THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE REQUIREMENTS OF THE STANDARD DETAIL DRAWINGS.
3. DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE EXACT JOINT LOCATIONS.
4. THE MAXIMUM GRADE BREAK BETWEEN THE GUTTER PAN AND CURB RAMP SHALL BE 11%.
5. SIDEWALK AND CURB RAMP CROSS SLOPE SHALL NOT EXCEED 2%.
6. SIDEWALK AND CURB RAMP RUNNING SLOPE SHALL NOT EXCEED 8.33% (12H:1V).

CURB RAMP POINTS					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
101	35+06.82	116.51' LT	851.59	166364.62	716469.15
102	34+78.14	102.58' LT	850.71	166335.78	716482.75
103	34+77.50	111.27' LT	851.23	166335.24	716474.06
104	34+87.36	115.05' LT	851.30	166345.14	716470.39
105	34+95.09	112.18' LT	851.22	166352.84	716473.35
106	34+91.56	119.89' LT	851.39	166349.40	716465.60
107	34+97.18	117.80' LT	851.31	166355.00	716467.75
108	35+01.76	116.10' LT	851.47	166359.56	716469.51
109	34+89.84	109.59' LT	851.21	166347.57	716475.88
110	34+79.30	105.55' LT	851.14	166336.98	716479.80



LEGEND

- XXX.XX SIDEWALK ELEVATION
- XXX.XX(F) C&G FLANGE ELEVATION
- XXX.XX(G) C&G FLOWLINE ELEVATION
- XXX.XX(T) TOP OF CURB ELEVATION

- LL LEVEL LANDING
- 100 POINT NUMBER
- SLOPE INTERCEPTS

DETECTABLE WARNING FIELD

TECHNICAL INFEASIBILITY PRESENT  
CONSTRUCTED TO MAXIMUM EXTENT FEASIBLE  
SEE TECHNICAL INFEASIBILITY REPORT

P PAVED FLARE (10:1 MAX SLOPE)

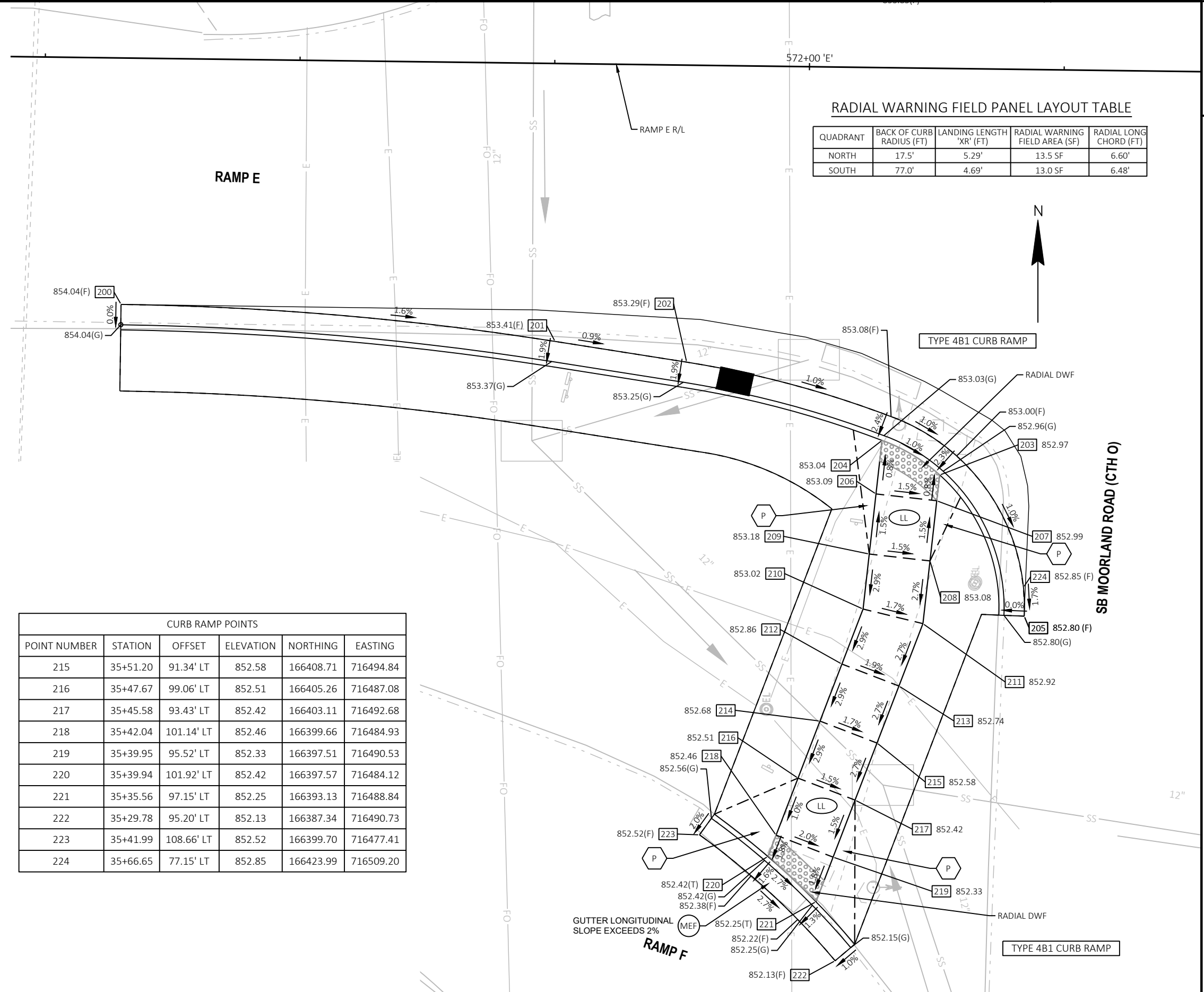
G GRADED FLARE (6:1 MAX SLOPE)

NOTES

- CONTRACTOR TO FIELD VERIFY ELEVATIONS, GRADES, SLOPES, LENGTHS, AND MATCH POINTS PRIOR TO CURB RAMP CONSTRUCTION.
- THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE REQUIREMENTS OF THE STANDARD DETAIL DRAWINGS.
- DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE EXACT JOINT LOCATIONS.
- THE MAXIMUM GRADE BREAK BETWEEN THE GUTTER PAN AND CURB RAMP SHALL BE 11%.
- SIDEWALK AND CURB RAMP CROSS SLOPE SHALL NOT EXCEED 2%.
- SIDEWALK AND CURB RAMP RUNNING SLOPE SHALL NOT EXCEED 8.33% (12H:1V).

RADIAL WARNING FIELD PANEL LAYOUT TABLE

QUADRANT	BACK OF CURB RADIUS (FT)	LANDING LENGTH 'XR' (FT)	RADIAL WARNING FIELD AREA (SF)	RADIAL LONG CHORD (FT)
NORTH	17.5'	5.29'	13.5 SF	6.60'
SOUTH	77.0'	4.69'	13.0 SF	6.48'



CURB RAMP POINTS					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
200	35+93.40	166.03' LT	854.04	166451.77	716420.65
201	35+90.26	123.40' LT	853.41	166448.14	716463.24
202	35+88.38	110.45' LT	853.29	166446.10	716476.15
203	35+77.58	85.50' LT	852.97	166435.02	716500.98
204	35+80.91	91.19' LT	853.04	166438.42	716495.33
205	35+63.82	77.03' LT	852.80	166421.16	716509.29
206	35+75.66	91.72' LT	853.09	166433.16	716494.74
207	35+75.05	85.75' LT	852.99	166432.49	716500.70
208	35+69.14	86.35' LT	853.08	166426.59	716500.04
209	35+69.74	92.32' LT	853.18	166427.26	716494.07
210	35+64.34	92.86' LT	853.02	166421.87	716493.47
211	35+62.98	86.97' LT	852.92	166420.43	716499.34
212	35+58.92	94.88' LT	852.86	166416.46	716491.39
213	35+56.83	89.25' LT	852.74	166414.31	716496.99
214	35+53.29	96.97' LT	852.68	166410.86	716489.24

CURB RAMP POINTS					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
215	35+51.20	91.34' LT	852.58	166408.71	716494.84
216	35+47.67	99.06' LT	852.51	166405.26	716487.08
217	35+45.58	93.43' LT	852.42	166403.11	716492.68
218	35+42.04	101.14' LT	852.46	166399.66	716484.93
219	35+39.95	95.52' LT	852.33	166397.51	716490.53
220	35+39.94	101.92' LT	852.42	166397.57	716484.12
221	35+35.56	97.15' LT	852.25	166393.13	716488.84
222	35+29.78	95.20' LT	852.13	166387.34	716490.73
223	35+41.99	108.66' LT	852.52	166399.70	716477.41
224	35+66.65	77.15' LT	852.85	166423.99	716509.20

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

CURB RAMP DETAILS

SHEET

E

LEGEND

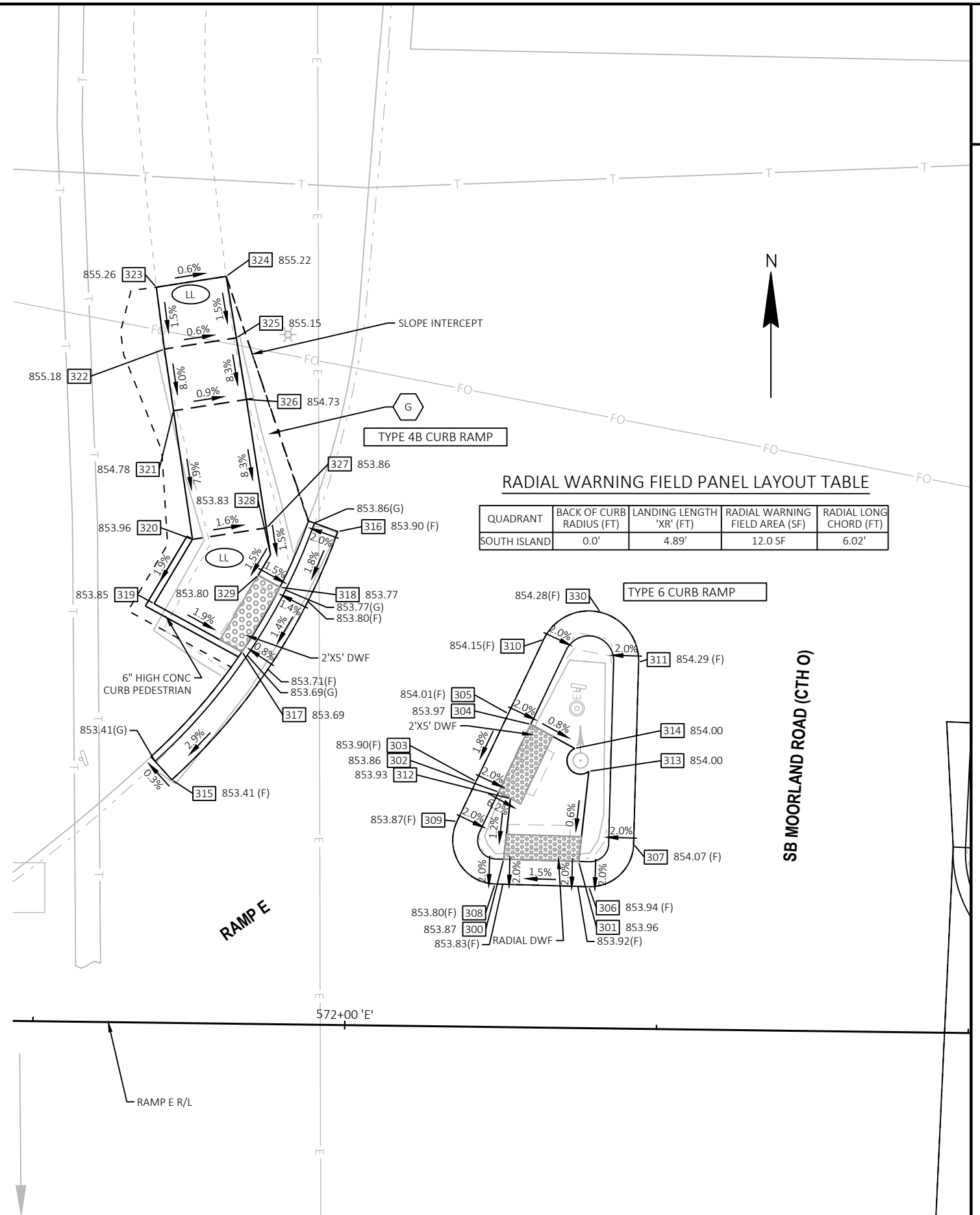
- XXX.XX SIDEWALK ELEVATION
- XXX.XX(F) C&G FLANGE ELEVATION
- XXX.XX(G) C&G FLOWLINE ELEVATION
- XXX.XX(T) TOP OF CURB ELEVATION
- (LL) LEVEL LANDING
- 100 POINT NUMBER
- SLOPE INTERCEPTS
- [Grid Pattern] DETECTABLE WARNING FIELD
- (MEF) TECHNICAL INFEASIBILITY PRESENT  
CONSTRUCTED TO MAXIMUM EXTENT FEASIBLE  
SEE TECHNICAL INFEASIBILITY REPORT
- (P) PAVED FLARE (10:1 MAX SLOPE)
- (G) GRADED FLARE (6:1 MAX SLOPE)

NOTES

1. CONTRACTOR TO FIELD VERIFY ELEVATIONS, GRADES, SLOPES, LENGTHS, AND MATCH POINTS PRIOR TO CURB RAMP CONSTRUCTION.
2. THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE REQUIREMENTS OF THE STANDARD DETAIL DRAWINGS.
3. DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE EXACT JOINT LOCATIONS.
4. THE MAXIMUM GRADE BREAK BETWEEN THE GUTTER PAN AND CURB RAMP SHALL BE 1%
5. SIDEWALK AND CURB RAMP CROSS SLOPE SHALL NOT EXCEED 2%
6. SIDEWALK AND CURB RAMP RUNNING SLOPE SHALL NOT EXCEED 8.33% (12H:1V).

CURB RAMP POINTS					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
300	36+30.96	86.15' LT	853.87	166488.40	716500.95
301	36+30.85	80.13' LT	853.96	166488.22	716506.97
302	36+36.34	86.61' LT	853.86	166493.78	716500.55
303	36+37.17	88.43' LT	853.90	166494.64	716498.74
304	36+41.79	84.09' LT	853.97	166499.21	716503.13
305	36+42.63	85.91' LT	854.01	166500.07	716501.33
306	36+28.84	79.30' LT	853.94	166486.20	716507.77
307	36+32.28	75.74' LT	854.07	166489.60	716511.37
308	36+28.97	86.81' LT	853.80	166486.42	716500.27
309	36+33.94	89.92' LT	853.87	166491.42	716497.21
310	36+48.62	83.14' LT	854.15	166506.02	716504.17
311	36+46.87	75.51' LT	854.29	166504.19	716511.77
312	36+35.83	85.66' LT	853.93	166493.26	716501.50
313	36+38.09	79.40' LT	854.00	166495.45	716507.78
314	36+39.91	80.55' LT	854.00	166497.28	716506.66
315	36+37.02	112.83' LT	853.41	166494.77	716474.35

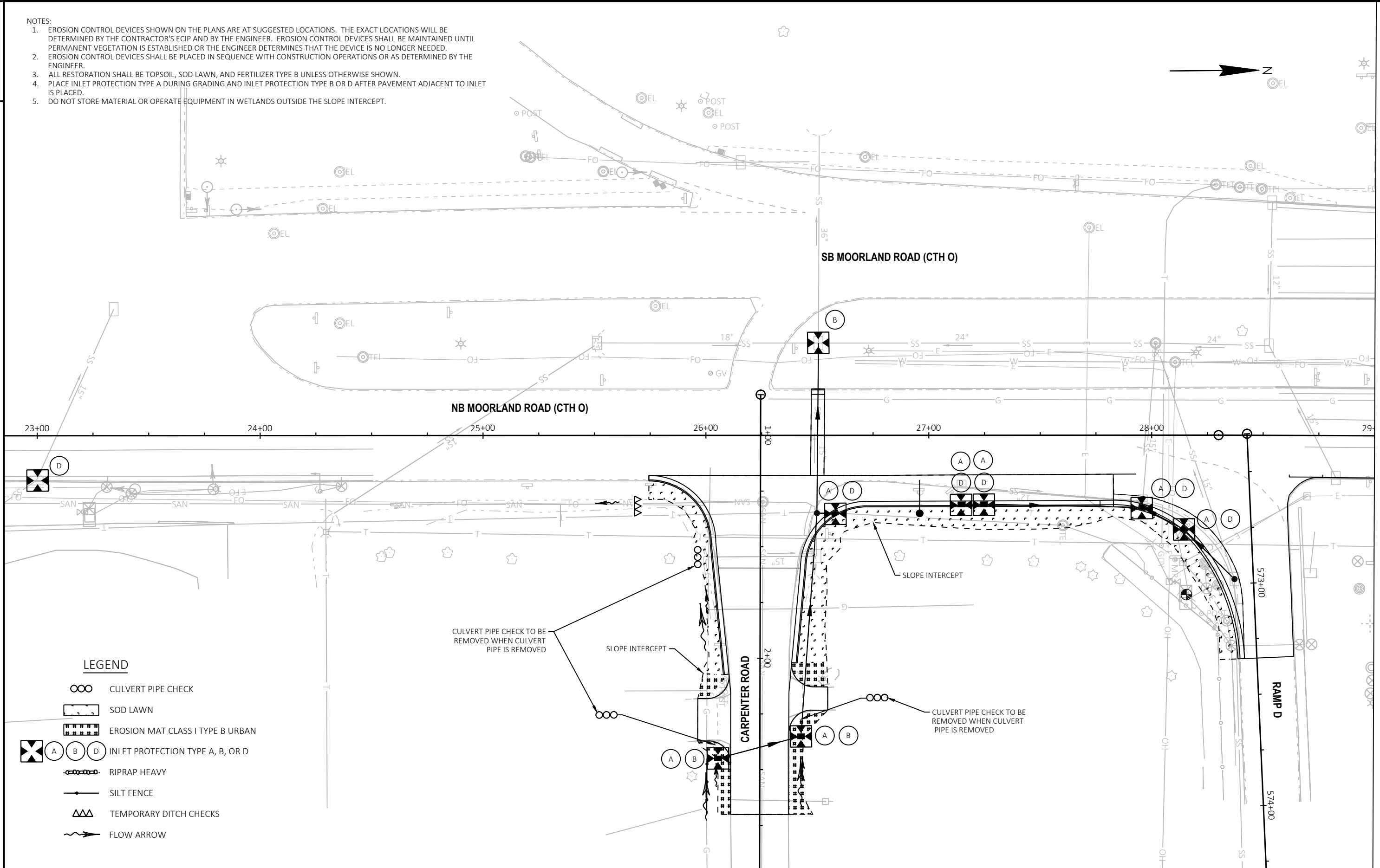
CURB RAMP POINTS					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
316	36+57.07	99.74' LT	853.90	166514.67	716487.67
317	36+47.34	107.31' LT	853.69	166505.03	716479.98
318	36+52.55	104.33' LT	853.77	166510.20	716483.03
319	36+51.12	114.42' LT	853.85	166508.88	716472.92
320	36+56.31	111.39' LT	853.96	166514.04	716476.00
321	36+66.60	113.03' LT	854.78	166524.34	716474.48
322	36+71.53	113.82' LT	855.18	166529.29	716473.75
323	36+76.48	114.52' LT	855.26	166534.25	716473.11
324	36+77.42	108.94' LT	855.22	166535.12	716478.70
325	36+72.50	108.07' LT	855.15	166530.19	716479.52
326	36+67.57	107.20' LT	854.73	166525.25	716480.33
327	36+57.30	105.48' LT	853.86	166514.96	716481.93
328	36+55.16	105.12' LT	853.83	166512.82	716482.26
329	36+53.49	106.09' LT	853.80	166511.16	716481.27
330	36+50.84	78.62' LT	854.28	166508.19	716508.71



RADIAL WARNING FIELD PANEL LAYOUT TABLE

QUADRANT	BACK OF CURB RADIUS (FT)	LANDING LENGTH 'XR' (FT)	RADIAL WARNING FIELD AREA (SF)	RADIAL LONG CHORD (FT)
SOUTH ISLAND	0.0'	4.89'	12.0 SF	6.02'

- NOTES:
1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
  2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
  3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
  4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
  5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.



LEGEND

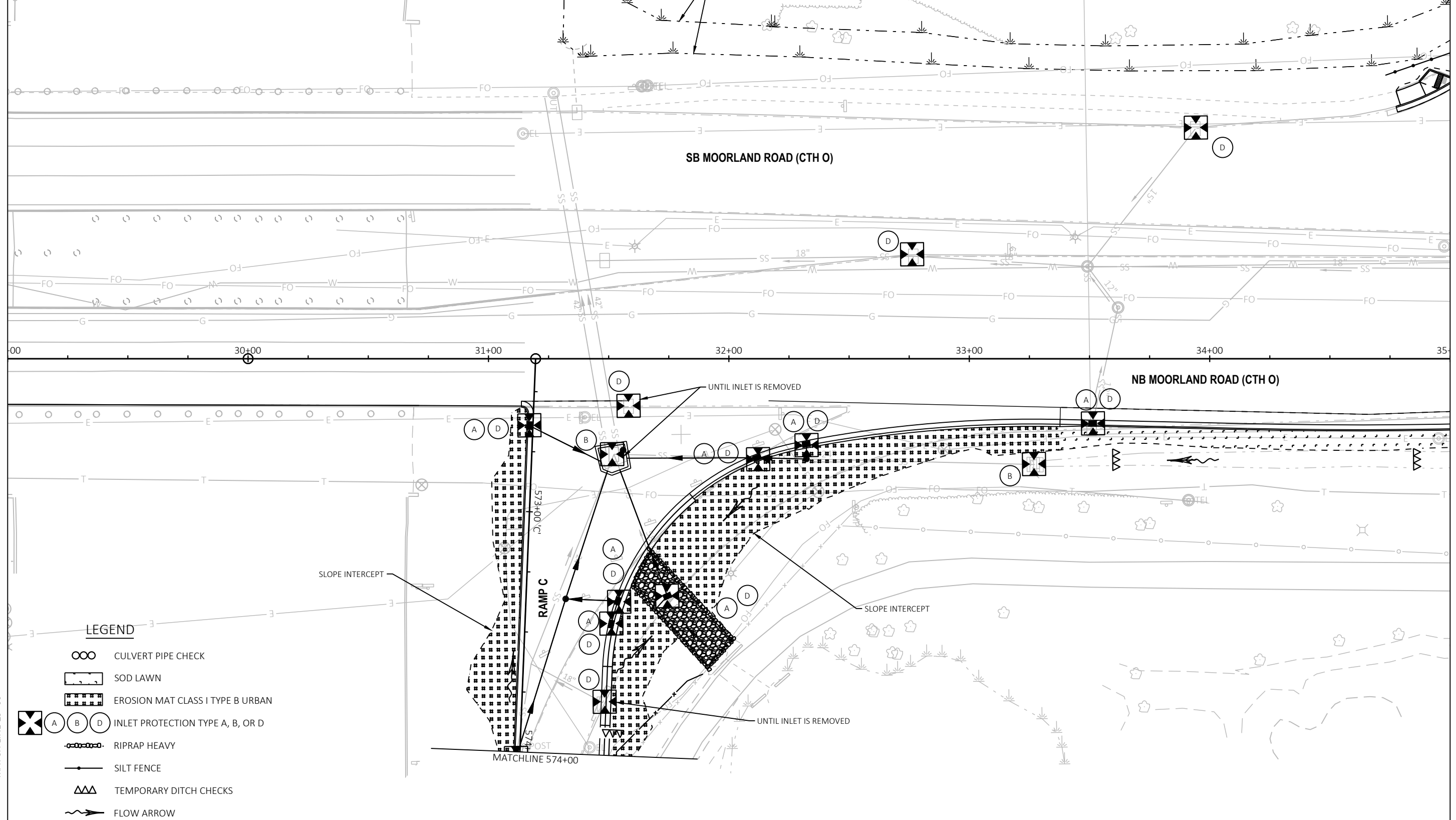
- ○ CULVERT PIPE CHECK
- ▭ SOD LAWN
- ▨ EROSION MAT CLASS I TYPE B URBAN
- ⊗ (A) (B) (D) INLET PROTECTION TYPE A, B, OR D
- RIPRAP HEAVY
- SILT FENCE
- △△ TEMPORARY DITCH CHECKS
- FLOW ARROW

CULVERT PIPE CHECK TO BE REMOVED WHEN CULVERT PIPE IS REMOVED

CULVERT PIPE CHECK TO BE REMOVED WHEN CULVERT PIPE IS REMOVED

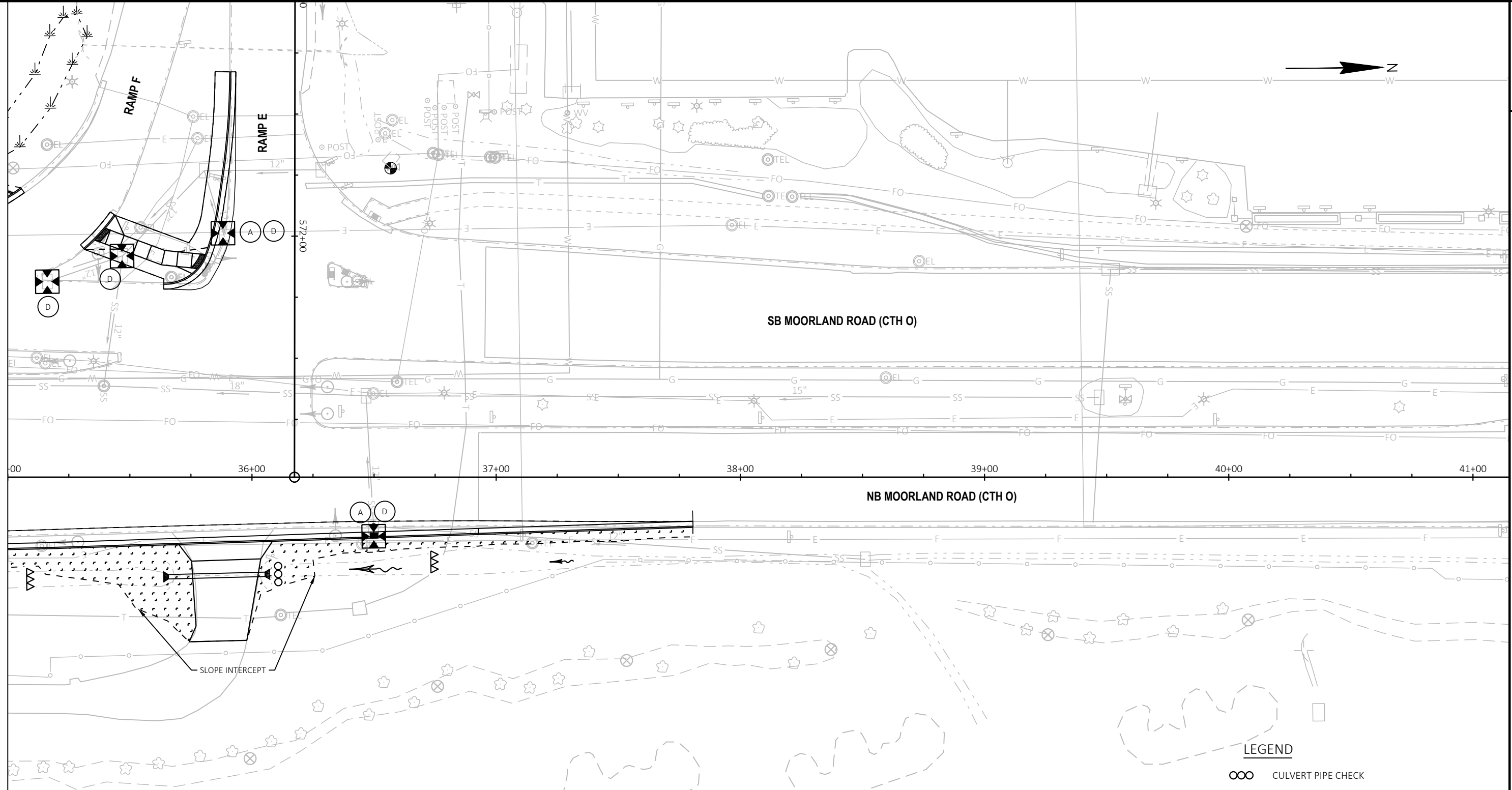
MATCH LINE 29+00

- NOTES:
1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EICP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
  2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
  3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
  4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
  5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.



LEGEND

- ○ ○ CULVERT PIPE CHECK
- ▭ SOD LAWN
- ▨ EROSION MAT CLASS I TYPE B URBAN
- ⊗ A ⊗ B ⊗ D INLET PROTECTION TYPE A, B, OR D
- ⊖ RIPRAP HEAVY
- SILT FENCE
- △ △ △ TEMPORARY DITCH CHECKS
- FLOW ARROW



- NOTES:
1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EICP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
  2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
  3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
  4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
  5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.

**LEGEND**

- ○ ○ CULVERT PIPE CHECK
- ▭ SOD LAWN
- ▨ EROSION MAT CLASS I TYPE B URBAN
- ⊗ (A) ⊗ (B) ⊗ (D) INLET PROTECTION TYPE A, B, OR D
- RIPRAP HEAVY
- |— SILT FENCE
- △△△ TEMPORARY DITCH CHECKS
- FLOW ARROW

MATCH LINE 35+00

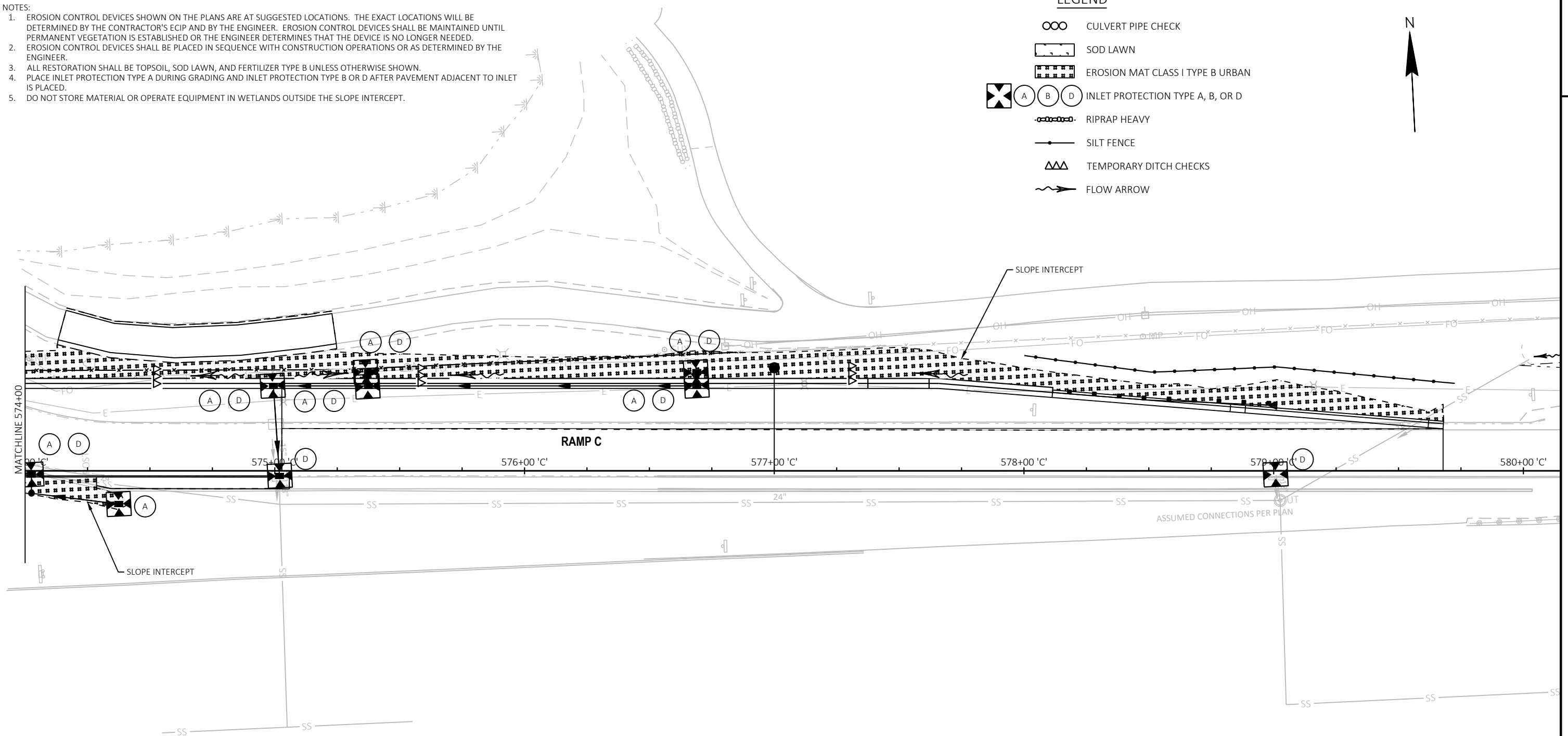


NOTES:

- 1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
- 2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
- 3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
- 4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
- 5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.

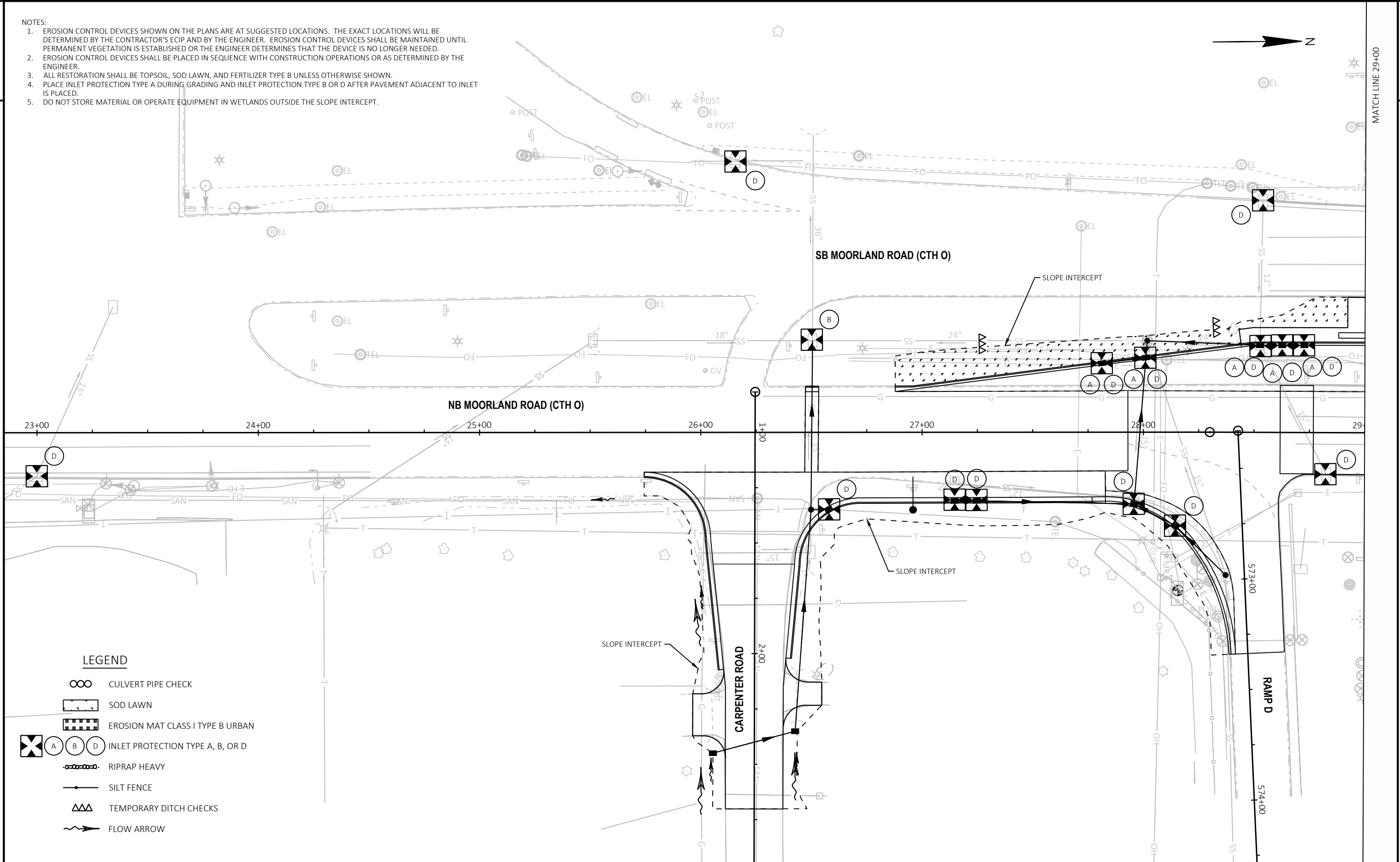
LEGEND

- OO CULVERT PIPE CHECK
- [Pattern] SOD LAWN
- [Pattern] EROSION MAT CLASS I TYPE B URBAN
- (A) (B) (D) INLET PROTECTION TYPE A, B, OR D
- [Symbol] RIPRAP HEAVY
- [Symbol] SILT FENCE
- [Symbol] TEMPORARY DITCH CHECKS
- [Symbol] FLOW ARROW



NOTES:

1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECI AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.

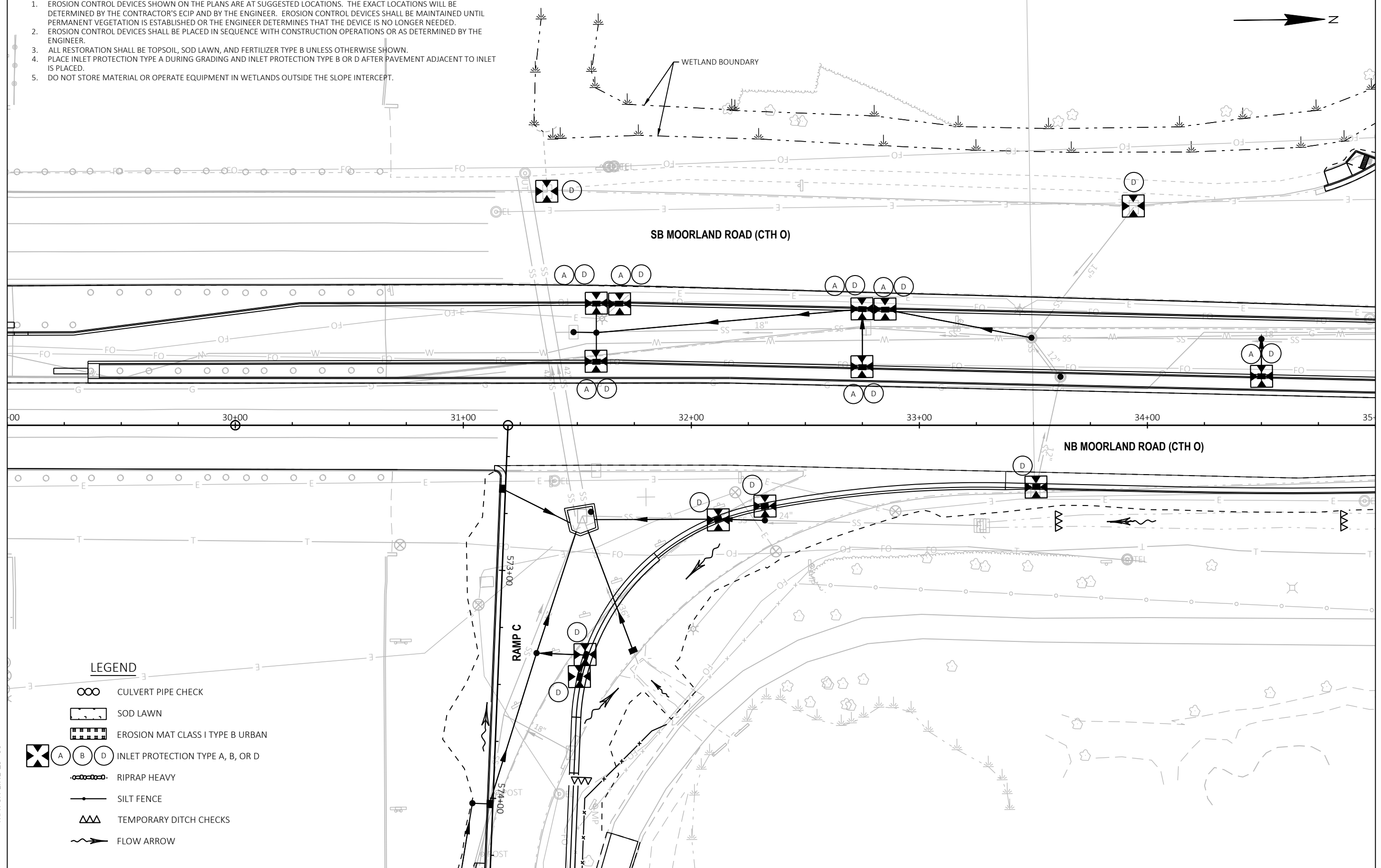


LEGEND

- ∞∞ CULVERT PIPE CHECK
- [SOD LAWN] SOD LAWN
- [EROSION MAT] EROSION MAT CLASS I TYPE B URBAN
- [INLET PROTECTION] INLET PROTECTION TYPE A, B, OR D
- [RIPRAP] RIPRAP HEAVY
- [SILT FENCE] SILT FENCE
- [TEMPORARY DITCH CHECKS] TEMPORARY DITCH CHECKS
- [FLOW ARROW] FLOW ARROW

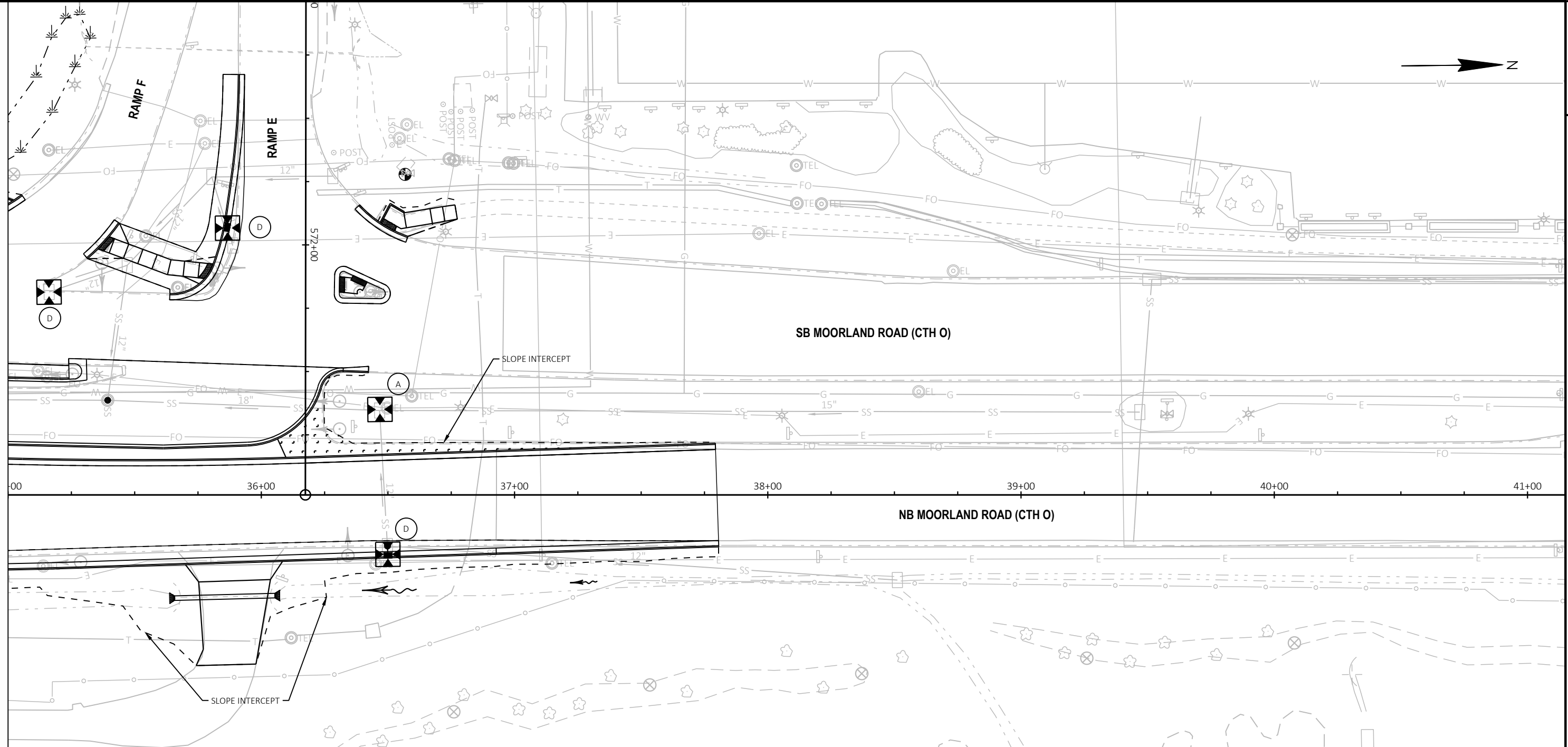
MATCH LINE 29+00

- NOTES:
1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EICP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
  2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
  3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
  4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
  5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.



LEGEND

- ∞ CULVERT PIPE CHECK
- [SOD LAWN] SOD LAWN
- [EROSION MAT] EROSION MAT CLASS I TYPE B URBAN
- [X] [A] [B] [D] INLET PROTECTION TYPE A, B, OR D
- [RIPRAP] RIPRAP HEAVY
- [SILT FENCE] SILT FENCE
- [DITCH CHECKS] TEMPORARY DITCH CHECKS
- [FLOW ARROW] FLOW ARROW



MATCH LINE 35+00

- NOTES:
1. EROSION CONTROL DEVICES SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER NEEDED.
  2. EROSION CONTROL DEVICES SHALL BE PLACED IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER.
  3. ALL RESTORATION SHALL BE TOPSOIL, SOD LAWN, AND FERTILIZER TYPE B UNLESS OTHERWISE SHOWN.
  4. PLACE INLET PROTECTION TYPE A DURING GRADING AND INLET PROTECTION TYPE B OR D AFTER PAVEMENT ADJACENT TO INLET IS PLACED.
  5. DO NOT STORE MATERIAL OR OPERATE EQUIPMENT IN WETLANDS OUTSIDE THE SLOPE INTERCEPT.






**LEGEND**

- CULVERT PIPE CHECK
- SOD LAWN
- EROSION MAT CLASS I TYPE B URBAN
- INLET PROTECTION TYPE A, B, OR D
- RIPRAP HEAVY
- SILT FENCE
- TEMPORARY DITCH CHECKS
- FLOW ARROW

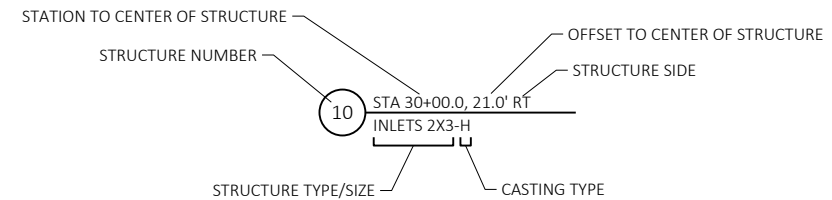
**GENERAL DRAINAGE NOTES**

1. STATION AND OFFSET OF MANHOLES, INLETS, AND FIELD INLETS ARE GIVEN TO THE CENTER OF STRUCTURE.
2. STATION AND OFFSET OF ENDWALLS ARE GIVEN TO THE END OF PIPE.
3. PIPE LENGTHS ARE DIMENSIONED CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4. RIM ELEVATIONS ARE GIVEN AT FLANGE LINE OF CURB AND GUTTER FOR CURB INLETS, TO THE CENTER OF COVER FOR MANHOLES, AND TO CENTER OF THE COVER FOR FIELD INLETS.
5. STRUCTURE DEPTH CALCULATIONS FOR MANHOLES AND CATCH BASINS USE A 6-INCH ADJUSTMENT. NO ADJUSTMENT IS USED IN CALCULATING STRUCTURE DEPTH OF INLETS MEDIAN 1 GRATE.
6. STORM SEWER PIPE REINFORCED CONCRETE PIPE CLASS COVER DEPTH FOR DETERMINING PIPE CLASS IS MEASURED FROM THE BOTTOM OF THE BASE AGGREGATE DENSE 1 1/4-INCH LAYER.
7. VERIFY THE LOCATION, SIZE, AND ELEVATION OF ALL CONNECTIONS TO EXISTING DRAINAGE FACILITIES PRIOR TO ORDERING DRAINAGE STRUCTURES AND PIPES. NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE INFORMATION SHOWN ON THE PLANS PRIOR TO INSTALLING ANY DRAINAGE PIPES OR STRUCTURES.
8. PROVIDE TEMPORARY POSITIVE DRAINAGE THROUGHOUT THE PROJECT DURING ALL STAGES. PROVIDING TEMPORARY DRAINAGE IS INCIDENTAL TO CONSTRUCTION UNLESS OTHERWISE SHOWN IN THE TRAFFIC CONTROL/STAGING PLANS.
9. SUPPORTING UTILITIES DURING STORM SEWER CONSTRUCTION IS INCIDENTAL TO STORM SEWER PIPE AND/OR STORM SEWER STRUCTURE CONSTRUCTION.
10. PLAN VIEW HIGHLIGHTING ALONG STORM SEWER PIPES REPRESENTS THE STORM SEWER PROFILE SHOWN IN THE PROFILE VIEW BELOW ON THE SAME STORM SEWER SHEET.
11. CONCRETE COLLARS FOR PIPE SHALL ONLY BE PAID FOR WHEN SHOWN IN THE PLANS. ALL OTHER CONNECTIONS BETWEEN PIPES AND STORM SEWER STRUCTURES SHALL BE INCIDENTAL TO THE STORM SEWER PIPE OR STORM SEWER STRUCTURE.

**STORM SEWER LEGEND**

-  STORM SEWER STRUCTURE NUMBER IN PROFILE VIEW WITH RIM ELEVATION
-  STORM SEWER PIPE NUMBER
-  CONCRETE COLLARS FOR PIPE
-  RECONNECT STORM SEWER LATERAL
-  PIPE RUN SHOWN IN PROFILE VIEW ON CURRENT SHEET

**STORM SEWER STRUCTURE ANNOTATION LEGEND**

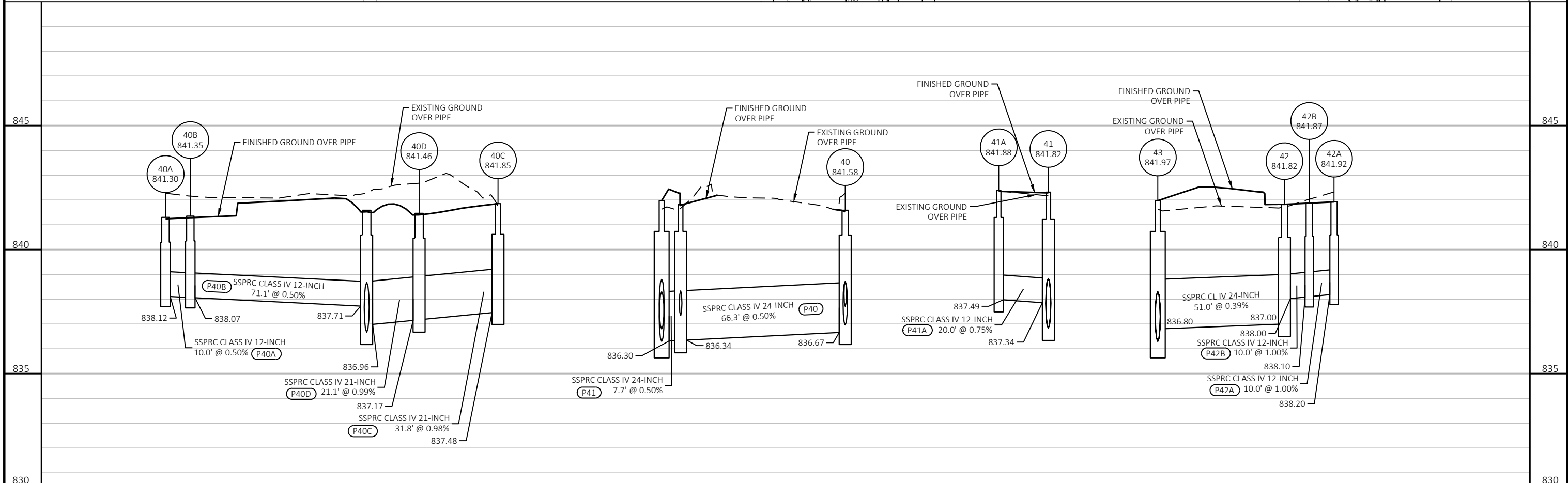
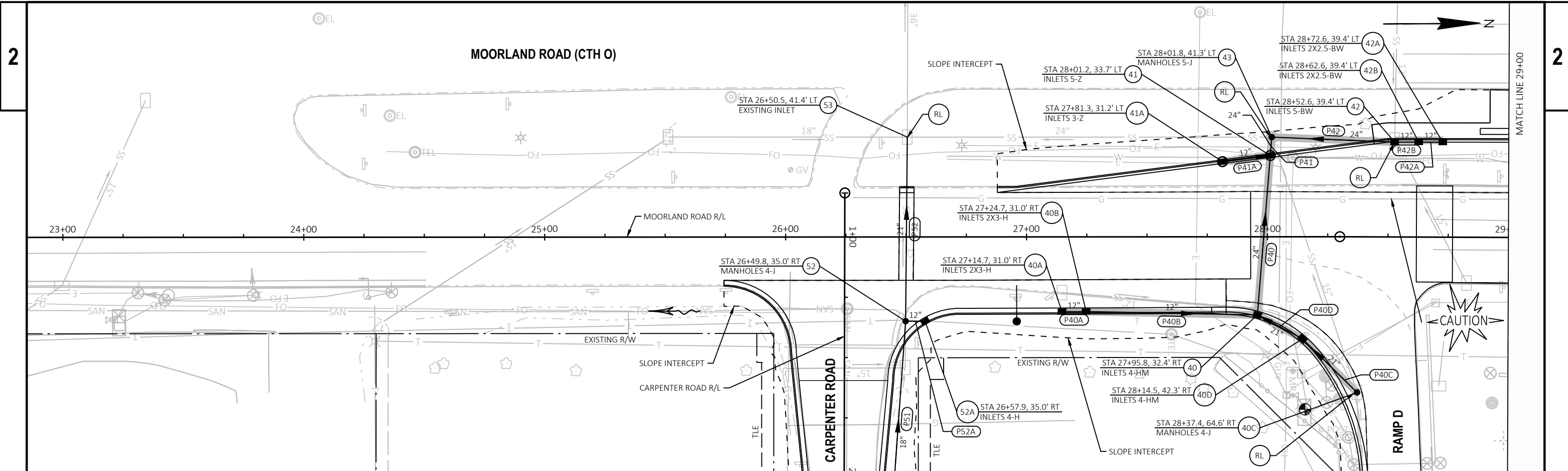


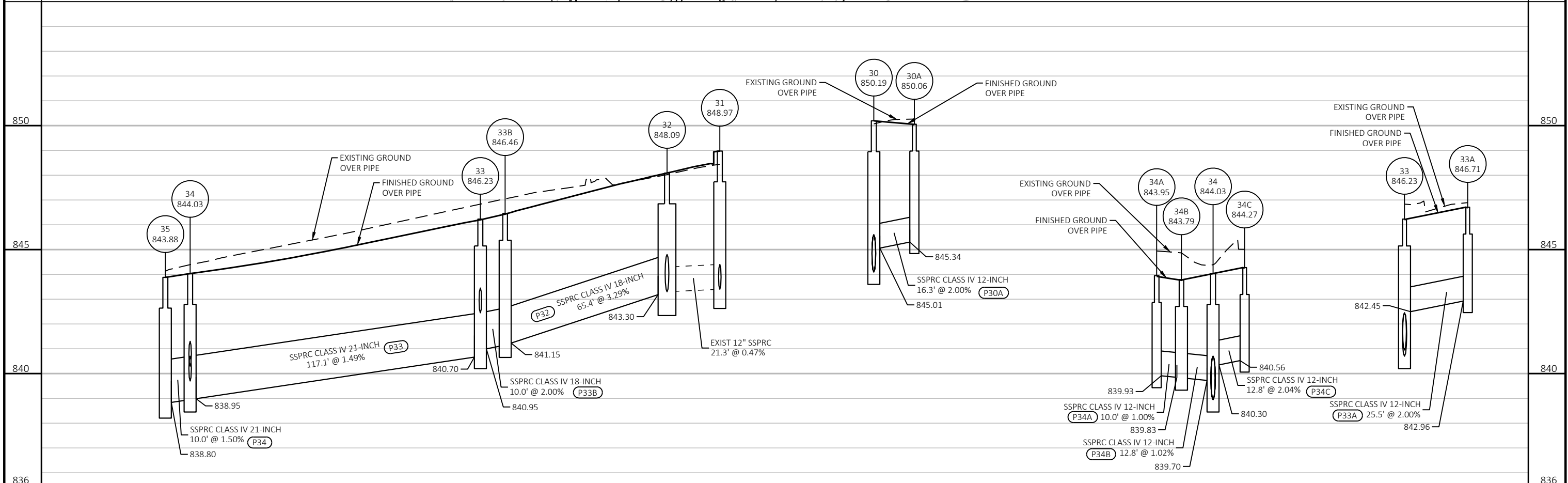
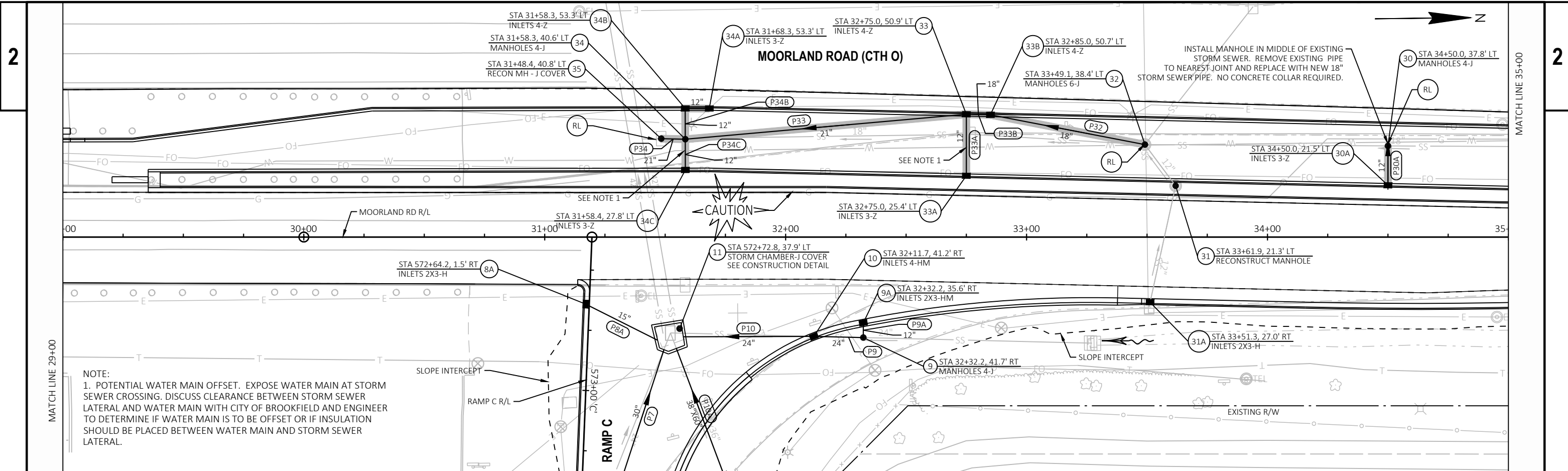
**STRUCTURE TYPES**

INLETS 3	INLETS 3-FT DIAMETER
INLETS 4	INLETS 4-FT DIAMETER
INLETS 5	INLETS 5-FT DIAMETER
INLETS 2X2	INLETS 2X2-FT
INLETS 2X2.5	INLETS 2X2.5-FT
INLETS 2X3	INLETS 2X3-FT
INLETS MEDIAN 1G	INLETS MEDIAN 1 GRATE
INLETS MEDIAN 3G	INLETS MEDIAN 3 GRATE MODIFIED
MANHOLE 4	MANHOLE 4-FT DIAMETER
MANHOLE 5	MANHOLE 5-FT DIAMETER
MANHOLE 6	MANHOLE 6-FT DIAMETER
MANHOLE 3X3	MANHOLE 3X3-FT

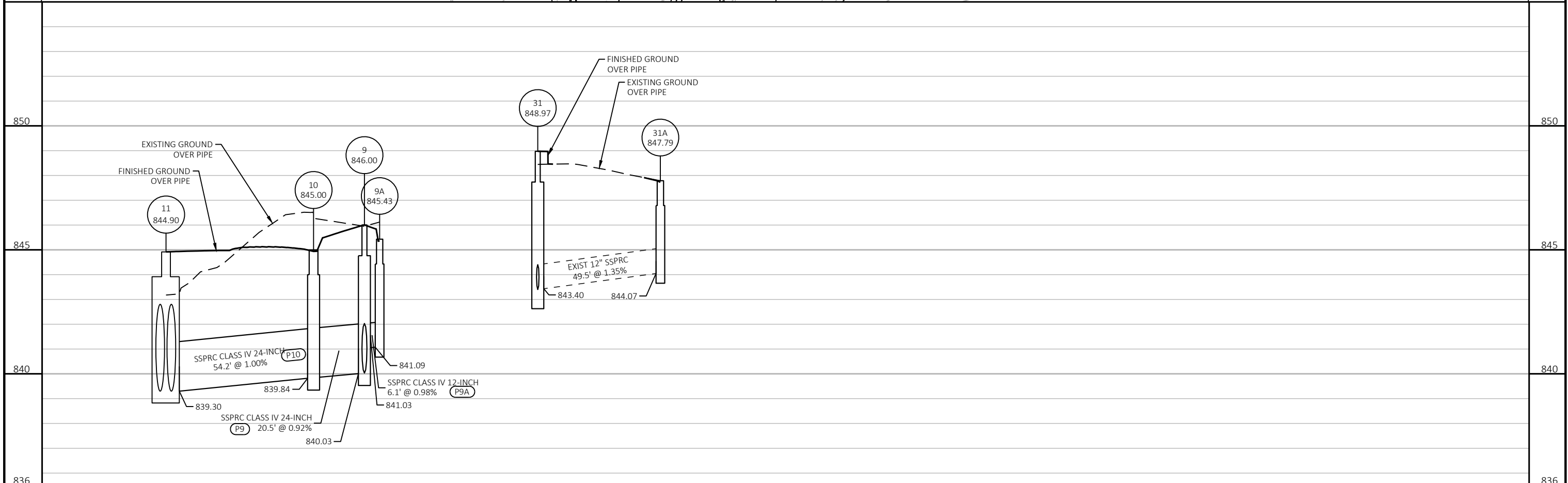
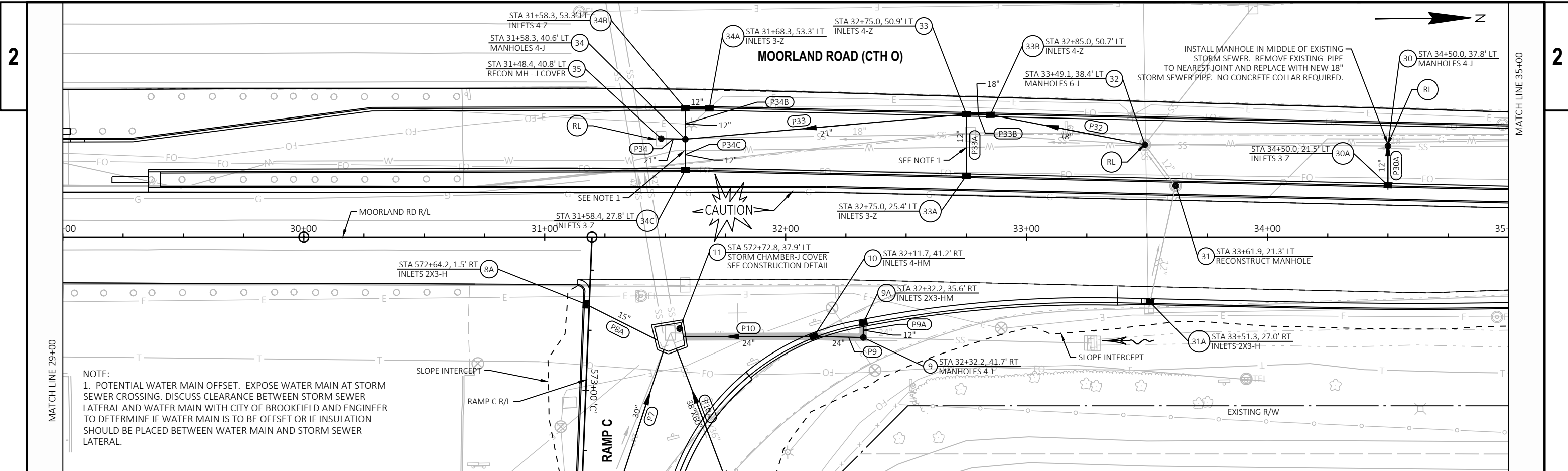
**CASTING TYPES**

B	INLET COVERS TYPE B
BW	INLET COVERS TYPE BW
H	INLET COVERS TYPE H
HM	INLET COVERS TYPE HM
J	MANHOLE COVERS TYPE J
MS	INLET COVERS TYPE MS
S	INLET COVERS TYPE S
Z	INLET COVERS TYPE Z



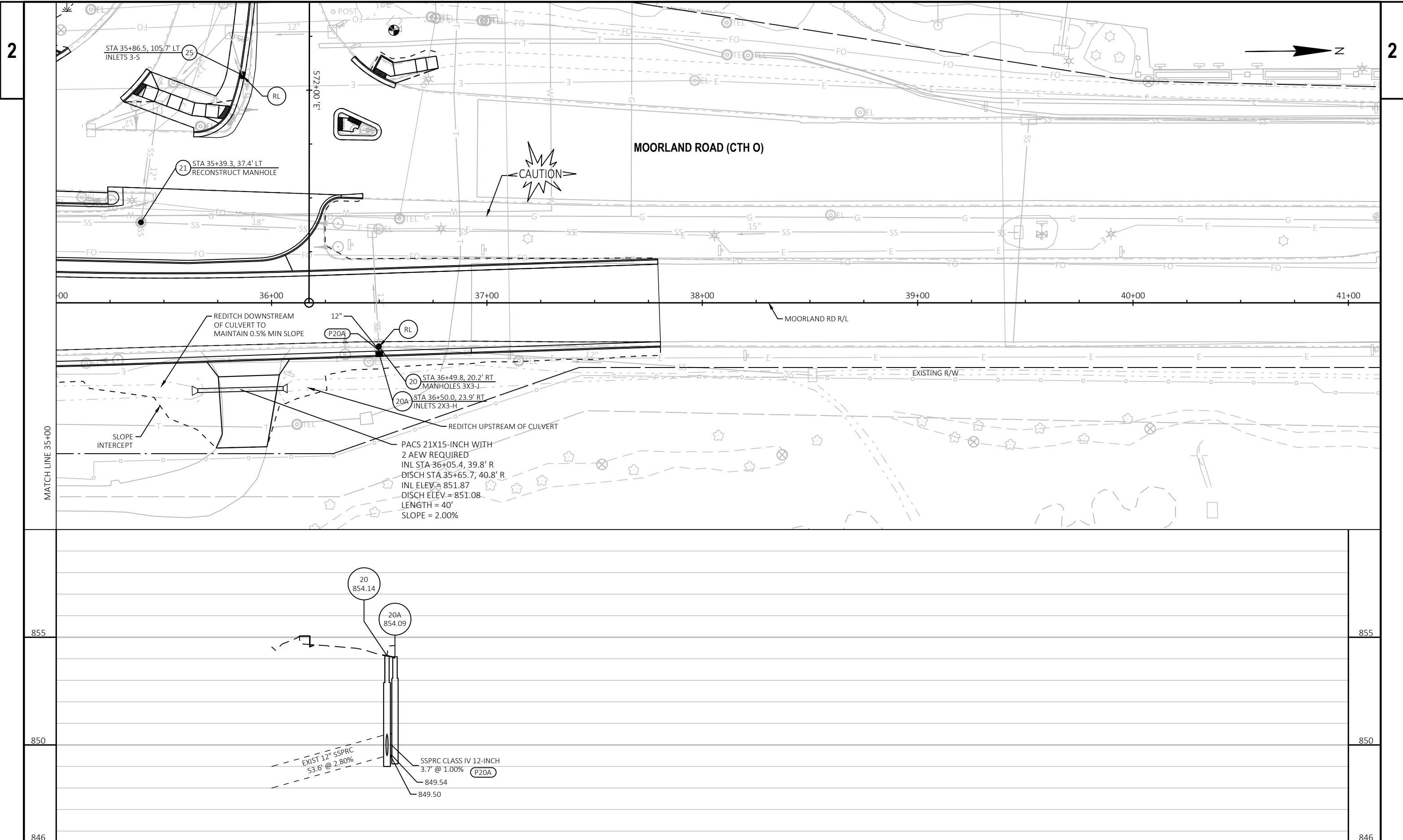


PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	STORM SEWER - MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	-----------------------------	-------	---

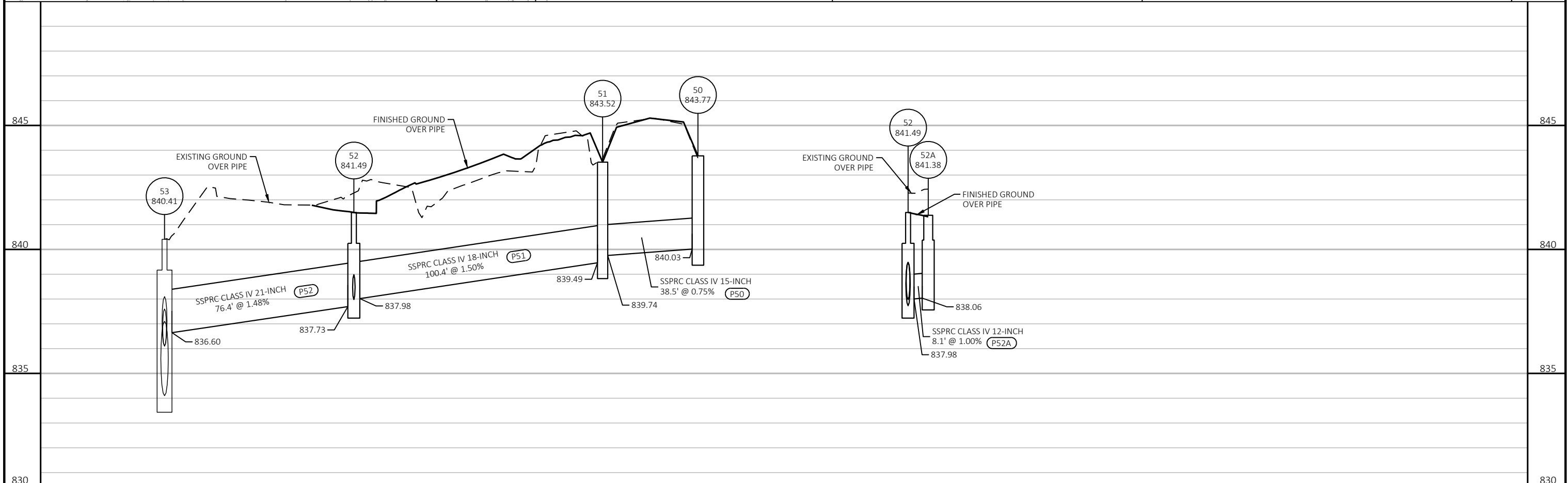
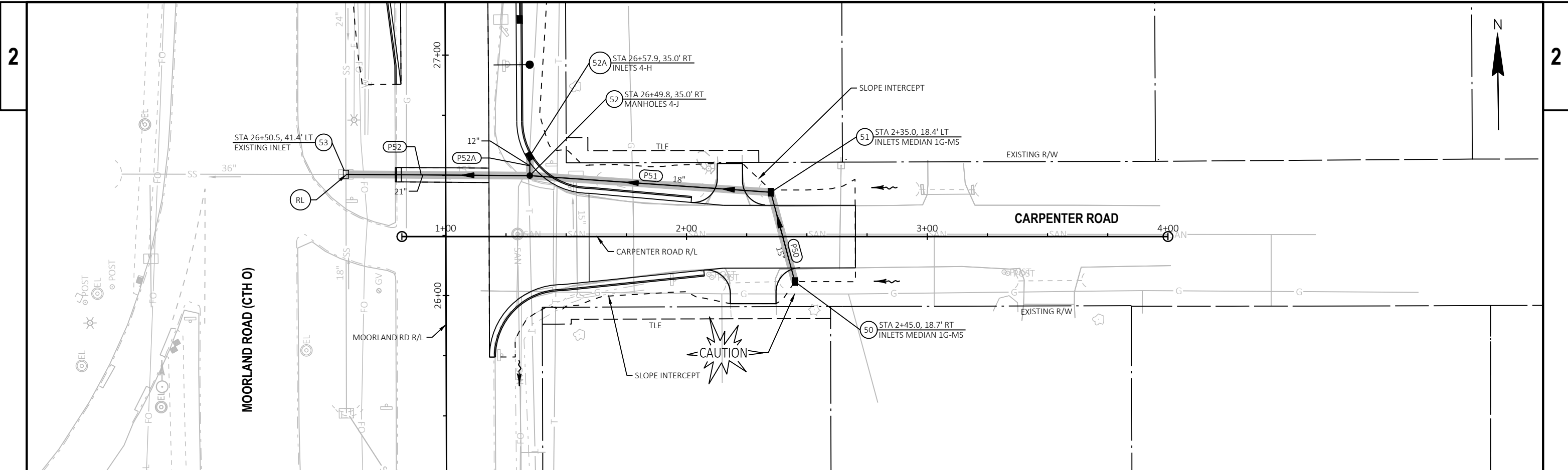


PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	STORM SEWER - MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	-----------------------------	-------	---

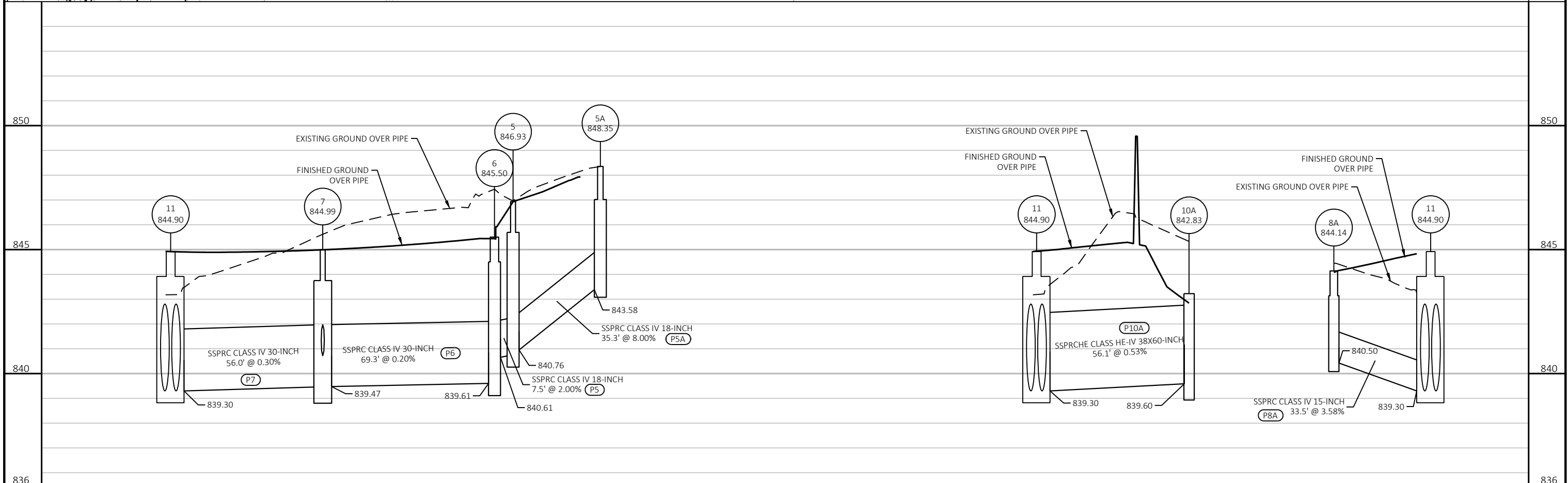
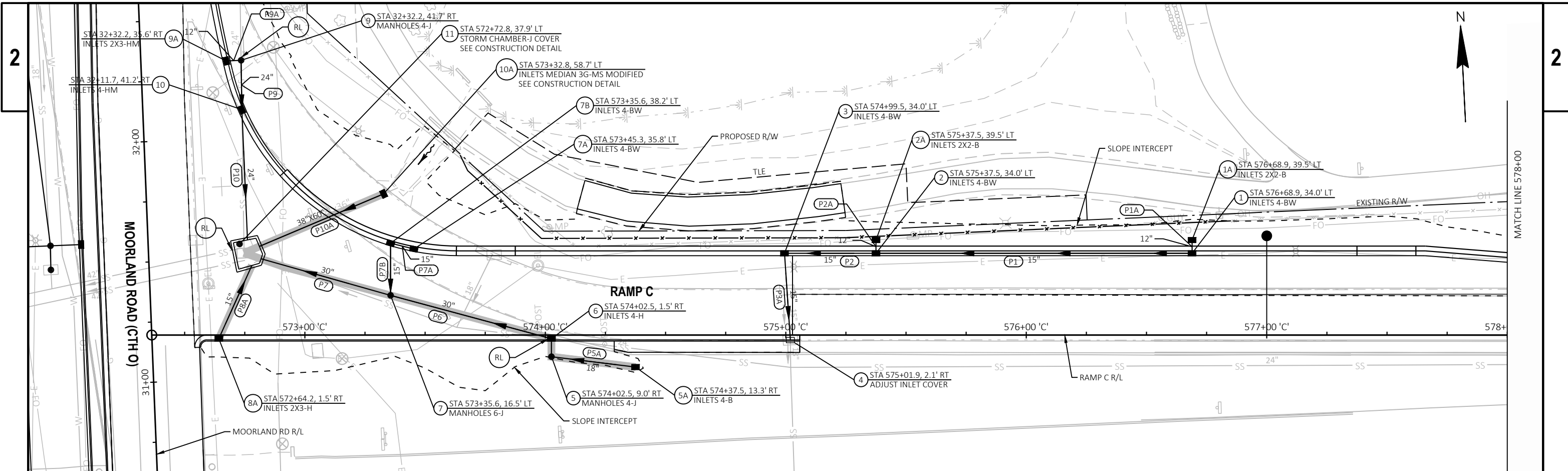




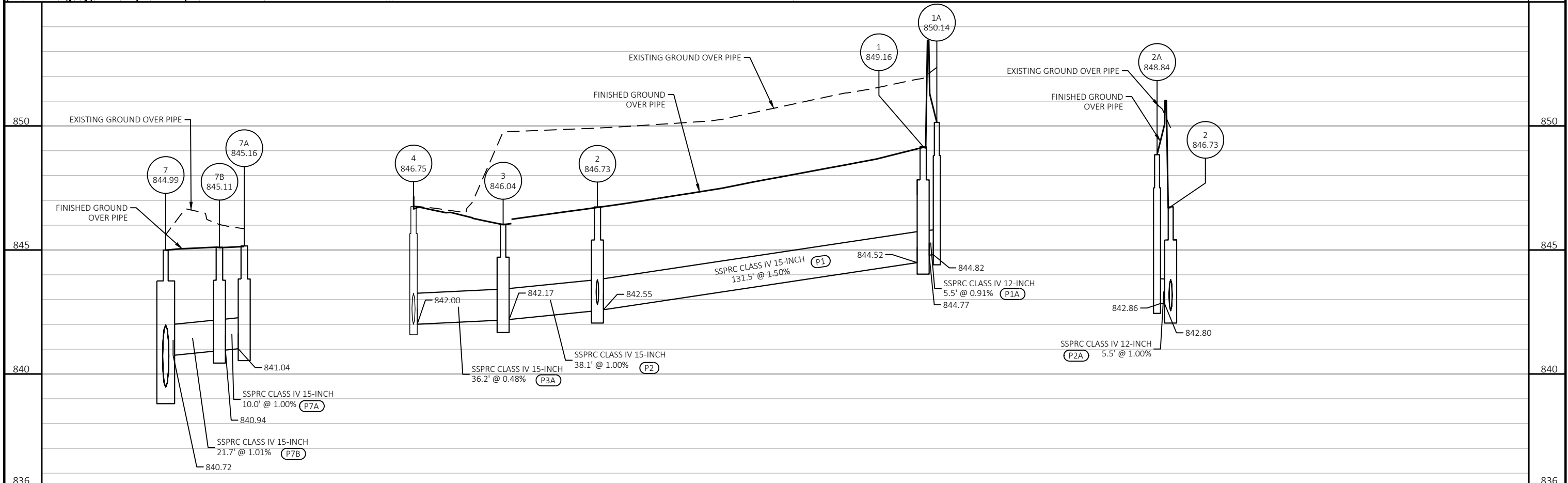
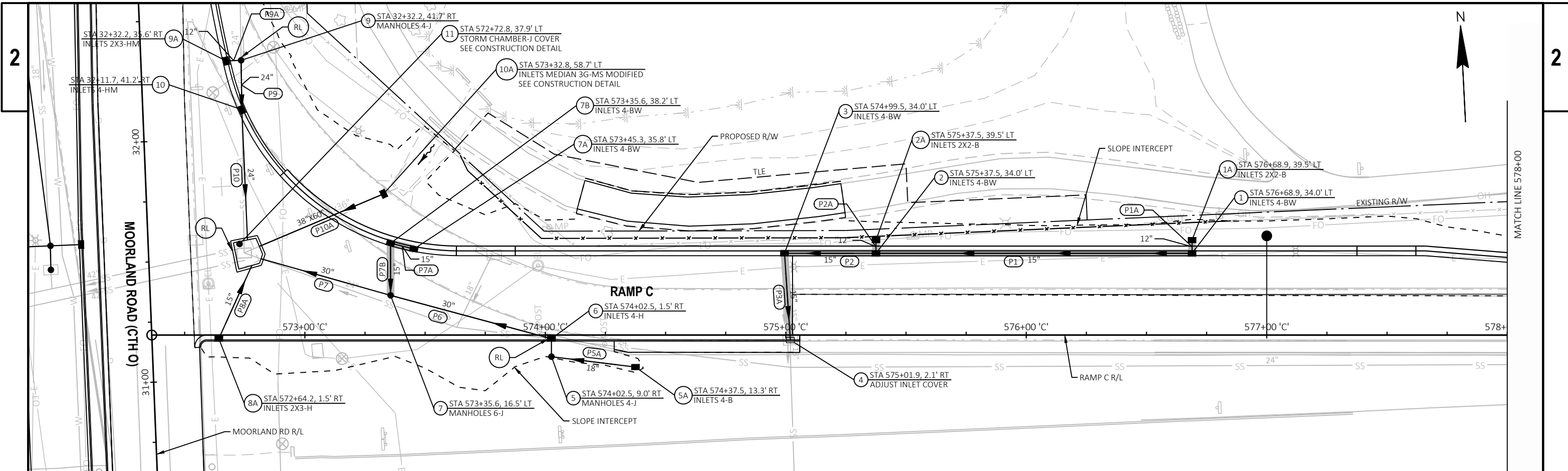
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	STORM SEWER - MOORLAND ROAD	SHEET	<b>E</b>
------------------------	------------	------------------	-----------------------------	-------	----------



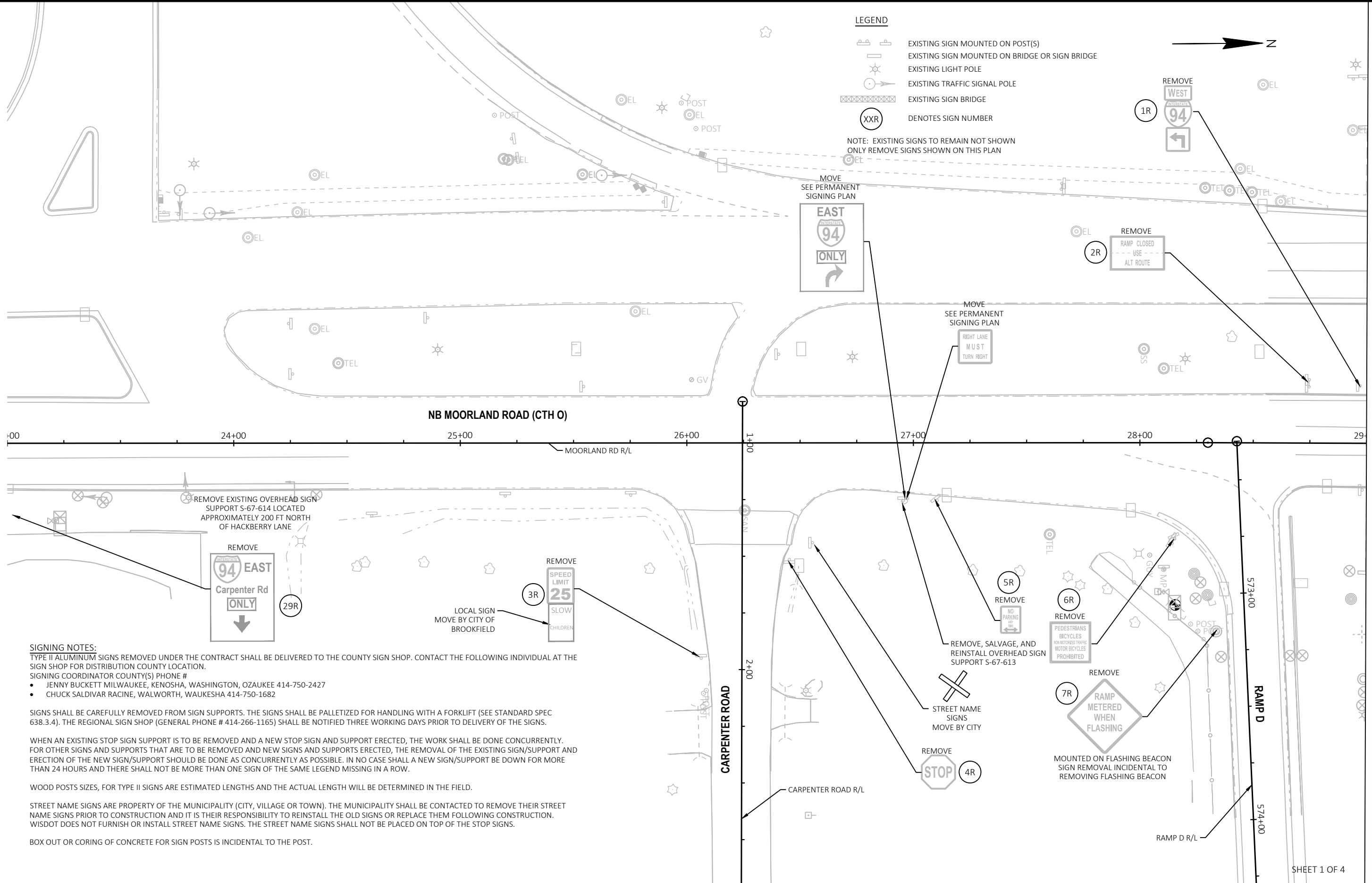
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	STORM SEWER - CARPENTER ROAD	SHEET	<b>E</b>
------------------------	------------	------------------	------------------------------	-------	----------



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	STORM SEWER - RAMP C	SHEET E
------------------------	------------	------------------	----------------------	---------



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	STORM SEWER - RAMP C	SHEET	E
------------------------	------------	------------------	----------------------	-------	---



LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- EXISTING LIGHT POLE
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING SIGN BRIDGE
- DENOTES SIGN NUMBER

NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN ONLY REMOVE SIGNS SHOWN ON THIS PLAN

SIGNING NOTES:

TYPE II ALUMINUM SIGNS REMOVED UNDER THE CONTRACT SHALL BE DELIVERED TO THE COUNTY SIGN SHOP. CONTACT THE FOLLOWING INDIVIDUAL AT THE SIGN SHOP FOR DISTRIBUTION COUNTY LOCATION.  
 SIGNING COORDINATOR COUNTY(S) PHONE #  
 • JENNY BUCKETT MILWAUKEE, KENOSHA, WASHINGTON, OZAUKEE 414-750-2427  
 • CHUCK SALDIVAR RACINE, WALWORTH, WAUKESHA 414-750-1682

SIGNS SHALL BE CAREFULLY REMOVED FROM SIGN SUPPORTS. THE SIGNS SHALL BE PALLETIZED FOR HANDLING WITH A FORKLIFT (SEE STANDARD SPEC 638.3.4). THE REGIONAL SIGN SHOP (GENERAL PHONE # 414-266-1165) SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF THE SIGNS.

WHEN AN EXISTING STOP SIGN SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED, THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNS ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

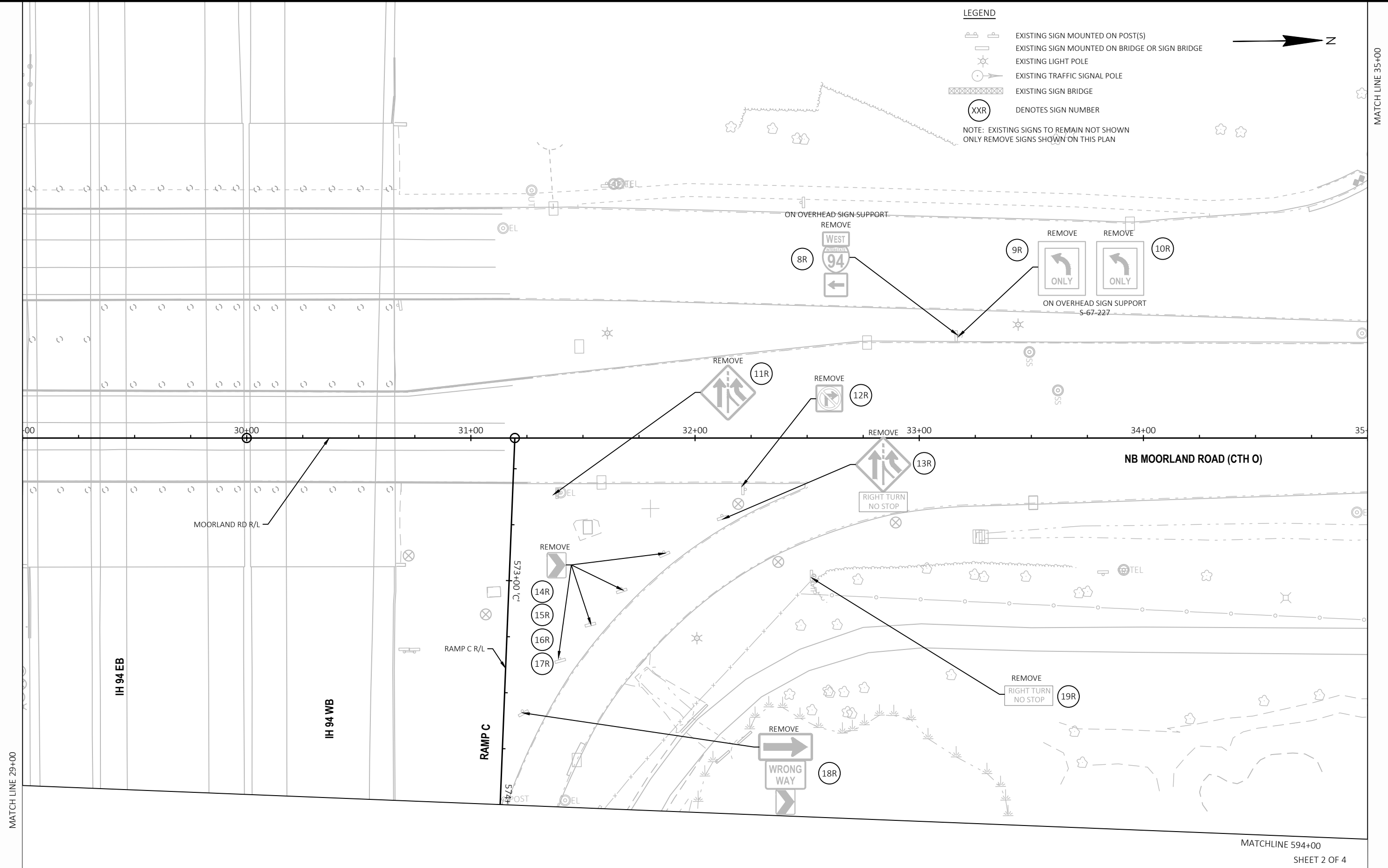
STREET NAME SIGNS ARE PROPERTY OF THE MUNICIPALITY (CITY, VILLAGE OR TOWN). THE MUNICIPALITY SHALL BE CONTACTED TO REMOVE THEIR STREET NAME SIGNS PRIOR TO CONSTRUCTION AND IT IS THEIR RESPONSIBILITY TO REINSTALL THE OLD SIGNS OR REPLACE THEM FOLLOWING CONSTRUCTION. WISDOT DOES NOT FURNISH OR INSTALL STREET NAME SIGNS. THE STREET NAME SIGNS SHALL NOT BE PLACED ON TOP OF THE STOP SIGNS.

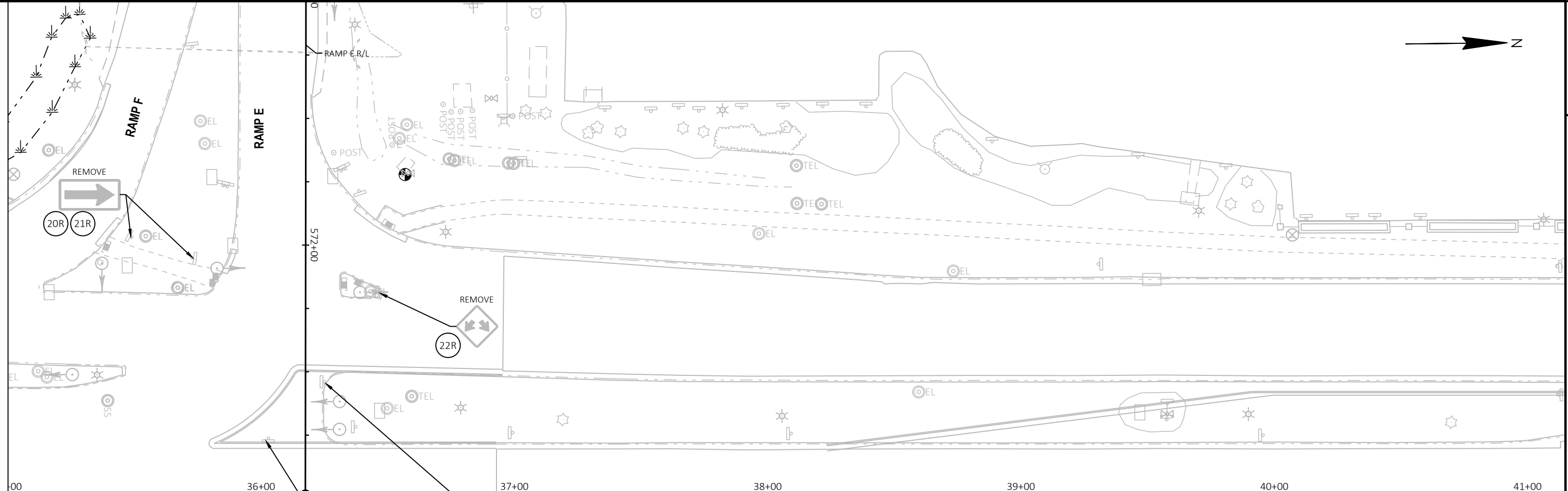
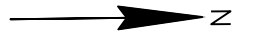
BOX OUT OR CORING OF CONCRETE FOR SIGN POSTS IS INCIDENTAL TO THE POST.

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- EXISTING LIGHT POLE
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING SIGN BRIDGE
- DENOTES SIGN NUMBER

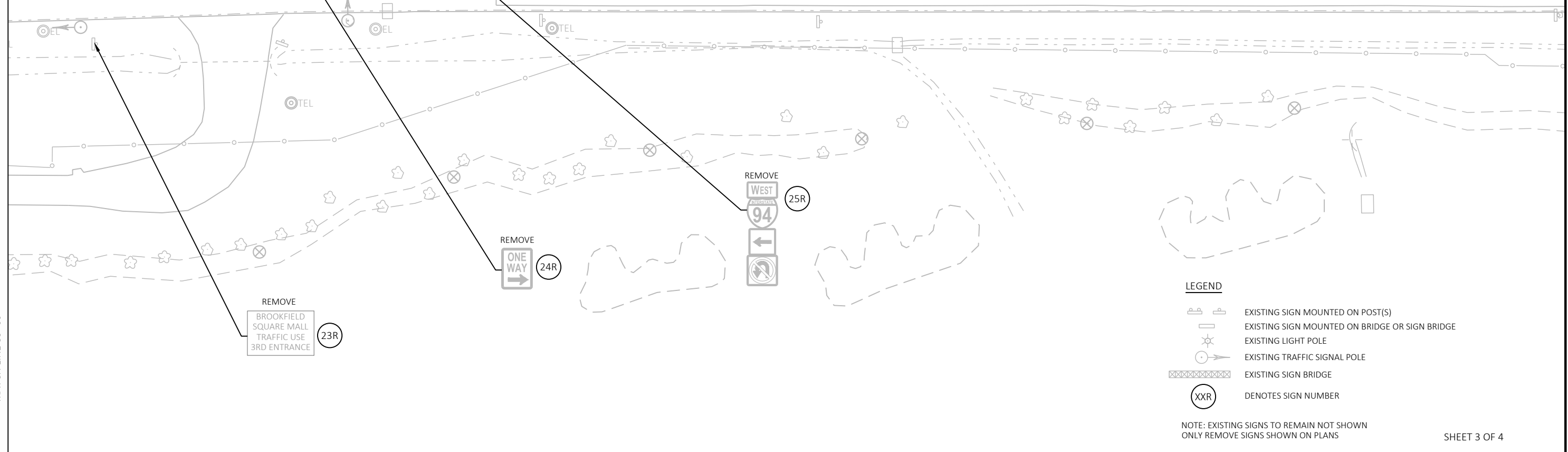
NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN  
ONLY REMOVE SIGNS SHOWN ON THIS PLAN





00 36+00 37+00 38+00 39+00 40+00 41+00

MOORLAND RD R/L NB MOORLAND ROAD (CTH O)



- LEGEND**
- EXISTING SIGN MOUNTED ON POST(S)
  - EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
  - EXISTING LIGHT POLE
  - EXISTING TRAFFIC SIGNAL POLE
  - EXISTING SIGN BRIDGE
  - DENOTES SIGN NUMBER

NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN  
ONLY REMOVE SIGNS SHOWN ON PLANS

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- EXISTING LIGHT POLE
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING SIGN BRIDGE
- DENOTES SIGN NUMBER

NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN  
ONLY REMOVE SIGNS SHOWN ON PLANS

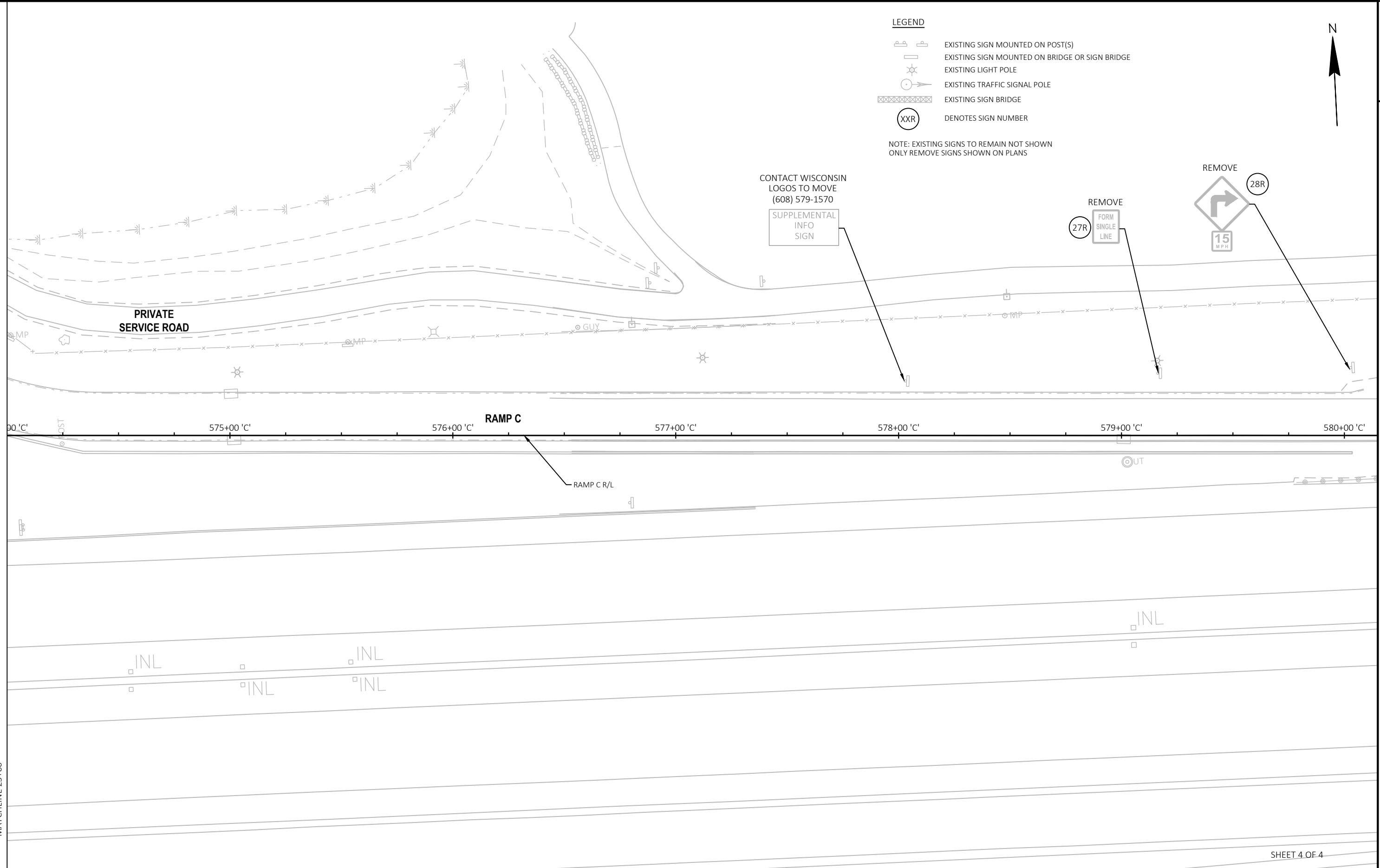


CONTACT WISCONSIN  
LOGOS TO MOVE  
(608) 579-1570

SUPPLEMENTAL  
INFO  
SIGN

REMOVE  
FORM  
SINGLE  
LINE

REMOVE  
  
28R



MATCHLINE 23+00

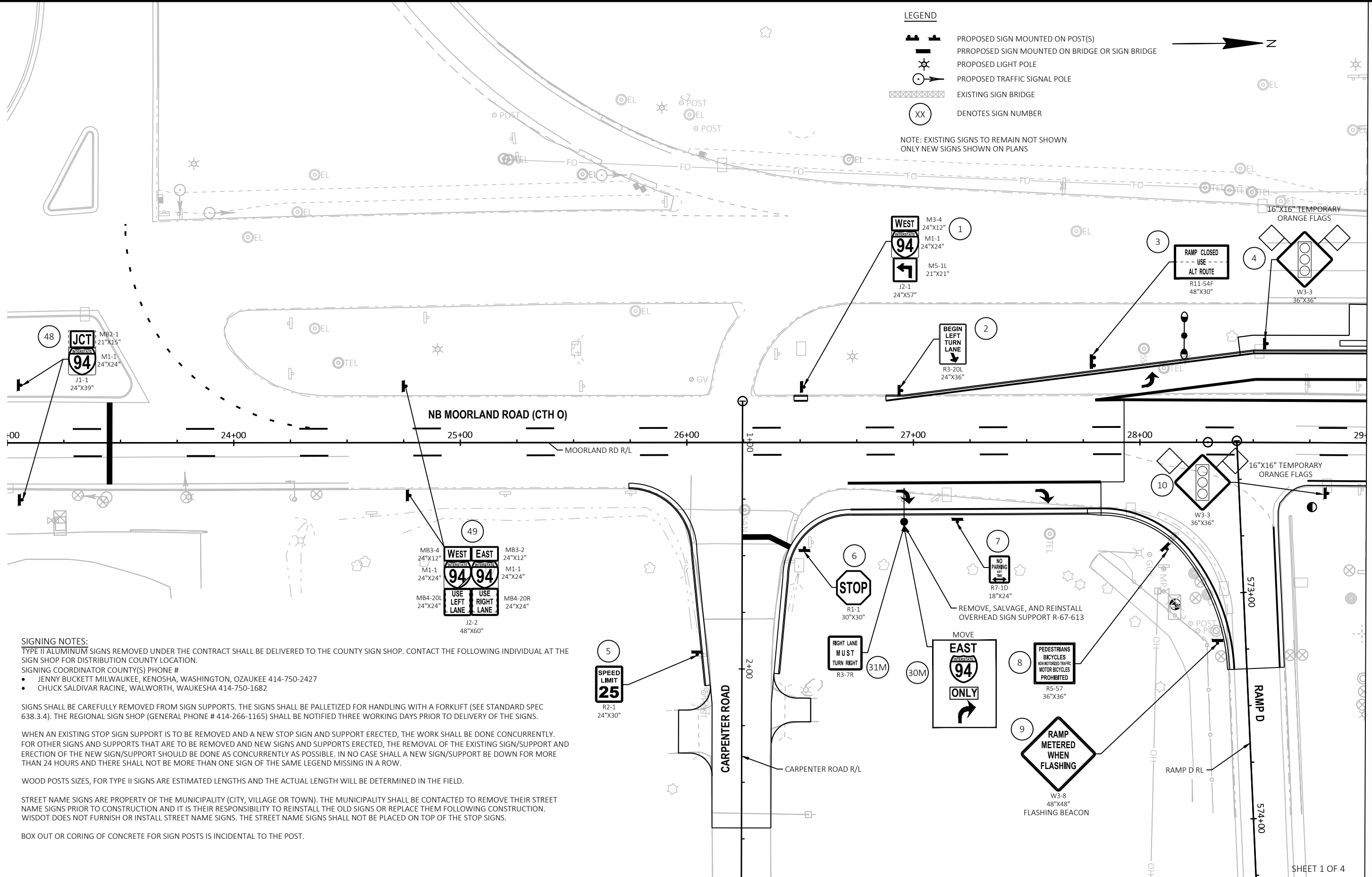
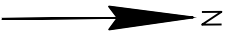
SHEET 4 OF 4



LEGEND

- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED LIGHT POLE
- PROPOSED TRAFFIC SIGNAL POLE
- EXISTING SIGN BRIDGE
- DENOTES SIGN NUMBER

NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN ONLY NEW SIGNS SHOWN ON PLANS



**SIGNING NOTES:**  
 TYPE II ALUMINUM SIGNS REMOVED UNDER THE CONTRACT SHALL BE DELIVERED TO THE COUNTY SIGN SHOP. CONTACT THE FOLLOWING INDIVIDUAL AT THE SIGN SHOP FOR DISTRIBUTION COUNTY LOCATION.  
 SIGNING COORDINATOR COUNTY(S) PHONE #  
 • JENNY BUCKETT MILWAUKEE, KENOSHA, WASHINGTON, OZAUKEE 414-750-2427  
 • CHUCK SALDIVAR RACINE, WALWORTH, WAUKESHA 414-750-1682

SIGNS SHALL BE CAREFULLY REMOVED FROM SIGN SUPPORTS. THE SIGNS SHALL BE PALLETIZED FOR HANDLING WITH A FORKLIFT (SEE STANDARD SPEC 638.3.4). THE REGIONAL SIGN SHOP (GENERAL PHONE # 414-266-1165) SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF THE SIGNS.

WHEN AN EXISTING STOP SIGN SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED, THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNS ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

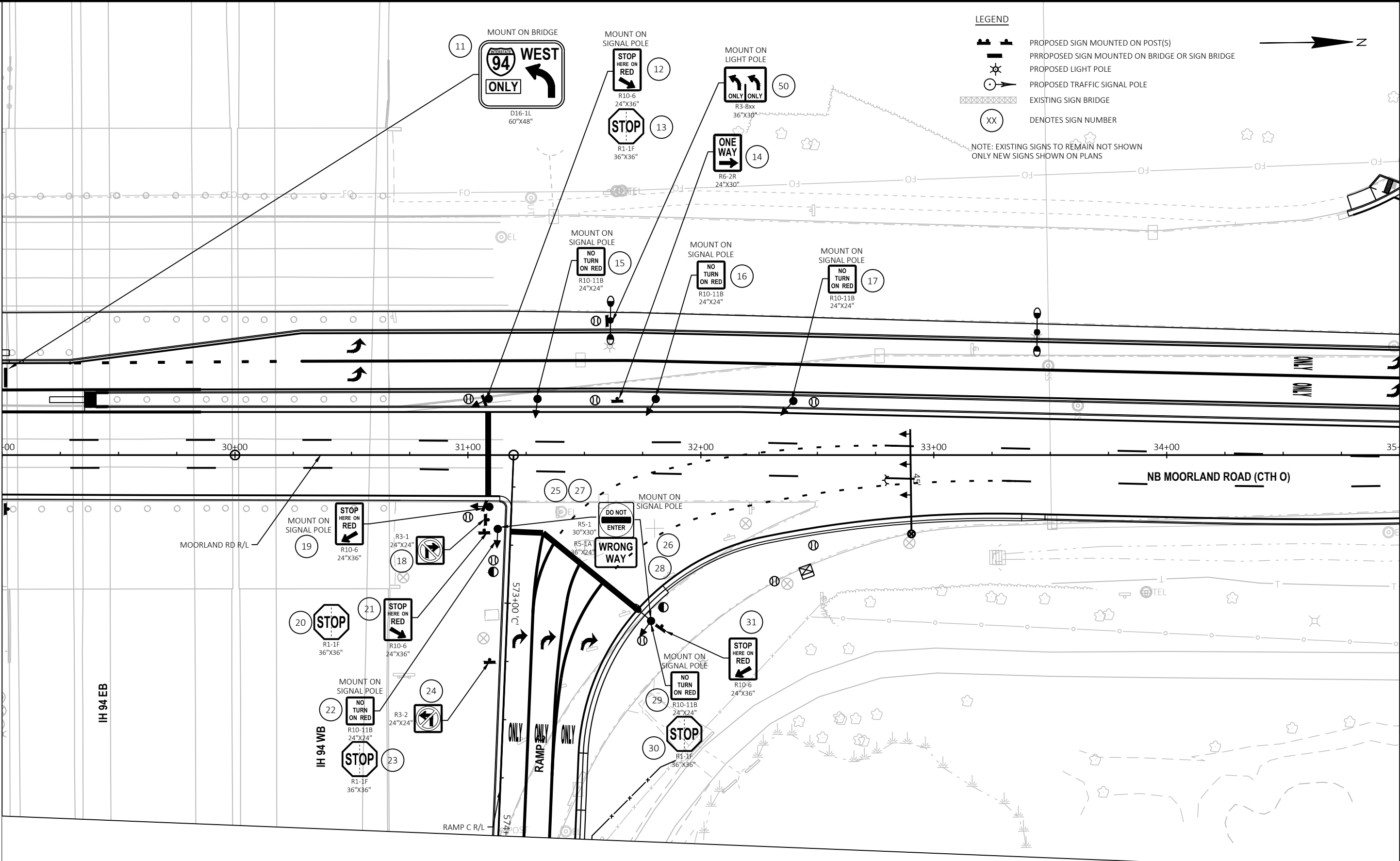
STREET NAME SIGNS ARE PROPERTY OF THE MUNICIPALITY (CITY, VILLAGE OR TOWN). THE MUNICIPALITY SHALL BE CONTACTED TO REMOVE THEIR STREET NAME SIGNS PRIOR TO CONSTRUCTION AND IT IS THEIR RESPONSIBILITY TO REINSTALL THE OLD SIGNS OR REPLACE THEM FOLLOWING CONSTRUCTION. WISDOT DOES NOT FURNISH OR INSTALL STREET NAME SIGNS. THE STREET NAME SIGNS SHALL NOT BE PLACED ON TOP OF THE STOP SIGNS.

BOX OUT OR CORING OF CONCRETE FOR SIGN POSTS IS INCIDENTAL TO THE POST.

LEGEND

- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED LIGHT POLE
- PROPOSED TRAFFIC SIGNAL POLE
- EXISTING SIGN BRIDGE
- DENOTES SIGN NUMBER

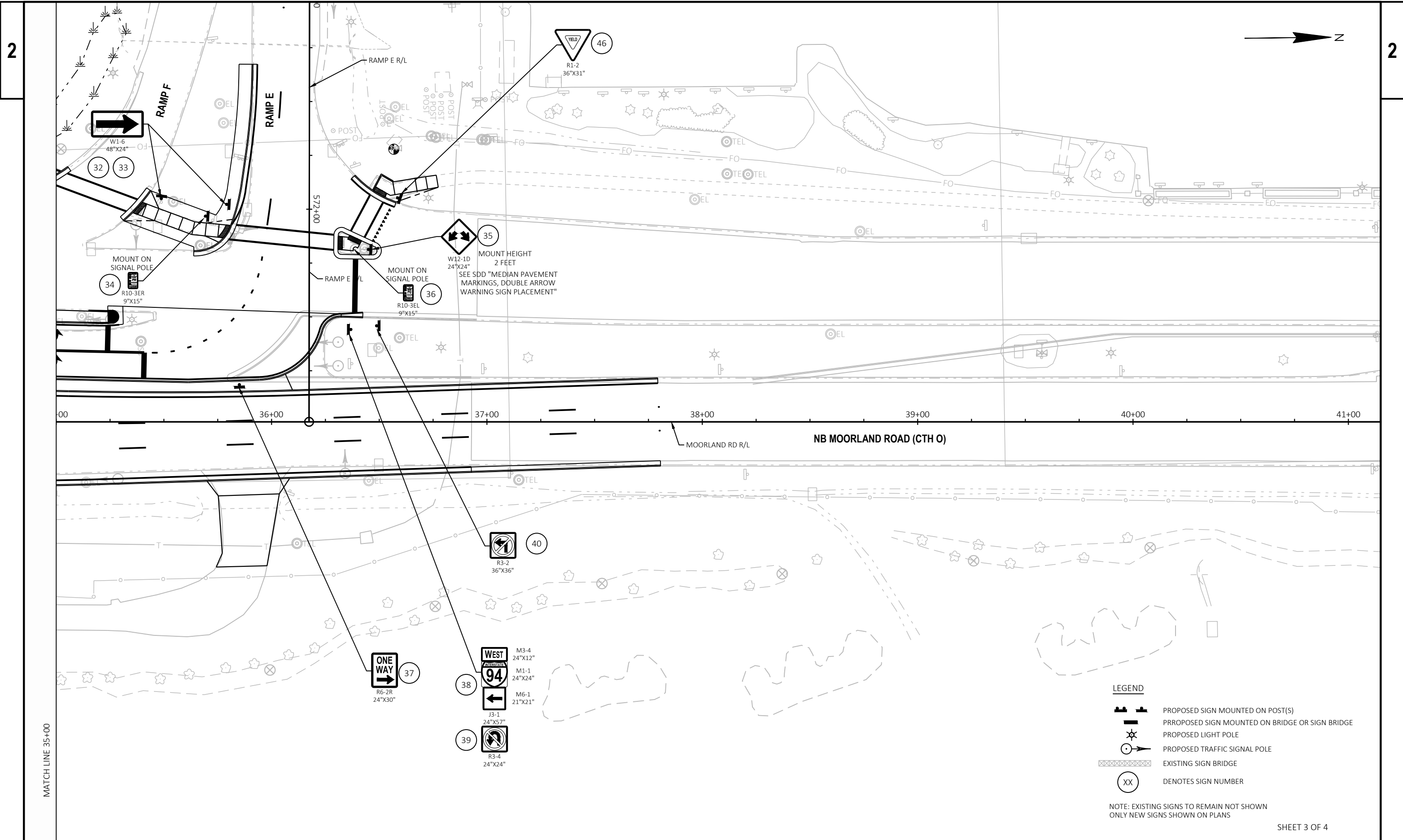
NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN ONLY NEW SIGNS SHOWN ON PLANS



MATCH LINE 29+00

MATCH LINE 35+00







MATCHLINE 594+00  
SHEET 2 OF 4



2

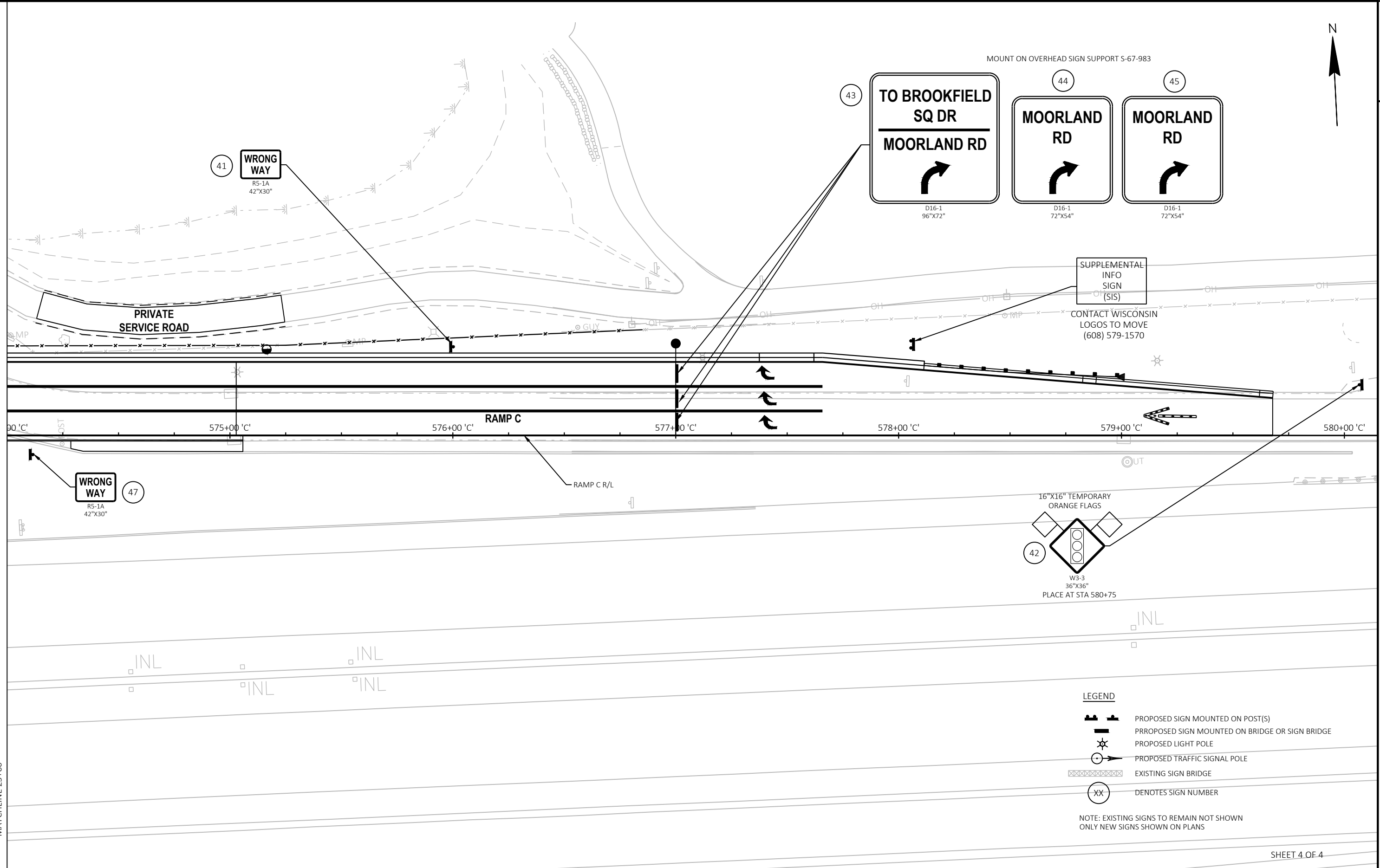
2

MATCH LINE 35+00

- LEGEND**
-  PROPOSED SIGN MOUNTED ON POST(S)
  -  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
  -  PROPOSED LIGHT POLE
  -  PROPOSED TRAFFIC SIGNAL POLE
  -  EXISTING SIGN BRIDGE
  -  DENOTES SIGN NUMBER

NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN  
ONLY NEW SIGNS SHOWN ON PLANS

SHEET 3 OF 4



MOUNT ON OVERHEAD SIGN SUPPORT S-67-983

41  
**WRONG WAY**  
 R5-1A  
 42"X30"

43  
**TO BROOKFIELD  
 SQ DR**  


---

**MOORLAND RD**  
  
 D16-1  
 96"X72"

44  
**MOORLAND  
 RD**  
  
 D16-1  
 72"X54"

45  
**MOORLAND  
 RD**  
  
 D16-1  
 72"X54"

**SUPPLEMENTAL  
 INFO  
 SIGN  
 (SIS)**

CONTACT WISCONSIN  
 LOGOS TO MOVE  
 (608) 579-1570

**WRONG WAY**  
 R5-1A  
 42"X30"

42  
 16"X16" TEMPORARY  
 ORANGE FLAGS  
  
 W3-3  
 36"X36"  
 PLACE AT STA 580+75

**LEGEND**

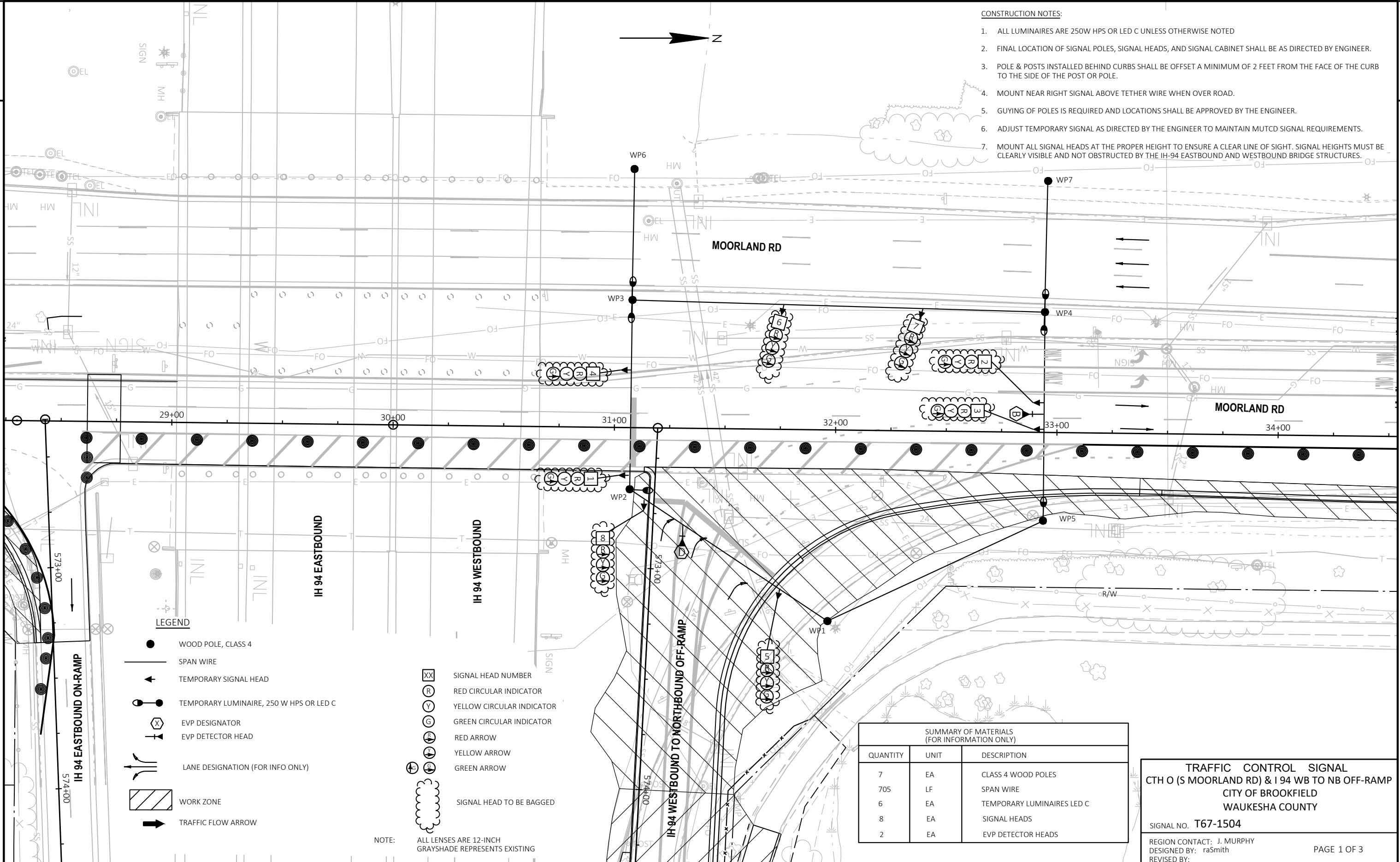
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED LIGHT POLE
- PROPOSED TRAFFIC SIGNAL POLE
- EXISTING SIGN BRIDGE
- DENOTES SIGN NUMBER

NOTE: EXISTING SIGNS TO REMAIN NOT SHOWN  
 ONLY NEW SIGNS SHOWN ON PLANS

MATCHLINE 23+00

CONSTRUCTION NOTES:

1. ALL LUMINAIRES ARE 250W HPS OR LED C UNLESS OTHERWISE NOTED
2. FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER.
3. POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
4. MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD.
5. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
6. ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
7. MOUNT ALL SIGNAL HEADS AT THE PROPER HEIGHT TO ENSURE A CLEAR LINE OF SIGHT. SIGNAL HEIGHTS MUST BE CLEARLY VISIBLE AND NOT OBSTRUCTED BY THE IH-94 EASTBOUND AND WESTBOUND BRIDGE STRUCTURES.



LEGEND

- WOOD POLE, CLASS 4
- SPAN WIRE
- ↑ TEMPORARY SIGNAL HEAD
- TEMPORARY LUMINAIRE, 250 W HPS OR LED C
- ⊕ EVP DESIGNATOR
- ⊕ EVP DETECTOR HEAD
- ↔ LANE DESIGNATION (FOR INFO ONLY)
- ▨ WORK ZONE
- ➔ TRAFFIC FLOW ARROW

- XX SIGNAL HEAD NUMBER
- ⊙ RED CIRCULAR INDICATOR
- ⊙ YELLOW CIRCULAR INDICATOR
- ⊙ GREEN CIRCULAR INDICATOR
- ➔ RED ARROW
- ➔ YELLOW ARROW
- ➔ GREEN ARROW
- ☁ SIGNAL HEAD TO BE BAGGED

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

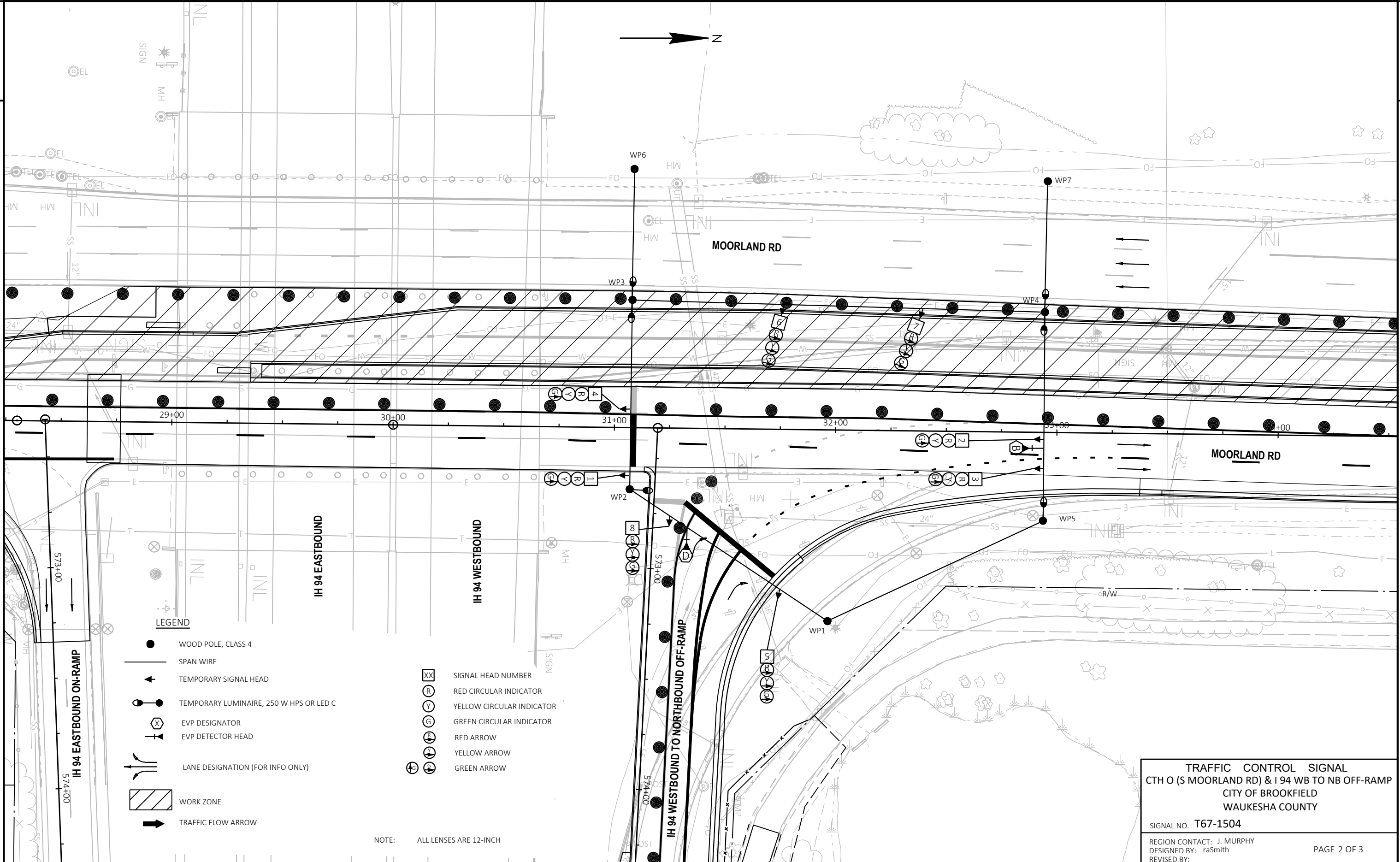
SUMMARY OF MATERIALS (FOR INFORMATION ONLY)		
QUANTITY	UNIT	DESCRIPTION
7	EA	CLASS 4 WOOD POLES
705	LF	SPAN WIRE
6	EA	TEMPORARY LUMINAIRES LED C
8	EA	SIGNAL HEADS
2	EA	EVP DETECTOR HEADS

**TRAFFIC CONTROL SIGNAL**  
**CTH 0 (S MOORLAND RD) & I 94 WB TO NB OFF-RAMP**  
**CITY OF BROOKFIELD**  
**WAUKESHA COUNTY**

SIGNAL NO. **T67-1504**

REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY:

PAGE 1 OF 3



LEGEND

- WOOD POLE, CLASS 4
- SPAN WIRE
- ▲ TEMPORARY SIGNAL HEAD
- TEMPORARY LUMINAIRE, 250 W HPS OR LED C
- ⊕ EVP DESIGNATOR
- ⊕ EVP DETECTOR HEAD
- ↔ LANE DESIGNATION (FOR INFO ONLY)
- ▨ WORK ZONE
- ➔ TRAFFIC FLOW ARROW
- XX SIGNAL HEAD NUMBER
- ⊙ RED CIRCULAR INDICATOR
- ⊙ YELLOW CIRCULAR INDICATOR
- ⊙ GREEN CIRCULAR INDICATOR
- ➔ RED ARROW
- ➔ YELLOW ARROW
- ➔ GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH

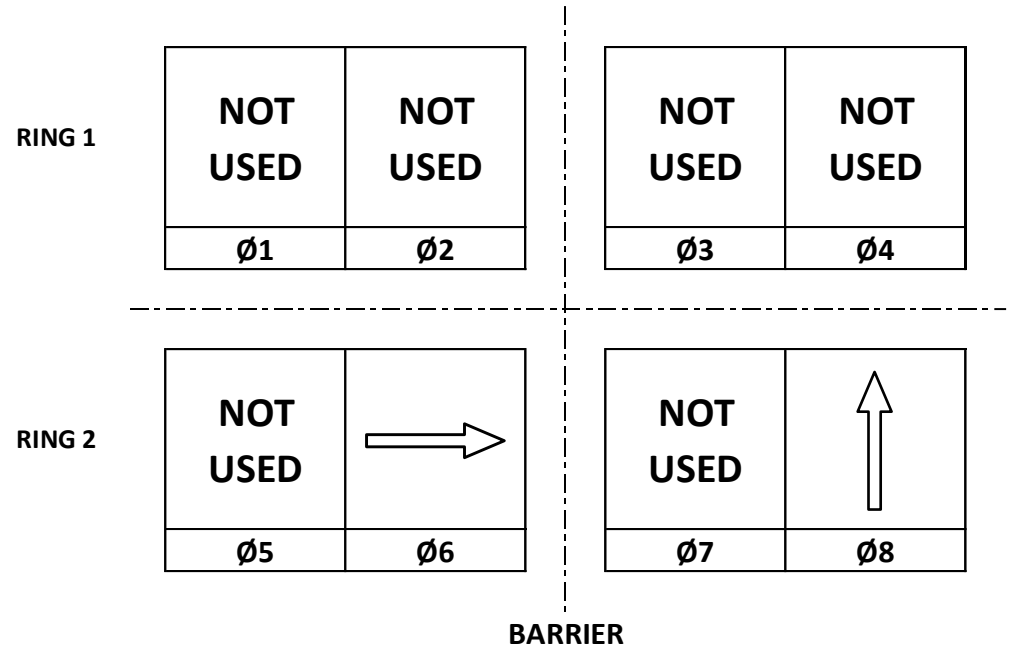
**TRAFFIC CONTROL SIGNAL**  
 CTH 0 (S MOORLAND RD) & I 94 WB TO NB OFF-RAMP  
 CITY OF BROOKFIELD  
 WAUKESHA COUNTY

SIGNAL NO. **T67-1504**

REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY:

PAGE 2 OF 3

	HEAD NUMBERS	FLASH
Ø1		
Ø2		
Ø3		
Ø4		
Ø5		
Ø6	1,2,3,4	R
Ø7		
Ø8	5,6,7,8	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLA		
OLB		
OLC		
OLD		



**CONTROLLER LOGIC**

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2				
3				
4				
5				
6	X		MAX	X
7				
8	X		MAX	X

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	X

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS67-0053

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

EMERGENCY VEHICLE PREEMPTION SEQUENCE		
EMERGENCY VEHICLE PREEMPTOR	B	D
MOVEMENT	→	↑
PHASE	6	8

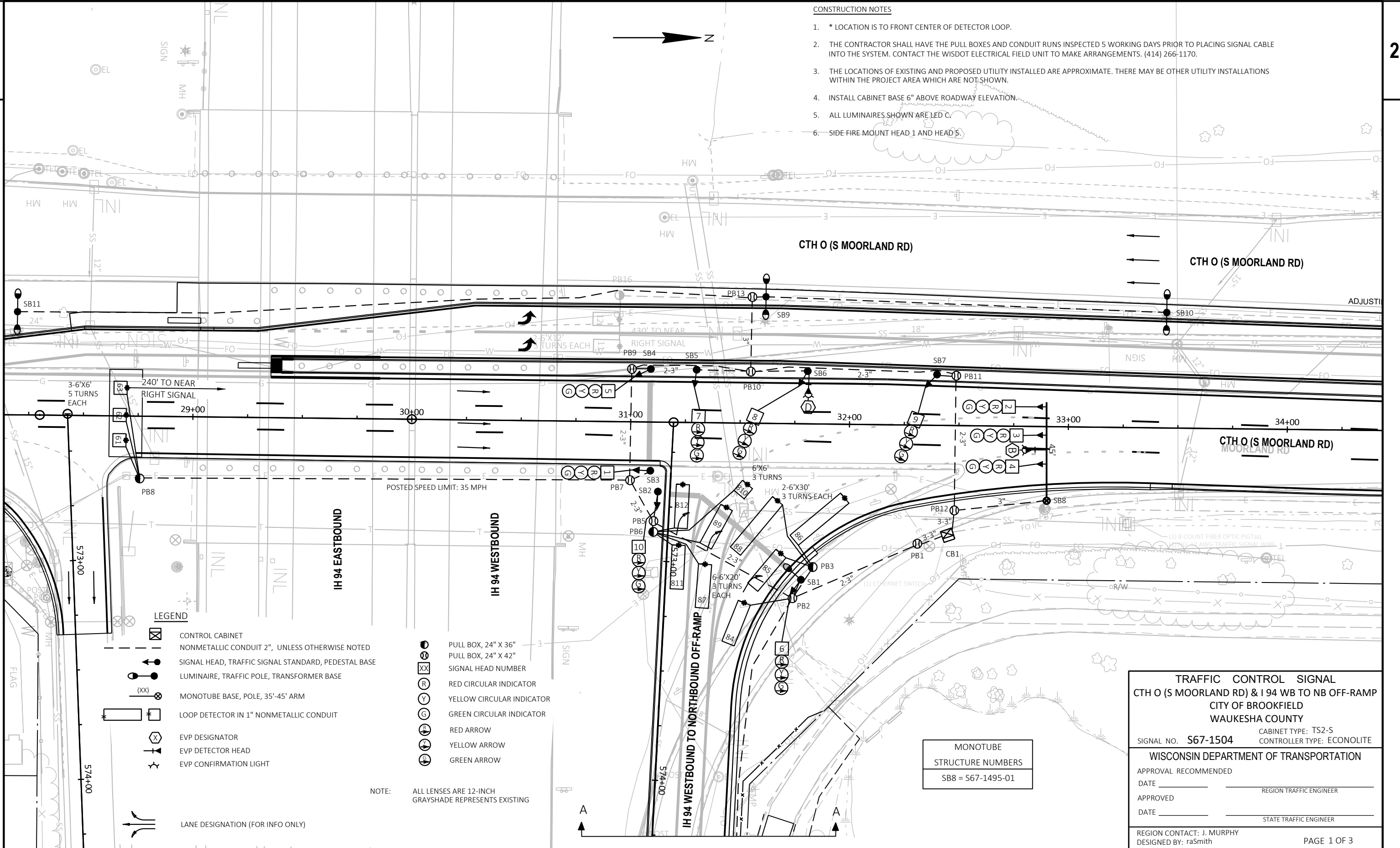
AFTER PREEMPTION SEQUENCE 6, CONTROLLER SHALL RETURN TO PHASE 6.  
 AFTER PREEMPTION SEQUENCE 8, CONTROLLER SHALL RETURN TO PHASE 8.

- GENERAL NOTES:**
- BAG SIGNAL HEADS DURING STAGE 1 IF TEMPORARY SIGNAL IS TURNED ON BEFORE STAGE 2.

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF-RAMP	
CITY OF BROOKFIELD	
WAUKESHA COUNTY	
SIGNAL NO: T67-1504	CABINET TYPE: TEMP
CONTROLLER TYPE: ECONOLITE	
DATE: 02/23	PAGE NO. 3 OF 3

CONSTRUCTION NOTES

- \* LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.
- THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO THE SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS. (414) 266-1170.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLED ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
- INSTALL CABINET BASE 6" ABOVE ROADWAY ELEVATION.
- ALL LUMINAIRES SHOWN ARE LED C.
- SIDE-FIRE MOUNT HEAD 1 AND HEAD 5.



LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- MONOTUBE BASE, POLE, 35'-45" ARM
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- EVP CONFIRMATION LIGHT
- LANE DESIGNATION (FOR INFO ONLY)
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- SIGNAL HEAD NUMBER
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

MONOTUBE  
STRUCTURE NUMBERS  
SB8 = S67-1495-01

**TRAFFIC CONTROL SIGNAL**  
**CTH O (S MOORLAND RD) & I 94 WB TO NB OFF-RAMP**  
 CITY OF BROOKFIELD  
 WAUKESHA COUNTY

SIGNAL NO. **S67-1504** CABINET TYPE: TS2-S  
 CONTROLLER TYPE: ECONOLITE

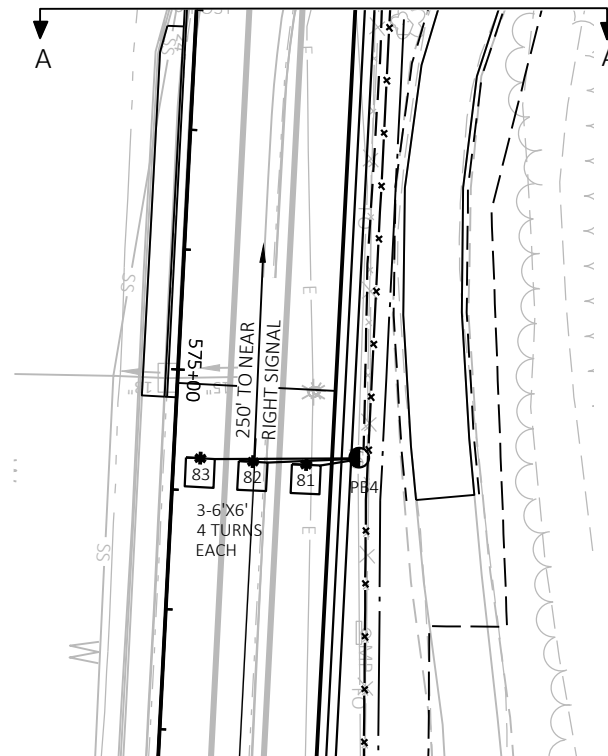
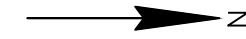
**WISCONSIN DEPARTMENT OF TRANSPORTATION**

APPROVAL RECOMMENDED  
 DATE \_\_\_\_\_ REGION TRAFFIC ENGINEER  
 APPROVED  
 DATE \_\_\_\_\_ STATE TRAFFIC ENGINEER

REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY: \_\_\_\_\_

PAGE 1 OF 3



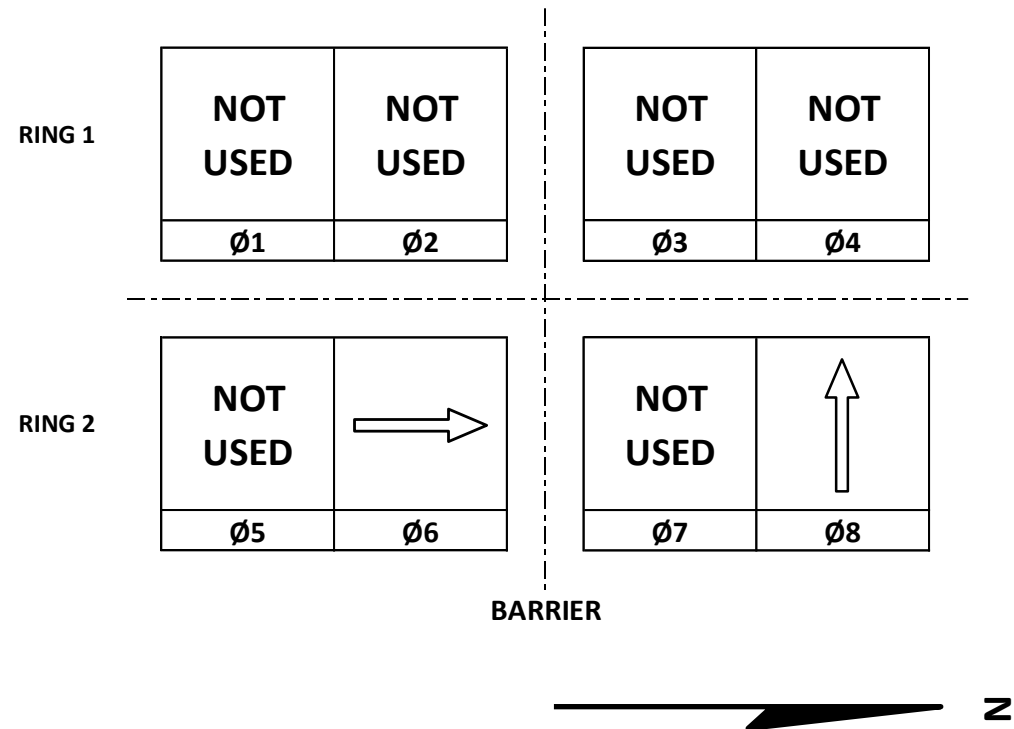


TRAFFIC CONTROL SIGNAL  
 CTH O (S MOORLAND RD) & I 94 WB TO NB OFF-RAMP  
 CITY OF BROOKFIELD  
 WAUKESHA COUNTY

SIGNAL NO. **S67-1504**

REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY:

	HEAD NUMBERS	FLASH
Ø1		
Ø2		
Ø3		
Ø4		
Ø5		
Ø6	1,2,3,4,5	R
Ø7		
Ø8	6,7,8,9,10	R →
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE		
OLF		
OLG		
OLH		



**CONTROLLER LOGIC**

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2				
3				
4				
5				
6	X		MIN	X
7				
8				X

**EMERGENCY VEHICLE PREEMPTION SEQUENCE**

EMERGENCY VEHICLE PREEMPTOR	B	D
MOVEMENT	→	↑
PHASE	6	8

AFTER PREEMPTION SEQUENCE 6, CONTROLLER SHALL RETURN TO PHASE 6.  
 AFTER PREEMPTION SEQUENCE 8, CONTROLLER SHALL RETURN TO PHASE 8.

**DETECTOR LOGIC**

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	61	63	81	83	85	87	89	811
CALLED PHASE	6	6	8	8	8	8	8	8
CALL OPTION	X	X			X	X	X	X
DELAY TIME								
EXTENTION OPTION	X	X	X	X	X	X	X	X
EXTEND TIME			X	X				
USE ADDED INITIAL	X	X						
CROSS SWITCH PHASE								

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	62		82	84	86	88	810	812
CALLED PHASE	6		8	8	8	8	8	8
CALL OPTION	X			X	X	X	X	X
DELAY TIME								
EXTENTION OPTION	X		X	X	X	X	X	X
EXTEND TIME			X					
USE ADDED INITIAL	X							
CROSS SWITCH PHASE								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	X
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS- 67-0053

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	X
LIFT BRIDGE	
QUEUE DETECTION	

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF-RAMP	
CITY OF BROOKFIELD WAUKESHA COUNTY	
SIGNAL NO: S67-1504	CABINET TYPE: TS2-S
CONTROLLER TYPE: ECONOLITE	
DATE: 02/23	PAGE NUMBER: 3 OF 3

PROJECT ID:	1060-10-72
INTERSECTION:	CTH O (S MOORLAND RD) & I-94 WB TO NB OFF-RAMP

Signal Wire Color Coding	BLK - black	RED - red	GRN - green
	WHT - white	BLU - blue	ORG - orange

CB1 TO	AWG14 # OF CONDUCTORS	HEAD NO.	SIGNAL INDICATION WIRE COLOR								PED NEUTRAL	PED INPUT	
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING YELLOW>	D/WALK			WALK
SB1	7	6				RED	ORG	GRN					
SB2	7	10				RED	ORG	GRN					
SB3	7	1	RED	ORG	GRN								
SB4	7	5	RED	ORG	GRN								
SB5	7	7				RED	ORG	GRN					
SB6	7	8				RED	ORG	GRN					
SB7	7	9				RED	ORG	GRN					
SB8	7	2	RED	ORG	GRN								
		3	RED	ORG	GRN								
		4	RED	ORG	GRN								

Equipment Grounding Conductor 10 AWG Green XLP	
From	To
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	CB1

Pull Box Bonding Jumper 10 AWG Green XLP	
From	To
PB1	CB1
PB2	SB1
PB5	SB2
PB6	SB3
PB8	SB4
PB9	SB5
PB10	SB7
PB11	CB1

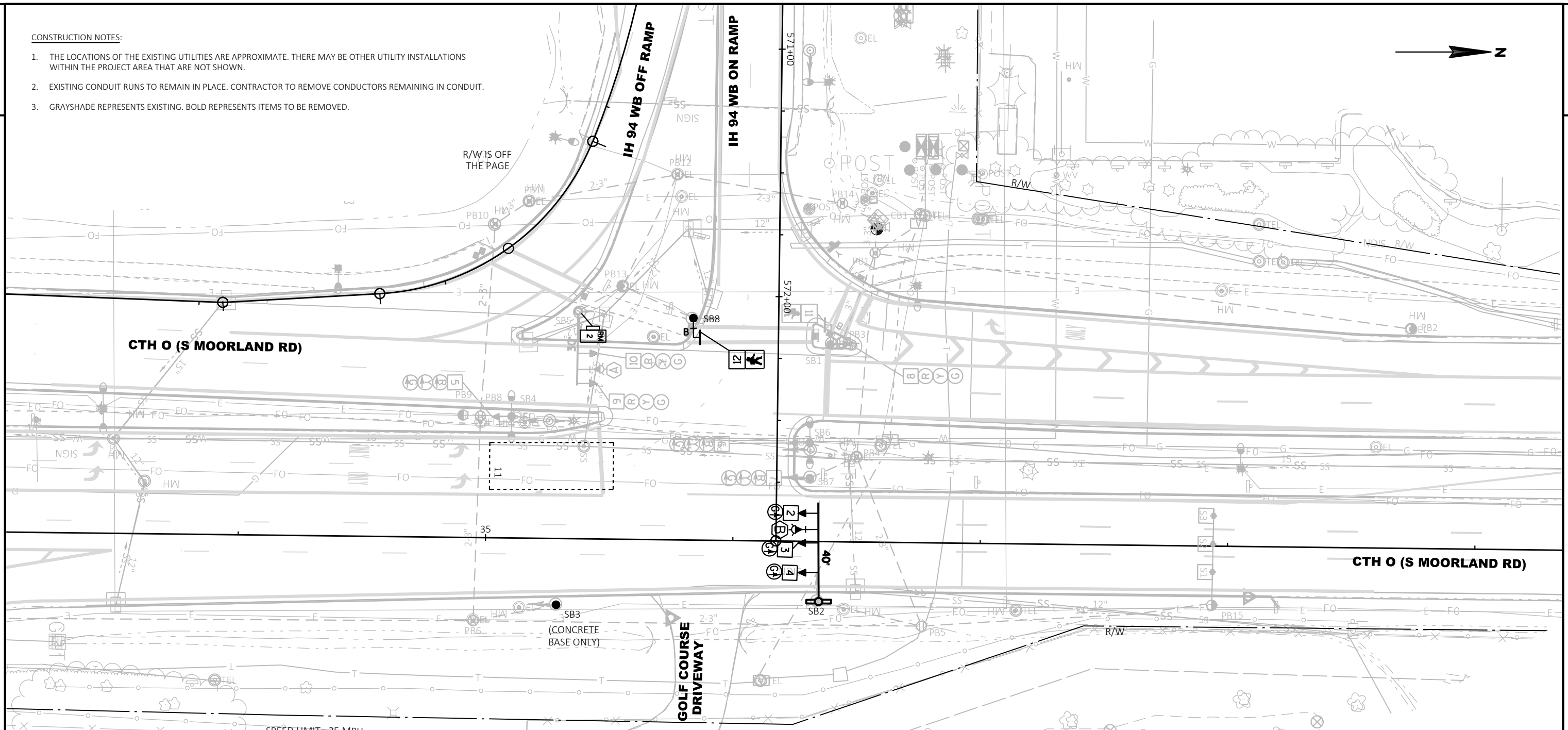
Lighting UF 2-10 AWG Grounded	
From	To
CB1	SB1
CB1	SB9
CB1	SB10
CB1	SB11

Emergency Vehicle Preemption	
From	To
CB1	HEAD B (SB8)
CB1	HEAD D (SB6)

- \*Use the white conductor in the cable assembly as the grounded conductor for all traffic signal indications
- \*Ensure the grounded conductor in the feeder cable and the pole cables are both 18" longer than the ungrounded conductors.
- \*Reconnect the grounding conductors wherever the circuit has been interrupted to ensure the grounding circuit is complete.

CONSTRUCTION NOTES:

- 1. THE LOCATIONS OF THE EXISTING UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- 2. EXISTING CONDUIT RUNS TO REMAIN IN PLACE. CONTRACTOR TO REMOVE CONDUCTORS REMAINING IN CONDUIT.
- 3. GRAYSHADE REPRESENTS EXISTING. BOLD REPRESENTS ITEMS TO BE REMOVED.



LEGEND

- |   |                           |                      |   |
|---|---------------------------|----------------------|---|
| CONTROL CABINET                                     | RADAR DETECTION AREA      | RED ARROW            | LOOP DETECTOR IN 1" NONMETALLIC CONDUIT         |
| NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED      | RADAR DETECTOR            | YELLOW ARROW         |   |
| SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE | PULL BOX, 24" X 36"       | GREEN ARROW          | WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER) |
| MONOTUBE BASE, POLE, 15'-30' ARM                    | PULL BOX, 24" X 42"       | EVP DESIGNATOR       |   |
| MONOTUBE BASE, POLE, 35'-55' ARM                    | SIGNAL HEAD NUMBER        | EVP DETECTOR HEAD    |   |
| PEDESTRIAN HEAD WITH PUSH BUTTON                    | RED CIRCULAR INDICATOR    | CONFIRMATION LIGHT   |   |
| PUSH BUTTON   | YELLOW CIRCULAR INDICATOR | COMMUNICATIONS VAULT |   |
| LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE           | GREEN CIRCULAR INDICATOR  | YIELD SIGN           |   |
| LUMINAIRE, UNDER PERMIT TO LOCAL MUNICIPALITY       |                           |                      |   |

NOTE: ALL LENSES ARE 12-INCH  
GRAYSHADE REPRESENTS EXISTING

TRAFFIC CONTROL SIGNAL  
IH 94 WB ON RAMP &  
CTH O (S MOORLAND RD)  
CITY OF BROOKFIELD  
WAUKESHA COUNTY

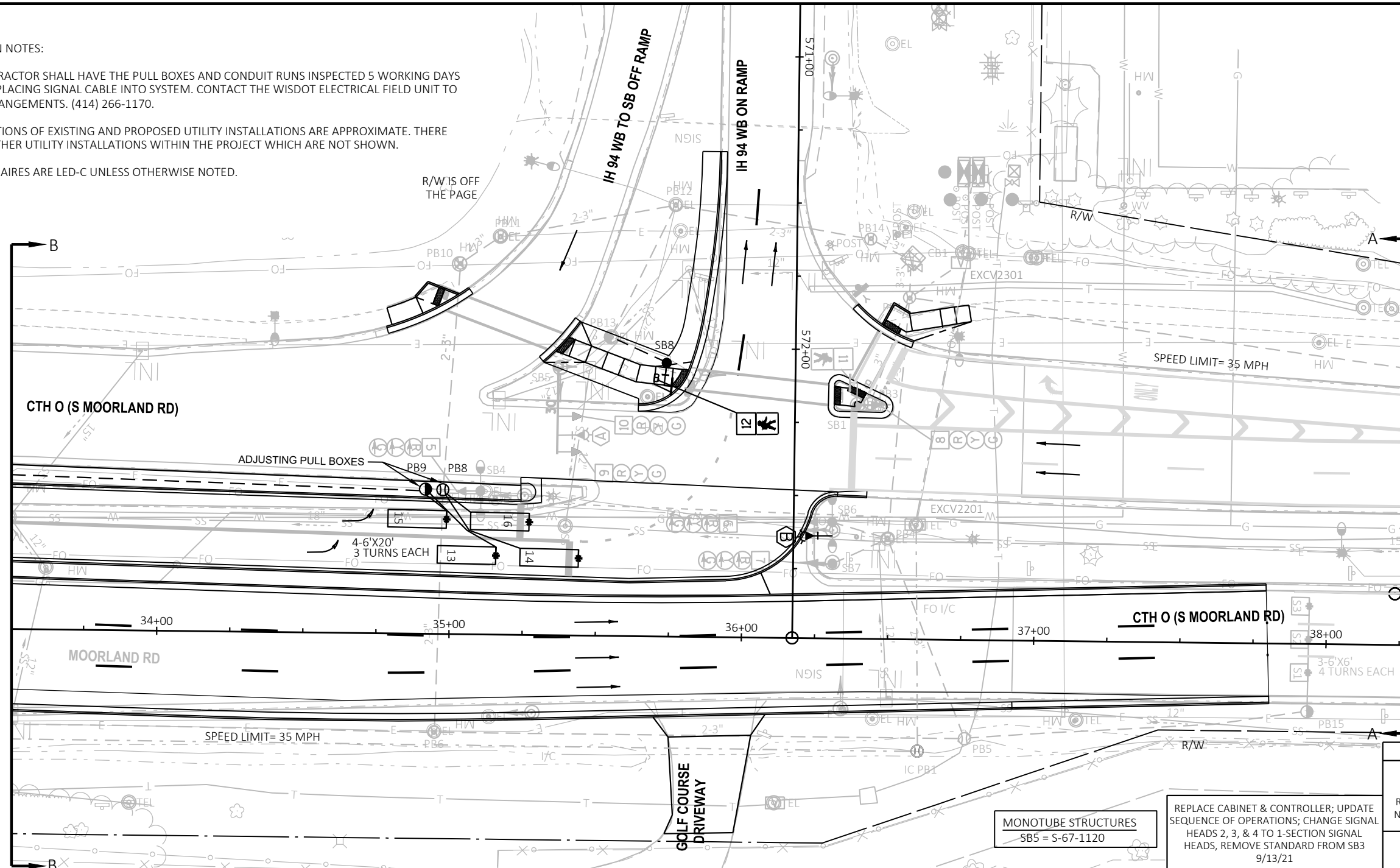
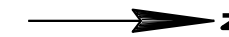
SIGNAL NO. S67-0643

REGION CONTACT: J. MURPHY  
DESIGNED BY: raSmith  
REVISED BY:

PAGE 1 OF 1

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS. (414) 266-1170.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. ALL LUMINAIRES ARE LED-C UNLESS OTHERWISE NOTED.



LEGEND

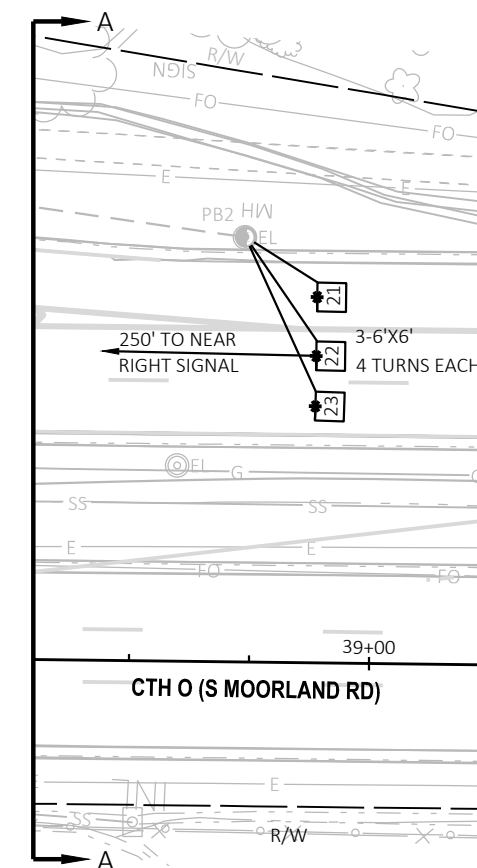
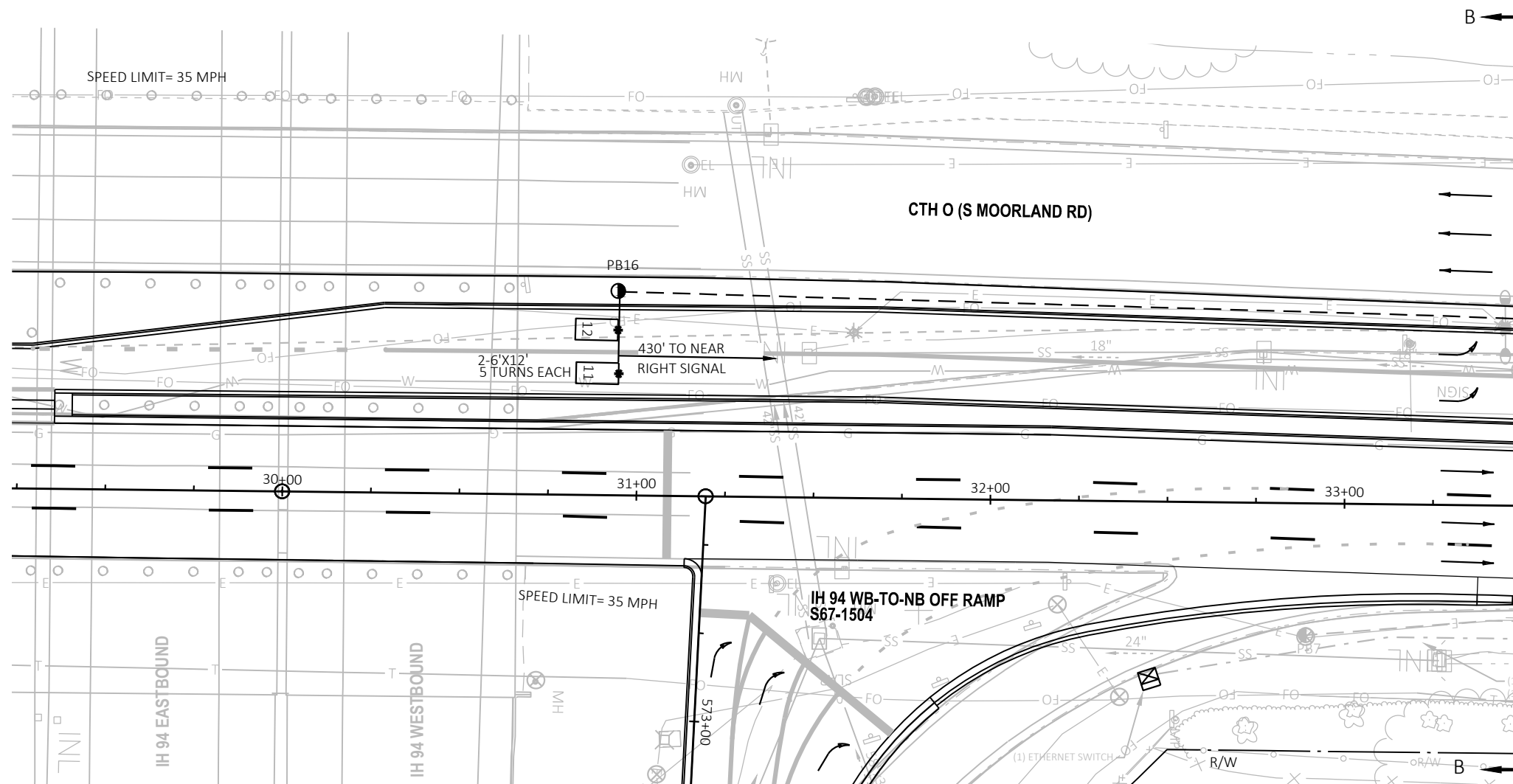
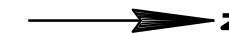
- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- MONOTUBE BASE, POLE, 15'-30' ARM
- MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, UNDER PERMIT TO LOCAL MUNICIPALITY
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- 

MONOTUBE STRUCTURES  
SB5 = S-67-1120

NOTE: ALL LENSES ARE 12-INCH  
GRAYSHADE REPRESENTS EXISTING

REPLACE CABINET & CONTROLLER; UPDATE SEQUENCE OF OPERATIONS; CHANGE SIGNAL HEADS 2, 3, & 4 TO 1-SECTION SIGNAL HEADS, REMOVE STANDARD FROM SB3 9/13/21
ADD RADAR DETECTION 4/4/17
CHANGE CONTROLLER TO ECONOLITE 2/17
ADD EVP CONFIRMATION LIGHTS 10/29/14
UPDATED DETECTION AND CABINET; ADDED INSYNC ADAPTIVE CONTROL 4/8/13
RECONSTRUCT SIGNALS 1/15/10
ADDED PED. HEADS & PUSH BUTTONS 11/18/99
INITIAL INSTALL 1997
REPLACE SB4, SB6, SB7, PB4, PB8 & PB9 TO ACCOMMODATE PROJECT STAGING; REMOVE RA1, RA2, RM1, V1 & V2; INSTALL LOOPS 21, 22, 23, S1, S2, S3 AND PB15. 10/15/21

REVISION			
REV. NO.	RELOCATE SB8; REMOVE SB2 & SB3; INSTALL LOOPS 11-16; RELOCATE EVP HEAD B TO SB6		
9	APPROVAL RECOMMENDED	APPROVED	
	REGION	CENTRAL OFFICE	
	DATE	BY	DATE BY
<b>TRAFFIC CONTROL SIGNAL</b>			
<b>IH 94 WB ON RAMP &amp; CTH O (S MOORLAND RD)</b>			
<b>CITY OF BROOKFIELD</b>			
<b>WAUKESHA COUNTY</b>			
SIGNAL NO.	S67-0643	CABINET TYPE:	TS2-S
		CONTROLLER TYPE:	ECONOLITE
WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVAL RECOMMENDED		GARY P. KNERR	
DATE	4/18/97	REGION TRAFFIC ENGINEER	
APPROVED		WILLIAM C. GILDING	
DATE	4/23/97	STATE TRAFFIC ENGINEER	
REGION CONTACT: J. MURPHY		PAGE 1 OF 3	
DESIGNED BY: raSmith			
REVISED BY:			



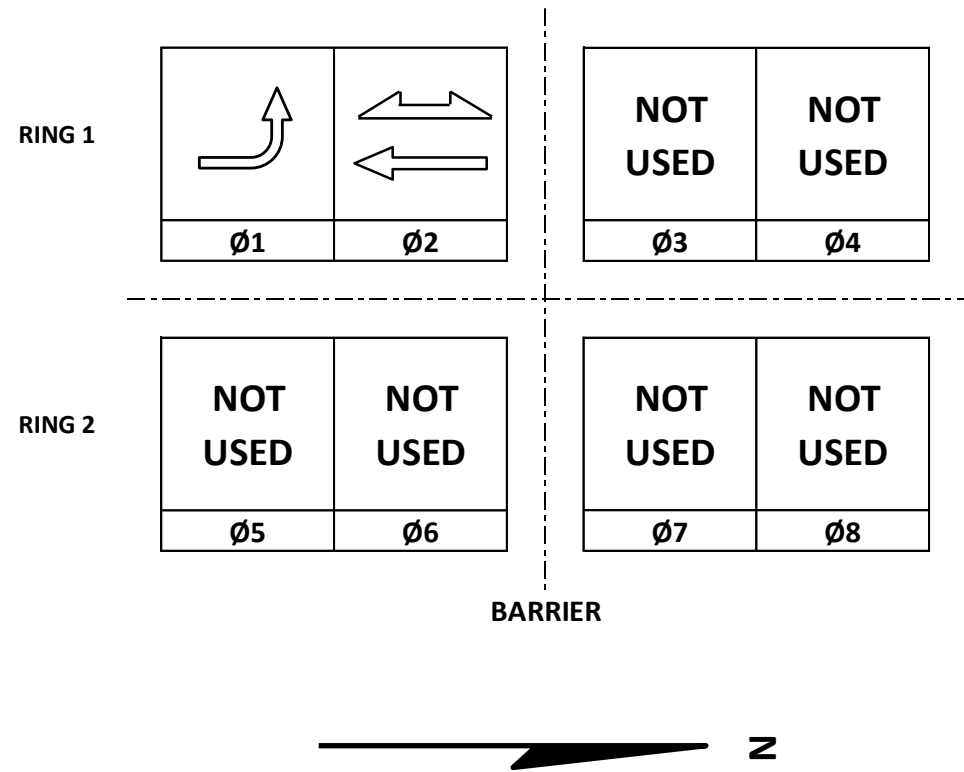
TRAFFIC CONTROL SIGNAL  
 IH 94 WB ON RAMP &  
 CTH O (S MOORLAND RD)  
 CITY OF BROOKFIELD  
 WAUKESHA COUNTY

SIGNAL NO. S67-0643

REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY: raSmith

PAGE 2 OF 3

	HEAD NUMBERS	FLASH
Ø1	5,6,7	R
Ø2	8,9,10	R
Ø3		
Ø4		
Ø5		
Ø6		
Ø7		
Ø8		
Ø2P	11,12	
Ø4P		
Ø6P		
Ø8P		
OLE		
OLF		
OLG		
OLH		



**CONTROLLER LOGIC**

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				X
2	X		MIN	X
3				
4				
5				
6				
7				
8				

**EMERGENCY VEHICLE PREEMPTION SEQUENCE**

EMERGENCY VEHICLE PREEMPTOR	A	B
MOVEMENT	←	↗
PHASE	2	1

AFTER PREEMPTION SEQUENCE 2 OR 1, CONTROLLER SHALL RETURN TO PHASE 2.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	X
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS- 67-0053

TYPE OF LIGHTING	
BY OTHER AGENCY	X
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	X

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	X
LIFT BRIDGE	
QUEUE DETECTION	

**DETECTOR LOGIC**

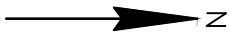
DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	23	S1	S3	11	13	15	
CALLED PHASE	2	2			1	1	1	
CALL OPTION	X	X				X	X	
DELAY TIME								
EXTENTION OPTION	X	X			X	X	X	
EXTEND TIME					X			
USE ADDED INITIAL	X	X						
CROSS SWITCH PHASE								

DETECTOR INPUT	17	19	21	23	25	27	29	31
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	22		S2		12	14	16	
CALLED PHASE	2				1	1	1	
CALL OPTION	X					X	X	
DELAY TIME								
EXTENTION OPTION	X				X	X	X	
EXTEND TIME					X			
USE ADDED INITIAL	X							
CROSS SWITCH PHASE								

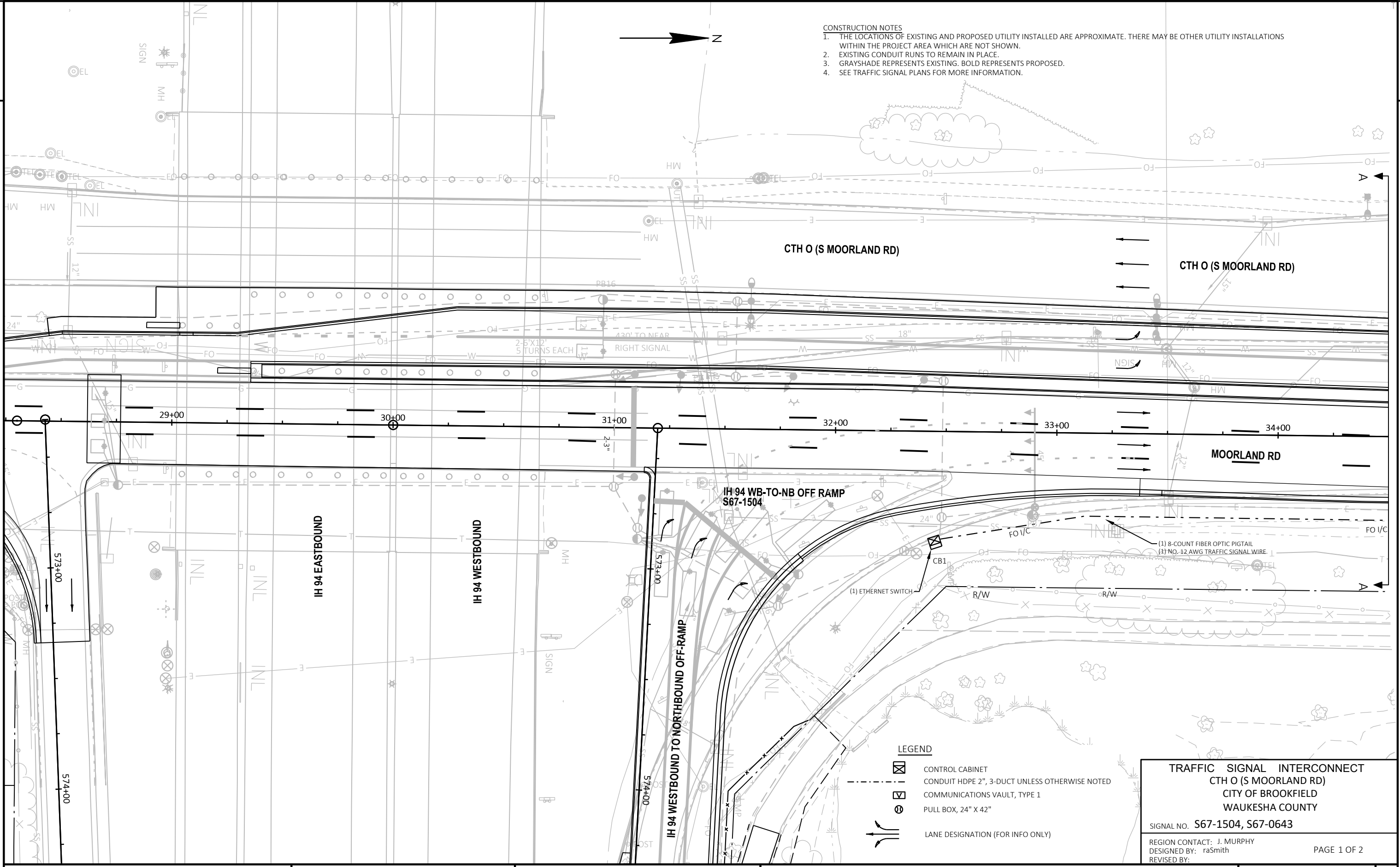
DETECTOR INPUT	18	20	22	24	26	28	30	32
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

IH 94 WB ON RAMP & CTH O (S MOORLAND ROAD)	
CITY OF BROOKFIELD	
WAUKESHA COUNTY	
SIGNAL NO: S67-0643	CABINET TYPE: TS2-S
CONTROLLER TYPE: ECONOLITE	
DATE: 02/23	PAGE NUMBER: 3 OF 3



CONSTRUCTION NOTES

- 1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLED ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
- 2. EXISTING CONDUIT RUNS TO REMAIN IN PLACE.
- 3. GRAYSHADE REPRESENTS EXISTING. BOLD REPRESENTS PROPOSED.
- 4. SEE TRAFFIC SIGNAL PLANS FOR MORE INFORMATION.



LEGEND

- CONTROL CABINET
- CONDUIT HDPE 2", 3-DUCT UNLESS OTHERWISE NOTED
- COMMUNICATIONS VAULT, TYPE 1
- PULL BOX, 24" X 42"
- LANE DESIGNATION (FOR INFO ONLY)

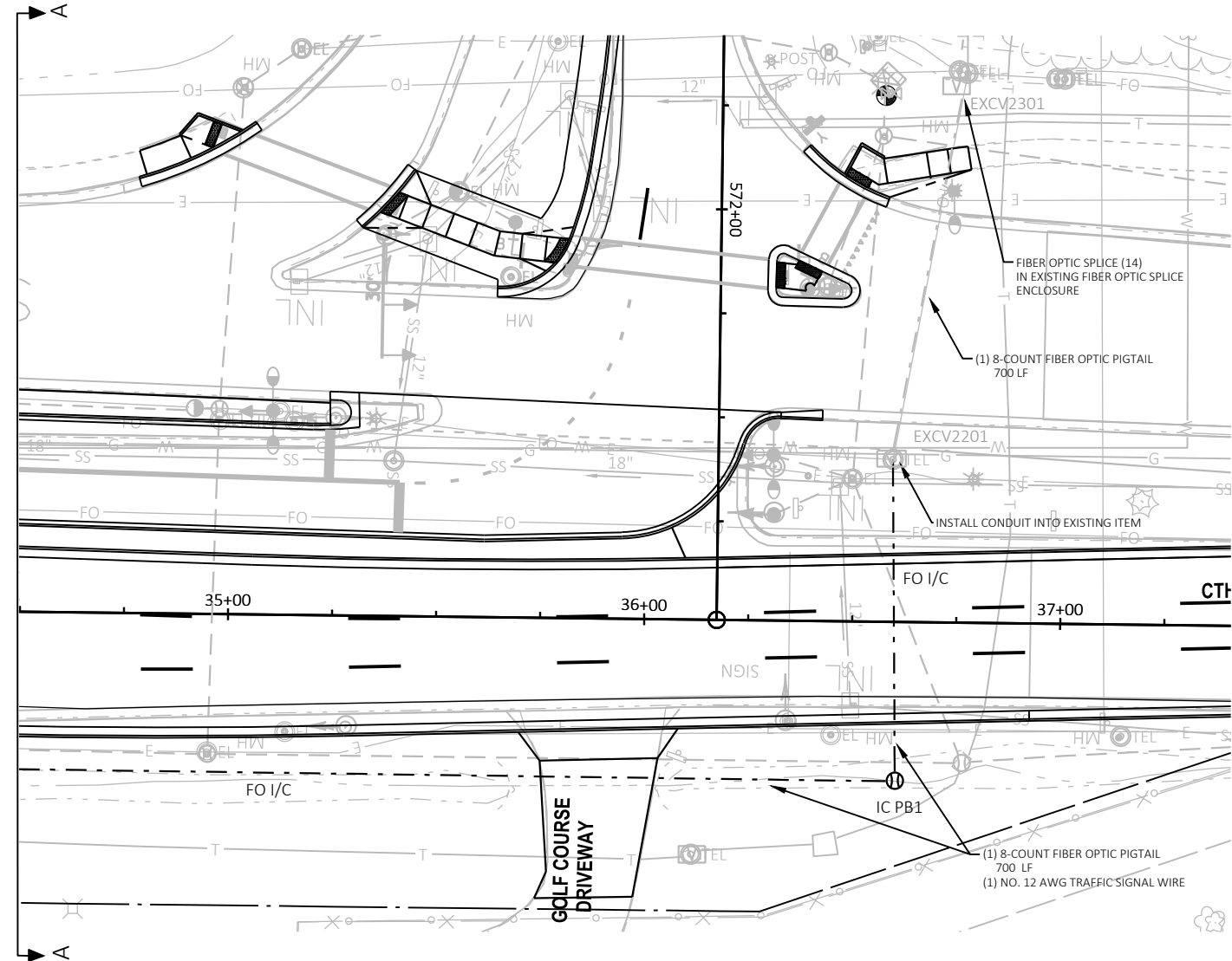
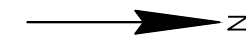
**TRAFFIC SIGNAL INTERCONNECT**  
**CTH O (S MOORLAND RD)**  
**CITY OF BROOKFIELD**  
**WAUKESHA COUNTY**

SIGNAL NO. **S67-1504, S67-0643**

REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY:

PAGE 1 OF 2



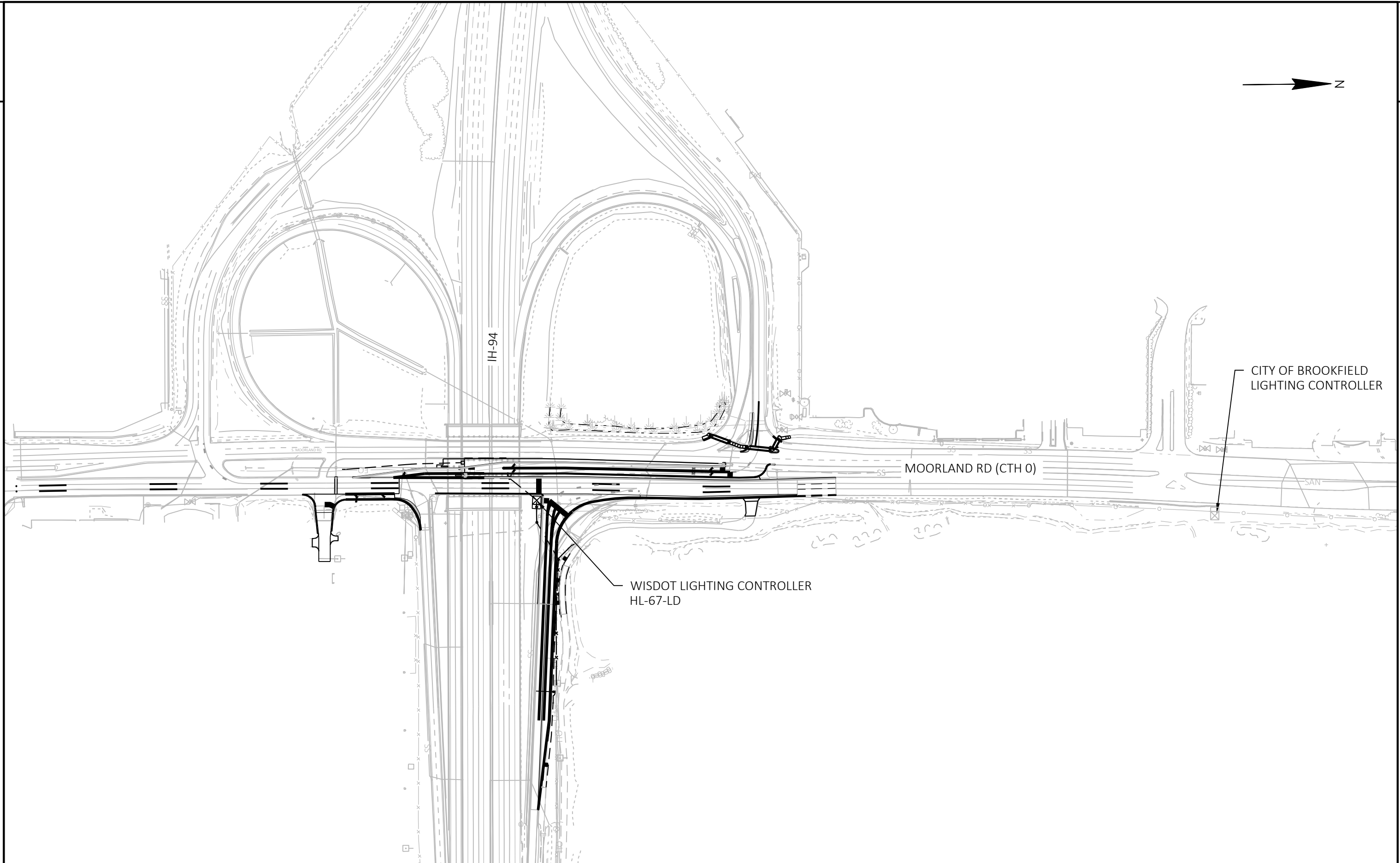


TRAFFIC SIGNAL INTERCONNECT  
 CTH O (S MOORLAND RD)  
 CITY OF BROOKFIELD  
 WAUKESHA COUNTY

SIGNAL NO. S67-1504, S67-0643

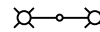

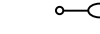
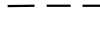


REGION CONTACT: J. MURPHY  
 DESIGNED BY: raSmith  
 REVISED BY:

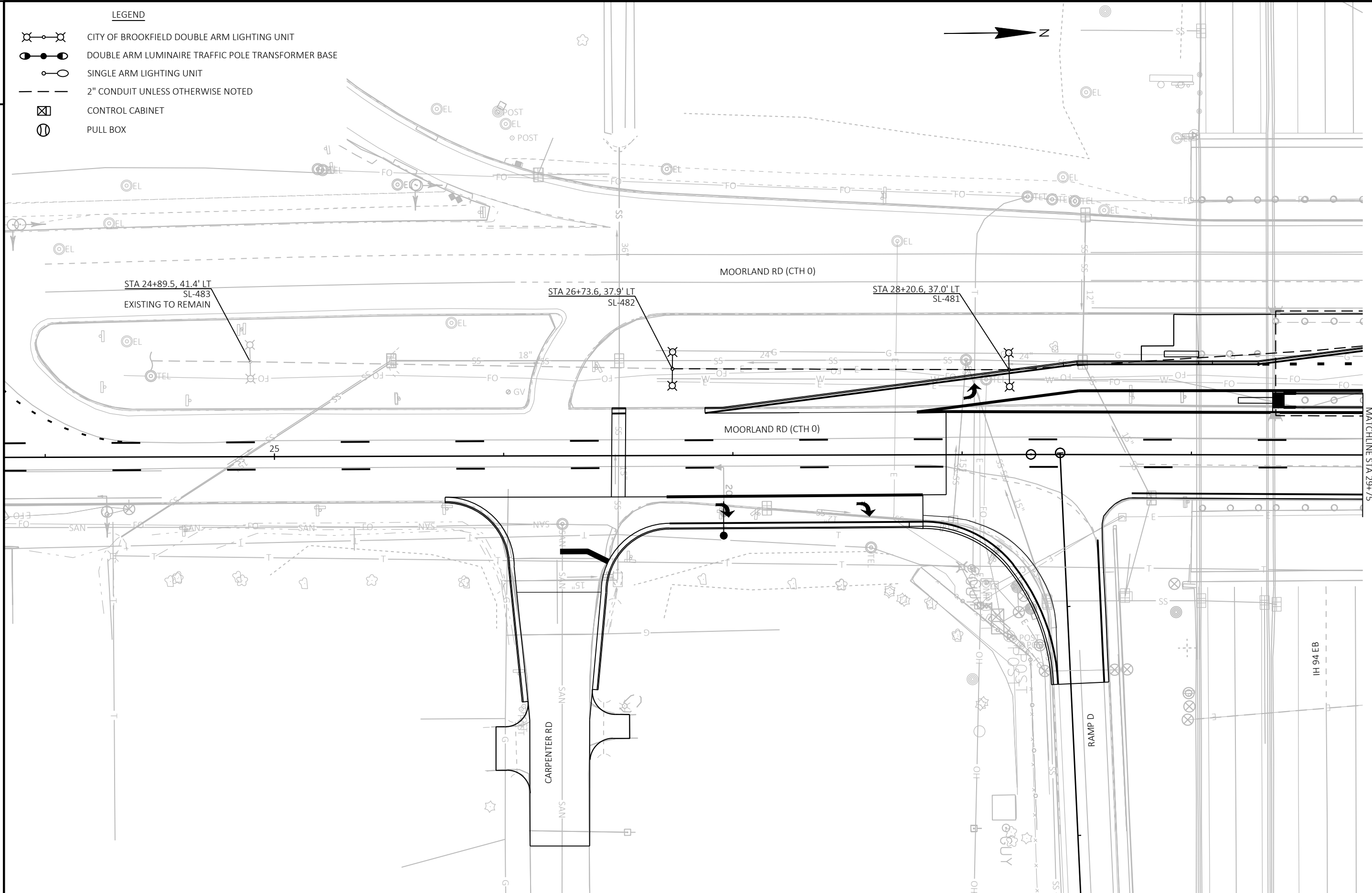
PAGE 2 OF 2



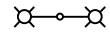

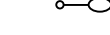

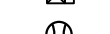

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	LIGHTING PLAN OVERVIEW	SHEET	E
------------------------	------------	------------------	------------------------	-------	---

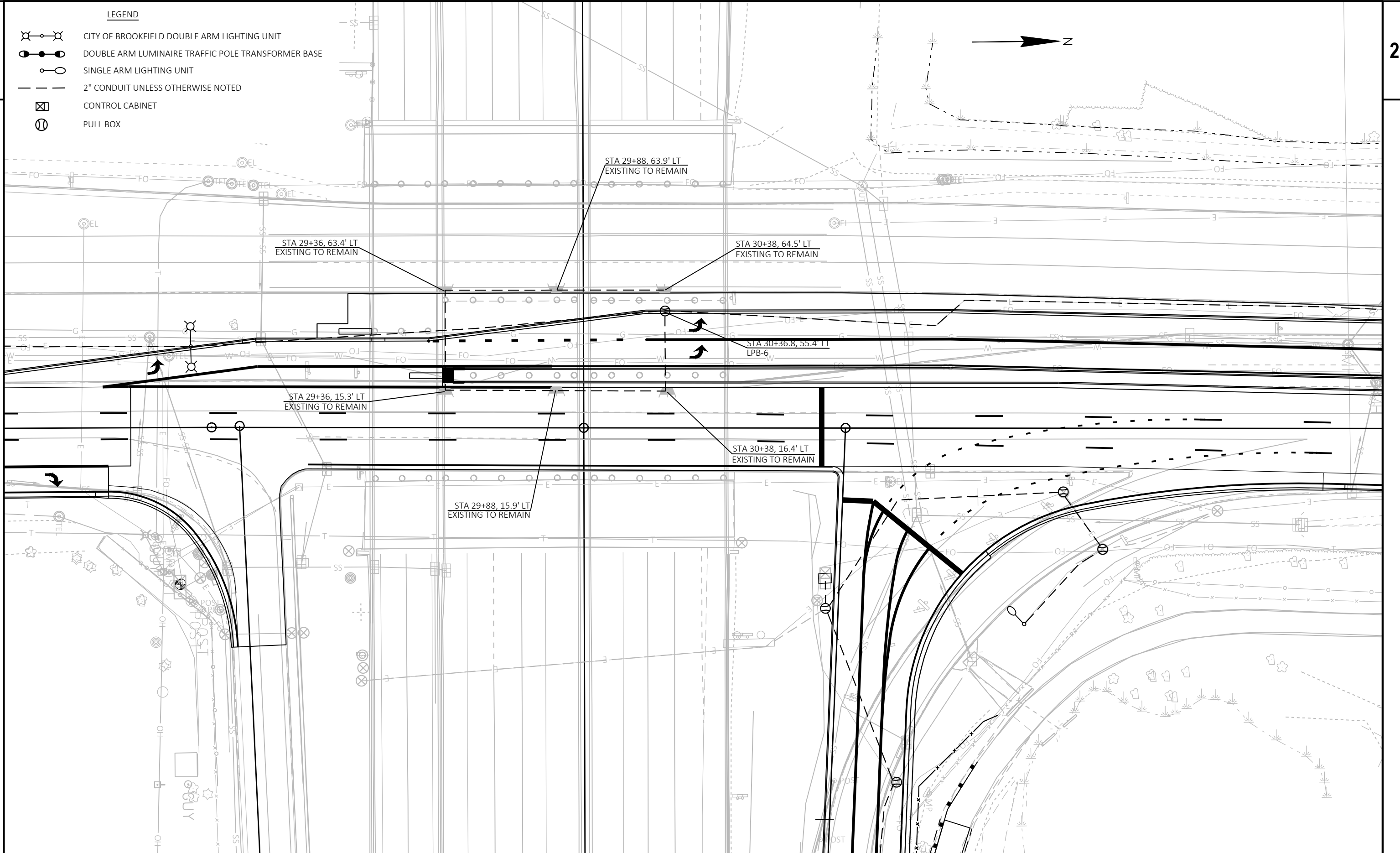
LEGEND

-  CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  DOUBLE ARM LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  SINGLE ARM LIGHTING UNIT
-  2" CONDUIT UNLESS OTHERWISE NOTED
-  CONTROL CABINET
-  PULL BOX









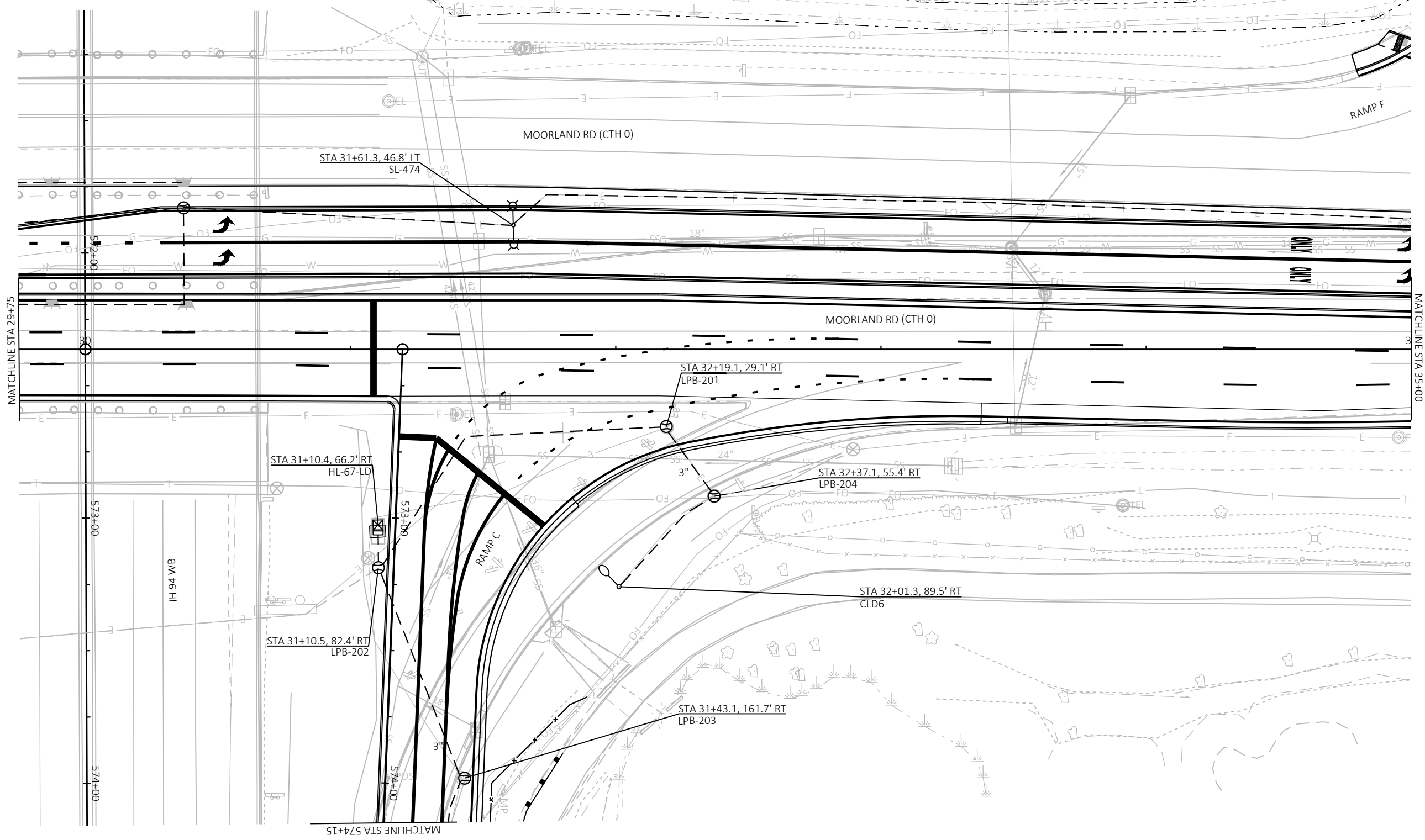
LEGEND

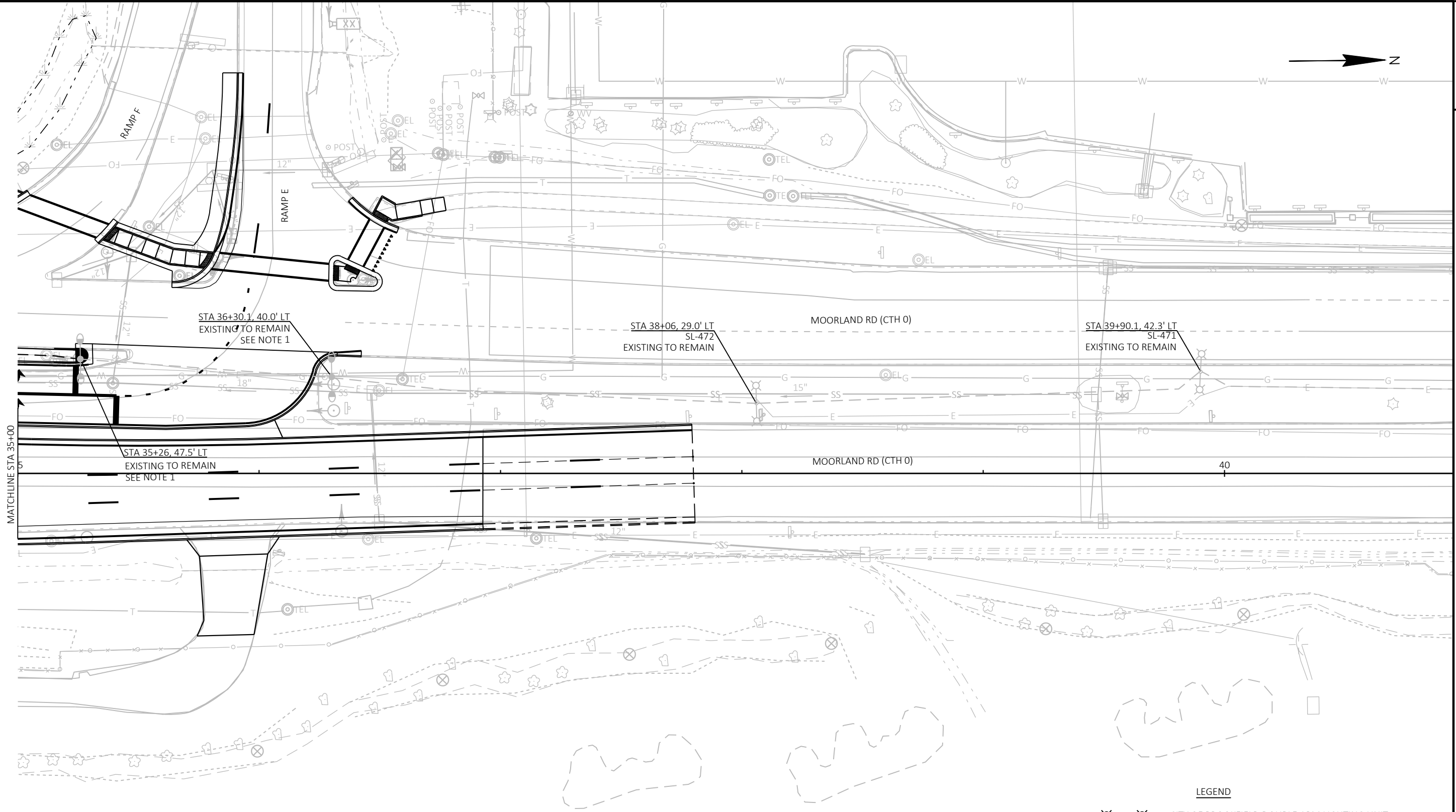
-  CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  DOUBLE ARM LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  SINGLE ARM LIGHTING UNIT
-  2" CONDUIT UNLESS OTHERWISE NOTED
-  CONTROL CABINET
-  PULL BOX



LEGEND

-  CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  DOUBLE ARM LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  SINGLE ARM LIGHTING UNIT
-  2" CONDUIT UNLESS OTHERWISE NOTED
-  CONTROL CABINET
-  PULL BOX





MATCHLINE STA 35+00

STA 36+30.1, 40.0' LT  
EXISTING TO REMAIN  
SEE NOTE 1

STA 38+06, 29.0' LT  
SL-472  
EXISTING TO REMAIN

STA 39+90.1, 42.3' LT  
SL-471  
EXISTING TO REMAIN







STA 35+26, 47.5' LT  
EXISTING TO REMAIN  
SEE NOTE 1

MOORLAND RD (CTH 0)

MOORLAND RD (CTH 0)







40

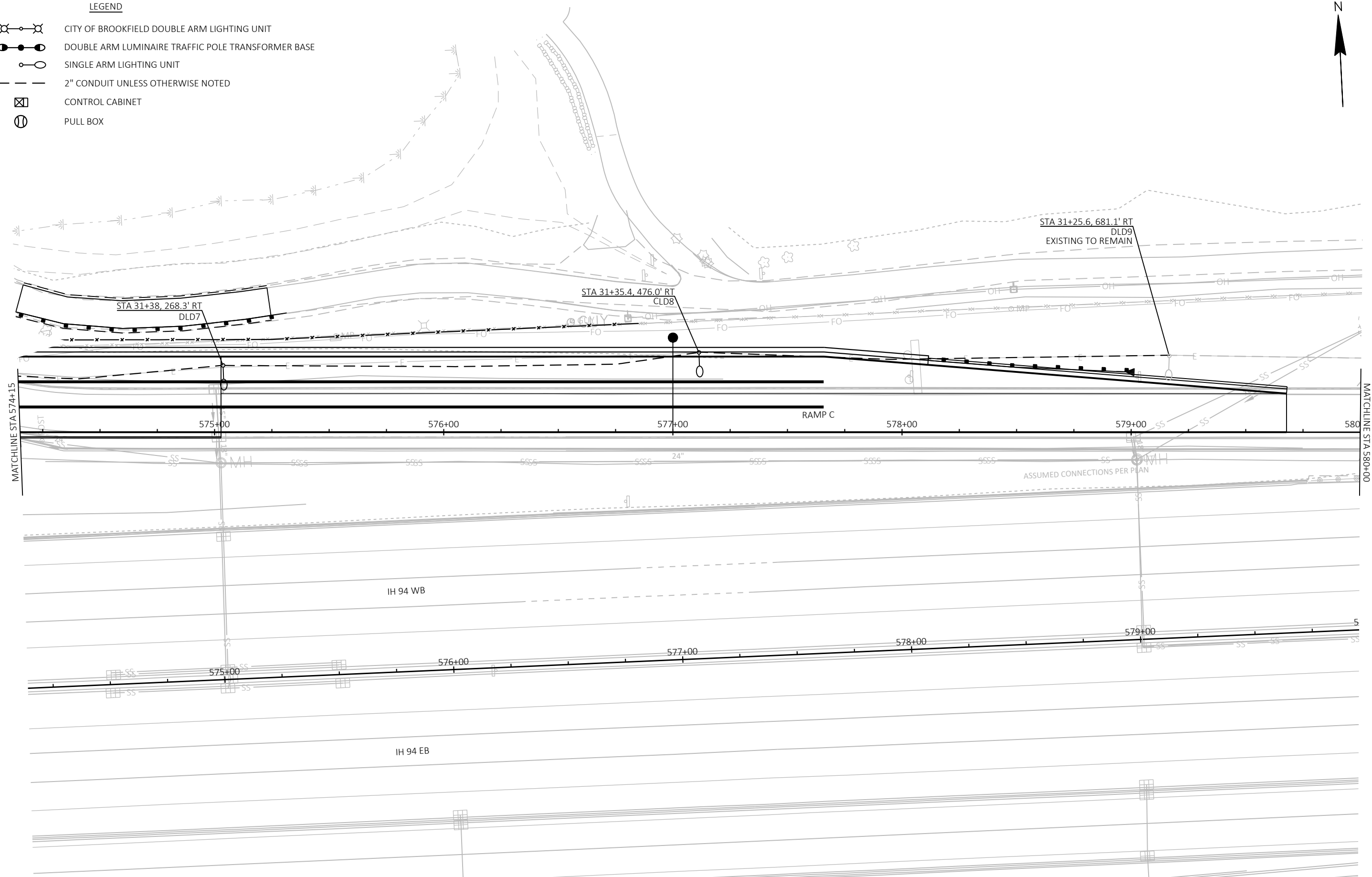
**LEGEND**

-  CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  DOUBLE ARM LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  SINGLE ARM LIGHTING UNIT
-  2" CONDUIT UNLESS OTHERWISE NOTED
-  CONTROL CABINET
-  PULL BOX

**NOTE :**  
1. SEE SIGNAL PLAN FOR INTERSECTION LIGHTING




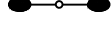






LEGEND

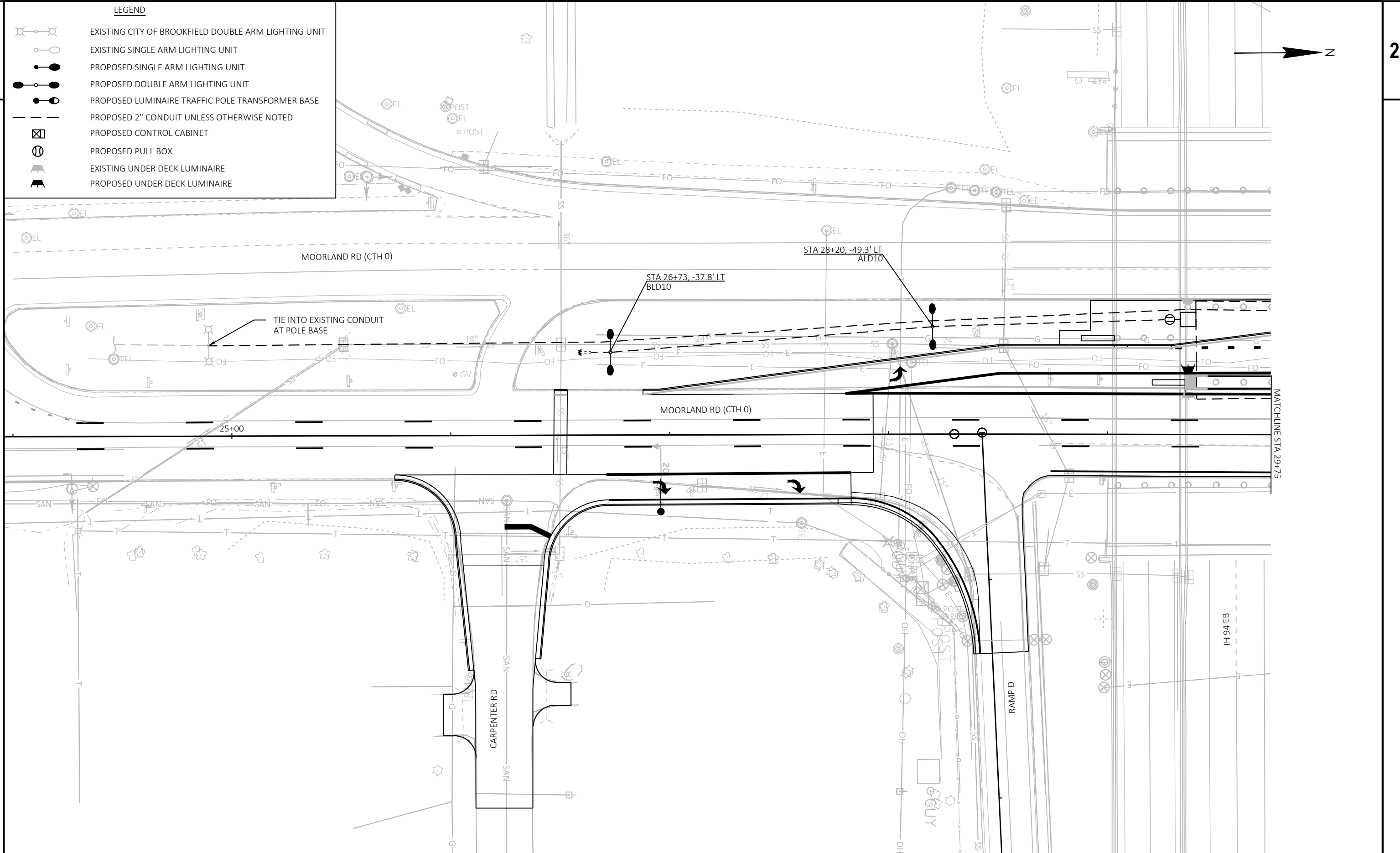
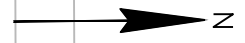
-  CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  DOUBLE ARM LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  SINGLE ARM LIGHTING UNIT
-  2" CONDUIT UNLESS OTHERWISE NOTED
-  CONTROL CABINET
-  PULL BOX



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	LIGHTING REMOVAL	SHEET	<b>E</b>
------------------------	------------	------------------	------------------	-------	----------

LEGEND




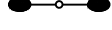






-  EXISTING CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  EXISTING SINGLE ARM LIGHTING UNIT
-  PROPOSED SINGLE ARM LIGHTING UNIT
-  PROPOSED DOUBLE ARM LIGHTING UNIT
-  PROPOSED LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  PROPOSED 2" CONDUIT UNLESS OTHERWISE NOTED
-  PROPOSED CONTROL CABINET
-  PROPOSED PULL BOX
-  EXISTING UNDER DECK LUMINAIRE
-  PROPOSED UNDER DECK LUMINAIRE

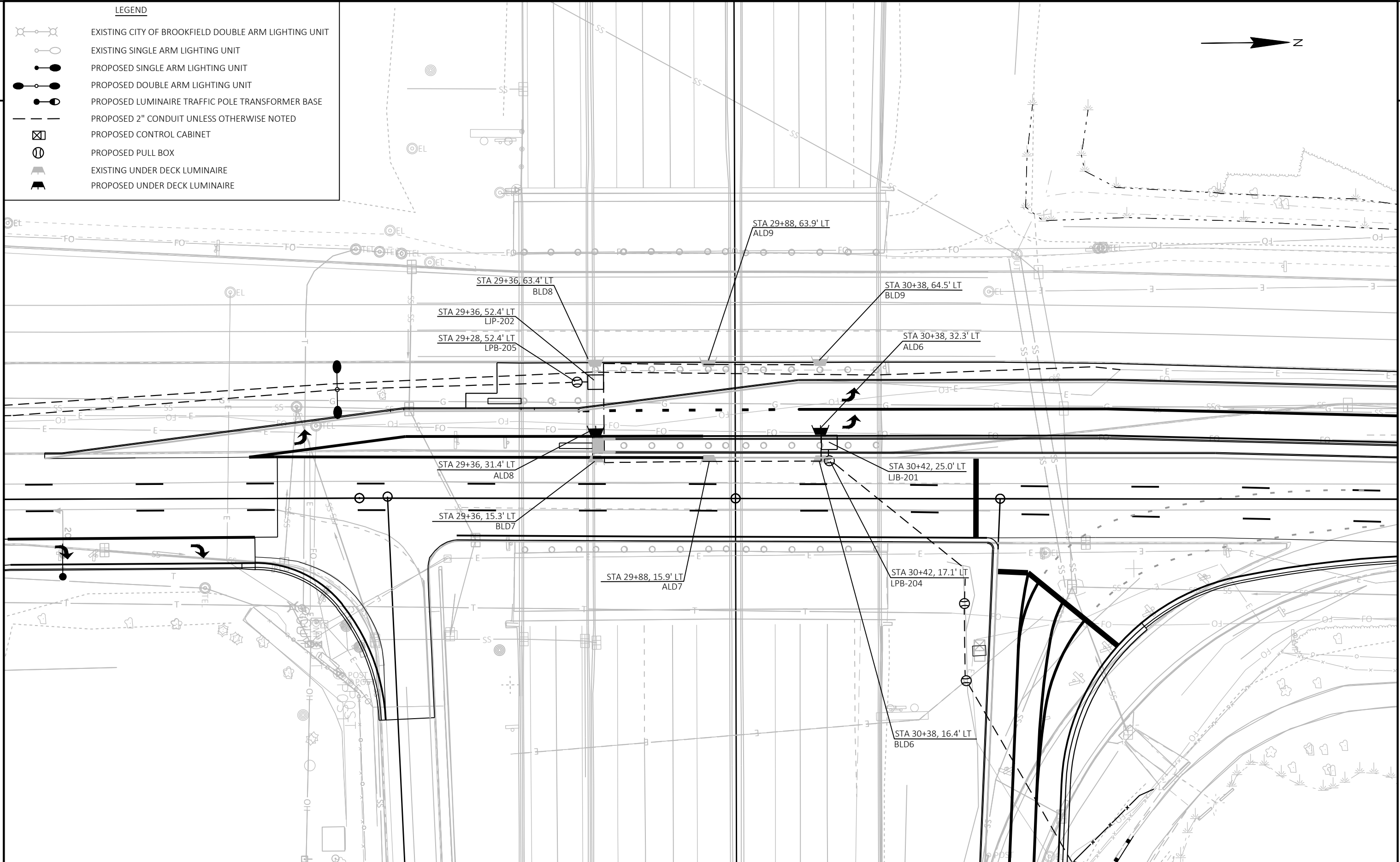
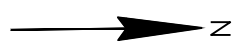


PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	LIGHTING PROPOSED
SHEET			<b>E</b>



LEGEND

-  EXISTING CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  EXISTING SINGLE ARM LIGHTING UNIT
-  PROPOSED SINGLE ARM LIGHTING UNIT
-  PROPOSED DOUBLE ARM LIGHTING UNIT
-  PROPOSED LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  PROPOSED 2" CONDUIT UNLESS OTHERWISE NOTED
-  PROPOSED CONTROL CABINET
-  PROPOSED PULL BOX
-  EXISTING UNDER DECK LUMINAIRE
-  PROPOSED UNDER DECK LUMINAIRE



PROJECT NO: 1060-10-72

HWY: IH 94




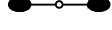






COUNTY: WAUKESHA

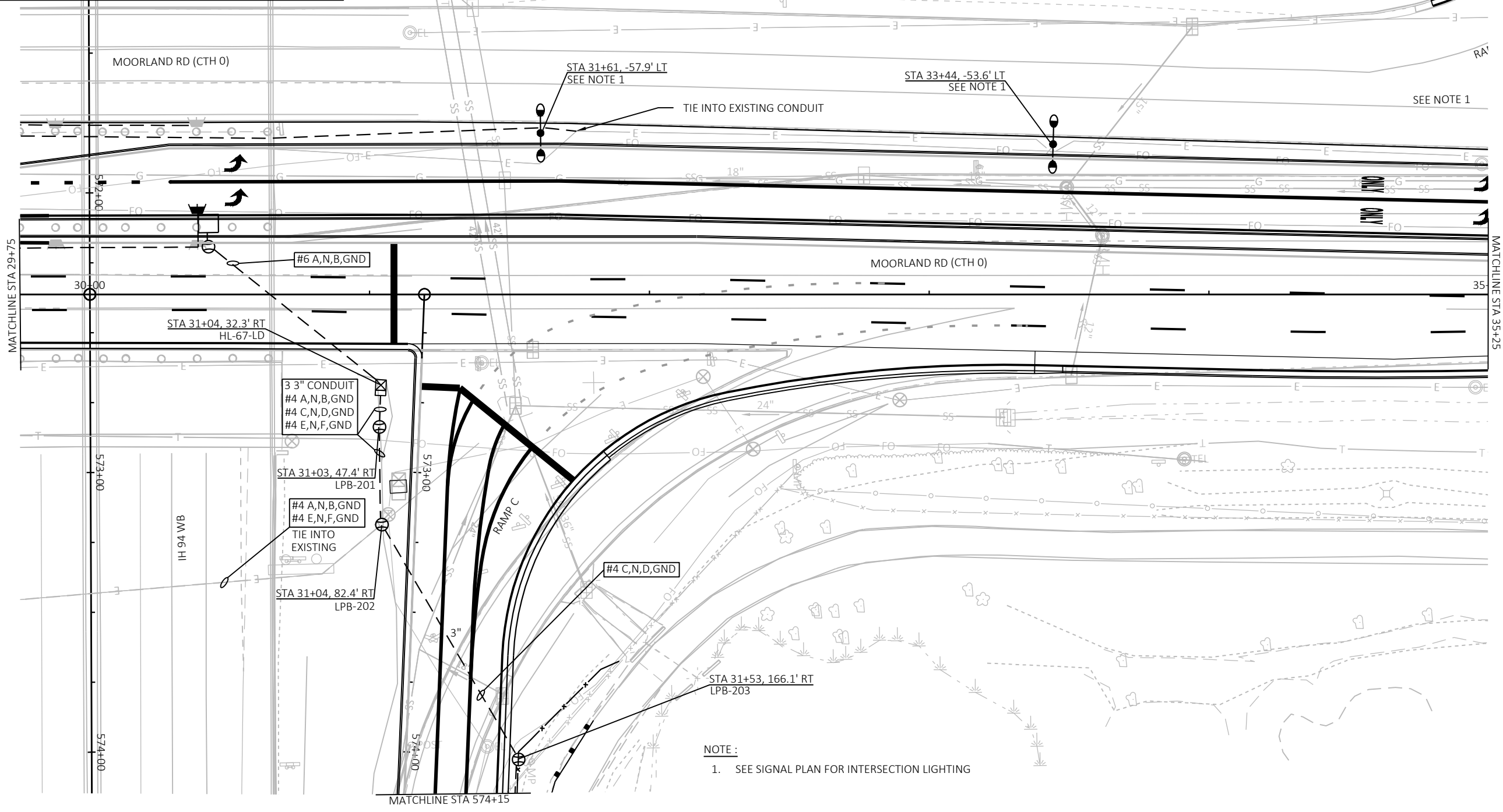
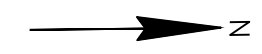
LIGHTING PROPOSED UNDERDECK

SHEET

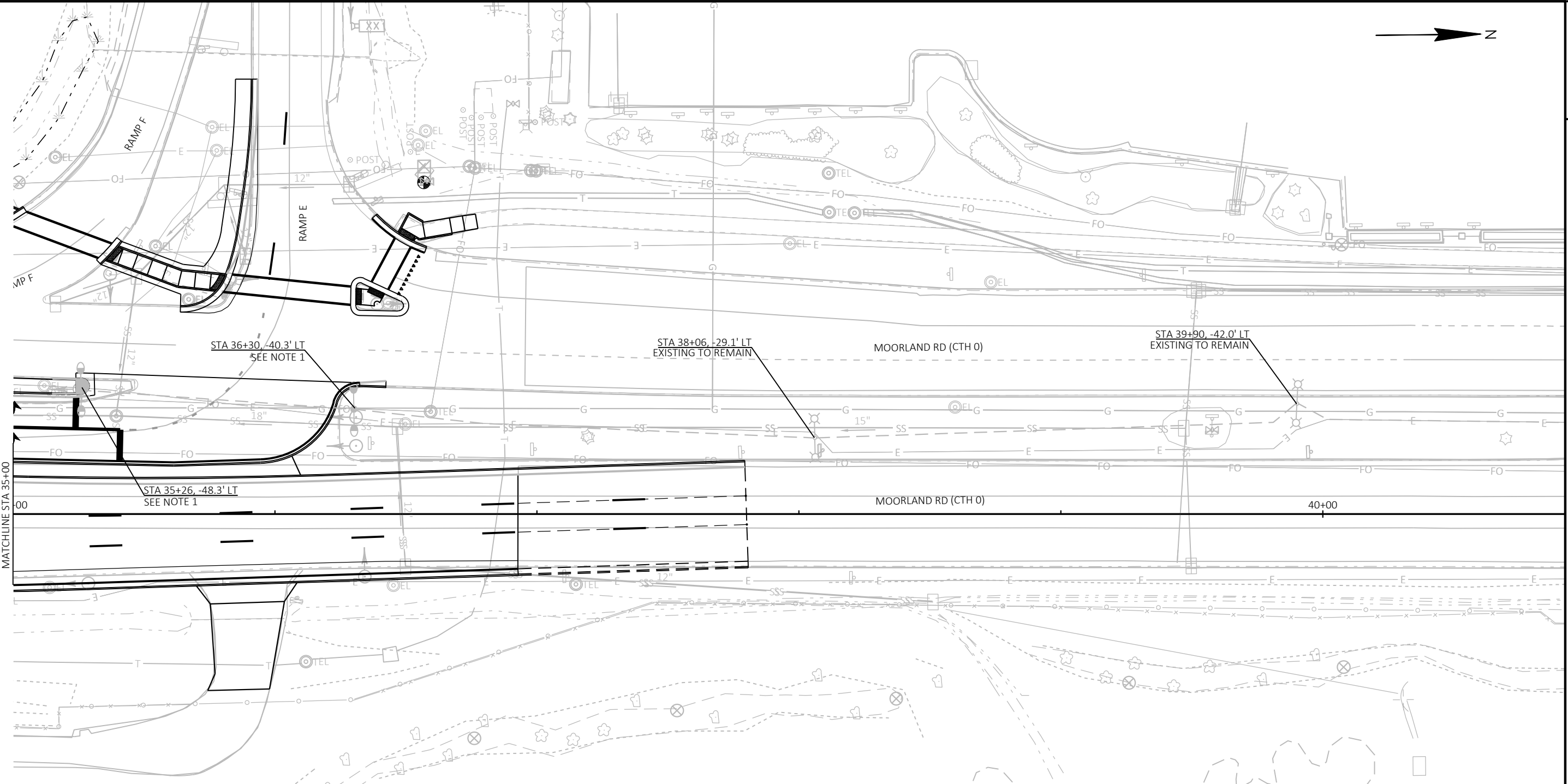
E

LEGEND

-  EXISTING CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  EXISTING SINGLE ARM LIGHTING UNIT
-  PROPOSED SINGLE ARM LIGHTING UNIT
-  PROPOSED DOUBLE ARM LIGHTING UNIT
-  PROPOSED LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  PROPOSED 2" CONDUIT UNLESS OTHERWISE NOTED
-  PROPOSED CONTROL CABINET
-  PROPOSED PULL BOX
-  EXISTING UNDER DECK LUMINAIRE
-  PROPOSED UNDER DECK LUMINAIRE






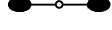






NOTE:  
 1. SEE SIGNAL PLAN FOR INTERSECTION LIGHTING

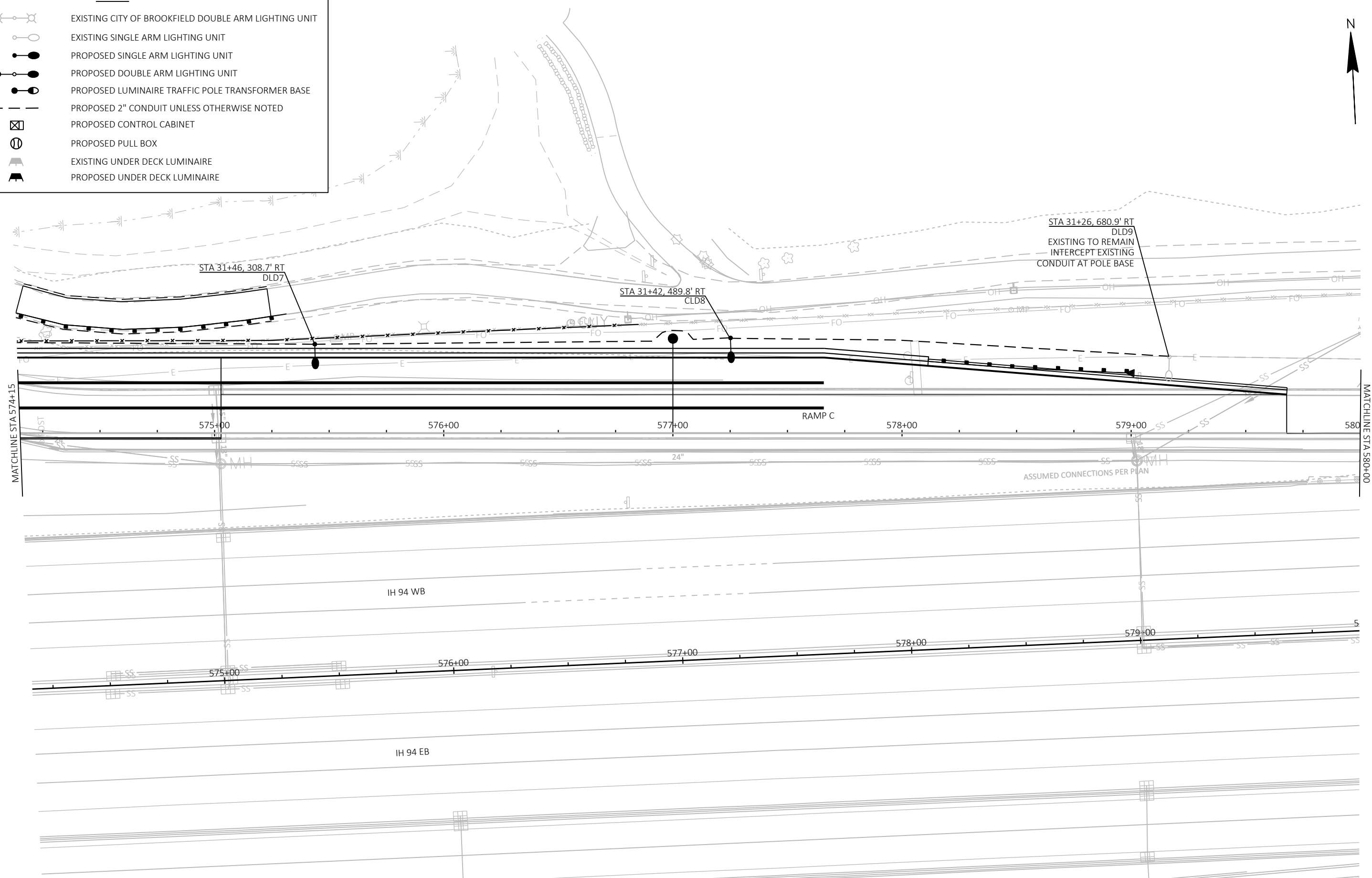


NOTE:  
1. SEE SIGNAL PLAN FOR INTERSECTION LIGHTING













LEGEND	
	EXISTING CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
	EXISTING SINGLE ARM LIGHTING UNIT
	PROPOSED SINGLE ARM LIGHTING UNIT
	PROPOSED DOUBLE ARM LIGHTING UNIT
	PROPOSED LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
	PROPOSED 2" CONDUIT UNLESS OTHERWISE NOTED
	PROPOSED CONTROL CABINET
	PROPOSED PULL BOX
	EXISTING UNDER DECK LUMINAIRE
	PROPOSED UNDER DECK LUMINAIRE

LEGEND

-  EXISTING CITY OF BROOKFIELD DOUBLE ARM LIGHTING UNIT
-  EXISTING SINGLE ARM LIGHTING UNIT
-  PROPOSED SINGLE ARM LIGHTING UNIT
-  PROPOSED DOUBLE ARM LIGHTING UNIT
-  PROPOSED LUMINAIRE TRAFFIC POLE TRANSFORMER BASE
-  PROPOSED 2" CONDUIT UNLESS OTHERWISE NOTED
-  PROPOSED CONTROL CABINET
-  PROPOSED PULL BOX
-  EXISTING UNDER DECK LUMINAIRE
-  PROPOSED UNDER DECK LUMINAIRE



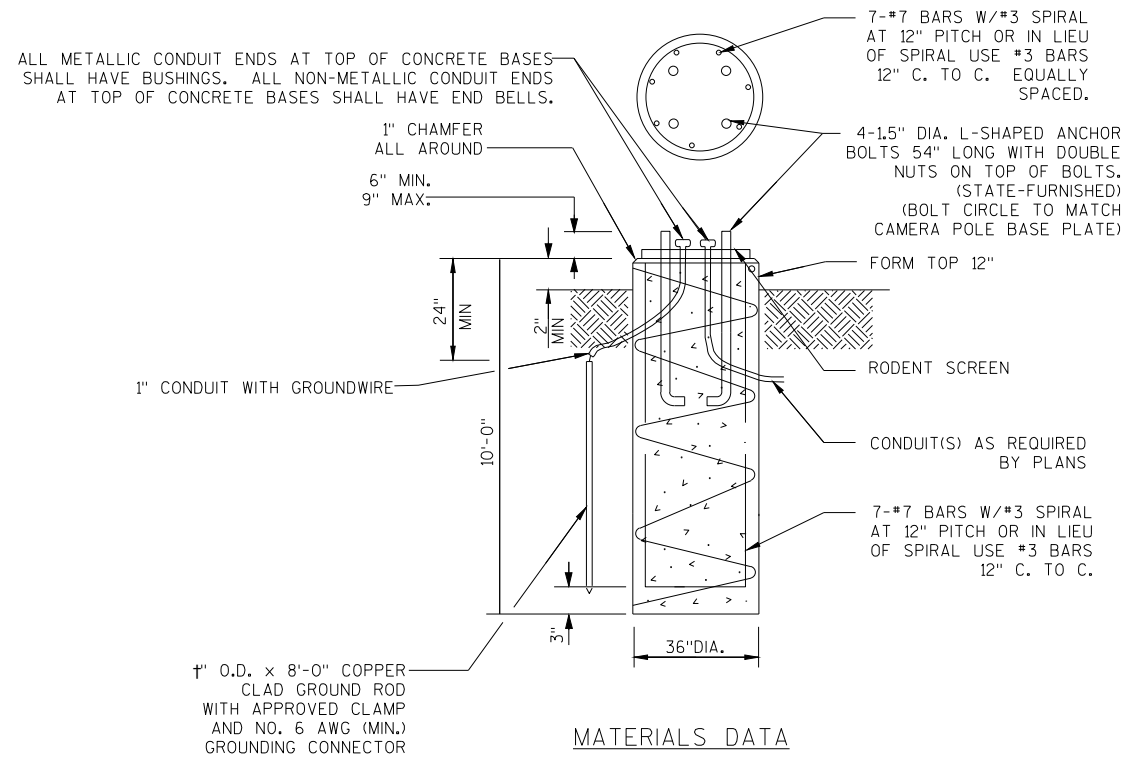
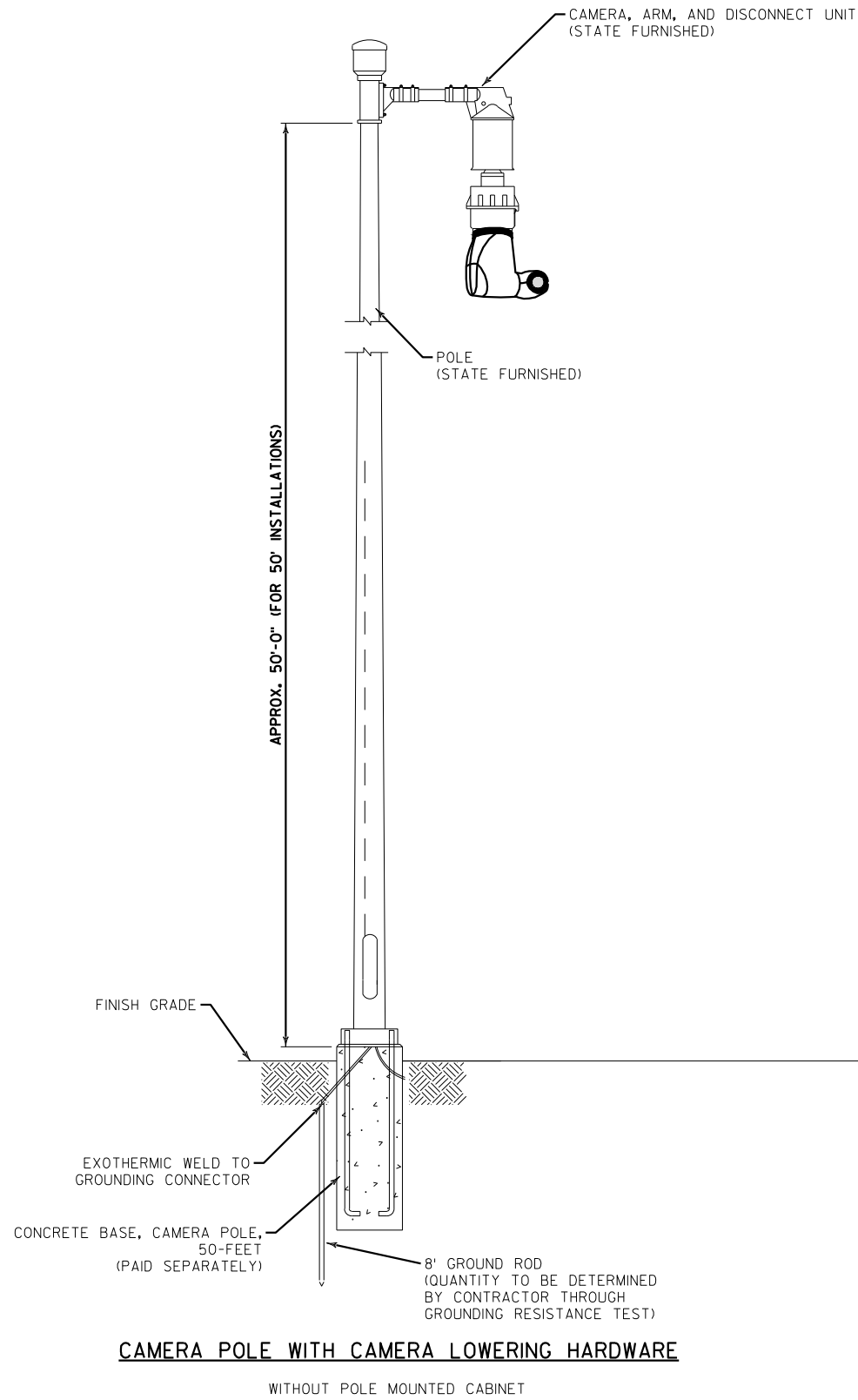
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	LIGHTING PROPOSED	SHEET	<b>E</b>
------------------------	------------	------------------	-------------------	-------	----------

LEGEND	PROPOSED	EXISTING
FTMS CONVENTIONAL SYMBOLS		
POLE MOUNTED CABINET	_____	
METER BREAKER PEDESTAL	_____	
24X42-INCH CSCP PULL BOX		
FTMS (ITS) CONDUIT	---	—
BREAKER DISCONNECT BOX	_____	
COMMUNICATIONS VAULT, TYPE 1		
CCTV BASE, POLE, AND CAMERA		
ITS FIELD CABINET AND CONCRETE BASE	_____	 
RAMP CONTROL SIGNAL ASSEMBLY	_____	
CSCP PULL BOX	_____	

1. THESE PLANS AND THE ASSOCIATED SPECIAL PROVISIONS REFLECT CONDITIONS KNOWN DURING THE DEVELOPMENT OF THE PLANS AND TECHNICAL SPECIAL PROVISIONS. ALL SCALES, DIMENSIONS AND LOCATIONS SHOWN IN THESE PLANS ARE APPROXIMATE. ACTUAL PHYSICAL FIELD CONDITIONS SHALL PROVIDE THE BASIS FOR THE APPLICATION OF WORK SHOWN IN THE PLANS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE APPLICATION OF ALL WORK SHOWN IN THE PLANS TO THE ACTUAL PHYSICAL FIELD CONDITIONS TO PROVIDE A COMPLETE AND ACCEPTED PROJECT. IN THE EVENT THAT ACTUAL PHYSICAL FIELD CONDITIONS AFFECT OR PREVENT THE APPLICATION OR PROGRESSION OF ANY WORK SHOWN IN THE PLANS OR TECHNICAL SPECIAL PROVISIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, AND PRIOR TO ANY FURTHER WORK ACTIVITY. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY LOCATION CHANGES OTHER THAN MINOR ADJUSTMENTS.
2. BE AWARE THAT ALL EXISTING UNDERGROUND AND ABOVE GROUND STRUCTURES AND FACILITIES WITHIN THE SCOPE OF THIS PROJECT MAY NOT BE LOCATED IN THE PLANS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING AND AVOIDING ALL UNDERGROUND AND ABOVE GROUND STRUCTURES AND FACILITIES.
3. BE AWARE THAT NO TEST BORINGS WERE MADE WHERE CONDUITS, PULLBOXES, POLES, CABINET FOUNDATIONS, OR OTHER EQUIPMENT IS TO BE INSTALLED. THE CONTRACTOR IS FULLY RESPONSIBLE FOR EXAMINING THE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS.
4. NO TREES (AND/OR SHRUBS) SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
5. AREAS WITHIN THE RIGHT-OF-WAY DISTURBED SPECIFICALLY FOR FTMS CONSTRUCTION SHALL BE RESTORED TO THE ORIGINAL CONDITION WITH TOPSOIL, FERTILIZER, SEED, AND EROSION MAT, AND SHALL BE INCLUDED IN THE COST OF INSTALLING FTMS ITEMS. RESTORATION FOR AREAS DISTURBED FOR OTHER CONSTRUCTION OPERATIONS BUT ALSO CONTAINING FTMS CONSTRUCTION SHALL BE DONE ACCORDING TO REQUIREMENTS AND PAYMENT PROVISIONS FOR THE OTHER CONSTRUCTION OPERATIONS.
6. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
7. DUE TO RAMP, LANE, SHOULDER CLOSURE RESTRICTIONS, AND WORK UNDER OTHER CONTRACTS, SOME WORK MAY BE REQUIRED TO BE PERFORMED AT NIGHT.
8. THE CONTRACTOR IS FULLY RESPONSIBLE FOR COORDINATING RAMP, LANE, SHOULDER, AND ROADWAY CLOSURES WITH OTHER CONTRACTS IN THE AREA.
9. THE CONTRACTOR SHALL CONTACT THE WISDOT STATEWIDE TRAFFIC OPERATIONS CENTER AT (414)227-2166 FIVE (5) WORKING DAYS PRIOR TO ENTERING ANY EXISTING WISDOT FTMS OR ITS CABINET.
10. ALL LOOP DETECTORS ARE STATIONED TO CENTER OF LEADING EDGE AS APPROACHED BY NORMAL VEHICLE PATH.
11. HAND DIG TRENCHES CROSSING EXISTING CONDUIT CONTAINING FIBER OPTIC CABLE.
12. VISUALLY VERIFY DEPTHS OF EXISTING CONDUITS CONTAINING FIBER OPTIC CABLE PRIOR TO CROSSING BY DIRECTIONAL BORE OR SPECIAL METHOD.

FTMS STANDARD ABBREVIATIONS

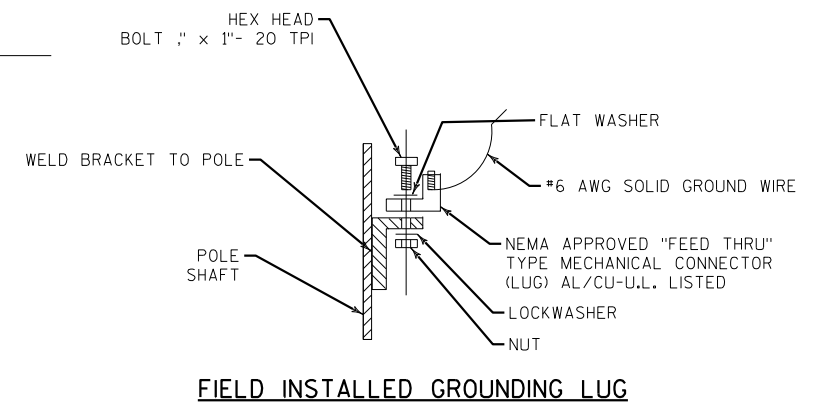
CB	CONTROLLER CABINET
CCTV	CLOSED CIRCUIT TELEVISION SITE
CV	COMMUNICATIONS VAULT
PB	PULL BOX
EX	EXISTING
FOC	FIBER OPTIC CABLE
F.O.	FIBER OPTIC
S-F	STATE-FURNISHED
MH	MANHOLE



**MATERIALS DATA**

CONCRETE  $f'c=3,500$  psi  
 HIGH STRENGTH BAR STEEL REINFORCEMENT  $f_y = 60,000$  psi

**CONCRETE BASE, 50' CAMERA POLE**  
 NOT TO SCALE



**FIELD INSTALLED GROUNDING LUG**

- NOTES**
- 1) ALL HARDWARE AND FASTENERS SHALL BE STAINLESS STEEL
  - 2) POLE DRAWINGS SHOWN FOR BIDDING INFORMATION PURPOSES ONLY. POLES WILL BE STATE FURNISHED.
  - 3) CONTRACTOR SHALL CONFIRM BOLT PATTERN OF CAMERA POLE PRIOR TO CONSTRUCTION OF CONCRETE BASE.
  - 4) CONTRACTOR SHALL INSTALL GROUNDING LUG AS SHOWN

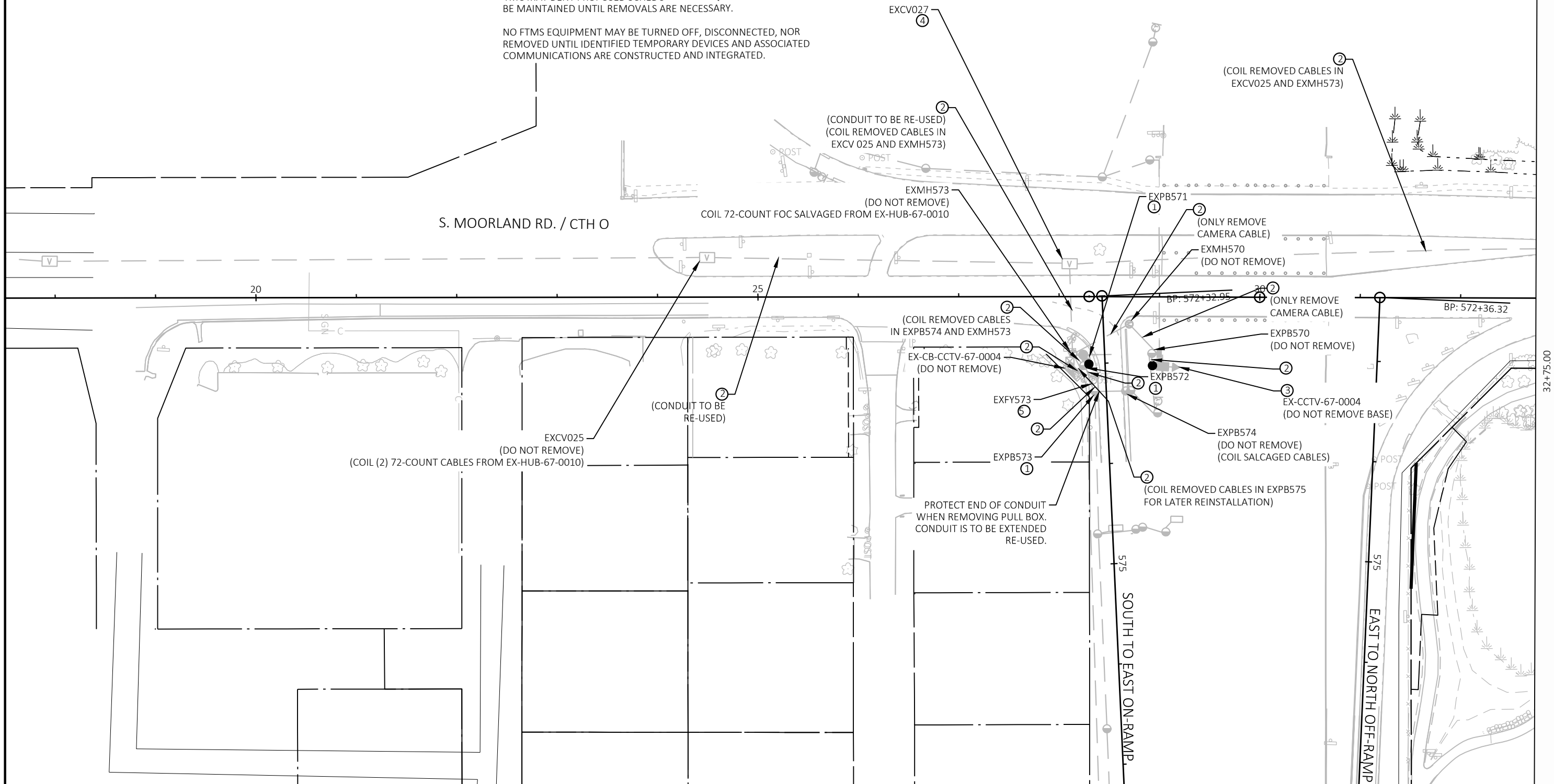
- ① REMOVE PULL BOX
- ② REMOVE CABLE AND ABANDON CONDUIT
- ③ REMOVE CCTV CAMERA AND CAMERA POLE
- ④ REMOVE COMMUNICATIONS VAULT
- ⑤ REMOVE ADVANCE FLASHER ASSEMBLY

THE LOCATION OF THE EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN INCLUDING BUILDING SERVICES AND LATERALS.

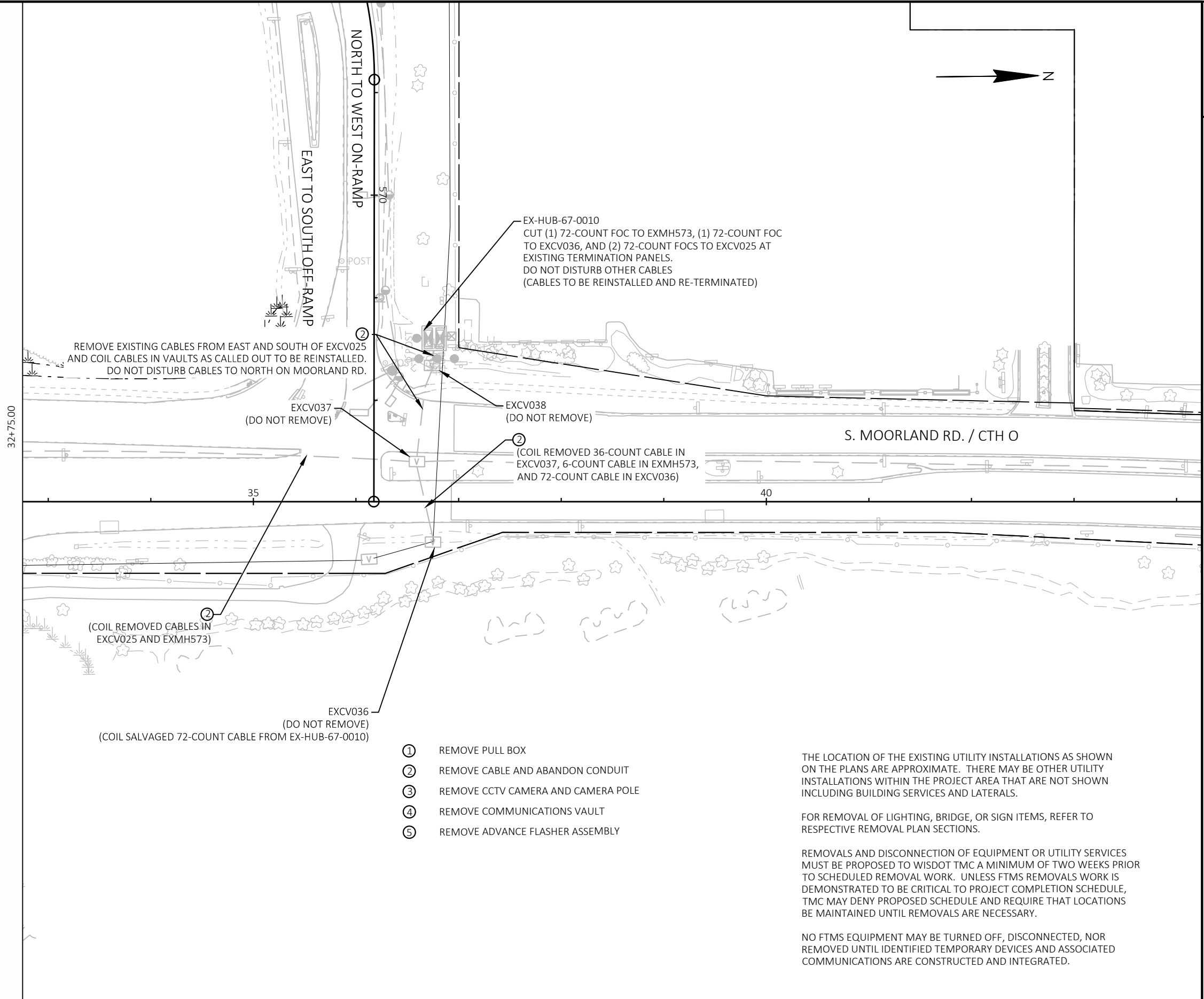
FOR REMOVAL OF LIGHTING, BRIDGE, OR SIGN ITEMS, REFER TO RESPECTIVE REMOVAL PLAN SECTIONS.

REMOVALS AND DISCONNECTION OF EQUIPMENT OR UTILITY SERVICES MUST BE PROPOSED TO WISDOT TMC A MINIMUM OF TWO WEEKS PRIOR TO SCHEDULED REMOVAL WORK. UNLESS FTMS REMOVALS WORK IS DEMONSTRATED TO BE CRITICAL TO PROJECT COMPLETION SCHEDULE, TMC MAY DENY PROPOSED SCHEDULE AND REQUIRE THAT LOCATIONS BE MAINTAINED UNTIL REMOVALS ARE NECESSARY.

NO FTMS EQUIPMENT MAY BE TURNED OFF, DISCONNECTED, NOR REMOVED UNTIL IDENTIFIED TEMPORARY DEVICES AND ASSOCIATED COMMUNICATIONS ARE CONSTRUCTED AND INTEGRATED.



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	FTMS REMOVALS	SHEET	E
------------------------	------------	------------------	---------------	-------	---



32+75.00

NORTH TO WEST ON-RAMP

EAST TO SOUTH OFF-RAMP

N

EX-HUB-67-0010  
 CUT (1) 72-COUNT FOC TO EXMH573, (1) 72-COUNT FOC TO EXCV036, AND (2) 72-COUNT FOCs TO EXCV025 AT EXISTING TERMINATION PANELS.  
 DO NOT DISTURB OTHER CABLES  
 (CABLES TO BE REINSTALLED AND RE-TERMINATED)

REMOVE EXISTING CABLES FROM EAST AND SOUTH OF EXCV025 AND COIL CABLES IN VAULTS AS CALLED OUT TO BE REINSTALLED. DO NOT DISTURB CABLES TO NORTH ON MOORLAND RD.

EXCV037  
 (DO NOT REMOVE)

EXCV038  
 (DO NOT REMOVE)

S. MOORLAND RD. / CTH O

(COIL REMOVED 36-COUNT CABLE IN EXCV037, 6-COUNT CABLE IN EXMH573, AND 72-COUNT CABLE IN EXCV036)

(COIL REMOVED CABLES IN EXCV025 AND EXMH573)

EXCV036  
 (DO NOT REMOVE)  
 (COIL SALVAGED 72-COUNT CABLE FROM EX-HUB-67-0010)

- ① REMOVE PULL BOX
- ② REMOVE CABLE AND ABANDON CONDUIT
- ③ REMOVE CCTV CAMERA AND CAMERA POLE
- ④ REMOVE COMMUNICATIONS VAULT
- ⑤ REMOVE ADVANCE FLASHER ASSEMBLY

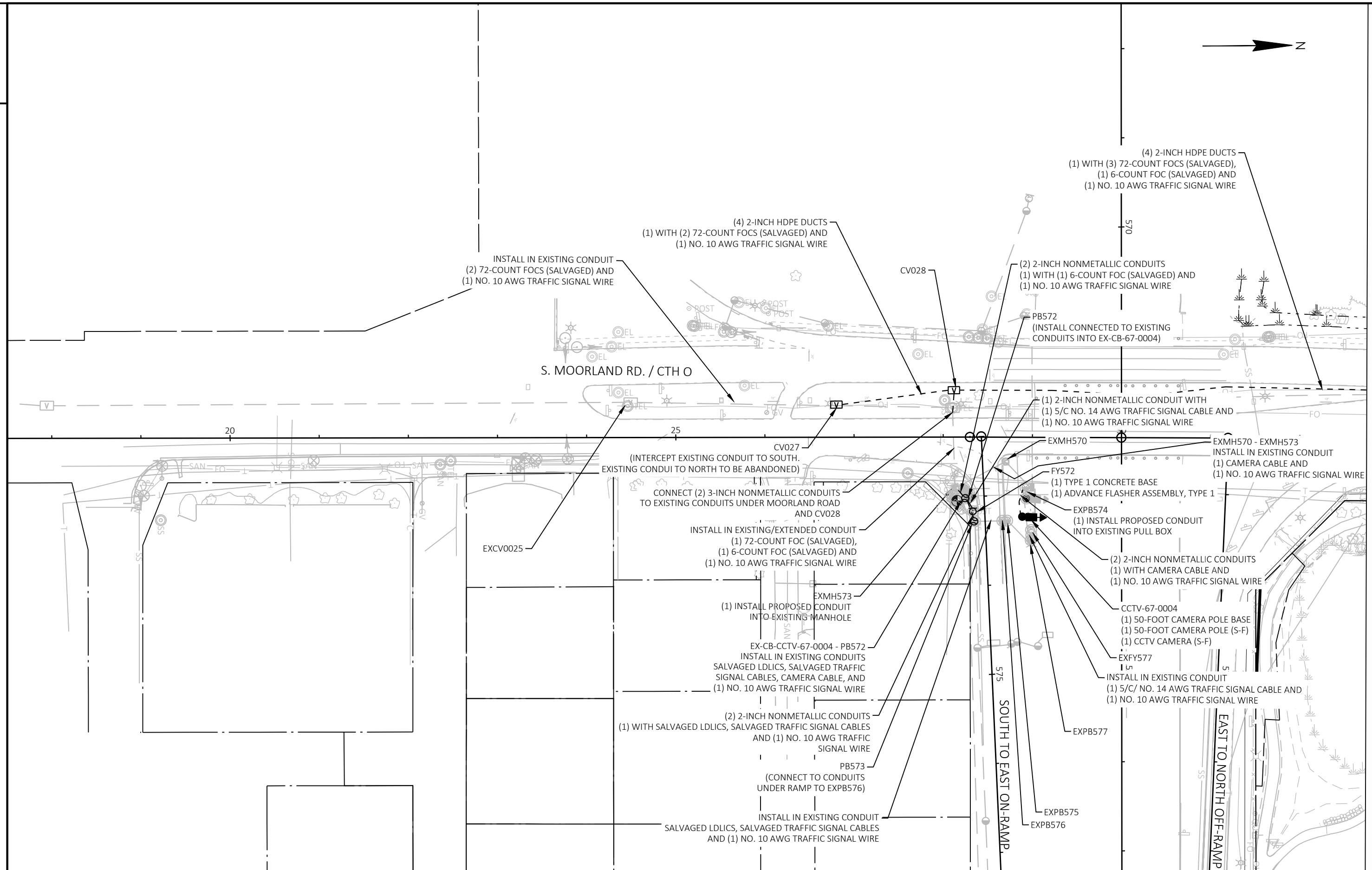
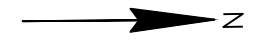
THE LOCATION OF THE EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN INCLUDING BUILDING SERVICES AND LATERALS.

FOR REMOVAL OF LIGHTING, BRIDGE, OR SIGN ITEMS, REFER TO RESPECTIVE REMOVAL PLAN SECTIONS.

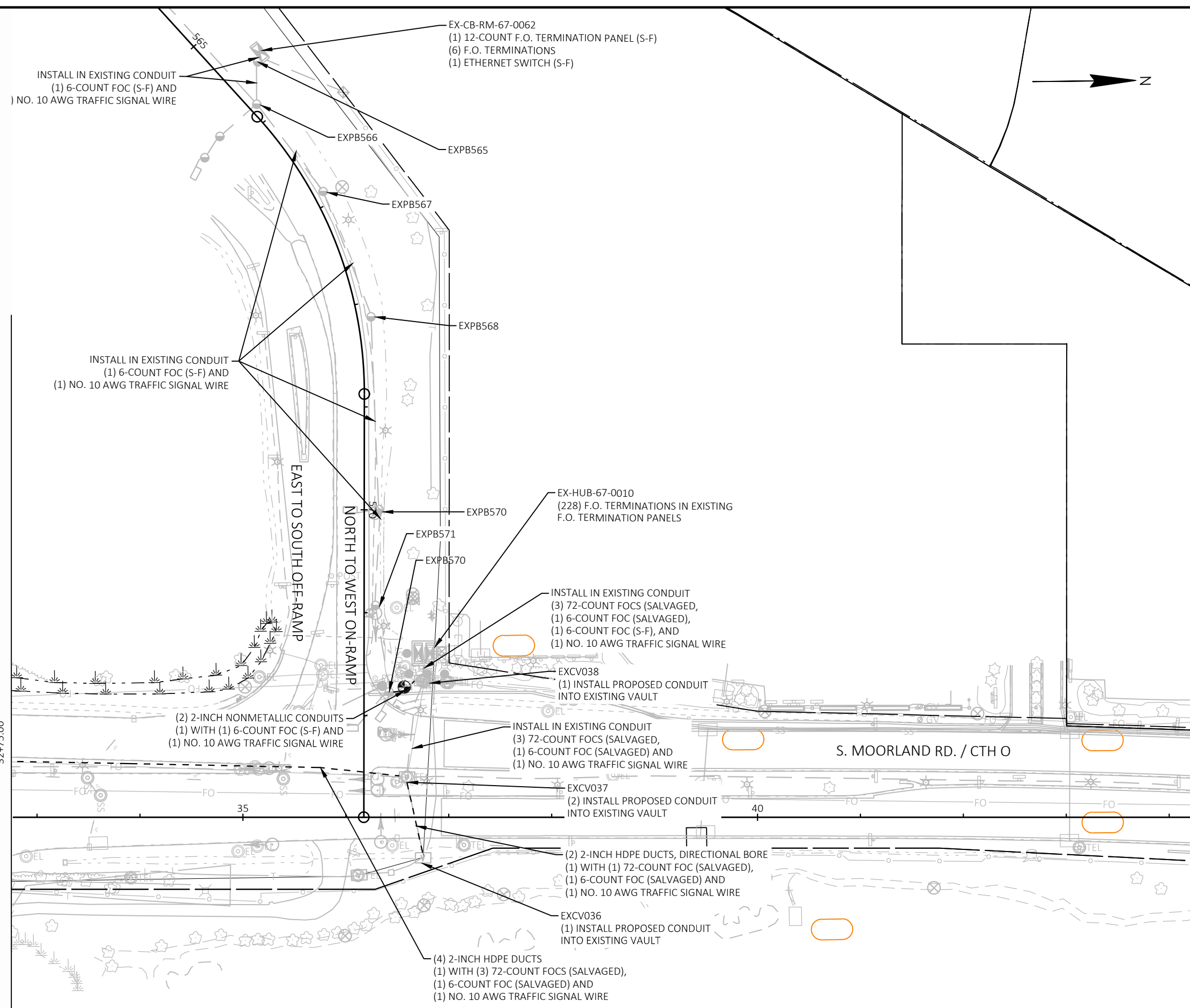
REMOVALS AND DISCONNECTION OF EQUIPMENT OR UTILITY SERVICES MUST BE PROPOSED TO WISDOT TMC A MINIMUM OF TWO WEEKS PRIOR TO SCHEDULED REMOVAL WORK. UNLESS FTMS REMOVALS WORK IS DEMONSTRATED TO BE CRITICAL TO PROJECT COMPLETION SCHEDULE, TMC MAY DENY PROPOSED SCHEDULE AND REQUIRE THAT LOCATIONS BE MAINTAINED UNTIL REMOVALS ARE NECESSARY.

NO FTMS EQUIPMENT MAY BE TURNED OFF, DISCONNECTED, NOR REMOVED UNTIL IDENTIFIED TEMPORARY DEVICES AND ASSOCIATED COMMUNICATIONS ARE CONSTRUCTED AND INTEGRATED.





PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	FTMS DESIGN	SHEET	E
------------------------	------------	------------------	-------------	-------	---



PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

FTMS DESIGN

SHEET

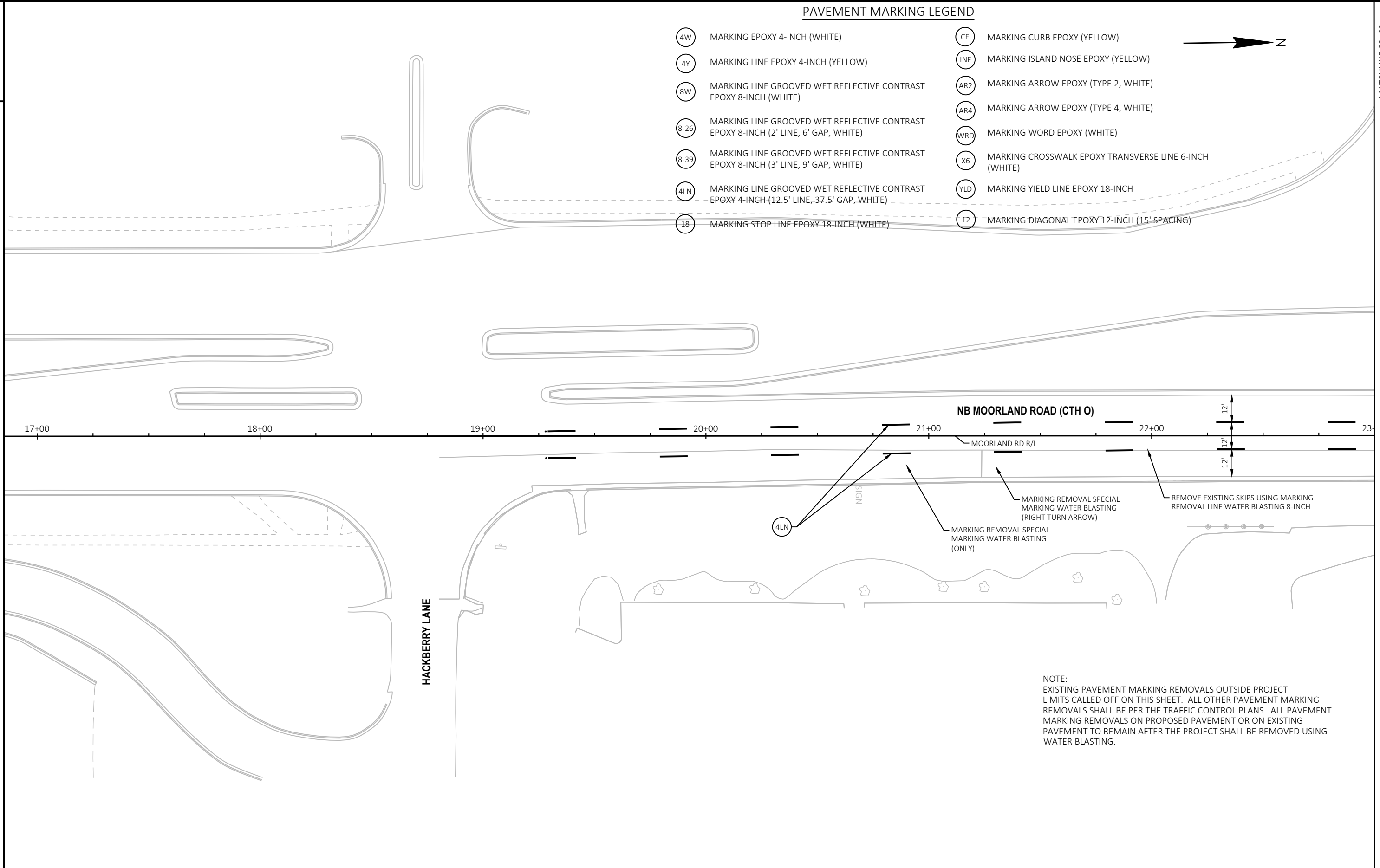
E

PAVEMENT MARKING LEGEND

- (4W) MARKING EPOXY 4-INCH (WHITE)
- (4Y) MARKING LINE EPOXY 4-INCH (YELLOW)
- (8W) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (WHITE)
- (8-26) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (2' LINE, 6' GAP, WHITE)
- (8-39) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (3' LINE, 9' GAP, WHITE)
- (4LN) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 4-INCH (12.5' LINE, 37.5' GAP, WHITE)
- (18) MARKING STOP LINE EPOXY 18-INCH (WHITE)
- (CE) MARKING CURB EPOXY (YELLOW)
- (INE) MARKING ISLAND NOSE EPOXY (YELLOW)
- (AR2) MARKING ARROW EPOXY (TYPE 2, WHITE)
- (AR4) MARKING ARROW EPOXY (TYPE 4, WHITE)
- (WRD) MARKING WORD EPOXY (WHITE)
- (X6) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)
- (YLD) MARKING YIELD LINE EPOXY 18-INCH
- (12) MARKING DIAGONAL EPOXY 12-INCH (15' SPACING)



MATCHLINE 23+00



NB MOORLAND ROAD (CTH O)

MOORLAND RD R/L

SIGN

(4LN)

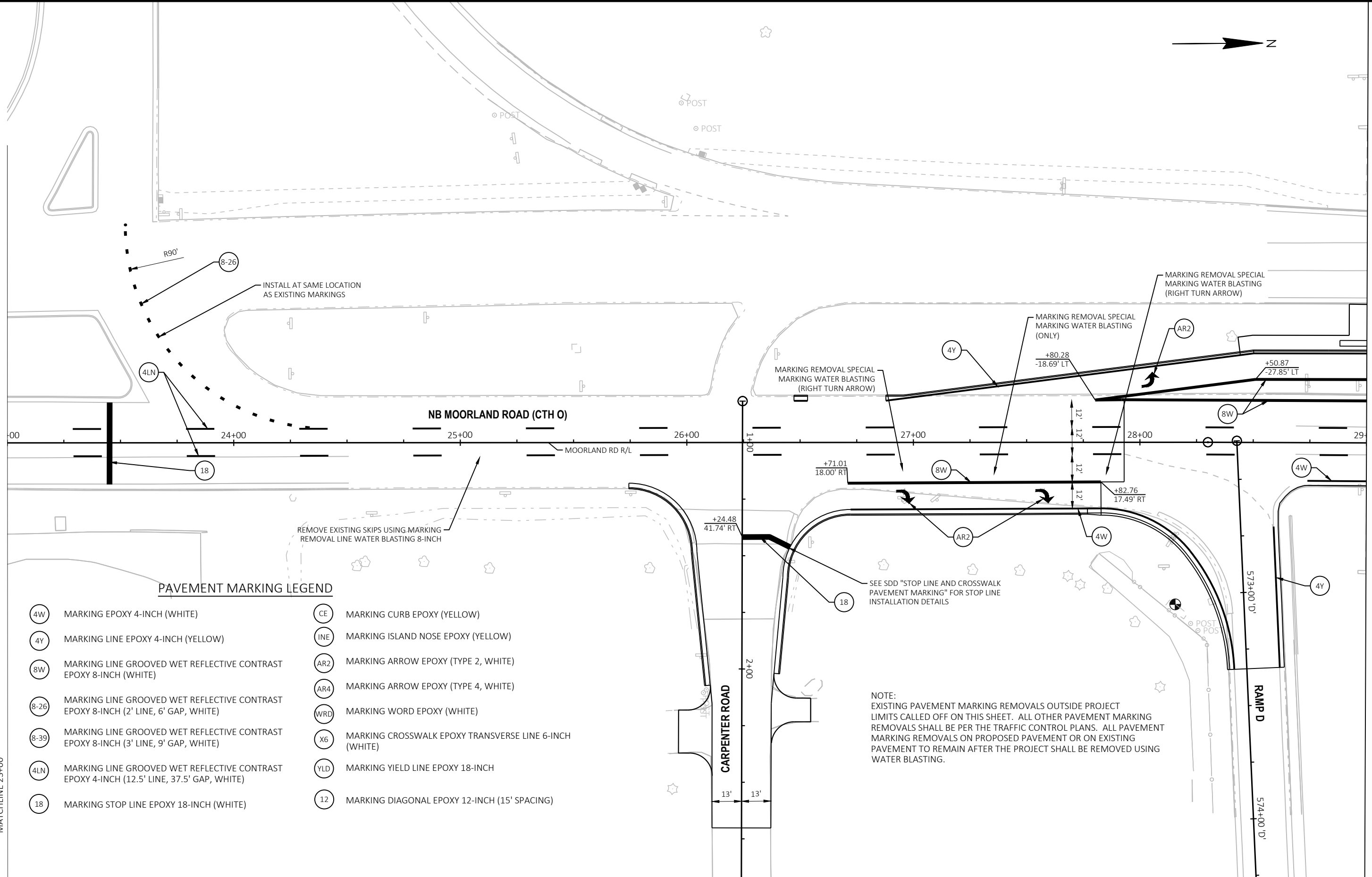
MARKING REMOVAL SPECIAL MARKING WATER BLASTING (ONLY)

MARKING REMOVAL SPECIAL MARKING WATER BLASTING (RIGHT TURN ARROW)

REMOVE EXISTING SKIPS USING MARKING REMOVAL LINE WATER BLASTING 8-INCH

HACKBERRY LANE

NOTE:  
 EXISTING PAVEMENT MARKING REMOVALS OUTSIDE PROJECT LIMITS CALLED OFF ON THIS SHEET. ALL OTHER PAVEMENT MARKING REMOVALS SHALL BE PER THE TRAFFIC CONTROL PLANS. ALL PAVEMENT MARKING REMOVALS ON PROPOSED PAVEMENT OR ON EXISTING PAVEMENT TO REMAIN AFTER THE PROJECT SHALL BE REMOVED USING WATER BLASTING.



**PAVEMENT MARKING LEGEND**

- |  |   |
|--|---|
| (4W) MARKING EPOXY 4-INCH (WHITE)  | (CE) MARKING CURB EPOXY (YELLOW)                            |
| (4Y) MARKING LINE EPOXY 4-INCH (YELLOW)  | (INE) MARKING ISLAND NOSE EPOXY (YELLOW)                    |
| (8W) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (WHITE)                         | (AR2) MARKING ARROW EPOXY (TYPE 2, WHITE)                   |
| (8-26) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (2' LINE, 6' GAP, WHITE)      | (AR4) MARKING ARROW EPOXY (TYPE 4, WHITE)                   |
| (8-39) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (3' LINE, 9' GAP, WHITE)      | (WRD) MARKING WORD EPOXY (WHITE)                            |
| (4LN) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 4-INCH (12.5' LINE, 37.5' GAP, WHITE) | (X6) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE) |
| (18) MARKING STOP LINE EPOXY 18-INCH (WHITE)   | (YLD) MARKING YIELD LINE EPOXY 18-INCH                      |
|  | (12) MARKING DIAGONAL EPOXY 12-INCH (15' SPACING)           |

MATCHLINE 23+00

MATCHLINE 29+00

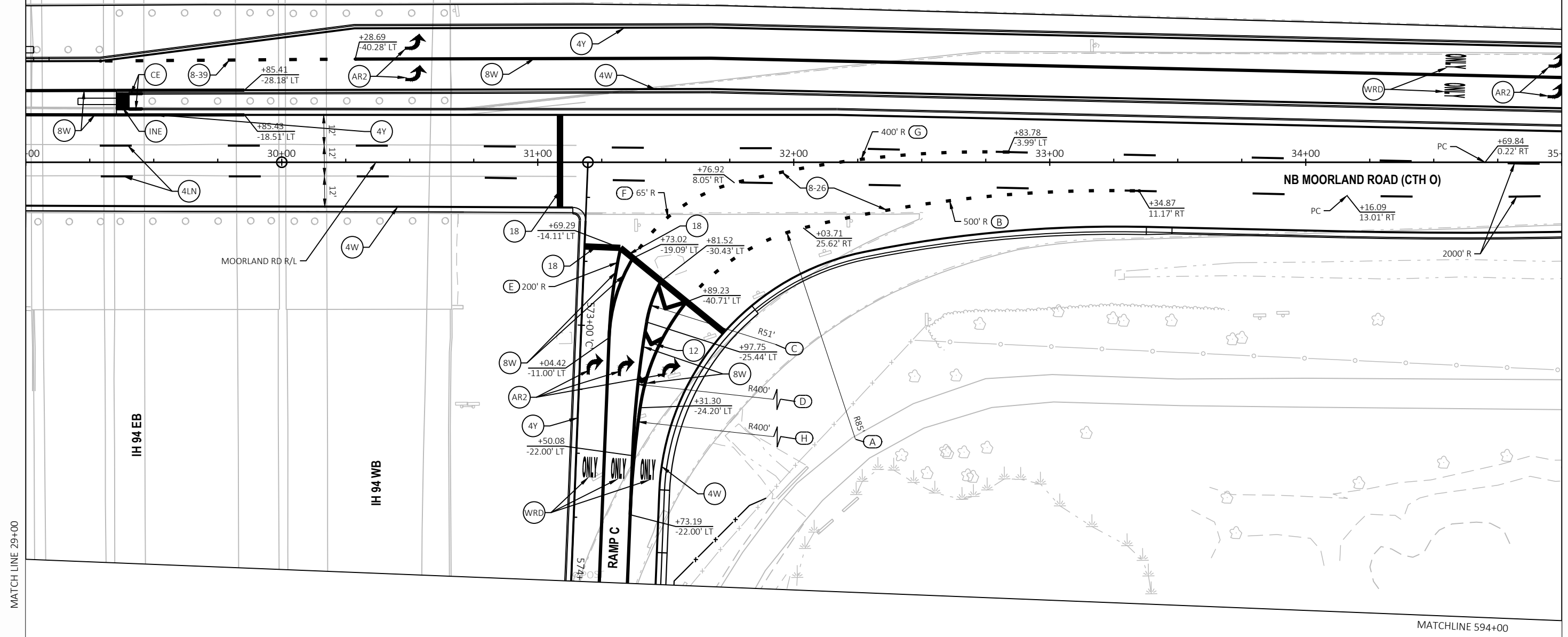
PAVEMENT MARKING LEGEND

- (4W) MARKING EPOXY 4-INCH (WHITE)
- (4Y) MARKING LINE EPOXY 4-INCH (YELLOW)
- (8W) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (WHITE)
- (8-26) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (2' LINE, 6' GAP, WHITE)
- (8-39) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (3' LINE, 9' GAP, WHITE)
- (4LN) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 4-INCH (12.5' LINE, 37.5' GAP, WHITE)
- (18) MARKING STOP LINE EPOXY 18-INCH (WHITE)
- (CE) MARKING CURB EPOXY (YELLOW)
- (INE) MARKING ISLAND NOSE EPOXY (YELLOW)
- (AR2) MARKING ARROW EPOXY (TYPE 2, WHITE)
- (AR4) MARKING ARROW EPOXY (TYPE 4, WHITE)
- (WRD) MARKING WORD EPOXY (WHITE)
- (X6) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)
- (YLD) MARKING YIELD LINE EPOXY 18-INCH
- (12) MARKING DIAGONAL EPOXY 12-INCH (15' SPACING)

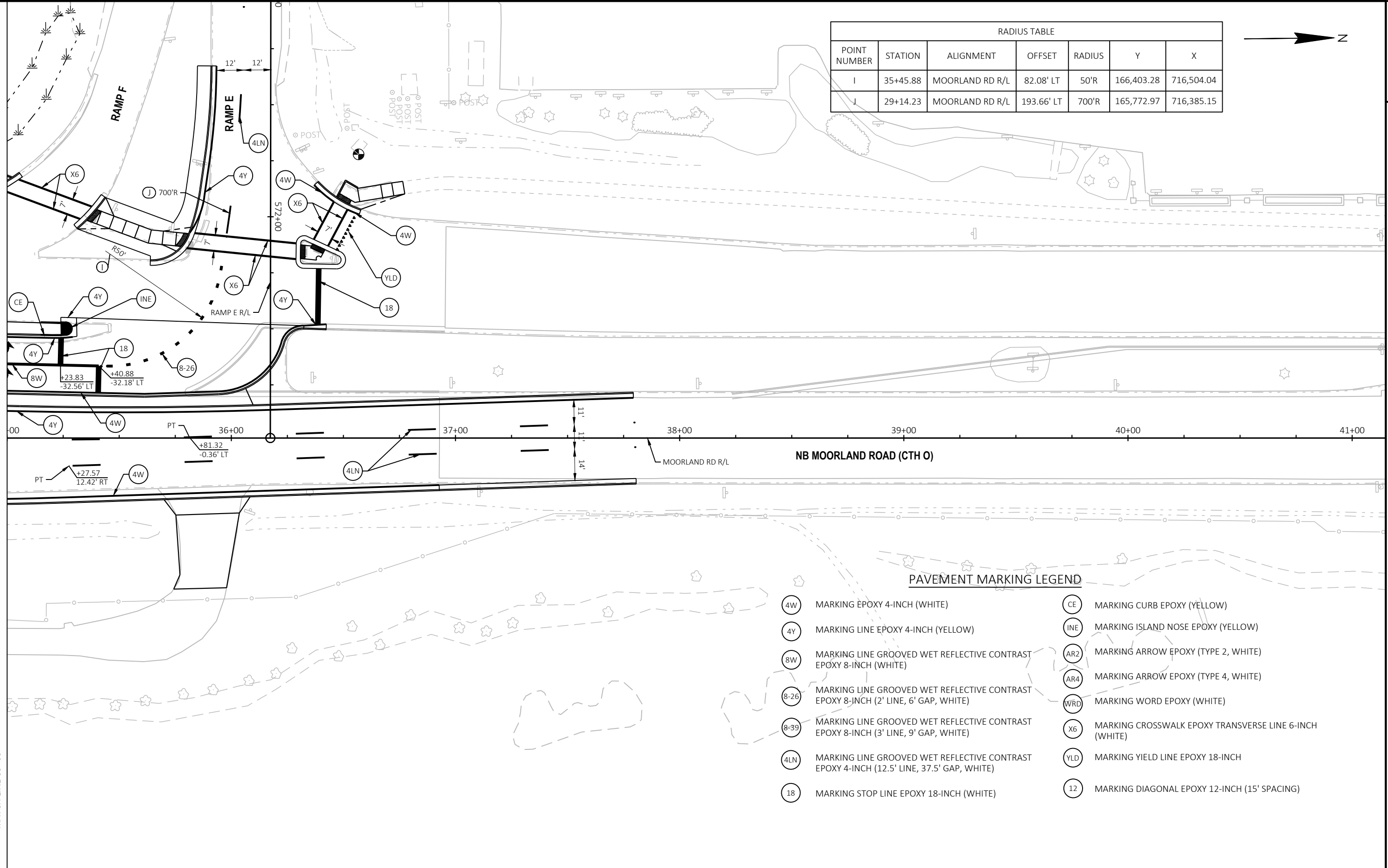
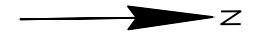
RADIUS TABLE						
POINT NUMBER	STATION	ALIGNMENT	OFFSET	RADIUS	Y	X
A	32+24.09	MOORLAND RD R/L	108.14' RT	85'R	166,079.31	716,690.52
B	33+23.56	MOORLAND RD R/L	511.04' RT	500'R	166,174.11	717,094.55
C	31+92.81	MOORLAND RD R/L	71.08' RT	51'R	166,048.46	716,653.10
D	35+36.71	MOORLAND RD R/L	130.52' RT	400'R	166,391.65	716,716.52
E	33+27.70	MOORLAND RD R/L	76.47' RT	200'R	166,183.28	716,660.05
F	31+92.81	MOORLAND RD R/L	71.08' RT	65'R	166,048.46	716,653.10
G	32+74.73	MOORLAND RD R/L	395.91' RT	400'R	166,126.61	716,978.86
H	35+35.79	MOORLAND RD R/L	153.61' RT	400'R	166,390.46	716,739.59



MATCH LINE 35+00



RADIUS TABLE						
POINT NUMBER	STATION	ALIGNMENT	OFFSET	RADIUS	Y	X
I	35+45.88	MOORLAND RD R/L	82.08' LT	50'R	166,403.28	716,504.04
J	29+14.23	MOORLAND RD R/L	193.66' LT	700'R	165,772.97	716,385.15



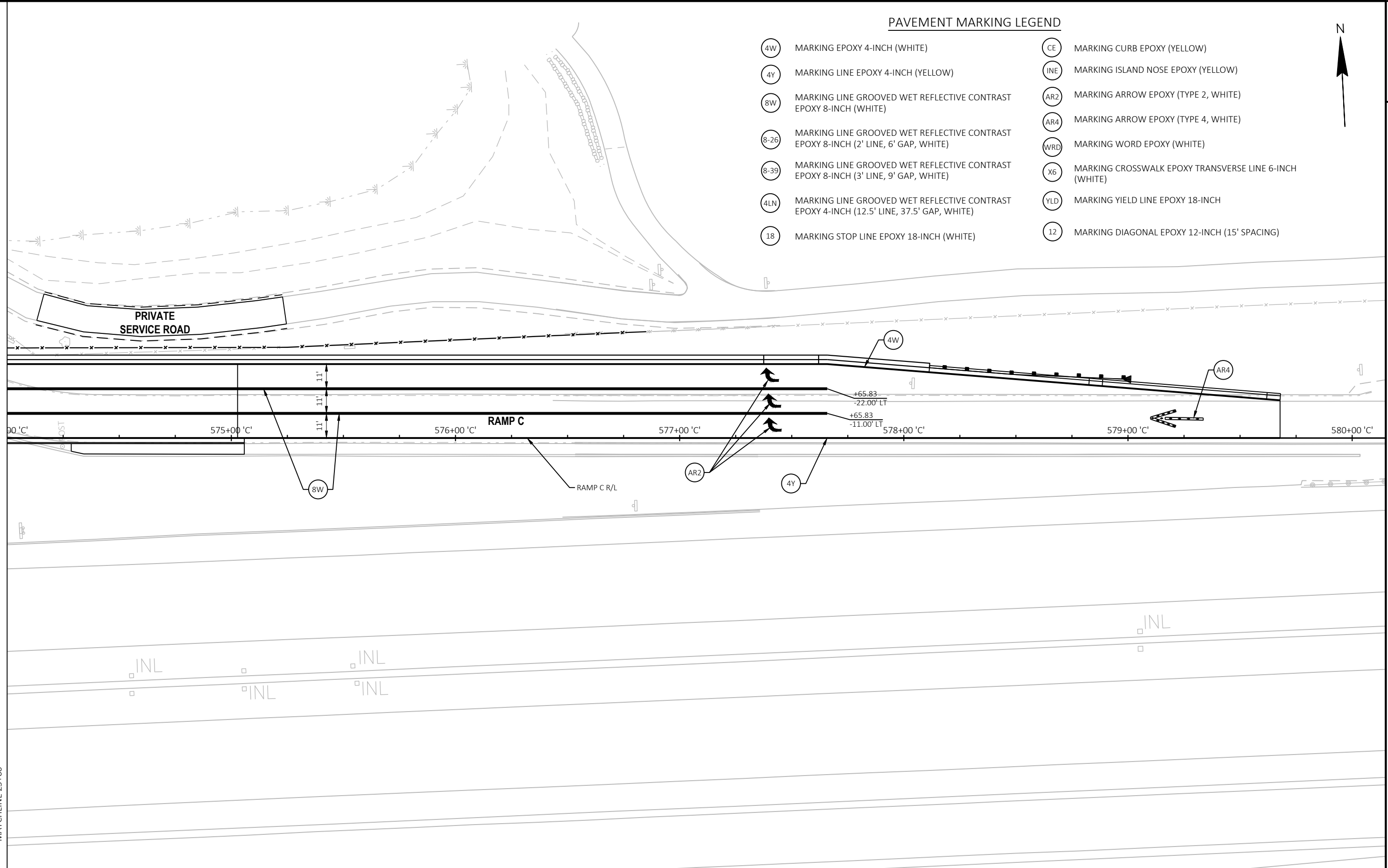
**PAVEMENT MARKING LEGEND**

- (4W) MARKING EPOXY 4-INCH (WHITE)
- (4Y) MARKING LINE EPOXY 4-INCH (YELLOW)
- (8W) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (WHITE)
- (8-26) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (2' LINE, 6' GAP, WHITE)
- (8-39) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (3' LINE, 9' GAP, WHITE)
- (4LN) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 4-INCH (12.5' LINE, 37.5' GAP, WHITE)
- (18) MARKING STOP LINE EPOXY 18-INCH (WHITE)
- (CE) MARKING CURB EPOXY (YELLOW)
- (INE) MARKING ISLAND NOSE EPOXY (YELLOW)
- (AR2) MARKING ARROW EPOXY (TYPE 2, WHITE)
- (AR4) MARKING ARROW EPOXY (TYPE 4, WHITE)
- (WRD) MARKING WORD EPOXY (WHITE)
- (X6) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)
- (YLD) MARKING YIELD LINE EPOXY 18-INCH
- (12) MARKING DIAGONAL EPOXY 12-INCH (15' SPACING)

MATCH LINE 35+00

PAVEMENT MARKING LEGEND















- (4W) MARKING EPOXY 4-INCH (WHITE)
- (4Y) MARKING LINE EPOXY 4-INCH (YELLOW)
- (8W) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (WHITE)
- (8-26) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (2' LINE, 6' GAP, WHITE)
- (8-39) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 8-INCH (3' LINE, 9' GAP, WHITE)
- (4LN) MARKING LINE GROOVED WET REFLECTIVE CONTRAST EPOXY 4-INCH (12.5' LINE, 37.5' GAP, WHITE)
- (18) MARKING STOP LINE EPOXY 18-INCH (WHITE)
- (CE) MARKING CURB EPOXY (YELLOW)
- (INE) MARKING ISLAND NOSE EPOXY (YELLOW)
- (AR2) MARKING ARROW EPOXY (TYPE 2, WHITE)
- (AR4) MARKING ARROW EPOXY (TYPE 4, WHITE)
- (WRD) MARKING WORD EPOXY (WHITE)
- (X6) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)
- (YLD) MARKING YIELD LINE EPOXY 18-INCH
- (12) MARKING DIAGONAL EPOXY 12-INCH (15' SPACING)











GENERAL NOTES FOR CONSTRUCTION STAGING AND TRAFFIC CONTROL:

1. TRAFFIC CONTROL DRUMS IN TAPERS SHALL BE EQUIPPED WITH WARNING LIGHTS, TYPE "C", ONE WAY LIGHTS, UNLESS OTHERWISE SHOWN.
2. SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATION AND SPACING MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO MEET FIELD CONDITIONS.
3. SIGNS IN CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED. THE COVERING OF TYPE II SIGNS IS INCLUDED UNDER THE BID ITEM TRAFFIC CONTROL COVERING SIGNS TYPE II.
4. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS REFLECTIVE ORANGE.
5. ALL TRAFFIC CONTROL SIGNS SHALL BE 48"X48" UNLESS OTHERWISE NOTED IN THE PLANS.
6. A FLAGGER MAY BE REQUIRED WHERE CONSTRUCTION VEHICLES ENTER OR LEAVE "WORK/CLOSED" AREAS IF WARRANTED BY CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.
7. CONTRACTOR SHALL INSTALL PERMANENT SIGNS AND PERMANENT PAVEMENT MARKING WHEN APPROPRIATE DURING CONSTRUCTION STAGING AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
8. ADEQUATE TURNING PROVISIONS SHALL BE MAINTAINED FOR ALL VEHICLES, INCLUDING TRUCKS.
9. EXISTING PAVEMENT MARKINGS TO BE REMOVED THAT WILL NOT BE REPLACED IN THE SAME LOCATION AFTER CONSTRUCTION SHALL BE REMOVED USING MARKING REMOVAL LINE WATER BLASTING. DO NOT GRIND EXISTING PAVEMENT MARKINGS THAT WILL NOT BE REPLACED AFTER CONSTRUCTION.
10. BARRICADE STRIPES SHALL POINT DOWNWARD IN THE DIRECTION OF TRAFFIC FLOW.
11. THE CONTRACTOR SHALL ENSURE ADEQUATE DRAINAGE AND AVOID ANY PONDING OR STANDING WATER DURING THE STAGED CONSTRUCTION.
12. TEMPORARY MARKINGS SHALL BE TEMPORARY TAPE WHEN PLACED ON NEW OR EXISTING PAVEMENT SURFACES THAT ARE TO REMAIN IN PLACE FOLLOWING CONSTRUCTION. PAINT MAY BE USED ON EXISTING PAVEMENT OR BINDER HMA LAYERS THAT ARE TO BE REMOVED OR OVERLAID IN SUBSEQUENT STAGES.

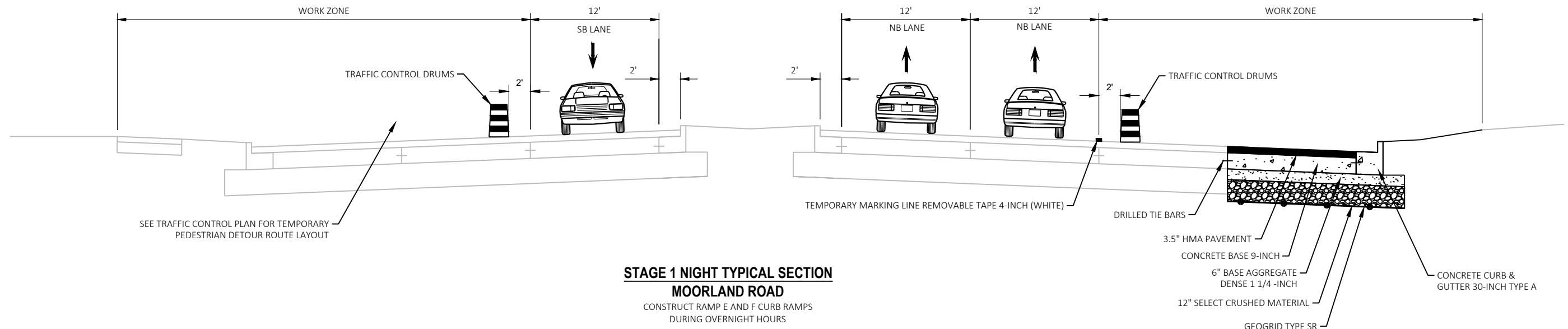
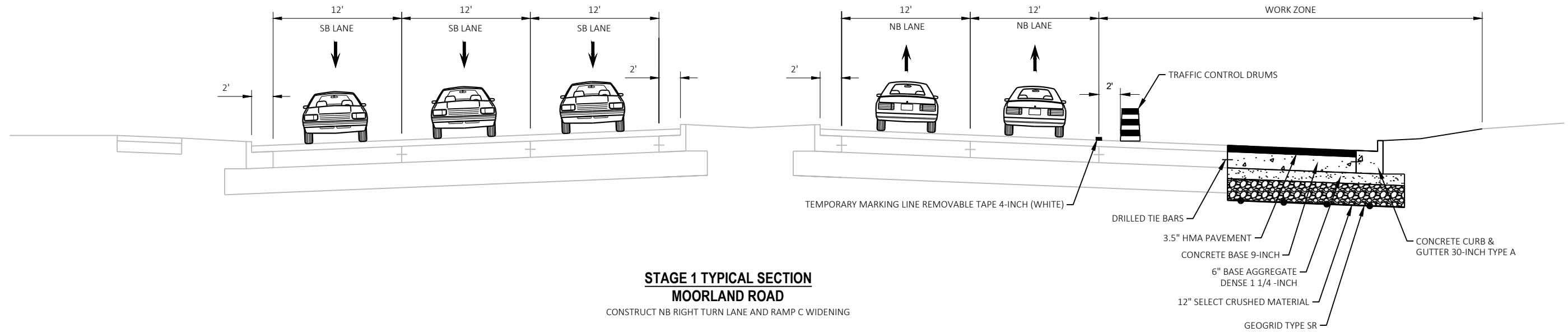
LEGEND

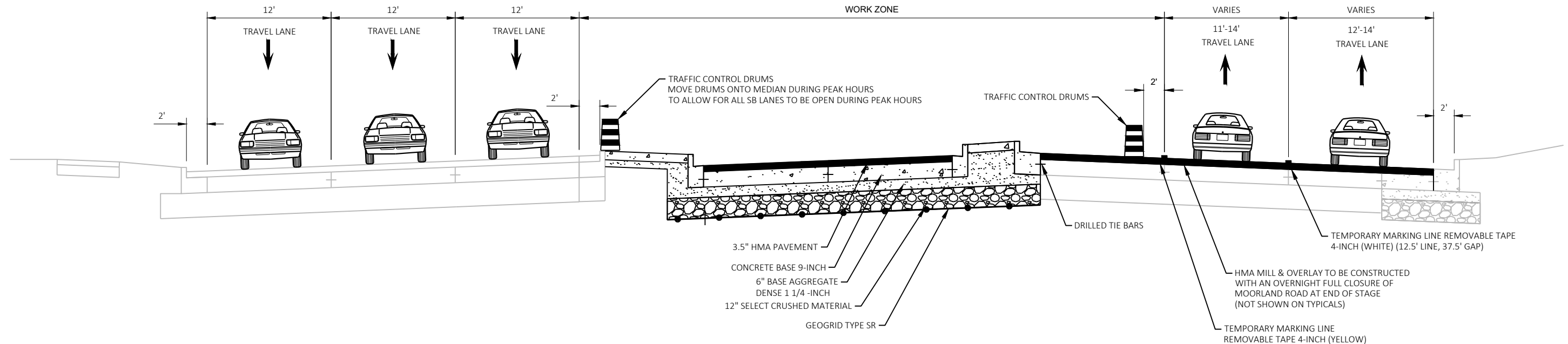
-  WORK ZONE
-  TRAFFIC CONTROL COVERING SIGNS
-  TRAFFIC FLOW
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  TRAFFIC CONTROL ARROW BOARD
-  POST MOUNTED TRAFFIC CONTROL SIGNS
-  TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL BARRICADE TYPE III WITH TWO TYPE A WARNING LIGHTS WITH/WITHOUT SIGN
- ETSR EXISTING SIGN TO REMAIN
-  TRAFFIC CONTROL SIGNS PCMS
-  PAVEMENT MARKING INSTALLED THIS STAGE
-  PAVEMENT MARKING INSTALLED IN PREVIOUS STAGE
-  TEMPORARY PEDESTRIAN BARRICADE
-  TEMPORARY 16"X16" FLAGS (INCIDENTAL TO TRAFFIC CONTROL SIGNS)
- xxxx REMOVING PAVEMENT MARKINGS

TEMPORARY PAVEMENT MARKING LEGEND

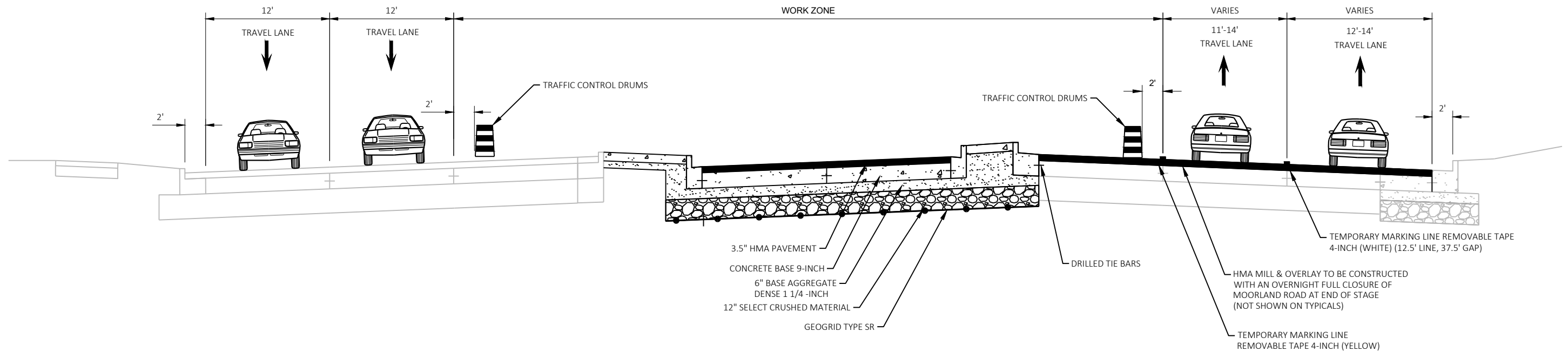
-  PERMANENT PAVEMENT MARKINGS (SEE PAVEMENT MARKING PLAN)
-  TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH (BLACK)
-  TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH (WHITE)
-  TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
-  TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH (WHITE)
-  TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE) (12.5' LINE, 37.5' GAP)
-  TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE) (3' SKIP, 9' GAP)
-  TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)



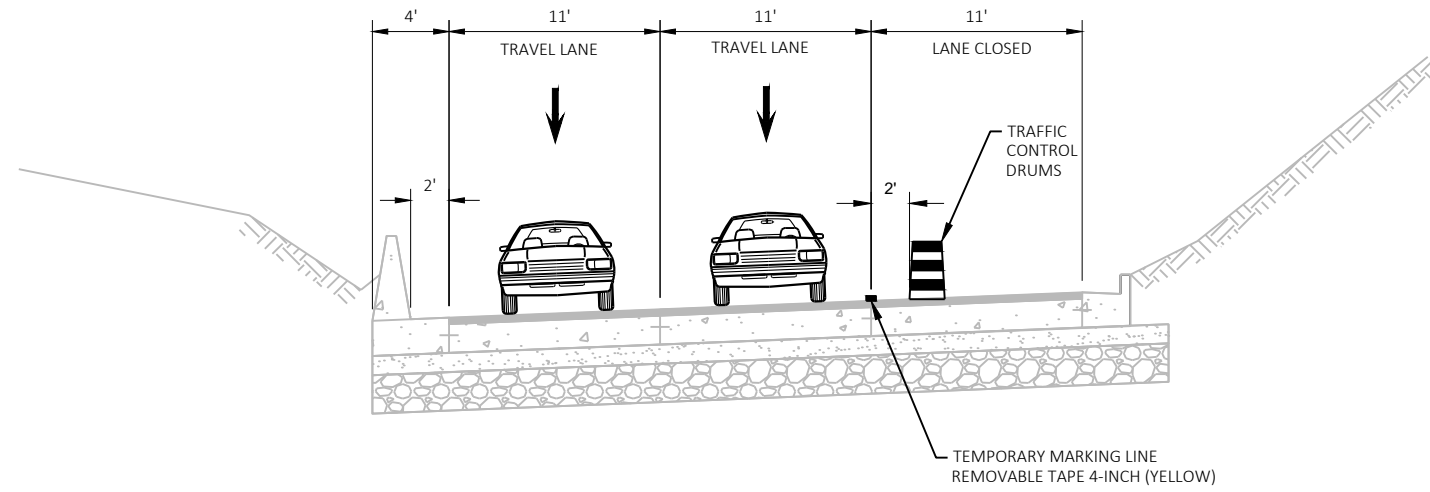




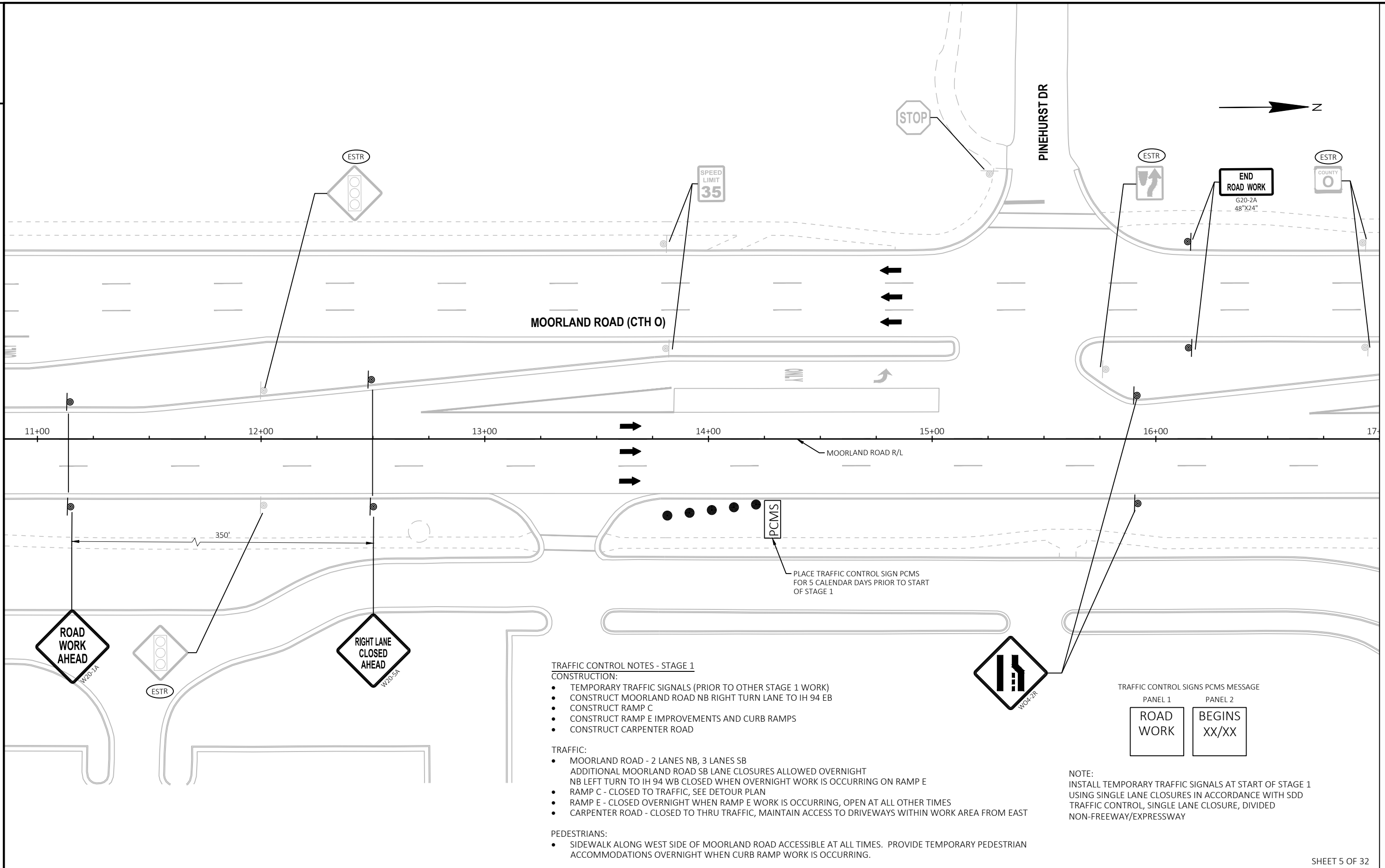
**STAGE 2 PEAK TYPICAL SECTION**  
**MOORLAND ROAD**  
 CONSTRUCT NB LEFT TURN LANE



**STAGE 2 OFF PEAK TYPICAL SECTION**  
**MOORLAND ROAD**  
 CONSTRUCT NB LEFT TURN LANE



**STAGE 2 TYPICAL SECTION  
RAMP C**  
NO CONSTRUCTION, CLOSE SOUTHERNMOST LANE



**TRAFFIC CONTROL NOTES - STAGE 1**

**CONSTRUCTION:**

- TEMPORARY TRAFFIC SIGNALS (PRIOR TO OTHER STAGE 1 WORK)
- CONSTRUCT MOORLAND ROAD NB RIGHT TURN LANE TO IH 94 EB
- CONSTRUCT RAMP C
- CONSTRUCT RAMP E IMPROVEMENTS AND CURB RAMPS
- CONSTRUCT CARPENTER ROAD

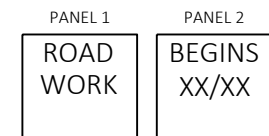
**TRAFFIC:**

- MOORLAND ROAD - 2 LANES NB, 3 LANES SB
- ADDITIONAL MOORLAND ROAD SB LANE CLOSURES ALLOWED OVERNIGHT
- NB LEFT TURN TO IH 94 WB CLOSED WHEN OVERNIGHT WORK IS OCCURRING ON RAMP E
- RAMP C - CLOSED TO TRAFFIC, SEE DETOUR PLAN
- RAMP E - CLOSED OVERNIGHT WHEN RAMP E WORK IS OCCURRING, OPEN AT ALL OTHER TIMES
- CARPENTER ROAD - CLOSED TO THRU TRAFFIC, MAINTAIN ACCESS TO DRIVEWAYS WITHIN WORK AREA FROM EAST

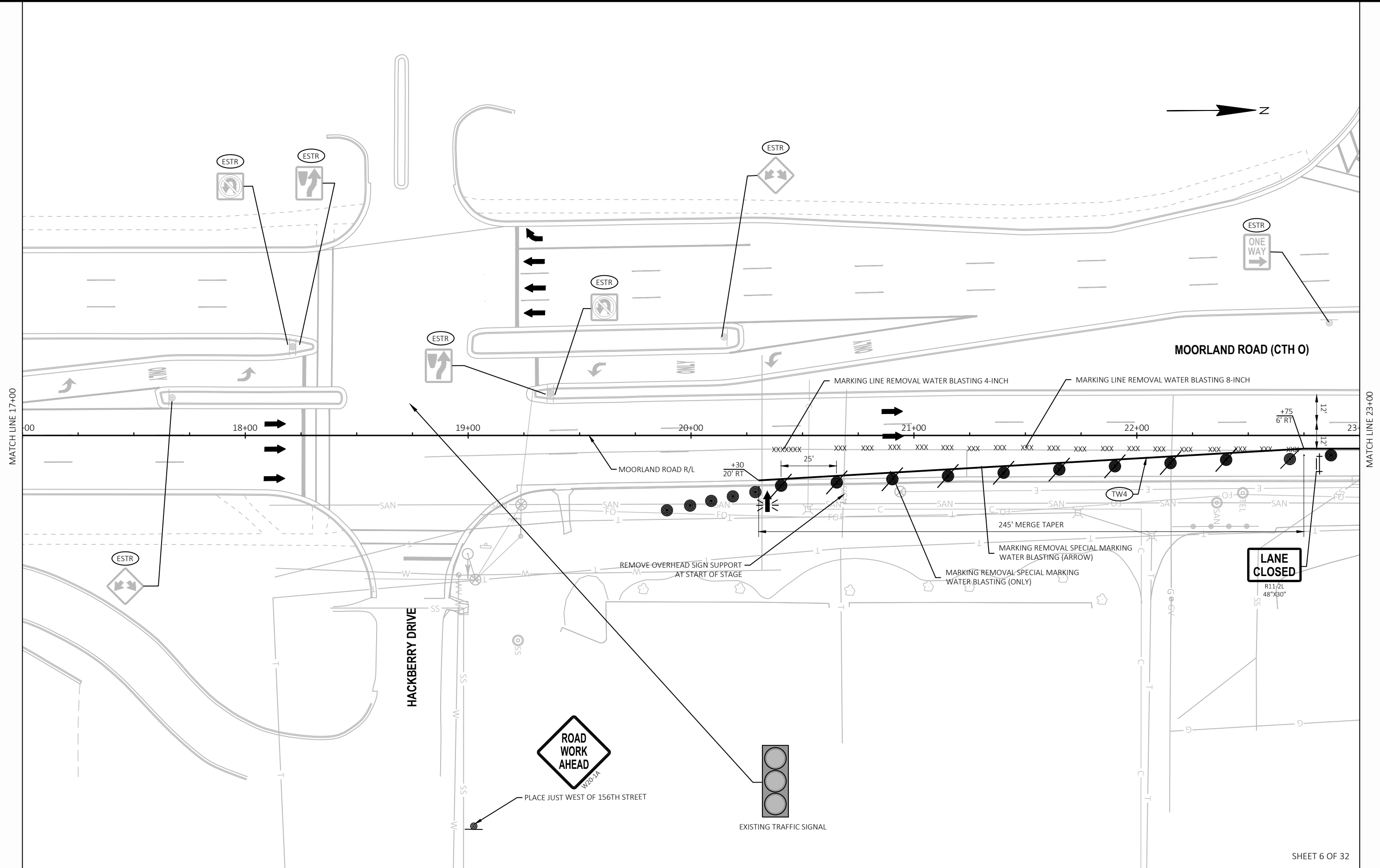
**PEDESTRIANS:**

- SIDEWALK ALONG WEST SIDE OF MOORLAND ROAD ACCESSIBLE AT ALL TIMES. PROVIDE TEMPORARY PEDESTRIAN ACCOMMODATIONS OVERNIGHT WHEN CURB RAMP WORK IS OCCURRING.

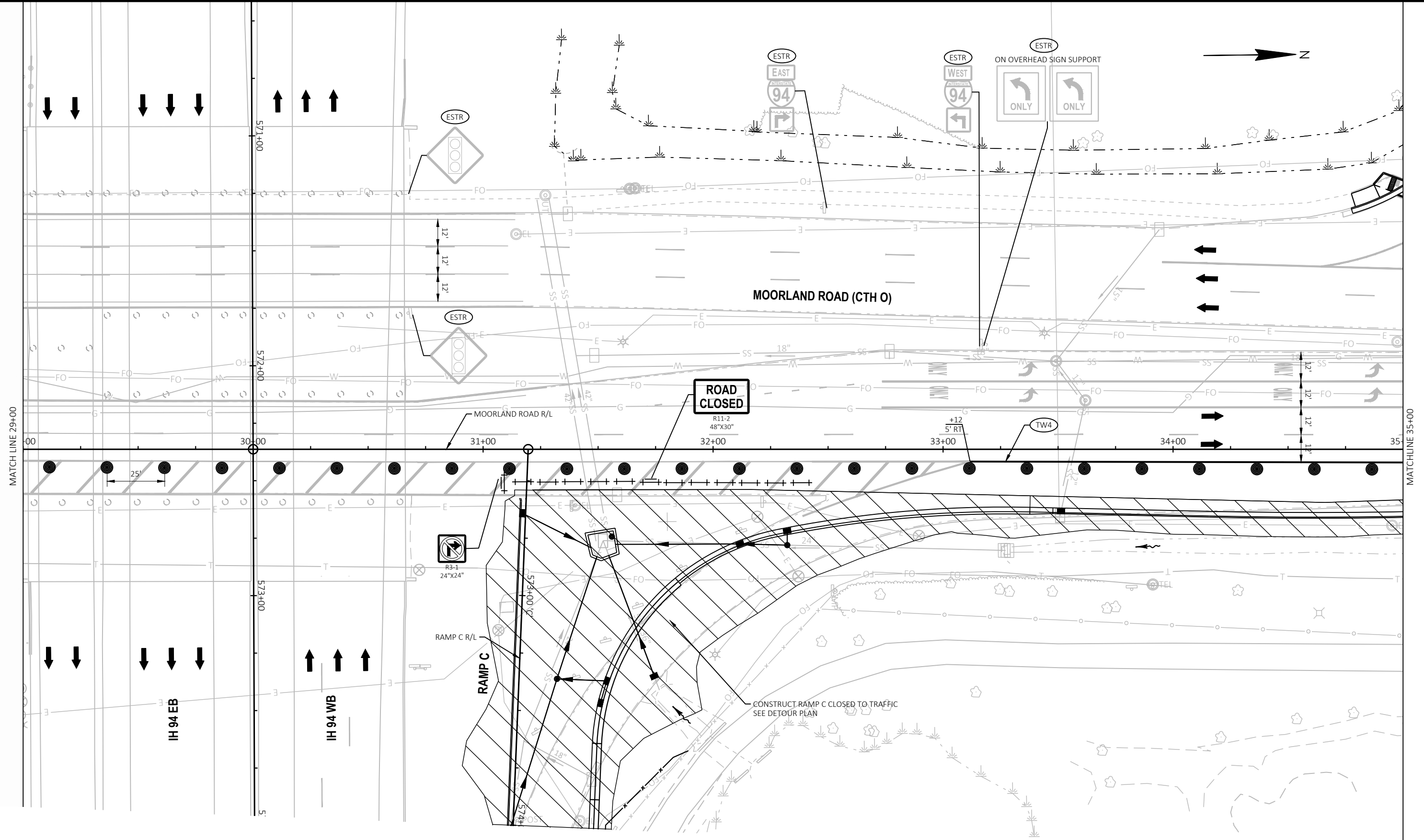
**TRAFFIC CONTROL SIGNS PCMS MESSAGE**



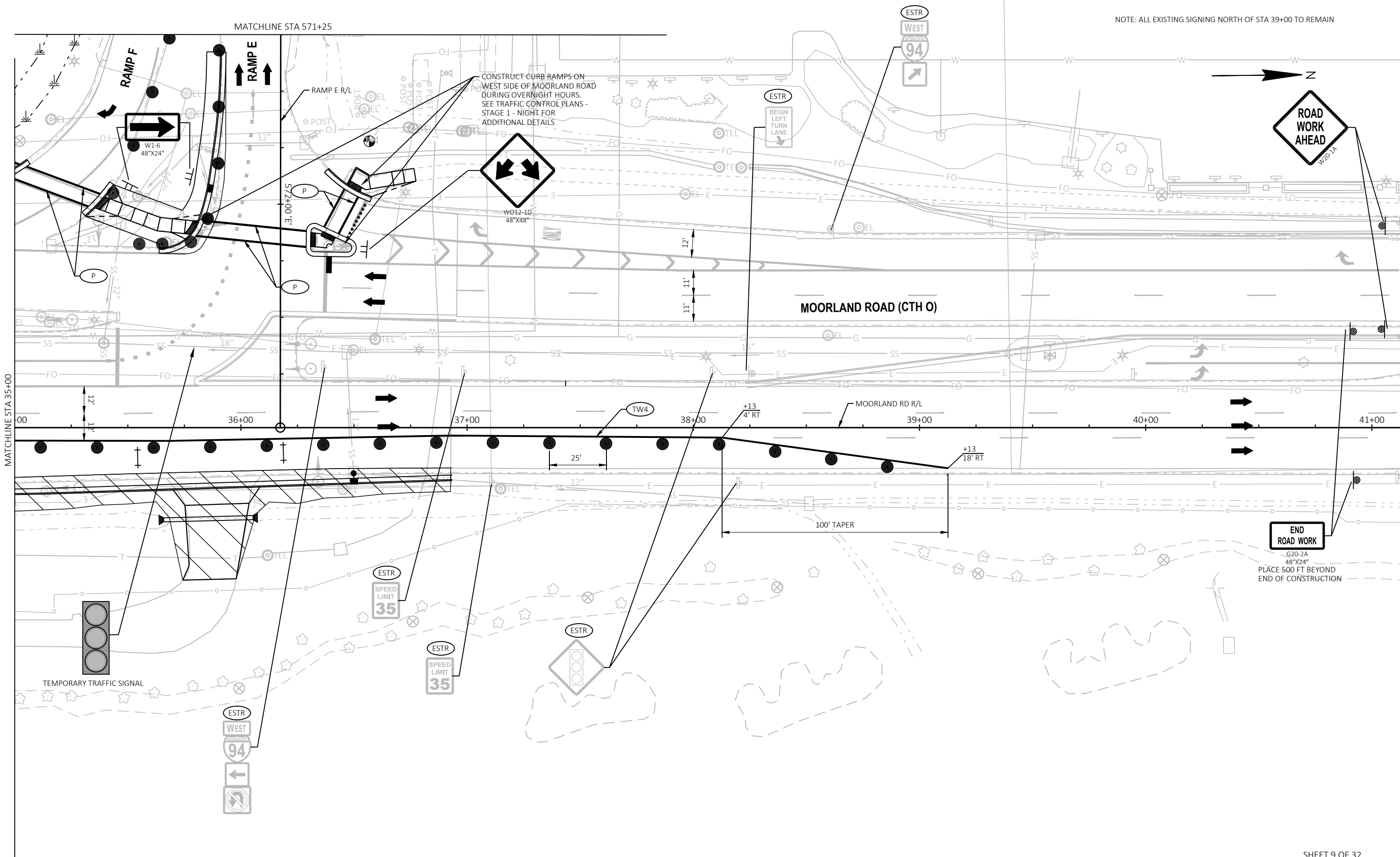
**NOTE:**  
 INSTALL TEMPORARY TRAFFIC SIGNALS AT START OF STAGE 1 USING SINGLE LANE CLOSURES IN ACCORDANCE WITH SDD TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY



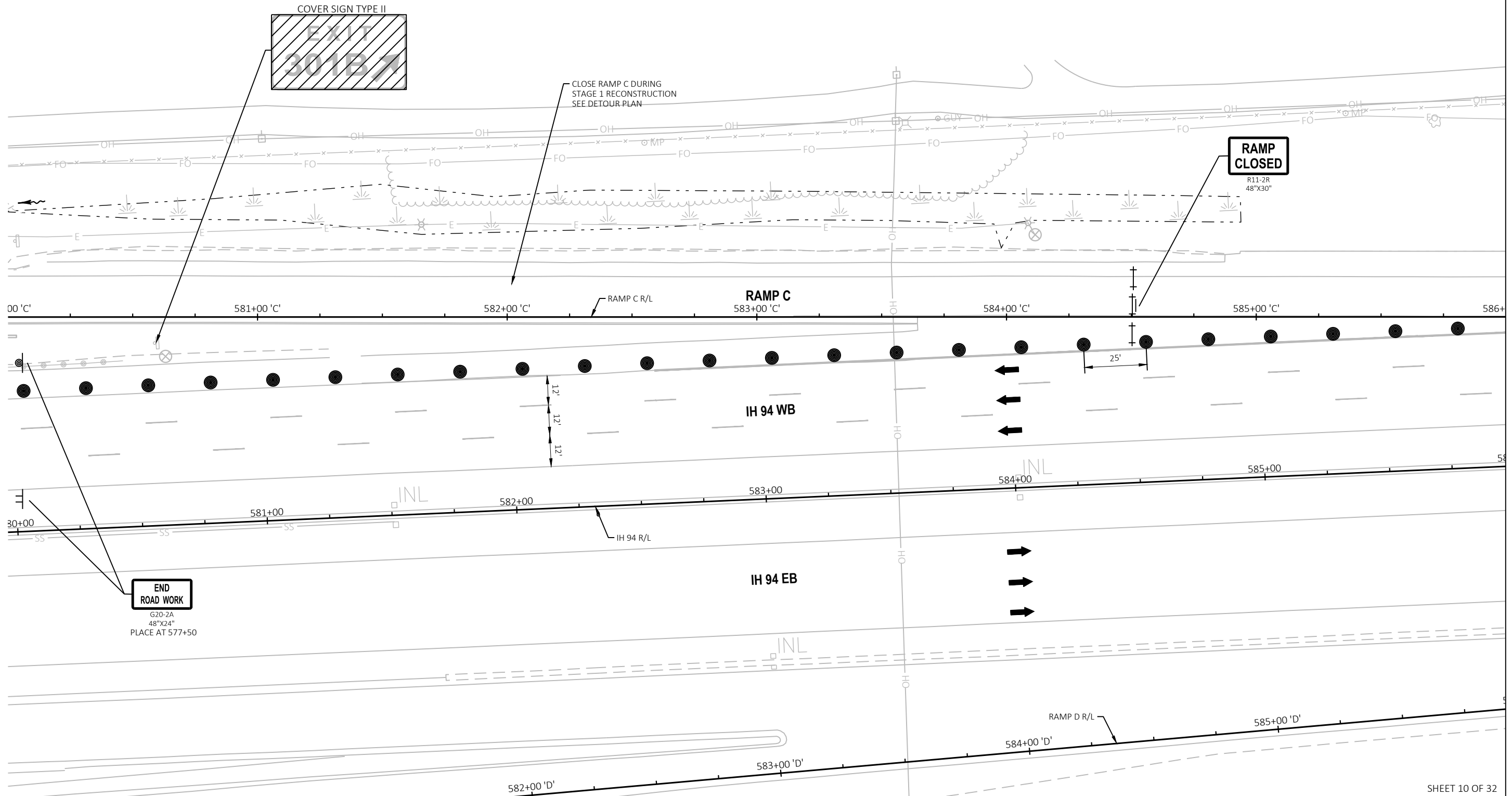




NOTE: ALL EXISTING SIGNING NORTH OF STA 39+00 TO REMAIN

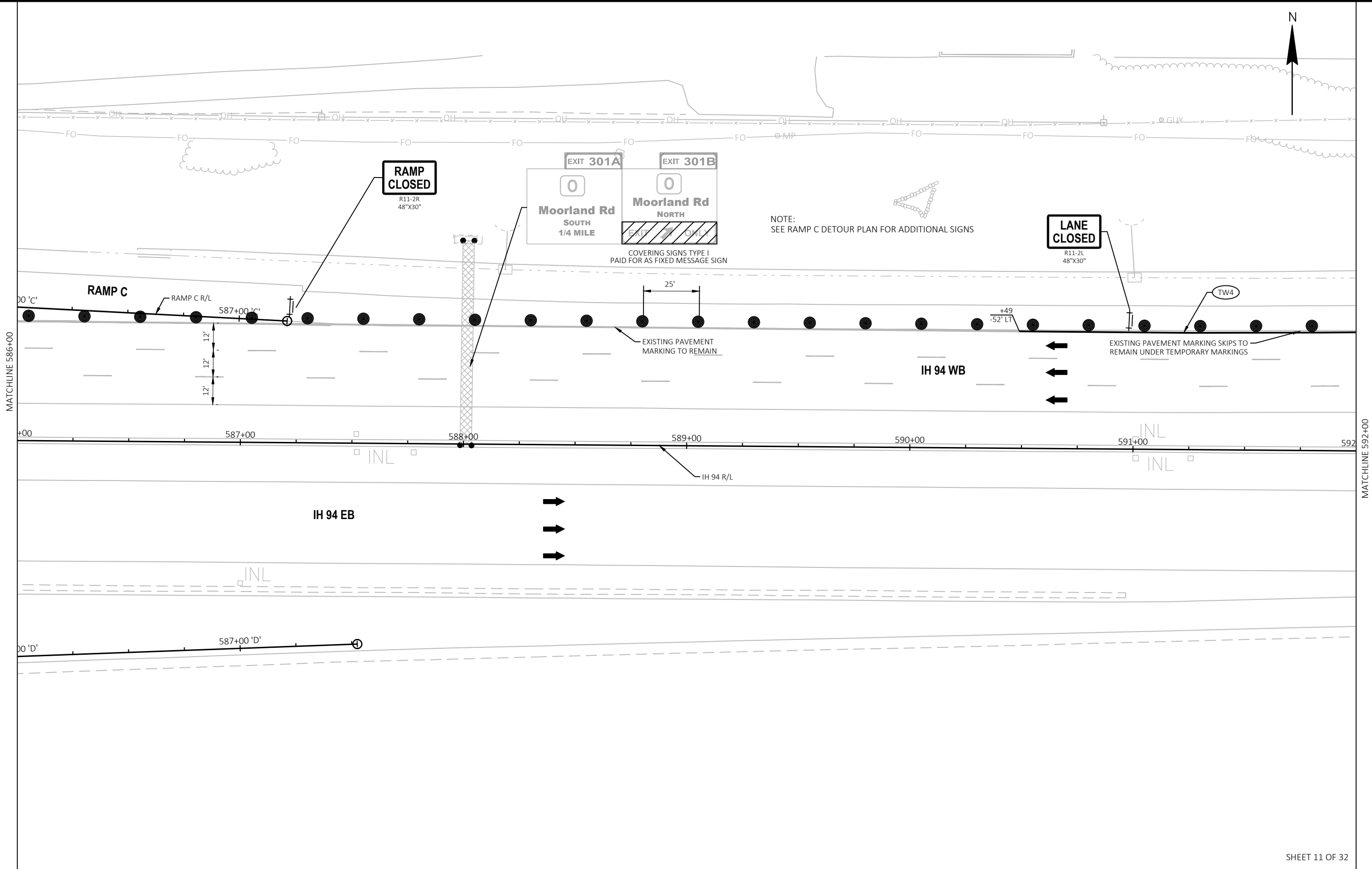




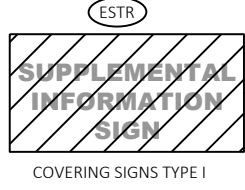


MATCHLINE 586+00

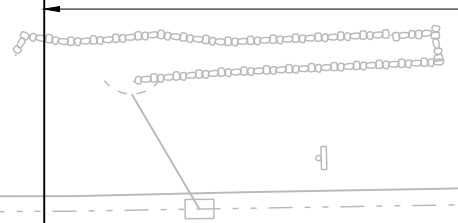
SHEET 10 OF 32



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING - STAGE 1	SHEET	<b>E</b>
------------------------	------------	------------------	-----------------------------------	-------	----------



660' MERGE TAPER



MP

FO

50'

+40  
-54' LT

12'  
12'  
12'

IH 94 WB

TW4

TM10



MATCHLINE 592+00

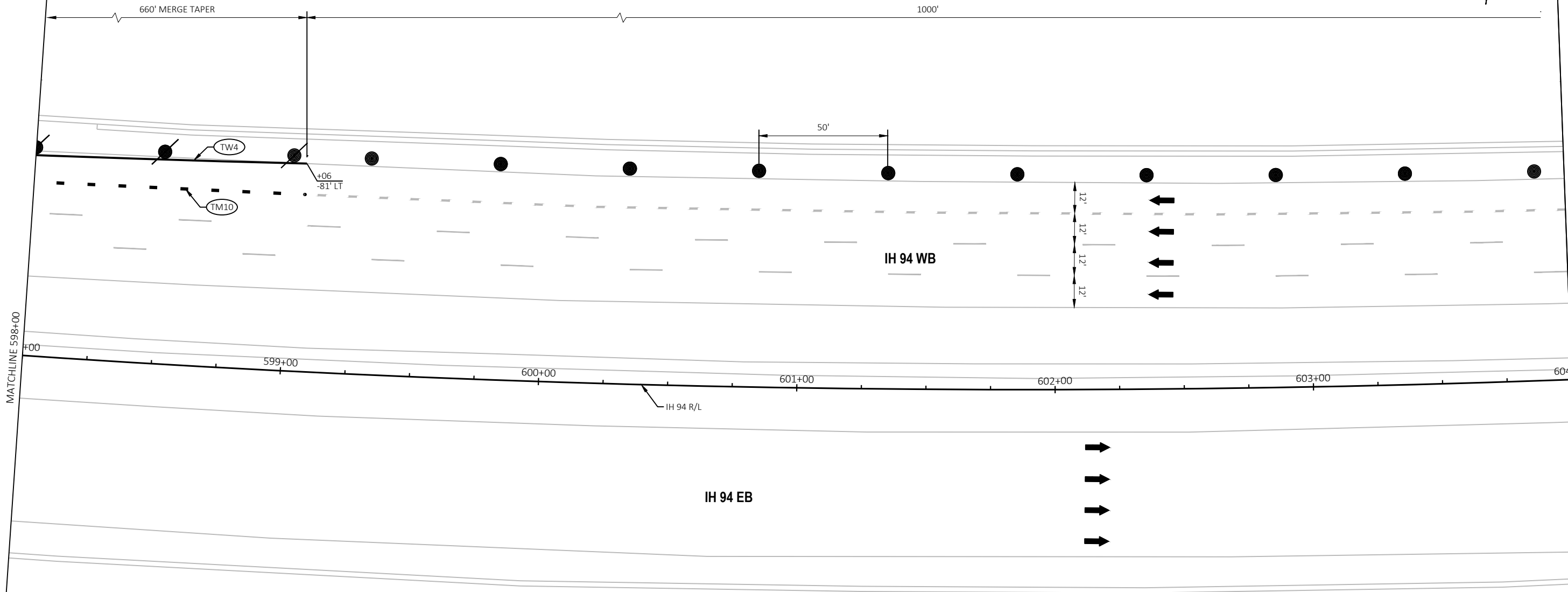
MATCHLINE 598+00

+00 593+00 594+00 595+00 596+00 597+00 598

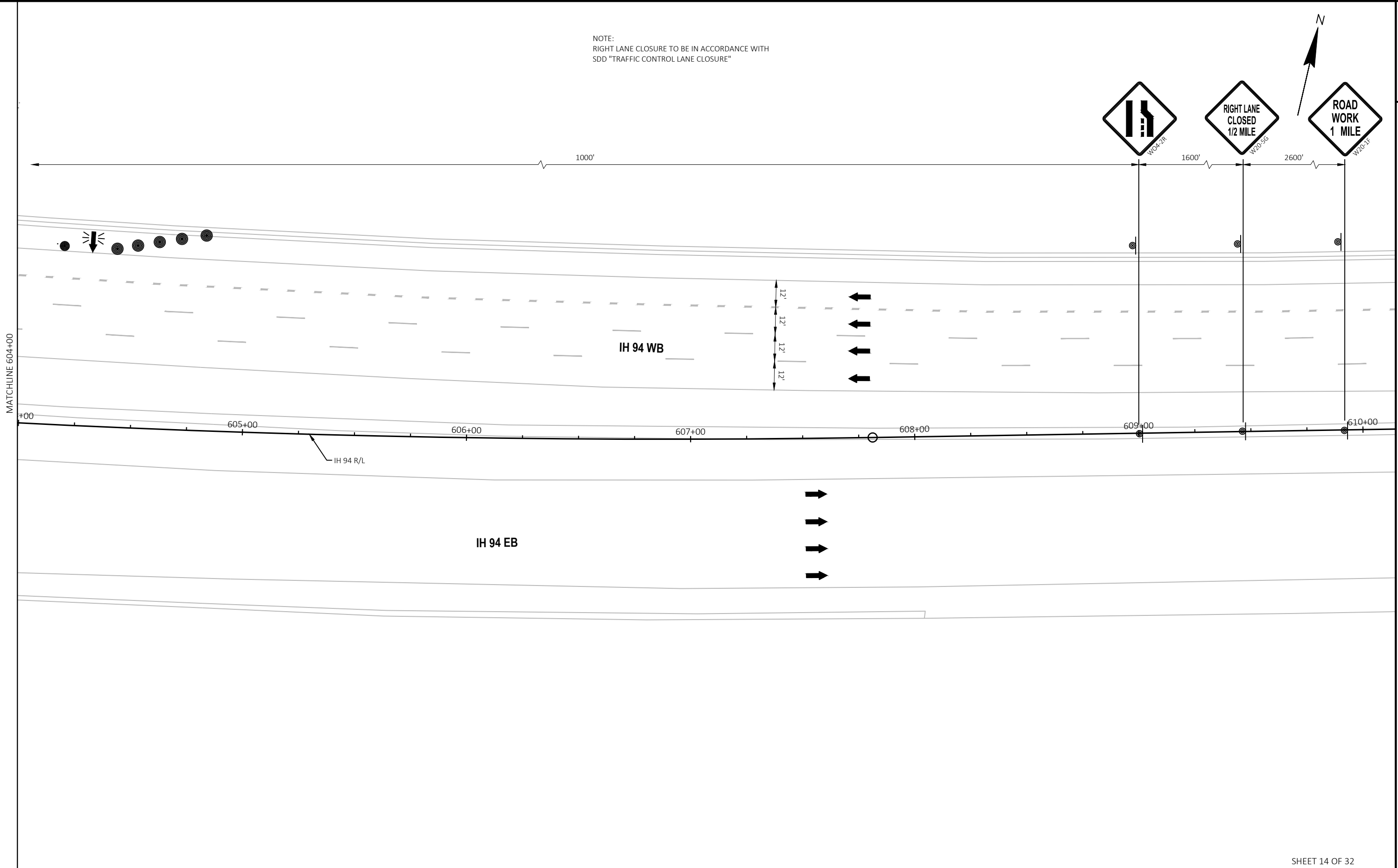
IH 94 R/L



IH 94 EB

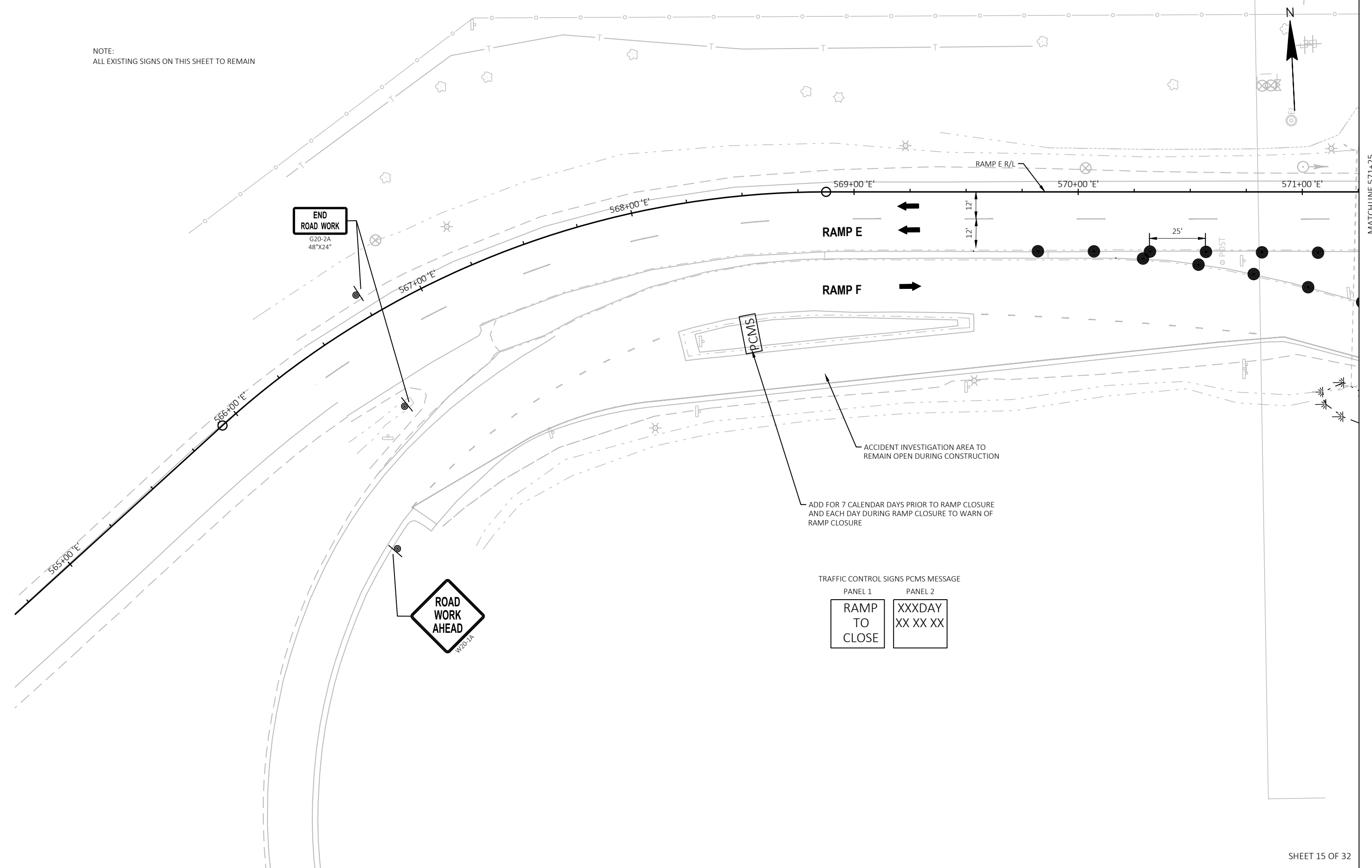


NOTE:  
RIGHT LANE CLOSURE TO BE IN ACCORDANCE WITH  
SDD "TRAFFIC CONTROL LANE CLOSURE"



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING - STAGE 1	SHEET	<b>E</b>
------------------------	------------	------------------	-----------------------------------	-------	----------

NOTE:  
ALL EXISTING SIGNS ON THIS SHEET TO REMAIN



END  
ROAD WORK  
G20-2A  
48"X24"

ROAD  
WORK  
AHEAD  
W20-1A

RAMP E

RAMP F

PCMS

RAMP E R/L

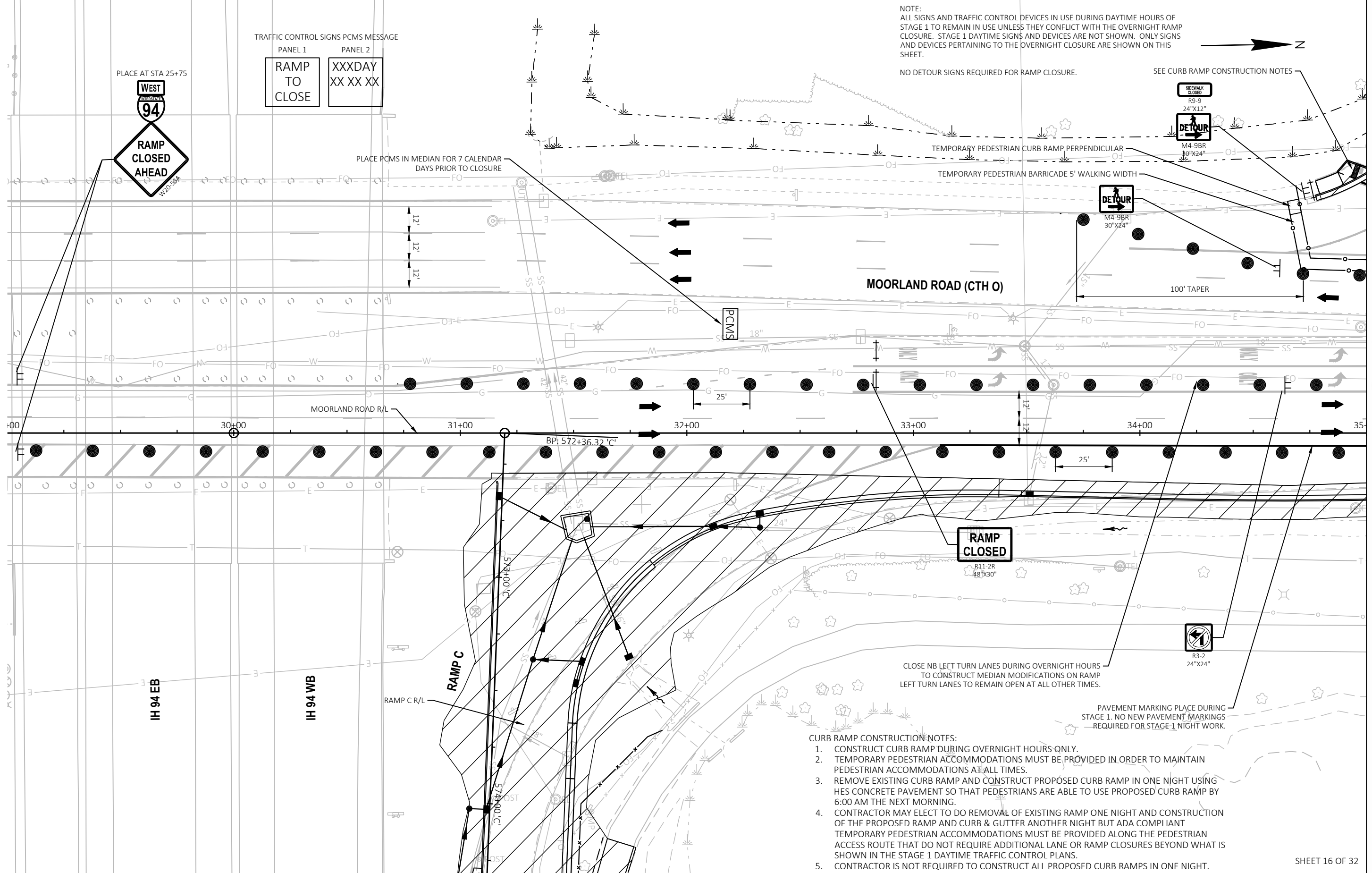
ACCIDENT INVESTIGATION AREA TO  
REMAIN OPEN DURING CONSTRUCTION

ADD FOR 7 CALENDAR DAYS PRIOR TO RAMP CLOSURE  
AND EACH DAY DURING RAMP CLOSURE TO WARN OF  
RAMP CLOSURE

TRAFFIC CONTROL SIGNS PCMS MESSAGE

PANEL 1	PANEL 2
RAMP TO CLOSE	XXXDAY XX XX XX

MATCHLINE 571+25



NOTE:  
ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING DAYTIME HOURS OF STAGE 1 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT RAMP CLOSURE. STAGE 1 DAYTIME SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

NO DETOUR SIGNS REQUIRED FOR RAMP CLOSURE.

TRAFFIC CONTROL SIGNS PCMS MESSAGE

PANEL 1  
RAMP TO CLOSE

PANEL 2  
XXXDAY XX XX XX

PLACE AT STA 25+75

WEST  
94

RAMP CLOSED AHEAD

PLACE PCMS IN MEDIAN FOR 7 CALENDAR DAYS PRIOR TO CLOSURE

TEMPORARY PEDESTRIAN CURB RAMP PERPENDICULAR

TEMPORARY PEDESTRIAN BARRICADE 5' WALKING WIDTH

SEE CURB RAMP CONSTRUCTION NOTES

MOORLAND ROAD (CTH O)

MOORLAND ROAD R/L

RAMP CLOSED

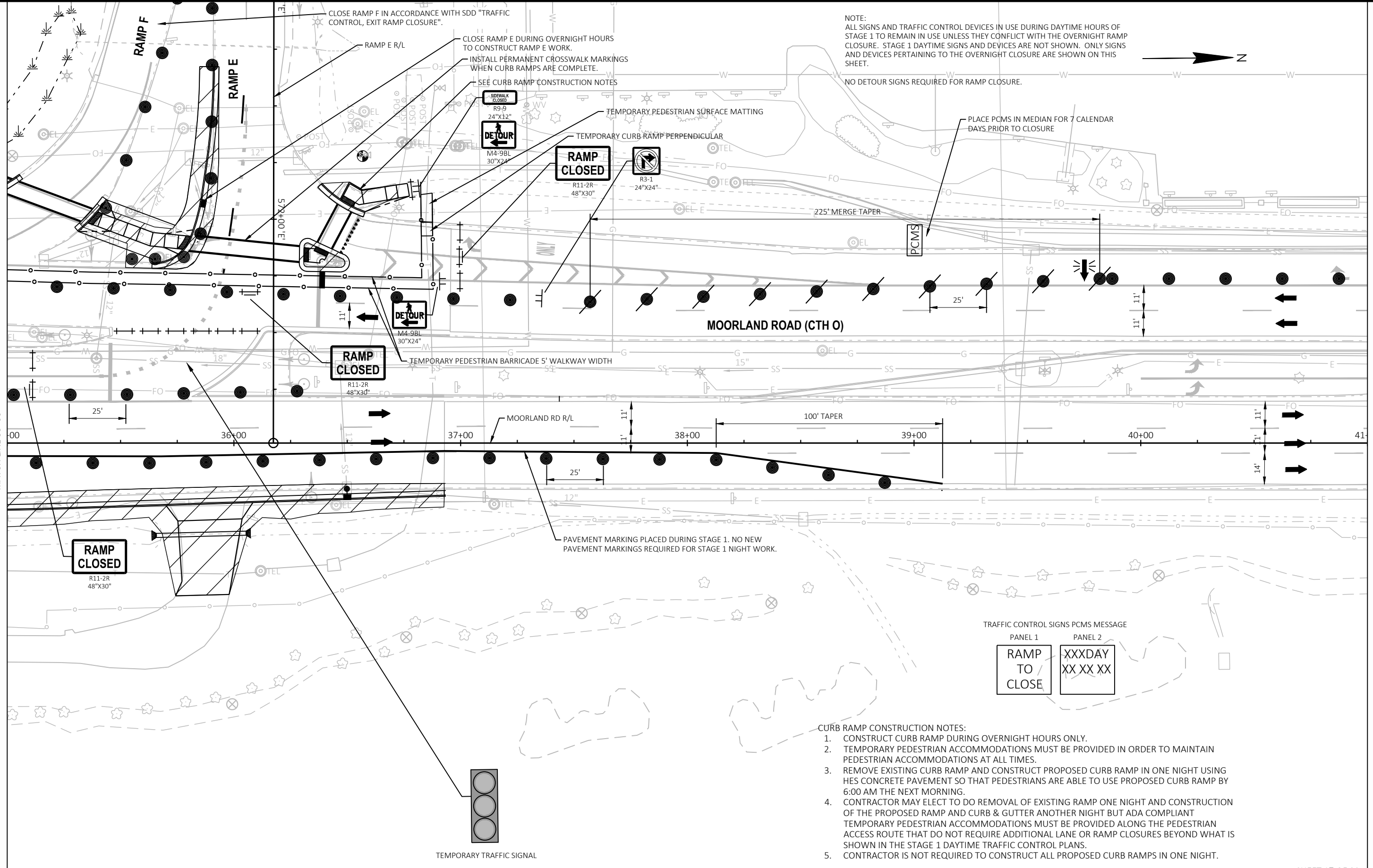
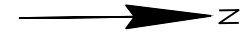
CLOSE NB LEFT TURN LANES DURING OVERNIGHT HOURS TO CONSTRUCT MEDIAN MODIFICATIONS ON RAMP LEFT TURN LANES TO REMAIN OPEN AT ALL OTHER TIMES.

PAVEMENT MARKING PLACE DURING STAGE 1. NO NEW PAVEMENT MARKINGS REQUIRED FOR STAGE 1 NIGHT WORK.

- CURB RAMP CONSTRUCTION NOTES:
1. CONSTRUCT CURB RAMP DURING OVERNIGHT HOURS ONLY.
  2. TEMPORARY PEDESTRIAN ACCOMMODATIONS MUST BE PROVIDED IN ORDER TO MAINTAIN PEDESTRIAN ACCOMMODATIONS AT ALL TIMES.
  3. REMOVE EXISTING CURB RAMP AND CONSTRUCT PROPOSED CURB RAMP IN ONE NIGHT USING HES CONCRETE PAVEMENT SO THAT PEDESTRIANS ARE ABLE TO USE PROPOSED CURB RAMP BY 6:00 AM THE NEXT MORNING.
  4. CONTRACTOR MAY ELECT TO DO REMOVAL OF EXISTING RAMP ONE NIGHT AND CONSTRUCTION OF THE PROPOSED RAMP AND CURB & GUTTER ANOTHER NIGHT BUT ADA COMPLIANT TEMPORARY PEDESTRIAN ACCOMMODATIONS MUST BE PROVIDED ALONG THE PEDESTRIAN ACCESS ROUTE THAT DO NOT REQUIRE ADDITIONAL LANE OR RAMP CLOSURES BEYOND WHAT IS SHOWN IN THE STAGE 1 DAYTIME TRAFFIC CONTROL PLANS.
  5. CONTRACTOR IS NOT REQUIRED TO CONSTRUCT ALL PROPOSED CURB RAMPS IN ONE NIGHT.

NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING DAYTIME HOURS OF STAGE 1 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT RAMP CLOSURE. STAGE 1 DAYTIME SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

NO DETOUR SIGNS REQUIRED FOR RAMP CLOSURE.

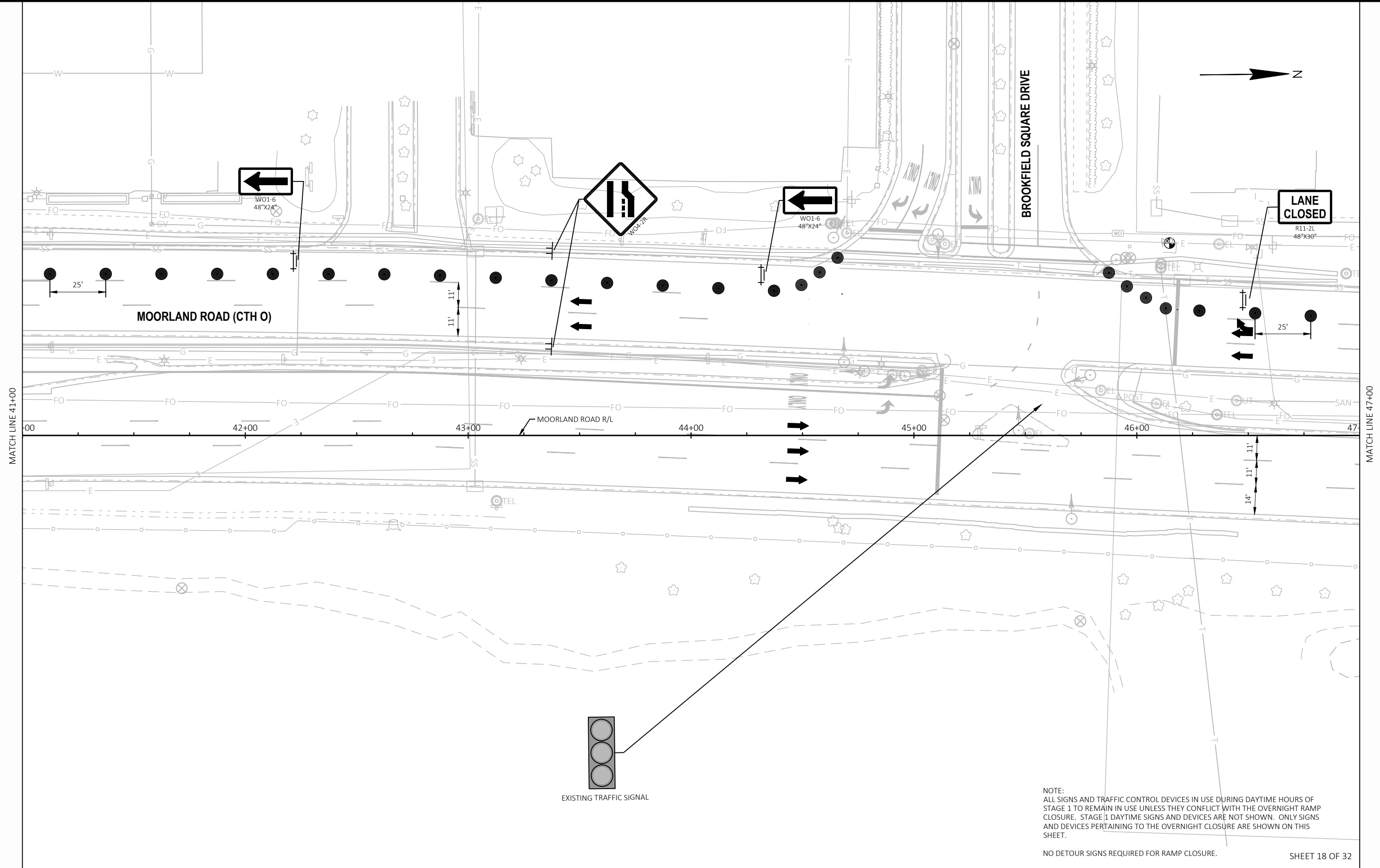


MATCH LINE 35+00

MATCH LINE 41+00

TEMPORARY TRAFFIC SIGNAL





BROOKFIELD SQUARE DRIVE

MOORLAND ROAD (CTH O)

MOORLAND ROAD R/L

LANE CLOSED  
R11-2L  
48\"X30\"

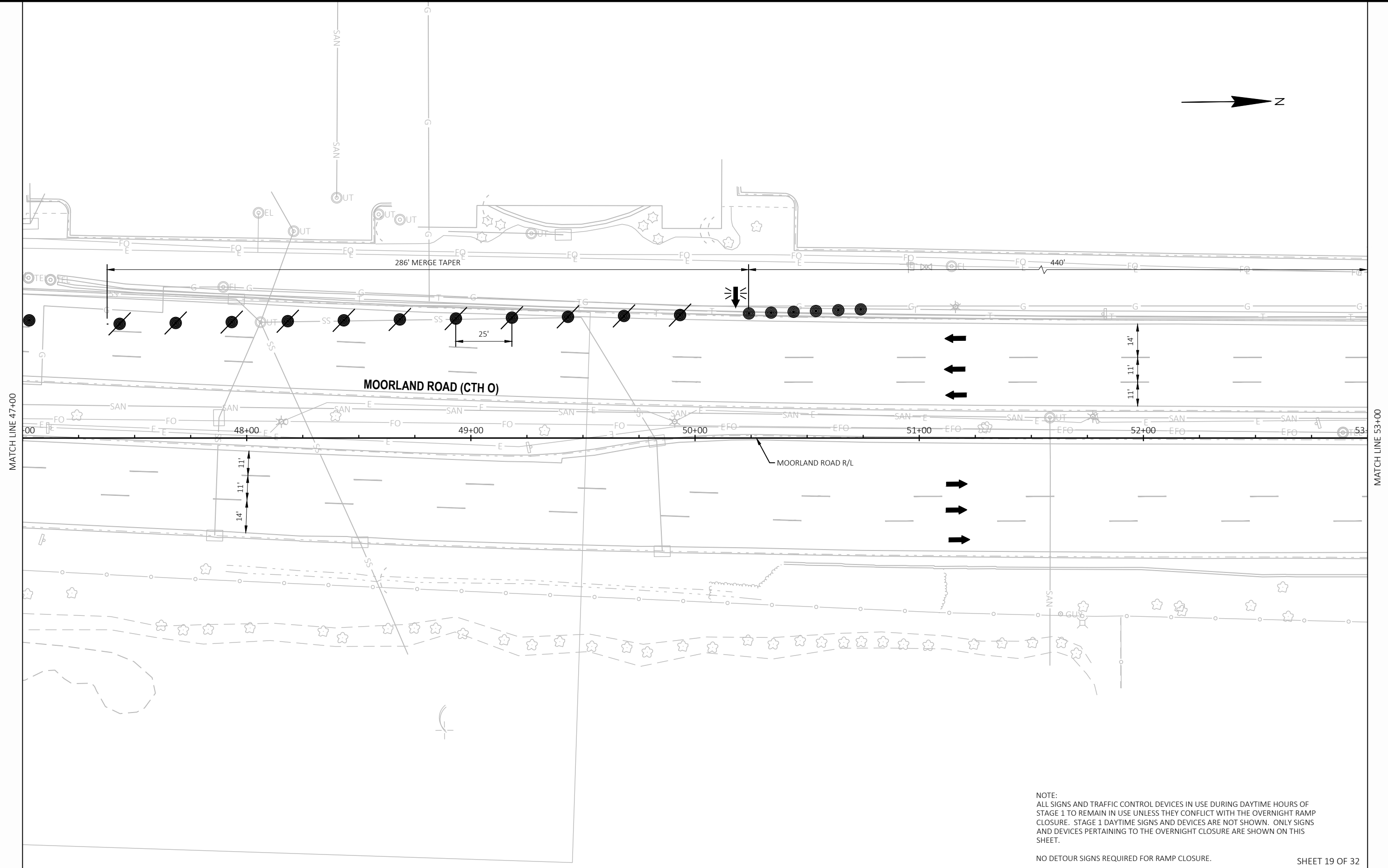
EXISTING TRAFFIC SIGNAL

NOTE:  
ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING DAYTIME HOURS OF STAGE 1 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT RAMP CLOSURE. STAGE 1 DAYTIME SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

NO DETOUR SIGNS REQUIRED FOR RAMP CLOSURE.

SHEET 18 OF 32

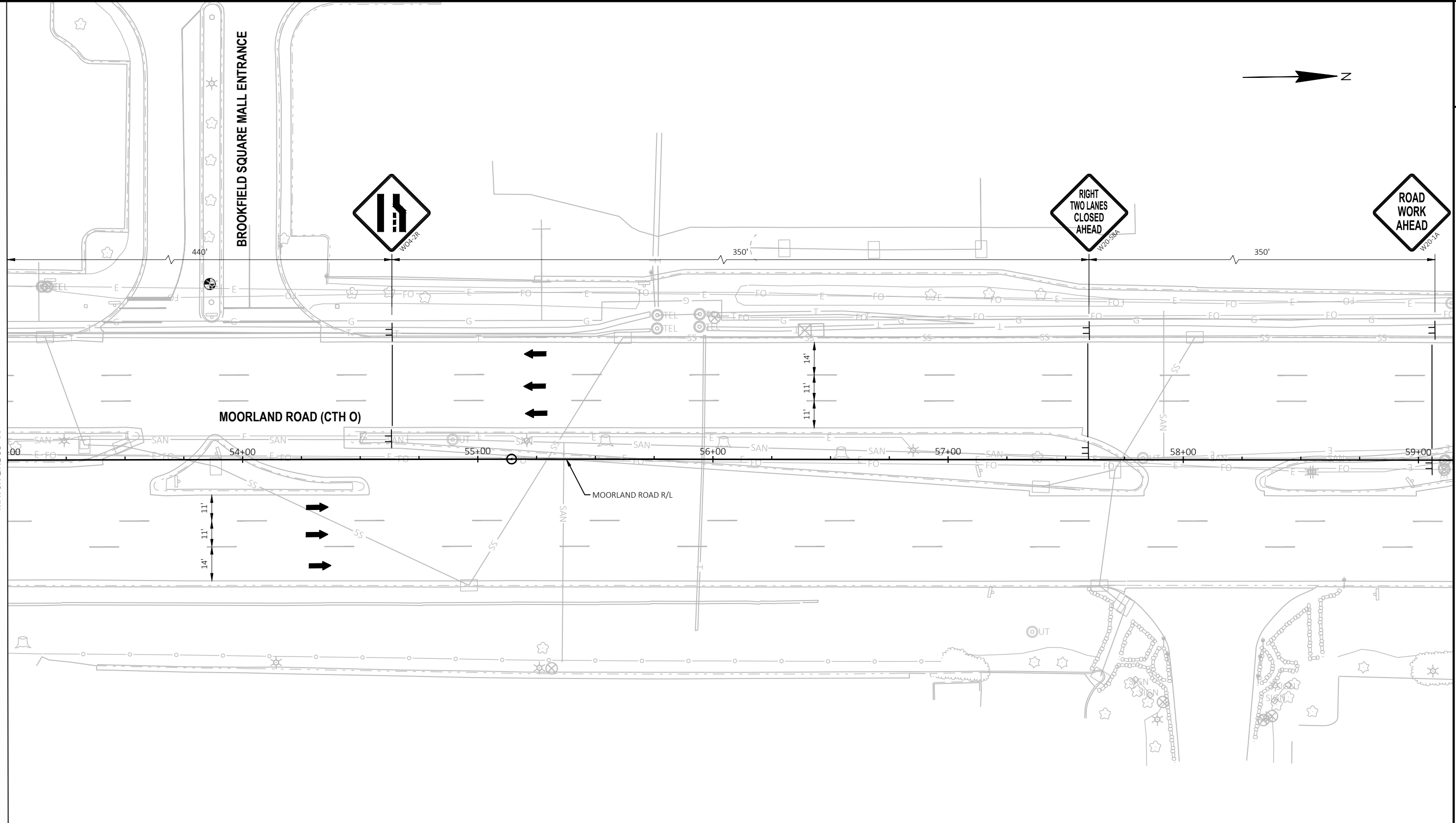
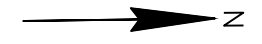
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING - STAGE 1 NIGHT	SHEET	E
------------------------	------------	------------------	---	-------	---



NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING DAYTIME HOURS OF STAGE 1 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT RAMP CLOSURE. STAGE 1 DAYTIME SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

NO DETOUR SIGNS REQUIRED FOR RAMP CLOSURE.

SHEET 19 OF 32



NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING DAYTIME HOURS OF STAGE 1 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT RAMP CLOSURE. STAGE 1 DAYTIME SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

NO DETOUR SIGNS REQUIRED FOR RAMP CLOSURE. SHEET 20 OF 32

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING - STAGE 1 NIGHT	SHEET	E
------------------------	------------	------------------	---	-------	---

TRAFFIC CONTROL NOTES - STAGE 2

CONSTRUCTION:

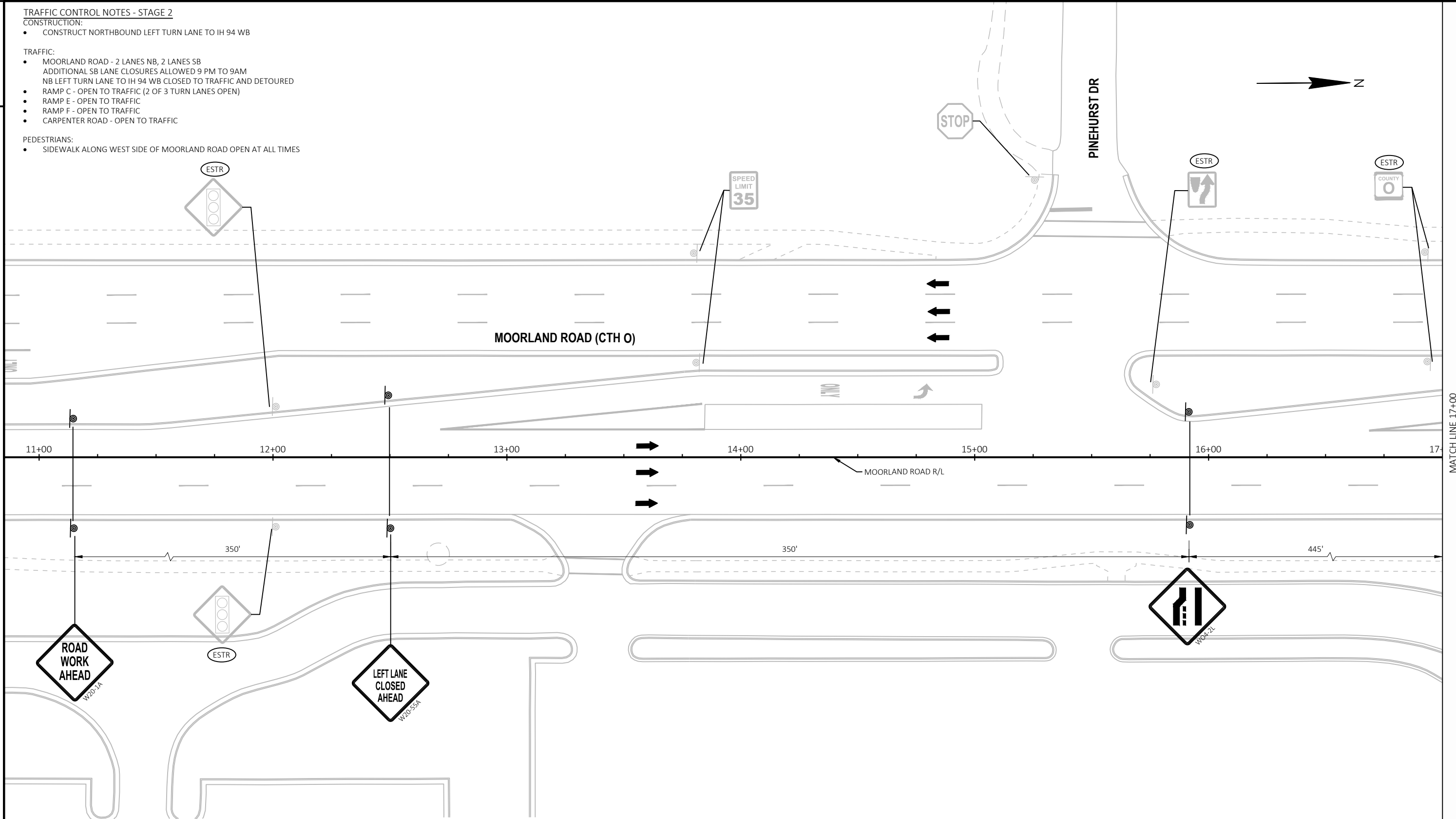
- CONSTRUCT NORTHBOUND LEFT TURN LANE TO IH 94 WB

TRAFFIC:

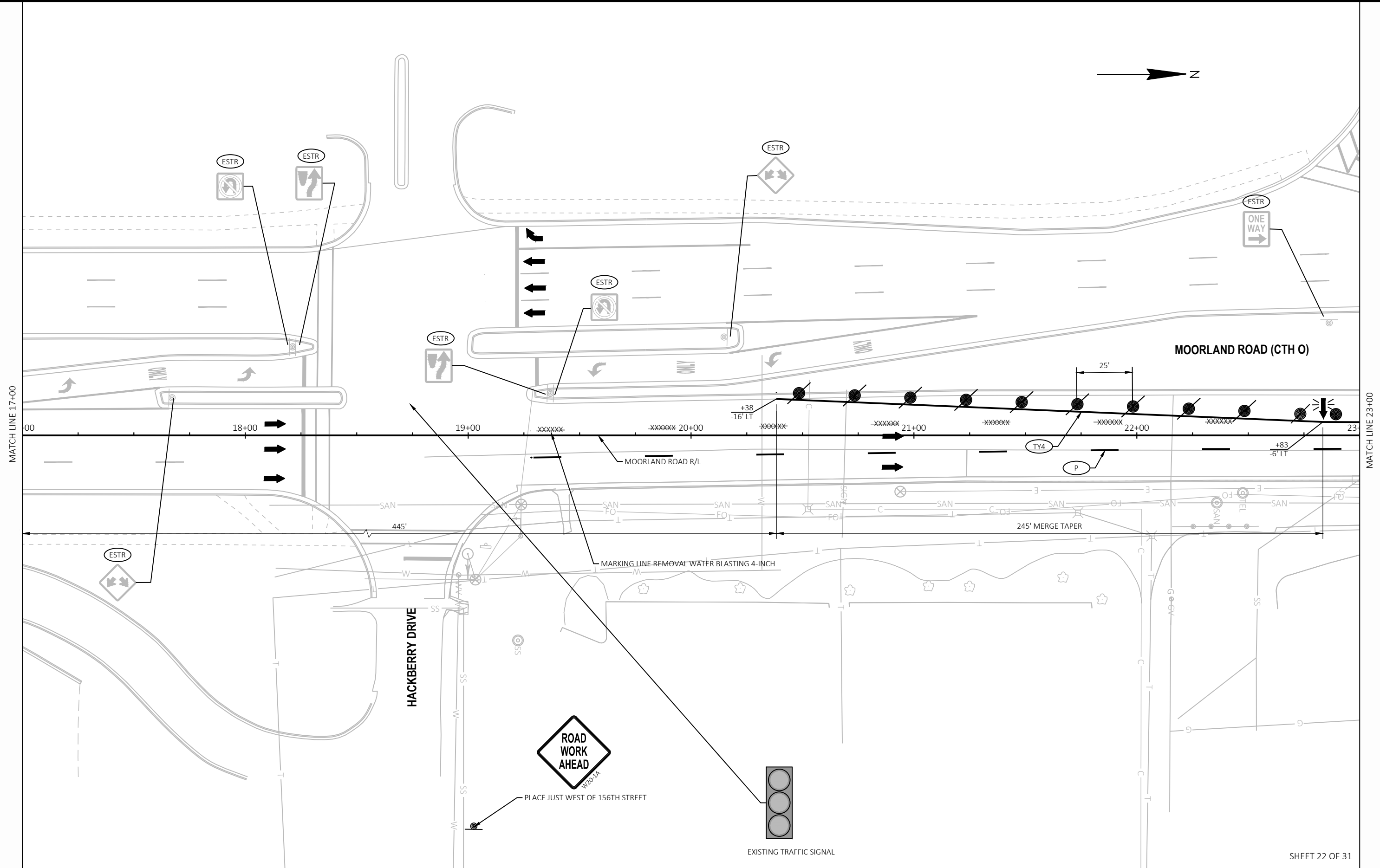
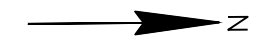
- MOORLAND ROAD - 2 LANES NB, 2 LANES SB
- ADDITIONAL SB LANE CLOSURES ALLOWED 9 PM TO 9 AM
- NB LEFT TURN LANE TO IH 94 WB CLOSED TO TRAFFIC AND DETOURED
- RAMP C - OPEN TO TRAFFIC (2 OF 3 TURN LANES OPEN)
- RAMP E - OPEN TO TRAFFIC
- RAMP F - OPEN TO TRAFFIC
- CARPENTER ROAD - OPEN TO TRAFFIC

PEDESTRIANS:

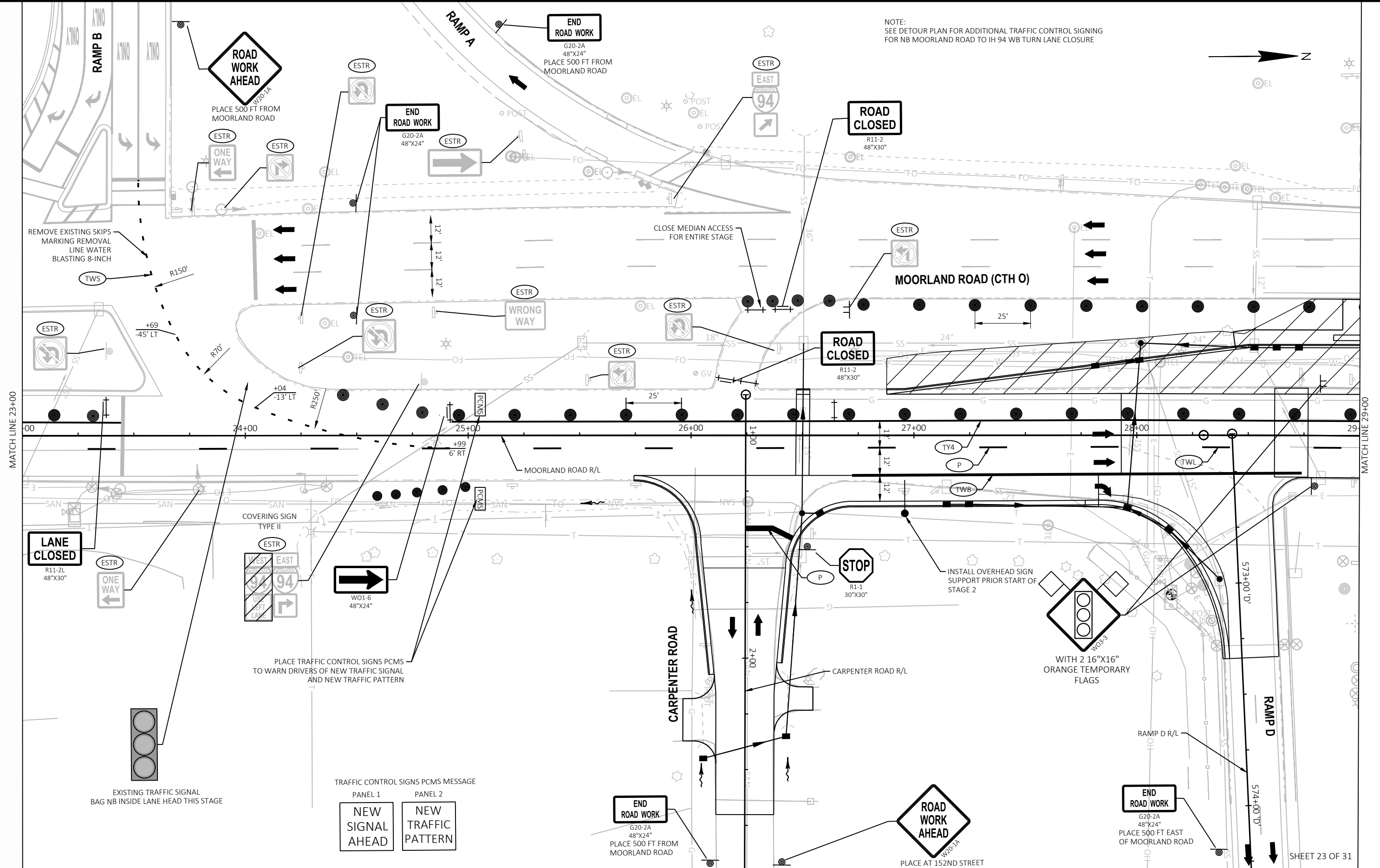
- SIDEWALK ALONG WEST SIDE OF MOORLAND ROAD OPEN AT ALL TIMES



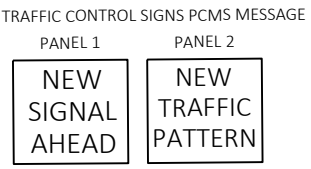
MATCH LINE 17+00



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING - STAGE 2 PEAK	SHEET 22 OF 31	<b>E</b>
------------------------	------------	------------------	--	----------------	----------

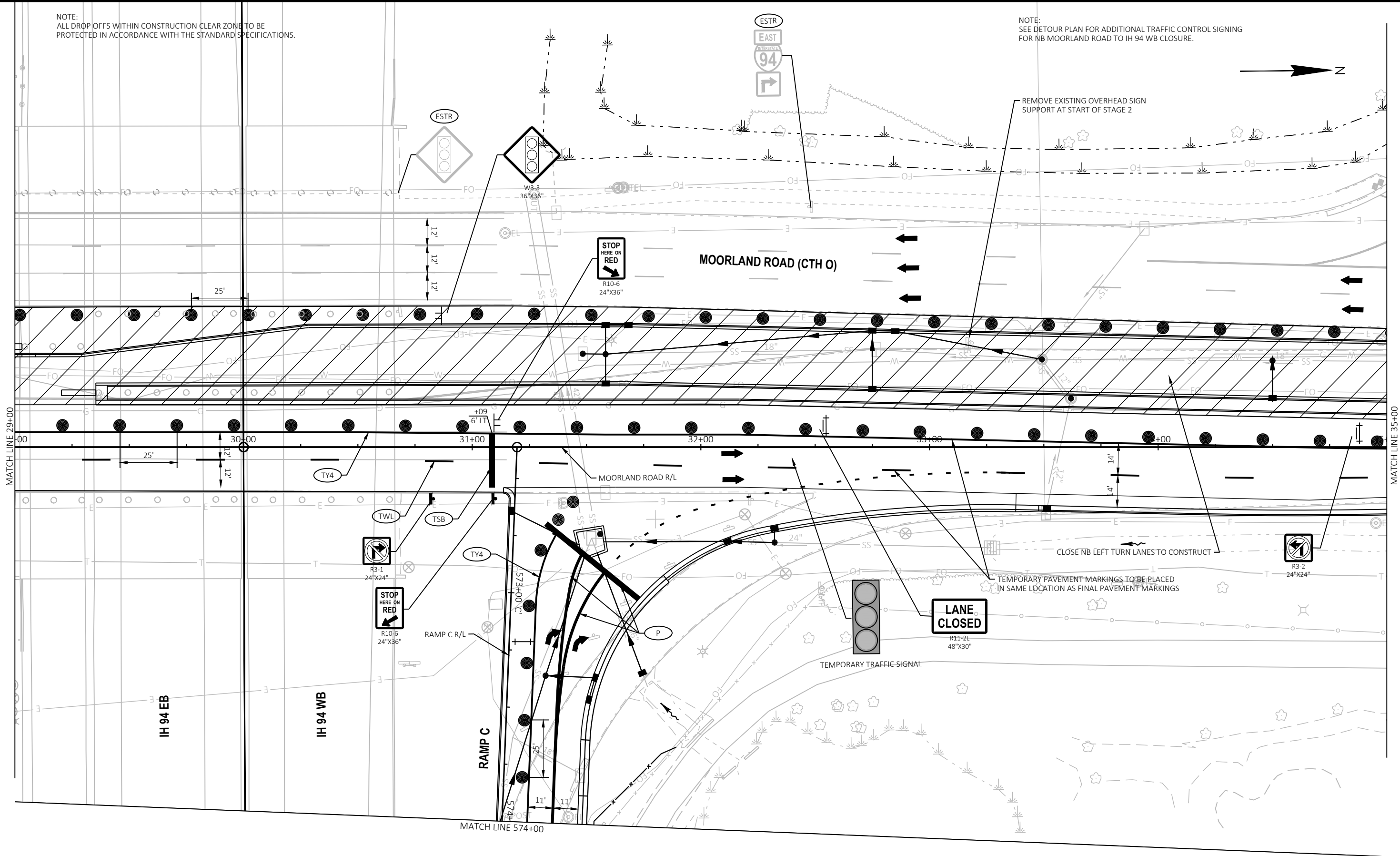


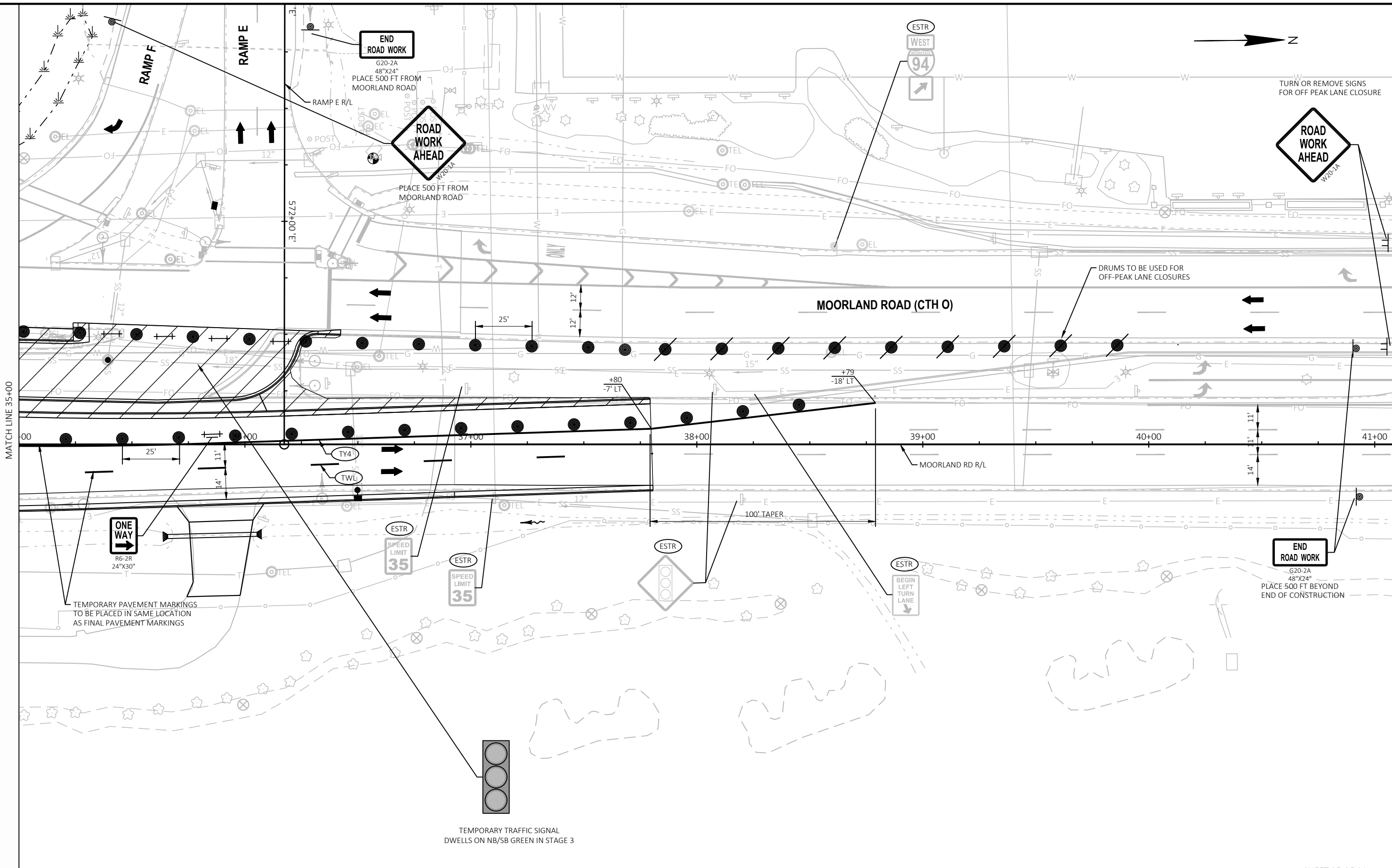
NOTE:  
SEE DETOUR PLAN FOR ADDITIONAL TRAFFIC CONTROL SIGNING  
FOR NB MOORLAND ROAD TO IH 94 WB TURN LANE CLOSURE



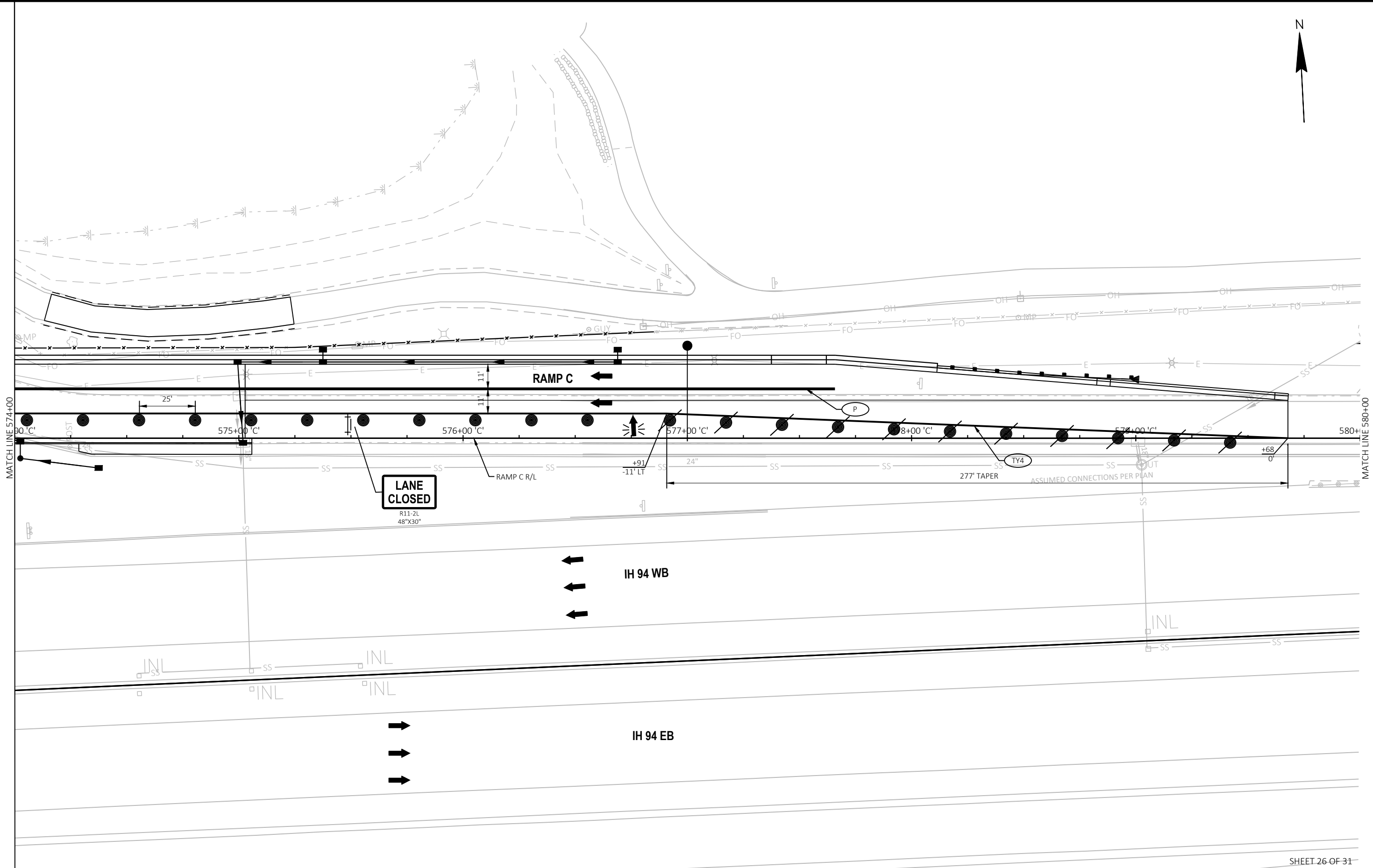
NOTE:  
ALL DROP OFFS WITHIN CONSTRUCTION CLEAR ZONE TO BE  
PROTECTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NOTE:  
SEE DETOUR PLAN FOR ADDITIONAL TRAFFIC CONTROL SIGNING  
FOR NB MOORLAND ROAD TO IH 94 WB CLOSURE.

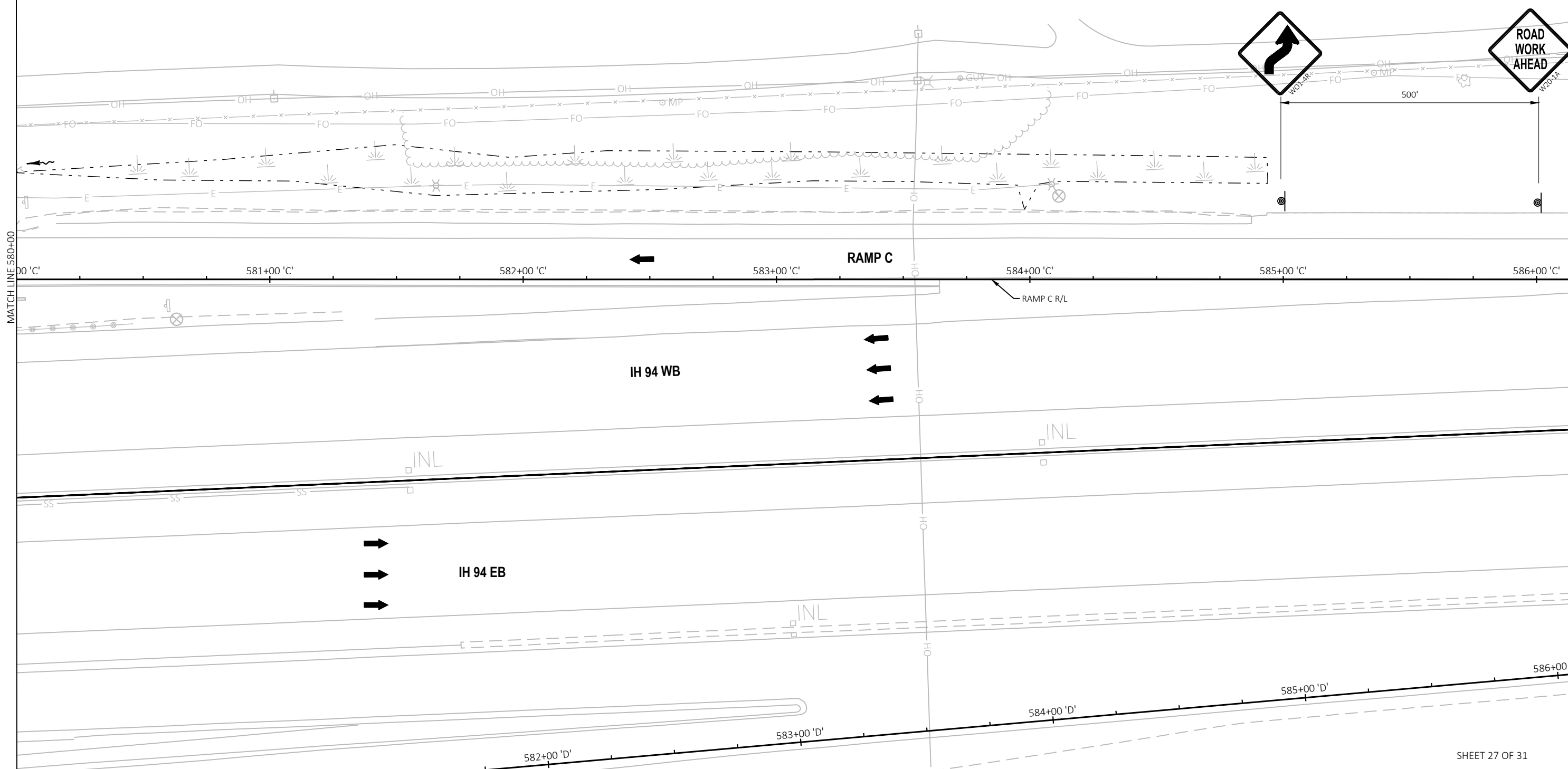








PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING - STAGE 2 PEAK	SHEET	<b>E</b>
------------------------	------------	------------------	--	-------	----------



PROJECT NO: 1060-10-72

HWY: IH 94

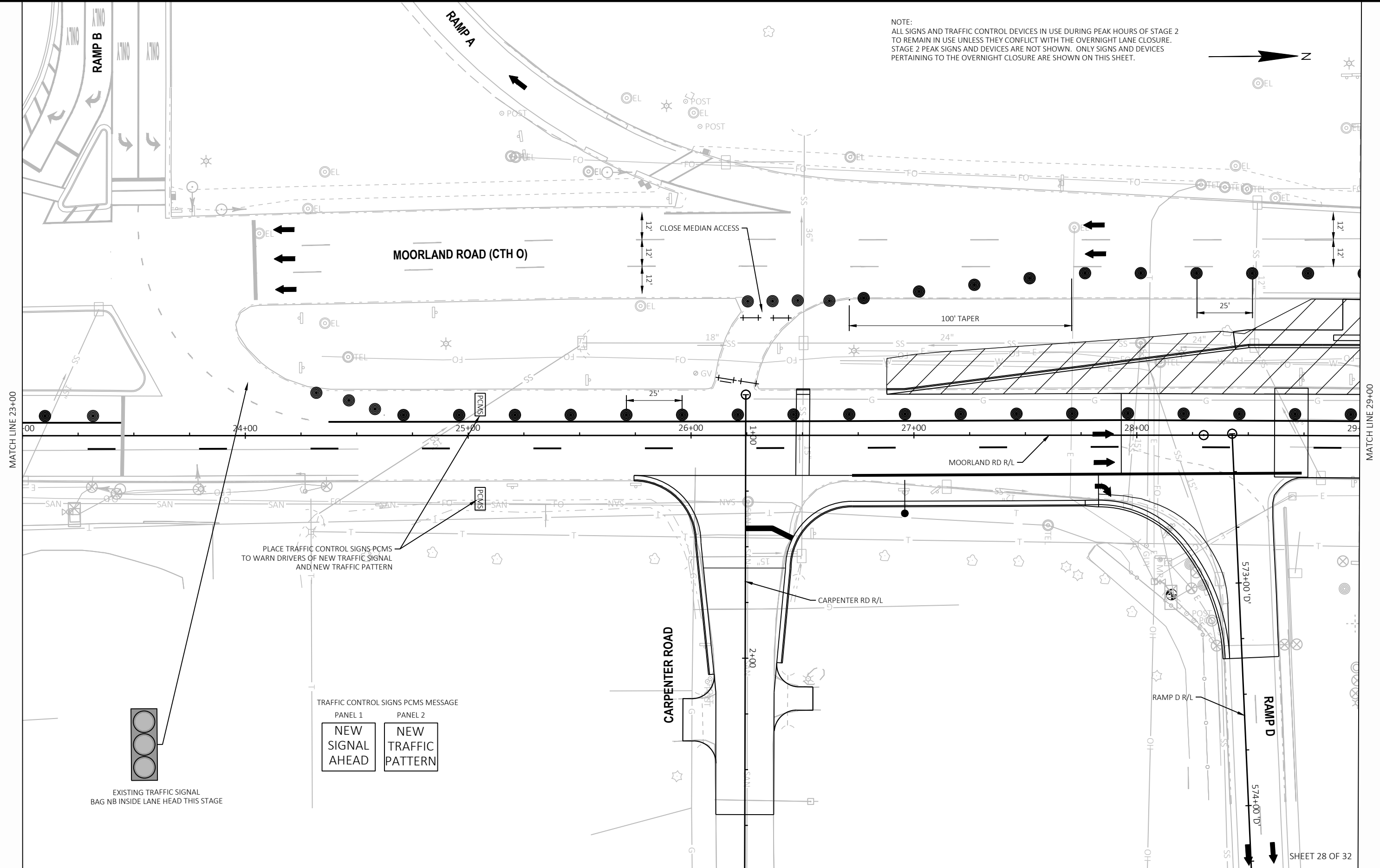
COUNTY: WAUKESHA

TRAFFIC CONTROL-STAGING - STAGE 2 PEAK

SHEET

E

NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING PEAK HOURS OF STAGE 2  
 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT LANE CLOSURE.  
 STAGE 2 PEAK SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES  
 PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

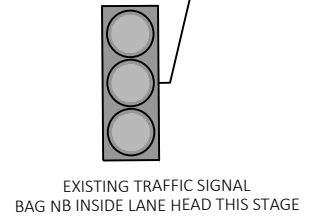
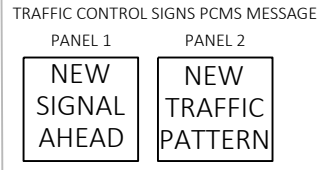


MOORLAND ROAD (CTH 0)

CARPENTER ROAD

RAMP D

PLACE TRAFFIC CONTROL SIGNS PCMS  
 TO WARN DRIVERS OF NEW TRAFFIC SIGNAL  
 AND NEW TRAFFIC PATTERN



MATCH LINE 23+00

MATCH LINE 29+00

NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING PEAK HOURS OF STAGE 2  
 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT LANE CLOSURE.  
 STAGE 2 PEAK SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES  
 PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

CLOSE INSIDE SB LANE DURING OFF PEAK HOURS  
 TO CONSTRUCT STAGE 2 WORK

**LANE CLOSED**  
 R11-2L  
 48"x30"

**MOORLAND ROAD (CTH O)**

CLOSE NB LEFT TURN LANES TO CONSTRUCT

TEMPORARY TRAFFIC SIGNAL

OPEN TWO OF THREE RIGHT TURN LANES

MATCH LINE 29+00

MATCH LINE 35+00

IH 94 EB

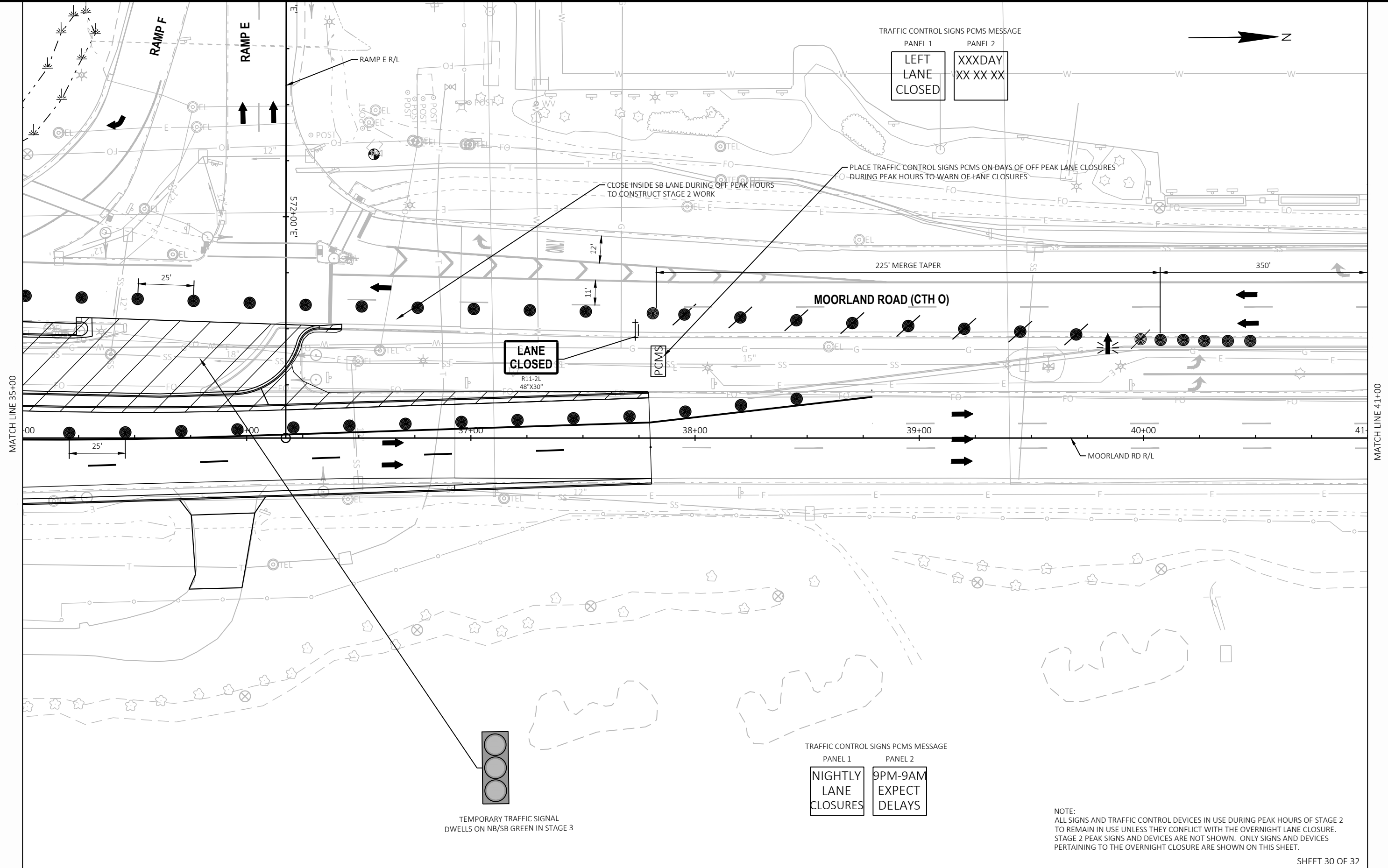
IH 94 WB

RAMP C R/L

RAMP C

RAMP

POST

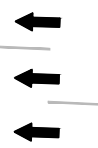


NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING PEAK HOURS OF STAGE 2  
 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT LANE CLOSURE.  
 STAGE 2 PEAK SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES  
 PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.

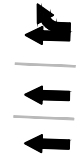


BROOKFIELD SQUARE DRIVE

MOORLAND ROAD (CTH O)



14'  
11'  
11'

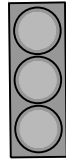


MATCH LINE 41+00

MATCH LINE 47+00

41+00 42+00 43+00 44+00 45+00 46+00 47+00

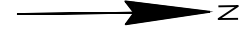
MOORLAND RD R/L



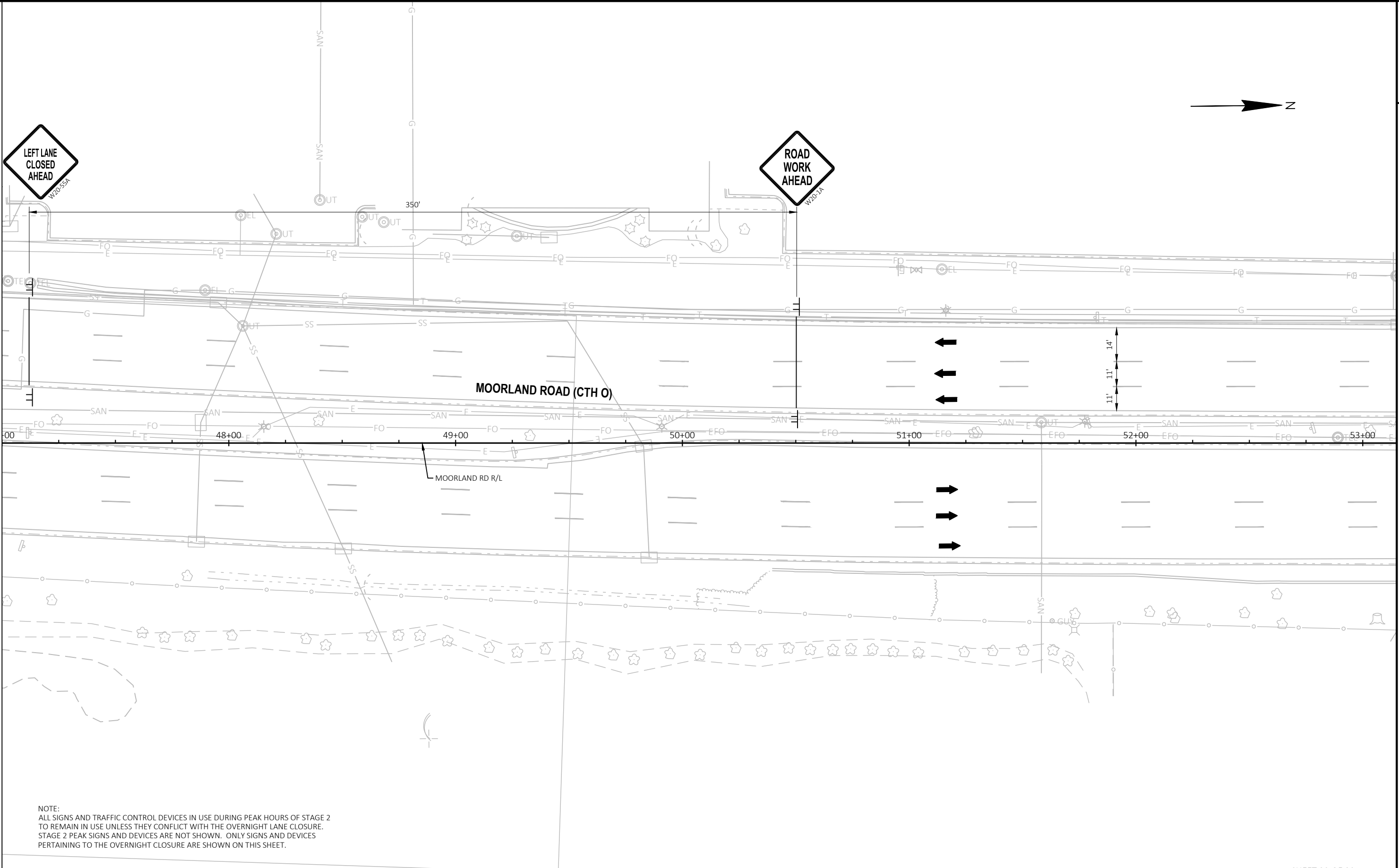
EXISTING TRAFFIC SIGNAL

SHEET 31 OF 32

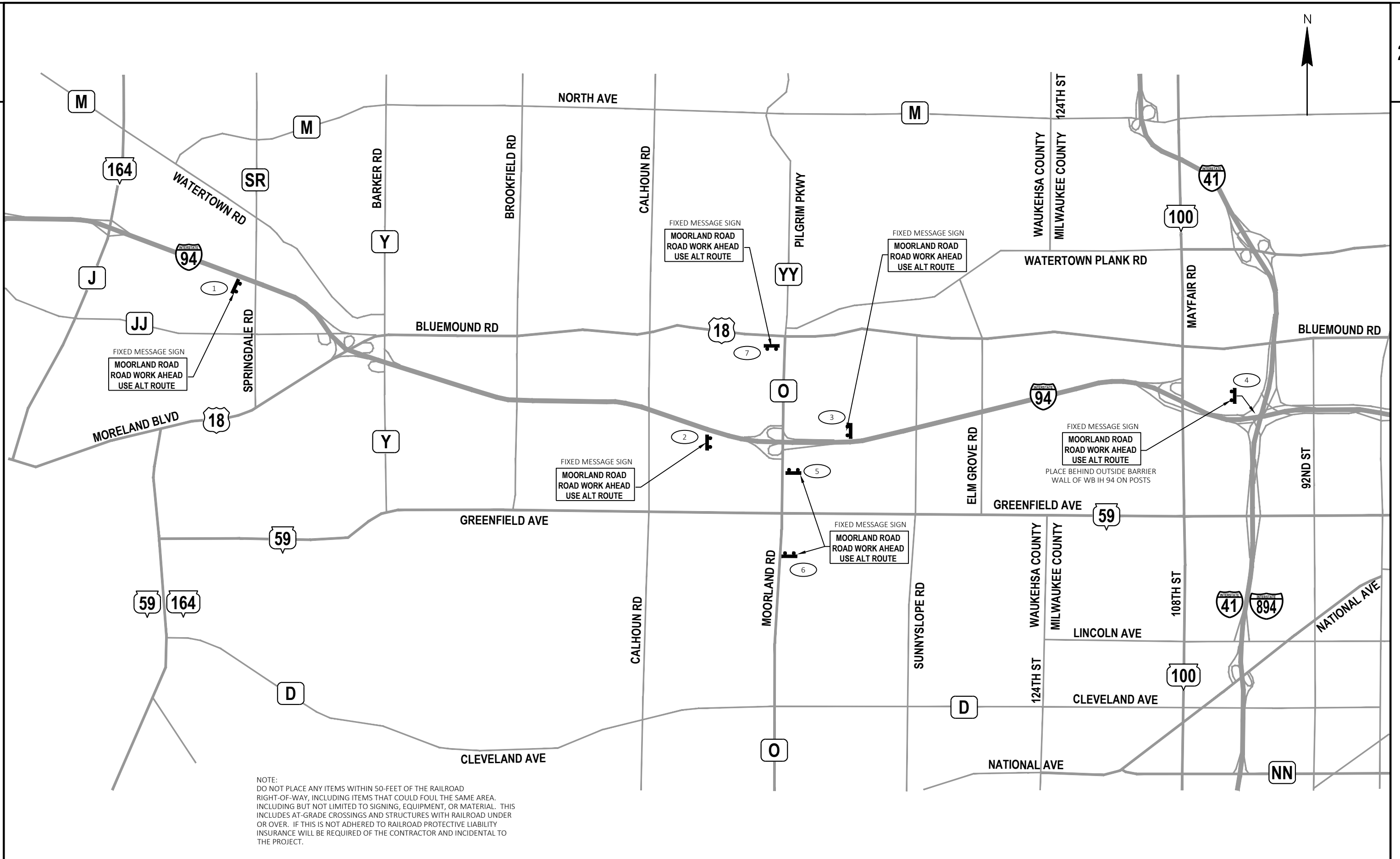
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL-STAGING STAGE 2 OFF PEAK	SHEET	<b>E</b>
------------------------	------------	------------------	--	-------	----------



MATCH LINE 47+00

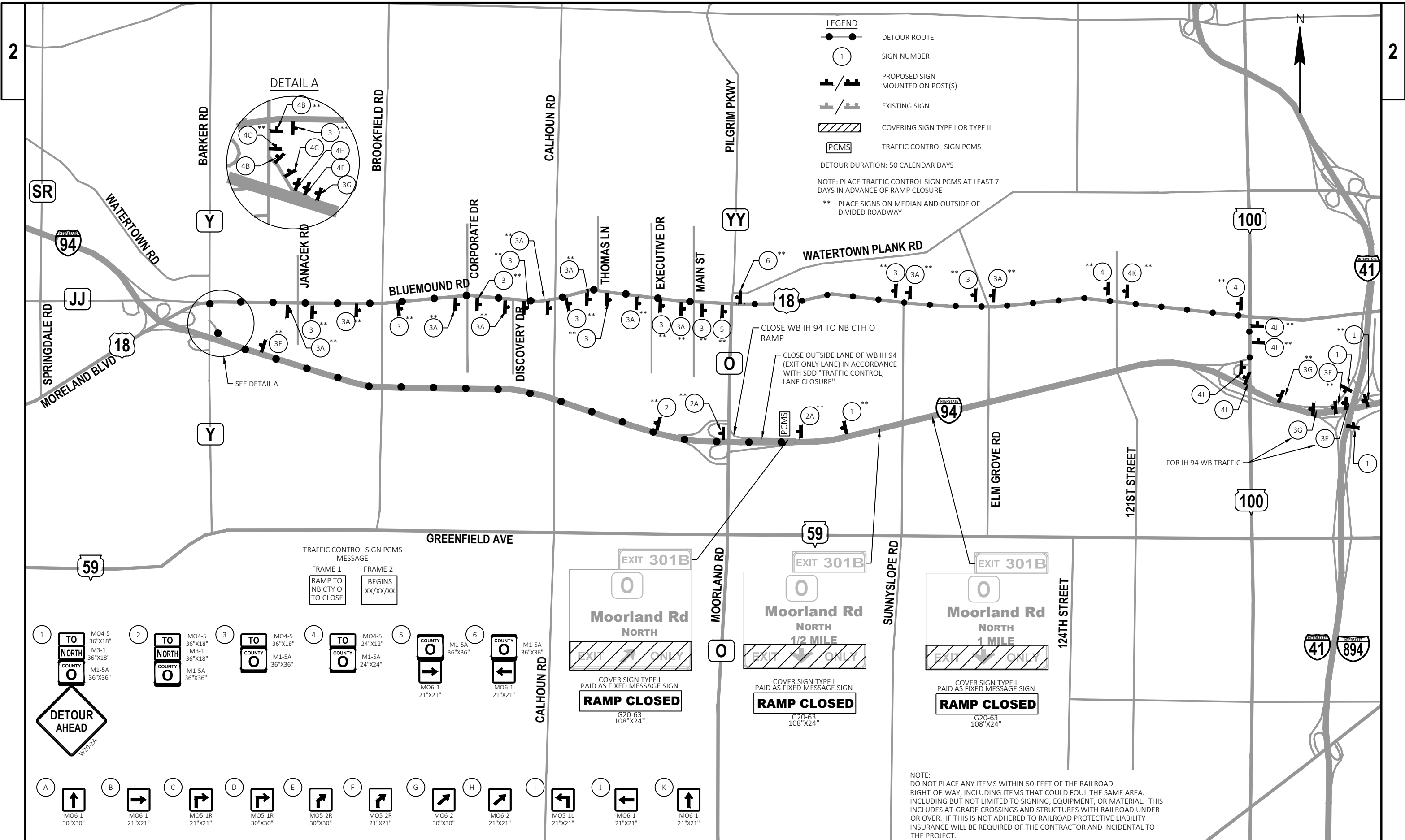


NOTE:  
 ALL SIGNS AND TRAFFIC CONTROL DEVICES IN USE DURING PEAK HOURS OF STAGE 2  
 TO REMAIN IN USE UNLESS THEY CONFLICT WITH THE OVERNIGHT LANE CLOSURE.  
 STAGE 2 PEAK SIGNS AND DEVICES ARE NOT SHOWN. ONLY SIGNS AND DEVICES  
 PERTAINING TO THE OVERNIGHT CLOSURE ARE SHOWN ON THIS SHEET.



NOTE:  
 DO NOT PLACE ANY ITEMS WITHIN 50-FEET OF THE RAILROAD  
 RIGHT-OF-WAY, INCLUDING ITEMS THAT COULD FOUL THE SAME AREA.  
 INCLUDING BUT NOT LIMITED TO SIGNING, EQUIPMENT, OR MATERIAL. THIS  
 INCLUDES AT-GRADE CROSSINGS AND STRUCTURES WITH RAILROAD UNDER  
 OR OVER. IF THIS IS NOT ADHERED TO RAILROAD PROTECTIVE LIABILITY  
 INSURANCE WILL BE REQUIRED OF THE CONTRACTOR AND INCIDENTAL TO  
 THE PROJECT.





**LEGEND**

- DETOUR ROUTE
- SIGN NUMBER
- PROPOSED SIGN MOUNTED ON POST(S)
- EXISTING SIGN
- COVERING SIGN TYPE I OR TYPE II
- TRAFFIC CONTROL SIGN PCMS

DETOUR DURATION: 50 CALENDAR DAYS

NOTE: PLACE TRAFFIC CONTROL SIGN PCMS AT LEAST 7 DAYS IN ADVANCE OF RAMP CLOSURE

\*\* PLACE SIGNS ON MEDIAN AND OUTSIDE OF DIVIDED ROADWAY

**TRAFFIC CONTROL SIGN PCMS MESSAGE**

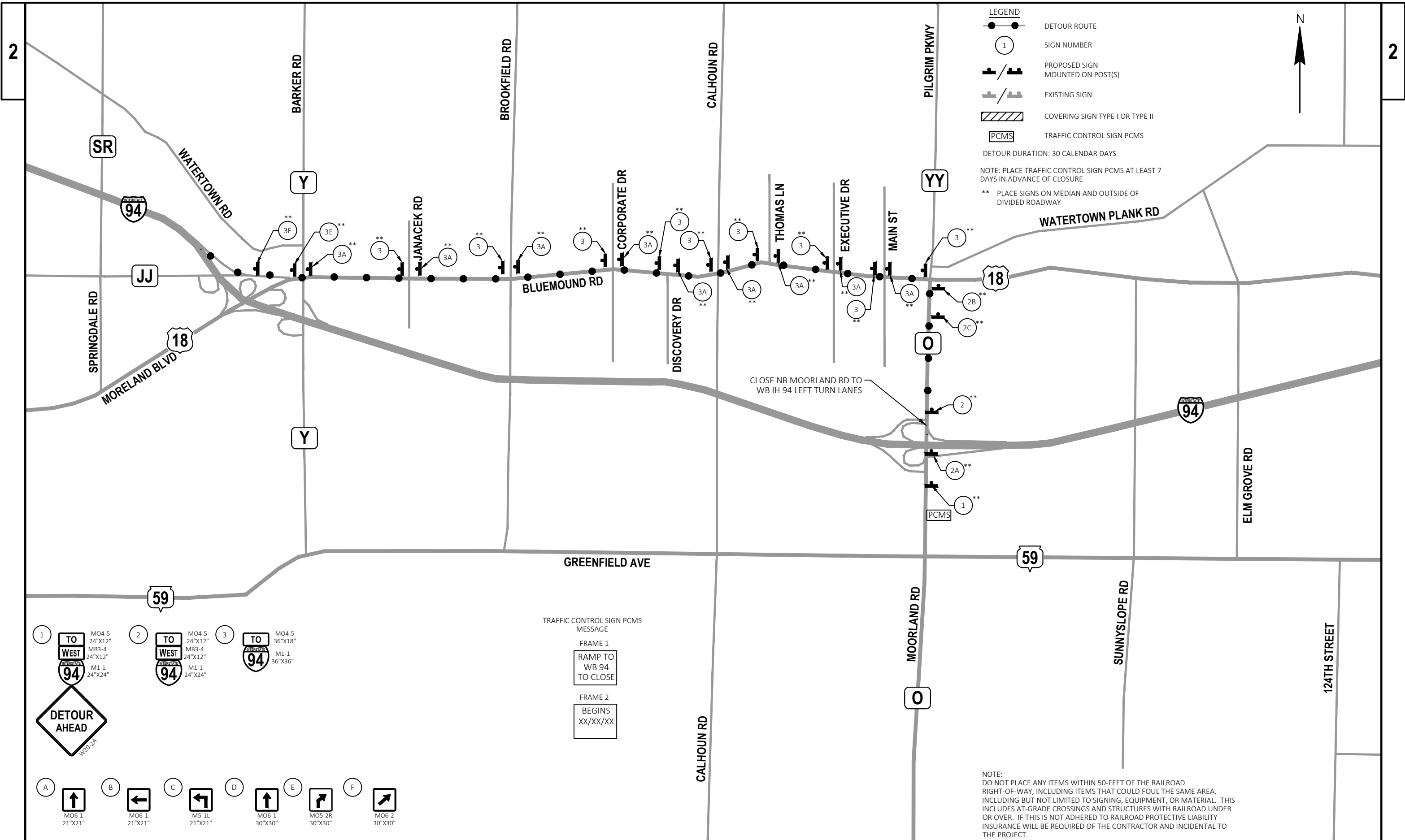
FRAME 1	FRAME 2
RAMP TO NB CTH O TO CLOSE	BEGINS XX/XX/XX

1	MO4-5 36"x18" M3-1 36"x18" M1-5A 36"x36"	2	MO4-5 36"x18" M3-1 36"x18" M1-5A 36"x36"	3	MO4-5 36"x18" M1-5A 36"x36"	4	MO4-5 24"x12" M1-5A 24"x24"	5	M1-5A 36"x36"	6	M1-5A 36"x36"
---	--	---	--	---	--------------------------------	---	--------------------------------	---	---------------	---	---------------

A	MO6-1 30"x30"	B	MO6-1 21"x21"	C	MO5-1R 21"x21"	D	MO5-1R 30"x30"	E	MO5-2R 30"x30"	F	MO5-2R 21"x21"	G	MO6-2 30"x30"	H	MO6-2 21"x21"	I	MO5-1L 21"x21"	J	MO6-1 21"x21"	K	MO6-1 21"x21"
---	---------------	---	---------------	---	----------------	---	----------------	---	----------------	---	----------------	---	---------------	---	---------------	---	----------------	---	---------------	---	---------------

<p>EXIT 301B Moorland Rd NORTH EXIT ONLY COVER SIGN TYPE I PAID AS FIXED MESSAGE SIGN RAMP CLOSED G20-63 108"x24"</p>	<p>EXIT 301B Moorland Rd NORTH 1/2 MILE EXIT ONLY COVER SIGN TYPE I PAID AS FIXED MESSAGE SIGN RAMP CLOSED G20-63 108"x24"</p>	<p>EXIT 301B Moorland Rd NORTH 1 MILE EXIT ONLY COVER SIGN TYPE I PAID AS FIXED MESSAGE SIGN RAMP CLOSED G20-63 108"x24"</p>
---	--	--

NOTE: DO NOT PLACE ANY ITEMS WITHIN 50-FOET OF THE RAILROAD RIGHT-OF-WAY, INCLUDING ITEMS THAT COULD FOUL THE SAME AREA. INCLUDING BUT NOT LIMITED TO SIGNING, EQUIPMENT, OR MATERIAL. THIS INCLUDES AT-GRADE CROSSINGS AND STRUCTURES WITH RAILROAD UNDER OR OVER. IF THIS IS NOT ADHERED TO RAILROAD PROTECTIVE LIABILITY INSURANCE WILL BE REQUIRED OF THE CONTRACTOR AND INCIDENTAL TO THE PROJECT.



**LEGEND**

- DETOUR ROUTE
- SIGN NUMBER
- PROPOSED SIGN MOUNTED ON POST(S)
- EXISTING SIGN
- COVERING SIGN TYPE I OR TYPE II
- TRAFFIC CONTROL SIGN PCMS

DETOUR DURATION: 30 CALENDAR DAYS

NOTE: PLACE TRAFFIC CONTROL SIGN PCMS AT LEAST 7 DAYS IN ADVANCE OF CLOSURE

\*\* PLACE SIGNS ON MEDIAN AND OUTSIDE OF DIVIDED ROADWAY

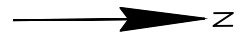
TRAFFIC CONTROL SIGN PCMS MESSAGE

FRAME 1  
RAMP TO  
WB 94  
TO CLOSE

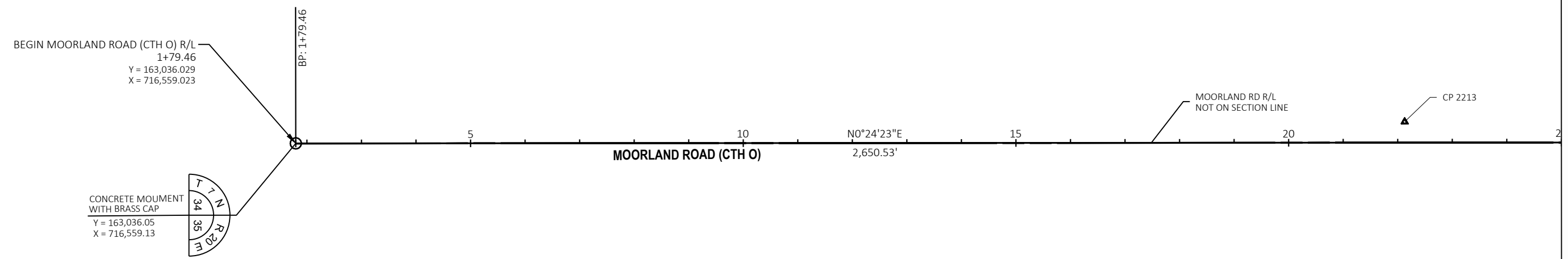
FRAME 2  
BEGINS  
XX/XX/XX

- 1 MO4-5 24"x12"  
MB3-4 24"x12"  
M1-1 24"x24"
- 2 MO4-5 24"x12"  
MB3-4 24"x12"  
M1-1 24"x24"
- 3 MO4-5 36"x18"  
M1-1 36"x36"
- A MO6-1 21"x21"
- B MO6-1 21"x21"
- C M5-1L 21"x21"
- D MO6-1 30"x30"
- E MO5-2R 30"x30"
- F MO6-2 30"x30"

NOTE:  
DO NOT PLACE ANY ITEMS WITHIN 50-FEET OF THE RAILROAD RIGHT-OF-WAY, INCLUDING ITEMS THAT COULD FOUL THE SAME AREA, INCLUDING BUT NOT LIMITED TO SIGNING, EQUIPMENT, OR MATERIAL. THIS INCLUDES AT-GRADE CROSSINGS AND STRUCTURES WITH RAILROAD UNDER OR OVER. IF THIS IS NOT ADHERED TO RAILROAD PROTECTIVE LIABILITY INSURANCE WILL BE REQUIRED OF THE CONTRACTOR AND INCIDENTAL TO THE PROJECT.



CONTROL POINT TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	DESCRIPTION
CP 2213	22+12.63	-38.22	165069.52	716535.24	FENO MONUMENT



MATCH LINE 25+00

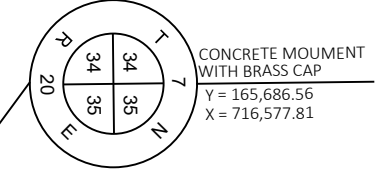


CONTROL POINT TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	DESCRIPTION
CP 2794	27+94.20	-144.95	165651.82	716432.56	FENO MONUMENT
CP 3180	31+80.16	31.46	166036.22	716613.33	FENO MONUMENT
CP 3833	38+32.67	-27.49	166689.70	716561.98	FENO MONUMENT

RAMP E CURVE 1  
 PI STA = 567+46.84 'E'  
 Y = 166,481.062  
 X = 716,020.872  
 DELTA = 42°19'46" RT  
 D = 14°19'26"  
 T = 154.87'  
 L = 295.51'  
 R = 400.00'  
 PC STA = 565+91.97 'E'  
 PT STA = 568+87.49 'E'

BEGIN RAMP E RL R/L  
 564+00.00  
 Y = 166,250.790  
 X = 715,761.501

BEGIN IH94 R/L  
 566+23.64  
 Y = 165,861.198  
 X = 715,967.111



BEGIN RAMP D RD R/L  
 572+32.95  
 Y = 165,699.24  
 X = 716,577.28

BEGIN CARPENTER RD R/L  
 0+81.72  
 Y = 165,481.223  
 X = 716,558.088

BP: 572+32.95'D'  
 PI: 28+30.00

BP: 572+36.32'C'  
 CP 3180

BEGIN RAMP C RL R/L  
 572+36.32  
 Y = 165,976.070  
 X = 716,581.175

END RAMP E R/L  
 572+98.74  
 Y = 166,473.847  
 X = 716,586.938

CARPENTER RD R/L  
 318.28'  
 S89°25'17"E

RAMP D R/L  
 575'D  
 N87°54'17"E

RAMP C R/L  
 575'C  
 S87°02'53"E

N0°39'48"E  
 2,514.37'

N0°24'23"E  
 2,650.53'

N0°39'48"E  
 170.00'

N0°39'48"E  
 411.25'

RAMP E  
 589°16'11"E

RAMP E R/L  
 570'E

PT: 568+87.49 'E'

CP 3833

MOORLAND RD R/L SECTION LINE  
 NOT ON SECTION LINE

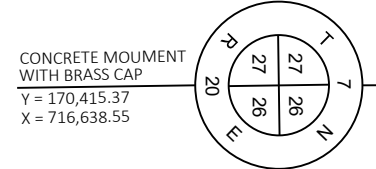
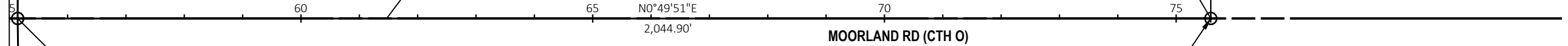
MOORLAND RD (CTH O)

MATCHLINE 06+00

MATCHLINE 580+00

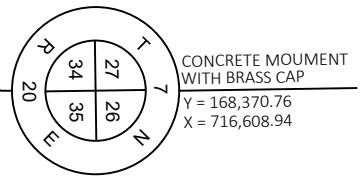


PI: 55+14.37



EP: 75+59.27

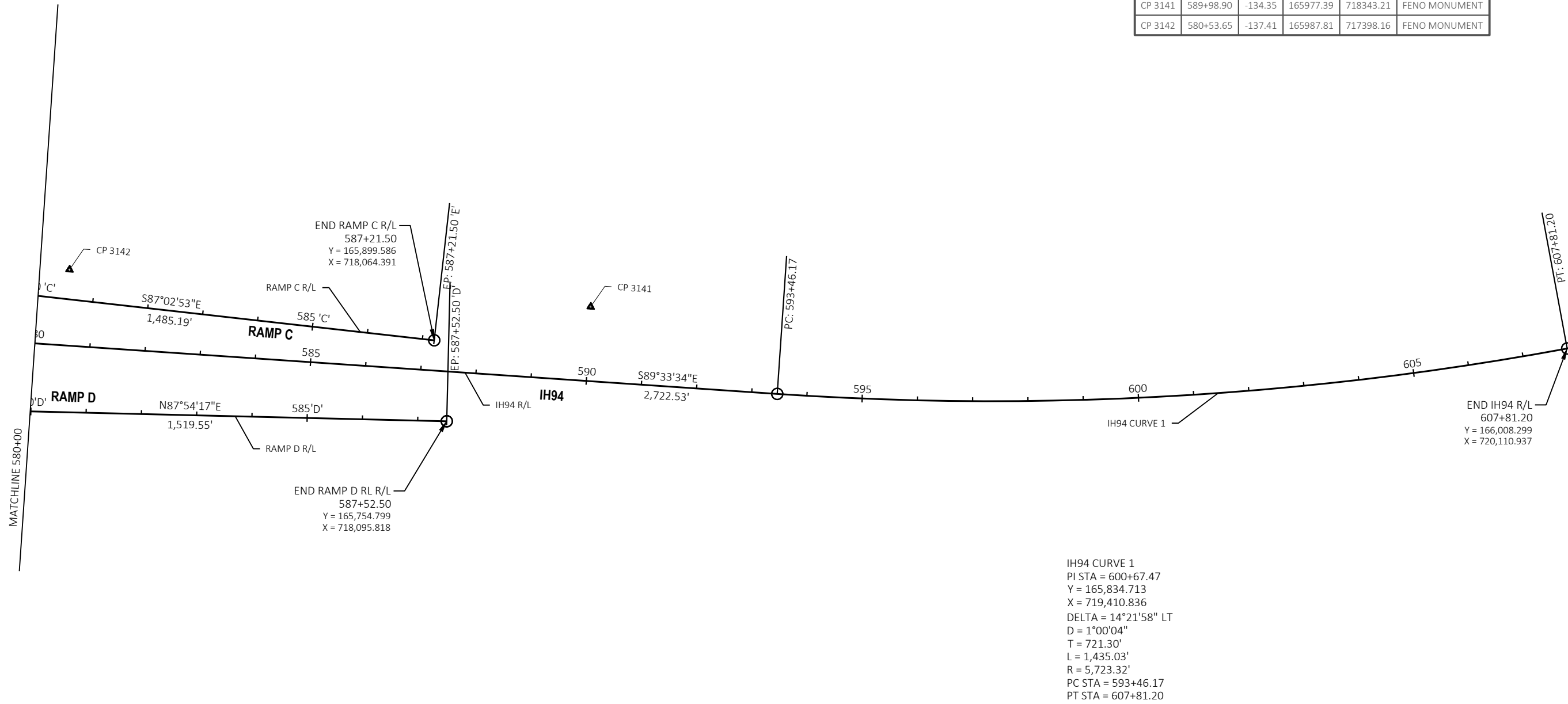
END MOORLAND ROAD (CTH O) R/L  
 75+59.27  
 Y = 170,415.373  
 X = 716,638.554



MATCH LINE 55+00



CONTROL POINT TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	DESCRIPTION
CP 3141	589+98.90	-134.35	165977.39	718343.21	FENO MONUMENT
CP 3142	580+53.65	-137.41	165987.81	717398.16	FENO MONUMENT



Estimate Of Quantities

1060-10-72

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	1.000	1.000
0004	201.0220	Grubbing	ID	10.000	10.000
0006	203.0100	Removing Small Pipe Culverts	EACH	3.000	3.000
0008	203.0220	Removing Structure (structure) 0001. R-67-158	EACH	1.000	1.000
0010	204.0100	Removing Concrete Pavement	SY	2,895.000	2,895.000
0012	204.0105	Removing Concrete Pavement Butt Joints	SY	100.000	100.000
0014	204.0115	Removing Asphaltic Surface Butt Joints	SY	395.000	395.000
0016	204.0120	Removing Asphaltic Surface Milling	SY	4,720.000	4,720.000
0018	204.0150	Removing Curb & Gutter	LF	1,645.000	1,645.000
0020	204.0155	Removing Concrete Sidewalk	SY	80.000	80.000
0022	204.0170	Removing Fence	LF	335.000	335.000
0024	204.0195	Removing Concrete Bases	EACH	12.000	12.000
0026	204.0210	Removing Manholes	EACH	3.000	3.000
0028	204.0220	Removing Inlets	EACH	13.000	13.000
0030	204.0245	Removing Storm Sewer (size) 0001. 12-Inch	LF	114.000	114.000
0032	204.0245	Removing Storm Sewer (size) 0002. 15-Inch	LF	268.000	268.000
0034	204.0245	Removing Storm Sewer (size) 0003. 18-Inch	LF	234.000	234.000
0036	204.0245	Removing Storm Sewer (size) 0004. 24-Inch	LF	265.000	265.000
0038	204.0245	Removing Storm Sewer (size) 0005. 58x36-Inch	LF	69.000	69.000
0040	204.0246	Removing Ancillary Structure (structure) 0001. S-67-227	EACH	1.000	1.000
0042	204.0246	Removing Ancillary Structure (structure) 0002. S-67-614	EACH	1.000	1.000
0044	204.0291.S	Abandoning Sewer	CY	4.000	4.000
0046	204.9001.S	Removing Advance Flasher Assemblies Type 1	EACH	1.000	1.000
0048	204.9060.S	Removing (item description) 0001. Removing Ramp Closure Gate	EACH	1.000	1.000
0050	204.9060.S	Removing (item description) 0002. Removing Storm Sewer Chamber	EACH	1.000	1.000
0052	204.9060.S	Removing (item description) 1001. Removing Lighting Units	EACH	6.000	6.000
0054	204.9060.S	Removing (item description) 1002. Removing Distribution Center	EACH	1.000	1.000
0056	204.9060.S	Removing (item description) 3001. Removing Traffic Signals IH 94 WB on Ramp & CTH O (S Moorland Rd)	EACH	1.000	1.000
0058	205.0100	Excavation Common	CY	8,757.000	8,757.000
0060	210.1500	Backfill Structure Type A	TON	78.000	78.000
0062	213.0100	Finishing Roadway (project) 0001. 1060-10-72	EACH	1.000	1.000
0064	305.0110	Base Aggregate Dense 3/4-Inch	TON	15.000	15.000
0066	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,715.000	3,715.000
0068	310.0110	Base Aggregate Open-Graded	TON	80.000	80.000
0070	312.0110	Select Crushed Material	TON	6,550.000	6,550.000
0072	320.0150	Concrete Base 8 1/2-Inch	SY	15.000	15.000
0074	320.0155	Concrete Base 9-Inch	SY	4,935.000	4,935.000
0076	390.0303	Base Patching Concrete	SY	236.000	236.000
0078	390.0403	Base Patching Concrete Shes	SY	209.000	209.000
0080	416.0170	Concrete Driveway 7-Inch	SY	26.000	26.000
0082	416.0610	Drilled Tie Bars	EACH	985.000	985.000
0084	416.0620	Drilled Dowel Bars	EACH	226.000	226.000
0086	450.4000	HMA Cold Weather Paving	TON	55.000	55.000
0088	455.0605	Tack Coat	GAL	1,295.000	1,295.000
0090	460.2000	Incentive Density HMA Pavement	DOL	1,240.000	1,240.000
0092	460.6223	HMA Pavement 3 MT 58-28 S	TON	65.000	65.000
0094	460.6224	HMA Pavement 4 MT 58-28 S	TON	1,865.000	1,865.000
0096	465.0105	Asphaltic Surface	TON	35.000	35.000

Estimate Of Quantities

1060-10-72

Line	Item	Item Description	Unit	Total	Qty
0098	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	45.000	45.000
0100	509.1500	Concrete Surface Repair	SF	282.000	282.000
0102	521.1221	Apron Endwalls for Pipe Arch Steel 21x15-Inch	EACH	2.000	2.000
0104	521.3721	Pipe Arch Corrugated Steel 21x15-Inch	LF	40.000	40.000
0106	531.2036	Drilling Shaft 36-Inch	LF	10.000	10.000
0108	531.2048	Drilling Shaft 48-Inch	LF	28.000	28.000
0110	531.4050	Foundation Camera Pole 50-FT	EACH	1.000	1.000
0112	531.5340	Foundation Single-Shaft Type TC-IV (structure) 0001. S-67-983	EACH	1.000	1.000
0114	532.5340	Truss Cantilever 2-Chord Type IV (structure) 0001. S-67-983	EACH	1.000	1.000
0116	601.0405	Concrete Curb & Gutter 18-Inch Type A	LF	1,575.000	1,575.000
0118	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	1,840.000	1,840.000
0120	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	95.000	95.000
0122	601.0555	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A	LF	435.000	435.000
0124	601.0600	Concrete Curb Pedestrian	LF	33.000	33.000
0126	602.0405	Concrete Sidewalk 4-Inch	SF	9,355.000	9,355.000
0128	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	62.000	62.000
0130	602.0605	Curb Ramp Detectable Warning Field Radial Yellow	SF	14.000	14.000
0132	603.1142	Concrete Barrier Type S42	LF	131.000	131.000
0134	603.1456	Concrete Barrier Type S56C	LF	351.000	351.000
0136	603.3559	Concrete Barrier Transition Type S42 to S56	EACH	2.000	2.000
0138	606.0300	Riprap Heavy	CY	59.000	59.000
0140	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	227.000	227.000
0142	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	310.000	310.000
0144	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	219.000	219.000
0146	608.0421	Storm Sewer Pipe Reinforced Concrete Class IV 21-Inch	LF	256.000	256.000
0148	608.0424	Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch	LF	200.000	200.000
0150	608.0430	Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch	LF	125.000	125.000
0152	611.0420	Reconstructing Manholes	EACH	3.000	3.000
0154	611.0530	Manhole Covers Type J	EACH	12.000	12.000
0156	611.0606	Inlet Covers Type B	EACH	3.000	3.000
0158	611.0610	Inlet Covers Type BW	EACH	8.000	8.000
0160	611.0624	Inlet Covers Type H	EACH	6.000	6.000
0162	611.0627	Inlet Covers Type HM	EACH	4.000	4.000
0164	611.0642	Inlet Covers Type MS	EACH	5.000	5.000
0166	611.0651	Inlet Covers Type S	EACH	1.000	1.000
0168	611.0666	Inlet Covers Type Z	EACH	9.000	9.000
0170	611.2004	Manholes 4-FT Diameter	EACH	5.000	5.000
0172	611.2005	Manholes 5-FT Diameter	EACH	2.000	2.000
0174	611.2006	Manholes 6-FT Diameter	EACH	2.000	2.000
0176	611.2033	Manholes 3x3-FT	EACH	1.000	1.000
0178	611.3003	Inlets 3-FT Diameter	EACH	6.000	6.000
0180	611.3004	Inlets 4-FT Diameter	EACH	14.000	14.000
0182	611.3220	Inlets 2x2-FT	EACH	2.000	2.000
0184	611.3225	Inlets 2x2.5-FT	EACH	2.000	2.000
0186	611.3230	Inlets 2x3-FT	EACH	5.000	5.000
0188	611.3901	Inlets Median 1 Grate	EACH	2.000	2.000
0190	611.8115	Adjusting Inlet Covers	EACH	1.000	1.000
0192	612.0106	Pipe Underdrain 6-Inch	LF	920.000	920.000
0194	612.0902.S	Insulation Board Polystyrene (inch) 5001. 2-Inch	SY	16.000	16.000



Estimate Of Quantities

1060-10-72

Line	Item	Item Description	Unit	Total	Qty
0196	614.0805	Crash Cushions Permanent Low Maintenance	EACH	2.000	2.000
0198	614.2500	MGS Thrie Beam Transition	LF	40.000	40.000
0200	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0202	616.0100	Fence Woven Wire (height) 0001. 4-ft	LF	335.000	335.000
0204	616.0700.S	Fence Safety	LF	113.000	113.000
0206	618.0100	Maintenance And Repair of Haul Roads (project) 0001. 1060-10-72	EACH	1.000	1.000
0208	619.1000	Mobilization	EACH	1.000	1.000
0210	620.0300	Concrete Median Sloped Nose	SF	60.000	60.000
0212	623.0200	Dust Control Surface Treatment	SY	2,500.000	2,500.000
0214	624.0100	Water	MGAL	192.000	192.000
0216	625.0100	Topsoil	SY	1,487.000	1,487.000
0218	625.0500	Salvaged Topsoil	SY	1,618.000	1,618.000
0220	627.0200	Mulching	SY	4,440.000	4,440.000
0222	628.1104	Erosion Bales	EACH	50.000	50.000
0224	628.1504	Silt Fence	LF	1,290.000	1,290.000
0226	628.1520	Silt Fence Maintenance	LF	646.000	646.000
0228	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0230	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0232	628.2008	Erosion Mat Urban Class I Type B	SY	1,630.000	1,630.000
0234	628.6510	Soil Stabilizer Type B	ACRE	2.000	2.000
0236	628.7005	Inlet Protection Type A	EACH	47.000	47.000
0238	628.7010	Inlet Protection Type B	EACH	11.000	11.000
0240	628.7020	Inlet Protection Type D	EACH	70.000	70.000
0242	628.7504	Temporary Ditch Checks	LF	207.000	207.000
0244	628.7555	Culvert Pipe Checks	EACH	10.000	10.000
0246	628.7560	Tracking Pads	EACH	4.000	4.000
0248	628.7570	Rock Bags	EACH	50.000	50.000
0250	629.0210	Fertilizer Type B	CWT	10.000	10.000
0252	630.0130	Seeding Mixture No. 30	LB	74.000	74.000
0254	630.0200	Seeding Temporary	LB	23.000	23.000
0256	630.0300	Seeding Borrow Pit	LB	60.000	60.000
0258	630.0500	Seed Water	MGAL	159.000	159.000
0260	631.0300	Sod Water	MGAL	39.000	39.000
0262	631.1000	Sod Lawn	SY	1,495.000	1,495.000
0264	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	30.000	30.000
0266	637.1220	Signs Type I Reflective SH	SF	102.000	102.000
0268	637.2210	Signs Type II Reflective H	SF	233.940	233.940
0270	637.2215	Signs Type II Reflective H Folding	SF	29.840	29.840
0272	637.2230	Signs Type II Reflective F	SF	63.000	63.000
0274	638.2101	Moving Signs Type I	EACH	1.000	1.000
0276	638.2102	Moving Signs Type II	EACH	1.000	1.000
0278	638.2601	Removing Signs Type I	EACH	1.000	1.000
0280	638.2602	Removing Signs Type II	EACH	27.000	27.000
0282	638.3000	Removing Small Sign Supports	EACH	25.000	25.000
0284	642.5201	Field Office Type C	EACH	1.000	1.000
0286	643.0300	Traffic Control Drums	DAY	18,258.000	18,258.000
0288	643.0420	Traffic Control Barricades Type III	DAY	3,633.000	3,633.000
0290	643.0705	Traffic Control Warning Lights Type A	DAY	7,266.000	7,266.000
0292	643.0715	Traffic Control Warning Lights Type C	DAY	3,495.000	3,495.000

Estimate Of Quantities

1060-10-72

Line	Item	Item Description	Unit	Total	Qty
0294	643.0800	Traffic Control Arrow Boards	DAY	439.000	439.000
0296	643.0900	Traffic Control Signs	DAY	26,694.000	26,694.000
0298	643.0910	Traffic Control Covering Signs Type I	EACH	3.000	3.000
0300	643.0920	Traffic Control Covering Signs Type II	EACH	1.000	1.000
0302	643.1000	Traffic Control Signs Fixed Message	SF	302.000	302.000
0304	643.1050	Traffic Control Signs PCMS	DAY	237.000	237.000
0306	643.3150	Temporary Marking Line Removable Tape 4-Inch	LF	5,140.000	5,140.000
0308	643.3250	Temporary Marking Line Removable Tape 8-Inch	LF	202.000	202.000
0310	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	24.000	24.000
0312	643.3970	Temporary Marking Removable Mask Out Tape 10-Inch	LF	170.000	170.000
0314	643.5000	Traffic Control	EACH	1.000	1.000
0316	644.1440	Temporary Pedestrian Surface Matting	SF	62.000	62.000
0318	644.1601	Temporary Pedestrian Curb Ramp	DAY	20.000	20.000
0320	644.1605	Temporary Pedestrian Detectable Warning Field	SF	20.000	20.000
0322	644.1810	Temporary Pedestrian Barricade	LF	573.000	573.000
0324	645.0111	Geotextile Type DF Schedule A	SY	525.000	525.000
0326	645.0120	Geotextile Type HR	SY	116.000	116.000
0328	645.0220	Geogrid Type SR	SY	7,025.000	7,025.000
0330	646.1020	Marking Line Epoxy 4-Inch	LF	4,905.000	4,905.000
0332	646.1545	Marking Line Grooved Wet Ref Contrast Epoxy 4-Inch	LF	952.000	952.000
0334	646.3545	Marking Line Grooved Wet Ref Contrast Epoxy 8-Inch	LF	2,308.000	2,308.000
0336	646.5020	Marking Arrow Epoxy	EACH	11.000	11.000
0338	646.5120	Marking Word Epoxy	EACH	5.000	5.000
0340	646.6120	Marking Stop Line Epoxy 18-Inch	LF	209.000	209.000
0342	646.6220	Marking Yield Line Epoxy 18-Inch	EACH	19.000	19.000
0344	646.6464	Cold Weather Marking Epoxy 4-Inch	LF	591.000	591.000
0346	646.6468	Cold Weather Marking Epoxy 8-Inch	LF	234.000	234.000
0348	646.7120	Marking Diagonal Epoxy 12-Inch	LF	33.000	33.000
0350	646.7420	Marking Crosswalk Epoxy Transverse Line 6-Inch	LF	211.000	211.000
0352	646.8120	Marking Curb Epoxy	LF	20.000	20.000
0354	646.8220	Marking Island Nose Epoxy	EACH	2.000	2.000
0356	646.9000	Marking Removal Line 4-Inch	LF	788.000	788.000
0358	646.9010	Marking Removal Line Water Blasting 4-Inch	LF	279.000	279.000
0360	646.9100	Marking Removal Line 8-Inch	LF	188.000	188.000
0362	646.9110	Marking Removal Line Water Blasting 8-Inch	LF	513.000	513.000
0364	646.9200	Marking Removal Line Wide	LF	481.000	481.000
0366	646.9310	Marking Removal Special Marking Water Blasting	EACH	5.000	5.000
0368	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	3,813.000	3,813.000
0370	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	1,146.000	1,146.000
0372	652.0605	Conduit Special 2-Inch	LF	224.000	224.000
0374	652.0700.S	Install Conduit into Existing Item	EACH	6.000	6.000
0376	652.0800	Conduit Loop Detector	LF	1,976.000	1,976.000
0378	653.0135	Pull Boxes Steel 24x36-Inch	EACH	5.000	5.000
0380	653.0140	Pull Boxes Steel 24x42-Inch	EACH	16.000	16.000
0382	653.0222	Junction Boxes 18x12x6-Inch	EACH	2.000	2.000
0384	653.0900	Adjusting Pull Boxes	EACH	2.000	2.000
0386	653.0905	Removing Pull Boxes	EACH	8.000	8.000
0388	654.0101	Concrete Bases Type 1	EACH	6.000	6.000
0390	654.0102	Concrete Bases Type 2	EACH	2.000	2.000

Estimate Of Quantities

1060-10-72

Line	Item	Item Description	Unit	Total	Qty
0392	654.0105	Concrete Bases Type 5	EACH	8.000	8.000
0394	654.0120	Concrete Bases Type 10-Special	EACH	1.000	1.000
0396	654.0217	Concrete Control Cabinet Bases Type 9 Special	EACH	1.000	1.000
0398	654.0230	Concrete Control Cabinet Bases Type L30	EACH	1.000	1.000
0400	655.0230	Cable Traffic Signal 5-14 AWG	LF	473.000	473.000
0402	655.0240	Cable Traffic Signal 7-14 AWG	LF	1,751.000	1,751.000
0404	655.0320	Cable Type UF 2-10 AWG Grounded	LF	1,511.000	1,511.000
0406	655.0510	Electrical Wire Traffic Signals 12 AWG	LF	614.000	614.000
0408	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	3,697.000	3,697.000
0410	655.0610	Electrical Wire Lighting 12 AWG	LF	1,337.000	1,337.000
0412	655.0615	Electrical Wire Lighting 10 AWG	LF	550.000	550.000
0414	655.0620	Electrical Wire Lighting 8 AWG	LF	8,145.000	8,145.000
0416	655.0640	Electrical Wire Lighting 1 AWG	LF	18.000	18.000
0418	655.0700	Loop Detector Lead In Cable	LF	9,143.000	9,143.000
0420	655.0800	Loop Detector Wire	LF	5,368.000	5,368.000
0422	655.0900	Traffic Signal EVP Detector Cable	LF	599.000	599.000
0424	656.0201	Electrical Service Meter Breaker Pedestal (location) 3001. CTH O & IH 94 WB to NB Off Ramp	EACH	1.000	1.000
0426	656.0401	Electrical Service Main Lugs Only Meter Pedestal (location) 1000. H-67-LD	EACH	1.000	1.000
0428	657.0100	Pedestal Bases	EACH	6.000	6.000
0430	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	9.000	9.000
0432	657.0305	Poles Type 2	EACH	1.000	1.000
0434	657.0310	Poles Type 3	EACH	1.000	1.000
0436	657.0322	Poles Type 5-Aluminum	EACH	7.000	7.000
0438	657.0420	Traffic Signal Standards Aluminum 13-FT	EACH	5.000	5.000
0440	657.0430	Traffic Signal Standards Aluminum 10-FT	EACH	1.000	1.000
0442	657.0609	Luminaire Arms Single Member 4-Inch Clamp 6-FT	EACH	1.000	1.000
0444	657.0610	Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	EACH	12.000	12.000
0446	658.0173	Traffic Signal Face 3S 12-Inch	EACH	10.000	10.000
0448	658.0416	Pedestrian Signal Face 16-Inch	EACH	1.000	1.000
0450	658.0500	Pedestrian Push Buttons	EACH	1.000	1.000
0452	658.5070	Signal Mounting Hardware (location) 3001. CTH O & IH 94 WB to NB Off Ramp	EACH	1.000	1.000
0454	658.5070	Signal Mounting Hardware (location) 3002. IH 94 WB On Ramp & CTH O	EACH	1.000	1.000
0456	659.1125	Luminaires Utility LED C	EACH	13.000	13.000
0458	659.1215	Luminaires Underdeck LED C	EACH	2.000	2.000
0460	659.2230	Lighting Control Cabinets 240/480 30-Inch	EACH	1.000	1.000
0462	659.5000.S	Lamp, Ballast, LED, Switch Disposal by Contractor	EACH	13.000	13.000
0464	661.0201	Temporary Traffic Signals for Intersections (location) 3001. Temp Traffic Signals For Intersections CTH O & IH 94 WB to NB Off Ramp	EACH	1.000	1.000
0466	661.0300	Generators	DAY	1.000	1.000
0468	662.1040.S	Ramp Closure Gates 40-FT	EACH	1.000	1.000
0470	662.6020.S	Ramp Closure Barricade Rack 2-Unit	EACH	1.000	1.000
0472	670.0101	Field System Integrator	EACH	2.000	2.000
0474	670.0201	ITS Documentation	EACH	2.000	2.000
0476	671.0142	Conduit HDPE 4-Duct 2-Inch	LF	850.000	850.000
0478	671.0222	Conduit HDPE Directional Bore 2-Duct 2-Inch	LF	70.000	70.000
0480	673.0105	Communication Vault Type 1	EACH	2.000	2.000
0482	674.0300	Remove Cable	LF	1,740.000	1,740.000
0484	674.0400	Reinstall Cable	LF	1,525.000	1,525.000

Estimate Of Quantities

1060-10-72

Line	Item	Item Description	Unit	Total	Qty
0486	677.0150	Install Camera Pole 50-FT	EACH	1.000	1.000
0488	677.0200	Install Camera Assembly	EACH	1.000	1.000
0490	677.9051.S	Removing 50-FT Camera Pole	EACH	1.000	1.000
0492	678.0006	Install Fiber Optic Cable Outdoor Plant 6-CT	LF	800.000	800.000
0494	678.0300	Fiber Optic Splice	EACH	14.000	14.000
0496	678.0400	Fiber Optic Termination	EACH	234.000	234.000
0498	678.0501	Communication System Testing	EACH	2.000	2.000
0500	678.0600	Install Ethernet Switches	EACH	2.000	2.000
0502	690.0150	Sawing Asphalt	LF	249.000	249.000
0504	690.0250	Sawing Concrete	LF	3,168.000	3,168.000
0506	715.0603	Incentive Strength Concrete Barrier	DOL	265.000	265.000
0508	SPV.0060	Special 0001. Survey Project 1060-10-72	EACH	1.000	1.000
0510	SPV.0060	Special 0002. Reconnect Storm Sewer Lateral	EACH	17.000	17.000
0512	SPV.0060	Special 0003. Inlet 5-ft Diameter	EACH	2.000	2.000
0514	SPV.0060	Special 0004. Inlet Median 3 Grate Modified	EACH	1.000	1.000
0516	SPV.0060	Special 0005. Storm Sewer Chamber	EACH	1.000	1.000
0518	SPV.0060	Special 0006. Utility Line Opening	EACH	15.000	15.000
0520	SPV.0060	Special 0007. Section Corner Monuments	EACH	1.000	1.000
0522	SPV.0060	Special 0010. Traffic Control Local Lane Closure	EACH	45.000	45.000
0524	SPV.0060	Special 0011. Traffic Control Close-Open Freeway Entrance Ramp	EACH	10.000	10.000
0526	SPV.0060	Special 0012. Traffic Control Close-Open Freeway Exit Ramp	EACH	10.000	10.000
0528	SPV.0060	Special 0013. Bagging Signal Head	EACH	2.000	2.000
0530	SPV.0060	Special 1001. Lighting System Integrator	EACH	1.000	1.000
0532	SPV.0060	Special 1002. Lighting System Survey	EACH	1.000	1.000
0534	SPV.0060	Special 2000. Removing Communications Vault	EACH	1.000	1.000
0536	SPV.0060	Special 2001. Ground Rod	EACH	1.000	1.000
0538	SPV.0060	Special 3000. Install Poles Type 9 Special	EACH	1.000	1.000
0540	SPV.0060	Special 3001. Install Monotube Arms 45-ft Type 9/10 Spec Pole	EACH	1.000	1.000
0542	SPV.0060	Special 3002. Trnspt & Install State Furn Traffic Signal Cabinet CTH O & IH 94 WB to NB	EACH	1.000	1.000
0544	SPV.0060	Special 3003. Trnspt Traffic Signal & Inter Lighting Materials CTH O & IH 94 WB to NB Of	EACH	1.000	1.000
0546	SPV.0060	Special 3004. Trnspt & Inst State Furn EVP Detector Heads CTH O & IH 94 WB-NB Off-Ramp	EACH	1.000	1.000
0548	SPV.0060	Special 3005. Temp Emrgcny Vehicle Preemption (EVP) Syst CTH O & IH 94 WB to NB Off Ramp	EACH	1.000	1.000
0550	SPV.0060	Special 3006. Abandon Concrete Bases	EACH	1.000	1.000
0552	SPV.0060	Special 3007. Remove, Salvage, & Reinstall EVP Equipment IH 94 WB On Ramp & CTH O	EACH	1.000	1.000
0554	SPV.0060	Special 3008. Inst Fiber Optic Comm in Cabinet IH 94 WB to NB Off Ramp & CTH O	EACH	1.000	1.000
0556	SPV.0060	Special 4001. Remove, Salvage, and Reinstall Overhead Sign Support S-67-613	EACH	1.000	1.000
0558	SPV.0060	Special 5001. Water Main Offset 12-Inch	EACH	4.000	4.000
0560	SPV.0060	Special 5002. Adjust Sanitary Sewer Manhole	EACH	1.000	1.000
0562	SPV.0060	Special 5003. Sanitary Manhole Seal	EACH	1.000	1.000
0564	SPV.0090	Special 0001. Concrete Curb and Gutter 30-Inch Type A HES	LF	85.000	85.000
0566	SPV.0090	Special 0002. Storm Sewer Pipe Rein Concrete Horiz Ell Class HE-IV 38x60-Inch	LF	56.000	56.000
0568	SPV.0165	Special 0001. Concrete Sidewalk 5-Inch HES	SF	590.000	590.000
0570	SPV.0165	Special 0002. Concrete Safety Island HES	SF	240.000	240.000
0572	SPV.0165	Special 4000. Removing Loose Concrete Overhead	SF	900.000	900.000

3

CLEARING AND GRUBBING

STATION	TO STATION	LOCATION	201.0205 GRUBBING STA	201.0220 GRUBBING ID
MOORLAND RD				
	28+40	47' LT	---	10
RAMP C				
	574+00 - 575+00	LT	1	---
PROJECT TOTAL			1	10

\*CLEARING COMPLETED BY OTHERS PRIOR TO CONSTRUCTION

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	203.0100 EACH	SIZE/LENGTH
MOORLAND RD			
	35+86	40' RT	1 18-INCH CMCP, 35 LF
CARPENTER RD			
	2+19	19' LT	1 15-INCH CMCP, 22 LF
	2+27	19' RT	1 15-INCH CMCP, 23 LF
PROJECT TOTAL		3	

3

ABANDONING SEWER

STATION	TO STATION	LOCATION	204.0291.S CY
MOORLAND RD			
	28+09 - 28+30	LT/RT	4
PROJECT TOTAL			4

REMOVING ANCILLARY STRUCTURES

STATION	LOCATION	204.0195 REMOVING CONCRETE BASES EACH	204.0246.0001 REMOVING ANCILLARY STRUCTURE S-67-227 EACH	204.0246.0002 REMOVING ANCILLARY STRUCTURE S-67-614 EACH
MOORLAND RD				
	20+69	28' RT	1	---
	33+17	46' LT	1	1
PROJECT TOTAL		2	1	1

\*\*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS CATEGORY 1000 UNLESS NOTED

3

REMOVING ASPHALT ITEMS

STATION TO	STATION	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY
<u>MOORLAND RD</u>			
23+00 -	29+00	15	720
29+00 -	35+00	---	2,445
35+00 -	41+00	375	690
<u>RAMP C</u>			
572+54 -	574+00	---	---
574+00 -	580+00	5	865
PROJECT TOTAL		395	4,720

REMOVING CONCRETE ITEMS

STATION TO	STATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0105 REMOVING CONCRETE PAVEMENT BUTT JOINTS SY	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY
<u>MOORLAND RD</u>					
23+00 -	29+00	265	---	315	---
29+00 -	35+00	1,115	---	370	15
35+00 -	41+00	615	100	495	65
<u>RAMP C</u>					
572+54 -	574+00	645	---	---	---
574+00 -	580+00	255	---	465	---
PROJECT TOTAL		2,895	100	1,645	80

3

REMOVING FENCE

STATION TO	STATION	LOCATION	204.0170 LF
<u>RAMP C</u>			
573+65 -	576+86	LT	335
PROJECT TOTAL			335

REMOVING STORM SEWER STRUCTURES

STATION	LOCATION	204.0210 REMOVING MANHOLES EACH	204.0220 REMOVING INLETS EACH	204.9060.S.0002 REMOVING STORM SEWER CHAMBER EACH
<u>MOORLAND RD</u>				
26+50	55' RT	---	1	---
27+15	23' RT	---	1	---
27+96	30' RT	---	1	---
28+02	41' LT	1	---	---
28+37	65' RT	---	1	---
28+53	40' LT	---	1	---
31+58	20' RT	---	1	---
32+77	43' LT	---	1	---
33+49	38' LT	1	---	---
33+51	29' RT	---	1	---
35+89	98' LT	---	1	---
36+50	20' RT	---	1	---
<u>RAMP C</u>				
572+75	34' LT	---	---	1
573+39	61' LT	---	1	---
573+63	3' LT	1	---	---
573+79	34' LT	---	1	---
575+00	19' LT	---	1	---
PROJECT TOTAL		3	13	1

REMOVING RAMP CLOSURE GATE

STATION	LOCATION	204.9060.S.0001 EACH
<u>MOORLAND RD</u>		
36+28	135' LT	1
PROJECT TOTAL		1

ALL ITEMS CATEGORY 1000 UNLESS NOTED

3

3

REMOVING STORM SEWER

STATION TO	STATION	LOCATION	204.0245.0001	204.0245.0002	204.0245.0003	204.0245.0004	204.0245.0005
			REMOVING	REMOVING	REMOVING	REMOVING	REMOVING
			STORM SEWER	STORM SEWER	STORM SEWER	STORM SEWER	STORM SEWER
			12-INCH	15-INCH	18-INCH	24-INCH	SEWER 58X36-INCH
			LF	LF	LF	LF	LF
<u>MOORLAND RD</u>							
26+00	- 26+49	RT	---	49	---	---	---
26+49	- 26+51	LT/RT	---	96	---	---	---
27+15	- 27+96	RT	82	---	---	---	---
28+02	- 27+96	LT/RT	---	71	---	---	---
28+02	- 28+09	LT/RT	---	22	---	---	---
28+02	- 28+53	LT/RT	---	---	---	51	---
28+30	- 28+37	RT	---	22	---	---	---
31+48	- 33+49	LT	---	---	200	---	---
31+50	- 31+58	RT	---	8	---	---	---
33+49	- 33+62	LT	21	---	---	---	---
35+86	- 35+89	LT	11	---	---	---	---
<u>RAMP C</u>							
572+74	- 572+75	LT	---	---	---	80	---
572+75	- 573+39	LT	---	---	---	---	69
572+75	- 573+63	LT	---	---	---	94	---
573+63	- 573+78	LT	---	---	34	---	---
573+63	- 574+03	LT/RT	---	---	---	40	---
PROJECT TOTAL			114	268	234	265	69

BASE AGGREGATE ITEMS

STATION TO	STATION	305.0110	305.0120	310.0110	312.0110
		BASE	BASE	BASE	SELECT
		AGGREGATE	AGGREGATE	AGGREGATE	CRUSHED
		DENSE 3/4-INCH	DENSE 1 1/4-INCH	OPEN-GRADED	MATERIAL
		TON	TON	TON	TON
<u>MOORLAND RD</u>					
23+00	- 29+00	---	395	20	715
29+00	- 35+00	---	1,385	10	1,765
35+00	- 41+00	---	560	5	605
<u>RAMP C</u>					
572+54	- 574+00	---	475	10	865
574+00	- 580+00	10	625	10	970
<u>CARPENTER RD</u>					
1+60	- 4+00	5	275	---	---
<u>UNDISTRIBUTED</u>					
		---	---	25	---
PROJECT TOTAL		15	3,715	80	4,920

\*\*ADDITIONAL ITEMS FOUND ELSEWHERE - EARTHWORK SUMMARY

ALL ITEMS CATEGORY 1000 UNLESS NOTED

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (CY) (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (CY) (2)	AVAILABLE MATERIAL (CY) (4)	312.0110 SELECT CRUSHED MATERIAL EXPANDED EBS BACKFILL	UNEXPANDED FILL (CY)	EXPANDED FILL (6)	MASS ORDINATE +/- (CY) (7)	WASTE (CY)
			CUT (CY) (2)	EBS EXCAVATION (CY) (3)(9)			(TONS) FACTOR 1.30		(CY) FACTOR 1.15		
DIVISION 1											
	25+74.40/37+80.56	MOORLAND ROAD STAGE 1	1,339	140	327	1,012	346	30	35	978	978
	1+50.00/2+70.16	CARPENTER ROAD	318	0	13	305	0	10	12	294	294
	572+75.00/573+33.68	RAMP D	82	0	7	75	0	0	0	75	75
	---	CURB RAMP SW QUADRANT RAMP E/F	6	0	3	3	0	0	0	3	3
	---	PORKCHOP ISLAND NW QUADRANT RAMP E/F	7	0	4	3	0	0	0	3	3
	---	CURB RAMP NW QUADRANT RAMP E/F	8	0	4	4	0	0	0	4	4
	572+75.00/579+67.82	RAMP C	2,856	170	223	2,633	420	8	9	2,624	2,624
	571+32.74/572+21.41	RAMP E	70	0	37	33	0	0	0	33	33
DIVISION 1 SUBTOTAL			4,686	310	618	4,068	766	48	55	4,013	4,013
DIVISION 2											
	26+87.87/37+79.37	MOORLAND ROAD STAGE 2	3,411	350	615	2,796	865	22	25	3,386	3,386
DIVISION 2 SUBTOTAL			3,411	350	615	2,796	865	22	25	3,386	3,386
GRAND TOTAL			8,097	660	1,233	6,864	1,630	70	81	7,399	7,399
TOTAL COMMON EXC			8,757								

\*\* ADDITIONAL QUANTITY FOUND ELSEWHERE - BASE AGGREGATE

**NOTES:**

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (3) EBS EXCAVATION VOLUMES BASED ON GEOTECHNICAL REPORT. ACTUAL LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER. DO NOT PERFORM EBS EXCAVATION WITHOUT THE APPROVAL OF THE ENGINEER.
- (4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (5) EBS EXCAVATION TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL, ITEM 312.0110
- (6) EXPANDED FILL = UNEXPANDED FILL \* FILL FACTOR
- (7) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- (8) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.
- (9) EBS EXCAVATION SHALL BE REMOVED FROM THE PROJECT SITE AND SHALL NOT BE USED AS FILL. EBS IS NOT INCLUDED IN THE MASS ORDINATE.

ALL ITEMS CATEGORY 1000 UNLESS NOTED



3

BASE PATCHING

STATION TO	STATION	390.0303		390.0403	
		CONCRETE	CONCRETE	CONCRETE SHES	CONCRETE SHES
<u>MOORLAND RD</u>					
23+00	- 29+00	---	---	124	---
29+00	- 35+00	---	---	---	---
35+00	- 41+00	---	---	---	---
<u>UNDISTRIBUTED</u>					
		236	85		
PROJECT TOTAL		236	209		

BARS

STATION TO	STATION	416.0610		416.0620	
		DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH	DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH
<u>MOORLAND RD</u>					
23+00	- 29+00	192	209	---	---
29+00	- 35+00	339	---	---	---
35+00	- 41+00	294	3	---	---
<u>RAMP C</u>					
572+54	- 574+00	2	---	---	---
574+00	- 580+00	158	14	---	---
PROJECT TOTAL		985	226		

3

CONCRETE ITEMS

STATION TO	STATION	320.0150	320.0155	416.0170	601.0405	601.0409	601.0411	601.0555	601.0600	602.0405	602.0505	602.0605	620.0300	SPV.0090.0001	SPV.0165.0001	SPV.0165.0002
		CONCRETE BASE 8 1/2-INCH SY	CONCRETE BASE 9-INCH SY	CONCRETE DRIVEWAY 7-INCH SY	CONCRETE CURB & GUTTER 18-INCH TYPE A LF	CONCRETE CURB & GUTTER 30-INCH TYPE A LF	CONCRETE CURB & GUTTER 30-INCH TYPE D LF	CONCRETE CURB & GUTTER 36-INCH TYPE A LF	CONCRETE CURB PEDESTRIAN LF	CONCRETE SIDEWALK 4-INCH SF	CURB RAMP DETECTABLE WARNING FIELD YELLOW SF	CURB RAMP DETECTABLE WARNING FIELD RADIAL YELLOW SF	CONCRETE MEDIAN SLOPED NOSE SF	CONCRETE CURB AND GUTTER 30-INCH TYPE A HES LF	CONCRETE SIDEWALK 5-INCH HES SF	CONCRETE SAFETY ISLAND HES SF
<u>MOORLAND RD</u>																
23+00	- 29+00	---	755	---	220	210	---	105	---	475	---	---	---	---	---	---
29+00	- 35+00	---	1,620	---	1,170	720	---	10	16	8,240	12	---	33	25	140	---
35+00	- 41+00	15	535	26	185	650	---	---	17	640	50	14	27	60	450	240
<u>RAMP C</u>																
572+54	- 574+00	---	995	---	---	150	---	160	---	---	---	---	---	---	---	---
574+00	- 580+00	---	1,030	---	---	110	---	160	---	---	---	---	---	---	---	---
<u>CARPENTER RD</u>																
1+60	- 4+00	---	---	---	---	---	95	---	---	---	---	---	---	---	---	---
PROJECT TOTAL		15	4,935	26	1,575	1,840	95	435	33	9,355	62	14	60	85	590	240

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

E

3

HMA ITEMS

STATION TO	STATION	HMA COLD WEATHER PAVING TON	HMA COLD TACK COAT GAL	HMA PAVEMENT 3 MT 58-28 S TON	HMA PAVEMENT 4 MT 58-28 S TON	ASPHALTIC SURFACE TON	ASPHALTIC DRIVEWAYS AND FIELD ENTRANCES TON
<u>MOORLAND RD</u>							
23+00	- 29+00	10	215	---	315	---	---
29+00	- 35+00	35	570	---	840	---	---
35+00	- 41+00	10	195	---	285	25	30
<u>RAMP C</u>							
572+54	- 574+00	---	70	---	120	---	---
574+00	- 580+00	---	145	---	260	10	---
<u>CARPENTER RD</u>							
1+60	- 4+00	---	100	65	45	---	15
PROJECT TOTAL		55	1,295	65	1,865	35	45

REMOVE, SALVAGE, AND REINSTALL OVERHEAD SIGN SUPPORTS-67-613

STATION	LOCATION	SPV.0060.4001 EACH
<u>MOORLAND RD</u>		
26+96	27' RT	1
CATEGORY 5001 PROJECT TOTAL		1

3

BARRIER WALL

STATION TO	STATION	BACKFILL STRUCTURE TYPE A TON	CONCRETE BARRIER TYPE S42 LF	CONCRETE BARRIER TYPE S56C LF	CONCRETE BARRIER TRANSITION TYPE S42 TO S56 EACH
<u>RAMP C</u>					
572+54	- 574+00	3	81	13	1
574+00	- 580+00	75	50	338	1
PROJECT TOTAL		78	131	351	2

PIPE UNDERDRAIN 6-INCH

STATION TO	STATION	612.0106 LF
<u>MOORLAND RD</u>		
23+00	- 29+00	230
29+00	- 35+00	140
35+00	- 41+00	40
<u>RAMP C</u>		
572+54	- 574+00	130
574+00	- 580+00	80
<u>UNDISTRIBUTED</u>		300
PROJECT TOTAL		920

ALL ITEMS CATEGORY 1000 UNLESS NOTED

**STORM SEWER STRUCTURES**

STRUCTURE NUMBER	STATION	OFFSET	RIM INVERT ELEV	LOWEST PIPE	TOP OF STRUCTURE	BOTTOM OF STRUCTURE	STR DEPTH FEET	611.0420 RECONSTRUCTING MANHOLES	611.2004	611.2005	611.2006	611.2033	611.3003	611.3004	SPV.0060.0003	611.3220	611.3225	611.3230	611.3901 INLETS MEDIAN	SPV.0060.0002 RECONNECT STORM SEWER LATERAL	SPV.0060.0004 INLET MEDIAN 3 GRATE	SPV.0060.0005 STORM SEWER CHAMBER	
				ELEV	ELEV	ELEV		ELEV	EACH	4-FT DIAMETER EACH	5-FT DIAMETER EACH	6-FT DIAMETER EACH	3X3-FT EACH	3-FT DIAMETER EACH	4-FT DIAMETER EACH	5-FT DIAMETER EACH	2X2-FT EACH	2X2.5-FT EACH	2X3-FT EACH	EACH	EACH	EACH	EACH
1A	576+68.9C'	39.5' LT	850.14	844.82	848.81	844.65	4.15																
1	576+68.9C'	34.0' LT	849.16	844.52	847.83	844.33	3.49																
2A	575+37.5C'	39.5' LT	848.84	842.86	847.51	842.69	4.81																
2	575+37.5C'	34.0' LT	846.73	842.55	845.40	842.36	3.03																
3	574+99.5C'	34.0' LT	846.04	842.17	844.71	841.98	2.72																
4	575+01.9C'	2.1' RT	846.75	842.00	845.25	842.00	3.25																
5A	574+37.5C'	13.3' RT	848.35	843.58	847.02	843.37	3.64																
5	574+02.5C'	9.0' RT	846.93	840.76	845.69	840.55	5.14																
6	574+02.5C'	1.5' RT	845.50	839.61	844.50	839.32	5.18																
7A	573+45.3C'	35.8' LT	845.16	841.04	843.83	840.85	2.97																
7B	573+35.6C'	38.2' LT	845.11	840.94	843.78	840.75	3.02																
7	573+35.6C'	16.5' LT	844.99	839.47	843.75	839.18	4.57																
8A	572+64.2C'	1.5' RT	844.14	840.50	843.14	840.31	2.83																
9A	32+32.2	35.6' RT	845.43	841.09	844.43	840.92	3.51																
9	32+32.2	41.7' RT	846.00	840.03	844.76	839.78	4.98																
10A	573+32.8C'	58.7' LT	842.83	839.60	842.83	839.60	3.23																
10	32+11.7	41.2' RT	845.00	839.84	844.00	839.59	4.41																
11	572+72.8C'	37.9' LT	844.90	839.30	843.83	838.84	4.99																
20A	36+50.0	23.9' RT	854.09	849.54	853.09	849.37	3.72																
20	36+49.8	20.2' RT	854.14	849.50	852.90	848.83	4.07																
21	35+39.3	37.4' LT						1															
25	35+86.5	105.7' LT	853.27	850.39	852.27	849.72	2.55																
30A	34+50.0	21.5' LT	850.06	845.34	848.98	845.17	3.80																
30	34+50.0	37.8' LT	850.19	845.01	848.95	844.34	4.61																
31	33+61.9	21.3' LT	848.97	843.40	847.47	842.73	4.74	1															
32	33+49.1	38.4' LT	848.09	843.30	846.85	843.09	3.76																
33A	32+75.0	24.5' LT	846.71	842.96	845.63	842.79	2.83																
33B	32+85.0	50.7' LT	846.46	841.15	845.38	840.94	4.44																
33	32+75.0	50.9' LT	846.23	840.70	845.15	840.47	4.68																
34A	31+68.3	53.3' LT	843.95	839.93	842.87	839.76	3.10																
34B	31+58.3	53.3' LT	843.79	839.83	842.71	839.66	3.04																
34C	31+58.4	27.8' LT	844.27	840.56	843.19	840.39	2.79																
34	31+58.3	40.6' LT	844.03	838.95	842.79	838.72	4.07																
35	31+48.4	40.8' LT	843.88	838.80	842.64	838.80	3.84	1															
40A	27+14.7	31.0' RT	841.30	838.12	840.30	837.95	2.35																
40B	27+24.7	31.0' RT	841.35	838.07	840.35	837.90	2.45																
40C	28+37.4	64.6' RT	841.85	837.48	840.61	837.25	3.36																
40D	28+14.5	42.3' RT	841.46	837.17	840.46	836.94	3.52																
40	27+95.8	32.4' RT	841.58	836.67	840.58	836.42	4.16																
41A	27+81.3	31.2' LT	841.88	837.49	840.80	837.32	3.47																
41	28+01.2	33.7' LT	841.82	836.34	840.74	836.34	4.40																
42A	28+72.6	39.4' LT	841.92	838.20	840.59	838.03	2.55																
42B	28+62.6	39.4' LT	841.87	838.10	840.54	837.93	2.60																
42	28+52.6	39.4' LT	841.82	837.00	840.49	837.00	3.49																
43	28+01.8	41.3' LT	841.97	836.30	840.73	835.63	5.10																
50	2+45.0	18.7' RT	843.77	840.03	843.77	839.84	3.93																
51	2+35.0	18.4' LT	843.52	839.49	843.52	839.28	4.24																
52A	26+57.9	35.0' RT	841.38	838.06	840.38	837.89	2.49																
52	26+49.8	35.0' RT	841.49	837.73	840.25	837.50	2.75																
53	26+50.5	41.4' LT	840.41	834.10	838.91	834.10	4.81																
<b>PROJECT TOTALS</b>								<b>3</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>6</b>	<b>14</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>17</b>	<b>1</b>	<b>1</b>

1. RIM ELEVATIONS ARE GIVEN AT THE FLANGE LINE FOR INLET GRATES, AND AT THE CENTER OF THE MANHOLE STRUCTURE FOR MANHOLES.
2. STATIONS AND OFFSETS ARE TO THE CENTER OF STRUCTURES.
3. STRUCTURE DEPTH:  
MANHOLES: RIM ELEV - INVERT ELEV - CASTING HEIGHT - ADJUSTMENT  
CATCH BASINS: RIM ELEV - INVERT ELEV - CASTING HEIGHT - ADJUSTMENT + 24 INCHES
4. ADJUSTMENT IS 6 INCHES UNLESS OTHERWISE NOTED
5. PROVIDE A RECTANGULAR OPENING IN FLAT TOP SLAB WHEN ROUND CATCH BASINS ARE USED.

CULVERT PIPE										
ROADWAY	INLET STATION	INLET OFFSET	INLET ELEVATION	DISCHARGE STATION	DISCHARGE OFFSET	DISCHARGE ELEVATION	PIPE SLOPE	PIPE WALL THICKNESS	MINIMUM APRON ENDWALLS FOR PIPE ARCH	PIPE ARCH CORRUGATED STEEL
MOORLAND RD	36+05.4	39.8' RT	851.87	35+65.7	40.8' RT	815.08	2.00%	0.064"	2	40
<b>PROJECT TOTALS</b>									<b>2</b>	<b>40</b>

ALL ITEMS CATEGORY 1000 UNLESS NOTED

**STORM SEWER MANHOLE AND INLET COVERS**

STRUCTURE NUMBER	611.0530	611.0606	611.0610	611.0624	611.0627	611.0642	611.0651	611.0666	611.8115
	MANHOLE	INLET COVERS							ADJUSTING
	COVERS	TYPE B	TYPE BW	TYPE H	TYPE HM	TYPE MS	TYPE S	TYPE Z	INLET
	TYPE J								COVERS
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
1A	---	1	---	---	---	---	---	---	---
1	---	---	1	---	---	---	---	---	---
2A	---	1	---	---	---	---	---	---	---
2	---	---	1	---	---	---	---	---	---
3	---	---	1	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	1
5A	---	1	---	---	---	---	---	---	---
5	1	---	---	---	---	---	---	---	---
6	---	---	---	1	---	---	---	---	---
7A	---	---	1	---	---	---	---	---	---
7B	---	---	1	---	---	---	---	---	---
7	1	---	---	---	---	---	---	---	---
8A	---	---	---	1	---	---	---	---	---
9A	---	---	---	---	1	---	---	---	---
9	1	---	---	---	---	---	---	---	---
10A	---	---	---	---	---	3	---	---	---
10	---	---	---	---	1	---	---	---	---
11	1	---	---	---	---	---	---	---	---
20A	---	---	---	1	---	---	---	---	---
20	1	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	1	---	---
30A	---	---	---	---	---	---	---	1	---
30	1	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---
32	1	---	---	---	---	---	---	---	---
33A	---	---	---	---	---	---	---	1	---
33B	---	---	---	---	---	---	---	1	---
33	---	---	---	---	---	---	---	1	---
34A	---	---	---	---	---	---	---	1	---
34B	---	---	---	---	---	---	---	1	---
34C	---	---	---	---	---	---	---	1	---
34	1	---	---	---	---	---	---	---	---
35	1	---	---	---	---	---	---	---	---
40A	---	---	---	1	---	---	---	---	---
40B	---	---	---	1	---	---	---	---	---
40C	1	---	---	---	---	---	---	---	---
40D	---	---	---	---	1	---	---	---	---
40	---	---	---	---	1	---	---	---	---
41A	---	---	---	---	---	---	---	1	---
41	---	---	---	---	---	---	---	1	---
42A	---	---	1	---	---	---	---	---	---
42B	---	---	1	---	---	---	---	---	---
42	---	---	1	---	---	---	---	---	---
43	1	---	---	---	---	---	---	---	---
50	---	---	---	---	---	1	---	---	---
51	---	---	---	---	---	1	---	---	---
52A	---	---	---	1	---	---	---	---	---
52	1	---	---	---	---	---	---	---	---
53	---	---	---	---	---	---	---	---	---
<b>PROJECT TOTALS</b>	<b>12</b>	<b>3</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>5</b>	<b>1</b>	<b>9</b>	<b>1</b>

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

**E**

3

3

**STORM SEWER PIPES**

608.0412    608.0415    608.0418    608.0421    608.0424    608.0430    SPV.0090.0002  
 STORM SEWER PIPE REINFORCED CONCRETE

PIPE NUMBER	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE (%)	CLASS IV						HORIZONTAL ELLIPTICAL
						12-INCH LF	15-INCH LF	18-INCH LF	21-INCH LF	24-INCH LF	30-INCH LF	CLASS HE-IV 38X60-INCH LF
P1A	1A	1	844.82	844.77	0.91%	5.5	---	---	---	---	---	---
P1	1	2	844.52	842.55	1.50%	---	131.5	---	---	---	---	---
P2A	2A	2	842.86	842.80	1.00%	5.5	---	---	---	---	---	---
P2	2	3	842.55	842.17	1.00%	---	38.1	---	---	---	---	---
P3	3	4	842.17	842.00	0.48%	---	36.2	---	---	---	---	---
---	4	EXIST SS	---	---	0.00%	---	---	---	---	---	---	---
P5A	5A	5	843.58	840.76	8.00%	---	---	35.3	---	---	---	---
P5	5	6	840.76	840.61	2.00%	---	---	7.5	---	---	---	---
P6	6	7	839.61	839.47	0.20%	---	---	---	---	---	69.3	---
P7A	7A	7B	841.04	840.94	1.00%	---	10.0	---	---	---	---	---
P7B	7B	7	840.94	840.72	1.01%	---	21.7	---	---	---	---	---
P7	7	11	839.47	839.30	0.30%	---	---	---	---	---	56.0	---
P8A	8A	11	840.50	839.30	3.58%	---	33.5	---	---	---	---	---
P9A	9A	9	841.09	841.03	0.98%	6.1	---	---	---	---	---	---
P9	9	10	840.03	839.84	0.92%	---	---	---	---	20.5	---	---
P10A	10A	11	839.60	839.30	0.53%	---	---	---	---	---	---	56.1
P10	10	11	839.84	839.30	1.00%	---	---	---	---	54.2	---	---
---	11	EXIST SS	---	---	---	---	---	---	---	---	---	---
P20A	20A	20	849.54	849.50	1.00%	3.7	---	---	---	---	---	---
---	20	EXIST SS	---	---	---	---	---	---	---	---	---	---
---	21	EXIST SS	---	---	---	---	---	---	---	---	---	---
---	25	EXIST SS	---	---	---	---	---	---	---	---	---	---
P30A	30A	30	845.34	845.01	2.00%	16.3	---	---	---	---	---	---
---	30	EXIST SS	---	---	---	---	---	---	---	---	---	---
---	31	EXIST SS	---	---	---	---	---	---	---	---	---	---
P32	32	33B	843.30	841.15	3.29%	---	---	65.4	---	---	---	---
P33A	33A	33	842.96	842.45	2.00%	25.5	---	---	---	---	---	---
P33B	33B	33	841.15	840.95	2.00%	---	---	10.0	---	---	---	---
P33	33	34	840.70	838.95	1.49%	---	---	---	117.1	---	---	---
P34A	34A	34B	839.93	839.83	1.00%	10.0	---	---	---	---	---	---
P34B	34B	34	839.83	839.70	1.02%	12.8	---	---	---	---	---	---
P34C	34C	34	840.56	840.30	2.04%	12.8	---	---	---	---	---	---
P34	34	35	838.95	838.80	1.50%	---	---	---	10.0	---	---	---
---	35	EXIST SS	---	---	---	---	---	---	---	---	---	---
P40A	40A	40B	838.12	838.07	0.50%	10.0	---	---	---	---	---	---
P40B	40B	40	838.07	837.71	0.50%	71.1	---	---	---	---	---	---
P40C	40C	40D	837.48	837.17	0.98%	---	---	---	31.8	---	---	---
P40D	40D	40	837.17	836.96	0.99%	---	---	---	21.1	---	---	---
P40	40	41	836.67	836.34	0.50%	---	---	---	---	66.3	---	---
P41A	41A	41	837.49	837.34	0.75%	20.0	---	---	---	---	---	---
P41	41	43	836.34	836.30	0.50%	---	---	---	---	7.7	---	---
P42A	42A	42B	838.20	838.10	1.00%	10.0	---	---	---	---	---	---
P42B	42B	42	838.10	838.00	1.00%	10.0	---	---	---	---	---	---
P42	42	43	837.00	836.80	0.39%	---	---	---	---	51.0	---	---
---	43	EXIST SS	---	---	---	---	---	---	---	---	---	---
P50	50	51	840.03	839.74	0.75%	---	38.5	---	---	---	---	---
P51	51	52	839.49	837.98	1.50%	---	---	100.4	---	---	---	---
P52A	52A	52	838.06	837.98	1.00%	8.1	---	---	---	---	---	---
P52	52	53	837.73	836.60	1.48%	---	---	---	76.4	---	---	---
---	53	EXIST SS	---	---	---	---	---	---	---	---	---	---
<b>PROJECT TOTALS</b>						<b>227</b>	<b>310</b>	<b>219</b>	<b>256</b>	<b>200</b>	<b>125</b>	<b>56</b>

1. PIPE LENGTHS ARE FROM CENTER TO CENTER OF STRUCTURES.

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

**E**

GUARDRAIL ITEMS

CATEGORY	STATION TO	STATION	614.2500	614.2610
			MGS THRIE BEAM TRANSITION	MGS GUARDRAIL TERMINAL EAT
			LF	EACH
<u>RAMP C</u>				
	572+54 -	574+00	---	---
	574+00 -	580+00	40	1
PROJECT TOTAL			40	1

FENCE ITEMS

STATION TO	STATION	616.0100.0001	616.0700.S
		FENCE WOVEN WIRE 4-FT LF	FENCE SAFETY LF
<u>RAMP C</u>			
572+54 -	574+00	50	---
574+00 -	580+00	285	---
<u>UNDISTRIBUTED</u>			
		---	113
PROJECT TOTAL		335	113

CRASH CUSHIONS PERMANENT LOW MAINTENANCE

STATION TO	STATION	LOCATION	614.0805
			EACH
<u>MOORLAND RD</u>			
28+88 -	29+03	LT	1
29+20 -	29+35	LT	1
PROJECT TOTAL			2

WATER/DUST CONTROL

USE	623.0200	624.0100
	DUST CONTROL SURFACE TREATMENT SY	WATER MGAL
<u>MOORLAND RD, RAMP C</u>		
EXCAVATION	---	18
BASE AGGREGATE COMPACTION	---	175
DUST CONTROL	2,500	---
PROJECT TOTAL	2,500	192

ALL ITEMS CATEGORY 1000 UNLESS NOTED

3

3

RESTORATION ITEMS

STATION TO	STATION	625.0100	625.0500	627.0200	628.6510	629.0210	630.0130	630.0200	630.0300	630.0500	631.0300	631.1000
		TOPSOIL SY	SALVAGED TOPSOIL SY	MULCHING SY	SOIL STABILIZER TYPE B ACRE	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEEDING TEMPORARY LB	SEEDING BORROW PIT LB	SEED WATER MGAL	SOD WATER MGAL	SOD LAWN SY
<b>MOORLAND RD</b>												
23+00	- 29+00	502	--	--	--	1	--	--	--	--	12	505
29+00	- 35+00	144	--	--	--	1	--	--	--	--	4	145
35+00	- 41+00	367	--	--	--	1	--	--	--	--	9	370
<b>RAMP C</b>												
572+54	- 574+00	--	697	--	--	1	32	10	--	24	--	--
574+00	- 580+00	--	591	--	--	1	27	8	--	20	--	--
<b>CARPENTER RD</b>												
1+60	- 4+00	174	--	--	--	1	--	--	--	--	4	175
<b>UNDISTRIBUTED</b>												
		300	330	--	2	1	15	5	--	15	10	300
<b>WASTE SITE</b>												
		--	--	4,440	--	3	--	--	60	100	--	--
<b>PROJECT TOTAL</b>		<b>1,487</b>	<b>1,618</b>	<b>4,440</b>	<b>2</b>	<b>10</b>	<b>74</b>	<b>23</b>	<b>60</b>	<b>159</b>	<b>39</b>	<b>1,495</b>

ALL ITEMS CATEGORY 1000 UNLESS NOTED

EROSION CONTROL ITEMS

		606.0300	628.1104	628.1504	628.1520	628.1905	628.1910	628.2008	628.7005	628.7010	628.7020	628.7504	628.7555	628.7560	628.7570	
		MOBILIZATIONS														
		RIPRAP HEAVY		EROSION BALES	SILT FENCE	MAINTENANCE	EROSION CONTROL	EROSION CONTROL	EROSION MAT	INLET	INLET	INLET	TEMPORARY	CULVERT PIPE	TRACKING PADS	ROCK BAGS
STATION TO	STATION	CY	EACH	LF	LF	EACH	EACH	SY	TYPE B	TYPE A	TYPE B	TYPE D	DITCH CHECKS	CHECKS	EACH	EACH
<b>MOORLAND RD (STAGE 1)</b>																
23+00	- 29+00	--	--	--	--	--	--	--	--	5	1	6	21	2	--	--
29+00	- 35+00	--	--	55	28	--	--	--	--	1	--	3	39	--	--	--
35+00	- 41+00	--	--	--	--	--	--	--	--	2	--	4	41	2	--	--
<b>RAMP C (STAGE 1)</b>																
572+54	- 574+00	44	--	--	--	--	--	700	6	2	8	5	--	--	--	--
574+00	- 580+00	--	--	175	88	--	--	600	8	--	8	16	--	--	--	--
<b>CARPENTER RD (STAGE 1)</b>																
1+60	- 4+00	--	--	--	--	--	--	--	2	2	--	--	--	4	--	--
<b>STAGE 1 SUBTOTAL</b>																
		44	--	230	116	--	--	1,300	24	5	29	122	8	--	--	--
<b>MOORLAND RD (STAGE 2)</b>																
23+00	- 29+00	--	--	--	--	--	--	--	5	1	14	50	--	--	--	--
29+00	- 35+00	--	--	--	--	--	--	--	7	--	10	--	--	--	--	--
35+00	- 41+00	--	--	--	--	--	--	--	1	--	3	--	--	--	--	--
<b>RAMP C (STAGE 2)</b>																
572+54	- 574+00	--	--	--	--	--	--	--	--	--	4	--	--	--	--	--
<b>STAGE 2 SUBTOTAL</b>																
		--	--	--	--	--	--	--	13	1	31	50	--	--	--	--
<b>WASTE SITE</b>																
		--	--	800	400	--	--	--	--	--	--	--	--	--	--	--
<b>UNDISTRIBUTED</b>																
		15	50	260	130	6	4	330	10	5	10	35	2	4	50	
<b>PROJECT TOTAL</b>		59	50	1,290	646	6	4	1,630	47	11	70	207	10	4	50	

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

**E**



TYPE I & II SIGN REMOVAL

1060-10-72 IH 94

SIGN NO.	SIGN CODE	SIGN MESSAGE	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2601 REMOVING SIGNS TYPE I [EA]	REMARKS / SIGN LOCATION
1R	J2-1	WEST 94 [LA]	1	1	--	--
2R	R11-54F	--	1	2	--	--
3R	R2-1	25 MPH	1	1	--	SLOW CHILDREN SIGN RETURN SIGN TO BROOKFIELD
4R	R1-1	--	1	1	--	--
5R	R7-1D	--	1	1	--	--
6R	R5-57	--	1	1	--	--
7R	R3-8	--	1	--	--	ON FLASHING BEACON
8R	J3-1	WEST 94 [LA]	1	--	--	ON SIGN SUPPORT
9R	R3-5L	--	1	--	--	ON OVERHEAD SIGN STRUCTURE S-67-227
10R	R3-5L	--	1	--	--	ON OVERHEAD SIGN STRUCTURE S-67-227
11R	R4-3R	--	1	1	--	--
12R	R3-1	--	1	1	--	--
13R	R4-3R	--	1	1	--	RIGHT TURN NO STOP REMOVED AS WELL
14R	W1-8	--	1	1	--	--
15R	W1-8	--	1	1	--	--
16R	W1-8	--	1	1	--	--
17R	W1-8	--	1	1	--	--
18R	W1-6	--	1	1	--	R5-1A AND W1-8 REMOVED AS WELL
19R	--	RIGHT TURN NO STOP	1	1	--	--
20R	W1-6	--	1	1	--	--
21R	W1-6	--	1	1	--	--
22R	W12-1D	--	1	1	--	--
23R	--	BROOKFIELD SQ MALL TRAFFIC USE 3RD ENTRANCE	1	2	--	--
24R	R6-2R	--	1	1	--	--
25R	J3-1	WEST 94 [LA]	1	1	--	R3-4
26R	NOT USED	--	--	--	--	--
27R	R3-58	--	1	1	--	--
28R	W1-1R	--	1	1	--	W13-1 25 MPH REMOVED AS WELL
29R	D15-1	94 WEST ONLY [DA]	--	--	1	ON OVERHEAD SIGN STRUCTURE S-67-227
TOTALS			27	25	1	

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

E

TYPE I & II PERMANENT SIGNING

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	TYPE II SIGN SIZE			637.2210	637.2230	637.2215	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE			637.1220	638.2101
			W [IN.]	x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	SIGNS TYPE II REFLC H FOLDING [SF]	POSTS WOOD 4"X6"X18' [EA]	MOVING SIGNS TYPE II [EA]			W [FT.]	x	H [FT.]	SIGNS TYPE I REFLC SH [SF]	MOVING SIGNS TYPE I [EA]
1	J2-1(2S)	--	24	x	57	9.500	--	--	1	--	--	--	--	x	--	--	
	M3-4	--	24	x	12	--	--	--	--	--	--	--	--	x	--	--	
	M1-1	IH 94	24	X	24	--	--	--	--	--	--	--	--	x	--	--	
	M5-1L	--	21	x	21	--	--	--	--	--	--	--	--	x	--	--	
2	R3-20L(2S)	--	24	x	36	6.000	--	--	1	--	--	--	--	x	--	--	
3	R11-54F(2S)	--	48	x	30	10.000	--	--	2	--	--	--	--	x	--	--	
4	W3-3(2S)	--	36	x	36	--	9.000	--	1	--	--	16"X16" TEMPORARY ORANGE FLAGS	--	x	--	--	
5	R2-1(2S)	25 MPH	24	x	30	5.000	--	--	1	--	--	--	--	x	--	--	
6	R1-1(2S)	--	30	x	30	5.180	--	--	1	--	--	--	--	x	--	--	
7	R7-1D(2S)	--	18	x	24	3.000	--	--	1	--	--	--	--	x	--	--	
8	R5-57(4)	--	36	x	36	9.000	--	--	1	--	--	--	--	x	--	--	
9	W3-8(2S)	--	48	x	48	--	16.000	--	1	--	--	ON FLASHING BEACON	--	x	--	--	
10	W3-3(2S)	--	36	x	36	--	9.000	--	1	--	--	16"X16" TEMPORARY ORANGE FLAGS	--	x	--	--	
30M	--	EAST 94 ONLY [RA]	--	x	--	--	--	--	--	--	--	ON R-67-613	--	x	--	1	
31M	R3-7R	--	--	x	--	--	--	--	--	1	--	ON R-67-613	--	x	--	--	
11	D16-1	WEST 94 [LA]	60	x	48	20.000	--	--	--	--	--	ON BRIDGE PARAPET MOUNTING BRACKETS INCIDENTAL	--	x	--	--	
12	R10-6(2S)	--	24	x	36	6.000	--	--	1	--	--	ON SIGNAL POLE	--	x	--	--	
13	R1-1F(2M)	--	36	x	36	--	--	7.460	--	--	--	ON SIGNAL POLE WITH SIGN 12	--	x	--	--	
14	R6-2R	--	24	x	30	5.000	--	--	1	--	--	--	--	x	--	--	
15	R10-11B(2S)	--	24	x	24	4.000	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	
16	R10-11B(2S)	--	24	x	24	4.000	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	
17	R10-11B(2S)	--	24	x	24	4.000	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	
18	R3-1(2S)	--	24	x	24	4.000	--	--	1	--	--	--	--	x	--	--	
19	R10-6(2S)	--	24	x	36	6.000	--	--	1	--	--	ON SIGNAL POLE	--	x	--	--	
20	R1-1F(2M)	--	36	x	36	--	--	7.460	--	--	--	ON SIGNAL POLE WITH SIGN 19	--	x	--	--	
21	R10-6(2S)	--	24	x	36	6.000	--	--	1	--	--	--	--	x	--	--	
22	R10-11B(2S)	--	24	x	24	4.000	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	
23	R1-1F(2M)	--	36	x	36	--	--	7.460	--	--	--	ON SIGNAL POLE WITH SIGN 22	--	x	--	--	
24	R3-2(2S)	--	24	x	24	4.000	--	--	1	--	--	--	--	x	--	--	
25	R5-1(2S)	--	30	x	30	6.250	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	
26	R5-1A(2S)	--	36	x	24	6.000	--	--	--	--	--	ON SIGNAL POLE WITH SIGN 25	--	x	--	--	
27	R5-1(2S)	--	30	x	30	6.250	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

E

TYPE I & II PERMANENT SIGNING

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	TYPE II SIGN SIZE			637.2210	637.2230	637.2215	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE			637.1220	638.2101
			W [IN.]	x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	SIGNS TYPE II REFLC H FOLDING [SF]	POSTS WOOD 4"X6"X18' [EA]	MOVING SIGNS TYPE II [EA]			W [FT.]	x	H [FT.]	SIGNS TYPE I REFLC SH [SF]	MOVING SIGNS TYPE I [EA]
28	R5-1A(2S)	--	36	x	24	6.000	--	--	--	--	--	ON SIGNAL POLE WITH SIGN 27	--	x	--	--	--
29	R10-11B(2S)	--	24	x	24	4.000	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	--
30	R1-1F(2M)	--	30	x	30	--	--	7.460	--	--	--	ON SIGNAL POLE WITH SIGN 29	--	x	--	--	--
31	R10-6(2S)	--	24	x	36	6.000	--	--	1	--	--	--	--	x	--	--	--
32	W1-6(2S)	--	48	x	24	--	8.000	--	1	--	--	--	--	x	--	--	--
33	W1-6(2S)	--	48	x	24	--	8.000	--	1	--	--	--	--	x	--	--	--
34	R10-3ER(2S)	--	9	x	15	0.938	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	--
35	W12-1D(2S)	--	24	x	24	--	4.000	--	1	--	--	MOUNT HEIGHT 2 FEET	--	x	--	--	--
36	R10-3EL(2S)	--	9	x	15	0.938	--	--	--	--	--	ON SIGNAL POLE	--	x	--	--	--
37	R6-2R(2S)	--	24	x	30	5.000	--	--	1	--	--	--	--	x	--	--	--
38	J3-1(2S)	94 WEST [LA]	24	x	57	9.500	--	--	1	--	--	--	--	x	--	--	--
	M3-4	--	24	x	12	--	--	--	--	--	--	--	--	x	--	--	--
	M1-1	--	24	x	24	--	--	--	--	--	--	--	--	x	--	--	--
	M6-1	--	21	x	21	--	--	--	--	--	--	--	--	x	--	--	--
39	R3-4(2S)	--	24	x	24	4.000	--	--	--	--	39	--	--	x	--	--	--
40	R3-2(2M)	--	36	x	36	9.000	--	--	1	--	--	--	--	x	--	--	--
41	R5-1A(2M)	--	42	x	30	8.750	--	--	1	--	--	--	--	x	--	--	--
42	W3-3(2S)	--	36	x	36	--	9.000	--	1	--	--	16"X16" TEMPORARY ORANGE FLAGS	--	x	--	--	--
43	D16-1	TO BRKFIELD SQ MOORLAND RD	--	x	--	--	--	--	--	--	--	ON OVERHEAD SIGN SUPPORT S-67-983	8	x	6	48.00	--
44	D16-1	MOORLAND RD [RA]	--	x	--	--	--	--	--	--	--	ON OVERHEAD SIGN SUPPORT S-67-983	6	x	4.5	27.00	--
45	D16-1	MOORLAND RD [RA]	--	x	--	--	--	--	--	--	--	ON OVERHEAD SIGN SUPPORT S-67-983	6	x	4.5	27.00	--
46	R1-2(2S)	--	36	x	31	3.880	--	--	1	--	--	--	--	x	--	--	--
47	R5-1A(2M)	--	42	x	30	8.750	--	--	1	--	--	--	--	x	--	--	--
48	J1-1(2S)	JCT 94	24	x	39	6.500	--	--	1	--	--	--	--	x	--	--	--
	MB2-1	--	21	x	15	--	--	--	--	--	--	--	--	x	--	--	--
	M1-1	--	24	x	24	--	--	--	--	--	--	--	--	x	--	--	--
49	J2-2(2S)	94 WEST [LA] 94 EAST [RA]	48	x	60	20.000	--	--	1	--	--	--	--	x	--	--	--
	MB3-4	--	24	x	12	--	--	--	--	--	--	--	--	x	--	--	--
	M1-1	--	24	x	24	--	--	--	--	--	--	--	--	x	--	--	--
	MB4-20L	--	24	x	24	--	--	--	--	--	--	--	--	x	--	--	--
	MB3-2	--	24	x	12	--	--	--	--	--	--	--	--	x	--	--	--
	M1-1	--	24	x	24	--	--	--	--	--	--	--	--	x	--	--	--
	MB4-20R	--	24	x	24	--	--	--	--	--	--	--	--	x	--	--	--
50	R3-8LL(2S)	--	36	x	30	7.500	--	--	--	--	--	ON LIGHT POLE	--	x	--	--	--
TOTALS						233.940	63.000	29.840	30	1						102.000	1

ALL ITEMS CATEGORY 1000 UNLESS NOTED

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET NO:

E

3

3

TRAFFIC CONTROL ITEMS

		643.0300	643.0420	643.0705	643.0715	643.0800	643.0900	643.0910	643.0920	643.1050	643.5000	SPV.0060.0010	SPV.0060.0011	SPV.0060.0012	SPV.0060.0013									
		TRAFFIC CONTROL DRUMS	TRAFFIC CONTROL BARRICADES TYPE III	TRAFFIC CONTROL WARNING LIGHTS TYPE A	TRAFFIC CONTROL WARNING LIGHTS TYPE C	TRAFFIC CONTROL ARROW BOARDS	TRAFFIC CONTROL SIGNS	TRAFFIC CONTROL COVERING SIGNS TYPE I	TRAFFIC CONTROL COVERING SIGNS TYPE II	TRAFFIC CONTROL SIGNS PCMS	TRAFFIC CONTROL LOCAL LANE CLOSURE	TRAFFIC CONTROL CLOSE-OPEN FREEWAY ENTRANCE RAMP	TRAFFIC CONTROL CLOSE-OPEN FREEWAY EXIT RAMP	TRAFFIC CONTROL CLOSE-OPEN FREEWAY EXIT RAMP	BAGGING SIGNAL HEAD									
	DURATION *	* DRUMS	* BARRICADES	* LIGHTS	* LIGHTS	* BOARDS	* SIGNS	* CYCLES EACH	* CYCLES EACH	* SIGNS DAY	EACH	EACH	EACH	EACH	EACH									
STAGE	DAYS	DRUMS	DAY	BARRICADES	DAY	LIGHTS	DAY	LIGHTS	DAY	BOARDS	DAY	SIGNS	DAY	CYCLES	EACH	CYCLES	EACH	SIGNS	DAY	EACH	EACH	EACH	EACH	EACH
STAGE 1	57	226	12,882	43	2,451	86	4,902	25	1,425	3	171	50	2,850	---	---	1	1	2	17	---	---	---	---	1
STAGE 1 NIGHT	10	116	1,160	19	190	38	380	21	210	2	20	29	290	---	---	---	---	2	20	---	---	10	10	---
STAGE 2	62	68	4,216	16	992	32	1,984	30	1,860	4	248	45	2,790	---	---	---	---	3	186	---	45	---	---	1
ALTERNATE ROUTE PLAN		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
STAGE 1 DETOUR	57	---	---	---	---	---	---	---	---	---	---	212	12,084	1	3	---	---	1	7	---	---	---	---	---
STAGE 2 DETOUR	62	---	---	---	---	---	---	---	---	---	---	140	8,680	---	---	---	---	1	7	---	---	---	---	---
PROJECT TOTAL		---	18,258	---	3,633	---	7,266	---	3,495	---	439	---	26,694	---	3	---	1	---	237	1	45	10	10	2

\*FOR INFORMATION ONLY

FIELD OFFICE TYPE C

LOCATION	642.5201 EACH
	1
PROJECT TOTAL	1

TRAFFIC CONTROL SIGNS FIXED MESSAGE

STAGE	SIGN NUMBER	SIGN SIZE	SF
ALTERNATE ROUTE PLAN	1	126' X 54'	47
	2	126' X 54'	47
	3	126' X 54'	47
	4	126' X 54'	47
	5	78' X 36'	20
	6	78' X 36'	20
	7	78' X 36'	20
STAGE 1 DETOUR	8	108' X 24'	18
	9	108' X 24'	18
	10	108' X 24'	18
PROJECT TOTAL			302

\*FOR INFORMATION ONLY

ALL ITEMS CATEGORY 1000 UNLESS NOTED

TEMPORARY MARKING ITEMS

	643.3150	643.3250	643.3850	643.3970
	TEMPORARY MARKING LINE	TEMPORARY MARKING LINE	TEMPORARY MARKING STOP LINE	TEMPORARY MARKING REMOVABLE MASK OUT TAPE
	REMOVABLE TAPE 4-INCH (YELLOW)	REMOVABLE TAPE 8-INCH (WHITE)	REMOVABLE TAPE 18-INCH (WHITE)	REMOVABLE MASK OUT TAPE 10-INCH (BLACK)
STAGE	LF	LF	LF	LF
STAGE 1	60	2,370	---	170
STAGE 2	2,400	310	202	---
<b>SUBTOTAL</b>				
	2,460	2,680	202	170
<b>PROJECT TOTAL</b>	<b>5,140</b>	<b>202</b>	<b>24</b>	<b>170</b>

TEMPORARY PEDESTRIAN ITEMS

	644.1440	644.1601	644.1605	644.1810
	TEMPORARY PEDESTRIAN SURFACE MATTING	TEMPORARY PEDESTRIAN CURB RAMP	TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD	TEMPORARY PEDESTRIAN BARRICADE
	STATION TO STATION	SF	DAY	SF LF
<b>MOORLAND RD</b>				
23+00 - 29+00	---	---	---	---
29+00 - 35+00	---	10	10	117
35+00 - 41+00	62	10	10	456
<b>RAMP C</b>				
572+54 - 574+00	---	---	---	---
574+00 - 580+00	---	---	---	---
<b>PROJECT TOTAL</b>	<b>62</b>	<b>20</b>	<b>20</b>	<b>573</b>

GEOTEXTILE/GEOGRID ITEMS

	645.0111	645.0120	645.0220
	GEOTEXTILE TYPE DF SCHEDULE A	GEOTEXTILE TYPE HR	GEOGRID TYPE SR
	STATION TO STATION	SY	SY
<b>MOORLAND RD</b>			
23+00 - 29+00	130	---	1,020
29+00 - 35+00	80	---	2,525
35+00 - 41+00	25	---	860
<b>RAMP C</b>			
572+54 - 574+00	75	116	1,240
574+00 - 580+00	45	---	1,380
<b>UNDISTRIBUTED</b>			
	170	---	---
<b>PROJECT TOTAL</b>	<b>525</b>	<b>116</b>	<b>7,025</b>

MARKING REMOVAL ITEMS

	646.9000	646.9010	646.9100	646.9110	646.9200	646.9310
	MARKING REMOVAL LINE 4-INCH	MARKING REMOVAL LINE WATER BLASTING 4-INCH	MARKING REMOVAL LINE 8-INCH	MARKING REMOVAL LINE WATER BLASTING 8-INCH	MARKING REMOVAL LINE WIDE	MARKING REMOVAL SPECIAL WATER BLASTING EACH
	LF	LF	LF	LF	LF	LF
STAGE 1	118	45	142	477	71	5
STAGE 2	670	234	46	36	410	---
<b>PROJECT TOTAL</b>	<b>788</b>	<b>279</b>	<b>188</b>	<b>513</b>	<b>481</b>	<b>5</b>

ALL ITEMS CATEGORY 1000 UNLESS NOTED

3

3

PAVEMENT MARKING ITEMS

STATION TO	STATION	646.1020 MARKING LINE EPOXY 4-INCH (YELLOW)	646.1545 MARKING LINE GROOVED WET (WHITE)	646.3545 MARKING LINE GROOVED WET (WHITE)	646.5020 MARKING ARROW EPOXY (WHITE)	646.5120 MARKING WORD EPOXY (WHITE)	646.6120 MARKING STOP LINE EPOXY 18-INCH (WHITE)	646.6220 MARKING YIELD LINE EPOXY 18-INCH (WHITE)	646.6464 COLD WEATHER MARKING EPOXY 4-INCH (YELLOW)	646.6468 COLD WEATHER MARKING EPOXY 8-INCH (WHITE)	646.7120 MARKING DIAGONAL EPOXY 12-INCH (WHITE)	646.7420 MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)	646.8120 MARKING CURB EPOXY (YELLOW)	646.8220 MARKING ISLAND NOSE EPOXY (YELLOW)
MOORLAND RD														
19+00	- 29+00	283	239	486	388	3	---	58	---	29	73	39	---	---
29+00	- 35+00	1,115	912	300	754	4	2	36	---	112	122	76	---	3
35+00	- 41+00	361	438	166	62	---	---	49	19	37	61	7	---	208
RAMP C														
572+54	- 574+00	141	280	---	372	3	3	66	---	15	28	38	33	---
574+00	- 580+00	568	568	---	732	1	---	---	---	57	57	74	---	---
SUBTOTALS		2468	2437	952	2308	11	5	209	19	250	341	234	33	211
PROJECT TOTAL		4,905	952	2,308	11	5	209	19	591	234	33	211	20	2

SURVEY PROJECT 1060-10-72

LOCATION	SPV.0060.0001 EACH
UNDISTRIBUTED	1
	1

RAMP CLOSURE BARRICADE RACK 2-UNIT

STATION	LOCATION	662.6020.S EACH
28+49	50' LT	1
PROJECT TOTAL		1

ALL ITEMS CATEGORY 1000 UNLESS NOTED

RAMP CLOSURE GATE

		**	
		654.0105	662.1040.S
		CONCRETE	RAMP CLOSURE
		BASES TYPE 5	GATES 40-FT
STATION	LOCATION	EACH	EACH
<u>MOORLAND RD</u>			
36+28	135' LT	1	1
PROJECT TOTAL		1	1

\*\*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

SAWING ITEMS

				690.0150	690.0250
				SAWING	SAWING
				ASPHALT	CONCRETE
STATION TO	STATION	LF	LF		
<u>MOORLAND RD</u>					
23+00	- 29+00	---	746		
29+00	- 35+00	---	1,017		
35+00	- 41+00	170	917		
<u>RAMP C</u>					
572+54	- 574+00	---	---		
574+00	- 580+00	24	488		
<u>CARPENTER RD</u>					
		55	---		
PROJECT TOTAL		249	3,168		

SANITARY SEWER AND WATER MAIN ITEMS

		612.0902.S.5001	SPV.0060.5001	SPV.0060.5002	SPV.0060.5003
		INSULATION	WATER MAIN	ADJUST	SANITARY
		BOARD	OFFSET	SANITARY SEWER	SANITARY
		POLYSTYRENE	12-INCH	MANHOLE	MANHOLE SEAL
STATION TO	STATION	2-INCH	12-INCH	MANHOLE	MANHOLE SEAL
SY	EACH	EACH	EACH	EACH	EACH
<u>MOORLAND RD</u>					
23+00	- 29+00	4	1	1	1
29+00	- 35+00	12	3	---	---
CATEGORY 8000					
PROJECT TOTAL		16	4	1	1

UNDISTRIBUTED SPV ITEMS

		SPV.0060.0006	SPV.0060.0007
		UTILITY LINE	SECTION CORNER
		OPENING	MONUMENTS
		EACH	EACH
<u>UNDISTRIBUTED</u>			
		15	1
PROJECT TOTAL		15	1

ALL ITEMS CATEGORY 1000 UNLESS NOTED

LIGHTING REMOVAL

SYSTEM	DESCRIPTION	STATION	OFFSET	204.0195*	204.9060.S.1001	204.9060.S.1002	653.0905*	659.5000.S.1001	COMMENTS
				REMOVING CONCRETE BASES	REMOVING LIGHTING UNITS	REMOVING DISTRIBUTION CENTER	REMOVING PULL BOXES	LAMP, BALLAST, LED, SWITCH DISPOSAL BY CONTRACTOR	
				EACH	EACH	EACH	EACH	EACH	
CITY OF BROOKFIELD	SL-482	26+74	37.9' LT	1	1	--	--	2	CITY OF BROOKFIELD SYSTEM
	SL-481	28+21	37.0' LT	1	1	--	--	2	
	SL-474	31+61	46.8' LT	1	1	--	--	2	"
	LPB-206	30+37	55.4' LT	--	--	--	1	--	"
HL-67-LD	HL-67-LD	31+10	66.2' RT	1	--	1	--	--	WISDOT LIGHTING SYSTEM
	LPB-201	32+19	29.1' RT	--	--	--	1	--	"
	LPB-202	31+10	82.5' RT	--	--	--	1	--	"
	LPB-203	31+43	161.7' RT	--	--	--	1	--	"
	LPB-204	32+37	55.4' RT	--	--	--	1	--	"
	CLD6	32+01	89.5' RT	1	1	--	--	1	"
	DLD7	31+38	268.3' RT	1	1	--	--	1	"
	CLD8	31+35	476.0' RT	1	1	--	--	1	"
<b>TOTAL</b>				<b>7</b>	<b>6</b>	<b>1</b>	<b>5</b>	<b>9</b>	

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

ALL ITEMS CATEGORY 1100



LIGHTING CONDUIT AND WIRE

SYSTEM	CIRCUIT	FROM	TO	652.0225*	652.0235*	655.0620
				CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	ELECTRICAL WIRE LIGHTING 8 AWG LF
HL-67-LD	A/N/B/GND	HL-67-LD	LPB-204	75	--	600
		LPB-204	LJB-201	5	--	20
		LJB-201	ALD6	5	--	20
		LJB-201	BLD6	10	--	40
		BLD6	ALD7	50	--	200
		ALD7	BLD7	50	--	200
		BLD7	ALD8	20	--	80
		ALD8	LJB-202	30	--	120
		LJB-202	BLD8	5	--	20
		BLD8	ALD9	50	--	200
	C/N/D/GND	ALD9	BLD9	50	--	200
		LJB-202	LPB-205	5	--	20
		LPB-205	ALD10	115	--	460
		ALD10	BLD10	150	--	450
		BLD10	STUBOUT	15	--	45
		HL-67-LD	LPB-201	10	--	70
		LPB-201	LPB-202	35	--	140
		LPB-202	LPB-203	--	100	400
		LPB-203	DLD7	150	--	600
		DLD7	CLD8	185	--	740
CLD8	DLD9	195	--	780		
CITY OF BROOKFIELD	SL-483	EXISTING CONDUIT	685	--	2,740	
TOTAL				1,895	100	8,145

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

ALL ITEMS CATEGORY 1100

LIGHTING PULL BOXES

				653.0140*	653.0222	655.0615
				PULL BOXES STEEL 24X42-INCH	JUNCTION BOXES 18X12X6-INCH	ELECTRICAL WIRE LIGHTING 10 AWG
SYSTEM	DESCRIPTION	STATION	OFFSET	EACH	EACH	LF
HL-67-LD	LPB-201	31+03	47.7' RT	1		10
	LPB-202	31+04	82.5' RT	1		30
	LPB-203	31+53	166.3' RT	1		100
	LPB-204	30+42	17.1' LT	1		75
	LPB-205	29+28	52.4' LT	1		170
	LJB-201	30+42	25.0' LT		1	5
	LJB-202	29+36	52.4' LT		1	160
TOTAL				5	2	550

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

LIGHTING LUMINAIRE ARMS AND POLES

				654.0105*	655.0610*	657.0255*	657.0322*	657.0610*	659.1125*	659.1215
				CONCRETE BASES TYPE 5	ELECTRICAL WIRE LIGHTING 12 AWG	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	POLES TYPE 5 ALUMINUM	LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	LUMINAIRES UTILITY LED C	LUMINAIRES UNDERDECK LED C
SYSTEM	DESCRIPTION	STATION	OFFSET	EACH	LF	EACH	EACH	EACH	EACH	EACH
HL-67-LD	BLD10	26+73	37.8' LT	1	117	1	1	2	2	--
	ALD10	28+20	49.3' LT	1	117	1	1	2	2	--
	ALD8	29+36	31.4' LT	--	25	--	--	--	--	1
	ALD6	30+38	32.3' LT	--	25	--	--	--	--	1
	DLD7	31+46	308.7' RT	1	117	1	1	1	1	--
	CLD8	31+42	489.8' RT	1	117	1	1	1	1	--
				4	518	4	4	6	6	2

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

ALL ITEMS CATEGORY 1100

LIGHTING CONTROL AND SERVICES

654.0230 655.0640 656.0401.1000 659.2230 SPV.0060.1001 SPV.0060.1002

CONCRETE		ELECTRICAL		LIGHTING			
CONTROL	ELECTRICAL	SERVICE	MAIN LUGS	CONTROL	LIGHTING	LIGHTING	LIGHTING
CABINET	WIRE	ONLY METER		CABINETS	SYSTEM	SYSTEM	SYSTEM
BASES	LIGHTING	PEDESTAL	240/480		INTEGRATOR	SURVEY	
TYPE L30	1 AWG	(HL-67-LD)	30-INCH		(1060-10-72)	(1060-10-72)	

SYSTEM	STATION	OFFSET	EACH	LF	EACH	EACH	EACH	EACH
HL-67-LD	31+04	32.3' RT	1	18	--	1	--	--
	PROJECT (1060-10-72)		--	--	1	--	1	1
		TOTAL	1	18	1	1	1	1

PLAQUE TEXT LIGHTING CONTROL  
 I94/MOORLAND  
 2-480 VAC WARNING (2 REQUIRED PER LOCATION; METER PEDESTAL AND CABINET DOOR)

ALL ITEMS CATEGORY 1100

3

FTMS EACH REMOVALS

CATEGORY	ROADWAY	ITEM ID.	204.0195*	204.9001.S	653.0905*	677.9051.S	SPV.0060.2000
			REMOVING CONCRETE BASES EACH	ADVANCE FLASHER ASSEMBLIES TYPE 1 EACH	REMOVING PULL BOXES EACH	REMOVING 50-FOOT CAMERA POLE EACH	REMOVING COMMUNICATIONS VAULT EACH
1300	IH 94						
		EXCV027	--	--	--	--	1
		EXPB572	--	--	1	--	--
		EXPB573	--	--	1	--	--
		EXFY573	1	1	--	--	--
		EXPB571	--	--	1	--	--
		EX-CCTV-67-0004	--	--	--	1	--
<b>TOTALS</b>			<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>

\* ADDITIONAL QUANTITIES ELSEWHERE

FTMS PULL BOXES AND VAULTS

CATEGORY	ROADWAY	ITEM ID.	LOCATION		652.0700.S	653.0140*	673.0105
			STATION	OFFSET	INSTALL CONDUIT INTO EXISTING ITEM EACH	PULL BOXES STEEL 24 X 42 - INCH EACH	COMMUNICATION VAULT TYPE 1 EACH
1300	IH 94						
		CV027	26+80	37' LT	--	--	1
		CV028	28+13	53' LT	--	--	1
		EXMH573	--	--	1	--	--
		EXCV037	--	--	1	--	--
		EXCV036	--	--	1	--	--
		PB572	28+25	59' RT	--	1	--
		EXPB574	--	--	1	--	--
		PB573	28+35	95' RT	--	1	--
		EXCV038	--	--	1	--	--
		EXPB570	--	--	1	--	--
<b>TOTALS</b>					<b>6</b>	<b>2</b>	<b>2</b>

\* ADDITIONAL QUANTITIES ELSEWHERE

FTMS BASES AND POLES

CATEGORY	ROADWAY	ITEM ID.	LOCATION		531.2036	531.4050	677.0150	677.0200	678.0400	678.0600*	SPV.0060.2001
			STATION	OFFSET	FOUNDATION DRILLING SHAFT 36-INCH LF	INSTALL CAMERA POLE 50-FT EACH	INSTALL CAMERA POLE 50-FT EACH	INSTALL CAMERA ASSEMBLY EACH	FIBER OPTIC TERMINATION EACH	INSTALL ETHERNET SWITCHES EACH	GROUND ROD EACH
1300	IH 94										
		CCTV-67-0004	573+25	42' LT	10	1	1	1	--	--	1
		EX-HUB-67-0010	--	--	--	--	--	--	228	--	--
		EX-CB-RM-67-0062	--	--	--	--	--	--	6	1	--
<b>TOTALS</b>					<b>10</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>234</b>	<b>1</b>	<b>1</b>

\* ADDITIONAL QUANTITIES ELSEWHERE

FTMS CABLE REMOVALS

CATEGORY	ROADWAY	ITEM ID	674.0300
			REMOVE CABLE LF
1300	IH 94		
		EXCV025 - EXCV027	360
		EXCV027 - EXMH573	90
		EXMH573 - EXPB572	15
		EXPB572 - EXPB571	30
		EXMH573 - EXMH570	65
		EXMH570 - EXPB570	35
		EXPB570 - EX-CCTV-67-0004	10
		EXPB572 - EXPB573	30
		EXPB573 - EXPB574	30
		EXPB572 - EXFY573	10
		EX-CB-57-0004 - EXPB572	10
		EXPB572 - EXFY573	10
		EXCV027 - EXCV037	850
		EXCV037 - EXCV036	85
		EXCV037 - EXCV038	90
		EXCV038 - EX-HUB-67-0010	20
<b>TOTAL</b>			<b>1,740</b>

MISCELLANEOUS ITEMS

CATEGORY	ROADWAY	670.0101*	670.0201*	678.0501*
		FIELD SYSTEM INTEGRATOR EACH	ITS DOCUMENTATION EACH	COMMUNICATION SYSTEM TESTING EACH
1300	IH 94			
	PROJECT	1	1	1
<b>TOTALS</b>		<b>1</b>	<b>1</b>	<b>1</b>

\* ADDITIONAL QUANTITIES ELSEWHERE

3

FTMS CONDUIT AND WIRE

CATEGORY	ROADWAY	ITEM ID	LINEAR DISTANCE	652.0225*	652.0235*	655.0230*	655.0515*	671.0142	671.0222	674.0400	678.0006
				CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	CABLE TRAFFIC SIGNAL 5-14 AWG LF	ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	CONDUIT HDPE 4-DUCT 2-INCH LF	CONDUIT HDPE DIRECTIONAL BORE 2-DUCT 2-INCH LF	REINSTALL CABLE LF	INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 6-CT LF
1300	IH 94	EXCV025 - CV027	230	--	--	--	230	--	--	230	--
		CV027 - CV028	135	--	--	--	135	--	--	135	--
		EXMH573 - CV028	25	--	50	--	25	--	--	25	--
		CV028 - EXCV037	850	--	--	--	850	850	--	850	--
		EXCV036 - EXCV037	70	--	--	--	70	--	70	70	--
		EXCV037 - EXCV038	95	--	--	--	95	--	--	95	--
		EXCV038 - EX-HUB-67-0010	20	--	--	--	20	--	--	20	--
		EXMH573 - PB572	15	30	--	--	15	--	--	15	--
		PB572 - FY572	15	--	--	15	10	--	--	15	--
		EX-CB-CCTV-67-0004 - PB572	10	60	--	20	10	--	--	10	--
		PB572 - PB573	30	60	--	30	30	--	--	30	--
		PB573 - EXPB576	30	--	--	30	30	--	--	30	--
		EXPB576 - EXPB575	10	--	--	10	10	--	--	--	--
		EXPB575 - EXFY575	10	--	--	10	10	--	--	--	--
		EXPB575 - EXPB574	30	--	--	--	30	--	--	--	--
		EXPB574 - CCTV-67-0004	15	--	--	--	15	--	--	--	--
		EX-CB-RIM-0062 - EXPB565	10	--	--	--	10	--	--	--	35
		EXPB565 - EXPB567	105	--	--	--	105	--	--	--	130
		EXPB567 - EXPB568	130	--	--	--	130	--	--	--	155
		EXPB568 - EXPB570	190	--	--	--	190	--	--	--	215
		EXPB570 - EXPB571	95	--	--	--	95	--	--	--	120
		EXPB571 - EXPB570	85	--	--	--	85	--	--	--	110
		EXPB570 - EX-HUB-67-0010	10	--	--	--	10	--	--	--	35
TOTALS				150	50	115	2,210	850	70	1,525	800

\* ADDITIONAL QUANTITIES ELSEWHERE

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-1504

STATE FURNISHED MATERIALS SUMMARY

EACH	DESCRIPTION
1	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8 PHASE
1	TRAFFIC SIGNAL CABINET
1	ETHERNET SWITCH
1	POLES TYPE 9 SPECIAL
1	MONOTUBE ARMS 45-FT TYPE 9/10 SPEC POLE
2	EVP DETECTOR HEADS
2	EVP CONFIRMATION LIGHTS

STATE FURNISHED  
FOR INFORMATION ONLY

SIGNAL BASE NO.	POLES TYPE 9 SPECIAL EACH	MONOTUBE ARMS 45-FT TYPE 9/10 SPEC POLE EACH	EVP DETECTOR HEADS EACH	EVP CONFIRMATION LIGHTS EACH
SB6	--	--	1	1
SB8	1	1	1	1
TOTAL	1	1	2	2

COMMUNICATIONS EQUIPMENT (FOR INFORMATION ONLY)

LOCATION	ST-ST SINGLE MODE FIBER JUMPER 4-FEET EACH	CAT-5E-CABLE 5-FEET EACH
	CB1 (S67-1504)	2
TOTAL	2	2

STATE-FURNISHED COMM. EQUIPMENT  
(FOR INFORMATION ONLY)

FROM	TO	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT EACH	LF
EXCV2201	CB1 (S67-1504)	1	700
TOTAL		1	700

CONDUIT

FROM	TO	652.0225 *	652.0235 *	652.0605
		CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH L.F.	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH L.F.	CONDUIT SPECIAL 2-INCH L.F.
CB1	PB1	--	45	--
CB1	PB12	--	36	--
PB1	PB2	--	124	--
PB2	SB1	9	--	--
PB2	PB3	17	--	--
PB2	PB4	207	--	--
PB2	PB5	--	146	--
PB5	SB2	14	--	--
PB5	PB6	5	--	--
PB5	PB7	--	44	--
PB7	SB3	10	--	--
PB7	PB8	--	--	224
PB7	PB9	--	102	--
PB9	SB4	9	--	--
PB9	PB10	--	110	--
PB10	SB5	25	--	--
PB10	SB6	26	--	--
PB10	PB11	--	188	--
PB11	SB7	9	--	--
PB11	PB12	--	124	--
PB12	SB8	--	43	--
PB10	PB13	--	34	--
PB13	SB9	6	--	--
SB9	SB10	183	--	--
PB13	SB11	336	--	--
EXCV2201	IC PB1	77	--	--
IC PB1	CB1	415	--	--
TOTAL		1348	996	224

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
WAUKESHA COUNTY  
CATEGORY 1500  
S67-1504

TRAFFIC DETECTOR LOOPS

LOOP NO.	HOME RUN PB	LOCATION** ^	SIZE (FT)x(FT)	NO. OF TURNS	SDD INSTALLATION REFERENCE	652.0800	655.0700	655.0800
						CONDUIT LOOP DETECTOR L.F.	LOOP DETECTOR LEAD IN CABLE L.F.	LOOP DETECTOR WIRE L.F.
61	PB8	STA 28+70; 11' RT	6x6	5	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	56	427	164
62	PB8	STA 28+70; 0.5' LT	6x6	5	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	78	427	186
63	PB8	STA 28+70; 13' LT	6x6	5	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	102	427	210
81	PB4	STA 31+36; 283' RT	6x6	4	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	42	306	126
82	PB4	STA 31+25; 282.5' RT	6x6	4	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	64	306	148
83	PB4	STA 31+14; 282' RT	6x6	4	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	86	306	170
84	PB2	STA 31+53; 82' RT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	90	94	206
85	PB3	STA 31+69; 59.5' RT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	78	118	194
86	PB3	STA 31+98; 33.7' RT	6x30	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	96	118	252
87	PB6	STA 31+35; 64.5' RT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	110	172	226
88	PB3	STA 31+68; 35.2' RT	6x30	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	136	118	292
89	PB6	STA 31+44; 38.6' RT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	98	172	214
810	PB6	STA 31+54; 28.0' RT	6x6	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	114	172	174
811	PB6	STA 31+23; 56.1' RT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	80	172	196
812	PB6	STA 31+24; 28.4' RT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	72	172	188
TOTAL						1302	3507	2946

\*\* LOCATION IS TO FRONT CENTER OF DETECTOR LOOP

^ FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

PULL BOXES

PULL BOX NO.	LOCATION^	653.0135	653.0140 *
		PULL BOXES STEEL 24x36-INCH EACH	PULL BOXES STEEL 24x42-INCH EACH
PB1	STA 32+32; 54.2' RT	--	1
PB2	STA 31+75; 79.7' RT	--	1
PB3	STA 31+84; 65.4' RT	1	--
PB4	STA 31+47; 281.6' RT	1	--
PB5	STA 31+11; 45.2' RT	--	1
PB6	STA 31+11; 50.2' RT	1	--
PB7	STA 31+00; 26.7' RT	--	1
PB8	STA 28+76; 28.5' RT	1	--
PB9	STA 31+00; 24.1' LT	--	1
PB10	STA 31+55; 23.6' LT	--	1
PB11	STA 32+49; 22.8' LT	--	1
PB12	STA 32+48; 38.8' RT	--	1
PB13	STA 31+55; 57.6' LT	--	1
TOTAL		4	9

^ FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

CONCRETE BASES

SIGNAL BASE NO.	LOCATION^	654.0101	654.0102	654.0105 *	654.0120	654.0217
		CONCRETE BASES TYPE 1 EACH	CONCRETE BASES TYPE 2 EACH	CONCRETE BASES TYPE 5 EACH	CONCRETE BASES TYPE 10-SPECIAL EACH	CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL EACH
CB1	STA 32+46; 49.3' RT	--	--	--	--	1
SB1	STA 31+79; 71.2' RT	--	1	--	--	--
SB2	STA 31+13; 31.7' RT	1	--	--	--	--
SB3	STA 31+09; 22.2' RT	1	--	--	--	--
SB4	STA 31+09; 24.2' LT	1	--	--	--	--
SB5	STA 31+30; 24.1' LT	1	--	--	--	--
SB6	STA 31+81; 24.1' LT	--	1	--	--	--
SB7	STA 32+40; 23.2' LT	1	--	--	--	--
SB8	STA 32+90; 33.9' RT	--	--	--	1	--
SB9	STA 31+61; 57.9' LT	--	--	1	--	--
SB10	STA 33+44; 52.7' LT	--	--	1	--	--
SB11	STA 28+20; 47.1' LT	--	--	1	--	--
TOTAL		5	2	3	1	1

^ FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-1504

3

TRAFFIC SIGNAL CABLE AND WIRE			
		655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG	655.0320 CABLE TYPE UF 2-10 AWG GROUNDED
FROM	TO	L.F.	L.F.
CB1	SB1	116	116
CB1	SB2	212	--
CB1	SB3	243	--
CB1	SB4	298	--
CB1	SB5	244	--
CB1	SB6	246	--
CB1	SB7	112	--
CB1	SB8	83	--
CB1	SB9	--	272
CB1	SB10	--	484
CB1	SB11	--	639
TOTAL		1554	1511

TRAFFIC SIGNAL CABLE AND WIRE		
		655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG
FROM	TO	L.F.
CB1	SB1	116
SB1	SB2	127
SB2	SB3	72
SB3	SB4	99
SB4	SB5	119
SB5	SB6	67
SB6	SB7	164
SB7	SB8	159
SB8	CB1	83
PB1	CB1	27
PB2	SB1	22
PB5	SB2	27
PB7	SB3	23
PB9	SB4	22
PB10	SB5	38
PB11	SB7	22
PB12	CB1	24
TOTAL		1211

TRAFFIC SIGNAL CABLE AND WIRE		
		655.0230 * CABLE TRAFFIC SIGNAL 5-14 AWG
FROM	TO	L.F.
SB1	HEAD 6	19
SB2	HEAD 10	19
SB3	HEAD 1	19
SB4	HEAD 5	19
SB5	HEAD 7	19
SB6	HEAD 8	19
SB7	HEAD 9	19
SB8	HEAD 2	70
SB8	HEAD 3	70
SB8	HEAD 4	70
TOTAL		343

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

3

TRAFFIC SIGNAL CABLE AND WIRE		
		655.0610 * ELECTRICAL WIRE LIGHTING 12 AWG
FROM	TO	L.F.
SB1	LUMINAIRE	117
SB9	LUMINAIRES	234
SB10	LUMINAIRES	234
SB11	LUMINAIRES	234
TOTAL		819

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

TRAFFIC SIGNAL EVP DETECTOR CABLE		
		655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE
FROM	TO	L.F.
CB1	SB8 (HEAD B)	153
CB1	SB6 (HEAD D)	263
TOTAL		416



CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-1504

ELECTRICAL SERVICE METER BREAKER PEDESTAL

LOCATION**	656.0201.3001 ELECTRICAL SERVICE METER BREAKER PEDESTAL EACH
CTH O & IH 94 WB TO NB OFF RAMP	1
TOTAL	1

POLES (STATE FURNISHED)

SIGNAL BASE NO.	SPV.0060.3000 INSTALL POLES TYPE 9 SPECIAL EACH	SPV.0060.3001 INSTALL MONOTUBE ARMS 45-FT TYPE 9/10 SPEC POLE EACH
SB8	1	1
TOTAL	1	1

\*\* FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD

POLES (CONTRACTOR FURNISHED)

SIGNAL BASE NO.	657.0100 PEDESTAL BASES EACH	657.0255 * TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	657.0305 POLES TYPE 2 EACH	657.0310 POLES TYPE 3 EACH	657.0322 POLES TYPE 5 ALUMINUM EACH	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT EACH	657.0609 LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 6-FT EACH	657.0610 * LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT EACH	659.1125 * LUMINAIRES UTILITY LED C EACH
SB1	--	1	--	1	--	--	1	--	1
SB2	1	--	--	--	--	1	--	--	--
SB3	1	--	--	--	--	1	--	--	--
SB4	1	--	--	--	--	1	--	--	--
SB5	1	--	--	--	--	1	--	--	--
SB6	--	1	1	--	--	--	--	--	--
SB7	1	--	--	--	--	1	--	--	--
SB9	--	1	--	--	1	--	--	2	2
SB10	--	1	--	--	1	--	--	2	2
SB11	--	1	--	--	1	--	--	2	2
TOTAL	5	5	1	1	3	5	1	6	7

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-1504

FACES

SIGNAL HEAD NO.	SIGNAL BASE NO.	658.0173 TRAFFIC SIGNAL FACE 3S 12-INCH EACH
1	SB3	1
2	SB8	1
3	SB8	1
4	SB8	1
5	SB4	1
6	SB1	1
7	SB5	1
8	SB6	1
9	SB7	1
10	SB2	1
TOTAL		10

LED MODULES SUMMARY (FOR INFORMATION ONLY)

SIGNAL HEAD NO.	SIGNAL BASE NO.	LED MODULES 12-INCH RED BALL EACH	LED MODULES 12-INCH YELLOW BALL EACH	LED MODULES 12-INCH GREEN BALL EACH	LED MODULES 12-INCH RED ARROW EACH	LED MODULES 12-INCH YELLOW ARROW EACH	LED MODULES 12-INCH GREEN ARROW EACH
1	SB3	1	1	1	--	--	--
2	SB8	1	1	1	--	--	--
3	SB8	1	1	1	--	--	--
4	SB8	1	1	1	--	--	--
5	SB4	1	1	1	--	--	--
6	SB1	--	--	--	1	1	1
7	SB5	--	--	--	1	1	1
8	SB6	--	--	--	1	1	1
9	SB7	--	--	--	1	1	1
10	SB2	--	--	--	1	1	1
TOTAL		5	5	5	5	5	5

SIGNAL MOUNTING HARDWARE

LOCATION	658.5070.3001 SIGNAL MOUNTING HARDWARE EACH	
CTH O & IH 94 WB TO NB OFF RAMP	1	
TOTAL		1

TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS

LOCATION	661.0201.3001 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS EACH	661.0300 GENERATORS DAY
CTH O & IH 94 WB TO NB OFF RAMP	1	1
TOTAL		1

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-1504

3

TRANSPORT AND INSTALL  
 STATE FURNISHED TRAFFIC SIGNAL CABINET

LOCATION	EACH
CTH O & IH 94 WB-NB OFF-RAMP	1
TOTAL	1

TRANSPORT TRAFFIC SIGNAL  
 AND INTERSECTION LIGHTING MATERIALS

LOCATION	EACH
CTH O & IH 94 WB-NB OFF-RAMP	1
TOTAL	1

EVP DETECTOR HEAD INSTALLATION

LOCATION	EACH
CTH O & IH 94 WB-NB OFF RAMP	1
TOTAL	1

TEMPORARY EMERGENCY VEHICLE PREEMPTION (EVP) SYSTEM

LOCATION	EACH
CTH O & IH 94 WB-NB OFF-RAMP	1
TOTAL	1

3

CTH O (S MOORLAND RD) & IH 94 WB TO NB OFF RAMP  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-1504

3

3

FIELD SYSTEM INTEGRATOR		
	670.0101 *	670.0201 *
	FIELD SYSTEM INTEGRATOR EACH	ITS DOCUMENTATION EACH
LOCATION		
1060-10-72	1	1
TOTAL	1	1

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET	
	SPV.0060.3008 INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET EACH
LOCATION	
IH 94 WB TO NB OFF RAMP & CTH O	1
TOTAL	1

COMMUNICATIONS EQUIPMENT		
	678.0501 *	678.0600 *
	COMMUNICATION SYSTEM TESTING EACH	INSTALL ETHERNET SWITCHES EACH
LOCATION		
CB1 (S67-1504)	1	1
TOTAL	1	1

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

TRACER WIRE		
		655.0510 ELECTRICAL WIRE TRAFFIC SIGNALS 12 AWG L.F.
FROM	TO	
EXCV2301	EXCV2201	101
EXCV2201	IC PB1	88
IC PB1	CB1 (S67-1504)	425
TOTAL		614

FIBER OPTIC SPLICES	
	678.0300 FIBER OPTIC SPLICE EACH
LOCATION	
EXCV2301	14
TOTAL	14

IH 94 WB ON RAMP & CTH O (S MOORLAND RD)  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-0643

3

REMOVING CONCRETE BASES

SIGNAL BASE NO.	204.0195 * REMOVING CONCRETE BASES	SPV.0060.3006 ABANDON CONCRETE BASES
	EACH	EACH
SB2	--	1
SB3	1	--
SB8	1	--
TOTAL	2	1

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

TRAFFIC SIGNAL REMOVALS

LOCATION	204.9060.S.3001 REMOVING TRAFFIC SIGNALS
	EACH
IH 94 WB ON RAMP & CTH O (S MOORLAND RD)	1
TOTAL	1

CONDUIT

FROM	TO	652.0225 * CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH L.F.
PB13	SB8	20
PB9	PB16	400
TOTAL		420

INSTALL CONDUIT INTO EXISTING ITEM

STRUCTURE NO.	(INCIDENTAL) INSTALL CONDUIT INTO EXISTING ITEM EACH
PB8	1
PB9	1
PB13	1
TOTAL	3

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

PULL BOXES

PULL BOX NO.	LOCATION^	653.0135 PULL BOXES STEEL 24x36-INCH	653.0900 ADJUSTING PULL BOXES
		EACH	EACH
PB8	-	--	1
PB9	-	--	1
PB16	STA 30+94; 57.7' LT	1	--
TOTAL		1	2

^ FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

CONCRETE BASES

SIGNAL BASE NO.	LOCATION^	654.0101 CONCRETE BASES TYPE 1 EACH
SB8	STA 35+73; 93' LT	1
TOTAL		1

^ FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD

3

IH 94 WB ON RAMP & CTH O (S MOORLAND RD)  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-0643

TRAFFIC DETECTOR LOOPS

LOOP NO.	HOME RUN PB	LOCATION** ^	SIZE (FT)x(FT)	NO. OF TURNS	SDD INSTALLATION REFERENCE	652.0800	655.0700	655.0800
						CONDUIT LOOP DETECTOR L.F.	LOOP DETECTOR LEAD IN CABLE L.F.	LOOP DETECTOR WIRE L.F.
11	PB16	STA 30+95; 34.4' LT	6x12	5	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	76	683	232
12	PB16	STA 30+95; 46.7' LT	6x12	5	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	52	683	208
13	PB9	STA 35+16; 27.0' LT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	74	280	190
14	PB8	STA 35+44; 26.4' LT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	92	275	208
15	PB9	STA 34+99; 39.2' LT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	74	280	190
16	PB8	STA 35+27; 38.6' LT	6x20	3	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	76	275	192
21	PB2	STA 38+88; 76' LT	6x6	4	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	58	246	382
22	PB2	STA 38+88; 64' LT	6x6	4	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	76	246	400
23	PB2	STA 38+88; 53' LT	6x6	4	9F15-4B - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	96	246	420
TOTAL						674	5636	2422

TRAFFIC SIGNAL CABLE AND WIRE

655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG		
FROM	TO	L.F.
CB1	SB8	197
TOTAL		197

TRAFFIC SIGNAL CABLE AND WIRE

655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG		
FROM	TO	L.F.
CB1	SB8	197
SB8	SB5	51
PB13	SB8	28
TOTAL		276

TRAFFIC SIGNAL CABLE AND WIRE

655.0230 * CABLE TRAFFIC SIGNAL 5-14 AWG		
FROM	TO	L.F.
SB8	HEAD 12	15
TOTAL		15

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

TRAFFIC SIGNAL EVP DETECTOR CABLE

655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE		
FROM	TO	L.F.
CB1	SB6 (HEAD B)	183
TOTAL		183

IH 94 WB ON RAMP & CTH O (S MOORLAND RD)  
 WAUKESHA COUNTY  
 CATEGORY 1500  
 S67-0643

POLES (CONTRACTOR FURNISHED)

SIGNAL BASE NO.	657.0100 PEDESTAL BASES EACH	657.0430 TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT EACH	658.0500 PEDESTRIAN PUSH BUTTONS EACH
SB8	1	1	1
TOTAL	1	1	1

FACES

SIGNAL HEAD NO.	SIGNAL BASE NO.	658.0416 PEDESTRIAN SIGNAL FACE 16-INCH EACH
12	SB8	1
TOTAL		1

SIGNAL MOUNTING HARDWARE

LOCATION	658.5070.3002 SIGNAL MOUNTING HARDWARE EACH
IH 94 WB ON RAMP & CTH O	1
TOTAL	1

LED MODULES SUMMARY (FOR INFO ONLY)

SIGNAL HEAD NO.	SIGNAL BASE NO.	PEDESTRIAN SIGNAL FACE 16-INCH EACH
12	SB8	1
TOTAL		1

LAMP, BALLAST, LED, SWITCH DISPOSAL

FIXTURE TYPE	659.5000.S* LAMP, BALLAST, LED, SWITCH DISPOSAL BY CONTRACTOR EACH
TRAFFIC SIGNAL, ONE SECTION	3
TRAFFIC SIGNAL, PEDESTRIAN	1
TOTAL	4

\*ADDITIONAL QUANTITIES FOUND ELSEWHERE

LAMP, BALLAST, LED, SWITCH DISPOSAL  
(FOR INFORMATION ONLY)

SIGNAL BASE NO.	TRAFFIC SIGNAL, THREE SECTION EACH	TRAFFIC SIGNAL, PEDESTRIAN EACH
SB2	3	--
SB8	--	1
TOTAL	3	1

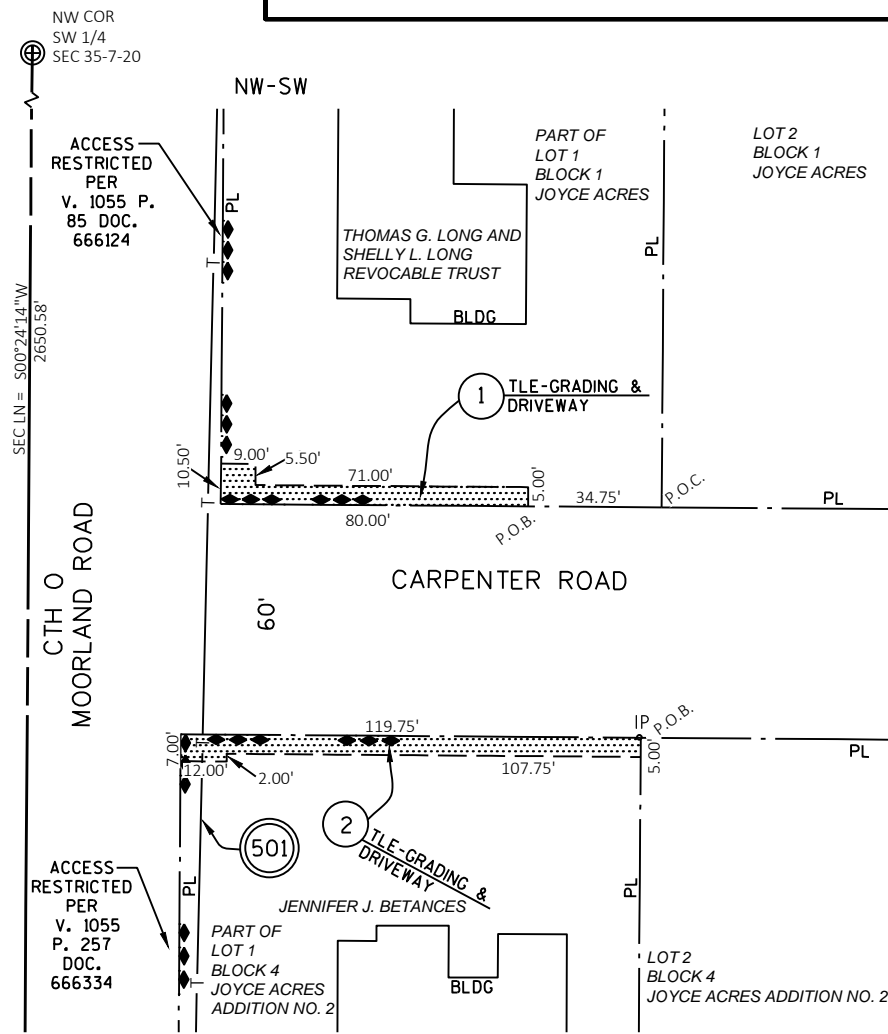
REMOVE, SALVAGE, & REINSTALL EVP EQUIPMENT

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, & REINSTALL EVP EQUIPMENT EACH
IH 94 WB ON RAMP & CTH O	1
TOTAL	1

NOTES:  
THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.

PURPOSE FOR ALL TLE'S IS FOR GRADING UNLESS OTHERWISE NOTED.

R/W PROJECT NUMBER: 1060-10-22 SHEET NO. 4.01  
TLE ACQUISITION EXHIBIT  
CITY OF BROOKFIELD, MOORLAND ROAD  
IH 94 EAST WEST FREEWAY, MOORLAND ROAD INTERCHANGE  
I-94 / CTH O INTERCHANGE WAUKESHA COUNTY  
PART OF THE NW 1/4 OF THE SW 1/4 OF SECTION 35, T7N, R20E, CITY OF BROOKFIELD, WAUKESHA COUNTY, WISCONSIN.



- (501) AT&T WISCONSIN  
NO RECORD OF EASEMENT  
PARCEL 2
- (502) WE ENERGIES - ELECTRIC  
NON-DESCRIPT EASEMENT  
DOC.145419 PARCEL 1&2
- NON-DESCRIPT EASEMENT  
DOC.222637 PARCEL 1&2

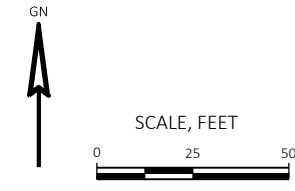
HWY	BASIS OF EXISTING R/W	R/W WIDTH	YEAR
MOORLAND RD	T 094-3(3)	VARIES	1966
MOORLAND RD	I-94-3(3)296	VARIES	1960
CARPENTER ROAD	JOYCE ACRES	30'	1953
CARPENTER ROAD	JOYCE ACRES ADDITION NO. 2	30'	1954

**SCHEDULE OF LANDS & INTERESTS REQUIRED**

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
1	THOMAS G. LONG & SHELLY L. LONG REVOCABLE TRUST	TLE	450
2	JENNIFER J. BETANCES	TLE	623

**UTILITY INTERESTS REQUIRED**

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
501	AT&T WISCONSIN	RELEASE OF RIGHTS
502	WE ENERGIES - ELECTRIC	RELEASE OF RIGHTS

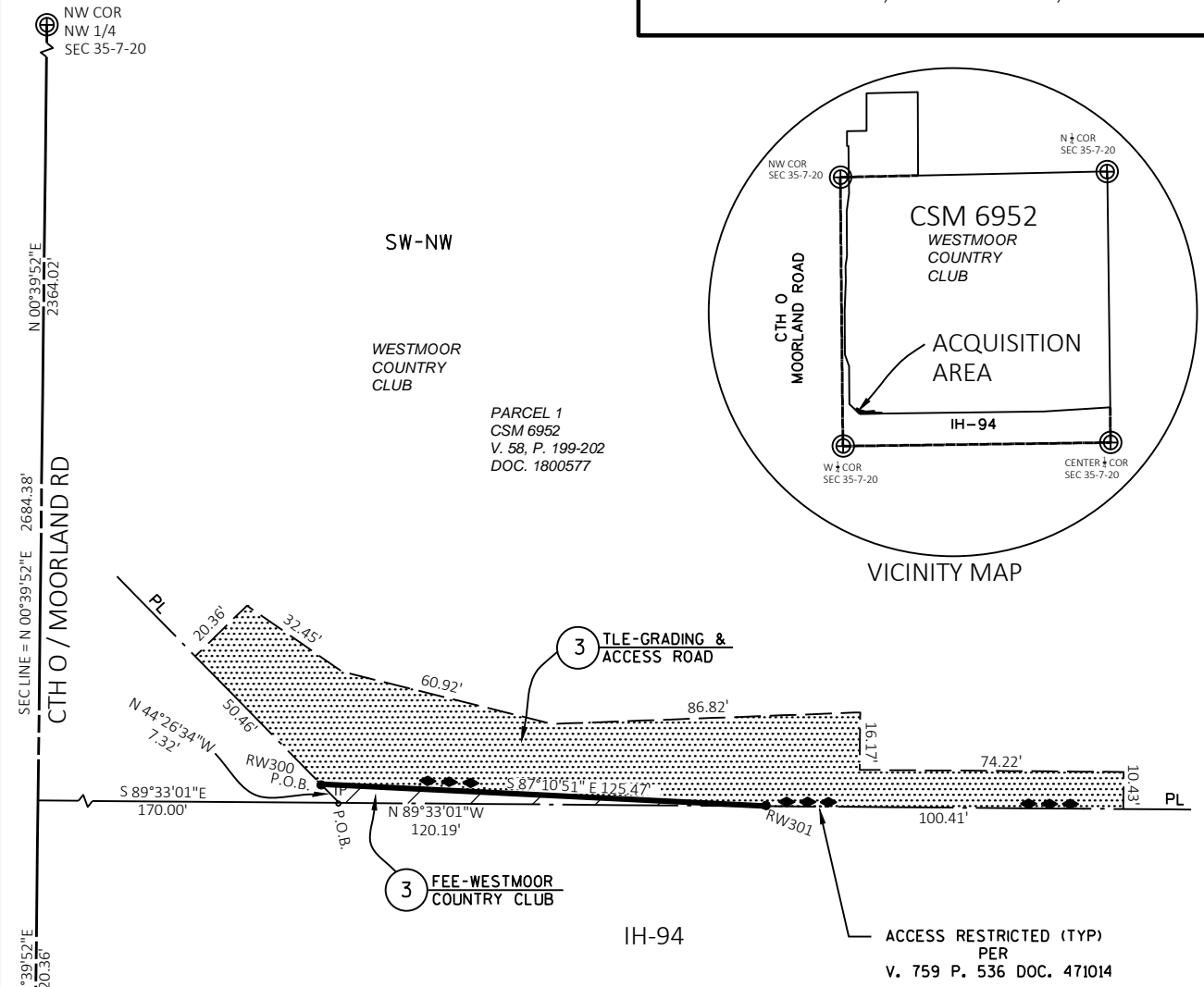


THIS MAP IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION SOUTHEAST REGION - WAUKESHA  
SIGNATURE: *Robert A. Duffek* DATE: 05/16/22  
PRINT NAME:

NOTES:  
THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.

PURPOSE FOR ALL TLE'S IS FOR GRADING, UNLESS OTHERWISE NOTED.

R/W PROJECT NUMBER: 1060-10-22 SHEET NO. 4.02  
FEE & TLE ACQUISITION EXHIBIT  
CITY OF BROOKFIELD, MOORLAND ROAD  
IH 94 EAST WEST FREEWAY, MOORLAND ROAD INTERCHANGE  
I-94 / CTH O INTERCHANGE WAUKESHA COUNTY  
PART OF THE SW 1/4 OF THE NW 1/4 OF SECTION 35, T7N, R20E, CITY OF BROOKFIELD, WAUKESHA COUNTY, WISCONSIN.



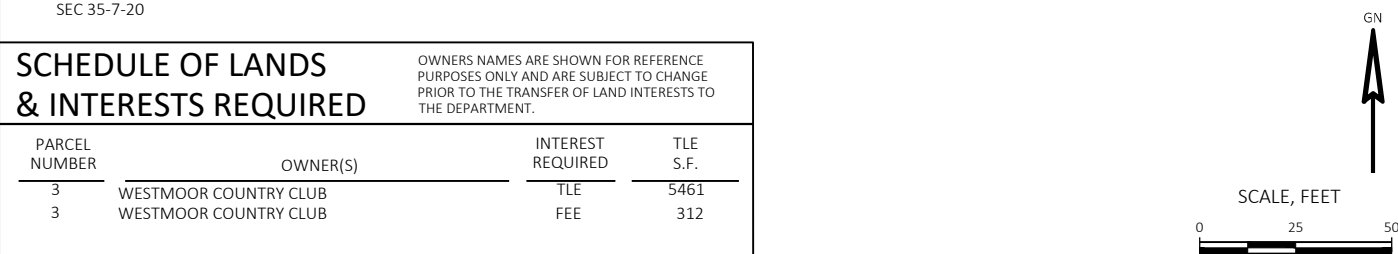
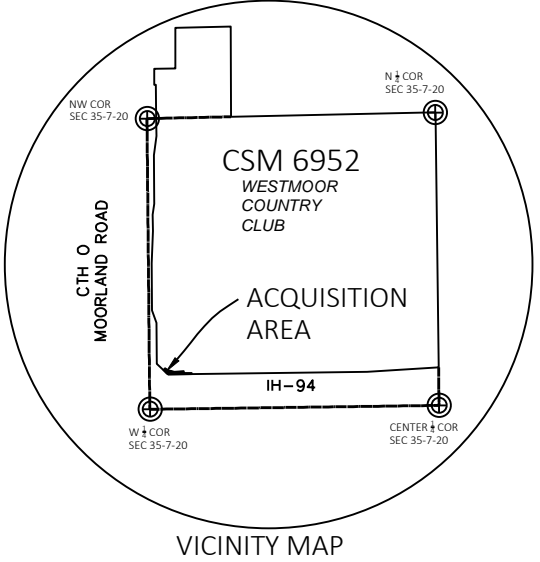
HWY	BASIS OF EXISTING R/W	R/W WIDTH	YEAR
IH-94	I-94-3(3)296	VARIES	1960
MOORLAND RD	I-94-3(3)296	VARIES	1960

**SCHEDULE OF LANDS & INTERESTS REQUIRED**

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
3	WESTMOOR COUNTRY CLUB	TLE	5461
3	WESTMOOR COUNTRY CLUB	FEE	312

**UTILITY INTERESTS REQUIRED**

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
N/A		



THIS MAP IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION SOUTHEAST REGION - WAUKESHA  
SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
PRINT NAME: \_\_\_\_\_

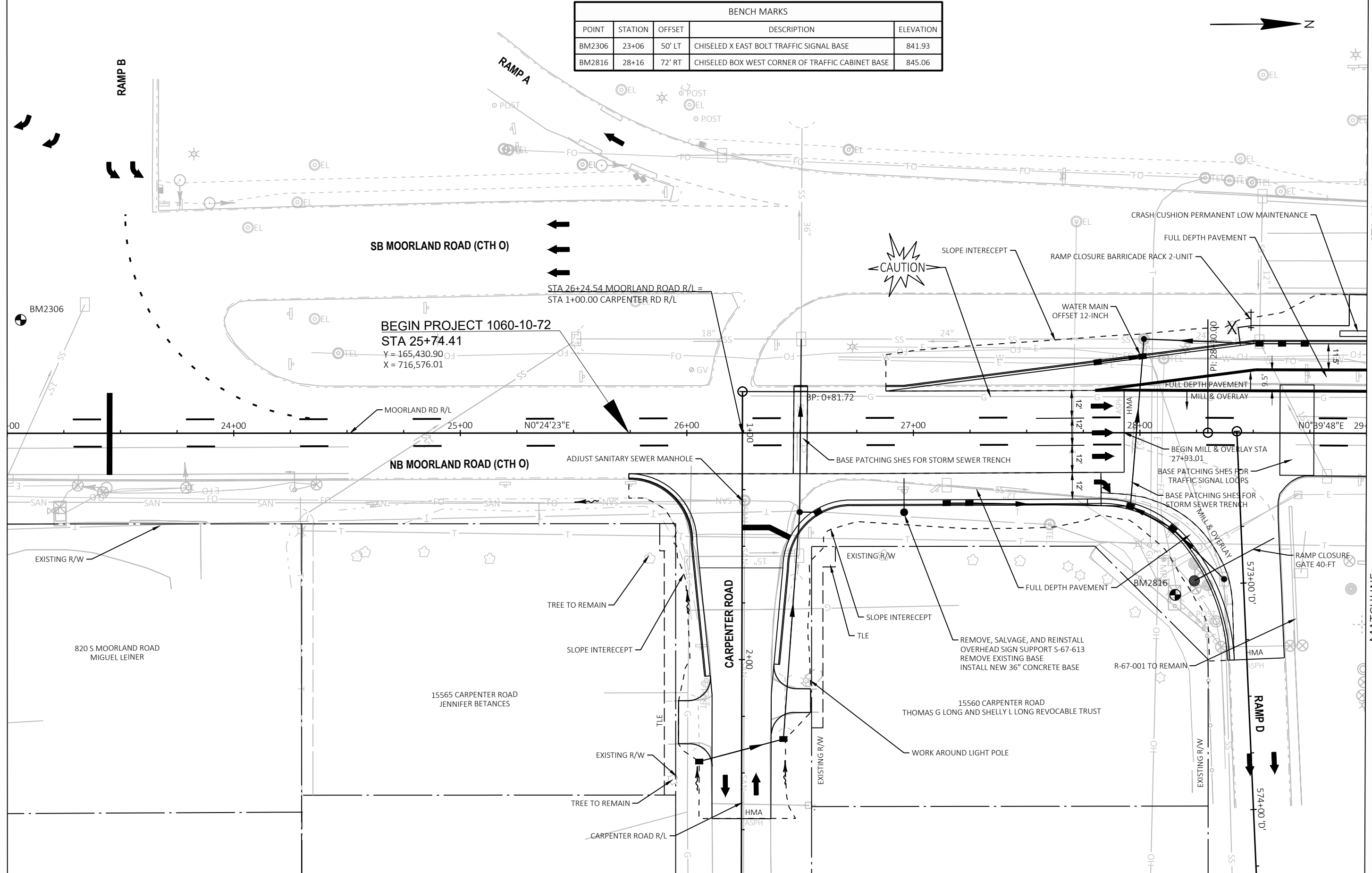


BENCH MARKS				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM2306	23+06	50' LT	CHISELED X EAST BOLT TRAFFIC SIGNAL BASE	841.93
BM2816	28+16	72' RT	CHISELED BOX WEST CORNER OF TRAFFIC CABINET BASE	845.06



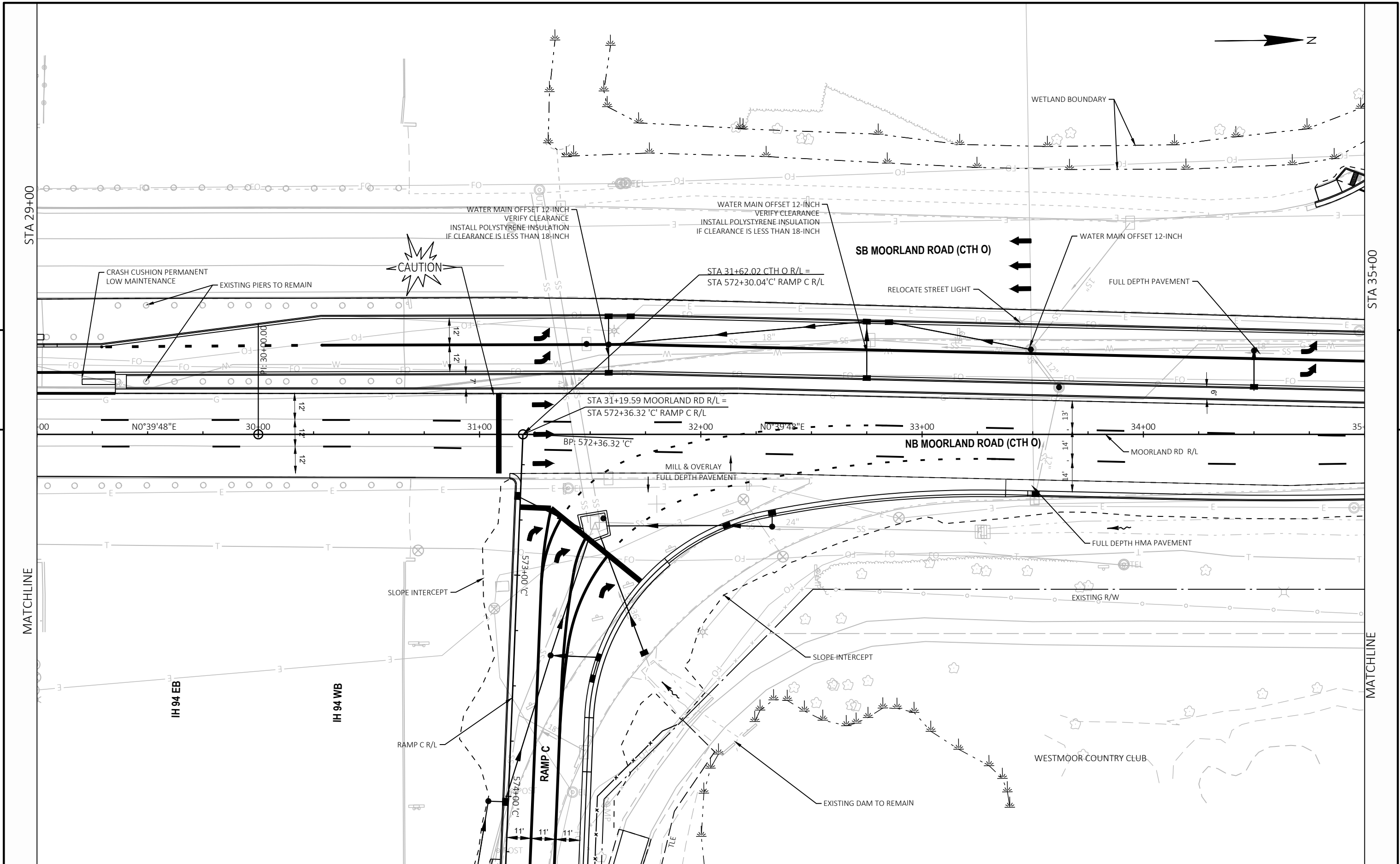
5

5



PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      PLAN - MOORLAND ROAD      SHEET      E

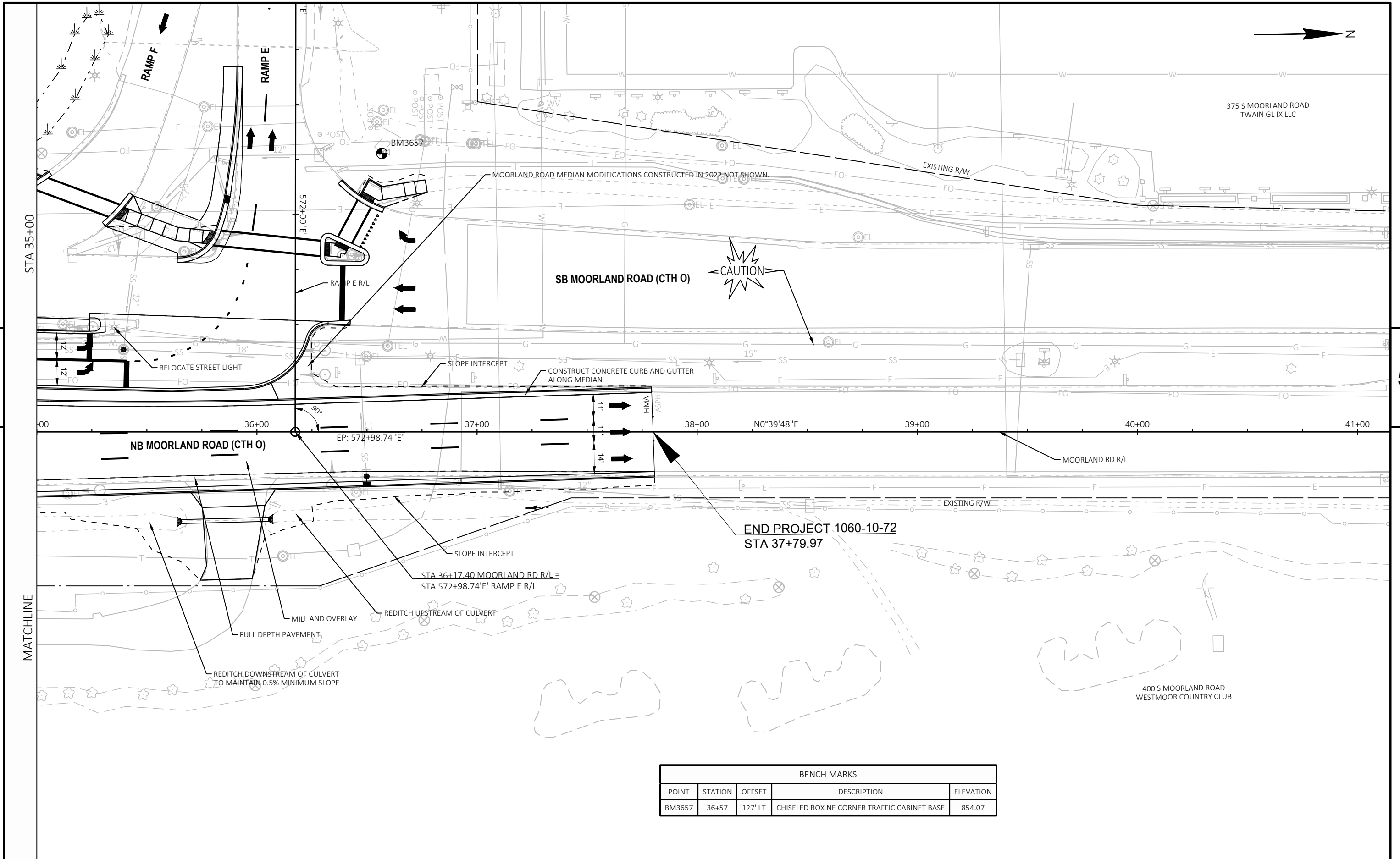
FILE NAME: T:\1212712\CIVIL3D\10601002\SHEETS\PLAN\050101-PN-CTH O.DWG      PLOT DATE: 1/29/2023 10:02 PM      PLOT BY: BLACKWOOD, JIM      PLOT NAME:      PLOT SCALE: 1 IN=40 FT      WISDOT/CADD SHEET 44



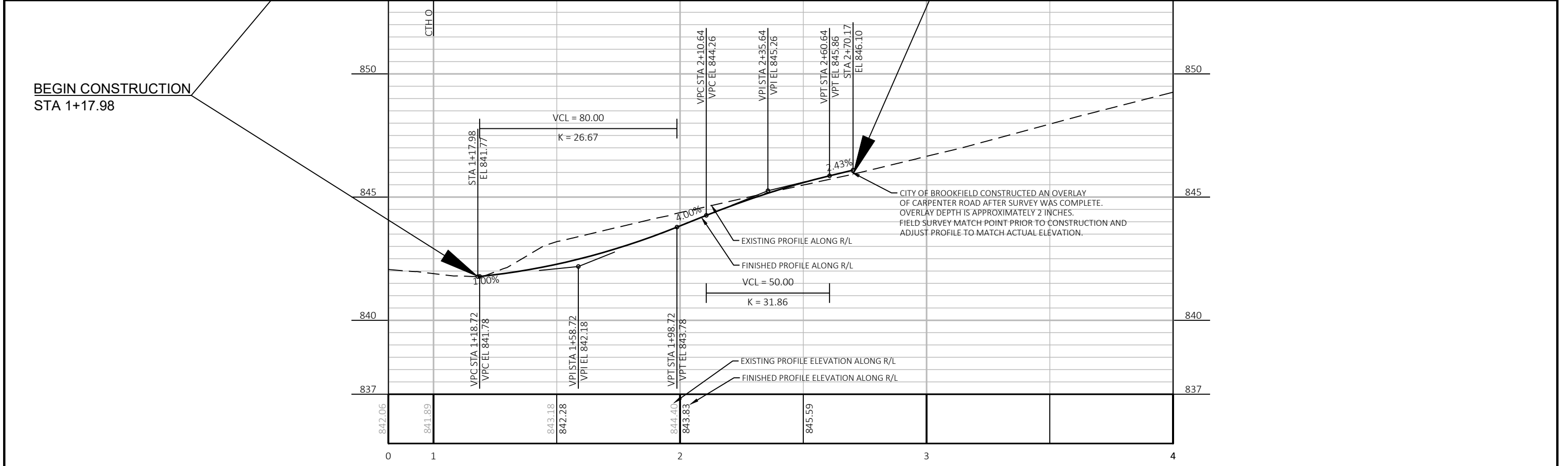
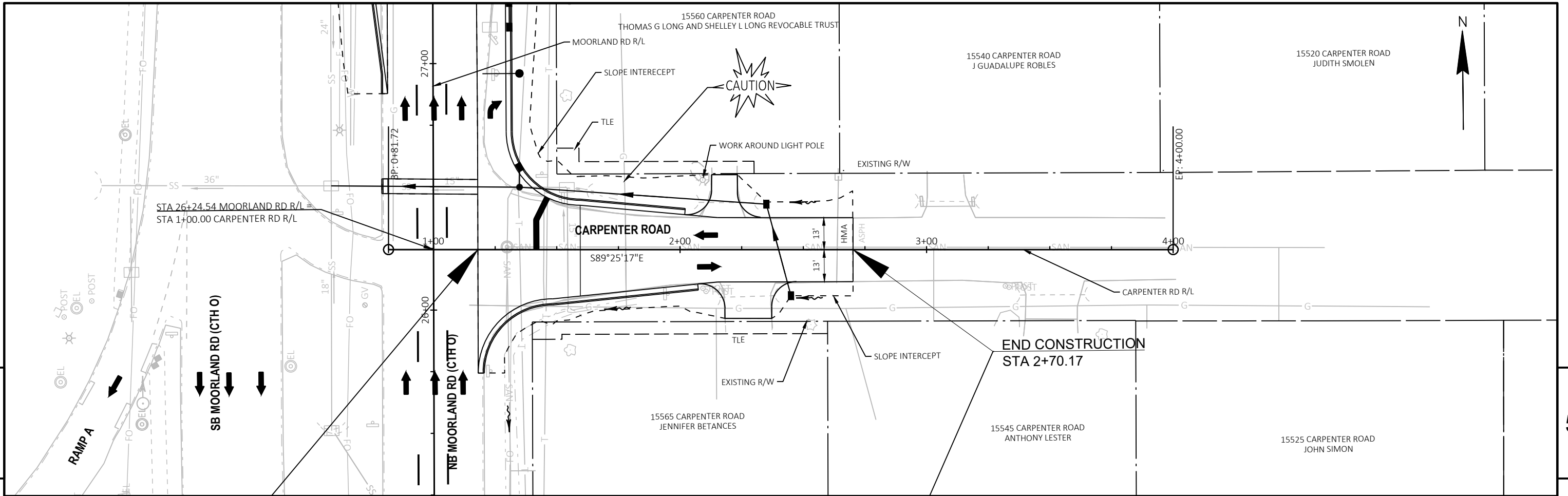
5

5

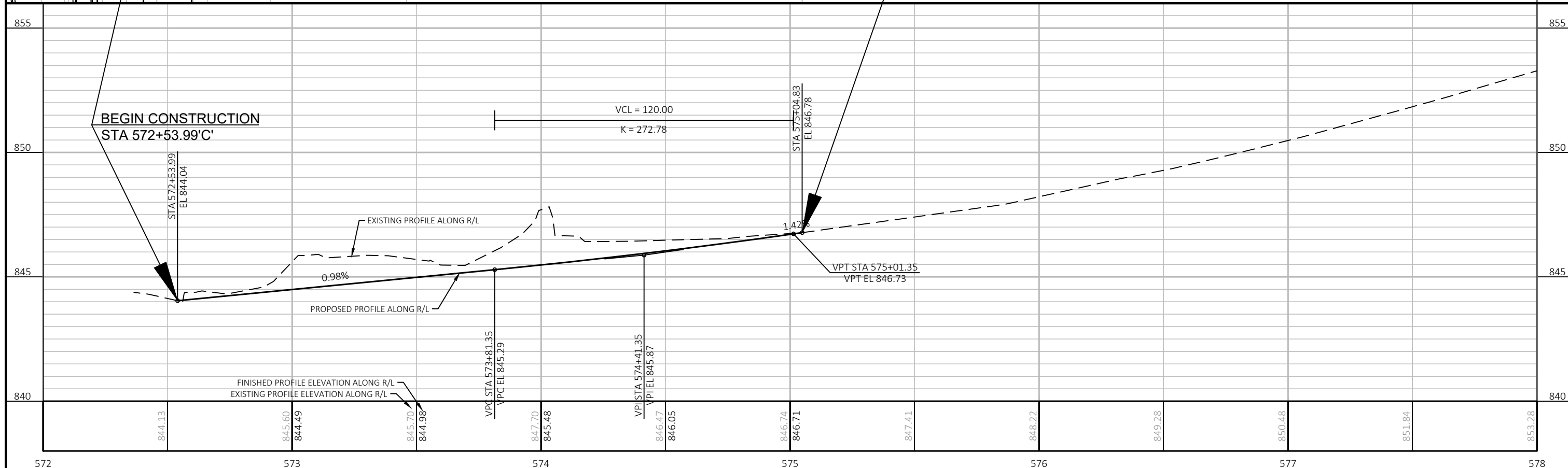
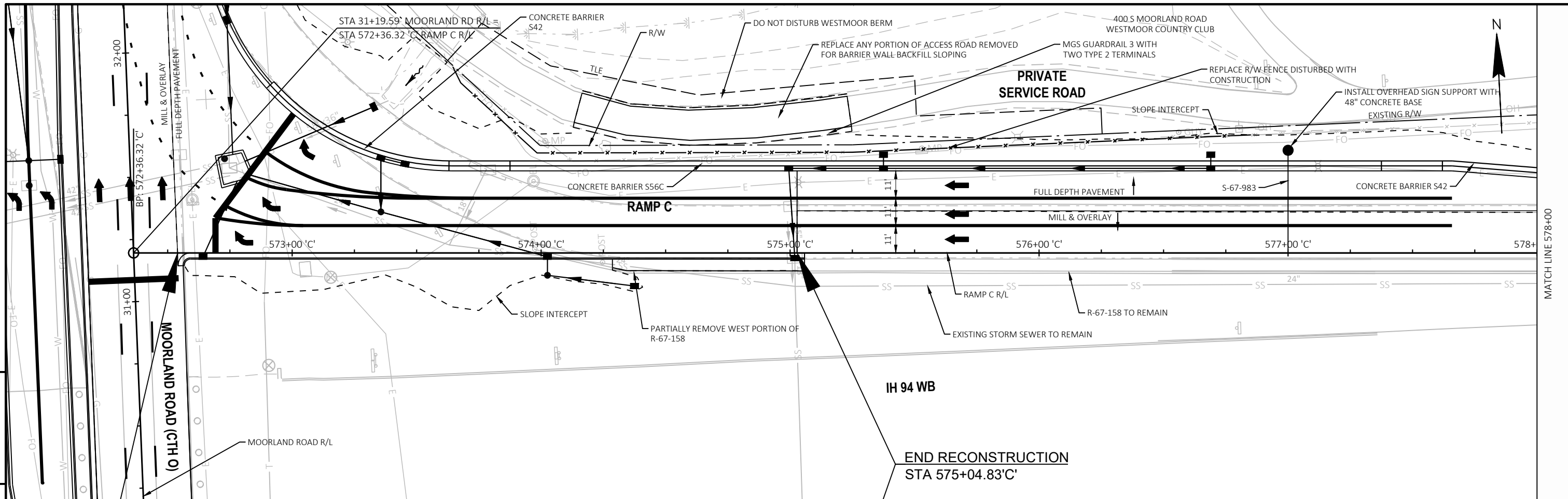
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	PLAN - MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	----------------------	-------	---



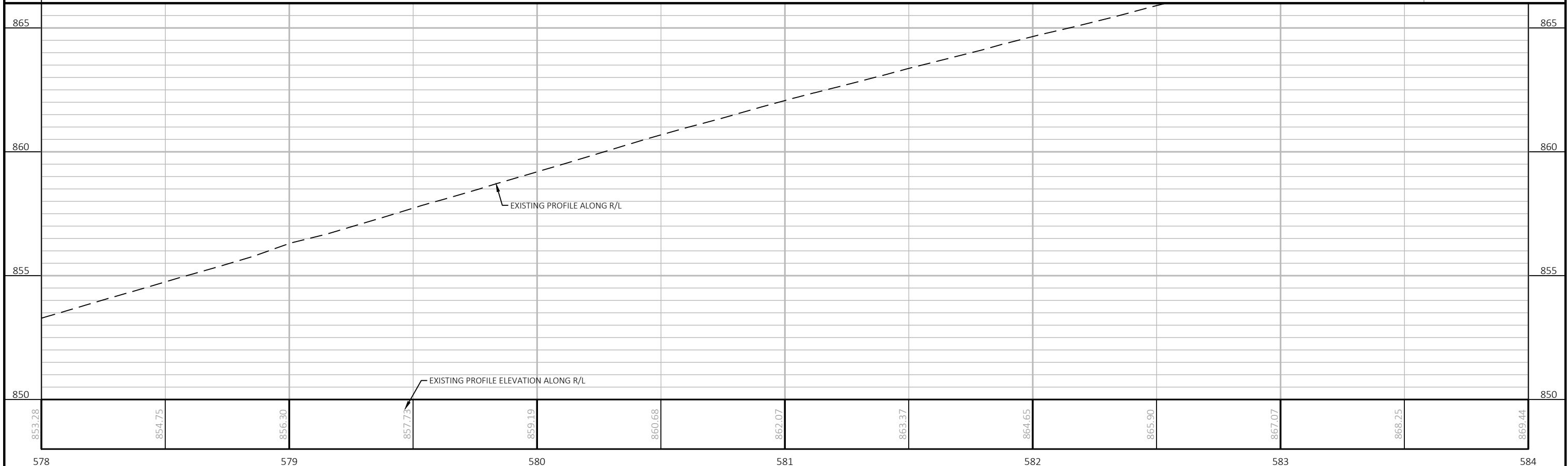
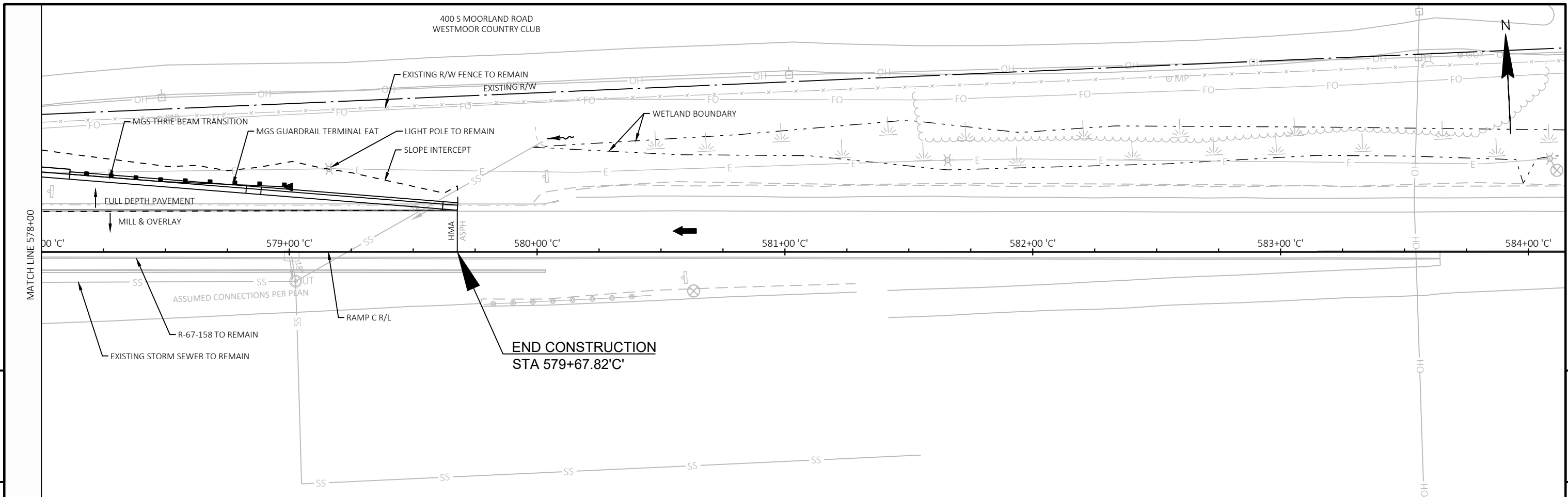
BENCH MARKS				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM3657	36+57	127' LT	CHISELED BOX NE CORNER TRAFFIC CABINET BASE	854.07



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	PLAN AND PROFILE: CARPENTER ROAD	SHEET E
------------------------	------------	------------------	----------------------------------	---------



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	PLAN AND PROFILE: RAMP C	SHEET E
------------------------	------------	------------------	--------------------------	---------



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	PLAN AND PROFILE: RAMP C	SHEET: E
------------------------	------------	------------------	--------------------------	----------

## Standard Detail Drawing List

08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-03	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08B10-02	MANHOLES 3X3-FT, 4X4-FT, 5X5-FT AND 6X6-FT
08C06-02	INLETS 3-FT AND 4-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08C08-02	INLETS MEDIAN 1 AND 2 GRATE
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-20A	CURB RAMPS TYPES 1 AND 1-A
08D05-20B	CURB RAMPS TYPES 2 AND 3
08D05-20C	CURB RAMPS TYPES 4A AND 4A1
08D05-20D	CURB RAMPS TYPE 4B AND 4B1
08D05-20E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-20F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-20G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D19-03	DRIVEWAY AND SIDEWALK RAMPS TYPE Z
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-10	CONDUIT
09B04-12	PULL BOX
09C02-09	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C05-10	CONCRETE CONTROL CABINET BASES
09C14-03	CONCRETE CONTROL CABINET BASE, TYPE L
09C15-01	CONCRETE BASE TYPE 10 SPECIAL
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D02-03	SIGNAL CONTROL CABINET
09D05-02	L30 LIGHTING CONTROL CABINET 240/480 VOLT
09E01-15A	POLE MOUNTINGS FOR TRAFFIC SIGNALS TYPE 2
09E01-15B	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)
09E01-15D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-15G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E02-05	FREEWAY LIGHTING UNIT POLE WIRING
09E03-06	NON-FREEWAY LIGHTING UNIT POLE WIRING
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09E07-06	TRAFFIC SIGNAL STANDARD PEDESTRIAN AND FLASHER TYPICAL MOUNTING DETAILS
09E08-09D	TYPE 9 SPECIAL POLE 45' MONOTUBE ARM
09E08-09K	GENERAL NOTES, HARDWARE DETAILS FOR TYPE 9/10, 9/10 SPECIAL, 12 & 13 POLES W/MONOTUBE ARMS
09F15-04B	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
09G01-04A	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04B	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04C	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04D	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04E	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04F	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04G	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
10A01-04	ELECTRICAL HANDHOLE WIRING
10A02-03	IDENTIFICATION PLAQUES LIGHT POLES
10A04-03	IDENTIFICATION PLAQUES UNDERDECK AND HIGH MAST LIGHTING
10A05-03	ELECTRICAL DETAILS GROUND MOUNT LIGHT POLES ISOLATED NEUTRAL SYSTEMS
10A18-05A	LUMINAIRE ARMS, SINGLE MEMBER 6-INCH CLAMP
11B02-02	CONCRETE MEDIAN NOSE
12A04-03	STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-11	URBAN DOWELED CONCRETE PAVEMENT
13C14-07A	BASE PATCHING CONCRETE
13C14-07B	BASE PATCHING CONCRETE
13C14-07C	BASE PATCHING CONCRETE

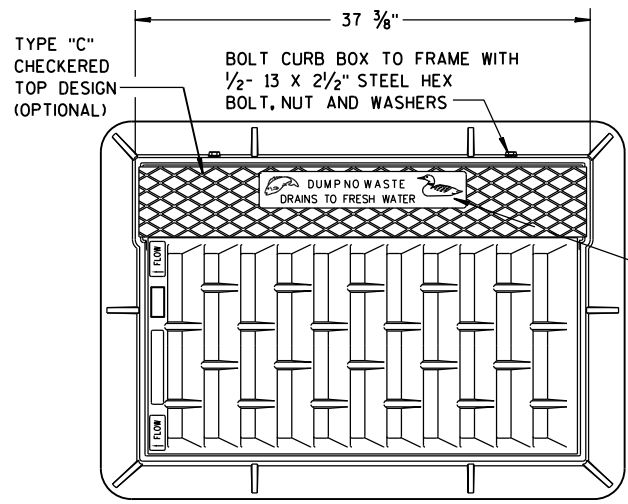
## Standard Detail Drawing List

13C15-08A	CONCRETE BASE
13C15-08B	CONCRETE BASE
13C18-07A	CONCRETE PAVEMENT JOINTING
13C18-07B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-07C	CONCRETE PAVEMENT JOINT TYPES
13C18-07D	CONCRETE PAVEMENT JOINT TYPES AT UTILITY FIXTURES
13C18-07F	CONCRETE PAVEMENT INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER
14B32-10A	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10B	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10C	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10D	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10E	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10F	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10G	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10H	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B33-02G	CONCRETE BARRIER SINGLE SLOPE 42" THREE BEAM ANCHOR
14B33-02H	CONCRETE BARRIER SINGLE SLOPE 42" THREE BEAM ANCHOR
14B39-02C	42-INCH SSCB TO 56-INCH SSCB HEIGHT TRANSITION
14B41-03A	SINGLE SLOPE ROADSIDE RETAINING WALL
14B41-03B	SINGLE SLOPE ROADSIDE RETAINING WALL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-08E	OFF RAMP LANE CLOSURE
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C07-15B	PAVEMENT MARKING WORDS
15C07-15C	PAVEMENT MARKING ARROWS
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C08-22B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-22D	PAVEMENT MARKING (TURN LANES)
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C18-07B	MEDIAN ISLAND MARKING MEDIAN ISLAND NOSE
15C18-07C	MEDIAN PAVEMENT MARKINGS DOUBLE ARROW WARNING SIGN PLACEMENT
15C20-02	YIELD MARKING
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D12-10A	TRAFFIC CONTROL, LANE CLOSURE
15D16-05	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D20-06A	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D22-05	TRAFFIC CONTROL, TWO LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D23-07A	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D23-07B	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D30-08A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-08C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08D	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08E	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08F	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08G	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

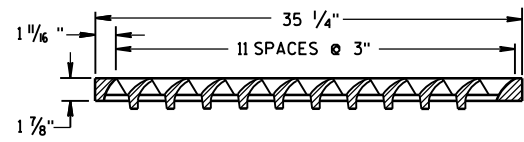
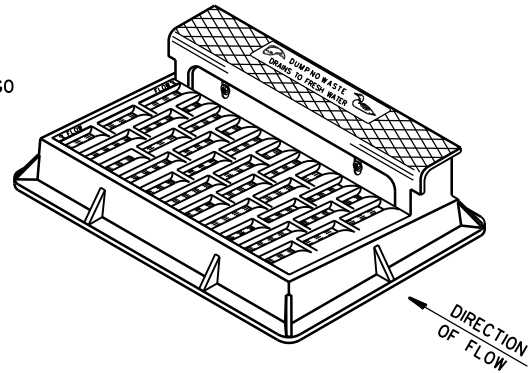


## Standard Detail Drawing List

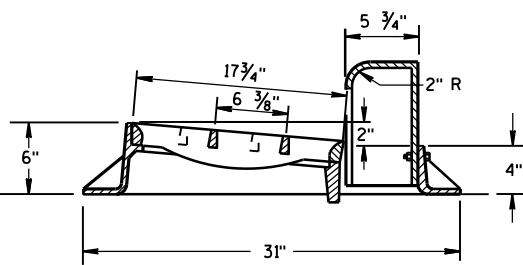
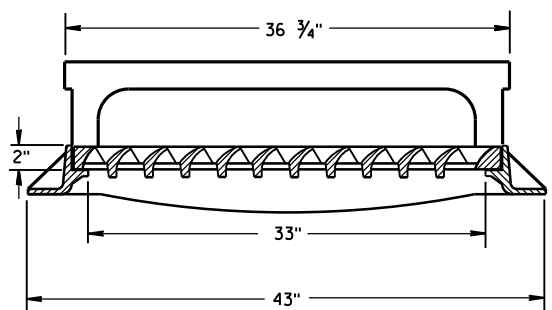
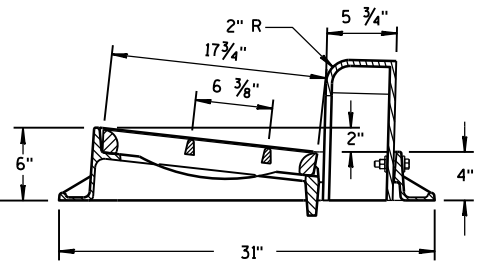
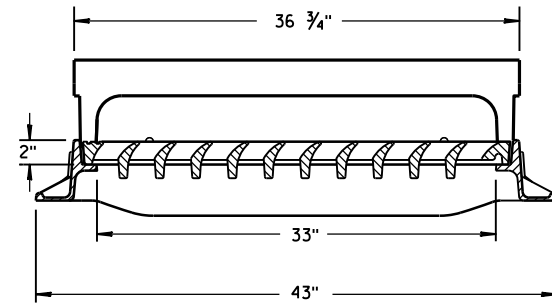
15D30-08H	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08I	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08J	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D35-03A	RAMP GATE HARD WIRED
15D35-03B	RAMP GATE HARD WIRED
15D35-03C	RAMP GATE HARD WIRED
15D36-01	BARRICADE RACK



**NOTE:  
GRATE IS REVERSIBLE.**

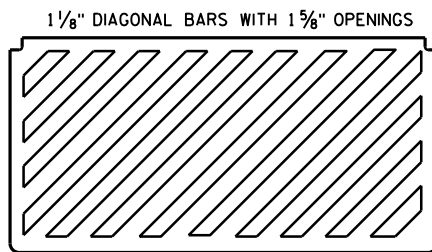


**NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"**

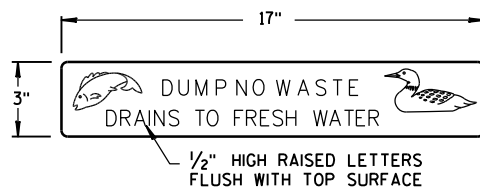


**TYPE "H"**

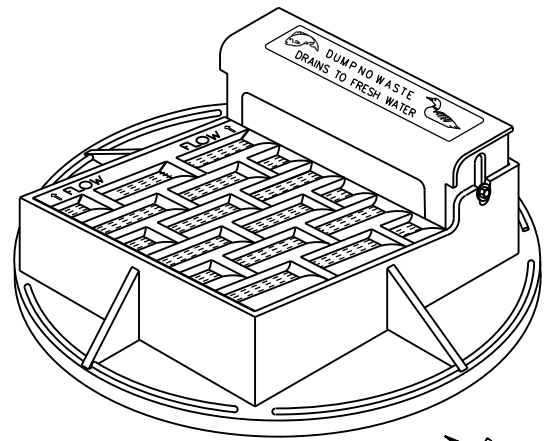
**NOTE: EITHER CASTING IS ACCEPTABLE**



**SPECIAL GRATE FOR  
TYPE "H" COVER**  
(MEASURES 35 1/4" X 17 3/4" X 2")  
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

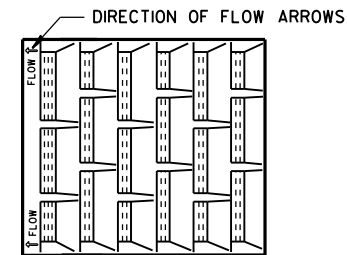


**LOGO DETAIL**

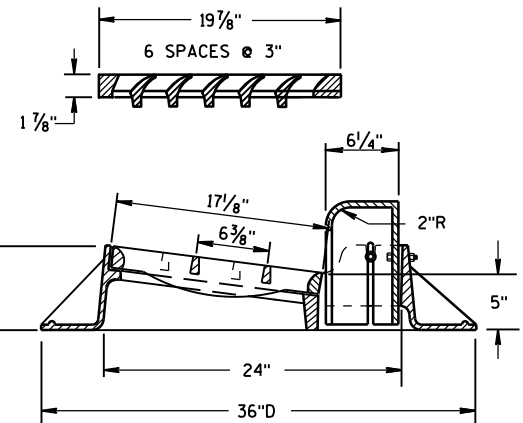
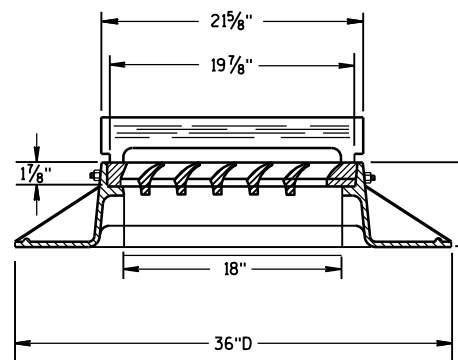


**NOTE: CURB BOX ADJUSTABLE 4" TO 9"**

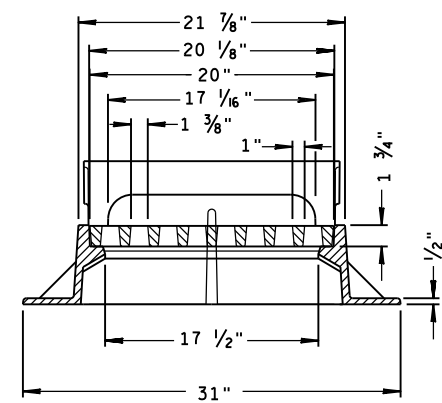
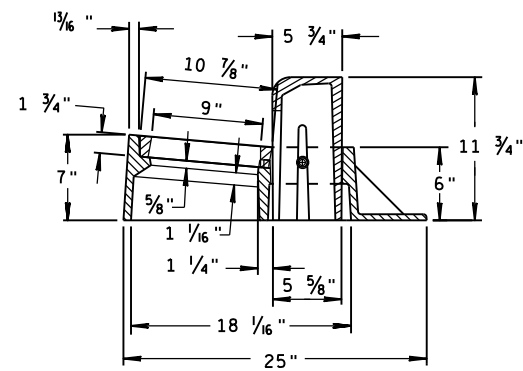
**NOTE:  
GRATE IS REVERSIBLE.**



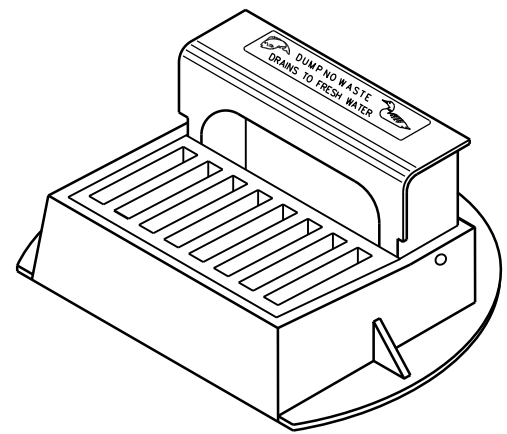
**SPECIAL GRATE FOR  
TYPE "A" COVER**  
(MEASURES 19 3/4" X 17" X 1 1/8")  
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



**TYPE "A"**



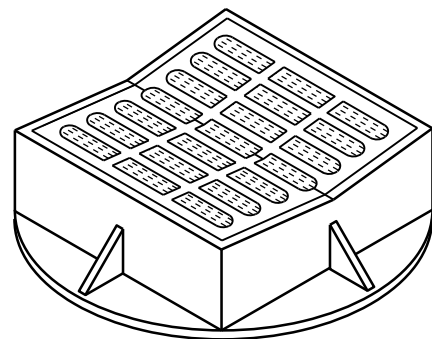
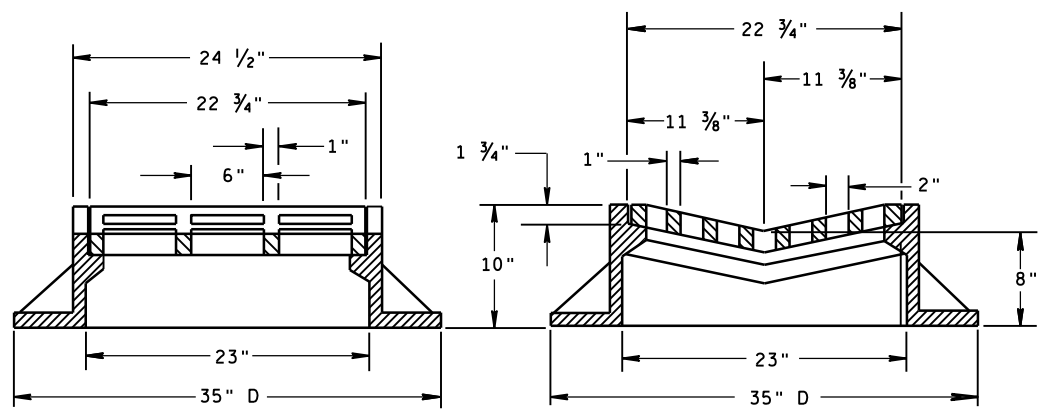
**TYPE "Z"**



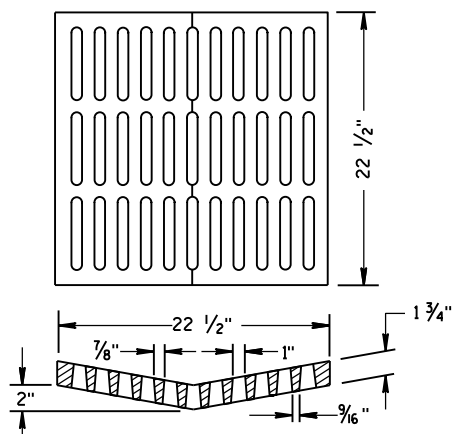
**INLET COVERS  
TYPE A, H, A-S, H-S & Z**

**STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION**

**APPROVED**  
11-27-13  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

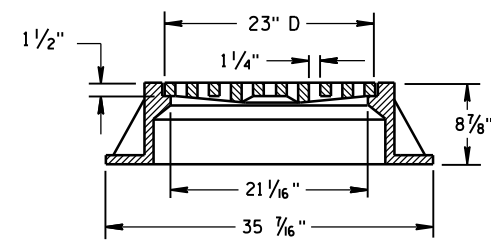
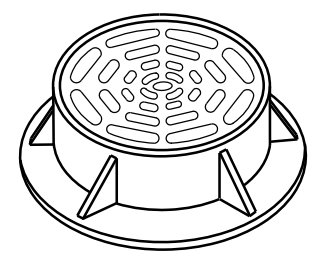
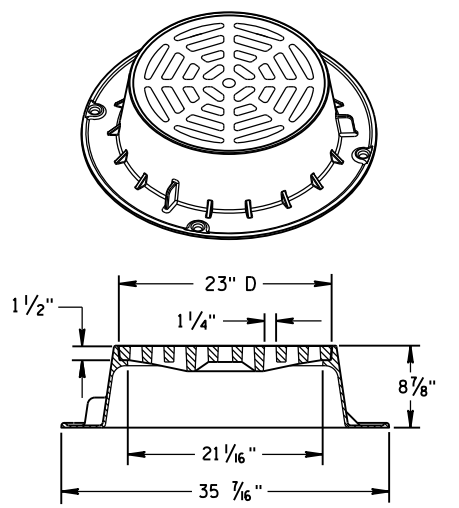


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.  
NOTED AS TYPE B-A ON THE DRAINAGE TABLE

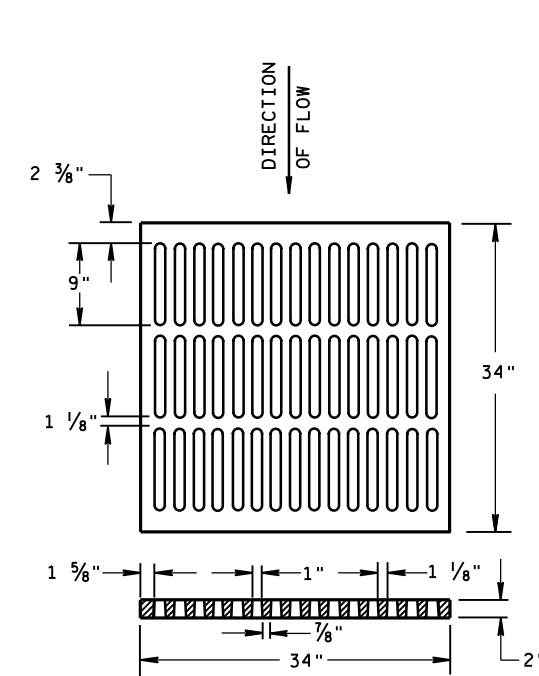


TYPE "C"

NOTE: EITHER CASTING IS ACCEPTABLE

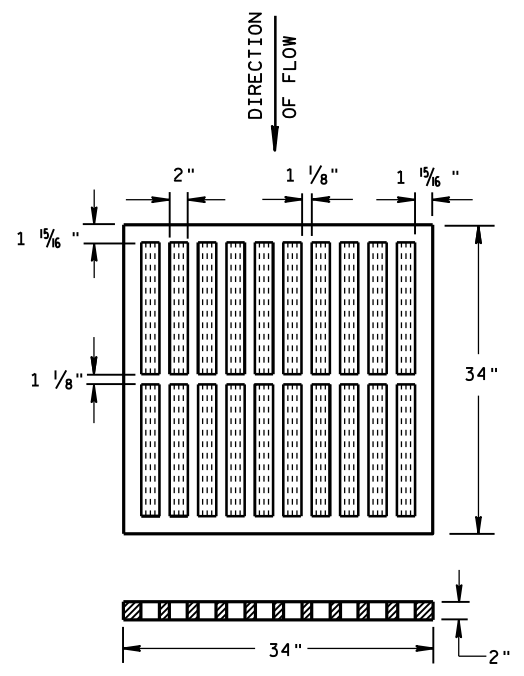
**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.  
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.  
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



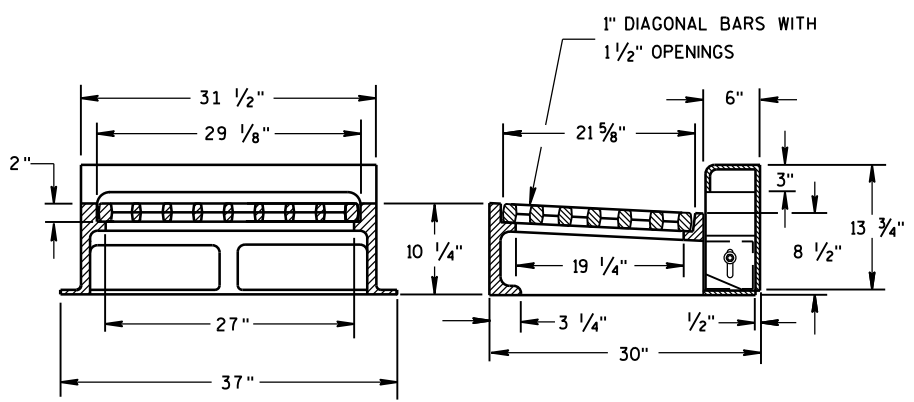
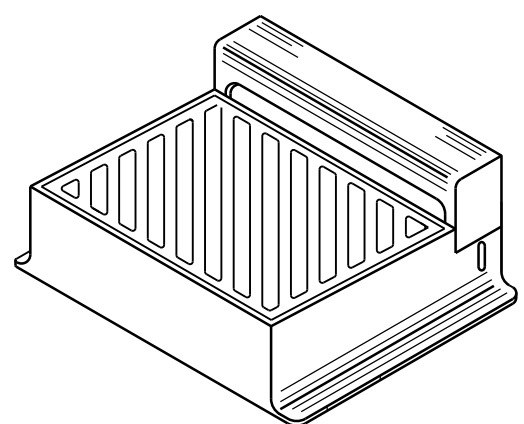
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED  
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS  
NOTED AS TYPE MS ON DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.

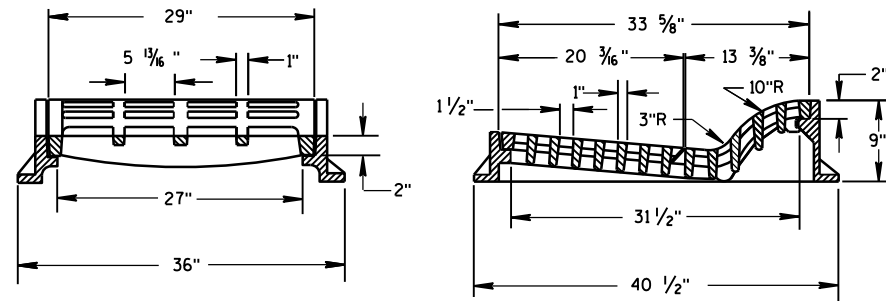
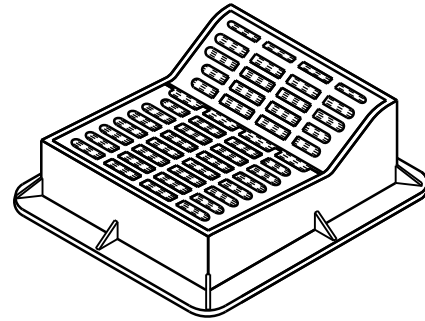
6

6

S.D.D. 8 A 5-19b

S.D.D. 8 A 5-19b

<b>INLET COVERS</b> TYPE B, B-A, C, MS, MS-A, & WM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FHWA	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER



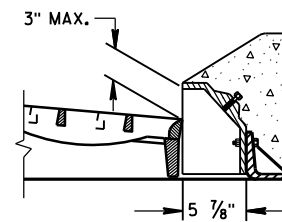
**TYPE "F"**

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

**GENERAL NOTES**

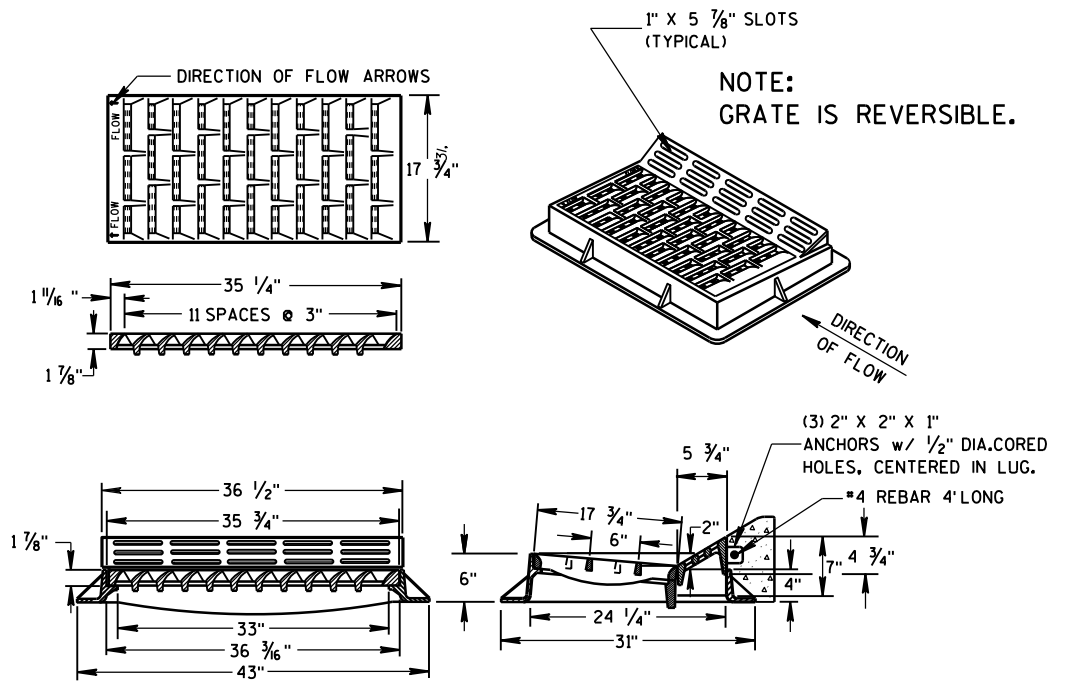
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



**ALTERNATIVE CURB BOX FOR TYPE "HM" COVER**

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH NOTED AS TYPE HM-GJ ON DRAINAGE TABLE



**TYPE "HM"**

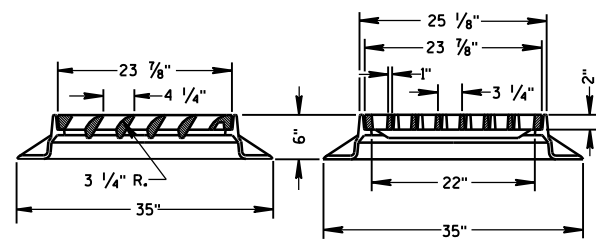
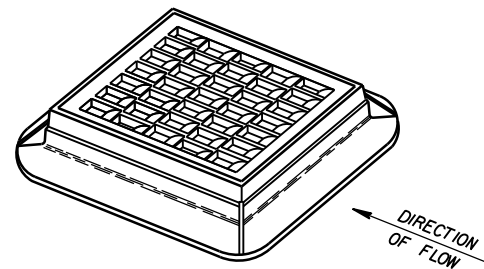
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM" COVER NOTED AS TYPE HM-S ON DRAINAGE TABLE

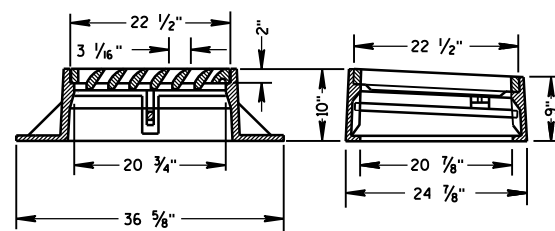
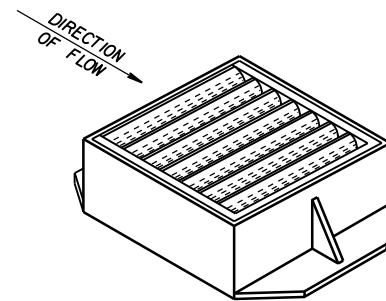
NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

6

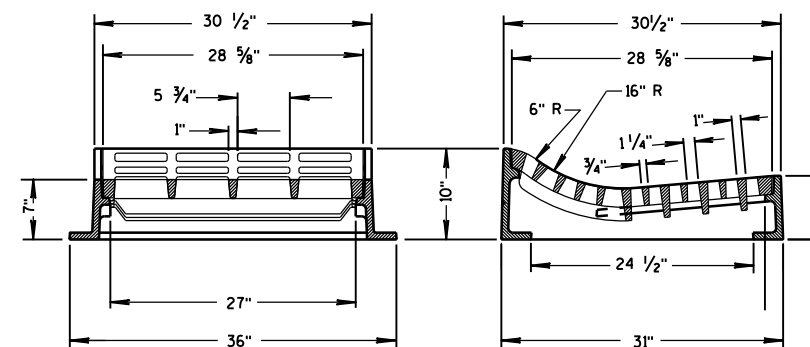
6



**TYPE "S"**

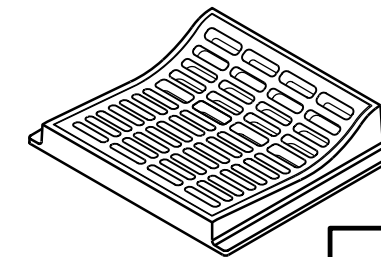


**TYPE "V"**



**TYPE "T"**

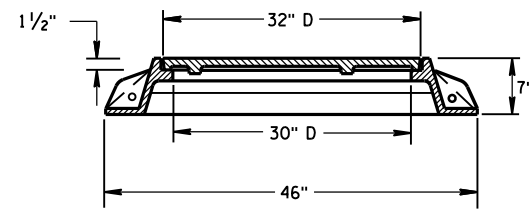
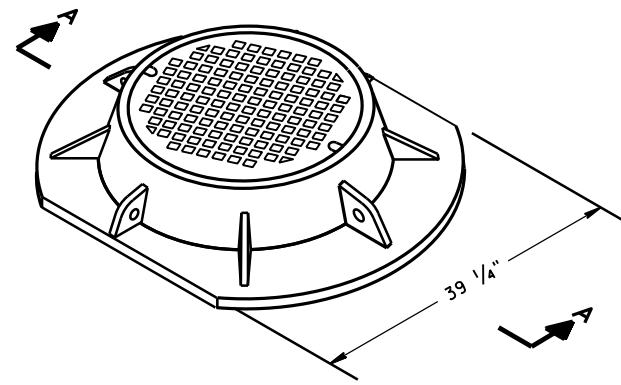
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



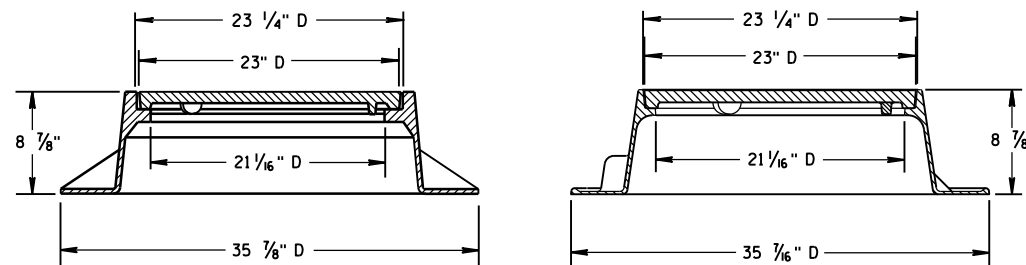
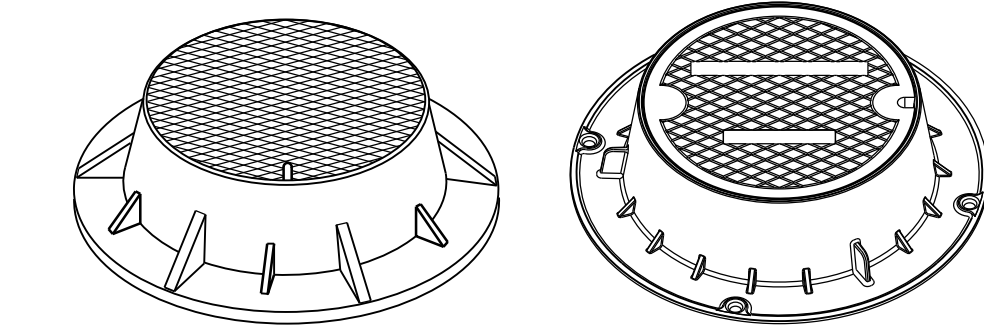
**INLET COVERS**  
TYPE F, HM, HM-S, S, T, V,  
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/27/2013 DATE /s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



SECTION A-A  
TYPE "K"



TYPE "J"

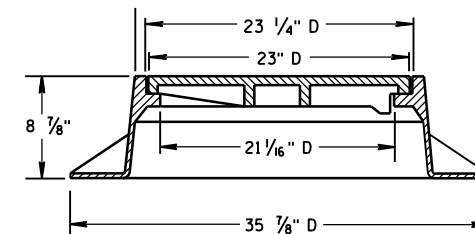
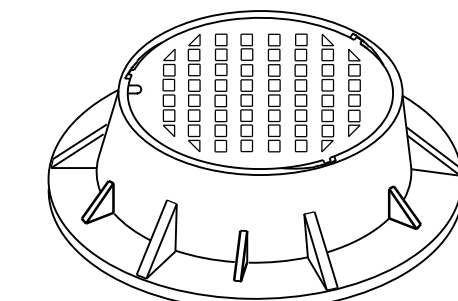
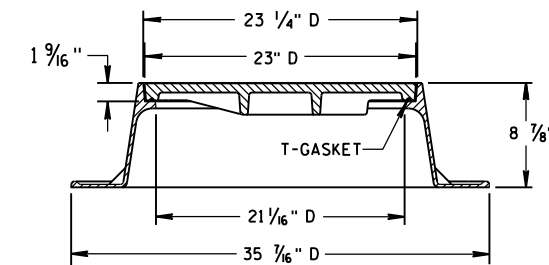
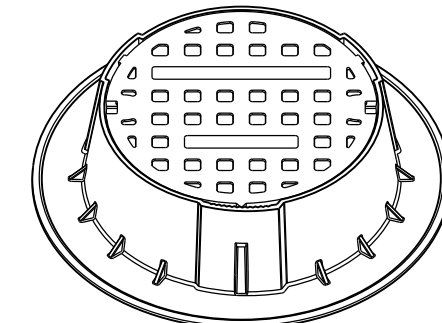
NOTE: EITHER CASTING IS ACCEPTABLE

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



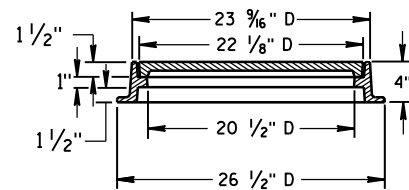
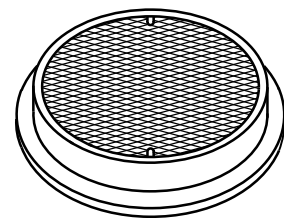
TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

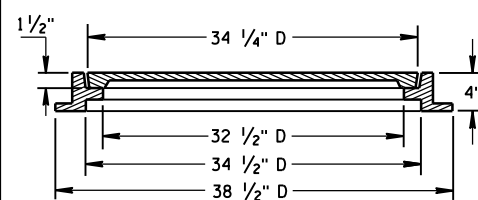
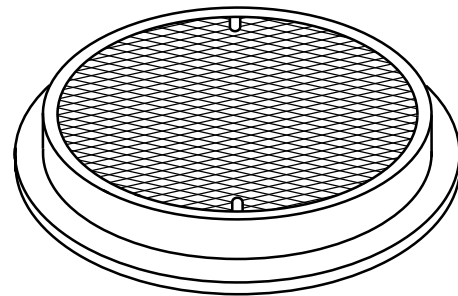
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

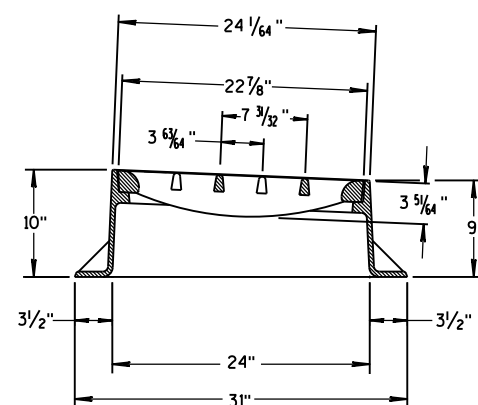
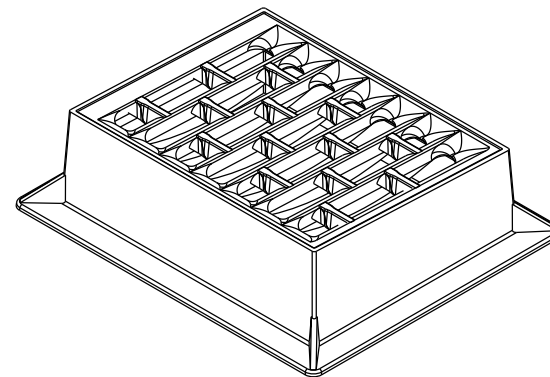
6



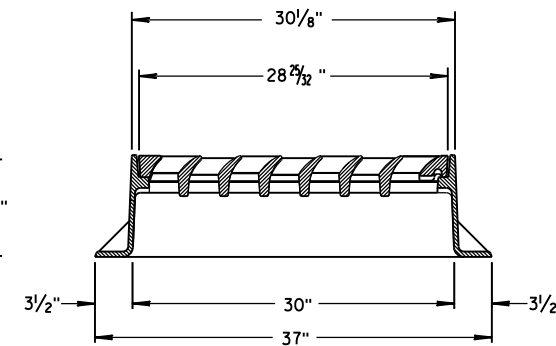
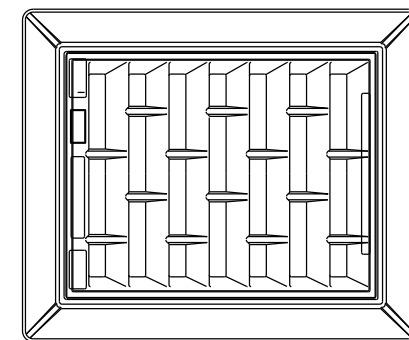
TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"



6

S.D.D. 8 A 5-19d

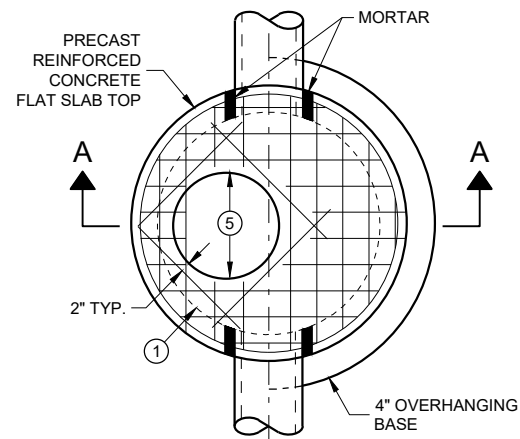
S.D.D. 8 A 5-19d

INLET COVER TYPE BW  
MANHOLE COVERS, TYPE K,  
J, J-S, L & M

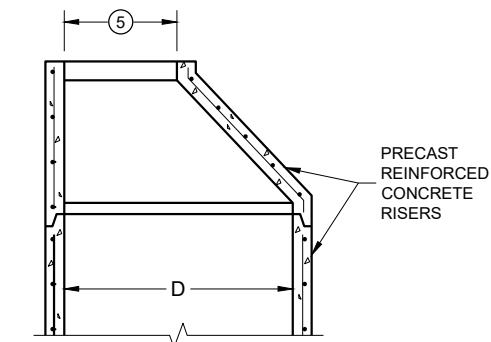
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/27/2013  
DATE  
FHWA

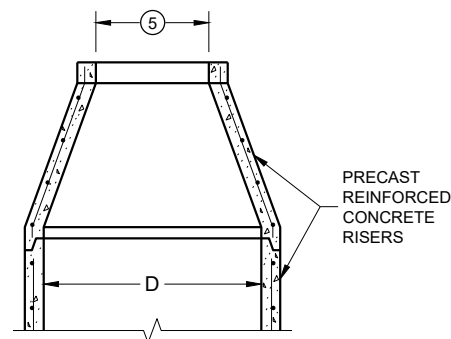
/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



**PLAN VIEW  
CIRCULAR OPENING**



**OPTIONAL PRECAST  
REINFORCED CONCRETE  
ECCENTRIC TOP**



**OPTIONAL PRECAST  
REINFORCED CONCRETE  
CONCENTRIC TOP**

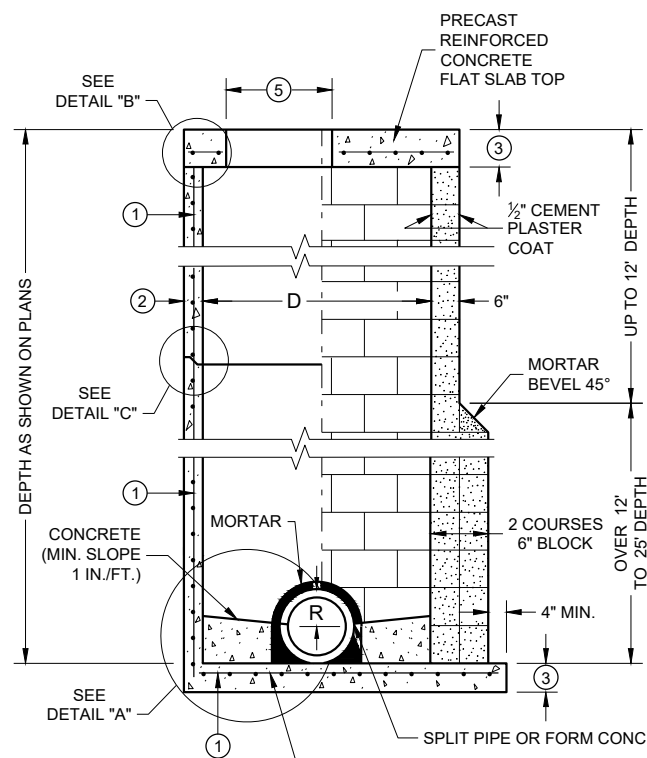
**MANHOLE COVER OPENING MATRIX**

MANHOLE COVER TYPE OPENING SIZE (FT.)	C	ALL J'S	K	L	M
2 DIA.	X	X		X	
3 DIA.			X		X

**PIPE MATRIX**

MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42*	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

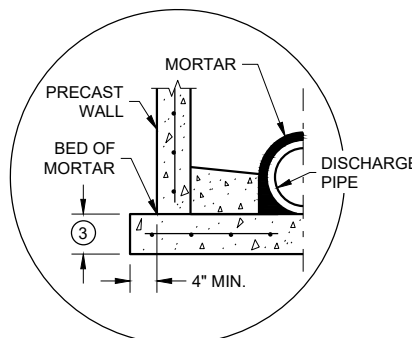
\*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



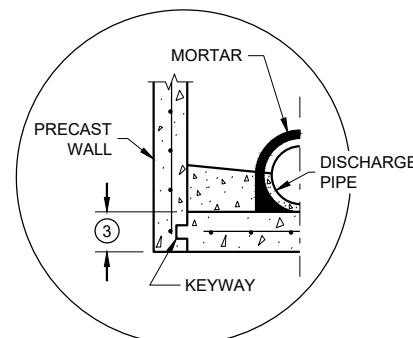
**SECTION A - A**

**PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE**

**CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ①**

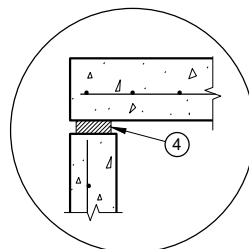


**SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION**

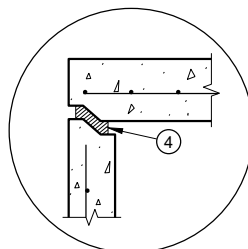


**PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION**

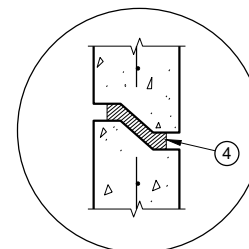
**DETAIL "A"**



**TOP WITH PLAIN END JOINT**



**TOP WITH TONGUE AND GROOVE JOINT**



**RISER WITH TONGUE AND GROOVE JOINT**

**DETAIL "B"**

**DETAIL "C"**

**MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

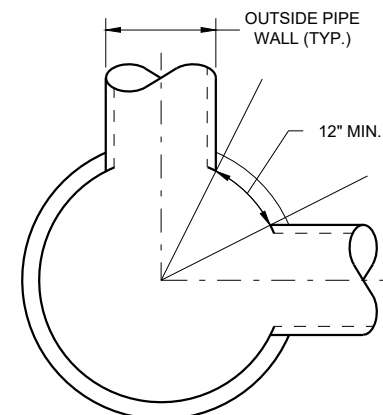
PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- ① FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ② SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES
- ③ SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.
- ④ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP.).
- ⑤ SEE MANHOLE COVER OPENING MATRIX.

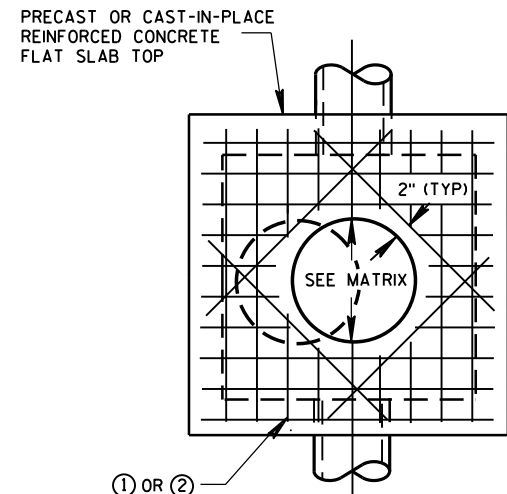


**MINIMUM HORIZONTAL PIPE SEPARATION**

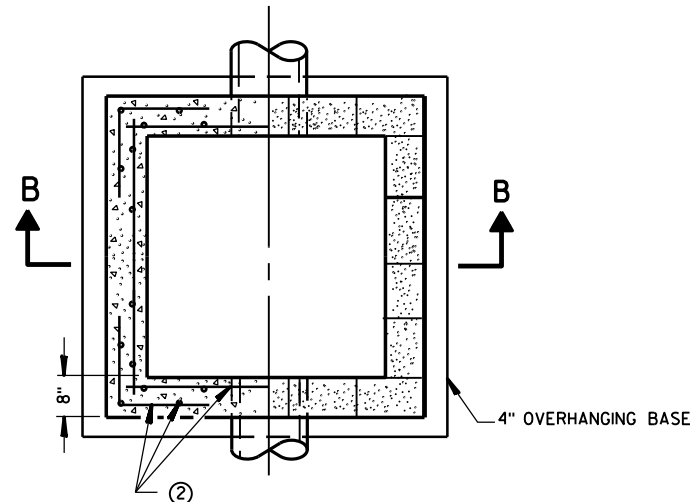
**MANHOLES, 3-FT, 4-FT  
5-FT, 6-FT, 7-FT, 8-FT, 9-FT  
AND 10-FT DIAMETER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

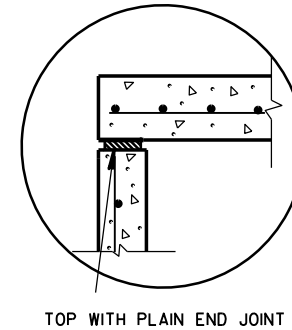
APPROVED  
November 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



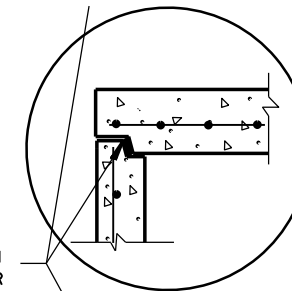
**PLAN VIEW  
CIRCULAR OPENING**



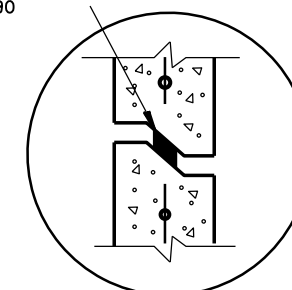
**SECTION A-A  
PLAN VIEW**



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

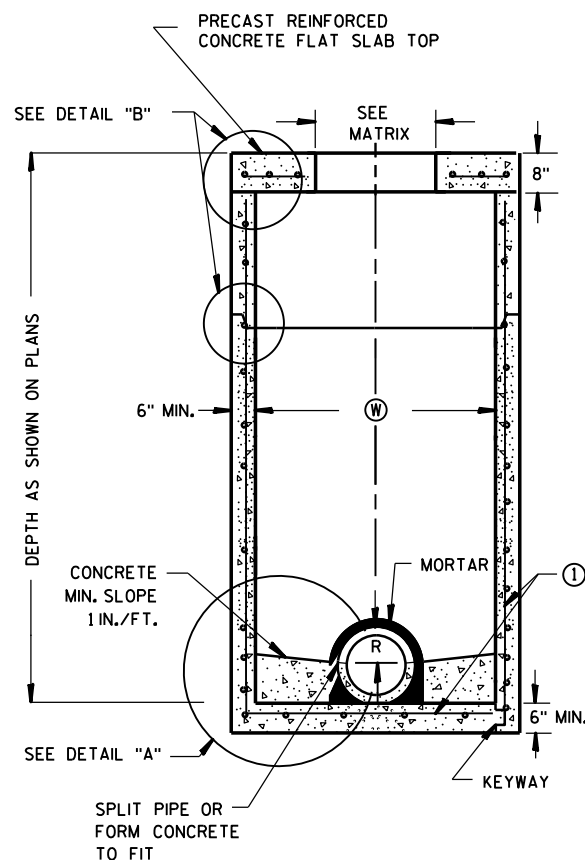
**DETAIL "B"**

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)

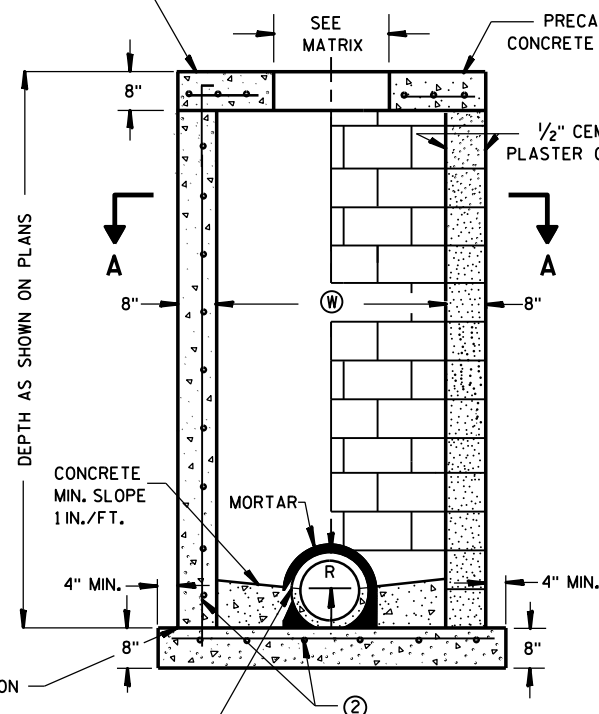
CAST-IN-PLACE REINFORCED CONCRETE TOP (SHOWN) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOP (SEE DETAIL "B")

PRECAST REINFORCED CONCRETE FLAT SLAB TOP

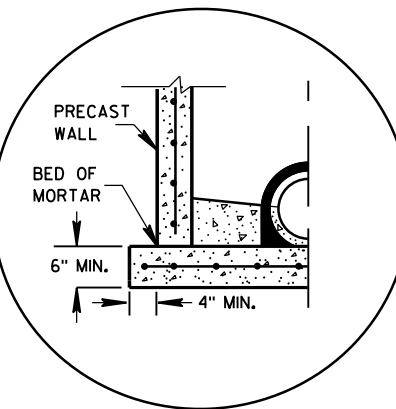
1/2" CEMENT PLASTER COAT



**SECTION B-B**



**SECTION B-B**



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

**DETAIL "A"**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN WIDTH.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "C". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

**MANHOLE COVER OPENING MATRIX**

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
2 DIA.	X	X		X	
3 DIA.			X		X

**PIPE MATRIX**

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (W) (IN)	LENGTH (L) (IN)
3X3-FT	24	24
4X4-FT	30	30
5X5-FT	42	42
6X6-FT	54	54

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

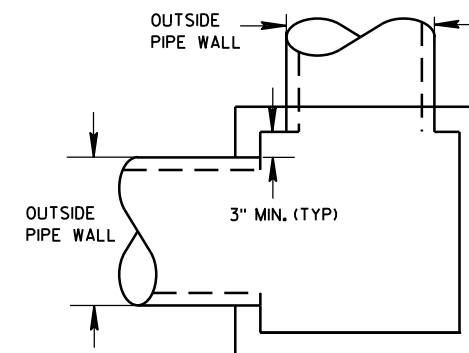
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE

CAST-IN-PLACE REINFORCED CONCRETE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE

SQUARE MANHOLES W/ FLAT TOP

MANHOLES 3X3-FT, 4X4-FT, 5X5-FT AND 6X6-FT

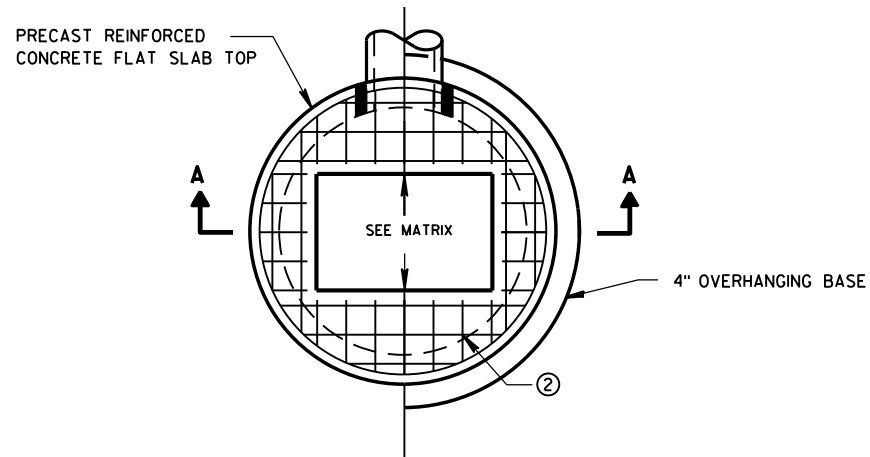


**DETAIL "C"**

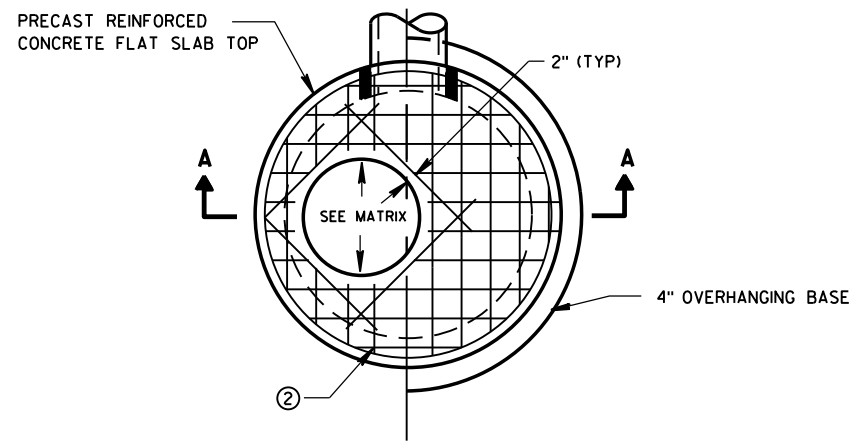
MANHOLES 3X3-FT, 4X4-FT  
5X5-FT AND 6X6-FT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sep 1, 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

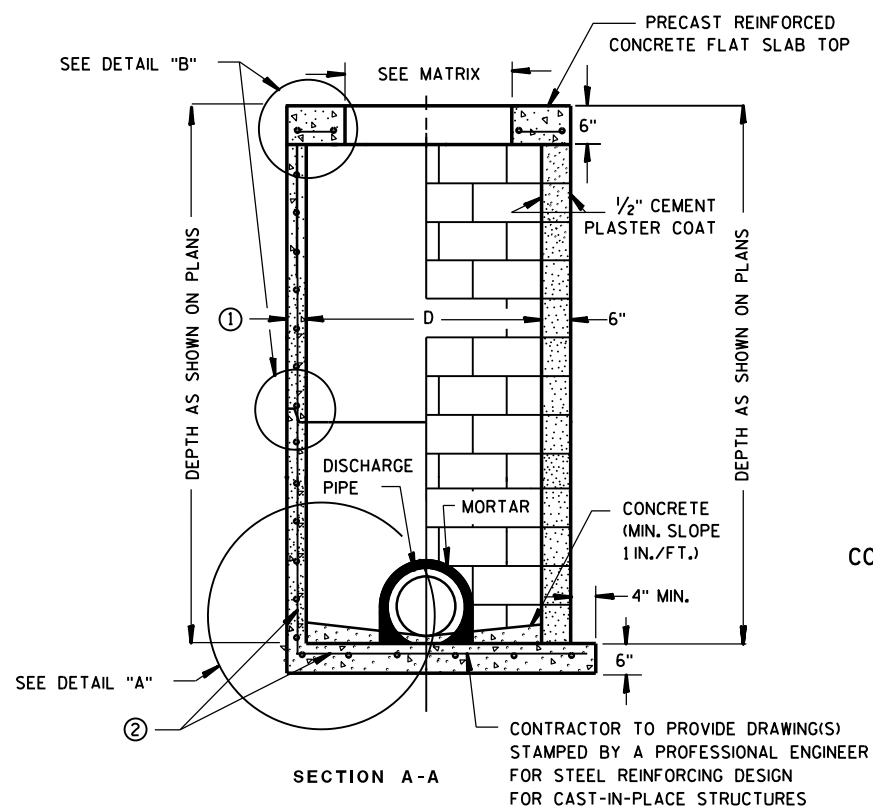
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

**INLET COVER OPENING MATRIX**

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X	X	
	2X2.5			X								
	2X3						X					
	2.5X3					X						

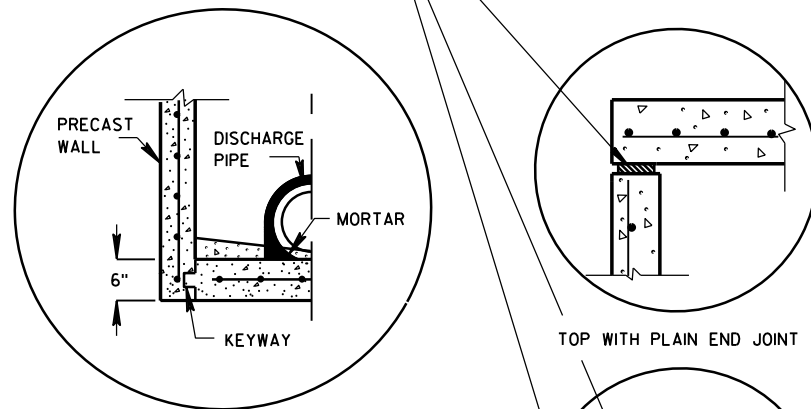


**PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE**      **CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

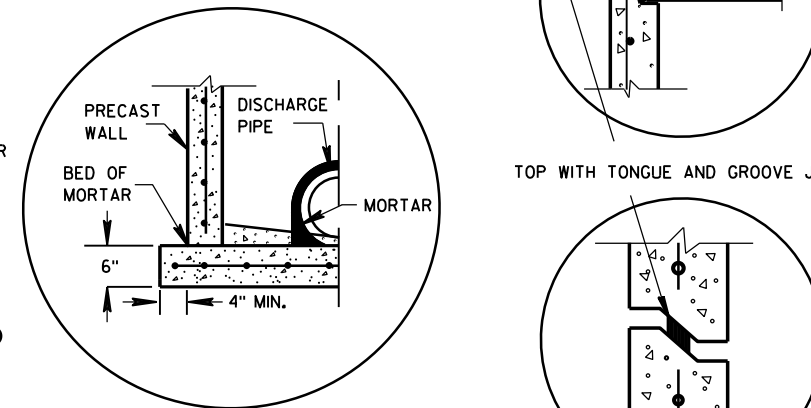
CIRCULAR INLETS W/ FLAT TOP

CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

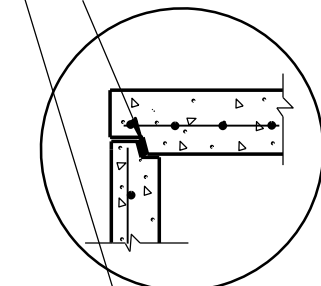


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

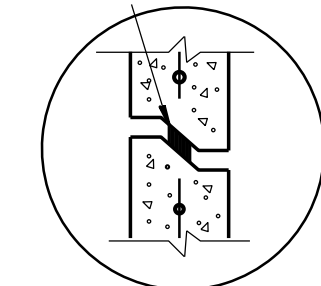


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



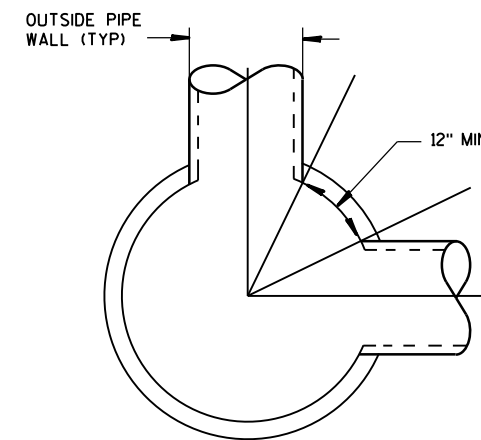
TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

INLETS 3-FT AND 4-FT DIAMETER



DETAIL "C"

**PIPE MATRIX**

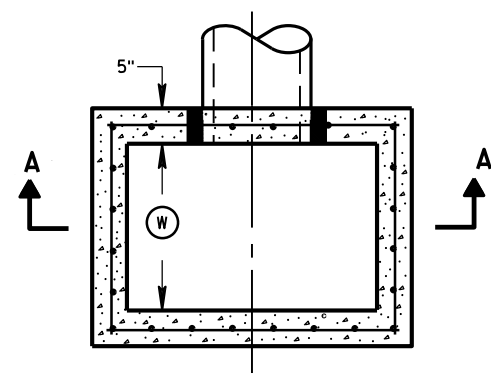
INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER

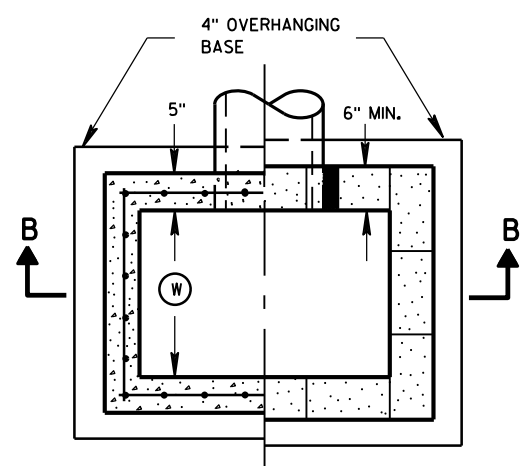
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
 Sept., 2016 /S/ Rodney Taylor  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 FHWA UNIT SUPERVISOR

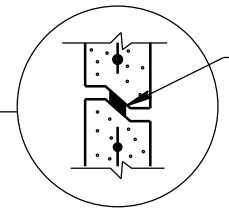




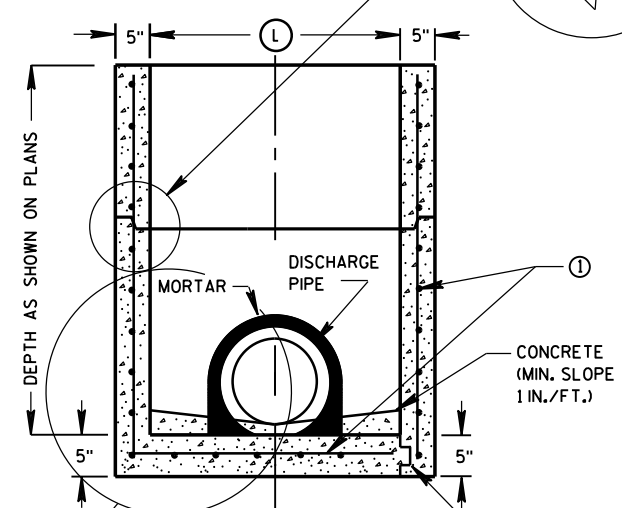
PLAN VIEW



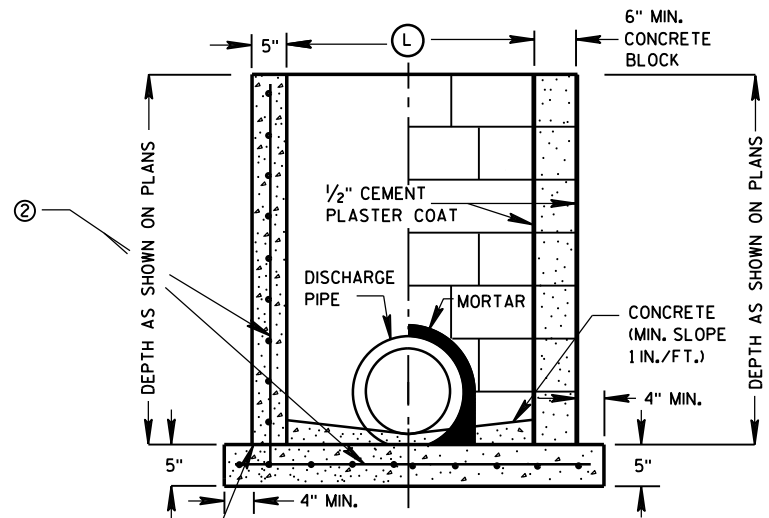
PLAN VIEW



RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



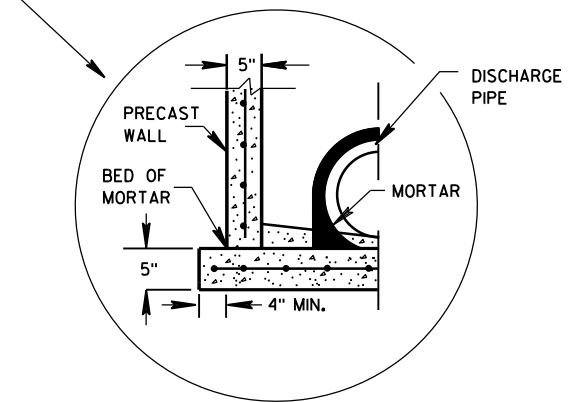
SECTION A-A



SECTION B-B

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE  
 PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE  
 KEYWAY

CAST-IN-PLACE REINFORCED CONCRETE  
 CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ①



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

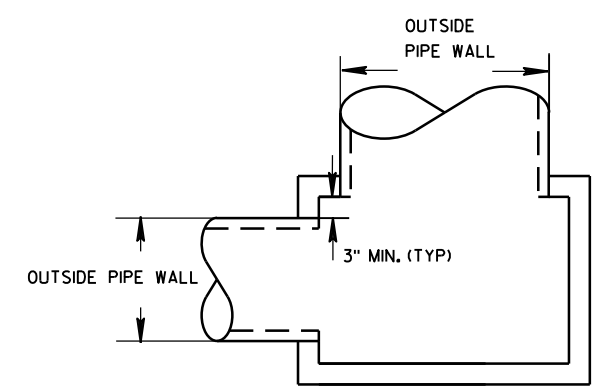
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

**INLET COVER MATRIX**

INLET SIZE	INLET COVER TYPE		ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

**PIPE MATRIX**

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



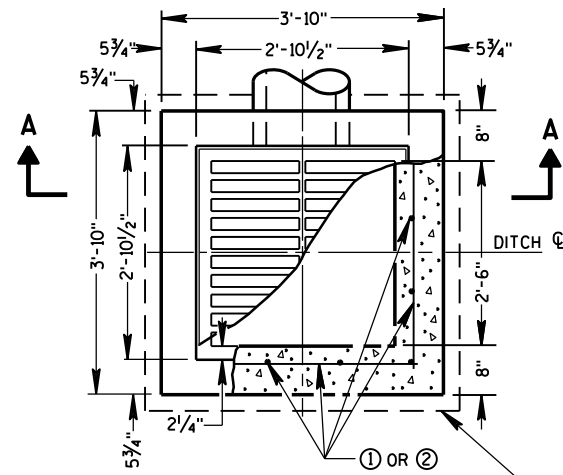
DETAIL "A"

**INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT**

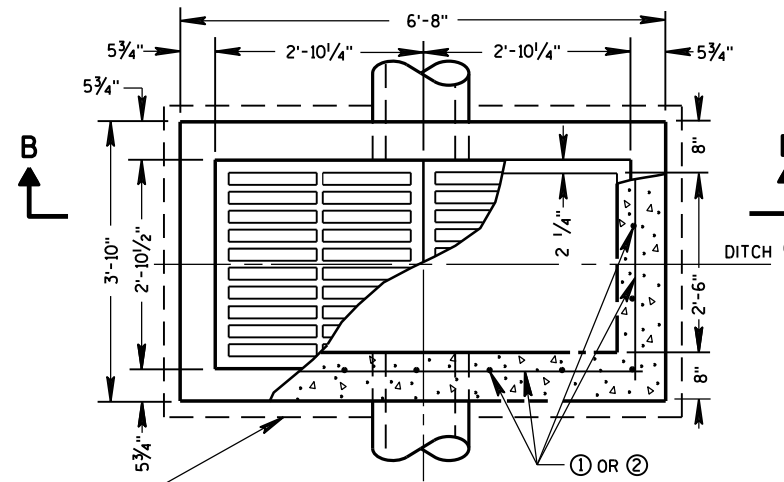
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 Sept., 2016 /S/ Rodney Taylor  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 FHWA UNIT SUPERVISOR

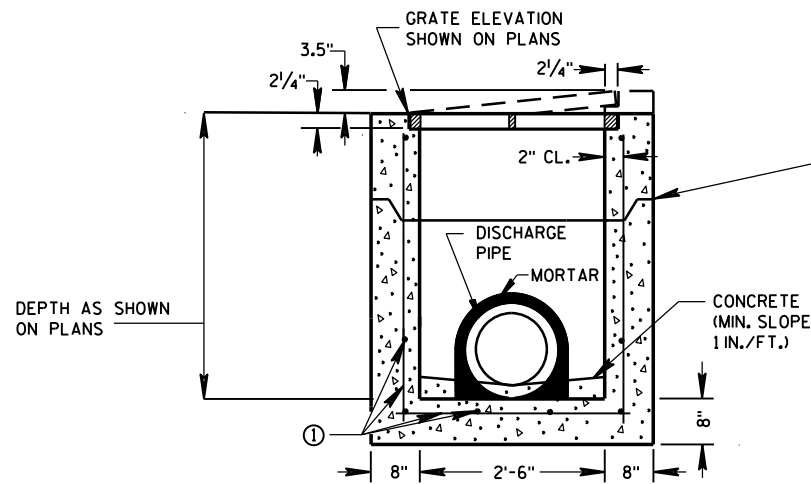


PLAN VIEW

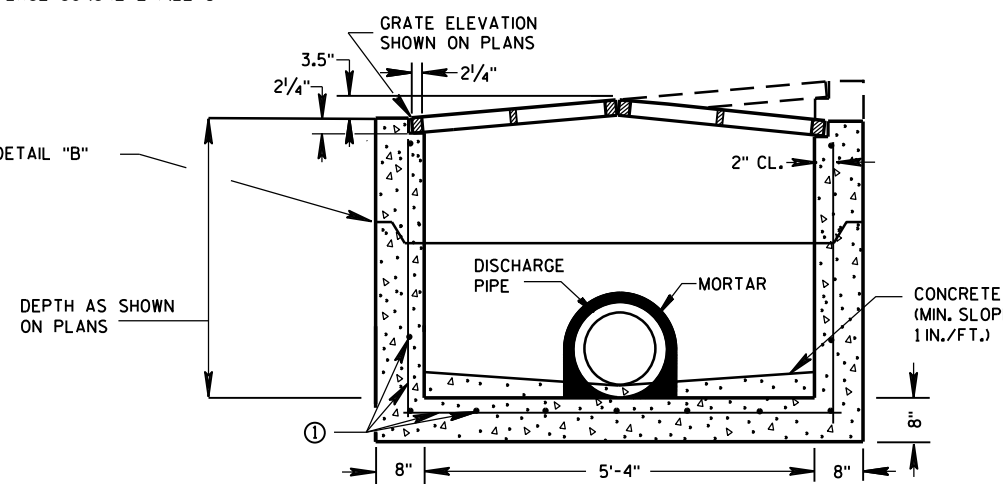


PLAN VIEW

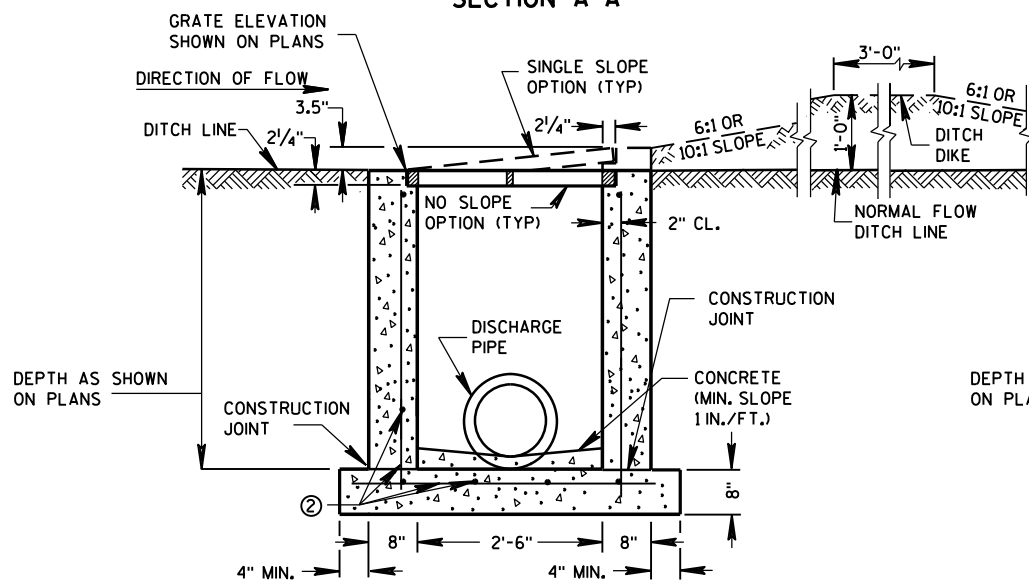
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



PRECAST REINFORCED CONCRETE SECTION A-A

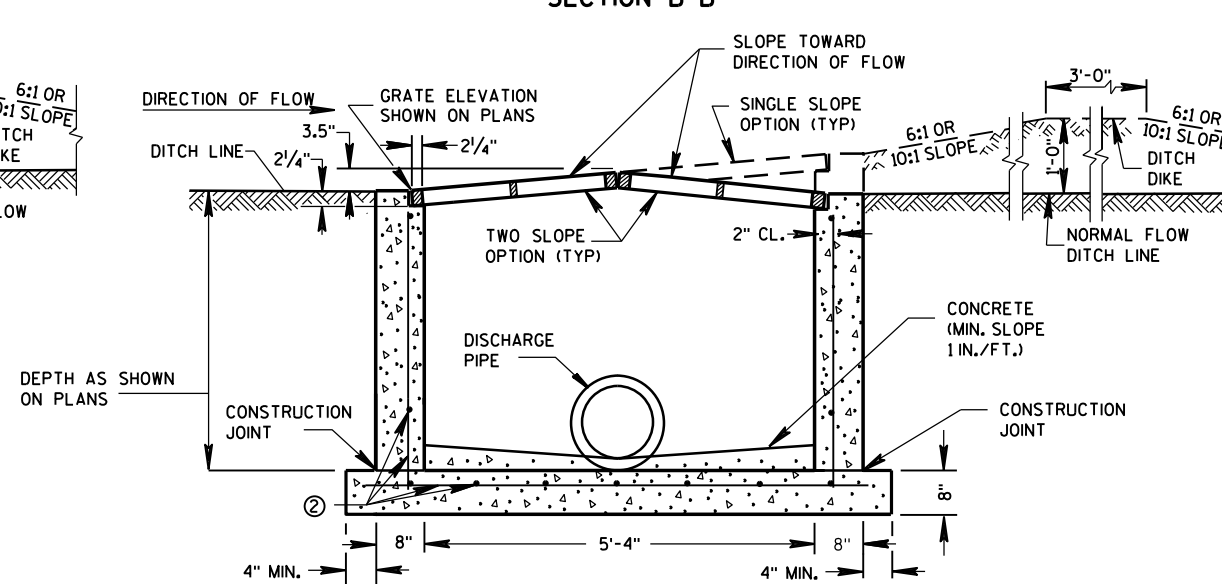


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, IG-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT. BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

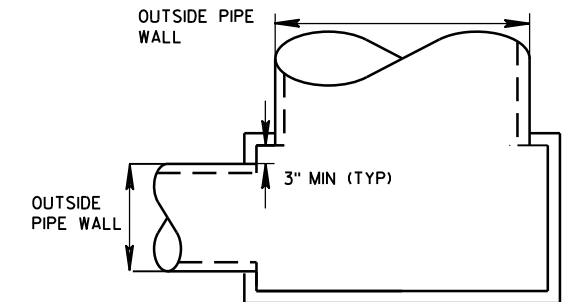
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

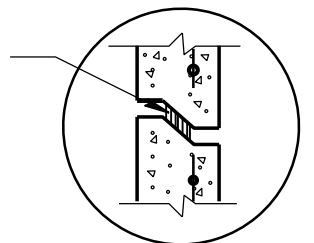
**PIPE MATRIX**

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)

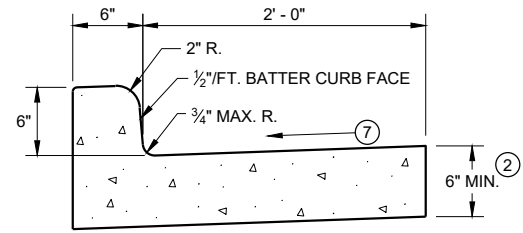


DETAIL "B"

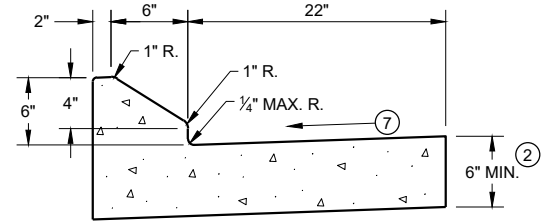
**INLETS MEDIAN 1 AND 2 GRATE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

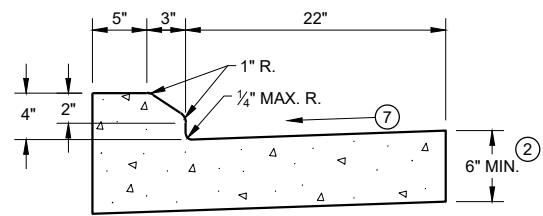
APPROVED  
Sept., 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



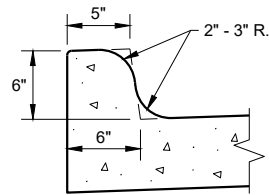
TYPES A<sup>①</sup> & D



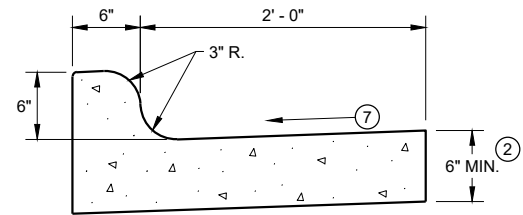
6" SLOPED CURB TYPES G<sup>①</sup> & J



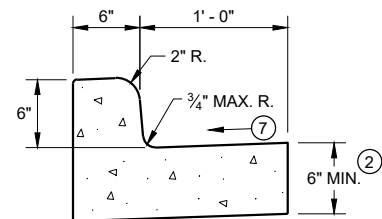
4" SLOPED CURB TYPES G<sup>①</sup> & J



TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)

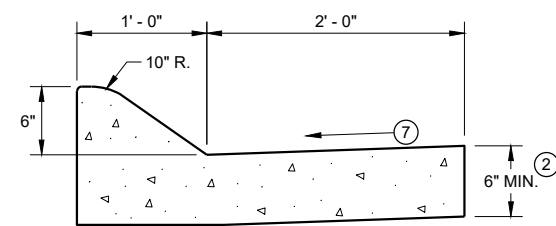


TYPES K<sup>①</sup> & L  
CONCRETE CURB AND GUTTER 30"

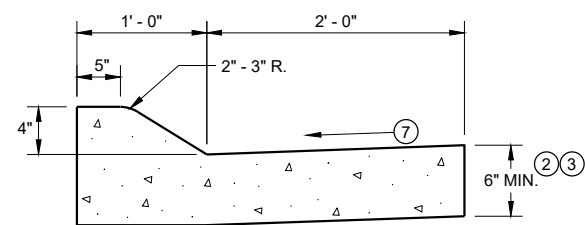


TYPES A<sup>①</sup> & D

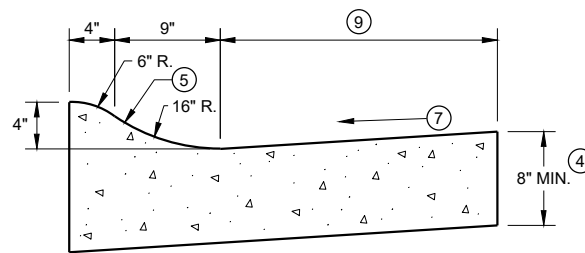
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A<sup>①</sup> & D

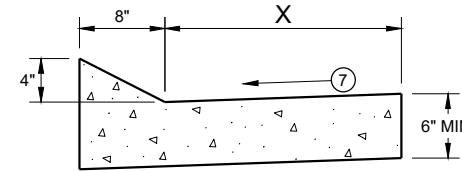


4" SLOPED CURB TYPES A<sup>①</sup> & D  
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R<sup>①</sup> & T

TBT & TBTT	X
30"	22"
36"	28"

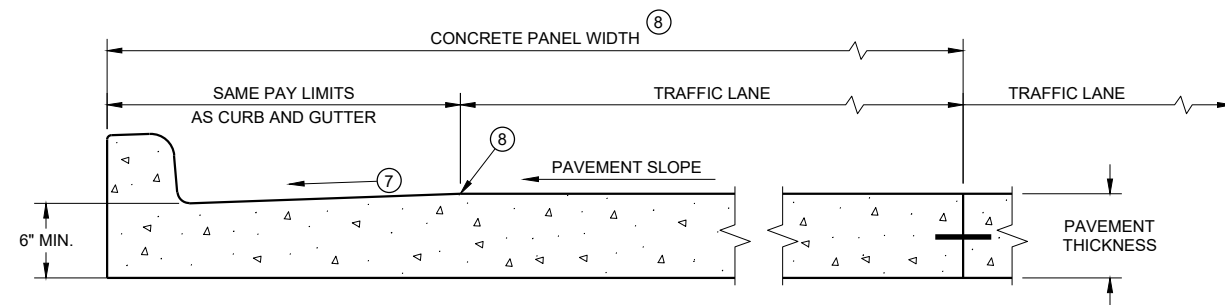


TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB AND GUTTER

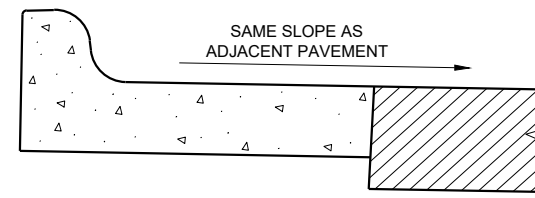
PAVEMENT THICKNESS  
AND MAXIMUM CONCRETE  
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT \*  
WITH INTEGRAL CURB AND GUTTER

\* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER<sup>⑥</sup>  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

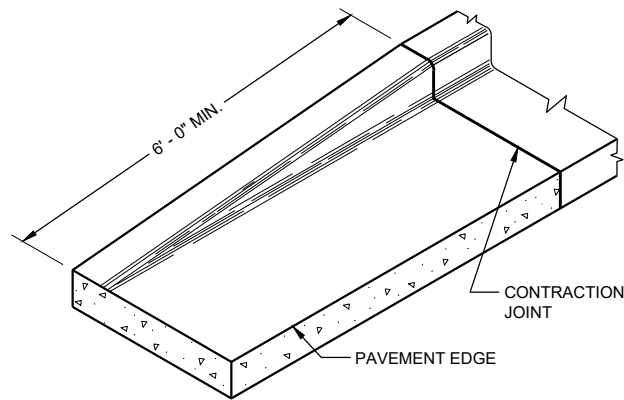
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

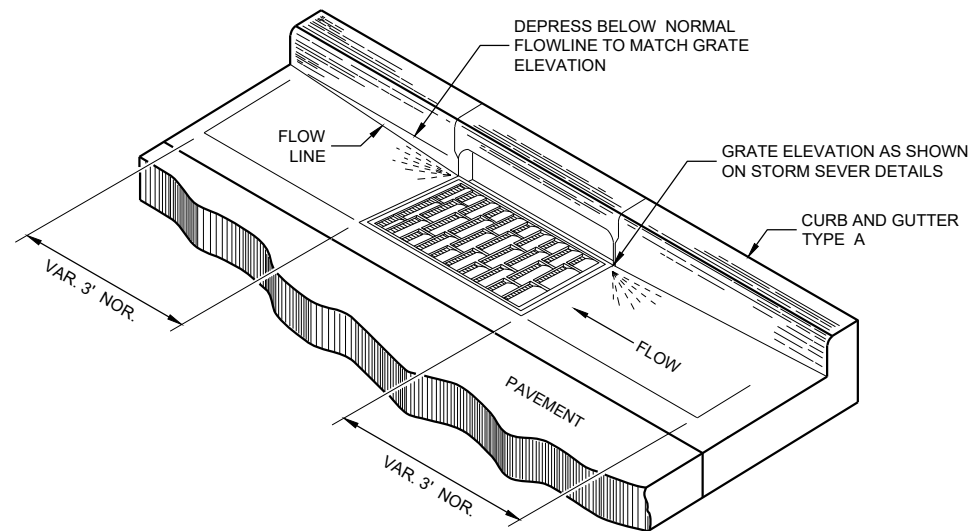
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES  
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



**END SECTION CURB AND GUTTER**



**DETAIL OF CURB AND GUTTER AT INLETS**  
(TYPICAL H INLET COVER SHOWN)

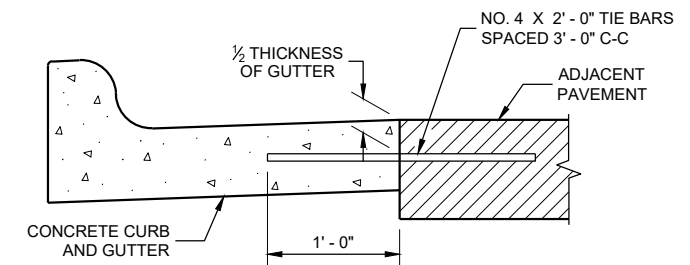
**GENERAL NOTES**

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

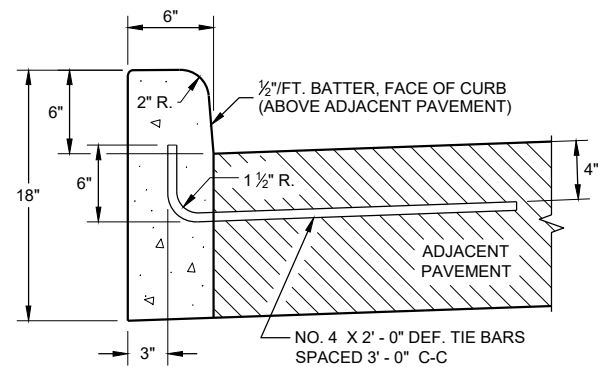
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

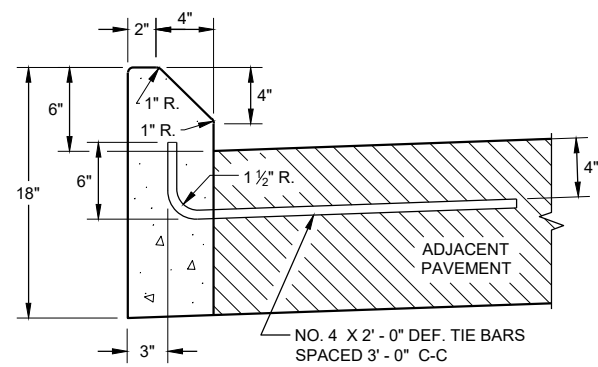
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



**TYPICAL TIE BAR LOCATION** ①

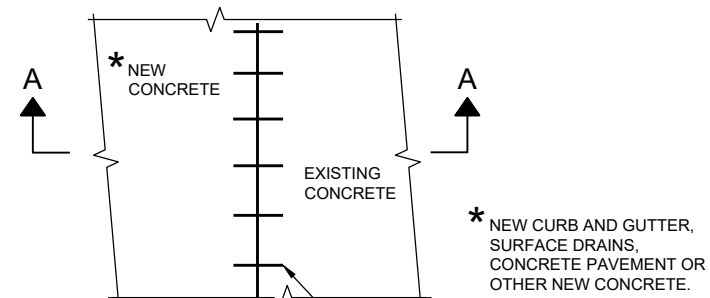


**TYPES A ① & D**

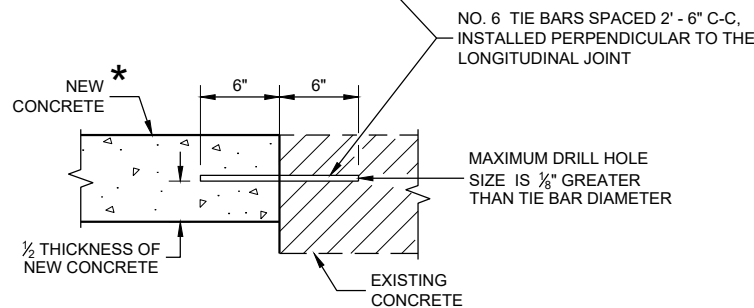


**TYPES G ① & J**

**CONCRETE CURB**

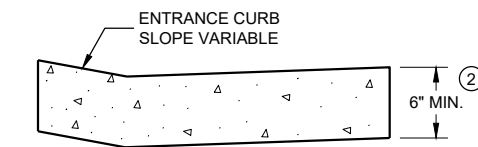


**PLAN VIEW**



**SECTION A - A**

**TIE BARS DRILLED INTO EXISTING PAVEMENT**



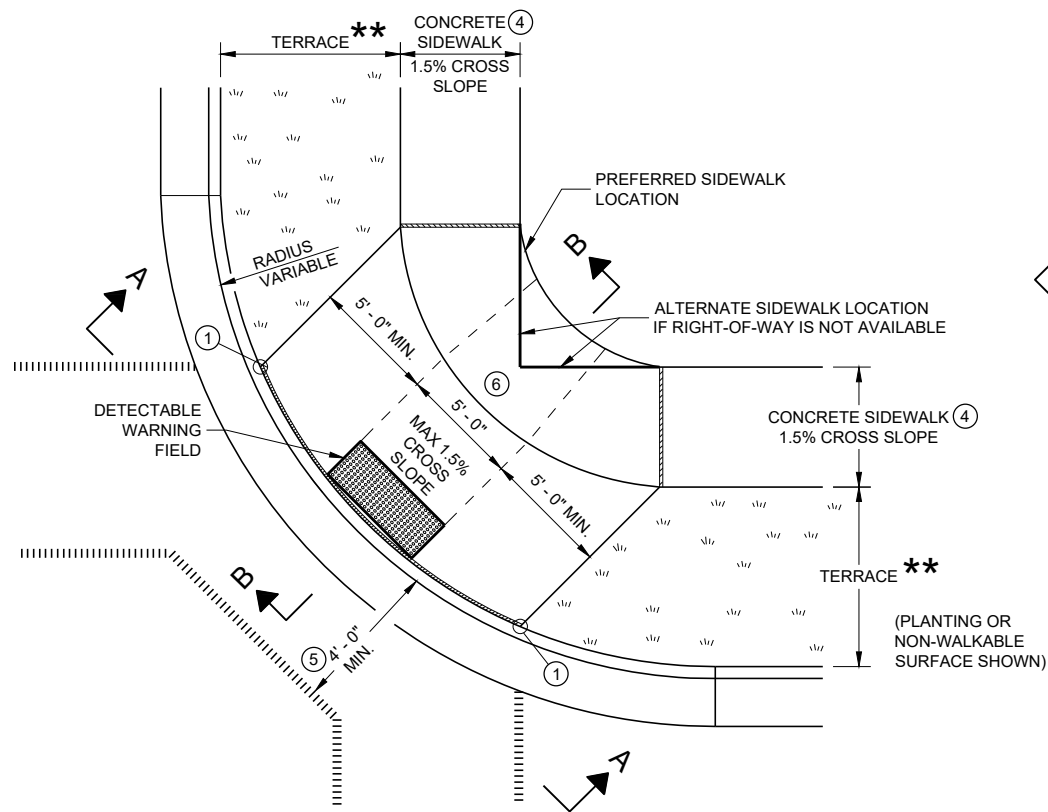
**DRIVEWAY ENTRANCE CURB** ⑨  
(WHEN DIRECTED BY THE ENGINEER)

**CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS**

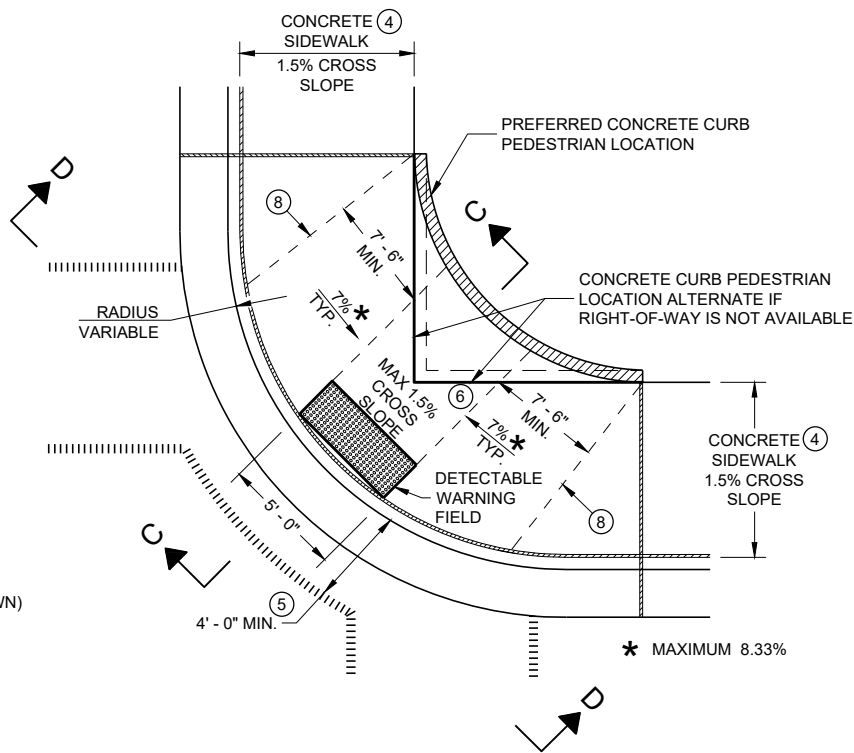
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



**PLAN VIEW**  
**CURB RAMP TYPE 1**  
**(CENTER OF CORNER RADIUS)**



**PLAN VIEW**  
**CURB RAMP TYPE 1 - A**  
**(NO TERRACE)**

**GENERAL NOTES**

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

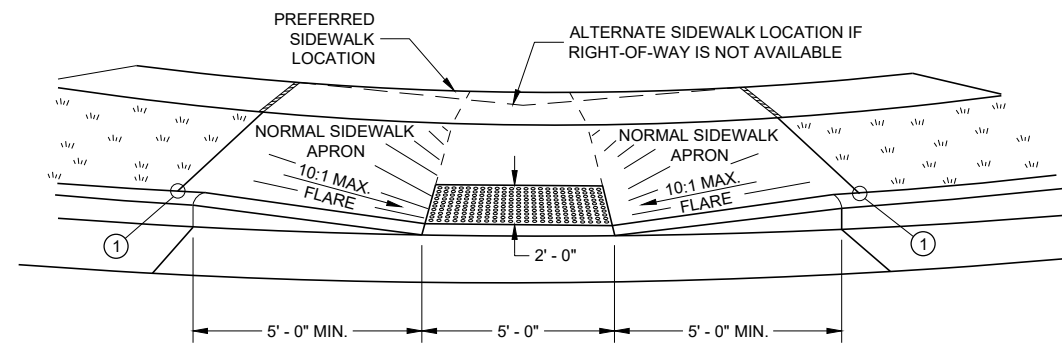
DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD"

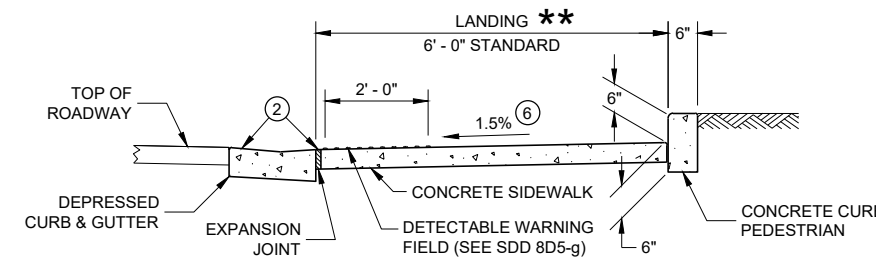
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.



**VIEW A - A FOR TYPE 1**

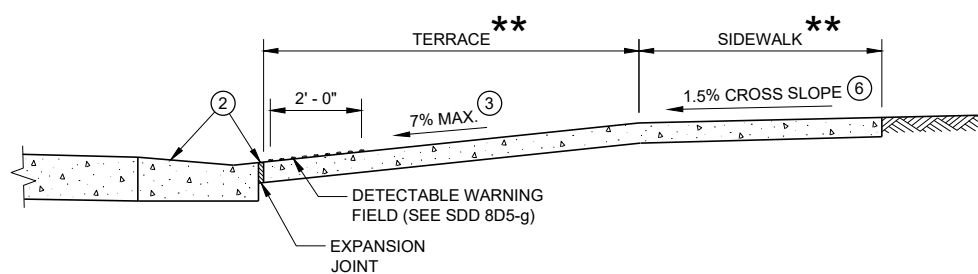


**SECTION C - C FOR TYPE 1 - A**

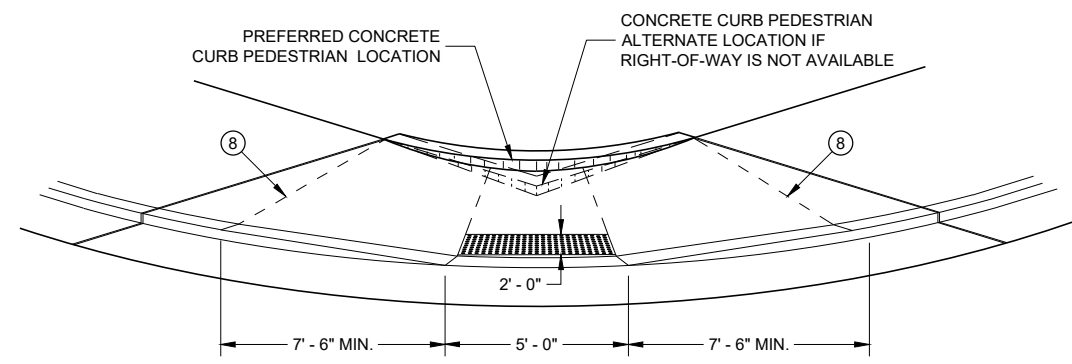
**LEGEND**

- 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)

\*\* WIDTH SHOWN ELSEWHERE IN THE PLANS



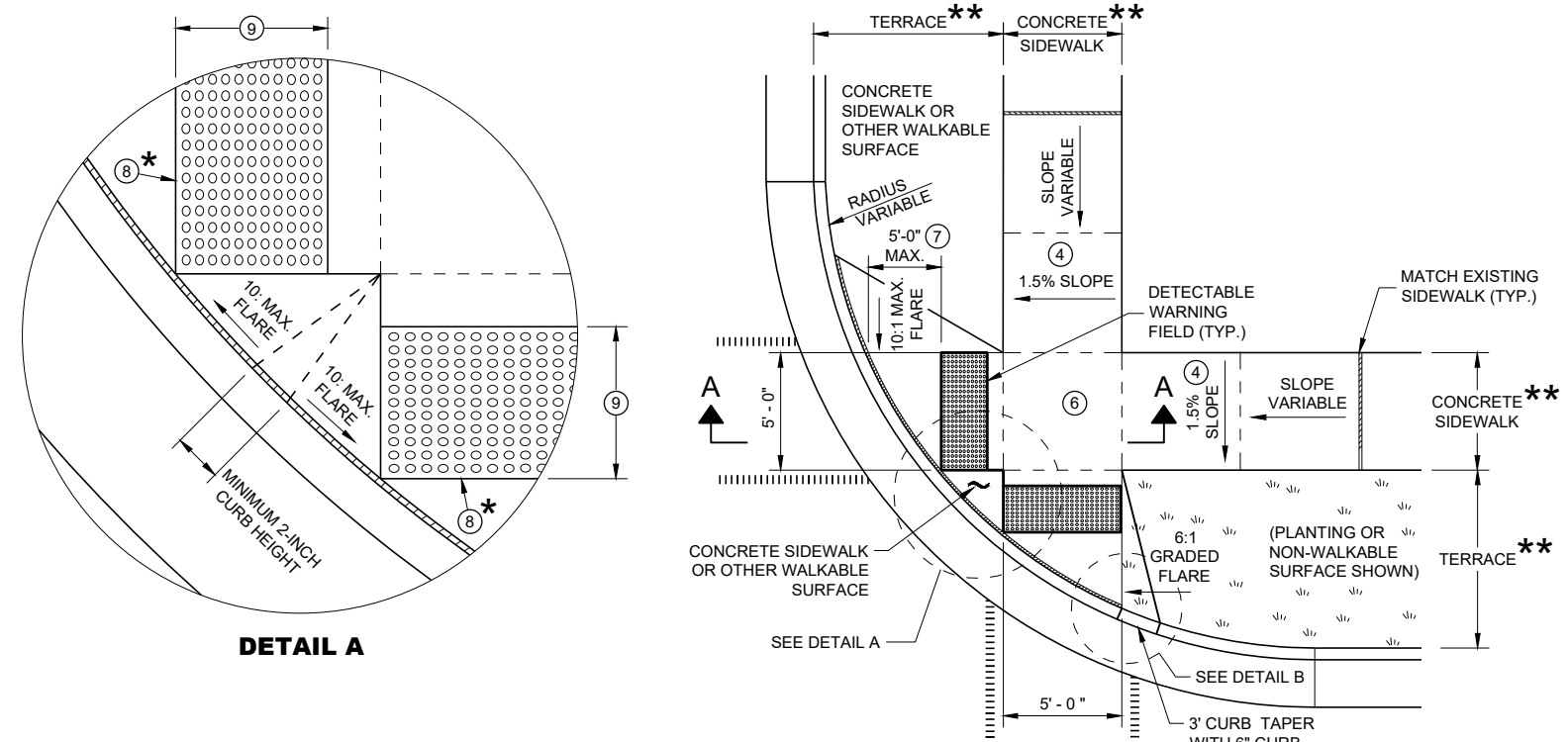
**SECTION B - B FOR TYPE 1**



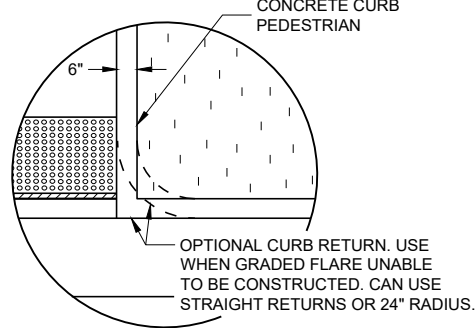
**VIEW D - D FOR TYPE 1 - A**

**CURB RAMPS**  
**TYPE 1 AND 1-A**

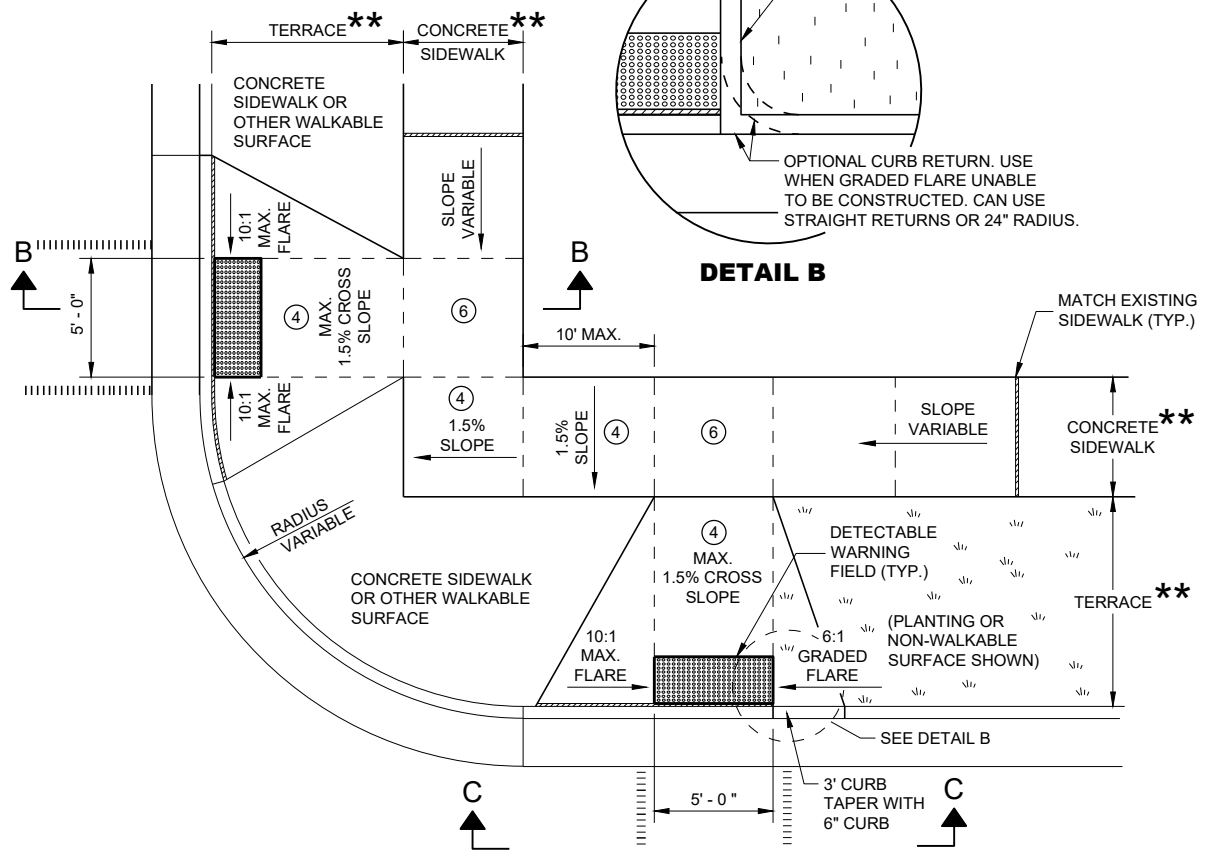
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW CURB RAMP TYPE 2 (CENTER OF CORNER RADIUS)**



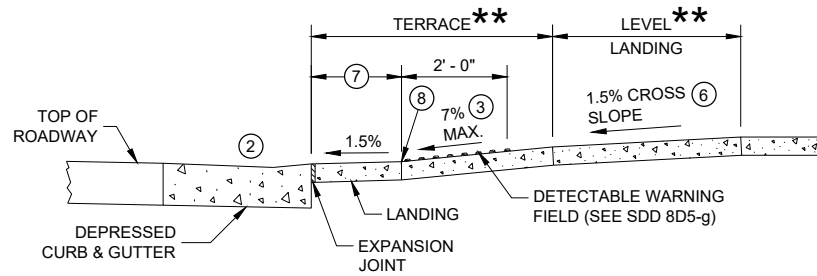
**DETAIL B**



**PLAN VIEW CURB RAMP TYPE 3 (OUTSIDE OF CROSSWALK AREA)**

**GENERAL NOTES**

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE (2.67% OR LESS) AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN DISTANCE IS LESS THAN 6' - 0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.



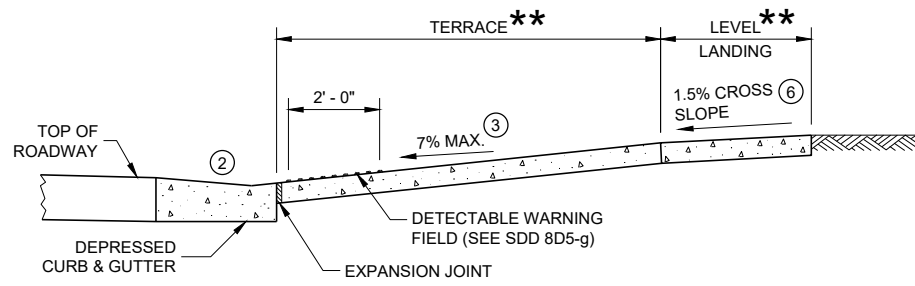
**SECTION A - A FOR TYPE 2**

\* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

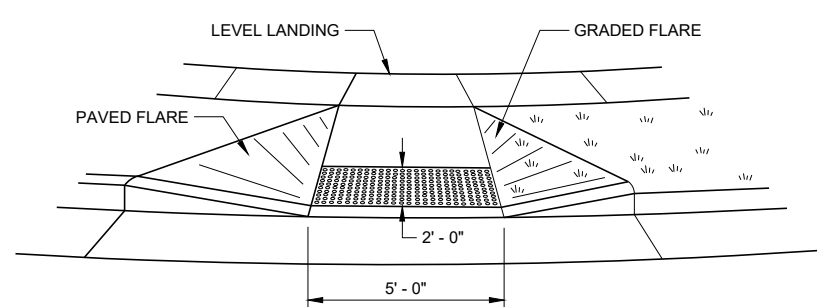
\*\* WIDTH SHOWN ELSEWHERE IN THE PLANS

**LEGEND**

- 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT SIDEWALK
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)



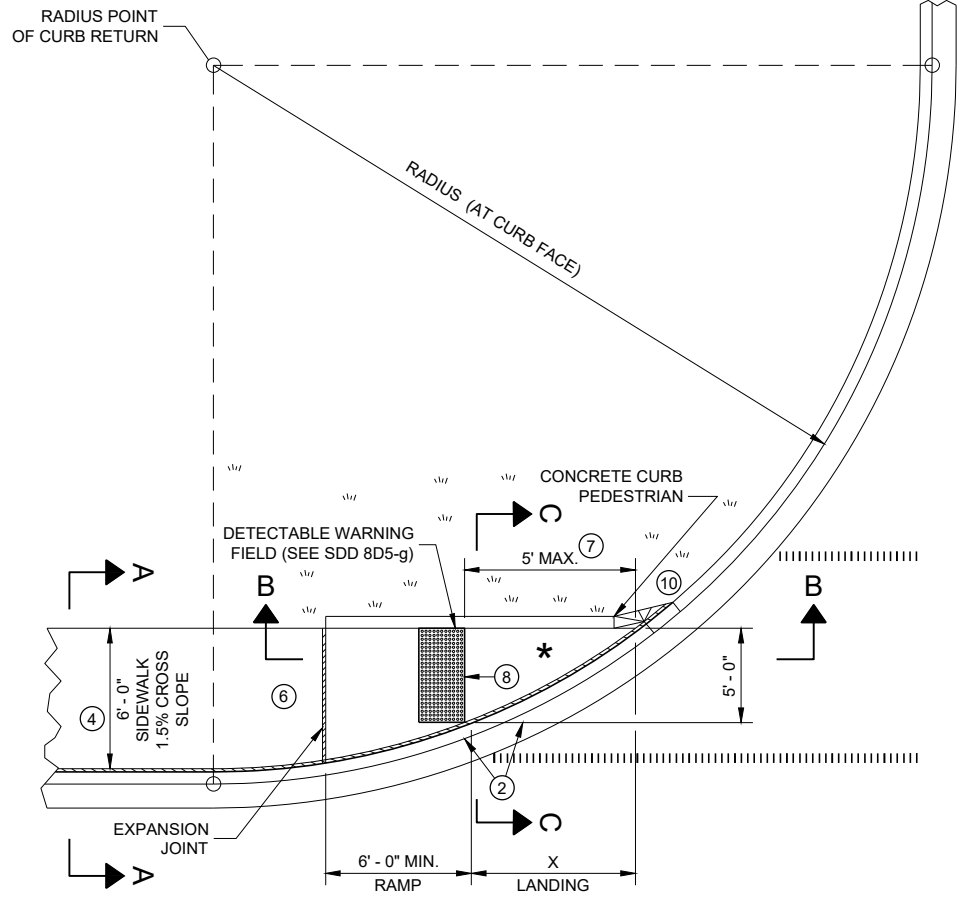
**SECTION B - B FOR TYPE 3**



**VIEW C - C FOR TYPE 3**

**CURB RAMPS TYPE 2 AND 3**

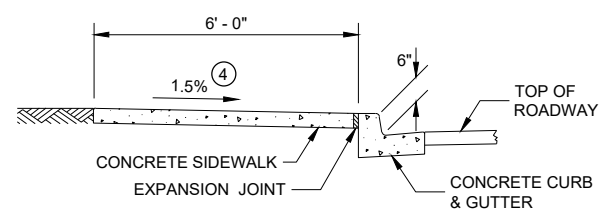
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW  
CURB RAMP TYPE 4A**

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"
15 FEET	6' - 5 1/2"

INTERMEDIATE RADII CAN BE INTERPOLATED



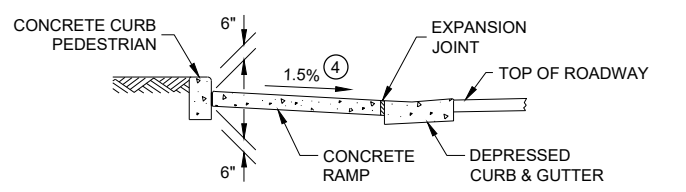
**SECTION A - A FOR TYPE 4A**

**GENERAL NOTES**

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

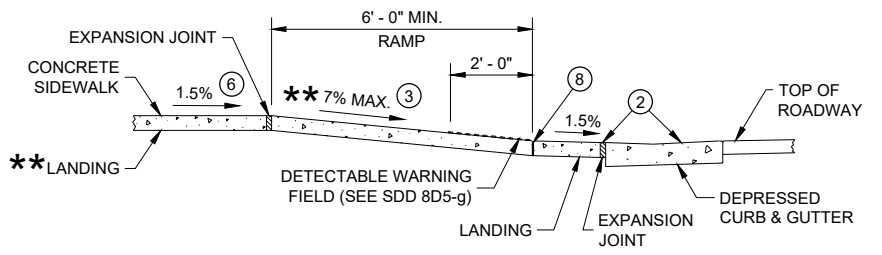
**LEGEND**

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)



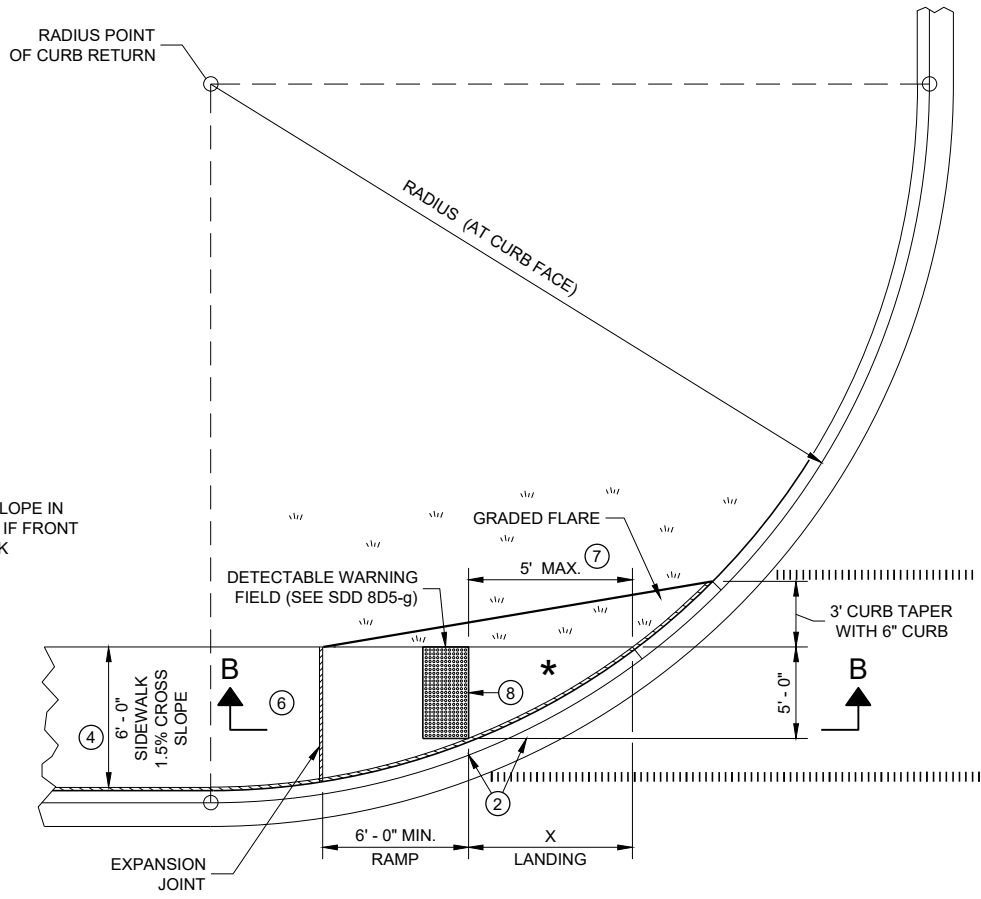
**SECTION C - C FOR TYPE 4A**

\* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

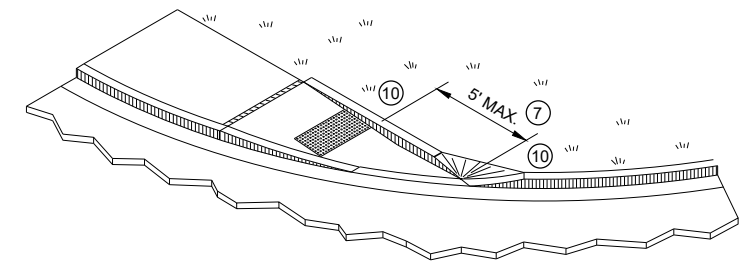


**SECTION B - B FOR  
TYPE 4A AND TYPE 4A1**

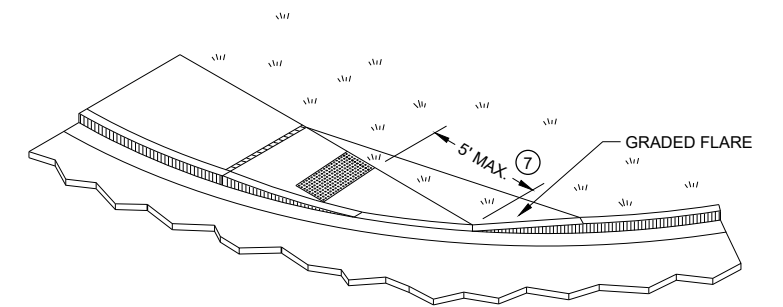
\*\* IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED



**PLAN VIEW  
CURB RAMP TYPE 4A1**



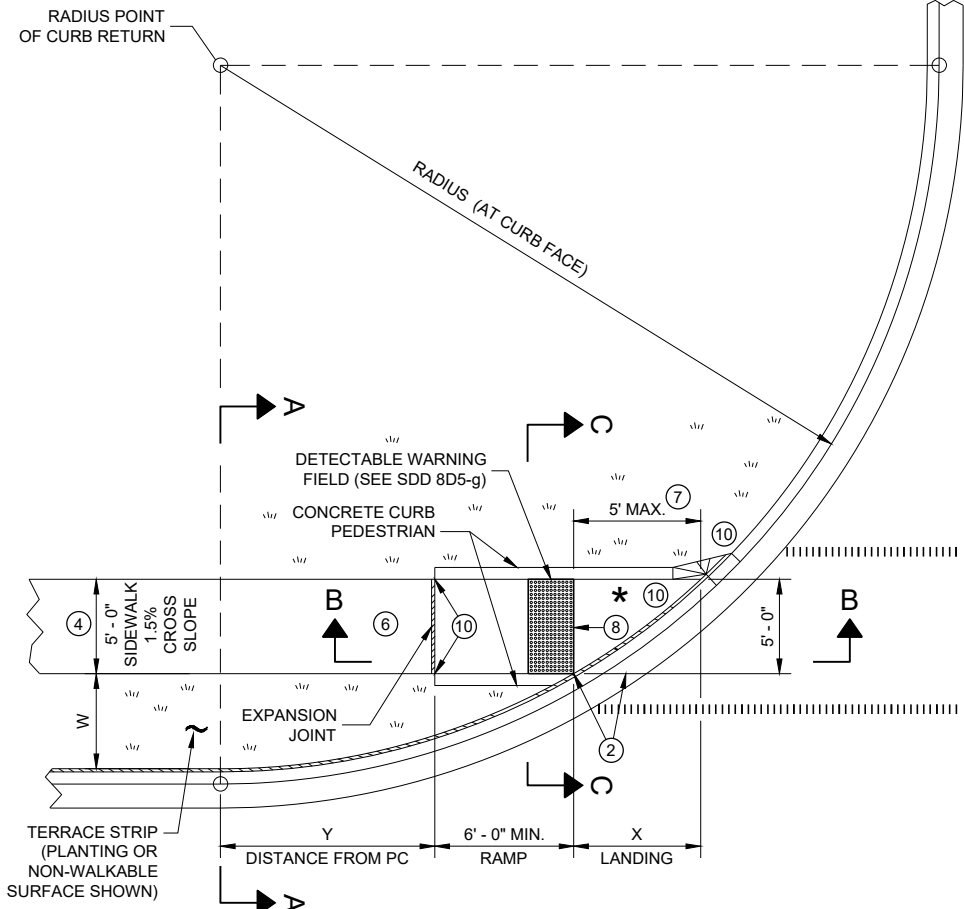
**ISOMETRIC VIEW FOR TYPE 4A**



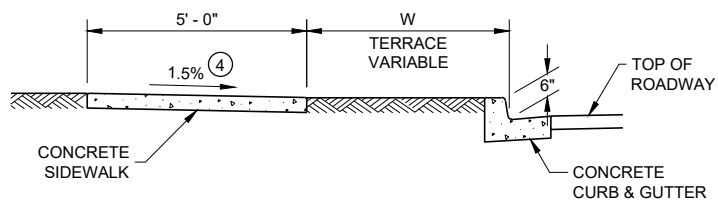
**ISOMETRIC VIEW FOR TYPE 4A1**

**CURB RAMPS  
TYPE 4A AND 4A1**

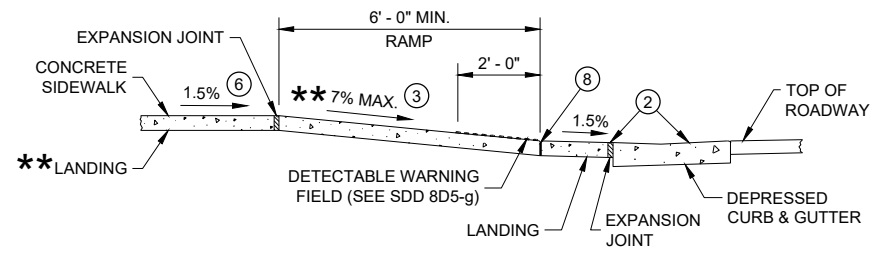
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW  
CURB RAMP TYPE 4B**



**SECTION A - A FOR TYPE 4B**

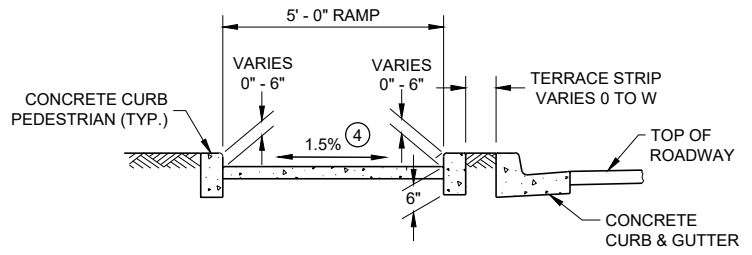


**SECTION B - B FOR  
TYPE 4B AND TYPE 4B1**

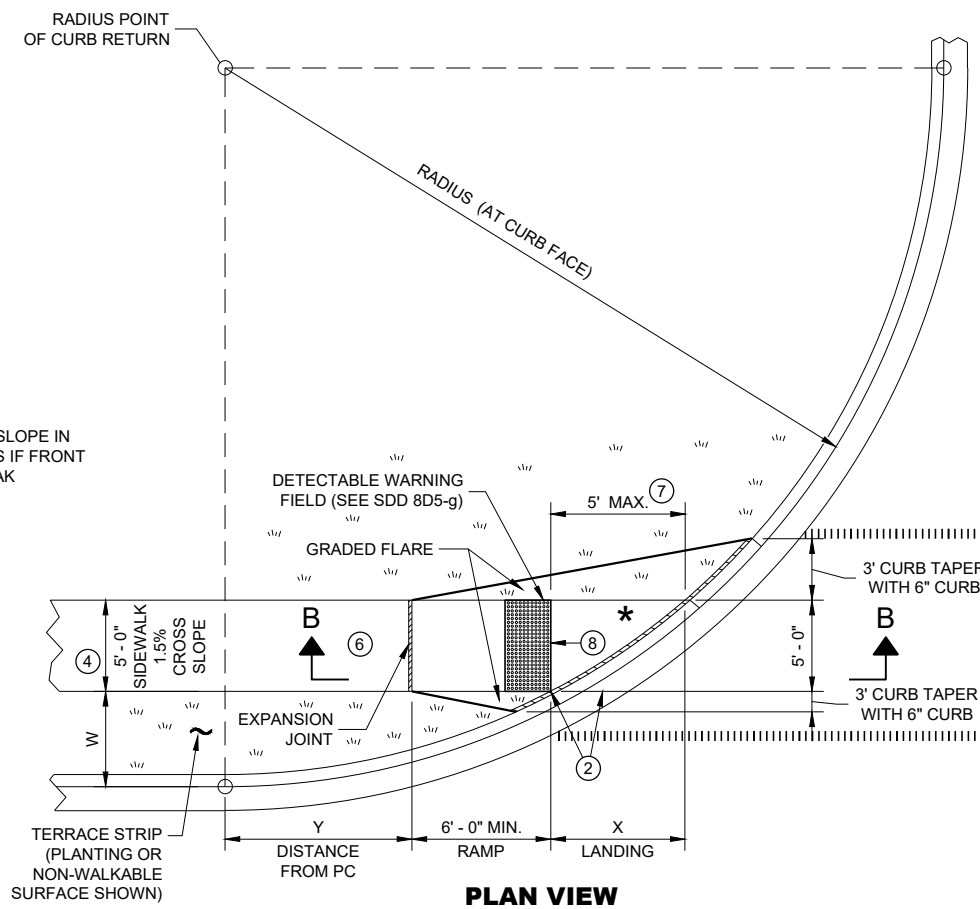
\*\* IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"		W = 8' - 0"		W = 9' - 0"		W = 10' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10 FEET	2' - 10 1/4"	0' - 5"	2' - 1"	1' - 4 1/2"	1' - 5"	2' - 1"	0' - 10"	2' - 7 1/2"	0' - 3 1/4"	3' - 0 1/4"						
15 FEET	4' - 6 3/4"	2' - 1 3/4"	3' - 9"	3' - 5 3/4"	3' - 1 1/4"	4' - 6"	2' - 6 3/4"	5' - 4 1/2"	2' - 1"	6' - 1"	1' - 8"	6' - 8 1/2"	1' - 3 1/4"	7' - 2 1/2"	0' - 10 3/4"	7' - 7 1/4"
20 FEET	5' - 9 3/4"	3' - 6 1/2"	4' - 11 1/2"	5' - 1 3/4"	4' - 3 1/4"	6' - 5 1/2"	3' - 8 3/4"	7' - 7"	3' - 3"	8' - 6 1/2"	2' - 10"	9' - 4 1/2"	2' - 5 1/2"	10' - 1 1/4"	2' - 1 1/4"	10' - 9"
30 FEET			6' - 9 1/4"	7' - 11 1/4"	6' - 0 1/4"	9' - 8"	5' - 5"	11' - 1 3/4"	4' - 10 3/4"	12' - 5 3/4"	4' - 5 1/2"	13' - 7 3/4"	4' - 0 3/4"	14' - 8 1/2"	3' - 8 1/2"	15' - 8 1/4"
40 FEET									6' - 1 3/4"	15' - 8 1/2"	5' - 8"	17' - 2"	5' - 3"	18' - 5 3/4"	4' - 10 3/4"	19' - 8 1/4"
50 FEET															5' - 10 1/4"	23' - 2"

INTERMEDIATE RADII CAN BE INTERPOLATED  
DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH  
DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH



**SECTION C - C FOR TYPE 4B**



**PLAN VIEW  
CURB RAMP TYPE 4B1**

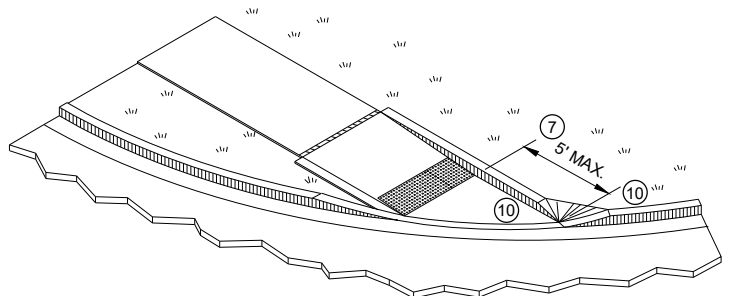
\* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

**LEGEND**

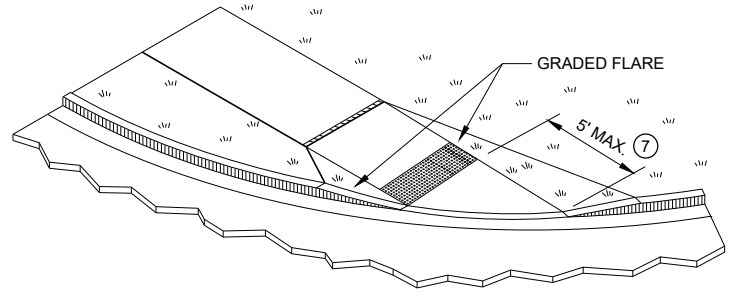
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)

**GENERAL NOTES**

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



**ISOMETRIC VIEW FOR TYPE 4B**

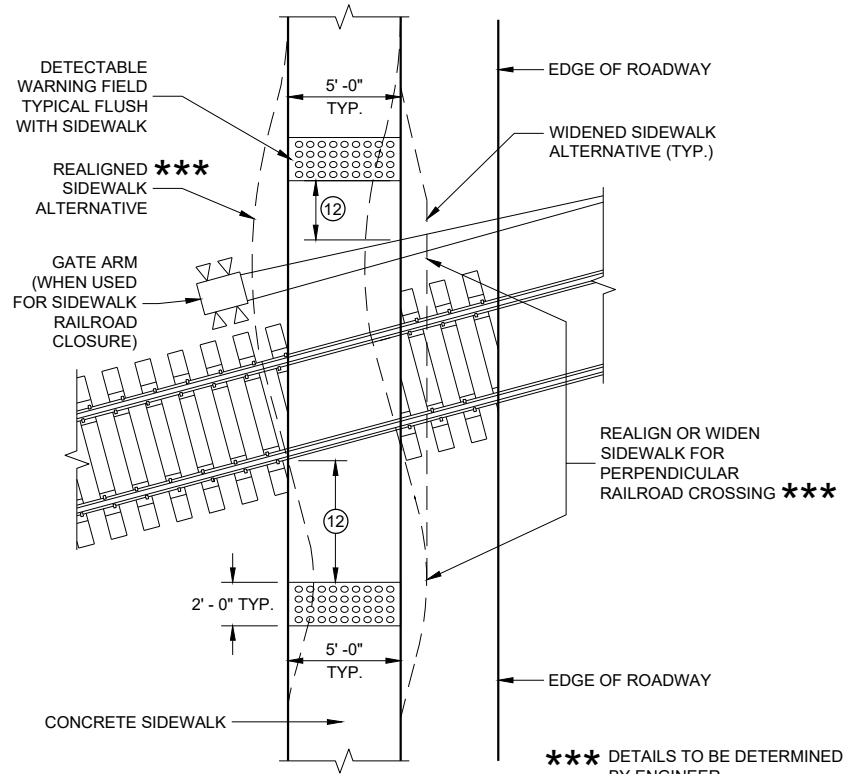


**ISOMETRIC VIEW FOR TYPE 4B1**

**CURB RAMPS  
TYPE 4B AND 4B1**

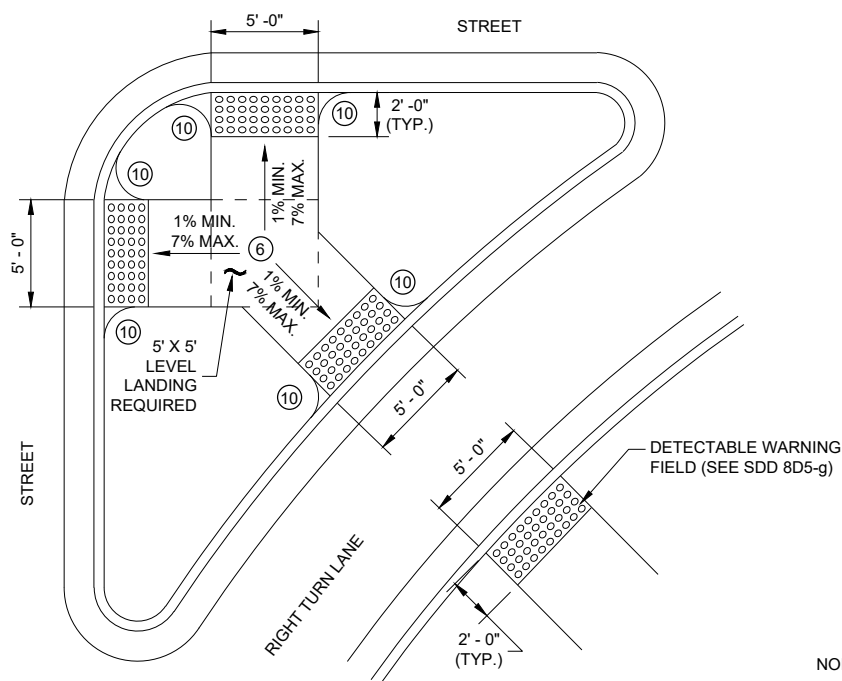
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





**CURB RAMP TYPE 8**

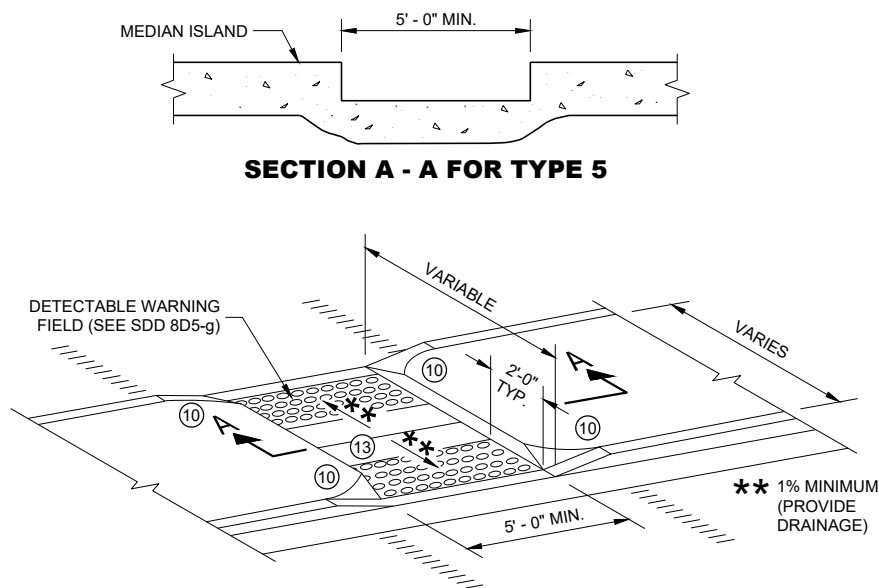
**DETECTABLE WARNINGS AT RAILROAD CROSSING**



**CURB RAMP TYPE 6**

**DETECTABLE WARNING AT ISLANDS**

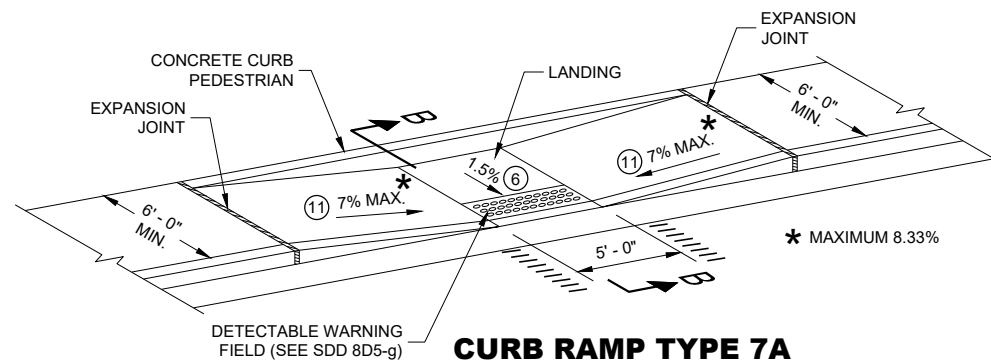
REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



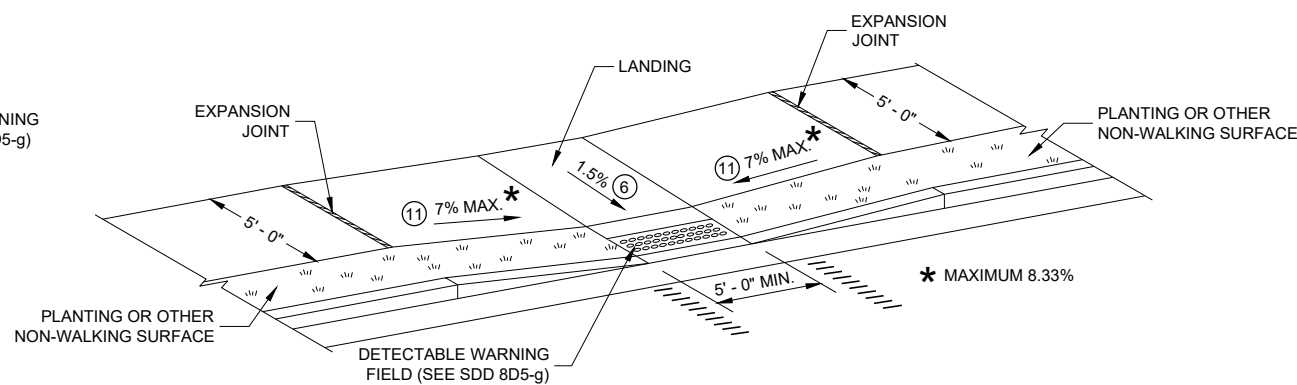
**SECTION A - A FOR TYPE 5**

**CURB RAMP TYPE 5**

**MEDIAN ISLAND  
NON-ELEVATED PEDESTRIAN CROSSING**



**CURB RAMP TYPE 7A  
MID BLOCK CROSSING**



**CURB RAMP TYPE 7B  
MID BLOCK CROSSING**

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

**GENERAL NOTES**

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

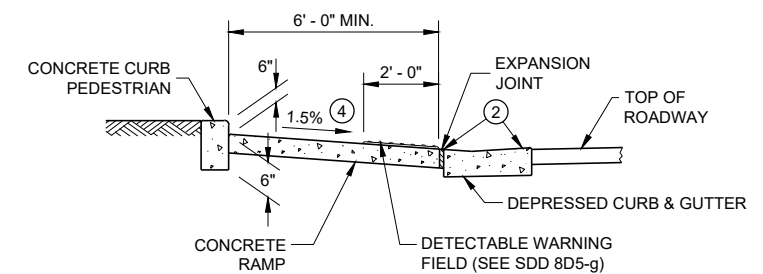
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- (2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- (3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- (4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- (6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- (10) INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- (11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- (12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ±0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- (13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

**LEGEND**

- ===== 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)

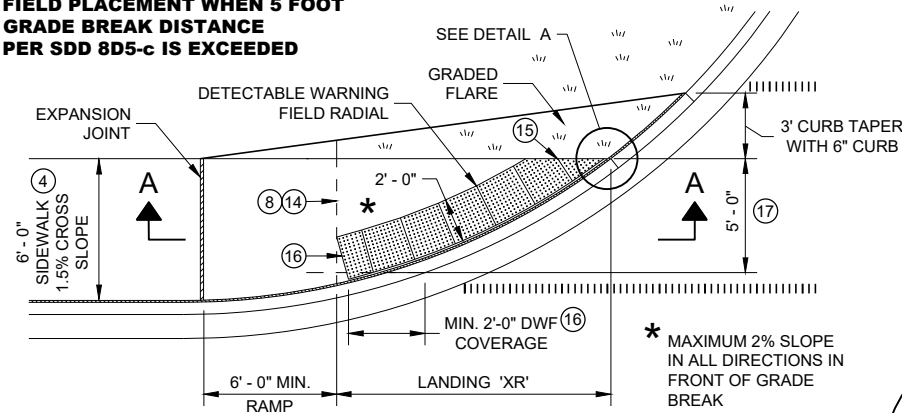


**SECTION B - B FOR TYPE 7A**

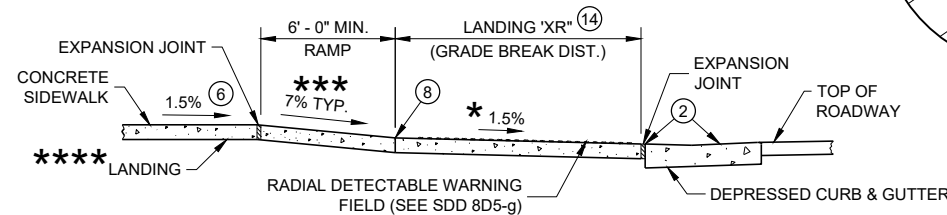
**CURB RAMPS  
TYPE 5, 6, 7A, 7B & 8**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-c IS EXCEEDED**



**PLAN VIEW CURB RAMP TYPE 4A1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)**

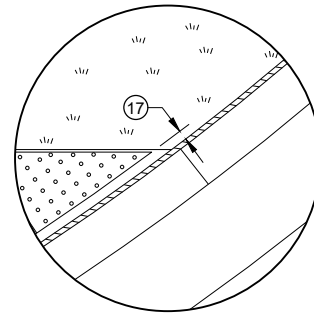


**SECTION A - A FOR TYPE 4A1**

\*\*\*\* IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

\*\*\* MAXIMUM 8.33%

- LEGEND**
- 1/2" EXPANSION JOINT SIDEWALK
  - - - - - CONTRACTION JOINT SIDEWALK
  - ||||| PAVEMENT MARKING CROSSWALK (WHITE)

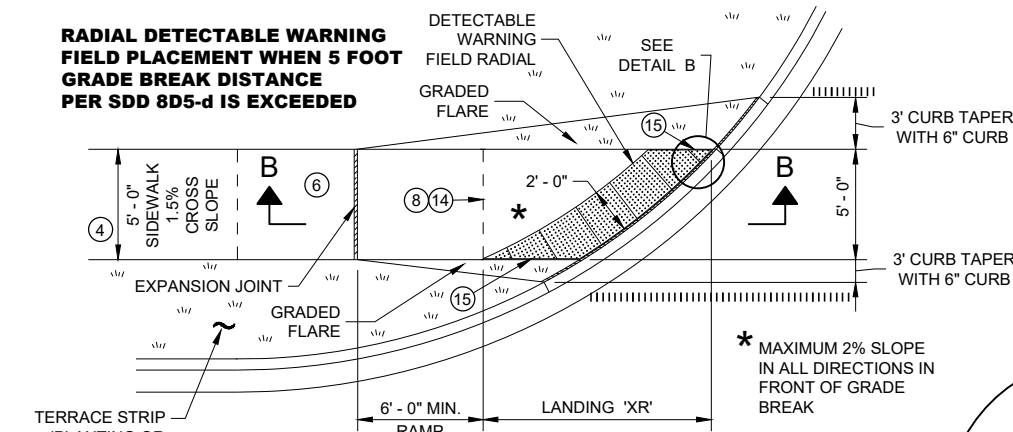


**DETAIL A**

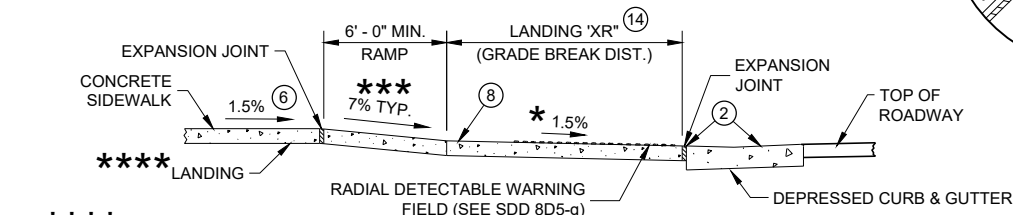
**GENERAL NOTES**

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B RAMPS ARE NOT SHOWN.
- REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.
- FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.
- DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.
- 2 GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
  - 3 AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
  - 4 ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
  - 6 PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.
  - 8 PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
  - 14 CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION "XR") REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.
  - 15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.
  - 16 USE 1' X 2" RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2' - 0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.
  - 17 A MAXIMUM 3 INCH CONCRETE BORDER WITH IS ALLOWABLE IN FROM OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.

**RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-d IS EXCEEDED**



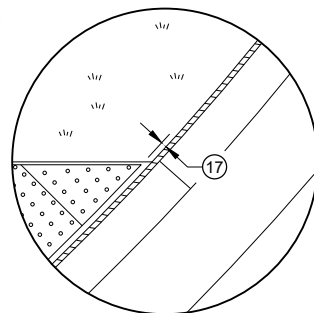
**PLAN VIEW CURB RAMP TYPE 4B1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)**



**SECTION B - B FOR TYPE 4B1**

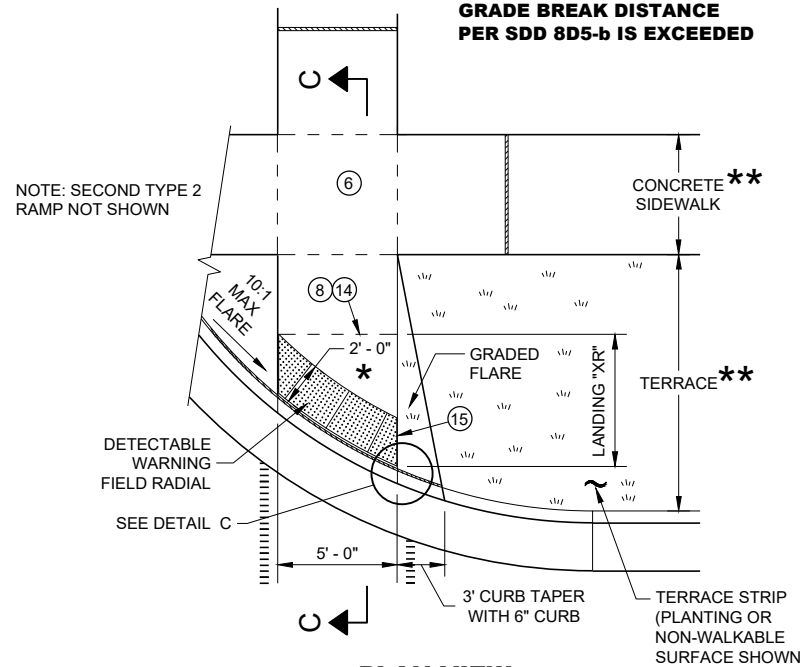
\*\*\*\* IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

\*\*\* MAXIMUM 8.33%



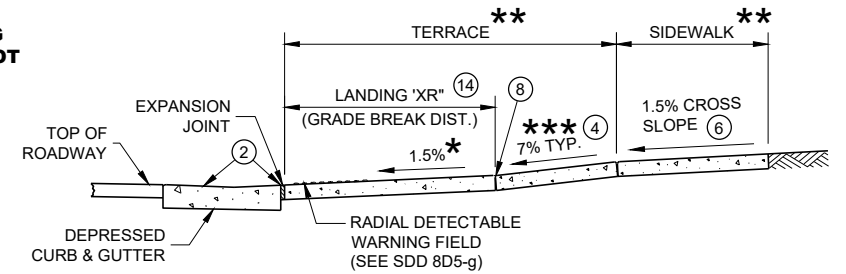
**DETAIL B**

**RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-b IS EXCEEDED**



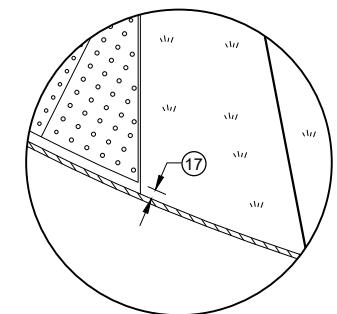
**PLAN VIEW CURB RAMP TYPE 2 (GRADE BREAK DISTANCE GREATER THAN 5 FEET) (ON LINE WITH SIDEWALK)**

NOTE: SECOND TYPE 2 RAMP NOT SHOWN



**SECTION C - C FOR TYPE 2**

- \* MAXIMUM 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK
- \*\* WIDTH SHOWN ELSEWHERE IN THE PLANS
- \*\*\* MAXIMUM 8.33%



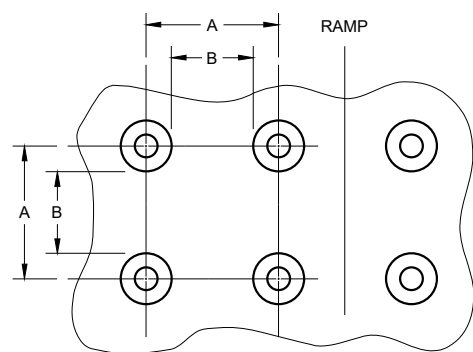
**DETAIL C**

**CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS**

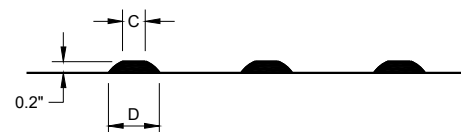
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

\* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

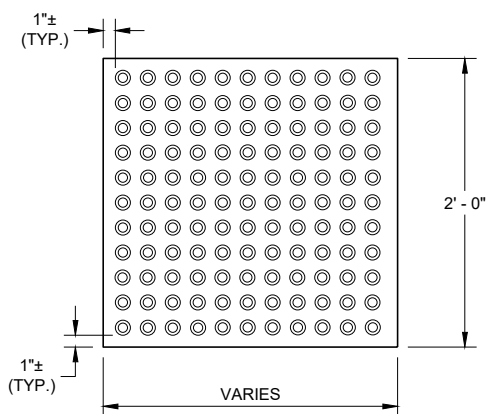


PLAN VIEW

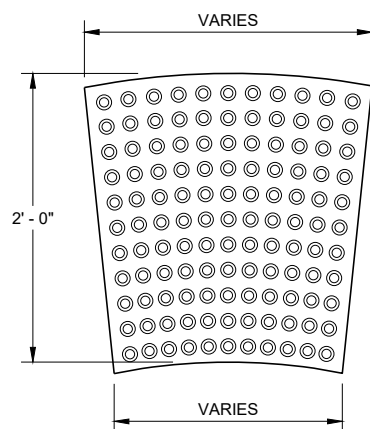


ELEVATION VIEW

**TRUNCATED DOMES  
DETECTABLE WARNING PATTERN DETAIL**

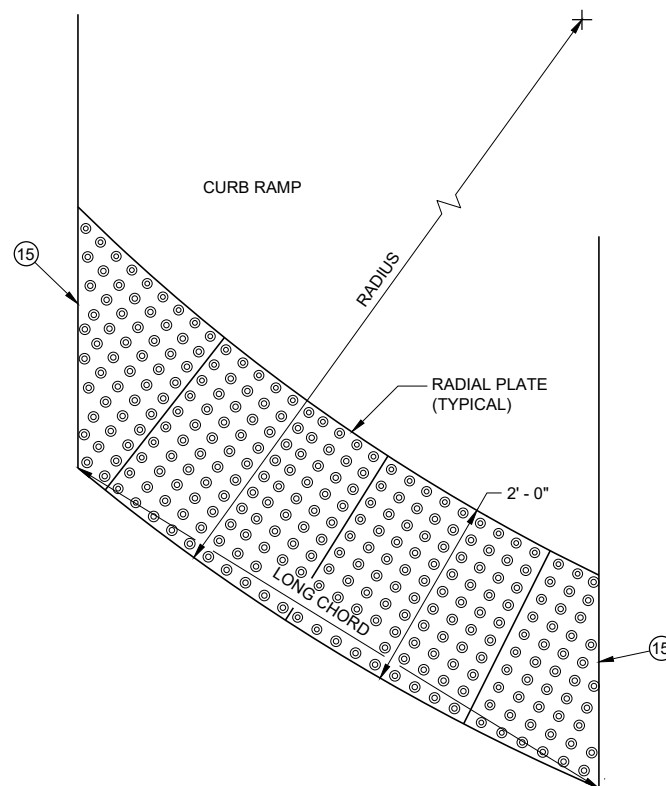


RECTANGULAR  
PLATES

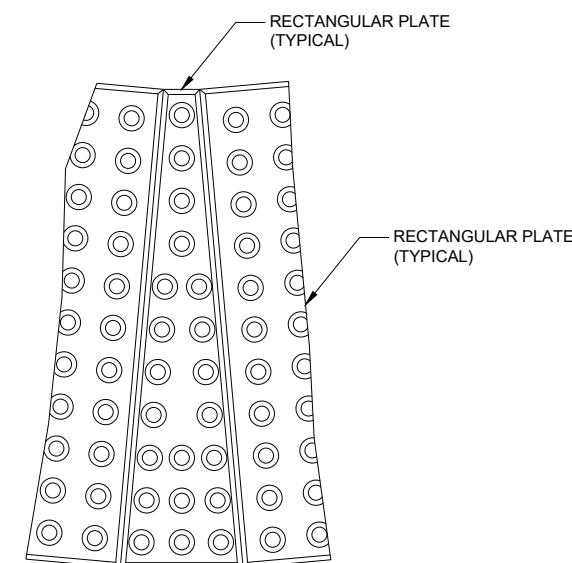


RADIAL  
PLATES

PLAN VIEW  
DETECTABLE WARNING FIELDS (TYPICAL)



PLAN VIEW  
RADIAL DETECTABLE  
WARNING FIELD ATTRIBUTES



PLAN VIEW  
RADIAL WEDGE PLATE  
CONNECTION DETAIL

**GENERAL NOTES**

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AT A CURB RAMP SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.

DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

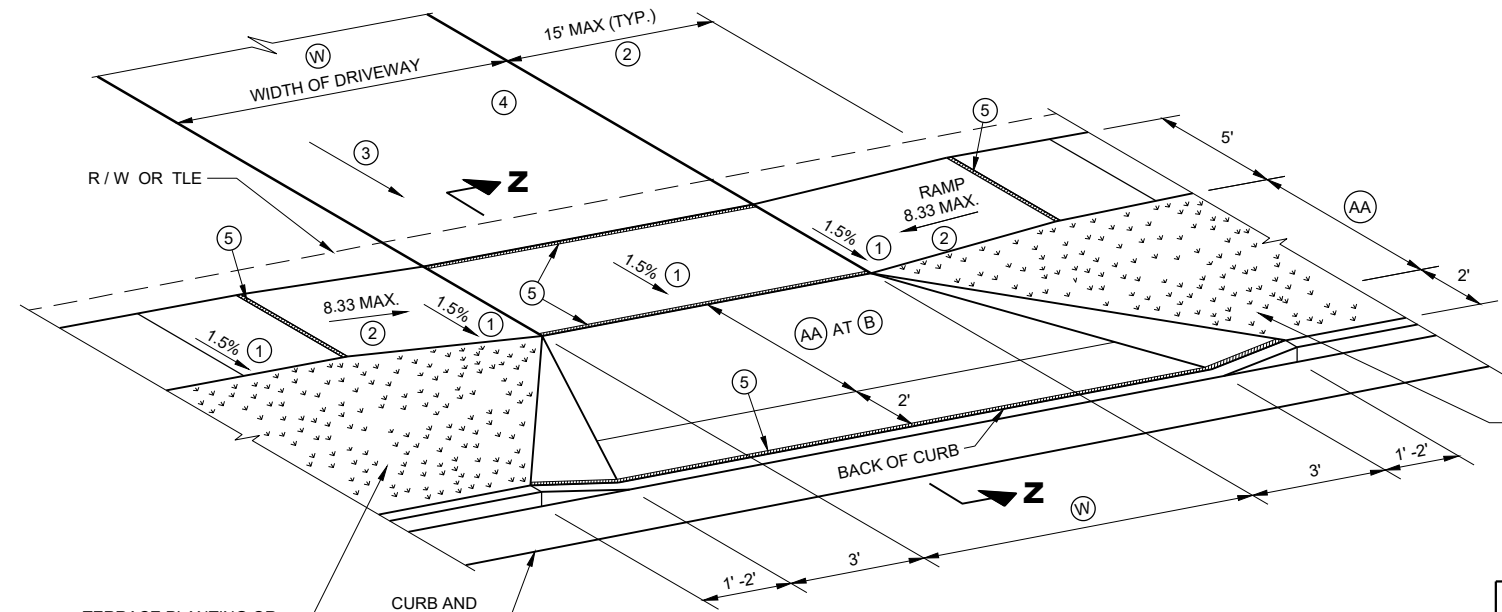
FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.

<b>CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	



**TYPE Z**  
**SIDEWALK WITH WIDER TERRACE**  
**TERRACE VARIES 7 TO 12 FEET**

**GENERAL NOTES**

PROVIDE CONSTRUCTION JOINTS ALONG THE CENTER OF THE CONCRETE FOR DRIVEWAYS UNDER 20 FEET IN WIDTH AND AT THE THIRD POINTS OVER 20 FEET IN WIDTH.

(W) IS SHOWN ON PLAN AND PROFILE SHEETS.

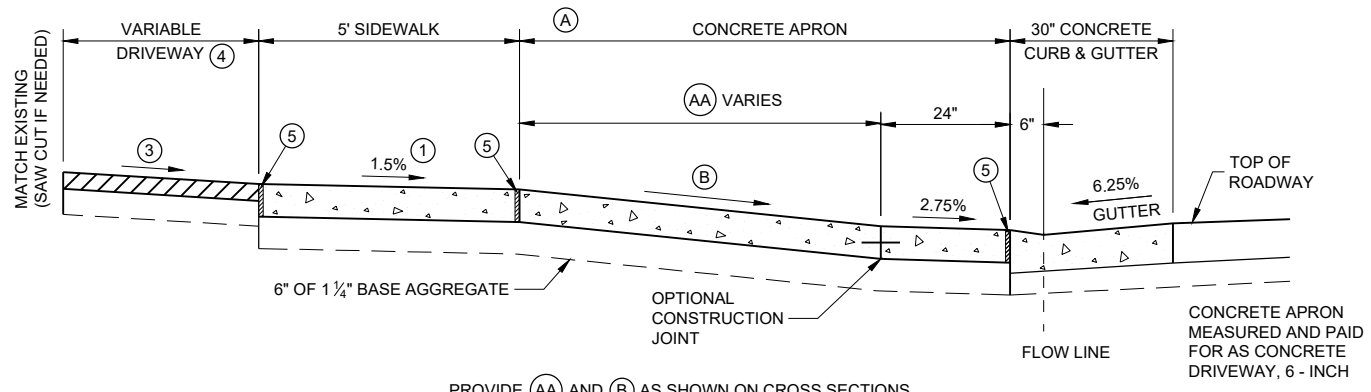
OFFSETS, ELEVATIONS, AND PERCENT GRADE ARE SHOWN ON THE CROSS SECTIONS.

- ① CONSTRUCTION TOLERANCE OF 0.5%± FOR SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- ② THE SIDEWALK RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAXIMUM LENGTH, THE RUNNING SLOPE OF THE SIDEWALK SHALL BE AS FLAT AS FEASIBLE AND NOT EXCEED THE LONGITUDINAL GRADE OF THE ROADWAY.
- ③ DRIVEWAY SLOPES: DESIRABLE MAXIMUM  
 10.5% UP AWAY FROM SIDEWALK (SAG)  
 8.5% DOWN AWAY FROM SIDEWALK (CREST)  
 ABSOLUTE MAXIMUM 15% FOR BOTH CREST AND SAG
- ④ DRIVEWAY TYPES  
 · 6-INCH CONCRETE DRIVEWAY PAVEMENT OVER 6-INCH BASE AGGREGATE  
 · 2-INCH TO 3-INCH ASPHALTIC SURFACE OVER 6-INCH BASE AGGREGATE  
 · 6-INCH BASE AGGREGATE (MAY BE INCREASED FOR CLAY SUBGRADES.)
- ⑤ ½" EXPANSION JOINT FILLER.

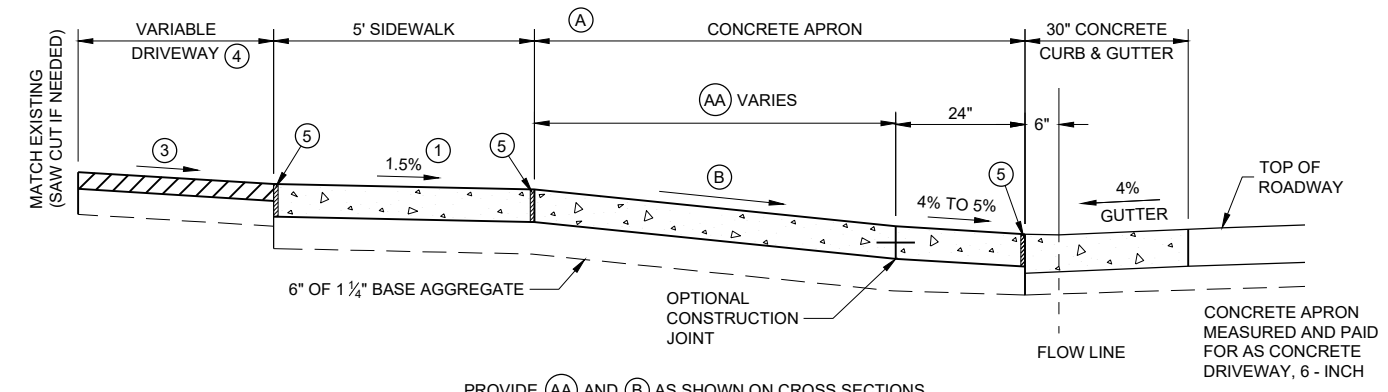
**TABLE Z**

(AA) FEET	(B) % 6.25% GUTTER	(B) % 4% GUTTER
4.5'	11.5%	9% TO 11.5%
5.5'	9% TO 11.5%	8% TO 11.5%
6.5'	8% TO 11.5%	6% TO 11.5%
7.5'	7% TO 11.5%	6% TO 11.5%
8.5'	6% TO 11.5%	5% TO 11.5%
9.5'	5% TO 11.5%	4% TO 11.5%

(W): 12' MIN. - 24' MAX. RESIDENTIAL AND NON-COMMERCIAL (PE & FE)  
 16' MIN. - 35' MAX. COMMERCIAL (CE)



**6.25% GUTTER SLOPE**



**4% GUTTER SLOPE**

NOTE: SIDEWALK MAY BE DEPRESSED IN DRIVEWAY AREAS FOR (B) VALUES NOT SHOWN IN TABLE Z.  
 SIDEWALK WITHIN THE LIMITS OF THE DRIVEWAY PAID FOR AS CONCRETE DRIVEWAY 6-INCH.  
 SEPARATE PAYMENT FOR BASE AGGREGATE WILL BE MADE.

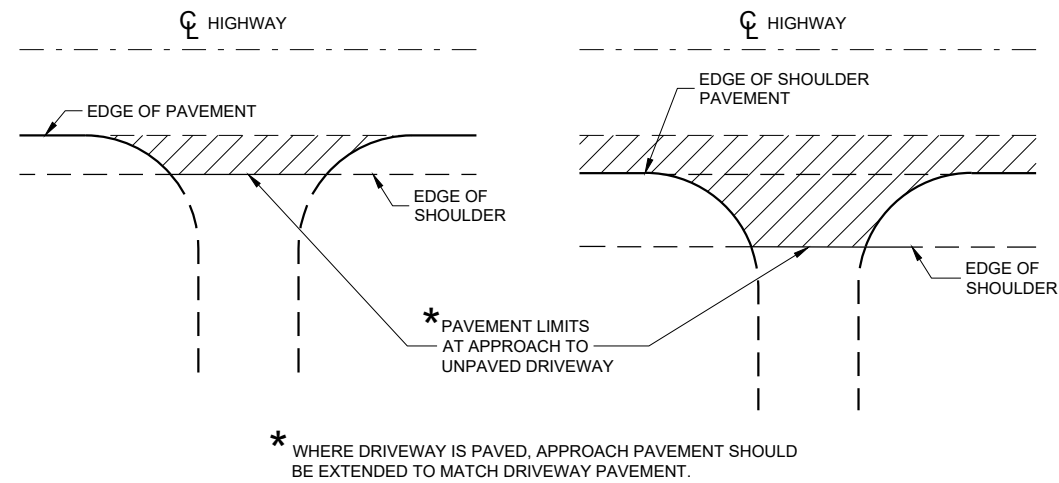
**SECTION Z - Z**  
**DRIVEWAY DETAIL WITH CONCRETE CURB AND GUTTER**  
**(URBAN AND SUBURBAN)**

**DRIVEWAY AND SIDEWALK RAMPS TYPE Z**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 February 2022 DATE /S/ Rodney Taylor  
 ROADWAY STANDARDS DEVELOPMENT ENGINEER

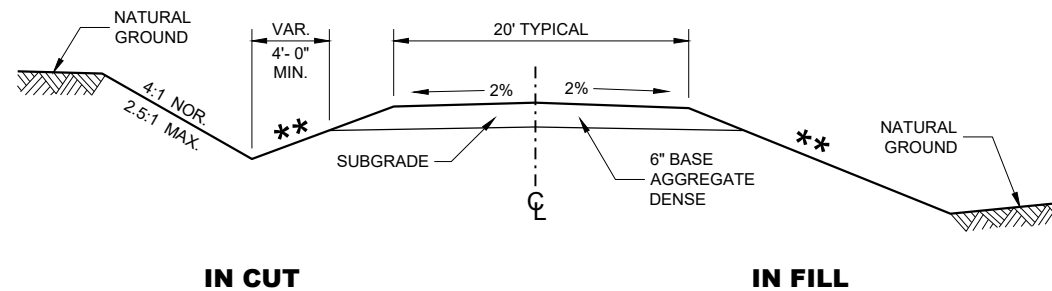
FHWA



**PLAN VIEW**  
(UNPAVED SHOULDER ON HIGHWAY)

**PLAN VIEW**  
(PAVED SHOULDER ON HIGHWAY)

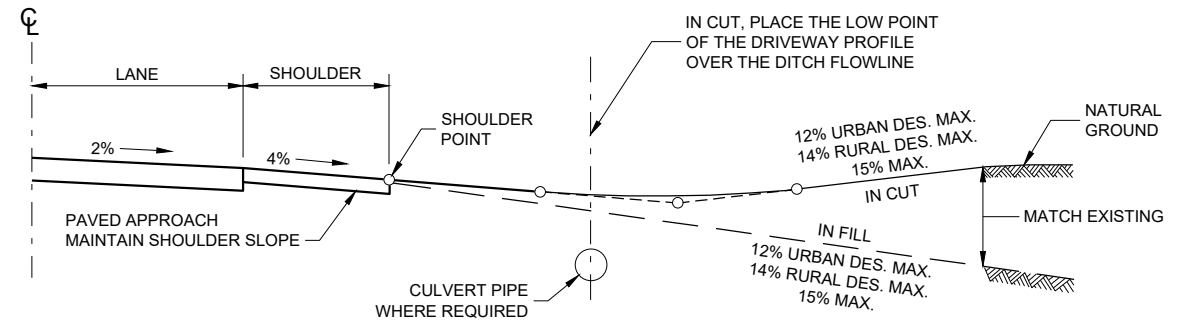
**RURAL DRIVEWAY INTERSECTION DETAIL  
(NO CURB AND GUTTER OR SIDEWALK)**



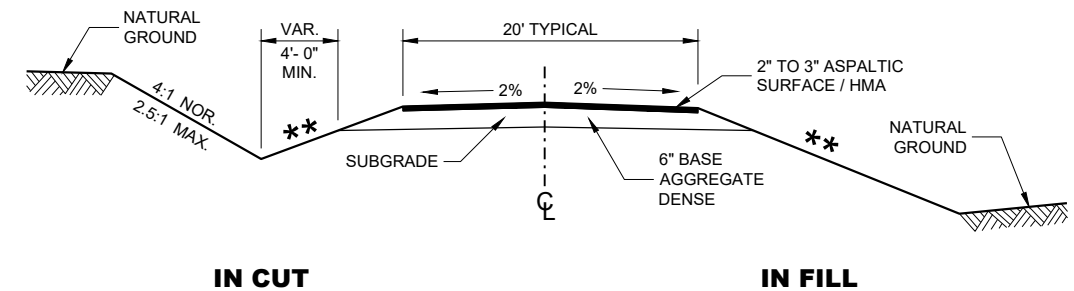
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
AGGREGATE SURFACE**

\*\* SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



**TYPICAL DRIVEWAY PROFILES**



**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT CURB AND GUTTER**

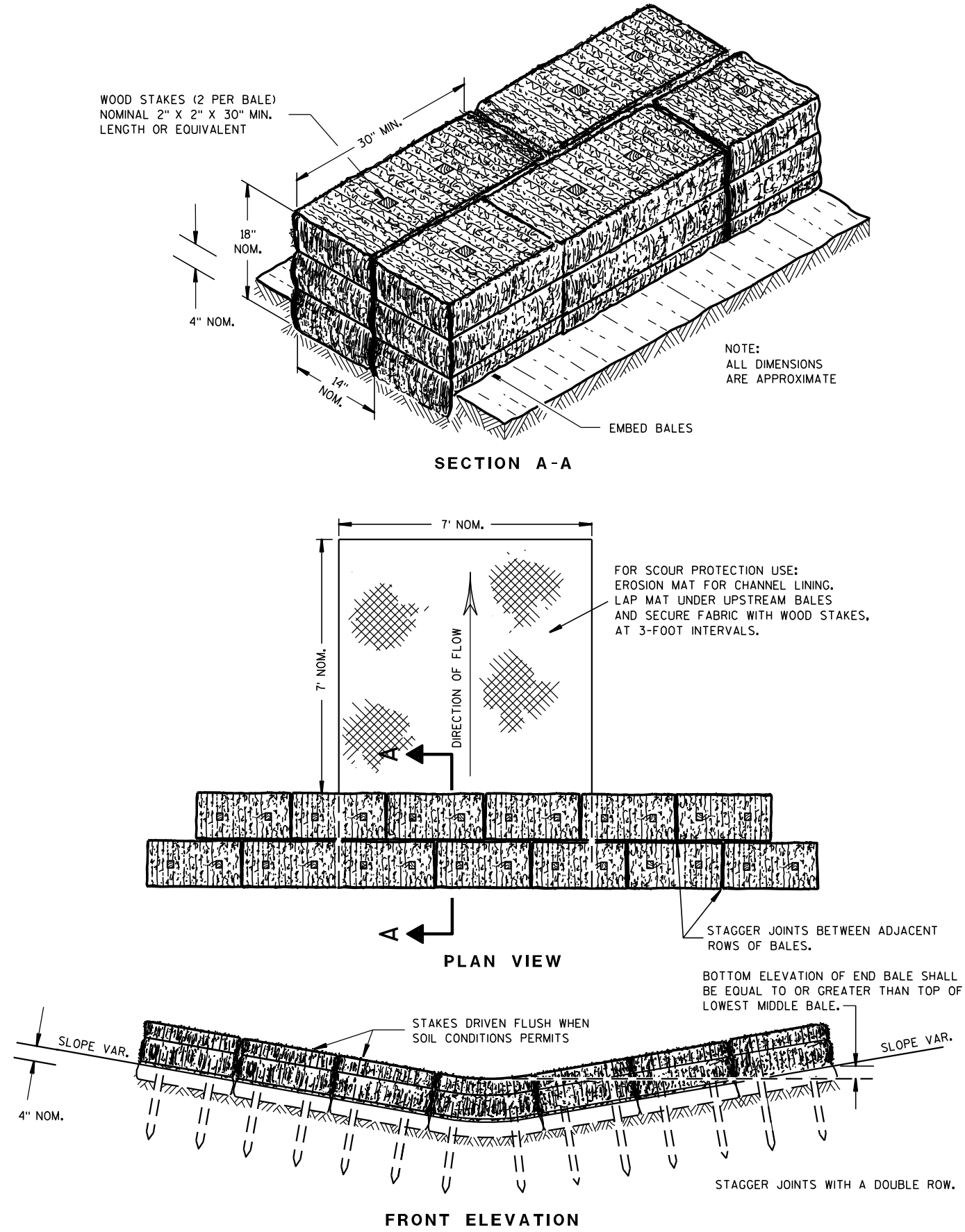
---

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

---

APPROVED  
December 2017 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

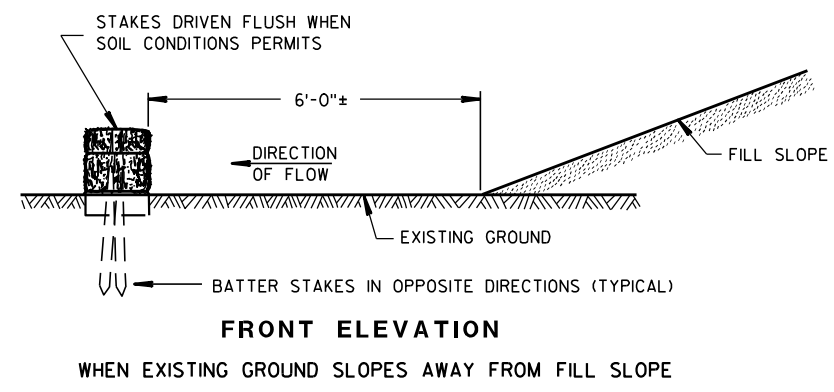
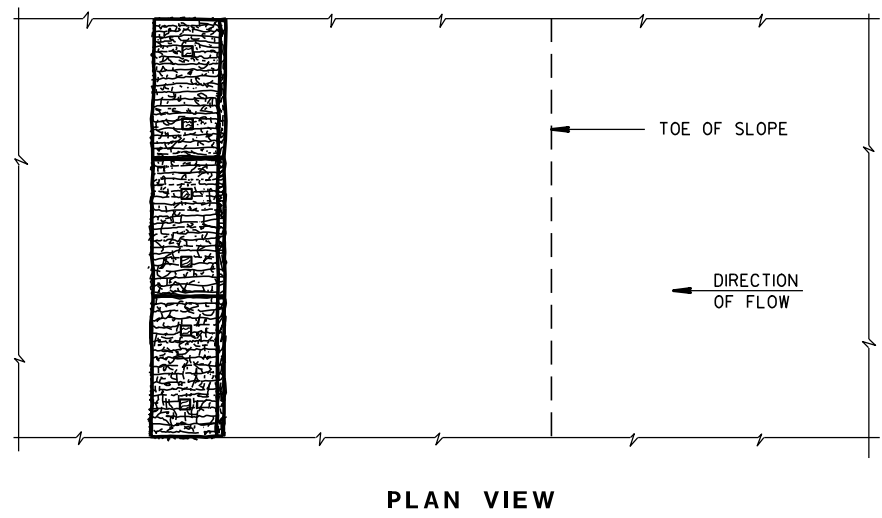
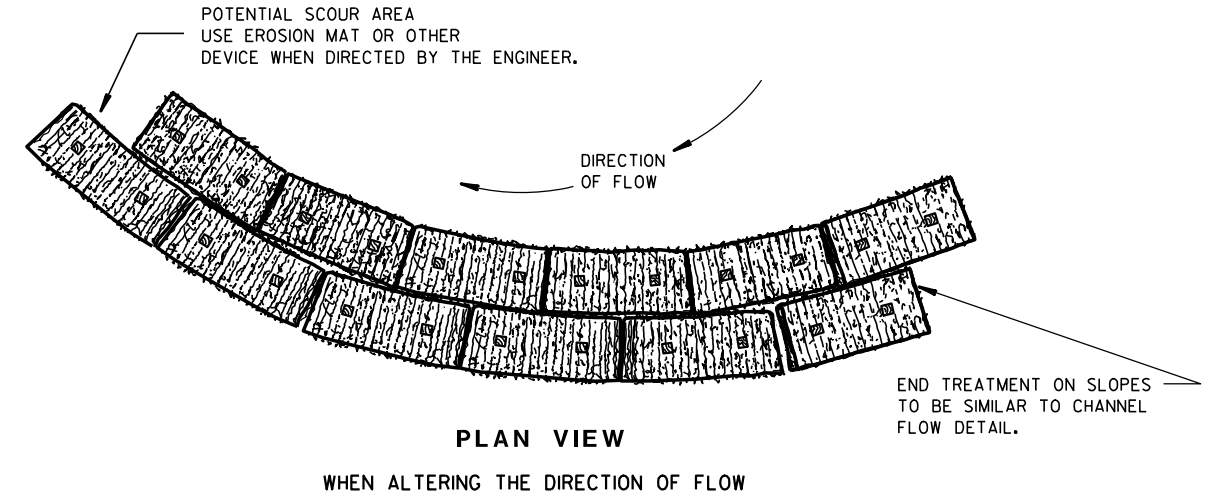


TEMPORARY DITCH CHECK USING EROSION BALES ①

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

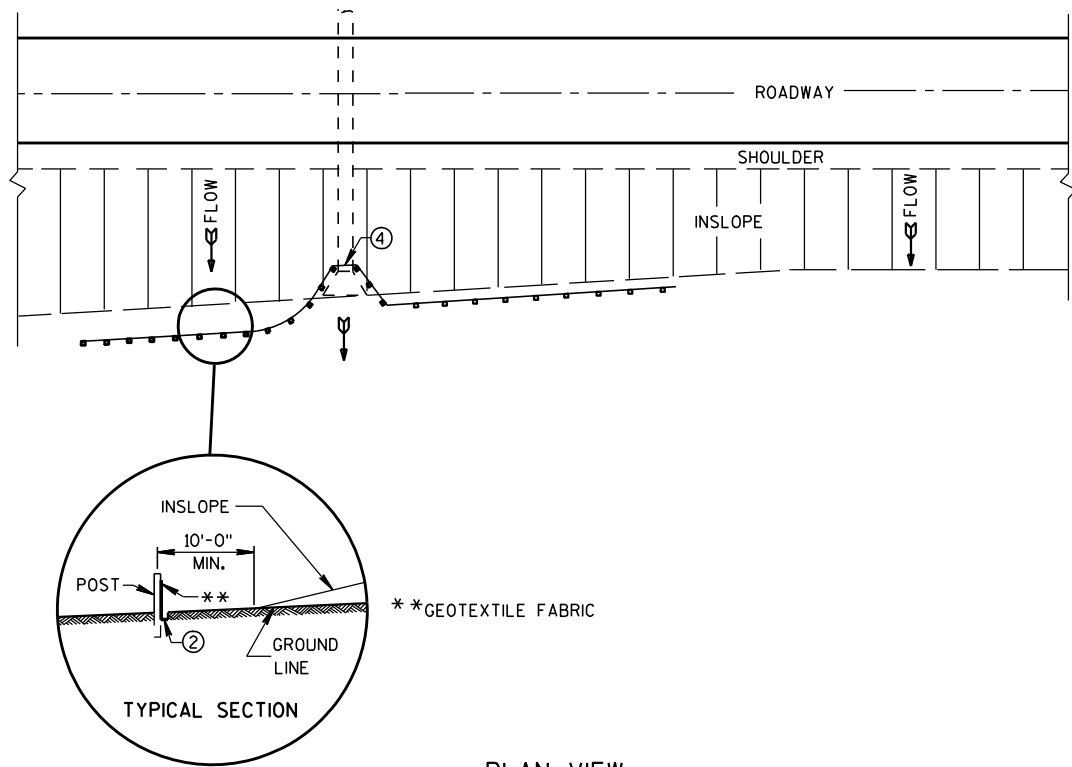


EROSION BALES FOR SHEET FLOW

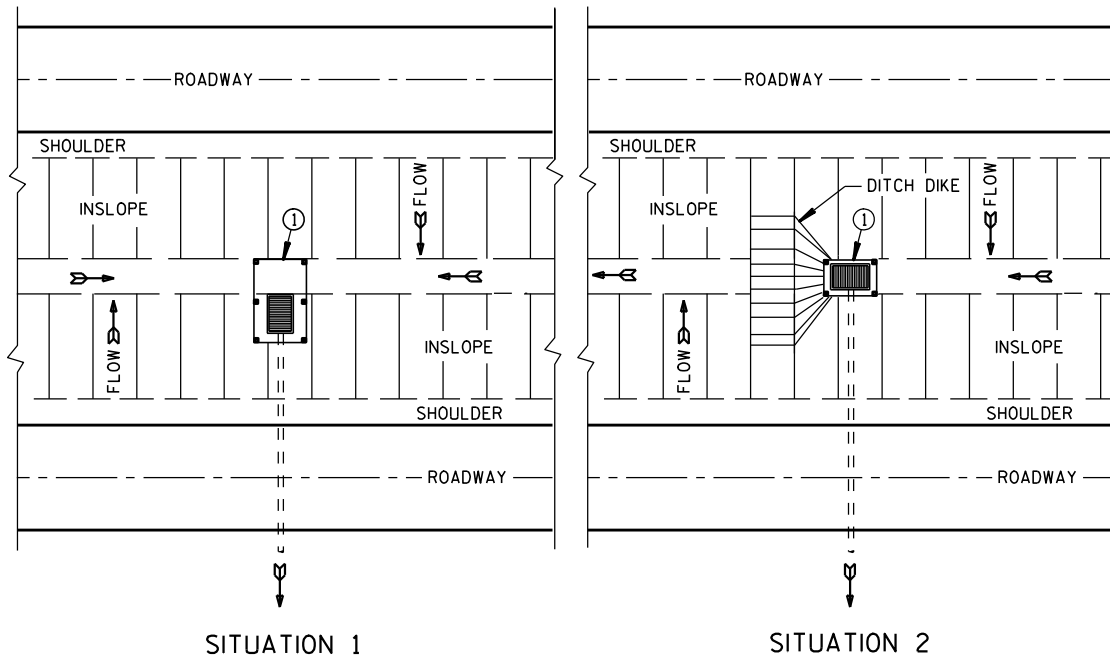
**TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/04/02 /S/ Beth Canestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

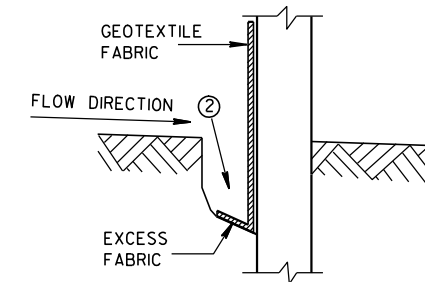


SITUATION 1      SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

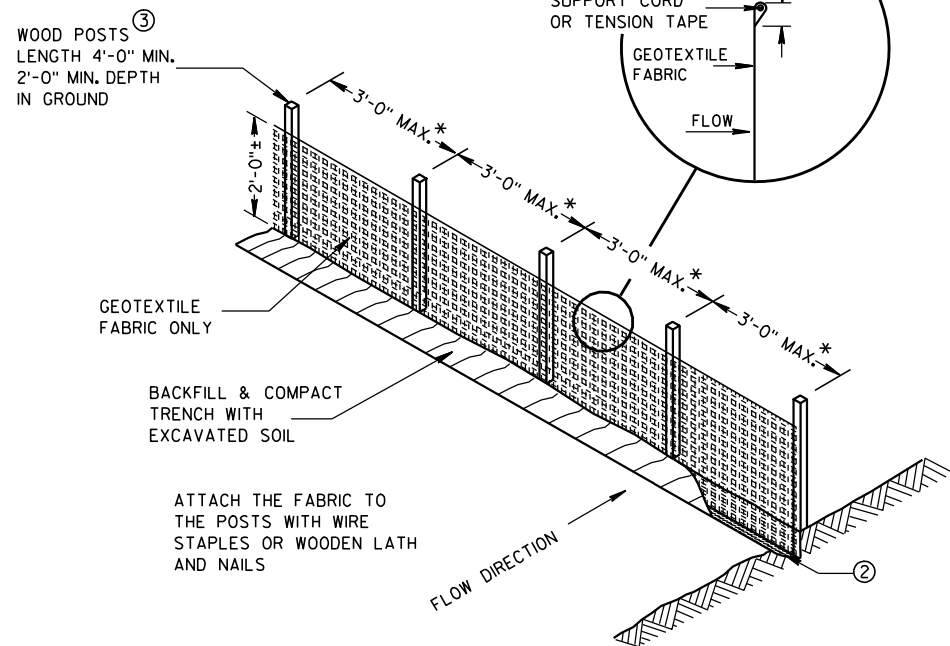
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



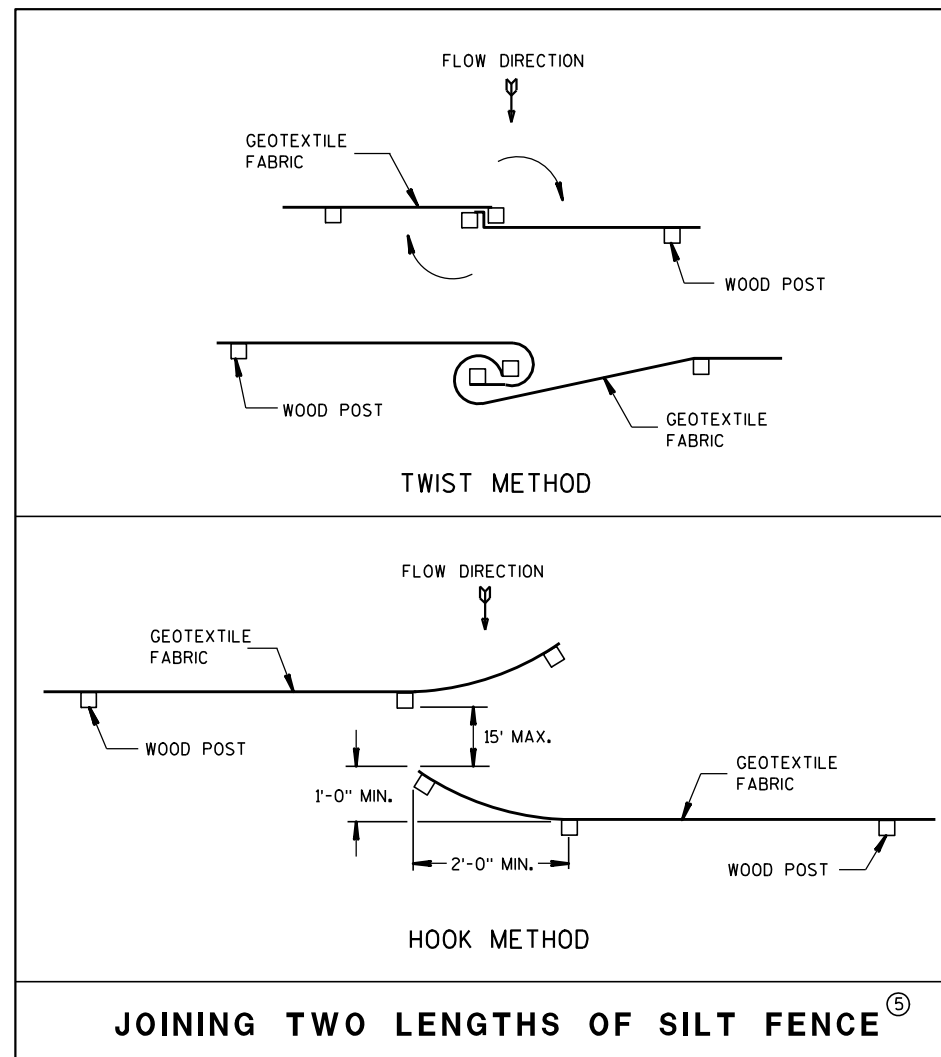
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

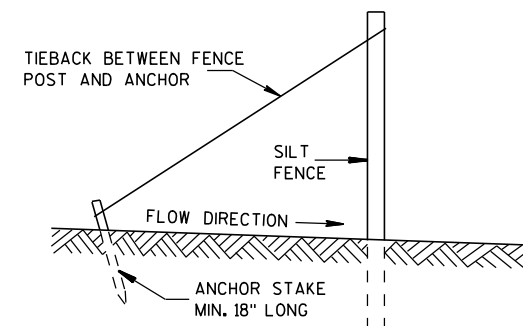


SILT FENCE

\* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

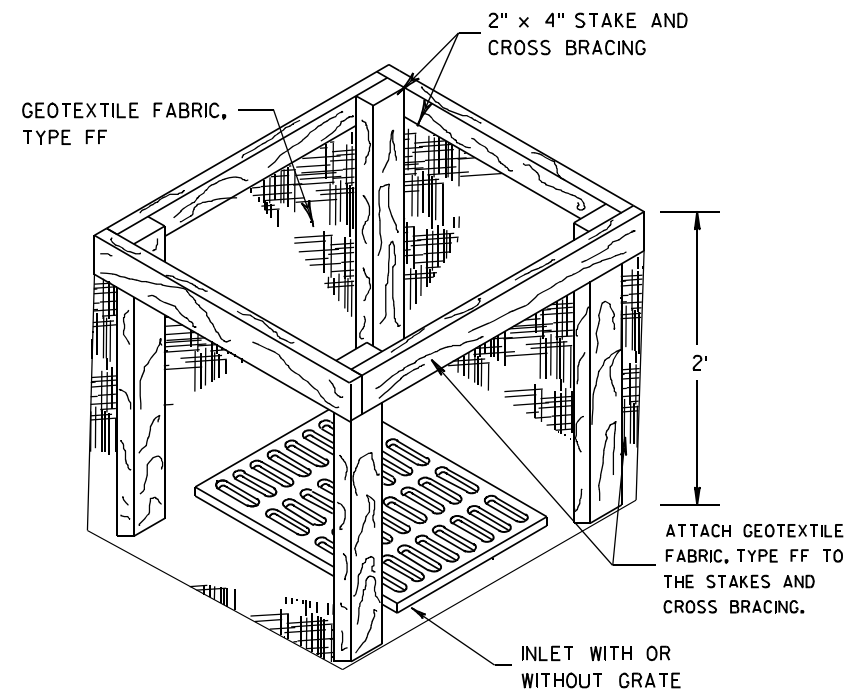
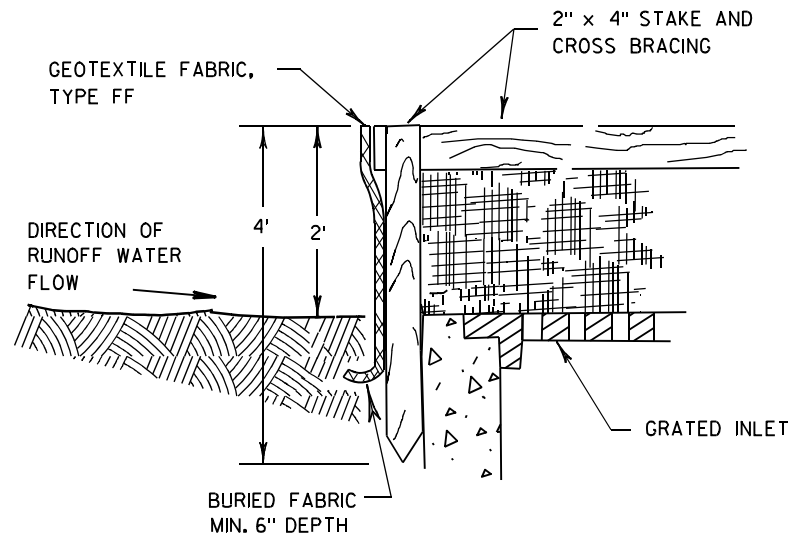
APPROVED

4-29-05

DATE

FHWA

/S/ Beth Cannestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER



**INLET PROTECTION, TYPE A**

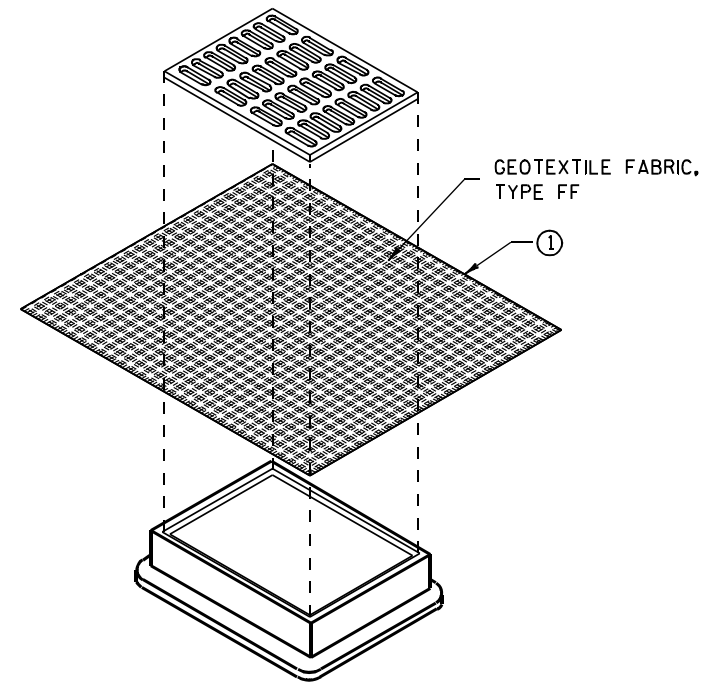
**GENERAL NOTES**

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

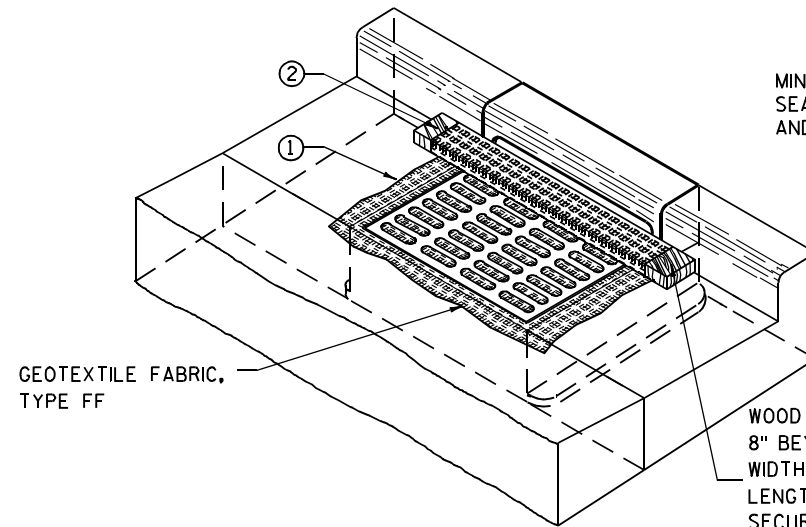
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B  
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

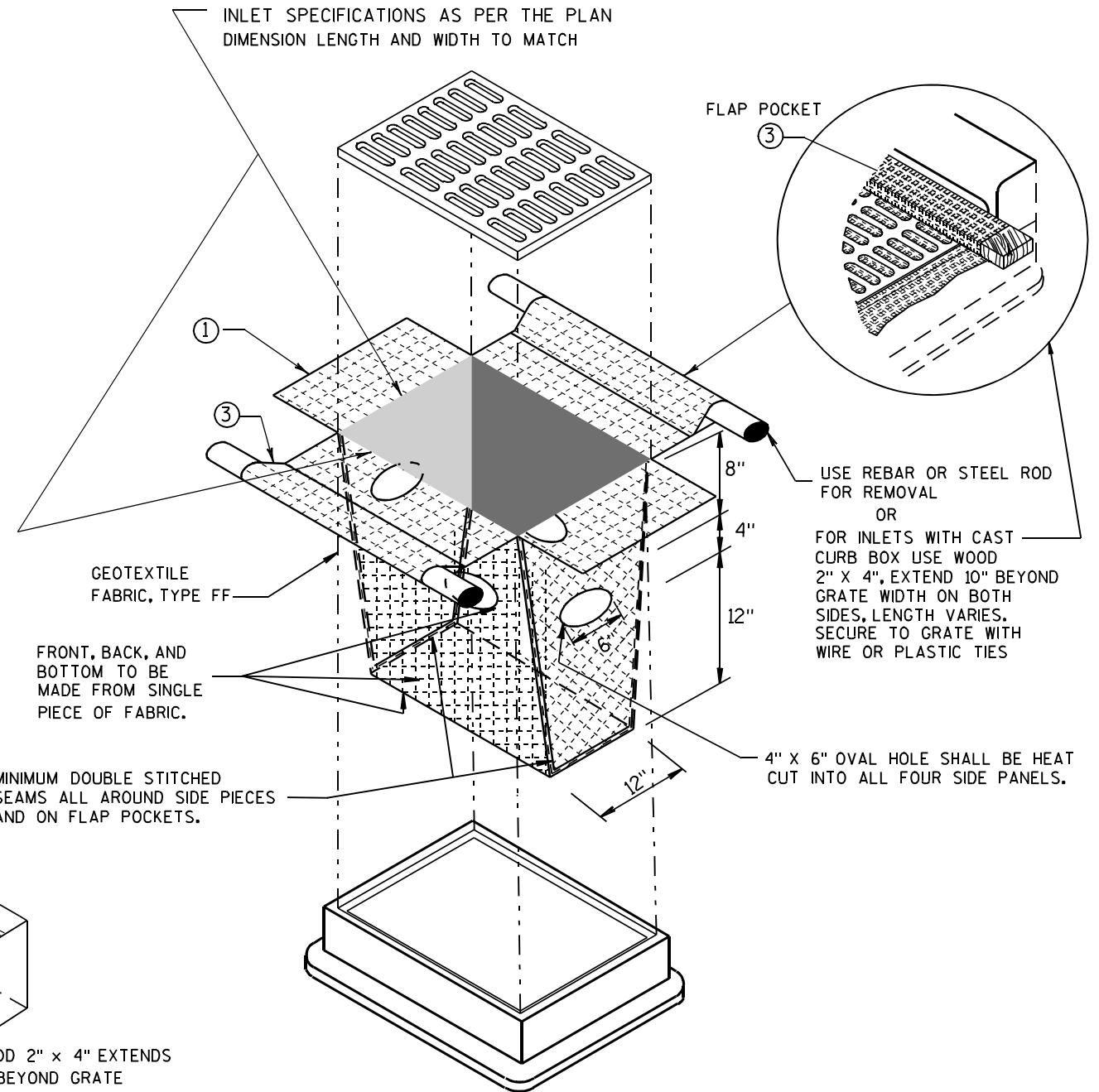
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



**INLET PROTECTION, TYPE D**

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

<b>INLET PROTECTION TYPE A, B, C, AND D</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

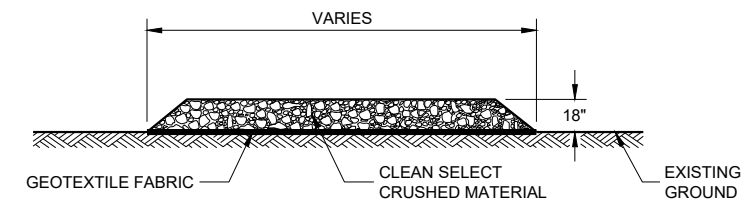
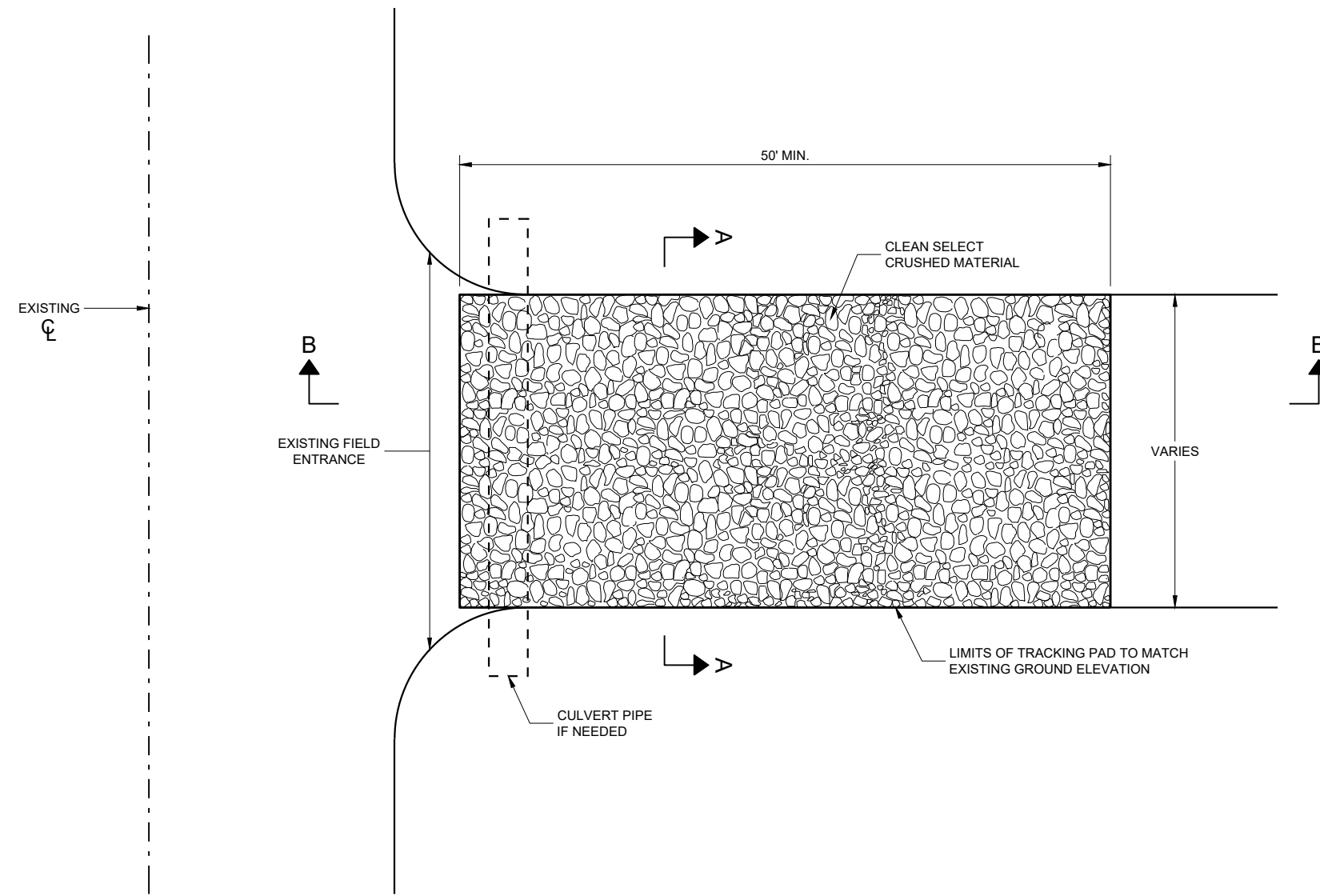
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

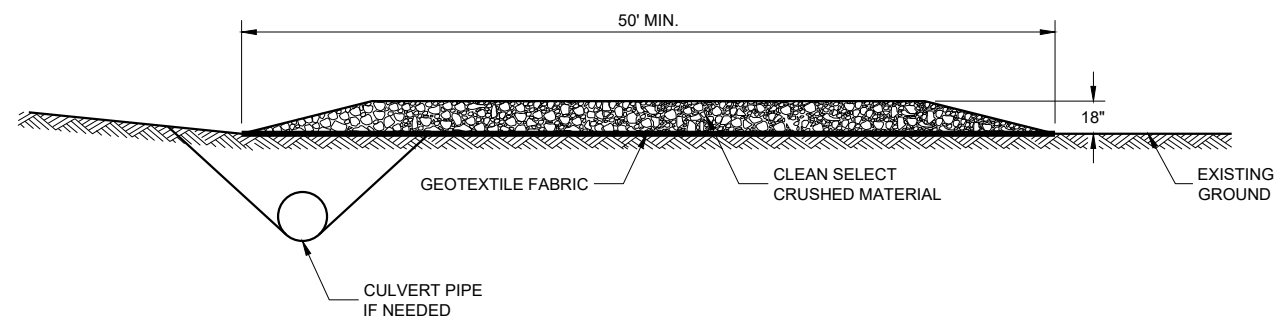
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



**SECTION A - A**



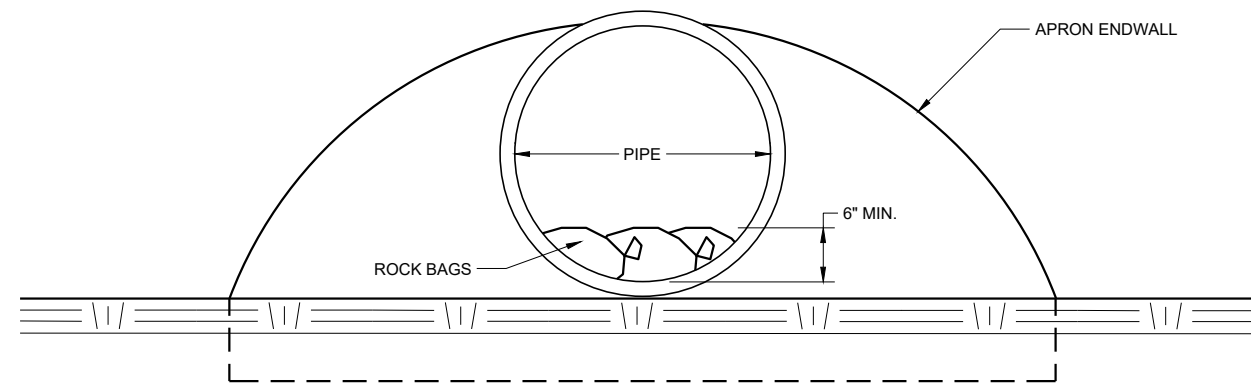
**SECTION B - B**

**TRACKING PAD**

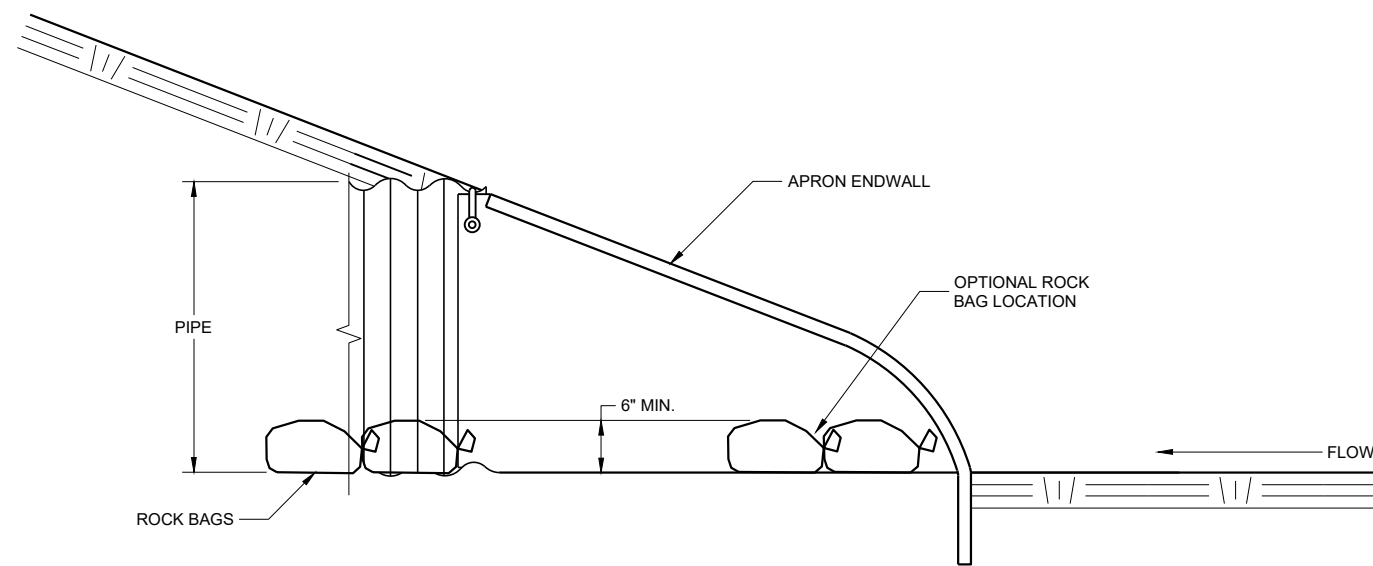
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/24/2011 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



**END VIEW**



**SIDE VIEW**

**CULVERT PIPE CHECK**  
(INSTALL ON INLET END ONLY)

6

6

SDD 08E15 - 01

SDD 08E15 - 01

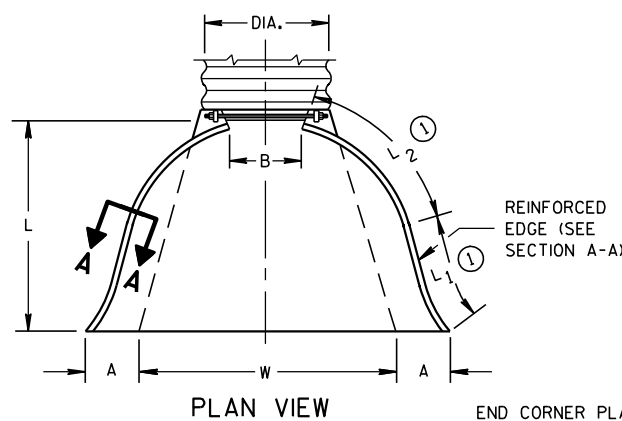
<b>CULVERT PIPE CHECK</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
<small>FHWA</small>	

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1	L2	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

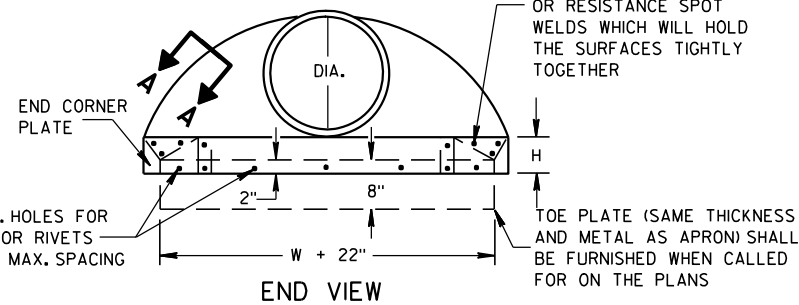
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 1/2 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	24-36	78	21	99	108	6	2 to 1	
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

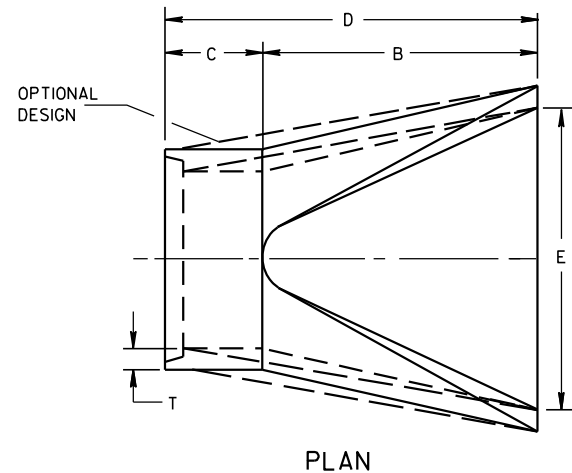
\* MINIMUM  
\*\* MAXIMUM



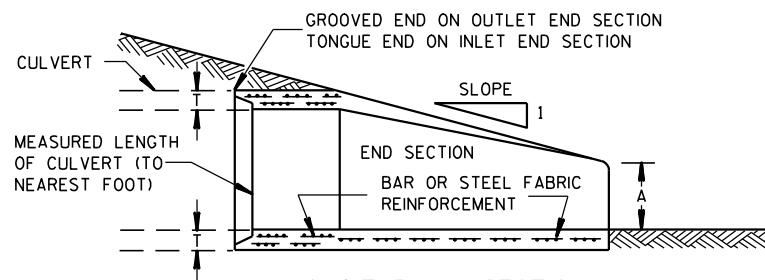
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



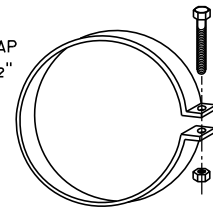
SIDE ELEVATION  
METAL ENDWALLS



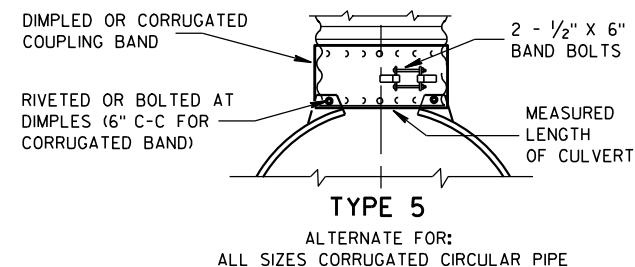
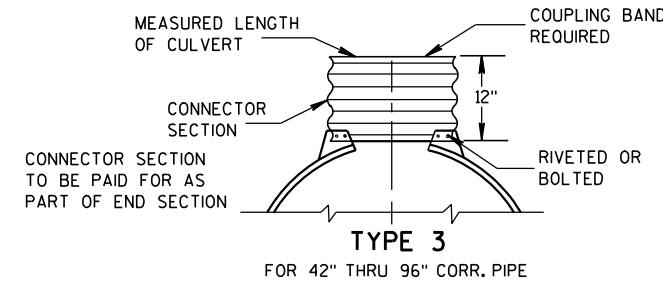
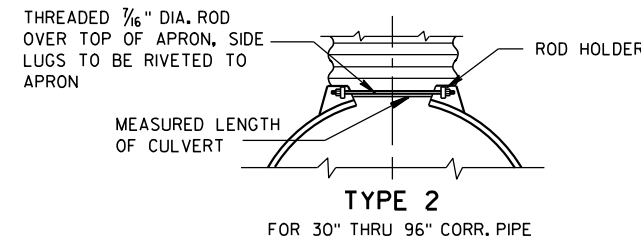
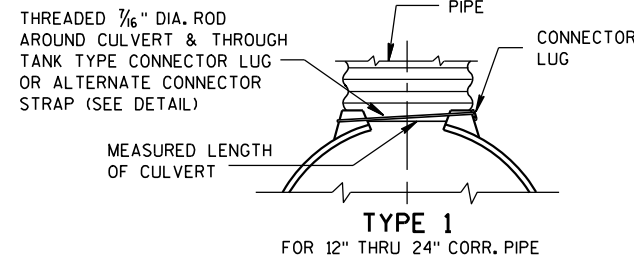
LONGITUDINAL SECTION  
CONCRETE ENDWALLS



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



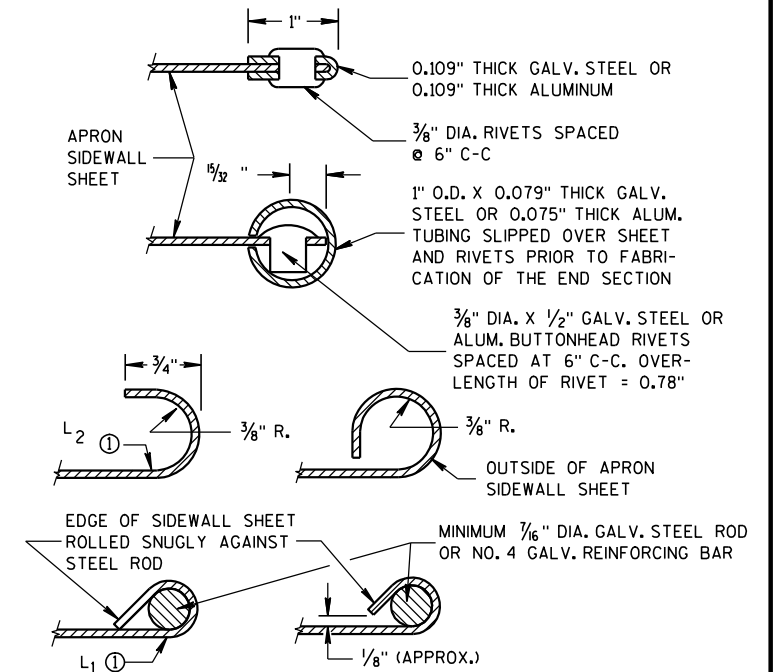
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

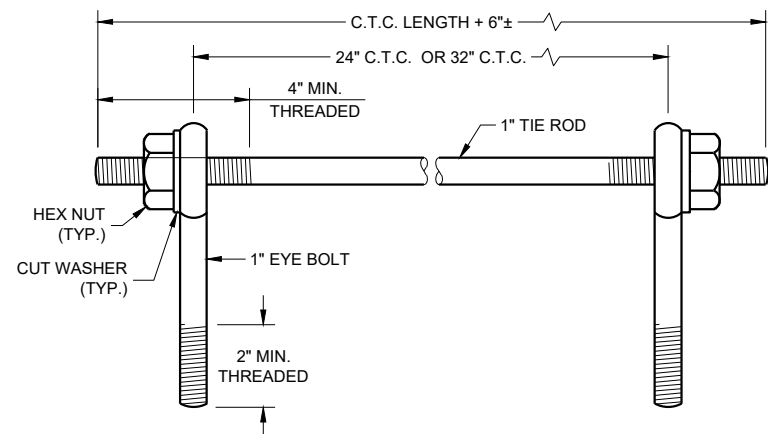
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
CULVERT PIPE

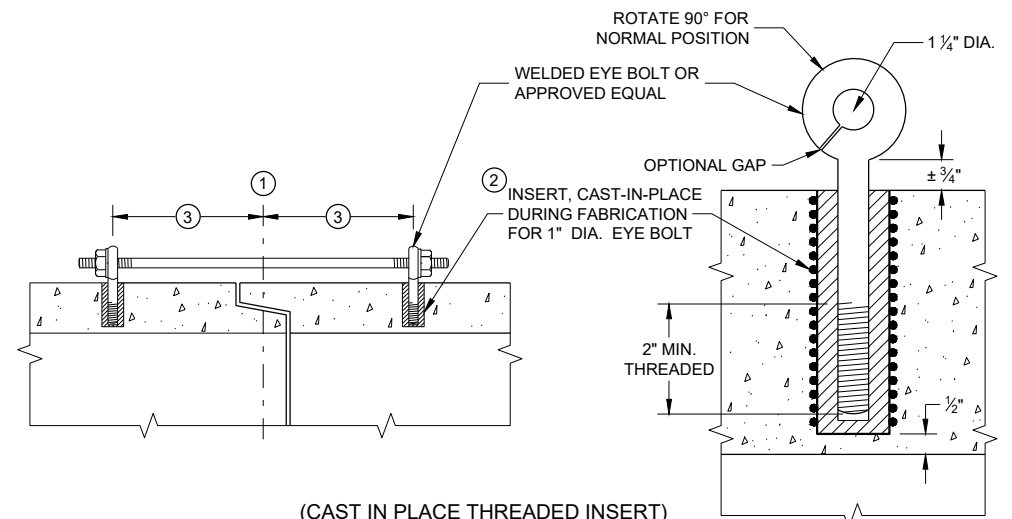
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/30/94 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



**EYE BOLTS AND TIE ROD**

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)**



**LONGITUDINAL SECTIONS**

**GENERAL NOTES**

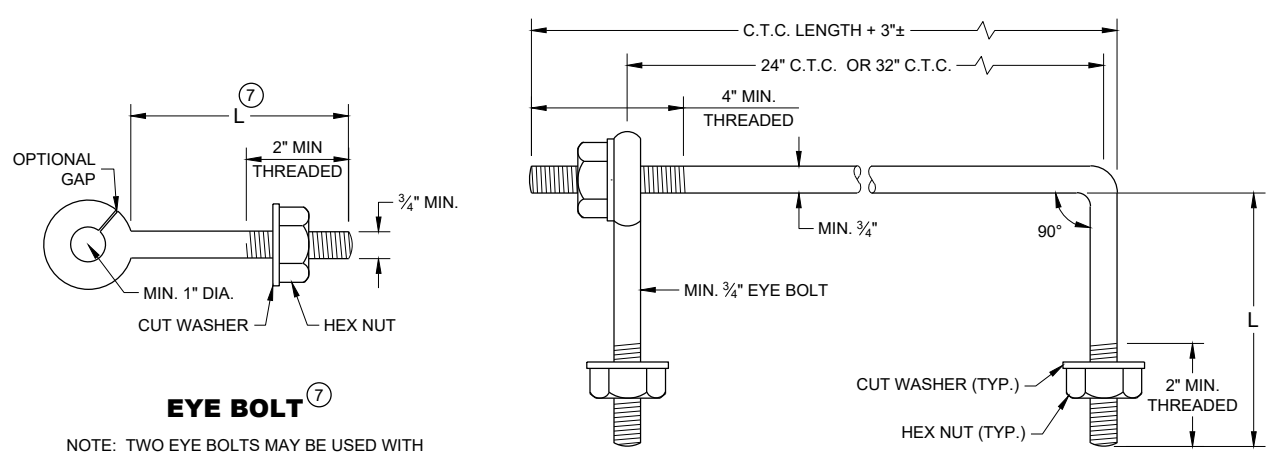
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

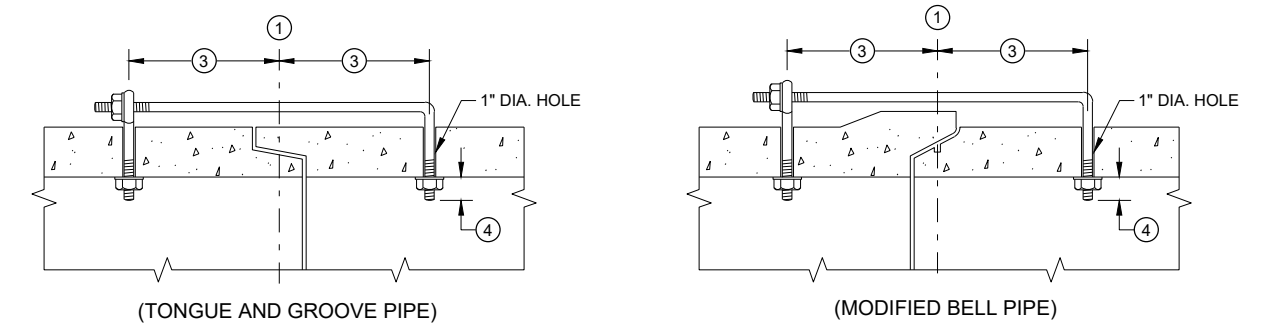
- ① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- ⑦ EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.



**EYE BOLT AND TIE ROD**

**EYE BOLT ⑦**

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



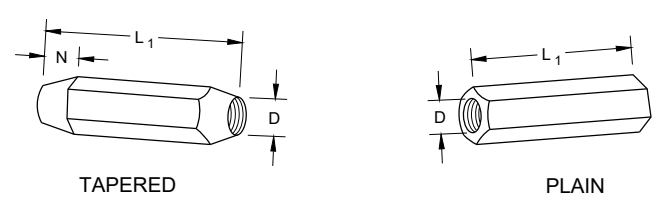
**LONGITUDINAL SECTION**  
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)**

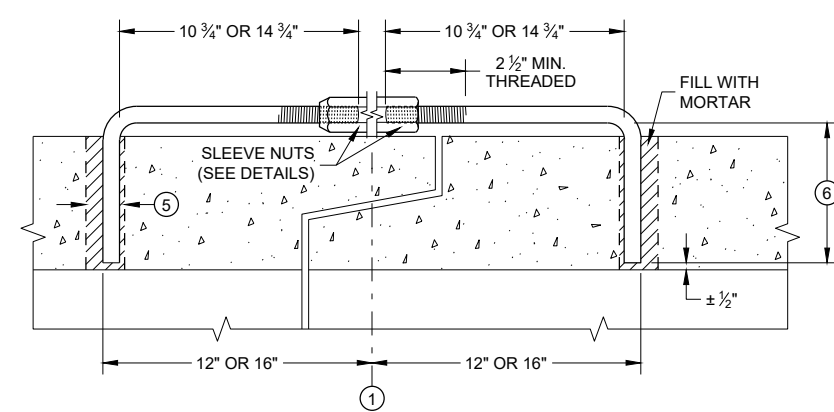
**ADJUSTABLE TIE ROD TABLE**

PIPE DIAMETER	TIE ROD DIAMETER	D	L <sub>1</sub>	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES

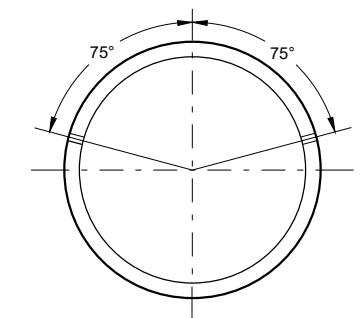


**RIGHT AND LEFT THREADS SLEEVE NUTS**



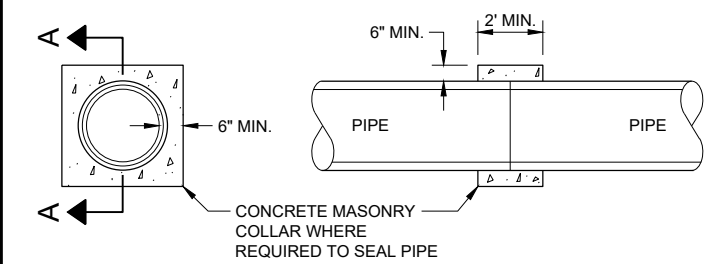
**LONGITUDINAL SECTION**

**ADJUSTABLE TIE ROD (ALTERNATE NO. 3)**



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

**TRANSVERSE SECTION**

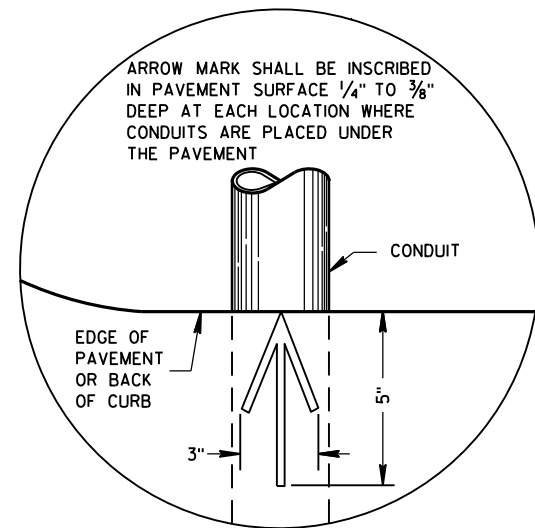


**SECTION A - A**  
**CONCRETE COLLAR DETAIL**

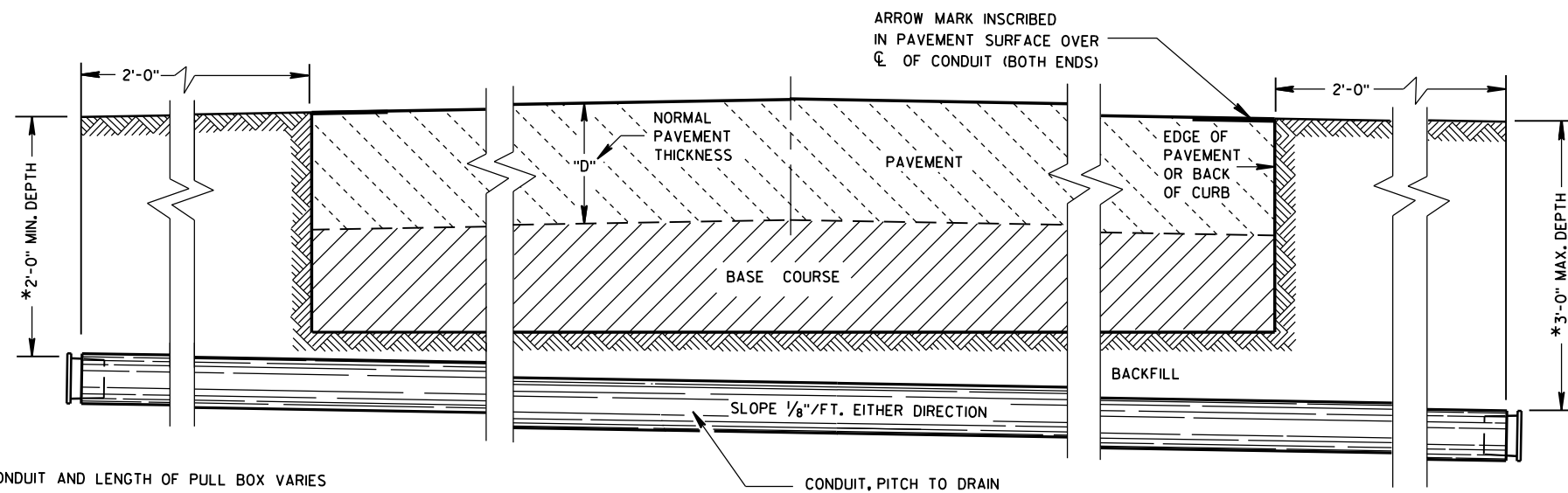
**JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER



**PLAN VIEW  
ARROW MARK**



**SIDE ELEVATION  
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS**

\*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSON TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.

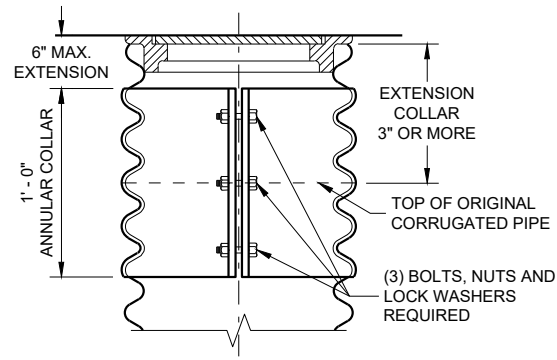
6

6

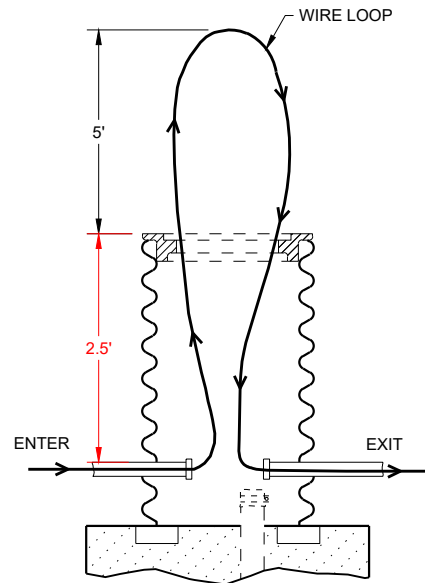
S.D.D. 9 B 2-10

S.D.D. 9 B 2-10

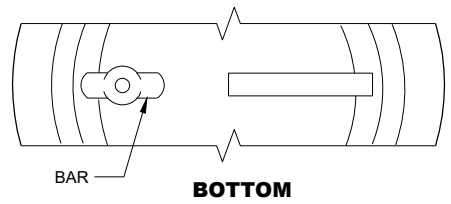
<b>CONDUIT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March, 2017 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	



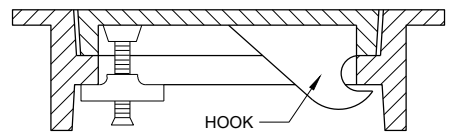
**CORRUGATED PIPE EXTENDER**



**MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX**



**BOTTOM**



**SECTION**

**ALTERNATE COVER (LOCKING)  
TIGHTENING BAR TYPE**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

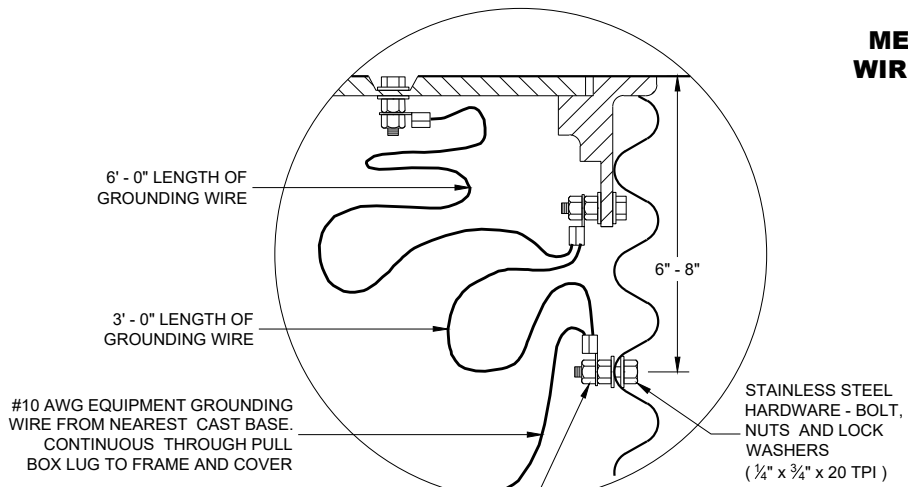
WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

**TABLE OF NOMINAL DIMENSIONS AND WEIGHTS**

DIMENSION IN INCHES	CORRUGATED STEEL PIPE										
	PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24	
PIPE LENGTH**	B	24	30	36	24	30	36	36	42	48	
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4	
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2	
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2	
<b>WEIGHT IN POUNDS*</b>											
FRAME AND COVER		60	60	60	110	110	110	155	155	155	

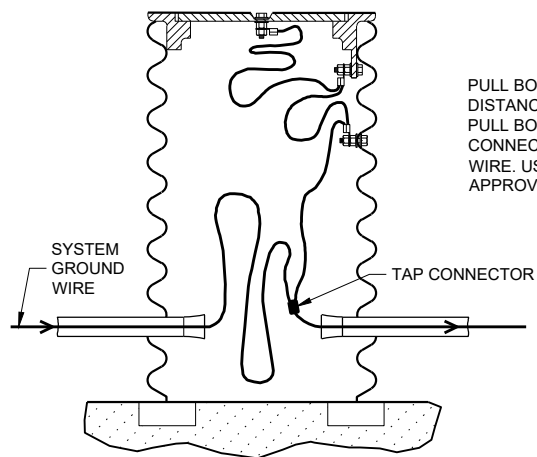
\* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

\*\* NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



**EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES**

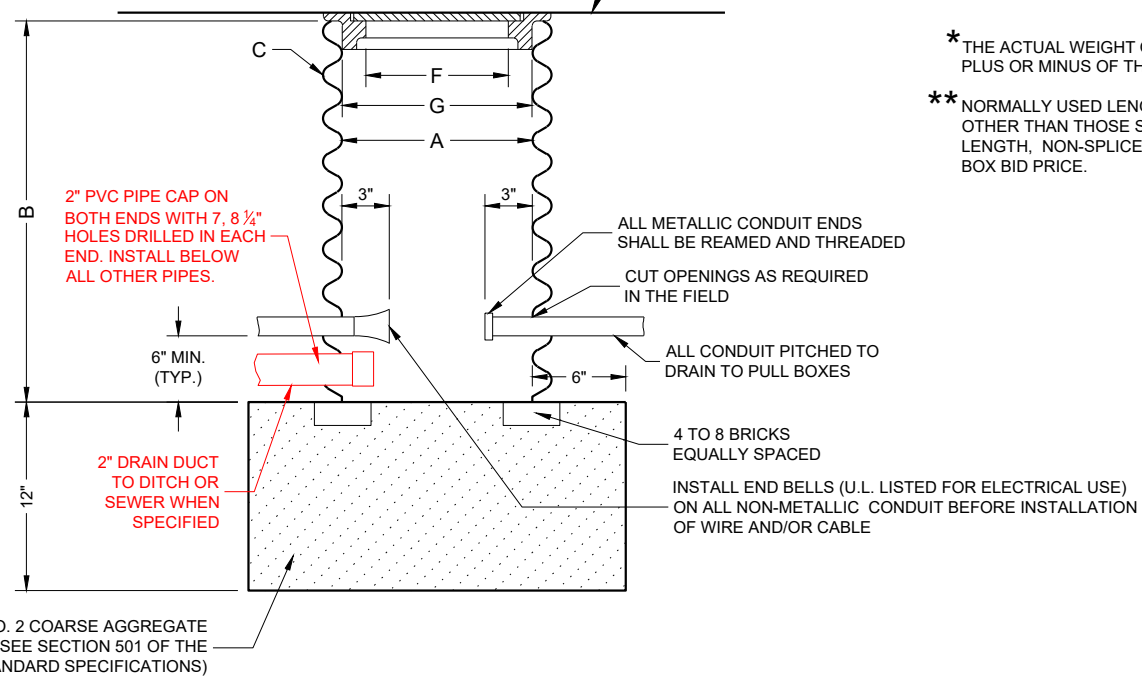
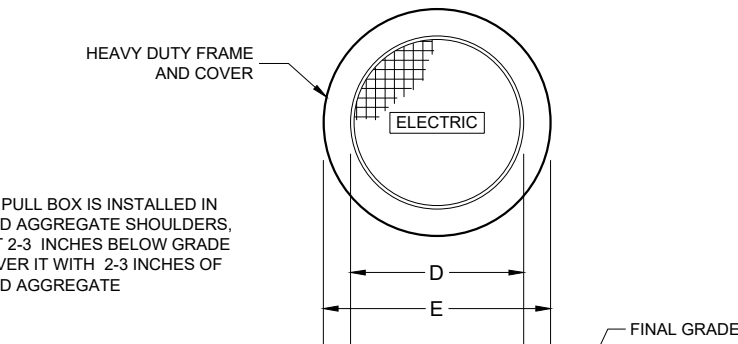
NEMA APPROVED, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE



**EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES**

PULL BOX TO NEAREST BASE DISTANCE MORE THAN 20 FEET. PULL BOX GROUND WIRE SHALL CONNECT AT SYSTEM GROUNDING WIRE. USE DEPARTMENT APPROVED TAP CONNECTOR.

WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE



**PULL BOX**

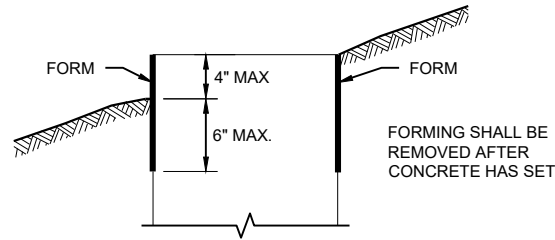
**PULL BOX**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2022 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER

FHWA

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



**FORMING DETAIL**

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE SHOWN ON THE PLANS

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION.

WHEN REQUIRED TO CONNECT NON-METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2, TYPE 5 AND TYPE 6 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER ALL BASE TYPES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

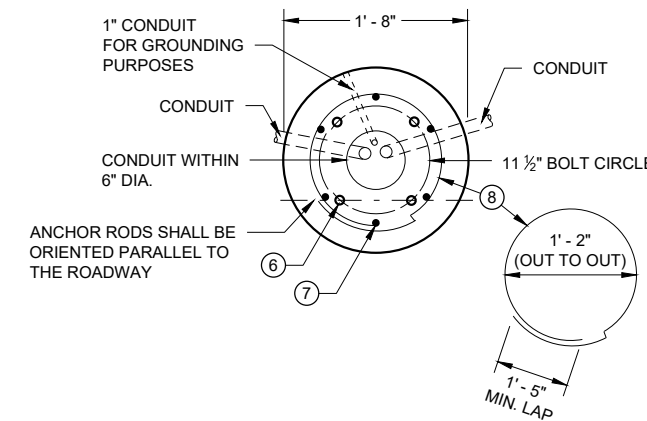
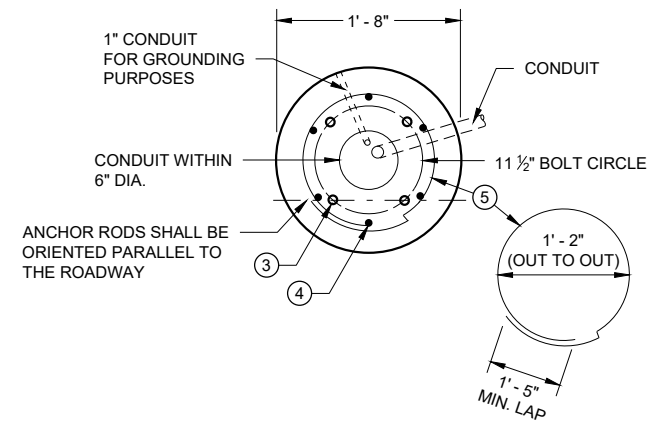
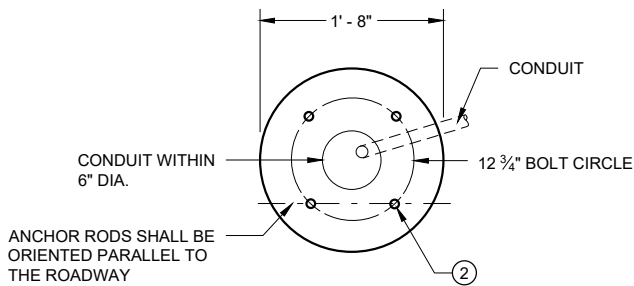
WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4 INCH "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

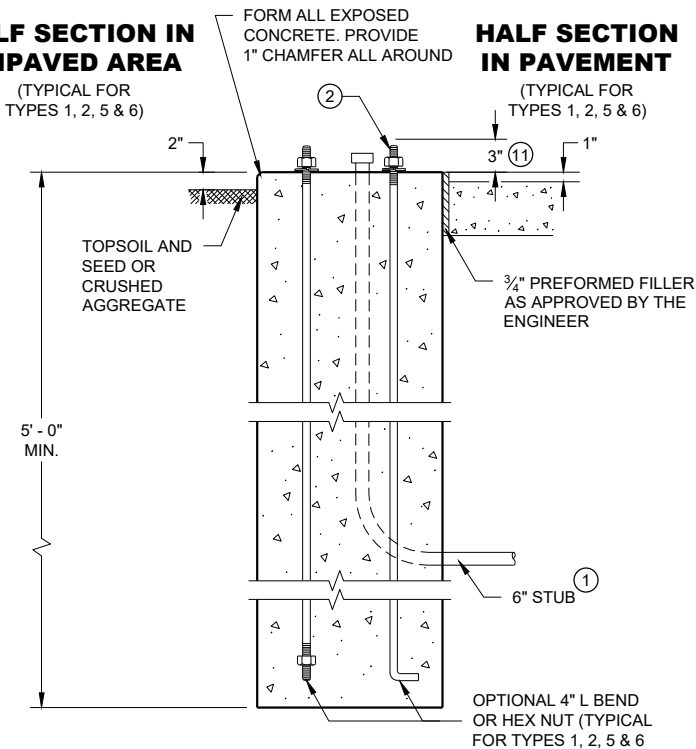
WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

- ① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL OF THE ENGINEER.
- ② (4) 1" DIA. X 3' - 6" ANCHOR RODS.
- ③ (4) 1" DIA. X 5' - 0" ANCHOR RODS.
- ④ (6) NO. 6 X 6' - 8" BAR STEEL REINFORCEMENT.
- ⑤ (7) NO. 4 X 5' - 1" BAR STEEL REINFORCEMENT @ 1' - 0" C - C.
- ⑥ (4) 1" DIA. X 3' - 6" ANCHOR RODS.
- ⑦ (6) NO. 4 X 4' - 8" BAR STEEL REINFORCEMENT.
- ⑧ (5) NO. 4 X 5' - 1" BAR STEEL REINFORCEMENT @ 1' - 0" C - C.
- ⑨ EXOTHERMIC CONNECTION TO EQUIPMENT GROUNDING CONDUCTOR
- ⑩ 5/8" DIA. X 8' - 0" COPPERCLAD EQUIPMENT GROUNDING ELECTRODE REQUIRED
- ⑪ ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.
- ⑫ FOR NON - BREAKAWAY INSTALLATIONS, 4 1/2" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

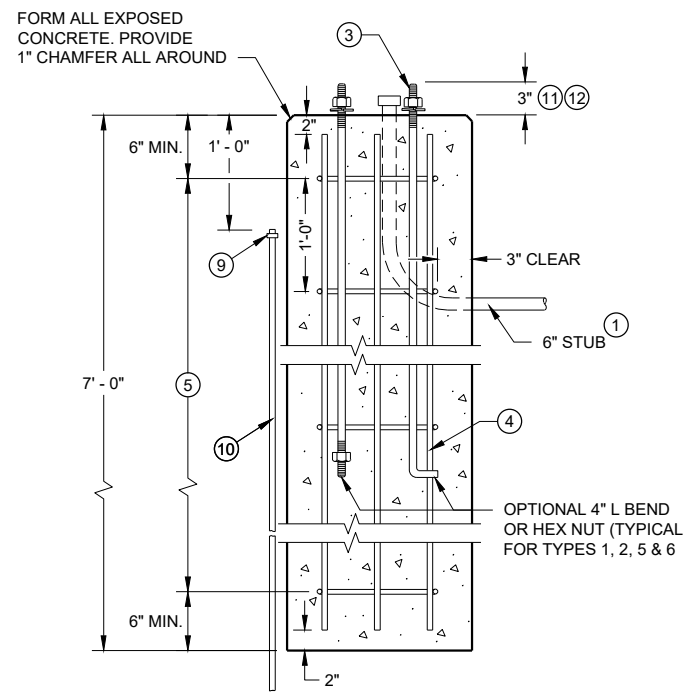


**HALF SECTION IN UNPAVED AREA**

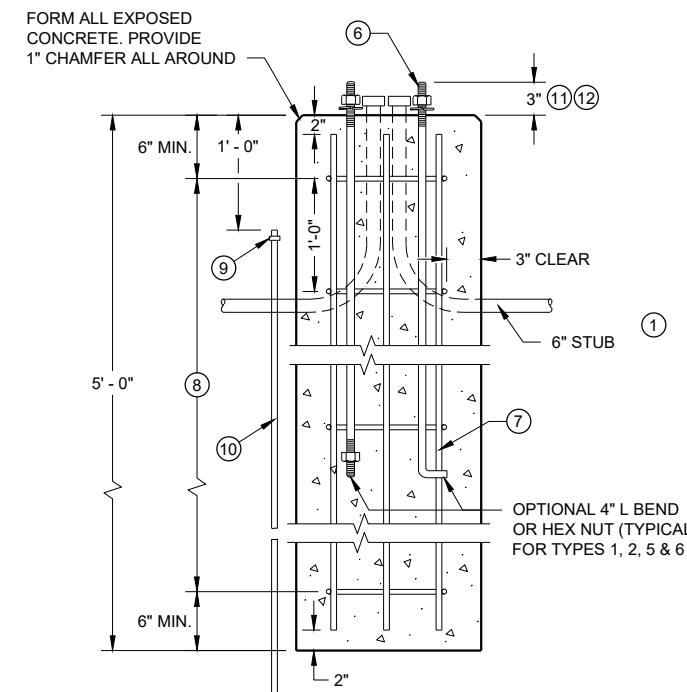


**TYPE 1**

**HALF SECTION IN PAVEMENT**



**TYPE 2**



**TYPE 5 & 6**

**CONCRETE BASES**

**CONCRETE BASES  
TYPES 1, 2, 5, & 6**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2019 /S/ Ahmet Demirelek  
DATE STATE ELECTRICAL ENGINEER

FHWA

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 531.2.2 OF THE STANDARD SPECIFICATIONS.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

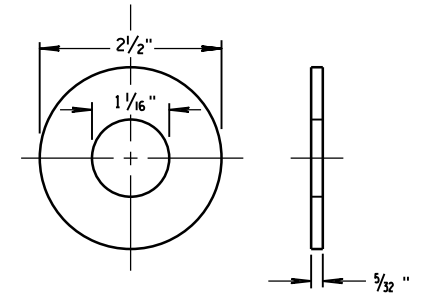
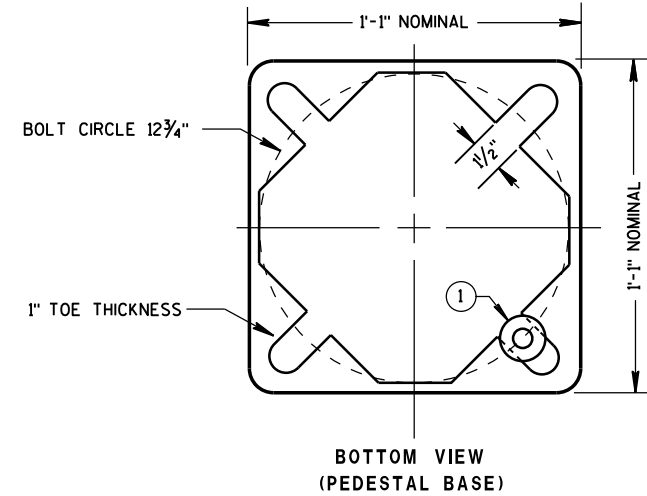
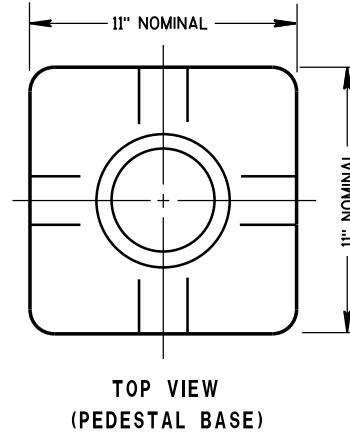
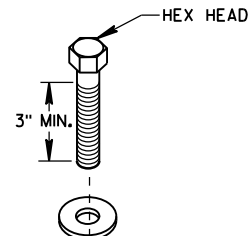
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

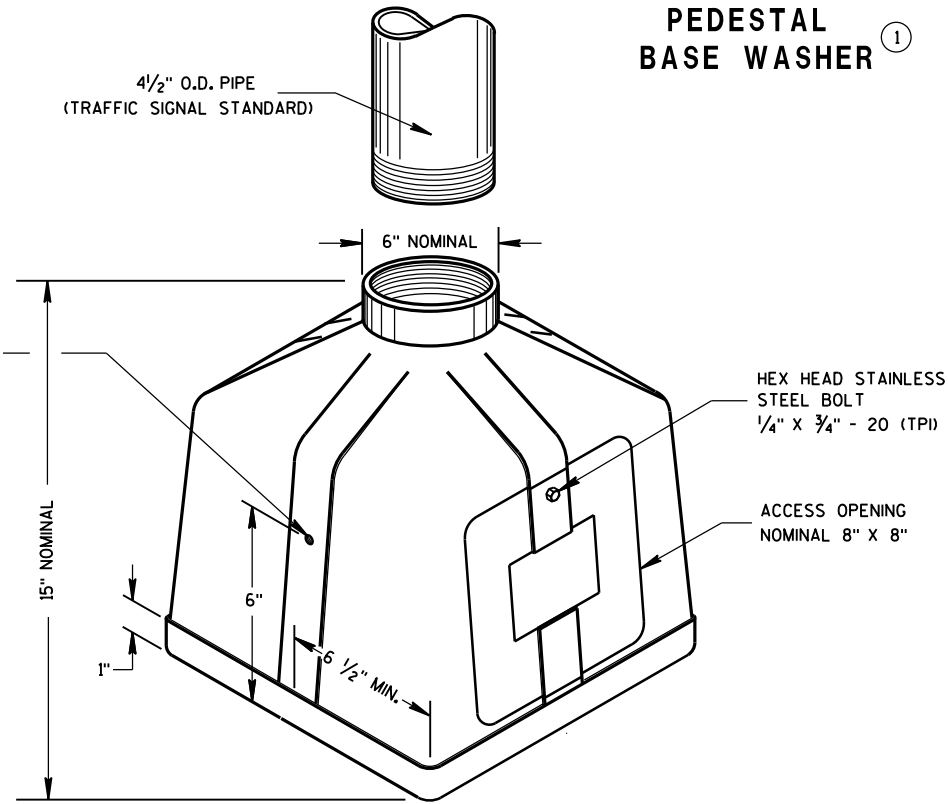
PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

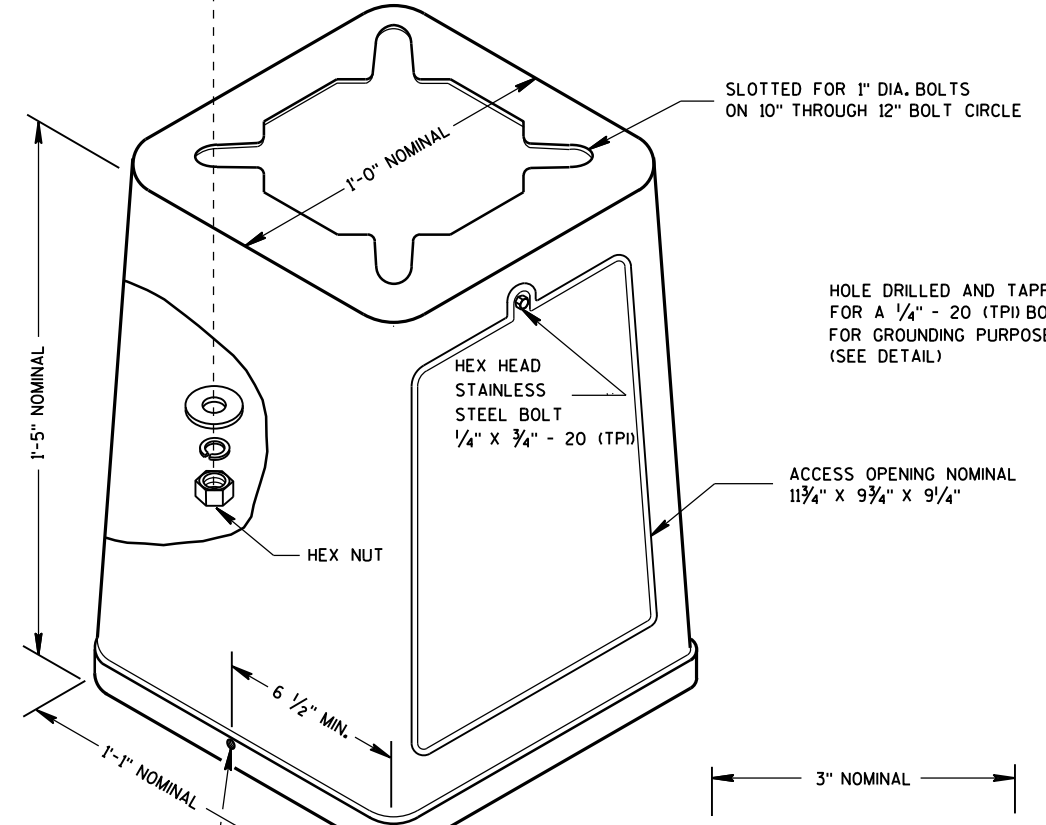
THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



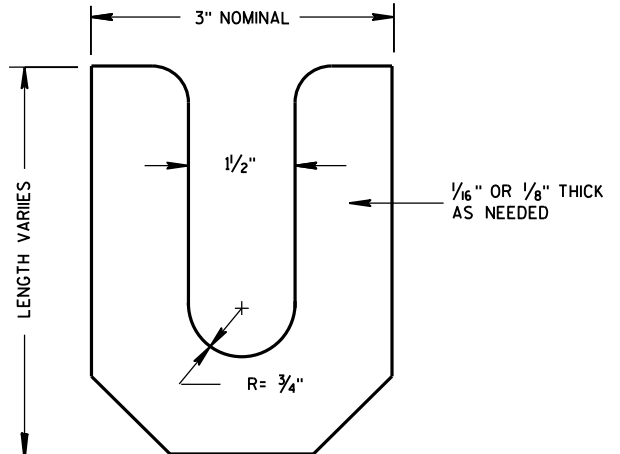
ZINC COATED STEEL WASHER TO BE PROVIDED BY THE CONTRACTOR  
**PEDESTAL BASE WASHER** ①



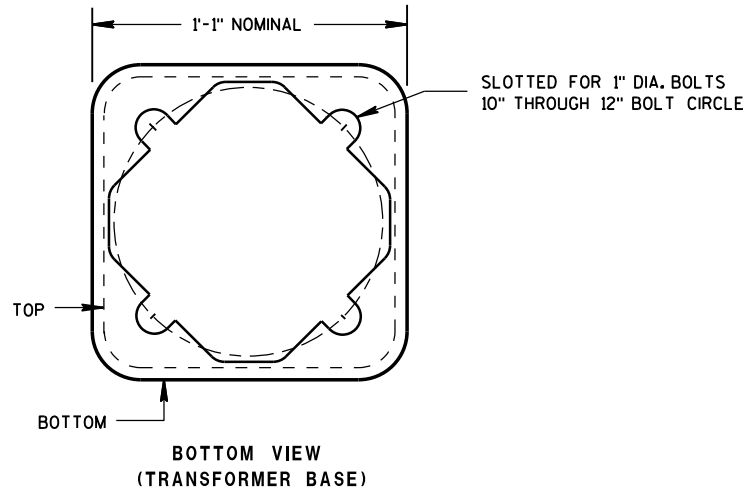
**ISOMETRIC VIEW PEDESTAL BASE**



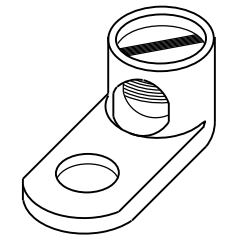
**ISOMETRIC VIEW**



**LEVELING SHIM**



**BOTTOM VIEW (TRANSFORMER BASE)**



**TYPICAL MECHANICAL CONNECTOR LUG**  
TO BE FURNISHED WITH EACH BASE

**TRANSFORMER BASE**  
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES

<b>TRANSFORMER/PEDESTAL BASES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept. 2014 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

6

6

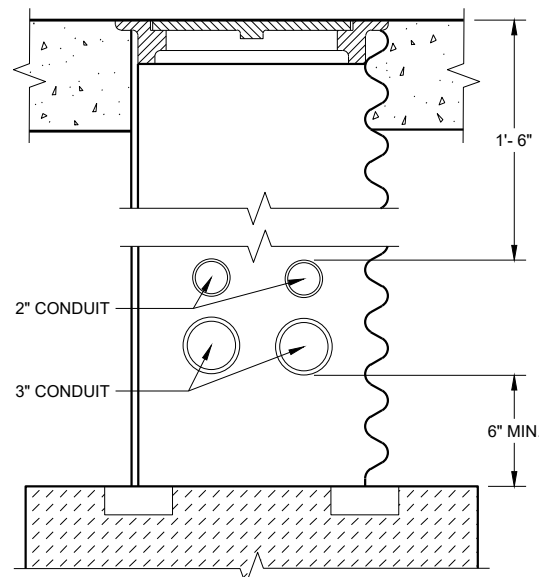
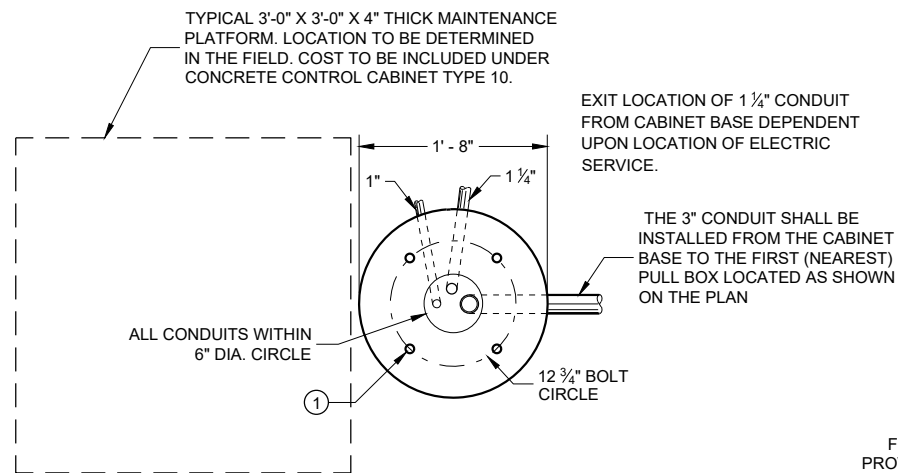
S.D.D. 9 C 3-4

S.D.D. 9 C 3-4



CONTROL CABINET BASE TYPE	DIMENSIONS				CUBIC YARD CONCRETE (APPROX.)
	H	I	J	K	
TYPE 6 - 30" CABINET	34"	60"	10"	17"	.64
TYPE 7 - 38" CABINET	42"	60"	10"	21"	.93
TYPE 8 - 38" CABINET	42"	72"	12"	21"	1.29
TYPE 9 - VARIABLE	54"	72"	14"	27"	1.56
TYPE 10 - POST MOUNT	AS SHOWN				.65*

\* INCLUDES MAINTENANCE PLATFORM.



**CONDUIT LOCATIONS IN 24" X 36" PULL BOX**

(LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

INSTALL FOUR (4) 1/2" INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH APPROVED CONCRETE MASONRY ANCHORS WITH A PULLOUT STRENGTH OF 9,000 LBS. TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NON - METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U. L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT EQUALS 6 TIMES THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON - METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST PULL BOX LOCATED AS SHOWN ON THE PLANS).

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

WHEN ANCHOR RODS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

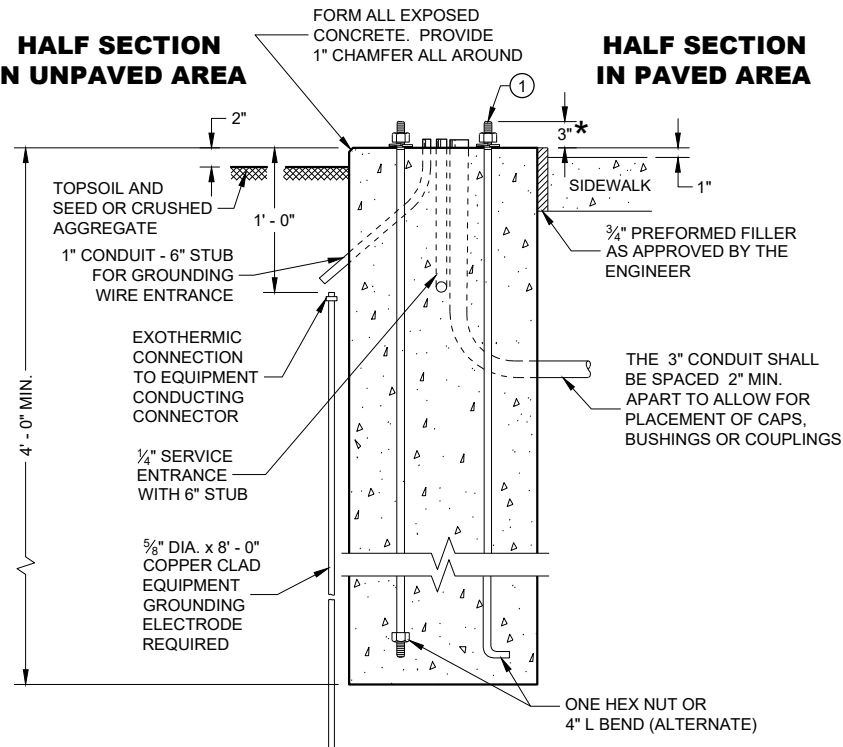
STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

① FOUR (4) ANCHOR RODS, 1" DIA. X 3'-6". ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2 OF THE STANDARD SPECIFICATIONS.

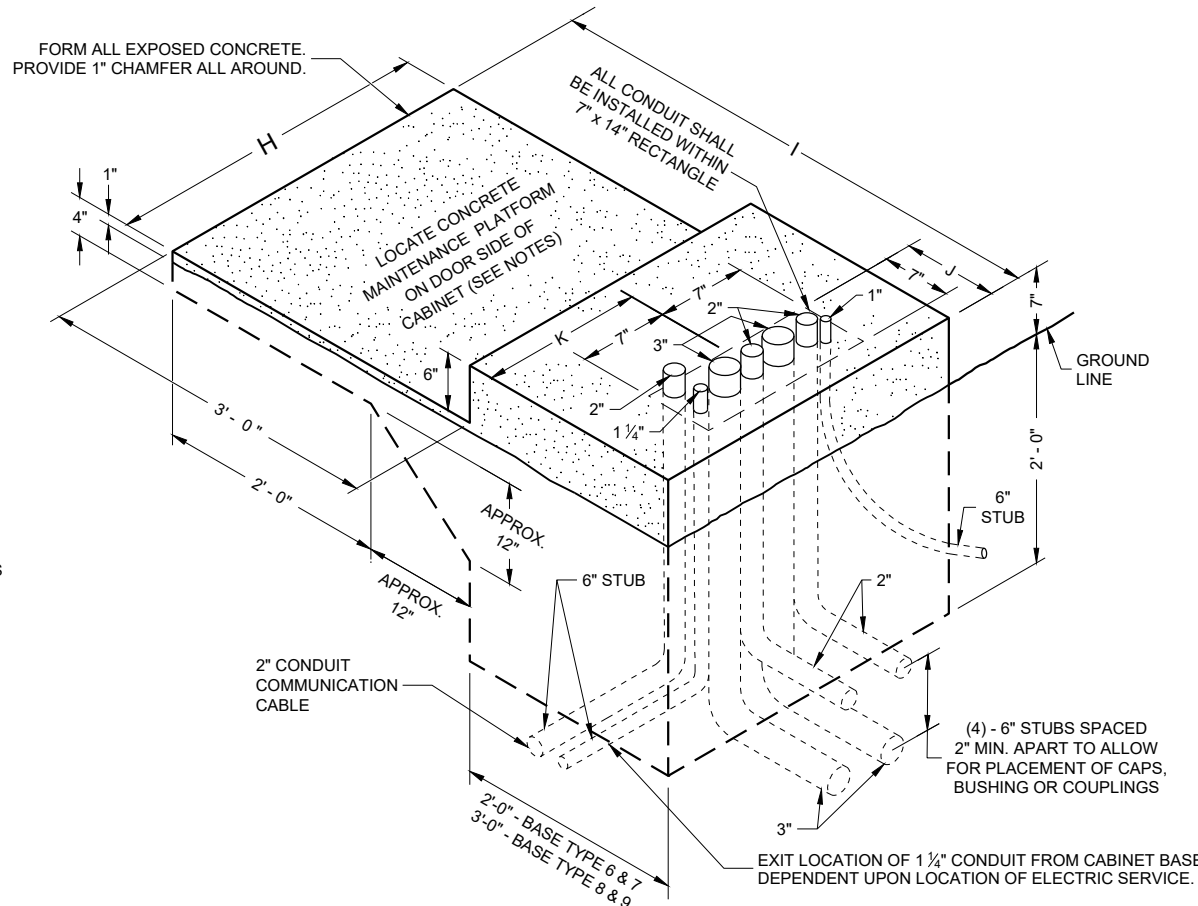
**HALF SECTION IN UNPAVED AREA**

**HALF SECTION IN PAVED AREA**



**TYPE 10**

\* ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/2" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.



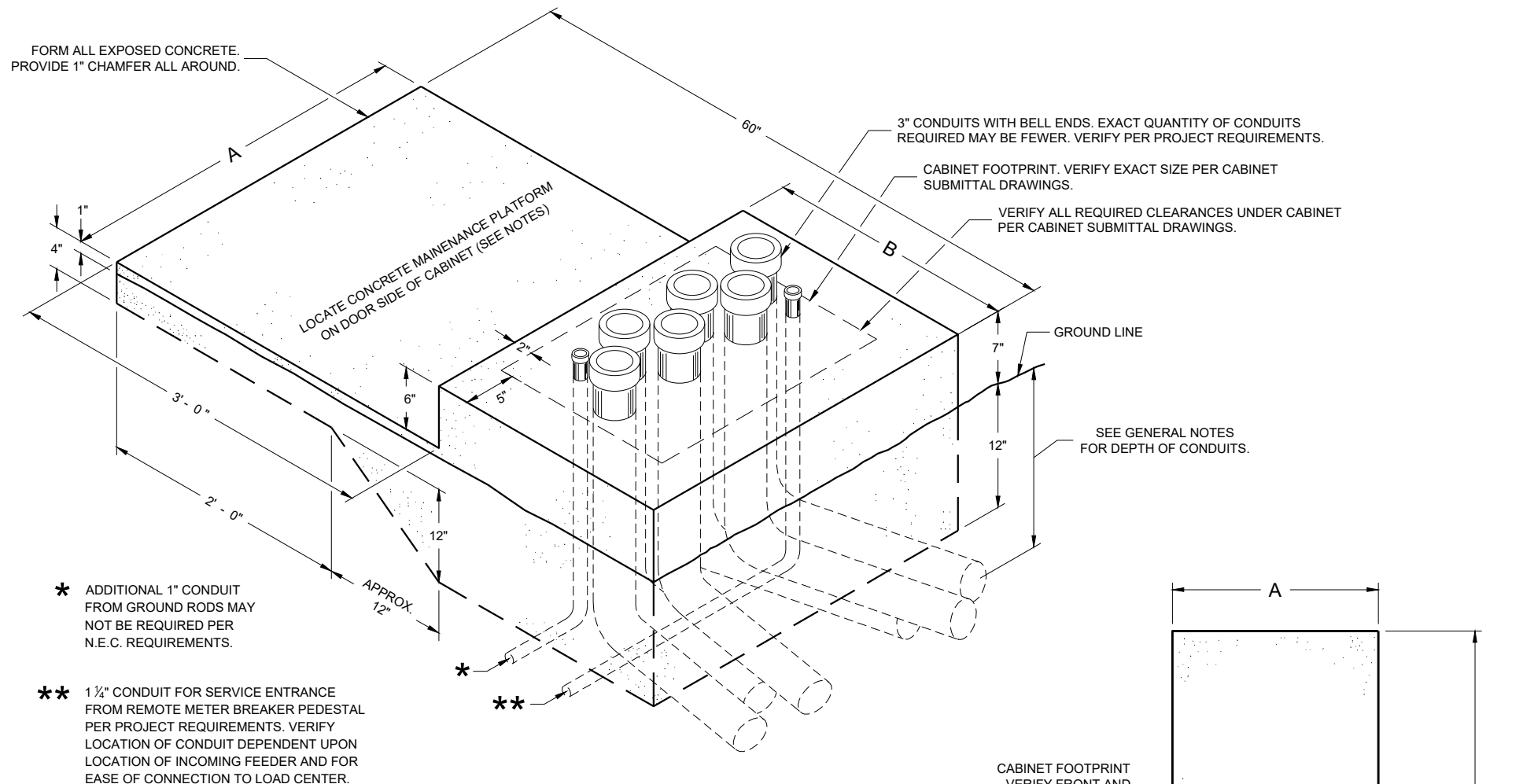
**ISOMETRIC VIEW TYPE 6, 7, 8 AND 9**

**CONCRETE CABINET CONTROL BASES**

**CONCRETE CABINET CONTROL BASES**

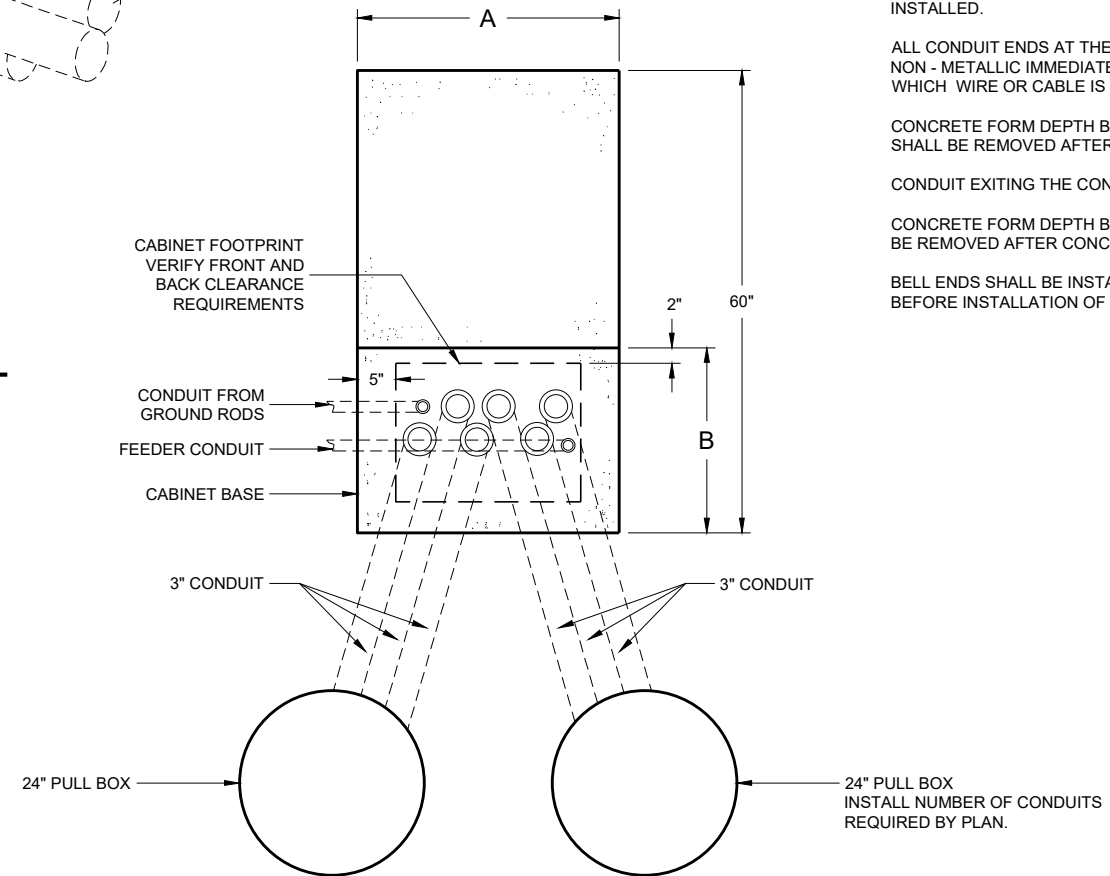
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
September 2016 /S/ Ahmet Demerbilek  
DATE STATE ELECTRICAL ENGINEER  
FHWA



**ISOMETRIC VIEW  
CONCRETE CONTROL CABINET BASE, TYPE L**  
(C.Y. CONCRETE = APPROX. 0.4)

CONCRETE BASE TYPE	CABINET WIDTH	DIMENSIONS		MAXIMUM 3" CONDUITS
		A	B	
L24	24"	34"	24"	4
L30	30"	40"	24"	6



**PLAN VIEW  
CONCRETE CONTROL CABINET BASE, TYPE L**

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- INSTALL FOUR STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET BASES. THE ANCHORS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.
- WHEN REQUIRED TO CONNECT NON - METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U. L. LISTED FOR ELECTRICAL USE, SHALL BE USED.
- CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.
- DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.
- DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.
- ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
- LOCATIONS SHALL BE AS SHOWN ON THE PLANS UNLESS DETERMINED BY THE ENGINEER IN THE FIELD.
- CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.
- MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND LEVEL.
- MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.
- MINIMUM BENDING RADIUS OF CONDUIT EQUALS 6 TIMES THE DIAMETER.
- ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.
- CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
- PLUG ALL BELOW GRADE NON - METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
- ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON - METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.
- CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCHES MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.
- CONDUIT EXITING THE CONCRETE BASE SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.
- CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCH MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.
- BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

**CONCRETE CONTROL  
CABINET BASE, TYPE L**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER

FHWA

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

BASES (SHAFT) SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING. A STEEL CASING OR CORRUGATED METAL PIPE IS ALLOWED TO REMAIN. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BASE IN LAYERS OF ONE FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

ANY DAMAGE TO THE CONCRETE BASE AND ANCHOR RODS DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED AT THE ENGINEER'S DIRECTION, AT THE EXPENSE OF THE CONTRACTOR.

THE REINFORCEMENT AND ANCHOR RODS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR RODS STICK OUT ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

FORM ALL EXPOSED CONCRETE CORNERS WITH 1" CHAMFER ALL AROUND. TOP OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 TIMES THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 4 1/2" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NON-METALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

WHEN REQUIRED TO CONNECT NON-METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

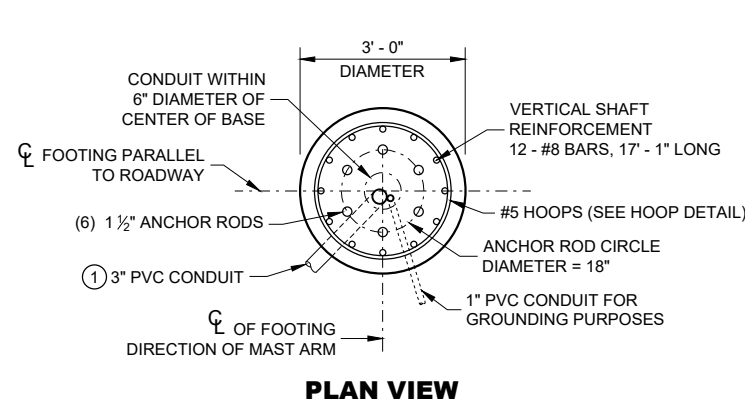
A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

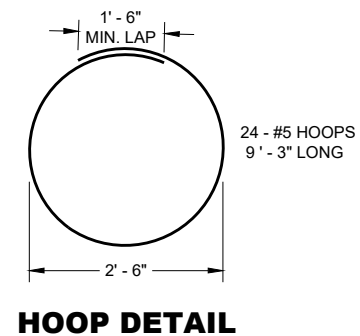
THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN A THE ENTRANCE OF THE BASE.

① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES (GREATER THAN 36 INCHES IF INSTALLED IN BREAKER RUN) EXCEPT WITH WRITTEN APPROVAL OF THE ENGINEER.

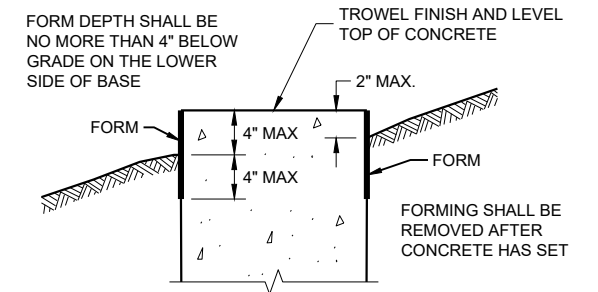
CONCRETE MASONRY.....fc = 3,500 p.s.i.  
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60.....fy = 60,000 p.s.i.  
 ANCHOR RODS, ASTM F1554 GRADE 55 ( IN ACCORDANCE WITH SECTION 531.2.2 OF THE STANDARD SPECIFICATION).....fy = 55,000 p.s.i.  
 TEMPLATES, ASTM A709, GRADE 36.....fy = 36,000 p.s.i.



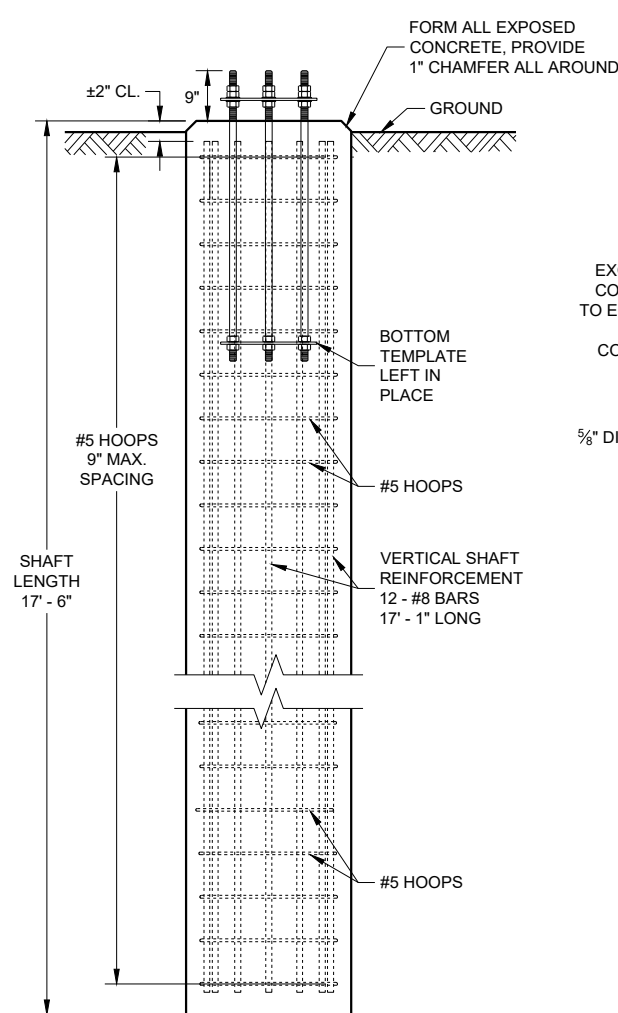
**PLAN VIEW**



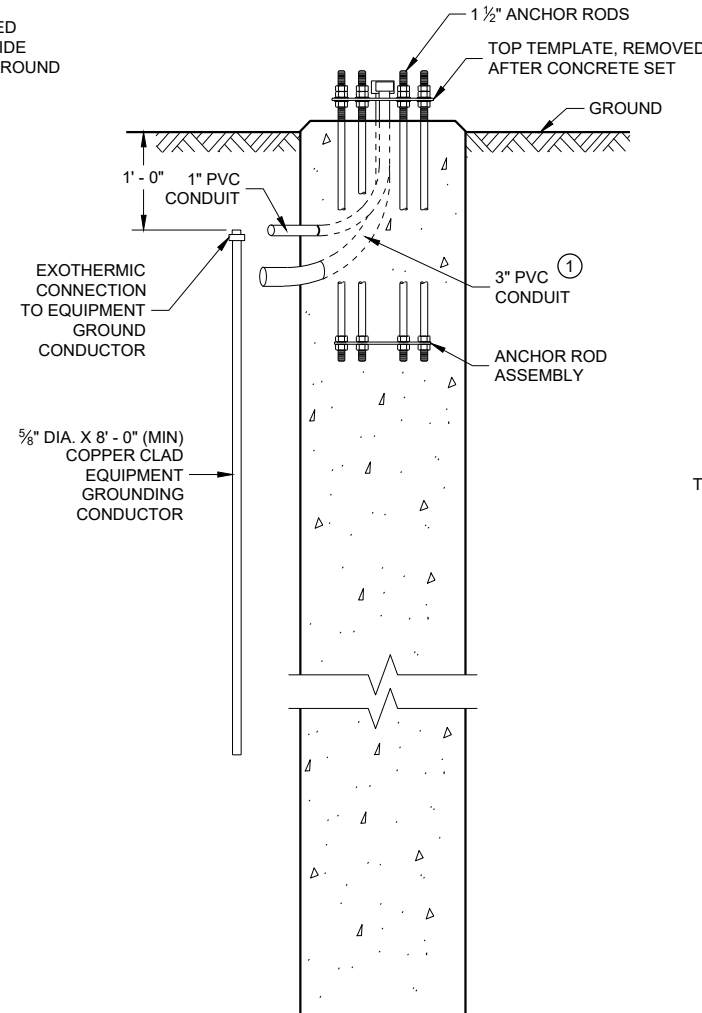
**HOOP DETAIL**



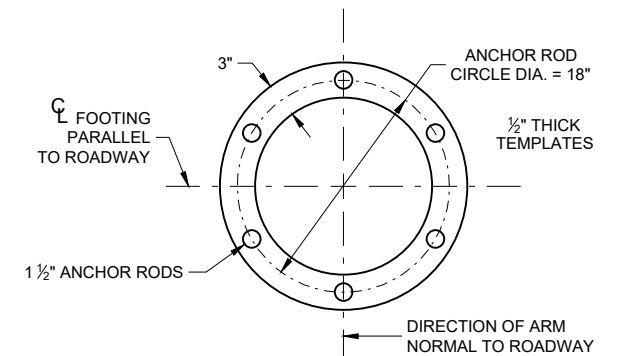
**FORMING DETAIL**



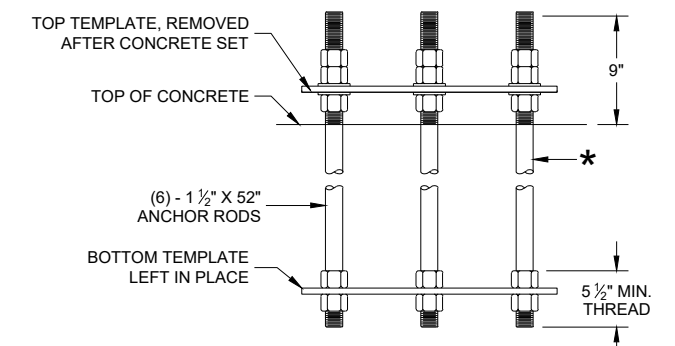
**ELEVATION VIEW**  
(CONDUITS NOT SHOWN ON THIS VIEW FOR CLARITY)



**SIDE VIEW**  
(HOOPS AND VERTICAL SHAFT REINFORCEMENT NOT SHOWN ON THIS VIEW FOR CLARITY)



**TOP AND BOTTOM TEMPLATE**



**ANCHOR ROD ASSEMBLY DETAILS**

\* THREAD TOP 10" OF ANCHOR ROD FOR 3 NUTS AND 2 WASHERS AND BOTTOM 5 1/2" FOR 2 NUTS PER ANCHOR ROD. HOT DIP GALVANIZE THE ENTIRE LENGTH OF THE ANCHOR ROD (ASTM A123) AND HOT DIP NUTS AND WASHERS (ASTM A153. USE ZINC COATED NUTS MANUFACTURED WITH SUFFICIENT ALLOWANCE TO ALLOW NUTS TO RUN FREELY ON THE THREADS.

**CONCRETE BASE, TYPE 10 SPECIAL  
(FOR TYPE 9 SPECIAL AND TYPE 10 SPECIAL POLES)**

CONCRETE = 4.6 CUBIC YARD  
 H.S. REINFORCEMENT = 779 LBS.

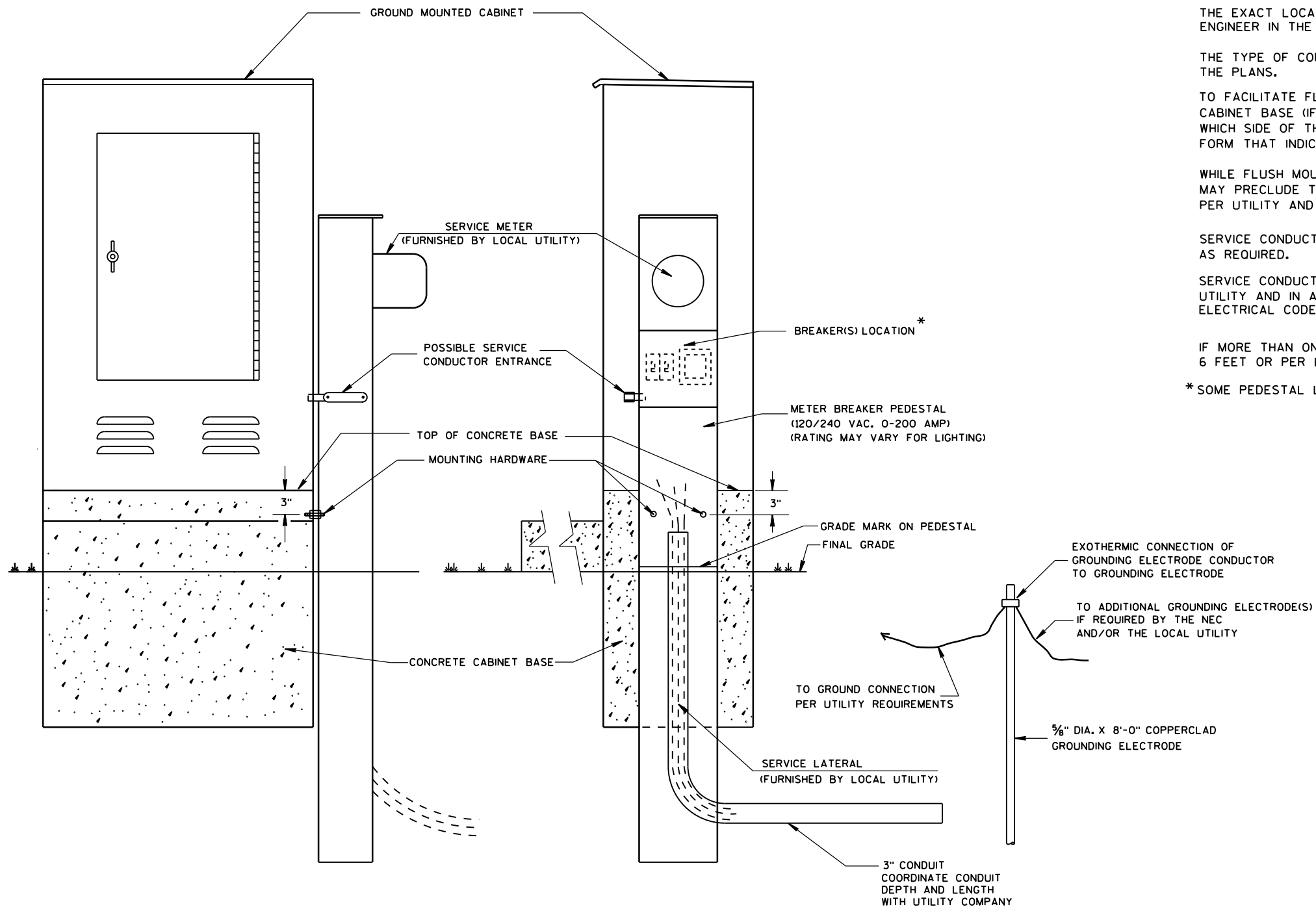
FOR USE WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.

**CONCRETE BASE  
TYPE 10 SPECIAL**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 August 2020 /S/ Alex Crabtree  
 DATE WIND LOADED STRUCTURES PROGRAM LEADER

FHWA



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH, THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

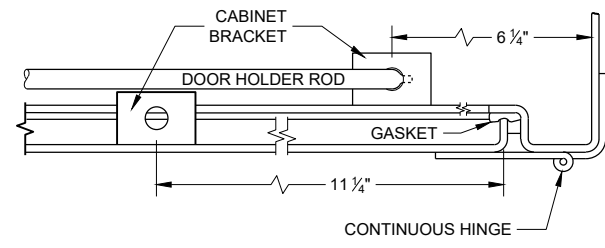
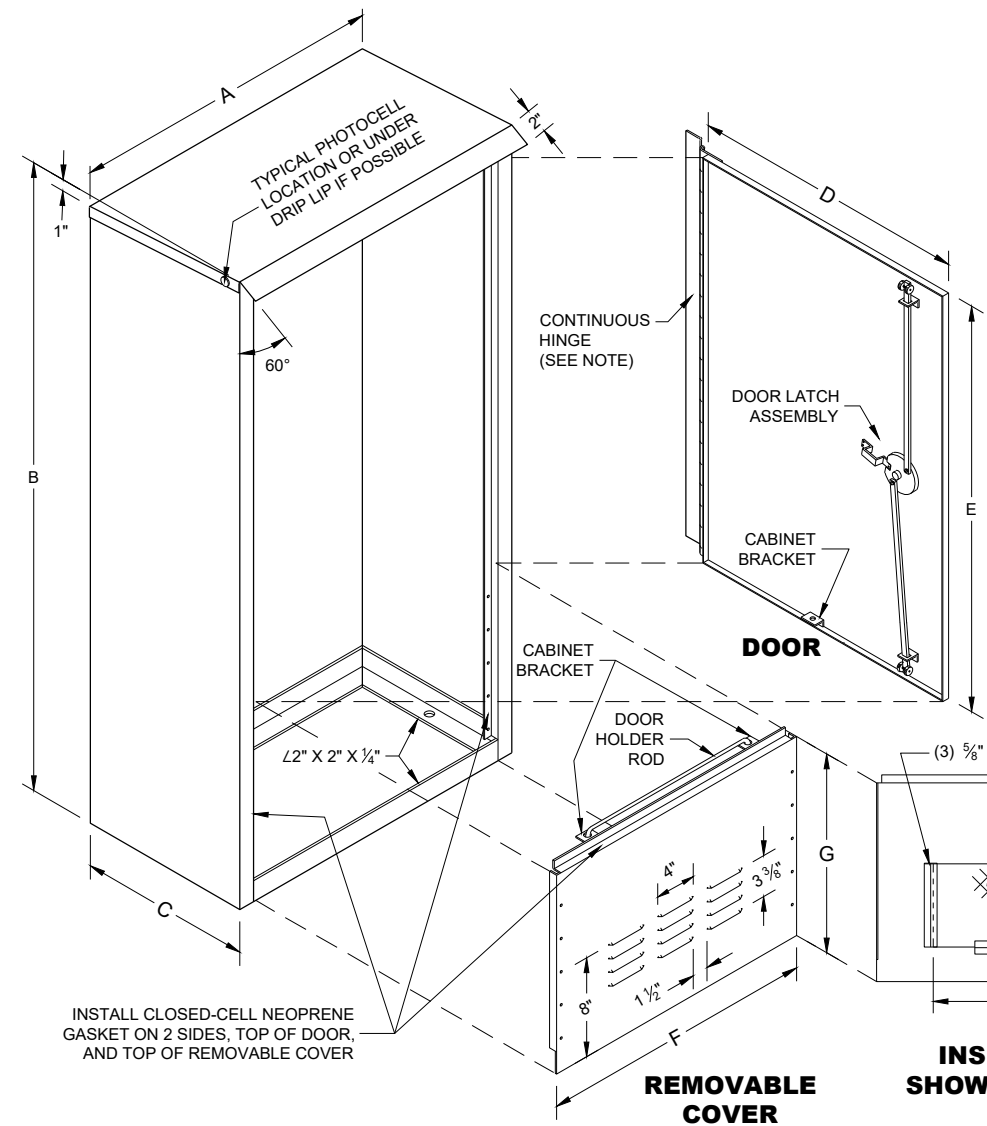
SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

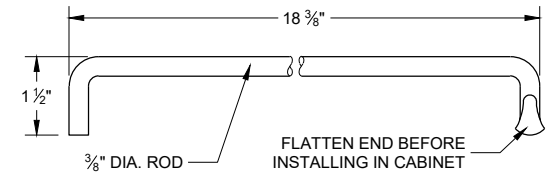
IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

\* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

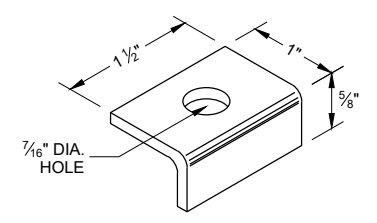
CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FHWA	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER



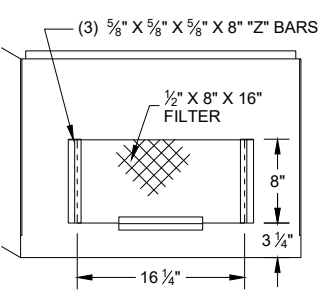
**HINGE AND DOOR HOLDER**



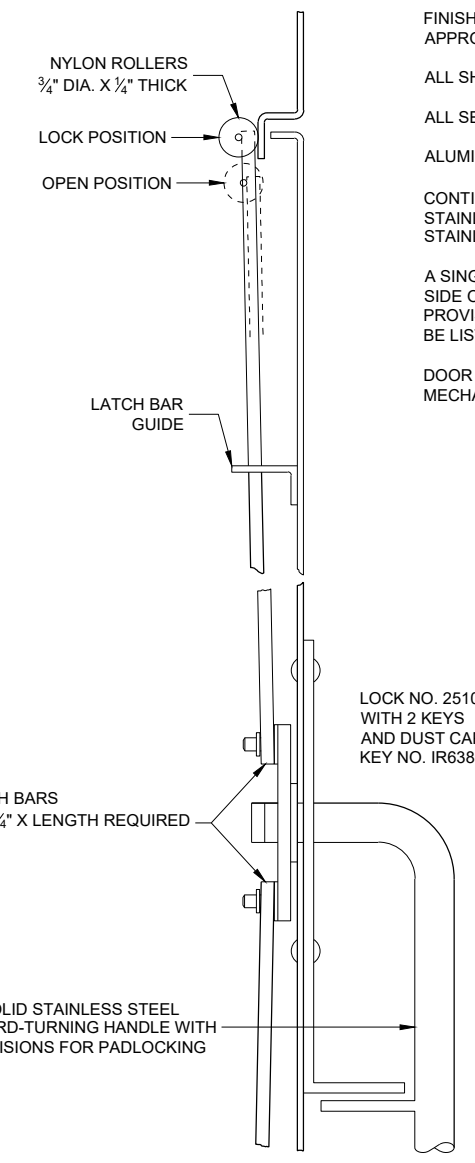
**HOLDER ROD**



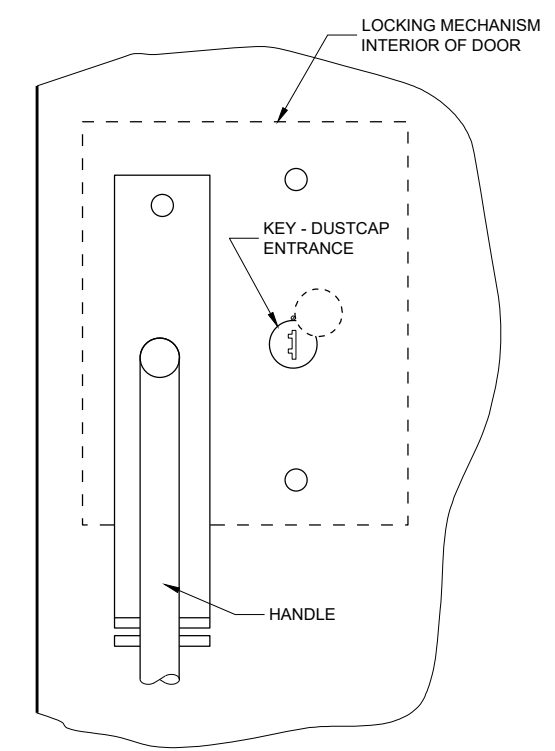
**CABINET BRACKET**



**INSIDE VIEW SHOWING FILTER**

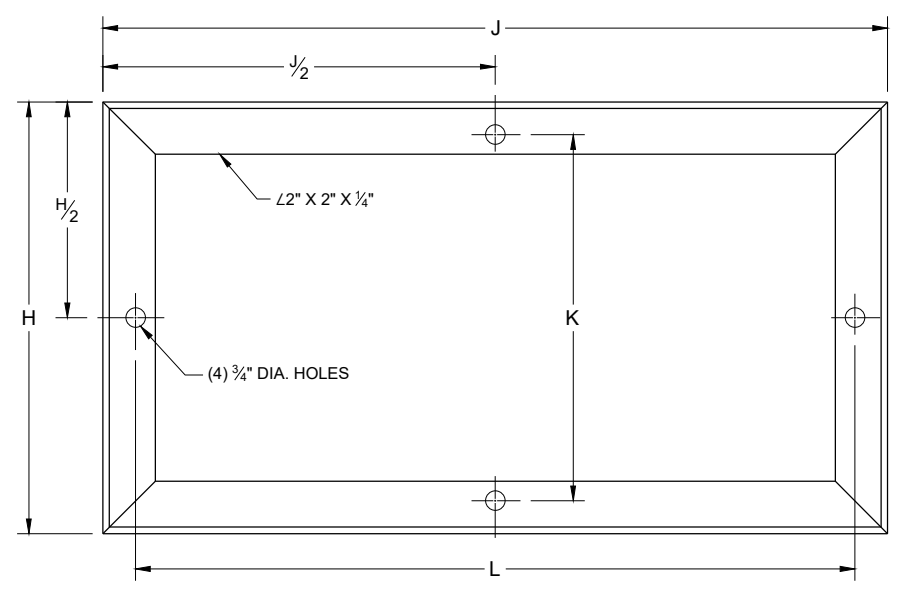


**SIDE VIEW**



**FRONT VIEW**

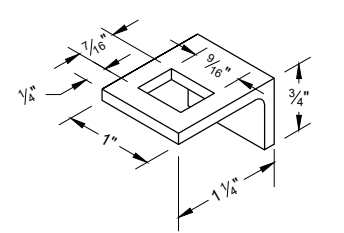
**LATCH ASSEMBLY**



**MOUNTING BASE**

**TABLE OF DIMENSIONS (INCHES)**

MARK	CABINET TYPE		
	3060	3860	3866
A	30	38	38
B	60	60	66
C	16 1/2	16 1/2	24
D	26 1/2	34 3/4	33 3/4
E	38 3/4	38 3/4	38 3/4
F	26 1/2	34 3/4	33 3/4
G	19	19	25
H	16 1/2	16 1/2	24
H/2	8 3/4	8 3/4	12
J	30	38	38
J/2	15	19	19
K	13 3/4	13 3/4	21 1/4
L	27 1/2	35 1/2	35 1/2



**LATCH BAR GUIDE**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PRIME WITH PHOSPHATE TREATMENT AND PRIMER.

FINISH EXTERIOR SURFACES WITH RUSTOLEUM #906 SILVER GRAY OR APPROVED EQUAL.

FINISH INTERIOR WITH RUSTOLEUM #2766 HIGH GLOSS WHITE ENAMEL OR APPROVED EQUAL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/2\"/>

A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH - NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST.

DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.

6

6

SDD 09D02 - 03

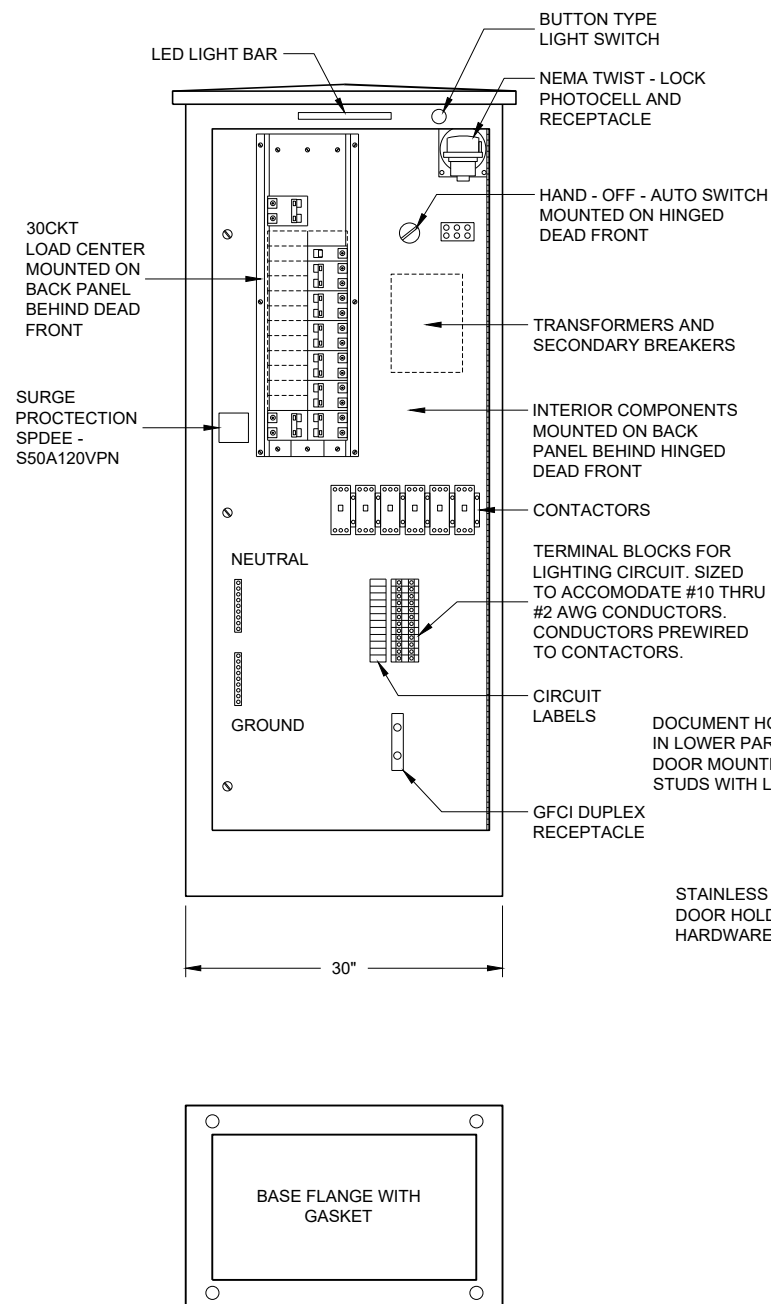
SDD 09D02 - 03

**SIGNAL CONTROL CABINET**

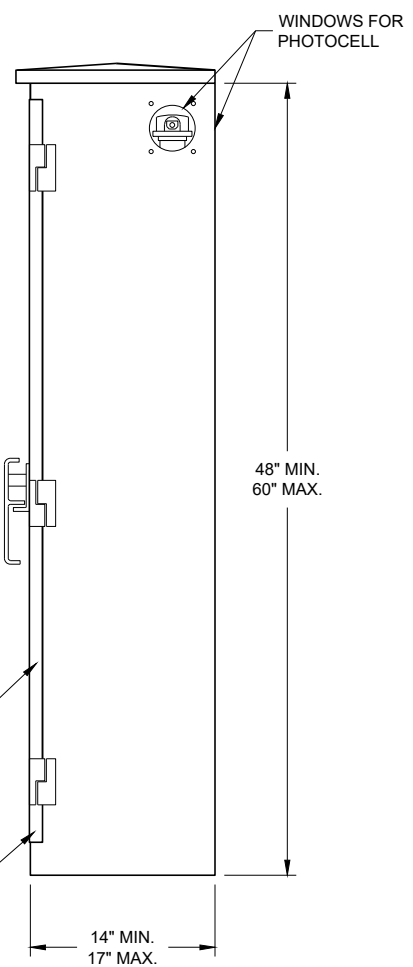
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
September 2014 /S/ Ahmet Demerbilek  
DATE STATE ELECTRICAL ENGINEER  
FHWA

**FRONT INTERIOR ELEVATION**

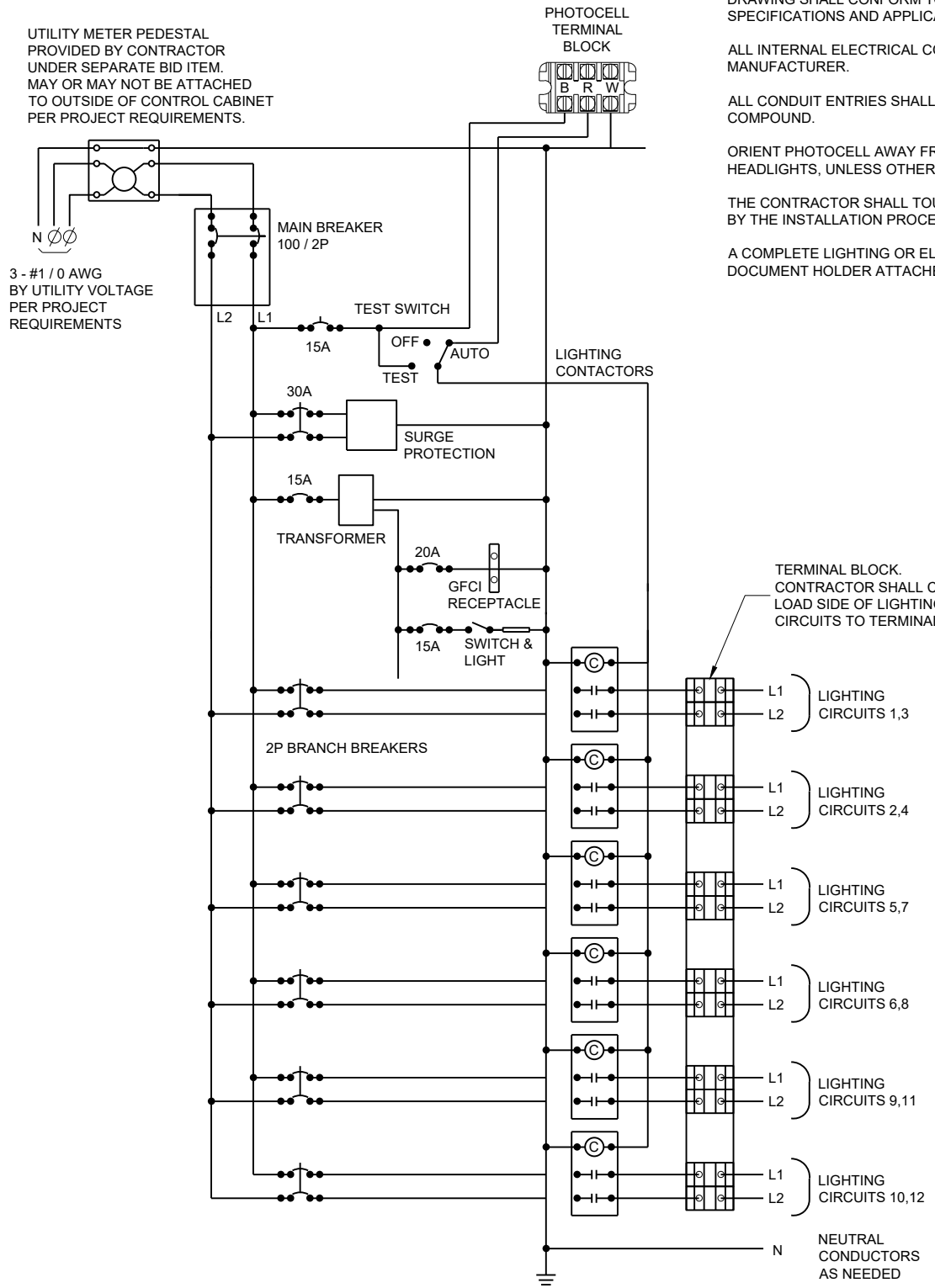


**SIDE VIEW**



**LIGHTING CONTROL CABINET**

UTILITY METER PEDESTAL PROVIDED BY CONTRACTOR UNDER SEPARATE BID ITEM. MAY OR MAY NOT BE ATTACHED TO OUTSIDE OF CONTROL CABINET PER PROJECT REQUIREMENTS.



**CONTROL CABINET SCHEMATIC**

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
- ALL INTERNAL ELECTRICAL COMPONENTS WILL BE PRE - WIRED BY THE CABINET MANUFACTURER.
- ALL CONDUIT ENTRIES SHALL BE SEALED WITH AN APPROPRIATE DUCT SEALING COMPOUND.
- ORIENT PHOTOCELL AWAY FROM AMBIENT LIGHT SOURCES AND ONCOMING TRAFFIC HEADLIGHTS, UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISION.
- THE CONTRACTOR SHALL TOUCH UP ANY DAMAGE TO THE ANODIZED FINISH CAUSED BY THE INSTALLATION PROCESS. COLOR MATCH PAINT SHALL BE USED.
- A COMPLETE LIGHTING OR ELECTRICAL PLAN SHALL BE SECURELY PLACED IN THE DOCUMENT HOLDER ATTACHED TO THE DOOR.

TERMINAL BLOCK. CONTRACTOR SHALL CONNECT LOAD SIDE OF LIGHTING CIRCUITS TO TERMINAL BLOCK.

**L30**  
**LIGHTING CONTROL CABINET**  
**240 / 480 VOLT**

---

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

---

APPROVED  
November 2018 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER

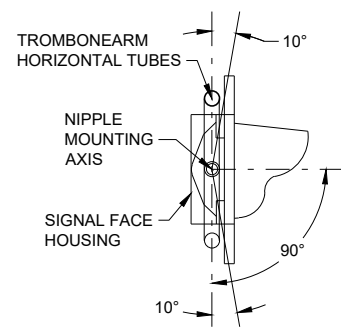
FHWA

6

6

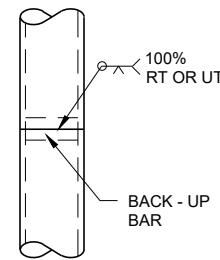
SDD 09D05 - 02

SDD 09D05 - 02

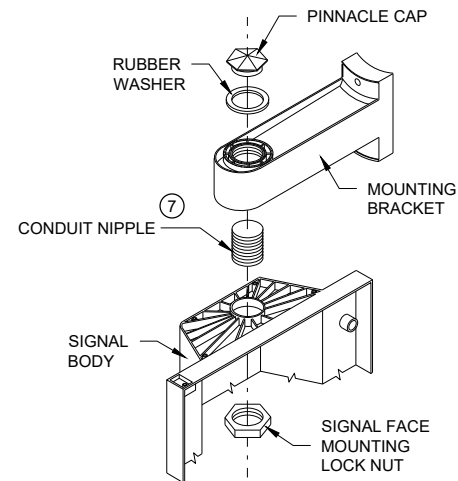


**SECTION A-A**  
(10 DEGREES TILT REQUIREMENT OF FACE(S) IN THE TROMBONE MOUNTING)

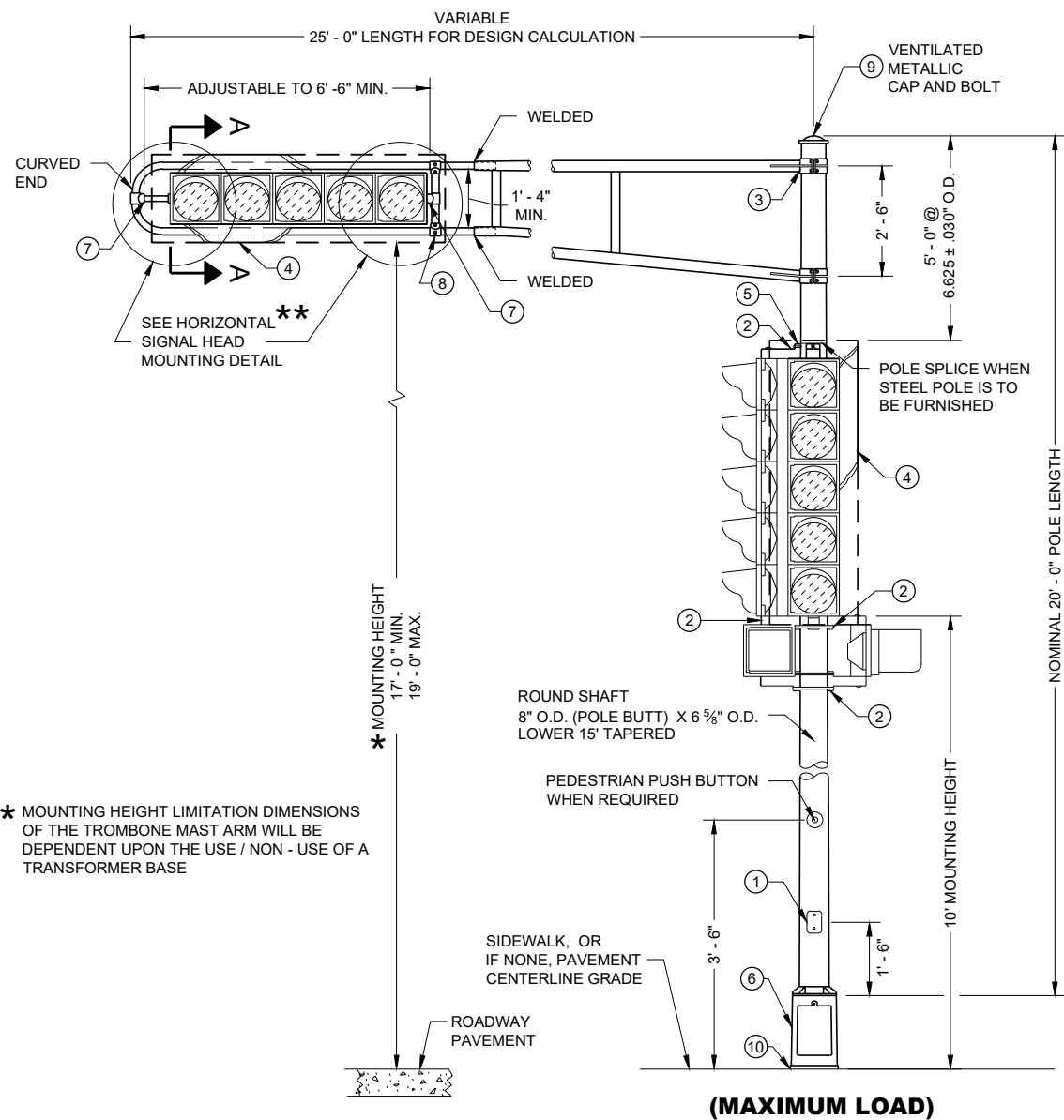
**FOR MANUFACTURERS USE ONLY**  
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN / BRIDGE FOR VERIFICATION AND APPROVAL.



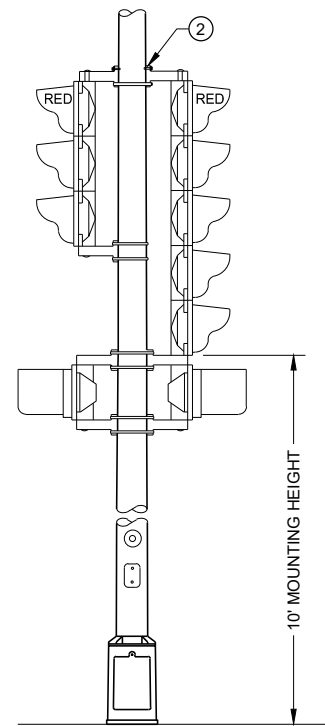
**POLE SPLICE DETAIL**



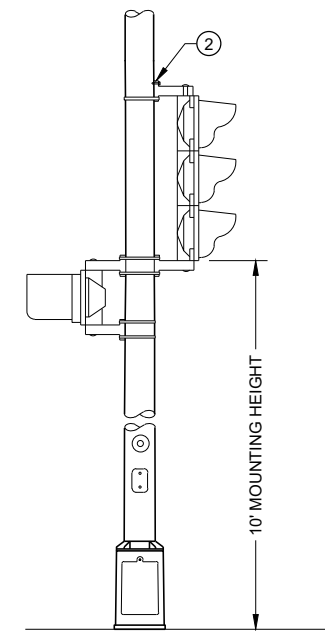
**SIGNAL FACE MOUNTING DETAIL (BANDED)**



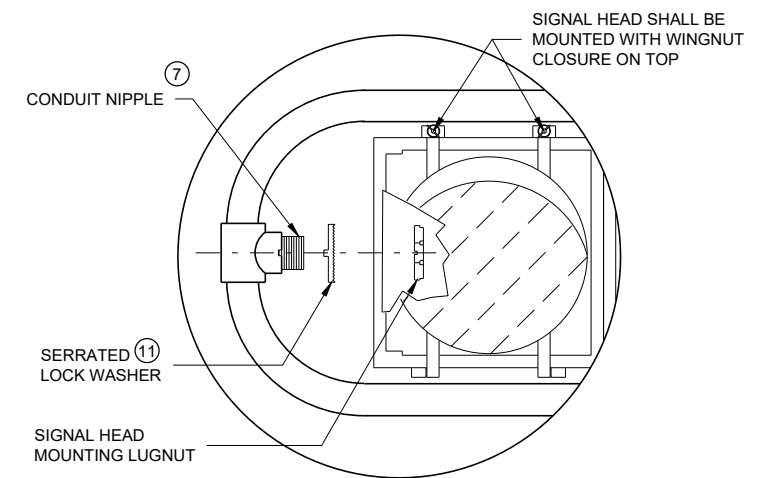
**(MAXIMUM LOAD)**



**TYPICAL MOUNTING OF BACK TO BACK 3 AND 5 SECTION SIGNAL FACES**



**TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE**



**HORIZONTAL SIGNAL HEAD MOUNTING DETAIL**  
\*\* SIGNAL HEAD ATTACHMENT ALSO APPLIES TO MOUNTING AT CROSS BAR

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

POLES SHALL BE EITHER ALUMINUM OR GALVANIZED STEEL AS CALLED FOR IN THE CONTRACT.

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

A PULL WIRE / ROPE SHALL BE INSTALLED IN EACH TROMBONE ARM RACEWAY DURING THE MANUFACTURING PROCESS.

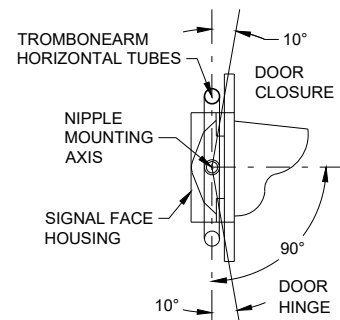
TYPE 2 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063 - T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

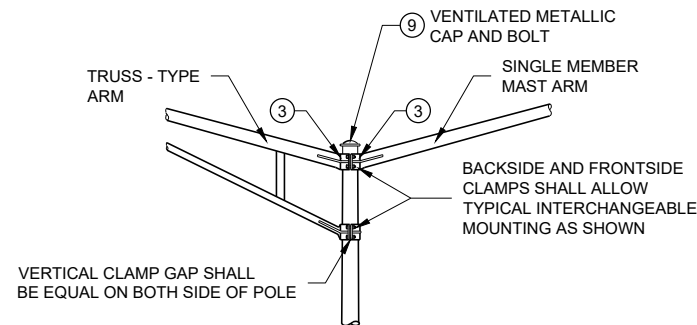
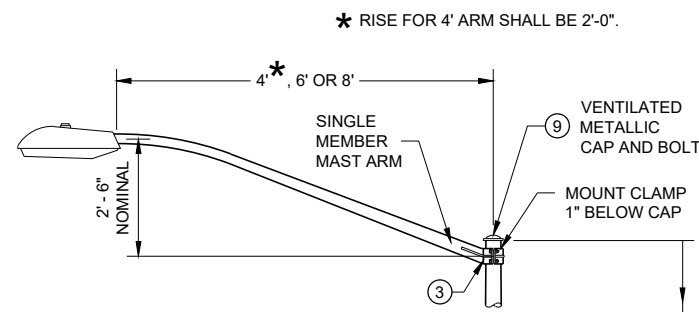
- ① 4" X 6" REINFORCED HANDHOLE AND COVER ASSEMBLY WITH TWO (2) 1/4" X 3/4" - 20 TPI, STAINLESS STEEL, HEX HEAD BOLTS.
- ② SIGNAL FACE MOUNTING BRACKETS. MOUNT WITH CAP SCREWS AND BANDING.
- ③ GROMMETS. 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
- ④ SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.
- ⑤ POLE MOUNTED SIGNAL FACES SHALL REQUIRE ONE OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACES.
- ⑥ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- ⑦ USE 1 1/2" ID NIPPLES ZINC-COATED RIGID METAL CONDUIT, LONG ENOUGH TO ACCOMMODATE FULL DEPTH THREADING INTO THE HEAD MOUNTING LOCK NUT IN ORDER TO TIGHTEN THE FACE, BUT THAT DO NOT INTERFERE WITH REFLECTOR CLOSURE. THREAD THE NIPPLE INTO THE MOUNTING BRACKET/ELBOW UNTIL TIGHT. USE APPROVED PINNACLE TYPE HARDWARE FROM A DEPARTMENT APPROVED MANUFACTURER TO CLOSE THE UNUSED 1 1/2" OPENING IN SIGNAL FACES AND BRACKET ENDS.
- ⑧ VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
- ⑨ FURNISH AND INSTALL VENTILATED, CAST METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑩ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.
- ⑪ USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.

\* MOUNTING HEIGHT LIMITATION DIMENSIONS OF THE TROMBONE MAST ARM WILL BE DEPENDENT UPON THE USE / NON - USE OF A TRANSFORMER BASE

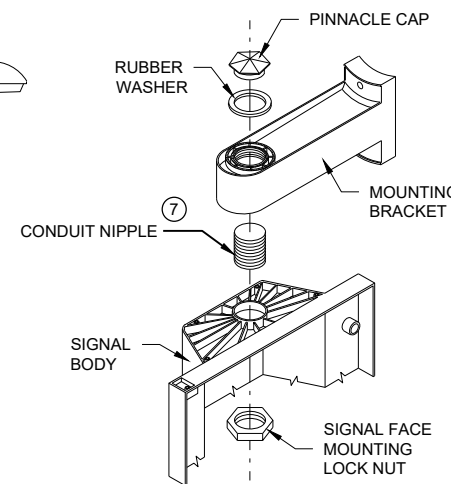
<b>POLE MOUNTINGS FOR TRAFFIC SIGNALS TYPE 2</b>
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



**SECTION A-A**



**INTERCHANGEABLE MOUNTING DETAIL**



**SIGNAL FACE MOUNTING DETAIL (BANDED)**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL TYPE 3 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL.

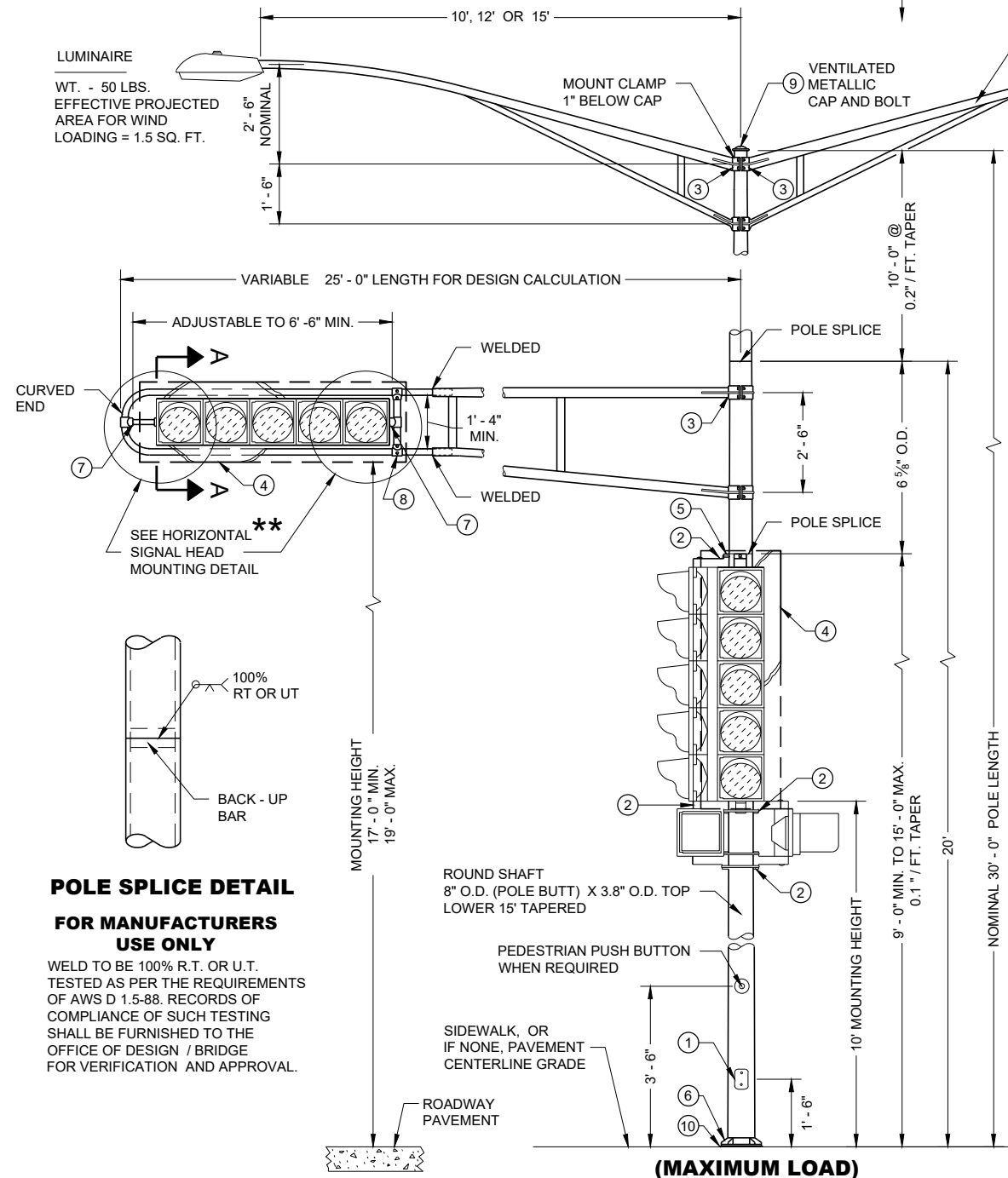
SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

A PULL WIRE / ROPE SHALL BE INSTALLED IN EACH TROMBONE ARM RACEWAY DURING THE MANUFACTURING PROCESS.

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 3/8 INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

- ① 4" X 6" REINFORCED HANDHOLE AND COVER ASSEMBLY WITH TWO (2) 1/2" X 3/4" - 20 TPI, STAINLESS STEEL, HEX HEAD BOLTS.
- ② SIGNAL FACE MOUNTING BRACKETS. MOUNT WITH CAP SCREWS AND BANDING.
- ③ GROMMETS. 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 1/2" HOLE IN POLE SHAFT FOR WIRING.
- ④ SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.
- ⑤ POLE MOUNTED SIGNAL FACES SHALL REQUIRE ONE OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACE.
- ⑥ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED. UNDER MAX LOADING, TYPE 3 POLE SHALL BE MOUNTED DIRECTLY TO ITS CONCRETE BASE.
- ⑦ USE 1 1/2" ID NIPPLES ZINC-COATED RIGID METAL CONDUIT, LONG ENOUGH TO ACCOMMODATE FULL DEPTH THREADING INTO THE HEAD MOUNTING LOCK NUT IN ORDER TO TIGHTEN THE FACE, BUT THAT DO NOT INTERFERE WITH REFLECTOR CLOSURE. THREAD THE NIPPLE INTO THE MOUNTING BRACKET/ELBOW UNTIL TIGHT. USE APPROVED PINNACLE TYPE HARDWARE FROM A DEPARTMENT APPROVED MANUFACTURER TO CLOSE THE UNUSED 1 1/2" OPENING IN SIGNAL FACES AND BRACKET ENDS.
- ⑧ VERTICAL STRUT (ADJUSTABLE), ONE (1) SET SCREW (1/2" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
- ⑨ FURNISH AND INSTALL VENTILATED, CAST METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/2" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑩ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.
- ⑪ USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.



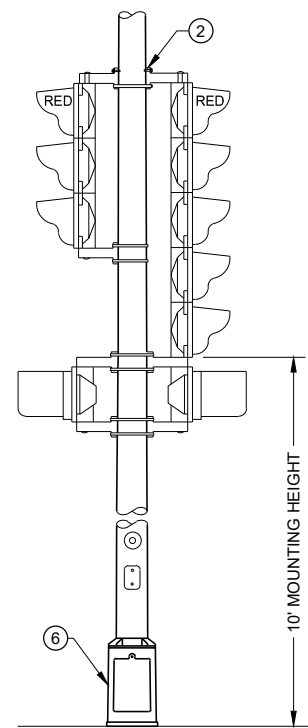
**POLE SPLICE DETAIL**

**FOR MANUFACTURERS USE ONLY**

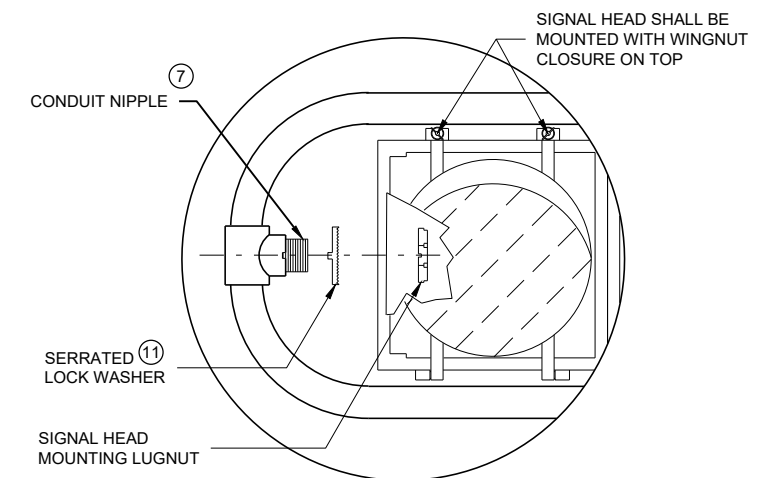
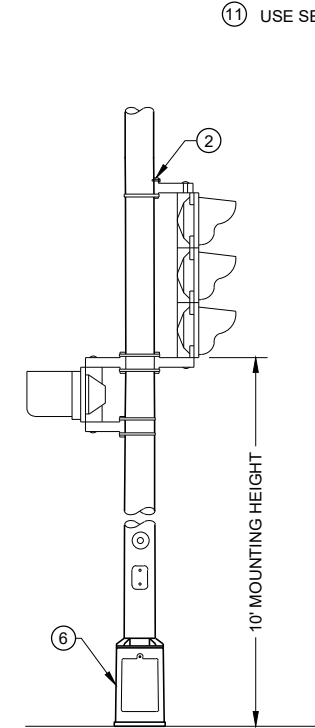
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN / BRIDGE FOR VERIFICATION AND APPROVAL.

**TYPICAL MOUNTING OF BACK TO BACK 3 AND 5 SECTION SIGNAL FACES**

**TYPE 3 POLE MOUNTING CONFIGURATION**



**TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE**



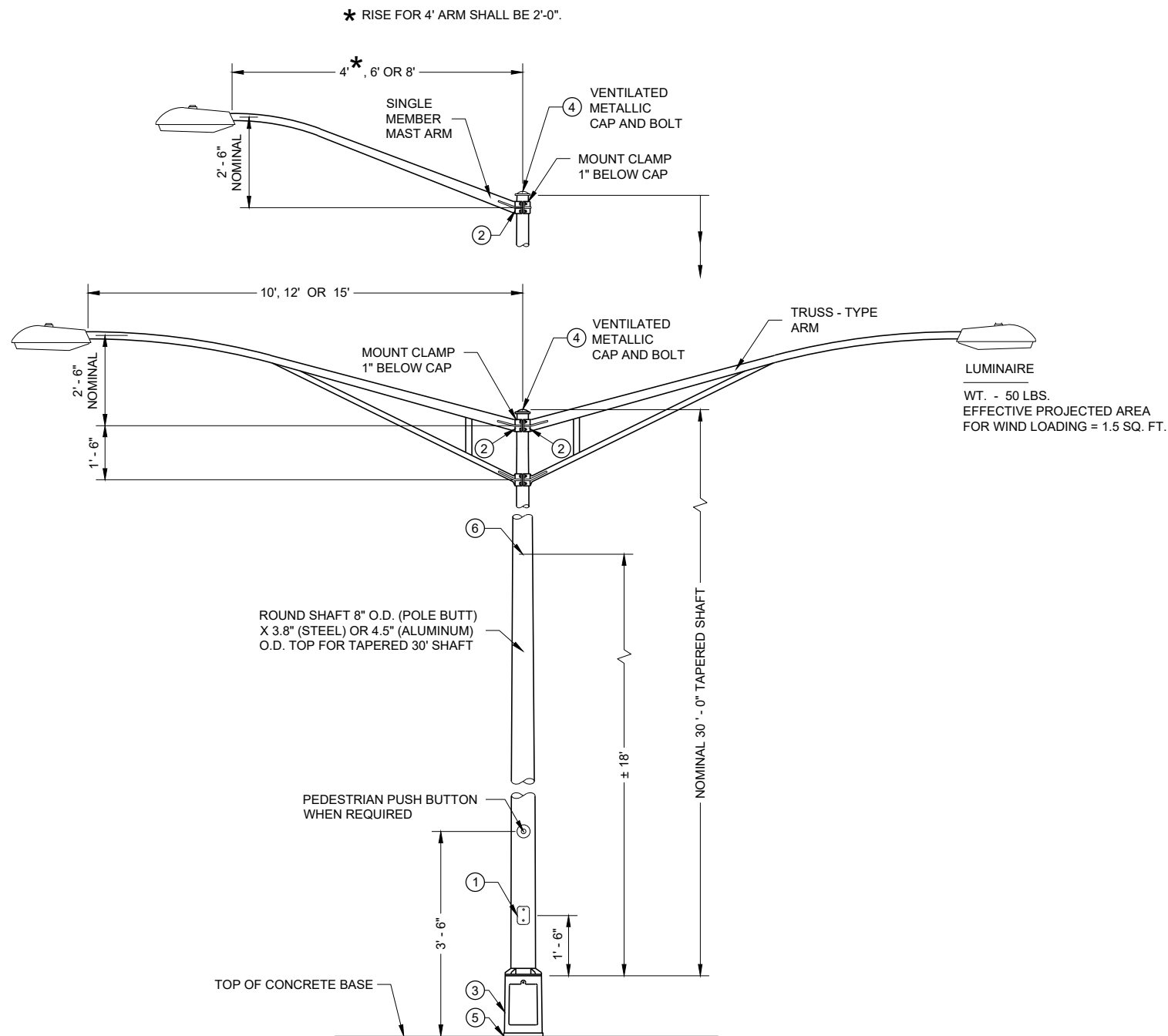
**HORIZONTAL SIGNAL HEAD MOUNTING DETAIL**

\*\* SIGNAL HEAD ATTACHMENT ALSO APPLIES TO MOUNTING AT CROSS BAR

**POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS TYPE 3 (HEAVY DUTY)**

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION





**TYPE 5 POLE MOUNTING CONFIGURATION  
(MAXIMUM LOAD)  
LIGHTING ONLY**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063 - T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.1888\".

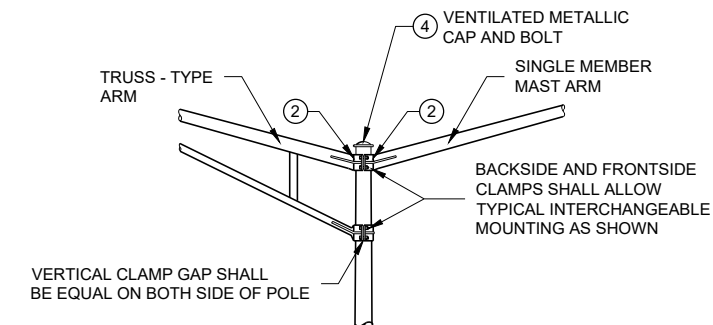
TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (0.1196\").

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 3/8 INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

- ① 4" X 6" REINFORCED HANDHOLE AND COVER ASSEMBLY WITH TWO (2) 1/4" X 3/4" - 20 TPI , STAINLESS STEEL, HEX HEAD BOLTS.
- ② GROMMETS. 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
- ③ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- ④ FURNISH AND INSTALL VENTILATED, CAST METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑤ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.
- ⑥ INTERNAL DUMBBELL - TYPE VIBRATION DAMPER.

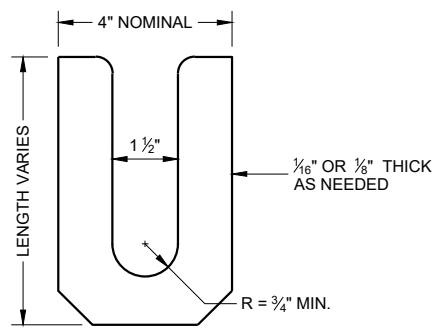
LUMINAIRE  
WT. - 50 LBS.  
EFFECTIVE PROJECTED AREA  
FOR WIND LOADING = 1.5 SQ. FT.



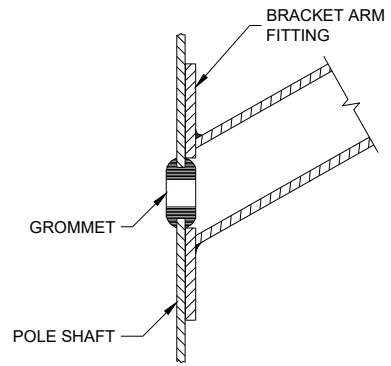
**INTERCHANGEABLE MOUNTING DETAIL**

**POLE MOUNTINGS FOR  
LIGHTING UNITS, TYPE 5  
( 30 FEET )**

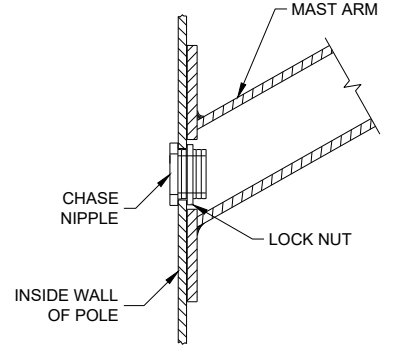
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**LEVELING SHIM**  
SHALL BE ALUMINUM



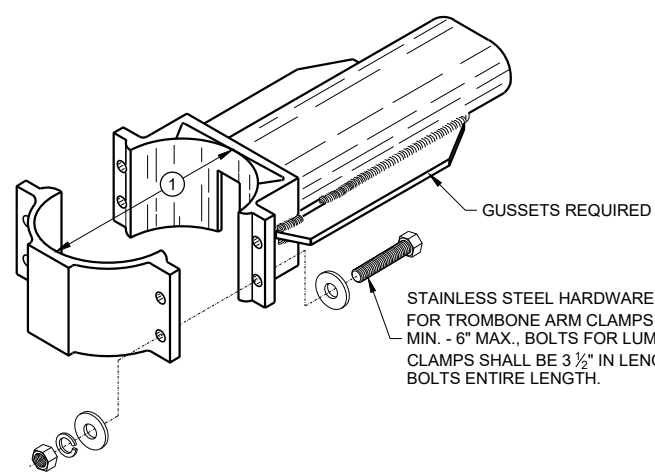
**TYPICAL APPLICATION OF GROMMET IN POLE SHAFT**



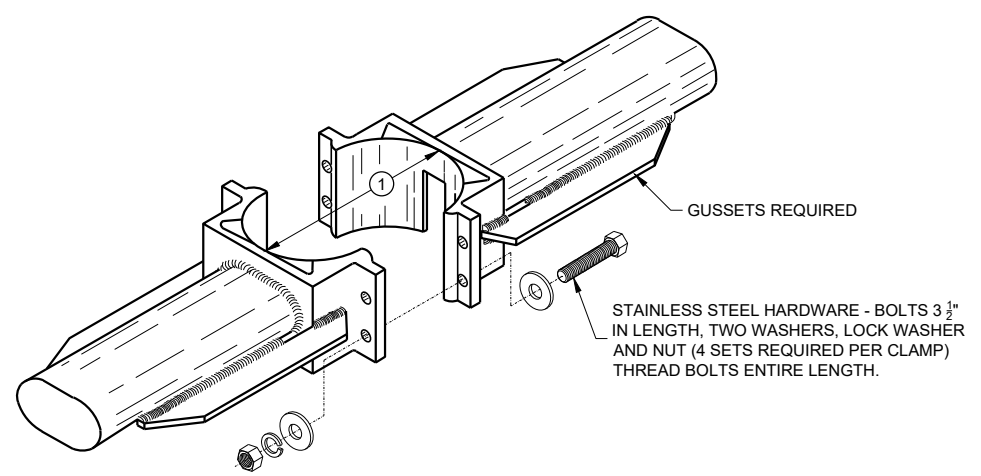
**TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT**

**GENERAL NOTES**

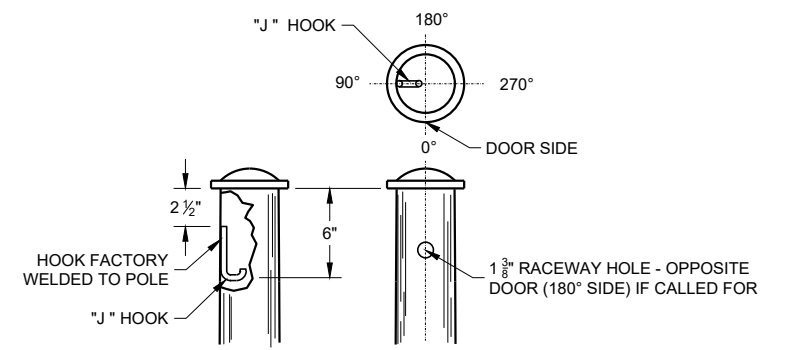
- CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.
- ① 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP. 6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
  - ② INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)
  - ③ BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.
  - ④ LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.
- SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



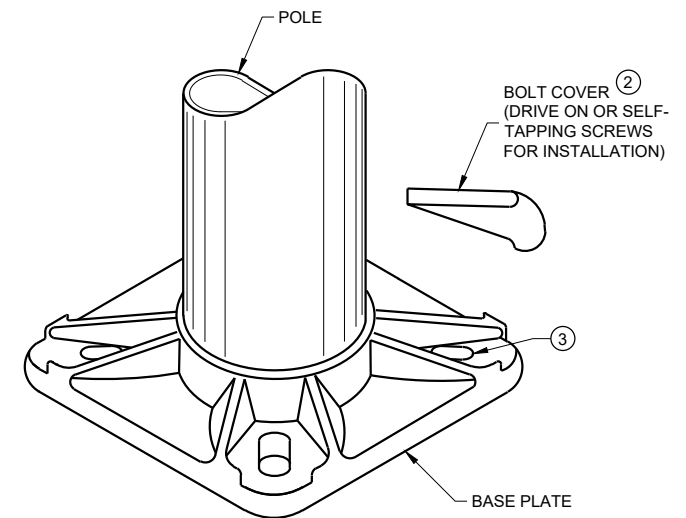
**TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP**



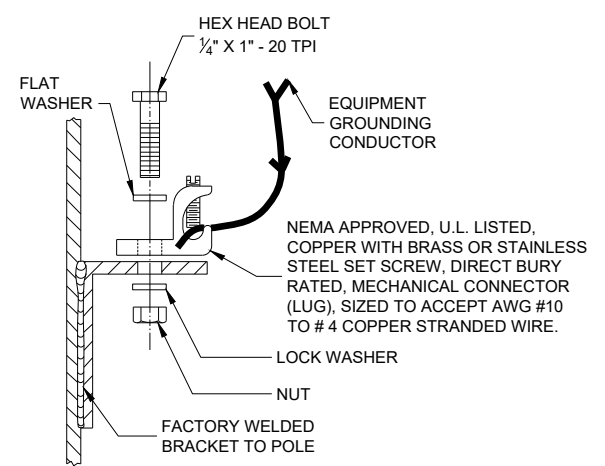
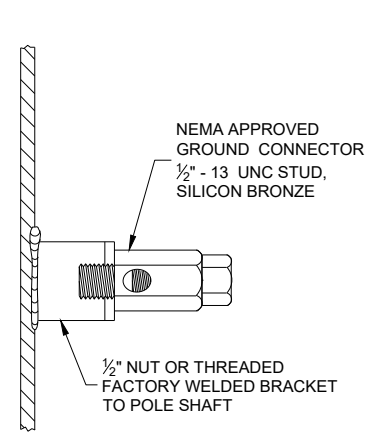
**TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS**



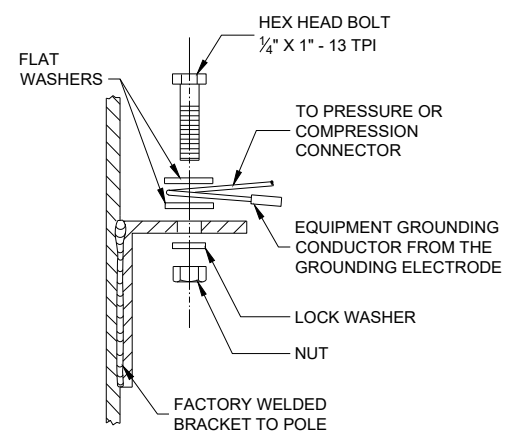
**TYPICAL "J" HOOK LOCATION**



**BASE PLATE**



**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



**HARDWARE DETAILS FOR POLE MOUNTING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

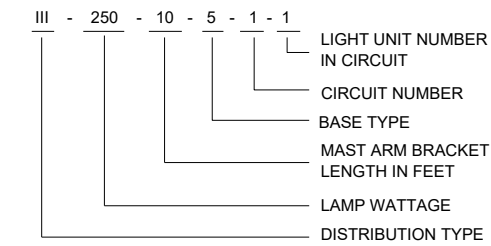
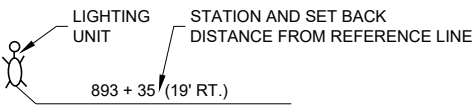
APPROVED  
November 2018 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER  
FHWA

**GENERAL NOTES**

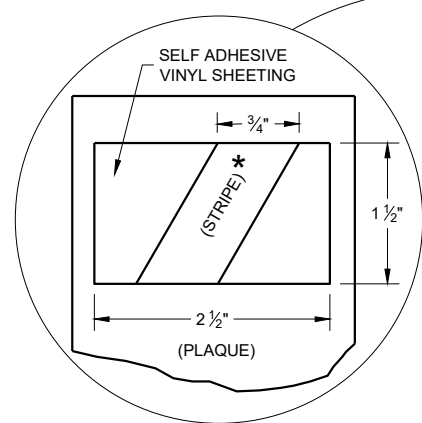
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EQUIPMENT GROUND CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.



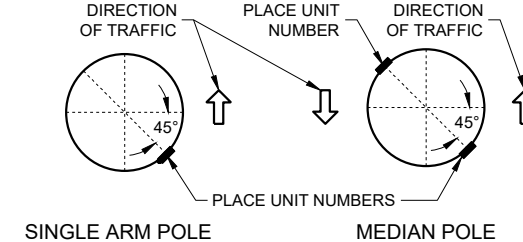
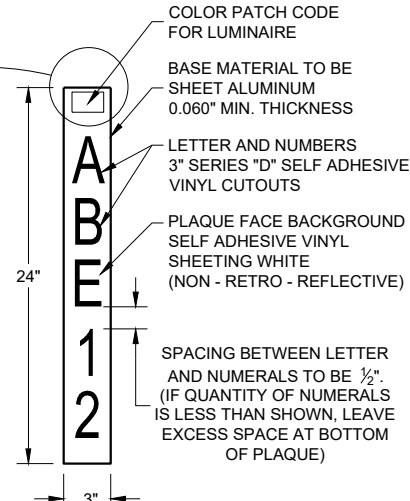
**LIGHTING UNIT CODE (TYPICAL)**



**COLOR PATCH CODE FOR LUMINAIRES**

(HIGH PRESSURE SODIUM)	(MERCURY VAPOR)
1000 WATT - NO PATCH	400 WATT - NO PATCH
400 WATT - ORANGE	250 WATT - YELLOW
310 WATT - BLUE	
250 WATT - ORANGE W / WHITE STRIPE *	
200 WATT - RED	
150 WATT - GREEN	
100 WATT - BROWN	

**IDENTIFICATION PLAQUE**

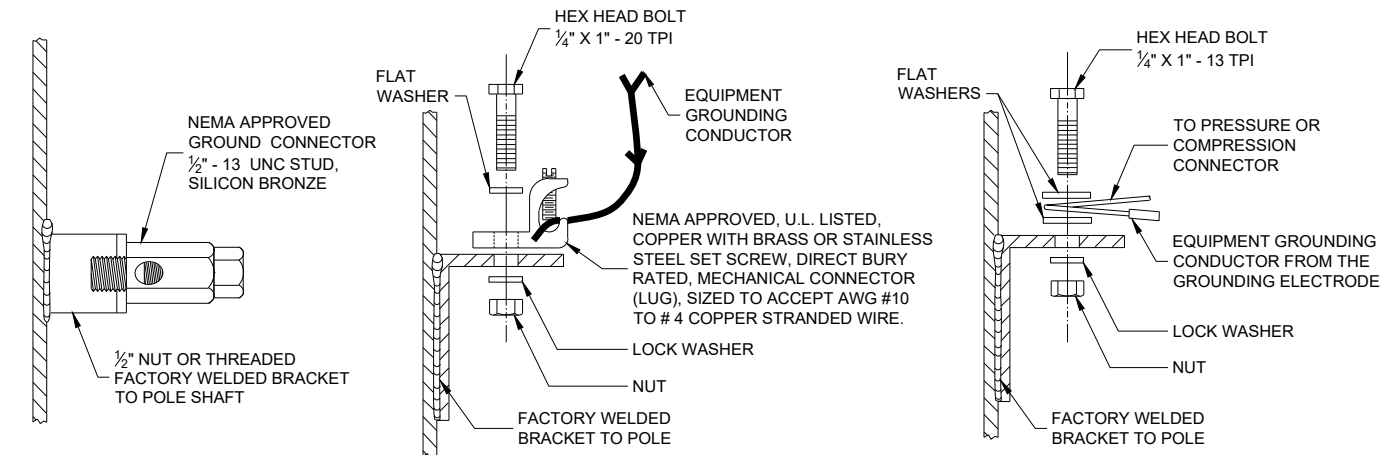


**LIGHTING UNIT IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENT (TYPICAL, ALL LIGHTING UNITS)**

FURNISH PLAQUE WHEN CALLED FOR BY SPECIAL PROVISIONS

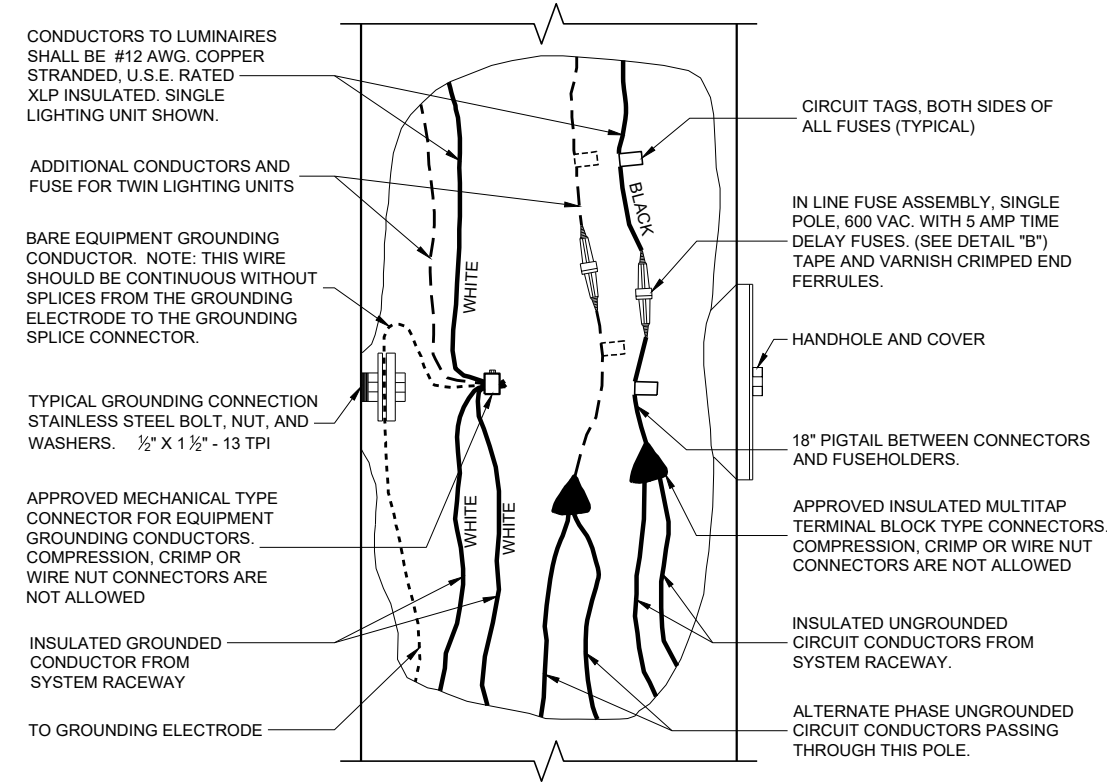
**NOTES**

- 1) PLACE BOTTOM OF UNIT NUMBER PLAQUE 5'-0" ABOVE ELEVATION OF ADJACENT CURB OR SHOULDER.
  - 2) UNIT NUMBER: ONE REQUIRED FOR SINGLE ARM POLES. TWO REQUIRED FOR MEDIAN MOUNT POLES.
- FASTEN TOP, CENTER AND BOTTOM OF PLAQUE WITH 3 ALUMINUM POP RIVETS (ALUMINUM POLES) OR STAINLESS STEEL POP RIVETS (STEEL POLES).

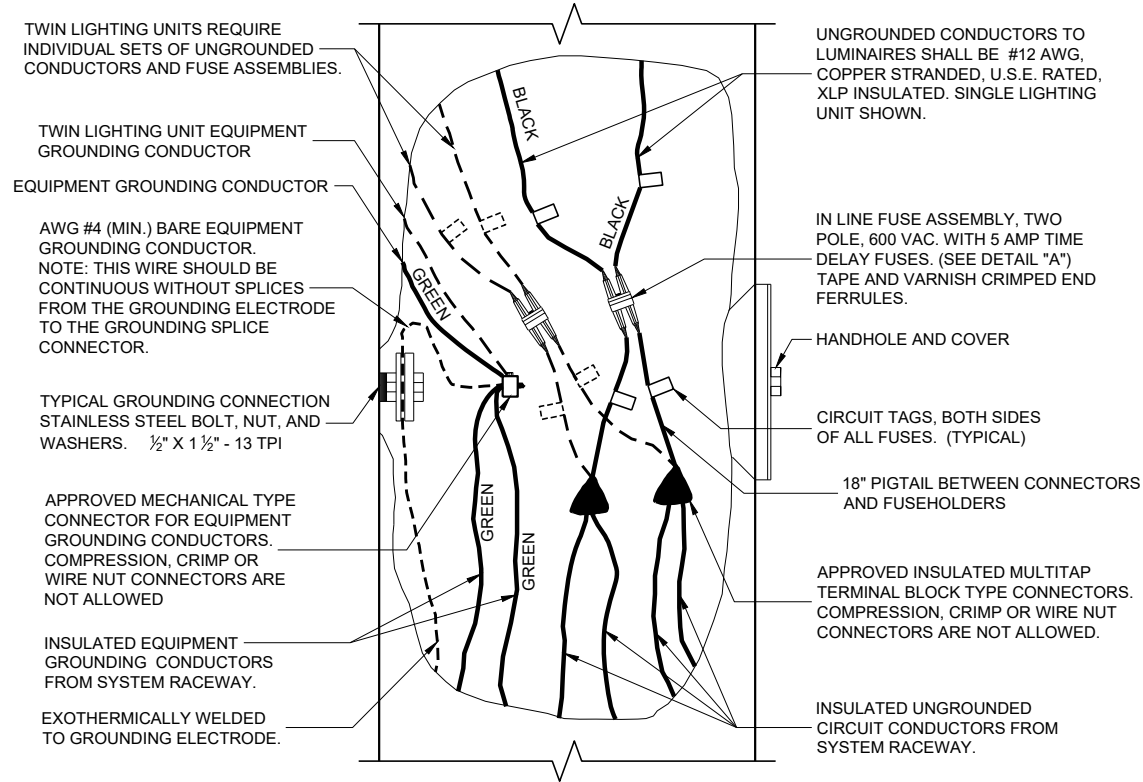


**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

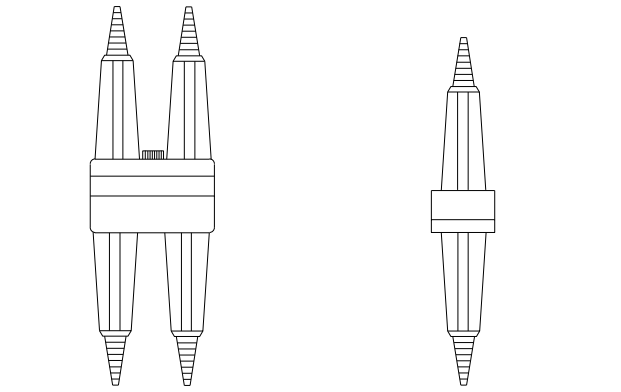
**OLD EXISTING FREEWAY WIRING (SOME AREAS)**



**2 WIRE - 120, 240, OR 480 VAC TO GROUND**



**2 WIRE - 240 OR 480 VAC (UNGROUNDING CONDUCTORS) WITH EQUIPMENT GROUNDING CONDUCTOR**



**DETAIL "A" BREAKAWAY DOUBLE POLE WITH WATERPROOF INSULATING BOOT**  
**DETAIL "B" BREAKAWAY SINGLE POLE WITH WATERPROOF INSULATING BOOT**

**FREEWAY LIGHTING UNIT POLE WIRING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Ahmet Demirelek  
DATE STATE ELECTRICAL ENGINEER

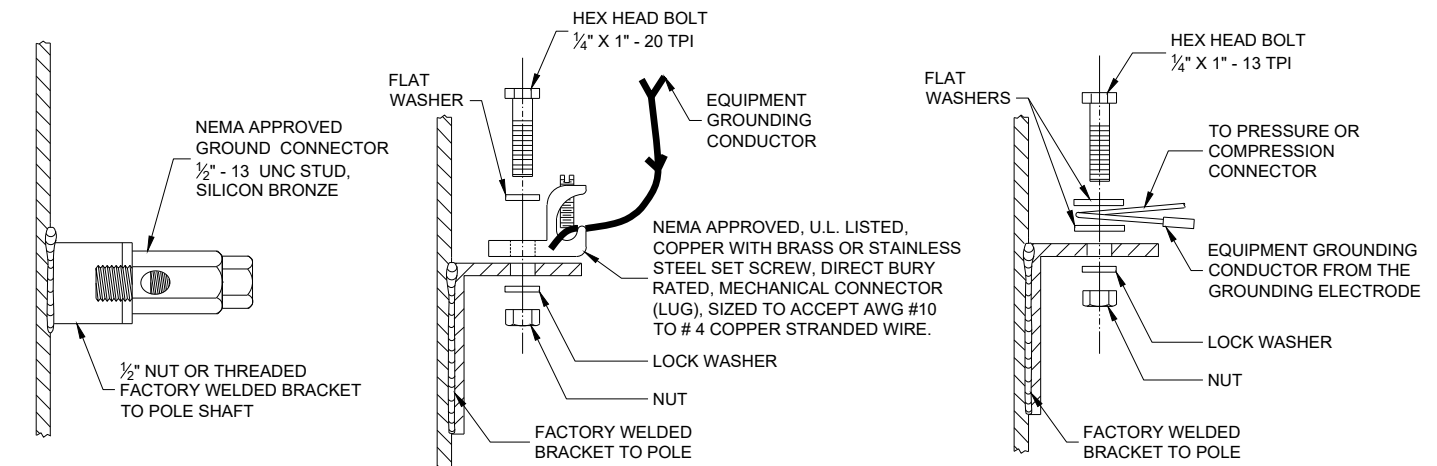
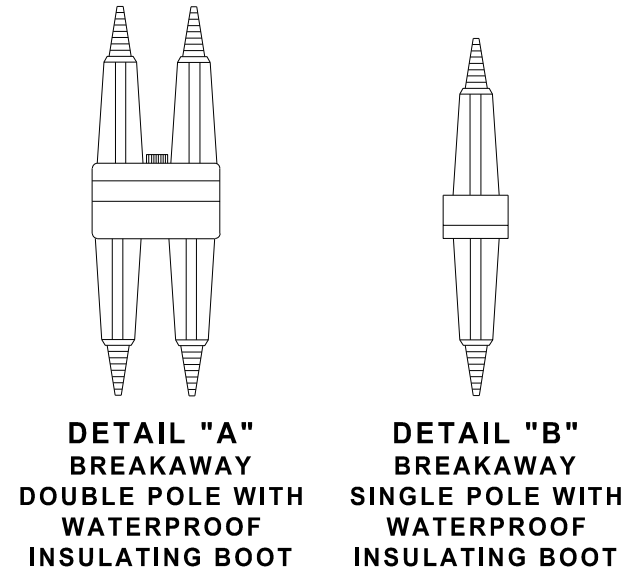
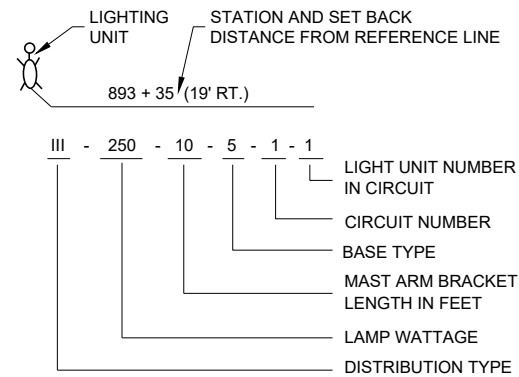
FHWA

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

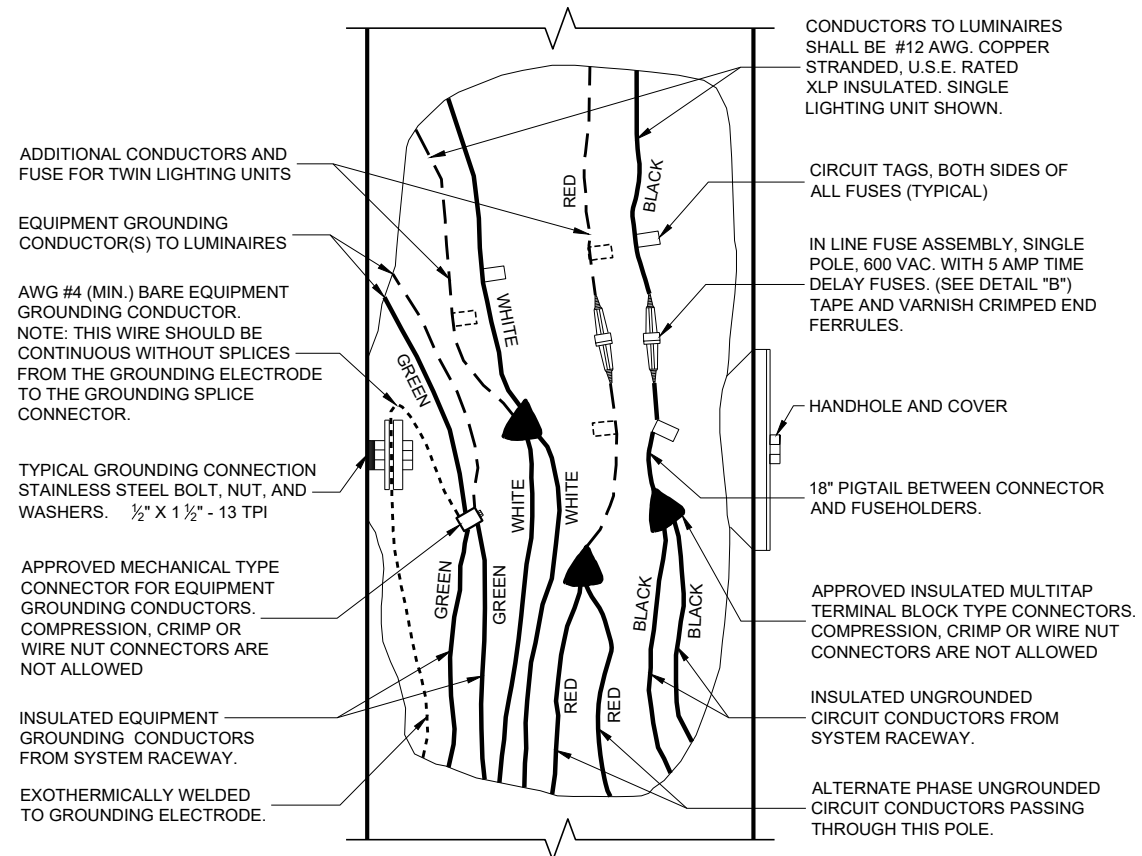
THE EQUIPMENT GROUND CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.

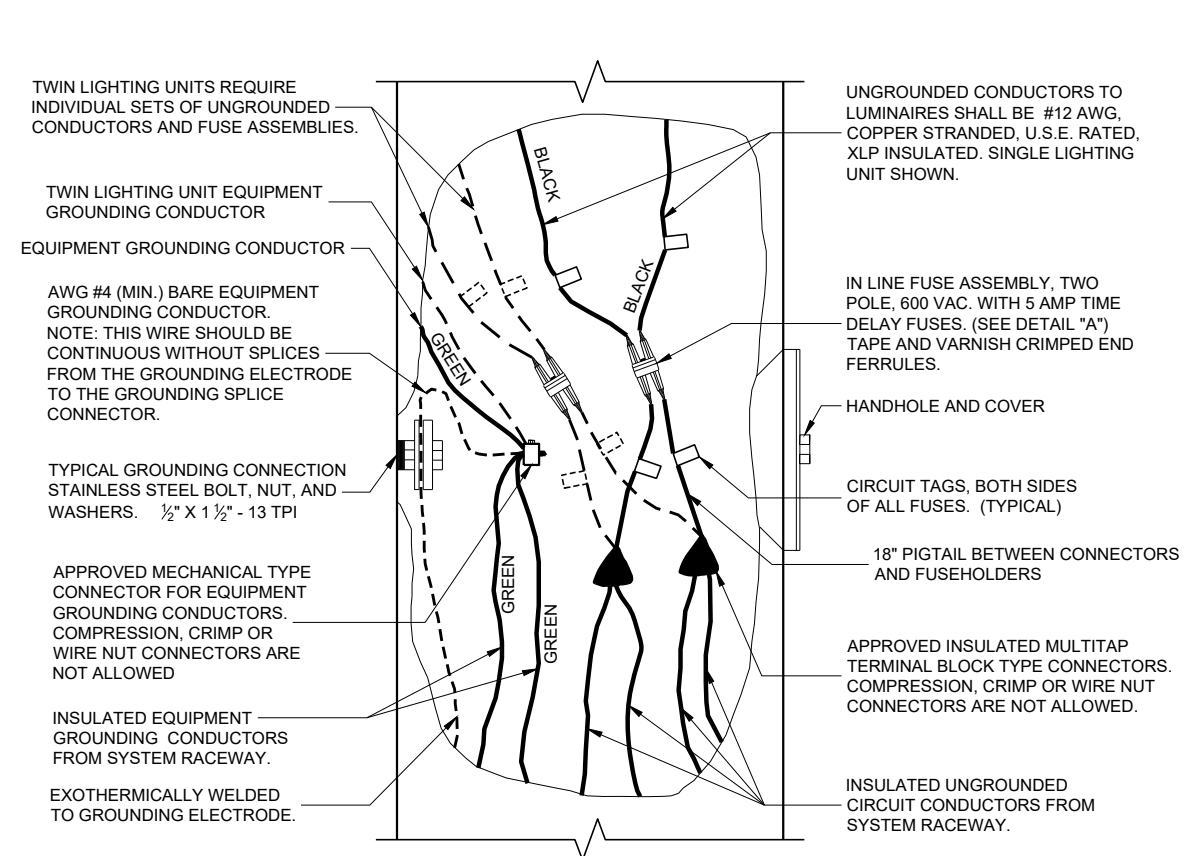


**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

**LIGHTING UNIT CODE (TYPICAL)**



**3 WIRE - 120, 240 OR 480 VAC (UNGROUNDING CONDUCTORS) WITH GROUNDING CONDUCTOR AND EQUIPMENT GROUNDING CONDUCTOR**



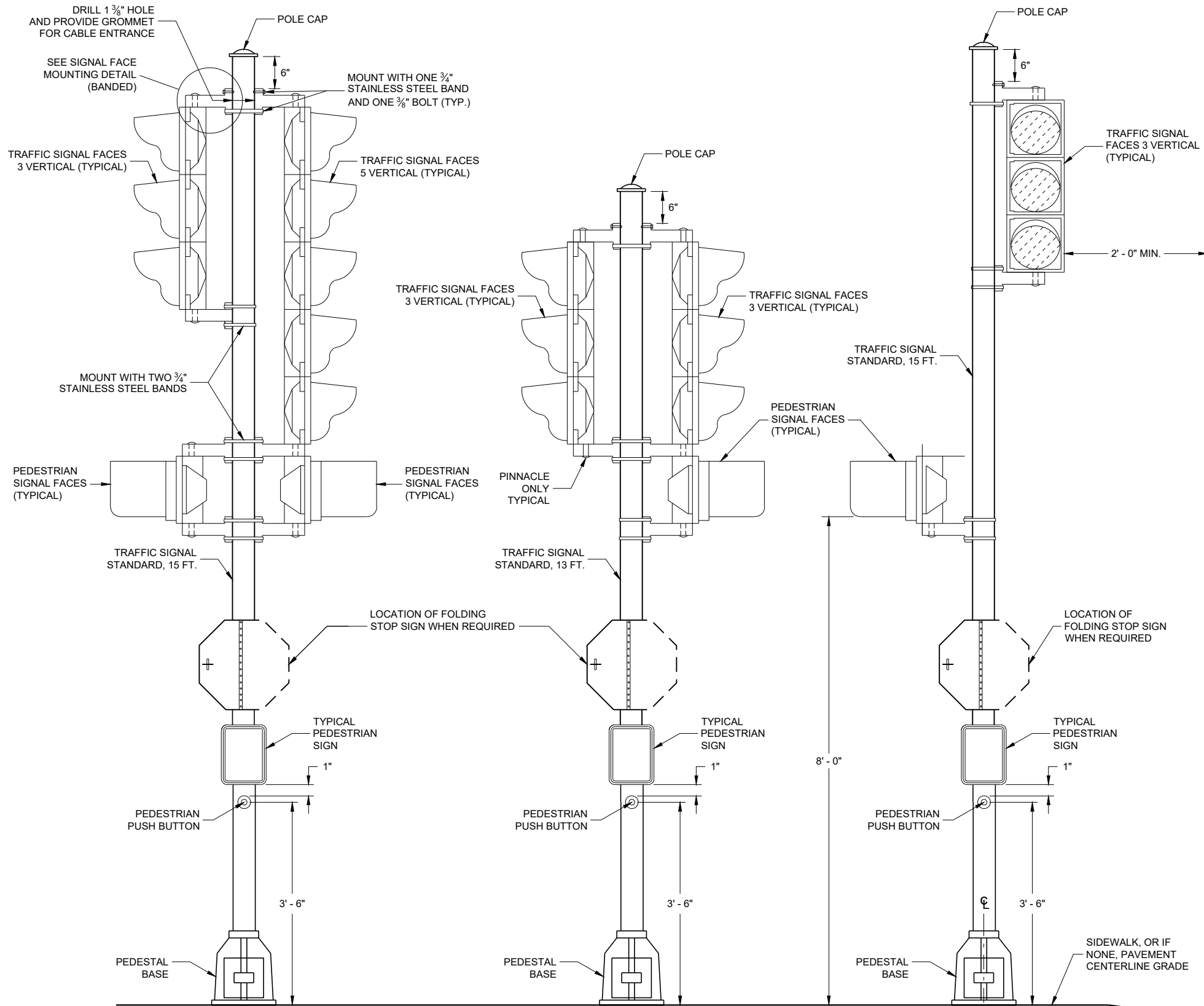
**2 WIRE - 240 OR 480 VAC (UNGROUNDING CONDUCTORS) WITH EQUIPMENT GROUNDING CONDUCTOR**

**NON - FREEWAY LIGHTING UNIT POLE WIRING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Ahmet Demirelek  
DATE STATE ELECTRICAL ENGINEER

FHWA



**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

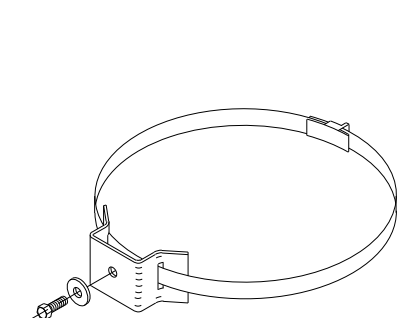
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE REGION TRAFFIC ENGINEER.

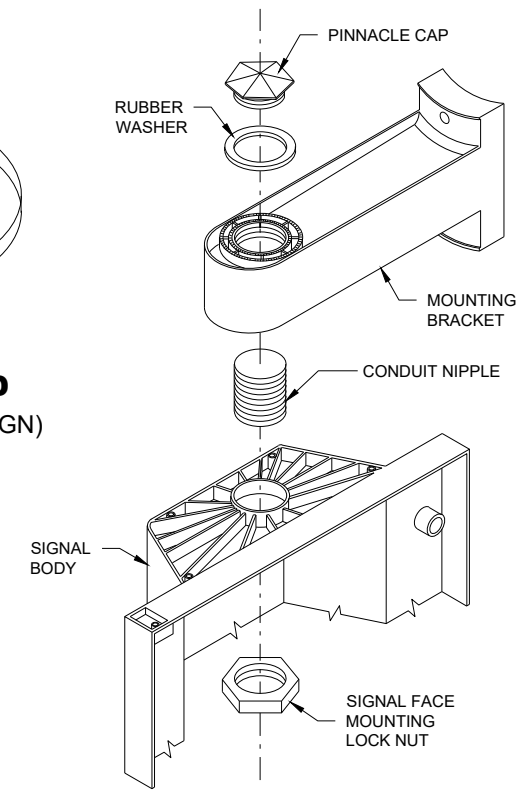
FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



**TYPICAL SIGN MOUNTING BAND**  
(TOP AND BOTTOM OF SIGN)



**SIGNAL FACE MOUNTING DETAIL (BANDED)**

**TRAFFIC SIGNAL STANDARD - 15 FT.**

**TRAFFIC SIGNAL STANDARD - 13 FT.**

**TRAFFIC SIGNAL STANDARD - 15 FT. 3M MOUNTING (TYPICAL)**

**TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
2/28/2013 DATE /S/ Ahmet Demirelek  
STATE ELECTRICAL ENGINEER

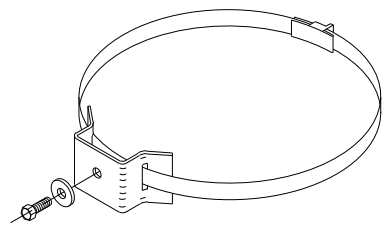
FHWA

6

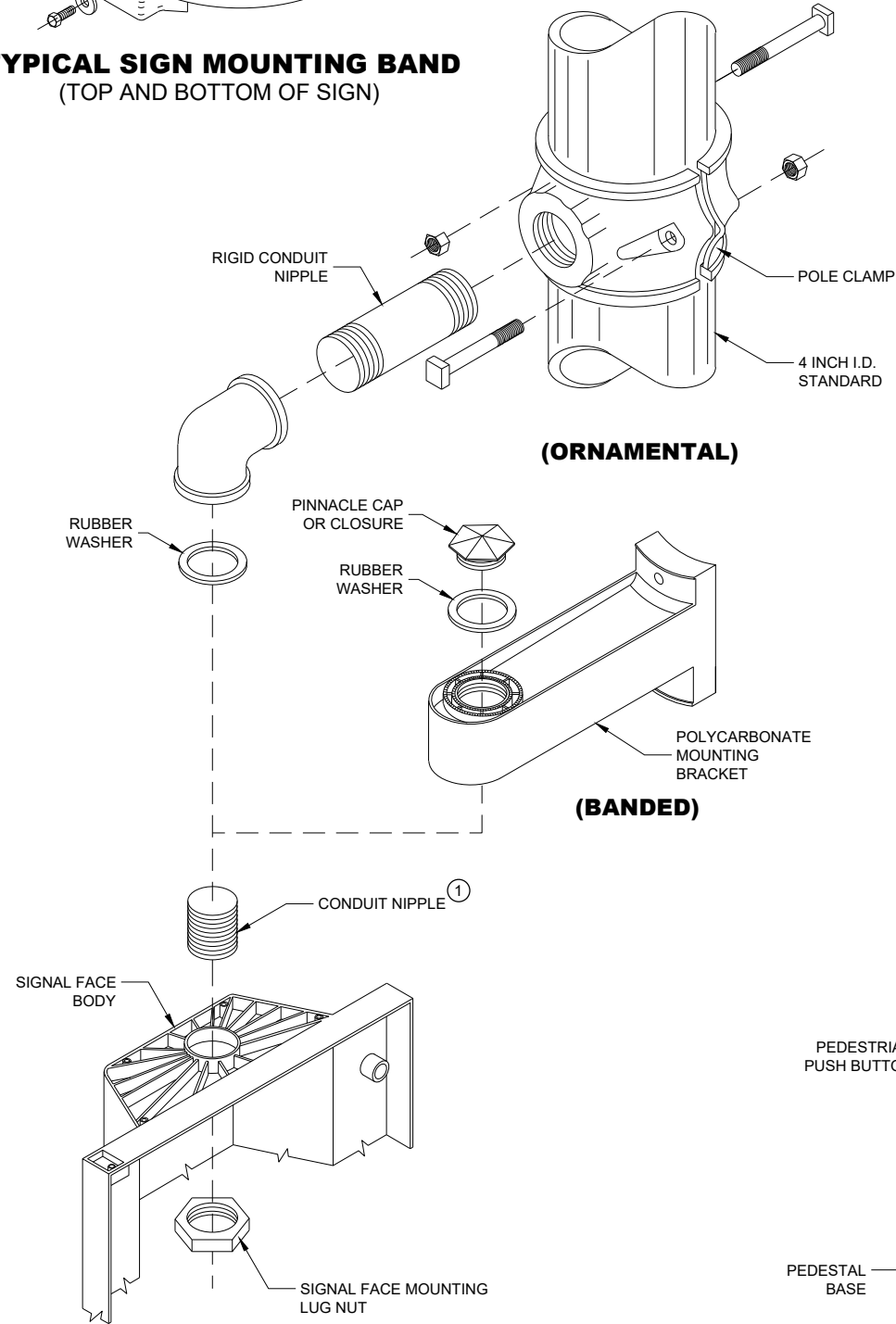
6

SDD 09E06 - 05

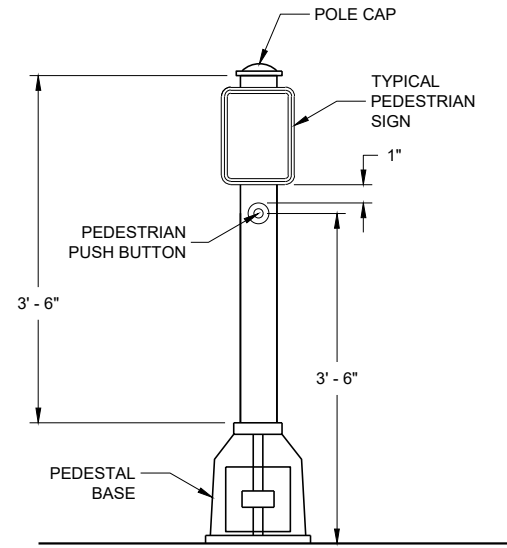
SDD 09E06 - 05



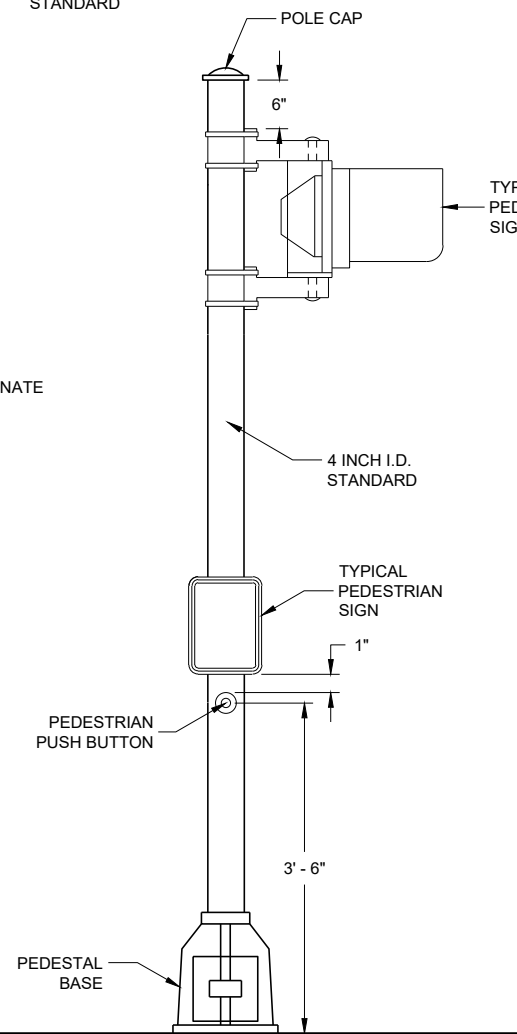
**TYPICAL SIGN MOUNTING BAND**  
(TOP AND BOTTOM OF SIGN)



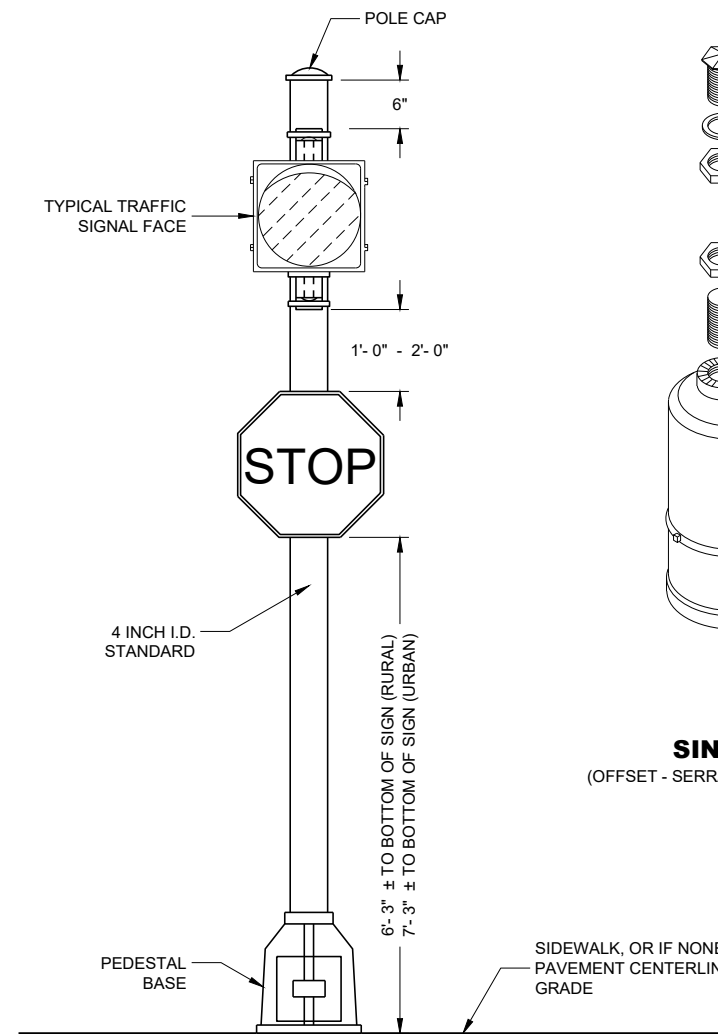
**SIGNAL FACE MOUNTING DETAILS**



**PEDESTRIAN PUSH BUTTON**  
**TYPICAL MOUNTING**



**PEDESTRIAN FACE STANDARD - 10 FT.**  
(WALK - DON'T WALK)



**STANDARD FLASHER**  
10 FOOT, 13 FOOT OR 15 FOOT AS REQUIRED

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

LOCATIONS SHALL BE AS SHOWN ON THE PLANS, UNLESS APPROVED BY THE ENGINEER IN THE FIELD.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIFICATIONS.

POLYCARBONATE SIGNAL FACE MOUNTING BRACKETS SHALL BE USED UNLESS ORNAMENTAL POLE CLAMPS ARE SPECIFIED.

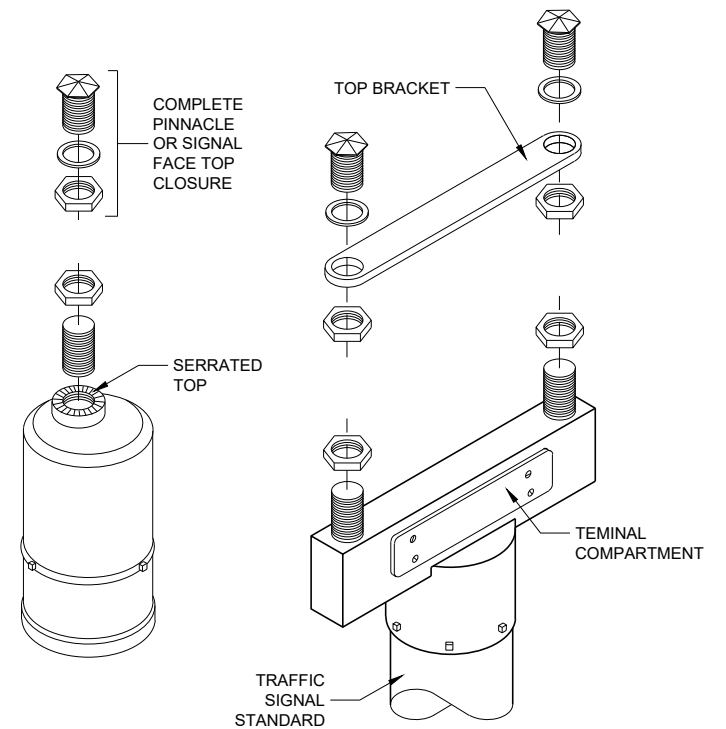
LENGTH OF TRAFFIC STANDARDS SHALL BE AS SHOWN ON THE PLANS.

MOUNTINGS AND BRACKETS SHALL BE AS SHOWN ON THE PLANS OR DESCRIBED IN THE SPECIAL PROVISIONS (BY THE REGION TRAFFIC ENGINEER).

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/2" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

① USE 1 1/2" ID NIPPLES ZINC-COATED RIGID METAL CONDUIT, LONG ENOUGH TO ACCOMMODATE FULL DEPTH THREADING INTO THE HEAD MOUNTING LOCK NUT IN ORDER TO TIGHTEN THE FACE, BUT THAT DO NOT INTERFERE WITH REFLECTOR CLOSURE. THREAD THE NIPPLE INTO THE MOUNTING BRACKET/ELBOW UNTIL TIGHT. USE APPROVED PINNACLE TYPE HARDWARE FROM A DEPARTMENT APPROVED MANUFACTURER TO CLOSE THE UNUSED 1 1/2" OPENING IN SIGNAL FACES AND BRACKET ENDS.



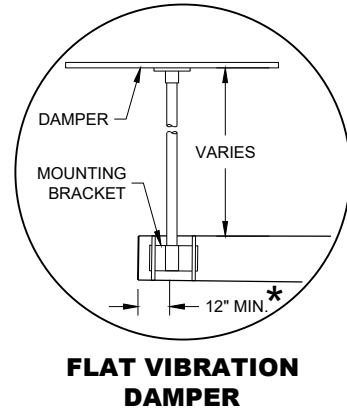
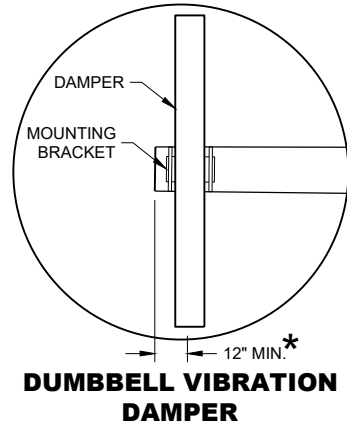
**SINGLE**  
(OFFSET - SERRATED MOUNTING)

**DOUBLE**  
(SERRATED MOUNTING)  
**SLIPFITTERS**

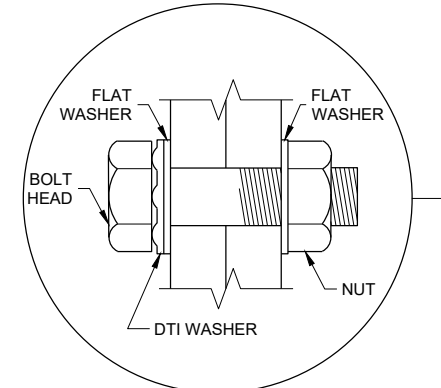
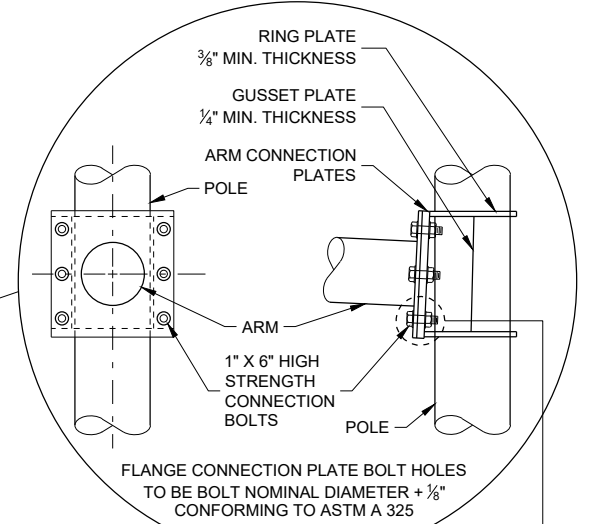
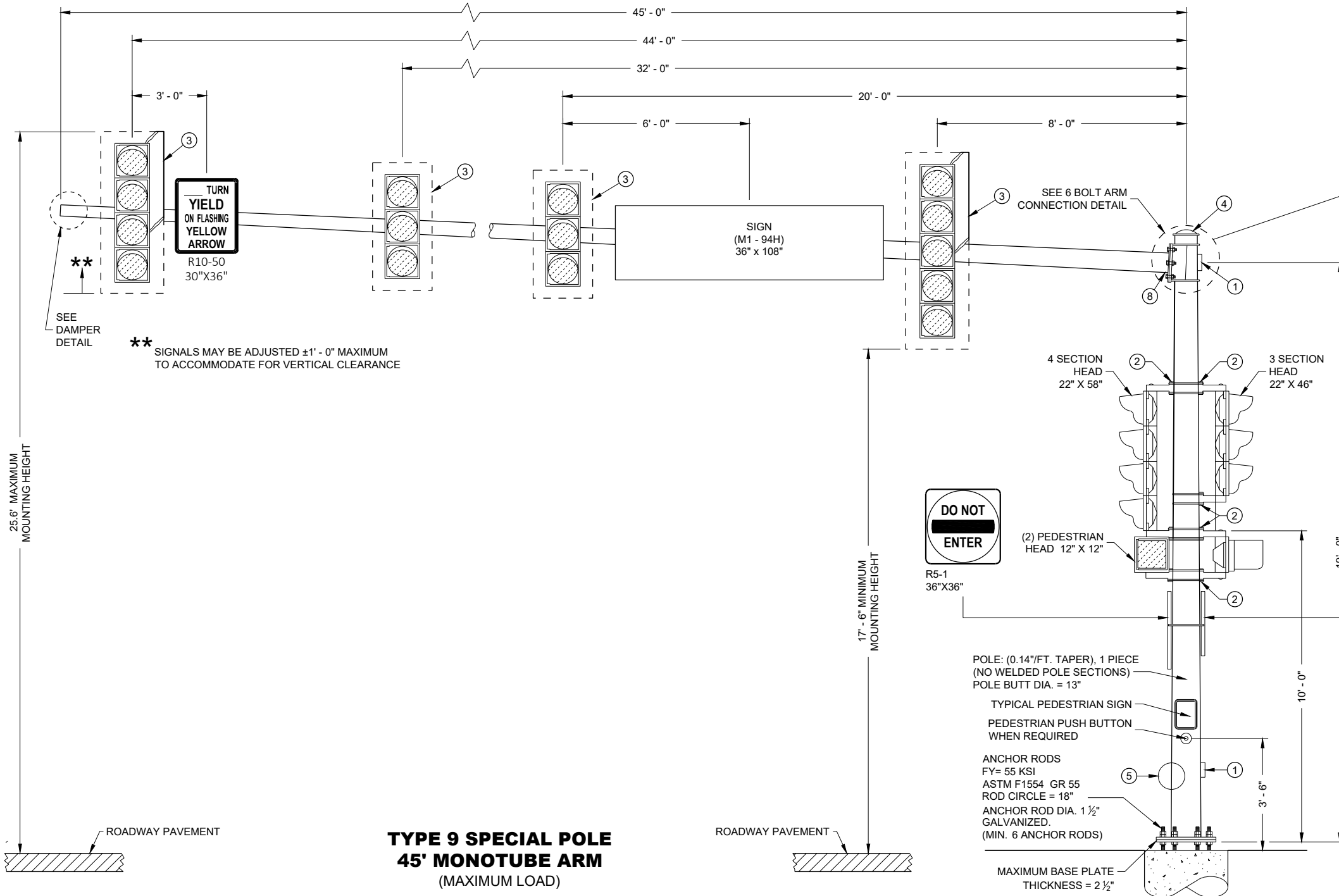
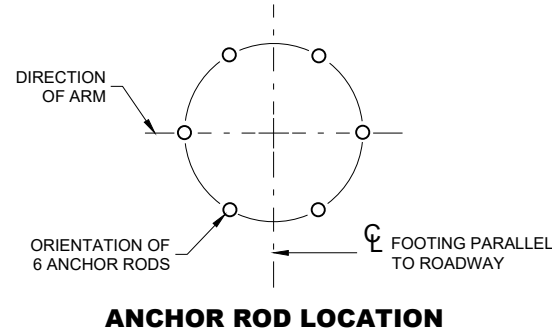
**TRAFFIC SIGNAL STANDARD**  
**PEDESTRIAN AND FLASHER**  
**TYPICAL MOUNTING DETAILS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Ahmet Demirelek  
DATE STATE ELECTRICAL ENGINEER  
FHWA



\* MOUNT AS CLOSE TO END OF MAST ARM FOR MAXIMUM DAMPING PER MANUFACTURER'S RECOMMENDATIONS.



POLE: (0.14"/FT. TAPER), 1 PIECE (NO WELDED POLE SECTIONS)  
POLE BUTT DIA. = 13"

TYPICAL PEDESTRIAN SIGN  
PEDESTRIAN PUSH BUTTON WHEN REQUIRED

ANCHOR RODS  
FY= 55 KSI  
ASTM F1554 GR 55  
ROD CIRCLE = 18"  
ANCHOR ROD DIA. 1 1/2"  
GALVANIZED.  
(MIN. 6 ANCHOR RODS)

MAXIMUM BASE PLATE THICKNESS = 2 1/2"

<b>TYPE 9 SPECIAL POLE 45' MONOTUBE ARM</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Ahmet Demirelek STATE ELECTRICAL ENGINEER
FHWA	

SDD 09E08 - 09d

SDD 09E08 - 09d

## GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15 FOOT TO 30 FOOT.

POLE TYPES 9 SPECIAL AND 10 SPECIAL ARE FOR ARM LENGTHS 35 FOOT, 40 FOOT, AND 45 FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35 FOOT TO 55 FOOT.

MONOTUBE POLES AND ARMS SHALL BE GALVANIZED STEEL.

RING STIFFENED BUILT UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3% ± RISE).

SECTION 657, POLES OF THE STANDARD SPECIFICATION SHALL APPLY TO THIS DRAWING.

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNAL 2015 1ST EDITION (INCLUDING INTERIM REVISIONS)" AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR THE LIGHTING STRUCTURES AS FOLLOWS:

CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.

CATEGORY II FATIGUE LOADS OF TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 SPECIAL AND TYPE 10 SPECIAL STRUCTURES. IN LIEU OF DESIGNING FOR GALLOPING, A VIBRATION DAMPER MITIGATION DEVICE IS REQUIRED TO BE SUPPLIED AND INSTALLED AT THE END OF THE MAST ARM.

CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.

115 MPH (700 YEAR MRI BASIC WIND SPEED).

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH 3/4" STAINLESS STEEL BANDING AROUND THE LEVELING NUTS.

INDENT PRINT (NOMINAL 1/2" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEAD AT SAME ELEVATION.

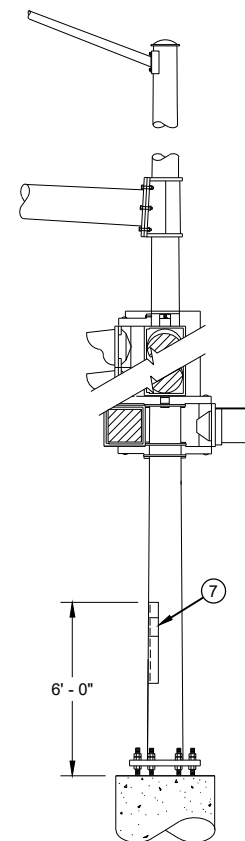
SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

- ① DESIGN FOR MAXIMUM ALLOWABLE HAND HOLE WITH COVER ASSEMBLY WITH TWO 1/4" X 3/4" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.
- ② SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING (SEE SPECIFICATION SECTION 658).
- ③ SECURELY MOUNT BACK PLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.
- ④ THE TOP OF THE POLE SHAFT AND THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.
- ⑤ FACTORY WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HAND HOLD, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR 1/4" X 3/4" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.
- ⑥ FACTORY WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.
- ⑦ INSTALL STRUCTURAL IDENTIFICATION PLAQUES.

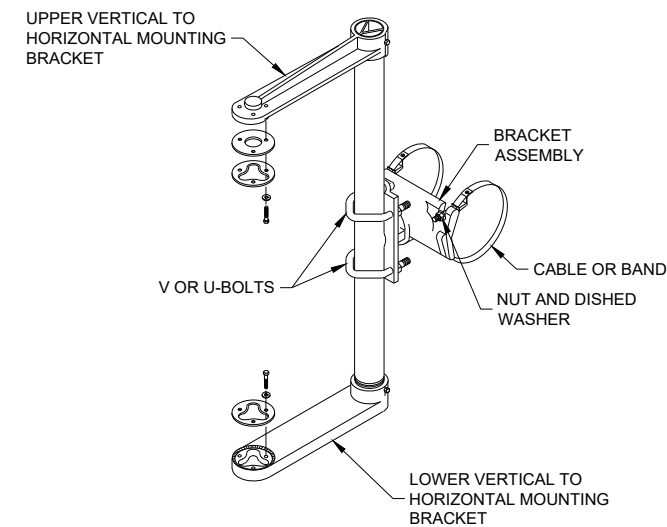
STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

MOUNTING HEIGHT SHALL BE 6' - 0" ABOVE THE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

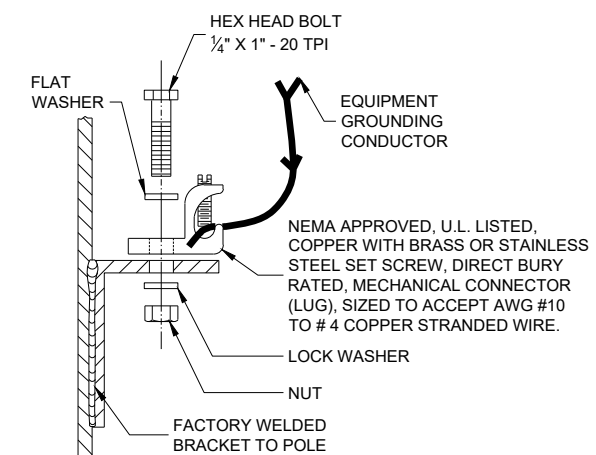
- ⑧ FACTORY DRILLED 1/2" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.



**STRUCTURAL IDENTIFICATION  
PLAQUE PLACEMENT**

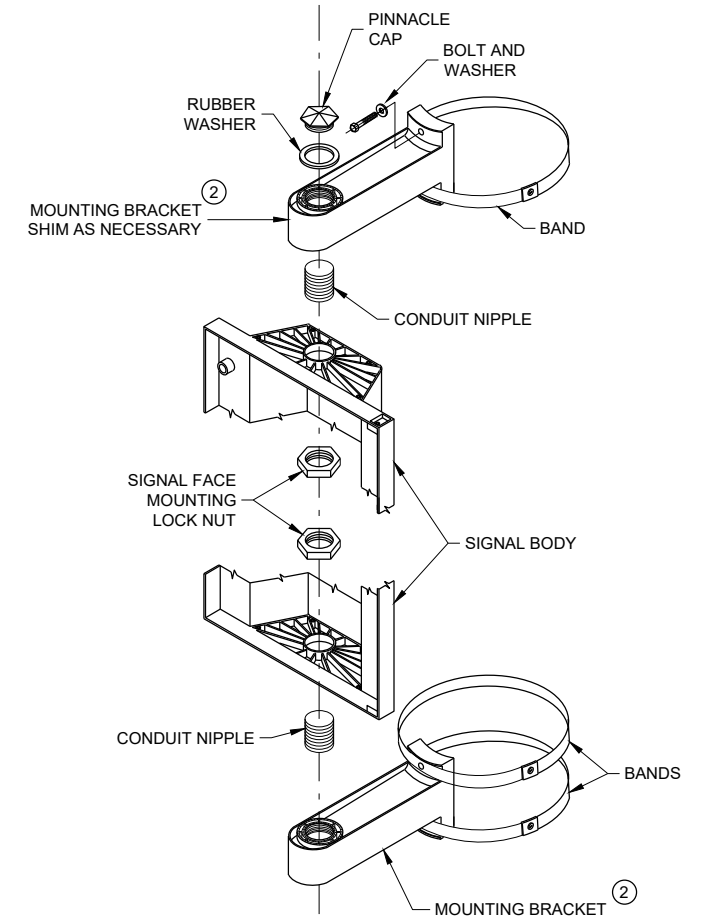


**SIGNAL FACE MOUNTING BRACKET  
DETAIL FOR MONOTUBE ARM**  
(MOUNT PER MANUFACTURER'S RECOMMENDATION)

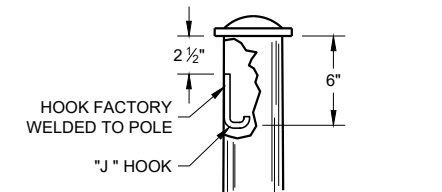


**TYPICAL GROUNDING  
CONNECTIONS**

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



**SIGNAL FACE VERTICAL  
MOUNTING DETAIL**



**TYPICAL "J" HOOK  
WIRE SUPPORT**

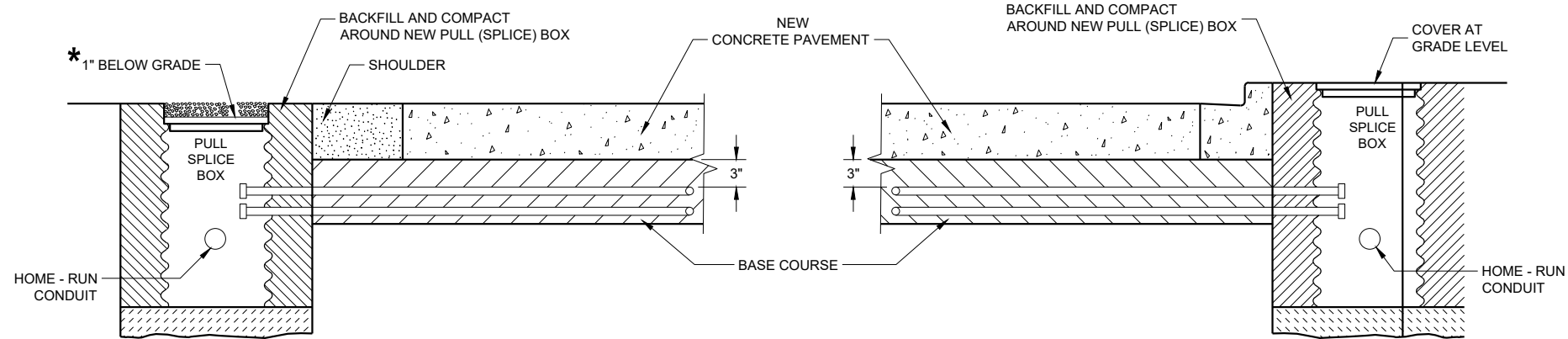
**GENERAL NOTES AND  
HARDWARE FOR TYPES 9,10,  
9/10 SPECIAL, 12 AND 13  
POLES WITH MONOTUBE ARMS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
August 2020 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL  
ENGINEER

FHWA





**SECTION A - A  
NO CURB AND GUTTER**

**SECTION B - B  
CURB AND GUTTER**

\* RECESS PULL (SPLICE) BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

**LOOP DETECTOR INSTALLATION DETAIL**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPLICE) BOX.

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READING TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

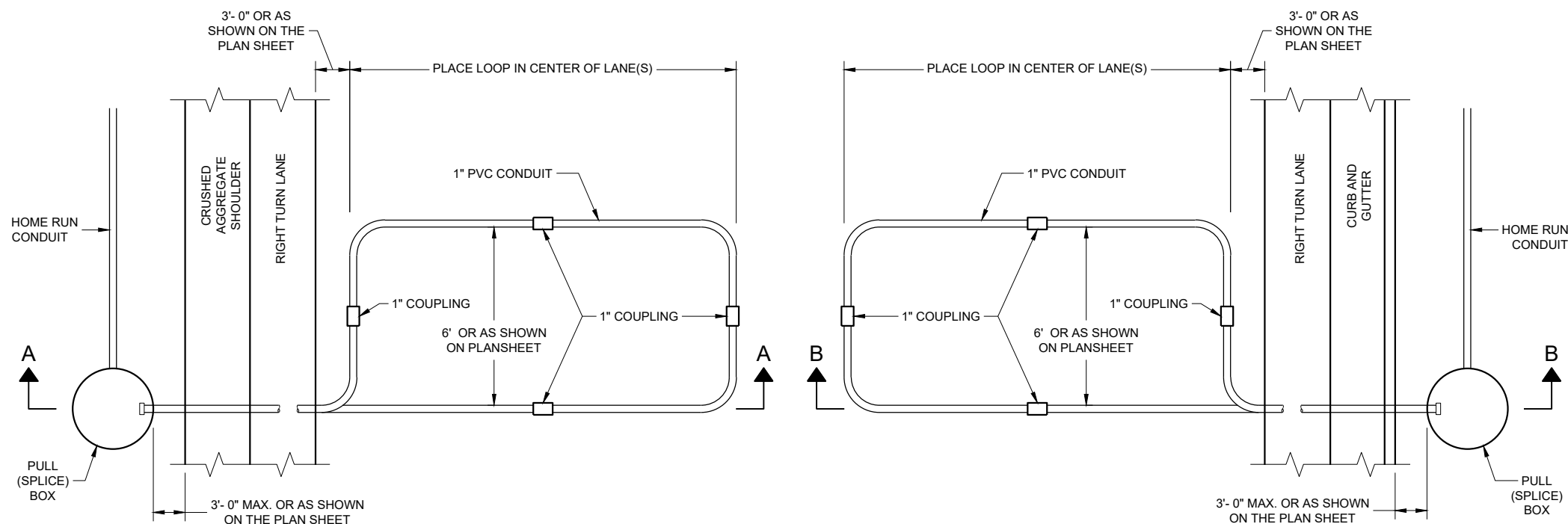
THE #12 AWG LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL (SPLICE) BOXES AT THE SIDE OF THE ROAD.

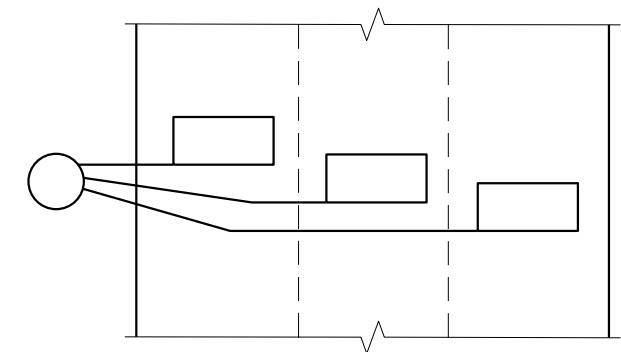
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE NON-SPLICED, CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT IN THE BASE COURSE SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW PAVEMENT IS INSTALLED.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.



**TYPICAL PLAN LOOP DETECTOR  
WITH 24" PULL (SPLICE) BOX**



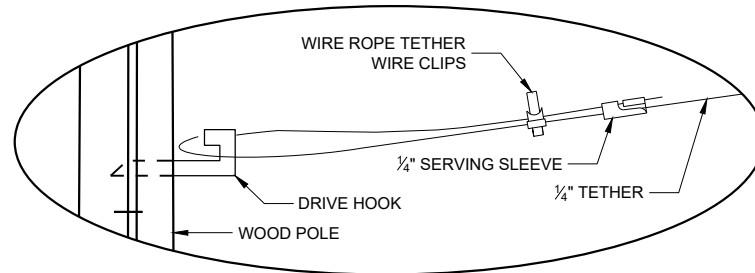
**MULTI-LANE  
INSTALLATION**

**LOOP DETECTOR INSTALLED  
IN BASE COURSE WITH  
PULL (SPLICE) BOX OFF  
ROADWAY (OPTION 2)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
September 2014 /S/ Ahmet Demirelek  
DATE STATE ELECTRICAL ENGINEER  
FHWA

MINIMUM POLE LENGTHS	POLE BURIAL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

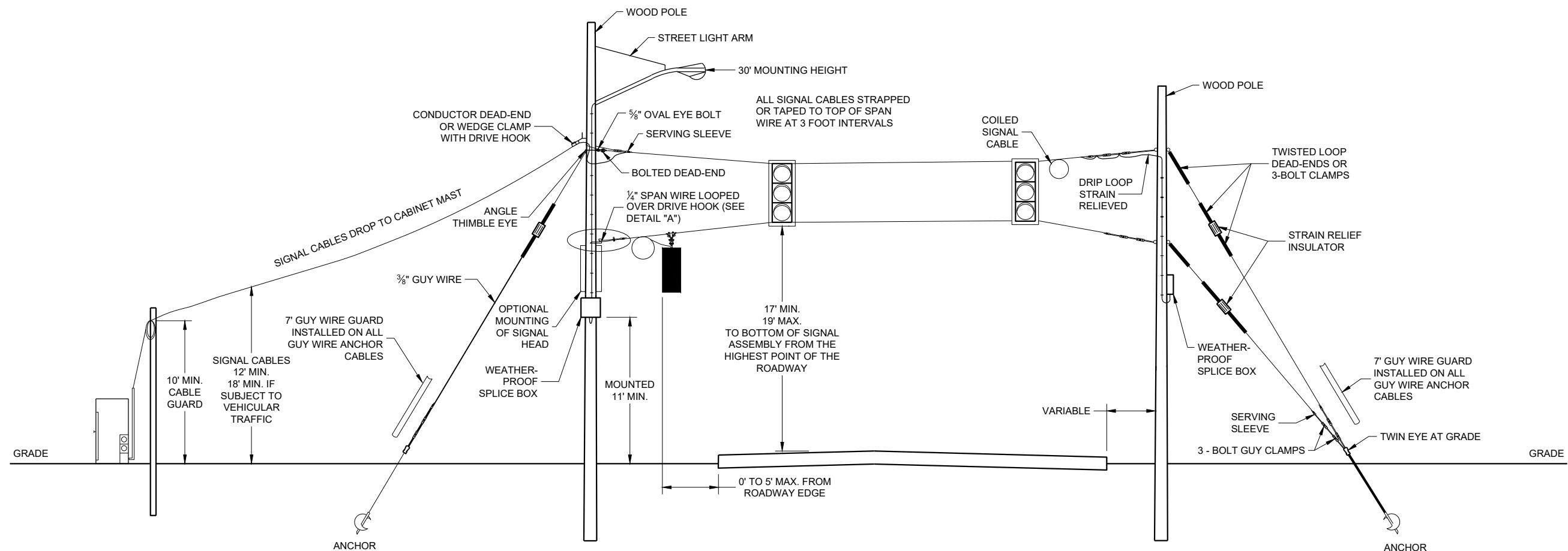


**DETAIL "A"**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
2. SIGNAL FACES:
  - A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
  - B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
  - C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
  - D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
3. SPAN WIRE:
  - A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
  - B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
  - C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



**SPAN WIRE TEMPORARY SIGNALS**

<b>SPAN WIRE TEMPORARY TRAFFIC SIGNAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/s/ Ahmet Demerbilek STATE ELECTRICAL ENGINEER
FHWA	

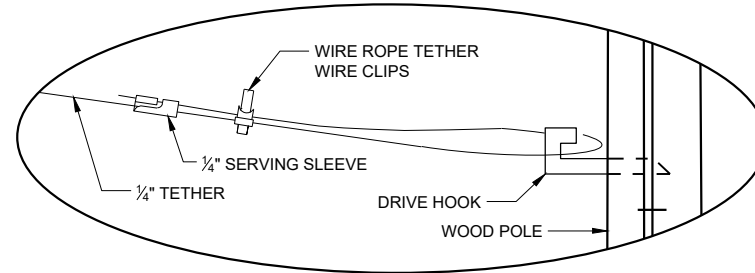
6

6

SDD09G01 - 04a

SDD09G01 - 04a

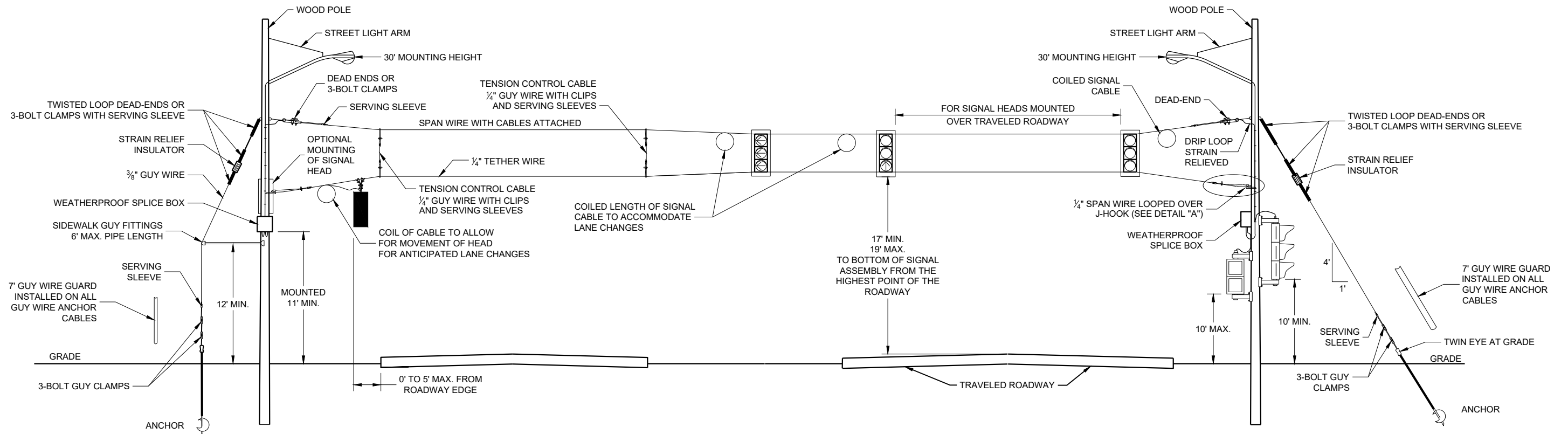
MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'



**DETAIL "A"**

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
  - SIGNAL FACES:
    - ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
    - EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
    - EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
    - NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
    - FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
  - SPAN WIRE:
    - EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
    - SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
    - THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



**SPAN WIRE  
TEMPORARY SIGNALS  
4 LANE ROADWAYS**

**SPAN WIRE TEMPORARY  
TRAFFIC SIGNAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

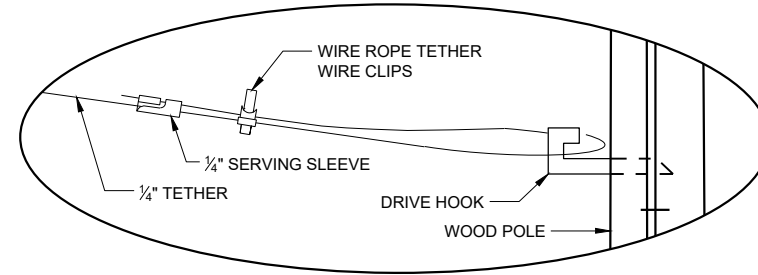
APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE STATE ELECTRICAL ENGINEER

FHWA

SDD09G01 - 04b

SDD09G01 - 04b

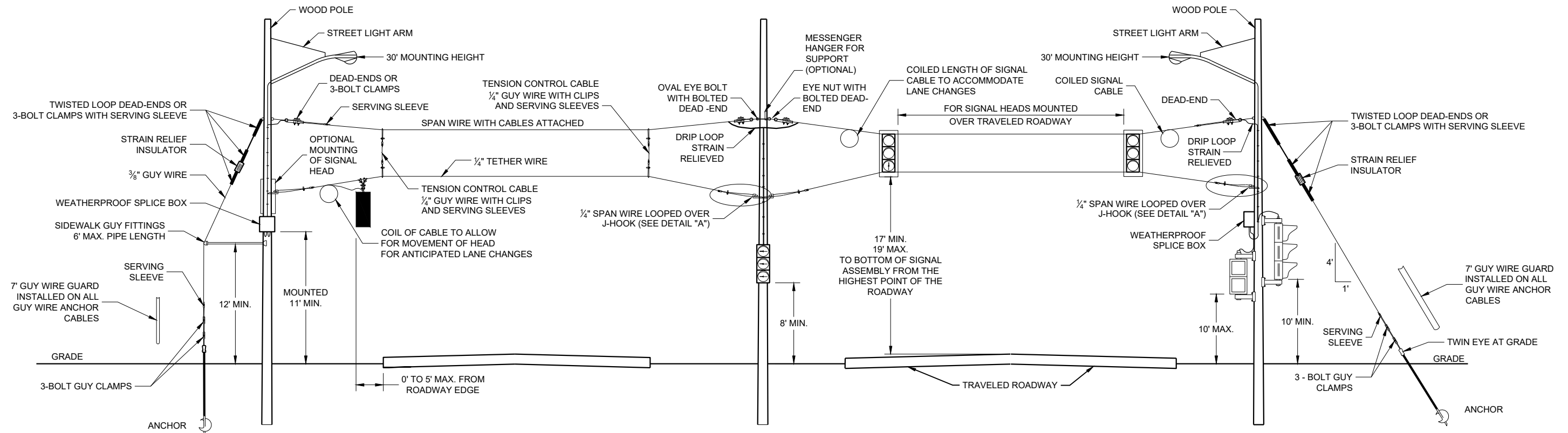
MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'



**DETAIL "A"**

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
  - SIGNAL FACES:
    - ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
    - EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
    - EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
    - NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
    - FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
  - SPAN WIRE:
    - EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
    - SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
    - THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

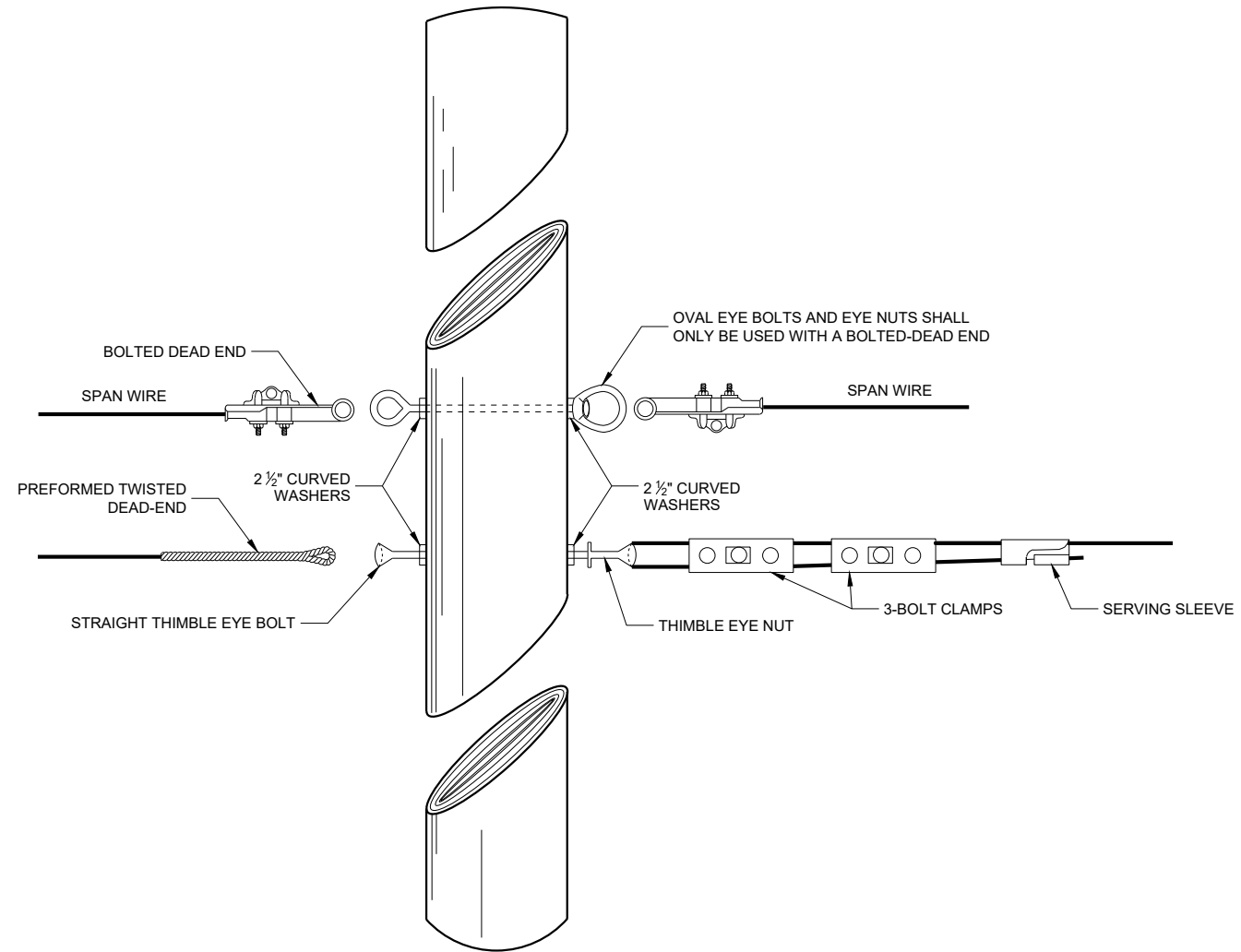
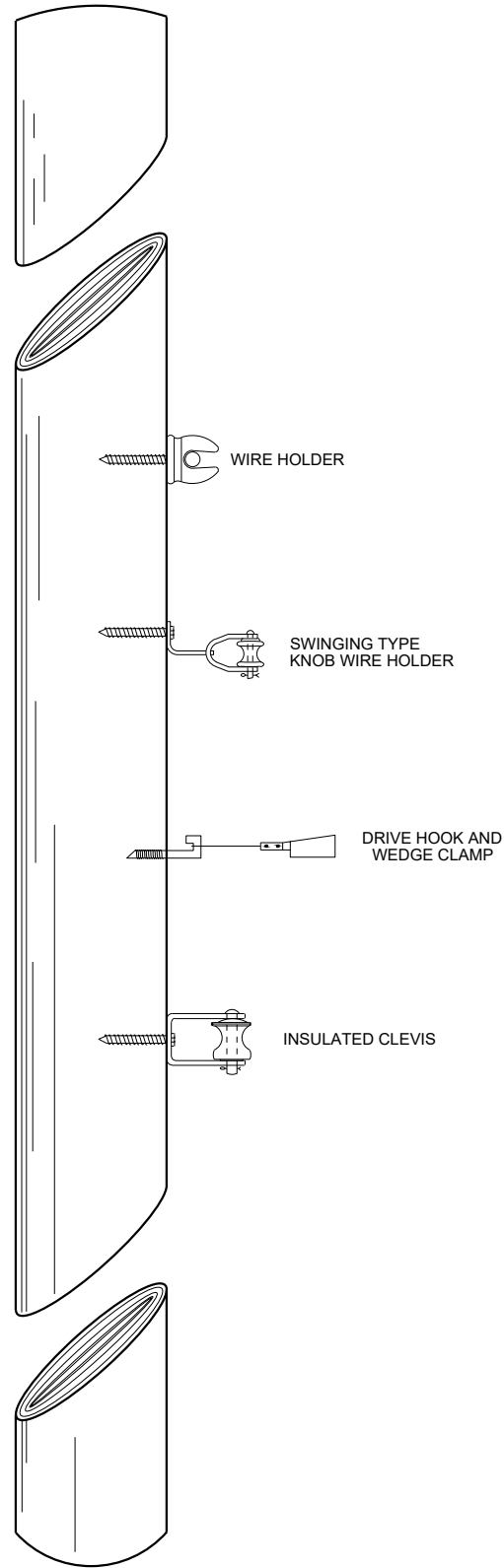


**SPAN WIRE  
TEMPORARY SIGNALS  
4 LANE ROADWAYS**

SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/s/ Ahmet Demerbilek STATE ELECTRICAL ENGINEER
FHWA	

SDD09G01 - 04c

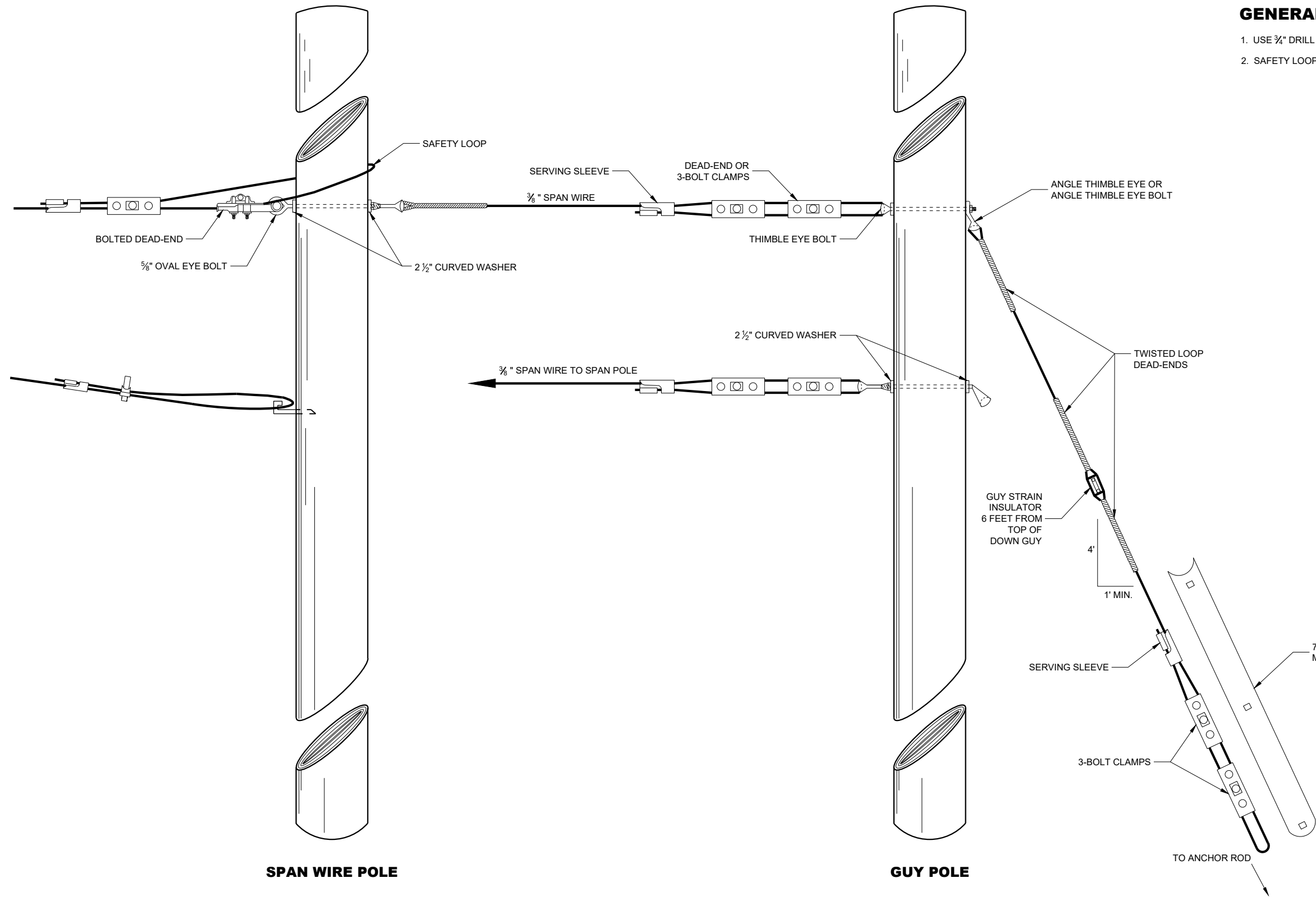
SDD09G01 - 04c



**SPAN WIRE TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER



**GENERAL NOTES**

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE FOR 5/8" BOLTS.
2. SAFETY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.

SPAN WIRE POLE

GUY POLE

**TYPICAL DEAD-ENDINGS OR GUYING**

**SPAN WIRE TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

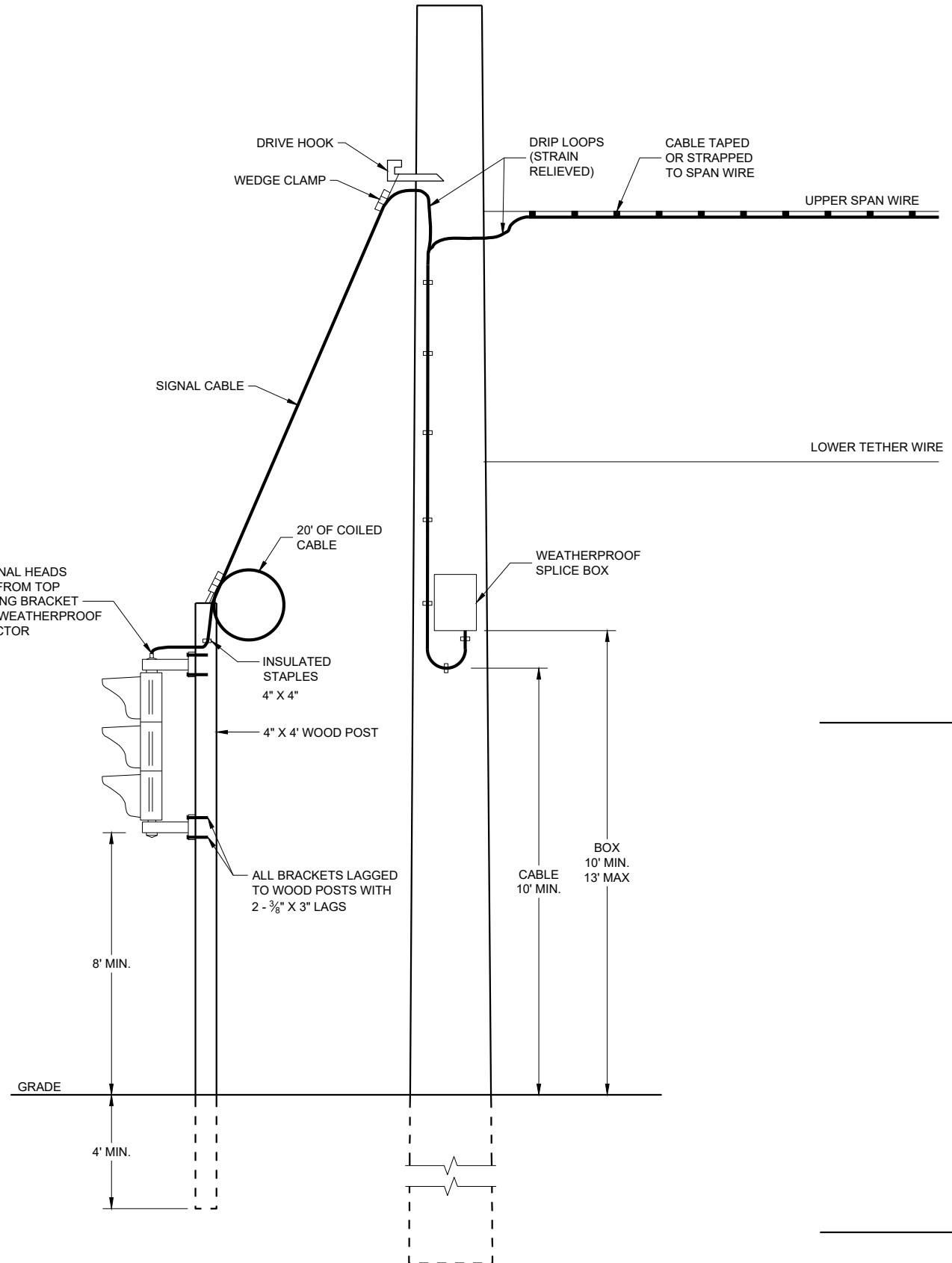
FHWA

6

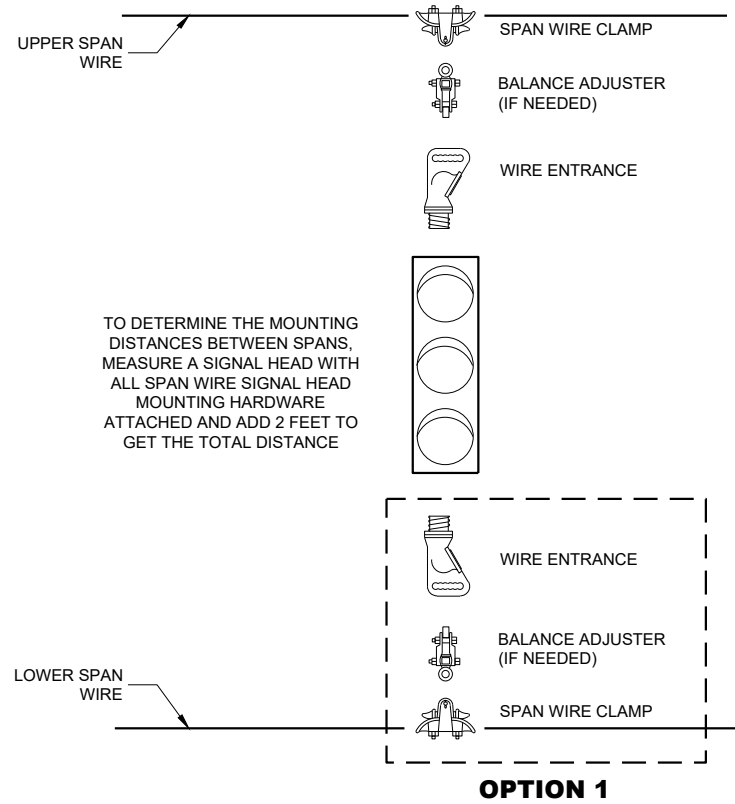
6

SDD 09G01 - 4e

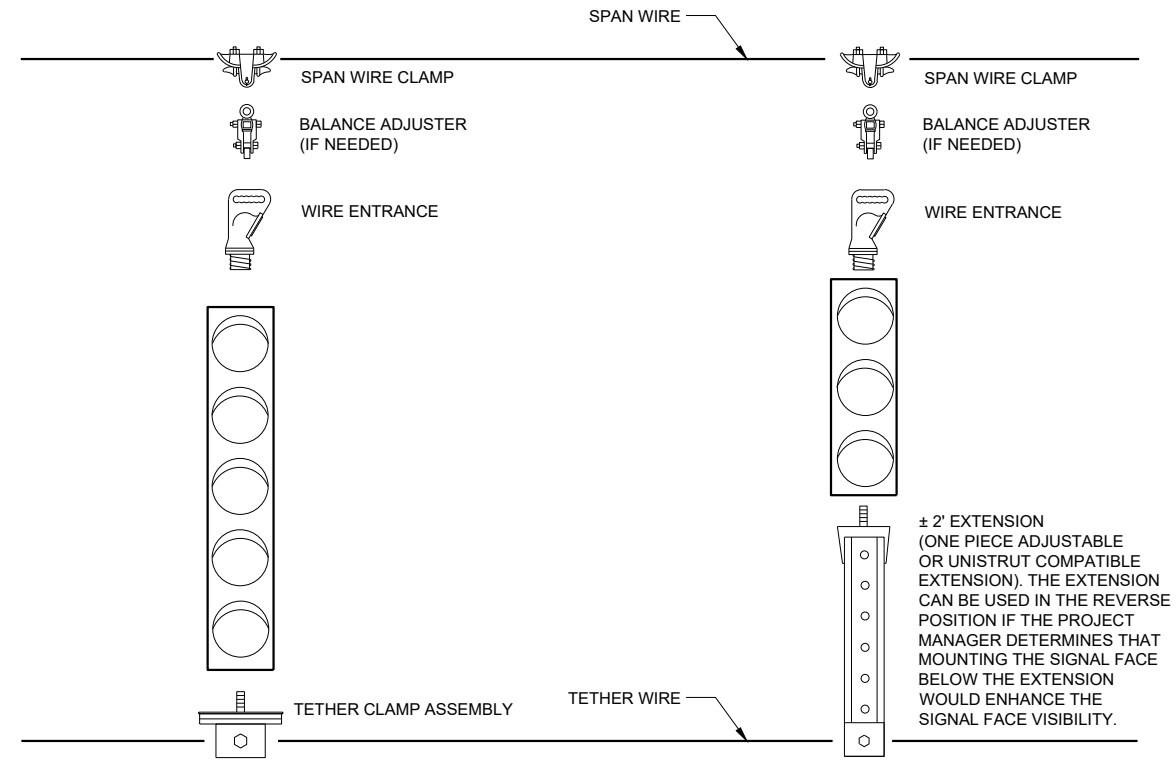
SDD 09G01 - 4e



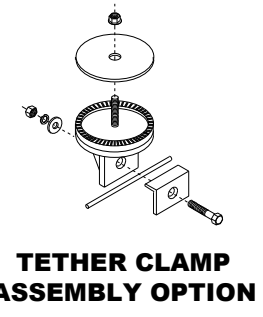
TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



TYPICAL SPAN WIRE MOUNTING HARDWARE

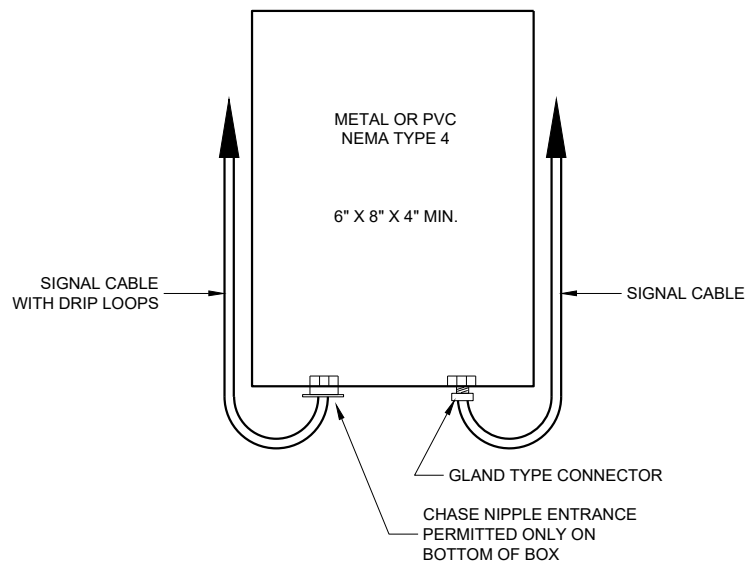
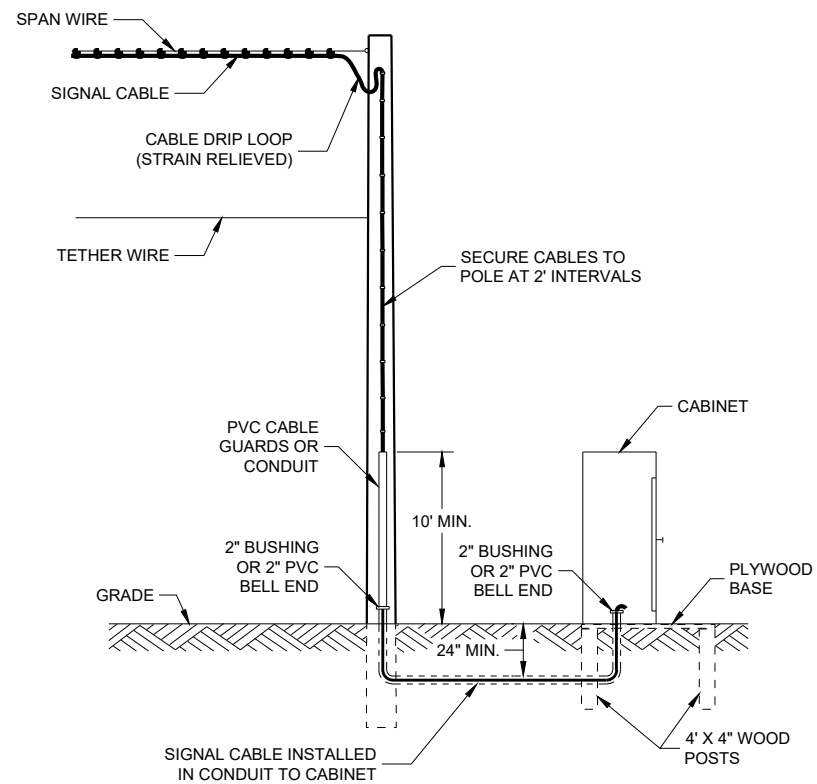


5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE

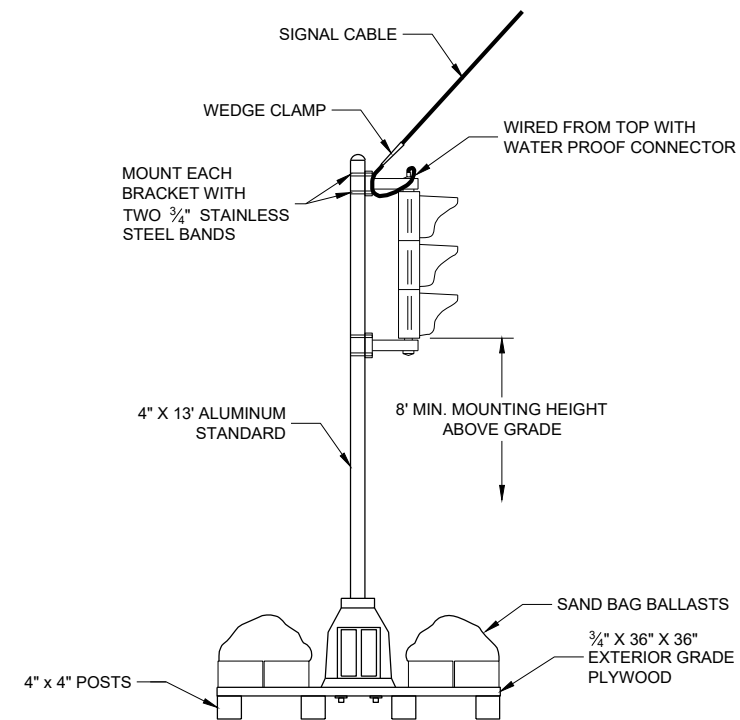


TETHER CLAMP ASSEMBLY OPTION

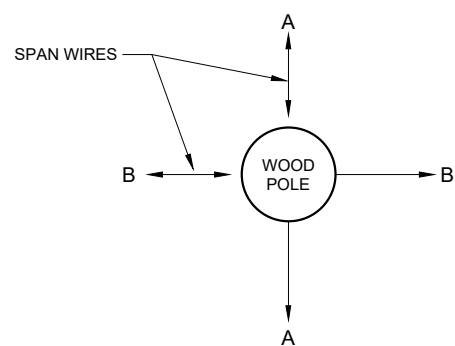
SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/S/ Ahmet Demerbilek ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**SPLICE BOX**

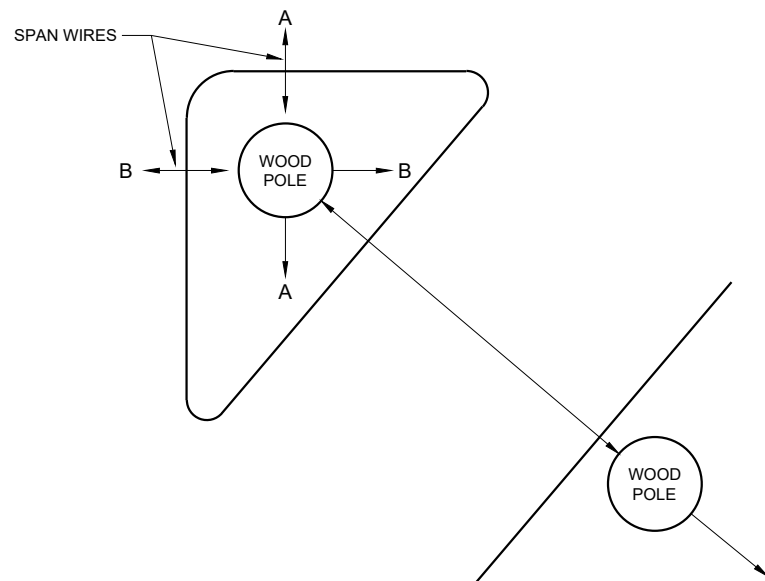


**TYPICAL SKID TYPE TEMPORARY**

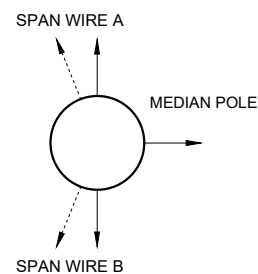


**CORNER POLES**

ALL DOWN OR SIDEWALK GUYS SHALL BE INSTALLED IN THE OPPOSITE DIRECTION OF THE STRAIN OF THE SPAN WIRE



**ISLAND POLES**



**MEDIAN POLES**

GUY AWAY FROM INTERSECTION OR IN OPPOSITE DIRECTION OF THE SPAN LOADING

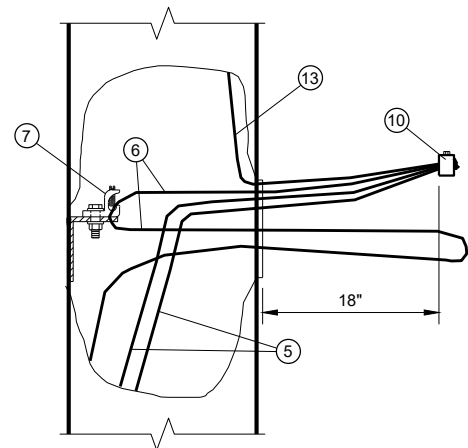
**SPAN WIRE TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

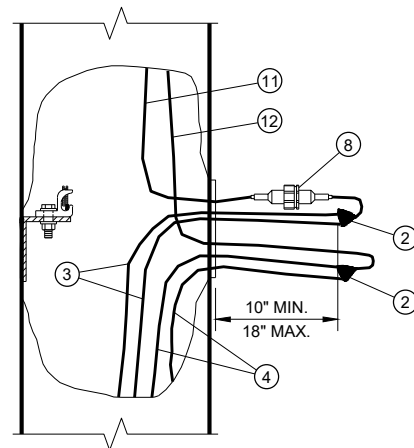
APPROVED  
June 2015 DATE /S/ Ahmet Demerbilek  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



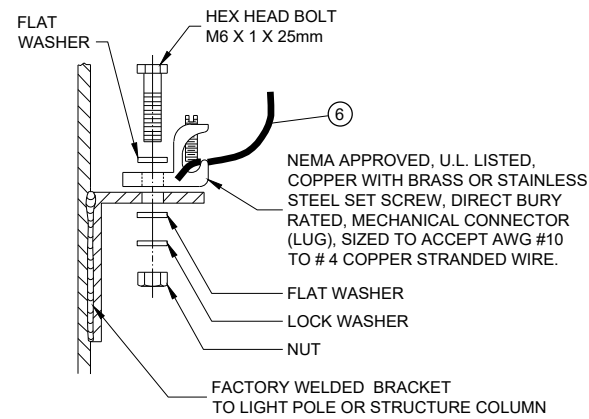


**EQUIPMENT GROUNDING CONDUCTOR SLACK**



**UNGROUND CONDUCTOR SLACK (AND GROUNDED NEUTRAL SLACK IN GROUNDED NEUTRAL SYSTEM)**

**TYPICAL CONDUCTOR SLACK AT HANDHOLES**



**HANDHOLE GROUNDING LUG**  
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

**GENERAL NOTES**

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

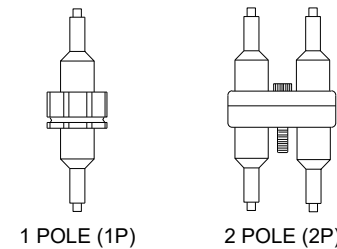
USE THIS DETAIL IN CONJUNCTION WITH THE ELECTRICAL DETAILS FOR THE APPLICATION, WHICH MAY BE A LIGHT POLE, SIGN BRIDGE, ETC.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

THREE POLE WIRES ARE SHOWN FOR A SINGLE LUMINAIRE LIGHT POLE. THREE ADDITIONAL POLE WIRES REQUIRED FOR TWIN LUMINAIRE LIGHT POLES ARE OMITTED FROM THE DRAWING FOR CLARITY. IN THE TWIN POLE CASE, BUNDLE EACH SET OF THREE WIRES WITH A NYLON CABLE TIE.

IN 3-PHASE SYSTEMS, THERE WILL BE ONE MORE UNGROUNDED LINE WIRE, WHICH IS OMITTED FROM THE DRAWING FOR CLARITY.

CIRCUIT TAGS SHALL BE INSTALLED ONLY WHERE REQUIRED IN THE SPECIAL PROVISIONS.

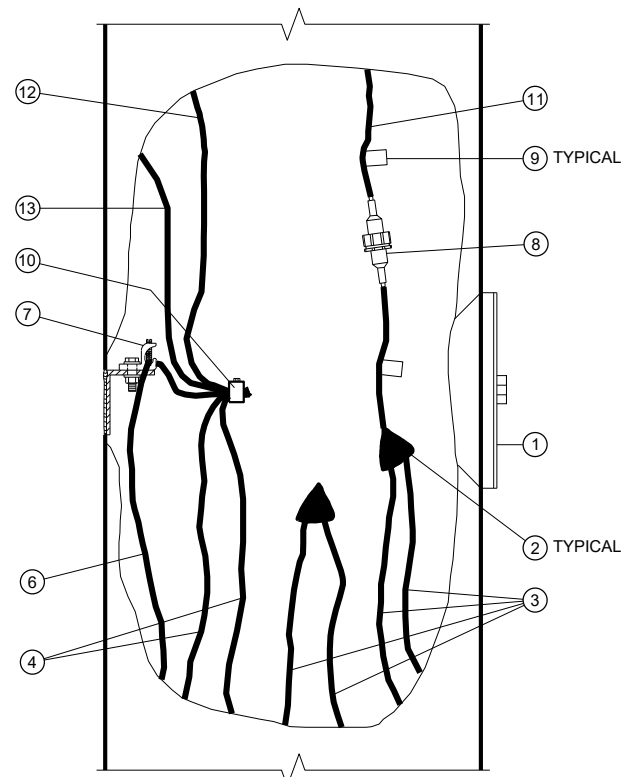


**FUSE ASSEMBLIES**

**CONDUCTOR COLOR CODES**

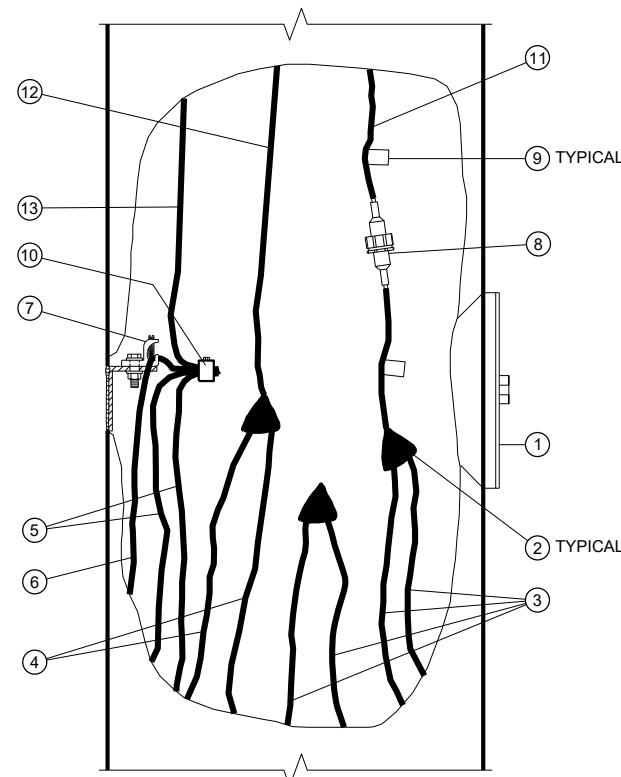
KEY	CONDUCTOR	COLOR
3	UNGROUND LINE WIRE	*
4	GROUNDED LINE WIRE	WHITE
5	SYSTEM GROUNDING LINE WIRE	GREEN
6	GROUNDING ELECTRODE CONDUCTOR	BARE
11	UNGROUND POLE WIRE	*
12	GROUNDED POLE WIRE	WHITE
13	EQUIPMENT GROUNDING POLE WIRE	GREEN

\* FOLLOW COLOR CODING SHOWN IN THE PLANS. WHERE THE PLANS DO NOT SHOW COLOR CODING, USE BLACK FOR SINGLE LUMINAIRE POLES; BLACK AND RED FOR TWIN LUMINAIRE POLES.



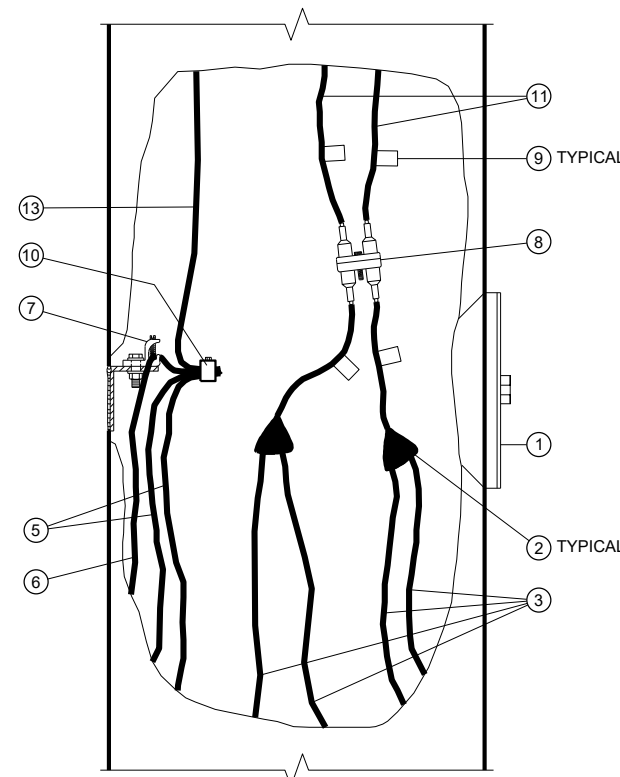
**CUTAWAY HANDHOLE DETAIL**

GROUNDED NEUTRAL SYSTEMS  
1-φ



**CUTAWAY HANDHOLE DETAIL**

ISOLATED NEUTRAL SYSTEMS  
1-φ SHOWN; 3-φ WYE SIMILAR  
(SEE GENERAL NOTE)



**CUTAWAY HANDHOLE DETAIL**

PHASE TO PHASE SYSTEMS  
1-φ SHOWN; 3-φ DELTA SIMILAR  
(SEE GENERAL NOTE)

- ① HANDHOLE AND COVER
- ② INSULATED SPLICE
- ③ UNGROUNDED LINE WIRE
- ④ GROUNDED LINE WIRE
- ⑤ SYSTEM GROUNDING LINE WIRE
- ⑥ GROUNDING ELECTRODE CONDUCTOR
- ⑦ HANDHOLE GROUNDING LUG
- ⑧ FUSE ASSEMBLY, 1P OR 2P AS REQUIRED
- ⑨ CIRCUIT TAG (SEE GENERAL NOTE)
- ⑩ REVERSIBLE PRESSURE OR COMPRESSION GROUNDING CONNECTOR (NOT INSULATED)
- ⑪ UNGROUNDED POLE WIRE
- ⑫ GROUNDED POLE WIRE
- ⑬ EQUIPMENT GROUNDING POLE WIRE

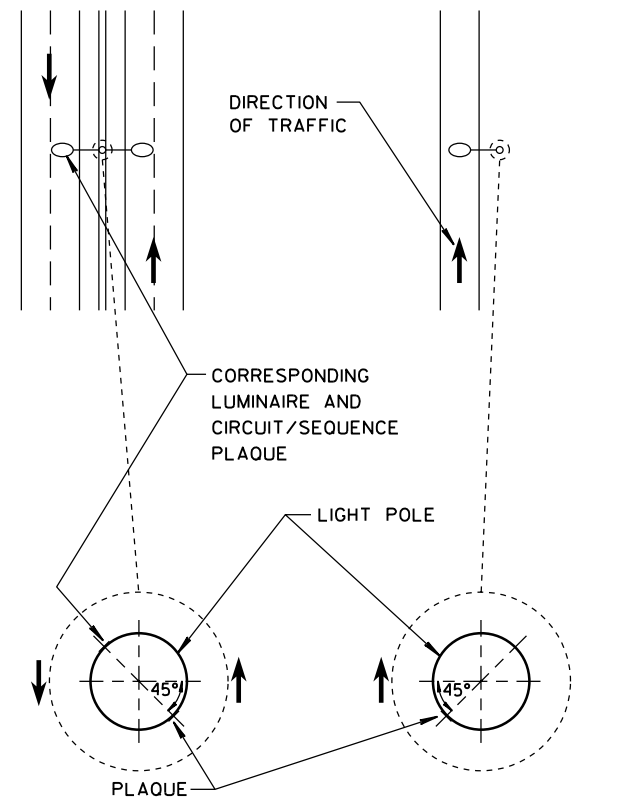
NOTE: REQUIRED CONDUCTOR SLACK NOT SHOWN ON "CUTAWAY HAND HOLE" DETAILS FOR DRAWING CLARITY, SEE "TYPICAL CONDUCTOR SLACK AT HANDHOLES" ON THIS SHEET.

**ELECTRICAL HANDHOLE WIRING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2022 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER

FHWA



MEDIAN POLE SINGLE ARM POLE

**LOCATION OF LIGHT POLE CIRCUIT/SEQUENCE PLAQUE**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

WHERE SHOWN IN THE PLANS, REPLACEMENT PLAQUES WILL BE MEASURED AND PAID SEPARATELY.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

- GALVANIZED STEEL SHAFT - STAINLESS STEEL POP RIVETS
- A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS; FASTEN WITH STAINLESS SELF-TAPPING SCREWS
- ALUMINUM SHAFTS - ALUMINUM POP RIVETS

MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

**PLAQUE MATERIALS:**

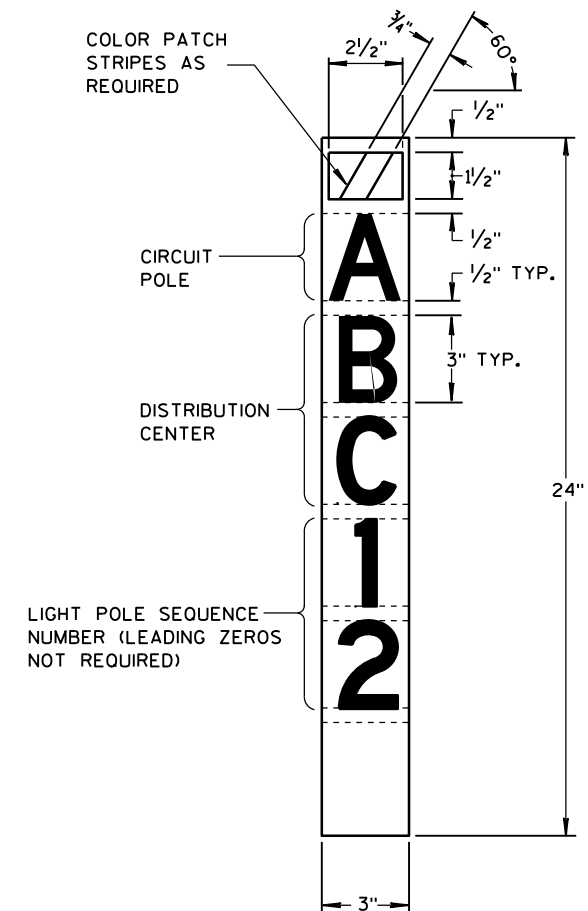
- BASE - SHEET ALUMINUM, 0.060" THICK.
- FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE
- LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE
- CHARACTERS - BLACK, SELF-ADHESIVE, SERIES "D", SIZE AS SHOWN
- COLOR PATCHES - VARIOUS COLORS, SELF-ADHESIVE VINYL SHEETING

WITH THE APPROVAL OF THE ENGINEER, THE BASE MATERIAL MAY BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE SURFACE, IN CASES SUCH AS SMOOTH, CLEAN ALUMINUM POLES.

ALTERNATIVE COMPUTER-GENERATED SIGN LETTERING MAY BE ACCEPTED IF THE ENGINEER FINDS IT TO BE EQUIVALENT.

**COLOR PATCH CODE FOR HPS AND LED LUMINAIRES**

HPS	LED	COLOR PATCH CODE
1000 WATT		NO PATCH
400 WATT	CATEGORY D	ORANGE
310 WATT		BLUE
250 WATT	CATEGORY C	ORANGE WITH WHITE STRIPE
200 WATT		RED
150 WATT	CATEGORY B	GREEN
100 WATT	CATEGORY A	BROWN
70 WATT	CATEGORY UDL	BROWN WITH WHITE STRIPE



**LIGHT POLE CIRCUIT/SEQUENCE PLAQUE**

**IDENTIFICATION PLAQUES LIGHT POLES**

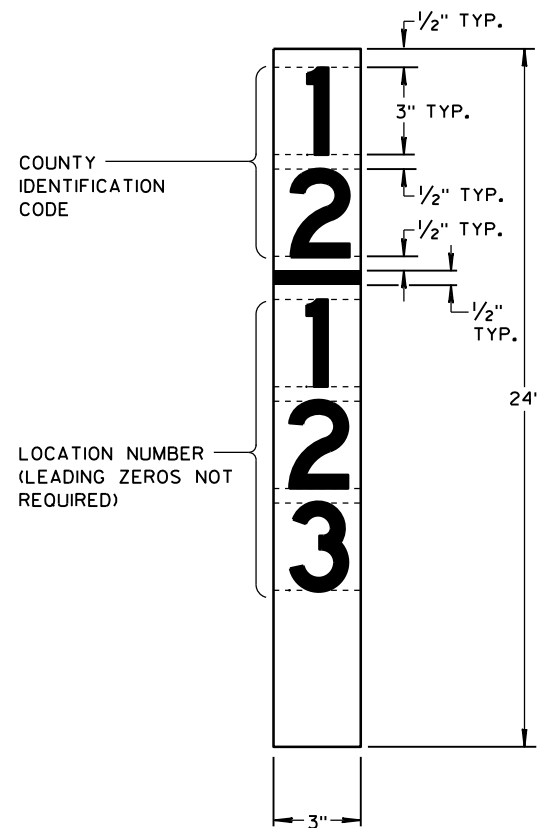
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**APPROVED**

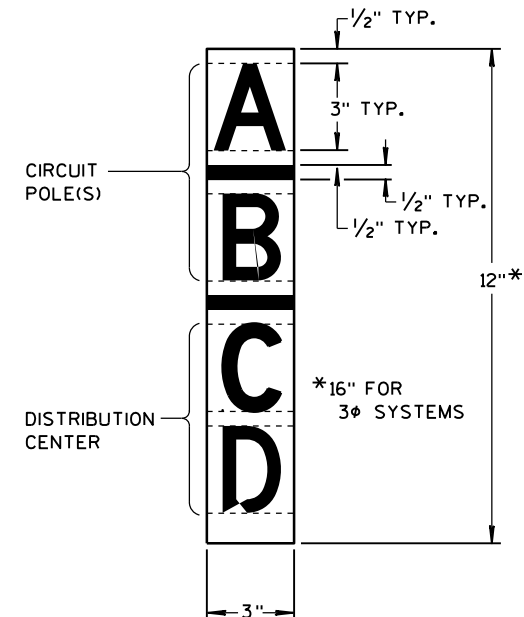
Feb. 2015  
DATE

FHWA

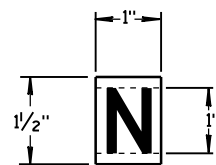
/S/ Ahmet Demirebilek  
STATE ELECTRICAL ENGINEER



**HIGH MAST LIGHT TOWER  
STRUCTURE PLAQUE**

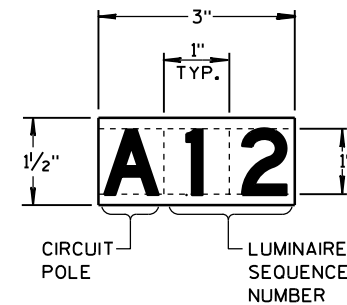


**UNDERDECK LIGHTING OR  
HIGH MAST LIGHT  
TOWER CIRCUIT PLAQUE**



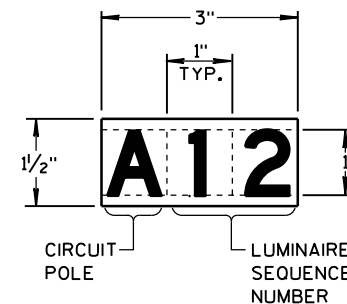
**HIGH MAST LIGHT TOWER  
NORTH PLAQUE**

(MOUNT ON LOWERING RING - INDICATING NORTH  
HEADING  $2 \pm 10^3$  WHEN RING IS RAISED AND LATCHED)



**HIGH MAST LIGHT  
TOWER LUMINAIRE  
SEQUENCE PLAQUE**

(MOUNT ON LUMINAIRE RING)



**UNDER DECK LUMINAIRE  
SEQUENCE DECAL**

(MOUNT ON LUMINAIRE)

**GENERAL NOTES**

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

CONCRETE SURFACE - MASONRY ANCHORS

GALVANIZED STEEL SHAFT - STAINLESS STEEL POP RIVETS

A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS;  
FASTEN WITH STAINLESS SELF-TAPPING SCREWS

PLAQUE MATERIALS:

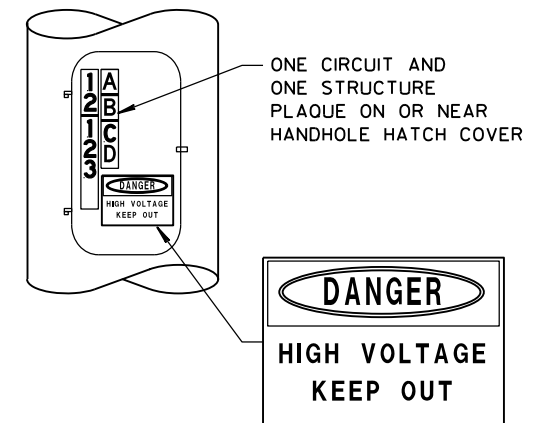
BASE - SHEET ALUMINUM, 0.060" THICK.

FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE

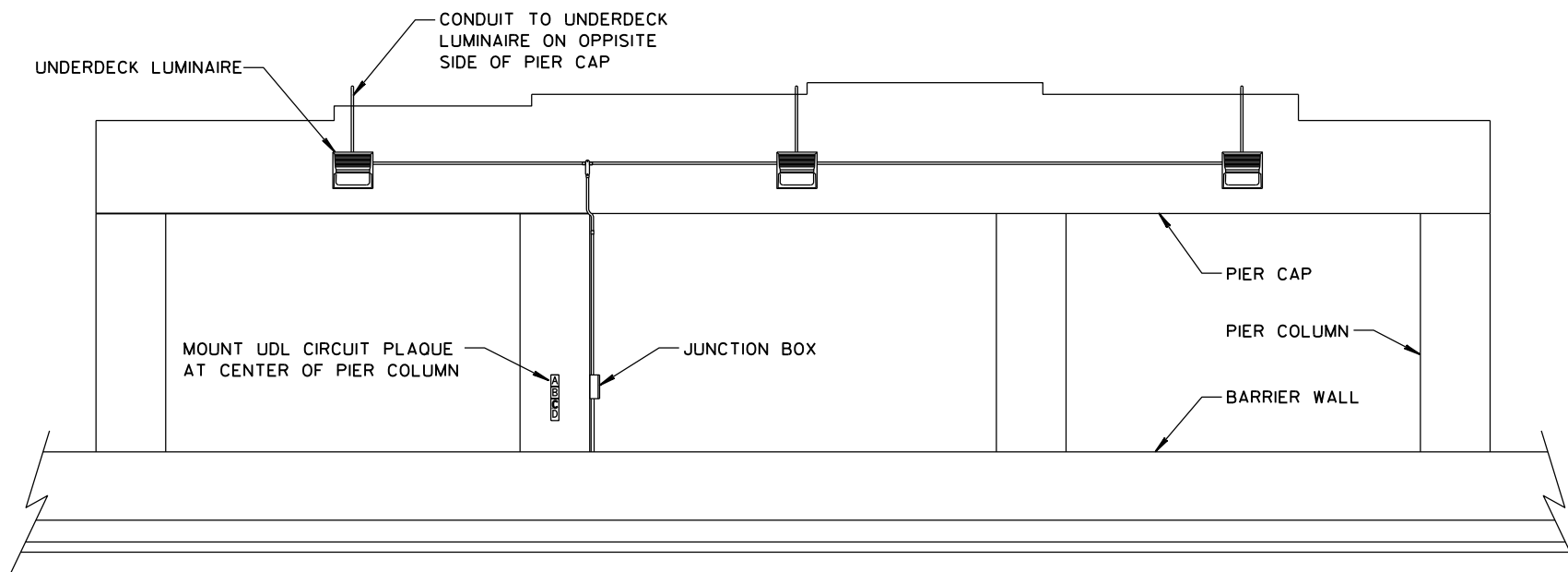
CHARACTERS - BLACK, SELF-ADHESIVE, SERIES "D", SIZE AS SHOWN

ALTERNATIVE COMPUTER-GENERATED SIGN LETTERING MAY BE ACCEPTED IF THE ENGINEER FINDS IT TO BE EQUIVALENT.



NOTE: NEMA PLAQUE SHOWN ABOVE IS REQUIRED ONLY IN PARK AND RIDE LOTS OR IN OTHER PEDESTRIAN ACCESSIBLE AREAS.

**LOCATION OF HIGH MAST LIGHT TOWER  
STRUCTURE PLAQUE AND CIRCUIT PLAQUE**



**LOCATION OF UNDERDECK LIGHTING  
CIRCUIT PLAQUE**

**IDENTIFICATION PLAQUES  
UNDERDECK AND HIGH  
MAST LIGHTING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015 /S/ Ahmet Demriblek  
DATE STATE ELECTRICAL ENGINEER  
FHWA

### GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING, SDD10A01.


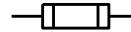
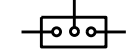
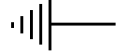




USE TIME DELAY FUSE PER LUMINAIRE MANUFACTURER RECOMMENDATION.

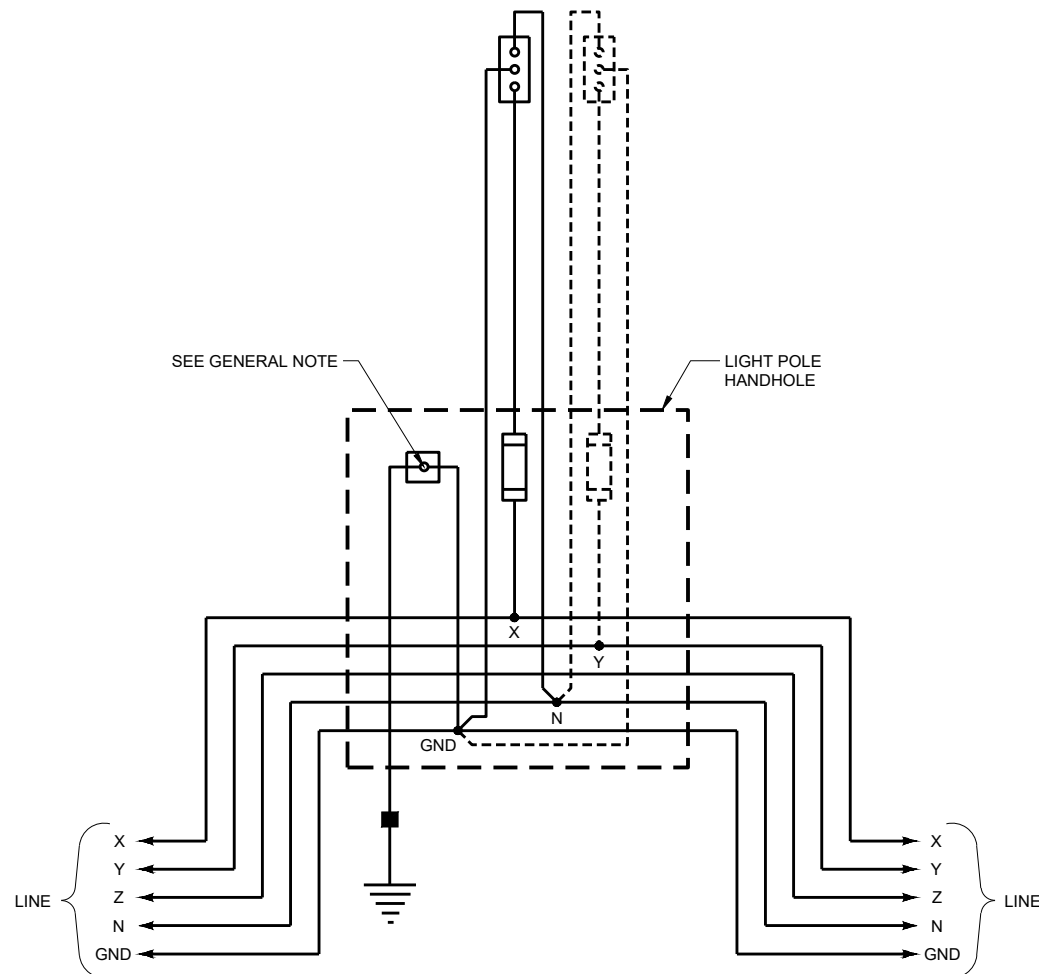
THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES. WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.

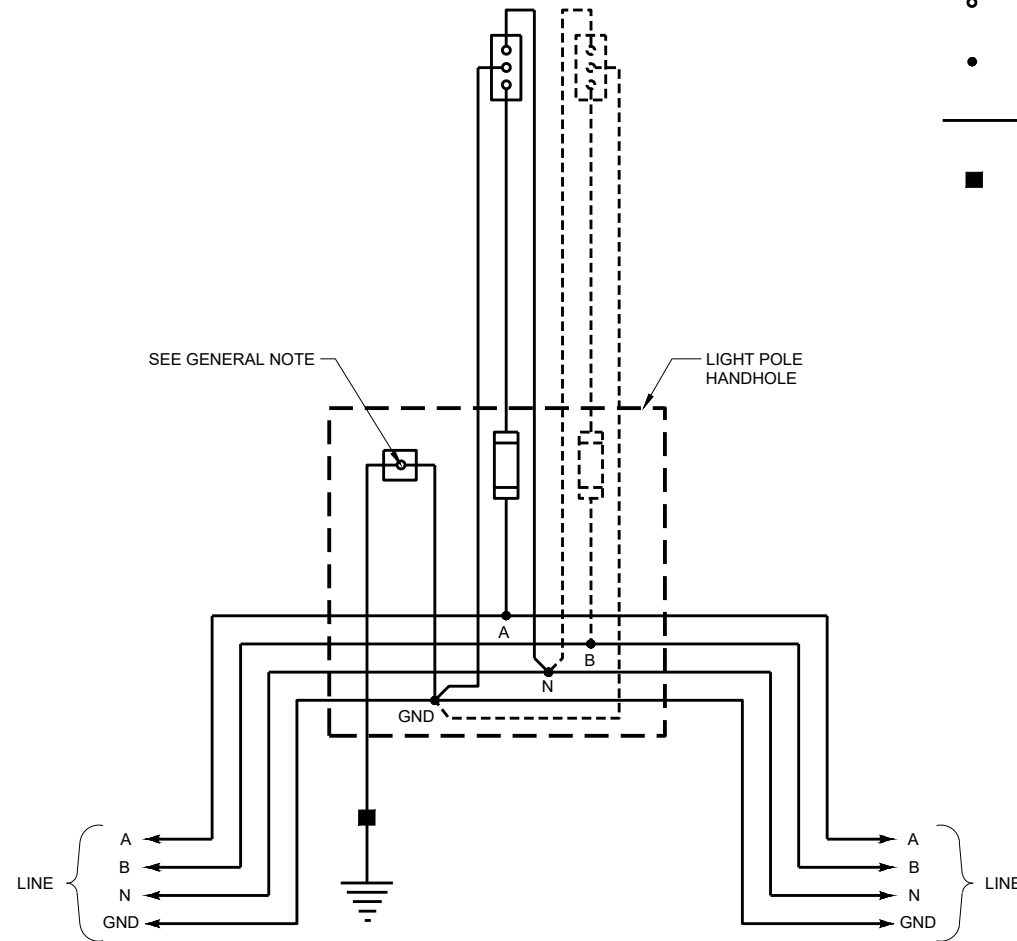
### LEGEND

A,B,X,Y,Z	UNGROUNDING CIRCUIT CONDUCTORS
N	GROUNDING CIRCUIT CONDUCTORS
GND	EQUIPMENT GROUNDING CONDUCTOR
P	POLE (ELECTRICAL CIRCUIT)
$\phi$	PHASE (ELECTRICAL CURRENT)
	HANDHOLE GROUND LUG
	SINGLE-POLE (1P) FUSE ASSEMBLY
	UNFUSED LUMINAIRE
	EQUIPMENT GROUNDING ELECTRODE
	TERMINAL
	SPLICE
	CONDUCTOR
	EXOTHERMIC WELD



**TYPICAL WIRING DIAGRAM**

ISOLATED NEUTRAL SYSTEM  
3 -  $\phi$  208Y / 120VAC OR 480Y / 277VAC 4 WIRE



**TYPICAL WIRING DIAGRAM**

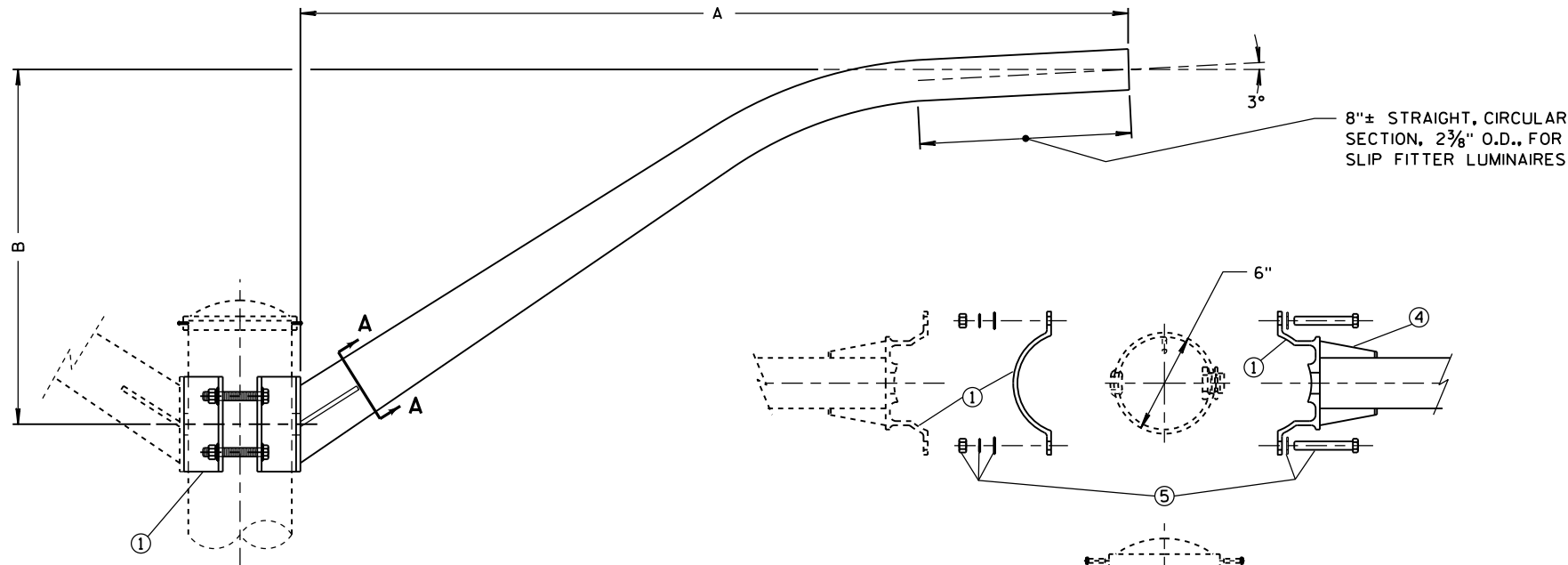
ISOLATED NEUTRAL SYSTEM  
1 -  $\phi$  120 / 240VAC OR 240 / 480VAC 3 WIRE

**ELECTRICAL DETAILS  
GROUND MOUNT LIGHT POLES  
ISOLATED NEUTRAL SYSTEM**

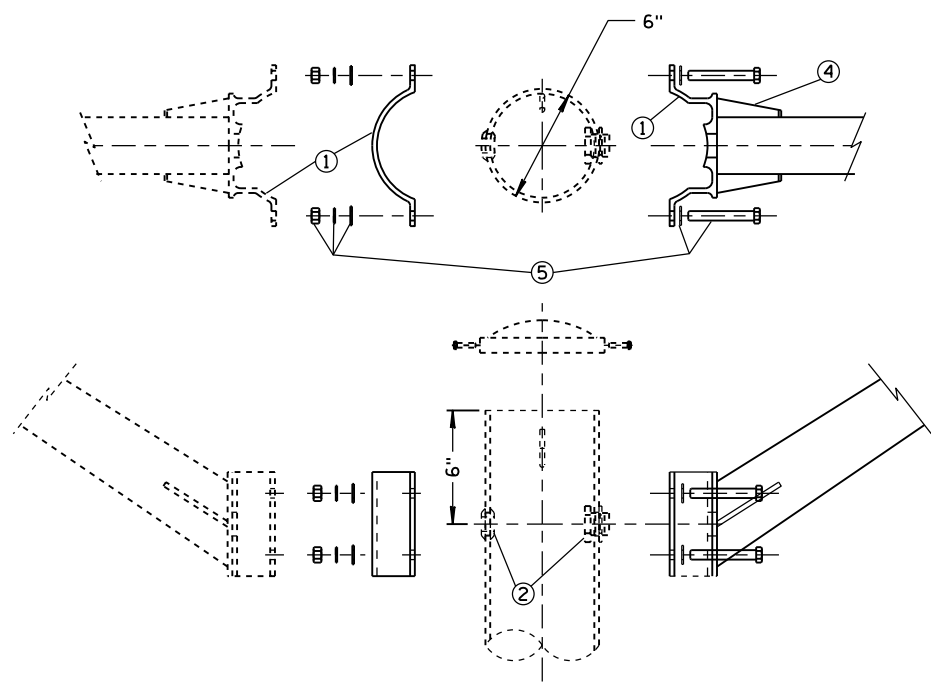
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Ahmet Demirelek  
DATE STATE ELECTRICAL ENGINEER

FHWA



**LUMINAIRE ARMS,  
SINGLE MEMBER, 6-INCH  
CLAMP - FOR POLES, TYPE 7, A OR E**  
VARIOUS LENGTHS (SEE TABLE)



**CLAMP ASSEMBLY**  
SINGLE MEMBER CLAMP SHOWN

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- ARMS AND CLAMP EXTRUSIONS SHALL BE CONSTRUCTED OF NATURAL FINISH 6063-T6 ALUMINUM.
- HEAT TREATMENT OF WELDS IN STRUCTURAL AREAS IS REQUIRED.
- ALL THREADED FASTENER COMPONENTS SHALL BE STAINLESS STEEL. NUTS SHALL BE HEX NUTS. BOLTS SHALL BE HEX HEAD. ALL THREADED SURFACES SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
- LUMINAIRE LOADING FOR DESIGN CALCULATION SHALL BE 50 LBS. IN WEIGHT AND 1.5 SQ. FT. FOR E.P.A..
- ① CLAMPS SHALL BE EXTRUDED ALUMINUM.
  - ② RACE WAY: 1 3/8" FIELD DRILLED HOLE WITH 1" CHASE NIPPLE AND NUT (OR NEOPRENE GROMMET) PER EACH REQUIRED LUMINAIRE ARM. PROVIDE 1/2" HOLE IN CLAMP EXTRUSION TO CONTINUE RACEWAY.
  - ③ STIFFENER
  - ④ GUSSETS REQUIRED.
  - ⑤ CLAMP BOLT ASSEMBLY (BOLT - 1/2"-13 UNC, 2 EACH - FLAT WASHER, LOCK WASHER, NUT) - 4 EACH PER CLAMP.

TYPE	DIM. A	DIM. B
	NOMINAL ARM LENGTH (FT)	APPROX. RISE (FT)
SINGLE MEMBER	4.0	2.0
SINGLE MEMBER	8.0	3.0
SINGLE MEMBER	10.0	3.0
SINGLE MEMBER	15.0	3.0

**LUMINAIRE ARMS, SINGLE MEMBER  
6-INCH CLAMP**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: Sept. 2014 /S/ Ahmet Demirelek  
STATE ELECTRICAL ENGINEER

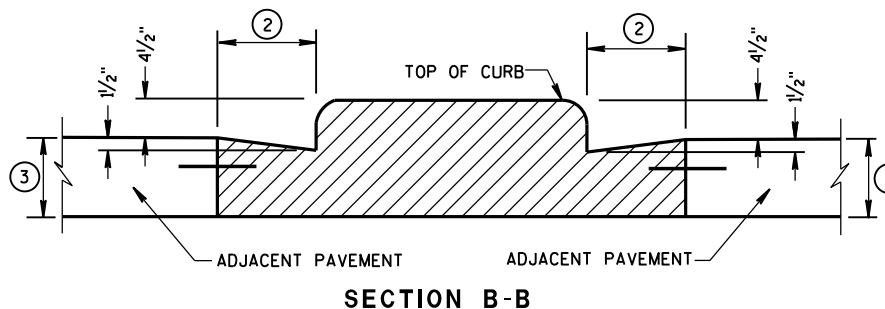
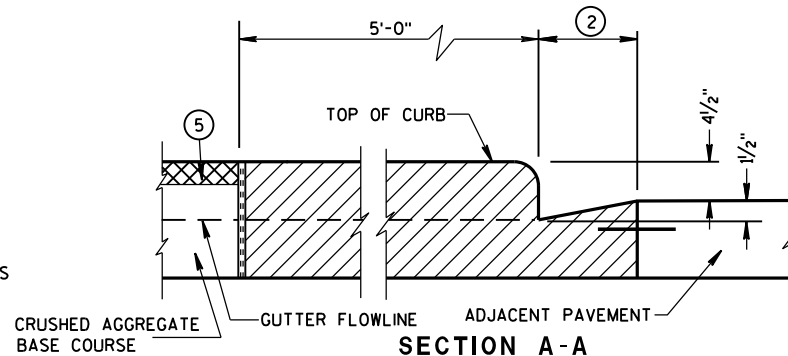
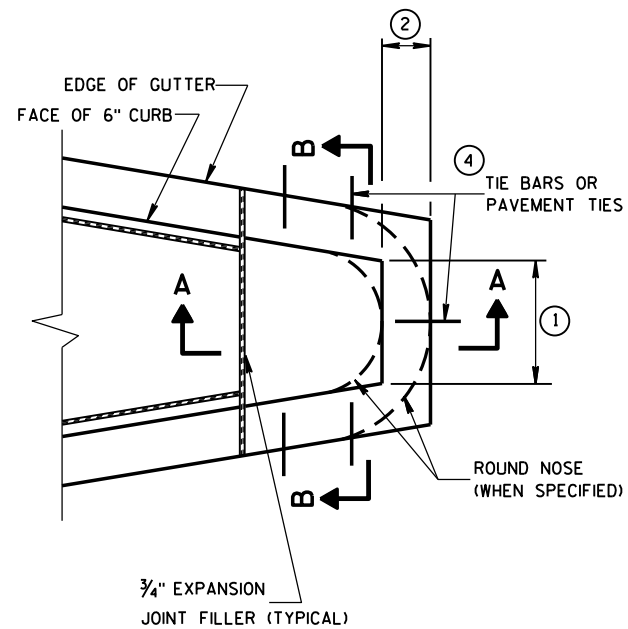
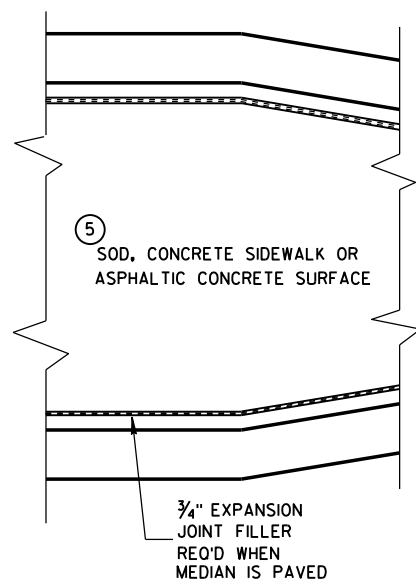
FHWA

6

6

S.D.D. 10 A 18-5a

S.D.D. 10 A 18-5a

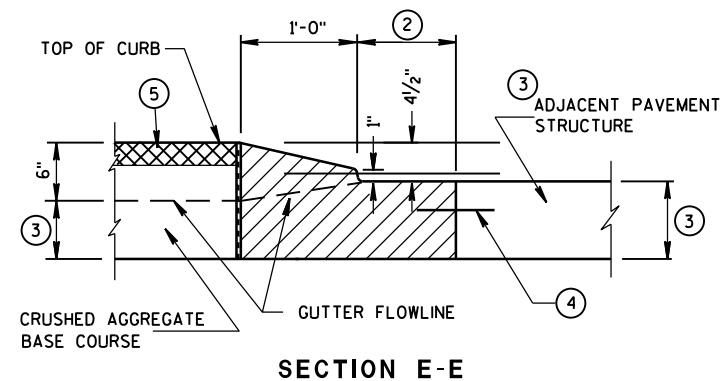
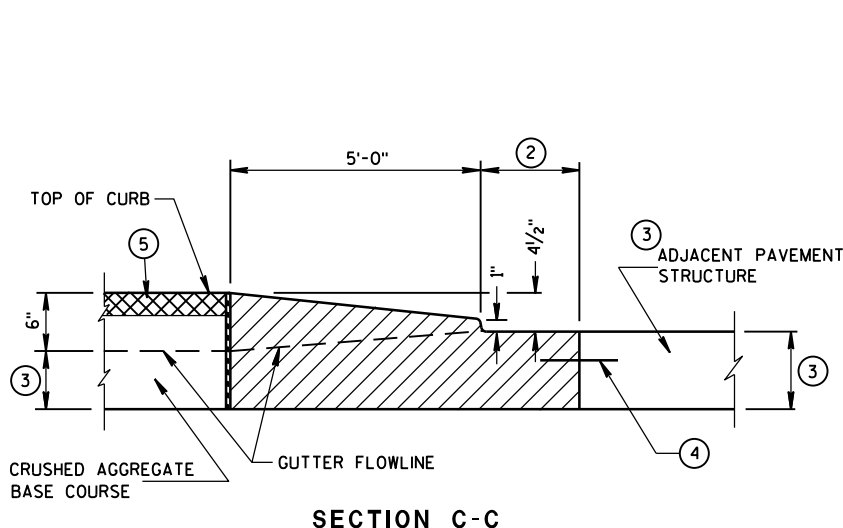
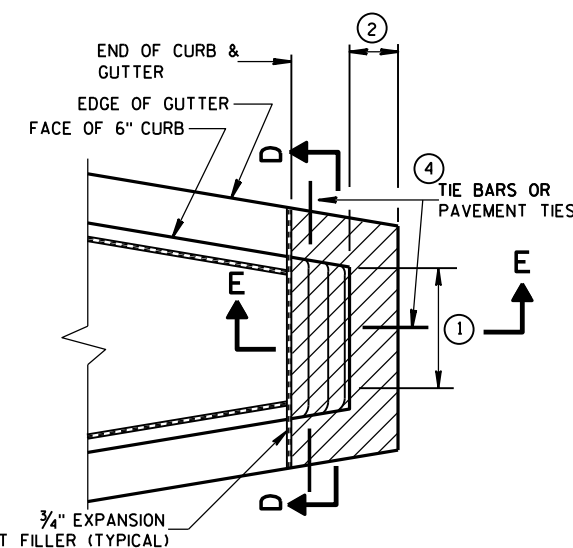


CONCRETE MEDIAN BLUNT NOSE DETAIL

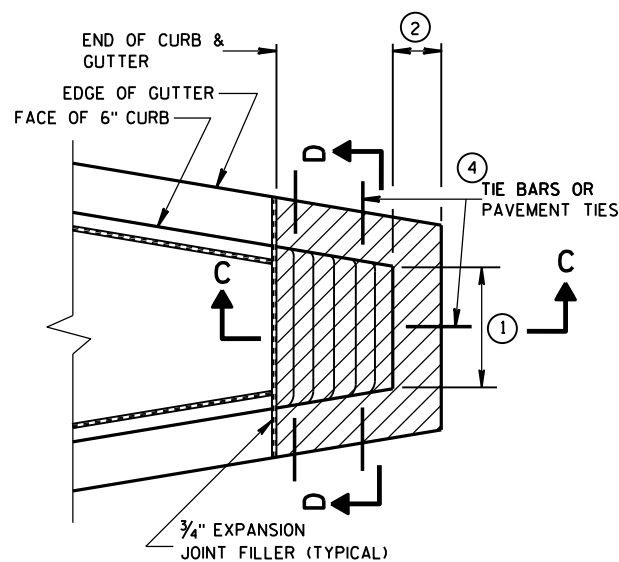
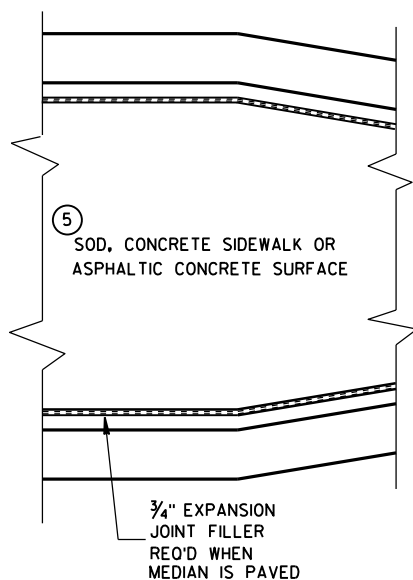
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

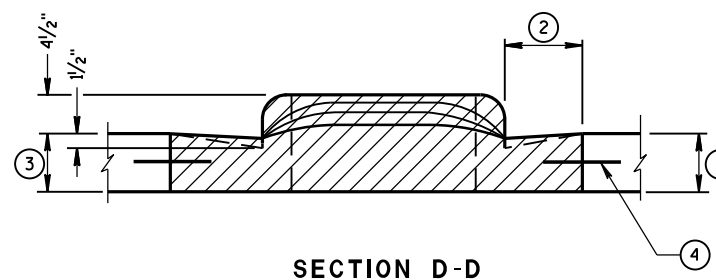
- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
  - (1) NEW OR EXISTING CONCRETE PAVEMENT.
  - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
  - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.
- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.
- PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.
- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



CONCRETE MEDIAN SLOPED NOSE TYPE 2



CONCRETE MEDIAN SLOPED NOSE TYPE 1



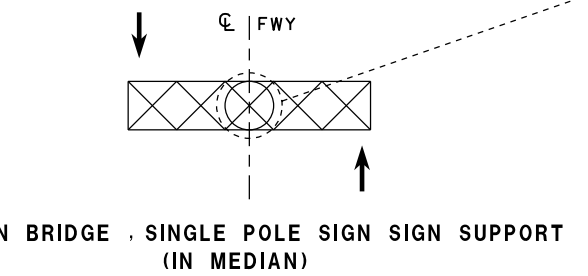
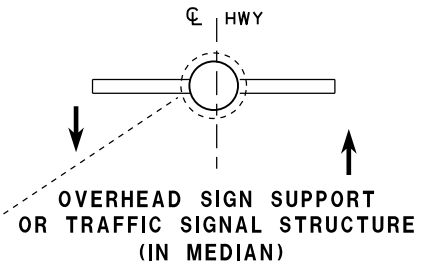
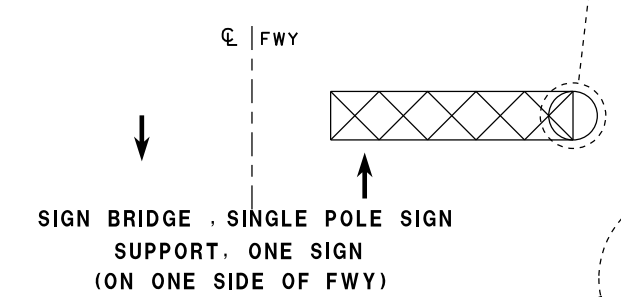
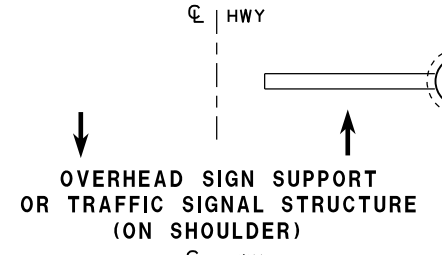
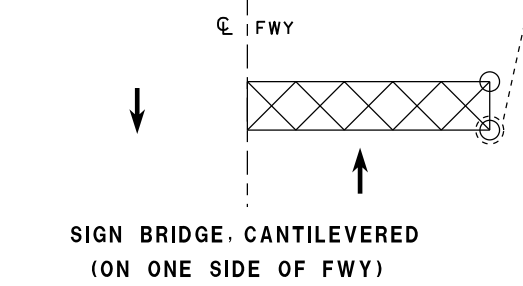
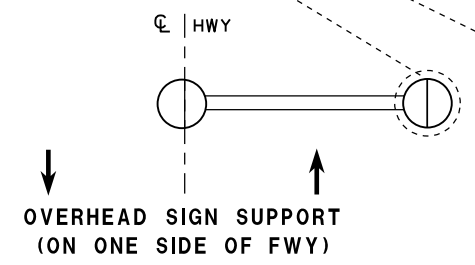
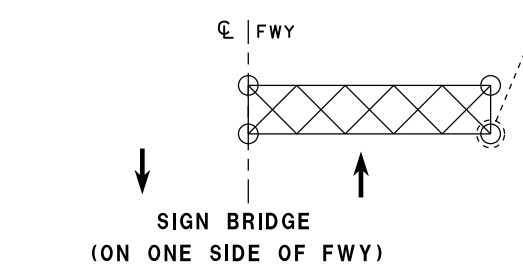
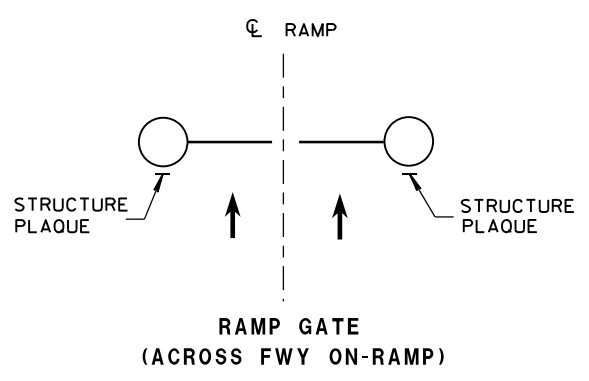
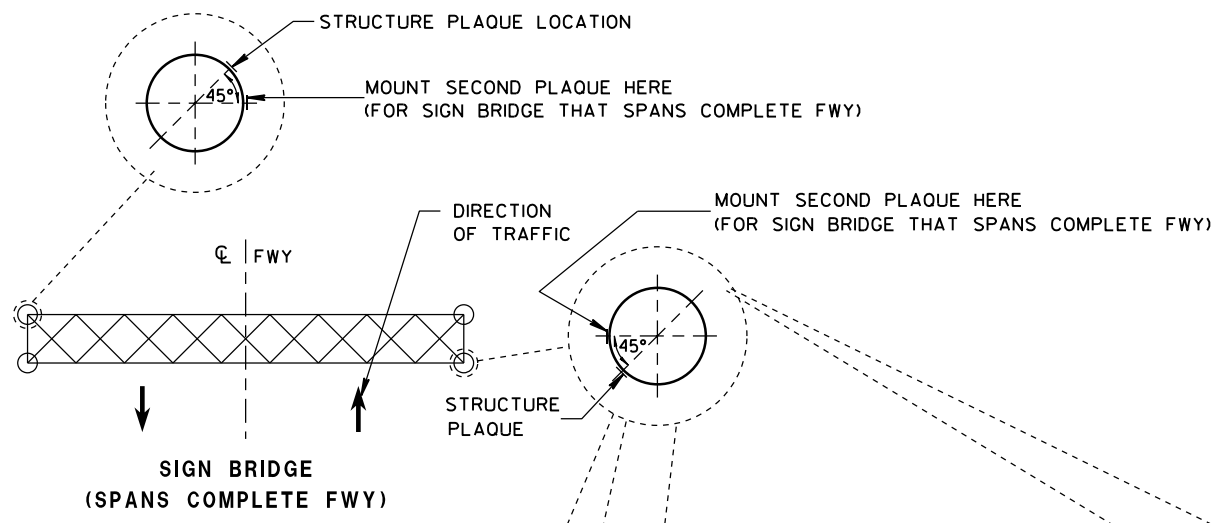
CONCRETE MEDIAN NOSE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

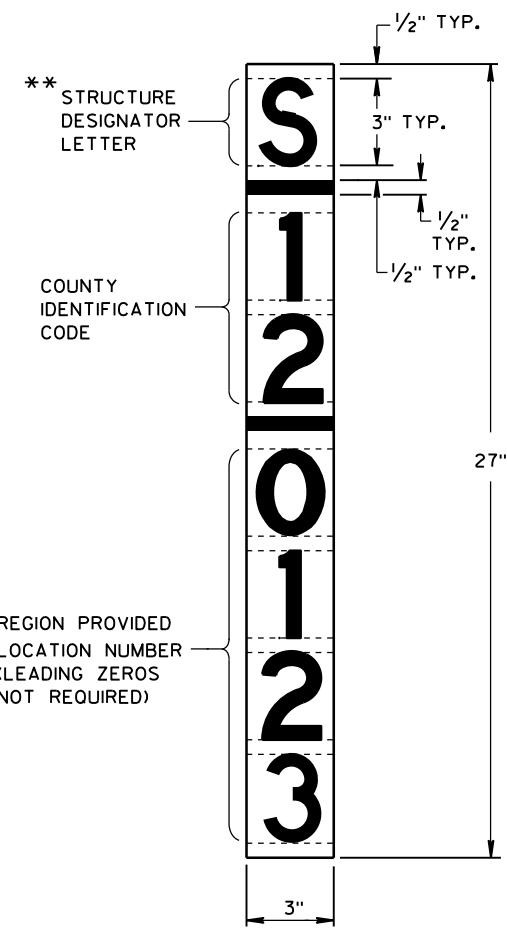
APPROVED  
6/8/2006  
DATE

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



\* WHEN SIGNS OR GATES FACE TRAFFIC IN ONE DIRECTION, THE PLAQUE SHALL FACE TRAFFIC IN THE SAME DIRECTION. WHEN SIGNS OR GATES ARE FACING TRAFFIC IN BOTH DIRECTIONS, THE PLAQUE SHALL FACE TRAFFIC IN THE CARDINAL DIRECTION.



**GENERAL NOTES**

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

IF THE PROPOSED SIGN BRIDGE OR OVERHEAD SIGN SUPPORT IS REPLACING AN EXISTING SIGN BRIDGE OR OVERHEAD SIGN SUPPORT, A NEW IDENTIFICATION PLAQUE WILL BE REQUIRED.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

- GALVANIZED STEEL SHAFT - 3 STAINLESS STEEL POP RIVETS
- A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS; FASTEN WITH STAINLESS SELF-TAPPING SCREWS
- ALUMINUM SHAFTS - 3 ALUMINUM POP RIVETS

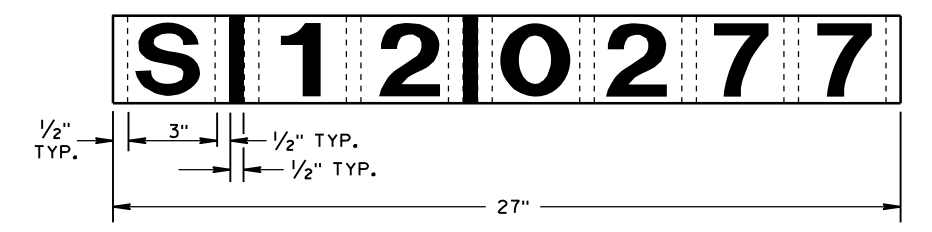
MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

**PLAQUE MATERIALS:**

- BASE - SHEET ALUMINUM, 0.060" THICK.
- FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE
- LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE
- CHARACTERS:- BLACK, SELF ADHESIVE, SERIES "D", SIZE AS SHOWN.

FOR SIGN BRIDGES, STRUCTURE MOUNTED, THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY AS SHOWN ON THE DRAWING. THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY TO THE BACK OF THE SIGN, BETWEEN THE ALUMINUM EXTRUSIONS, NEAR THE TOP LEFT HAND CORNER OF THE SIGN. THE BASE MATERIAL SHALL BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE ALUMINUM SURFACE. PRIOR TO ADHERING THE MATERIAL, THE ALUMINUM SURFACE SHALL BE SMOOTH, CLEAN AND DRY.

WHERE SIGN BRIDGE ILLUMINATION IS PROVIDED, THE STRUCTURE MUST ALSO HAVE A SIGN BRIDGE CIRCUIT PLAQUE AS SHOWN IN THE ELECTRICAL DETAILS.



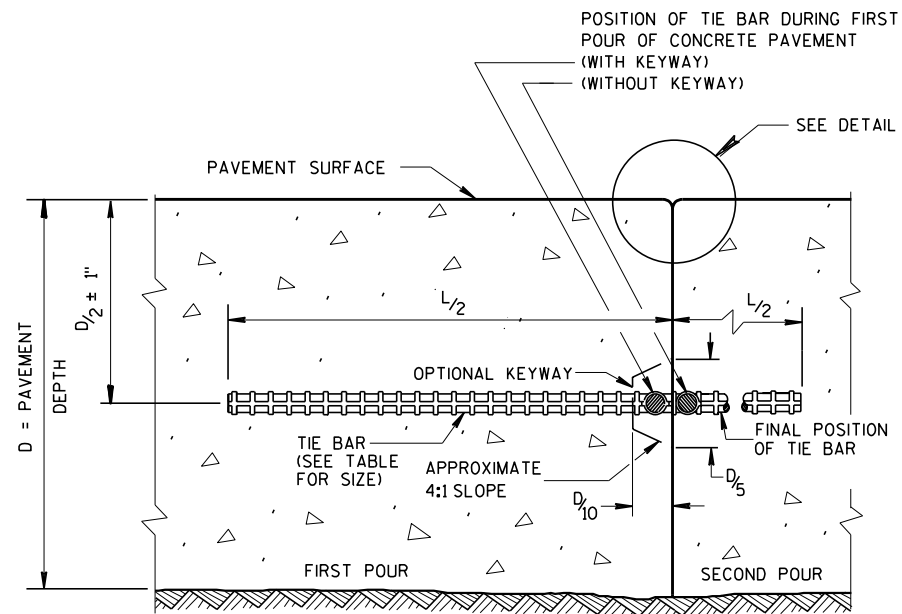
**IDENTIFICATION PLAQUE FOR SIGN BRIDGE, STRUCTURE MOUNTED**

\*\* LETTER "G" UTILIZED FOR RAMP GATES. LETTER "S" UTILIZED FOR SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, AND TRAFFIC SIGNALS.

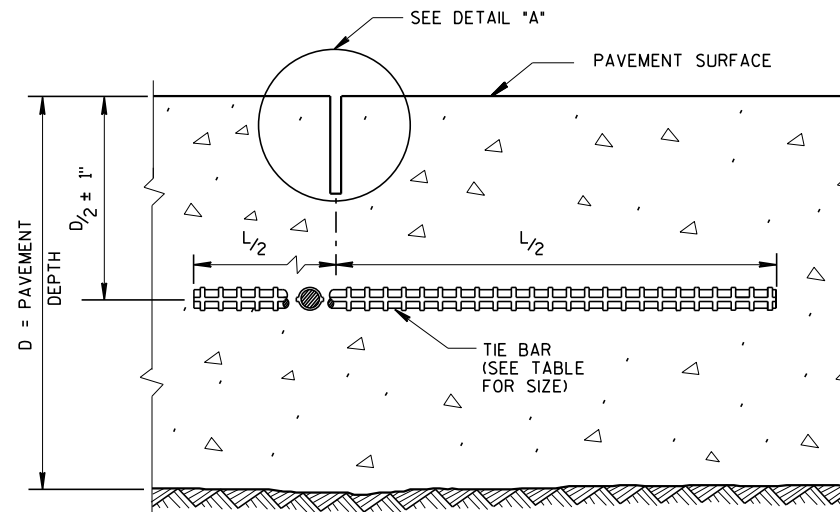
**LOCATION OF RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT & TRAFFIC SIGNAL STRUCTURE PLAQUES**

**RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT AND TRAFFIC SIGNAL STRUCTURE PLAQUE FOR SIGN BRIDGES AND OVERHEAD SIGN SUPPORT WHICH ARE NOT STRUCTURE MOUNTED**

STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, & TRAFFIC SIGNALS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/4/2012 DATE	/s/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



**CONSTRUCTION JOINT**



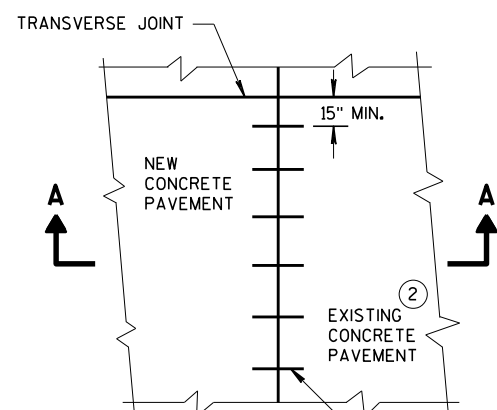
**SAWED JOINT**

**GENERAL NOTES**

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

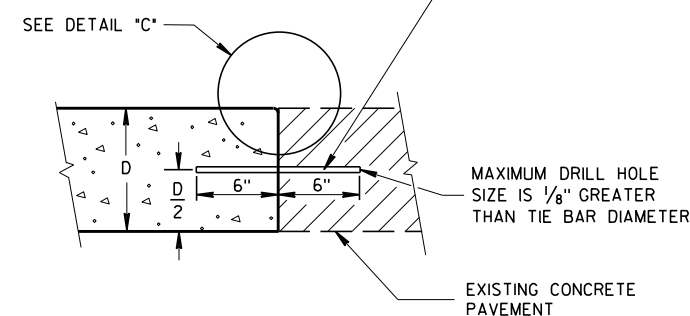
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

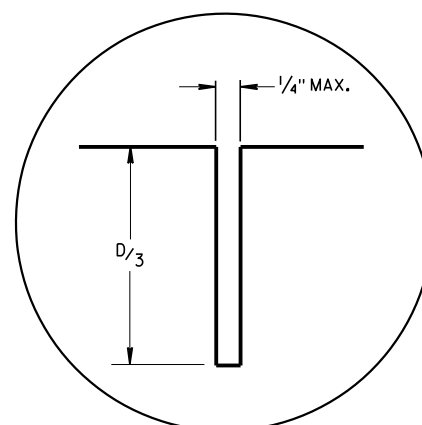


**PLAN VIEW**

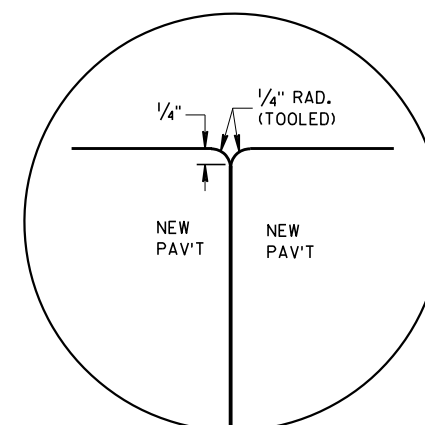
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



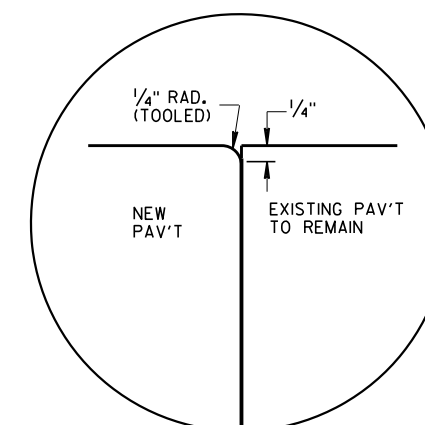
**SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**



**DETAIL "A"**



**DETAIL "B"**



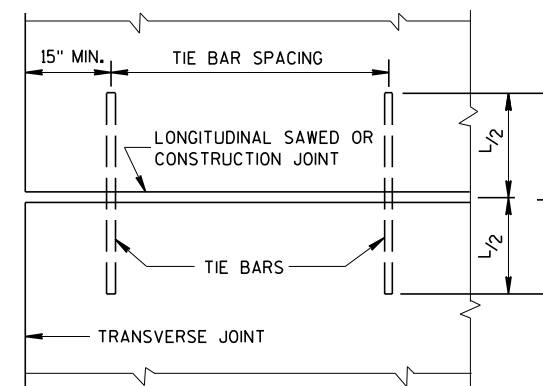
**DETAIL "C"**

**TIE BAR TABLE**

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



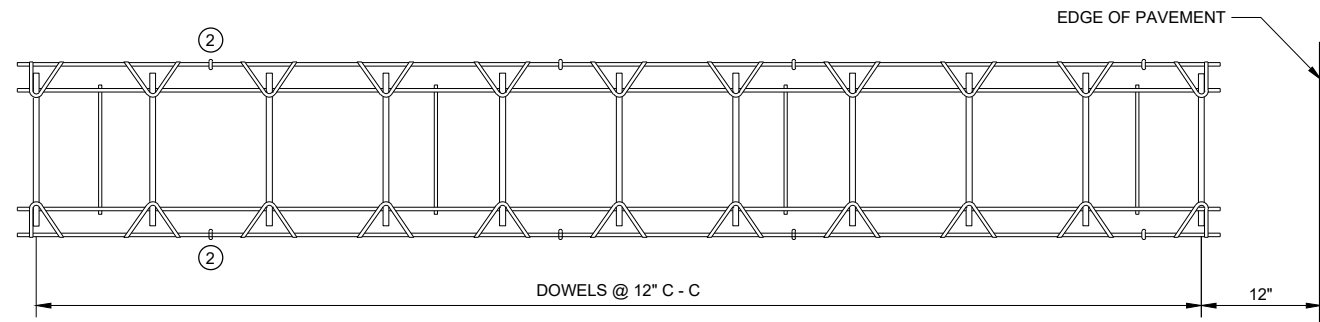
**PLAN VIEW  
SHOWING LOCATION OF TIE BARS**

**CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES**

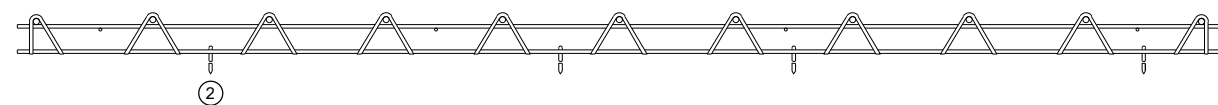
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



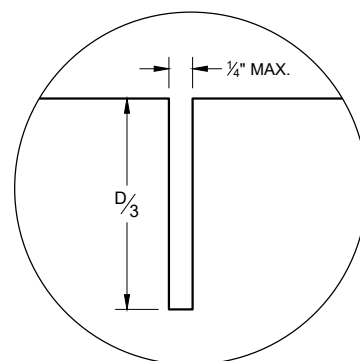


**PLAN VIEW**



**SIDE VIEW**

**CONTRACTION JOINT DOWEL ASSEMBLY** ①



**JOINT DETAIL**

**GENERAL NOTES**

**CONTRACTION JOINTS**

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

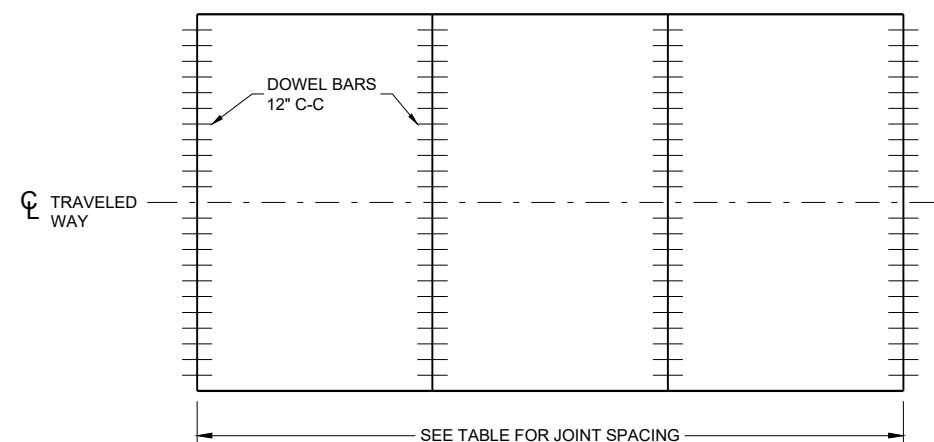
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

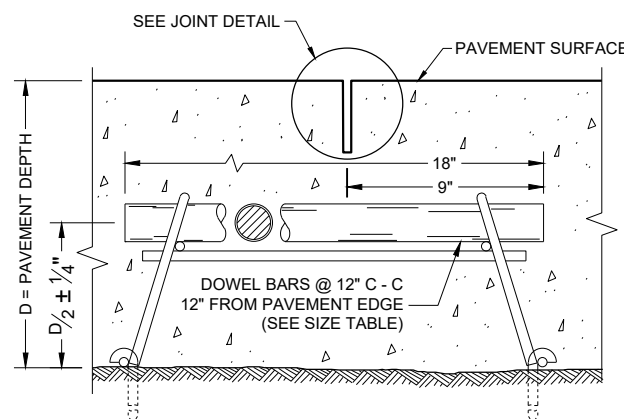
**CONSTRUCTION JOINTS**

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



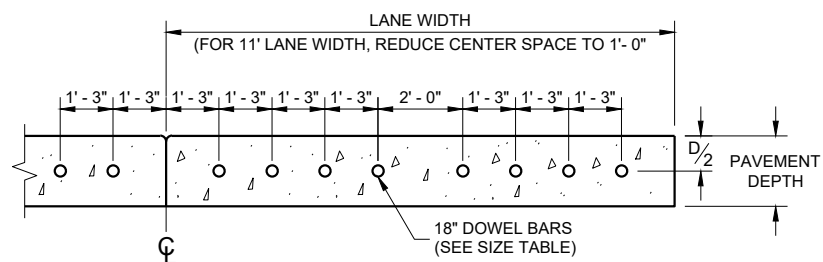
**CONTRACTION JOINT LOCATIONS**



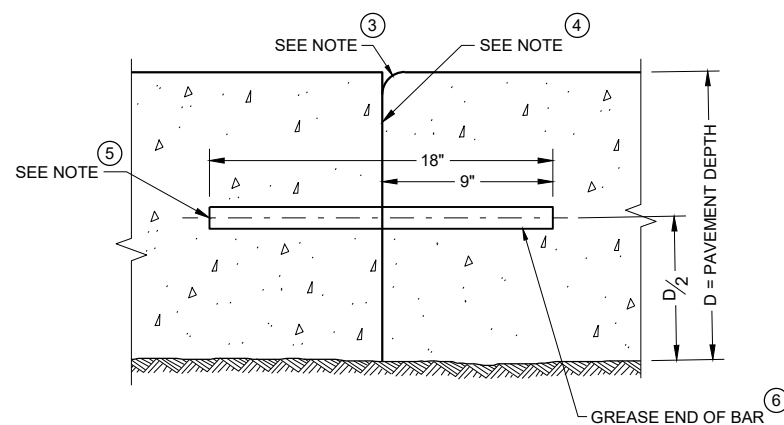
**DOWELED CONTRACTION JOINT**

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8" & ABOVE	1 1/4"	15'



**DRILLED DOWEL BAR CONSTRUCTION JOINT** ⑦



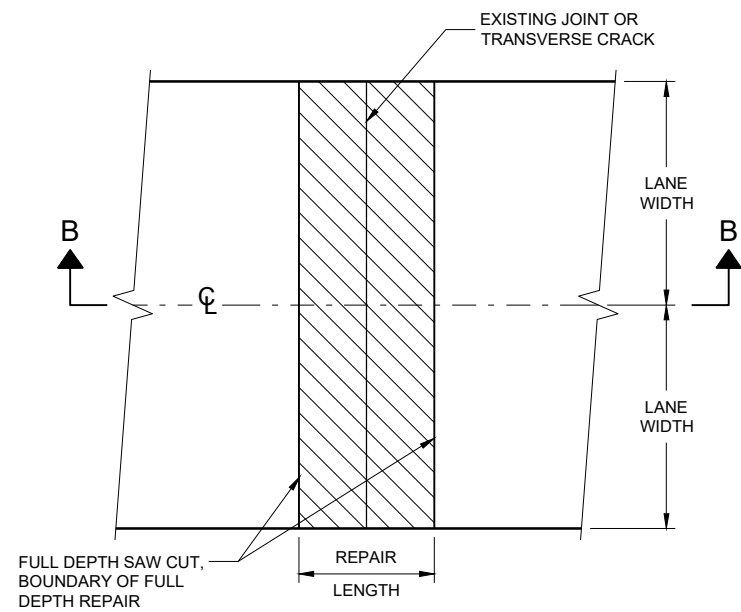
**TRANSVERSE CONSTRUCTION JOINT**

**URBAN DOWELED CONCRETE PAVEMENT**

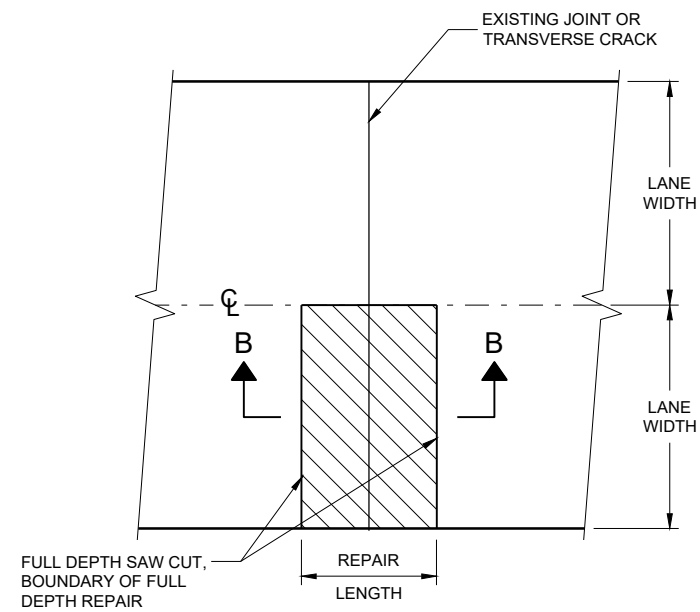
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

FHWA

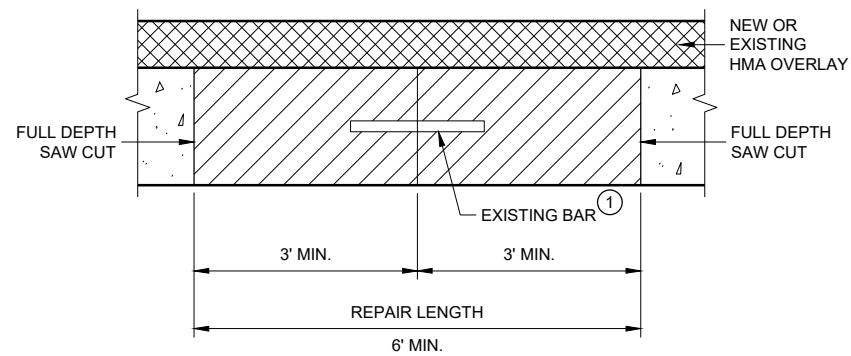


**PLAN VIEW  
DOUBLE LANE REPAIR**



**PLAN VIEW  
SINGLE LANE REPAIR**

**FULL DEPTH CONCRETE PAVEMENT REMOVAL**



**SECTION B - B  
CONCRETE REMOVAL**

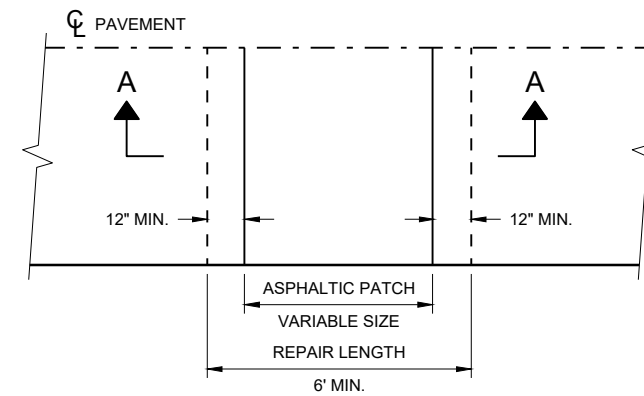
**GENERAL NOTES**

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

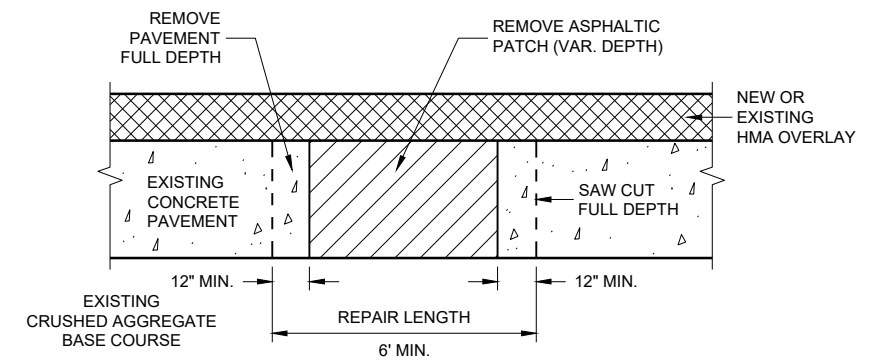
PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



**PLAN VIEW**

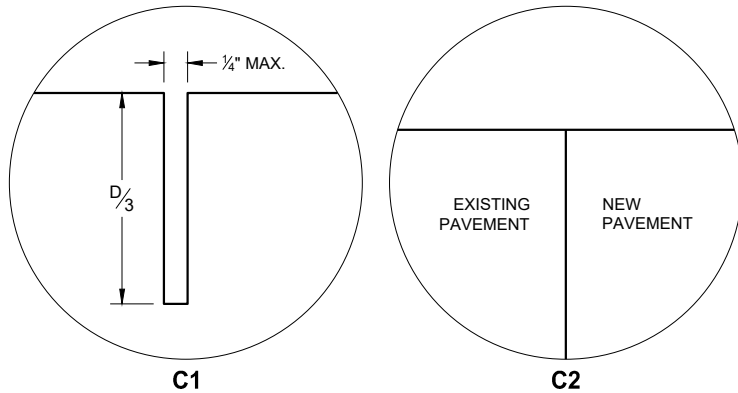


**SECTION A - A**

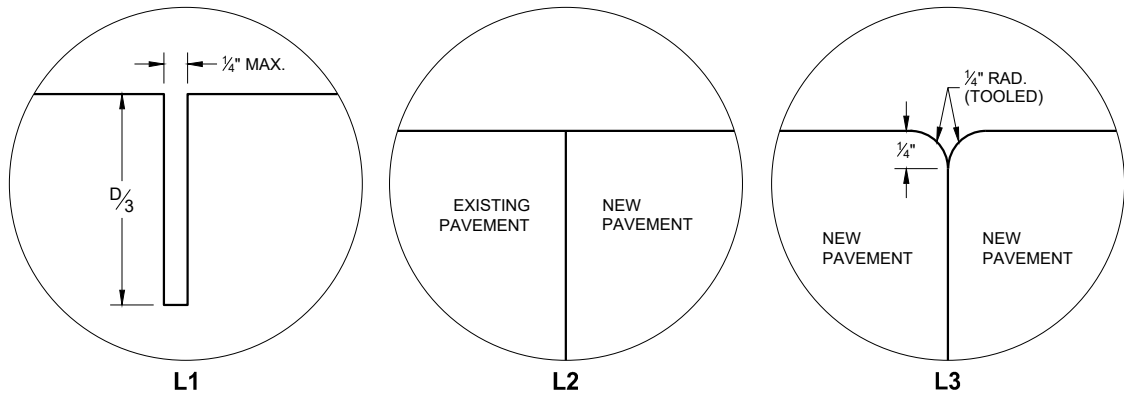
**HMA PATCH REMOVAL**

**BASE PATCHING CONCRETE**

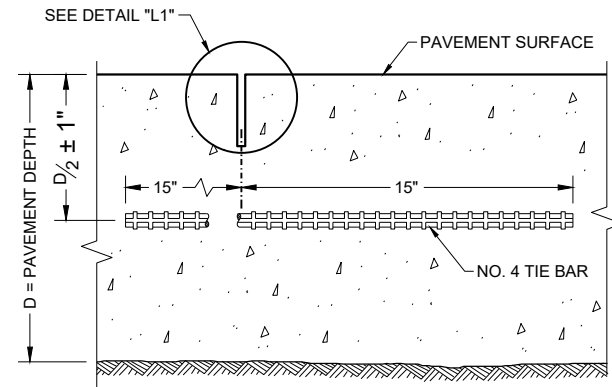
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



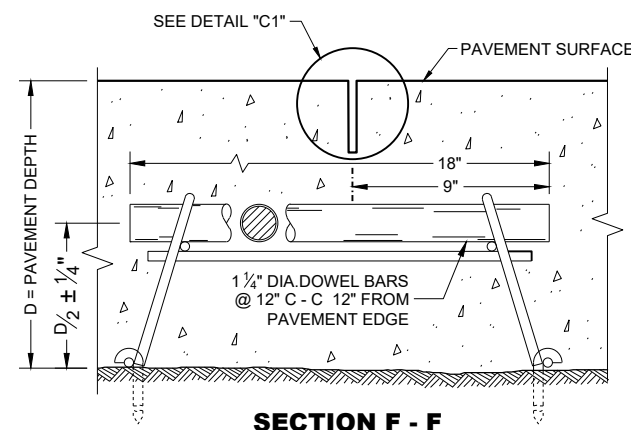
**TRANSVERSE JOINTS**



**LONGITUDINAL JOINTS**



**SECTION C - C  
SAWED LONGITUDINAL JOINT**



**SECTION F - F  
CONTRACTION JOINT**

**GENERAL NOTES**

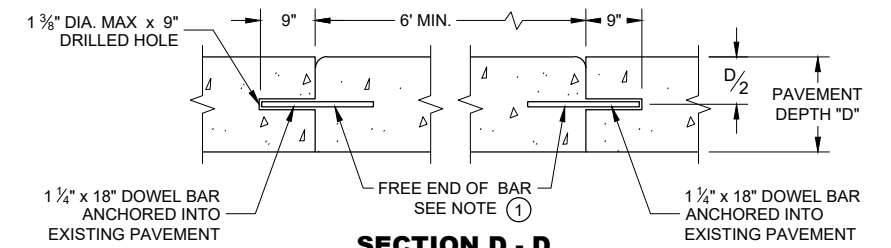
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE BASE PATCHES OF EXISTING NON-DOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

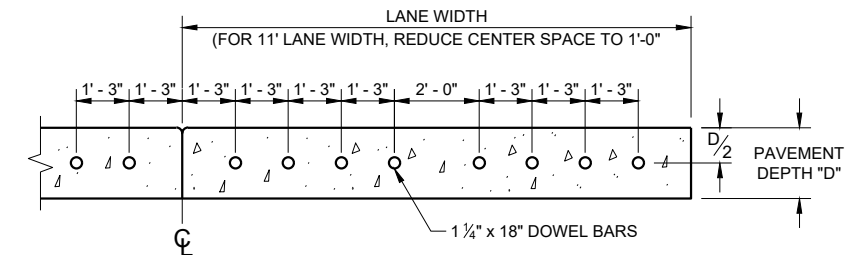
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

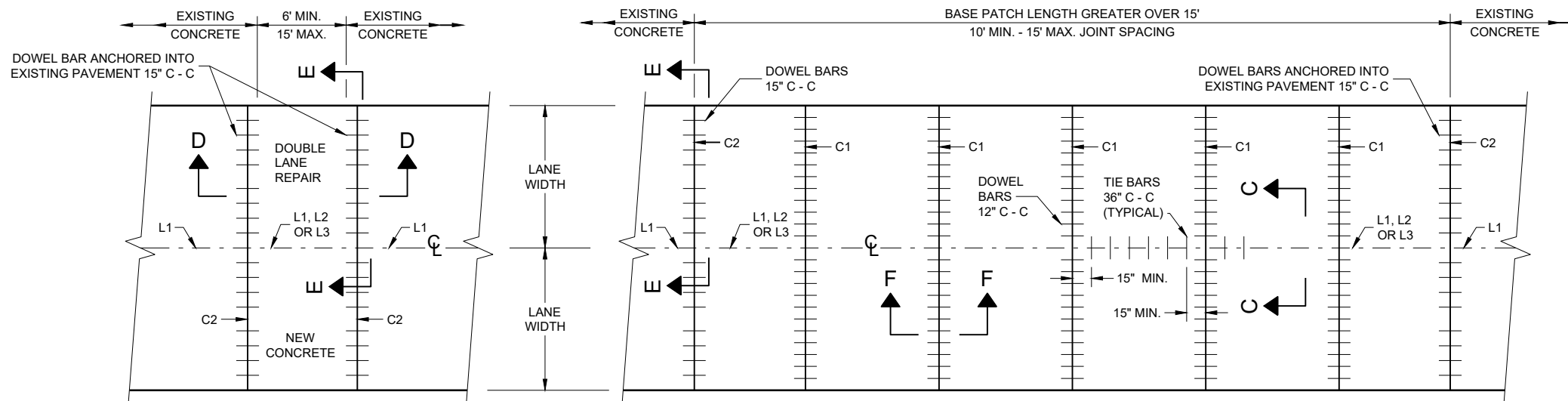
- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



**SECTION D - D**



**SECTION E - E  
SPACING OF DOWEL BARS  
ANCHORED INTO EXISTING PAVEMENT**

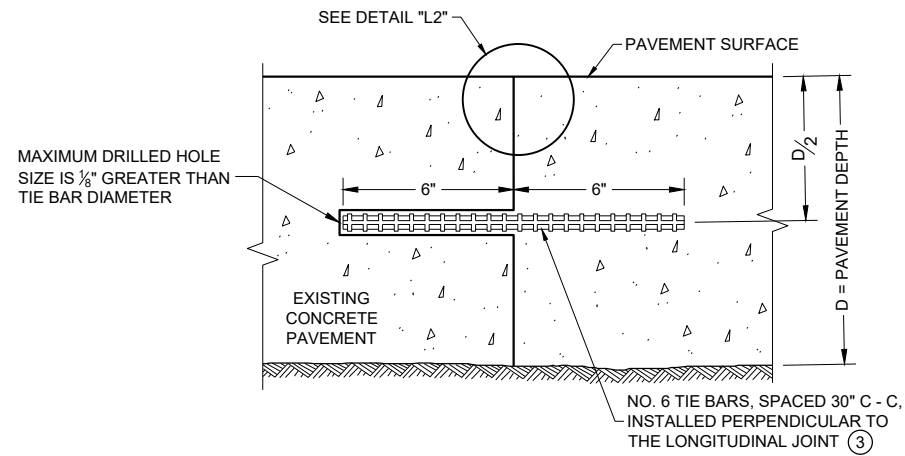


**PLAN VIEW  
MULTILANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH**

**PLAN VIEW  
MULTILANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH**

**BASE PATCHING CONCRETE**

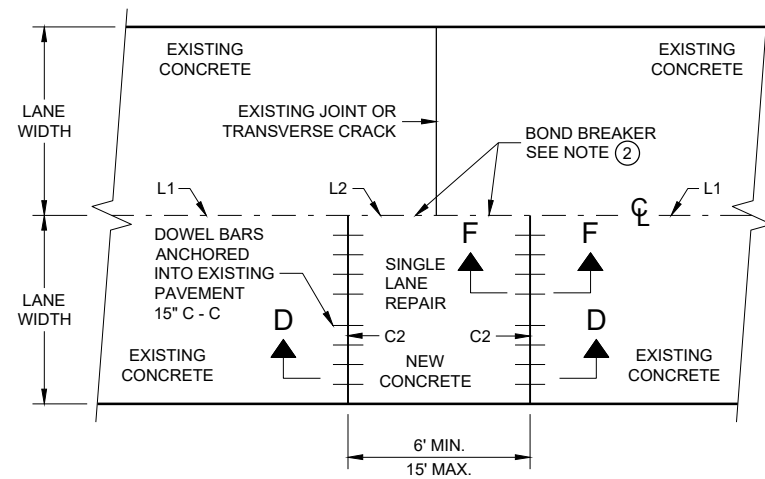
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



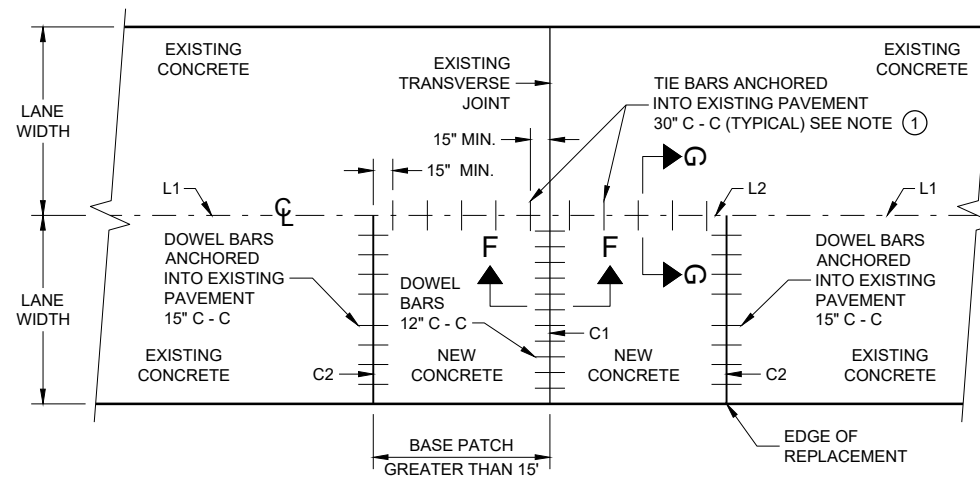
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**

**GENERAL NOTES**

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOES WITH AN EPOXY.



**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE PATCH**  
**15' MAXIMUM LENGTH**



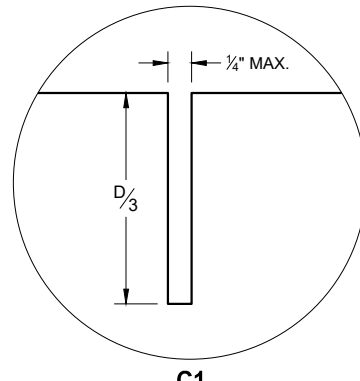
**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE PATCH**  
**GREATER THAN 15' LENGTH**

**BASE PATCHING CONCRETE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

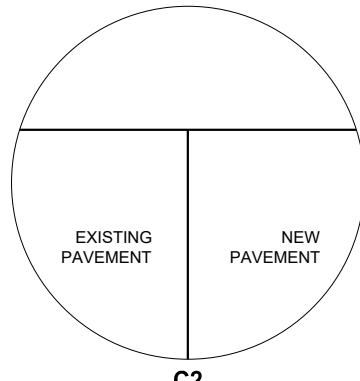
APPROVED  
March 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR

FHWA

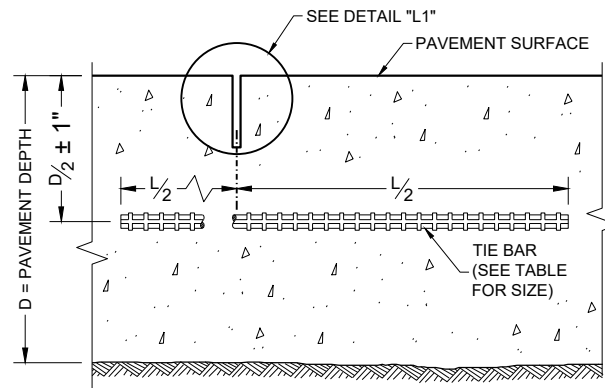


C1

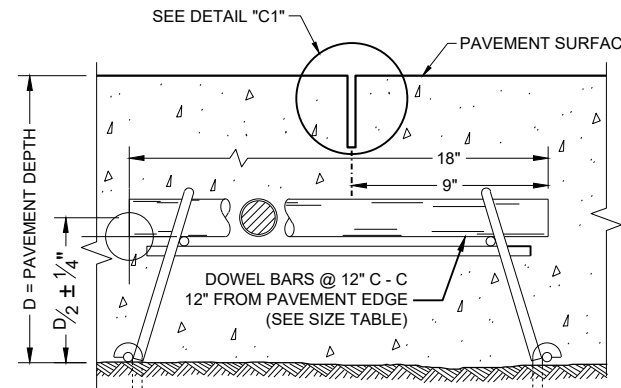
**TRANSVERSE JOINTS**



C2



**SECTION C - C  
SAWED JOINT**

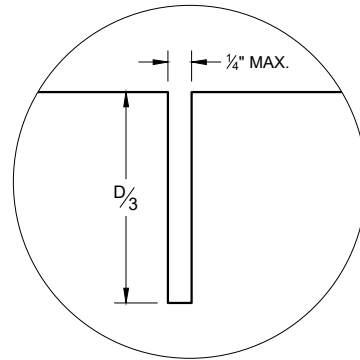


**SECTION F - F  
CONTRACTION JOINT**

**GENERAL NOTES**

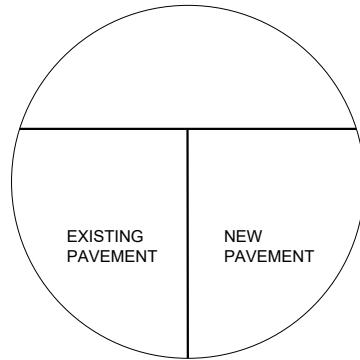
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.  
 PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

- ① INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.
- ② APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

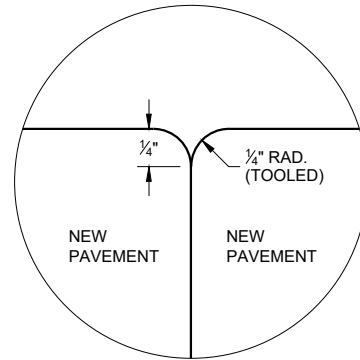


L1

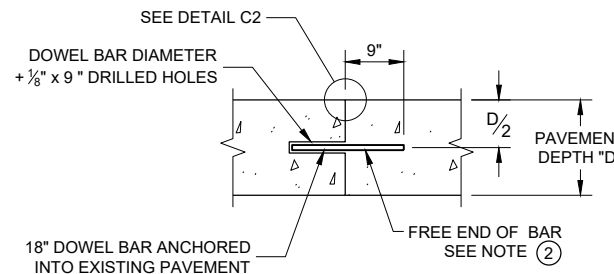
**LONGITUDINAL JOINTS**



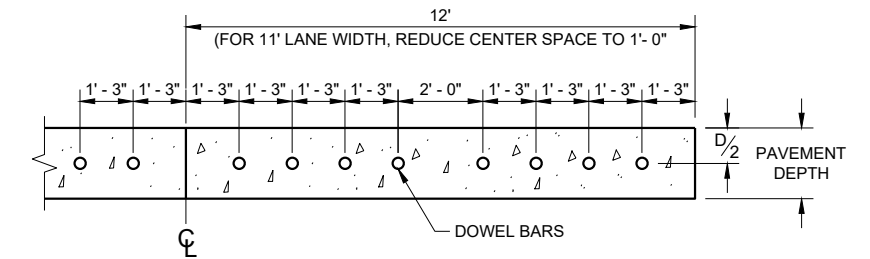
L2



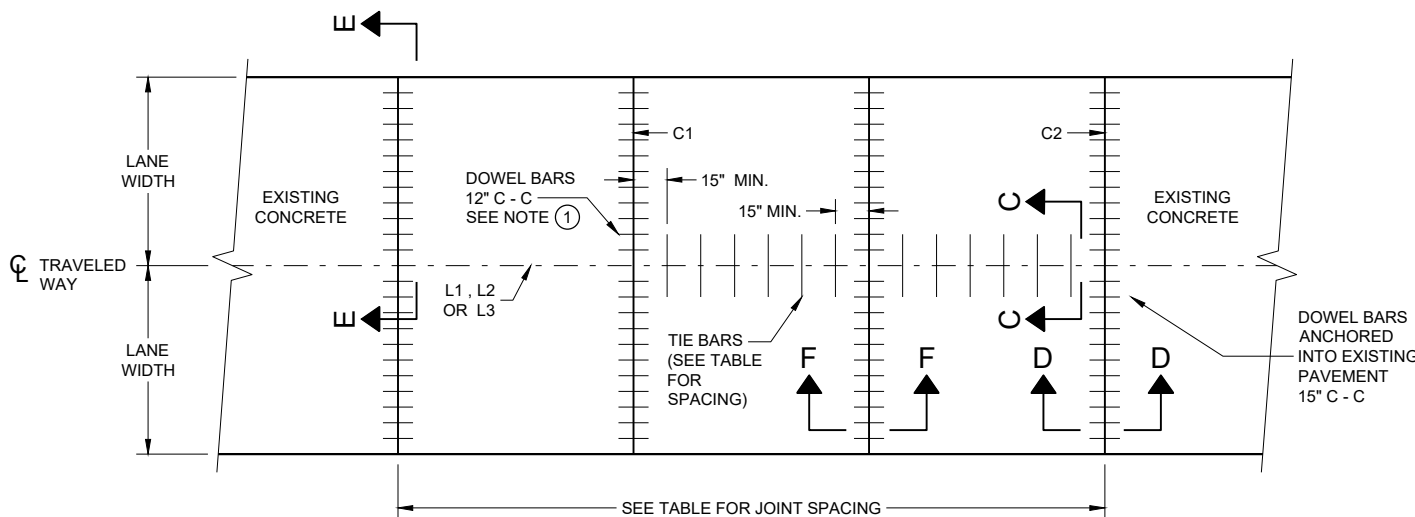
L3



**SECTION D - D**



**SECTION E - E  
SPACING OF DOWEL BARS  
ANCHORED INTO EXISTING PAVEMENT**



**PLAN VIEW  
CONCRETE BASE  
CONTRACTION JOINT LOCATIONS**

**TIE BAR TABLE**

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

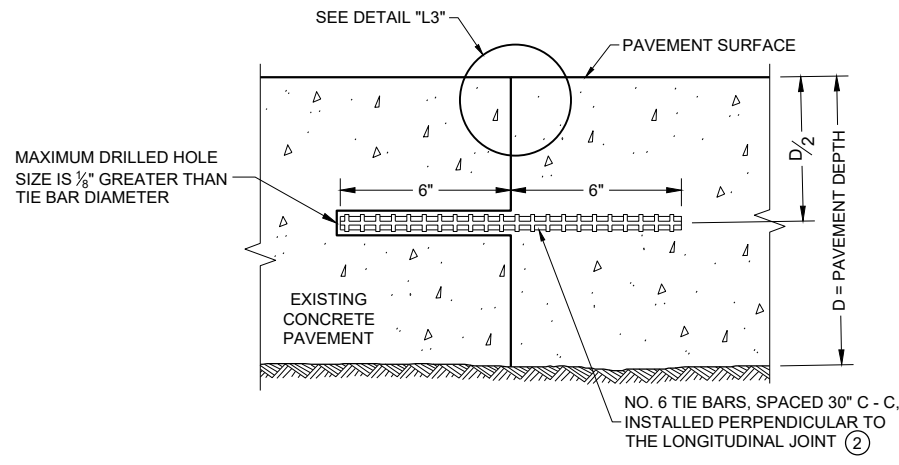
\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

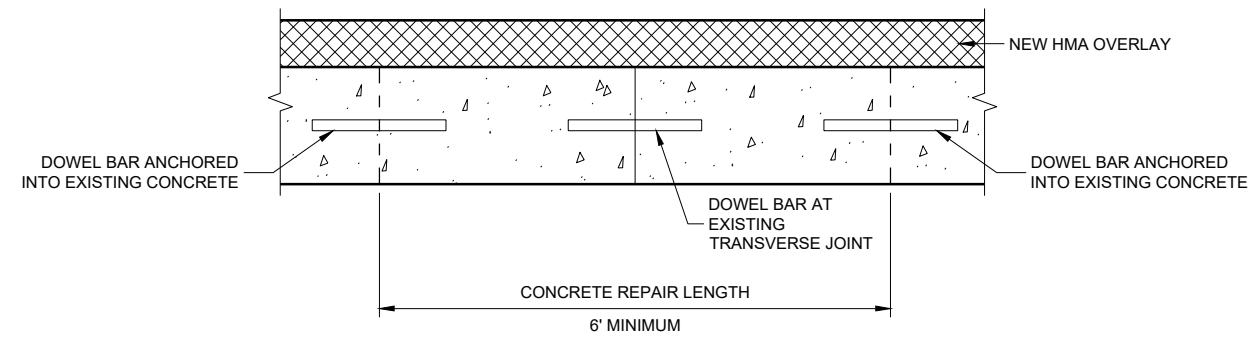
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8" & ABOVE	1 1/4"	15'

**CONCRETE BASE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



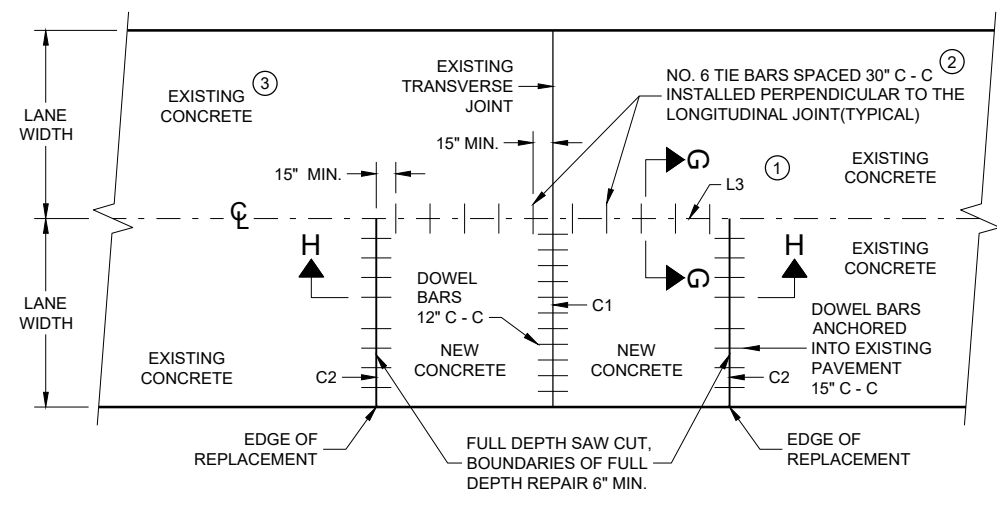
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**



**SECTION H - H**

**GENERAL NOTES**

- ① USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) AT THE LONGITUDINAL JOINT IN LIEU OF TIE BARS FOR SINGLE LANE CONCRETE BASE REPAIRS UP TO 15 FEET IN LENGTH.
- ② ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ③ PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE REPAIR**

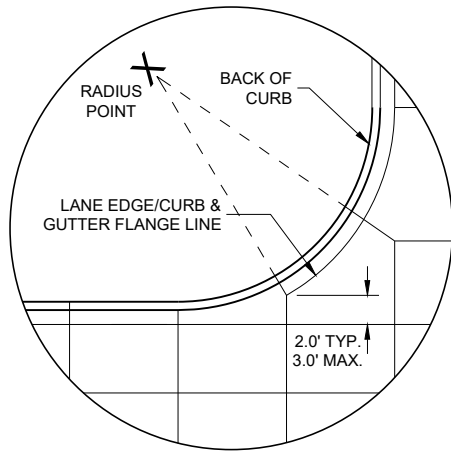
<b>CONCRETE BASE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Peter Kemp P.E. PAVEMENT SUPERVISOR
FHWA	

6

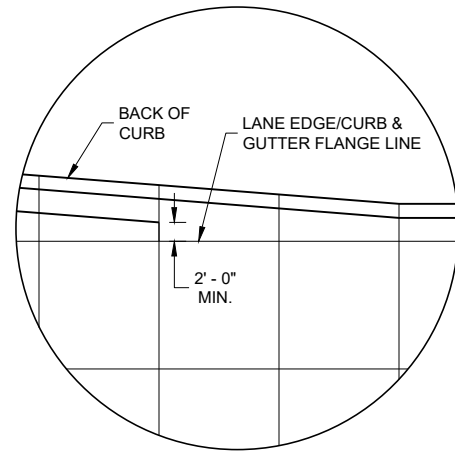
6

SDD 13C15 - 08b

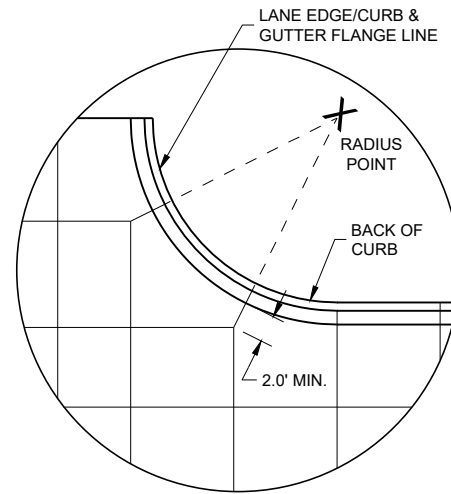
SDD 13C15 - 08b



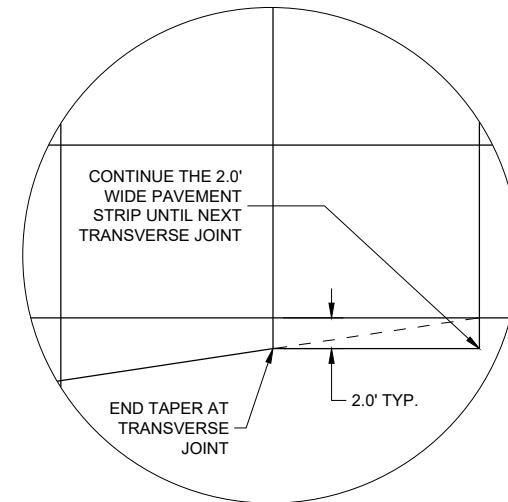
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

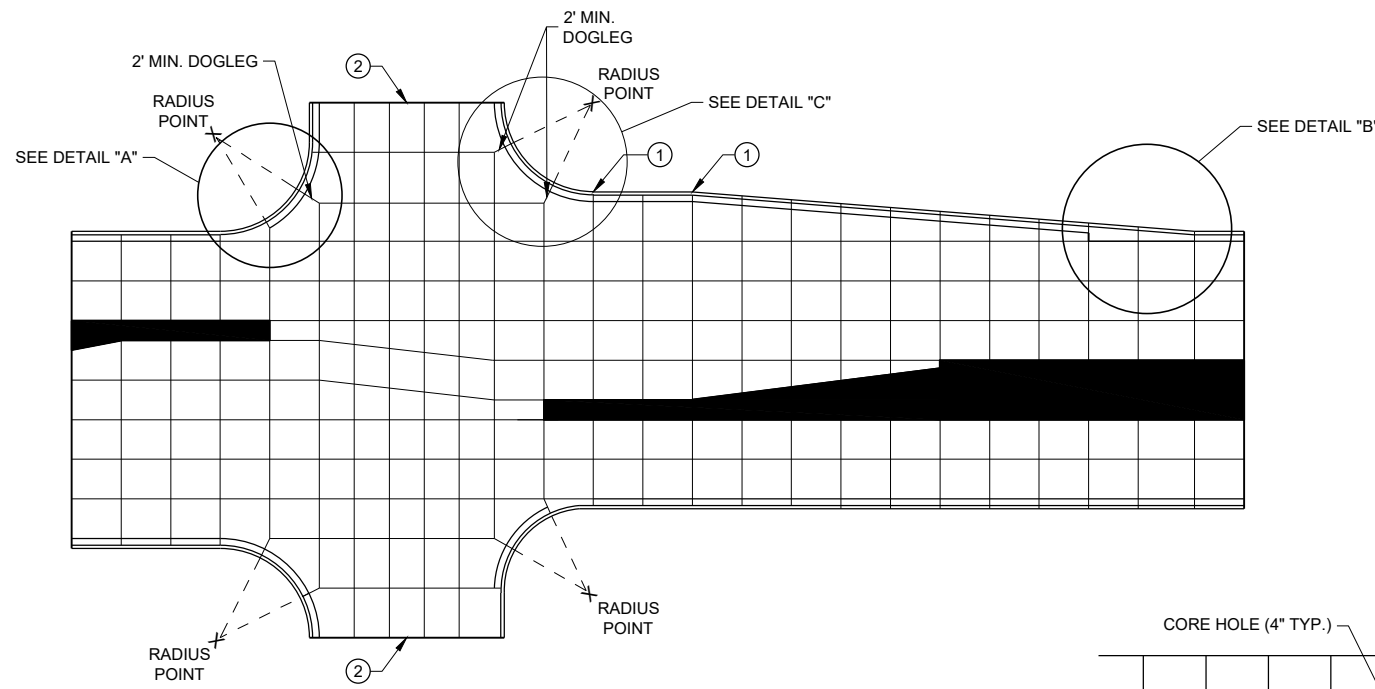
**GENERAL NOTES**

- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

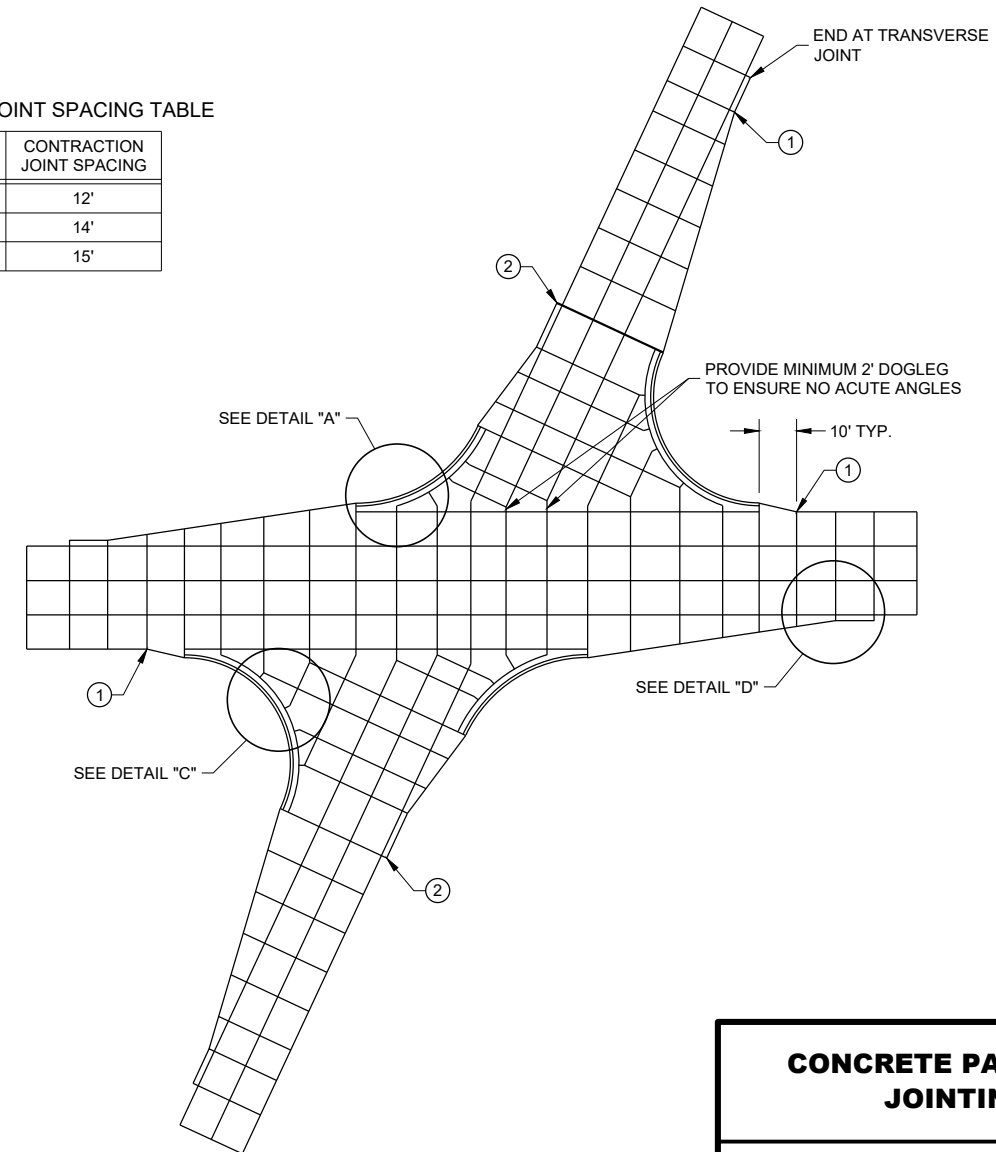
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.

PAVEMENT DEPTH AND JOINT SPACING TABLE

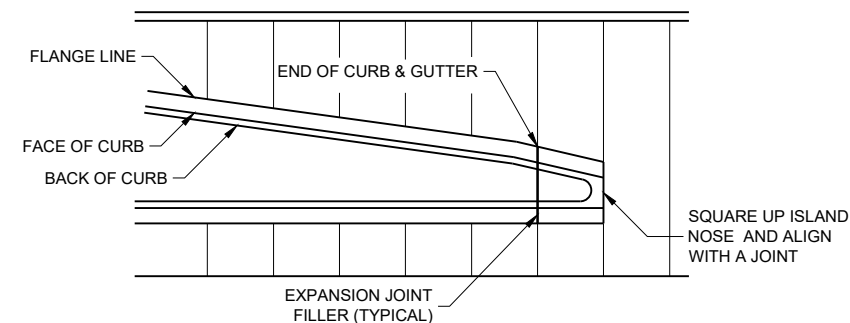
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



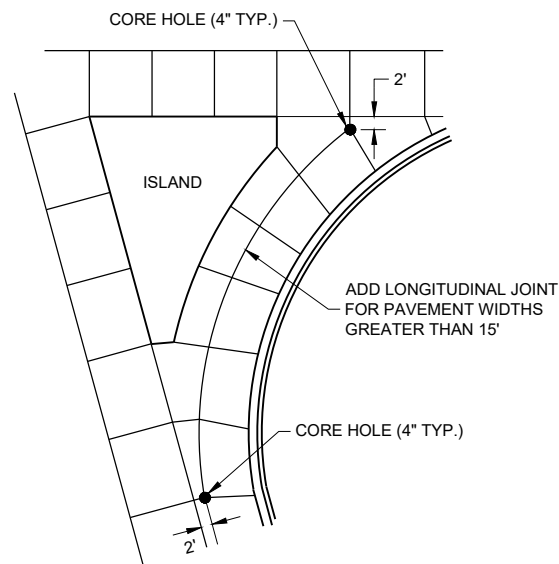
STANDARD INTERSECTION



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

**CONCRETE PAVEMENT JOINTING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

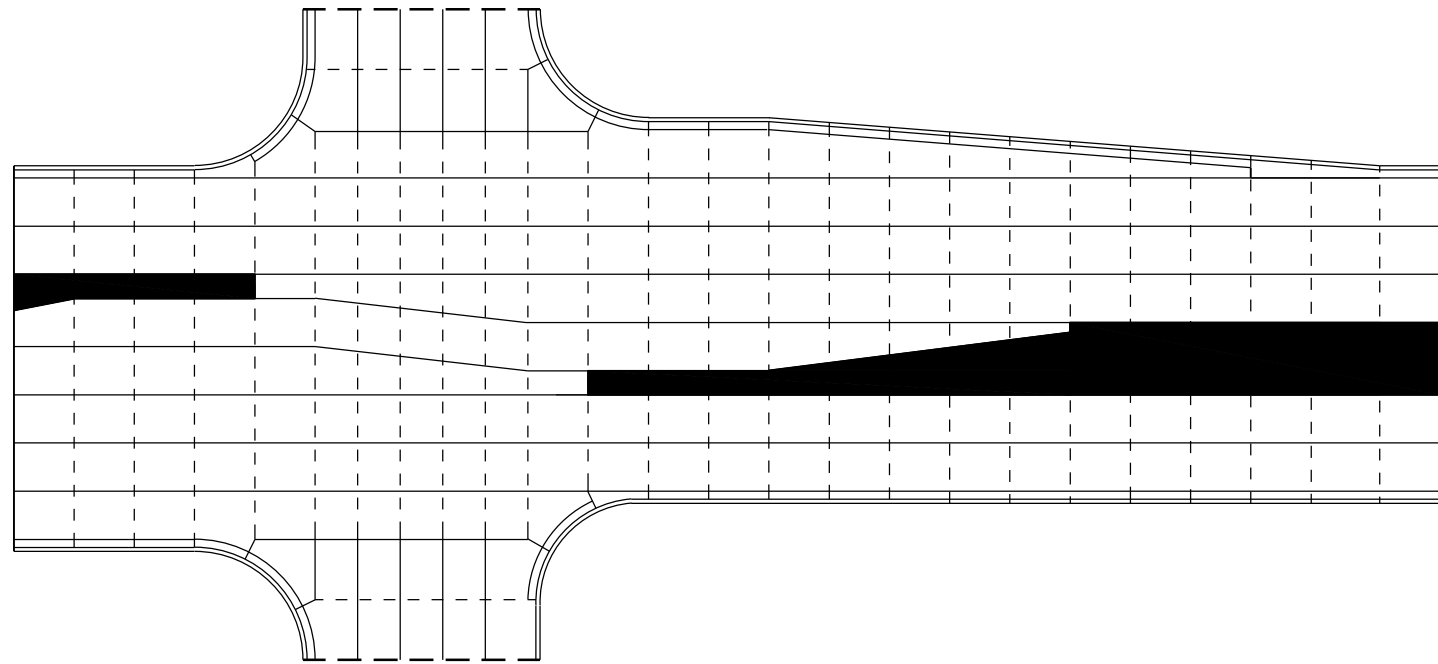
**LEGEND**

- - - - - POTENTIAL DOWELED EXPANSION JOINT
- - - - - DOWELED JOINT
- TIED JOINT

**GENERAL NOTES**

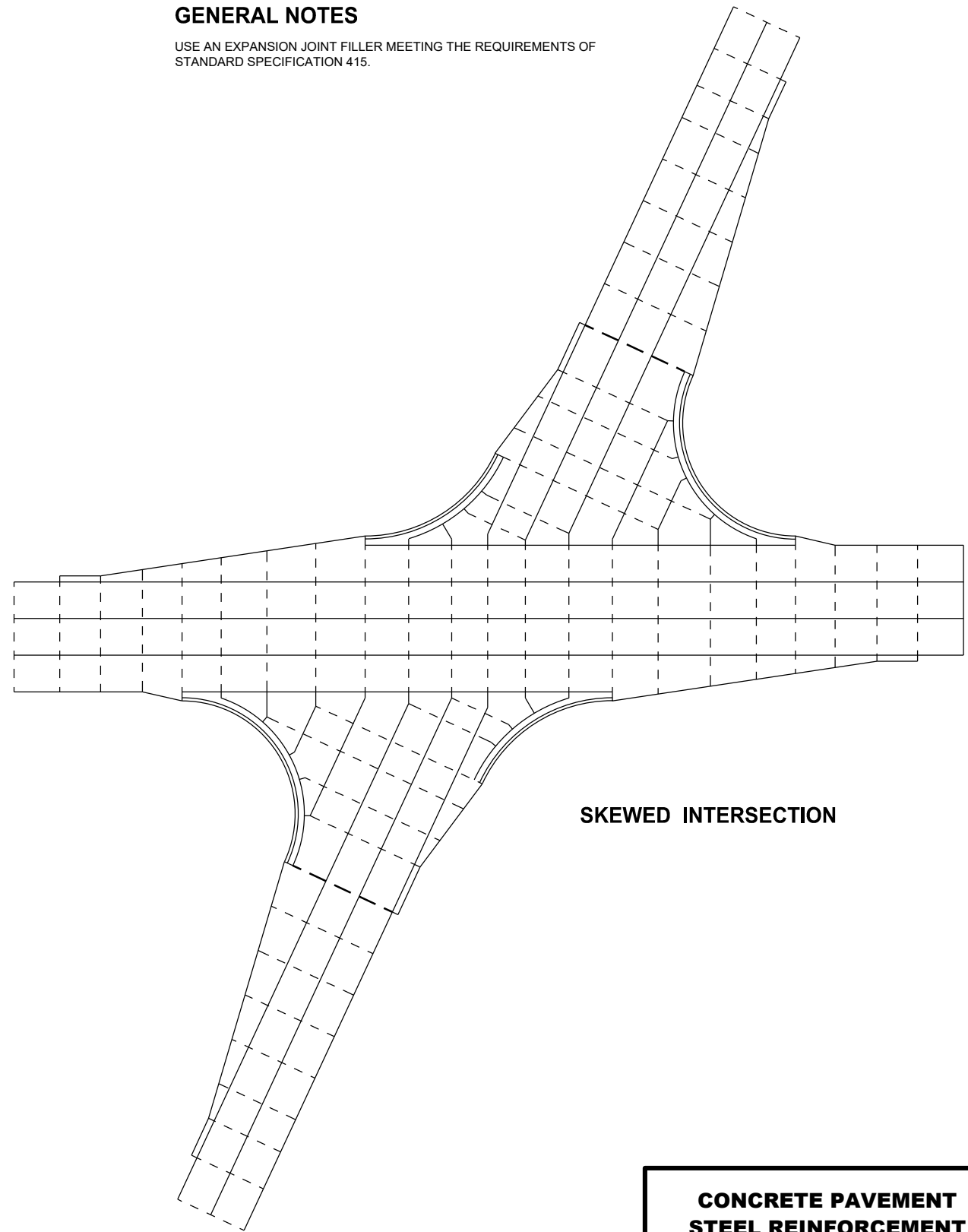
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.

6



**STANDARD INTERSECTION**

6

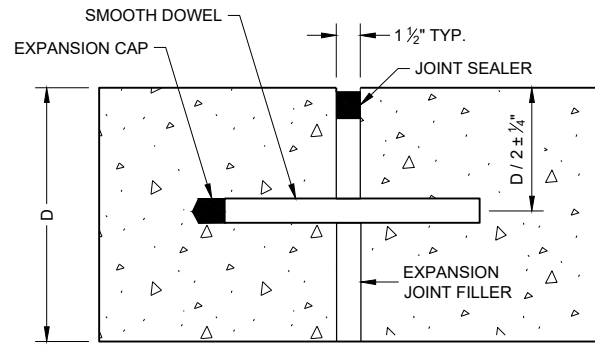


**SKewed INTERSECTION**

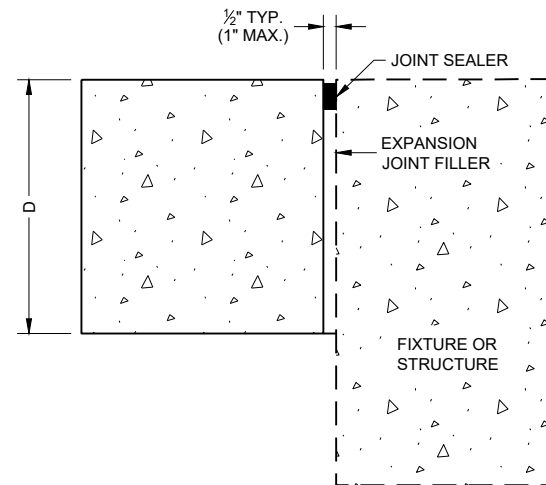
**CONCRETE PAVEMENT  
STEEL REINFORCEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





**DOWELED TRANSVERSE** ①



**UNTIED - LONGITUDINAL**

**EXPANSION JOINTS**

**TIE BAR TABLE**

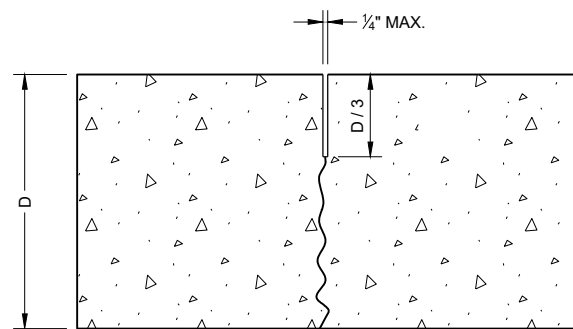
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

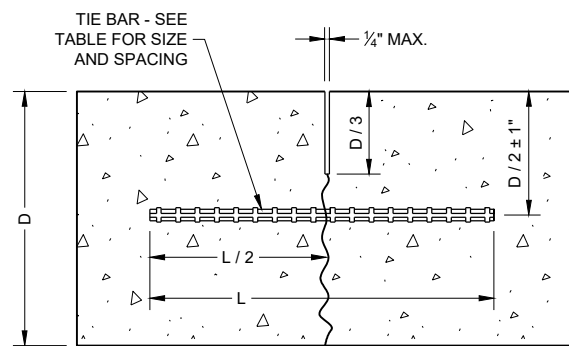
\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**GENERAL NOTES**

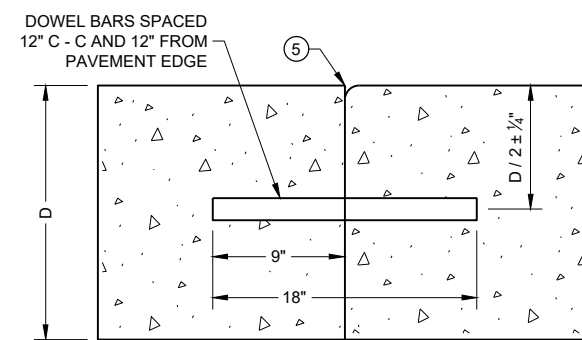
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



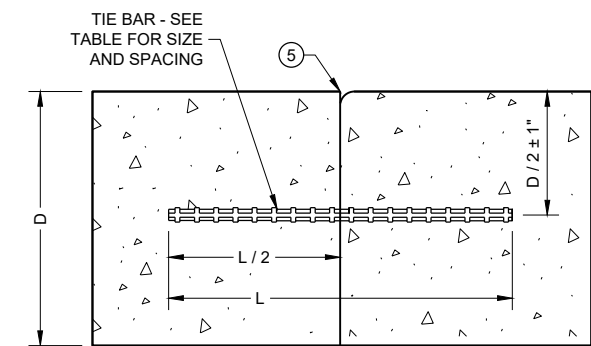
**UNDOWELED TRANSVERSE**



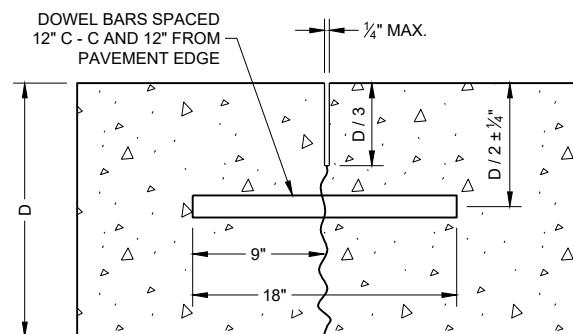
**TIED LONGITUDINAL**



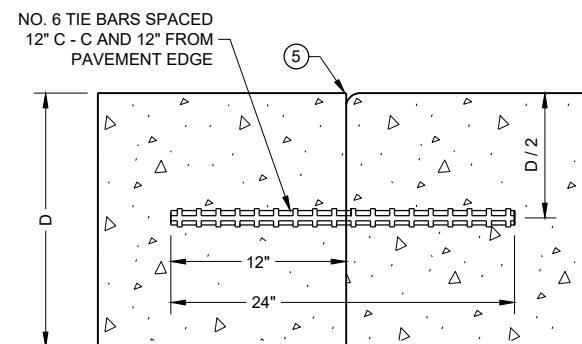
**DOWELED TRANSVERSE** ③



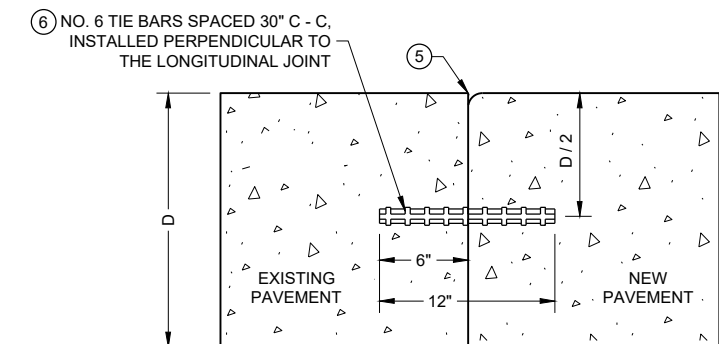
**TIED LONGITUDINAL**



**DOWELED TRANSVERSE**



**TIED TRANSVERSE** ③  
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



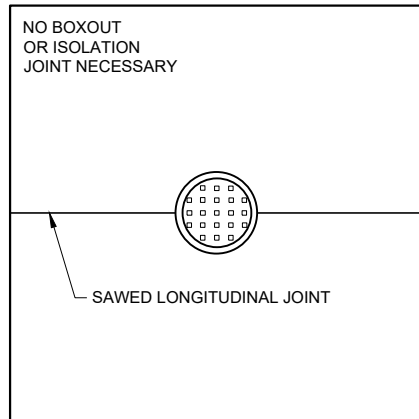
**TIED LONGITUDINAL TO EXISTING**

**CONTRACTION JOINTS** ②

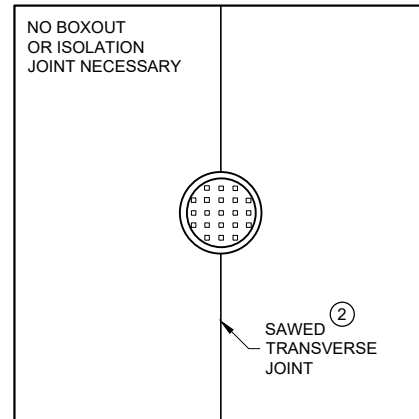
**CONSTRUCTION JOINTS** ④

**CONCRETE PAVEMENT JOINT TYPES**

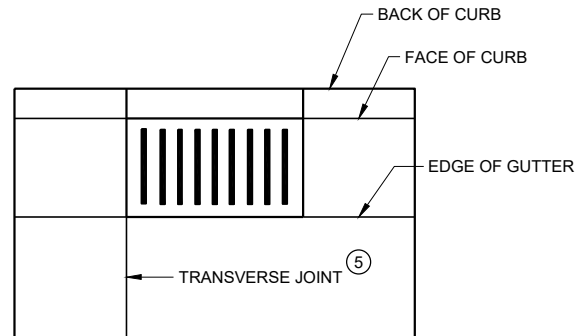
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



MANHOLE WITH LONGITUDINAL JOINT



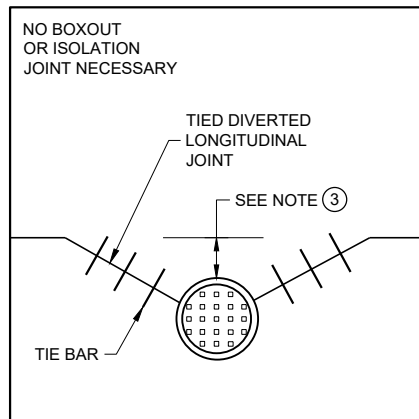
MANHOLE WITH TRANSVERSE JOINT



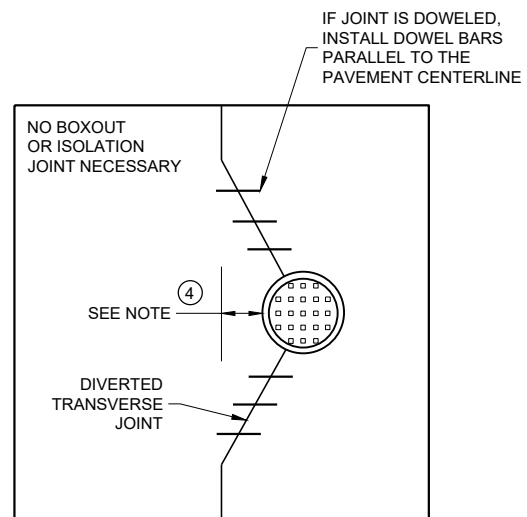
INLET WITH TRANSVERSE JOINT

GENERAL NOTES

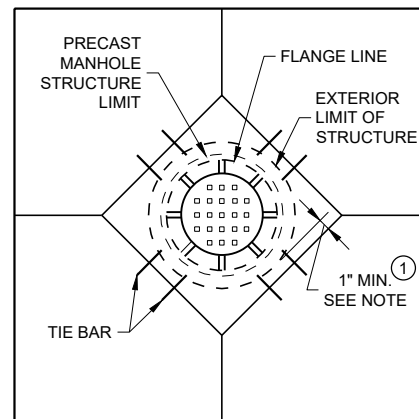
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT



DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED November 2018 DATE /S/ Peter Kemp P.E. PAVEMENT SUPERVISOR

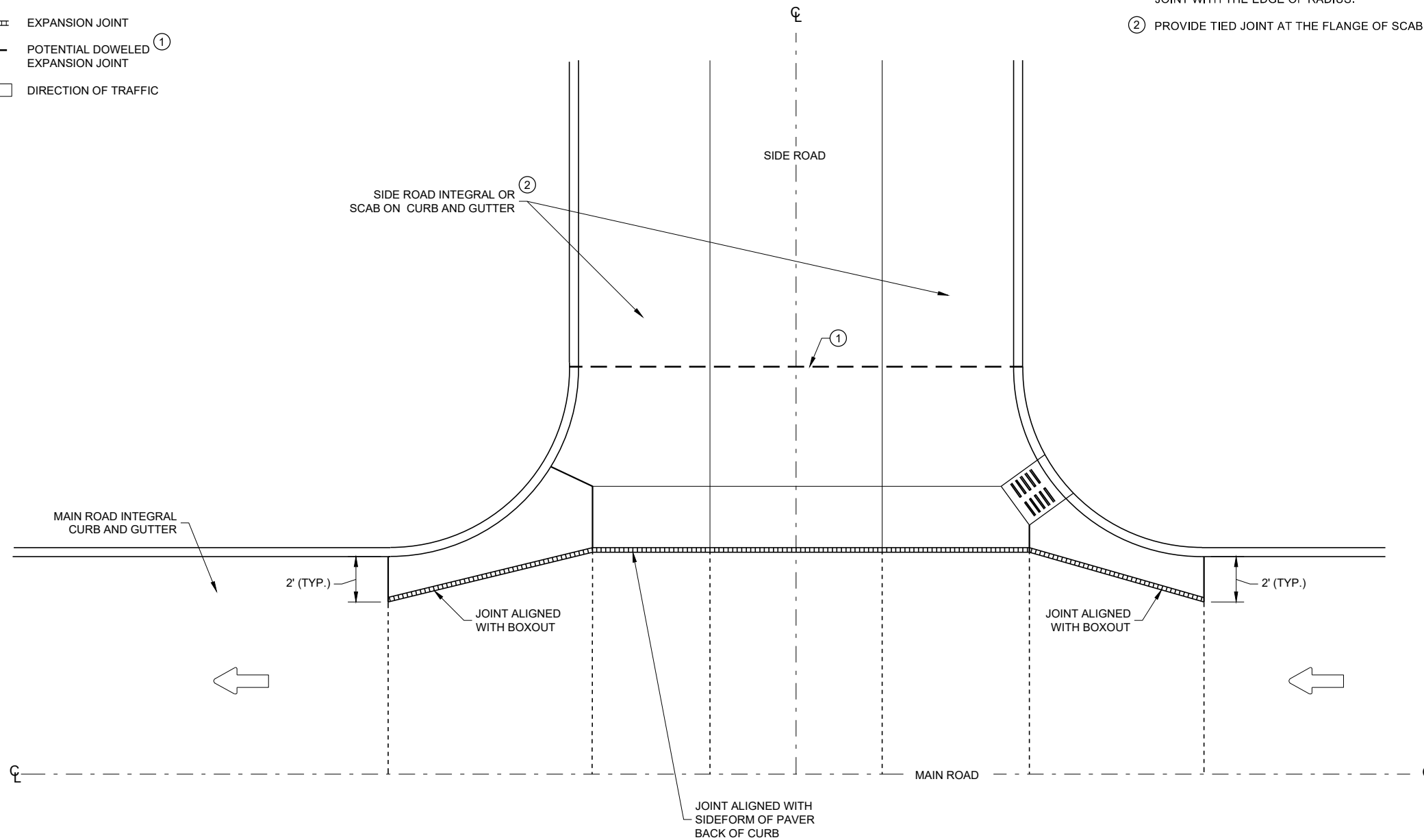
FHWA

**LEGEND**

- DOWELED JOINT
- TIED JOINT
- ▨▨▨▨ EXPANSION JOINT
- — — — POTENTIAL DOWELED <sup>①</sup> EXPANSION JOINT
- ← DIRECTION OF TRAFFIC

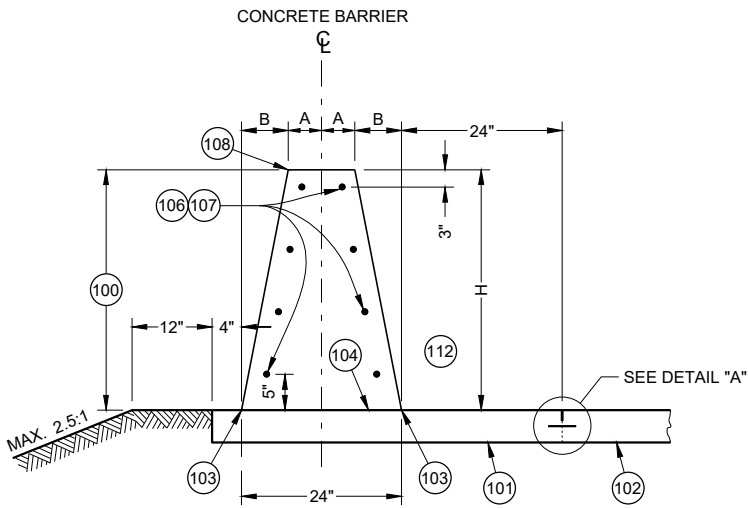
**GENERAL NOTES**

- ① CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH THE EDGE OF RADIUS.
- ② PROVIDE TIED JOINT AT THE FLANGE OF SCAB ON CURB IF SCAB ON CURB AND GUTTER IS USE.

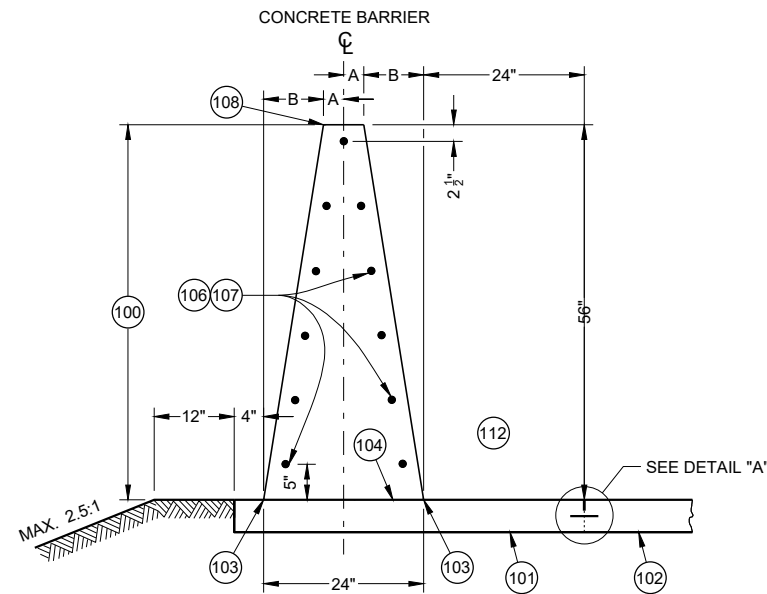


**INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER**

<b>CONCRETE PAVEMENT INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2018 DATE	/S/ Peter Kemp P.E. ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



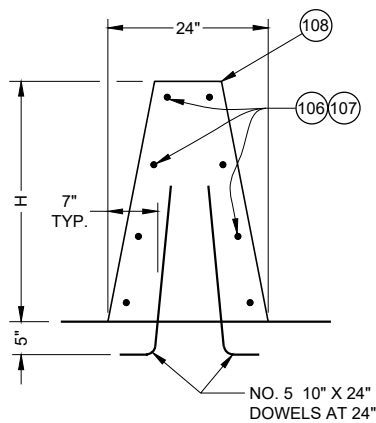
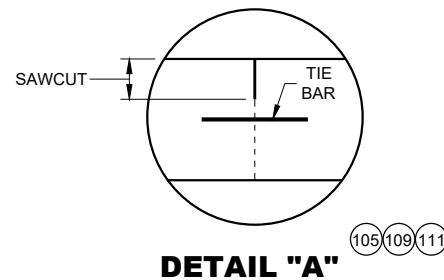
**32 - INCH, 36 - INCH OR 42 - INCH  
SINGLE SLOPE CONCRETE BARRIER  
(TYPE S32, TYPE S36, TYPE S42)**



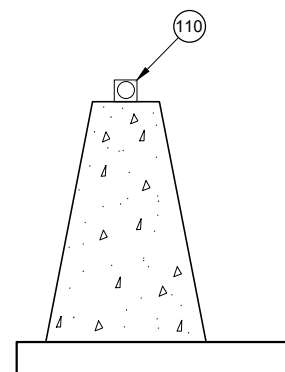
**56 - INCH SINGLE  
SLOPE CONCRETE BARRIER  
(TYPE S56)**

**TABLE "A"**

BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 1/4	5 3/4	8
42	5 1/4	6 3/4	10
56	3	9	11



**SINGLE SLOPE  
CONCRETE BARRIER ON BRIDGE  
(NON OUTER PARAPET APPLICATION)**



**DELINEATION**

**GENERAL NOTES**

WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.

LOCATE EXPANSION JOINTS IN CONCRETE BARRIER SHALL AT ALL DECK AND PRINCIPAL WALL JOINTS. FILL EXPANSION JOINT WITH EXPANSION JOINT MATERIAL. SEAL THE EXPANSION JOINT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATION 501.

2" CLEAR COVER TYPICAL

ANCHORS ARE REQUIRED AT CONCRETE BARRIER ENDS AND AT INTERRUPTIONS IN CONCRETE BARRIER. ANCHOR MAY BE AS SHOWN IN THIS SDD OR DETAIL SHOWN ON SDD 14B33. ANCHORS INCIDENTAL TO CBSS.

PROVIDE A 1" DEEP CONTRACTION JOINT IN BARRIER PAD AND BARRIER. JOINT IS TO MATCH ADJACENT CONCRETE JOINTS. NO DOWEL BARS ARE REQUIRED FOR BARRIER PAD. IF ADJACENT TO ASPHALT, CONTRACTION JOINT IS REQUIRED EVERY 15'.

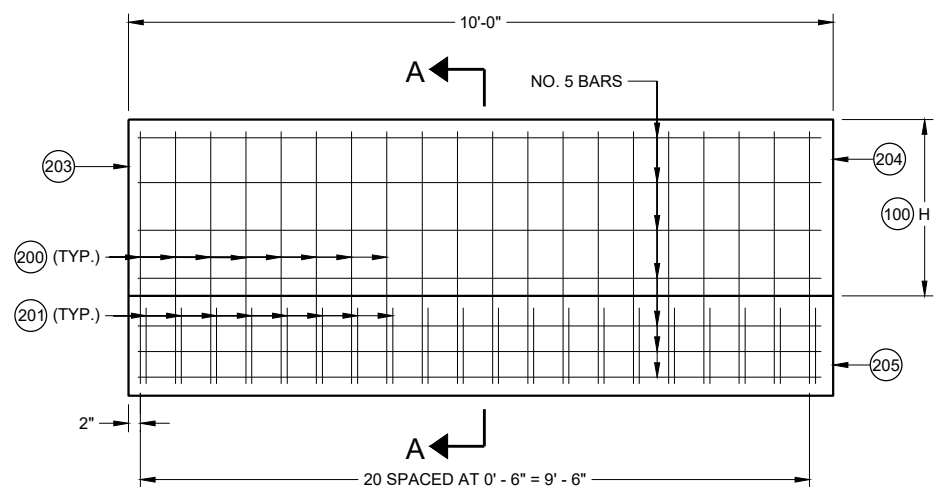
ALL REBAR SHALL BE EPOXY COATED M31 TYPE S. SEE STANDARD SPECIFICATION 505.

CONCRETE BARRIER, UPPER CONCRETE BARRIER, LOWER CONCRETE BARRIER, CONCRETE BARRIER PAD, AND FOOTINGS ARE TERMS USED TO DESCRIBE PARTS OF SINGLE SLOPE CONCRETE BARRIER BID ITEMS. THESE PARTS ARE INCIDENTAL TO THE SINGLE SLOPE CONCRETE BARRIER BID ITEMS.

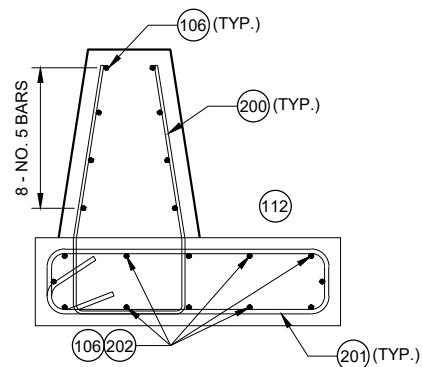
- 100 CONCRETE BARRIER
- 101 CONCRETE BARRIER PAD
- 102 PAVEMENT
- 103 WHERE VERTICAL ROADWAY OFFSET IS GREATER THAN 1 1/2", USE TYPE A SINGLE SLOPE BARRIER.
- 104 OPTIONAL CONSTRUCTION JOINT.
- 105 CONSTRUCTION JOINTS MAY BE ELIMINATED WHEN CONCRETE SHOULDER IS LESS THAN 10'.
- 106 STAGGER LAPPING OF LONGITUDINAL STEEL. MINIMUM OVERLAP OF STEEL IS 2' BARS AT LAPS TO BE FIRMLY TIED OR CONNECTED.
- 107 NO. 5 CONTINUOUS BARS EVENLY SPACED (SEE TABLE "A").
- 108 USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- 109 CONCRETE BARRIER PAD UNDER CBSS MAY BE PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED 3/8" DEPTH. CONCRETE BARRIER PAD AND SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE BARRIER PAD MINIMUM DEPTH IS 6", OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
- 110 SEE SDD 15A04 FOR DELINEATOR DETAILS AND SPACING.
- 111 SEE SDD 13C01 FOR DETAILS TYPING CONCRETE BARRIER TO ADJACENT CONCRETE
- 112 TRAFFIC SIDE

**CONCRETE BARRIER  
SINGLE SLOPE (CBSS)**

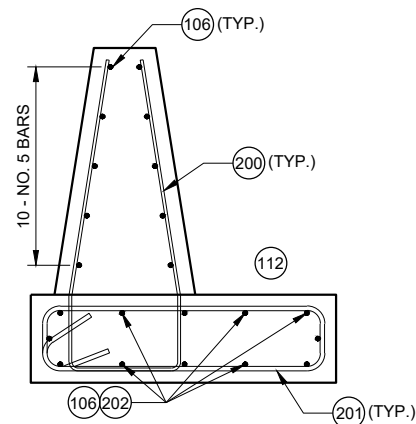
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



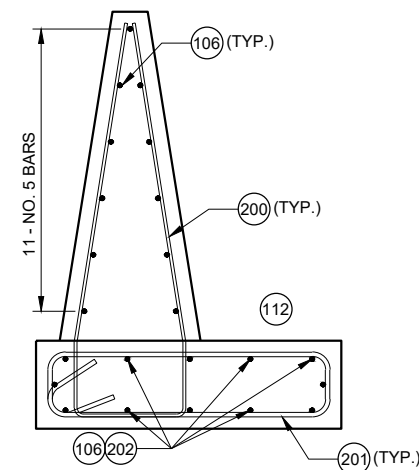
**END ANCHOR SINGLE SLOPE CONCRETE BARRIER**



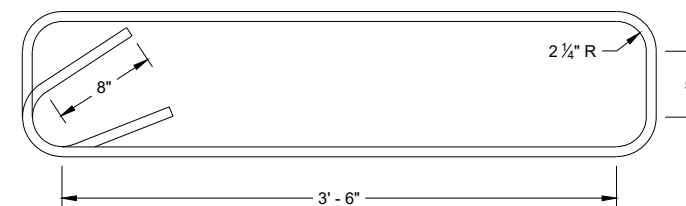
**32" AND 36" CBSS**



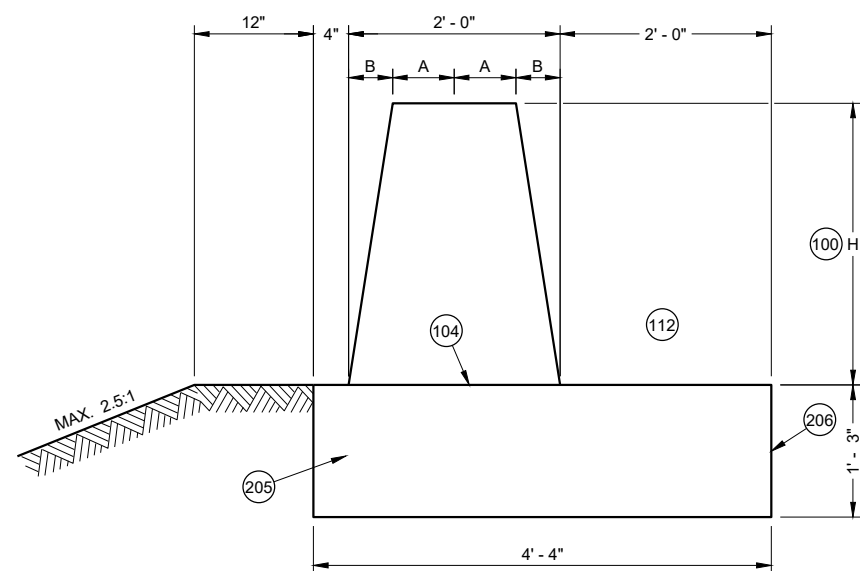
**42" CBSS**



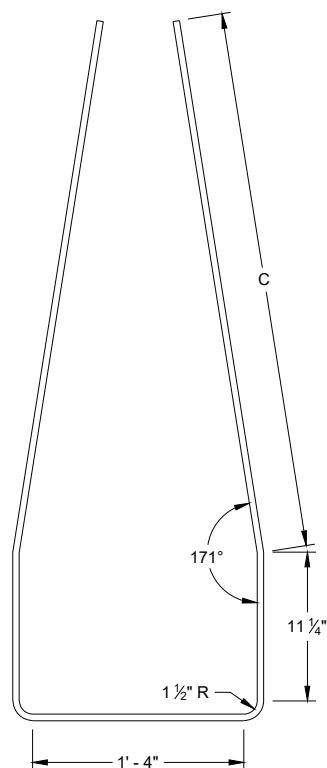
**56" CBSS**



**STIRRUP BAR BENDING DETAIL**



**SECTION A - A**



**V1 BAR BENDING DETAIL**

**TABLE "B"**

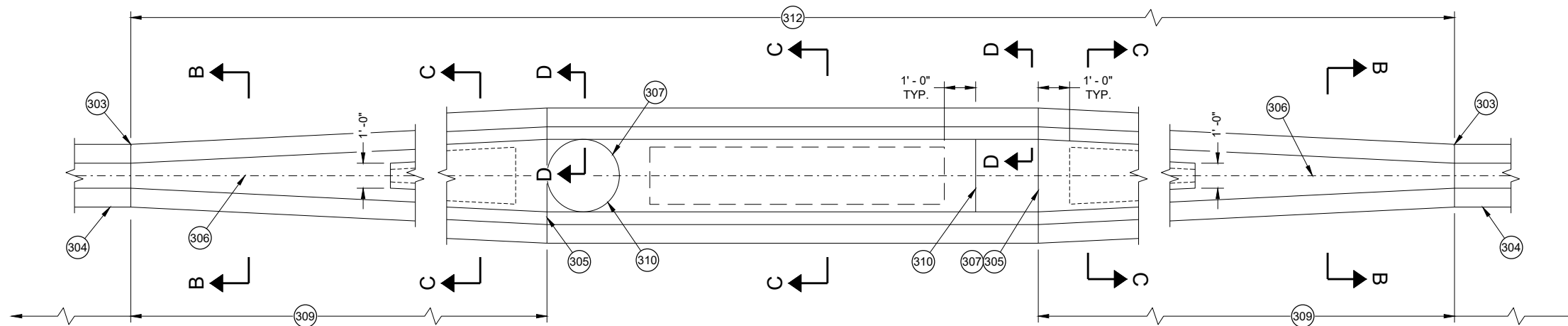
BARRIER HEIGHT H INCHES	C INCHES
32	2' - 6"
36	2' - 11"
42	3' - 4"
56	4' - 6 1/2"

**GENERAL NOTES**

- 200 V1 BARS ARE NO. 5 BARS. (SEE BAR BENDING DETAIL)
- 201 STIRRUPS ARE NO. 6 BARS. (SEE BAR BENDING DETAIL)
- 202 TWELVE (12) NO. 5 BARS EVENLY SPACED
- 203 END OF INSTALLATION OR EXPANSION JOINT.
- 204 SEE COLD JOINT DETAIL TO CONNECT END ANCHOR SINGLE SLOPE CONCRETE BARRIER TO SINGLE SLOPE CONCRETE BARRIER.
- 205 FOOTING
- 206 DO NOT TIE TO FOOTING TO ADJACENT PAVEMENT.

**CONCRETE BARRIER  
SINGLE SLOPE (CBSS)**

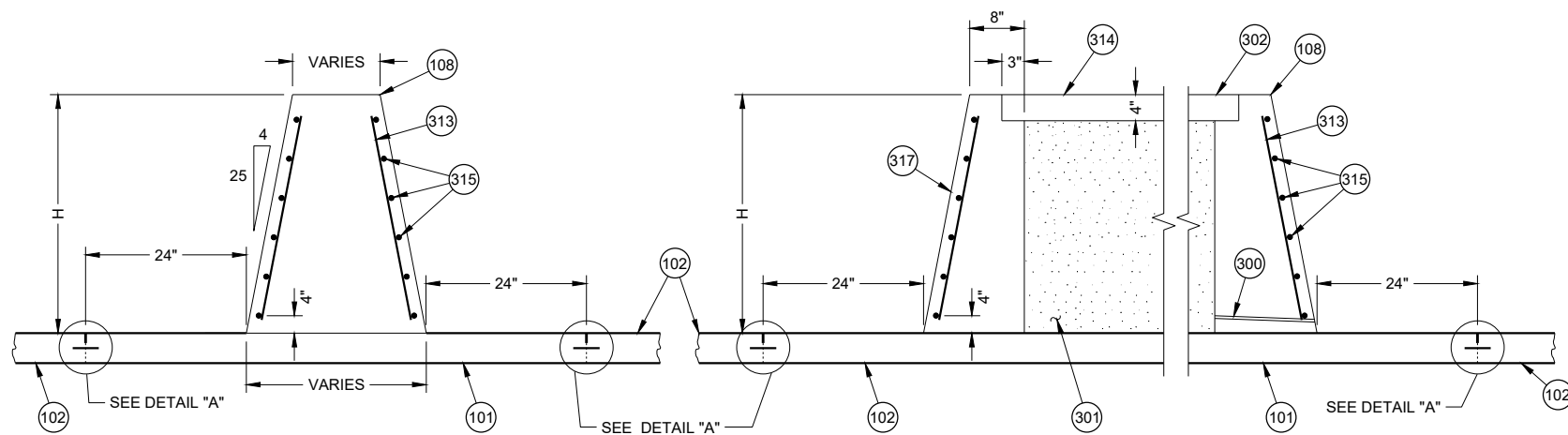
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**LARGE FIXED OBJECTS PROTECTION  
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

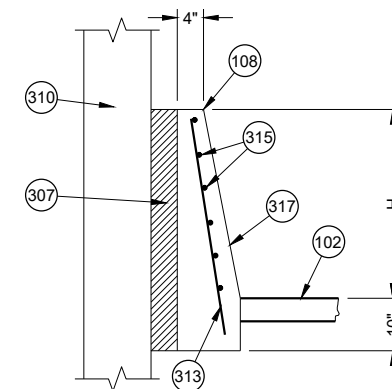
**TABLE "C"**

BARRIER HEIGHT H INCHES	BAR SIZE	NUMBER OF BARS EACH
32	4	6
36	4	6
42	5	6
56	5	6

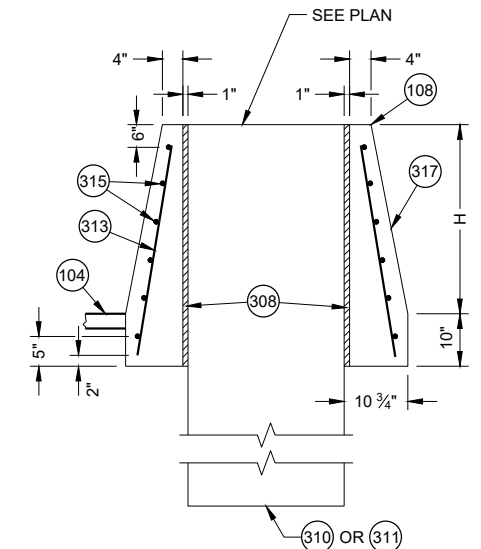


**SECTION B - B**

**SECTION C - C**



**SECTION D - D**

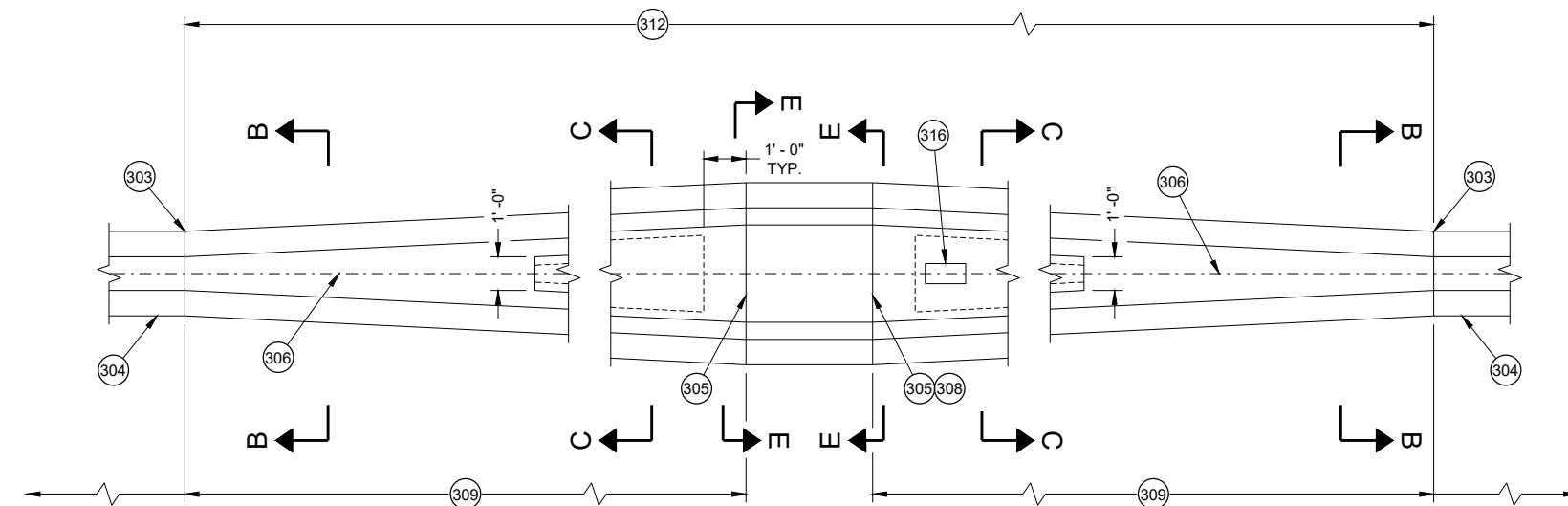


**SECTION E - E**

**GENERAL NOTES**

- 300 INSTALL 1 INCH DIAMETER DRAIN PIPE EVERY 20 FEET OF CROSS SECTION B - B. MINIMUM ONE DRAIN CAVITY.
- 301 BETWEEN CONCRETE BARRIER WALLS FILL WITH FOUNDATION BACKFILL.
- 302 LEVEL THE TOP OF CONCRETE BARRIER CAP ACROSS TOP OF BARRIER. ADJUST HEIGHT OF CONCRETE BARRIER WALL ON LOW SIDE OF OFFSET OR SUPERELEVATED ROADWAYS TO PROVIDE LEVEL GRADE ACROSS TOP OF CONCRETE CAP.
- 303 USE COLD JOINTS BETWEEN FIXED OBJECT PROTECTION AND CONCRETE BARRIER ANCHOR.
- 304 INSTALL END ANCHOR SINGLE SLOPE CONCRETE BARRIER.
- 305 SEE COLD JOINT DETAIL
- 306 CENTERLINE OF CONCRETE BARRIER.
- 307 INSTALL 4" EXPANDED POLYSTYRENE BETWEEN COLUMN AND CONCRETE BARRIER.
- 308 INSTALL 1" EXPANDED POLYSTYRENE BETWEEN PEDESTAL AND CONCRETE BARRIER.
- 309 20:1 MIN. TRANSITION.
- 310 COLUMN
- 311 PEDESTAL
- 312 LIMITS OF PAYMENT FOR LARGE FIXED OBJECT PROTECTION (SEE PLAN)
- 313 NO. 4 BARS SPACED 12" CENTER TO CENTER (TYP.)
- 314 USE NO. 3 BAR SPACED 12 INCHES CENTER TO CENTER (PLACED IN EACH DIRECTION) OR EQUIVALENT WIRE MESH.
- 315 SEE TABLE "C" FOR BAR INFORMATION
- 316 ELECTRICAL PULL BOX FOR SIGN FLUSH WITH TOP OF CONCRETE BARRIER.
- 317 VARIABLE SLOPE

**SMALL FIXED OBJECTS PROTECTION  
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

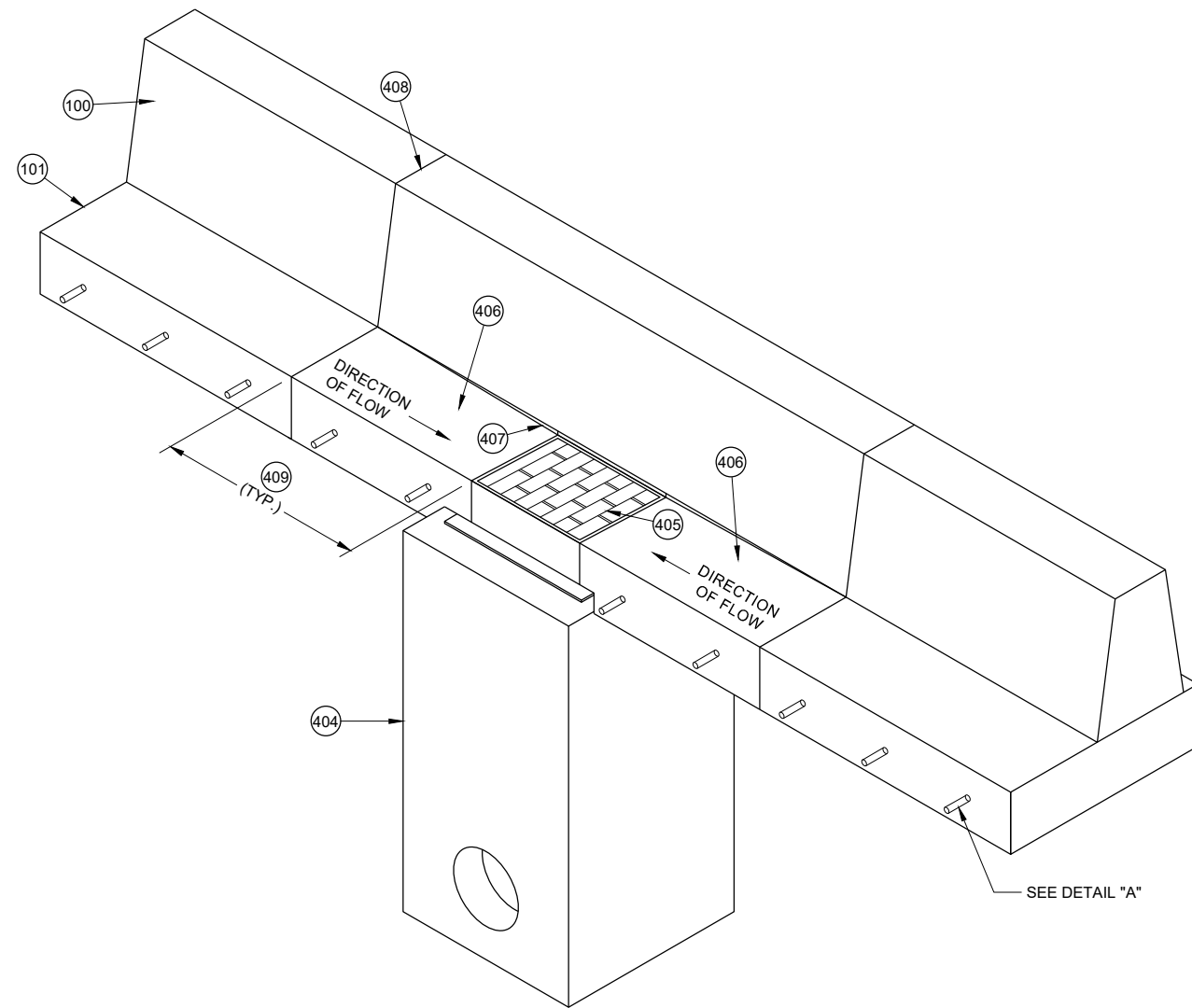


**CONCRETE BARRIER  
SINGLE SLOPE (CBSS)**

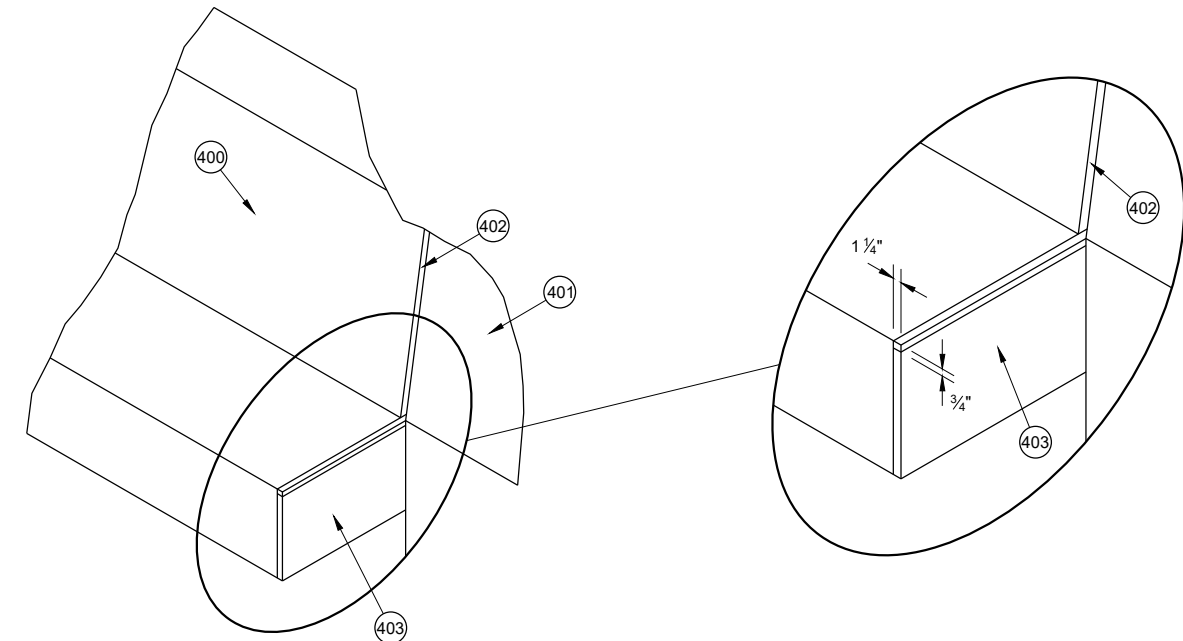
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

- ④00 END ANCHOR SINGLE SLOPE CONCRETE BARRIER.
- ④01 PARAPET, SIGN BRIDGE BASE, LIGHT POLE BASE OR OTHER OBJECT SINGLE SLOPE CONCRETE BARRIER CANNOT TIE INTO.
- ④02 JOINT SEAL CONFORMING TO STANDARD SPECIFICATION 415.2.6
- ④03 EXPANSION JOINT MATERIAL.
- ④04 INLET (SEE PLAN)
- ④05 INLET COVER BW (SEE PLAN)
- ④06 WARP PAN TO MATCH INLET COVER.
- ④07 EXTEND BARRIER SLOPE TO INLET. SEE PLAN FOR THE LENGTH OF EXTENSION.
- ④08 CONTRACTION JOINT.
- ④09 3' (TYP.)



**DRAINAGE DETAIL**



**EXPANSION JOINT DETAIL**

6

6

SDD 14B32 - 10d

SDD 14B32 - 10d

**CONCRETE BARRIER  
SINGLE SLOPE (CBSS)**

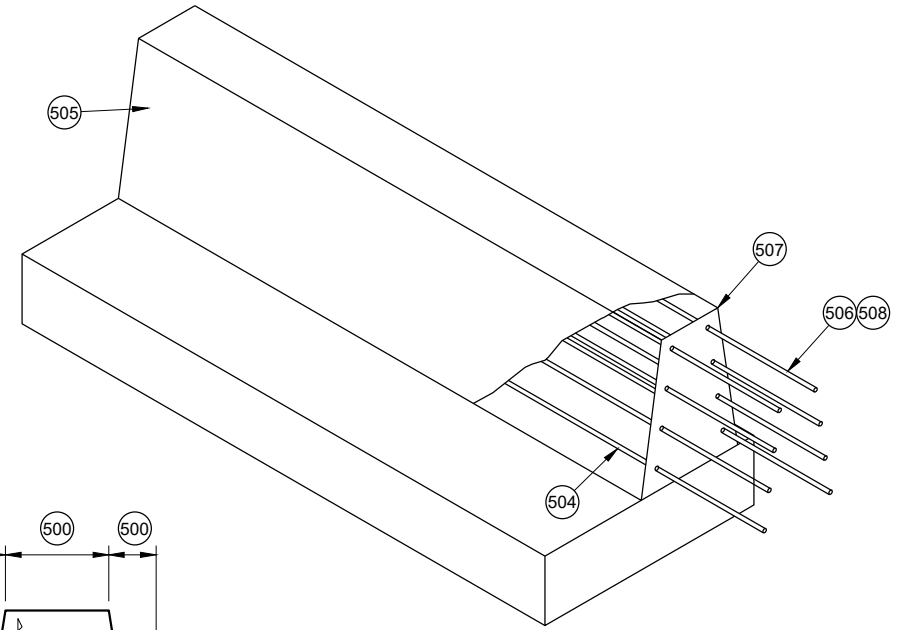
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

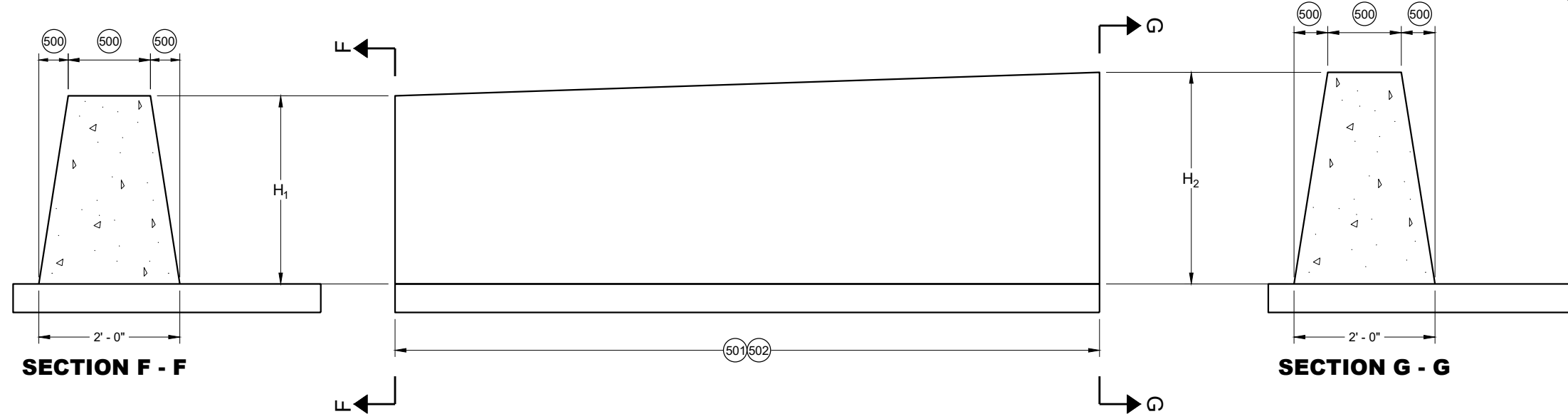
USE COLD JOINT TO CONNECT MULTIPLE HEIGHT TRANSITIONS.

- 500 SEE TABLE "A" FOR DIMENSIONS
- 501 SEE TABLE "D"
- 502 MULTIPLE HEIGHT TRANSITION MAY BE USED IN SEQUENCE TO GET APPROPRIATE HEIGHT.
- 503 COLD JOINT
- 504 BARRIER REBAR (SEE OTHER DETAILS FOR BAR SIZE, QUANTITY AND LOCATION).

- 505 SINGLE SLOPE BARRIER SHOWN. SIMILAR DETAIL CAN BE USED FOR COLD JOINT IN END ANCHORS AND TRANSITIONS.
- 506 NO. 5 REBAR FOR SPLICE. 3' OF SPLICE REBAR IS LAPPED AND TIED TO BARRIER REBAR. EXTEND 3' OF SPLICE REBAR BEYOND END OF POUR. ALL BARS ARE FIRMLY TIED OR CONNECTED. EVERY REBAR IN THE BARRIER SECTION REQUIRES A SPLICE BAR.
- 507 END OF POUR.
- 508 LAP AND TIE 3' OF NEXT POUR'S REBAR TO SPLICE REBAR.



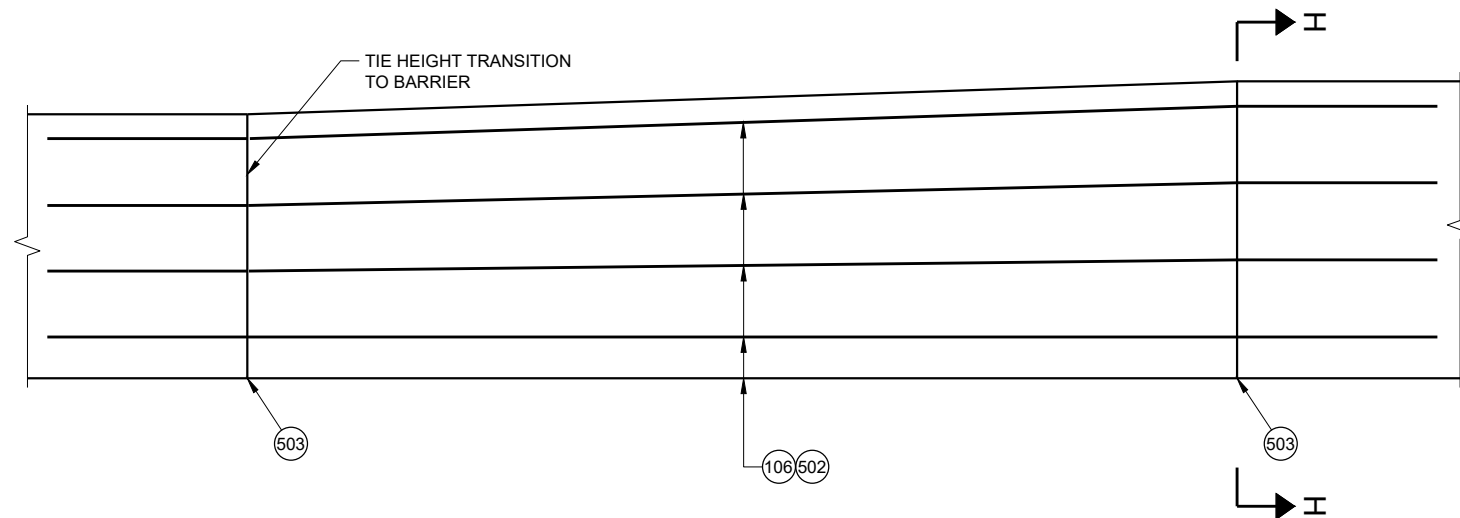
**COLD JOINT DETAIL**



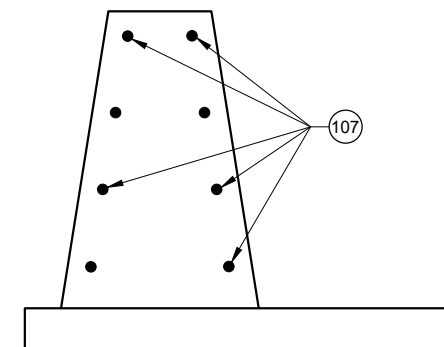
**DOUBLE COLD JOINT HEIGHT TRANSITION**

**TABLE "D"**

H <sub>1</sub>	H <sub>2</sub>	L	NUMBER OF NO. 5 BARS
32"	36"	10' - 0"	8
36"	42"	10' - 6"	10
42"	56"	24' - 6"	11



**STEEL REINFORCEMENT DETAIL**

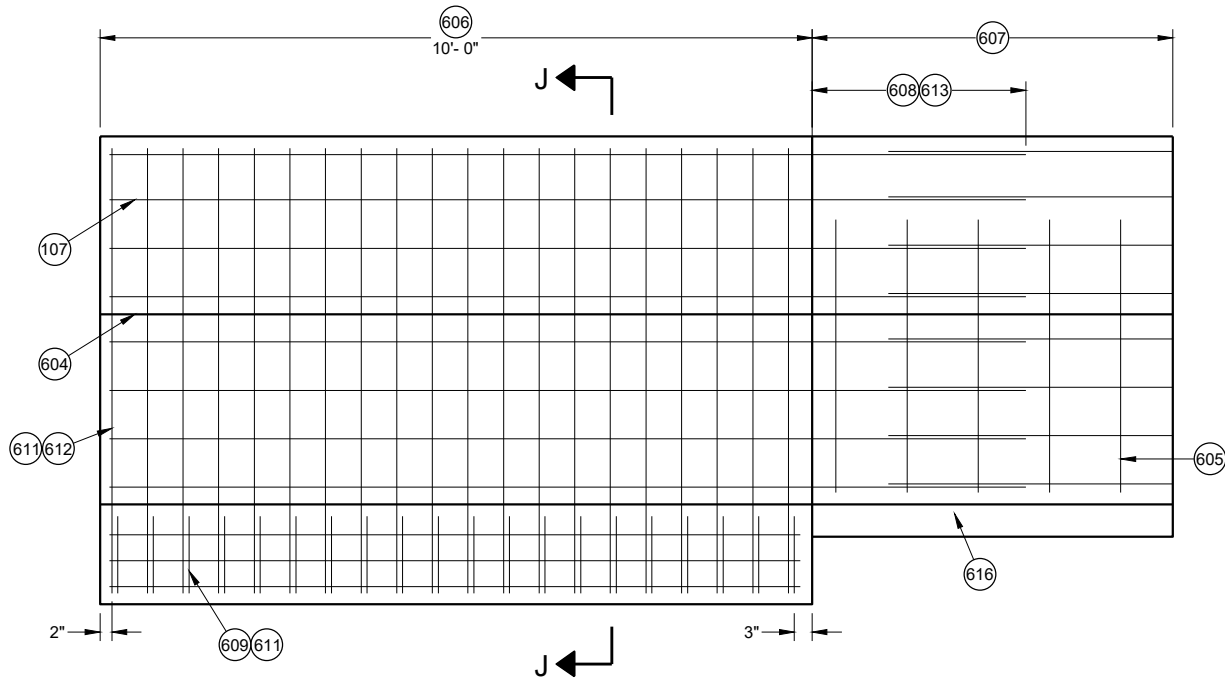


**SECTION H - H**

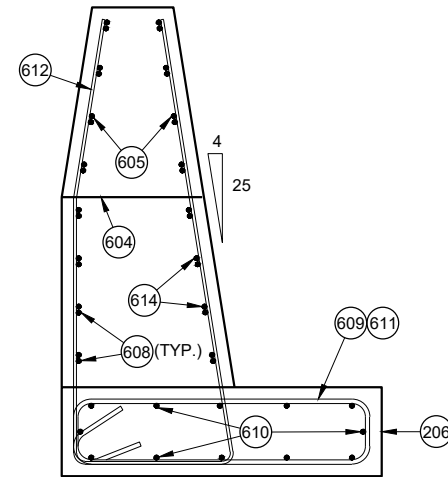
**CONCRETE BARRIER  
SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





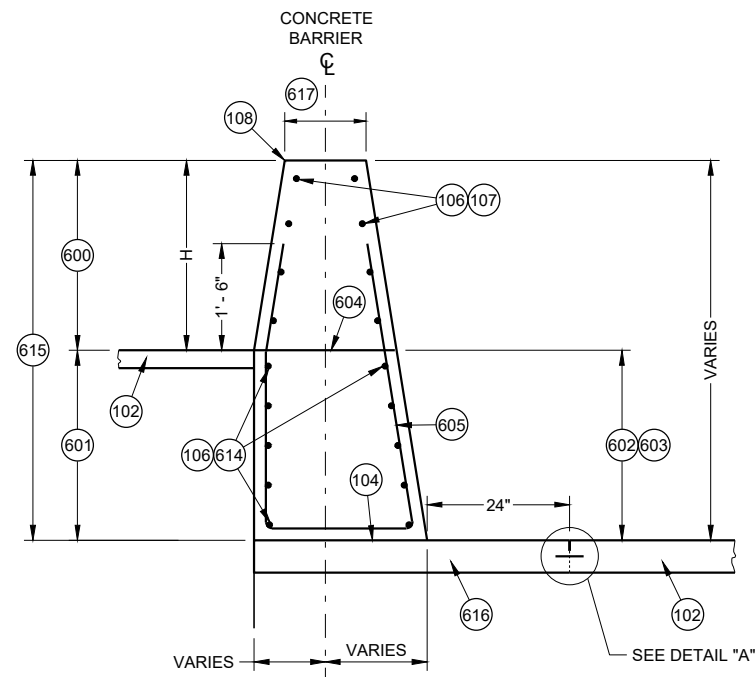
**END ANCHOR MEDIAN BARRIER AND RETAINING WALL**



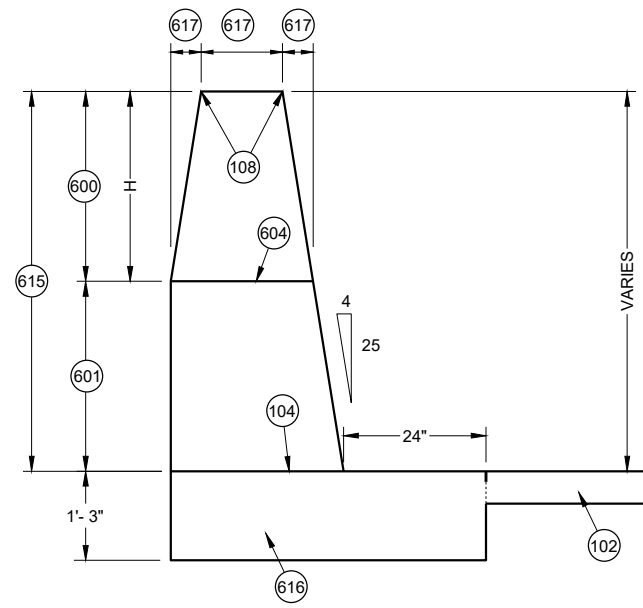
**SECTION J - J  
END ANCHOR AND MEDIAN WALL END ANCHOR REINFORCEMENT DETAIL**

**GENERAL NOTES**

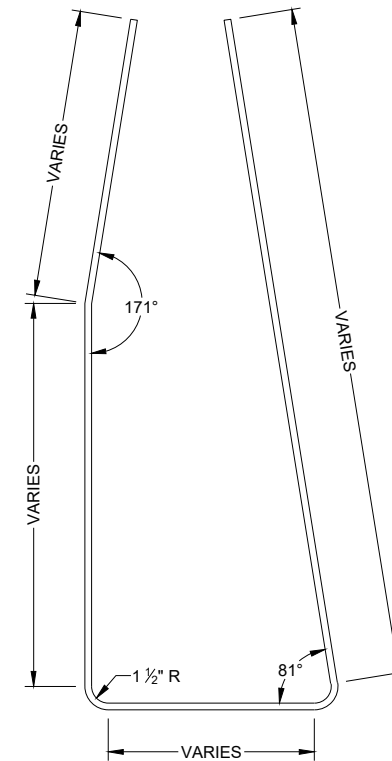
- 600 UPPER CONCRETE BARRIER
- 601 LOWER CONCRETE BARRIER
- 602 MAX HEIGHT 36".
- 603 VERTICAL OFFSET FROM TOP ROADWAY SURFACES
- 604 OPTIONAL CONSTRUCTION JOINT WHEN HEIGHT IS GREATER THAN 1 1/2".
- 605 NO. 4 BARRIER LOOP BARS ARE NOT REQUIRED FOR ROADWAY OFFSETS ARE LESS THAN 1'-0", EXCEPT WHEN USED IN ANCHORS. BARRIER LOOP BARS ARE SPACED 12" CENTER TO CENTER OUTSIDE OF MEDIAN BARRIER AND RETAINING WALL END ANCHOR.
- 606 SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL ANCHOR
- 607 SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL (SEE OTHER DETAILS)
- 608 NO. 5 REBAR 3' OF LAP OF LONGITUDINAL STEEL.
- 609 NO. 6 REBAR END ANCHOR FOOTING LOOP
- 610 TWELVE (12) NO. 5 BARS EVENLY SPACED.
- 611 SS ANCHOR END LOOP AND END ANCHOR FOOTING LOOP ARE SPACED 6" CENTER TO CENTER.
- 612 END ANCHOR LOOP BAR IS NO. 5 REBAR.
- 613 SEE COLD JOINT DETAIL.
- 614 SEE TABLE "E" FOR REQUIRED REBAR
- 615 TOTAL BARRIER HEIGHT (SEE PLAN FOR HEIGHT)
- 616 FOR SOME LOCATIONS, NO PAN IS NEEDED. SEE OTHER DETAILS.
- 617 SEE TABLE "A" FOR DIMENSIONS



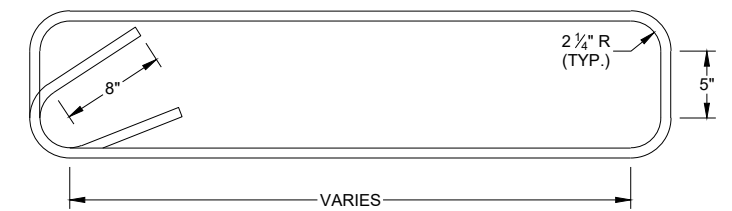
**SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL (TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A) (BETWEEN ADJACENT ROADWAYS)**



**SECTION J - J  
MEDIAN BARRIER AND RETAINING WALL END ANCHOR DIMENSIONS**



**LOOP BAR BENDING DETAIL**



**END ANCHOR STIRRUP BAR BENDING DETAIL**

**TABLE "E"**

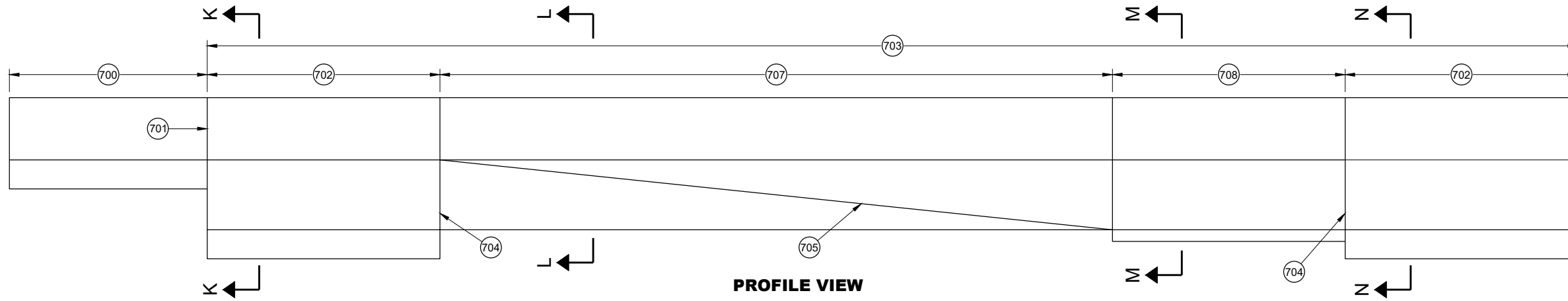
HEIGHT BETWEEN ROADWAY	QUANTITY OF NO. 6 BARS
0 TO 3"	0
GREATER THAN 3" TO 8"	2
GREATER THAN 8" TO 12"	4
GREATER THAN 12" TO 36"	8

**CONCRETE BARRIER SINGLE SLOPE (CBSS)**

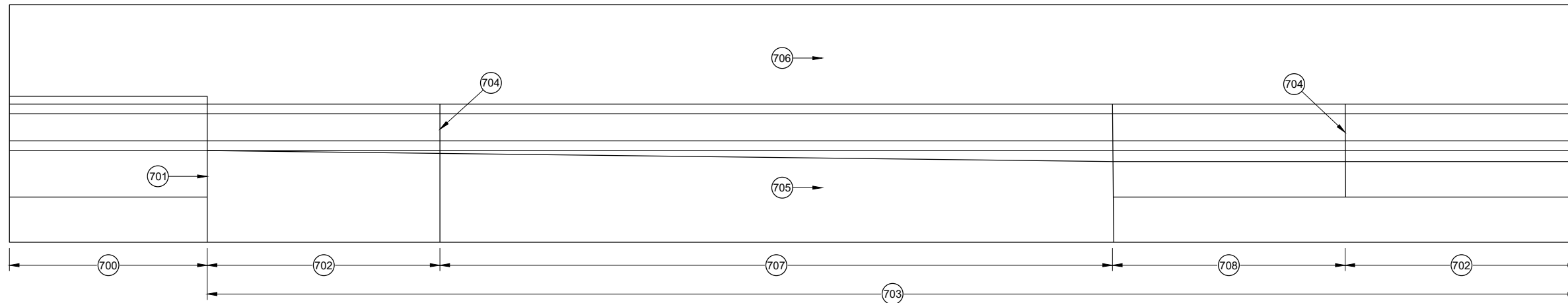
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

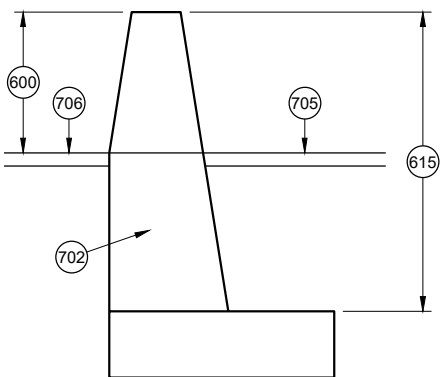
- (700) END ANCHOR SINGLE SLOPE CONCRETE BARRIER
- (701) SEE EXPANSION JOINT DETAIL
- (702) END ANCHOR SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL
- (703) PAY LIMIT FOR SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL
- (704) SEE COLD JOINT DETAIL
- (705) LOW SIDE SHOULDER
- (706) HIGH SIDE SHOULDER
- (707) SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL INSTALLED WITHOUT A PAN.
- (708) SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL INSTALLED WITH A PAN.
- (709) EXCAVATION AND COMPACTION



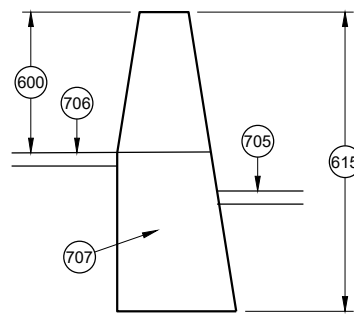
**PROFILE VIEW  
SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL**



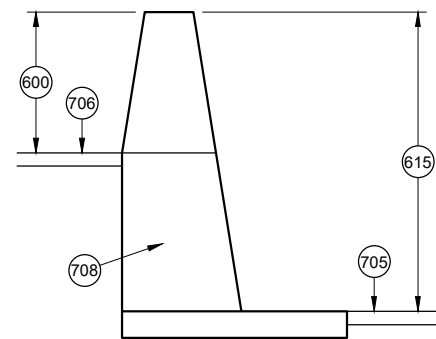
**PLAN VIEW  
SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL**



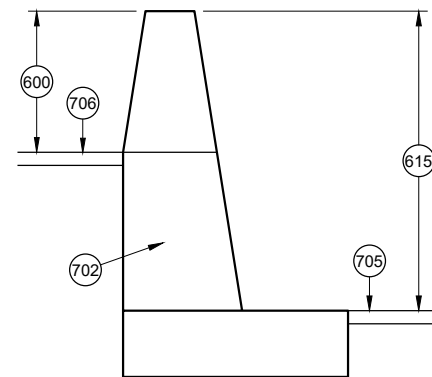
**SECTION K - K**



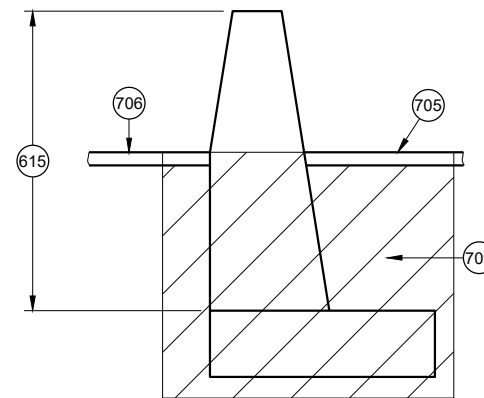
**SECTION L - L**



**SECTION M - M**

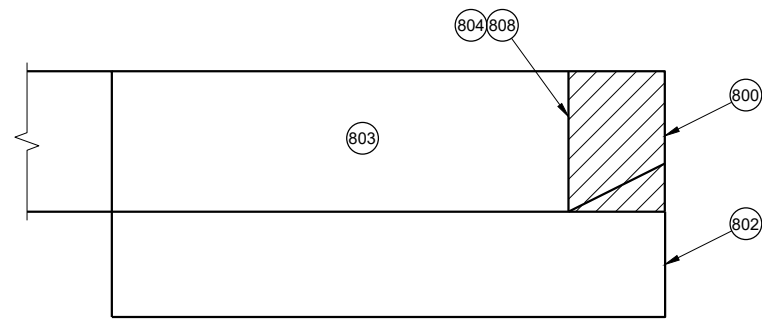


**SECTION N - N**

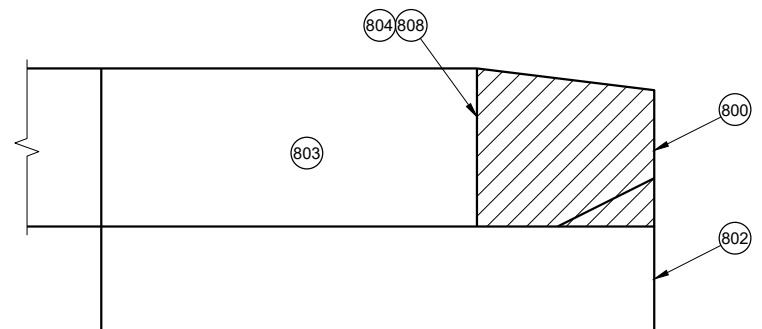


**CONCRETE BARRIER  
SINGLE SLOPE (CBSS)**

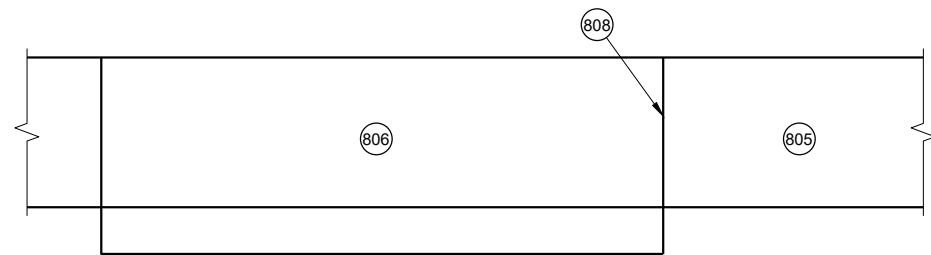
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



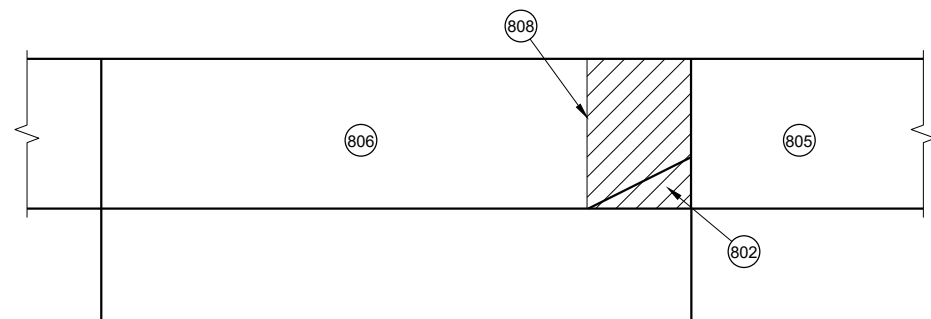
**REMOVAL AREA OF 32" CONCRETE THRIE BEAM ANCHORAGE**



**REMOVAL AREA OF CONCRETE THRIE BEAM ANCHORAGE WITH HEIGHT GREATER THAN 32"**



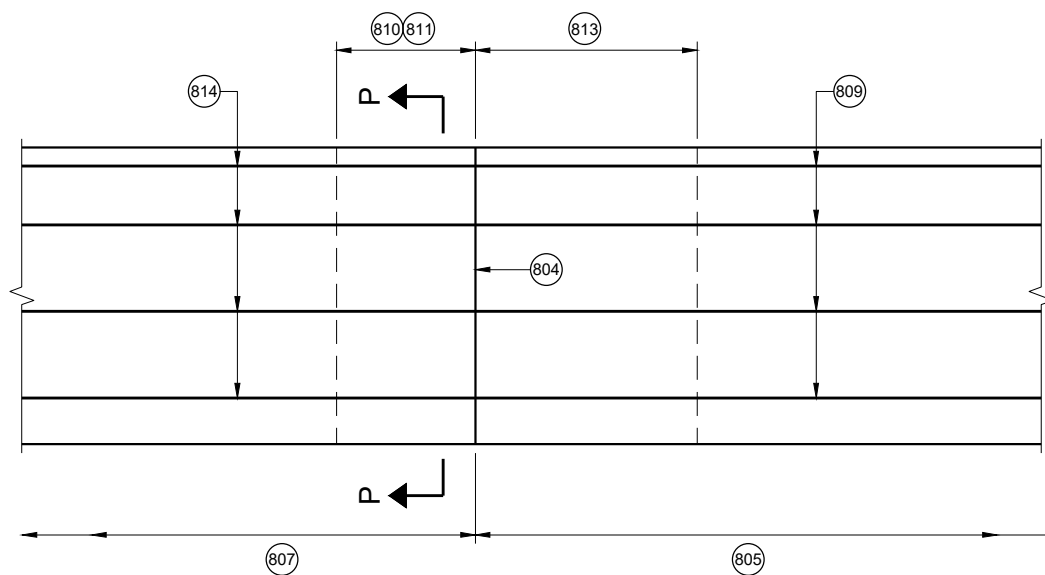
**CONCRETE BARRIER EXTENSION NEAR END ANCHORAGE**



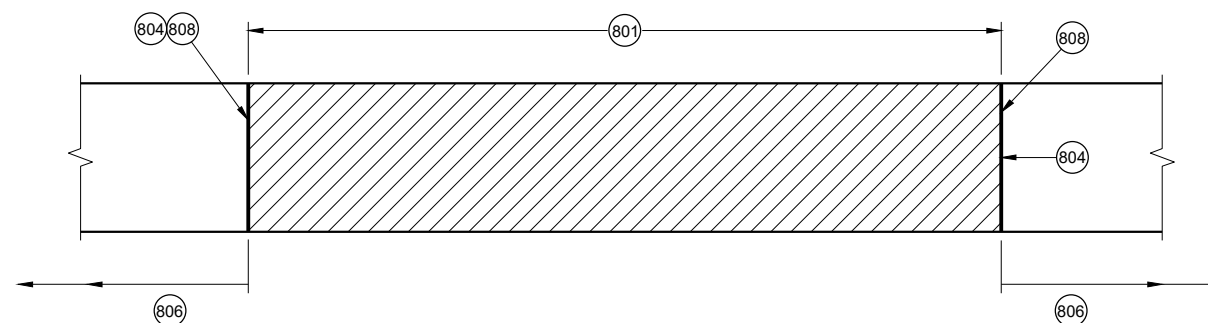
**CONCRETE BARRIER EXTENSION NEAR THRIE BEAM TERMINAL**

**GENERAL NOTES**

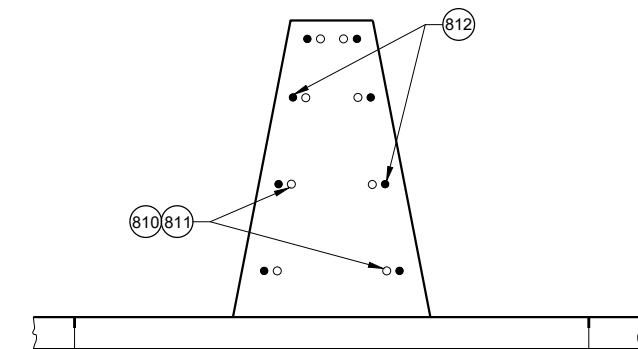
- END ANCHORAGE MAY OR MAY NOT BE PRESENT ON EXISTING BARRIER.
- REMOVE THRIE BEAM ANCHORAGE AS SHOWN.
- 800 AREA OF BARRIER REMOVAL AN NEW CONCRETE AND STEEL IS INSTALLED.
- 801 MINIMUM LENGTH OF REMOVAL IS 15'
- 802 FOOTING BELOW GROUND MAY REMAIN IN PLACE.
- 803 CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.
- 804 SAW CUT
- 805 NEW SINGLE SLOPE CONCRETE BARRIER.
- 806 CONCRETE BARRIE SINGLE SLOPE TO REMAIN.
- 807 SINGLE SLOPE CONCRETE BARRIER OR CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.
- 808 SEE CONNECTION DETAIL.
- 809 NO. 5 CONTINUOUS BAR.
- 810 3' MIN. DRILL HOLES. USES NO. 5 ADHESIVE ANCHORS.
- 811 THE NUMBER OF DRILL HOLES IS EQUAL TO THE NUMBER OF HORIZONTAL REBAR IN BARRIER. DRILL HOLES ARE TO BE A MINIMUM OF 4" FROM EDGE OF CONCRETE.
- 812 EXISTING REBAR IN EXISTING BARRIER OR END ANCHOR.
- 813 3' BAR OVERLAP
- 814 EXISTING REINFORCEMENT



**CONNECTION DETAIL SINGLE SLOPE CONCRETE BARRIER TO NEW SINGLE SLOPE CONCRETE BARRIER**



**BARRIER REMOVAL AND REPLACEMENT**



**SECTION P - P**

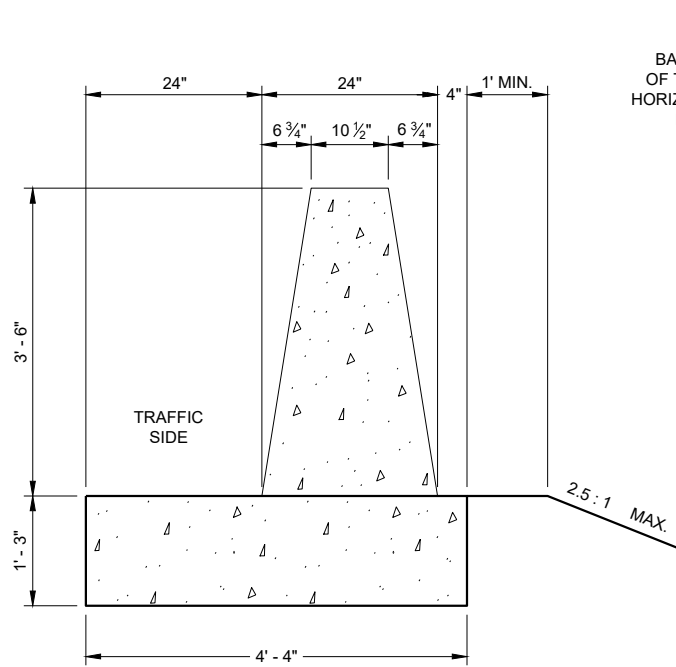
**RETROFIT OR REPAIR SINGLE SLOPE CONCRETE BARRIER**

**CONCRETE BARRIER SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

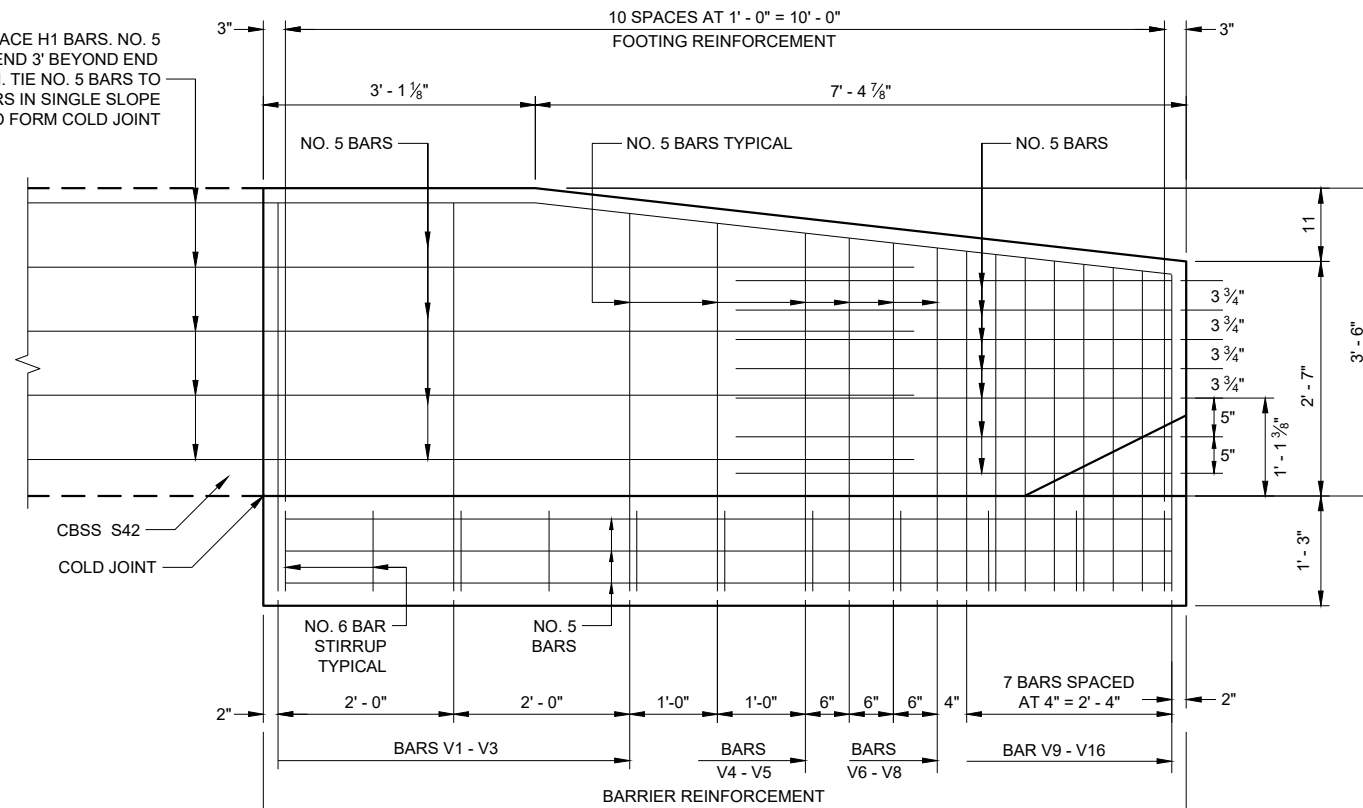
APPROVED  
May 2022 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

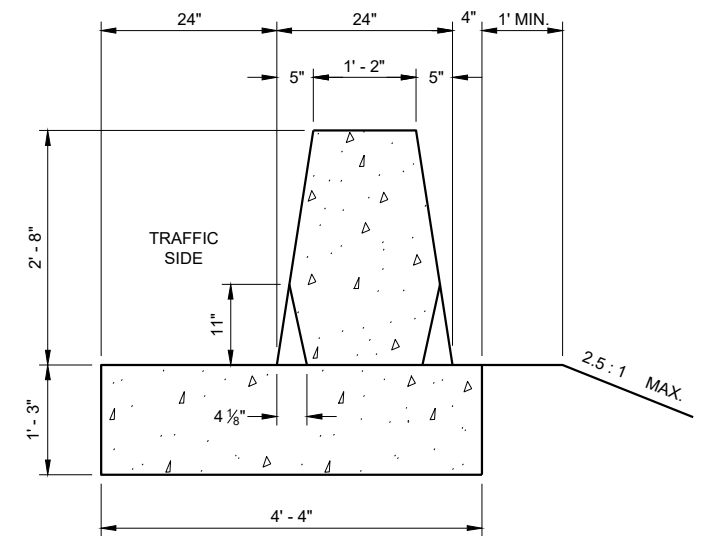


**SECTION A - A**

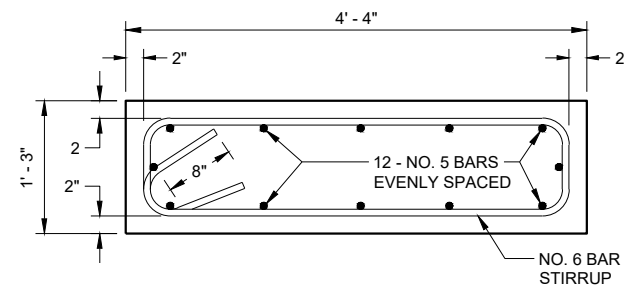
EVENLY SPACE H1 BARS, NO. 5 BARS TO EXTEND 3' BEYOND END OF TRANSITION. TIE NO. 5 BARS TO HORIZONTAL BARS IN SINGLE SLOPE BARRIER TO FORM COLD JOINT



SEE SECTIONS ① THRU ⑯  
**ELEVATION VIEW**



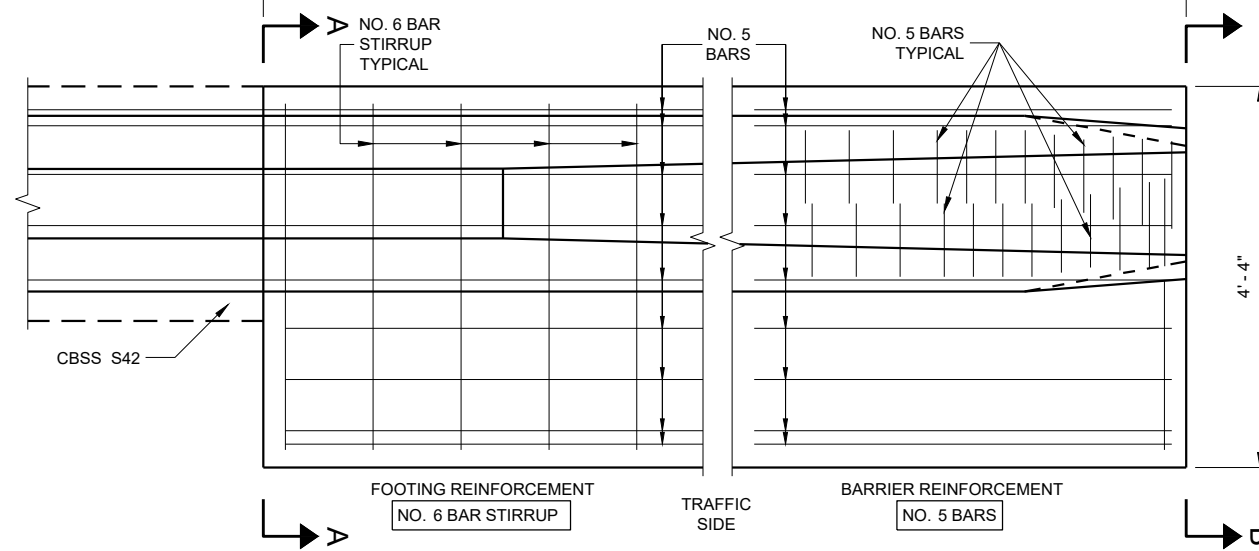
**SECTION B - B**



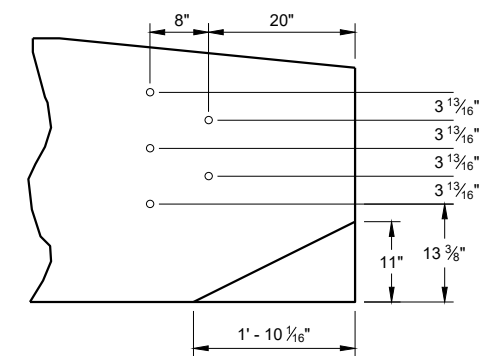
**TYPICAL FOOTING**

**GENERAL NOTES**

- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- THRIE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.
- INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.
- EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.
- CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE OF BARRIER.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.



**PLAN VIEW**



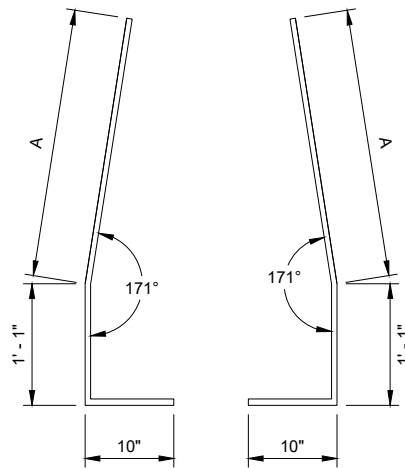
**PVC PIPE LOCATIONS**

**CONCRETE BARRIER  
SINGLE SLOPE 42"  
THRIE BEAM ANCHOR**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BAR CHART  
BAR POSITIONS  
1 - 11**

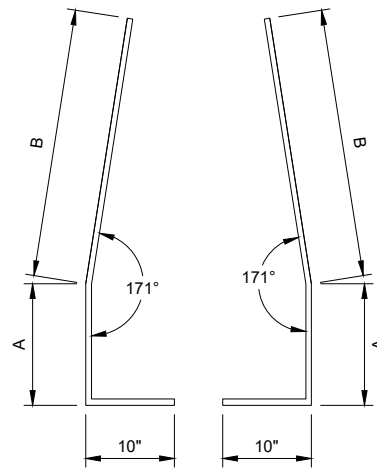
BAR	A
V1	3' - 4 1/2"
V2	3' - 4 1/2"
V3	3' - 2 1/2"
V4	3' - 1"
V5	2' - 11 1/2"
V6	2' - 11"
V7	2' - 10 1/2"
V8	2' - 9 1/2"
V9	2' - 9"
V10	2' - 8 1/2"
V11	2' - 8"



**BAR BENDING DETAIL  
SECTIONS V1 - V4**

**BAR CHART  
BAR POSITIONS  
12 - 13**

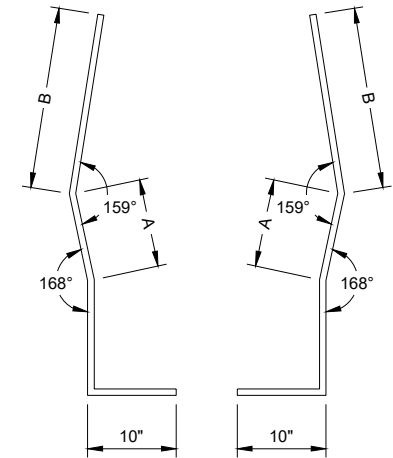
BAR	A	B
V12	1' - 3"	2' - 6"
V13	1' - 8"	2' - 1 1/2"



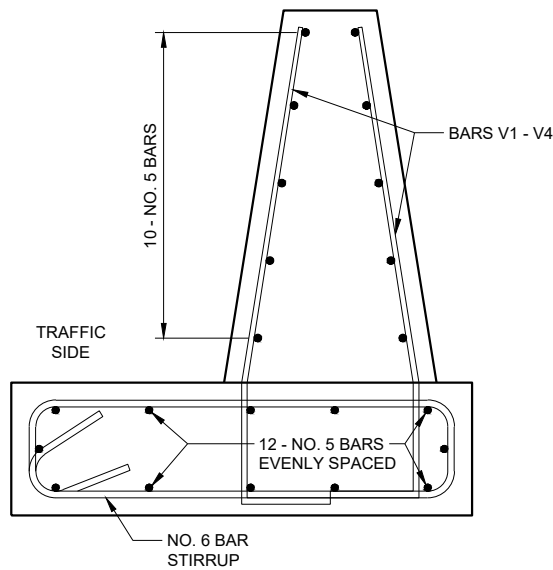
**BAR BENDING DETAIL  
SECTIONS V12 - V13**

**BAR CHART  
BAR POSITIONS  
14 - 16**

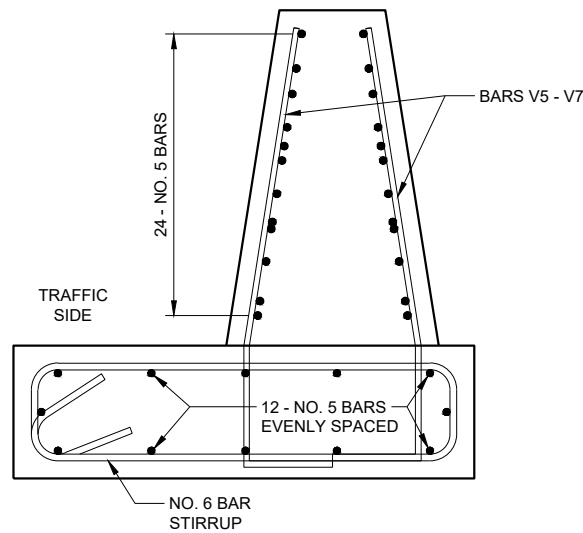
BAR	A	B
V14	6"	2' - 1"
V15	8"	1' - 11"
V16	10"	1' - 8 1/2"



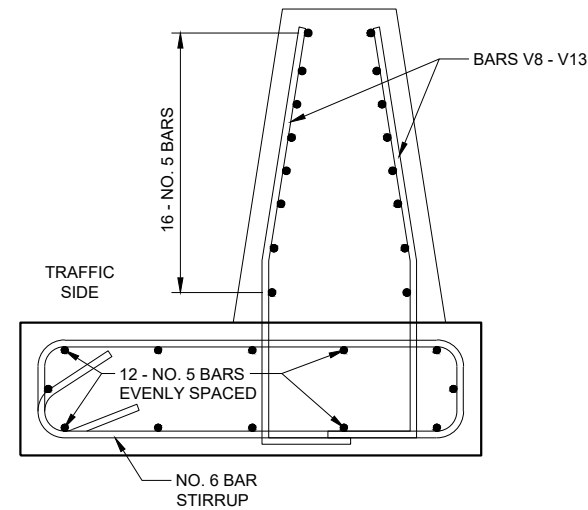
**BAR BENDING DETAIL  
SECTIONS V14 - V16**



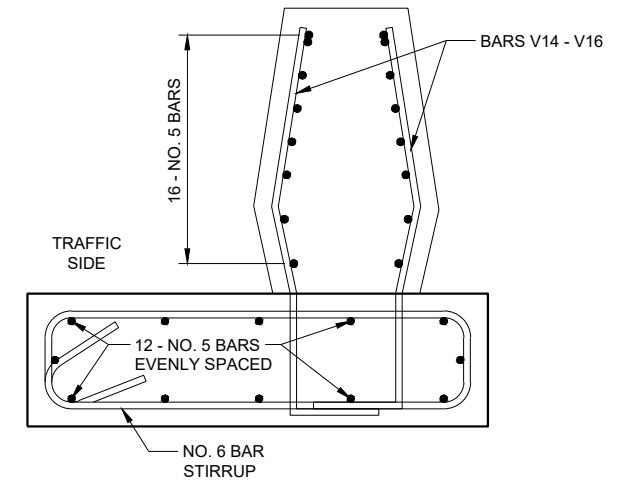
**BAR DETAIL  
SECTIONS 1 - 4**



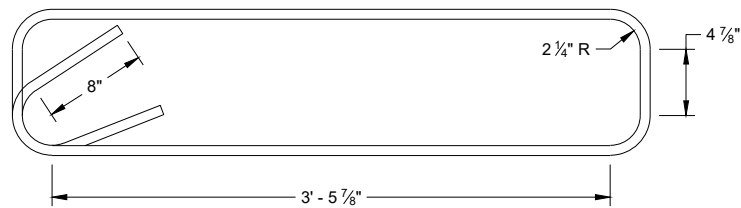
**BAR DETAIL  
SECTIONS 5 - 7**



**BAR DETAIL  
SECTIONS 8 - 13**



**BAR DETAIL  
SECTIONS 14 - 16**



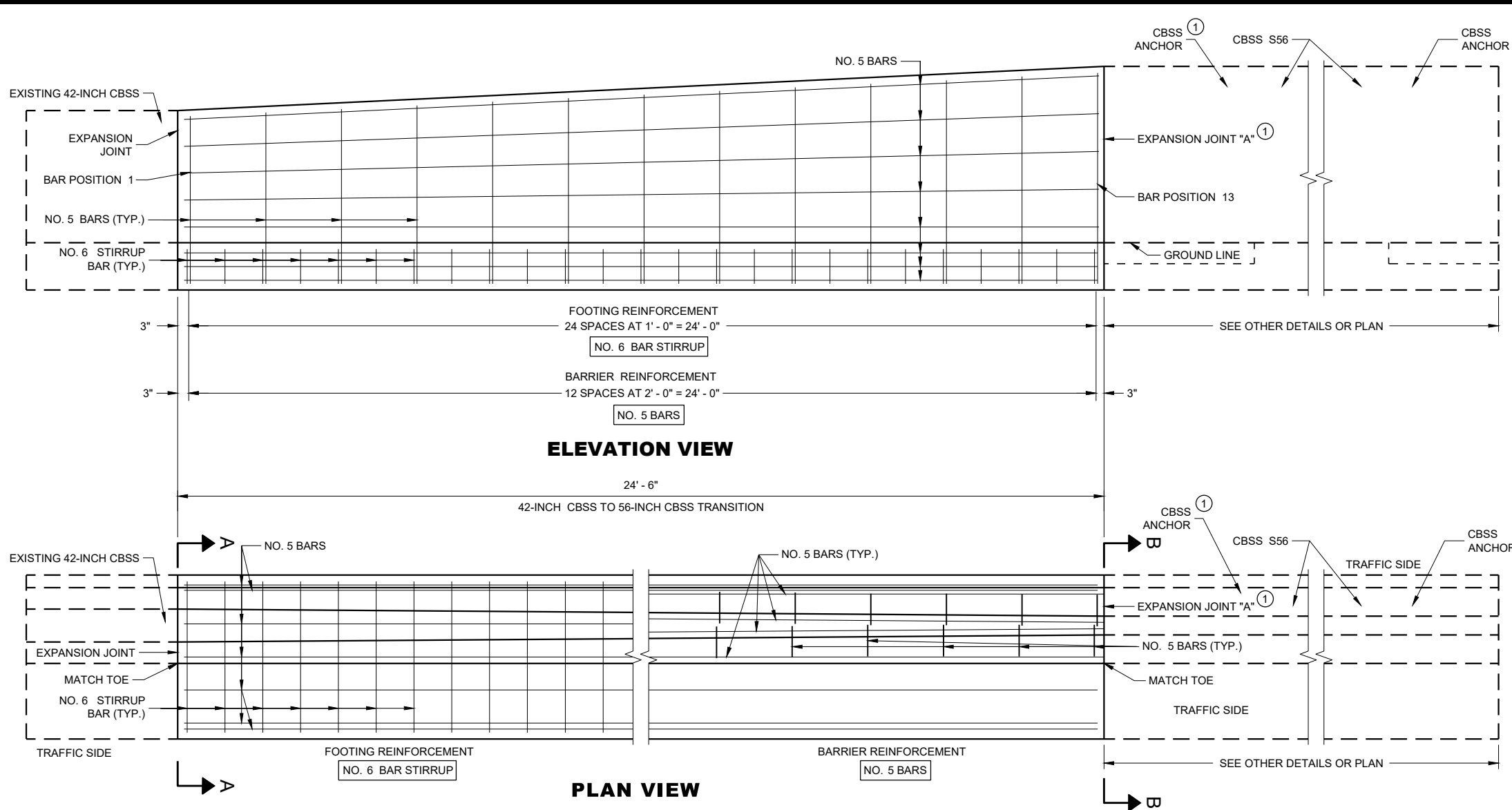
**STIRRUP BAR  
BENDING DETAIL**

**CONCRETE BARRIER  
SINGLE SLOPE 42"  
THREE BEAM ANCHOR**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

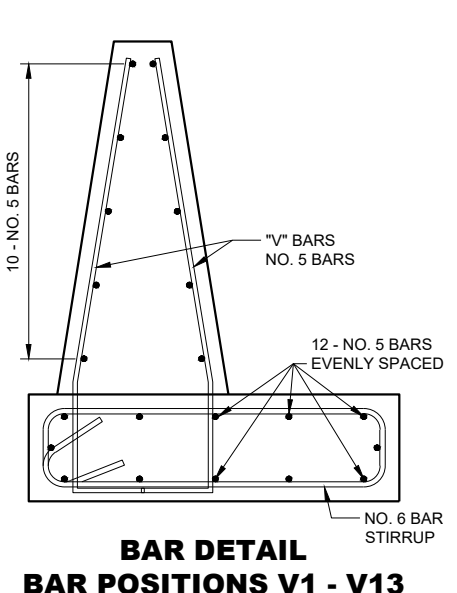
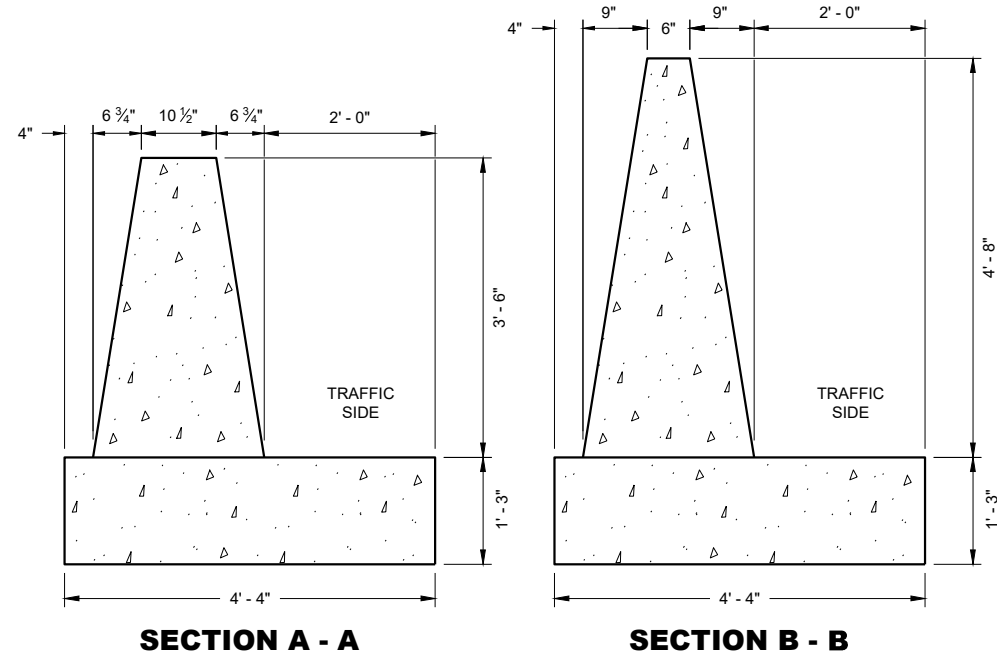
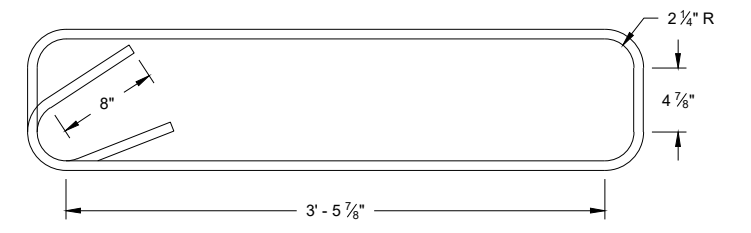
APPROVED  
February 2020 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



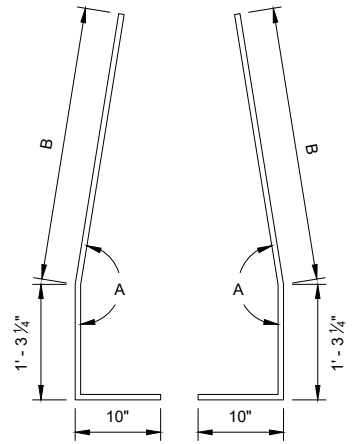
**GENERAL NOTES**

- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.
- ① EXPANSION JOINT "A" MAY BE REPLACED WITH A COLD JOINT PROVIDED THAT 3 FEET OF LAP OF LONGITUDINAL STEEL IS PROVIDED. IF COLD JOINT IS USED, ANCHOR IS NOT REQUIRED.



**BAR CHART  
 BAR POSITIONS  
 V1 - V13**

BAR	A	B
V1	170°	3'-1 1/2"
V2	170°	3'-3"
V3	170°	3'-4 1/4"
V4	170°	3'-5 1/2"
V5	170°	3'-6 1/2"
V6	170°	3'-7 3/4"
V7	170°	3'-9 1/4"
V8	170°	3'-10"
V9	170°	3'-11 1/4"
V10	170°	4'-1 1/4"
V11	170°	4'-1 1/2"
V12	170°	4'-2 1/4"
V13	170°	4'-2 1/2"



**42" SINGLE SLOPE CONCRETE BARRIER TO 56" SINGLE SLOPE CONCRETE BARRIER HEIGHT TRANSITION**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 February 2020 /S/ Rodney Taylor  
 DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

SDD 14B39 - 02c

SDD 14B39 - 02c

## GENERAL NOTES

PROVIDE EXPANSION JOINTS WHERE THERE ARE EXISTING EXPANSION JOINTS OR AT THE END OF EACH POUR.

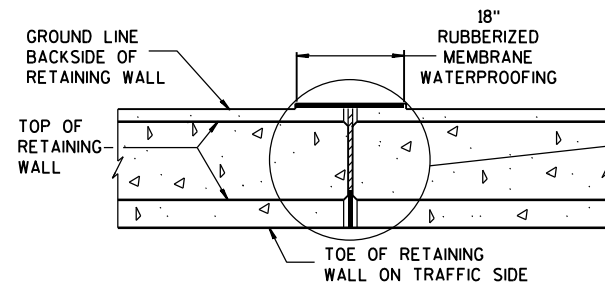
NO HORIZONTAL STEEL CROSSES EXPANSION JOINTS.

CONSTRUCT PER STANDARD SPECIFICATION 603. SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS NOTED OTHERWISE.

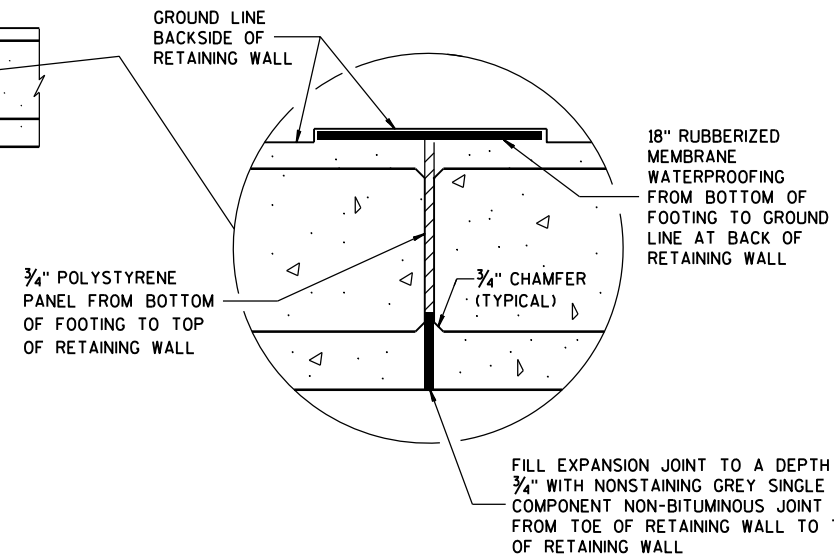
4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS 501.

USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR.



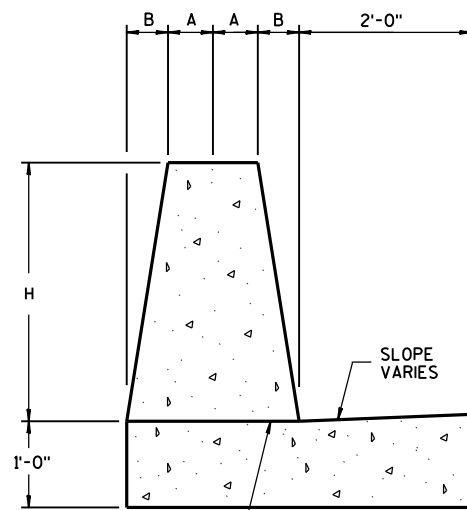
**VERTICAL EXPANSION JOINT  
PLAN VIEW**



FILL EXPANSION JOINT TO A DEPTH OF 3/4" WITH NONSTAINING GREY SINGLE COMPONENT NON-BITUMINOUS JOINT SEALER FROM TOE OF RETAINING WALL TO TOP OF RETAINING WALL



**DELINEATION**

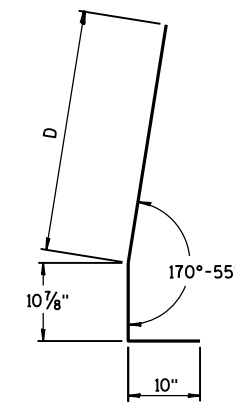


OPTIONAL CONSTRUCTION JOINT, ROUGH FINISHED

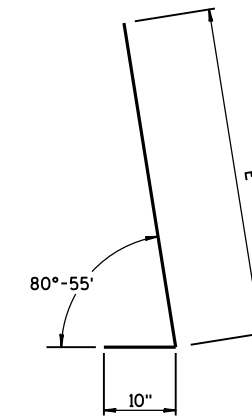
**ROADSIDE RETAINING WALL**

**BARRIER WALL DIMENSIONS**

BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 1/4	5 3/4	8
42	5 1/4	6 3/4	10
56	3	9	11



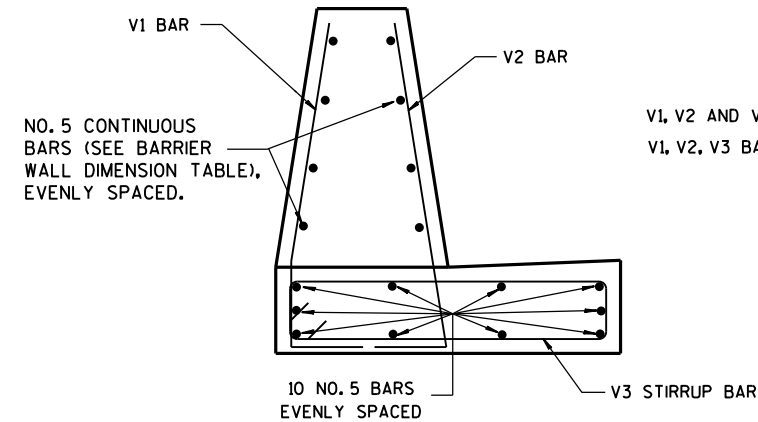
**V1 BAR BENDING DETAIL**



**V2 BAR BENDING DETAIL**

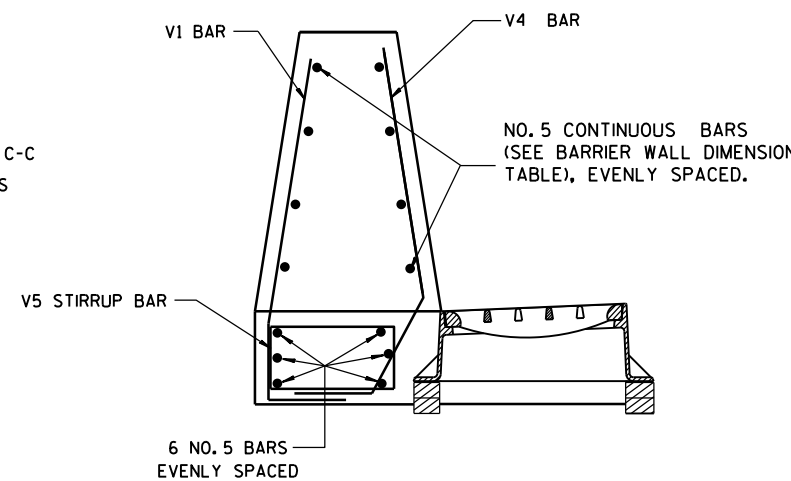
**BAR CHART  
ROADSIDE RETAINING WALL**

BARRIER HEIGHT	V1 BAR D	V2 BAR E	V4 BAR F
32"	2'-5 1/2"	3'-4 1/2"	2'-6 1/2"
36"	2'-9 1/2"	3'-9 3/4"	2'-10 3/4"
42"	3'-3 1/2"	4'-2 1/2"	3'-4 3/4"
56"	4'-5 3/4"	5'-4 3/4"	4'-6 3/4"



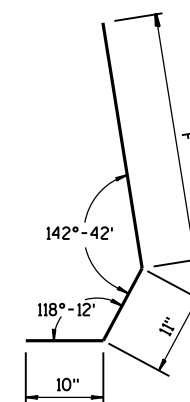
**ROADSIDE RETAINING WALL  
NORMAL BAR PLACEMENT**

V1, V2 AND V3 ARE SPACED 18" C-C  
V1, V2, V3 BARS ARE NO. 5 BARS

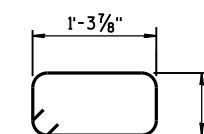


**ROADSIDE RETAINING WALL  
BAR PLACEMENT NEAR  
INLET**

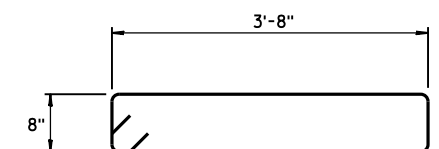
NO. 5 CONTINUOUS BARS (SEE BARRIER WALL DIMENSION TABLE), EVENLY SPACED.



**V4 BAR BENDING DETAIL**



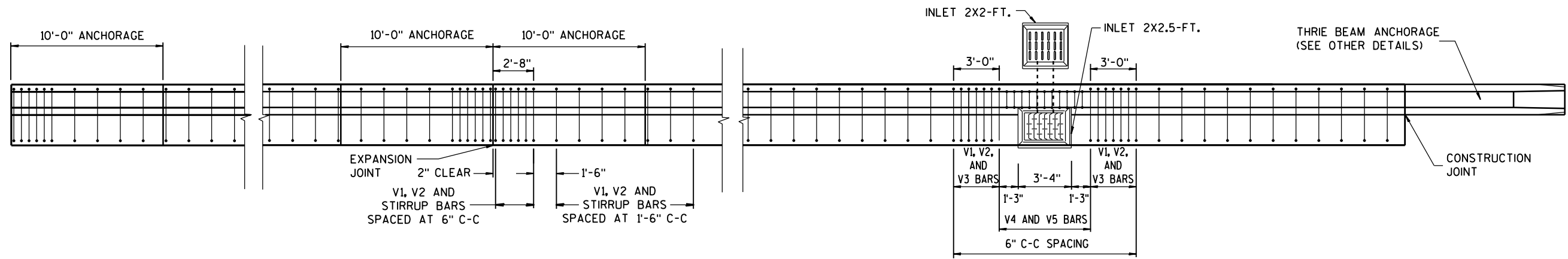
**V5 STIRRUP BAR BENDING DETAIL**



**V3 STIRRUP BAR BENDING DETAIL**

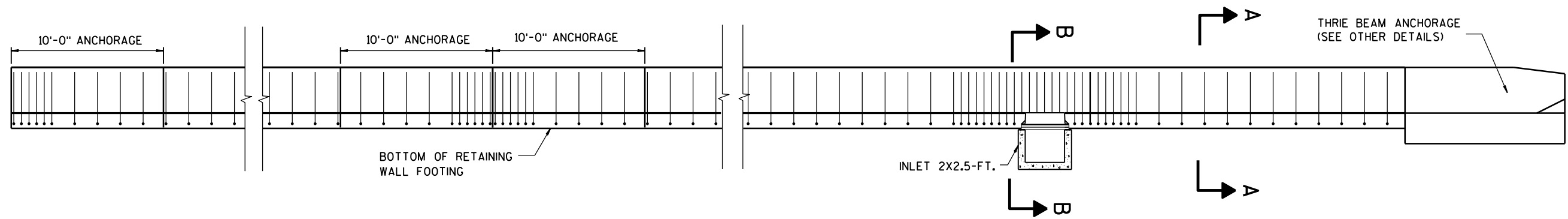
**SINGLE SLOPE  
ROADSIDE RETAINING WALL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



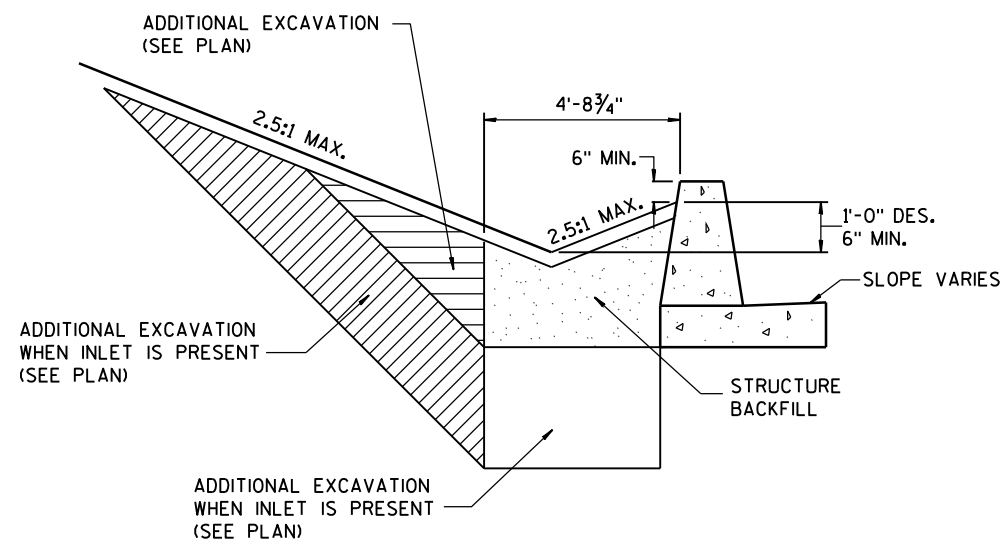
PLAN VIEW

NOTE: HORIZONTAL BARS ARE NOT SHOWN. SEE OTHER DETAILS FOR HORIZONTAL BARS.

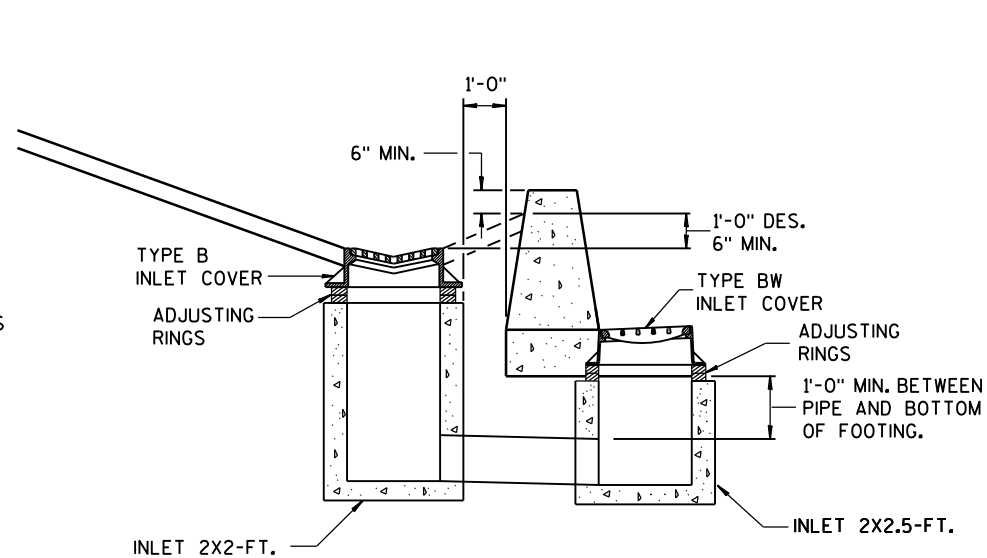


ELEVATION VIEW

NOTE: HORIZONTAL BARS ARE NOT SHOWN. SEE OTHER DETAILS FOR HORIZONTAL BARS.

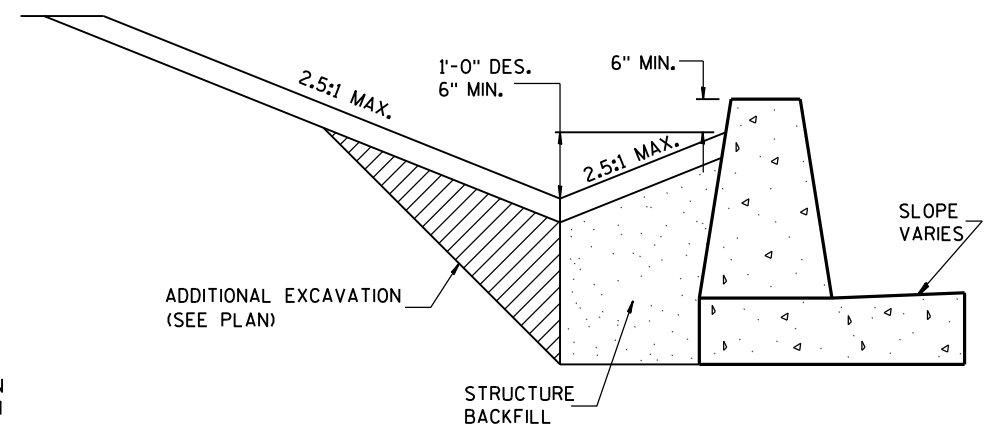


SECTION A-A



SECTION B-B

MINIMUM DESIGN OF EARTH WORK FOR INLET



MINIMUM DESIGN OF EARTH WORK

**SINGLE SLOPE  
ROADSIDE RETAINING WALL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR

6

6

S.D.D. 14 B 41-3b

S.D.D. 14 B 41-3b



**GENERAL NOTES**

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
  - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
  - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
  - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
  - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

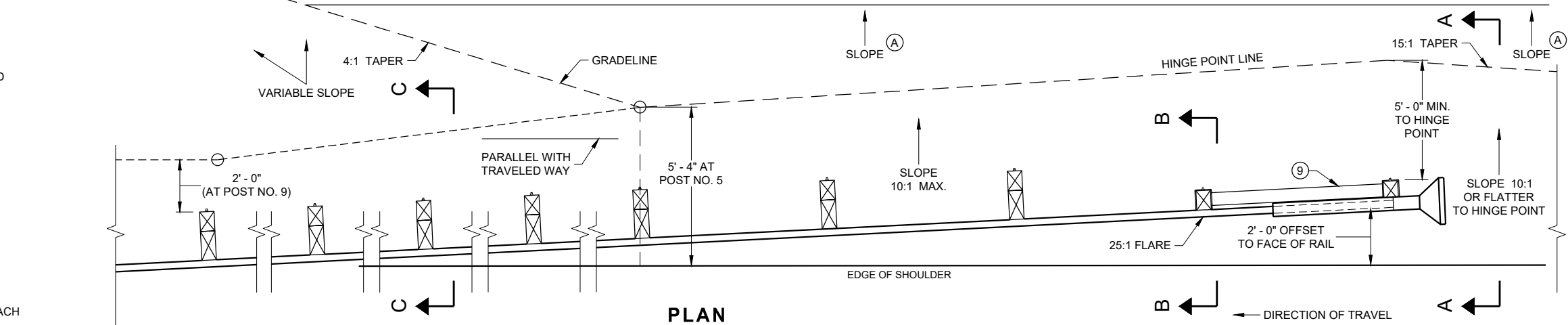
\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

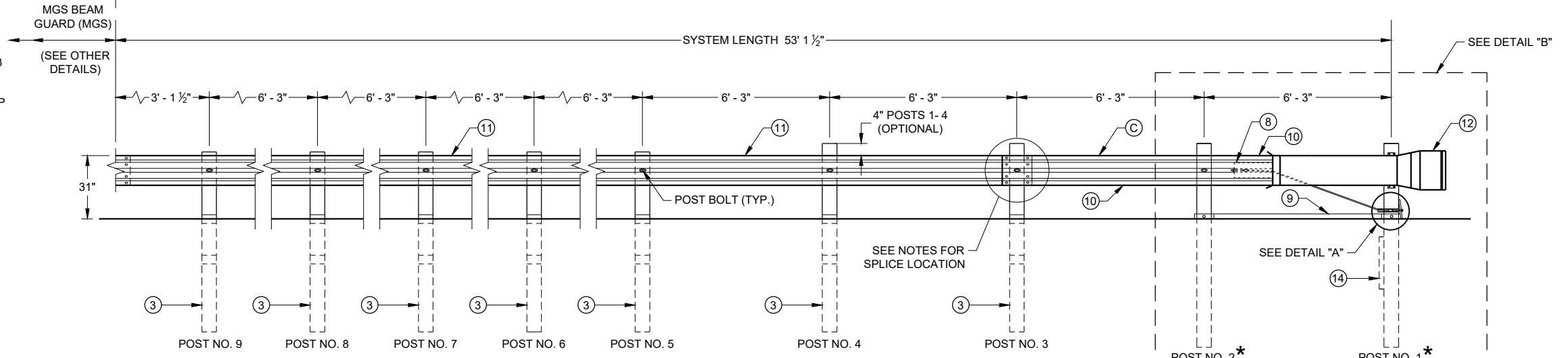
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

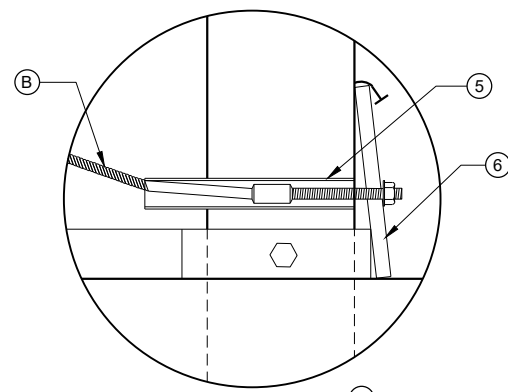
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



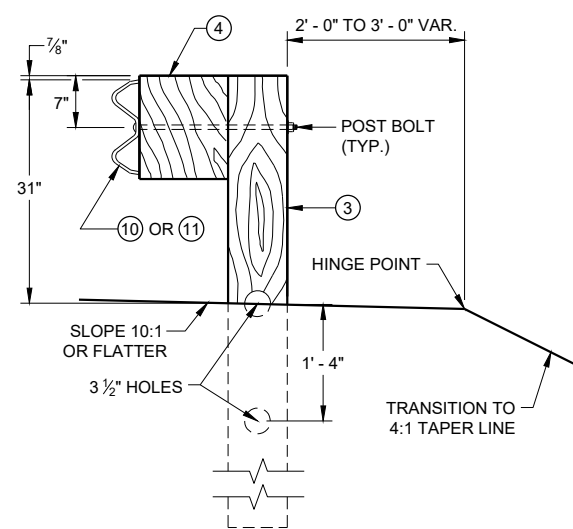
**PLAN**



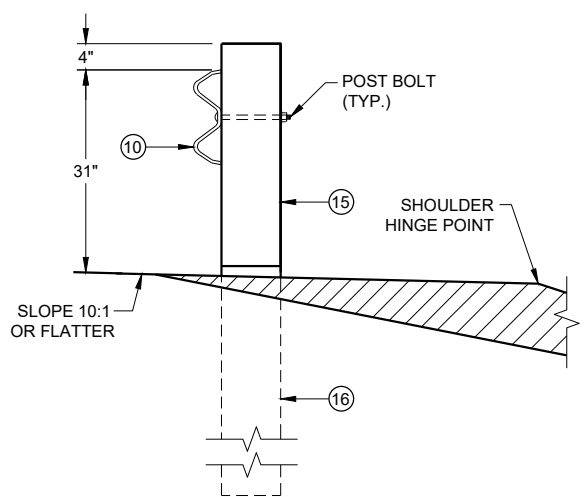
**ELEVATION**



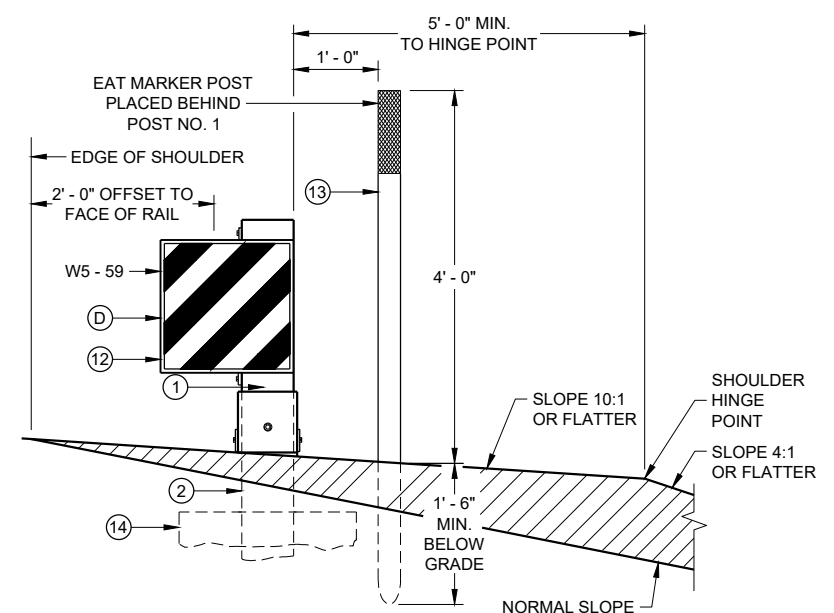
**DETAIL "A"**



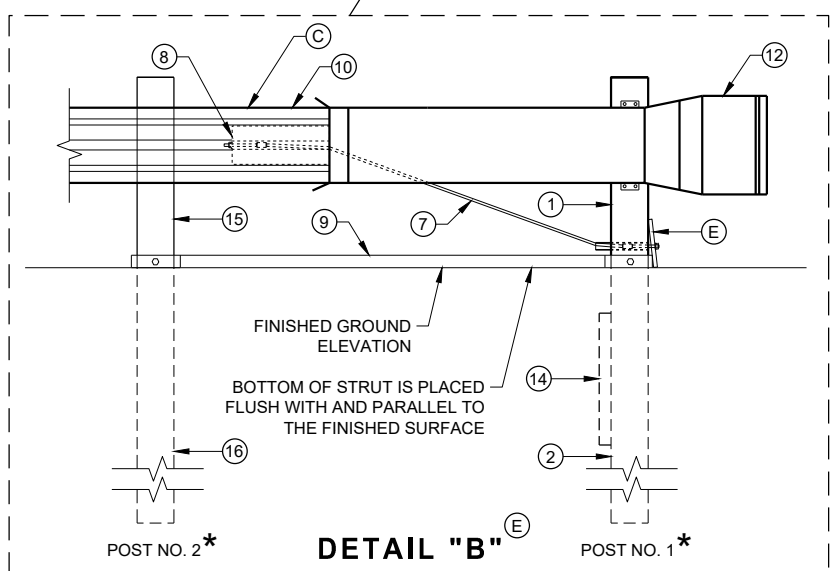
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B  
TYPICAL AT POST NO. 2\***



**SECTION A - A  
TYPICAL AT POST NO. 1\***



**DETAIL "B"**

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

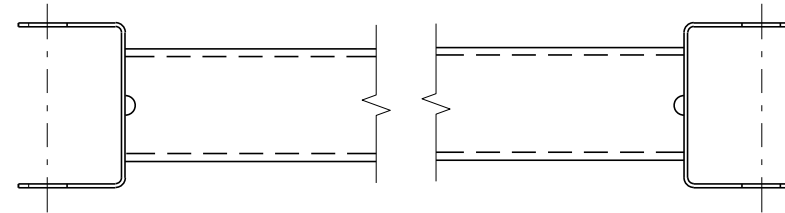
6

SDD 14B44 - 04a

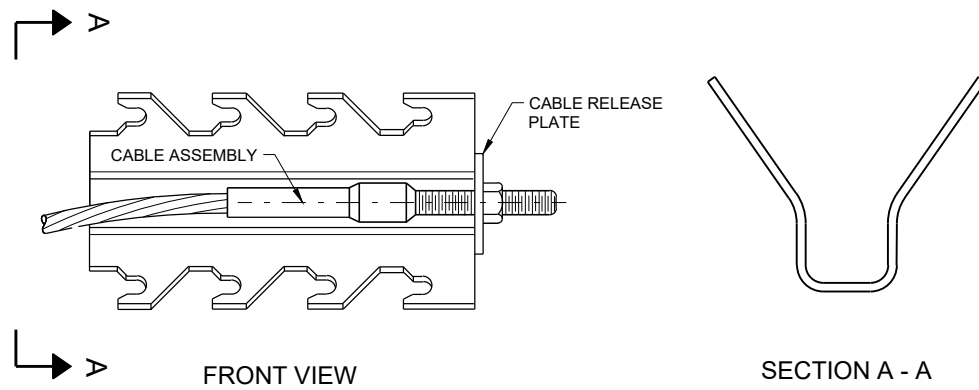
SDD 14B44 - 04a

**BILL OF MATERIALS**

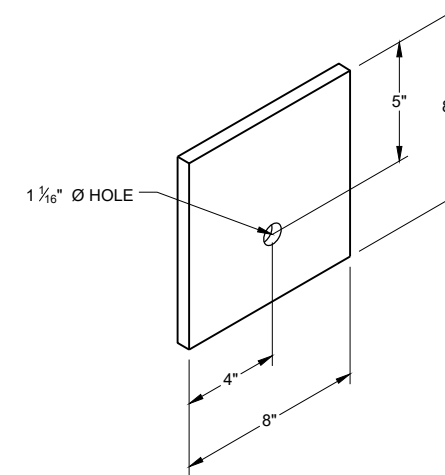
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

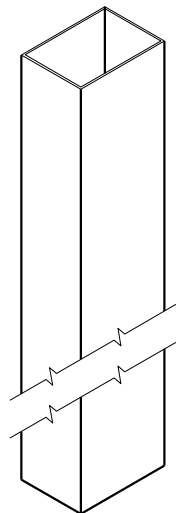
6

SDD 14B44 - 04b

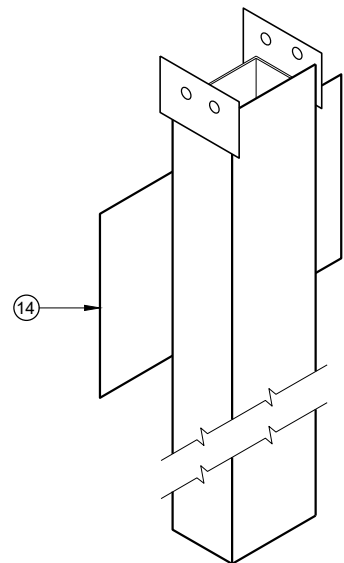
SDD 14B44 - 04b

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

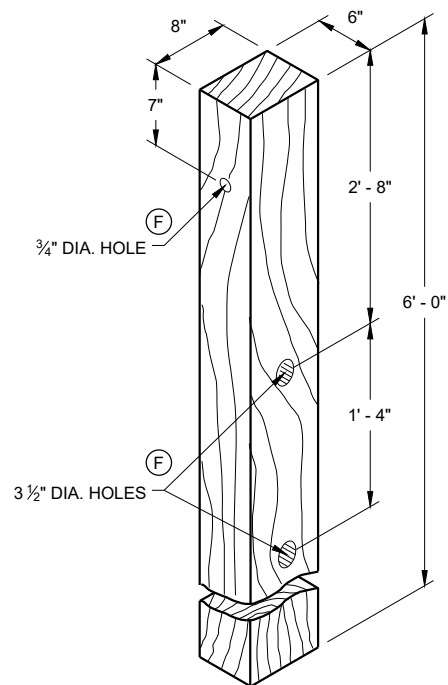
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



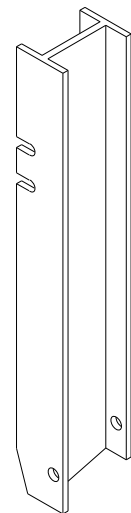
UPPER POST NO. 1 <sup>(1)</sup> (E)



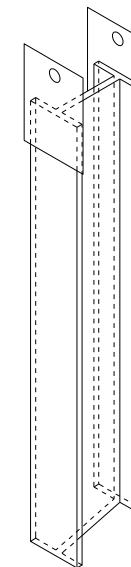
LOWER POST NO. 1 <sup>(2)</sup> (E)



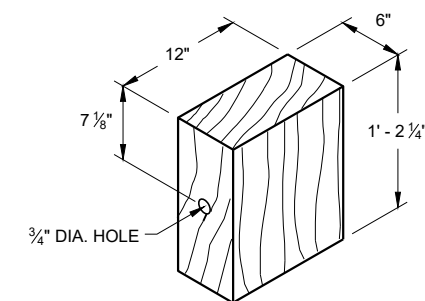
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>(15)</sup> (E)

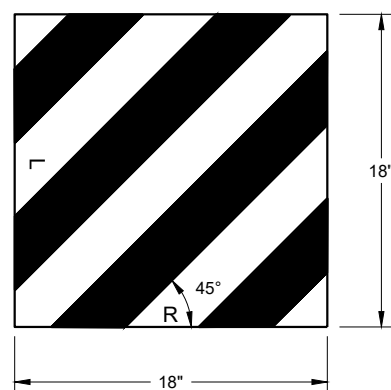


LOWER POST NO. 2 <sup>(16)</sup> (E)



WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

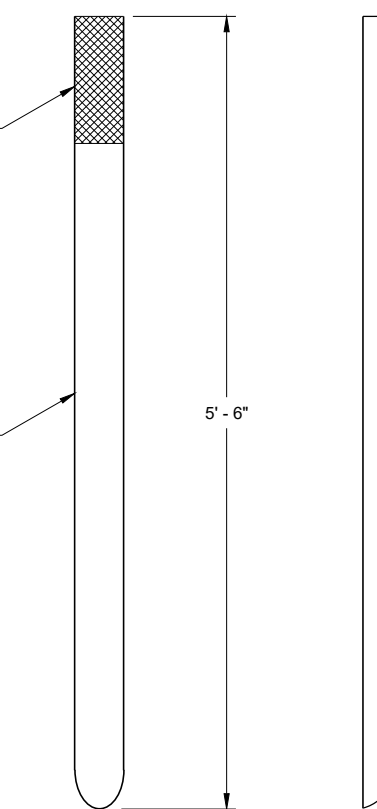
6



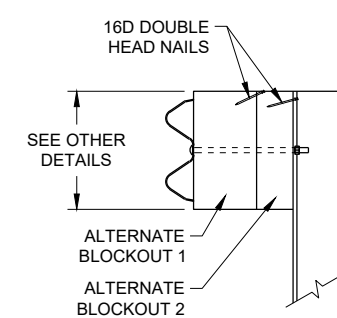
W5 - 59  
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9".  
SEE STANDARD  
SPECIFICATION 637.

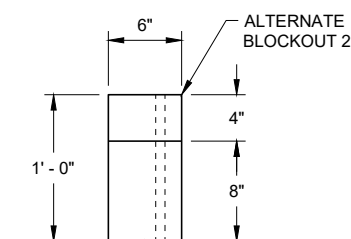
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

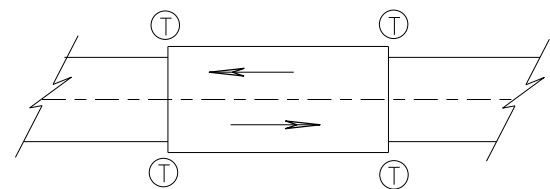
SDD 14B44 - 04c

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

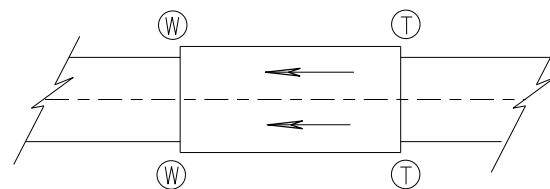
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

**TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE**

**GENERAL NOTES**

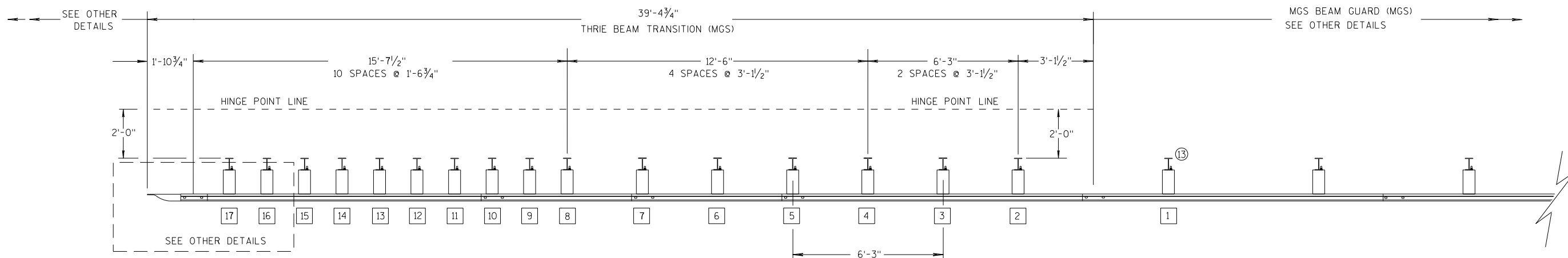
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

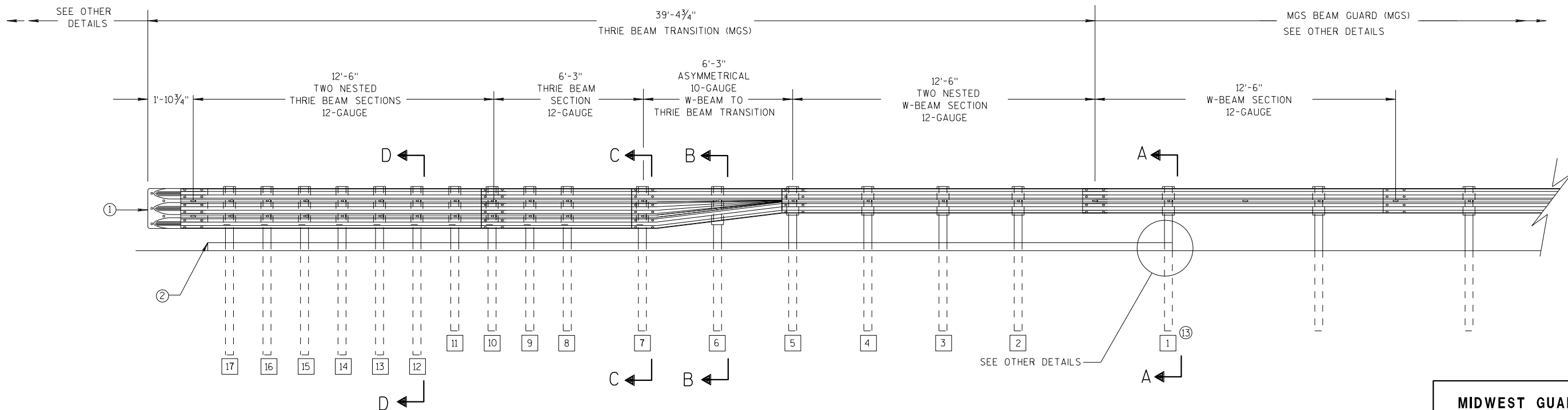
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

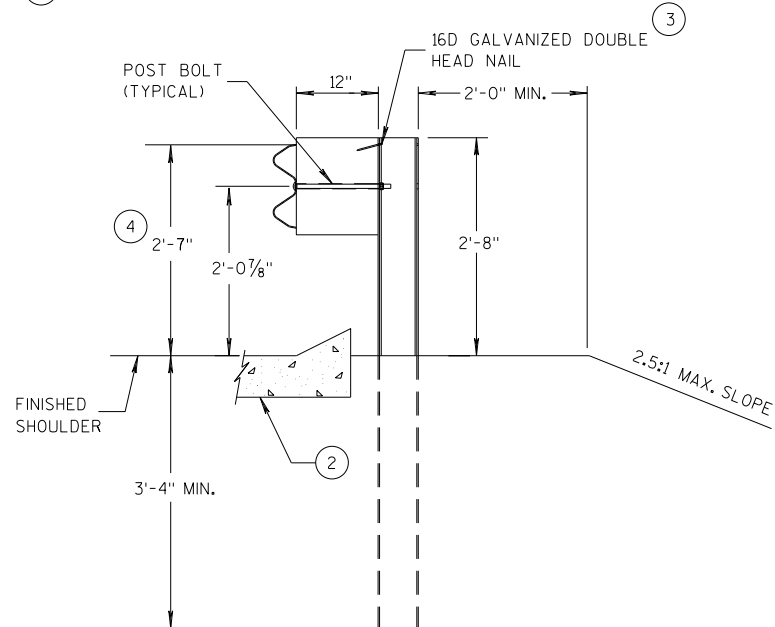
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

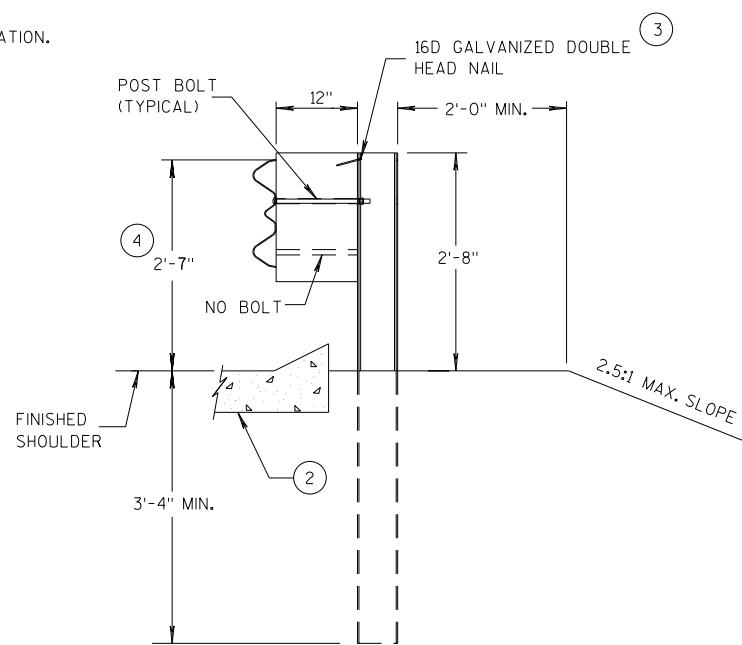
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

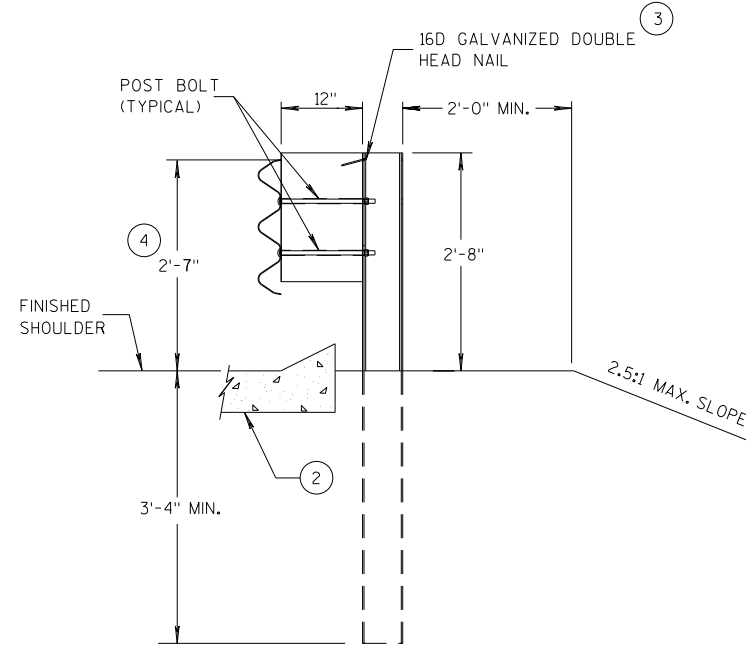
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



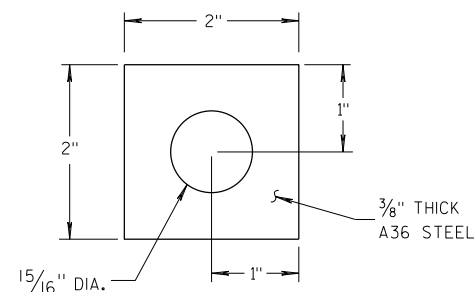
**SECTION A-A  
POSTS 1-5**



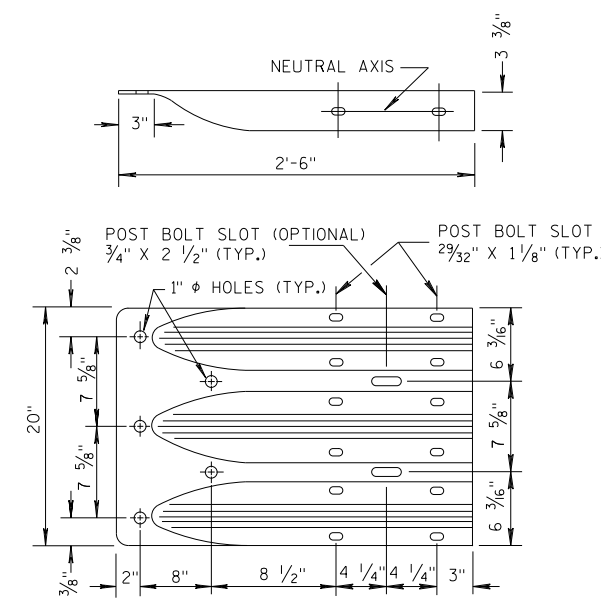
**SECTION B-B  
POST 6**



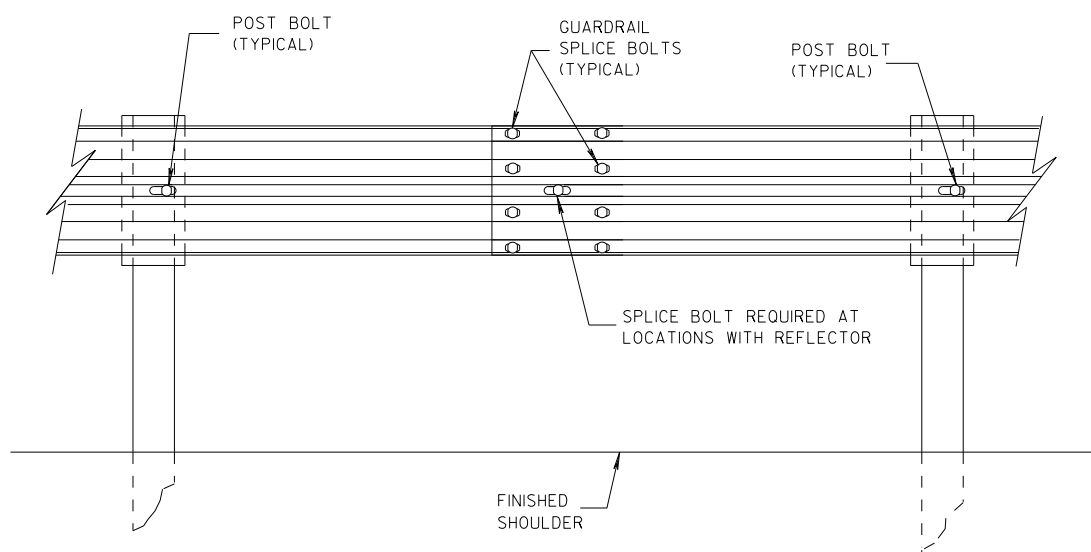
**SECTION C-C  
POSTS 7-11**



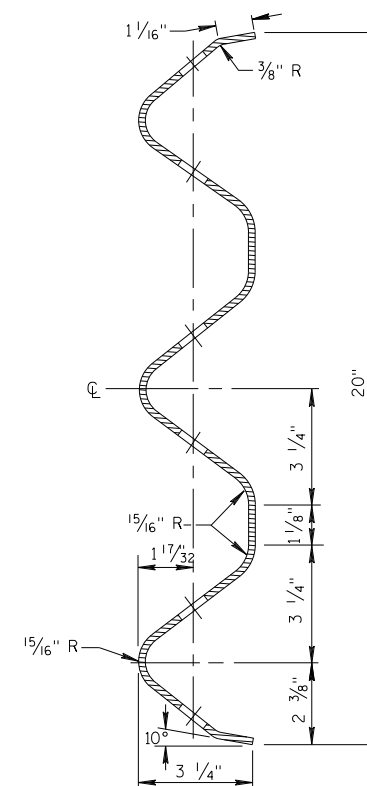
**PLATE WASHER DETAIL**



**THRIE BEAM  
TERMINAL CONNECTOR**



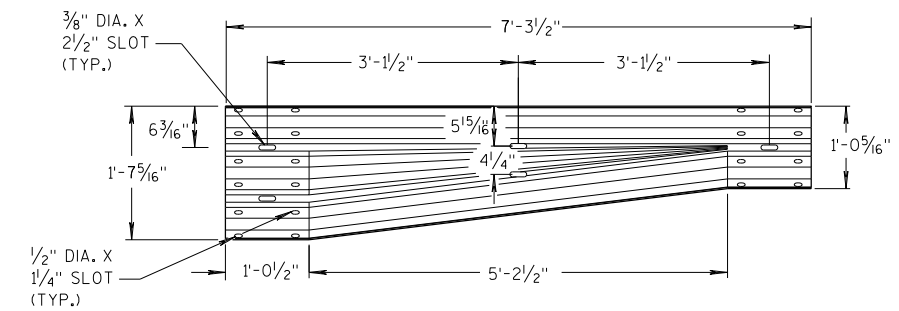
**SPLICE DETAIL**



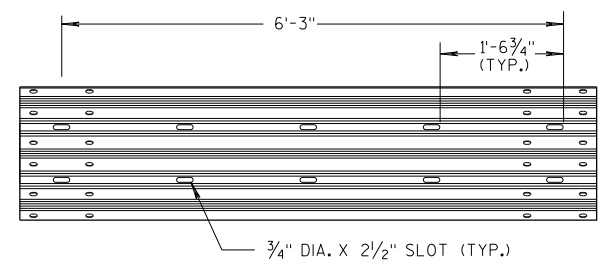
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

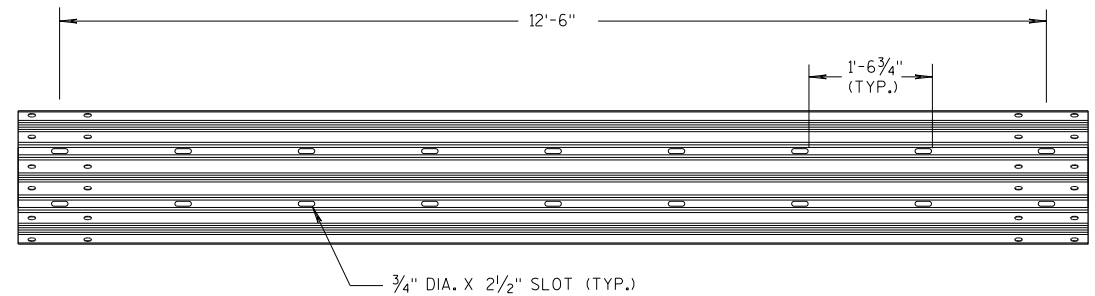
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



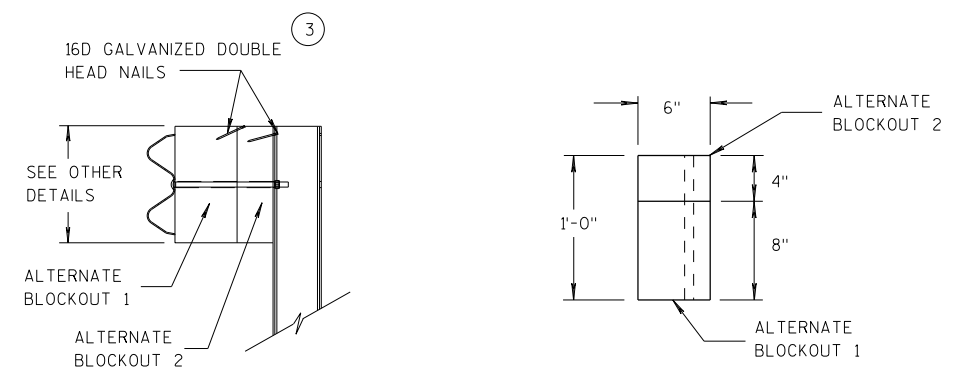
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



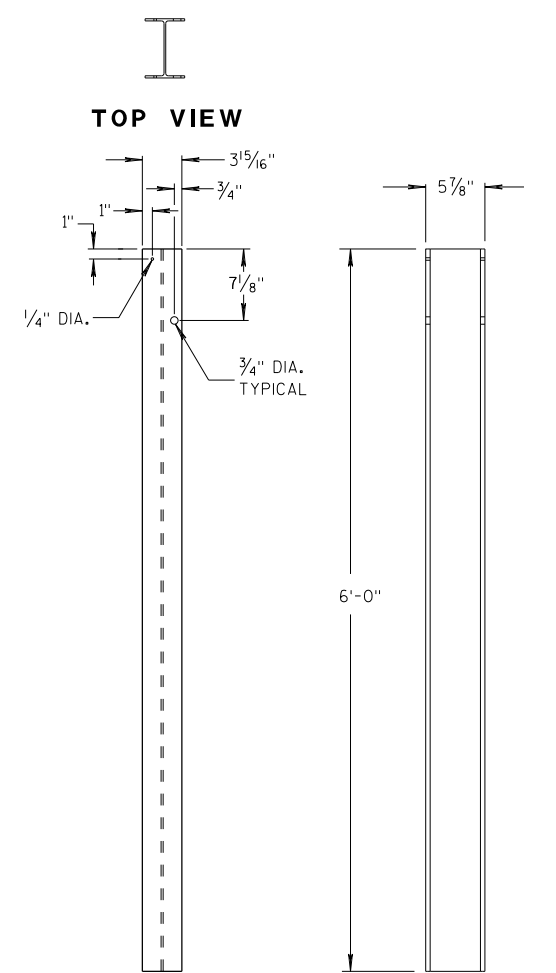
**6'-3\"/>**



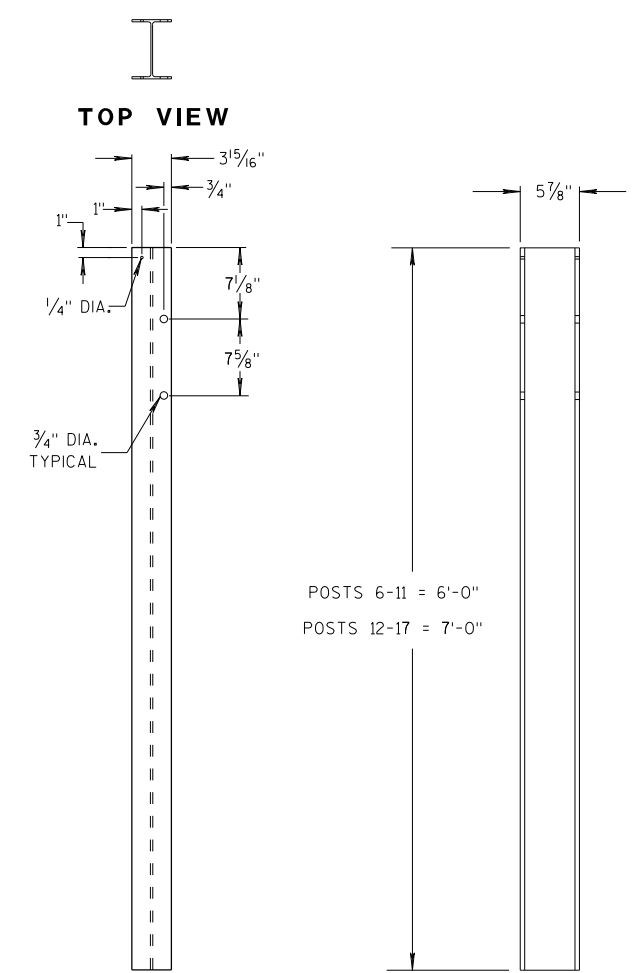
**12'-6\"/>**



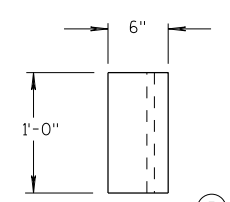
**ALTERNATE WOOD BLOCKOUT DETAIL**



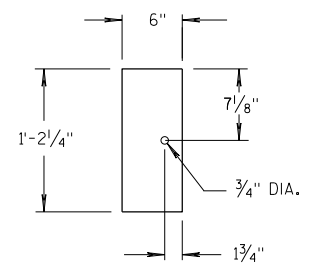
**STEEL POSTS 1-5**



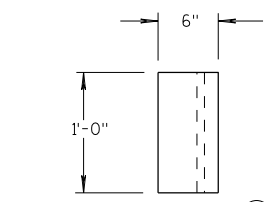
**STEEL POSTS 6-17**



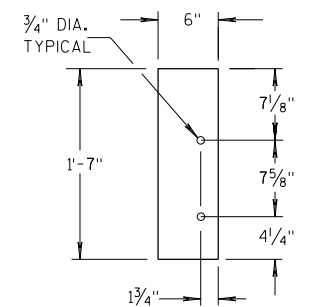
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-17**

**GENERAL NOTES**

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

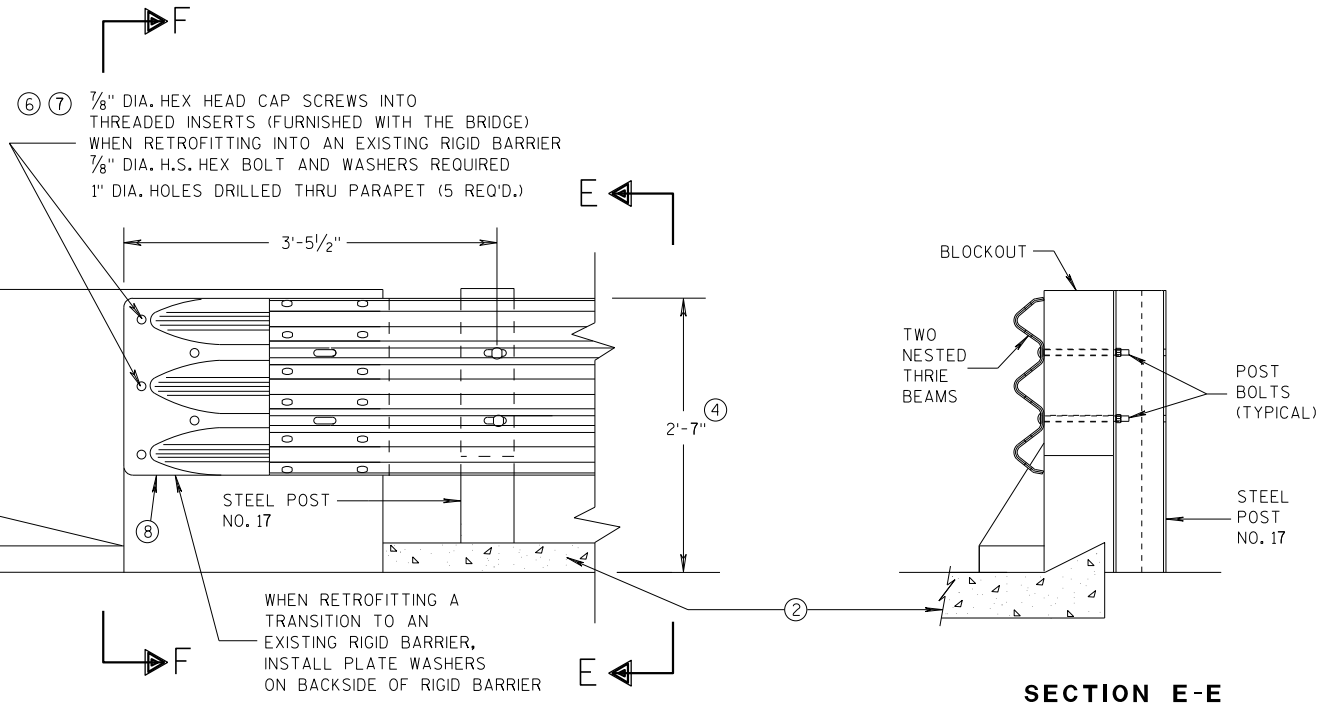
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c



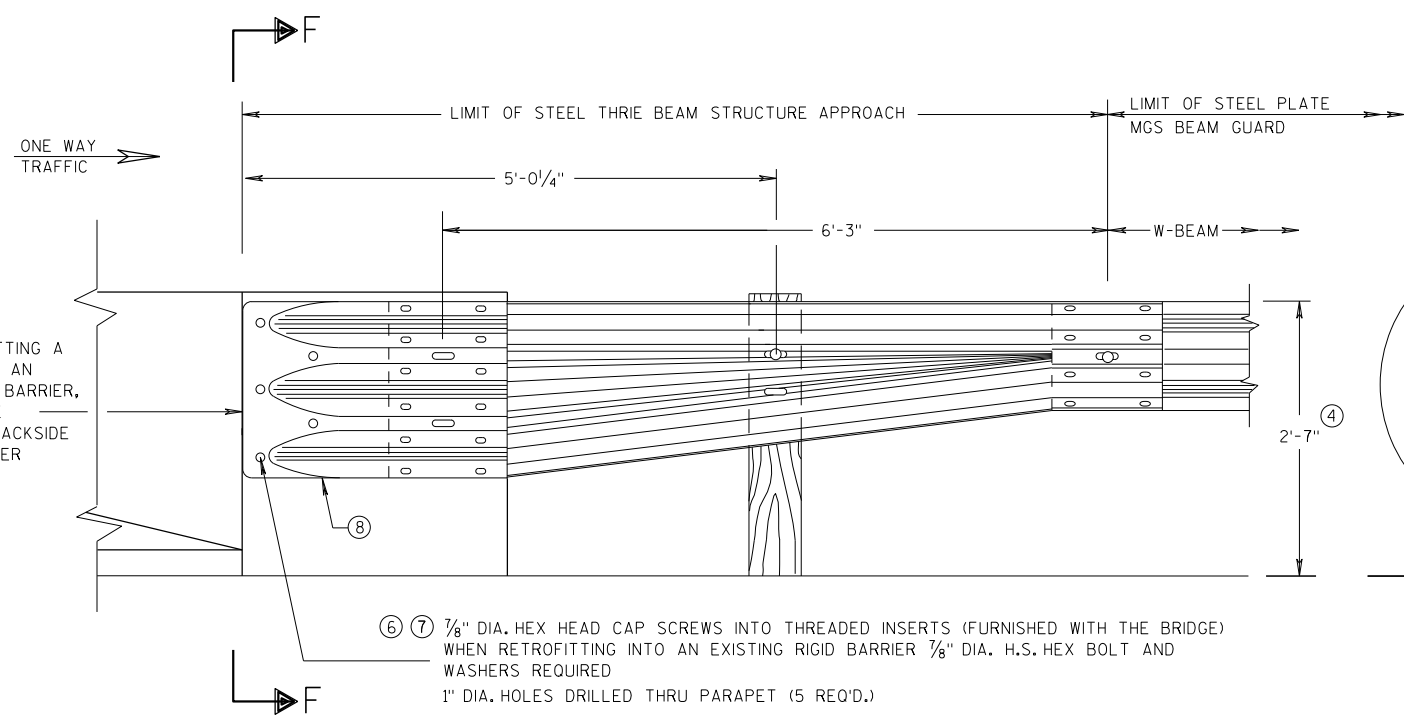
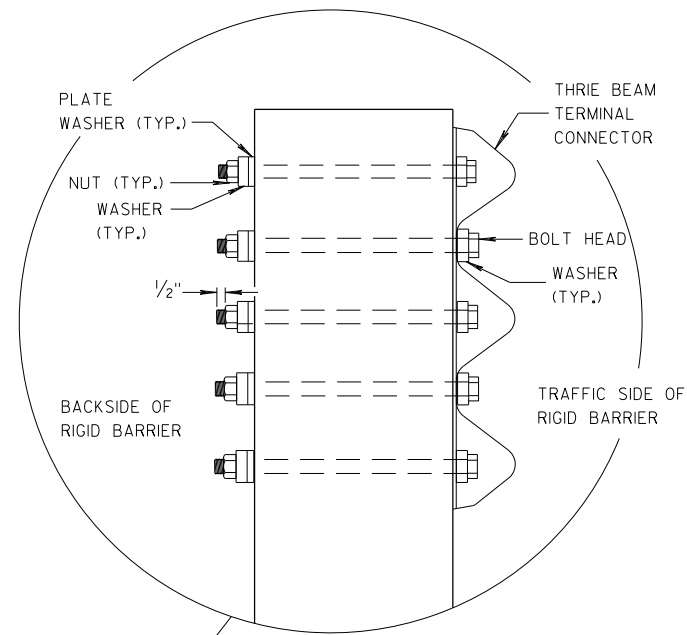
FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS**

SECTION E-E

**GENERAL NOTES**

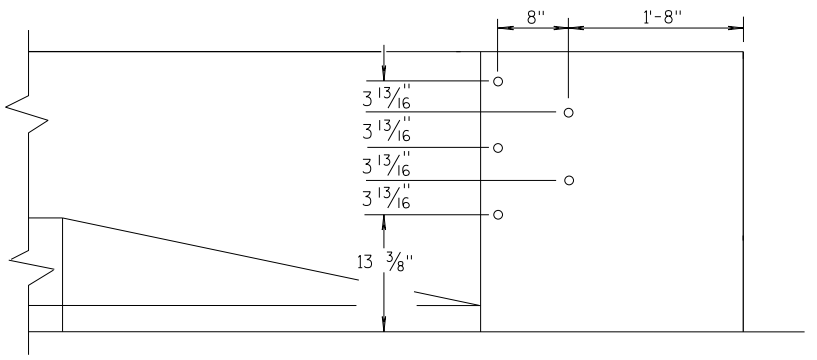
- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (4) TOLERANCE FOR TOP OF BEAM IS  $\pm 1$ ".
- (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**

SECTION F-F



DRILL HOLE LOCATION

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

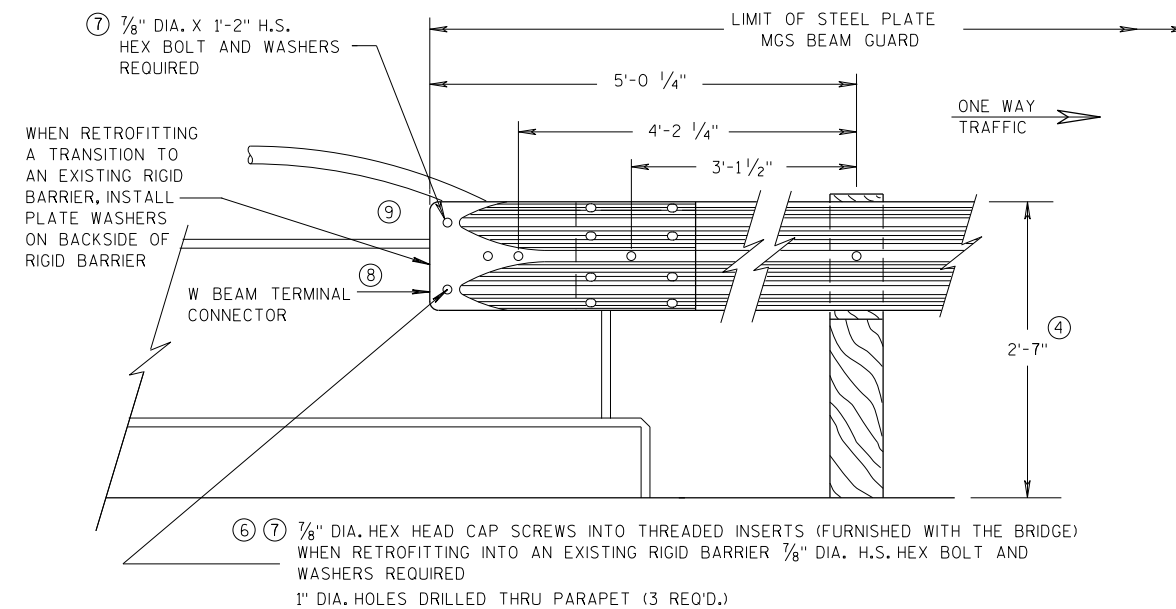
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: 07/2018  
DATE: /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

## GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

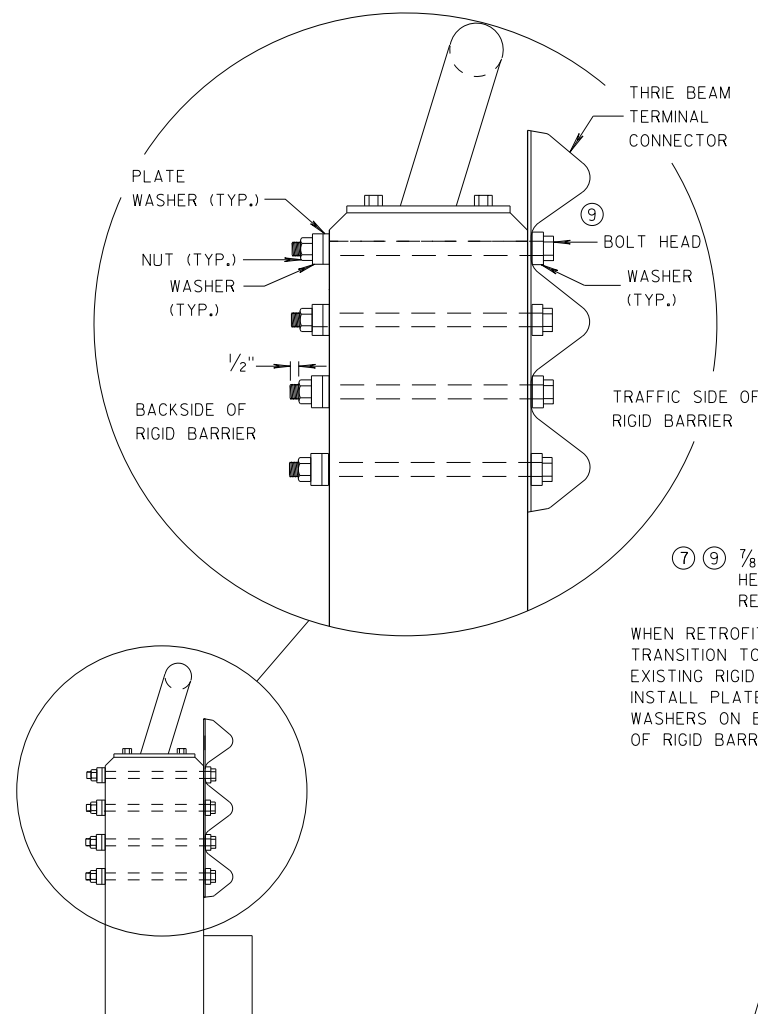
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



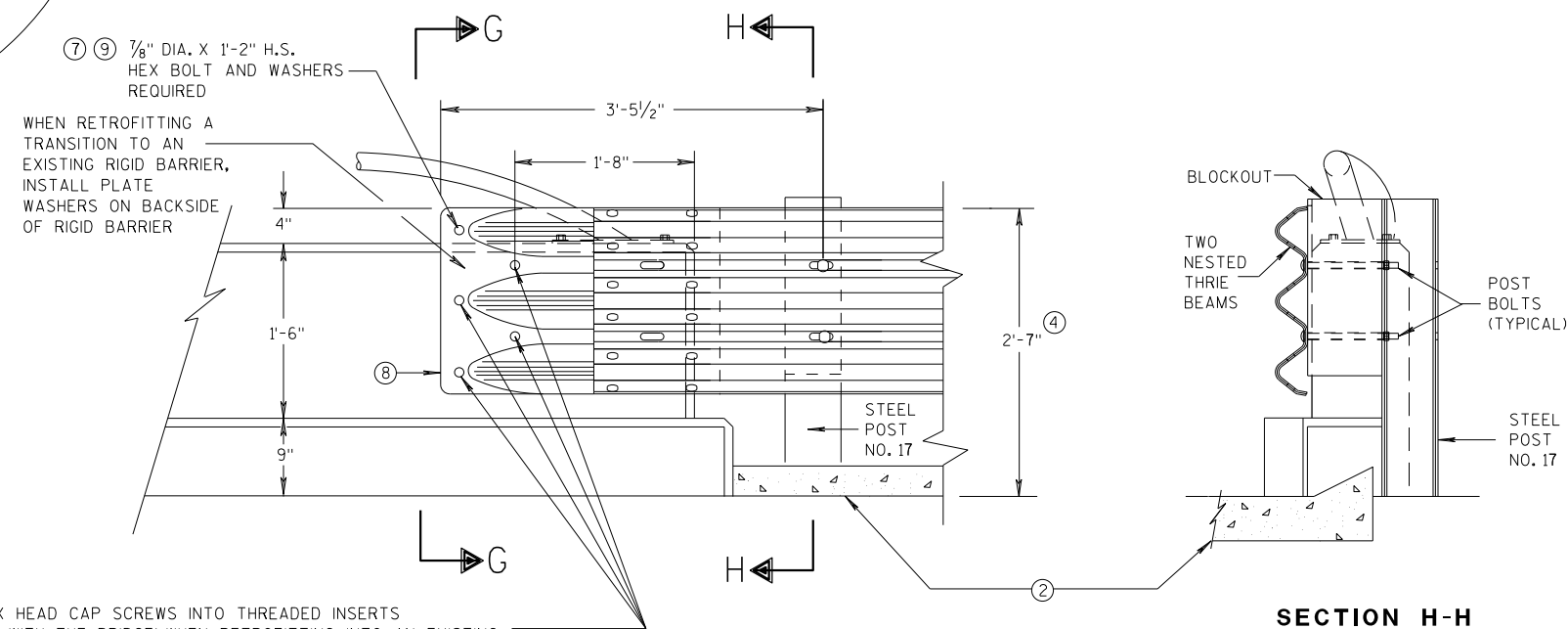
FRONT VIEW

### W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

### THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

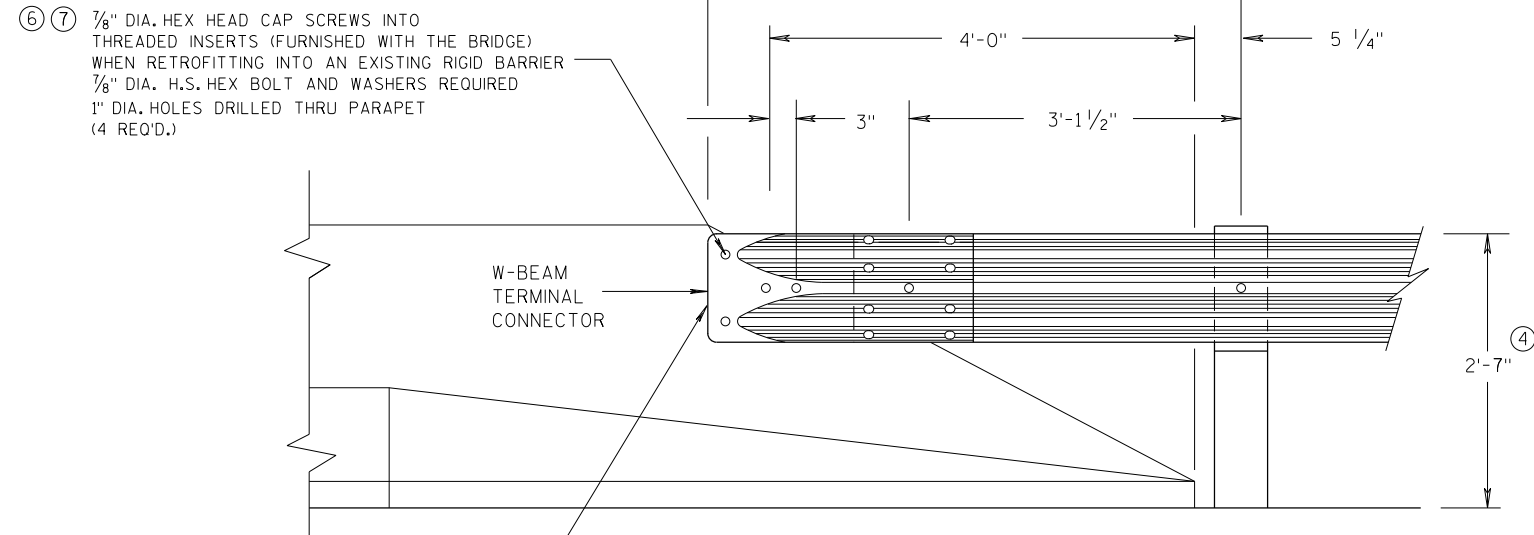
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
07/2018 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



ONE WAY  
TRAFFIC



W-BEAM  
TERMINAL  
CONNECTOR

FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

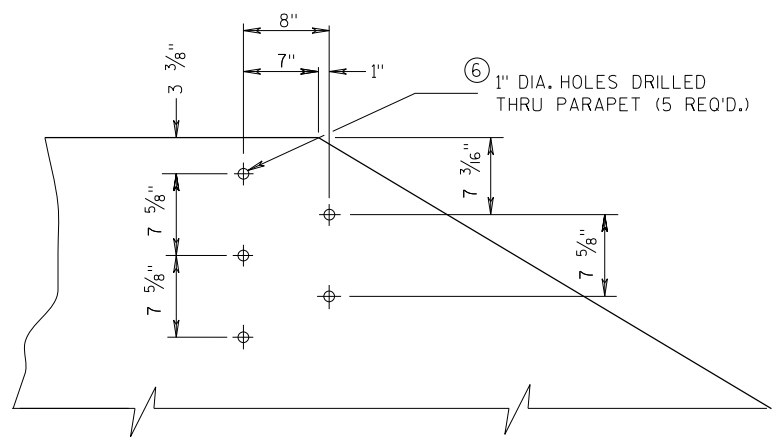
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

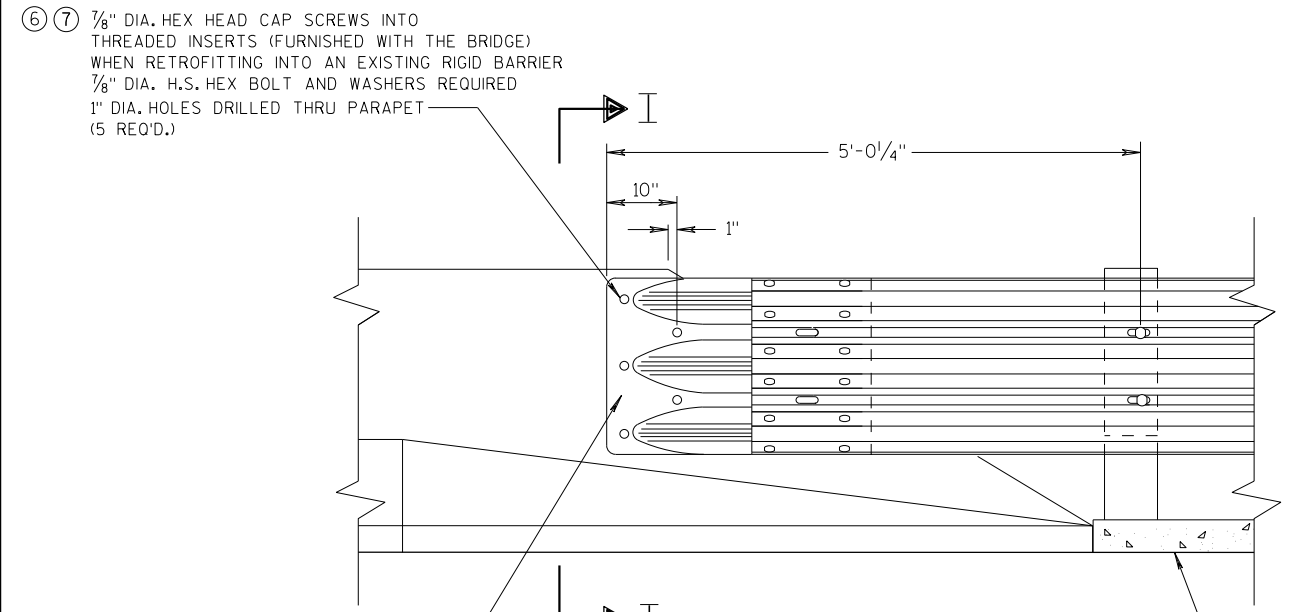
⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)

**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



DRILL HOLE LOCATION AND PATTERN  
FOR THRIE BEAM CONNECTION

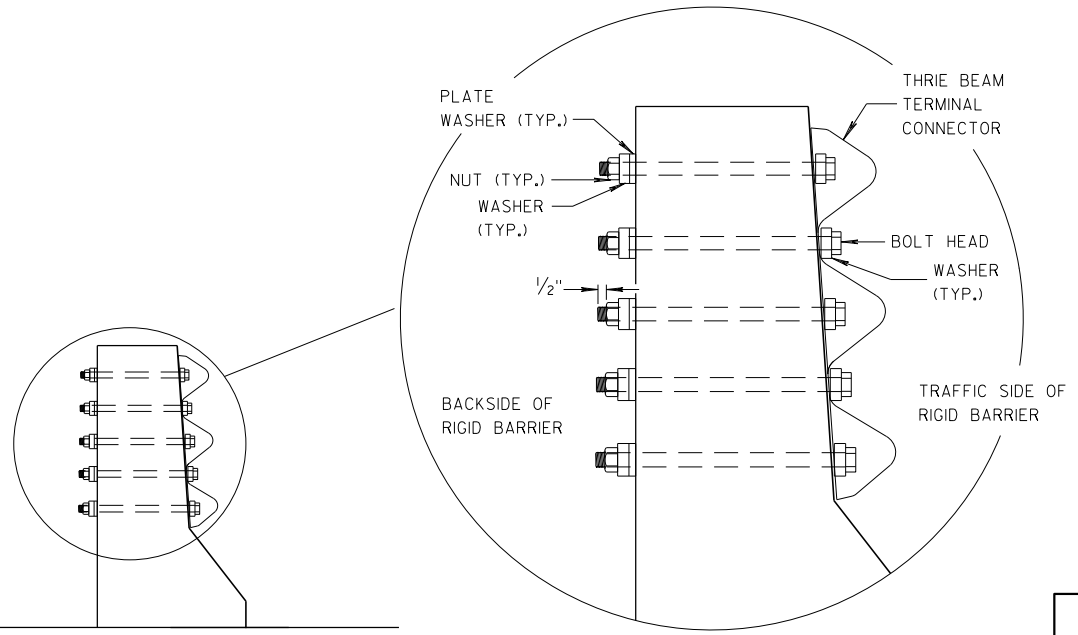


FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)

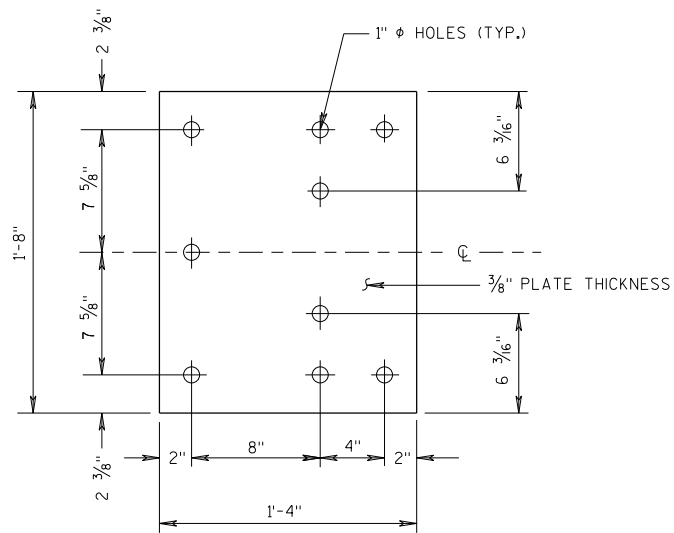


SECTION I-I

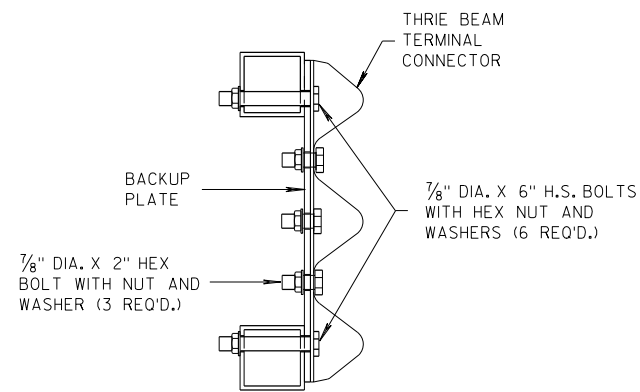
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

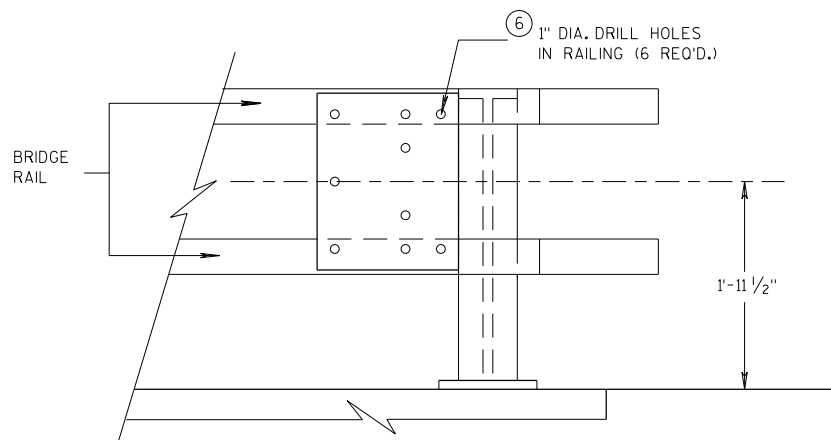
APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**BACK-UP PLATE DETAIL**



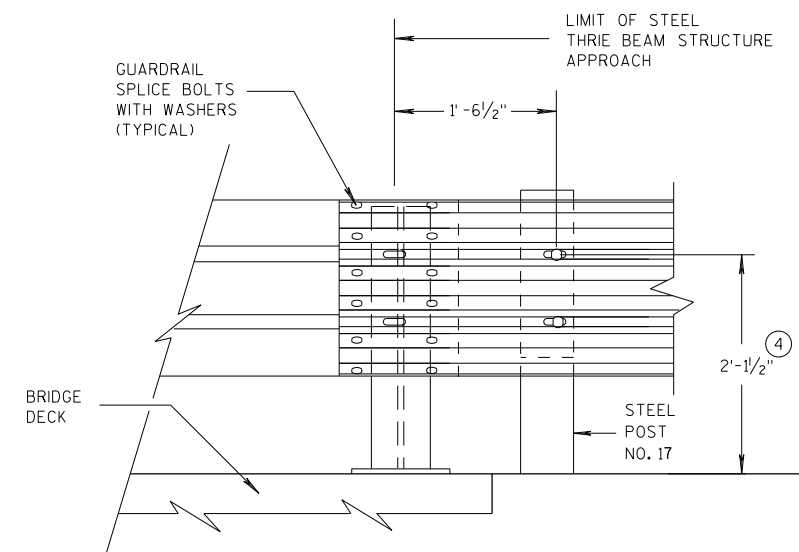
**SECTION J-J**



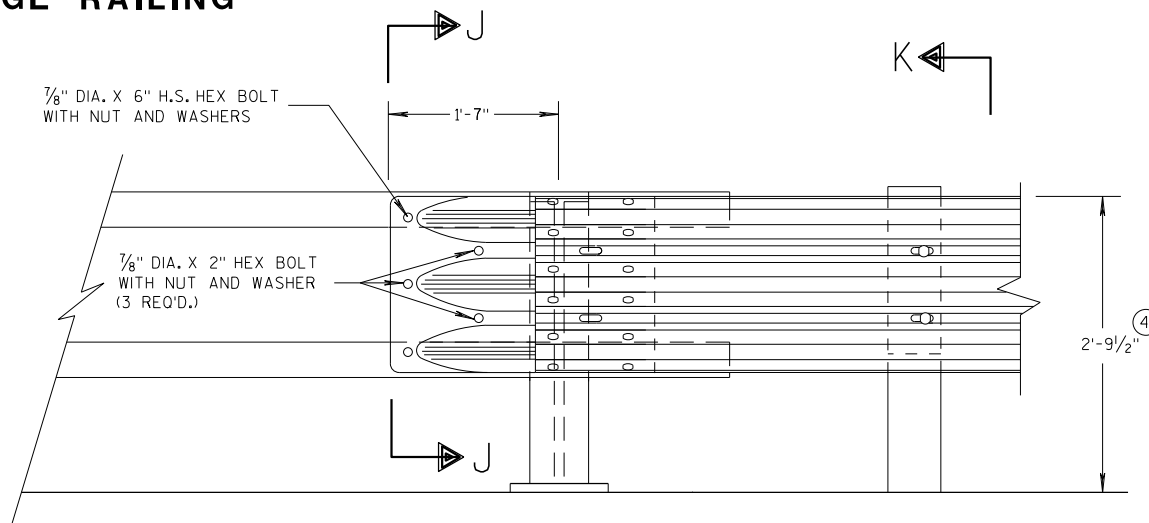
**BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING**

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1'$ .
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

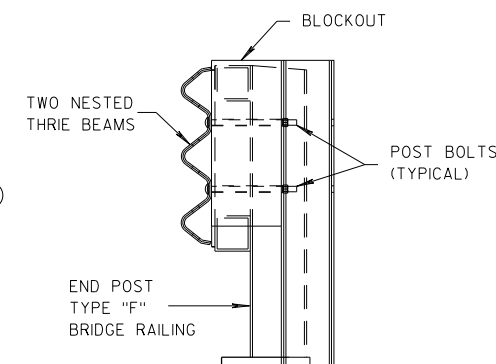


**FRONT VIEW  
THRIE BEAM CONNECTION TO  
STEEL RAILING TYPE "W"**



**FRONT VIEW**

**THRIE BEAM CONNECTION TO  
TUBULAR RAILING TYPE "F"**



**SECTION K-K**

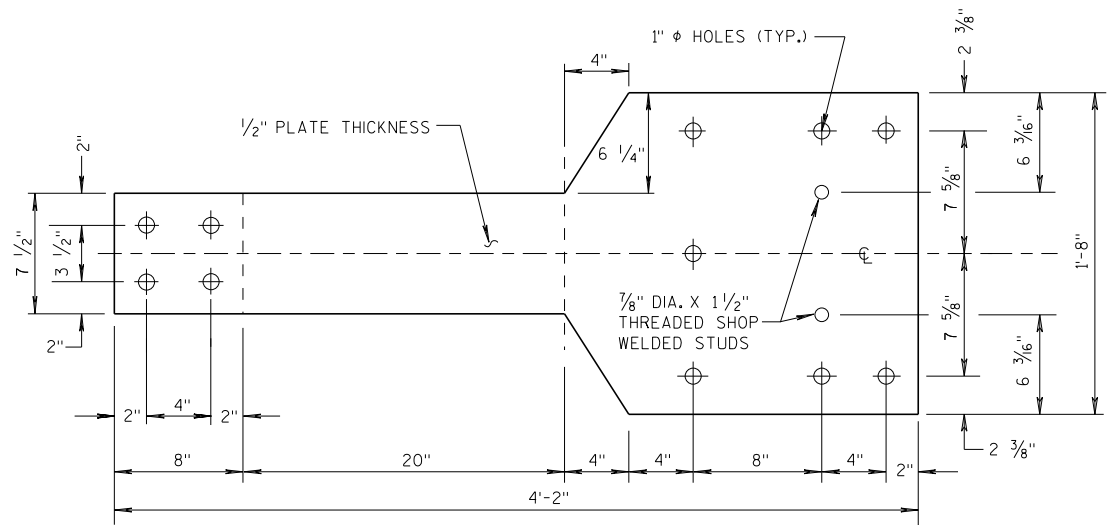
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

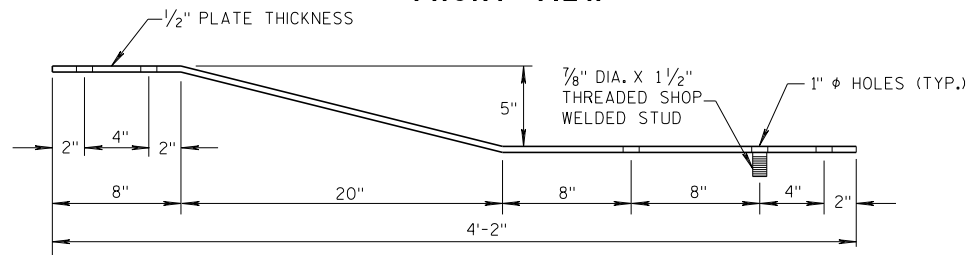
APPROVED  
07/2018 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR

**GENERAL NOTES**

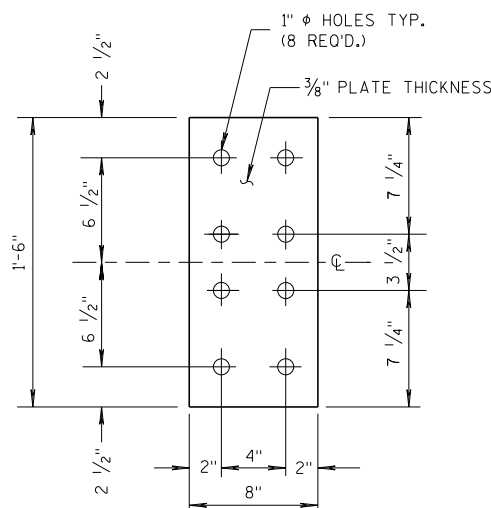
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



**FRONT VIEW**

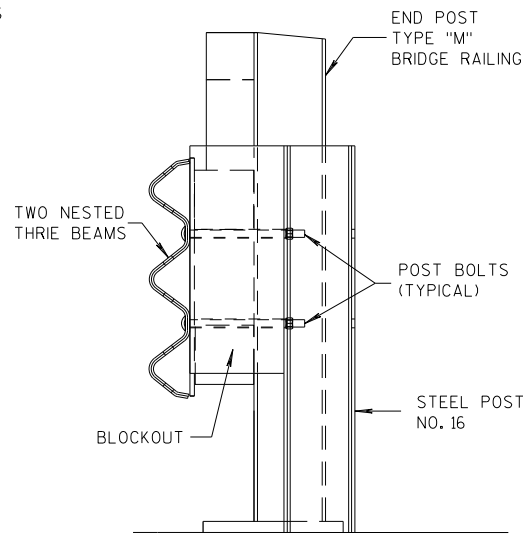


**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**

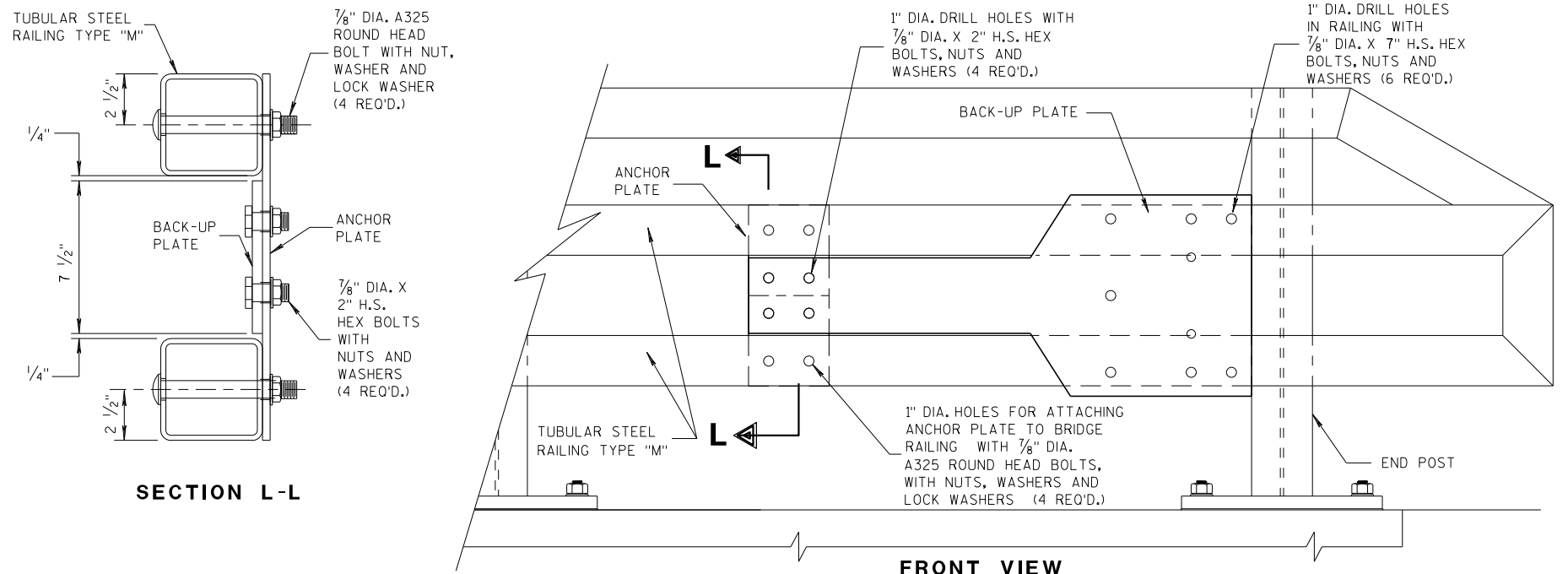


**FRONT VIEW**

**ANCHOR  
PLATE DETAIL,  
TYPE "M"**



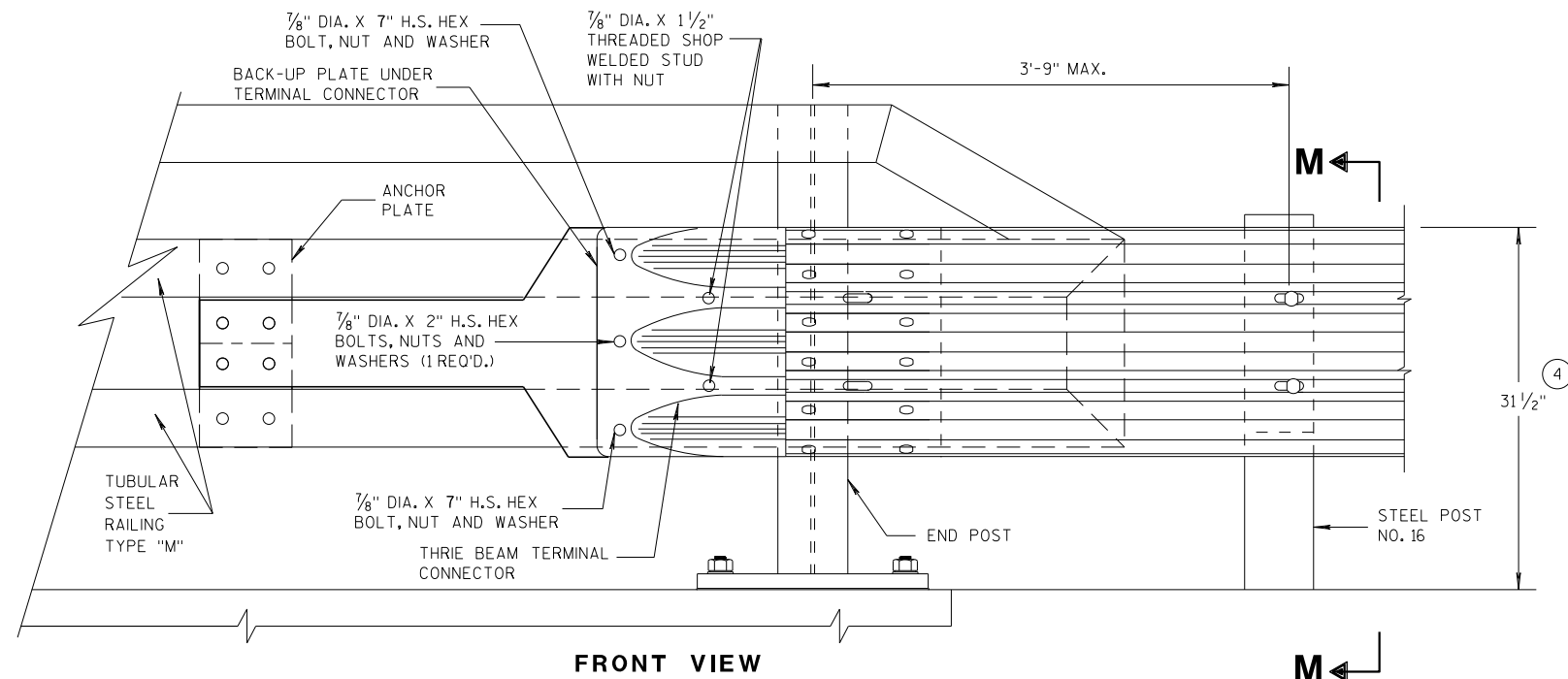
**SECTION M-M**



**SECTION L-L**

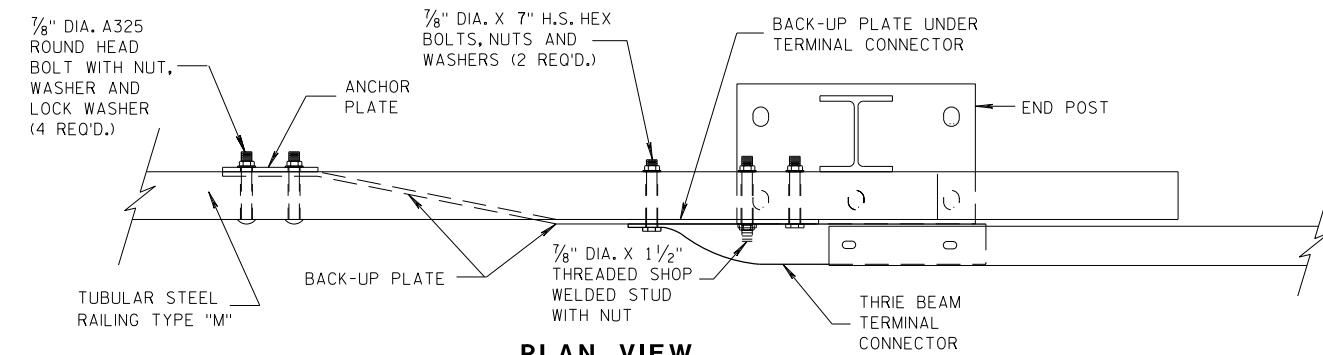
**FRONT VIEW**

**ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"**



**FRONT VIEW**

**M**



**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

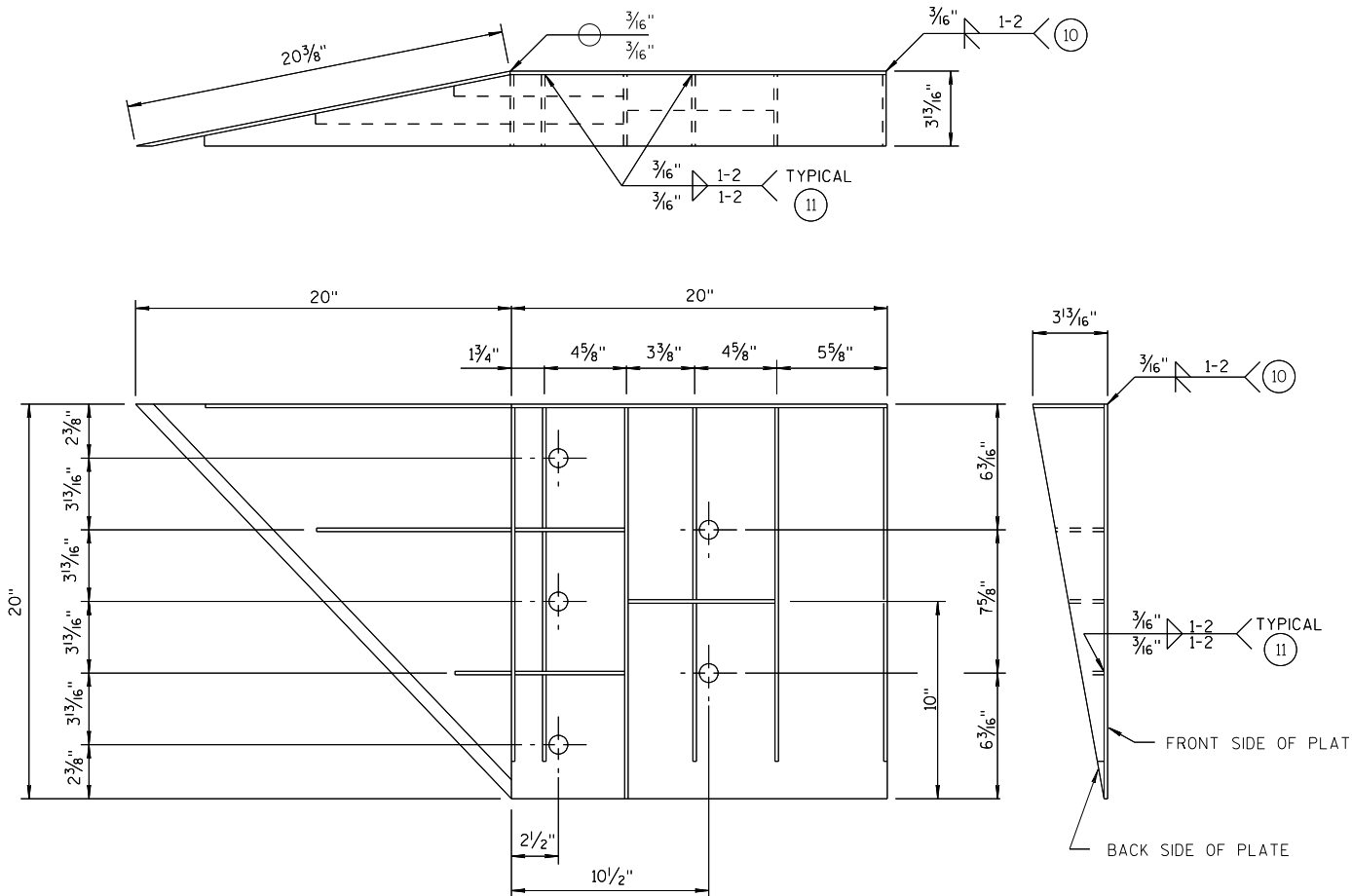
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

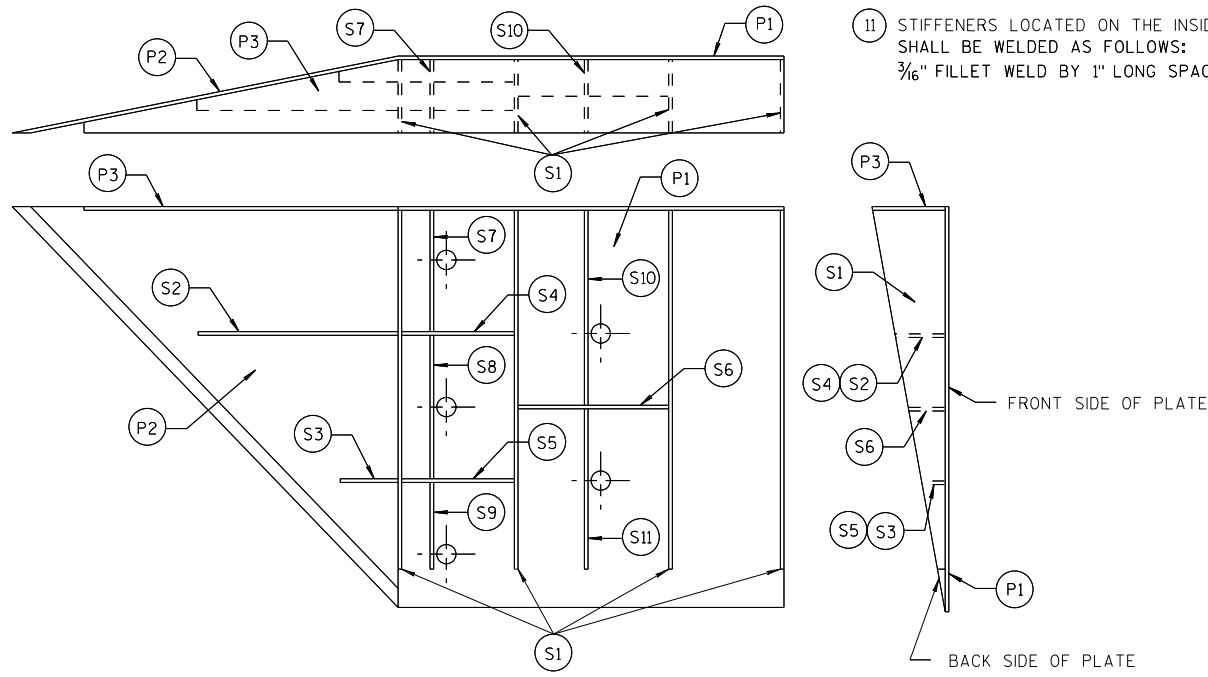
**GENERAL NOTES**

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



**PLATE AND STIFFENER IDENTIFICATION**  
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

**SINGLE SLOPE CONNECTION PLATE**

**MIDWEST GUARDRAIL SYSTEM  
THREE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

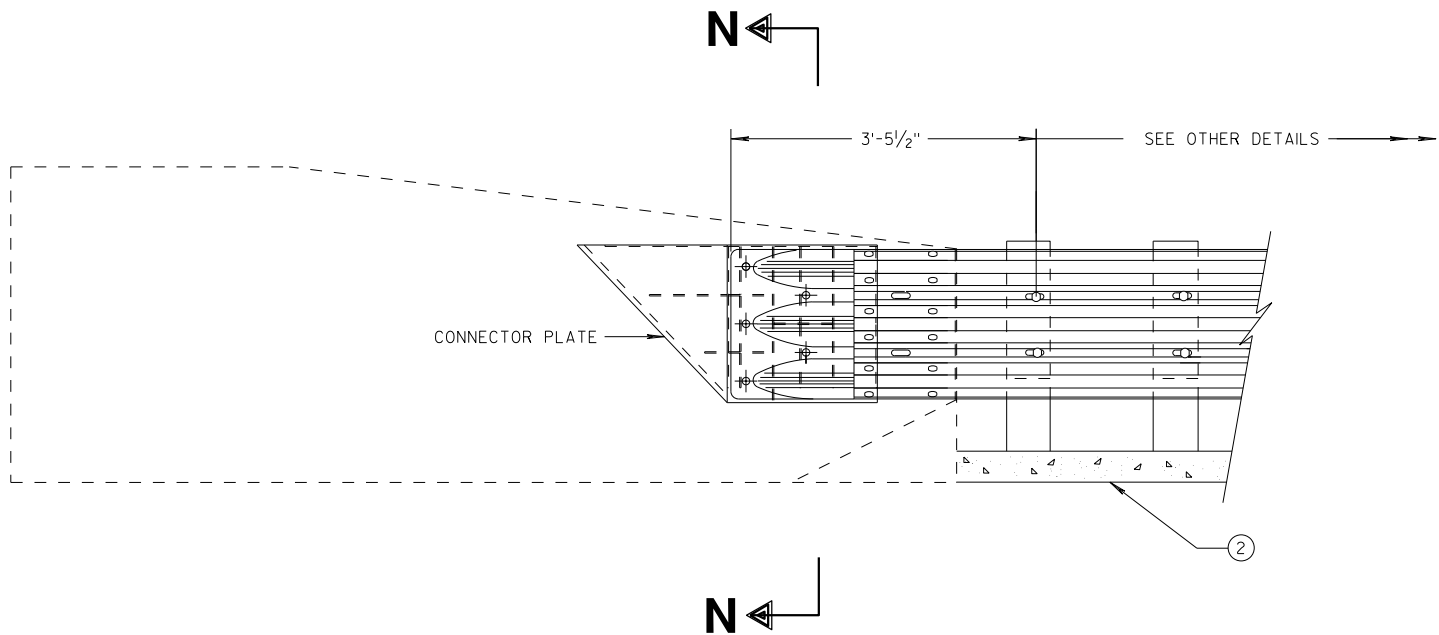
APPROVED  
7/2018 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR

**GENERAL NOTES**

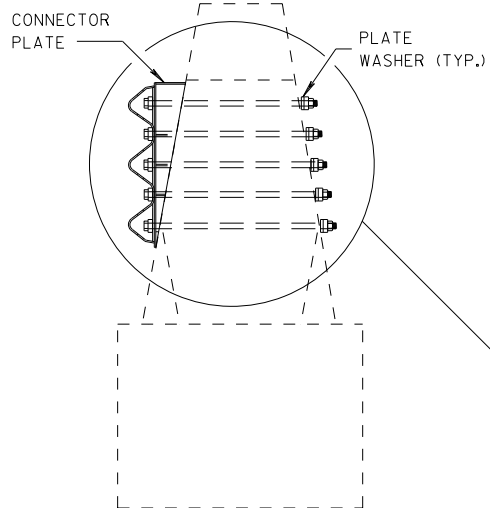
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

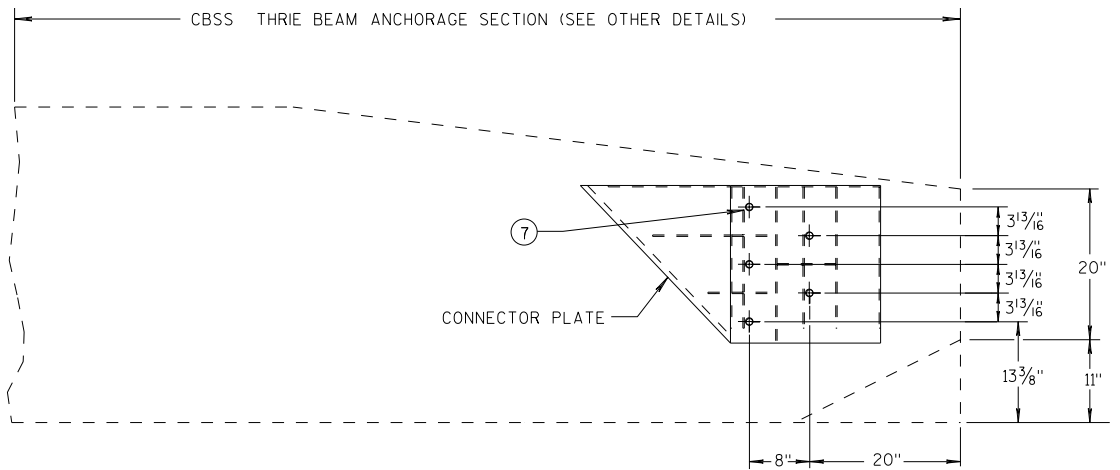
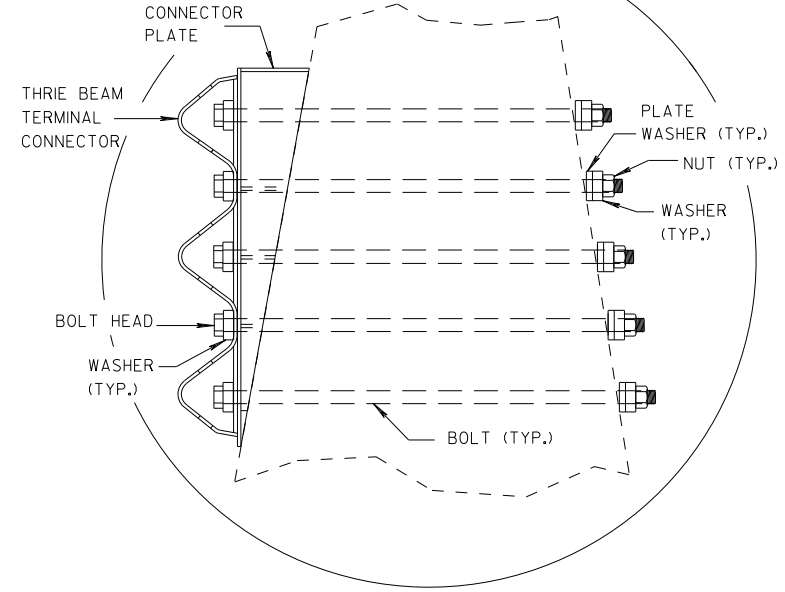
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**



**SECTION N-N**

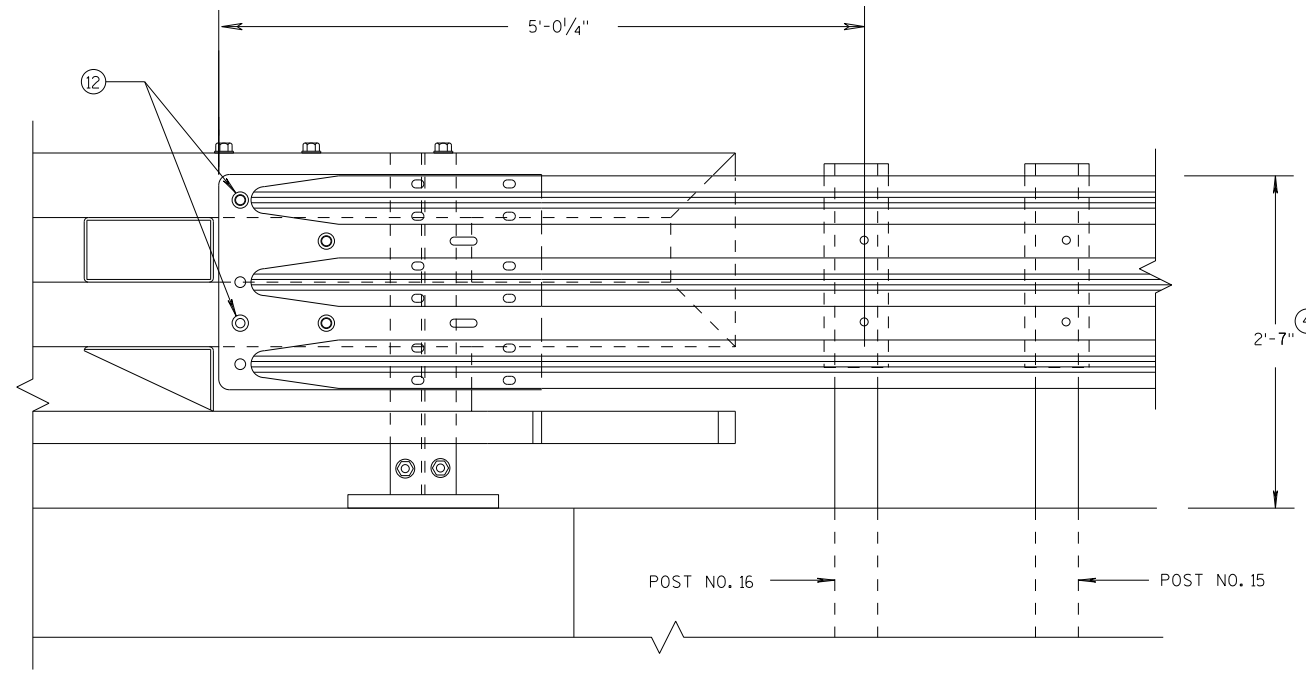


**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

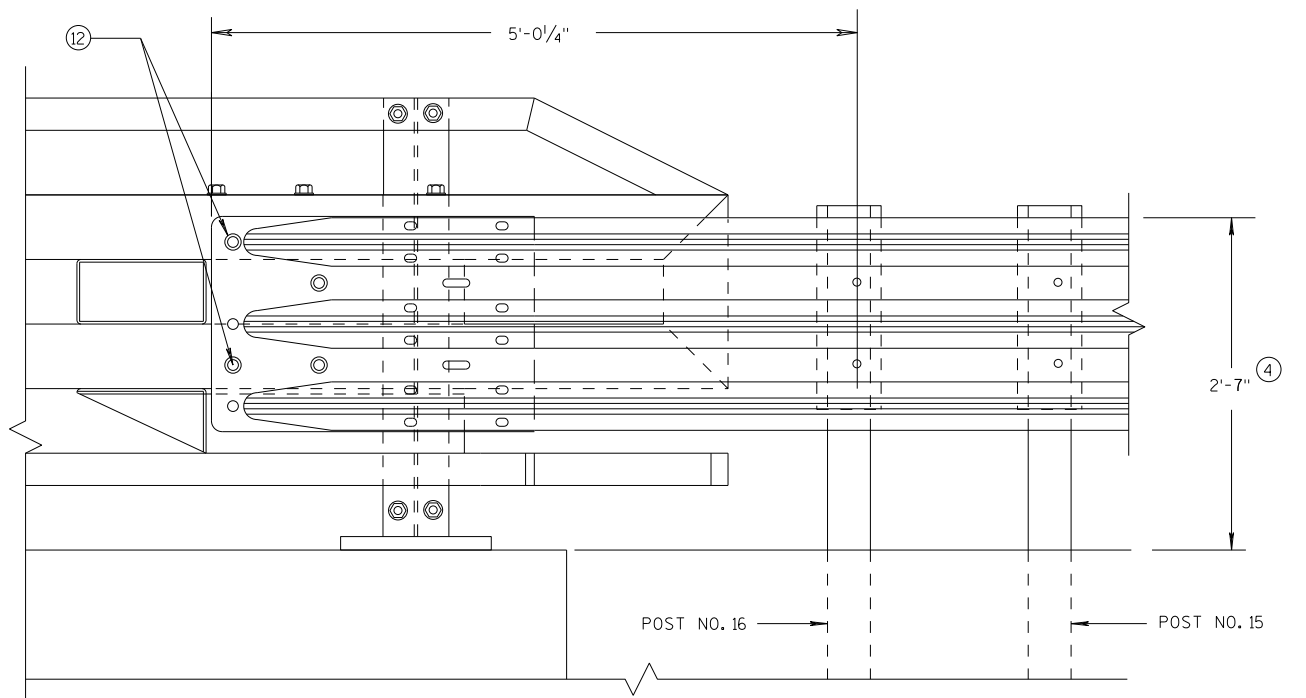
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 7/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**ELEVATION OF DETAIL AT NY3 END POST**  
**THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST**  
**THRIE BEAM RAIL ATTACHMENT**

**GENERAL NOTES**

- (4) TOLERANCE FOR TOP OF BEAM IS ± 1".
- (12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

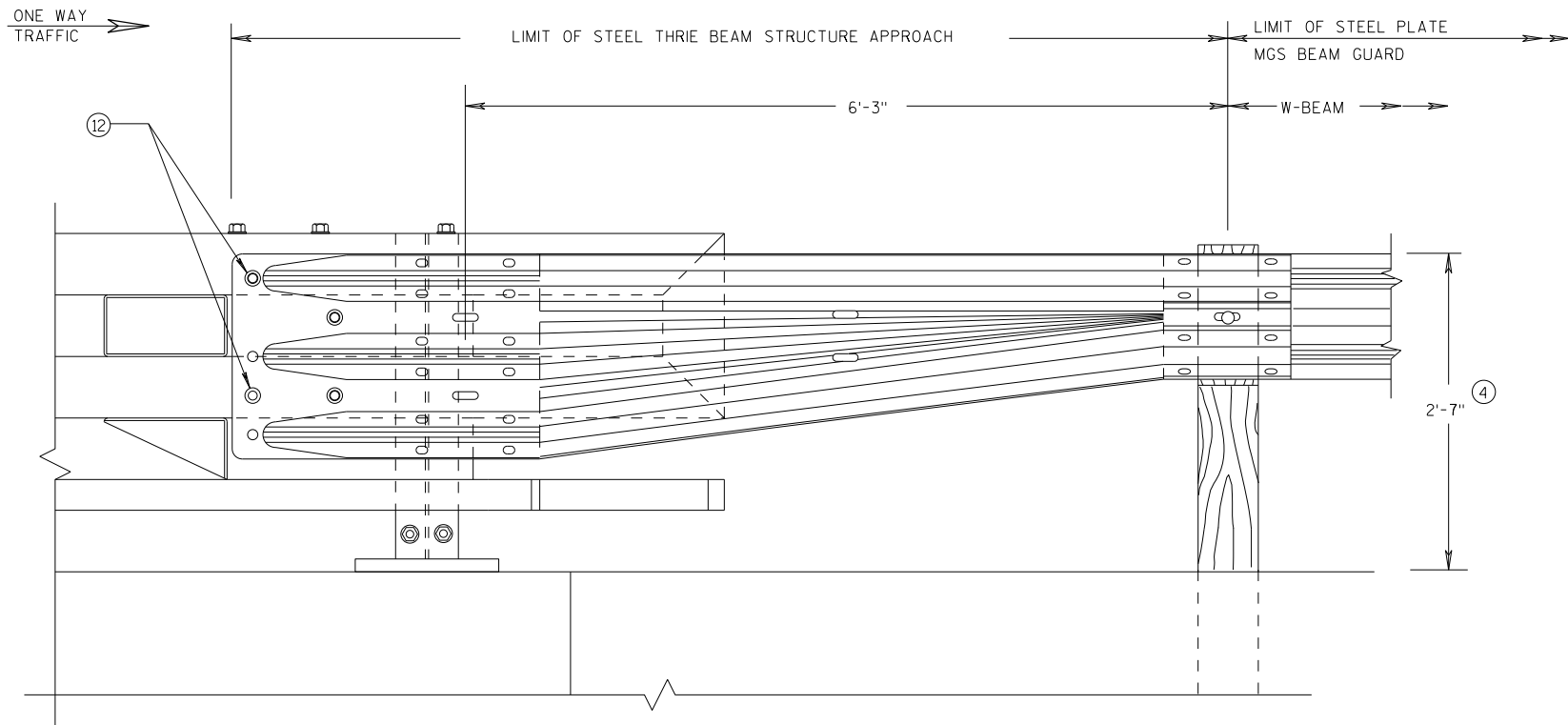
6

6

S.D.D. 14 B 45-5k

S.D.D. 14 B 45-5k

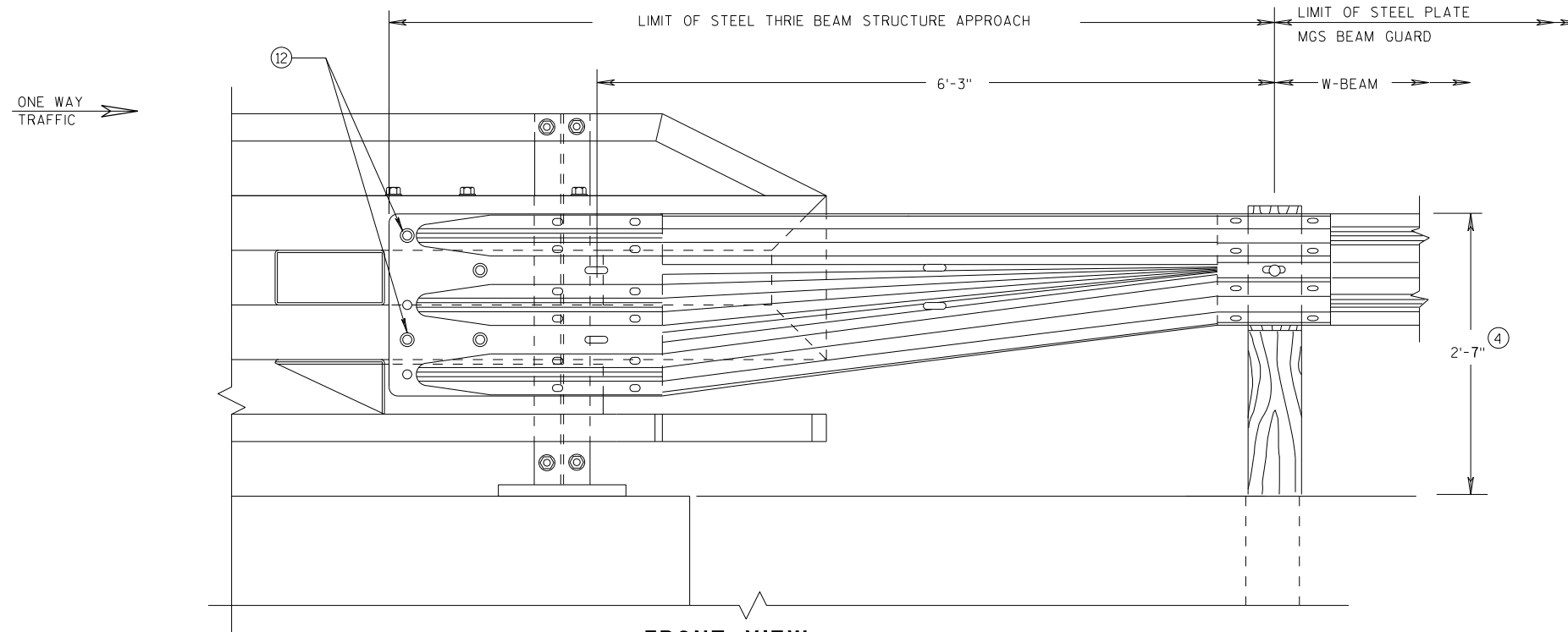
<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY3"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.



**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY4"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

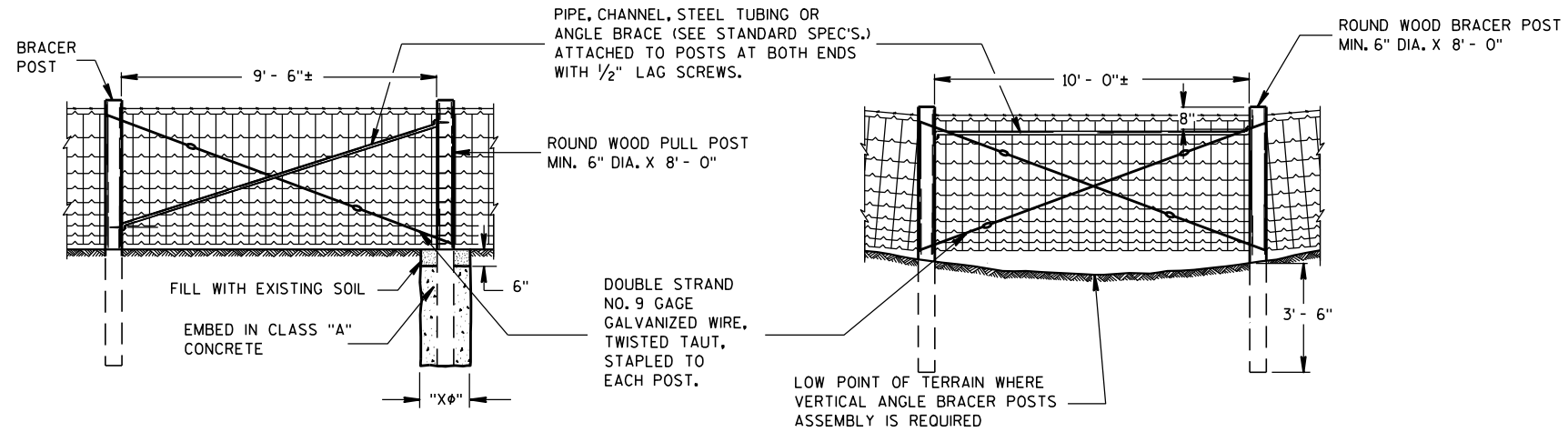
**MIDWEST GUARDRAIL SYSTEM**  
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 DATE 7/2018 /S/ Rodney Taylor  
 ROADWAY STANDARDS DEVELOPMENT  
 UNIT SUPERVISOR  
 FHWA

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



**PULL OR STRETCHER POSTS ASSEMBLY**

**VERTICAL ANGLE BRACER POSTS ASSEMBLY**

**GENERAL NOTES**

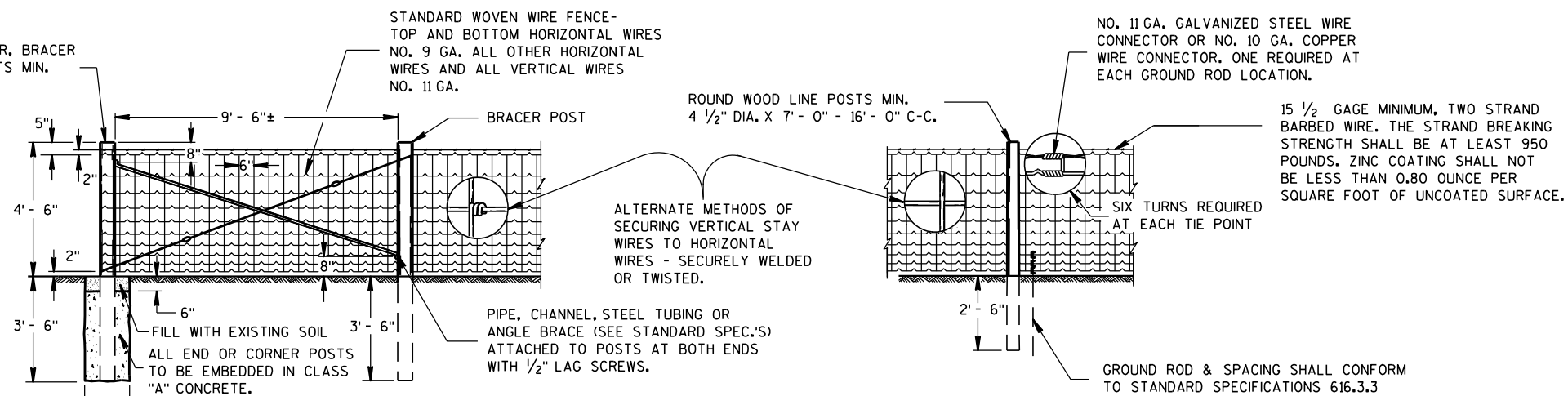
"Xφ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

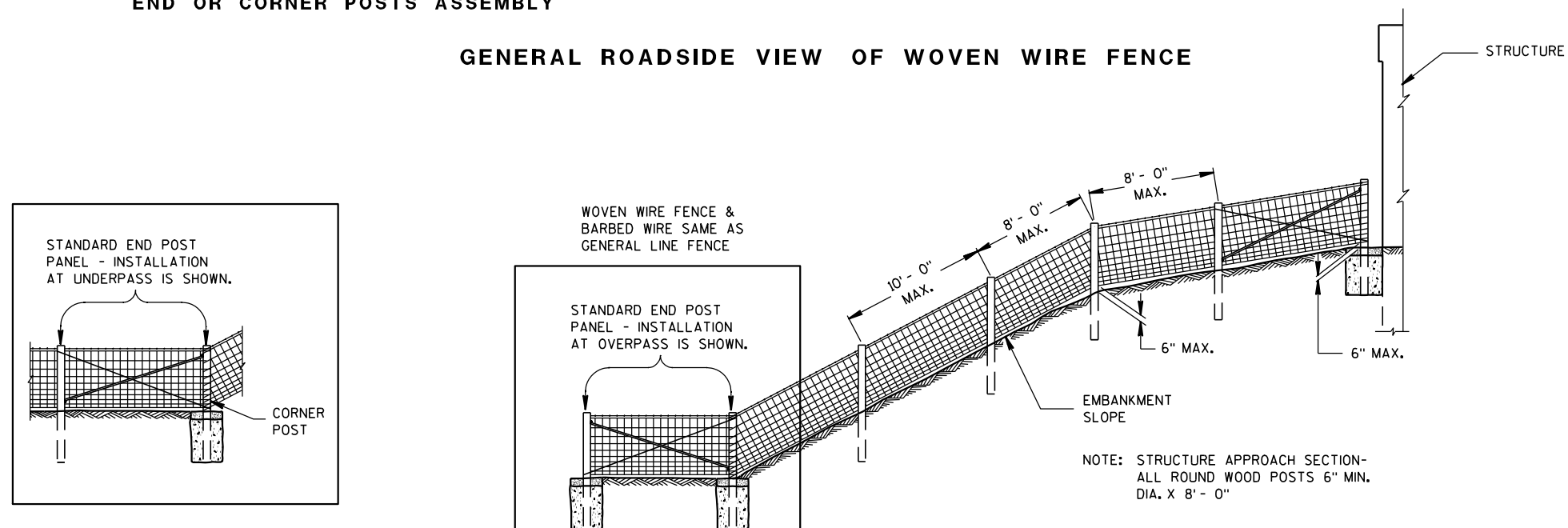
ROUND WOOD END, CORNER, BRACER OR VERTICAL ANGLE POSTS MIN. 6" DIA. X 8' - 0"



**END OR CORNER POSTS ASSEMBLY**

**LINE FENCE CONSTRUCTION**

**GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE**



**ALTERNATE FENCE DESIGN AT STRUCTURE**

**FENCE DESIGN AT STRUCTURE APPROACH**

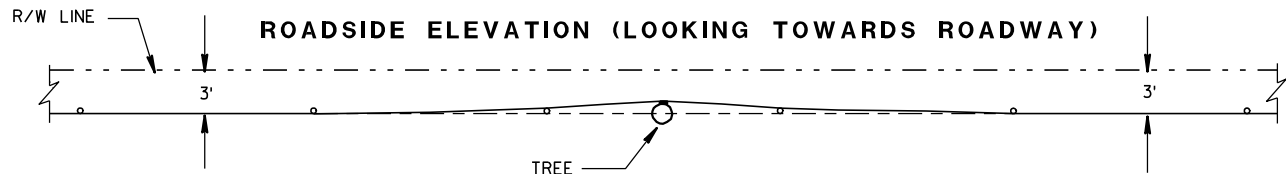
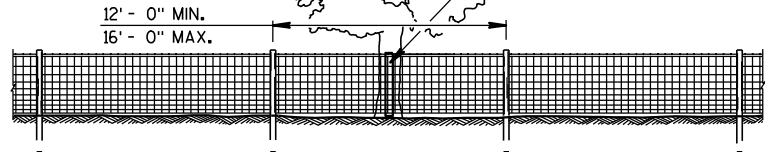
**FENCE WOVEN WIRE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

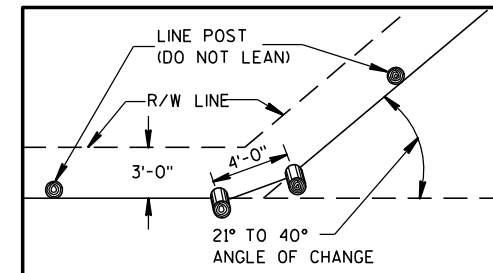
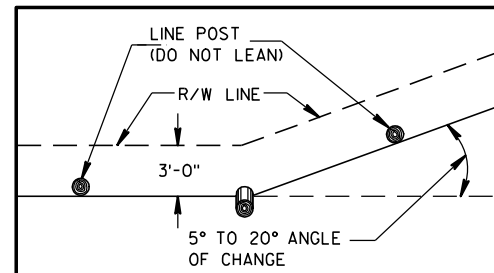


NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



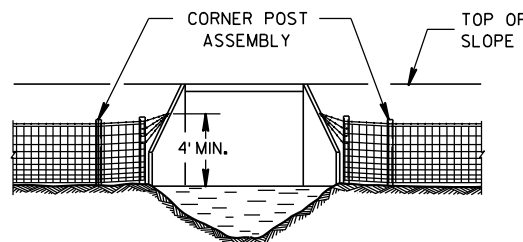
PLAN VIEW  
FENCE DESIGN AT TREES REMAINING  
IN NORMAL FENCE LINE



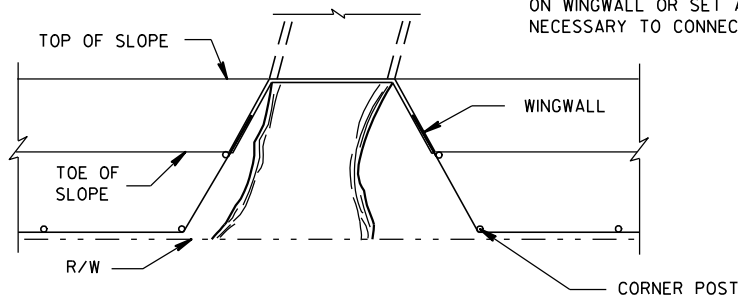
PLAN VIEW  
SINGLE POST CORNER  
PLAN VIEW  
DOUBLE POST CORNER  
RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

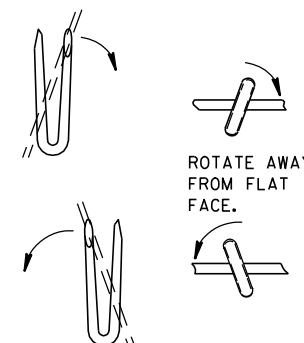
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.

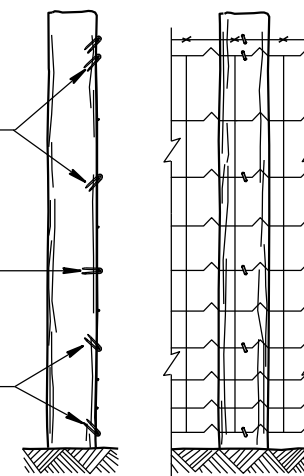


FENCE INSTALLATION TO WINGWALLS

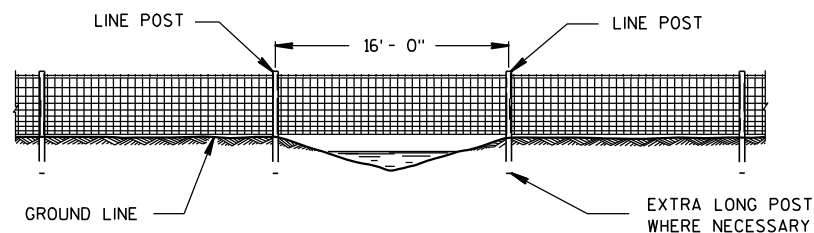


LINE POST

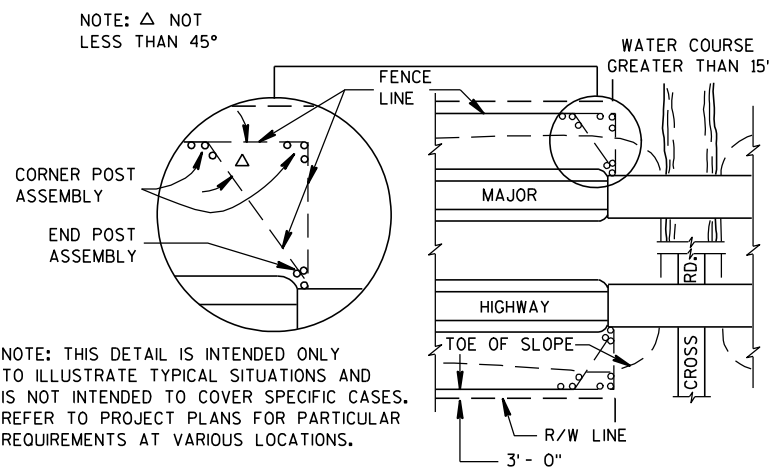
NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.



END ELEVATION  
FARM SIDE ELEVATION  
FENCE MOUNTING DETAIL

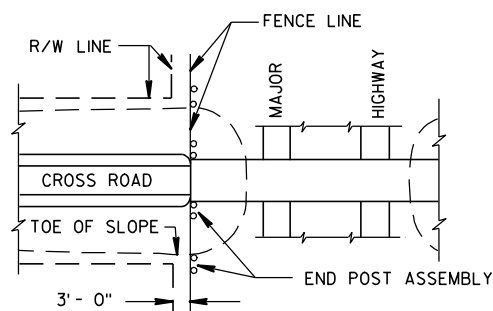


FENCE CONSTRUCTION OVER STREAM  
COURSES OF 15 FT. OR LESS IN WIDTH



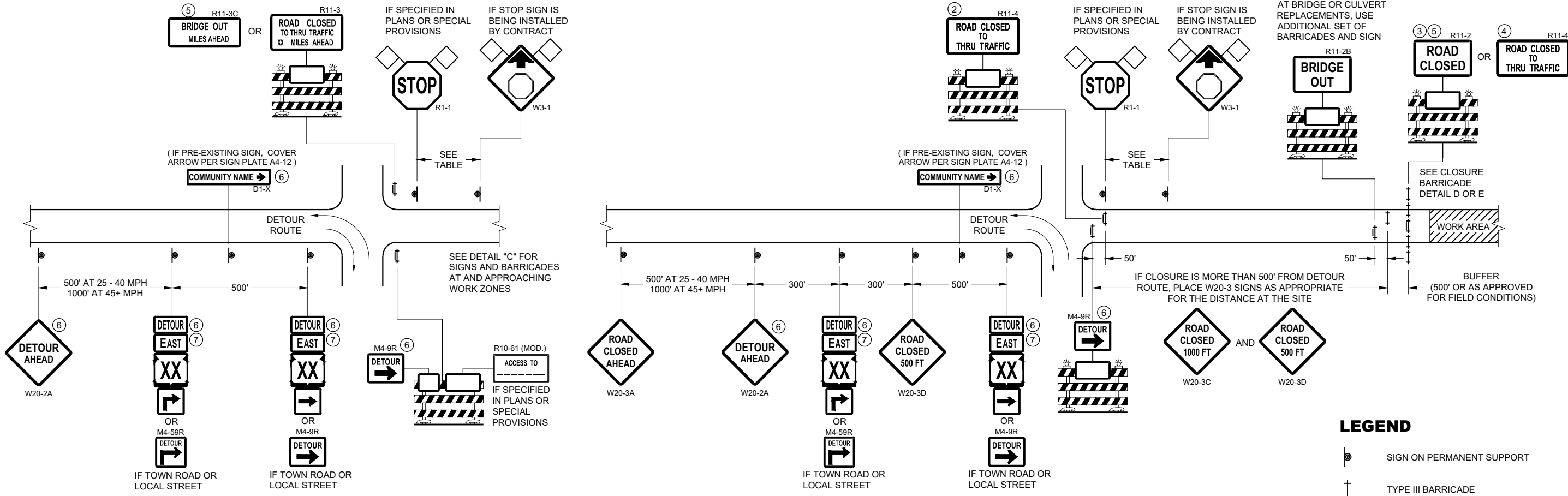
PLAN VIEW  
MAJOR HIGHWAY OVERPASS OR STREAM COURSE  
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES



PLAN VIEW  
MAJOR HIGHWAY UNDERPASS

<b>FENCE WOVEN WIRE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/4/2008 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

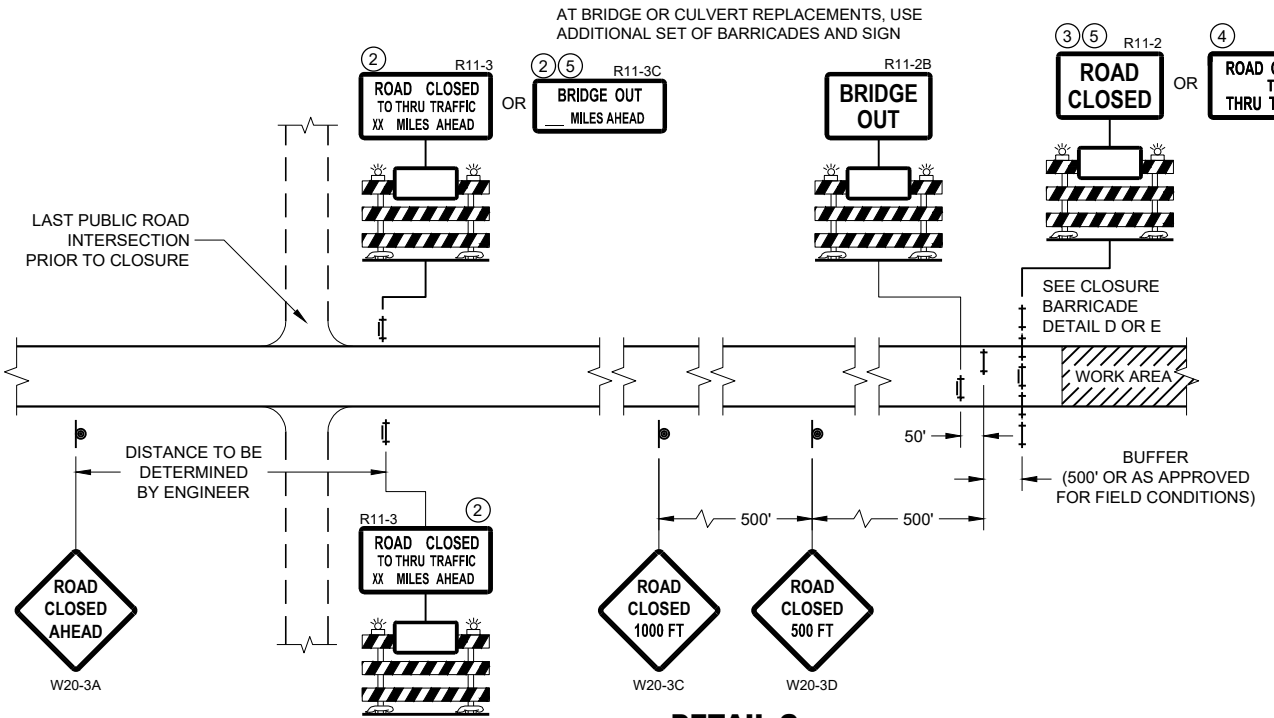
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



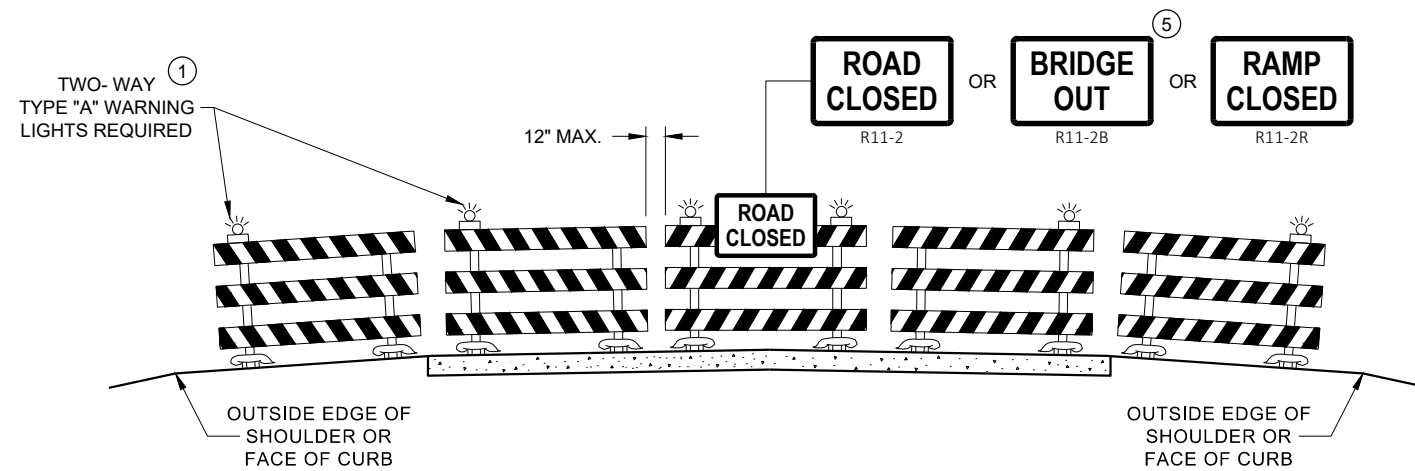
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

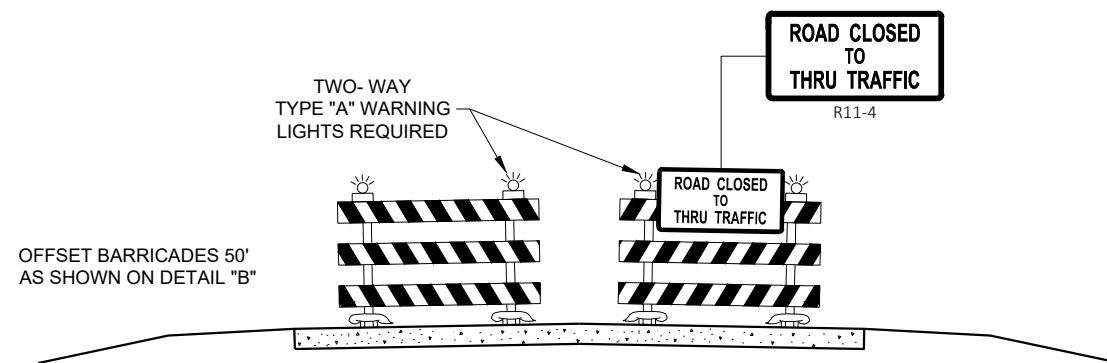
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER



**DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW**



**DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER  
FHWA

### LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

### GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

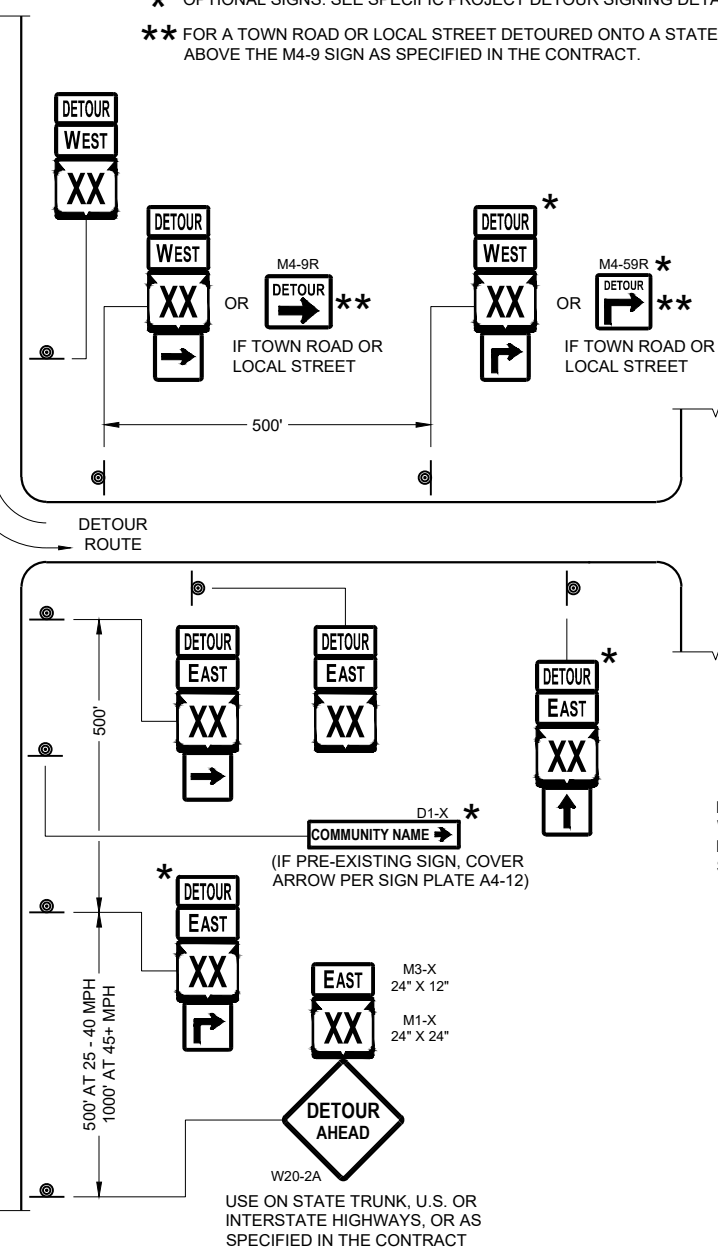
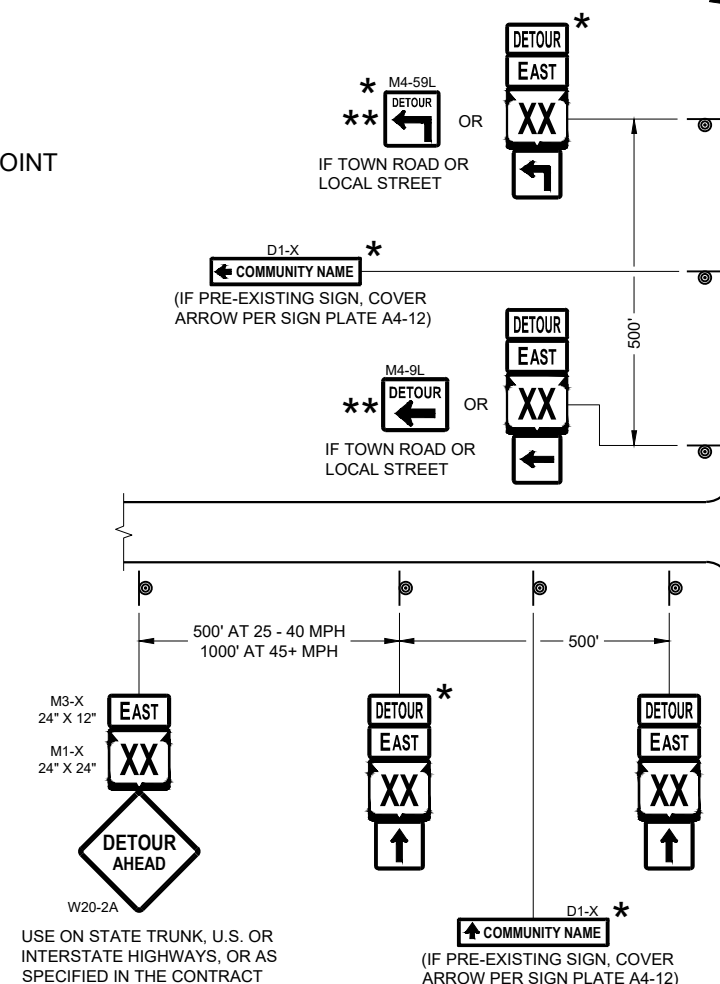
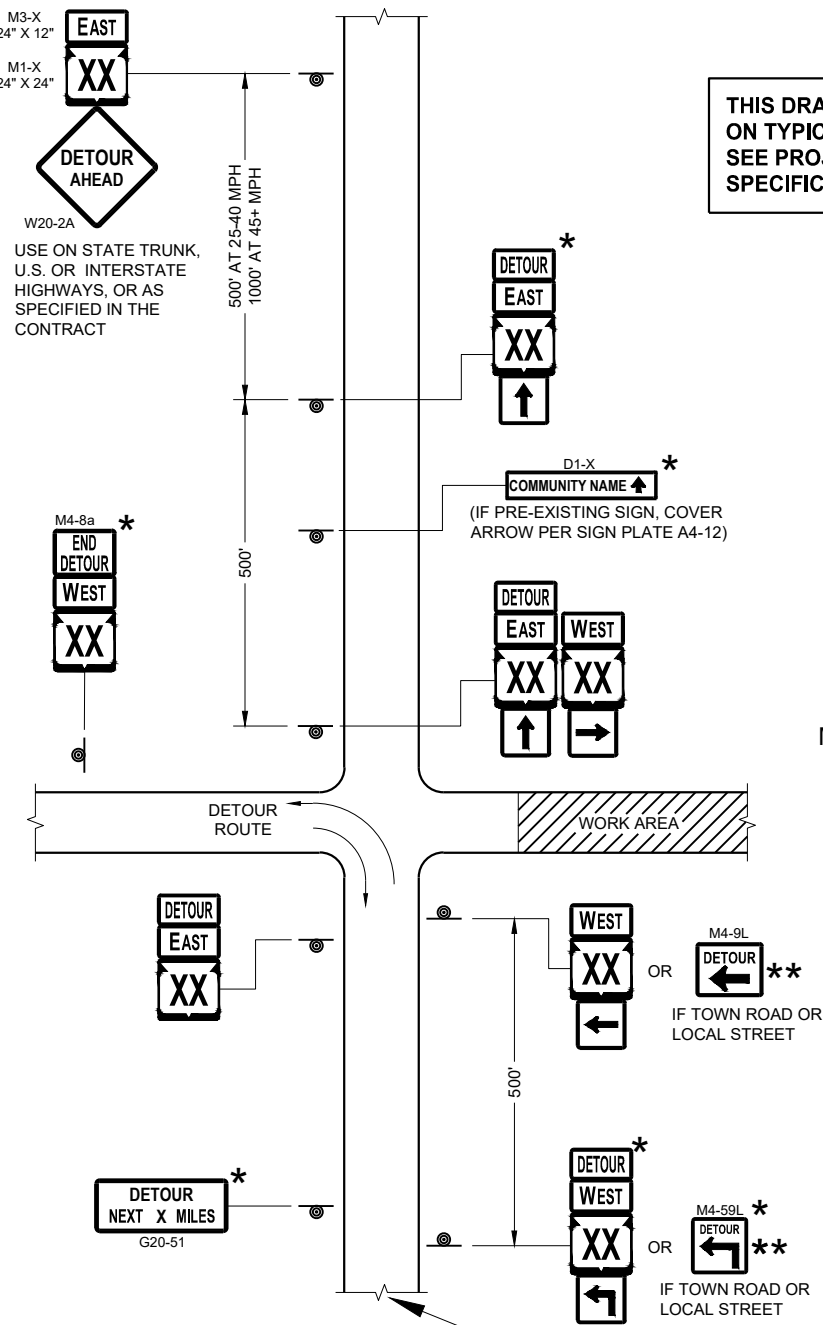
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- \* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- \*\* FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT

### DETAIL F DETOUR SIGNING



SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

<b>DETOUR SIGNING FOR MAINLINE CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL "TO" MO-4 SIGN LAYOUT AND SPACING. SEE PROJECT TO SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- TO MO4 - 5
- M1 - 4 OR M1 - 6 OR COUNTY M1 - 5A
- M05 - 1 OR M05 - 2 OR M06 - 1 OR M06 - 2 OR M06 - 4

**GENERAL NOTES**

- SEE SDD 15D16 "TRAFFIC CONTROL, EXIT RAMP CLOSURE" DETAIL FOR TRAFFIC CONTROL AT EXIT RAMP CLOSURE.
- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- IF THERE ARE ANY ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE "TO" MO-4 ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT TO SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.
- THE SPACING BETWEEN TRAFFIC CONTROL AND "TO" MO-4 SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- SIGNS THAT SHALL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- SIGN SIZES SHALL BE AS FOLLOW:  
 MO4 - 5 SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).  
 M1 - 4, M1 - 5A, AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS).  
 MO5 - 1, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).
- ① ONLY ADD IF THERE ARE NO EXISTING ROUTE MARKERS FOR THE INTERSECTING ROADWAY.

SEE SDD 15D16 FOR RAMP CLOSURE

**EXIT RAMP CLOSURE**

6

6

SDD 15C02 - 08e

SDD 15C02 - 08e

PCMS

PCMS MESSAGING

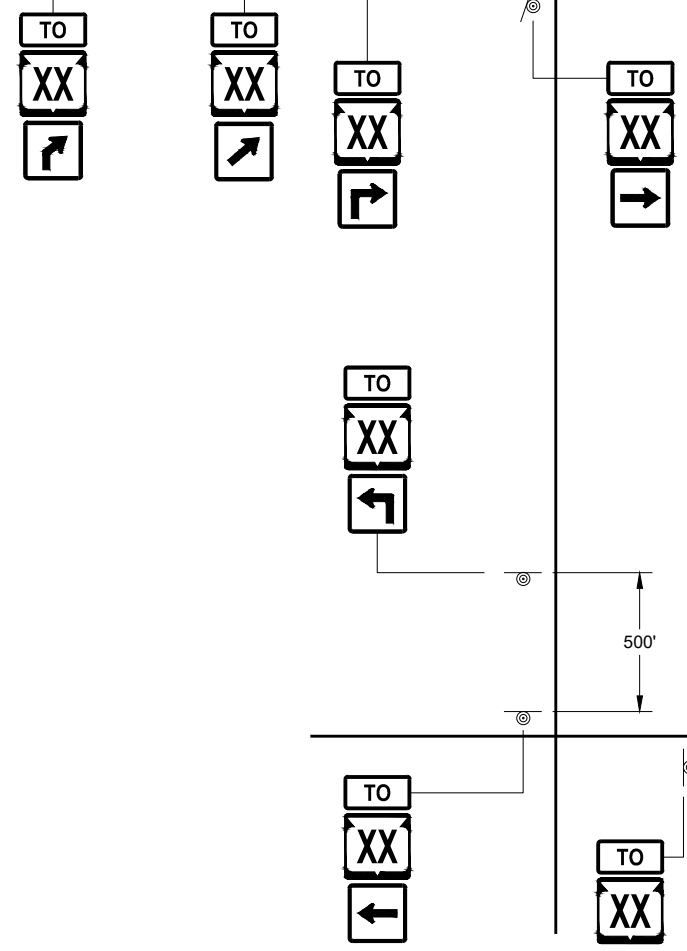
FRAME 1	FRAME 2
EXIT XX CLOSED	USE EXIT XX

OR

FIXED MESSAGE SIGN

HWY XX  
RAMP CLOSED  
USE EXIT XX

G20 - 56

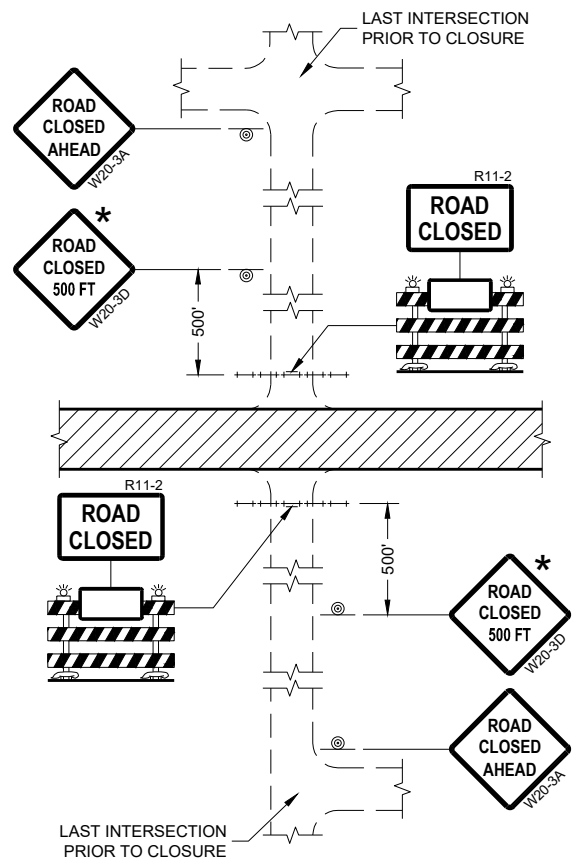


**OFF RAMP  
LANE CLOSURE**

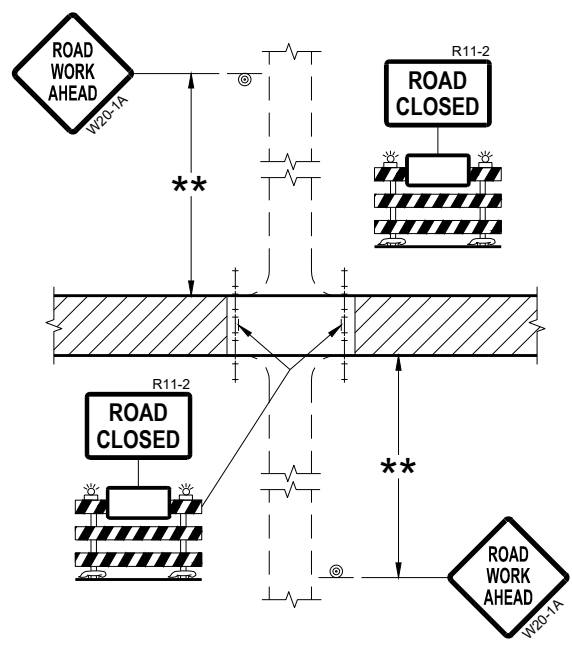
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

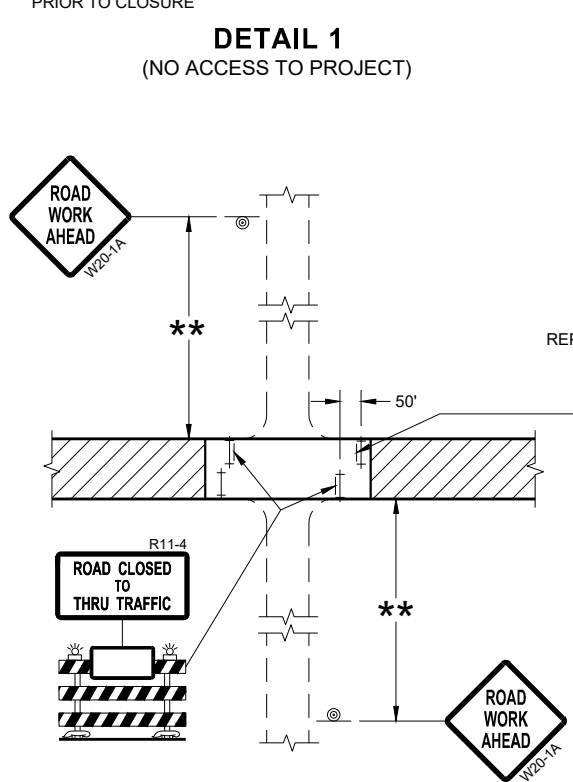
FHWA



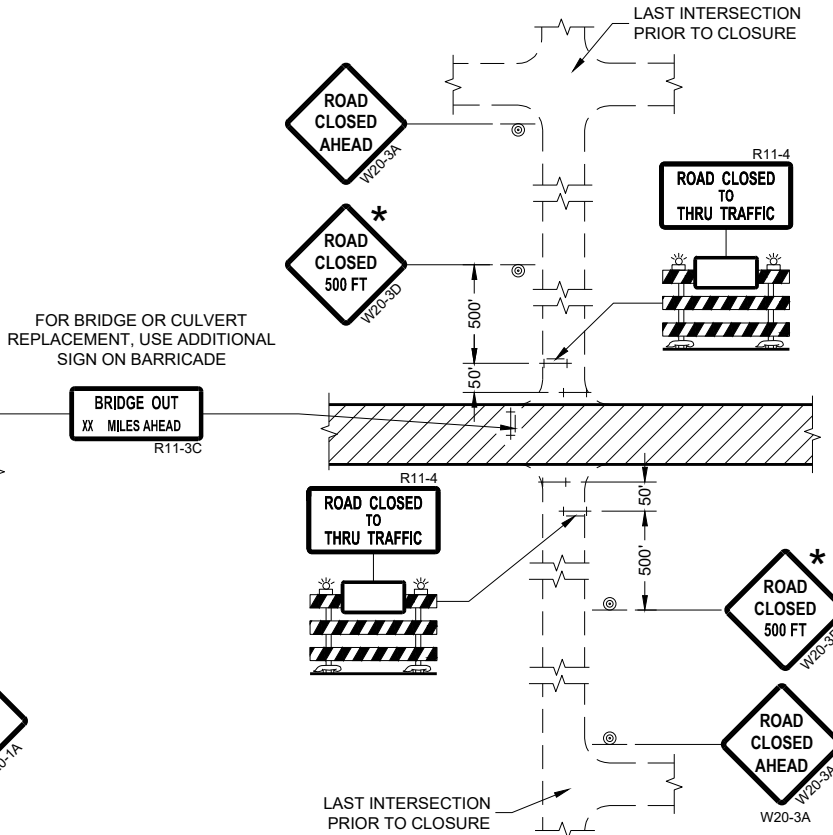
**DETAIL 1**  
(NO ACCESS TO PROJECT)



**DETAIL 2**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
NO ACCESS TO PROJECT)



**DETAIL 3**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)



**DETAIL 4**  
(CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)

**GENERAL NOTES**

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

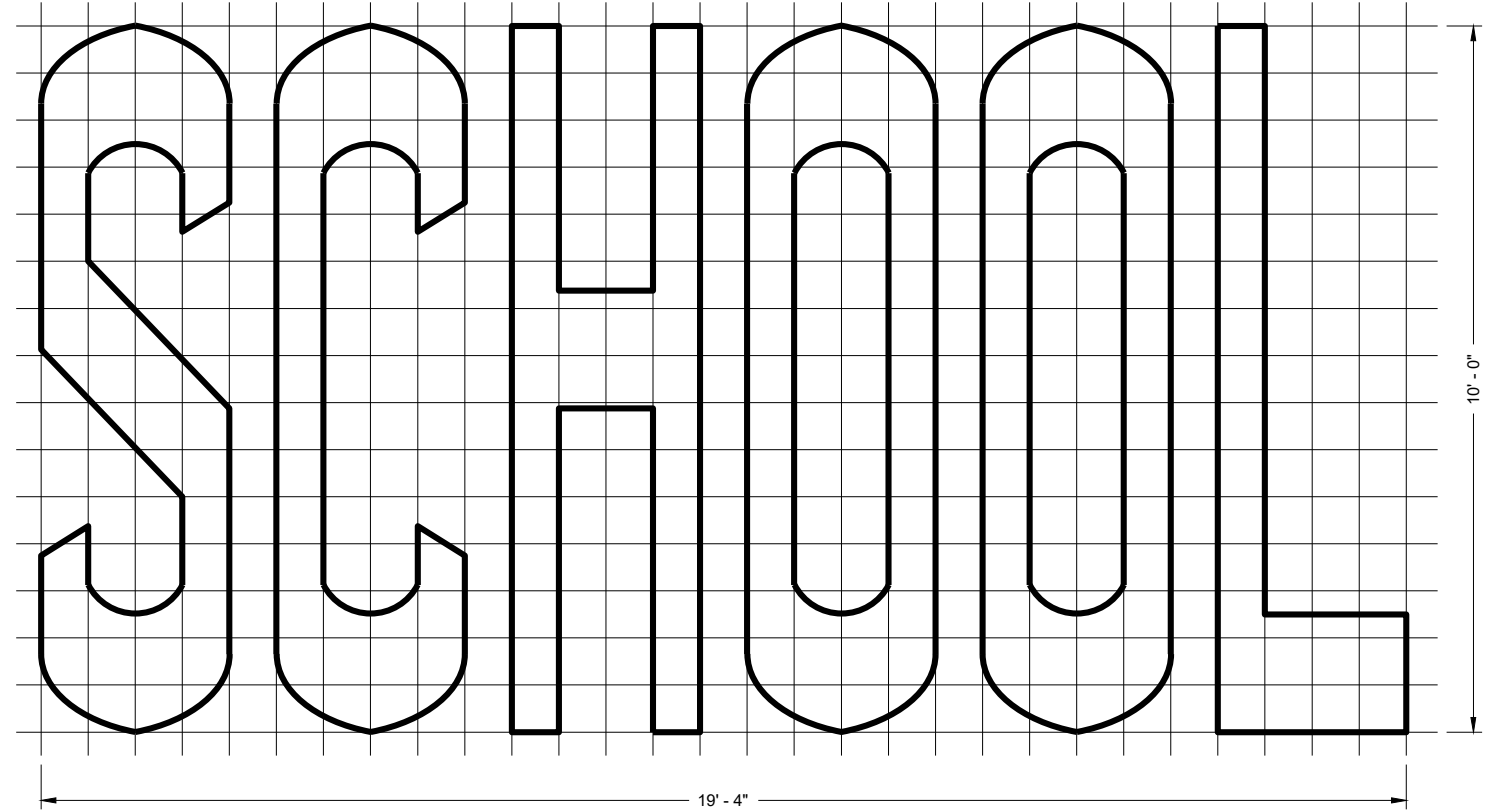
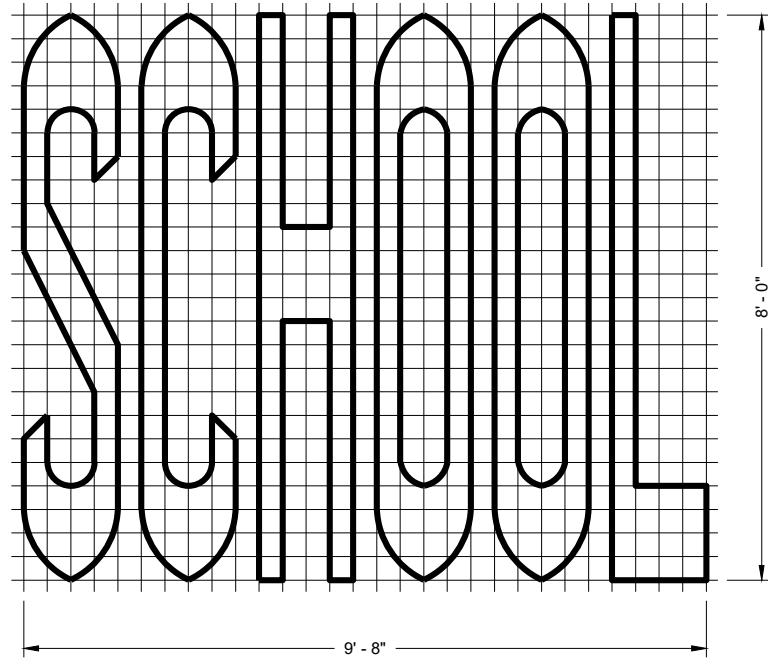
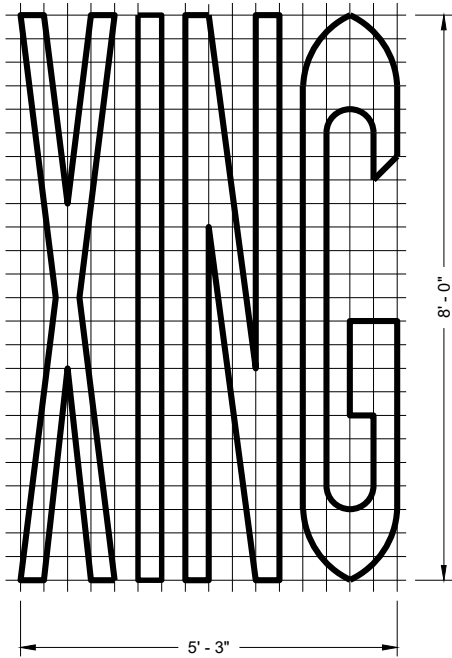
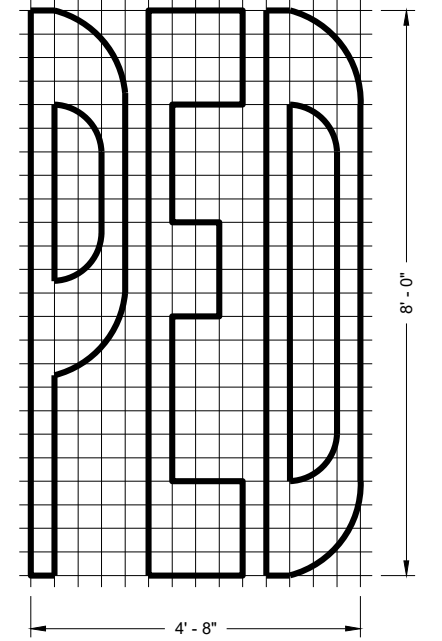
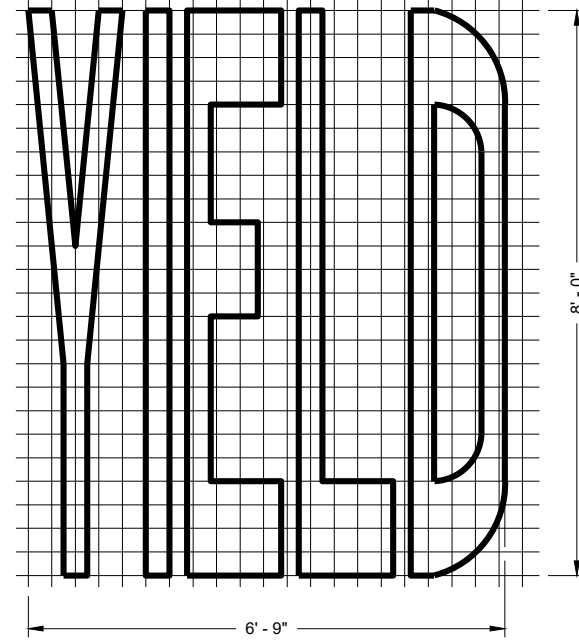
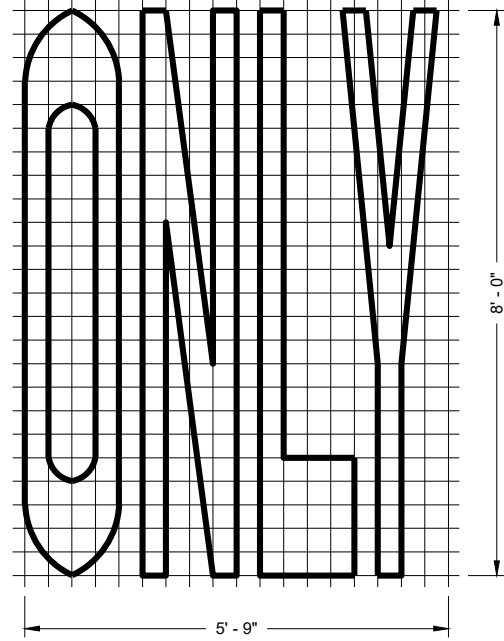
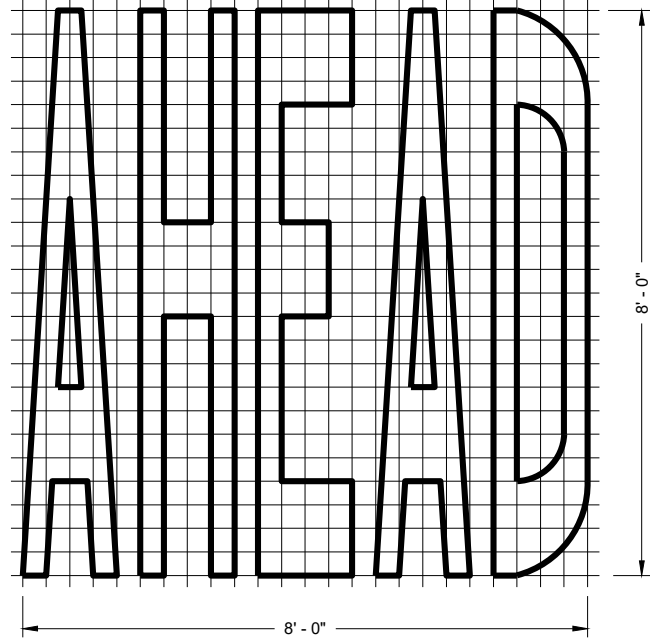
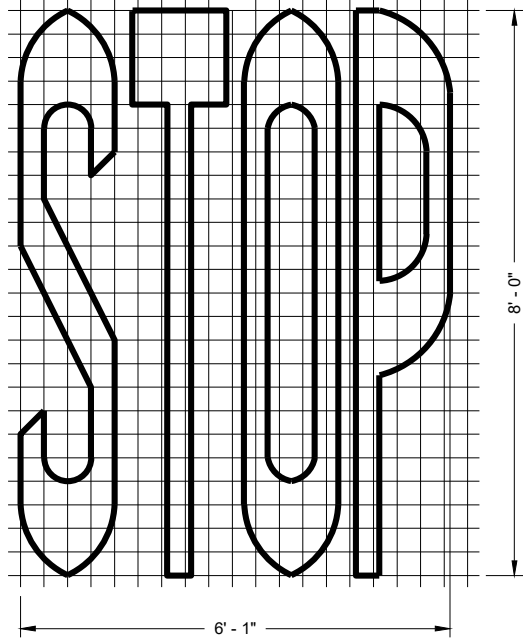
ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:  
R11-2 SHALL BE 48" X 30".  
R11-4 AND R11-3 SHALL BE 60" X 30".

- \* OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- \*\* 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- ⚡ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

<b>BARRICADES AND SIGNS FOR SIDEROAD CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	



SINGLE LANE

TWO - LANE

**GENERAL NOTES**

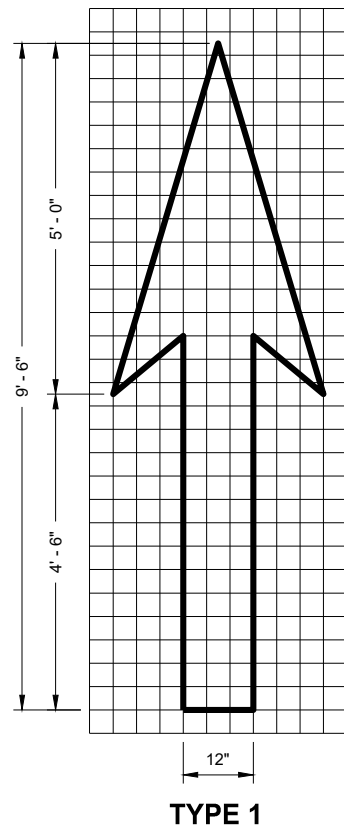
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

**PAVEMENT MARKING WORDS**

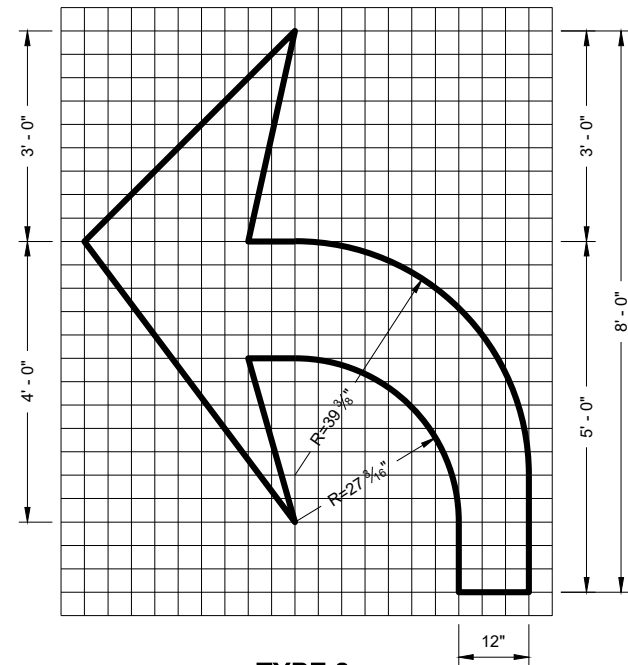
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2019 /S/ Matthew Rauch  
DATE STATE SIGNING AND MARKING  
ENGINEER

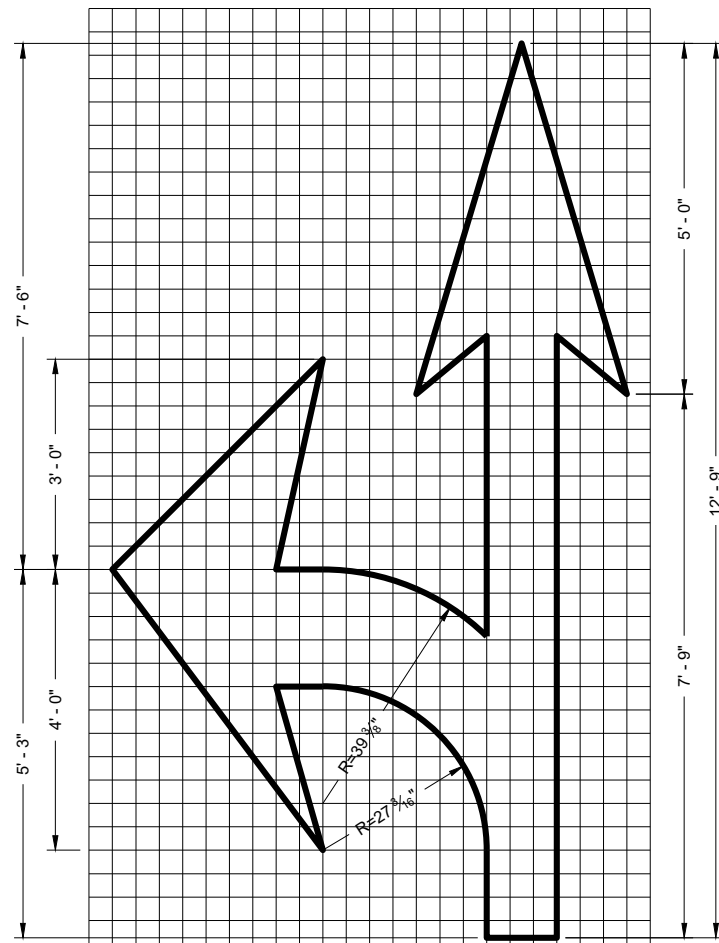
FHWA



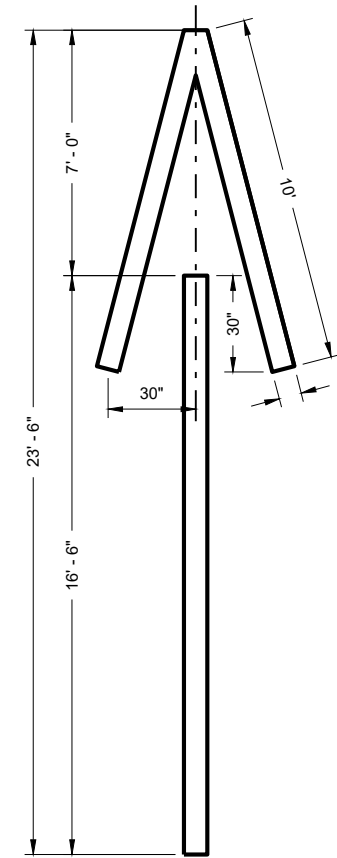
TYPE 1



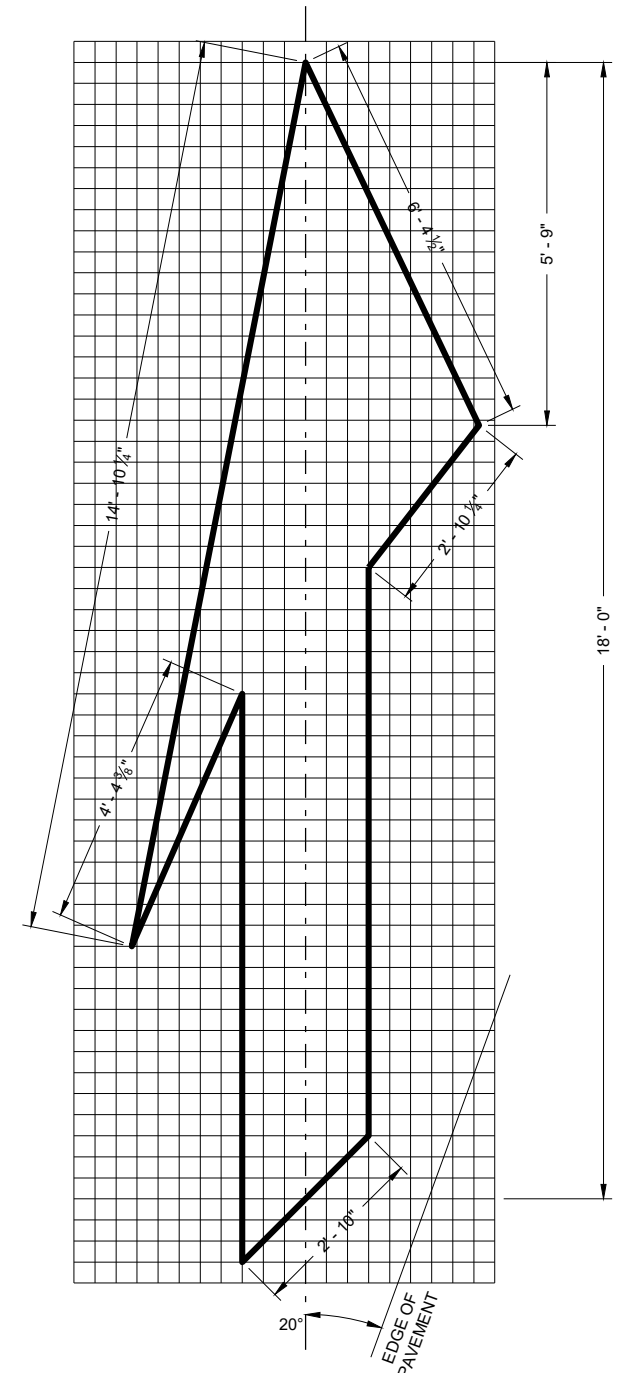
TYPE 2



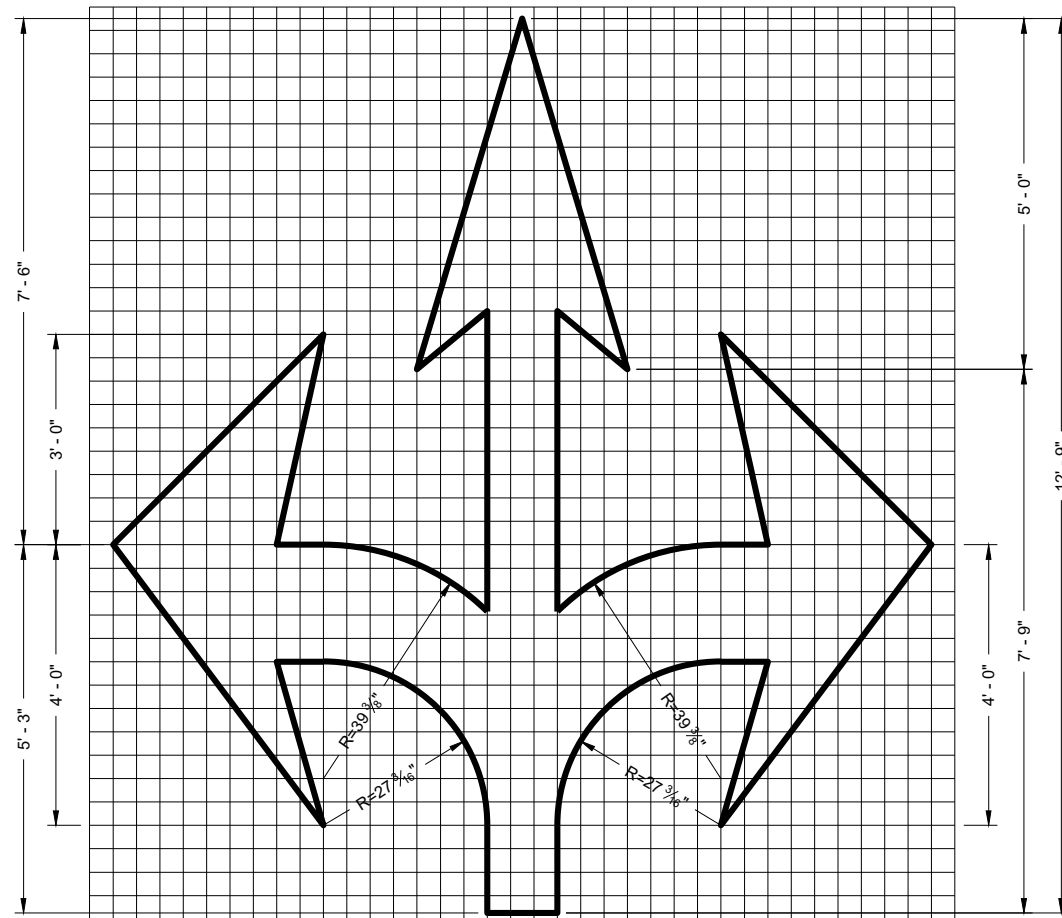
TYPE 3



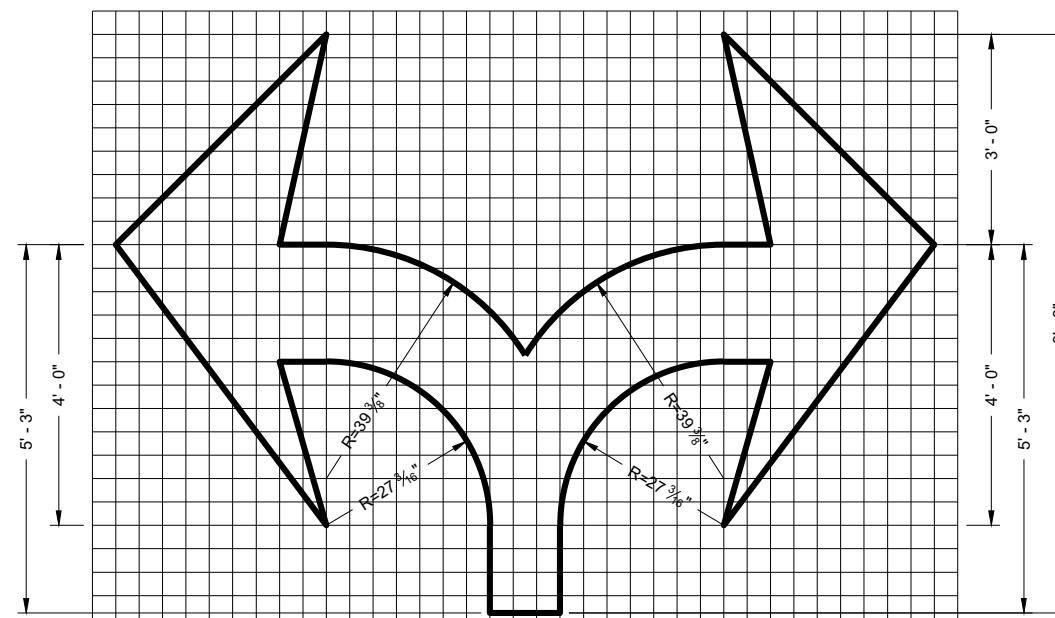
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2019  
DATE /S/ Matthew Rauch  
STATE SIGNING AND MARKING  
ENGINEER  
FHWA






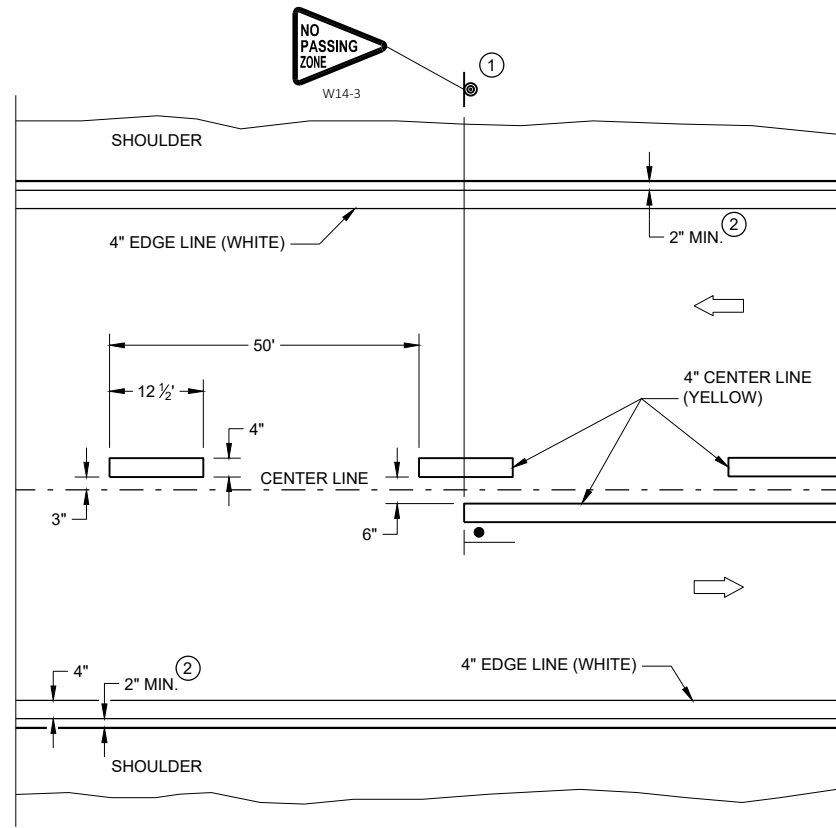
**GENERAL NOTES**

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

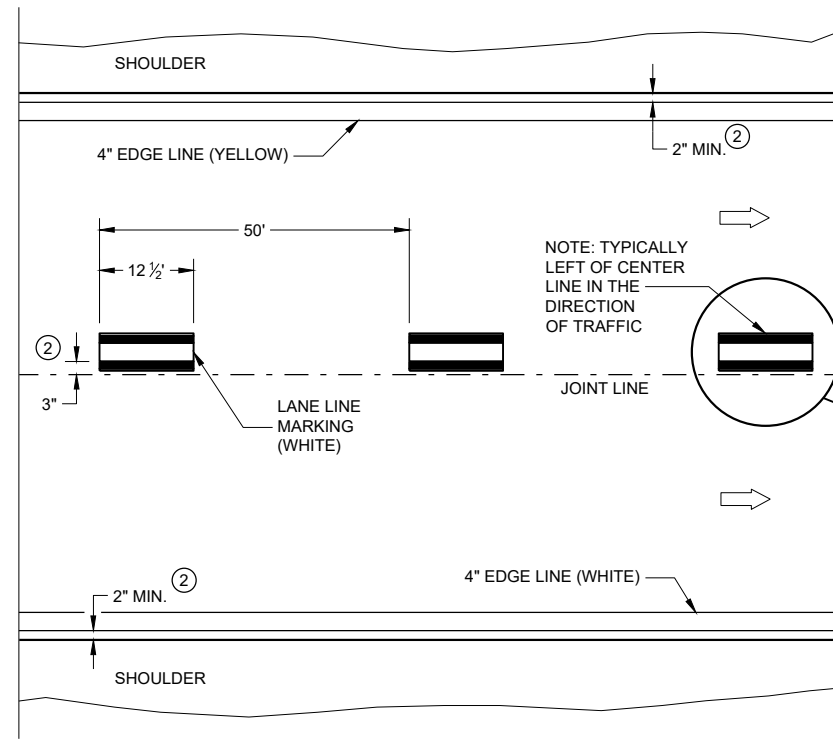
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

**LEGEND**

-  "T" MARKING
-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC

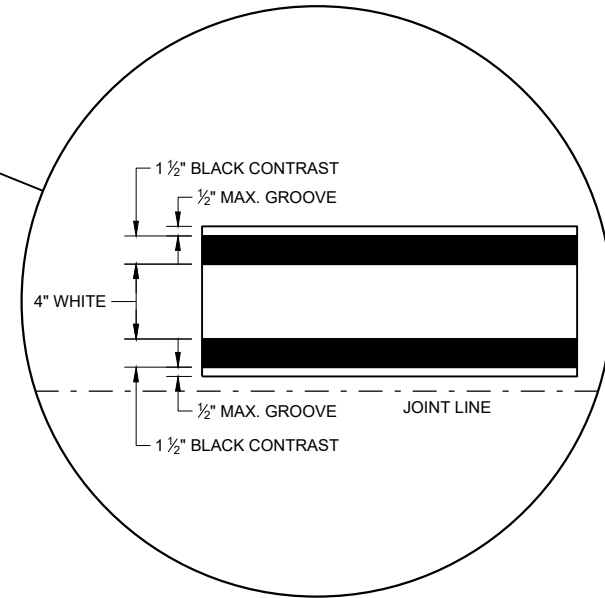


**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

**PERMANENT PAVEMENT MARKING**



6

6

SDD 15C08 - 22a

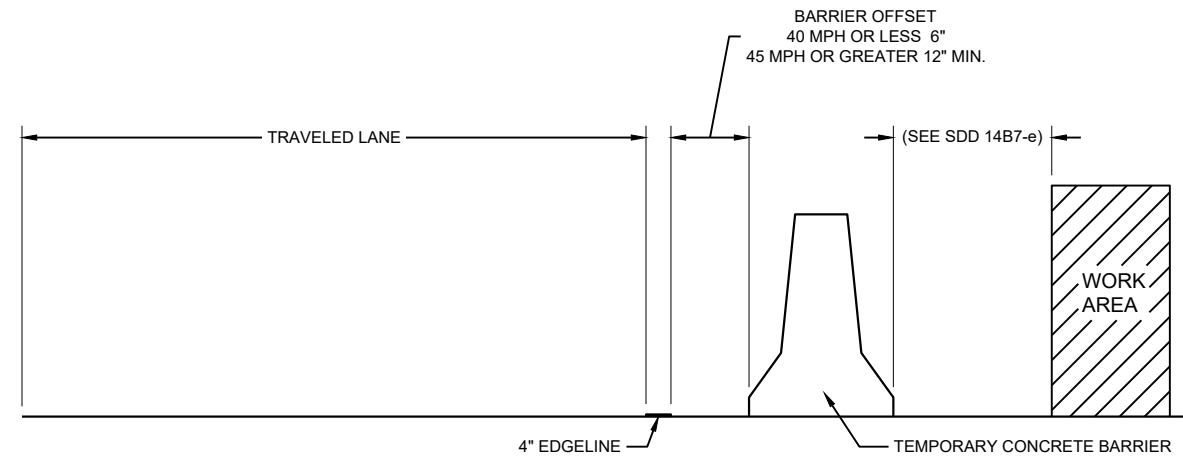
SDD 15C08 - 22a

**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: May 2022 /S/ Jeannie Silver  
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



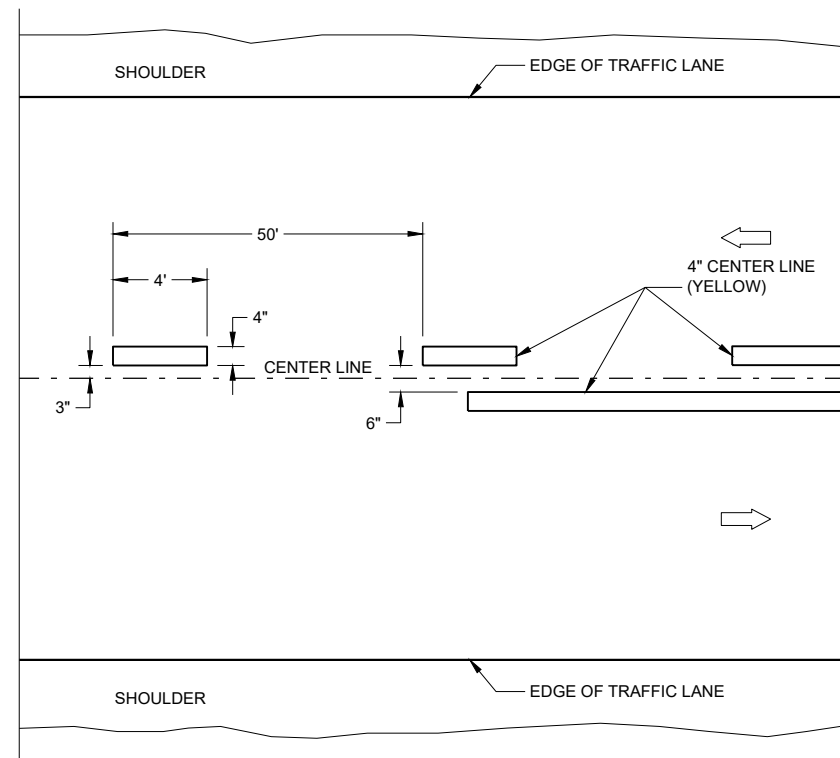
**TEMPORARY BARRIER OFFSET FROM EDGELINE**

**GENERAL NOTES**

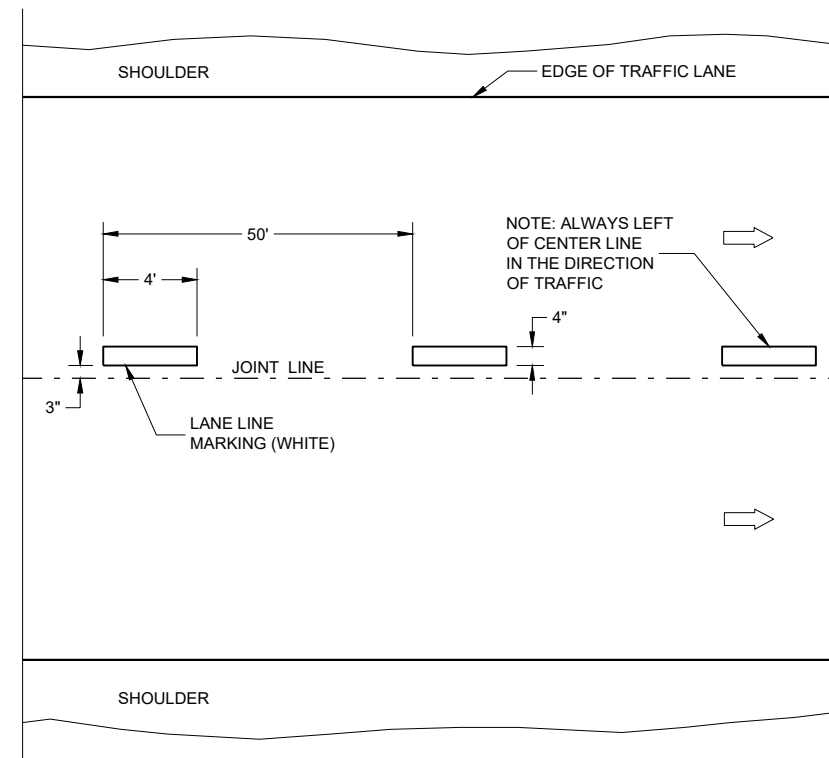
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

**LEGEND**

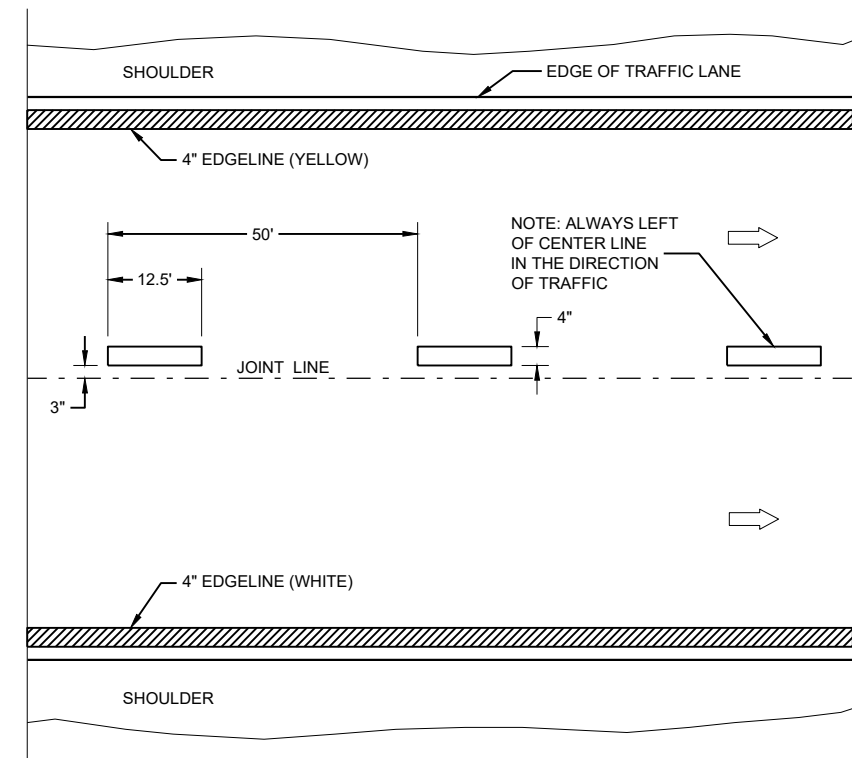
➡ DIRECTION OF TRAFFIC



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**



**FREEWAYS AND EXPRESSWAYS**

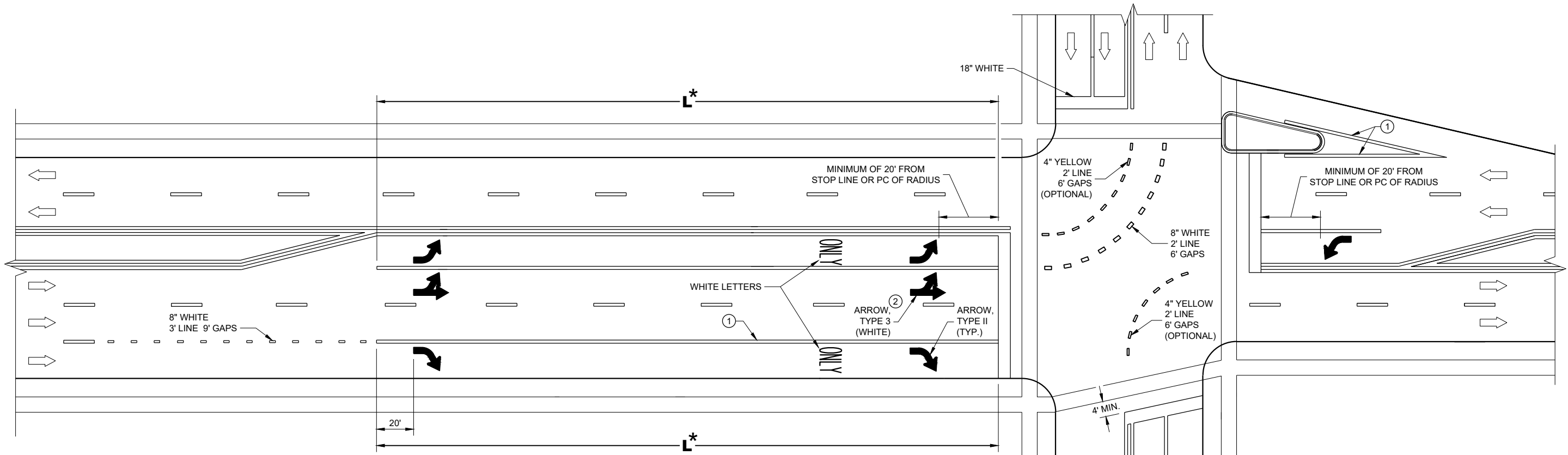
**TEMPORARY PAVEMENT MARKING**

**TEMPORARY LONGITUDINAL PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

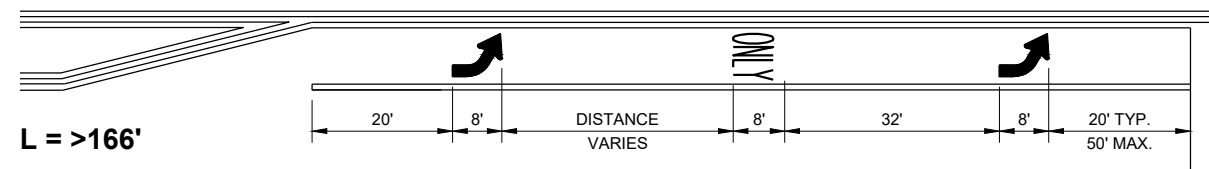
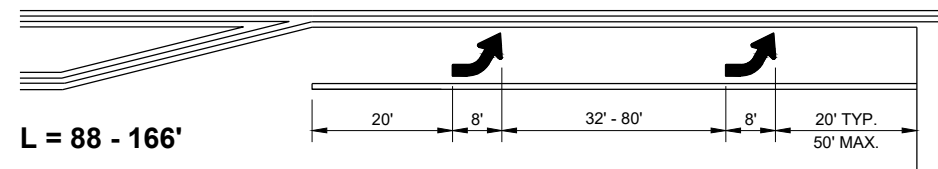
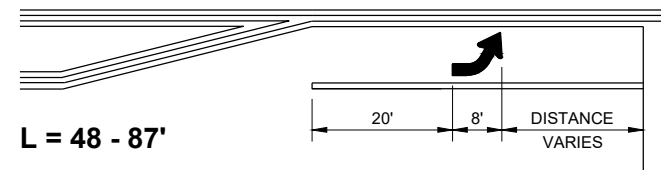
APPROVED  
May 2022 DATE /S/ Jeannie Silver  
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



**TURN LANE OPTIONS**

LENGTH OF TURN BAY (  $L$  ) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



\*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

**GENERAL NOTES**

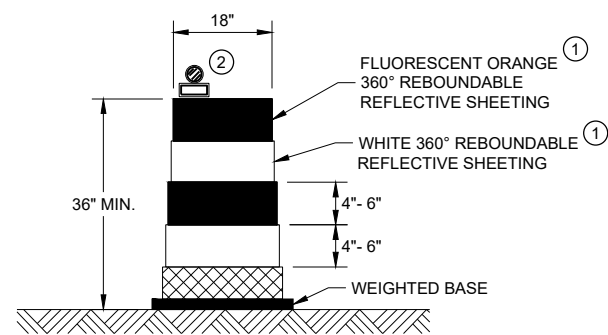
- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

➡ DIRECTION OF TRAFFIC

$L$  = LENGTH OF TURN BAY

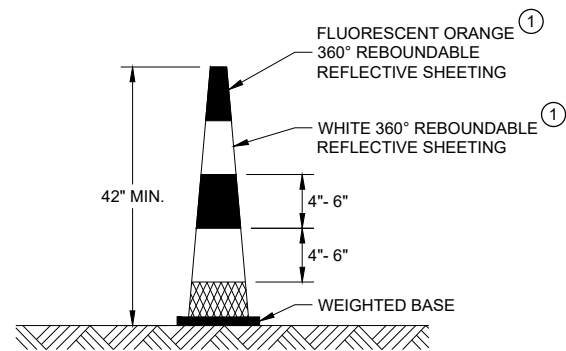
**PAVEMENT MARKING (TURN LANES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



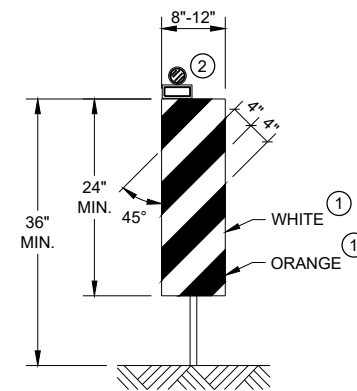
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

DO NOT USE IN TAPERS  
½ SPACING OF DRUMS  
BALLAST WIDTHS  
RANGE FROM 14"-20"

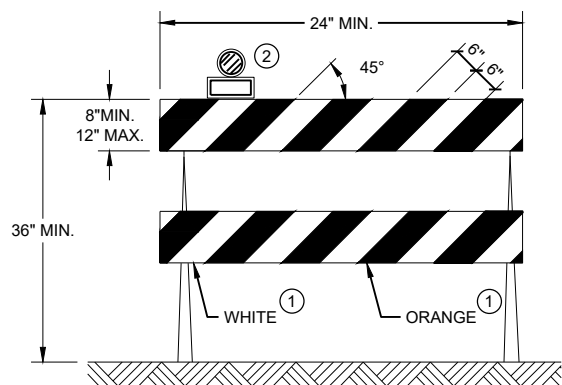


**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO  
THE TRAFFIC SIDE FOR CHANNELIZATION.

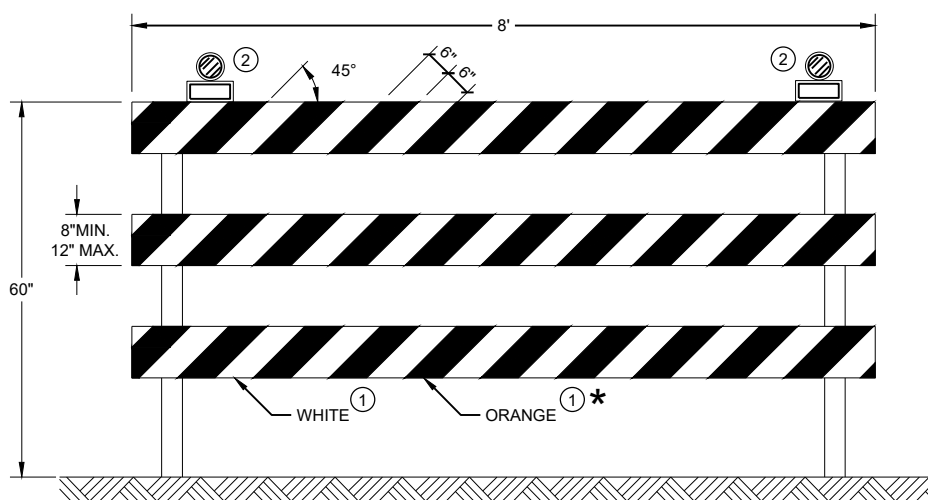
**GENERAL NOTES**

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



**TYPE II BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES  
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD  
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE III BARRICADE**

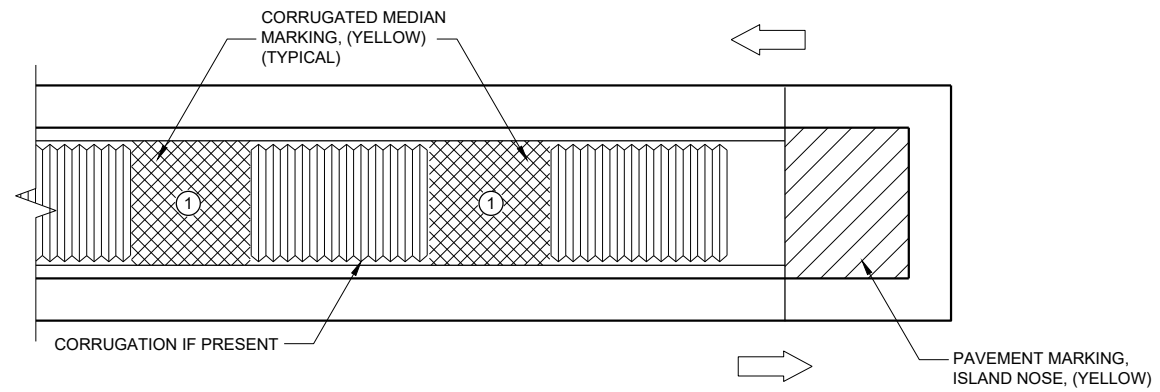
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP  
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

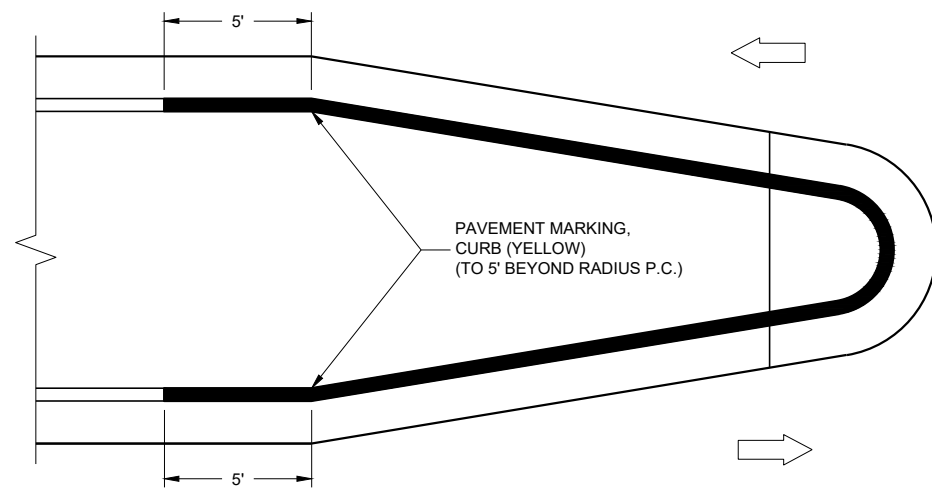
**CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

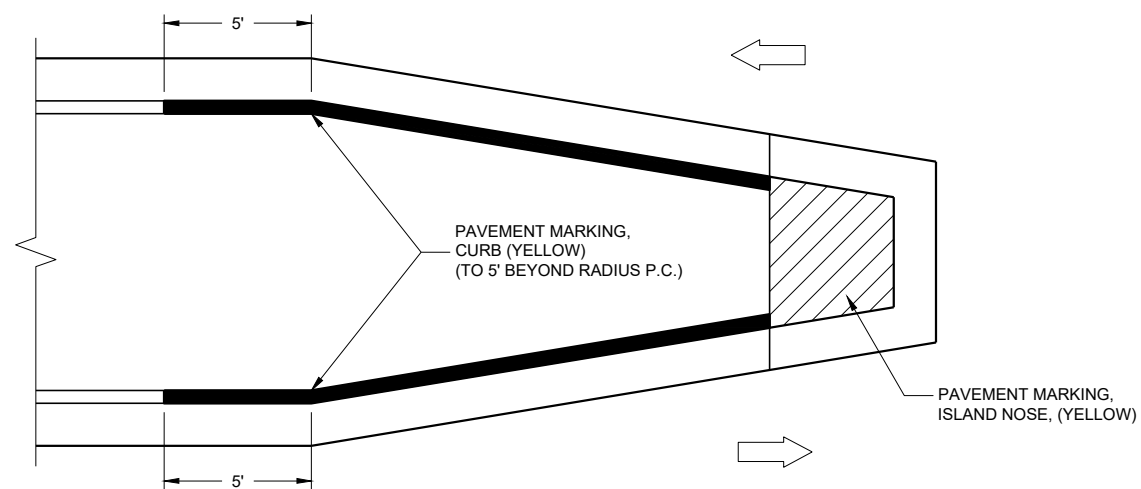
APPROVED  
 November 2022 /S/ Andrew Heidtke  
 DATE WORK ZONE ENGINEER  
 FHWA



**MEDIAN ISLAND WITH SQUARE BLUNT NOSE**



**MEDIAN ISLAND WITH ROUND BLUNT NOSE**



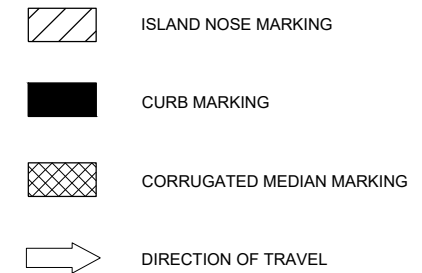
**MEDIAN ISLAND WITH SLOPED NOSE**

**TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS**

**GENERAL NOTES**

WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION, YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.

- ① APPLY PAVEMENT MARKING TO THE FLAT PORTION OF CORRUGATED MEDIAN.



6

6

SDD 15C18 - 07b

SDD 15C18 - 07b

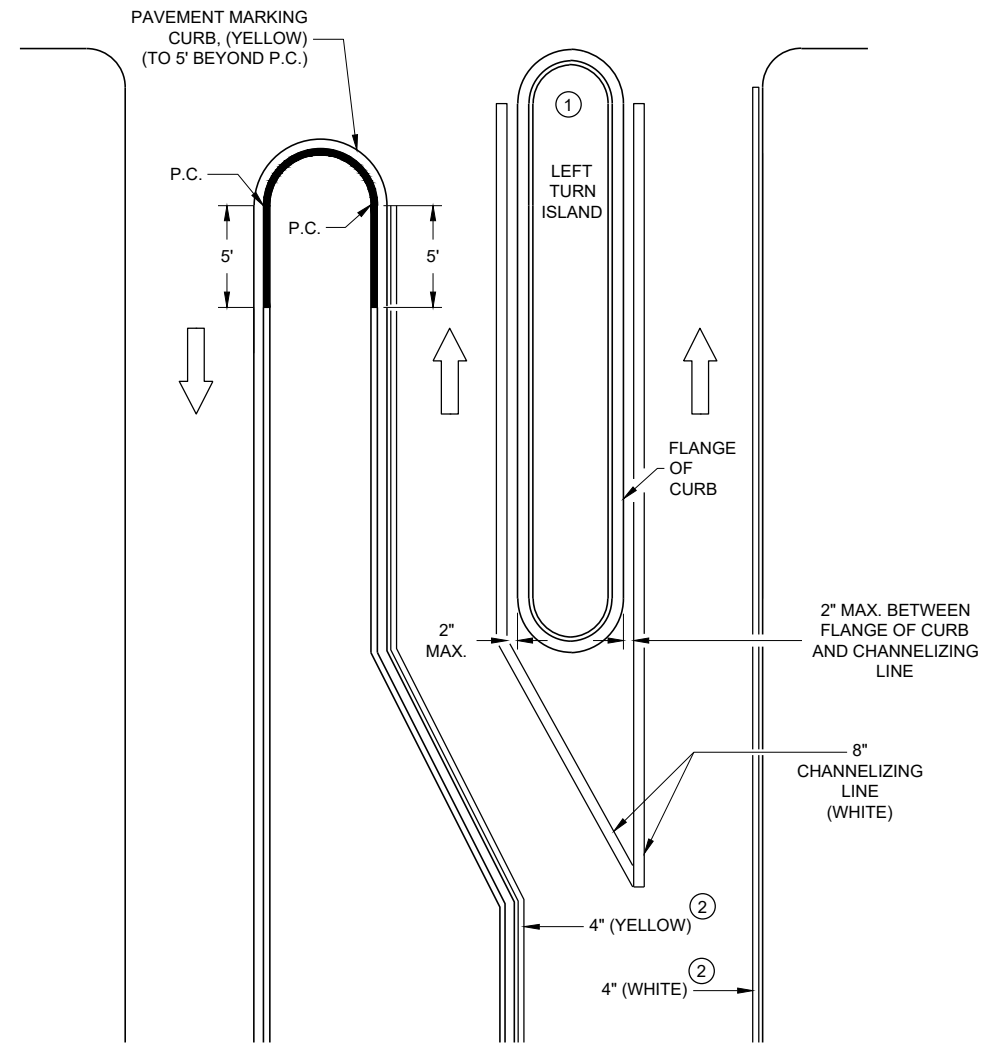
<b>PAVEMENT MARKINGS, MEDIAN ISLAND NOSE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
<small>FHWA</small>	

REQUIREMENTS FOR EDGE LINES		
POSTED SPEED	IS THERE CONTINUOUS LIGHTING?	
	YES	NO
≤ 30 MPH	NO	OPTIONAL
35 OR 40 MPH	OPTIONAL	RECOMMENDED
≥ 45 MPH	RECOMMENDED	REQUIRED

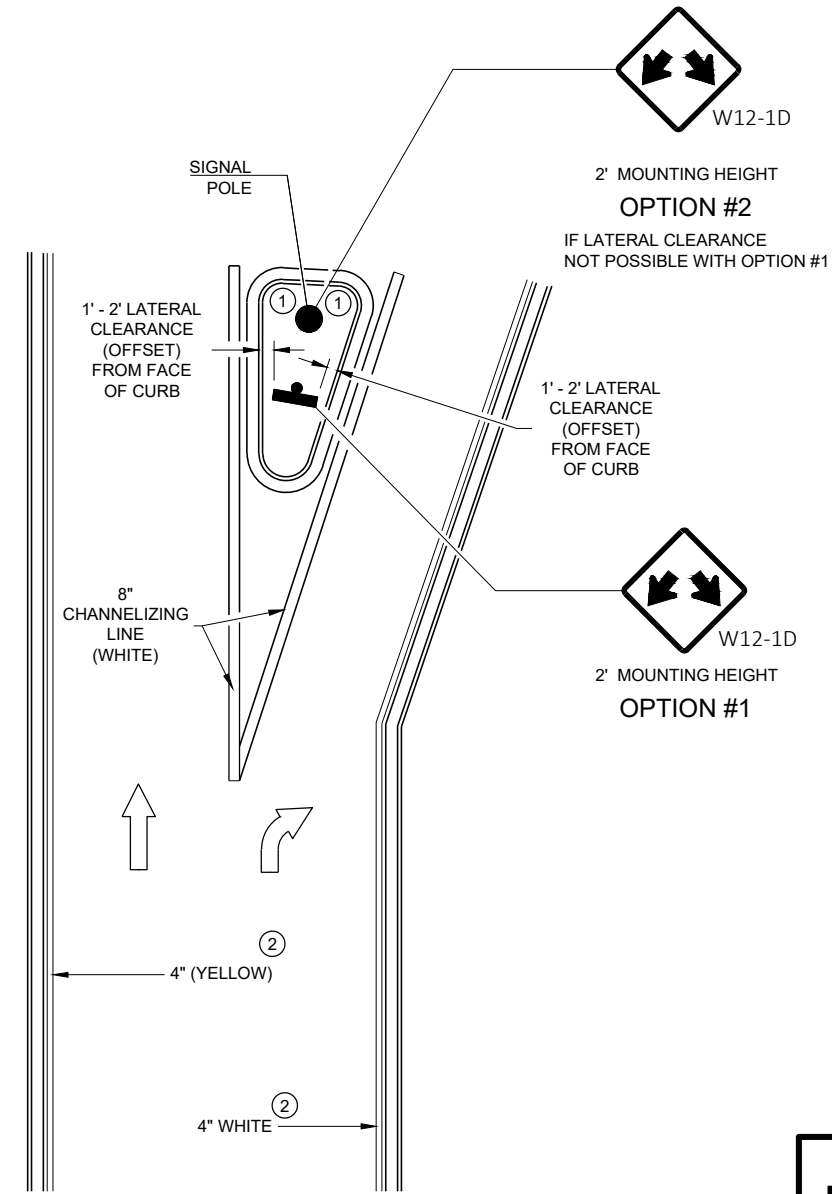
**GENERAL NOTES**

APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.  
SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

- ① MARK CURB NOSES YELLOW.
- ② MARK ACCORDING TO TABLE.



**LEFT TURN & MEDIAN ISLAND**



**RIGHT TURN ISLAND**

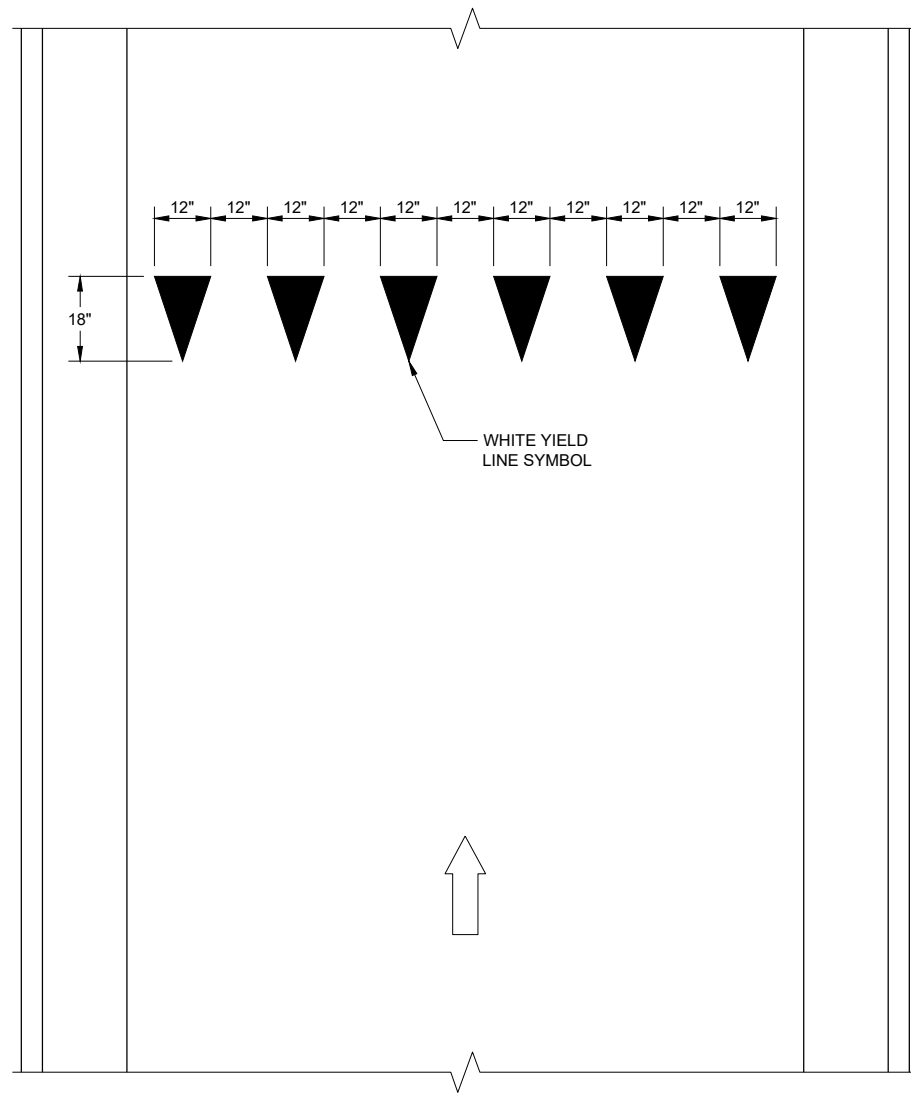
6

6

SDD 15C18 - 07C


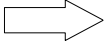
SDD 15C18 - 07C

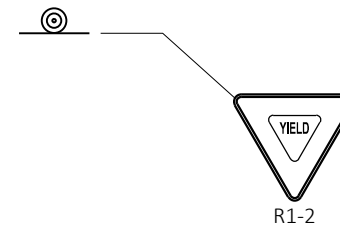
MEDIAN PAVEMENT MARKINGS, DOUBLE ARROW WARNING SIGN PLACEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
FHWA	



YIELD LINE

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAVEL

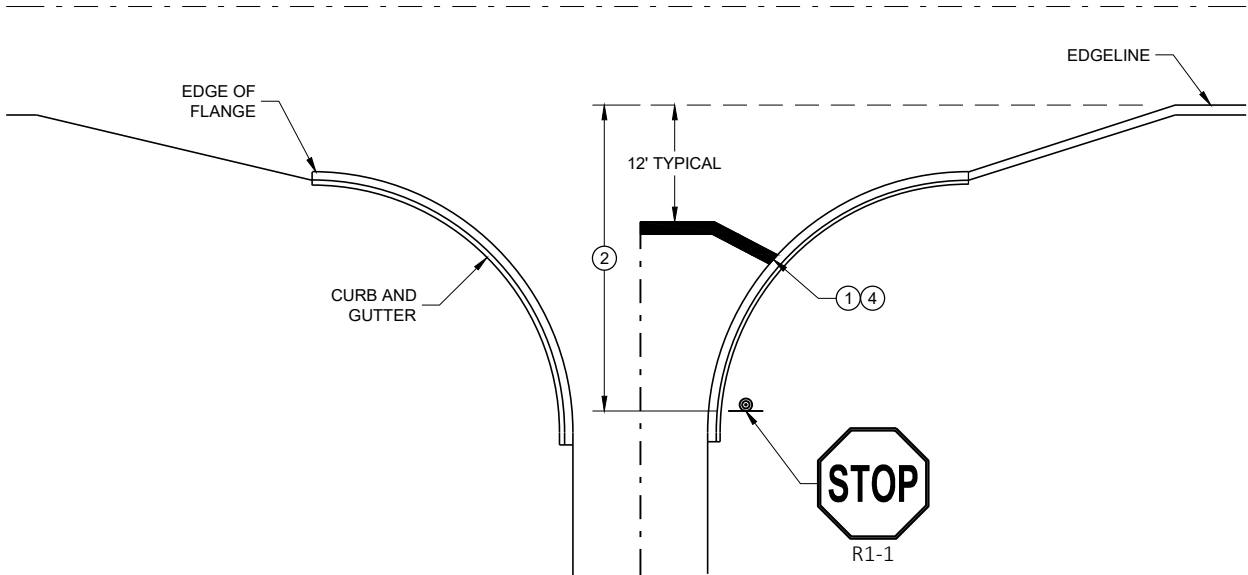


<b>YIELD MARKINGS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-81-2016 DATE	/S/ Matthew R. Rauch STATE SIGNING AND MARKING ENGINEER
<small>FHWA</small>	

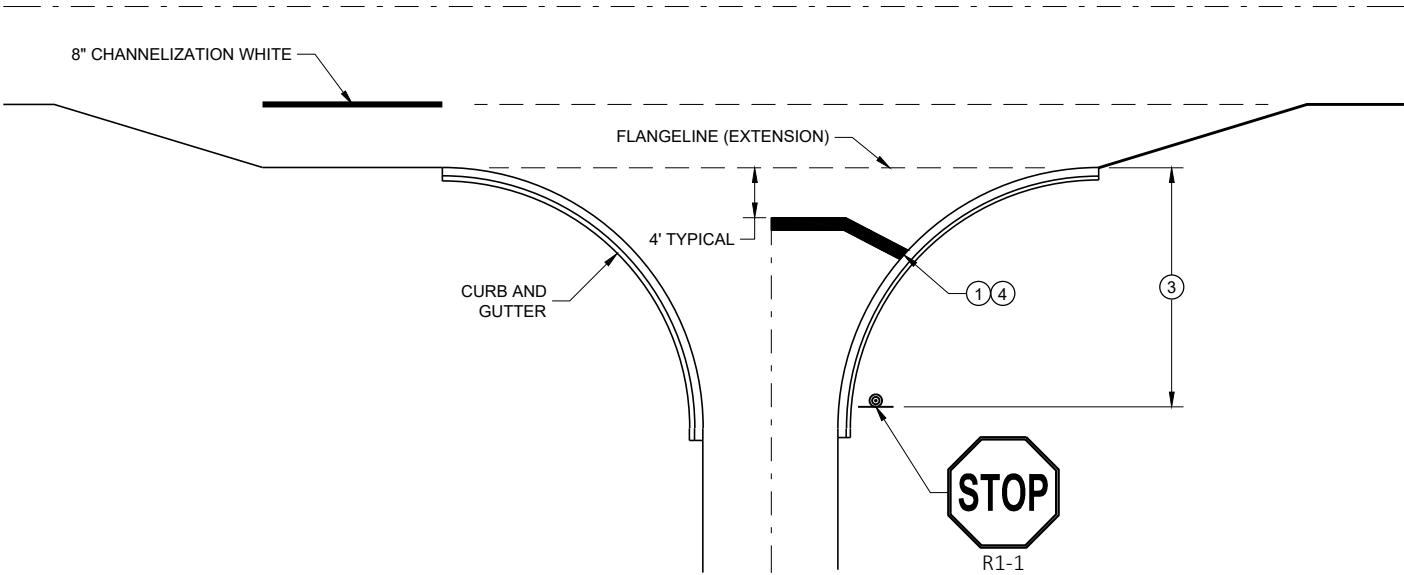
**GENERAL NOTES**

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

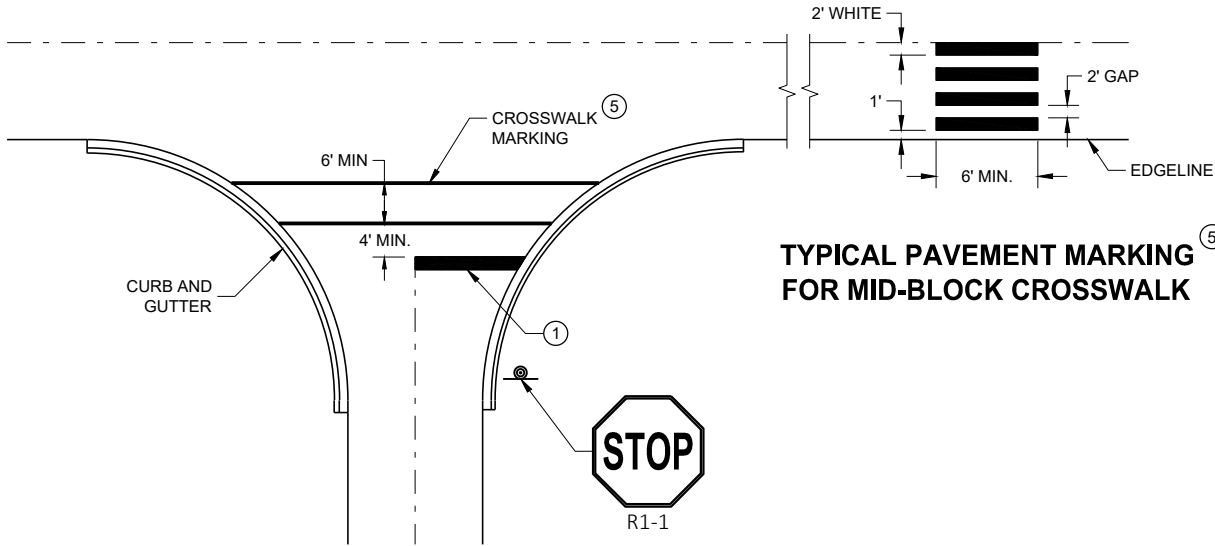
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



**TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER**

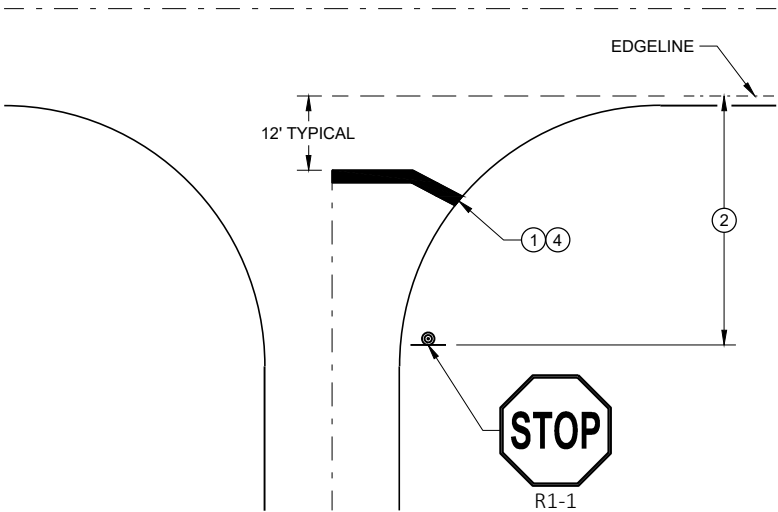


**TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE**



**TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING**

**TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK**



**TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER**

**STOP LINE AND CROSSWALK PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2019 /S/ Matthew Rauch  
DATE STATE SIGNING AND MARKING ENGINEER

FHWA



## GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

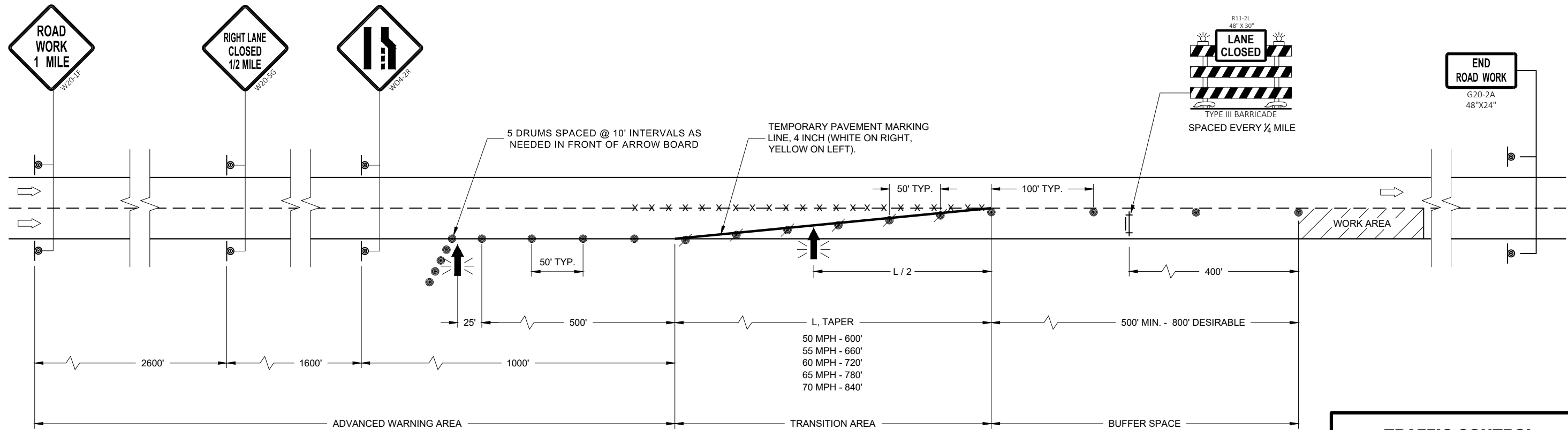
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

## LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 10a



6

SDD 15D12 - 10a

<b>TRAFFIC CONTROL LANE CLOSURE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

**LEGEND**

- † TYPE III BARRICADE
- †† TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ⚡ TYPE "A" WARNING LIGHT (FLASHING)
- ➡ DIRECTION OF TRAFFIC

**GENERAL NOTES**

THIS RAMP CLOSURE DETAIL IS TYPICAL FOR CLOSING A RIGHT SIDE EXIT RAMP. FOR A LEFT SIDE EXIT RAMP, REVERSE THE TRAFFIC CONTROL.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

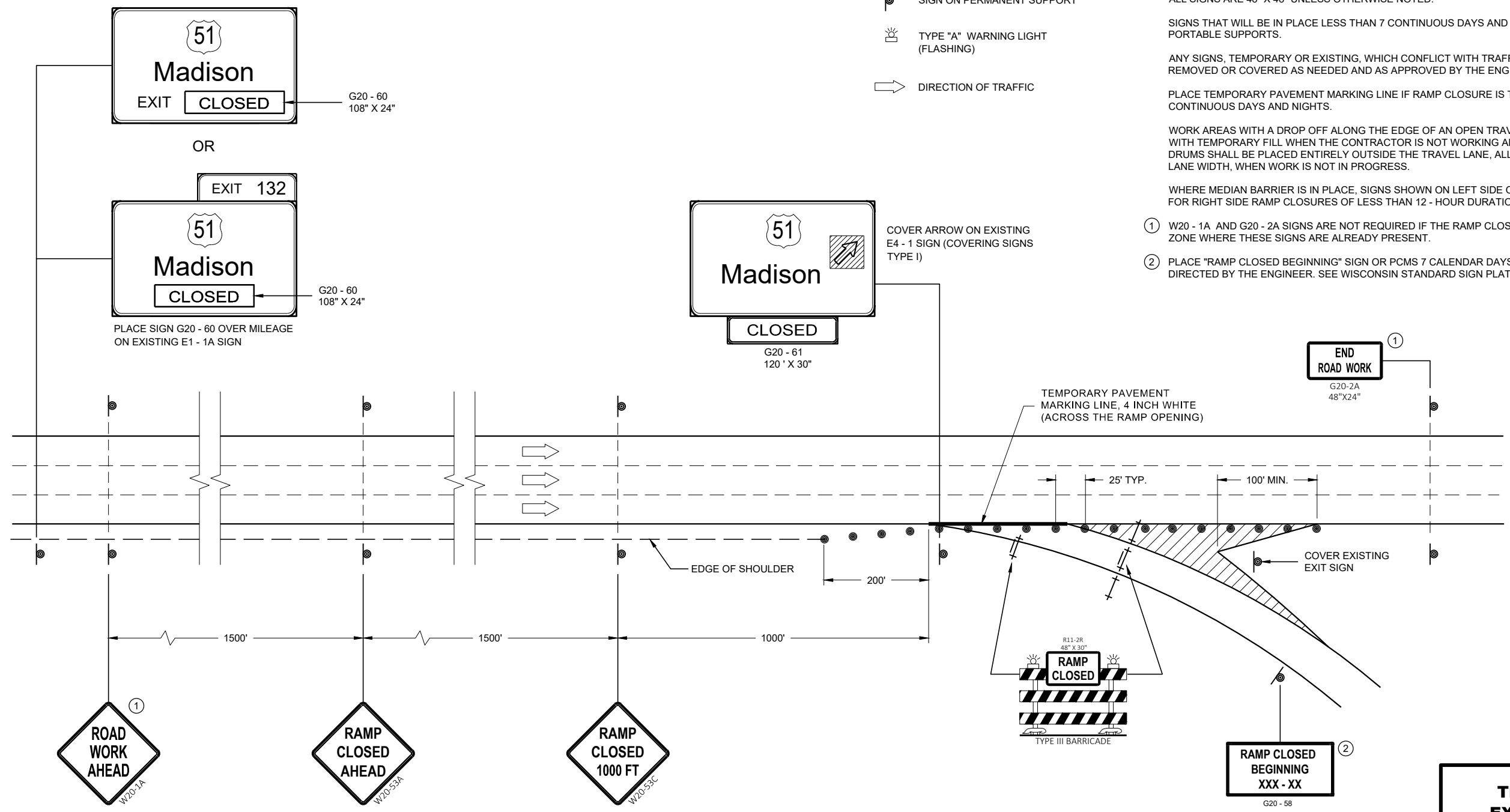
PLACE TEMPORARY PAVEMENT MARKING LINE IF RAMP CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WORK AREAS WITH A DROP OFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12 - HOUR DURATION.

① W20 - 1A AND G20 - 2A SIGNS ARE NOT REQUIRED IF THE RAMP CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

② PLACE "RAMP CLOSED BEGINNING" SIGN OR PCMS 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.



FRAME 1	FRAME 2
RAMP TO CLOSE	XXXDAY XX XX XX










**TRAFFIC CONTROL,  
EXIT RAMP CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2022 DATE /S/ Andrew Heidtke  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  FLASHING ARROW BOARD
-  DIRECTION OF TRAFFIC
-  REMOVE PAVEMENT MARKING (SEE GENERAL NOTES)
-  WORK AREA

**GENERAL NOTES**

FOR WORK ON ROADWAYS WITH SPEEDS GREATER THAN 45MPH, USE SDD 15D12.

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"X 36" SIGNS MAY BE USED IF APPROVED BY REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON TEMPORARY SUPPORTS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

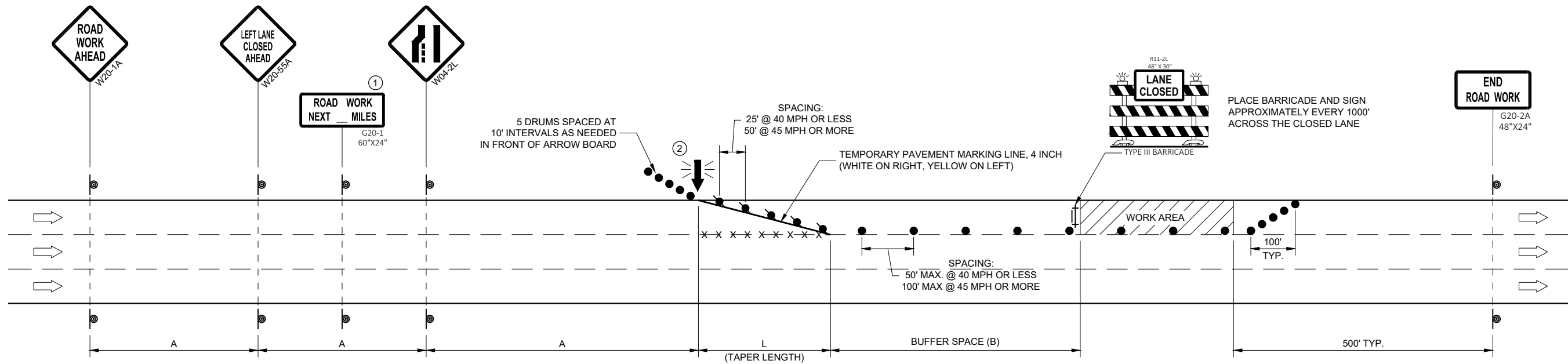
CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO PLACE THE ARROW BOARD AS SHOWN, PLACE THE ARROW BOARD AT THE END OF THE TAPER.



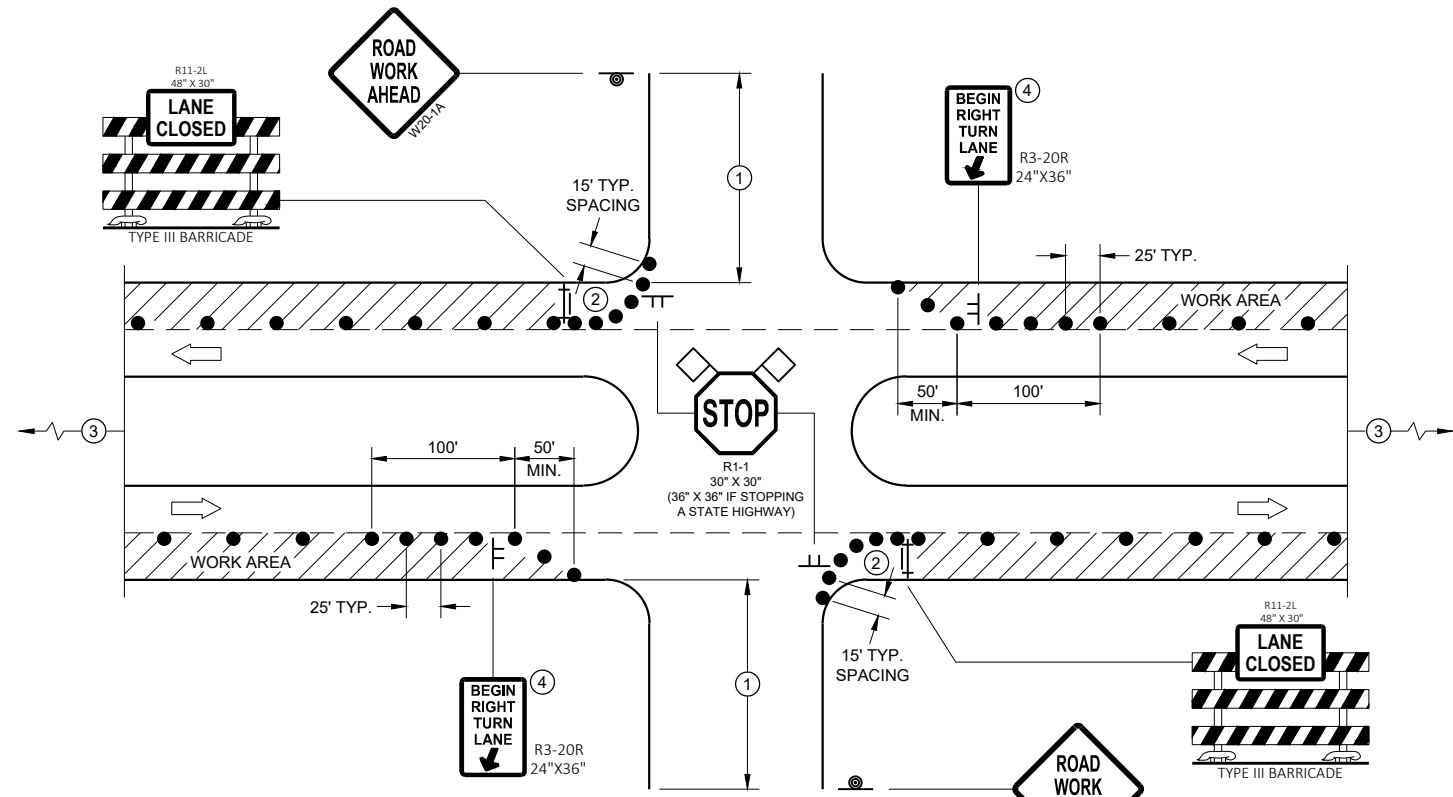
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	55'
30	200'	180'	85'
35	350'	245'	120'
40	350'	320'	170'
45	500'	540'	220'

**TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



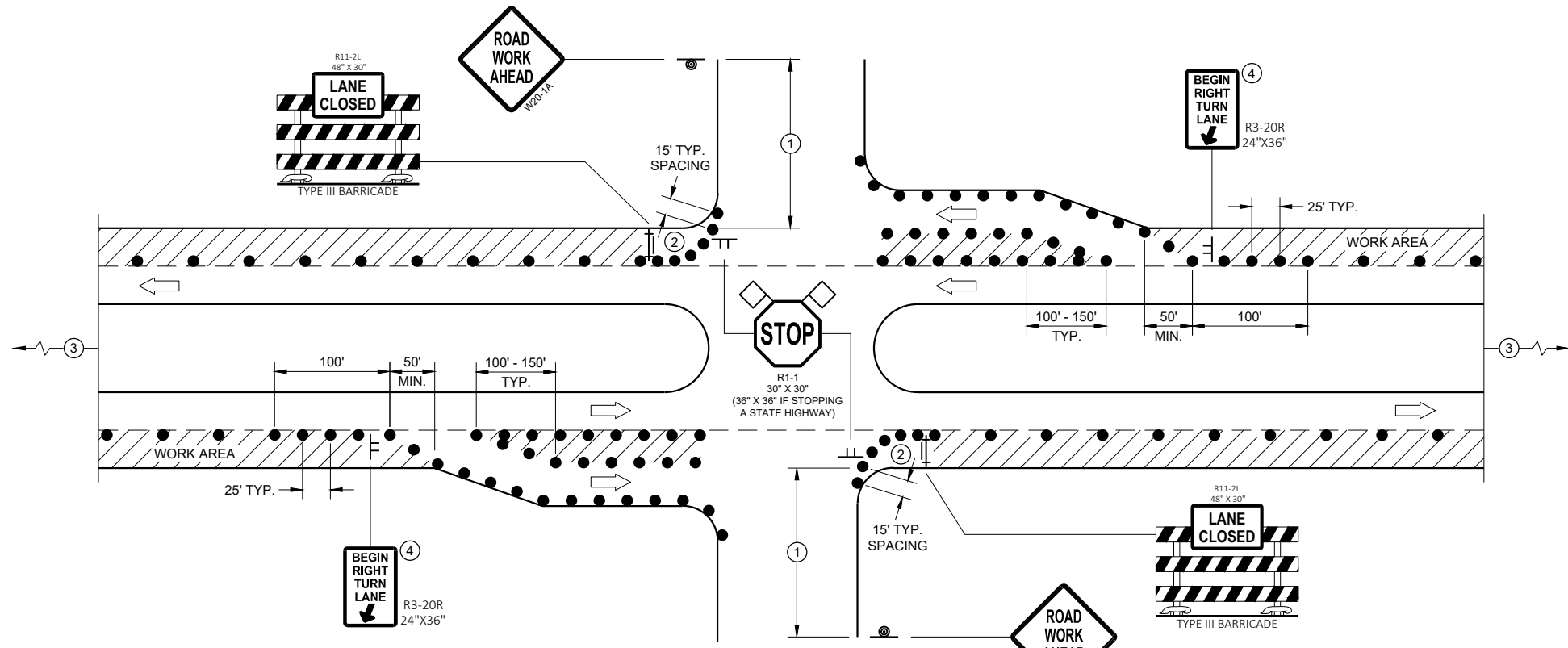
PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR RIGHT LANE CLOSURE AT INTERSECTION**

**GENERAL NOTES**

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.
- SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.
- BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.
- CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.  
350' IF 35 - 40 MPH.  
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



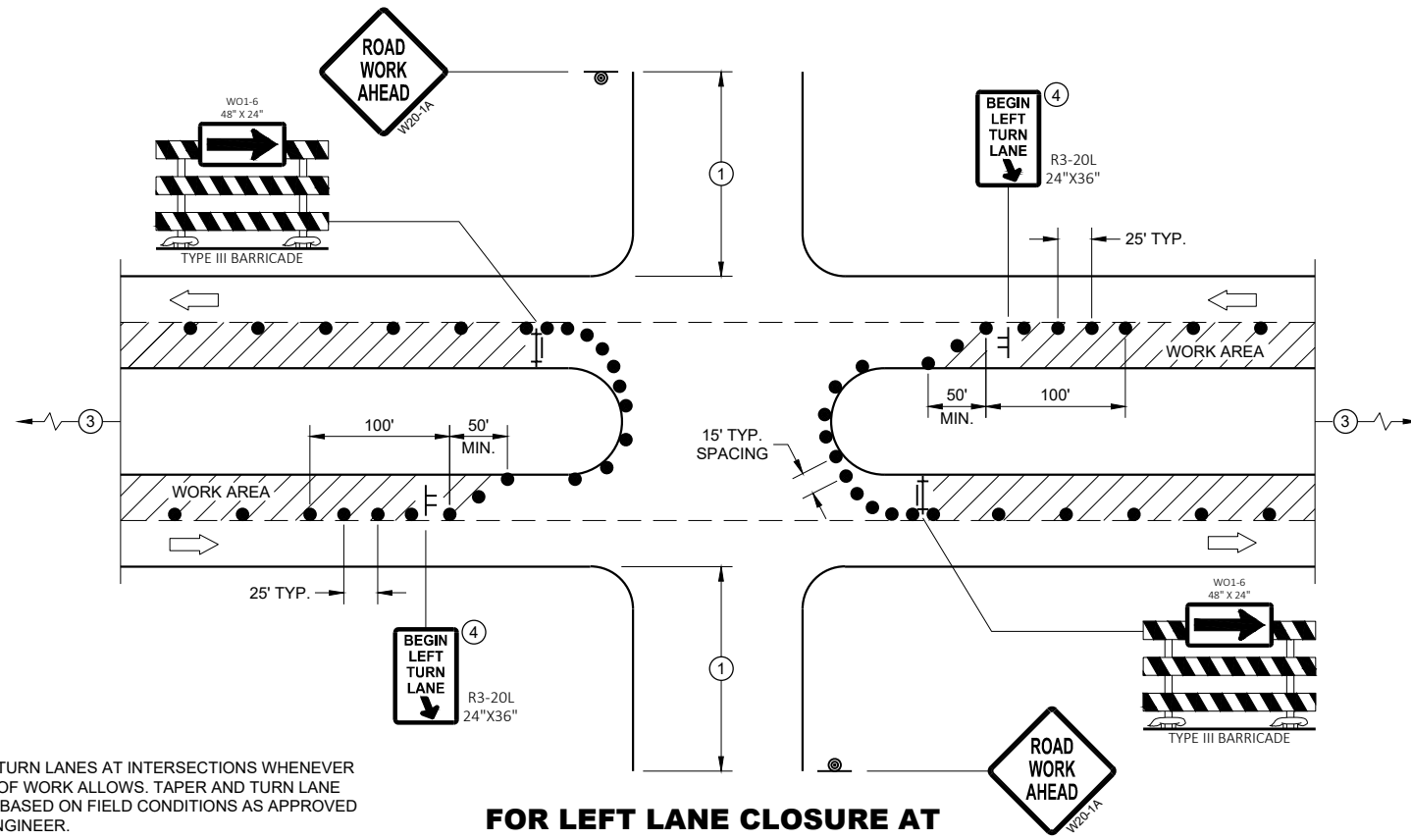
**FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)**

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

**TRAFFIC CONTROL,  
INTERSECTION WITHIN SINGLE  
RIGHT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING**

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

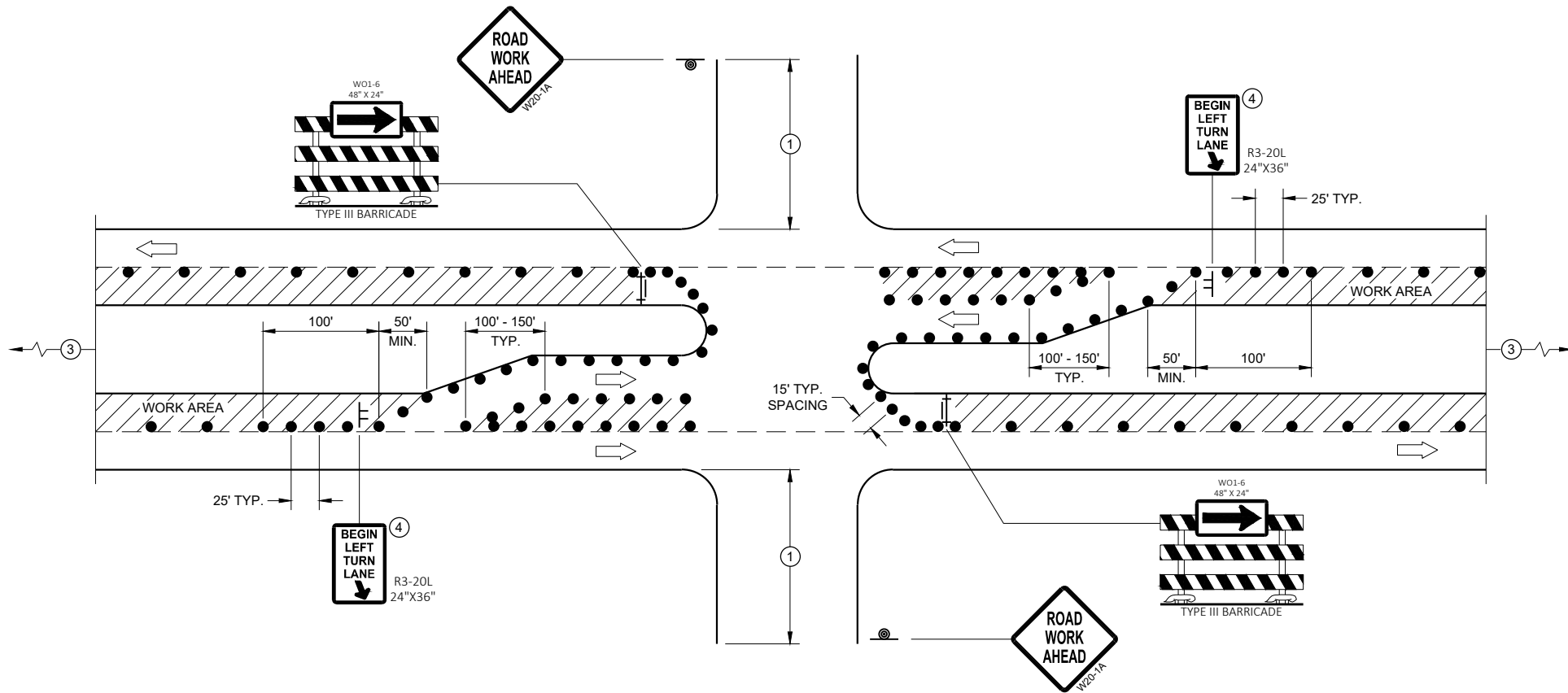
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.  
350' IF 35 - 40 MPH.  
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



**FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)**

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA












**TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
August 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  FLASHING ARROW BOARD
-  DIRECTION OF TRAFFIC
-  REMOVE PAVEMENT MARKING (SEE GENERAL NOTES)
-  WORK AREA

**GENERAL NOTES**

FOR WORK ON ROADWAYS WITH SPEEDS GREATER THAN 45 MPH, USE SDD 15D14.

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE RIGHT TWO LANES. FOR CLOSING LEFT TWO LANES, REVERSE THE TRAFFIC CONTROL.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"X 36" SIGNS MAY BE USED IF APPROVED BY REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON TEMPORARY SUPPORTS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

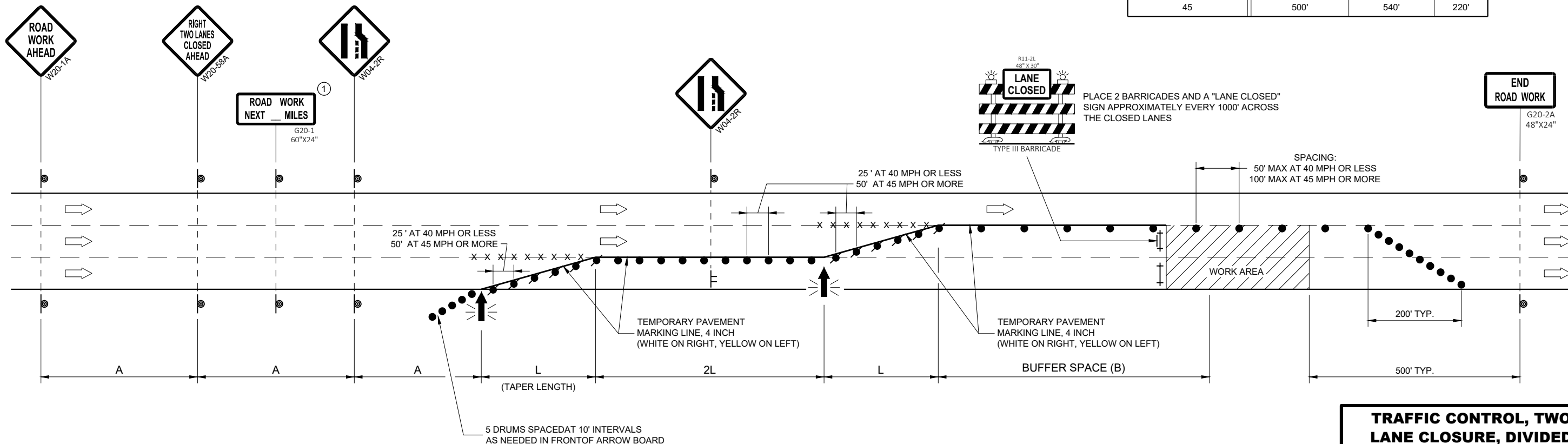
BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	55'
30	200'	180'	85'
35	350'	245'	120'
40	350'	320'	170'
45	500'	540'	220'

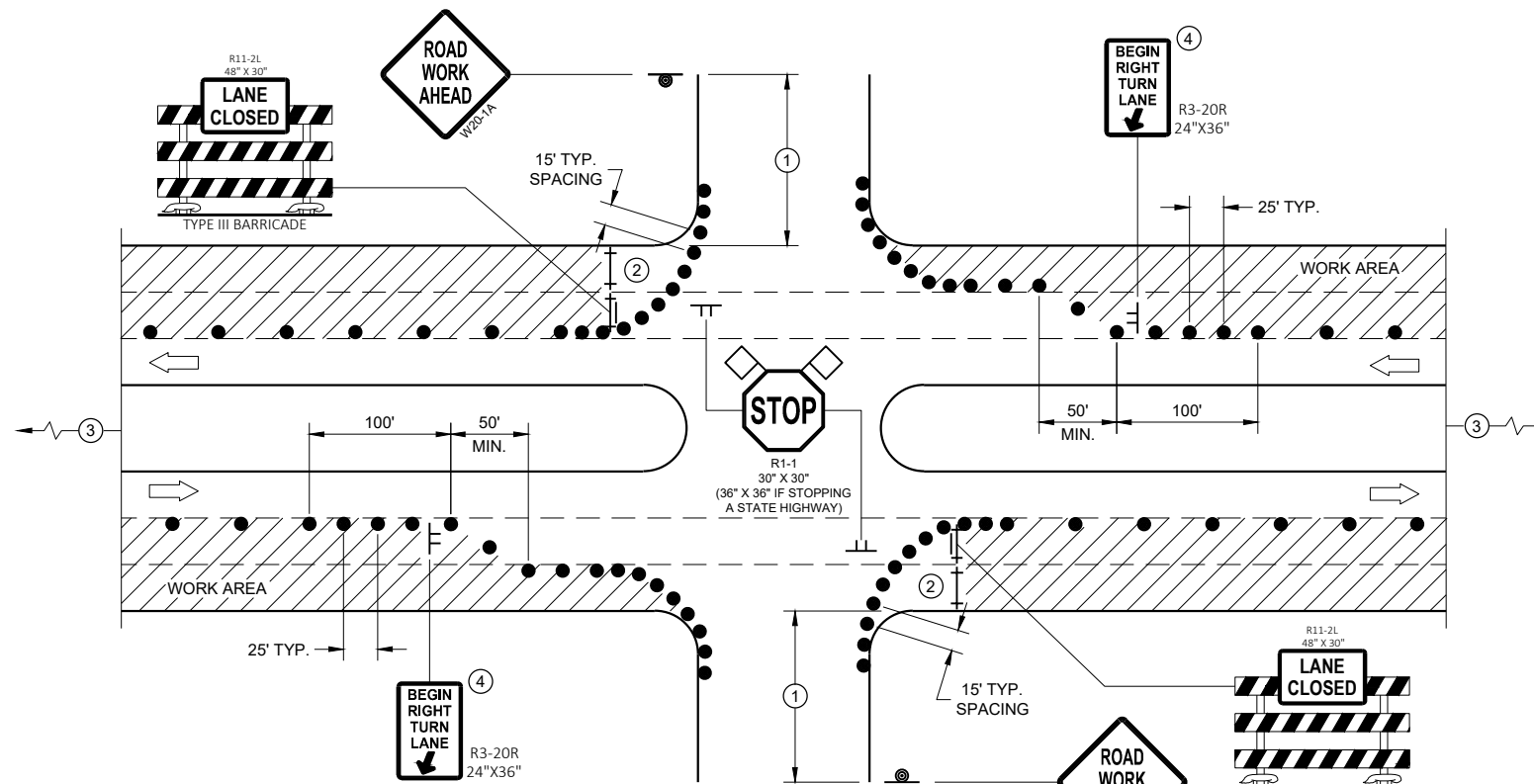


**TRAFFIC CONTROL, TWO LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR RIGHT TWO LANES CLOSED AT INTERSECTION**

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

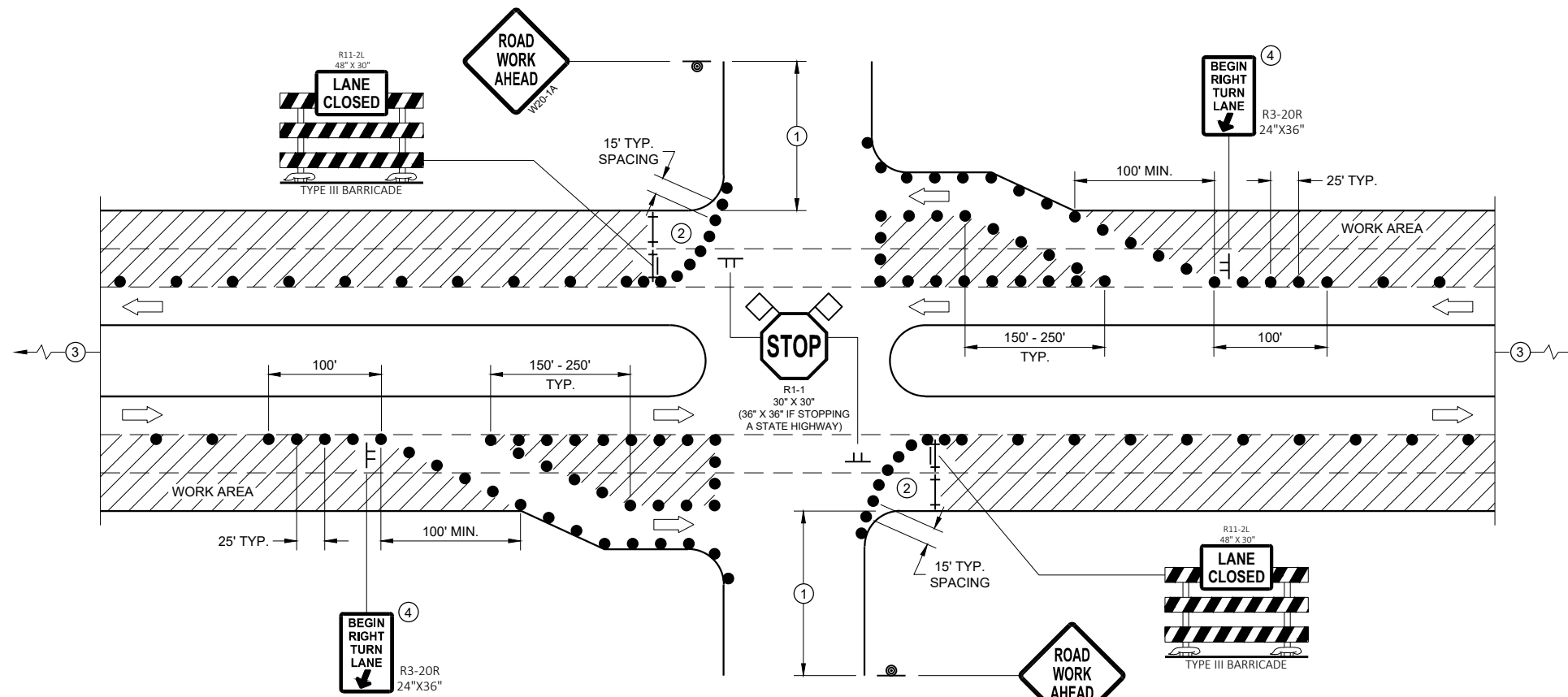
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.  
350' IF 35 - 40 MPH.  
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



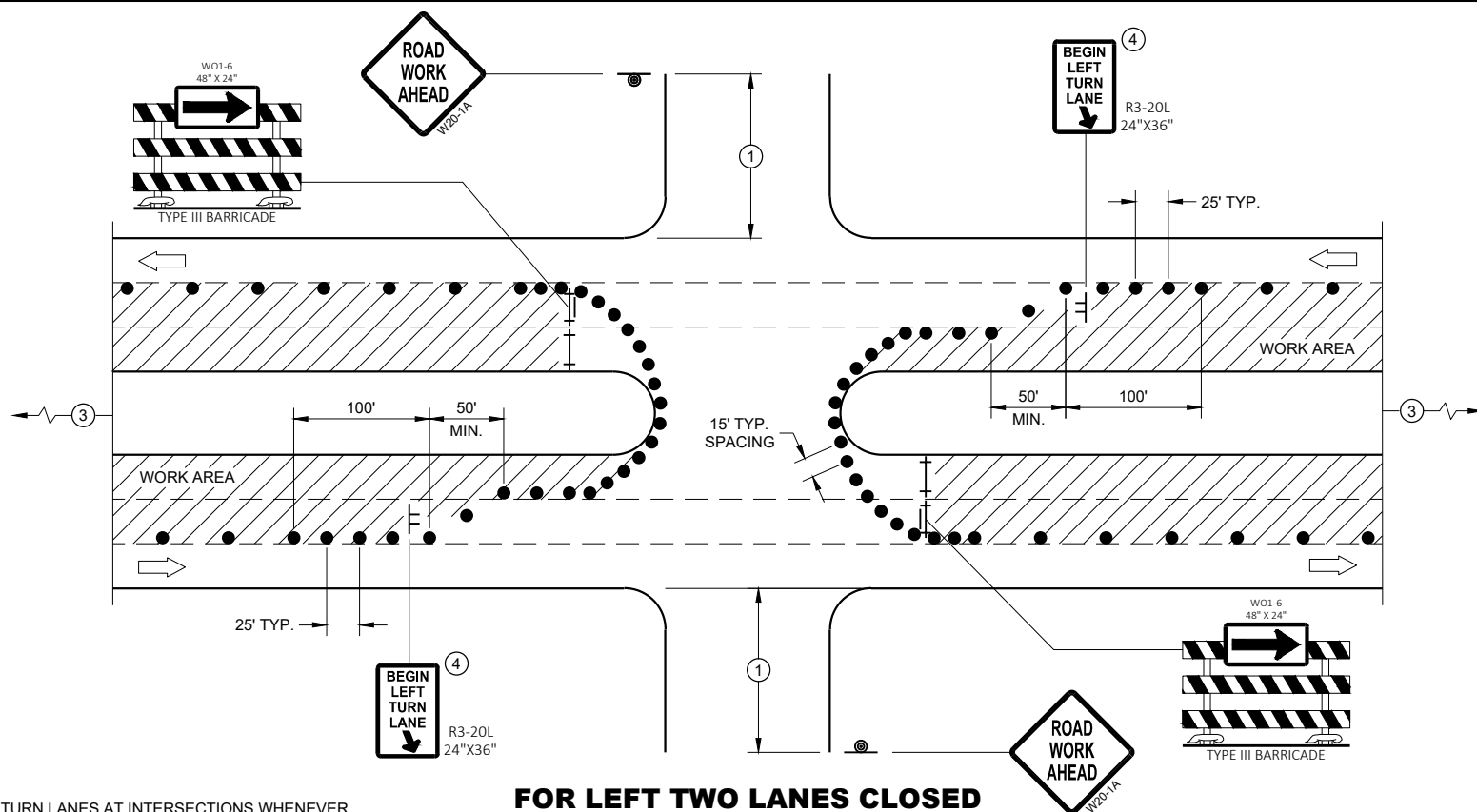
**FOR RIGHT TWO LANES CLOSED AT INTERSECTION (WITH RIGHT TURN BAY OPEN)**

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

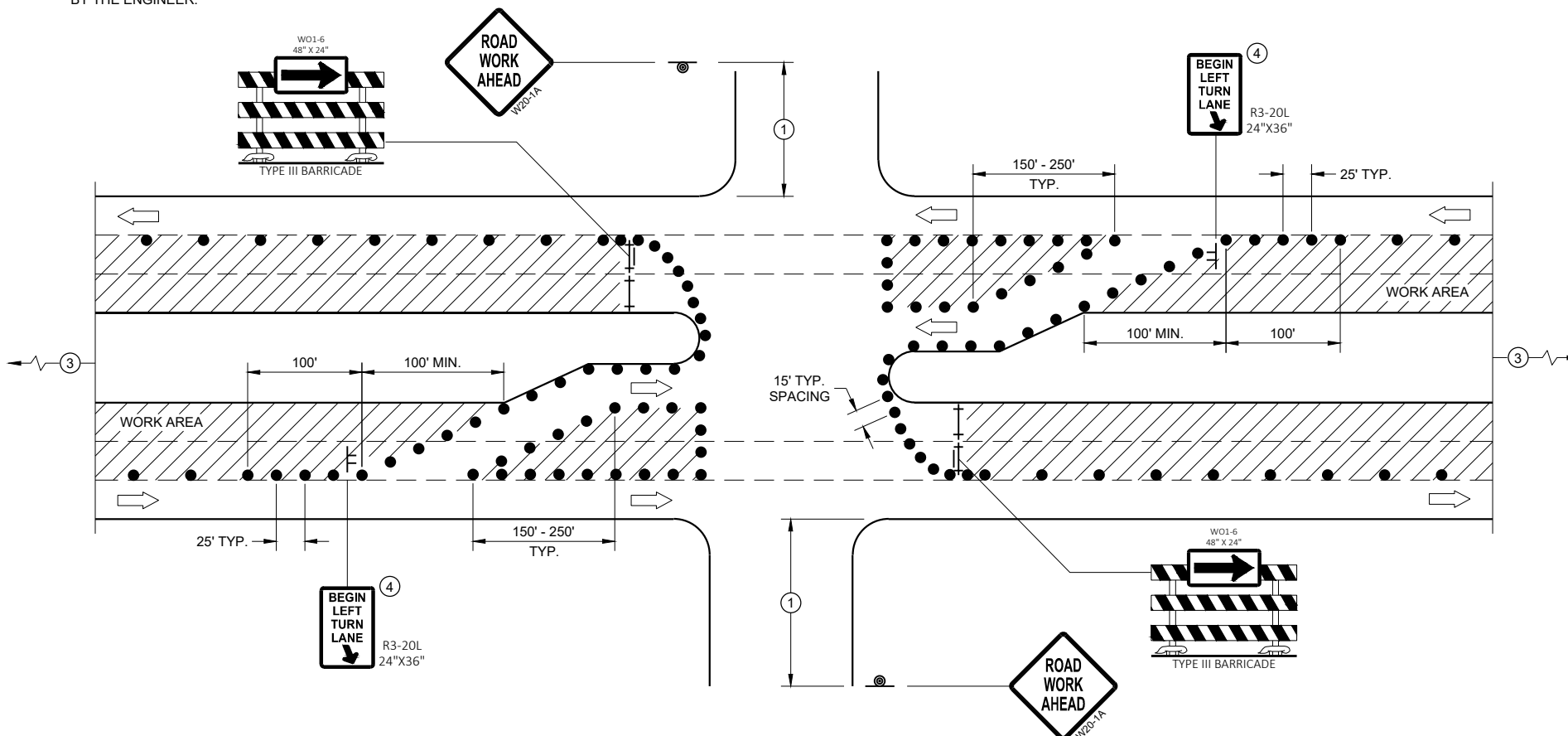
**TRAFFIC CONTROL,  
INTERSECTION WITHIN  
TWO RIGHT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**FOR LEFT TWO LANES CLOSED AT INTERSECTION OR MEDIAN BREAK**

PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.



**FOR LEFT TWO LANES CLOSED AT INTERSECTION OR MEDIAN BREAK (WITH LEFT TURN BAY OPEN)**

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.  
350' IF 35 - 40 MPH.  
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

6

6

SDD 15D23 - 07b

SDD 15D23 - 07b

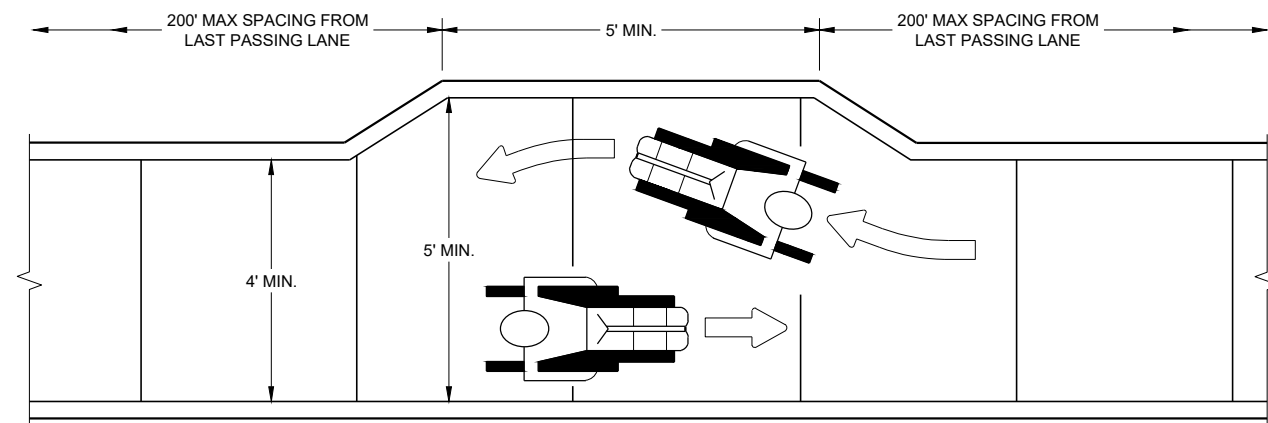
**TRAFFIC CONTROL, INTERSECTION WITHIN TWO LEFT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

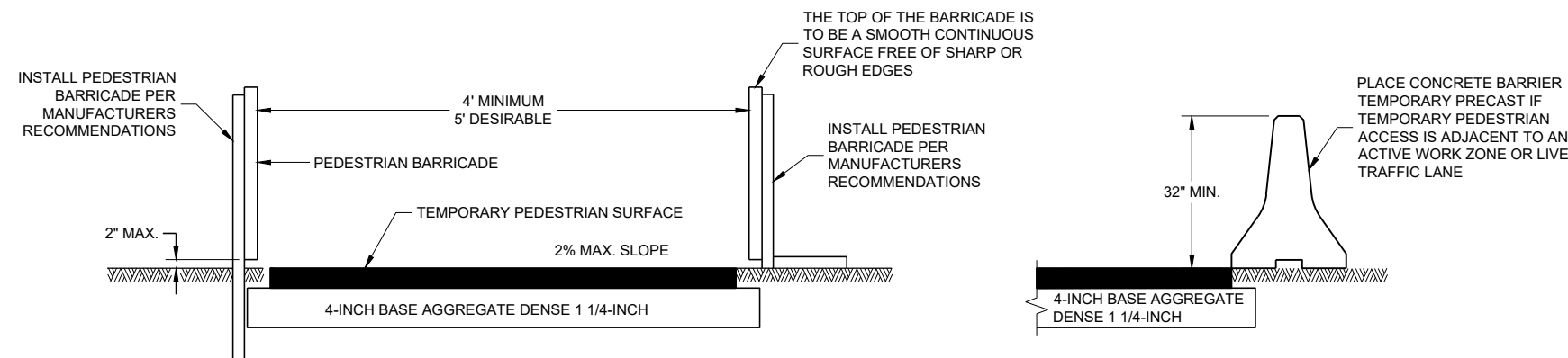
APPROVED  
August 2021 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA





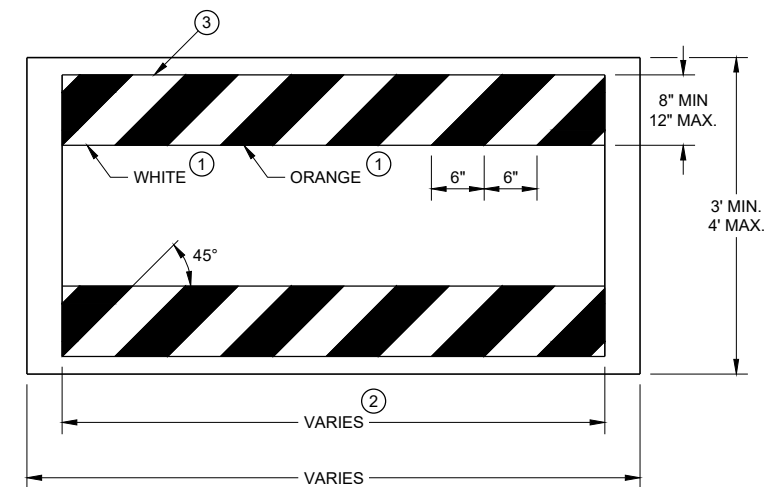
**NARROW SIDEWALK PASSING DETAIL**



**TEMPORARY PEDESTRIAN ACCESS**

**GENERAL NOTES**

- BARRICADE DEVICE SELECTED FROM APPROVED PRODUCT LIST
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② SHEETING REQUIRED ON MORE THAN 50% OF BARRICADE WIDTH.
- ③ PLACE SHEETING ON BOTH SIDES OF THE BARRICADE.
- \* USE THIS DETAIL FOR SHEETING PLACEMENT REFERENCE.

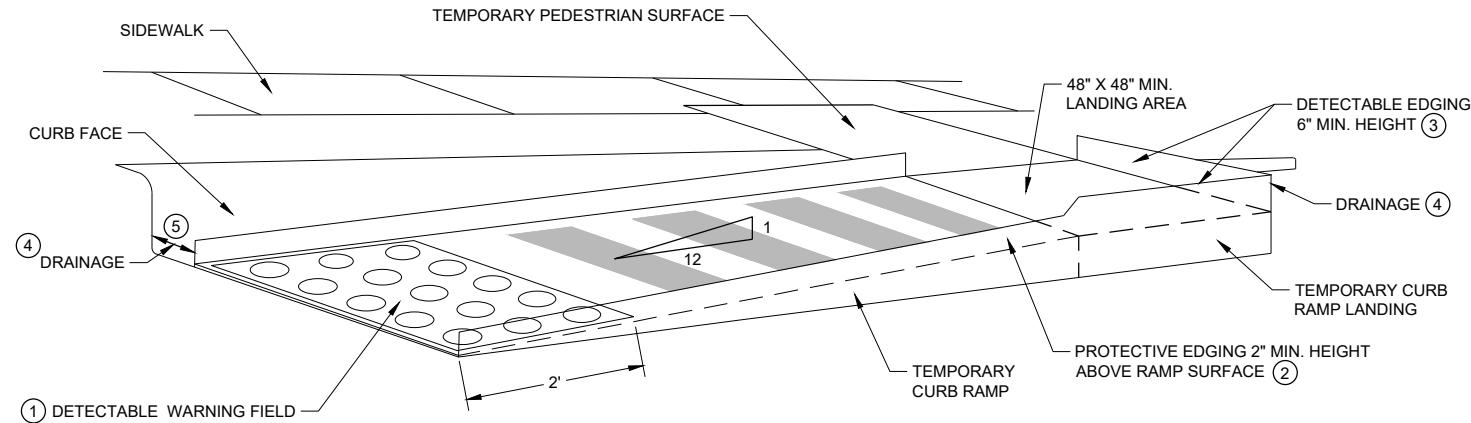


**TEMPORARY PEDESTRIAN BARRICADE\***

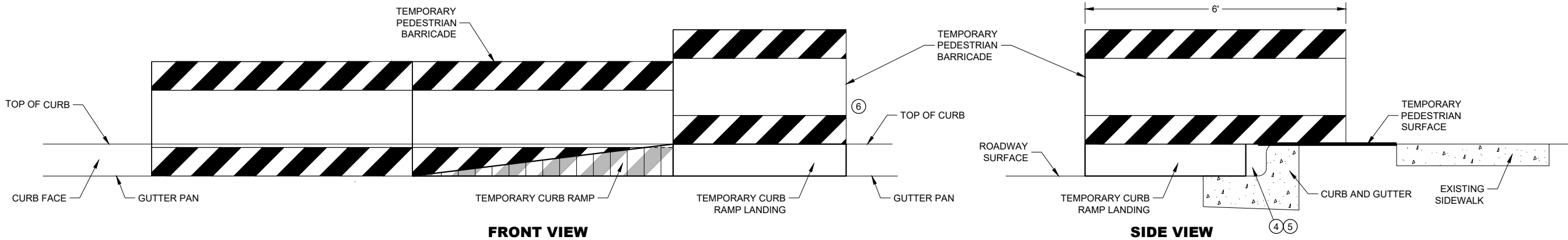
**GENERAL NOTES**

CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.  
 CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.  
 CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.  
 LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.  
 CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES MAY BE VERTICAL UP TO 1/4" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

- ① INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS.
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- ③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- ④ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ⑤ ENSURE CURB RAMP IS OUT OF THE GUTTER PAN.
- ⑥ IF ONLY PART OF THE END PANEL OF TEMPORARY PEDESTRIAN BARRICADE PANEL IS NEEDED, EXTEND EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL HERE.



**PERSPECTIVE VIEW**



**FRONT VIEW**

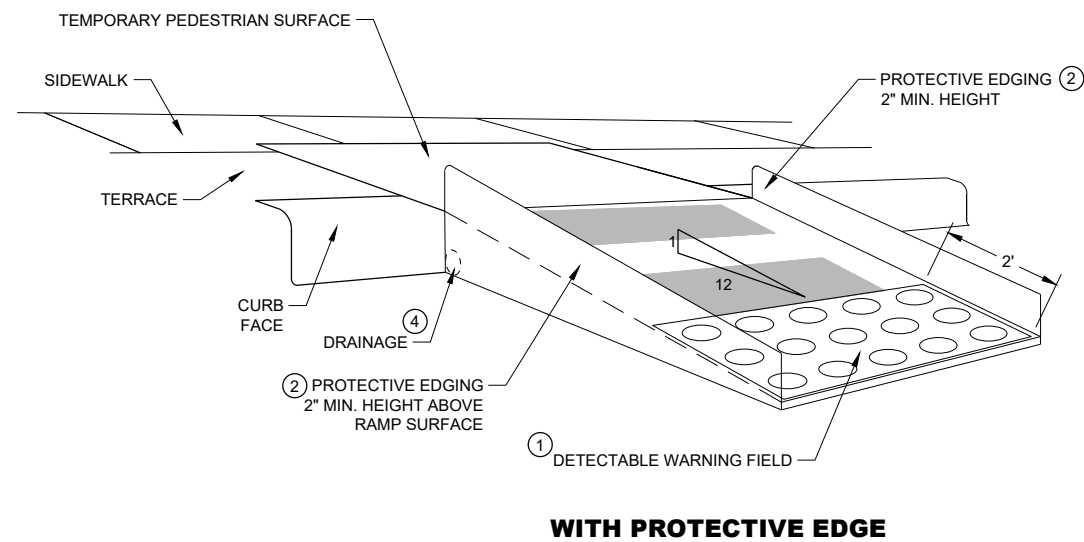
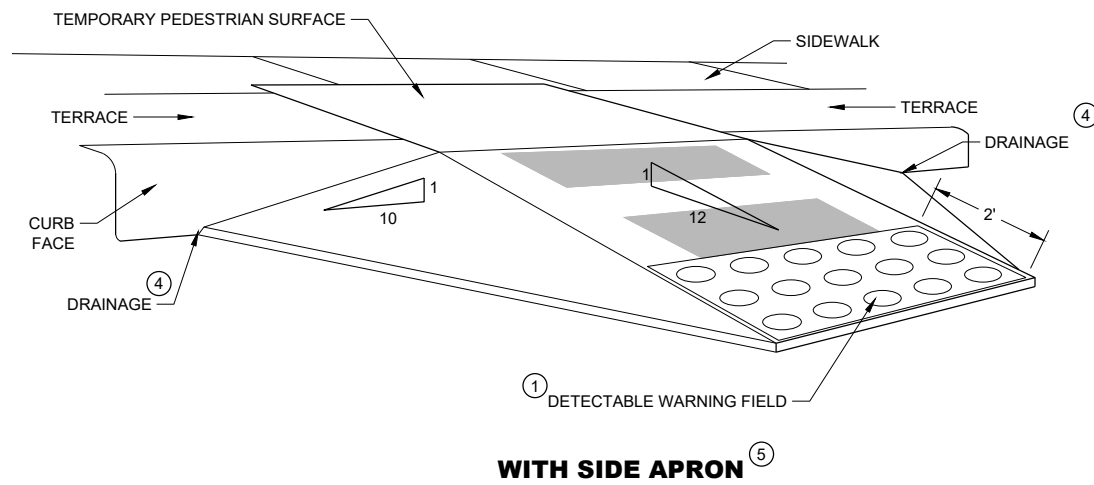
**SIDE VIEW**

**TEMPORARY CURB RAMP PARALLEL TO CURB**

**TRAFFIC CONTROL,  
PEDESTRIAN  
ACCOMMODATION**

---

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**TEMPORARY CURB RAMP PERPENDICULAR TO CURB**

**GENERAL NOTES**

CURB RAMPS SHALL BE 48" MINIMUM WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.

CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

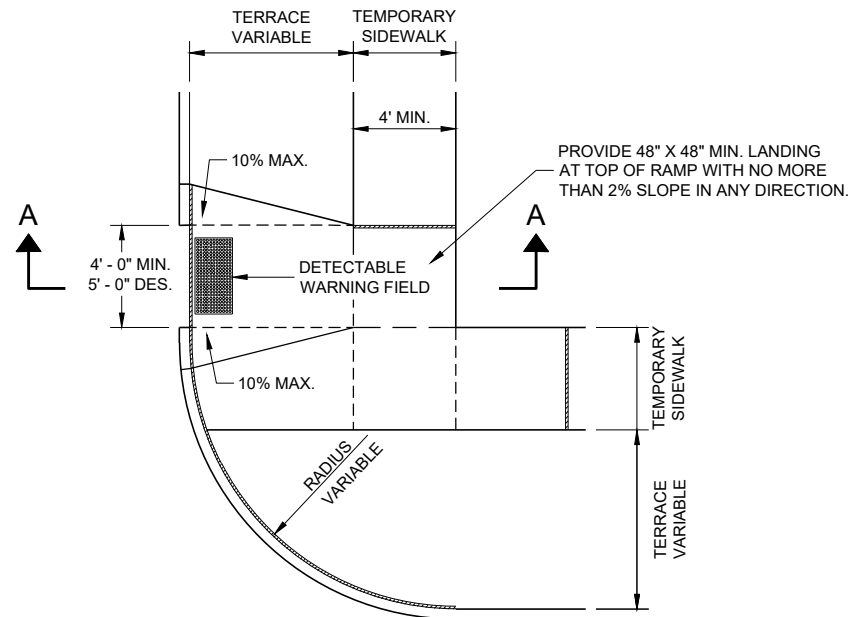
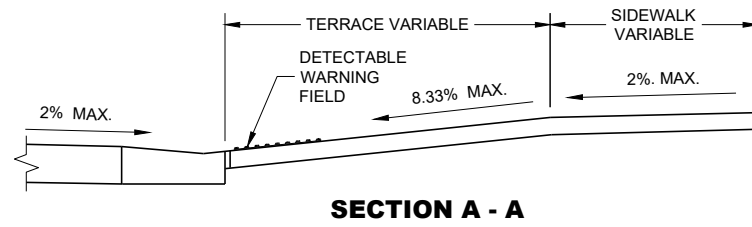
LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES MAY BE VERTICAL UP TO 1/4" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

- ① INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- ③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- ④ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ⑤ CAN ONLY BE USED FOR RAMPS WITH 6" OR LESS OF VERTICAL CHANGE.

**GENERAL NOTES**

- BARRICADE DEVICE SELECTED FROM APPROVED PRODUCT LIST
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② SHEETING REQUIRED ON MORE THAN 50% OF BARRICADE WIDTH.
- ③ PLACE SHEETING ON BOTH SIDES OF THE BARRICADE.
- ★ USE THIS DETAIL FOR SHEETING PLACEMENT REFERENCE.



**PLAN VIEW**  
**TEMPORARY TYPE 3 RAMP**  
 (OUTSIDE OF CROSSWALK AREA)

6

6

SDD 15D30-08d

SDD 15D30-08d

<b>TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/s/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

**GENERAL NOTES**

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.

NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.

PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMP OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.

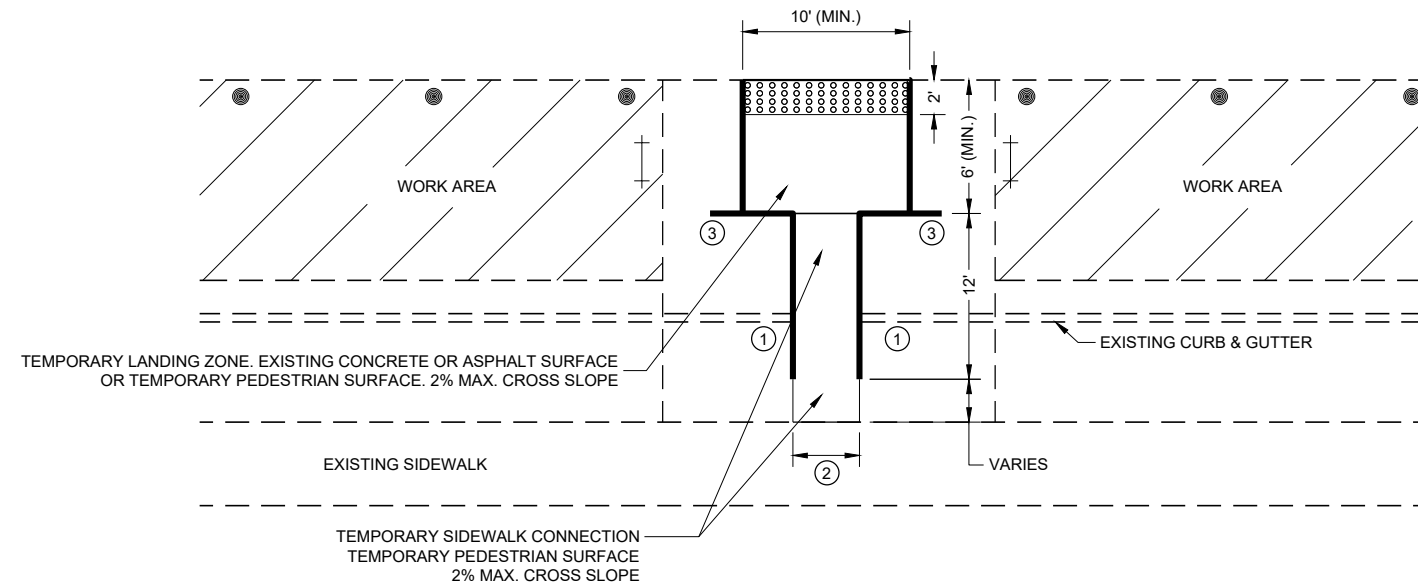
DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).

LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

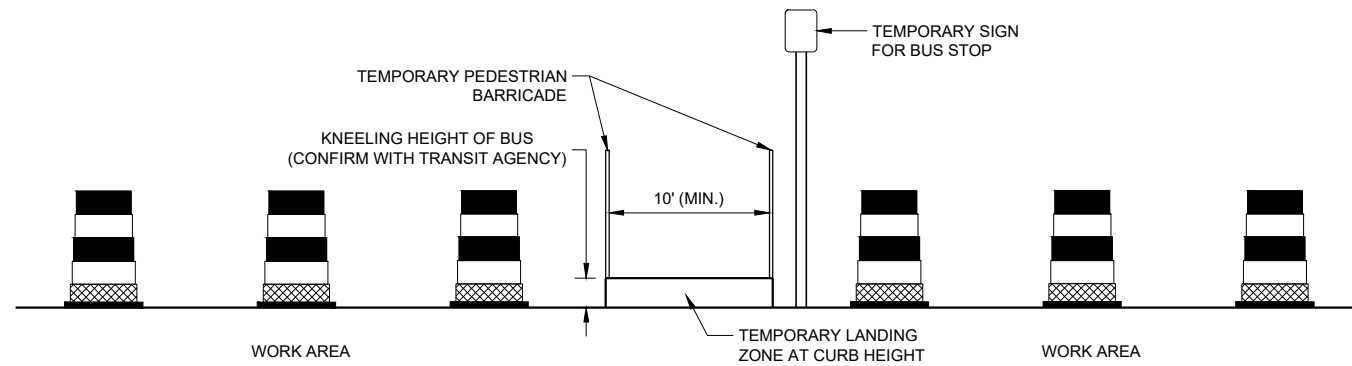
CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES MAY BE VERTICAL UP TO 1/4" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.

- ① DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ② 5' WIDE MIN. WITH TEMPORARY PEDESTRIAN BARRICADE, 10' WIDE MIN. WITHOUT TEMPORARY PEDESTRIAN BARRICADE.
- ③ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE INTO THIS SPACE.



**PLAN VIEW**



**PROFILE VIEW  
TEMPORARY BUS STOP PAD**







**LEGEND**

- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TEMPORARY PEDESTRIAN BARRICADE
- TEMPORARY DETECTABLE WARNING FIELD
- WORK AREA

**TRAFFIC CONTROL,  
PEDESTRIAN ACCOMMODATION**

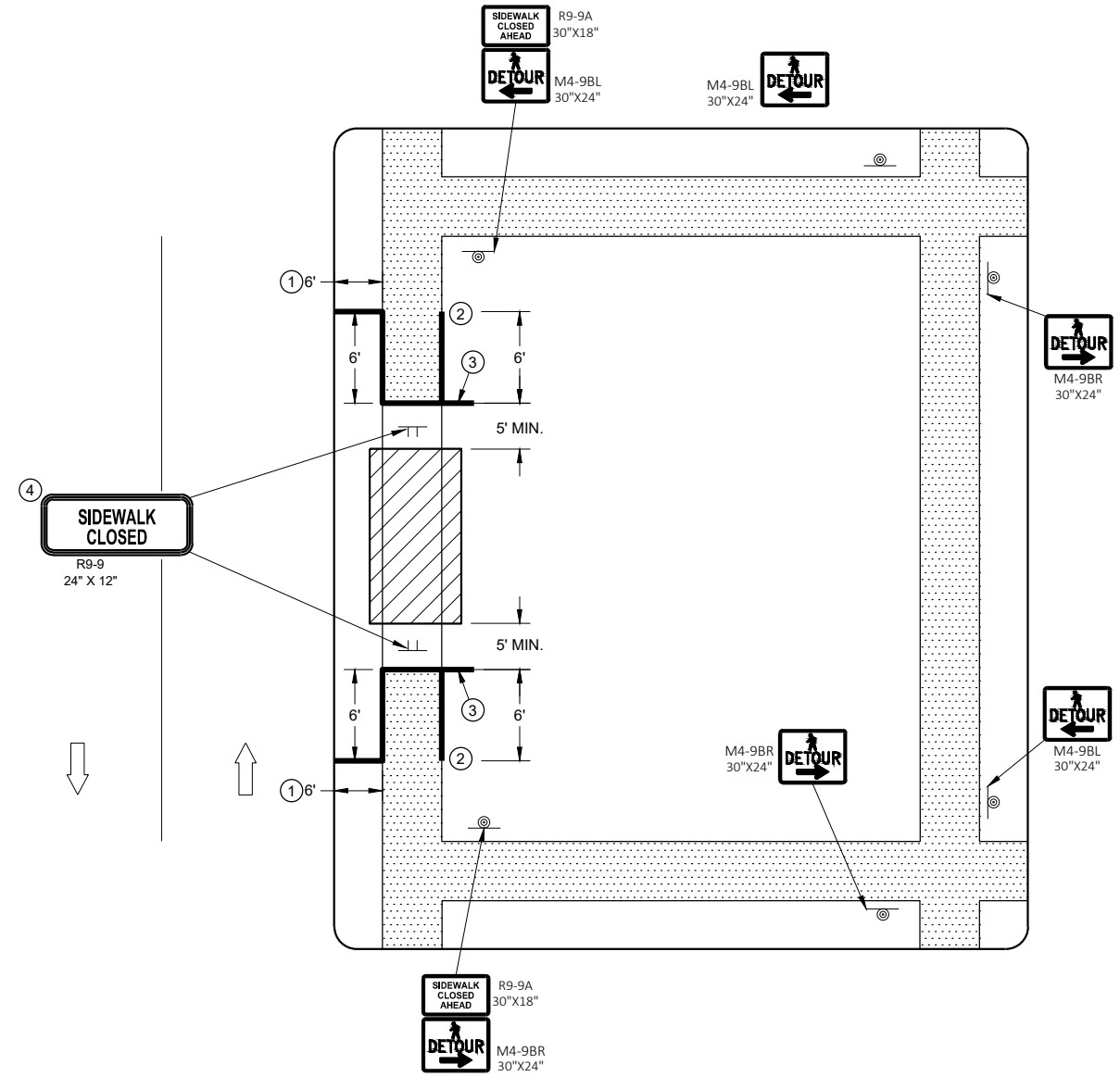
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  UNDER PEDESTRIAN TRAFFIC
-  WORK AREA
-  TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC

**GENERAL NOTES**








- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.
- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- SIGNS THAT REMAIN IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICTS WITH DRIVEWAYS AND OTHER EXISTING FEATURES.
- ① IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
  - ② PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
  - ③ IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
  - ④ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



**SIDEWALK DETOUR, SIDEWALK ONLY ON ONE SIDE**

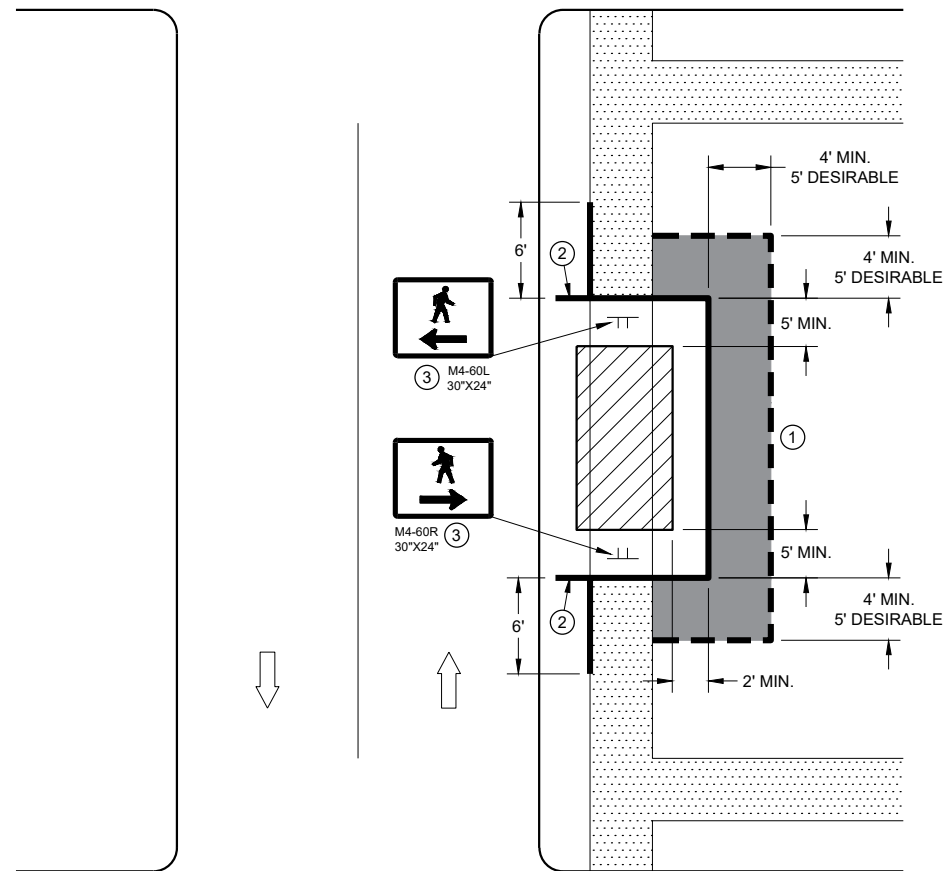
<b>TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION</b>
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

**LEGEND**

-  SIGN ON TEMPORARY SUPPORT
-  WORK AREA
-  UNDER PEDESTRIAN TRAFFIC
-  TEMPORARY PEDESTRIAN SURFACE
-  TEMPORARY PEDESTRIAN BARRICADE
-  OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC










**GENERAL NOTES**

- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.
- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- SIGNS THAT REMAIN IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- ① USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- ② IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- ③ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



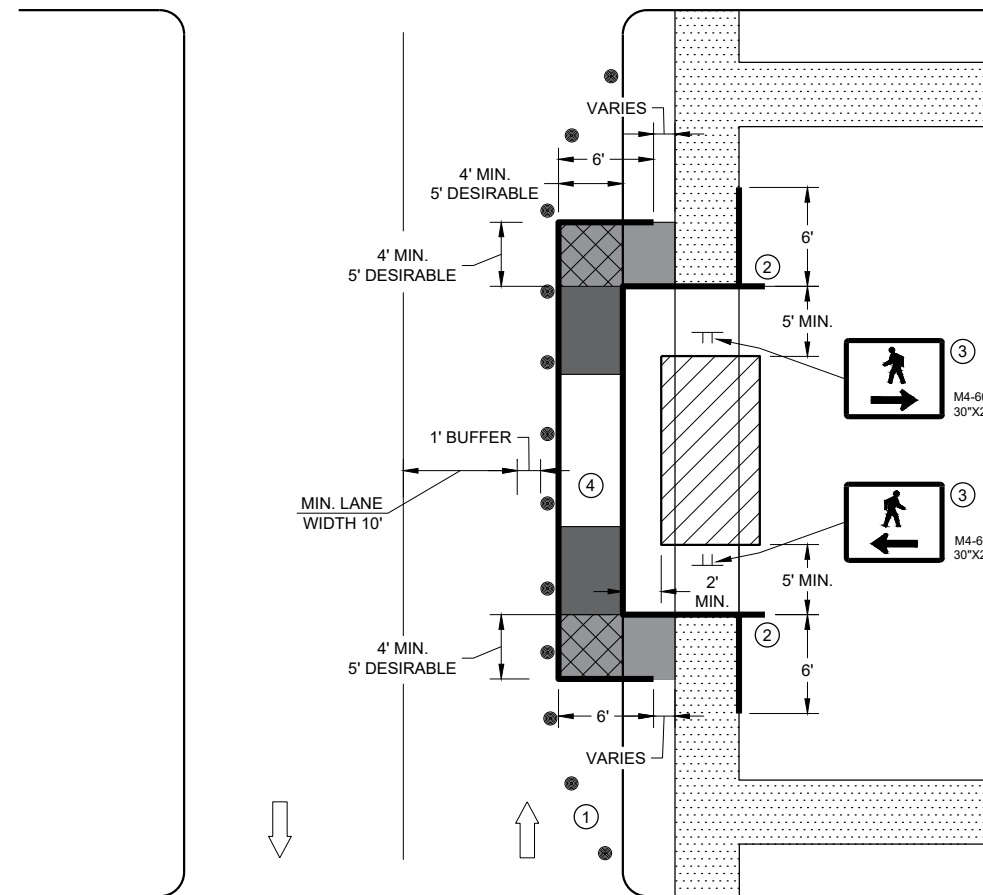
**SIDEWALK DIVERSION  
SINGLE SIDE**

**LEGEND**

-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  WORK AREA
-  UNDER PEDESTRIAN TRAFFIC
-  TEMPORARY CURB RAMP
-  TEMPORARY PEDESTRIAN SURFACE "A"
-  TEMPORARY PEDESTRIAN SURFACE "B"
-  TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC

**GENERAL NOTES**

- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.
- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND BUFFER SPACE REQUIRED.
  - ② PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL PAST THE SIDEWALK ON THE SIDE AWAY FROM THE ROAD.
  - ③ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.
  - ④ USE EXISTING PAVEMENT SURFACE. IF EXISTING PAVEMENT SURFACE HAS BEEN REMOVED, USE A TEMPORARY PEDESTRIAN SURFACE.



**SIDEWALK DIVERSION, SINGLE SIDE**

<b>TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION</b>
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

6

SDD 15D30 - 08h

SDD 15D30 - 08h



### GENERAL NOTES

IF PEDESTRIAN PUSH BUTTONS ARE PRESENT ON THE EXISTING FACILITY, ENSURE THEY ARE MAINTAINED/ACCESSIBLE FOR PEDESTRIAN USE THROUGHOUT THE TEMPORARY PEDESTRIAN ACCOMMODATIONS.











SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.

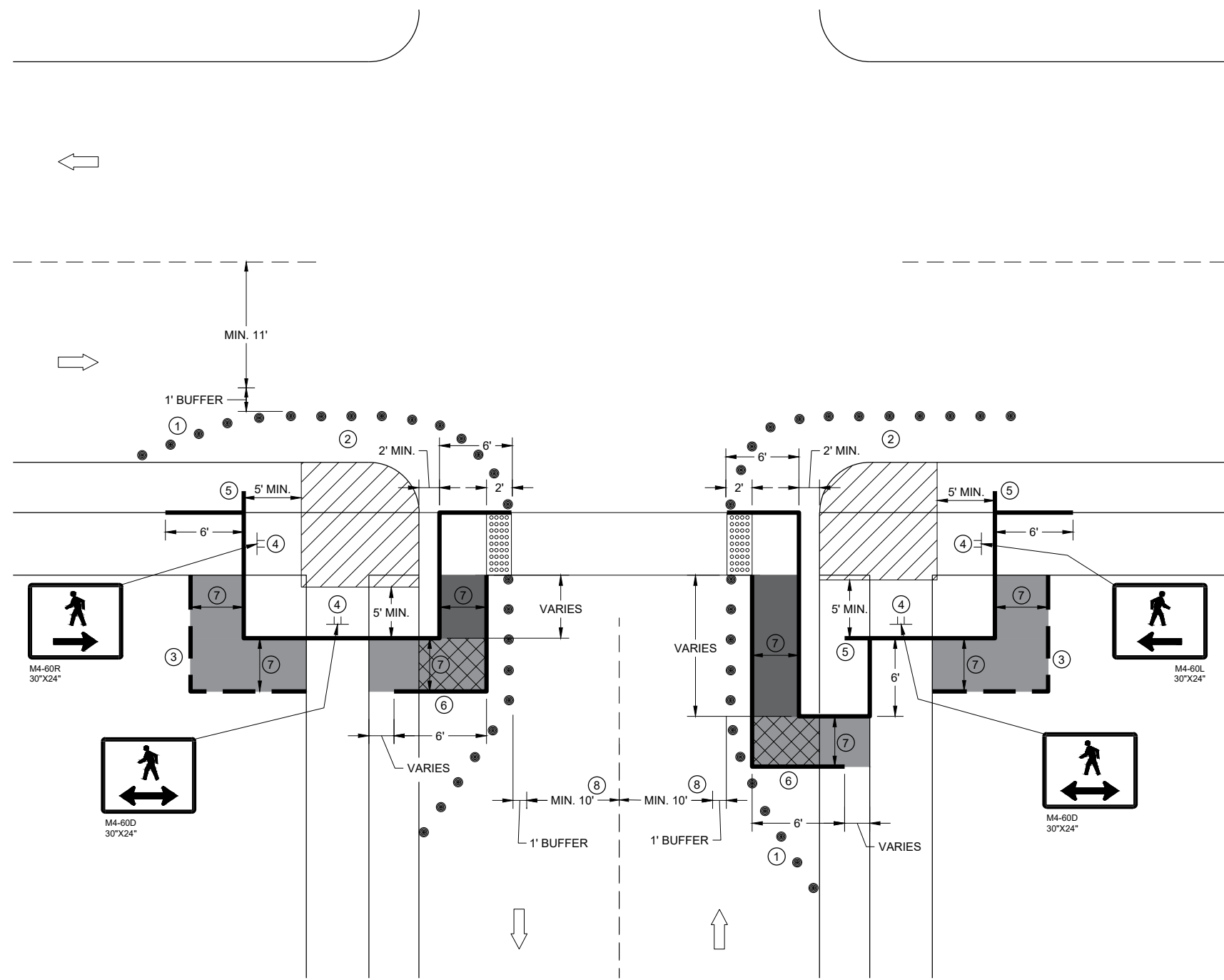
TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG

WHEN TEMPORARY PEDESTRIAN BARRICADE RUNS PARALLEL ALONG THE SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND PROPER BUFFER SPACE REQUIRED.
- ② PROVIDE ADEQUATE SPACE FOR CONTRACTOR OPERATIONS
- ③ USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- ④ MOUNTING HEIGHT OF 5 FEET FROM SIDEWALK SURFACE TO BOTTOM OF SIGN.
- ⑤ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL IN THE SIDEWALK TERRACE.
- ⑥ IF TEMPORARY PEDESTRIAN BARRICADE DOES NOT REACH THE FACE OF THE CURB, USE AN ADDITIONAL PANEL AND EXTEND INTO THE TERRACE.
- ⑦ 4 FEET MINIMUM, 5 FEET DESIRABLE
- ⑧ IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, CURB RAMPS MAY NEED TO BE CONSTRUCTED AT SEPARATE TIMES.

### LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  WORK AREA
-  TEMPORARY CURB RAMP
-  TEMPORARY PEDESTRIAN SURFACE "A"
-  TEMPORARY PEDESTRIAN SURFACE "B"
-  TEMPORARY DETECTABLE WARNING FIELD
-  TEMPORARY PEDESTRIAN BARRICADE
-  OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC



**CURB RAMP PEDESTRIAN TRAFFIC CONTROL  
SIDEWALK ON SINGLE SIDE**

<b>TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION</b>
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

6

SDD 15D30 - 08i

SDD 15D30 - 08i

**GENERAL NOTES**

IF PEDESTRIAN PUSH BUTTONS ARE PRESENT ON THE EXISTING FACILITY, ENSURE THEY ARE MAINTAINED/ACCESSIBLE FOR PEDESTRIAN USE THROUGHOUT THE TEMPORARY PEDESTRIAN ACCOMMODATIONS.











SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.

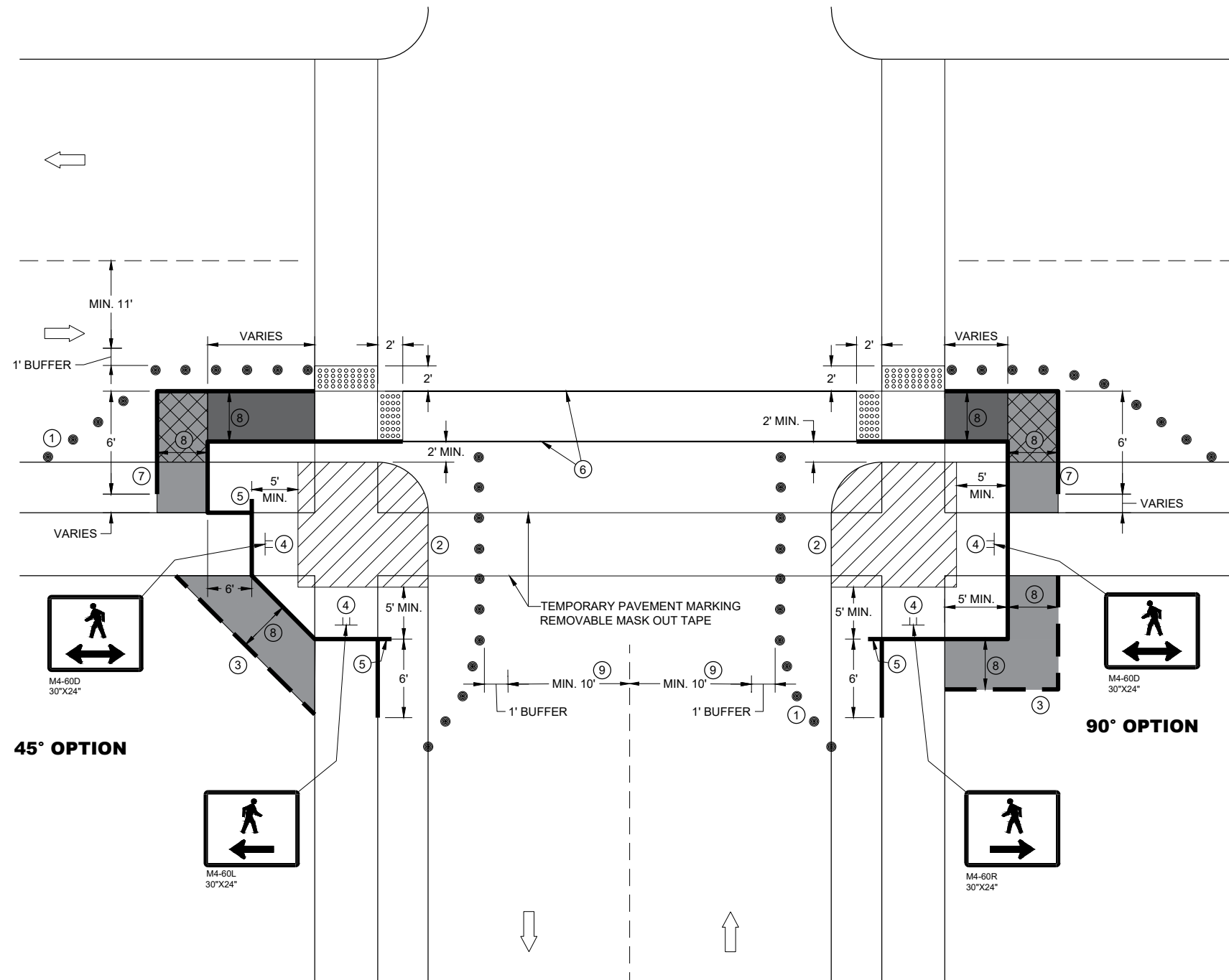
TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG

WHEN TEMPORARY PEDESTRIAN BARRICADE RUNS PARALLEL ALONG THE SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND PROPER BUFFER SPACE REQUIRED.
- ② PROVIDE ADEQUATE SPACE FOR CONTRACTOR OPERATIONS
- ③ USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- ④ MOUNTING HEIGHT OF 5 FEET FROM SIDEWALK SURFACE TO BOTTOM OF SIGN.
- ⑤ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL IN THE SIDEWALK TERRACE.
- ⑥ WHITE 6" TEMPORARY PAVEMENT MARKING
- ⑦ IF TEMPORARY PEDESTRIAN BARRICADE DOES NOT REACH THE FACE OF THE CURB, USE AN ADDITIONAL PANEL AND EXTEND INTO THE TERRACE.
- ⑧ 4 FEET MINIMUM, 5 FEET DESIRABLE
- ⑨ IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, CURB RAMPS MAY NEED TO BE CONSTRUCTED AT SEPARATE TIMES.

**LEGEND**

-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  WORK AREA
-  TEMPORARY CURB RAMP
-  TEMPORARY PEDESTRIAN SURFACE "A"
-  TEMPORARY PEDESTRIAN SURFACE "B"
-  TEMPORARY DETECTABLE WARNING FIELD
-  TEMPORARY PEDESTRIAN BARRICADE
-  OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC



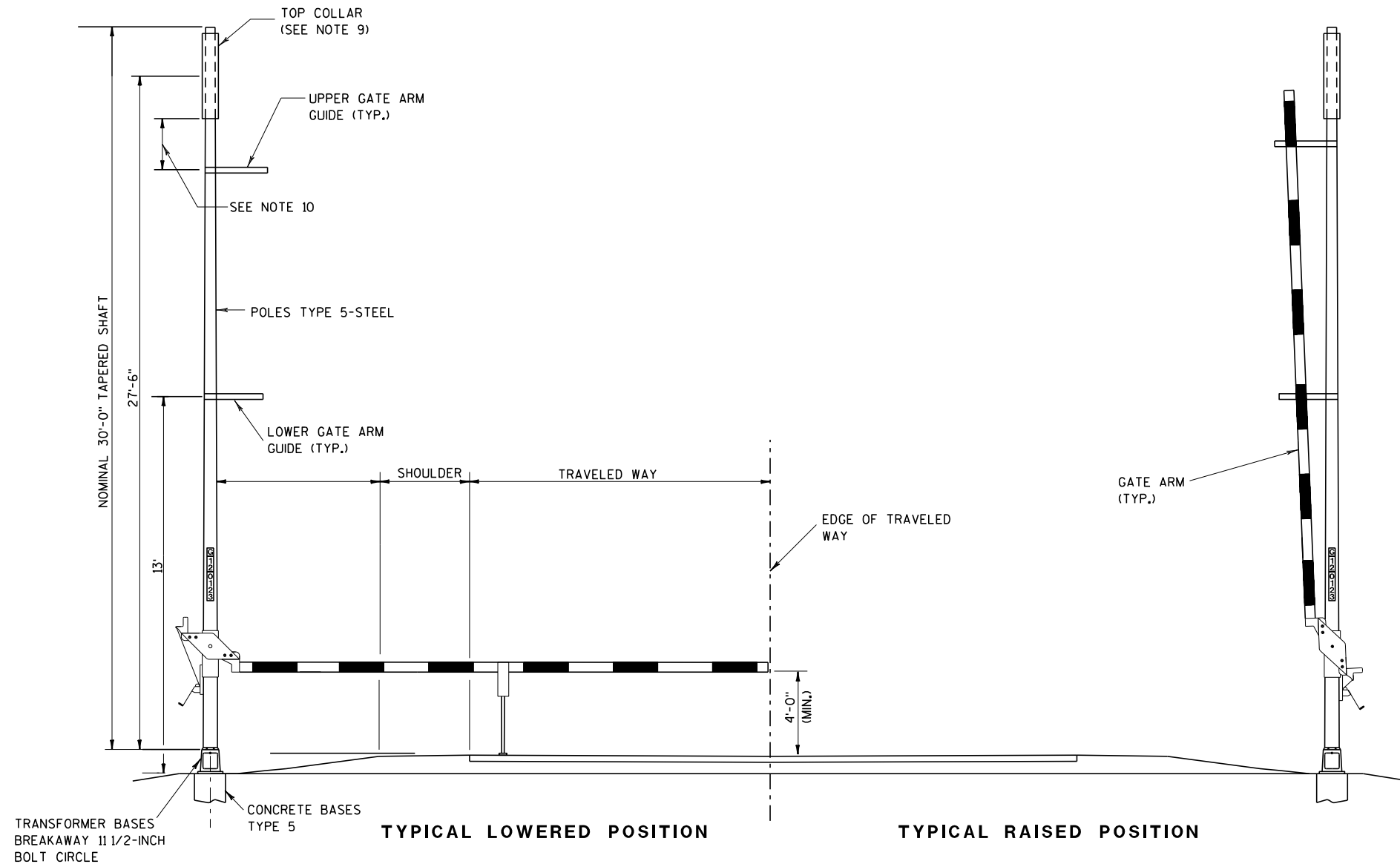
**CURB RAMP PEDESTRIAN TRAFFIC CONTROL**

**TRAFFIC CONTROL,  
PEDESTRIAN ACCOMMODATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

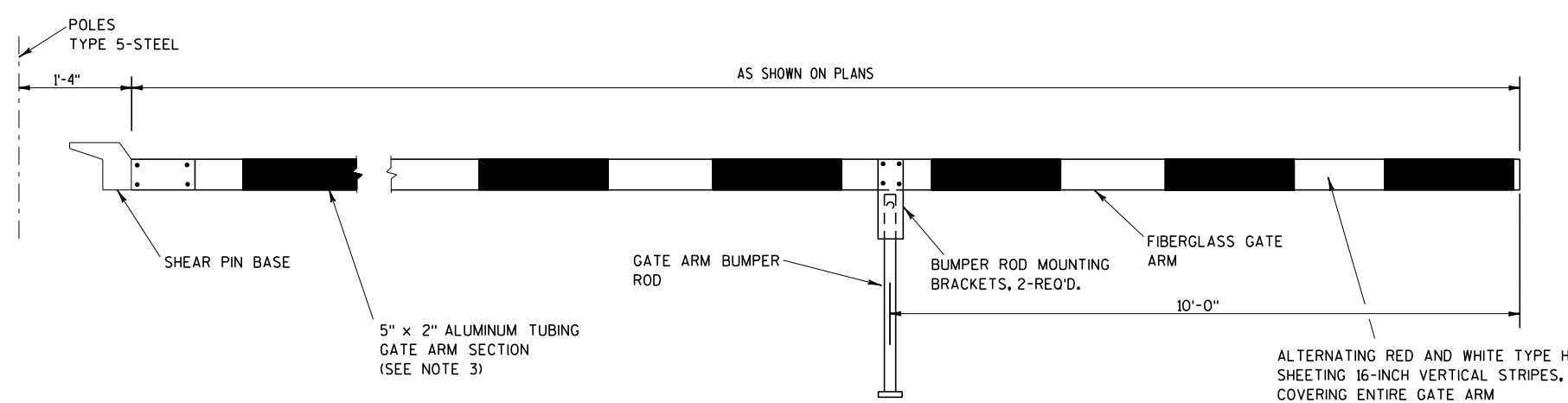
### GENERAL NOTES

1. THE LOCATION OF RAMP CLOSURE GATES AND MOUNTING HEIGHT OF GATE ARM PIVOT SHALL BE VERIFIED BY THE ENGINEER.
2. HEIGHT OF GATE ARM GUIDES MAY BE VARIED AS REQUIRED FOR WARNING LIGHT CLEARANCE.
3. FIBERGLASS/ALUMINUM GATE ARM AND SHEAR PIN BASE SHALL BE SUPPLIED BY THE SAME VENDOR.
4. GATE ARM TO BE MOUNTED ON PROPOSED POLE AS INDICATED ON THE PLANS. PROPOSED POLE SHALL BE TYPE 5 POLE.
5. LOCATION OF THE CONCRETE BASE AND LENGTH OF THE GATE ARM WILL BE VERIFIED BY THE ENGINEER TO ENSURE ADEQUATE COVERAGE OF THE TRAVELED LANE.
6. GATE PIVOTS, SUPPORTS AND GUIDES, AND ALL ASSOCIATED HARDWARE SHALL BE GALVANIZED. ALL ROUGH EDGES AND BURRS SHALL BE GROUND SMOOTH PRIOR TO GALVANIZING.
7. ALL EXPOSED BOLT THREADS SHALL BE PAINTED WITH TWO COATS OF ZINC RICH PAINT CONFORMING WITH THE REQUIREMENTS OF ASTM A 780.
8. ANY FIELD DAMAGE TO THE GALVANIZING SHALL BE REPAIRED WITH TWO COATS OF ZINC RICH PAINT CONFORMING WITH THE REQUIREMENTS OF ASTM A 780.
9. A STANDARD LIGHTING LUMINAIRE ARM MAY BE MOUNTED TO THE TYPE 5 POLE IN LIEU OF THE TOP COLLAR.
10. UPPER GATE ARM GUIDE IS TO BE INSTALLED 6 TO 12-INCHES BELOW THE BOTTOM OF THE TOP COLLAR.

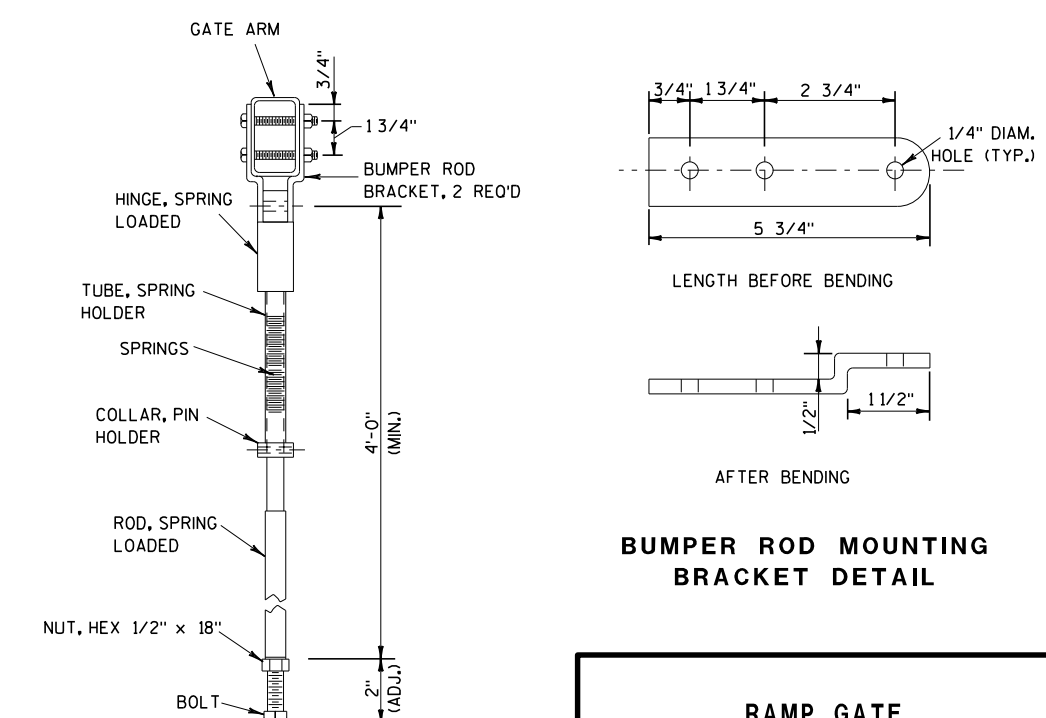


TYPICAL LOWERED POSITION

TYPICAL RAISED POSITION



GATE DETAIL

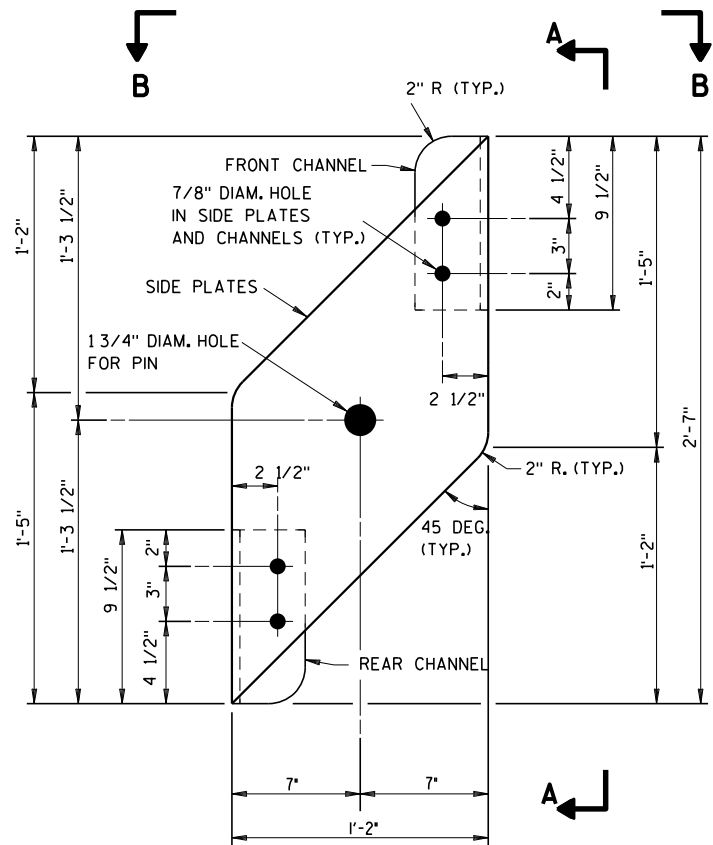


GATE ARM BUMPER ROD DETAIL

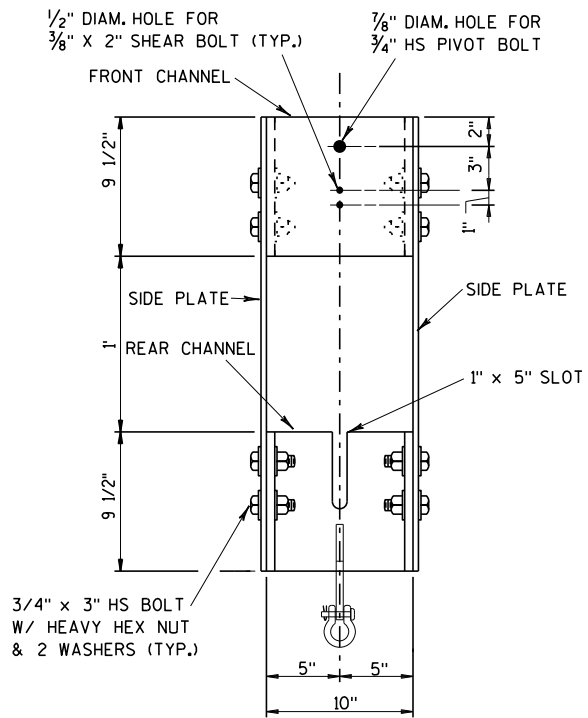
BUMPER ROD MOUNTING BRACKET DETAIL

**RAMP GATE**

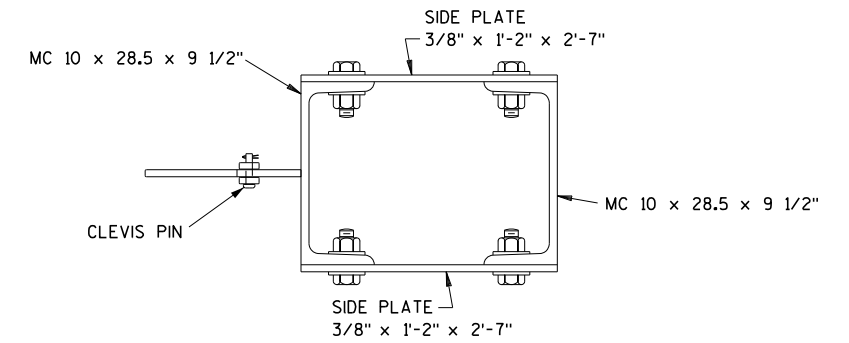
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



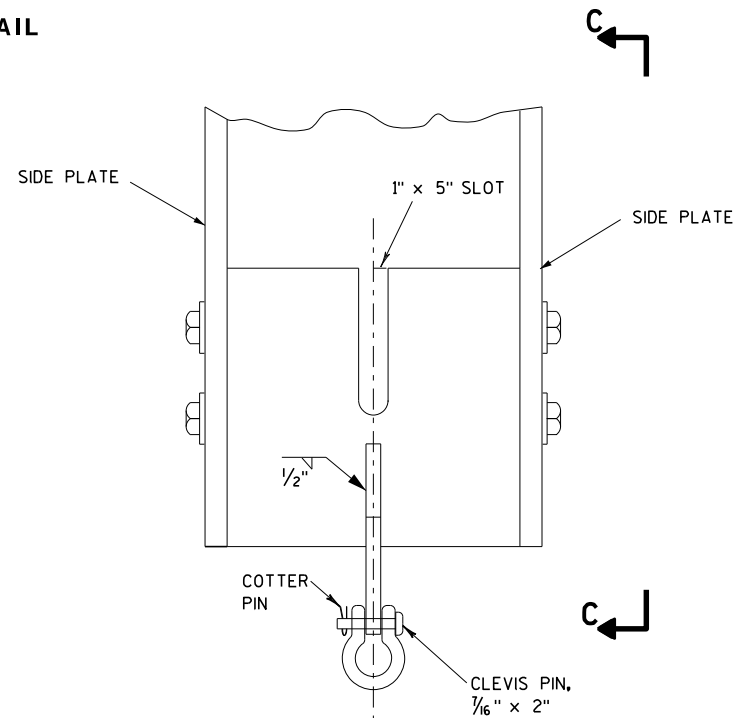
SIDE PLATE DETAIL



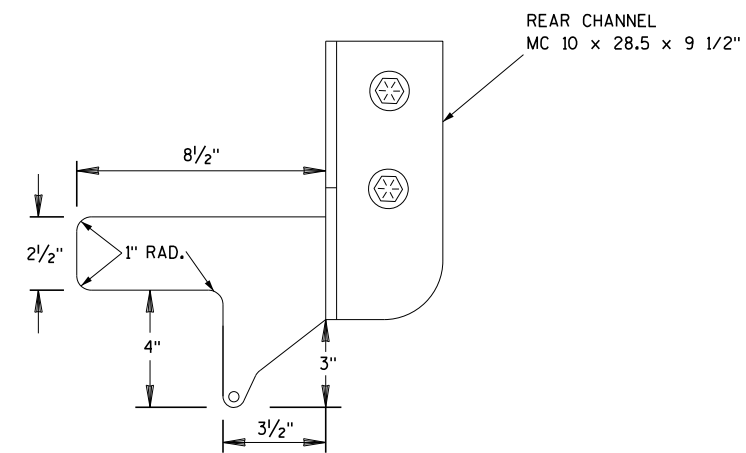
SECTION A-A



SECTION B-B



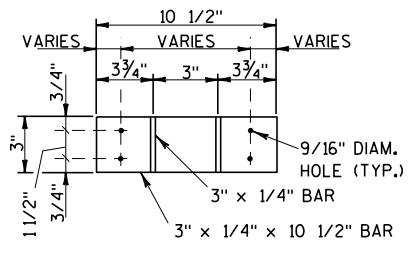
YOKE ASSEMBLY DETAIL



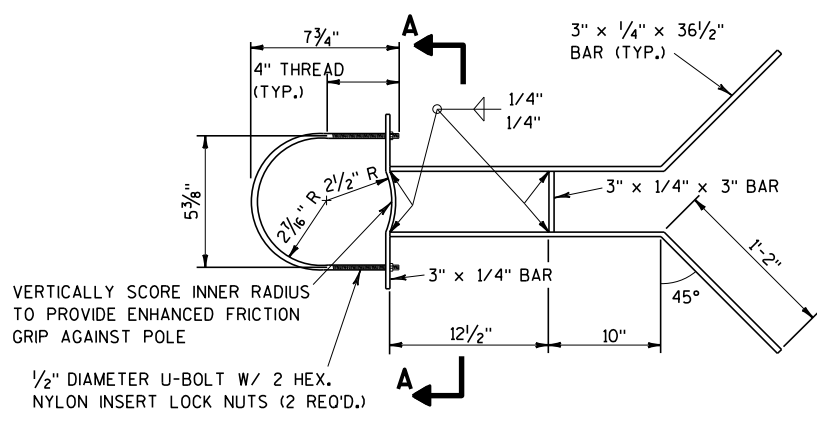
SECTION C-C

**GENERAL NOTES**

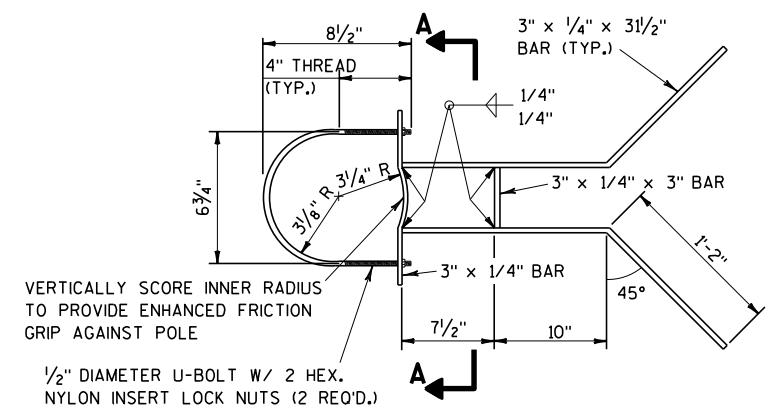
1. WHEN THE GATE IS FULLY RAISED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE OUTSIDE OF THE REAR CHANNEL.
2. WHEN THE GATE IS FULLY LOWERED, THE NUT AND WASHER SHALL BE PLACED SNUGLY AGAINST THE INSIDE OF THE REAR CHANNEL.
3. ANTI-SEIZE LUBRICATING MATERIAL SHALL BE USED ON ALL BOLT THREADS BEFORE INSTALLATION.
4. ALL BOLTS SHALL BE GALVANIZED AND CONFORM TO ASTM A307, GRADE A, UNLESS DESIGNATED AS HS (HIGH STRENGTH), WHICH SHALL CONFORM TO ASTM A325. BOLTS OF 1/2" NOMINAL DIAMETER OR LESS MAY BE STAINLESS STEEL.



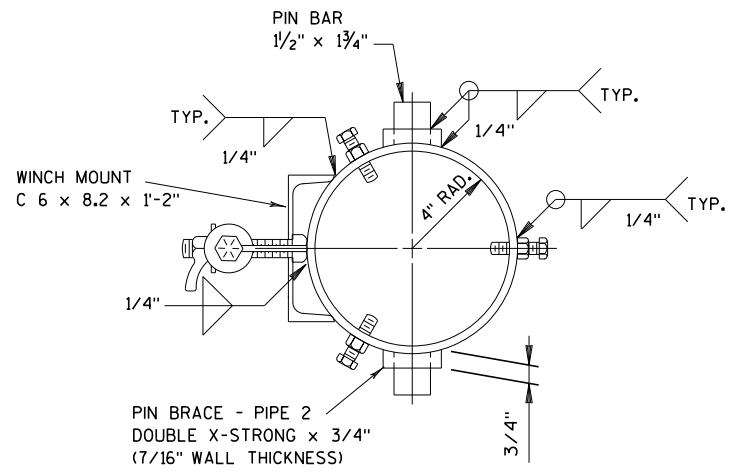
**SECTION A-A**  
U-BOLTS NOT SHOWN



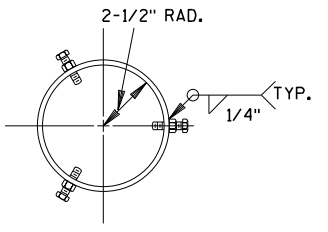
**UPPER GATE ARM GUIDE DETAIL**



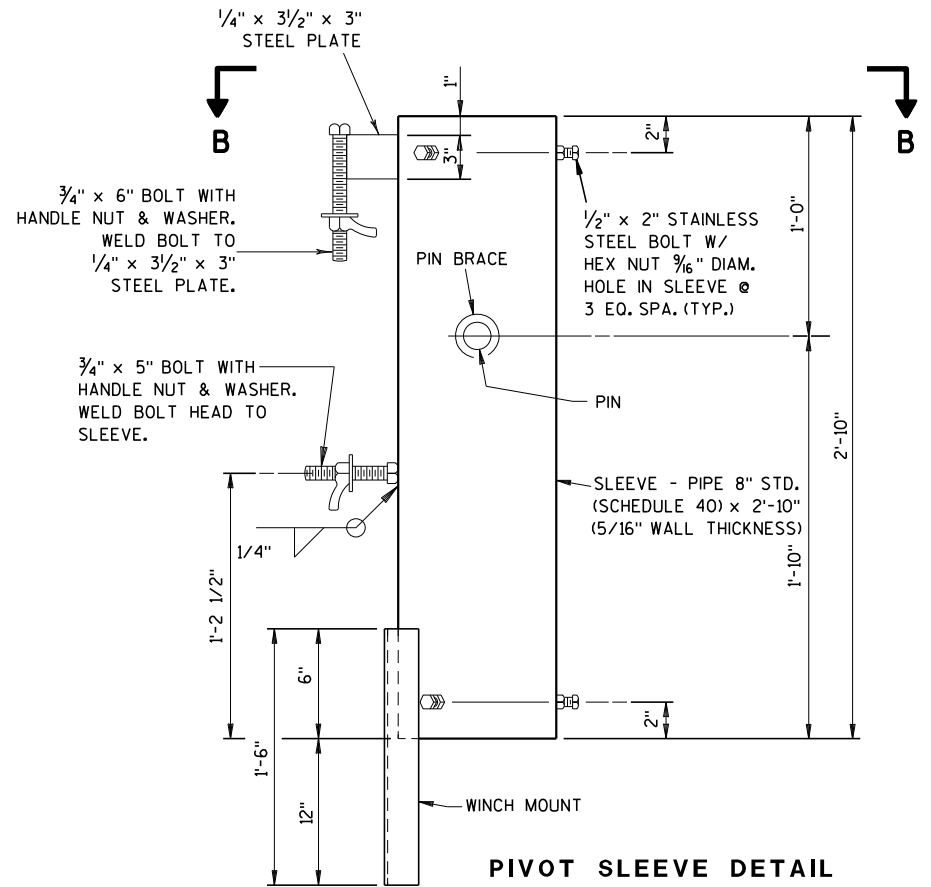
**LOWER GATE ARM GUIDE DETAIL**



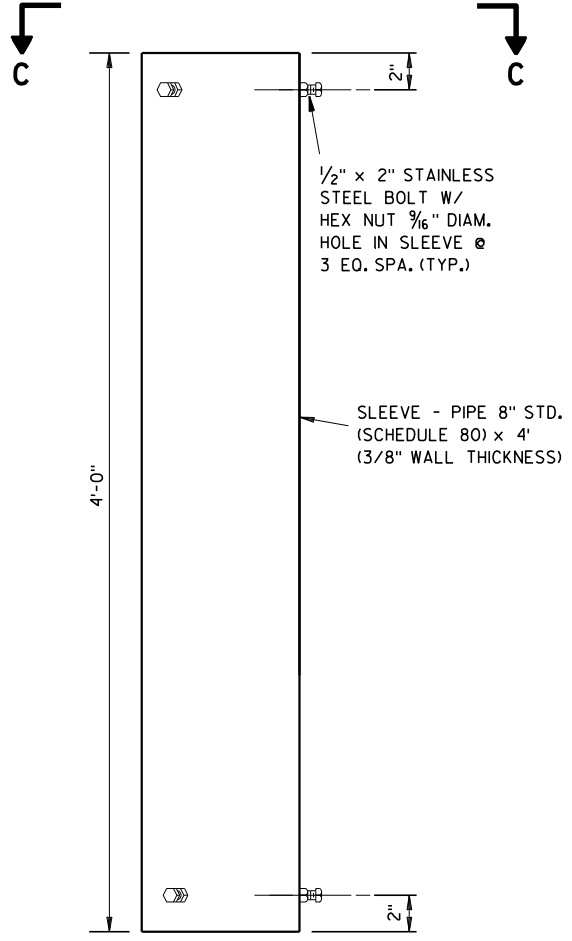
**SECTION B-B**



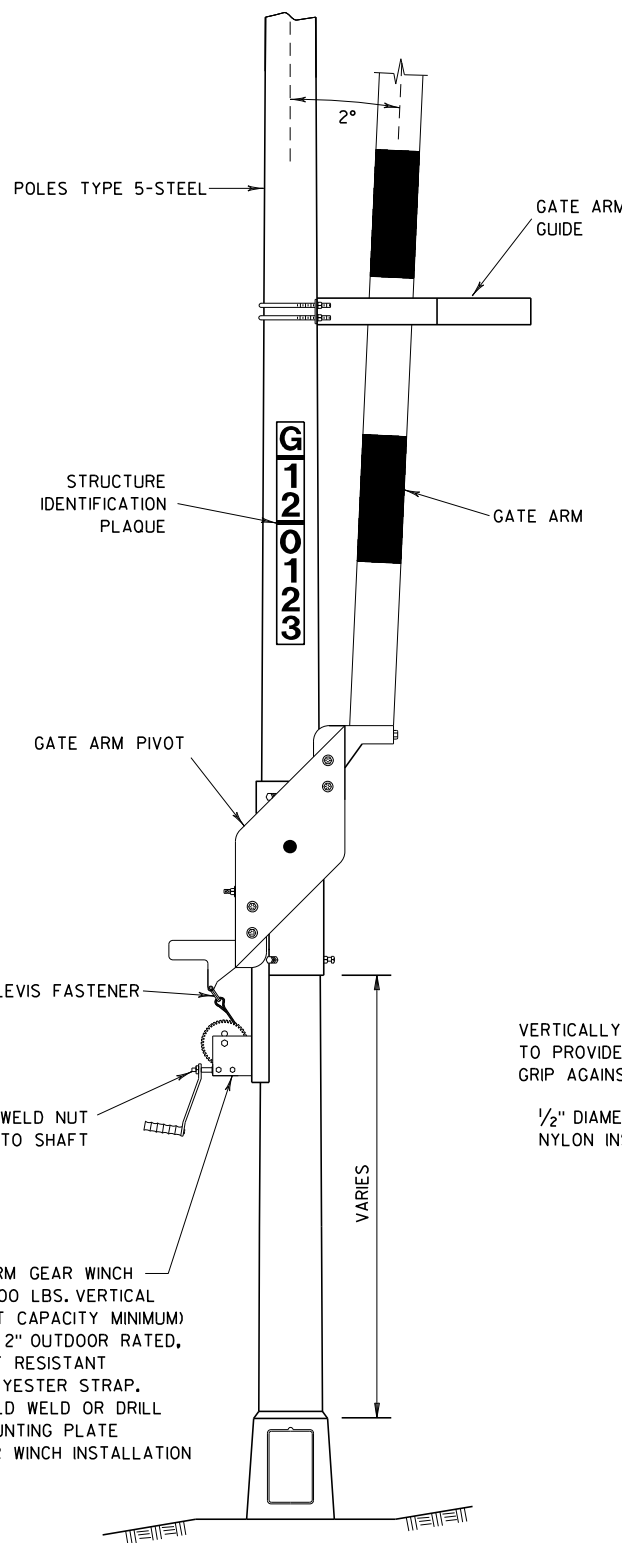
**SECTION C-C**



**PIVOT SLEEVE DETAIL**

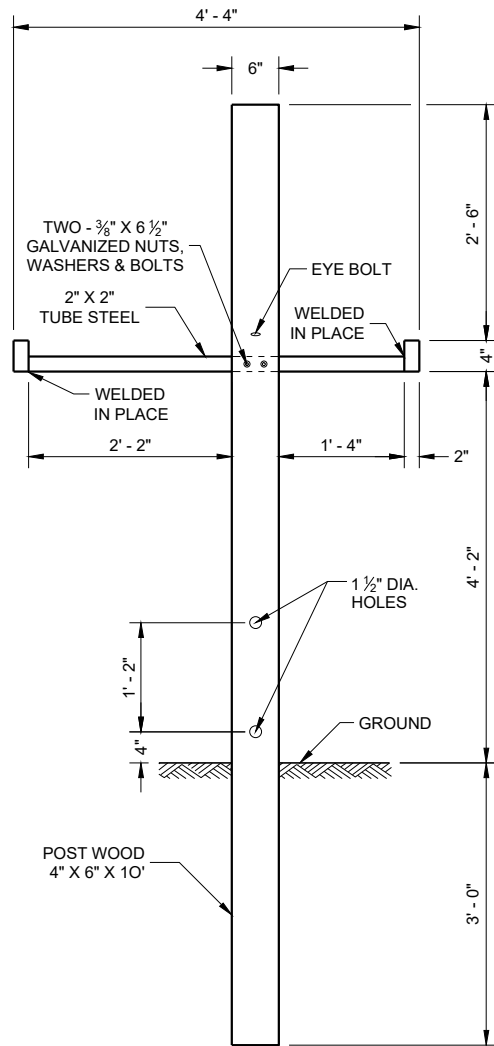


**TOP COLLAR**



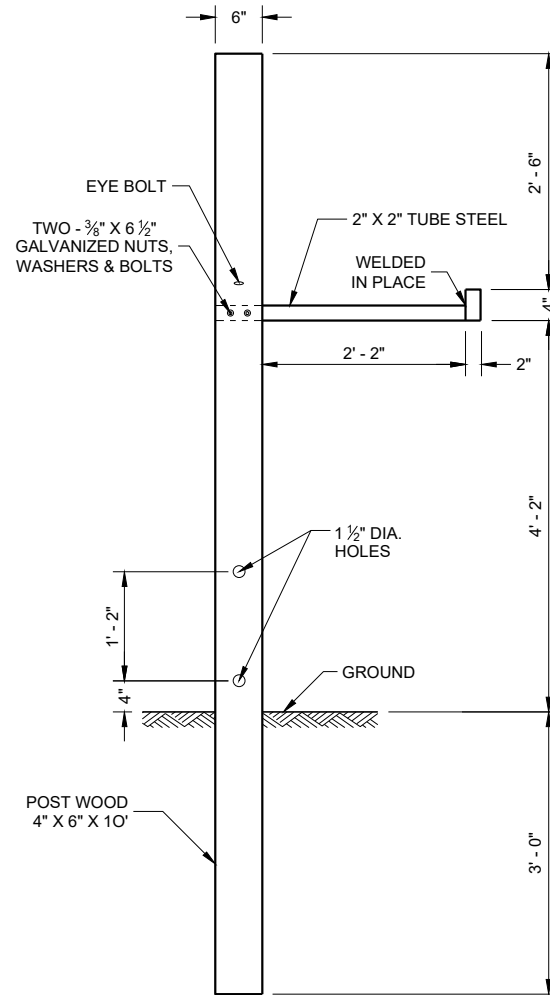
**GATE PIVOT ASSEMBLY**

<b>RAMP GATE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
DATE	
FHWA	



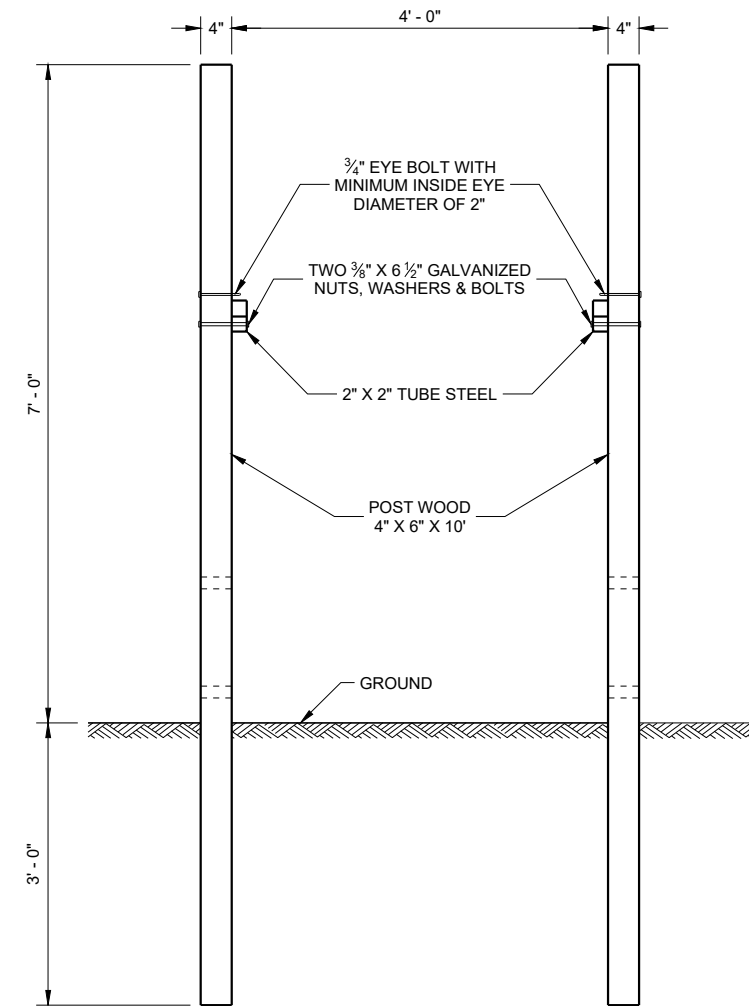
SIDE VIEW  
(3 BARRICADE SYSTEM)

FRONT TO ROAD



SIDE VIEW  
(2 BARRICADE SYSTEM)

FRONT TO ROAD



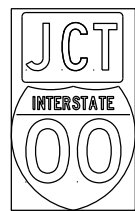
FRONT VIEW

### BARRICADE RACK

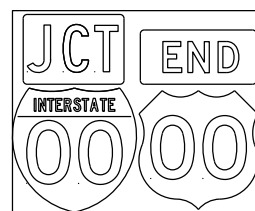
LOCATE OUTSIDE CLEAR ZONE AS DIRECTED BY ENGINEER

<b>BARRICADE RACK</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/30/2013 DATE	/S/ Bill Wondrachek STATE TRAFFIC INCIDENT MANAGEMENT ENGINEER
FHWA	

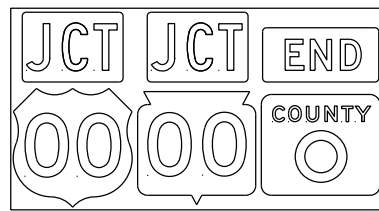
# TYPICAL ASSEMBLIES



J1-1



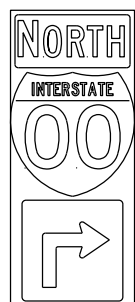
J1-2



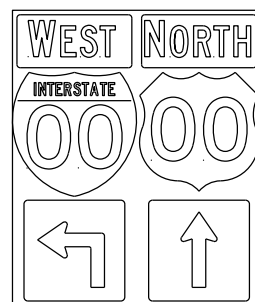
J1-3



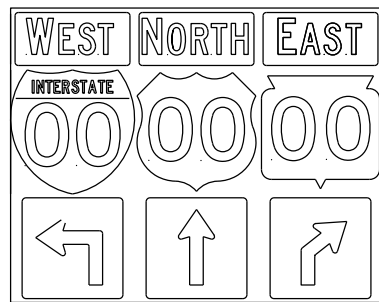
JR1-1



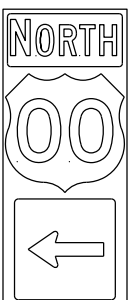
J2-1



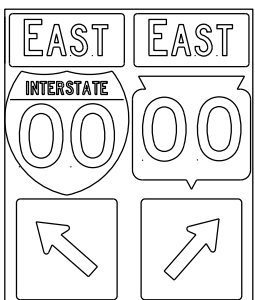
J2-2



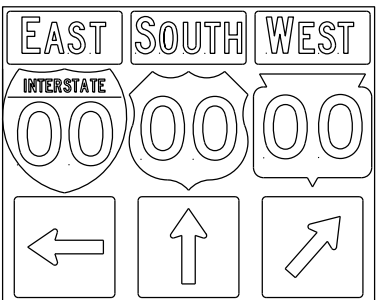
J2-3



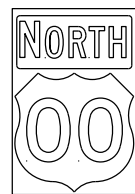
J3-1



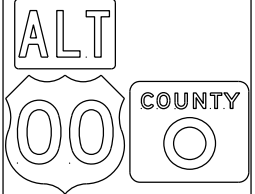
J3-2



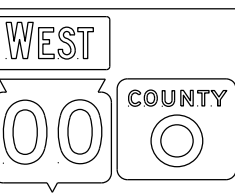
J3-3



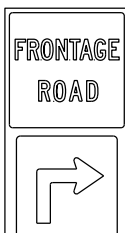
J4-1



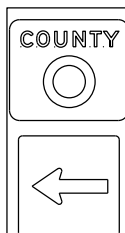
J4-2



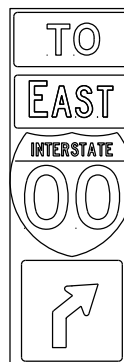
J4-2



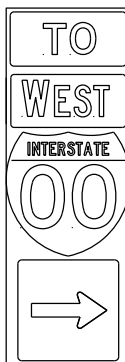
J12-1



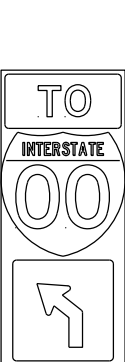
J13-1



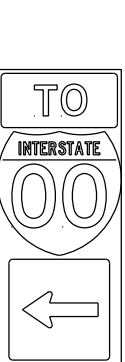
J32-1



J33-1



J22-1



J23-1



JR13-1



JR23-1

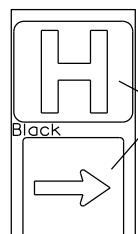


JR99-1



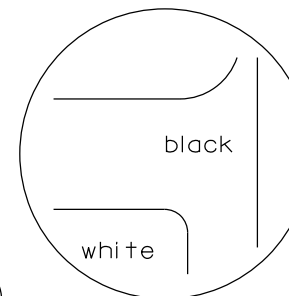
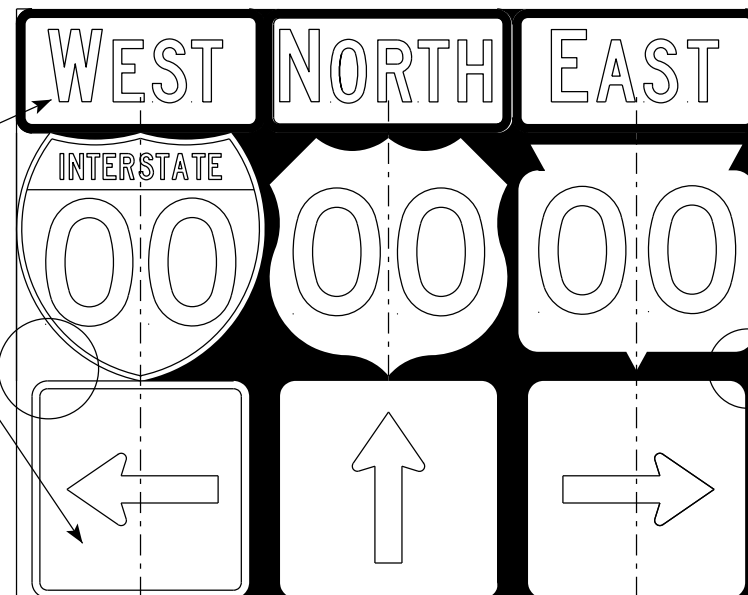
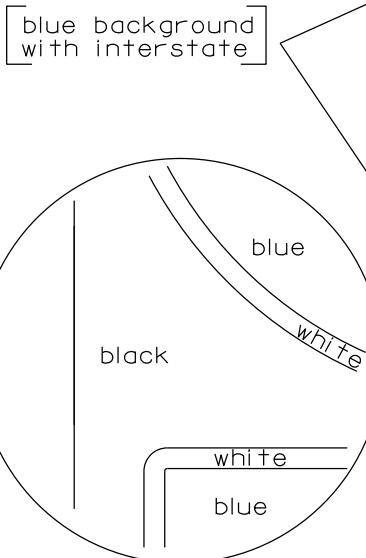
JV

(Typical Vertical J-Assembly See Note 10 and 11)



JH-1

Blue Background



black background

## NOTES

- Signs are Type II - Type H Reflective
- Color:
  - Background - Black Non-reflective
  - Message - see Note 5
- Message Series - See Note 5
- Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an MI-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- All Vertical J Assemblies are given a Sign Code of JV
- For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

### ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

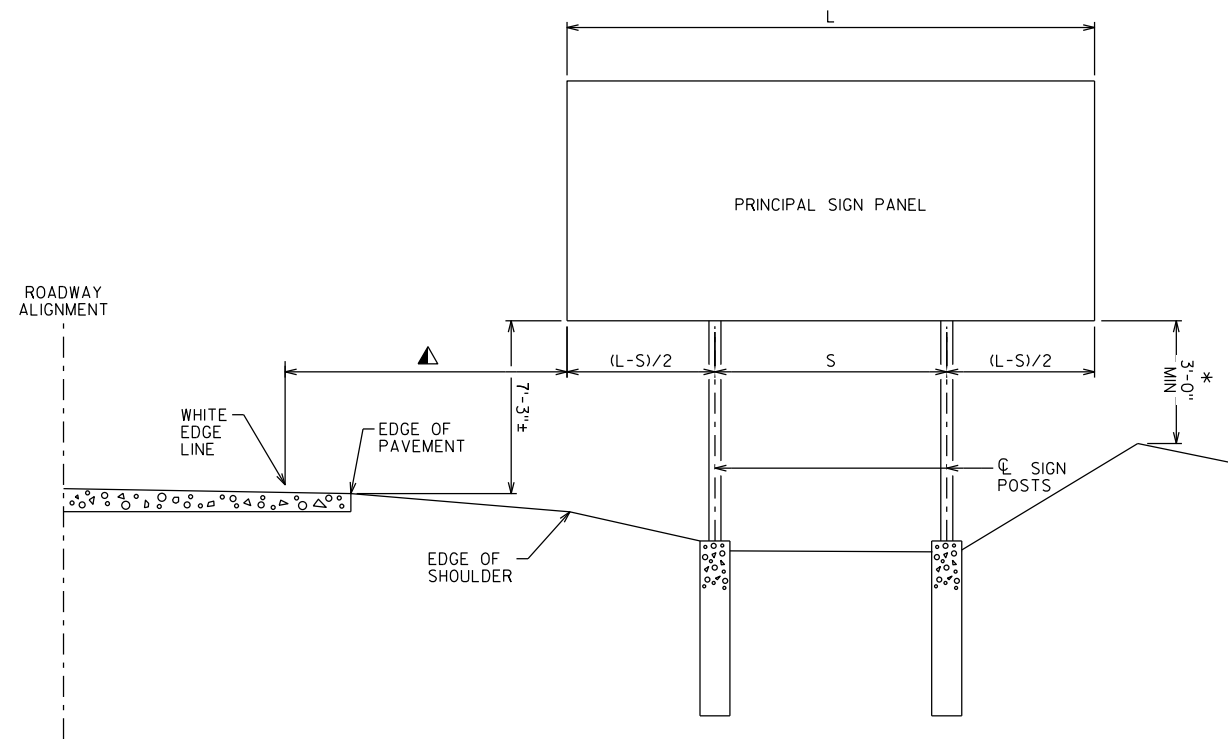
DATE 3/18/21

PLATE NO. A2-1S.9

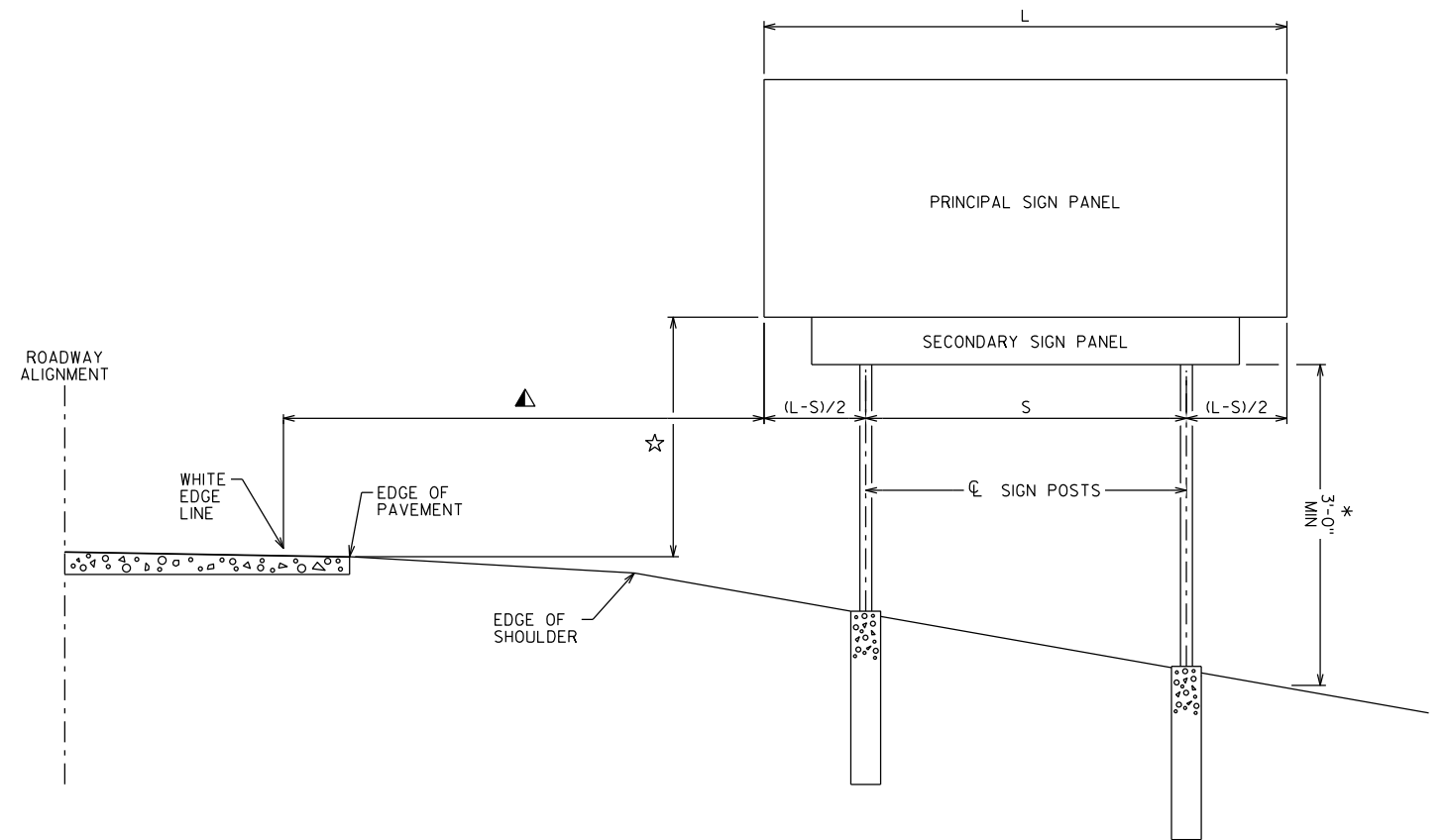
PROJECT NO:

SHEET NO:

E



INSTALLATION WITHOUT SECONDARY SIGN



INSTALLATION WITH SECONDARY SIGN

TYPE 1 SIGN INSTALLATION NOTES:

FOR A 2-POST INSTALLATION, "S" EQUALS  $3L/5$ , BUT SHALL NOT BE LESS THAN 6'-0".

FOR A 3-POST INSTALLATION, "S" EQUALS  $5L/7$ , BUT SHALL NOT BE LESS THAN 12'-0". THE SPACING BETWEEN ANY TWO POSTS SHALL NOT BE LESS THAN 6'-0".

▲ UNLESS NOTED IN THE PLANS, THE SIGN OFFSET DISTANCE SHALL BE A MINIMUM OF 17'-6" FROM THE WHITE EDGE LINE, DESIRABLE 30'-0".

THE ± TOLERANCE SHOWN ON THIS SHEETS IS 3".

THE VERTICAL SIGN HEIGHT CLEARANCES SHOWN ON THIS SHEET ARE MEASURED FROM THE BOTTOM OF THE SIGN PANEL TO THE NEAR EDGE OF PAVEMENT.

☆ THE VERTICAL CLEARANCE SHALL BE 8'-3"± WHEN THE SECONDARY SIGN HEIGHT IS 3'-0" OR LESS, FOR SECONDARY SIGN HEIGHTS LARGER THAN 3'-0", THE VERTICAL CLEARANCE TO THE BOTTOM OF THE SECONDARY SIGN PANEL SHALL BE 5'-3"±.

\* THE VERTICAL SIGN GROUND CLEARANCE ON RIGHT END OF SIGN SHALL BE A MINIMUM OF 3'-0"±.

POST LENGTHS SHOWN IN THE MISCELLANEOUS QUANTITIES ARE ESTIMATED LENGTHS. THE CONTRACTOR SHALL VERIFY POST LENGTHS AT THE TIME OF FINAL GRADING.

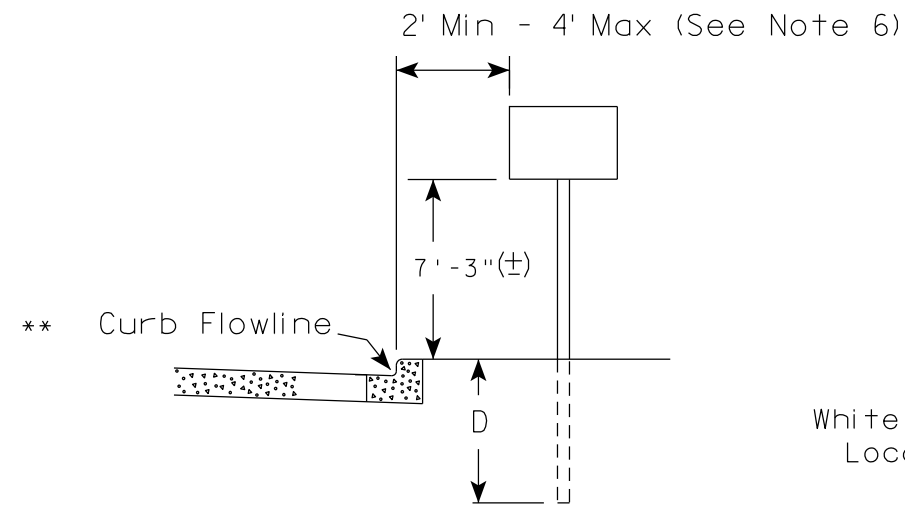
REFER TO THE TRAFFIC ENGINEERING OPERATIONS AND SAFETY MANUAL FOR FURTHER GUIDANCE ON MINIMUM VERTICAL CLEARANCE REQUIREMENTS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE BTO TYPE I SIGNS			
DRAWN BY		PLANS CK'D.	
TYPICAL TYPE I SIGN INSTALLATION			SHEET A4-1.10

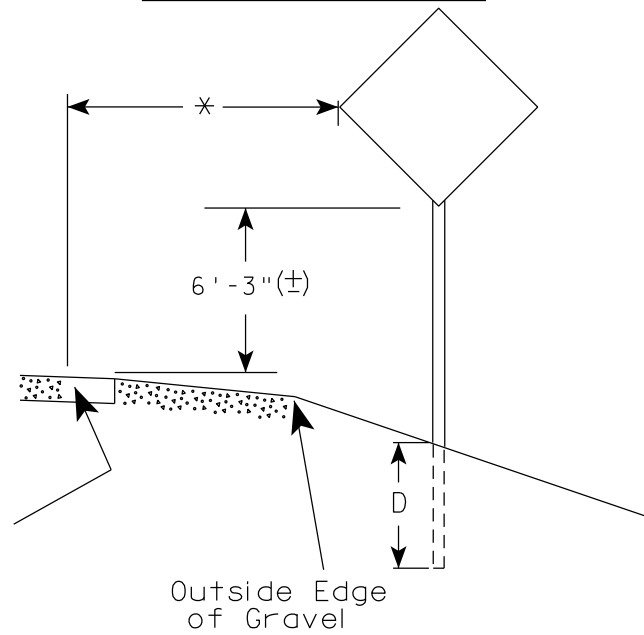


URBAN AREA

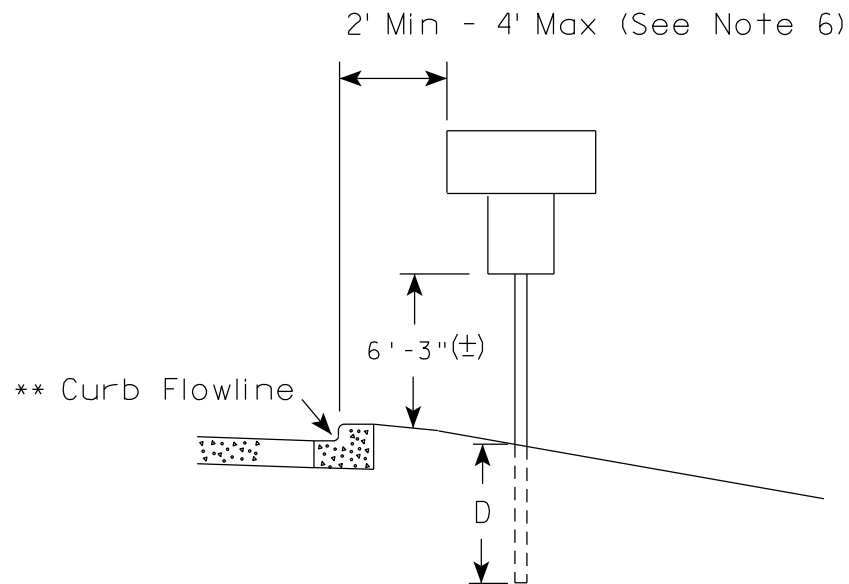
RURAL AREA (See Note 2)



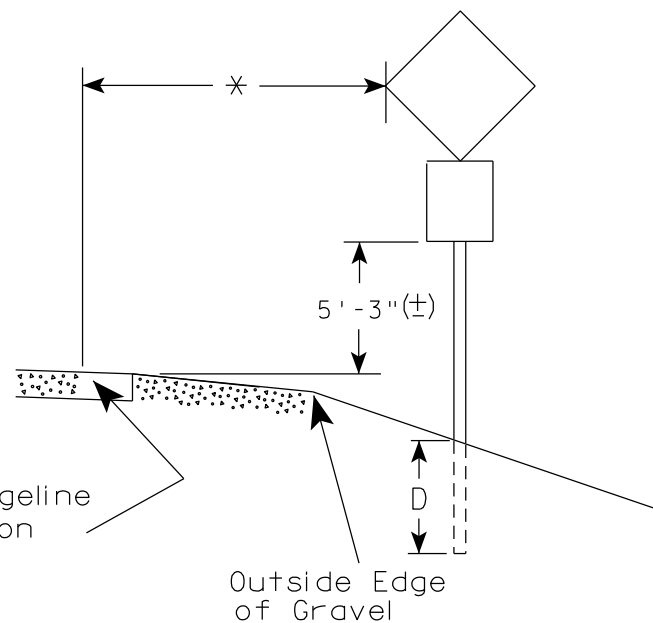
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

- GENERAL NOTES
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
  2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
  3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
  4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
  5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
  6. The (±) tolerance for mounting height is 3 inches.
  7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

\* \* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

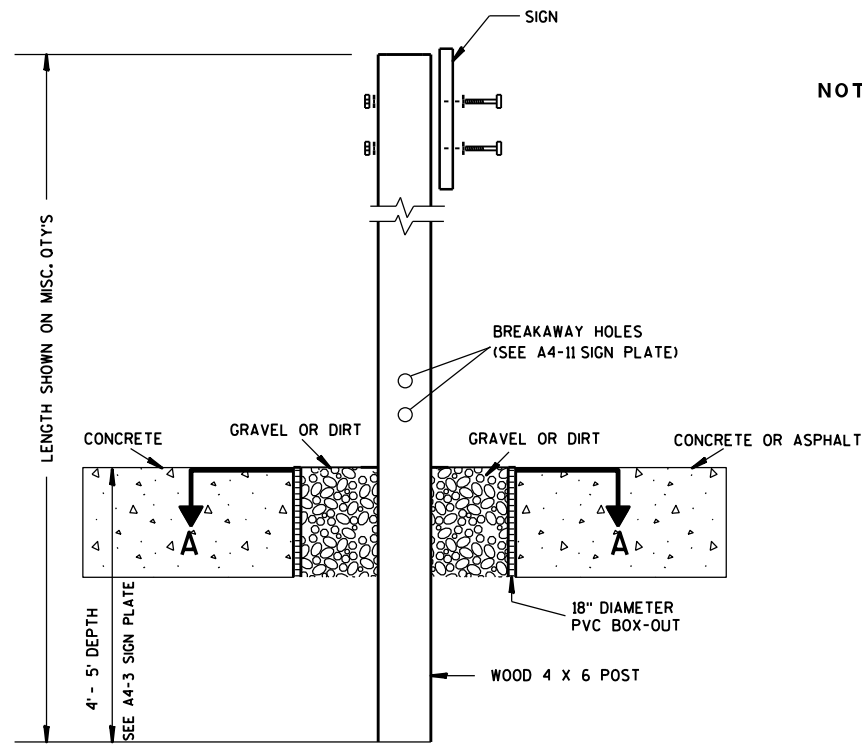
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

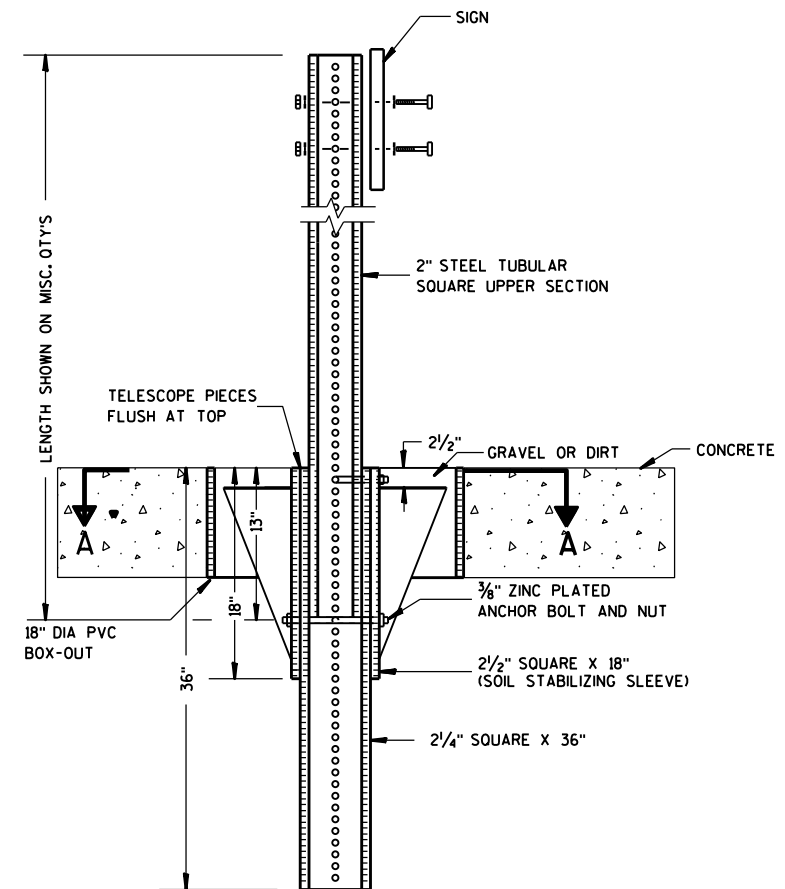
DATE 5/13/2020 PLATE NO. A4-3.22



**ELEVATION VIEW**

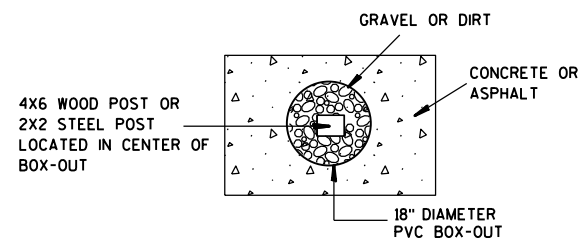
**DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT**

- NOTES:**
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
  2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
  3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



**ELEVATION VIEW**

**DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT**



**PLAN VIEW**

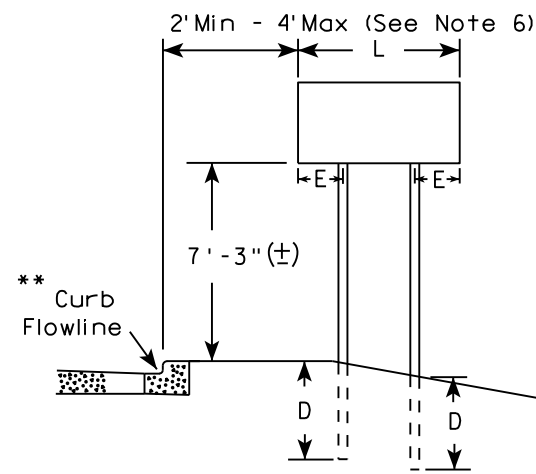
**FOR NEW CONCRETE/ ASPHALT INSTALLATIONS**

<b>SIGN POST BOX-OUTS A4-3B</b>	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

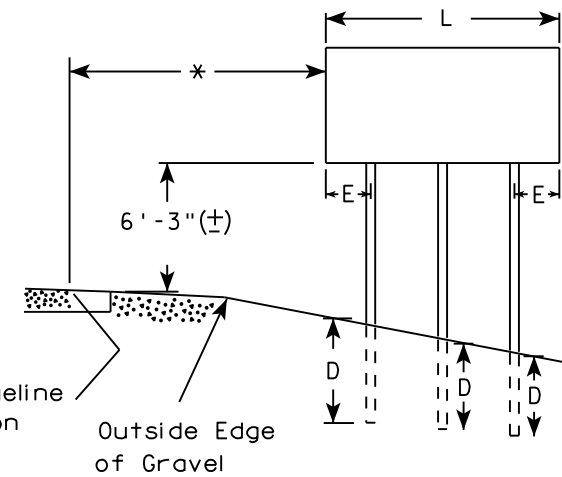
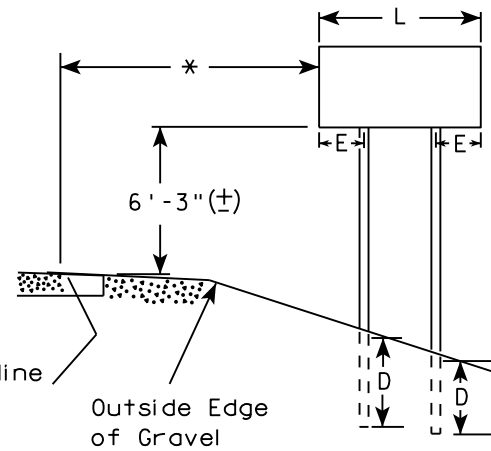
**GENERAL NOTES**

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

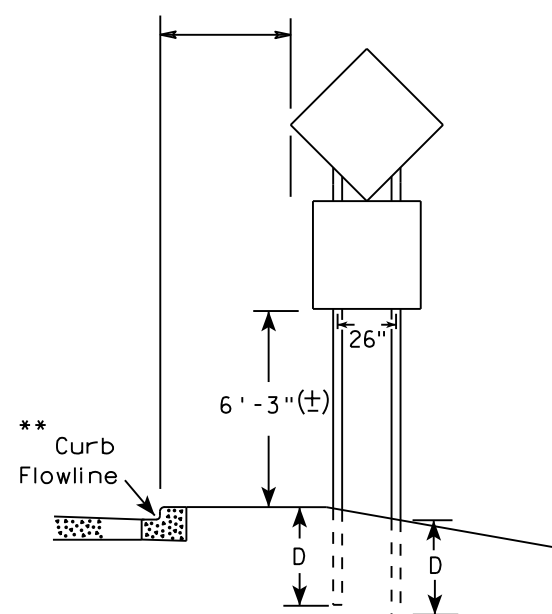
**URBAN AREA**



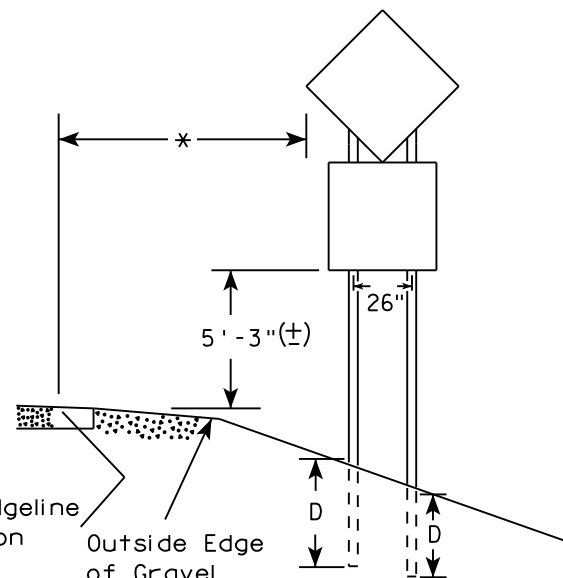
**RURAL AREA (See Note 3)**



2' Min - 4' Max (See Note 6)



**48" DIAMOND WARNING SIGN**



**48" DIAMOND WARNING SIGN**

\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

\*\*\* See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

\*\*\*

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

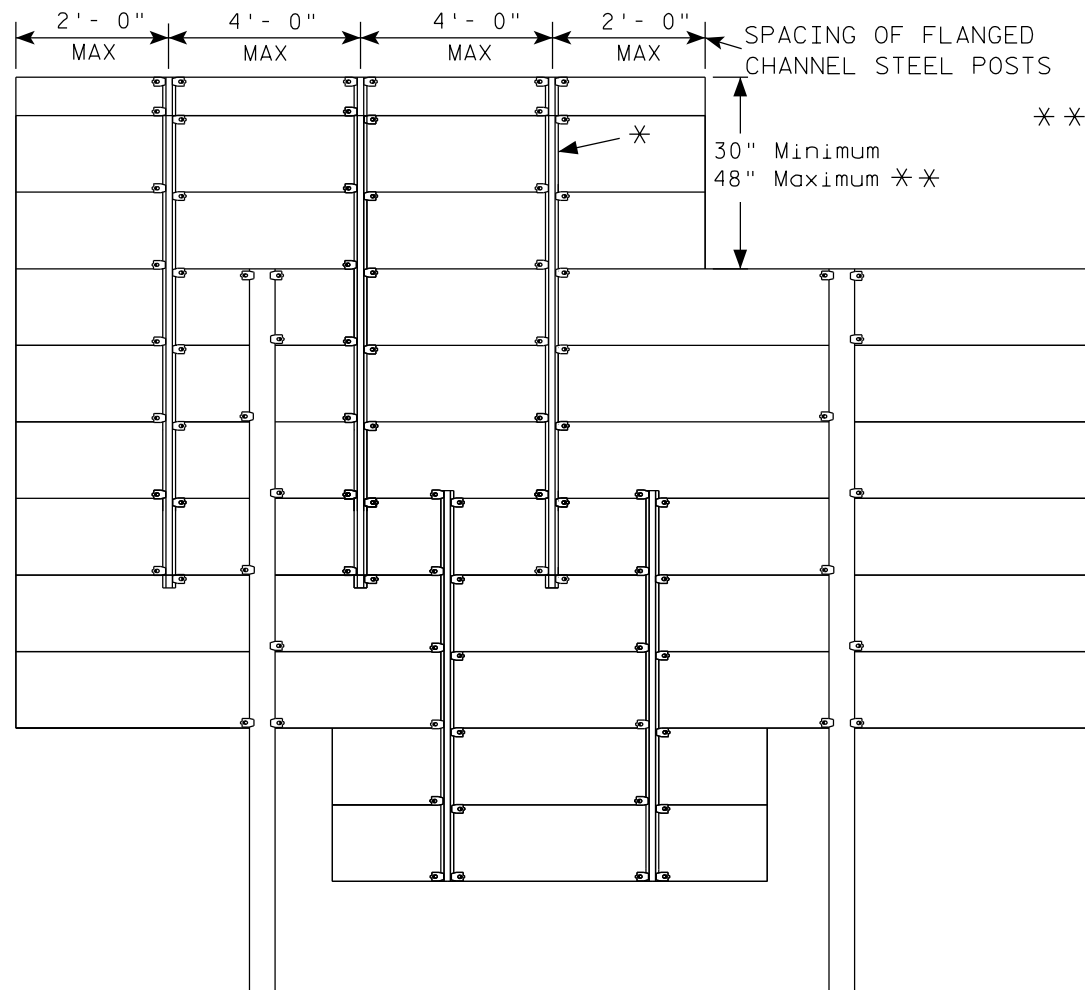
**POST EMBEDMENT DEPTH**

Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

**TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS**

WISCONSIN DEPT OF TRANSPORTATION  
 APPROVED *Matthew R. Rauch*  
 For State Traffic Engineer  
 DATE 8/21/17 PLATE NO. A4-4.15

# GROUND MOUNTED SIGN



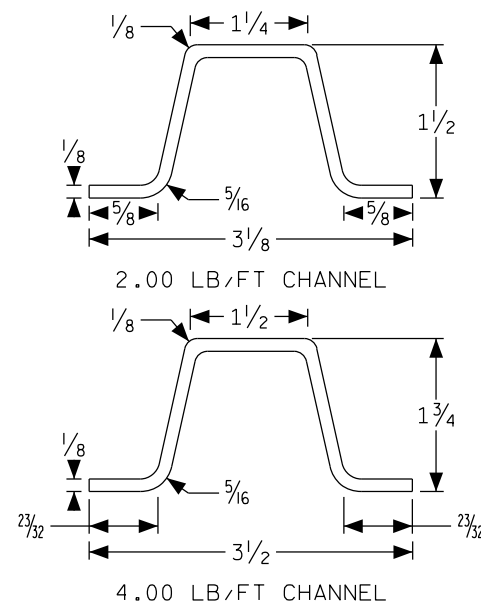
\* = 2.00 lb/ft AND 4.00 lb/ft FLANGED CHANNEL, MIN. YIELD STRENGTH = 60,000 PSI (GRADE 60) GALVANIZED

\* \* = FOR 48" HEIGHT PANELS ON OVERHEAD STRUCTURES, ENTIRE SIGN SHALL BE CENTERED VERTICALLY ABOUT THE DEPTH OF THE TRUSS.

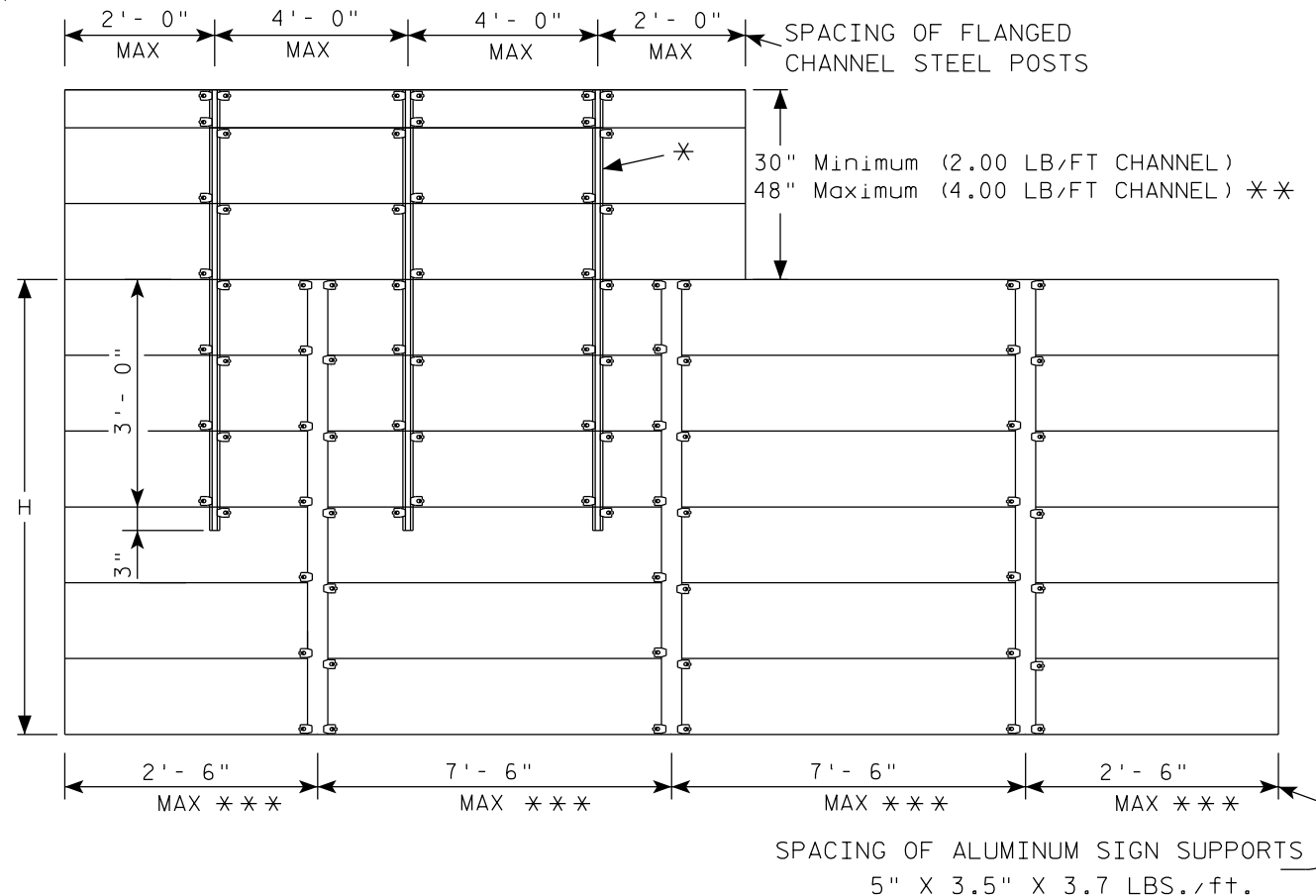
\* \* \* THESE SPACING DISTANCES SHALL ONLY BE USED WHEN THE MAIN SIGN HAS A MAXIMUM HEIGHT (DIMENSION H) OF 15 FT OR LESS. FOR SIGNS WITH A HEIGHT OF GREATER THAN 15 FT, STRUCTURAL CALCULATIONS SHALL BE PERFORMED.

## FLANGE CHANNEL DETAILS

NOT TO SCALE



# SIGN BRIDGE MOUNTED SIGN



## GENERAL NOTES

1. Flanged channel steel posts shall conform to size and material above, and shall be considered as incidental to other items in the contract.
2. Number of Flanged channel steel supports varies with length of panel and shall be spaced as shown:  
 PANEL LENGTH 8'-0" OR LESS = 2 CHANNELS  
 PANEL LENGTH 9'-0" - 12'-0" = 3 CHANNELS  
 PANEL LENGTH 13'-0" OR MORE = 4 CHANNELS  
 If the flanged channel steel posts can not be horizontally spaced as shown, they can be moved so as to securely hold the sign.
3. The EXIT NUMBER PANEL shall normally be positioned above the guide sign aligned with the right edge of the guide sign. If the guide sign indicates a left exit, the EXIT NUMBER PANEL shall be aligned with the left edge of the guide sign.
4. If the bolt holes in the top panel (EXIT NUMBER), or sub panel (NEXT EXIT) line up with holes in main sign panel, stitch bolts shall be used in addition to the channels.
5. Provide post clips for each sign as shown. (Please note the differences between a ground mounted versus Sign bridge mounted sign as far as number of clips required on the main supports or beams)
6. Structural steel sign supports shall extend to the top of the main signs, as shown on the above details.

## ATTACHMENT OF GUIDE SIGNS TO SUPPORTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
 For State Traffic Engineer

DATE 1/07/20

PLATE NO. A4-6.12

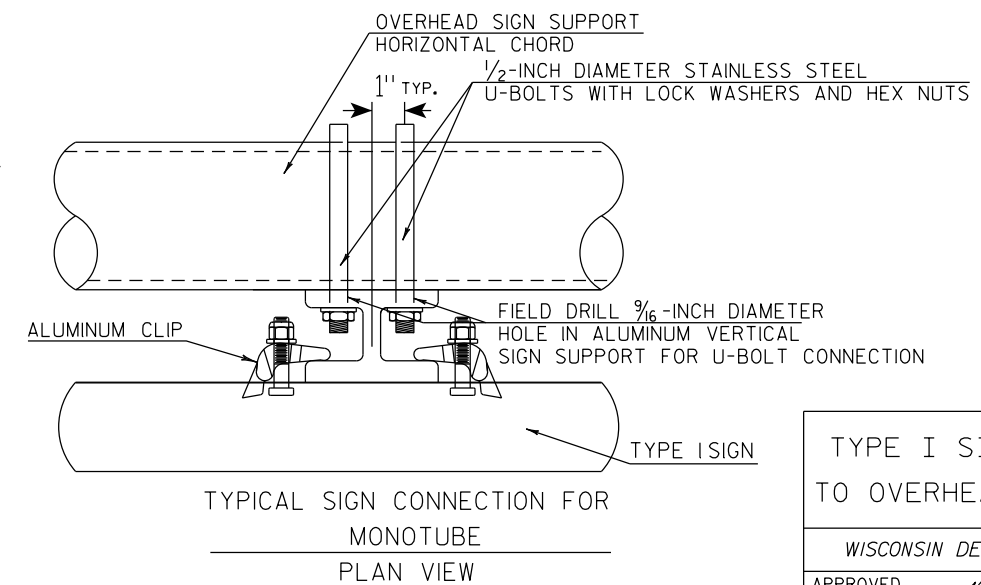
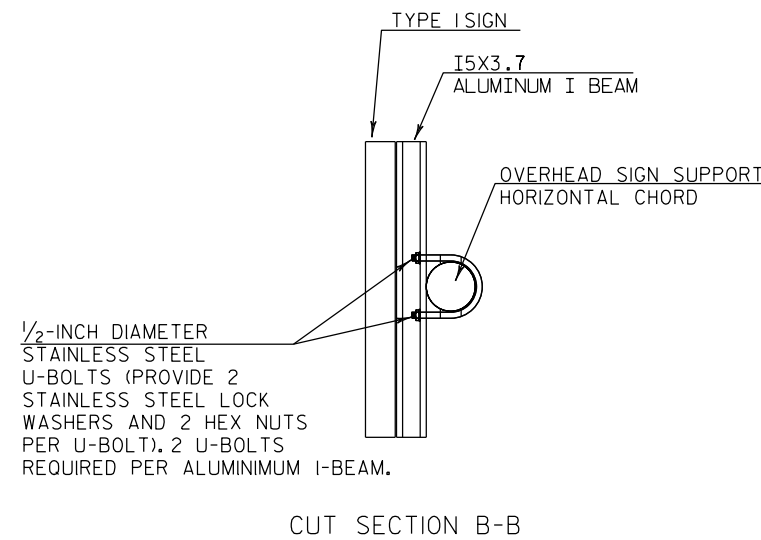
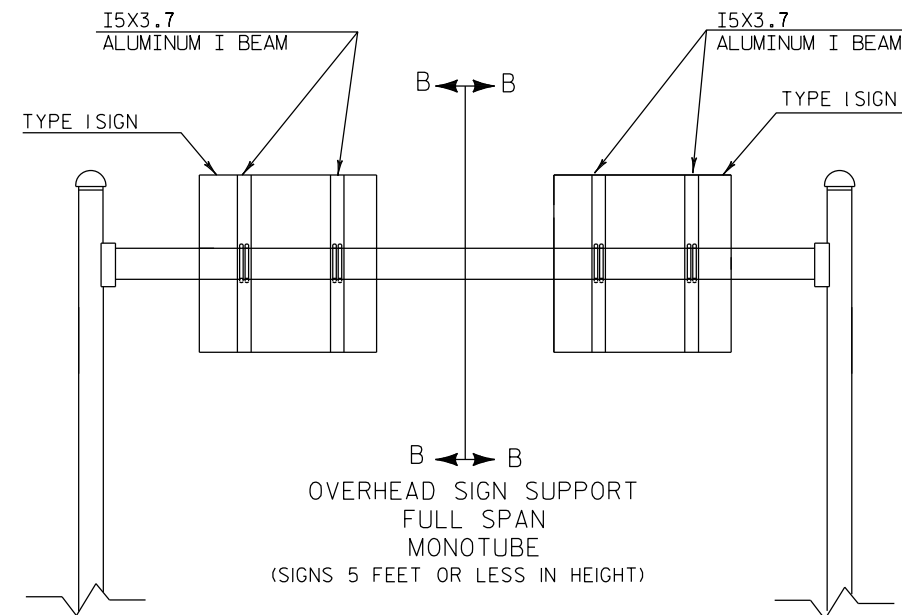
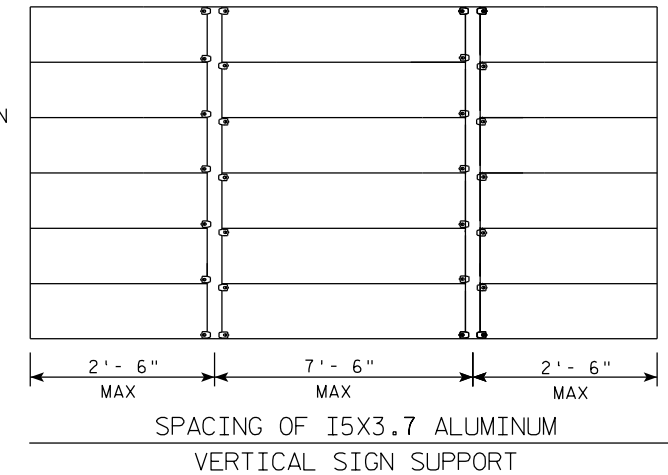
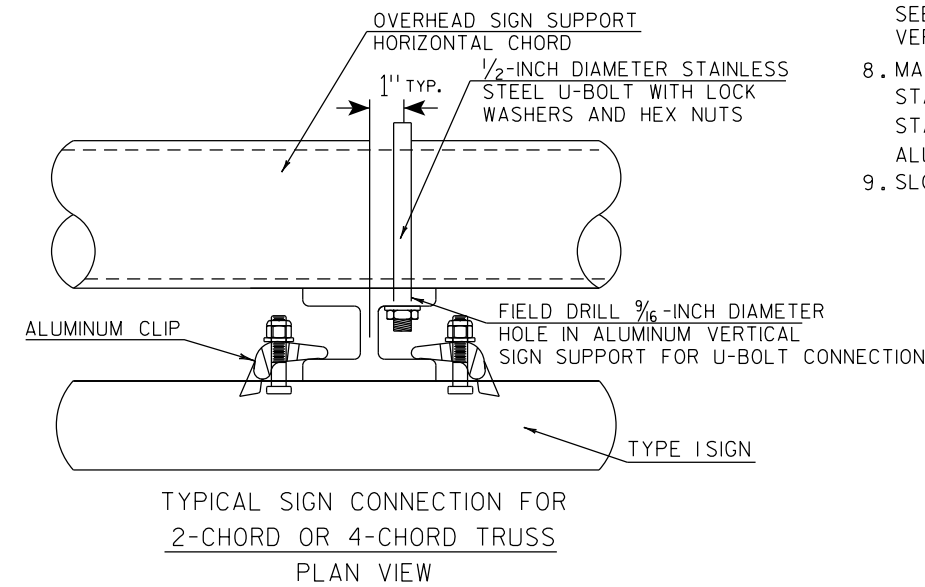
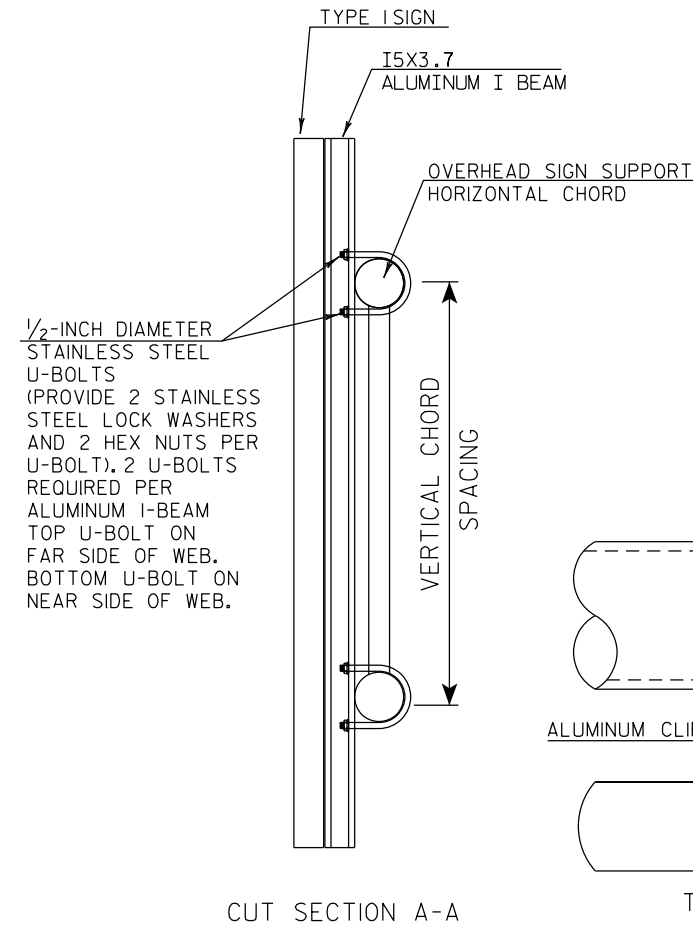
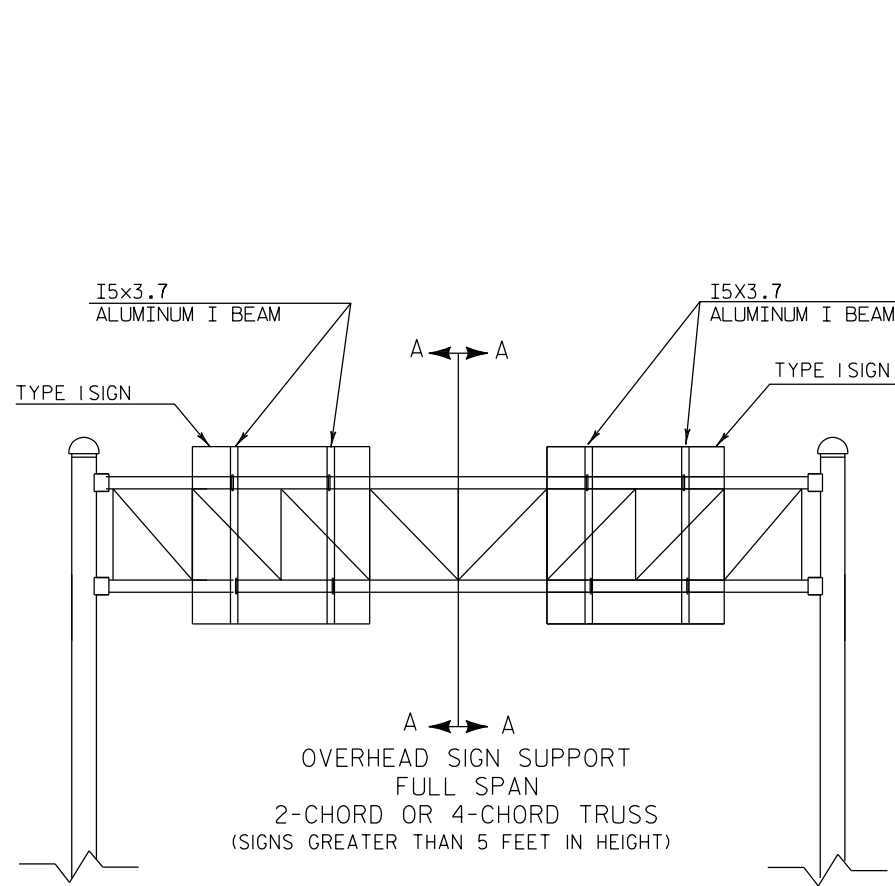
PROJECT NO:

SHEET NO:

E

GENERAL NOTES

1. USE STAINLESS STEEL U-BOLTS, WASHERS, AND NUTS.
2. USE CLIPS ON EVERY EXTRUDED PANEL JOINT PER SIGN PLATE A4-6.
3. USE ALUMINUM VERTICAL SIGN SUPPORT BEAMS HAVING A 5 INCH BEAM DEPTH AND WEIGHT OF 3.7 LBS PER FOOT.
4. U-BOLTS SHALL BE STAINLESS STEEL AND MANUFACTURED TO THE PROPER SIZE TO FIT THE CHORDS OF THE OVERHEAD SIGN STRUCTURE.
5. DIAMETER OF U-BOLTS SHALL BE AS SHOWN.
6. THE LENGTH OF THE ALUMINUM VERTICAL SIGN SUPPORT BEAMS SHALL BE THE SAME AS THE HEIGHT OF THE SIGN THEY ARE SUPPORTING. BEAM LENGTHS MAY BE LONGER FOR PROPER ATTACHMENT TO CHORDS.
7. MINIMUM NUMBER OF BRACKETS PER SIGN IS TWO. SEE DETAIL BELOW FOR SPACING OF ALUMINUM VERTICAL SIGN SUPPORTS
8. MATERIAL NOTES:  
STAINLESS STEEL U-BOLTS AND LOCKWASHERS ASTM 304.  
STAINLESS STEEL HEX NUTS ASTM A276.  
ALUMINUM I-BEAMS ARE 6061-T6.
9. SLOTTED HOLES IN I-BEAMS ARE NOT ALLOWED

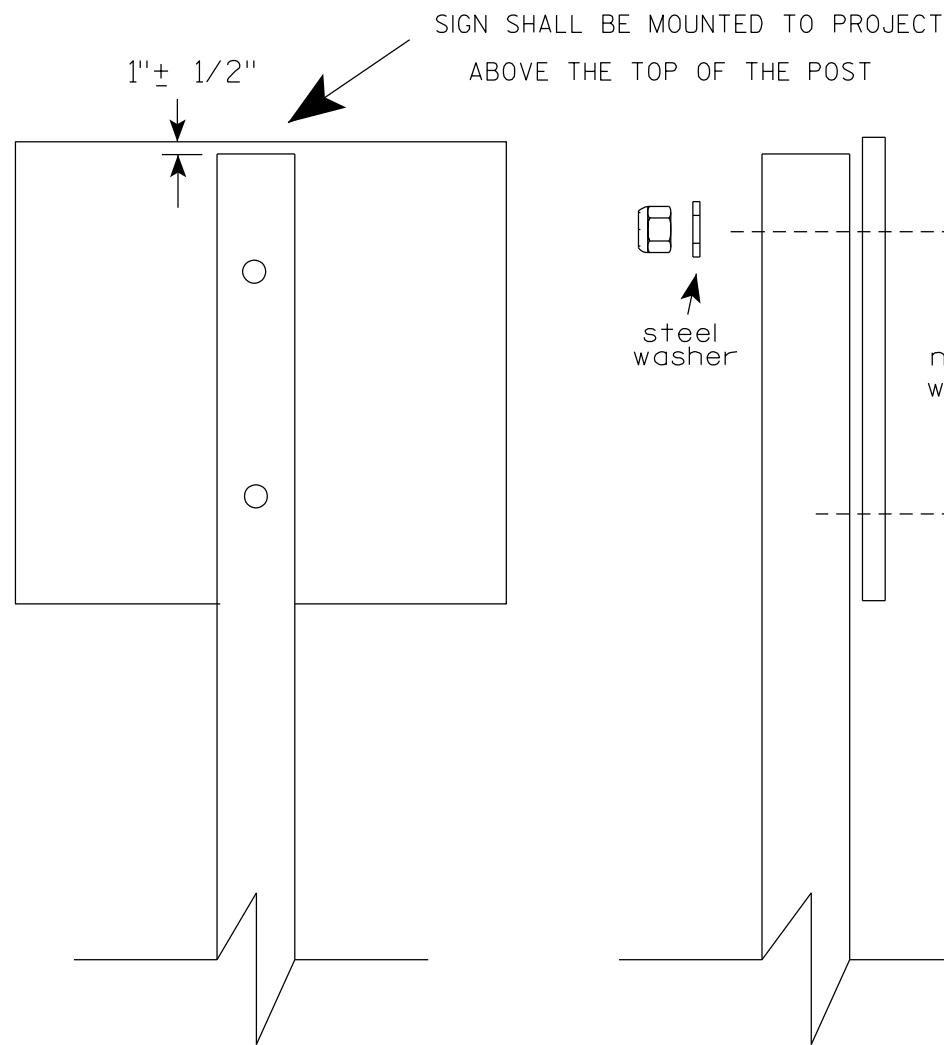


TYPE I SIGN CONNECTION TO OVERHEAD SIGN SUPPORT

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
State Traffic Engineer

DATE 1/07/20 PLATE NO. A4-7A.1



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

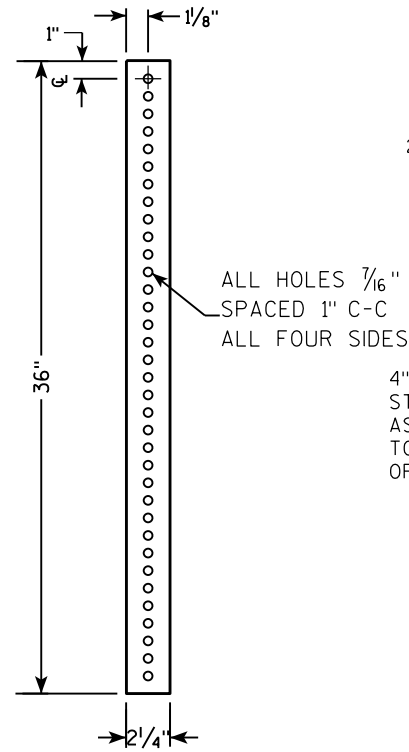
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS -  $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
 O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL
- 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON

\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

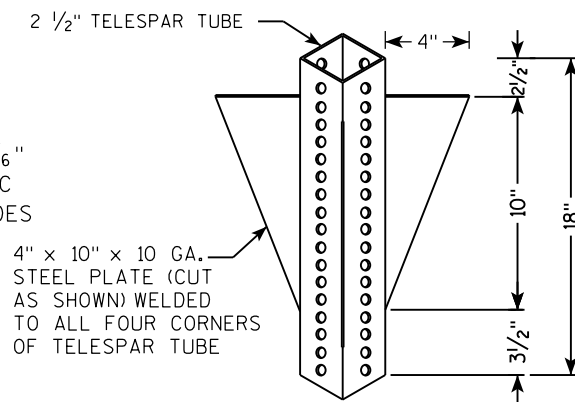
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM**

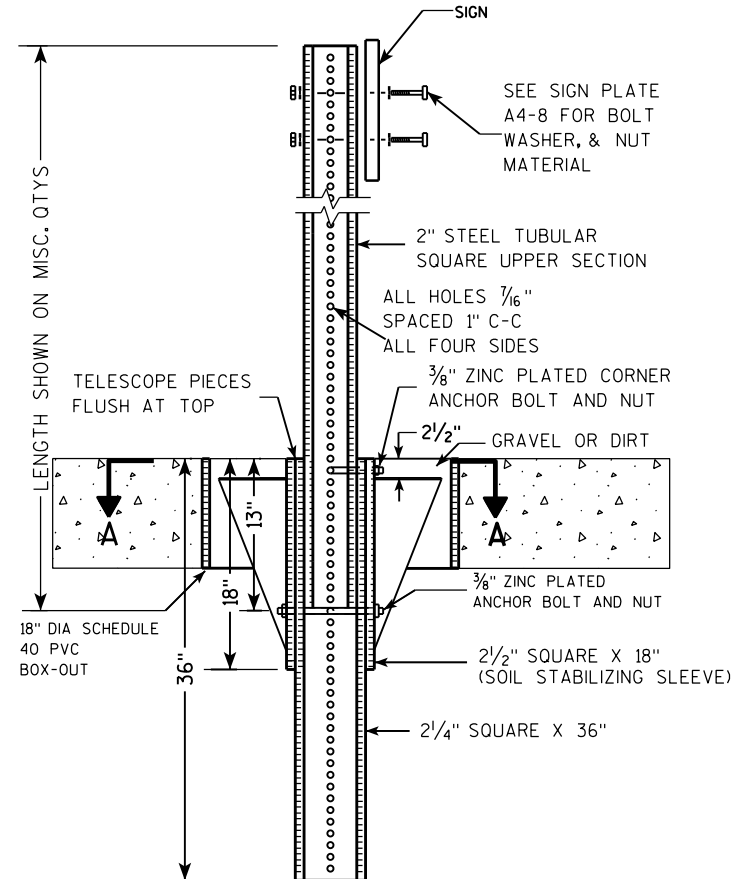
2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH



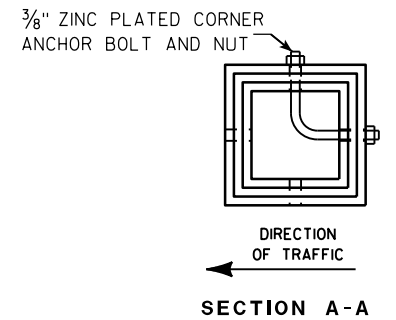
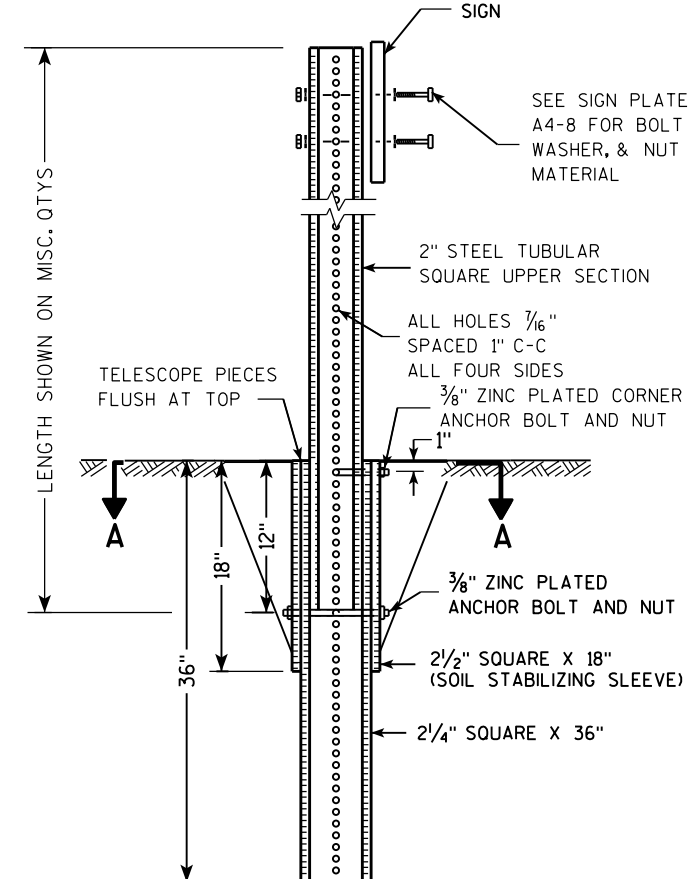
2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST  
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST  
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL  
SIGN POST  
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

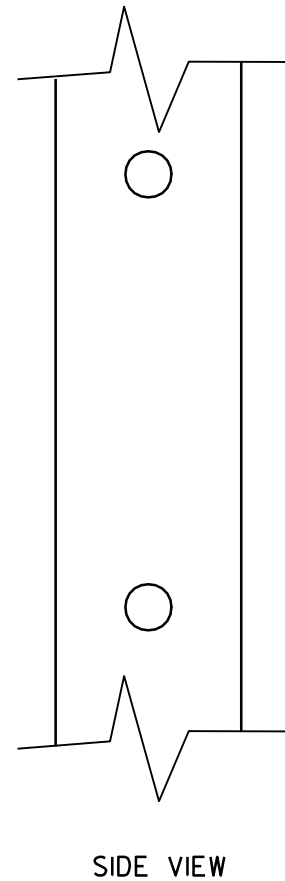
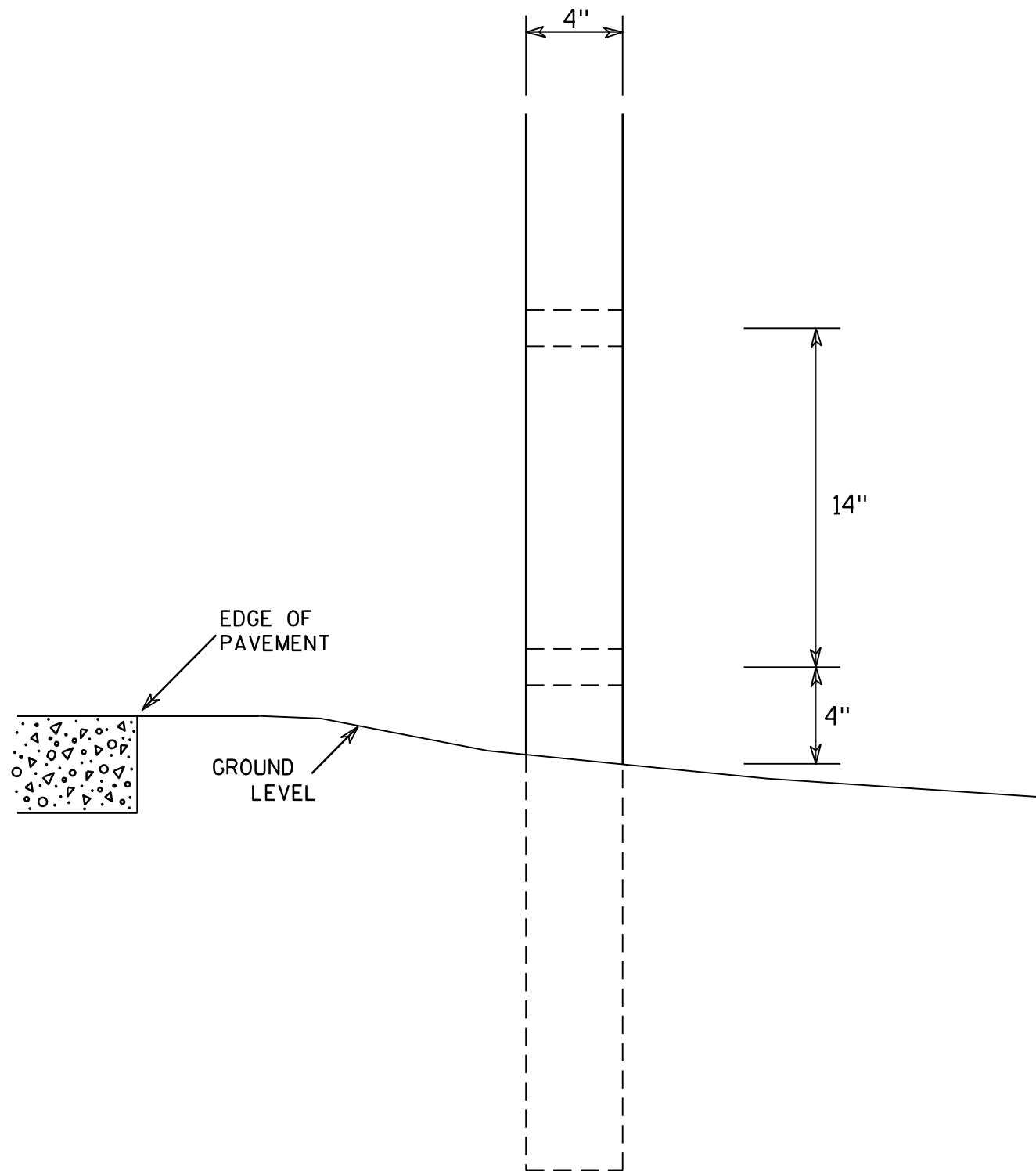
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

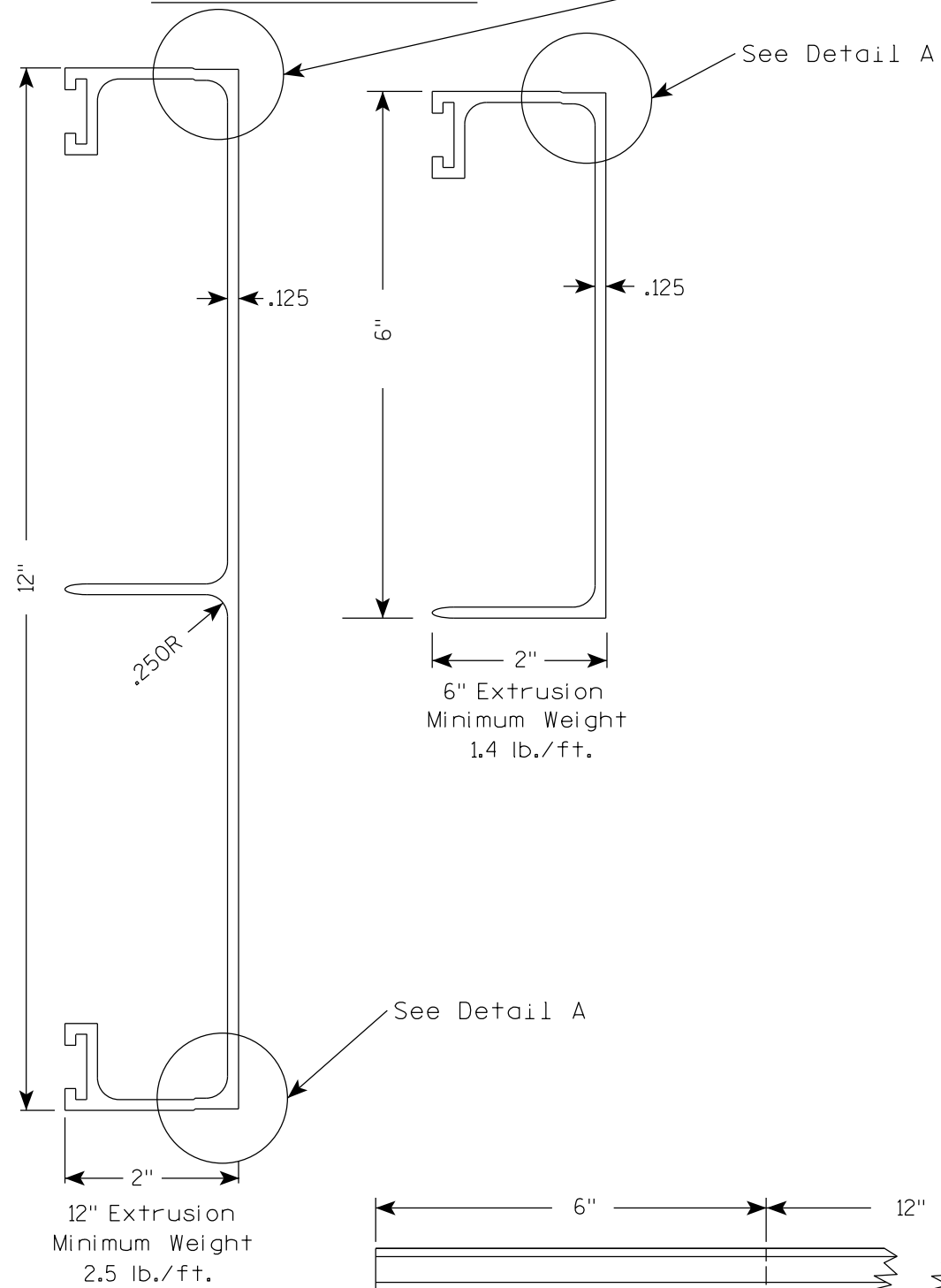
7

<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>



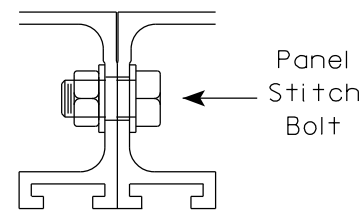
Extruded Shape

Hardware



STITCH BOLT, WASHER & NUT

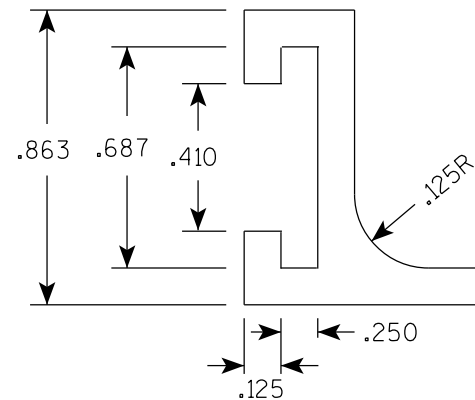
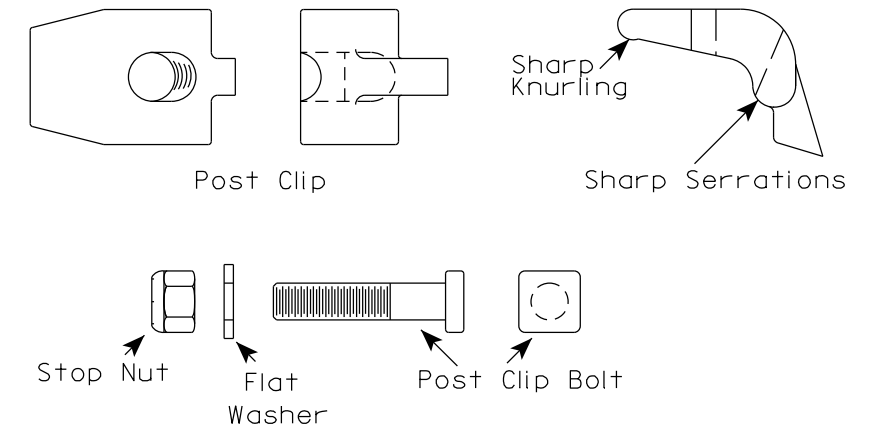
The hardware includes:  
 3/8 " - 16 X 3/4 " Economy Bolt 2024-T4 alloy  
 3/8 " - Stainless steel stop nut  
 3/8" X .064 Flat Washers, Alclad 2024-T4 alloy



Panel  
Stitch  
Bolt

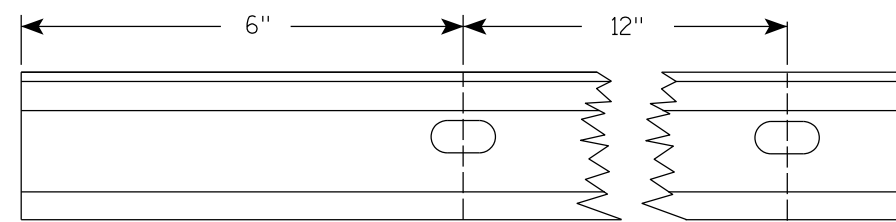
POST CLIP, POST CLIP BOLT, WASHER & NUT

Post Clip shall be Alum. Alloy 356-T6  
 Post Clip Bolt shall be Stainless Steel.  
 Flat washer shall be 3/8" X .091, Stainless Steel.  
 Stop nut shall be stainless steel.

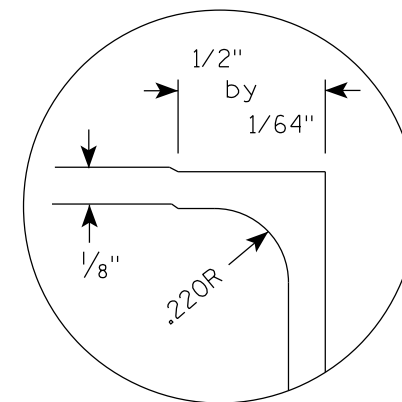


NOTES

1. The contractor may select any brand of extrusion that conforms to the illustrations or meets with the approval of the engineer, but all extrusions used on this contract shall be of the same brand.
2. Panel Stitch Bolts shall be used to assemble adjacent panels. Maximum stitch bolt spacing shall be 24" C-C, and a minimum of 4 bolts shall be used to connect any two extrusions.
3. Post Clips shall be used to attach the sign panel to the sign support.
4. Edge wrapping of sign sheeting required on all extrusions joints shown in Detail A.



Punch 7/16" x 7/8" ovalholes beginning 6" in from end of extrusion 12" CC on both edges of 6" and 12" panels.



DETAIL A (EDGE WRAP JOINT)

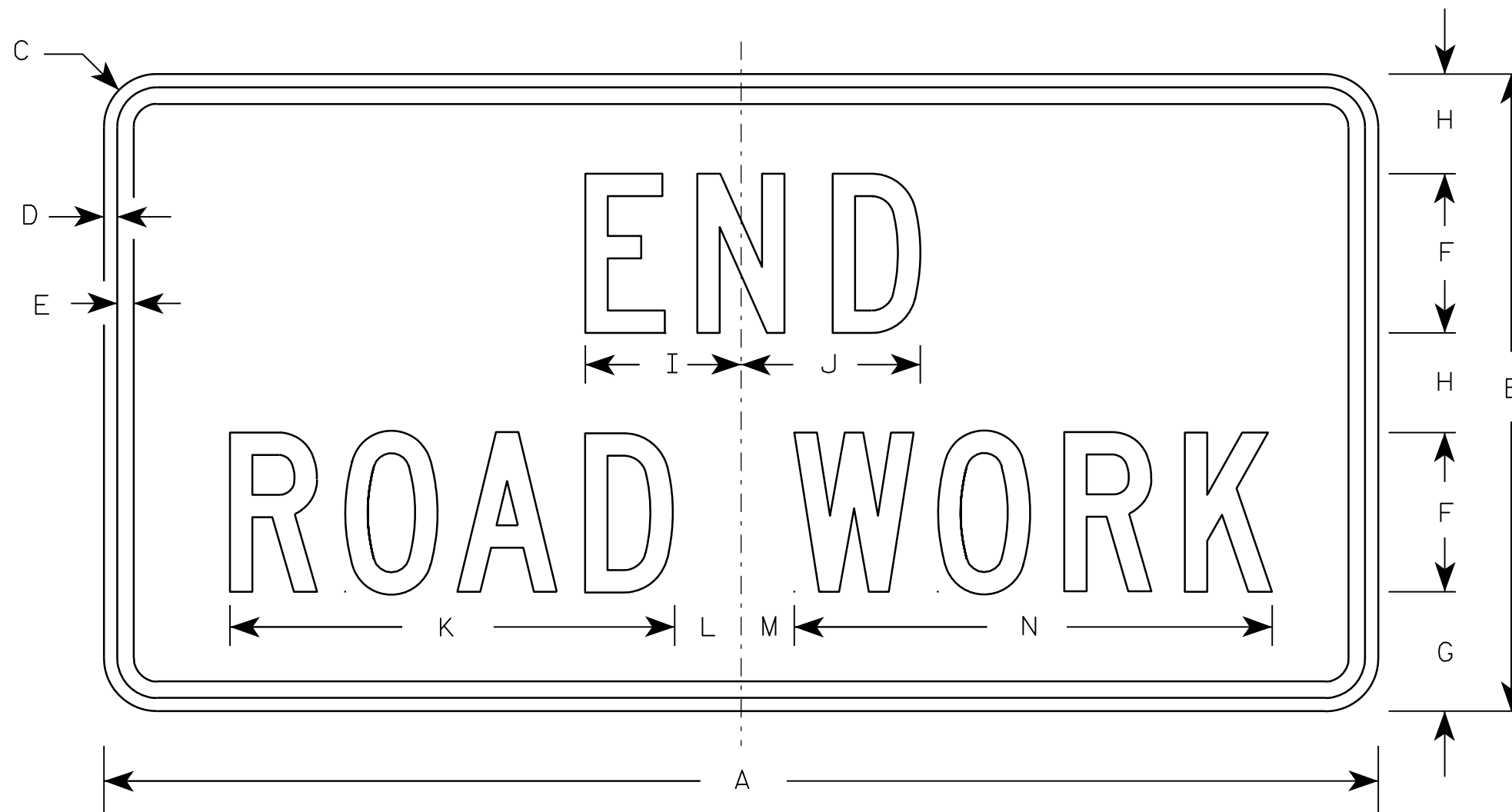
ALUMINUM EXTRUSIONS FOR  
TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
 For State Traffic Engineer  
 DATE 1/07/20 PLATE NO. A5-2.10

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



G20-2A

Metric equivalent  
for this sign is:

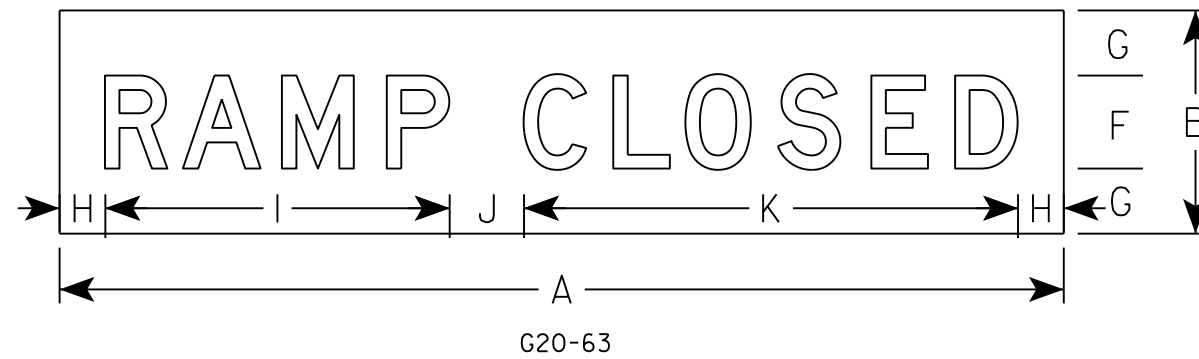
SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8

NOTES

1. Sign is Type II- Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - D
4. Material shall be .040 aluminum



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2																											
3	72	12				6	3	6	22 1/8	6	31 7/8																6.0
4	108	24				10	7	4 7/8	37	8	53 1/8																18.0
5																											

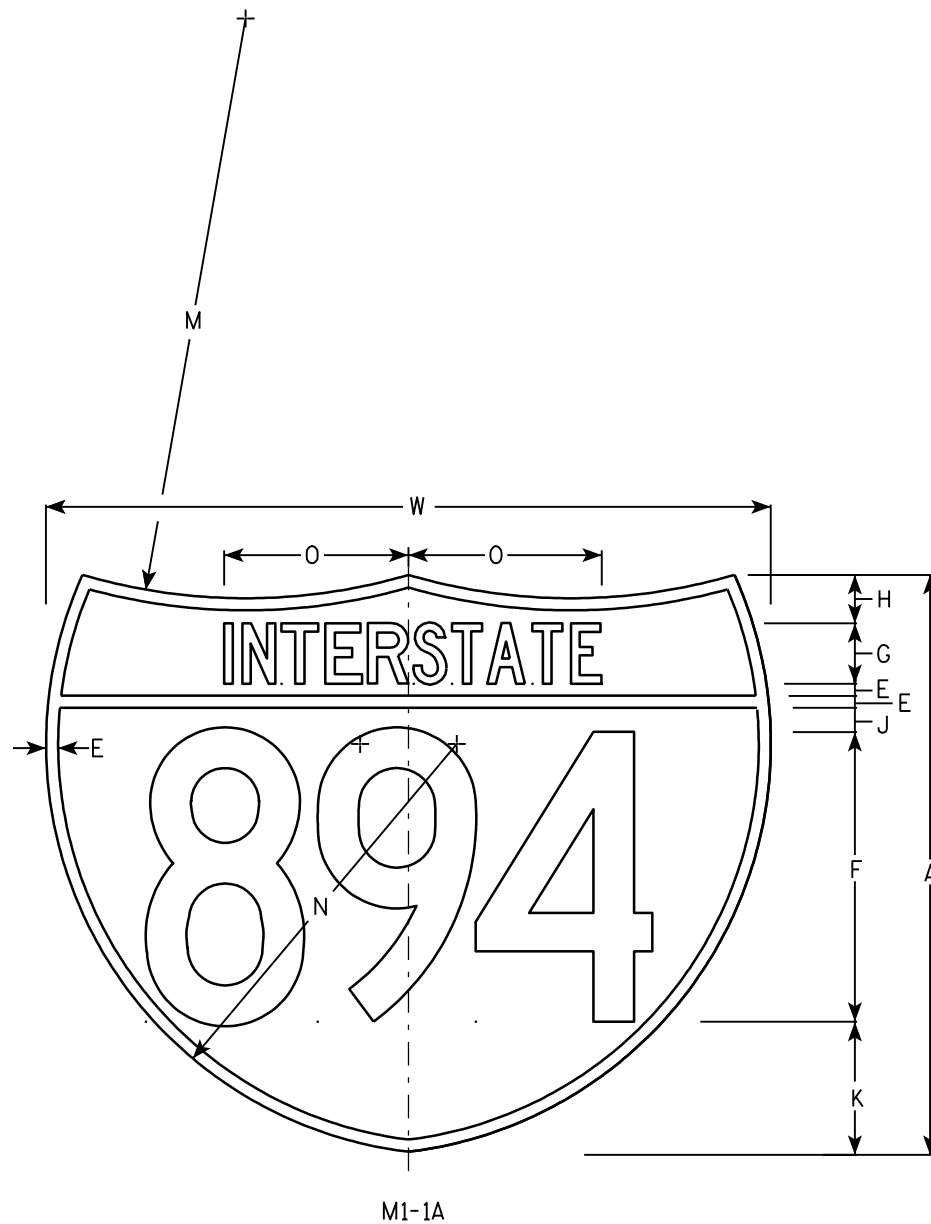
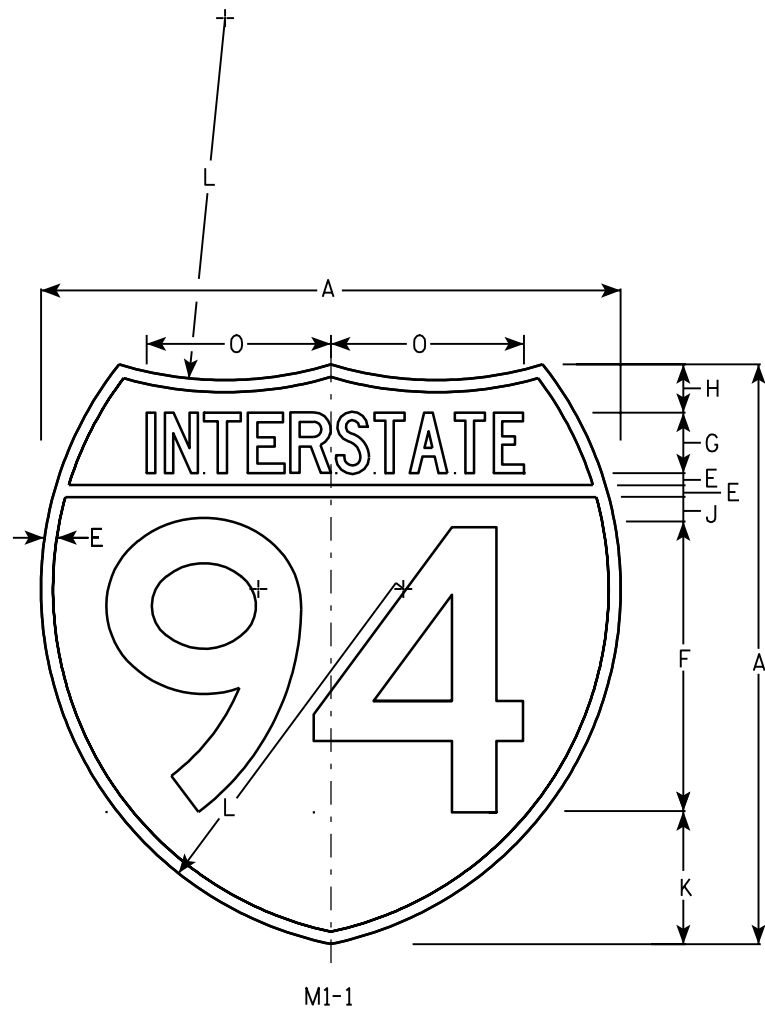
STANDARD SIGN  
G20-63

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/8/17 PLATE NO. G20-63.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**



NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Top Red - Bottom Blue (See Note 6)  
Message - White - See Note 6
3. Message Series - See note 5
4. Substitute appropriate numerals & adjust spacing as per plate A10-1.
5. M1-1 - Numerals - D  
Interstate - C  
M1-1A - All copy - C
6. Permanent Signs  
Message - Type H Reflective  
Detour or other temporary signs  
Background - Reflective  
Message - Reflective

7

Metric equivalent for these signs are:

SIZE	M1-1	SIZE	M1-1A
1			
2	600 mm X 600 mm	2	600 mm X 750 mm
3	900 mm X 900 mm	3	900 mm X 1125 mm
4	900 mm X 900 mm	4	900 mm X 1125 mm
5	900 mm X 900 mm	5	900 mm X 1125 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	M1-1 Area sq. ft.	M1-1A Area sq. ft.	M1-1 Area m <sup>2</sup>	M1-1A Area m <sup>2</sup>
1																													
2	24				1/2	12	2 1/2	2		1	5 1/2	15	24	17	7 7/8								30			3.13	3.91	.36	.46
3	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
4	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
5	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05

INTERSTATE ROUTE MARKER  
M1-1 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

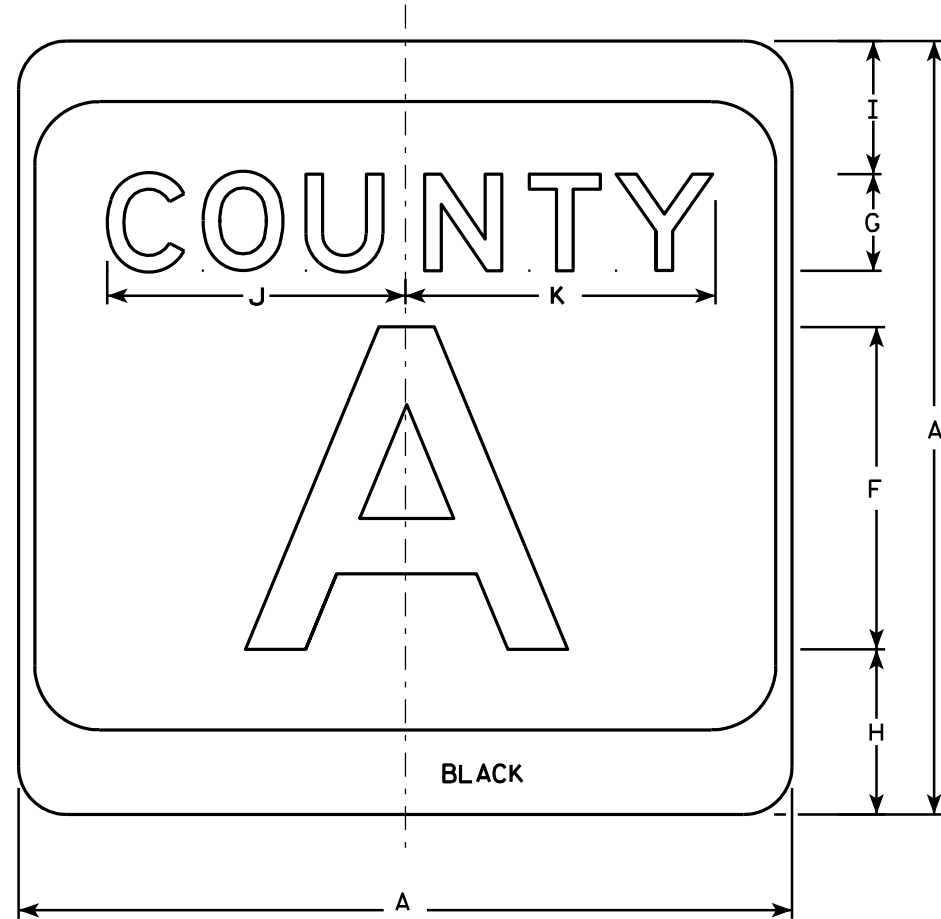
APPROVED *Matthew R Rauch*  
for State Traffic Engineer

DATE 08/23/05 PLATE NO. M1-1.8

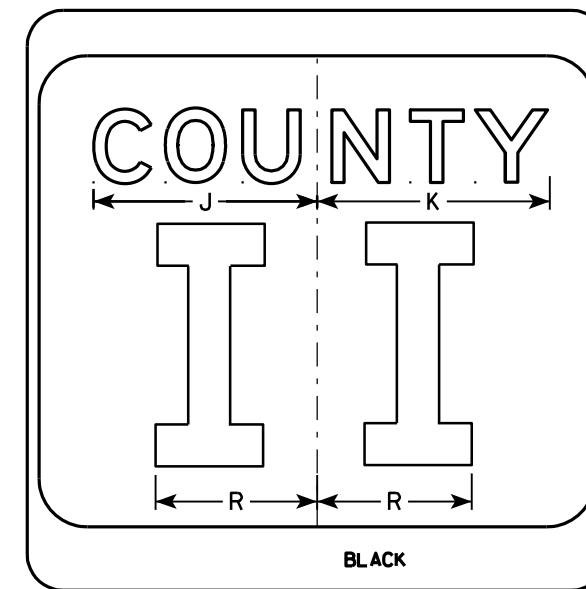
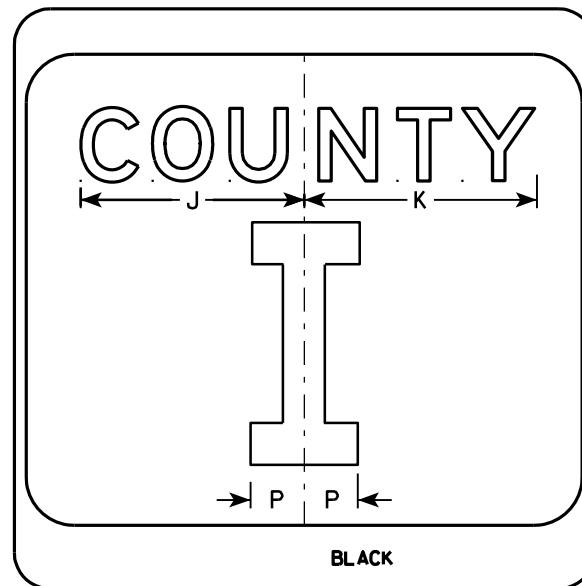
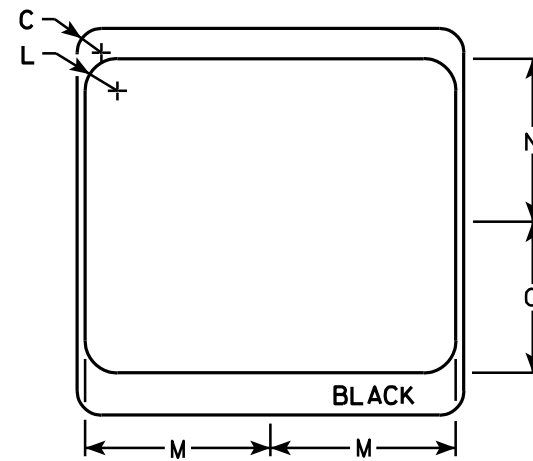
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

**NOTES**

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White & Black - See Note 7  
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.  
Message Series D for 2 letters unless message is too big then Series C.  
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs  
Background - Type H Reflective  
Detour or temporary Signs  
Background - Reflective



M1-5A



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

**CTH MARKER**  
**M1-5A FOR ASSEMBLIES**

WISCONSIN DEPT OF TRANSPORTATION

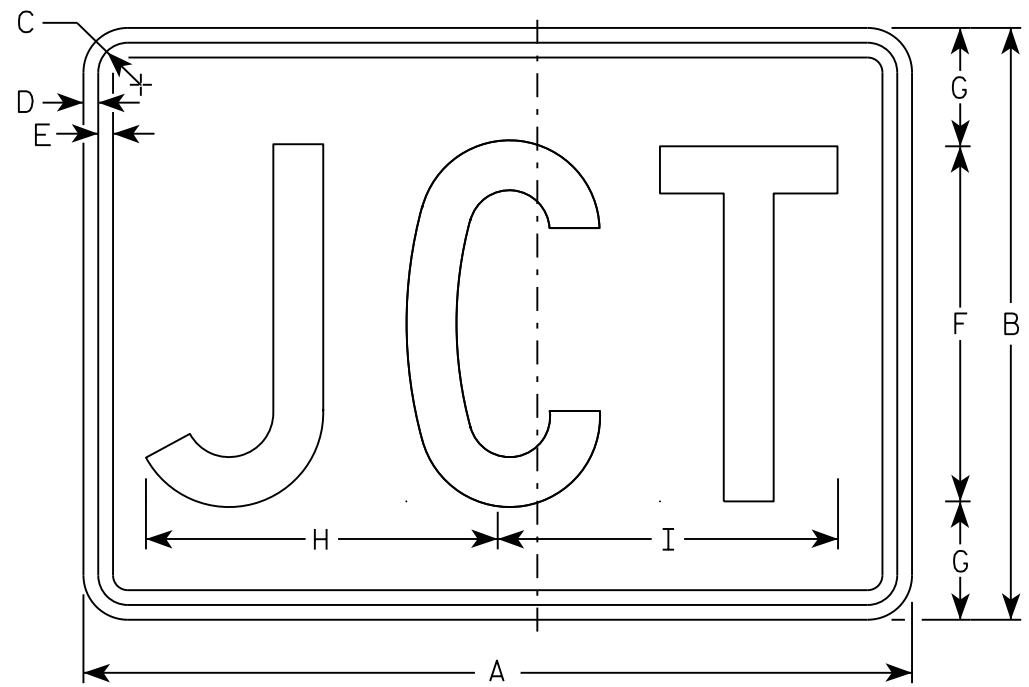
APPROVED *Matthew R. Raub*  
For State Traffic Engineer

DATE 9/27/11 PLATE NO. MI-5A.8

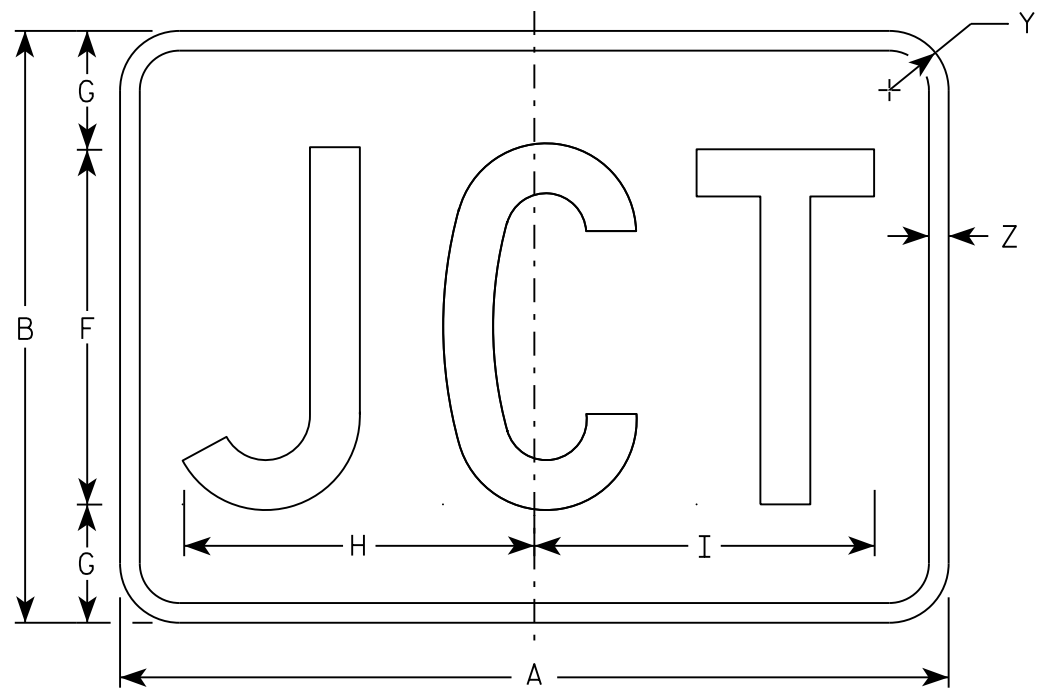
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

1. Sign is Type II - Type H
2. Color:
  - Background - See note 5
  - Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M2-1 Background - White  
 Message - Black  
 MB2-1 Background - Blue  
 Message - White  
 MK2-1 Background - Green  
 Message - White  
 MM2-1 Background - White  
 Message - Green  
 MN2-1 Background - Brown  
 Message - White  
 MP2-1 Background - White  
 Message - Blue  
 MR2-1 Background - Brown  
 Message - Yellow



M2-1  
MM2-1  
MP2-1



MB2-1  
MK2-1  
MN2-1  
MR2-1

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

STANDARD SIGN  
M2-1

WISCONSIN DEPT OF TRANSPORTATION

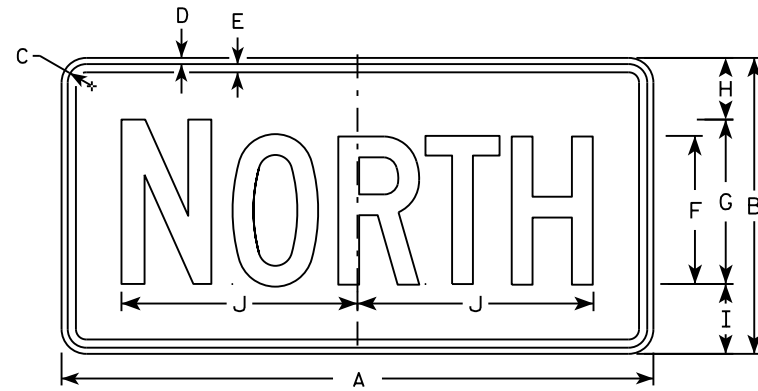
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 10/15/15 PLATE NO. M2-1.12

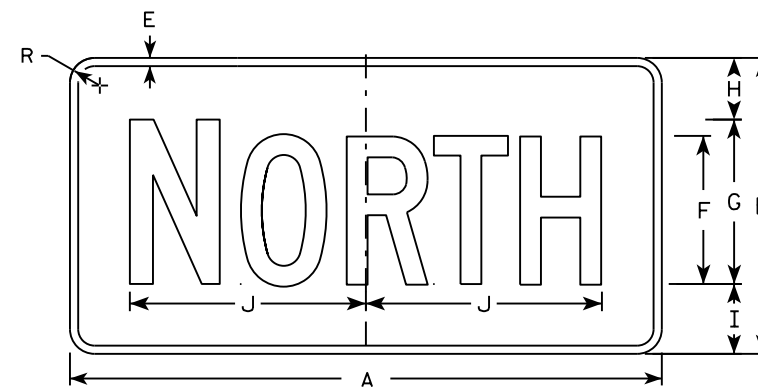
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

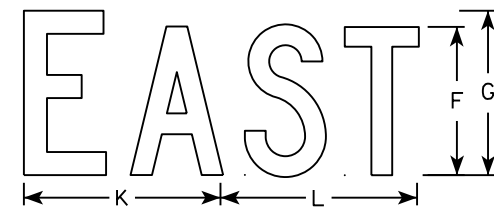
- All Signs Type II - Type H
- Color:
  - Background - See note 5
  - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White  
 Message - Black  
 MB3-1 thru MB3-4 Background - Blue  
 Message - White  
 MK3-1 thru MK3-4 Background - Green  
 Message - White  
 MM3-1 thru MM3-4 Background - White  
 Message - Green  
 MN3-1 thru MN3-4 Background - Brown  
 Message - White  
 MP3-1 thru MP3-4 Background - White  
 Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.



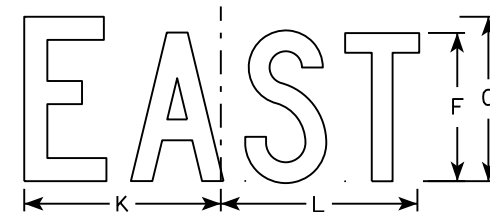
M3-1  
MM3-1  
MP3-1



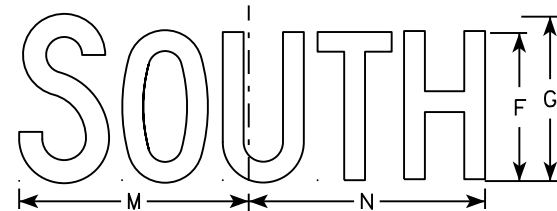
MB3-1  
MK3-1  
MN3-1



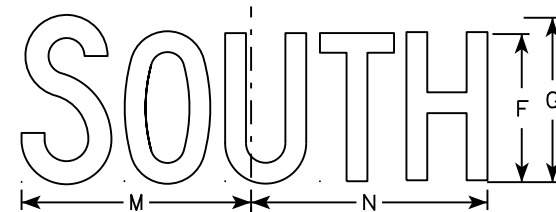
M3-2  
MM3-2  
MP3-2



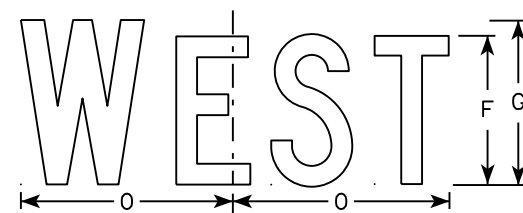
MB3-2  
MK3-2  
MN3-2



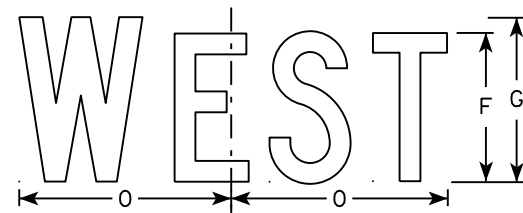
M3-3  
MM3-3  
MP3-3



MB3-3  
MK3-3  
MN3-3



M3-4  
MM3-4  
MP3-4



MB3-4  
MK3-4  
MN3-4

7

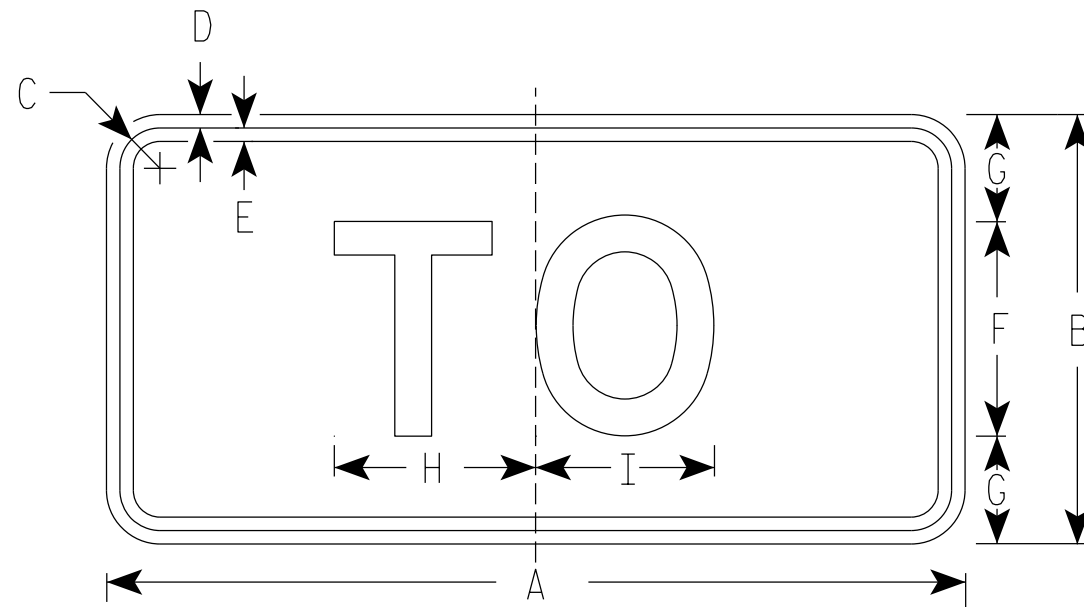
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS  
M3-1 thru M3-4  
SERIES

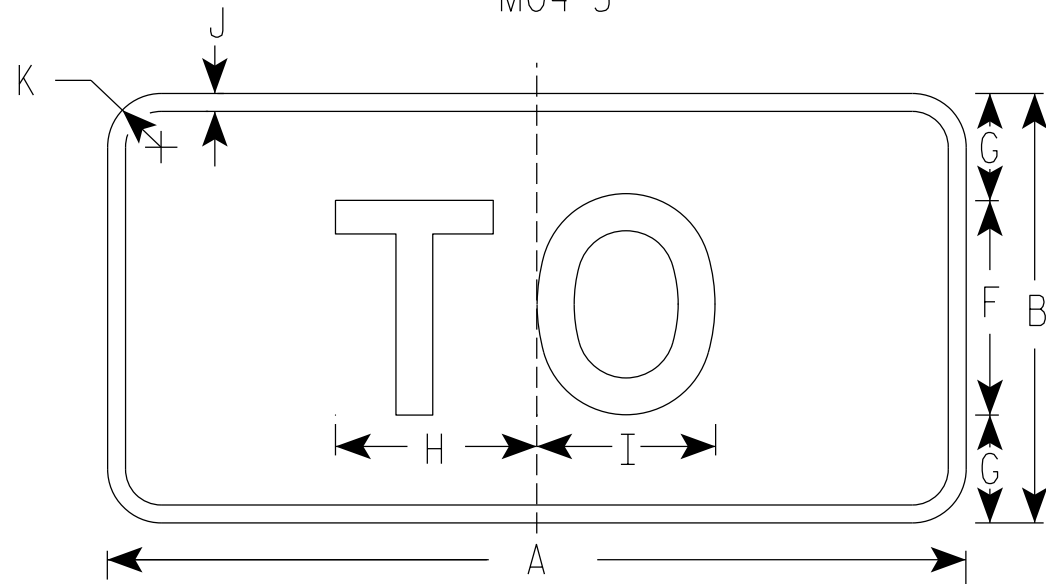
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14



M4-5  
MM4-5  
MP4-5  
M04-5



MB4-5  
MK4-5  
MN4-5

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - See note 5  
Message - See note 5
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-5 Background - White  
Message - Black  
MB4-5 Background - Blue  
Message - White  
MK4-5 Background - Green  
Message - White  
MM4-5 Background - White  
Message - Green  
MN4-5 Background - Brown  
Message - White  
MP4-5 Background - White  
Message - Blue  
M04-5 Background - Orange Type F Reflective  
Message - Black

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	5 3/8	5 1/4	1/2	1 1/2																2.00
3	36	18	1 3/8	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2	1 1/2																4.5
4	36	18	1 3/8	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2	1 1/2																4.5
5	36	18	1 3/8	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2	1 1/2																4.5

STANDARD SIGN  
M4-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
State Traffic Engineer

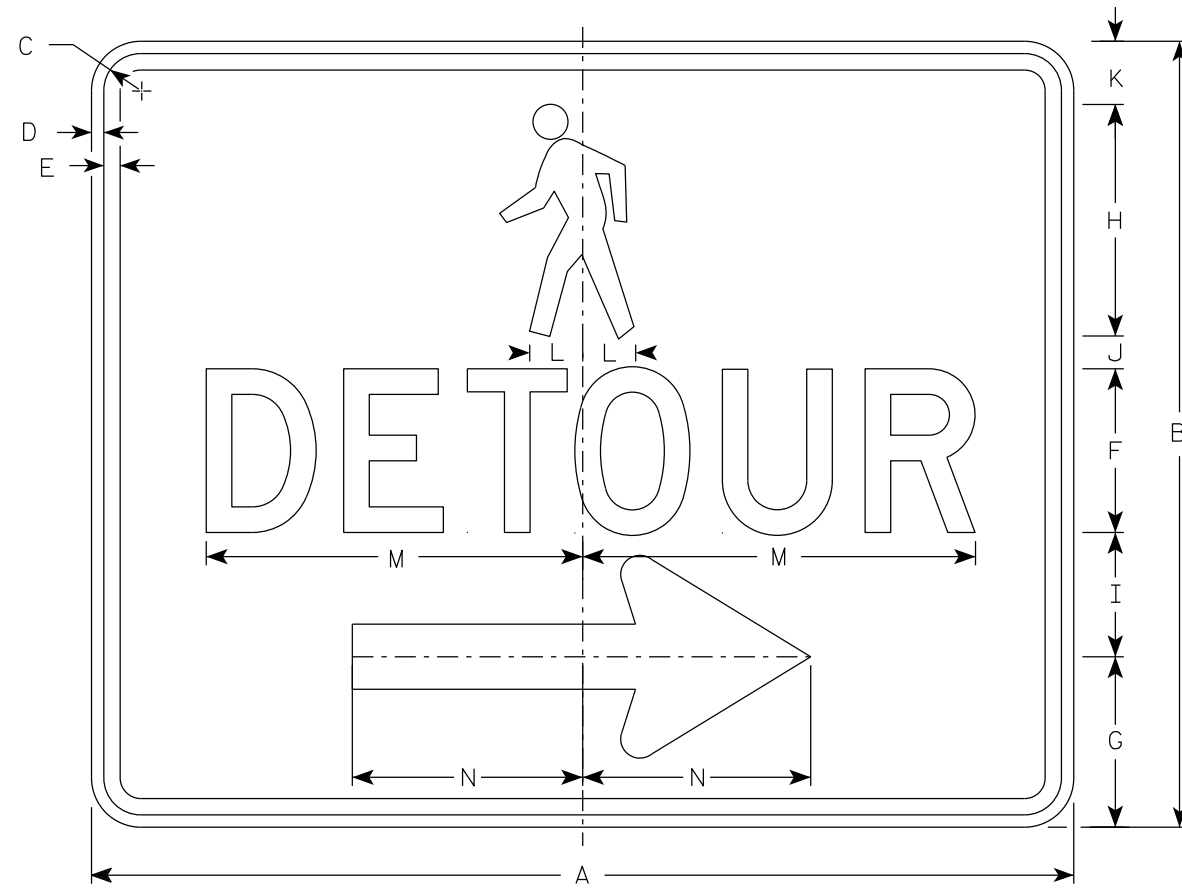
DATE 03/7/19 PLATE NO. M4-5.9

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

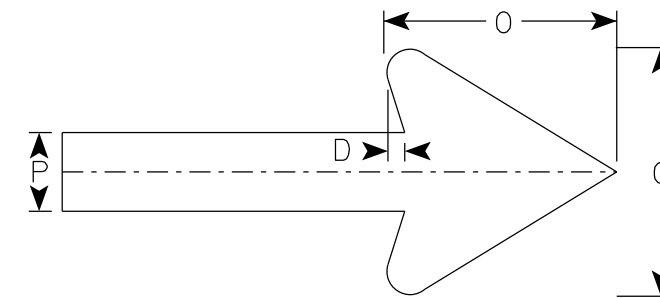


NOTES

1. Sign is Type II-Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-9BL is the same as M4-9BR except the arrow is reversed.



M4 - 9BR



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/8	3/8	1/2	5	5 1/4	7 1/8	3 3/4	1	1 1/8	1 5/8	11 3/4	7	6	2											5.00
3																											
4																											
5																											

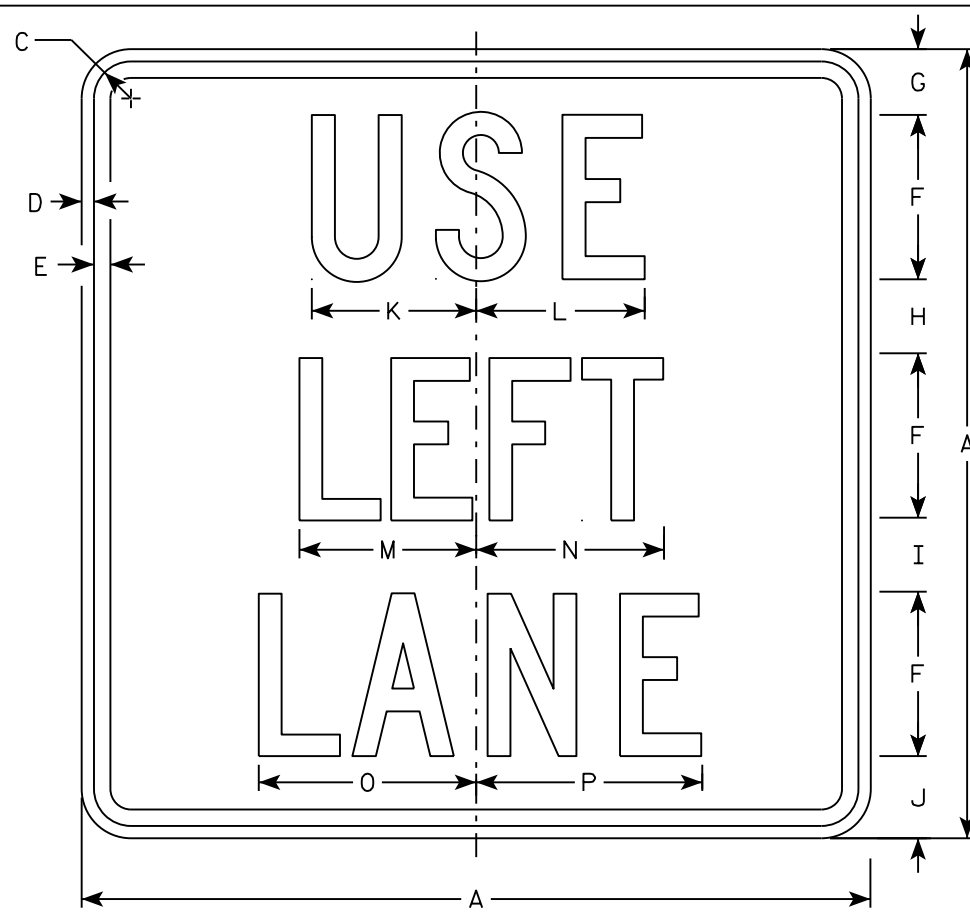
STANDARD SIGN  
M4-9B L&R

WISCONSIN DEPT OF TRANSPORTATION

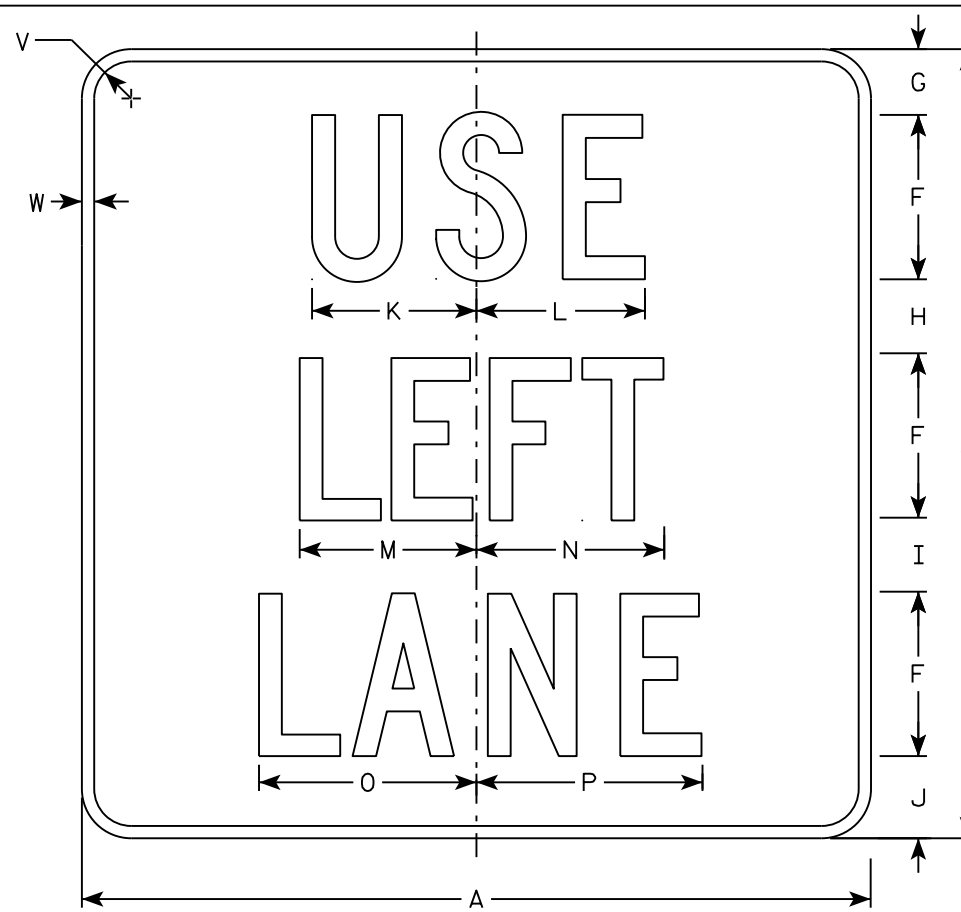
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 7/1/19 PLATE NO. M4-9B.2

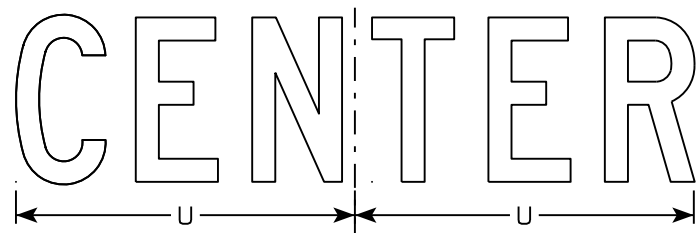
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



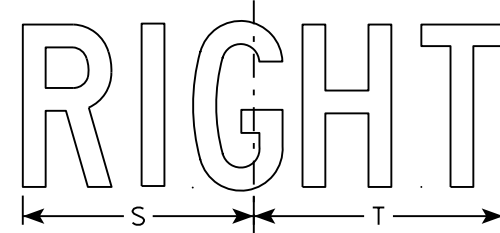
M4-20L  
MM4-20L  
M04-20L  
MP4-20L



MB4-20L  
MK4-20L  
MN4-20L  
MR4-20L



M4-20C  
MB4-20C  
MK4-20C  
MM4-20C  
MN4-20C  
M04-20C  
MP4-20C  
MR4-20C



M4-20R  
MB4-20R  
MK4-20R  
MM4-20R  
MN4-20R  
M04-20R  
MP4-20R  
MR4-20R

NOTES

1. Sign is Type II - Type H except as Shown
2. Color:  
Background - See note 5  
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-20 Background - White  
Message - Black  
MB4-20 Background - Blue  
Message - White  
MK4-20 Background - Green  
Message - White  
MM4-20 Background - White  
Message - Green  
MN4-20 Background - Brown  
Message - White  
M04-20 Background - Orange - Type F Reflective  
Message - Black  
MP4-20 Background - White  
Message - Blue  
MR4-20 Background - Brown  
Message - Yellow

7

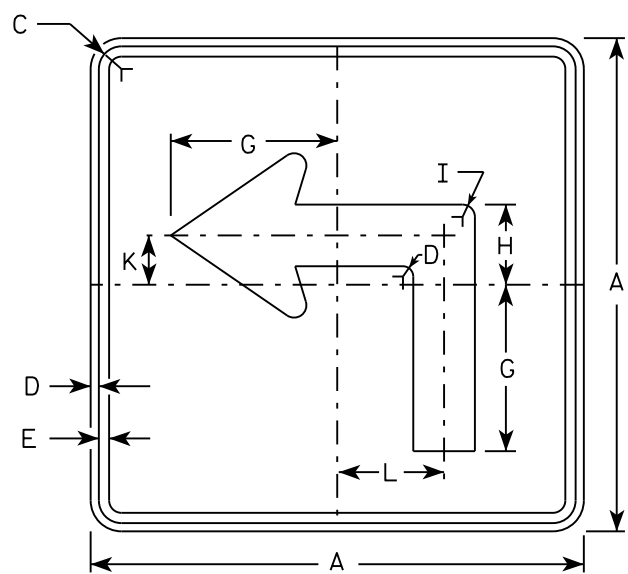
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/8	3/8	1/2	5	2	2 1/4	2 1/4	2 1/2	5	5 1/8	5 3/8	5 3/4	6 5/8	6 7/8			7	7 5/8	10 1/4	1 1/2	1/2				4.0
3	36		1 5/8	5/8	3/4	7	4	3	3 1/2	4 1/2	7 1/2	7 3/4	8	8 5/8	9 7/8	10 1/4			10 3/8	11 3/8	14 3/8	1 7/8	1/2				9.0
4																											
5																											

STANDARD SIGN  
M4-20

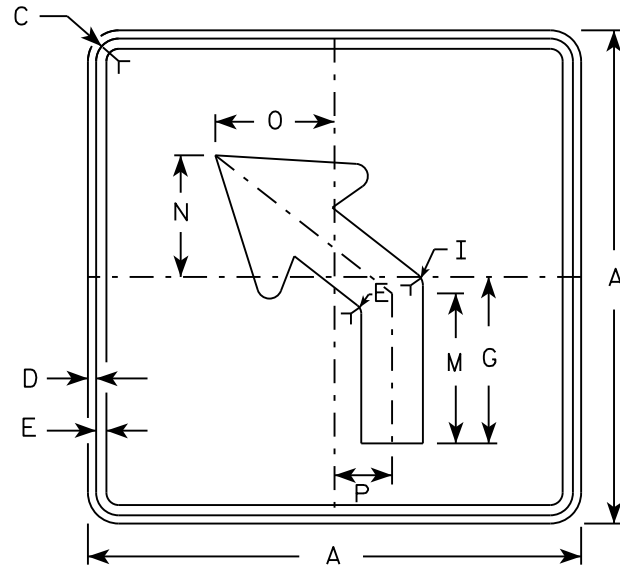
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

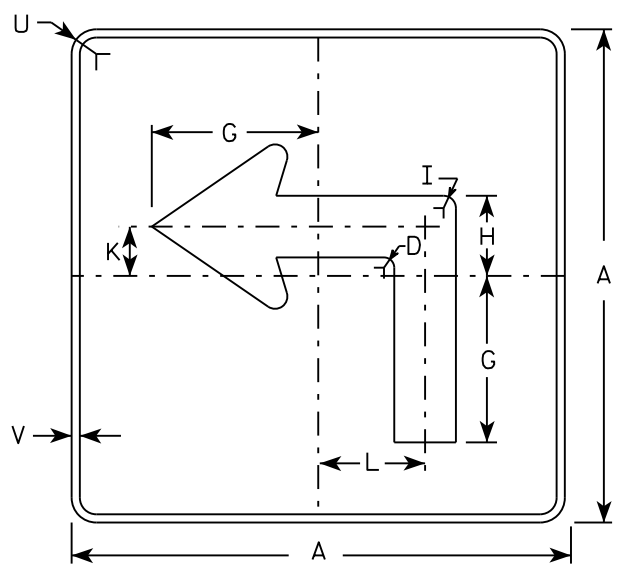
DATE 10/15/15 PLATE NO. M4-20.5



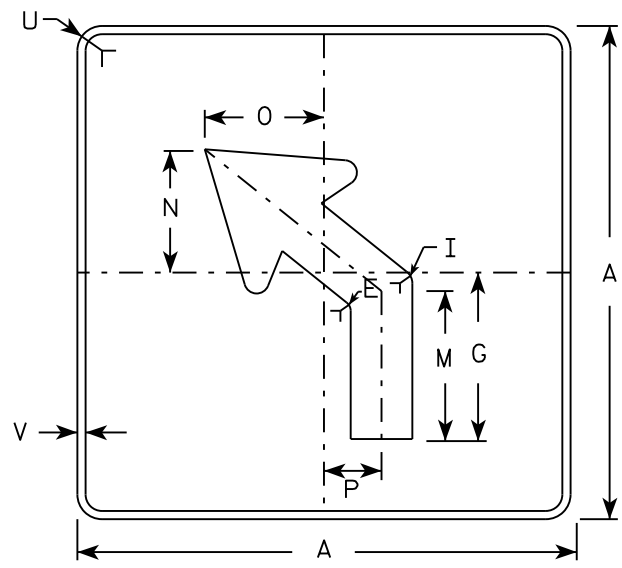
M5-1L  
MM5-1L  
M05-1L  
MP5-1L



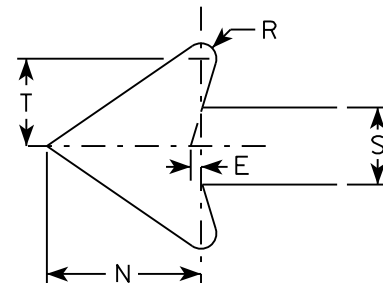
M5-2L  
MM5-2L  
M05-2L  
MP5-2L



MB5-1L  
MK5-1L  
MN5-1L  
MR5-1L



MB5-2L  
MK5-2L  
MN5-2L  
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:  
Background - See note 4  
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- |                 |   |
|-----------------|---|
| M5-1 and M5-2   | Background - White                      |
|                 | Message - Black                         |
| MB5-1 and MB5-2 | Background - Blue                       |
|                 | Message - White                         |
| MK5-1 and MK5-2 | Background - Green                      |
|                 | Message - White                         |
| MM5-1 and MM5-2 | Background - White                      |
|                 | Message - Green                         |
| MN5-1 and MN5-2 | Background - Brown                      |
|                 | Message - White                         |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
|                 | Message - Black                         |
| MP5-1 and MP5-2 | Background - White - Type H Reflective  |
|                 | Message - Blue                          |
| MR5-1 and MR5-2 | Background - Brown                      |
|                 | Message - Yellow                        |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

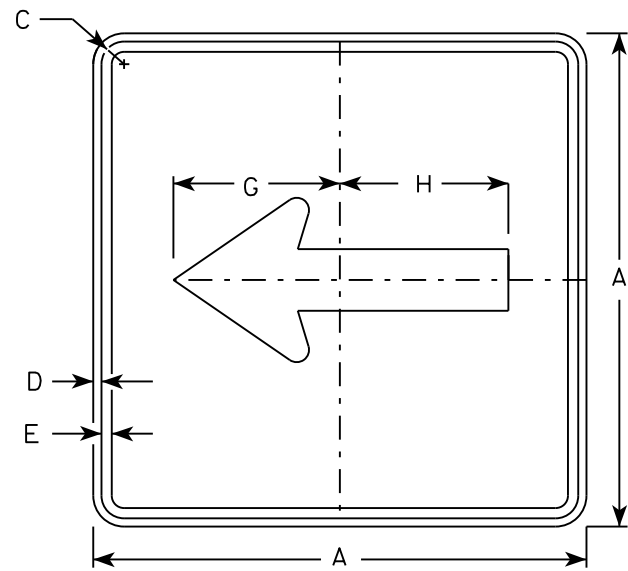
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

STANDARD SIGN  
M5-1 & M5-2

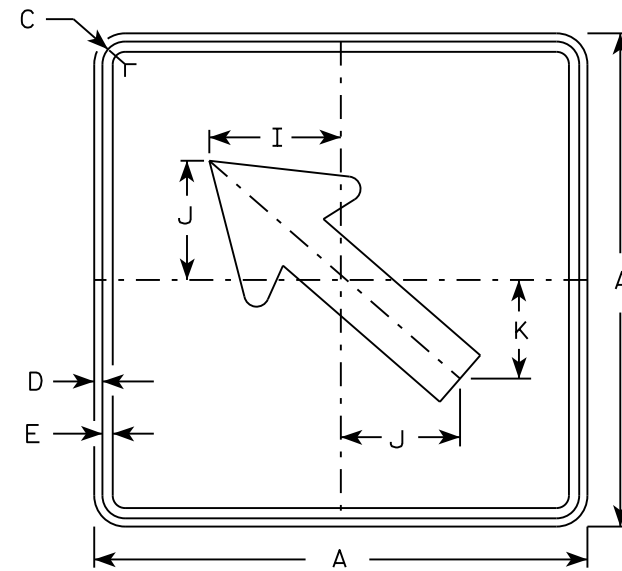
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

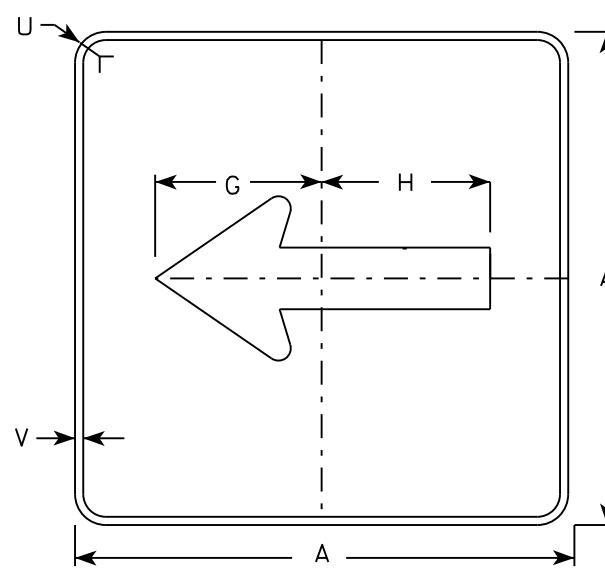
DATE 10/15/15 PLATE NO. M5-1.13



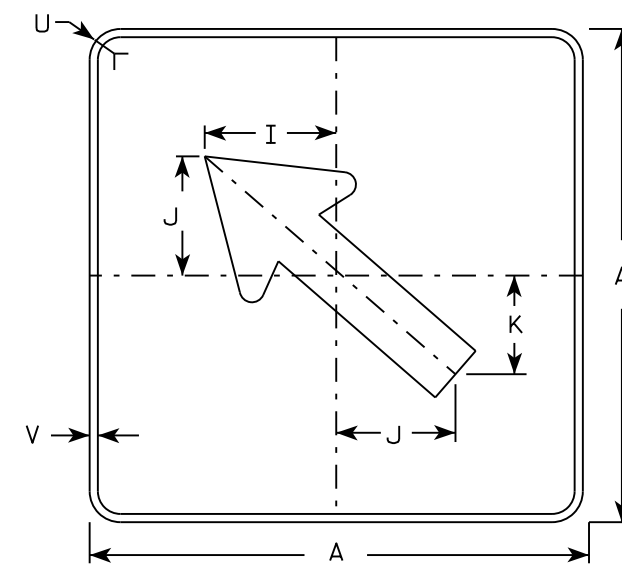
M6-1  
MM6-1  
M06-1  
MP6-1



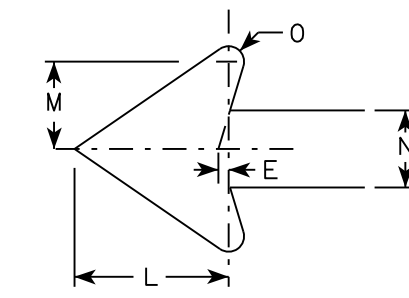
M6-2  
MM6-2  
M06-2  
MP6-2



MB6-1  
MK6-1  
MN6-1  
MR6-1



MB6-2  
MK6-2  
MN6-2  
MR6-2



NOTES

- Signs are Type II - Type H except as Shown
- Color:  
Background - See note 4  
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White  
Message - Black  
MB6-1 and MB6-2 Background - Blue  
Message - White  
MK6-1 and MK6-2 Background - Green  
Message - White  
MM6-1 and MM6-2 Background - White  
Message - Green  
MN6-1 and MN6-2 Background - Brown  
Message - White  
M06-1 and M06-2 Background - Orange - Type F Reflective  
Message - Black  
MP6-1 and MP6-2 Background - White  
Message - Blue  
MR6-1 and MR6-2 Background - Brown  
Message - Yellow

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN  
M6-1 & M6-2  
SERIES

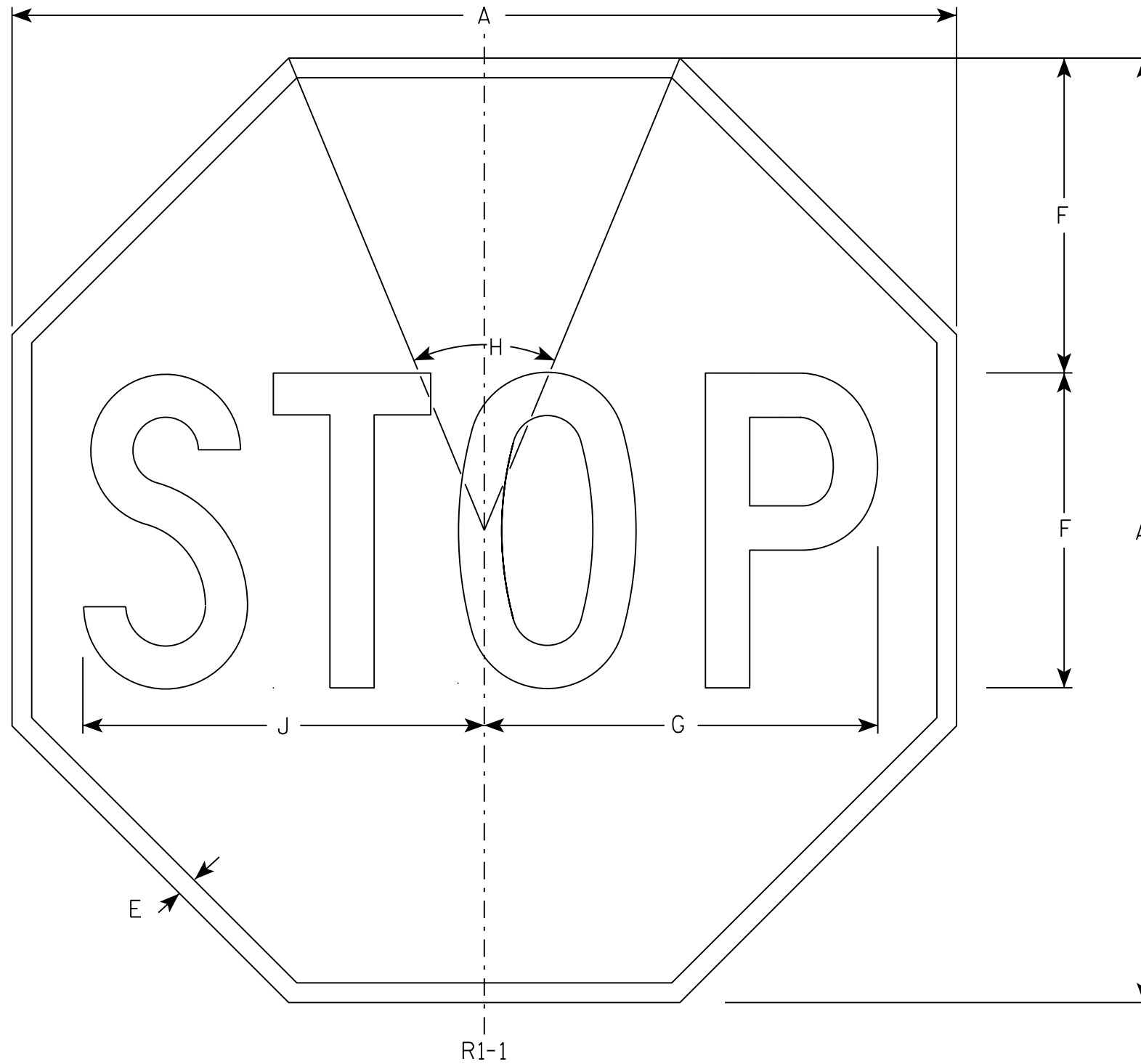
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Red  
Message - White
3. Message Series - C



7

7

R1-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

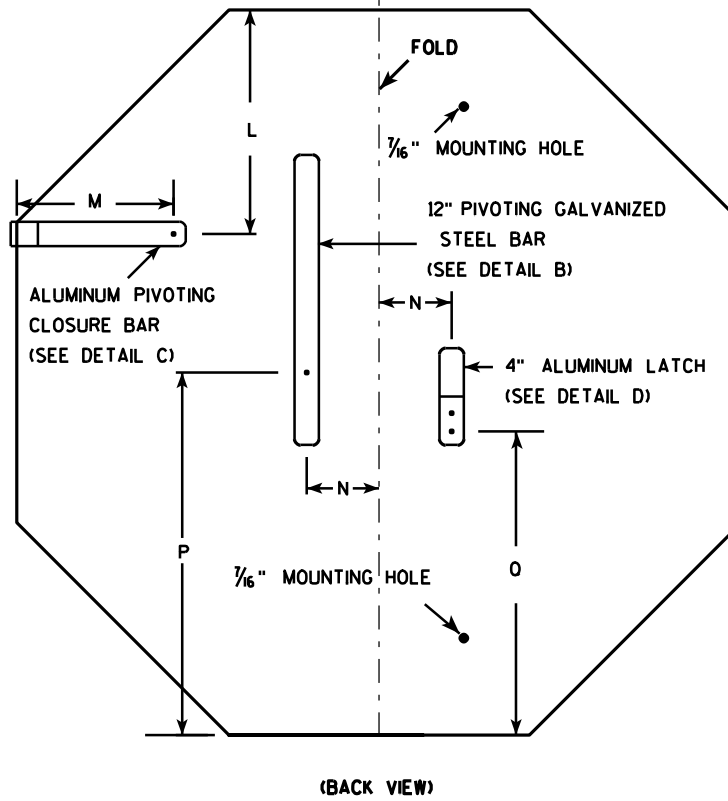
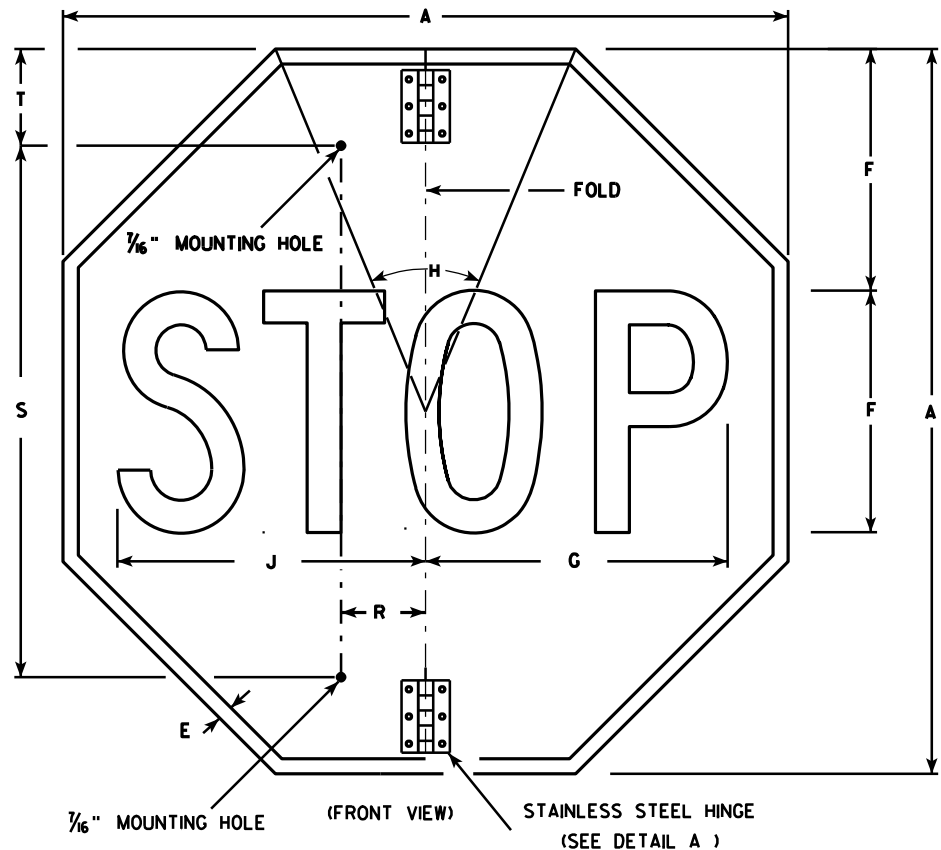
STANDARD SIGN  
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

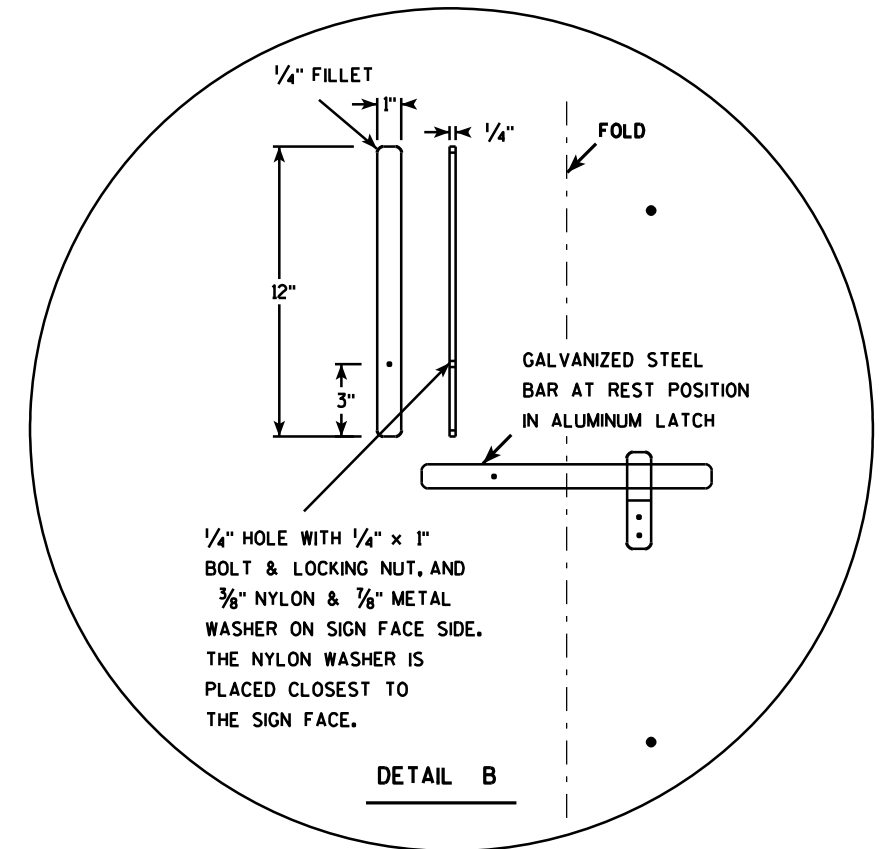
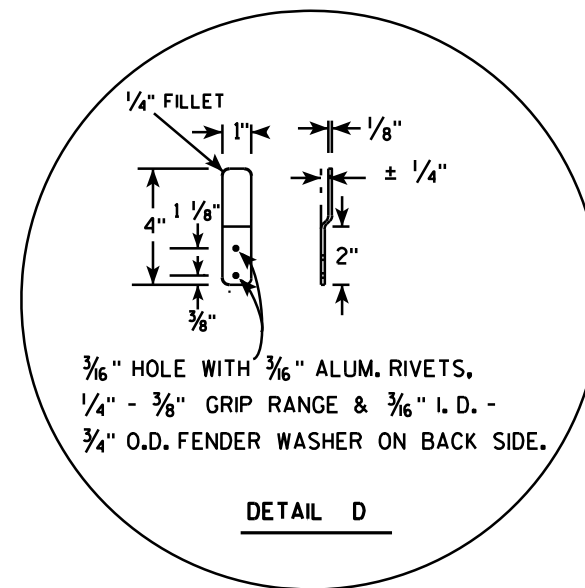
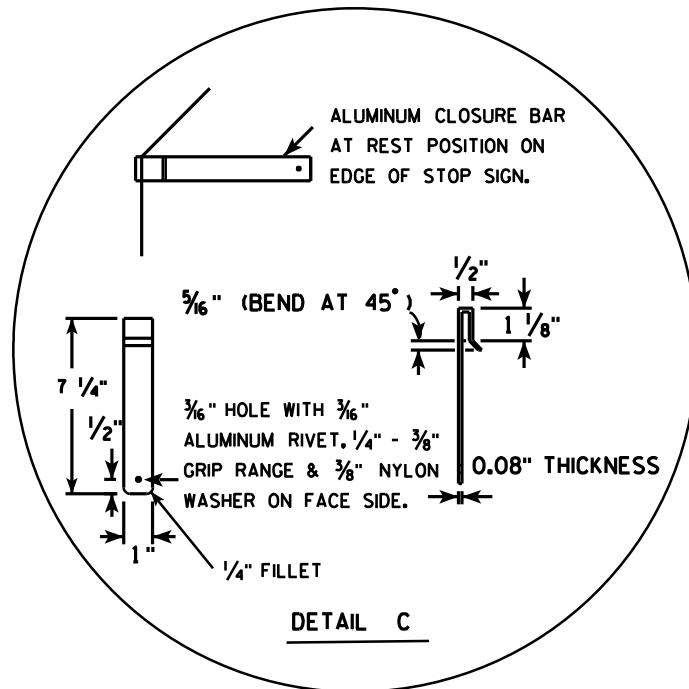
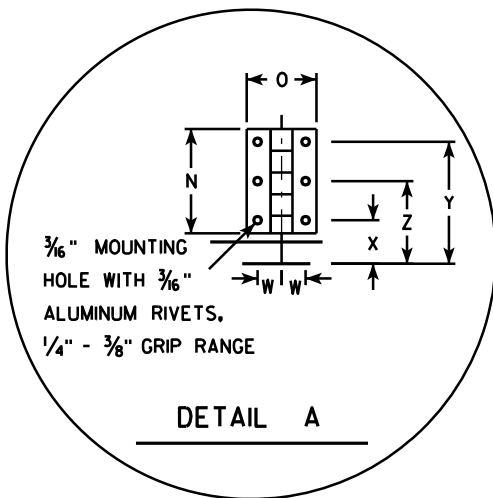
DATE 11/12/15 PLATE NO. R1-1.13

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Red  
Message - White
3. Message Series - C
4. All hardware used on the folding STOP sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.



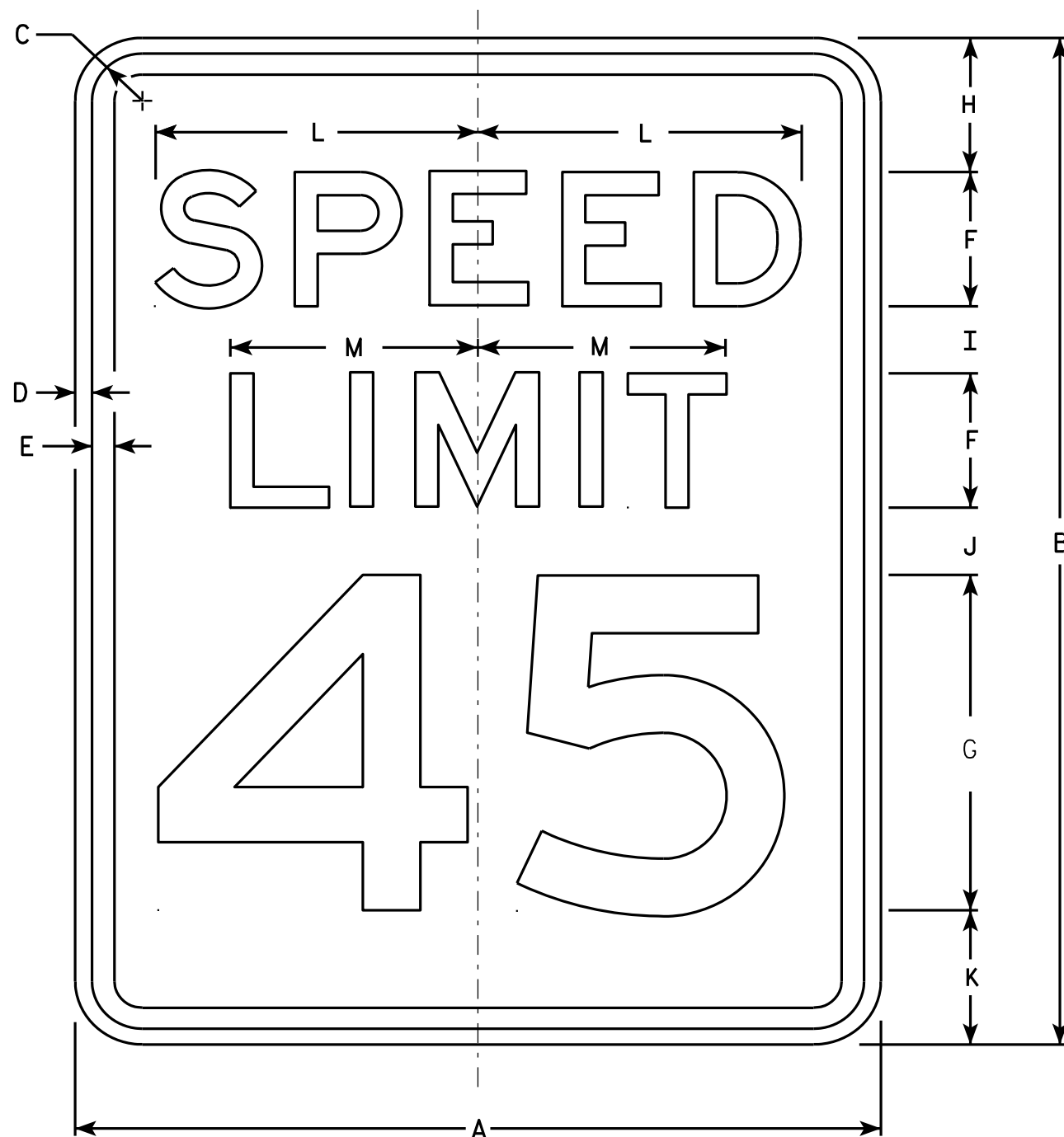
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30				5/8	10	12 1/2	45		12 3/4		9 1/4	6 1/2	3	2	15	12 3/8	2 1/2	22	5			1 1/8	1 1/4	3 1/2	2 3/8	5.18
2M	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			1 1/8	1 1/4	3 1/2	2 3/8	7.46
3	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			1 1/8	1 1/4	3 1/2	2 3/8	7.46
4																											
5																											

STANDARD SIGN  
R1-1F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1F.3



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

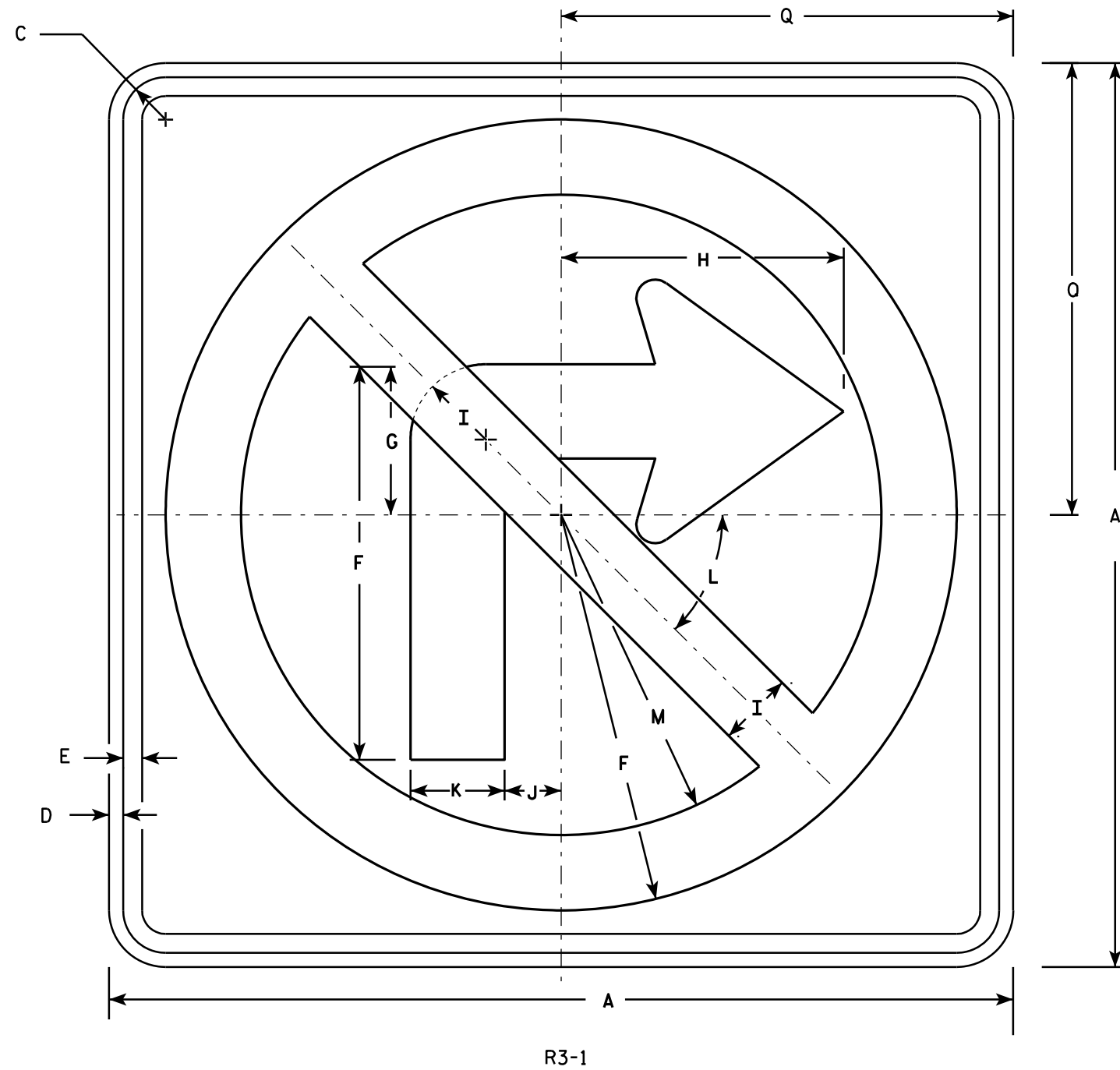
STANDARD SIGN  
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

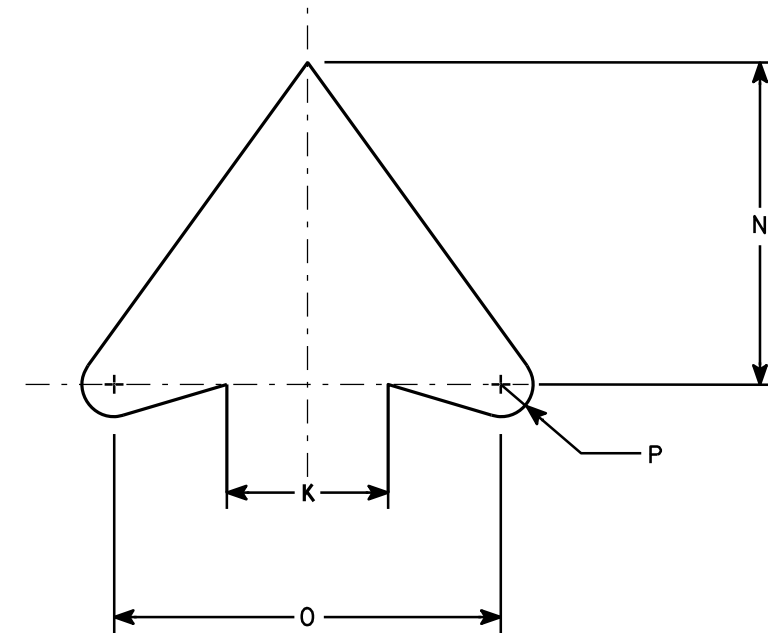
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

**STANDARD SIGN**  
**R3-1**

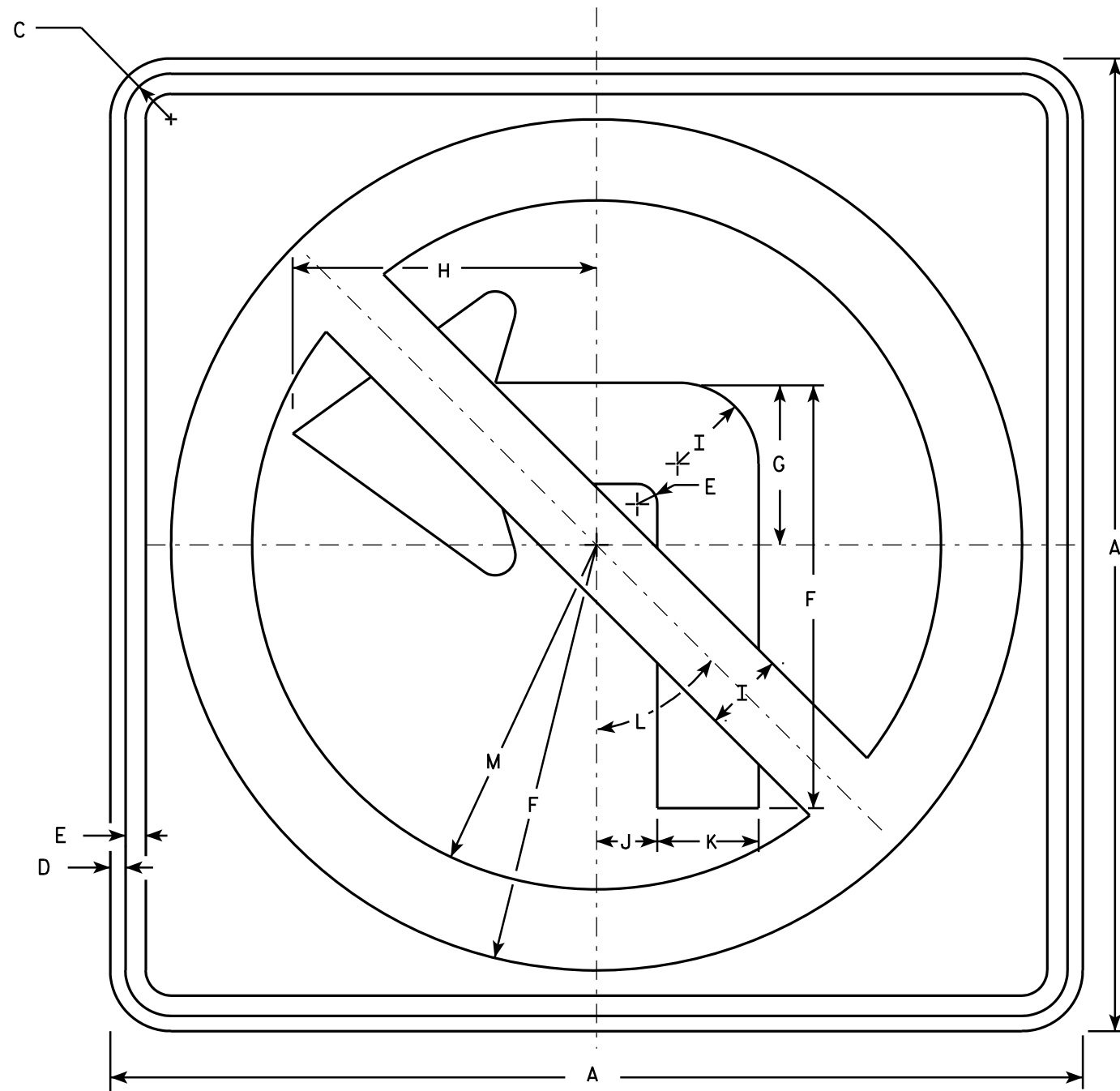
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-1.5

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

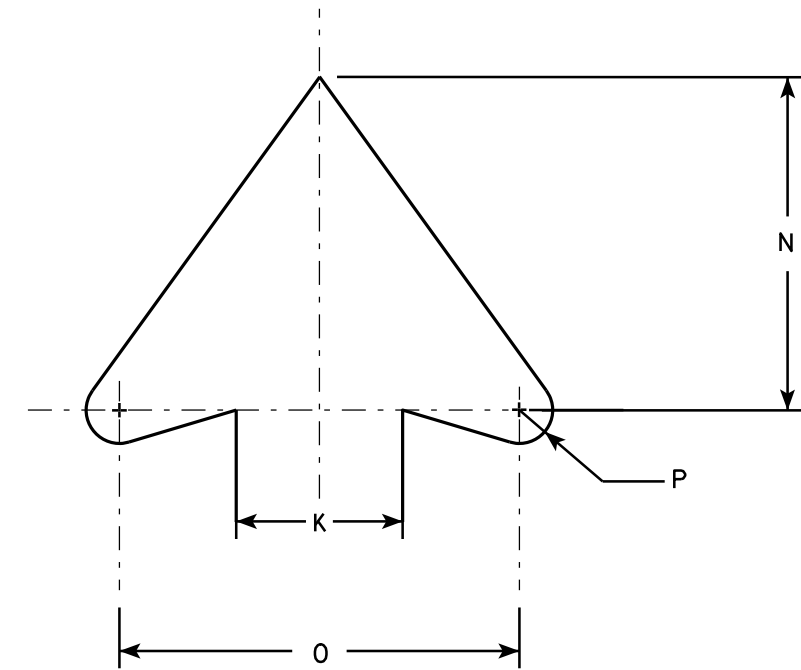




R3-2

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. Ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

**STANDARD SIGN**  
**R3-2**

WISCONSIN DEPT OF TRANSPORTATION

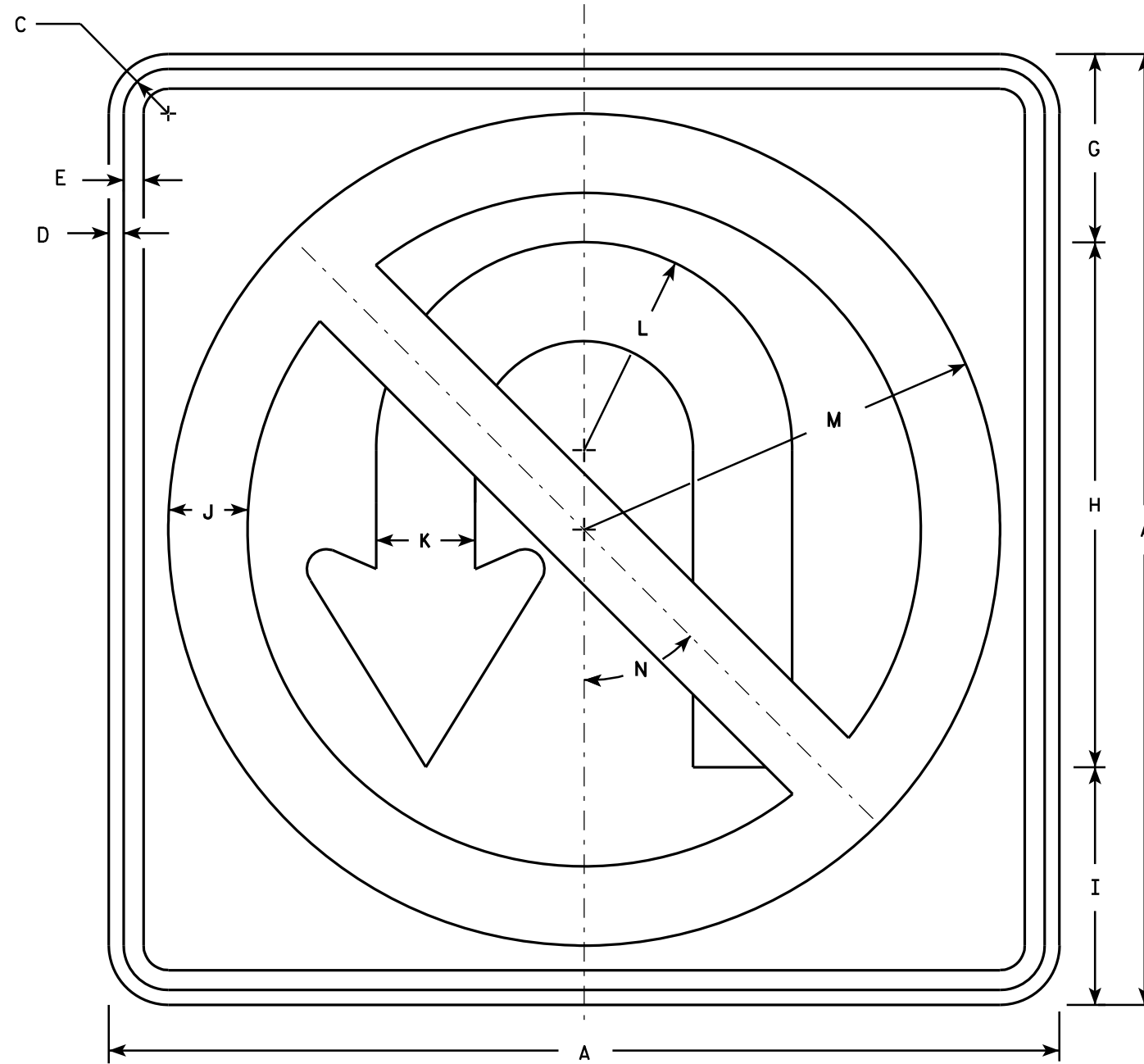
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-2.10

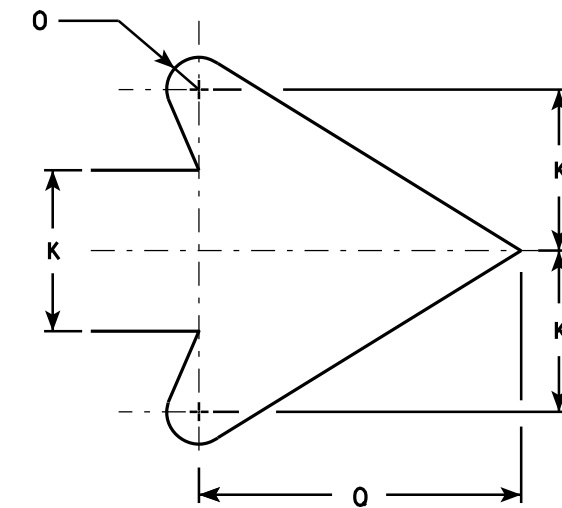
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



R3-4



ARROW DETAIL

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area Sq. Ft.
1																											
2S	24		1 1/8	3/8	1/2		4 3/4	13 1/4	6	2	2 1/2	5 1/4	10 1/2	45°	1/2		5										4.0
2M	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0
3	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0
4	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0
5	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0

**STANDARD SIGN**  
**R3-4**

WISCONSIN DEPT OF TRANSPORTATION

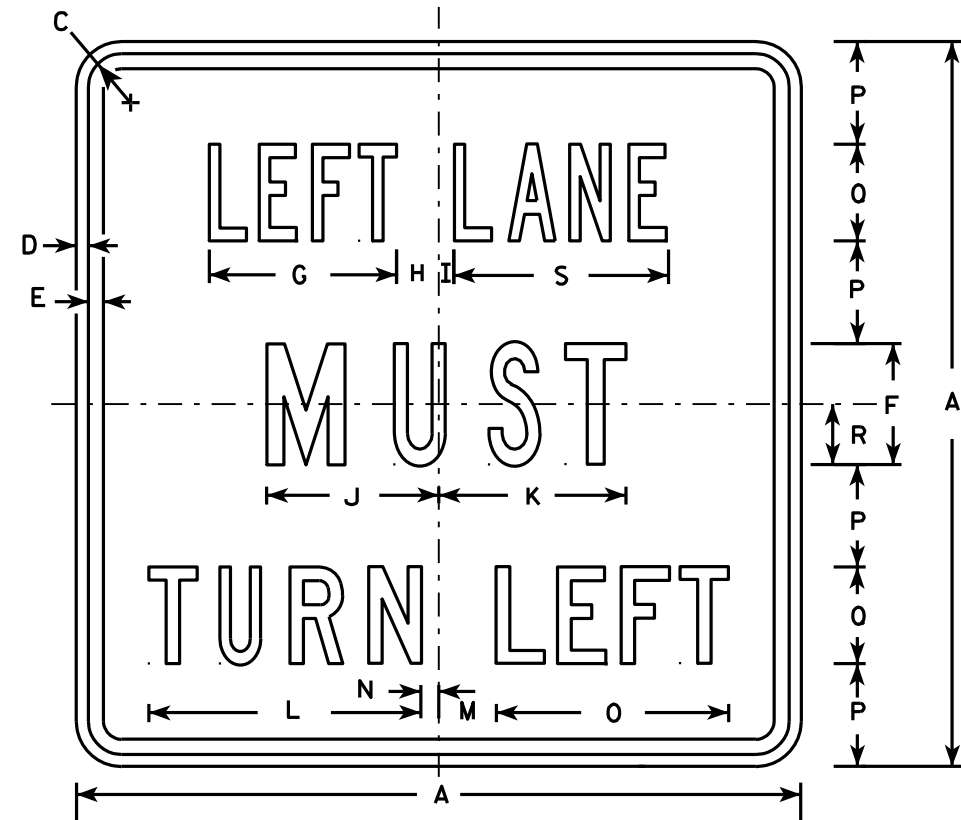
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE: 12/08/10 PLATE NO. R3-4.11

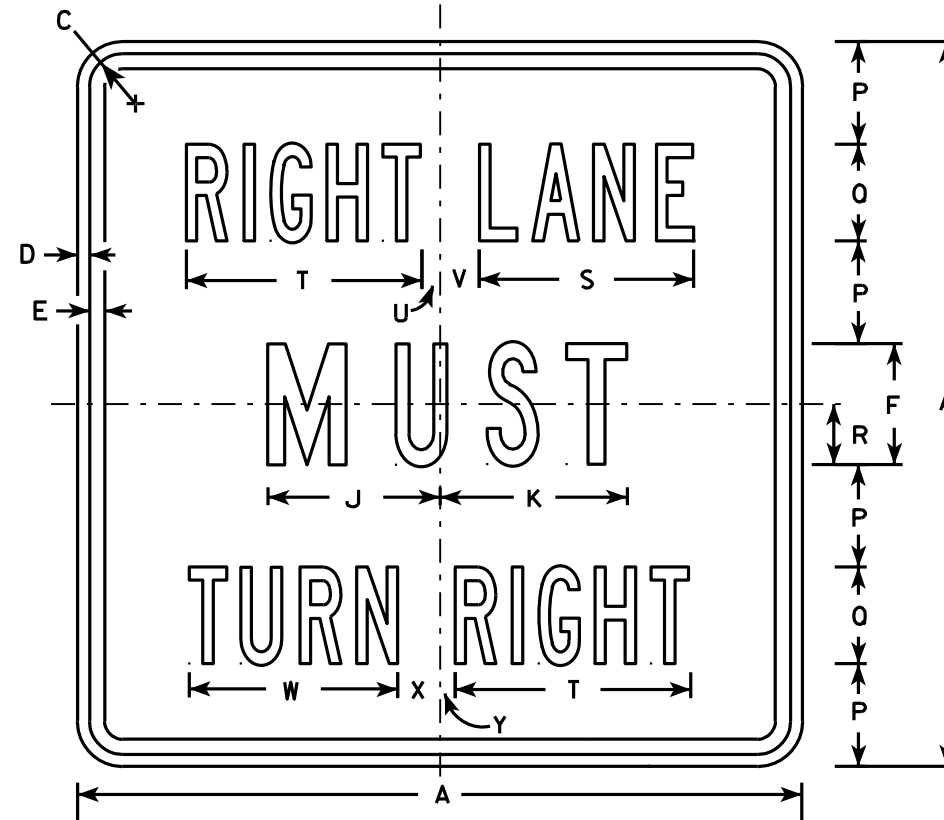
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - Line 1 is Series B.  
Line 2 is Series C.  
Line 3 on plate R3-7R is Series B and Series C on plate R3-7L.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



R3-7L



R3-7R

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	5	7 3/4	1 3/4	5/8	7 1/8	7 3/4	11 1/4	2 3/8	3/4	9 5/8	4 1/4	4	2 1/2	8 7/8	9 3/4	3/4	1 5/8	8 5/8	1 5/8	5/8		6.25
2S	30		1 3/8	1/2	5/8	5	7 3/4	1 3/4	5/8	7 1/8	7 3/4	11 1/4	2 3/8	3/4	9 5/8	4 1/4	4	2 1/2	8 7/8	9 3/4	3/4	1 5/8	8 5/8	1 5/8	5/8		6.25
2M	30		1 3/8	1/2	5/8	5	7 3/4	1 3/4	5/8	7 1/8	7 3/4	11 1/4	2 3/8	3/4	9 5/8	4 1/4	4	2 1/2	8 7/8	9 3/4	3/4	1 5/8	8 5/8	1 5/8	5/8		6.25
3	36		1 5/8	5/8	3/4	6	9 5/8	2	1 1/8	8 3/4	9	13 1/2	3 7/8	1 1/2	12 1/2	5	5	3	10 5/8	12	7/8	2 1/4	10 5/8	2 1/8	1		9.00
4	48		2 1/4	3/4	1	8	13 1/2	2 3/8	1 1/2	11 1/2	11 7/8	17 3/4	3 5/8	2 1/2	16 3/8	6 1/2	7	4	14 3/8	16 7/8	5/8	3 1/4	15 1/8	2 3/4	1 1/8		16.00
5																											

**STANDARD SIGN**  
**R3-7L & R3-7R**

*WISCONSIN DEPT OF TRANSPORTATION*

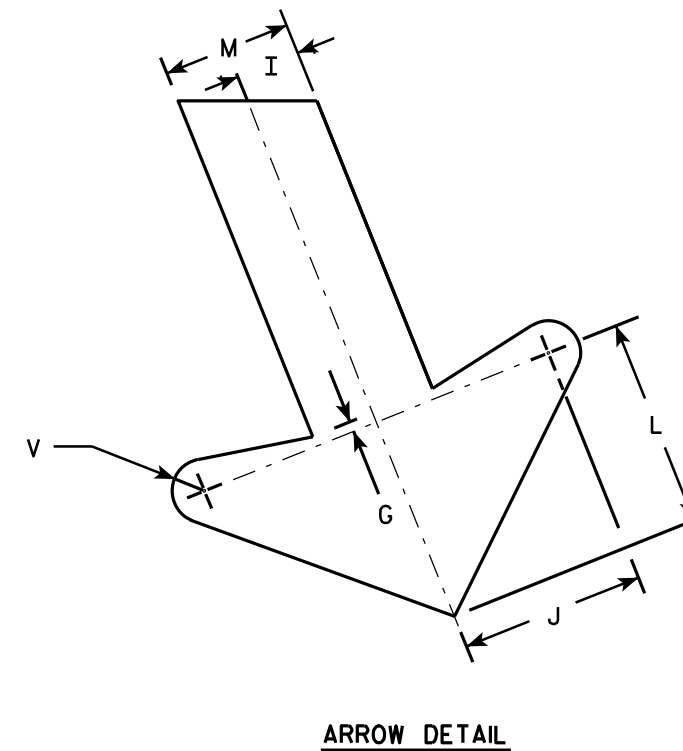
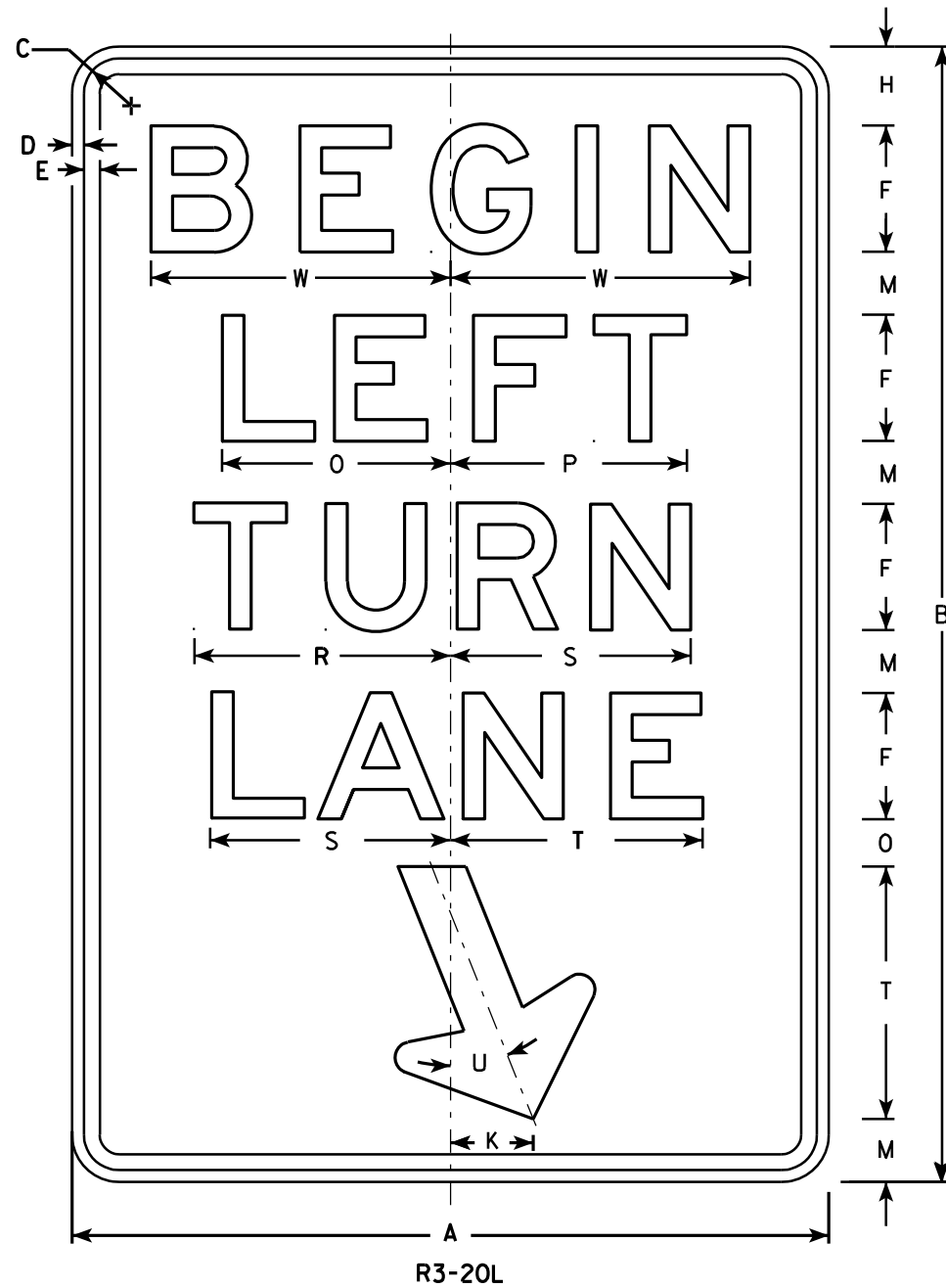
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-7.3

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

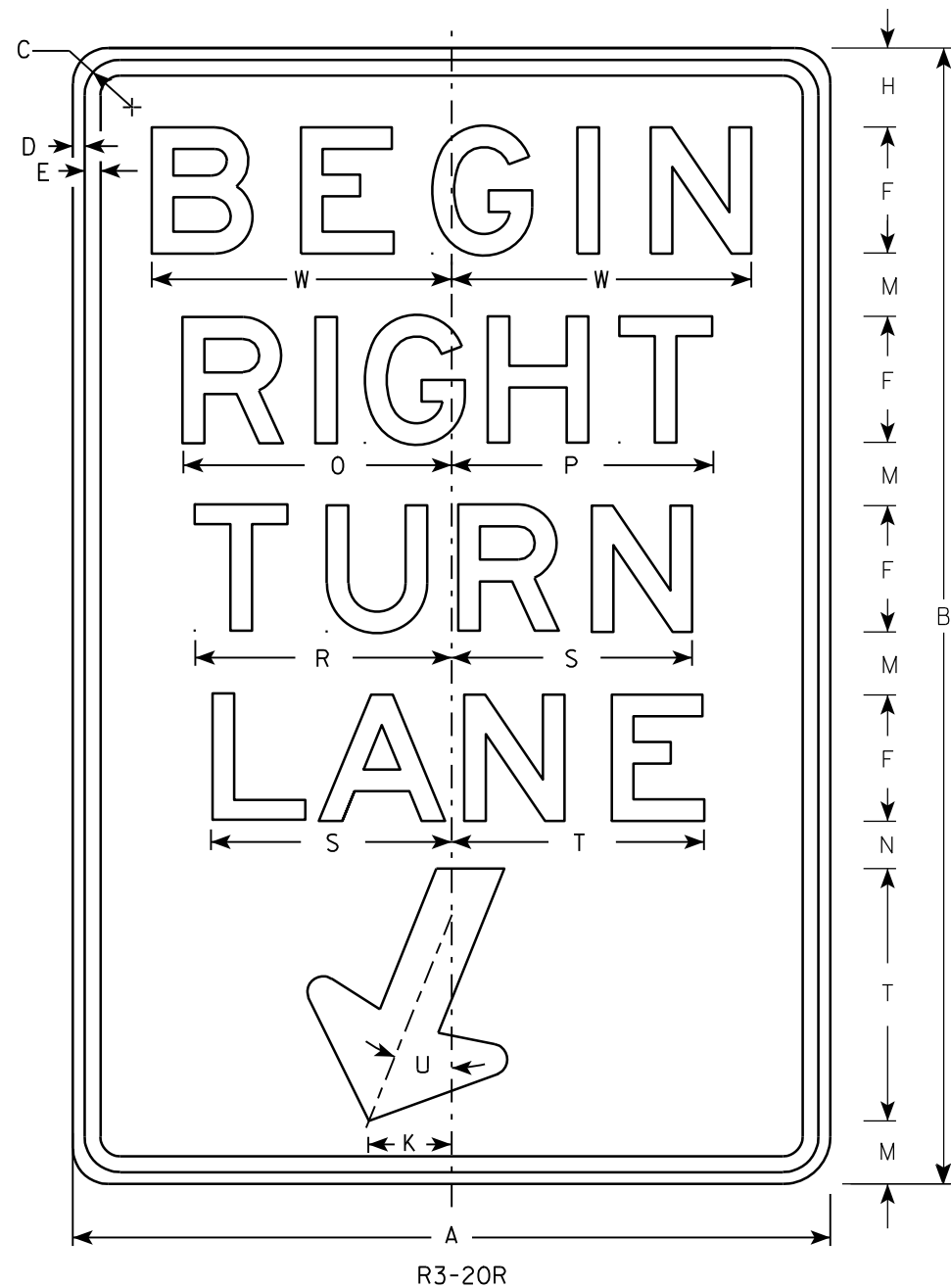
**STANDARD SIGN**  
**R3-20L**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20L.7

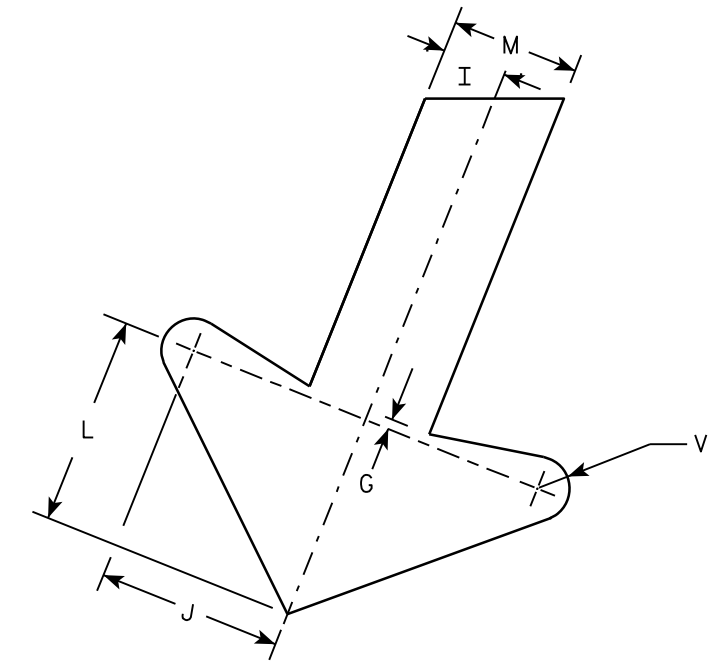
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



R3-20R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



ARROW DETAIL

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	12 3/4	12 1/2		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

STANDARD SIGN  
R3-20R

WISCONSIN DEPT OF TRANSPORTATION

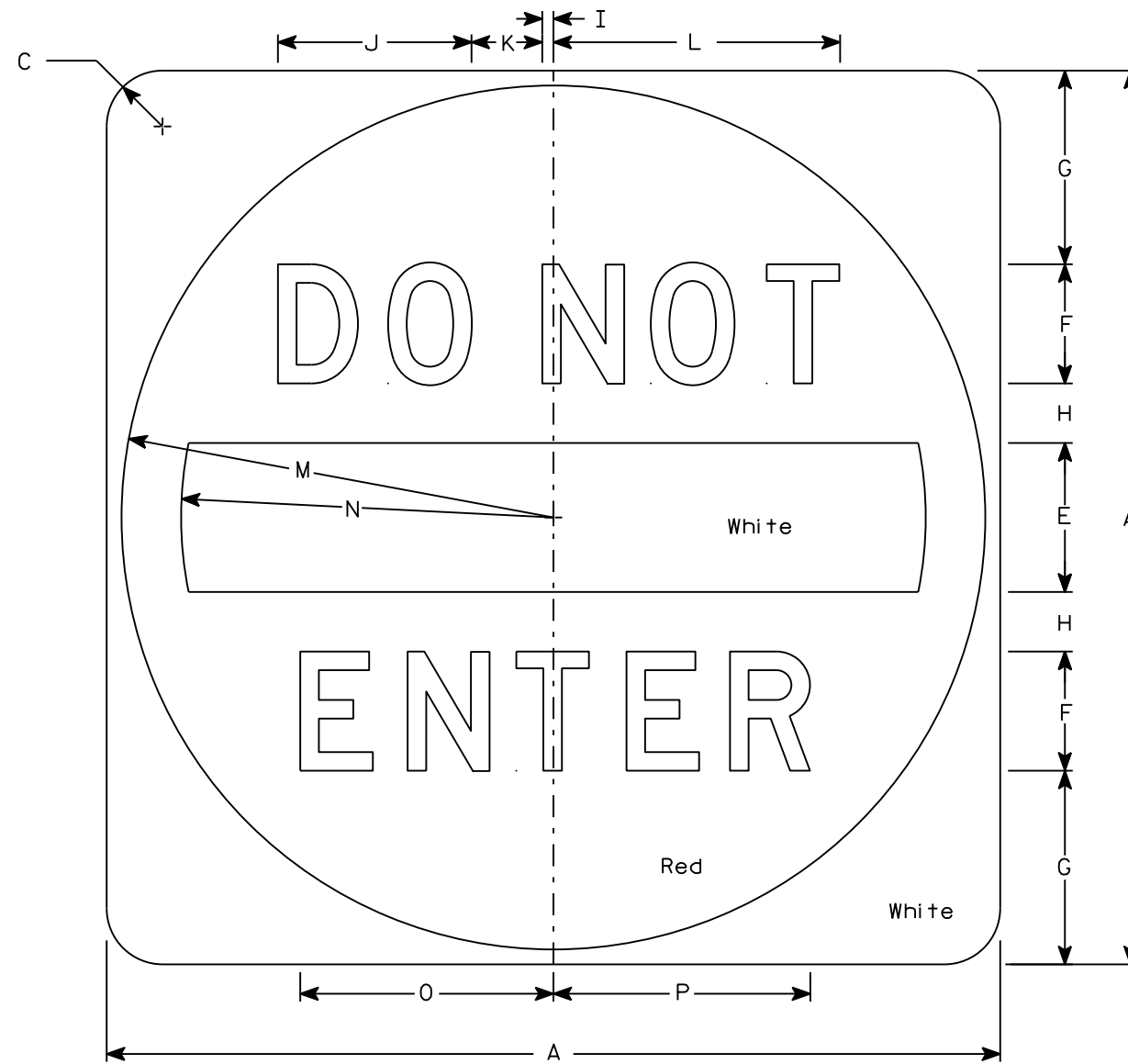
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20R.6

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - See detail  
Message - White
3. Message Series - D



R5-1

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.25
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

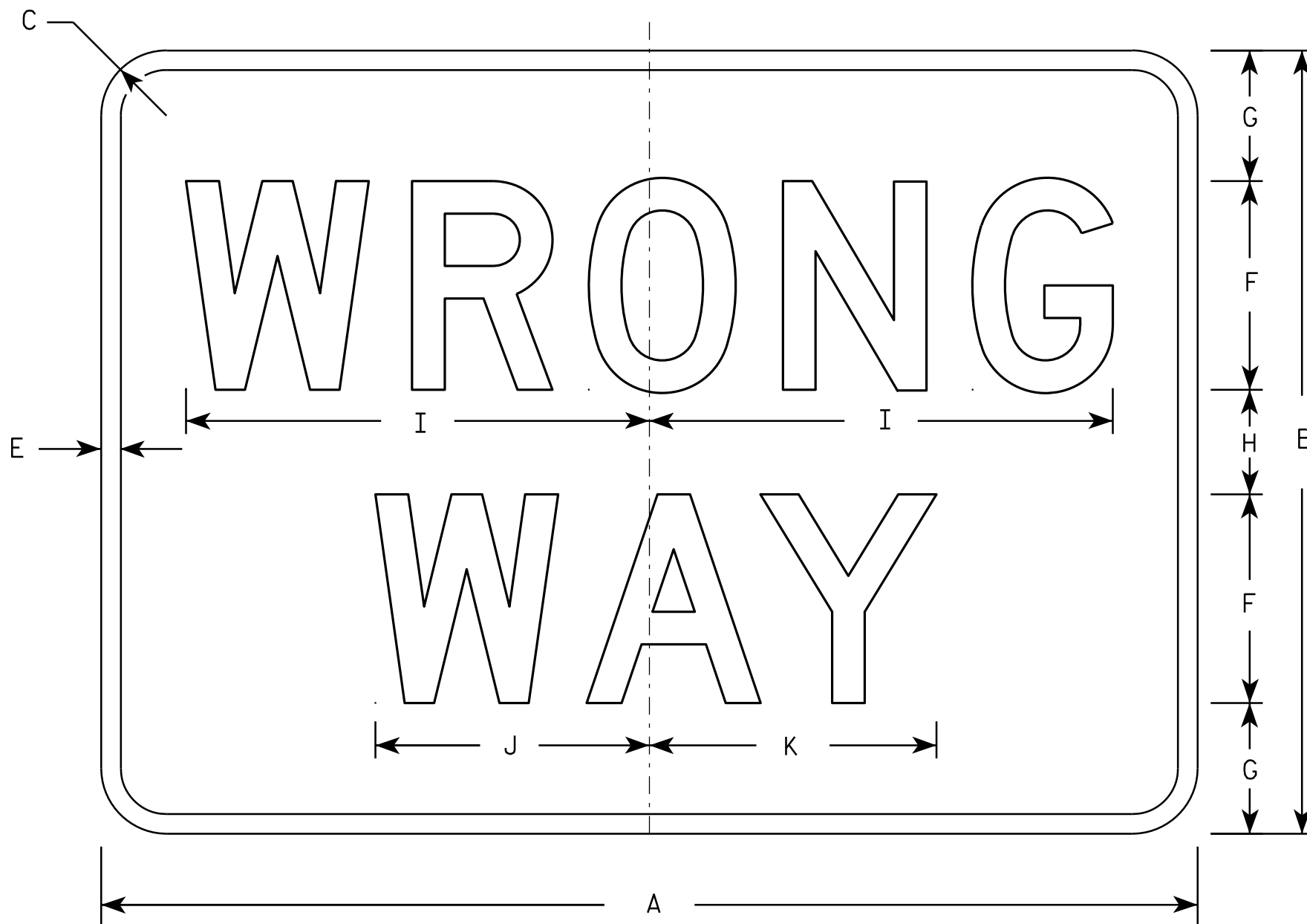
STANDARD SIGN  
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/15/18 PLATE NO. R5-1.16

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**



**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Red  
Message - White
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

R5-1A

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

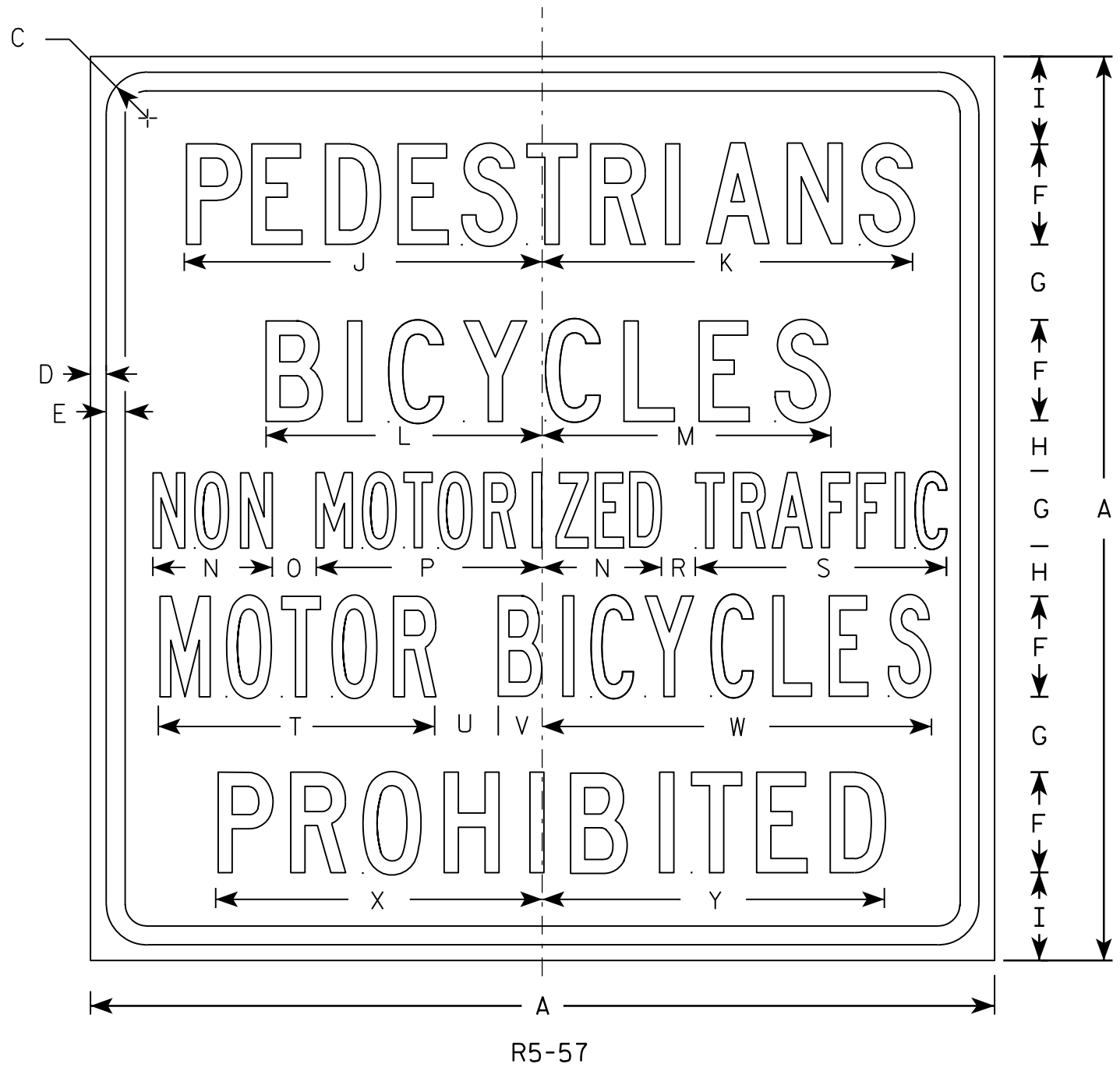
**STANDARD SIGN**  
R5-1A

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - Lines 1, 2, and 5 are Series C. Lines 3 and 4 are Series B.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S																											
2M																											
3																											
4	36		1 5/8	5/8	3/4	4	3	2	3 1/2	14 1/4	14 7/8	11	11 1/2	4 3/4	1 3/4	9		1 3/8	10	11	2 1/2	1 3/4	15 1/2	13	13 5/8	9.0	
5	36		1 5/8	5/8	3/4	4	3	2	3 1/2	14 1/4	14 7/8	11	11 1/2	4 3/4	1 3/4	9		1 3/8	10	11	2 1/2	1 3/4	15 1/2	13	13 5/8	9.0	

STANDARD SIGN  
R5-57

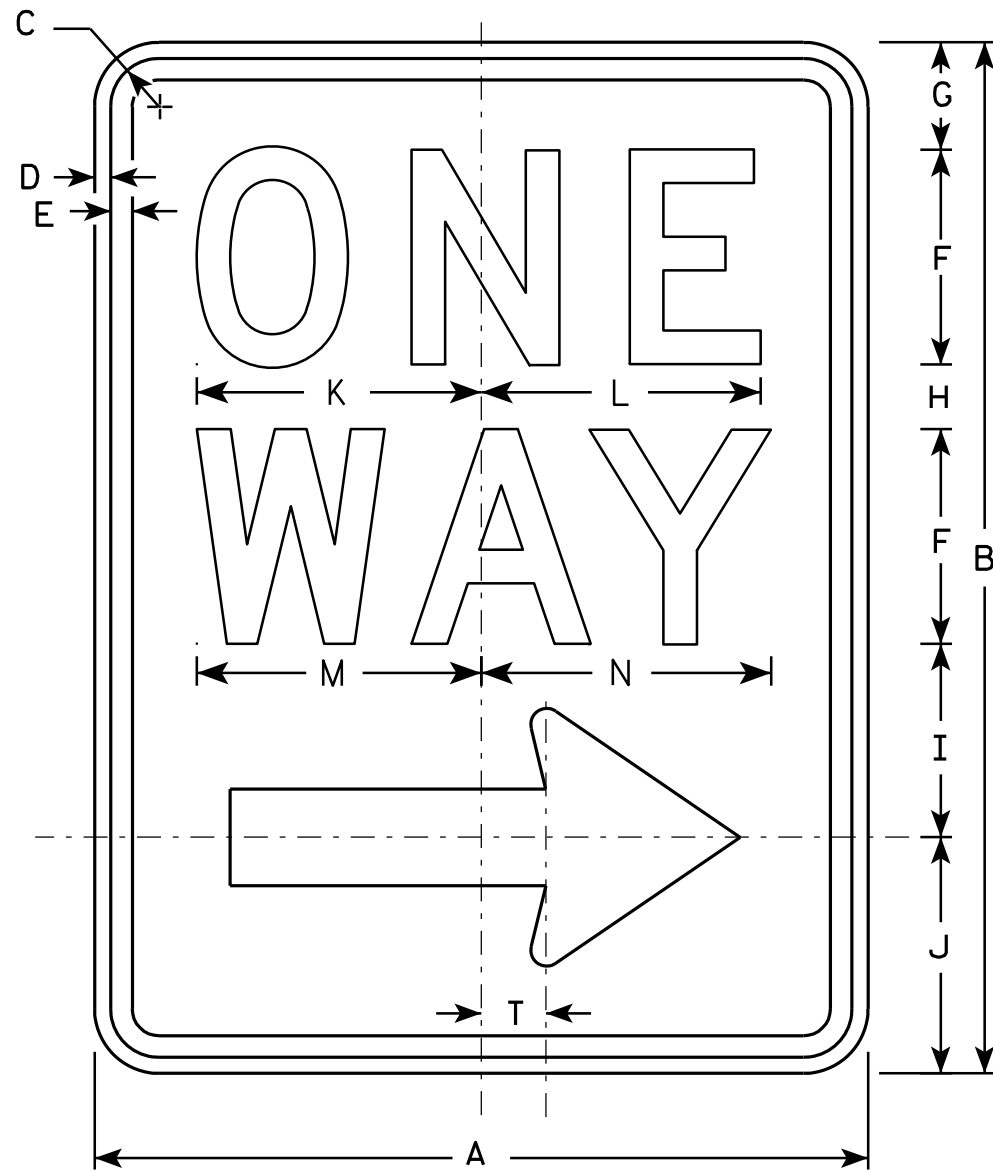
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/29/2011 PLATE NO. R5-57.10

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

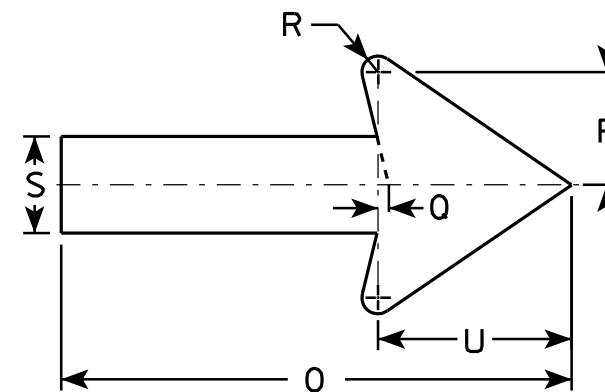




R6-2R

**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R6-2L same as R6-2R except arrow points to the left.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

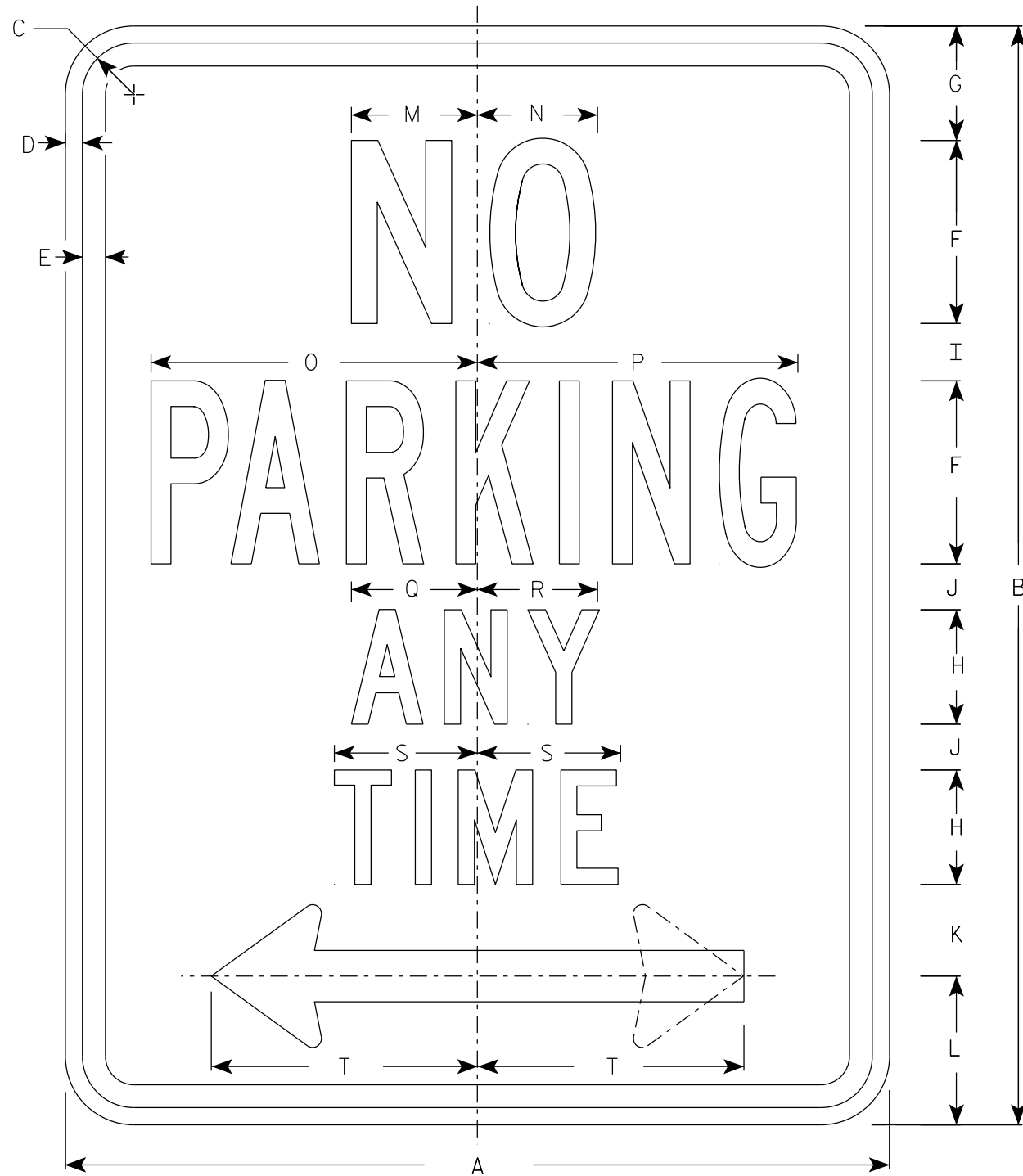
**STANDARD SIGN**  
**R6-2 R&L**

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

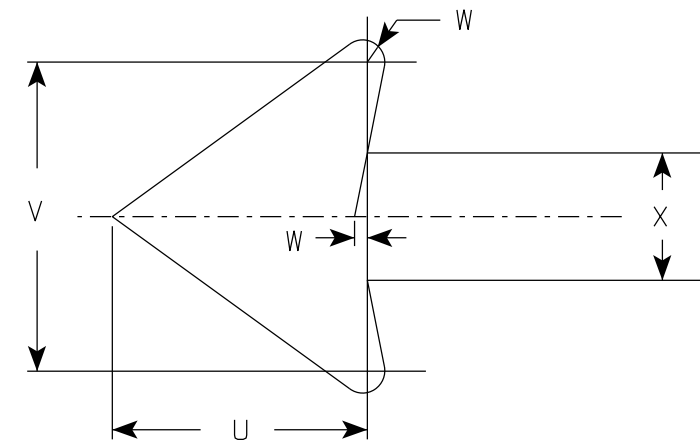
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**



R7-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Red
3. Message Series - See Note 5
4. Lines 1, 3 and 4 are series C, line 2 is series B.
5. R7-1D (double arrow)  
R7-1L (left arrow)  
R7-1R (right arrow)



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	3	1 7/8	2	7/8	5/8	1 1/2	2 1/2	2	2	4 7/8	4 7/8	2 1/4	2 1/8	2 1/2	3 7/8	1 1/2	1 3/4	1/8	3/4		1.5	
2S	18	24	1 1/8	3/8	1/2	4	2 1/2	2 1/2	1 1/4	1	2	3 1/4	2 3/4	2 5/8	7 1/8	7	2 3/4	2 5/8	3 1/8	5 7/8	2 1/4	2 5/8	1/4	1 1/8		3.0	
2M	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2		5.0	
3	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2		5.0	
4																											
5																											

STANDARD SIGN  
R7-1

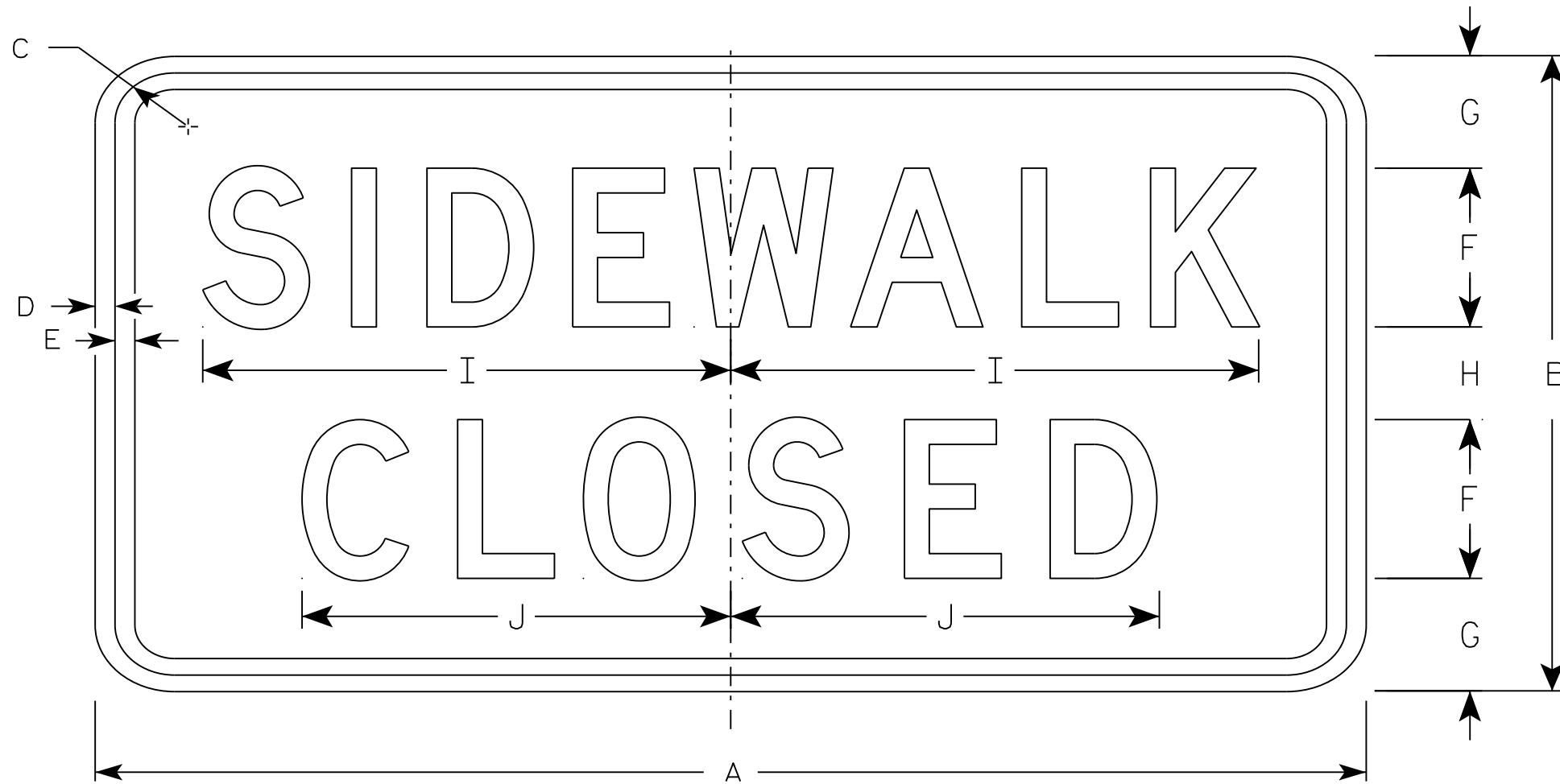
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 3/31/2021 PLATE NO. R7-1.10

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.



R9-9

7

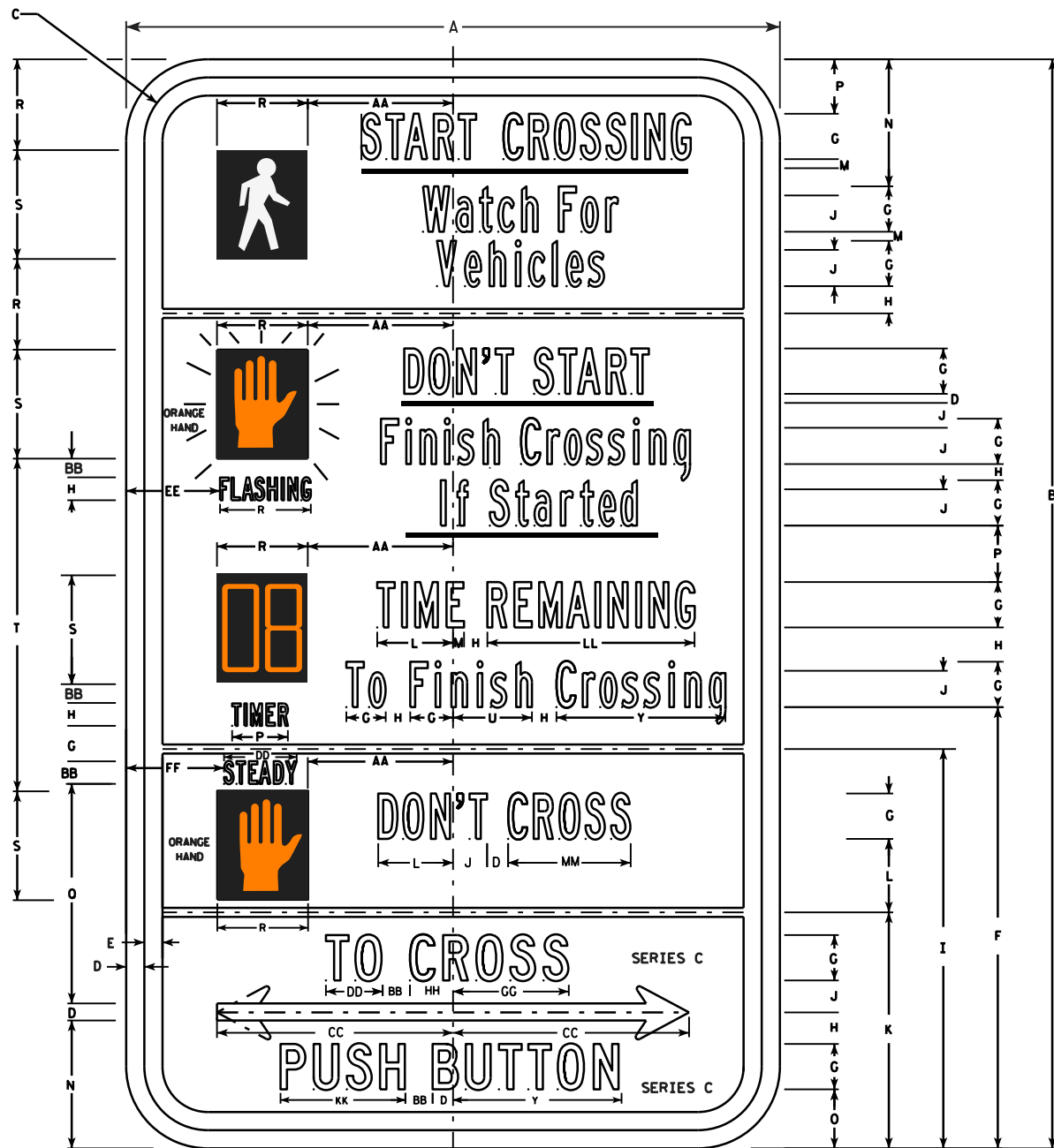
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 3/4	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
2M	24	12	1 3/4	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
3	30	18	1 3/4	1/2	1/2	4	3 1/2	3	12 1/2	10 1/4																	3.75
4																											
5																											

STANDARD SIGN  
R9-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

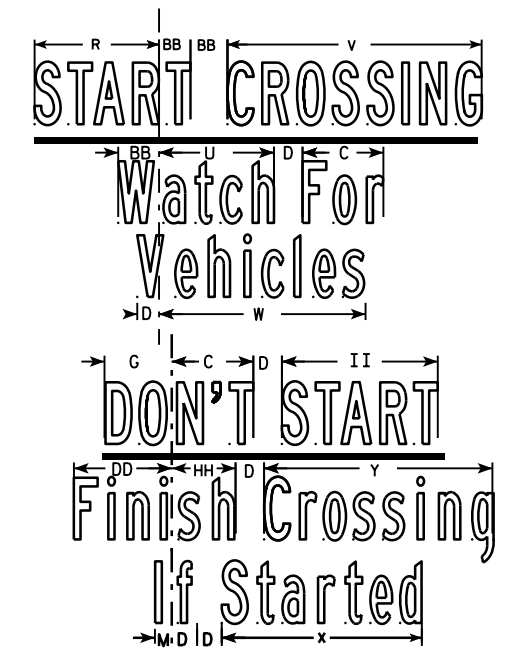
DATE 8/11/16 PLATE NO. R9-9.6



R10-3E

**NOTES**

1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - WHITE  
Message - BLACK except Hand Symbol which is Orange with black background.
3. Message Series - B or as noted on the sign.
4. R10-3ER (right arrow)  
R10-3EL (left arrow)  
R10-3ED (double arrow)



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	6	10	1/2	1/8	1/8	4	3/8	1/4	4 1/8	1/4	2 1/8	3/4	1/8	1 1/8	1/2	1/2	2 1/4	7/8	1	3	3/4	1 3/4	1 5/8	1 3/8	1 1/2	5/8	0.42
2S	9	15	7/8	1/4	1/4	6 1/8	5/8	3/8	5 1/2	1/2	3 1/4	1	1/8	1 3/4	7/8	3/4	3	1 1/4	1 1/2	4 5/8	1 1/8	2 5/8	2 1/8	2	2 3/8	1 3/8	0.94
2M	9	15	7/8	1/4	1/4	6 1/8	5/8	3/8	5 1/2	1/2	3 1/4	1	1/8	1 3/4	7/8	3/4	3	1 1/4	1 1/2	4 5/8	1 1/8	2 5/8	2 1/8	2	2 3/8	1 3/8	0.94
3																											
4																											

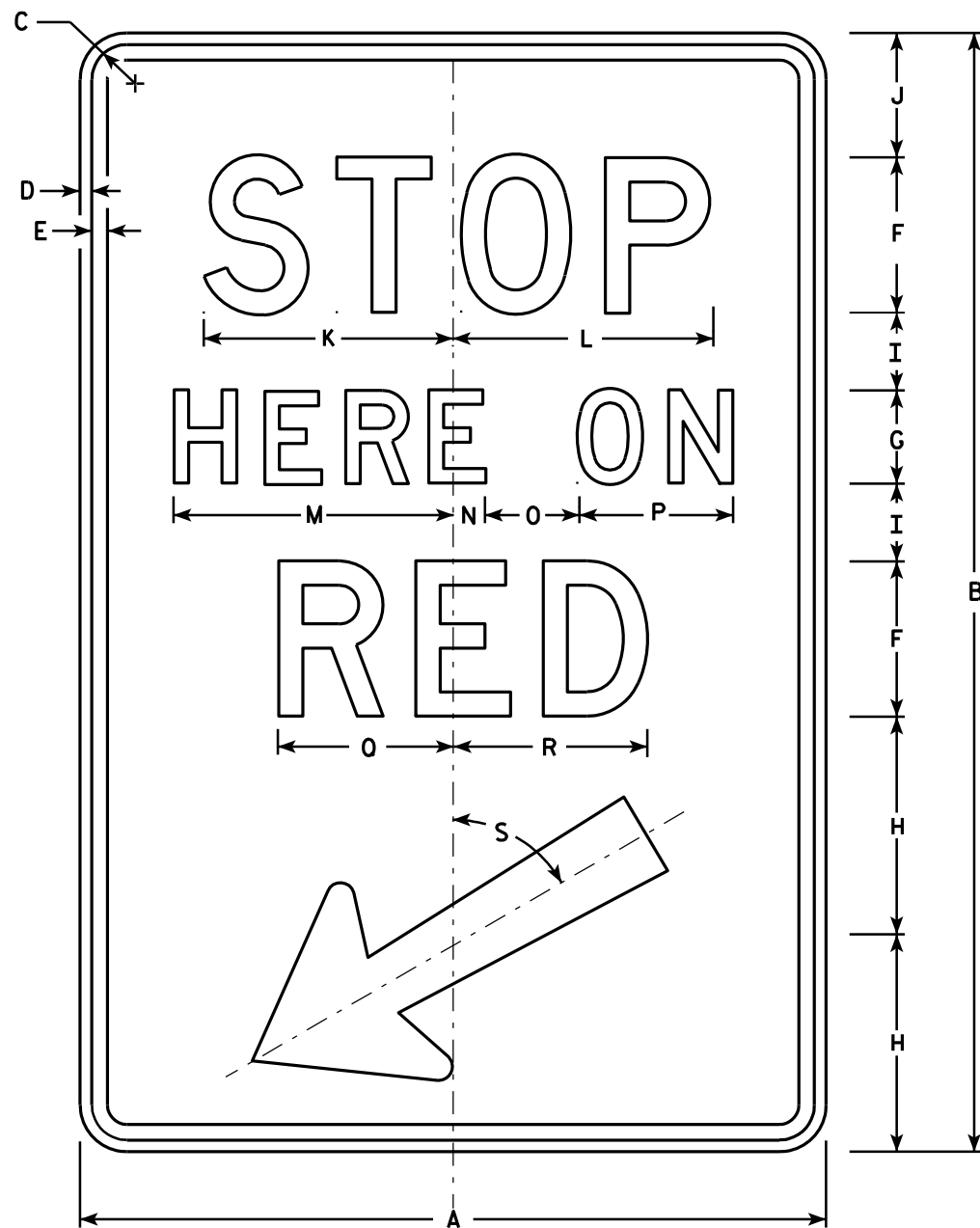
SIZE	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	PP	QQ	RR	SS	TT	UU	VV	WW	XX	YY	ZZ	Area sq. ft.
1	1 3/8	1/4	2 1/4	1/2	7/8	7/8	1 1/8	3/8	1	1/2	1 1/8	1 7/8	1 1/8														
2S	2	3/8	3 1/4	1	1 1/4	1 3/8	1 5/8	5/8	1 5/8	3/4	1 3/4	2 7/8	1 5/8														
2M	2	3/8	3 1/4	1	1 1/4	1 3/8	1 5/8	5/8	1 5/8	3/4	1 3/4	2 7/8	1 5/8														
3																											
4																											

STANDARD SIGN  
R10-3EL,R,D

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

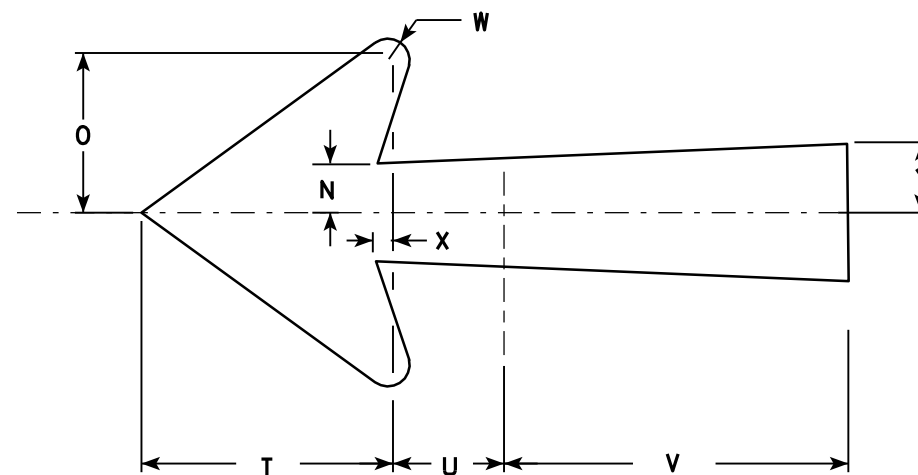
DATE 4/12/2011 PLATE NO. R10-3E.2



R10-6

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



Arrow Detail

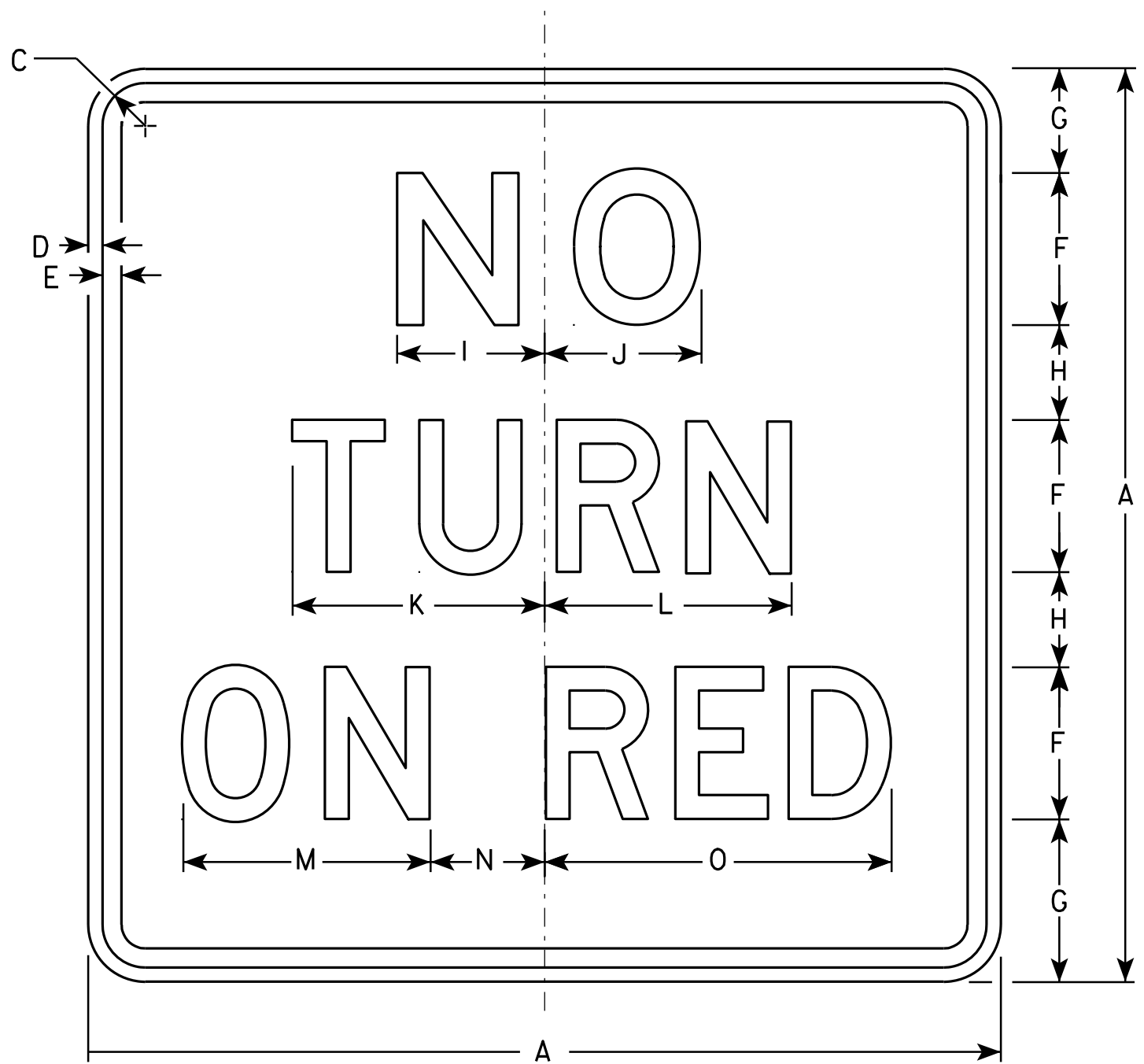
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8	6.0	
2M	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8	6.0	
3																											
4																											
5																											

**STANDARD SIGN**  
R10-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 4/5/11 PLATE NO. R10-6.6



**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - See Note 5.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series E.  
Lines 2 and 3 are Series D.

R10-11B

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18		1 1/8	3/8	3/8	3	2 3/4	1 3/4	3	3 1/8	5	4 7/8	5 1/4	1 7/8	7 1/8												2.25
2S	24		1 1/8	3/8	1/2	4	3 1/2	2 1/2	3 7/8	4 1/8	6 5/8	6 1/2	6 1/2	3	9 1/8												4.0
2M	24		1 1/8	3/8	1/2	4	3 1/2	2 1/2	3 7/8	4 1/8	6 5/8	6 1/2	6 1/2	3	9 1/8												4.0
3	30		1 3/8	1/2	5/8	5	4 1/2	3	4 7/8	5 1/4	8 1/4	8 1/8	7 3/4	4 1/8	11 7/8												6.25
4																											
5																											

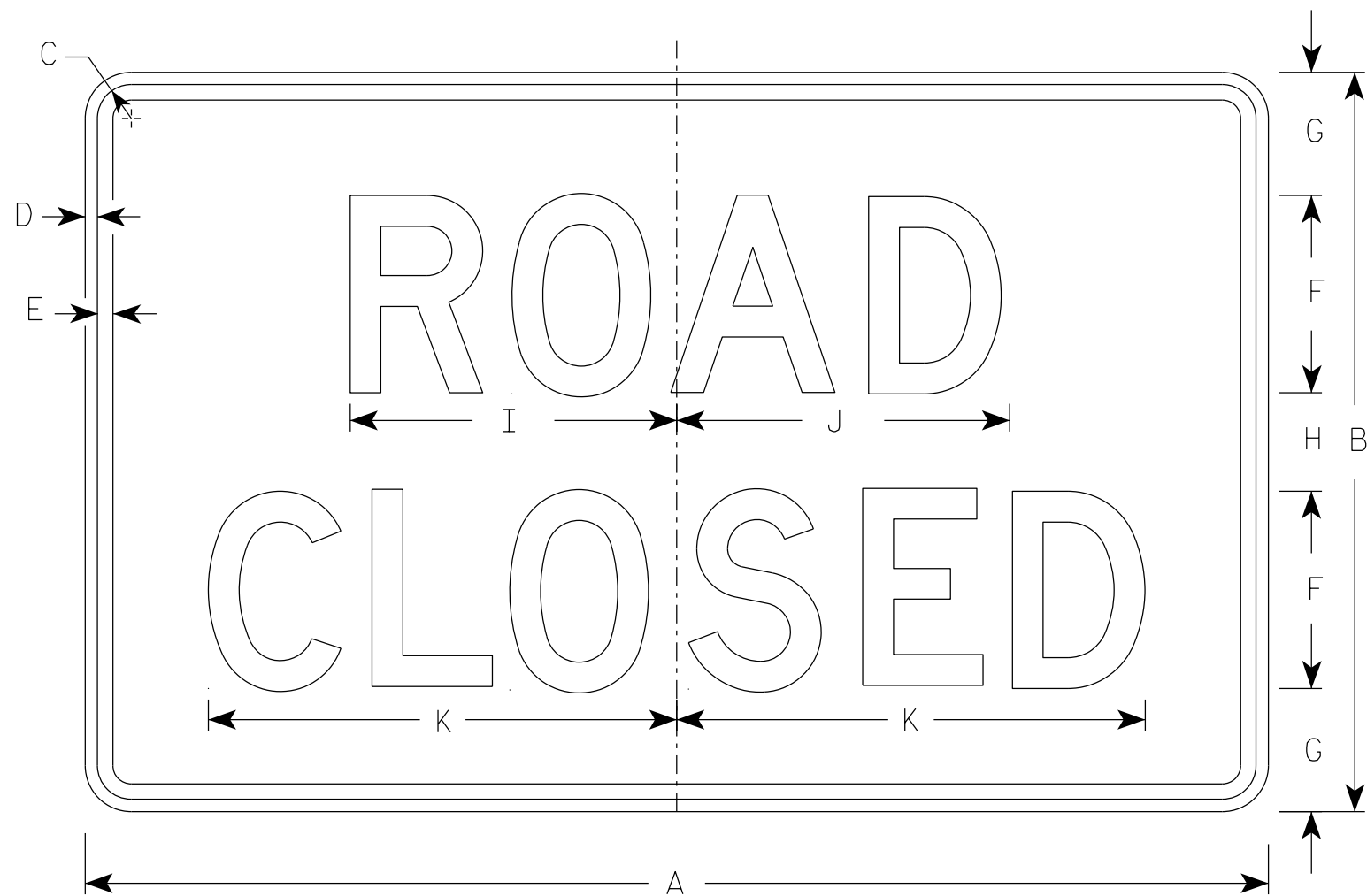
**STANDARD SIGN**  
R10-11B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 4/5/11 PLATE NO. R10-11B.4

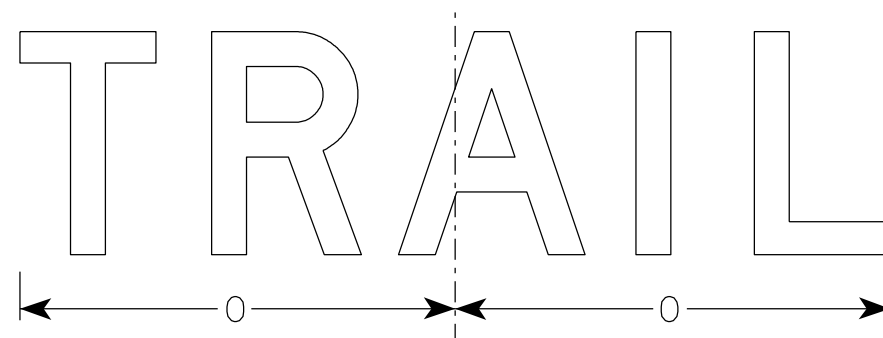
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



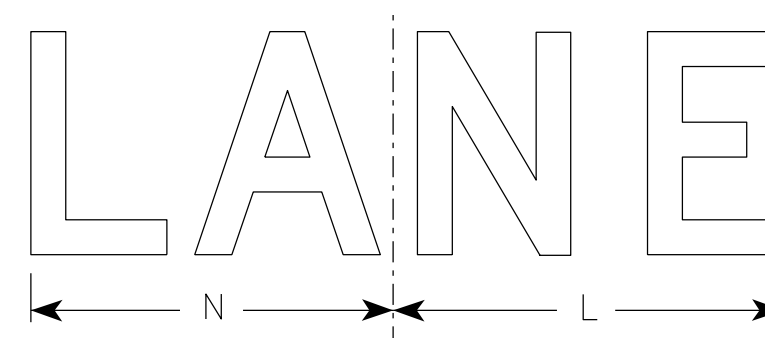
R11-2



R11-2R



R11-2T



R11-2L

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

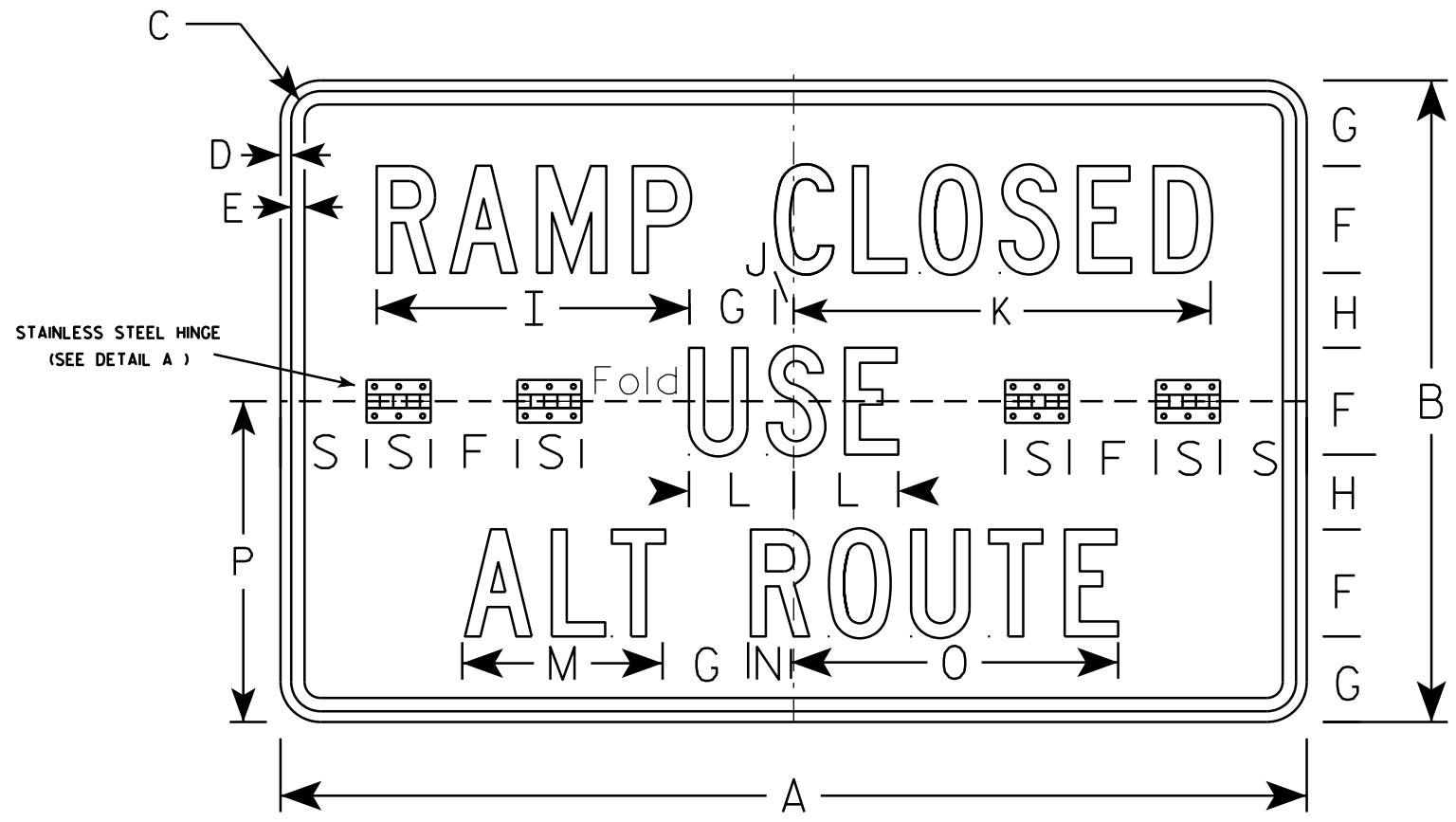
STANDARD SIGN  
R11-2

WISCONSIN DEPT OF TRANSPORTATION

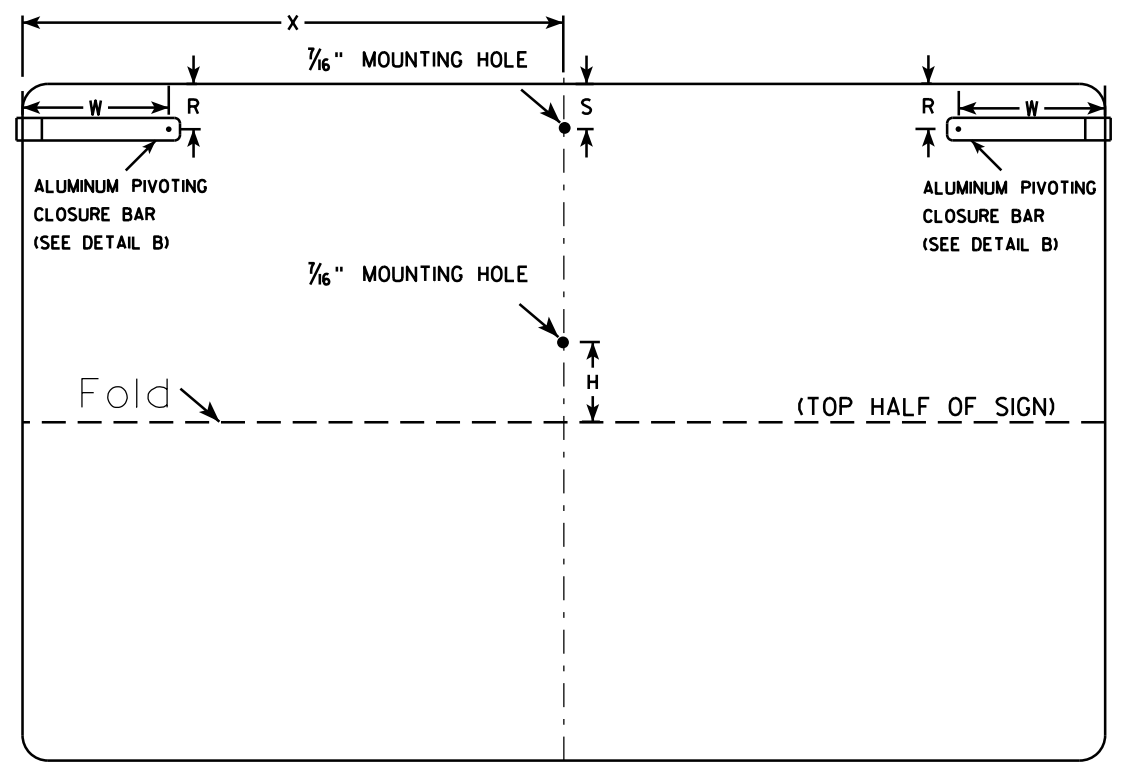
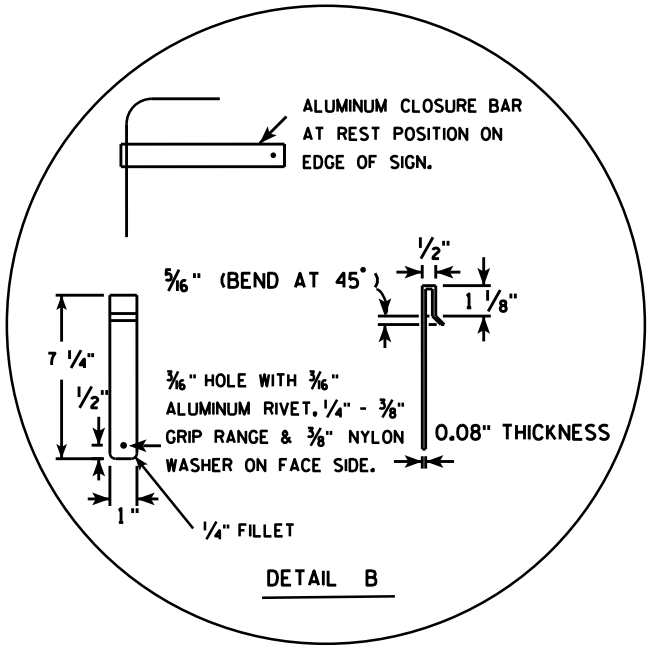
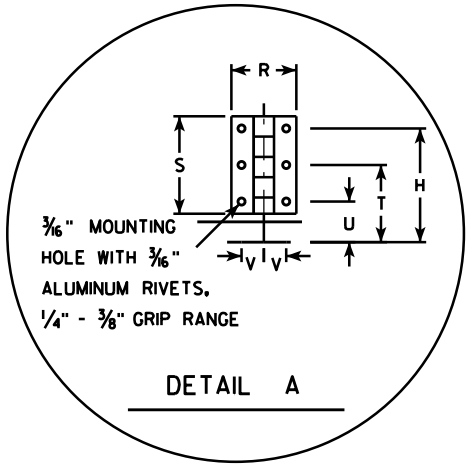
APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



R11-54F



(BACK VIEW)

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - WHITE  
Message - BLACK
3. Message Series - C
4. Sign Base Material shall be aluminum, corners and borders shall be rounded.
5. All hardware used on the folding sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.
6. Refer to plate A5-3A for sign blank layout.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	5	4	3 1/2	14 5/8	7/8	19 1/2	4 7/8	9 3/8	2	15 1/4	15		2	3	2 5/8	1 1/4	11/16	6 1/2	24			10.0
2M	48	30	1 3/8	1/2	5/8	5	4	3 1/2	14 5/8	7/8	19 1/2	4 7/8	9 3/8	2	15 1/4	15		2	3	2 5/8	1 1/4	11/16	6 1/2	24			10.0
3																											
4																											
5																											

STANDARD SIGN  
R11-54F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

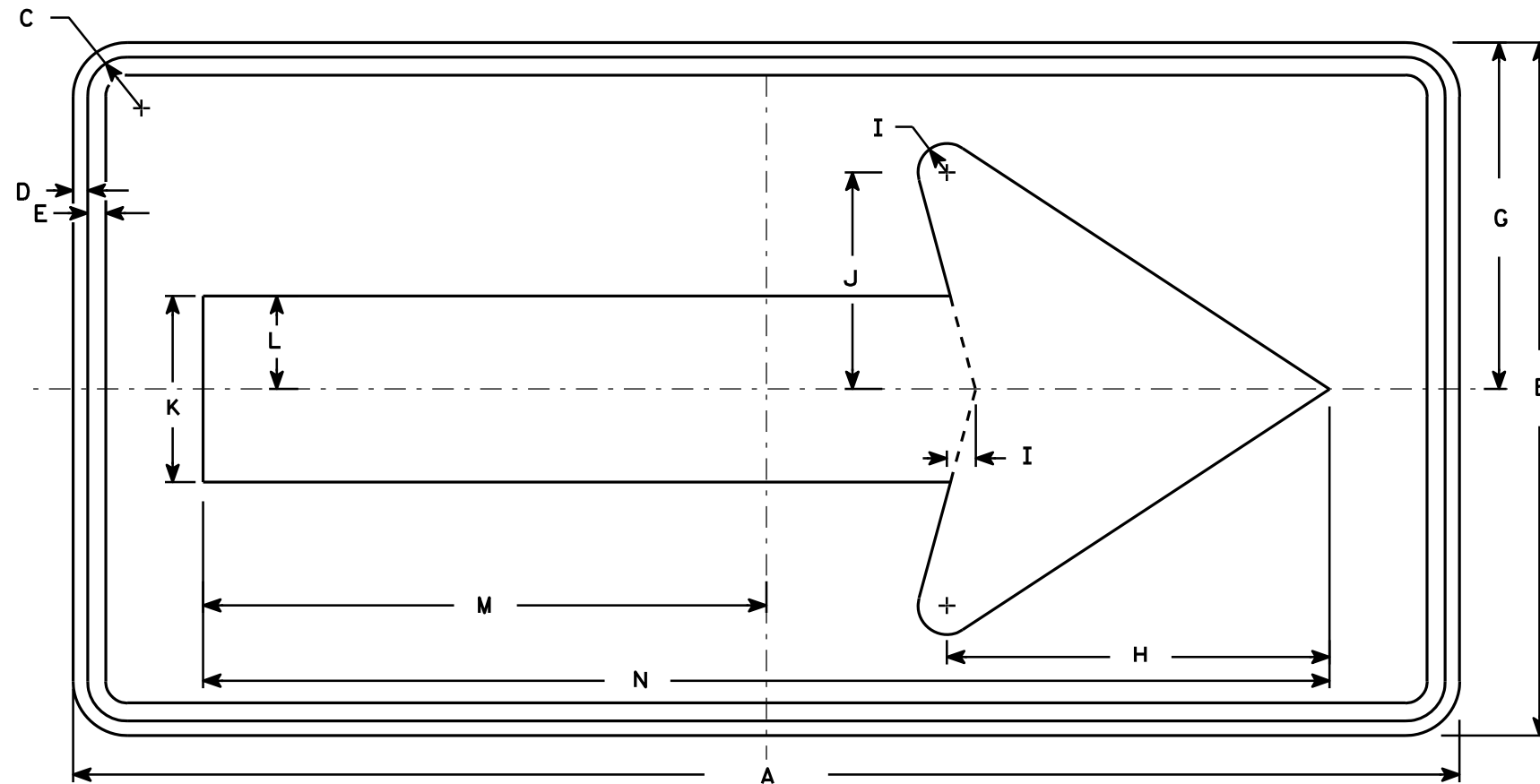
DATE 5/28/14 PLATE NO. R11-54F.3

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W1-6

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	96	48	2 1/4	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

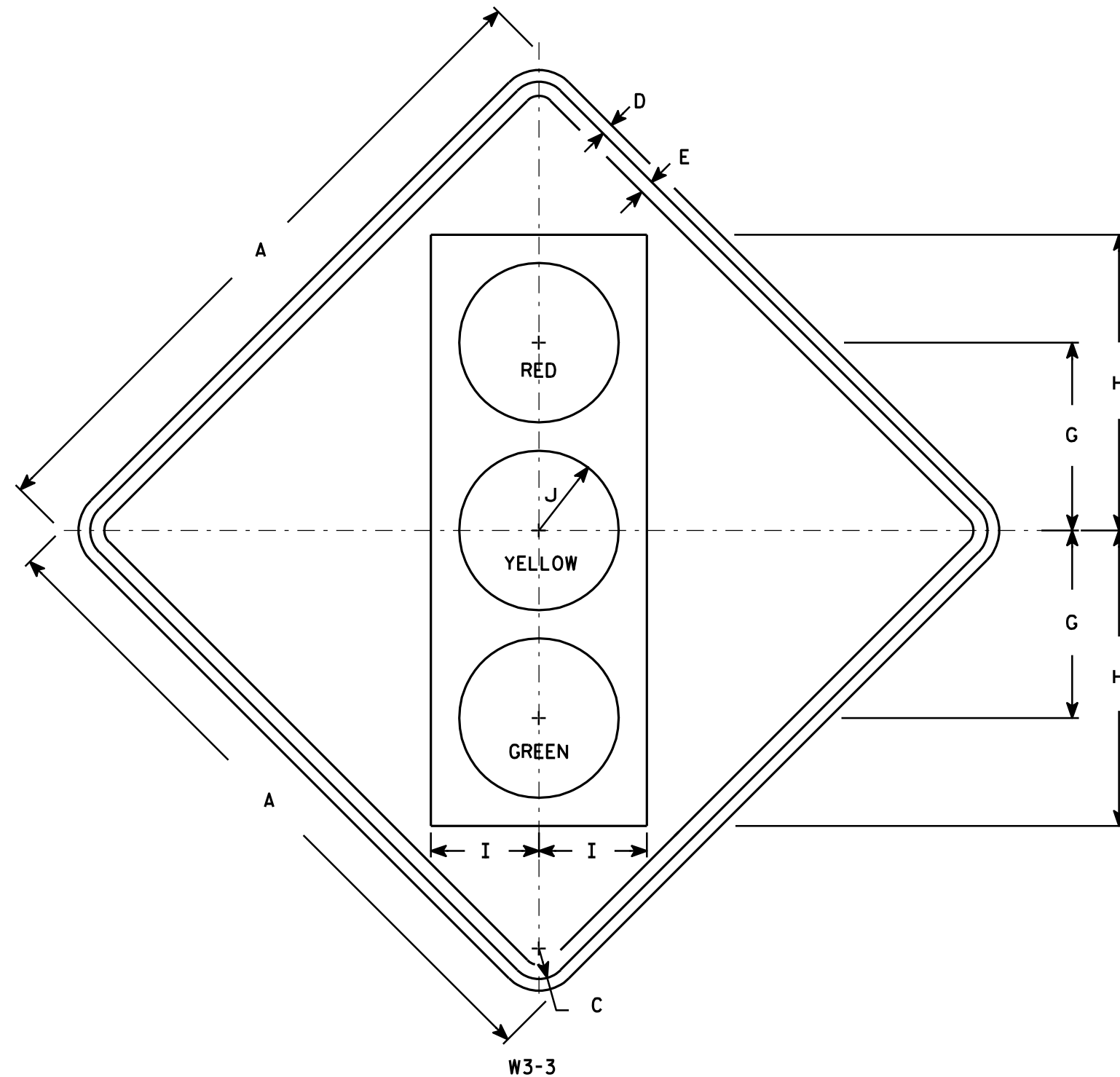
**STANDARD SIGN**  
W1-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-6.8

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_



**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Symbol and border are non-reflective black.  
Top circle - Type H ReflectORIZED Red  
Center circle - Same as background  
Bottom circle - Type H ReflectORIZED Green

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8		8 3/4	13 3/4	5	3 3/4																	6.25
2S	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
2M	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
3	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
4	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
5	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0

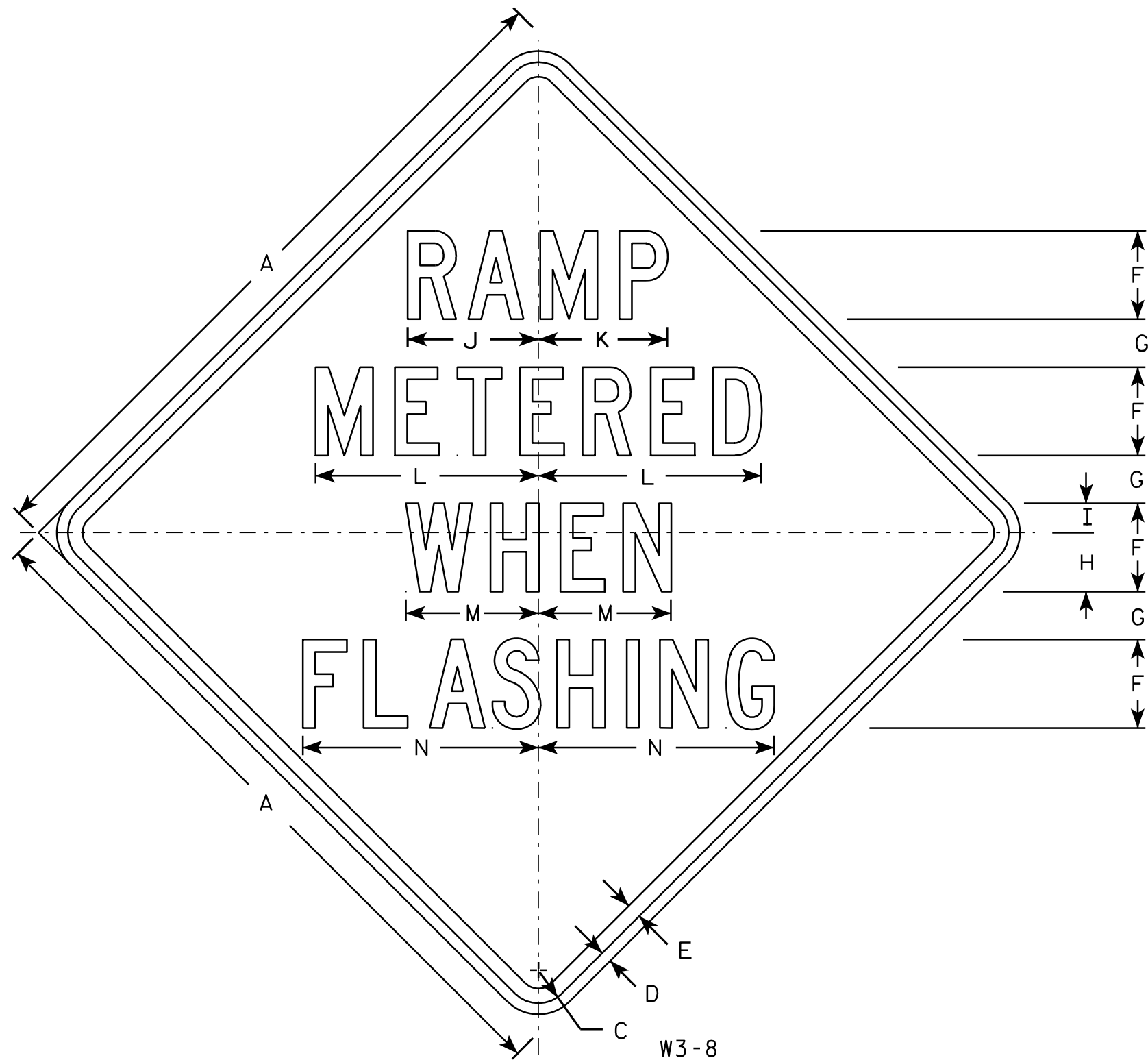
**STANDARD SIGN**  
**W3-3**

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W3-3.11

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

W3-8

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48		2 1/4	3/4	1	6	3 3/4	4	2	8 7/8	8 3/4	15 1/8	9	16													16.0
2M	48		2 1/4	3/4	1	6	3 3/4	4	2	8 7/8	8 3/4	15 1/8	9	16													16.0
3	48		2 1/4	3/4	1	6	3 3/4	4	2	8 7/8	8 3/4	15 1/8	9	16													16.0
4	48		2 1/4	3/4	1	6	3 3/4	4	2	8 7/8	8 3/4	15 1/8	9	16													16.0
5	48		2 1/4	3/4	1	6	3 3/4	4	2	8 7/8	8 3/4	15 1/8	9	16													16.0

**STANDARD SIGN**  
**W3-8**

WISCONSIN DEPT OF TRANSPORTATION

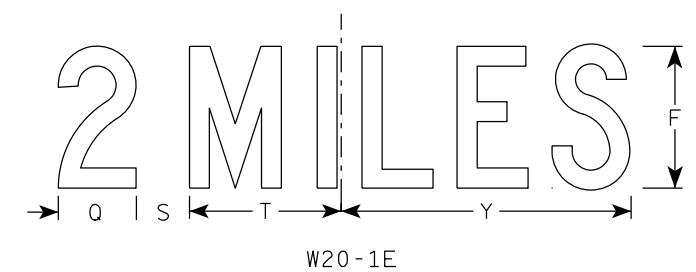
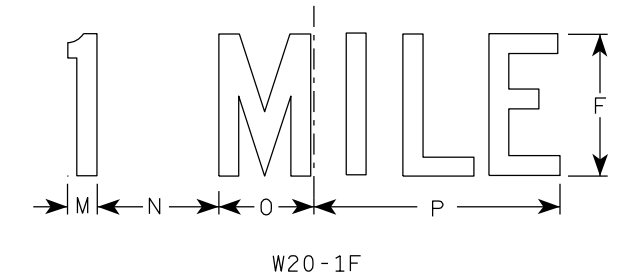
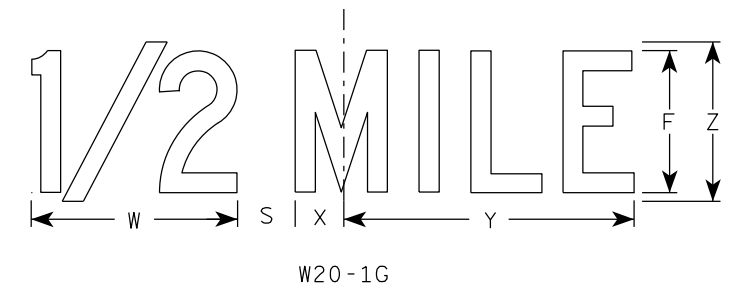
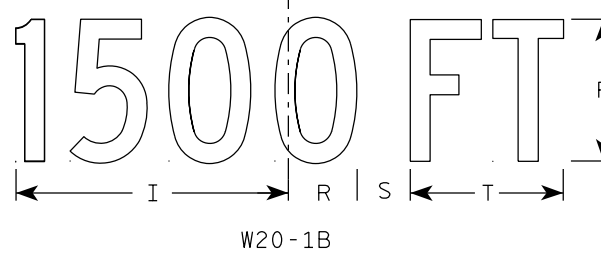
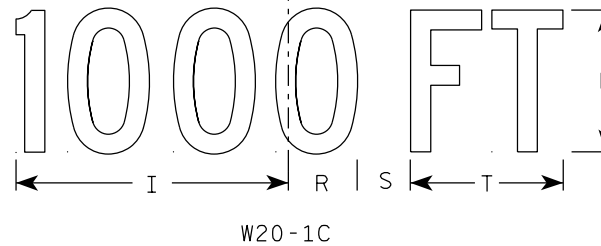
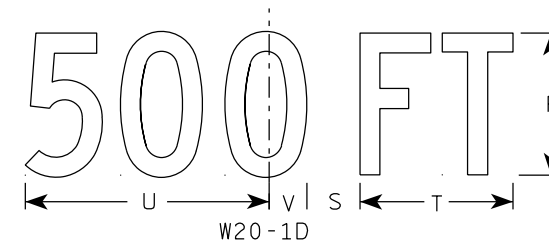
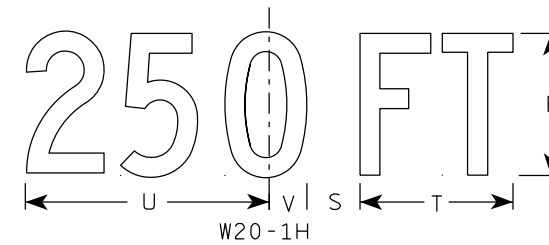
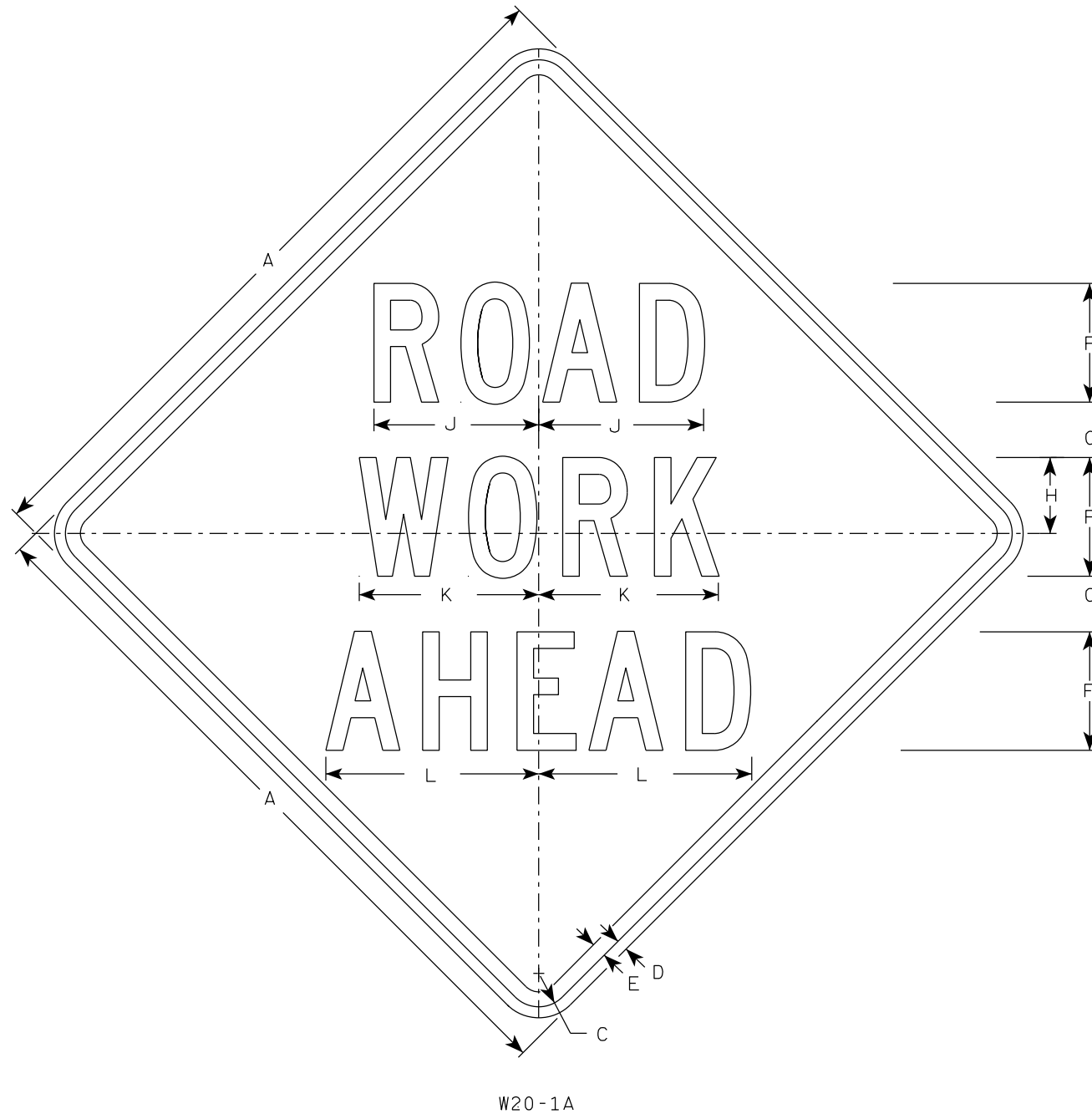
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 03/12/13 PLATE NO. W3-8.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

**NOTES**

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



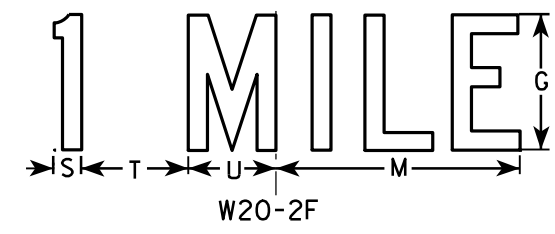
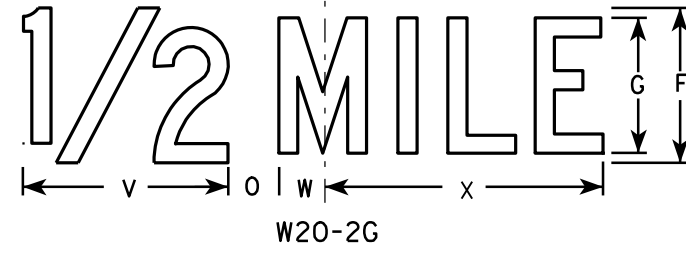
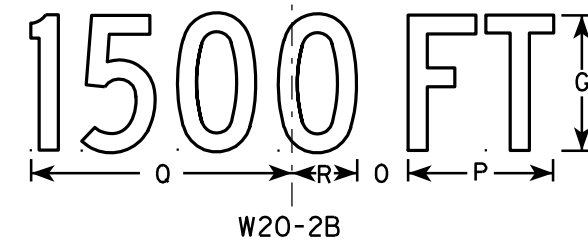
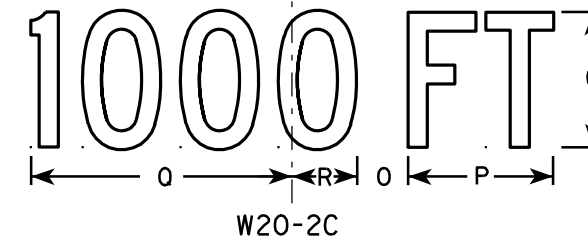
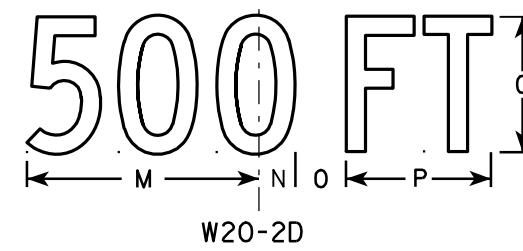
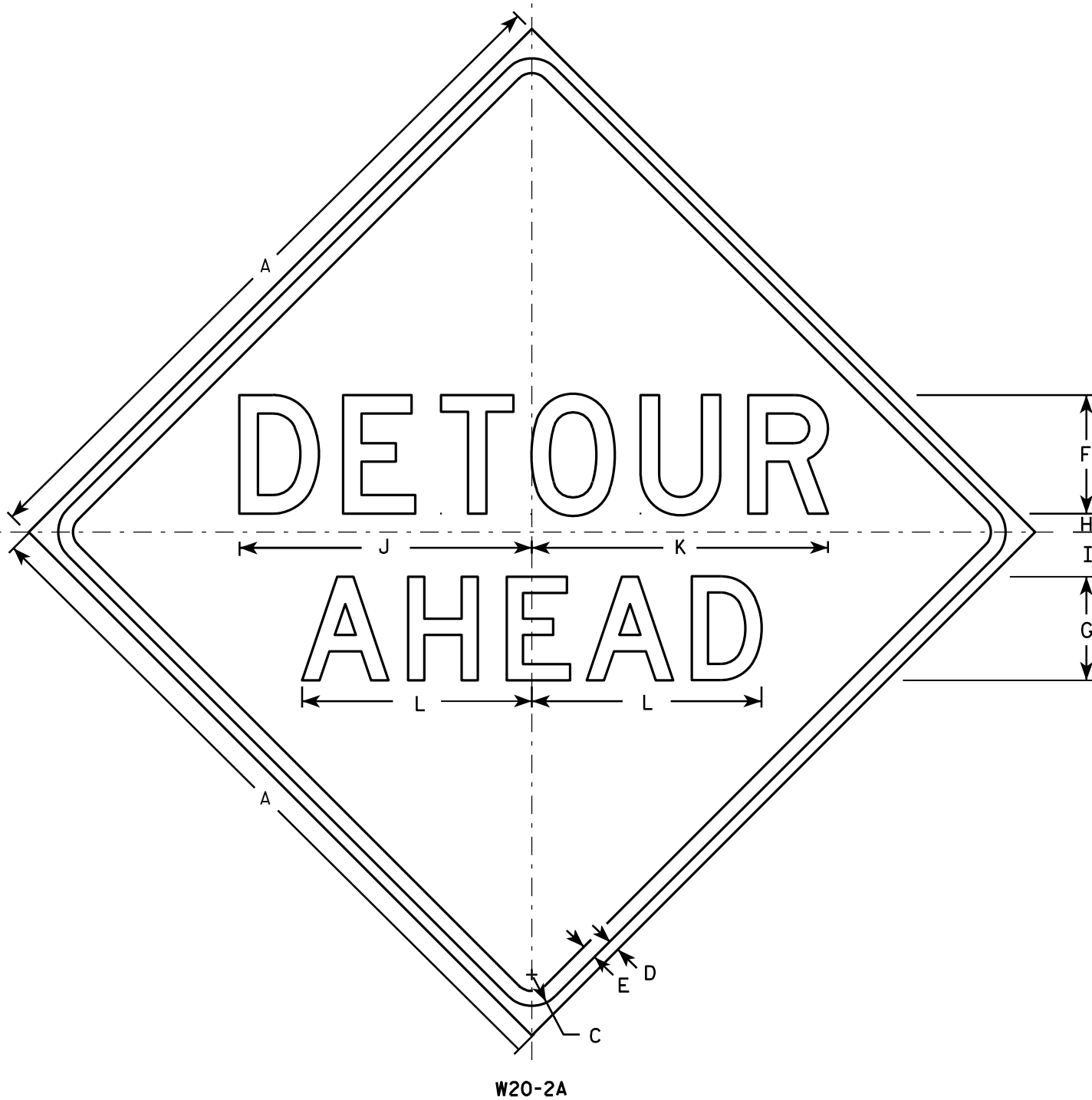
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN  
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11



**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.  
Line 2 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

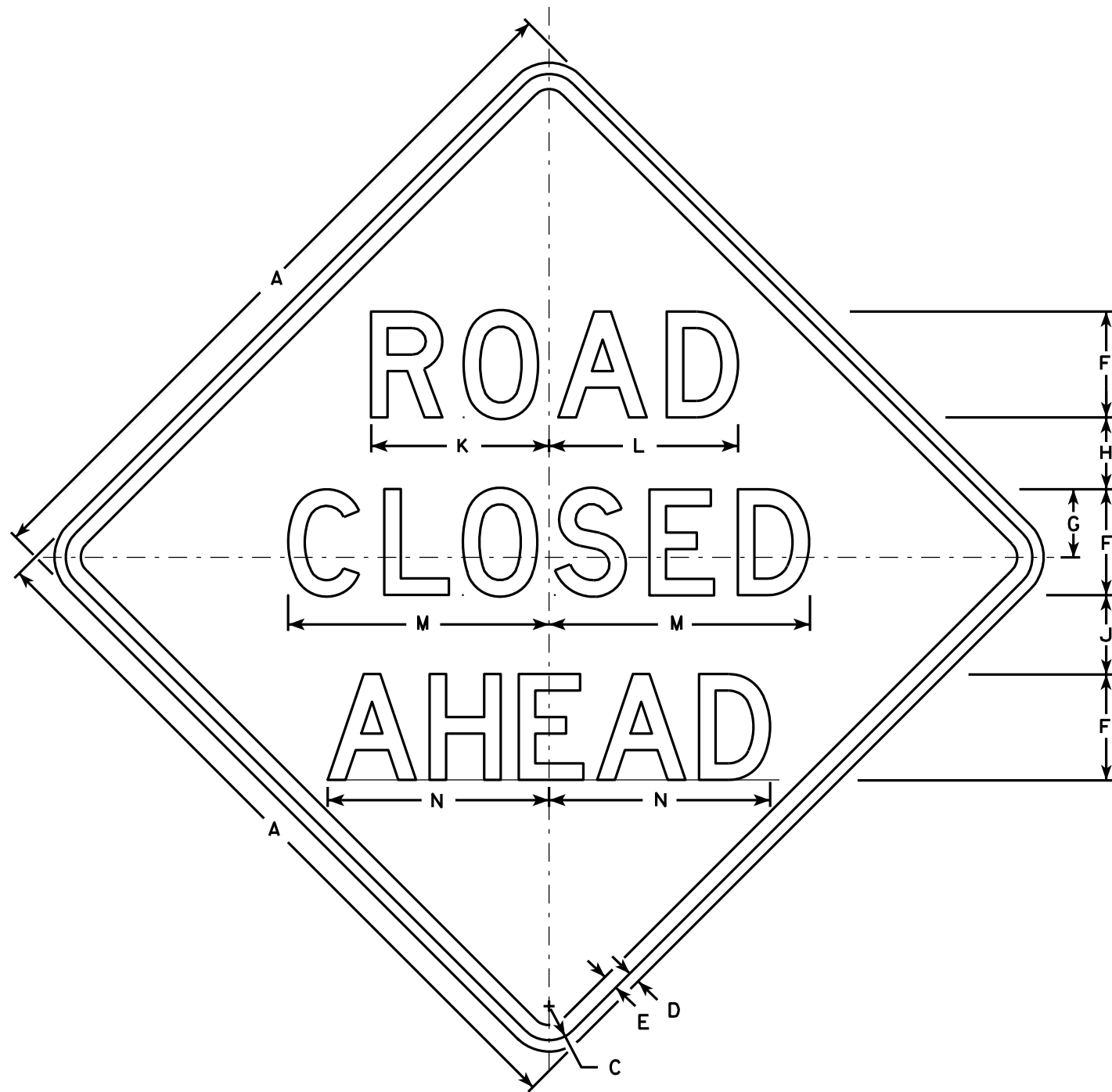
STANDARD SIGN  
W20-2A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

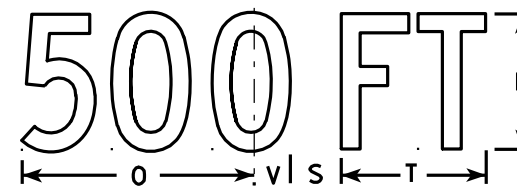
APPROVED *Matthew R. Raub*  
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

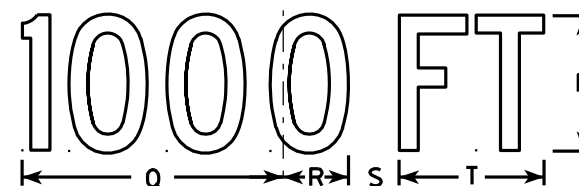
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



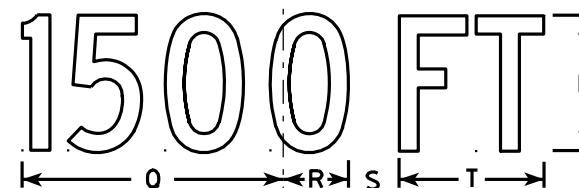
W20-3A



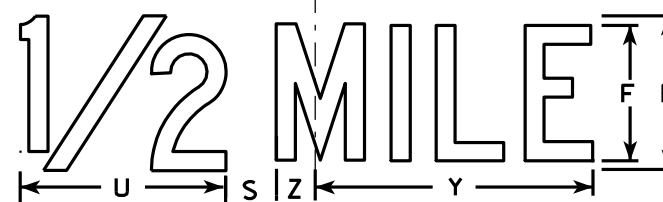
W20-3D



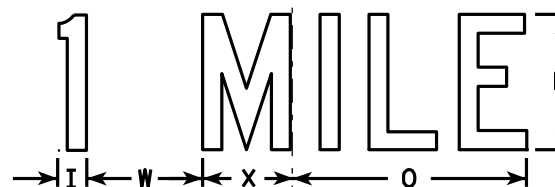
W20-3C



W20-3B



W20-3G



W20-3F

**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.  
Line 3 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

**STANDARD SIGN**  
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

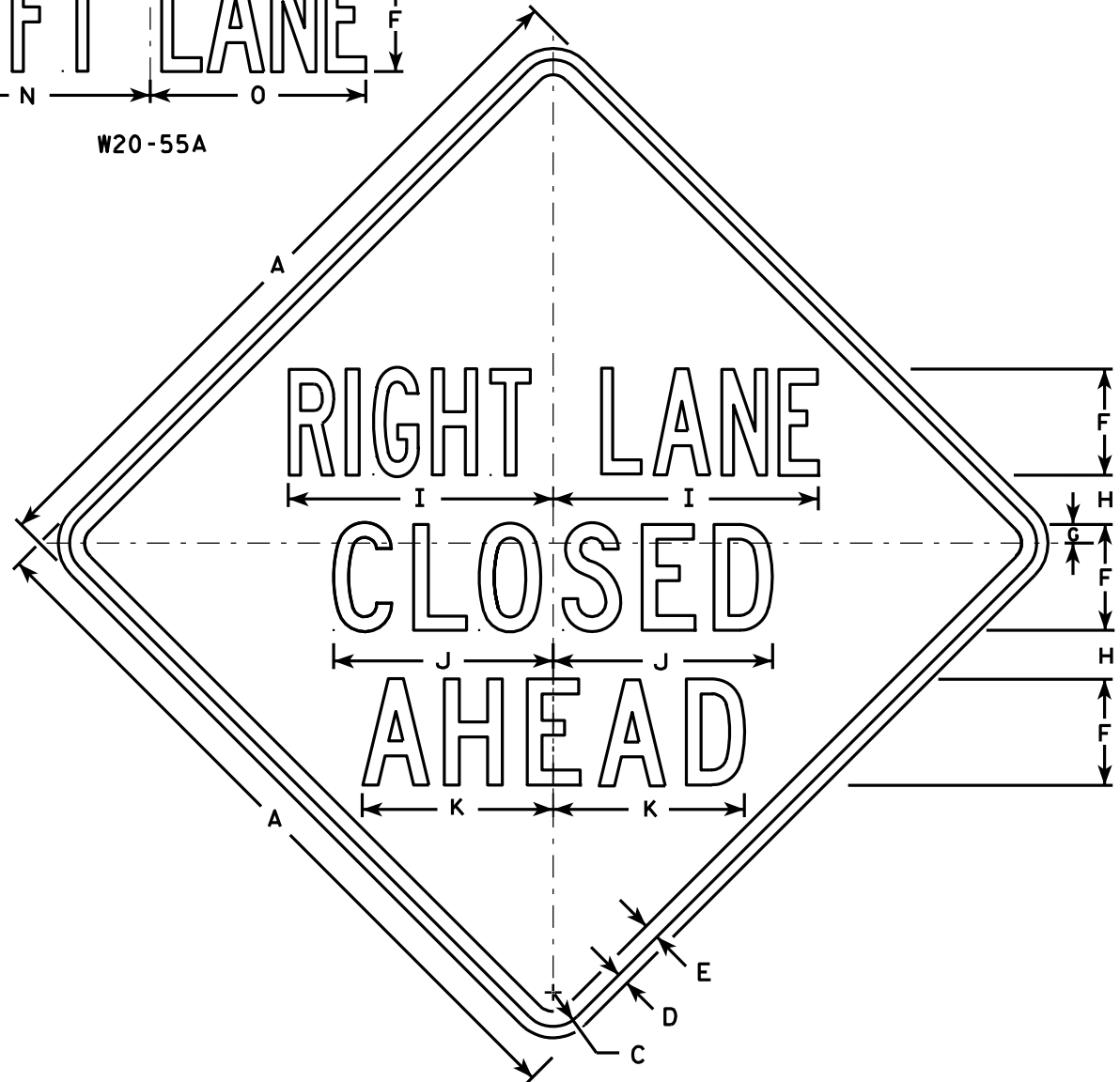
DATE 3/18/11 PLATE NO. W20-3.7

CENTER LANE

W20-56A

LEFT LANE

W20-55A



W20-5A

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. "-----LANE" is Series B.  
All other copy is Series C.

500 FT

W20-5D

1000 FT

W20-5C

1500 FT

W20-5B

1/2 MILE

W20-5G

1 MILE

W20-5F

7

7

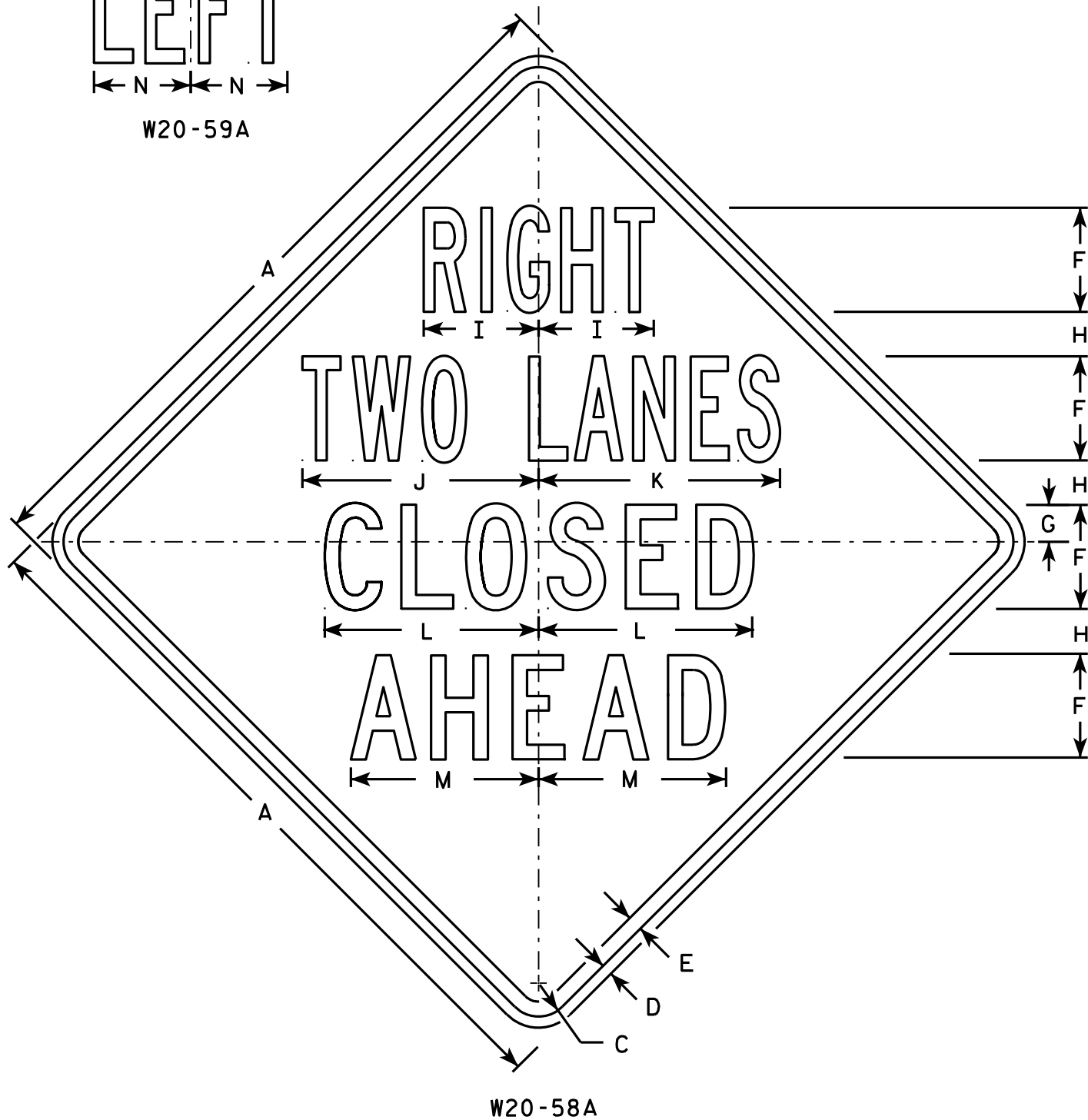
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	6	1 5/8	5/8	3/4	5	7/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

STANDARD SIGN  
W20-5A, B, C, D, F & G  
WISCONSIN DEPT OF TRANSPORTATION  
APPROVED *Matthew R Rauch*  
For State Traffic Engineer  
DATE 3/18/11 PLATE NO. W20-5.11

LEFT

W20-59A



500 FT

W20-58D

1000 FT

W20-58C

1500 FT

W20-58B

1/2 MILE

W20-58G

1 MILE

W20-58F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 & 2 Series B.  
Lines 3 & 4 Series C.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	1 7/8	2 1/4	5 7/8	11 7/8	12 1/8	10 3/4	9 1/2	4 7/8	6	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48		2 1/4	3/4	1	7	2 1/2	3	7 3/4	15 7/8	16 1/4	14 3/8	12 5/8	6 1/2	8	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48		2 1/4	3/4	1	7	2 1/2	3	7 3/4	15 7/8	16 1/4	14 3/8	12 5/8	6 1/2	8	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48		2 1/4	3/4	1	7	2 1/2	3	7 3/4	15 7/8	16 1/4	14 3/8	12 5/8	6 1/2	8	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48		2 1/4	3/4	1	7	2 1/2	3	7 3/4	15 7/8	16 1/4	14 3/8	12 5/8	6 1/2	8	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48		2 1/4	3/4	1	7	2 1/2	3	7 3/4	15 7/8	16 1/4	14 3/8	12 5/8	6 1/2	8	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

STANDARD SIGN  
W20-58A, B, C, D, F & G

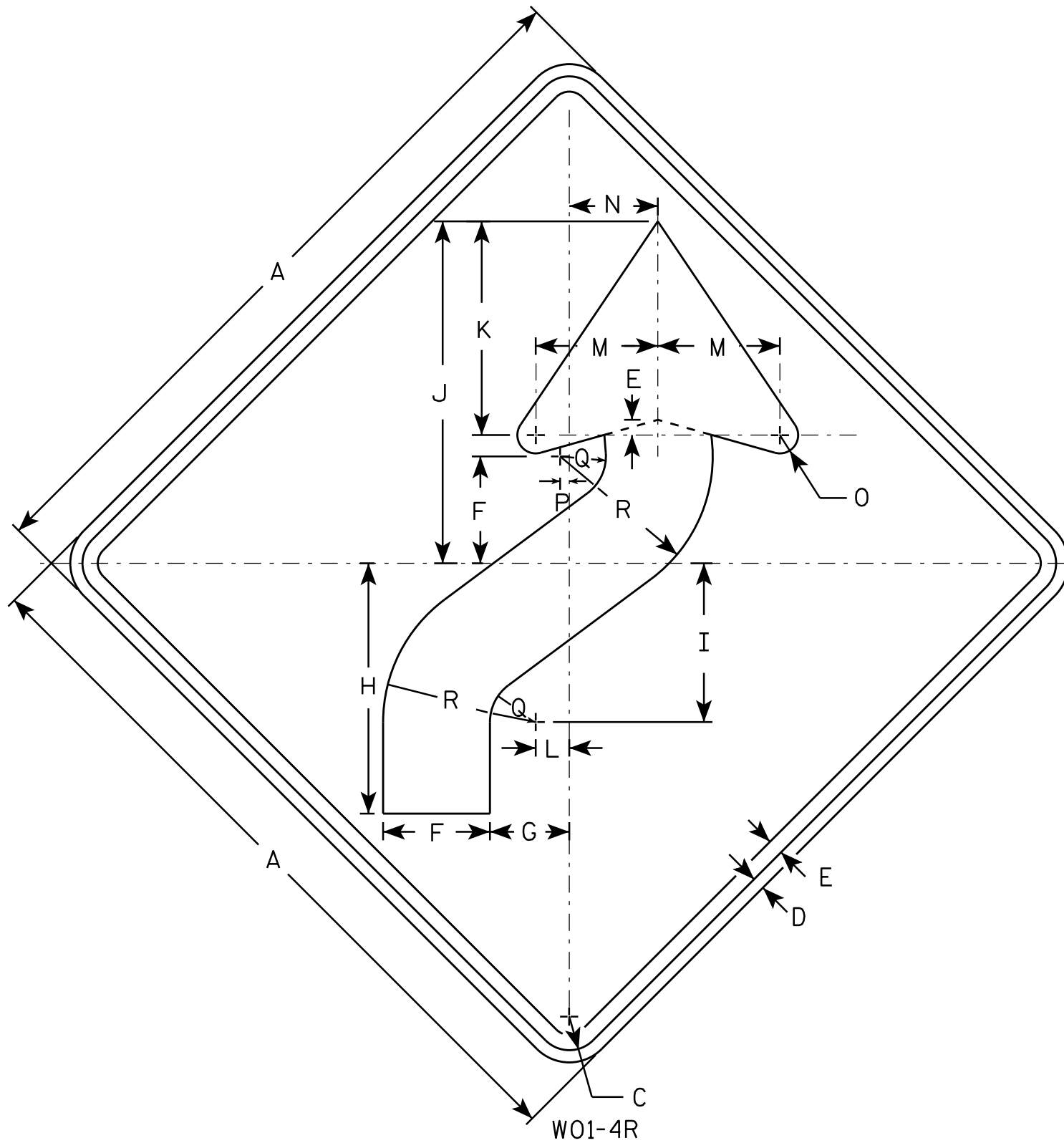
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-58.4

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E





NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

W01-4R

STANDARD SIGN  
W01-4

WISCONSIN DEPT OF TRANSPORTATION

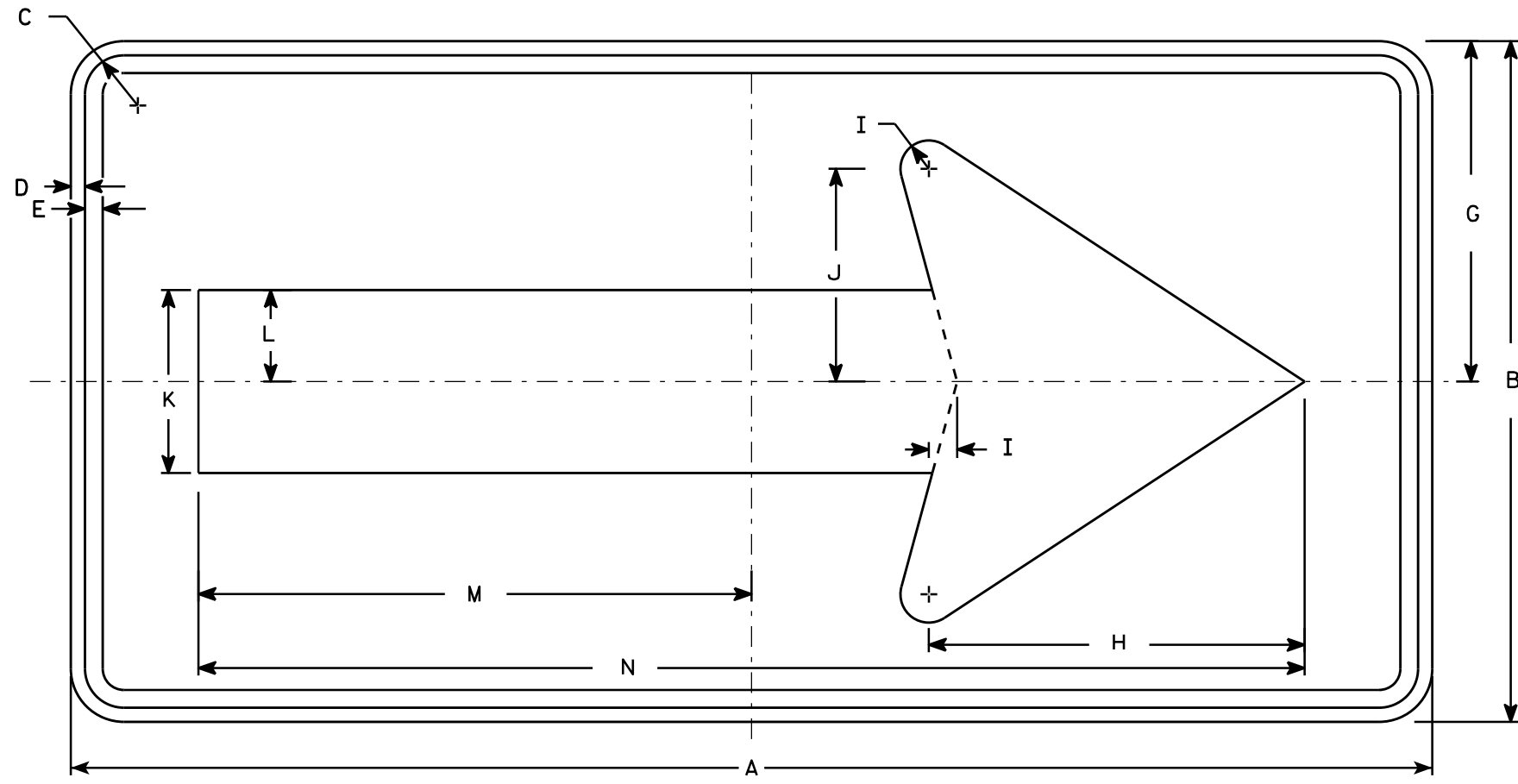
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-4.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W01-6

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

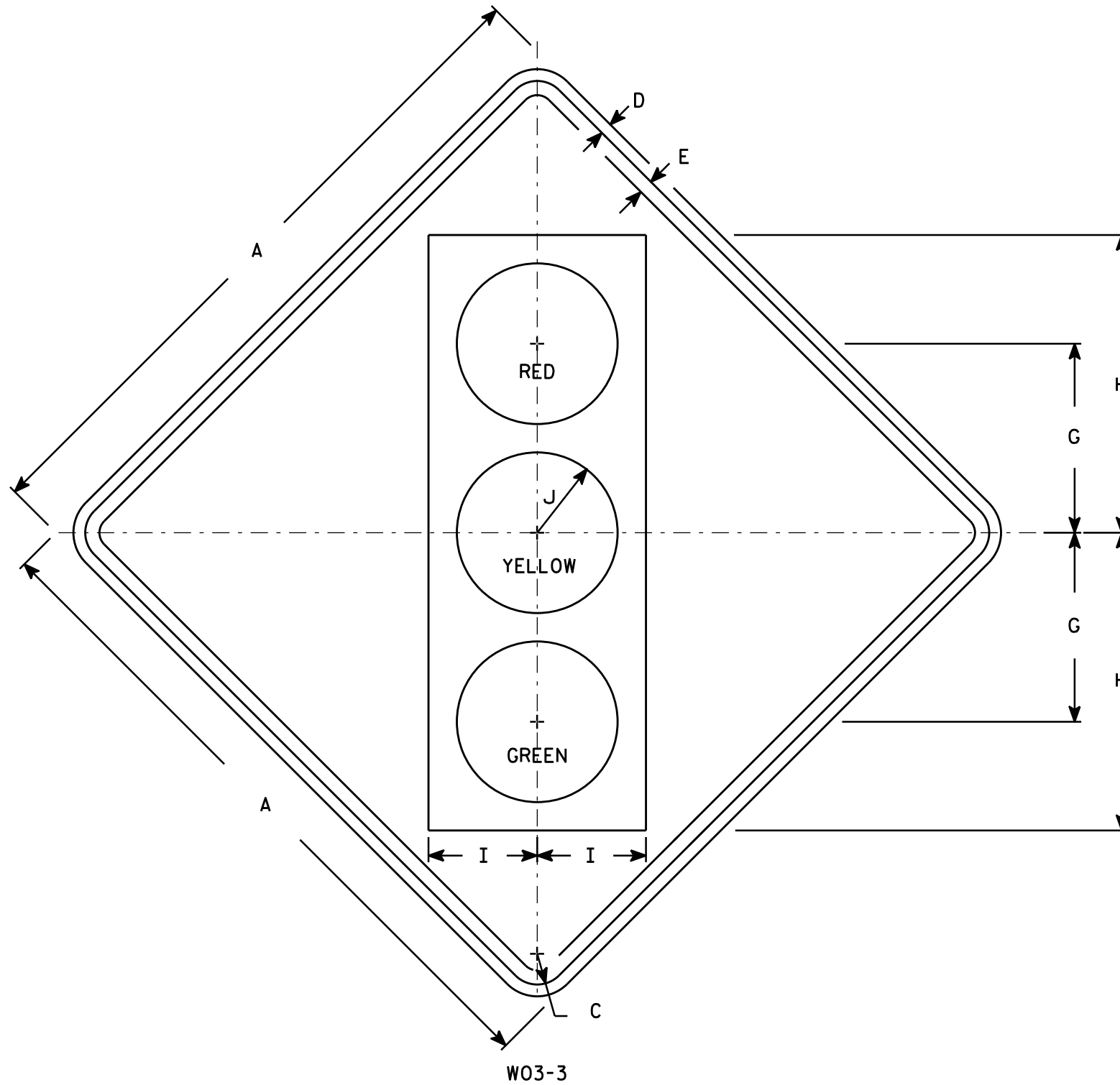
**STANDARD SIGN**  
**W01-6**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-6.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Symbol and border are non-reflective black.  
Top circle - Type H ReflectORIZED Red  
Center circle - Same as background  
Bottom circle - Type H ReflectORIZED Green

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
2S	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
2M	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
3	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
4	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
5	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0

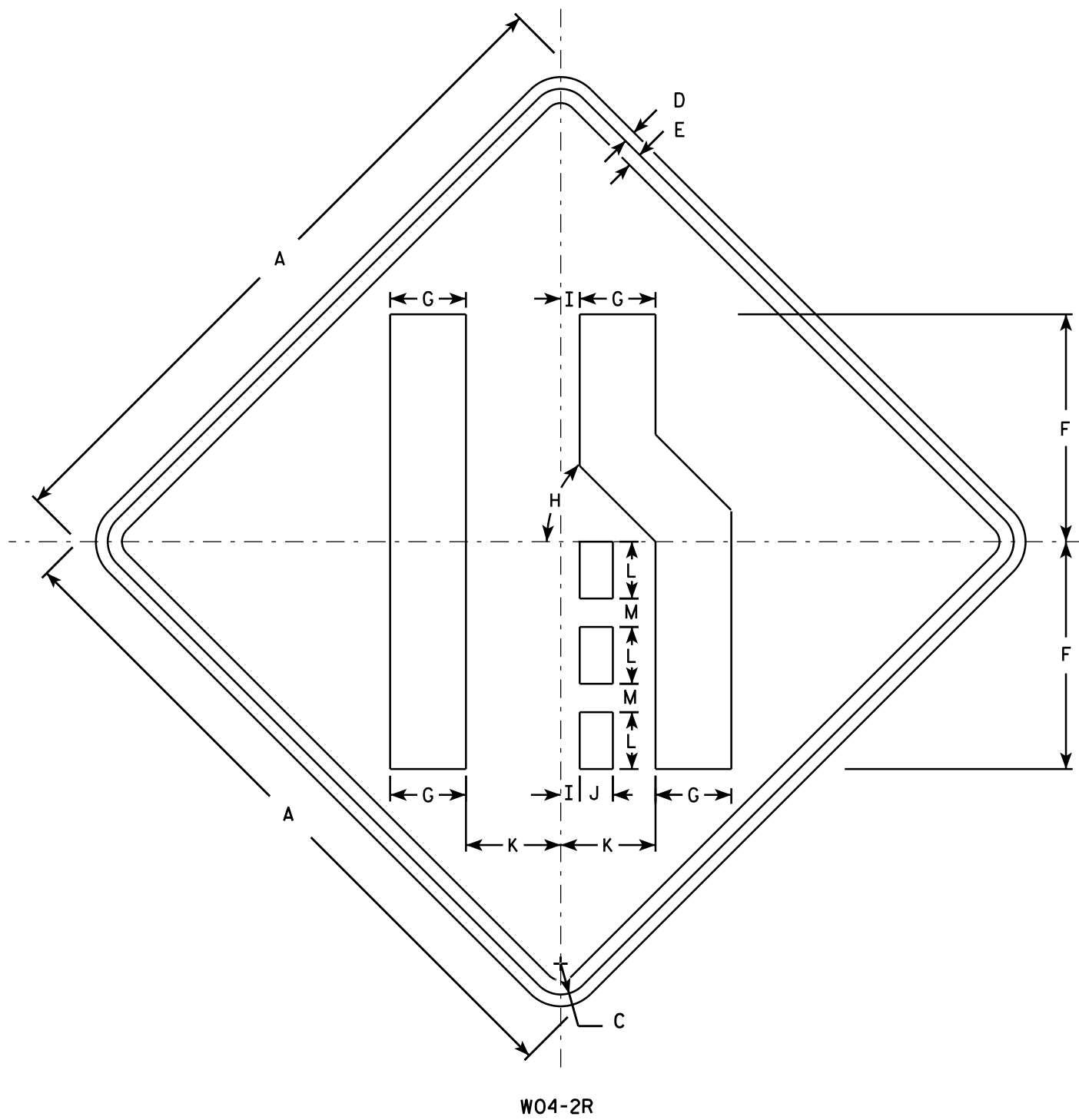
**STANDARD SIGN**  
**W03-3**

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W03-3.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

**STANDARD SIGN**  
**W04-2**

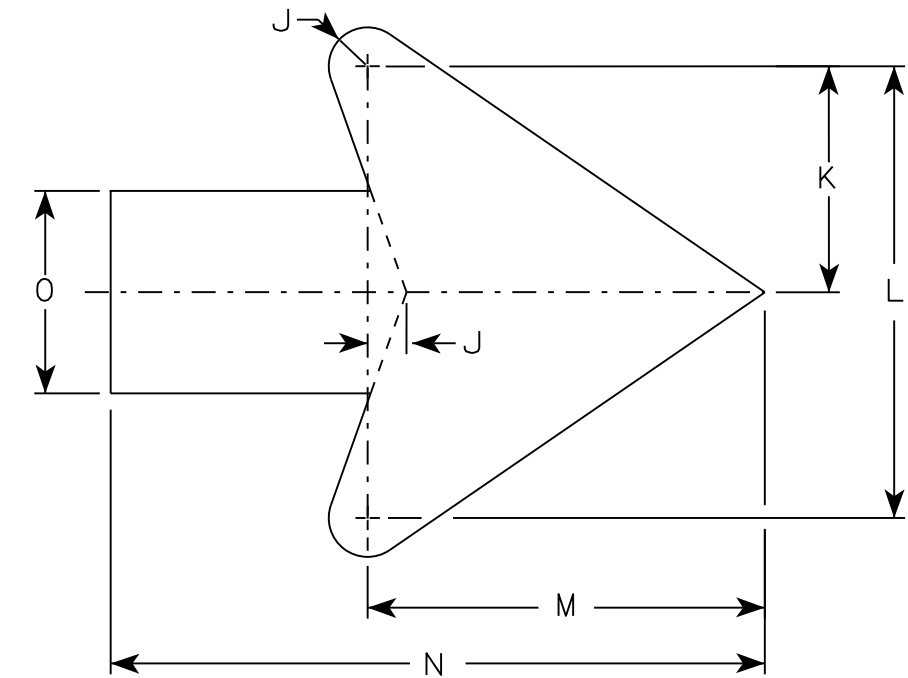
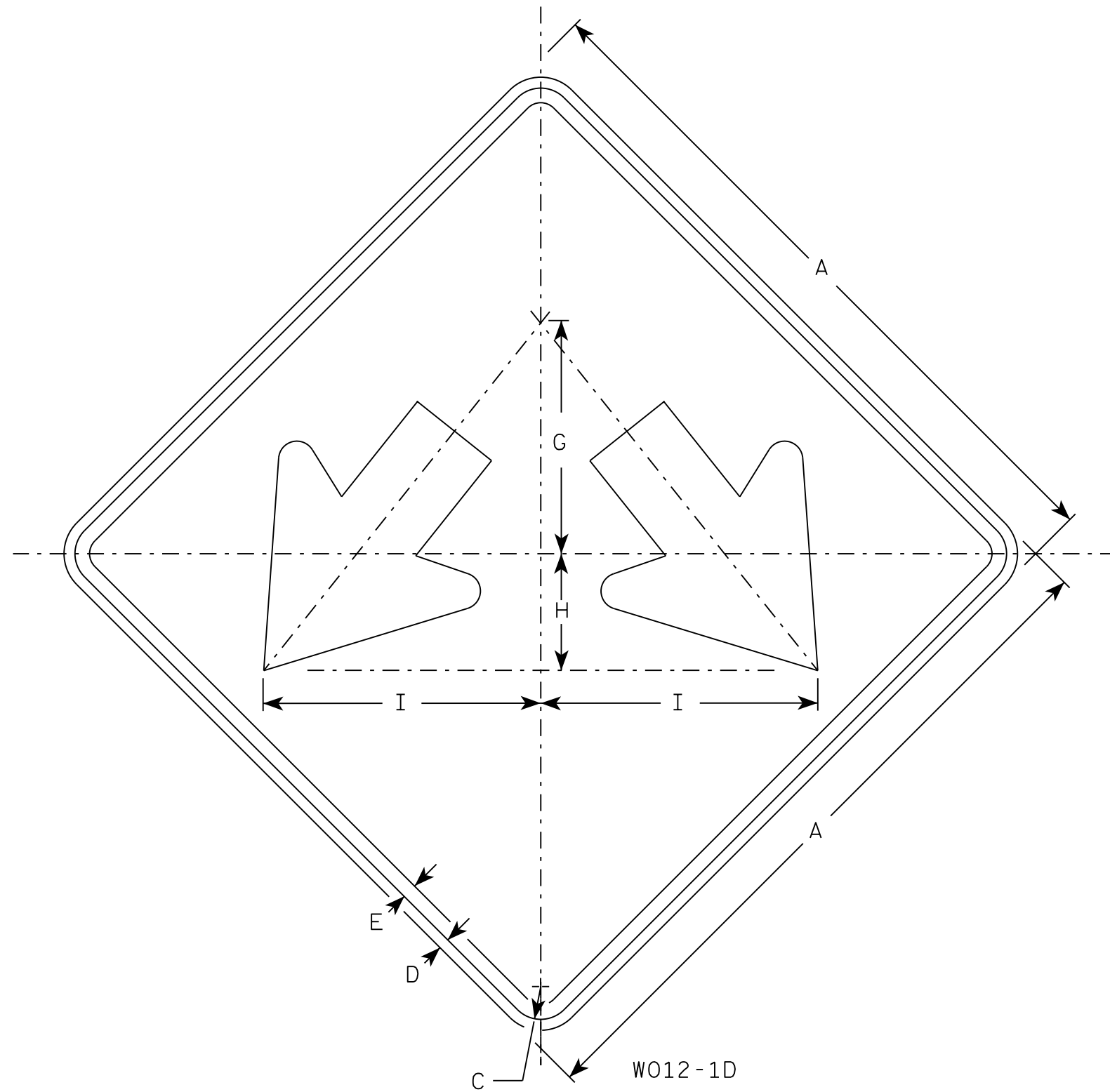
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/20/13 PLATE NO. W04-2.1

NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



Arrow Detail

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2S	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0

STANDARD SIGN  
W012-1D

WISCONSIN DEPT OF TRANSPORTATION

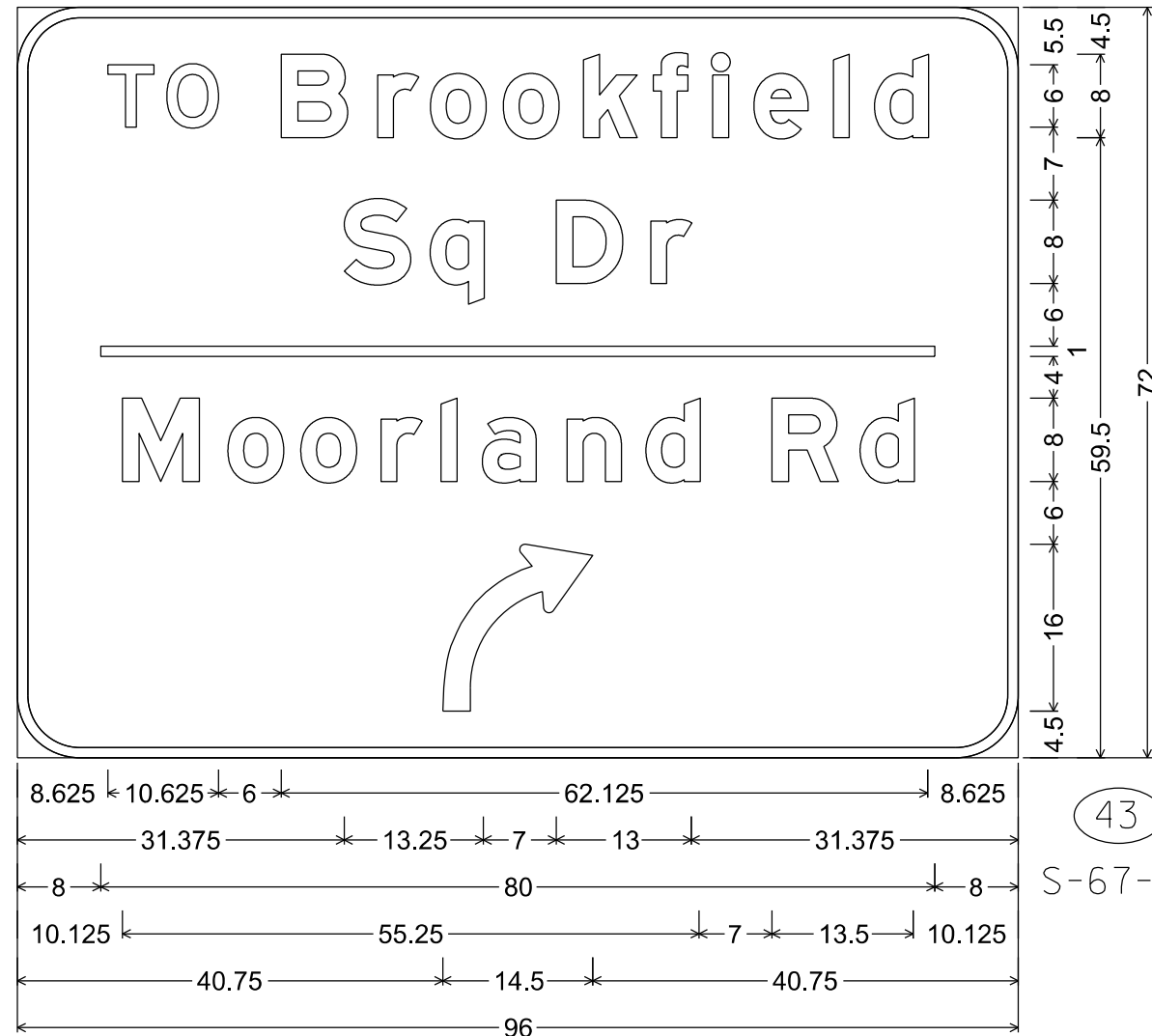
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 7/28/16 PLATE NO. W012-1D.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

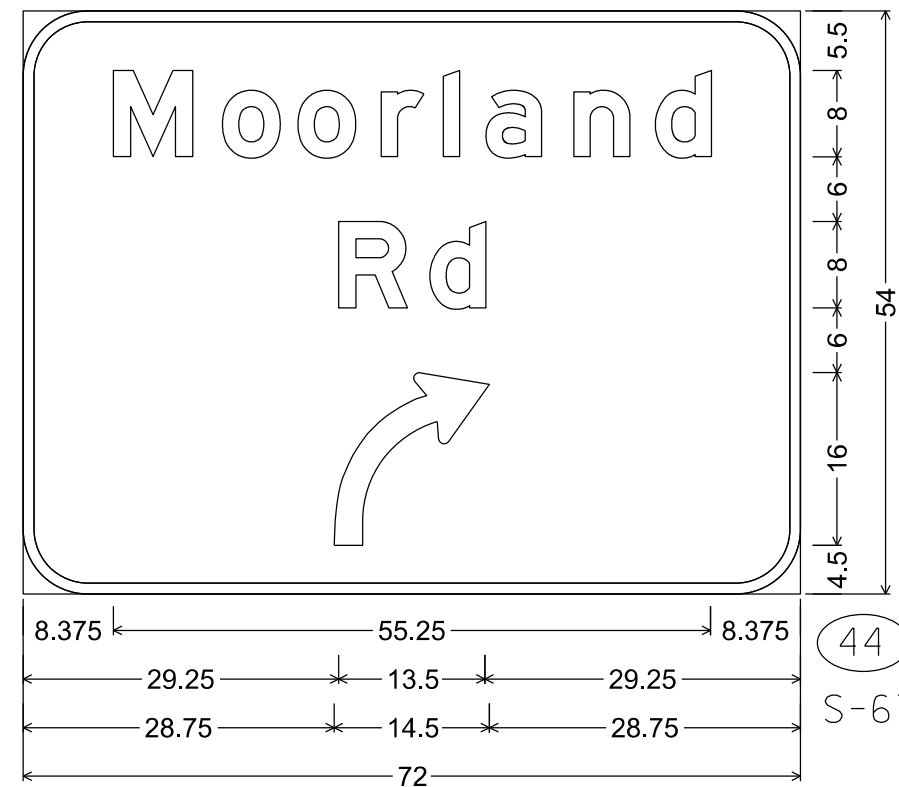
NOTES

1. All Signs Type I - Type SH Reflective
2. Color:  
Background - Green  
Message - White
3. Message Series - E Modified except as noted
4. ONLY plaque on Type F Reflective sheeting with Black Non-Reflective message



(43)  
S-67-983

D16-1R; 6.000" Radius, 1.000" Border,  
"TO", E



(44) (45)  
S-67-983

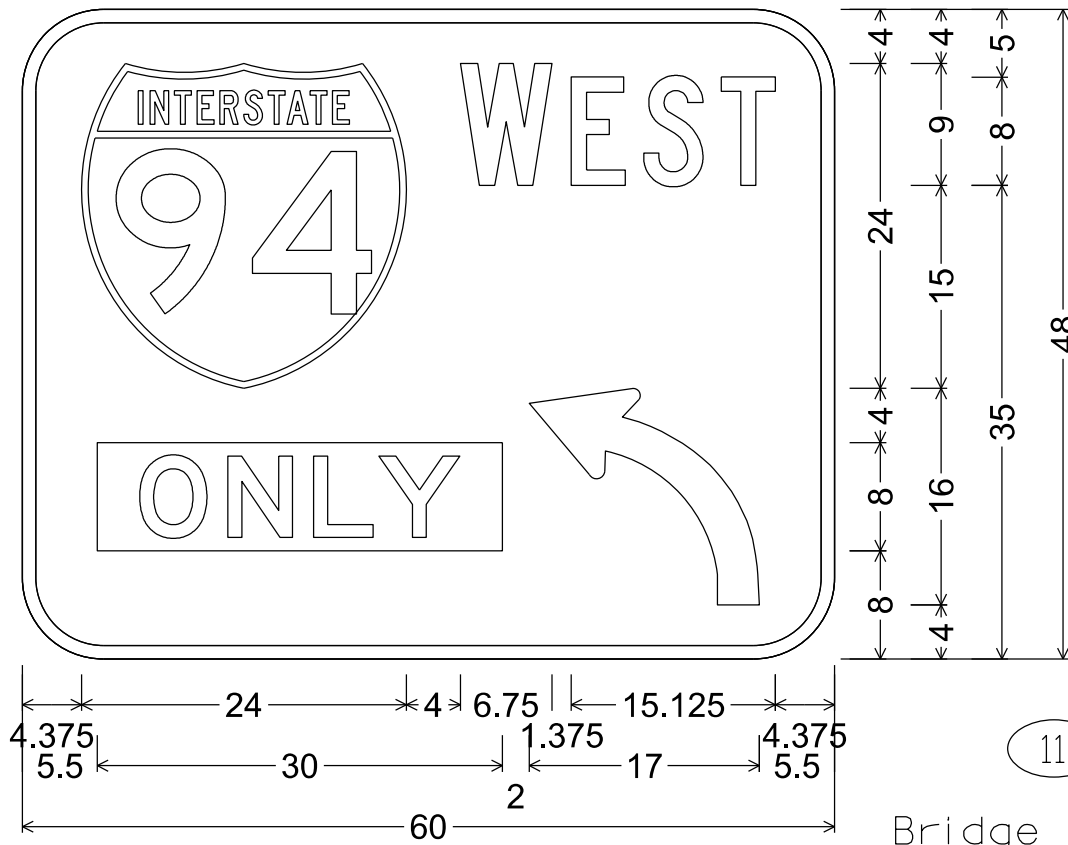
D16-1R; 6.000" Radius, 1.000" Border

7

7

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
     Background - Green  
     Message - White
3. Message Series - C
4. ONLY plaque on Type F Reflective sheeting with Black Non-Reflective message



11

D16-1L; 6.000" Radius, 1.000" Border,  
 "WEST", C

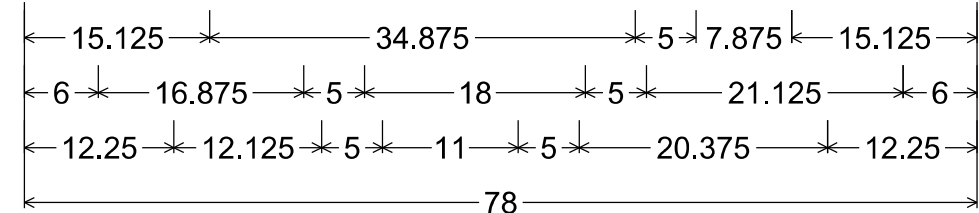
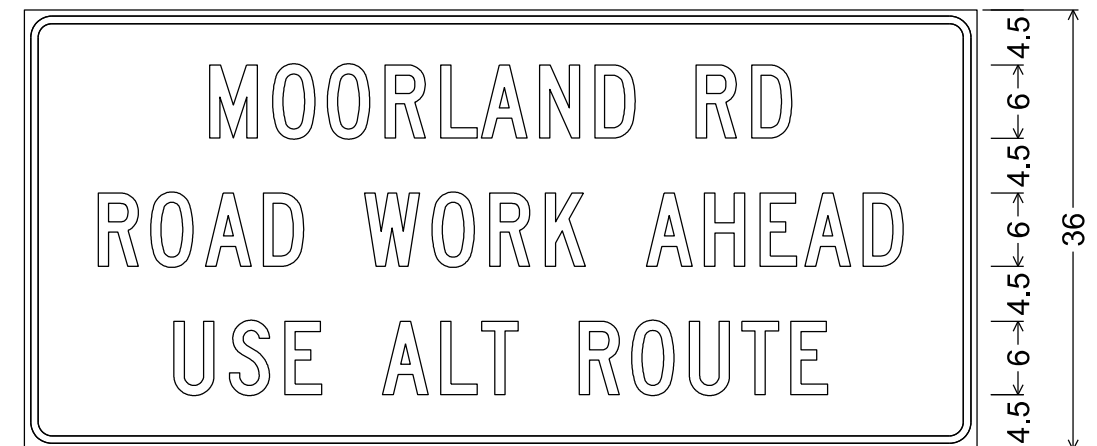
Bridge Mount  
 Moorland Rd NB@94WB RAMP

NOTES

1. Fixed Message Signs Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - C



3.000" Radius, 1.000" Border, 0.750" Indent



2.250" Radius, 0.625" Border, 0.500" Indent

7

7



**DESIGN DATA**

LIVE LOAD:  
 TAKEN FROM HSI, 08/08/2013  
 INVENTORY RATING: HS-11  
 OPERATING RATING: HS-20  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 170 KIPS

MATERIAL PROPERTIES:  
 CONCRETE MASONRY:  
 SURFACE REPAIRS \_\_\_\_\_ f'c = 4,000 P.S.I.

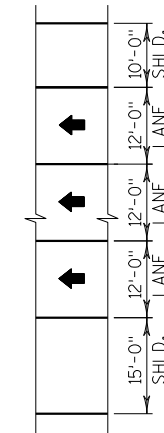
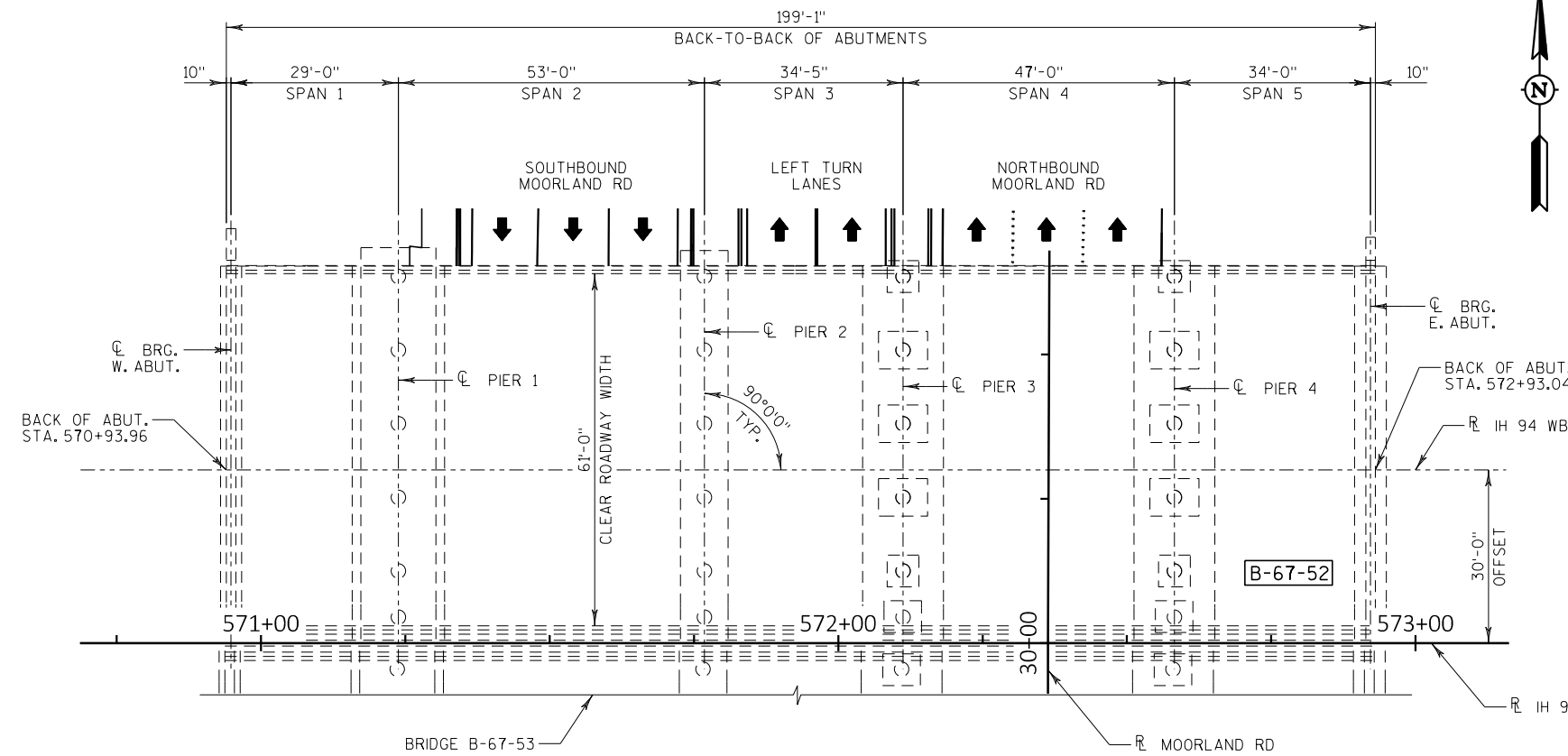
**LIST OF DRAWINGS**

1. GENERAL PLAN
2. SECTIONS, NOTES AND QUANTITIES
3. SUPERSTRUCTURE
4. PIERS (1 OF 2)
5. PIERS (2 OF 2)

**TRAFFIC VOLUME**

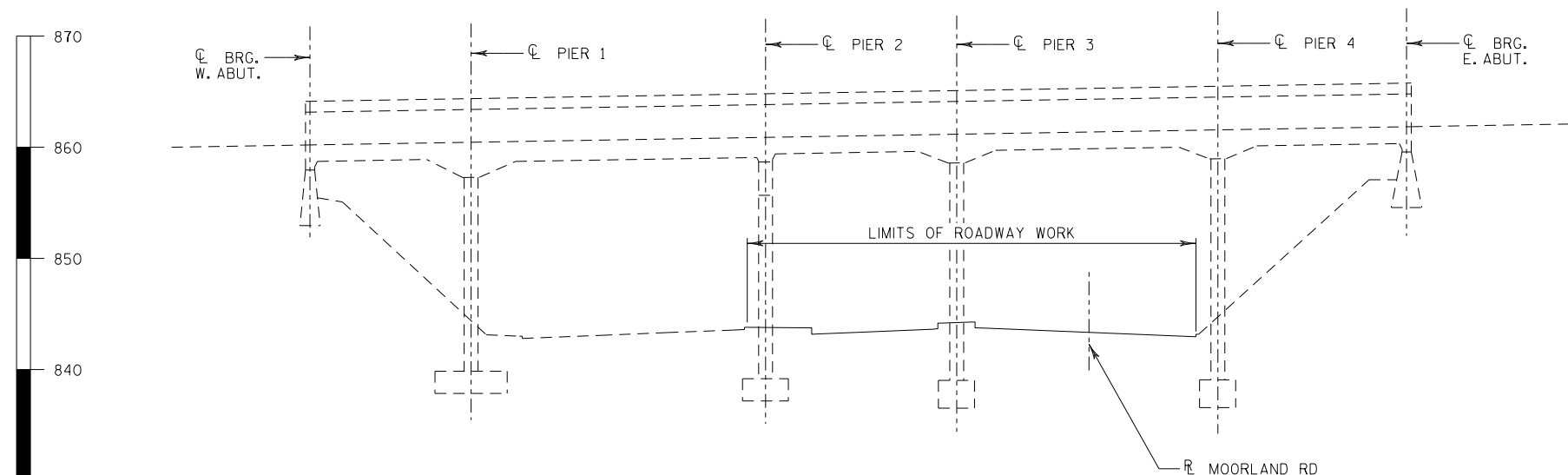
<b>MOORLAND ROAD</b>	<b>IH 94 WB</b>
A.D.T. = 40,600 (2042)	A.D.T. = 58,500 (2020)
R.D.S. = 40 M.P.H.	R.D.S. = 70 M.P.H.

STRUCTURE DESIGN CONTACTS:  
 AARON BONK (WISDOT) (608) 261-0261  
 SCOTT GINAL (RA SMITH) (262) 317-3344



**PLAN**

(5-SPAN HAUNCHED CONCRETE SLAB - CONCRETE REMOVAL AND REPAIR)



**ELEVATION**  
(LOOKING NORTH)



NO.	DATE	REVISION	BY
<p><b>raSmith</b> 16745 W. Bluemound Road                  Brookfield, WI 53005-5938                  (262) 781-1000                  rasmith.com</p>			
<p>STATE OF WISCONSIN                  DEPARTMENT OF TRANSPORTATION</p>			
ACCEPTED		SDR	DATE
			02/06/23
<p><b>STRUCTURE B-67-52</b></p>			
<p>IH 94 WB OVER CTH O (MOORLAND ROAD)</p>			
COUNTY	TOWN/CITY/VILLAGE		
WAUKESHA	BROOKFIELD		
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
PFJ	S.JG	PFJ	S.JG
GENERAL PLAN			SHEET 1 OF 5

8

8

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	W. ABUT.	PIER 1	PIER 2	PIER 3	PIER 4	E. ABUT.	TOTAL
509.1500	CONCRETE SURFACE REPAIR	SF			20	140	2	5		167
SPV.0165.4000	REMOVING LOOSE CONCRETE OVERHEAD	SF	420							420

ALL BID ITEMS ARE CATEGORY 2000

**SCOPE OF WORK**

REMOVE ALL UNSOUND CONCRETE FROM THE UNDERSIDE AND EDGES OF THE EXISTING CONCRETE SLAB. REFER TO SUPERSTRUCTURE SHEET FOR APPROXIMATE LOCATIONS AND AREAS.

REPAIR ALL SPALLED AND DELAMINATED CONCRETE ON THE EXISTING PIERS. REFER TO PIER SHEETS FOR APPROXIMATE LOCATIONS AND AREAS.

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

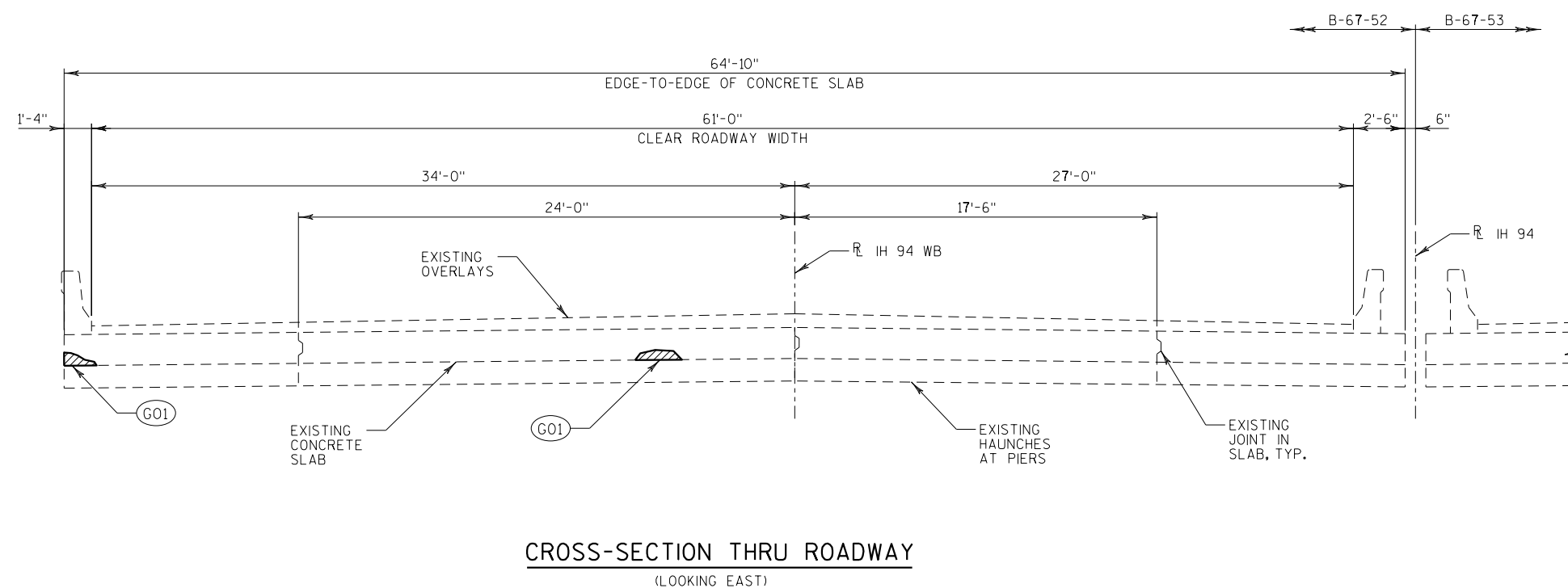
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

"CONCRETE SURFACE REPAIR" AND "REMOVING LOOSE CONCRETE OVERHEAD" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER IN THE FIELD.

ALL CONCRETE REMOVAL AT THE PIERS SHALL BE DEFINED BY A 1/2-INCH DEEP SAW CUT.

ASBESTOS-CONTAINING MATERIAL (ACM) IS ASSUMED TO BE PRESENT ON THIS BRIDGE AND HAS BEEN IDENTIFIED IN THE MERCURY VAPOR LIGHTS AFFIXED TO THE UNDERSIDE OF THE BRIDGE SLAB. CARE SHOULD BE TAKEN DURING CONCRETE REMOVAL ACTIVITIES SO AS NOT TO DISTURB THE EXISTING LIGHTING UNDER THE BRIDGE.

REFER TO ROADWAY PLANS FOR TRAFFIC CONTROL PLANS AND STAGED CONSTRUCTION DETAILS FOR MOORLAND ROAD (CTH O).



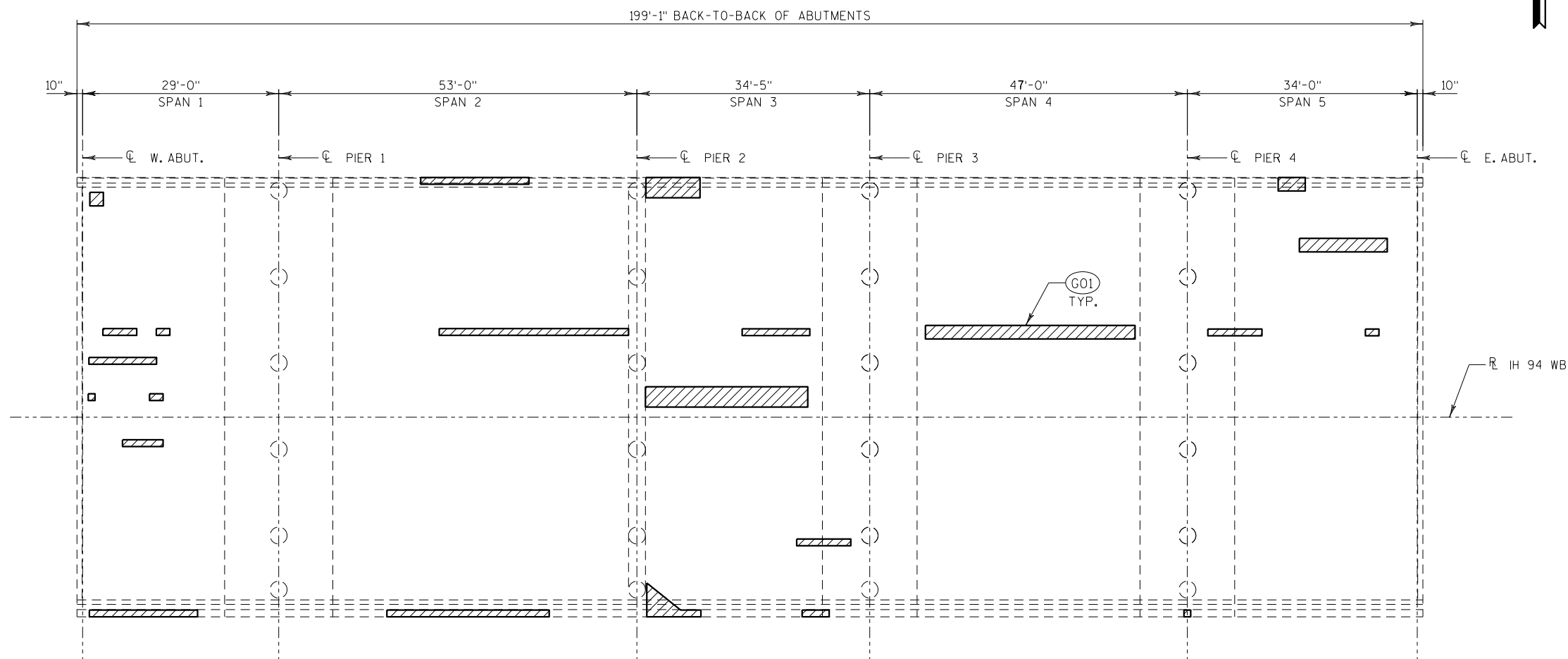
**NOTES**

(G01) REMOVE UNSOUND CONCRETE FROM UNDERSIDE AND EDGES OF EXISTING CONCRETE SLAB. REFER TO SUPERSTRUCTURE SHEET FOR APPROXIMATE LOCATIONS AND AREAS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-52</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
SECTIONS, NOTES AND QUANTITIES			SHEET 2 OF 5

8

8



**SLAB - CONCRETE REMOVAL PLAN**  
(BOTTOM OF SLAB SHOWN)

**NOTES**

"REMOVING LOOSE OVERHEAD CONCRETE" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

**(G01)** REMOVE UNSOUND CONCRETE FROM UNDERSIDE AND EDGES OF EXISTING CONCRETE SLAB. REFER TO THE SPECIAL PROVISIONS FOR CONCRETE REMOVAL REQUIREMENTS.

**ESTIMATED QUANTITIES**

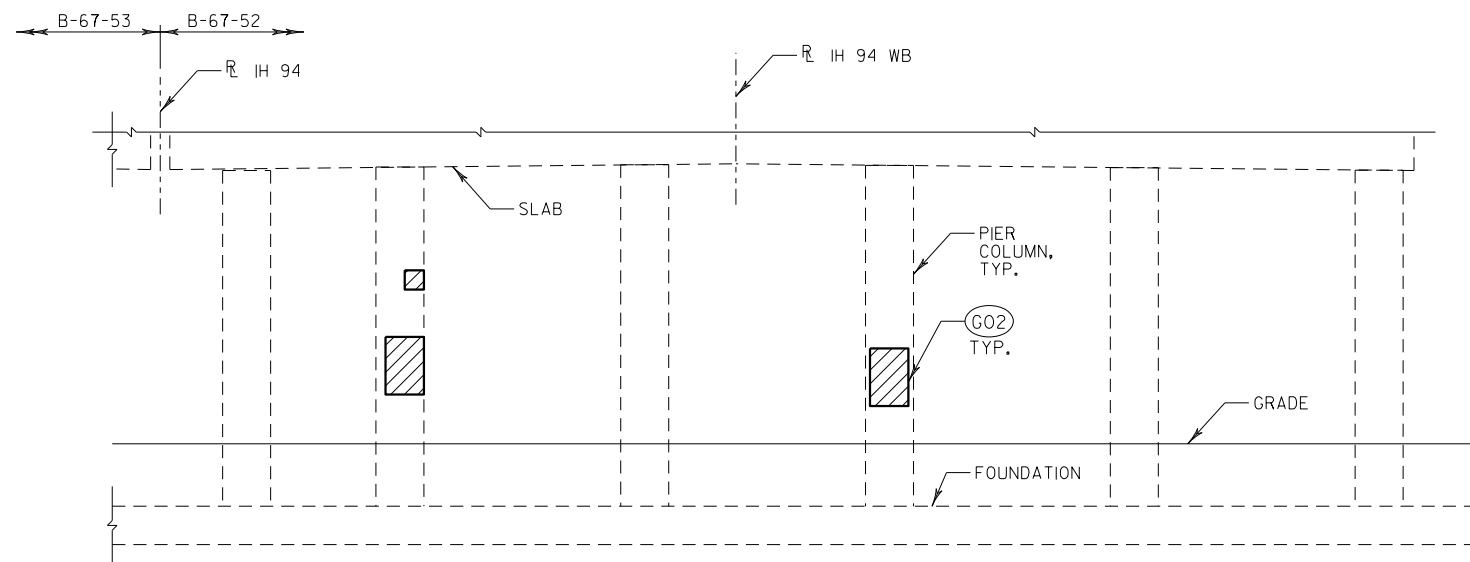
BID ITEM NUMBER	BID ITEMS	UNIT	QUANTITY
SPV.0165.4000	REMOVING LOOSE CONCRETE OVERHEAD	SF	420

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

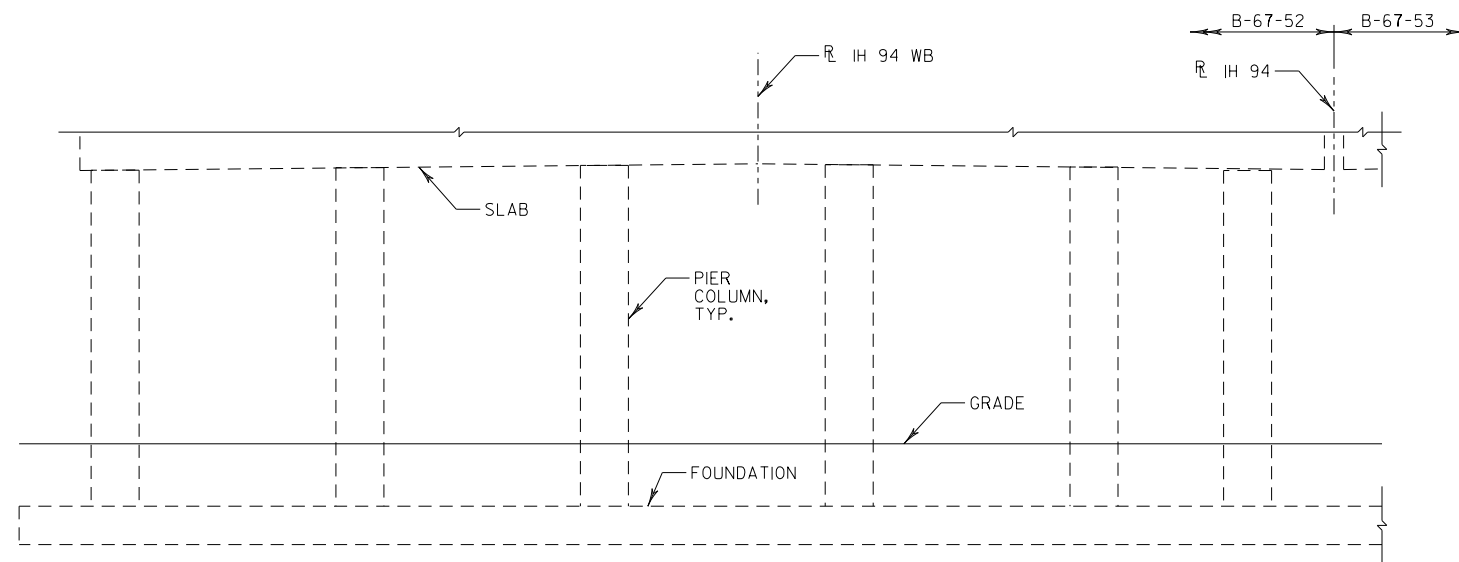
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-52</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>SUPERSTRUCTURE</b>			SHEET 3 OF 5

8

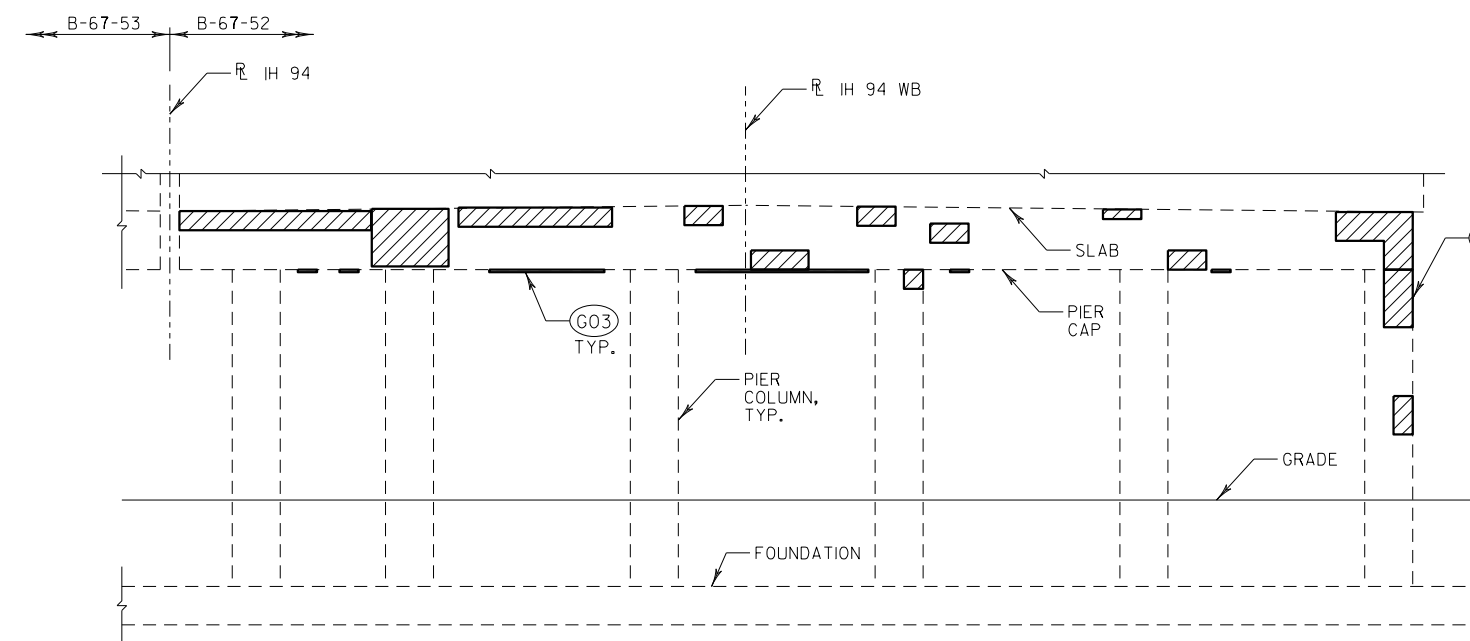
8



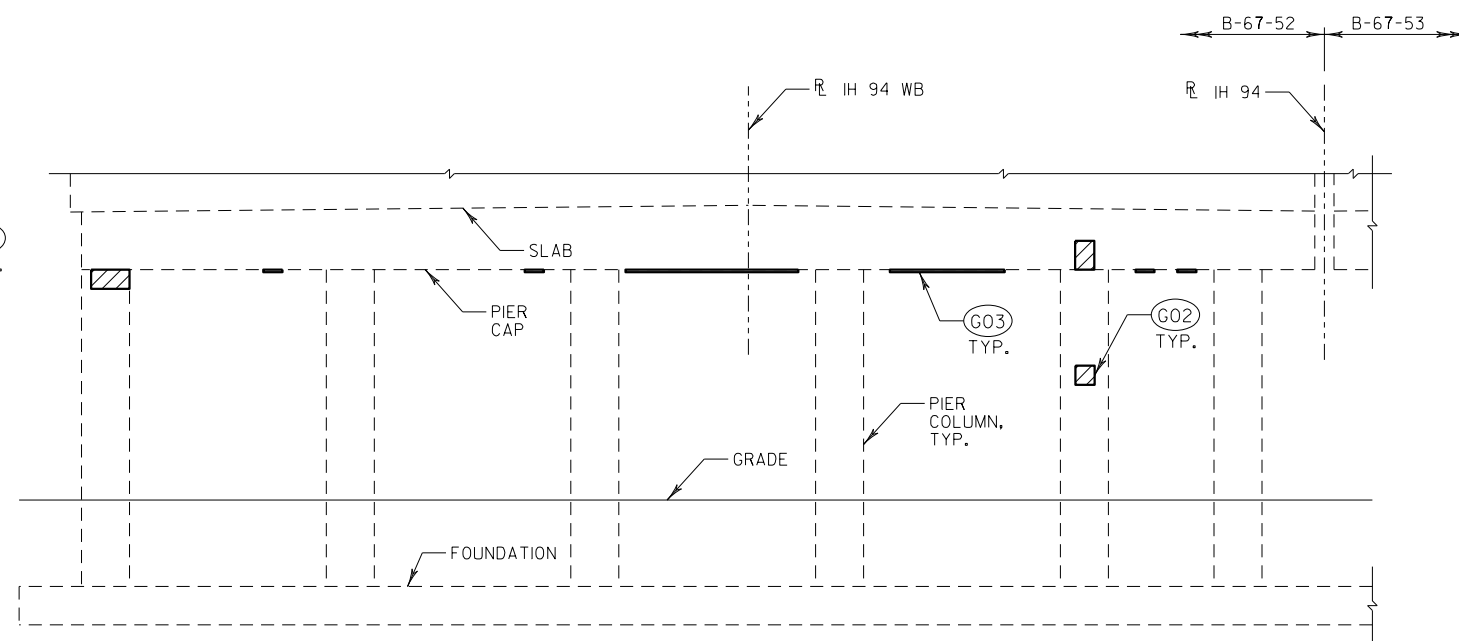
**PIER 1 - CONCRETE REPAIRS**  
(LOOKING WEST)



**PIER 1 - CONCRETE REPAIRS**  
(LOOKING EAST)



**PIER 2 - CONCRETE REPAIRS**  
(LOOKING WEST)



**PIER 2 - CONCRETE REPAIRS**  
(LOOKING EAST)

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 1	PIER 2	QUANTITY
509.1500	CONCRETE SURFACE REPAIR	SF	20	140	160

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

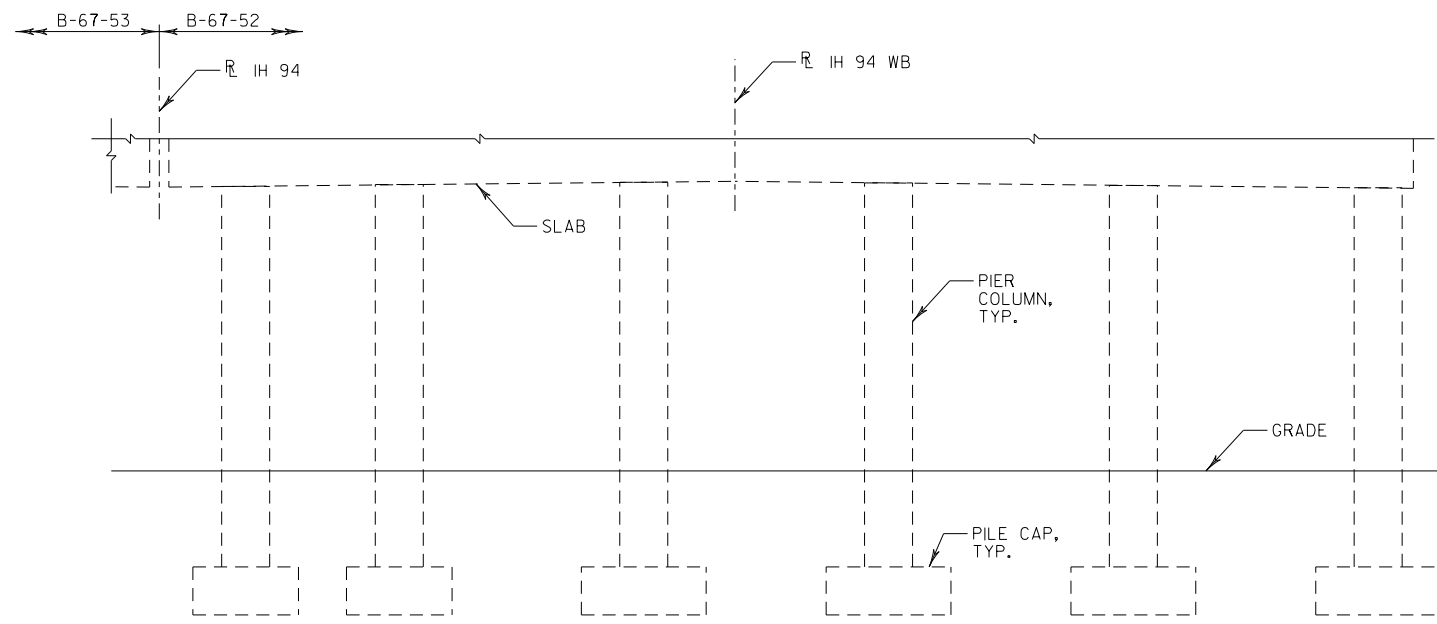
**NOTES**

"CONCRETE SURFACE REPAIR" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

G02 "CONCRETE SURFACE REPAIR" ON PIER COLUMNS AND PIER CAP.

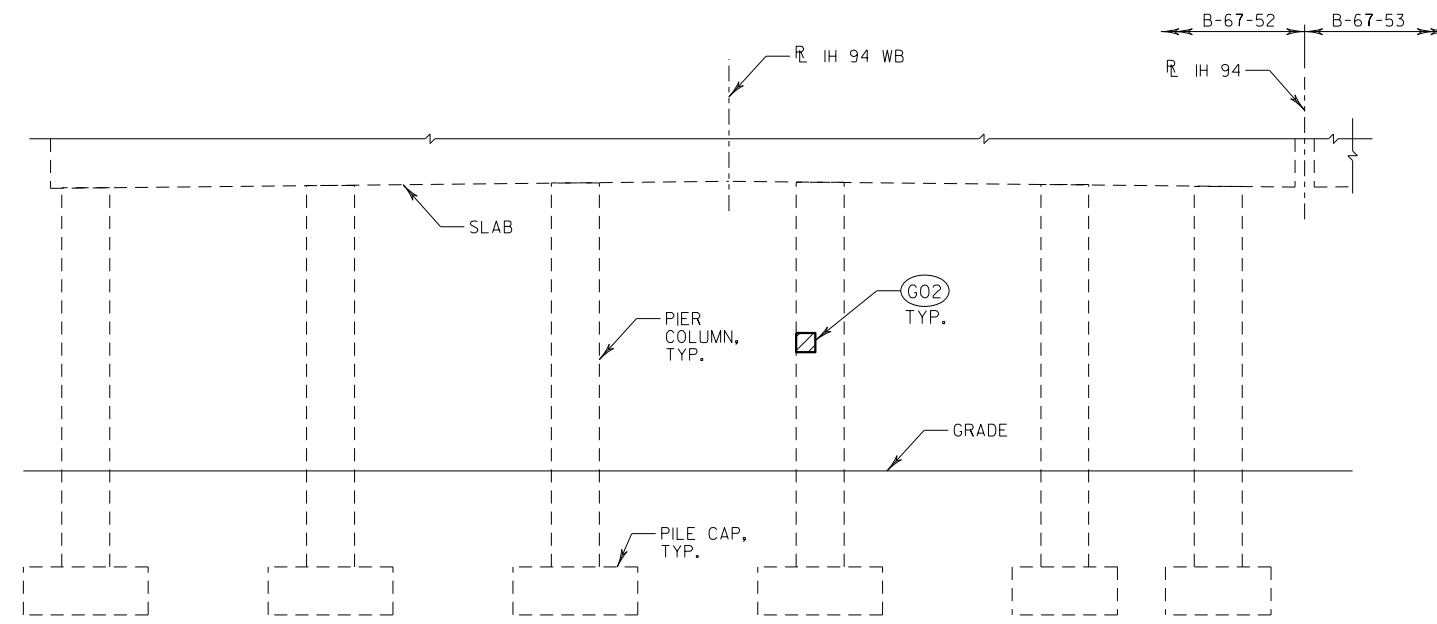
G03 "CONCRETE SURFACE REPAIR" AREA ON UNDERSIDE OF PIER CAP IS APPROXIMATELY THE WIDTH OF THE PIER CAP BY THE LENGTH SHOWN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-52</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>PIERS (1 OF 2)</b>			SHEET 4 OF 5



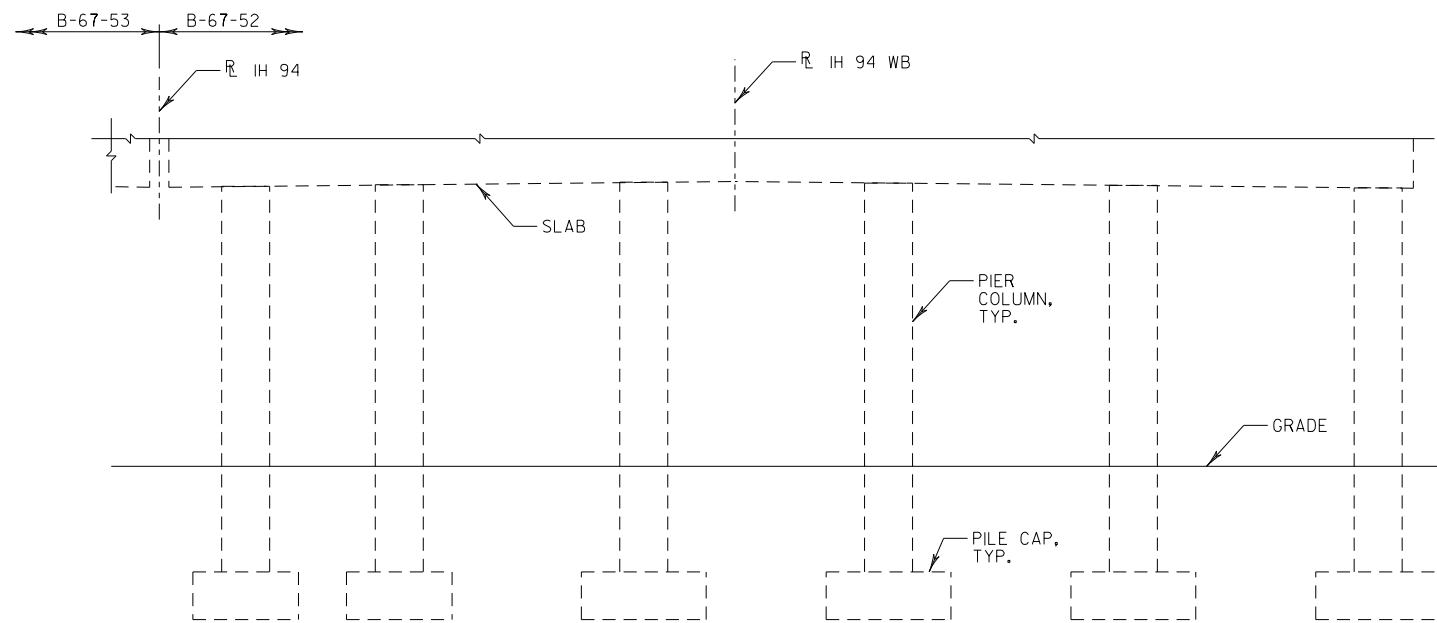
**PIER 3 - CONCRETE REPAIRS**

(LOOKING WEST)



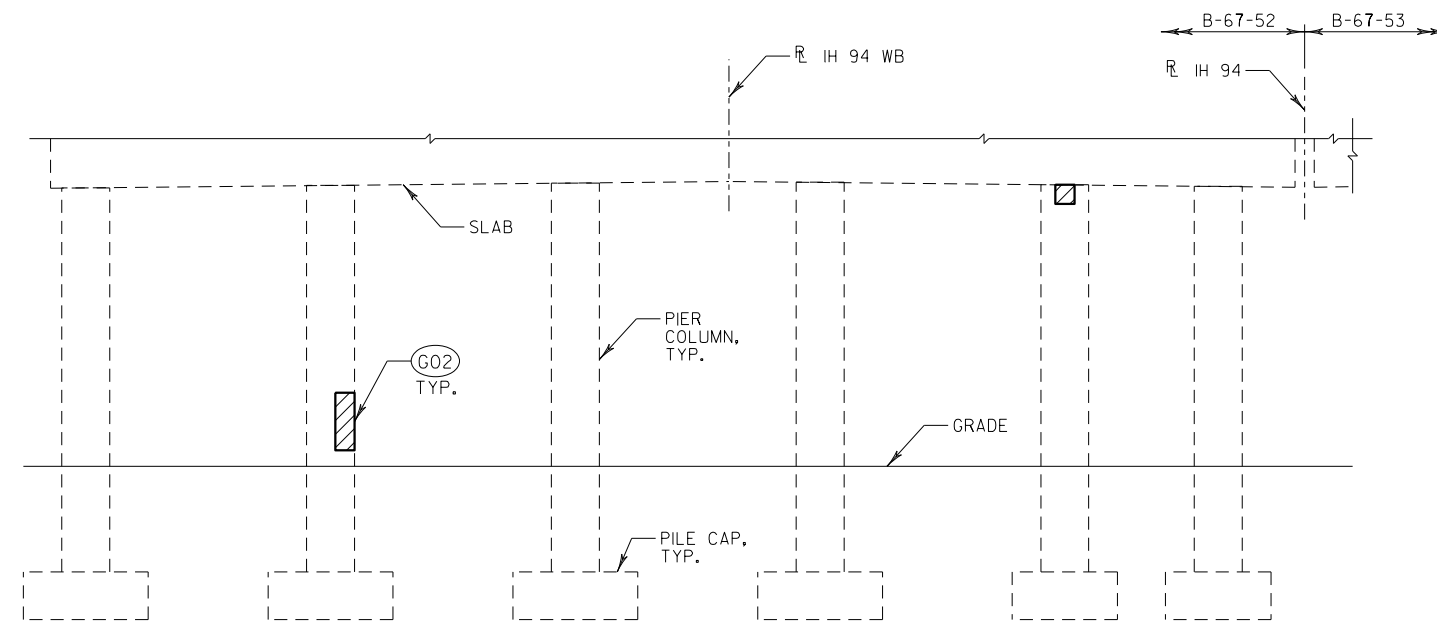
**PIER 3 - CONCRETE REPAIRS**

(LOOKING EAST)



**PIER 4 - CONCRETE REPAIRS**

(LOOKING WEST)



**PIER 4 - CONCRETE REPAIRS**

(LOOKING EAST)

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 3	PIER 4	QUANTITY
509.1500	CONCRETE SURFACE REPAIR	SF	2	5	7

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

**NOTES**

"CONCRETE SURFACE REPAIR" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

G02 "CONCRETE SURFACE REPAIR" ON PIER COLUMNS AND PIER CAP.

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-52</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>PIERS (2 OF 2)</b>			SHEET 5 OF 5

**DESIGN DATA**

LIVE LOAD:  
 TAKEN FROM HSI, 08/08/2013  
 INVENTORY RATING: HS-11  
 OPERATING RATING: HS-19  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 170 KIPS

MATERIAL PROPERTIES:  
 CONCRETE MASONRY:  
 SURFACE REPAIRS: f'c = 4,000 P.S.I.

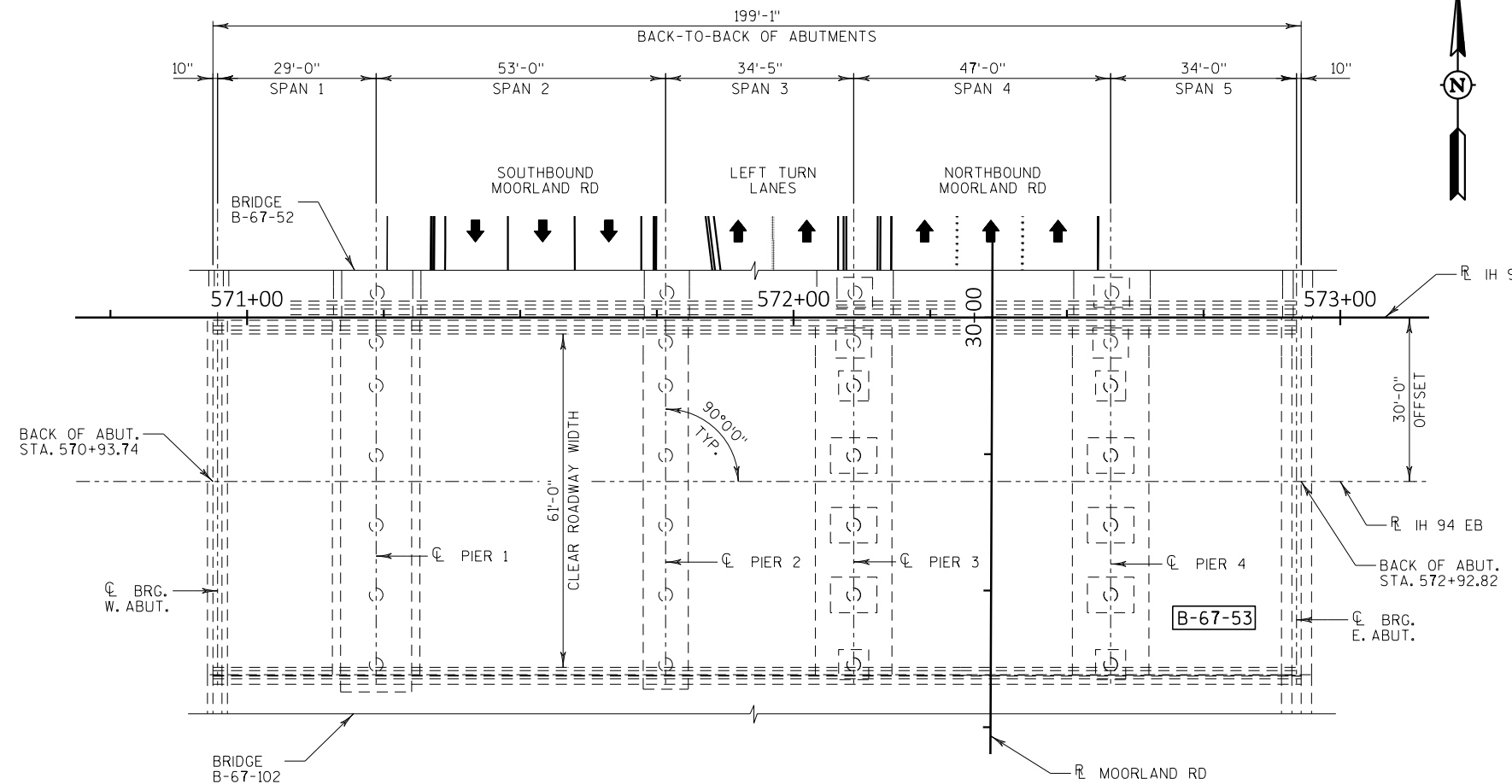
**LIST OF DRAWINGS**

1. GENERAL PLAN
2. SECTIONS, NOTES AND QUANTITIES
3. SUPERSTRUCTURE
4. PIERS (1 OF 2)
5. PIERS (2 OF 2)

**TRAFFIC VOLUME**

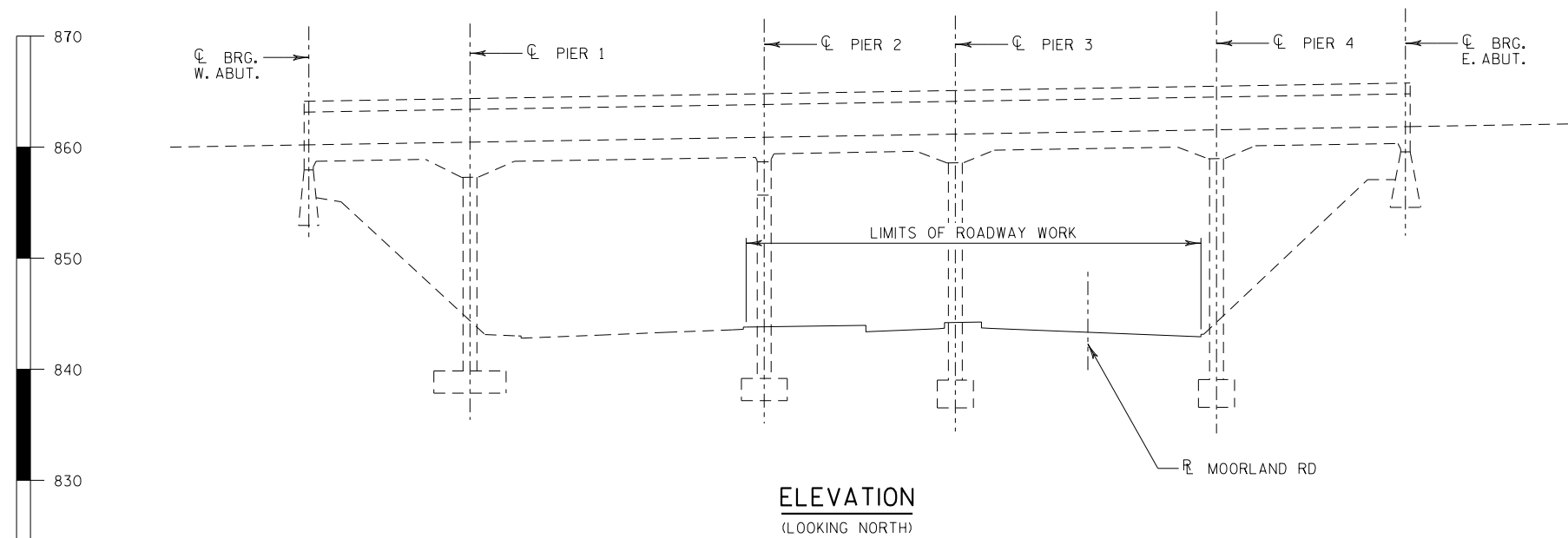
MOORLAND ROAD	IH 94 EB
A.D.T. = 40,600 (2042)	A.D.T. = 58,500 (2020)
R.D.S. = 40 M.P.H.	R.D.S. = 70 M.P.H.

STRUCTURE DESIGN CONTACTS:  
 AARON BONK (WISDOT) (608) 261-0261  
 SCOTT GINAL (RA SMITH) (262) 317-3344



**PLAN**

(5-SPAN HAUNCHED CONCRETE SLAB - CONCRETE REMOVAL AND REPAIR)



**ELEVATION**  
(LOOKING NORTH)



NO.	DATE	REVISION	BY

**raSmith** 16745 W. Bluemound Road  
 Brookfield, WI 53005-5938  
 (262) 781-1000  
 rasmith.com

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR **02/06/23**  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-67-53**

IH 94 EB OVER CTH 0 (MOORLAND ROAD)

COUNTY WAUKESHA TOWN/CITY/VILLAGE BROOKFIELD

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY PFP	DESIGN CK'D. S.J.G.	DRAWN BY PFP	PLANS CK'D. S.J.G.
-----------------	---------------------	--------------	--------------------

GENERAL PLAN SHEET 1 OF 5

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	W. ABUT.	PIER 1	PIER 2	PIER 3	PIER 4	E. ABUT.	TOTAL
509.1500	CONCRETE SURFACE REPAIR	SF			12	80	10	3		105
SPV.0165.4000	REMOVING LOOSE CONCRETE OVERHEAD	SF	430							430

ALL BID ITEMS ARE CATEGORY 2001

**SCOPE OF WORK**

REMOVE ALL UNSOUND CONCRETE FROM THE UNDERSIDE AND EDGES OF THE EXISTING CONCRETE SLAB. REFER TO SUPERSTRUCTURE SHEET FOR APPROXIMATE LOCATIONS AND AREAS.

REPAIR ALL SPALLED AND DELAMINATED CONCRETE ON THE EXISTING PIERS. REFER TO PIER SHEETS FOR APPROXIMATE LOCATIONS AND AREAS.

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

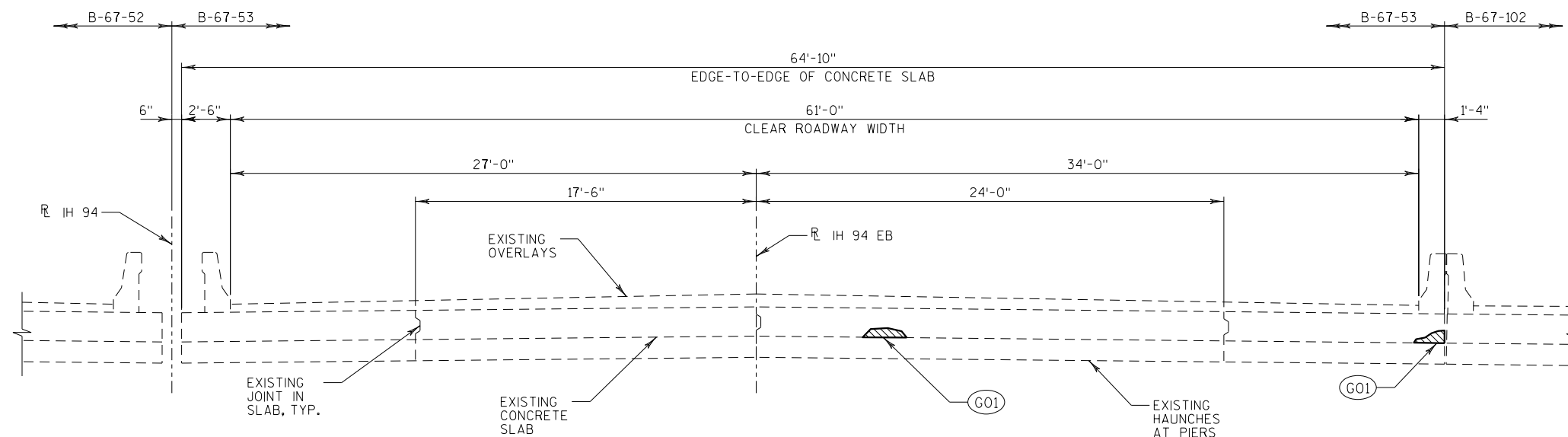
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

"CONCRETE SURFACE REPAIR" AND "REMOVING LOOSE CONCRETE OVERHEAD" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER IN THE FIELD.

ALL CONCRETE REMOVAL AT THE PIERS SHALL BE DEFINED BY A 1/2-INCH DEEP SAW CUT.

ASBESTOS-CONTAINING MATERIAL (ACM) IS ASSUMED TO BE PRESENT ON THIS BRIDGE AND HAS BEEN IDENTIFIED IN THE MERCURY VAPOR LIGHTS AFFIXED TO THE UNDERSIDE OF THE BRIDGE SLAB. CARE SHOULD BE TAKEN DURING CONCRETE REMOVAL ACTIVITIES SO AS NOT TO DISTURB THE EXISTING LIGHTING UNDER THE BRIDGE.

REFER TO ROADWAY PLANS FOR TRAFFIC CONTROL PLANS AND STAGED CONSTRUCTION DETAILS FOR MOORLAND ROAD (CTH O).



**CROSS-SECTION THRU ROADWAY**  
(LOOKING EAST)

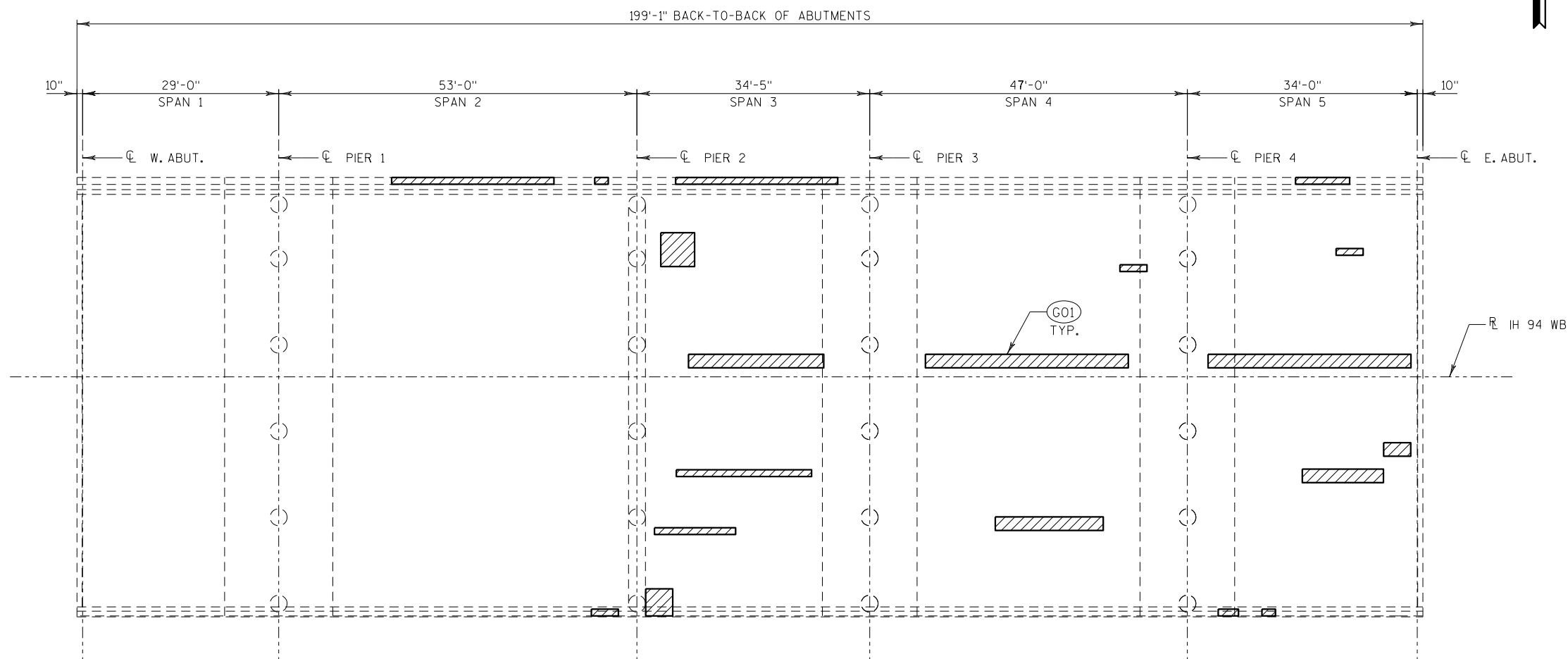
**NOTES**

(G01) REMOVE UNSOUND CONCRETE FROM UNDERSIDE AND EDGES OF EXISTING CONCRETE SLAB. REFER TO SUPERSTRUCTURE SHEET FOR APPROXIMATE LOCATIONS AND AREAS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-53</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
SECTIONS, NOTES AND QUANTITIES			SHEET 2 OF 5

8

8



**SLAB - CONCRETE REMOVAL PLAN**  
(BOTTOM OF SLAB SHOWN)

**NOTES**

"REMOVING LOOSE OVERHEAD CONCRETE" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

(GO1) REMOVE UNSOUND CONCRETE FROM UNDERSIDE AND EDGES OF EXISTING CONCRETE SLAB. REFER TO THE SPECIAL PROVISIONS FOR CONCRETE REMOVAL REQUIREMENTS.

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	QUANTITY
SPV.0165.4000	REMOVING LOOSE CONCRETE OVERHEAD	SF	430

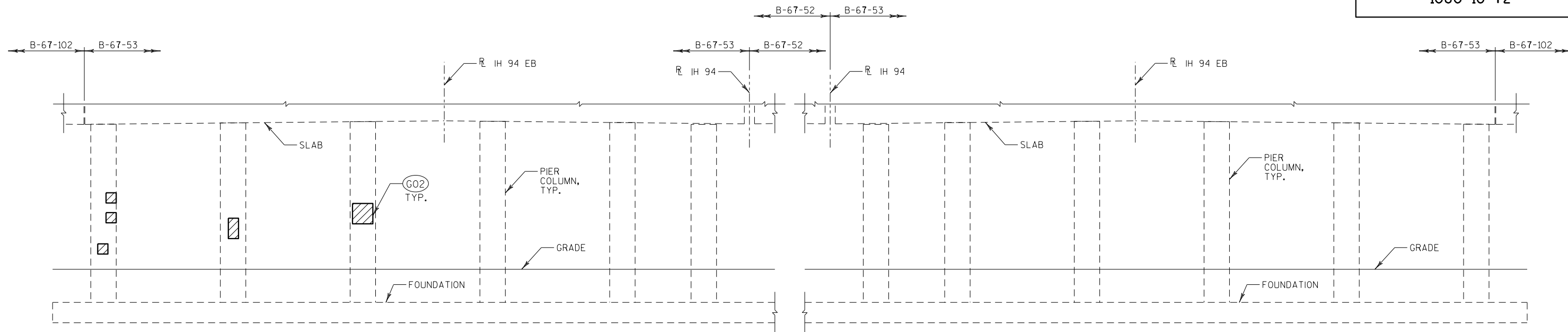
ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-53</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>SUPERSTRUCTURE</b>			SHEET 3 OF 5

8

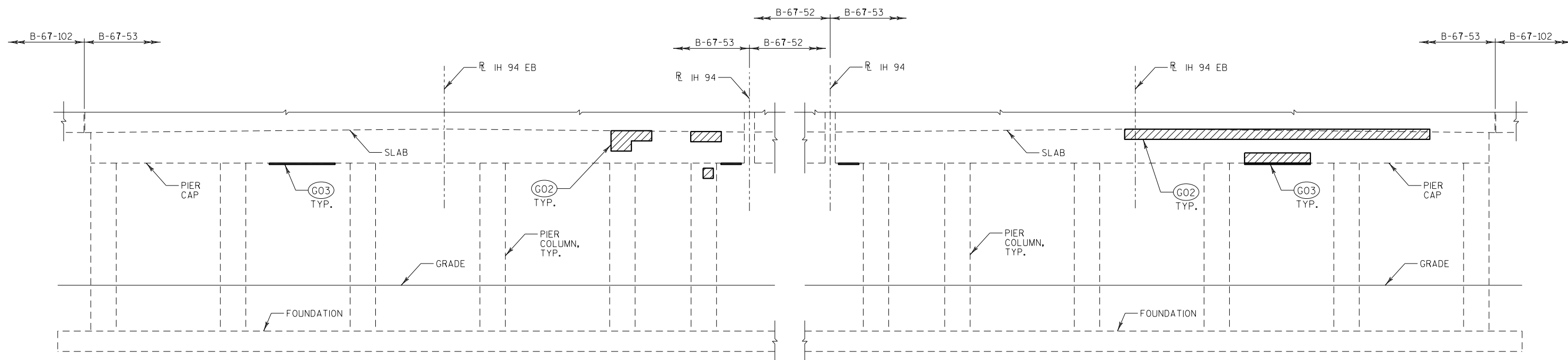
8





**PIER 1 - CONCRETE REPAIRS**  
(LOOKING WEST)

**PIER 1 - CONCRETE REPAIRS**  
(LOOKING EAST)



**PIER 2 - CONCRETE REPAIRS**  
(LOOKING WEST)

**PIER 2 - CONCRETE REPAIRS**  
(LOOKING EAST)

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 1	PIER 2	QUANTITY
509.1500	CONCRETE SURFACE REPAIR	SF	12	80	92

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

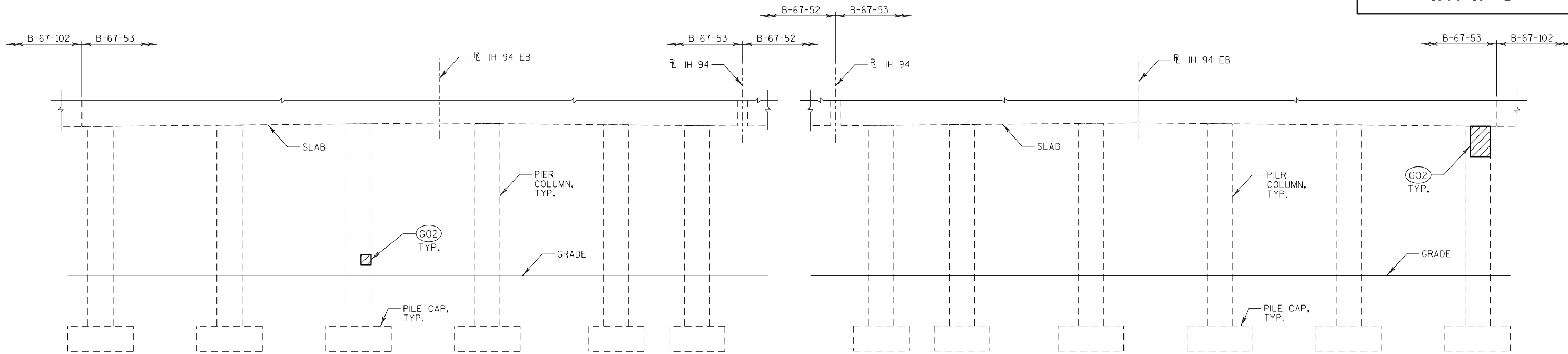
**NOTES**

"CONCRETE SURFACE REPAIR" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

(G02) "CONCRETE SURFACE REPAIR" ON PIER COLUMNS AND PIER CAP.

(G03) "CONCRETE SURFACE REPAIR" AREA ON UNDERSIDE OF PIER CAP IS APPROXIMATELY THE WIDTH OF THE PIER CAP BY THE LENGTH SHOWN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-53</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>PIERS (1 OF 2)</b>			SHEET 4 OF 5

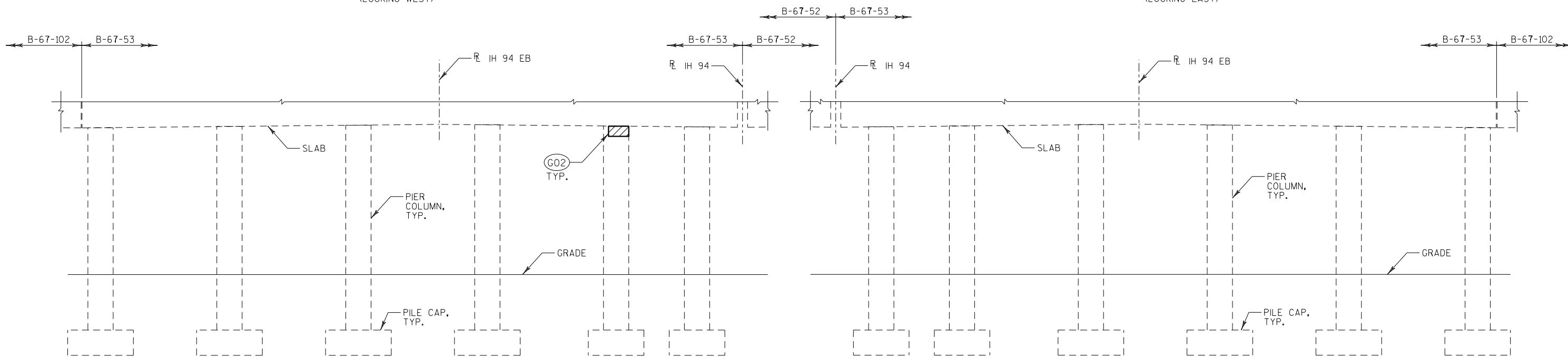


**PIER 3 - CONCRETE REPAIRS**

(LOOKING WEST)

**PIER 3 - CONCRETE REPAIRS**

(LOOKING EAST)



**PIER 4 - CONCRETE REPAIRS**

(LOOKING WEST)

**PIER 4 - CONCRETE REPAIRS**

(LOOKING EAST)

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 3	PIER 4	QUANTITY
509.1500	CONCRETE SURFACE REPAIR	SF	10	3	13

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

**NOTES**

"CONCRETE SURFACE REPAIR" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

**G02** "CONCRETE SURFACE REPAIR" ON PIER COLUMNS AND PIER CAP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-53</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>PIERS (2 OF 2)</b>			SHEET 5 OF 5

**DESIGN DATA**

LIVE LOAD:  
 TAKEN FROM HSI, 05/01/2003  
 INVENTORY RATING: HS-15  
 OPERATING RATING: HS-46  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 200 KIPS

**MATERIAL PROPERTIES:**

CONCRETE MASONRY:  
 SURFACE REPAIRS ————— f'c = 4,000 P.S.I.

**LIST OF DRAWINGS**

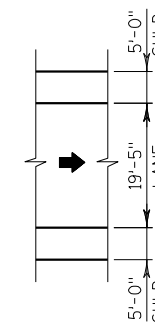
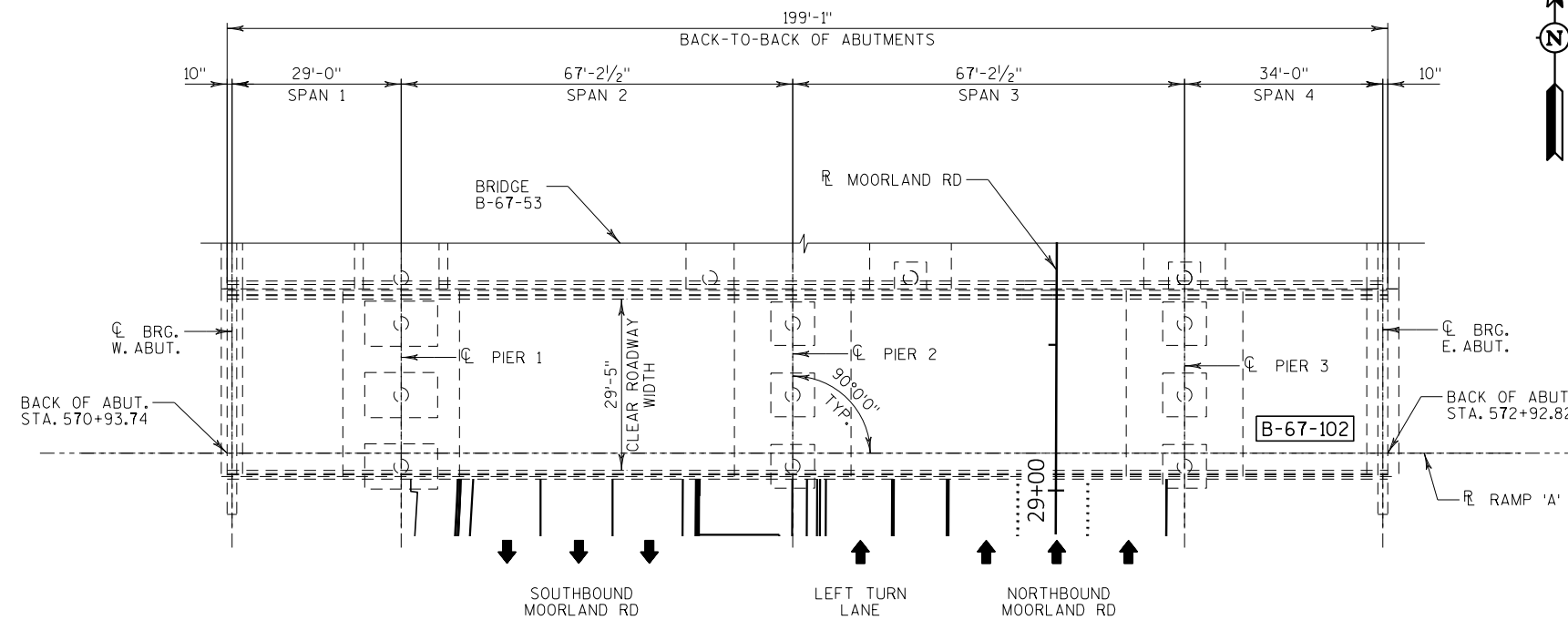
1. GENERAL PLAN
2. SECTIONS, NOTES AND QUANTITIES
3. SUPERSTRUCTURE
4. PIERS (1 OF 2)
5. PIERS (2 OF 2)

**TRAFFIC VOLUME**

<b>MOORLAND ROAD</b>	<b>RAMP 'A'</b>
A.D.T. = 40,600 (2042)	A.D.T. = 8,000 (2019)
R.D.S. = 40 M.P.H.	R.D.S. = 70 M.P.H.

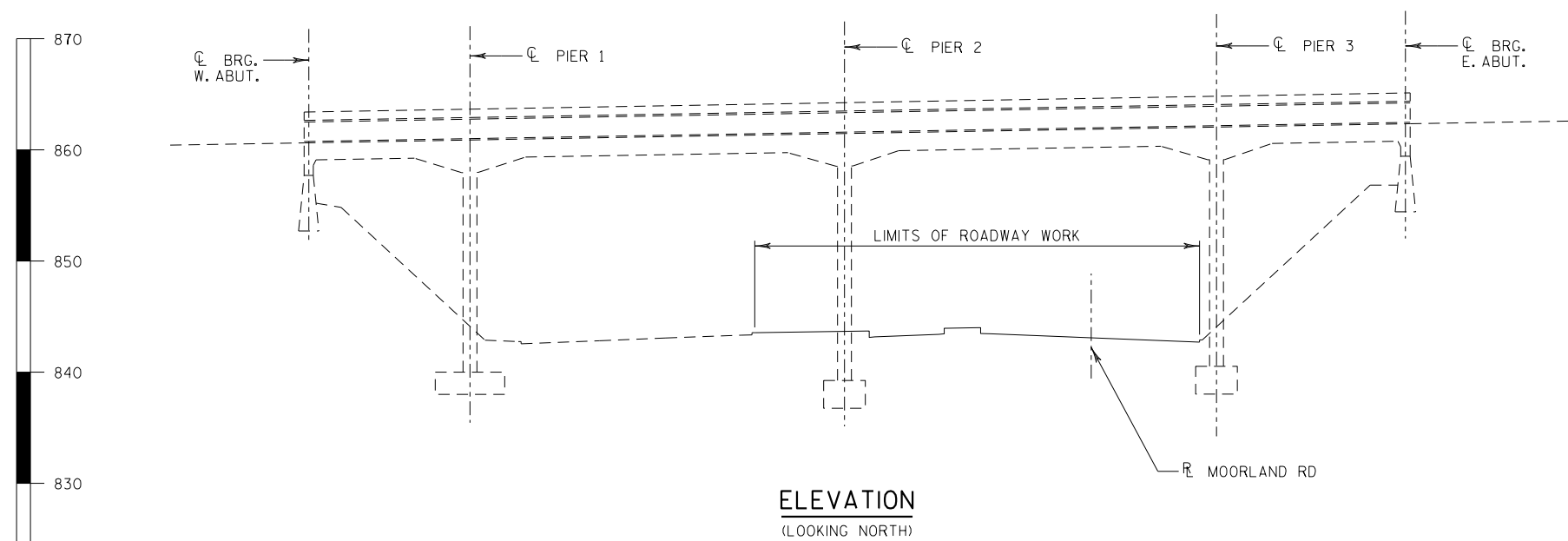
**STRUCTURE DESIGN CONTACTS:**

AARON BONK (WISDOT) (608) 261-0261  
 SCOTT GINAL (RA SMITH) (262) 317-3344



**PLAN**

(4-SPAN VOIDED HAUNCHED CONCRETE SLAB - CONCRETE REMOVAL AND REPAIR)



**ELEVATION**  
(LOOKING NORTH)



NO.	DATE	REVISION	BY

<b>raSmith</b> CREATIVITY BEYOND ENGINEERING		16745 W. Bluemound Road Brookfield, WI 53005-5938 (262) 781-1000 rasmith.com
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
ACCEPTED	<i>[Signature]</i> SDR CHIEF STRUCTURES DESIGN ENGINEER	DATE <b>02/06/23</b>
<b>STRUCTURE B-67-102</b>		
RAMP 'A' OVER CTH O (MOORLAND ROAD)		
COUNTY	WAUKESHA	TOWN/CITY/VILLAGE BROOKFIELD
DESIGN SPEC. REHABILITATION N/A		
DESIGNED BY	PFP	DESIGN CK'D. S.J.G.
DRAWN BY	PFP	PLANS CK'D. S.J.G.
<b>GENERAL PLAN</b>		SHEET 1 OF 5

8

8

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	W. ABUT.	PIER 1	PIER 2	PIER 3	E. ABUT.	TOTAL
509.1500	CONCRETE SURFACE REPAIR	SF			10				10
SPV.0165.4000	REMOVING LOOSE CONCRETE OVERHEAD	SF	50						50

ALL BID ITEMS ARE CATEGORY 2002

**SCOPE OF WORK**

REMOVE ALL UNSOUND CONCRETE FROM THE UNDERSIDE AND EDGES OF THE EXISTING CONCRETE SLAB. REFER TO SUPERSTRUCTURE SHEET FOR APPROXIMATE LOCATIONS AND AREAS.

REPAIR ALL SPALLED AND DELAMINATED CONCRETE ON THE EXISTING PIERS. REFER TO PIER SHEETS FOR APPROXIMATE LOCATIONS AND AREAS.

**GENERAL NOTES**

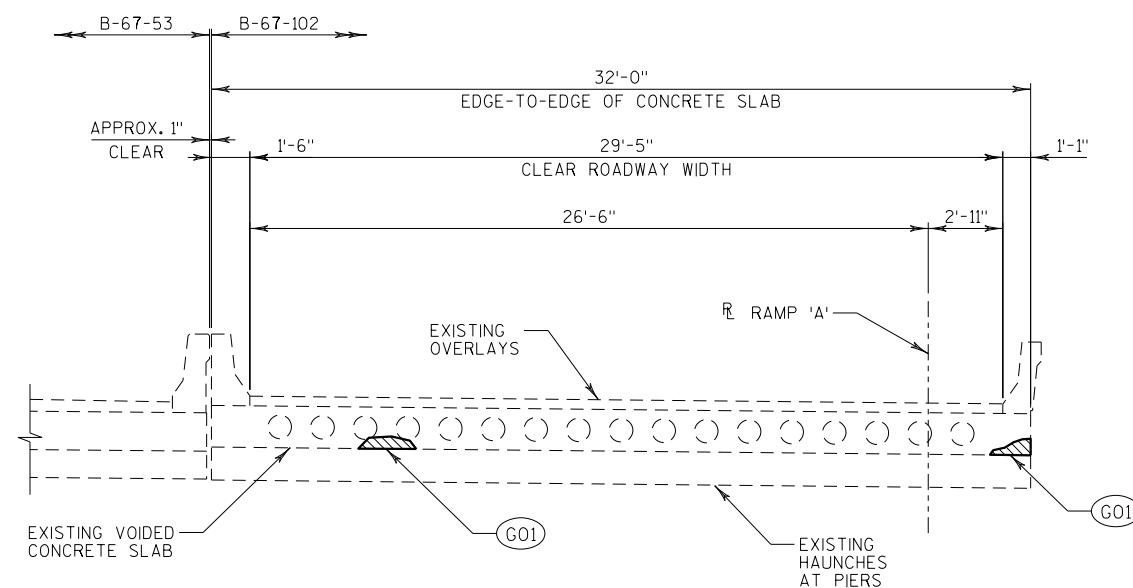
DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

"CONCRETE SURFACE REPAIR" AND "REMOVING LOOSE CONCRETE OVERHEAD" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER IN THE FIELD.

ALL CONCRETE REMOVAL AT THE PIERS SHALL BE DEFINED BY A 1/2-INCH DEEP SAW CUT.

REFER TO ROADWAY PLANS FOR TRAFFIC CONTROL PLANS AND STAGED CONSTRUCTION DETAILS FOR MOORLAND ROAD (CTH 0).

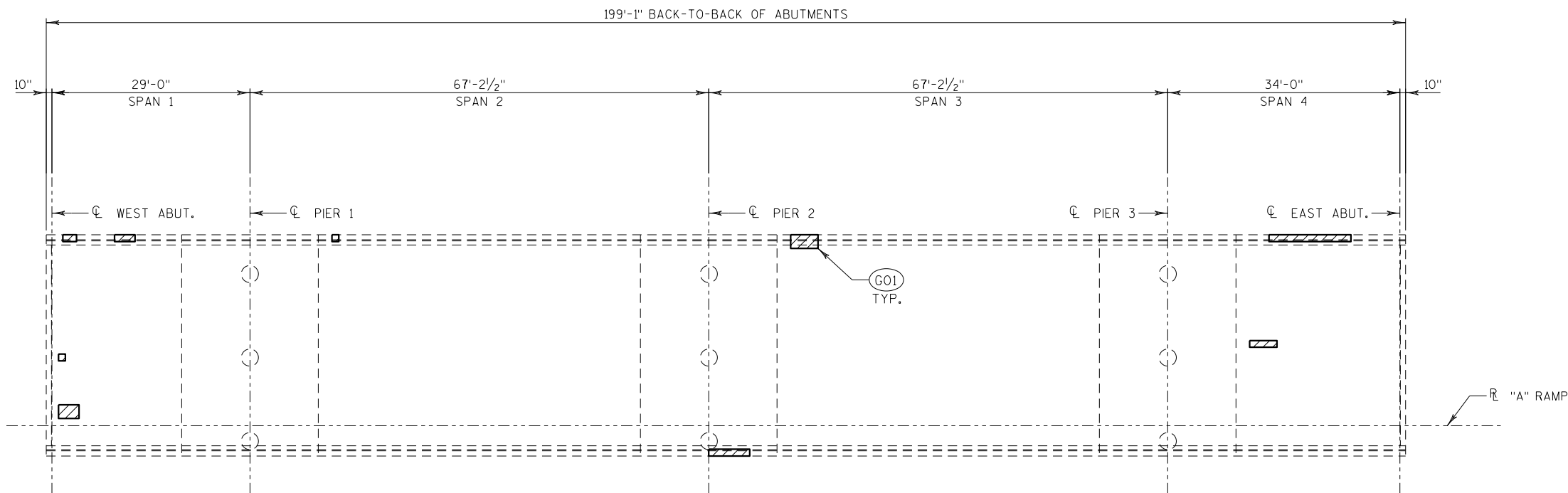


**CROSS-SECTION THRU ROADWAY**  
(LOOKING EAST)

**NOTES**

**G01** REMOVE UNSOUND CONCRETE FROM UNDERSIDE AND EDGES OF EXISTING CONCRETE SLAB. REFER TO SUPERSTRUCTURE SHEET FOR APPROXIMATE LOCATIONS AND AREAS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-102</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
SECTIONS, NOTES AND QUANTITIES			SHEET 2 OF 5



**SLAB - CONCRETE REMOVAL PLAN**  
(BOTTOM OF SLAB SHOWN)

**NOTES**

"REMOVING LOOSE OVERHEAD CONCRETE" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

(G01) REMOVE UNSOUND CONCRETE FROM UNDERSIDE AND EDGES OF EXISTING CONCRETE SLAB. REFER TO THE SPECIAL PROVISIONS FOR CONCRETE REMOVAL REQUIREMENTS.

**ESTIMATED QUANTITIES**

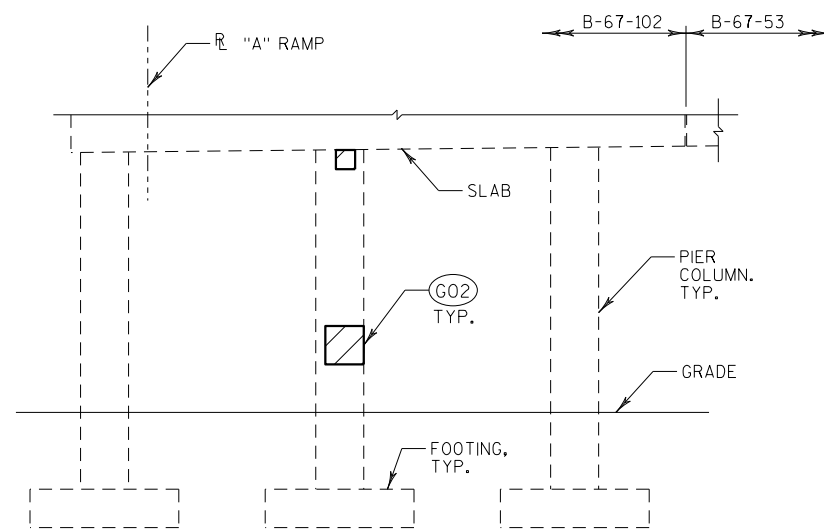
BID ITEM NUMBER	BID ITEMS	UNIT	QUANTITY
SPV.0165.4000	REMOVING LOOSE CONCRETE OVERHEAD	SF	50

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

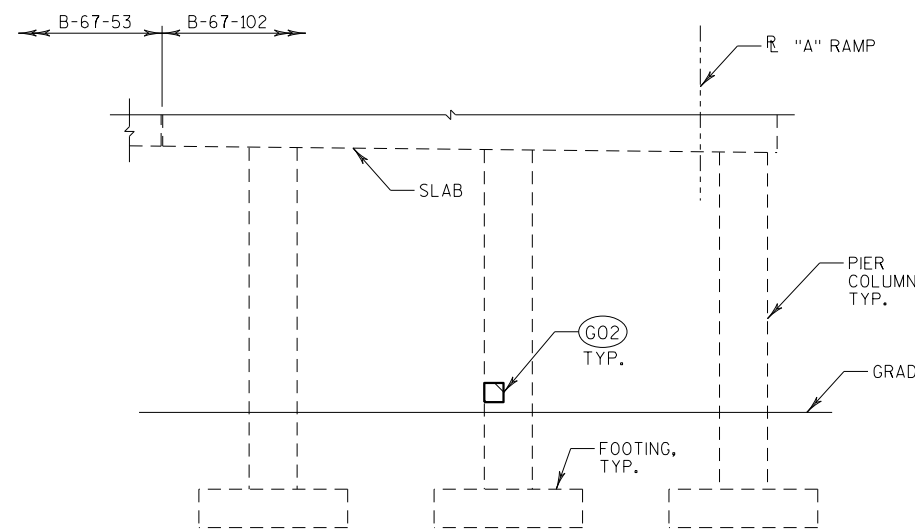
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-102</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
<b>SUPERSTRUCTURE</b>			SHEET 3 OF 5

8

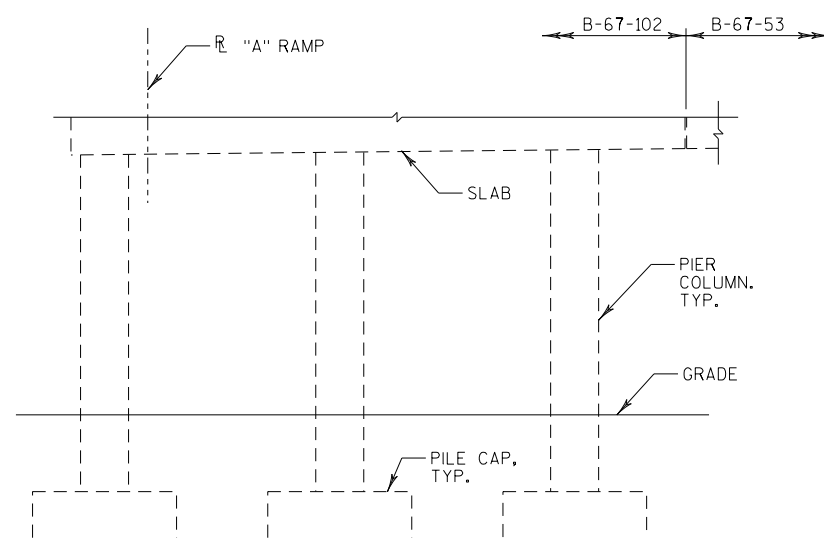
8



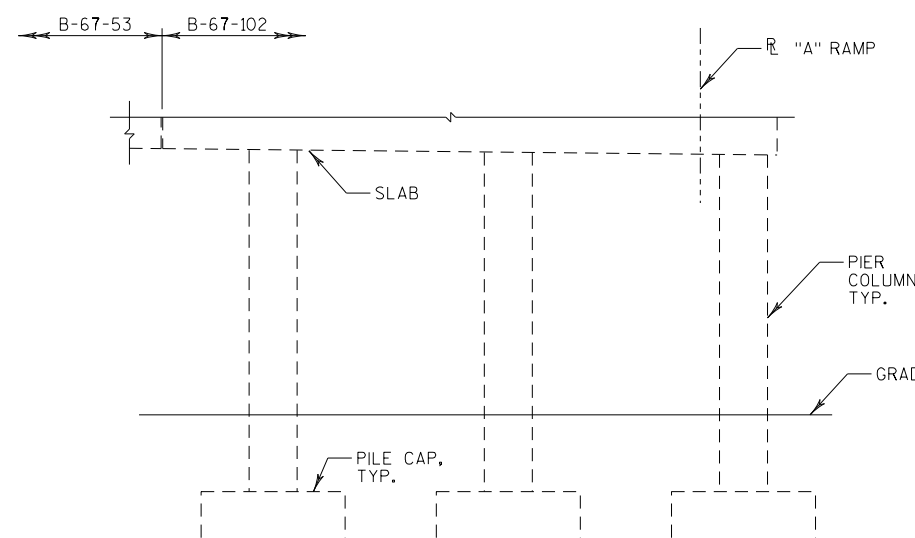
**PIER 1 - CONCRETE REPAIRS**  
(LOOKING WEST)



**PIER 1 - CONCRETE REPAIRS**  
(LOOKING EAST)



**PIER 2 - CONCRETE REPAIRS**  
(LOOKING WEST)



**PIER 2 - CONCRETE REPAIRS**  
(LOOKING EAST)

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 1	PIER 2	QUANTITY
509.1500	CONCRETE SURFACE REPAIR	SF	10		10

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

**NOTES**

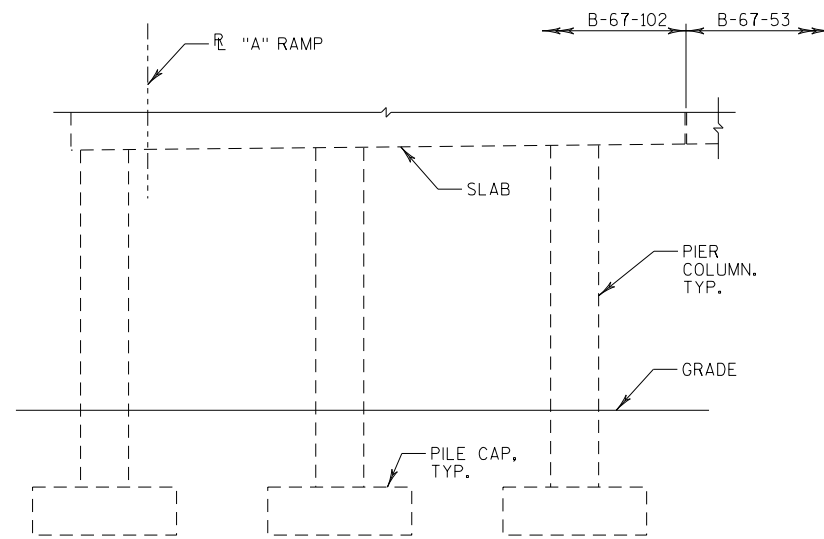
"CONCRETE SURFACE REPAIR" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

(G02) "CONCRETE SURFACE REPAIR" ON PIER COLUMNS AND PIER CAP.

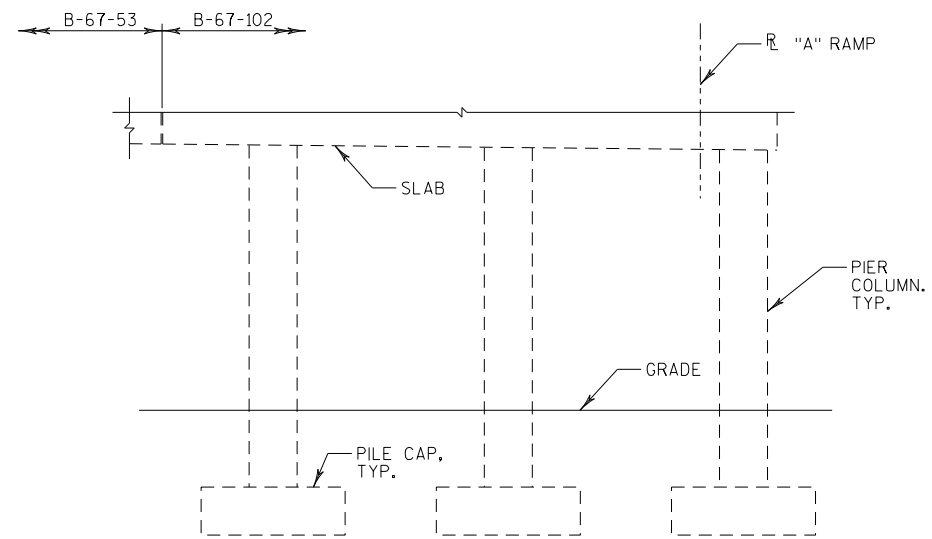
8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-102</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
PIERS (1 OF 2)			SHEET 4 OF 5



**PIER 3 - CONCRETE REPAIRS**  
(LOOKING WEST)



**PIER 3 - CONCRETE REPAIRS**  
(LOOKING EAST)

8

8

**ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	PIER 3	QUANTITY
509.1500	CONCRETE SURFACE REPAIR	SF	-	-

ESTIMATED QUANTITIES SHOWN IN ABOVE TABLE ARE FOR INFORMATION ONLY. TOTAL QUANTITIES ARE SHOWN ON "SECTION, NOTES AND QUANTITIES" SHEET.

**NOTES**

"CONCRETE SURFACE REPAIR" AREAS AND LOCATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED AND DETERMINED BY THE ENGINEER IN THE FIELD.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-67-102</b>			
DRAWN BY		PFP	PLANS CK'D. SJG
PIERS (2 OF 2)			SHEET 5 OF 5



**SCOPE OF WORK**

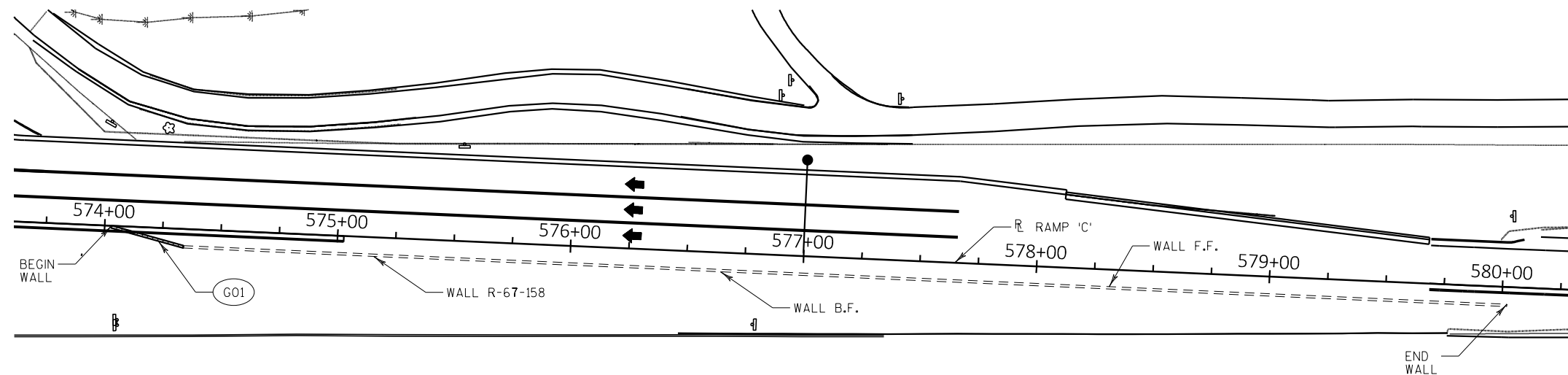
PARTIAL REMOVAL OF EXISTING RETAINING WALL R-67-158. REMOVE WALL STEM, FOOTING, AND TIMBER PILES TO LIMITS SHOWN AND NOTED.

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.  
 DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.  
 ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1-INCH DEEP SAW CUT.

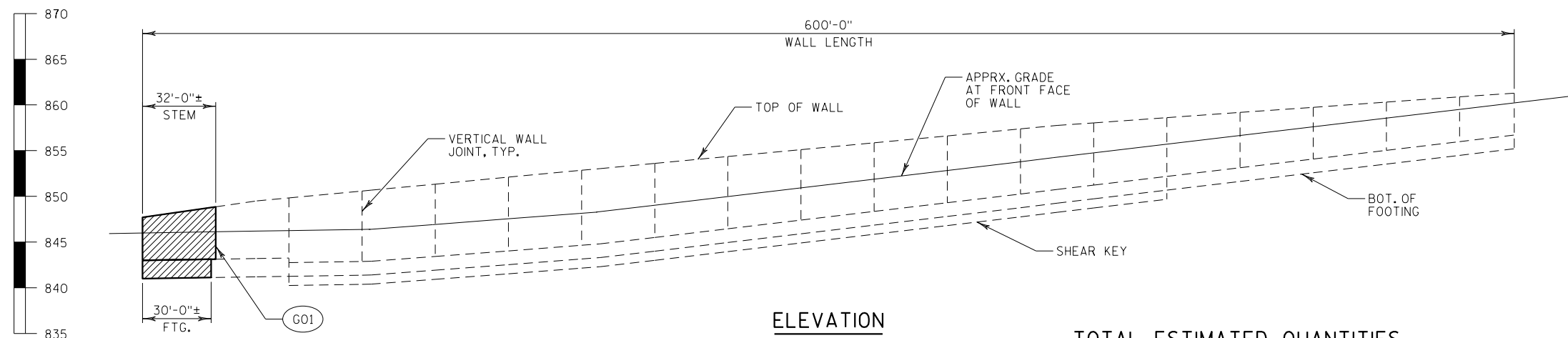
**LIST OF DRAWINGS**

- 1. GENERAL PLAN



**PLAN**

(CAST-IN-PLACE CONCRETE RETAINING WALL - PARTIAL REMOVAL)



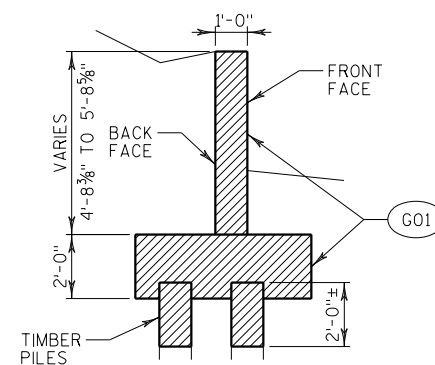
**ELEVATION**

(LOOKING NORTH AT BACK FACE OF WALL)

**TOTAL ESTIMATED QUANTITIES**

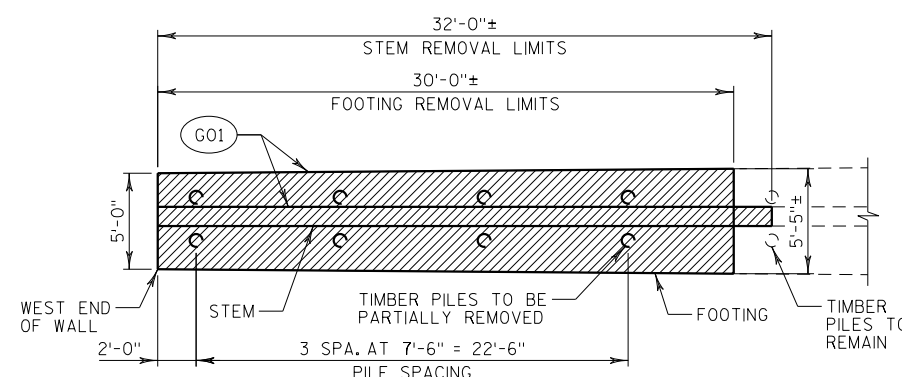
BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
203.0220	REMOVING STRUCTURE R-67-158	EACH	1

ALL BID ITEMS ARE CATEGORY 3000



**WALL SECTION**

(LOOKING WEST THRU REMOVAL SECTION)



**PARTIAL FOOTING PLAN**

**NOTES**

- (G01) REMOVE EXISTING CONCRETE RETAINING WALL TO LIMITS SHOWN. EASTERN LIMITS OF STEM REMOVAL TO COINCIDE WITH A VERTICAL WALL JOINT. WALL STEM AND FOOTING SHOWN TO BE REMOVED ARE TO BE REMOVED IN THEIR ENTIRETY. REMOVE TOP 2 FEET OF EXISTING TIMBER PILES.



STRUCTURE DESIGN CONTACTS:  
 AARON BONK (WISDOT) (608) 261-0261  
 SCOTT GINAL (RASMITH) (262) 317-3344

NO.	DATE	REVISION	BY
16745 W. Bluemound Road Brookfield, WI 53005-5938 (262) 781-1000 rasmith.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED  SDR <b>02/15/23</b> CHIEF STRUCTURES DESIGN ENGINEER DATE			
<b>STRUCTURE R-67-158</b>			
IH 94 WB EXIT RAMP (RAMP 'C') TO CTH O (MOORLAND ROAD)			
COUNTY	WAUKESHA	TOWN/CITY/VILLAGE	BROOKFIELD
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY	PFP	DESIGN CK'D.	SJG
DRAWN BY	PFP	PLANS CK'D.	SJG
<b>GENERAL PLAN</b>			SHEET 1 OF 1

8

8



**DESIGN DATA**

CONTRACTOR DESIGNED OVERHEAD SIGN STRUCTURES SHALL BE DESIGNED ACCORDING TO THE AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", 1ST EDITION AND INTERIM SPECIFICATIONS, AND THE WISDOT BRIDGE MANUAL.

STANDARD FOUNDATIONS DESIGNED ACCORDING TO THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION.

DEAD LOAD: WT. OF SIGN AND SUPPORTING STRUCTURE.  
ICE LOAD: 3 PSF TO ONE FACE OF SIGN & SURFACE OF MEMBERS.  
WIND PRESSURE: 115 MPH (3-SEC. GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS. (700 YEAR MEAN RECURRENCE INTERVAL)

WIND COMPONENTS	NORMAL	TRANSVERSE
LOAD CASE 1:	1.00	0.00
LOAD CASE 2:	0.00	1.00
LOAD CASE 3:	0.75	0.75

LOAD COMBINATIONS

STRENGTH I:	1.25 DC + 1.6 LL
EXTREME I (MAX DC):	1.1 DC + 1.0 W + 1.0 ICE
EXTREME I (MIN DC):	0.9 DC + 1.0 W
SERVICE I:	1.0 DC + 1.0 W
FATIGUE I:	1.0 NWG (NATURAL WIND GUST VIBRATION)
	1.0 TRG (TRUCK INDUCED GUST VIBRATION)
	1.0 GVW (GALLOPING - CANTILEVER ONLY)

**MATERIAL PROPERTIES**

CONCRETE MASONRY..... f'c = 3,500 psi

HIGH STRENGTH STEEL REINFORCEMENT, GRADE 60..... fy = 60,000 psi

HIGH STRENGTH BOLTS - A325..... fy = 92,000 psi

ANCHOR RODS - ASTM F1554 GRADE 55..... fy = 55,000 psi

HEAVY HEX NUTS FOR ANCHOR RODS - ASTM A563A

WASHERS FOR ANCHOR RODS - ASTM F436

**FOUNDATION DATA**

SIGN STRUCTURE FOUNDATIONS ARE SUPPORTED ON DRILLED SHAFTS THAT HAVE BEEN DESIGNED FOR SITES WHERE SOILS EXHIBIT A PHI-ANGLE GREATER THAN OR EQUAL TO 24° (GRANULAR SOILS), OR A COHESION VALUE GREATER THAN OR EQUAL TO 750 PSF (COHESIVE SOILS) AND A UNIT WEIGHT OF 125 PCF. THE GROUND WATER TABLE FOR DESIGN IS ASSUMED TO BE AT A DEPTH OF 10'-0" BELOW THE GROUND SURFACE, ACTUAL WATER LEVEL AT SITE MAY VARY. THE REGION GEOTECHNICAL ENGINEER SHALL VISUALLY INSPECT THE SUBSURFACE SOILS DURING DRILLING OF THE SHAFT HOLE TO CONFIRM THESE PROPERTIES PRIOR TO PLACEMENT OF THE DRILLED SHAFT CONCRETE.

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NO.	BID ITEM	UNIT	S-67-983
531.2048	DRILLING SHAFT 48-INCH	LF	28
531.5340.0001	FOUNDATION SINGLE-SHAFT TYPE TC-IV (S-67-983)	EA	1
532.5340.0001	TRUSS CANTILEVER 2-CHORD TYPE IV (S-67-983)	EA	1

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

ALTERNATE DESIGNS ARE NOT ALLOWED.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WAUKESHA COUNTY ZONE, NAD 83 (2011). ALL STATIONS AND ELEVATIONS ARE IN US SURVEY FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88 (2012).

ALL REINFORCING BARS ARE IN ENGLISH UNITS. THE FIRST DIGIT OF A THREE-DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR-DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

SIGN BRIDGE ID PLAQUES SHALL BE CONSIDERED INCIDENTAL TO THE TRUSS OR MONOTUBE BID ITEMS FOR EACH APPLICABLE SIGN STRUCTURE IN THE PLAN SET. LOCATE THE ID PLAQUE ON THE FREEWAY SIDE OF THE SUPPORT COLUMN SO THAT IT CAN BE SEEN FROM THE ROADWAY. FABRICATE AND INSTALL THE ID PLAQUE IN ACCORDANCE WITH S.D.D. 12 A 4-3.

UNLESS DETAILED OTHERWISE IN THE PLANS, ALL H.S. BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIA A325 GALVANIZED BOLTS. FIELD CONNECTIONS SHALL BE INSTALLED WITH DTI WASHERS.

WELDED CONNECTIONS CAN BE USED IN LIEU OF BOLTED CONNECTIONS, IF A TRUSS UNIT CAN BE GALVANIZED IN ONE PIECE.

WELD TEST AS PER AWS D1.1

SEE SIGN PLATE NO. A4-6, A4-7A & A4-7B OF THE SIGN PLATE MANUAL FOR INSTRUCTIONS ON CENTERING SIGNS VERTICALLY ON THE TRUSS.

SIGNS OR BLANKS SHALL BE INSTALLED ON TRUSS AT TIME OF ERECTION. BLANKS SHALL BE 1/4 THE LENGTH OF THE CANTILEVER SPAN, 2'-0" DEEPER THAN THE C/L TO C/L OF CHORDS, AND SHALL BE CENTERED ON THE BRIDGE. SIGNS SHALL BE AS DESIGNATED ON THE PLANS.

THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION OF THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PER THE REQUIREMENTS IN THE STANDARD SPECIFICATIONS PRIOR TO FABRICATION OF THE STRUCTURE. CONTRACTOR SHALL SHOW SIGNS ON THE SHOP DRAWINGS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DRILLING OR EXCAVATING AND MAINTAINING A STABLE AND OPEN HOLE FOR SUBSEQUENT INSTALLATION OF CONCRETE MASONRY FOR THE DRILLED SHAFTS. PARTIAL OR FULL DEPTH TEMPORARY CASING MAY BE REQUIRED TO MAINTAIN THE STABILITY OF THE EXCAVATED HOLE FOR THE SIGN SUPPORT PRIOR TO FILLING THE HOLE WITH CONCRETE. PERMANENT CASING MADE FROM STEEL OR CORRUGATED METAL PIPE MAY BE USED IN LIEU OF TEMPORARY CASING. TEMPORARY/PERMANENT CASING, IF USED, SHALL BE INCIDENTAL TO THE BID ITEM "DRILLING SHAFT (DIA.)".

**STRUCTURE DATA**

SIGN STR	ACTUAL SIGN AREA	ACTUAL SIGN DEPTH	STANDARD TYPE
S-67-983	102 SF	6'-0"	TC-IV

**LIST OF DRAWINGS**

- GENERAL NOTES & DESIGN DATA
- LAYOUT S-67-983

**LIST OF OSS STANDARD DESIGN DRAWINGS**

- I. MONOTUBE & 2-CHORD TRUSS DETAILS 1
- II. MONOTUBE & 2-CHORD TRUSS DETAILS 2
- III. MONOTUBE & 2-CHORD TRUSS ELECTRICAL DETAILS
- IV. MONOTUBE & 2-CHORD TRUSS FOUNDATIONS

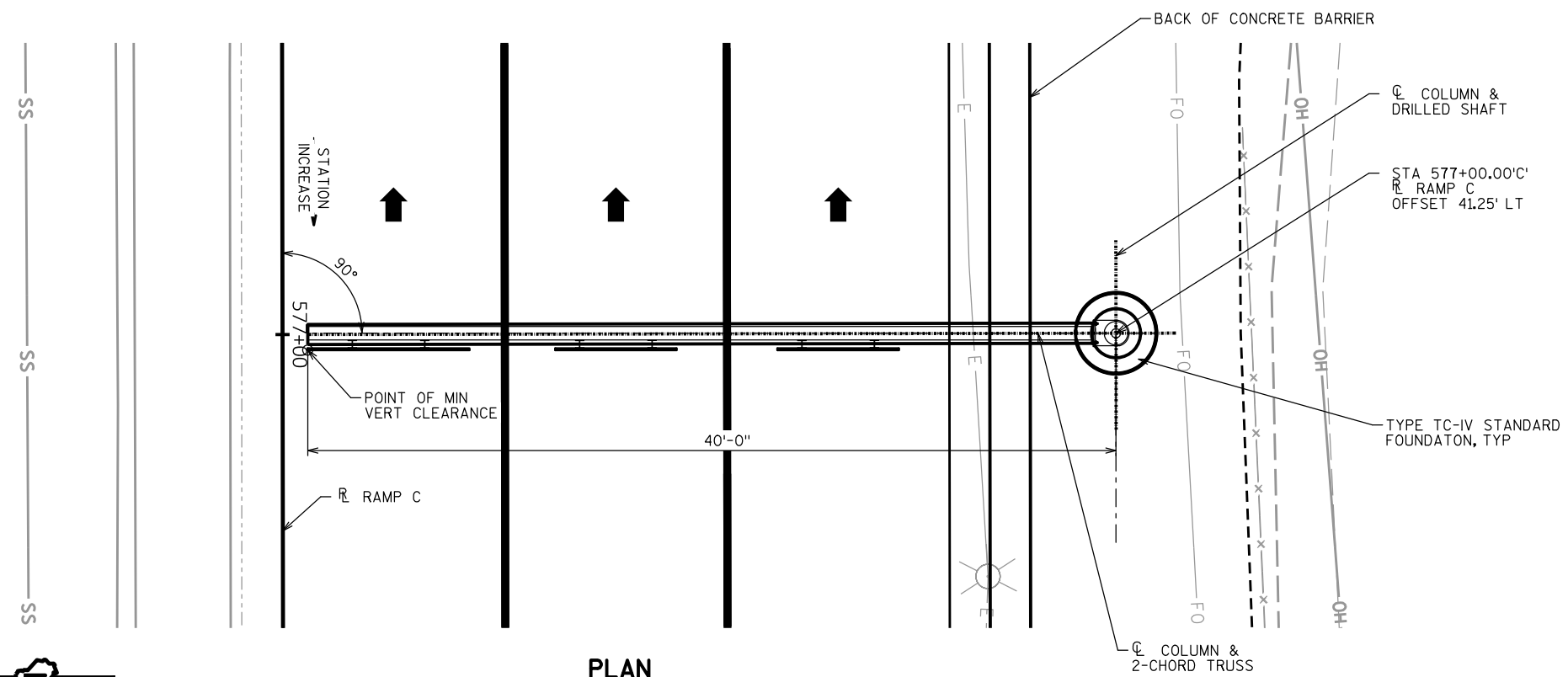
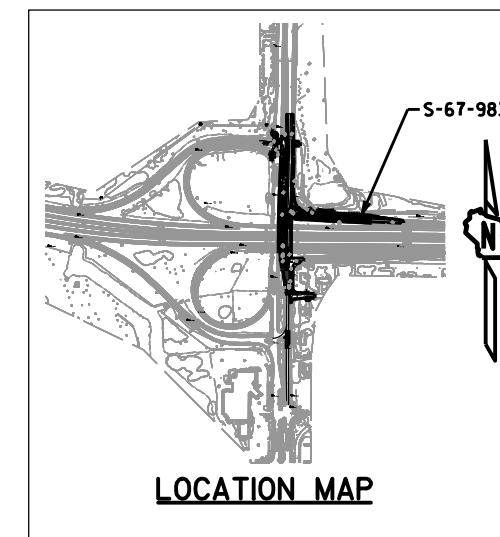
**STRUCTURE DESIGN CONTACTS:**

AARON BONK	(608) 261-0261
JIM BLACKWOOD	(262) 317-3302

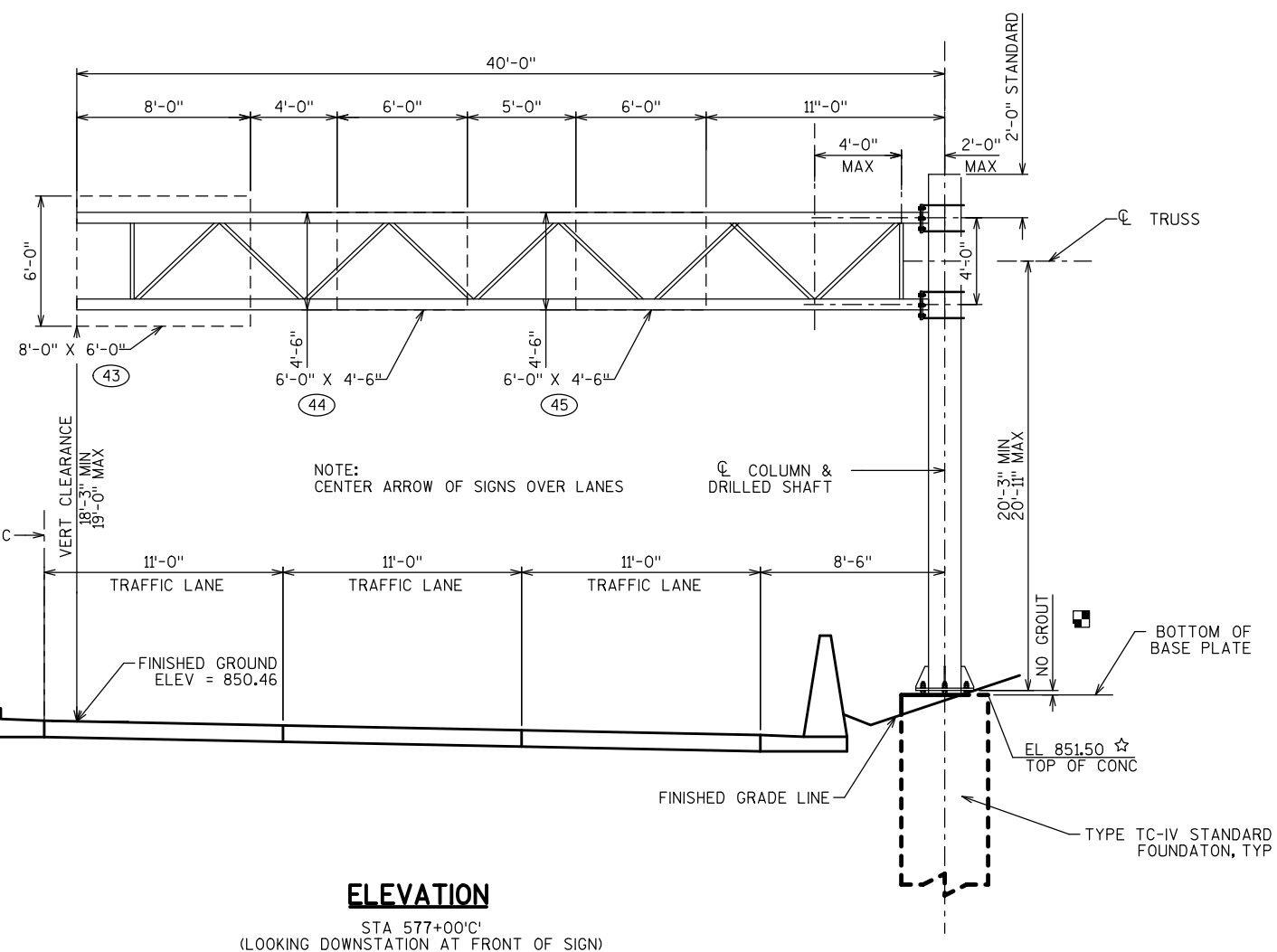
THESE ARE STANDARD DESIGN PLANS, DEVELOPED AND MAINTAINED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION. THE DESIGNER CERTIFIES THAT THE DESIGN AND PLAN DETAILS CHOSEN ARE CONSISTENT WITH THE GUIDANCE PROVIDED IN THE CURRENT WISCONSIN BRIDGE MANUAL CHAPTER 39.



NO.	DATE	REVISION	BY
ACCEPTED		SDR: 02/15/23	DATE
<b>MONOTUBE AND 2-CHORD TRUSS PLANS</b>			
S-67-0983			
COUNTY WAUKESHA COUNTY		TOWN/CITY/VILLAGE BROOKFIELD	
DESIGN SPEC. AASHTO LRFDLTS-1 W/INTERIMS			
DESIGNED BY BOS	DESIGNED CK'D. BOS	DRAWN BY JWB	PLANS CK'D.
<b>GENERAL NOTES &amp; DESIGN DATA</b>			SHEET 1 OF 6



PLAN



ELEVATION

STA 577+00' CL  
(LOOKING DOWNSTATION AT FRONT OF SIGN)

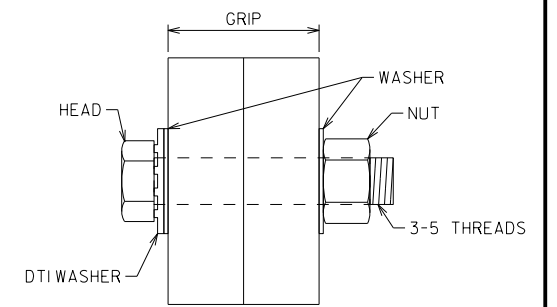
**NOTE**

POINT OF MIN VERTICAL CLEARANCE  
STA 577+00.00, 1.25' (LT)  
EL 850.46

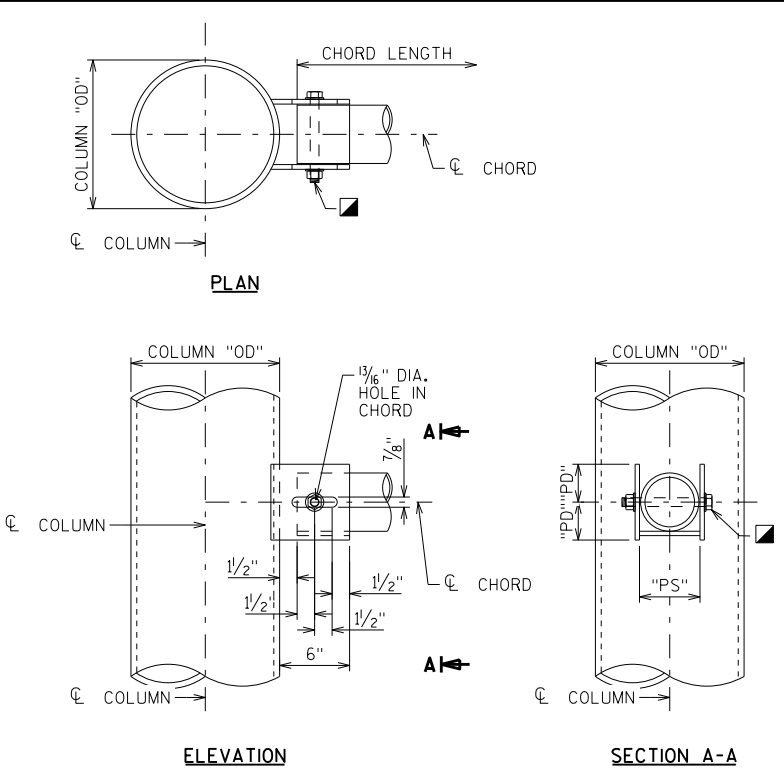
**LEGEND**

- ☆ ELEVATIONS GIVEN ALONG CL 2-CHORD TRUSS
- (XX) SIGN NUMBERS (PERMANENT SIGNING PLAN)
- STANDOFF DIMENSION IS ASSUMED TO BE 2 1/2", BUT IS A MAXIMUM OF 2 X ANCHOR ROD DIAMETER. SEE FOUNDATION DETAILS SHEET AND SHOP DRAWINGS FOR MORE INFORMATION.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE S-67-983</b>			
DRAWN BY		PLANS CK'D.	
JWB		JWB	
<b>GENERAL LAYOUT S-67-983</b>			SHEET 2 OF 6

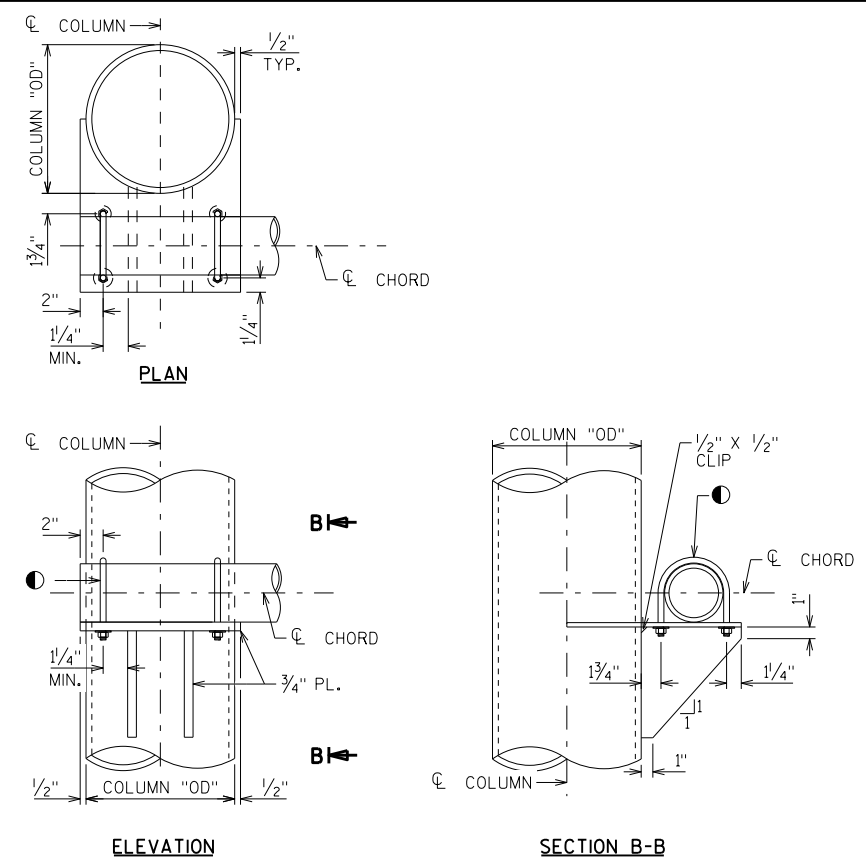


**RECOMMENDED BOLT  
DETAIL WITH DTI**  
NUT IS THE TURNED ELEMENT



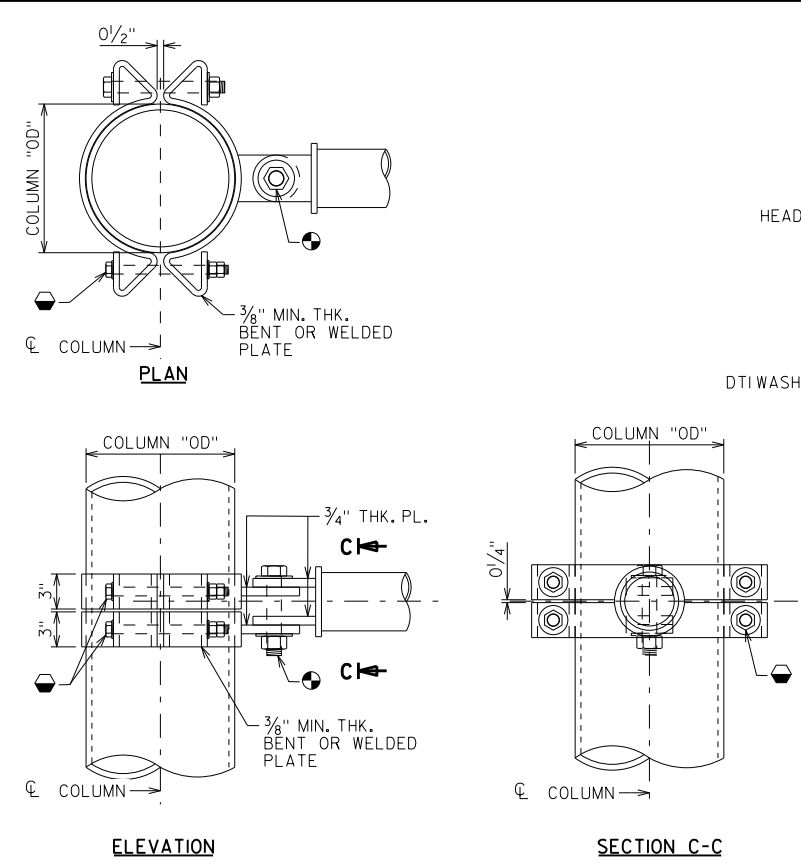
**FULL SPAN SADDLE CONNECTION**

PREFERRED  
3/4" GALVANIZED A325 OR A449 HEAVY HEX BOLT, NUT, WASHER  
"PD" = (CHORD "OD")/2 + 3/4"  
"PS" = CHORD "OD" + 3/16"



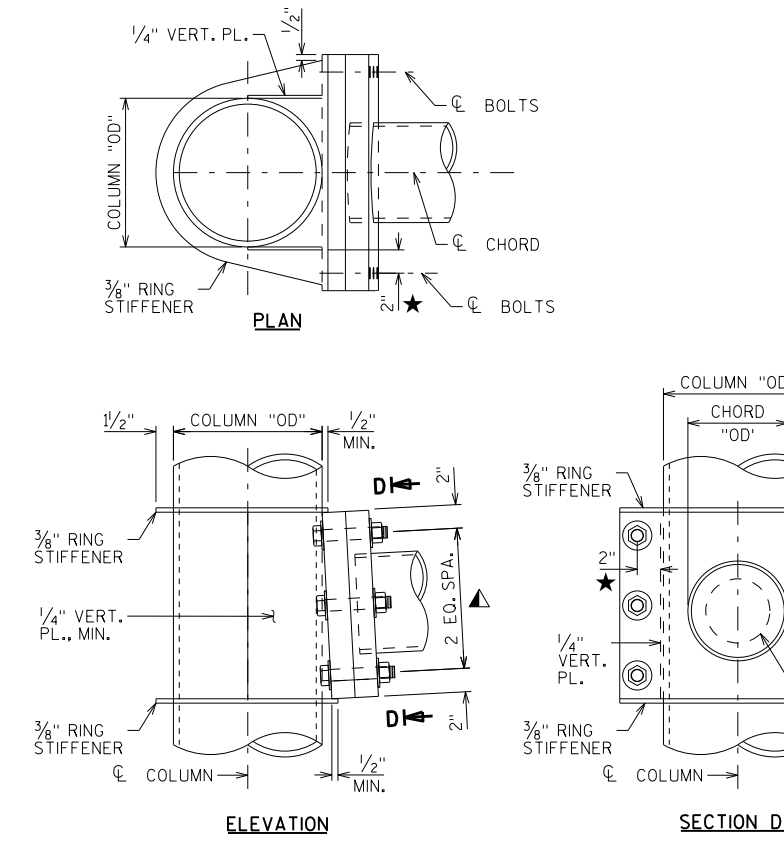
**FULL SPAN STIFFENED BEARING CONNECTION**

ALTERNATE 1  
(2) - 1/2" MIN. GALVANIZED U-BOLT, NUT, WASHER AND LOCK WASHER



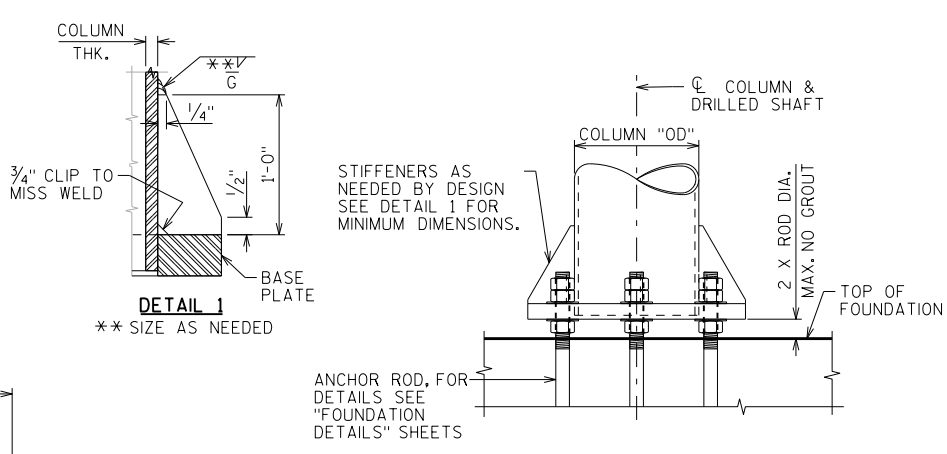
**FULL SPAN CLAMP CONNECTION**

ALTERNATE 2 - TAPERED COLUMNS ONLY  
1/4" GALVANIZED A325 HEAVY HEX BOLT, NUT AND WASHER  
1" GALVANIZED A449 HEAVY HEX BOLT, NUT AND WASHER



**CANTILEVER POST TO CHORD CONNECTION**

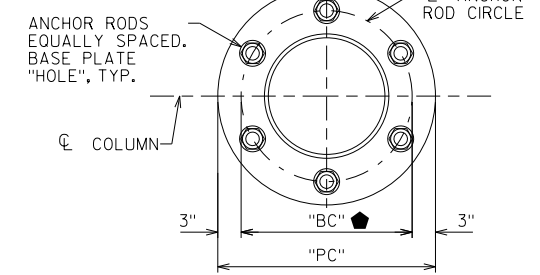
▲ MIN. CONNECTION = (6) - 1" GALVANIZED F3125 GRADE A325 BOLTS, NUT, WASHER AND DTI  
★ MIN. DIMENSION MEASURED FROM EXT. FACE OF VERT. PLATE



**BASE PLATE & COLUMN DETAIL**  
LOOKING AT FRONT FACE OF STRUCTURE

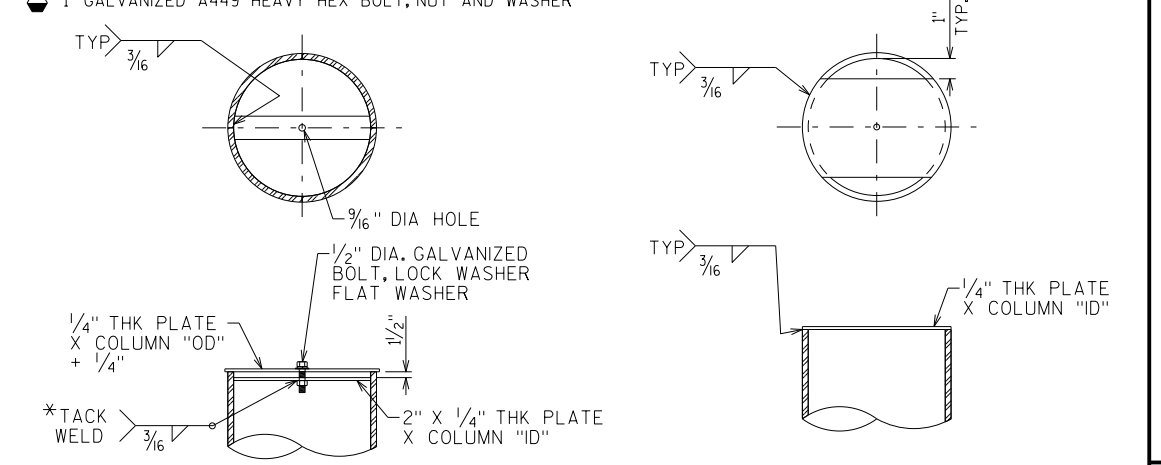
STIFFENERS AS NEEDED BY DESIGN SEE DETAIL 1 FOR MINIMUM DIMENSIONS.

ANCHOR ROD, FOR DETAILS SEE "FOUNDATION DETAILS" SHEETS



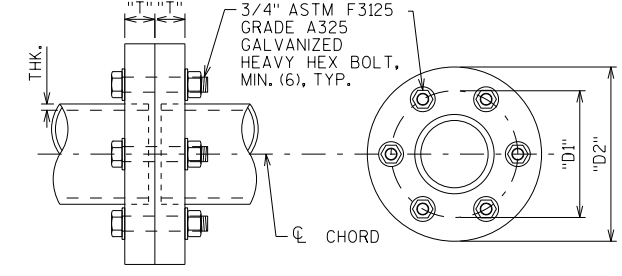
**BASE PLATE**  
PLAN

▲ "BC" = POLE OD + 6"



**COLUMN/CHORD CAP DETAIL**

\* PLACE TACK EVERY OTHER FLAT TO SECURE NUT OR USE 1/2" THICK PLATE AND TAP HOLE FOR BOLT THREADS



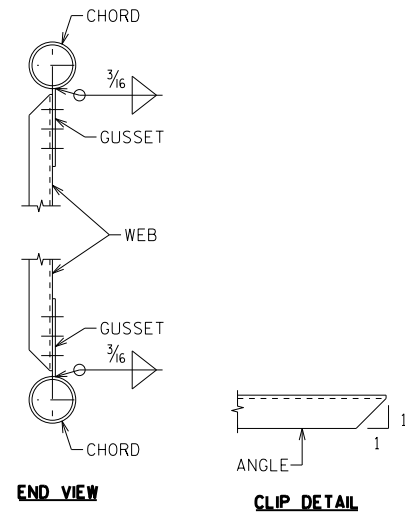
**CHORD SPLICE DETAIL**

"D1" = CHORD "OD" + 3"  
"D2" = CHORD "OD" + 6"  
"T" = BY DESIGN

**CHORD CAP DETAIL**

**NOTES:**  
MINIMUM VALUES SHOWN  
ALL CONNECTIONS ARE TO BE DESIGNED FOR ACTUAL STRUCTURE LOADS.

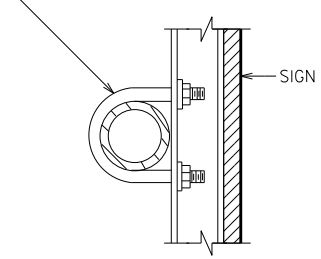
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>UPDATED:</b>		<b>MARCH 2021</b>	
DRAWN BY		BOS	PLANS CK'D. BOS
<b>MONOTUBE &amp; 2-CHORD TRUSS DETAILS 1</b>			SHEET 1 OF 4



**TRUSS CONNECTION DETAILS**

BOLTED CONNECTIONS SHOWN, NUMBER OF BOLTS BY DESIGN  
WELDED CONNECTIONS SIMILAR

1/2" DIA. STAINLESS STEEL U-BOLT WITH 2 LOCK WASHERS AND 2 HEX NUTS PER BOLT. 2 BOLTS REQUIRED PER I-BEAM. LOCATE TOP & BOTTOM U-BOLT ON OPPOSITE SIDE OF FLANGE.



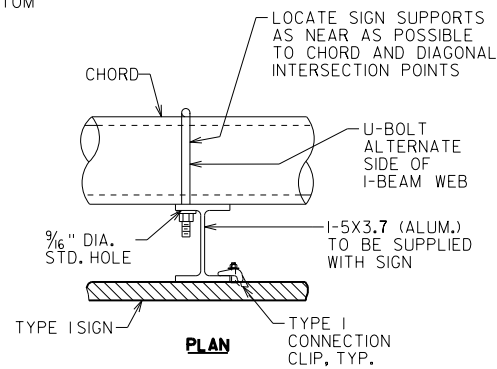
**DETAIL 1**

**2-CHORD TRUSS SIGN CONNECTION**

SEE SIGN PLATE MANUAL A4-7A FOR DETAILS

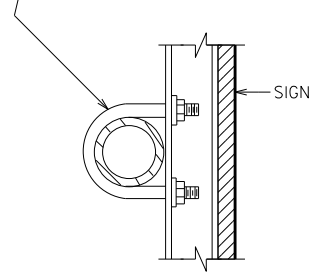
ALUMINUM I-5X3.7 I-BEAMS ARE TO BE SUPPLIED WITH THE SIGN PANEL

HARDWARE TO BE SUPPLIED BY THE CONTRACTOR



**PLAN**

1/2" DIA. STAINLESS STEEL U-BOLT WITH 2 LOCK WASHERS AND 2 HEX NUTS PER BOLT. 2 BOLTS REQUIRED PER I-BEAM. LOCATE TOP & BOTTOM U-BOLT ON BOTH SIDES OF FLANGE.



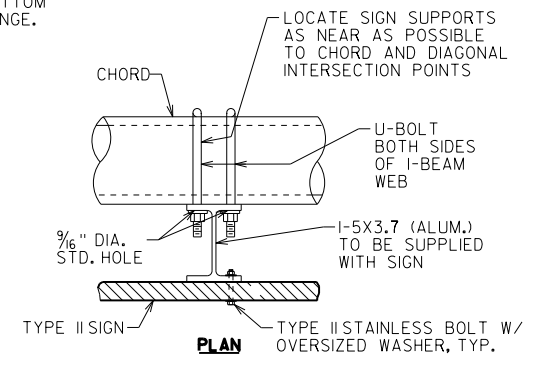
**DETAIL 1**

**MONOTUBE SIGN CONNECTION**

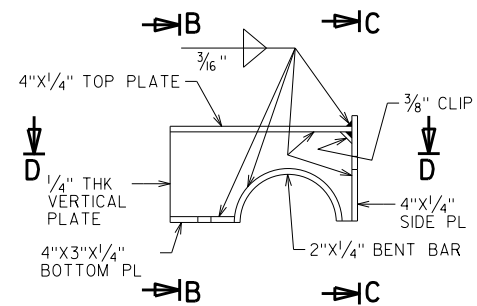
SEE SIGN PLATE MANUAL A4-7B FOR DETAILS

ALUMINUM I-5X3.7 I-BEAMS ARE TO BE SUPPLIED WITH THE SIGN PANEL

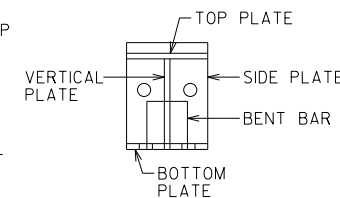
HARDWARE TO BE SUPPLIED BY THE CONTRACTOR



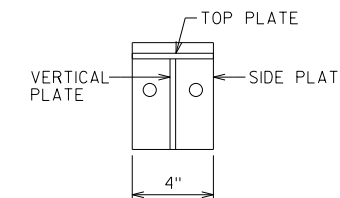
**PLAN**



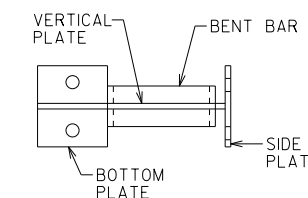
**ELEVATION**



**SECTION B-B**



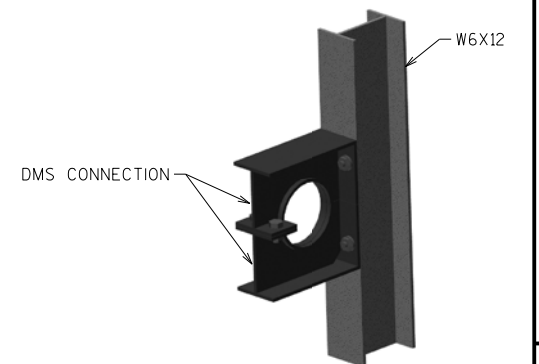
**SECTION C-C**



**SECTION D-D**

**DMS WELDED PLATE CONNECTION DETAILS**

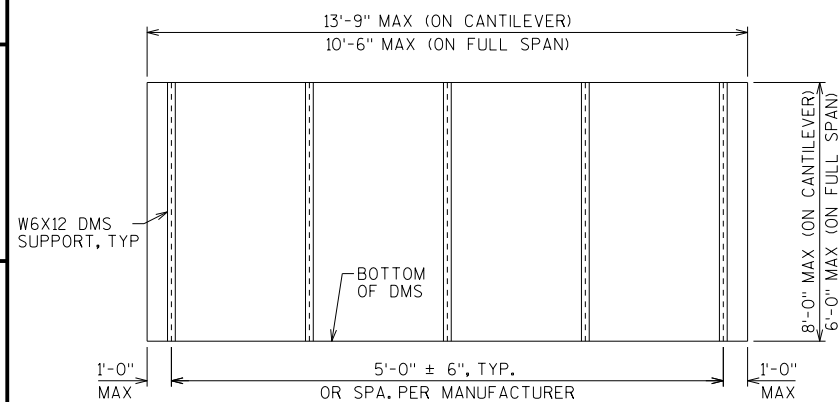
TOP PLATE CLAMP SHOWN  
BOTTOM PLATE CLAMP SIMILAR



**3-D VIEW DMS CONNECTION**

CHORD NOT SHOWN FOR CLARITY

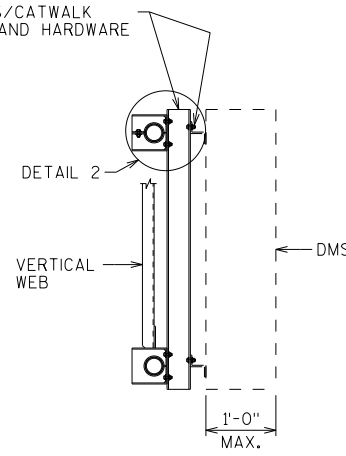
8



**DMS MOUNTING POST SPACING DETAIL**

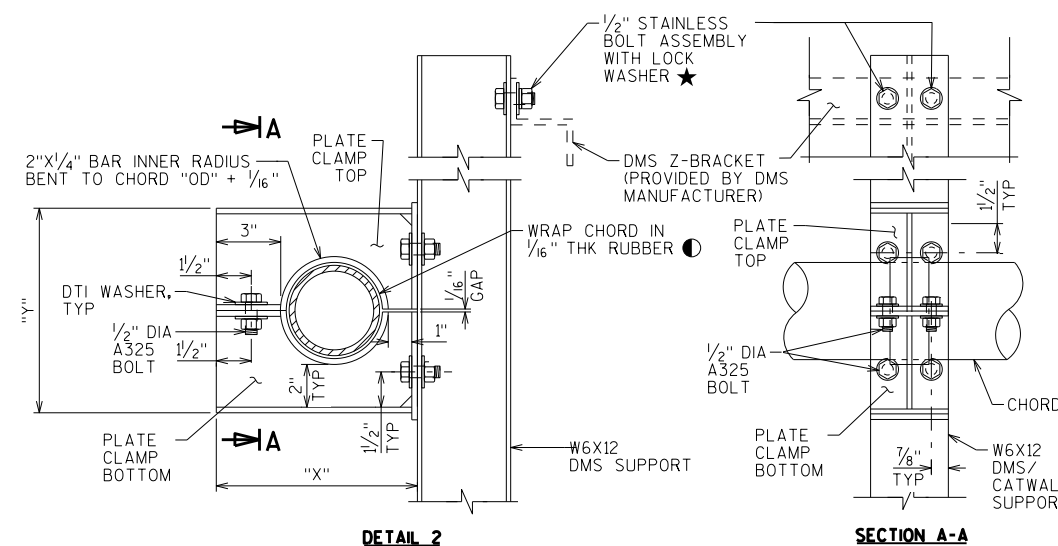
POST SPACING MAY BE ADJUSTED AS REQUIRED IF CONFLICT WITH TRUSS IS ENCOUNTERED.

★ W6X12 DMS/CATWALK SUPPORT AND HARDWARE



**SECTION THRU TRUSS FOR DMS/CATWALK CONNECTION**

★ W6X12 SUPPORTS AND HARDWARE ARE TO BE SUPPLIED BY THE CONTRACTOR. 1/2" STAINLESS BOLT, NUT, WASHER AND LOCK WASHER REQUIRED, 4 PER W6X12.



**DETAIL 2**

**SECTION A-A**

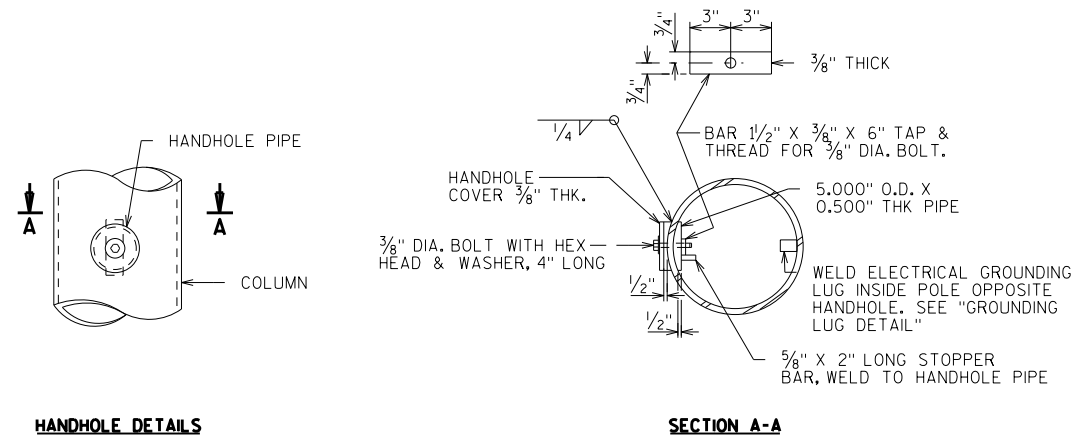
**TYPICAL DMS CONNECTION**

CHORD OUTER DIA	"X"	"Y"
"OD"	"OD"+4 1/16"	"OD"+5 1/16"

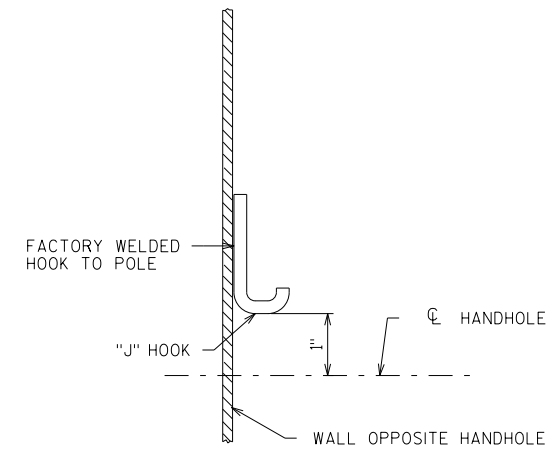
● NEOPRENE, GRADE 45±5, OTHERWISE MEETING THE REQUIREMENTS OF STD SPEC 506.2.6.1

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
UPDATED:		APRIL 2021	
DRAWN BY		BOS	PLANS CK'D. BOS
MONOTUBE & 2-CHORD TRUSS DETAILS 2			SHEET II OF IV

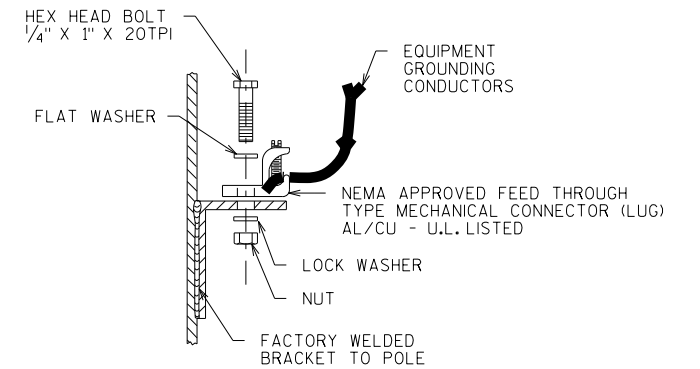
8



HANDHOLE DETAILS



TYPICAL "J" HOOK LOCATION



GROUNDING LUG DETAIL

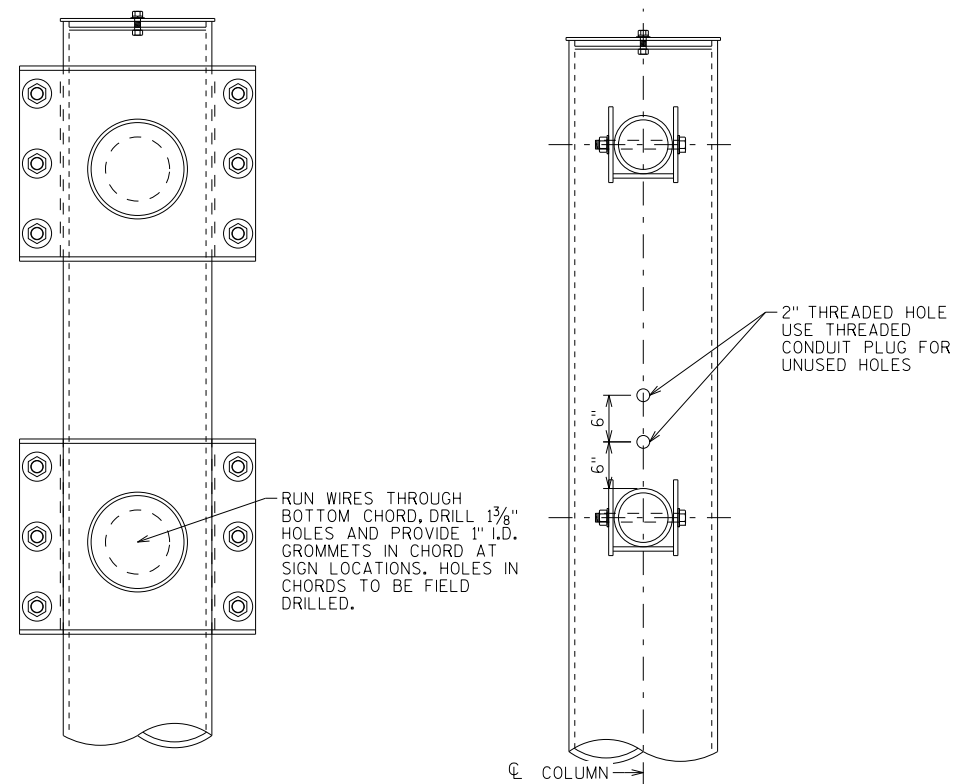
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

**HANDHOLE NOTES**

HANDHOLES SHALL BE LOCATED IN ONE COLUMN OF THE SIGN STRUCTURE IF ELECTRICALLY OPERATED DEVICES ARE INSTALLED ON/IN THE STRUCTURE. COLUMNS WITH HANDHOLES SHALL BE NEAR THE ELECTRICAL SERVICE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE ELECTRICAL SERVICE ENTRANCE WITH THE REGION TRAFFIC SECTION PRIOR TO FABRICATION OF THE SIGN COLUMNS AND MEMBERS. CONDUIT (AS REQ'D.) SHALL BE LOCATED, PLACED AND SIZED AS SHOWN ON THE ELECTRICAL PLAN DETAIL SHEETS.

UNLESS NOTED OTHERWISE, ALL HANDHOLE ELEMENTS TO BE GALVANIZED PER THE WISDOT STANDARD SPECIFICATIONS.

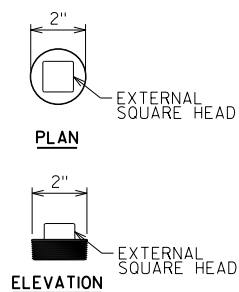
THE "J" HOOK SHALL BE FACTORY WELDED TO THE INSIDE OF ALL COLUMNS CONTAINING ELECTRICAL WIRING. THE "J" HOOK SHALL BE ATTACHED ABOVE THE CENTERLINE OF THE UPPER HANDHOLE AND MOUNTED DIRECTLY OPPOSITE THE HANDHOLE AS SHOWN IN THE DRAWING.



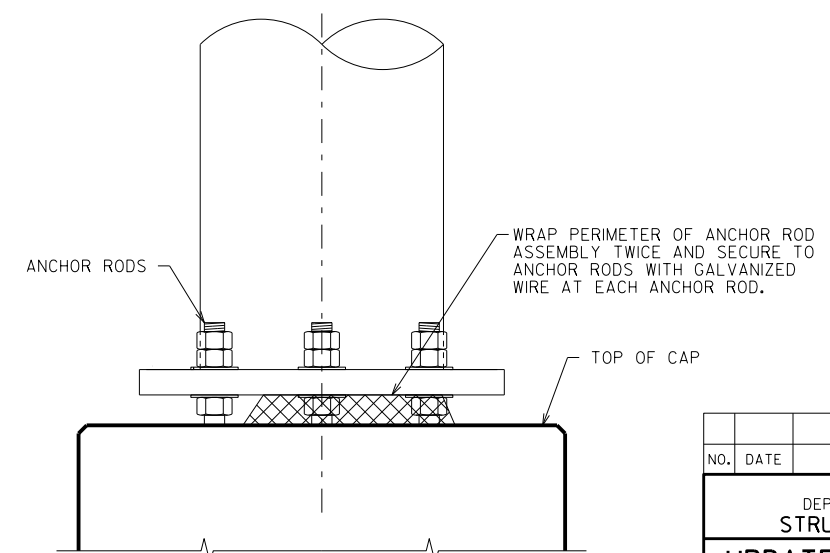
2-CHORD CANTILEVER

2-CHORD FULL SPAN  
SADDLE CONNECTIONS SHOWN,  
BEARING AND CLAMP  
CONNECTIONS SIMILAR

**CONDUIT HOLE LOCATIONS**



**CONDUIT PLUG DETAILS**



**RODENT SCREEN**

(ONLY REQ'D. WHEN ELECTRICAL DEVICES ARE INSTALLED)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
UPDATED:		MARCH 2021	
DRAWN BY		BOS	PLANS CK'D. BOS
MONOTUBE & 2-CHORD TRUSS ELECTRICAL DETAILS			SHEET III OF IV



**FOUNDATION & REINFORCING DATA**

STANDARD FOUNDATION TYPE	SHAFT VARIABLES					
	"D"	"L"	"R"	"S"	"T"	"BC" MAX
MF1	2'-0"	12'-0"	12	A801	6	12"
MFII	2'-6"	13'-0"	13	A801	10	17"
MCI/MCII/TFI	2'-6"	17'-0"	17	A801	10	17"
TCI	3'-0"	18'-0"	18	A801	14	22"
TFII	3'-0"	20'-0"	20	A801	14	22"
MCIII/TCII/TFIII	3'-6"	18'-0"	18	A901	14	28"
MCIV/TFIV	3'-6"	23'-0"	23	A901	14	28"
TCIII	4'-0"	23'-0"	23	A1001	14	34"
TCIV	4'-0"	28'-0"	28	A1001	14	34"

STATE PROJECT NUMBER  
**STANDARD**

NOTE:  
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

**BILL OF BARS - STANDARD FOUNDATIONS**

**STANDARD FOUNDATION MF1**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A801		6	11'-7"			DRILLED SHAFT - VERTICAL
A402		13	5'-10"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION MFII**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A801		10	12'-7"			DRILLED SHAFT - VERTICAL
A402		14	7'-5"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION MCI/MCII/TFI**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A801		10	16'-7"			DRILLED SHAFT - VERTICAL
A402		18	7'-5"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION TCI**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A801		14	17'-7"			DRILLED SHAFT - VERTICAL
A402		19	9'-0"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION TFII**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A801		14	19'-7"			DRILLED SHAFT - VERTICAL
A402		21	9'-0"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION MCIII/TCII/TFIII**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A901		14	17'-7"			DRILLED SHAFT - VERTICAL
A402		19	10'-6"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION MCIV/TFIV**

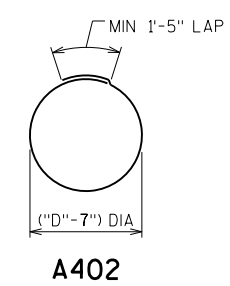
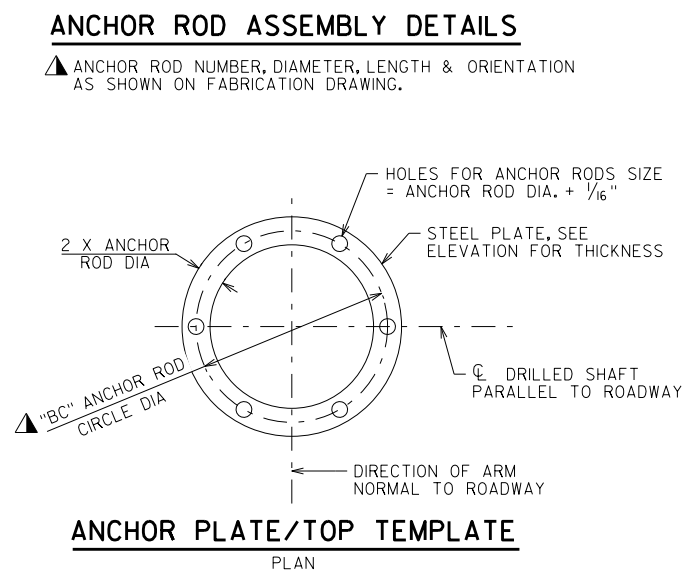
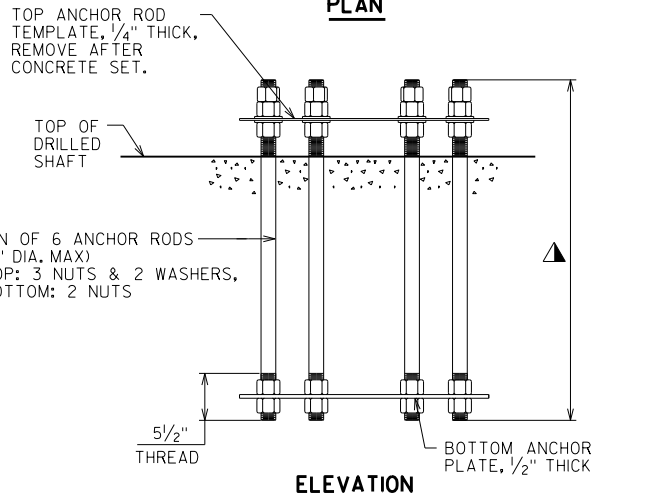
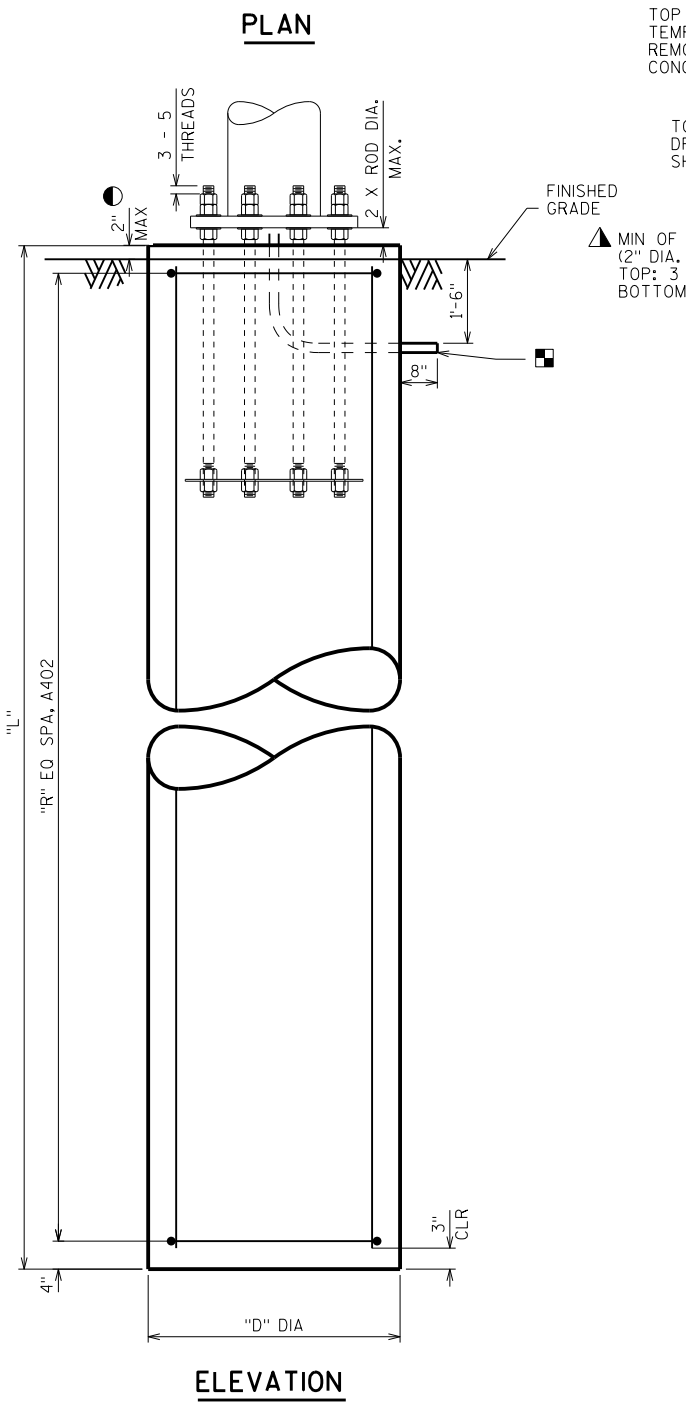
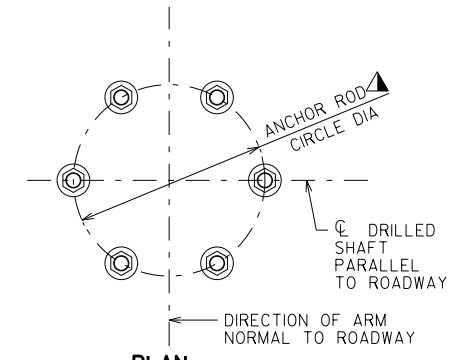
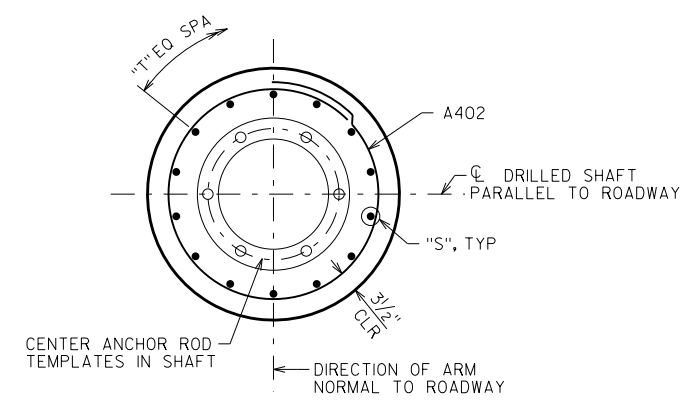
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A901		14	22'-7"			DRILLED SHAFT - VERTICAL
A402		24	10'-6"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION TCIII**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A1001		14	22'-7"			DRILLED SHAFT - VERTICAL
A402		24	12'-2"	X		DRILLED SHAFT - HORIZONTAL

**STANDARD FOUNDATION TCIV**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A1001		14	27'-7"			DRILLED SHAFT - VERTICAL
A402		29	12'-2"	X		DRILLED SHAFT - HORIZONTAL



**NOTES**

CENTER ANCHOR ROD ASSEMBLY ON DRILLED SHAFT AND MAKE SURE IT IS PLUMB. MAINTAIN ANCHOR ROD PROJECTION ABOVE FOOTING AS DETAILED. ANCHOR ROD ASSEMBLY SHALL BE RIGIDLY SECURED IN POSITION DURING AND AFTER CONCRETE PLACEMENT. DO NOT WELD THE ANCHOR RODS.

FOR OVERHEAD SIGN STRUCTURES THAT ARE INSTALLED ADJACENT TO SIDEWALKS, THE TOP OF THE SHAFT SHALL BE POURED FLUSH WITH THE FINISHED GRADE.

2" DIA NONMETALLIC CONDUITS, INSTALL ONLY WITH DMS. EXTEND CONDUITS AS SHOWN AND CAP OR SEAL EACH END WITH A SUITABLE REMOVABLE PLUG. PLACE CONDUITS UNDER COLUMN ADJACENT TO THE DMS. CONDUITS INCIDENTAL TO THE FOUNDATION BID ITEMS.

**ESTIMATED QUANTITIES - FOUNDATIONS**

STANDARD FOUNDATION TYPE	CONCRETE MASONRY (CY)	STEEL REINFORCEMENT HS (LBS)	FOUNDATION DRILLING (LF)				
			24" DIA.	30" DIA.	36" DIA.	42" DIA.	48" DIA.
MF1	2	240	12				
MFII	3	410		13			
MCI/MCII/TFI	4	540		17			
TCI	5	780			18		
TFII	6	860			20		
MCIII/TCII/TFIII	7	970				18	
MCIV/TFIV	9	1,250				23	
TCIII	11	1,560					23
TCIV	13	1,900					28

\*\* QUANTITIES ARE FOR INFORMATION ONLY AND ARE BASED ON STANDARD STRUCTURE DIMENSIONS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
UPDATED:		MARCH 2021	
DRAWN BY	BOS	PLANS CK'D.	BOS
<b>MONOTUBE &amp; 2-CHORD TRUSS FOUNDATIONS</b>			SHEET IV OF IV

SCALE = 1:67

DIVISION 1 - MOORLAND ROAD STAGE 1

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.15	MASS ORDINATE
25+74.40	0.00	12.17	0.15	0	0	0	0	0
26+00.00	25.60	89.61	0.33	48	0	48	0	48
26+24.48	24.48	95.32	0.00	84	0	132	0	132
26+50.00	25.52	96.83	0.00	91	0	223	0	223
26+87.87	37.87	52.05	0.00	104	0	327	0	327
27+00.00	12.13	52.56	0.00	23	0	350	0	350
27+50.00	50.00	46.45	0.00	92	0	442	0	442
28+00.00	50.00	31.02	0.00	72	0	514	0	514
28+50.00	50.00	0.00	0.00	29	0	543	0	543
29+00.00	50.00	0.00	0.00	0	0	543	0	543
29+50.00	50.00	0.00	0.00	0	0	543	0	543
30+00.00	50.00	0.00	0.00	0	0	543	0	543
30+50.00	50.00	0.00	0.00	0	0	543	0	543
31+00.00	50.00	0.00	0.00	0	0	543	0	543
31+50.00	50.00	41.91	0.00	39	0	582	0	582
32+00.00	50.00	73.21	0.03	107	0	689	0	689
32+50.00	50.00	49.35	8.74	113	8	802	9	793
33+00.00	50.00	28.57	1.59	72	10	874	21	853
33+50.00	50.00	24.56	1.60	49	3	923	24	899
34+00.00	50.00	25.15	1.59	46	3	969	28	941
34+50.00	50.00	25.66	1.17	47	3	1,016	31	985
35+00.00	50.00	27.50	1.31	49	2	1,065	33	1,032
35+50.00	50.00	32.04	0.19	55	1	1,120	35	1,086
35+87.50	37.50	46.08	0.00	54	0	1,174	35	1,140
36+00.00	12.50	34.87	0.00	19	0	1,193	35	1,159
36+50.00	50.00	25.87	0.01	56	0	1,249	35	1,215
37+00.00	50.00	20.05	0.22	43	0	1,292	35	1,258
37+50.00	50.00	14.14	0.25	32	0	1,324	35	1,290
37+79.37	29.37	11.60	0.22	14	0	1,338	35	1,304
37+80.56	1.19	11.50	0.22	1	0	1,339	35	1,305

DIVISION 1 - RAMP D

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.15	MASS ORDINATE
572+75.00	0.00	59.53	0.00	0	0	0	0	0
573+00.00	25.00	41.97	0.00	47	0	47	0	47
573+33.68	33.68	14.09	0.03	35	0	82	0	82

DIVISION - RAMP C RL

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.15	MASS ORDINATE
572+75.00	0.00	165.73	1.35	0	0	0	0	0
573+00.00	25.00	214.12	0.00	176	1	176	1	175
573+50.00	50.00	173.94	0.00	359	0	535	1	534
574+00.00	50.00	161.86	0.00	311	0	846	1	845
574+50.00	50.00	191.06	0.98	327	1	1,173	2	1,171
575+00.00	50.00	183.55	1.31	347	2	1,520	5	1,515
575+50.00	50.00	109.88	0.00	272	1	1,792	6	1,786
576+00.00	50.00	99.28	0.00	194	0	1,986	6	1,980
576+50.00	50.00	101.98	0.00	186	0	2,172	6	2,166
577+00.00	50.00	93.94	0.00	181	0	2,353	6	2,347
577+50.00	50.00	86.78	0.00	167	0	2,520	6	2,514
578+00.00	50.00	58.64	0.00	135	0	2,655	6	2,649
578+50.00	50.00	38.68	0.66	90	1	2,745	7	2,738
578+51.28	1.28	38.39	0.66	2	0	2,747	7	2,740
578+76.27	24.99	31.74	0.11	32	0	2,779	7	2,772
579+00.00	23.73	27.90	1.31	26	1	2,805	8	2,797
579+01.27	1.27	27.58	1.41	1	0	2,806	8	2,798
579+50.00	48.73	16.72	0.09	40	1	2,846	9	2,837
579+67.82	17.82	13.01	1.25	10	0	2,856	9	2,847

DIVISION 1 - CARPENTER ROAD

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.15	MASS ORDINATE
1+50.00	0.00	160.01	1.39	0	0	0	0	0
2+00.00	50.00	62.86	4.47	206	5	206	6	200
2+20.00	20.00	42.26	0.00	39	2	245	8	237
2+30.00	10.00	36.22	4.14	15	1	260	9	251
2+50.00	20.00	38.63	0.06	28	2	288	12	277
2+70.16	20.16	42.34	0.10	30	0	318	12	307

DIVISION 1 - RAMP E

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.15	MASS ORDINATE
571+32.74	0.00	12.42	0.00	0	0	0	0	0
571+50.00	17.26	13.78	0.00	8	0	8	0	8
571+75.00	25.00	19.14	0.00	15	0	23	0	23
572+00.00	25.00	30.83	0.00	23	0	46	0	46
572+21.41	21.41	28.67	0.00	24	0	70	0	70

9

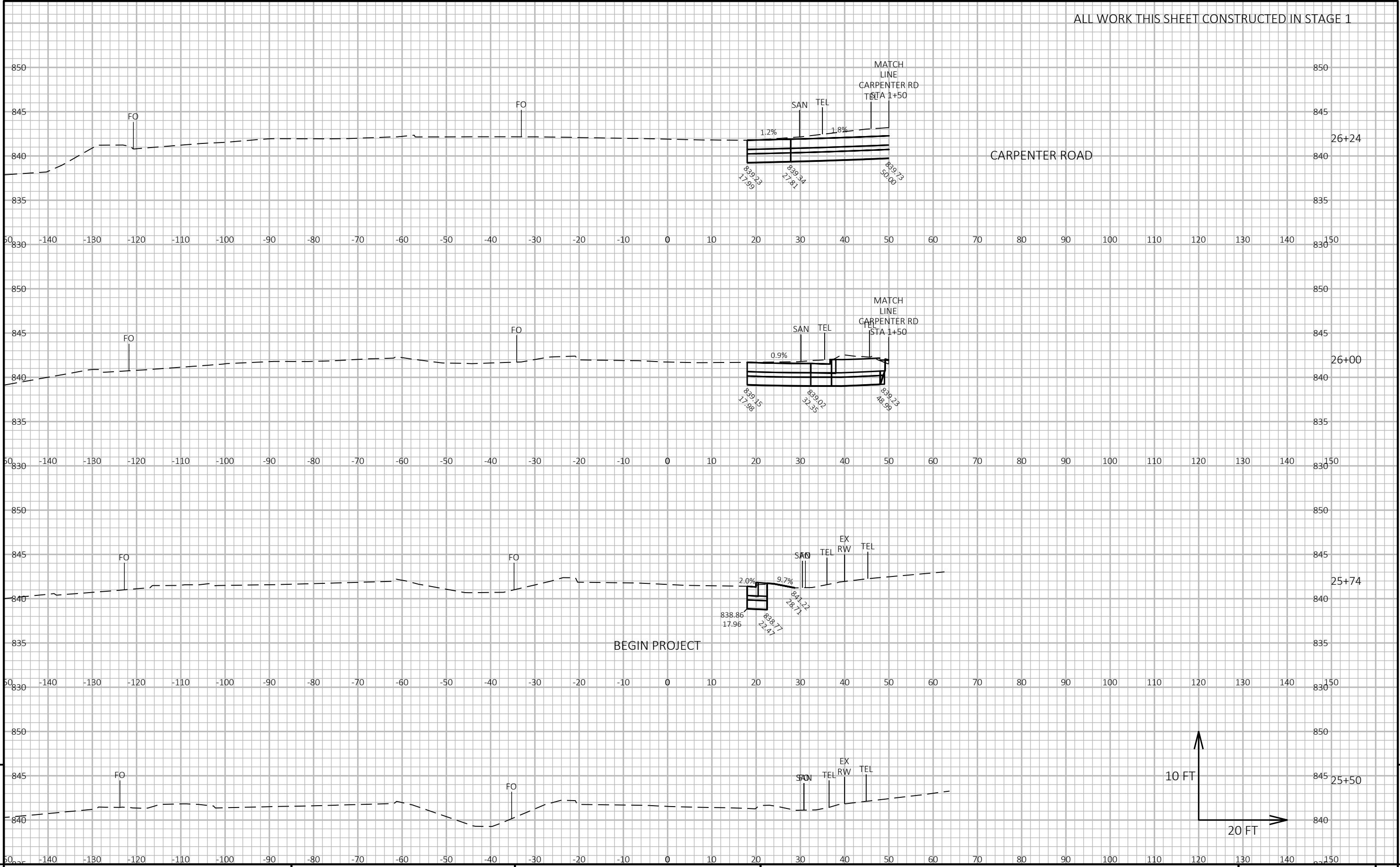
9

DIVISION 2 - MOORLAND ROAD STAGE 2

STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.15	MASS ORDINATE
26+87.87	0.00	9.64	1.86	0	0	0	0	0
27+00.00	12.13	14.14	3.45	5	1	5	1	4
27+50.00	50.00	31.69	6.00	42	9	47	12	36
28+00.00	50.00	47.69	3.62	73	9	120	22	98
28+50.00	50.00	65.23	0.13	105	3	225	25	200
29+00.00	50.00	87.04	0.10	141	0	366	25	341
29+50.00	50.00	101.40	0.00	174	0	540	25	515
30+00.00	50.00	111.47	0.00	197	0	737	25	712
30+50.00	50.00	128.40	0.00	222	0	959	25	934
31+00.00	50.00	130.98	0.00	240	0	1,199	25	1,174
31+50.00	50.00	124.13	0.00	236	0	1,435	25	1,410
32+00.00	50.00	120.59	0.00	227	0	1,662	25	1,637
32+50.00	50.00	111.33	0.00	215	0	1,877	25	1,852
33+00.00	50.00	103.87	0.00	199	0	2,076	25	2,051
33+50.00	50.00	98.42	0.00	187	0	2,263	25	2,238
34+00.00	50.00	96.57	0.00	181	0	2,444	25	2,419
34+50.00	50.00	97.91	0.00	180	0	2,624	25	2,599
35+00.00	50.00	103.82	0.00	187	0	2,811	25	2,786
35+50.00	50.00	117.90	0.00	205	0	3,016	25	2,991
35+87.50	37.50	115.41	0.00	162	0	3,178	25	3,153
36+00.00	12.50	112.16	0.00	53	0	3,231	25	3,206
36+50.00	50.00	14.63	0.00	117	0	3,348	25	3,323
37+00.00	50.00	12.94	0.00	26	0	3,374	25	3,349
37+50.00	50.00	12.25	0.00	23	0	3,397	25	3,372
37+79.37	29.37	12.66	0.00	14	0	3,411	25	3,386

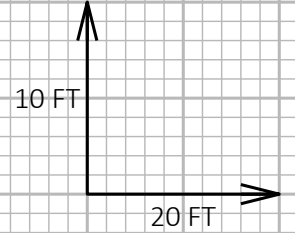


ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



BEGIN PROJECT

CARPENTER ROAD

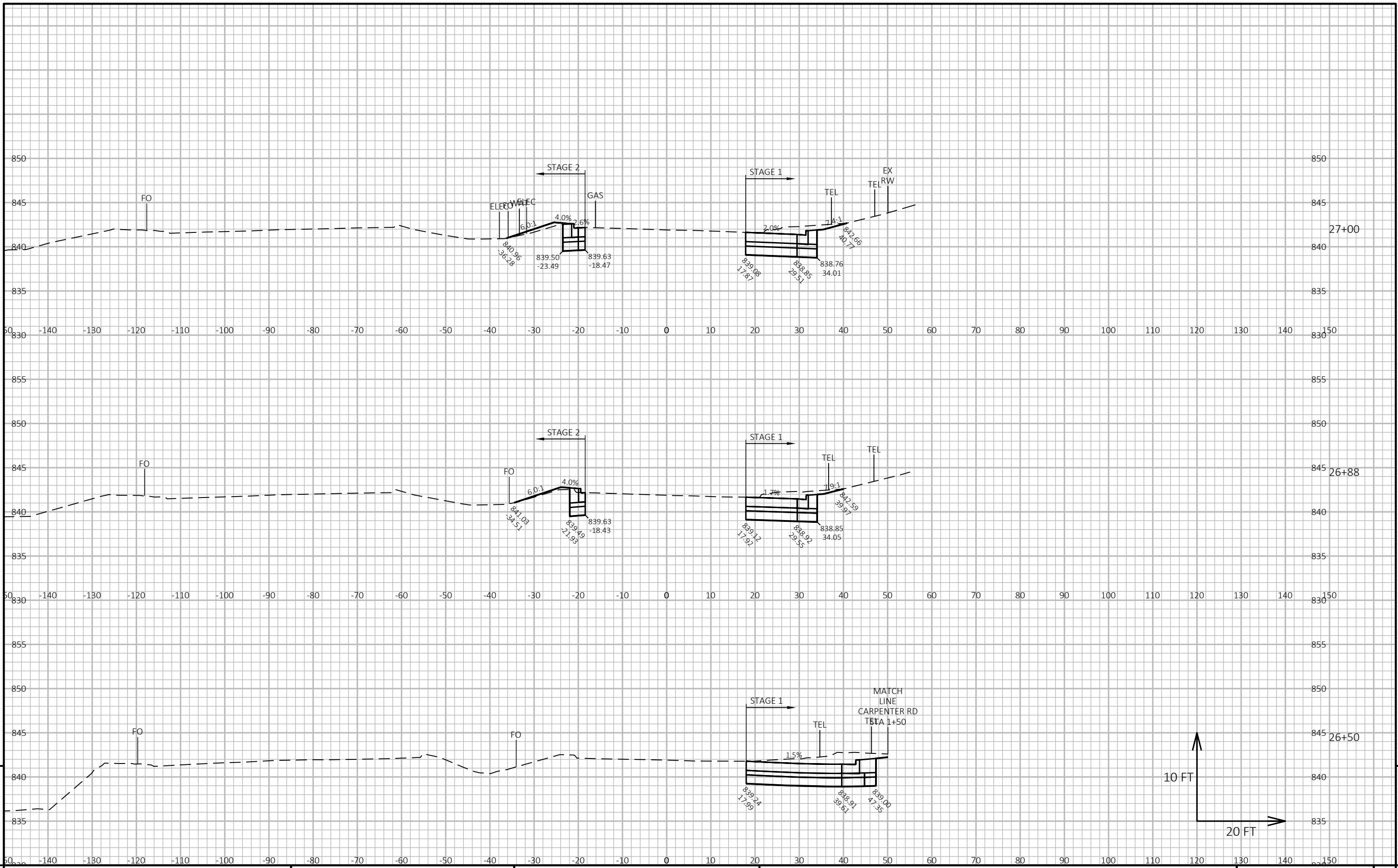


9

9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	-------------------------------	-------	---

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSP\LAN\090201-XS CTH O.DWG  
 PLOT DATE : 1/29/2023 10:17 PM  
 PLOT BY : BLACKWOOD, JIM  
 PLOT NAME :  
 PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.  
 WISDOT/CADD SHEET 49



PROJECT NO: 1060-10-72

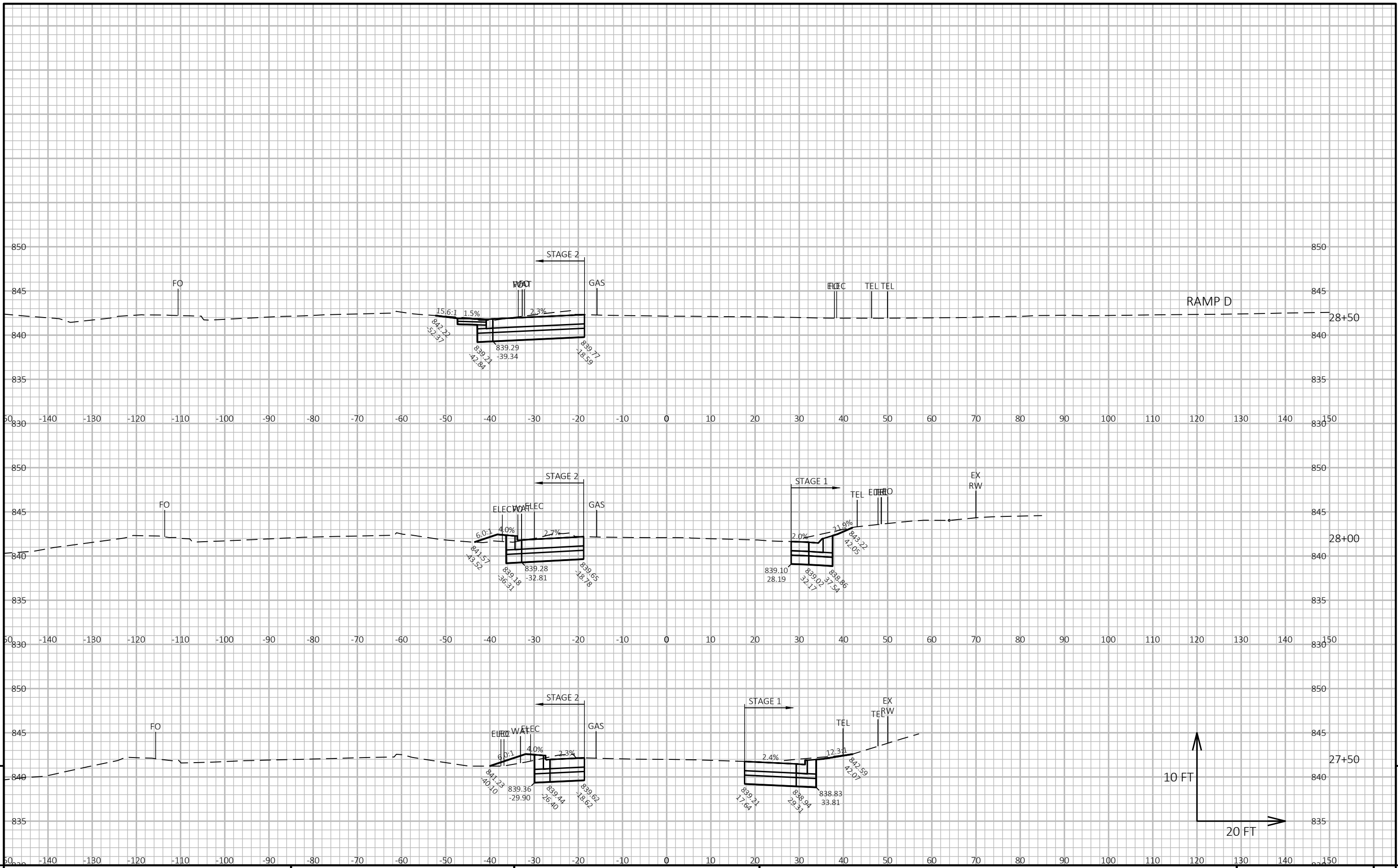
HWY: IH 94

COUNTY: WAUKESHA

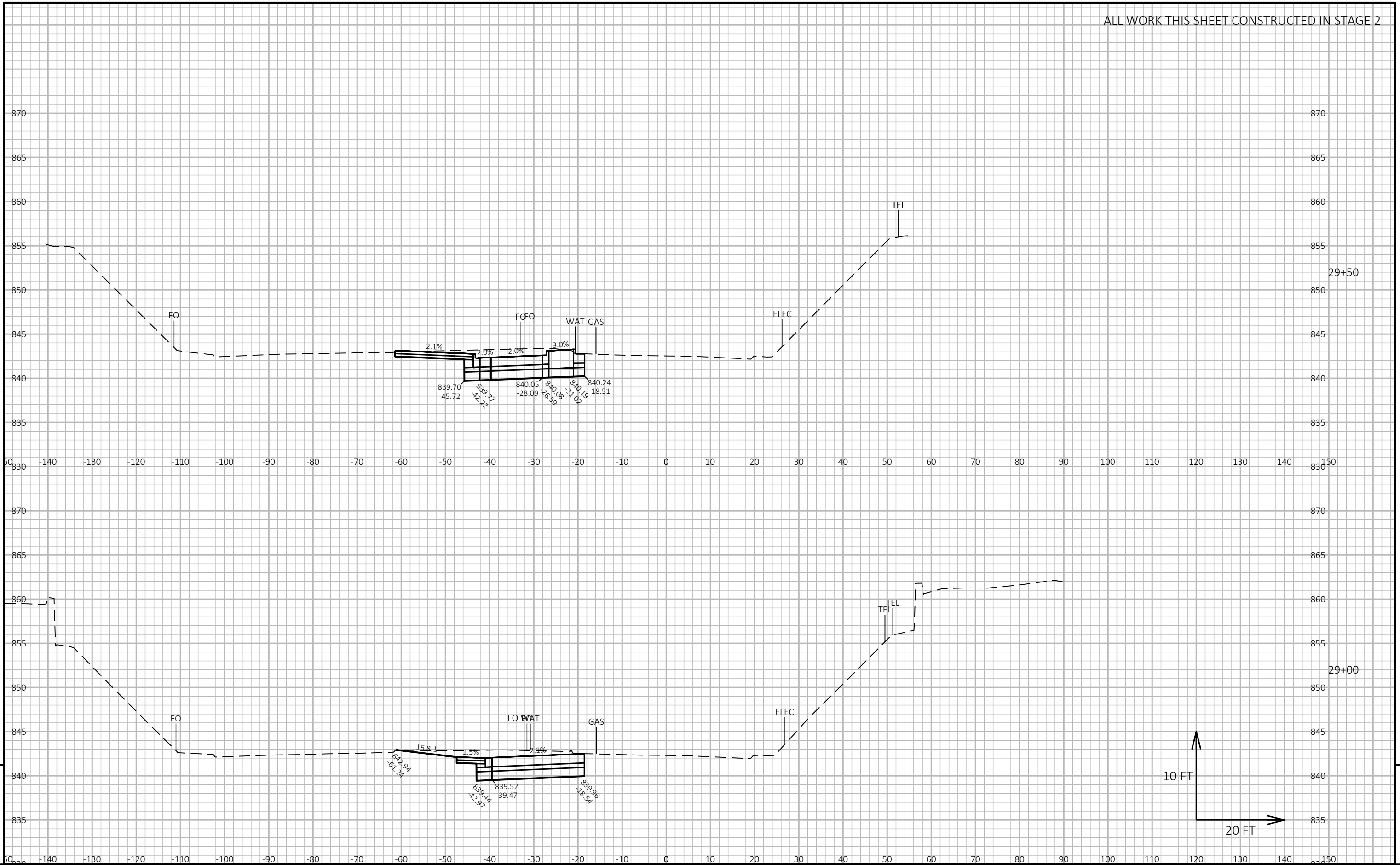
CROSS SECTIONS: MOORLAND ROAD

SHEET

E



PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: MOORLAND ROAD      SHEET      E

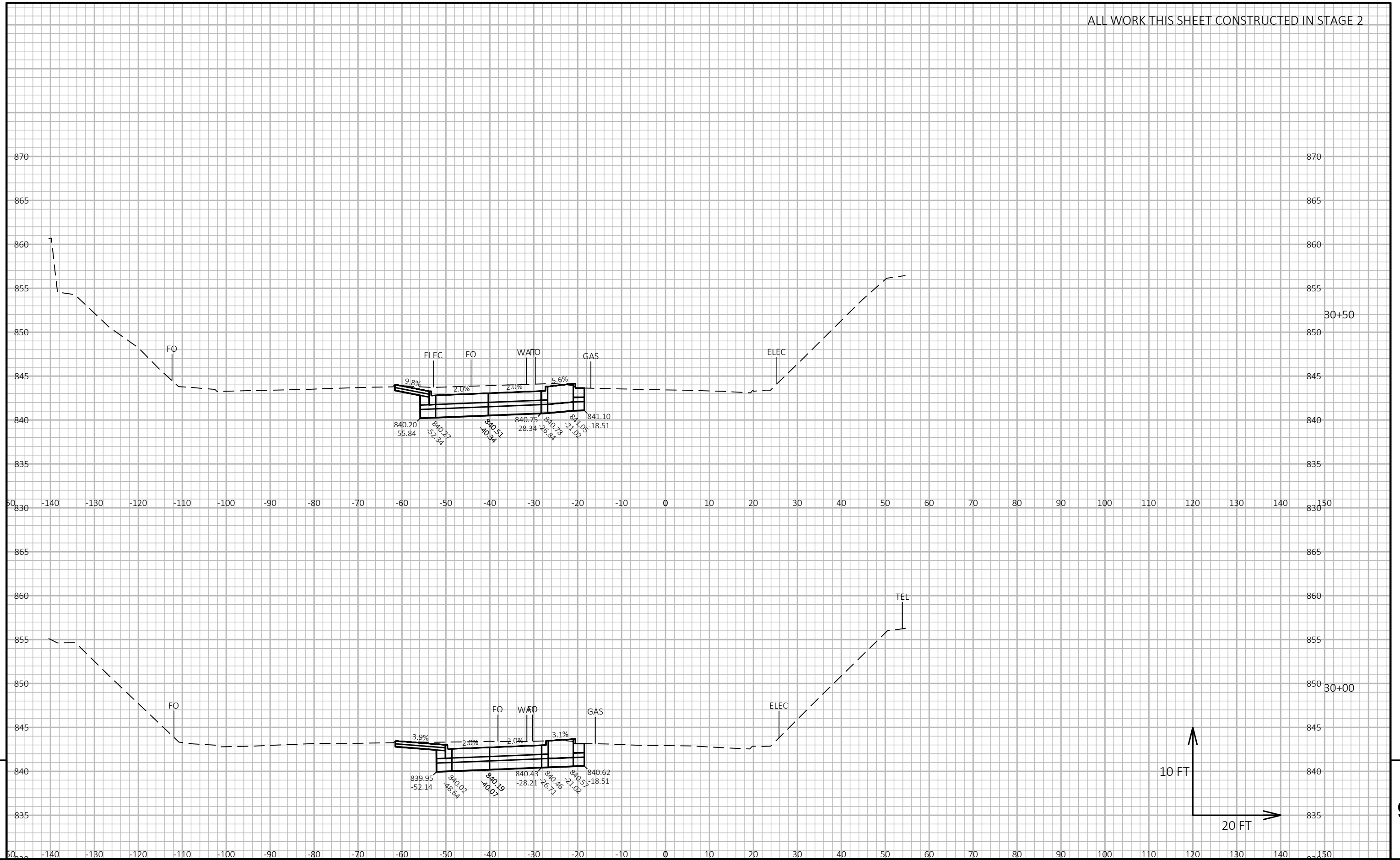


9

9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	-------------------------------	-------	---

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 2



PROJECT NO: 1060-10-72

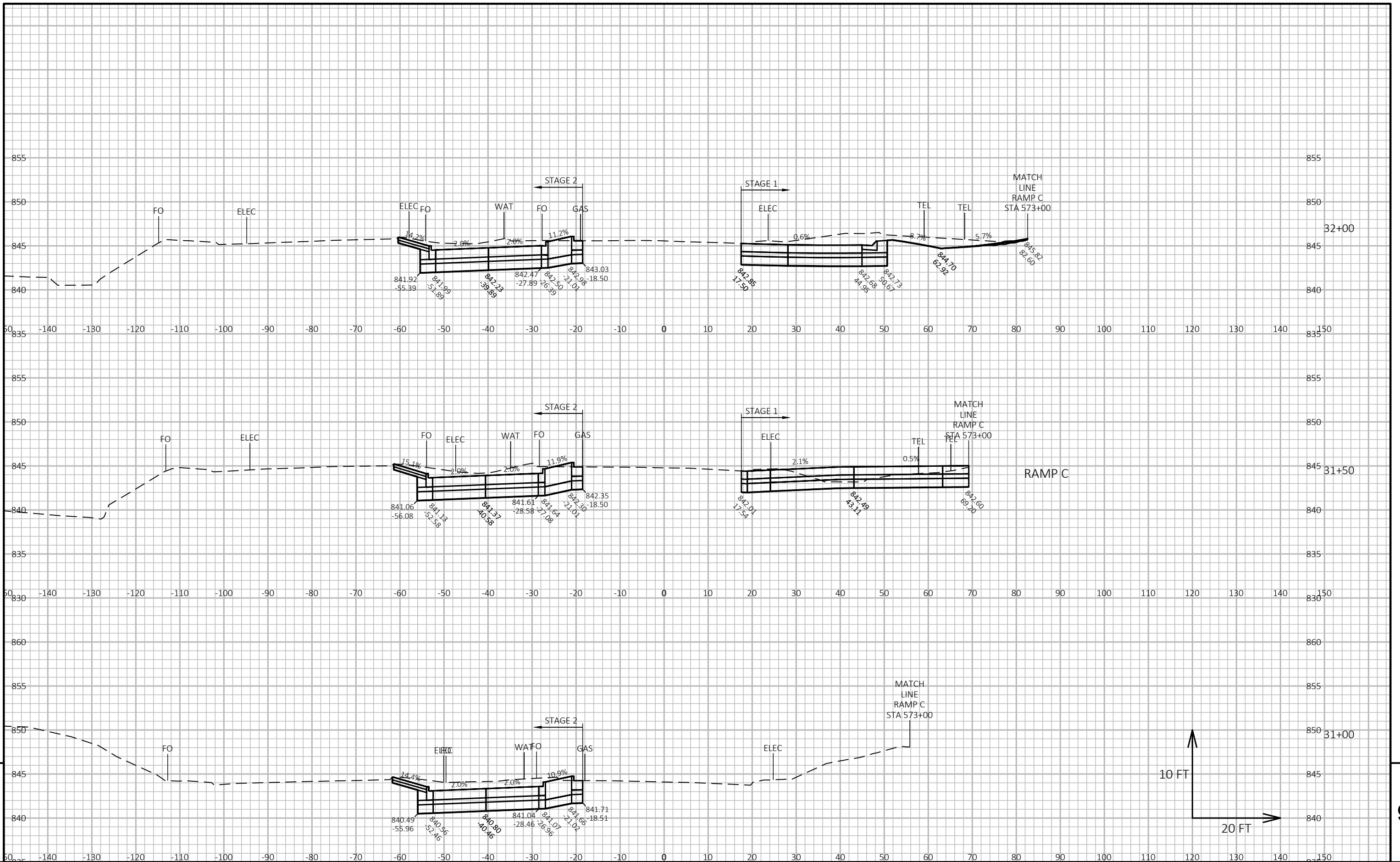
HWY: IH 94

COUNTY: WAUKESHA

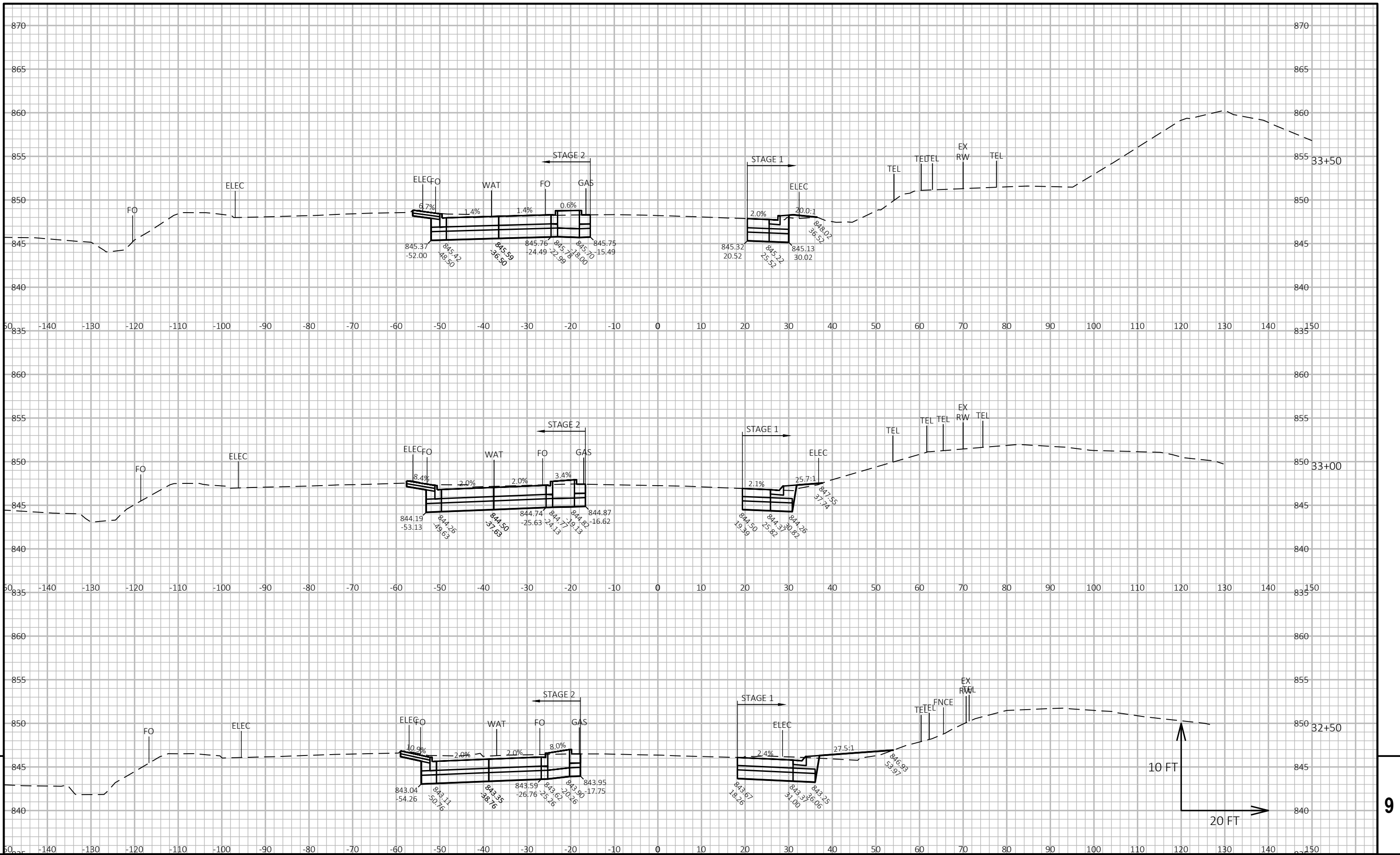
CROSS SECTIONS: MOORLAND ROAD

SHEET

E



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: MOORLAND ROAD	SHEET E
------------------------	------------	------------------	-------------------------------	---------



PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

CROSS SECTIONS: MOORLAND ROAD

SHEET

E



PROJECT NO: 1060-10-72

HWY: IH 94

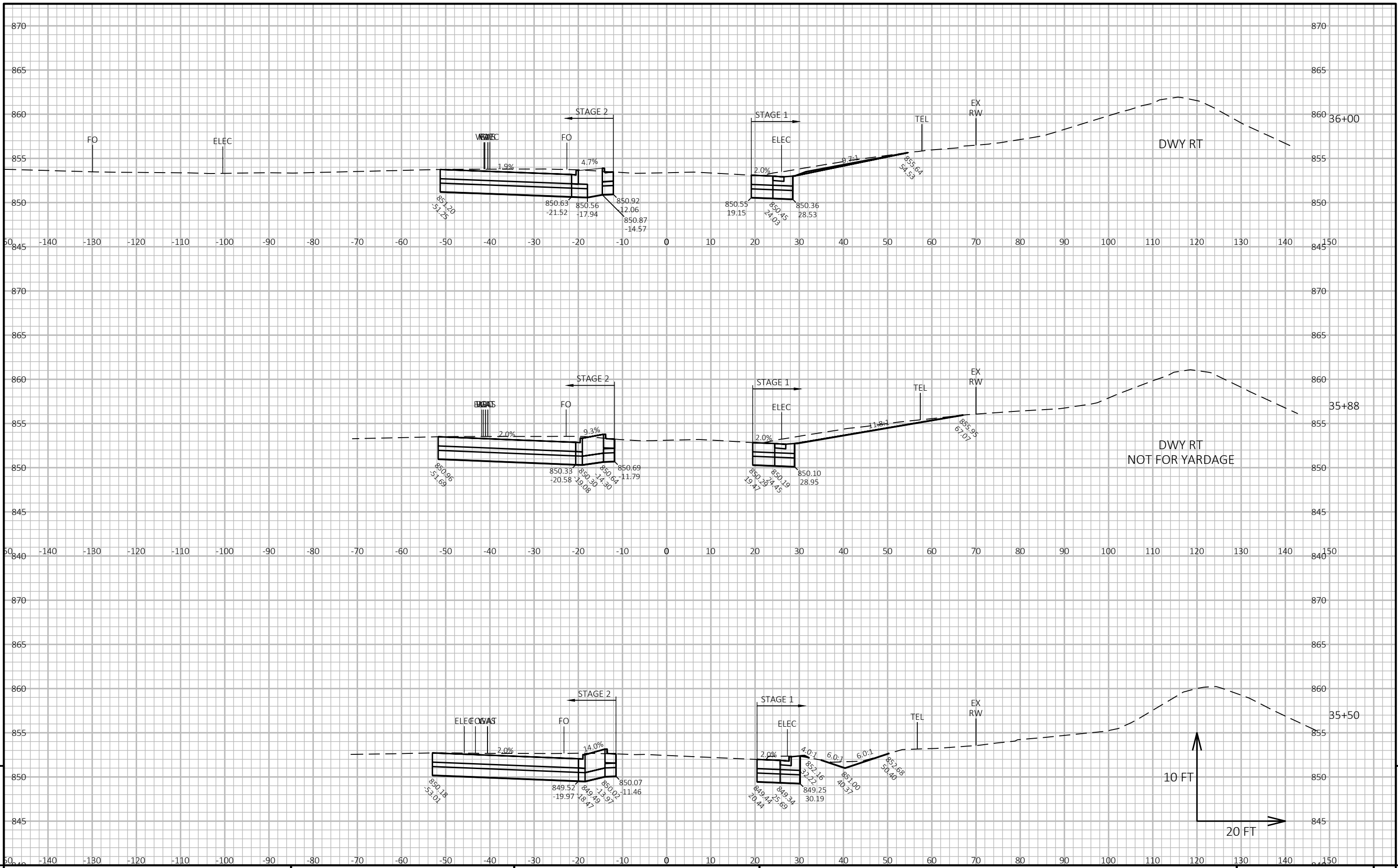
COUNTY: WAUKESHA

CROSS SECTIONS: MOORLAND ROAD

SHEET

E

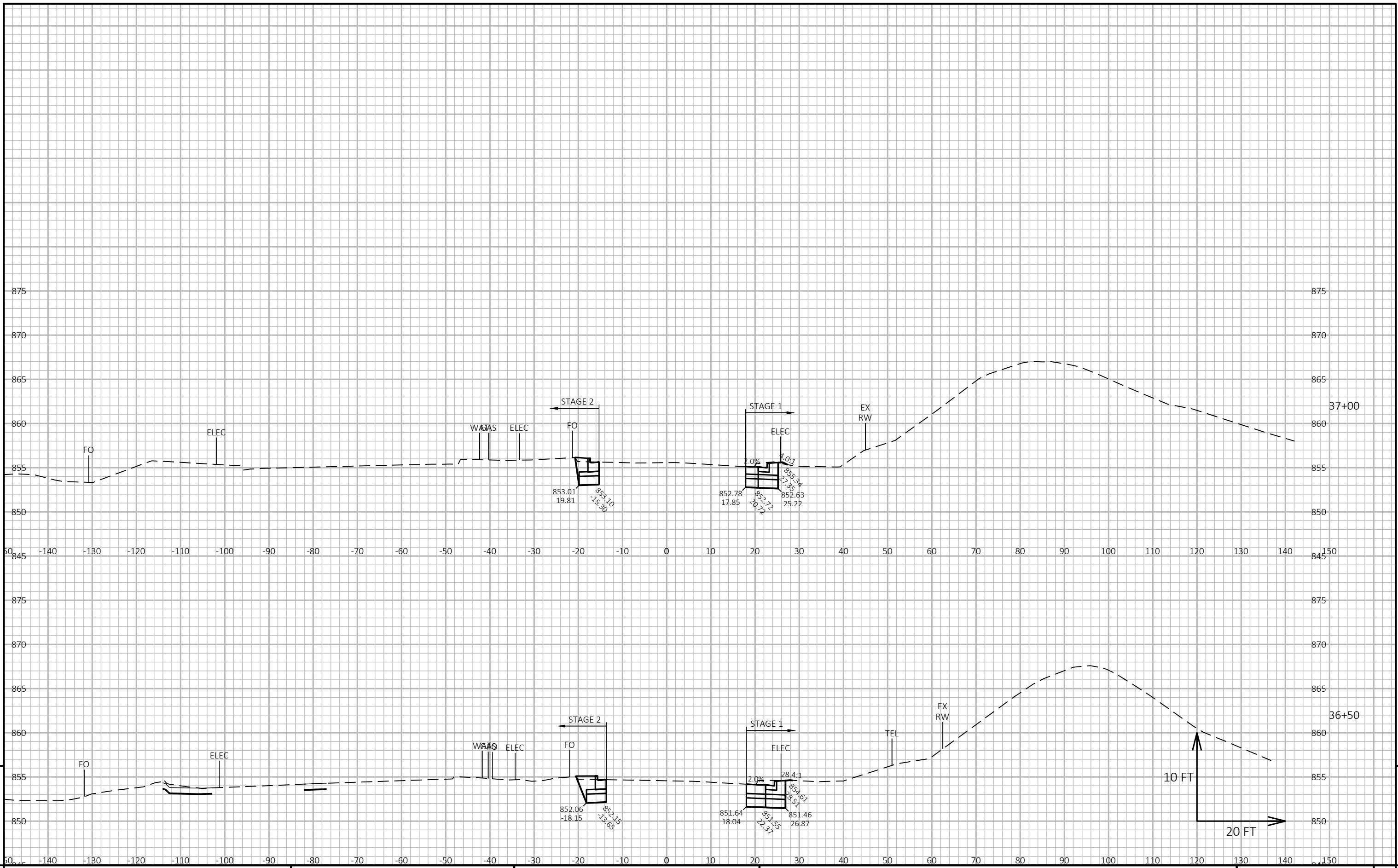




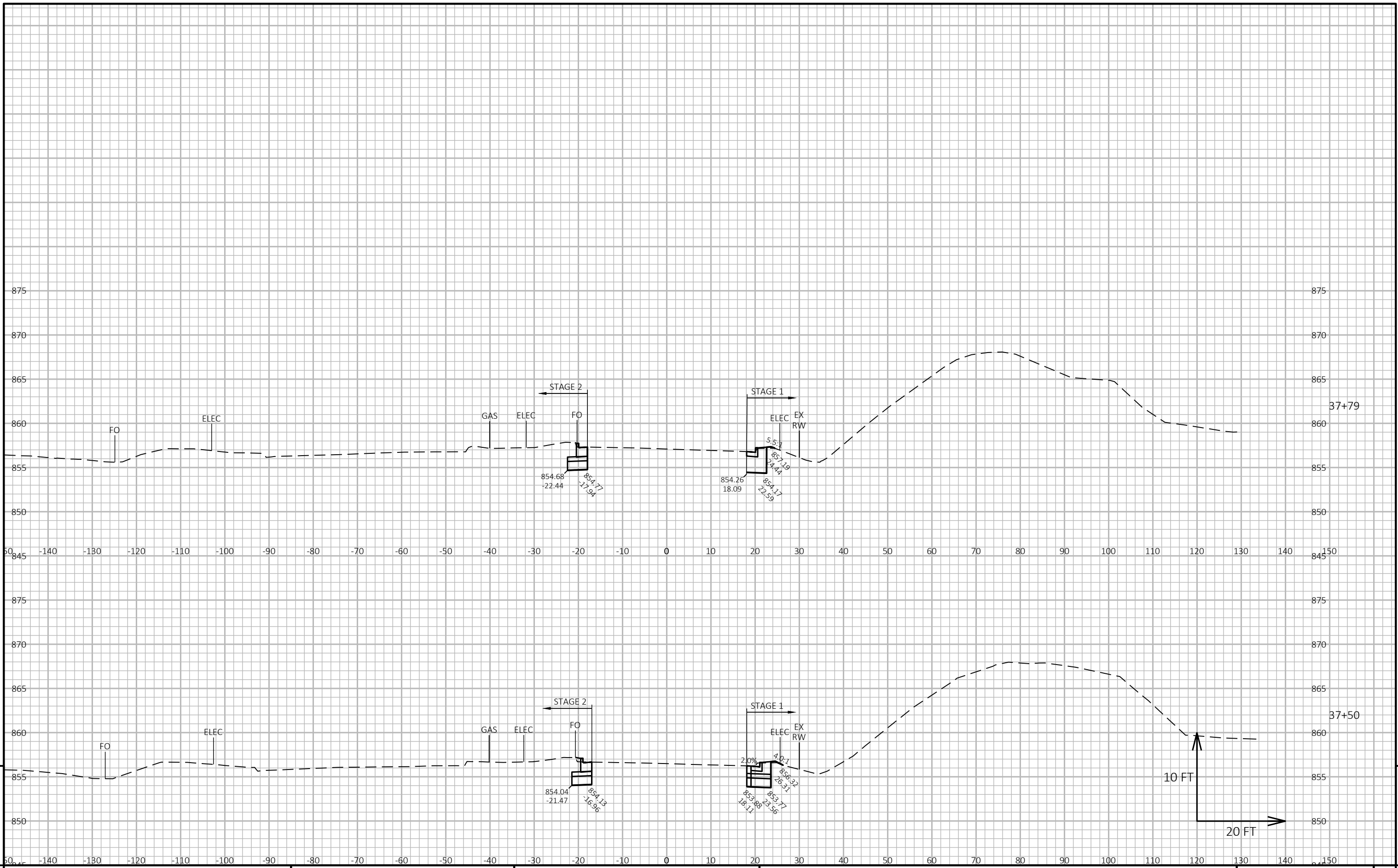
9

9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	-------------------------------	-------	---



PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: MOORLAND ROAD      SHEET      E



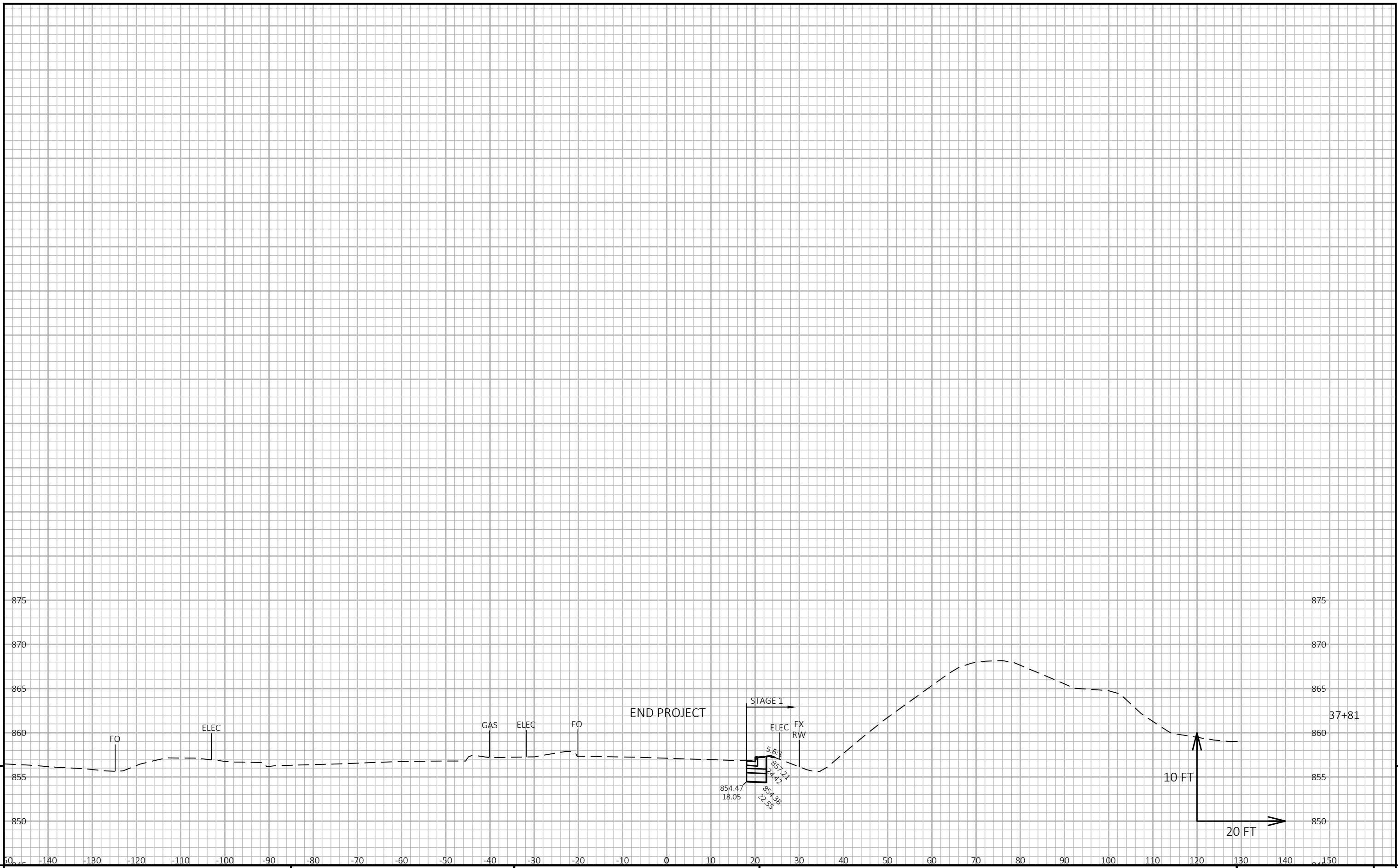
9

9

PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: MOORLAND ROAD      SHEET E

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090201-XS CTH O.DWG      PLOT DATE : 1/29/2023 10:17 PM      PLOT BY : BLACKWOOD, JIM      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 10a



9

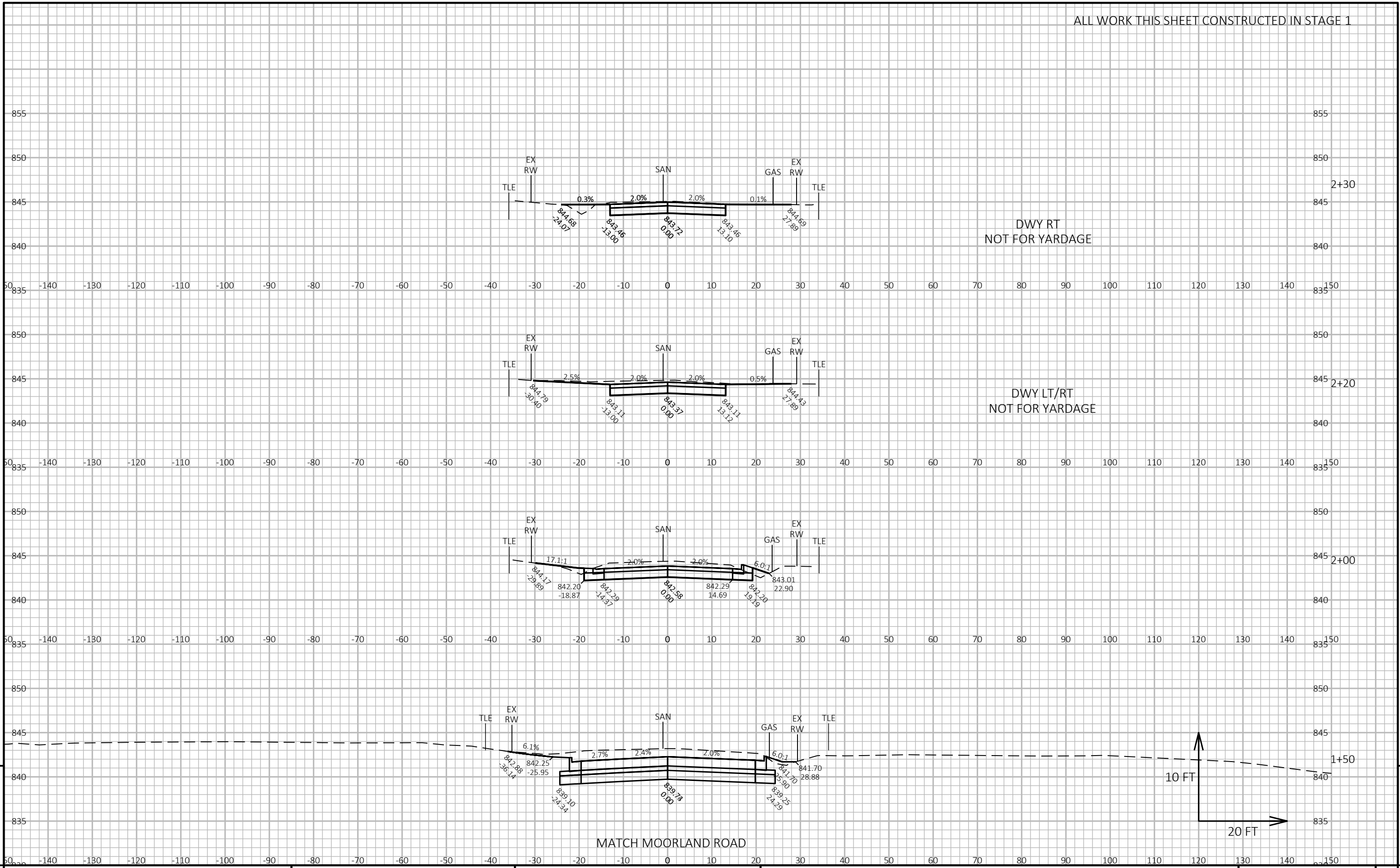
9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: MOORLAND ROAD	SHEET	E
------------------------	------------	------------------	-------------------------------	-------	---

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090201-XS CTH O.DWG PLOT DATE : 1/29/2023 10:17 PM PLOT BY : BLACKWOOD, JIM PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 10b

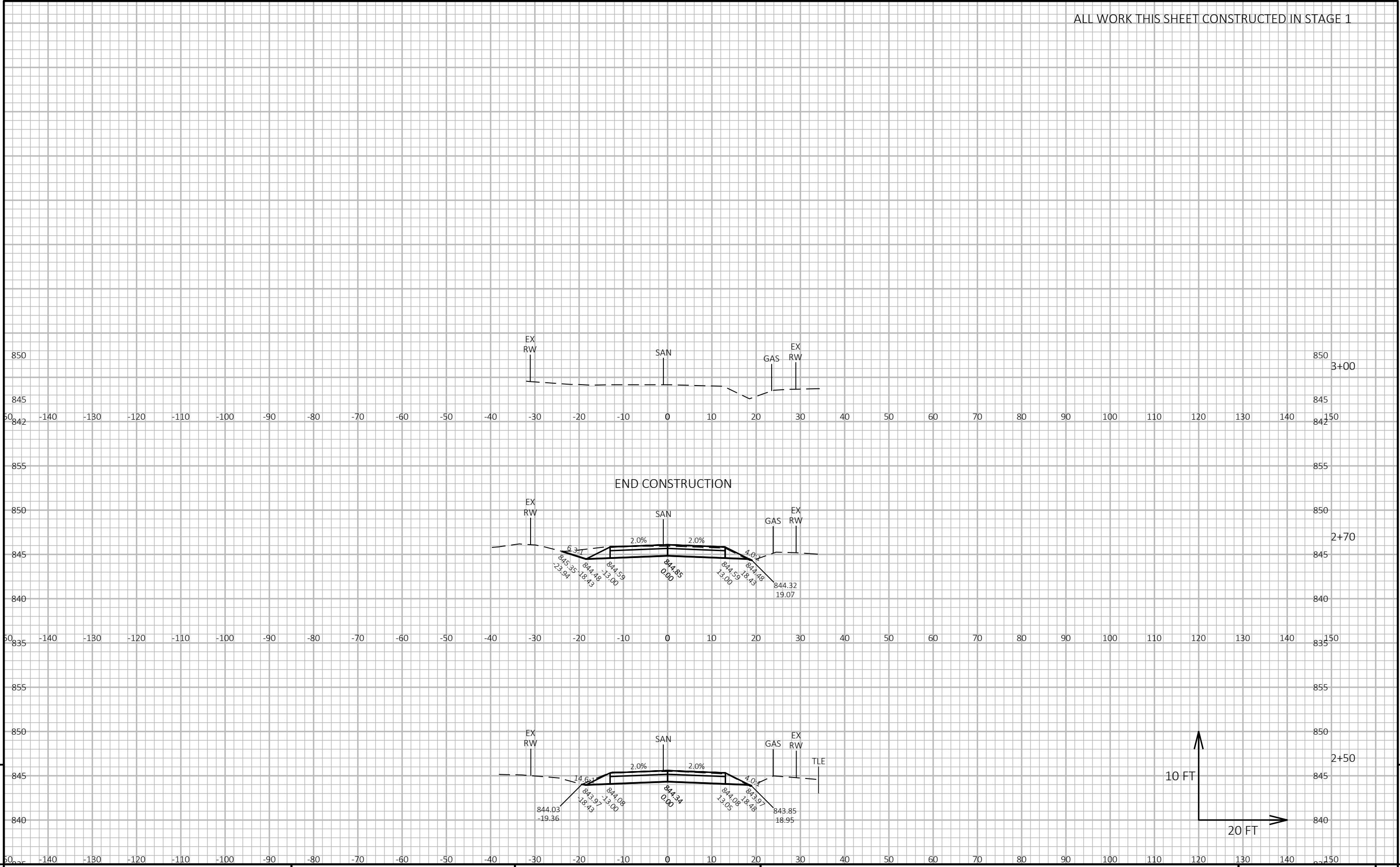
ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: CARPENTER ROAD	SHEET	E
------------------------	------------	------------------	--------------------------------	-------	---

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090201-XS CTH O.DWG  
 PLOT DATE : 1/29/2023 10:17 PM  
 PLOT BY : BLACKWOOD, JIM  
 PLOT NAME :  
 PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.  
 WISDOT/CADD SHEET 49

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



9

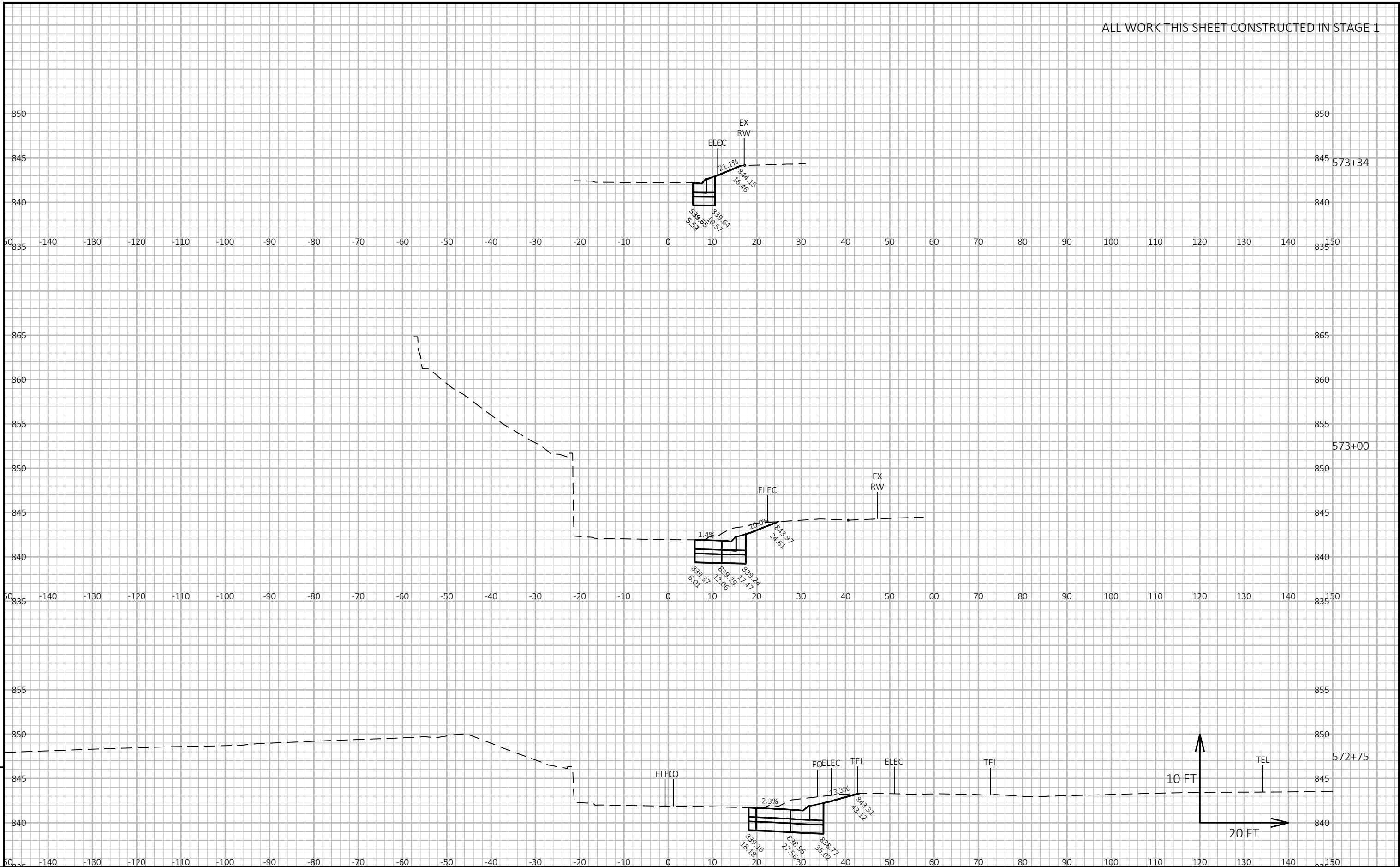
9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: CARPENTER ROAD	SHEET	E
------------------------	------------	------------------	--------------------------------	-------	---

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETS\PLAN\090201-XS CTH O.DWG PLOT DATE : 1/29/2023 10:17 PM PLOT BY : BLACKWOOD, JIM PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 12

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1

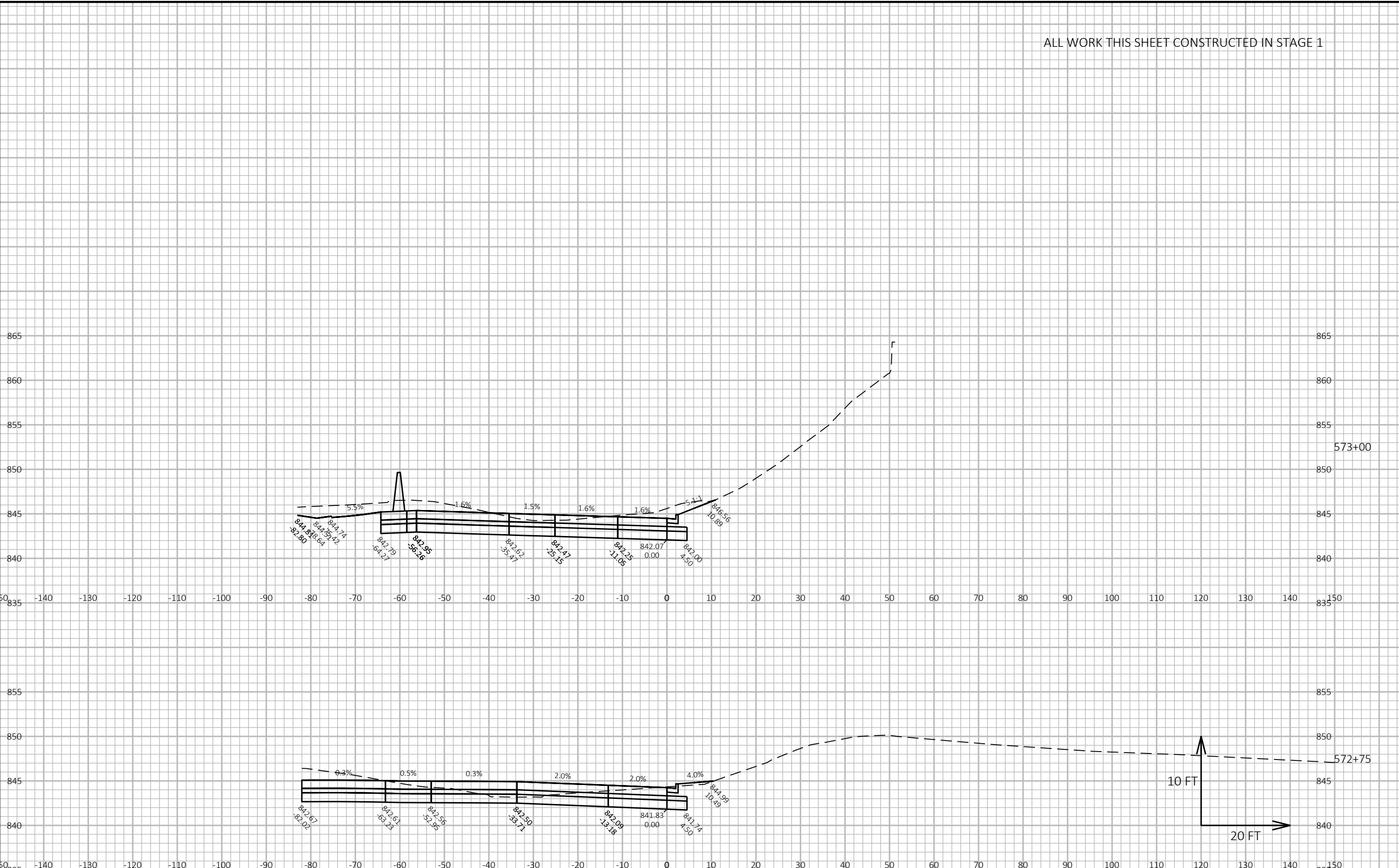


9

9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: RAMP D	SHEET	E
------------------------	------------	------------------	------------------------	-------	---

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



9

9

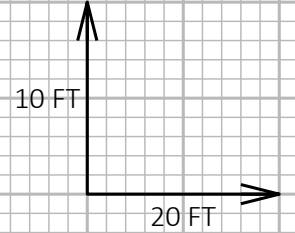
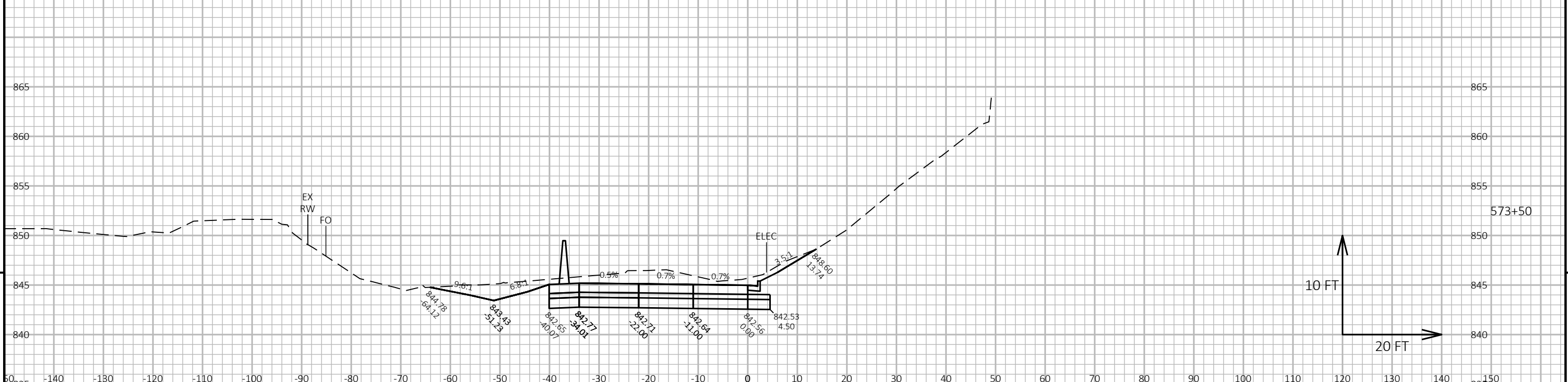
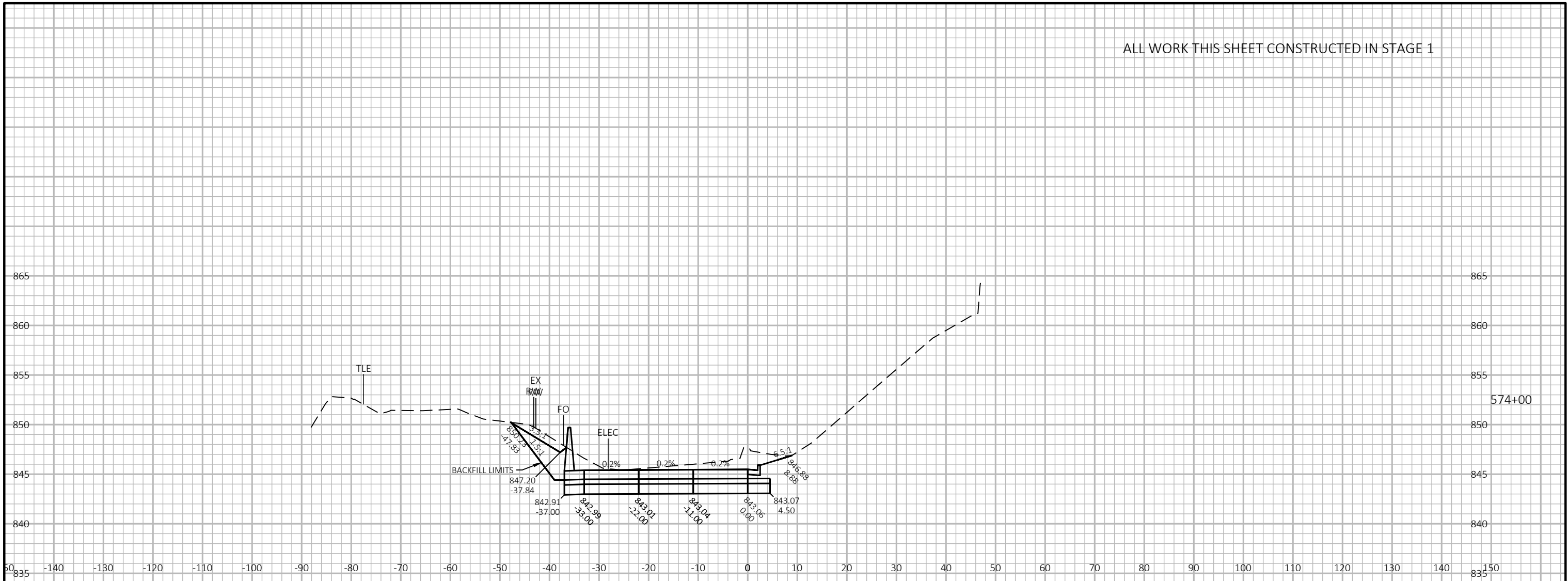
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: RAMP C	SHEET	E
------------------------	------------	------------------	------------------------	-------	---

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSP\090202-XS RAMP C.DWG PLOT DATE : 1/29/2023 10:18 PM PLOT BY : BLACKWOOD, JIM PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 01



ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



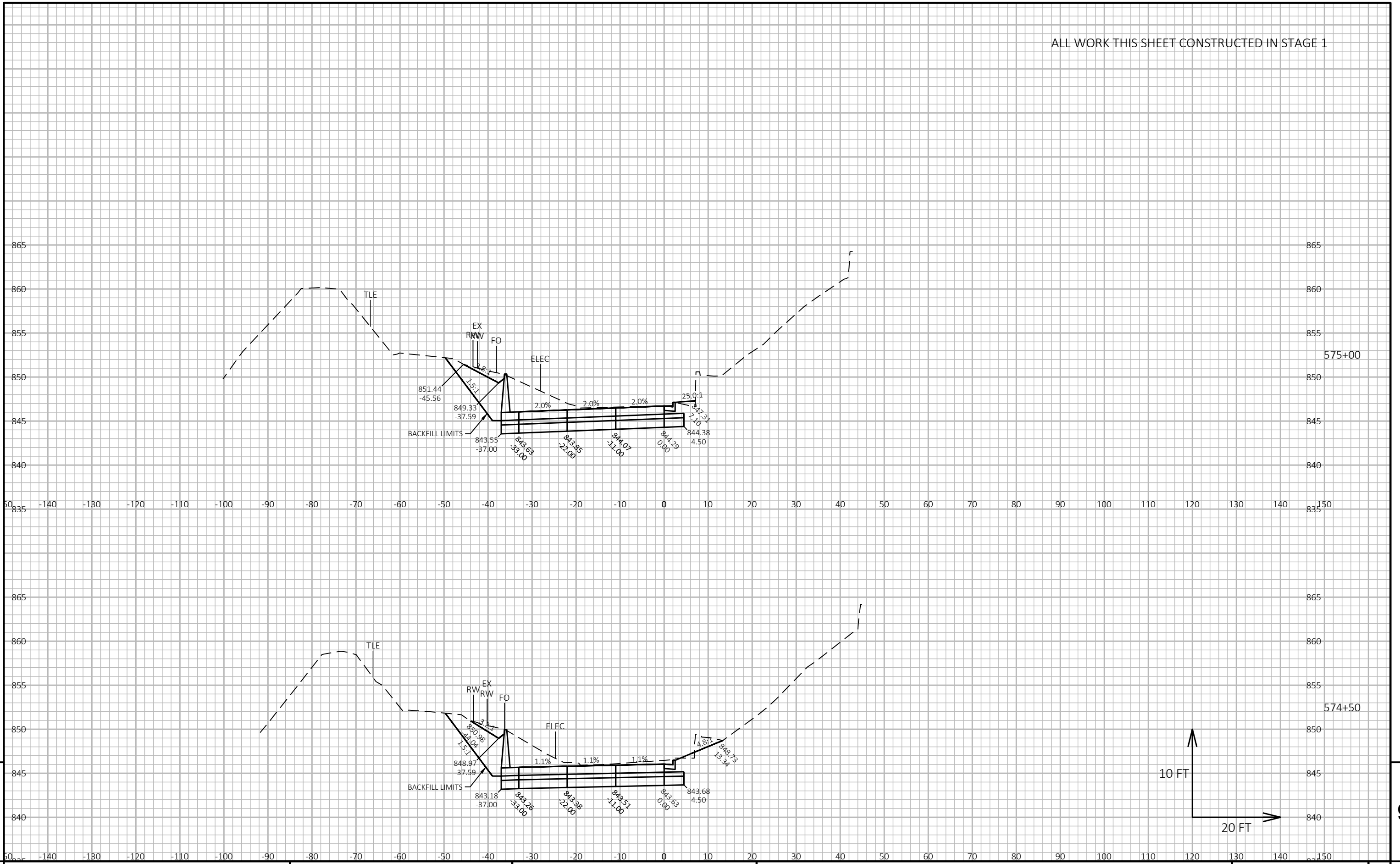
9

9

PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: RAMP C      SHEET      E

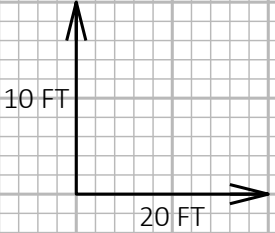
FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090202-XS RAMP C.DWG      PLOT DATE : 1/29/2023 10:18 PM      PLOT BY : BLACKWOOD, JIM      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



9

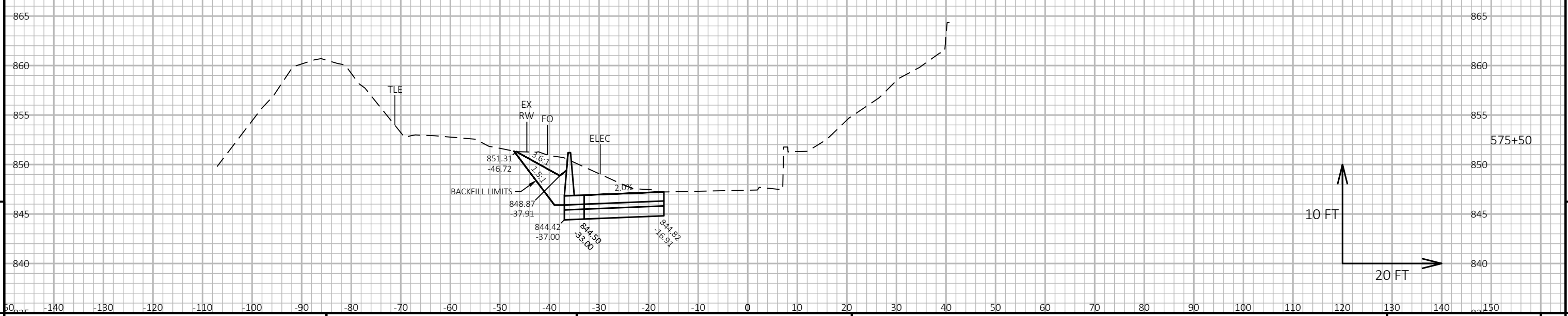
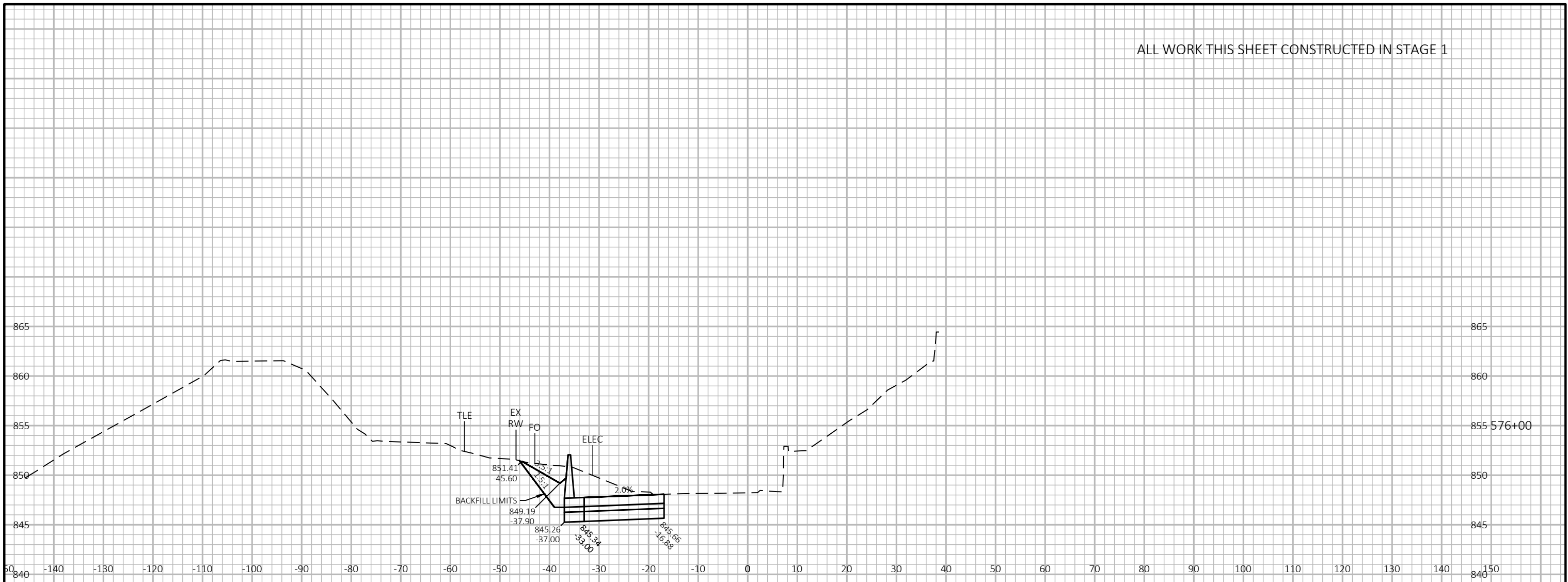
9



PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: RAMP C      SHEET      E

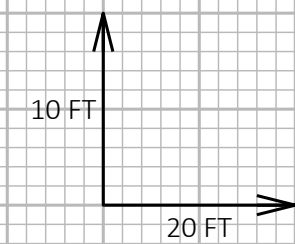
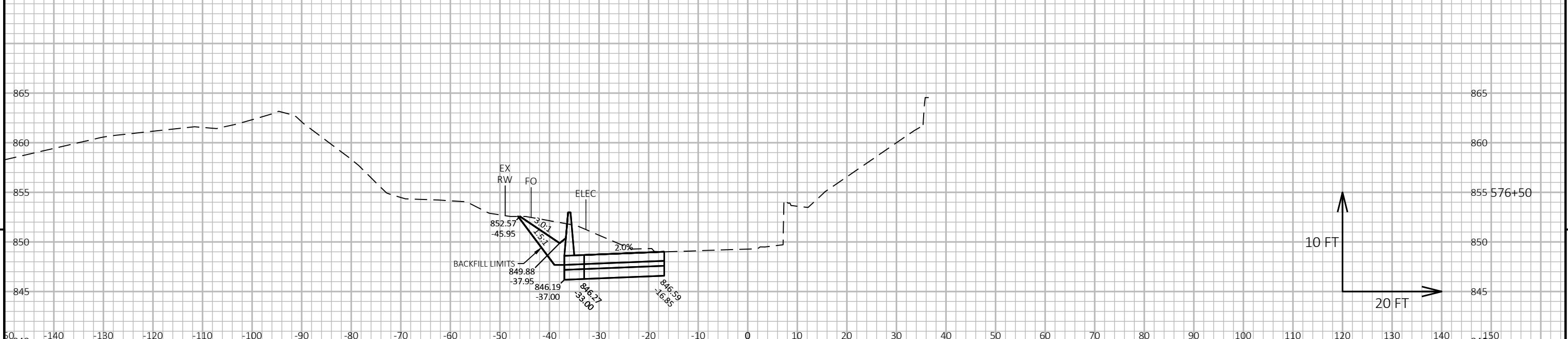
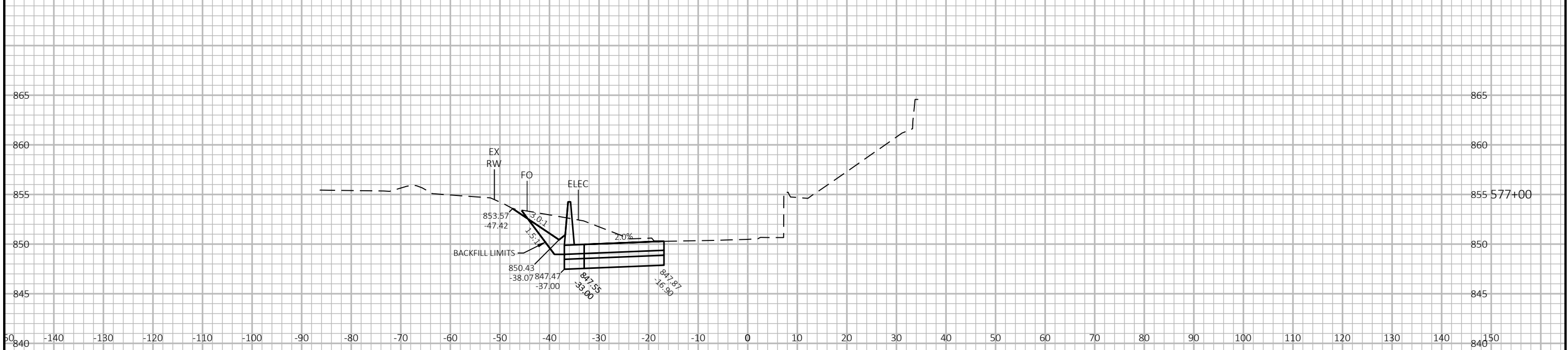
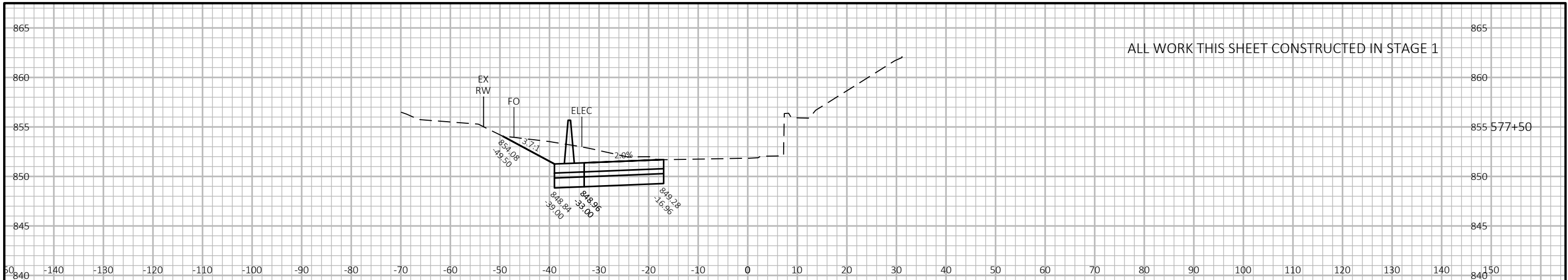
FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090202-XS RAMP C.DWG      PLOT DATE : 1/29/2023 10:18 PM      PLOT BY : BLACKWOOD, JIM      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: RAMP C      SHEET      E

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



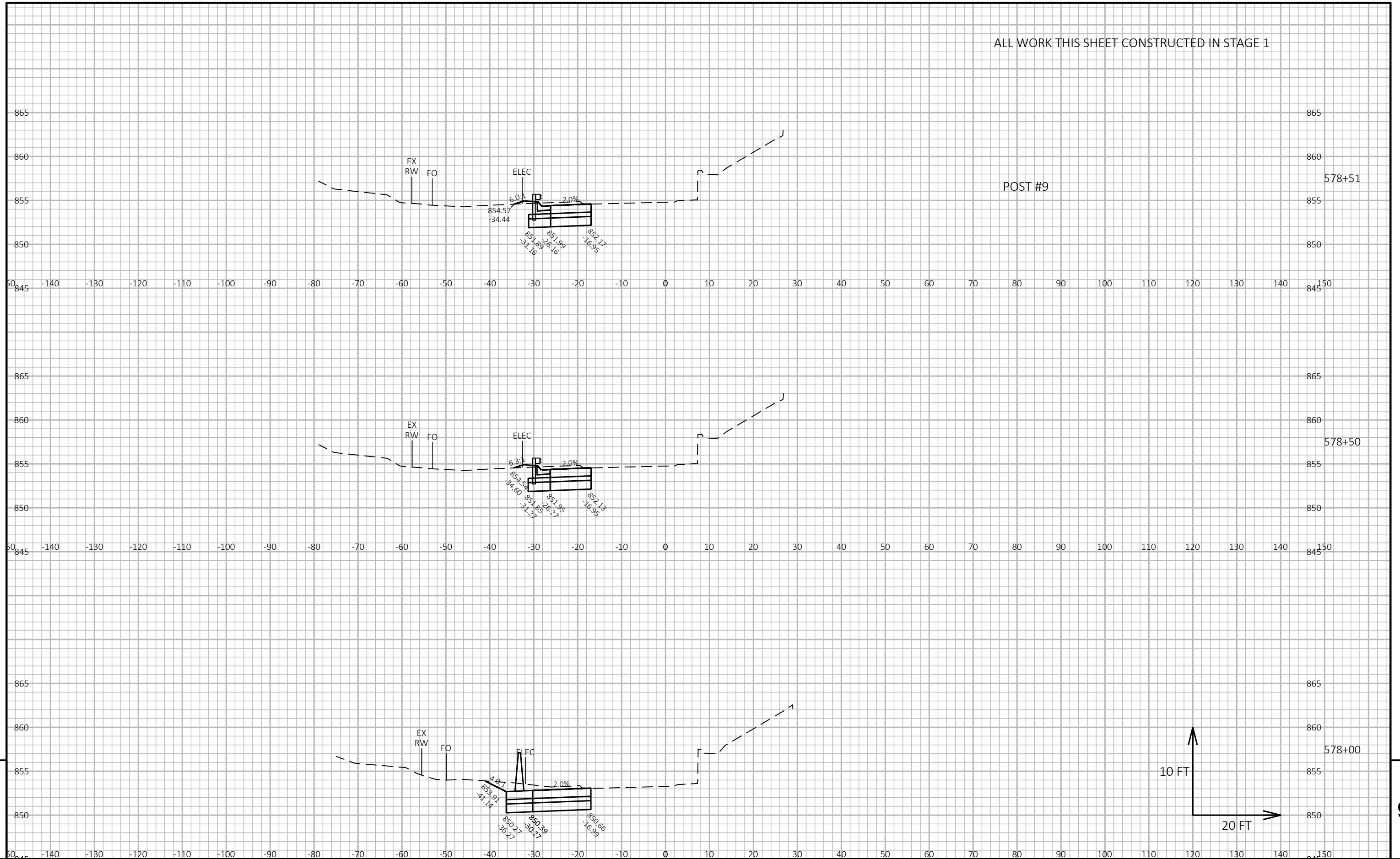
9

9

PROJECT NO: 1060-10-72    HWY: IH 94    COUNTY: WAUKESHA    CROSS SECTIONS: RAMP C    SHEET    E

FILE NAME: T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090202-XS RAMP C.DWG    PLOT DATE: 1/29/2023 10:18 PM    PLOT BY: BLACKWOOD, JIM    PLOT NAME:    PLOT SCALE: 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.    WISDOT/CADD SHEET 49

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



POST #9

578+51

578+50

578+00

9

9

PROJECT NO: 1060-10-72

HWY: IH 94

COUNTY: WAUKESHA

CROSS SECTIONS: RAMP C

SHEET

E

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090202-XS RAMP C.DWG  
LAYOUT NAME - 06

PLOT DATE : 1/29/2023 10:18 PM

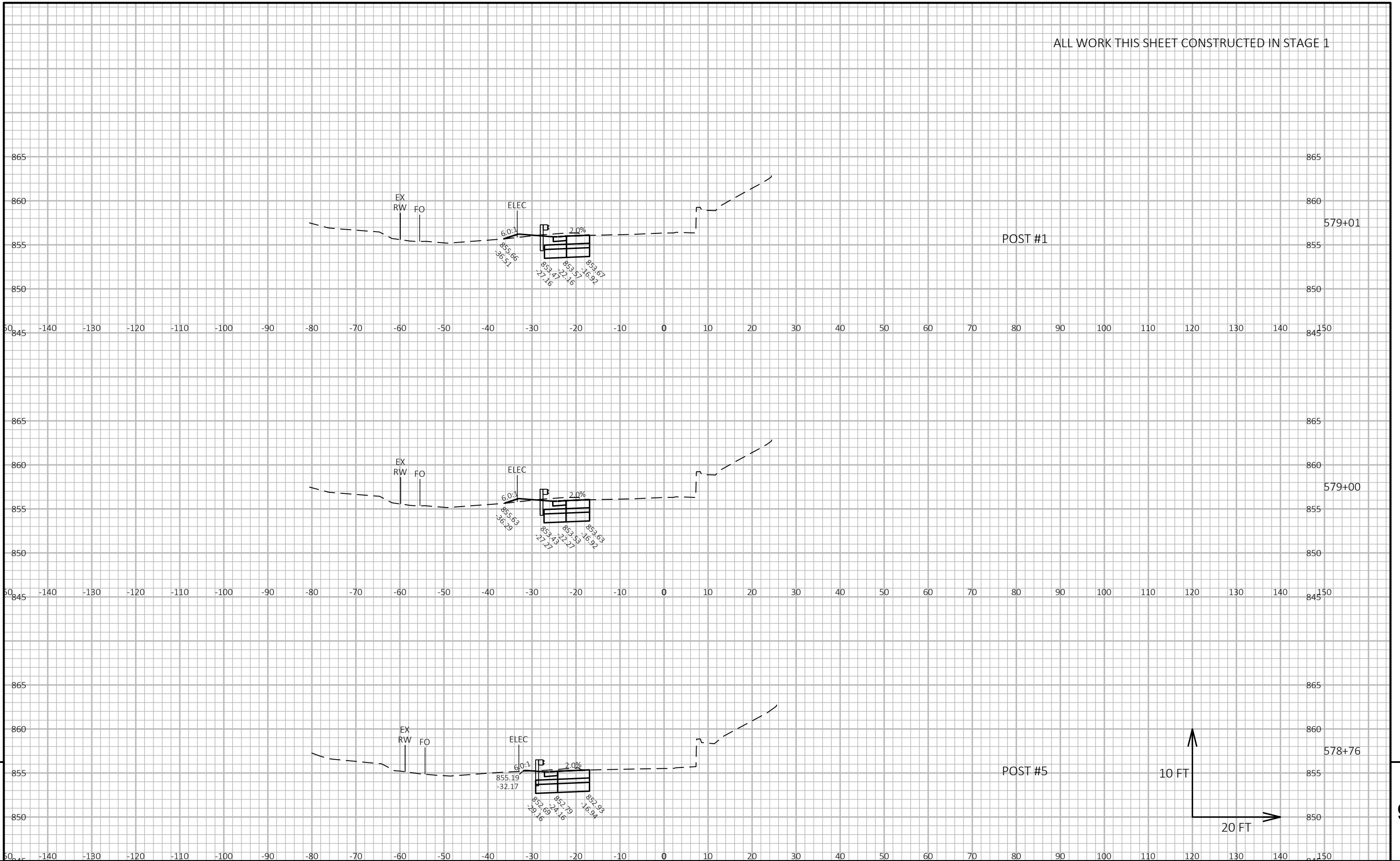
PLOT BY : BLACKWOOD, JIM

PLOT NAME :

PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADD SHEET 49

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1

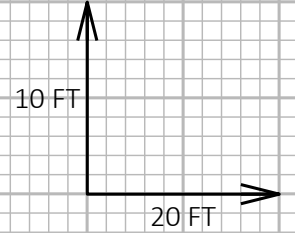
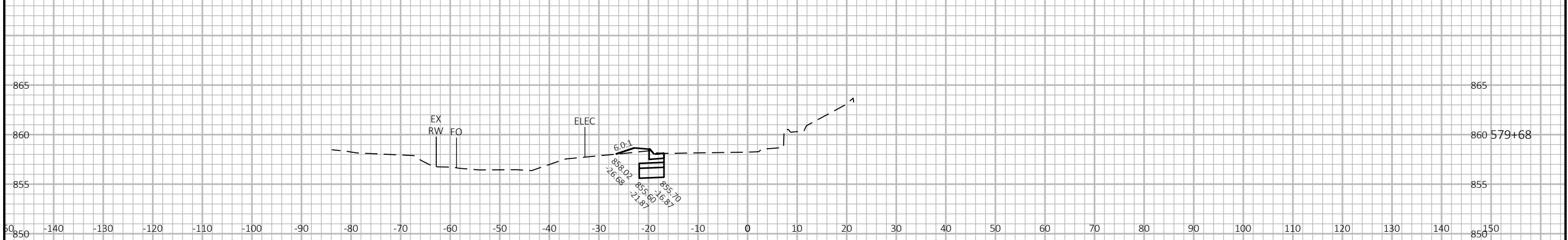


9

9

PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: RAMP C	SHEET	E
------------------------	------------	------------------	------------------------	-------	---

ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1

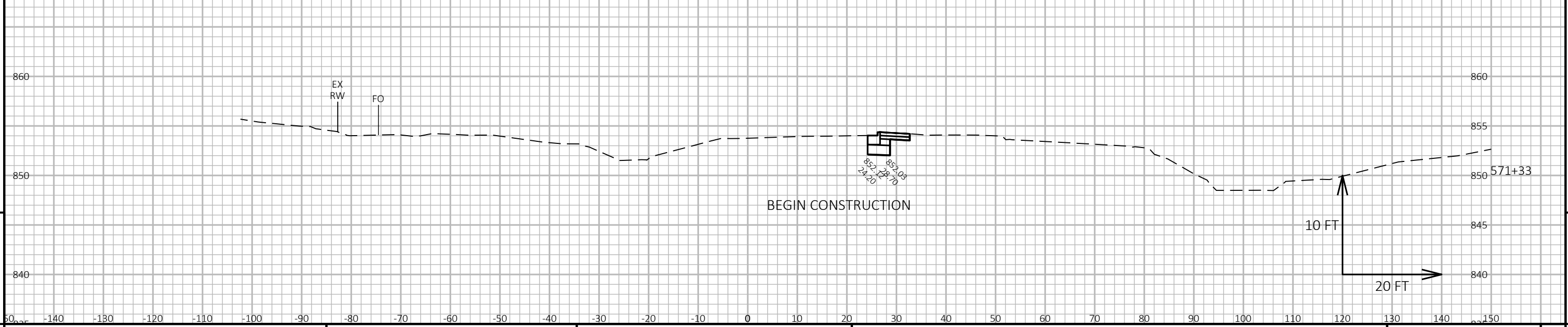
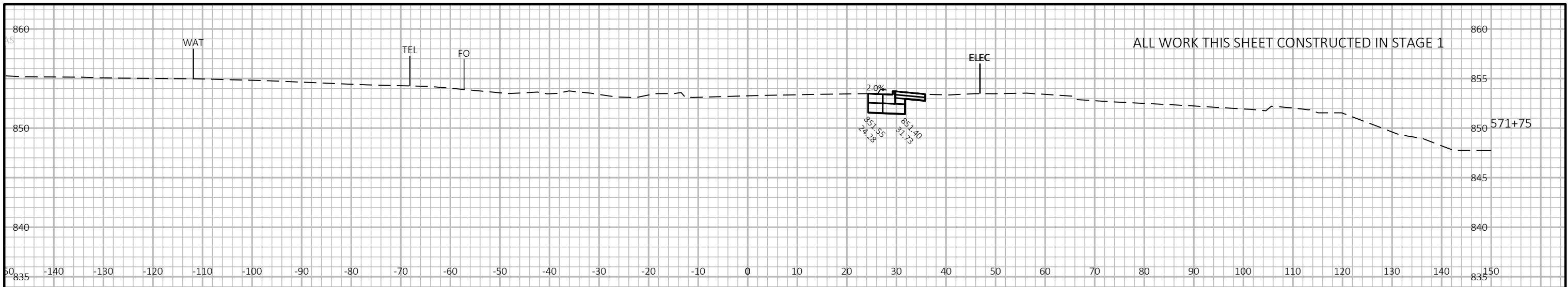


9

9

PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: RAMP C      SHEET E

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090202-XS RAMP C.DWG      PLOT DATE : 1/29/2023 10:18 PM      PLOT BY : BLACKWOOD, JIM      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49



9

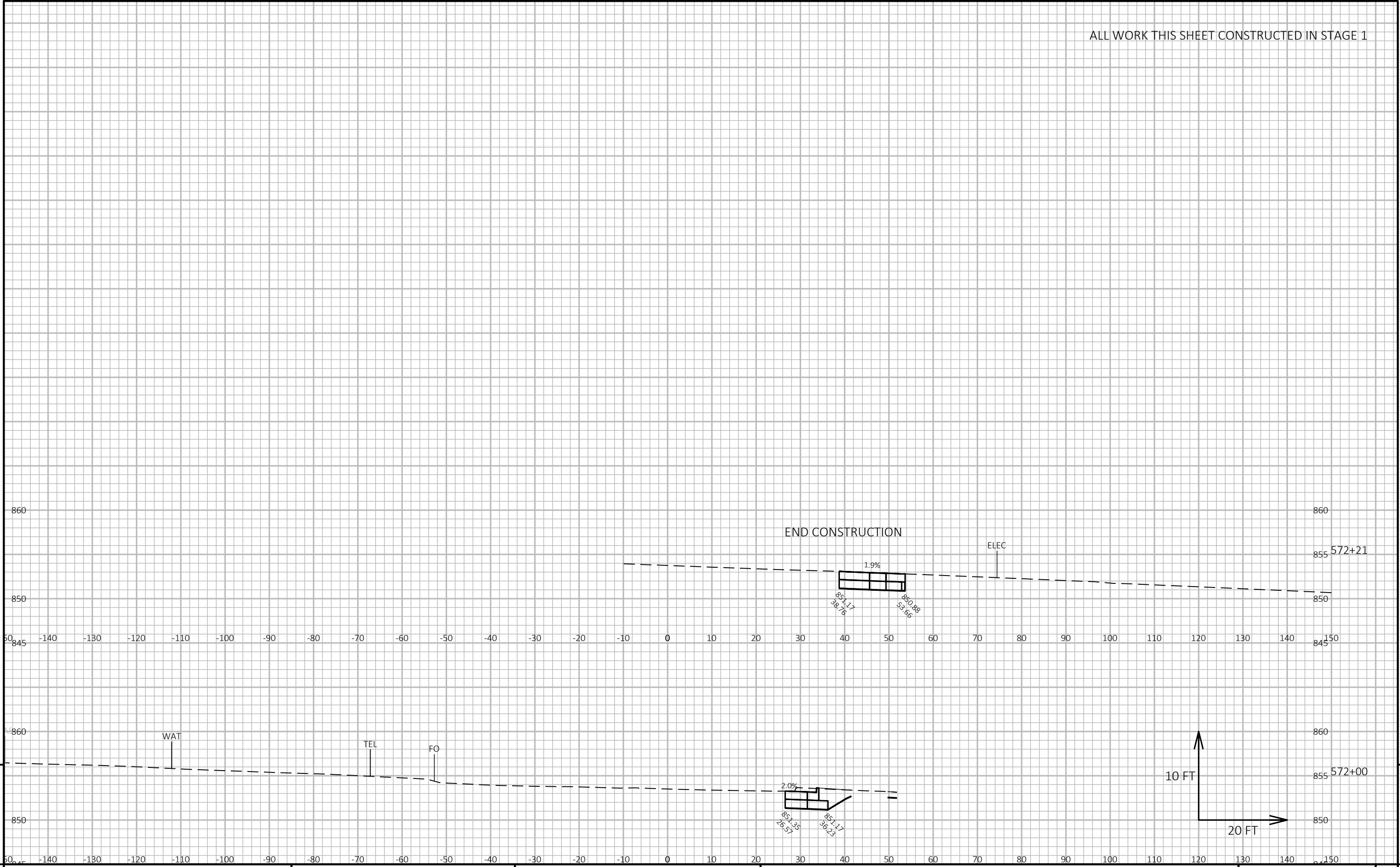
PROJECT NO: 1060-10-72	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: RAMP E	SHEET
------------------------	------------	------------------	------------------------	-------

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090203-XS RAMP E.DWG PLOT DATE : 1/29/2023 10:19 PM PLOT BY : BLACKWOOD, JIM PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 01



ALL WORK THIS SHEET CONSTRUCTED IN STAGE 1



9

9

PROJECT NO: 1060-10-72      HWY: IH 94      COUNTY: WAUKESHA      CROSS SECTIONS: RAMP E      SHEET      E

FILE NAME : T:\1212712\CIVIL3D\10601002\SHEETSPLAN\090203-XS RAMP E.DWG      PLOT DATE : 1/29/2023 10:19 PM      PLOT BY : BLACKWOOD, JIM      PLOT NAME :      PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49



## ***Wisconsin Department of Transportation***

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>