

WIS  
PROJECT ID: 1166-12-89  
WITH: NA  
COUNTY: PORTAGE

AUGUST 2021

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 = 260

16

DESIGN DESIGNATION

IH 39

CTH B

A.A.D.T.

2022

=

24,620

18,408

A.A.D.T.

=

D.H.V.

=

D.D.

=

T.

=

11.5%

10.6%

DESIGN SPEED

=

70

50

ESALS

=

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS

PROPERTY LINE

LOT LINE

LIMITED HIGHWAY EASEMENT

EXISTING RIGHT OF WAY

PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

PROPOSED CULVERT (Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE

ORIGINAL GROUND

MARSH OR ROCK PROFILE (To be noted as such)

SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

TELEPHONE

WATER

UTILITY PEDESTAL

POWER POLE

TELEPHONE POLE

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

PLAINFIELD - STEVENS POINT

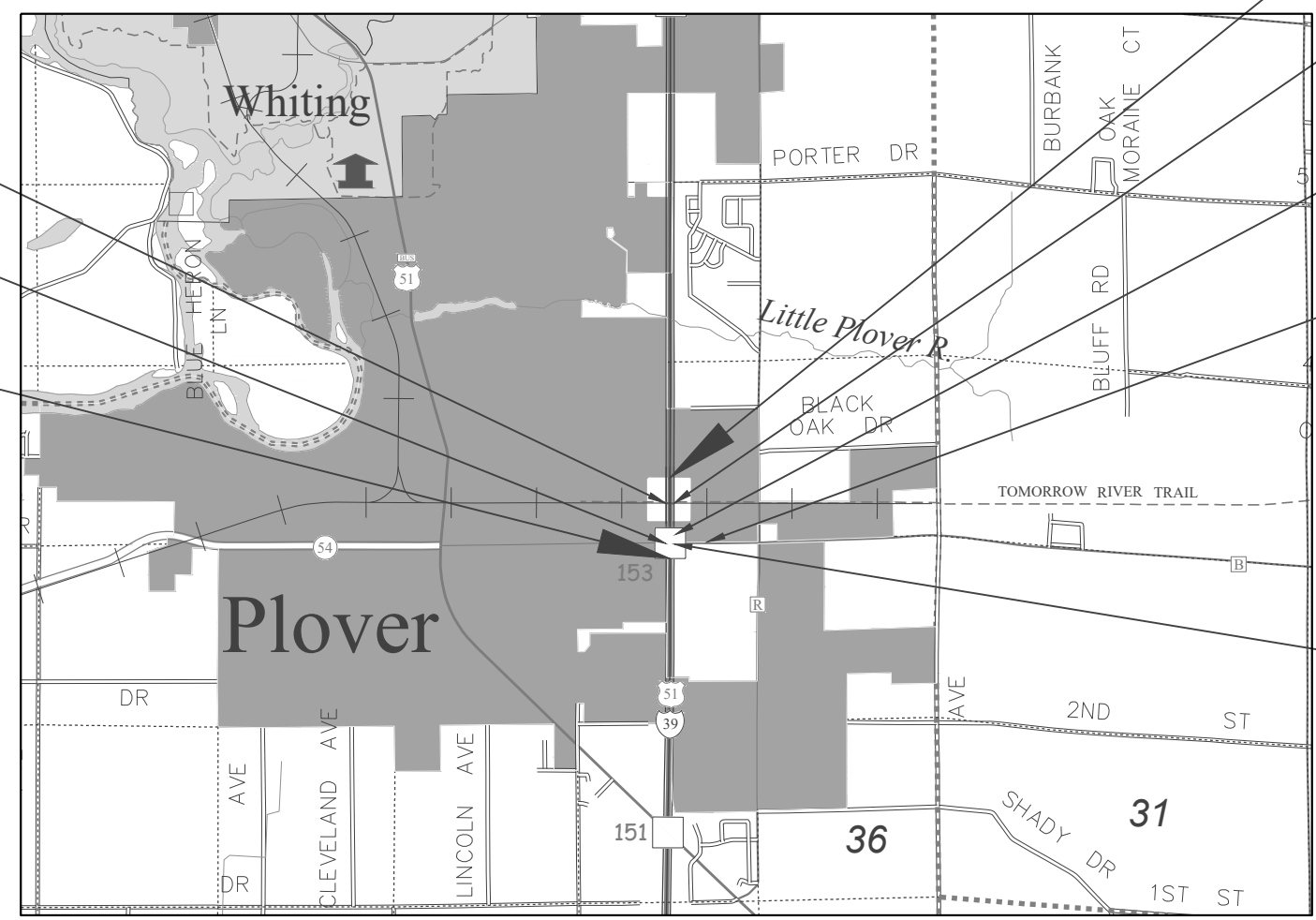
STRUCTURES B-49-14, 15, 16, 17

IH 39

PORTAGE COUNTY

STATE PROJECT NUMBER

1166-12-89



LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = NA

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), PORTAGE 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.

| STATE PROJECT | FEDERAL PROJECT |          |
|---------------|-----------------|----------|
|               | PROJECT         | CONTRACT |
| 1166-12-89    | WISC 2021443    | 1        |
|               |                 |          |
|               |                 |          |

- END PROJECT  
STA 1054+10 NB  
STA 1054+10 SB
- STRUCTURE B-49-0016  
STA 1040+05 NB - STA 1041+59 NB  
IH 39 NB OVER WCL RR & TRAIL
- STRUCTURE C-49-0008  
STA 1034+94 NB - STA 1035+02 NB  
DRAINAGE PASSAGE UNDER IH 39 NB/SB
- STRUCTURE S-49-34  
STA 35+94WB
- STRUCTURE B-49-0014  
STA 1028+45 NB - STA 1030+06 NB  
IH 39 NB OVER CTH B  
S-49-33 (CONNECTED TO B-49-14)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor

Designer

Project Manager

Regional Examiner

Regional Supervisor

NA

ANDREW CASPER

MARK STEIDL

CHERYL SIMON

NICHOLE LYSNE

APPROVED FOR THE DEPARTMENT

DATE: 5/18/2021

(Signature)

E

| Runoff Coefficient Table                                                    |                       |       |          |       |       |          |       |       |          |       |       |          |
|-----------------------------------------------------------------------------|-----------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|-------|----------|
|                                                                             | Hydrologic Soil Group |       |          |       |       |          |       |       |          |       |       |          |
|                                                                             | A                     |       |          | B     |       |          | C     |       |          | D     |       |          |
|                                                                             | 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                                                                   | 0.08                  | 0.16  | 0.22     | 0.12  | 0.20  | 0.27     | 0.15  | 0.24  | 0.33     | 0.19  | 0.28  | 0.38     |
|                                                                             | 0.22                  | 0.30  | 0.38     | 0.26  | 0.34  | 0.44     | 0.30  | 0.37  | 0.50     | 0.34  | 0.41  | 0.56     |
| Median Strip-Turf                                                           | 0.19                  | 0.20  | 0.24     | 0.19  | 0.22  | 0.26     | 0.20  | 0.23  | 0.30     | 0.20  | 0.25  | 0.30     |
|                                                                             | 0.24                  | 0.26  | 0.30     | 0.25  | 0.28  | 0.33     | 0.26  | 0.30  | 0.37     | 0.27  | 0.32  | 0.40     |
| Side Slope Turf                                                             |                       |       | 0.25     |       |       | 0.27     |       |       | 0.28     |       |       | 0.30     |
|                                                                             |                       |       | 0.32     |       |       | 0.34     |       |       | 0.36     |       |       | 0.38     |
| Pavement                                                                    |                       |       |          |       |       |          |       |       |          |       |       |          |
| Asphalt                                                                     | 0.70 - 0.95           |       |          |       |       |          |       |       |          |       |       |          |
| Concrete                                                                    | 0.80 - 0.95           |       |          |       |       |          |       |       |          |       |       |          |
| Brick                                                                       | 0.70 - 0.80           |       |          |       |       |          |       |       |          |       |       |          |
| Drives, Sidewalks                                                           | 0.75 - 0.85           |       |          |       |       |          |       |       |          |       |       |          |
| Roofs                                                                       | 0.75 - 0.95           |       |          |       |       |          |       |       |          |       |       |          |
| Gravel Roads, Shoulders                                                     | 0.40 - 0.60           |       |          |       |       |          |       |       |          |       |       |          |
|                                                                             |                       |       |          |       |       |          |       |       |          |       |       |          |
| Total Project Area = 10 Acres                                               |                       |       |          |       |       |          |       |       |          |       |       |          |
| Total Area Expected To Be Disturbed By Construction Activities = 1.75 Acres |                       |       |          |       |       |          |       |       |          |       |       |          |

GENERAL NOTES

CURVE DATA IS BASED ON THE ARC DEFINITION.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

INLET GRATE ELEVATIONS REFERRED TO ON INLET NOTES ARE GRATE FLOW LINE ELEVATIONS.

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

PURSUANT TO CHAPTER 59 OF THE WISCONSIN STATUTES, THE CONTRACTOR SHALL CAREFULLY MAKE A SEARCH FOR EVIDENCE OF A LANDMARK IN ALL AREAS WHERE SUCH A LANDMARK MAY EXIST.

WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH THE APPROVAL OF THE ENGINEER.

WISCONSIN DEPART. OF NATURAL RESOURCES

CASEY JONES  
WDNR EA LIAISON  
473 GRIFFITH AVENUE  
WISCONSIN RAPIDS, WI 54494  
PHONE: (715) 213-6571 (CELL)  
E-MAIL: casey.jones@wisconsin.gov

UTILITIES

UTILITY LABEL  
ON PLAN SHEETS

UTILITY NAME AND  
CONTACT INFORMATION

A

AT&T WISCONSIN - COMMUNICATION LINE  
CHUCK BARTELT  
70 E DIVISION ST  
FOND DU LAC, WI 54935  
EMAIL: CB1461@ATT.COM  
PHONE: (920) 410-5104

B

WISCONSIN PUBLIC SERVICE CORPORATION - GAS/PETROLEUM  
STEVE JAECKS  
700 N ADAMS ST  
P.O. BOX 19001  
GREEN BAY, WI 54307-9001  
EMAIL: Seven.Jaecks@wisconsinpublicservice.com  
PHONE: (920) 433-1175

C

VILLAGE OF PLOVER - WATER  
MATT SALOUN  
P.O. BOX 37  
PLOVER, WI 54467  
EMAIL: msaloun@plover.gov  
PHONE: (715) 345-5254

D

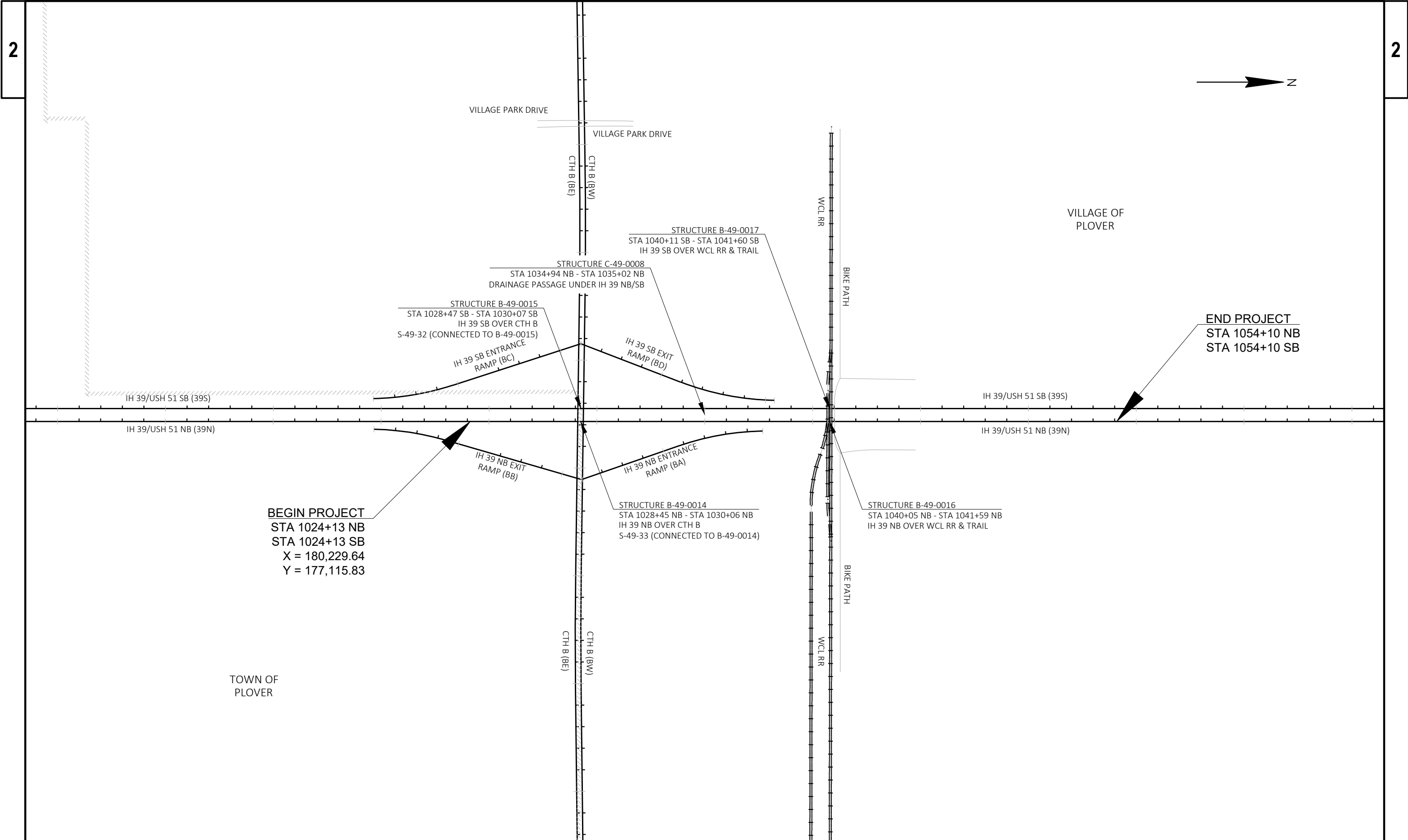
VILLAGE OF PLOVER - SEWER  
DAN MAHONEY  
P.O. BOX 37  
PLOVER, WI 54467  
EMAIL: dmahoney@ploverwi.gov  
PHONE: (715) 345-5250

E

WISCONSIN PUBLIC SERVICE CORPORATION - ELECTRICITY  
DON LUTZOW  
700 N ADAMS ST  
P.O. BOX 19001  
GREEN BAY, WI 54307-9001  
EMAIL: donald.lutzow@wisconsinpublicservice.com  
PHONE: (715) 848-7487

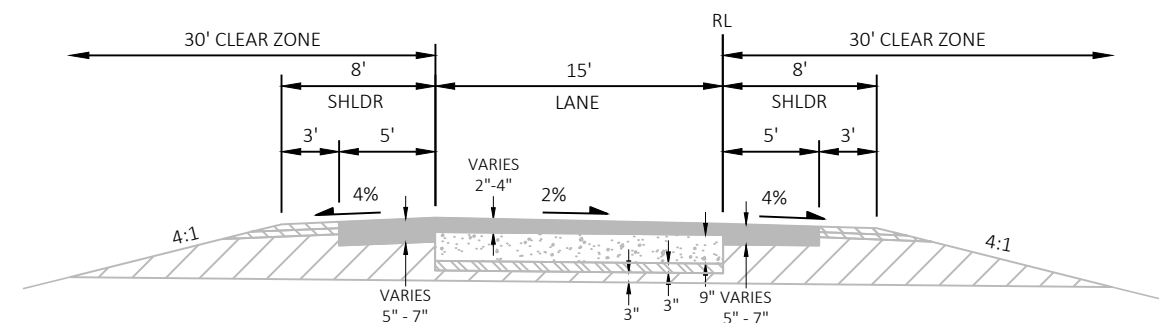
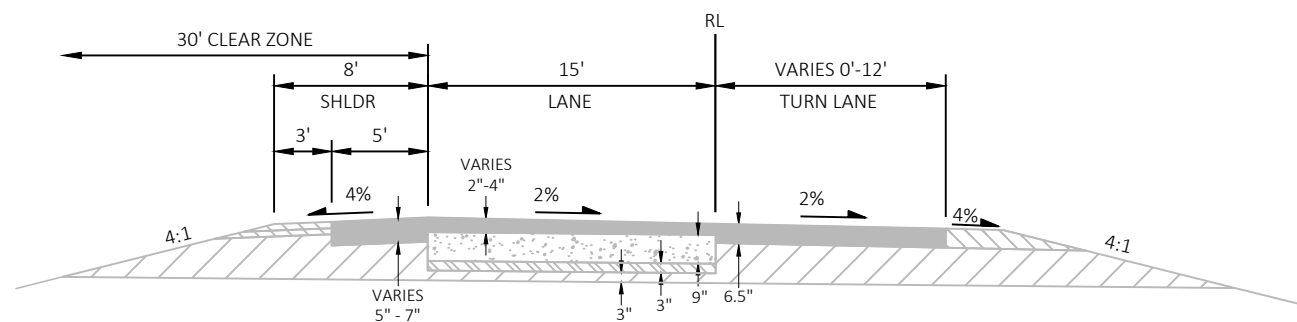
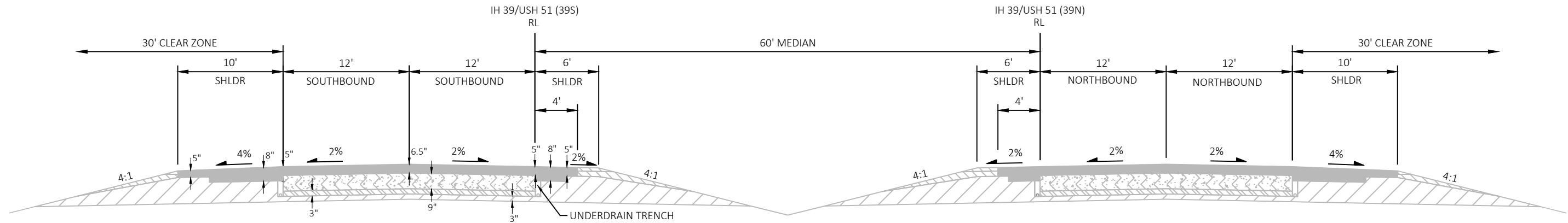
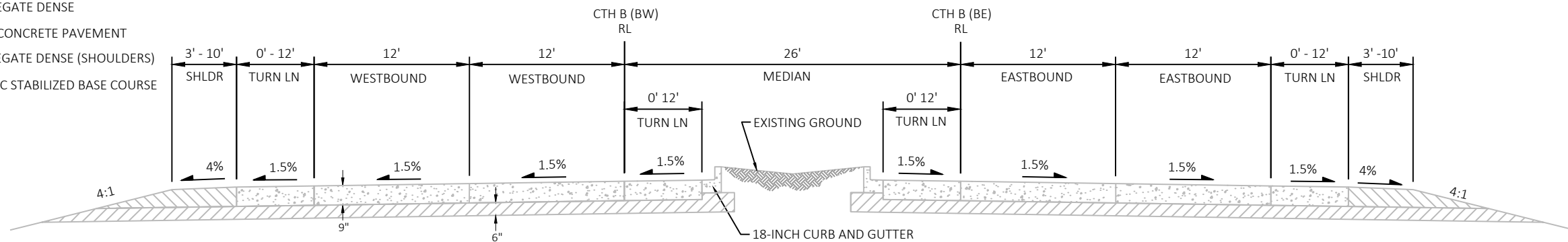


Dial 811 or (800)242-8511  
www.DiggersHotline.com



## LEGEND

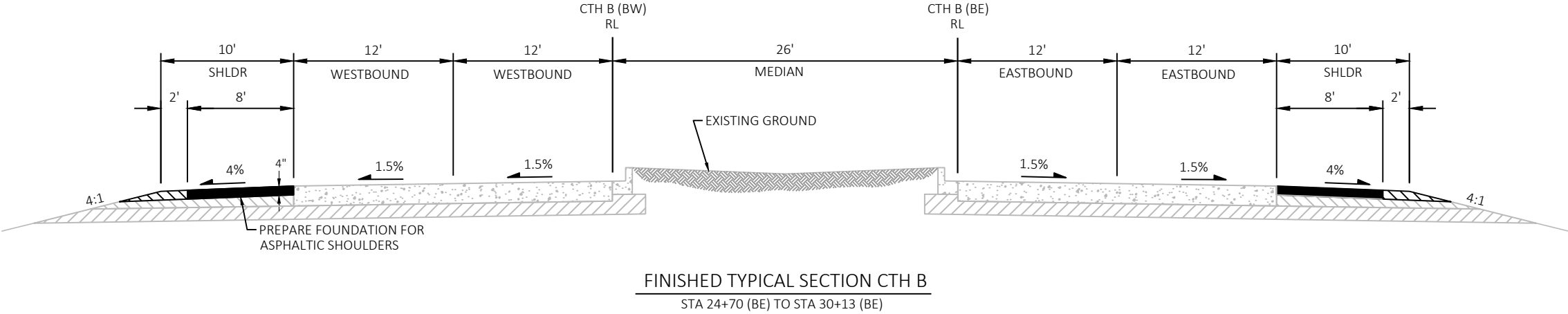
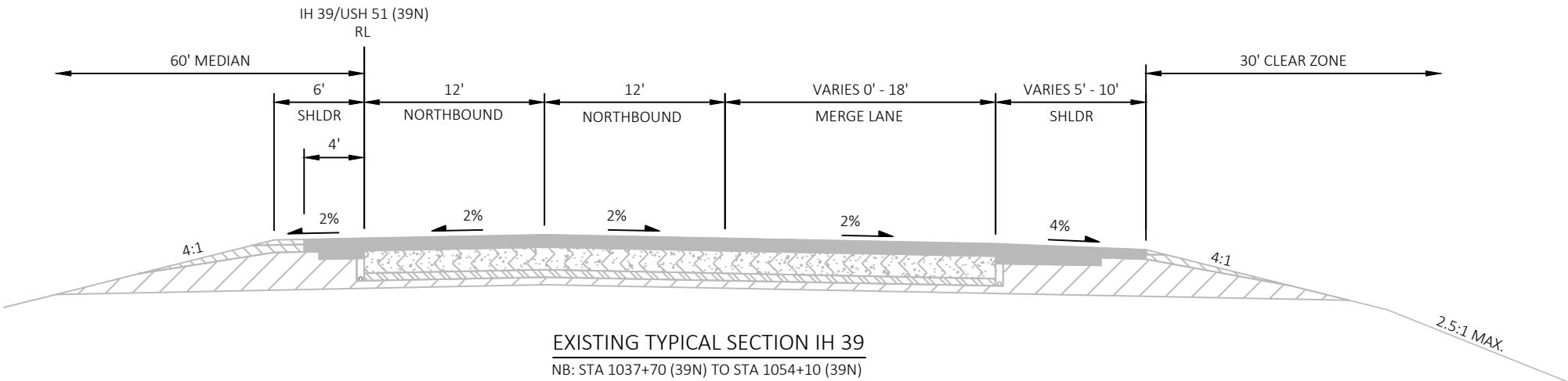
-  EXISTING CONCRETE PAVEMENT
-  EXISTING HMA PAVEMENT
-  EXISTING BASE AGGREGATE DENSE
-  EXISTING RUBBLIZED CONCRETE PAVEMENT
-  EXISTING BASE AGGREGATE DENSE (SHOULDERS)
-  EXISTING 3" ASPHALTIC STABILIZED BASE COURSE

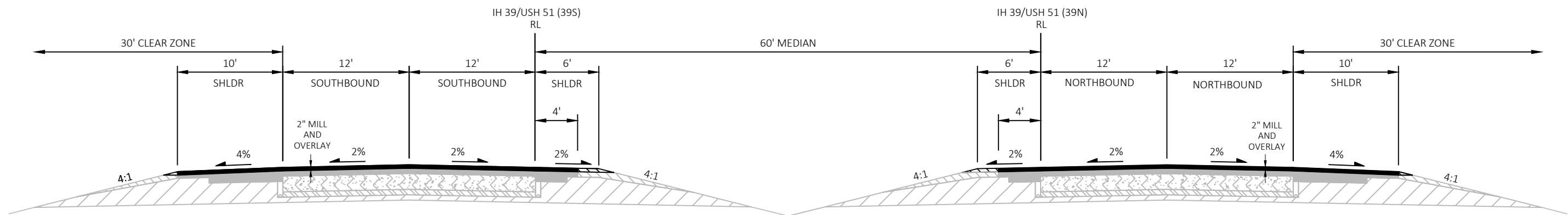




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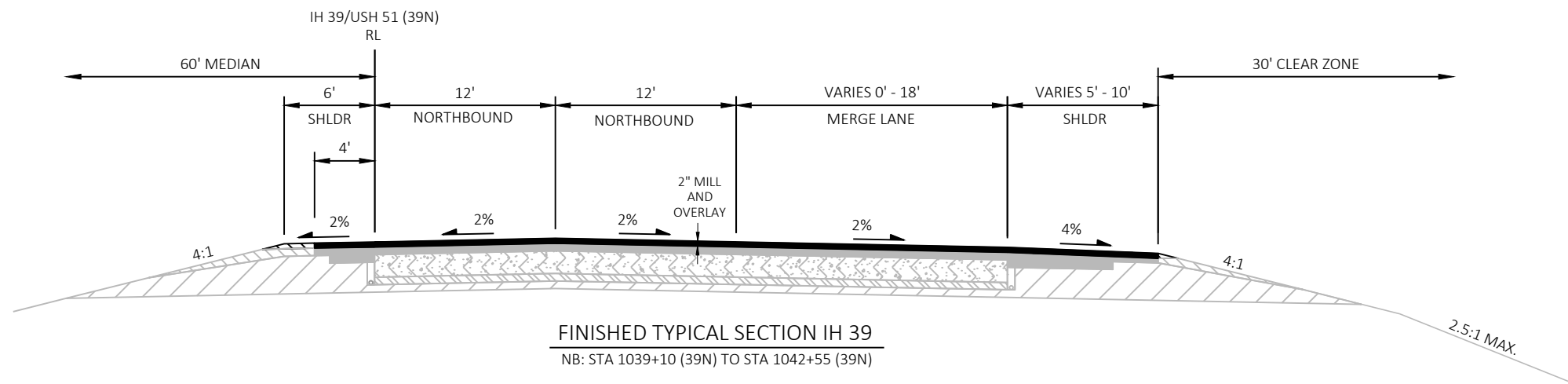
- EXISTING CONCRETE PAVEMENT
- EXISTING HMA PAVEMENT
- EXISTING BASE AGGREGATE DENSE
- EXISTING RUBBLIZED CONCRETE PAVEMENT
- EXISTING BASE AGGREGATE DENSE (SHOULDERS)
- EXISTING 3" ASPHALTIC STABILIZED BASE COURSE
- ASPHALTIC SURFACE
- BASE AGGREGATE DENSE 3/4-INCH





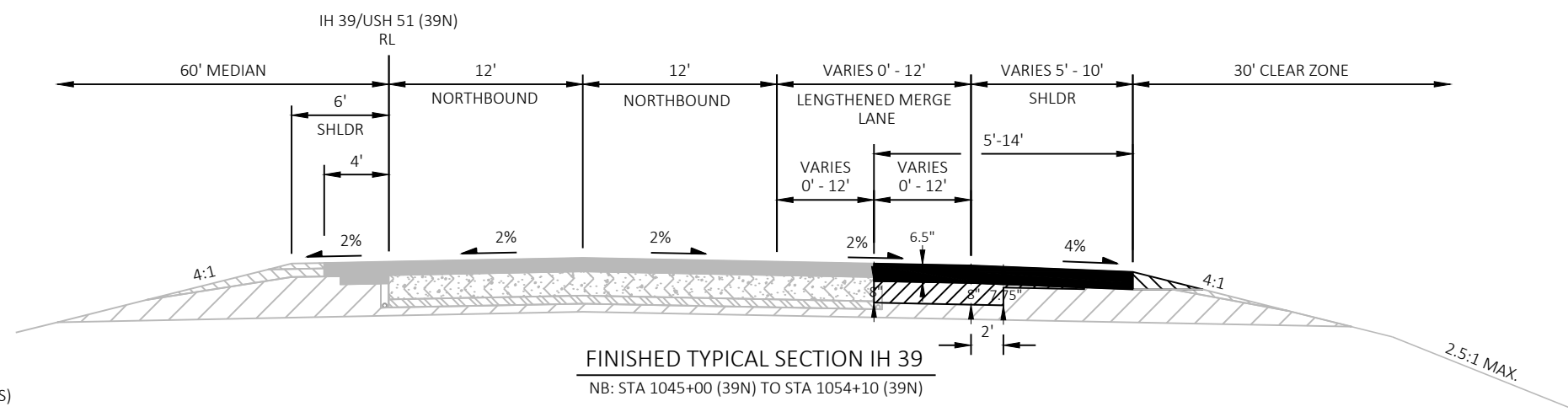
### FINISHED TYPICAL SECTION IH 39

NB: STA 1027+50 (39N) TO STA 1031+00 (39N)  
SB: STA 1027+50 (39S) TO STA 1031+00 (39S) AND 1039+25 (39S) TO 1042+55 (39S)



### FINISHED TYPICAL SECTION IH 39

NB: STA 1039+10 (39N) TO STA 1042+55 (39N)



### FINISHED TYPICAL SECTION IH 39

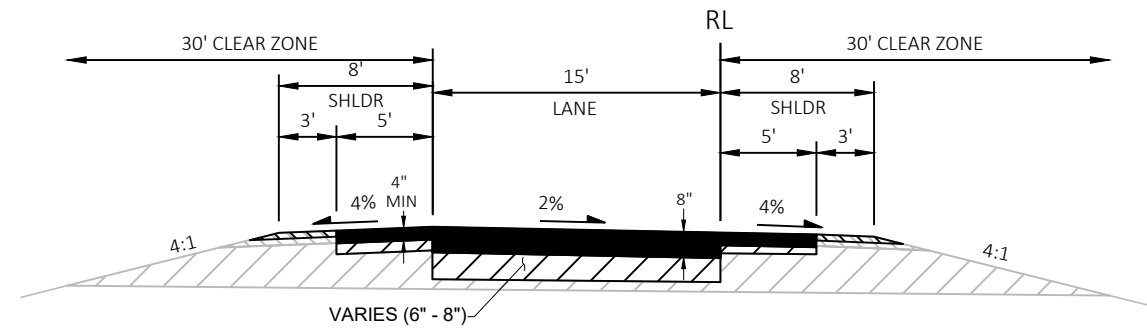
NB: STA 1045+00 (39N) TO STA 1054+10 (39N)

### LEGEND

- EXISTING CONCRETE PAVEMENT
- EXISTING HMA PAVEMENT
- EXISTING BASE AGGREGATE DENSE
- EXISTING RUBBLIZED CONCRETE PAVEMENT
- EXISTING BASE AGGREGATE DENSE (SHOULDERS)
- EXISTING 3" ASPHALTIC STABILIZED BASE COURSE
- ASPHALTIC SURFACE
- BASE AGGREGATE DENSE 3/4-INCH
- BASE AGGREGATE DENSE 1 1/4-INCH

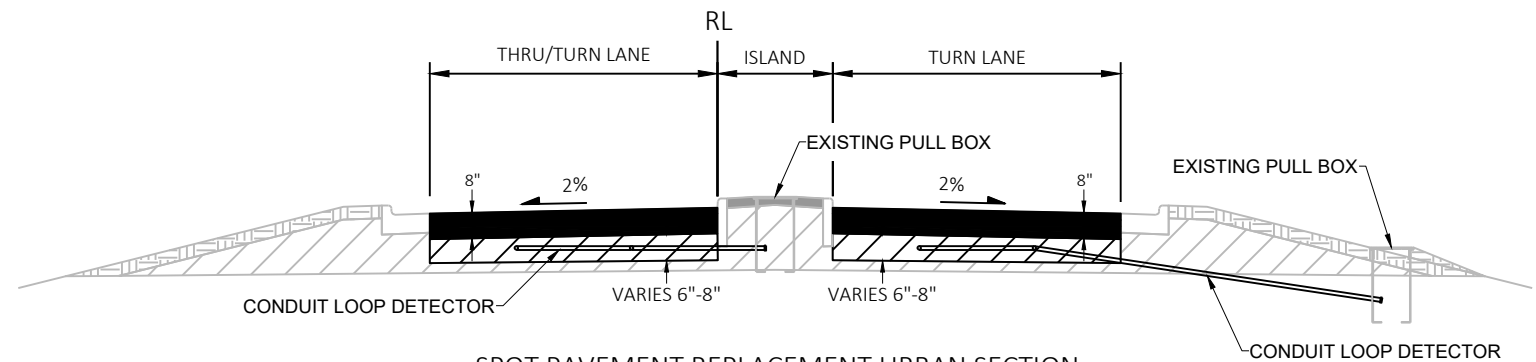
## LEGEND

|  |                                              |  |                                 |
|--|----------------------------------------------|--|---------------------------------|
|  | EXISTING CONCRETE PAVEMENT                   |  | EXISTING TOPSOIL                |
|  | EXISTING HMA PAVEMENT                        |  | ASPHALTIC SURFACE               |
|  | EXISTING BASE AGGREGATE DENSE                |  | BASE AGGREGATE DENSE 3/4-INCH   |
|  | EXISTING RUBBLIZED CONCRETE PAVEMENT         |  | BASE AGGREGATE DENSE 1 1/4-INCH |
|  | EXISTING BASE AGGREGATE DENSE (SHOULDERS)    |  | CONCRETE OVERLAY                |
|  | EXISTING 3" ASPHALTIC STABILIZED BASE COURSE |  |                                 |



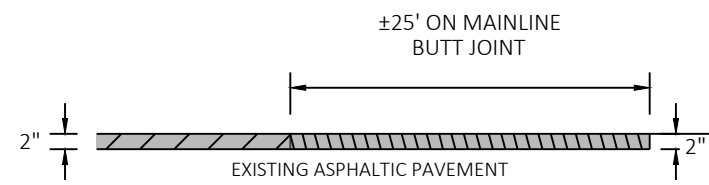
## SPOT PAVEMENT REPLACEMENT RURAL SECTION

CTH B INTERCHANGE  
"BA" RAMP: STA 3+06 "BA" TO STA 3+16 "BA"  
"BB" RAMP: STA 8+94 "BB" TO STA 9+06 "BB"  
"BD" RAMP: STA 2+91 "BD" TO STA 3+03 "BD"



## SPOT PAVEMENT REPLACEMENT URBAN SECTION

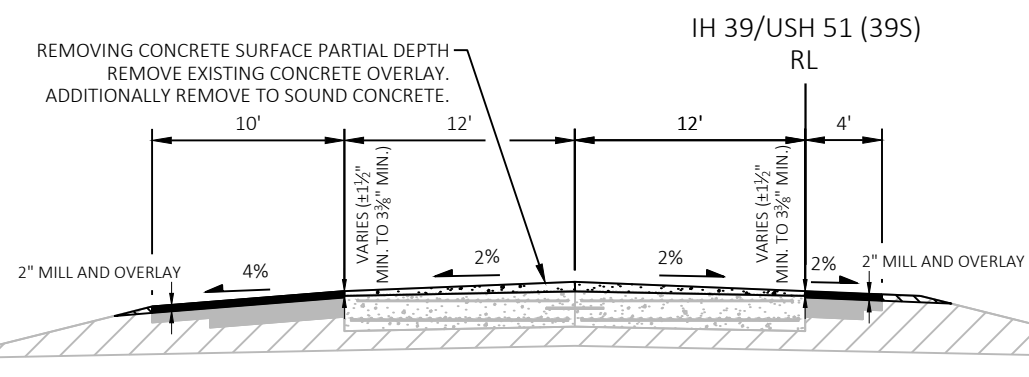
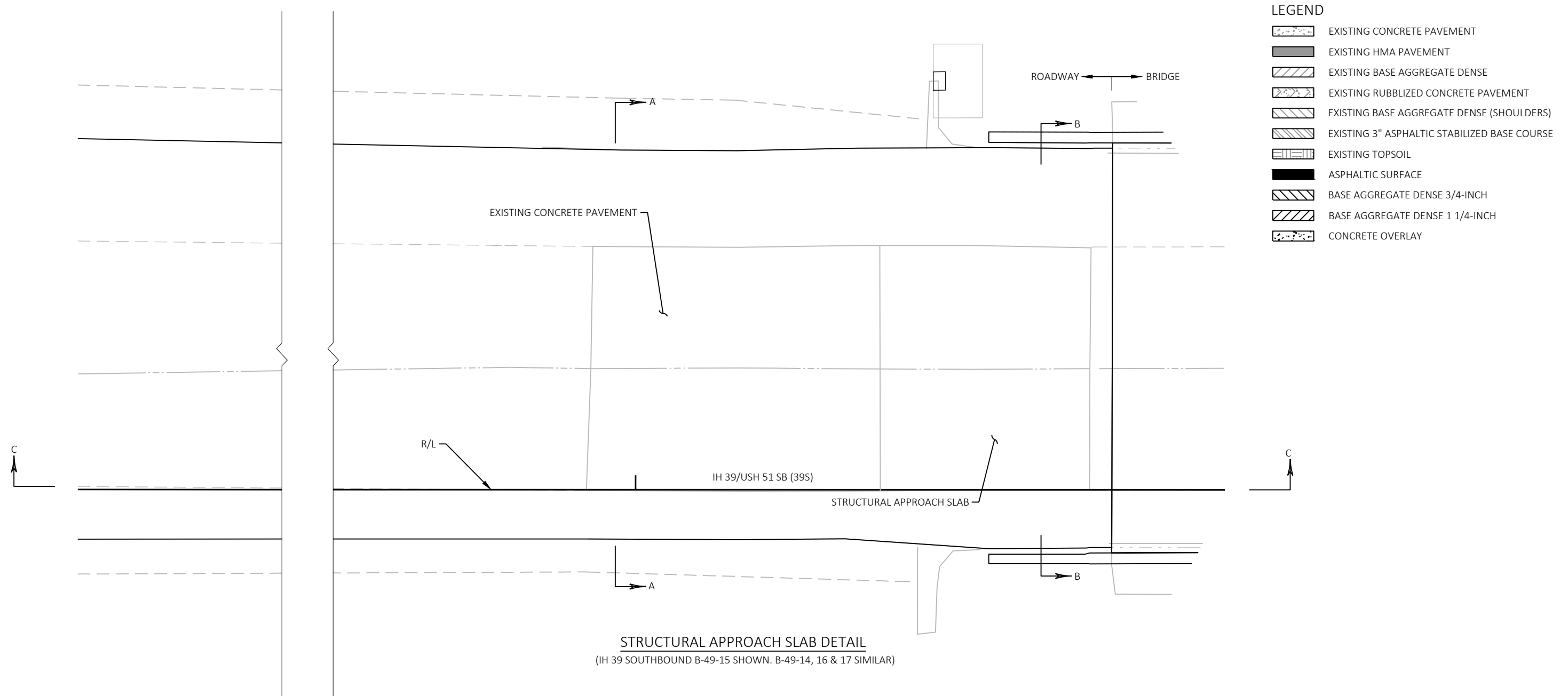
CTH B INTERCHANGE  
"BA" RAMP: STA 1+39 "BA" TO STA 1+78 "BA"  
"BB" RAMP: STA 9+80 "BB" TO STA 10+46 "BB"  
"BD" RAMP: STA 1+54 "BD" TO STA 2+12 "BD"



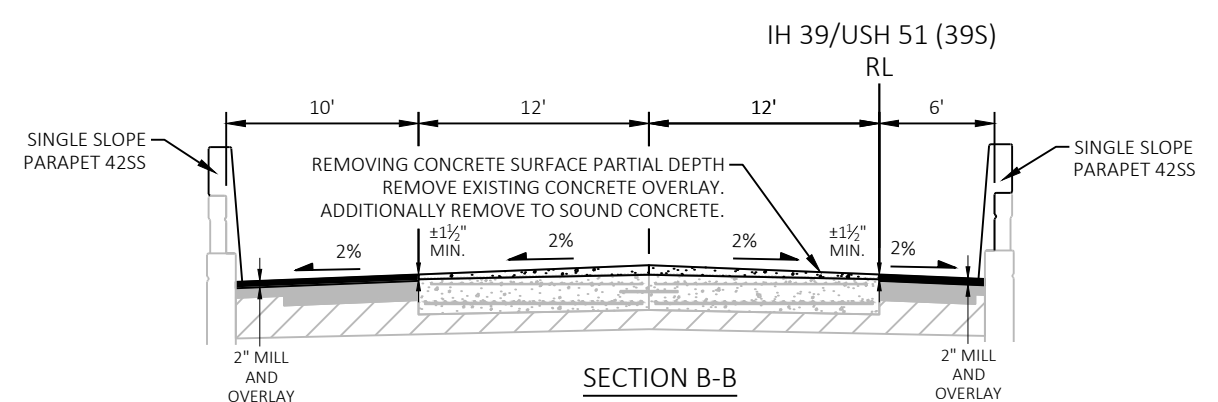
|  |                                        |
|--|----------------------------------------|
|  | HMA PAVEMENT                           |
|  | REMOVING ASPHALTIC SURFACE MILLING     |
|  | REMOVING ASPHALTIC SURFACE BUTT JOINTS |

## BUTT JOINT

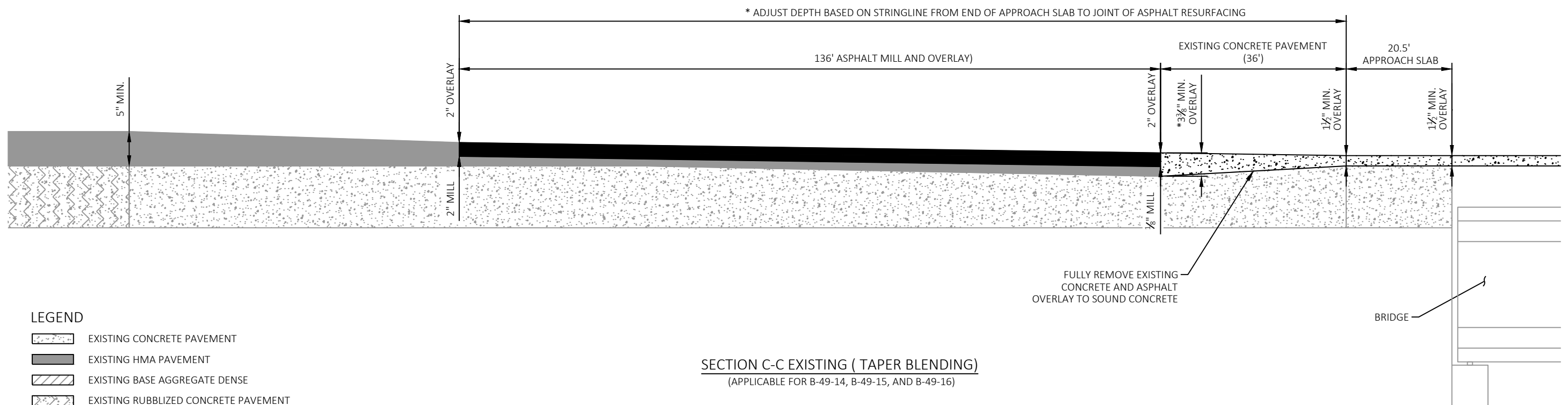
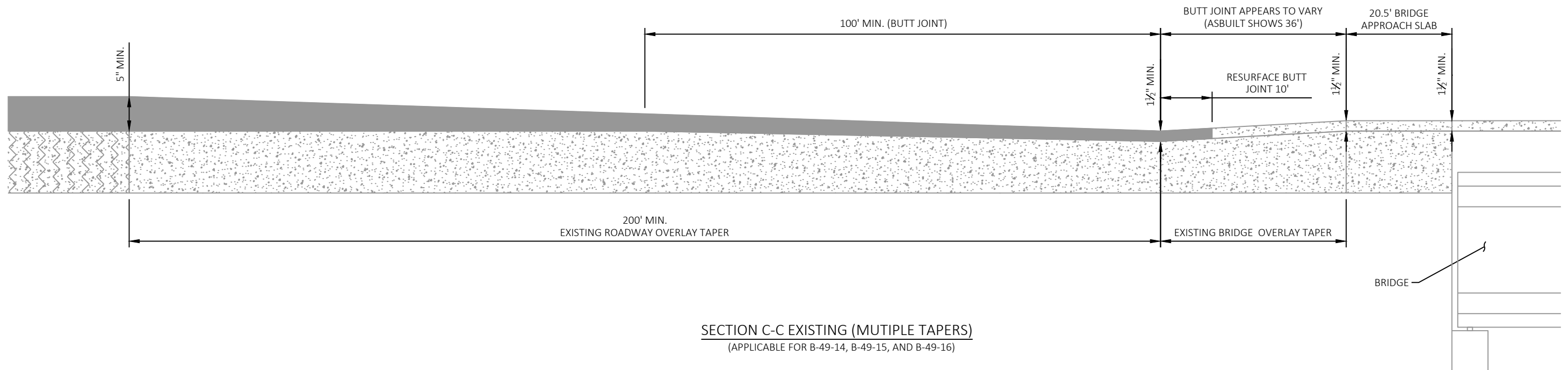
MAINLINE



SECTION A-A  
(IH 39 SOUTHBOUND B-49-15 SHOWN. B-49-14, 16 & 17 SIMILAR)  
LOOKING NORTH

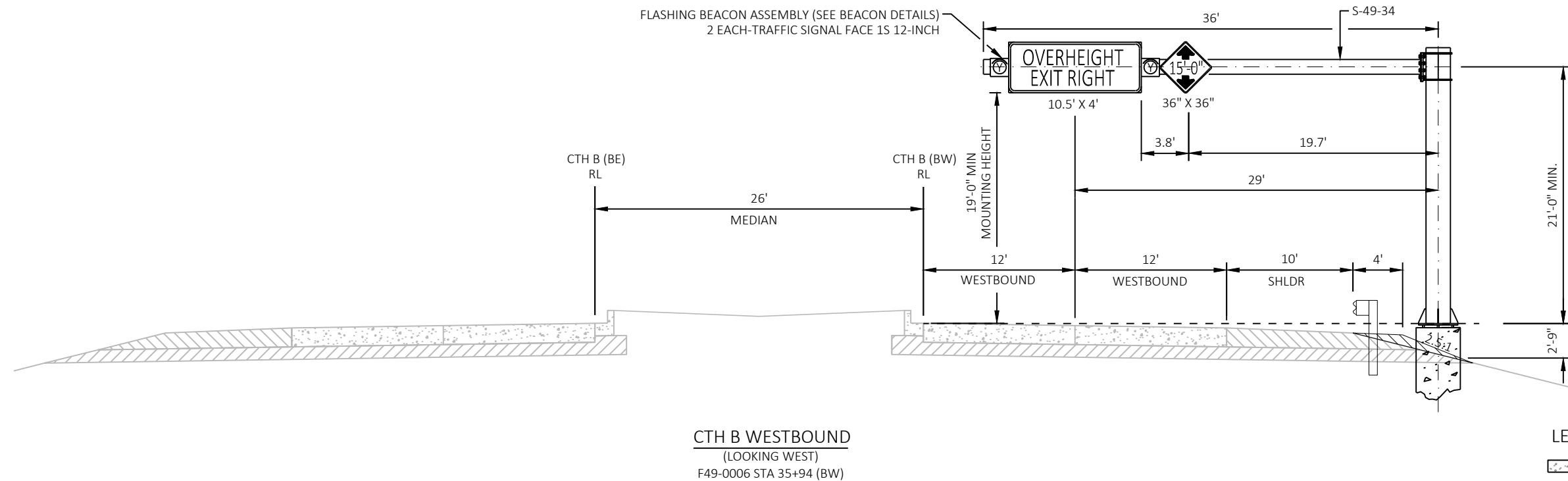
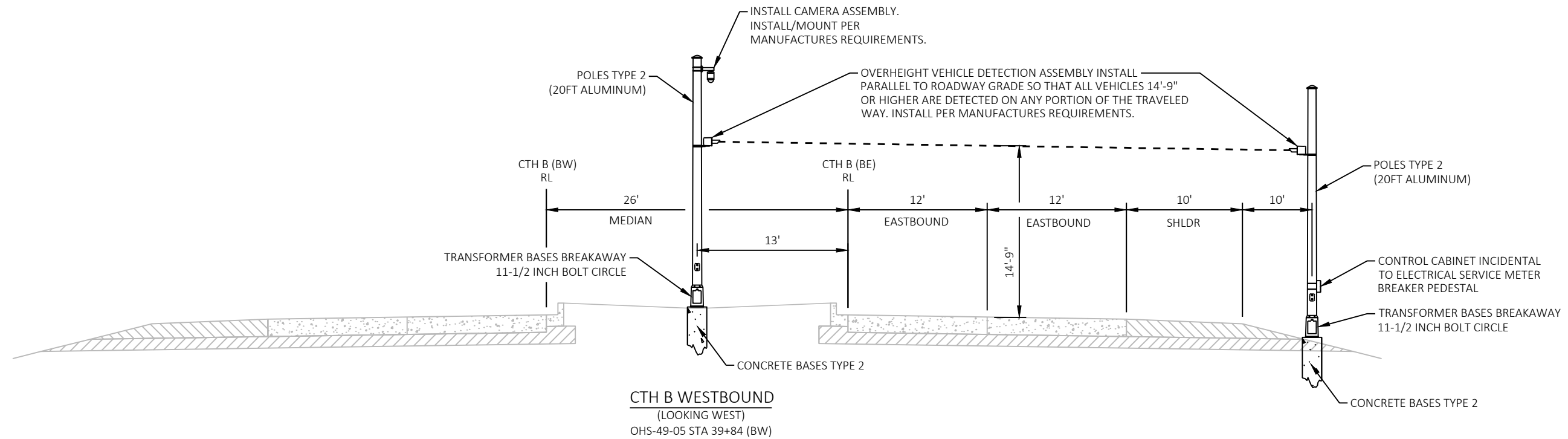


SECTION B-B  
(IH 39 SOUTHBOUND B-49-15 SHOWN. B-49-14, 16 & 17 SIMILAR)  
LOOKING NORTH



## LEGEND

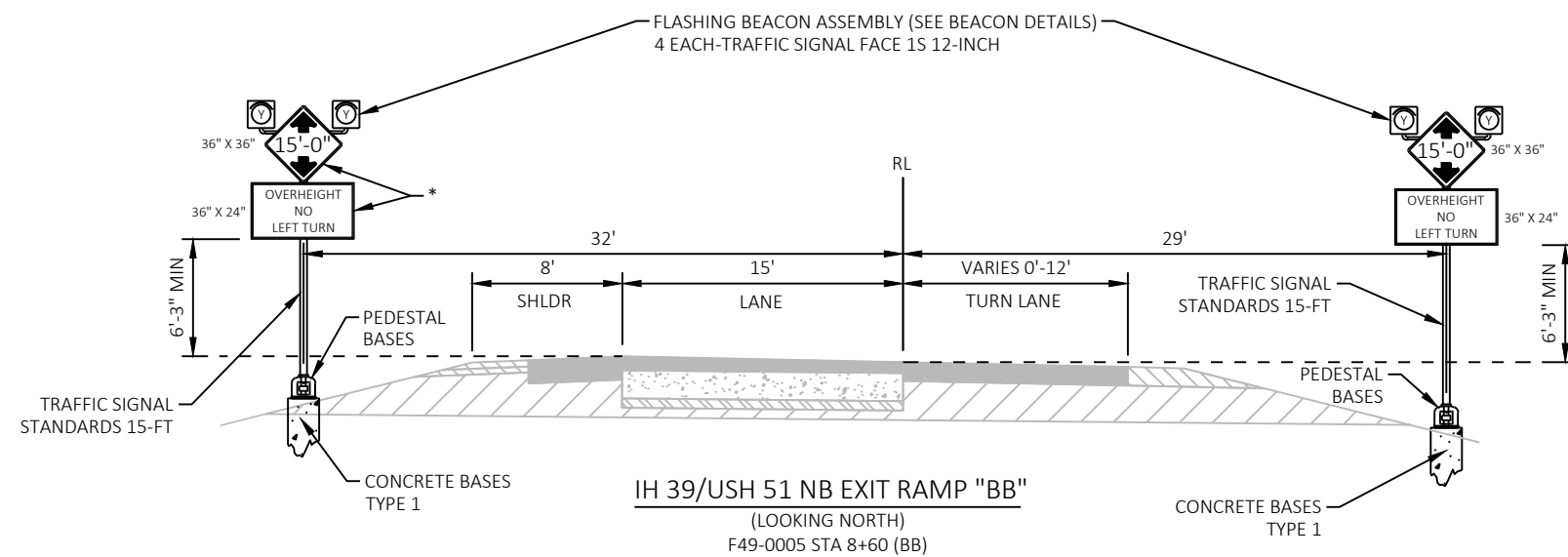
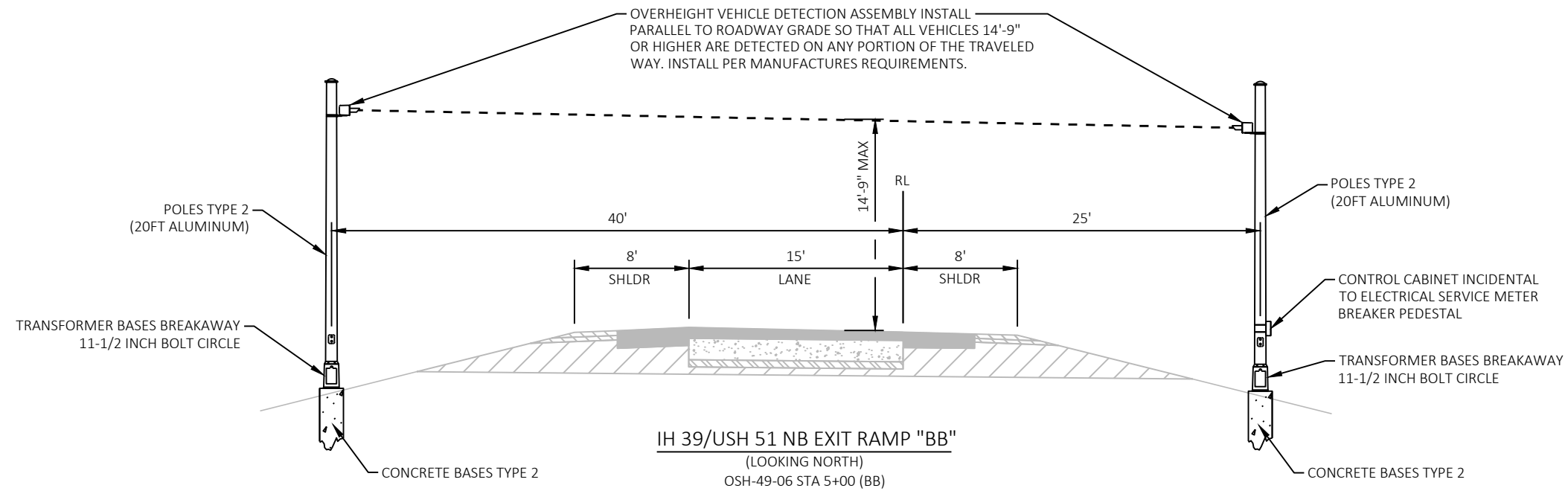
|  |                                              |
|--|----------------------------------------------|
|  | EXISTING CONCRETE PAVEMENT                   |
|  | EXISTING HMA PAVEMENT                        |
|  | EXISTING BASE AGGREGATE DENSE                |
|  | EXISTING RUBBLIZED CONCRETE PAVEMENT         |
|  | EXISTING BASE AGGREGATE DENSE (SHOULDERS)    |
|  | EXISTING 3" ASPHALTIC STABILIZED BASE COURSE |
|  | EXISTING TOPSOIL                             |
|  | ASPHALTIC SURFACE                            |
|  | BASE AGGREGATE DENSE 3/4-INCH                |
|  | BASE AGGREGATE DENSE 1 1/4-INCH              |
|  | CONCRETE OVERLAY                             |



## LEGEND

- EXISTING CONCRETE PAVEMENT
- EXISTING HMA PAVEMENT
- EXISTING BASE AGGREGATE DENSE
- EXISTING RUBBLIZED CONCRETE PAVEMENT
- EXISTING BASE AGGREGATE DENSE (SHOULDERS)
- 3" ASPHALTIC STABILIZED BASE COURSE
- BASE AGGREGATE DENSE 3/4-INCH

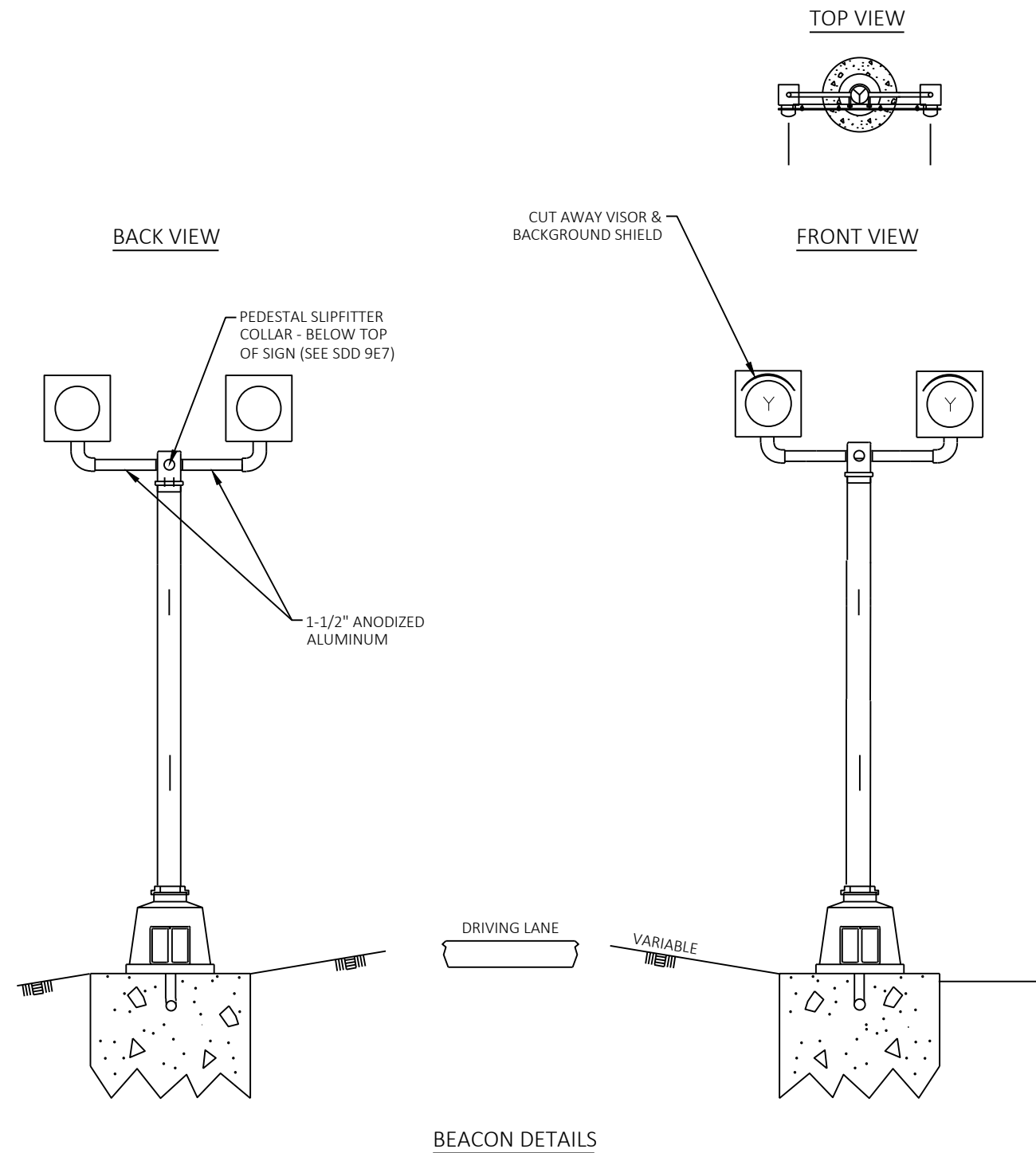




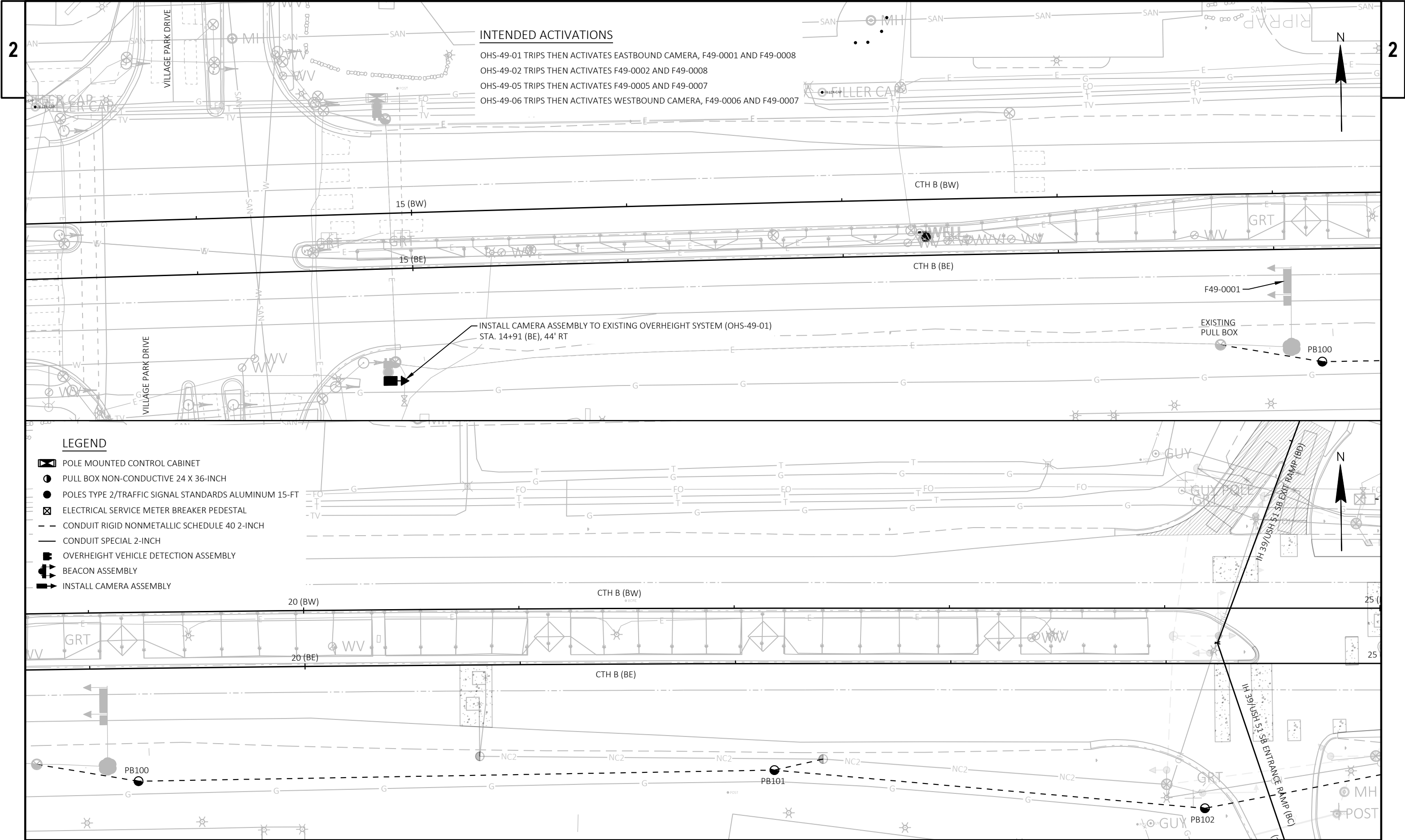
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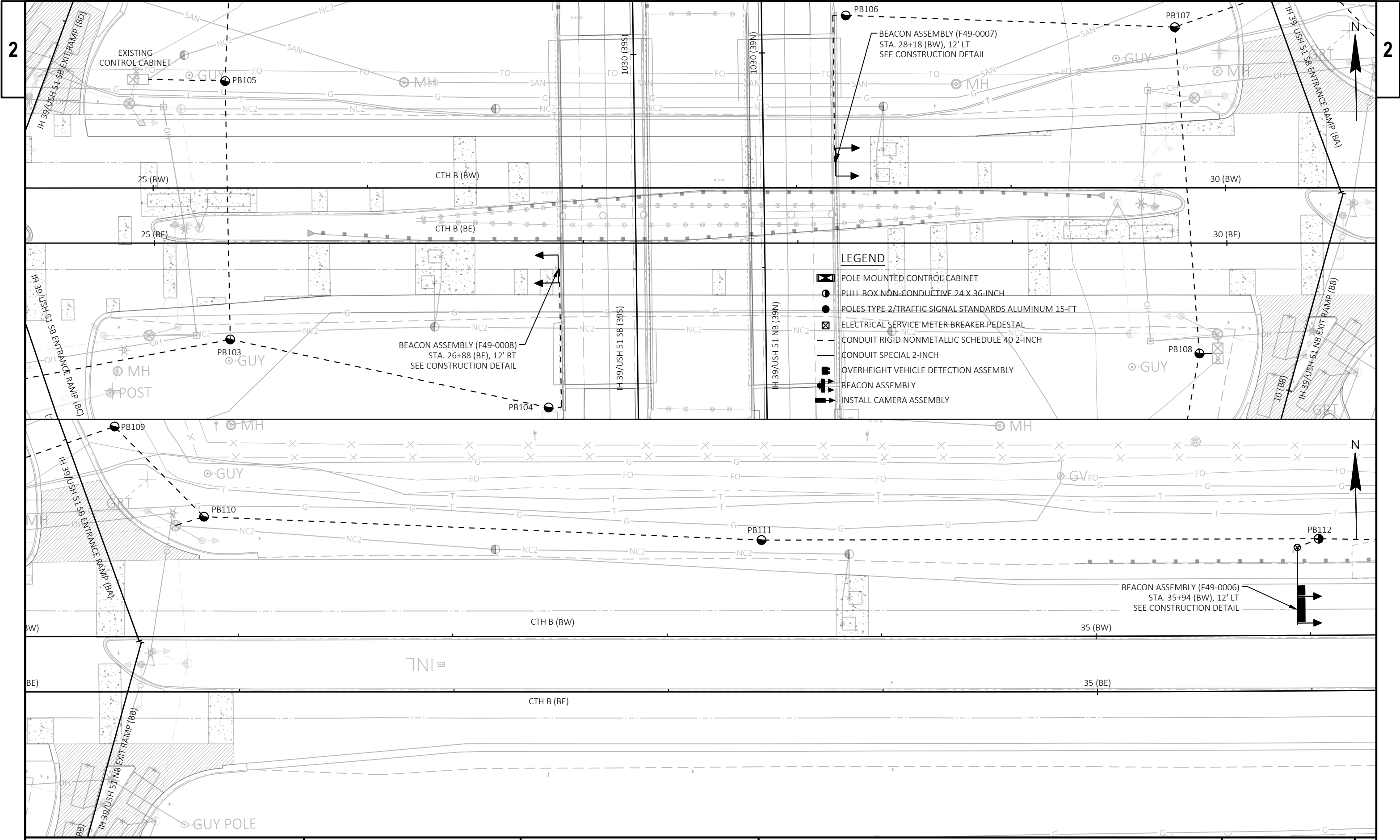
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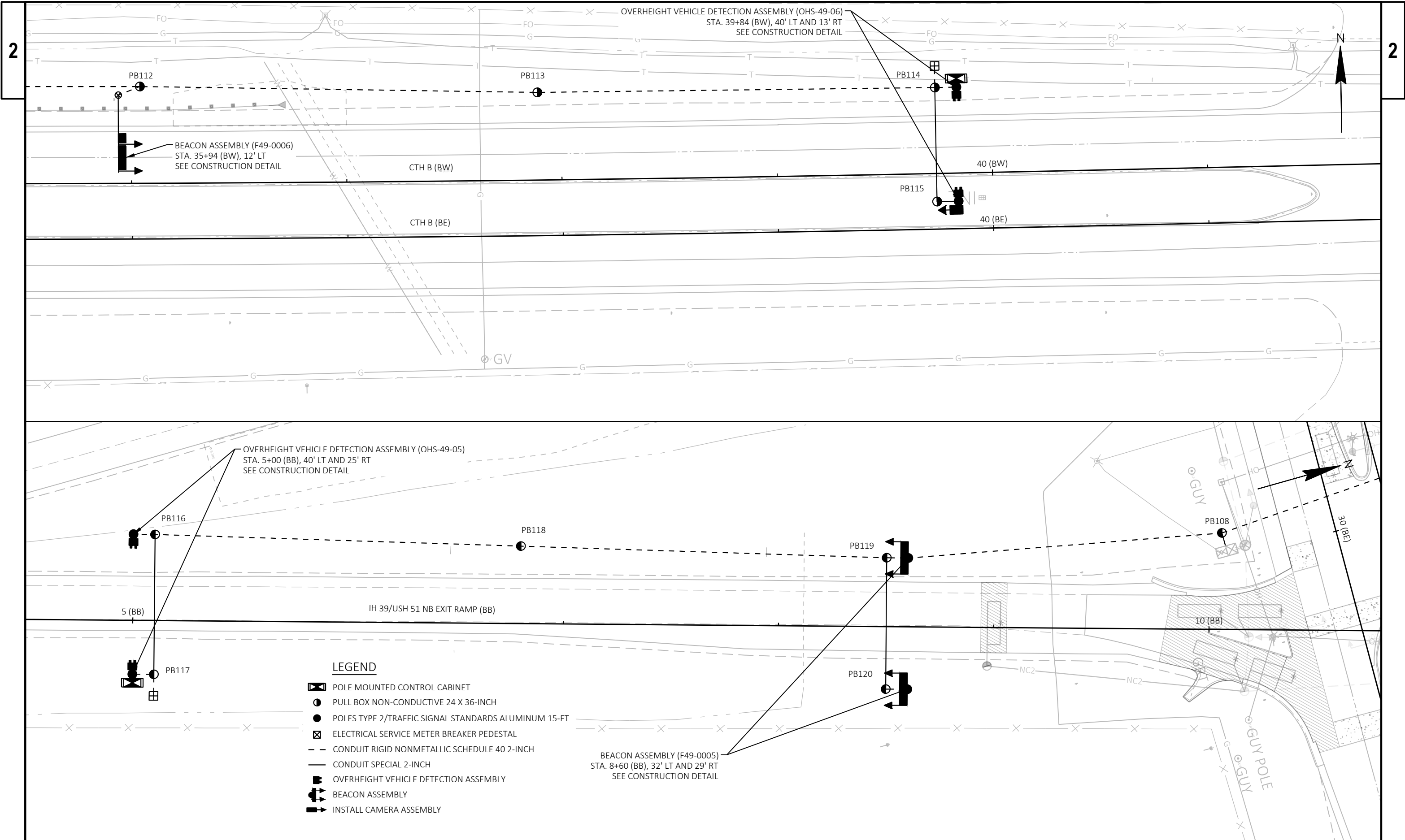
\* SEE PERMANENT SIGNING SHEETS FOR FURTHER DETAILS.

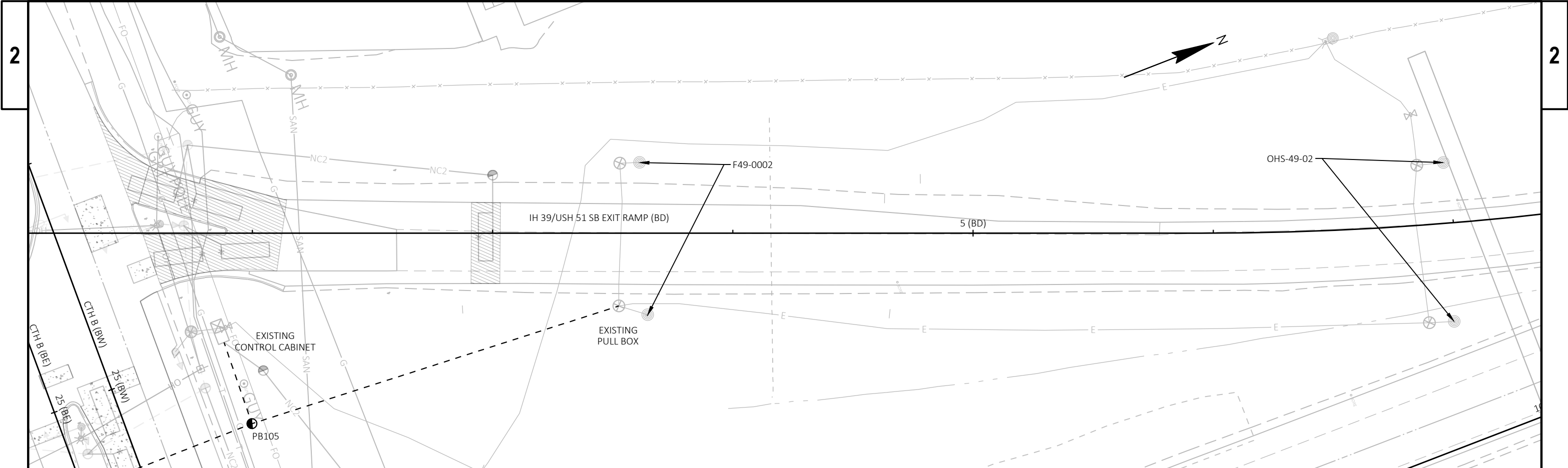






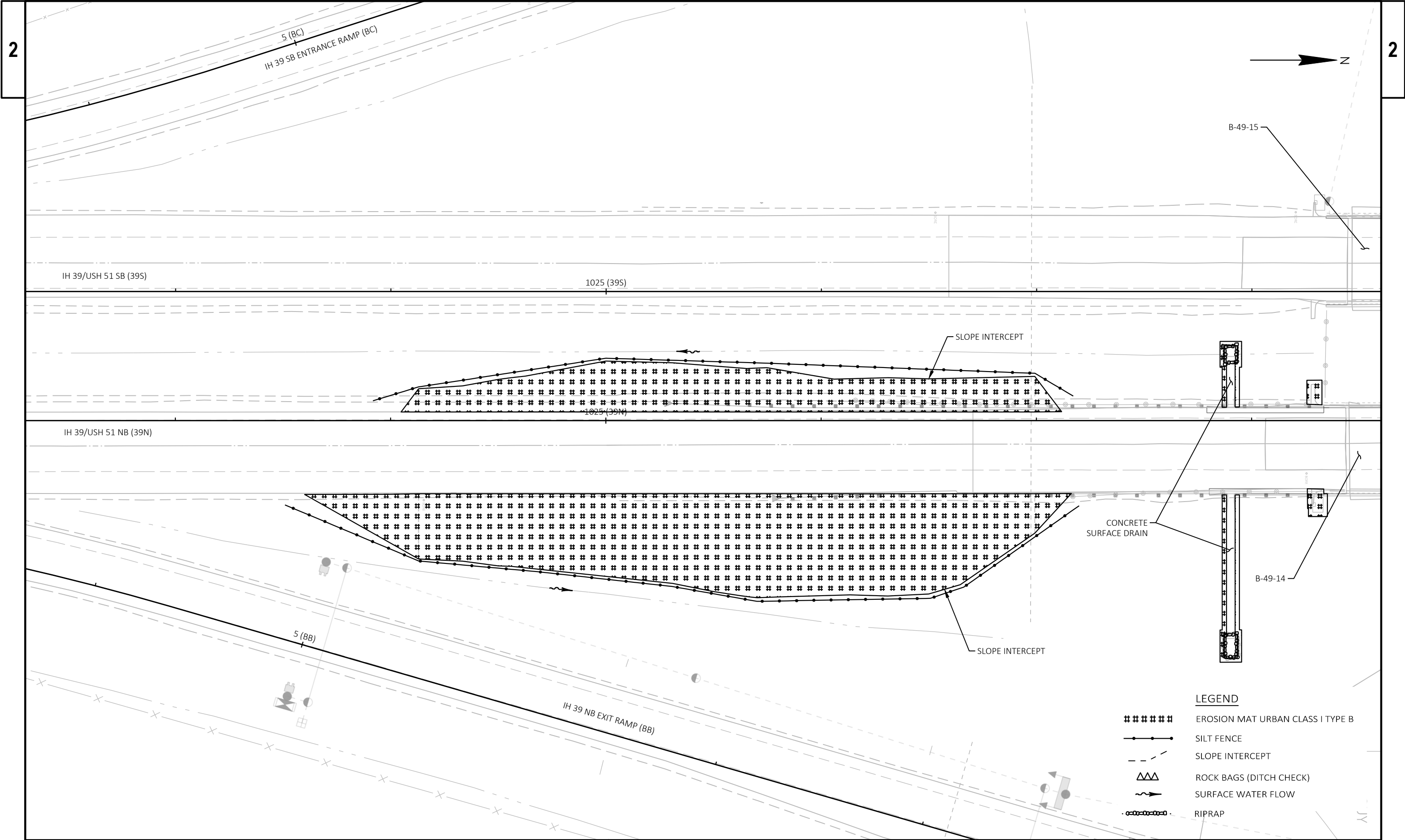


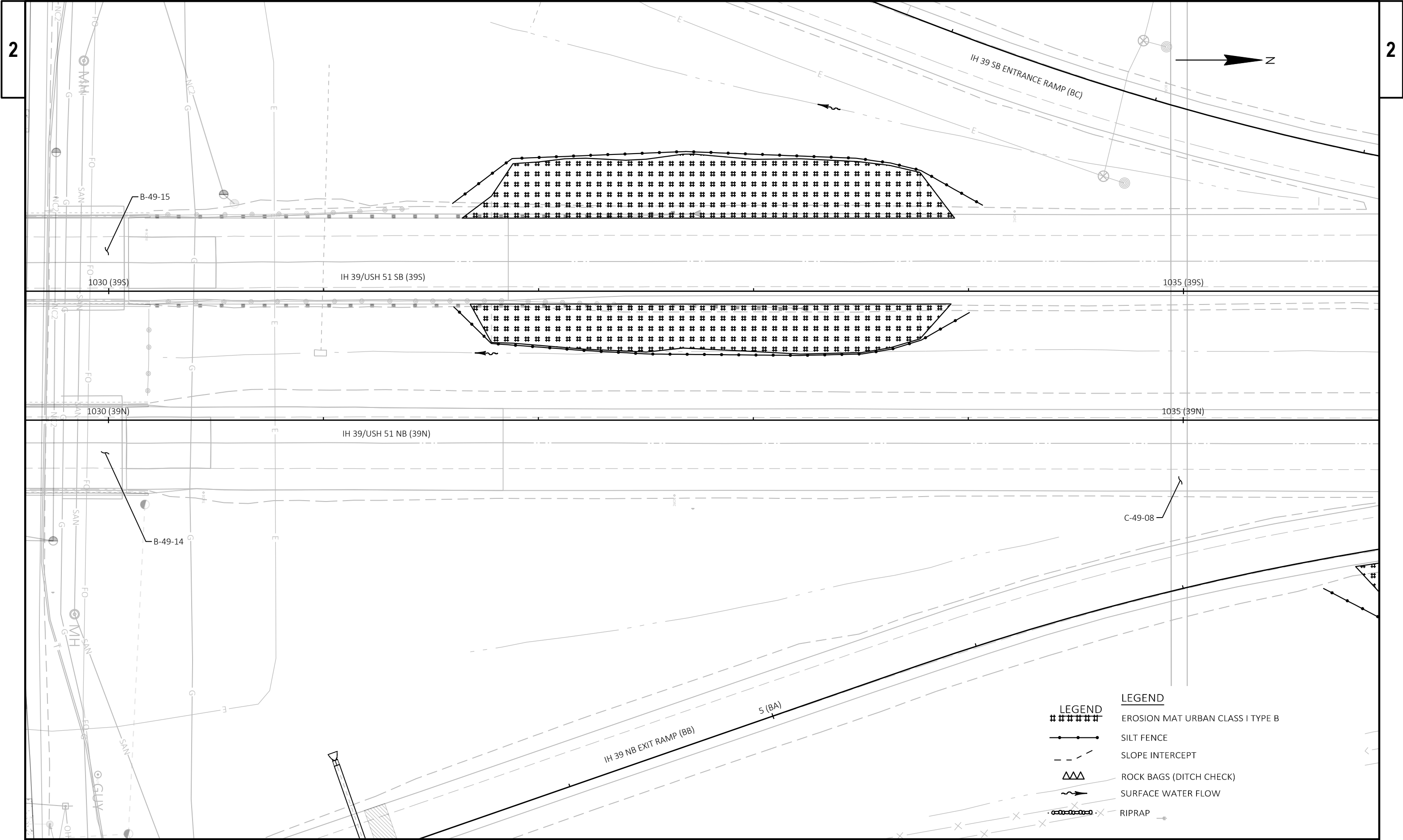




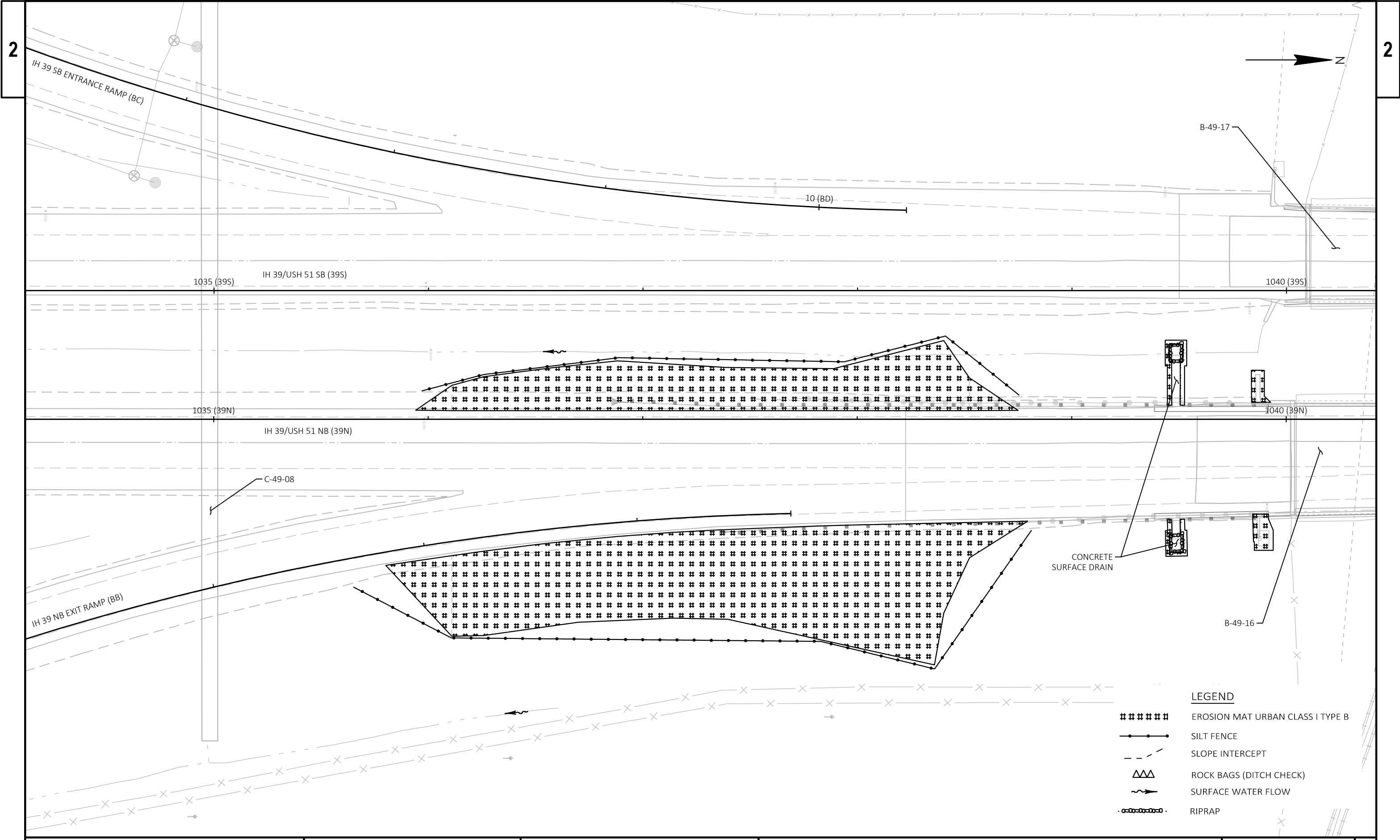
LEGEND

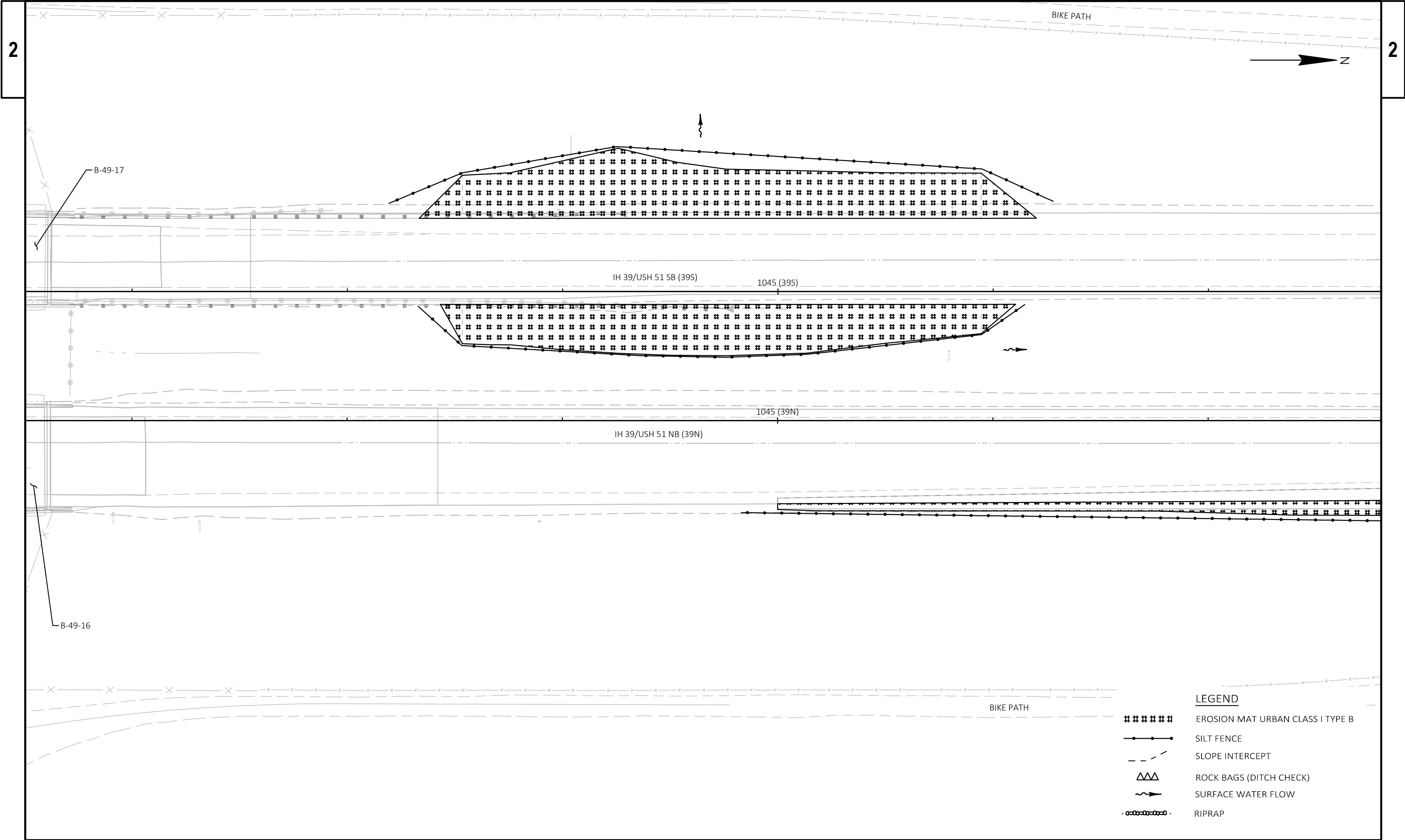
-  POLE MOUNTED CONTROL CABINET
-  PULL BOX NON-CONDUCTIVE 24 X 36-INCH
-  POLES TYPE 2/TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT
-  ELECTRICAL SERVICE METER BREAKER PEDESTAL
-  CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH
-  CONDUIT SPECIAL 2-INCH
-  OVERHEIGHT VEHICLE DETECTION ASSEMBLY
-  BEACON ASSEMBLY
-  INSTALL CAMERA ASSEMBLY



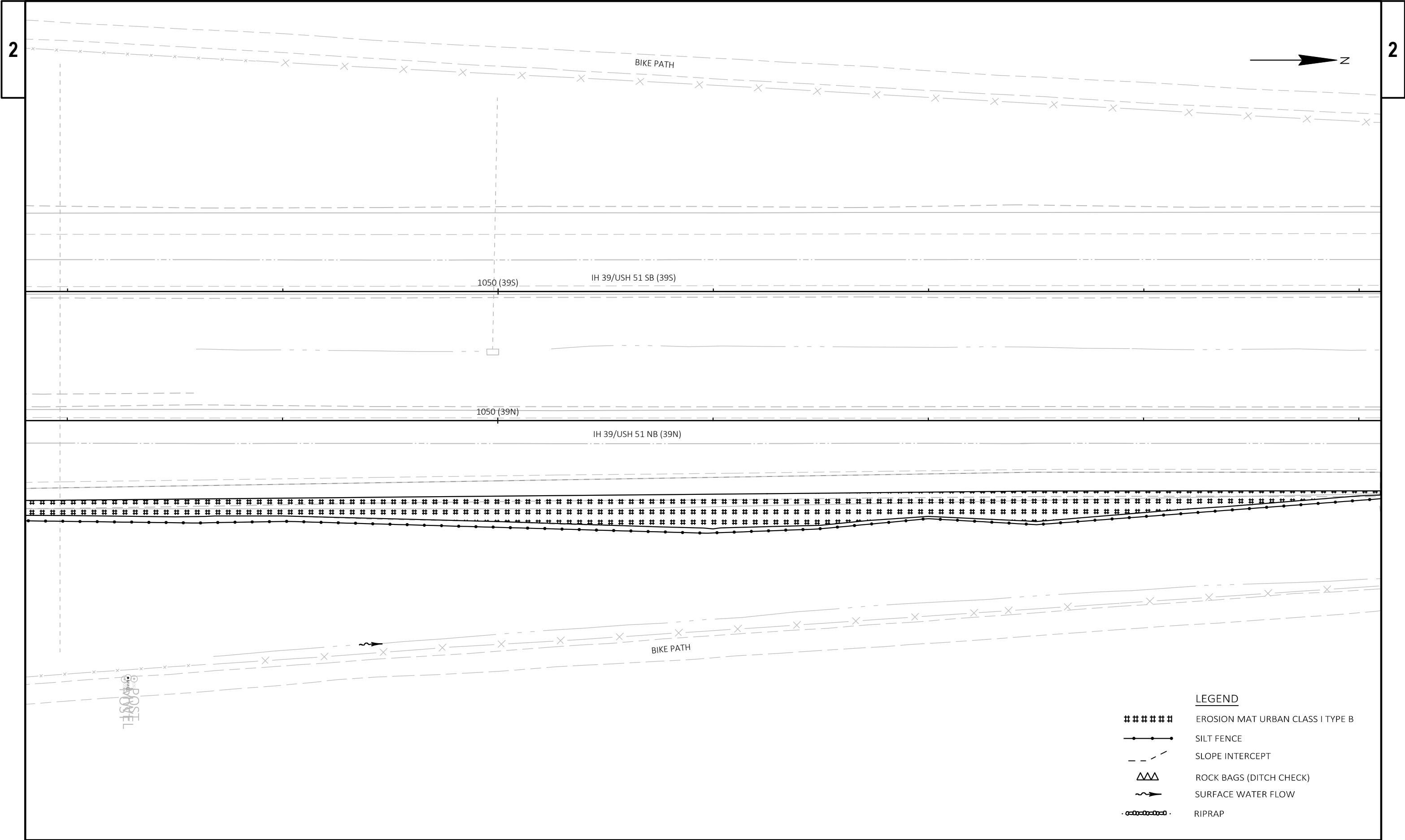


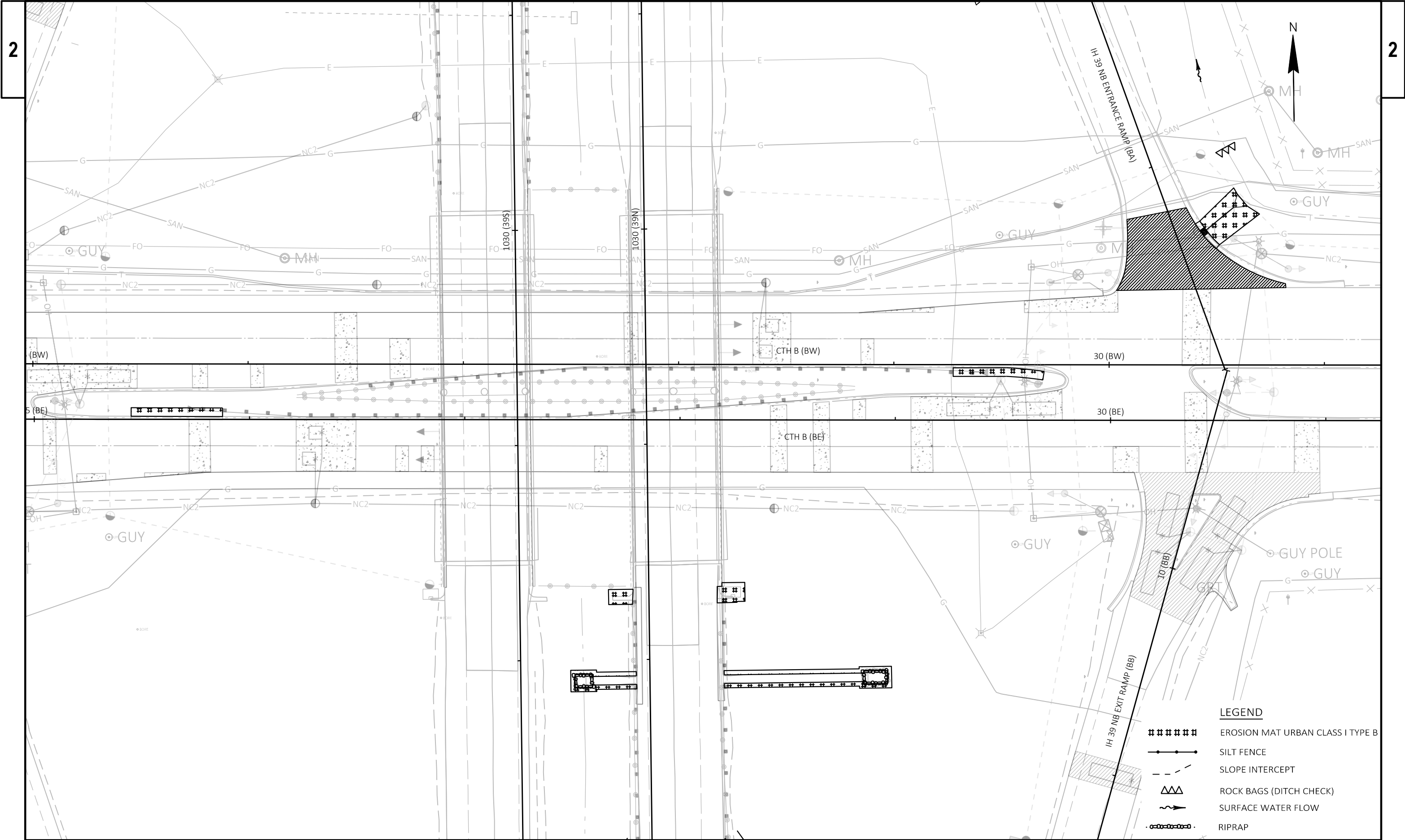


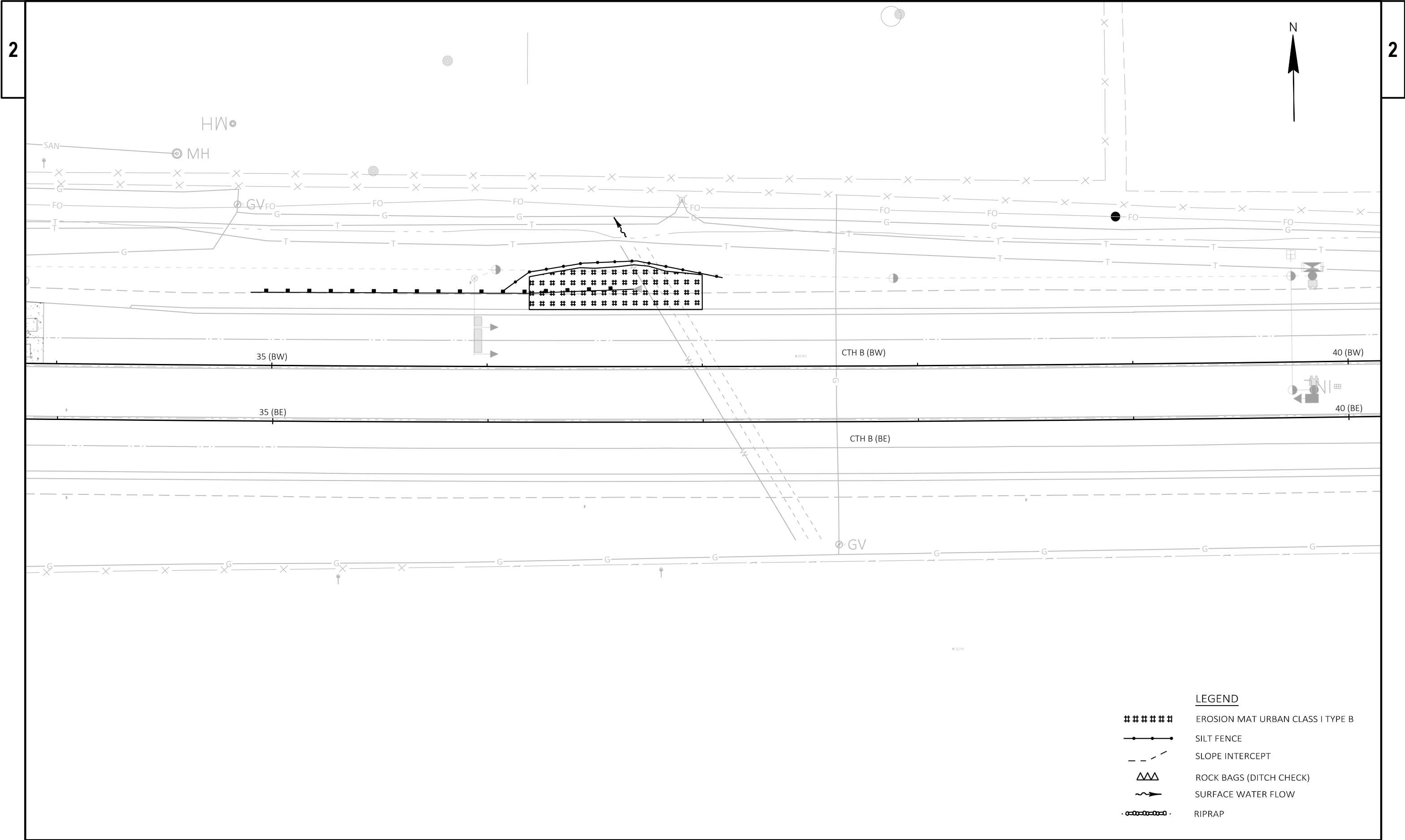


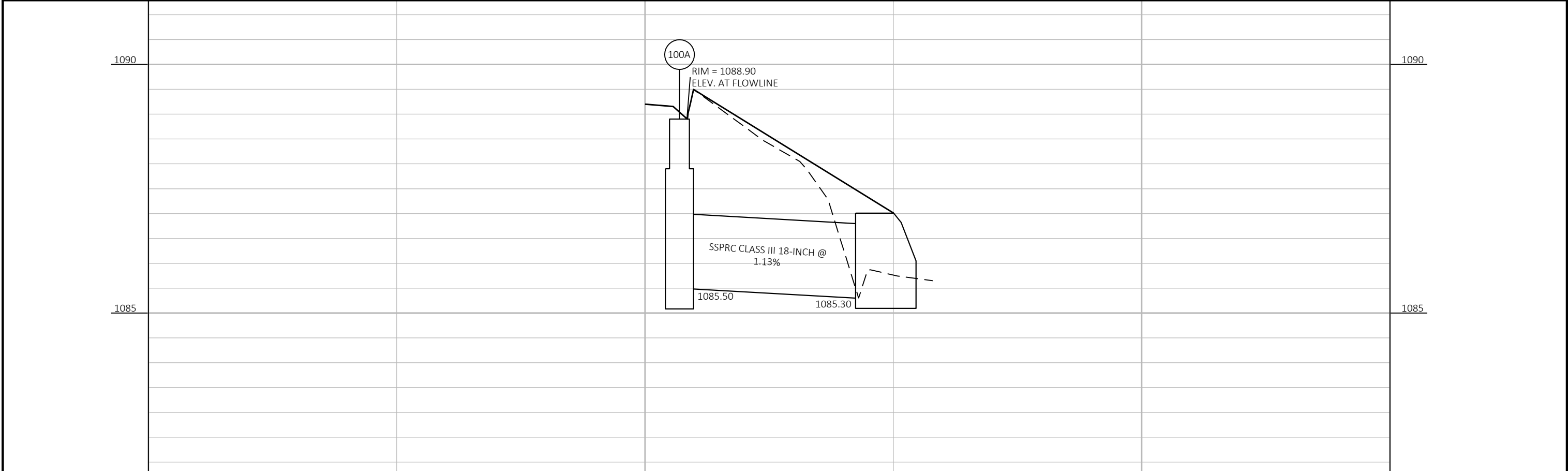
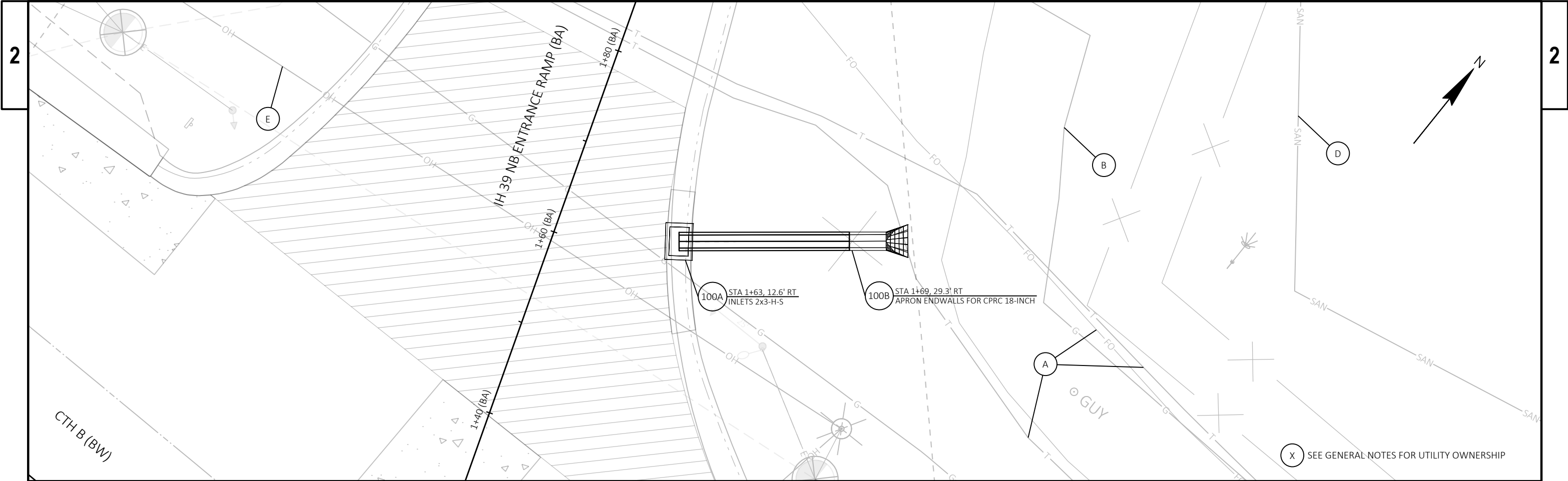


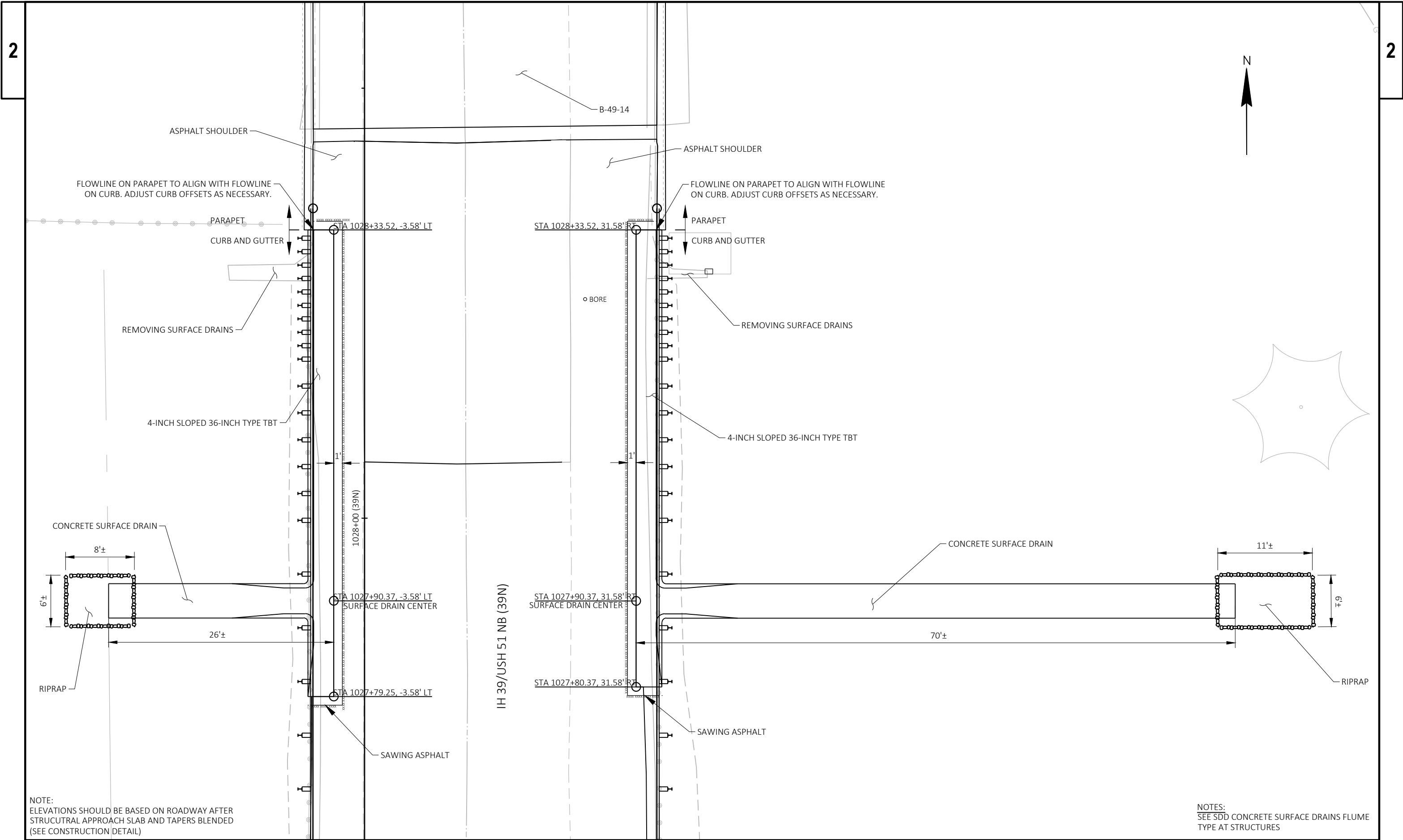






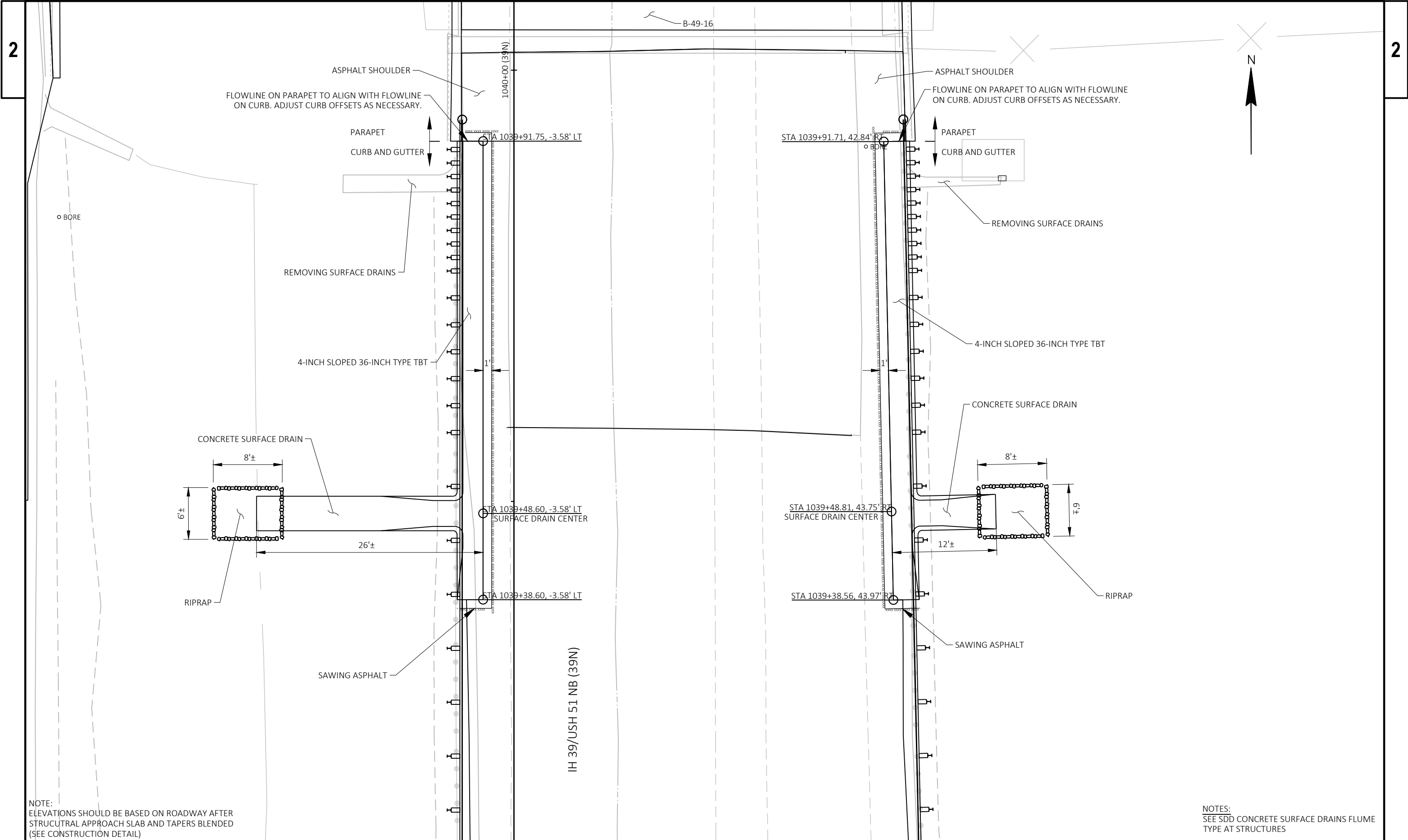




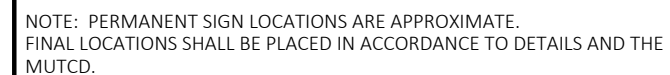


NOTE:  
ELEVATIONS SHOULD BE BASED ON ROADWAY AFTER  
STRUCUTRAL APPROACH SLAB AND TAPERS BLENDED  
(SEE CONSTRUCTION DETAIL)

NOTES:  
SEE SDD CONCRETE SURFACE DRAINS FLUME  
TYPE AT STRUCTURES







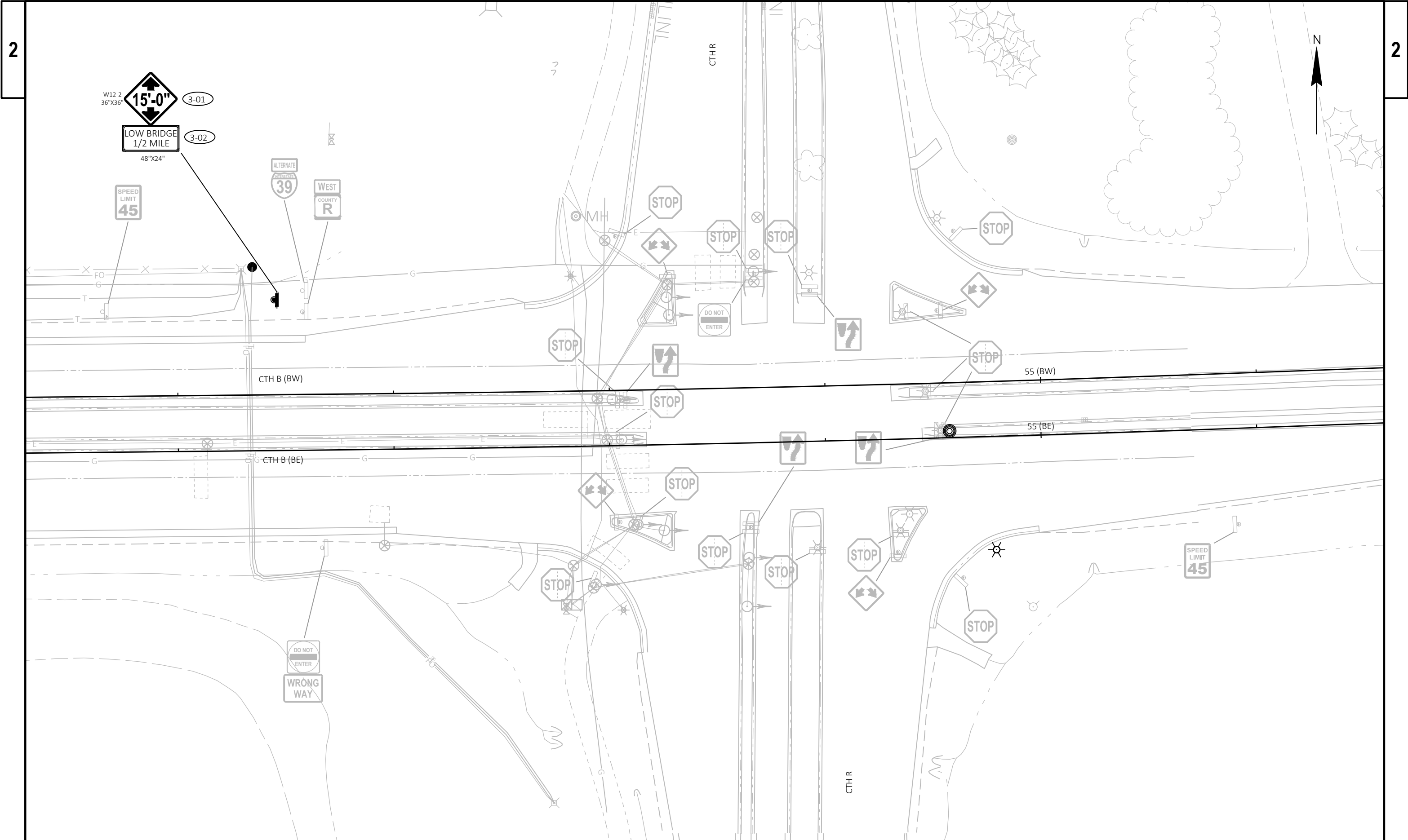
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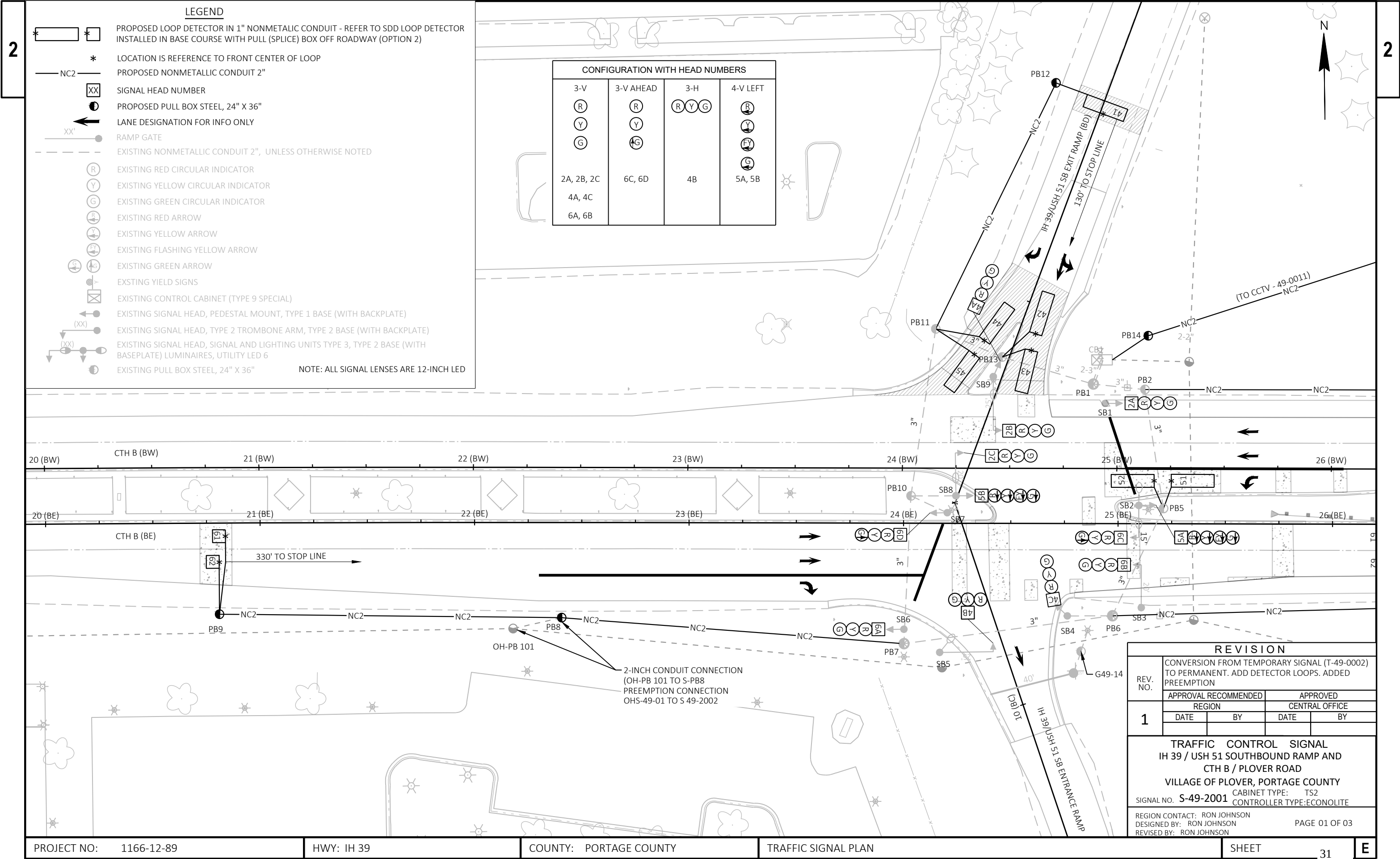
E

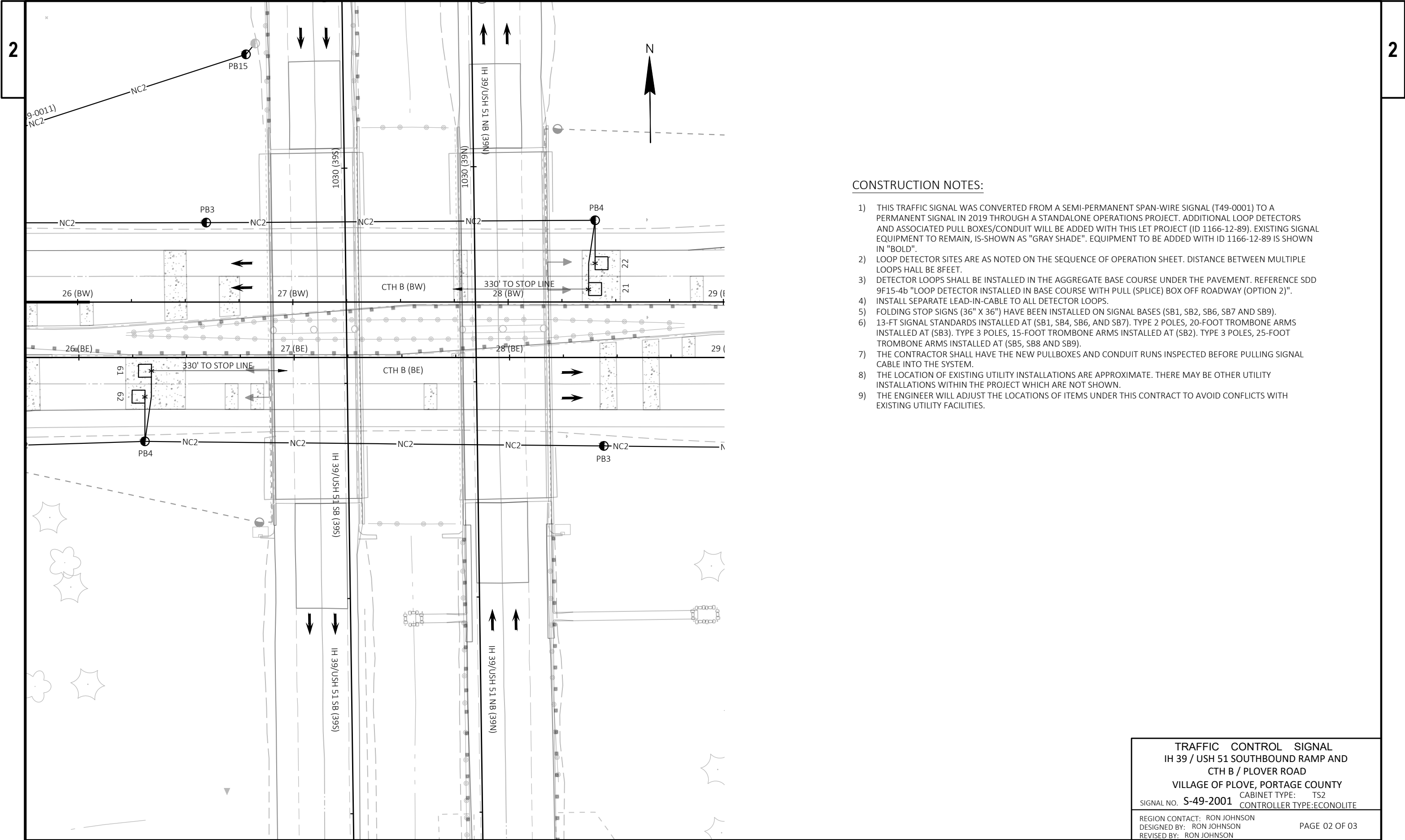
WISDOT/CADDS SHEET 42











CONSTRUCTION NOTES:

- 1) THIS TRAFFIC SIGNAL WAS CONVERTED FROM A SEMI-PERMANENT SPAN-WIRE SIGNAL (T49-0001) TO A PERMANENT SIGNAL IN 2019 THROUGH A STANDALONE OPERATIONS PROJECT. ADDITIONAL LOOP DETECTORS AND ASSOCIATED PULL BOXES/CONDUIT WILL BE ADDED WITH THIS LET PROJECT (ID 1166-12-89). EXISTING SIGNAL EQUIPMENT TO REMAIN, IS SHOWN AS "GRAY SHADE". EQUIPMENT TO BE ADDED WITH ID 1166-12-89 IS SHOWN IN "BOLD".
- 2) LOOP DETECTOR SITES ARE AS NOTED ON THE SEQUENCE OF OPERATION SHEET. DISTANCE BETWEEN MULTIPLE LOOPS SHALL BE 8 FEET.
- 3) DETECTOR LOOPS SHALL BE INSTALLED IN THE AGGREGATE BASE COURSE UNDER THE PAVEMENT. REFERENCE SDD 9F15-4b "LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPlice) BOX OFF ROADWAY (OPTION 2)".
- 4) INSTALL SEPARATE LEAD-IN-CABLE TO ALL DETECTOR LOOPS.
- 5) FOLDING STOP SIGNS (36" X 36") HAVE BEEN INSTALLED ON SIGNAL BASES (SB1, SB2, SB6, SB7 AND SB9).
- 6) 13-FT SIGNAL STANDARDS INSTALLED AT (SB1, SB4, SB6, AND SB7). TYPE 2 POLES, 20-FOOT TROMBONE ARMS INSTALLED AT (SB3). TYPE 3 POLES, 15-FOOT TROMBONE ARMS INSTALLED AT (SB2). TYPE 3 POLES, 25-FOOT TROMBONE ARMS INSTALLED AT (SB5, SB8 AND SB9).
- 7) THE CONTRACTOR SHALL HAVE THE NEW PULLBOXES AND CONDUIT RUNS INSPECTED BEFORE PULLING SIGNAL CABLE INTO THE SYSTEM.
- 8) THE LOCATION OF EXISTING UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
- 9) THE ENGINEER WILL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICTS WITH EXISTING UTILITY FACILITIES.

TRAFFIC CONTROL SIGNAL  
IH 39 / USH 51 SOUTHBOUND RAMP AND  
CTH B / PLOVER ROAD  
VILLAGE OF PLOVE, PORTAGE COUNTY  
CABINET TYPE: TS2  
SIGNAL NO. **S-49-2001** CONTROLLER TYPE:ECONOLITE

REGION CONTACT: RON JOHNSON  
DESIGNED BY: RON JOHNSON  
REVISED BY: RON JOHNSON

PAGE 02 OF 03

### DETECTOR LOGIC

|   |   |
|---|---|
| F |   |
| L |   |
| A | R |
| S | R |
| H | - |
|   | R |
|   |   |
|   |   |
|   | R |
|   |   |

[illegible]

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

[illegible]

| CONTROLLER LOGIC |                  |                        |                 |
|------------------|------------------|------------------------|-----------------|
| PHASE<br>NUMBER  | PHASE<br>LOCKING | DUAL<br>ENTRY<br>W / O | PHASE<br>RECALL |
| 1                |                  |                        |                 |
| 2                | X                | 6                      | MIN.            |
| 3                |                  |                        |                 |
| 4                |                  |                        |                 |
| 5                |                  | 2                      |                 |
| 6                | X                | 2                      | MIN.            |
| 7                |                  |                        |                 |
| 8                |                  |                        |                 |

| SPECIAL OVERLAPS |           |            |
|------------------|-----------|------------|
|                  | PROTECTED | PERMISSIVE |
| OL "E"           | -         | -          |
| OL "F"           | -         | -          |
| OL "G"           | 5         | 6          |
| OL "H"           | -         | -          |

TRAFFIC CONTROL SIGNAL  
IH 39 / USH 51 SOUTHBOUND RAMP AND  
CTH B / PLOVER ROAD  
VILLAGE OF PLOVE, PORTAGE COUNTY  
CABINET TYPE: TS2  
SIGNAL NO. S-49-2001  
CONTROLLER TYPE: ECOLITE

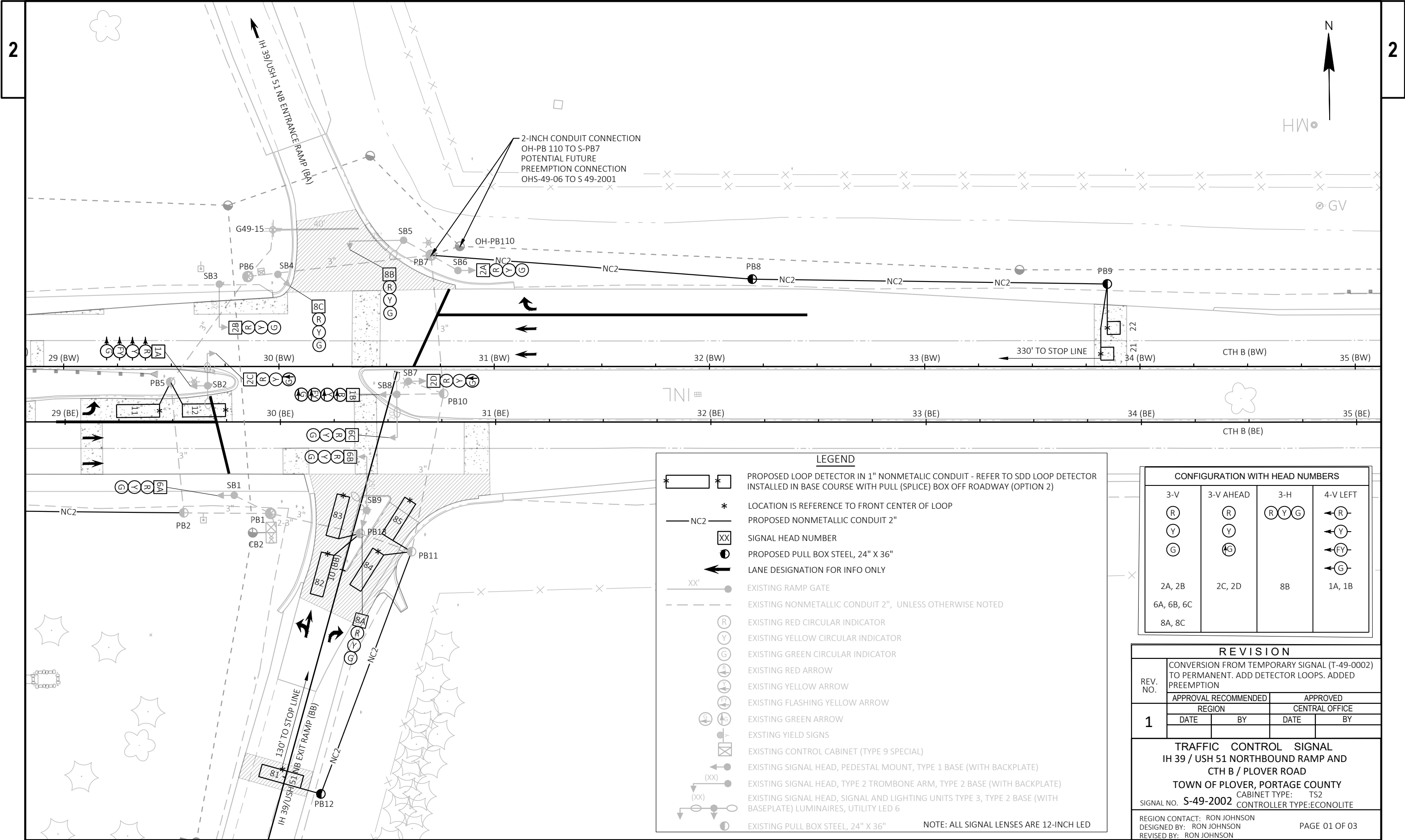
REGION CONTACT: RON JOHNSON  
 DESIGNED BY: RON JOHNSON  
 REVISED BY: RON JOHNSON

- 1) WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)
- 2) WHEN OPPOSING THRU PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER.

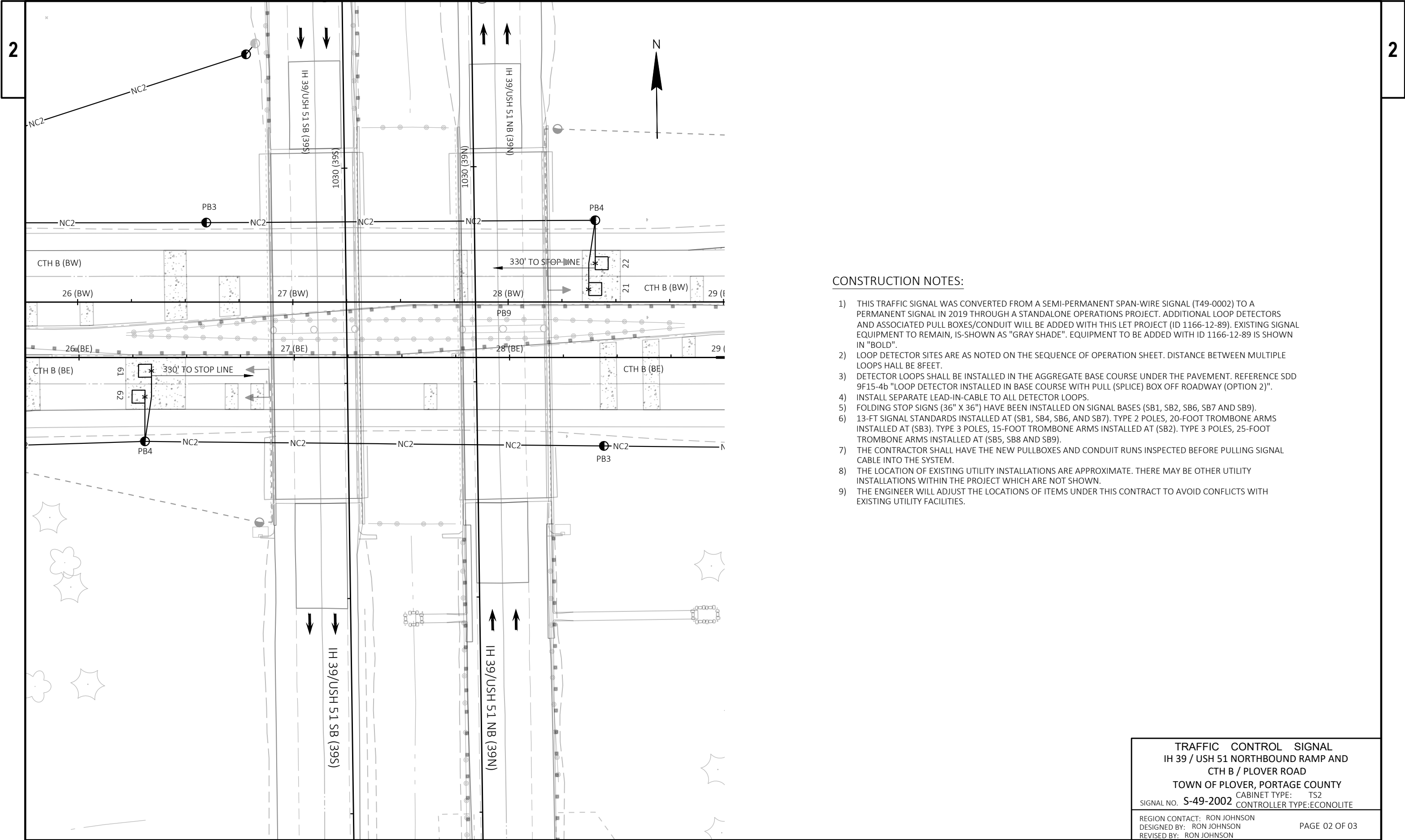
- 1) WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)
- 2) WHEN OPPOSING THRU PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER.

33

E







CONSTRUCTION NOTES:

- 1) THIS TRAFFIC SIGNAL WAS CONVERTED FROM A SEMI-PERMANENT SPAN-WIRE SIGNAL (T49-0002) TO A PERMANENT SIGNAL IN 2019 THROUGH A STANDALONE OPERATIONS PROJECT. ADDITIONAL LOOP DETECTORS AND ASSOCIATED PULL BOXES/CONDUIT WILL BE ADDED WITH THIS LET PROJECT (ID 1166-12-89). EXISTING SIGNAL EQUIPMENT TO REMAIN, IS SHOWN AS "GRAY SHADE". EQUIPMENT TO BE ADDED WITH ID 1166-12-89 IS SHOWN IN "BOLD".
- 2) LOOP DETECTOR SITES ARE AS NOTED ON THE SEQUENCE OF OPERATION SHEET. DISTANCE BETWEEN MULTIPLE LOOPS SHALL BE 8 FEET.
- 3) DETECTOR LOOPS SHALL BE INSTALLED IN THE AGGREGATE BASE COURSE UNDER THE PAVEMENT. REFERENCE SDD 9F15-4b "LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPlice) BOX OFF ROADWAY (OPTION 2)".
- 4) INSTALL SEPARATE LEAD-IN-CABLE TO ALL DETECTOR LOOPS.
- 5) FOLDING STOP SIGNS (36" X 36") HAVE BEEN INSTALLED ON SIGNAL BASES (SB1, SB2, SB6, SB7 AND SB9).
- 6) 13-FT SIGNAL STANDARDS INSTALLED AT (SB1, SB4, SB6, AND SB7). TYPE 2 POLES, 20-FOOT TROMBONE ARMS INSTALLED AT (SB3). TYPE 3 POLES, 15-FOOT TROMBONE ARMS INSTALLED AT (SB2). TYPE 3 POLES, 25-FOOT TROMBONE ARMS INSTALLED AT (SB5, SB8 AND SB9).
- 7) THE CONTRACTOR SHALL HAVE THE NEW PULLBOXES AND CONDUIT RUNS INSPECTED BEFORE PULLING SIGNAL CABLE INTO THE SYSTEM.
- 8) THE LOCATION OF EXISTING UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
- 9) THE ENGINEER WILL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICTS WITH EXISTING UTILITY FACILITIES.

TRAFFIC CONTROL SIGNAL  
IH 39 / USH 51 NORTHBOUND RAMP AND  
CTH B / PLOVER ROAD  
TOWN OF PLOVER, PORTAGE COUNTY  
CABINET TYPE: TS2  
SIGNAL NO. **S-49-2002** CONTROLLER TYPE:ECONOLITE

REGION CONTACT: RON JOHNSON  
DESIGNED BY: RON JOHNSON  
REVISED BY: RON JOHNSON

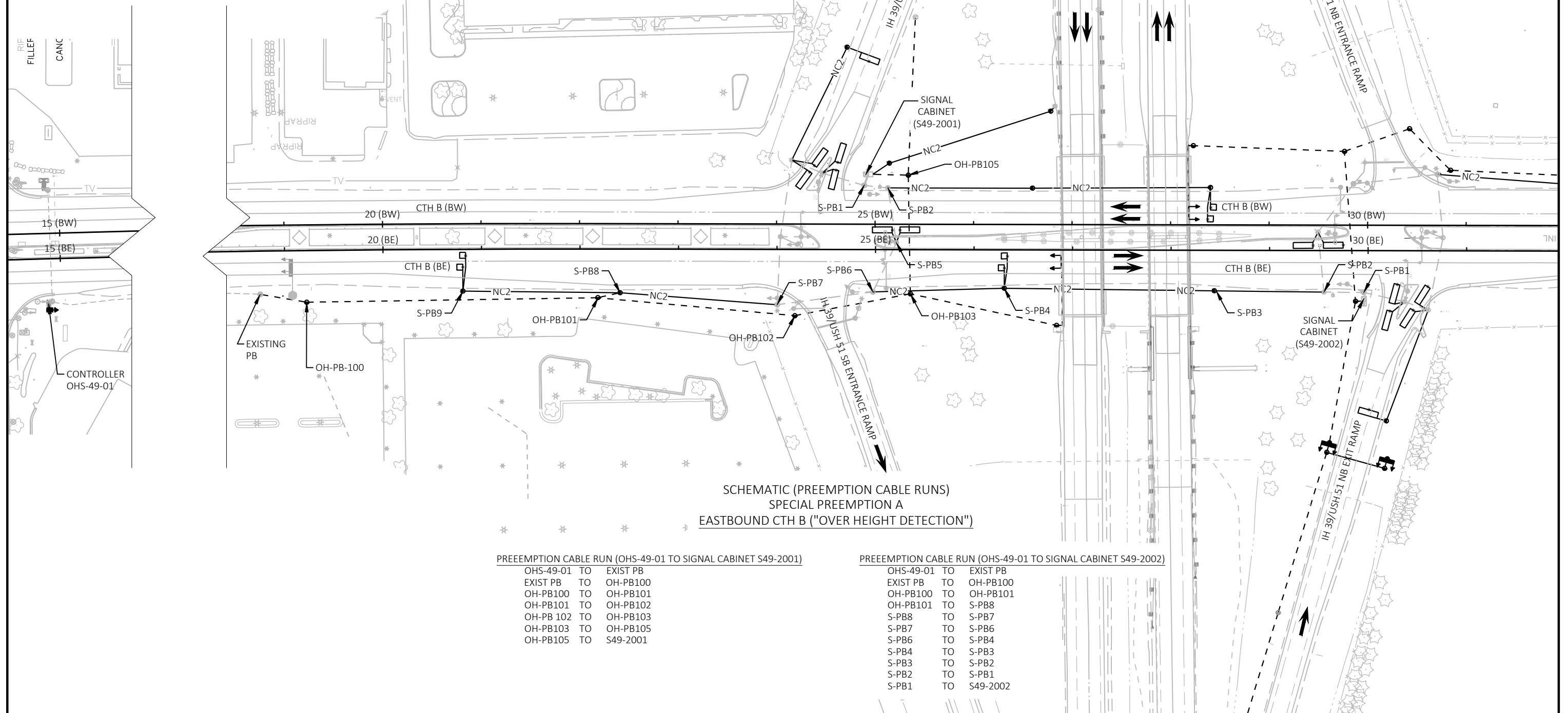
PAGE 02 OF 03





## LEGEND

- CONDUIT (OVER HEIGHT DETECTION SYSTEM)  
--- CONDUIT (SIGNAL SYSTEM)  
● PULL BOX, 24"X36"  
← LANE DESIGNATION FOR INFO ONLY



PROJECT NO: 1166-12-89

HWY: IH 39

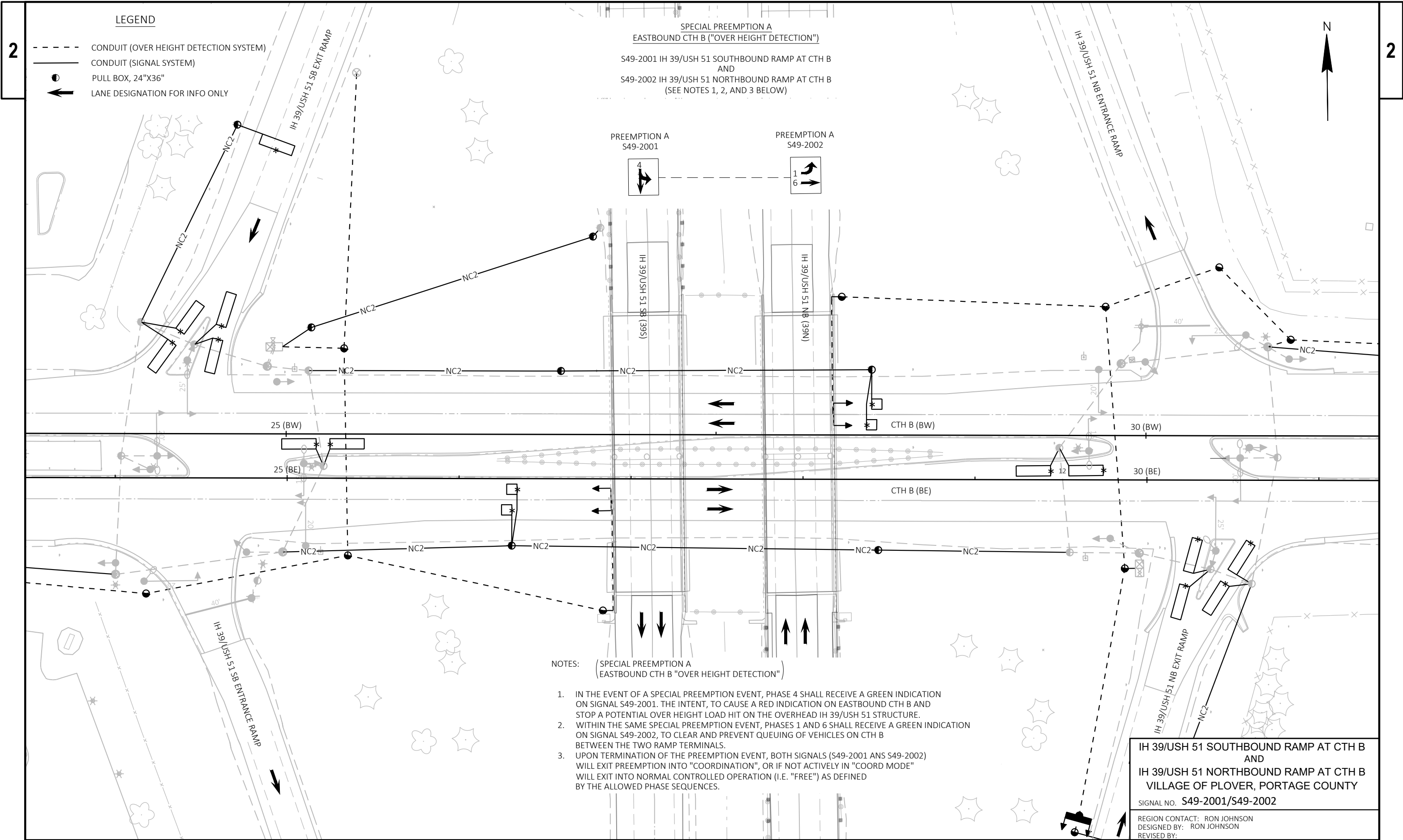
COUNTY: PORTAGE COUNTY

SPECIAL EB CTH B PREEMPTION ("OVER HEIGHT DETECTION")

SHEET

37

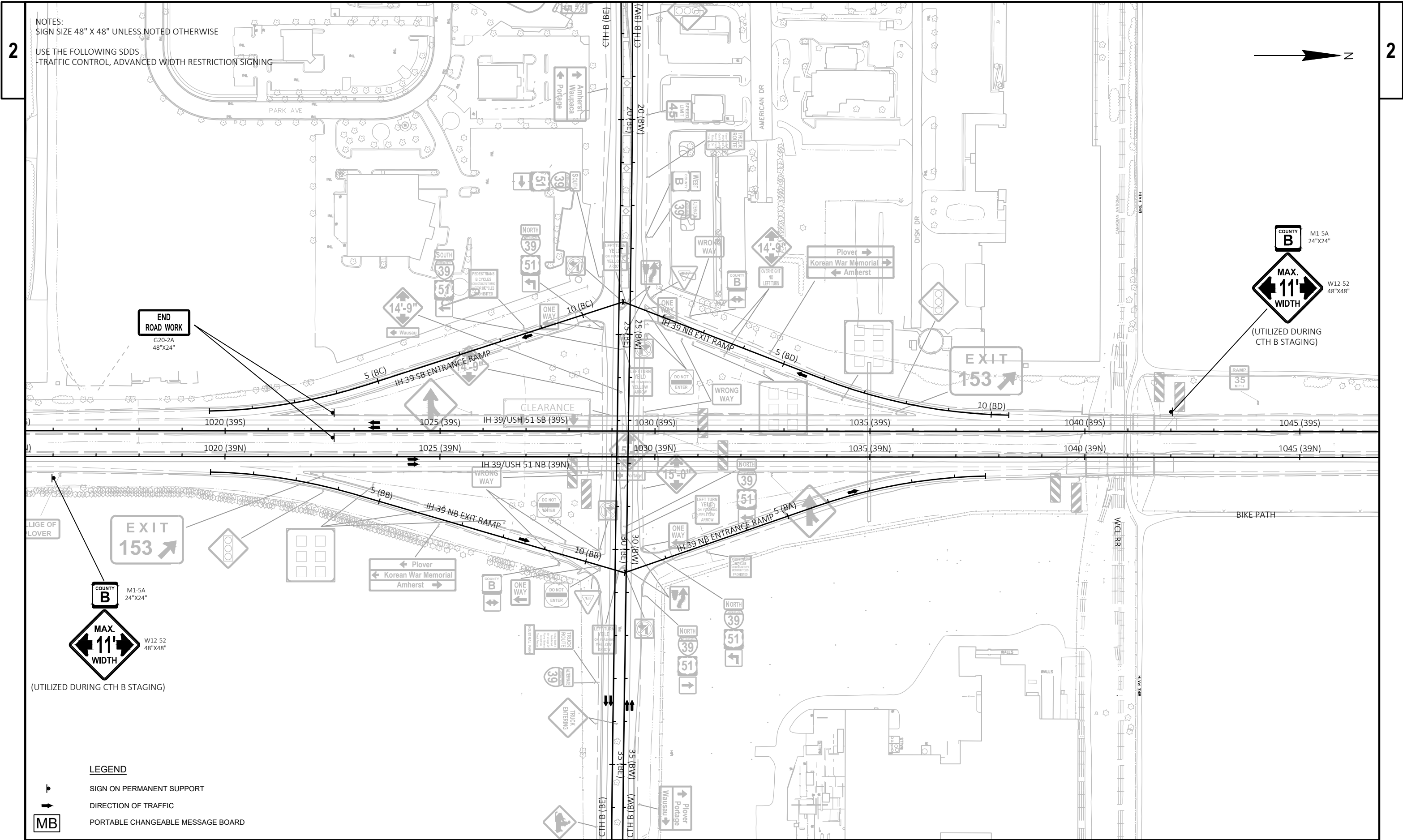
E



2

2



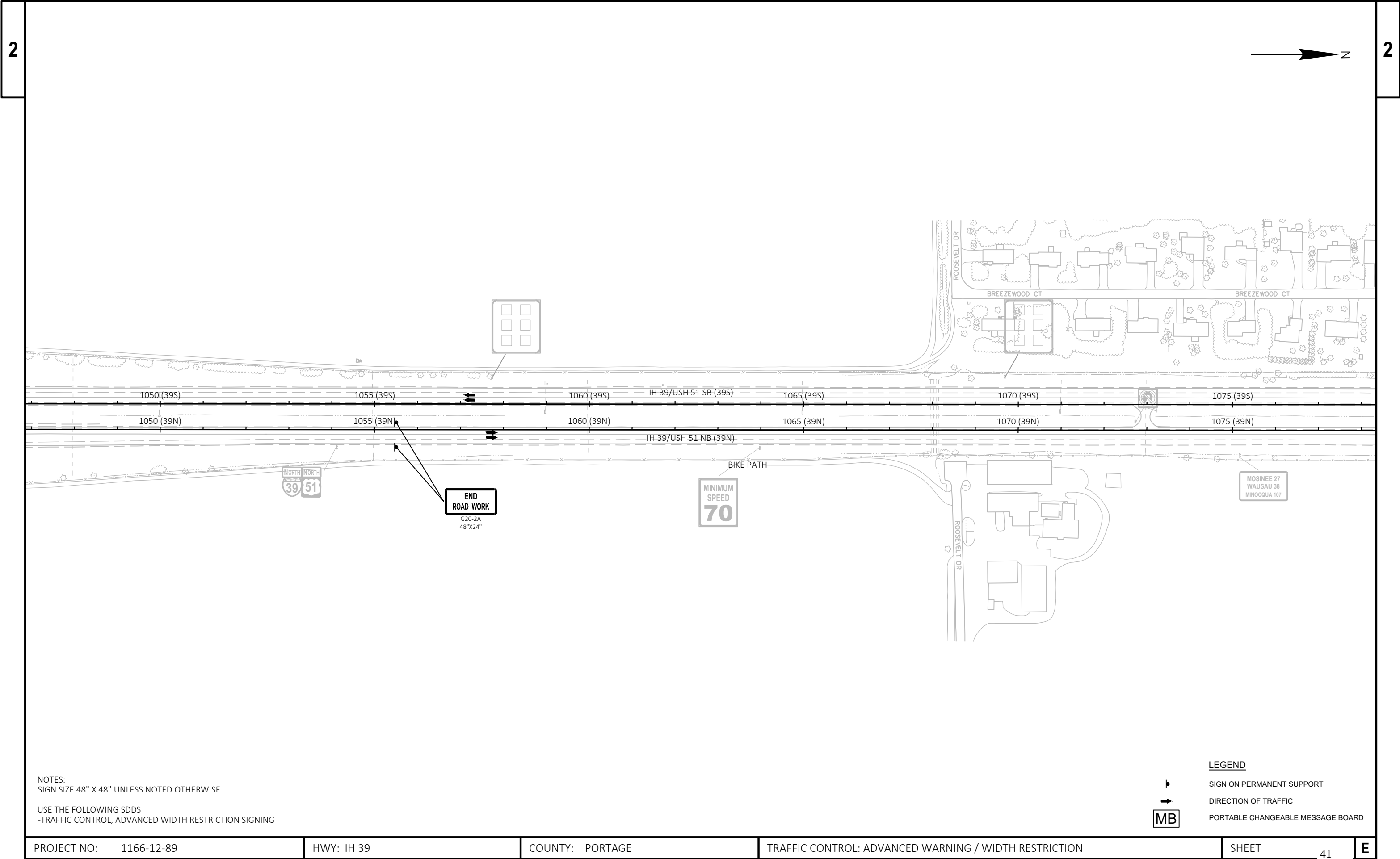


**LEGEND**

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

PORTABLE CHANGEABLE MESSAGE BOARD



NOTES:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
  
USE THE FOLLOWING SDDS  
-TRAFFIC CONTROL, ADVANCED WIDTH RESTRICTION SIGNING

LEGEND

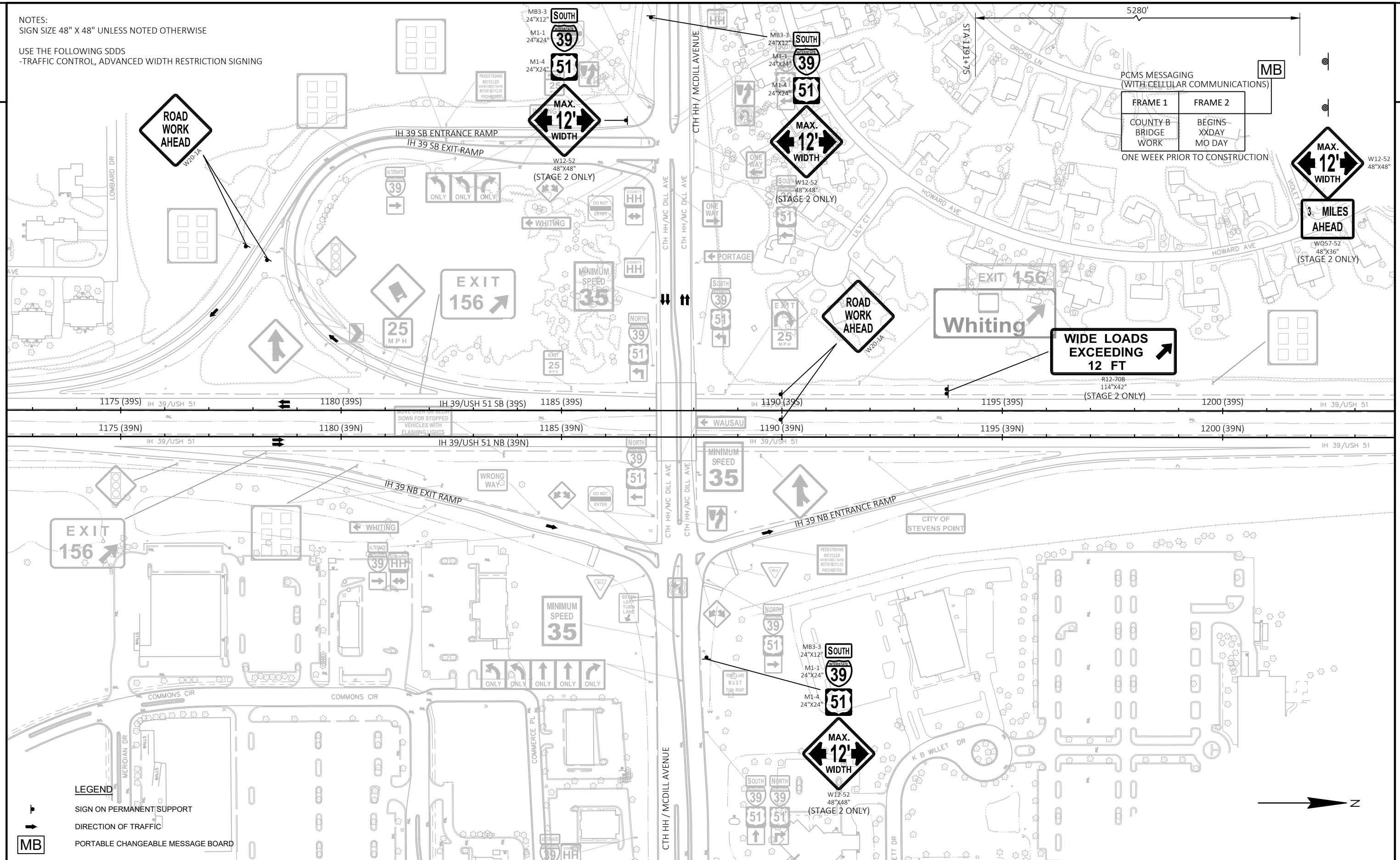
SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

PORTABLE CHANGEABLE MESSAGE BOARD

NOTES:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS  
-TRAFFIC CONTROL, ADVANCED WIDTH RESTRICTION SIGNING



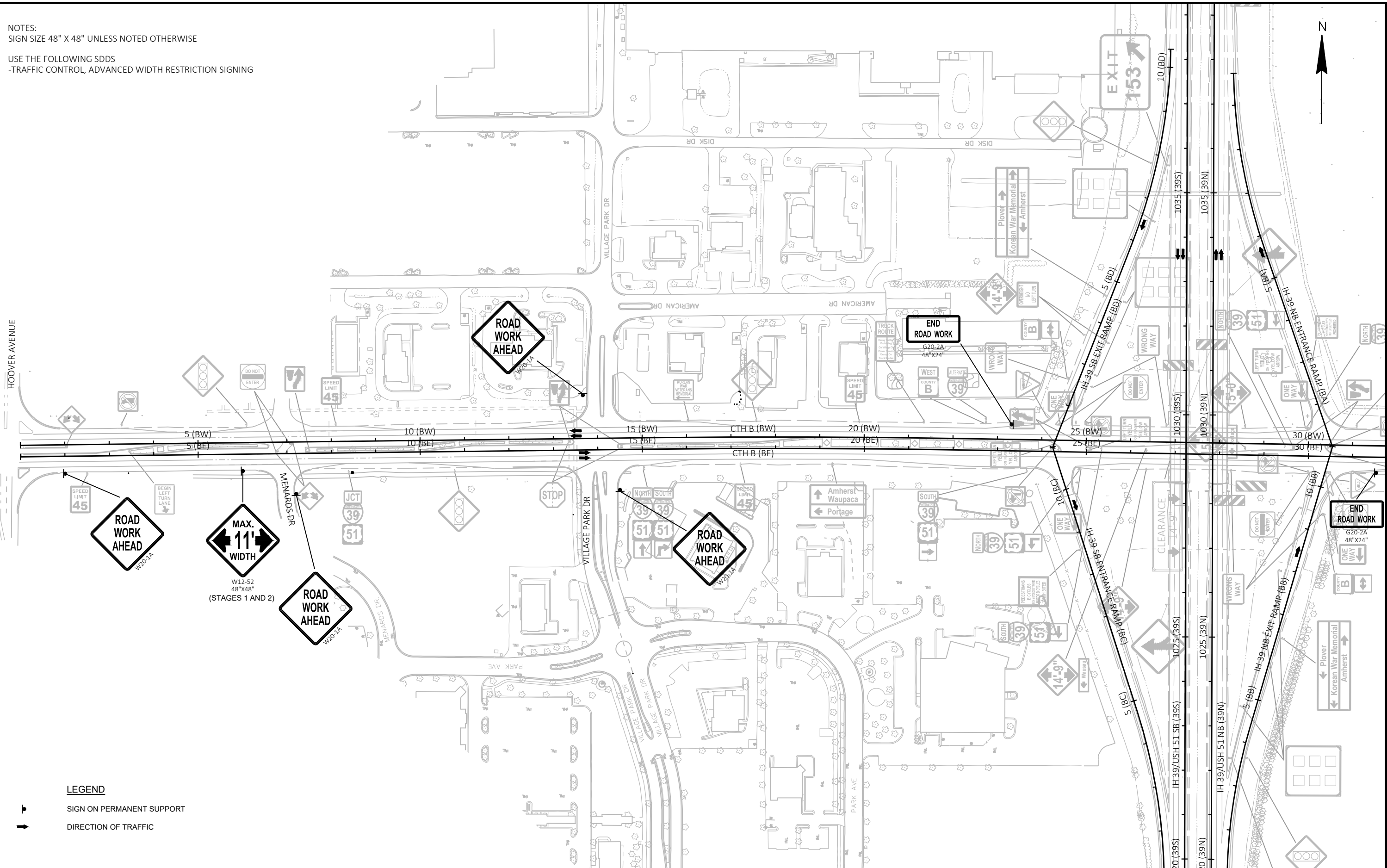


2

NOTES:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS  
-TRAFFIC CONTROL, ADVANCED WIDTH RESTRICTION SIGNING

# 2



LEGEND

 SIGN ON PERMANENT SUPPORT  
 DIRECTION OF TRAFFIC

|             |            |
|-------------|------------|
| PROJECT NO: | 1166-12-89 |
|-------------|------------|

HWY: IH 39

COUNTY: PORTAGE

TRAFFIC CONTROL: ADVANCED WARNING / WIDTH RESTRICTION

SHEET

43

E

FILE NAME : N:\PDS\C3D\11661219\SHEETSPLAN\025000-AW.DWG  
LAYOUT NAME - 05

PLOT DATE : 5/24/2021 1:46 PM

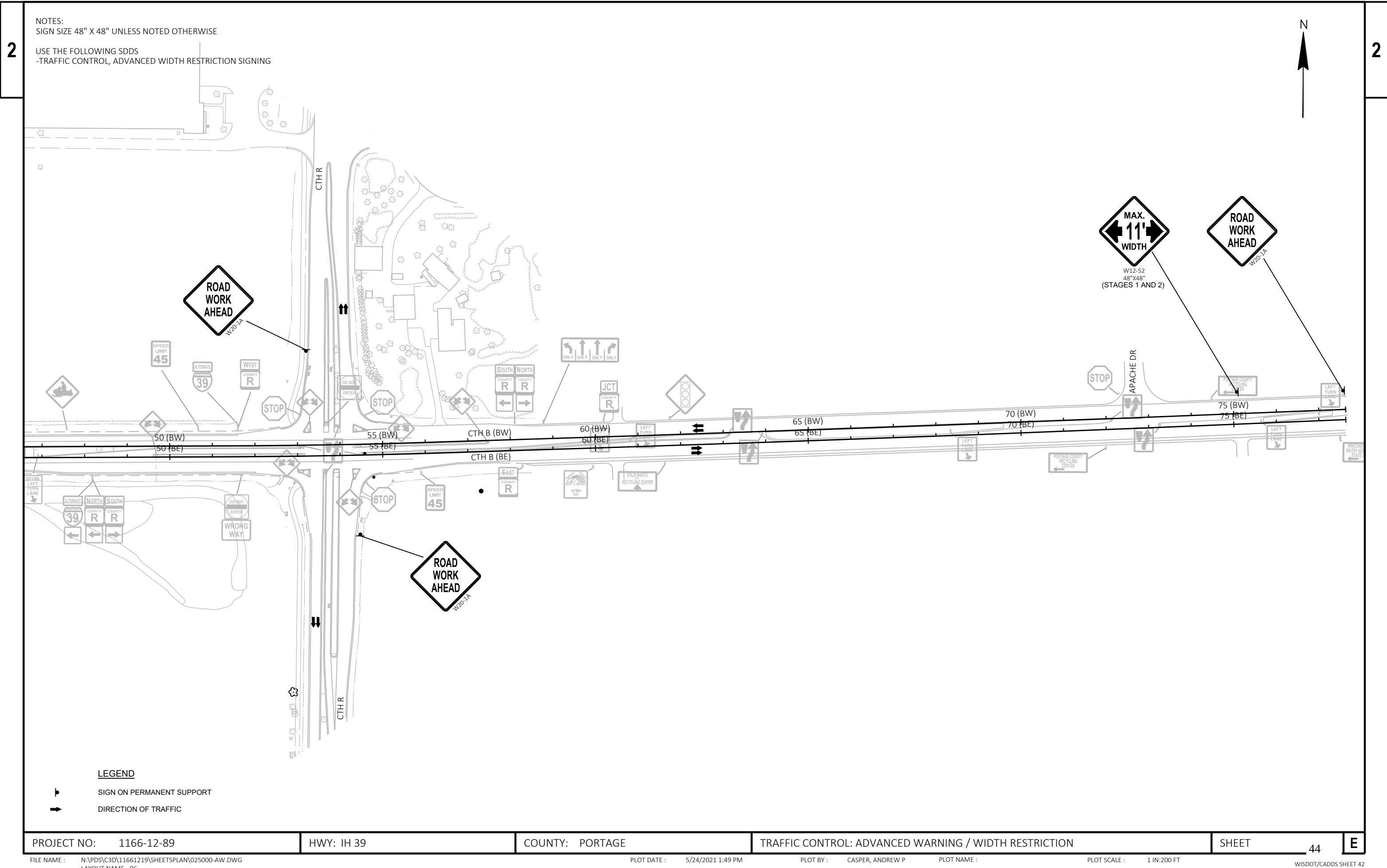
PLOT BY : CASPER, ANDREW P

PLOT NAME :

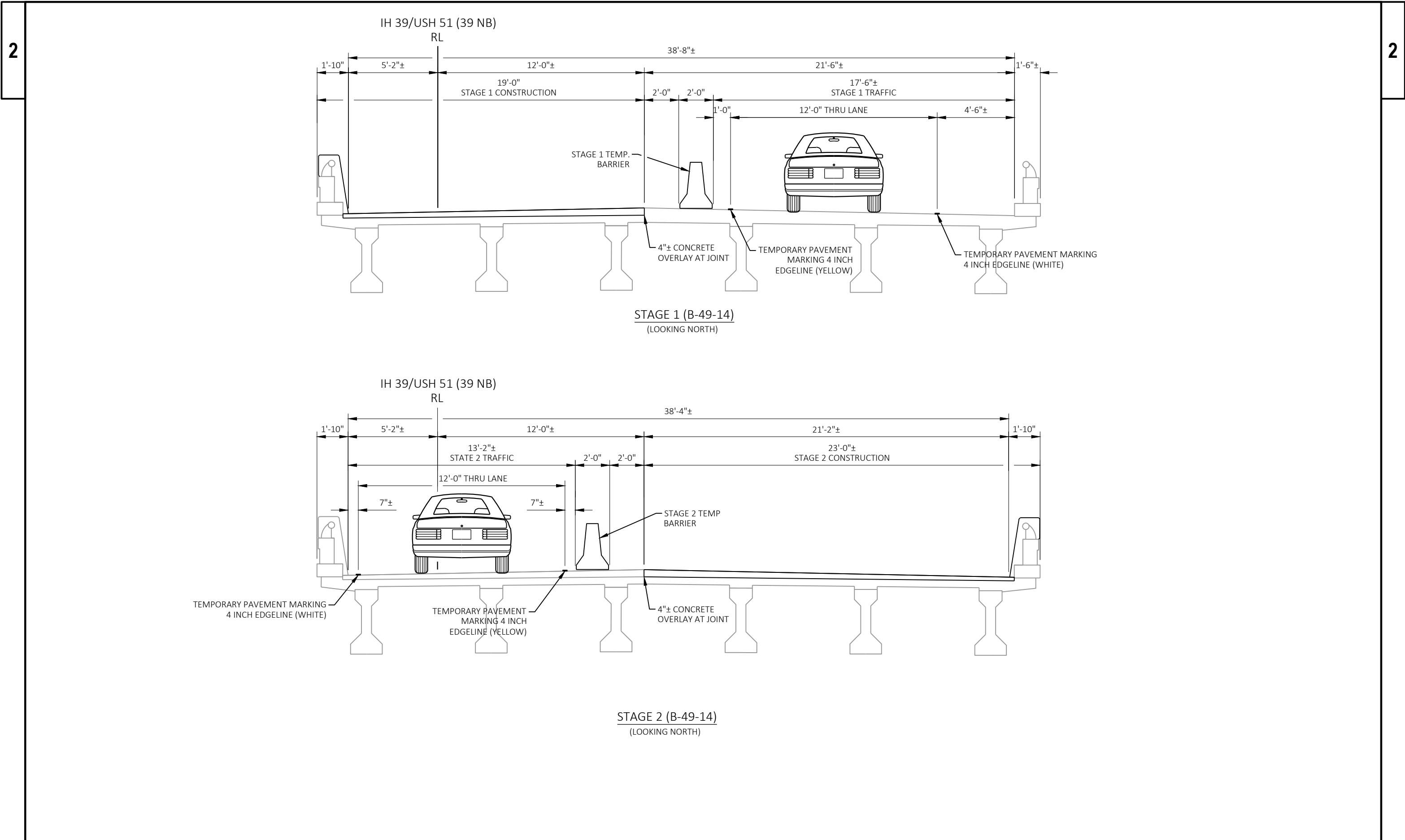
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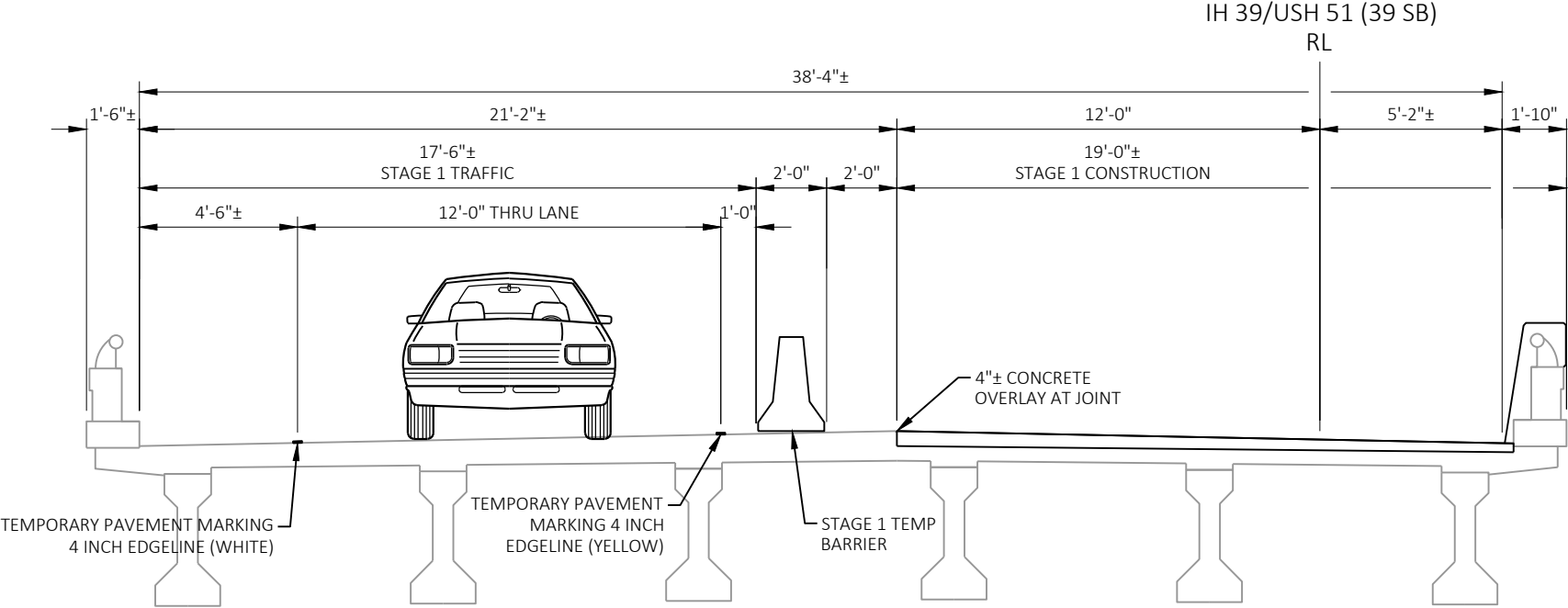
WISDOT/CADDS SHEET 42



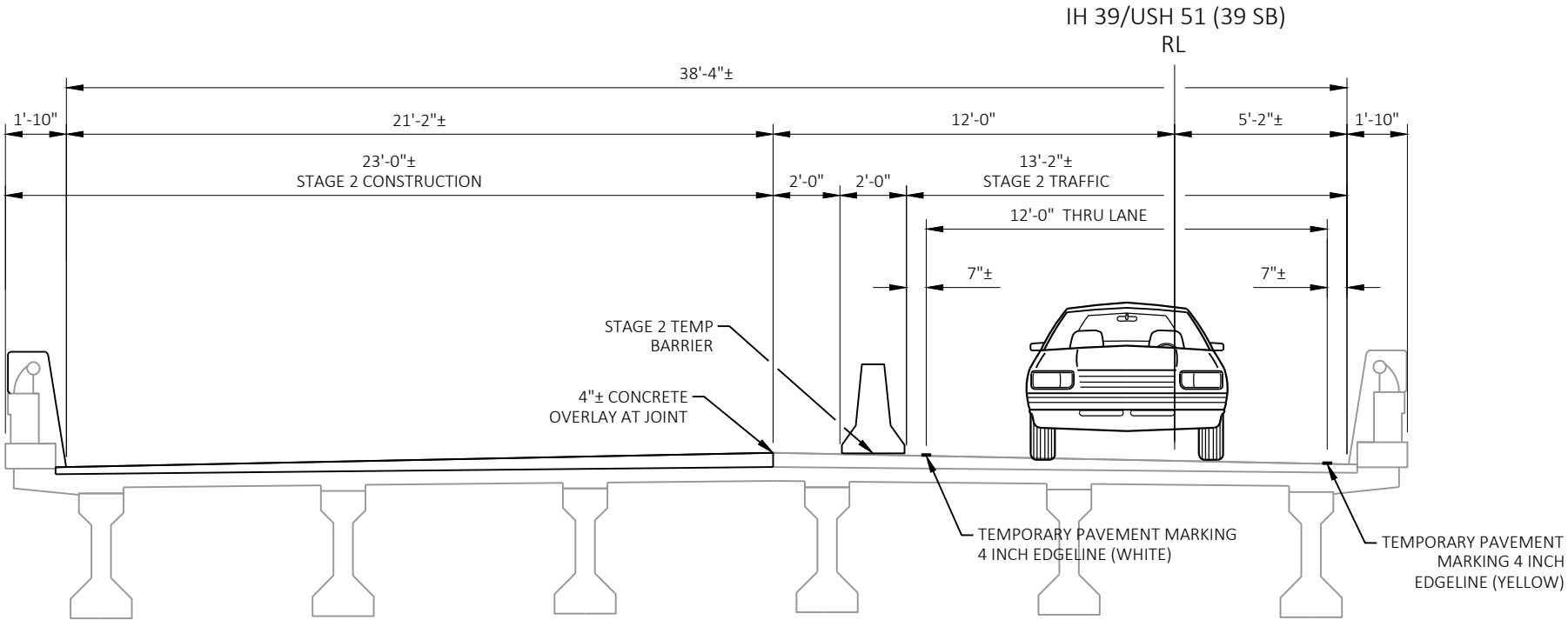




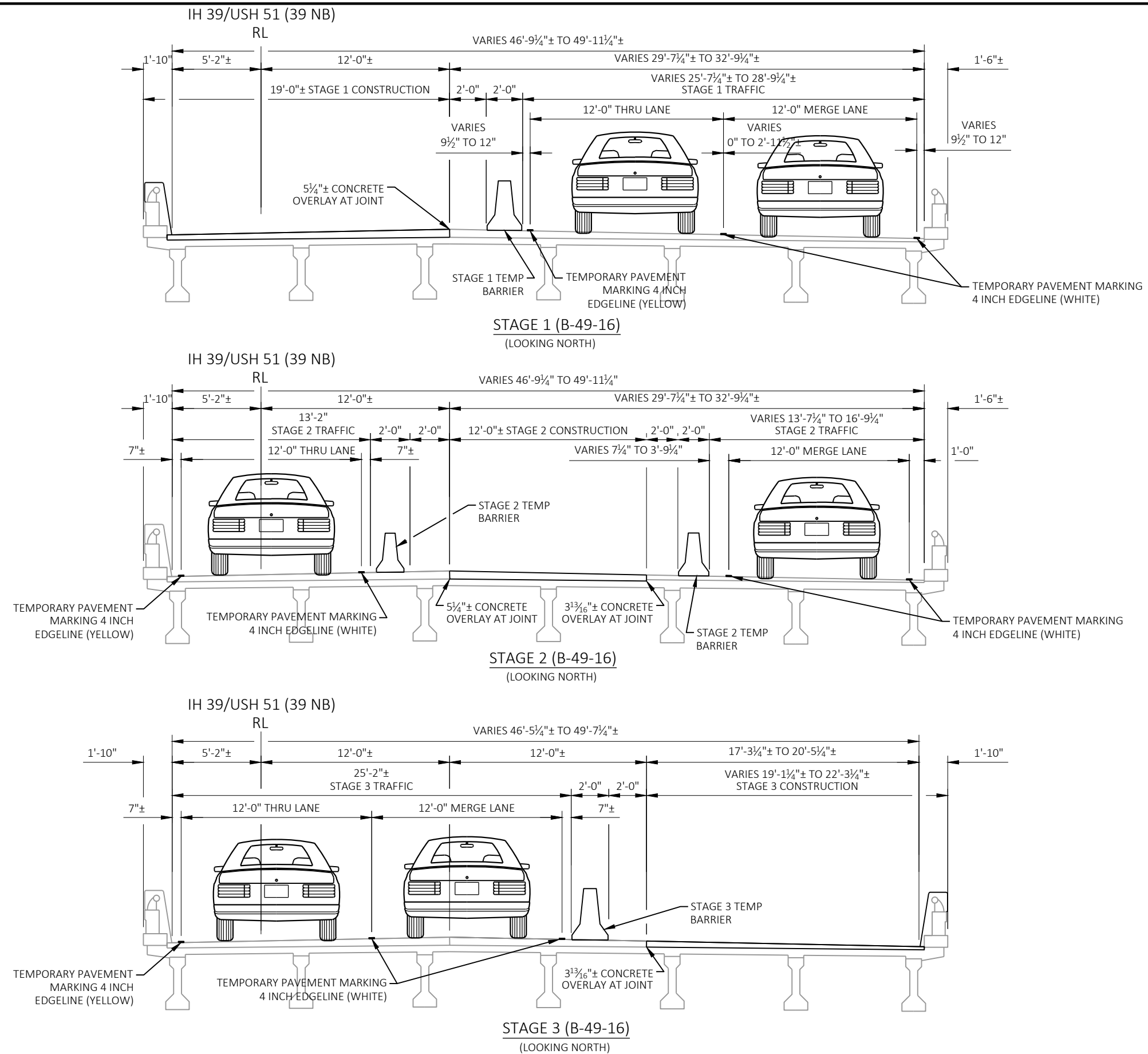


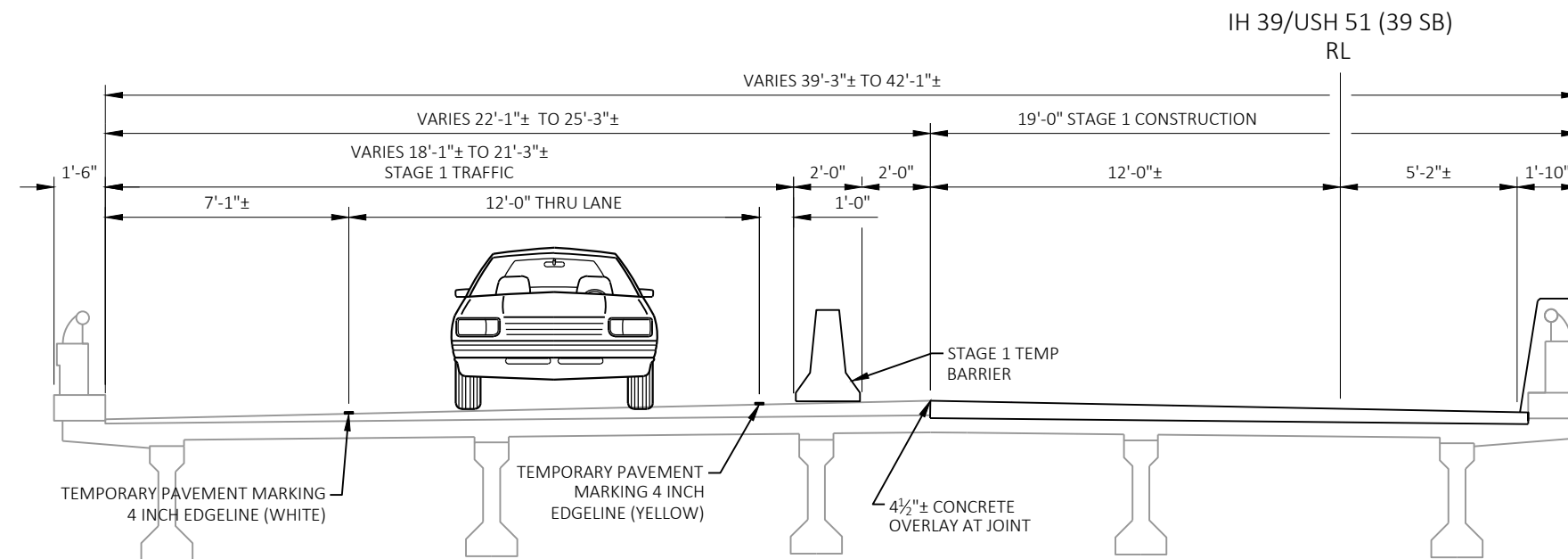


STAGE 1 (B-49-15)  
(LOOKING NORTH)

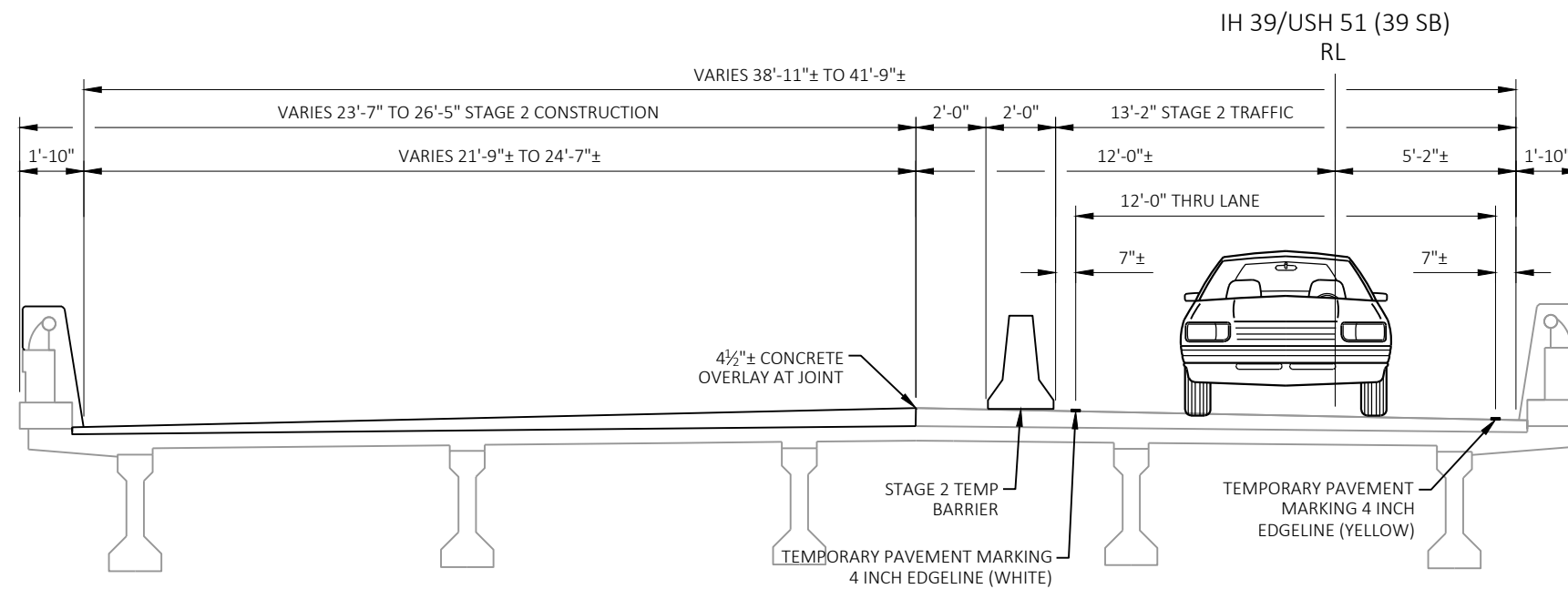


STAGE 2 (B-49-15)  
(LOOKING NORTH)

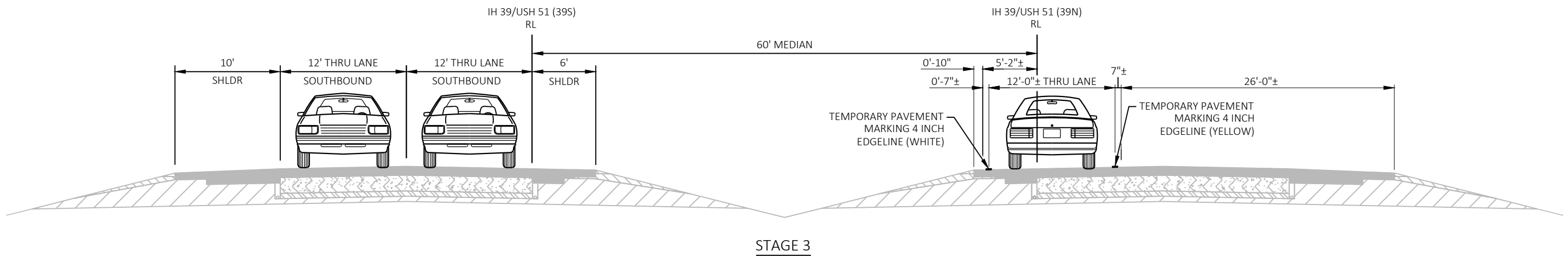
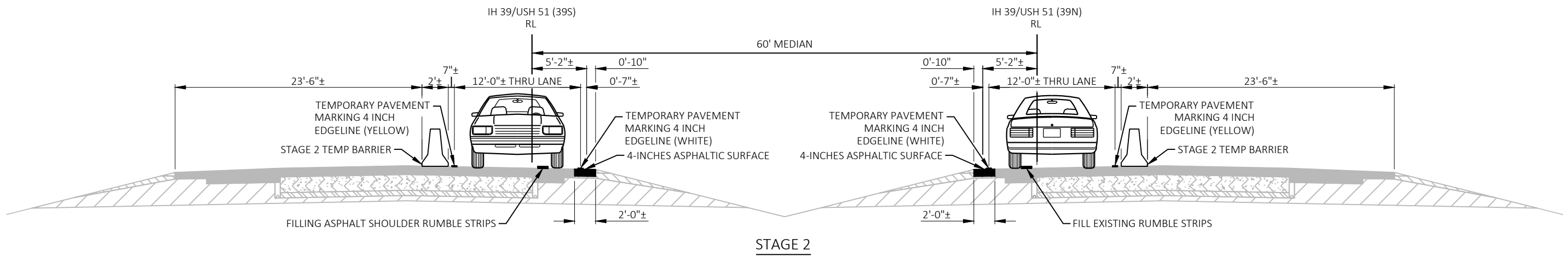
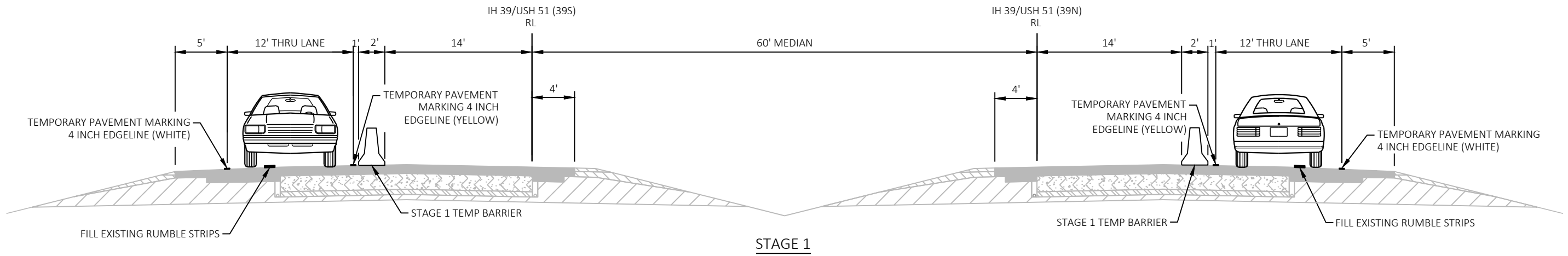




STAGE 1 (B-49-17)  
(LOOKING NORTH)

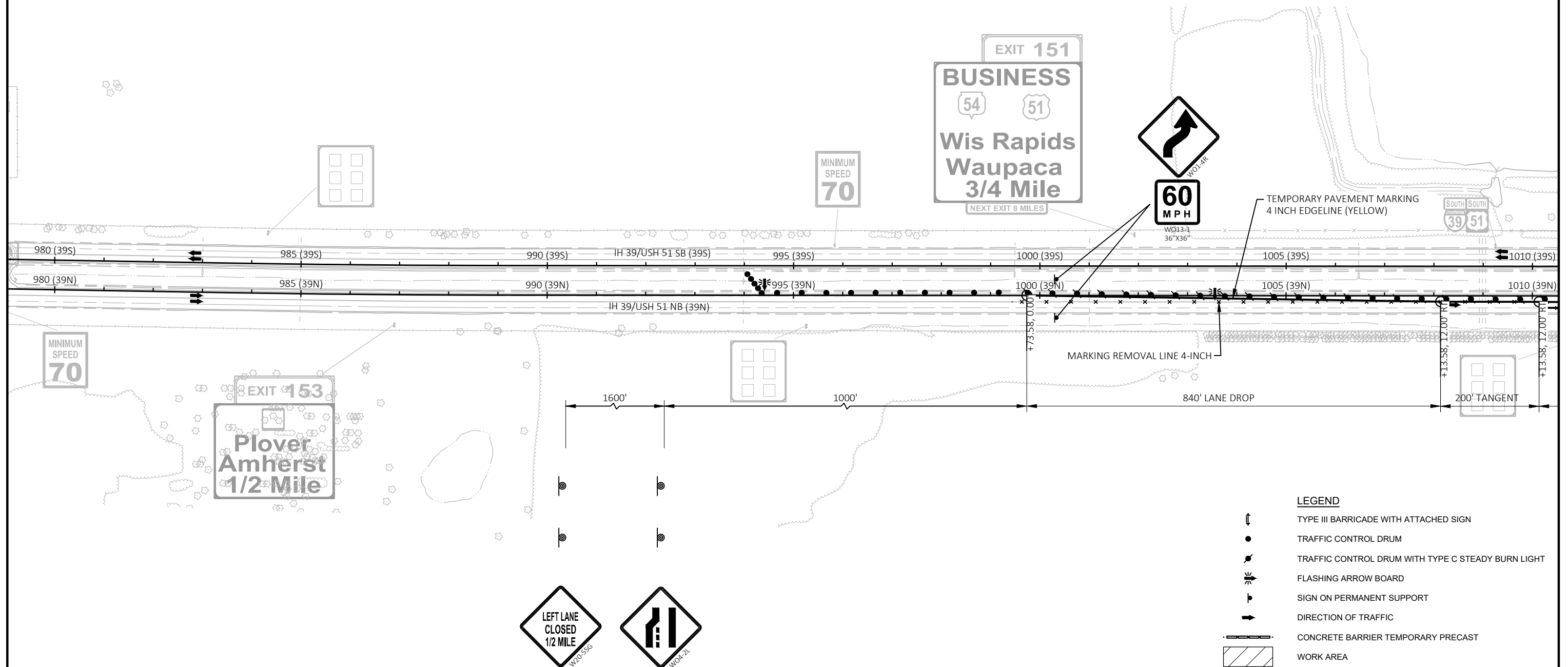


STAGE 2 (B-49-17)  
(LOOKING NORTH)



NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON OUTSIDE SHOULDER BOTH NORTHBOUND AND SOUTHBOUND

USE THE FOLLOWING SDDS  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

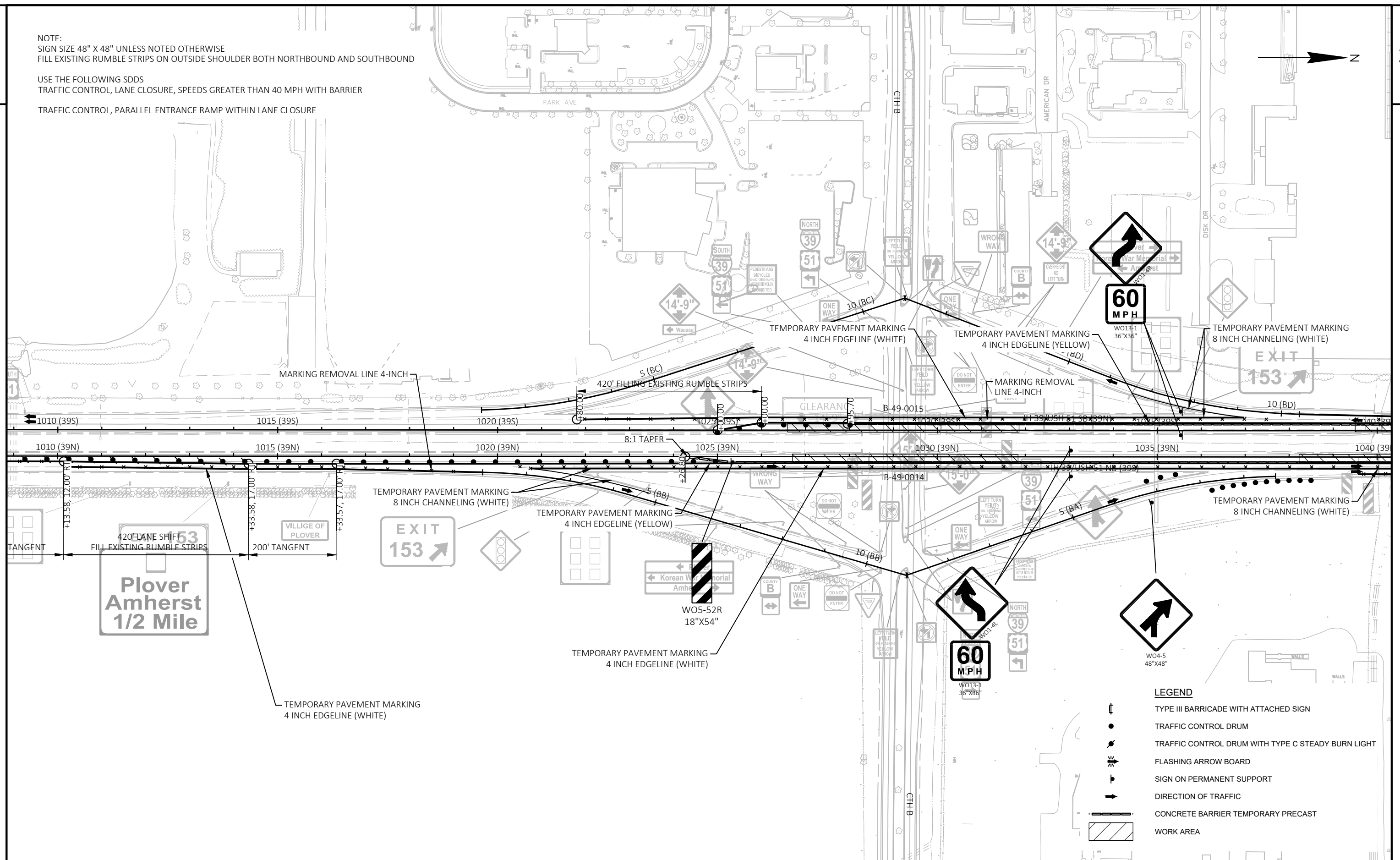




NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON OUTSIDE SHOULDER BOTH NORTHBOUND AND SOUTHBOUND

USE THE FOLLOWING SDDS  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

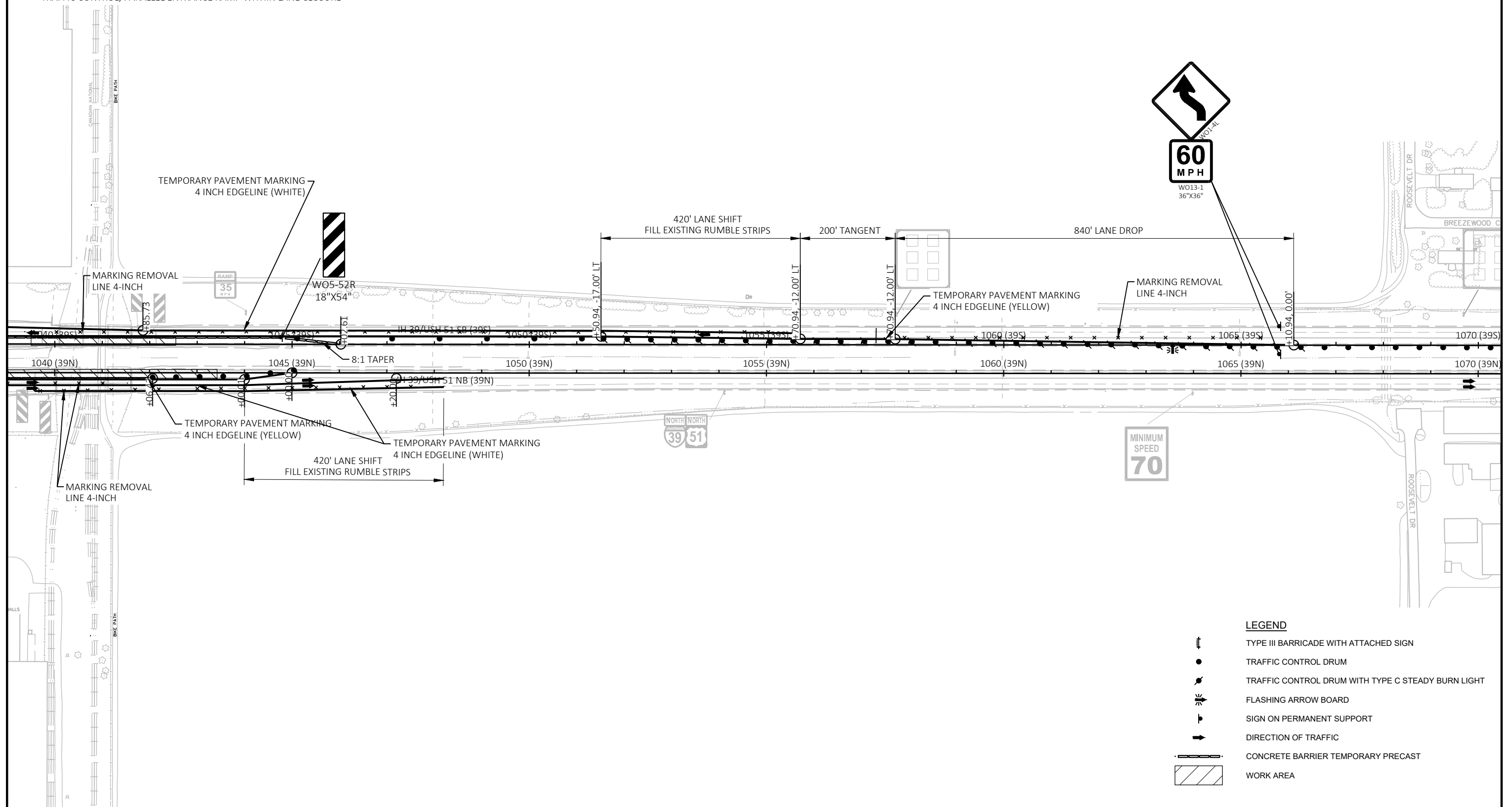
TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE



NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON OUTSIDE SHOULDER BOTH NORTHBOUND AND SOUTHBOUND

USE THE FOLLOWING SDDS  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE



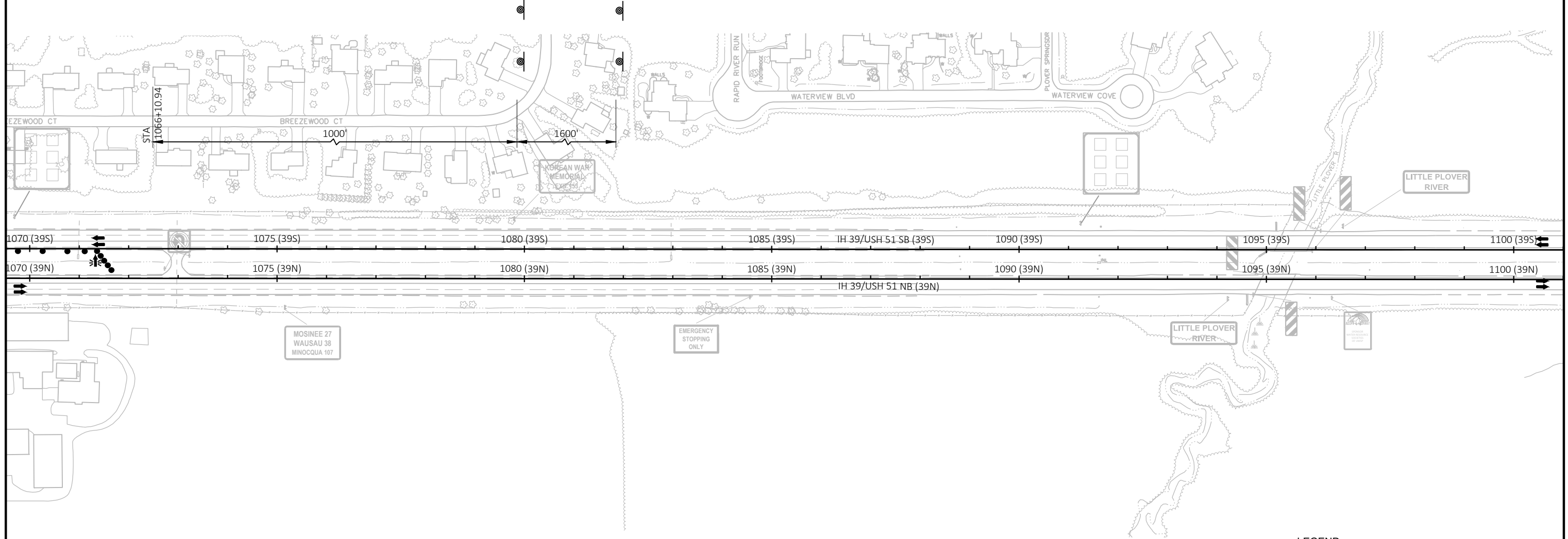
LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA



NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON OUTSIDE SHOULDER BOTH NORTHBOUND AND SOUTHBOUND

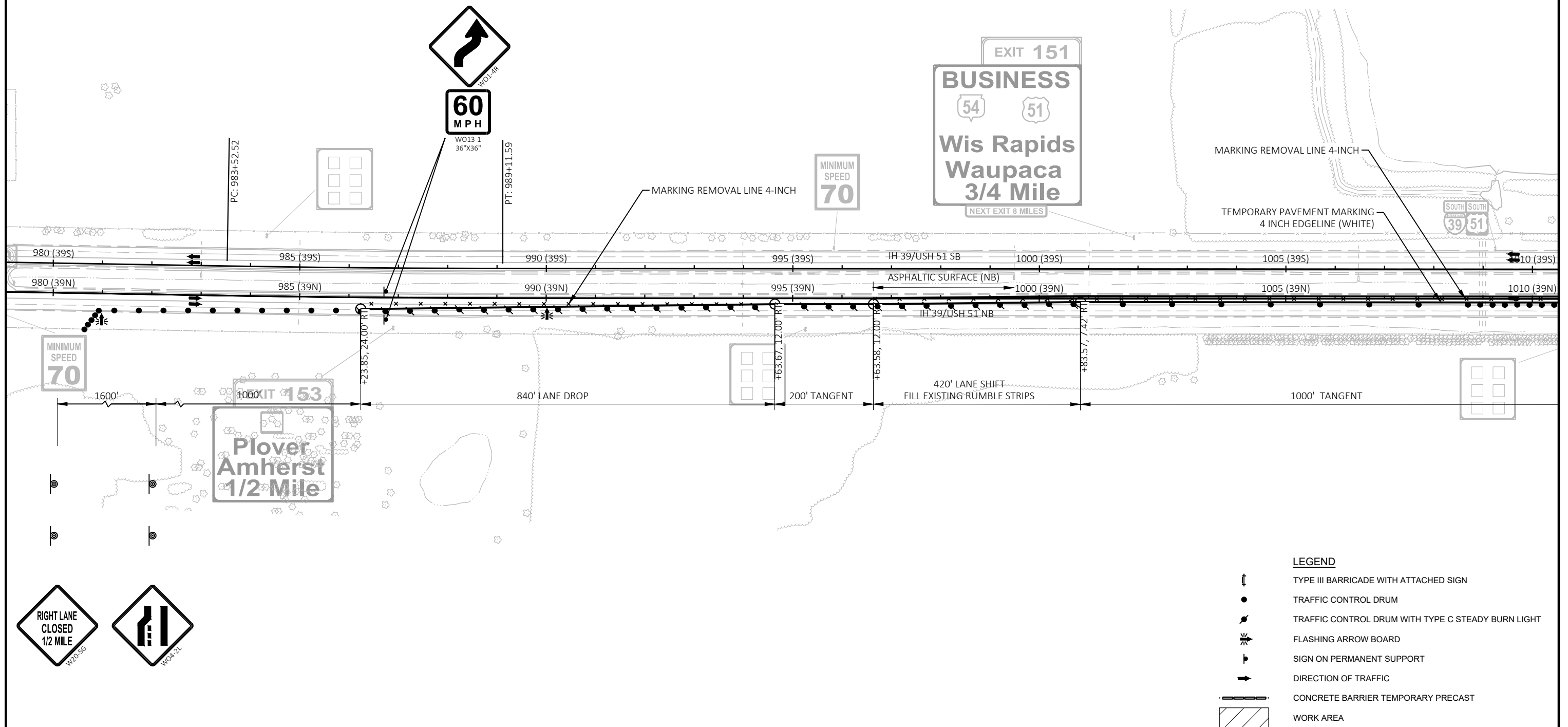
USE THE FOLLOWING SDDS  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER



- LEGEND**
- TYPE III BARRICADE WITH ATTACHED SIGN
  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  - FLASHING ARROW BOARD
  - SIGN ON PERMANENT SUPPORT
  - DIRECTION OF TRAFFIC
  - CONCRETE BARRIER TEMPORARY PRECAST
  - WORK AREA

NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON MEDIAN SHOULDER BOTH NORTHBOUND AND SOUTHBOUND.  
ASPHALTIC SURFACE MEDIAN SHOULDER WIDENING BOTH NORTHBOUND AND SOUTHBOUND.

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER



PROJECT NO: 1166-12-89

HWY: IH 39

COUNTY: PORTAGE

TRAFFIC CONTROL: IH 39 (STAGE 2)

SHEET

54

E

FILE NAME: N:\PDS\C3D\11661219\SHEETSPLAN\025102-TC.DWG  
LAYOUT NAME - 01

PLOT DATE: 4/13/2021 12:50 PM

PLOT BY: CASPER, ANDREW P

PLOT NAME:

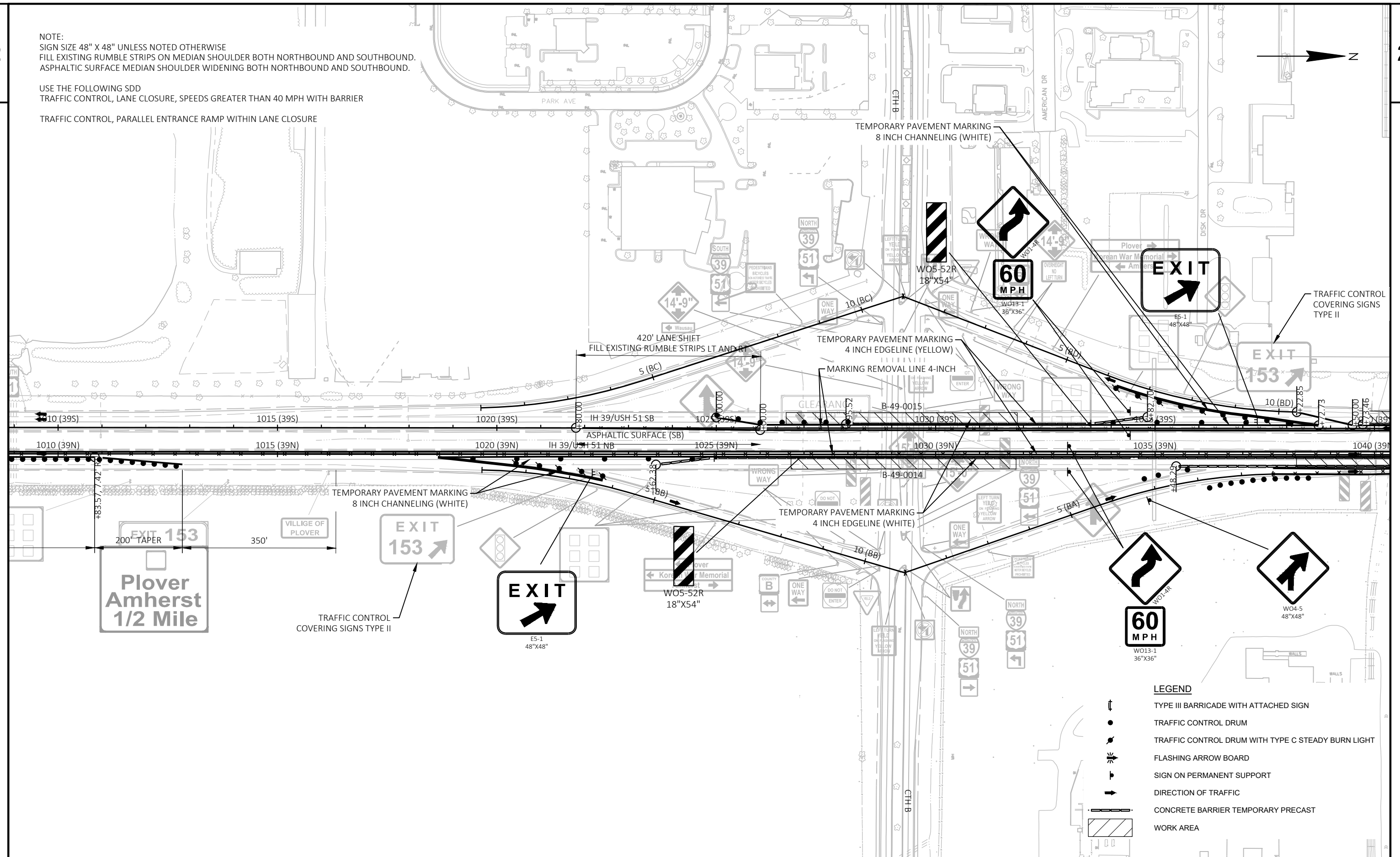
PLOT SCALE: 1 IN=200 FT

WISDOT/CADDs SHEET 42

NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON MEDIAN SHOULDER BOTH NORTHBOUND AND SOUTHBOUND.  
ASPHALTIC SURFACE MEDIAN SHOULDER WIDENING BOTH NORTHBOUND AND SOUTHBOUND.

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE



PROJECT NO: 1166-12-89

HWY: IH 39

COUNTY: PORTAGE

TRAFFIC CONTROL: IH 39 (STAGE 2)

SHEET

55

E

FILE NAME: N:\PDS\C3D\11661219\SHEETPLAN\025102-TC.DWG  
LAYOUT NAME - 02

PLOT DATE: 4/13/2021 12:53 PM

PLOT BY: CASPER, ANDREW P

PLOT NAME:

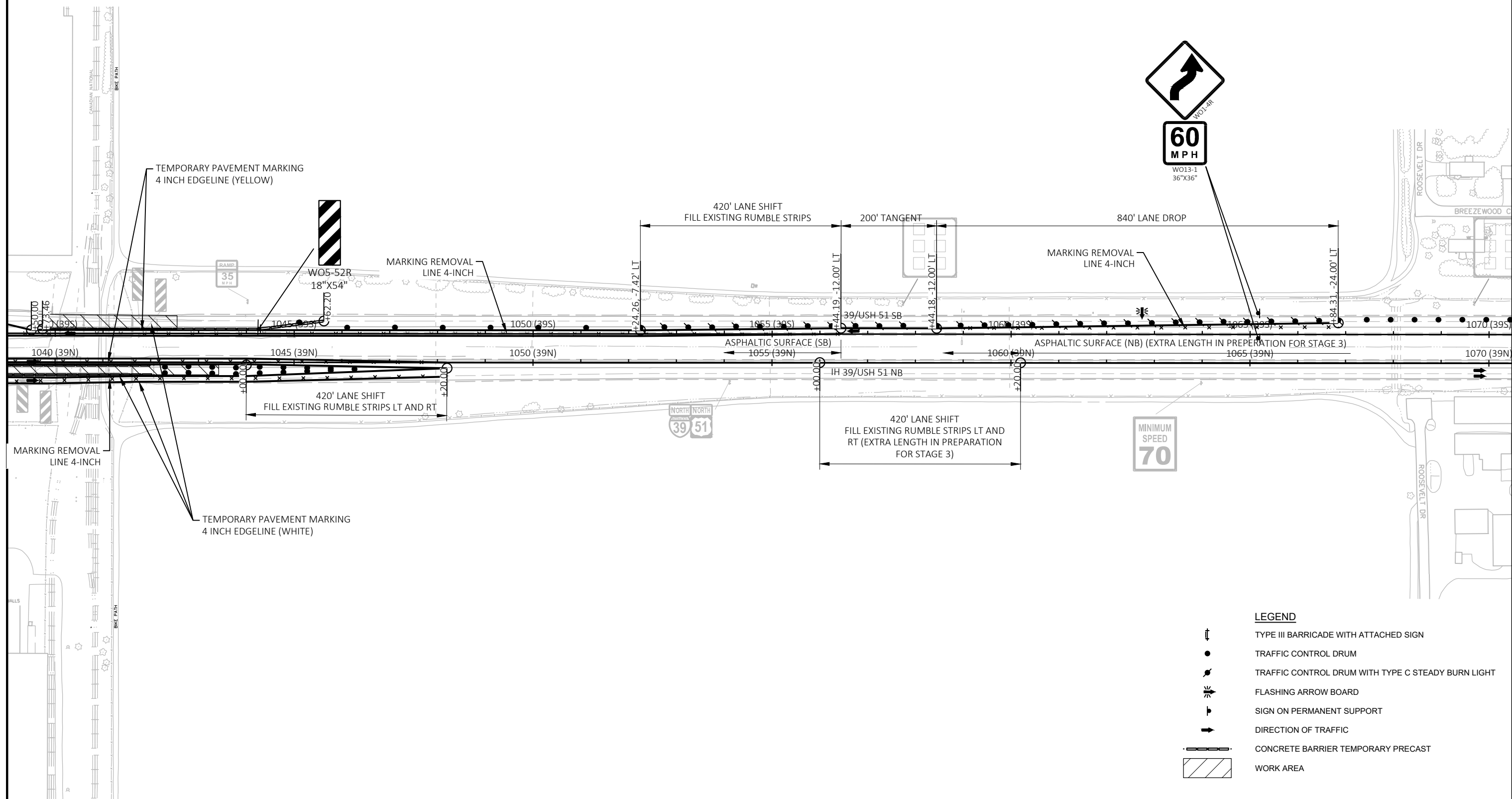
PLOT SCALE: 1 IN=200 FT

WISDOT/CADDs SHEET 42

NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON MEDIAN SHOULDER BOTH NORTHBOUND AND SOUTHBOUND.  
ASPHALTIC SURFACE MEDIAN SHOULDER WIDENING BOTH NORTHBOUND AND SOUTHBOUND.

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE



PROJECT NO: 1166-12-89

HWY: IH 39

COUNTY: PORTAGE

TRAFFIC CONTROL: IH 39 (STAGE 2)

SHEET

56

E

FILE NAME : N:\PDS\C3D\11661219\SHEETPLAN\025102-TC.DWG  
LAYOUT NAME - 03

PLOT DATE : 4/13/2021 12:55 PM

PLOT BY : CASPER, ANDREW P

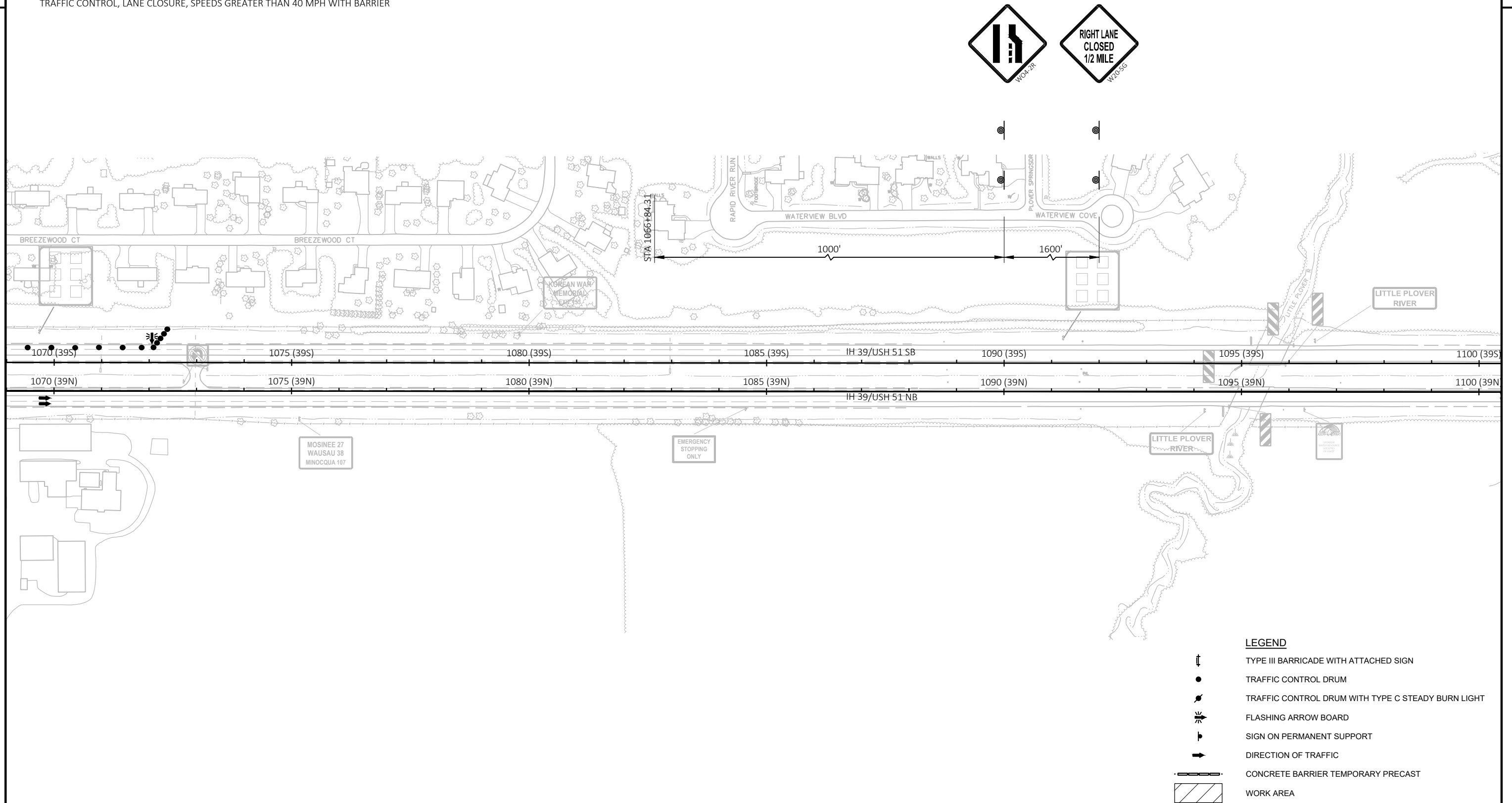
PLOT NAME :

PLOT SCALE : 1 IN:200 FT

WISDOT/CADDs SHEET 42

NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE  
FILL EXISTING RUMBLE STRIPS ON MEDIAN SHOULDER BOTH NORTHBOUND AND SOUTHBOUND.  
ASPHALTIC SURFACE MEDIAN SHOULDER WIDENING BOTH NORTHBOUND AND SOUTHBOUND.

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER



PROJECT NO: 1166-12-89

HWY: IH 39

COUNTY: PORTAGE

TRAFFIC CONTROL: IH 39 (STAGE 2)

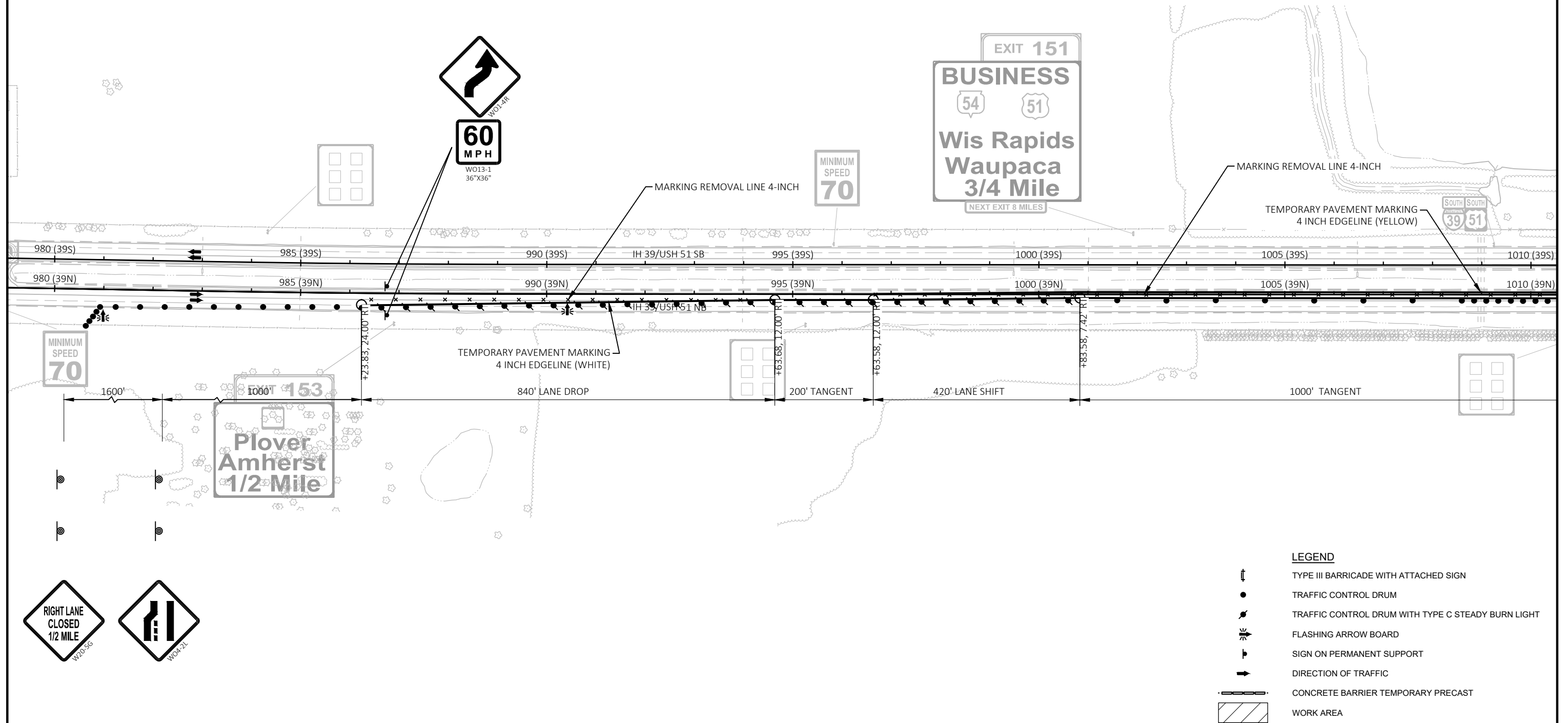
SHEET

57

E

NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER



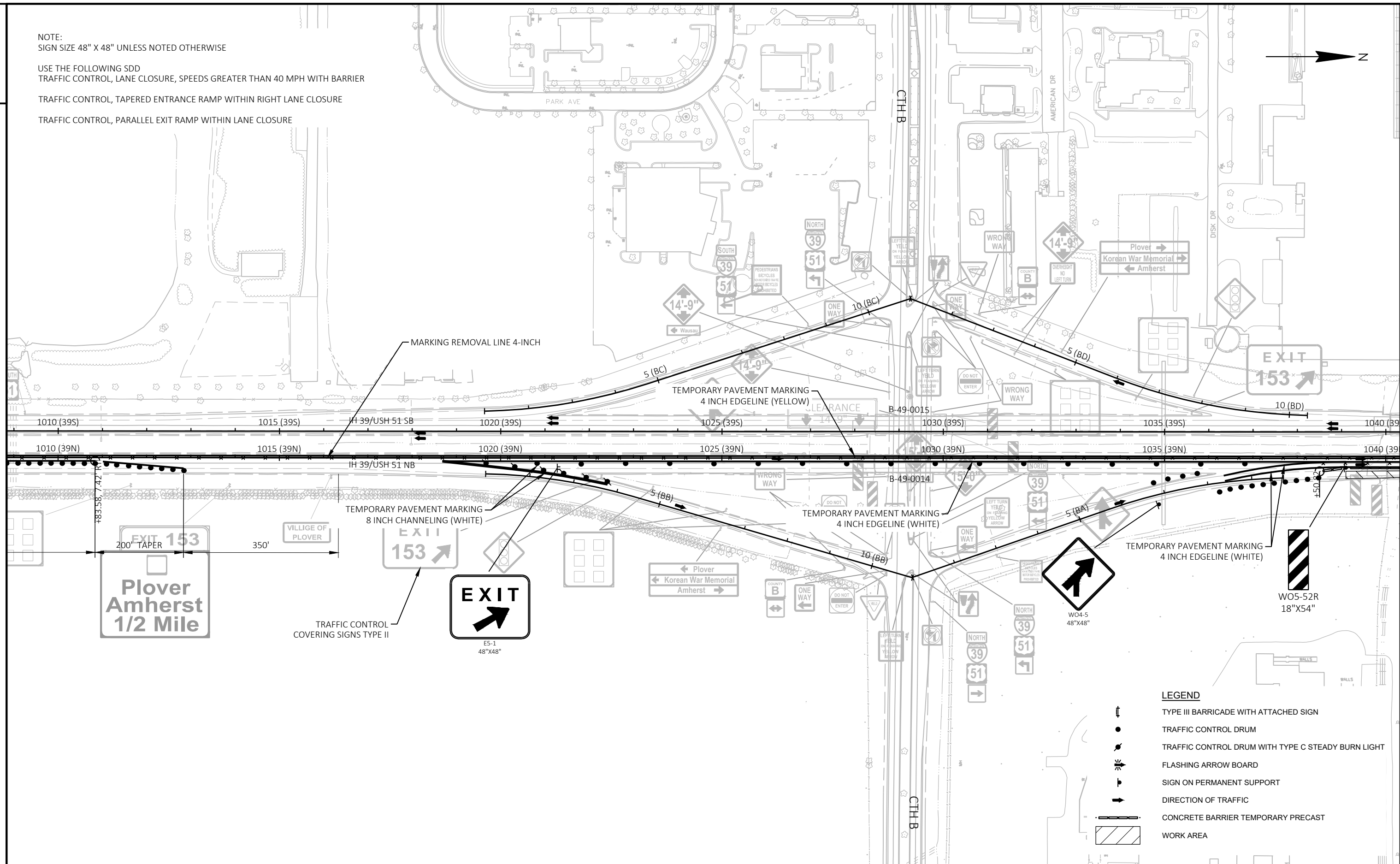


NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE

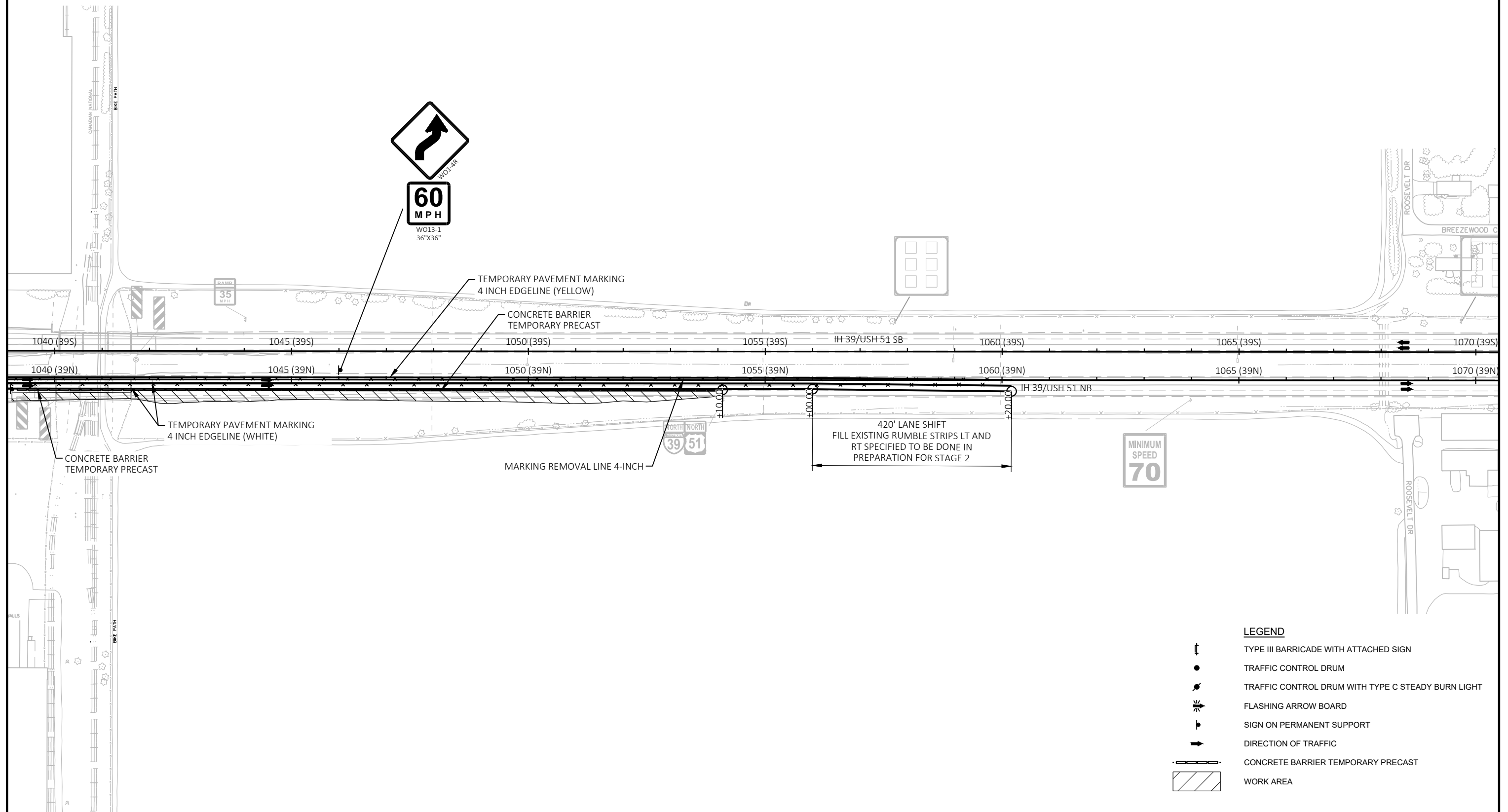
TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE



NOTE:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDD  
TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 MPH WITH BARRIER

TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE



PROJECT NO: 1166-12-89

HWY: IH 39

COUNTY: PORTAGE

TRAFFIC CONTROL: IH 39 (STAGE 3)

SHEET

60

E

FILE NAME : N:\PDS\C3D\11661219\SHEETSP\025103-TC.DWG  
LAYOUT NAME - 03

PLOT DATE : 4/13/2021 1:10 PM

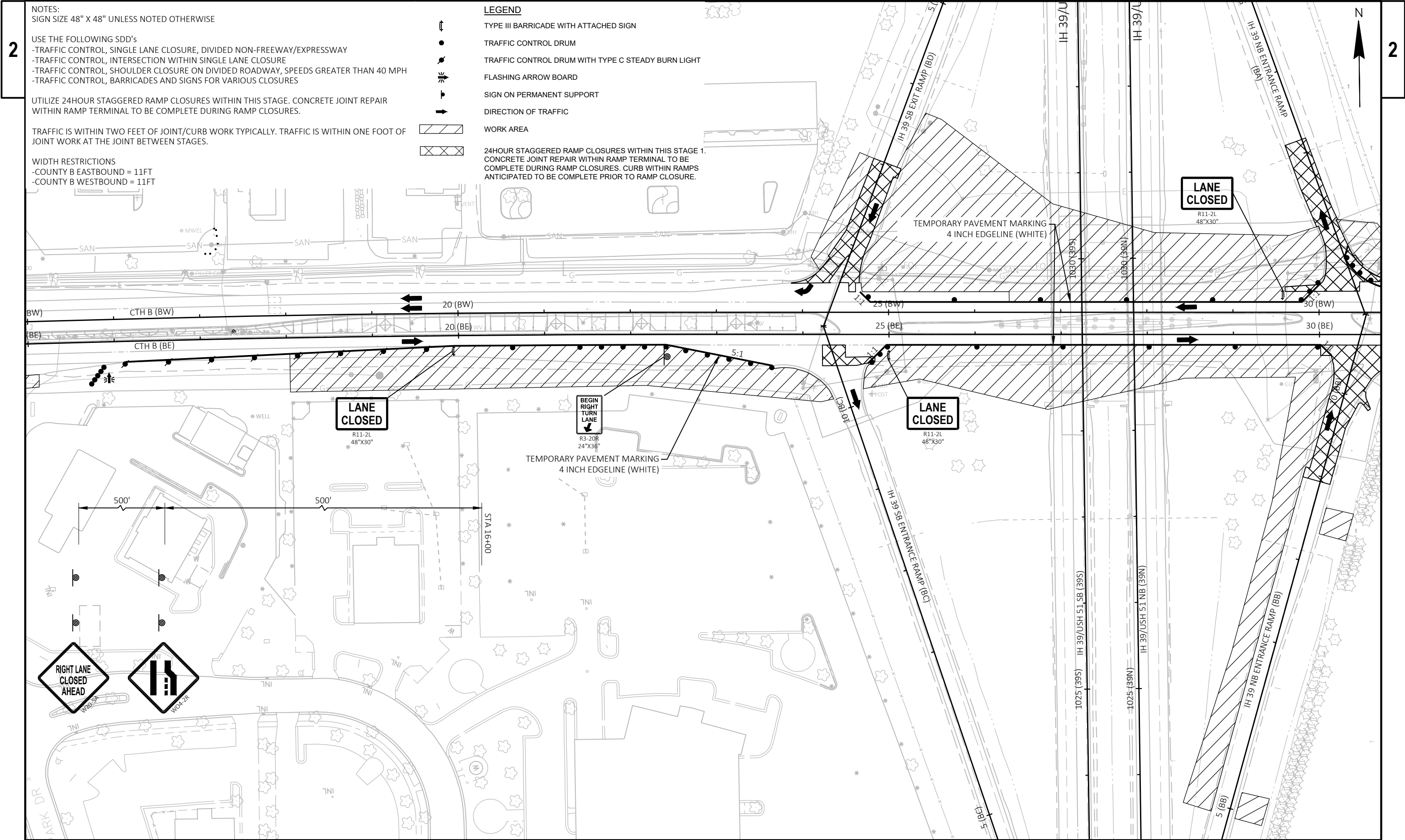
PLOT BY : CASPER, ANDREW P

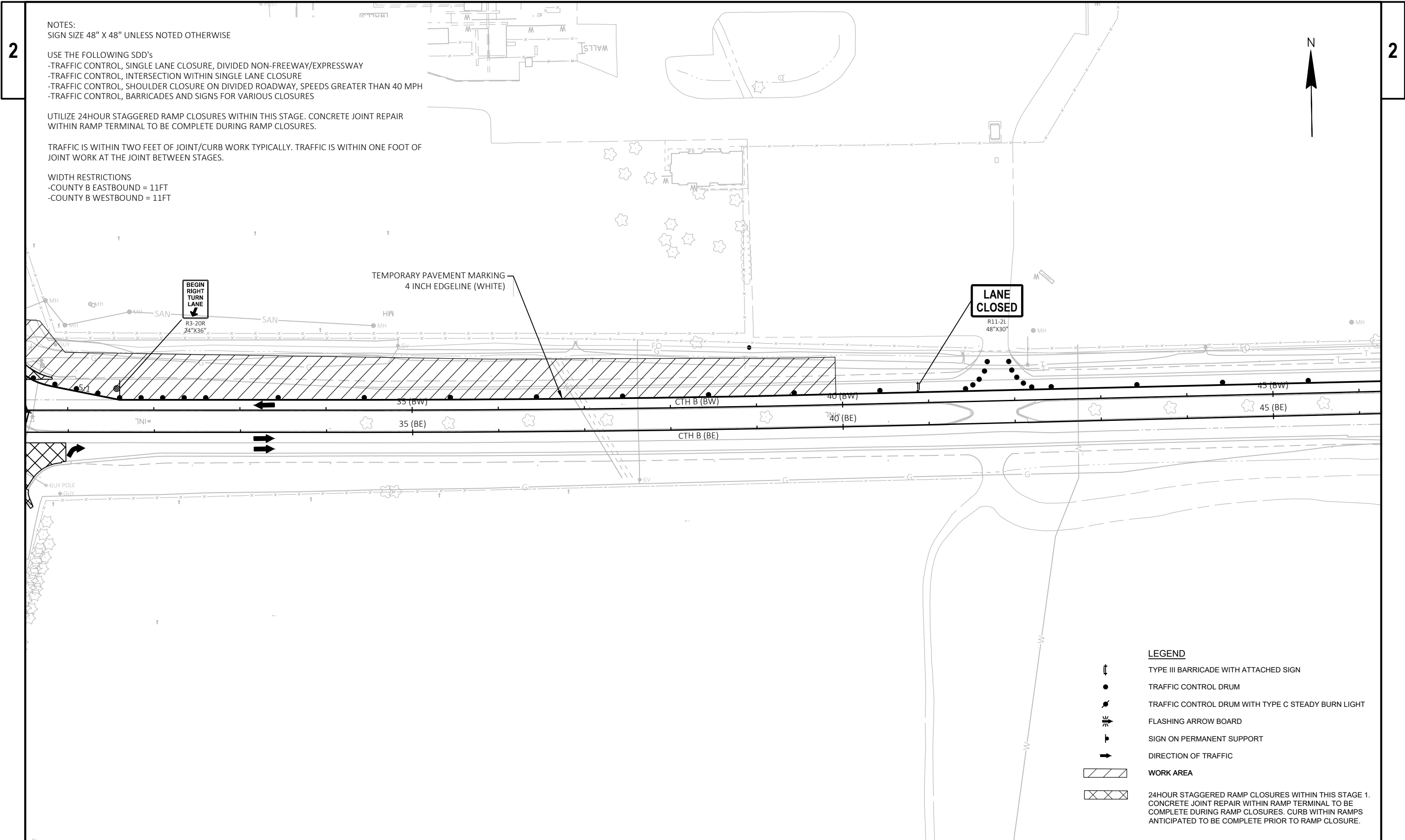
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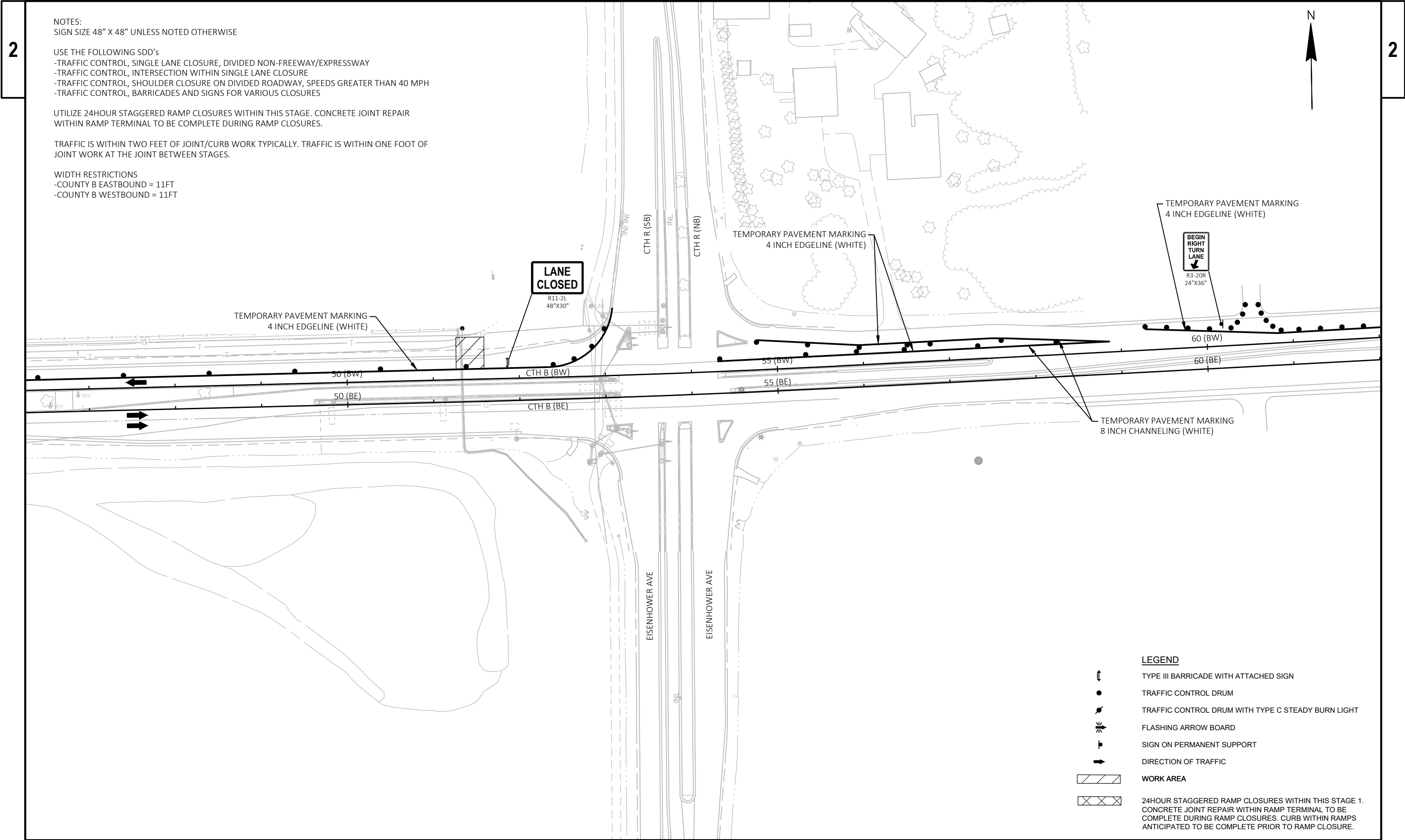
PLOT SCALE : 1 IN:200 FT

WISDOT/CADDs SHEET 42









2

NOTES:  
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDD's

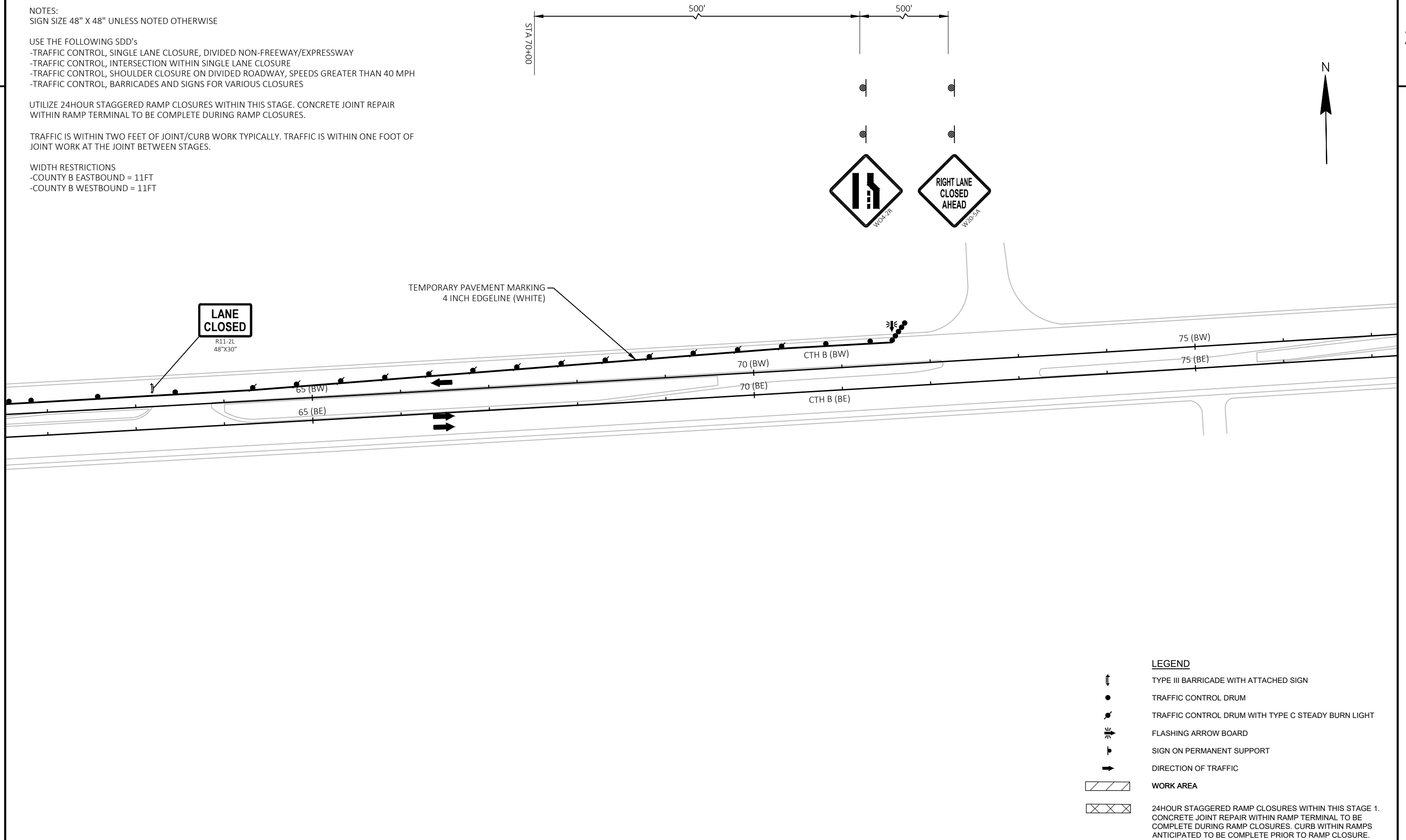
- TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY
- TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
- TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
- TRAFFIC CONTROL, BARRICADES AND SIGNS FOR VARIOUS CLOSURES

UTILIZE 24HOUR STAGGERED RAMP CLOSURES WITHIN THIS STAGE. CONCRETE JOINT REPAIR WITHIN RAMP TERMINAL TO BE COMPLETE DURING RAMP CLOSURES.

TRAFFIC IS WITHIN TWO FEET OF JOINT/CURB WORK TYPICALLY. TRAFFIC IS WITHIN ONE FOOT OF JOINT WORK AT THE JOINT BETWEEN STAGES.

WIDTH RESTRICTIONS  
-COUNTY B EASTBOUND = 11FT  
-COUNTY B WESTBOUND = 11FT

2



PROJECT NO: 1166-12-89

HWY: IH 39

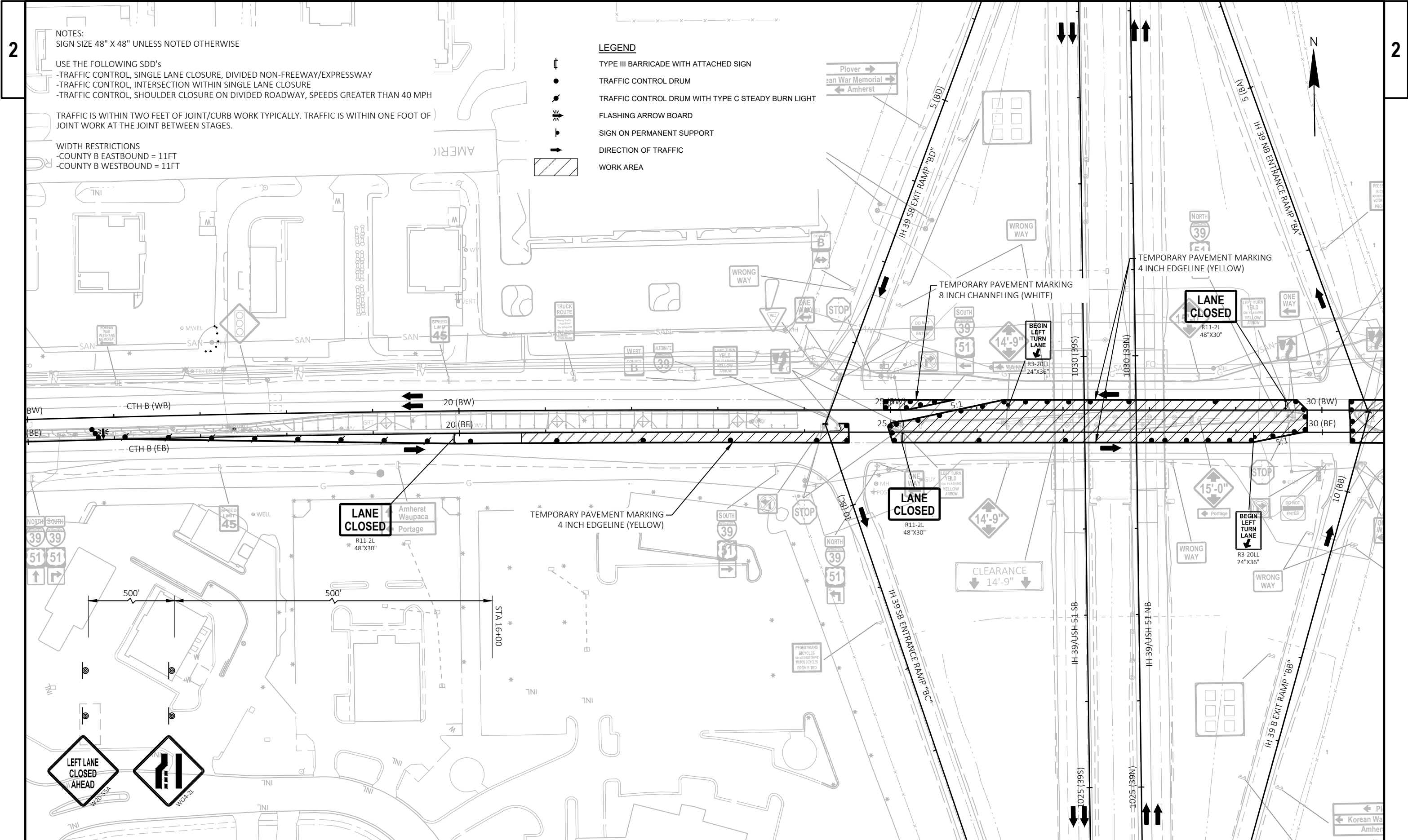
COUNTY: PORTAGE

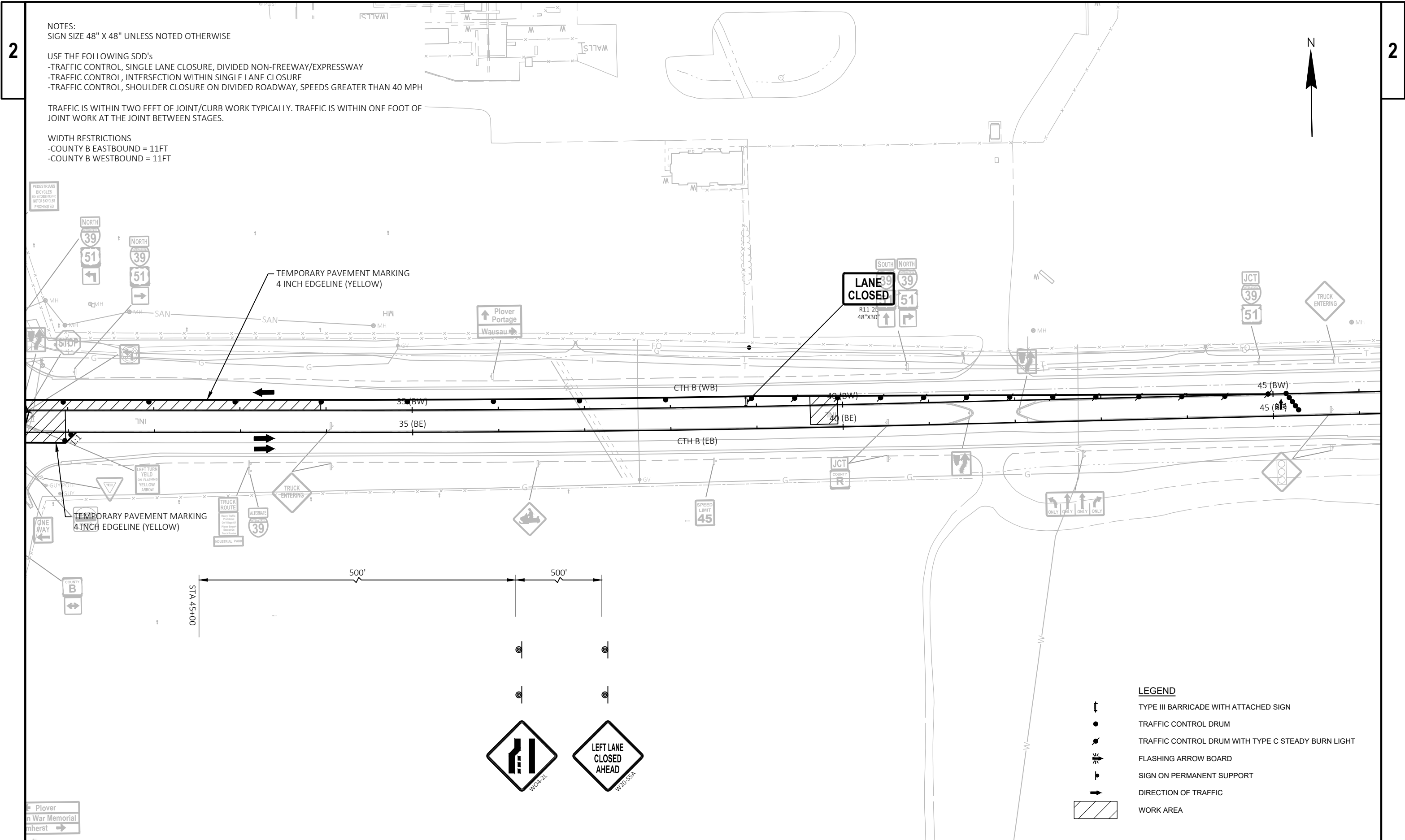
## TRAFFIC CONTROL: COUNTY B (STAGE 1)

SHEET

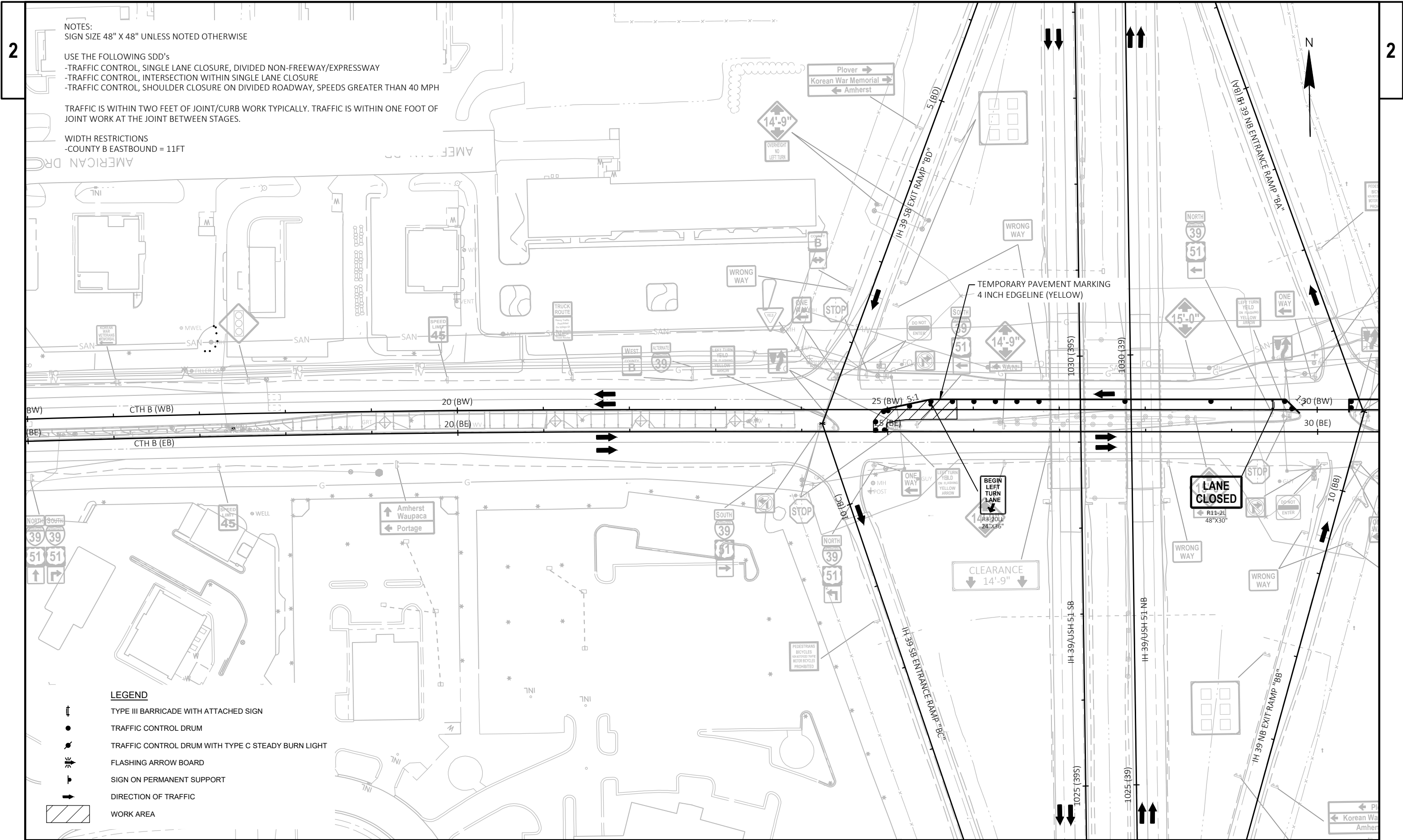
64

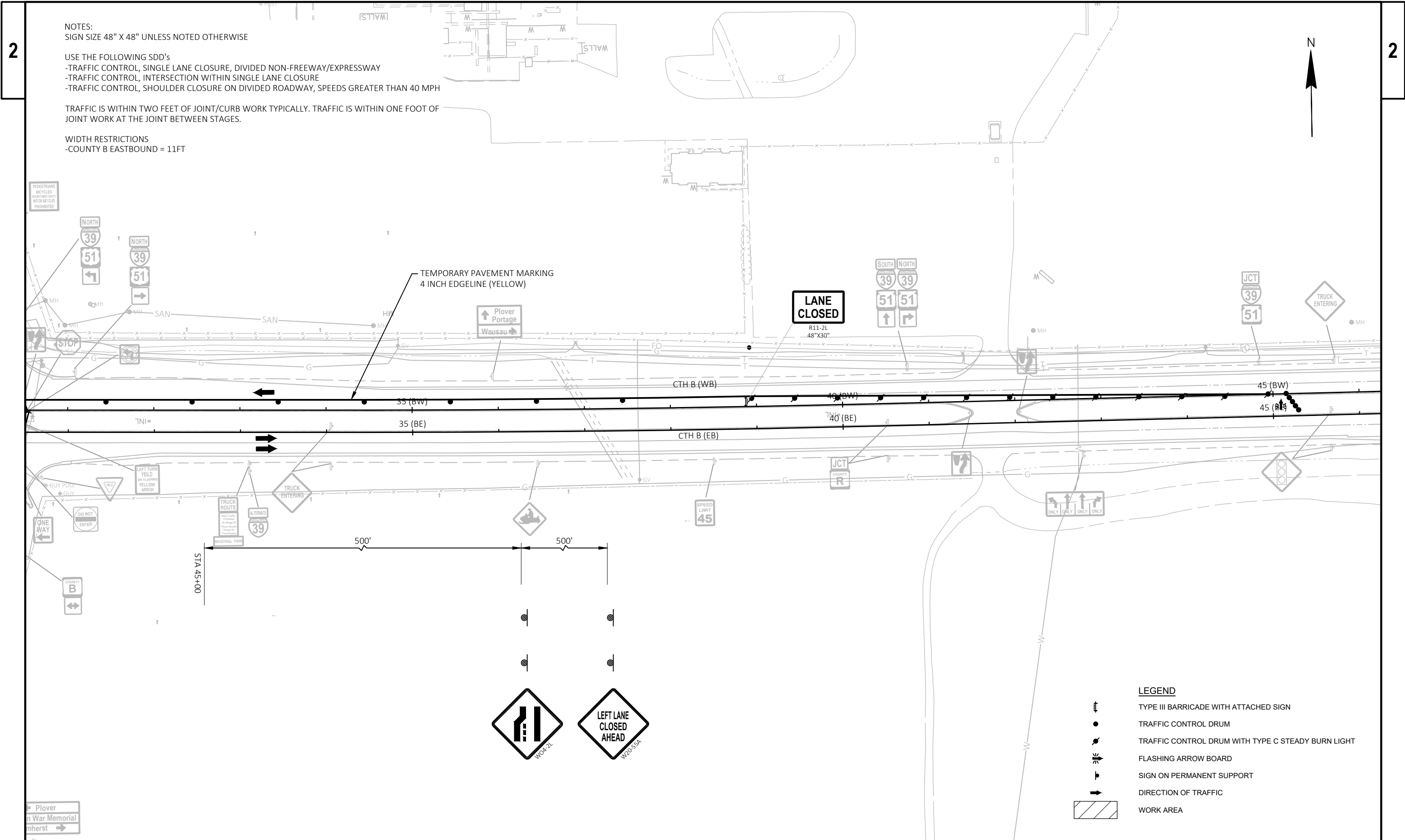
## E













LEGEND

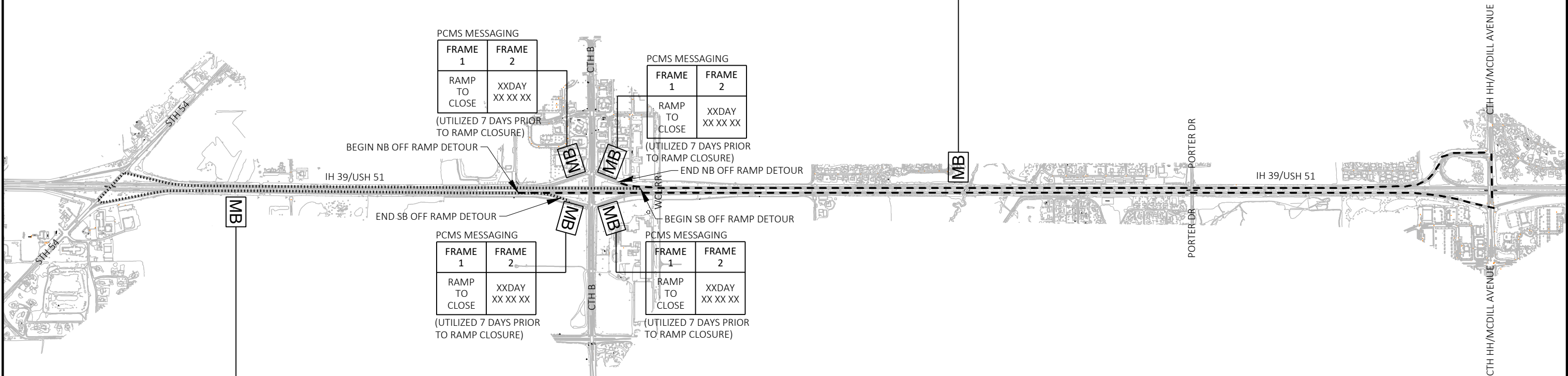
- DETOUR ROUTE NB OFF RAMP
- ..... DETOUR ROUTE SB OFF RAMP
- ➔ DIRECTION OF TRAFFIC
- MB PORTABLE CHANGEABLE MESSAGE BOARD



PCMS MESSAGING  
(WITH CELLULAR COMMUNICATIONS)

| FRAME 1            | FRAME 2         |
|--------------------|-----------------|
| EXIT 153<br>CLOSED | USE EXIT<br>151 |

DURING NIGHT RAMP CLOSURE



PCMS MESSAGING  
(WITH CELLULAR COMMUNICATIONS)

| FRAME 1            | FRAME 2      |
|--------------------|--------------|
| EXIT 153<br>CLOSED | USE EXIT 156 |

DURING RAMP CLOSURES

Estimate Of Quantities

1166-12-89

| Line | Item       | Item Description                                                  | Unit | Total      | Qty        |
|------|------------|-------------------------------------------------------------------|------|------------|------------|
| 0002 | 203.0200   | Removing Old Structure (station) 01. 1029+24.39 NB                | LS   | 1.000      | 1.000      |
| 0004 | 203.0200   | Removing Old Structure (station) 02. 1029+26.85 SB                | LS   | 1.000      | 1.000      |
| 0006 | 203.0200   | Removing Old Structure (station) 03. 1040+81.93 NB                | LS   | 1.000      | 1.000      |
| 0008 | 203.0200   | Removing Old Structure (station) 04. 1040+85.69 SB                | LS   | 1.000      | 1.000      |
| 0010 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 01. B-49-14 | LS   | 1.000      | 1.000      |
| 0012 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 02. B-49-15 | LS   | 1.000      | 1.000      |
| 0014 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 03. B-49-16 | LS   | 1.000      | 1.000      |
| 0016 | 203.0210.S | Abatement of Asbestos Containing Material (structure) 04. B-49-17 | LS   | 1.000      | 1.000      |
| 0018 | 203.0225.S | Debris Containment (structure) 01. B-49-16                        | LS   | 1.000      | 1.000      |
| 0020 | 203.0225.S | Debris Containment (structure) 02. B-49-17                        | LS   | 1.000      | 1.000      |
| 0022 | 204.0100   | Removing Concrete Pavement                                        | SY   | 861.000    | 861.000    |
| 0024 | 204.0109.S | Removing Concrete Surface Partial Depth                           | SF   | 10,002.000 | 10,002.000 |
| 0026 | 204.0115   | Removing Asphaltic Surface Butt Joints                            | SY   | 941.000    | 941.000    |
| 0028 | 204.0120   | Removing Asphaltic Surface Milling                                | SY   | 3,775.000  | 3,775.000  |
| 0030 | 204.0150   | Removing Curb & Gutter                                            | LF   | 122.000    | 122.000    |
| 0032 | 204.0165   | Removing Guardrail                                                | LF   | 1,961.000  | 1,961.000  |
| 0034 | 204.0190   | Removing Surface Drains                                           | EACH | 5.000      | 5.000      |
| 0036 | 205.0100   | Excavation Common                                                 | CY   | 310.000    | 310.000    |
| 0038 | 208.0100   | Borrow                                                            | CY   | 649.000    | 649.000    |
| 0040 | 211.0400   | Prepare Foundation for Asphaltic Shoulders                        | STA  | 107.000    | 107.000    |
| 0042 | 213.0100   | Finishing Roadway (project) 01. 1166-12-89                        | EACH | 1.000      | 1.000      |
| 0044 | 305.0110   | Base Aggregate Dense 3/4-Inch                                     | TON  | 367.000    | 367.000    |
| 0046 | 305.0120   | Base Aggregate Dense 1 1/4-Inch                                   | TON  | 717.000    | 717.000    |
| 0048 | 416.0610   | Drilled Tie Bars                                                  | EACH | 273.000    | 273.000    |
| 0050 | 416.0620   | Drilled Dowel Bars                                                | EACH | 1,224.000  | 1,224.000  |
| 0052 | 416.1010   | Concrete Surface Drains                                           | CY   | 9.000      | 9.000      |
| 0054 | 416.1710   | Concrete Pavement Repair                                          | SY   | 314.000    | 314.000    |
| 0056 | 416.1715   | Concrete Pavement Repair SHES                                     | SY   | 244.000    | 244.000    |
| 0058 | 416.1720   | Concrete Pavement Replacement                                     | SY   | 462.000    | 462.000    |
| 0060 | 416.1725   | Concrete Pavement Replacement SHES                                | SY   | 31.000     | 31.000     |
| 0062 | 455.0605   | Tack Coat                                                         | GAL  | 662.000    | 662.000    |
| 0064 | 465.0105   | Asphaltic Surface                                                 | TON  | 1,834.000  | 1,834.000  |
| 0066 | 465.0315   | Asphaltic Flumes                                                  | SY   | 11.000     | 11.000     |
| 0068 | 465.0400   | Asphaltic Shoulder Rumble Strips                                  | LF   | 7,184.000  | 7,184.000  |
| 0070 | 502.0100   | Concrete Masonry Bridges                                          | CY   | 156.000    | 156.000    |
| 0072 | 502.3200   | Protective Surface Treatment                                      | SY   | 2,935.000  | 2,935.000  |
| 0074 | 502.3210   | Pigmented Surface Sealer                                          | SY   | 785.000    | 785.000    |

Estimate Of Quantities

1166-12-89

| Line | Item       | Item Description                                               | Unit | Total      | Qty        |
|------|------------|----------------------------------------------------------------|------|------------|------------|
| 0076 | 502.4104   | Adhesive Anchors 1/2-inch                                      | EACH | 6.000      | 6.000      |
| 0078 | 502.4205   | Adhesive Anchors No. 5 Bar                                     | EACH | 4,516.000  | 4,516.000  |
| 0080 | 505.0600   | Bar Steel Reinforcement HS Coated Structures                   | LB   | 22,170.000 | 22,170.000 |
| 0082 | 509.0301   | Preparation Decks Type 1                                       | SY   | 825.000    | 825.000    |
| 0084 | 509.0302   | Preparation Decks Type 2                                       | SY   | 340.000    | 340.000    |
| 0086 | 509.0505.S | Cleaning Decks to Reapply Concrete Masonry Overlay             | SY   | 2,990.000  | 2,990.000  |
| 0088 | 509.1500   | Concrete Surface Repair                                        | SF   | 400.000    | 400.000    |
| 0090 | 509.2000   | Full-Depth Deck Repair                                         | SY   | 40.000     | 40.000     |
| 0092 | 509.2500   | Concrete Masonry Overlay Decks                                 | CY   | 368.000    | 368.000    |
| 0094 | 509.2600   | Concrete Masonry Overlay Approaches                            | CY   | 152.000    | 152.000    |
| 0096 | 509.9005.S | Removing Concrete Masonry Deck Overlay (structure) 01. B-49-14 | SY   | 715.000    | 715.000    |
| 0098 | 509.9005.S | Removing Concrete Masonry Deck Overlay (structure) 02. B-49-15 | SY   | 715.000    | 715.000    |
| 0100 | 509.9005.S | Removing Concrete Masonry Deck Overlay (structure) 03. B-49-16 | SY   | 865.000    | 865.000    |
| 0102 | 509.9005.S | Removing Concrete Masonry Deck Overlay (structure) 04. B-49-17 | SY   | 695.000    | 695.000    |
| 0104 | 520.9700.S | Culvert Pipe Liners (size) 01. 24-Inch                         | LF   | 76.000     | 76.000     |
| 0106 | 520.9750.S | Cleaning Culvert Pipes for Liner Verification                  | EACH | 1.000      | 1.000      |
| 0108 | 522.1018   | Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch    | EACH | 1.000      | 1.000      |
| 0110 | 522.1024   | Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch    | EACH | 2.000      | 2.000      |
| 0112 | 531.2042   | Drilling Shaft 42-Inch                                         | LF   | 23.000     | 23.000     |
| 0114 | 531.5140   | Foundation Single-Shaft Type MC-IV (structure) 01. S-49-34     | EACH | 1.000      | 1.000      |
| 0116 | 532.5000   | Sign Structure Mounted (structure) 01. S-49-33                 | EACH | 1.000      | 1.000      |
| 0118 | 532.5140   | Monotube Cantilever Type IV (structure) 01. S-49-34            | EACH | 1.000      | 1.000      |
| 0120 | 601.0405   | Concrete Curb & Gutter 18-Inch Type A                          | LF   | 107.000    | 107.000    |
| 0122 | 601.0411   | Concrete Curb & Gutter 30-Inch Type D                          | LF   | 15.000     | 15.000     |
| 0124 | 601.0588   | Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT          | LF   | 215.000    | 215.000    |
| 0126 | 603.8000   | Concrete Barrier Temporary Precast Delivered                   | LF   | 8,928.000  | 8,928.000  |
| 0128 | 603.8125   | Concrete Barrier Temporary Precast Installed                   | LF   | 8,928.000  | 8,928.000  |
| 0130 | 606.0200   | Riprap Medium                                                  | CY   | 12.000     | 12.000     |
| 0132 | 608.0318   | Storm Sewer Pipe Reinforced Concrete Class III 18-Inch         | LF   | 18.000     | 18.000     |
| 0134 | 611.0639   | Inlet Covers Type H-S                                          | EACH | 1.000      | 1.000      |
| 0136 | 611.3230   | Inlets 2x3-FT                                                  | EACH | 1.000      | 1.000      |
| 0138 | 614.2300   | MGS Guardrail 3                                                | LF   | 1,625.000  | 1,625.000  |

Estimate Of Quantities

1166-12-89

| Line | Item     | Item Description                                                 | Unit | Total      | Qty        |
|------|----------|------------------------------------------------------------------|------|------------|------------|
| 0140 | 614.2310 | MGS Guardrail 3 HS                                               | LF   | 475.000    | 475.000    |
| 0142 | 614.2500 | MGS Thrie Beam Transition                                        | LF   | 315.000    | 315.000    |
| 0144 | 614.2610 | MGS Guardrail Terminal EAT                                       | EACH | 11.000     | 11.000     |
| 0146 | 614.2620 | MGS Guardrail Terminal Type 2                                    | EACH | 3.000      | 3.000      |
| 0148 | 618.0100 | Maintenance And Repair of Haul Roads (project) 01.<br>1166-12-89 | EACH | 1.000      | 1.000      |
| 0150 | 619.1000 | Mobilization                                                     | EACH | 1.000      | 1.000      |
| 0152 | 624.0100 | Water                                                            | MGAL | 12.000     | 12.000     |
| 0154 | 625.0100 | Topsoil                                                          | SY   | 7,484.000  | 7,484.000  |
| 0156 | 628.1504 | Silt Fence                                                       | LF   | 3,520.000  | 3,520.000  |
| 0158 | 628.1520 | Silt Fence Maintenance                                           | LF   | 3,520.000  | 3,520.000  |
| 0160 | 628.1905 | Mobilizations Erosion Control                                    | EACH | 3.000      | 3.000      |
| 0162 | 628.1910 | Mobilizations Emergency Erosion Control                          | EACH | 3.000      | 3.000      |
| 0164 | 628.2008 | Erosion Mat Urban Class I Type B                                 | SY   | 7,484.000  | 7,484.000  |
| 0166 | 628.7570 | Rock Bags                                                        | EACH | 5.000      | 5.000      |
| 0168 | 629.0210 | Fertilizer Type B                                                | CWT  | 5.000      | 5.000      |
| 0170 | 630.0130 | Seeding Mixture No. 30                                           | LB   | 135.000    | 135.000    |
| 0172 | 630.0500 | Seed Water                                                       | MGAL | 15.000     | 15.000     |
| 0174 | 634.0618 | Posts Wood 4x6-Inch X 18-FT                                      | EACH | 1.000      | 1.000      |
| 0176 | 637.0620 | Sign Flags Permanent Type II                                     | EACH | 4.000      | 4.000      |
| 0178 | 637.2230 | Signs Type II Reflective F                                       | SF   | 139.000    | 139.000    |
| 0180 | 642.5201 | Field Office Type C                                              | EACH | 1.000      | 1.000      |
| 0182 | 643.0300 | Traffic Control Drums                                            | DAY  | 10,351.000 | 10,351.000 |
| 0184 | 643.0420 | Traffic Control Barricades Type III                              | DAY  | 346.000    | 346.000    |
| 0186 | 643.0705 | Traffic Control Warning Lights Type A                            | DAY  | 692.000    | 692.000    |
| 0188 | 643.0715 | Traffic Control Warning Lights Type C                            | DAY  | 3,393.000  | 3,393.000  |
| 0190 | 643.0800 | Traffic Control Arrow Boards                                     | DAY  | 241.000    | 241.000    |
| 0192 | 643.0900 | Traffic Control Signs                                            | DAY  | 4,109.000  | 4,109.000  |
| 0194 | 643.0920 | Traffic Control Covering Signs Type II                           | EACH | 3.000      | 3.000      |
| 0196 | 643.1050 | Traffic Control Signs PCMS                                       | DAY  | 30.000     | 30.000     |
| 0198 | 643.1051 | Traffic Control Signs PCMS with Cellular<br>Communications       | DAY  | 14.000     | 14.000     |
| 0200 | 643.5000 | Traffic Control                                                  | EACH | 1.000      | 1.000      |
| 0202 | 645.0120 | Geotextile Type HR                                               | SY   | 42.000     | 42.000     |
| 0204 | 646.1020 | Marking Line Epoxy 4-Inch                                        | LF   | 23,944.000 | 23,944.000 |
| 0206 | 646.1040 | Marking Line Grooved Wet Ref Epoxy 4-Inch                        | LF   | 2,973.000  | 2,973.000  |
| 0208 | 646.3040 | Marking Line Grooved Wet Ref Epoxy 8-Inch                        | LF   | 1,326.000  | 1,326.000  |
| 0210 | 646.5020 | Marking Arrow Epoxy                                              | EACH | 1.000      | 1.000      |
| 0212 | 646.5120 | Marking Word Epoxy                                               | EACH | 1.000      | 1.000      |
| 0214 | 646.6120 | Marking Stop Line Epoxy 18-Inch                                  | LF   | 120.000    | 120.000    |

Estimate Of Quantities

1166-12-89

| Line | Item       | Item Description                                                       | Unit | Total      | Qty        |
|------|------------|------------------------------------------------------------------------|------|------------|------------|
| 0216 | 646.7220   | Marking Chevron Epoxy 24-Inch                                          | LF   | 70.000     | 70.000     |
| 0218 | 646.9000   | Marking Removal Line 4-Inch                                            | LF   | 24,239.000 | 24,239.000 |
| 0220 | 649.0120   | Temporary Marking Line Epoxy 4-Inch                                    | LF   | 60,784.000 | 60,784.000 |
| 0222 | 649.0220   | Temporary Marking Line Epoxy 8-Inch                                    | LF   | 2,428.000  | 2,428.000  |
| 0224 | 650.4000   | Construction Staking Storm Sewer                                       | EACH | 2.000      | 2.000      |
| 0226 | 650.5500   | Construction Staking Curb Gutter and Curb & Gutter                     | LF   | 84.000     | 84.000     |
| 0228 | 650.8500   | Construction Staking Electrical Installations (project) 01. 1166-12-89 | LS   | 1.000      | 1.000      |
| 0230 | 650.9910   | Construction Staking Supplemental Control (project) 01. 1166-12-89     | LS   | 1.000      | 1.000      |
| 0232 | 650.9920   | Construction Staking Slope Stakes                                      | LF   | 2,251.000  | 2,251.000  |
| 0234 | 652.0225   | Conduit Rigid Nonmetallic Schedule 40 2-Inch                           | LF   | 4,468.000  | 4,468.000  |
| 0236 | 652.0605   | Conduit Special 2-Inch                                                 | LF   | 1,035.000  | 1,035.000  |
| 0238 | 652.0700.S | Install Conduit into Existing Item                                     | EACH | 16.000     | 16.000     |
| 0240 | 652.0800   | Conduit Loop Detector                                                  | LF   | 1,693.000  | 1,693.000  |
| 0242 | 653.0135   | Pull Boxes Steel 24x36-Inch                                            | EACH | 12.000     | 12.000     |
| 0244 | 653.0154   | Pull Boxes Non-Conductive 24x36-Inch                                   | EACH | 21.000     | 21.000     |
| 0246 | 653.0210   | Junction Boxes 10x10x6-Inch                                            | EACH | 2.000      | 2.000      |
| 0248 | 654.0101   | Concrete Bases Type 1                                                  | EACH | 2.000      | 2.000      |
| 0250 | 654.0102   | Concrete Bases Type 2                                                  | EACH | 4.000      | 4.000      |
| 0252 | 655.0210   | Cable Traffic Signal 3-14 AWG                                          | LF   | 7,381.000  | 7,381.000  |
| 0254 | 655.0515   | Electrical Wire Traffic Signals 10 AWG                                 | LF   | 9,010.000  | 9,010.000  |
| 0256 | 655.0700   | Loop Detector Lead In Cable                                            | LF   | 5,342.000  | 5,342.000  |
| 0258 | 655.0800   | Loop Detector Wire                                                     | LF   | 5,240.000  | 5,240.000  |
| 0260 | 656.0200   | Electrical Service Meter Breaker Pedestal (location) 01. 39+84 WB      | LS   | 1.000      | 1.000      |
| 0262 | 656.0200   | Electrical Service Meter Breaker Pedestal (location) 02. 5+00 BB       | LS   | 1.000      | 1.000      |
| 0264 | 657.0100   | Pedestal Bases                                                         | EACH | 2.000      | 2.000      |
| 0266 | 657.0255   | Transformer Bases Breakaway 11 1/2-Inch Bolt Circle                    | EACH | 4.000      | 4.000      |
| 0268 | 657.0305   | Poles Type 2                                                           | EACH | 4.000      | 4.000      |
| 0270 | 657.0425   | Traffic Signal Standards Aluminum 15-FT                                | EACH | 2.000      | 2.000      |
| 0272 | 658.0171   | Traffic Signal Face 1S 12-Inch                                         | EACH | 10.000     | 10.000     |
| 0274 | 658.5069   | Signal Mounting Hardware (location) 01. IH39 & CTH B Interchange       | LS   | 1.000      | 1.000      |
| 0276 | 670.0100   | Field System Integrator                                                | LS   | 1.000      | 1.000      |
| 0278 | 670.0200   | ITS Documentation                                                      | LS   | 1.000      | 1.000      |
| 0280 | 677.0200   | Install Camera Assembly                                                | EACH | 2.000      | 2.000      |
| 0282 | 690.0150   | Sawing Asphalt                                                         | LF   | 1,175.000  | 1,175.000  |
| 0284 | 690.0250   | Sawing Concrete                                                        | LF   | 3,656.000  | 3,656.000  |
| 0286 | 715.0502   | Incentive Strength Concrete Structures                                 | DOL  | 2,620.000  | 2,620.000  |

Estimate Of Quantities

| 1166-12-89 |            |                                                           |      |           |           |
|------------|------------|-----------------------------------------------------------|------|-----------|-----------|
| Line       | Item       | Item Description                                          | Unit | Total     | Qty       |
| 0288       | 801.0117   | Railroad Flagging Reimbursement                           | DOL  | 6,500.000 | 6,500.000 |
| 0290       | 999.2000.S | Installing and Maintaining Bird Deterrent System          | EACH | 4.000     | 4.000     |
| 0292       | ASP.1T0A   | On-the-Job Training Apprentice at \$5.00/HR               | HRS  | 1,200.000 | 1,200.000 |
| 0294       | ASP.1T0G   | On-the-Job Training Graduate at \$5.00/HR                 | HRS  | 600.000   | 600.000   |
| 0296       | SPV.0060   | Special 01. Overheight Vehicle Detection Assembly         | EACH | 2.000     | 2.000     |
| 0298       | SPV.0090   | Special 01. Fill Existing Rumble Strips                   | LF   | 3,780.000 | 3,780.000 |
| 0300       | SPV.0090   | Special 02. Install Department Furnished Preemption Cable | LF   | 3,056.000 | 3,056.000 |
| 0302       | SPV.0165   | Special 01. Fiber Wrap Reinforcing Non-Structural         | SF   | 220.000   | 220.000   |



REMOVING PAVEMENT

| 204.0100           |     |         |
|--------------------|-----|---------|
| STATION - STATION  | SY  | REMARKS |
| 1+40 BA - 1+78 BA  | 183 |         |
| 3+06 BA - 3+16 BA  | 28  |         |
| 8+94 BB - 9+06 BB  | 43  |         |
| 9+80 BB - 10+46 BB | 327 |         |
| 1+54 BD - 2+12 BD  | 234 |         |
| 2+91 BD - 3+03 BD  | 45  |         |
| TOTAL              | 861 |         |

REMOVING CONCRETE SURFACE PARTIAL DEPTH

| 204.0109.S              |          |        |             |  |
|-------------------------|----------|--------|-------------|--|
| STATION - STATION       | LOCATION | SF     | REMARKS     |  |
| 1028+07 NB - 1028+45 NB | LT/RT    | 901    | BRDG APPRCH |  |
| 1030+08 NB - 1030+48 NB | LT/RT    | 936    | BRDG APPRCH |  |
| 1039+59 NB - 1040+02 NB | LT/RT    | 1,784  | BRDG APPRCH |  |
| 1041+62 NB - 1042+06 NB | LT/RT    | 1,602  | BRDG APPRCH |  |
| 1027+95 SB - 1028+44 SB | LT/RT    | 1,164  | BRDG APPRCH |  |
| 1030+09 SB - 1030+50 SB | LT/RT    | 970    | BRDG APPRCH |  |
| 1039+74 SB - 1040+10 SB | LT/RT    | 1,174  | BRDG APPRCH |  |
| 1041+62 SB - 1042+14 SB | LT/RT    | 1,471  | BRDG APPRCH |  |
| TOTAL                   |          | 10,002 |             |  |

REMOVING ASPHALTIC SURFACE

| 204.0115 BUTT JOINTS    |          |     |       |         | 204.0120 MILLING |  |
|-------------------------|----------|-----|-------|---------|------------------|--|
| STATION - STATION       | LOCATION | SY  | SY    | REMARKS |                  |  |
| 1026+71 NB - 1028+44 NB | LT/RT    | 107 | 520   |         |                  |  |
| 1030+08 NB - 1031+84 NB | LT/RT    | 106 | 541   |         |                  |  |
| 1038+23 NB - 1040+02 NB | LT/RT    | 146 | 653   |         |                  |  |
| 1041+63 NB - 1043+42 NB | LT/RT    | 125 | 620   |         |                  |  |
| 1026+59 SB - 1028+44 SB | LT/RT    | 106 | 559   |         |                  |  |
| 1030+09 SB - 1031+86 SB | LT/RT    | 111 | 562   |         |                  |  |
| 1039+25 SB - 1040+10 SB | LT/RT    | 130 | 188   |         |                  |  |
| 1041+62 SB - 1042+55 SB | LT/RT    | 109 | 133   |         |                  |  |
| TOTAL                   |          | 941 | 3,775 |         |                  |  |

REMOVING CURB & GUTTER

| 204.0150            |          |     |         |
|---------------------|----------|-----|---------|
| STATION - STATION   | LOCATION | LF  | REMARKS |
| 24+34 BE - 24+43 BE | LT       | 23  |         |
| 25+45 BE - 25+87 BE | LT       | 42  |         |
| 29+28 BW - 29+70 BW | RT       | 42  |         |
| 1+55 BA - 1+69 BA   | RT       | 15  |         |
| TOTAL               |          | 122 |         |

REMOVING GUARDRAIL

| 204.0165                |          |       |         |
|-------------------------|----------|-------|---------|
| STATION - STATION       | LOCATION | LF    | REMARKS |
| 26+22 BE - 28+81 BE     | LT       | 280   |         |
| 26+23 BW - 28+82 BW     | LT       | 280   |         |
| 1026+14 NB - 1028+34 NB | LT       | 220   |         |
| 1027+13 NB - 1028+34 NB | RT       | 121   |         |
| 1037+72 NB - 1039+92 NB | LT       | 220   |         |
| 1038+72 NB - 1039+92 NB | RT       | 120   |         |
| 1030+19 SB - 1031+40 SB | LT       | 121   |         |
| 1030+20 SB - 1032+40 SB | RT       | 220   |         |
| 1041+73 SB - 1042+94 SB | LT       | 121   |         |
| 1041+73 SB - 1044+31 SB | RT       | 258   |         |
| TOTAL                   |          | 1,961 |         |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

| DIVISION            | FROM/TO STATION | LOCATION           | 205.0100<br>COMMON EXCAVATION<br>(1) |                       | SALVAGED/UNUSABLE<br>PAVEMENT MATERIAL<br>(4) | AVAILABLE<br>MATERIAL<br>(5) | UNEXPANDED<br>FILL | EXPANDED FILL<br>(13) | MASS ORDINATE +/-<br>(14) | WASTE | 208.0100<br>BORROW | COMMENT |
|---------------------|-----------------|--------------------|--------------------------------------|-----------------------|-----------------------------------------------|------------------------------|--------------------|-----------------------|---------------------------|-------|--------------------|---------|
|                     |                 |                    | CUT<br>(2)                           | EBS EXCAVATION<br>(3) |                                               |                              |                    | FACTOR<br>1.00        |                           |       |                    |         |
| DIVISION 1          | 1024+00/1054+50 |                    |                                      |                       |                                               |                              |                    |                       |                           |       |                    |         |
| 39NB                |                 |                    | 306                                  | 0                     | 149                                           | 157                          | 528                | 528                   | -371                      | 0     | 371                |         |
| DIVISION 1 SUBTOTAL |                 |                    | 306                                  | 0                     | 149                                           | 157                          | 528                | 528                   | -371                      | 0     | 371                |         |
| DIVISION 2          |                 |                    |                                      |                       |                                               |                              |                    |                       |                           |       |                    |         |
| 39SB                | 1031+50/1046+00 |                    | 3                                    | 0                     | 0                                             | 3                            | 277                | 277                   | -274                      | 0     | 274                |         |
| DIVISION 2 SUBTOTAL |                 |                    | 3                                    | 0                     | 0                                             | 3                            | 277                | 277                   | -274                      | 0     | 274                |         |
| DIVISION 3          |                 |                    |                                      |                       |                                               |                              |                    |                       |                           |       |                    |         |
| B-WB                | 25+76/37+25     |                    | 1                                    | 0                     | 0                                             | 1                            | 5                  | 5                     | -4                        | 0     | 4                  |         |
| DIVISION 3 SUBTOTAL |                 |                    | 1                                    | 0                     | 0                                             | 1                            | 5                  | 5                     | -4                        | 0     | 4                  |         |
| DIVISION 4          |                 |                    |                                      |                       |                                               |                              |                    |                       |                           |       |                    |         |
| STAGE 2 WIDENING    | 1014+00/1055+00 | NB/SB MEDIAN SHLDR | 85                                   | 0                     | 0                                             | 85                           | 0                  | 0                     | 85                        | 85    | 0                  |         |
| DIVISION 3 SUBTOTAL |                 |                    | 85                                   | 0                     | 0                                             | 85                           | 0                  | 0                     | 85                        | 85    | 0                  |         |
| DIVISION 5          |                 |                    |                                      |                       |                                               |                              |                    |                       |                           |       |                    |         |
| CURB SECTIONS       | IH 39/CTH B     | CURB SECTIONS      | 22                                   | 0                     | 0                                             | 22                           | 0                  | 0                     | 22                        | 22    | 0                  |         |
| DIVISION 3 SUBTOTAL |                 |                    | 22                                   | 0                     | 0                                             | 22                           | 0                  | 0                     | 22                        | 22    | 0                  |         |
| GRAND TOTAL         |                 |                    | 310                                  | 0                     | 149                                           | 161                          | 810                | 810                   | -649                      | 0     | 649                |         |
| TOTAL COMMON EXC    |                 |                    | 310                                  |                       |                                               |                              |                    |                       |                           |       |                    |         |

NOTES:  
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100  
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.  
(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL  
5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL  
(13) EXPANDED FILL FACTOR = X.6X  
DEPENDING ON SELECTIONS:  
OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED EBS) \* FILL FACTOR  
OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH) \* FILL FACTOR  
OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK) \* FILL FACTOR  
(14) 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.  
(15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.



REMOVING SURFACE DRAINS

| STATION - STATION | LOCATION | 204.0190 | REMARKS |
|-------------------|----------|----------|---------|
|                   |          | EACH     |         |
| 1028+29 39N       | LT       | 1        |         |
| 1028+28 39N       | RT       | 1        |         |
| 1039+87 39N       | LT       | 1        |         |
| 1039+87 39N       | RT       | 1        |         |
| 10+00 BB          | RT       | 1        |         |
| TOTAL             |          | 5        |         |

PREPARE FOUNDATION FOR ASPHALTIC

| STATION - STATION         | LOCATION | 211.0400  | REMARKS          |
|---------------------------|----------|-----------|------------------|
|                           |          | SHOULDERS |                  |
| STATION - STATION         | LOCATION | STA       | REMARKS          |
| 996+63 39N - 1028+21 39N  | LT       | 32        | STAGE 2 WIDENING |
| 1030+18 39N - 1039+59 39N | LT       | 9         | STAGE 2 WIDENING |
| 1041+62 39N - 1060+20 39N | LT       | 19        | STAGE 2 WIDENING |
| 1045+00 39N - 1054+10 39N | RT       | 9         | MERGE LANE       |
| 1022+80 39S - 1028+35 39S | RT       | 5         | STAGE 2 WIDENING |
| 1030+20 39S - 1039+99 39S | RT       | 10        | STAGE 2 WIDENING |
| 1041+73 39S - 1056+44 39S | RT       | 15        | STAGE 2 WIDENING |
| 25+80 EB - 30+12 EB       | RT       | 4         | CTH B SHLDR      |
| 24+69 WB - 29+97 WB       | LT       | 5         | CTH B SHLDR      |
| TOTAL                     |          | 107       |                  |

FINISHING ROADWAY (PROJECT)

| STATION - STATION       | LOCATION | 213.0100 | REMARKS |
|-------------------------|----------|----------|---------|
|                         |          | EACH     |         |
| 1025+31 NB - 1054+10 NB | LT/RT    | 1        |         |
| TOTAL                   |          | 1        |         |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

BASE AGGREGATE DENSE

| STATION - STATION       | LOCATION | 305.0110        | 305.0120          | 624.0100      | REMARKS       |
|-------------------------|----------|-----------------|-------------------|---------------|---------------|
|                         |          | 3/4-INCH<br>TON | 1 1/4-INCH<br>TON | WATER<br>MGAL |               |
| 1025+00 NB - 1028+34 NB | LT       | 25              | ---               | 0             | BEAMGUARD     |
| 1025+81 NB - 1028+34 NB | RT       | 31              | ---               | 0             | BEAMGUARD     |
| 1037+39 NB - 1039+92 NB | RT       | 31              | ---               | 0             | BEAMGUARD     |
| 1036+89 NB - 1039+92 NB | LT       | 23              | ---               | 0             | BEAMGUARD     |
| 1030+19 SB - 1032+72 SB | LT       | 31              | ---               | 0             | BEAMGUARD     |
| 1030+20 SB - 1033+22 SB | RT       | 23              | ---               | 0             | BEAMGUARD     |
| 1041+73 SB - 1044+26 SB | LT       | 31              | ---               | 0             | BEAMGUARD     |
| 1041+73 SB - 1044+76 SB | RT       | 23              | ---               | 0             | BEAMGUARD     |
| 1041+62 NB - 1053+37 NB | RT       | 83              | 324               | 6             | MERGE LANE    |
| 50+84 BW - 52+47 BW     | LT       | 27              | ---               | 0             | BEAMGUARD     |
| 1+40 BA - 1+78 BA       | LT/RT    | ---             | 71                | 1             | LOOP DETECTOR |
| 3+06 BA - 3+16 BA       | LT/RT    | ---             | 11                | 0             | LOOP DETECTOR |
| 8+94 BB - 9+06 BB       | LT/RT    | ---             | 14                | 0             | LOOP DETECTOR |
| 9+80 BB - 10+46 BB      | LT/RT    | ---             | 127               | 2             | LOOP DETECTOR |
| 1+54 BD - 2+12 BD       | LT/RT    | ---             | 90                | 1             | LOOP DETECTOR |
| 2+91 BD - 3+03 BD       | LT/RT    | ---             | 15                | 0             | LOOP DETECTOR |
| PROJECT 1166-12-89      | LT/RT    | 38              | 65                | 2             | UNDISTRIBUTED |
| TOTALS                  |          | 367             | 717               | 16            |               |

SURFACE DRAINS

| STATION    | LOCATION | 416.1010       | REMARKS                    |
|------------|----------|----------------|----------------------------|
|            |          | CONCRETE<br>CY |                            |
| 1027+90 NB | RT       | 5              | DISCHARGE AT TOE OF SLOPE  |
| 1027+90 NB | LT       | 2              | DISCHARGE AT TOE OF SLOPE  |
| 1039+50 NB | RT       | 1              | DISCHARGE BEHIND GUARDRAIL |
| 1039+49 NB | LT       | 2              | DISCHARGE AT TOE OF SLOPE  |
| TOTAL      |          | 9              |                            |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

| CONCRETE PAVEMENT   |                                            |                                              |                                                  |                                                       |                                                       |                                                            |                                      |           |
|---------------------|--------------------------------------------|----------------------------------------------|--------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------|--------------------------------------|-----------|
|                     | 416.0610<br>DRILLED<br>TIE<br>BARS<br>EACH | 416.0620<br>DRILLED<br>DOWEL<br>BARS<br>EACH | 416.1710<br>CONCRETE<br>PAVEMENT<br>REPAIR<br>SY | 416.1715<br>CONCRETE<br>PAVEMENT<br>REPAIR SHES<br>SY | 416.1720<br>CONCRETE<br>PAVEMENT<br>REPLACEMENT<br>SY | 416.1725<br>CONCRETE<br>PAVEMENT<br>REPLACEMENT SHES<br>SY | 690.0250<br>SAWING<br>CONCRETE<br>LF | REMARKS   |
| 20+72 EB - 20+87 EB | 5                                          | 48                                           | ---                                              | ---                                                   | 47                                                    | ---                                                        | 88                                   | PAVEMENT  |
| 24+23 EB - 24+30 EB | ---                                        | 58                                           | ---                                              | 28                                                    | ---                                                   | ---                                                        | 87                                   | PAVEMENT  |
| 24+39 EB - 24+50 EB | ---                                        | 58                                           | ---                                              | 38                                                    | ---                                                   | ---                                                        | 91                                   | PAVEMENT  |
| 24+56 EB - 24+63 EB | ---                                        | 16                                           | ---                                              | 6                                                     | ---                                                   | ---                                                        | 31                                   | PAVEMENT  |
| 24+78 EB - 24+84 EB | ---                                        | 11                                           | 4                                                | ---                                                   | ---                                                   | ---                                                        | 25                                   | PAVEMENT  |
| 24+83 EB - 24+89 EB | ---                                        | 21                                           | 9                                                | ---                                                   | ---                                                   | ---                                                        | 38                                   | PAVEMENT  |
| 25+04 EB - 25+10 EB | ---                                        | 43                                           | 18                                               | ---                                                   | ---                                                   | ---                                                        | 67                                   | PAVEMENT  |
| 25+20 EB - 25+33 EB | ---                                        | 6                                            | 5                                                | ---                                                   | ---                                                   | ---                                                        | 35                                   | PAVEMENT  |
| 25+72 EB - 25+82 EB | ---                                        | 38                                           | 27                                               | ---                                                   | ---                                                   | ---                                                        | 69                                   | PAVEMENT  |
| 25+51 EB - 25+82 EB | 11                                         | 2                                            | ---                                              | ---                                                   | 3                                                     | ---                                                        | 33                                   | PAVEMENT  |
| 26+22 EB - 26+49 EB | 10                                         | 40                                           | ---                                              | ---                                                   | 74                                                    | ---                                                        | 75                                   | PAVEMENT  |
| 26+68 EB - 26+74 EB | ---                                        | 20                                           | 8                                                | ---                                                   | ---                                                   | ---                                                        | 30                                   | PAVEMENT  |
| 26+80 EB - 26+86 EB | ---                                        | 20                                           | 8                                                | ---                                                   | ---                                                   | ---                                                        | 30                                   | PAVEMENT  |
| 27+60 EB - 27+66 EB | ---                                        | 20                                           | 8                                                | ---                                                   | ---                                                   | ---                                                        | 30                                   | PAVEMENT  |
| 27+73 EB - 27+79 EB | ---                                        | 4                                            | 1                                                | ---                                                   | ---                                                   | ---                                                        | 16                                   | PAVEMENT  |
| 28+42 EB - 28+50 EB | ---                                        | 50                                           | 27                                               | ---                                                   | ---                                                   | ---                                                        | 72                                   | PAVEMENT  |
| 28+62 EB - 28+70 EB | ---                                        | 54                                           | 28                                               | ---                                                   | ---                                                   | ---                                                        | 75                                   | PAVEMENT  |
| 28+80 EB - 28+86 EB | ---                                        | 16                                           | 6                                                | ---                                                   | ---                                                   | ---                                                        | 31                                   | PAVEMENT  |
| 29+07 EB - 29+18 EB | ---                                        | 40                                           | 27                                               | ---                                                   | ---                                                   | ---                                                        | 58                                   | PAVEMENT  |
| 29+07 EB - 29+77 EB | 48                                         | 20                                           | ---                                              | ---                                                   | 89                                                    | ---                                                        | 166                                  | PAVEMENT  |
| 30+01 EB - 30+13 EB | ---                                        | 20                                           | ---                                              | 16                                                    | ---                                                   | ---                                                        | 36                                   | PAVEMENT  |
| 30+34 EB - 30+45 EB | ---                                        | 60                                           | ---                                              | 42                                                    | ---                                                   | ---                                                        | 94                                   | PAVEMENT  |
| 30+85 EB - 30+97 EB | ---                                        | 40                                           | ---                                              | 31                                                    | ---                                                   | ---                                                        | 60                                   | PAVEMENT  |
| 24+23 WB - 24+43 WB | 14                                         | 20                                           | ---                                              | ---                                                   | ---                                                   | 28                                                         | 66                                   | PAVEMENT  |
| 24+54 WB - 24+62 WB | ---                                        | 20                                           | ---                                              | 9                                                     | ---                                                   | ---                                                        | 37                                   | PAVEMENT  |
| 24+94 WB - 25+02 WB | ---                                        | 20                                           | 10                                               | ---                                                   | ---                                                   | ---                                                        | 40                                   | PAVEMENT  |
| 24+94 WB - 25+48 WB | 36                                         | 20                                           | ---                                              | ---                                                   | 73                                                    | ---                                                        | 134                                  | PAVEMENT  |
| 25+74 WB - 25+81 WB | ---                                        | 20                                           | 9                                                | ---                                                   | ---                                                   | ---                                                        | 37                                   | PAVEMENT  |
| 26+01 WB - 26+07 WB | ---                                        | 20                                           | 7                                                | ---                                                   | ---                                                   | ---                                                        | 34                                   | PAVEMENT  |
| 26+40 WB - 26+51 WB | ---                                        | 54                                           | 37                                               | ---                                                   | ---                                                   | ---                                                        | 76                                   | PAVEMENT  |
| 26+66 WB - 26+76 WB | ---                                        | 32                                           | 20                                               | ---                                                   | ---                                                   | ---                                                        | 56                                   | PAVEMENT  |
| 27+75 WB - 27+81 WB | ---                                        | 40                                           | 17                                               | ---                                                   | ---                                                   | ---                                                        | 56                                   | PAVEMENT  |
| 28+34 WB - 28+52 WB | 6                                          | 40                                           | ---                                              | ---                                                   | 47                                                    | ---                                                        | 66                                   | PAVEMENT  |
| 28+85 WB - 28+91 WB | ---                                        | 20                                           | 8                                                | ---                                                   | ---                                                   | ---                                                        | 36                                   | PAVEMENT  |
| 28+84 WB - 29+19 WB | 24                                         | 2                                            | ---                                              | ---                                                   | 5                                                     | ---                                                        | 73                                   | PAVEMENT  |
| 29+61 WB - 30+04 WB | 15                                         | 12                                           | ---                                              | ---                                                   | 33                                                    | ---                                                        | 56                                   | PAVEMENT  |
| 30+34 WB - 30+47 WB | ---                                        | 40                                           | ---                                              | 51                                                    | ---                                                   | ---                                                        | 98                                   | PAVEMENT  |
| 33+79 WB - 33+94 WB | 5                                          | 48                                           | ---                                              | ---                                                   | 48                                                    | ---                                                        | 73                                   | PAVEMENT  |
| 24+34 EB - 24+43 EB | 9                                          | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 28                                   | CURB      |
| 24+98 EB - 25+87 EB | 31                                         | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 94                                   | CURB      |
| 29+39 EB - 29+56 EB | 7                                          | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 22                                   | CURB      |
| 25+16 WB - 25+27 WB | 6                                          | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 17                                   | CURB      |
| 29+28 WB - 29+81 WB | 21                                         | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 62                                   | CURB      |
| 1+40 BA - 1+78 BA   | ---                                        | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 203                                  | RAMP WORK |
| 3+06 BA - 3+16 BA   | ---                                        | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 51                                   | RAMP WORK |
| 8+94 BB - 9+06 BB   | ---                                        | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 66                                   | RAMP WORK |
| 9+80 BB - 10+46 BB  | ---                                        | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 238                                  | RAMP WORK |
| 1+54 BD - 2+12 BD   | ---                                        | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 282                                  | RAMP WORK |
| 2+91 BD - 3+03 BD   | ---                                        | ---                                          | ---                                              | ---                                                   | ---                                                   | ---                                                        | 68                                   | RAMP WORK |
| UNDISTRIBUTED 10%   | 25                                         | 111                                          | 29                                               | 22                                                    | 42                                                    | 3                                                          | 250                                  |           |
| TOTAL               | 273                                        | 1,224                                        | 314                                              | 244                                                   | 462                                                   | 31                                                         | 3,656                                |           |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

HMA PAVEMENT AND ASPHALTIC SURFACE

| STATION - STATION         | LOCATION | 455.0605                | 465.0105                    | REMARKS                    |
|---------------------------|----------|-------------------------|-----------------------------|----------------------------|
|                           |          | TACK<br>COAT<br>GALLONS | ASPHALTIC<br>SURFACE<br>TON |                            |
| 1026+71 NB - 1028+44 NB   | LT/RT    | 51                      | 69                          | IH39 NB                    |
| 1030+08 NB - 1031+84 NB   | LT/RT    | 53                      | 71                          | IH39 NB                    |
| 1038+23 NB - 1040+02 NB   | LT/RT    | 70                      | 88                          | IH39 NB                    |
| 1041+63 NB - 1043+42 NB   | LT/RT    | 65                      | 82                          | IH39 NB                    |
| 1045+00 NB - 1054+10 NB   | RT       | 92                      | 386                         | IH39 NB MERGE LANE         |
| 1026+59 SB - 1028+44 SB   | LT/RT    | 56                      | 73                          | IH39 SB                    |
| 1030+09 SB - 1031+86 SB   | LT/RT    | 55                      | 74                          | IH39 SB                    |
| 1039+25 SB - 1040+10 SB   | LT/RT    | 22                      | 35                          | IH39 SB                    |
| 1041+62 SB - 1042+55 SB   | LT/RT    | 17                      | 27                          | IH39 SB                    |
| 1+40 BA - 1+78 BA         | LT/RT    | 26                      | 81                          | RAMP                       |
| 3+06 BA - 3+16 BA         | LT/RT    | 4                       | 12                          | RAMP                       |
| 8+94 BB - 9+06 BB         | LT/RT    | 6                       | 19                          | RAMP                       |
| 9+80 BB - 10+46 BB        | LT/RT    | 46                      | 142                         | RAMP                       |
| 1+54 BD - 2+12 BD         | LT/RT    | 33                      | 103                         | RAMP                       |
| 2+91 BD - 3+03 BD         | LT/RT    | 6                       | 20                          | RAMP                       |
| 25+80 EB - 30+12 EB       | RT       | 31                      | 49                          | SHOULDER                   |
| 24+69 WB - 29+97 WB       | LT       | 31                      | 48                          | SHOULDER                   |
| 997+64 39N - 1028+21 39N  | LT       | ---                     | 149                         | STAGE 2 WIDENING           |
| 1030+18 39N - 1039+59 39N | LT       | ---                     | 46                          | STAGE 2 WIDENING           |
| 1041+62 39N - 1060+20 39N | LT       | ---                     | 90                          | STAGE 2 WIDENING           |
| 1021+80 39S - 1028+35 39S | RT       | ---                     | 32                          | STAGE 2 WIDENING           |
| 1030+20 39S - 1039+99 39S | RT       | ---                     | 48                          | STAGE 2 WIDENING           |
| 1041+73 39S - 1056+44 39S | RT       | ---                     | 72                          | STAGE 2 WIDENING           |
| UNDISTRIBUTED             | LT/RT    | ---                     | 20                          | WEDGING - MEMORIAL WEEKEND |
| TOTALS                    |          | 662                     | 1,834                       |                            |

ASPHALTIC FLUMES

| STATION - STATION  | LOCATION | 465.0315     | REMARKS |
|--------------------|----------|--------------|---------|
|                    |          | FLUMES<br>SY |         |
| 9+92 BB - 10+08 BB | RT       | 11           |         |
| TOTAL              |          | 11           |         |

ASPHALTIC SHOULDER RUMBLE STRIPS

| STATION - STATION         | LOCATION | 465.0400 | REMARKS             |
|---------------------------|----------|----------|---------------------|
|                           |          | LF       |                     |
| 1026+71 NB - 1028+44 NB   | LT/RT    | 346      | RESURFACING AREA    |
| 1030+08 NB - 1031+84 NB   | LT/RT    | 352      | RESURFACING AREA    |
| 1038+23 NB - 1040+02 NB   | LT/RT    | 358      | RESURFACING AREA    |
| 1041+63 NB - 1043+42 NB   | LT/RT    | 358      | RESURFACING AREA    |
| 1045+00 NB - 1054+10 NB   | RT       | 910      | RESURFACING AREA    |
| 1026+59 SB - 1028+44 SB   | LT/RT    | 370      | RESURFACING AREA    |
| 1030+09 SB - 1031+86 SB   | LT/RT    | 354      | RESURFACING AREA    |
| 1039+25 SB - 1040+10 SB   | LT/RT    | 170      | RESURFACING AREA    |
| 1041+62 SB - 1042+55 SB   | LT/RT    | 186      | RESURFACING AREA    |
| 1010+14 39N - 1014+34 39N | RT       | 420      | FILLING RUMBLE AREA |
| 1044+00 39N - 1048+20 39N | RT       | 420      | FILLING RUMBLE AREA |
| 1021+80 39S - 1026+00 39S | LT       | 420      | FILLING RUMBLE AREA |
| 1051+51 39S - 1055+71 39S | LT       | 420      | FILLING RUMBLE AREA |
| 996+64 39N - 1000+84 39S  | LT       | 420      | FILLING RUMBLE AREA |
| 1044+00 39N - 1048+20 39N | LT       | 420      | FILLING RUMBLE AREA |
| 1021+80 39S - 1026+00 39S | LT       | 420      | FILLING RUMBLE AREA |
| 1052+24 39S - 1056+44 39S | LT       | 420      | FILLING RUMBLE AREA |
| 1056+00 39N - 1060+20 39N | LT       | 420      | FILLING RUMBLE AREA |
| TOTAL                     |          | 7,184    |                     |

CONCRETE MASONRY OVERLAY APPROACHES

| STATION - STATION       | LOCATION | 509.2600 | REMARKS     |
|-------------------------|----------|----------|-------------|
|                         |          | CY       |             |
| 1028+07 NB - 1028+45 NB | LT/RT    | 15       | BRDG APPRCH |
| 1030+08 NB - 1030+48 NB | LT/RT    | 15       | BRDG APPRCH |
| 1039+59 NB - 1040+02 NB | LT/RT    | 26       | BRDG APPRCH |
| 1041+62 NB - 1042+06 NB | LT/RT    | 23       | BRDG APPRCH |
| 1027+95 SB - 1028+44 SB | LT/RT    | 18       | BRDG APPRCH |
| 1030+09 SB - 1030+50 SB | LT/RT    | 16       | BRDG APPRCH |
| 1039+74 SB - 1040+10 SB | LT/RT    | 18       | BRDG APPRCH |
| 1041+62 SB - 1042+14 SB | LT/RT    | 22       | BRDG APPRCH |
| TOTAL                   |          | 152      |             |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

CULVERT PIPES

| 520.9750.S                        |          |    |      |         |
|-----------------------------------|----------|----|------|---------|
| 520.9700.S CLEANING FOR           |          |    |      |         |
| LINERS 24-INCH LINER VERIFICATION |          |    |      |         |
| STATION                           | LOCATION | LF | EACH | REMARKS |
| 3+01 BA                           | LT/RT    | 76 | 1    | ON RAMP |
| TOTAL                             |          | 76 | 1    |         |

APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE

| 522.1018 |          |      |      |         |
|----------|----------|------|------|---------|
| 18-INCH  |          |      |      |         |
| 522.1024 |          |      |      |         |
| 24-INCH  |          |      |      |         |
| STATION  | LOCATION | EACH | EACH | REMARKS |
| 1+64 BA  | RT       | 1    | ---  |         |
| 3+01 BA  | LT/RT    | ---  | 2    |         |
| TOTAL    |          | 1    | 2    |         |

CONCRETE CURB & GUTTER

| 601.0588                |          |     |     |     |                   |
|-------------------------|----------|-----|-----|-----|-------------------|
| 4-INCH                  |          |     |     |     |                   |
| SLOPED                  |          |     |     |     |                   |
| 36-INCH                 |          |     |     |     |                   |
| 601.0405 601.0411       |          |     |     |     |                   |
| 18-INCH 30-INCH         |          |     |     |     |                   |
| TYPE A TYPE D           |          |     |     |     |                   |
| TYPE TBT                |          |     |     |     |                   |
| STATION - STATION       | LOCATION | LF  | LF  | LF  | REMARKS           |
| 24+34 EB - 24+43 EB     | LT       | 23  | --- | --- | MEDIAN            |
| 25+45 EB - 25+87 EB     | LT       | 42  | --- | --- | MEDIAN AT EAT     |
| 29+28 WB - 29+70 WB     | RT       | 42  | --- | --- | MEDIAN AT EAT     |
| 1+55 BA - 1+69 BA       | RT       | --- | 15  | --- | INLET REPLACEMENT |
| 1027+80 NB - 1028+34 NB | RT       | --- | --- | 54  | SURFACE DRAIN     |
| 1027+79 NB - 1028+34 NB | LT       | --- | --- | 55  | SURFACE DRAIN     |
| 1039+39 NB - 1039+92 NB | RT       | --- | --- | 53  | SURFACE DRAIN     |
| 1039+39 NB - 1039+92 NB | LT       | --- | --- | 53  | SURFACE DRAIN     |
| TOTAL                   |          | 107 | 15  | 215 |                   |

RIPRAP AND GEOGRID

| 610.0200       |          |    |    |                            |
|----------------|----------|----|----|----------------------------|
| RIPRAP         |          |    |    |                            |
| 645.0120       |          |    |    |                            |
| GEOTEXTILE     |          |    |    |                            |
| FABRIC TYPE HR |          |    |    |                            |
| STATION        | LOCATION | CY | SY | REMARKS                    |
| 1027+90 NB     | RT       | 4  | 13 | DISCHARGE AT TOE OF SLOPE  |
| 1027+90 NB     | LT       | 3  | 10 | DISCHARGE AT TOE OF SLOPE  |
| 1039+50 NB     | RT       | 3  | 9  | DISCHARGE BEHIND GUARDRAIL |
| 1039+49 NB     | LT       | 3  | 10 | DISCHARGE AT TOE OF SLOPE  |
| TOTALS         |          | 12 | 42 |                            |

MGS GUARDRAIL

| 614.2300                |    | 614.2310 |     | 614.2500   | 614.2610 | 614.2620 |
|-------------------------|----|----------|-----|------------|----------|----------|
| 3                       |    | 3 HS     |     | THRIE BEAM | TERMINAL | TERMINAL |
| LF                      |    | LF       |     | TRANSITION | EAT      | TYPE 2   |
| STATION - STATION       |    | LOCATION |     | LF         | EACH     | EACH     |
| 25+75 EB - 28+65 EB     | LT | ---      | 238 | ---        | 1        | 1        |
| 26+50 WB - 29+40 WB     | RT | ---      | 238 | ---        | 1        | 1        |
| 34+90 BW - 36+68 BW     | LT | 125      | --- | ---        | 1        | 1        |
| 1025+31 NB - 1028+36 NB | LT | 213      | --- | 39         | 1        | ---      |
| 1025+81 NB - 1028+36 NB | RT | 163      | --- | 39         | 1        | ---      |
| 1036+89 NB - 1039+94 NB | LT | 213      | --- | 39         | 1        | ---      |
| 1037+39 NB - 1039+94 NB | RT | 163      | --- | 39         | 1        | ---      |
| 1030+17 SB - 1032+72 SB | LT | 163      | --- | 39         | 1        | ---      |
| 1030+17 SB - 1033+22 SB | RT | 213      | --- | 39         | 1        | ---      |
| 1041+71 SB - 1044+26 SB | LT | 163      | --- | 39         | 1        | ---      |
| 1041+71 SB - 1044+76 SB | RT | 213      | --- | 39         | 1        | ---      |
| TOTALS                  |    | 1,625    | 475 | 315        | 11       | 3        |

STORM SEWER

| 608.0318          |          | 611.0639 |      | 611.3230 |         |
|-------------------|----------|----------|------|----------|---------|
| PIPE REINFORCED   |          | INLET    |      | INLETS   |         |
| CONCRETE          |          | COVERS   |      | 2X3-FT   |         |
| CLASS-III 18-INCH |          | TYPE H-S |      | EACH     |         |
| STATION           | LOCATION | LF       | EACH | EACH     | REMARKS |
| 1+64 BA           | RT       | 18       | 1    | 1        | ON RAMP |
| TOTAL             |          | 18       | 1    | 1        |         |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

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TOPSOIL, EROSION MAT, FERTILIZER, AND SEEDING

| STATION - STATION       | LOCATION | 625.0100 | 628.2008 | 629.0210   | 630.0130 | 630.0500 | REMARKS       |
|-------------------------|----------|----------|----------|------------|----------|----------|---------------|
|                         |          | TOPSOIL  | URBAN    | FERTILIZER | SEEDING  | SEED     |               |
|                         |          | SY       | CLASS 1  | TYPE B     | MIXTURE  | WATER    |               |
|                         |          |          | TYPE B   | TYPE B     | NO. 30   | MGAL     |               |
|                         |          |          | SY       | CWT        | LB       |          |               |
| 1023+60 NB - 1027+16 NB | RT       | 1,378    | 1,378    | 1          | 25       | 3        | EAT           |
| 1024+05 NB - 1027+12 NB | LT       | 583      | 583      | 0          | 10       | 1        | EAT           |
| 1027+90 NB              | RT       | 36       | 36       | 0          | 1        | 0        | NEW DRAIN     |
| 1027+90 NB              | LT       | 15       | 15       | 0          | 0        | 0        | NEW DRAIN     |
| 1028+29 NB              | RT       | 13       | 13       | 0          | 0        | 0        | DRAIN REMOVAL |
| 1028+29 NB              | LT       | 9        | 9        | 0          | 0        | 0        | DRAIN REMOVAL |
| 1035+80 NB - 1038+80 NB | RT       | 1,297    | 1,297    | 1          | 23       | 3        | EAT           |
| 1035+94 NB - 1038+75 NB | LT       | 603      | 603      | 0          | 11       | 1        | EAT           |
| 1039+49 NB              | RT       | 9        | 9        | 0          | 0        | 0        | NEW DRAIN     |
| 1039+49 NB              | LT       | 15       | 15       | 0          | 0        | 0        | NEW DRAIN     |
| 1039+89 NB              | RT       | 16       | 16       | 0          | 0        | 0        | DRAIN REMOVAL |
| 1039+89 NB              | LT       | 10       | 10       | 0          | 0        | 0        | DRAIN REMOVAL |
| 1045+00 NB - 1054+10    | RT       | 880      | 880      | 1          | 16       | 2        | MERGE LANE    |
| 1031+68 SB - 1033+92 SB | RT       | 490      | 490      | 0          | 9        | 1        | EAT           |
| 1031+64 SB - 1033+94 SB | LT       | 616      | 616      | 0          | 11       | 1        | EAT           |
| 1043+43 SB - 1046+11 SB | RT       | 574      | 574      | 0          | 10       | 1        | EAT           |
| 1043+33 SB - 1046+20 SB | LT       | 689      | 689      | 0          | 12       | 1        | EAT           |
| 36+20 BW - 37+00 BW     | LT       | 165      | 165      | 0          | 3        | 0        | EAT           |
| 1+55 BA - 1+78 BA       | RT       | 38       | 38       | 0          | 1        | 0        | STORM SEWER   |
| 25+45 BE - 25+87 BE     | LT       | 23       | 23       | 0          | 0        | 0        | CURB CUT      |
| 29+28 BW - 29+70 BW     | RT       | 23       | 23       | 0          | 0        | 0        | CURB CUT      |
| TOTALS                  |          | 7,484    | 7,484    | 5          | 135      | 15       |               |

MOBILIZATIONS EROSION CONTROL

| STATION - STATION  | 628.1905      | 628.1910      | REMARKS |
|--------------------|---------------|---------------|---------|
|                    | MOBILIZATIONS | MOBILIZATIONS |         |
|                    | EROSION       | EROSION       |         |
|                    | CONTROL       | CONTROL       |         |
|                    | EACH          | EACH          |         |
| PROJECT 1166-12-89 | 1             | 1             | STAGE 1 |
| PROJECT 1166-12-89 | 1             | 1             | STAGE 2 |
| PROJECT 1166-12-89 | 1             | 1             | STAGE 3 |
| TOTALS             | 3             | 3             |         |

SILT FENCE

| STATION               | LOCATION | 628.1504 | 628.1520    | REMARKS |
|-----------------------|----------|----------|-------------|---------|
|                       |          | LF       | MAINTENANCE |         |
|                       |          |          | LF          |         |
| 1023+51NB - 1027+20NB | RT       | 388      | 388         |         |
| 1023+92NB - 1027+17NB | LT       | 330      | 330         |         |
| 1035+65NB - 1038+81NB | RT       | 357      | 357         |         |
| 1035+97NB - 1038+76NB | LT       | 291      | 291         |         |
| 1044+83NB - 1054+12NB | RT       | 930      | 930         |         |
| 1031+60SB - 1034+07SB | LT       | 259      | 259         |         |
| 1031+60SB - 1034+01SB | RT       | 252      | 252         |         |
| 1043+19SB - 1046+28SB | LT       | 316      | 316         |         |
| 1043+33SB - 1046+15SB | RT       | 294      | 294         |         |
| 36+07 BW - 37+10 BW   | LT       | 103      | 103         |         |
| TOTALS                |          | 3,520    | 3,520       |         |

ROCK BAGS

| STATION - STATION | LOCATION | 628.7570 | REMARKS |
|-------------------|----------|----------|---------|
|                   |          | EACH     |         |
| 197+00 BA         | 35' RT   | 5        |         |
| TOTALS            |          | 5        |         |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.



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SIGN LISTING

| SIGN<br>NUMBER | SIGN<br>CODE | MESSAGE                      | SIZE     | 634.0618                                  | 637.0620                                    | 637.2230                               | REMARKS           |
|----------------|--------------|------------------------------|----------|-------------------------------------------|---------------------------------------------|----------------------------------------|-------------------|
|                |              |                              |          | POSTS WOOD<br>4X6-INCH<br>X 18-FT<br>EACH | SIGNS FLAGS<br>PERMANENT<br>TYPE II<br>EACH | SIGNS<br>TYPE II<br>REFLECTIVE F<br>SF |                   |
| 1-01           | ---          | CLEARANCE DOWN ARROWS 15'-0" | 132"X48" | ---                                       | ---                                         | 44                                     | S-49-33           |
| 1-02           | W12-2        | 15'-0"                       | 36"X36"  | ---                                       | 2                                           | ---                                    | EXISTING SIGN     |
| 1-03           | W12-2        | 15'-0"                       | 36"X36"  | ---                                       | 2                                           | ---                                    | EXISTING SIGN     |
| 2-01           | W12-2        | 15'-0"                       | 36"X36"  | ---                                       | ---                                         | 9                                      | S-49-34           |
| 2-02           | ---          | OVERHEIGHT EXIT RIGHT        | 126"X48" | ---                                       | ---                                         | 39                                     | S-49-34           |
| 3-01           | W12-2        | 15'-0"                       | 36"X36"  | 1                                         | ---                                         | 9                                      | MOUNTED WITH 3-02 |
| 3-02           | ---          | LOW BRIDGE 1/2 MILE          | 48"X24"  | ---                                       | ---                                         | 8                                      | MOUNTED WITH 3-01 |
| 4-01           | W12-2        | 15'-0"                       | 36"X36"  | ---                                       | ---                                         | 9                                      | MOUNTED WITH 4-03 |
| 4-02           | W12-2        | 15'-0"                       | 36"X36"  | --                                        | ---                                         | 9                                      | MOUNTED WITH 4-04 |
| 4-03           | ---          | OVERHEIGHT NO LEFT TURN      | 36"X24"  | ---                                       | ---                                         | 6                                      | MOUNTED WITH 4-01 |
| 4-04           | ---          | OVERHEIGHT NO LEFT TURN      | 36"X24"  | ---                                       | ---                                         | 6                                      | MOUNTED WITH 4-02 |
| TOTAL          |              |                              |          | 1                                         | 4                                           | 139                                    |                   |

| TRAFFIC CONTROL    |               |
|--------------------|---------------|
|                    | 643.5000      |
| LOCATION           | TOTAL<br>EACH |
| PROJECT 1166-12-89 | 1             |
| TOTAL              | 1             |

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TRAFFIC CONTROL - DEVICES

| CONSTRUCTION STAGE | 643.0300      | 643.0420                       | 643.0705                            | 643.0715                            | 643.0800                | 643.0900      | 643.0920                     |                     |                    | 643.1050             | 643.1051                                             | 646.9000                                   |
|--------------------|---------------|--------------------------------|-------------------------------------|-------------------------------------|-------------------------|---------------|------------------------------|---------------------|--------------------|----------------------|------------------------------------------------------|--------------------------------------------|
|                    | DRUMS<br>DAYS | BARRICADES<br>TYPE III<br>DAYS | WARNING<br>LIGHTS<br>TYPE A<br>DAYS | WARNING<br>LIGHTS<br>TYPE C<br>DAYS | ARROW<br>BOARDS<br>DAYS | SIGNS<br>DAYS | COVERING<br>SIGNS<br>TYPE II |                     |                    | SIGNS<br>PCMS<br>DAY | SIGNS PCMS<br>WITH CELLULAR<br>COMMUNICATIONS<br>DAY | MARKING<br>REMOVAL<br>LINE<br>4-INCH<br>LF |
|                    |               |                                |                                     |                                     |                         |               | EACH                         | NUMBER<br>OF CYCLES | NUMBER<br>OF SIGNS |                      |                                                      |                                            |
|                    |               |                                |                                     |                                     |                         |               |                              |                     |                    |                      |                                                      |                                            |
| ADVANCED WARNING   | ---           | ---                            | ---                                 | ---                                 | ---                     | 2,337         | ---                          | ---                 | ---                | ---                  | 14                                                   | ---                                        |
| IH 39 STAGE 1      | 3,058         | 44                             | 88                                  | 1,320                               | 88                      | 638           | ---                          | ---                 | ---                | ---                  | ---                                                  | 9,150                                      |
| IH 39 STAGE 2      | 3,400         | 100                            | 200                                 | 1,200                               | 80                      | 600           | 2                            | 1                   | 2                  | ---                  | ---                                                  | 11,736                                     |
| IH 39 STAGE 3      | 1,100         | 66                             | 132                                 | 330                                 | 22                      | 143           | 1                            | 1                   | 1                  | ---                  | ---                                                  | 3,353                                      |
| CTH B STAGE 1      | 1,534         | 78                             | 156                                 | 273                                 | 26                      | 208           | ---                          | ---                 | ---                | ---                  | ---                                                  | ---                                        |
| CTH B STAGE 2      | 1,056         | 44                             | 88                                  | 231                                 | 22                      | 154           | ---                          | ---                 | ---                | ---                  | ---                                                  | ---                                        |
| CTH B STAGE 3      | 153           | 6                              | 12                                  | 39                                  | 3                       | 21            | ---                          | ---                 | ---                | ---                  | ---                                                  | ---                                        |
| RAMP CLOSURES      | 50            | 8                              | 16                                  | ---                                 | ---                     | 8             | ---                          | ---                 | ---                | 30                   | ---                                                  | ---                                        |
| TOTALS             | 10,351        | 346                            | 692                                 | 3,393                               | 241                     | 4,109         | 3                            |                     |                    | 30                   | 14                                                   | 24,239                                     |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

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|                         |          | MARKING LINE EPOXY |          |          |          |          |          |          |          |             |
|-------------------------|----------|--------------------|----------|----------|----------|----------|----------|----------|----------|-------------|
|                         |          |                    |          | 646.1040 | 646.3040 |          |          |          |          |             |
|                         |          | 646.1020           | 646.1020 | GROOVED  | GROOVED  | 646.5020 | 646.5120 | 646.6120 | 646.7220 |             |
|                         |          | 4-INCH             | 4-INCH   | WET REF  | WET REF  | MARKING  | MARKING  | STOPLINE | CHEVRON  |             |
|                         |          | WHITE              | YELLOW   | 4-INCH   | 8-INCH   | ARROW    | WORD     | 18-INCH  | EPOXY    |             |
| STATION - STATION       | LOCATION | LF                 | LF       | LF       | LF       | EACH     | EACH     | LF       | LF       | REMARKS     |
| 985+00 NB - 1061+00 NB  | LT/RT    | 7,600              | 7,600    | 1,900    | 760      | ---      | ---      | ---      | 35       | RESURFACING |
| 1027+50 SB - 1067+00 SB | LT/RT    | 3,950              | 3,950    | 988      | 200      | ---      | ---      | ---      | 35       | RESURFACING |
| 1+00 BA - 9+72 BA       | LT/RT    | 10                 | 10       | ---      | ---      | ---      | ---      | ---      | ---      | PATCHING    |
| 1+00 BB - 10+95 BB      | LT/RT    | 24                 | 40       | ---      | 80       | 1        | ---      | 60       | ---      | PATCHING    |
| 1+00 BD - 10+41 BD      | LT/RT    | 53                 | 27       | ---      | 76       | ---      | 1        | 60       | ---      | PATCHING    |
| 20+72 BE - 30+97 BE     | LT/RT    | 170                | 170      | 43       | 105      | ---      | ---      | ---      | ---      | PATCHING    |
| 24+22 BW - 33+94 BW     | LT/RT    | 170                | 170      | 43       | 105      | ---      | ---      | ---      | ---      | PATCHING    |
| SUB TOTALS              |          | 11,977             | 11,967   | 2,973    | 1,326    | 1        | 1        | 120      | 70       |             |
| PROJECT TOTAL           |          | 23,944             |          | 2,973    | 1,326    | 1        | 1        | 120      | 70       |             |

| TRAFFIC CONTROL - MARKING/BARRIER |                                                                   |                                                                   |                                                          |                                                          |                  |
|-----------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|------------------|
|                                   | 603.8000<br>CONCRETE<br>BARRIER<br>TEMPORARY<br>PRECAST DELIVERED | 603.8125<br>CONCRETE<br>BARRIER<br>TEMPORARY<br>PRECAST INSTALLED | 649.0120<br>TEMPORARY<br>MARKING<br>LINE EPOXY<br>4-INCH | 649.0220<br>TEMPORARY<br>MARKING<br>LINE EPOXY<br>8-INCH |                  |
| CONSTRUCTION STAGE                | LF                                                                | LF                                                                | LF                                                       | LF                                                       | REMARKS          |
| IH 39 STAGE 1                     | 3,587                                                             | 3,587                                                             | 15,511                                                   | 750                                                      |                  |
| IH 39 STAGE 2                     | 3,781                                                             | 3,781                                                             | 15,420                                                   | 750                                                      |                  |
| IH 39 STAGE 3                     | 1,560                                                             | 1,560                                                             | 15,844                                                   | 250                                                      |                  |
| CTH B STAGE 1                     | ---                                                               | ---                                                               | 6,289                                                    | 500                                                      |                  |
| CTH B STAGE 2                     | ---                                                               | ---                                                               | 3,754                                                    | 178                                                      |                  |
| CTH B STAGE 3                     | ---                                                               | ---                                                               | 1,966                                                    | ---                                                      |                  |
| UNDISTRIBUTED                     | ---                                                               | ---                                                               | 2,000                                                    | ---                                                      | MEMORIAL WEEKEND |
| TOTALS                            | 8,928                                                             | 8,928                                                             | 60,784                                                   | 2,428                                                    |                  |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.



CONSTRUCTION STAKING

| STATION - STATION     | 650.4000<br>STORM<br>SEWER<br>EACH | 650.5500<br>CURB GUTTER<br>AND<br>CURB & GUTTER<br>LF | 650.8500<br>ELECTRICAL<br>INSTALLATIONS<br>(1166-12-89)<br>LS | 650.9910<br>SUPPLEMENTAL<br>CONTROL<br>(1166-12-89)<br>LS | 650.9920<br>SLOPE<br>STAKES<br>LF | REMARKS        |
|-----------------------|------------------------------------|-------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------|----------------|
| PROJECT 1166-12-89    | ---                                | ---                                                   | 1                                                             | 1                                                         | ---                               |                |
| 1024+00NB - 1027+00NB | ---                                | ---                                                   | ---                                                           | ---                                                       | 300                               |                |
| 1036+00NB - 1039+00NB | ---                                | ---                                                   | ---                                                           | ---                                                       | 300                               |                |
| 1044+50NB - 1054+50NB | ---                                | ---                                                   | ---                                                           | ---                                                       | 1,000                             |                |
| 1031+50SB - 1034+00SB | ---                                | ---                                                   | ---                                                           | ---                                                       | 250                               |                |
| 1043+00SB - 1046+00SB | ---                                | ---                                                   | ---                                                           | ---                                                       | 300                               |                |
| 35+99BW - 37+00BW     | ---                                | ---                                                   | ---                                                           | ---                                                       | 101                               |                |
| 1+63 (BA)             | 1                                  | ---                                                   | ---                                                           | ---                                                       | ---                               | ON RAMP (100A) |
| 1+69 (BA)             | 1                                  | ---                                                   | ---                                                           | ---                                                       | ---                               | ON RAMP (100B) |
| 25+45 BE - 25+87 BE   | ---                                | 42                                                    | ---                                                           | ---                                                       | ---                               | EAT CURB CUT   |
| 29+28 BW - 29+70 BW   | ---                                | 42                                                    | ---                                                           | ---                                                       | ---                               | EAT CURB CUT   |
| TOTALS                | 2                                  | 84                                                    | 1                                                             | 1                                                         | 2,251                             |                |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

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| CONDUIT AND CONDUCTOR TABLE |         |         |                    |         |         |                                                             |                                       |                            |
|-----------------------------|---------|---------|--------------------|---------|---------|-------------------------------------------------------------|---------------------------------------|----------------------------|
| FROM                        |         |         | TO                 |         |         | 652.0225<br>CONDUIT RIGID NONMETALLIC<br>SCHEDULE 40 2-INCH | 652.0605<br>CONDUIT SPECIAL<br>2-INCH | REMARKS                    |
| ITEM NO.                    | STATION | OFFSET  | ITEM NO.           | STATION | OFFSET  | LF                                                          | LF                                    |                            |
| EXISTING PB2                | 25+12BE | 63' LT  | PB3                | 26+59BE | 63' LT  | 147                                                         | ---                                   | S49-2001                   |
| PB3                         | 26+59BE | 63' LT  | PB4                | 28+40BE | 64' LT  | ---                                                         | 181                                   | S49-2001                   |
| PB4                         | 28+40BE | 64' LT  | LOOP DETECTOR 21   | 28+40BE | 6' LT   | 29                                                          | ---                                   | S49-2001                   |
| PB4                         | 28+40BE | 64' LT  | LOOP DETECTOR 22   | 28+43BE | 18' LT  | 17                                                          | ---                                   | S49-2001                   |
| EXISTING PB11               | 24+15BE | 91' LT  | PB12               | 24+71BE | 205' LT | 128                                                         | ---                                   | S49-2001                   |
| PB12                        | 24+71BE | 205' LT | LOOP DETECTOR 41   | 24+94BE | 194' LT | 16                                                          | ---                                   | S49-2001                   |
| EXISTING PB7                | 24+00BE | 56' RT  | PB8                | 22+41BE | 44' RT  | 160                                                         | ---                                   | S49-2001                   |
| PB8                         | 22+41BE | 44' RT  | PB9                | 20+81BE | 43' RT  | 160                                                         | ---                                   | S49-2001                   |
| PB9                         | 20+81BE | 43' RT  | LOOP DETECTOR 61   | 20+81BE | 6' RT   | 34                                                          | ---                                   | S49-2001                   |
| PB9                         | 20+81BE | 43' RT  | LOOP DETECTOR 62   | 20+81BE | 6' RT   | 21                                                          | ---                                   | S49-2001                   |
| OH-PB101                    | 22+41BE | 44' RT  | PB8                | 22+41BE | 44' RT  | 23                                                          | ---                                   | S49-2001                   |
| EXISTING PB                 | 24+97BE | 43' RT  | PB4                | 26+31BE | 39' RT  | 133                                                         | ---                                   | S49-2002                   |
| PB4                         | 26+31BE | 39' RT  | LOOP DETECTOR 61   | 26+28BE | 18' RT  | 18                                                          | ---                                   | S49-2002                   |
| PB4                         | 26+31BE | 39' RT  | LOOP DETECTOR 62   | 26+31BE | 6' RT   | 14                                                          | ---                                   | S49-2002                   |
| PB4                         | 26+31BE | 39' RT  | PB3                | 28+44BE | 41' RT  | ---                                                         | 213                                   | S49-2002 (PB4 OF S49-2001) |
| PB3                         | 28+44BE | 41' RT  | EXISTING PB2       | 29+55BE | 42' RT  | 111                                                         | ---                                   | S49-2002                   |
| EXISTING PB11               | 30+61BE | 60' RT  | PB12               | 30+19BE | 173' RT | 120                                                         | ---                                   | S49-2002                   |
| PB12                        | 30+19BE | 173' RT | LOOP DETECTOR 81   | 30+00BE | 165' RT | 10                                                          | ---                                   | S49-2002                   |
| EXISTING PB7                | 30+70BE | 78' LT  | PB8                | 32+19BE | 66' LT  | 150                                                         | ---                                   | S49-2002                   |
| PB8                         | 32+19BE | 66' LT  | PB9                | 33+84BE | 64' LT  | 165                                                         | ---                                   | S49-2002                   |
| PB9                         | 33+84BE | 64' LT  | LOOP DETECTOR 21   | 33+84BE | 32' LT  | 30                                                          | ---                                   | S49-2002                   |
| PB9                         | 33+84BE | 64' LT  | LOOP DETECTOR 22   | 33+87BE | 44' LT  | 17                                                          | ---                                   | S49-2002                   |
| OH-PB110                    | 30+83BE | 82' LT  | PB7                | 30+70BE | 78' LT  | 14                                                          | ---                                   | S49-2002                   |
| EXSITING CB                 | 24+92BE | 76' LT  | PB14               | 25+14BE | 88' LT  | 20                                                          | ---                                   | CAMERA                     |
| PB14                        | 25+14BE | 88' LT  | PB15               | 26+78BE | 141' LT | 172                                                         | ---                                   | CAMERA                     |
| PB15                        | 26+78BE | 141' LT | EXISTING CCTV      | 26+82BE | 146' LT | 7                                                           | ---                                   | CAMERA                     |
| EXISTING PULLBOX            | 18+75BE | 44' RT  | PB100              | 19+22BE | 52' RT  | 48                                                          | ---                                   | EXISTING OHS               |
| PB100                       | 19+22BE | 52' RT  | PB101              | 22+18BE | 50' RT  | 294                                                         | ---                                   | EXISTING OHS               |
| PB101                       | 22+18BE | 50' RT  | EXISTING PB        | 22+41BE | 44' RT  | 24                                                          | ---                                   | EXISTING OHS               |
| PB101                       | 22+18BE | 50' RT  | PB102              | 24+18BE | 67' RT  | 201                                                         | ---                                   | EXISTING OHS               |
| PB102                       | 24+18BE | 67' RT  | PB103              | 25+35BE | 45' RT  | ---                                                         | 119                                   | EXISTING OHS               |
| PB103                       | 25+35BE | 45' RT  | PB105              | 25+33BE | 76' LT  | ---                                                         | 120                                   | EXISTING OHS               |
| PB105                       | 25+33BE | 76' LT  | EXISTING CB        | 24+92BE | 76' LT  | 41                                                          | ---                                   | EXISTING OHS               |
| PB105                       | 25+33BE | 76' LT  | EXISTING PB        | 25+40BE | 236' LT | 161                                                         | ---                                   | EXISTING OHS               |
| PB103                       | 25+35BE | 45' RT  | PB104              | 26+84BE | 77' RT  | 152                                                         | ---                                   | EXISTING OHS               |
| PB104                       | 26+84BE | 77' RT  | F49-0008           | 26+88BE | 12' RT  | 70                                                          | ---                                   | EXISTING OHS               |
| F49-0007                    | 28+18BE | 38' LT  | PB106              | 28+22BE | 106' LT | 74                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB106                       | 28+22BE | 106' LT | PB107              | 29+76BE | 101' LT | 153                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB107                       | 29+76BE | 101' LT | PB108              | 29+87BE | 51' RT  | ---                                                         | 153                                   | OHS-49-05 & OHS-49-06      |
| PB108                       | 29+87BE | 51' RT  | EXISTING CB        | 29+96BE | 51' RT  | 8                                                           | ---                                   | OHS-49-05 & OHS-49-06      |
| PB107                       | 29+76BE | 101' LT | PB109              | 30+42BE | 124' LT | ---                                                         | 70                                    | OHS-49-05 & OHS-49-06      |
| PB109                       | 30+42BE | 124' LT | PB110              | 30+83BE | 82' LT  | 59                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB110                       | 30+83BE | 82' LT  | PB111              | 33+43BE | 71' LT  | 260                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB111                       | 33+43BE | 71' LT  | PB112              | 36+04BE | 71' LT  | 260                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB112                       | 36+04BE | 71' LT  | F49-0006           | 35+94BE | 67' LT  | 11                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB112                       | 36+04BE | 71' LT  | PB113              | 37+89BE | 67' LT  | 185                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB113                       | 37+89BE | 67' LT  | PB114              | 39+74BE | 66' LT  | 185                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB114                       | 39+74BE | 66' LT  | OHS-49-06          | 39+84BE | 66' LT  | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB114                       | 39+74BE | 66' LT  | ELECTRICAL SERVICE | 39+74BE | 76' LT  | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB114                       | 39+74BE | 66' LT  | PB115              | 39+74BE | 13' LT  | ---                                                         | 53                                    | OHS-49-05 & OHS-49-06      |
| PB115                       | 39+74BE | 13' LT  | OHS-49-06          | 39+84BE | 13' LT  | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB108                       | 29+96BE | 51' RT  | F49-0005           | 29+61BE | 195' RT | 146                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| F49-0005                    | 29+61BE | 195' RT | PB119              | 29+58BE | 205' RT | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB119                       | 29+58BE | 205' RT | PB120              | 30+17BE | 221' RT | ---                                                         | 61                                    | OHS-49-05 & OHS-49-06      |
| PB120                       | 30+17BE | 221' RT | F49-0005           | 30+20BE | 211' RT | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB119                       | 29+58BE | 205' RT | PB118              | 29+09BE | 368' RT | 170                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB118                       | 29+09BE | 368' RT | PB116              | 28+60BE | 531' RT | 170                                                         | ---                                   | OHS-49-05 & OHS-49-06      |
| PB116                       | 28+60BE | 531' RT | OHS-49-05          | 28+58BE | 540' RT | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB116                       | 28+60BE | 531' RT | PB117              | 29+23BE | 548' RT | ---                                                         | 65                                    | OHS-49-05 & OHS-49-06      |
| PB117                       | 29+23BE | 548' RT | OHS-49-05          | 29+20BE | 557' RT | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| PB117                       | 29+23BE | 548' RT | ELECTRICAL SERVICE | 29+33BE | 551' RT | 10                                                          | ---                                   | OHS-49-05 & OHS-49-06      |
| TOTALS                      |         |         |                    |         |         | 4,468                                                       | 1,035                                 |                            |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

|                        |            |                 |                          |           |   |
|------------------------|------------|-----------------|--------------------------|-----------|---|
| PROJECT NO: 1166-12-89 | HWY: IH 39 | COUNTY: PORTAGE | MISCELLANEOUS QUANTITIES | SHEET: 86 | E |
|------------------------|------------|-----------------|--------------------------|-----------|---|

FILE NAME : PLOT DATE : PLOT BY : PLOT NAME : PLOT SCALE : 1:1

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|                                                |  |  | <u>LOOP DETECTOR INSTALLATION</u>       |                                      |                                               |                    | <u>PULL BOXES STEEL</u>             |                                                 |                                        |           |
|------------------------------------------------|--|--|-----------------------------------------|--------------------------------------|-----------------------------------------------|--------------------|-------------------------------------|-------------------------------------------------|----------------------------------------|-----------|
|                                                |  |  | 652.0800<br>CONDUIT<br>LOOP<br>DETECTOR | 655.0800<br>LOOP<br>DETECTOR<br>WIRE | 655.0700<br>LOOP<br>DETECTOR<br>LEAD-IN-CABLE | PULL BOX<br>NUMBER | LOCATION                            | 653.0154<br>24" x 36"<br>NON CONDUCTIVE<br>EACH | 653.0135<br>24" x 36"<br>STEEL<br>EACH |           |
|                                                |  |  | LOOP NUMBER                             | LF                                   | LF                                            | LF                 |                                     |                                                 |                                        |           |
|                                                |  |  | S49-2001                                |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | 21                                      | 68                                   | 272                                           | 368                | PB3                                 | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 22                                      | 48                                   | 192                                           | 368                | PB4                                 | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 41                                      | 84                                   | 336                                           | 214                | PB9                                 | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 42                                      | 109                                  | 276                                           | 64                 | PB8                                 | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 43                                      | 79                                   | 204                                           | 64                 | PB12                                | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 44                                      | 101                                  | 240                                           | 94                 | PB14                                | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 45                                      | 95                                   | 228                                           | 94                 | PB15                                | S49-2001                                        | ---                                    | 1         |
|                                                |  |  | 51                                      | 79                                   | 204                                           | 104                | PB4                                 | S49-2002                                        | ---                                    | 1         |
|                                                |  |  | 52                                      | 79                                   | 204                                           | 104                | PB3                                 | S49-2002                                        | ---                                    | 1         |
|                                                |  |  | 61                                      | 80                                   | 320                                           | 582                | PB12                                | S49-2002                                        | ---                                    | 1         |
|                                                |  |  | 62                                      | 56                                   | 224                                           | 582                | PB8                                 | S49-2002                                        | ---                                    | 1         |
|                                                |  |  | S49-2002                                |                                      |                                               |                    | PB9                                 | S49-2002                                        | ---                                    | 1         |
|                                                |  |  | 11                                      | 79                                   | 204                                           | 124                | PB100                               | EXISTING OHS                                    | 1                                      | ---       |
|                                                |  |  | 12                                      | 83                                   | 216                                           | 124                | PB101                               | EXISTING OHS                                    | 1                                      | ---       |
|                                                |  |  | 21                                      | 60                                   | 240                                           | 592                | PB102                               | EXISTING OHS                                    | 1                                      | ---       |
|                                                |  |  | 22                                      | 48                                   | 192                                           | 592                | PB103                               | EXISTING OHS                                    | 1                                      | ---       |
|                                                |  |  | 61                                      | 72                                   | 288                                           | 376                | PB104                               | EXISTING OHS                                    | 1                                      | ---       |
|                                                |  |  | 62                                      | 48                                   | 192                                           | 376                | PB105                               | EXISTING OHS                                    | 1                                      | ---       |
|                                                |  |  | 81                                      | 80                                   | 320                                           | 212                | PB106                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  | 82                                      | 92                                   | 228                                           | 62                 | PB107                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  | 83                                      | 78                                   | 204                                           | 62                 | PB108                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  | 84                                      | 89                                   | 228                                           | 92                 | PB109                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  | 85                                      | 86                                   | 228                                           | 92                 | PB110                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  | TOTALS                                  | 1,693                                | 5,240                                         | 5,342              | PB111                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB112                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB113                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB114                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB115                               | OHS-49-06                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB116                               | OHS-49-05                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB117                               | OHS-49-05                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB118                               | OHS-49-05                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB119                               | OHS-49-05                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | PB120                               | OHS-49-05                                       | 1                                      | ---       |
|                                                |  |  |                                         |                                      |                                               |                    | TOTALS                              | 21                                              | 12                                     |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | <u>CONCRETE BASES</u>                   |                                      |                                               |                    | 654.0101<br>BASES<br>TYPE 1<br>EACH | 654.0102<br>BASES<br>TYPE 2<br>EACH             |                                        |           |
|                                                |  |  | STATION                                 | OFFSET                               | ITEM ID                                       |                    |                                     |                                                 |                                        |           |
|                                                |  |  | 39+84BW                                 | 44' LT                               | OHS-49-06                                     | ---                | 1                                   |                                                 |                                        |           |
|                                                |  |  | 39+84BW                                 | 13' RT                               | OHS-49-06                                     | ---                | 1                                   |                                                 |                                        |           |
|                                                |  |  | 5+00BB                                  | 25' RT                               | OHS-49-05                                     | ---                | 1                                   |                                                 |                                        |           |
|                                                |  |  | 5+00BB                                  | 40' LT                               | OHS-49-05                                     | ---                | 1                                   |                                                 |                                        |           |
|                                                |  |  | 8+60BB                                  | 29' RT                               | F49-0005                                      | 1                  | ---                                 |                                                 |                                        |           |
|                                                |  |  | 8+60BB                                  | 32' LT                               | F49-0005                                      | 1                  | ---                                 |                                                 |                                        |           |
|                                                |  |  | TOTALS                                  |                                      |                                               | 2                  | 4                                   |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | <u>JUNCTION BOXES</u>                   |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | 653.0210<br>10X10X6-INCH                |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | LOCATION                                | EACH                                 | REMARKS                                       |                    |                                     |                                                 |                                        |           |
|                                                |  |  | S-49-31                                 | 1                                    |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | S-49-32                                 | 1                                    |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  | TOTALS                                  | 2                                    |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
| ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED. |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
| PROJECT NO: 1166-12-89                         |  |  | HWY: IH 39                              |                                      | COUNTY: PORTAGE                               |                    | MISCELLANEOUS QUANTITIES            |                                                 |                                        | SHEET: 87 |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |
|                                                |  |  |                                         |                                      |                                               |                    |                                     |                                                 |                                        |           |

ELECTRICAL WIRE TRAFFIC SIGNALS (OHS)

|                       |                    | 655.0210 | 655.0515 | REMARKS |
|-----------------------|--------------------|----------|----------|---------|
|                       |                    | 3-14 AWG | 10 AWG   |         |
| FROM                  | TO                 | LF       | (GREEN)  |         |
| CAMERA                |                    |          |          |         |
| EXSITING CB           | PB14               | 40       | ---      |         |
| PB14                  | PB15               | 192      | ---      |         |
| PB15                  | EXISTING CCTV      | 27       | ---      |         |
| EXISTING OHS          |                    |          |          |         |
| CAMERA                | EXISTING OHS-49-01 | 20       | 40       |         |
| EXISTING OHS          | EXISTING PB        | 400      | 800      |         |
| EXISTING PULLBOX      | PB100              | 68       | 116      |         |
| PB100                 | PB101              | 314      | 608      |         |
| PB101                 | PB102              | 221      | 422      |         |
| PB102                 | PB103              | 139      | 258      |         |
| PB103                 | PB105              | 140      | 260      |         |
| PB105                 | EXISTING PB        | 181      | 342      |         |
| EXISTING PB           | EXISTING OHS-49-02 | 455      | 890      |         |
| PB103                 | PB104              | 344      | 324      |         |
| PB104                 | F49-0008           | 180      | 160      |         |
| OHS-49-05 & OHS-49-06 |                    |          |          |         |
| F49-0007              | PB106              | 188      | 168      |         |
| PB106                 | PB107              | 346      | 326      |         |
| PB107                 | PB108              | 173      | 326      |         |
| PB107                 | PB109              | 90       | 160      |         |
| PB109                 | PB110              | 79       | 138      |         |
| PB110                 | PB111              | 280      | 540      |         |
| PB111                 | PB112              | 280      | 540      |         |
| PB112                 | F49-0006           | 81       | 42       |         |
| PB112                 | PB113              | 410      | 390      |         |
| PB113                 | PB114              | 410      | 390      |         |
| PB114                 | OHS-49-06          | 90       | 40       |         |
| PB114                 | ELECTRICAL SERVICE | 30       | 40       |         |
| PB114                 | PB115              | 146      | 126      |         |
| PB115                 | OHS-49-06 & CAMERA | 60       | 40       |         |
| PB108                 | F49-0005           | 166      | 312      |         |
| F49-0005              | PB119              | 60       | 40       |         |
| PB119                 | PB120              | 81       | 142      |         |
| PB120                 | F49-0005           | 30       | 40       |         |
| PB119                 | PB118              | 570      | 360      |         |
| PB118                 | PB116              | 570      | 360      |         |
| PB116                 | OHS-49-05          | 30       | 40       |         |
| PB116                 | PB117              | 340      | 150      |         |
| PB117                 | OHS-49-05          | 120      | 40       |         |
| PB117                 | ELECTRICAL SERVICE | 30       | 40       |         |
| TOTALS                |                    | 7,381    | 9,010    |         |

ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION)

| STATION  | LOCATION | 656.0200 | REMARKS  |
|----------|----------|----------|----------|
|          |          | LS       |          |
| 39+84 WB | LT       | 1        | CTH B WB |
| 5+00 BB  | RT       | 1        | OFF RAMP |
| TOTALS   |          | 2        |          |

ITS DEVICES

|         |        |           |             | 657.0255           | 657.0305 | 657.0425  | 658.0171 | REMARKS |
|---------|--------|-----------|-------------|--------------------|----------|-----------|----------|---------|
|         |        | 657.0100  | TRANSFORMER | BASES              | POLES    | TRAFFIC   | TRAFFIC  |         |
|         |        | PEDESTAL  | BREAKAWAY   | 11 1/2 BOLT CIRCLE | TYPE 2   | STANDARDS | SIGNAL   |         |
|         |        | BASES     | EACH        | EACH               | ALUMINUM | ALUMINUM  | FACE 1S  |         |
| STATION | OFFSET | ITEM ID   | EACH        | EACH               | EACH     | 15-FT     | 12-INCH  |         |
|         |        |           |             |                    |          | EACH      | EACH     |         |
| 39+84BW | 44' LT | OHS-49-06 | ---         | 1                  | 1        | ---       | ---      |         |
| 39+84BW | 13' RT | OHS-49-06 | ---         | 1                  | 1        | ---       | ---      |         |
| 35+94BW | 12' LT | F49-0006  | ---         | ---                | ---      | ---       | 2        | S-49-34 |
| 28+18BW | 12' LT | F49-0007  | ---         | ---                | ---      | ---       | 2        | S-49-33 |
| 26+88BE | 12' RT | F49-0008  | ---         | ---                | ---      | ---       | 2        | S-49-32 |
| 5+00BB  | 25' RT | OHS-49-05 | ---         | 1                  | 1        | ---       | ---      |         |
| 5+00BB  | 40' LT | OHS-49-05 | ---         | 1                  | 1        | ---       | ---      |         |
| 8+60BB  | 29' RT | F49-0005  | 1           | ---                | ---      | 1         | 2        |         |
| 8+60BB  | 32' LT | F49-0005  | 1           | ---                | ---      | 1         | 2        |         |
| TOTALS  |        |           | 2           | 4                  | 4        | 2         | 10       |         |

ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

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| OVERHEIGHT DETECTION SYSTEM |            |              |                                                                                                   |                                                 |                                        |                                                   |                                                                       |         |
|-----------------------------|------------|--------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|---------|
| STATION                     | OFFSET     | ITEM ID      | 658.5069<br>SIGNAL<br>MOUNTING<br>HARDWARE<br>(location) .01<br>IH39 & CTH B<br>Interchange<br>LS | 670.0100<br>FIELD<br>SYSTEM<br>INTEGRATOR<br>LS | 670.0200<br>ITS<br>DOCUMENTATION<br>LS | 677.0200<br>INSTALL<br>CAMERA<br>ASSEMBLY<br>EACH | SPV.0060.01<br>OVERHEIGHT<br>VEHICLE<br>DETECTION<br>ASSEMBLY<br>EACH | REMARKS |
| PROJECT                     | 1166-12-89 | -            | 1                                                                                                 | 1                                               | 1                                      | ---                                               | ---                                                                   |         |
| 39+84BW                     | LT/RT      | OHS-49-06    | ---                                                                                               | ---                                             | ---                                    | 1                                                 | 1                                                                     |         |
| 5+00BB                      | LT/RT      | OHS-49-05    | ---                                                                                               | ---                                             | ---                                    | ---                                               | 1                                                                     |         |
| 14+91BE                     | 44' RT     | EXISTING OHS | ---                                                                                               | ---                                             | ---                                    | 1                                                 | ---                                                                   |         |
| TOTALS                      |            |              | 1                                                                                                 | 1                                               | 1                                      | 2                                                 | 2                                                                     |         |

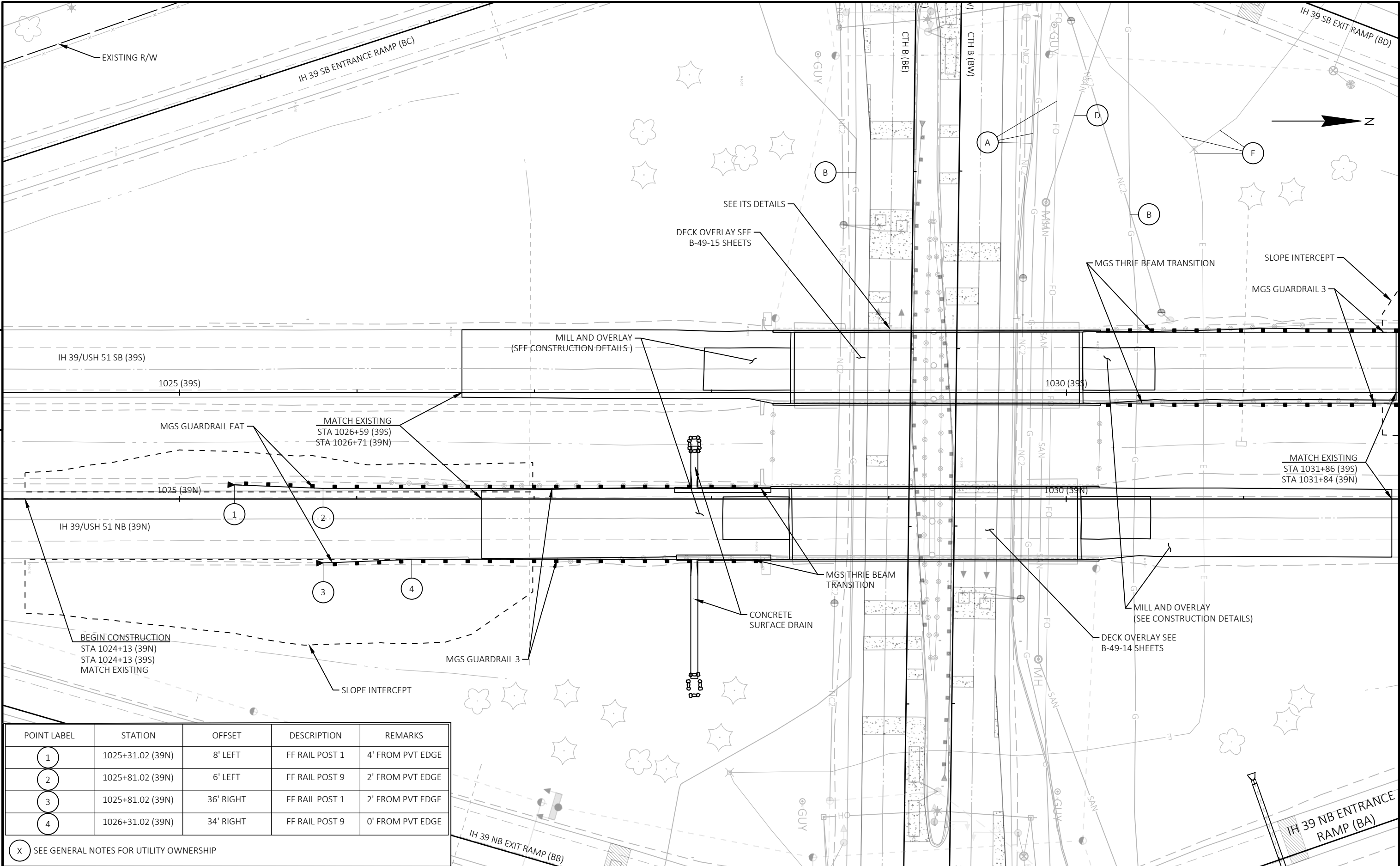
| INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM |        |                    |         |
|--------------------------------------------------|--------|--------------------|---------|
| STATION                                          | OFFSET | 999.2000.S<br>EACH | REMARKS |
| 1028+45 NB - 1030+08 NB                          | LT/RT  | 1                  | B-49-14 |
| 1028+44 SB - 1030+09 SB                          | LT/RT  | 1                  | B-49-15 |
| 1040+02 NB - 1041+62 NB                          | LT/RT  | 1                  | B-49-16 |
| 1040+10 SB - 1041+62 SB                          | LT/RT  | 1                  | B-49-17 |
| TOTALS                                           |        | 4                  |         |

| INSTALL DEPARTMENT FURNISHED PREEMPTION CABLE |          |                   |         |
|-----------------------------------------------|----------|-------------------|---------|
| FROM                                          | TO       | SPV.0090.02<br>LF | REMARKS |
| OHS-49-01                                     | S49-2001 | 1,341             |         |
| OHS-49-01                                     | S49-2002 | 1,715             |         |
| TOTALS                                        |          | 3,056             |         |

| SAWING ASPHALT          |        |                |            |
|-------------------------|--------|----------------|------------|
| STATION                 | OFFSET | 690.0150<br>LF | REMARKS    |
| 1045+00 NB - 1054+10 NB | RT     | 925            | MERGE LANE |
| 1027+80 NB - 1028+34 NB | RT     | 62             | CURB       |
| 1027+79 NB - 1028+34 NB | LT     | 64             | CURB       |
| 1039+39 NB - 1039+92 NB | RT     | 62             | CURB       |
| 1039+39 NB - 1039+92 NB | LT     | 62             | CURB       |
| TOTALS                  |        | 1175           |            |

| FILL EXISTING RUMBLE STRIPS |        |                   |                  |
|-----------------------------|--------|-------------------|------------------|
| STATION                     | OFFSET | SPV.0090.01<br>LF | REMARKS          |
| 1010+14 39N - 1014+34 39N   | RT     | 420               | PRIOR TO STAGE 1 |
| 1044+00 39N - 1048+20 39N   | RT     | 420               | PRIOR TO STAGE 1 |
| 1021+80 39S -1026+00 39S    | LT     | 420               | PRIOT TO STAGE 1 |
| 1051+51 39S - 1055+71 39S   | LT     | 420               | PRIOR TO STAGE 1 |
| 996+64 39N - 1000+84 39S    | LT     | 420               | PRIOR TO STAGE 2 |
| 1044+00 39N - 1048+20 39N   | LT     | 420               | PRIOR TO STAGE 2 |
| 1021+80 39S - 1026+00 39S   | LT     | 420               | PRIOR TO STAGE 2 |
| 1052+24 39S - 1056+44 39S   | LT     | 420               | PRIOR TO STAGE 2 |
| 1056+00 39N - 1060+20 39N   | LT     | 420               | PRIOR TO STAGE 3 |
| TOTALS                      |        | 3,780             |                  |

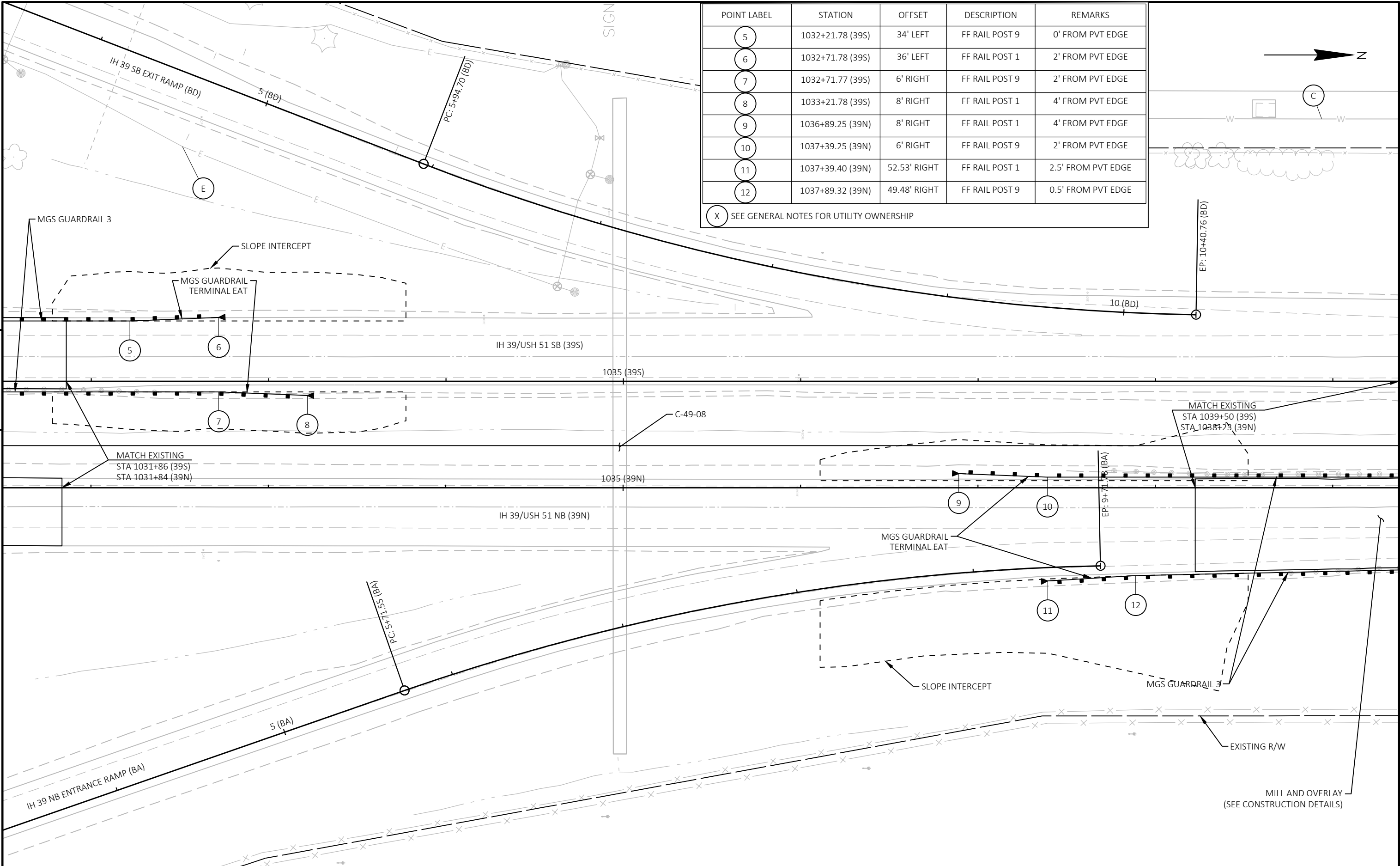
ALL ITEMS ARE CATEGORY UNLESS OTHERWISE NOTED.

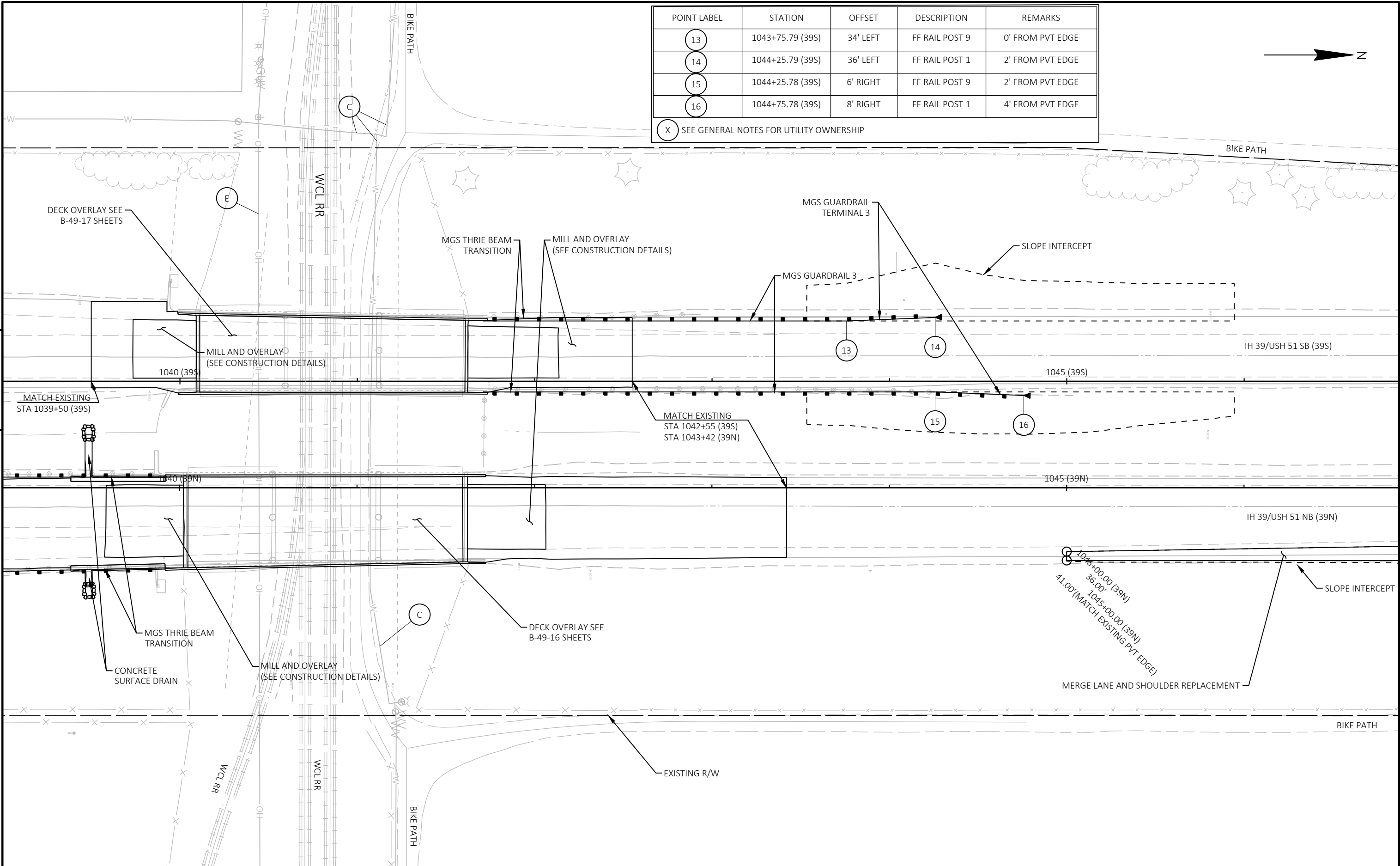


| POINT LABEL | STATION          | OFFSET    | DESCRIPTION    | REMARKS          |
|-------------|------------------|-----------|----------------|------------------|
| 1           | 1025+31.02 (39N) | 8' LEFT   | FF RAIL POST 1 | 4' FROM PVT EDGE |
| 2           | 1025+81.02 (39N) | 6' LEFT   | FF RAIL POST 9 | 2' FROM PVT EDGE |
| 3           | 1025+81.02 (39N) | 36' RIGHT | FF RAIL POST 1 | 2' FROM PVT EDGE |
| 4           | 1026+31.02 (39N) | 34' RIGHT | FF RAIL POST 9 | 0' FROM PVT EDGE |

X SEE GENERAL NOTES FOR UTILITY OWNERSHIP

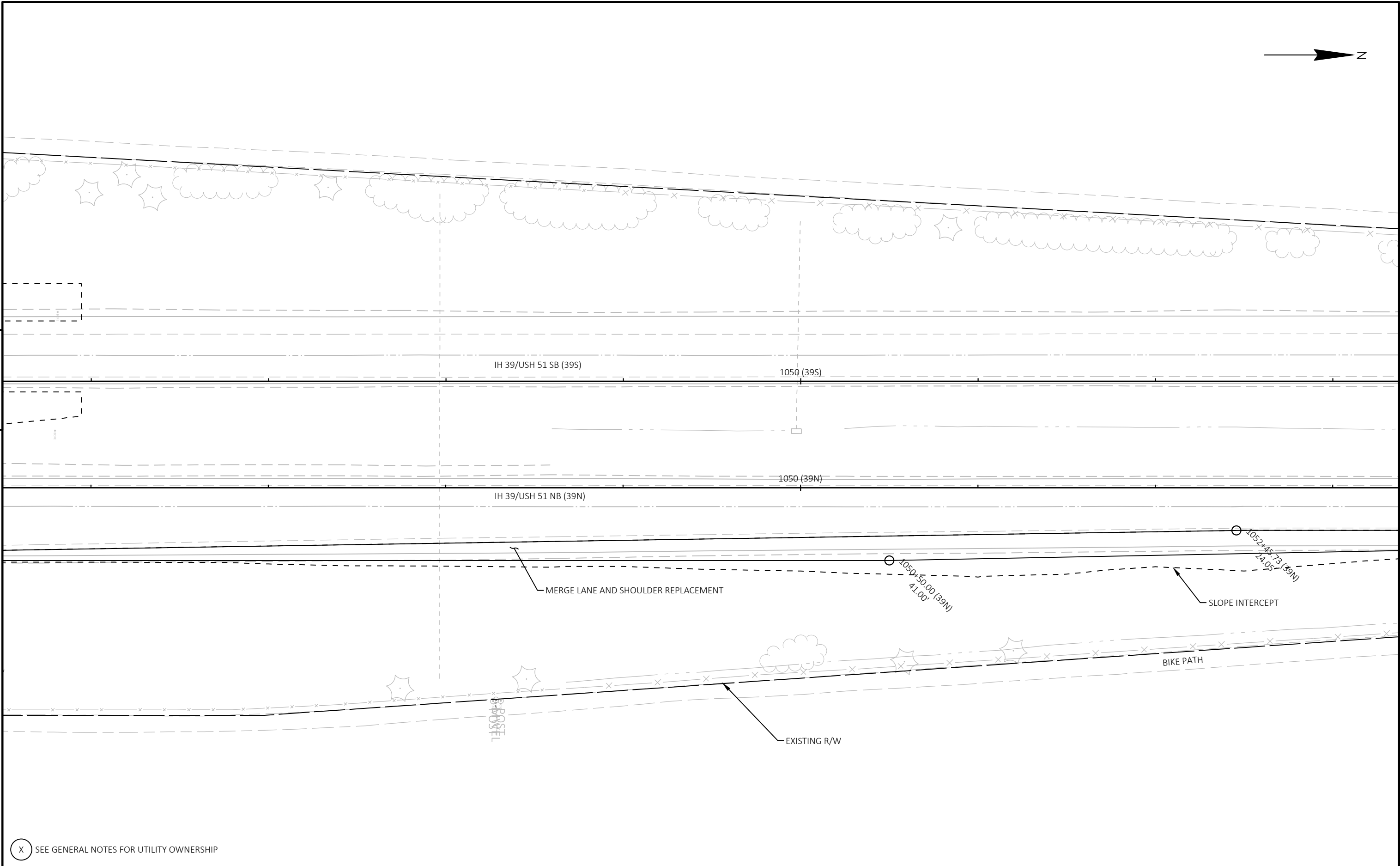






| POINT LABEL                               | STATION          | OFFSET   | DESCRIPTION    | REMARKS          |
|-------------------------------------------|------------------|----------|----------------|------------------|
| 13                                        | 1043+75.79 (39S) | 34' LEFT | FF RAIL POST 9 | 0' FROM PVT EDGE |
| 14                                        | 1044+25.79 (39S) | 36' LEFT | FF RAIL POST 1 | 2' FROM PVT EDGE |
| 15                                        | 1044+25.78 (39S) | 6' RIGHT | FF RAIL POST 9 | 2' FROM PVT EDGE |
| 16                                        | 1044+75.78 (39S) | 8' RIGHT | FF RAIL POST 1 | 4' FROM PVT EDGE |
| X SEE GENERAL NOTES FOR UTILITY OWNERSHIP |                  |          |                |                  |



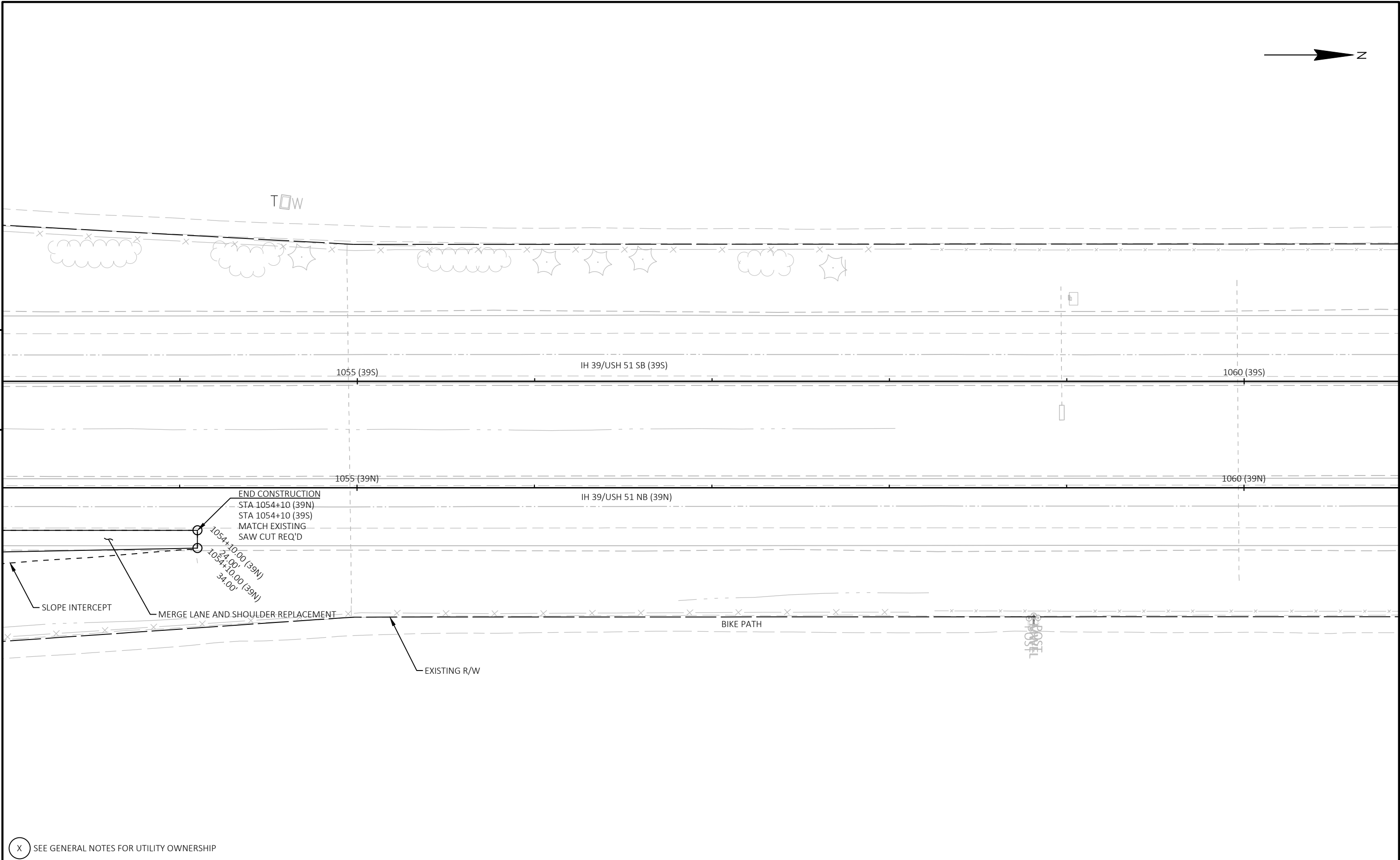


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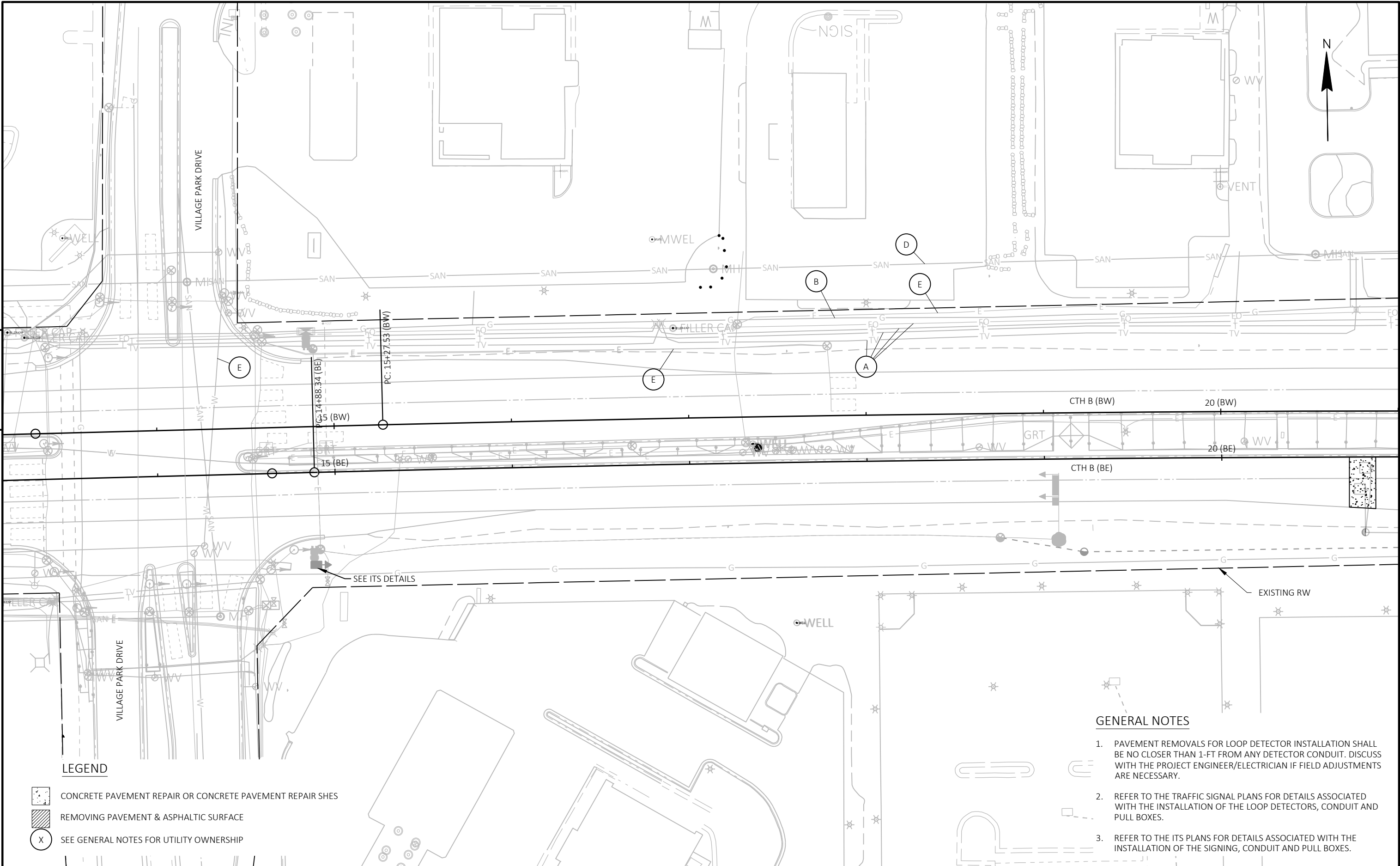
(X) SEE GENERAL NOTES FOR UTILITY OWNERSHIP

|                        |            |                        |             |          |   |
|------------------------|------------|------------------------|-------------|----------|---|
| PROJECT NO: 1166-12-89 | HWY: IH 39 | COUNTY: PORTAGE COUNTY | PLAN: IH 39 | SHEET 93 | E |
|------------------------|------------|------------------------|-------------|----------|---|



(X) SEE GENERAL NOTES FOR UTILITY OWNERSHIP

|                        |            |                        |             |          |   |
|------------------------|------------|------------------------|-------------|----------|---|
| PROJECT NO: 1166-12-89 | HWY: IH 39 | COUNTY: PORTAGE COUNTY | PLAN: IH 39 | SHEET 94 | E |
|------------------------|------------|------------------------|-------------|----------|---|

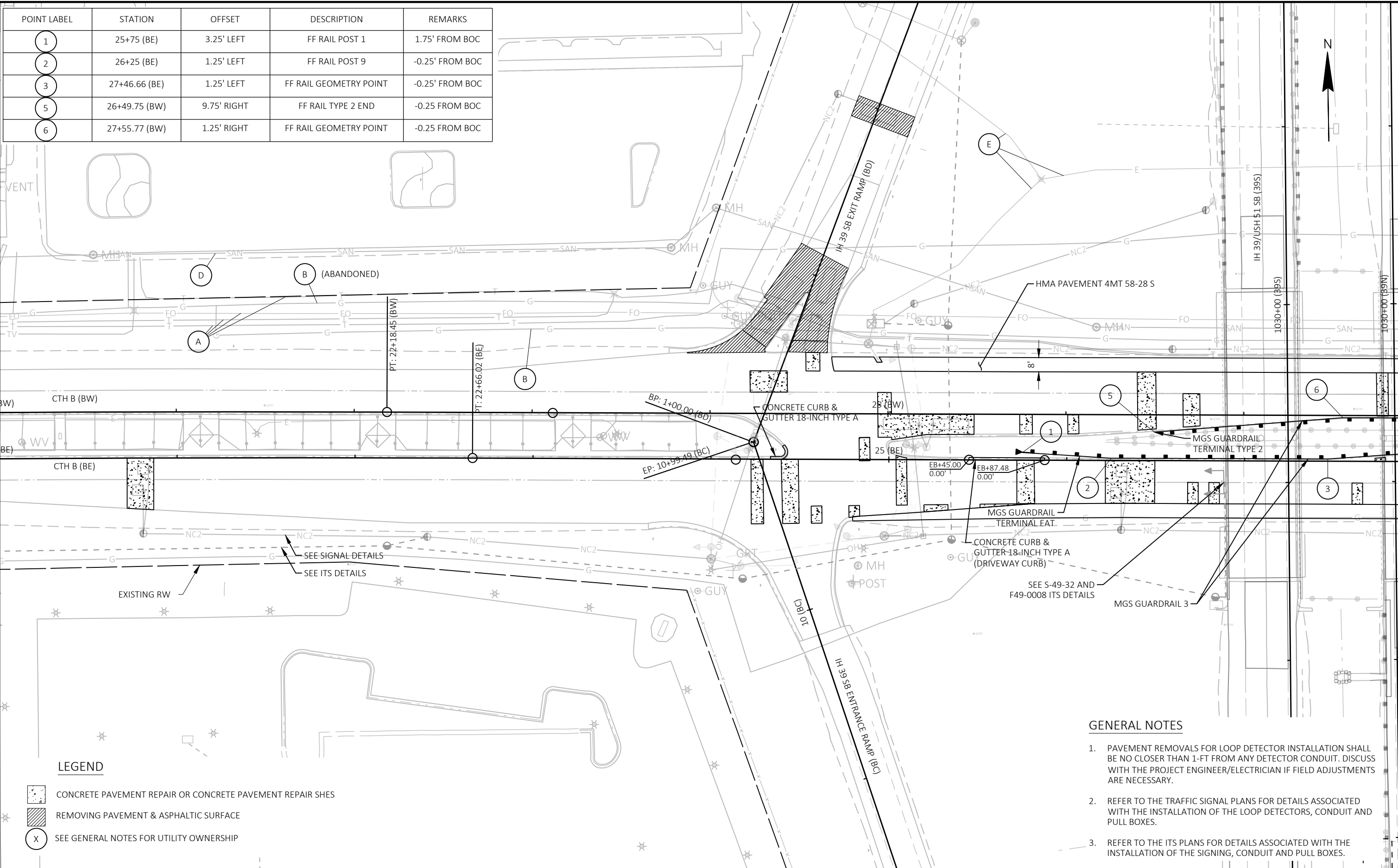


LEGEND

- CONCRETE PAVEMENT REPAIR OR CONCRETE PAVEMENT REPAIR SHES
- REMOVING PAVEMENT & ASPHALTIC SURFACE
- SEE GENERAL NOTES FOR UTILITY OWNERSHIP

GENERAL NOTES

- PAVEMENT REMOVALS FOR LOOP DETECTOR INSTALLATION SHALL BE NO CLOSER THAN 1-FT FROM ANY DETECTOR CONDUIT. DISCUSS WITH THE PROJECT ENGINEER/ELECTRICIAN IF FIELD ADJUSTMENTS ARE NECESSARY.
- REFER TO THE TRAFFIC SIGNAL PLANS FOR DETAILS ASSOCIATED WITH THE INSTALLATION OF THE LOOP DETECTORS, CONDUIT AND PULL BOXES.
- REFER TO THE ITS PLANS FOR DETAILS ASSOCIATED WITH THE INSTALLATION OF THE SIGNING, CONDUIT AND PULL BOXES.



| POINT LABEL | STATION       | OFFSET      | DESCRIPTION            | REMARKS         |
|-------------|---------------|-------------|------------------------|-----------------|
| 1           | 25+75 (BE)    | 3.25' LEFT  | FF RAIL POST 1         | 1.75' FROM BOC  |
| 2           | 26+25 (BE)    | 1.25' LEFT  | FF RAIL POST 9         | -0.25' FROM BOC |
| 3           | 27+46.66 (BE) | 1.25' LEFT  | FF RAIL GEOMETRY POINT | -0.25' FROM BOC |
| 5           | 26+49.75 (BW) | 9.75' RIGHT | FF RAIL TYPE 2 END     | -0.25' FROM BOC |
| 6           | 27+55.77 (BW) | 1.25' RIGHT | FF RAIL GEOMETRY POINT | -0.25' FROM BOC |

LEGEND

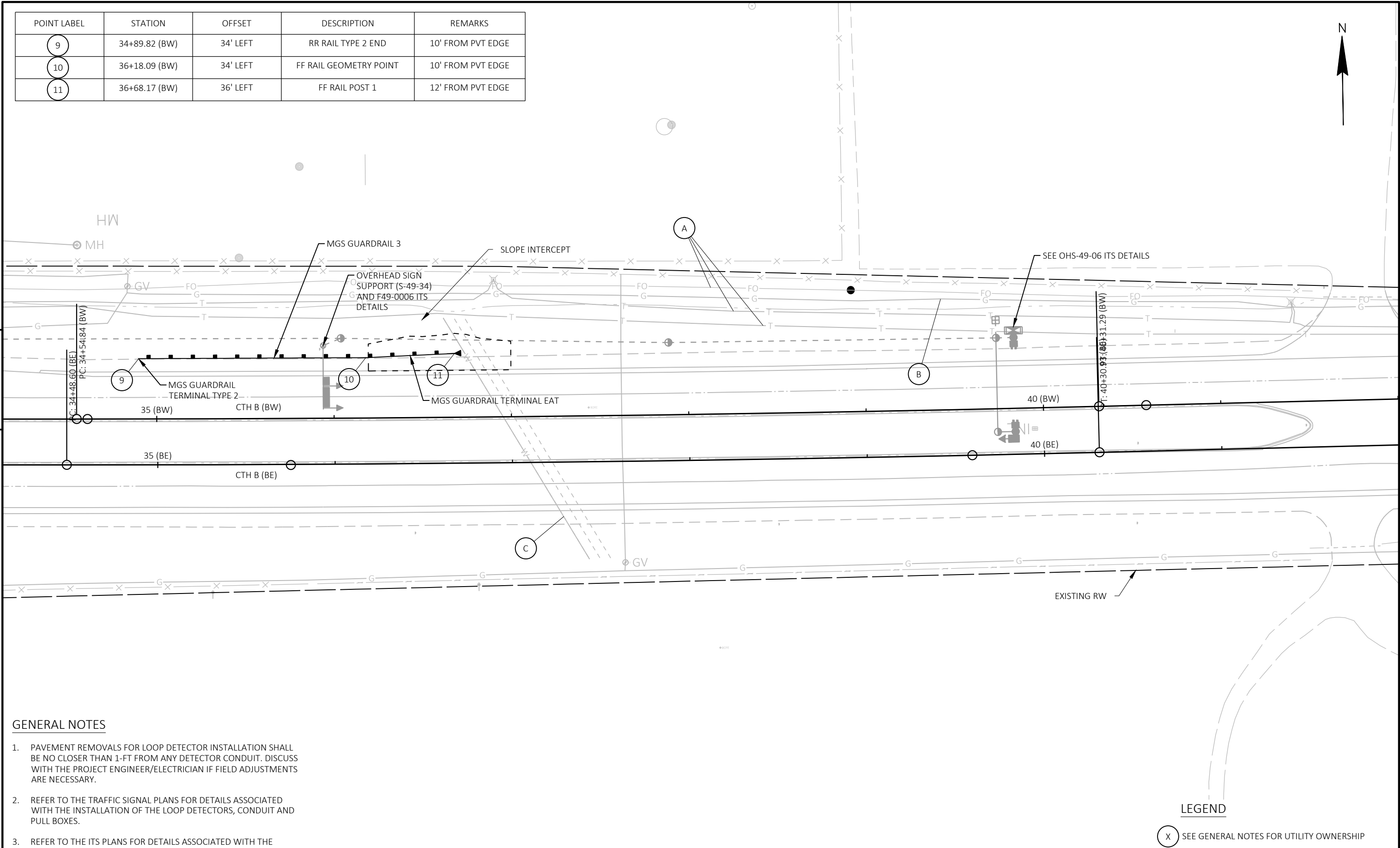
- CONCRETE PAVEMENT REPAIR OR CONCRETE PAVEMENT REPAIR SHES
- REMOVING PAVEMENT & ASPHALTIC SURFACE
- SEE GENERAL NOTES FOR UTILITY OWNERSHIP

GENERAL NOTES

- PAVEMENT REMOVALS FOR LOOP DETECTOR INSTALLATION SHALL BE NO CLOSER THAN 1-FT FROM ANY DETECTOR CONDUIT. DISCUSS WITH THE PROJECT ENGINEER/ELECTRICIAN IF FIELD ADJUSTMENTS ARE NECESSARY.
- REFER TO THE TRAFFIC SIGNAL PLANS FOR DETAILS ASSOCIATED WITH THE INSTALLATION OF THE LOOP DETECTORS, CONDUIT AND PULL BOXES.
- REFER TO THE ITS PLANS FOR DETAILS ASSOCIATED WITH THE INSTALLATION OF THE SIGNING, CONDUIT AND PULL BOXES.



| POINT LABEL | STATION       | OFFSET   | DESCRIPTION            | REMARKS           |
|-------------|---------------|----------|------------------------|-------------------|
| 9           | 34+89.82 (BW) | 34' LEFT | RR RAIL TYPE 2 END     | 10' FROM PVT EDGE |
| 10          | 36+18.09 (BW) | 34' LEFT | FF RAIL GEOMETRY POINT | 10' FROM PVT EDGE |
| 11          | 36+68.17 (BW) | 36' LEFT | FF RAIL POST 1         | 12' FROM PVT EDGE |



GENERAL NOTES

- PAVEMENT REMOVALS FOR LOOP DETECTOR INSTALLATION SHALL BE NO CLOSER THAN 1-FT FROM ANY DETECTOR CONDUIT. DISCUSS WITH THE PROJECT ENGINEER/ELECTRICIAN IF FIELD ADJUSTMENTS ARE NECESSARY.
- REFER TO THE TRAFFIC SIGNAL PLANS FOR DETAILS ASSOCIATED WITH THE INSTALLATION OF THE LOOP DETECTORS, CONDUIT AND PULL BOXES.
- REFER TO THE ITS PLANS FOR DETAILS ASSOCIATED WITH THE INSTALLATION OF THE SIGNING, CONDUIT AND PULL BOXES.

LEGEND

(X) SEE GENERAL NOTES FOR UTILITY OWNERSHIP



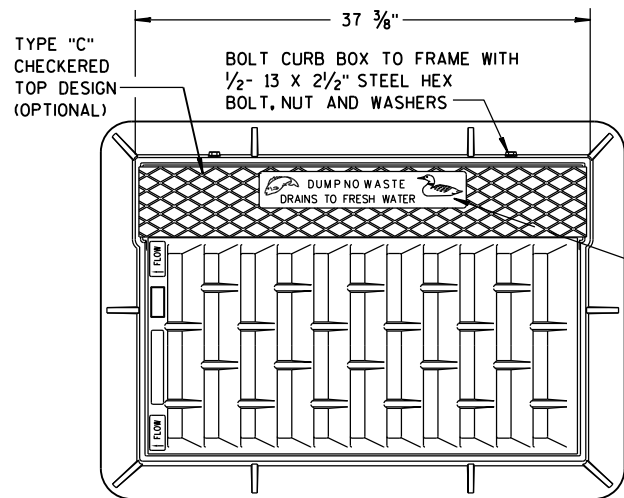
Standard Detail Drawing List

|           |                                                                                                       |
|-----------|-------------------------------------------------------------------------------------------------------|
| 08A05-19A | INLET COVERS TYPE A, H, A-S, H-S & Z                                                                  |
| 08C07-02  | INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT                                                          |
| 08D01-22A | CONCRETE CURB & GUTTER                                                                                |
| 08D01-22B | CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS                                                  |
| 08D02-07A | CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES                                                      |
| 08D02-07B | CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES                                                      |
| 08D02-07C | CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES                                                      |
| 08D04-05  | CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES                                                            |
| 08E09-06  | SILT FENCE                                                                                            |
| 08F01-11  | APRON ENDWALLS FOR CULVERT PIPE                                                                       |
| 08F04-07  | JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL                                               |
| 09B02-10  | CONDUIT                                                                                               |
| 09B04-11  | PULL BOX                                                                                              |
| 09B16-01  | PULL BOX NON-CONDUCTIVE                                                                               |
| 09C02-09  | CONCRETE BASES, TYPES 1, 2, 5, & 6                                                                    |
| 09C03-04  | TRANSFORMER/PEDESTAL BASES                                                                            |
| 09D01-05  | CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)                                                 |
| 09E07-06  | TRAFFIC SIGNAL STANDARD PEDESTRIAN AND FLASHER TYPICAL MOUNTING DETAILS                               |
| 09F15-04B | LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)                  |
| 09H11-01  | IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENTS                                                     |
| 12A04-03  | STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS |
| 13A05-05A | SHOULDER RUMBLE STRIP, MILLING                                                                        |
| 13A05-05B | SHOULDER RUMBLE STRIP, MILLING                                                                        |
| 13C09-15A | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                                              |
| 13C09-15B | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                                              |
| 13C09-15C | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                                              |
| 14B07-15A | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15B | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15C | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15D | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15E | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15F | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15G | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15H | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B07-15I | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                            |
| 14B42-06A | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                              |
| 14B42-06B | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                              |
| 14B42-06C | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                              |
| 14B42-06D | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                              |
| 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 THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05B | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05C | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05D | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05E | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05F | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05G | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05H | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05I | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05J | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05K | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B45-05L | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)                                                  |
| 14B47-02A | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                                                        |
| 14B47-02B | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                                                        |
| 14B47-02C | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                                                        |
| 15C02-08A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                                                            |
| 15C02-08B | BARRICADES AND SIGNS FOR VARIOUS CLOSURES                                                             |
| 15C02-08D | ON RAMP LANE CLOSURE                                                                                  |
| 15C02-08E | OFF RAMP LANE CLOSURE                                                                                 |
| 15C02-08F | ADVANCED WIDTH RESTRICTION SIGNING                                                                    |
| 15C07-15B | PAVEMENT MARKING WORDS                                                                                |
| 15C07-15C | PAVEMENT MARKING ARROWS                                                                               |
| 15C11-08B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS                                     |
| 15D03-05  | TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER                             |
| 15D12-09A | TRAFFIC CONTROL, LANE CLOSURE                                                                         |

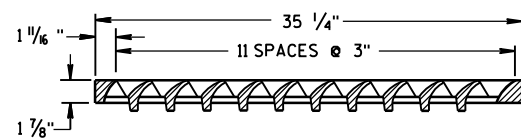
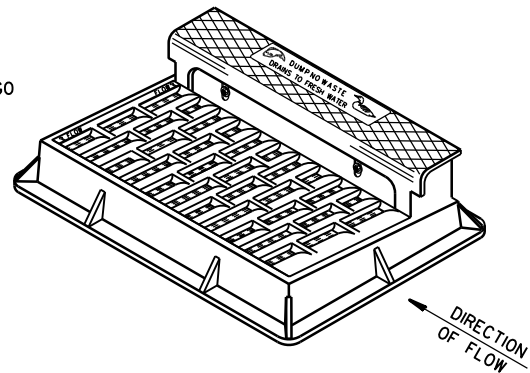
Standard Detail Drawing List

|           |                                                                                  |
|-----------|----------------------------------------------------------------------------------|
| 15D15-05A | TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE                      |
| 15D20-05A | TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY                     |
| 15D21-07A | TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE                         |
| 15D27-03  | TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH |
| 15D38-02A | TEMPORARY TRAFFIC CONTROL SIGN MOUNTING                                          |
| 15D38-02B | ATTACHMENT OF SIGNS TO POSTS                                                     |
| 15D39-02  | TRAFFIC CONTROL, DROP-OFF SIGNING                                                |

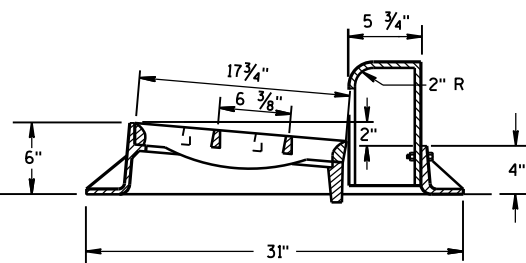
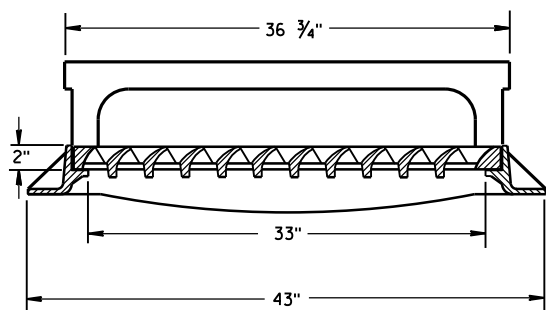
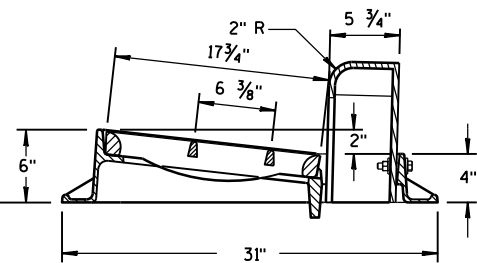
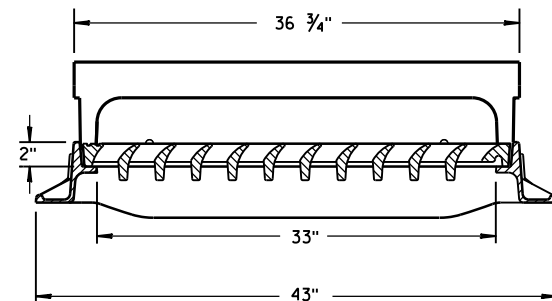




**NOTE:  
GRATE IS REVERSIBLE.**

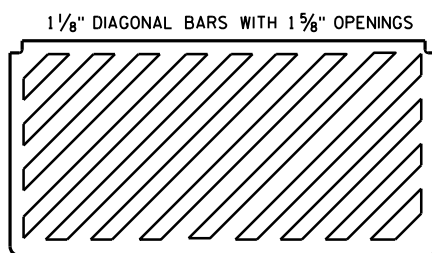


**NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"**



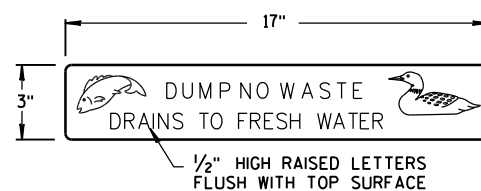
**TYPE "H"**

**NOTE: EITHER CASTING IS ACCEPTABLE**

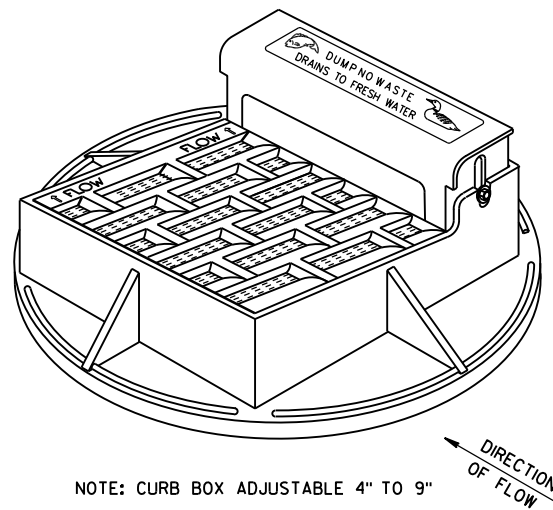


**SPECIAL GRATE FOR  
TYPE "H" COVER**

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

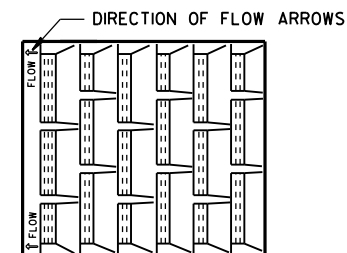


**LOGO DETAIL**

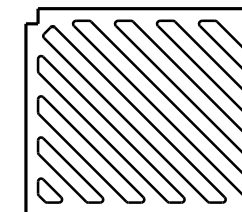


**NOTE: CURB BOX ADJUSTABLE 4" TO 9"**

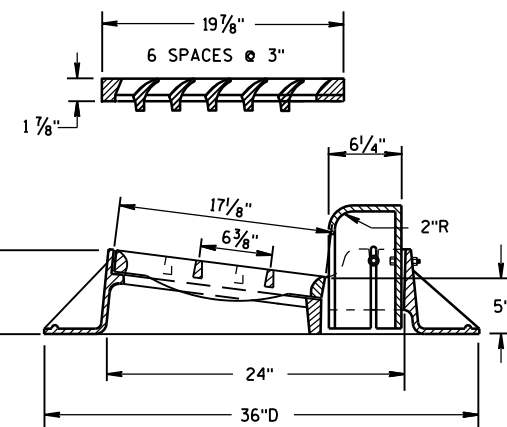
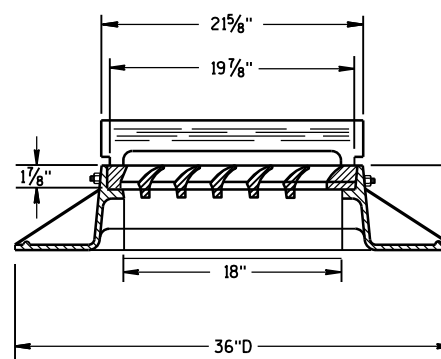
**NOTE:  
GRATE IS REVERSIBLE.**



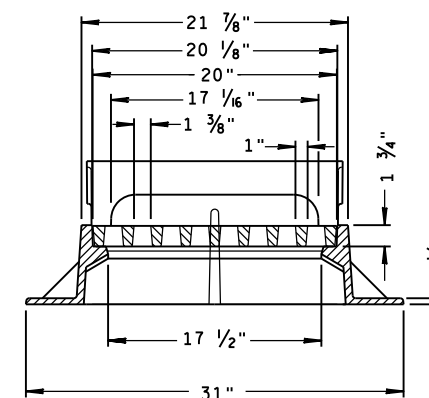
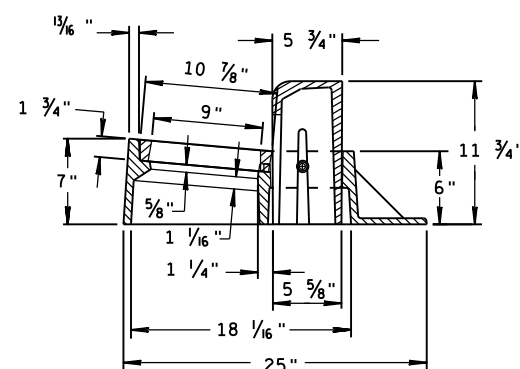
1" DIAGONAL BARS  
WITH 1 1/2" OPENINGS



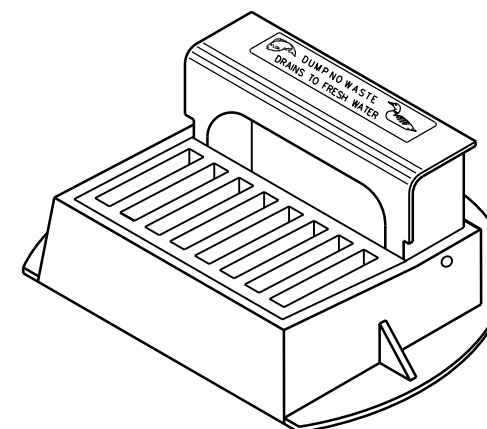
**SPECIAL GRATE FOR  
TYPE "A" COVER**  
(MEASURES 19 3/4" X 17" X 1 1/8")  
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



**TYPE "A"**



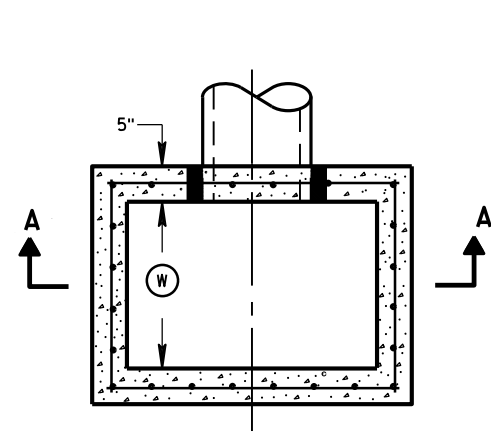
**TYPE "Z"**



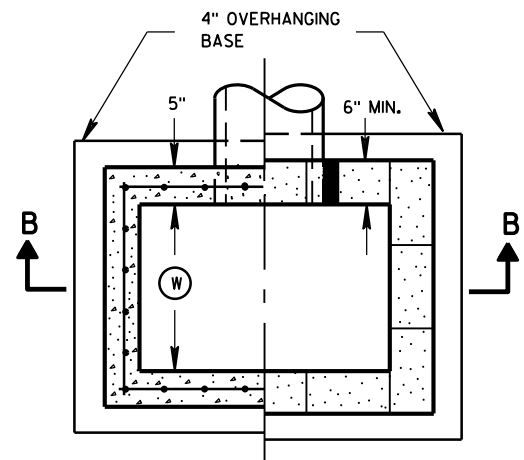
**INLET COVERS  
TYPE A, H, A-S, H-S & Z**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

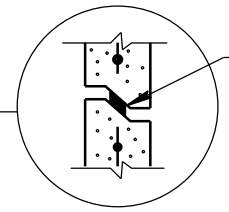
APPROVED  
11-27-13  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS ENGINEER  
101  
ENT  
FHWA



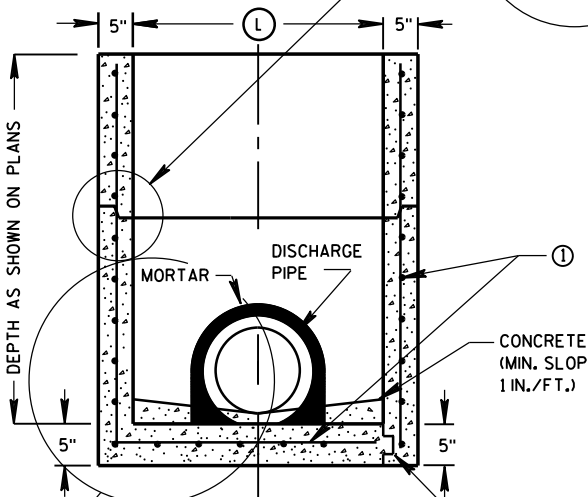
PLAN VIEW



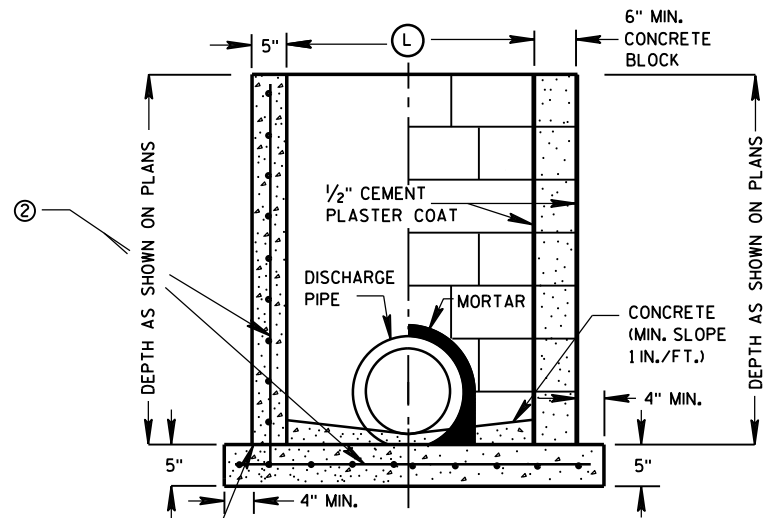
PLAN VIEW



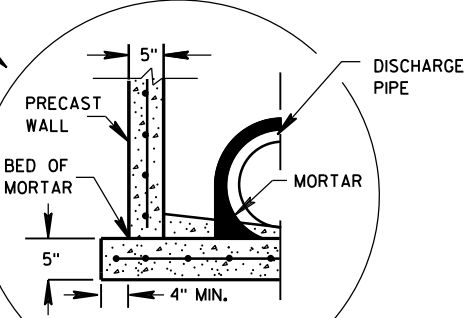
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



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.

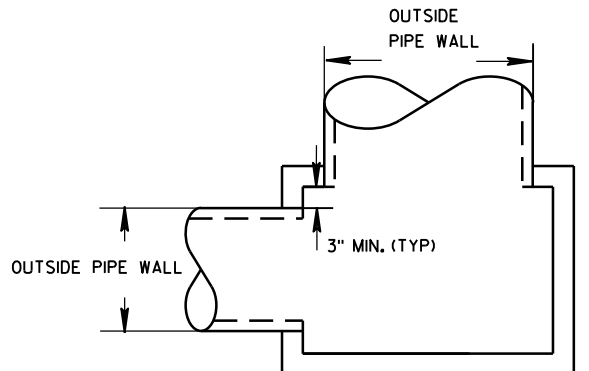
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

| INLET SIZE | WIDTH ① (FT) | INLET COVER TYPE | ALL A'S | ALL B'S | BW | F | ALL H'S | S | T | V | WM |
|------------|--------------|------------------|---------|---------|----|---|---------|---|---|---|----|
|            |              | LENGTH ② (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          |



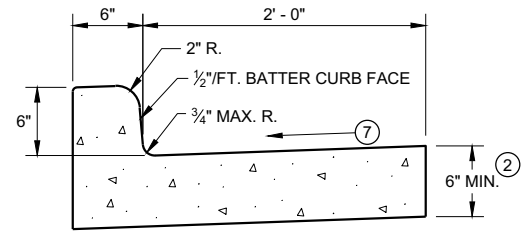
DETAIL "A"

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

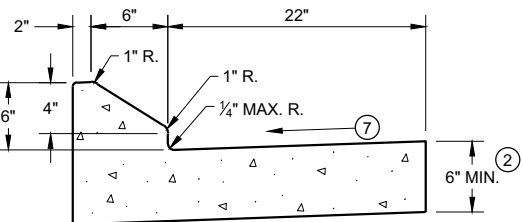
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

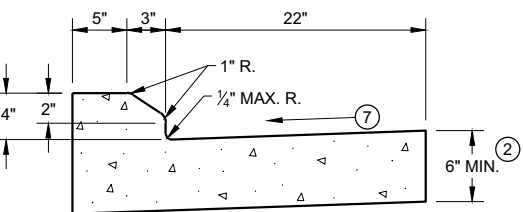
APPROVED  
Sept., 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS D IT  
FHWA UNIT SUPERVIS 102



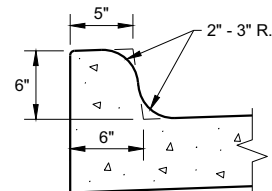
TYPES A<sup>①</sup> & D



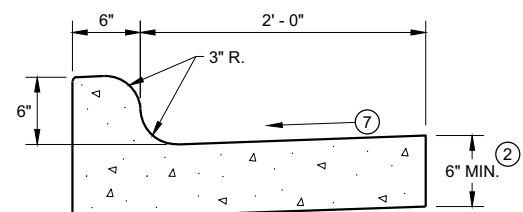
6" SLOPED CURB TYPES G<sup>①</sup> & J



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

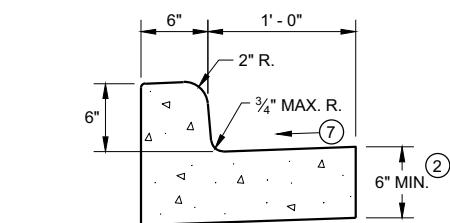


TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)



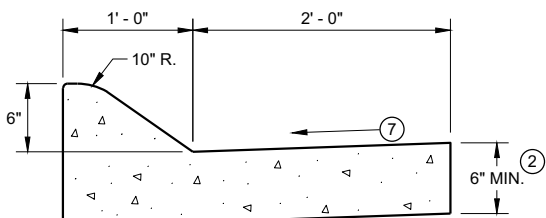
TYPES K<sup>①</sup> & L

CONCRETE CURB AND GUTTER 30"

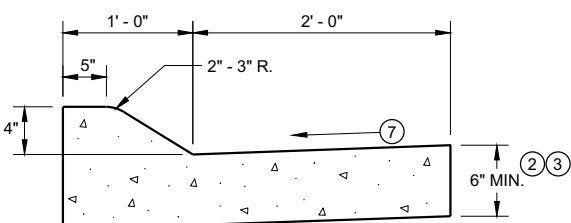


TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 18"

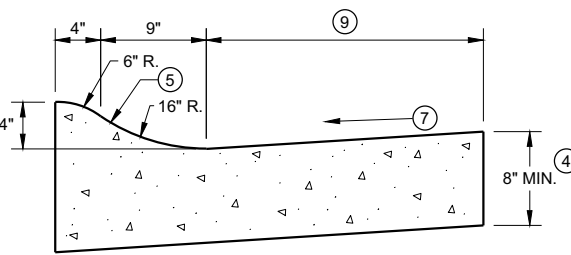


6" SLOPED CURB TYPES A<sup>①</sup> & D



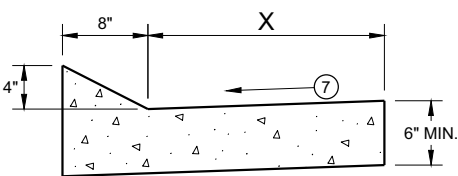
4" SLOPED CURB TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 36"



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

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

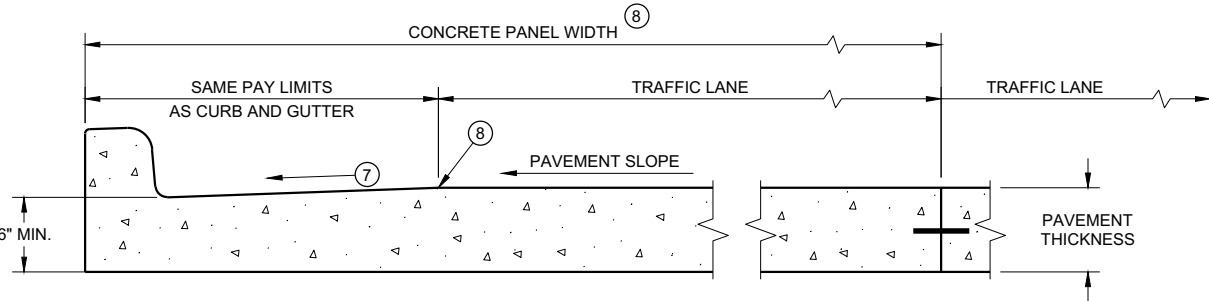


TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB AND GUTTER

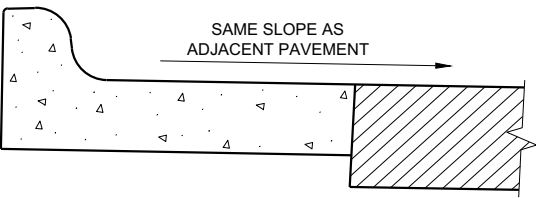
PAVEMENT THICKNESS  
AND MAXIMUM CONCRETE  
PANEL WIDTH TABLE

| 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.

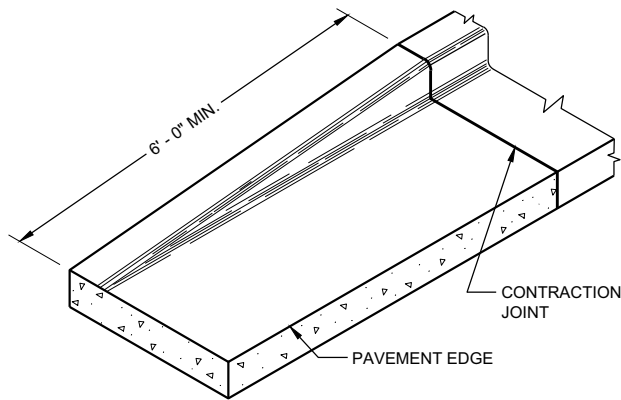
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

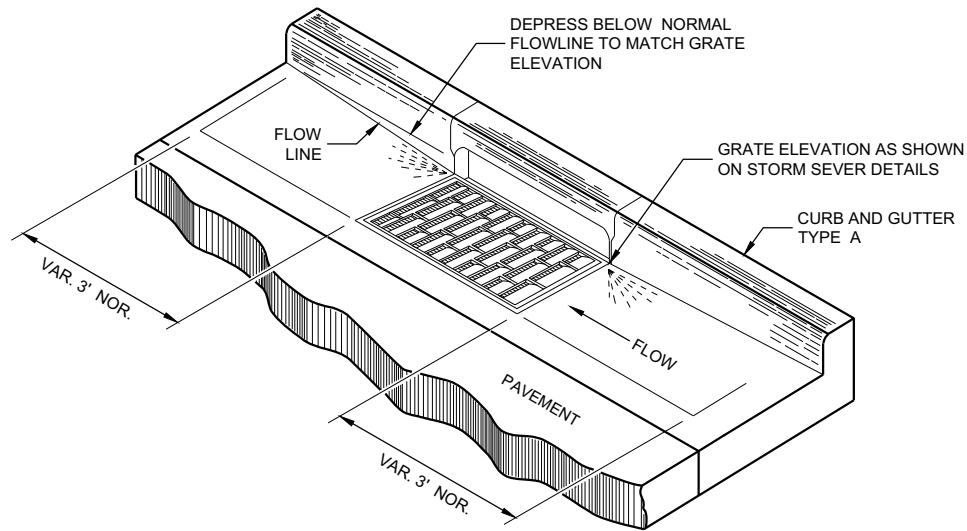
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH 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

CONCRETE CURB AND GUTTER

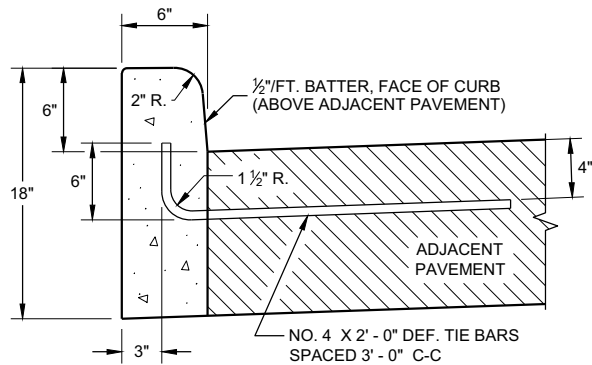
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 103



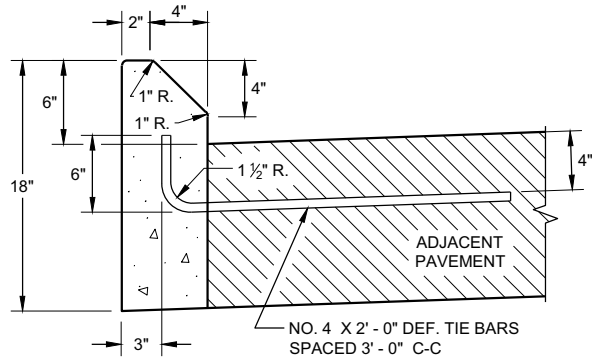
END SECTION CURB AND GUTTER



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

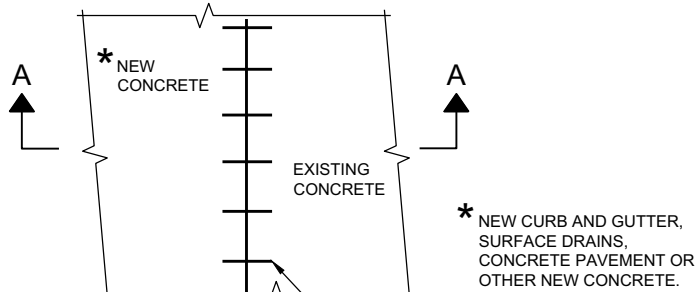


TYPES A<sup>①</sup> & D

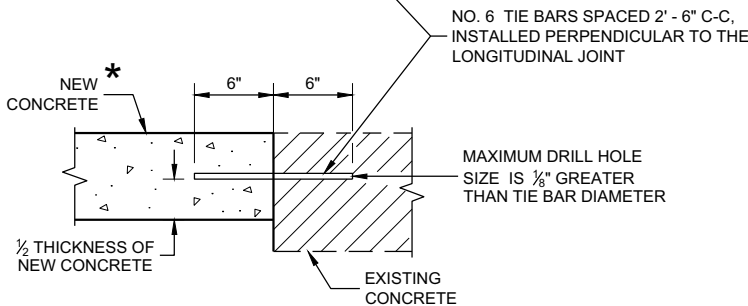


TYPES G<sup>①</sup> & J

CONCRETE CURB



PLAN VIEW



SECTION A - A

TIE BARS DRILLED  
INTO EXISTING PAVEMENT

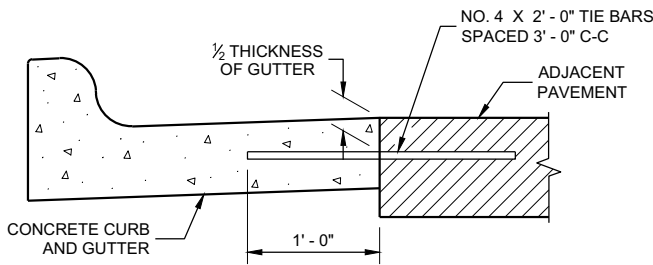
GENERAL NOTES

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

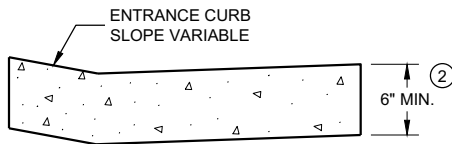
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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<sup>①</sup>



DRIVEWAY ENTRANCE CURB<sup>⑨</sup>  
(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 104

FHWA

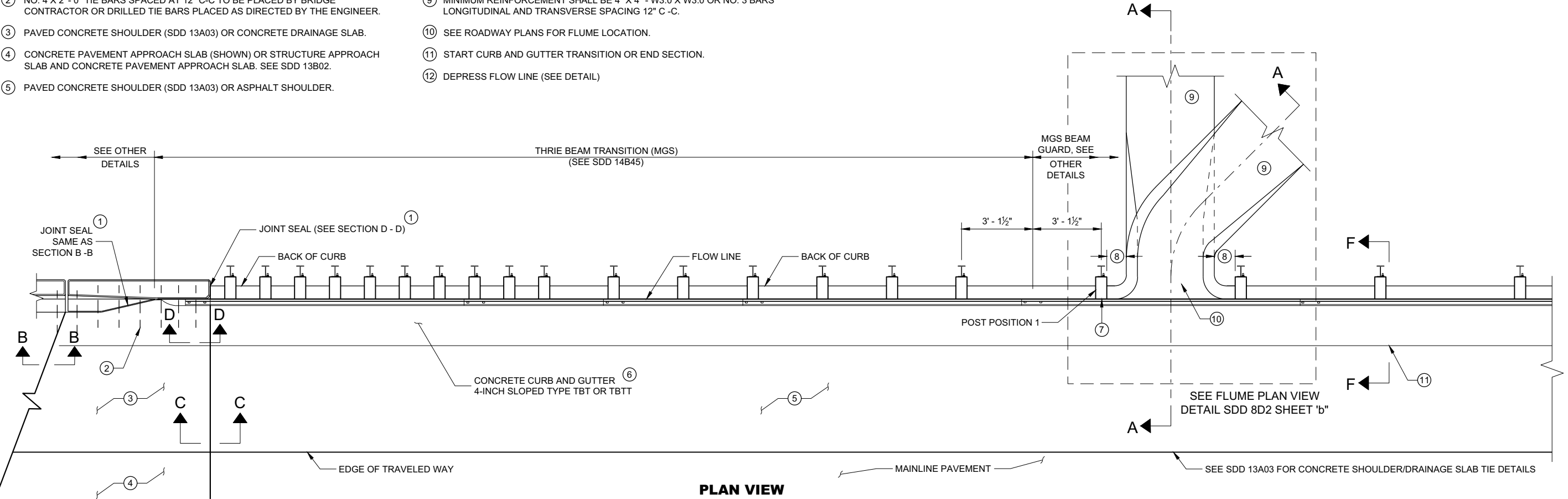
GENERAL NOTES

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.

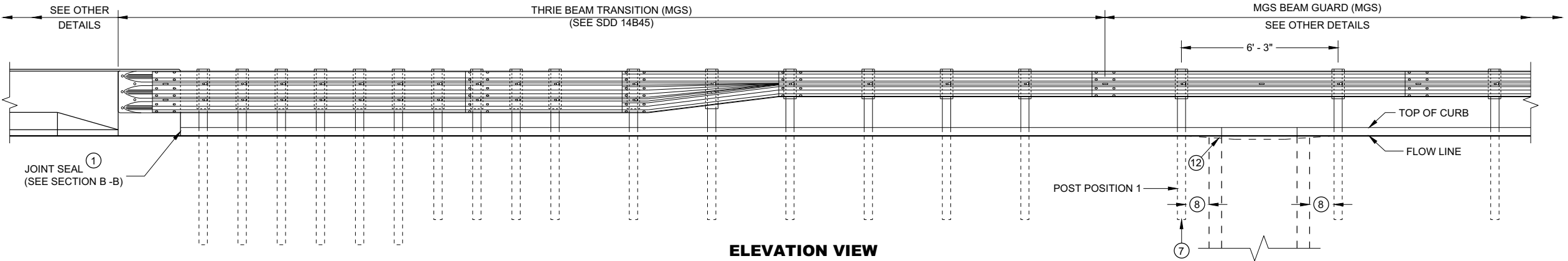
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- 9 MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- 10 SEE ROADWAY PLANS FOR FLUME LOCATION.
- 11 START CURB AND GUTTER TRANSITION OR END SECTION.
- 12 DEPRESS FLOW LINE (SEE DETAIL)



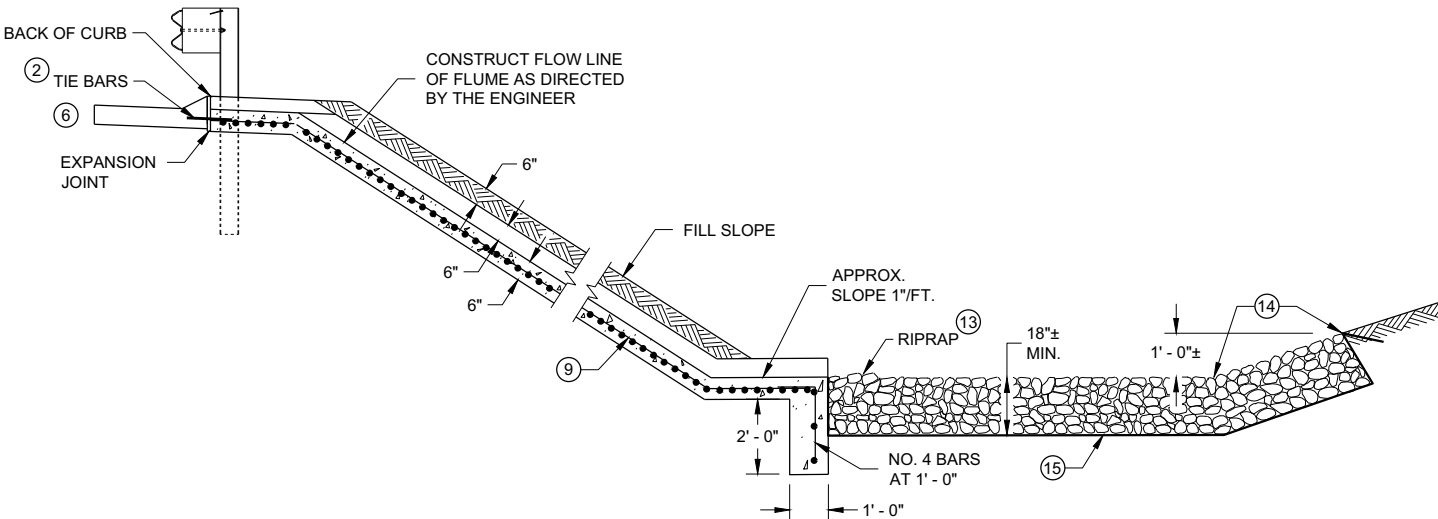
PLAN VIEW



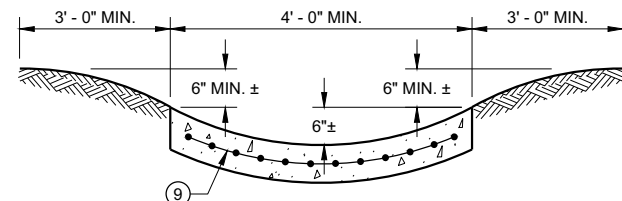
ELEVATION VIEW

CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES

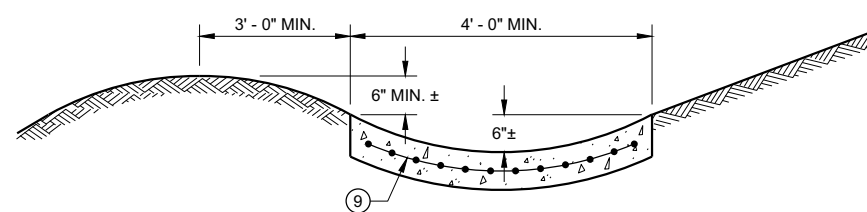
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



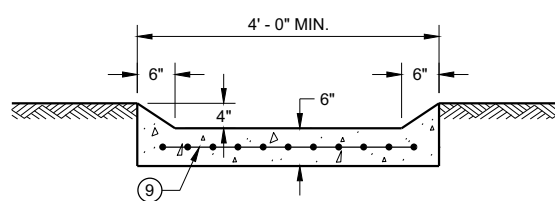
**SECTION A - A**



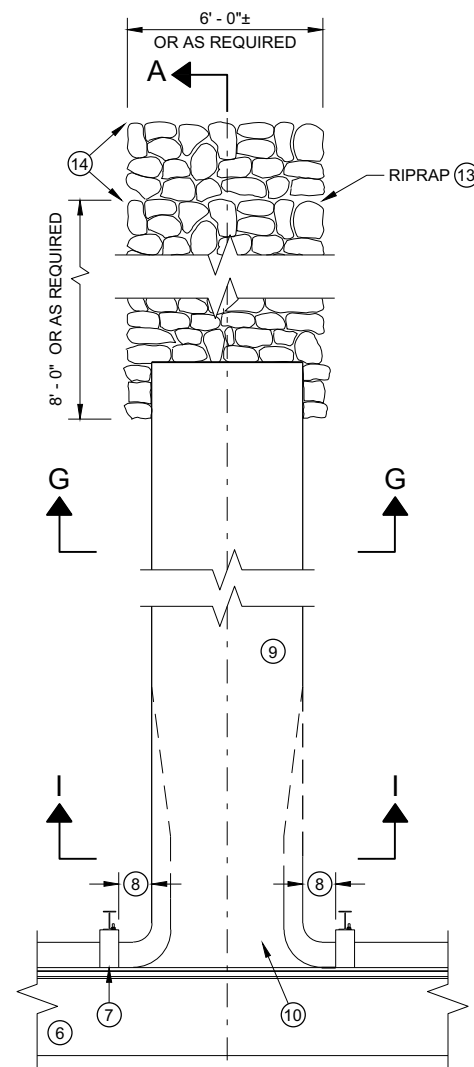
**SECTION G - G**



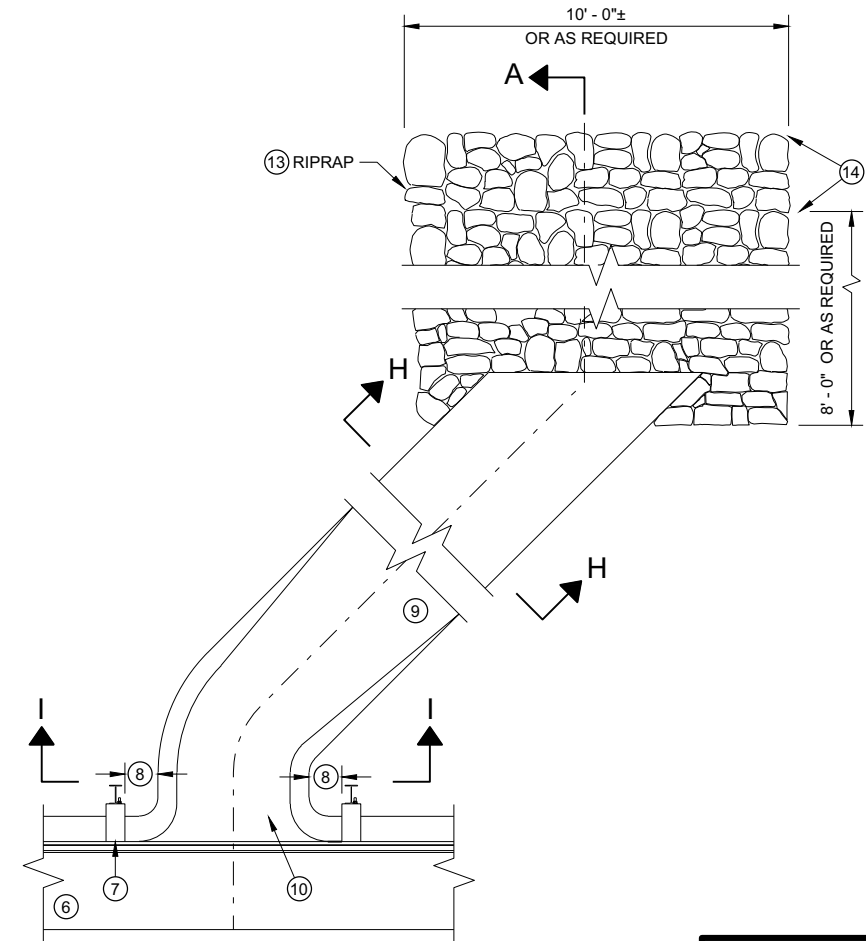
**SECTION H - H**



**SECTION I - I**



**PLAN VIEW  
PERPENDICULAR FLUME**



**PLAN VIEW  
SKEWED FLUME**

**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.

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

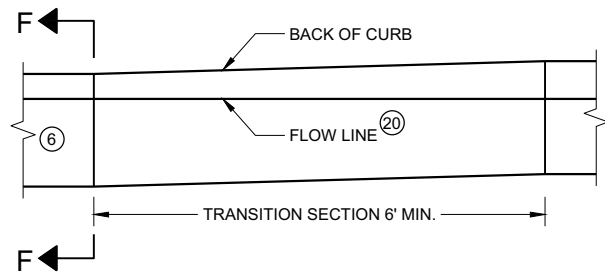
- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.

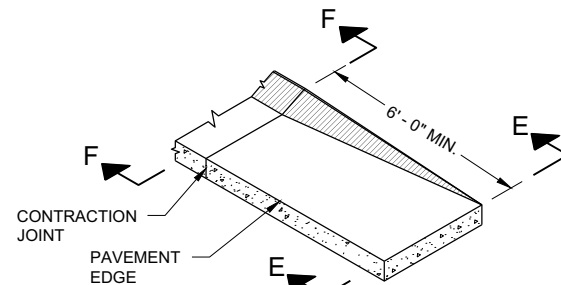
**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 106

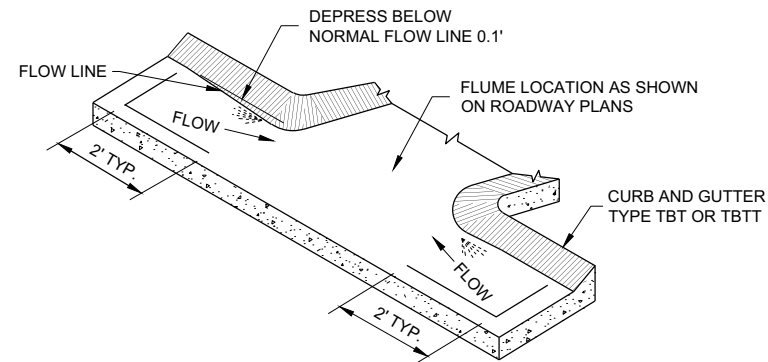




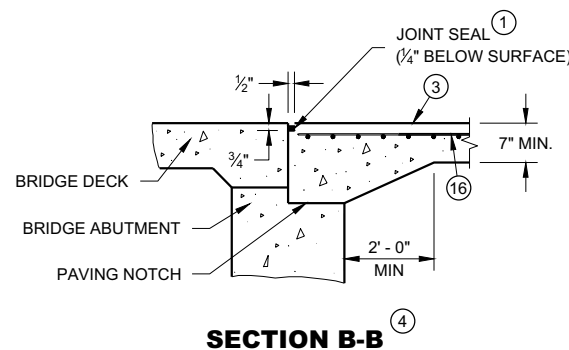
**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



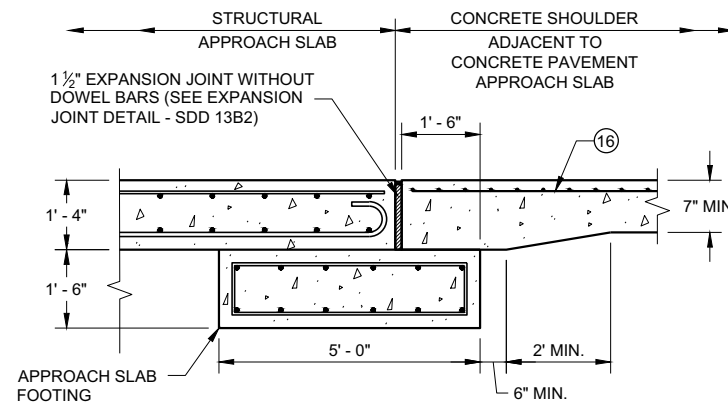
**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



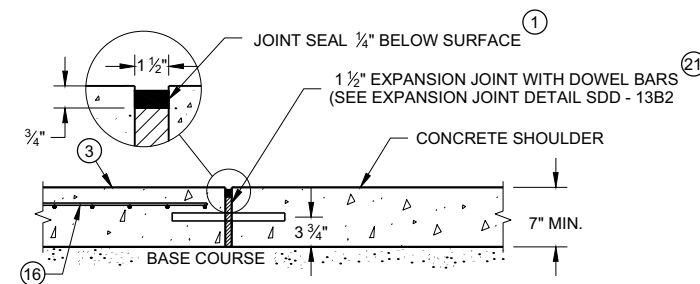
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



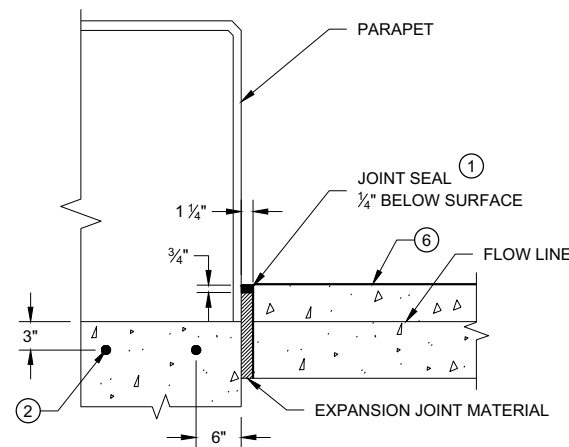
**SECTION B-B**



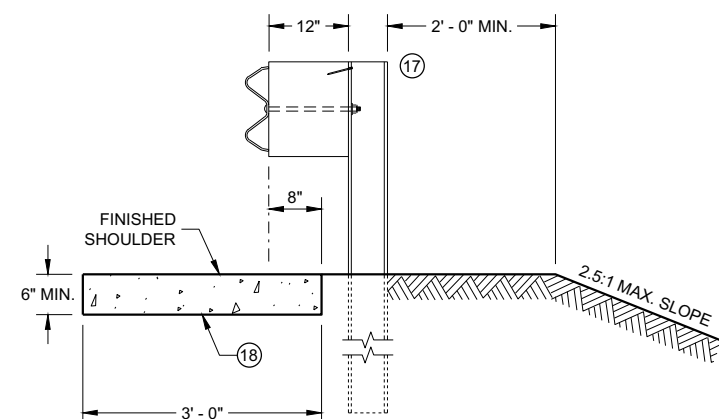
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



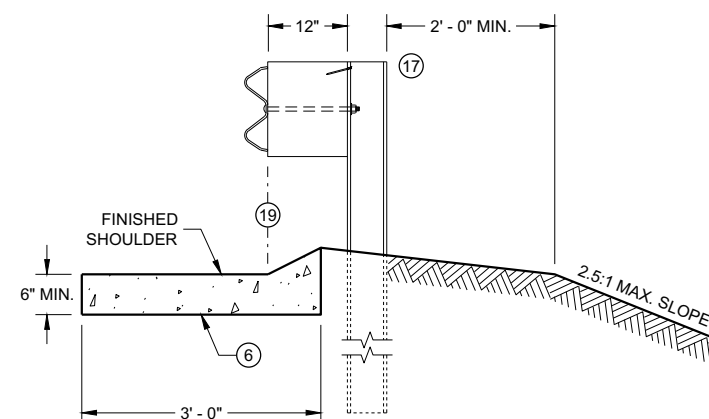
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

## 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.

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

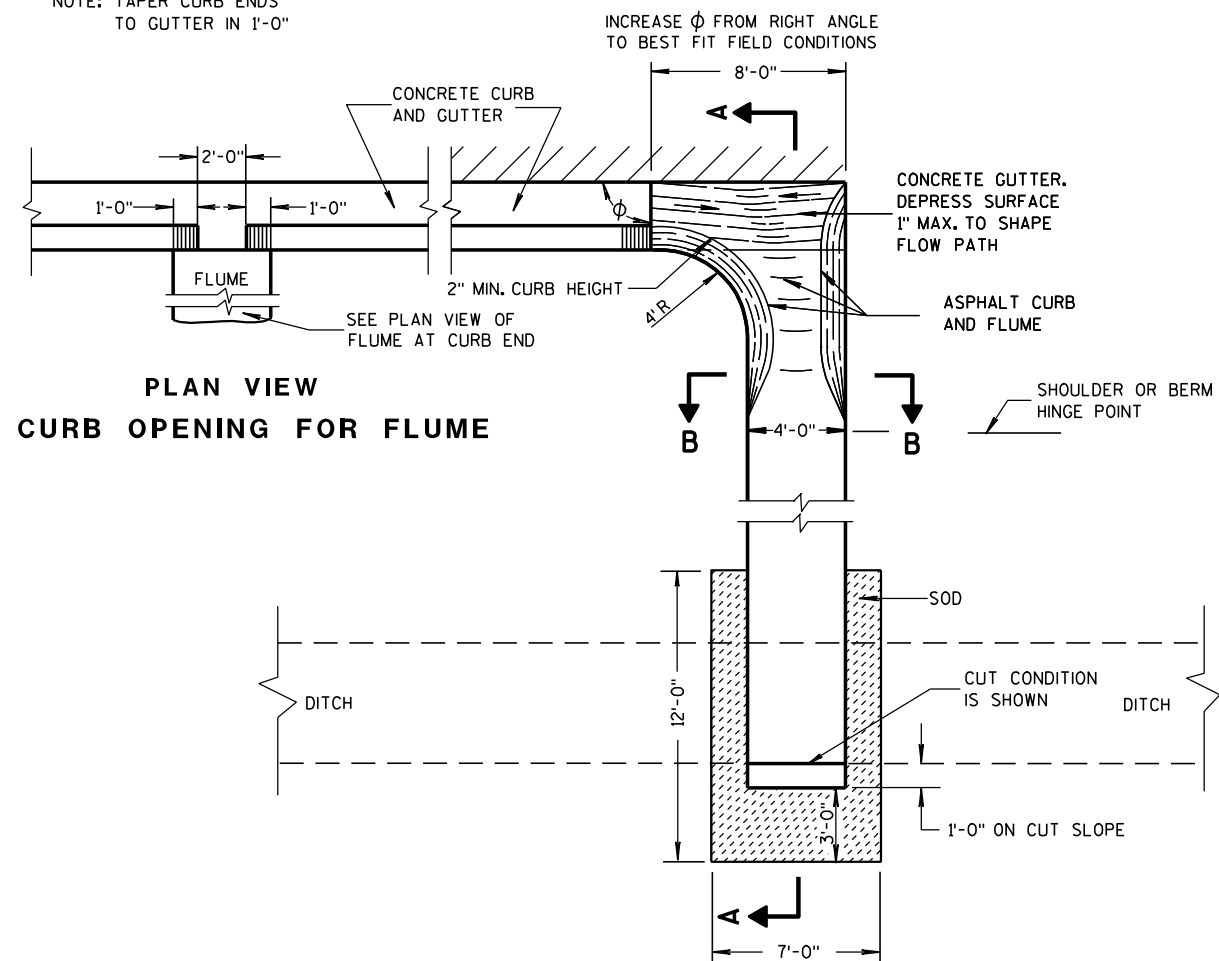
## CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 107  
FHWA

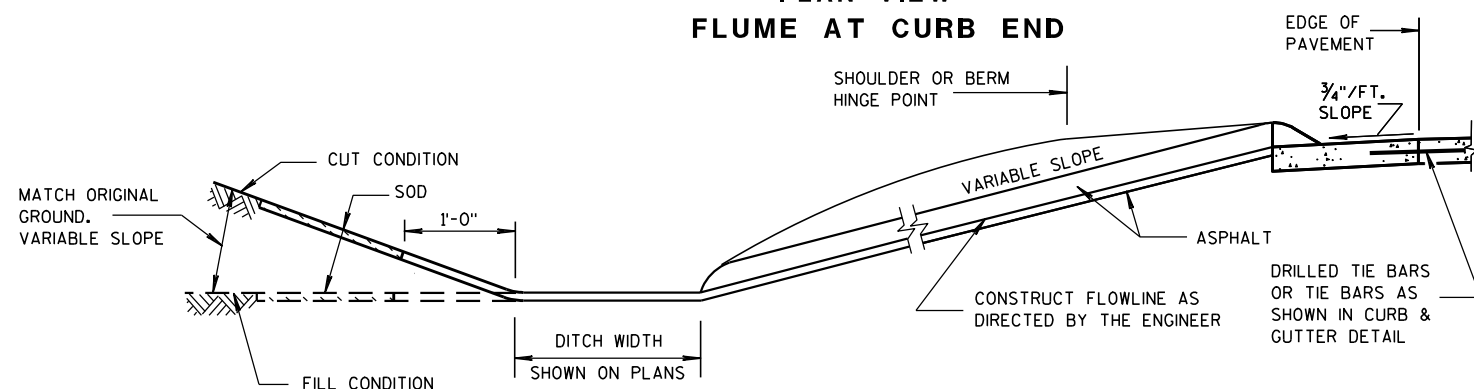
## ASPHALTIC FLUME

NOTE: TAPER CURB ENDS  
TO GUTTER IN 1'-0"

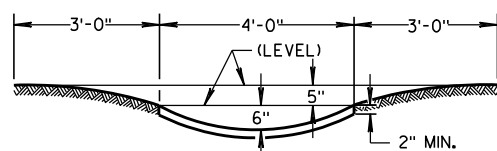


PLAN VIEW  
CURB OPENING FOR FLUME

PLAN VIEW  
FLUME AT CURB END



SECTION A-A



SECTION B-B

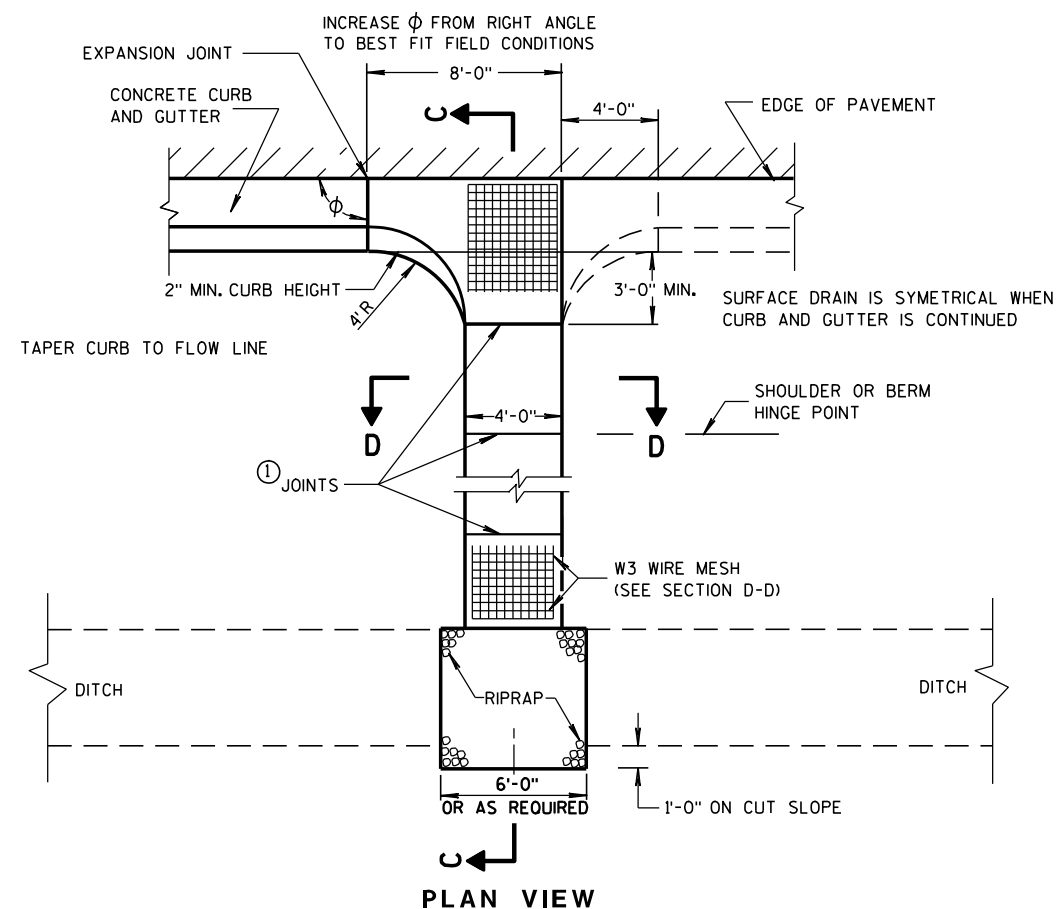
## GENERAL NOTES

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

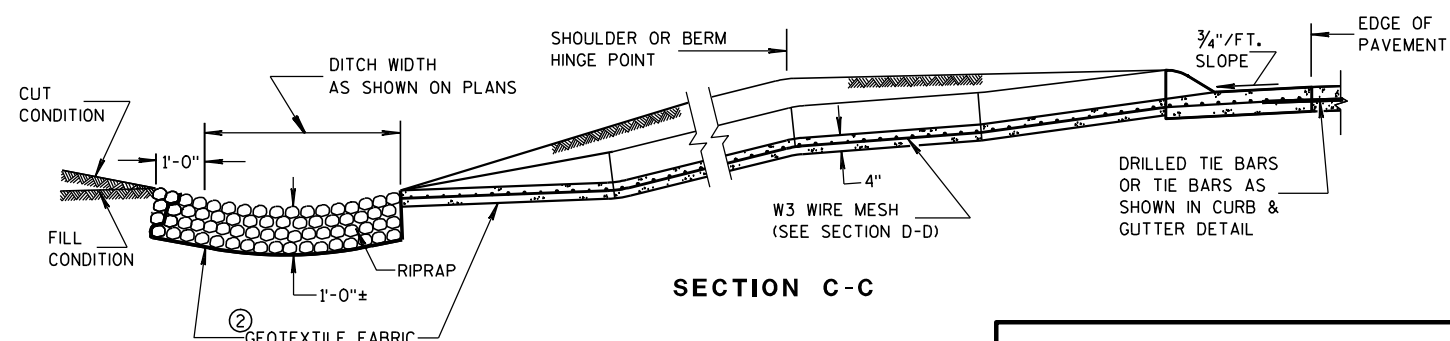
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8" TO 1/4" INCH WIDE BY 1 1/2" INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

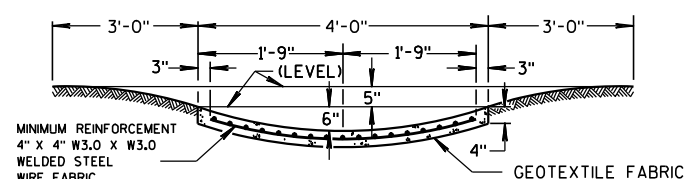
## ③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

## CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
9-4-08 DATE /S/ Jerry H. 7000  
ROADWAY STANDARDS 108  
FHWA ENGINEER





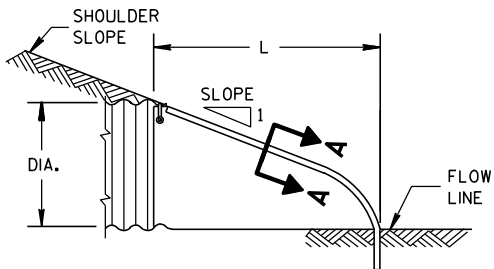
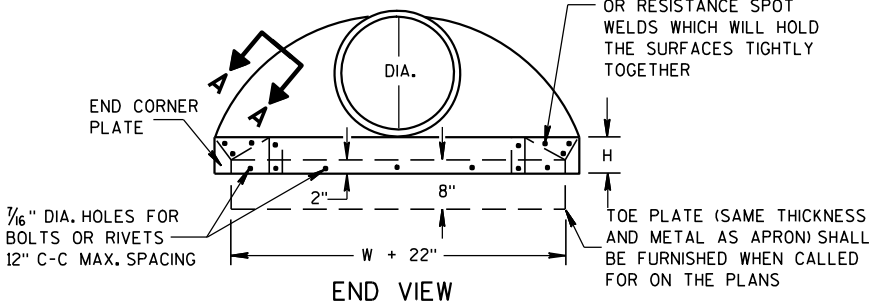
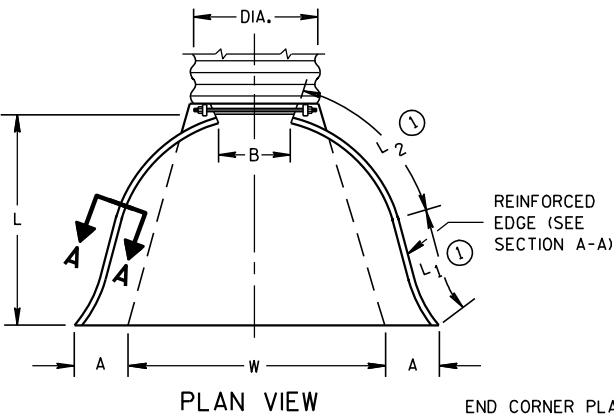
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" 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.



|                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <h1 style="margin: 0;">SILT FENCE</h1>                                                                                                                                                                                                                                                                                                                                                         |
| <h2 style="margin: 0;">STATE OF WISCONSIN</h2> <h3 style="margin: 0;">DEPARTMENT OF TRANSPORTATION</h3>                                                                                                                                                                                                                                                                                        |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>APPROVED</b></p> <p><u>4-29-05</u></p> <p><u>DATE</u></p> </div> <div style="width: 40%;"> <p><u>/S/ Beth Connolly</u></p> <p>CHIEF ROADWAY DEVELOP</p> </div> <div style="width: 25%; text-align: right;"> <p><b>109</b></p> <p>ENGINEER</p> </div> </div> <p style="margin-top: 10px;">FHWA</p> |

| METAL APRON ENDWALLS |                         |       |                     |             |            |                |                     |                     |                  |            |            |
|----------------------|-------------------------|-------|---------------------|-------------|------------|----------------|---------------------|---------------------|------------------|------------|------------|
| PIPE DIA.<br>(IN.)   | MIN. THICK.<br>(Inches) |       | DIMENSIONS (Inches) |             |            |                |                     |                     | APPROX.<br>SLOPE | BODY       |            |
|                      | STEEL                   | ALUM. | A<br>(±1")          | B<br>(MAX.) | H<br>(±1") | L<br>(±1 1/2") | L <sub>1</sub><br>① | L <sub>2</sub><br>① |                  |            | W<br>(±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.      |

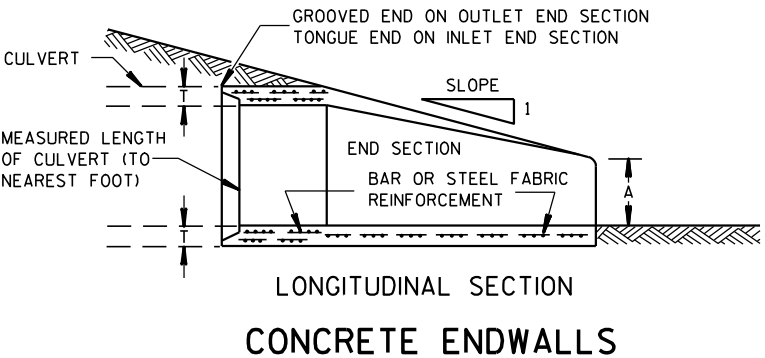
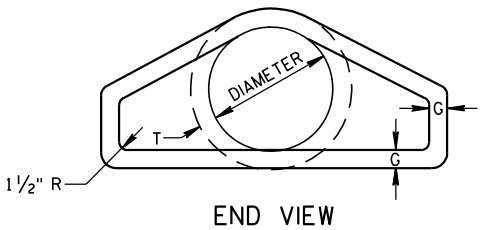
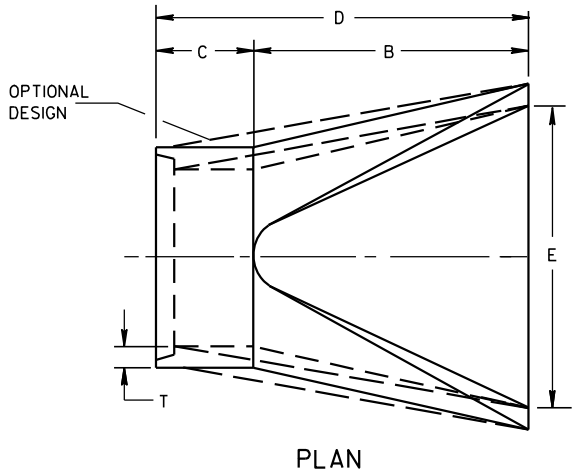
\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES



SIDE ELEVATION  
METAL ENDWALLS

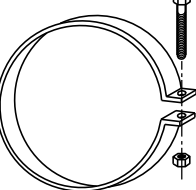
| REINFORCED CONCRETE APRON ENDWALLS |                               |                                |                                |                                    |                                     |     |                               |                                    |
|------------------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------------|-------------------------------------|-----|-------------------------------|------------------------------------|
| PIPE DIA.<br>(IN.)                 | DIMENSIONS (Inches)           |                                |                                |                                    |                                     |     |                               | APPROX.<br>SLOPE                   |
|                                    | T                             | A                              | B                              | C                                  | D                                   | E   | G                             |                                    |
| 12                                 | 2                             | 4                              | 24                             | 48 <sup>1</sup> / <sub>8</sub>     | 72 <sup>1</sup> / <sub>8</sub>      | 24  | 2                             | 3 to 1                             |
| 15                                 | 2 <sup>1</sup> / <sub>4</sub> | 6                              | 27                             | 46                                 | 73                                  | 30  | 2 <sup>1</sup> / <sub>4</sub> | 3 to 1                             |
| 18                                 | 2 <sup>1</sup> / <sub>2</sub> | 9                              | 27                             | 46                                 | 73                                  | 36  | 2 <sup>1</sup> / <sub>2</sub> | 3 to 1                             |
| 21                                 | 2 <sup>3</sup> / <sub>4</sub> | 9                              | 36                             | 37 <sup>1</sup> / <sub>2</sub>     | 73 <sup>1</sup> / <sub>2</sub>      | 42  | 2 <sup>3</sup> / <sub>4</sub> | 3 to 1                             |
| 24                                 | 3                             | 9 <sup>1</sup> / <sub>2</sub>  | 43 <sup>1</sup> / <sub>2</sub> | 30                                 | 73 <sup>1</sup> / <sub>2</sub>      | 48  | 3                             | 3 to 1                             |
| 27                                 | 3 <sup>1</sup> / <sub>4</sub> | 10 <sup>1</sup> / <sub>2</sub> | 49 <sup>1</sup> / <sub>2</sub> | 24                                 | 73 <sup>1</sup> / <sub>2</sub>      | 54  | 3 <sup>1</sup> / <sub>4</sub> | 3 to 1                             |
| 30                                 | 3 <sup>1</sup> / <sub>2</sub> | 12                             | 54                             | 19 <sup>3</sup> / <sub>4</sub>     | 73 <sup>1</sup> / <sub>2</sub>      | 60  | 3 <sup>1</sup> / <sub>2</sub> | 3 to 1                             |
| 36                                 | 4                             | 15                             | 63                             | 34 <sup>3</sup> / <sub>4</sub>     | 97 <sup>3</sup> / <sub>4</sub>      | 72  | 4                             | 3 to 1                             |
| 42                                 | 4 <sup>1</sup> / <sub>2</sub> | 21                             | 63                             | 35                                 | 98                                  | 78  | 4 <sup>1</sup> / <sub>2</sub> | 3 to 1                             |
| 48                                 | 5                             | 24                             | 72                             | 26                                 | 98                                  | 84  | 5                             | 3 to 1                             |
| 54                                 | 5 <sup>1</sup> / <sub>2</sub> | 27                             | 65                             | 33 <sup>1</sup> / <sub>4</sub> -35 | 98 <sup>1</sup> / <sub>4</sub> -100 | 90  | 5 <sup>1</sup> / <sub>2</sub> | 2 <sup>1</sup> / <sub>2</sub> to 1 |
| 60                                 | 6                             | 30-35                          | 60                             | 39                                 | 99                                  | 96  | 5                             | 2 to 1                             |
| 66                                 | 6 <sup>1</sup> / <sub>2</sub> | 24-30                          | 72-78                          | 21-27                              | 99                                  | 102 | 5 <sup>1</sup> / <sub>2</sub> | 2 to 1                             |
| 72                                 | 7                             | 24-36                          | 78                             | 21                                 | 99                                  | 108 | 6                             | 2 to 1                             |
| 78                                 | 7 <sup>1</sup> / <sub>2</sub> | 24-36                          | 78                             | 21                                 | 99                                  | 114 | 6 <sup>1</sup> / <sub>2</sub> | 2 to 1                             |
| 84                                 | 8                             | 36                             | 90 <sup>1</sup> / <sub>2</sub> | 21                                 | 111 <sup>1</sup> / <sub>2</sub>     | 120 | 6 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>2</sub> to 1 |
| 90                                 | 8 <sup>1</sup> / <sub>2</sub> | 41                             | 87 <sup>1</sup> / <sub>2</sub> | 24                                 | 111 <sup>1</sup> / <sub>2</sub>     | 132 | 6 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>2</sub> to 1 |

\*MINIMUM  
\*\*MAXIMUM

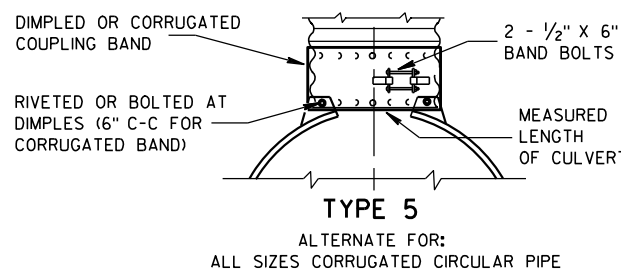
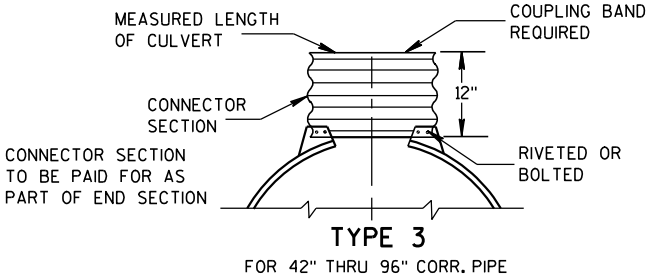
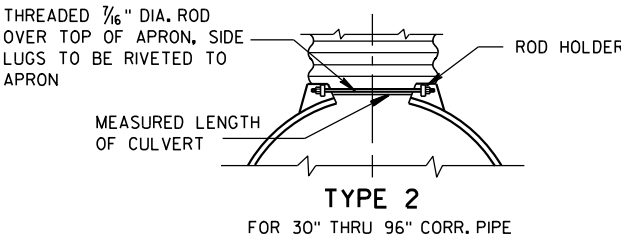
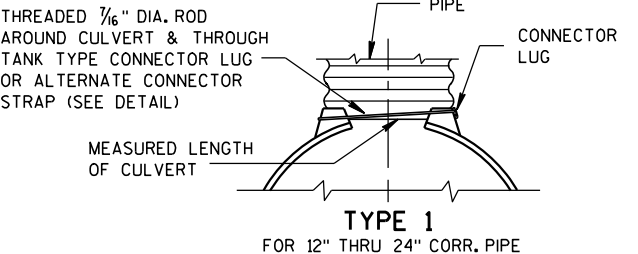


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

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



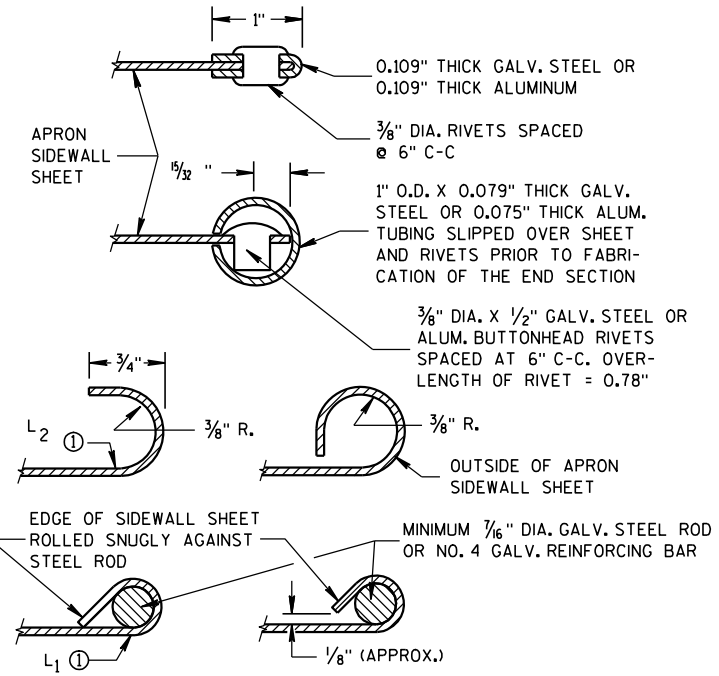
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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 VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

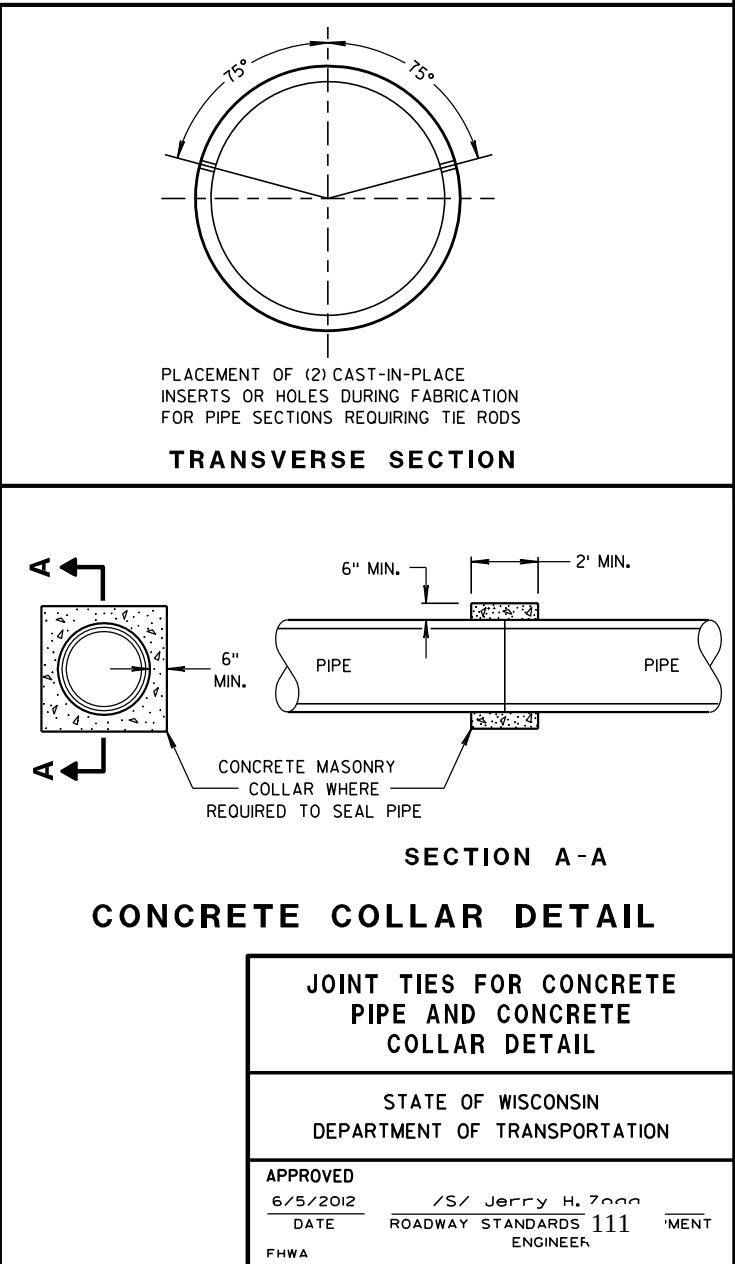
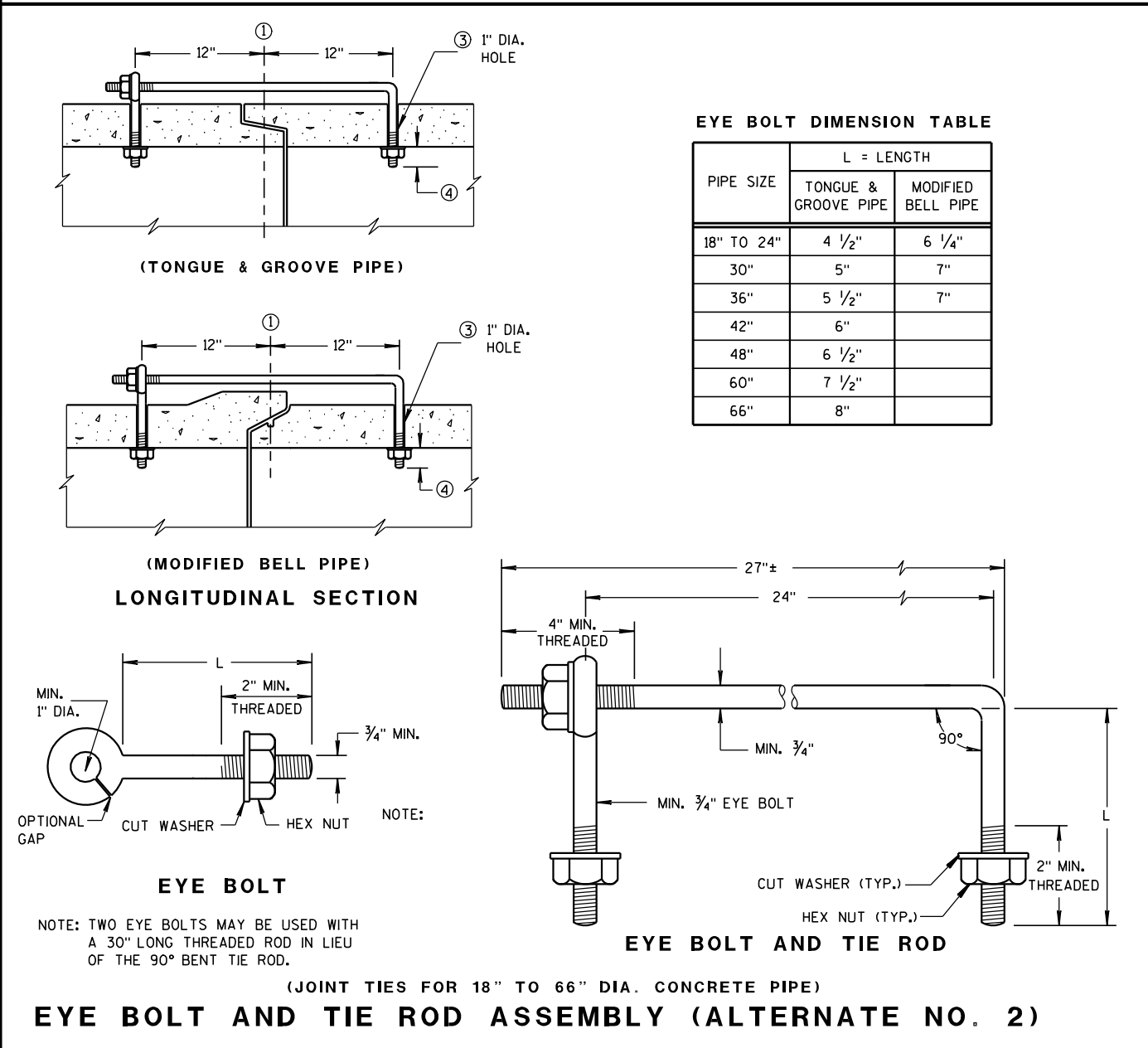
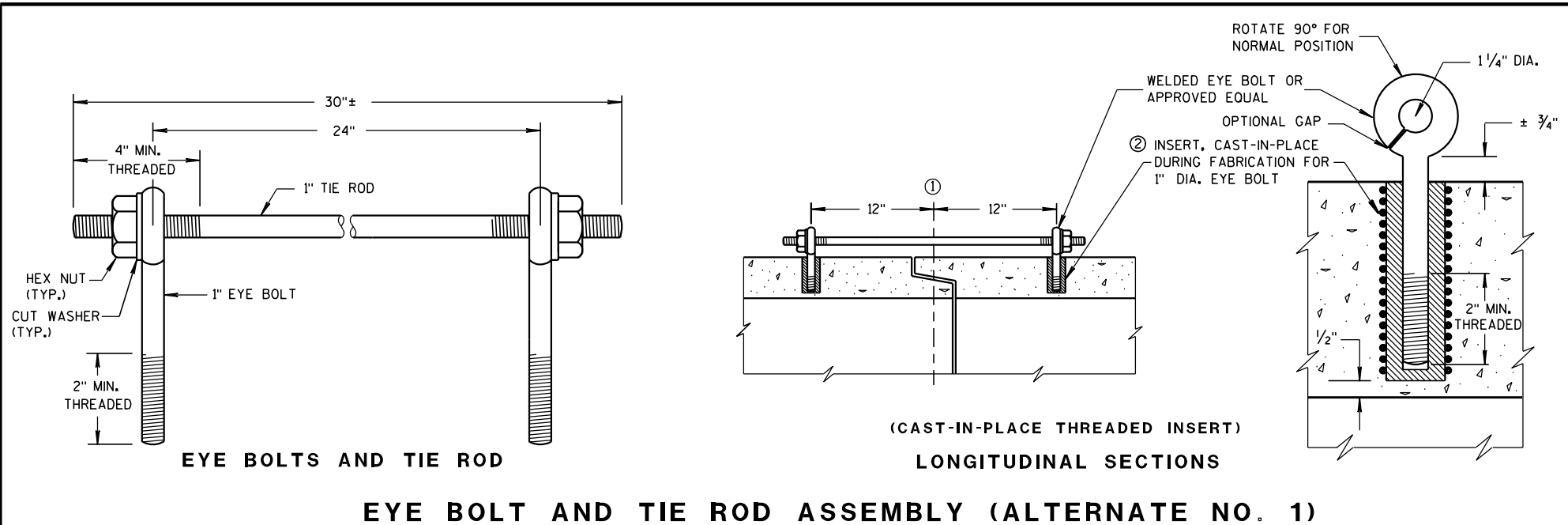
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

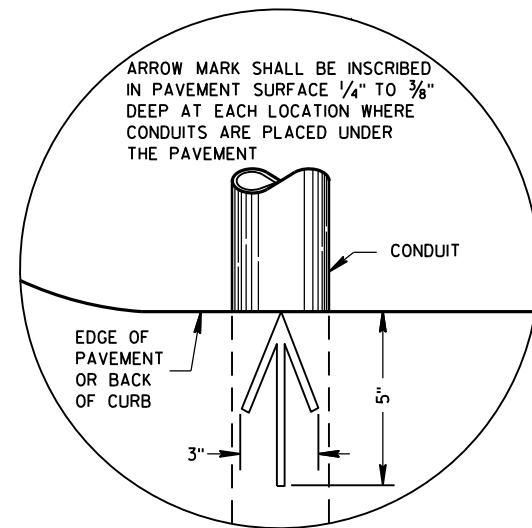
LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. 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.

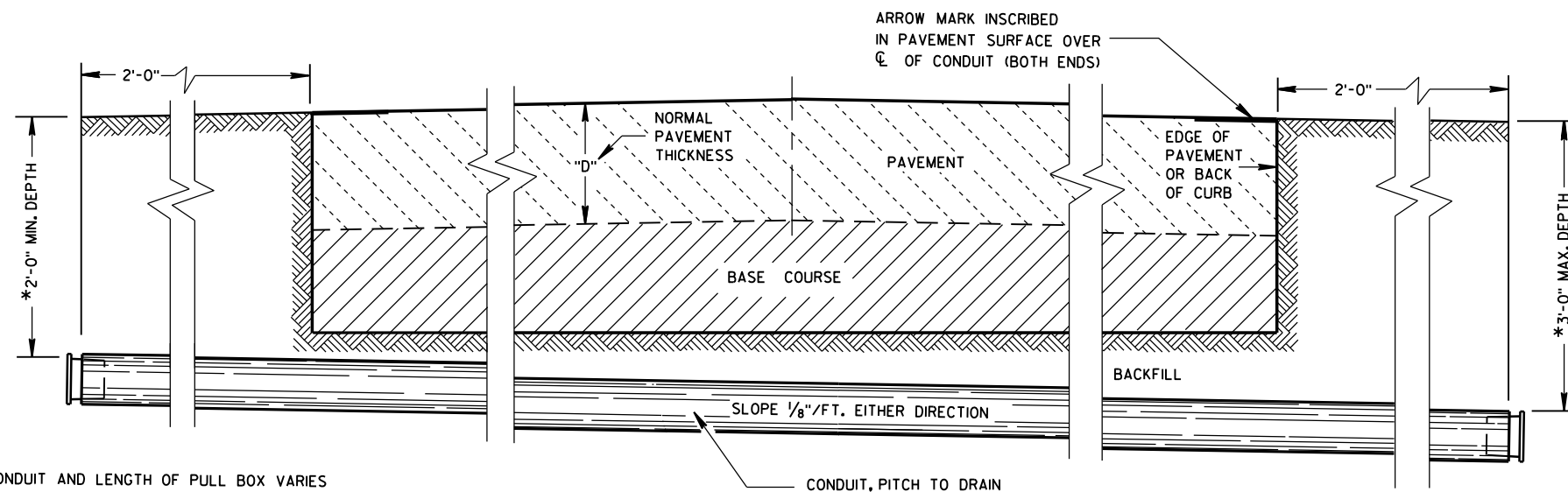
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

|                                                    |                                                |     |      |
|----------------------------------------------------|------------------------------------------------|-----|------|
| APRON ENDWALLS FOR CULVERT PIPE                    |                                                |     |      |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                                |     |      |
| APPROVED<br>11/30/94<br>DATE                       | /S/ Rory L. Rhinehart<br>CHIEF ROADWAY DEVELOP | 110 | NEER |
| FHWA                                               |                                                |     |      |





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 EMERSION 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.

## CONDUIT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March, 2017 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL 112  
FHWA

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

| DIMENSION<br>IN INCHES    |   | CORRUGATED STEEL PIPE |        |        |        |        |        |        |        |        |
|---------------------------|---|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| PIPE DIAMETER<br>(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 |
| WEIGHT IN POUNDS *        |   |                       |        |        |        |        |        |        |        |        |
| 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.

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.

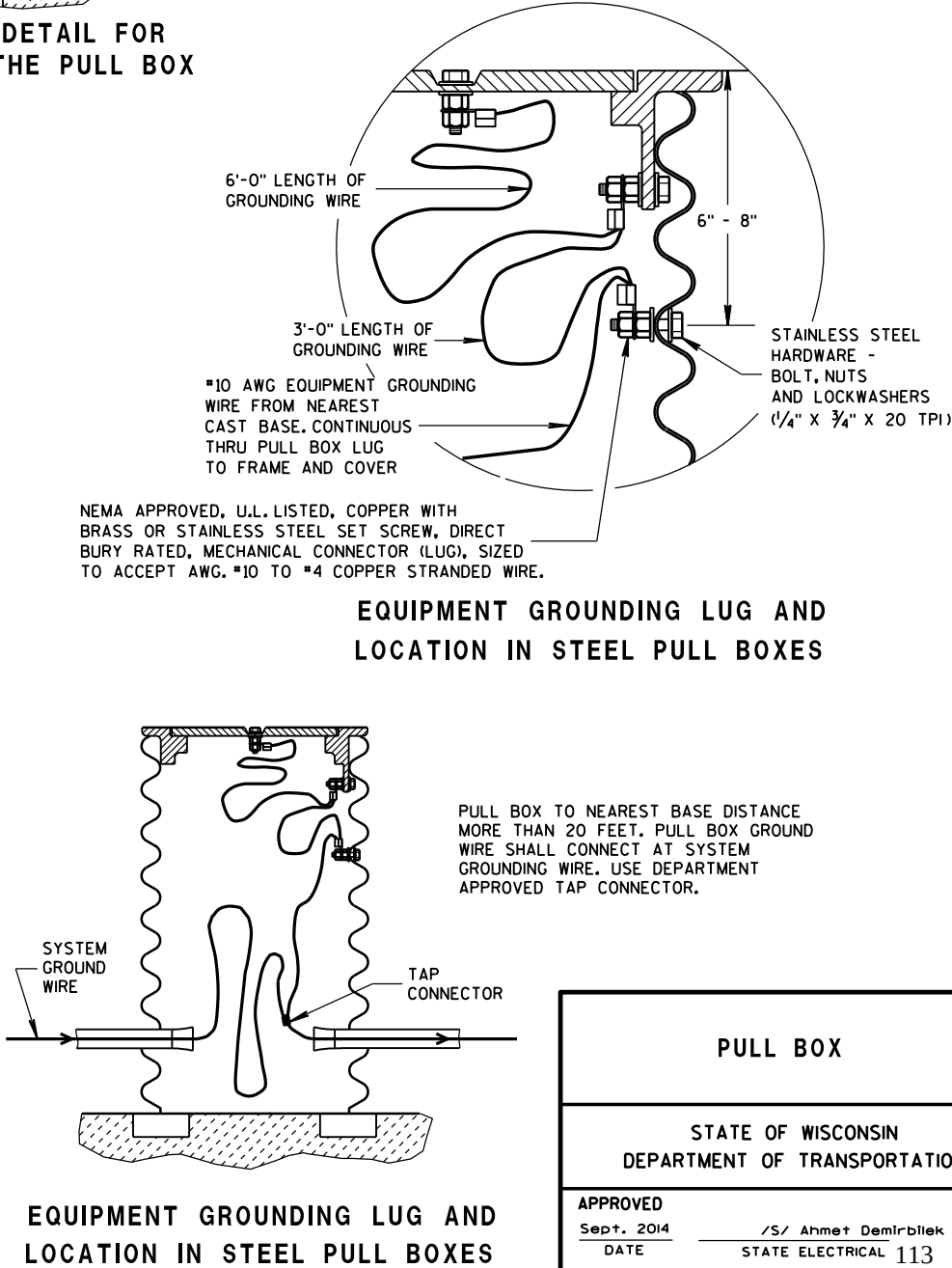
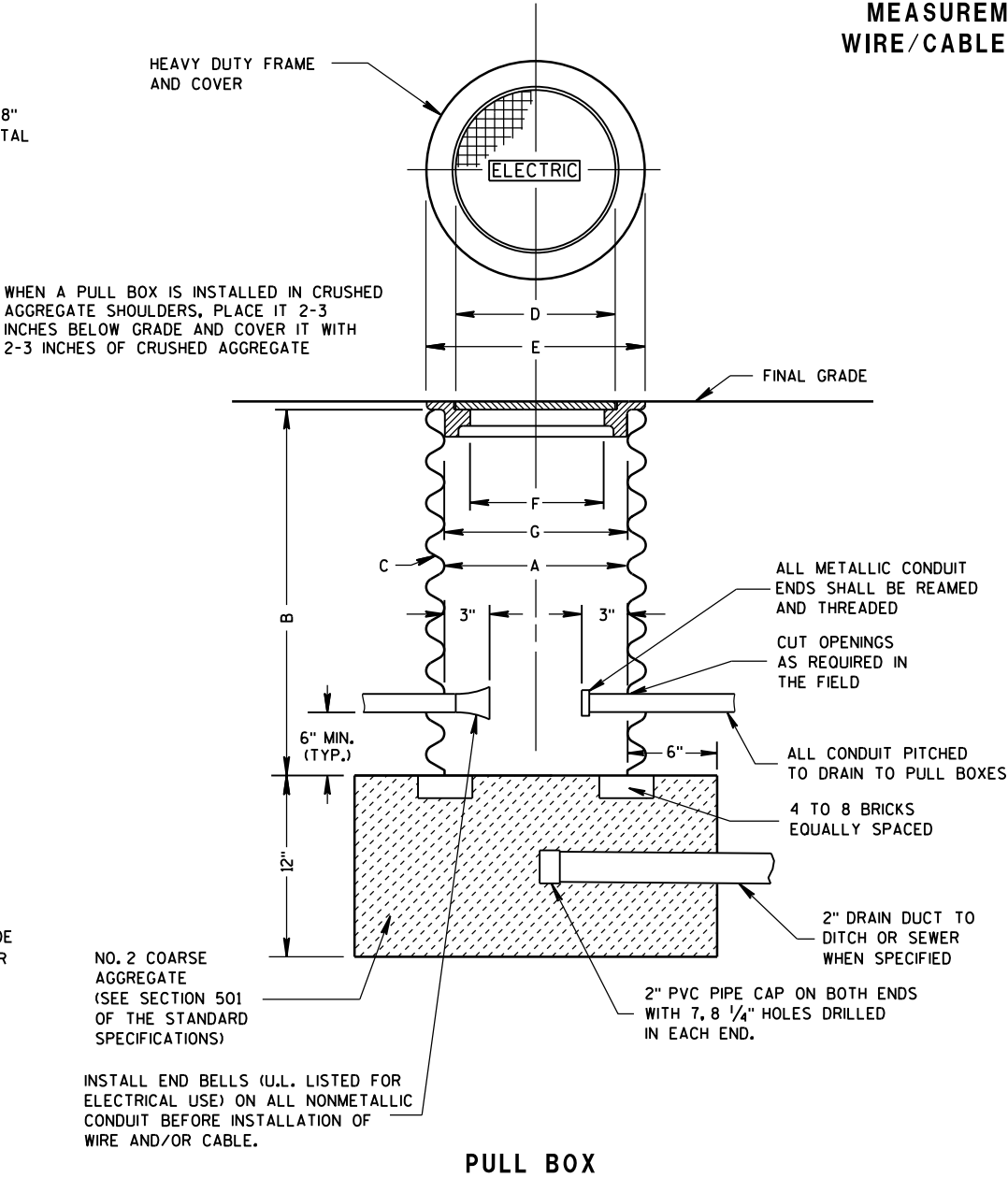
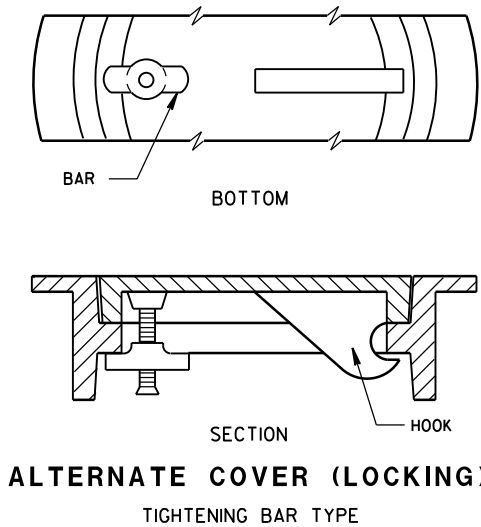
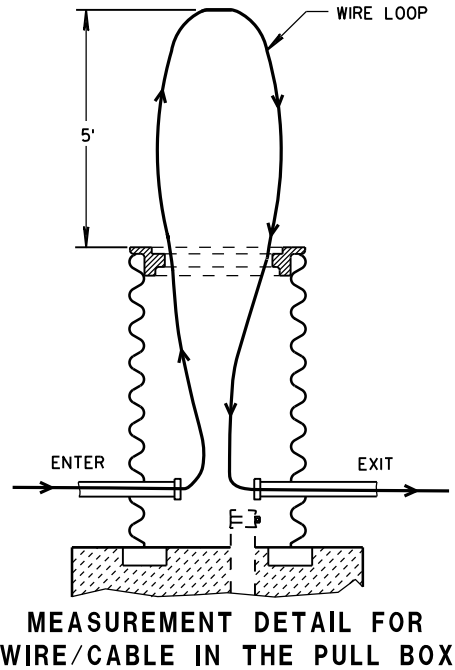
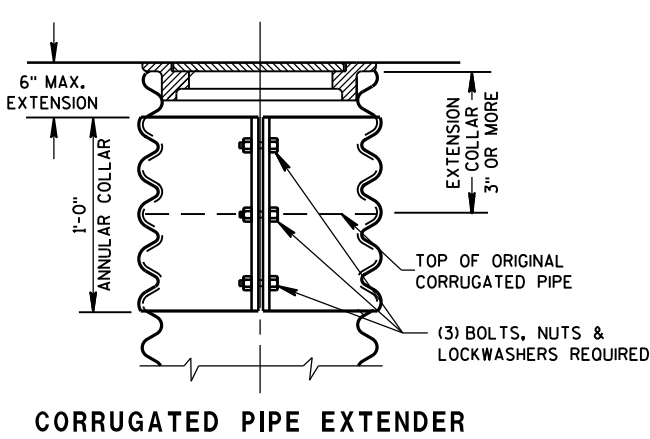
ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

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.



|                                                    |                                              |
|----------------------------------------------------|----------------------------------------------|
| PULL BOX                                           |                                              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                              |
| APPROVED<br>Sept. 2014<br>DATE                     | /S/ Ahmet Demirbilek<br>STATE ELECTRICAL 113 |
| FHWA                                               |                                              |

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

| DIMENSION<br>IN INCHES          |   | NON-CONDUCTIVE<br>PULL BOX |        |
|---------------------------------|---|----------------------------|--------|
| BOX DIAMETER **<br>(INSIDE)     | A | 24                         | 24     |
| BOX OVERALL<br>OUTSIDE DIAMETER | B | 27                         | 27     |
| BOX LENGTH                      | C | 36                         | 42     |
| FRAME OPENING                   | D | 22 1/2                     | 22 1/2 |
| WEIGHT IN POUNDS *              |   |                            |        |
| COVER                           |   | 50                         | 50     |
| BOX ONLY                        |   | 75                         | 85     |

\* THE ACTUAL WEIGHT OF THE COVER OR BOX ONLY MAY VARY NOT TO EXCEED 100 LBS INDIVIDUALLY.

\*\* DIAMETER VARIES FROM TOP TO BOTTOM WITH THE DIAMETER LARGER AT THE BOTTOM TO PREVENT FROST HEAVE

## GENERAL NOTES

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

ALL BOXES, FRAMES AND COVERS SHALL BE SUITABLE FOR TIER 15 LOADING AS SPECIFIED IN ANSI/SCTE 77.

PROVIDE AN OPENING FOR TOOL ASSISTED COVER REMOVAL NOT LARGE ENOUGH TO PERMIT PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER

ENSURE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5 AND VERTICAL SURFACE DISCONTINUITIES LESS THAN 1/4".

COVER SHALL BE MAGNETICALLY LOCATABLE.

BOXES AND EXTENSIONS ARE TRIMMABLE FOR CUSTOM LENGTHS. TRIMMED PIECES SHALL MAINTAIN A UNIFORM LENGTH.

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".

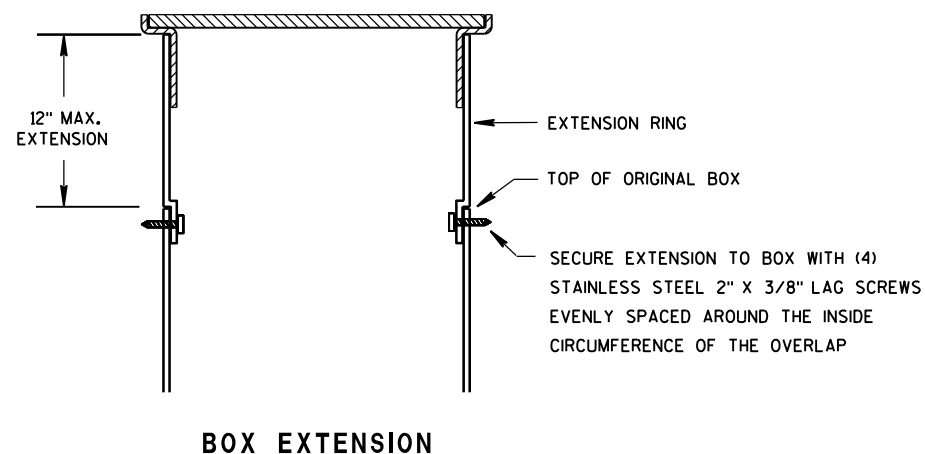
THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

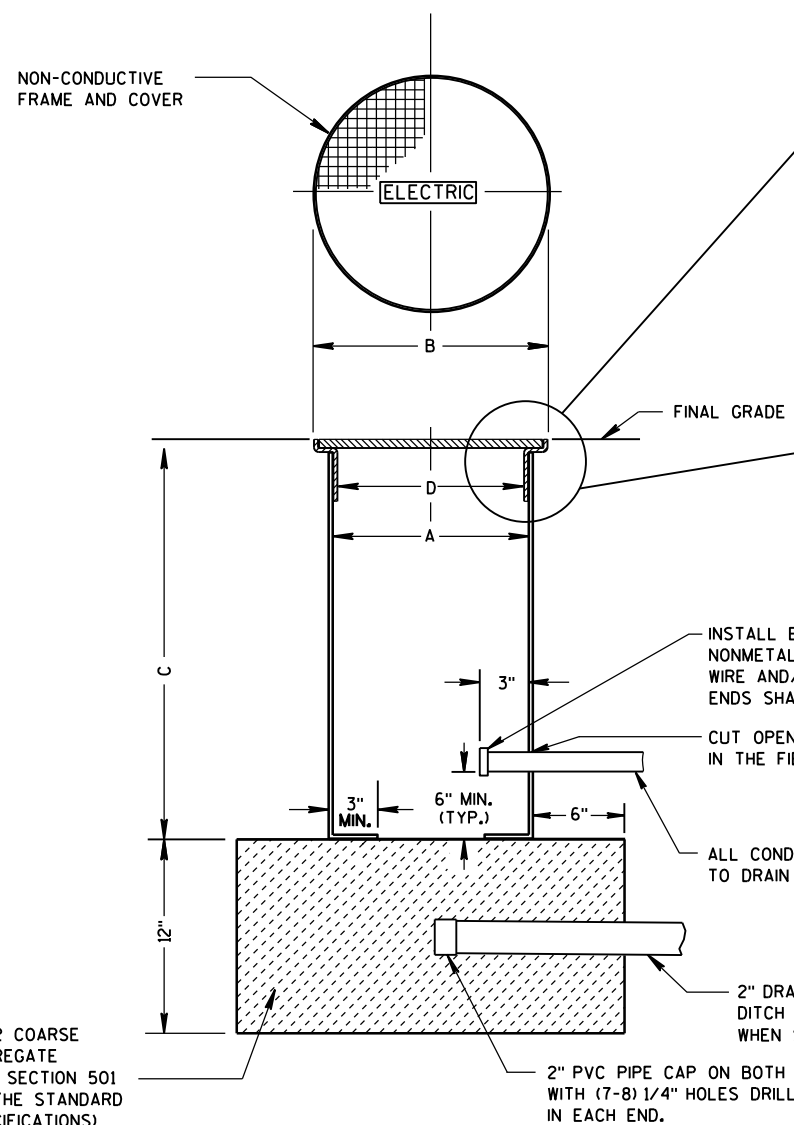
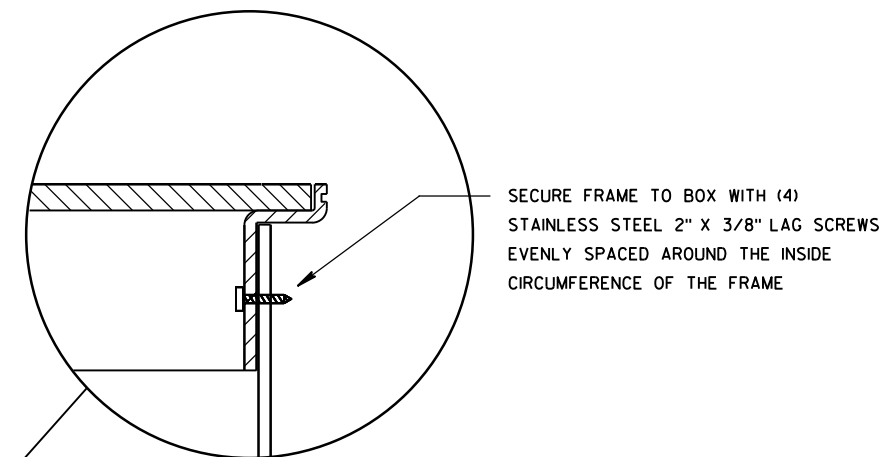
ENTIRE BOX MUST BE CONSTRUCTED OF NON-CONDUCTIVE MATERIALS WITH THE EXCEPTION OF STAINLESS STEEL FASTENERS AND MAGNETIC LOCATABLE DEVICE.

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

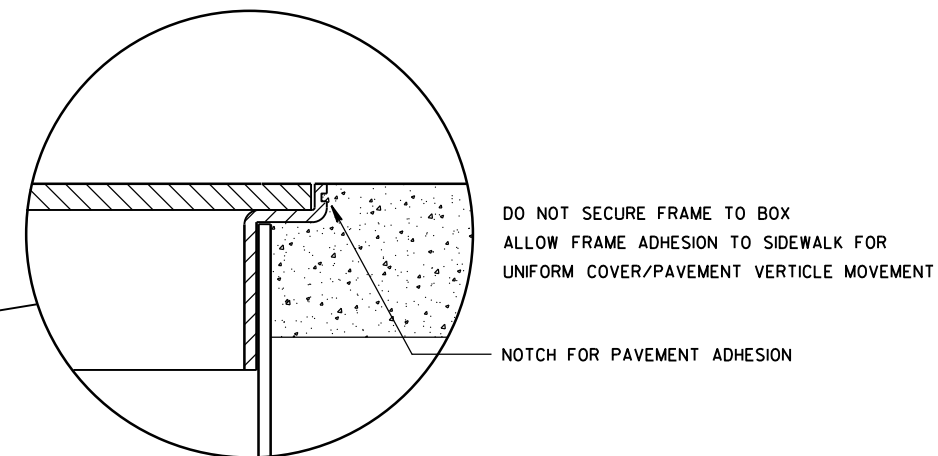
LABEL ON COVER SHALL READ "ELECTRIC" FOR SIGNAL AND LIGHTING SYSTEMS, "WISDOT ITS" FOR COMMUNICATIONS AND ITS EQUIPMENT SYSTEMS.



INSTALLED IN SOD OR CRUSHED AGGREGATE



INSTALLED IN SIDEWALK



NON-CONDUCTIVE PULL BOX

PULL BOX  
NON-CONDUCTIVE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

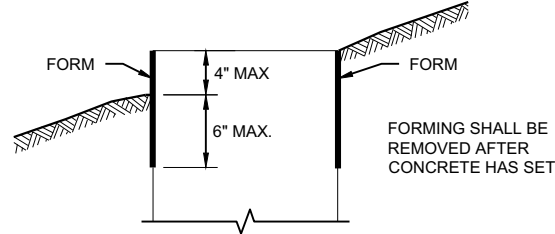
May 2017  
DATE

FHWA

/S/ Ahmet Demirbilek  
STATE ELECTRICAL 114



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    |

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.

GENERAL NOTES

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.

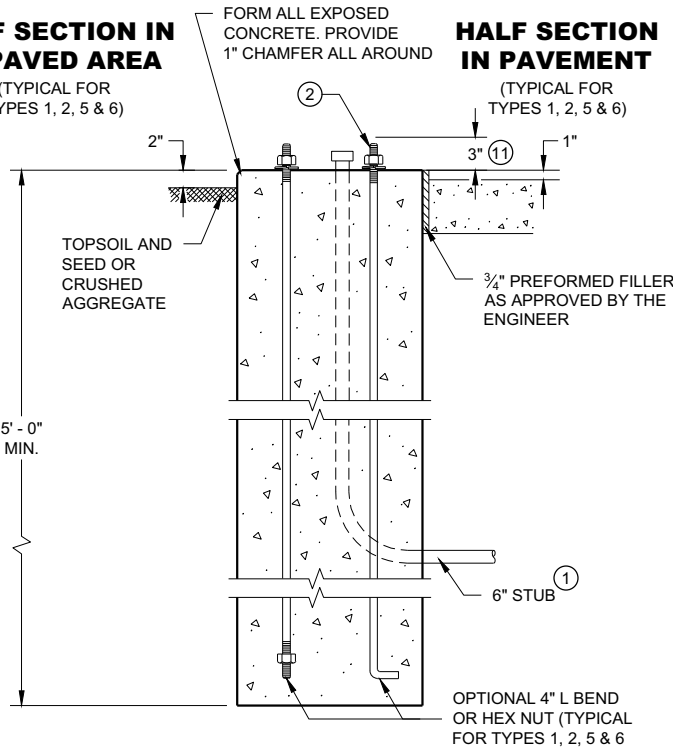
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

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).

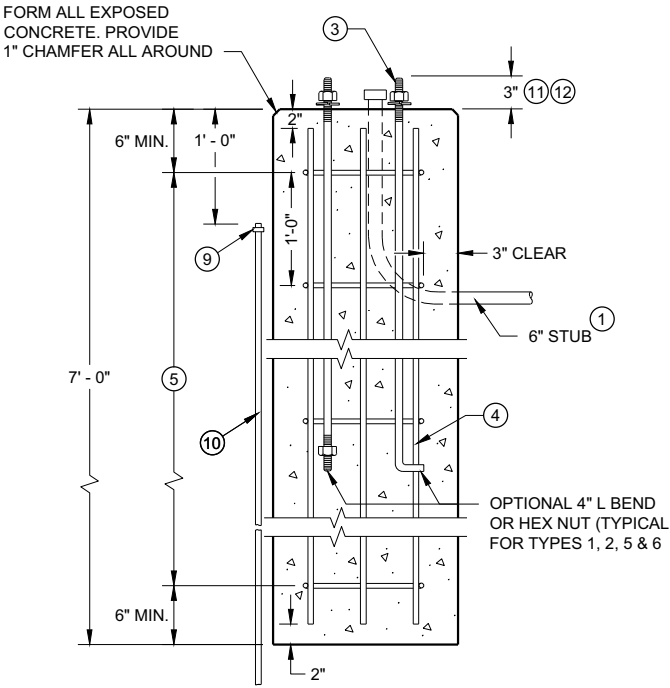
- 1 THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN 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 1/2" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S 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



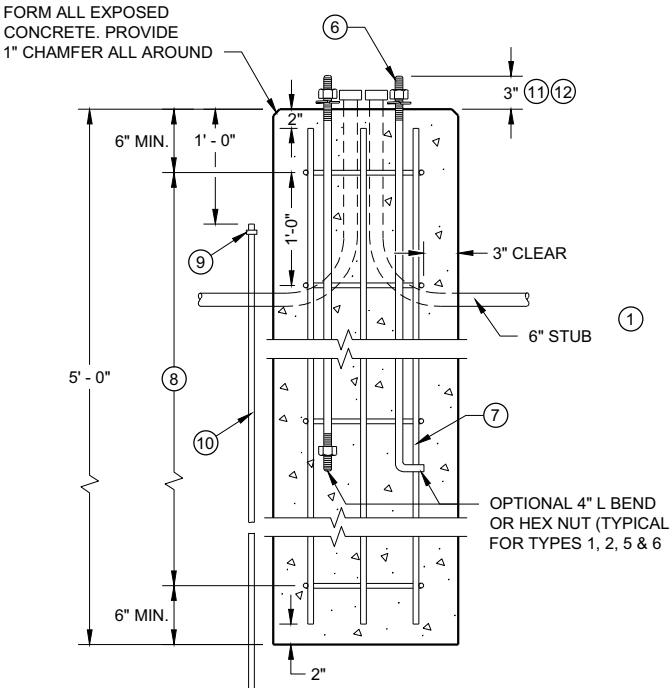
TYPE 1

HALF SECTION IN PAVEMENT



TYPE 2

CONCRETE BASES



TYPE 5 & 6

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.

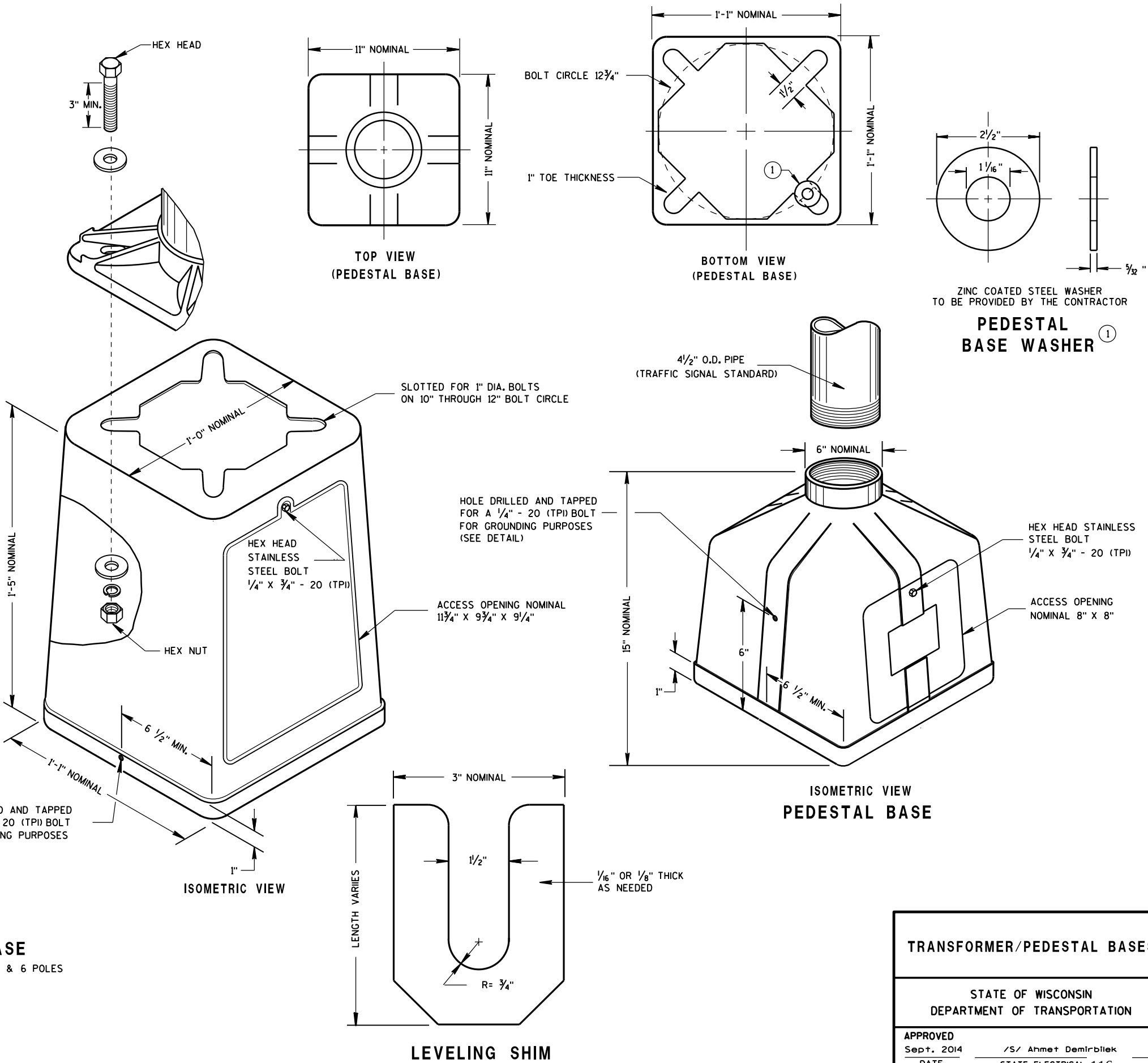
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

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.



TYPICAL MECHANICAL  
CONNECTOR LUG  
TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE  
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES

ISOMETRIC VIEW  
PEDESTAL BASE

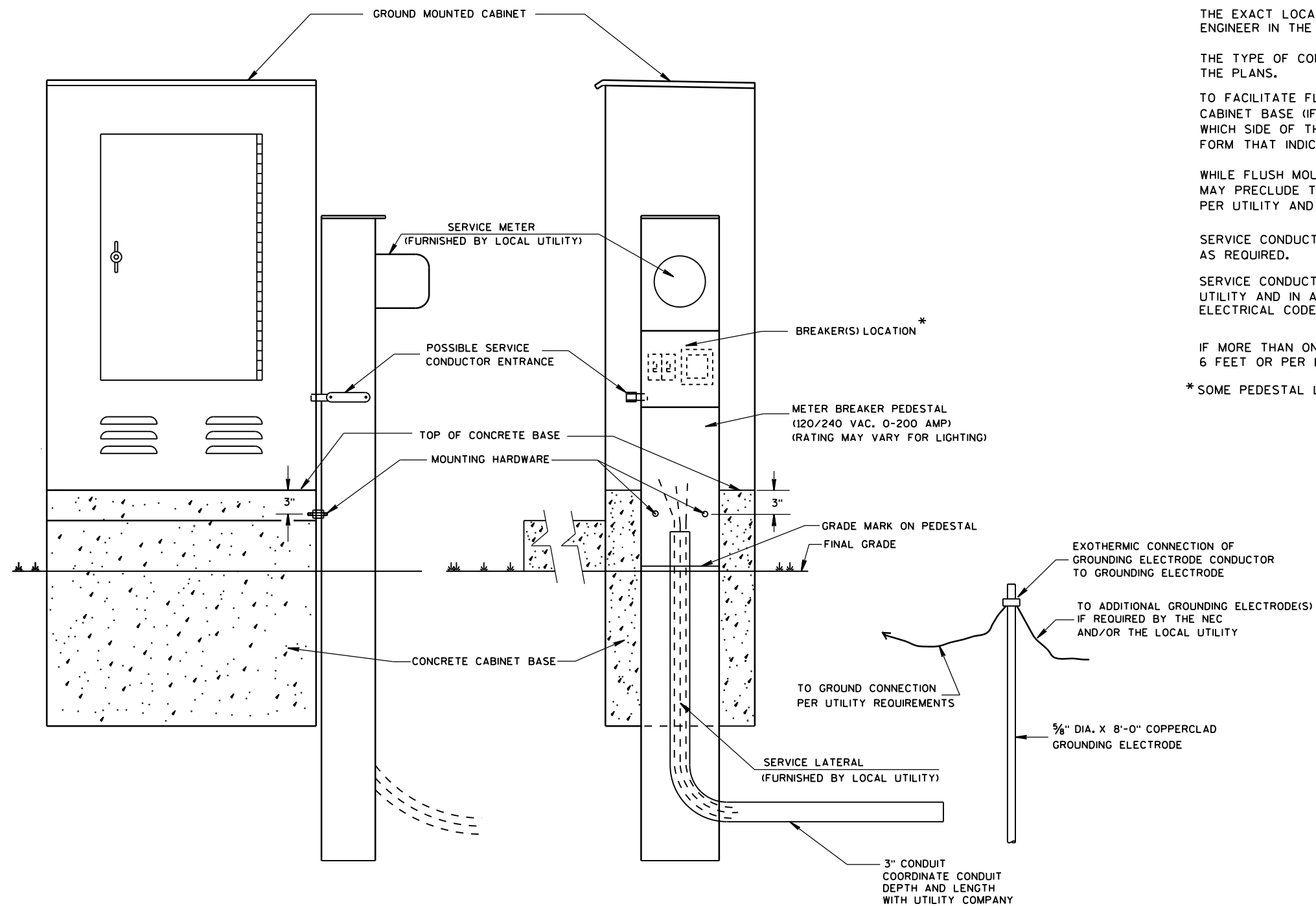
LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept. 2014 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL 116  
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

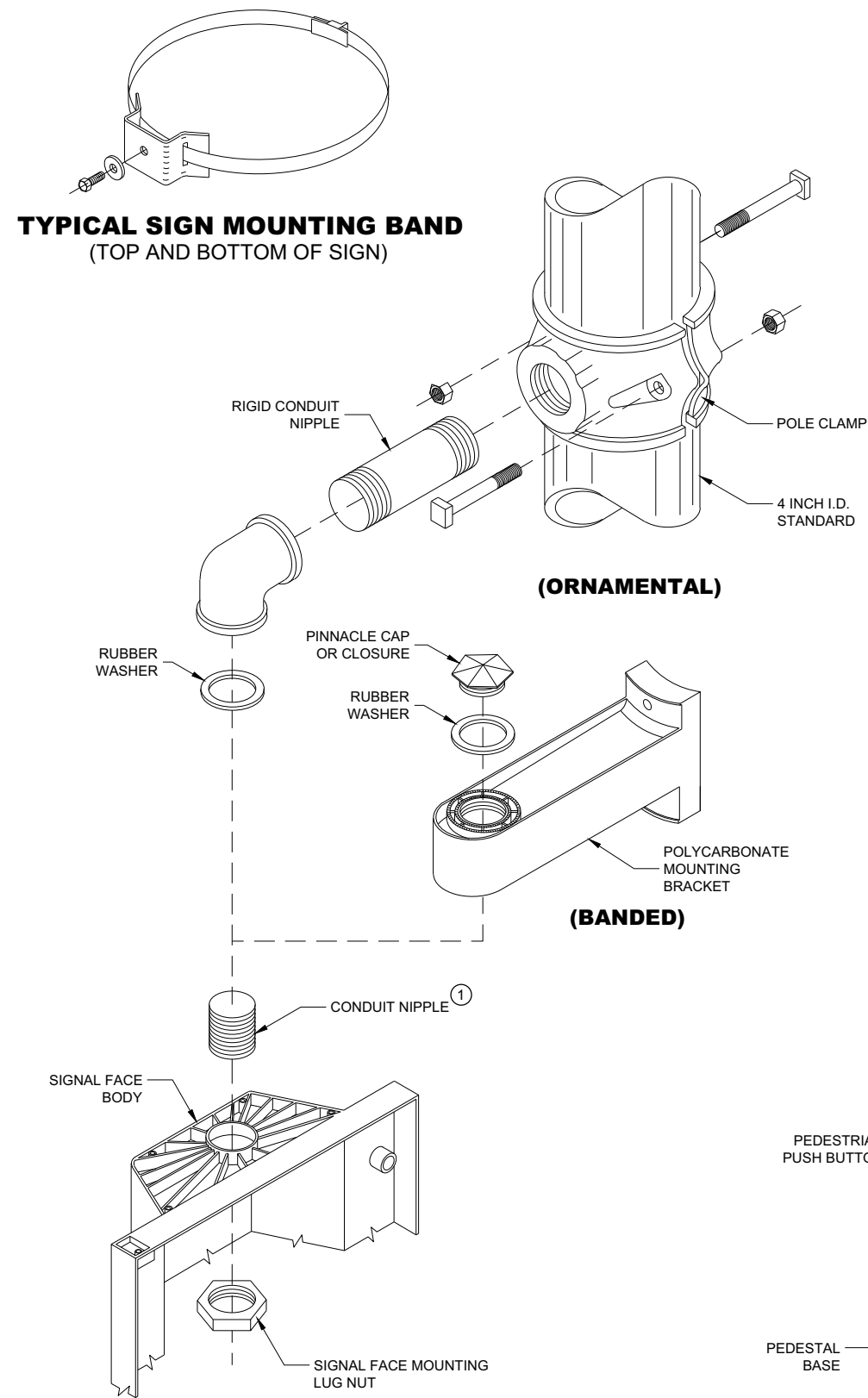
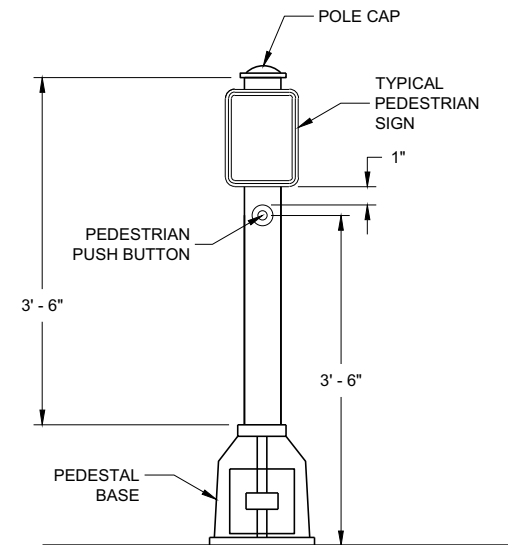
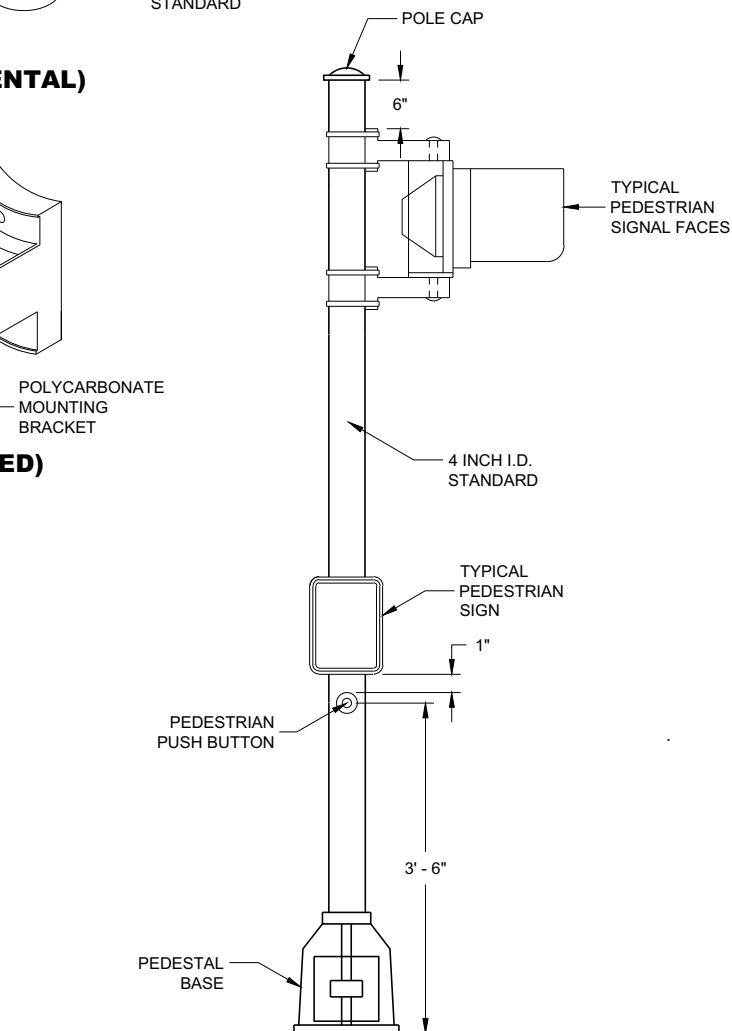
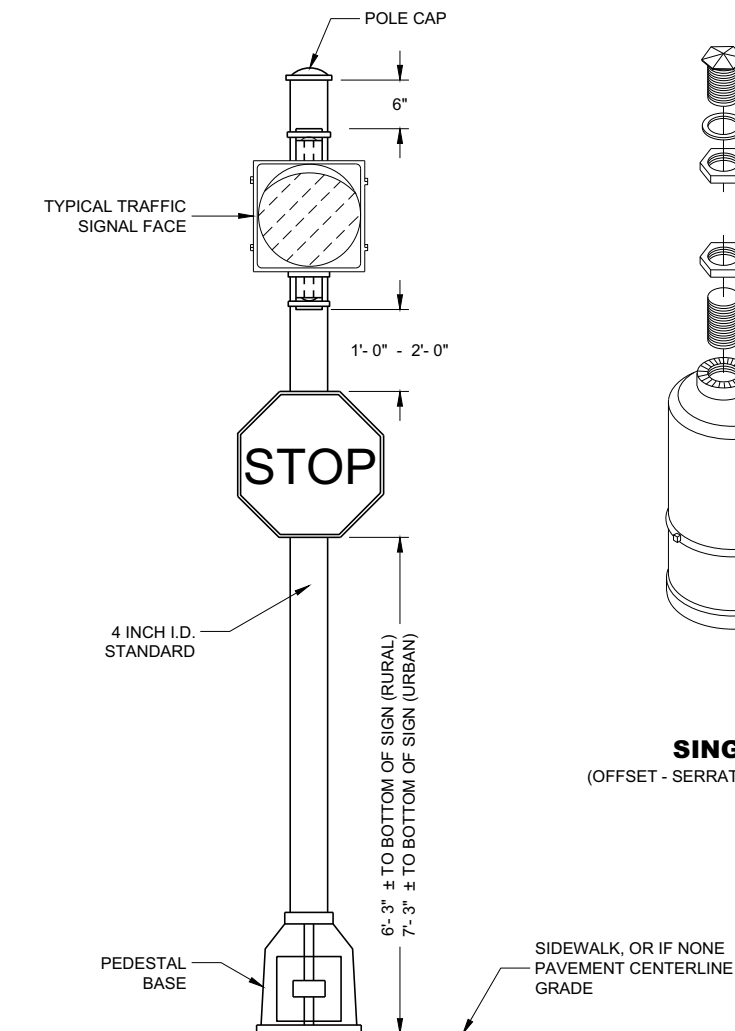
Sept. 2014

DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL 117

**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.

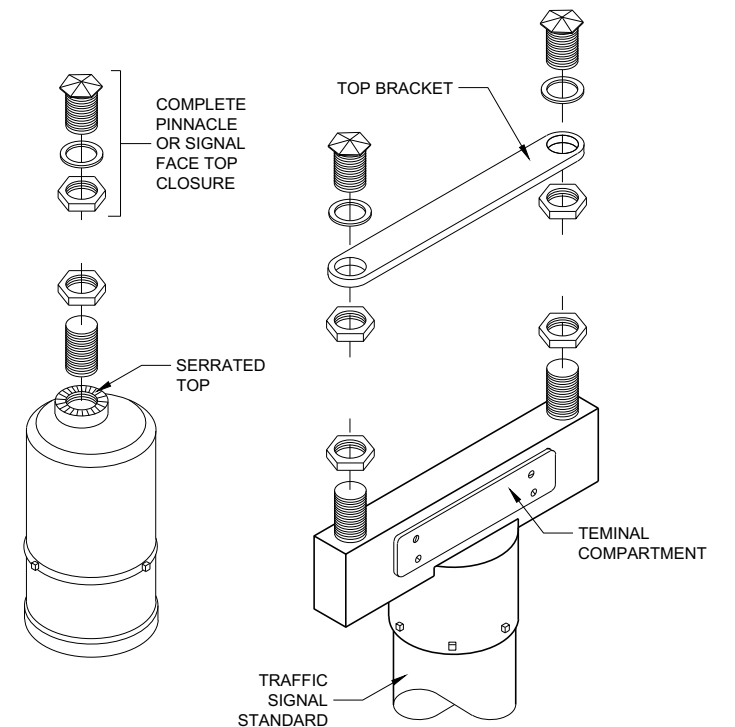
LENGTH OF TRAFFIC STANDARDS SHALL BE AS SHOWN ON THE PLANS.

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.

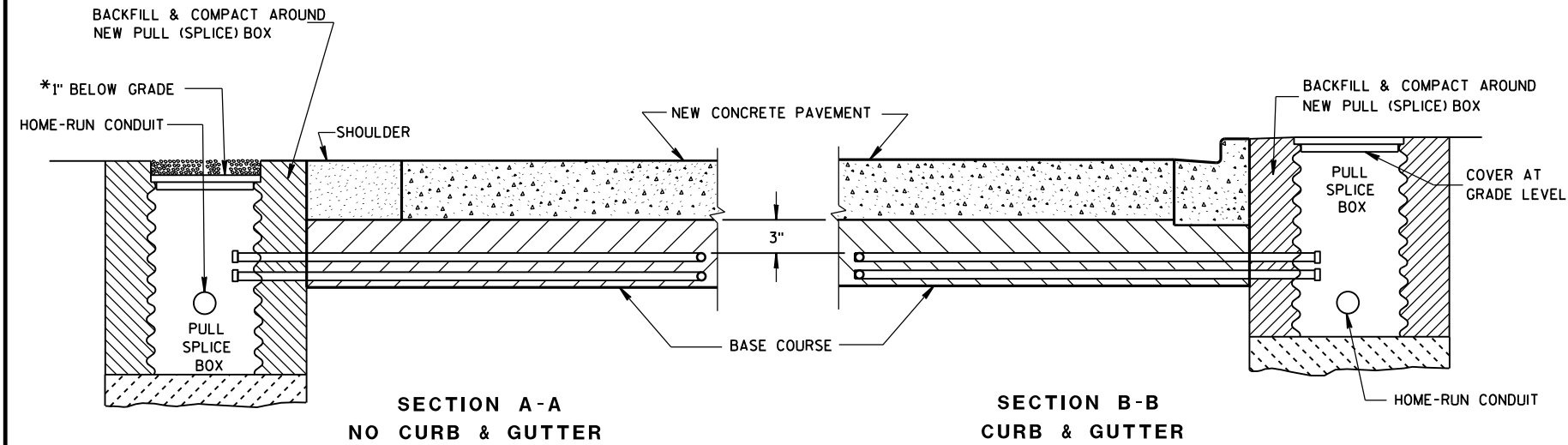
FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/2" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

- 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 Demirbilek  
DATE STATE ELECTRICAL ENGI 118  
FHWA

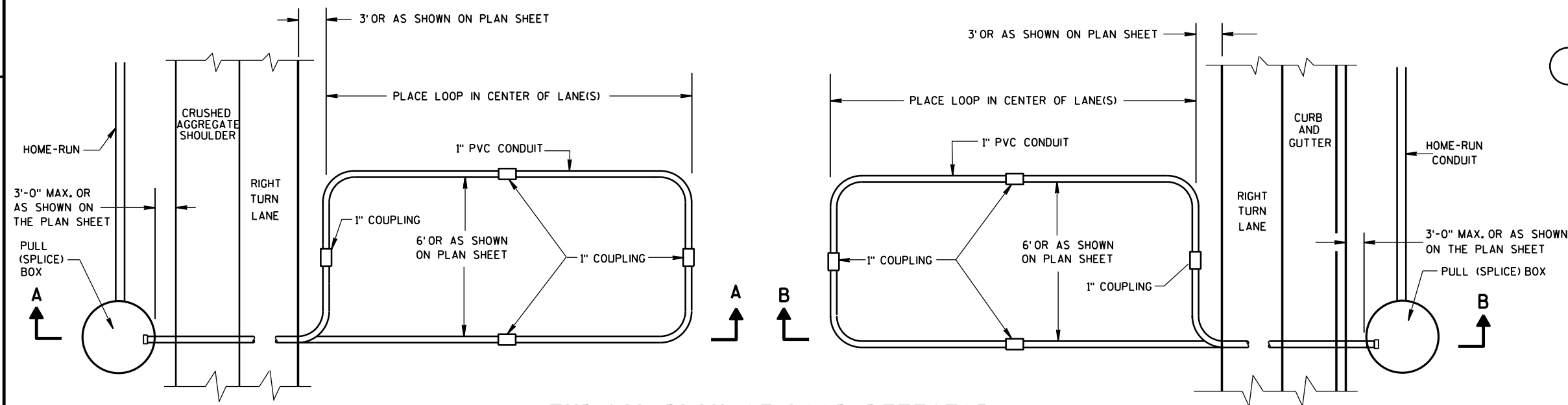


\*RECESS PULL (SPlice) BOX SO THAT THE COVER IS 3\"/>

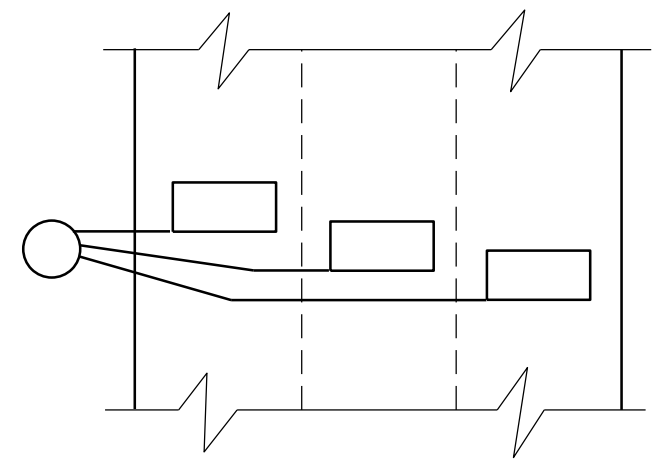
**LOOP DETECTOR INSTALLATION DETAIL**

**GENERAL NOTES**

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- LOOP SIZE, CONFIGURATION LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.
- PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPlice) BOX.
- 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 READINGS 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 CONDUITS 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 OF LOOP DETECTOR WITH 24\"/>**

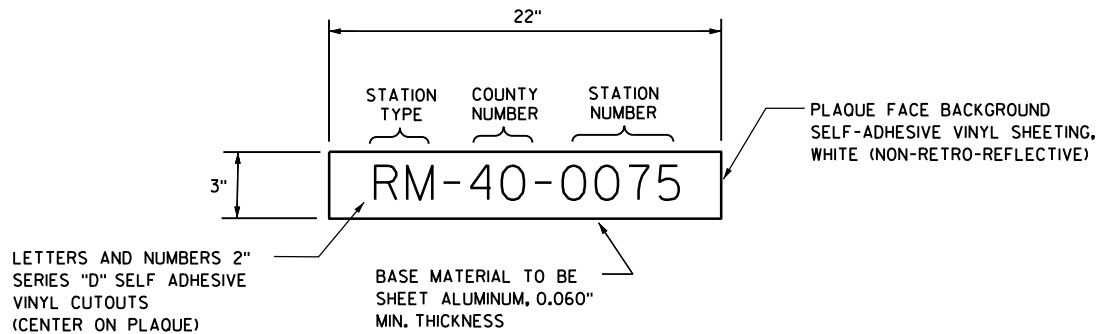


**MULTI-LANE INSTALLATION**

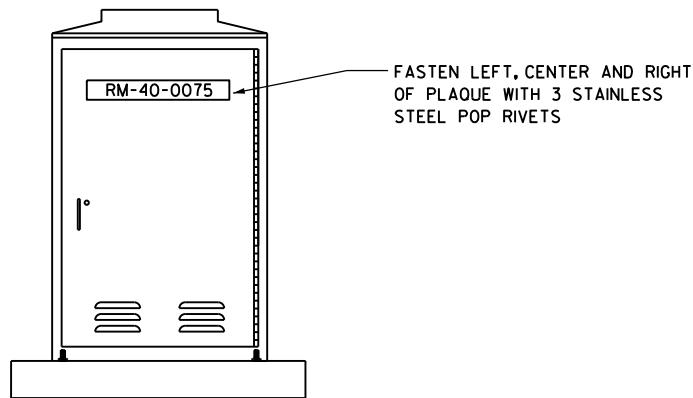
|                                                                                               |                                             |
|-----------------------------------------------------------------------------------------------|---------------------------------------------|
| LOOP DETECTOR INSTALLED IN<br>BASE COURSE WITH PULL (SPlice)<br>BOX OFF ROADWAY<br>(OPTION 2) |                                             |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                                            |                                             |
| APPROVED<br>Sept. 2014<br>DATE                                                                | /S/ Ahmet Demirtlek<br>STATE ELECTRICAL 119 |
| FHWA                                                                                          |                                             |

S.D.D. 9 F 15-4b

S.D.D. 9 F 15-4b

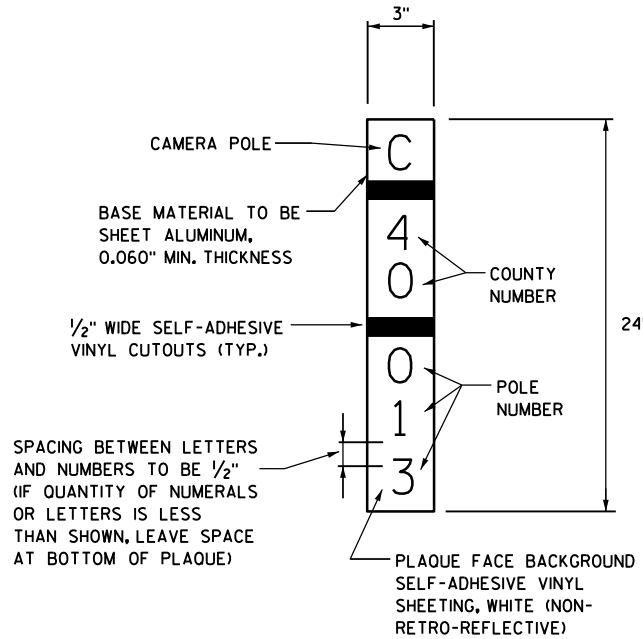


CONTROL CABINET IDENTIFICATION PLAQUE DETAIL

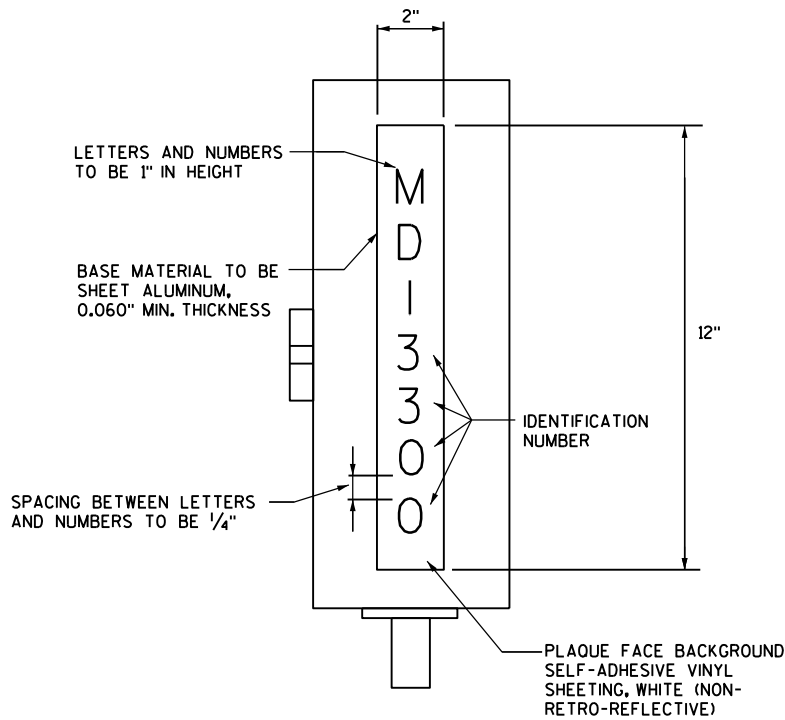


CONTROL CABINET IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENTS

(TYPICAL ALL CONTROL CABINETS)



POLE IDENTIFICATION PLAQUE DETAIL



MICROWAVE DETECTOR FIELD CABINET IDENTIFICATION PLAQUE DETAIL

GENERAL NOTES

- ① TWO PLAQUES PER CABINET REQUIRED ON CONTROL CABINET.
- ② FASTEN ONE PLAQUE ON FRONT DOOR, UPPER HALF.
- ③ FASTEN ONE PLAQUE ON SIDE FACING LOCAL STREET. IF NO LOCAL STREET NEARBY, OR IF SUCH LOCATION COINCIDES WITH LOCATION OF PLAQUE IN NOTE ②, FASTEN PLAQUE ON REAR OF CABINET, UPPER HALF.
- ④ COUNTY NUMBER NOT REQUIRED ON RAMP METER CABINETS.

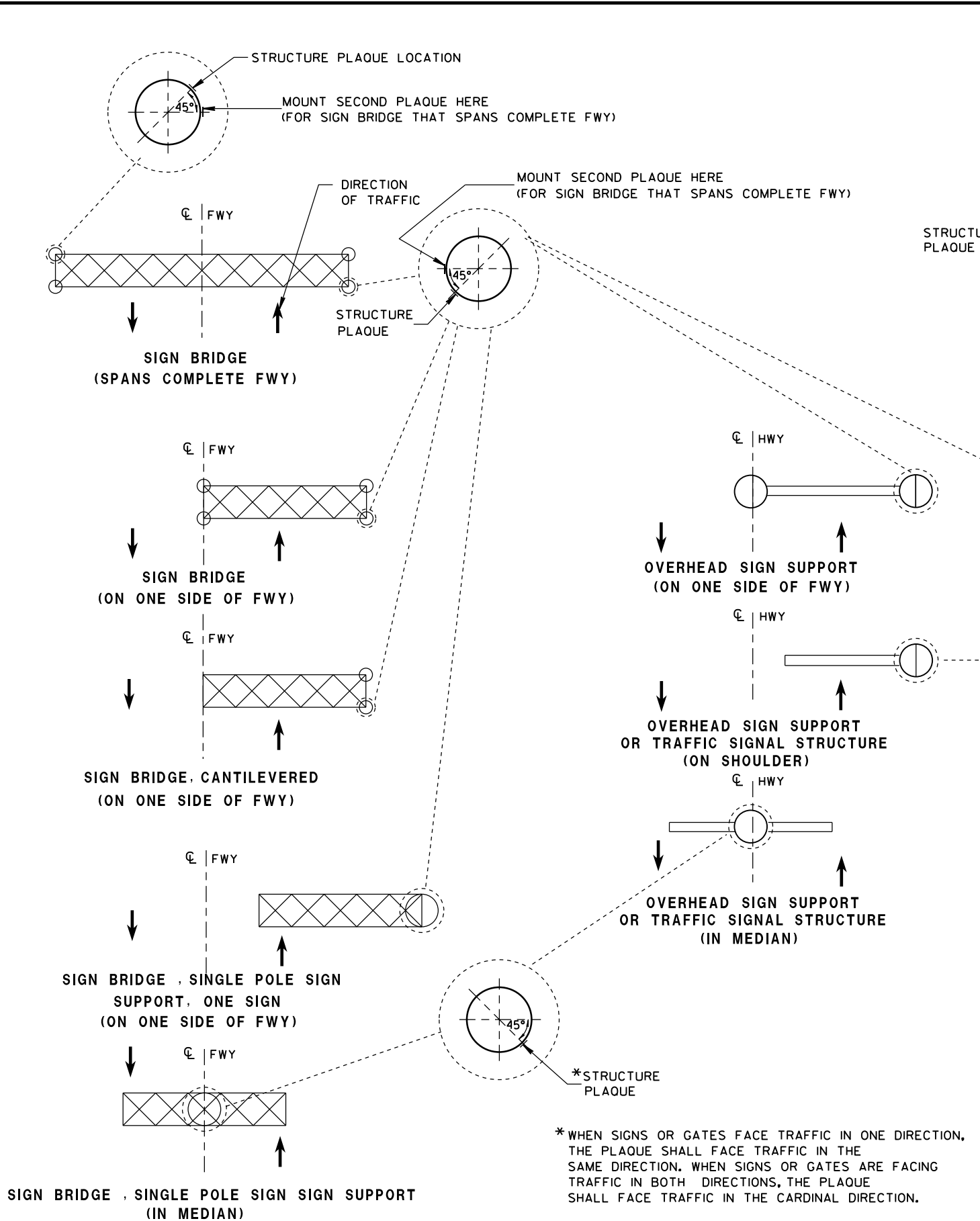
LEGEND STATION TYPE

RM - RAMP METER  
CCTV - CLOSED CIRCUIT TELEVISION  
ATR - AUTOMATIC TRAFFIC RECORDER  
SDS - SYSTEM DETECTOR STATION  
MD - MICROWAVE DETECTOR

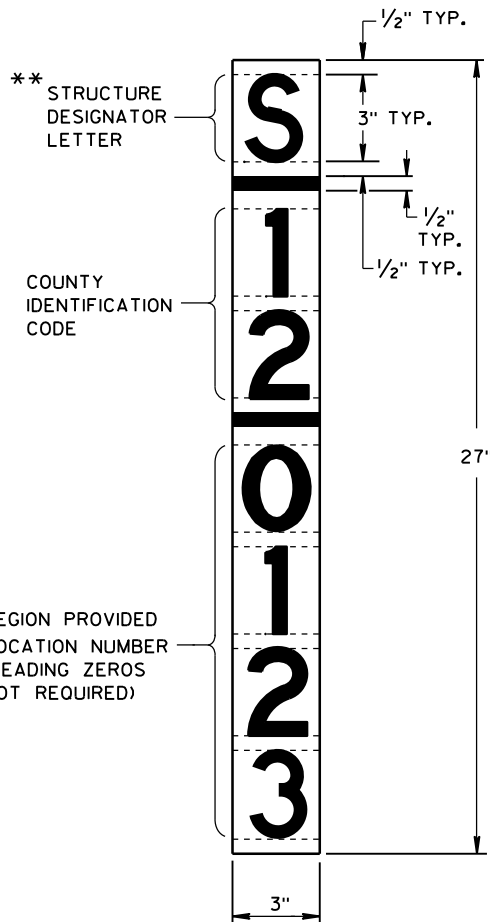
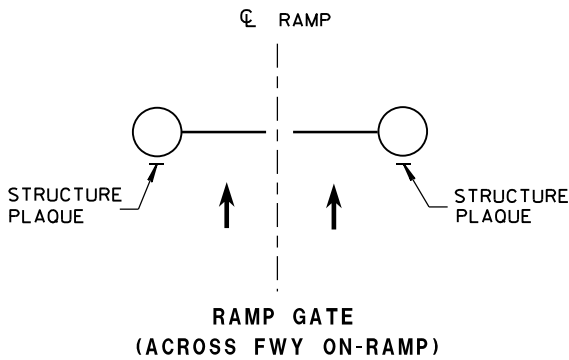
IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENTS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: Sept. 2014 /S/ Ahmet Demirelek  
STATE ELECTRICAL 120  
FHWA



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

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.

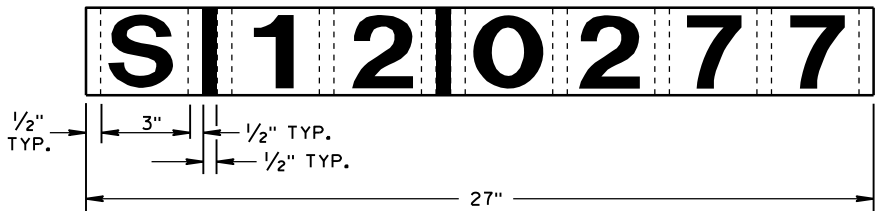
FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

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.



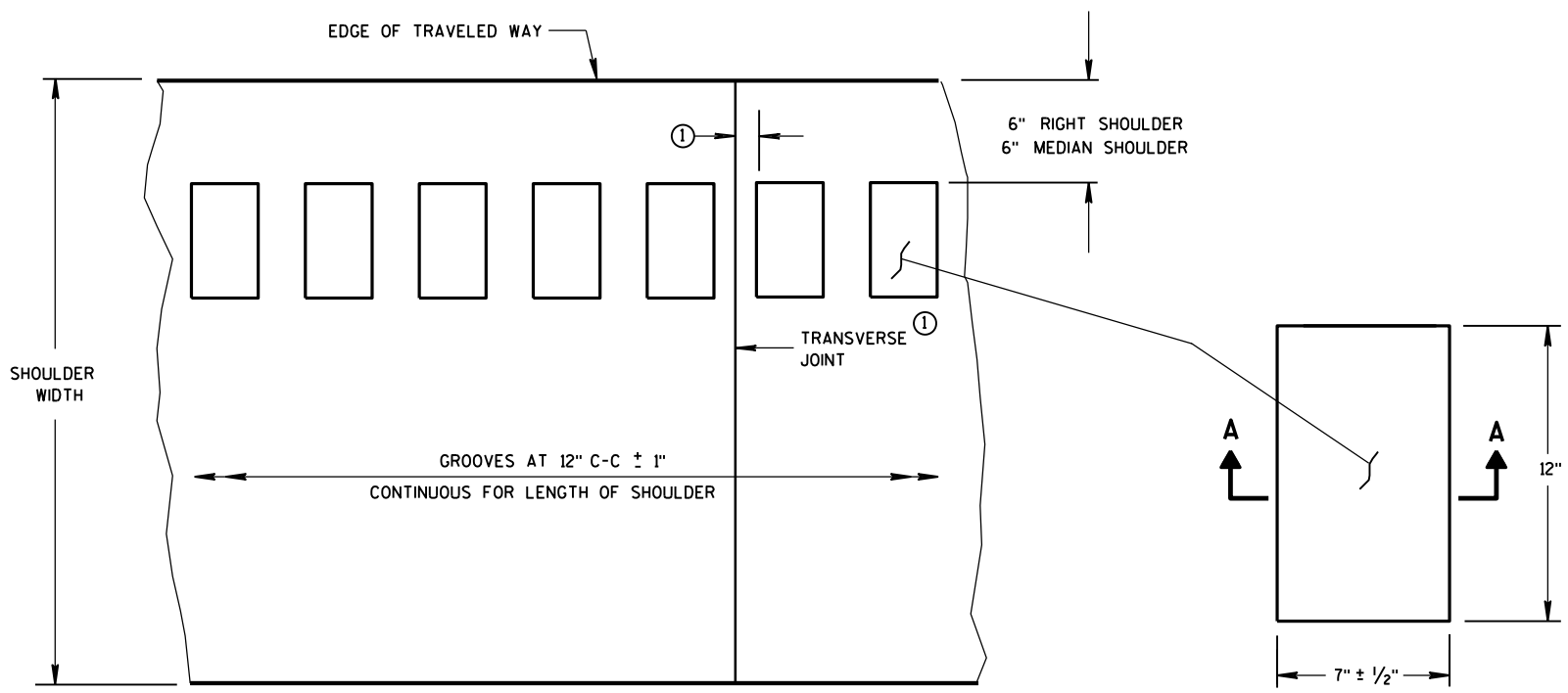
IDENTIFICATION PLAQUE FOR SIGN BRIDGE,  
STRUCTURE MOUNTED

\*\* LETTER "G" UTILIZED FOR RAMP GATES.  
LETTER "S" UTILIZED FOR SIGN BRIDGES,  
OVERHEAD SIGN SUPPORTS, AND TRAFFIC  
SIGNALS.

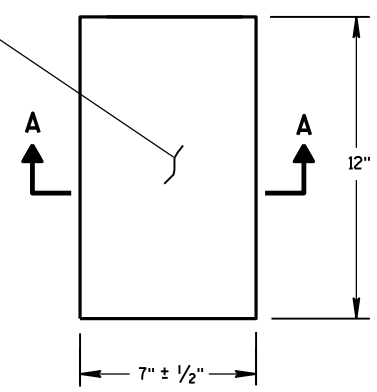
STRUCTURE IDENTIFICATION PLAQUES,  
RAMP GATES, SIGN BRIDGES, OVERHEAD  
SIGN SUPPORTS, & TRAFFIC SIGNALS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
12/4/2012 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINE 121 SIGN  
FHWA



PLAN VIEW  
SHOULDER WITH GROOVES



PLAN VIEW  
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

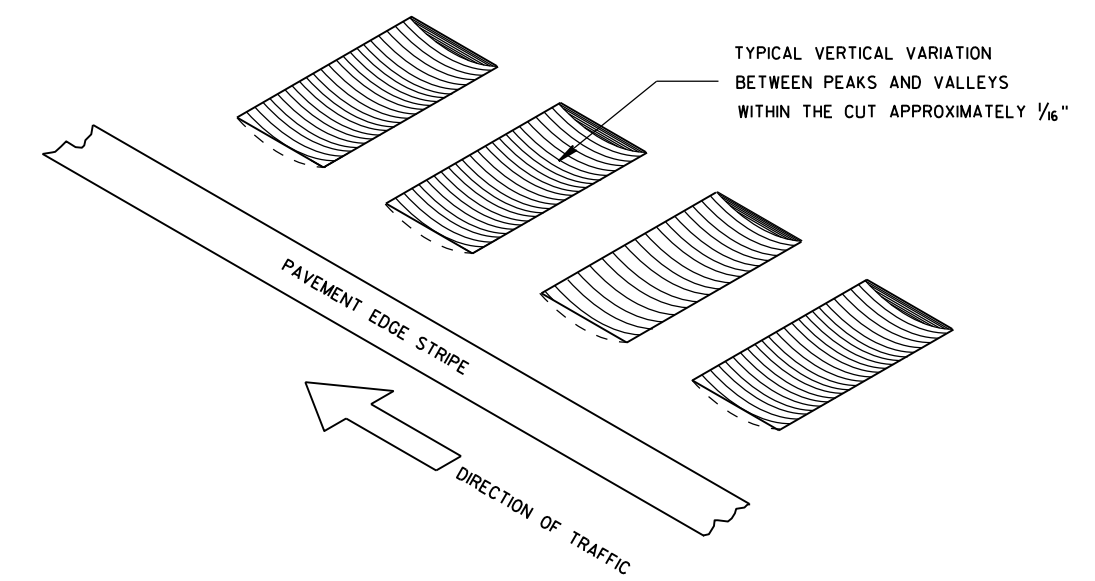
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

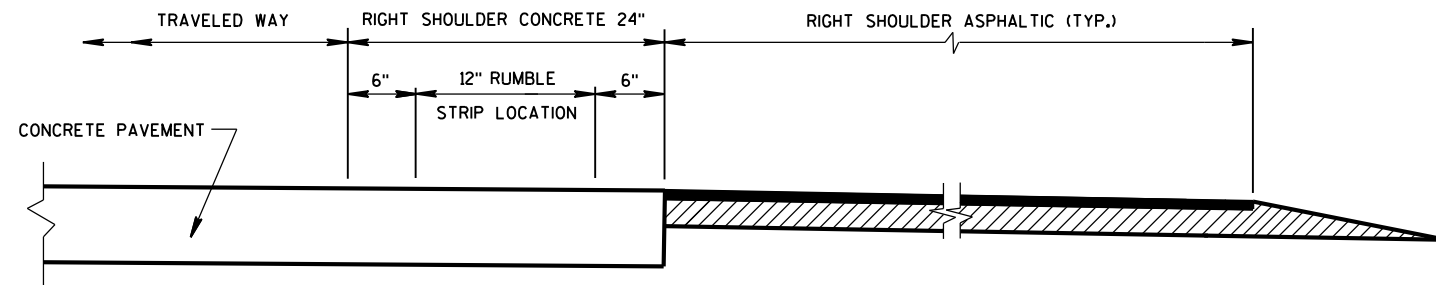
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

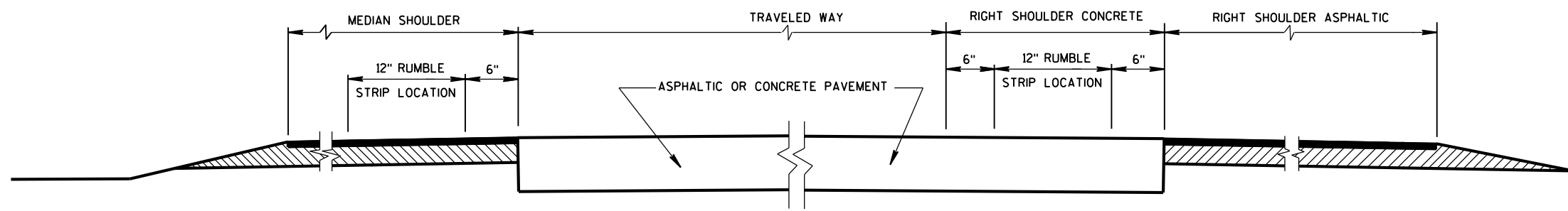
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



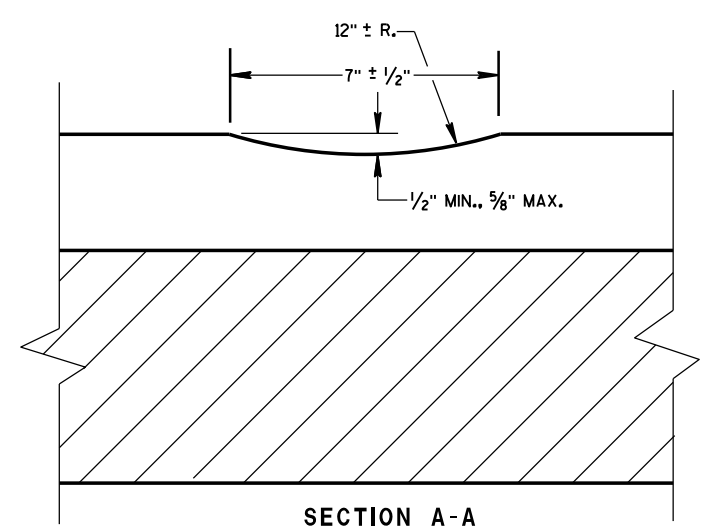
ISOMETRIC



SECTION VIEW  
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



SECTION VIEW  
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS  
IN RURAL DIVIDED HIGHWAYS  
(ONE ROADWAY IS SHOWN)

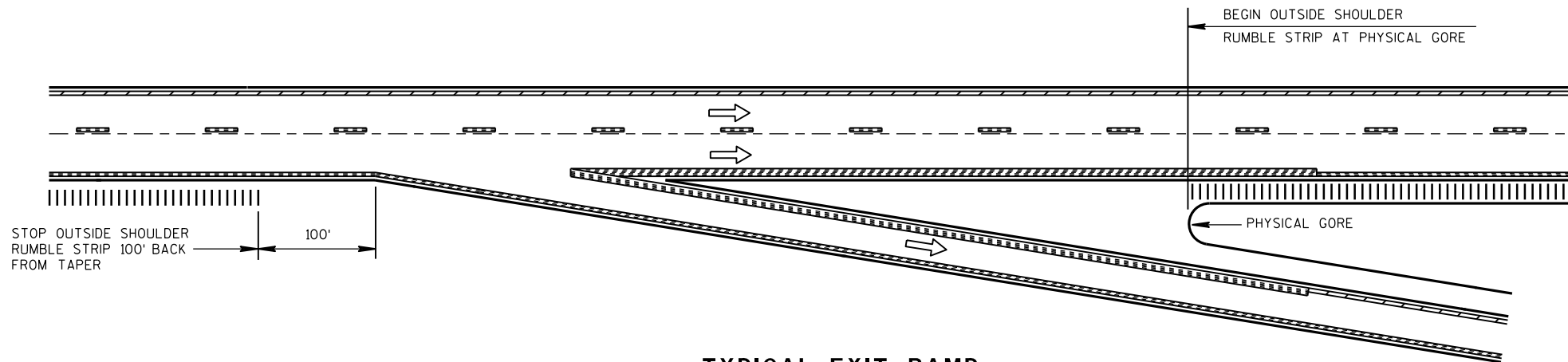


SECTION A-A

SHOULDER RUMBLE STRIP,  
MILLING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 122





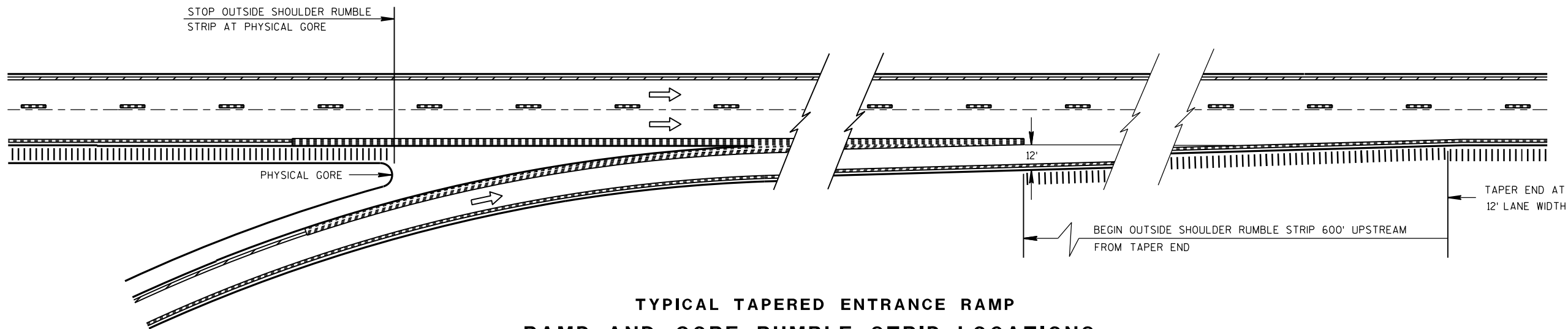
**TYPICAL EXIT RAMP**

**NOTES:**

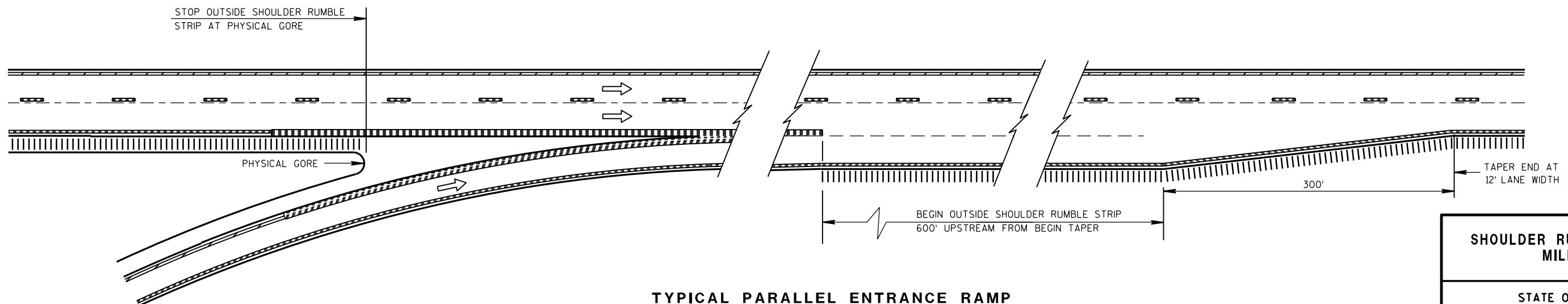
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:  
ARROW SYMBOL (→)  
SHOWS DIRECTION OF TRAVEL



**TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,  
MILLING**

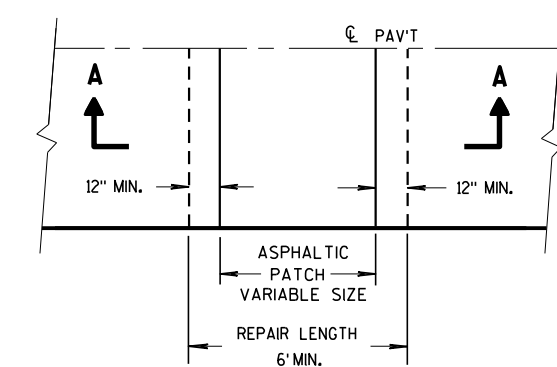
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

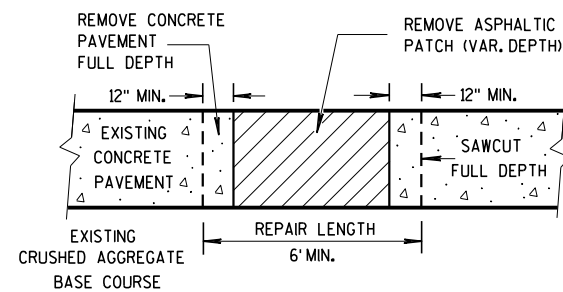
12/17/2012  
DATE

FHWA

/S/ Jerry H. Zoag  
ROADWAY STANDARDS ENGINEER 123 ENT

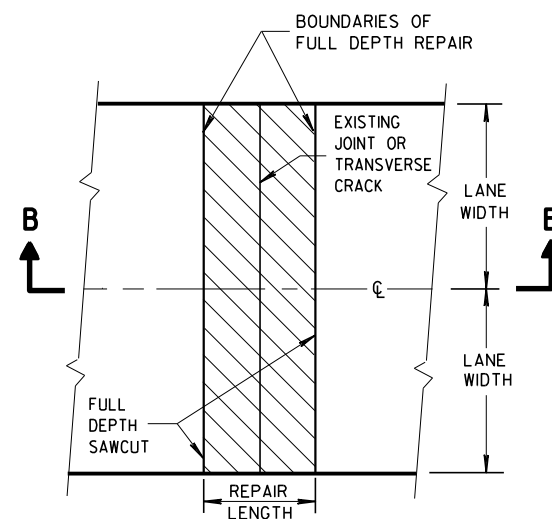
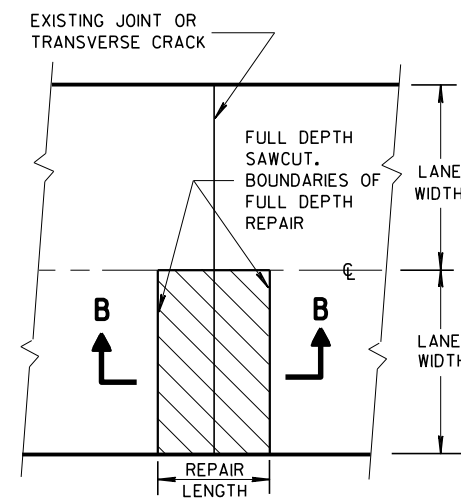


PLAN VIEW



SECTION A-A

## HMA PATCH REMOVAL

PLAN VIEW  
(DOUBLE LANE REPAIR)PLAN VIEW  
(SINGLE LANE REPAIR)

## FULL DEPTH CONCRETE PAVEMENT REMOVAL

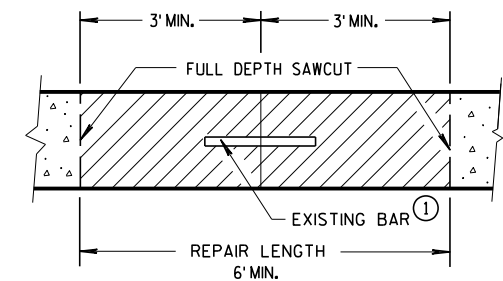
## GENERAL NOTES

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.

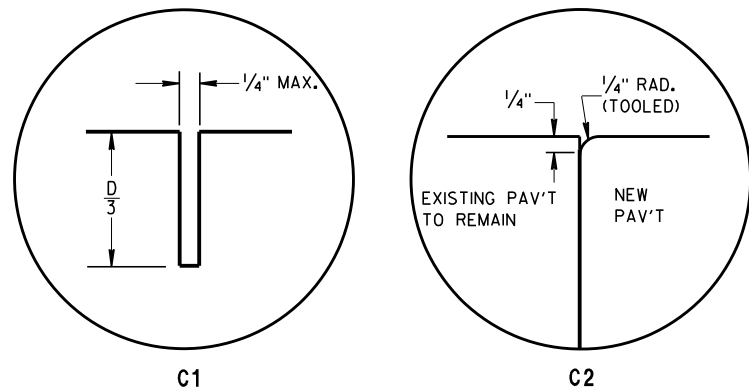
PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

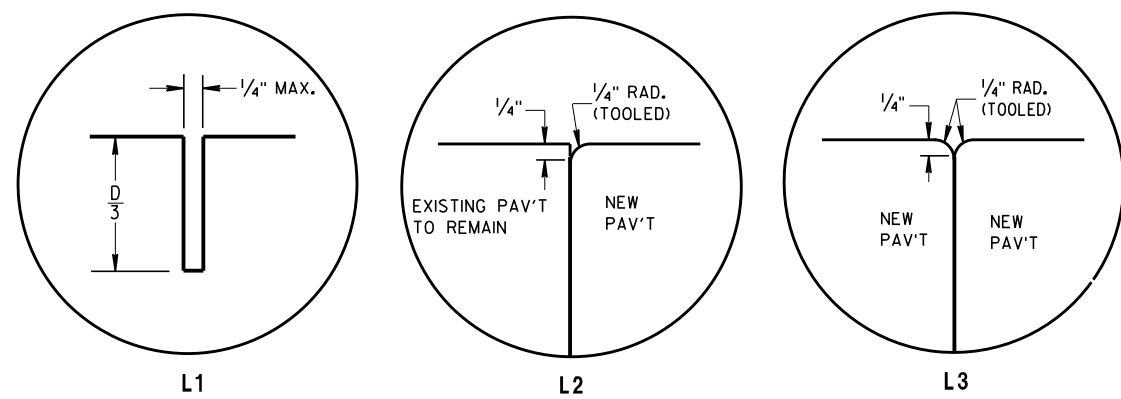
① DOWEL BARS MIGHT NOT EXIST.

SECTION B-B  
CONCRETE REMOVAL





TRANSVERSE JOINTS

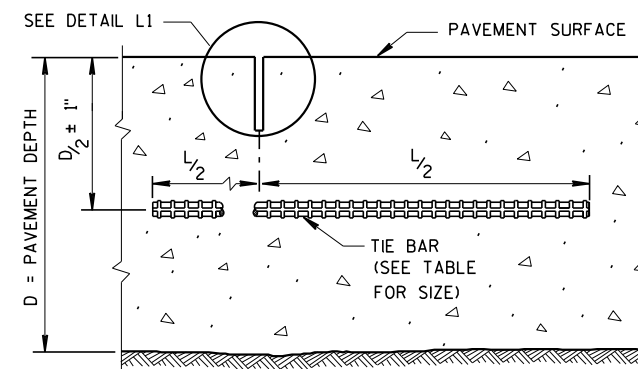


LONGITUDINAL JOINTS

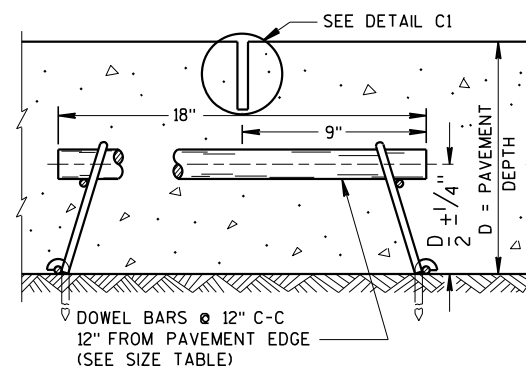
| TIE BAR TABLE      |              |                    |                      |
|--------------------|--------------|--------------------|----------------------|
| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
| < 10 1/2"          | NO. 4        | 30"                | 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.



SECTION C-C  
SAWED LONGITUDINAL JOINT



SECTION F-F  
CONTRACTION JOINT

GENERAL NOTES

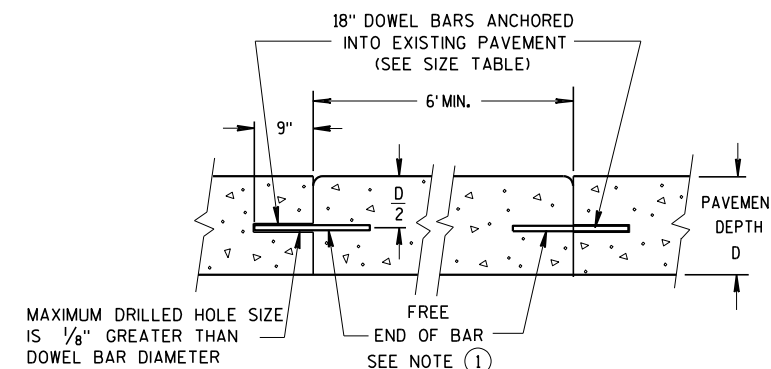
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

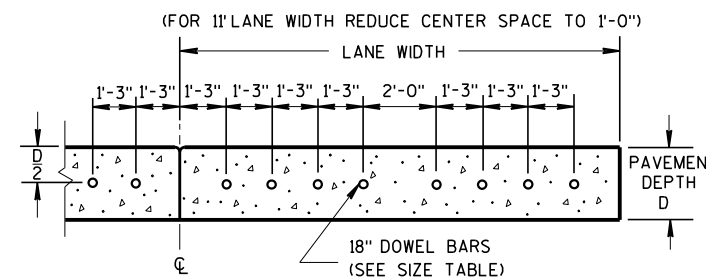
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, 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



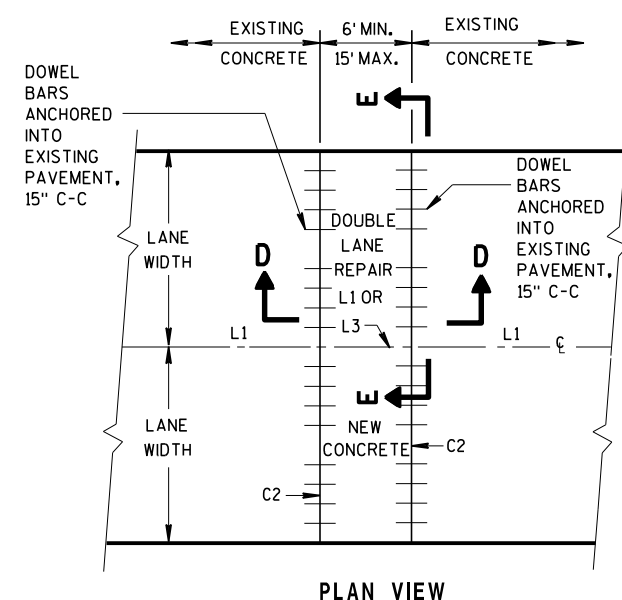
SECTION E-E  
DRILLED DOWEL BAR CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

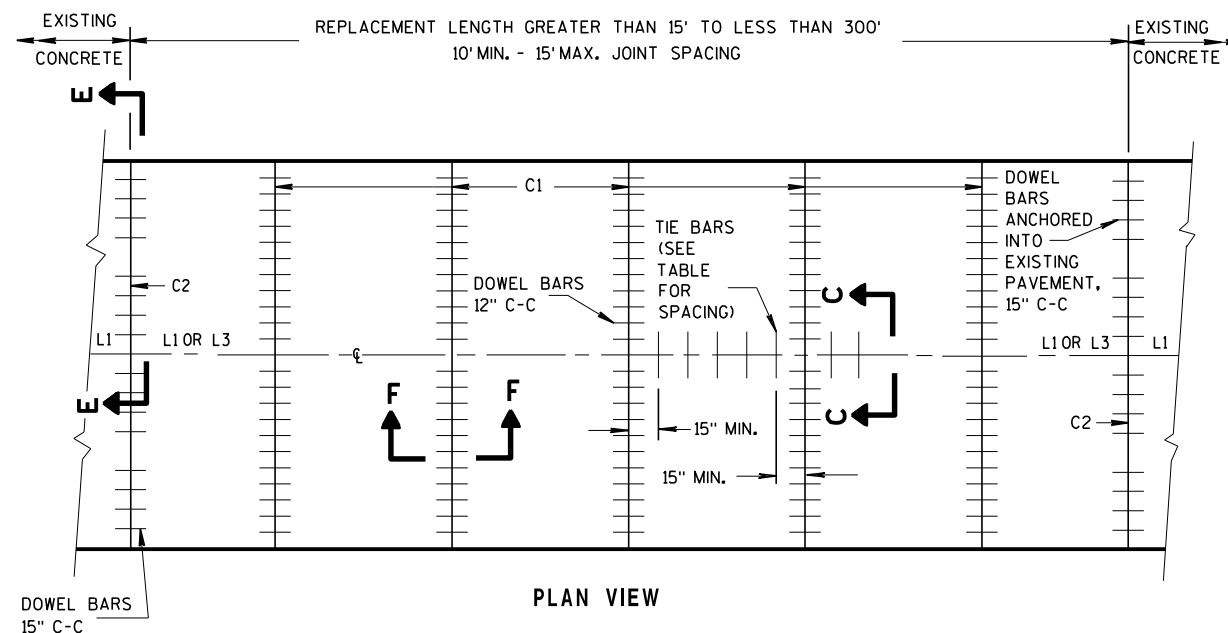
| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | DRILLED DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|--------------------|--------------------|----------------------------|---------------------------|
| 5 1/2", 6", 6 1/2" | NONE               | NONE                       | 12'                       |
| 7", 7 1/2"         | 1"                 | 1"                         | 14'                       |
| 8", 8 1/2"         | 1 1/4"             | 1 1/4"                     | 15'                       |
| 9", 9 1/2"         | 1 1/4"             | 1 1/4"                     | 15'                       |
| 10" & ABOVE        | 1 1/2"             | 1 1/4"                     | 15'                       |

CONCRETE PAVEMENT  
REPAIR AND REPLACEMENT

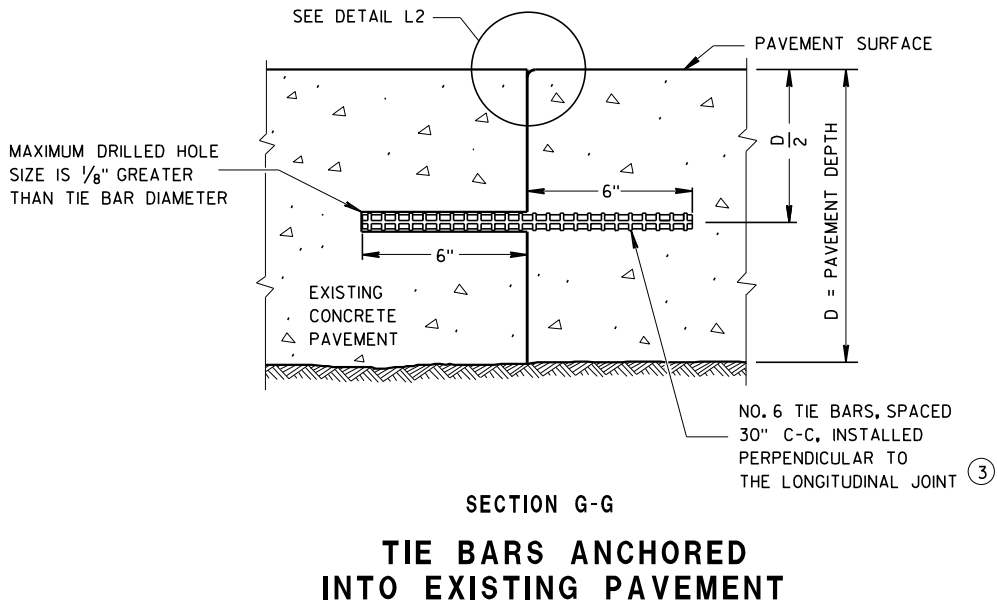
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



PLAN VIEW  
MULTI-LANE CONCRETE PAVEMENT REPAIR

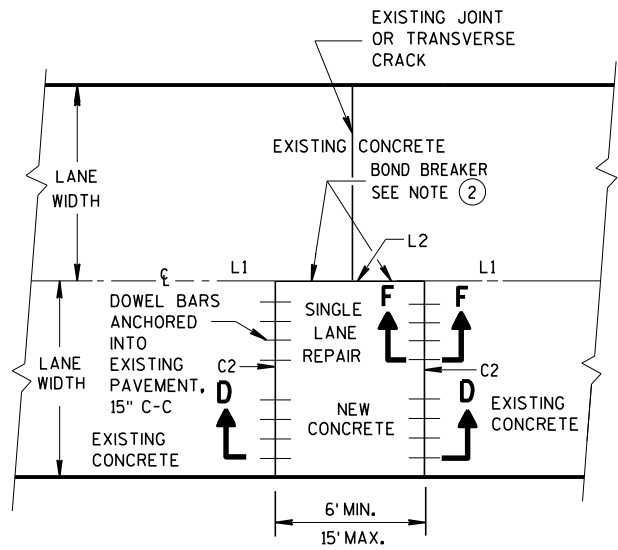


PLAN VIEW  
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

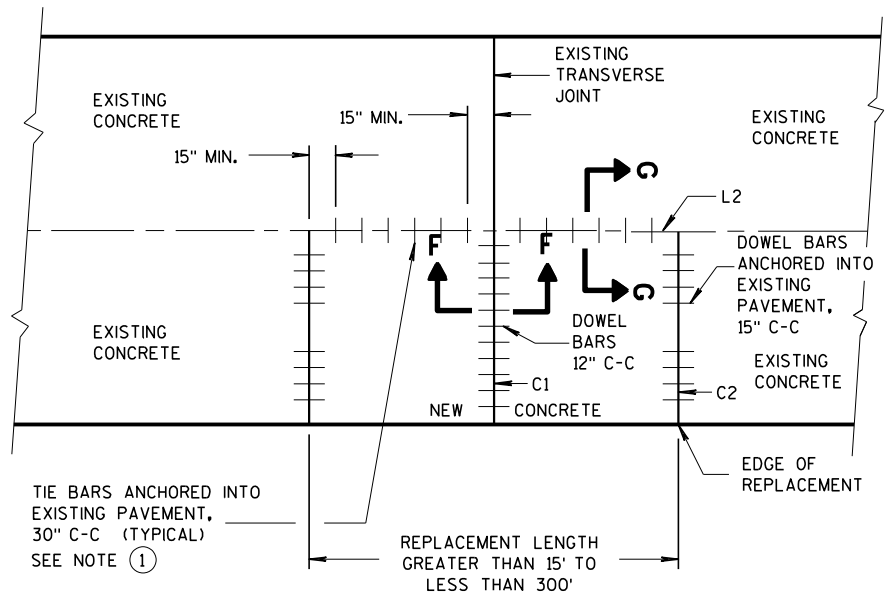


GENERAL NOTES

- 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 HOLES WITH AN EPOXY.

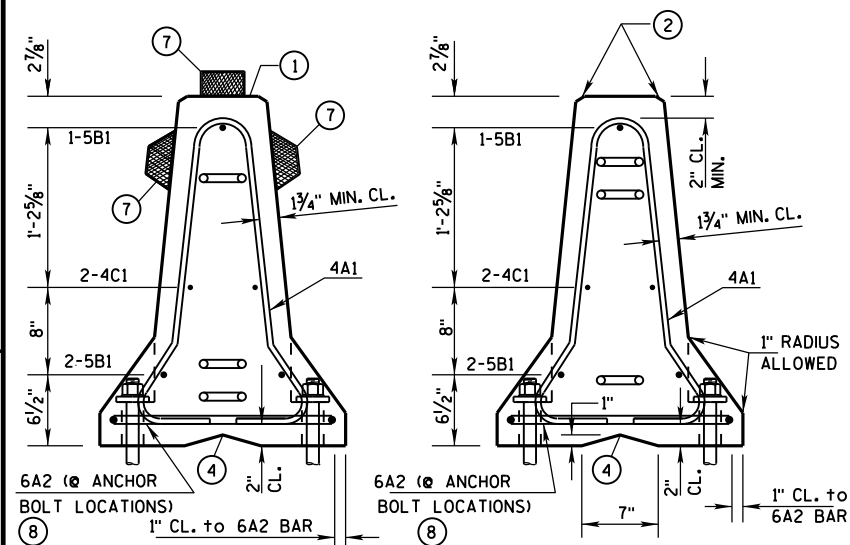
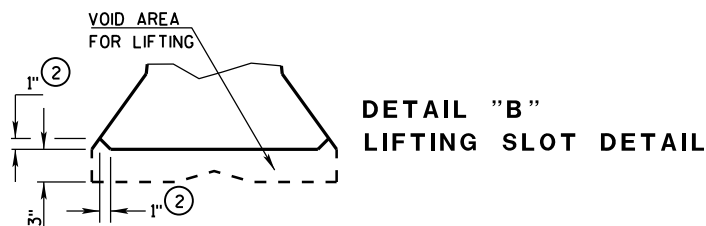
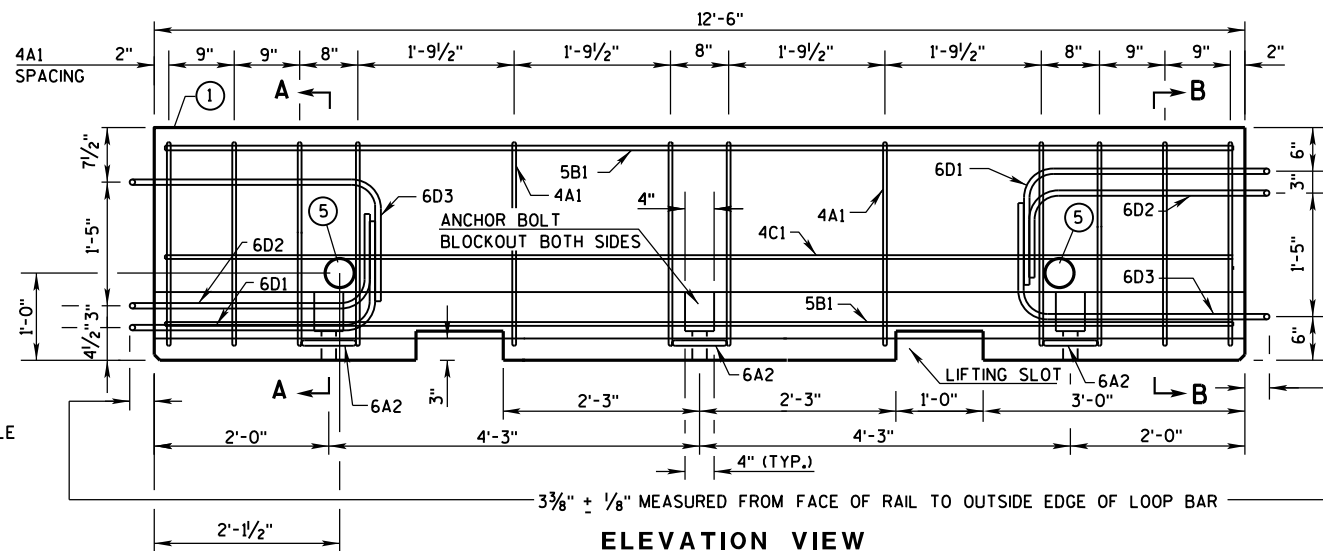


PLAN VIEW  
SINGLE LANE  
CONCRETE PAVEMENT REPAIR



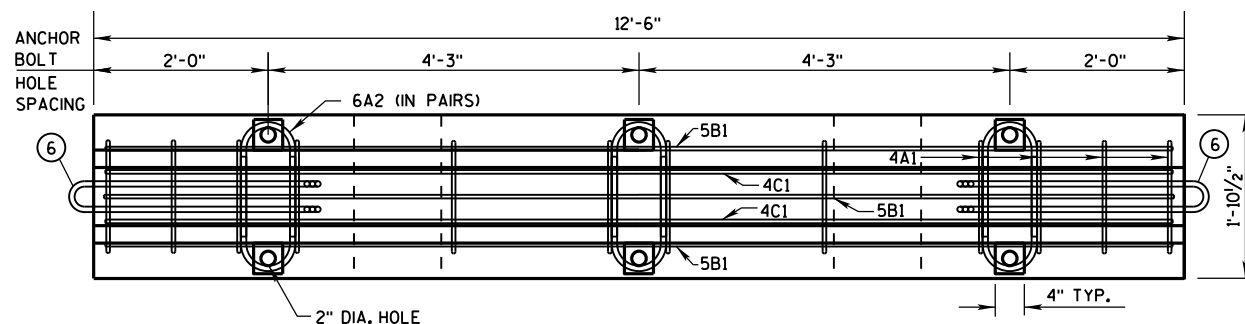
PLAN VIEW  
SINGLE LANE  
CONCRETE PAVEMENT REPLACEMENT

|                                                    |                                             |
|----------------------------------------------------|---------------------------------------------|
| CONCRETE PAVEMENT<br>REPAIR AND REPLACEMENT        |                                             |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                             |
| APPROVED                                           |                                             |
| March 2018<br>DATE                                 | /S/ Peter Kenney<br>PAVEMENT SUPERVISOR 126 |
| FHWA                                               |                                             |



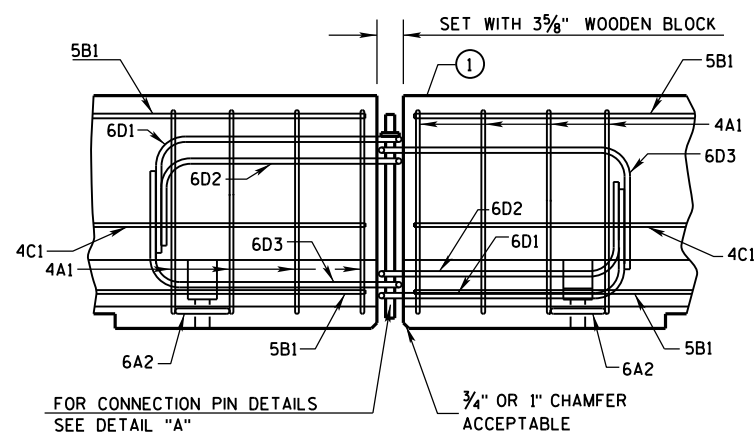
**SECTION A-A**  
(STIRRUP PLACEMENT)

**SECTION B-B**  
(STIRRUP PLACEMENT)

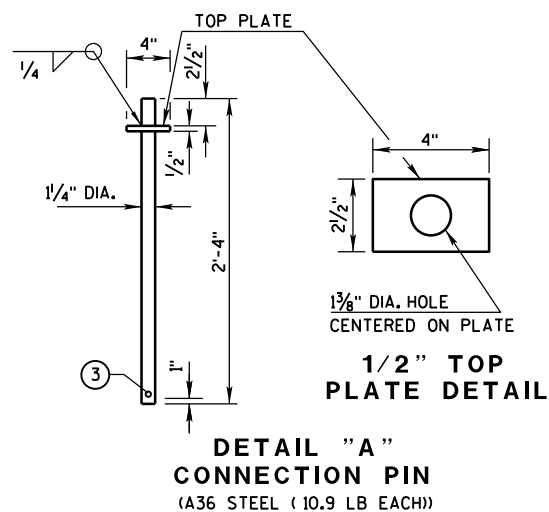


## PLAN VIEW

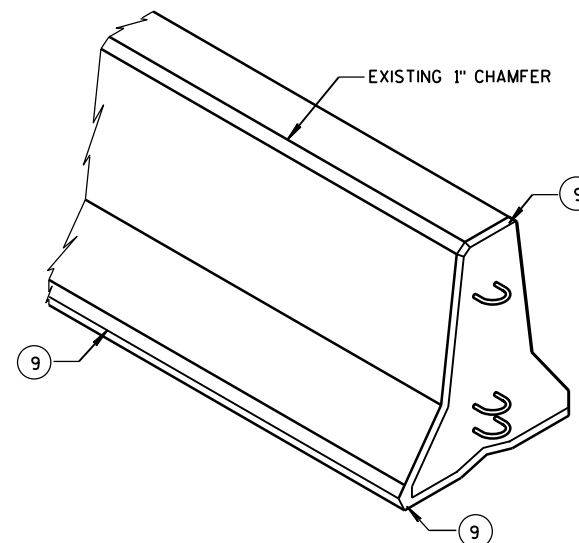
## DETAILS OF BARRIER SECTION



## DETAILS OF BARRIER CONNECTION



**DETAIL "A"**  
**CONNECTION PIN**  
(A36 STEEL (10.9 LB EACH))



## GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE  $\frac{3}{4}$ " SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A  $\frac{3}{16}$ " PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN  $\frac{1}{8}$ " OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

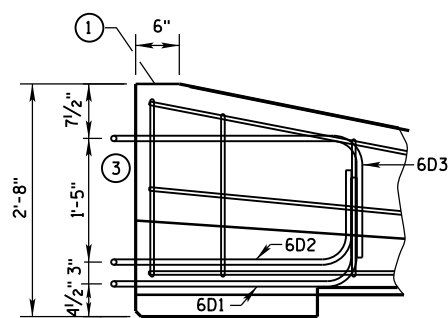
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.  
PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
  - a. TYPE: WICBTP
  - b. MANUFACTURER
  - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A  $\frac{3}{8}$ " HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- ④ "V" NOTCH IS OPTIONAL.
- ⑤ THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- ⑥ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- ⑦ USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- ⑧ SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- ⑨ 1" CHAMFER OPTIONAL.

 $f'_c = 4,000 \text{ psi}$ 

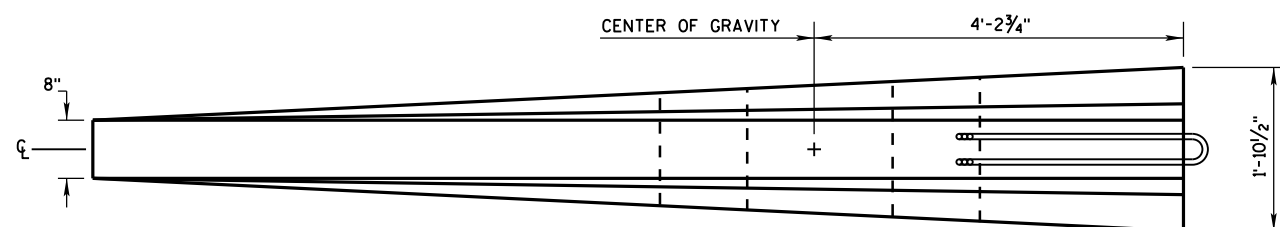
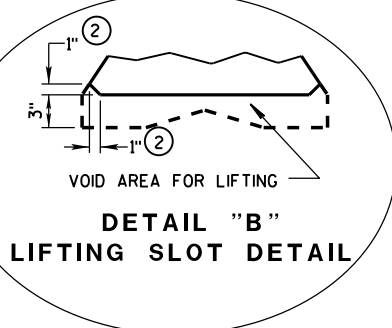
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 127

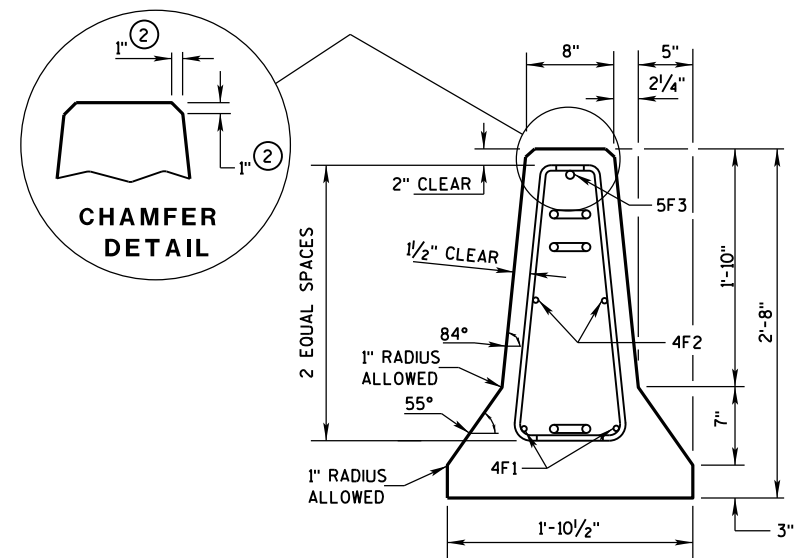


LOOP BAR ASSEMBLY INVERTED  
FOR OPPOSITE END.  
(FOR CONNECTION TO RIGHT END OF BARRIER)

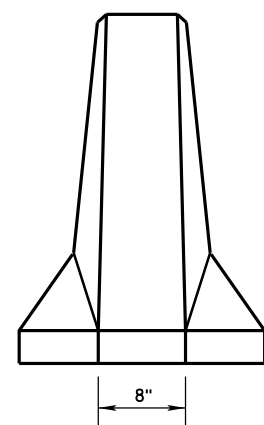
- ## GENERAL NOTES
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
    - a. TYPE WICBTP
    - b. MANUFACTURER
    - c. DATE MANUFACTURED (MONTH AND YEAR)
  - ② 1" CHAMFER TO PREVENT SPALLING.
  - ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



### PLAN VIEW

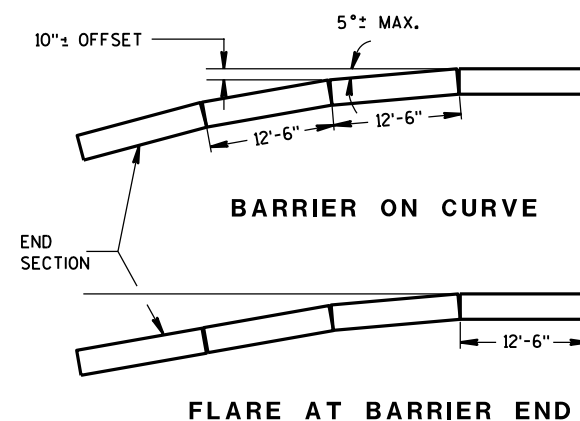


**END SECTION**



**FRONT ELEVATION**

### DETAILS OF BARRIER TAPER SECTION



| POSTED<br>SPEED, (MPH) | FLARE<br>RATE |
|------------------------|---------------|
| 40 OR LESS             | 6:1           |
| 45 OR GREATER          | 8:1           |

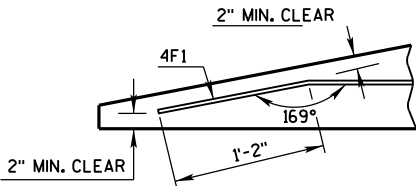
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 128

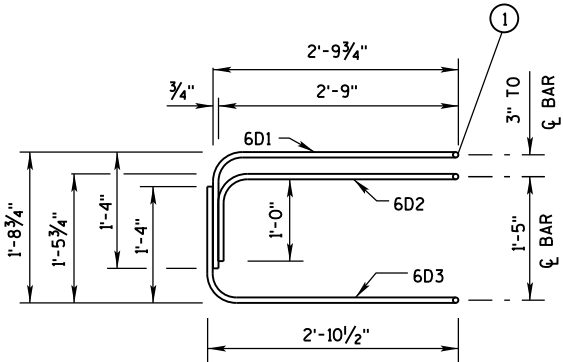
BARRIER TAPER SECTION  
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

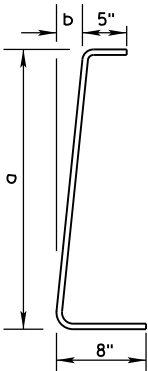
| BAR           | BAR SIZE | NO. OF BARS | LENGTH FT. |
|---------------|----------|-------------|------------|
| 4V1           | 4        | 2           | 1'-11"     |
| 4V2           | 4        | 2           | 2'-2"      |
| 4V3           | 4        | 2           | 2'-6"      |
| 4V4           | 4        | 2           | 2'-9"      |
| 4V5           | 4        | 2           | 3'-2"      |
| 4V6           | 4        | 2           | 3'-4"      |
| 4F1           | 4        | 2           | 12'-0"     |
| 4F2           | 4        | 2           | 7'-6"      |
| 5F3           | 5        | 1           | 11'-9"     |
| LOOP ASSEMBLY |          |             |            |
| 6D1           | 6        | 1           | 8'-5"      |
| 6D2           | 6        | 1           | 7'-7"      |
| 6D3           | 6        | 1           | 8'-6"      |



DETAIL "C"  
BENT BAR DETAIL



ELEVATION  
LOOP BAR ASSEMBLY



4V BARS  
2 AT EACH SIZE REQUIRED  
FOR STIRRUP ASSEMBLY

| BAR | a         | b      |
|-----|-----------|--------|
| V1  | 10"       | 1"     |
| V2  | 1'-1"     | 1 1/4" |
| V3  | 1'-5"     | 1 5/8" |
| V4  | 1'-8"     | 1 7/8" |
| V5  | 2'-0 1/2" | 2 3/8" |
| V6  | 2'-3"     | 2 3/4" |

TAPER BARRIER SECTION

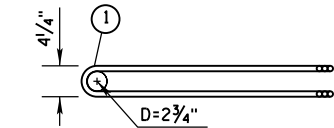
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION  
BILL OF MATERIALS

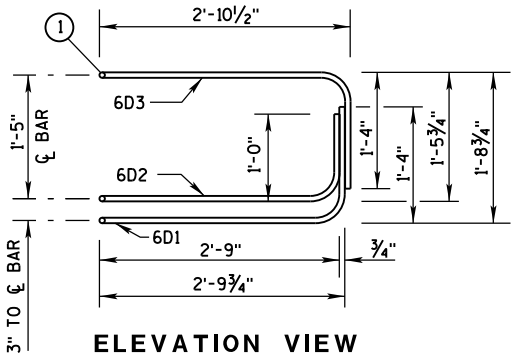
(PER 12'-6" BARRIER SECTION)

| BAR           | BAR SIZE | NO. OF BARS | LENGTH FT. |
|---------------|----------|-------------|------------|
| 4A1           | 4        | 12          | 6'-0"      |
| 6A2           | 6        | 6           | 2'-11"     |
| 5B1           | 5        | 3           | 12'-2"     |
| 4C1           | 4        | 2           | 12'-2"     |
| LOOP ASSEMBLY |          |             |            |
| 6D1           | 6        | 2           | 8'-5"      |
| 6D2           | 6        | 2           | 7'-7"      |
| 6D3           | 6        | 2           | 8'-6"      |

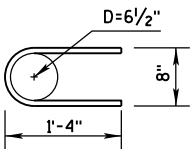


PLAN VIEW  
LOOP BAR ASSEMBLY

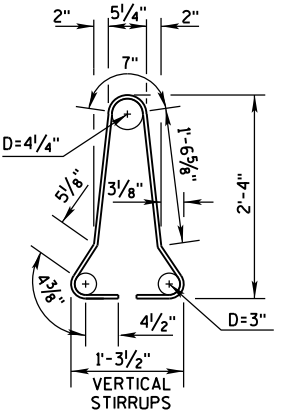
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

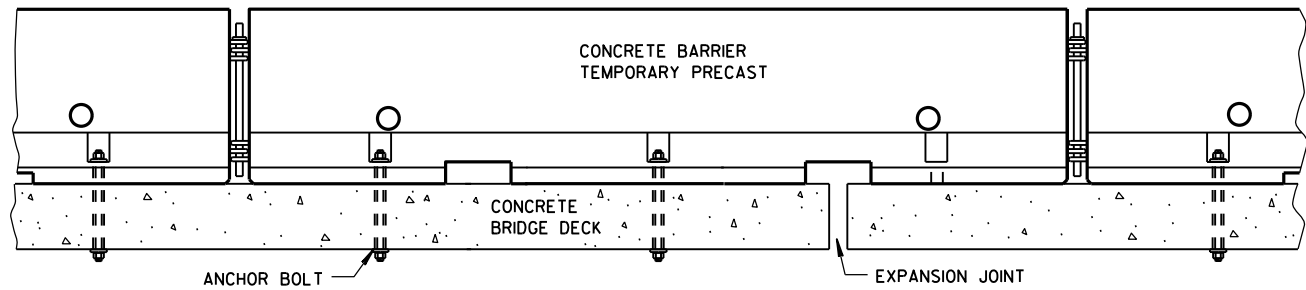
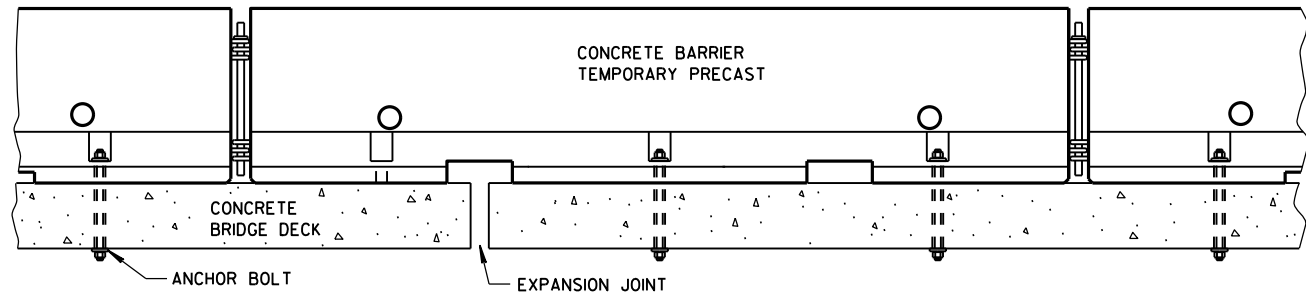


4A1

BARRIER SECTION

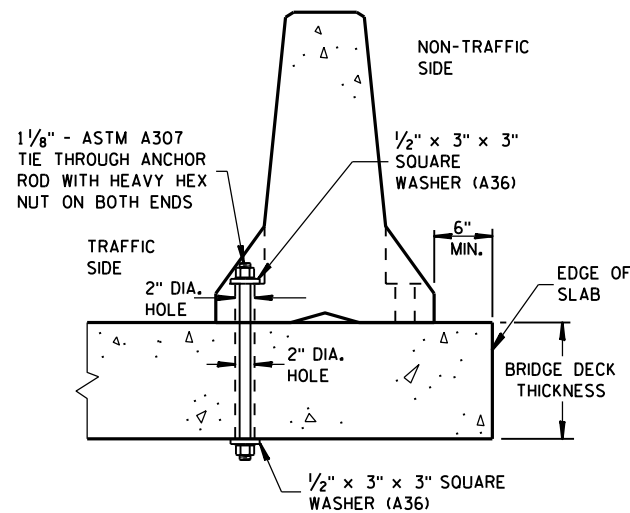
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 129



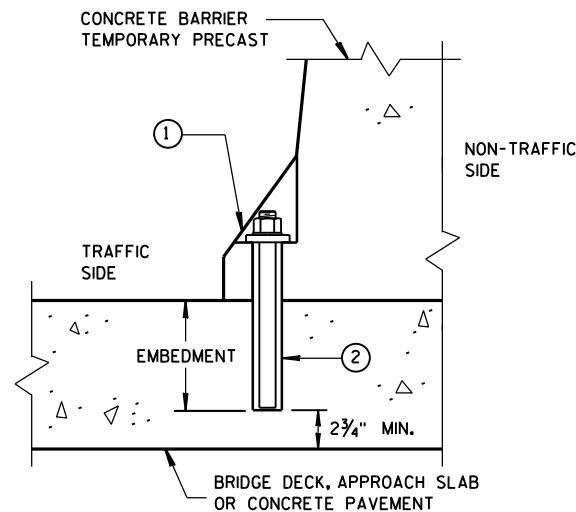
### TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



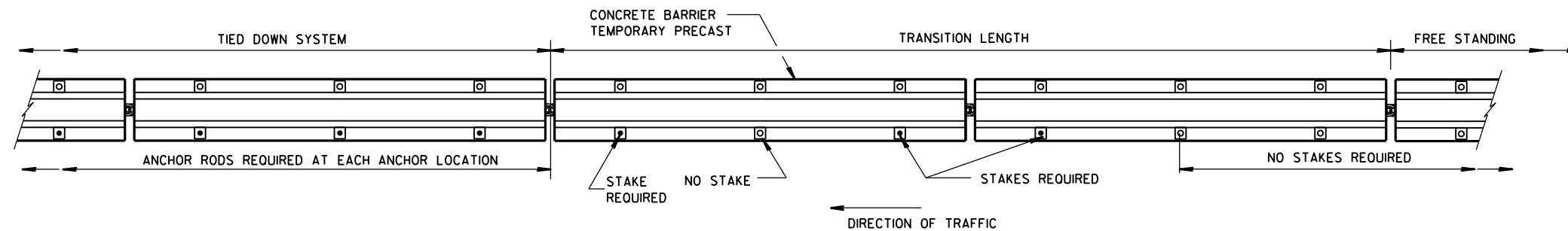
### THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



### REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



### PLAN VIEW

### FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

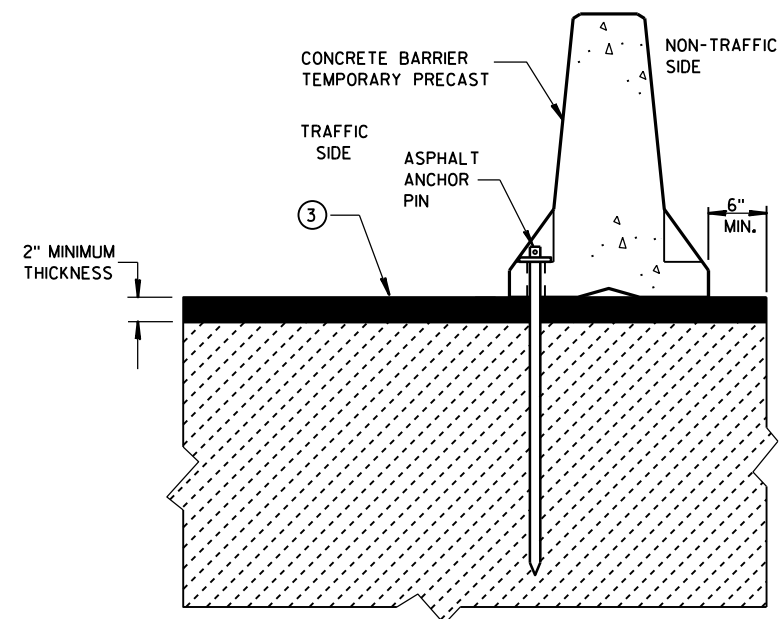
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

### GENERAL NOTES

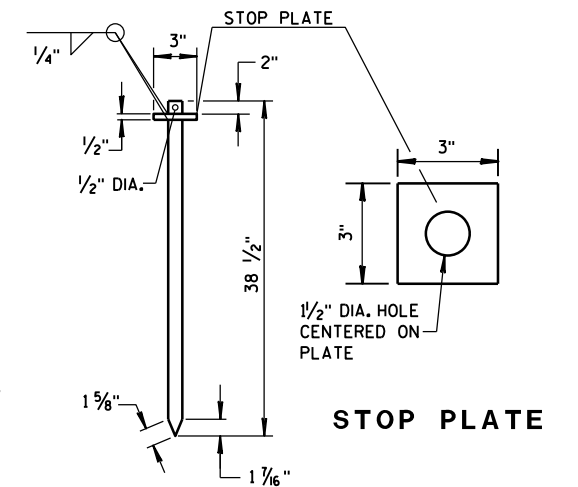
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



### STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



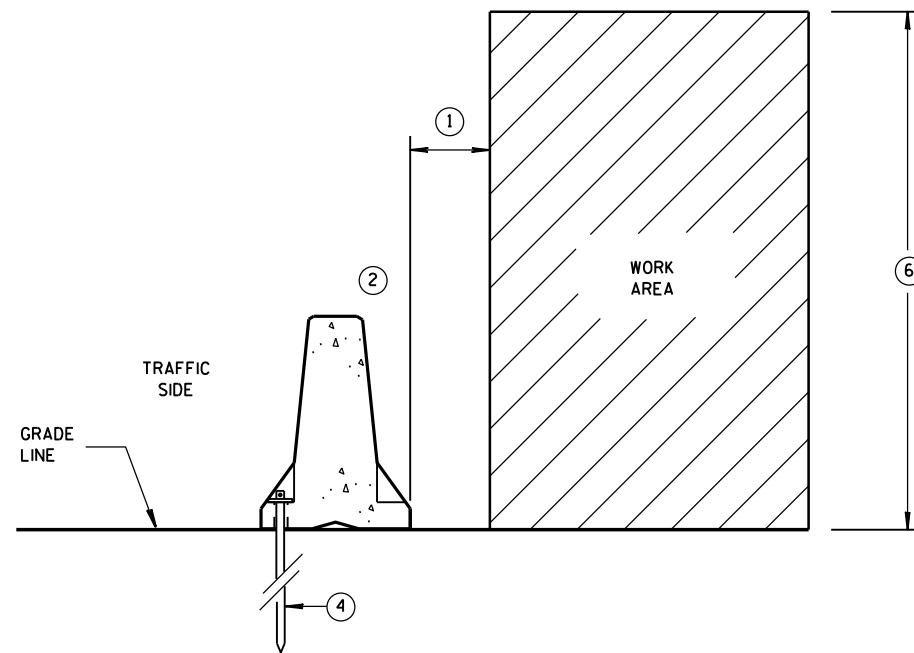
### ASPHALT ANCHOR PIN

(ASTM A36 STEEL)

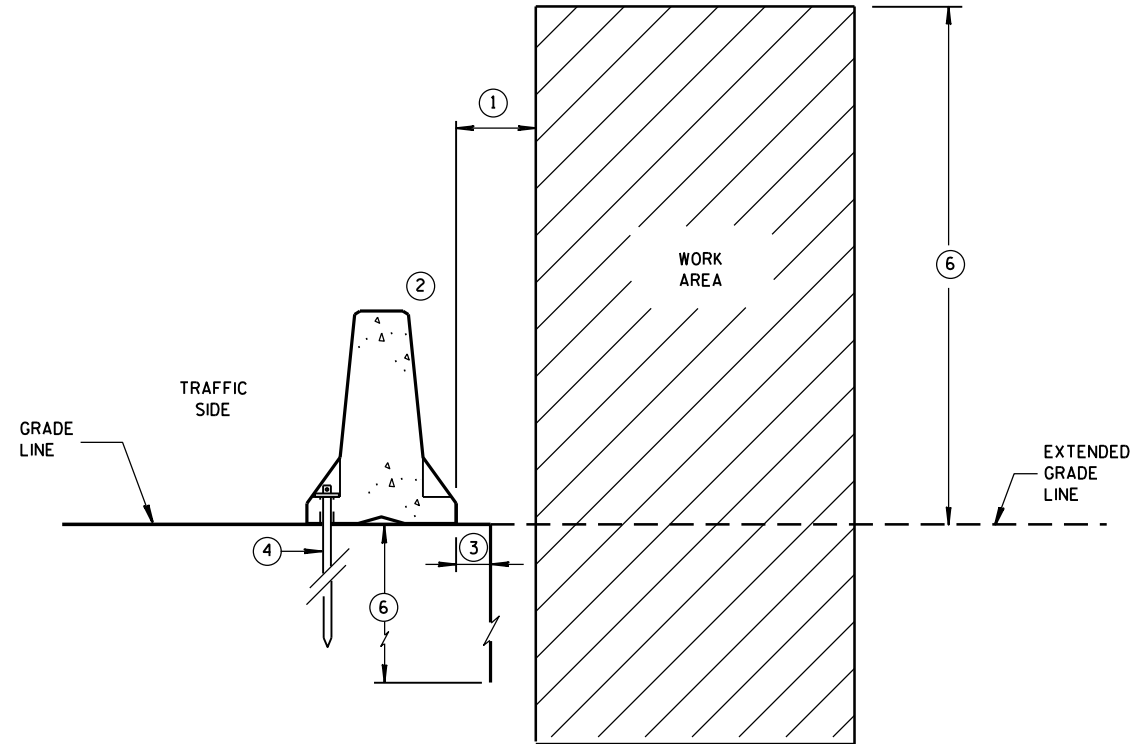
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 130





**ANCHORED BARRIER SPACE REQUIREMENTS  
FOR HAZARDS EXTENDED  
ABOVE THE GRADE LINE**

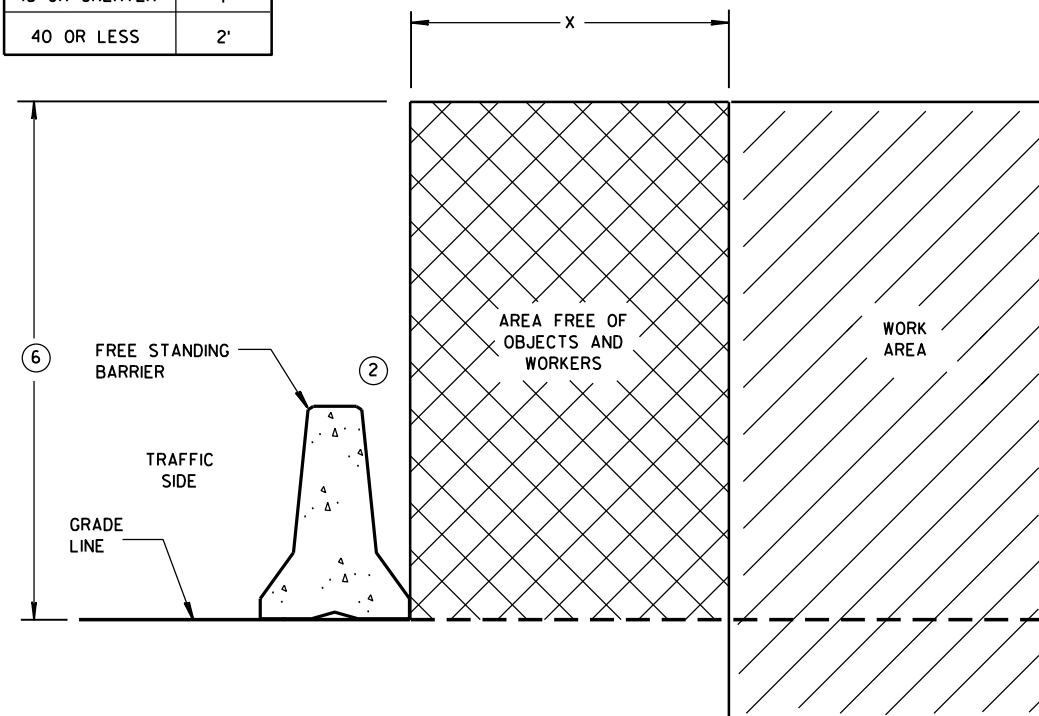


**ANCHORED BARRIER SPACE REQUIREMENTS  
ON VERTICAL DROP OFFS**

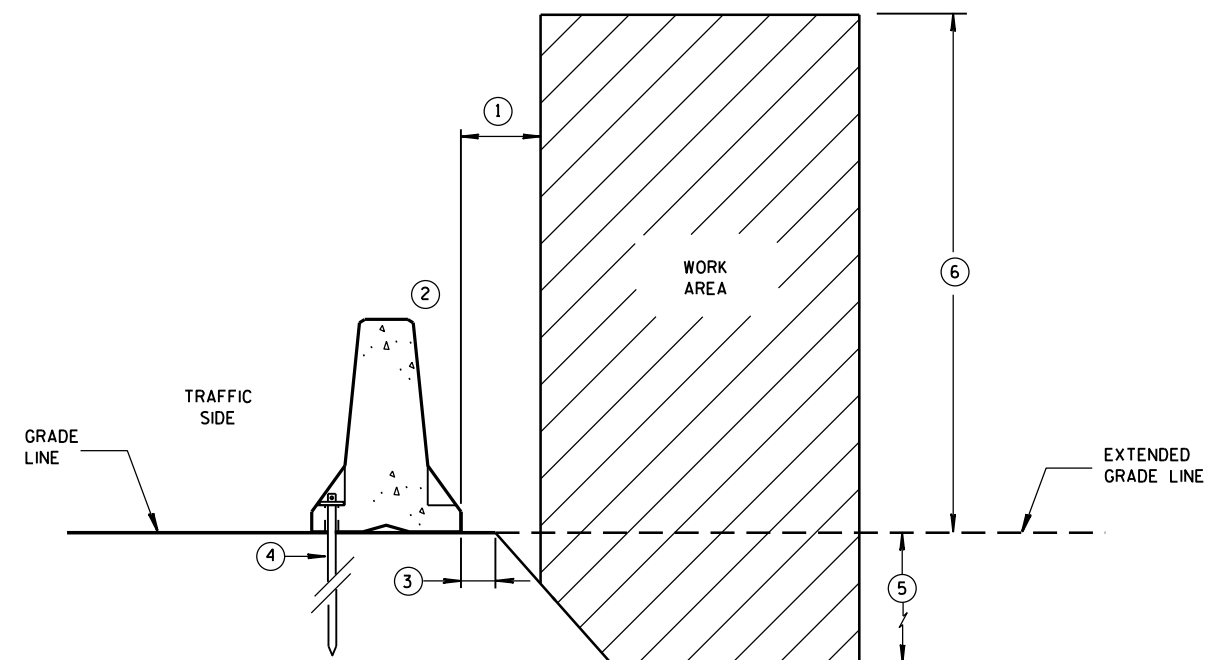
### GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

| POSTED SPEED<br>MPH | X  |
|---------------------|----|
| 45 OR GREATER       | 4' |
| 40 OR LESS          | 2' |



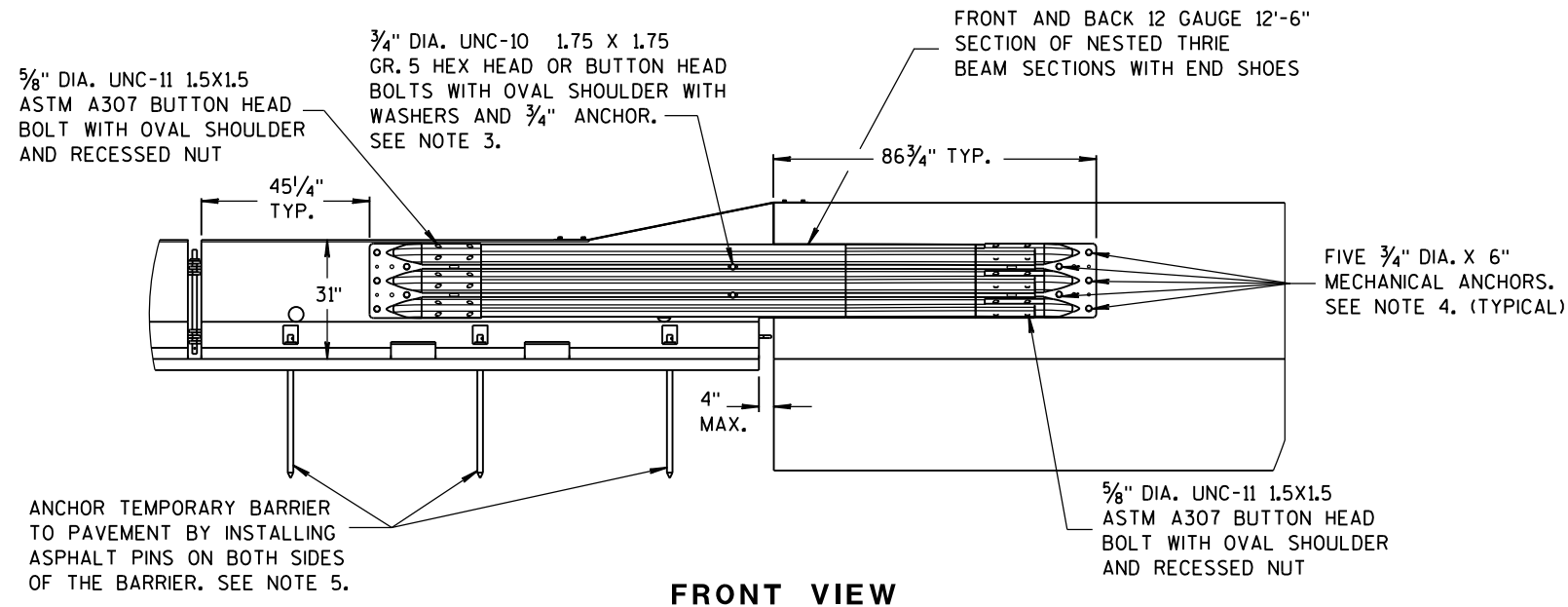
**FREE STANDING BARRIER SPACE REQUIREMENTS**



**ANCHORED BARRIER SPACE REQUIREMENTS  
ON SLOPES**

**CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 131



FRONT VIEW

# NOTES

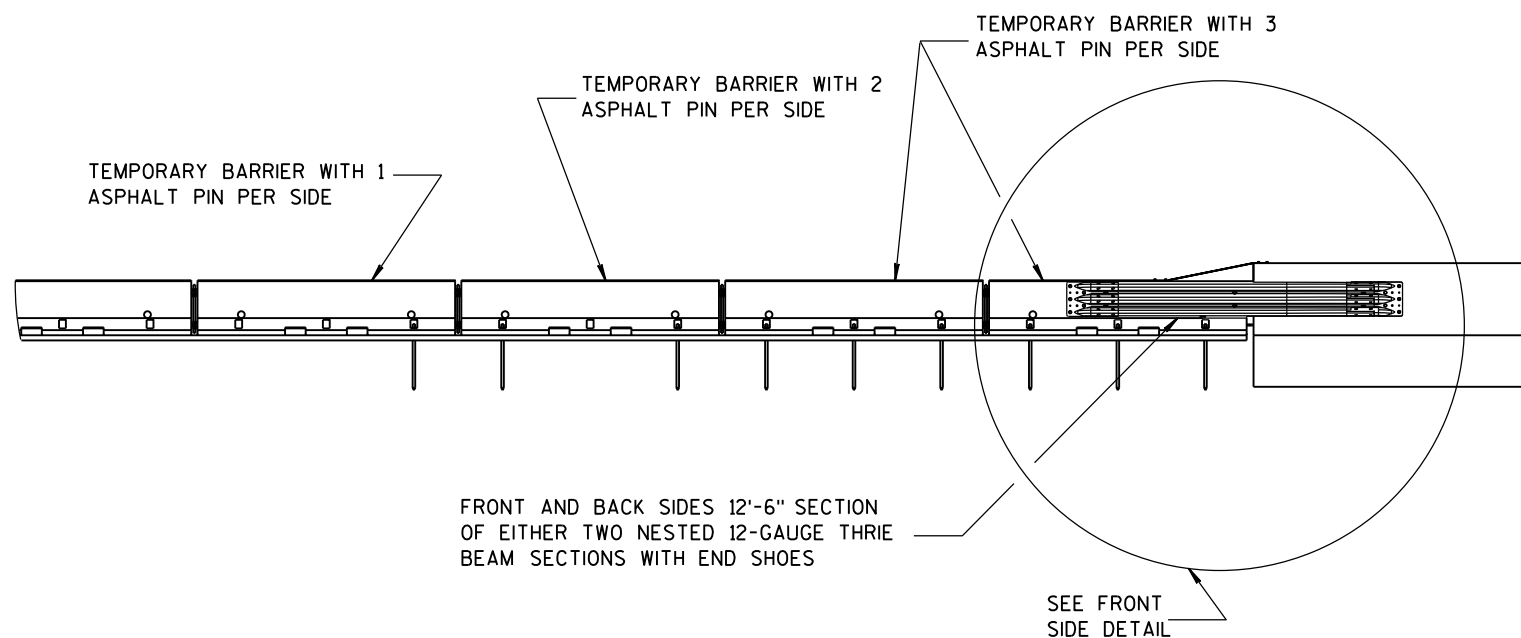
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.

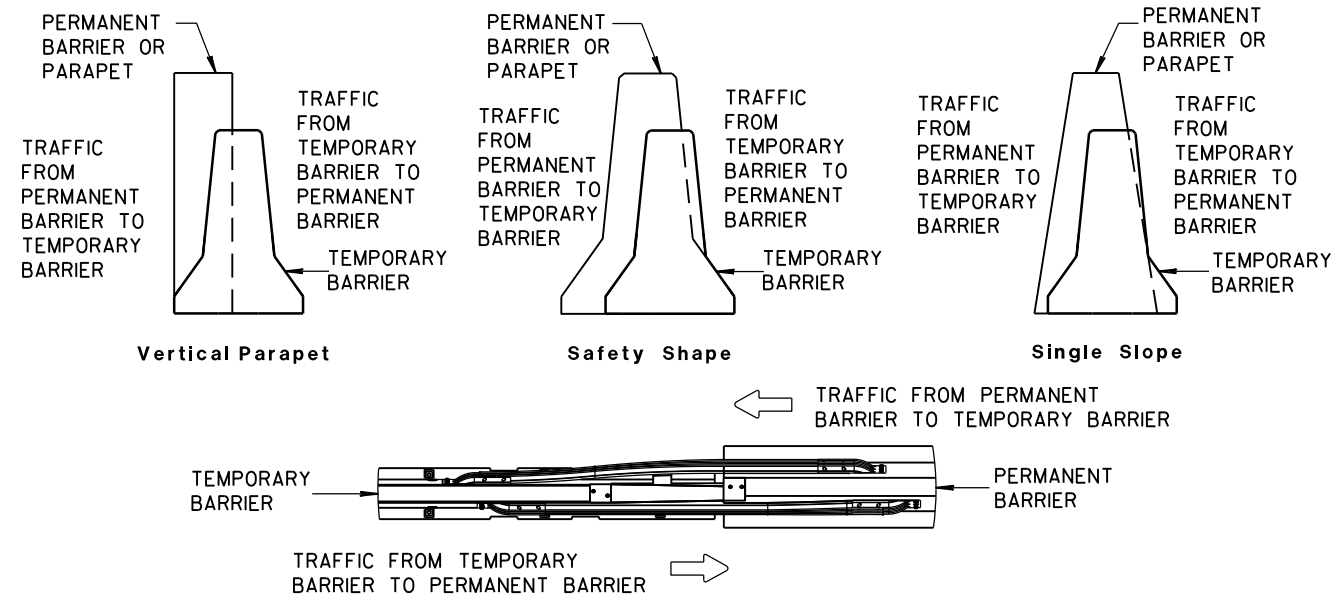
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.

6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

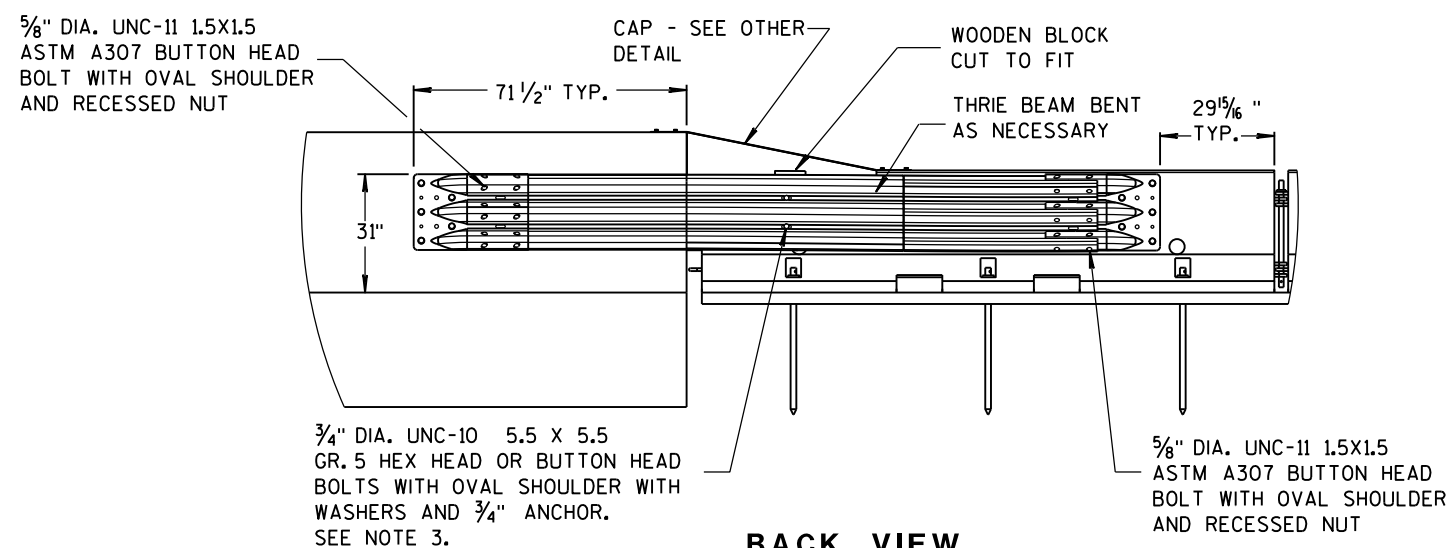


FRONT VIEW

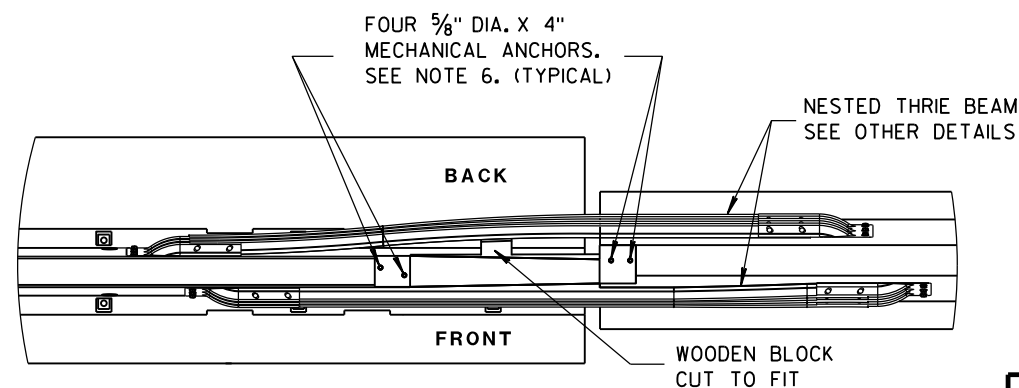
## BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



## TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



BACK VIEW

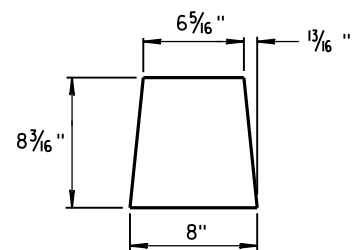


PLAN VIEW

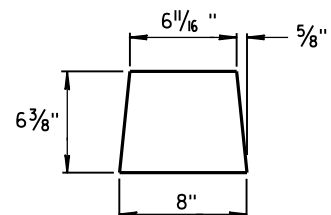
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 132

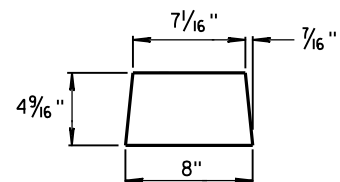




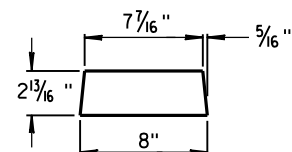
**GUSSET 1**



**GUSSET 2**

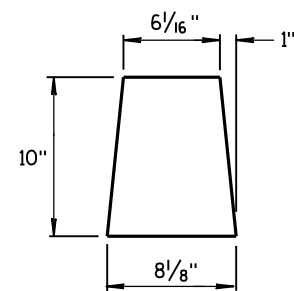


**GUSSET 3**

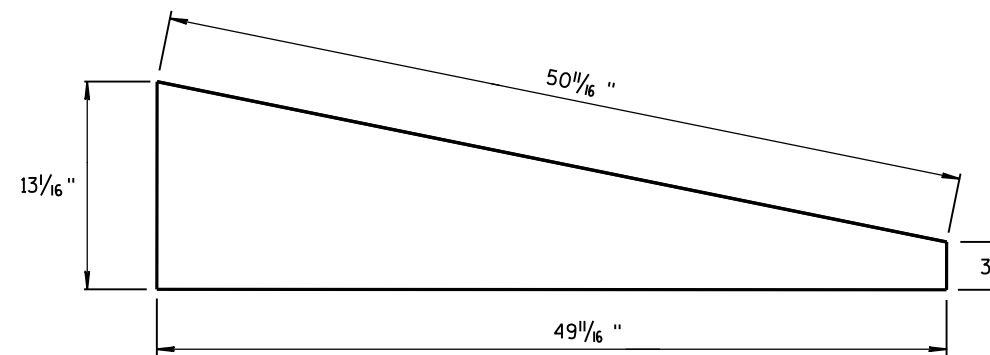


**GUSSET 4**

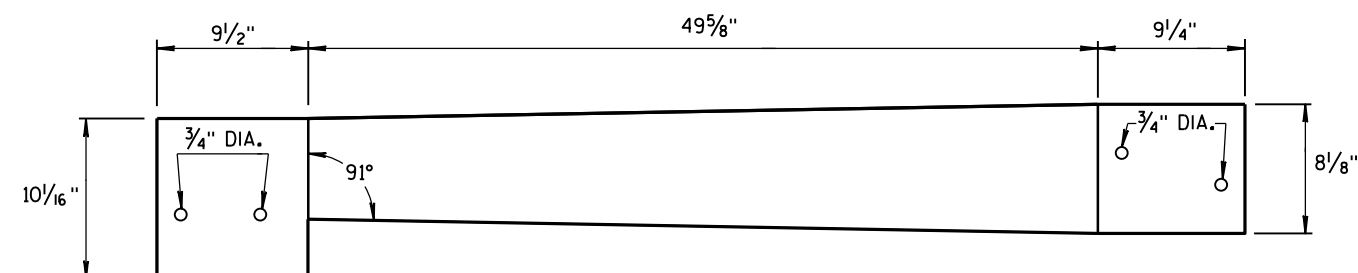
**GUSSETS**



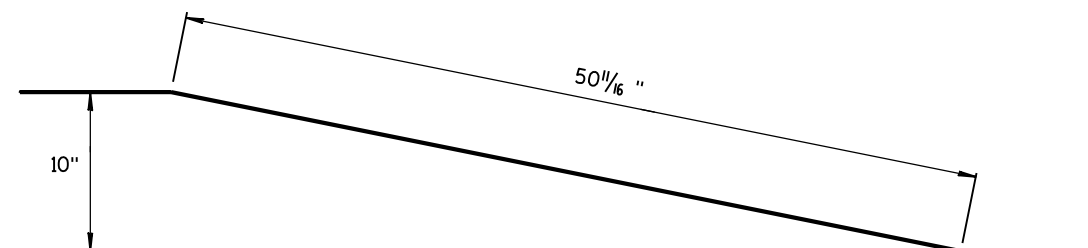
**END PLATE**



**SIDE PLATE**

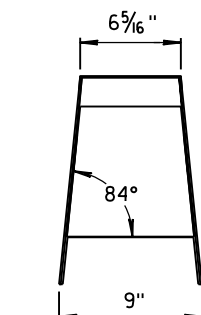
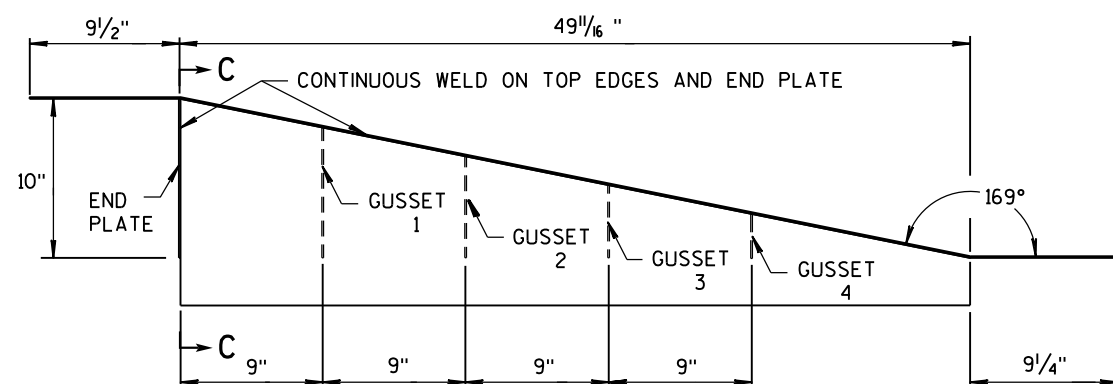
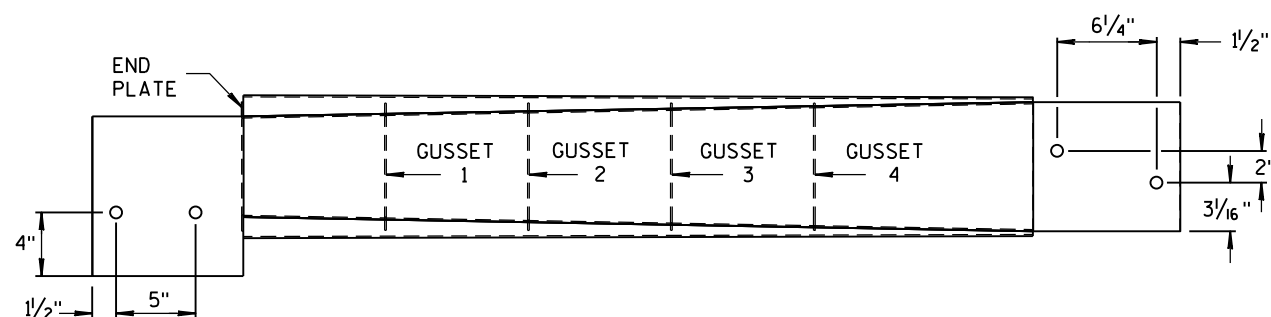


**TOP PLATE**



**SIDE, TOP AND END PLATES FOR CAP  
FROM TEMPORARY CONCRETE BARRIER  
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



**SECTION C-C**

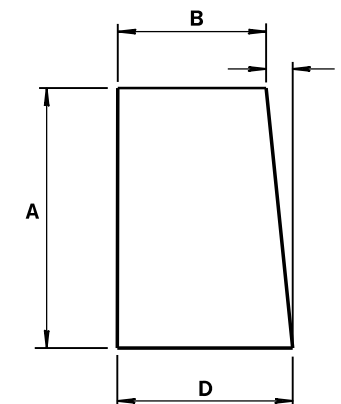
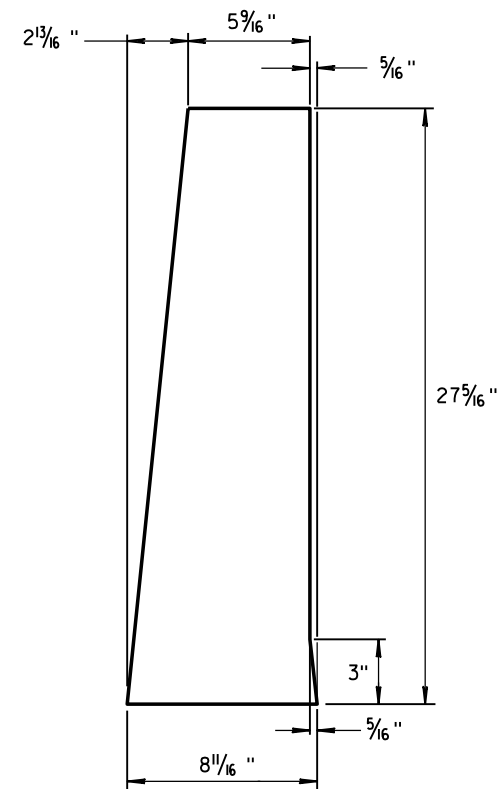
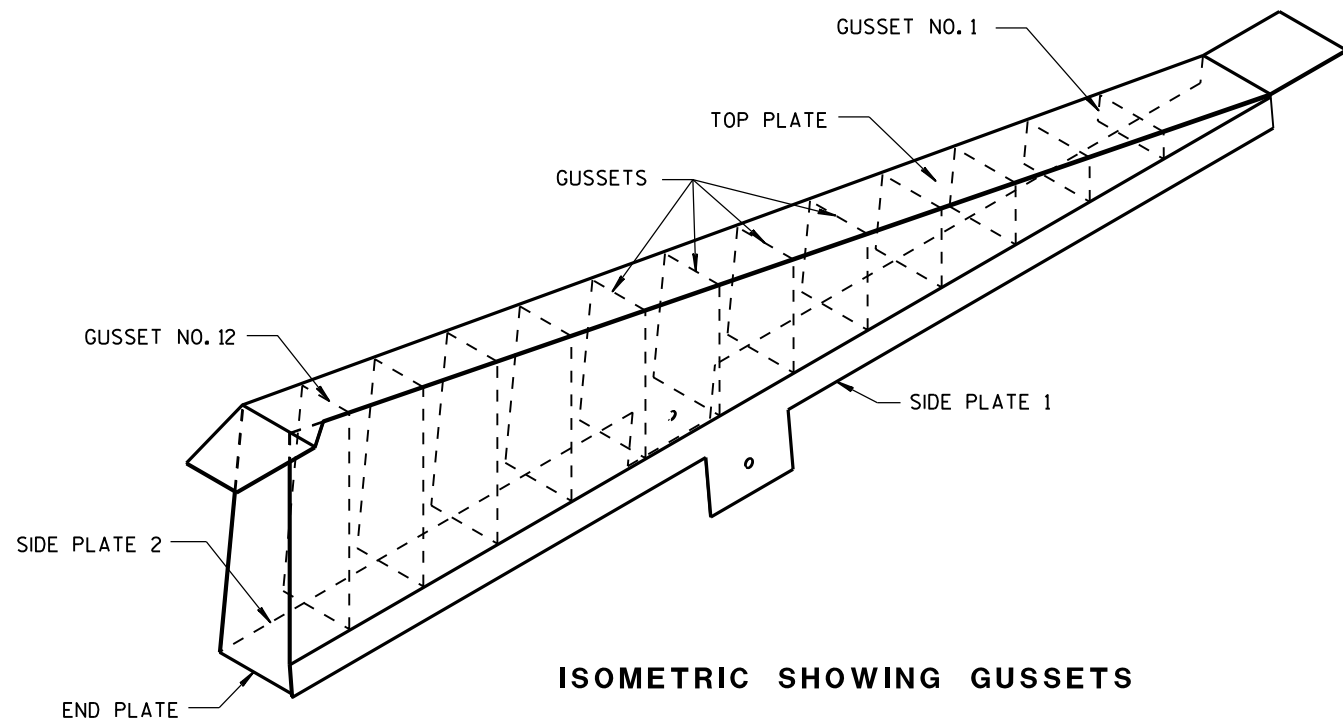
**NOTES**

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

**CAP DETAILS FOR TEMPORARY CONCRETE  
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 133

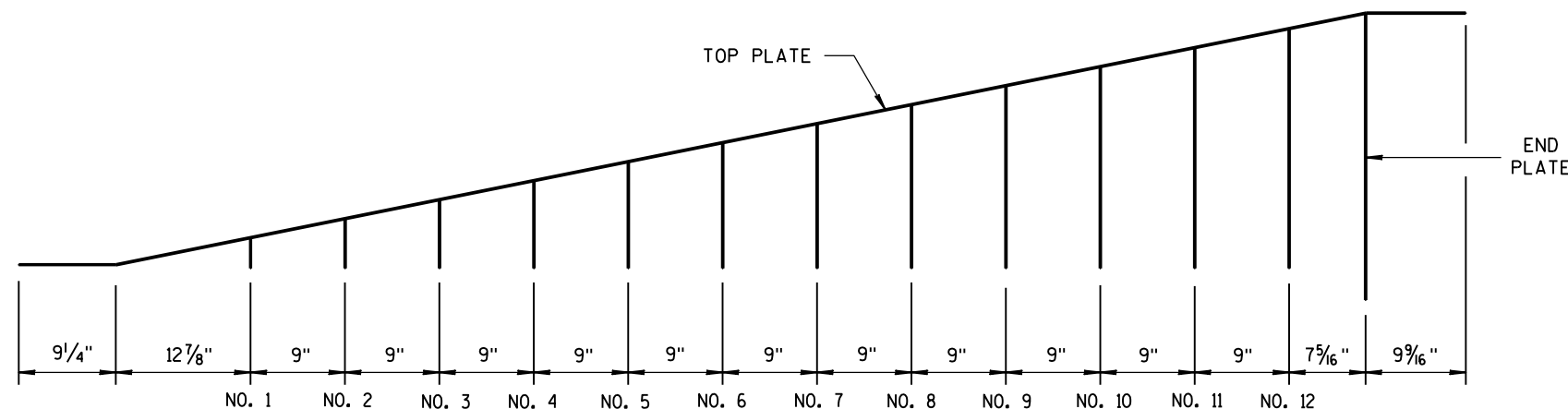


GUSSETS 1 - 12  
ALL GUSSETS 1/8" STEEL PLATE

| GUSSET DIMENSIONS |            |           |          |          |
|-------------------|------------|-----------|----------|----------|
| GUSSET NO.        | A          | B         | C        | D        |
| 1                 | 2 7/8"     | 7 3/4"    | 1/4"     | 8        |
| 2                 | 4 1/16 "   | 7 9/16 "  | 1/2"     | 8        |
| 3                 | 6 1/2"     | 7 3/8"    | 1 1/16 " | 8 1/16 " |
| 4                 | 8 5/16"    | 7 3/16"   | 7/8"     | 8 1/16"  |
| 5                 | 10 1/8"    | 7"        | 1 1/16"  | 8 1/16"  |
| 6                 | 11 5/16 "  | 6 13/16 " | 1 1/4"   | 8 1/16"  |
| 7                 | 13 3/4"    | 6 5/8"    | 1 7/16"  | 8 1/16"  |
| 8                 | 15 9/16"   | 6 7/16"   | 1 9/16"  | 8 1/16"  |
| 9                 | 17 3/8"    | 6 1/4"    | 1 13/16" | 8 1/16"  |
| 10                | 19 3/16"   | 6 1/16"   | 1 15/16" | 8 1/16"  |
| 11                | 21"        | 5 7/8"    | 2 3/16"  | 8 1/16"  |
| 12                | 22 13/16 " | 5 11/16 " | 2 5/16"  | 8 1/16"  |

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

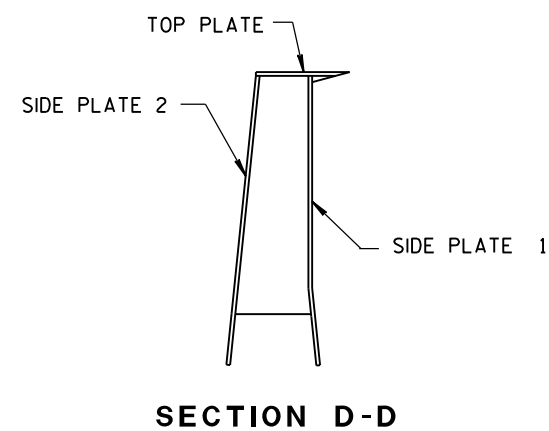
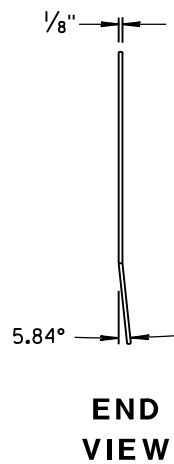
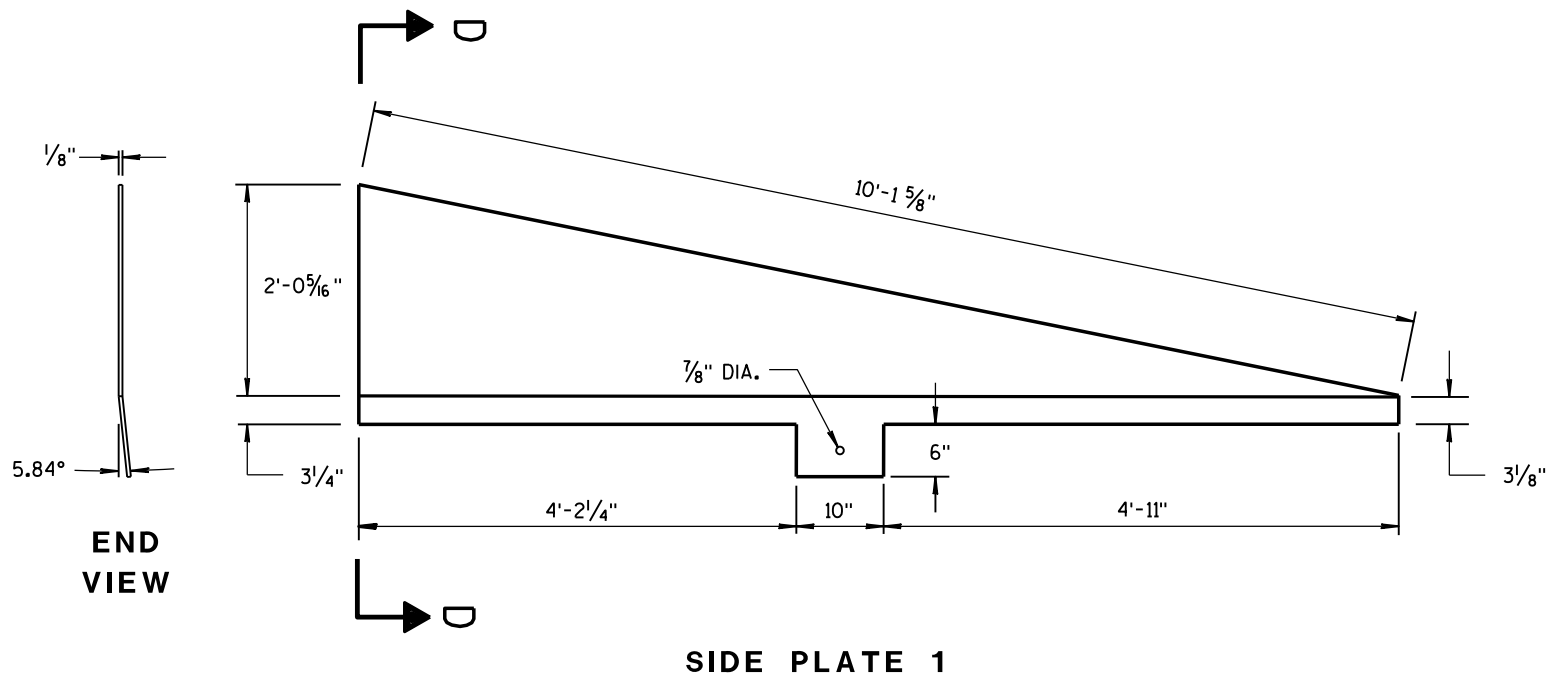
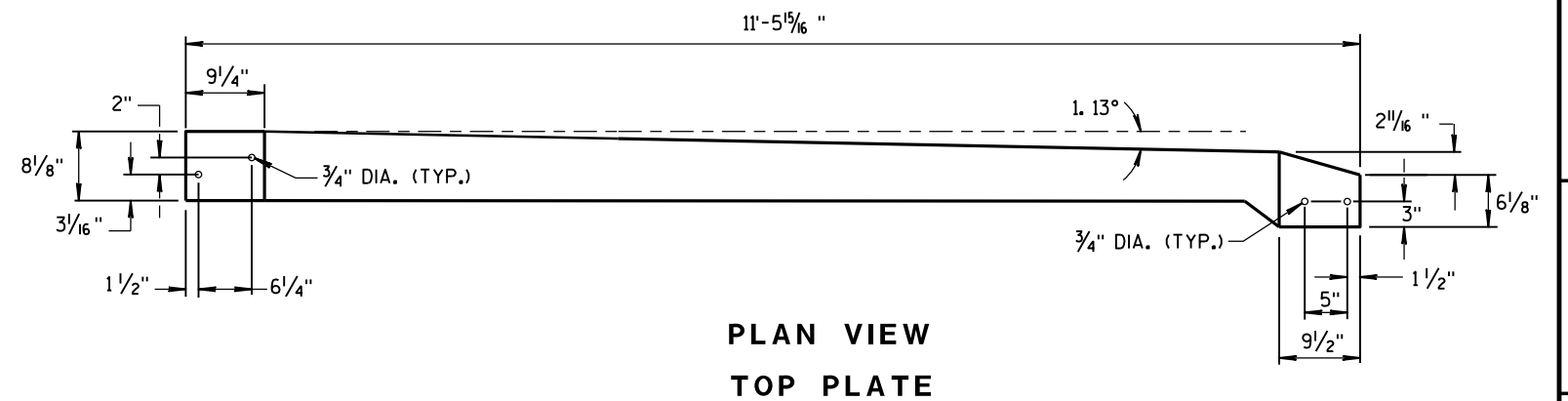
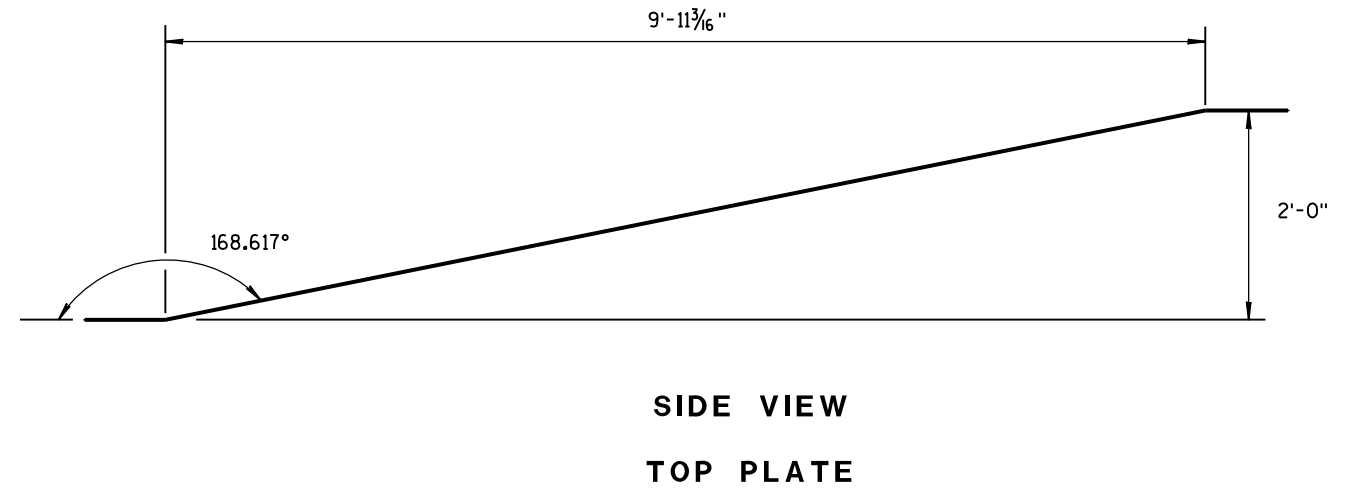
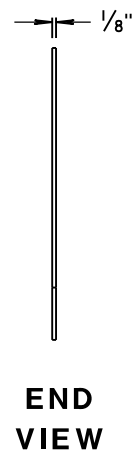
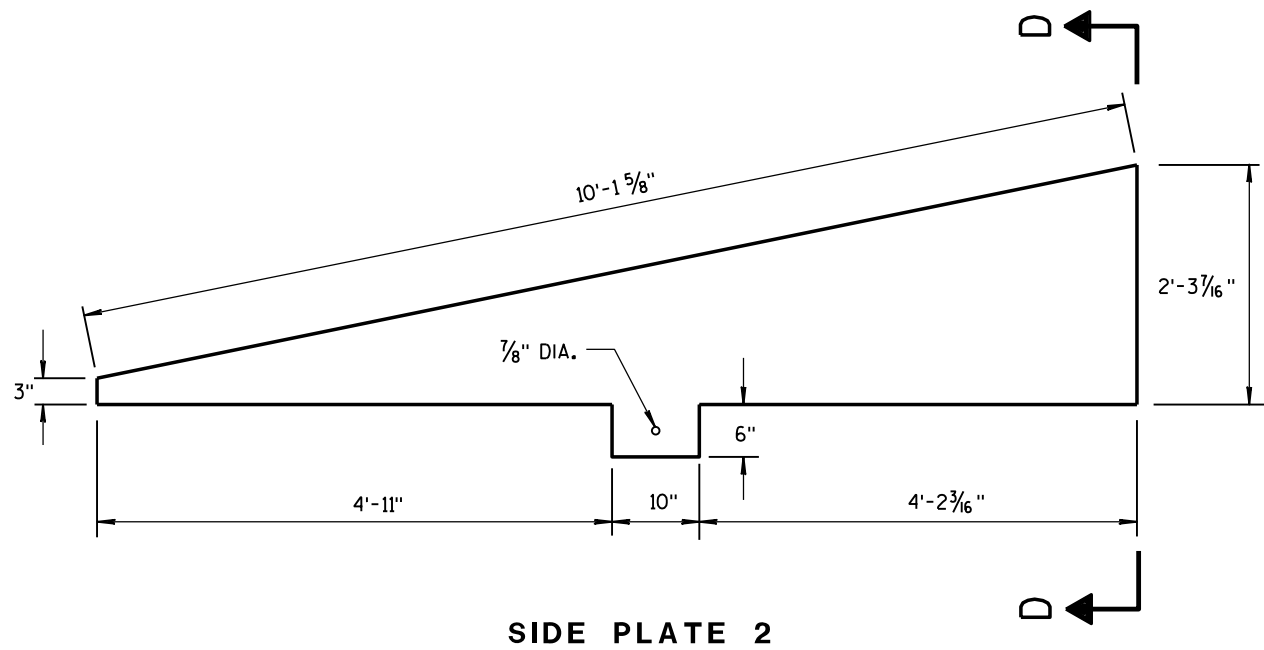


GUSSET LOCATION

CAP DETAILS FOR TEMPORARY CONCRETE  
BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

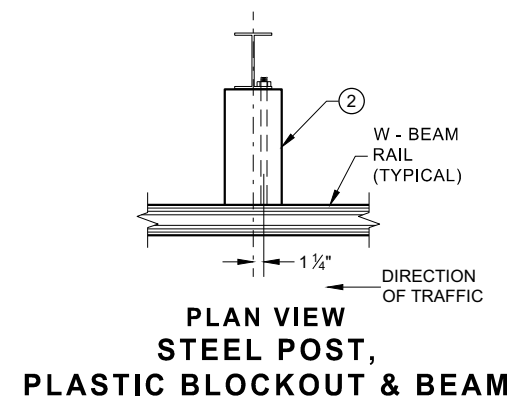
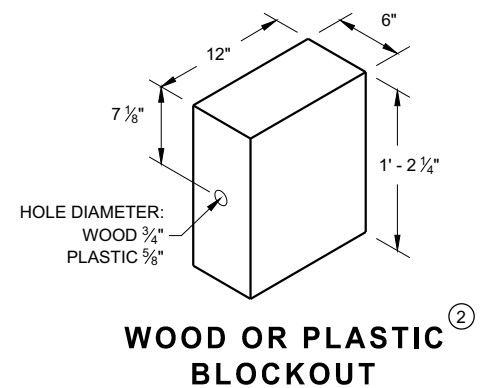
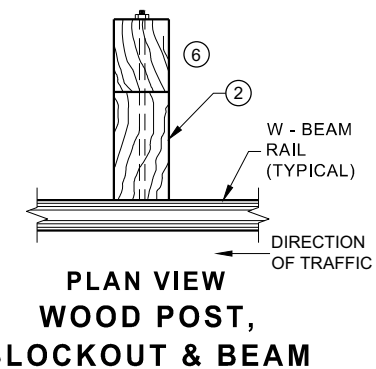
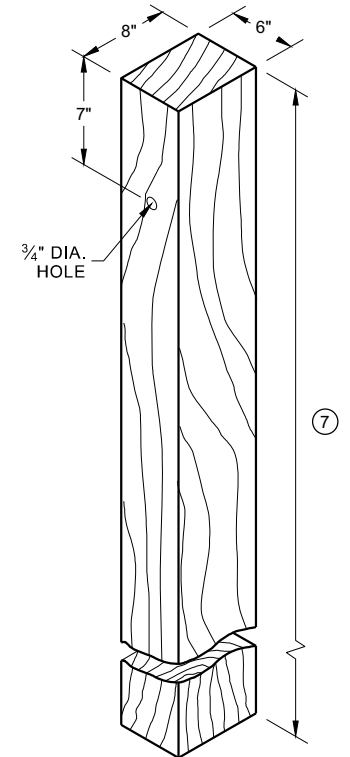
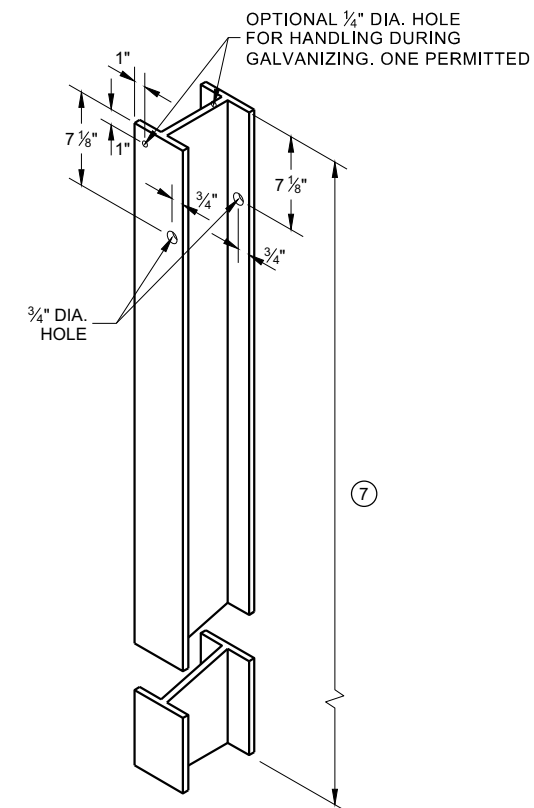
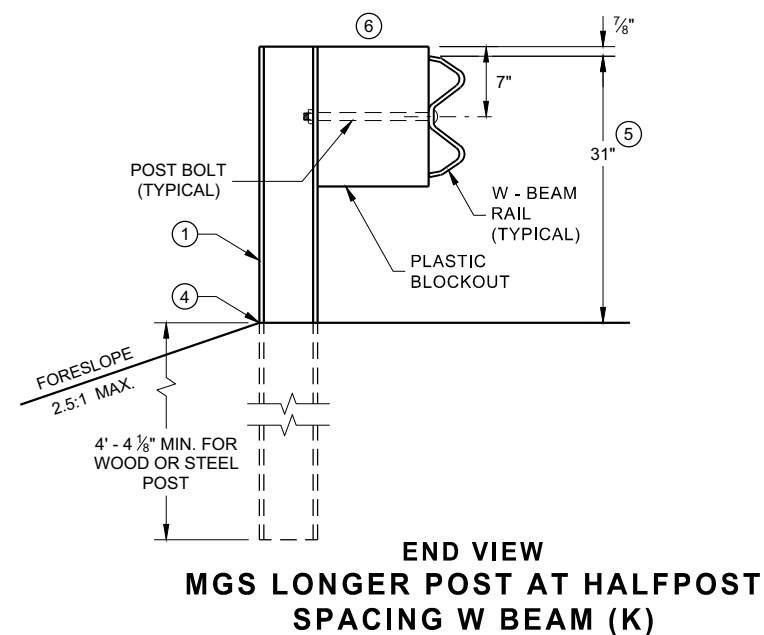
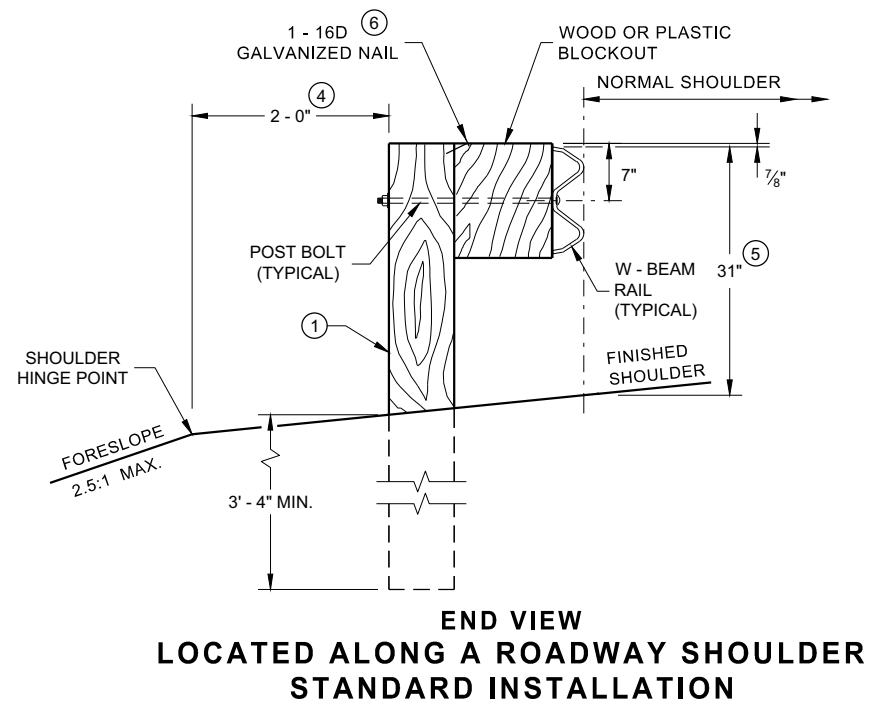
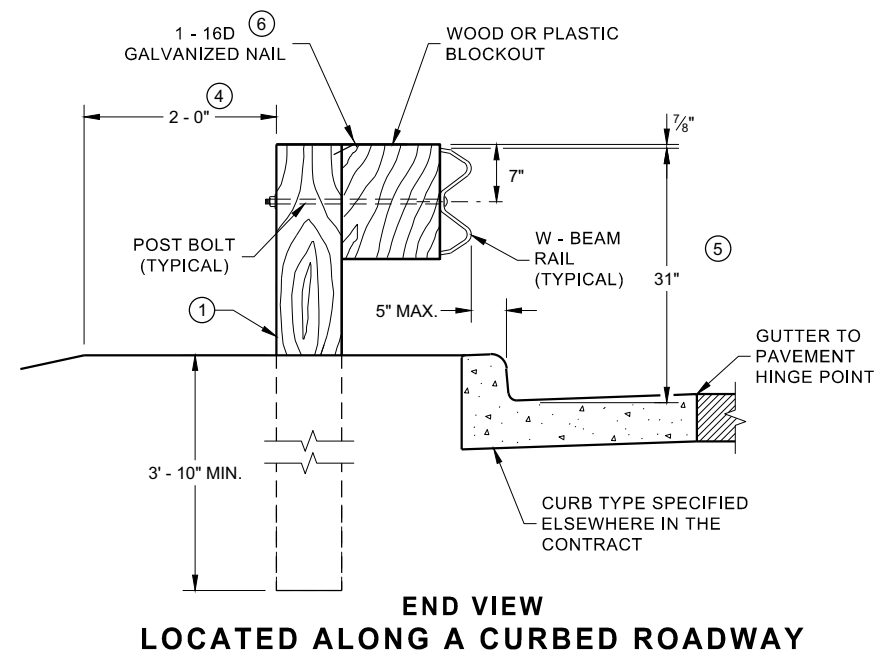
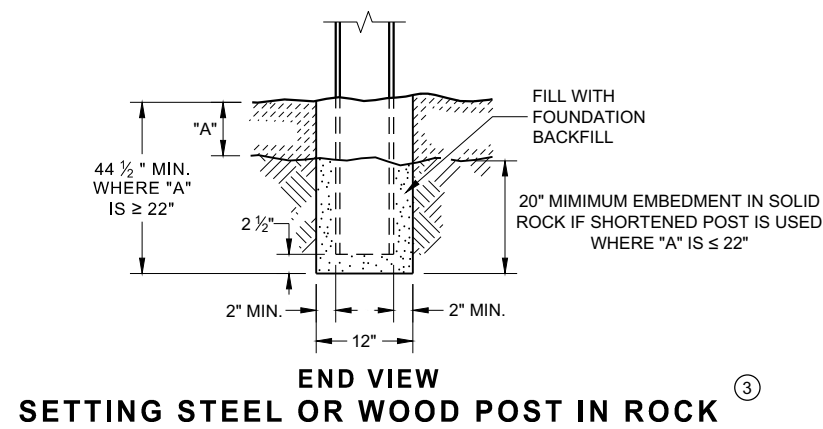
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 134



**CAP DETAILS FOR TEMPORARY CONCRETE  
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

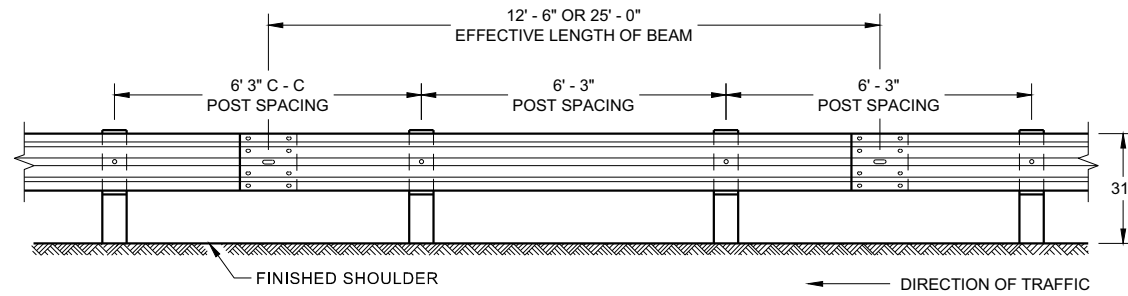
|                                                    |                   |     |     |
|----------------------------------------------------|-------------------|-----|-----|
| CONCRETE BARRIER<br>TEMPORARY PRECAST, 12'-6"      |                   |     |     |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                   |     |     |
| APPROVED<br>June 2017                              | /S/ Rodney Taylor |     |     |
| DATE                                               | ROADWAY STANDARD  | 135 | ENT |
| FHWA                                               | UNIT SUPERV       |     |     |

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".  
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

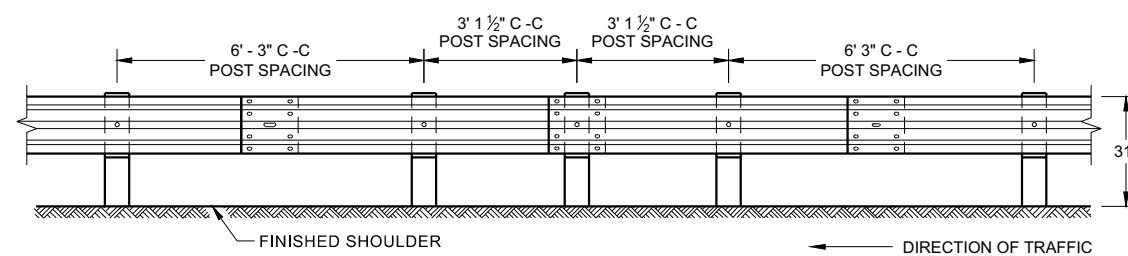


**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

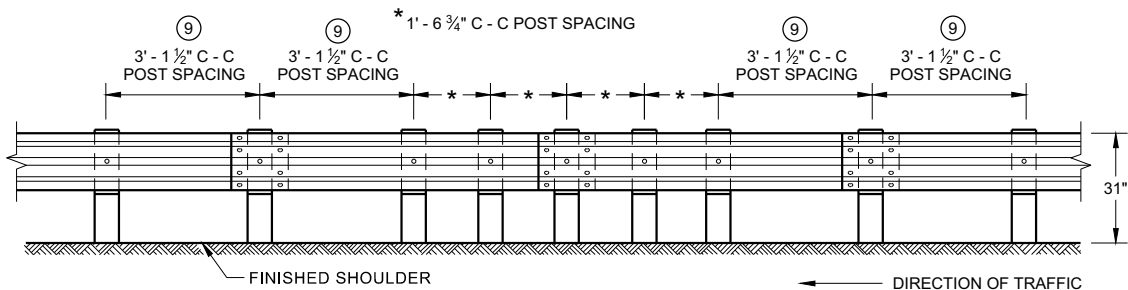
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 136



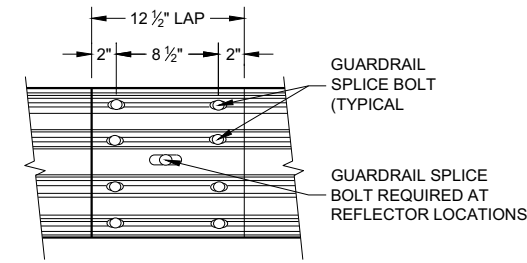
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



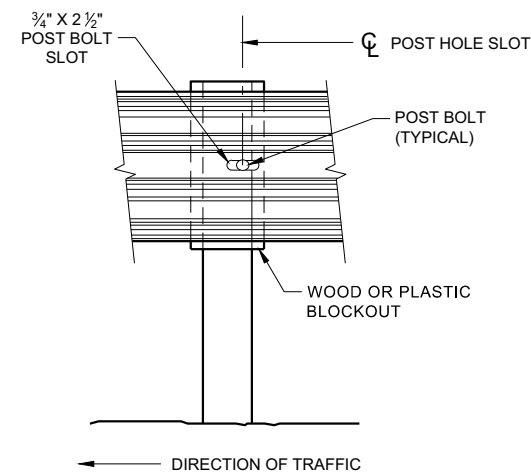
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



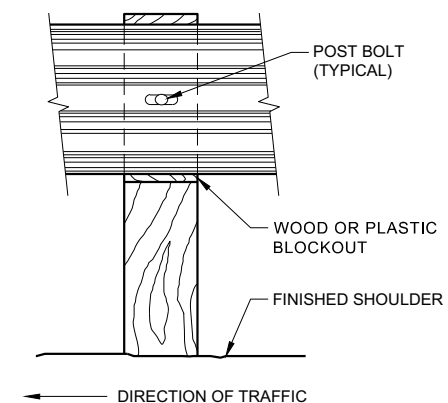
**FRONT VIEW  
QUARTER POST SPACING (QS)**



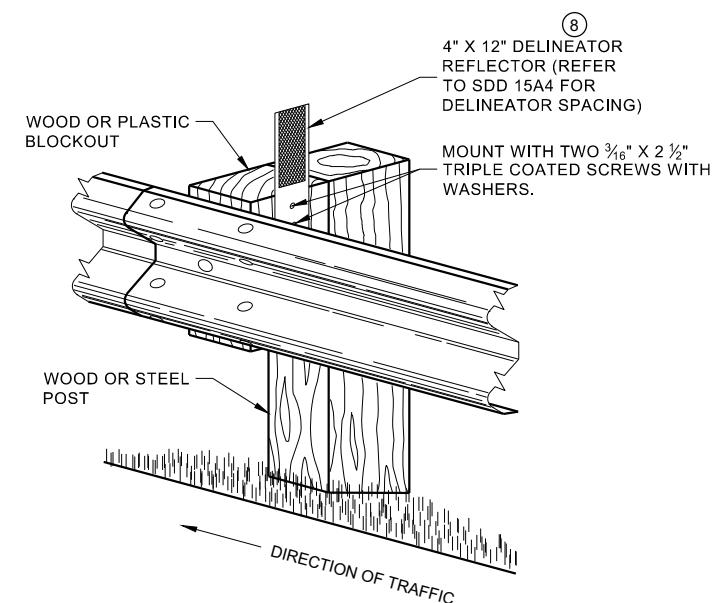
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



**FRONT VIEW AT STEEL POST**



**FRONT VIEW AT WOOD POST**



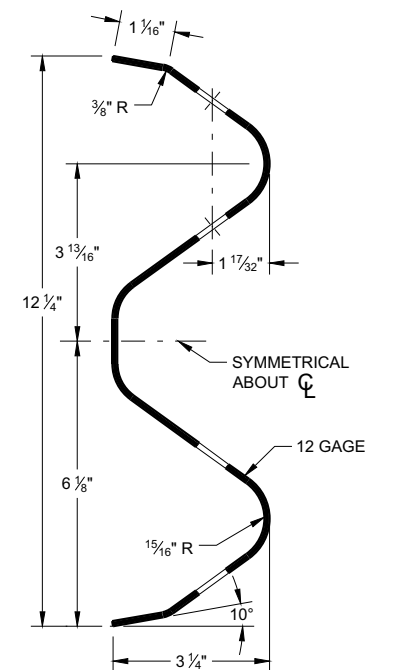
**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

## GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

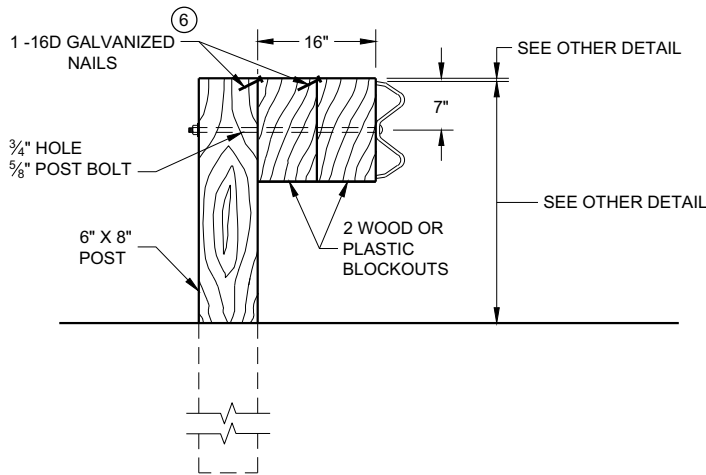
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



**SECTION THRU W-BEAM RAIL**

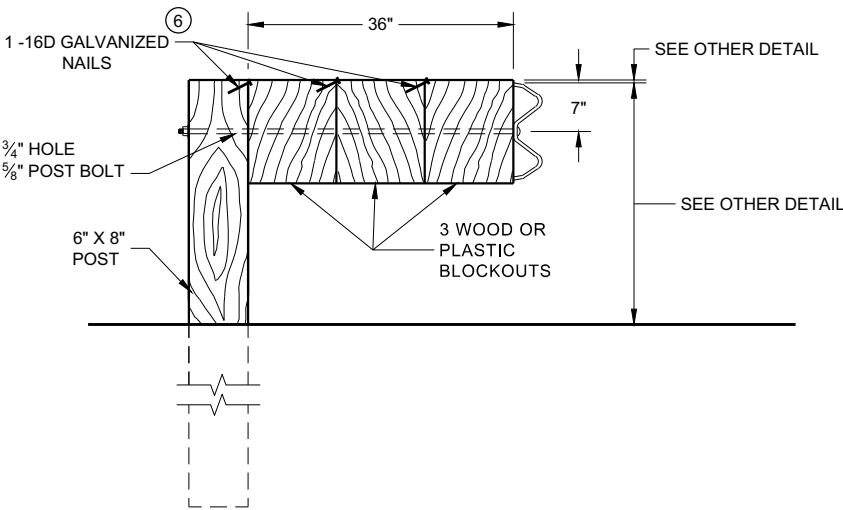
**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 137



DETAIL FOR 16" BLOCKOUT DEPTH

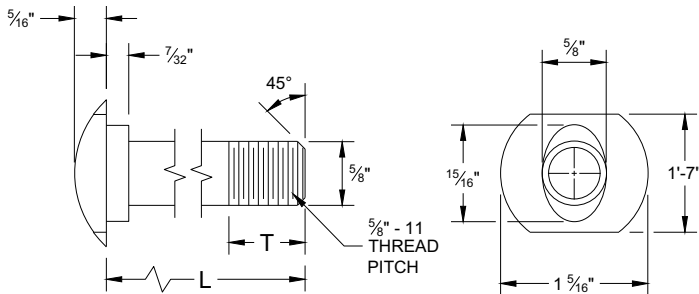
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

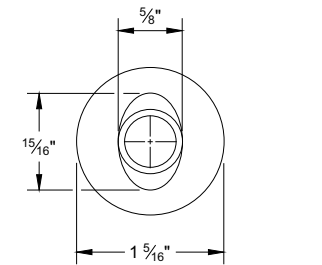
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

- NOTE:
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
  - 2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

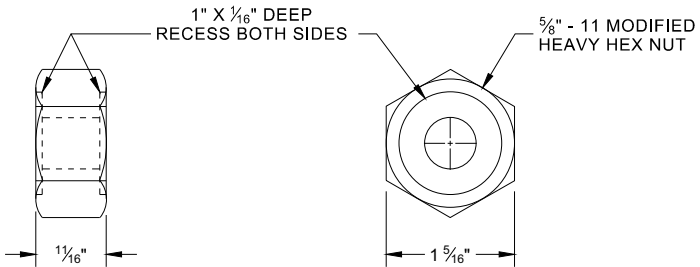


POST BOLT TABLE

| L      | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8"   |
| 2"     | 1 3/4"   |
| 10"    | 4"       |
| 14"    | 4 1/16"  |
| 18"    | 4"       |
| 21"    | 4 1/16"  |
| 25"    | 4"       |

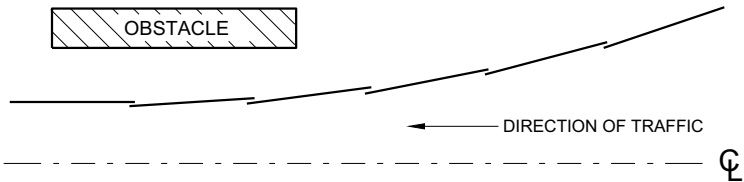


ALTERNATE BOLT HEAD

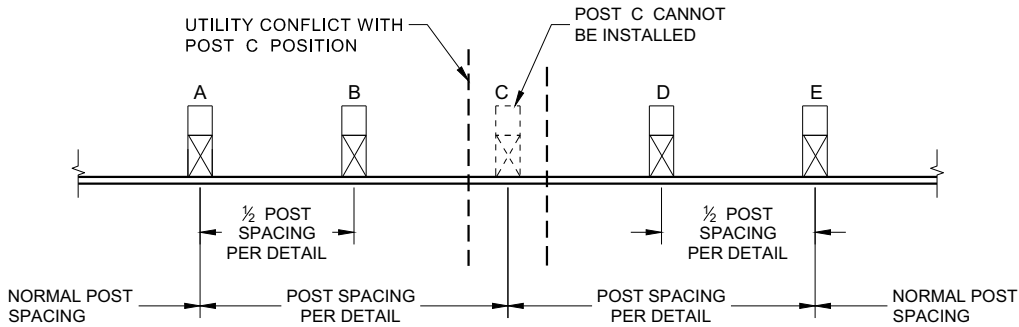


POST BOLT, SPLICE BOLT AND RECESS NUT

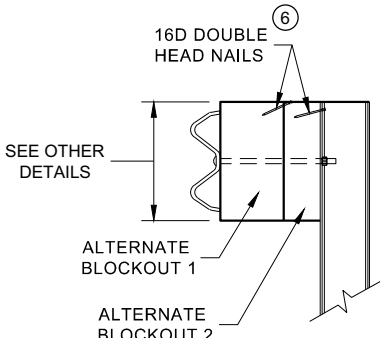
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



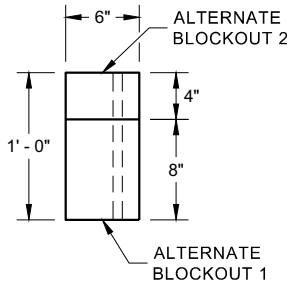
PLAN VIEW  
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION



SIDE VIEW



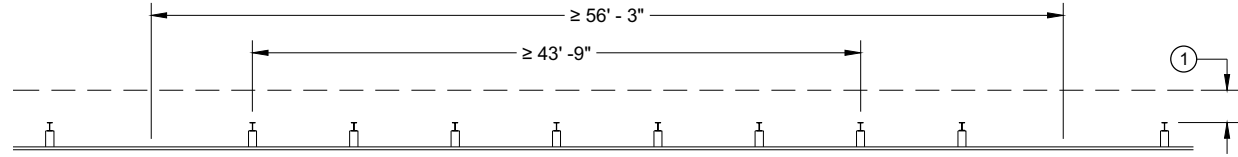
PLAN VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

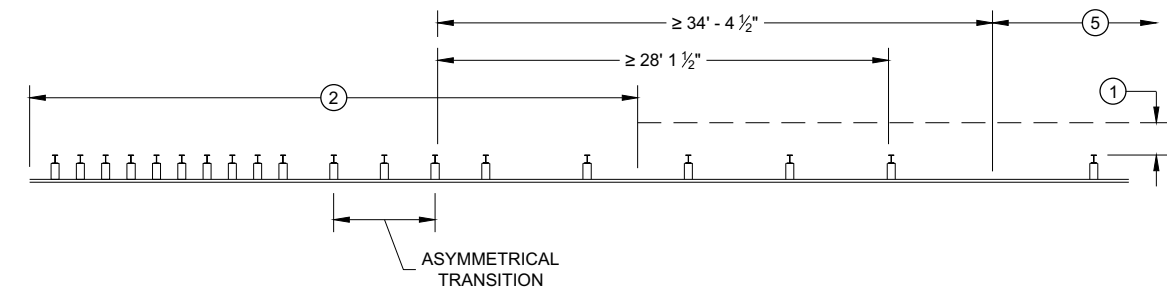
MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 138

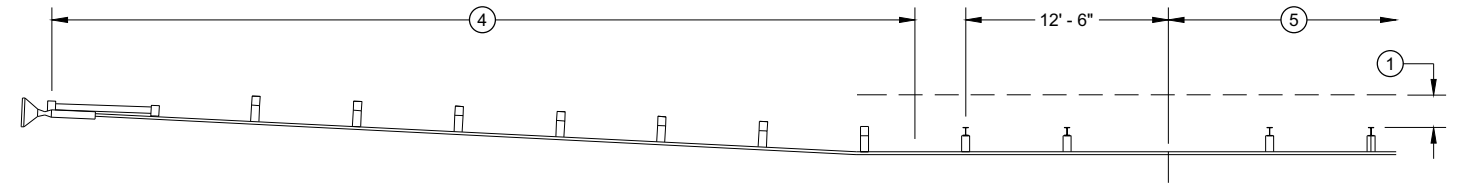




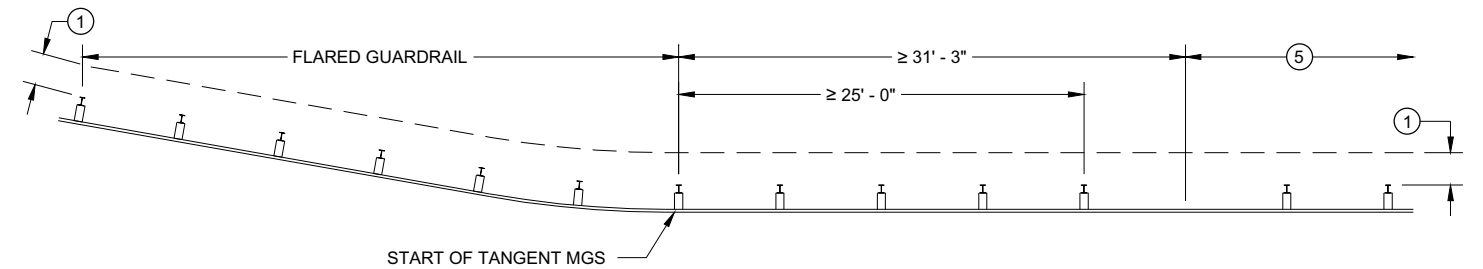
MISSING POST IN NORMAL BEAM GUARD RUN



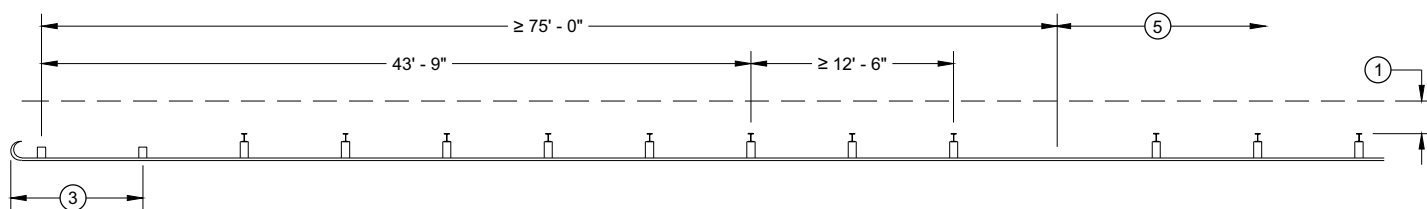
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



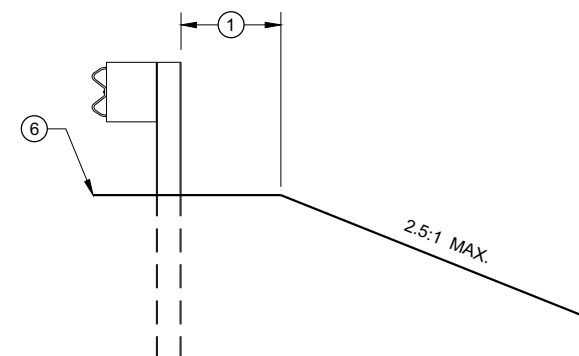
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018  
DATE  
/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR 139  
FHWA

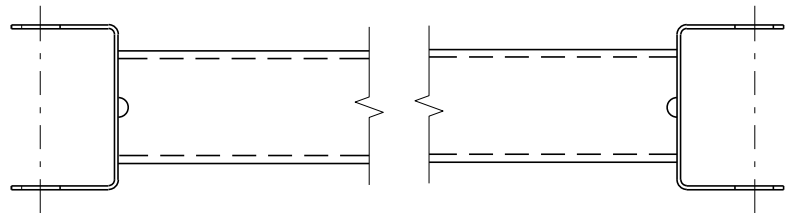
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

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.

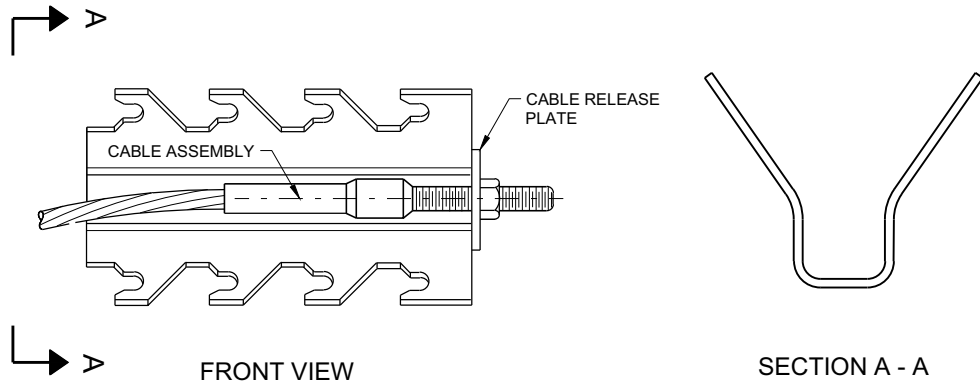
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 140



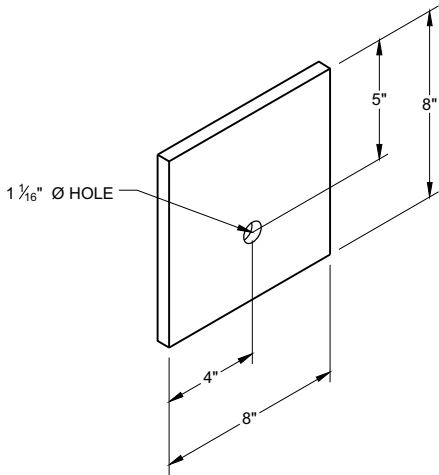


GENERIC GROUND STRUT 9 E

| BILL OF MATERIALS |                                                                                                                |
|-------------------|----------------------------------------------------------------------------------------------------------------|
| PART NO.          | DESCRIPTION<br>MATERIALS PROVIDED BY MGS EAT MANUFACTURER.<br>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.<br>SECTIONS VARY IN LENGTH.                                  |
| 12                | IMPACT HEAD                                                                                                    |
| 13                | EAT MARKER POST - YELLOW<br>(SEE APPROVED PRODUCTS LIST)                                                       |
| 14                | SOIL PLATE                                                                                                     |
| 15                | UPPER POST NO. 2                                                                                               |
| 16                | LOWER POST NO. 2                                                                                               |



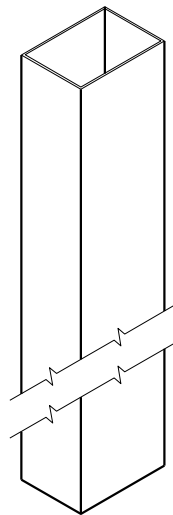
GENERIC ANCHOR CABLE BOX 9 E



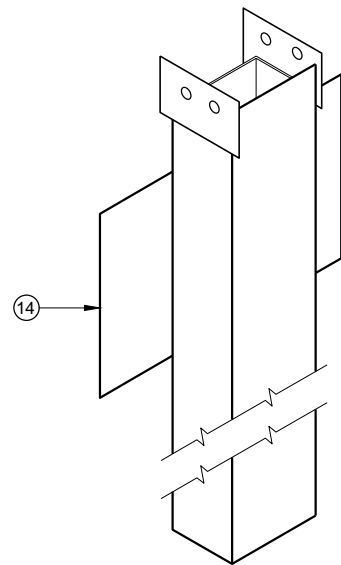
BEARING PLATE 6 E

MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

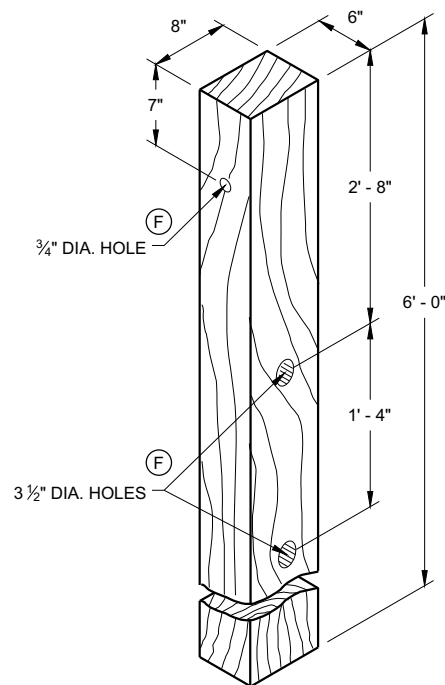
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 141



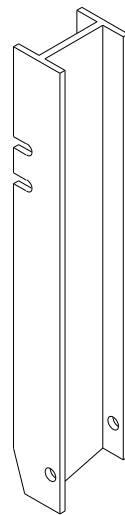
UPPER POST NO. 1 <sup>(1)</sup> (E)



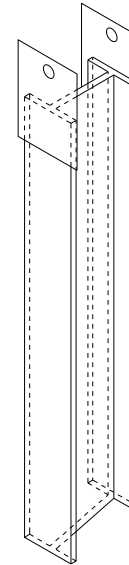
LOWER POST NO. 1 <sup>(2)</sup> (E)



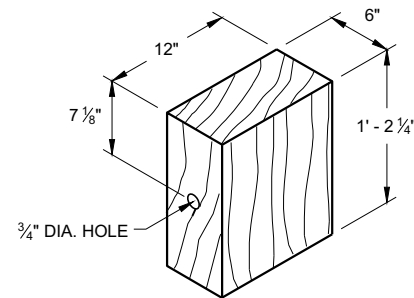
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



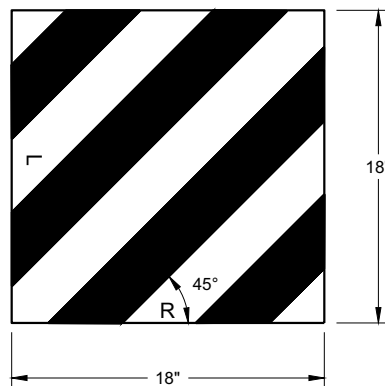
UPPER POST NO. 2 <sup>(15)</sup> (E)



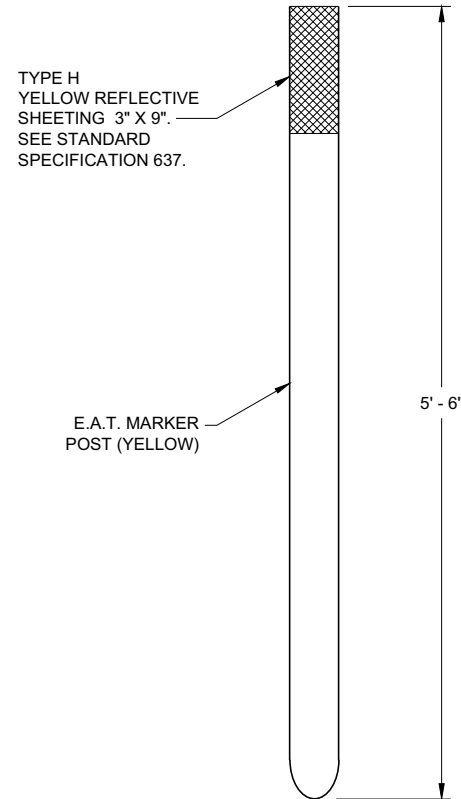
LOWER POST NO. 2 <sup>(16)</sup> (E)



WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

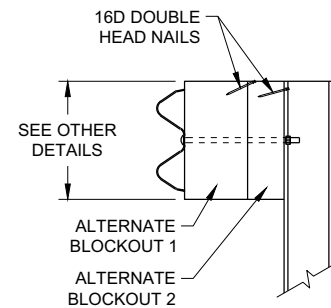


FRONT VIEW

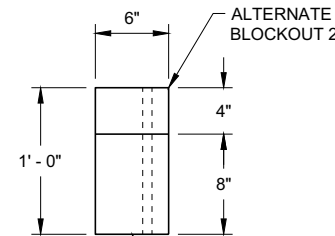


SIDE VIEW

E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



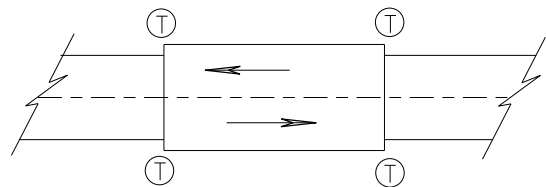
TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

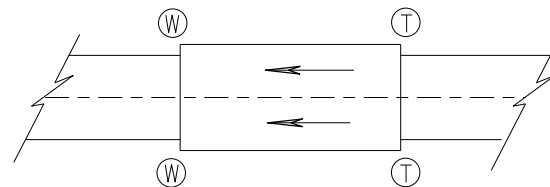
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 DATE  
/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR 142  
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.

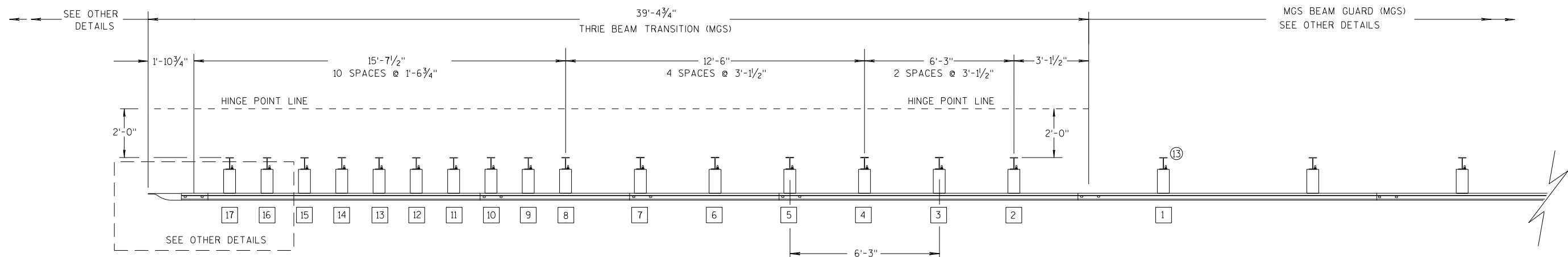
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

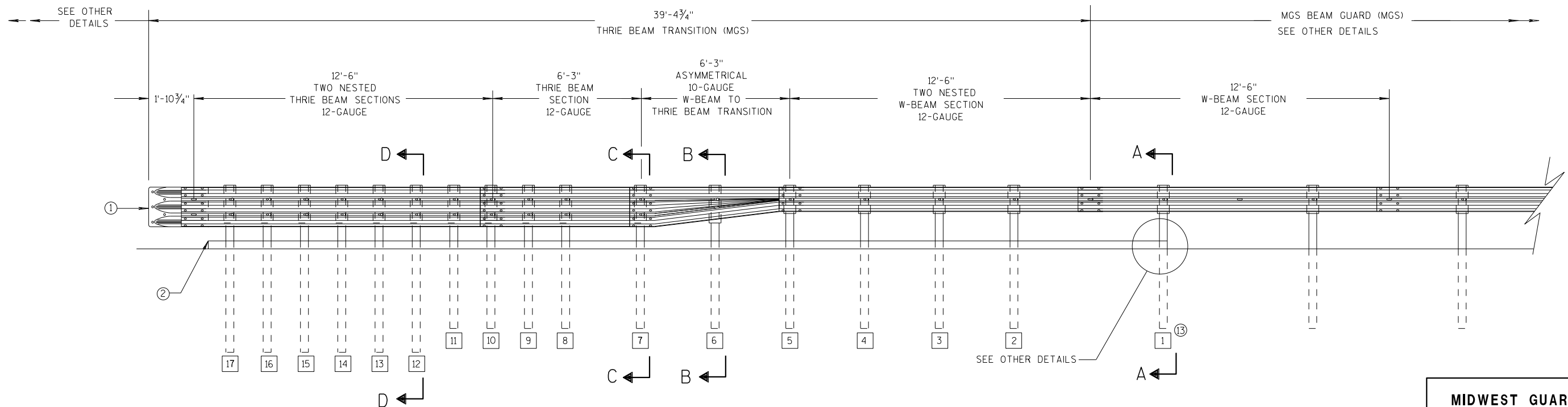
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

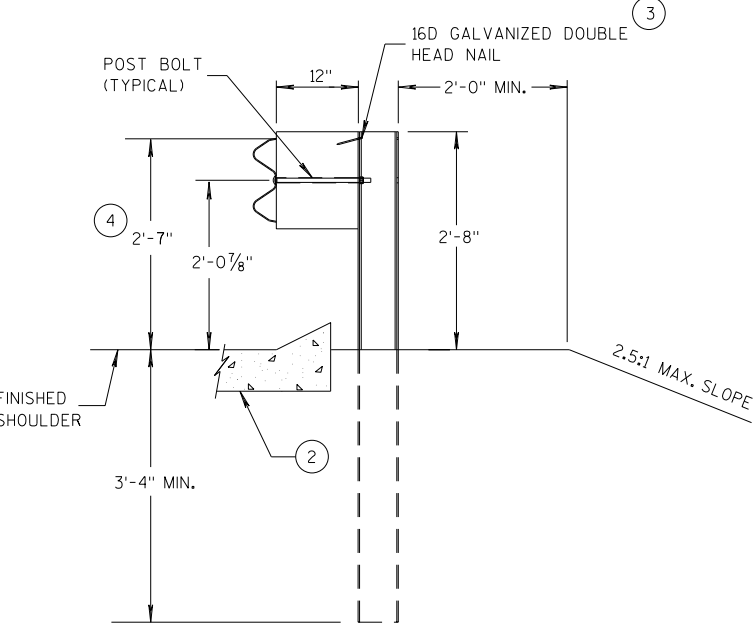
## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

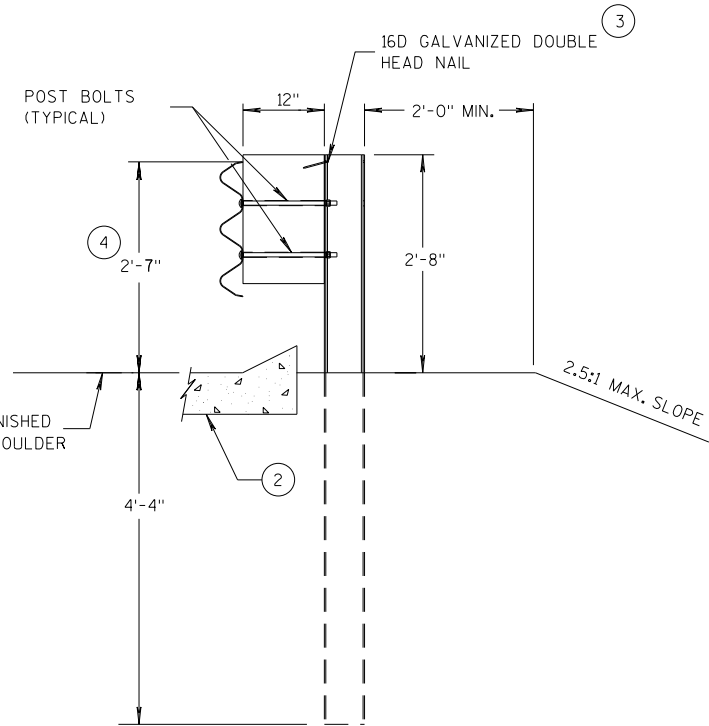
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 143

GENERAL NOTES

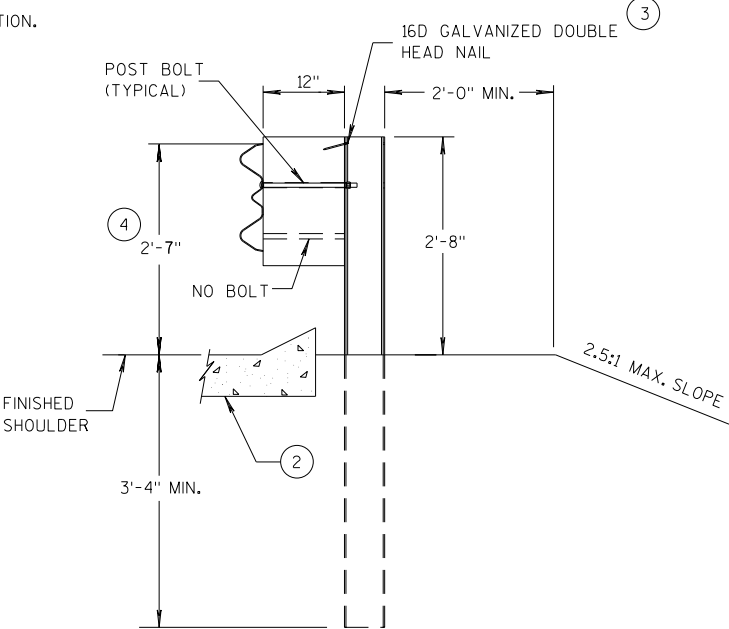
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm 1"$ .
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



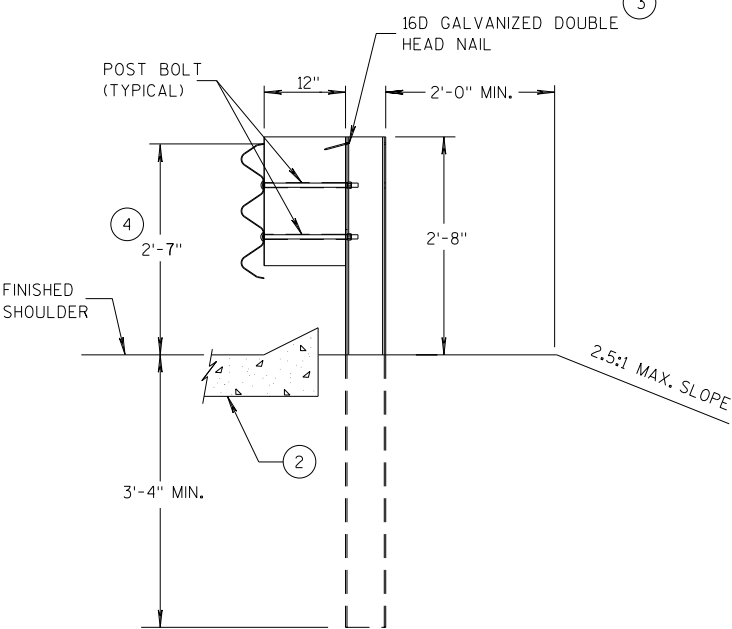
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

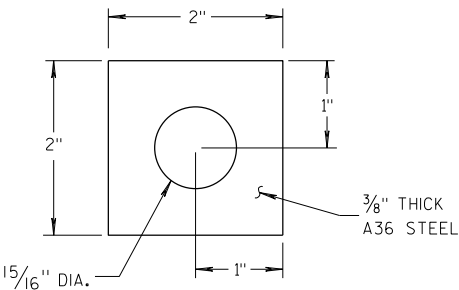
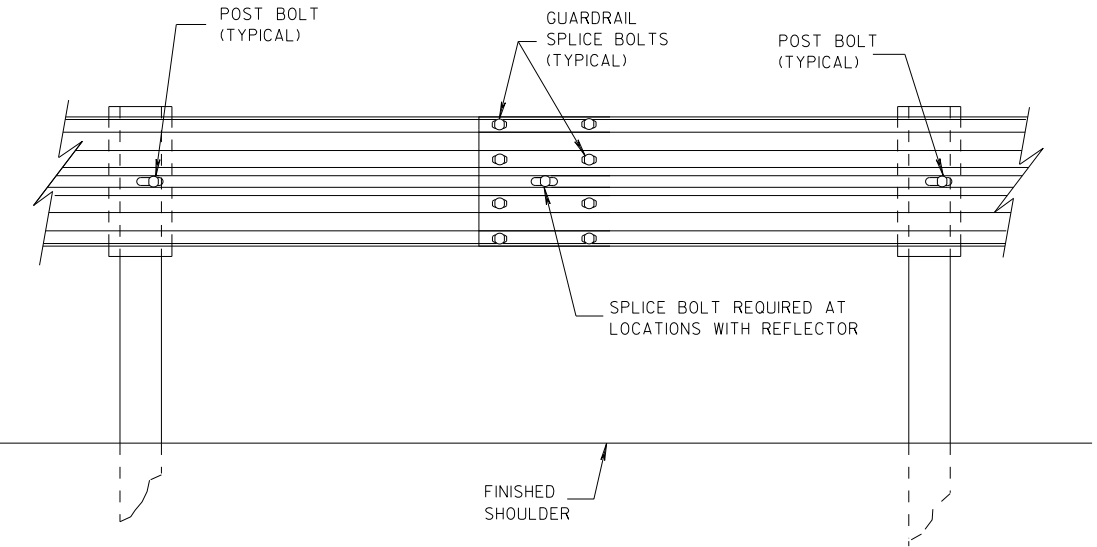
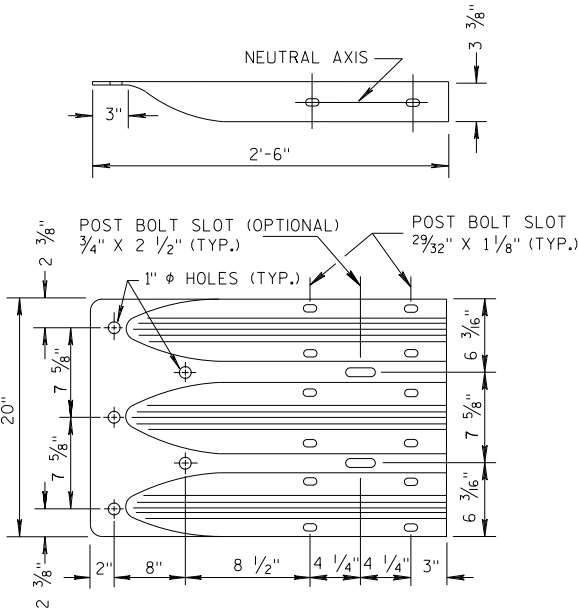


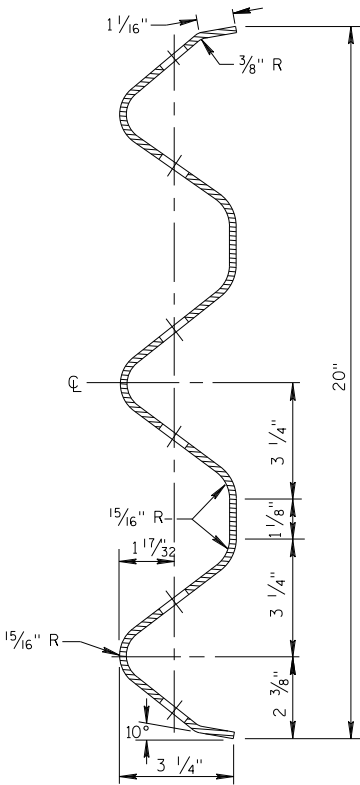
PLATE WASHER DETAIL



SPlice DETAIL



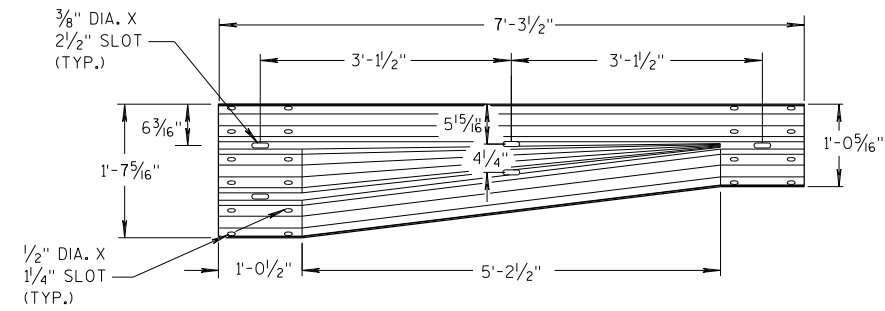
THRIE BEAM  
TERMINAL CONNECTOR



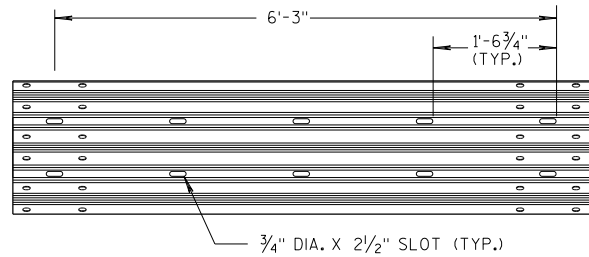
SECTION THRU THRIE  
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

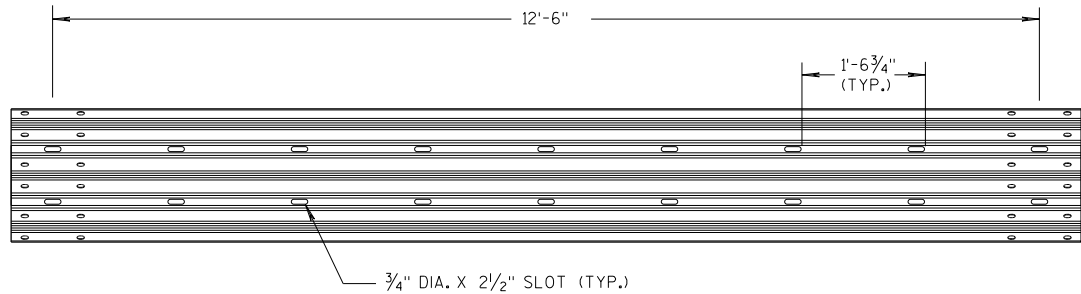
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 144



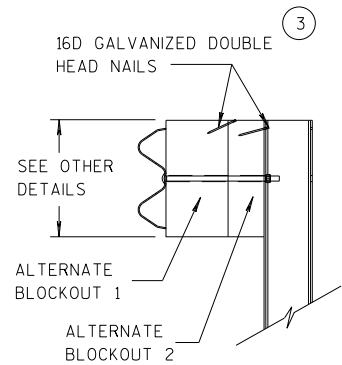
W-BEAM TO THRIE BEAM TRANSITION SECTION



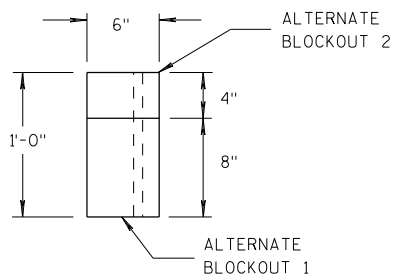
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

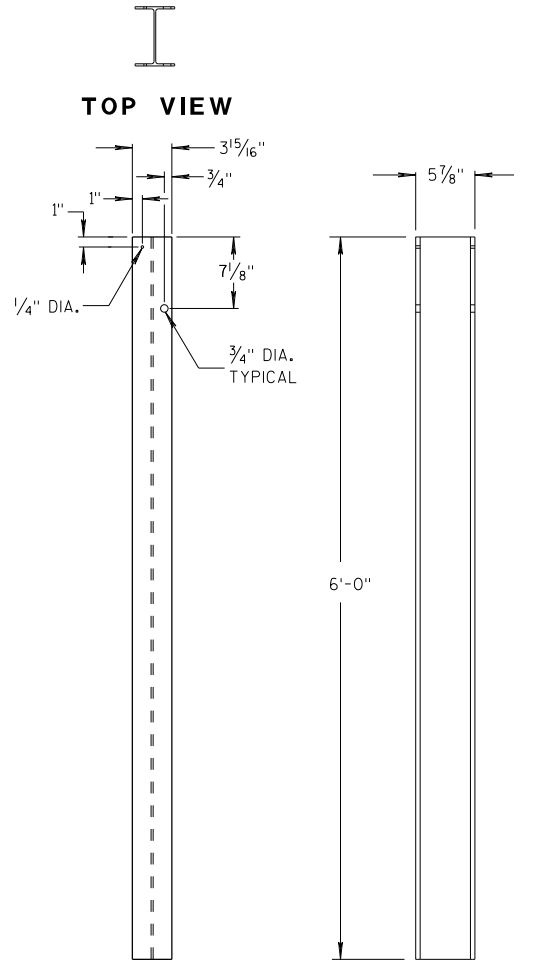


SIDE VIEW



TOP VIEW

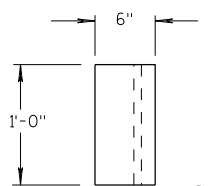
ALTERNATE WOOD BLOCKOUT DETAIL



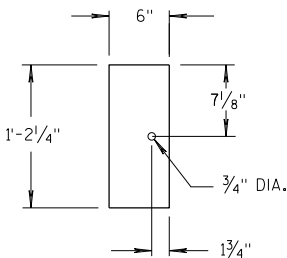
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

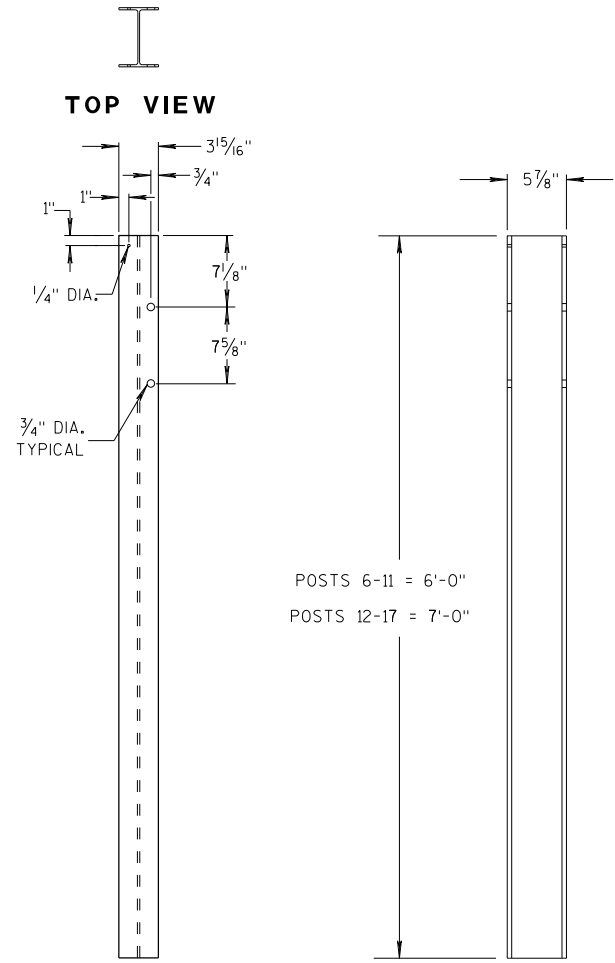


TOP VIEW



FRONT VIEW

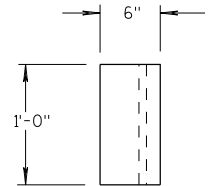
BLOCKOUT POSTS 1-5



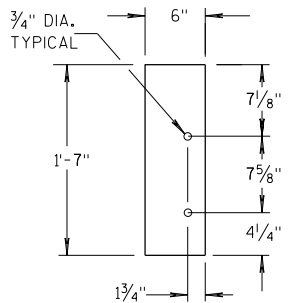
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



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.

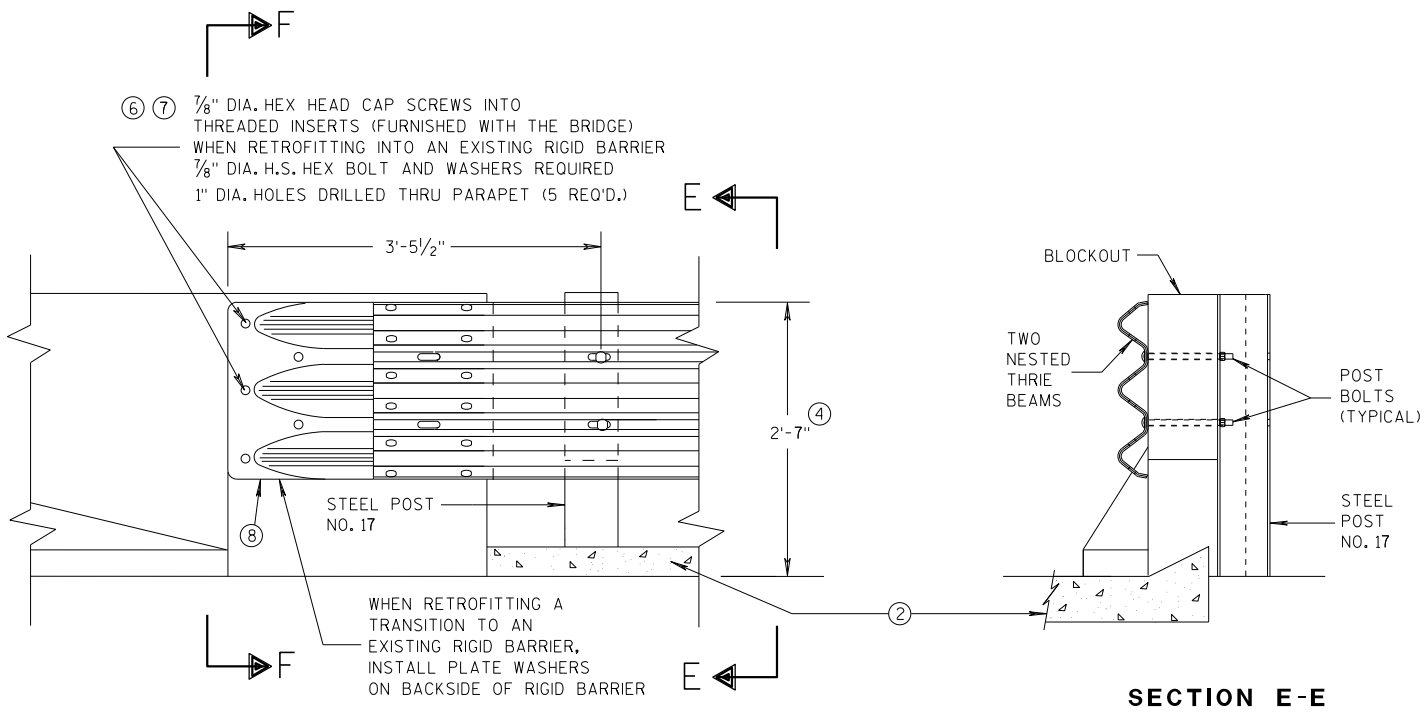
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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.

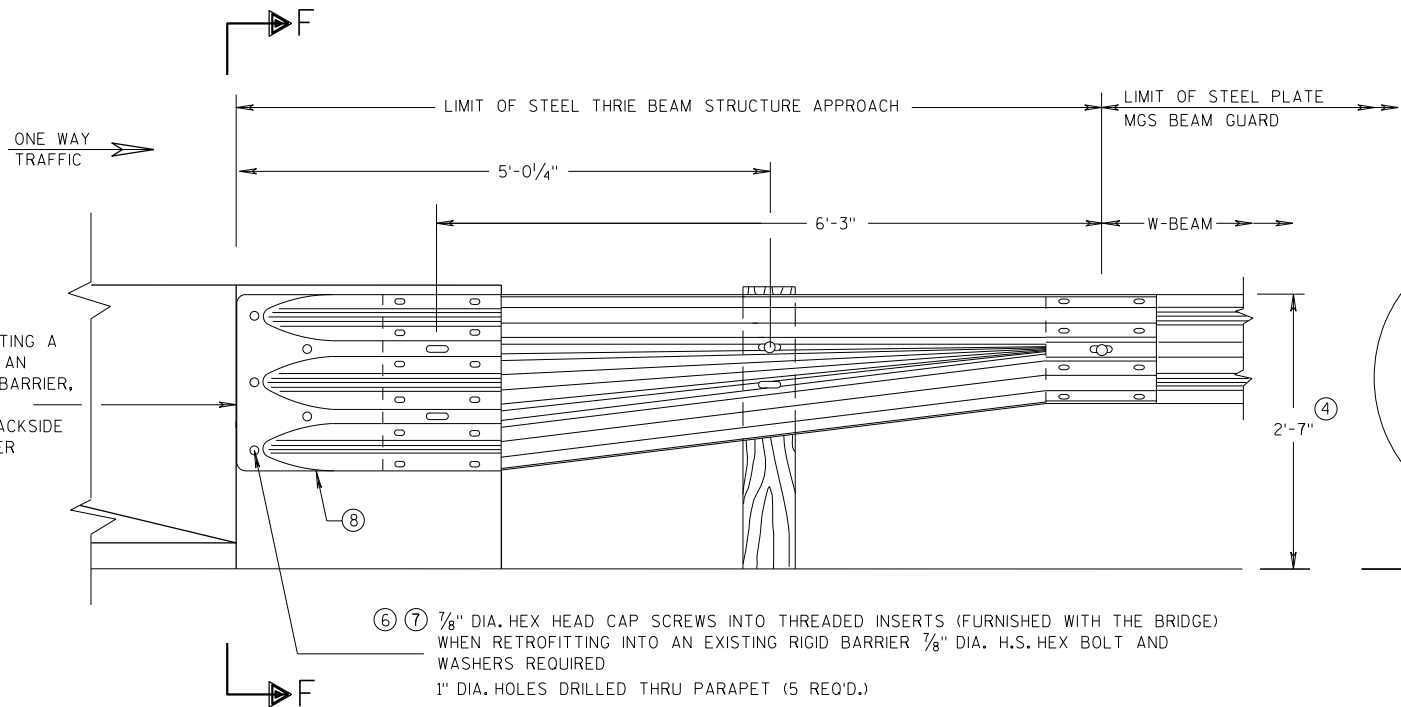
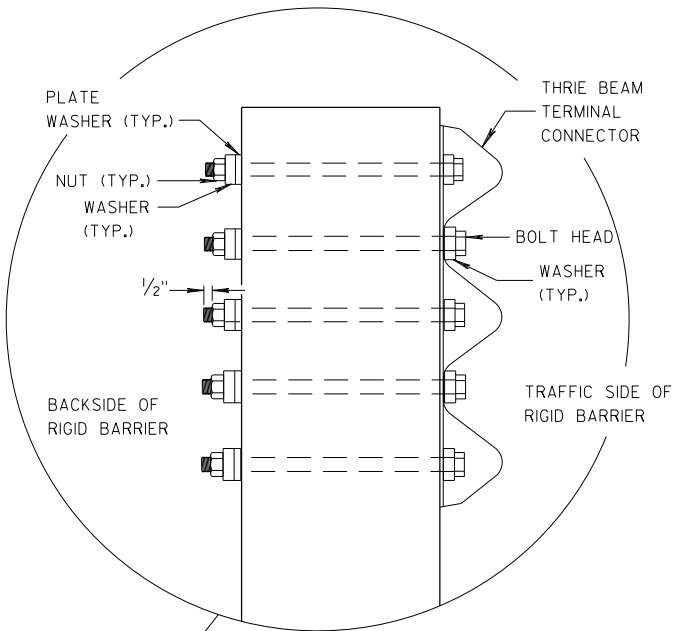
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

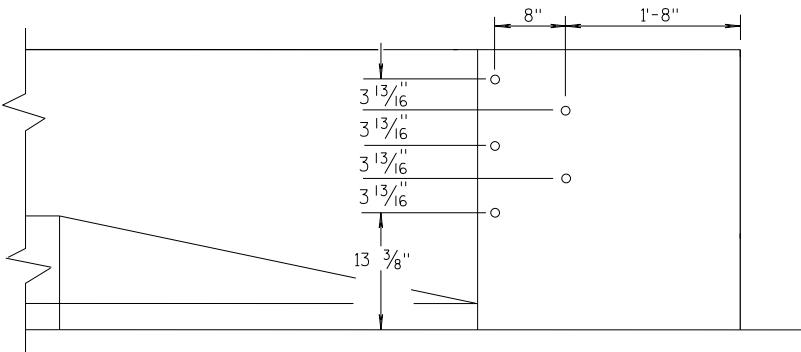


**GENERAL NOTES**

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION 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".



**SECTION F-F**



**DRILL HOLE LOCATION**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

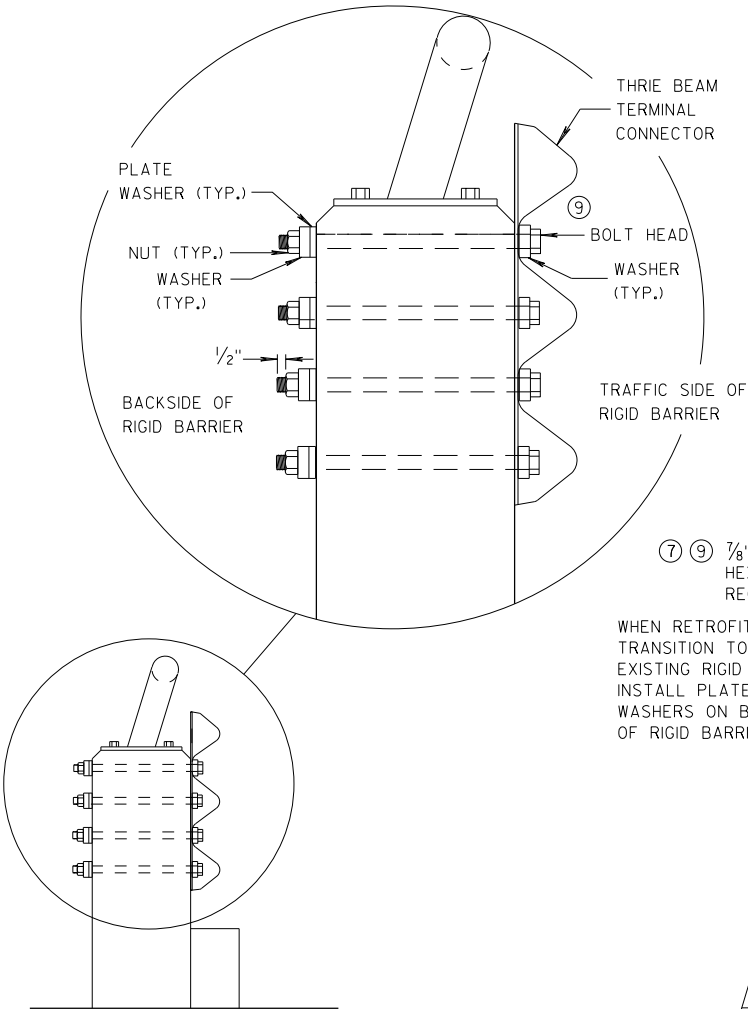
APPROVED  
07/2018  
DATE  
/S/ Rodney Taylor  
ROADWAY STANDARDS UNIT SUPERVISOR  
146  
FHWA



GENERAL NOTES

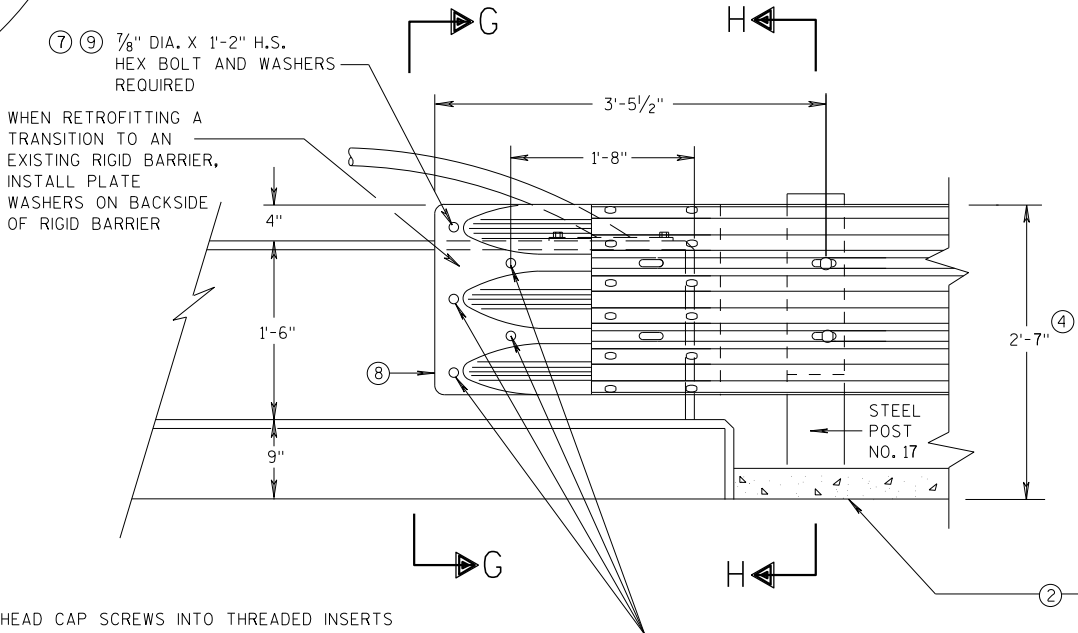
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- 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  $\frac{5}{32}"$  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  $\frac{1}{2}"$ .
- 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.



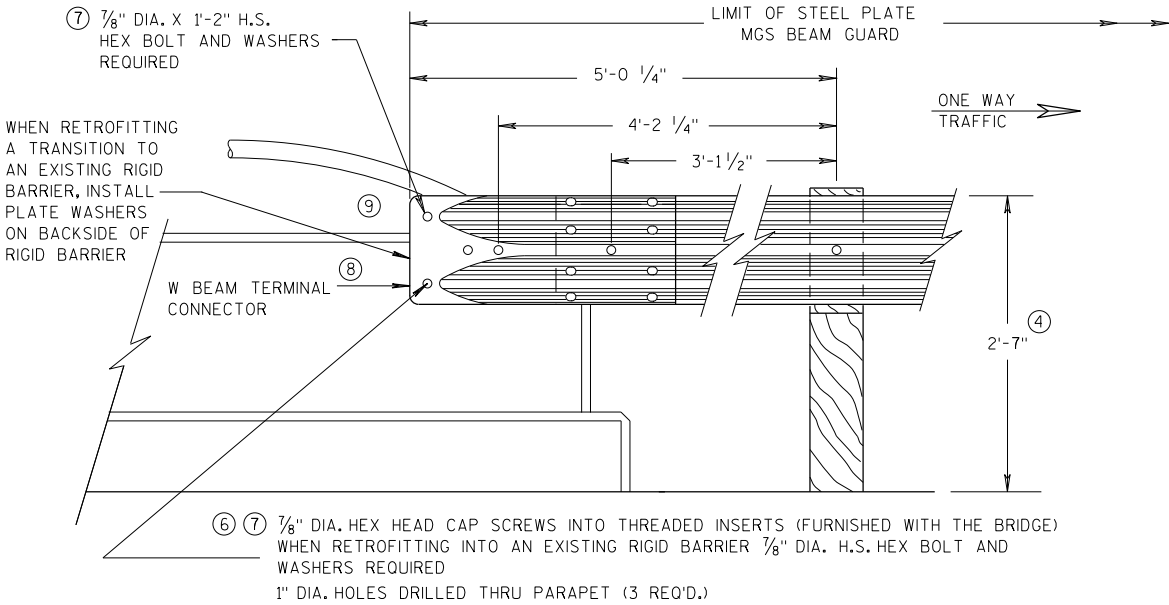
SECTION G-G

- ⑥ ⑦
- $\frac{7}{8}"$  DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  $\frac{7}{8}"$  DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)



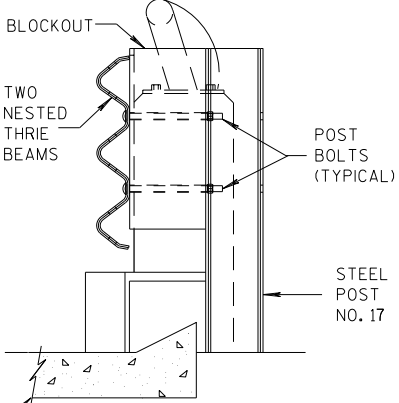
FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

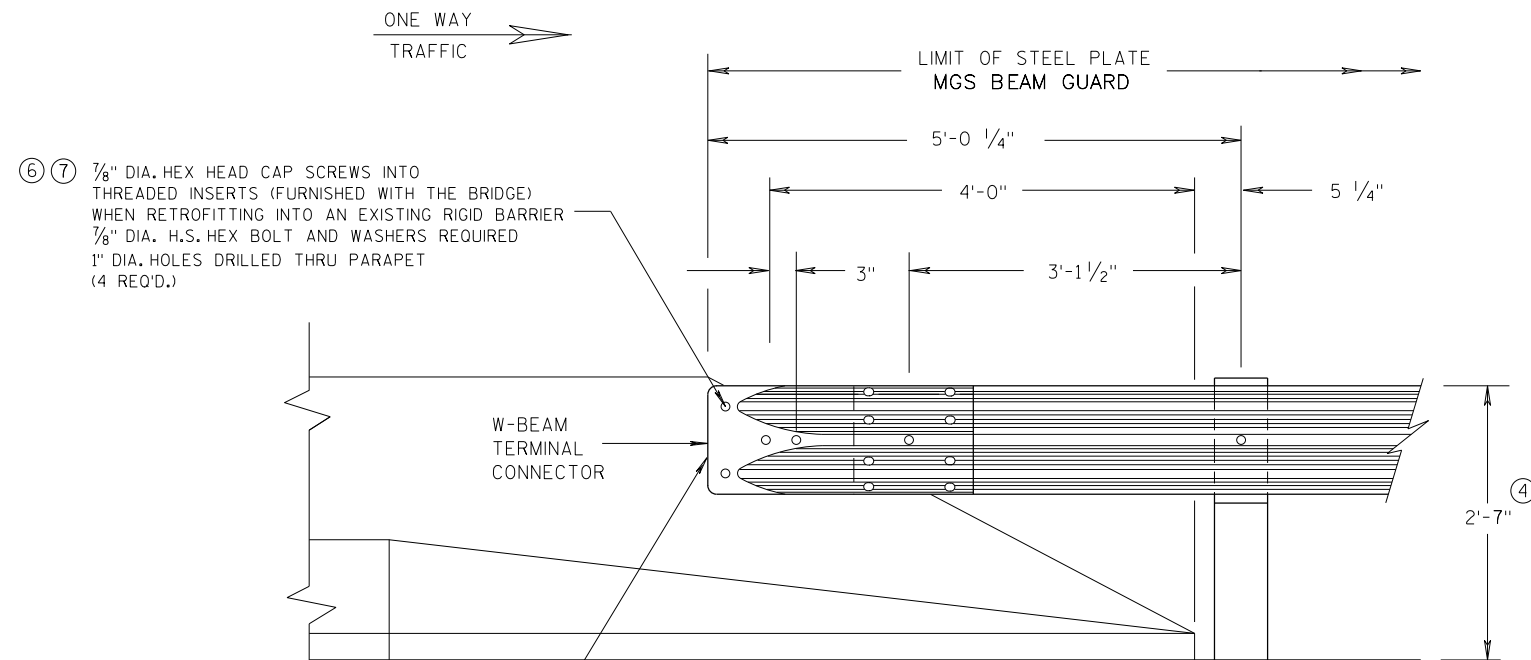


SECTION H-H

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

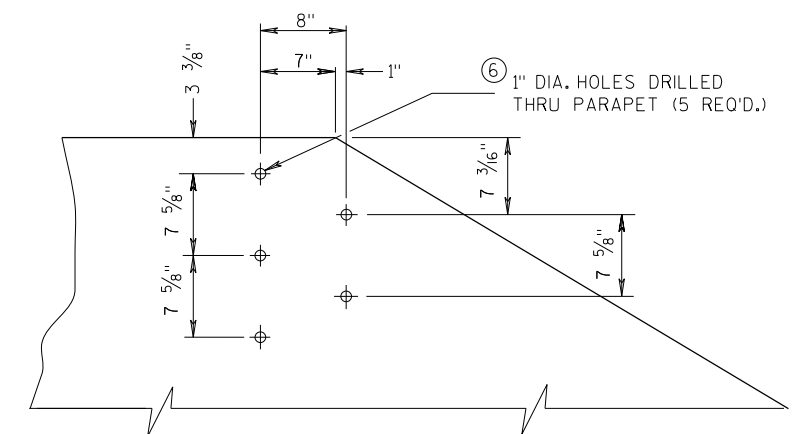
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FHWA 147

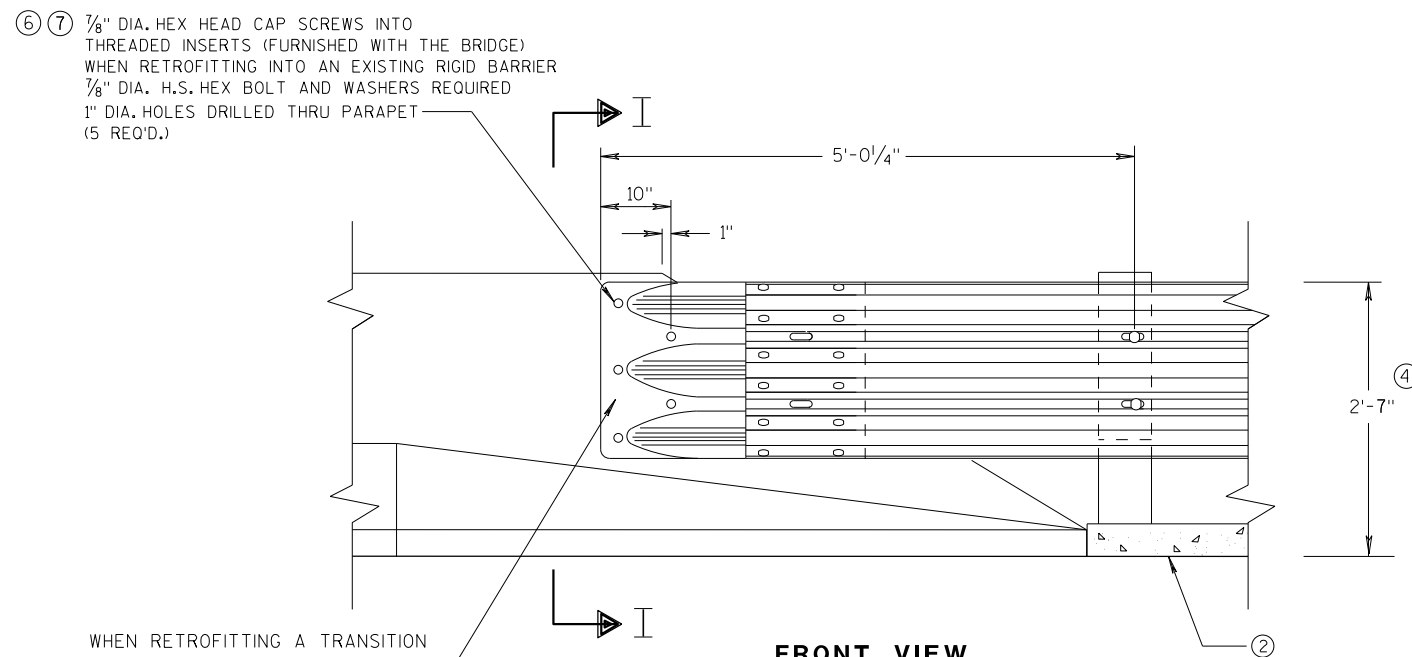


FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS  
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)**

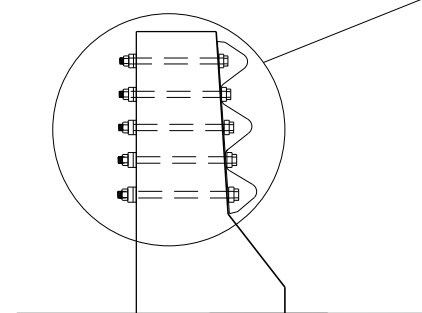


**DRILL HOLE LOCATION AND PATTERN  
FOR THRIE BEAM CONNECTION**

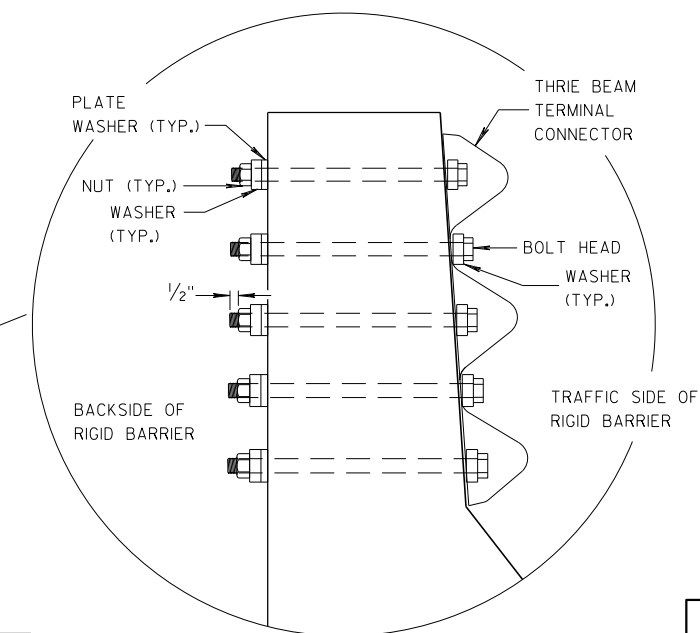


FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**



SECTION I-I



**GENERAL NOTES**

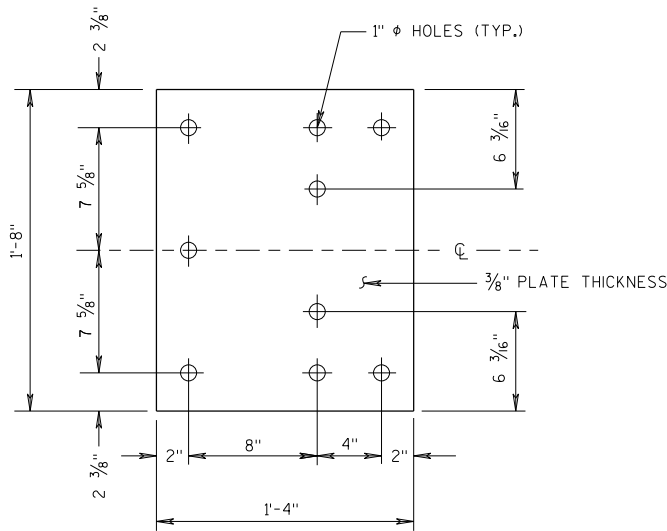
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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.

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

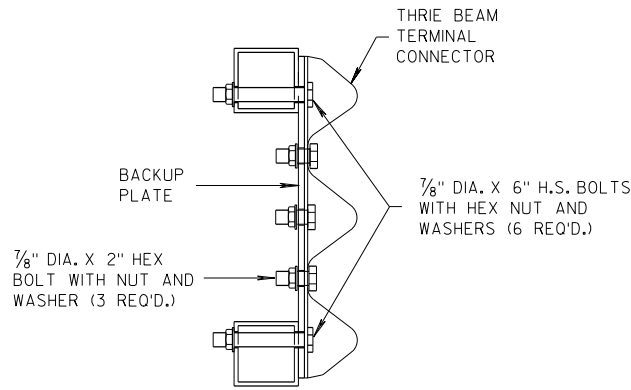
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS UNIT SUPERVISOR 148  
FHWA

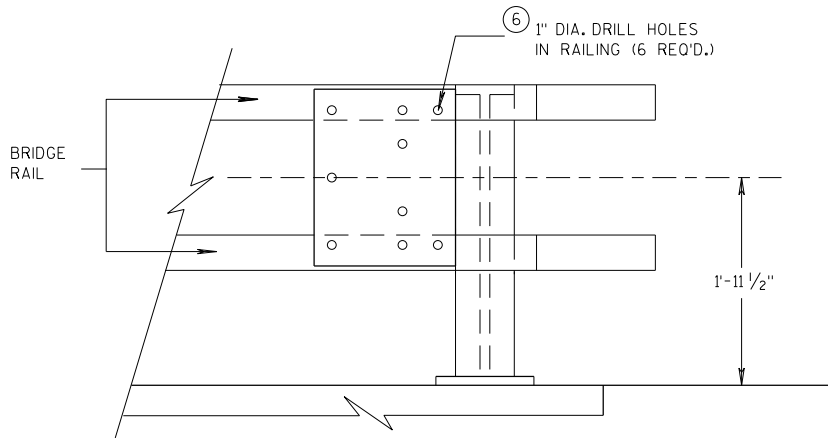




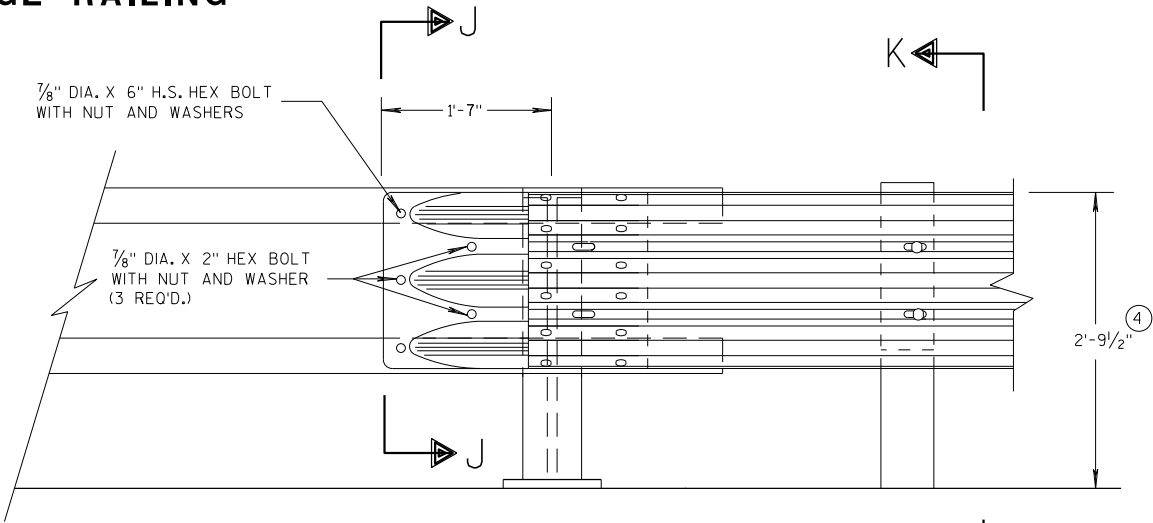
BACK-UP PLATE DETAIL



SECTION J-J

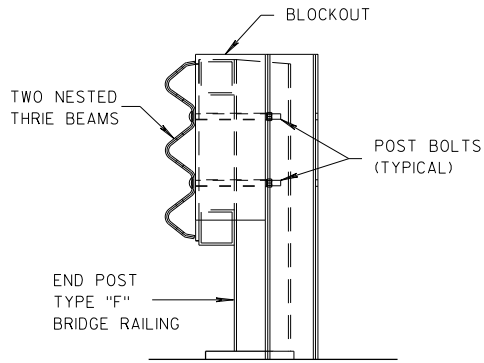


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

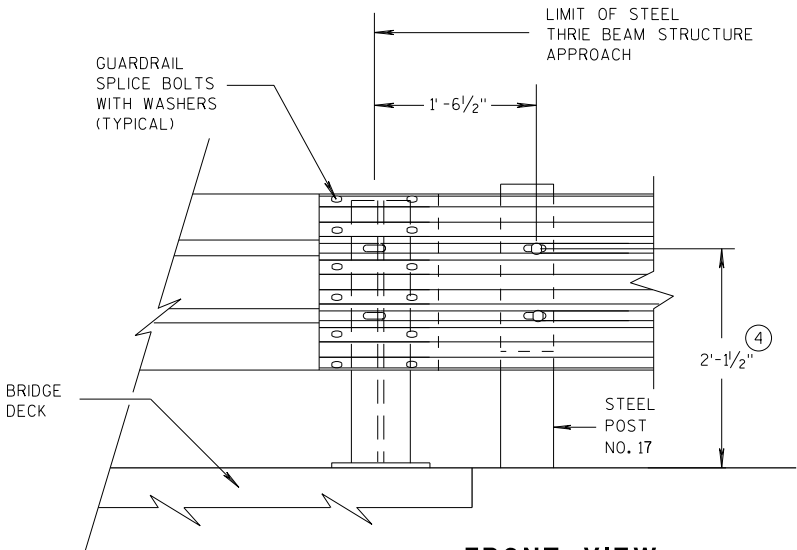
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

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.



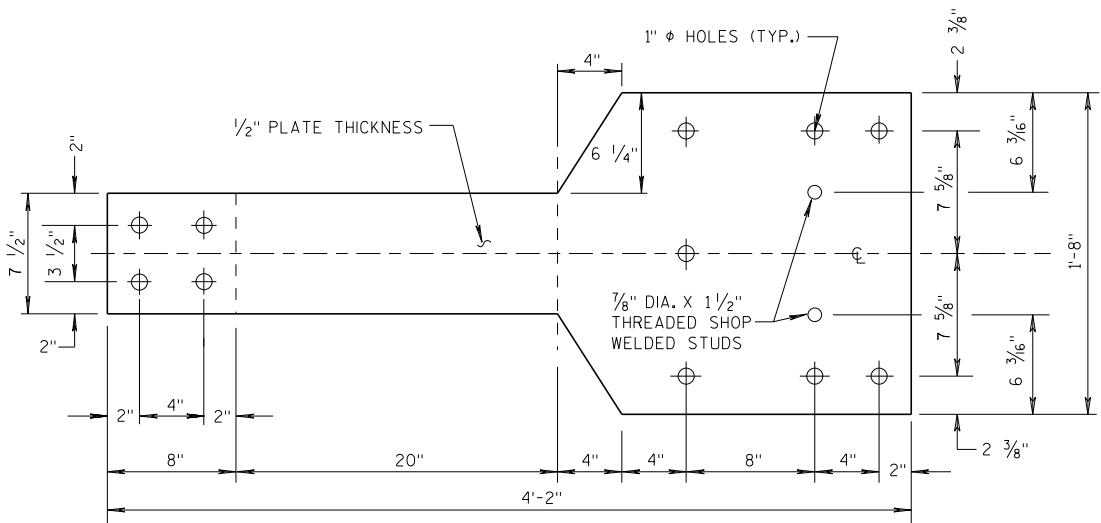
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

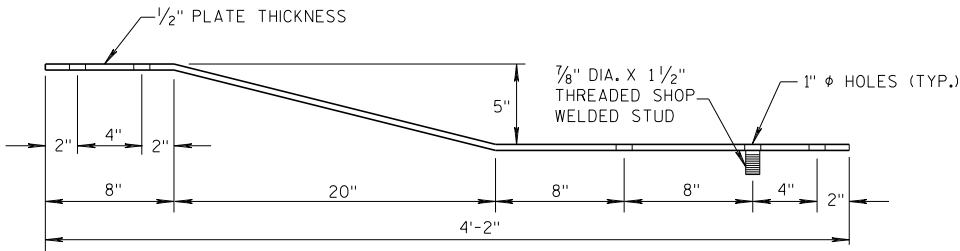
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| MIDWEST GUARDRAIL SYSTEM<br>THRIE BEAM TRANSITION (MGS) |                               |                 |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION      |                               |                 |
| APPROVED<br>07/2018                                     | /S/ Rodney Taylor             | 149             |
| DATE                                                    | ROADWAY STANDARDS DEVELOPMENT | UNIT SUPERVISOR |
| FHWA                                                    |                               |                 |

GENERAL NOTES

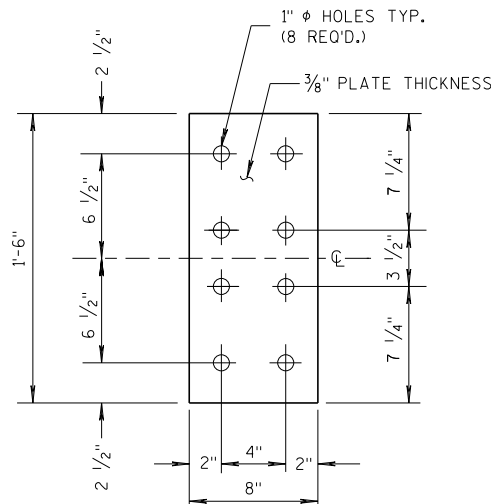
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm 1"$ .



FRONT VIEW

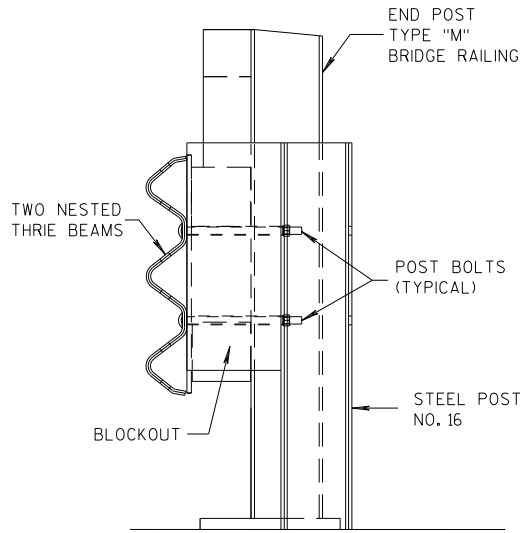


PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"

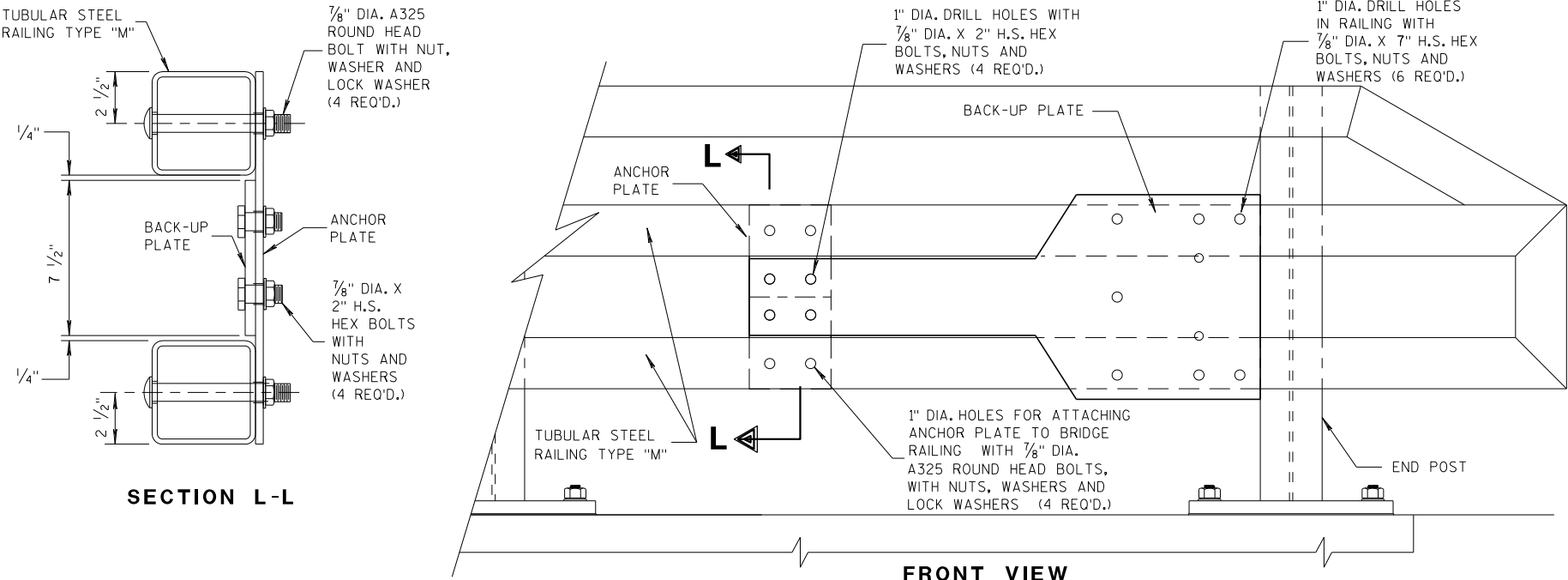


FRONT VIEW

ANCHOR  
PLATE DETAIL,  
TYPE "M"



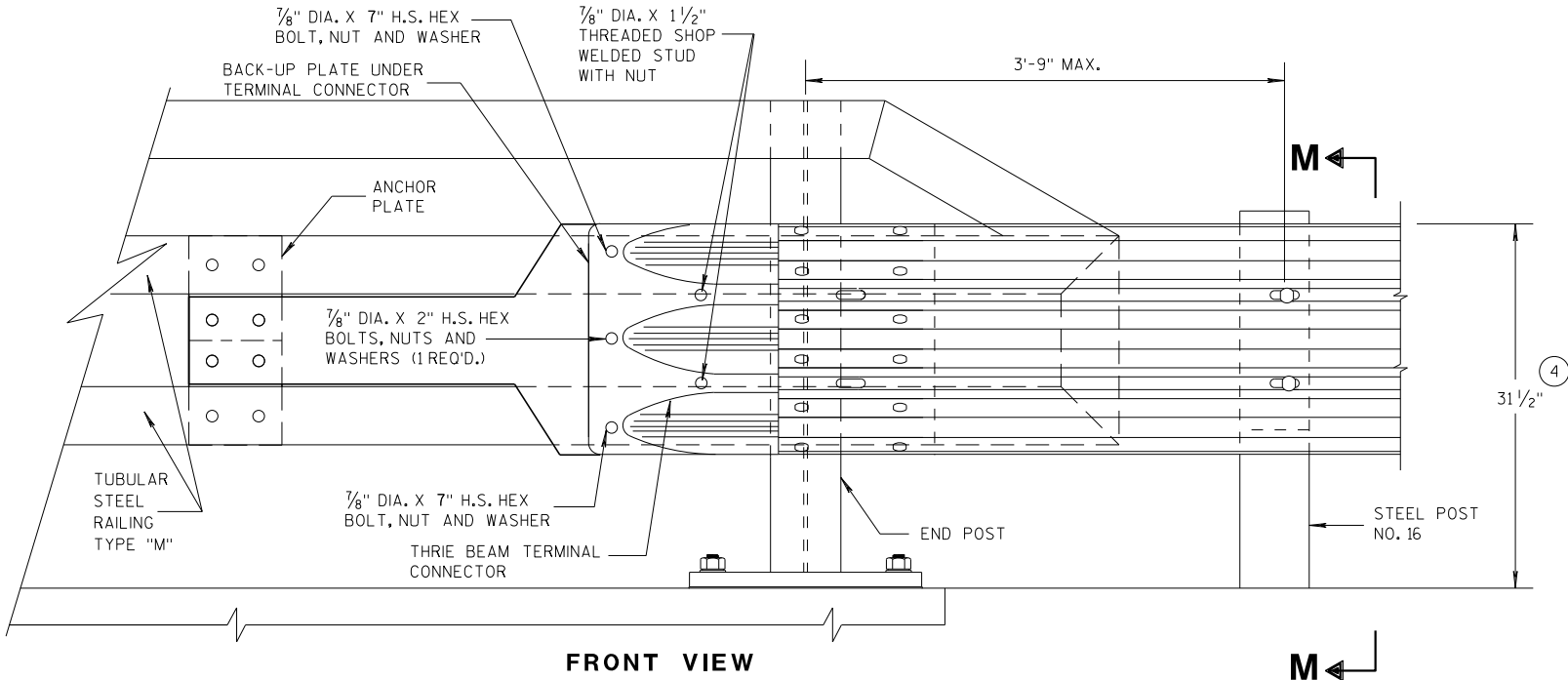
SECTION M-M



SECTION L-L

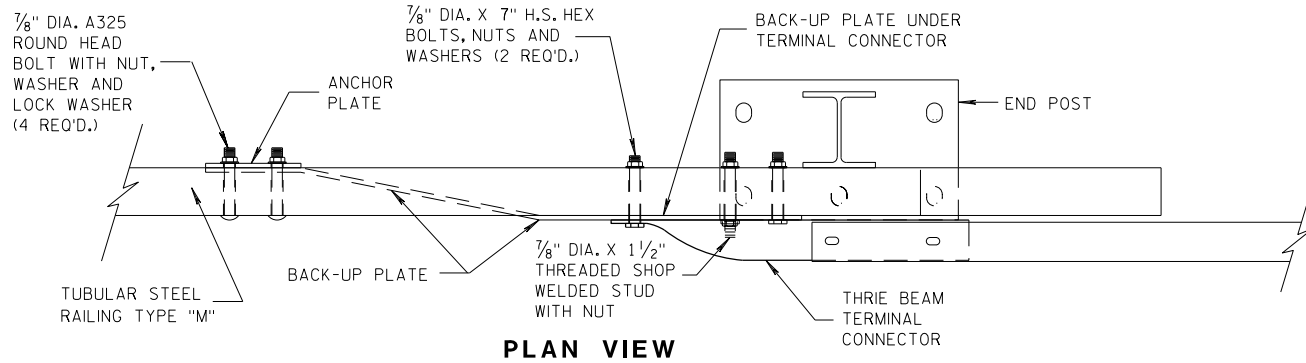
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW

M



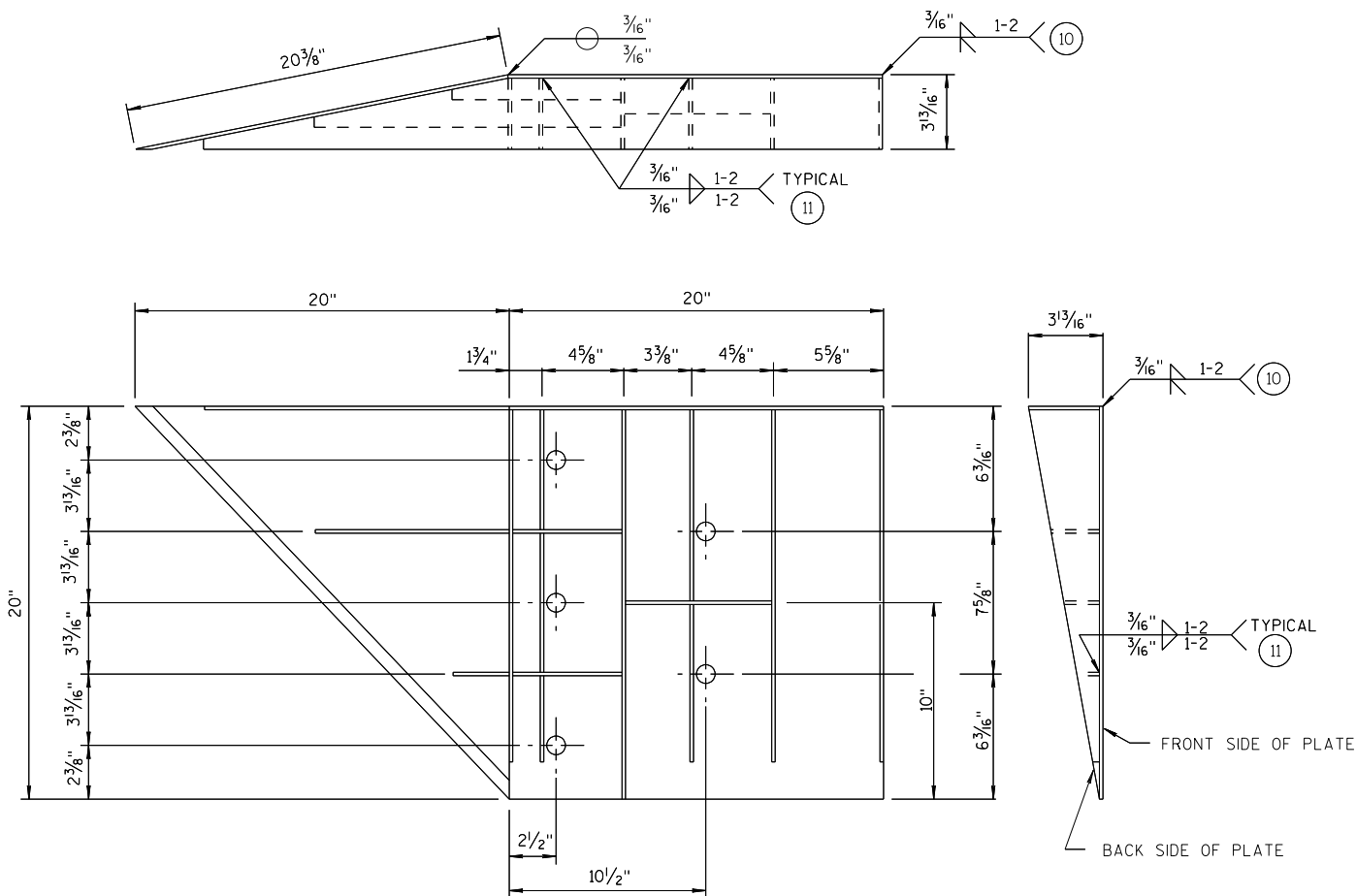
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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DATE ROADWAY STANDARDS UNIT SUPERVISOR  
FHWA 150 ENT

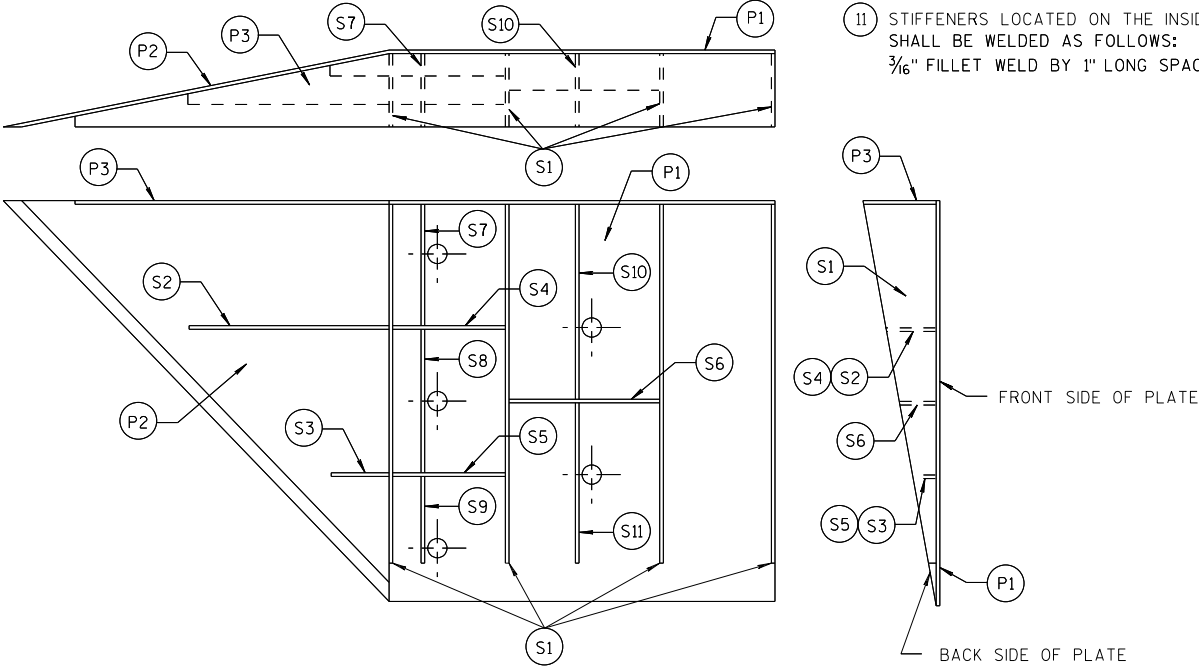


WELDING INSTRUCTION  
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

| CONNECTOR PLATE DIMENSION<br>(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"      |

PLATE AND STIFFENER IDENTIFICATION  
(VIEWED FROM BACK SIDE OF PLATE)



GENERAL NOTES

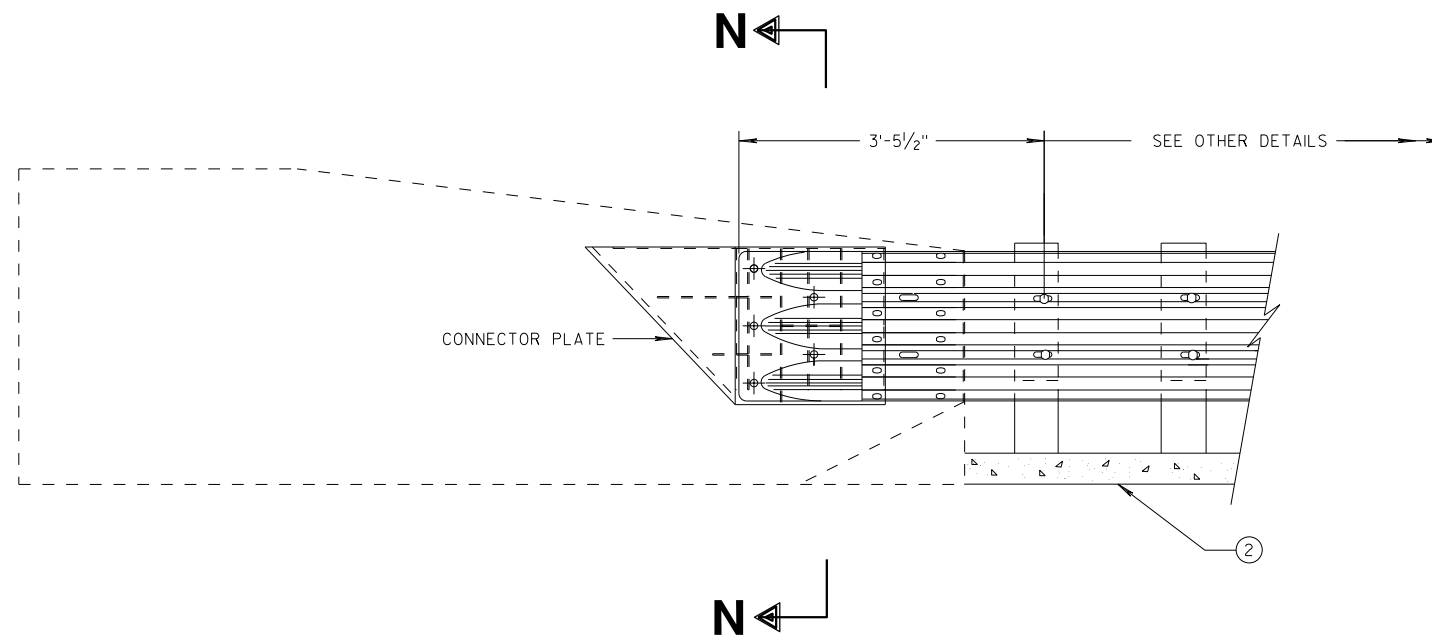
- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- 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.
- STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

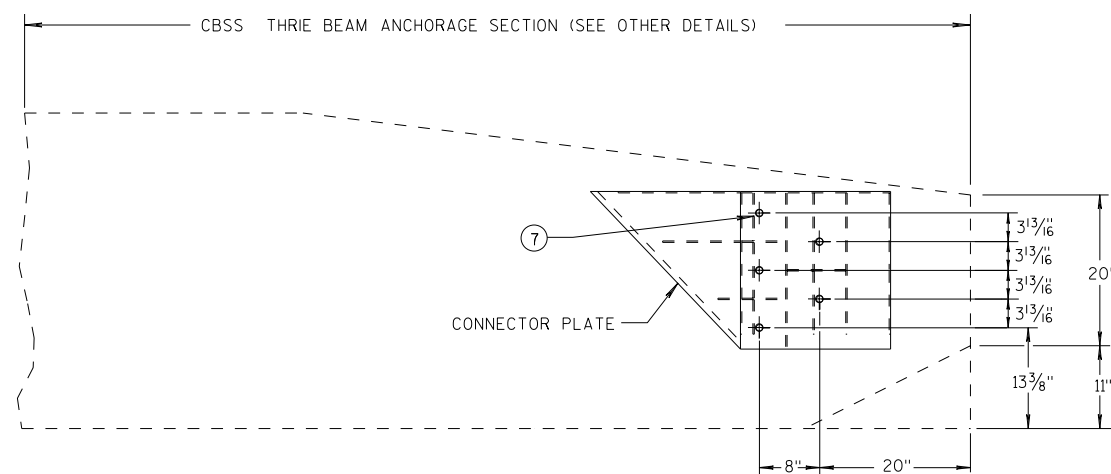
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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ROADWAY STANDARDS UNIT SUPERVISOR  
151  
FHWA



**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**



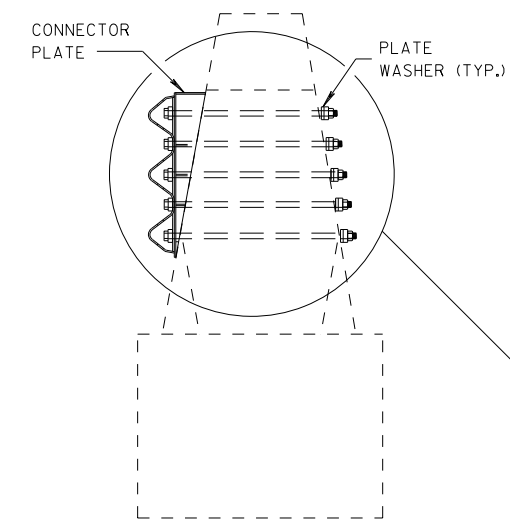
**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

## GENERAL NOTES

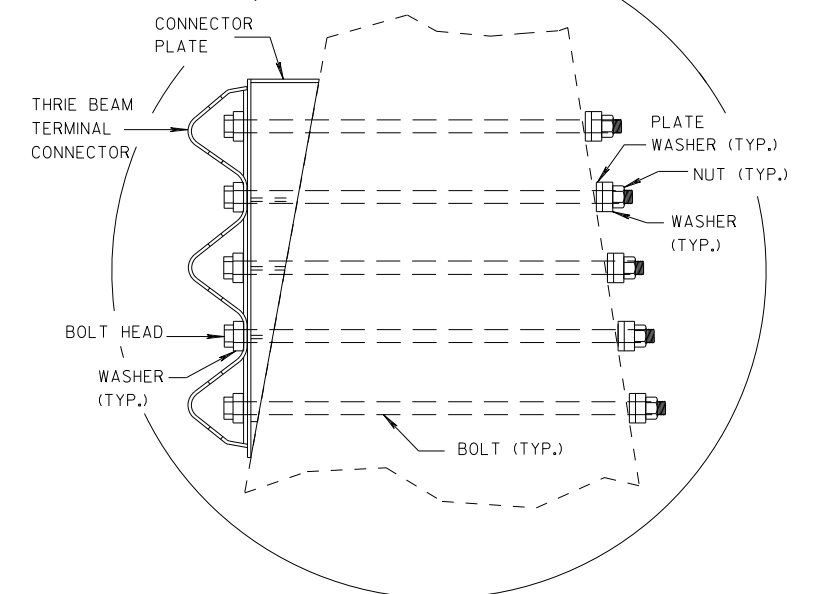
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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.



**SECTION N-N**



**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018

DATE

FHWA

/S/ Rodney Taylor

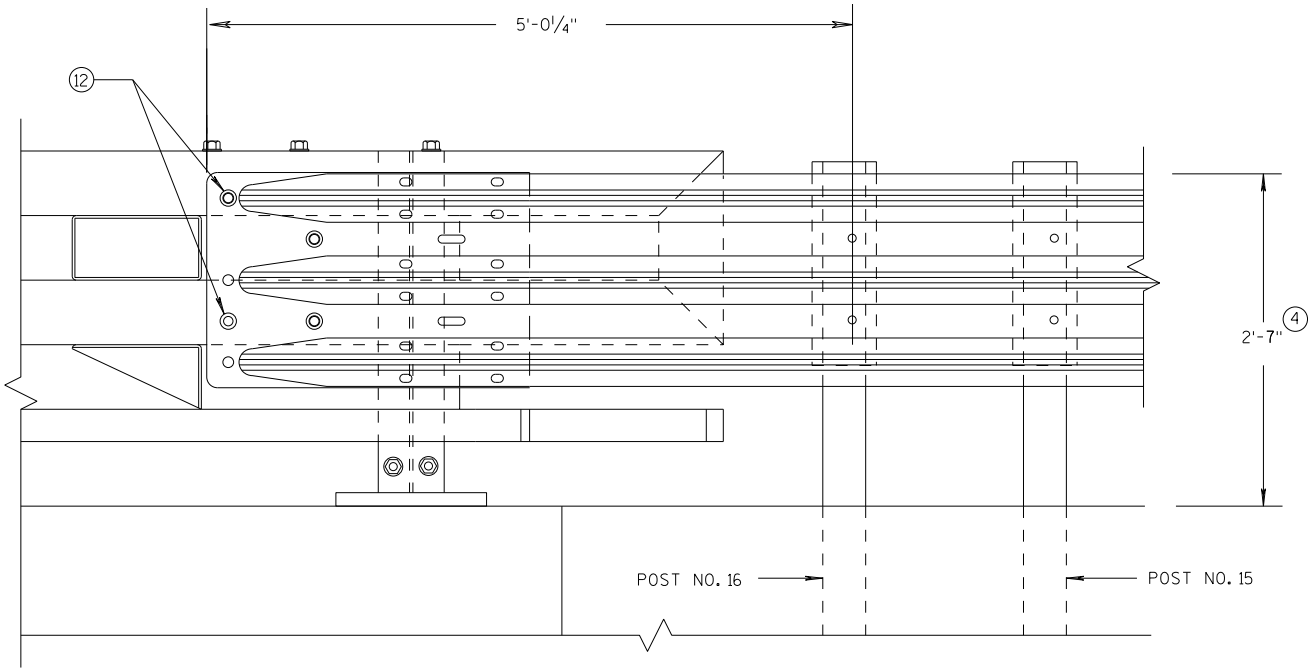
ROADWAY STANDARDS DISTRICT UNIT SUPERVISOR

152

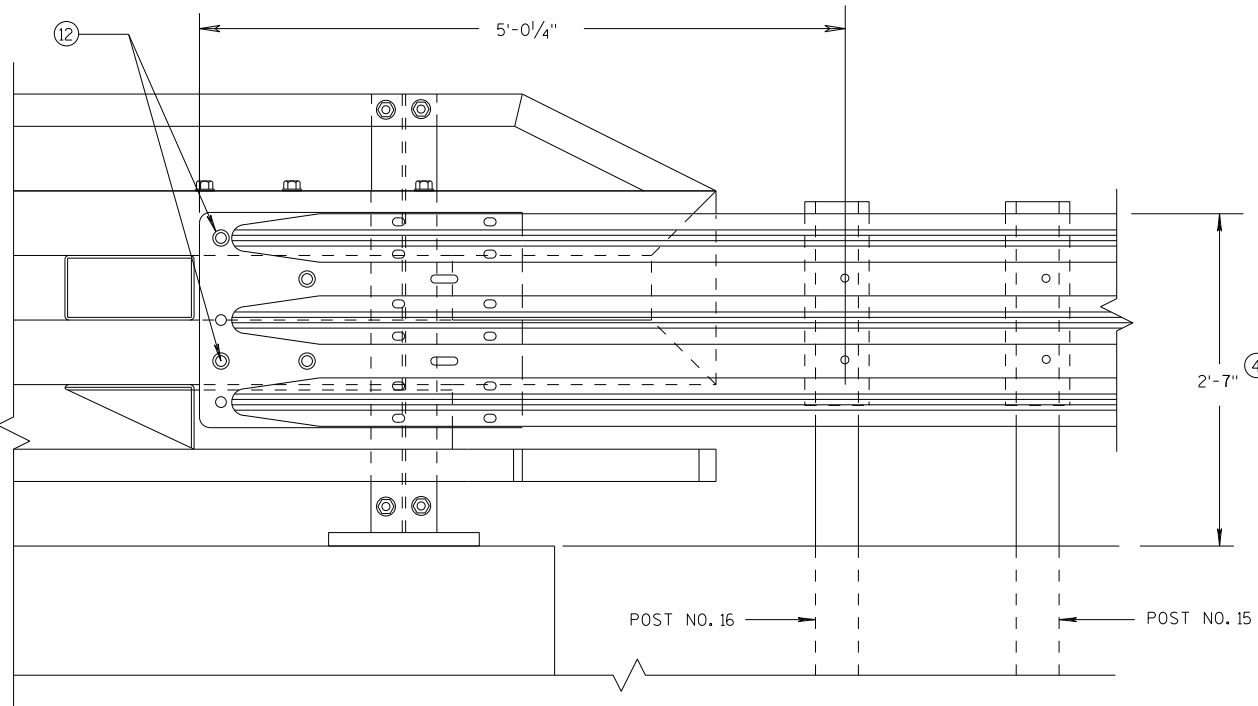
UNIT SUPERVISOR

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- 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  $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST  
THRIE BEAM RAIL ATTACHMENT

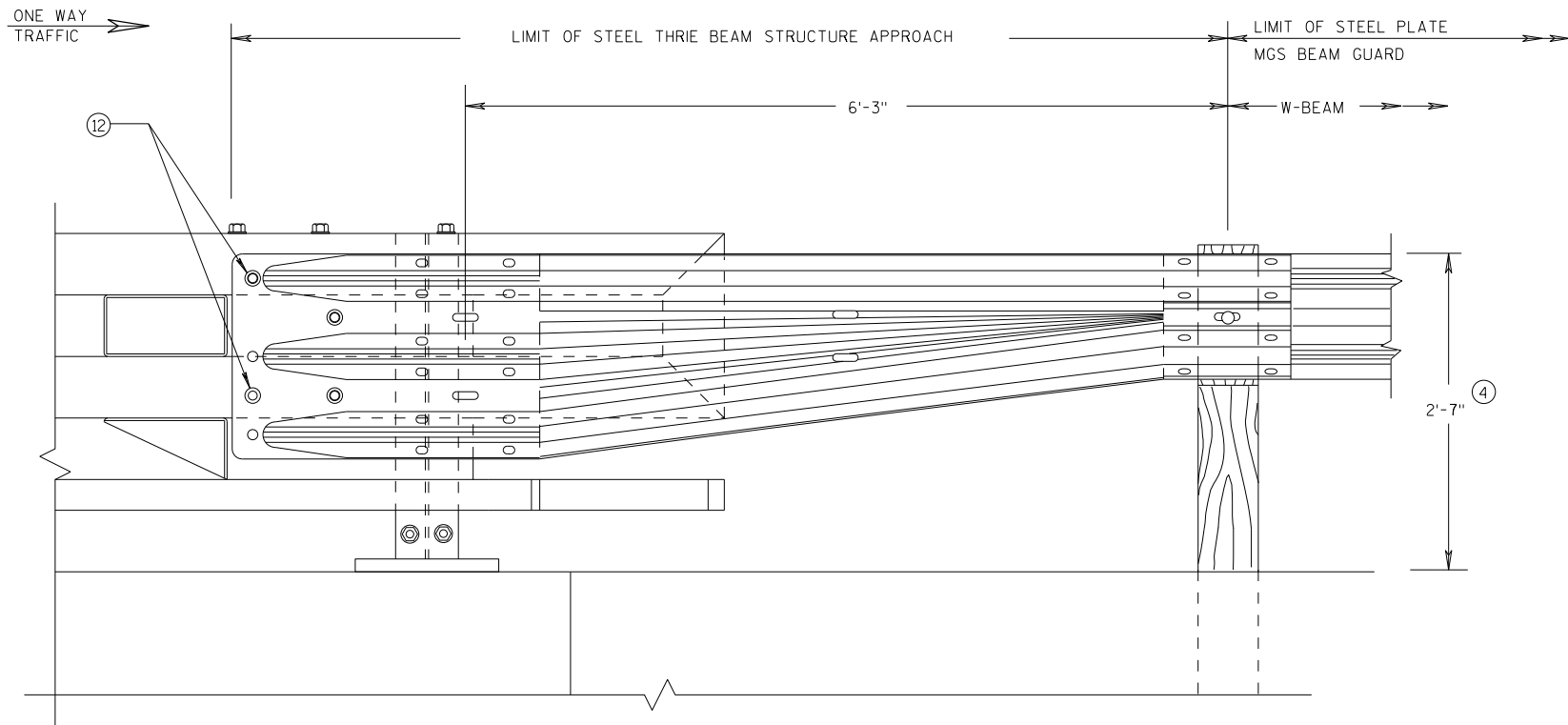


ELEVATION OF DETAIL AT NY4 END POST  
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 7/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS UNIT SUPERVISOR 153 NT  
FHWA

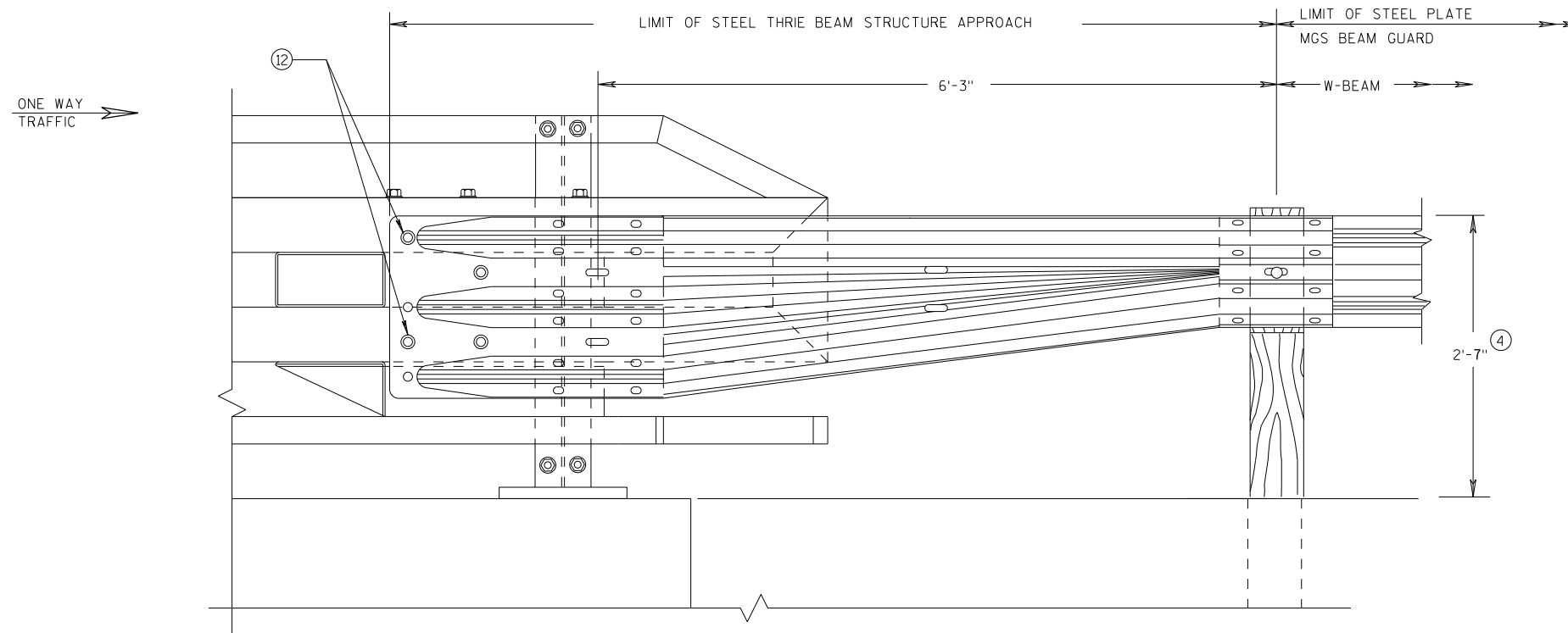


## GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- 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  $\frac{1}{2}$ -INCH BEYOND NUT.

FRONT VIEW

### W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



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

7/2018

DATE

FHWA

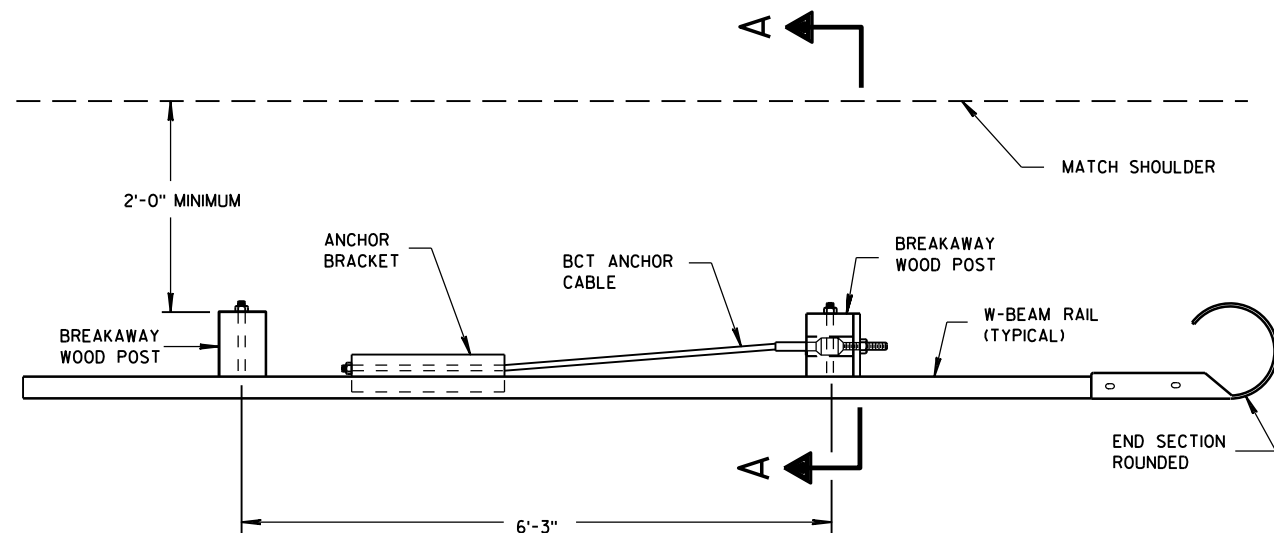
/S/ Rodney Taylor

ROADWAY STANDARDS C 154

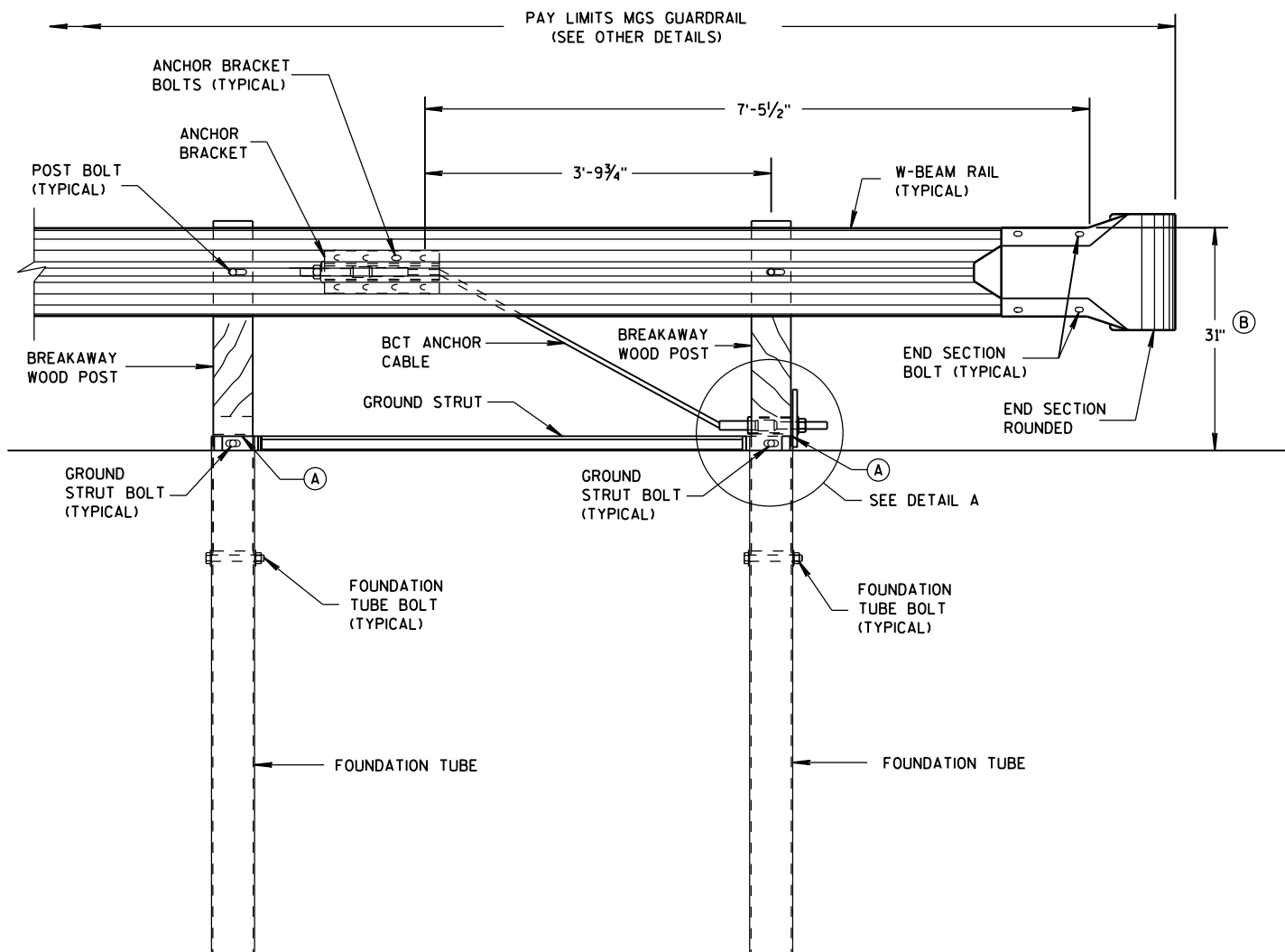
UNIT SUPERVISOR

NT



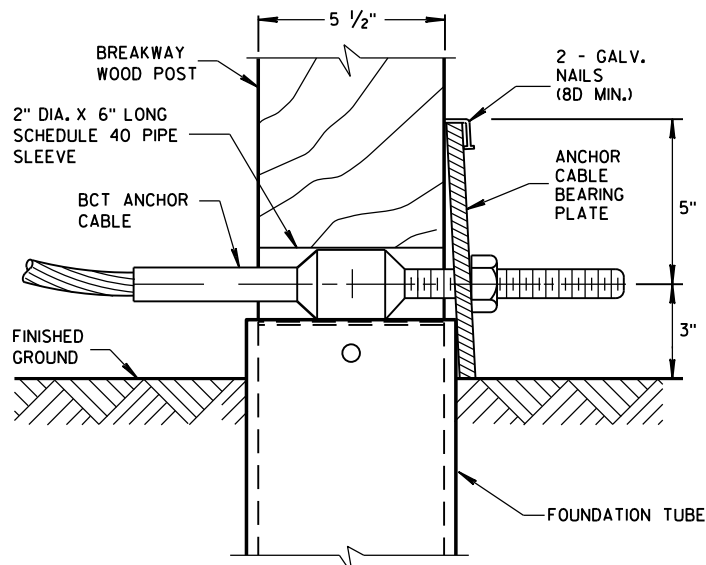


PLAN VIEW



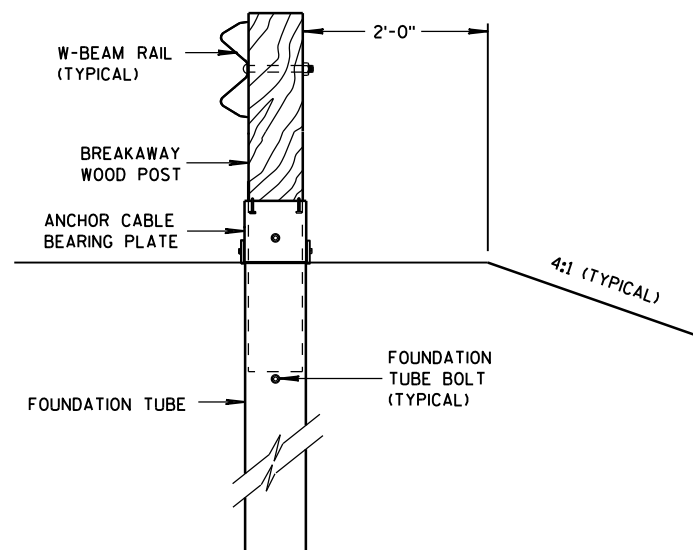
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1  
GROUND STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

## GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

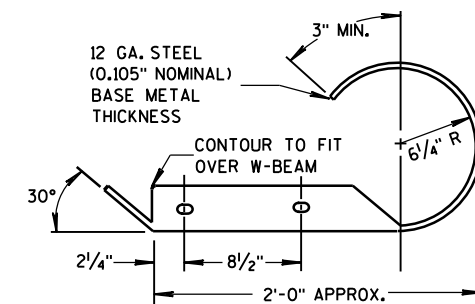
END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

FOUNDATION TUBE BOLTS ARE 7/8" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 7/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

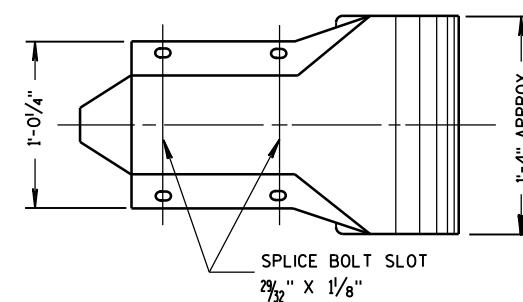
ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A 5/8" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 5/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

- (A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.
- (B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31"  $\pm$  1". FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27 3/4" TO 32"  $\pm$  1".



PLAN VIEW

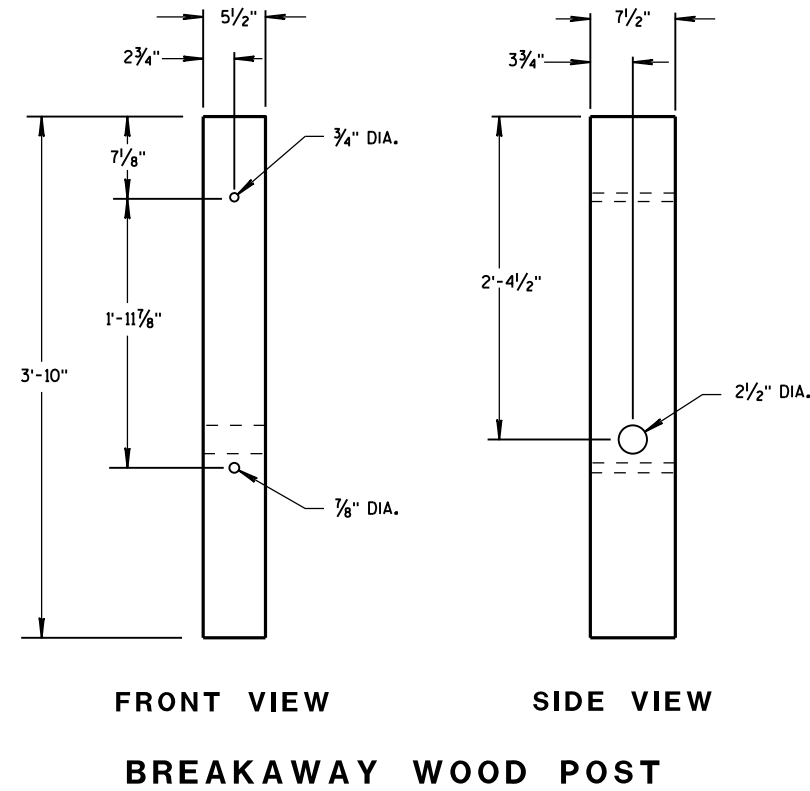
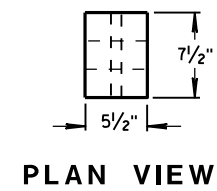
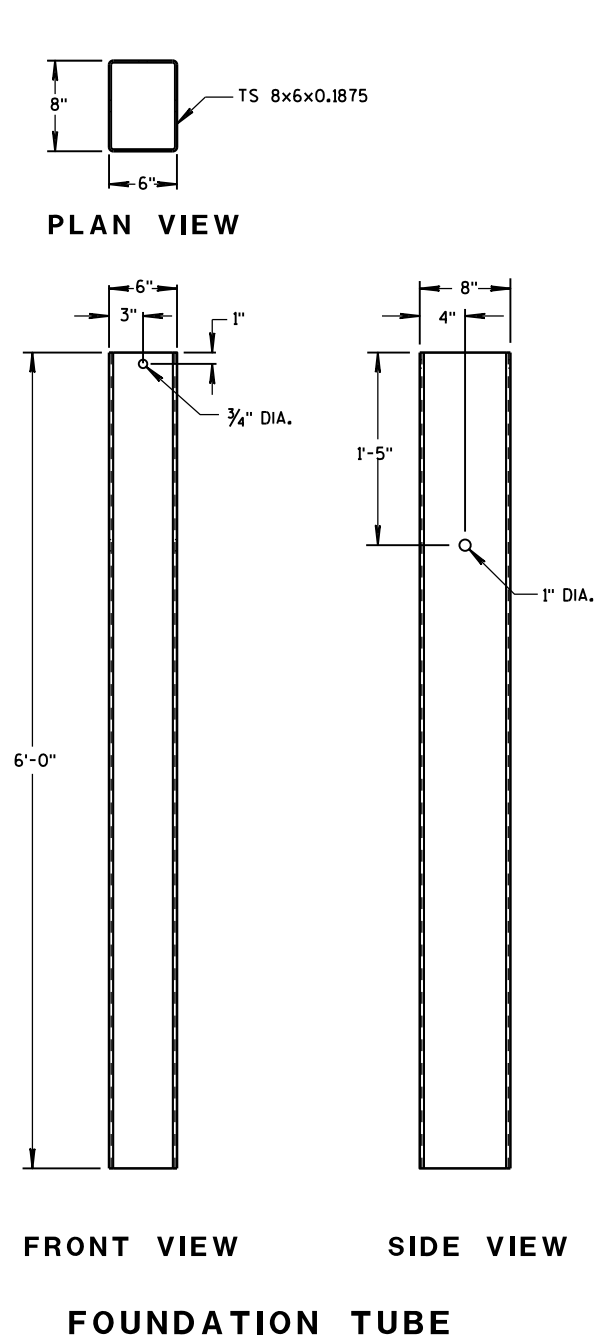


FRONT VIEW

W BEAM END  
SECTION ROUNDED

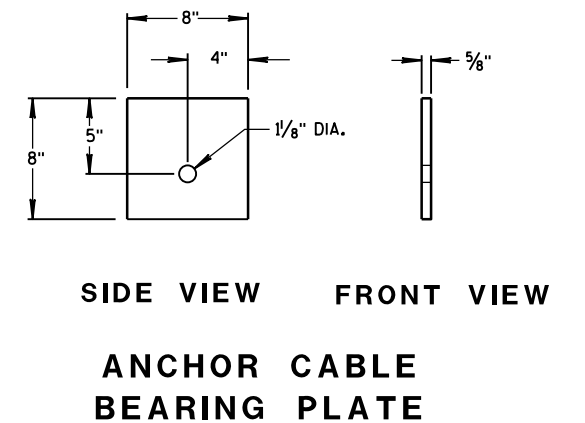
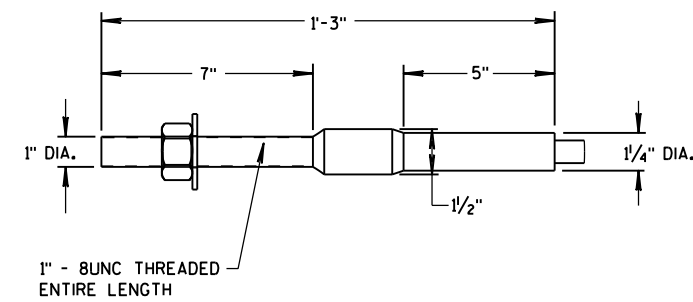
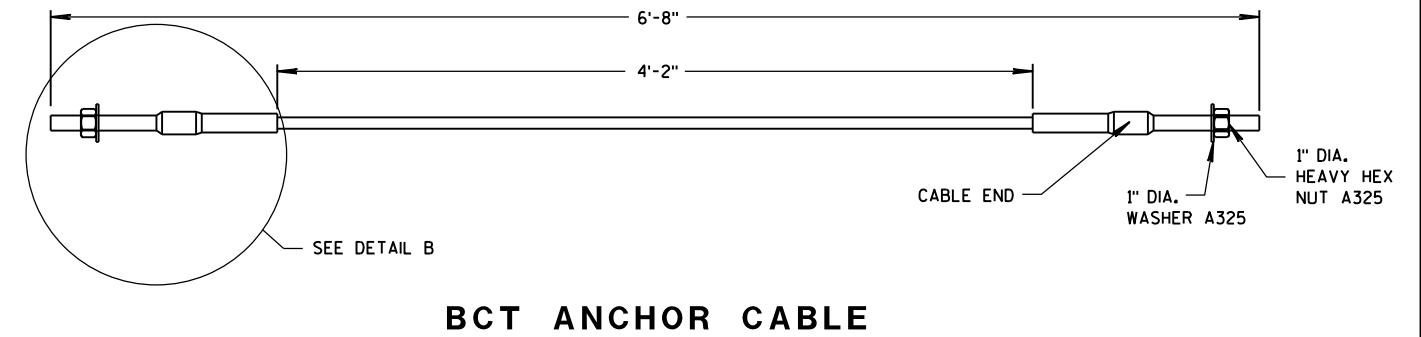
MIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 155



## GENERAL NOTES

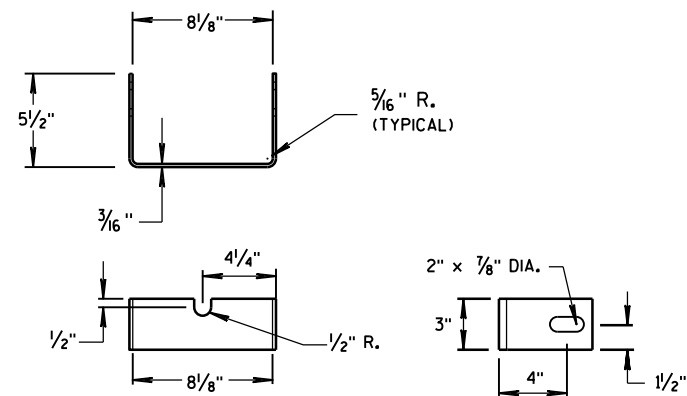
BCT ANCHOR CABLE IS A 3/4" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.



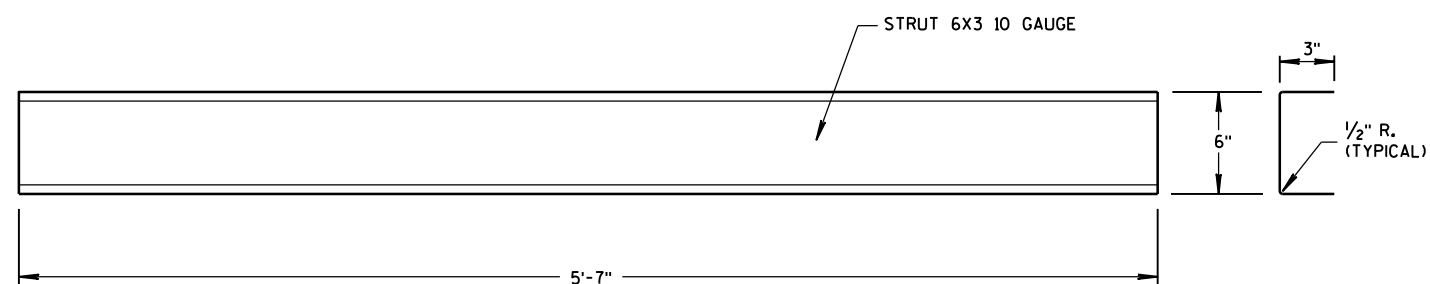
MIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 156

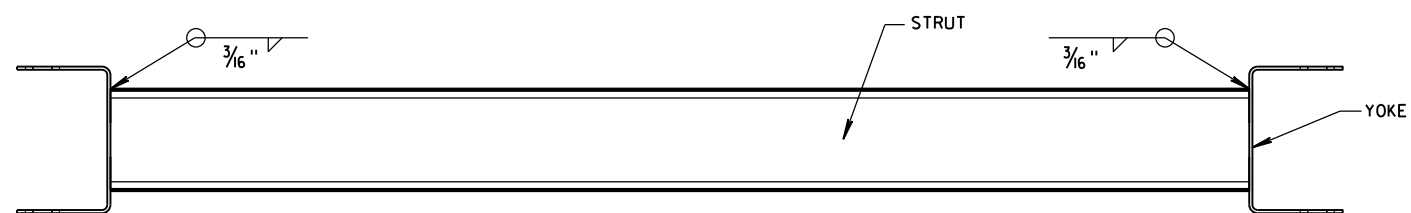




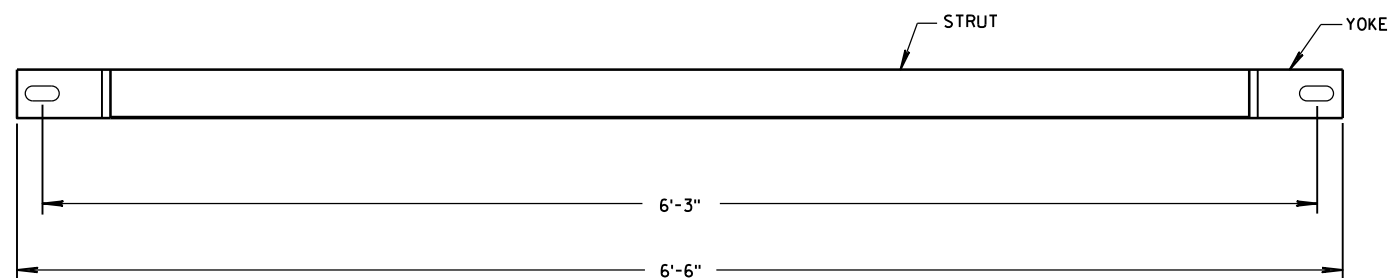
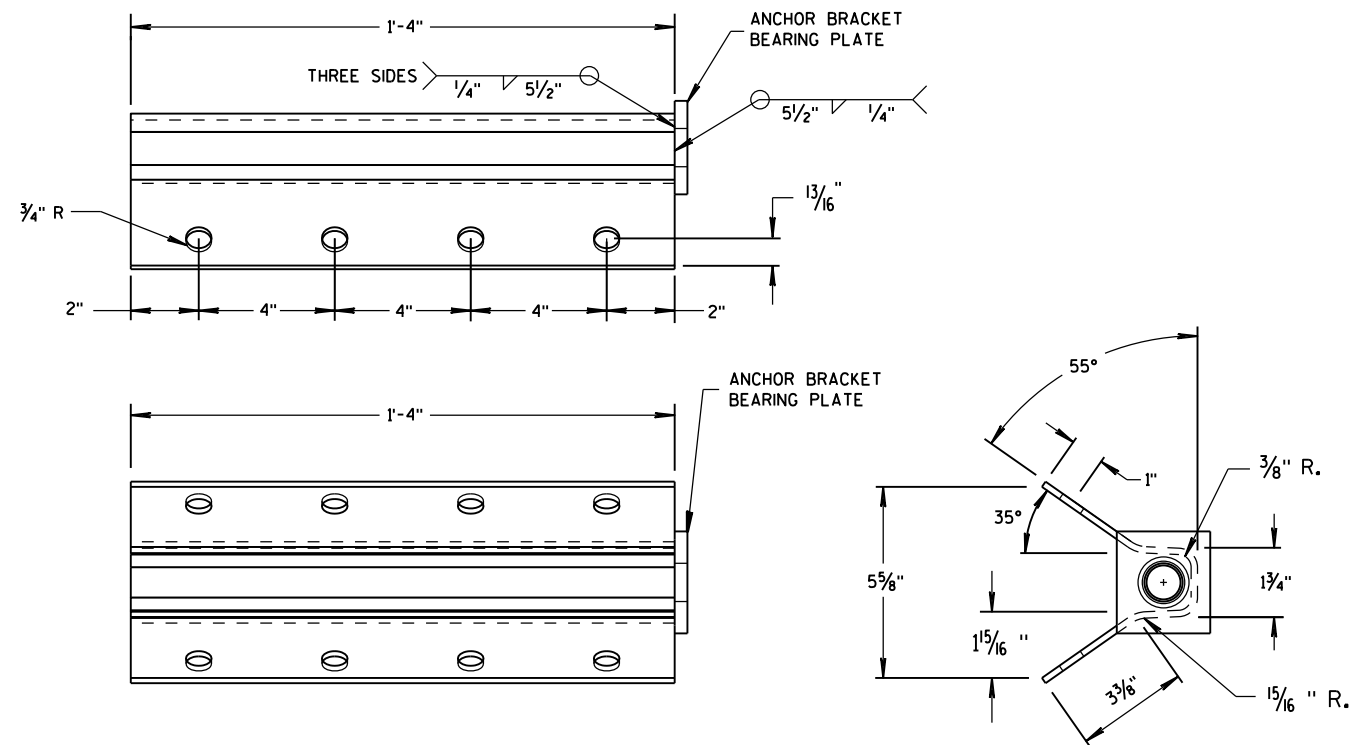
YOKE DETAIL



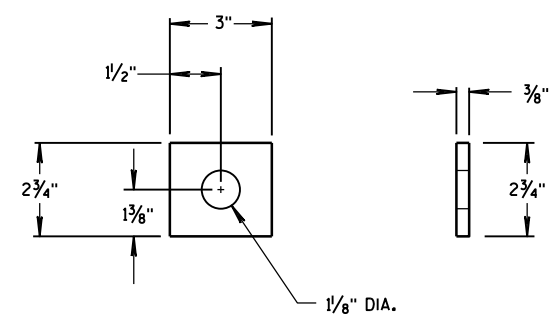
STRUT DETAIL

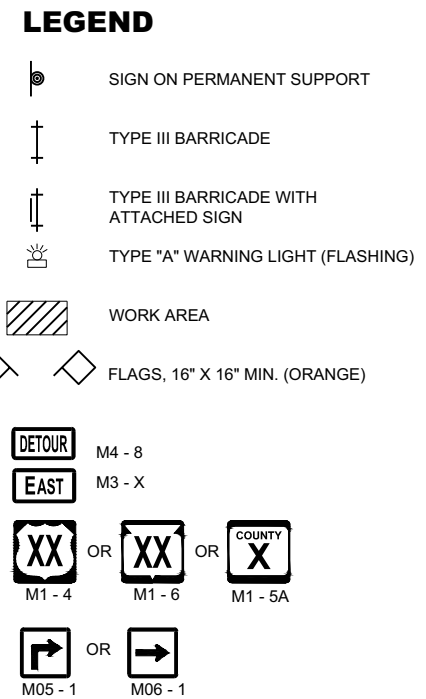


PLAN VIEW

FRONT VIEW  
GROUND STRUT DETAIL

ANCHOR BRACKET

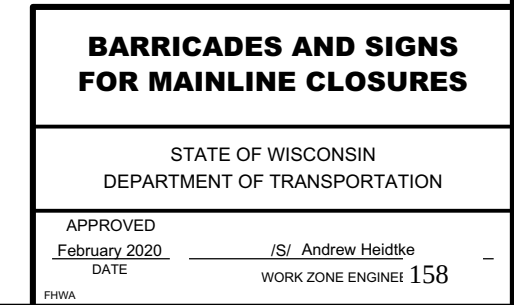
ANCHOR BRACKET  
BEARING PLATEMIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINALSTATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATIONAPPROVED  
June 2014 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS ENGINEER 157 ENT  
FHWA



**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
 WORK ZONE LESS THAN ½ MILE FROM  
 DETOUR ROUTE ( 1000 FEET IF URBAN )

| SPEED LIMIT<br>(MPH) | "STOP AHEAD"<br>ADVANCE WARNING<br>DISTANCE (FT) |
|----------------------|--------------------------------------------------|
| 25                   | 200                                              |
| 30                   | 200                                              |
| 35                   | 350                                              |
| 40                   | 350                                              |
| 45                   | 500                                              |
| 50                   | 550                                              |
| 55                   | 750                                              |

SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦





SEE SDD 15C2 - SHEET "a" FOR LEGEND

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.

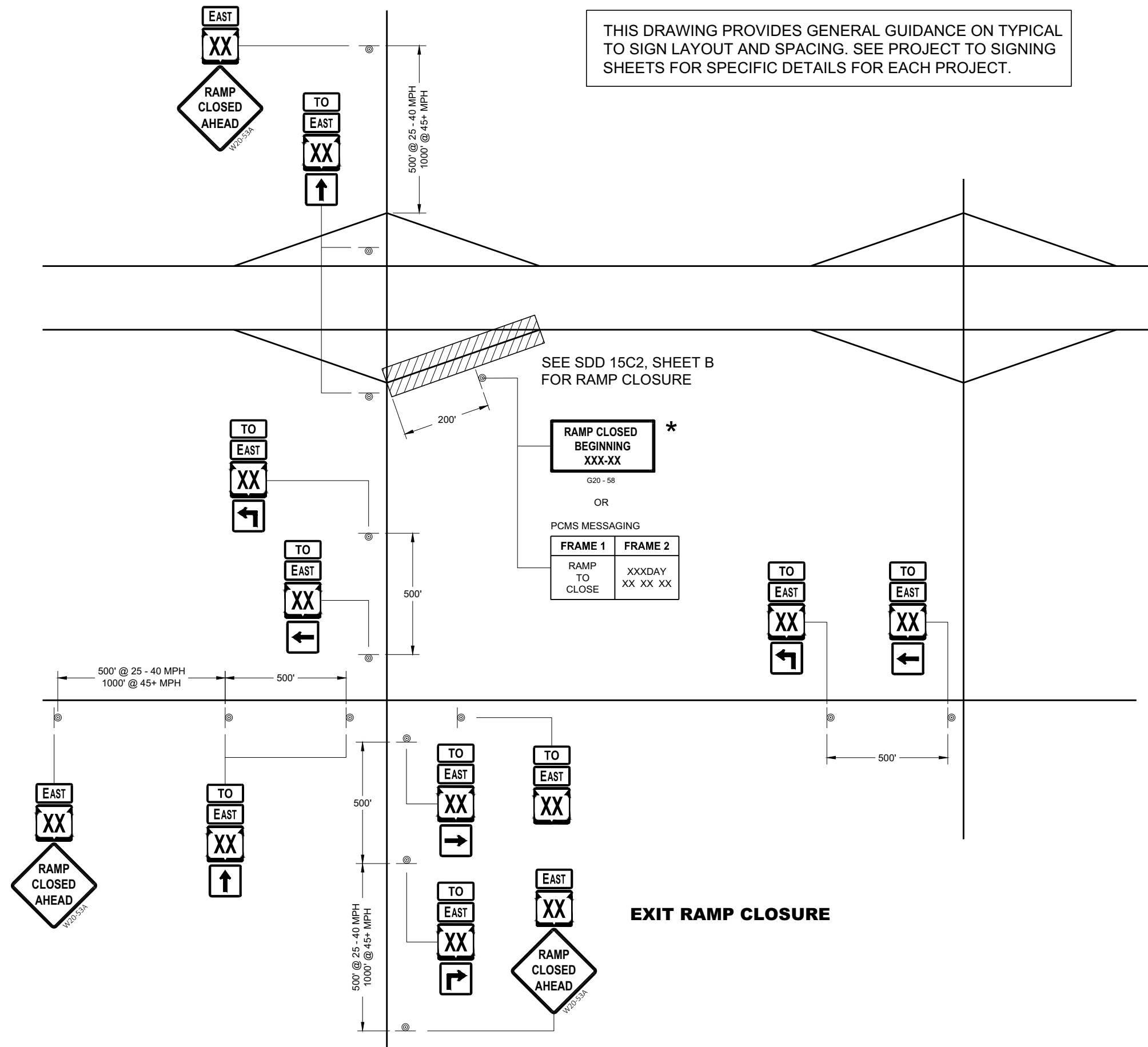
THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

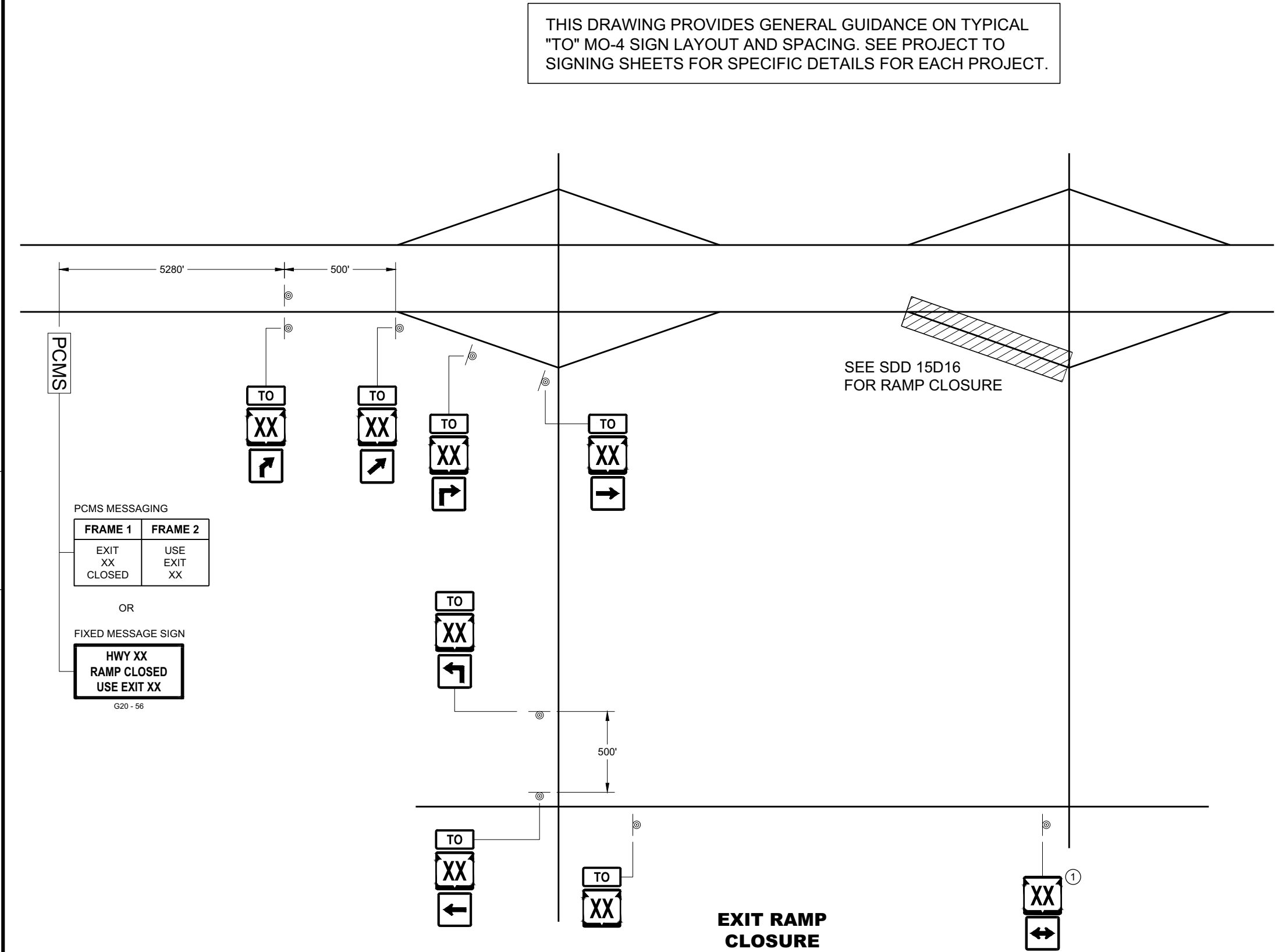
"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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.





LEGEND

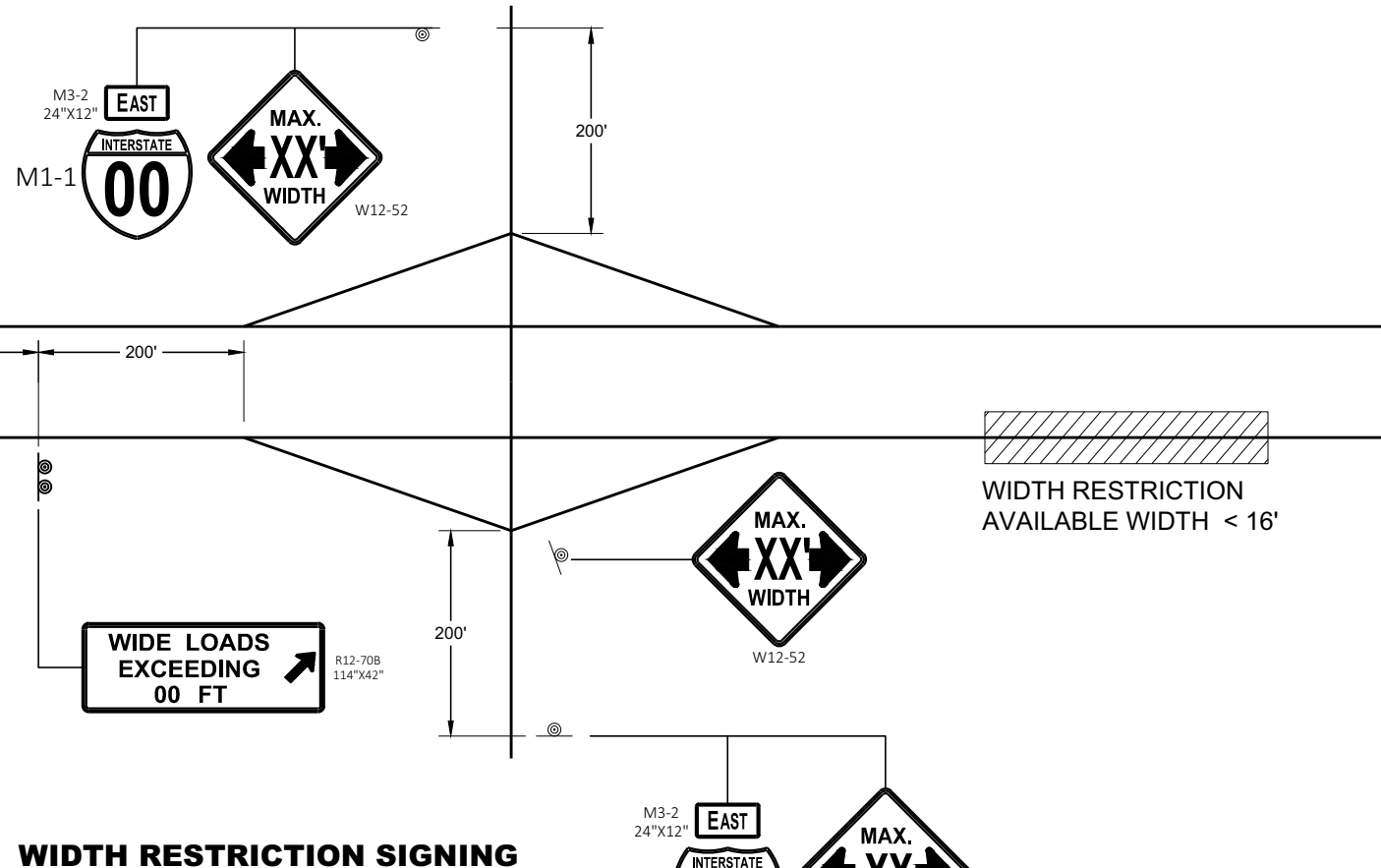
- ⊙ SIGN ON PERMANENT SUPPORT
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

- TO MO4 - 5
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M05 - 2 OR M06 - 1 OR M06 - 2 OR M06 - 4

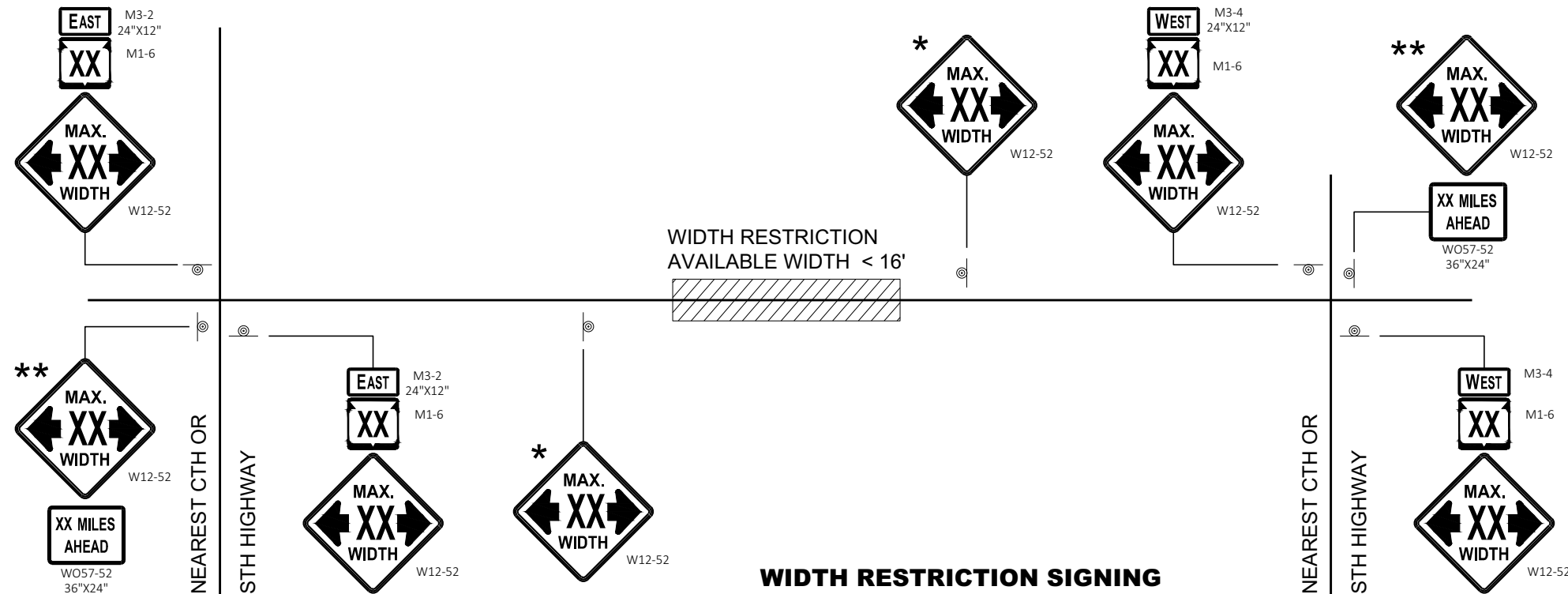
GENERAL NOTES

- 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.

| OFF RAMP<br>LANE CLOSURE                           |                                              |
|----------------------------------------------------|----------------------------------------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                              |
| APPROVED<br>February 2020<br>DATE                  | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER 161 |
| FHWA                                               |                                              |



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING  
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS 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 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.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

\* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.

\*\* SIGN SHALL BE VISIBLE FROM ROADWAY.

\*\*\* ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



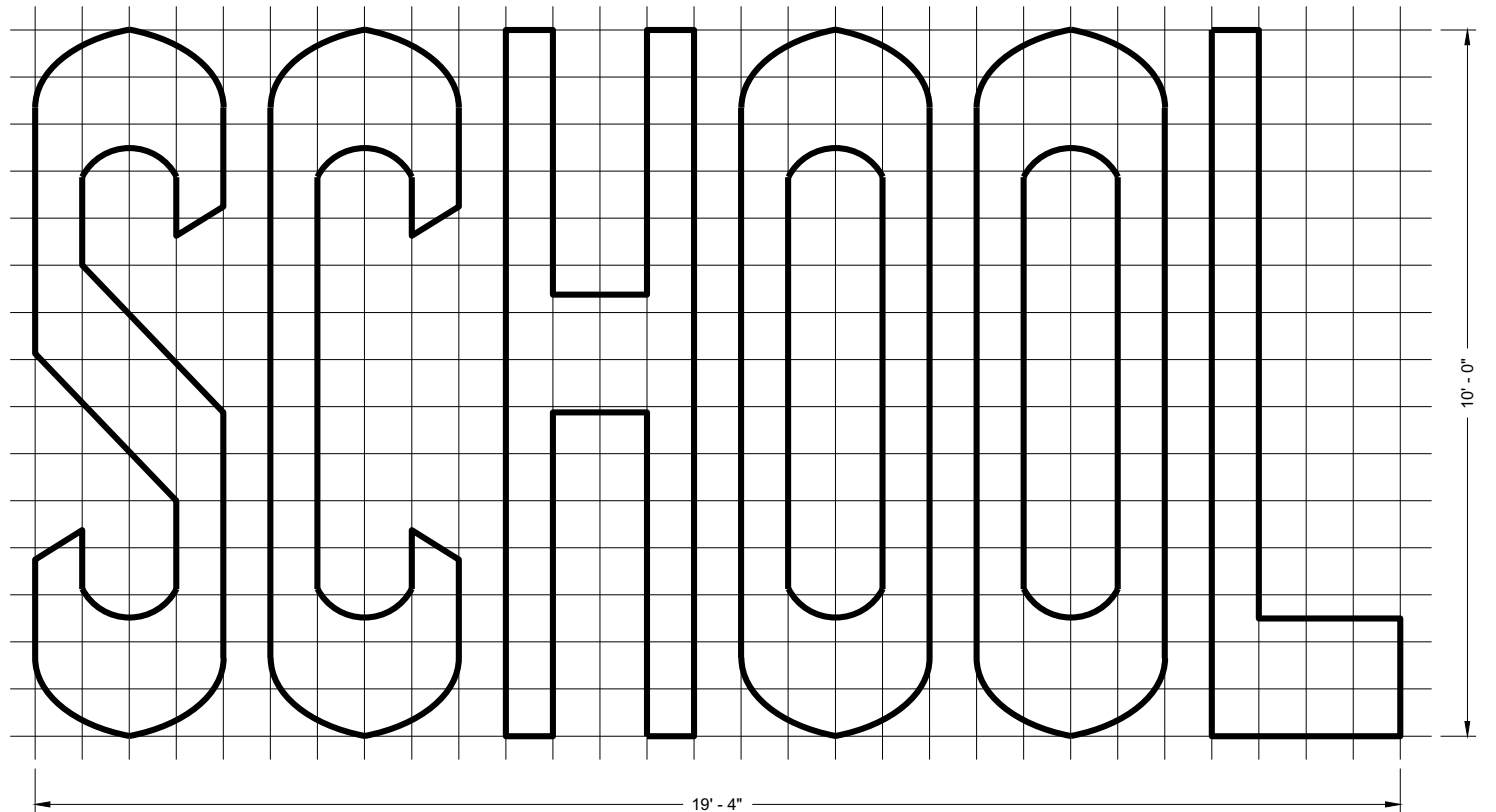
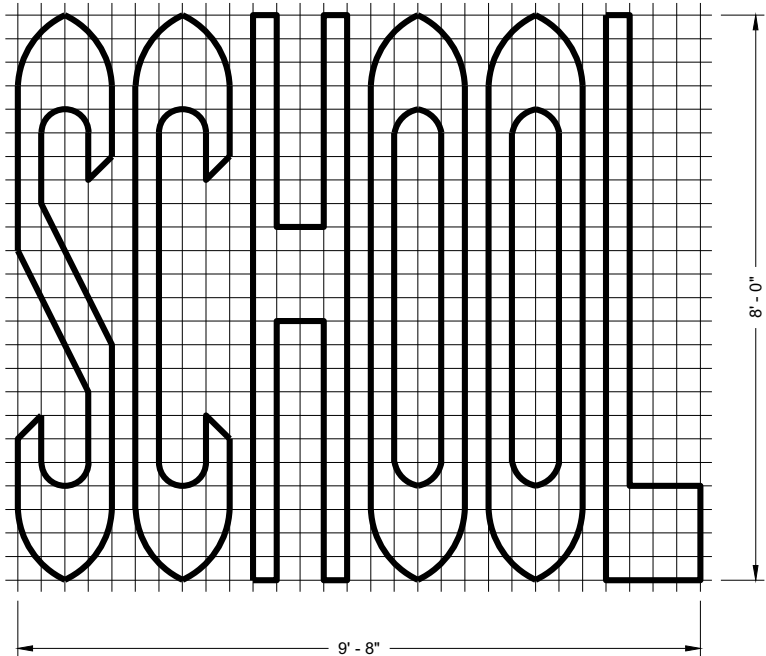
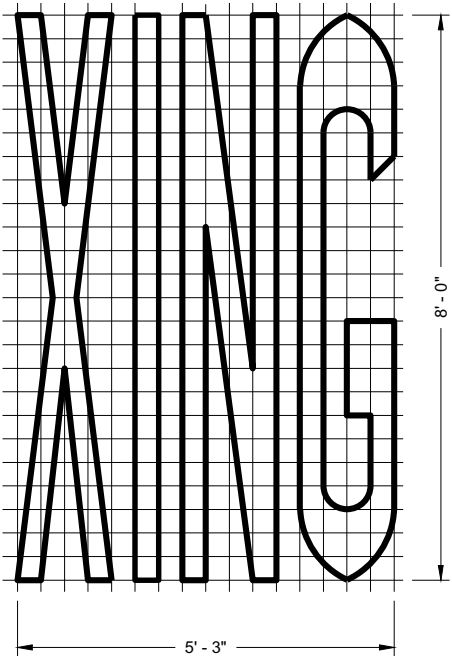
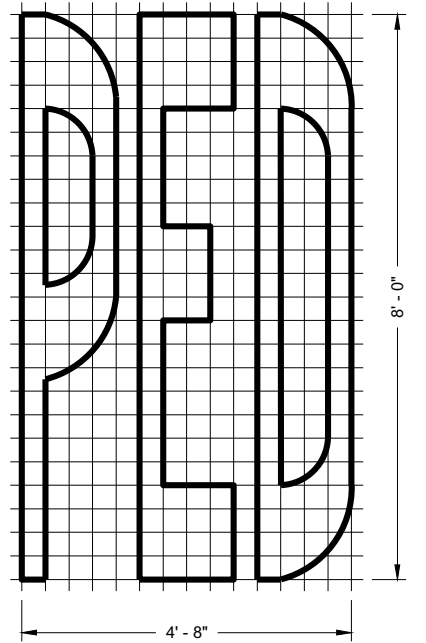
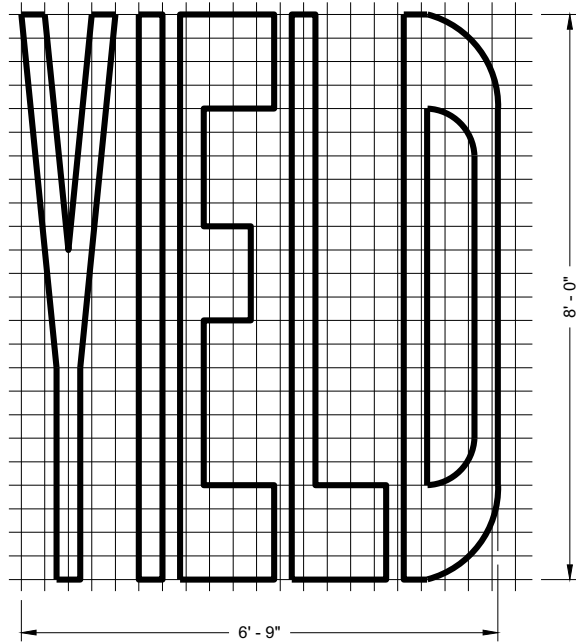
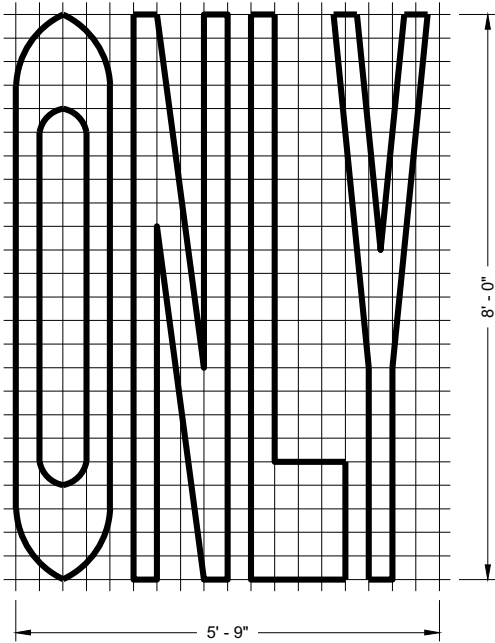
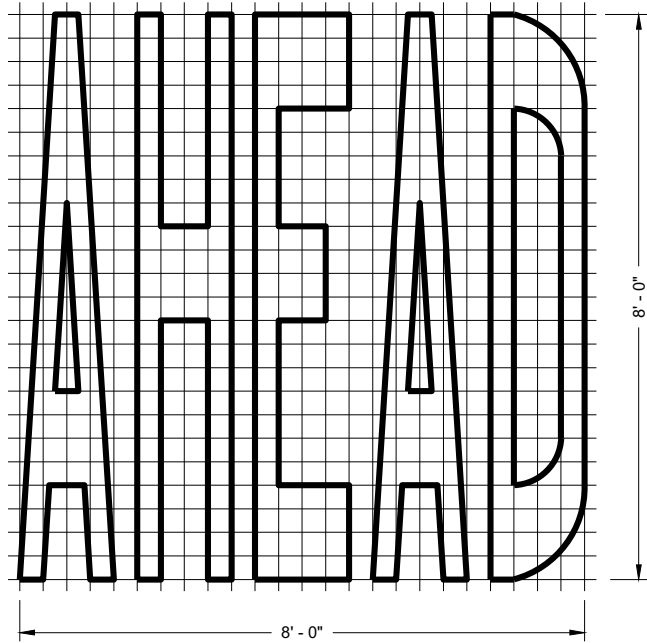
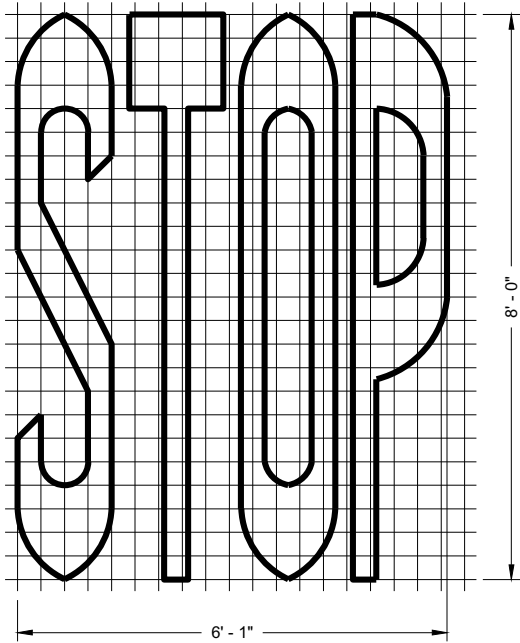
WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

ADVANCED WIDTH  
RESTRICTION SIGNING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER 162  
FHWA





SINGLE LANE

TWO - LANE

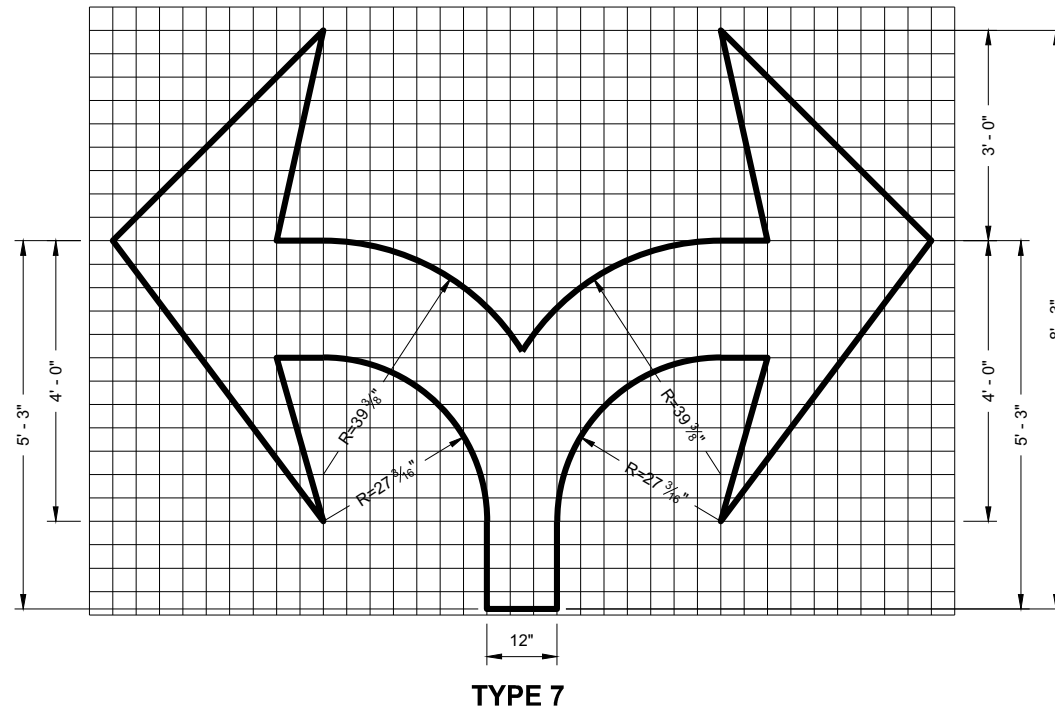
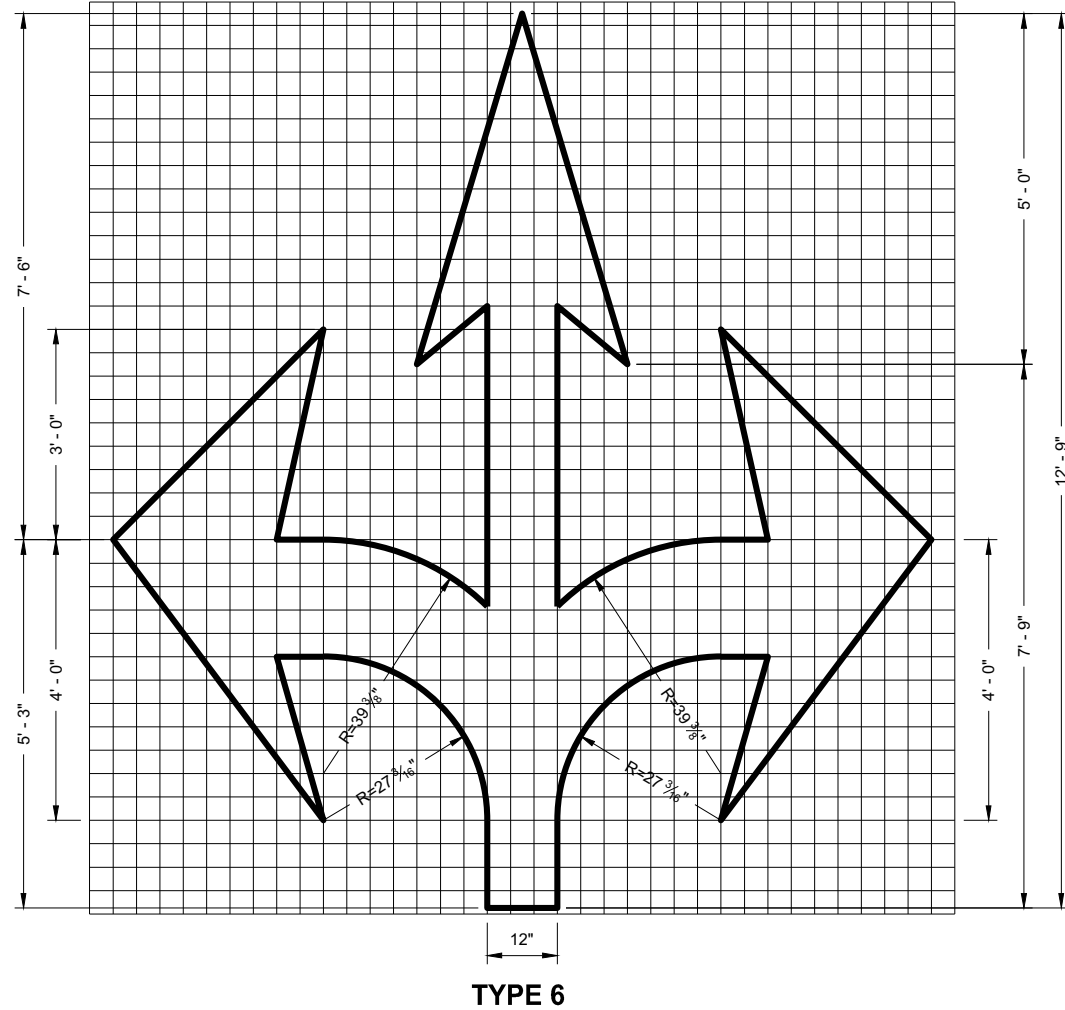
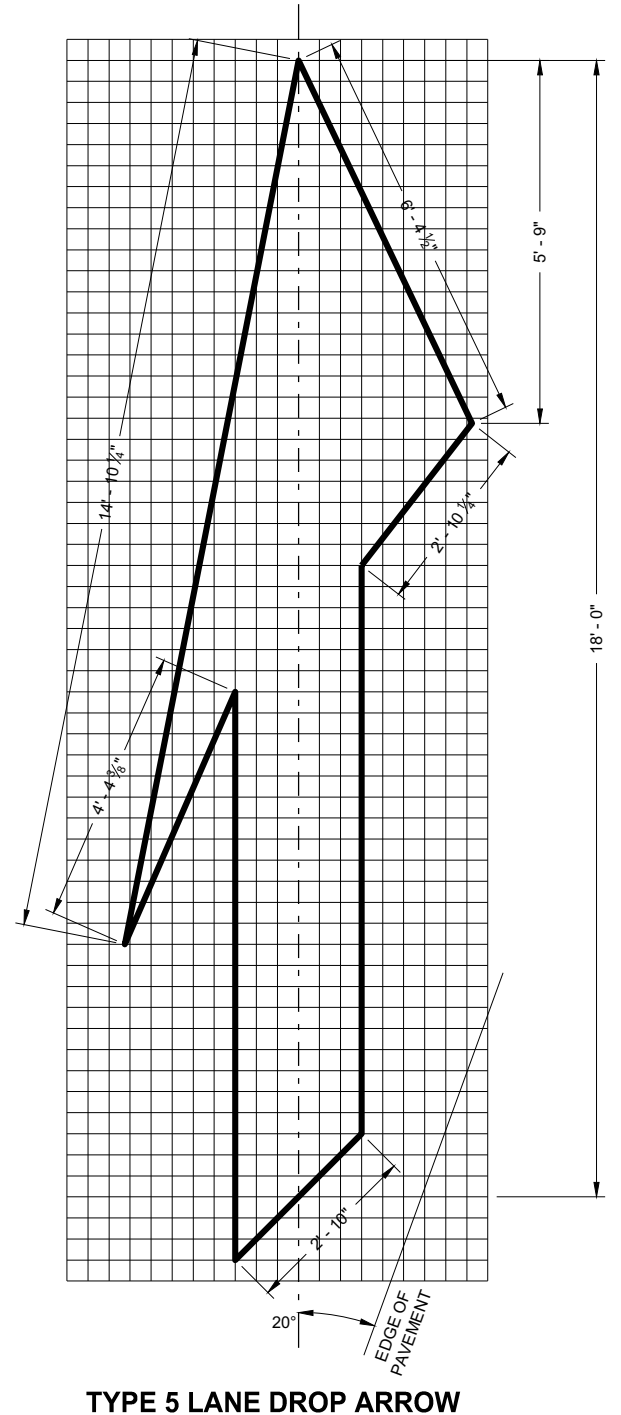
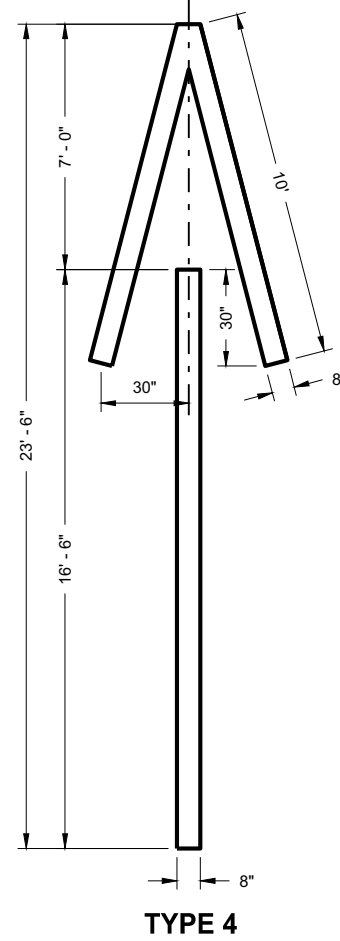
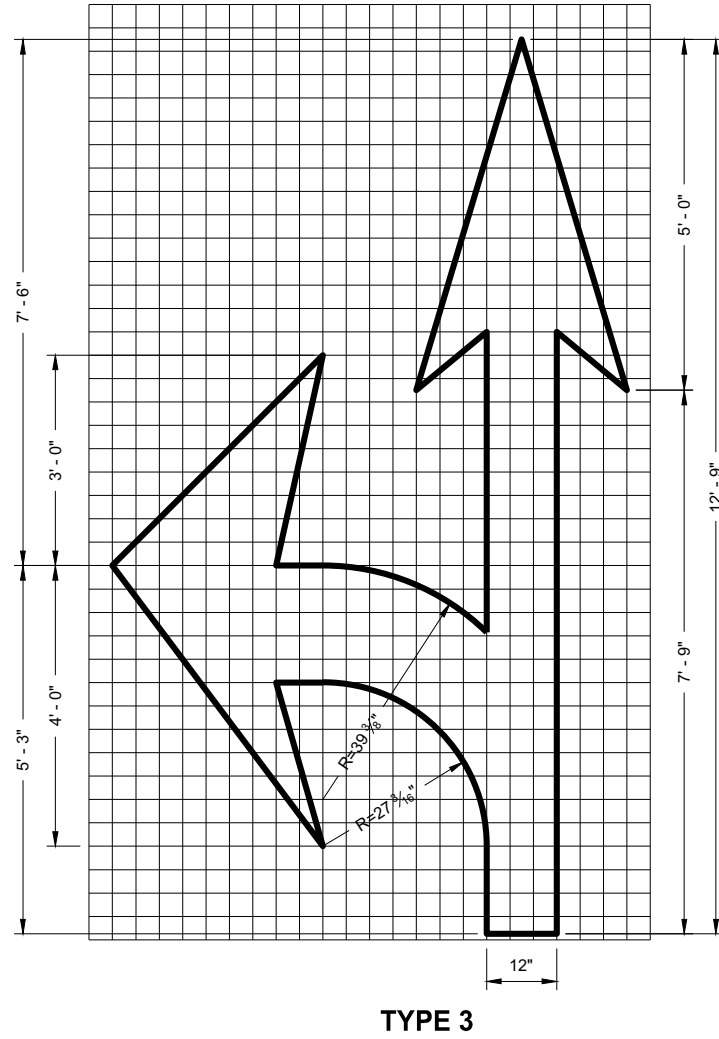
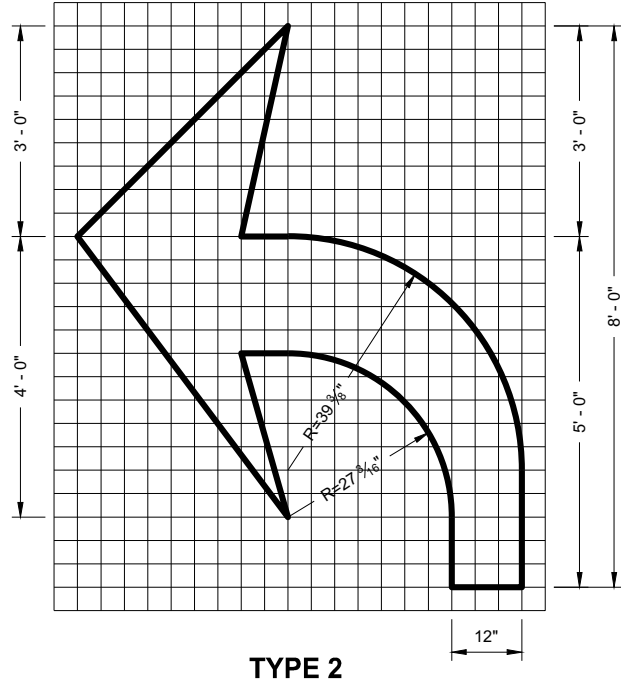
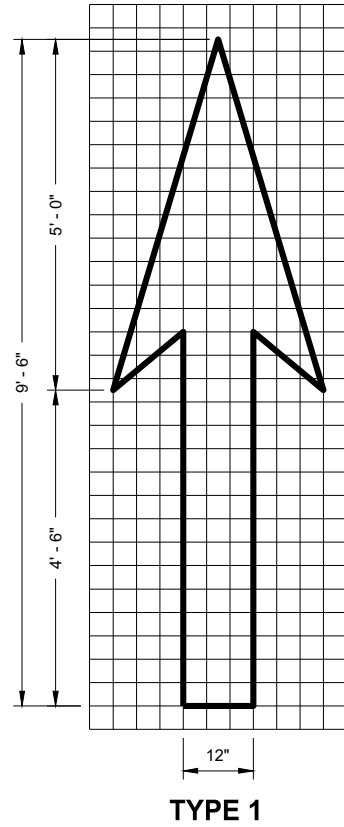
#### GENERAL NOTES

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 MAP ENGINEER 163  
FHWA



### GENERAL NOTES

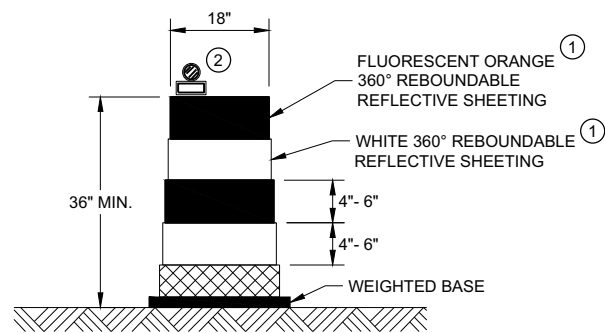
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

### PAVEMENT MARKING ARROWS

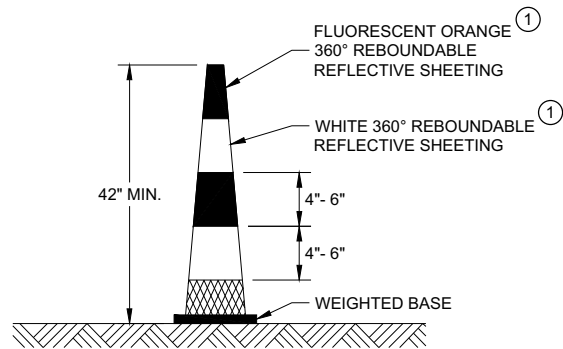
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2019  
DATE  
/S/ Matthew Rauch  
STATE SIGNING AND MAP ENGINEER 164  
FHWA



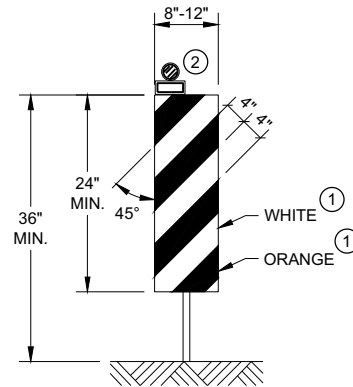


DRUM



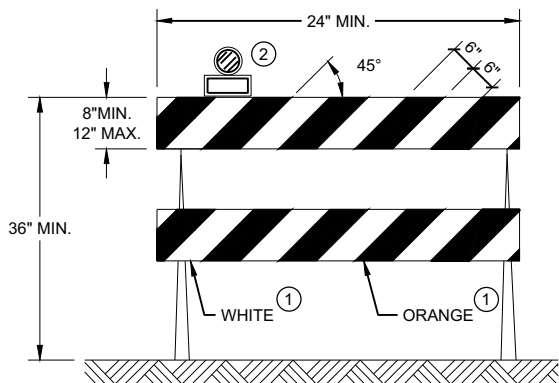
42" CONE

DO NOT USE IN TAPERS  
½ SPACING OF DRUMS



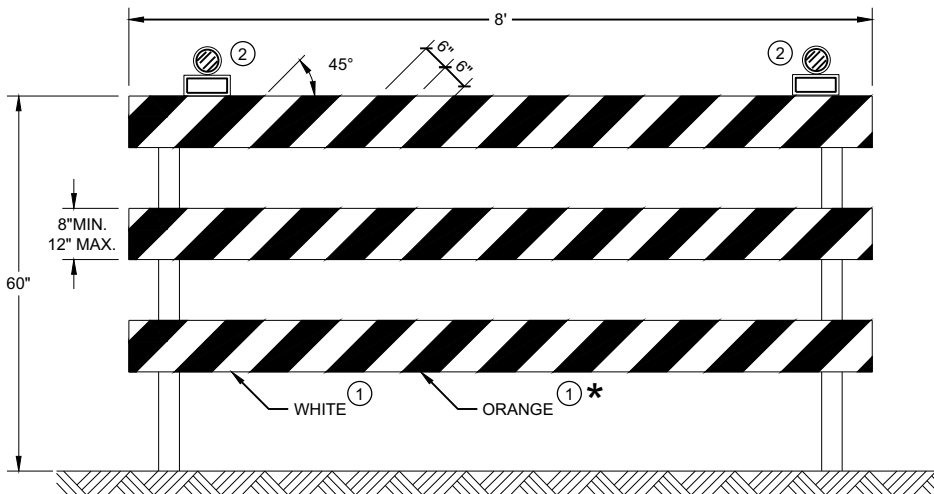
VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO  
THE TRAFFIC SIDE FOR CHANNELIZATION.



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.

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.

CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER 165

FHWA

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE

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.

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 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.

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.

- ①

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.
- ②

IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH LESS THAN POSTED SPEED.

LEGEND

- 

SIGN ON PERMANENT SUPPORT
- 

TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- 

TRAFFIC CONTROL DRUM
- 

FLASHING ARROW BOARD
- 

REMOVING PAVEMENT MARKING
- 

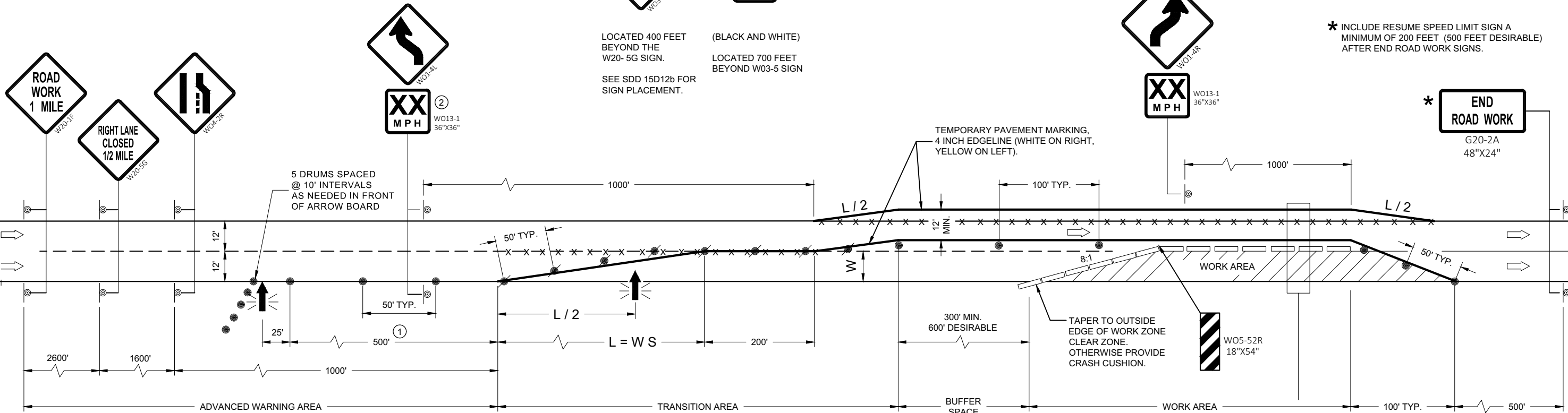
CONCRETE BARRIER TEMPORARY PRECAST
- 

DIRECTION OF TRAFFIC
- 

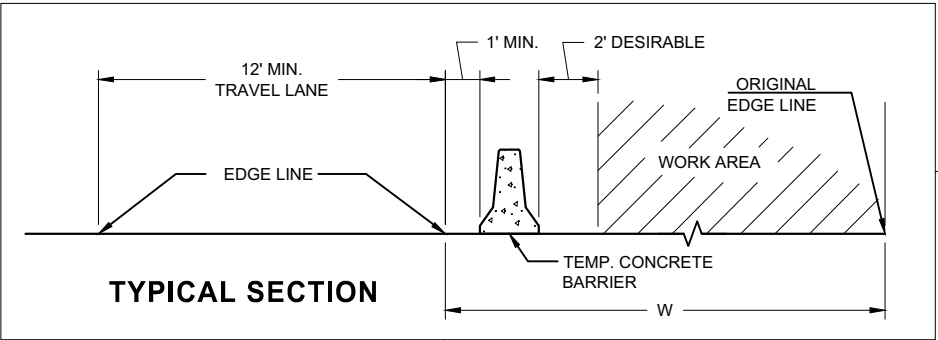
WORK AREA

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES.

\* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.



| L, TAPER LENGTH (MPH) |                        |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SPEED (MPH)           | W, LATERAL OFFSET (FT) |     |     |     |     |     |     |     |     |     |     |     |
|                       | 1                      | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
| 45                    | 45                     | 90  | 135 | 180 | 225 | 270 | 315 | 360 | 405 | 450 | 495 | 540 |
| 50                    | 50                     | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| 55                    | 55                     | 110 | 165 | 220 | 275 | 330 | 385 | 440 | 495 | 550 | 605 | 660 |
| 60                    | 60                     | 120 | 180 | 240 | 300 | 360 | 420 | 480 | 540 | 600 | 660 | 720 |
| 65                    | 65                     | 130 | 195 | 260 | 325 | 390 | 455 | 520 | 585 | 650 | 715 | 780 |
| 70                    | 70                     | 140 | 210 | 280 | 350 | 420 | 490 | 560 | 630 | 700 | 770 | 840 |



**TRAFFIC CONTROL  
LANE CLOSURE, SPEEDS  
GREATER THAN 40 MPH  
WITH BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINE

166

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 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.

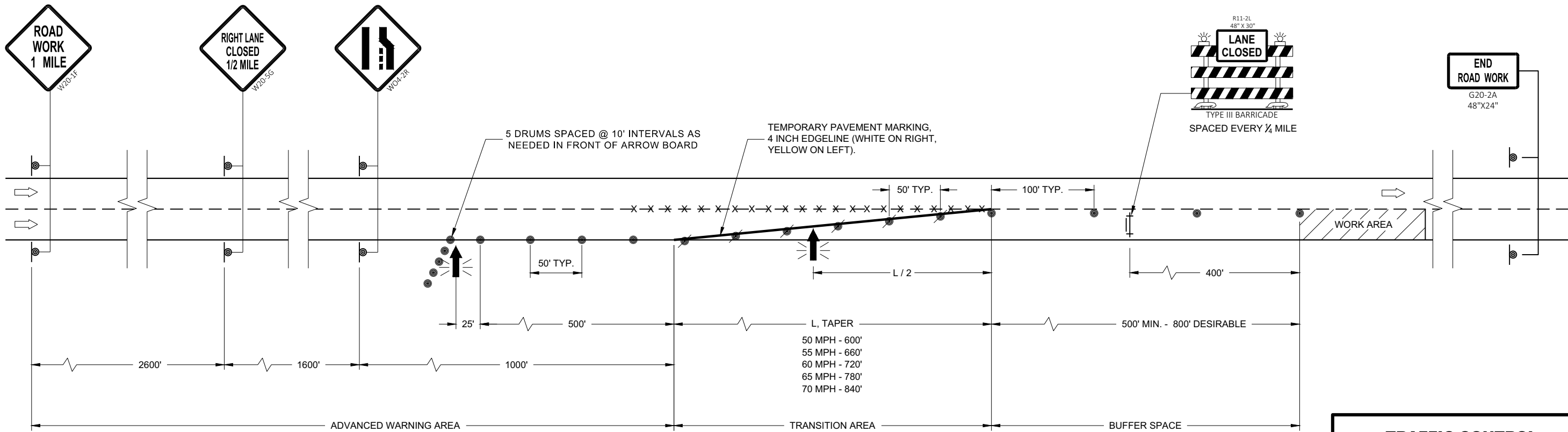
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

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



|                                                    |                                              |
|----------------------------------------------------|----------------------------------------------|
| TRAFFIC CONTROL<br>LANE CLOSURE                    |                                              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                              |
| APPROVED<br>August 2020<br>DATE                    | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER 167 |
| FHWA                                               |                                              |

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

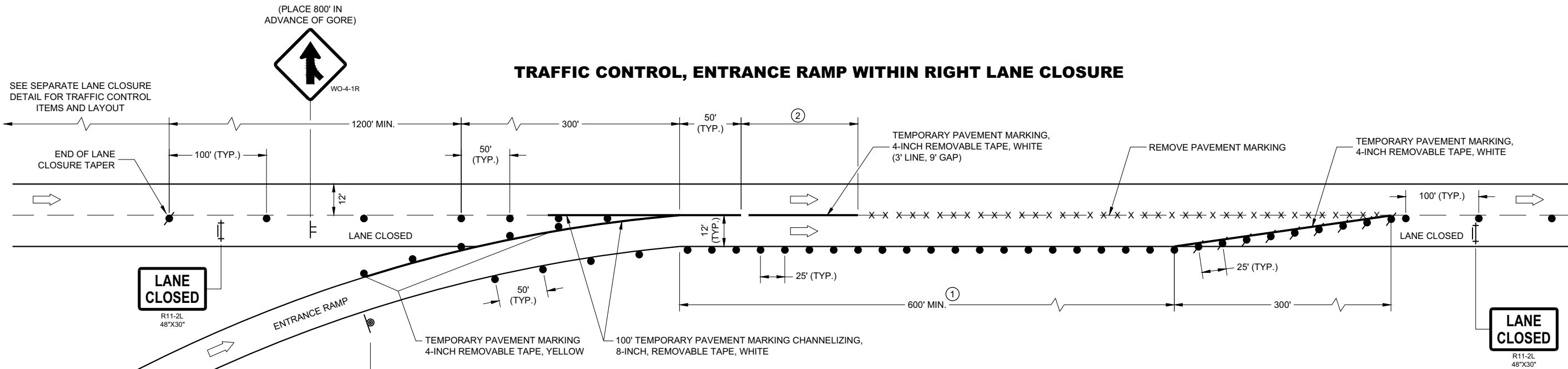
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY MARKING AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

TRAFFIC CONTROL, ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE



PARALLEL EXIT RAMP

TRAFFIC CONTROL,  
PARALLEL ENTRANCE RAMP  
WITHIN LANE CLOSURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2019 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER 168

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, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

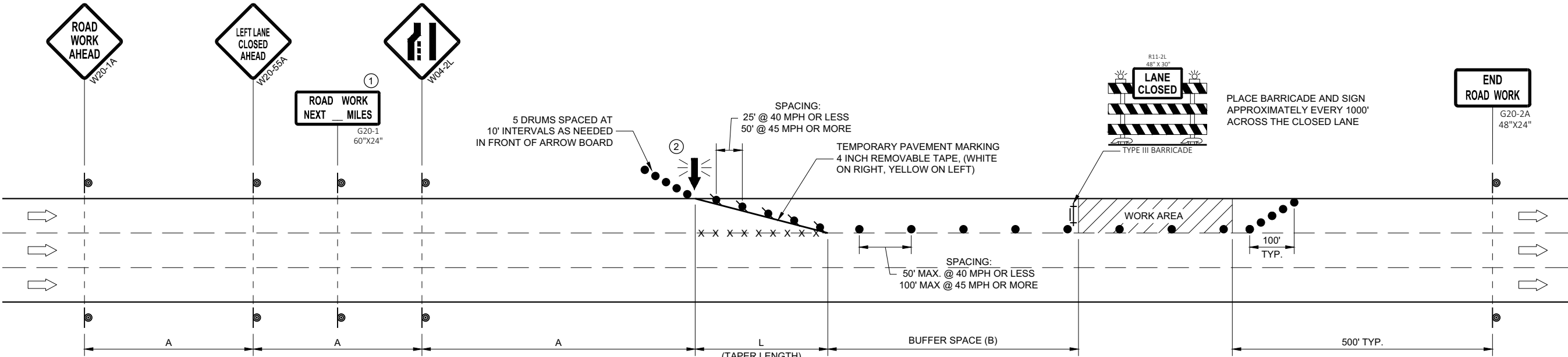
CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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.



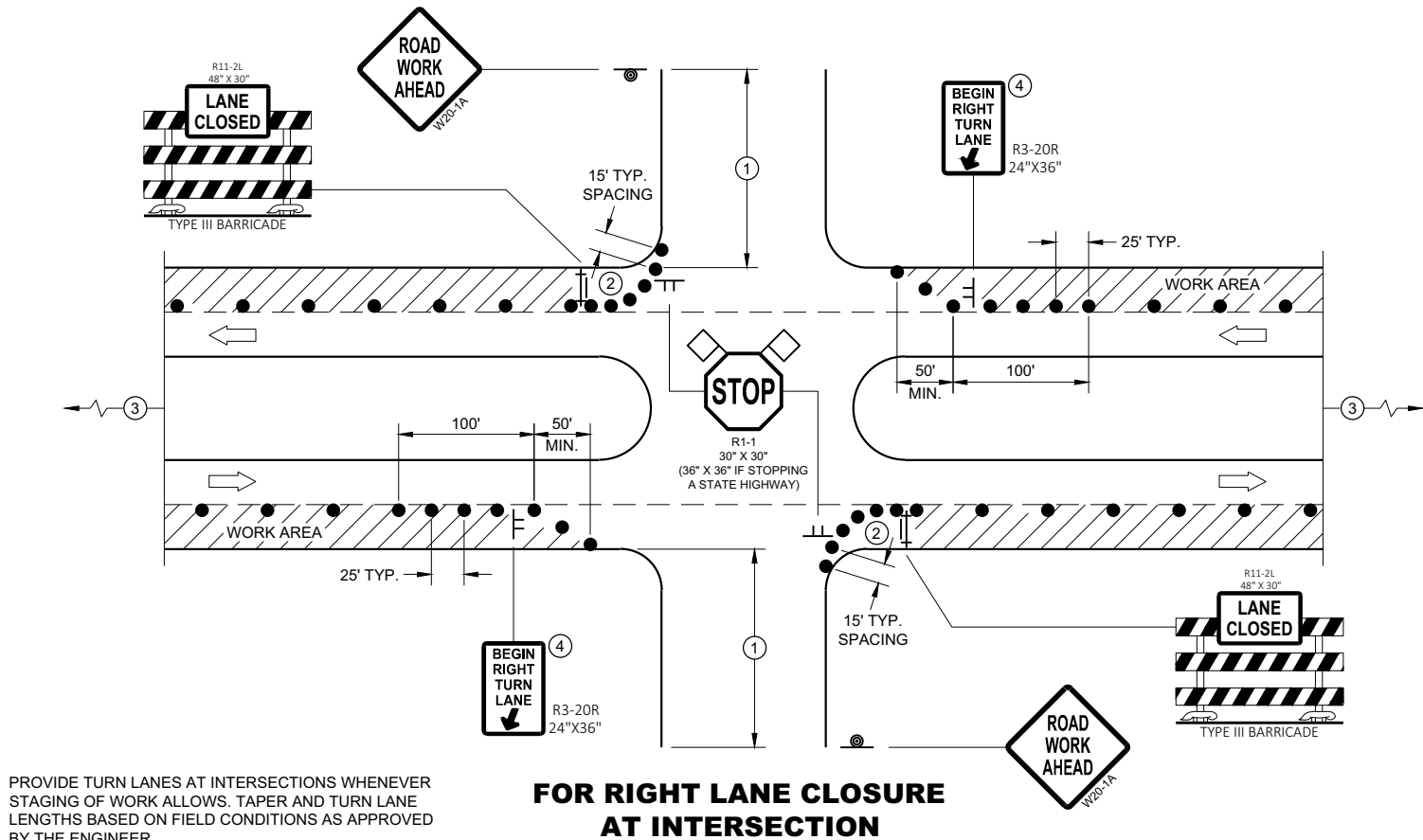
| POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH) | ADVANCE WARNING SIGN SPACING (A) FEET | TAPER LENGTH (12 FT. LANE) (L) FEET | BUFFER SPACE (B) FEET |
|-------------------------------------------------|---------------------------------------|-------------------------------------|-----------------------|
| 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  
May 2020 /S/ Andrew Heidtke  
DATE STATEWIDE WORK ZONE T SAFETY ENGINEER 169

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.

**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

**FOR RIGHT LANE CLOSURE AT INTERSECTION  
(WITH RIGHT TURN BAY OPEN)**

**TRAFFIC CONTROL,  
INTERSECTION WITHIN SINGLE  
RIGHT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 170



LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

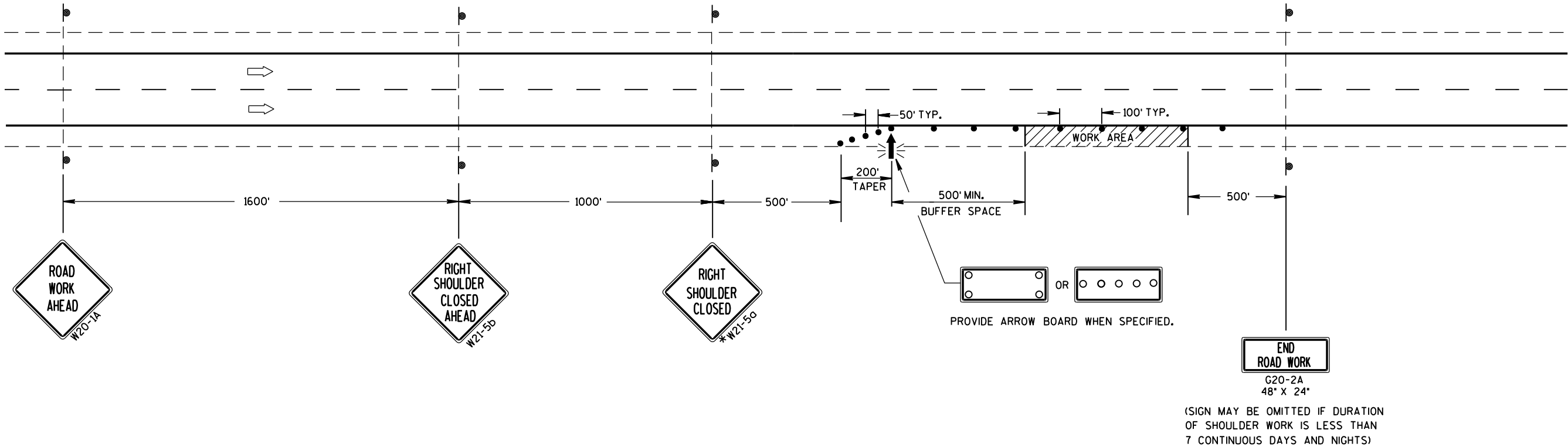
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

\*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL  
SHOULDER CLOSURE ON DIVIDED  
ROADWAY, SPEEDS GREATER  
THAN 40 MPH

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

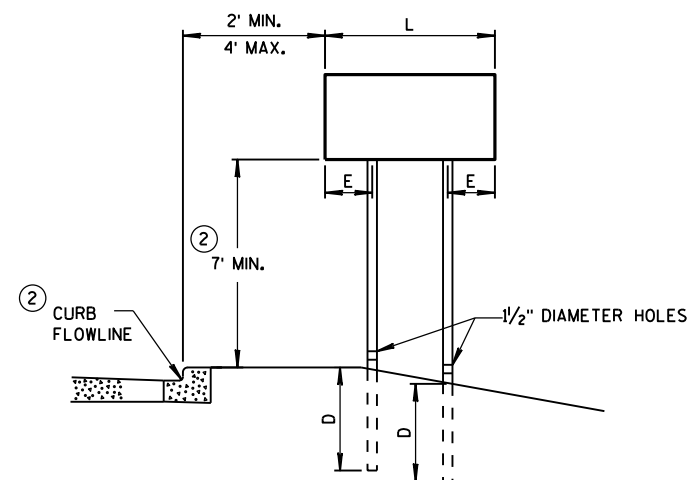
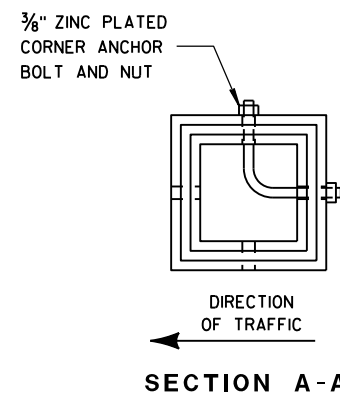
APPROVED  
June 2016 /S/ Peter Amakobe Atepe  
DATE STATEWIDE WORK ZONE SAFETY ENGINEER  
FHWA



## TUBULAR STEEL POSTS

| AREA OF SIGN<br>INSTALLATION<br>(SQ. FT.)      | NUMBER OF<br>REQUIRED TUBULAR<br>STEEL POSTS |
|------------------------------------------------|----------------------------------------------|
| 9 OR LESS                                      | 1                                            |
| GREATER THAN 9<br>LESS THAN OR EQUAL<br>TO 18  | 2                                            |
| GREATER THAN 18<br>LESS THAN OR EQUAL<br>TO 27 | 3                                            |

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

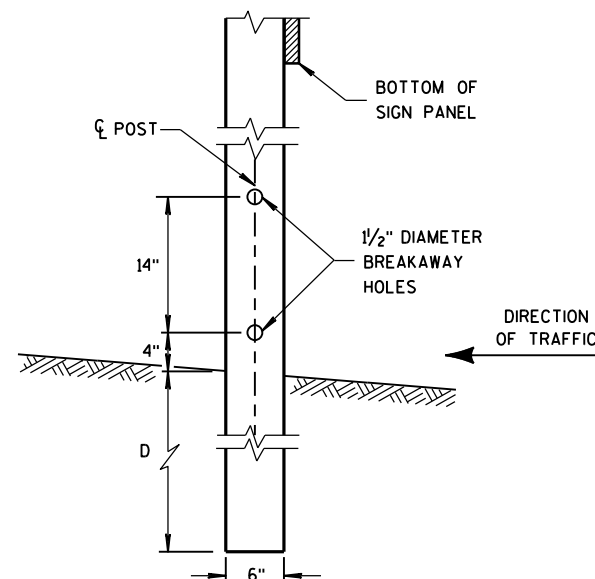


**URBAN AREA**

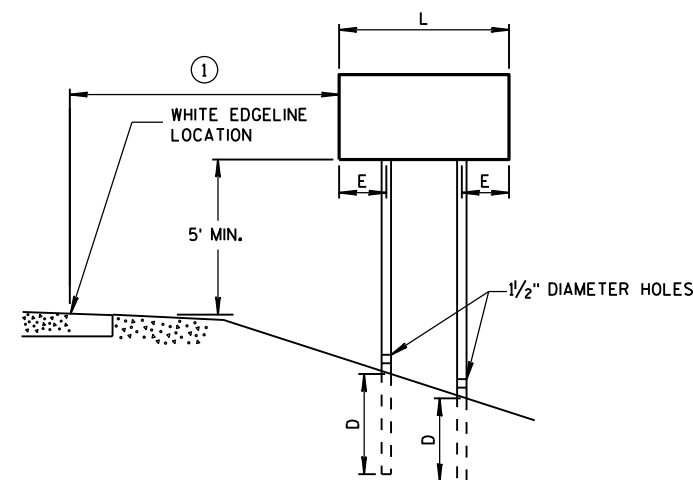
## POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST  
EMBEDMENT DEPTH

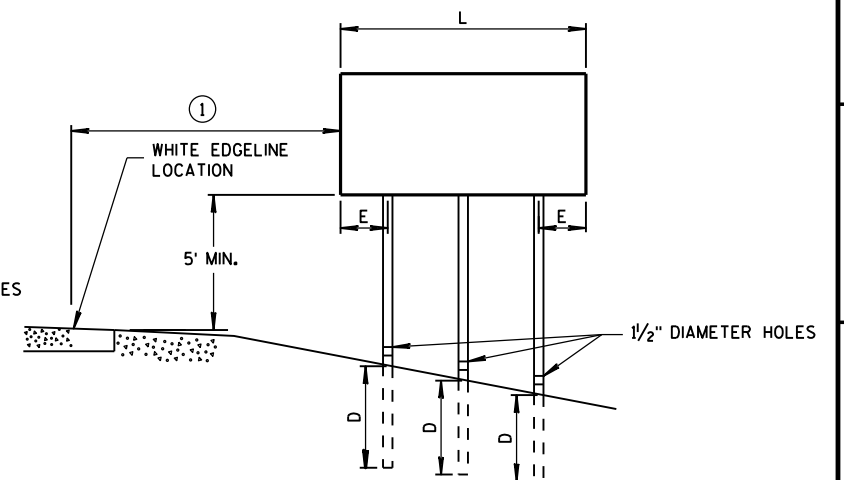
|                                           |            |
|-------------------------------------------|------------|
| AREA OF SIGN<br>INSTALLATION<br>(SQ. FT.) | D<br>(MIN) |
| 20 OR LESS                                | 4'         |
| GREATER THAN 20                           | 5'         |



## 4" x 6" WOOD POST MODIFICATION



## RURAL AREA



## GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

4" X 6" WOOD POST

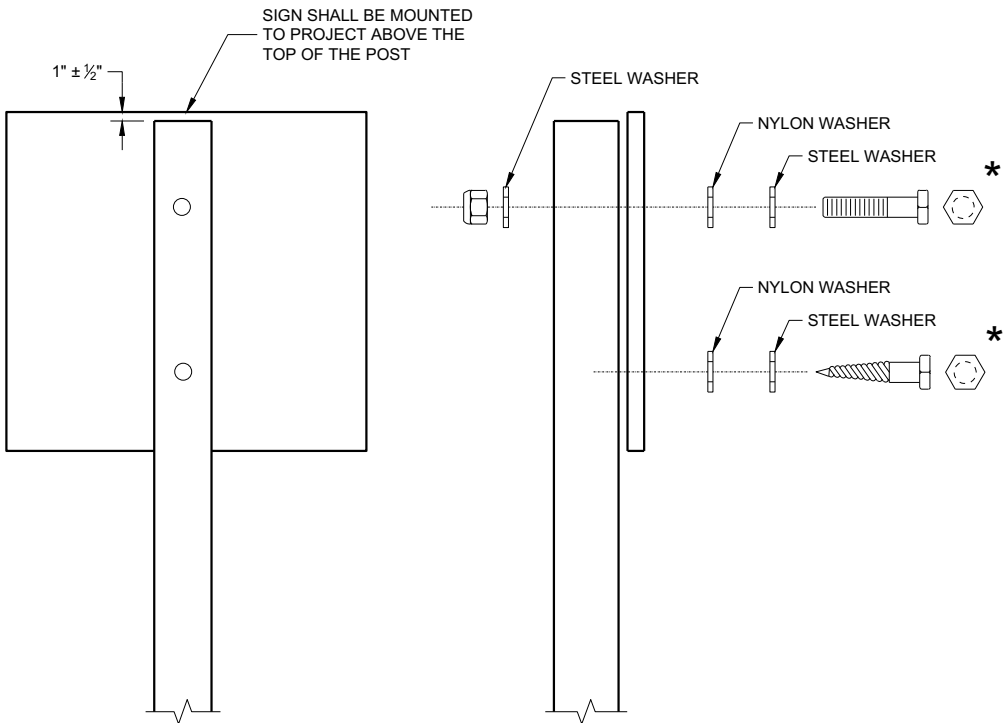
| POST SPACING REQUIREMENTS               |     | NUMBER OF<br>WOOD POSTS<br>REQUIRED |
|-----------------------------------------|-----|-------------------------------------|
| L                                       | E   |                                     |
| 48" OR LESS AND<br>LESS THAN 20 SQ. FT. | -   | 1                                   |
| LESS THAN 60"                           | 12" | 2                                   |
| 60" TO 120"                             | L/5 | 2                                   |
| GREATER THAN 120"<br>LESS THAN 168"     | 12" | 3                                   |
| 168" AND GREATER                        | 12" | 4                                   |

SEE NOTE (3)

## TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 172





NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. 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.

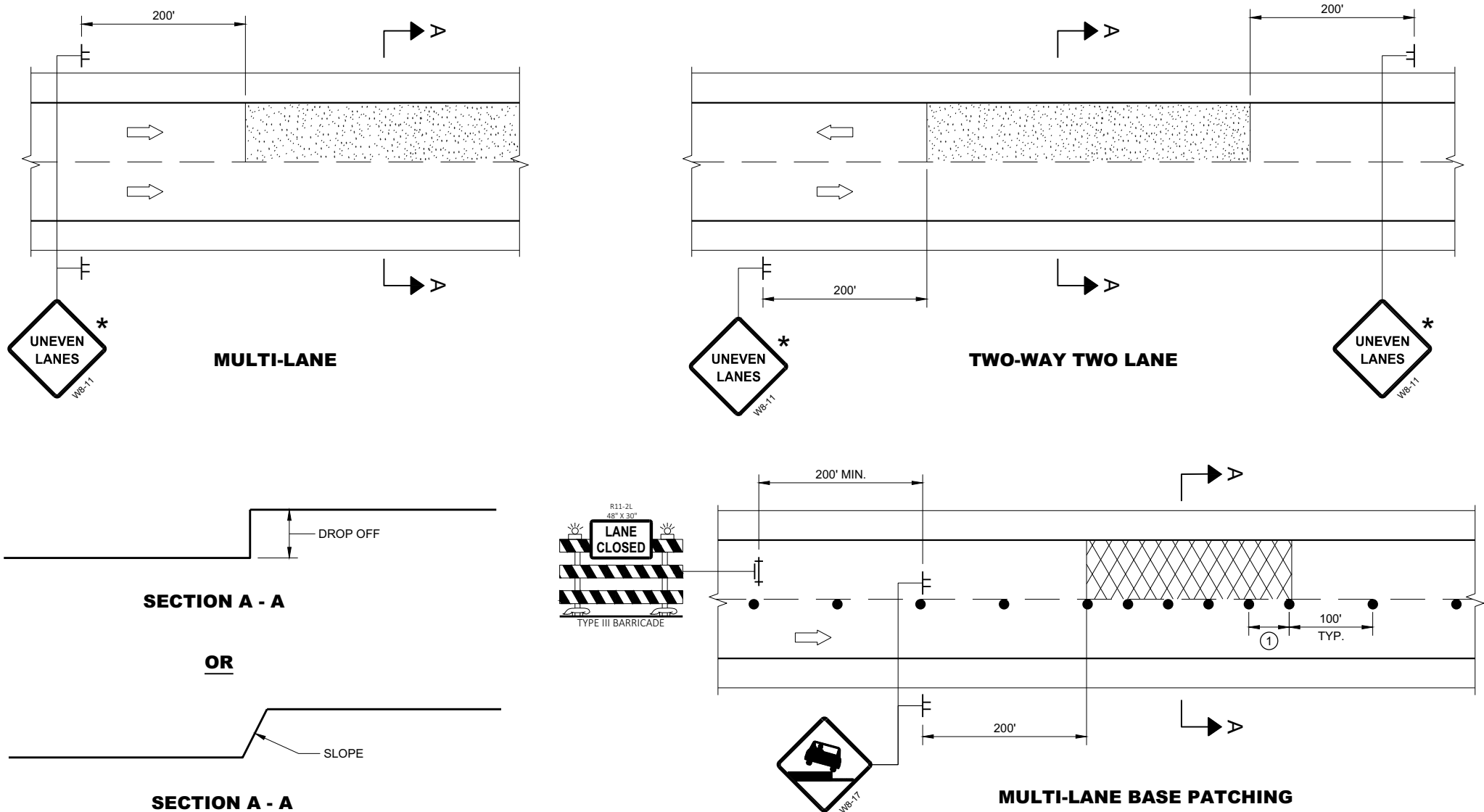
WOOD POST (4" x 6")  
LAG SCREWS - ¾" x 3"  
MACHINE BOLTS - ⅝" x 6 ½" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")  
MACHINE BOLTS - ¾" x 3 ¼" LENGTH W/NUTS  
RIVETS - ⅝" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM  
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,  
GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -  
1 ¼" O.D. x ⅜" I.D. x ⅛" STEEL  
1 ¼" O.D. x ⅜" I.D. x 0.080 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

|                                                    |                                              |
|----------------------------------------------------|----------------------------------------------|
| ATTACHMENT OF SIGNS<br>TO POSTS                    |                                              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                              |
| APPROVED<br>June 2017<br>DATE                      | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER 173 |
| FHWA                                               |                                              |

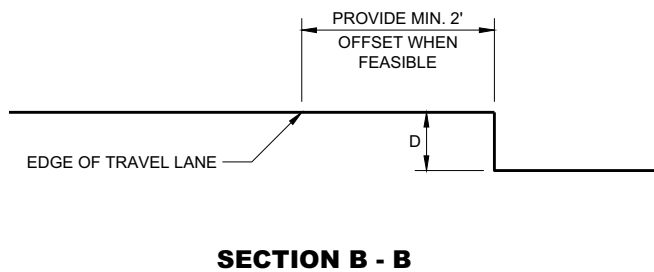
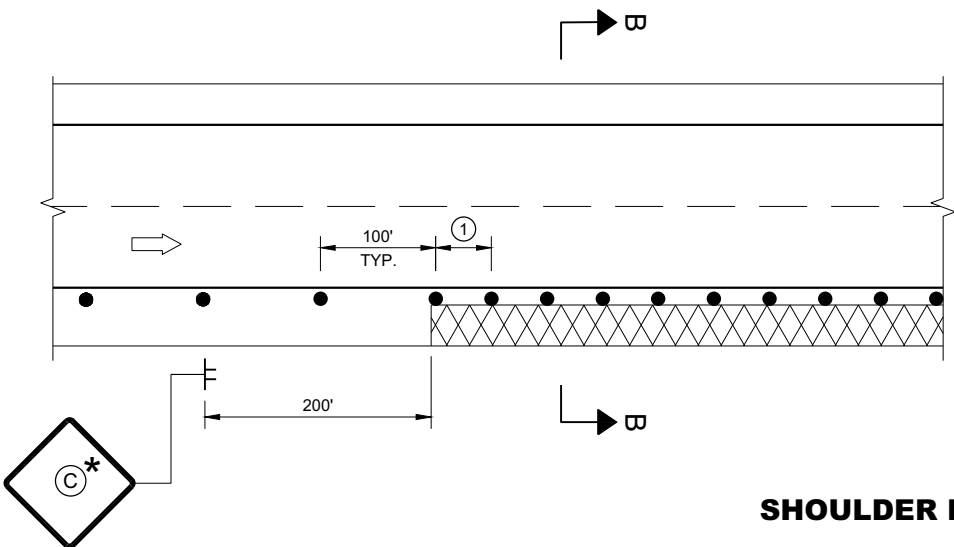


**GENERAL NOTES**

- FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.
- \* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.
- ① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE



| D                                     | SIGN C                                                                                              |
|---------------------------------------|-----------------------------------------------------------------------------------------------------|
| < 2" WITH A SLOPE STEEPER THAN 3:1    | LOW SHOULDER<br>WO8-9                                                                               |
| 2" < 6" WITH A SLOPE STEEPER THAN 3:1 | SHOULDER DROP - OFF<br>W8-9A<br>PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT |

**TRAFFIC CONTROL,  
DROP-OFF SIGNING**

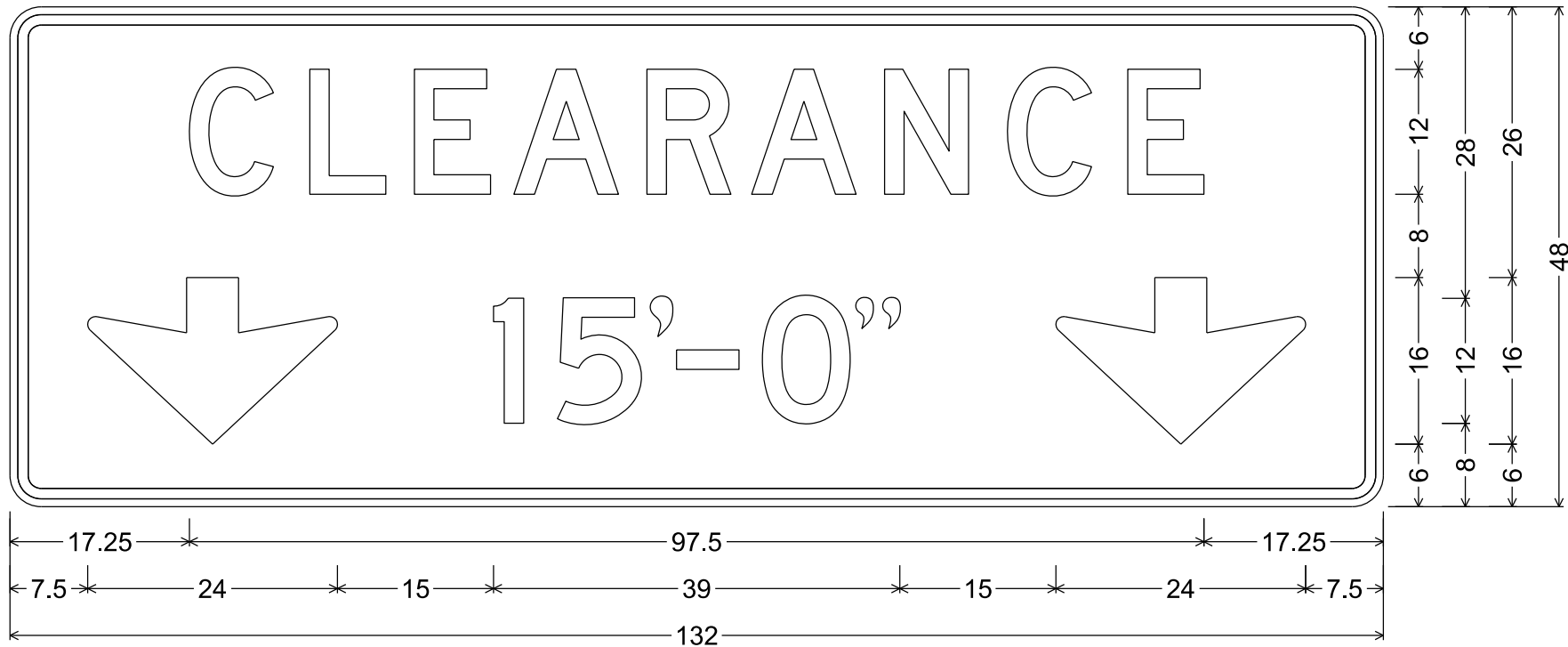
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018  
DATE

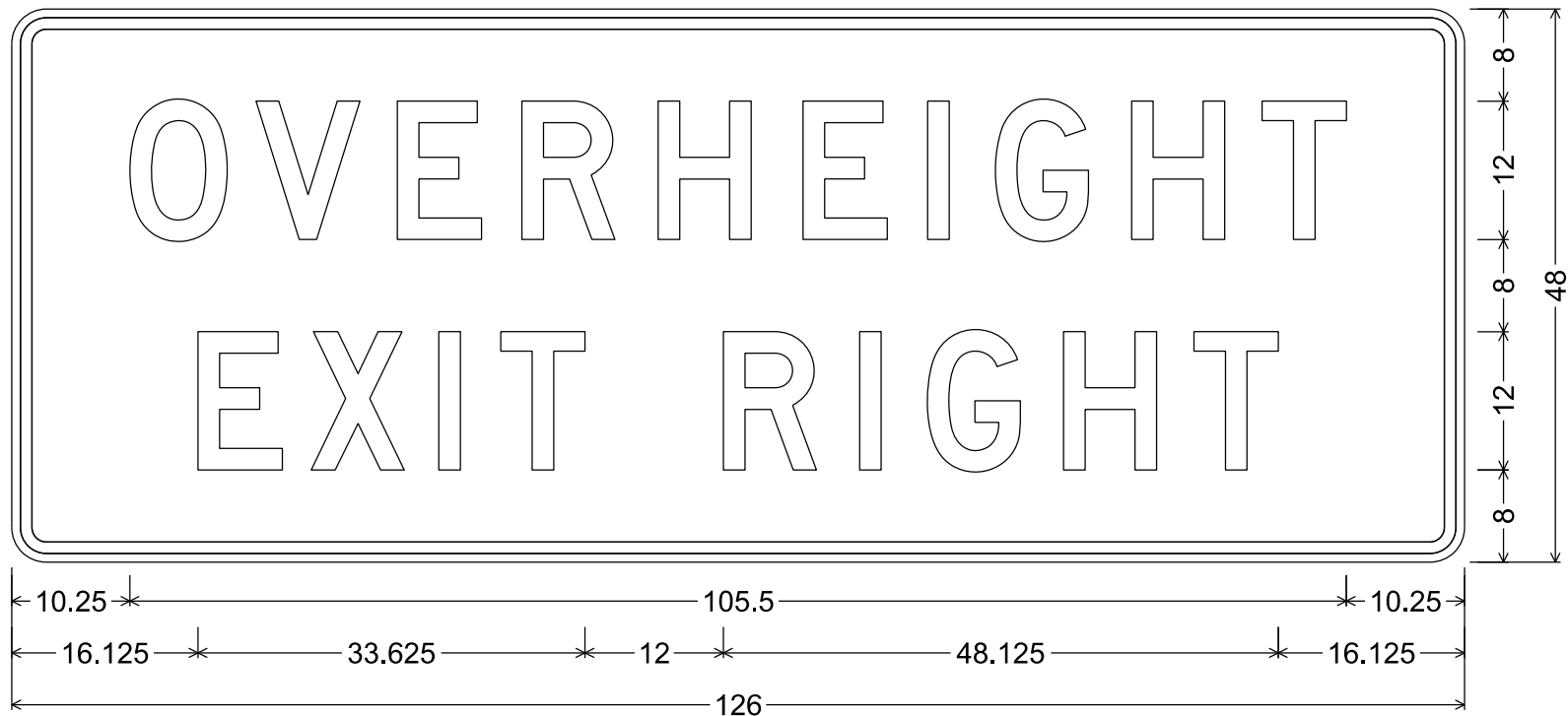
/S/ Andrew Heidtke  
WORK ZONE ENGINEER 174

FHWA

7



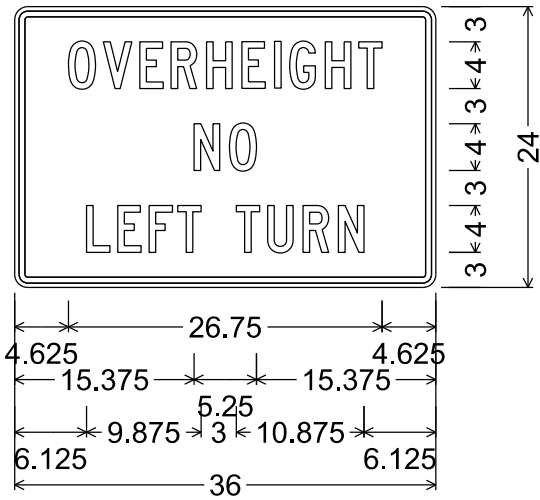
3.000" Radius, 1.000" Border, 0.750" Indent,  
"CLEARANCE", D; "15'-0", D



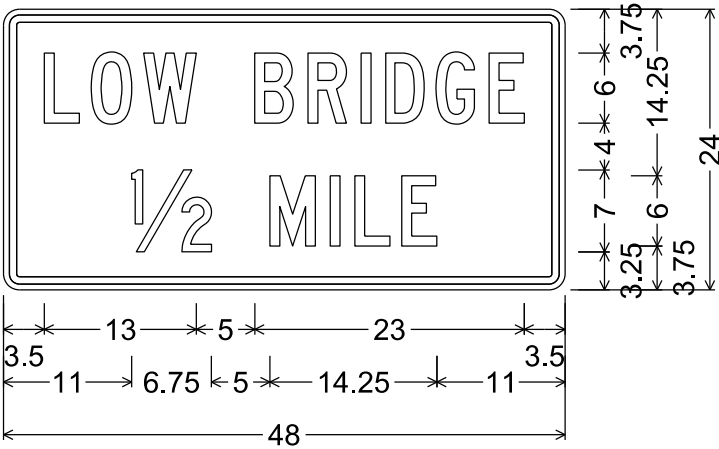
3.000" Radius, 1.000" Border, 0.750" Indent,  
"OVERHEIGHT", D; "EXIT", D; "RIGHT", D

NOTES

1. All Signs Type II - Type F Reflective
2. Color:  
Background - Yellow  
Message - Black
3. Message Series - C except as noted

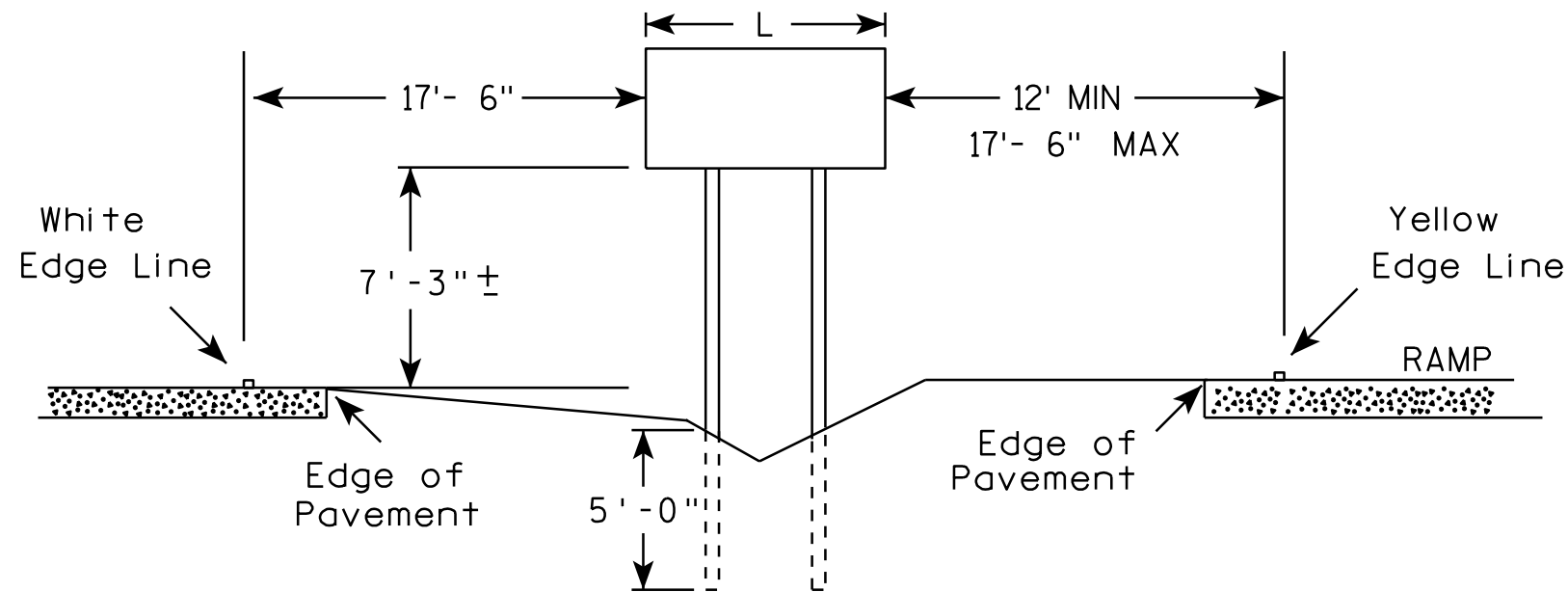


1.125" Radius, 0.500" Border, 0.375" Indent



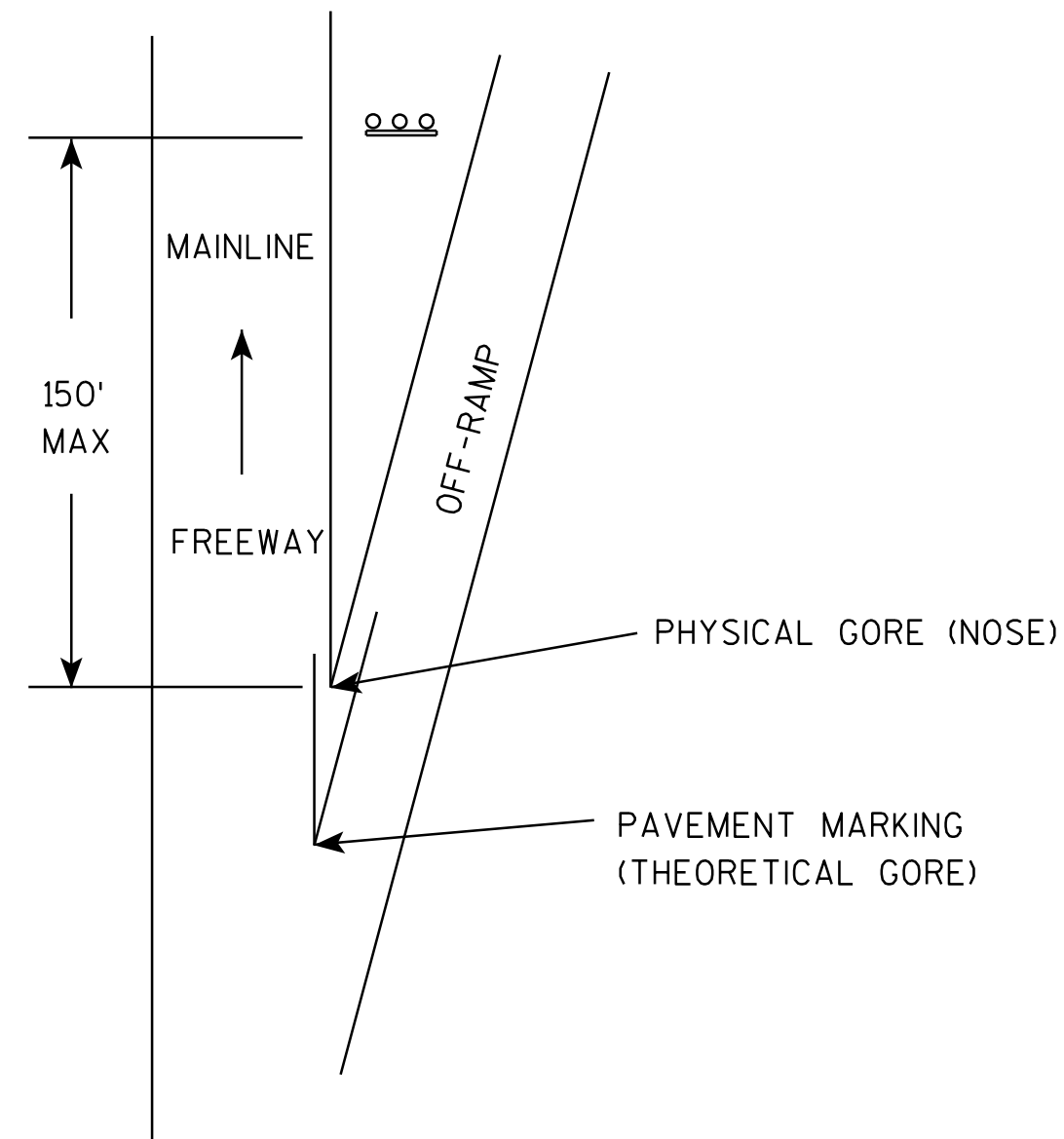
1.375" Radius, 0.625" Border, 0.500" Indent

7



#### GENERAL NOTES

1. The 150 foot distance from the physical gore (where pavement ends) will normally provide the offsets as shown.
2. If roadway geometrics permit, the sign may be closer than the 150 foot distance as long as the offsets are maintained.
3. At no time shall the location be greater than 150 feet. If the normal offsets cannot be maintained, they can be reduced to 6 feet from the edge of the paved shoulder (both freeway and ramp).
4. The offset from edge of sign to the yellow edge line on the ramp is shown as a minimum of 12 feet and a maximum of 17 feet, 6 inches. Preference is adhering to the maximum rather than the minimum dimension.
5. When L is equal to or exceeds 10 feet, use 3 posts as per A4-4.
6. The ( $\pm$ ) tolerance for the mounting height is 3 inches.



TYPICAL INSTALLATION  
OF TYPE II SIGNS ON  
WOOD POSTS IN GORE

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

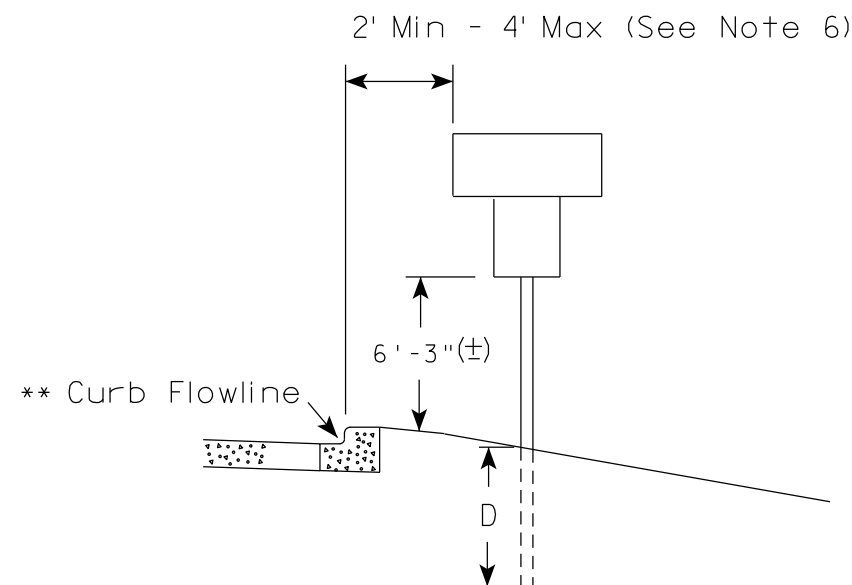
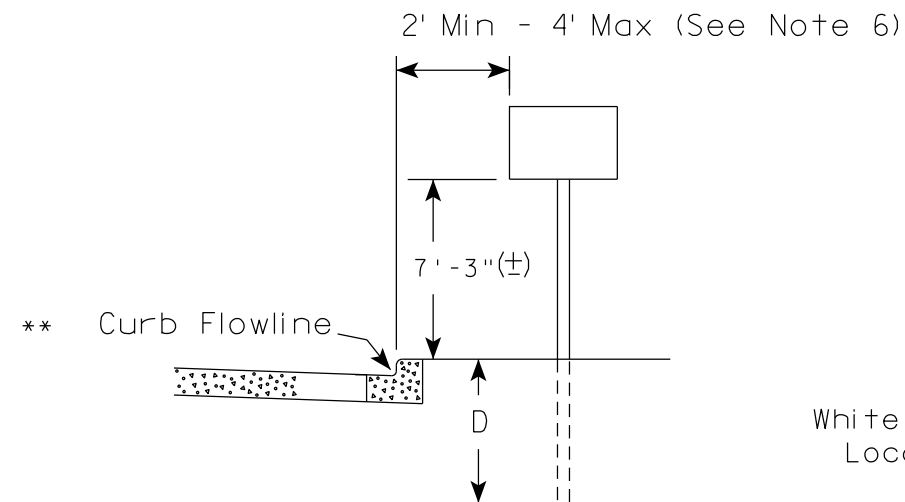
DATE 2/06/14 PLA 176 A4-2.3

PROJECT NO:

SHEET NO:

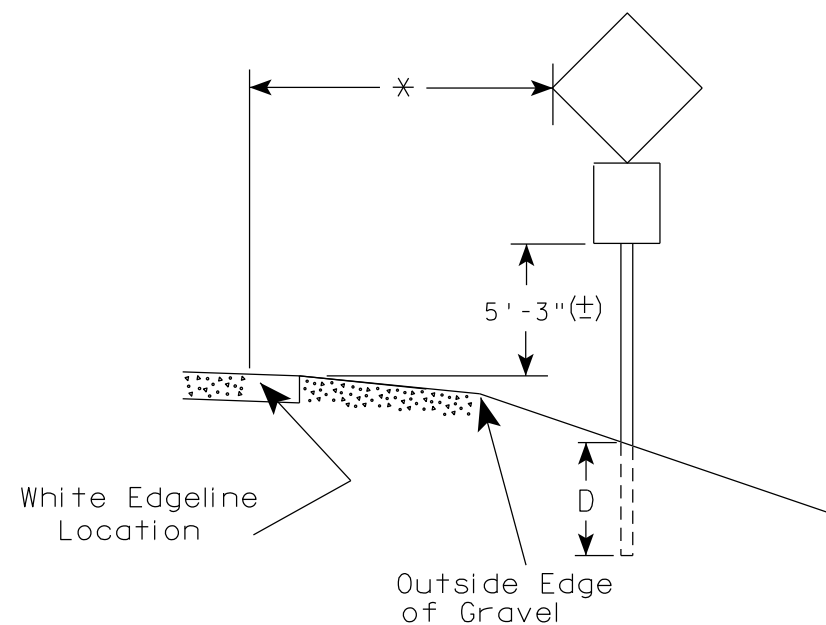
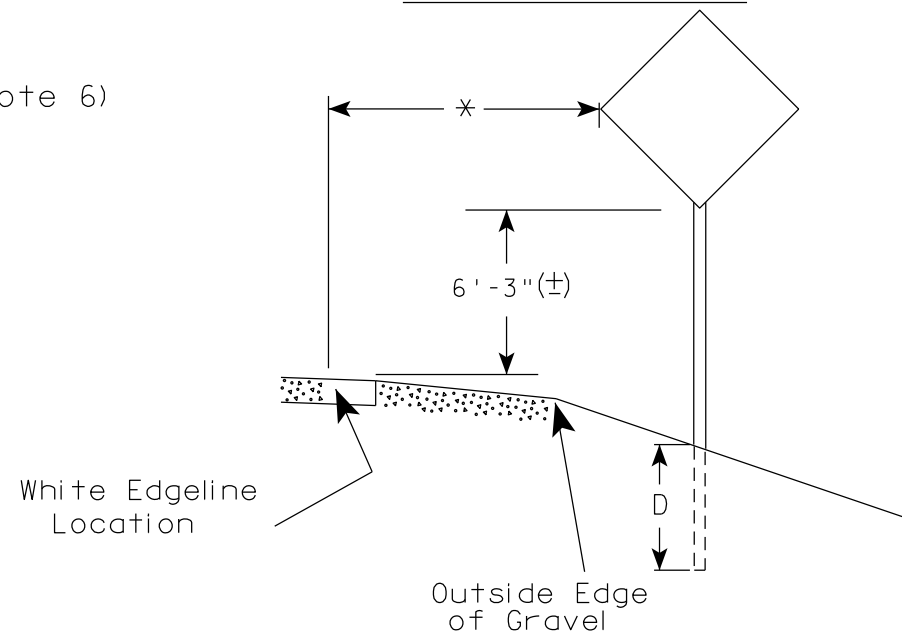
E

## URBAN AREA



✱✱ 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.

## RURAL AREA (See Note 2)



✱ 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.

### POST EMBEDMENT DEPTH

| Area of Sign Installation<br>( Sq. Ft. ) | D<br>( Min ) |
|------------------------------------------|--------------|
| 20 or Less                               | 4'           |
| Greater than 20                          | 5'           |

### GENERAL NOTES

- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- 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" (±).
- For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- The (±) tolerance for mounting height is 3 inches.
- Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the 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

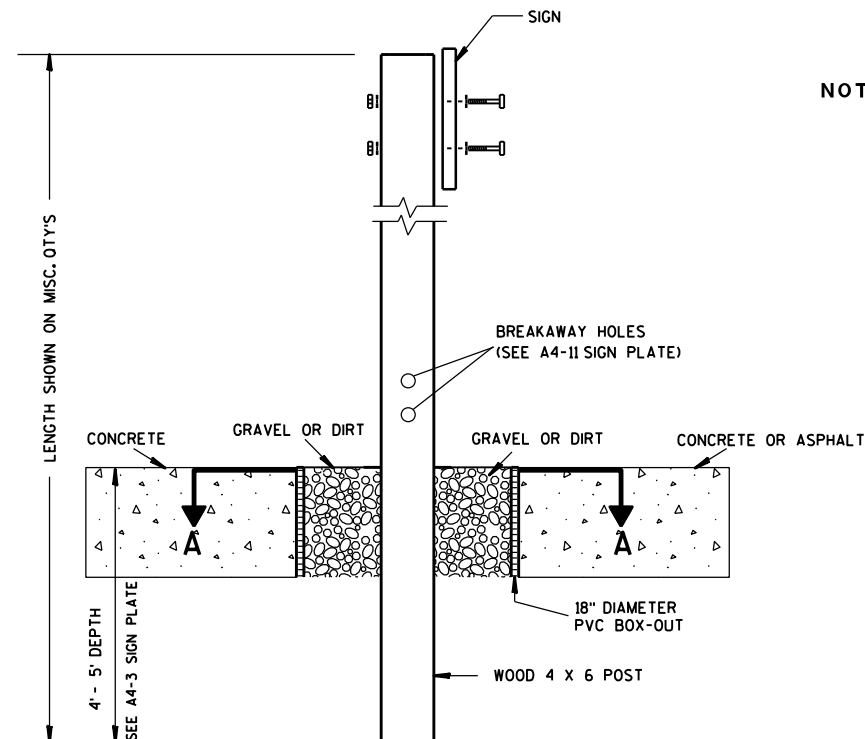
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 177

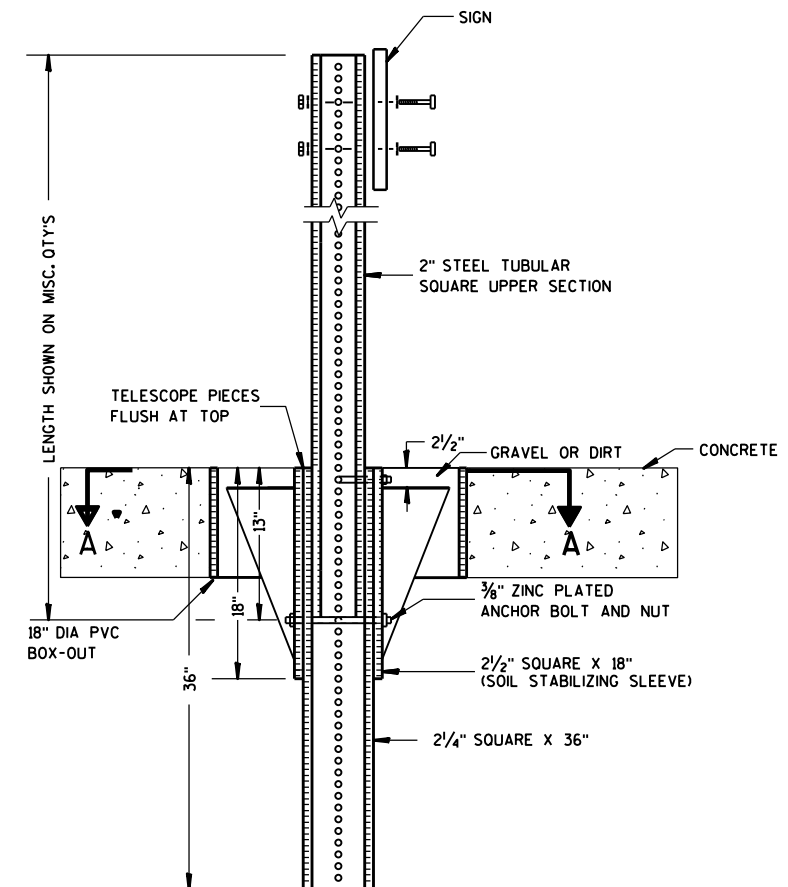
E



### ELEVATION VIEW

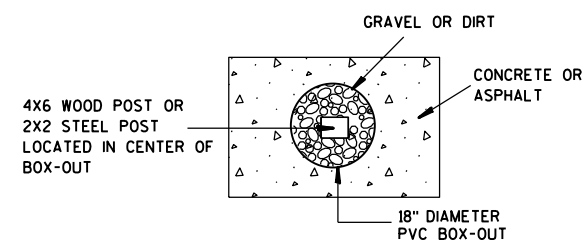
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

SIGN POST  
BOX-OUTS  
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/27/14 PLAT 178 A4-3B.1

PROJECT NO:

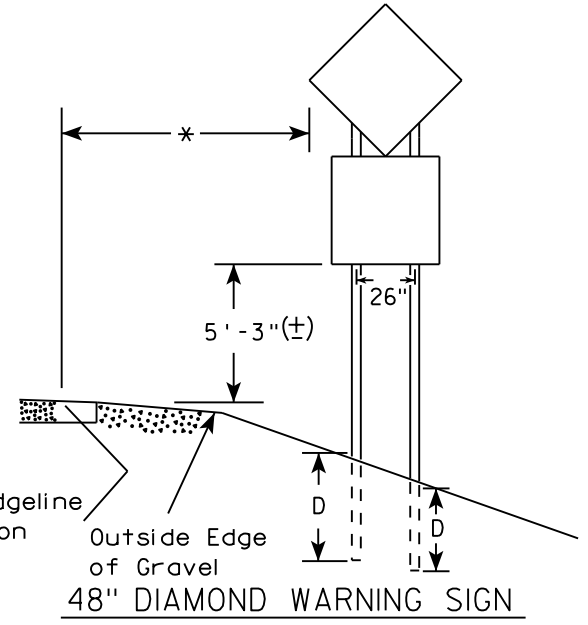
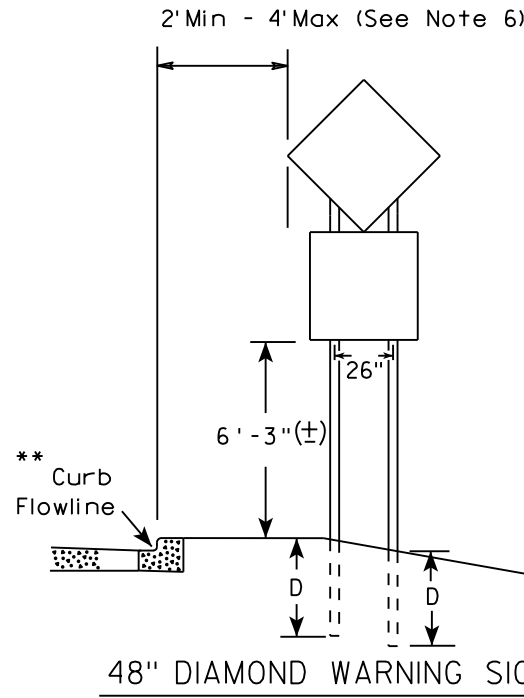
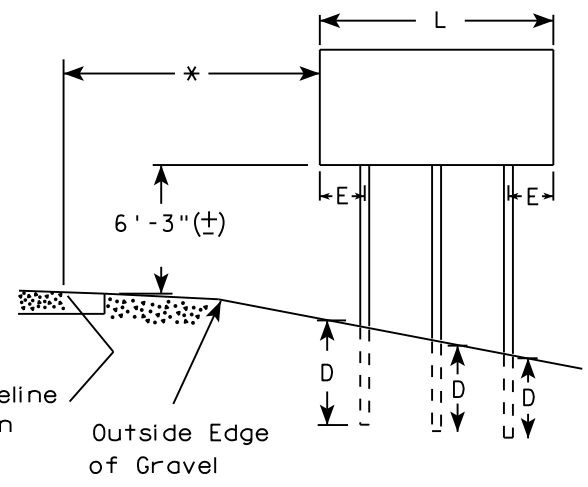
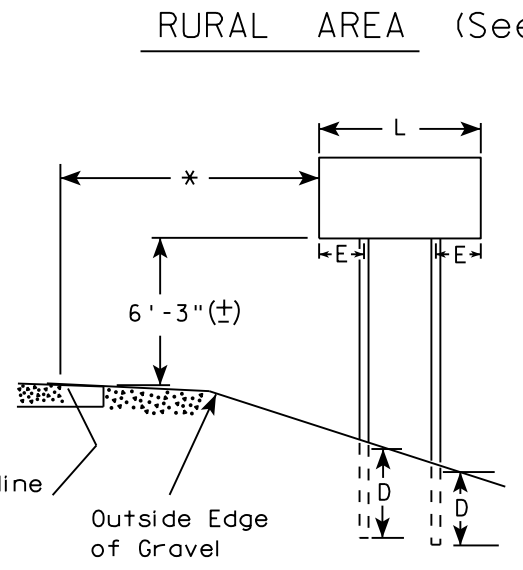
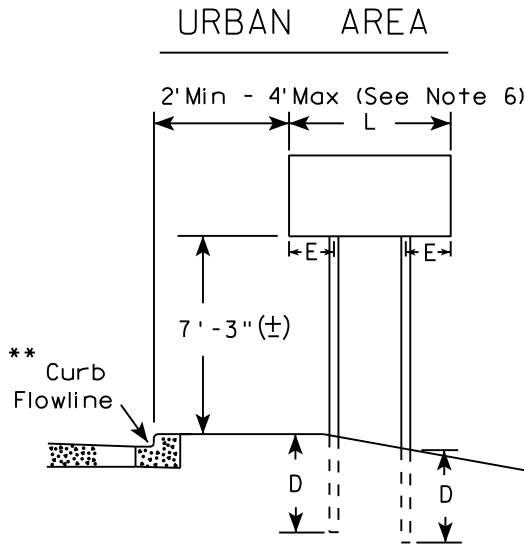
HWY:

COUNTY:

SHEET NO:

E





- 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" (±).

\* 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<br>(TWO POSTS REQUIRED) |     |
|-------------------------------------------------------|-----|
| L                                                     | E   |
| Greater than 48"<br>Less than 60"                     | 12" |
| 60" to 108"                                           | L/5 |

| SIGN SHAPE OTHER THAN DIAMOND<br>(THREE POSTS REQUIRED) |     |
|---------------------------------------------------------|-----|
| L                                                       | E   |
| Greater than 108"<br>to 144"                            | 12" |

POST EMBEDMENT DEPTH

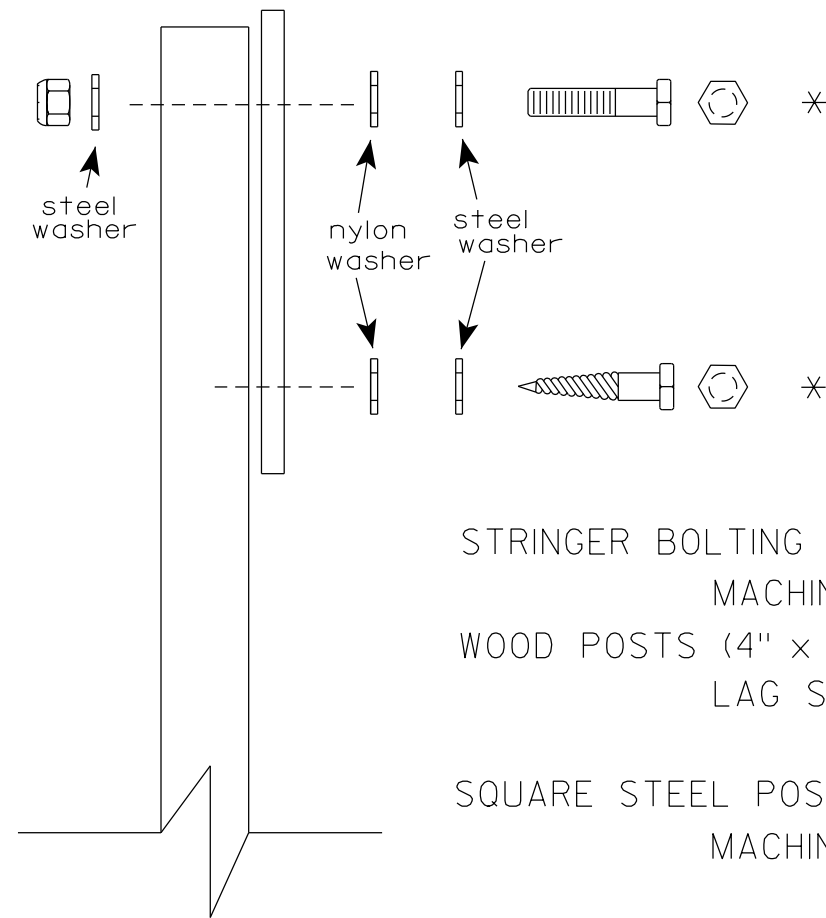
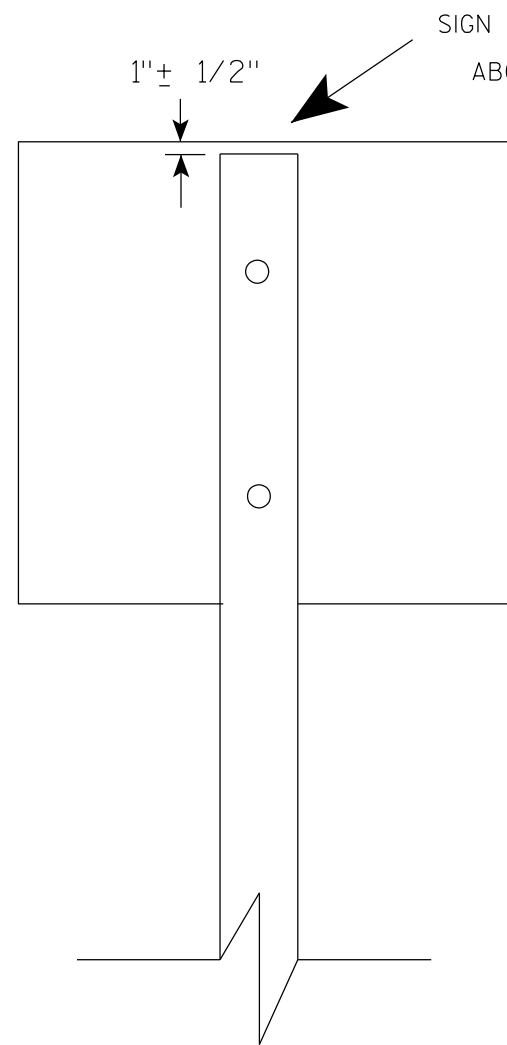
| Area of Sign<br>Installation<br>( Sq. Ft. ) | D<br>( Min ) |
|---------------------------------------------|--------------|
| 20 or Less                                  | 4'           |
| Greater than 20                             | 5'           |

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



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. 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.

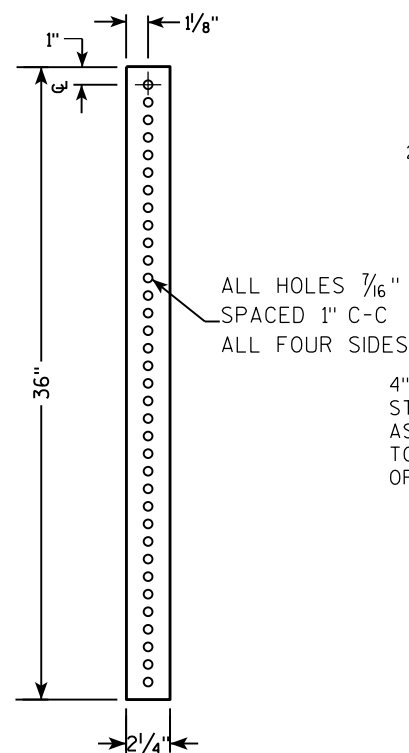
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- 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<br>TO POSTS  |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <i>Matthew R. Rauch</i><br>For State Traffic Engineer |
| DATE 4/1/2020                    | PLATE NO. A4-8.9                                      |



**2 1/4 " SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH**



2 1/2" TELESPAR TUBE

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELESPAR TUBE

4"

2 1/2"

10"

3 1/2"

18"

TECHNICAL DRAWING OF A SIGN POST ASSEMBLY.

**Labels and Dimensions:**

- 18" DIA SCHEDULE 40 PVC BOX-OUT** (Sign)
- 13"** (Sign width)
- 18"** (Sign height)
- 36"** (Post length)
- 2 1/4" SQUARE X 36"** (Post section)
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT**
- 2 1/2" GRAVEL OR DIRT**
- 2" STEEL TUBULAR SQUARE UPPER SECTION**
- ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES**
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**
- SIGN**
- TELESCOPE PIECES FLUSH AT TOP**

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

**Dimensions:**

- Overall height: 36"
- Section A-A height: 18"
- Section B-B height: 12"
- Section C-C height: 12"

**Materials and Components:**

- 2" STEEL TUBULAR SQUARE UPPER SECTION
- ALL HOLES  $\frac{7}{16}$ " SPACED 1" C-C
- ALL FOUR SIDES
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
- $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- 2 1/4" SQUARE X 36"
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

**Notes:**

- TELESCOPE PIECES FLUSH AT TOP
- LENGTH SHOWN ON MISC. QTYS

A schematic diagram of a square microfluidic chip. It features a central square channel with rounded corners. Four inlet/outlet ports are located at the midpoints of the outer edges of the chip. The ports are connected to the central channel via short, straight segments. The top and bottom ports have additional small rectangular features, possibly representing valves or sensors.

DIRECTION  
OF TRAFFIC

SECTION A-A

| 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 PLATI 181 14-9.9

PROJECT NO:

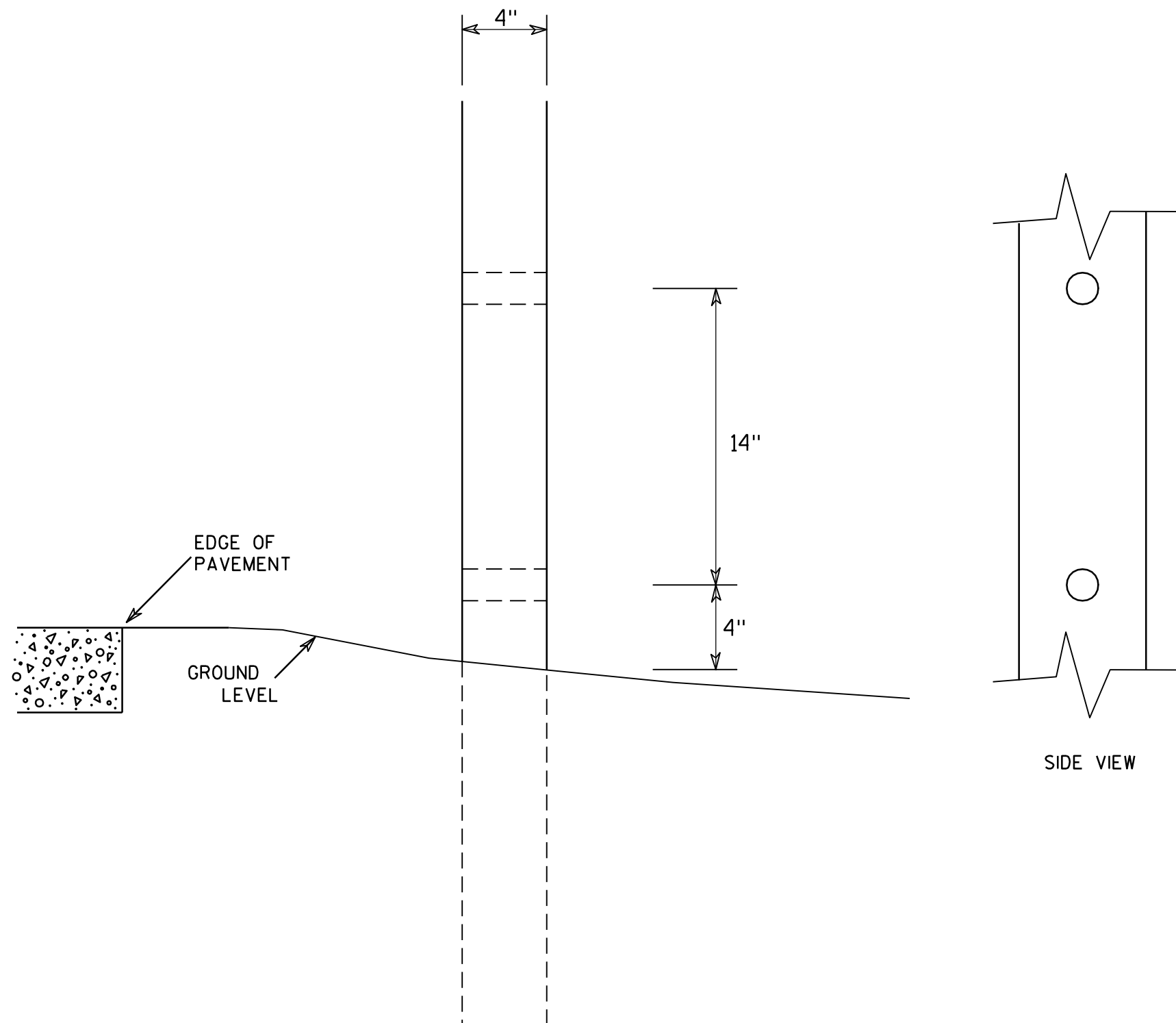
HWY:

COUNTY:

SHEET NO:

**E**

7



### 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

### 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

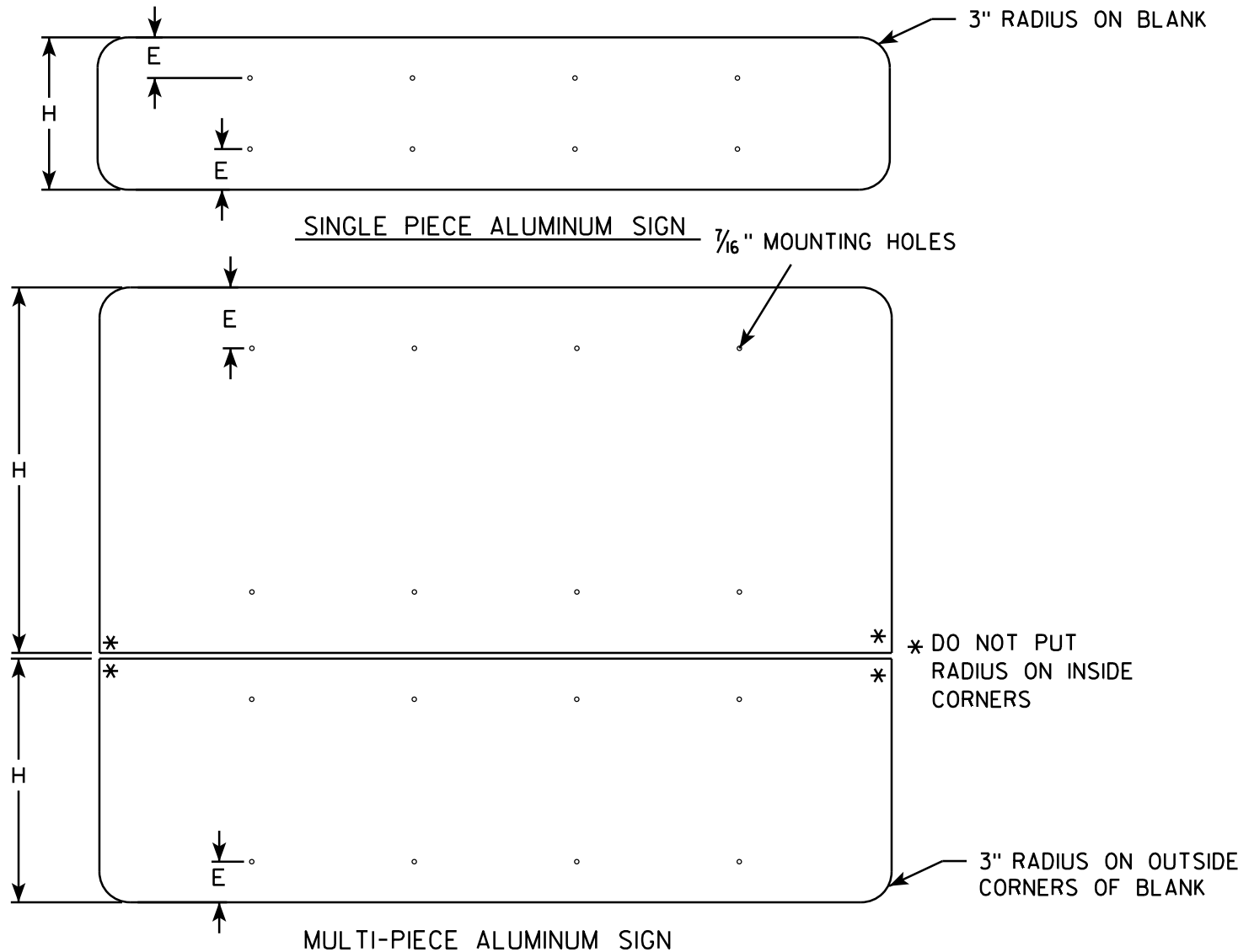
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 182

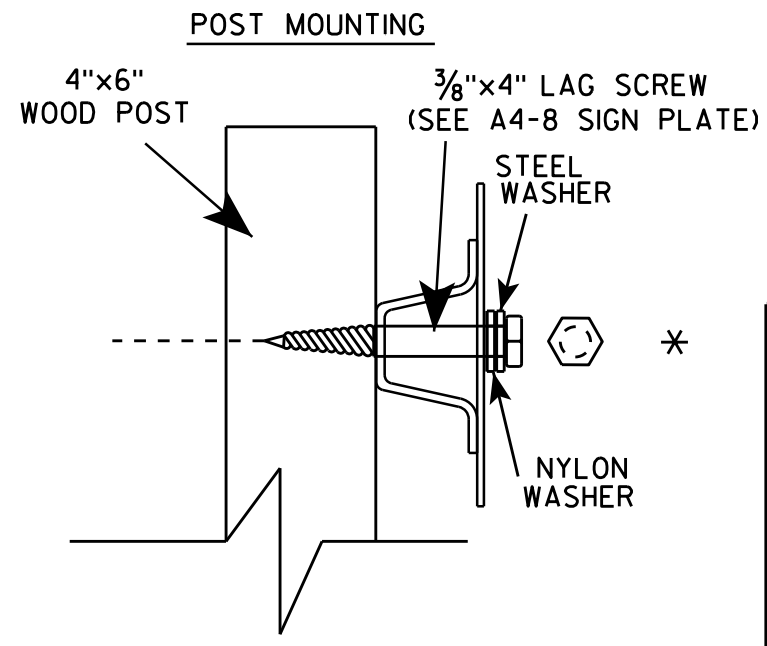
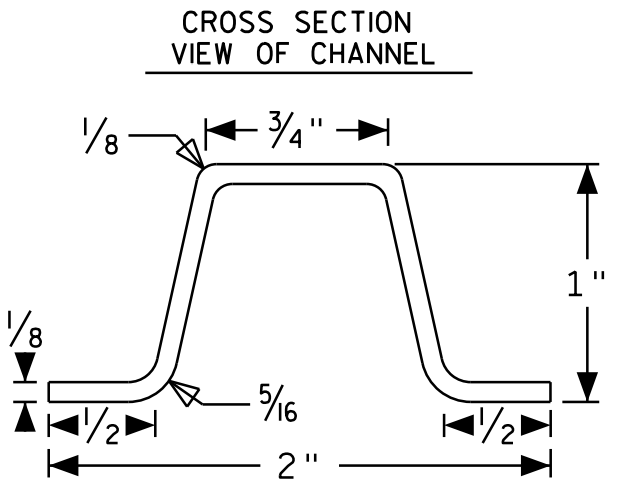
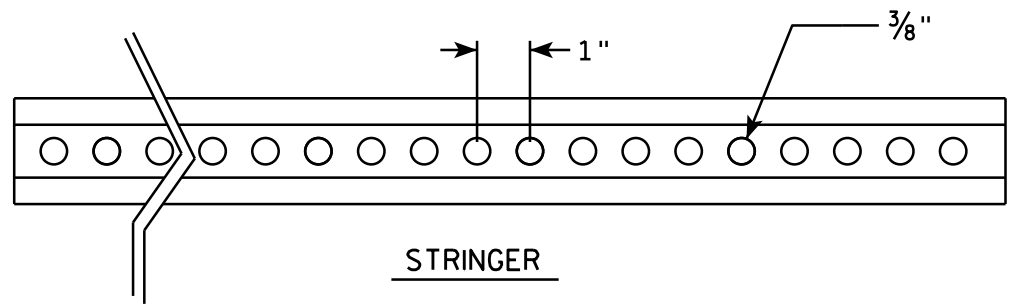
E



# GENERAL NOTES

- ALL SIGNS OVER 60" IN WIDTH SHALL HAVE A 3" RADIUS ON THE OUTSIDE CORNERS OF THE ALUMINUM BLANK.
- MOUNTING HOLES SHALL BE 7/16" DIAMETER.
- SEE CHART FOR HOLE SPACING REQUIREMENTS
- FOR SIGN PANELS WITH DIMENSION (H) 36" AND OVER, DIMENSION E SHALL BE 6"
- FOR SIGN PANELS WITH DIMENSION (H) UNDER 36", DIMENSION E SHALL BE 4"
- SIGN STRINGER MATERIAL SHALL CONSIST OF STEEL CHANNEL POST SECTIONS, WEIGHING 1.12 LBS/FT IN ACCORDANCE WITH SECTION 633.2.1 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
- SEE SIGN PLATE A4-8 FOR SIGN STRINGER BOLTING REQUIREMENTS.

| SIGN WIDTH | STRINGER WIDTH | POSTS | HOLE SPACING | MOUNTING HOLES |         |         |                   |
|------------|----------------|-------|--------------|----------------|---------|---------|-------------------|
| 78"        | 72"            | 2     | 16"          | 15"            | 31"     | 47"     | 63"               |
| 84"        | 72"            | 2     | 17"          | 16 1/2"        | 33 1/2" | 50 1/2" | 67 1/2"           |
| 90"        | 72"            | 2     | 18"          | 18"            | 36"     | 54"     | 72"               |
| 96"        | 90"            | 2     | 19"          | 19 1/2"        | 38 1/2" | 57 1/2" | 76 1/2"           |
| 102"       | 90"            | 2     | 20"          | 21"            | 41"     | 61"     | 81"               |
| 108"       | 90"            | 2     | 21"          | 22 1/2"        | 43 1/2" | 64 1/2" | 85 1/2"           |
| 114"       | 108"           | 3     | 15"          | 12"            | 27"     | 42"     | 57" 72" 87" 102"  |
| 120"       | 108"           | 3     | 16"          | 12"            | 28"     | 44"     | 60" 76" 92" 108"  |
| 126"       | 108"           | 3     | 17"          | 12"            | 29"     | 46"     | 63" 80" 97" 114"  |
| 132"       | 126"           | 3     | 18"          | 12"            | 30"     | 48"     | 66" 84" 102" 120" |
| 138"       | 126"           | 3     | 19"          | 12"            | 31"     | 50"     | 69" 88" 107" 126" |
| 144"       | 126"           | 3     | 20"          | 12"            | 32"     | 52"     | 72" 92" 112" 132" |



SIGN STRINGER  
MOUNTING REQUIREMENTS

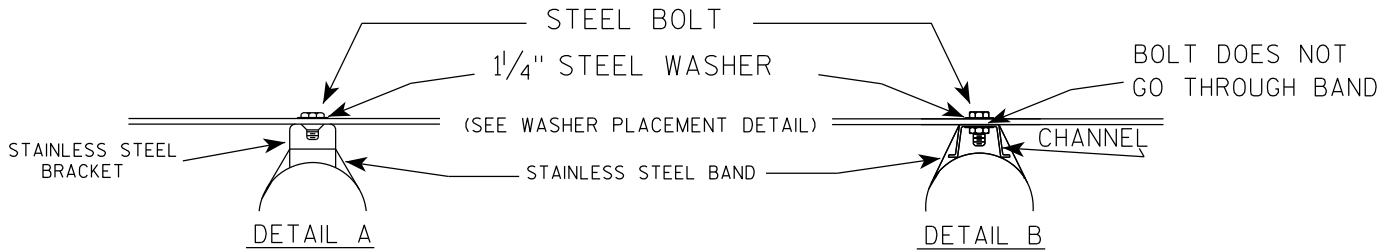
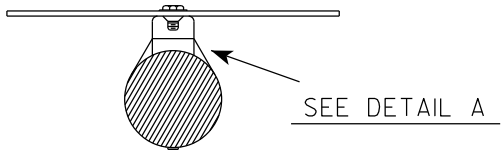
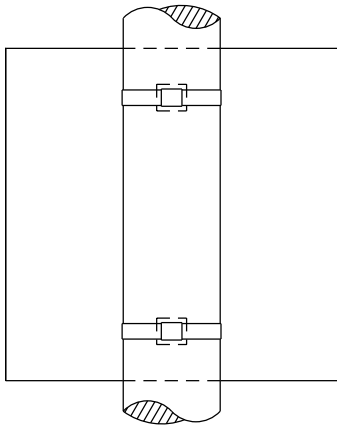
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

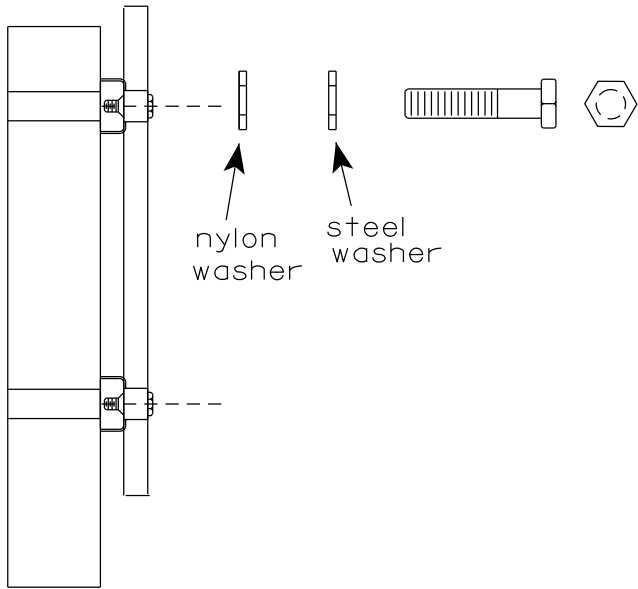
DATE 4/26/16 PLATE No A4-18.1  
183

BANDING

SINGLE SIGN



WASHER PLACEMENT

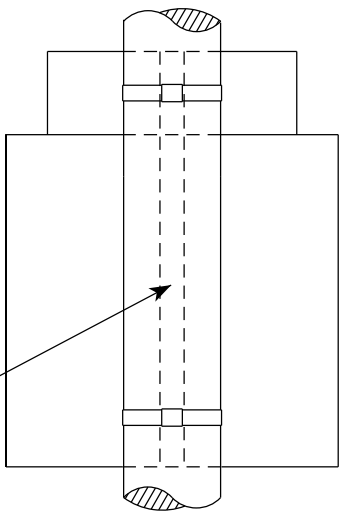


WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

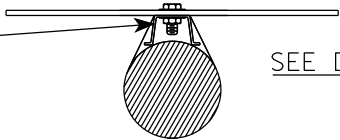
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
  - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET

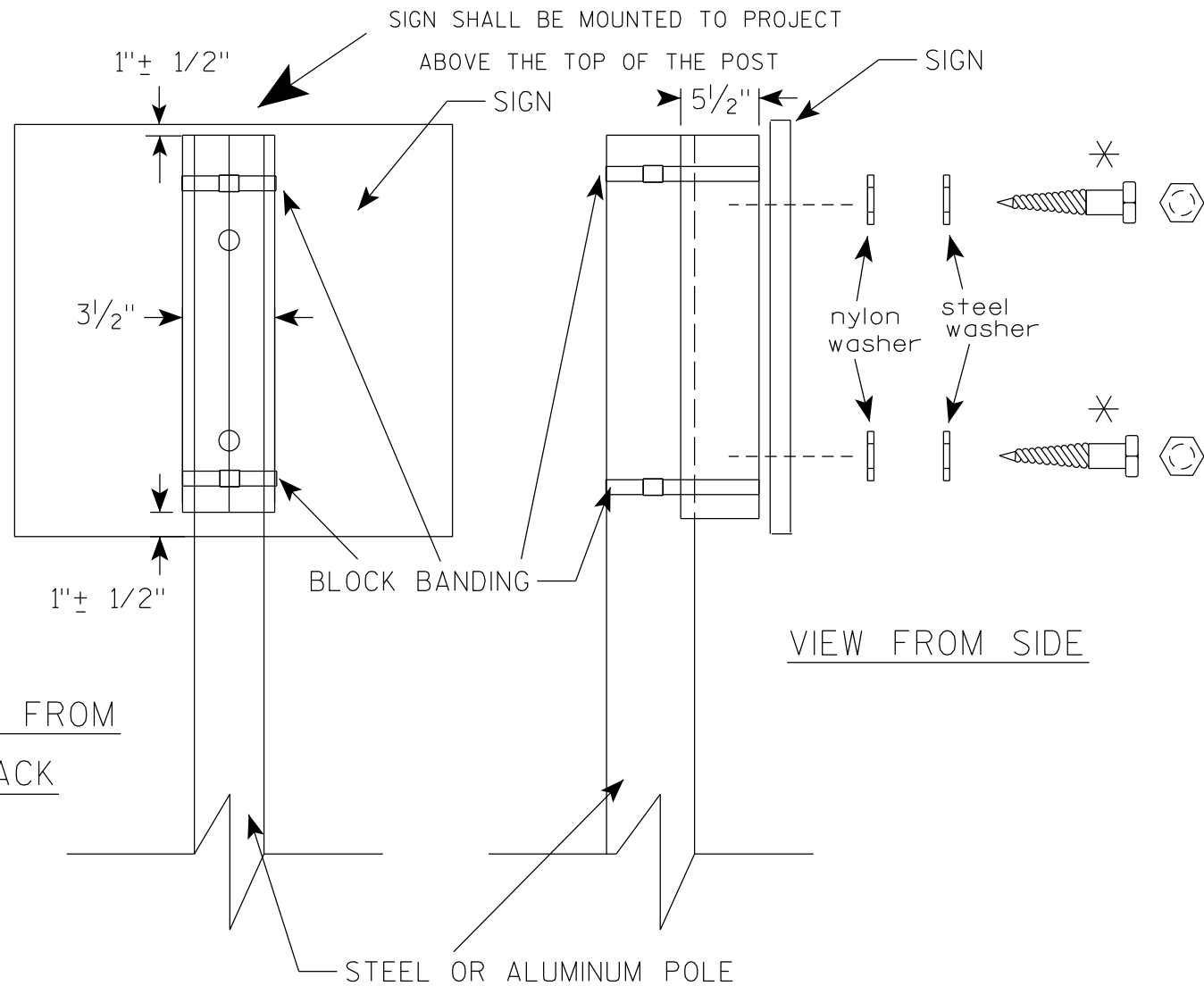


STANDARD SIGN  
SIGN BANDING DETAILS

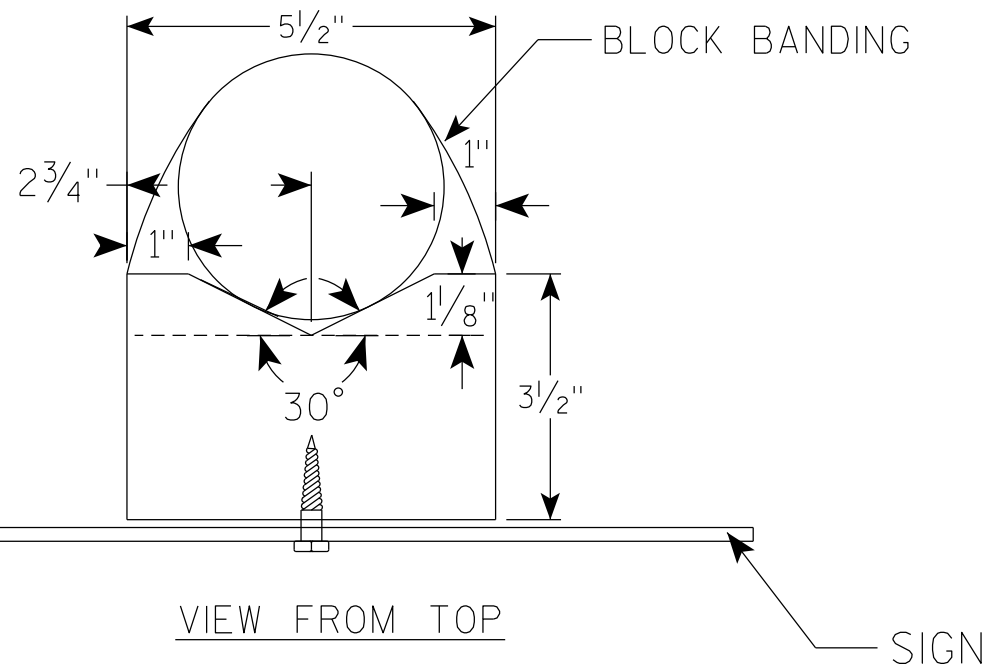
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/10/19 PLATE NO. A5-9.4

VIEW FROM  
BACK



VIEW FROM SIDE



## GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL,  $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
  - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE  $1\frac{1}{4}$ " O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE  $1\frac{1}{4}$ " O.D. X  $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE  $\frac{3}{8}$ " X  $2\frac{1}{2}$ "

BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

WISCONSIN DEPT OF TRANSPORTATION

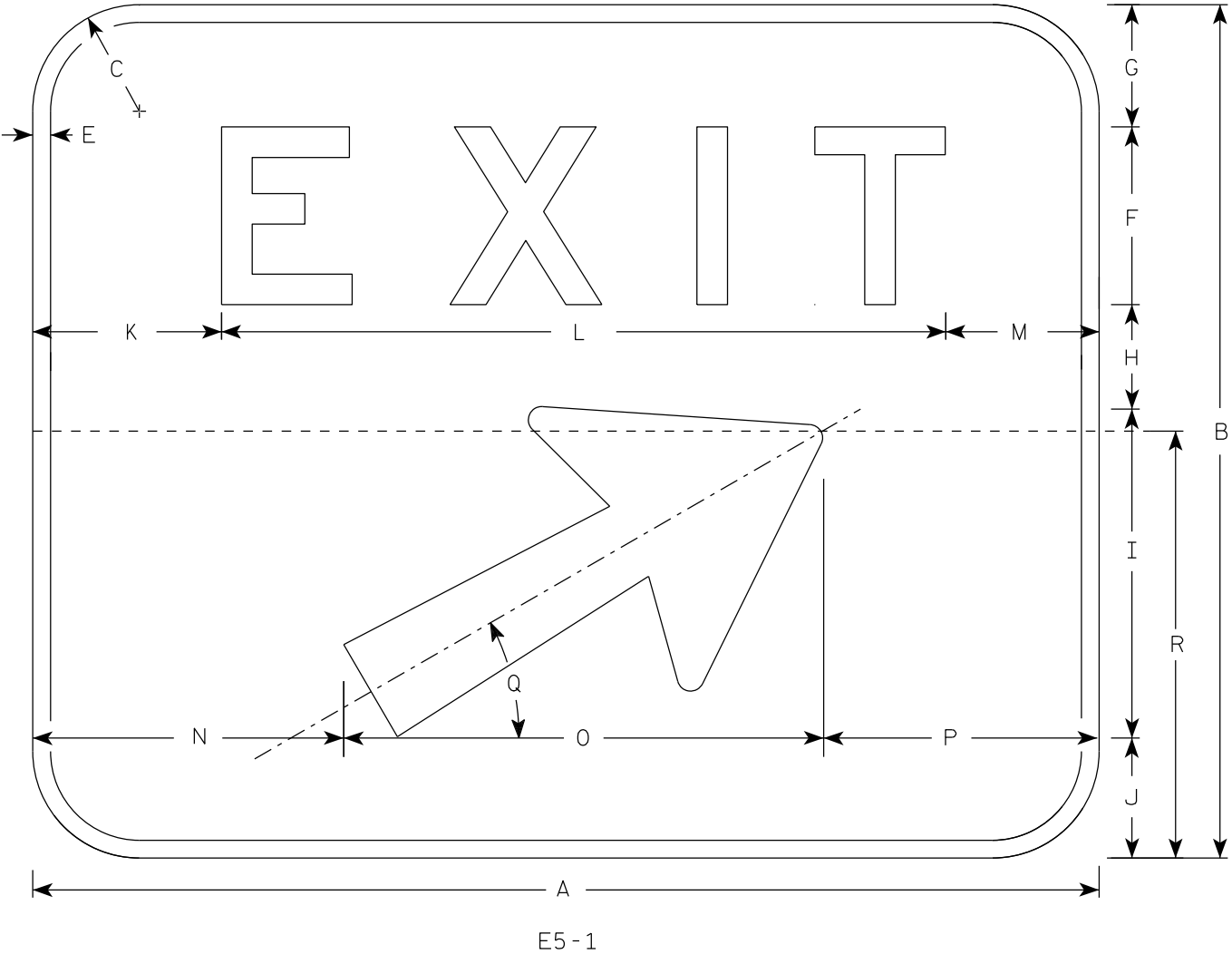
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO: 185

E



NOTES

- 1. Sign is Type II - Type H reflective
- 2. Color:  
Background - Green  
Message - White
- 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. When Base material for this sign is plywood sign shall be split into two separate pieces for the 72 x 60 size as shown on the detail by the dashed line (-----).
- 6. Arrow is Type "A" from sign plate A1-1.
- 7. As per the Standard Spec's, this sign shall not have a vertical joint.
- 8. Size 3 E5-1 shall only be used in a Work Zone application with a Temporary Sign Support

| 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<br>sq. ft. |
|------|----|----|---|---|---|----|-------|-------|--------|-------|--------|--------|--------|--------|----|--------|-----|----|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |   |   |   |    |       |       |        |       |        |        |        |        |    |        |     |    |   |   |   |   |   |   |   |   |                 |
| 2    |    |    |   |   |   |    |       |       |        |       |        |        |        |        |    |        |     |    |   |   |   |   |   |   |   |   |                 |
| 3    | 48 | 48 | 6 |   | 1 | 10 | 6 7/8 | 5 7/8 | 18 1/2 | 6 3/4 | 8 1/2  | 31 1/8 | 8 3/8  | 11 1/2 | 27 | 9 1/2  | 30° | 30 |   |   |   |   |   |   |   |   | 16.0            |
| 4    | 60 | 48 | 6 |   | 1 | 10 | 6 7/8 | 5 7/8 | 18 1/2 | 6 3/4 | 10 5/8 | 40 3/4 | 8 5/8  | 17 1/2 | 27 | 15 1/2 | 30° | 30 |   |   |   |   |   |   |   |   | 20.0            |
| 5    | 72 | 60 | 6 |   | 1 | 12 | 9 3/4 | 10    | 18 1/2 | 9 3/4 | 13 1/4 | 48 1/2 | 10 1/4 | 23 1/2 | 27 | 21 1/2 | 30° | 30 |   |   |   |   |   |   |   |   | 30.0            |

PROJECT NO:

HWY:

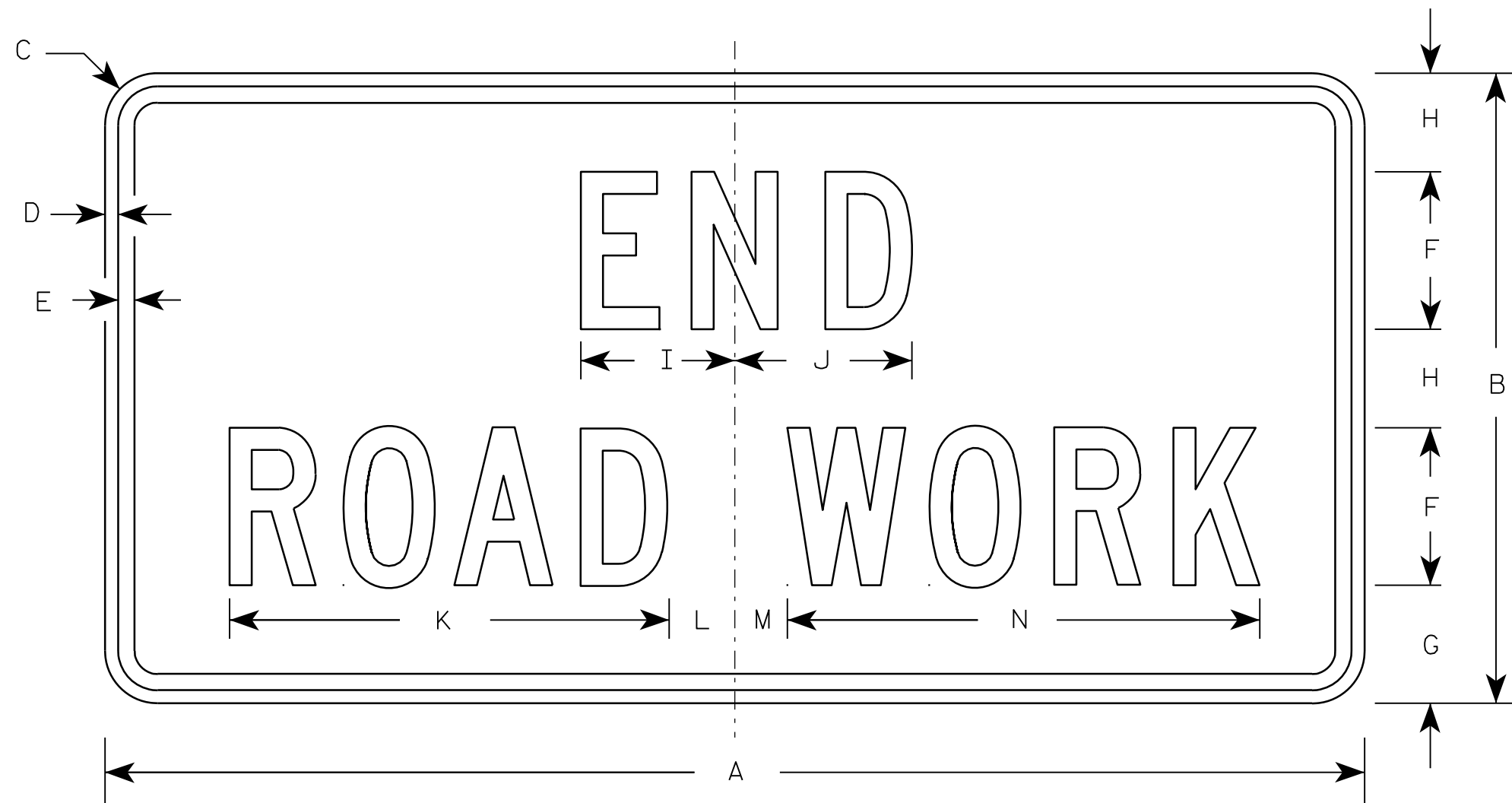
COUNTY:

SHEET NO: 186

E



7



G20-2A

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.

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<br>sq. ft. | Area<br>m <sup>2</sup> |
|------|----|----|-------|-----|-----|---|-------|-------|-------|-------|--------|-------|-------|--------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|------------------------|
| 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

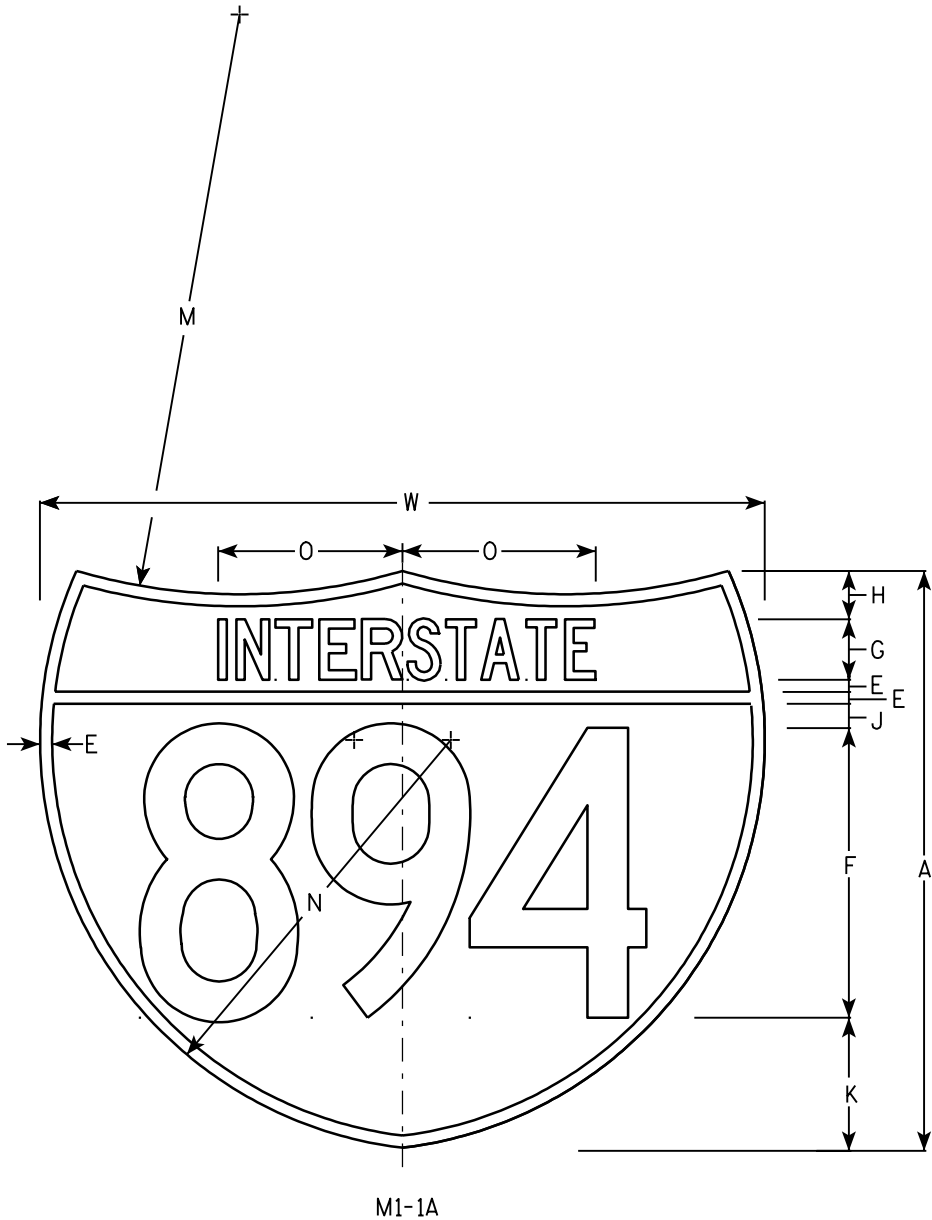
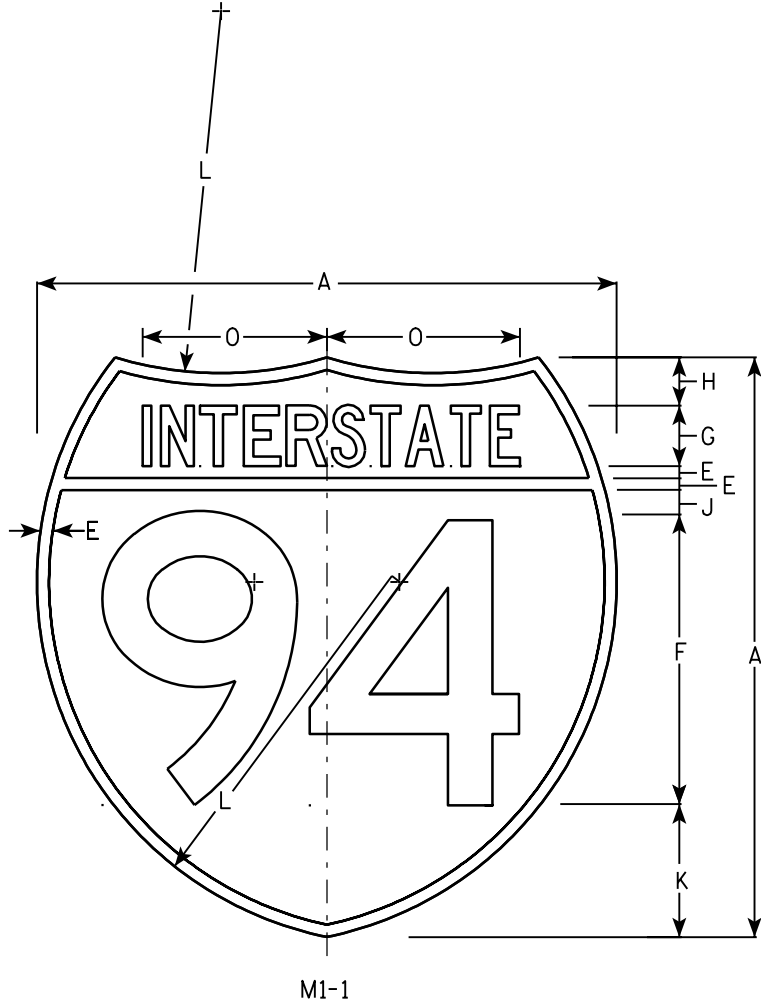
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

7



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

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 | Area<br>sq. ft. | Area<br>sq. ft. | Area<br>m <sup>2</sup> | Area<br>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                   |

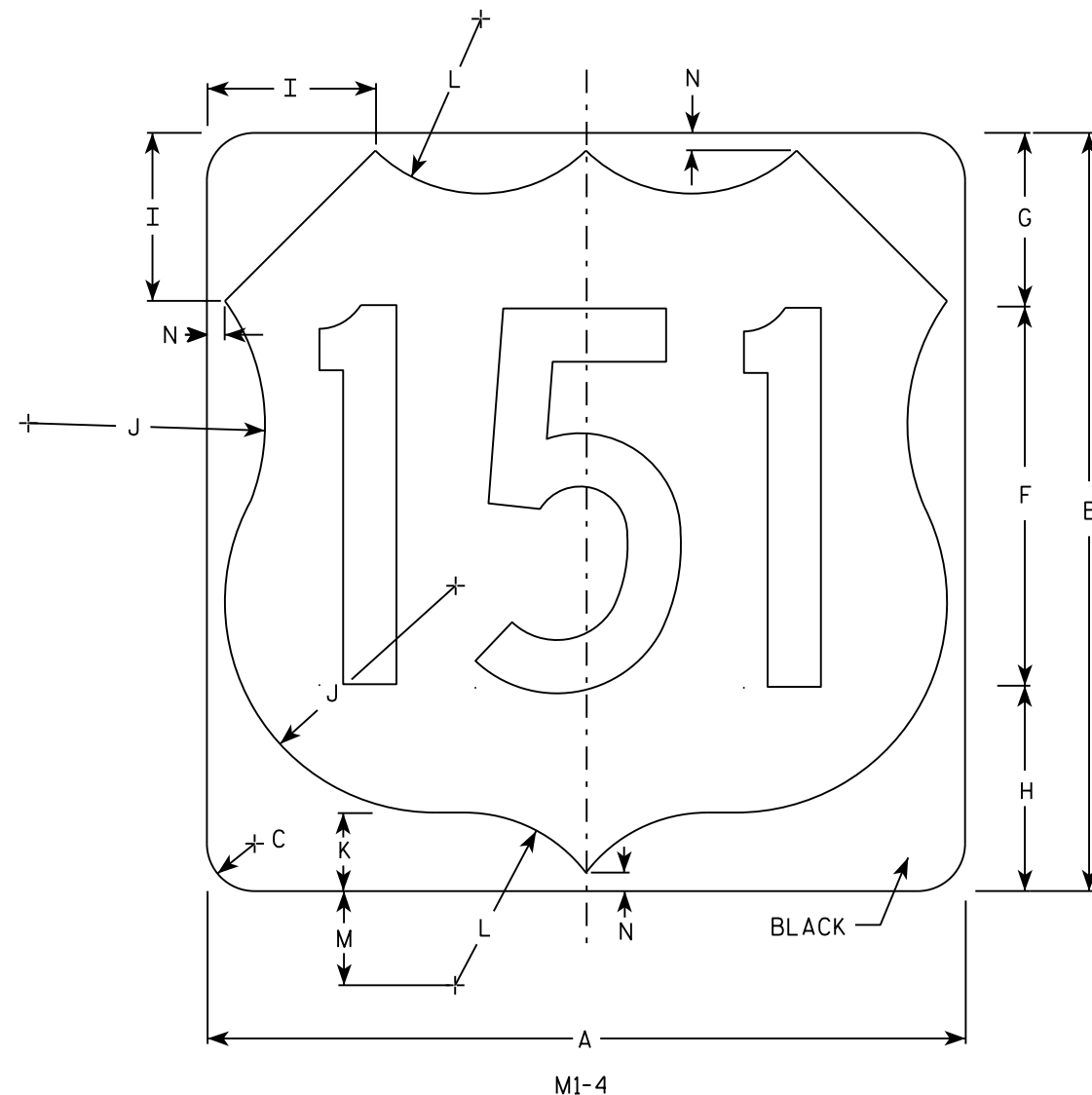
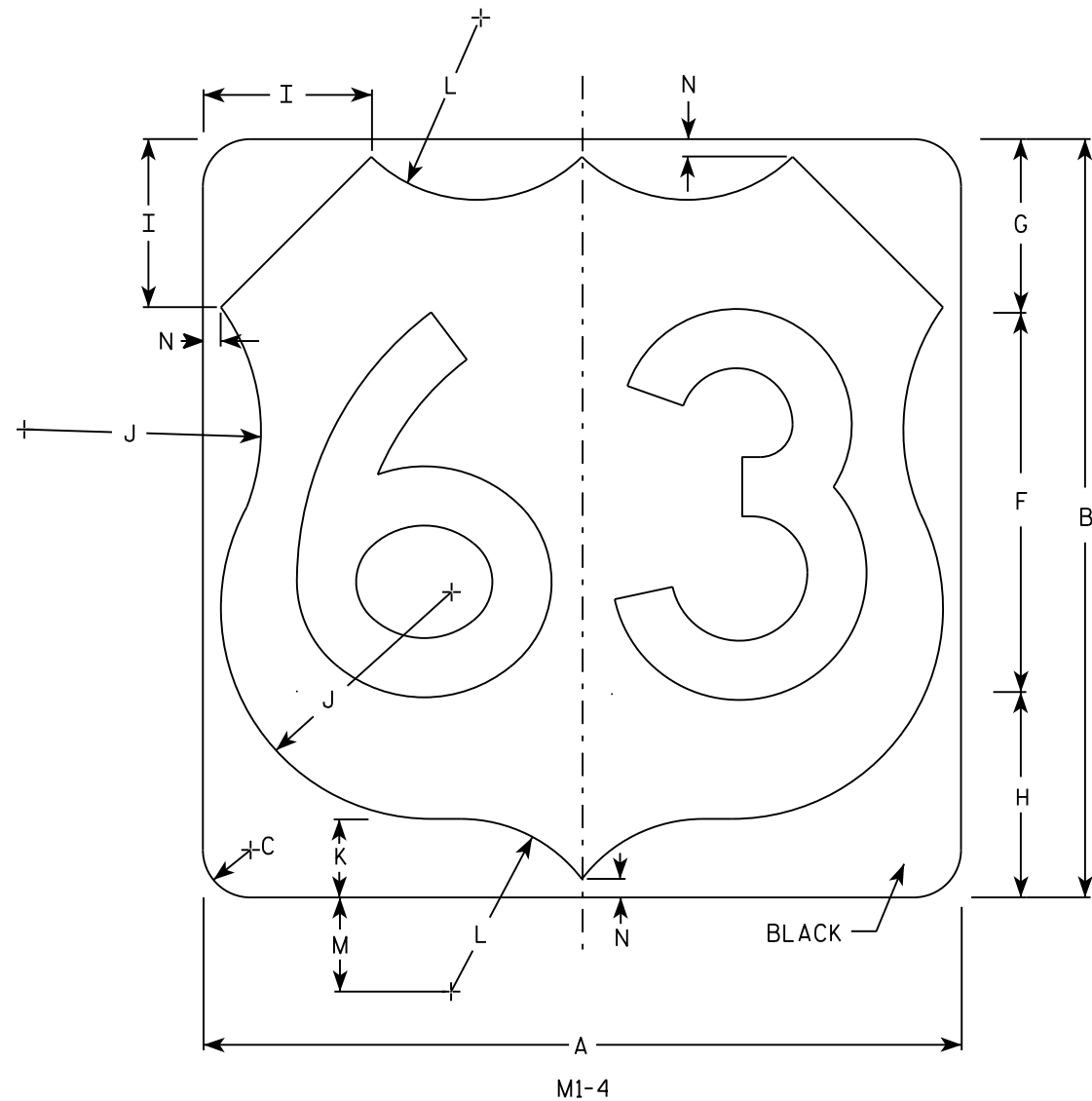
INTERSTATE ROUTE MARKER  
M1-1 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION  
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 08/23/05 PLATE NO. M1-1.8



NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - D except 3 number signs 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<br>sq. ft. |
|------|----|----|-------|---|---|----|-------|-------|-------|--------|-------|-------|-------|-----|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |   |   |    |       |       |       |        |       |       |       |     |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2    | 24 | 24 | 1 1/2 |   |   | 12 | 5 1/2 | 6 1/2 | 5     | 7 1/2  | 2 1/2 | 5 1/2 | 3     | 1/2 |   |   |   |   |   |   |   |   |   |   |   |   | 4.0             |
| 3    | 36 | 36 | 2 1/4 |   |   | 18 | 8 1/4 | 9 1/4 | 7 1/4 | 11 1/4 | 3 3/4 | 8 1/4 | 4 1/2 | 3/4 |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 36 | 36 | 2 1/4 |   |   | 18 | 8 1/4 | 9 1/4 | 7 1/4 | 11 1/4 | 3 3/4 | 8 1/4 | 4 1/2 | 3/4 |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 5    | 36 | 36 | 2 1/4 |   |   | 18 | 8 1/4 | 9 1/4 | 7 1/4 | 11 1/4 | 3 3/4 | 8 1/4 | 4 1/2 | 3/4 |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |

|             |      |         |  |               |   |
|-------------|------|---------|--|---------------|---|
| PROJECT NO: | HWY: | COUNTY: |  | SHEET NO: 189 | E |
|-------------|------|---------|--|---------------|---|

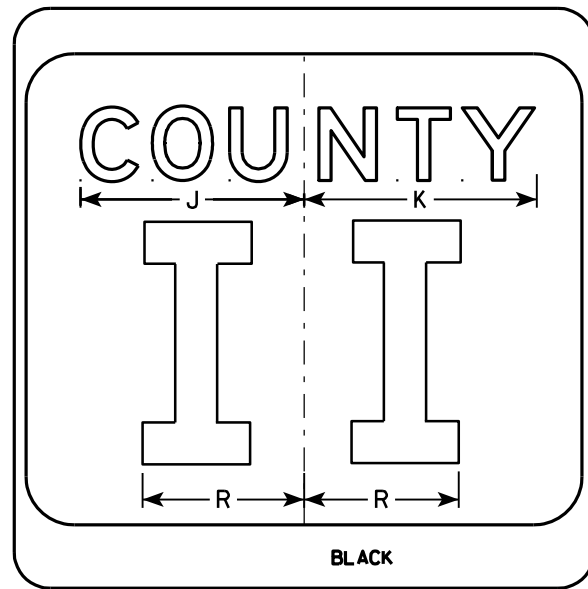
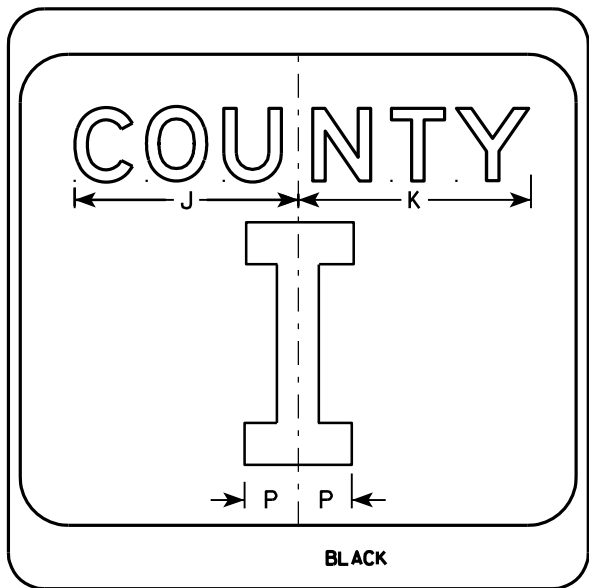
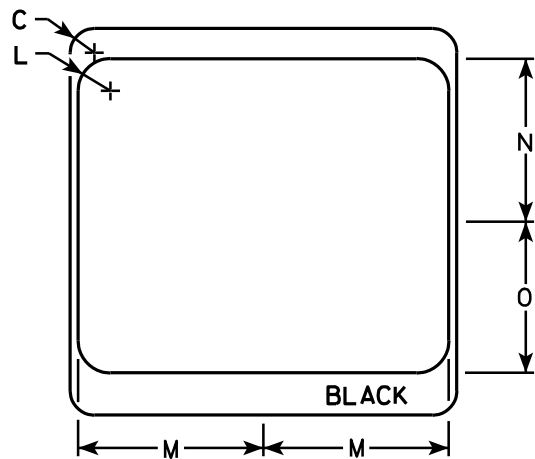
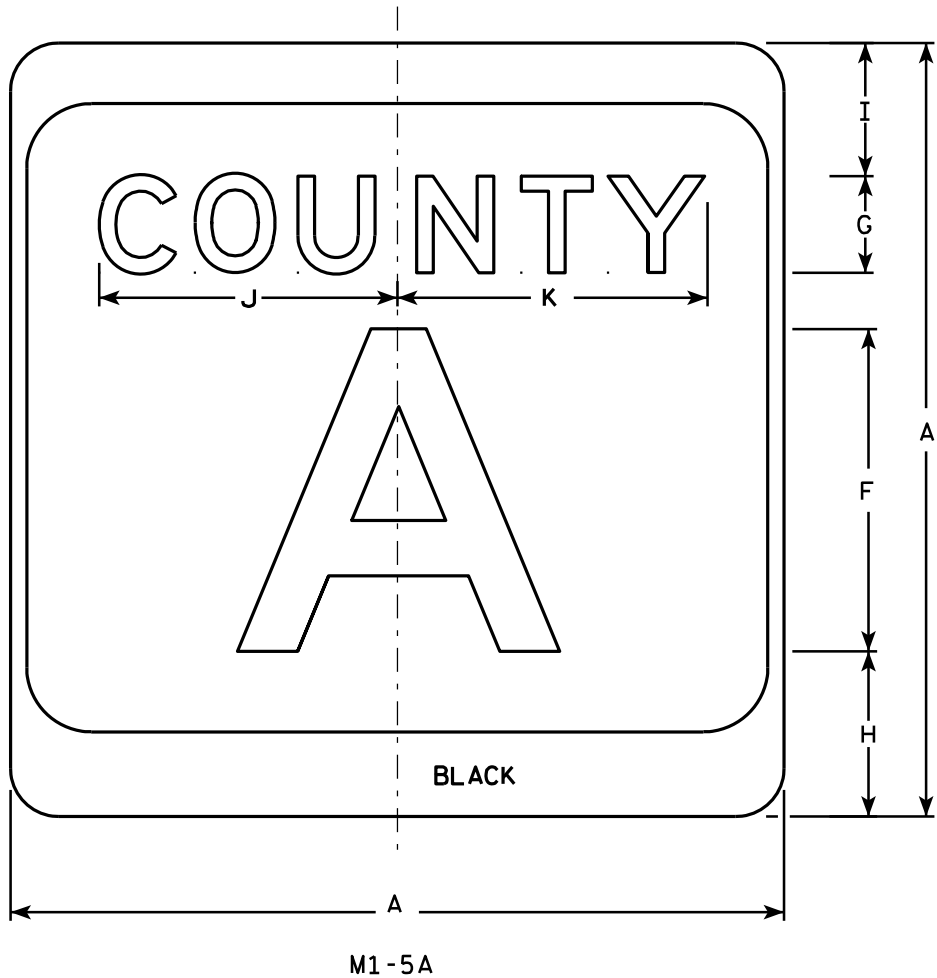
USH MARKER  
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/16/18 PLATE NO. M1-4.10

7



NOTES

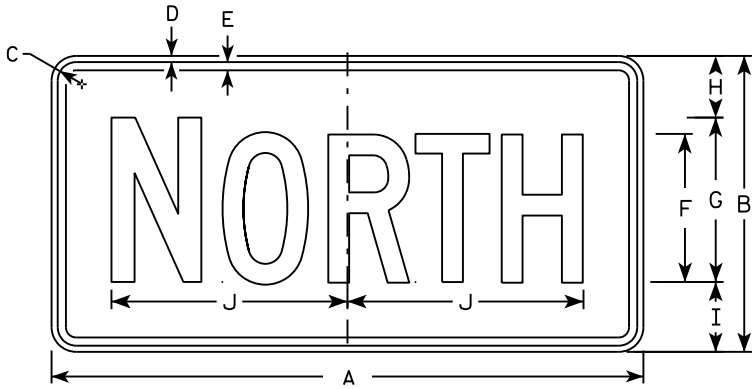
1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White & Black - See Note 7  
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but 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

| 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<br>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             |

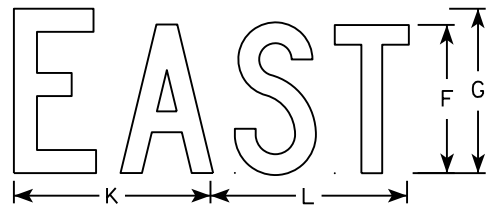
|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| CTH MARKER                       |                                                       |
| M1-5A FOR ASSEMBLIES             |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <i>Matthew R. Rauch</i><br>For State Traffic Engineer |
| DATE 9/27/11                     | PLATE NO. M1-5A.8                                     |

|             |      |         |               |   |
|-------------|------|---------|---------------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: 190 | E |
|-------------|------|---------|---------------|---|

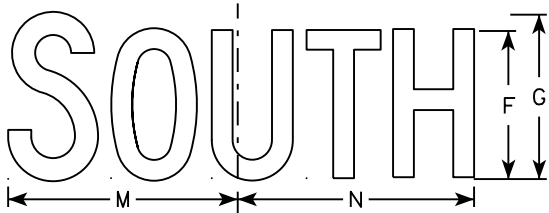
7



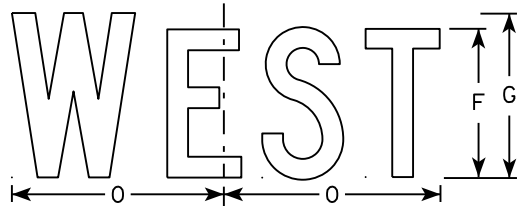
M3-1  
MM3-1  
MP3-1



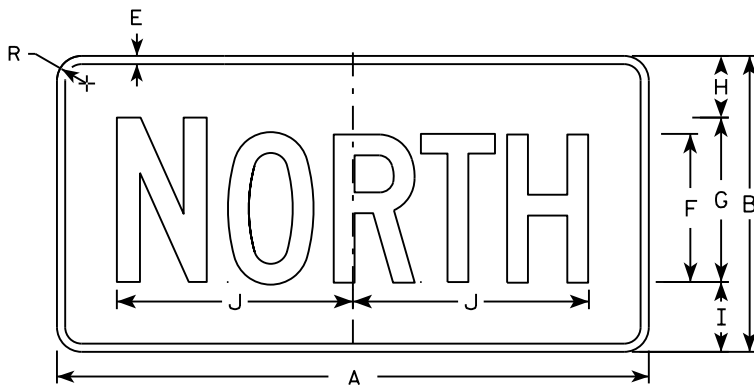
M3-2  
MM3-2  
MP3-2



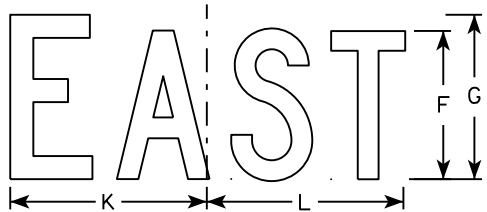
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MM3-3  
MP3-3



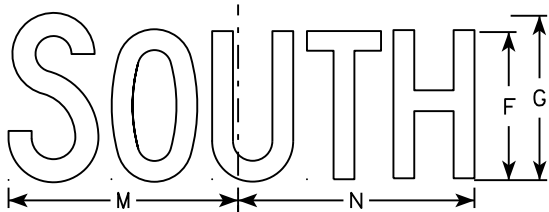
M3-4  
MM3-4  
MP3-4



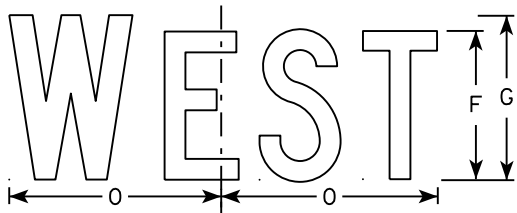
MB3-1  
MK3-1  
MN3-1



MB3-2  
MK3-2  
MN3-2



MB3-3  
MK3-3  
MN3-3



MB3-4  
MK3-4  
MN3-4

NOTES

1. All Signs 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. 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
6. Note the first letter of each direction is larger than the remainder of the message.

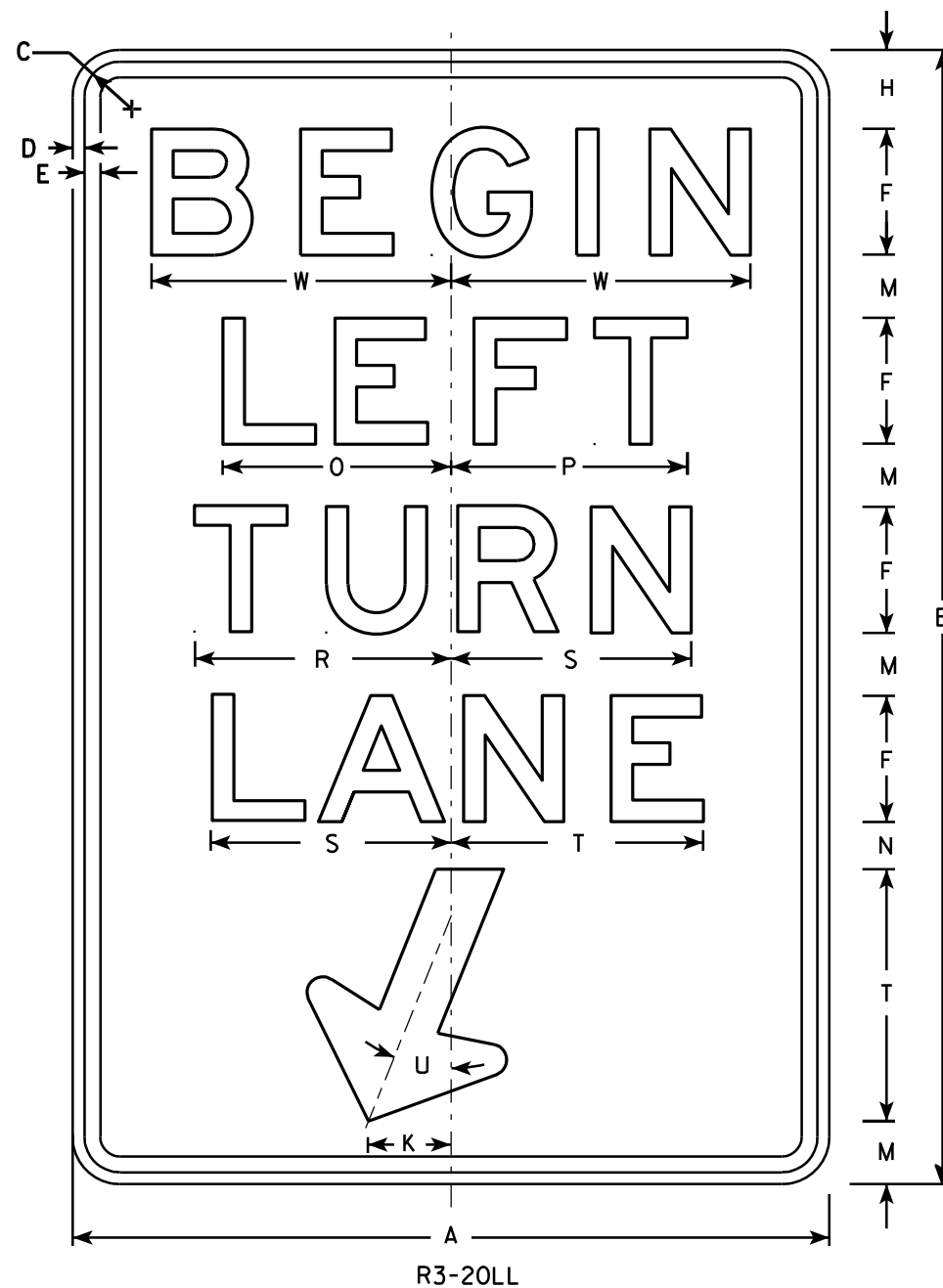
| SIZE | A  | B  | C     | D   | E   | F | G  | H     | I     | J      | K     | L      | M      | N      | O     | P | Q | R     | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|----|-------|-------|--------|-------|--------|--------|--------|-------|---|---|-------|---|---|---|---|---|---|---|---|-----------------|
| 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

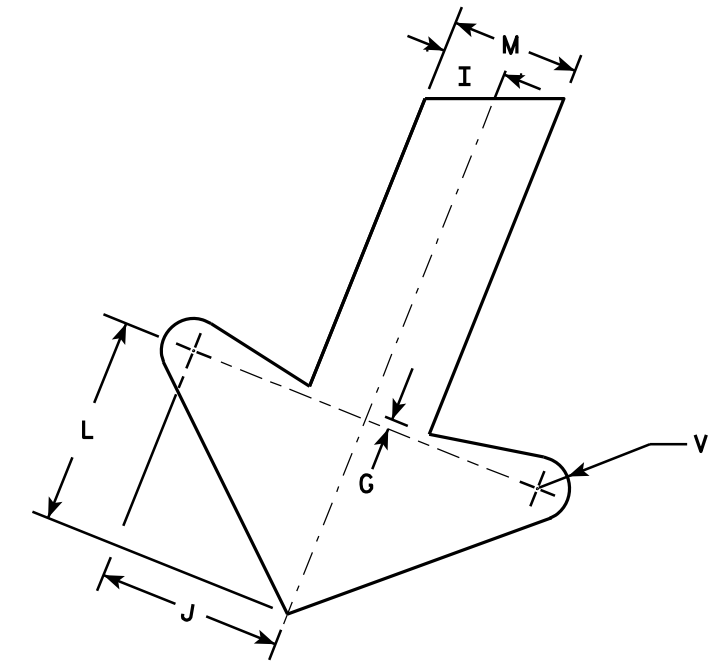
WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15 PLATE NO. 191 M3-1.14



- 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**

| 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<br>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    |    |    |       |     |     |   |     |       |       |       |       |       |   |       |        |        |   |        |        |    |     |     |        |   |   |   |                 |

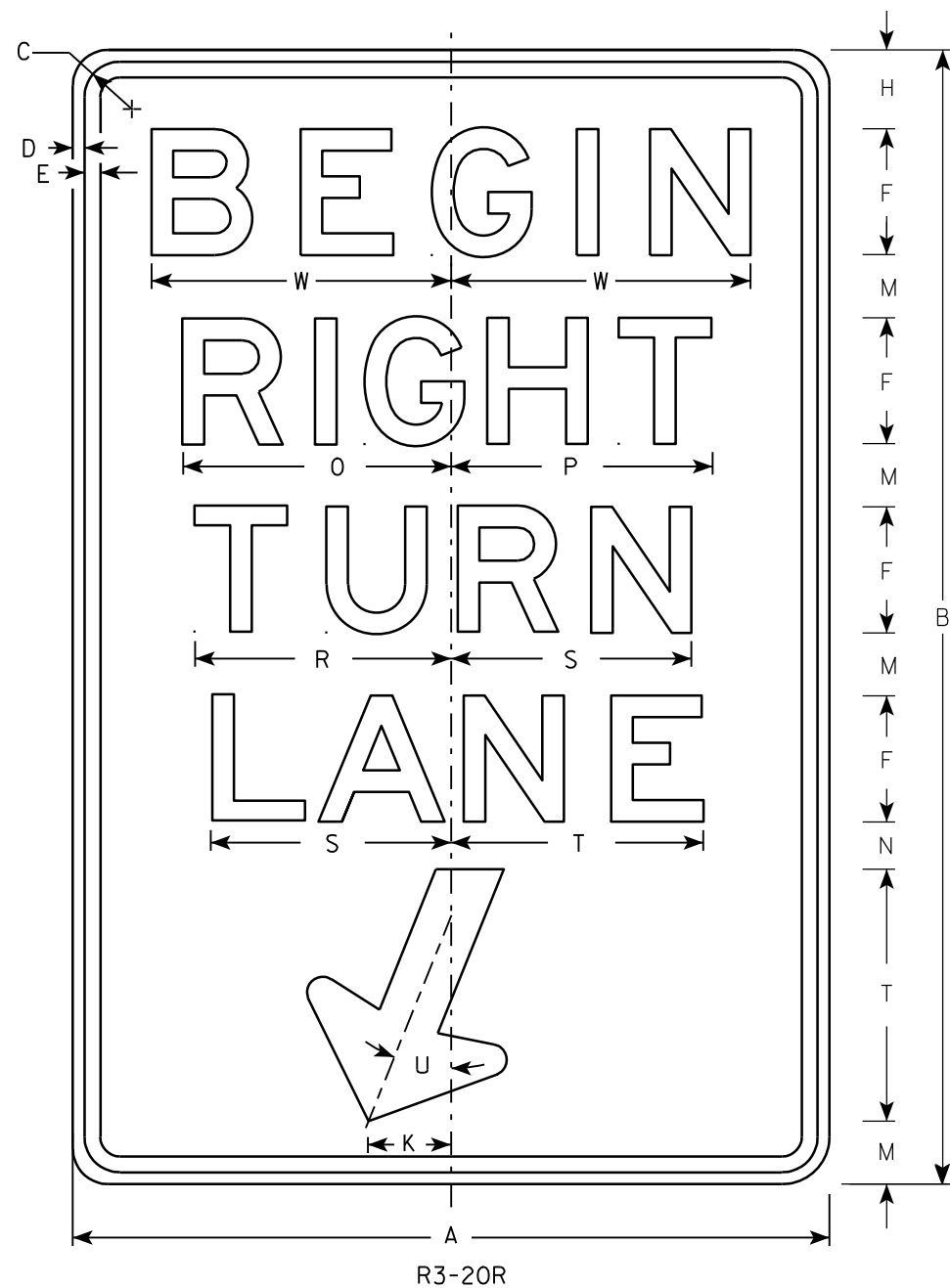
**STANDARD SIGN**  
**R3-20LL**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

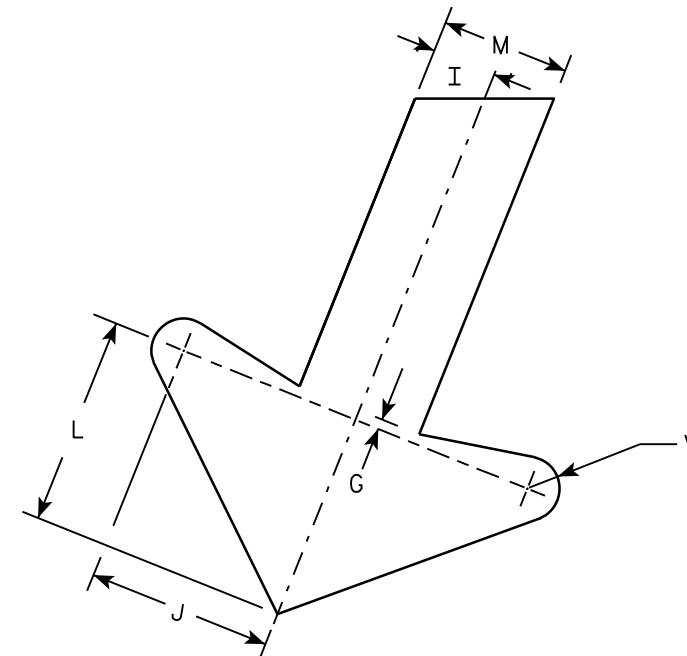
DATE 10/18/10 PLATE NO. R3-20LL.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: 192 **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.



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<br>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    |    |    |       |     |     |   |     |       |       |       |       |       |   |       |        |        |   |        |        |    |     |     |        |   |   |   |                 |

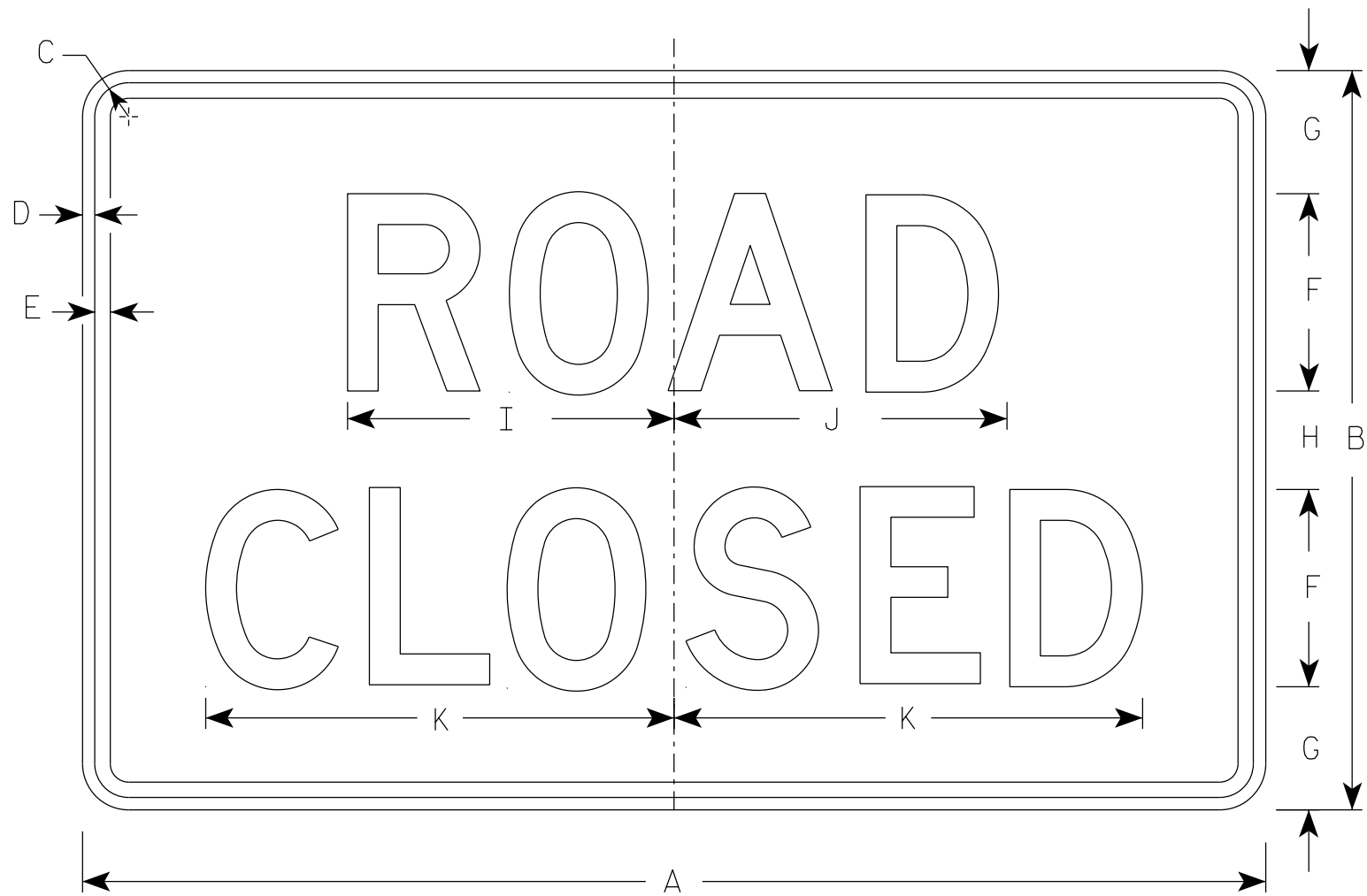
|             |      |         |               |   |
|-------------|------|---------|---------------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: 193 | E |
|-------------|------|---------|---------------|---|

STANDARD SIGN  
R3-20R

WISCONSIN DEPT OF TRANSPORTATION

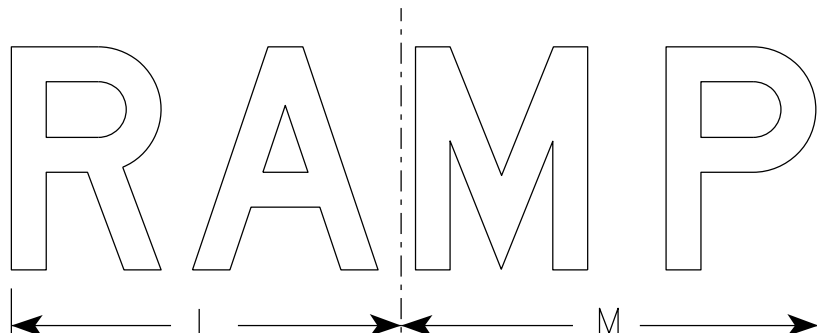
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20R.6

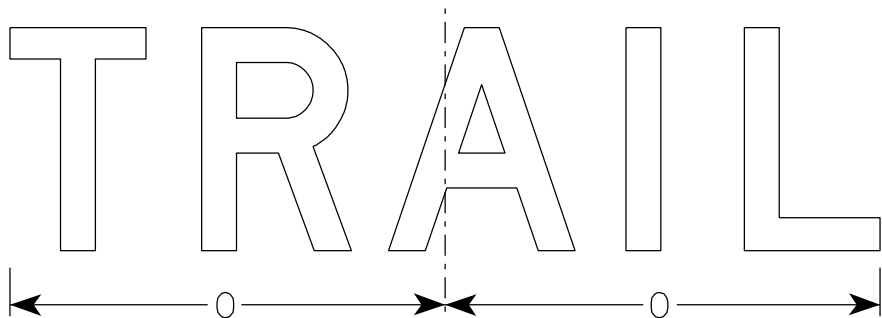


R11-2

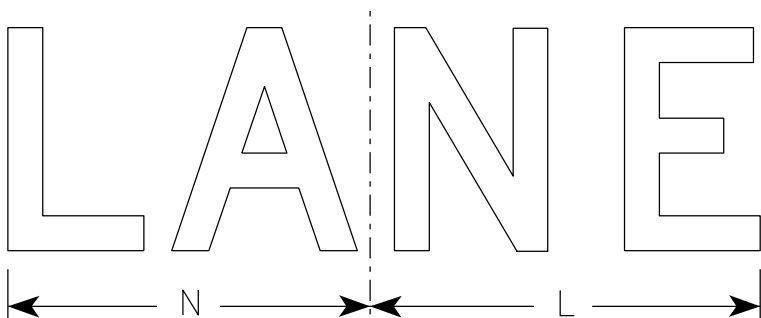
- NOTES
1. Sign is Type II - Type H Reflective
  2. Color:  
Background - White  
Message - Black
  3. Message Series - D
  4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
  5. Modify the message as required.



R11-2R



R11-2T



R11-2L

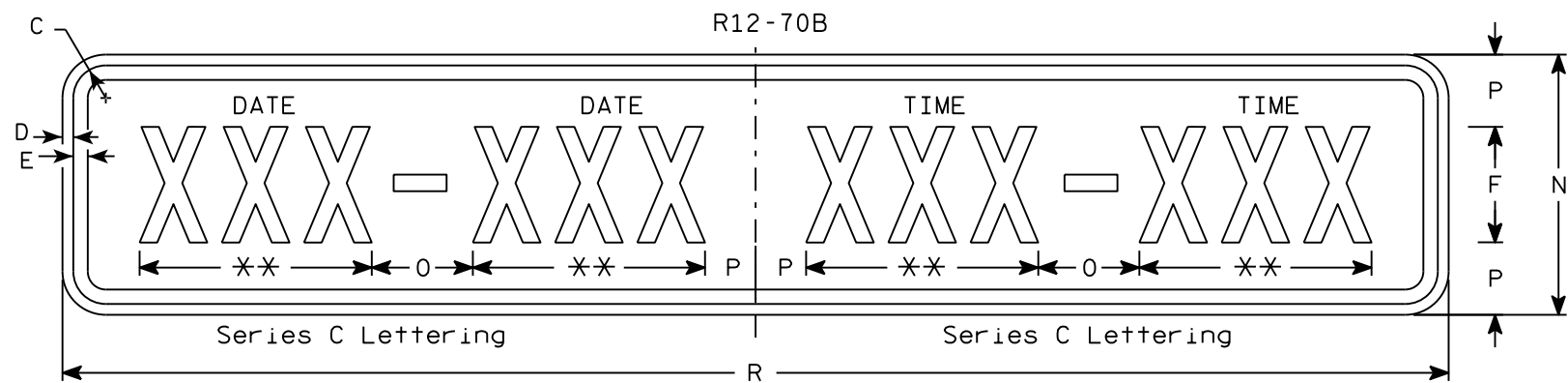
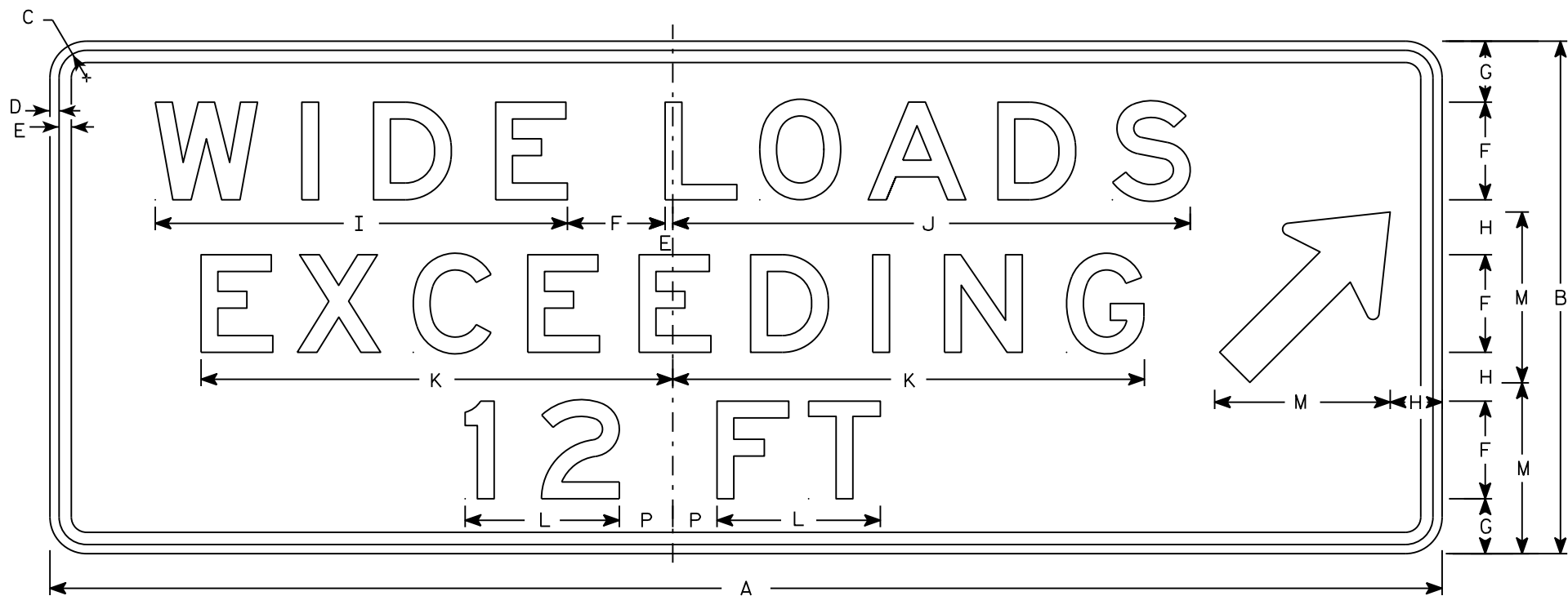
| SIZE | A  | B  | C     | D   | E   | F | G | H | I      | J      | K  | L  | M  | N  | O      | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|---|--------|--------|----|----|----|----|--------|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 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<br>R11-2           |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <i>Matthew R. Rauch</i><br>For State Traffic Engineer |
| DATE 3/29/2021                   | PLATE NO. R11-2.11                                    |

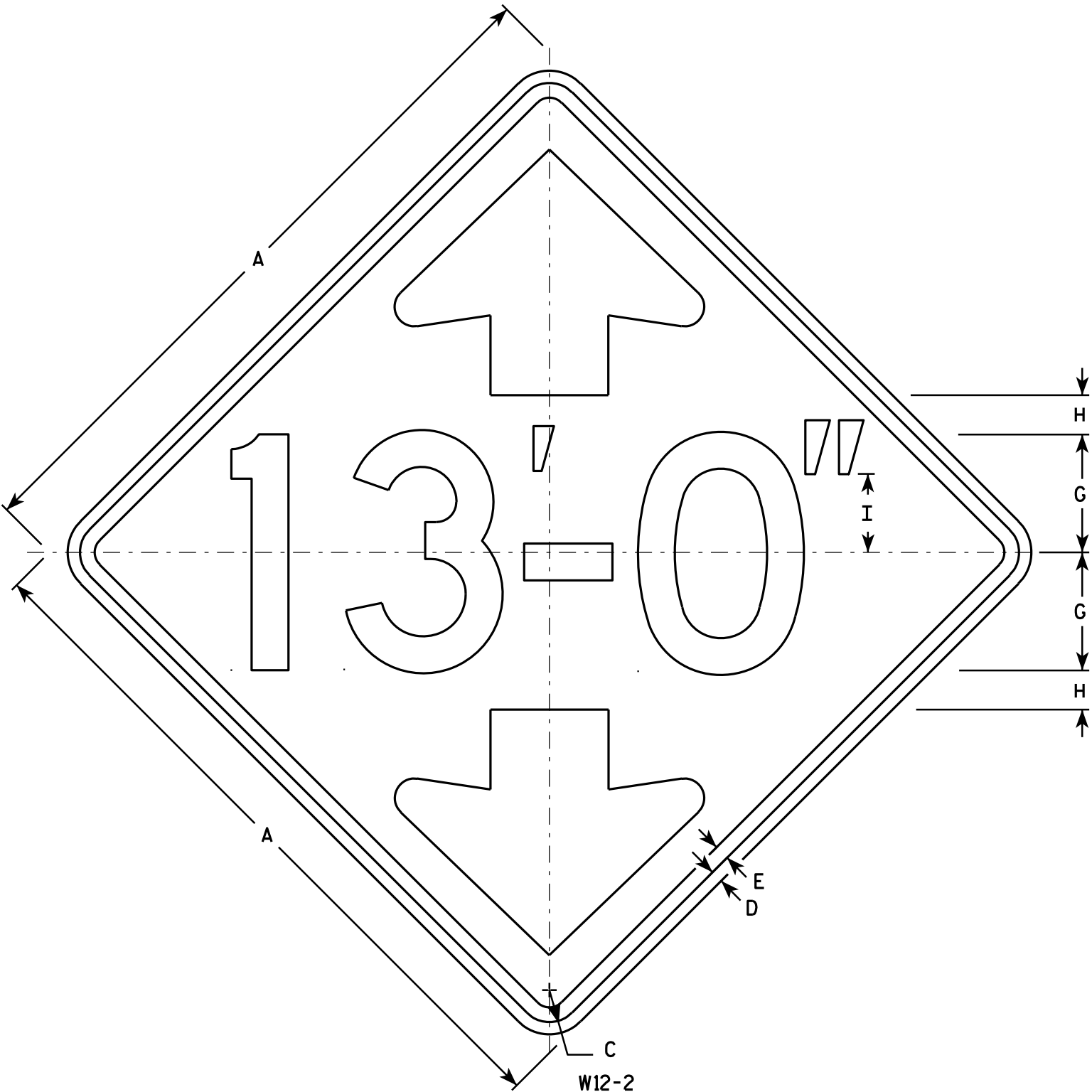


NOTES

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 except as noted
  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.
- \*\* Substitute appropriate message, optically center message

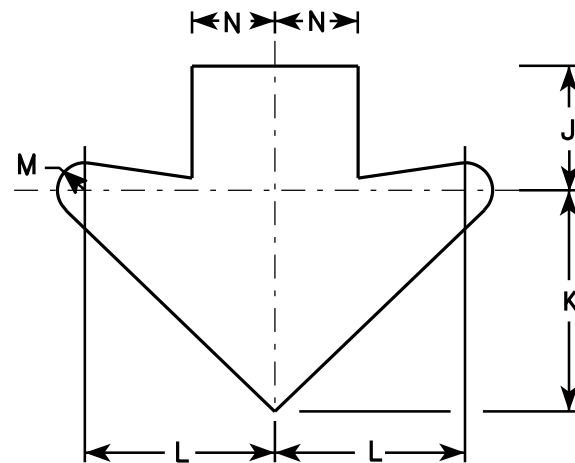


| R12 - 70C |     |    |       |     |     |   |   |   |        |        |        |       |    |    |   |       |   |    |   |   |   |   |   |   |   |   |                 | R12-70          | R12-70C |
|-----------|-----|----|-------|-----|-----|---|---|---|--------|--------|--------|-------|----|----|---|-------|---|----|---|---|---|---|---|---|---|---|-----------------|-----------------|---------|
| 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<br>sq. ft. | Area<br>sq. ft. |         |
| 1         |     |    |       |     |     |   |   |   |        |        |        |       |    |    |   |       |   |    |   |   |   |   |   |   |   |   |                 |                 |         |
| 2S        | 90  | 36 | 2 1/4 | 1/2 | 5/8 | 6 | 4 | 5 | 20 7/8 | 28 3/8 | 24 5/8 | 8 1/8 | 12 | 12 | 6 | 3     |   | 66 |   |   |   |   |   |   |   |   | 22.5            | 5.5             |         |
| 2M        | 90  | 36 | 2 1/4 | 1/2 | 5/8 | 6 | 4 | 5 | 20 7/8 | 28 3/8 | 24 5/8 | 8 1/8 | 12 | 12 | 6 | 3     |   | 66 |   |   |   |   |   |   |   |   | 22.5            | 5.5             |         |
| 3         |     |    |       |     |     |   |   |   |        |        |        |       |    |    |   |       |   |    |   |   |   |   |   |   |   |   |                 |                 |         |
| 4         | 114 | 42 | 2 1/4 | 3/4 | 1   | 8 | 5 | 4 | 34     | 42     | 39     | 13    | 14 | 18 | 7 | 3 1/2 |   | 96 |   |   |   |   |   |   |   |   | 36.75           | 12.0            |         |
| 5         | 114 | 42 | 2 1/4 | 3/4 | 1   | 8 | 5 | 4 | 34     | 42     | 39     | 13    | 14 | 18 | 7 | 3 1/2 |   | 96 |   |   |   |   |   |   |   |   | 36.75           | 12.0            |         |

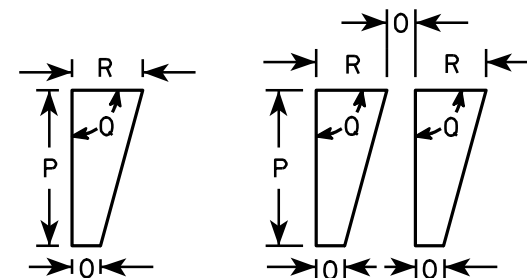


### NOTES

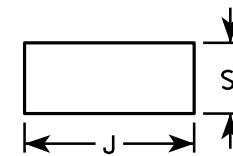
1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing of numerals, hyphen, foot & inch marks to achieve proper balance.



Arrow Detail



Foot Mark & Inch Mark Detail



Hyphen 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<br>sq. ft. |
|------|----|---|-------|-----|-----|---|---|-------|-------|-------|--------|-------|-------|-------|-----|-------|-----|-------|-------|---|---|---|---|---|---|---|-----------------|
| 1    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 5 | 1 5/8 | 3 3/8 | 3 3/4 | 6 5/8  | 5 3/4 | 3/4   | 2 1/2 | 1/2 | 2 1/4 | 90° | 1     | 1 5/8 |   |   |   |   |   |   |   | 6.25            |
| 2S   | 36 |   | 1 5/8 | 5/8 | 3/4 |   | 6 | 2     | 4     | 4 1/2 | 8      | 6 7/8 | 1     | 3     | 1/2 | 2 3/4 | 90° | 1 1/4 | 1 7/8 |   |   |   |   |   |   |   | 9.00            |
| 2M   | 36 |   | 1 5/8 | 5/8 | 3/4 |   | 6 | 2     | 4     | 4 1/2 | 8      | 6 7/8 | 1     | 3     | 1/2 | 2 3/4 | 90° | 1 1/4 | 1 7/8 |   |   |   |   |   |   |   | 9.00            |
| 3    | 36 |   | 1 5/8 | 5/8 | 3/4 |   | 6 | 2     | 4     | 4 1/2 | 8      | 6 7/8 | 1     | 3     | 1/2 | 2 3/4 | 90° | 1 1/4 | 1 7/8 |   |   |   |   |   |   |   | 9.00            |
| 4    | 36 |   | 1 5/8 | 5/8 | 3/4 |   | 6 | 2     | 4     | 4 1/2 | 8      | 6 7/8 | 1     | 3     | 1/2 | 2 3/4 | 90° | 1 1/4 | 1 7/8 |   |   |   |   |   |   |   | 9.00            |
| 5    | 48 |   | 2 1/4 | 3/4 | 1   |   | 8 | 2 5/8 | 5 1/2 | 5 7/8 | 10 5/8 | 9 1/4 | 1 3/8 | 4     | 5/8 | 3 5/8 | 90° | 1 5/8 | 2 1/2 |   |   |   |   |   |   |   | 16.00           |

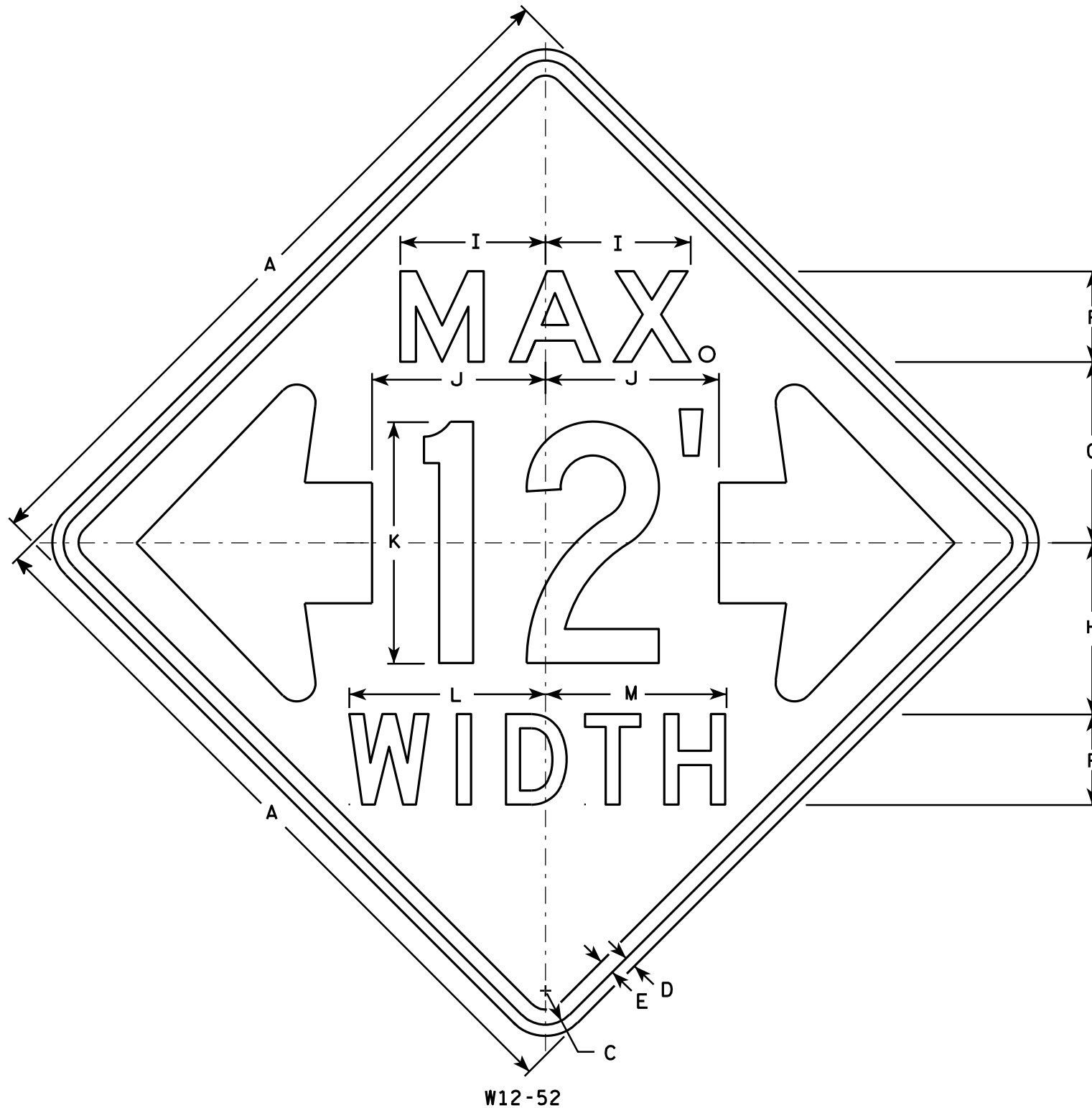
|             |      |         |               |   |
|-------------|------|---------|---------------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: 196 | E |
|-------------|------|---------|---------------|---|

STANDARD SIGN  
W12-2

WISCONSIN DEPT OF TRANSPORTATION

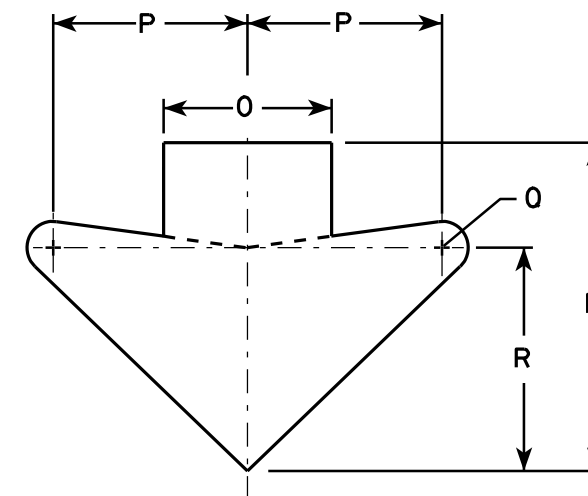
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer  
DATE 3/13/13 PLATE NO. W12-2.9





# 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. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



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<br>sq. ft. |
|------|----|---|-------|-----|---|---|----|--------|-------|--------|----|----|----|--------|---|-------|-------|--------|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |   |       |     |   |   |    |        |       |        |    |    |    |        |   |       |       |        |   |   |   |   |   |   |   |   |                 |
| 2S   | 48 |   | 2 1/4 | 3/4 | 1 | 6 | 12 | 11 3/8 | 9 5/8 | 11 1/2 | 16 | 13 | 12 | 15 5/8 | 8 | 9 1/4 | 1 1/4 | 10 5/8 |   |   |   |   |   |   |   |   | 16.0            |
| 2M   | 48 |   | 2 1/4 | 3/4 | 1 | 6 | 12 | 11 3/8 | 9 5/8 | 11 1/2 | 16 | 13 | 12 | 15 5/8 | 8 | 9 1/4 | 1 1/4 | 10 5/8 |   |   |   |   |   |   |   |   | 16.0            |
| 3    |    |   |       |     |   |   |    |        |       |        |    |    |    |        |   |       |       |        |   |   |   |   |   |   |   |   |                 |
| 4    |    |   |       |     |   |   |    |        |       |        |    |    |    |        |   |       |       |        |   |   |   |   |   |   |   |   |                 |
| 5    |    |   |       |     |   |   |    |        |       |        |    |    |    |        |   |       |       |        |   |   |   |   |   |   |   |   |                 |

## STANDARD SIGN W12-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

PROJECT NO:

HWY:

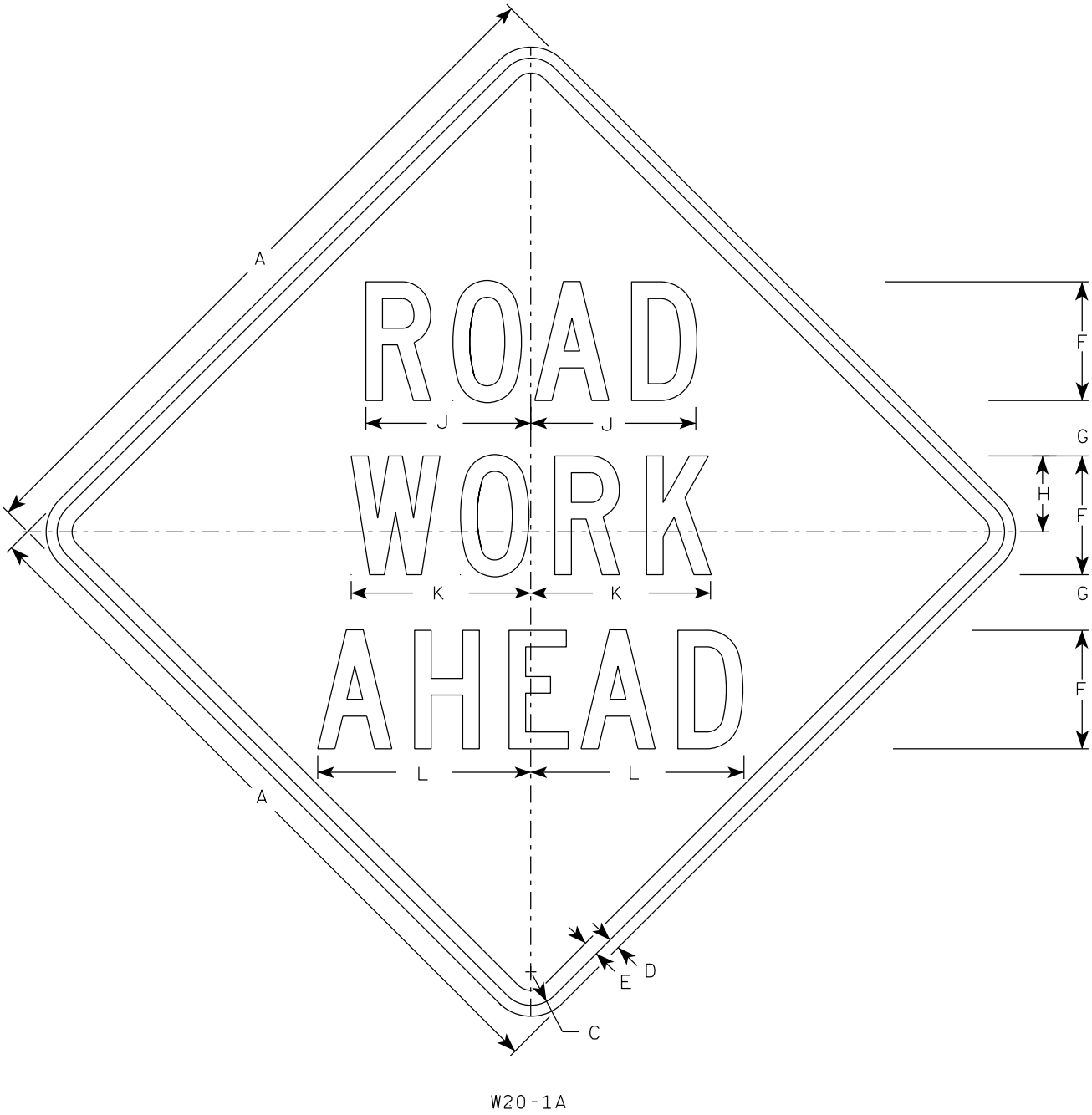
COUNTY:

SHEET NO: 197

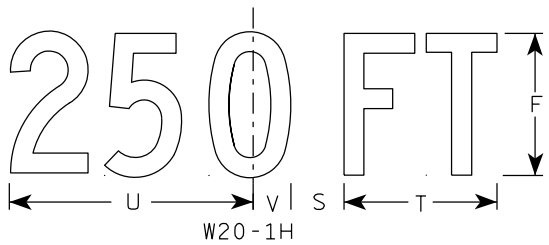
E

NOTES

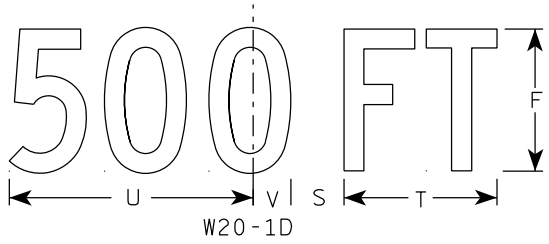
1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1A



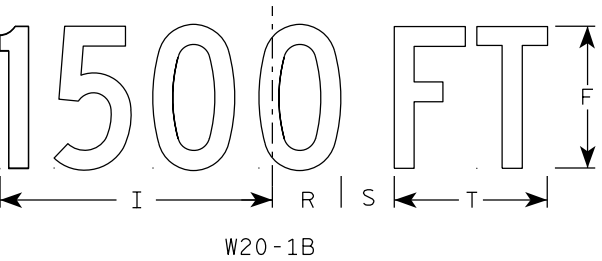
W20-1H



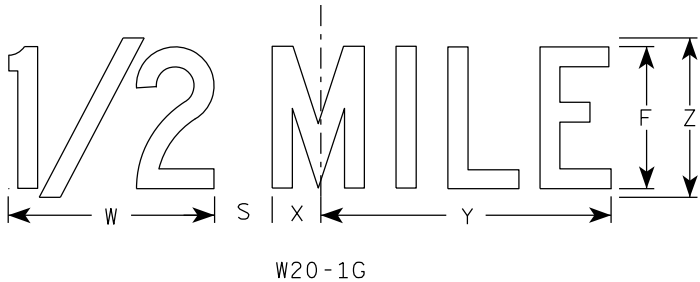
W20-1D



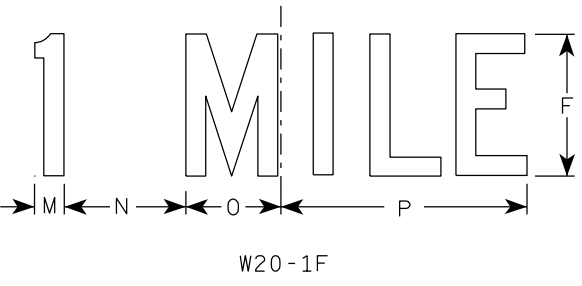
W20-1C



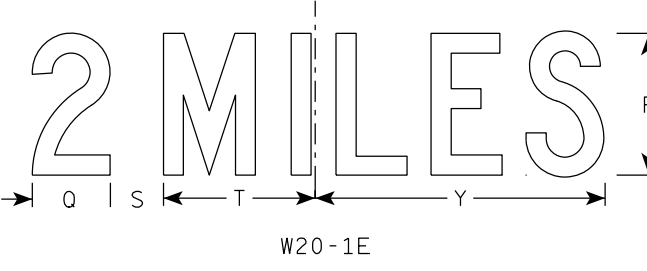
W20-1B



W20-1G



W20-1F



W20-1E

| 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 | A <sub>req</sub><br>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

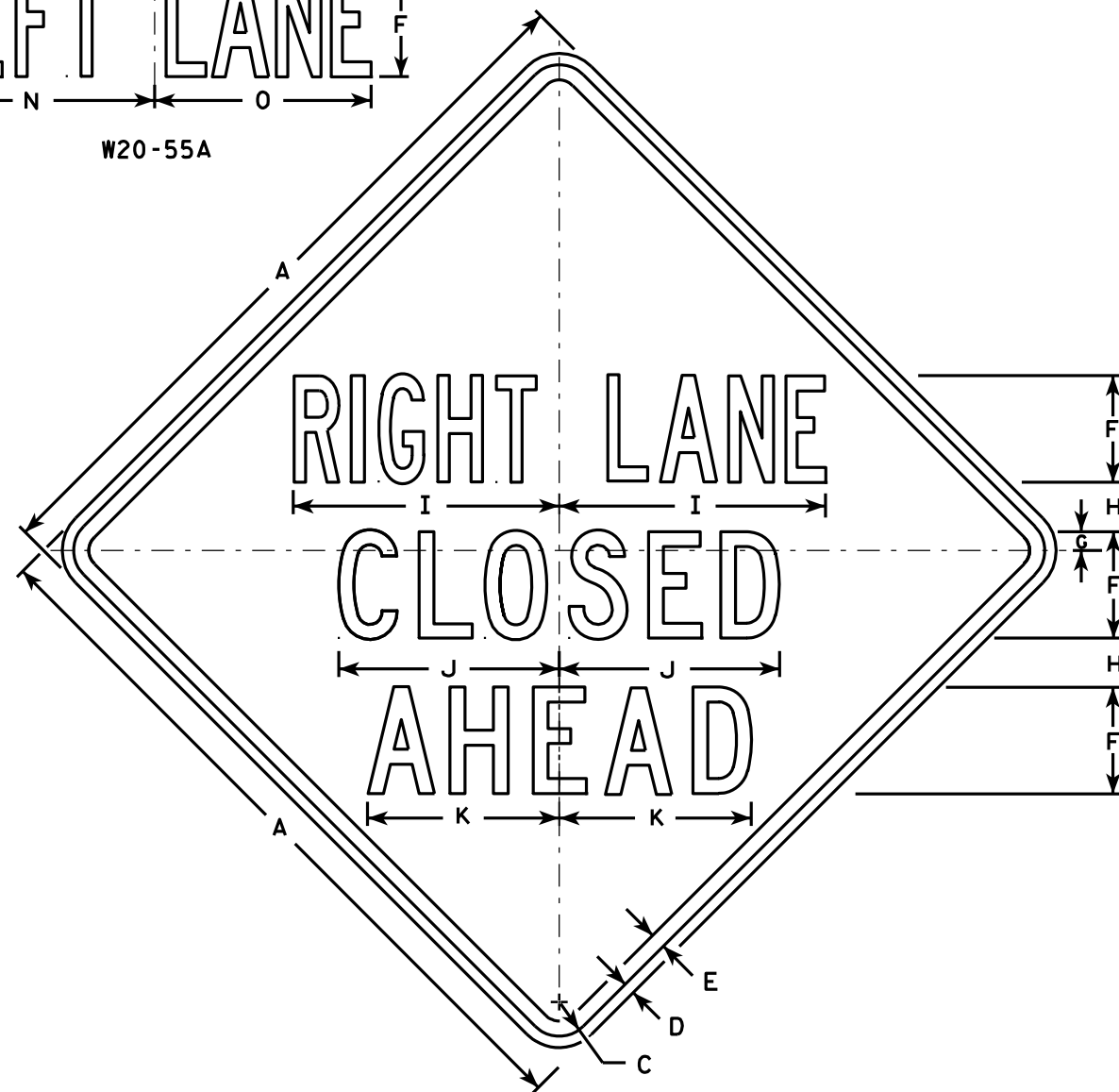
DATE 3/25/2020 PLATE NO. W20-1.11

CENTER LANE

W20-56A

LEFT LANE

W20-55A



W20-5A

500 FT

W20-5D

1000 FT

W20-5C

1500 FT

W20-5B

1/2 MILE

W20-5G

1 MILE

W20-5F

### 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.

| 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<br>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:

STANDARD SIGN  
W20-5A, B, C, D, F & G

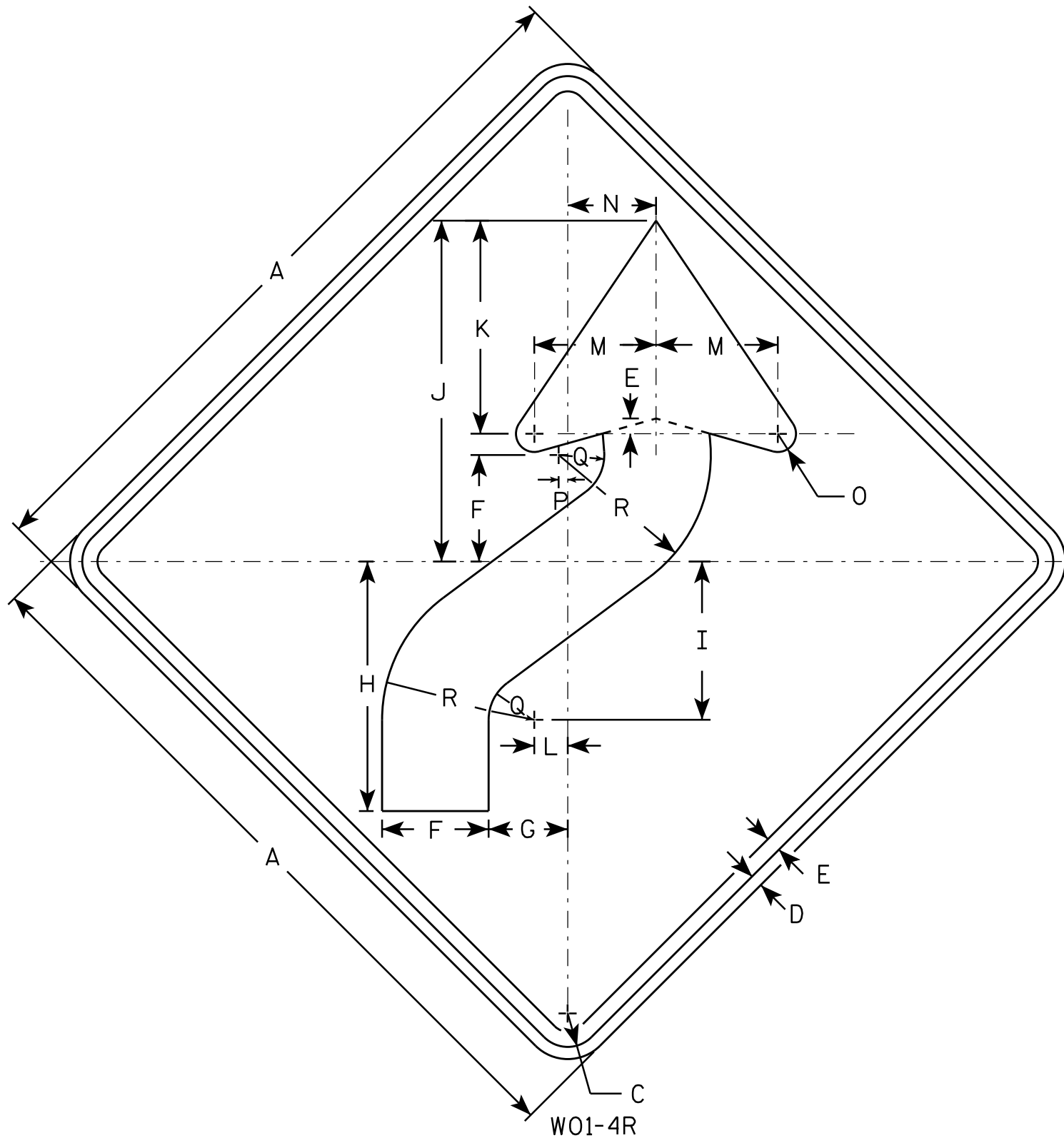
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-5.11

SHEET NO: 199

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.

| 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<br>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            |

## 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  
200

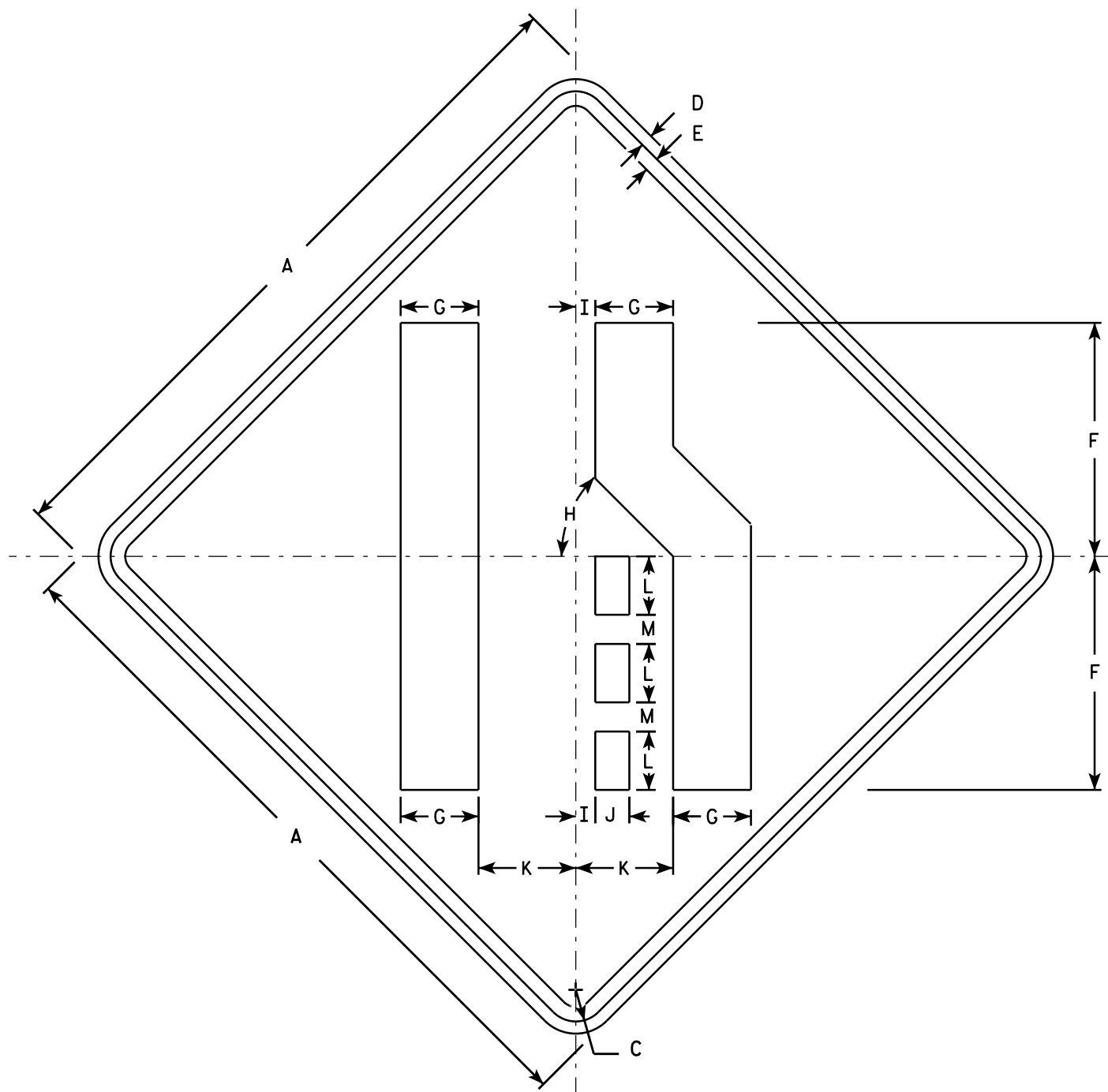
PROJECT NO:

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 symbols are reversed along the vertical centerline.

| 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<br>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

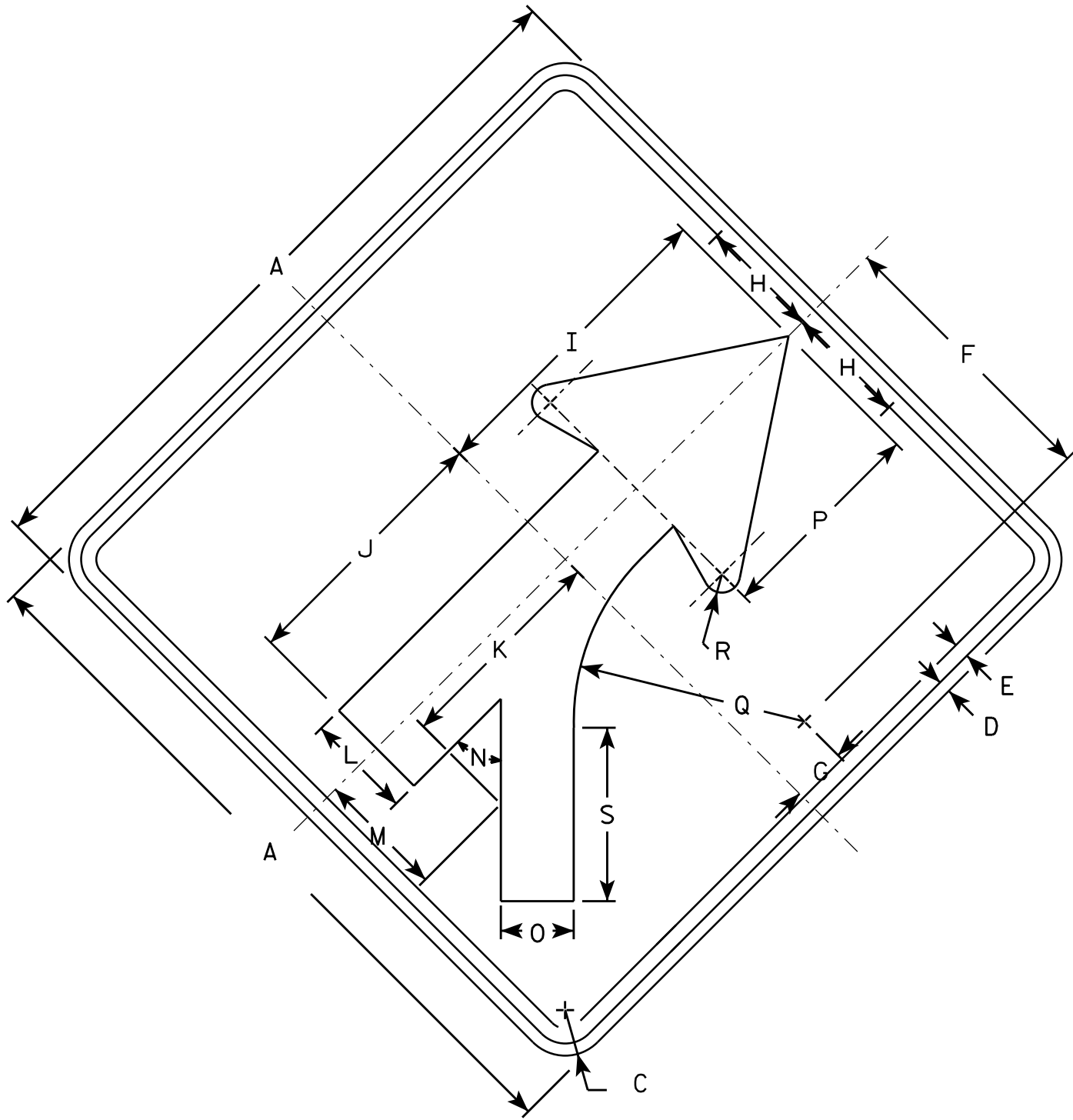
DATE 11/20/13

PLATE 201

104-2.1

SHEET NO:

E



W04-5

| 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<br>sq. ft. |
|------|----|---|-------|-----|-----|--------|-------|---|--------|--------|--------|-------|-------|-----|-------|--------|--------|-------|--------|---|---|---|---|---|---|---|-----------------|
| 1    | 36 |   | 1 5/8 | 5/8 | 3/4 | 14     | 2 3/4 | 6 | 15 3/4 | 13 1/4 | 10 1/4 | 5 1/4 | 6 3/8 | 45° | 3 5/8 | 10 5/8 | 11 3/8 | 7/8   | 8 1/2  |   |   |   |   |   |   |   | 9.0             |
| 2S   | 48 |   | 2 1/4 | 3/4 | 1   | 18 3/4 | 3 5/8 | 8 | 20 1/2 | 17 1/2 | 14 3/8 | 7     | 8 3/8 | 45° | 4 3/4 | 14 1/4 | 15 1/4 | 1 1/4 | 11 3/8 |   |   |   |   |   |   |   | 16.0            |
| 2M   | 48 |   | 2 1/4 | 3/4 | 1   | 18 3/4 | 3 5/8 | 8 | 20 1/2 | 17 1/2 | 14 3/8 | 7     | 8 3/8 | 45° | 4 3/4 | 14 1/4 | 15 1/4 | 1 1/4 | 11 3/8 |   |   |   |   |   |   |   | 16.0            |
| 3    | 48 |   | 2 1/4 | 3/4 | 1   | 18 3/4 | 3 5/8 | 8 | 20 1/2 | 17 1/2 | 14 3/8 | 7     | 8 3/8 | 45° | 4 3/4 | 14 1/4 | 15 1/4 | 1 1/4 | 11 3/8 |   |   |   |   |   |   |   | 16.0            |
| 4    | 48 |   | 2 1/4 | 3/4 | 1   | 18 3/4 | 3 5/8 | 8 | 20 1/2 | 17 1/2 | 14 3/8 | 7     | 8 3/8 | 45° | 4 3/4 | 14 1/4 | 15 1/4 | 1 1/4 | 11 3/8 |   |   |   |   |   |   |   | 16.0            |
| 5    | 48 |   | 2 1/4 | 3/4 | 1   | 18 3/4 | 3 5/8 | 8 | 20 1/2 | 17 1/2 | 14 3/8 | 7     | 8 3/8 | 45° | 4 3/4 | 14 1/4 | 15 1/4 | 1 1/4 | 11 3/8 |   |   |   |   |   |   |   | 16.0            |

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.

STANDARD SIGN

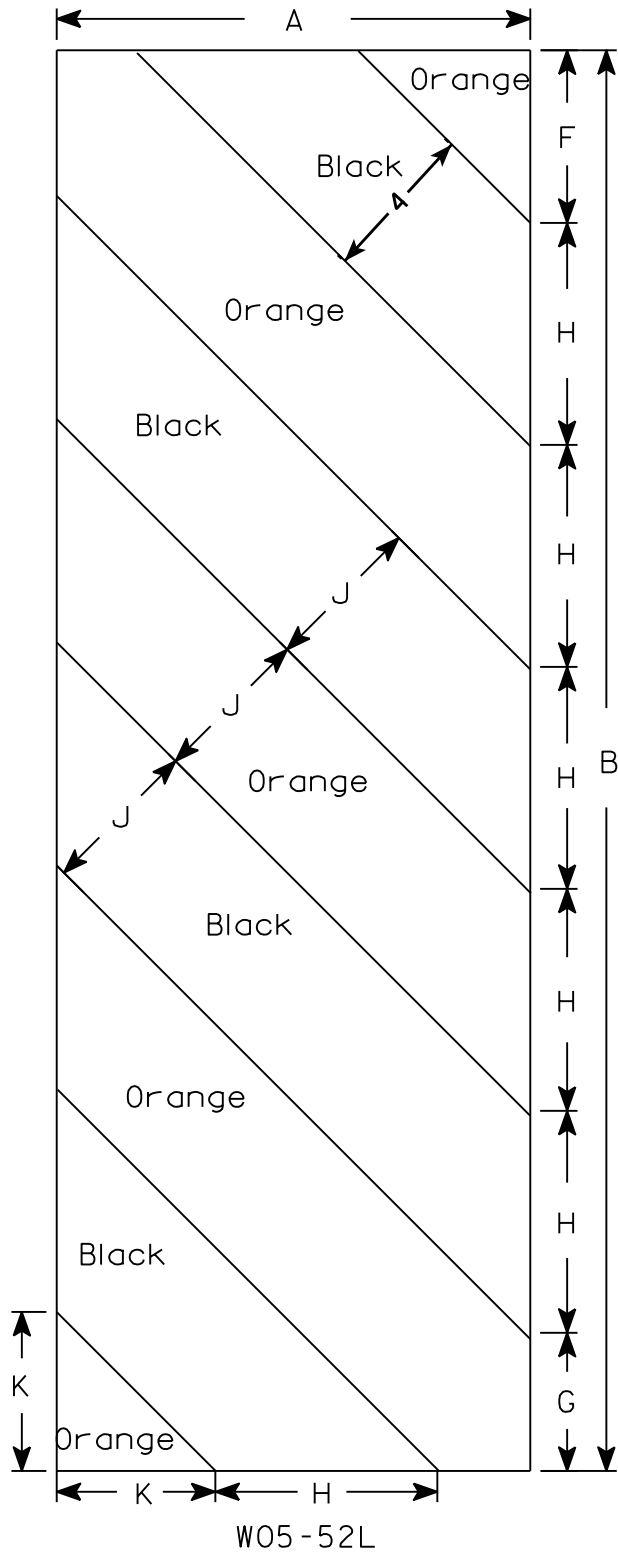
W04-5

WISCONSIN DEPT OF TRANSPORTATION

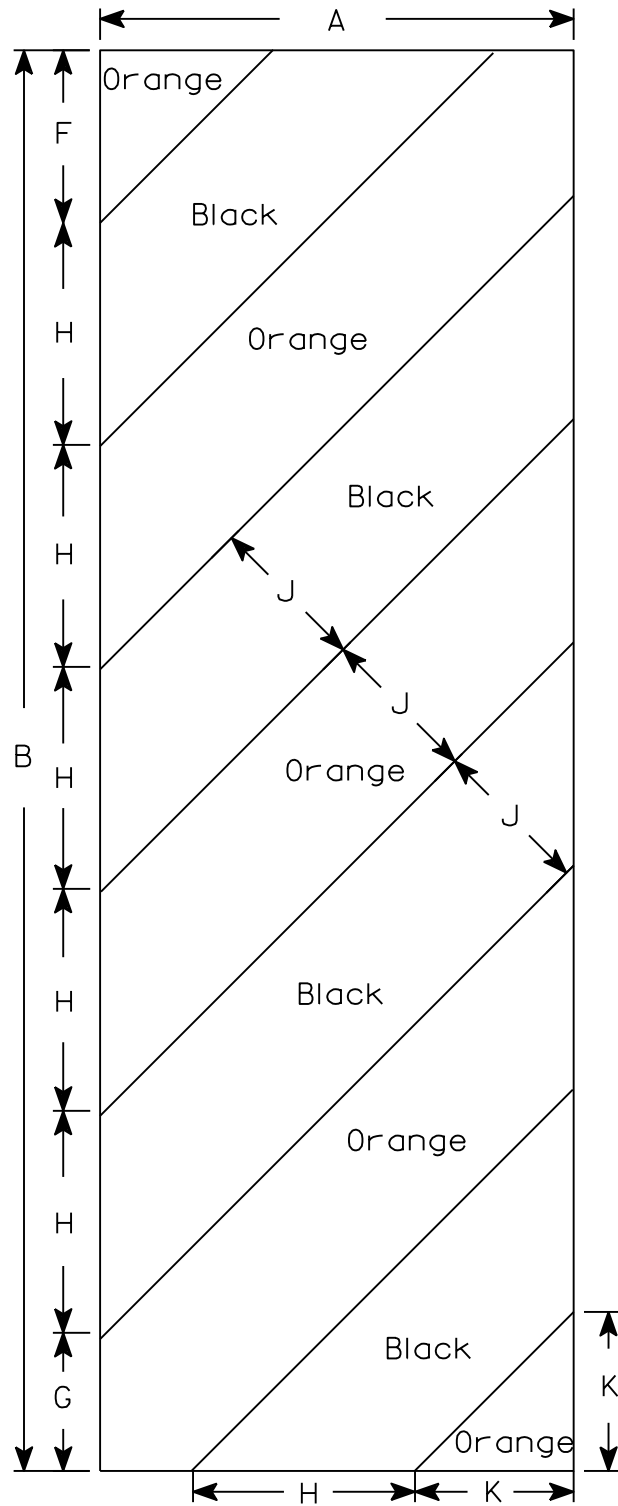
APPROVED *Matthew P. Rauch*  
for State Traffic Engineer

DATE 4/28/16 PLATE NO. 202 W04-5.1





W05-52L



W05-52R

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. Alternate colors of stripes as shown.

| 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<br>sq. ft. |
|------|----|----|---|---|---|-------|-------|-------|-----|---|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |   |   |   |       |       |       |     |   |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 12 | 36 |   |   |   | 4 3/8 | 3 1/2 | 5 5/8 | 45° | 4 | 4      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 2M   | 12 | 36 |   |   |   | 4 3/8 | 3 1/2 | 5 5/8 | 45° | 4 | 4      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 3    | 18 | 54 |   |   |   | 6     | 5 1/2 | 8 1/2 | 45° | 6 | 6 9/16 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 6.75            |
| 4    |    |    |   |   |   |       |       |       |     |   |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 5    |    |    |   |   |   |       |       |       |     |   |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |

STANDARD SIGN

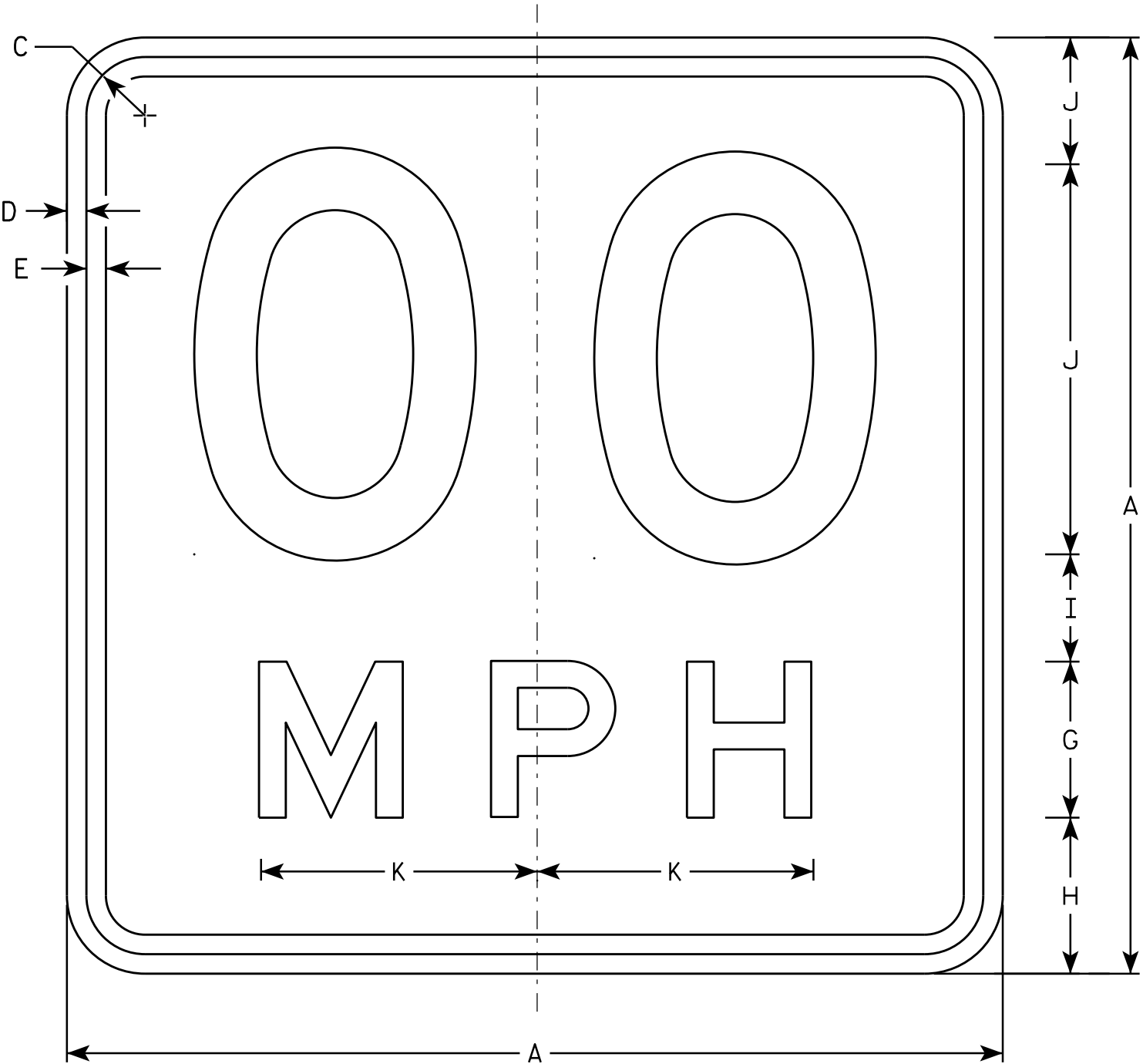
W05-52L & W05-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/20/13 PLATE *W05-52.1*

SHEET NO: E



W013-1

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 6
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 space about centerline to achieve proper balance.
6. Line 1 is Series D  
Line 2 is Series E

| 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<br>sq. ft. |
|------|----|---|-------|-----|-----|----|---|-------|-------|-------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 24 |   | 1 1/8 | 3/8 | 1/2 | 10 | 4 | 4     | 2 3/4 | 3 1/4 | 7 1/8  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 4.00            |
| 2S   | 36 |   | 1 5/8 | 5/8 | 3/4 | 16 | 6 | 5 1/2 | 4     | 4 1/2 | 10 5/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.00            |
| 2M   | 36 |   | 1 5/8 | 5/8 | 3/4 | 16 | 6 | 5 1/2 | 4     | 4 1/2 | 10 5/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.00            |
| 3    | 36 |   | 1 5/8 | 5/8 | 3/4 | 16 | 6 | 5 1/2 | 4     | 4 1/2 | 10 5/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.00            |
| 4    | 36 |   | 1 5/8 | 5/8 | 3/4 | 16 | 6 | 5 1/2 | 4     | 4 1/2 | 10 5/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.00            |
| 5    | 36 |   | 1 5/8 | 5/8 | 3/4 | 16 | 6 | 5 1/2 | 4     | 4 1/2 | 10 5/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.00            |

STANDARD SIGN  
W013-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
For State Traffic Engineer

DATE 11/21/13 PLATE 204 W013-1.1

PROJECT NO:

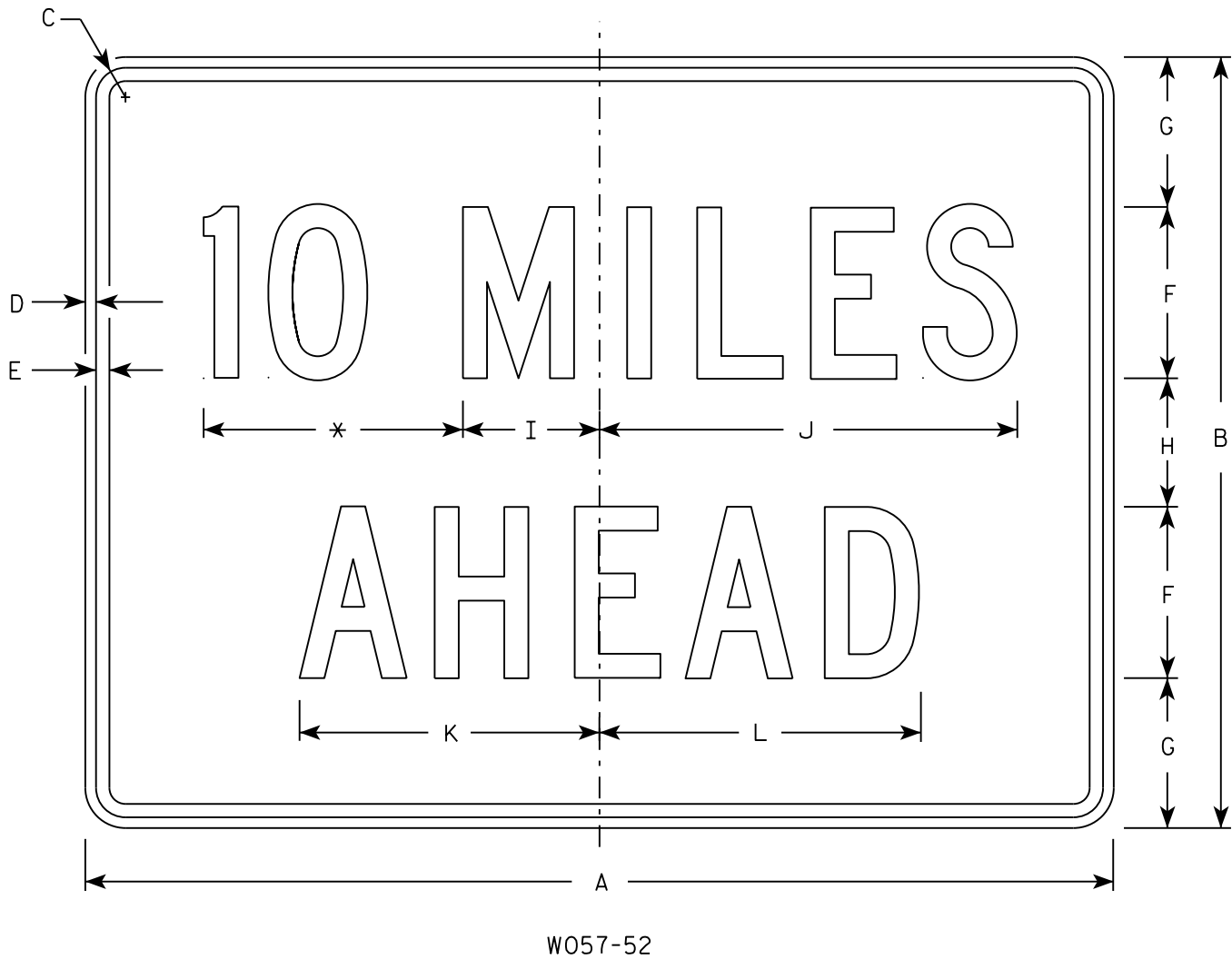
HWY:

COUNTY:

SHEET NO:

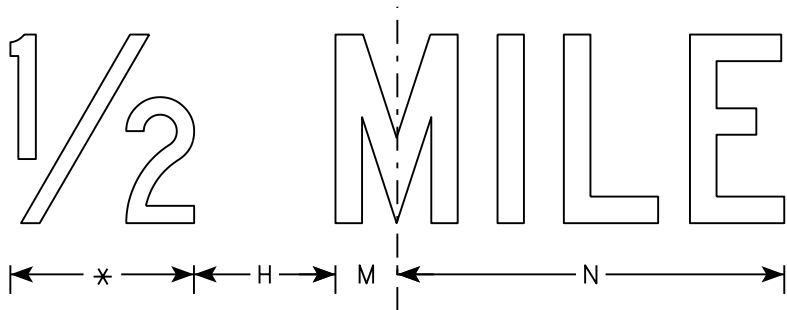
E





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.
5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.



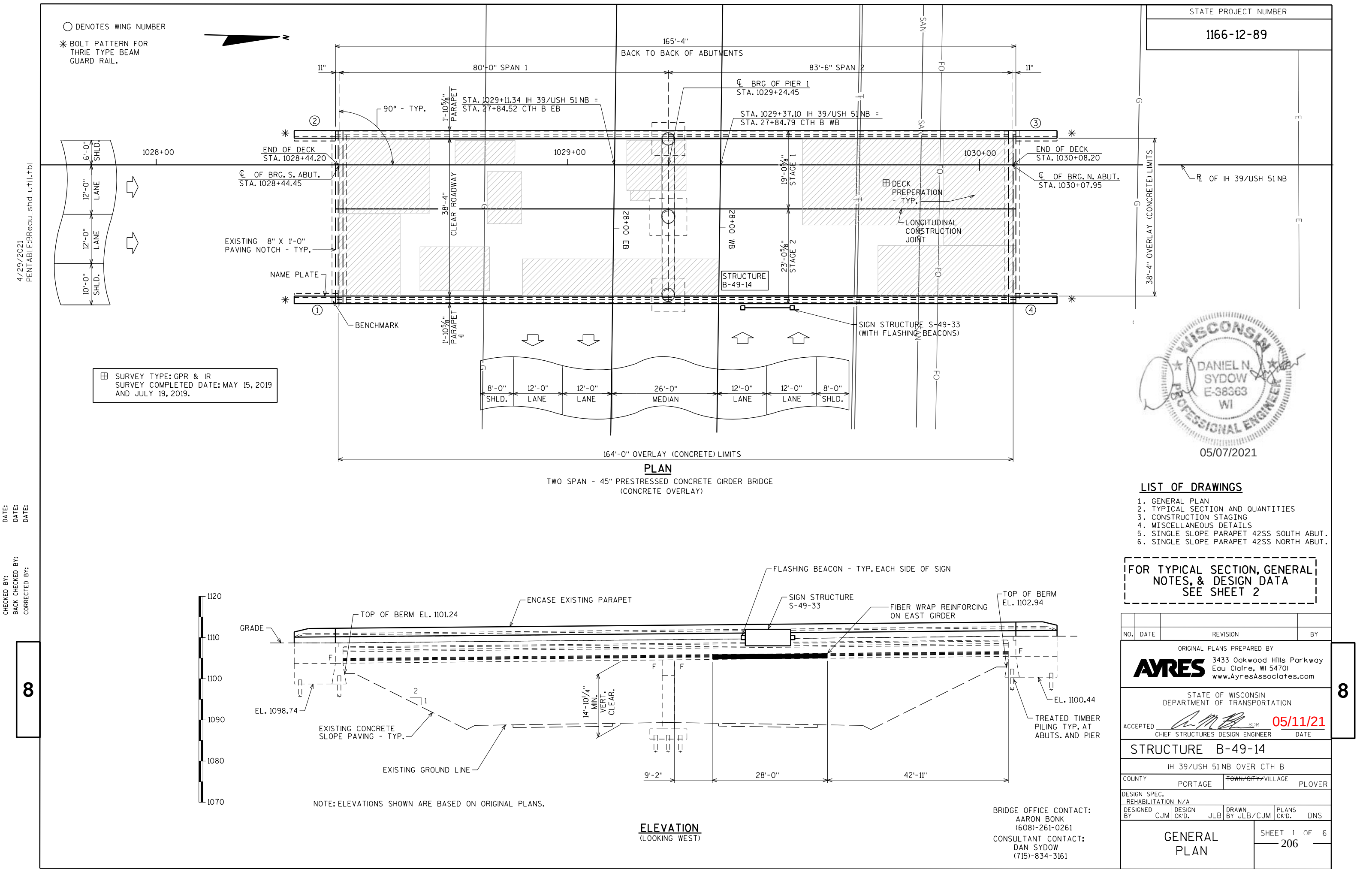
| SIZE | A  | B  | C     | D   | E   | F | G     | H | I     | J      | K      | L      | M     | N      | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|-------|---|-------|--------|--------|--------|-------|--------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 36 | 24 | 1 1/8 | 3/8 | 1/2 | 6 | 4 1/2 | 3 | 4 3/4 | 14 5/8 | 10 5/8 | 11 3/8 | 2     | 12     |   |   |   |   |   |   |   |   |   |   |   |   | 6.0             |
| 2S   | 48 | 36 | 1 3/8 | 1/2 | 5/8 | 8 | 7     | 6 | 6 3/8 | 19 1/2 | 14     | 15     | 2 3/4 | 16 3/8 |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |
| 2M   | 48 | 36 | 1 3/8 | 1/2 | 5/8 | 8 | 7     | 6 | 6 3/8 | 19 1/2 | 14     | 15     | 2 3/4 | 16 3/8 |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |
| 3    | 48 | 36 | 1 3/8 | 1/2 | 5/8 | 8 | 7     | 6 | 6 3/8 | 19 1/2 | 14     | 15     | 2 3/4 | 16 3/8 |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |
| 4    | 48 | 36 | 1 3/8 | 1/2 | 5/8 | 8 | 7     | 6 | 6 3/8 | 19 1/2 | 14     | 15     | 2 3/4 | 16 3/8 |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |
| 5    | 48 | 36 | 1 3/8 | 1/2 | 5/8 | 8 | 7     | 6 | 6 3/8 | 19 1/2 | 14     | 15     | 2 3/4 | 16 3/8 |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |

STANDARD SIGN  
W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W057-52.2



4/29/2021  
PENTABLE:BRequ...shd\_uHil.tbi

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS                                         | UNIT | TOTAL |
|-----------------|---------------------------------------------------|------|-------|
| ⊗ 203.0200      | REMOVING OLD STRUCTURE STATION 1029+24.39 NB      | LS   | 1     |
| 203.0210.S.01   | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-49-14 | LS   | 1     |
| 502.0100        | CONCRETE MASONRY BRIDGES                          | CY   | 40    |
| 502.3200        | PROTECTIVE SURFACE TREATMENT                      | SY   | 700   |
| 502.3210        | PIGMENTED SURFACE SEALER                          | SY   | 200   |
| 502.4205        | ADHESIVE ANCHORS NO. 5 BAR                        | EACH | 1,152 |
| 505.0600        | BAR STEEL REINFORCEMENT HS COATED STRUCTURES      | LB   | 5,660 |
| 509.0301        | PREPARATION DECKS TYPE 1                          | SY   | 180   |
| 509.0302        | PREPARATION DECKS TYPE 2                          | SY   | 75    |
| 509.0505.S      | CLEANING DECK TO REAPPLY CONCRETE MASONRY OVERLAY | SY   | 715   |
| ● 509.1500      | CONCRETE SURFACE REPAIR                           | SF   | 100   |
| 509.2000        | FULL DEPTH DECK REPAIR                            | SY   | 10    |
| ▲ 509.2500      | CONCRETE MASONRY OVERLAY DECKS                    | CY   | 82    |
| 509.9005.S.01   | REMOVING CONCRETE MASONRY DECK OVERLAY B-49-14    | SY   | 715   |
| SPV.0165.01     | FIBER WRAP REINFORCING NON-STRUCTURAL             | SF   | 110   |

- ⊗ BID ITEM INCLUDES REMOVAL AND SALVAGE OF THE EXISTING TUBULAR RAILINGS (INCLUDING HARDWARE) AND NAME PLATE TO THE DEPARTMENT.
- UNDISTRIBUTED FOR GIRDERS, ABUTMENTS AND PIER AS DIRECTED BY ENGINEER IN THE FIELD.
- ▲ BID ITEM INCLUDES CONCRETE FOR 1½" MIN. OVERLAY, PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR.

DESIGN DATA

LIVE LOAD:

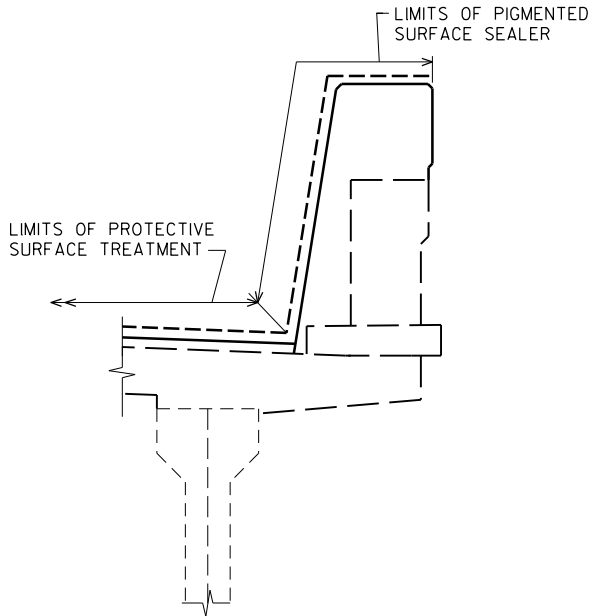
DESIGN LOADING: HS-20  
INVENTORY RATING: HS-14  
OPERATING RATING: HS-31  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 220 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY {DECK PATCHING, OVERLAY, & PARAPETS  $f'_c = 4,000$  p.s.i.  
ALL OTHER  $f'_c = 3,500$  p.s.i.  
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)  $f_y = 60,000$  p.s.i.

TRAFFIC DATA:

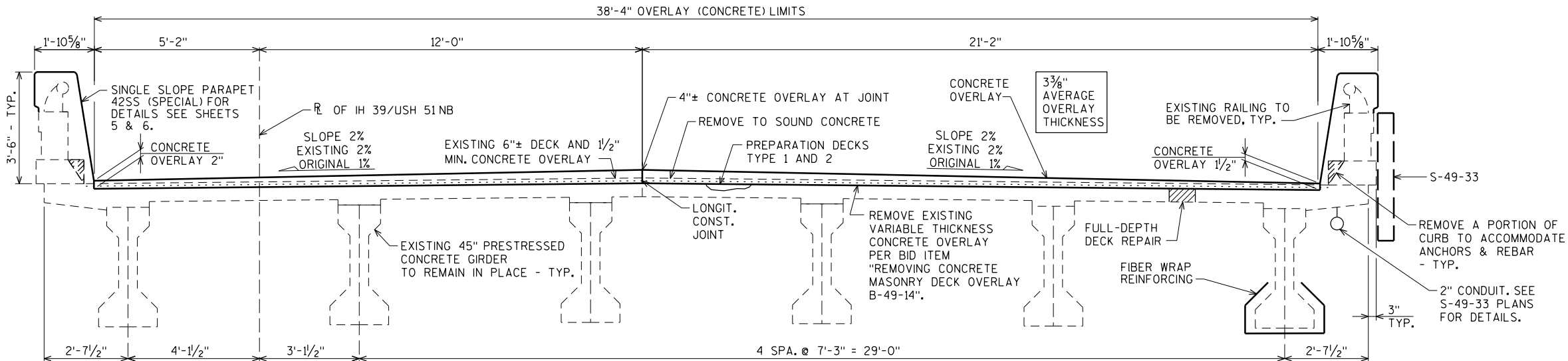
IH 39/USH 51NB CTH B  
A.A.D.T. = 24,620 (2022) A.A.D.T. = 18,408 (2022)  
R.D.S. = 70 M.P.H. R.D.S. = 50 M.P.H.



PROTECTIVE SURFACE TREATMENT AND  
PIGMENTED SURFACE SEALER DETAIL

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.  
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.  
ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER PREPARATION DECK BID ITEMS.  
PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER "REMOVING CONCRETE MASONRY DECK OVERLAY B-49-14". AVERAGE EXPECTED OVERLAY THICKNESS IS 3⅜". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.  
ALL CONCRETE REMOVAL NOT COVERED WITH CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SPECIFIED OTHERWISE.  
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF THE CONCRETE OVERLAY AND PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND FRONT FACE OF PARAPETS AS SHOWN ON THIS SHEET.  
BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS NOTED OTHERWISE.  
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".  
THE EXISTING CONCRETE OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID TIEM "REMOVING CONCRETE MASONRY DECK OVERLAY B-49-14".  
THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1969.  
"REMOVING OLD STRUCTURE STATION 1029+26.20 NB" SHALL INCLUDE THE METAL RAILING, ANY PORTION OF THE CURB REQUIRED TO MAINTAIN THE MINIMUM CONCRETE THICKNESS FOR THE NEW PARAPET AND ANY LOOSE CONCRETE ON THE EXISTING PARAPETS. AREAS SHALL BE DETERMINED BY THE FIELD ENGINEER.  
SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".  
THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.  
PREPARATION DECKS TYPE 1 AND TYPE 2, CONCRETE SURFACE REPAIR, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND DETERMINED BY THE ENGINEER IN THE FIELD. DECK PREPARATION AND FULL DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".  
SEALING CONCRETE OVERLAY CRACKS WITHIN 7 DAYS OF CURE COMPLETION IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".  
CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER.  
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



CROSS SECTION THRU BRIDGE  
(LOOKING NORTH)

ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

| NO.                                                | DATE | REVISION        | BY                  |
|----------------------------------------------------|------|-----------------|---------------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |                     |
| STRUCTURE B-49-14                                  |      |                 |                     |
| DRAWN BY JLB/CJM                                   |      | PLANS CK'D. JLB |                     |
| TYPICAL SECTION AND QUANTITIES                     |      |                 | SHEET 2 OF 6<br>207 |



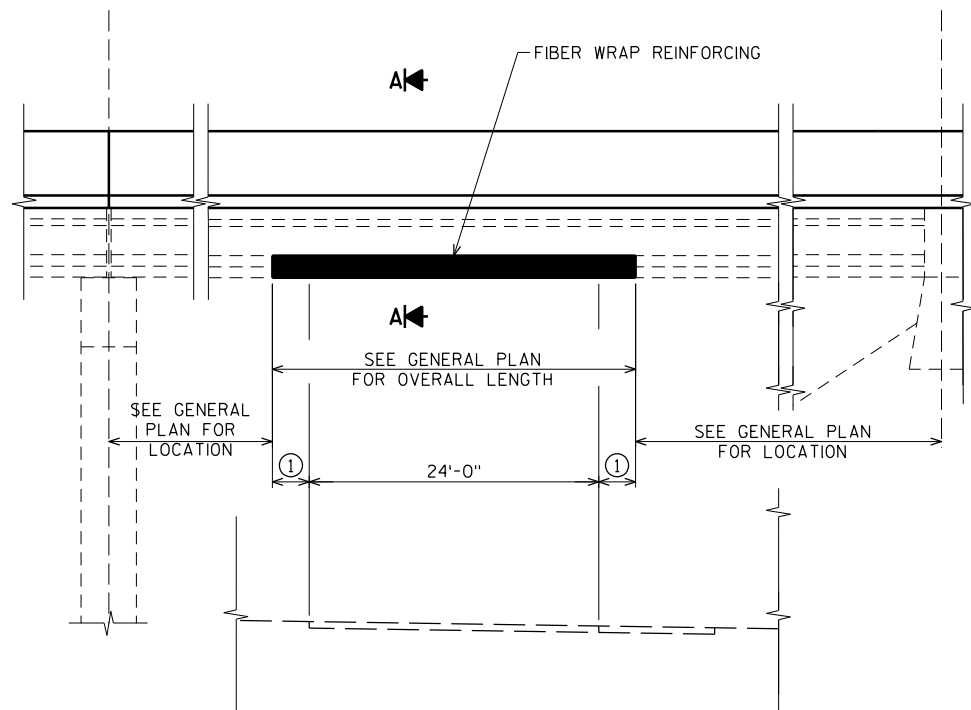
ORIGINAL PLANS PREPARED BY

**AYRES** 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
[www.AyresAssociates.com](http://www.AyresAssociates.com)

4/29/2021  
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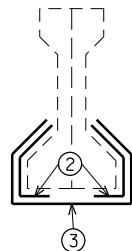
STATE PROJECT NUMBER

1166-12-89



**TYPICAL BRIDGE ELEVATION**

- ① 1'-0" MIN, 3'-0" MAX.
- ② FIRST LAYER - PLACE 24" WIDE FIBER WRAP REINFORCING LONGITUDINALLY ON GIRDERS, WITH FIBER ORIENTATION PARALLEL TO GIRDER CENTERLINE. LOCATE SHEETS ON BOTTOM CORNERS OF GIRDER AS SHOWN. FABRIC SHEETS MAY BE OVERLAPPED 6" MINIMUM IN THE LONGITUDINAL DIRECTION TO ACHIEVE FULL INSTALLATION LENGTH.
- ③ SECOND LAYER - PLACE FIBER WRAP REINFORCING TRANSVERSELY ON GIRDER, WITH FIBER ORIENTATION PERPENDICULAR TO GIRDER CENTERLINE. WRAP SHEETS ON BOTTOM AND SIDES OF GIRDER TO LIMITS SHOWN. BUTT JOINT WRAPS IN THE LONGITUDINAL DIRECTION TO ACHIEVE FULL INSTALLATION LENGTH.



**SECTION A**

45" PRESTRESSED GIRDER

8

8

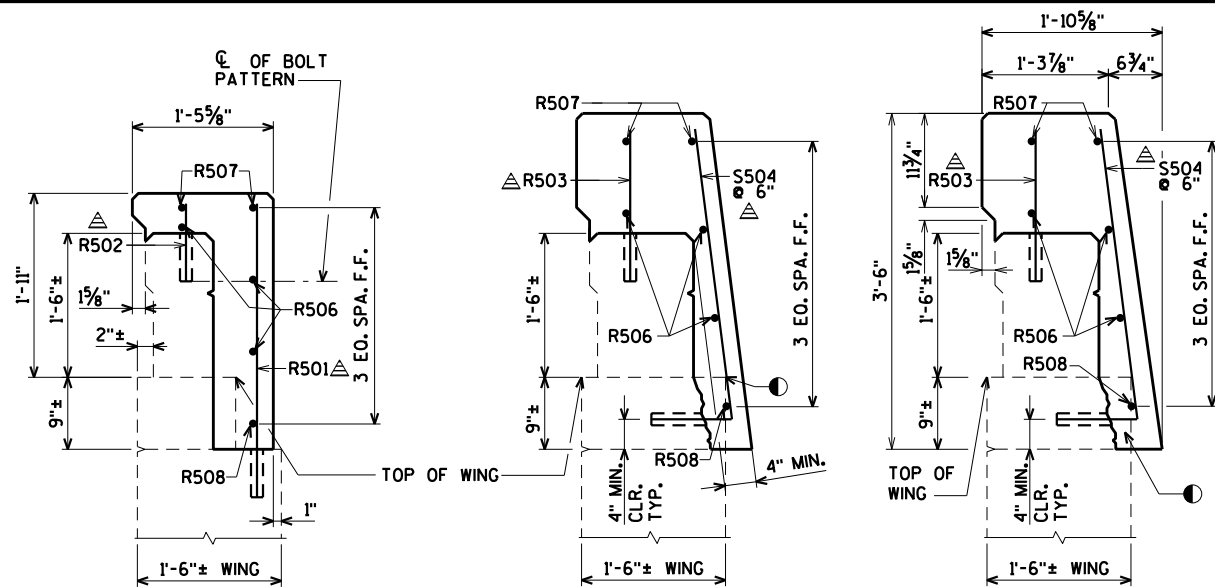
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|----------------------------------------------------|------|-----------------------|----|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                       |    |
| STRUCTURE B-49-14                                  |      |                       |    |
| DRAWN<br>BY C.J.M.                                 |      | PLANS<br>CK'D. J.L.B. |    |
| MISCELLANEOUS<br>DETAILS                           |      | SHEET 4 OF 6<br>209   |    |

ORIGINAL PLANS PREPARED BY

**AYRES**

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1/5/2021  
PENTABLE:BReau\_shd\_util.tbl

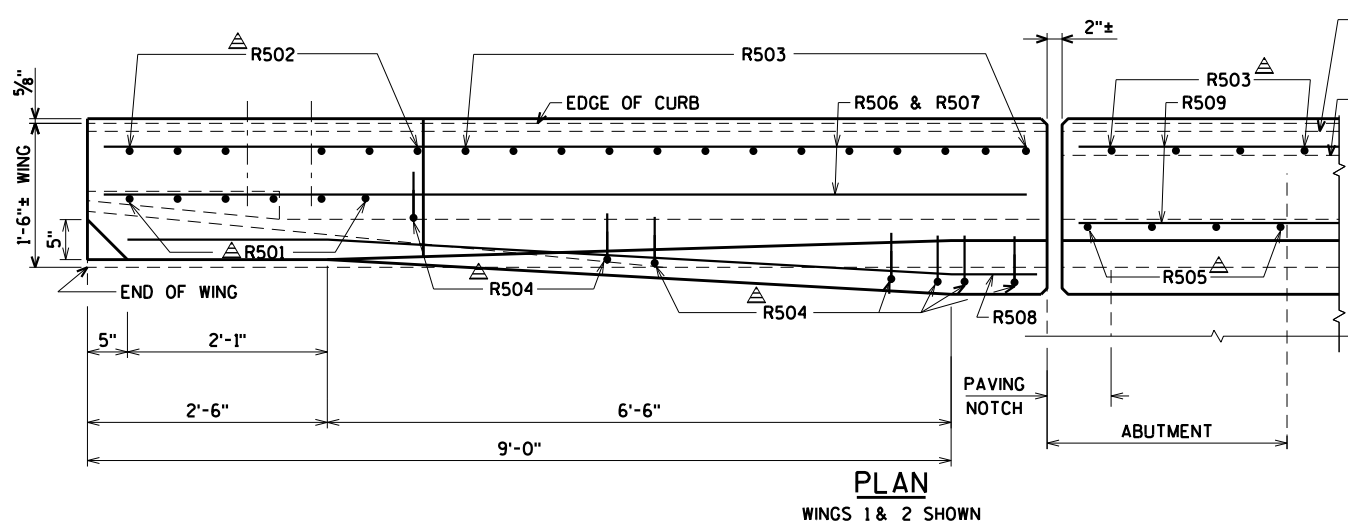


SECTION A-A

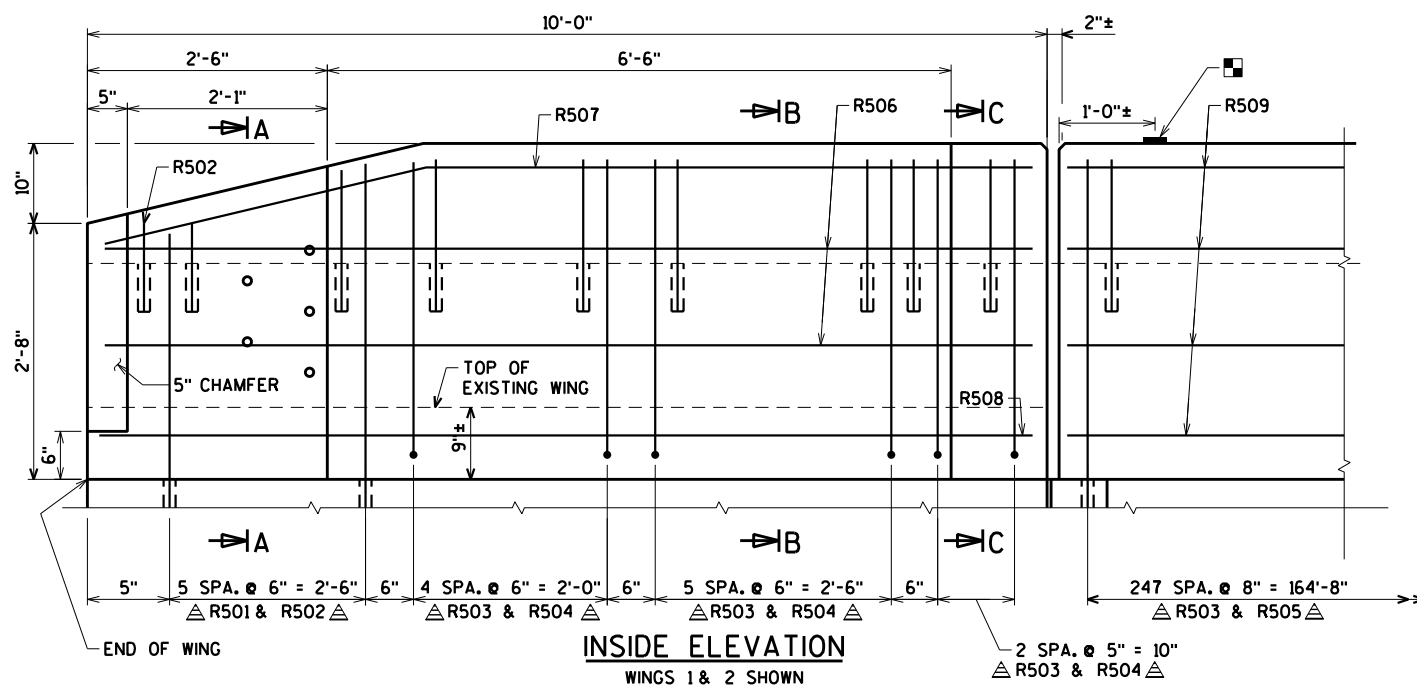
SECTION B-B

SECTION C-C

SECTION THRU PARAPET  
REPLACEMENT ON BRIDGE



PLAN  
WINGS 1 & 2 SHOWN

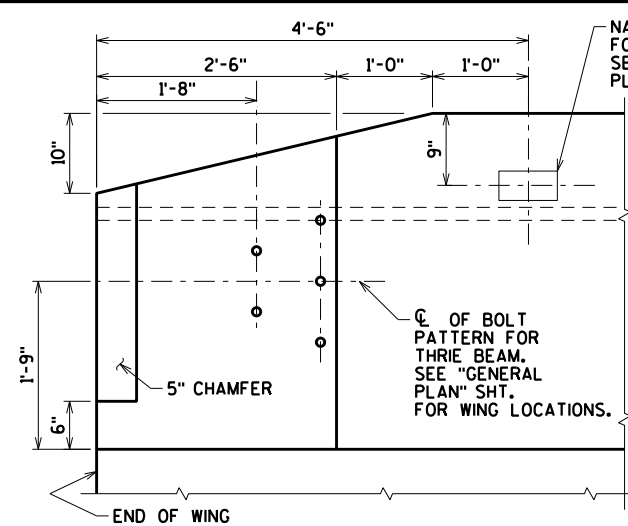
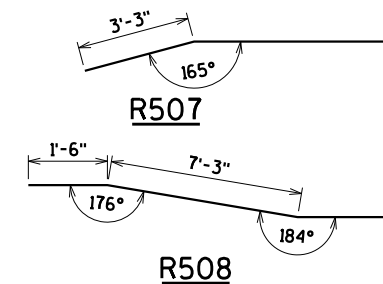
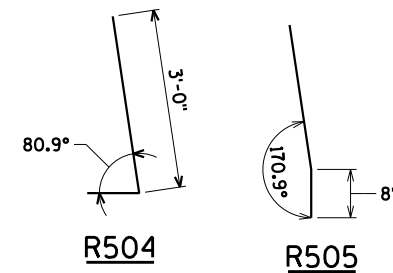


INSIDE ELEVATION  
WINGS 1 & 2 SHOWN

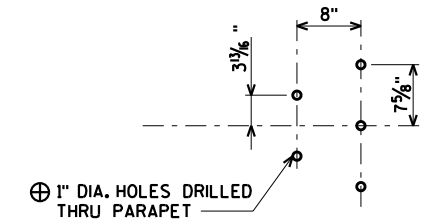
● REMOVE EXISTING CURB, PARAPET, AND TOP OF WING CONCRETE AS NEEDED TO MAINTAIN 4" MINIMUM NEW CONCRETE THICKNESS. PRESERVE EXISTING BAR STEEL.

△ ADHESIVE ANCHORS NO. 5 BARS, 8" MIN. EMBED.

■ BENCH MARK CAP (WHEN SUPPLIED).



PARAPET END TREATMENT DETAIL  
LOOKING AT INSIDE FACE OF PARAPET



DETAIL OF THRIE BEAM  
BOLT PATTERN

⊕ DRILLING BOLT HOLES THROUGH THE PARAPET IS INCIDENTAL TO THE ITEM "CONCRETE MASONRY BRIDGES".

BILL OF BARS

| BAR NO. | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED | BAR SERIES | 5,660* COATED                |
|---------|------------|------------|--------|----------|---------|------------|------------------------------|
|         |            |            |        |          |         |            | LOCATION                     |
| △ R501  | X          | 24         | 3-2    |          |         | ⊗          | PARAPET VERT. ANCHOR WING    |
| △ R502  | X          | 24         | 1-4    |          |         | ⊗          | PARAPET VERT. ANCHOR PARAPET |
| △ R503  | X          | 552        | 1-9    |          |         |            | PARAPET VERT. ANCHOR PARAPET |
| △ R504  | X          | 56         | 3-9    | X        |         |            | PARAPET VERT. ANCHOR CURB    |
| △ R505  | X          | 496        | 3-9    | X        |         |            | PARAPET VERT. ANCHOR DECK    |
| R506    | X          | 12         | 9-8    |          |         |            | PARAPET HORIZ. WING          |
| R507    | X          | 8          | 10-0   | X        |         |            | PARAPET HORIZ. WING TOP      |
| R508    | X          | 4          | 9-8    | X        |         |            | PARAPET HORIZ. WING BOT.     |
| R509    | X          | 36         | 57-0   |          |         |            | PARAPET HORIZ.               |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

| BAR MARK | NO REQ'D.     | LENGTH          |
|----------|---------------|-----------------|
| R501     | 4 SERIES OF 6 | 2'-10" TO 3'-6" |
| R502     | 4 SERIES OF 6 | 1'-1" TO 1'-7"  |

BUNDLE AND TAG EACH SERIES SEPARATELY.

|                                                    |      |                     |    |
|----------------------------------------------------|------|---------------------|----|
| NO.                                                | DATE | REVISION            | BY |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |    |
| STRUCTURE B-49-14                                  |      |                     |    |
| DRAWN BY CJM                                       |      | PLANS CK'D. JLB     |    |
| SINGLE SLOPE<br>PARAPET 42SS<br>SOUTH ABUT.        |      | SHEET 5 OF 6<br>210 |    |

ORIGINAL PLANS PREPARED BY

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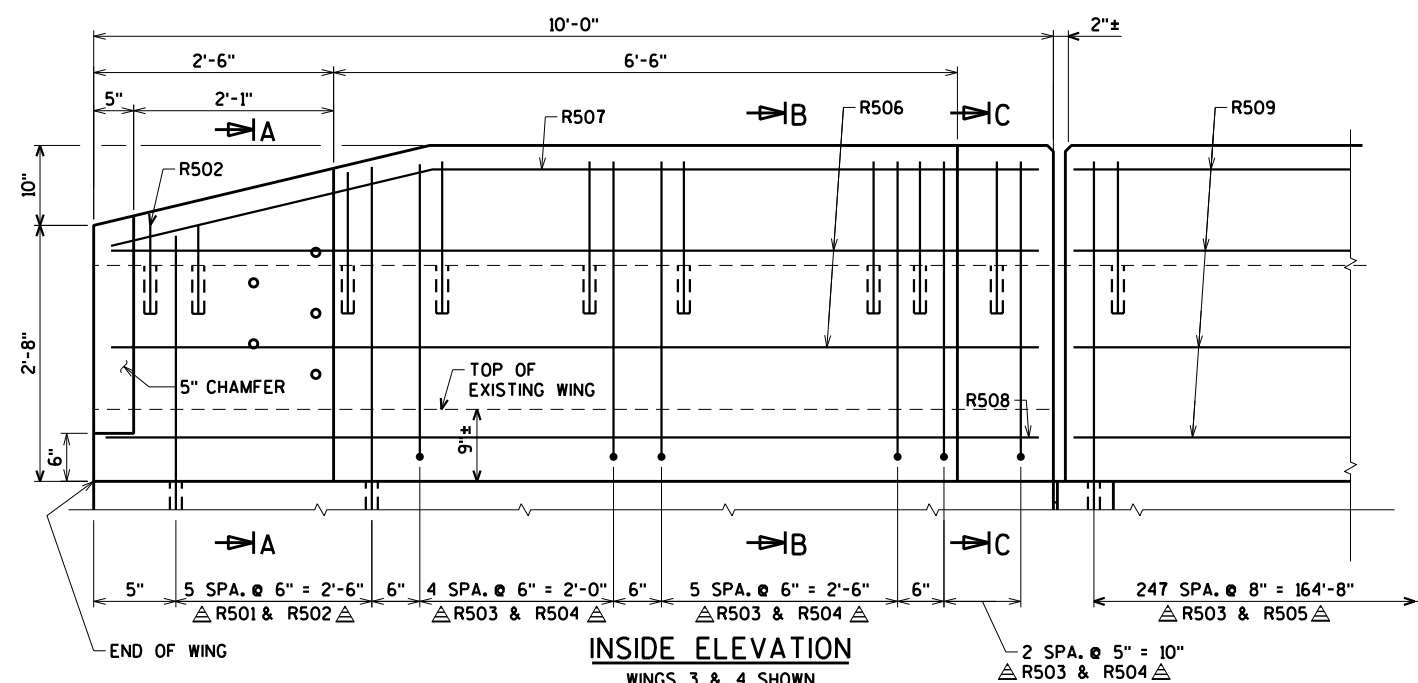




Diagram illustrating the elevation view of the bridge structure, showing the deck, curb, and abutment. Key components and dimensions are labeled:

- Deck and Curb:** The main horizontal structure. The curb is labeled "EDGE OF CURB". The deck surface is labeled "EDGE OF EXISTING PARAPET".
- Dimensions:**
  - Overall width:  $1'-6" \pm$  WING.
  - Top width:  $5/8"$ .
  - Bottom width:  $2"-1"$  and  $2'-6"$ .
  - Length of wing:  $9'-0"$ .
  - Length of abutment:  $6'-6"$ .
  - Abutment width:  $2'-0"$ .
- Structural Details:**
  - R501:** Reinforcement bar at the end of the wing.
  - R502:** Reinforcement bar at the end of the wing.
  - R503:** Reinforcement bar at the edge of the curb.
  - R504:** Reinforcement bar at the edge of the curb.
  - R505:** Reinforcement bar at the edge of the deck.
  - R506 & R507:** Reinforcement bars at the edge of the curb.
  - R508:** Reinforcement bar at the edge of the curb.
  - R509:** Reinforcement bar at the edge of the deck.
- Other Labels:**
  - END OF WING:** The left end of the wing.
  - PAVING NOTCH:** A notch in the curb.
  - ABUTMENT:** The structure supporting the deck.

PLAN  
WINGS 3 & 4 SHOWN



INSIDE ELEVATION  
WINGS 3 & 4 SHOWN

- |                                                    |      |                         |                 |
|----------------------------------------------------|------|-------------------------|-----------------|
| NO.                                                | DATE | REVISION                | BY              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                         |                 |
| STRUCTURE B-49-14                                  |      |                         |                 |
| DRAWN BY                                           |      | CJM                     | PLANS CK'D. JLB |
| SINGLE SLOPE<br>PARAPET 42SS<br>NORTH ABUT.        |      | SHEET 6 OF 6<br>— 211 — |                 |

1166-12-89

\* BOLT PATTERN FOR  
THRIE TYPE BEAM  
GUARD RAIL.



90° - TYP.

83'-6" SPAN 2

NAME PLATE

END OF DECK  
STA 1030+08.85

$$\frac{\text{STA. 1029+37.79 IH 39/USH 51 SB} =}{\text{STA. 27+24.79 CTH B WB}}$$

to

☐ SURVEY TYPE: GPR & IR  
SURVEY COMPLETED DATE: MAY 15, 2019  
AND JULY 19, 2019.

A circular professional engineer seal for the State of Wisconsin. The outer ring contains the text "WISCONSIN" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The center of the seal contains the name "DANIEL N. SYDOW", the license number "E-388663", and the state abbreviation "WI". The seal is stamped over a document that includes a signature and the date "12/1/2011".

05/07/2021

1. GENERAL PLAN
2. TYPICAL SECTION AND QUANTITIES
3. CONSTRUCTION STAGING
4. MISCELLANEOUS DETAILS
5. SINGLE SLOPE PARAPET 42SS SOUTH ABUT.
6. SINGLE SLOPE PARAPET 42SS NORTH ABUT.

FOR TYPICAL SECTION, GENERAL  
NOTES, & DESIGN DATA  
SEE SHEET 2

|     |      |          |    |
|-----|------|----------|----|
|     |      |          |    |
| NO. | DATE | REVISION | BY |

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Eau Claire, WI 54701  
[www.AyresAssociates.com](http://www.AyresAssociates.com)

ACCEPTED  SDR 05/11/21  
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-49-15

|                            |         |                   |       |
|----------------------------|---------|-------------------|-------|
| IH 39/USH 51 SB OVER CTH B |         |                   |       |
| COUNTY                     | PORTAGE | TOWN/CITY/VILLAGE | PLOVE |

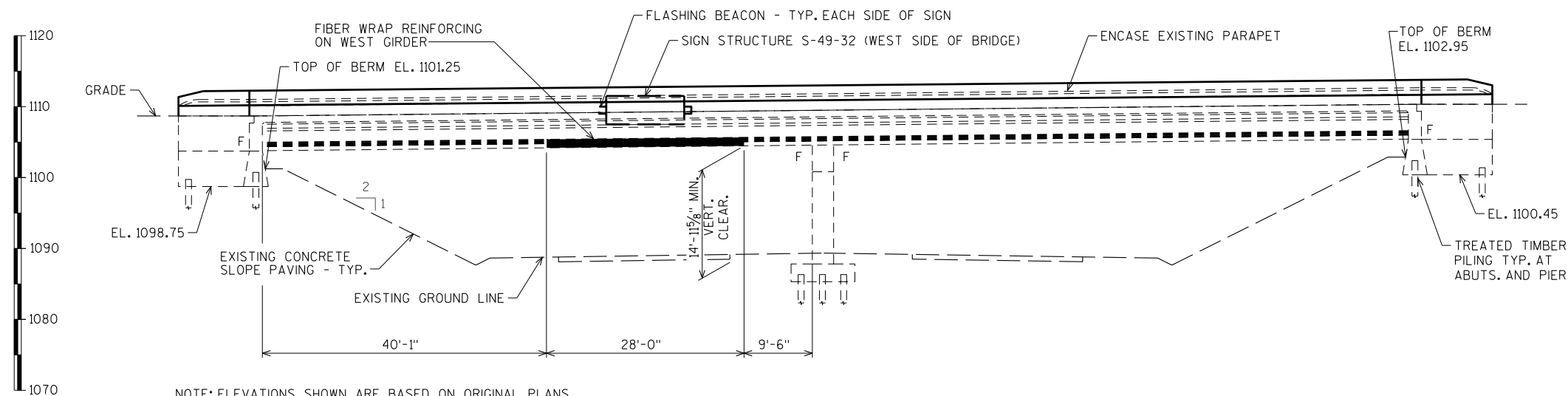
|                    |  |                     |                     |                    |
|--------------------|--|---------------------|---------------------|--------------------|
| DESIGNED<br>BY CJM |  | DESIGN<br>CK'D. JLB | DRAWN<br>BY JLB/CJM | PLANS<br>CK'D. DNS |
|--------------------|--|---------------------|---------------------|--------------------|

# GENERAL PLAN

SHEET 1 OF 1  
212

BRIDGE OFFICE CONTACT:  
AARON BONK  
(608)-261-0261  
CONSULTANT CONTACT:  
DAN SYDOW  
(715)-834-3161

TWO SPAN - 45" PRESTRESSED CONCRETE GIRDER BRIDGE  
(CONCRETE OVERLAY)

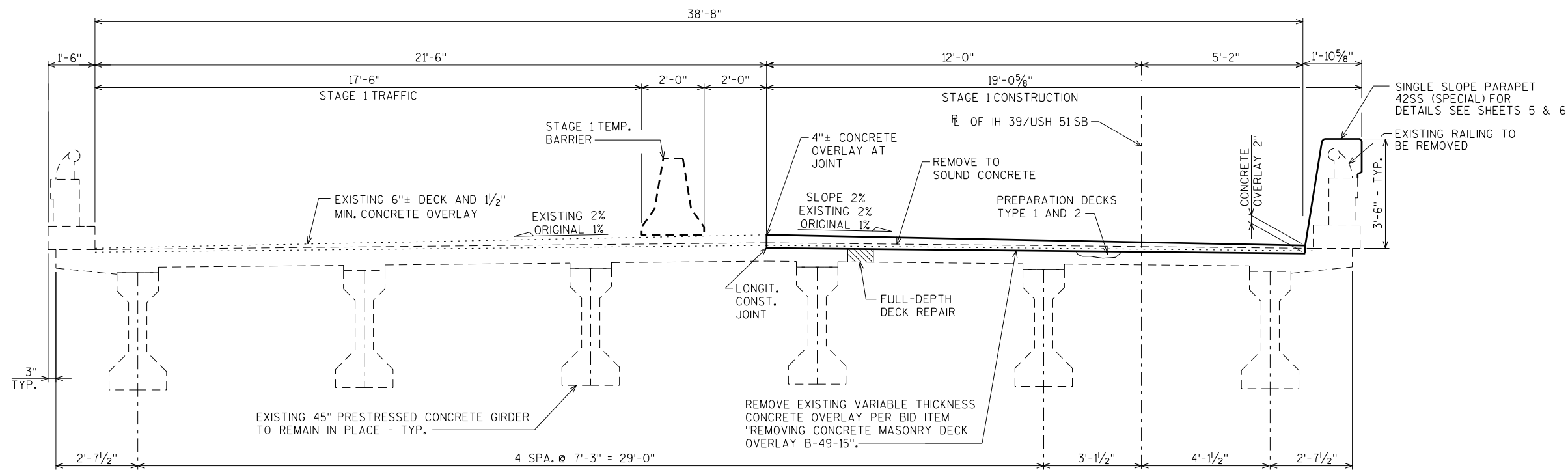


NOTE: ELEVATIONS SHOWN ARE BASED ON ORIGINAL PLANS.

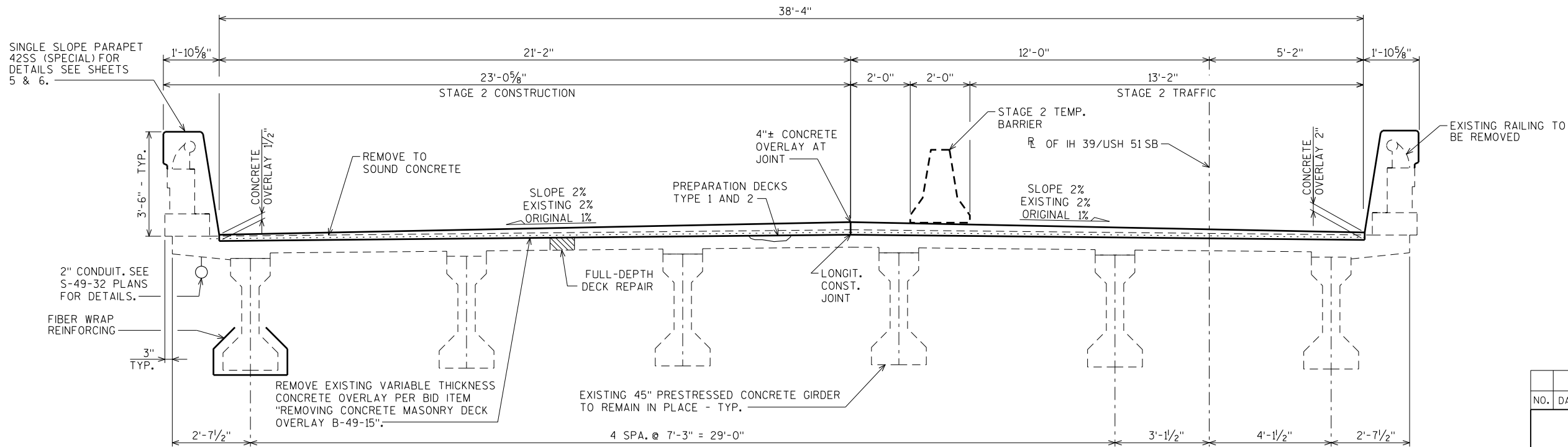
ELEVATION  
(LOOKING WEST)



|   | BID ITEM<br>NUMBER | BID ITEMS                                         | UNIT | TOTAL |
|---|--------------------|---------------------------------------------------|------|-------|
| ⊗ | 203.0200           | REMOVING OLD STRUCTURE STATION 1029+26.85 SB      | LS   | 1     |
|   | 203.0210.S.02      | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-49-15 | LS   | 1     |
|   | 502.0100           | CONCRETE MASONRY BRIDGES                          | CY   | 40    |
|   | 502.3200           | PROTECTIVE SURFACE TREATMENT                      | SY   | 700   |
|   | 502.3210           | PIGMENTED SURFACE SEALER                          | SY   | 200   |
|   | 502.4205           | ADHESIVE ANCHORS NO. 5 BAR                        | EACH | 1,152 |
|   | 505.0600           | BAR STEEL REINFORCEMENT HS COATED STRUCTURES      | LB   | 5,660 |
|   | 509.0301           | PREPARATION DECKS TYPE 1                          | SY   | 180   |
|   | 509.0302           | PREPARATION DECKS TYPE 2                          | SY   | 75    |
|   | 509.0505.S         | CLEANING DECK TO REAPPLY CONCRETE MASONRY OVERLAY | SY   | 715   |
| ⊙ | 509.1500           | CONCRETE SURFACE REPAIR                           | SF   | 100   |
|   | 509.2000           | FULL DEPTH DECK REPAIR                            | SY   | 10    |
| ▲ | 509.2500           | CONCRETE MASONRY OVERLAY DECKS                    | CY   | 81    |
|   | 509.9005.S.02      | REMOVING CONCRETE MASONRY DECK OVERLAY B-49-15    | SY   | 715   |
|   | SPV.0165.01        | FIBER WRAP REINFORCING NON-STRUCTURAL             | SF   | 110   |



**CROSS SECTION THRU BRIDGE - STAGE 1**  
(LOOKING NORTH)



**CROSS SECTION THRU BRIDGE**  
(LOOKING NORTH)

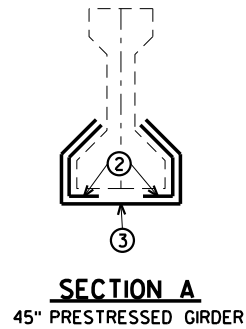
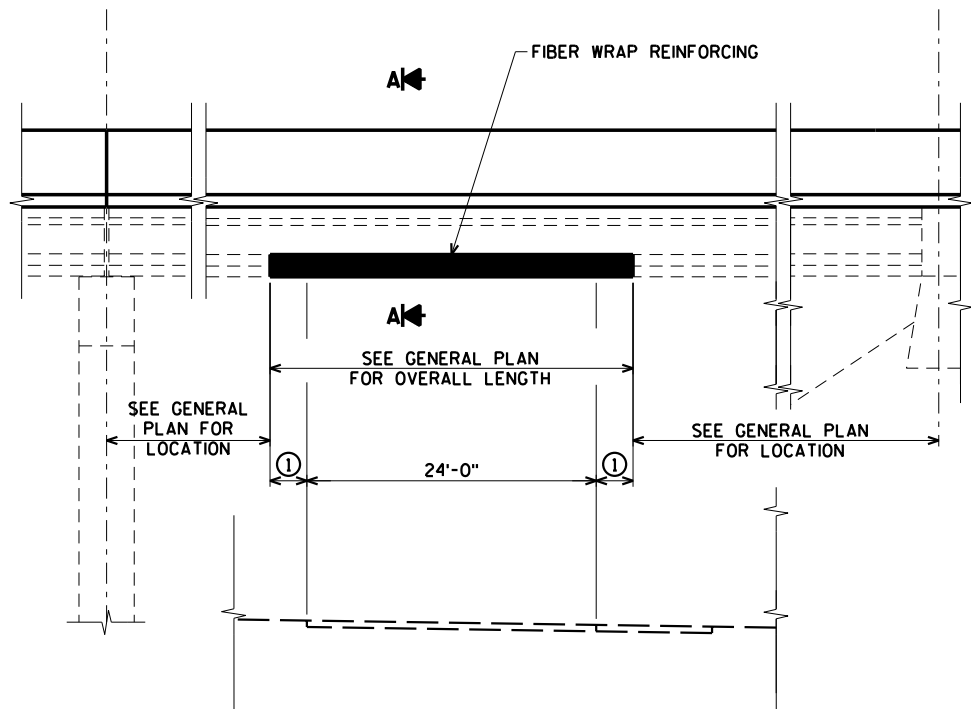
| NO.                                                | DATE | REVISION            | BY |
|----------------------------------------------------|------|---------------------|----|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |    |
| STRUCTURE B-49-15                                  |      |                     |    |
| DRAWN<br>BY JLB/CJM                                |      | PLANS<br>CK'D. JLB  |    |
| CONSTRUCTION<br>STAGING                            |      | SHEET 3 OF 6<br>214 |    |

ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

1/4/2021  
PENTABLE:BRequ...shd\_uHil.tbl

STATE PROJECT NUMBER

1166-12-89



**TYPICAL BRIDGE ELEVATION**

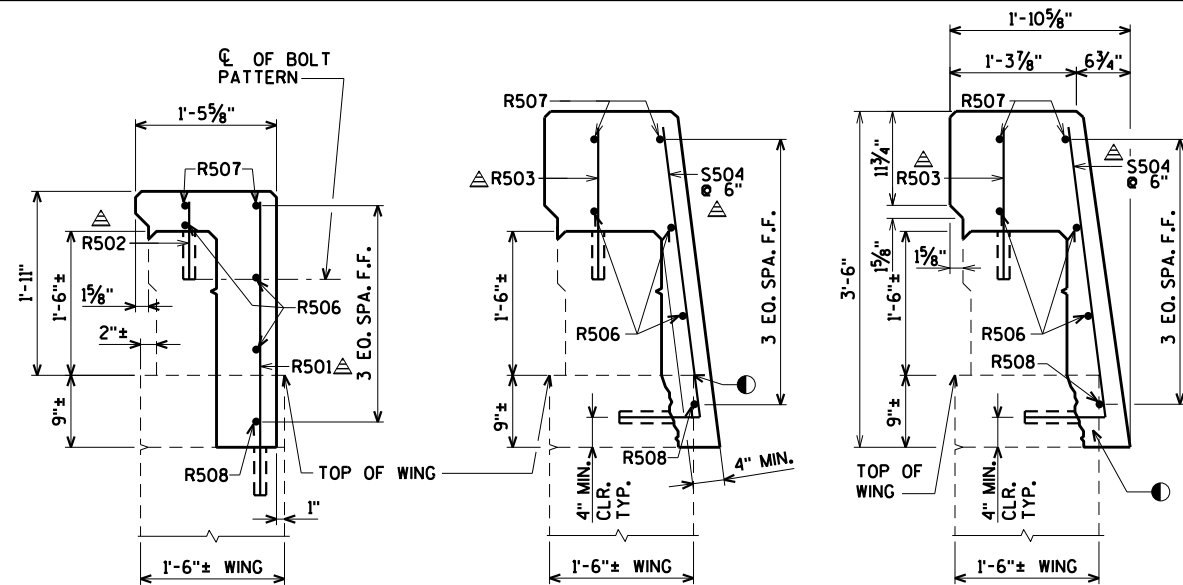
- ① 1'-0" MIN, 3'-0" MAX.
- ② FIRST LAYER - PLACE 24" WIDE FIBER WRAP REINFORCING LONGITUDINALLY ON GIRDERS, WITH FIBER ORIENTATION PARALLEL TO GIRDER CENTERLINE. LOCATE SHEETS ON BOTTOM CORNERS OF GIRDER AS SHOWN. FABRIC SHEETS MAY BE OVERLAPPED 6" MINIMUM IN THE LONGITUDINAL DIRECTION TO ACHIEVE FULL INSTALLATION LENGTH.
- ③ SECOND LAYER - PLACE FIBER WRAP REINFORCING TRANSVERSELY ON GIRDER, WITH FIBER ORIENTATION PERPENDICULAR TO GIRDER CENTERLINE. WRAP SHEETS ON BOTTOM AND SIDES OF GIRDER TO LIMITS SHOWN. BUTT JOINT WRAPS IN THE LONGITUDINAL DIRECTION TO ACHIEVE FULL INSTALLATION LENGTH.

8

8

|                                                    |      |                       |    |
|----------------------------------------------------|------|-----------------------|----|
| NO.                                                | DATE | REVISION              | BY |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                       |    |
| STRUCTURE B-49-15                                  |      |                       |    |
| DRAWN<br>BY C.J.M.                                 |      | PLANS<br>CK'D. J.L.B. |    |
| MISCELLANEOUS<br>DETAILS                           |      | SHEET 4 OF 6<br>215   |    |

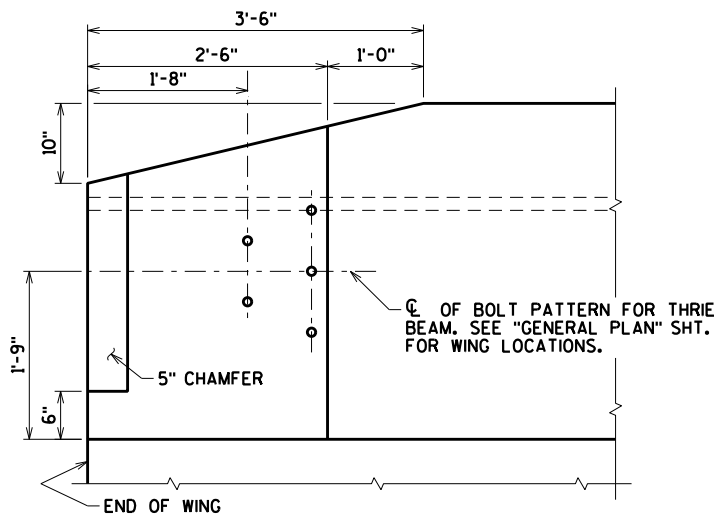
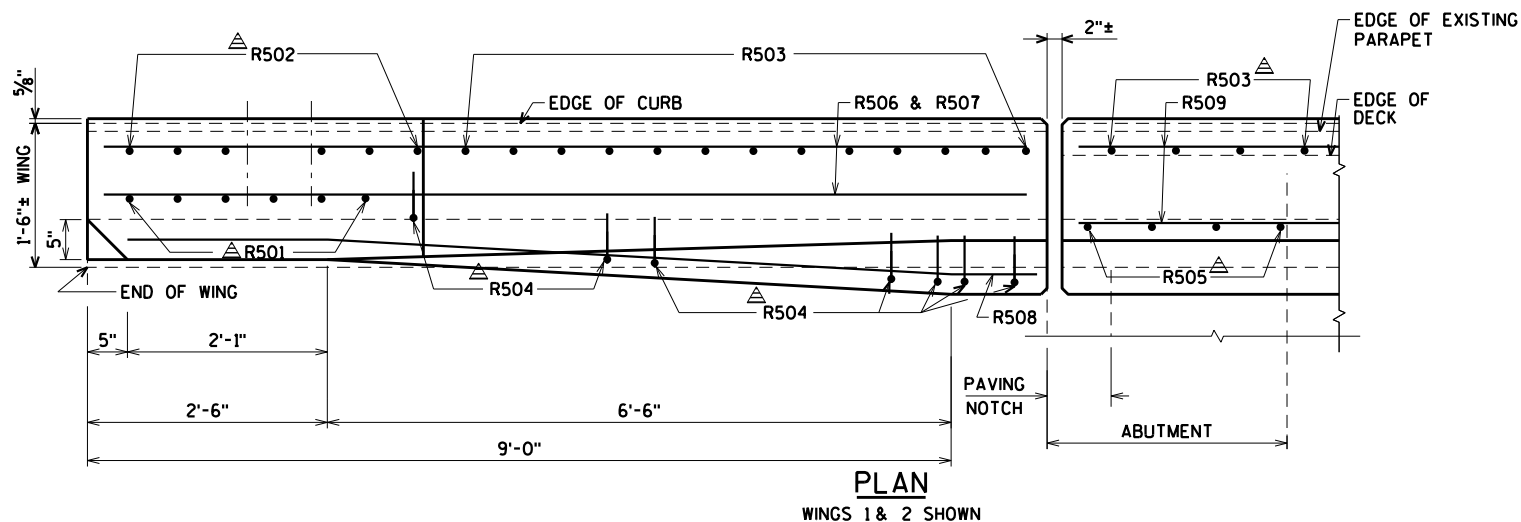
ORIGINAL PLANS PREPARED BY  
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Eau Claire, WI 54701  
www.AyresAssociates.com



SECTION A-A

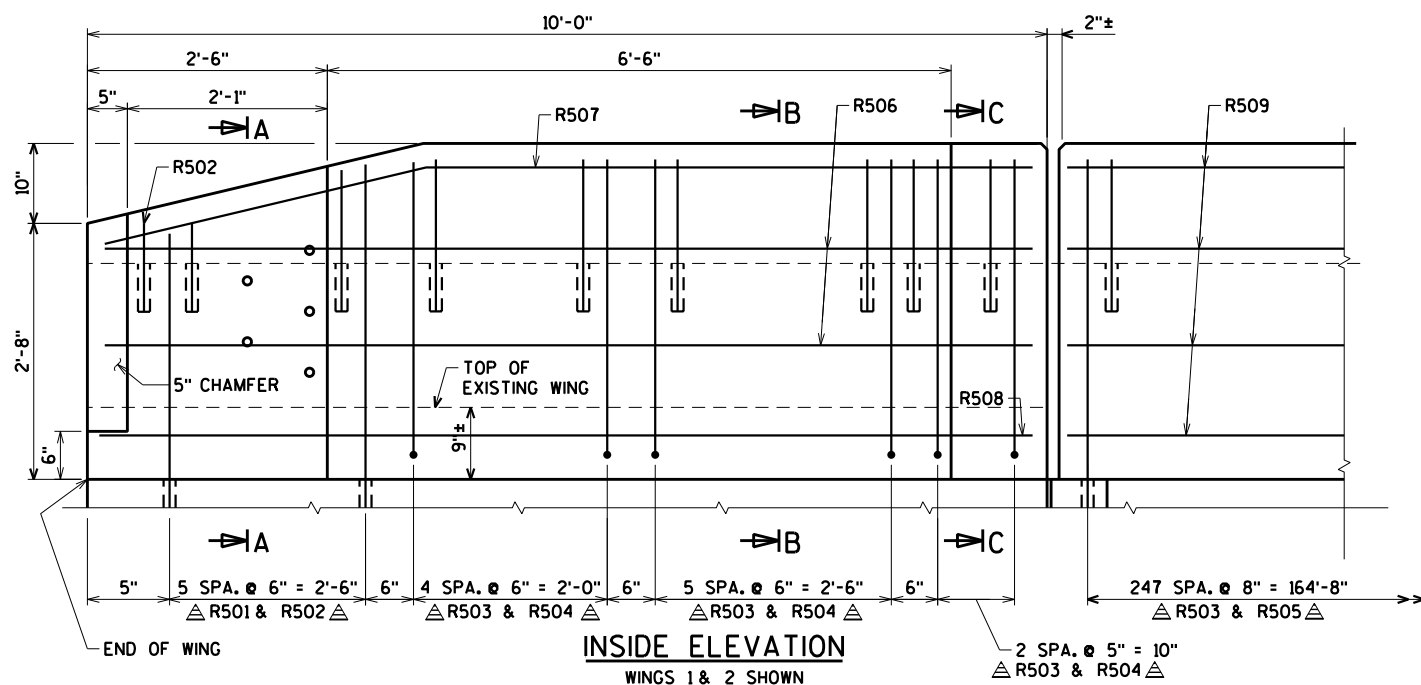
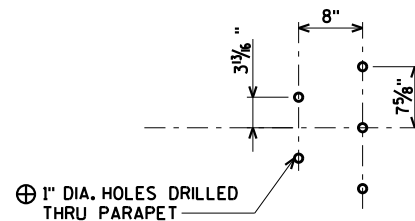
SECTION B-B

SECTION C-C

SECTION THRU PARAPET  
REPLACEMENT ON BRIDGEPARAPET END TREATMENT DETAIL  
LOOKING AT INSIDE FACE OF PARAPETPLAN  
WINGS 1 & 2 SHOWN

● REMOVE EXISTING CURB, PARAPET, AND TOP OF WING CONCRETE AS NEEDED TO MAINTAIN 4" MINIMUM NEW CONCRETE THICKNESS. PRESERVE EXISTING BAR STEEL.

△ ADHESIVE ANCHORS NO. 5 BARS, 8" MIN. EMBED.

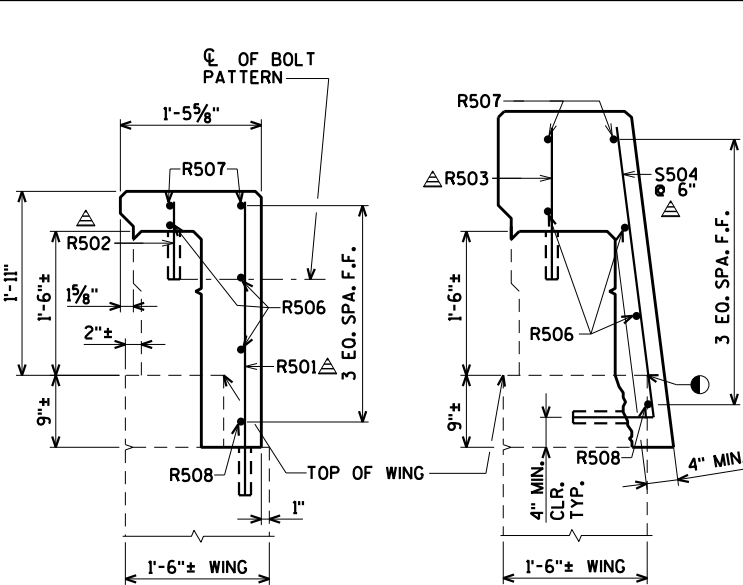
INSIDE ELEVATION  
WINGS 1 & 2 SHOWNDETAIL OF THRIE BEAM  
BOLT PATTERN

⊕ DRILLING BOLT HOLES THROUGH THE PARAPET IS INCIDENTAL TO THE ITEM "CONCRETE MASONRY BRIDGES".

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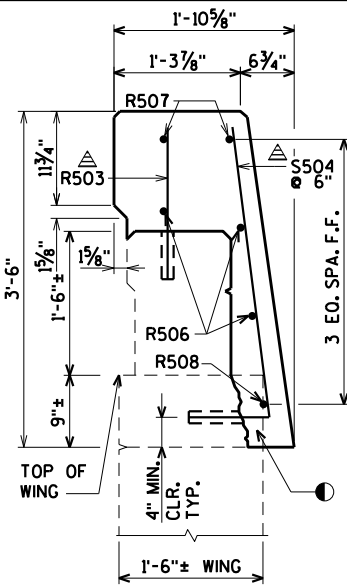
| NO.                                                | DATE | REVISION            | BY |
|----------------------------------------------------|------|---------------------|----|
|                                                    |      |                     |    |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |    |
| STRUCTURE B-49-15                                  |      |                     |    |
| DRAWN BY CJM                                       |      | PLANS CK'D. JLB     |    |
| SINGLE SLOPE<br>PARAPET 42SS<br>SOUTH ABUT.        |      | SHEET 5 OF 6<br>216 |    |

1/5/2021  
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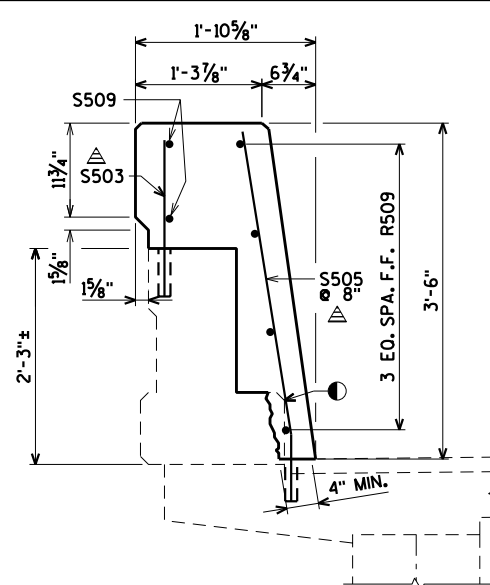


SECTION A-A

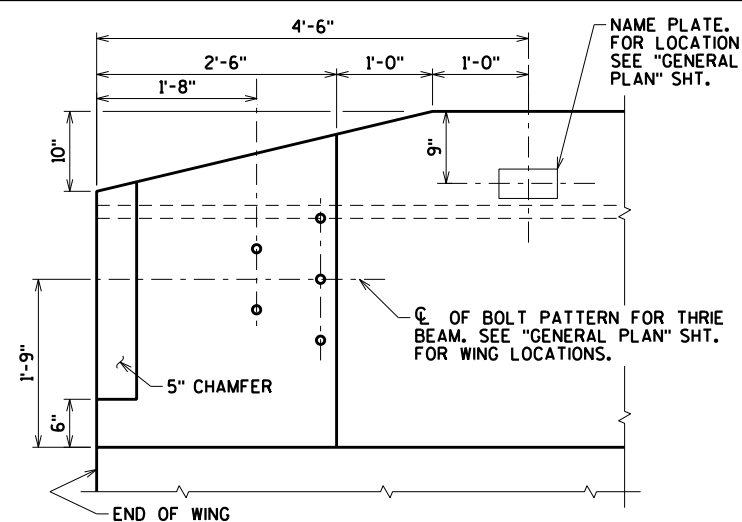
SECTION B-B



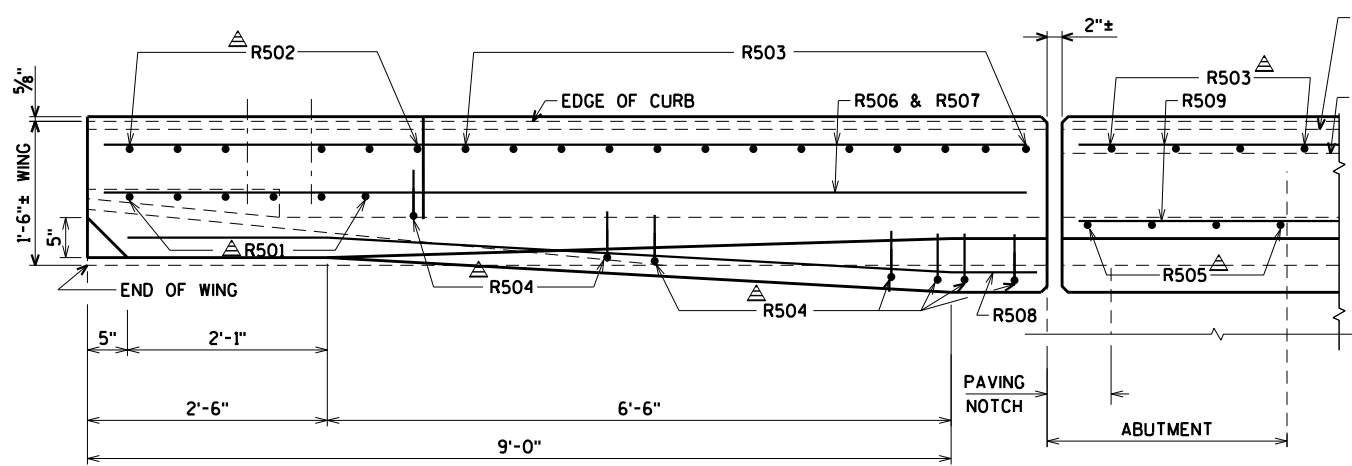
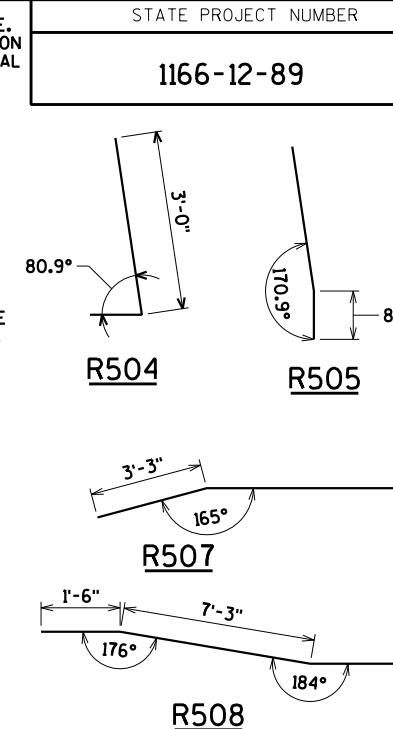
SECTION C-C



SECTION THRU PARAPET  
REPLACEMENT ON BRIDGE



PARAPET END TREATMENT DETAIL  
LOOKING AT INSIDE FACE OF PARAPET



PLAN  
WINGS 3 & 4 SHOWN

- REMOVE EXISTING CURB, PARAPET, AND TOP OF WING CONCRETE AS NEEDED TO MAINTAIN 4" MINIMUM NEW CONCRETE THICKNESS. PRESERVE EXISTING BAR STEEL.
- ▲ ADHESIVE ANCHORS NO. 5 BARS, 8" MIN. EMBED.
- BENCH MARK CAP (WHEN SUPPLIED).

BILL OF BARS

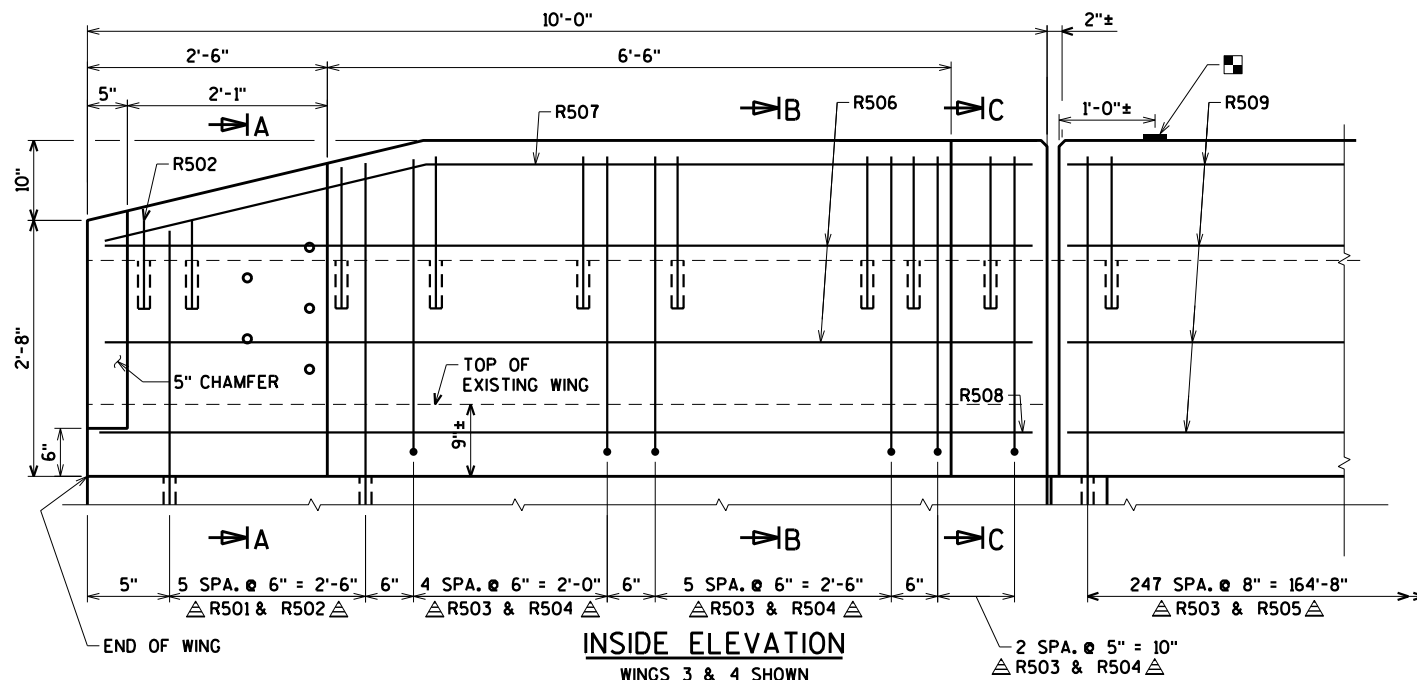
| BAR NO. | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED | BAR SERIES | 5,660* COATED                |
|---------|------------|------------|--------|----------|---------|------------|------------------------------|
|         |            |            |        |          |         |            | LOCATION                     |
| ▲ R501  | X          | 24         | 3'-2"  |          |         | ⊗          | PARAPET VERT. ANCHOR WING    |
| ▲ R502  | X          | 24         | 1'-4"  |          |         | ⊗          | PARAPET VERT. ANCHOR PARAPET |
| ▲ R503  | X          | 552        | 1'-9"  |          |         |            | PARAPET VERT. ANCHOR PARAPET |
| ▲ R504  | X          | 56         | 3'-9"  | X        |         |            | PARAPET VERT. ANCHOR CURB    |
| ▲ R505  | X          | 496        | 3'-9"  | X        |         |            | PARAPET VERT. ANCHOR DECK    |
| R506    | X          | 12         | 9'-8"  |          |         |            | PARAPET HORIZ. WING          |
| R507    | X          | 8          | 10'-0" | X        |         |            | PARAPET HORIZ. WING TOP      |
| R508    | X          | 4          | 9'-8"  | X        |         |            | PARAPET HORIZ. WING BOT.     |
| R509    | X          | 36         | 57'-0" |          |         |            | PARAPET HORIZ.               |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.  
⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

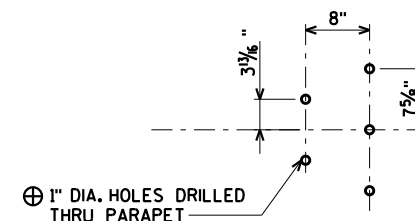
BAR SERIES TABLE

| BAR MARK | NO REQ'D.     | LENGTH          |
|----------|---------------|-----------------|
| R501     | 4 SERIES OF 6 | 2'-10" TO 3'-6" |
| R502     | 4 SERIES OF 6 | 1'-1" TO 1'-7"  |

BUNDLE AND TAG EACH SERIES SEPARATELY.



INSIDE ELEVATION  
WINGS 3 & 4 SHOWN



DETAIL OF THRIE BEAM  
BOLT PATTERN

⊕ DRILLING BOLT HOLES THROUGH THE PARAPET IS INCIDENTAL TO THE ITEM "CONCRETE MASONRY BRIDGES".

ORIGINAL PLANS PREPARED BY  
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Eau Claire, WI 54701  
www.AyresAssociates.com

| NO.                                                | DATE | REVISION            | BY |
|----------------------------------------------------|------|---------------------|----|
|                                                    |      |                     |    |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |    |
| STRUCTURE B-49-15                                  |      |                     |    |
| DRAWN BY CJM                                       |      | PLANS CK'D. JLB     |    |
| SINGLE SLOPE<br>PARAPET 42SS<br>NORTH ABUT.        |      | SHEET 6 OF 6<br>217 |    |

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.  
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.  
ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER PREPARATION DECK BID ITEMS.  
PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1/2" PLACED ABOVE THE DECK SURFACE AFTER "REMOVING CONCRETE MASONRY DECK OVERLAY B-49-16". AVERAGE EXPECTED OVERLAY THICKNESS IS 4 3/8". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE ENGINEER.  
ALL CONCRETE REMOVAL NOT COVERED WITH CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SPECIFIED OTHERWISE.  
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF THE CONCRETE OVERLAY AND PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND FRONT FACE OF PARAPETS AS SHOWN ON SHEET 2.  
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.  
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".  
THE EXISTING CONCRETE OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID TIEM "REMOVING CONCRETE MASONRY DECK OVERLAY B-49-16".  
THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1969.  
"REMOVING OLD STRUCTURE STATION 1040+81.93 NB" SHALL INCLUDE THE METAL RAILING, ANY PORTION OF THE CURB REQUIRED TO MAINTAIN THE MINIMUM CONCRETE THICKNESS FOR THE NEW PARAPET AND ANY LOOSE CONCRETE ON THE EXISTING PARAPETS. AREAS SHALL BE DETERMINED BY THE FIELD ENGINEER.  
SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".  
THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS 1/2-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.  
PREPARATION DECKS TYPE 1 AND TYPE 2, CONCRETE SURFACE REPAIR, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND DETERMINED BY THE ENGINEER IN THE FIELD. DECK PREPARATION AND FULL DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".  
SEALING CONCRETE OVERLAY CRACKS WITHIN 7 DAYS OF CURE COMPLETION IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".  
CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER.  
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

FOR TYPICAL SECTION  
& DESIGN DATA  
SEE SHEET 2

LIST OF DRAWINGS

1. GENERAL PLAN
2. TYPICAL SECTION AND QUANTITIES
3. CONSTRUCTION STAGING
4. SINGLE SLOPE PARAPET 42SS

|                                                    |                                                                                       |                                                                               |                     |
|----------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------|
| NO.                                                | DATE                                                                                  | REVISION                                                                      | BY                  |
| ORIGINAL PLANS PREPARED BY                         |                                                                                       |                                                                               |                     |
| <b>AYRES</b>                                       |                                                                                       | 3433 Oakwood Hills Parkway<br>Eau Claire, WI 54701<br>www.AyresAssociates.com |                     |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                                                                       |                                                                               |                     |
| ACCEPTED                                           |  | SDR                                                                           | 05/11/21            |
| CHIEF STRUCTURES DESIGN ENGINEER                   |                                                                                       |                                                                               | DATE                |
| STRUCTURE B-49-16                                  |                                                                                       |                                                                               |                     |
| IH 39/USH 51NB OVER CN RAILROAD                    |                                                                                       |                                                                               |                     |
| COUNTY                                             | PORTAGE                                                                               | TOWN/CITY/VILLAGE                                                             | PLOVER              |
| DESIGN SPEC.<br>REHABILITATION N/A                 |                                                                                       |                                                                               |                     |
| DESIGNED BY                                        | CJM                                                                                   | DESIGN CK'D.                                                                  | JLB                 |
| DRAWN BY                                           | JLB/CJM                                                                               | PLANS CK'D.                                                                   | DNS                 |
| GENERAL PLAN                                       |                                                                                       |                                                                               | SHEET 1 OF 4<br>218 |

BRIDGE OFFICE CONTACT:  
AARON BONK  
(608)-261-0261  
CONSULTANT CONTACT:  
DAN SYDOW  
(715)-834-3161

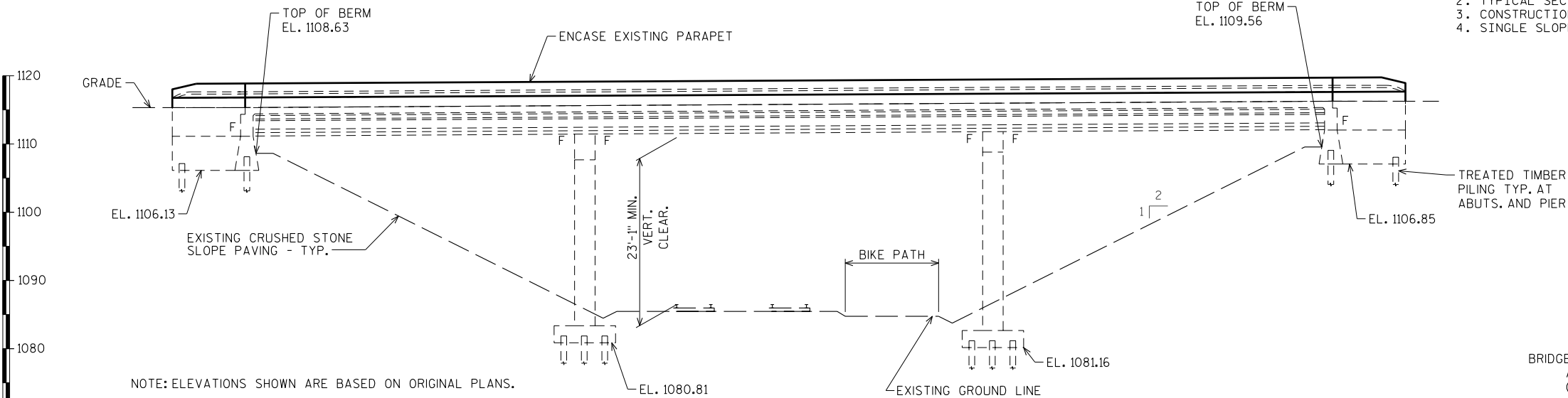
PLAN

THREE SPAN - 36" PRESTRESSED CONCRETE GIRDER BRIDGE  
(CONCRETE OVERLAY)



05/07/2021

ELEVATION  
(LOOKING WEST)

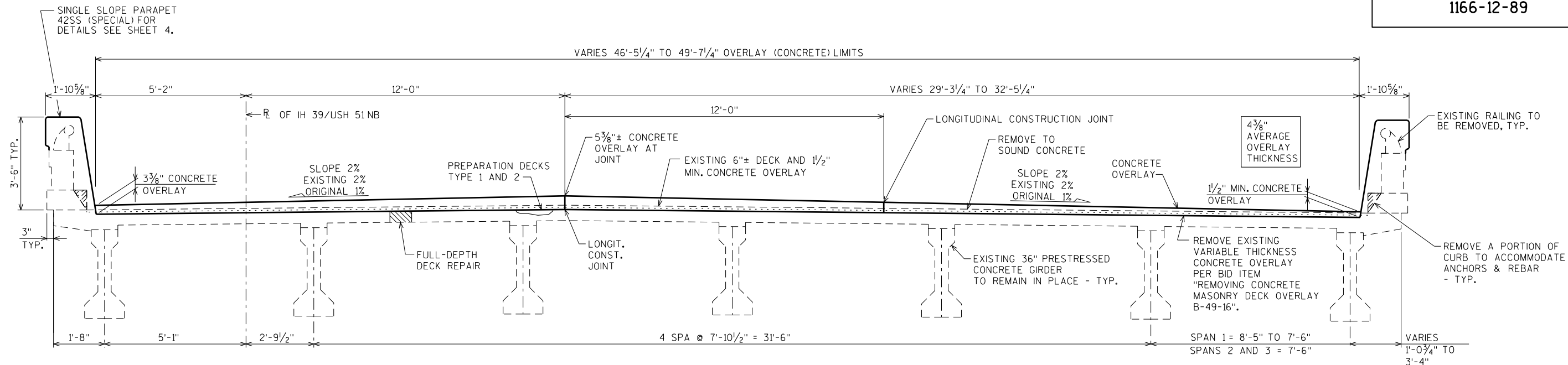


5/6/2021  
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CHECKED BY:  
BACK CHECKED BY:  
CORRECTED BY:

DATE:  
DATE:





CROSS SECTION THRU BRIDGE  
(LOOKING NORTH)

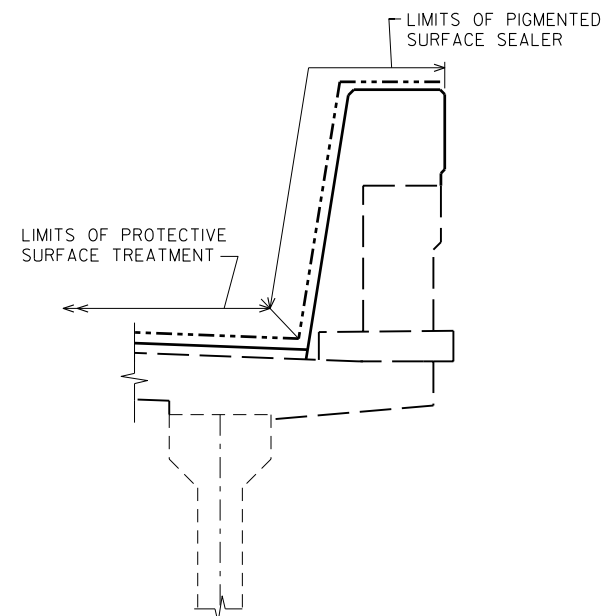
DESIGN LOADING: HS-20  
INVENTORY RATING: HS-19  
OPERATING RATING: HS-32  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 170 KIPS

|                                                        |   |                               |          |               |
|--------------------------------------------------------|---|-------------------------------|----------|---------------|
| CONCRETE MASONRY                                       | { | DECK PATCHING & OVERLAY _____ | $f'_c =$ | 4,000 p.s.i.  |
|                                                        |   | ALL OTHER _____               | $f'_c =$ | 3,500 p.s.i.  |
| HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) _____ |   |                               | $f_y =$  | 60,000 p.s.i. |

IH 39/USH 51 NB  
A.A.D.T. = 24,620 (2022)  
R.D.S. = 70 M.P.H.

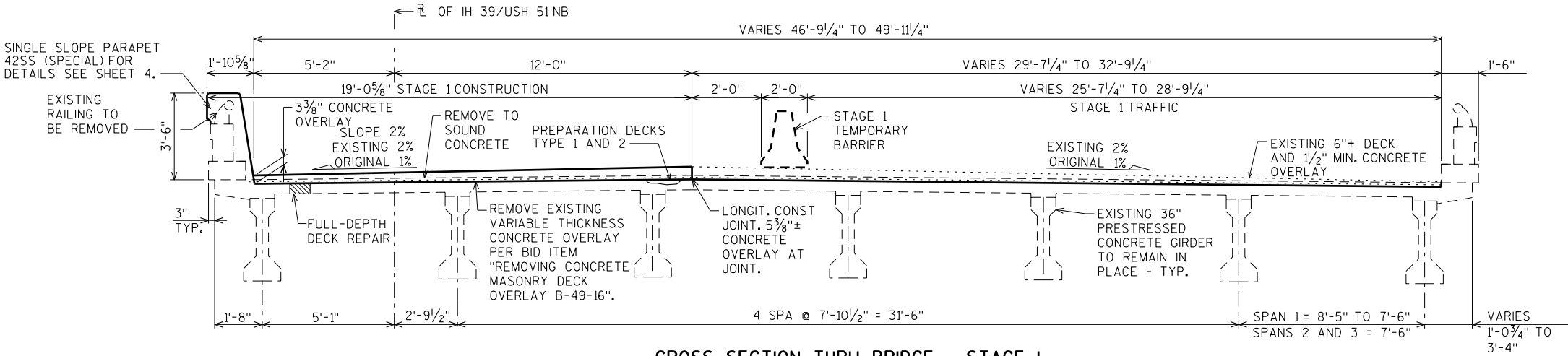
| BID ITEM<br>NUMBER | BID ITEMS                                         | UNIT | TOTAL |
|--------------------|---------------------------------------------------|------|-------|
| 203.0200           | REMOVING OLD STRUCTURE STATION 1040+81.93 NB      | LS   | 1     |
| 203.0210.S.03      | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-49-16 | LS   | 1     |
| 203.0225.S.01      | DEBRIS CONTAINMENT B-49-16                        | LS   | 1     |
| 502.0100           | CONCRETE MASONRY BRIDGES                          | CY   | 39    |
| 502.3200           | PROTECTIVE SURFACE TREATMENT                      | SY   | 850   |
| 502.3210           | PIGMENTED SURFACE SEALER                          | SY   | 195   |
| 502.4205           | ADHESIVE ANCHORS NO. 5 BAR                        | EACH | 1,124 |
| 505.0600           | BAR STEEL REINFORCEMENT HS COATED STRUCTURES      | LB   | 5,510 |
| 509.0301           | PREPARATION DECKS TYPE 1                          | SY   | 220   |
| 509.0302           | PREPARATION DECKS TYPE 2                          | SY   | 90    |
| 509.0505.S         | CLEANING DECK TO REAPPLY CONCRETE MASONRY OVERLAY | SY   | 865   |
| 509.1500           | CONCRETE SURFACE REPAIR                           | SF   | 100   |
| 509.2000           | FULL DEPTH DECK REPAIR                            | SY   | 10    |
| 509.2500           | CONCRETE MASONRY OVERLAY DECKS                    | CY   | 117   |
| 509.9005.S.03      | REMOVING CONCRETE MASONRY DECK OVERLAY B-49-16    | SY   | 865   |

- ☐ UNDISTRIBUTED FOR GIRDERS, ABUTMENTS AND PIER AS DIRECTED BY ENGINEER IN THE FIELD.
 ☒ BID ITEM INCLUDES REMOVAL AND SALVAGE OF THE EXISTING TUBULAR RAILINGS (INCLUDING HARDWARE) AND NAME PLATE TO THE DEPARTMENT.
- ☒ BID ITEM INCLUDES CONCRETE FOR 1½" MIN. OVERLAY, PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR.
- ☒ ITEM APPLICABLE FOR WORK OVER THE RAILROAD AND BIKE PATH.

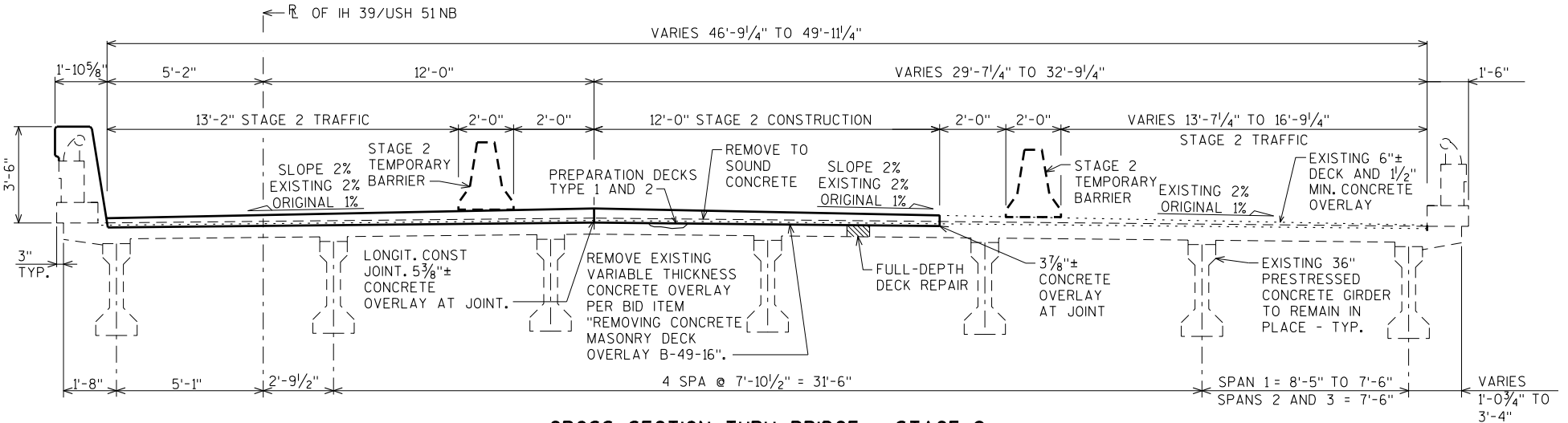


## PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL

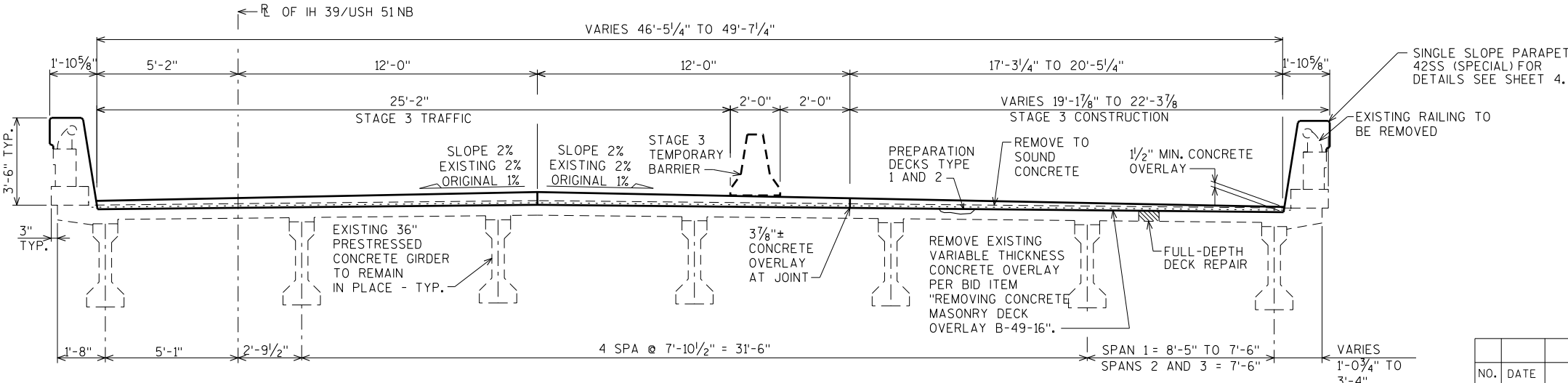
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|----------------------------------------------------|------|---------------------|--------------------|
|                                                    |      |                     |                    |
| NO.                                                | DATE | REVISION            | BY                 |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |                    |
| STRUCTURE B-49-16                                  |      |                     |                    |
|                                                    |      | DRAWN<br>BY JLB/CJM | PLANS<br>CK'D. JLB |
| TYPICAL SECTION<br>AND QUANTITIES                  |      | SHEET 2 OF 4<br>219 |                    |



CROSS SECTION THRU BRIDGE - STAGE 1  
(LOOKING NORTH)



CROSS SECTION THRU BRIDGE - STAGE 2  
(LOOKING NORTH)



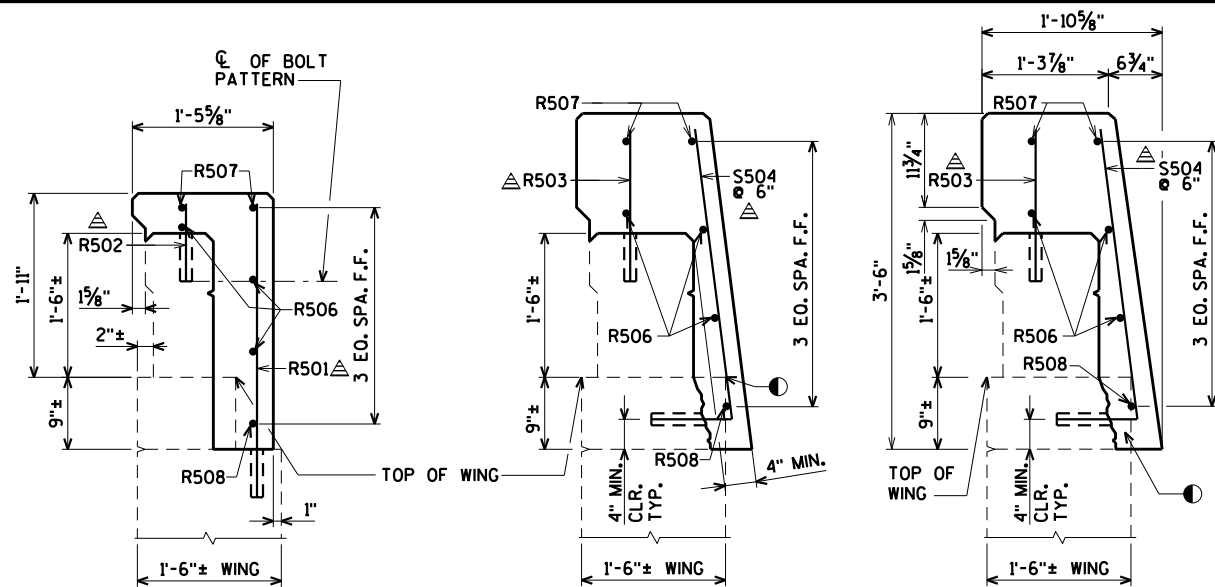
CROSS SECTION THRU BRIDGE - STAGE 3  
(LOOKING NORTH)

|                                                    |      |                     |    |
|----------------------------------------------------|------|---------------------|----|
| NO.                                                | DATE | REVISION            | BY |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |    |
| STRUCTURE B-49-16                                  |      |                     |    |
| DRAWN BY JLB/CJM                                   |      | PLANS CK'D. JLB     |    |
| CONSTRUCTION STAGING                               |      | SHEET 3 OF 4<br>220 |    |

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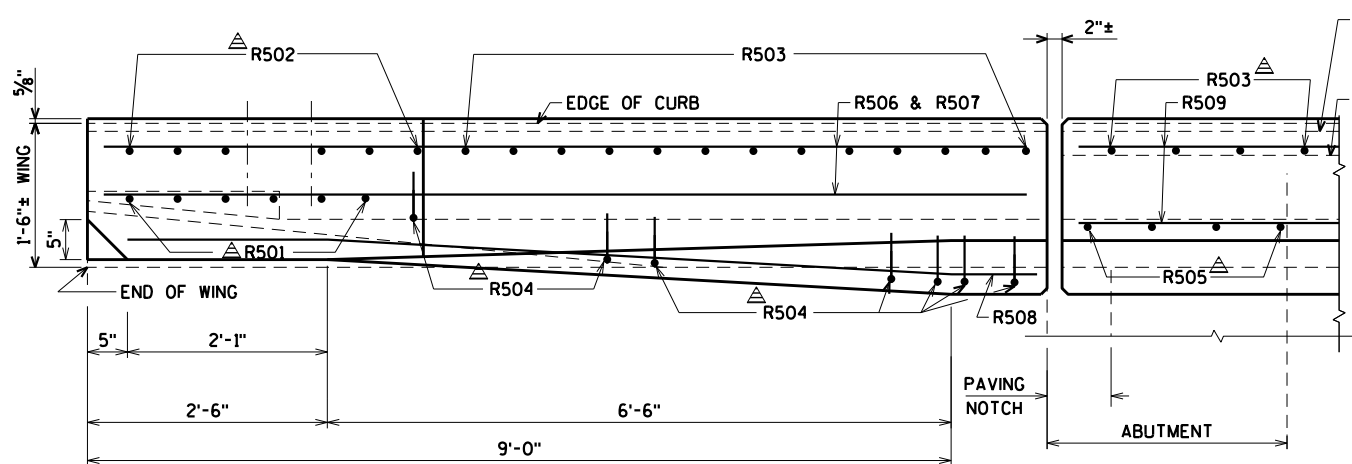


SECTION A-A

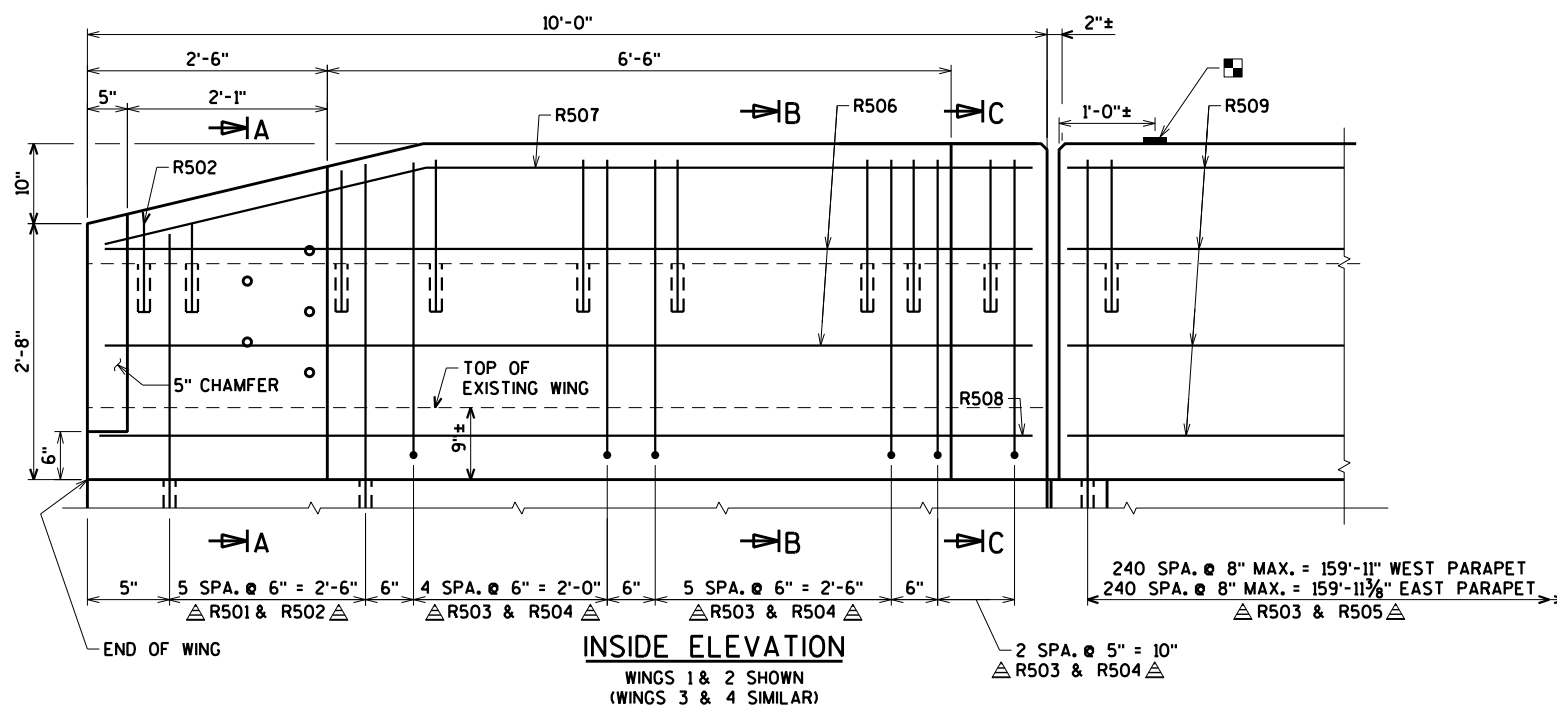
SECTION B-B

SECTION C-C

SECTION THRU PARAPET  
REPLACEMENT ON BRIDGE



PLAN  
WINGS 1 & 2 SHOWN  
(WINGS 3 & 4 SIMILAR)

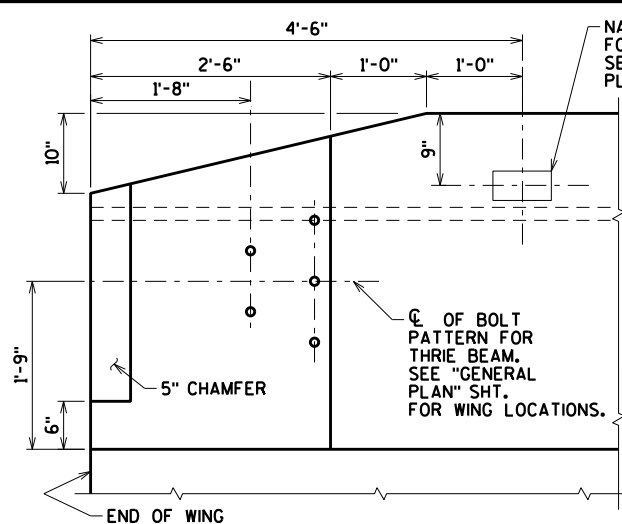
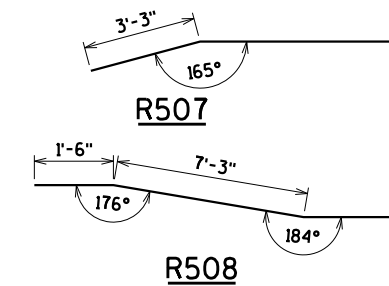
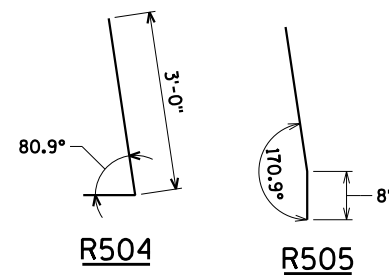


INSIDE ELEVATION  
WINGS 1 & 2 SHOWN  
(WINGS 3 & 4 SIMILAR)

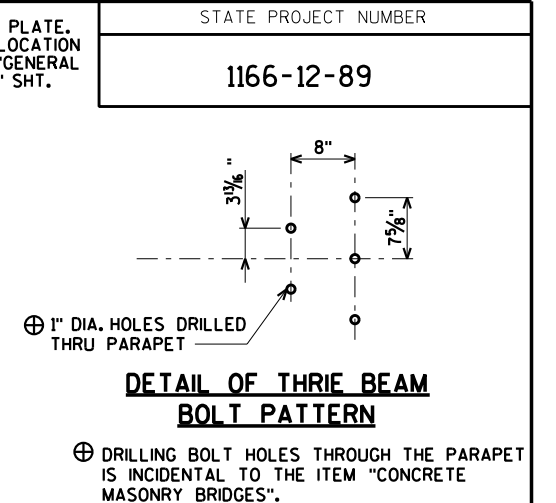
● REMOVE EXISTING CURB, PARAPET, AND TOP OF WING CONCRETE AS NEEDED TO MAINTAIN 4" MINIMUM NEW CONCRETE THICKNESS. PRESERVE EXISTING BAR STEEL.

△ ADHESIVE ANCHORS NO. 5 BARS, 8" MIN. EMBED.

■ BENCH MARK CAP (WHEN SUPPLIED).



PARAPET END TREATMENT DETAIL  
LOOKING AT INSIDE FACE OF PARAPET



BILL OF BARS

| BAR NO. | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED | BAR SERIES | 5,510* COATED                |
|---------|------------|------------|--------|----------|---------|------------|------------------------------|
|         |            |            |        |          |         |            | LOCATION                     |
| △ R501  | X          | 24         | 3-2    |          |         | ⊗          | PARAPET VERT. ANCHOR WING    |
| △ R502  | X          | 24         | 1-4    |          |         | ⊗          | PARAPET VERT. ANCHOR PARAPET |
| △ R503  | X          | 538        | 1-9    |          |         |            | PARAPET VERT. ANCHOR PARAPET |
| △ R504  | X          | 56         | 3-9    | X        |         |            | PARAPET VERT. ANCHOR CURB    |
| △ R505  | X          | 482        | 3-9    | X        |         |            | PARAPET VERT. ANCHOR DECK    |
| R506    | X          | 12         | 9-8    |          |         |            | PARAPET HORIZ. WING          |
| R507    | X          | 8          | 10-0   | X        |         |            | PARAPET HORIZ. WING TOP      |
| R508    | X          | 4          | 9-8    | X        |         |            | PARAPET HORIZ. WING BOT.     |
| R509    | X          | 36         | 55-0   |          |         |            | PARAPET HORIZ.               |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

| BAR MARK | NO REQ'D.     | LENGTH          |
|----------|---------------|-----------------|
| R501     | 4 SERIES OF 6 | 2'-10" TO 3'-6" |
| R502     | 4 SERIES OF 6 | 1'-1" TO 1'-7"  |

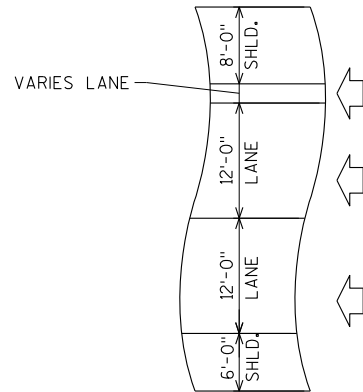
BUNDLE AND TAG EACH SERIES SEPARATELY.

| NO.                                                | DATE | REVISION        | BY                  |
|----------------------------------------------------|------|-----------------|---------------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |                     |
| STRUCTURE B-49-16                                  |      |                 |                     |
| DRAWN BY CJM                                       |      | PLANS CK'D. JLB |                     |
| SINGLE SLOPE<br>PARAPET 42SS                       |      |                 | SHEET 4 OF 4<br>221 |

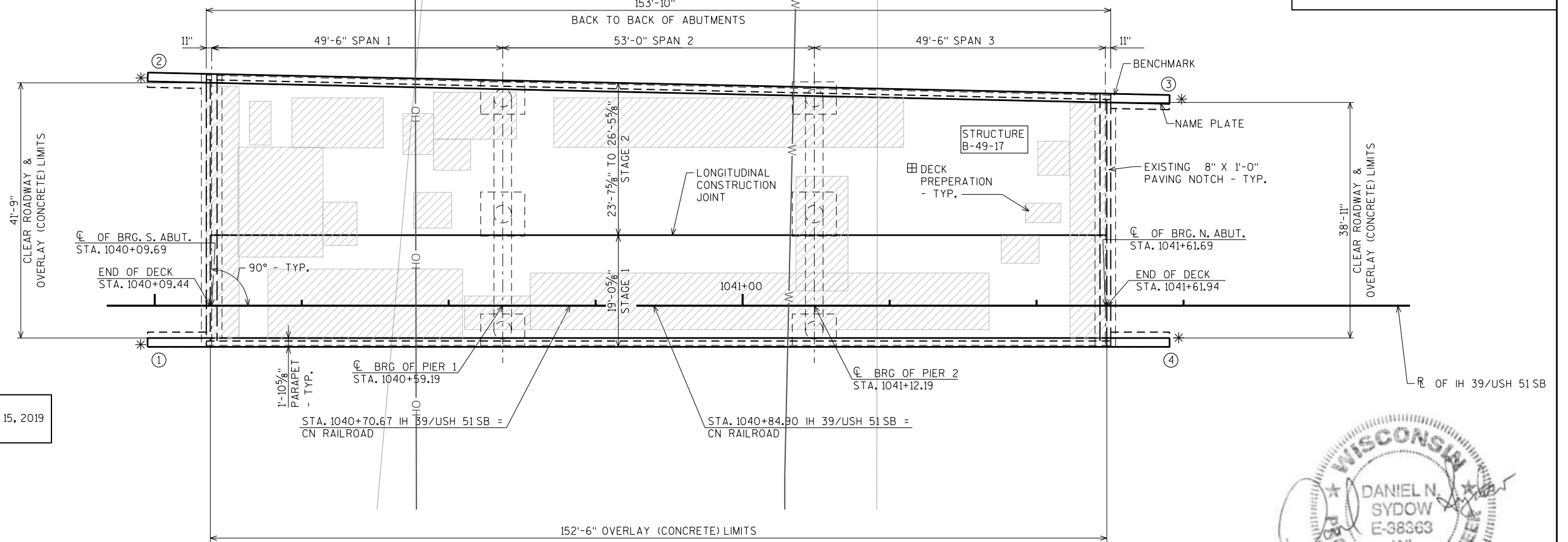
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1166-12-89

\* ANCHOR ASSEMBLY FOR  
THRIE TYPE BEAM GUARD



41'-9"  
CLEAR ROADWAY &  
OVERLAY (CONCRETE) LIMITS

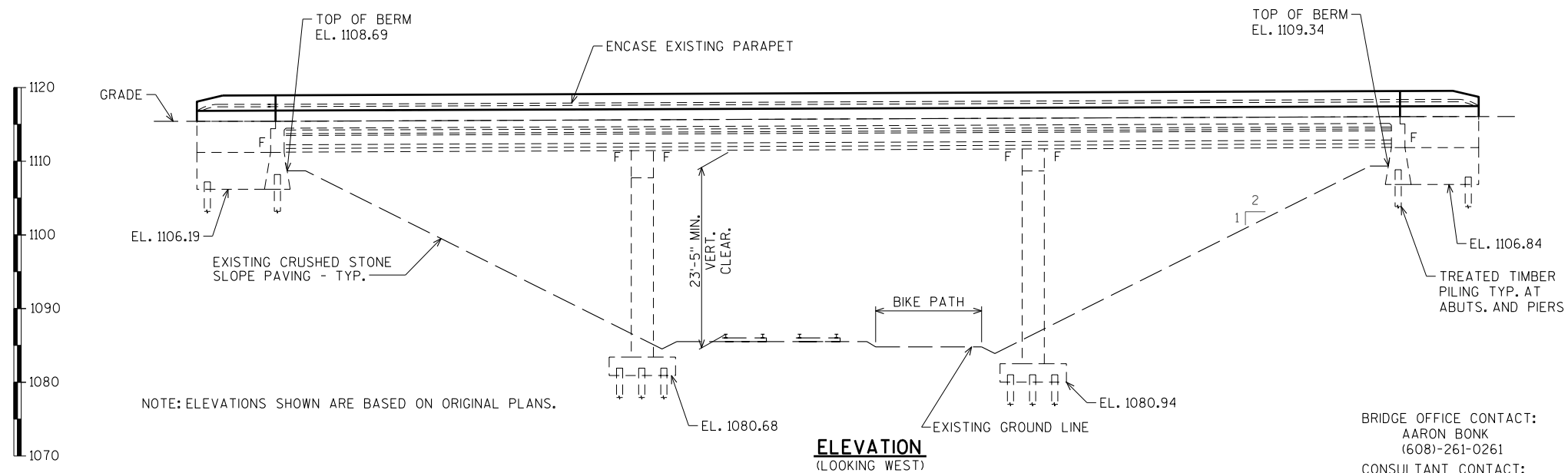


THREE SPAN - 36" PRESTRESSED CONCRETE GIRDER BRIDGE  
(CONCRETE OVERLAY)



1. GENERAL PLAN
2. TYPICAL SECTION AND QUANTITIES
3. CONSTRUCTION STAGING
4. SINGLE SLOPE PARAPET 42SS

FOR TYPICAL SECTION, GENERAL  
NOTES, & DESIGN DATA  
SEE SHEET 2



**ELEVATION**  
(LOOKING WEST)

SHEET 1 OF 4  
222

5/6/2021  
PENTABLE:BRoad-shd\_util.tbl

TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS                                         | UNIT | TOTAL |
|-----------------|---------------------------------------------------|------|-------|
| ⊗ 203.0200      | REMOVING OLD STRUCTURE STATION 1040+85.69 SB      | LS   | 1     |
| 203.0210.S.04   | ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-49-17 | LS   | 1     |
| ■ 203.0225.S.02 | DEBRIS CONTAINMENT B-49-17                        | LS   | 1     |
| 502.0100        | CONCRETE MASONRY BRIDGES                          | CY   | 37    |
| 502.3200        | PROTECTIVE SURFACE TREATMENT                      | SY   | 685   |
| 502.3210        | PIGMENTED SURFACE SEALER                          | SY   | 190   |
| 502.4205        | ADHESIVE ANCHORS NO. 5 BAR                        | EACH | 1,088 |
| 505.0600        | BAR STEEL REINFORCEMENT HS COATED STRUCTURES      | LB   | 5,340 |
| 509.0301        | PREPARATION DECKS TYPE 1                          | SY   | 245   |
| 509.0302        | PREPARATION DECKS TYPE 2                          | SY   | 100   |
| 509.0505.S      | CLEANING DECK TO REAPPLY CONCRETE MASONRY OVERLAY | SY   | 695   |
| ● 509.1500      | CONCRETE SURFACE REPAIR                           | SF   | 100   |
| 509.2000        | FULL DEPTH DECK REPAIR                            | SY   | 10    |
| ▲ 509.2500      | CONCRETE MASONRY OVERLAY DECKS                    | CY   | 88    |
| 509.9005.S.04   | REMOVING CONCRETE MASONRY DECK OVERLAY B-49-17    | SY   | 695   |

● UNDISTRIBUTED FOR GIRDERS, ABUTMENTS AND PIER AS DIRECTED BY ENGINEER IN THE FIELD.

⊗ BID ITEM INCLUDES REMOVAL AND SALVAGE OF THE EXISTING TUBULAR RAILINGS (INCLUDING HARDWARE) AND NAME PLATE TO THE DEPARTMENT.

▲ BID ITEM INCLUDES CONCRETE FOR 1½" MIN. OVERLAY, PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR.

■ ITEM APPLICABLE FOR WORK OVER THE RAILROAD AND BIKE PATH.

DESIGN DATA

LIVE LOAD:

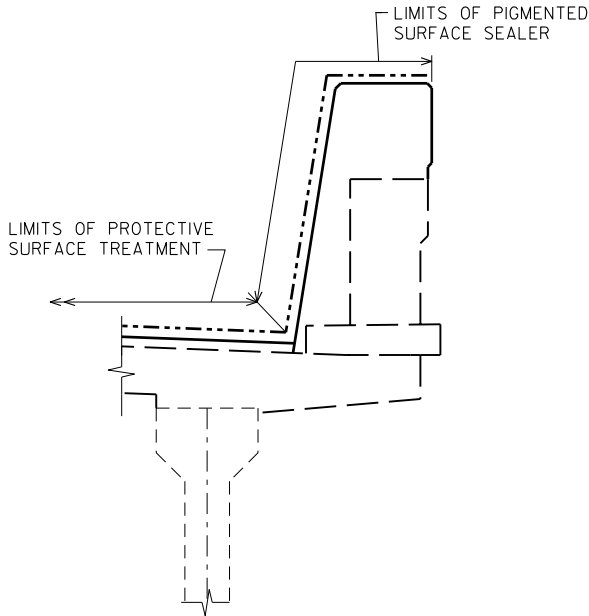
DESIGN LOADING: HS-20  
INVENTORY RATING: HS-19  
OPERATING RATING: HS-34  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 140 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY {DECK PATCHING & OVERLAY \_\_\_\_\_  $f'_c =$  4,000 p.s.i.  
ALL OTHER \_\_\_\_\_  $f'_c =$  3,500 p.s.i.  
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) \_\_\_\_\_  $f_y =$  60,000 p.s.i.

TRAFFIC DATA:

IH 39/USH 51 SB  
A.A.D.T. = 24,620 (2022)  
R.D.S. = 70 M.P.H.



PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.  
DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.  
ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER PREPARATION DECK BID ITEMS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER "REMOVING CONCRETE MASONRY DECK OVERLAY B-49-17". AVERAGE EXPECTED OVERLAY THICKNESS IS 3¾". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE ENGINEER.

ALL CONCRETE REMOVAL NOT COVERED WITH CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SPECIFIED OTHERWISE.  
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF THE CONCRETE OVERLAY AND PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND FRONT FACE OF PARAPETS AS SHOWN ON THIS SHEET.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS NOTED OTHERWISE.

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

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

THE EXISTING CONCRETE OVERLAY SHALL BE REMOVED FROM THE BRIDGE DECK UNDER BID ITEM "REMOVING CONCRETE MASONRY DECK OVERLAY B-49-17".

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1969.

"REMOVING OLD STRUCTURE STATION 1040+85.69 SB" SHALL INCLUDE THE METAL RAILING, ANY PORTION OF THE CURB REQUIRED TO MAINTAIN THE MINIMUM CONCRETE THICKNESS FOR THE NEW PARAPET AND ANY LOOSE CONCRETE ON THE EXISTING PARAPETS. AREAS SHALL BE DETERMINED BY THE FIELD ENGINEER.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

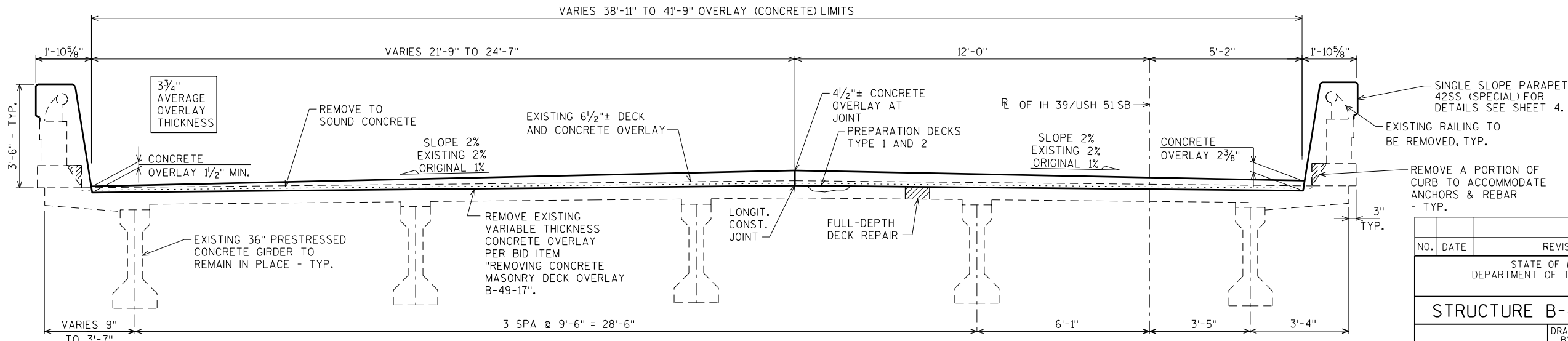
THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

PREPARATION DECKS TYPE 1 AND TYPE 2, CONCRETE SURFACE REPAIR, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND DETERMINED BY THE ENGINEER IN THE FIELD. DECK PREPARATION AND FULL DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

SEALING CONCRETE OVERLAY CRACKS WITHIN 7 DAYS OF CURE COMPLETION IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



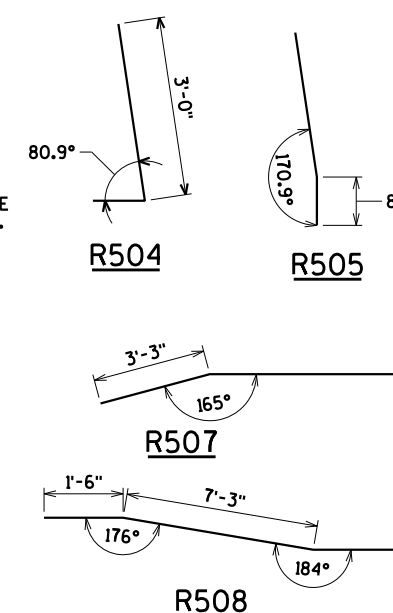
CROSS SECTION THRU BRIDGE  
(LOOKING NORTH)

ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

|                                                    |      |                 |                     |
|----------------------------------------------------|------|-----------------|---------------------|
| NO.                                                | DATE | REVISION        | BY                  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |                     |
| STRUCTURE B-49-17                                  |      |                 |                     |
| DRAWN BY JLB/CJM                                   |      | PLANS CK'D. JLB |                     |
| TYPICAL SECTION AND QUANTITIES                     |      |                 | SHEET 2 OF 4<br>223 |



|                                                    |  |      |  |                    |  |    |  |
|----------------------------------------------------|--|------|--|--------------------|--|----|--|
| NO.                                                |  | DATE |  | REVISION           |  | BY |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |      |  |                    |  |    |  |
| STRUCTURE B-49-17                                  |  |      |  |                    |  |    |  |
| DRAWN<br>BY JLB/CJM                                |  |      |  | PLANS<br>CK'D. JLB |  |    |  |
| CONSTRUCTION<br>STAGING                            |  |      |  | SHEET 3 OF 4       |  |    |  |
|                                                    |  |      |  | 224                |  |    |  |



WINGS 3 & 4 SHOWN  
(WINGS 1 & 2 SIMILAR)



WINGS 3 & 4 SHOWN  
(WINGS 1 & 2 SIMILAR)

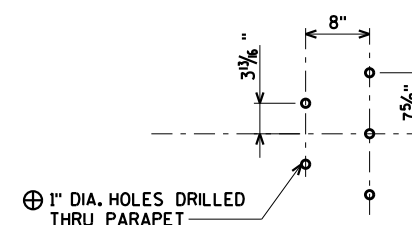
-  BENCH MARK CAP (WHEN SUPPLIED).

[illegible]

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

| BAR MARK | NO REQ'D.     | LENGTH          |
|----------|---------------|-----------------|
| R501     | 4 SERIES OF 6 | 2'-10" TO 3'-6" |
| R502     | 4 SERIES OF 6 | 1'-1" TO 1'-7"  |

BUNDLE AND TAG EACH SERIES SEPARATELY.

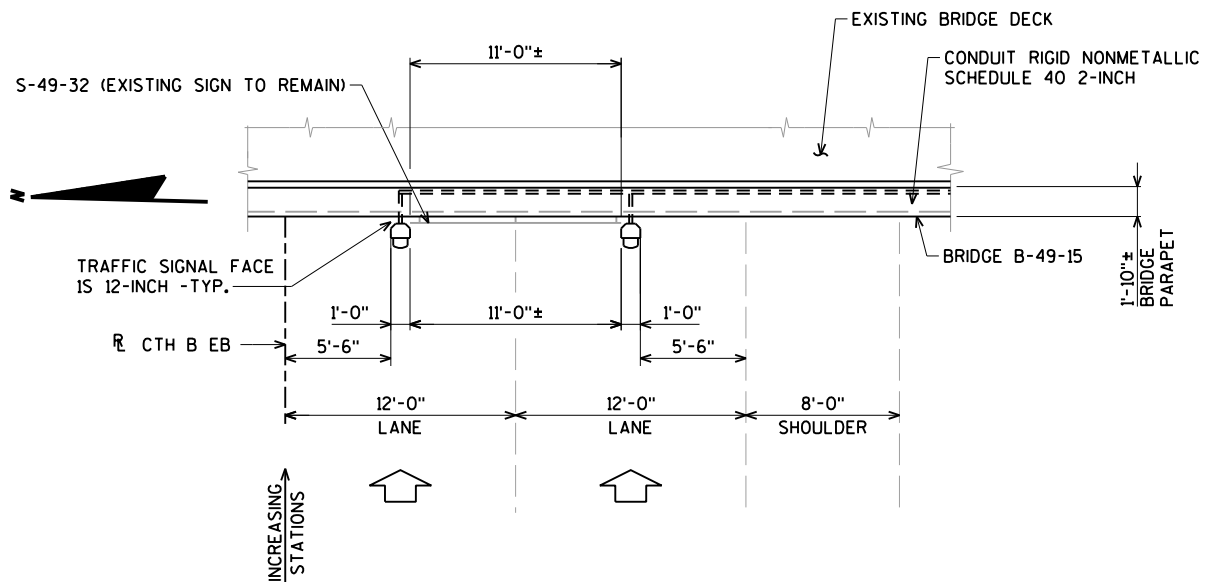
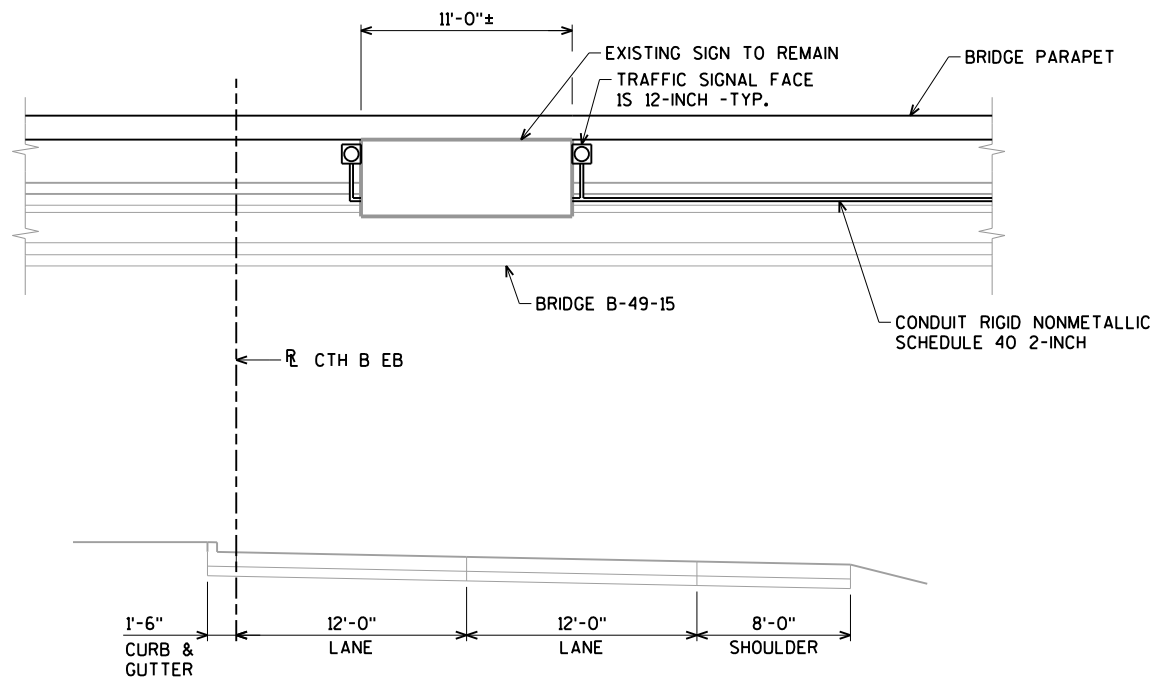


**DETAIL OF THRIE BEAM**  
**BOLT PATTERN**

- ⊕ DRILLING BOLT HOLES THROUGH THE PARAPET IS INCIDENTAL TO THE ITEM "CONCRETE MASONRY BRIDGES".

3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
[www.AyresAssociates.com](http://www.AyresAssociates.com)

|                                                    |      |                     |                 |
|----------------------------------------------------|------|---------------------|-----------------|
|                                                    |      |                     |                 |
| NO.                                                | DATE | REVISION            | BY              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |                 |
| STRUCTURE B-49-17                                  |      |                     |                 |
| DRAWN BY                                           |      | CJM                 | PLANS CK'D. JLB |
| SINGLE SLOPE<br>PARAPET 42SS                       |      | SHEET 4 OF 4<br>225 |                 |

**SIGN PLAN****ELEVATION**

BRIDGE MOUNTED SIGN SUPPORT  
STA. 26+88.93 CTH B EB  
LOOKING UPSTATION (EAST) AT FRONT FACE OF SIGN

**TRAFFIC DATA**

IH 39/USH 51 SB  
A.A.D.T. = 24,620 (2022)  
R.D.S. = 70 M.P.H.

CTH B  
A.A.D.T. = 18,408 (2022)  
R.D.S. = 50 M.P.H.

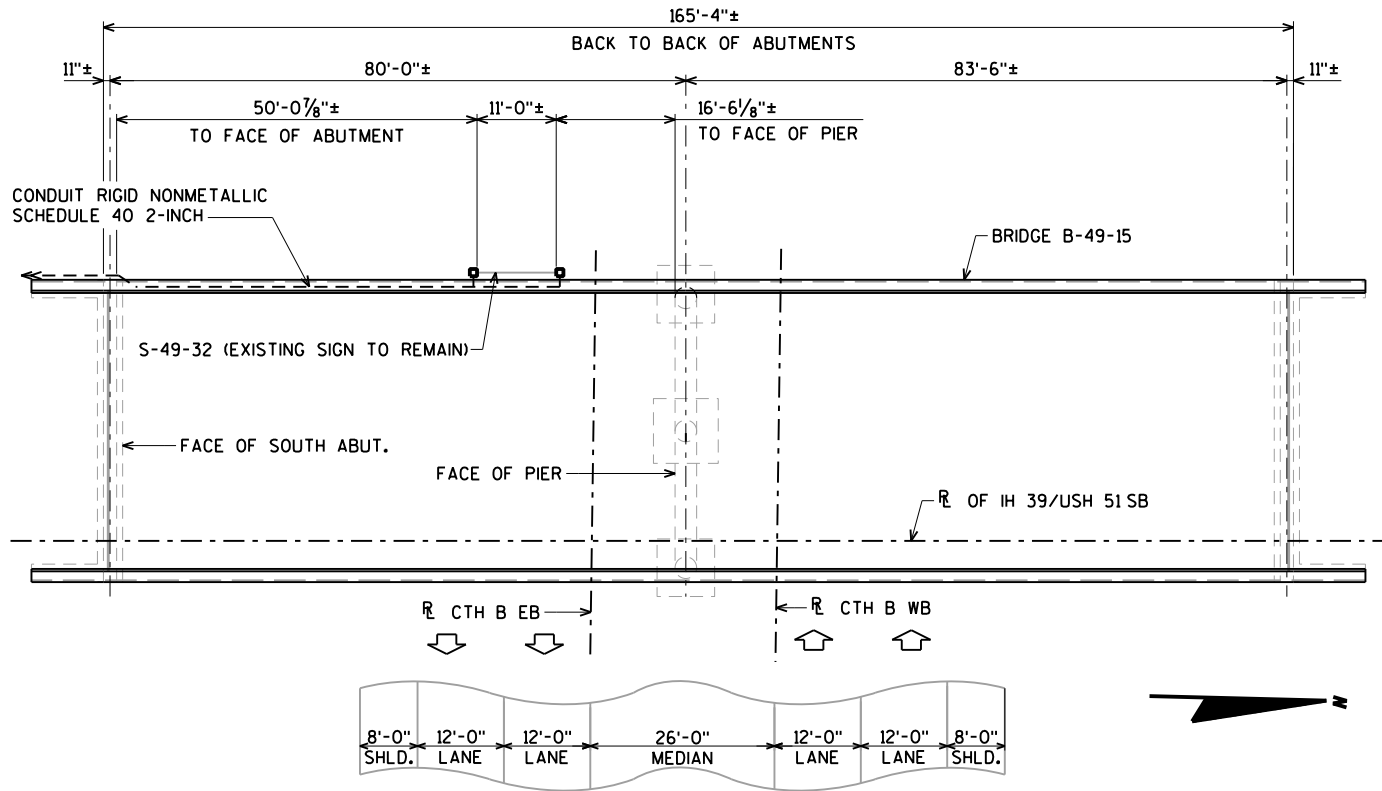
**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

EXISTING SIGN AND SIGN MOUNTING COMPONENTS  
TO REMAIN IN PLACE.

SEE ROADWAY PLANS FOR "CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH",  
"JUNCTION BOX 10x10x6-INCH", "TRAFFIC SIGNAL FACE IS 12-INCH", AND  
"SIGN MOUNTING HARDWARE" BID ITEMS AND QUANTITIES.

ALL FLANGES, FITTINGS, NIPPLES, AND OTHER  
SIGNAL MOUNTING HARDWARE AND FASTENERS SHALL  
BE METALLIC AND SHALL BE PAID FOR AT THE  
UNIT BID PRICE FOR "SIGN MOUNTING HARDWARE".

**PLAN****LIST OF DRAWINGS**

1. GENERAL PLAN
2. FLASHING BEACON SUPPORT DETAILS

|                                                       |                                                                                           |                                                                               |                     |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------|
| NO.                                                   | DATE                                                                                      | REVISION                                                                      | BY                  |
| ORIGINAL PLANS PREPARED BY                            |                                                                                           |                                                                               |                     |
| <b>AYRES</b>                                          |                                                                                           | 3433 Oakwood Hills Parkway<br>Eau Claire, WI 54701<br>www.AyresAssociates.com |                     |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION    |                                                                                           |                                                                               |                     |
| ACCEPTED                                              |  SDR |                                                                               | 05/13/21            |
| CHIEF STRUCTURES DESIGN ENGINEER                      |                                                                                           |                                                                               | DATE                |
| STRUCTURE S-49-32                                     |                                                                                           |                                                                               |                     |
| CTH B EB SIGN STRUCTURE                               |                                                                                           |                                                                               |                     |
| COUNTY                                                | PORTAGE                                                                                   | TOWN/CITY/VILLAGE                                                             | PLOVER              |
| DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS |                                                                                           |                                                                               |                     |
| DESIGNED BY                                           | JWZ                                                                                       | DESIGN CK'D. DNS                                                              | DRAWN BY CJM/ZSS    |
|                                                       |                                                                                           | PLANS CK'D.                                                                   | JWZ                 |
| GENERAL PLAN                                          |                                                                                           |                                                                               | SHEET 1 OF 2<br>226 |



04/01/2021

BRIDGE OFFICE CONTACT:  
AARON BONK  
(608)-261-0261

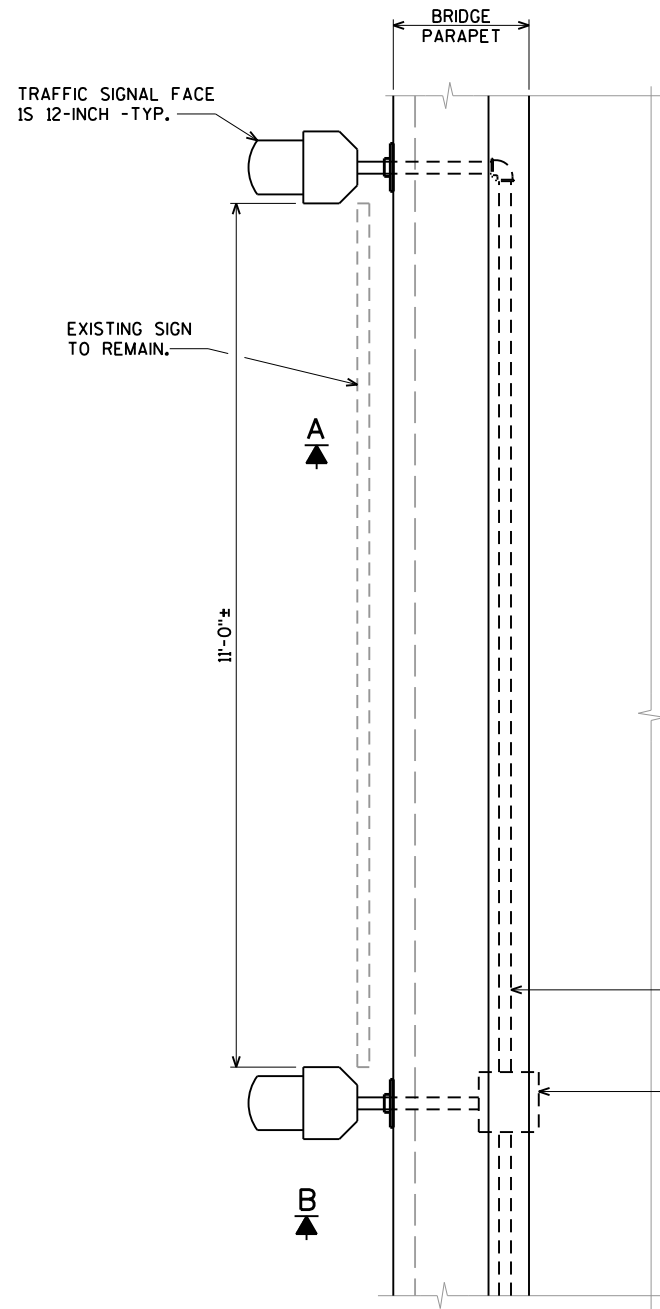
CONSULTANT CONTACT:  
DAN SYDOW  
(715)-834-3161



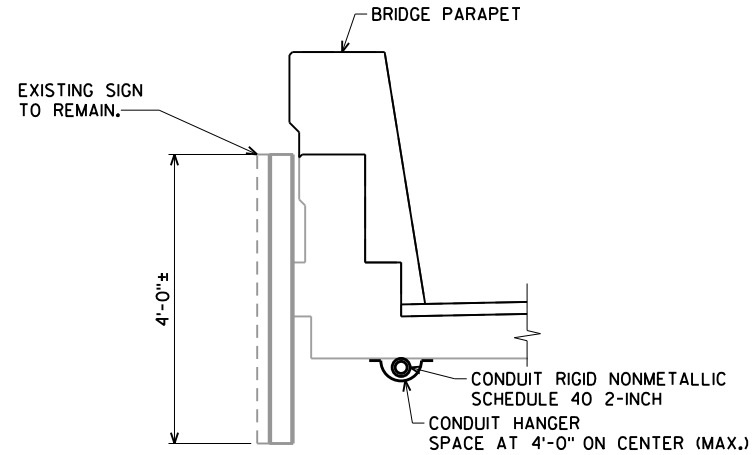
1/7/2021  
PENTABLE:BReau\_shd\_util.tbl

STATE PROJECT NUMBER

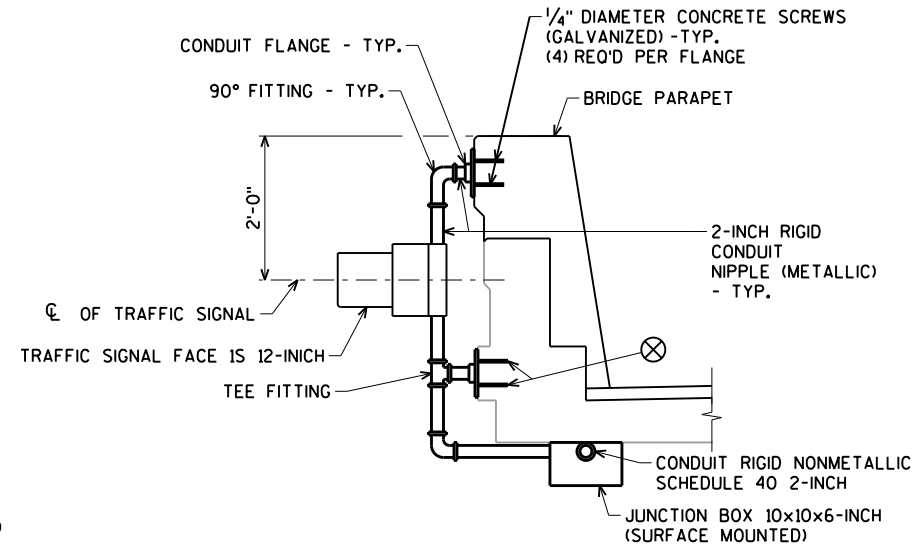
1166-12-89



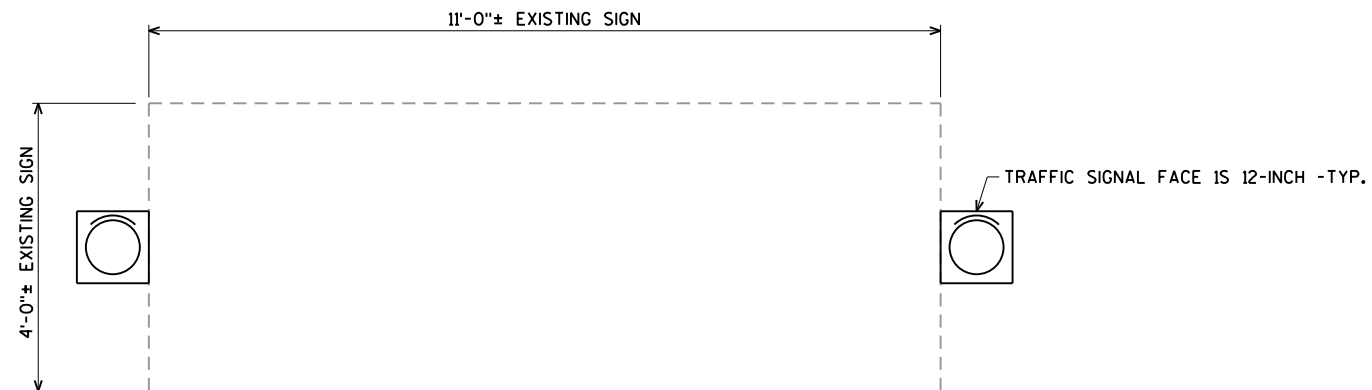
PLAN



SECTION A



SECTION B



SIGN ELEVATION

NOTES:

CONDUIT HANGERS SHALL BE TWO-HOLE CONDUIT STRAPS FASTENED TO THE CONCRETE WITH 1/4" DIAMETER CONCRETE SCREWS. HANGERS AND FASTENERS SHALL BE GALVANIZED.

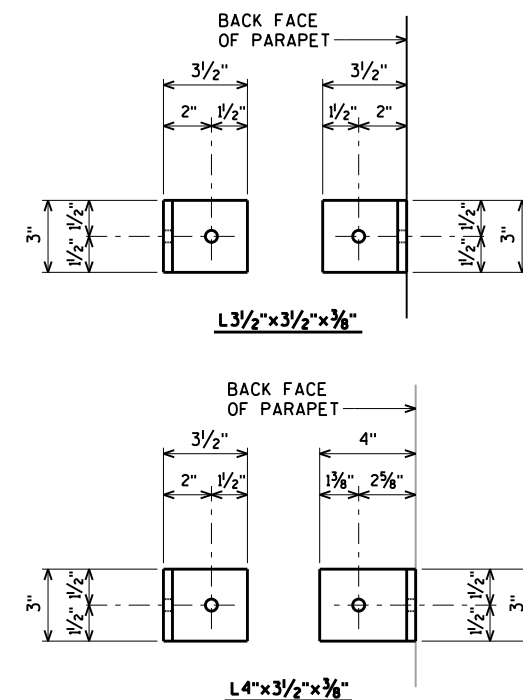
CONDUIT HANGERS AND FASTENERS SHALL BE INCIDENTAL TO "CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH".

|                                                    |         |                |                     |
|----------------------------------------------------|---------|----------------|---------------------|
| NO.                                                | DATE    | REVISION       | BY                  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |         |                |                     |
| STRUCTURE S-49-32                                  |         |                |                     |
| DRAWN<br>BY                                        | CJM/ZSS | PLANS<br>CK'D. | JWZ                 |
| FLASHING BEACON<br>SUPPORT<br>DETAILS              |         |                | SHEET 2 OF 2<br>227 |

ORIGINAL PLANS PREPARED BY  
**AYRES** 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com





**AVRES**

|                                                    |      |                     |  |                     |    |
|----------------------------------------------------|------|---------------------|--|---------------------|----|
|                                                    |      |                     |  |                     |    |
| NO.                                                | DATE | REVISION            |  |                     | BY |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                     |  |                     |    |
| STRUCTURE S-49-33                                  |      |                     |  |                     |    |
|                                                    |      | DRAWN<br>BY CJM/ZSS |  | PLANS<br>CK'D. JWZ  |    |
| SIGN SUPPORT<br>DETAILS                            |      |                     |  | SHEET 2 OF 2<br>229 |    |

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 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 3'-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 QUATITIES

| BID ITEM NO. | BID ITEM                                | UNIT | S-49-34 |
|--------------|-----------------------------------------|------|---------|
| 531.2042     | DRILLING SHAFT 42-INCH                  | LF   | 23      |
| 531.5140     | FOUNDATION SINGLE-SHAFT MC-IV (S-49-34) | EACH | 1       |
| 532.5140     | MONOTUBE CANTILEVER TYPE IV (S-49-34)   | EACH | 1       |

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), NAD 83 (2011). ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88 (2007).

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 BID ITEM "OVERHEAD SIGN STRUCTURE S-49-34" 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.

ALL H.S. BOLTED CONNECTIONS SHALL BE MADE WITH ¾" DIA A325 GALVANIZED BOLTS. FIELD CONNECTIONS SHALL BE INSTALLED WITH DTI WASHERS.

CONNECTIONS CAN EITHER BE WELDED OR BOLTED CONNECTIONS. IF WELDED CONNECTIONS AR EUSED, THE MONOTUBE OR 2-CHORD TRUSS UNIT SHALL BE GALVANIZED AS ONE PIECE.

WELD TEST AS PER AWS D1.1.

SEE SIGN PLATE NO. 14-7A & 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. FOR FULL SPAN OR CANTILEVER 2-CHORD TRUSSES, BLANKS SHALL BE ¼ THE LENGTH OF THE SPAN, 2'-0" DEEPER THAN THE C/L TO C/L OF CHORDS, AND SHALL BE CENTERED ON THE SPAN. FOR FULL SPAN OR CANTILEVER MONOTUBES, BLANKS SHALL BE ¼ THE LENGTH OF THE SPAN, 4'-0" IN HEIGHT, AND SHALL BE CENTERED ON THE SPAN. 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 SIGN ON 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 "FOUNDATION DRILLING".

STRUCTURE DATA

| SIGN STR | ACTUAL SIGN AREA | ACTUAL SIGN DEPTH | STANDARD TYPE |
|----------|------------------|-------------------|---------------|
| S-49-34  | 55 SF            | 4'-0"             | MC-IV         |

TRAFFIC VOLUMES

A.D.T. (2022) = 18,408  
R.D.S. = 50 MPH

LIST OF DRAWINGS

1. GENERAL NOTES & DESIGN DATA

2. GENERAL LAYOUT S-49-34

LIST OF OSS STANDARD DESIGN DRAWINGS

3. MONOTUBE & 2-CHORD TRUSS DETAILS 1

4. MONOTUBE & 2-CHORD TRUSS DETAILS 2

5. MONOTUBE & 2-CHORD TRUSS ELECTRICAL DETAILS

6. MONOTUBE & 2-CHORD TRUSS FOUNDATIONS

LOCATION MAP

STRUCTURE DESIGN CONTACTS:

AARON BONK (608) 261-0261  
ANDREW CASPER (715) 421-8389

| NO.                                                                                                                                                  | DATE    | REVISION          | BY             |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------|----------------|
| ACCEPTED  SDR 05/13/21<br>CHIEF STRUCTURES DESIGN ENGINEER DATE |         |                   |                |
| MONOTUBE AND 2-CHORD TRUSS PLANS                                                                                                                     |         |                   |                |
| PLAINFIELD - STEVENS POINT                                                                                                                           |         |                   |                |
| COUNTY                                                                                                                                               | PORTAGE | VILLAGE           | PLOVER         |
| DESIGN SPEC. AASHTO LRFDLTS-1 W/INTERIMS                                                                                                             |         |                   |                |
| DESIGNED BY                                                                                                                                          | APC     | DESIGNED CK'D APC | PLANS CK'D APC |
| GENERAL NOTES & DESIGN DATA                                                                                                                          |         |                   | SHEET 1 OF 6   |
| 230                                                                                                                                                  |         |                   |                |

FILE NAME : N:\PDS\C3D\11661219\SHEETSPLAN\S-49-34A.DWG  
LAYOUT NAME - 01

PLOT DATE : 4/14/2021 9:09 AM

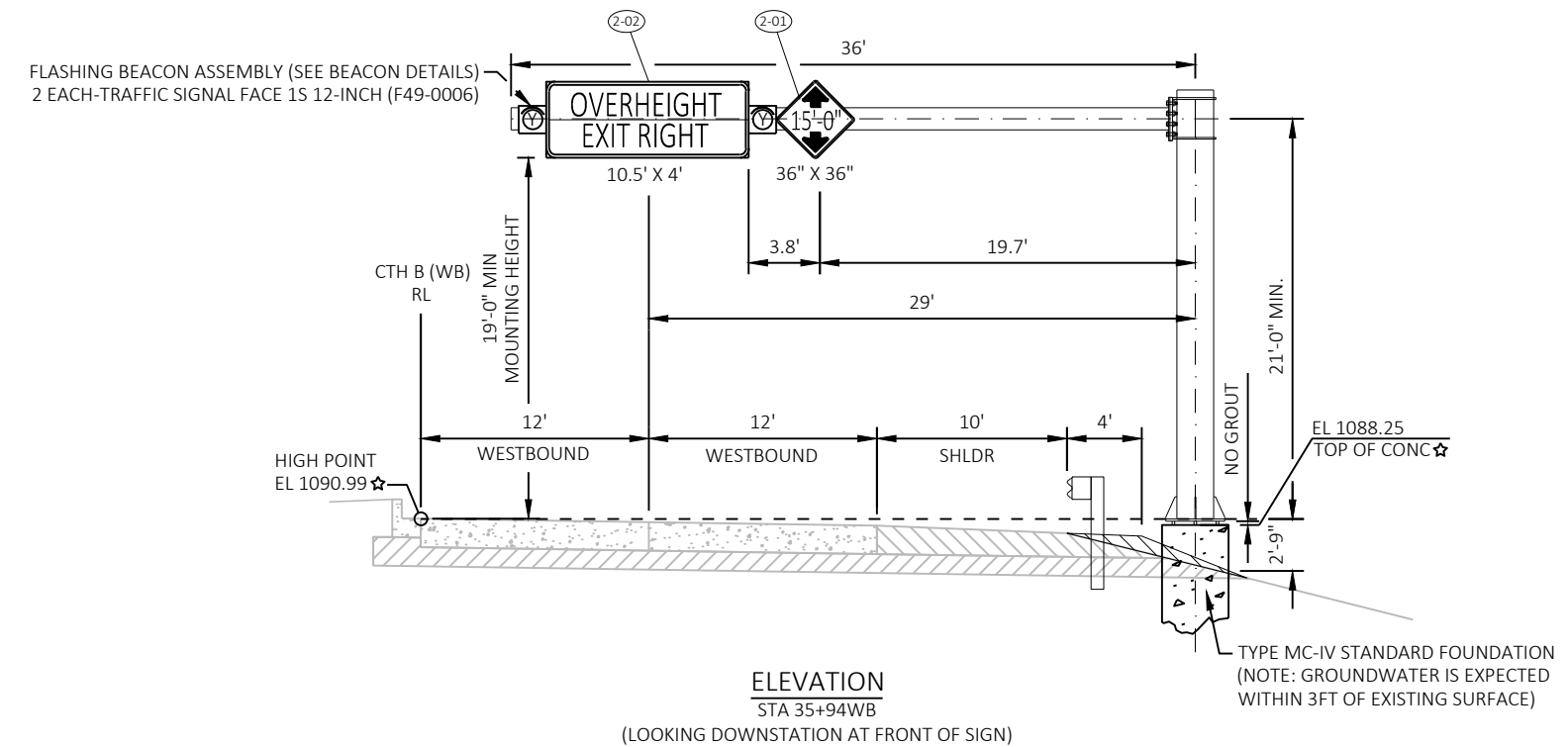
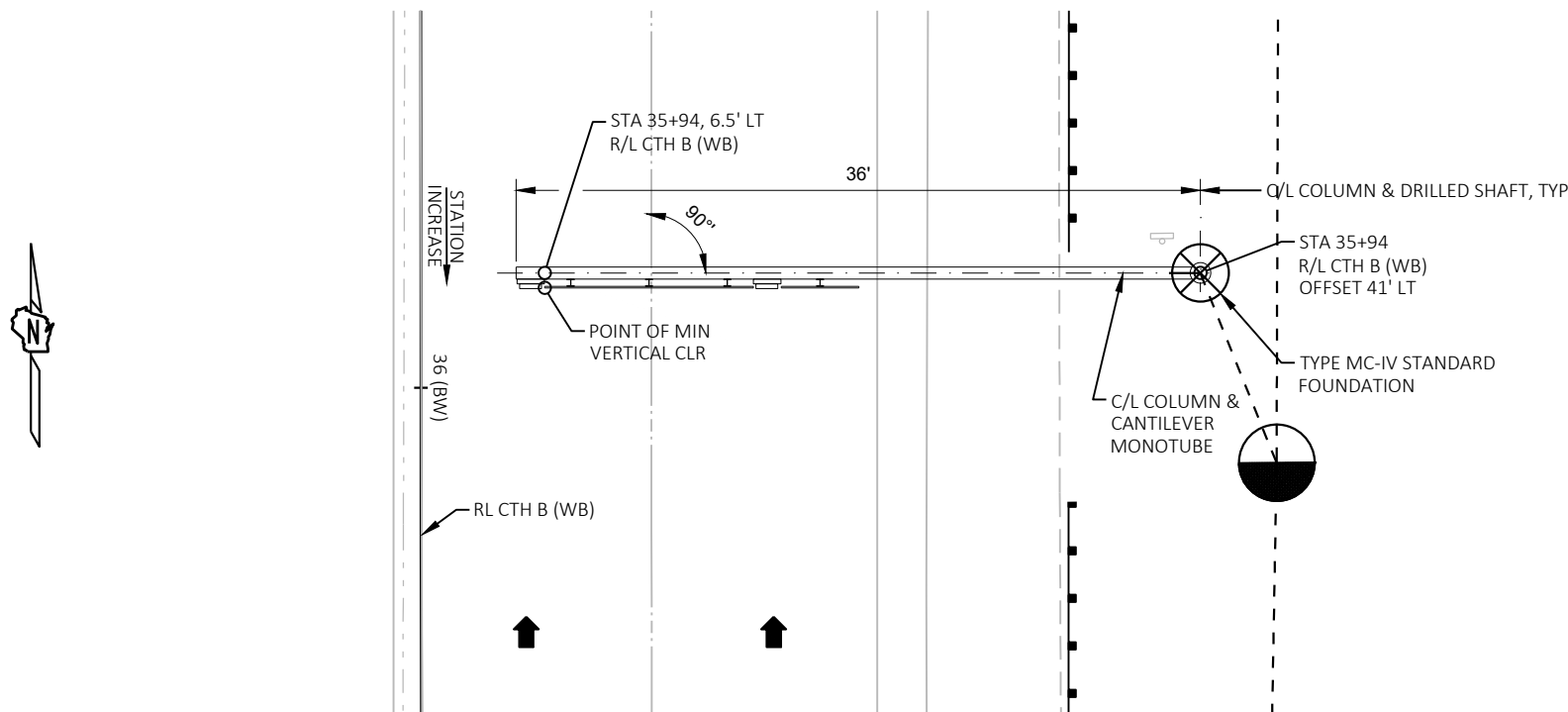
PLOT BY : CASPER, ANDREW P

PLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDs SHEET 42

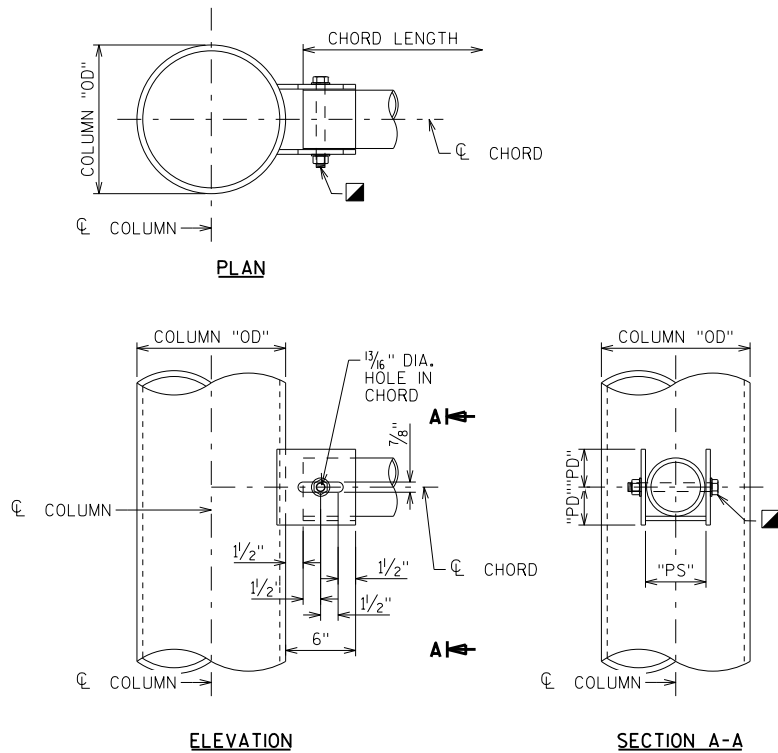
8



NOTE  
POINT OF MIN. VERTICAL CLEARANCE  
STA 35+94WB, 6.5' LEFT  
EL 1090.89

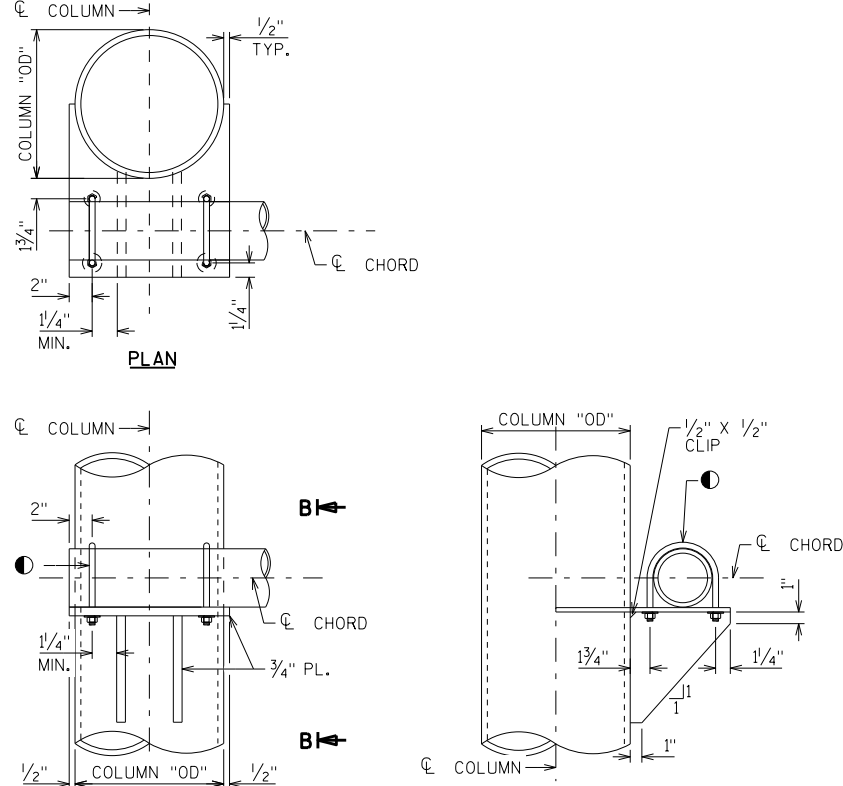
LEGEND  
☆ ELEVATIONS GIVEN ALONG C/L MONOTUBE CHORD  
XXX SIGN NUMBERS (PERMANENT SIGN PLAN)

|                                                                                 |      |              |               |
|---------------------------------------------------------------------------------|------|--------------|---------------|
|                                                                                 |      |              |               |
| NO.                                                                             | DATE | REVISION     | BY            |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION<br>STRUCTURES DESIGN SECTION |      |              |               |
| STRUCTURE S-49-34                                                               |      |              |               |
| DRAWN<br>BY                                                                     |      | APC          | PLANS<br>CK'D |
| GENERAL LAYOUT<br>S-49-34                                                       |      | SHEET 2 OF 5 |               |
|                                                                                 |      | 231          |               |



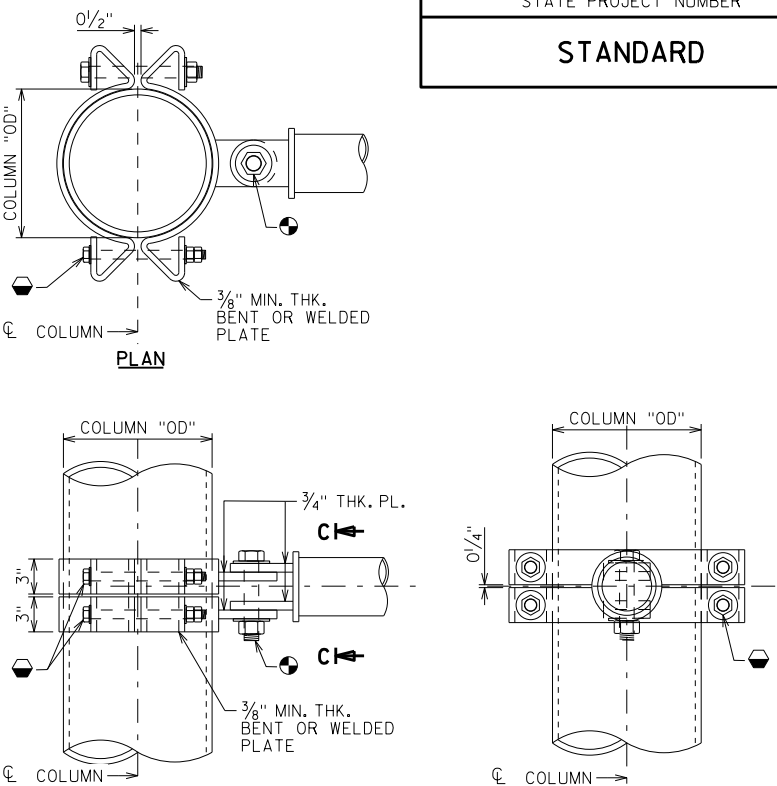
FULL SPAN SADDLE CONNECTION

PREFERRED  
3/4" GALVANIZED A325 OR A449 HEAVY HEX BOLT, NUT, WASHER  
"PD" = (CHORD "OD")/2 + 3/4"  
"PS" = CHORD "OD" + 3/16"



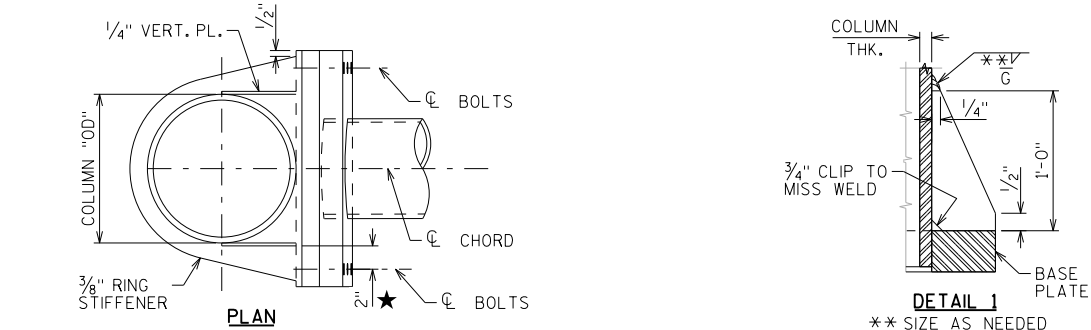
FULL SPAN STIFFENED BEARING CONNECTION

ALTERNATE 1  
(2) - 1/2" MIN. GALVANIZED U-BOLT, NUT, WASHER AND LOCK WASHER



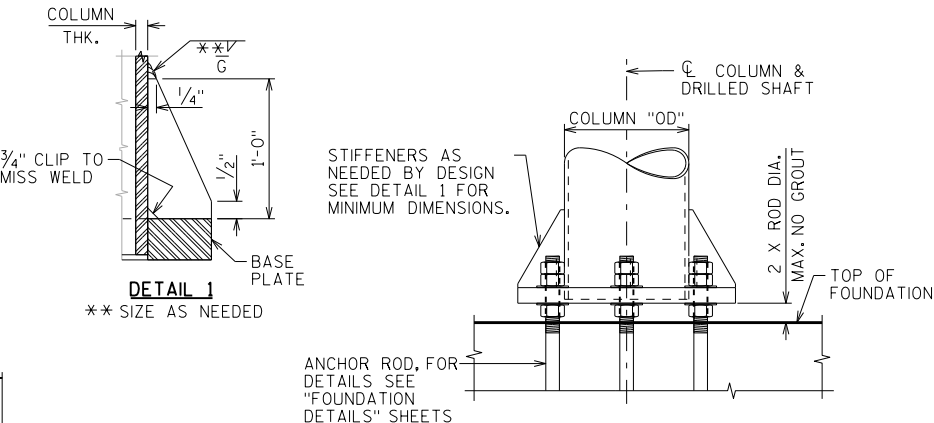
FULL SPAN CLAMP CONNECTION

ALTERNATE 2 - TAPERED COLUMNS ONLY  
1/4" GALVANIZED A325 HEAVY HEX BOLT, NUT AND WASHER  
1" GALVANIZED A449 HEAVY HEX BOLT, NUT AND WASHER



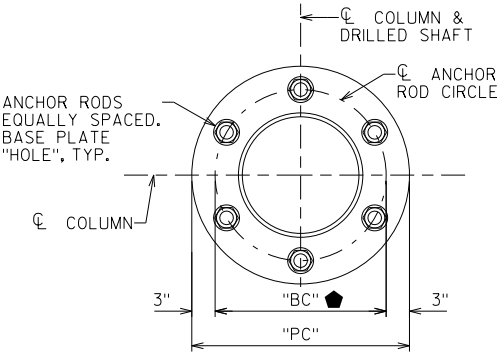
CANTILEVER POST TO CHORD CONNECTION

▲ MIN. CONNECTION = (6) - 1" GALVANIZED F3125 GRADE A325 BOLTS, NUT, WASHER AND DTI  
★ MIN. DIMENSION MEASURED FROM EXT. FACE OF VERT. PLATE



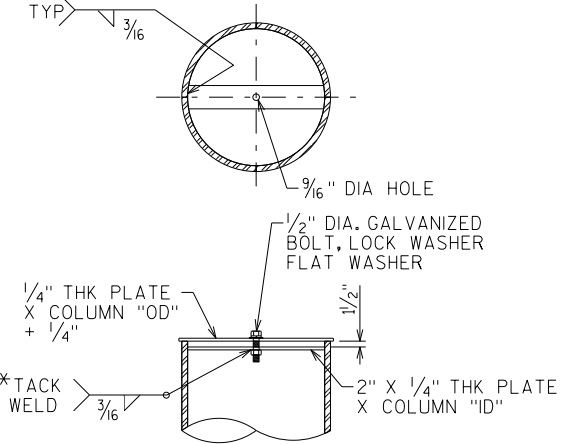
BASE PLATE & COLUMN DETAIL

LOOKING AT FRONT FACE OF STRUCTURE



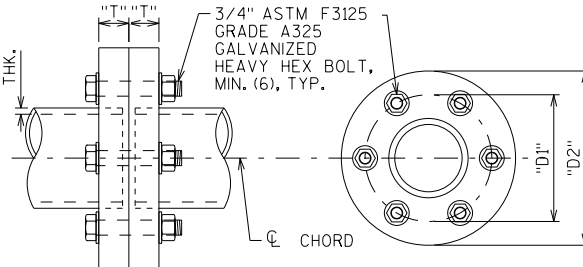
BASE PLATE

"BC" = POLE OD + 6"



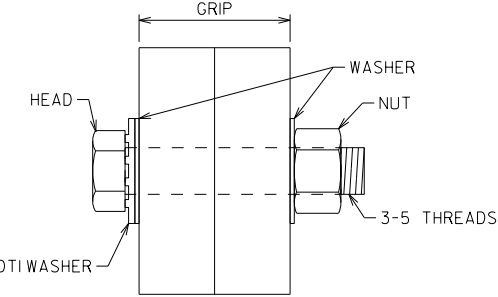
COLUMN/CHORD CAP DETAIL

\* 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

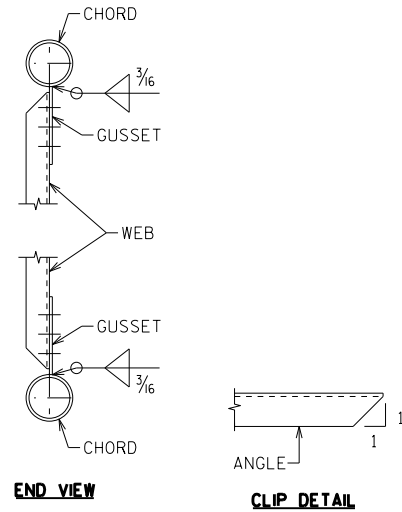


RECOMMENDED BOLT  
DETAIL WITH DTI

NUT IS THE TURNED ELEMENT

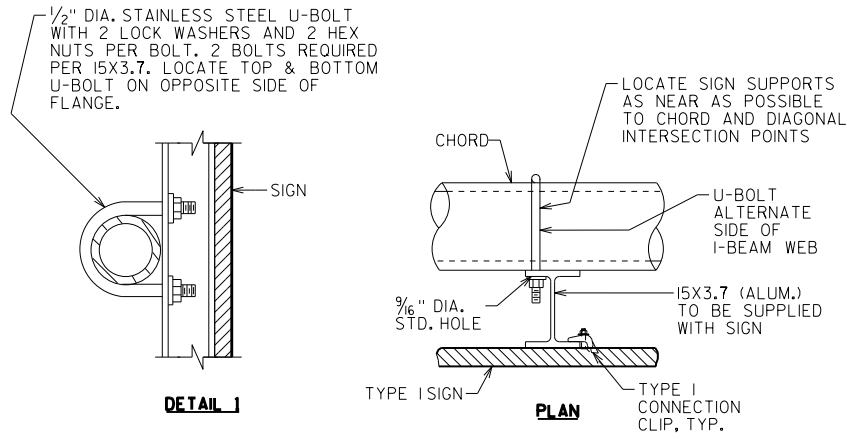
**NOTES:**  
MINIMUM VALUES SHOWN  
ALL CONNECTIONS ARE TO BE DESIGNED FOR ACTUAL STRUCTURE LOADS.

| NO.                                                                             | DATE | REVISION     | BY              |
|---------------------------------------------------------------------------------|------|--------------|-----------------|
|                                                                                 |      |              |                 |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION<br>STRUCTURES DESIGN SECTION |      |              |                 |
| UPDATED:                                                                        |      | DEC. 2020    |                 |
| DRAWN BY                                                                        |      | BOS          | PLANS CK'D. BOS |
| MONOTUBE & 2-CHORD TRUSS DETAILS 1                                              |      | SHEET 1 OF 4 |                 |
|                                                                                 |      | 232          |                 |



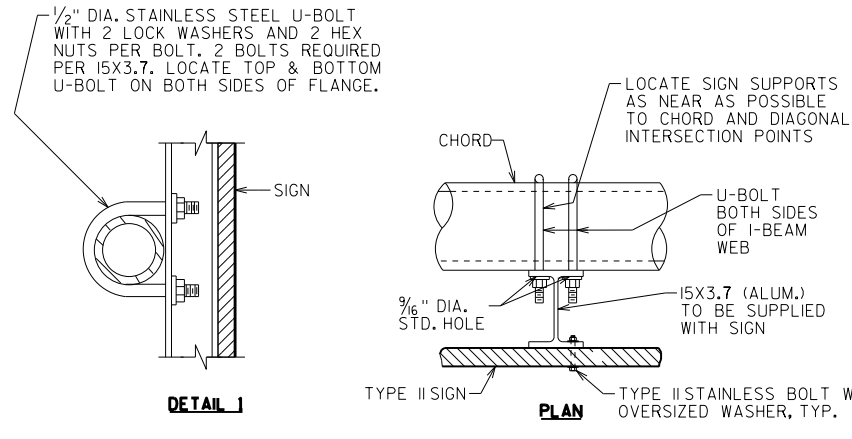
**TRUSS CONNECTION DETAILS**

BOLTED CONNECTIONS SHOWN, NUMBER OF BOLTS BY DESIGN  
WELDED CONNECTIONS SIMILAR



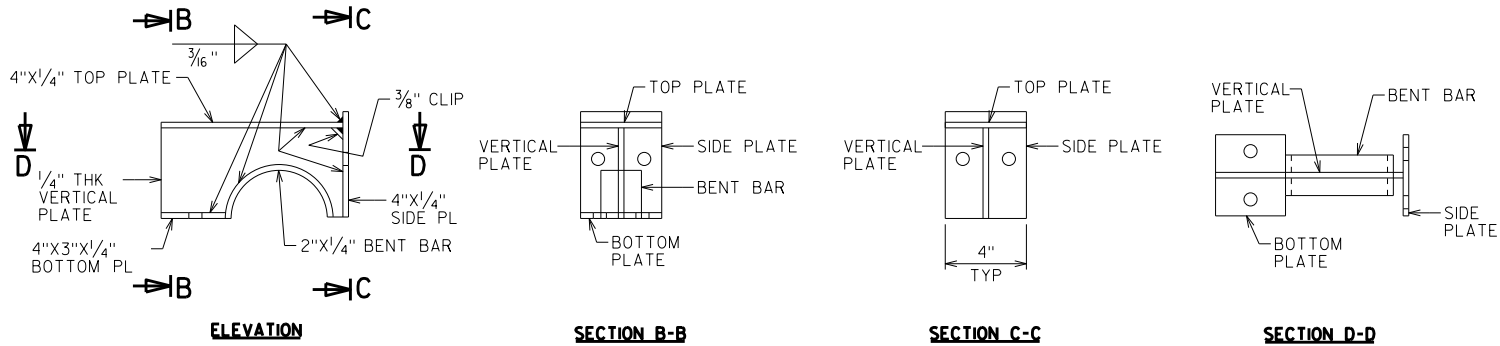
**2-CHORD TRUSS SIGN CONNECTION**

SEE SIGN PLATE MANUAL A4-7A FOR DETAILS



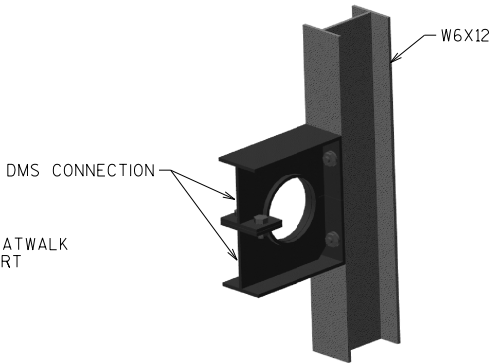
**MONOTUBE SIGN CONNECTION**

SEE SIGN PLATE MANUAL A4-7B FOR DETAILS



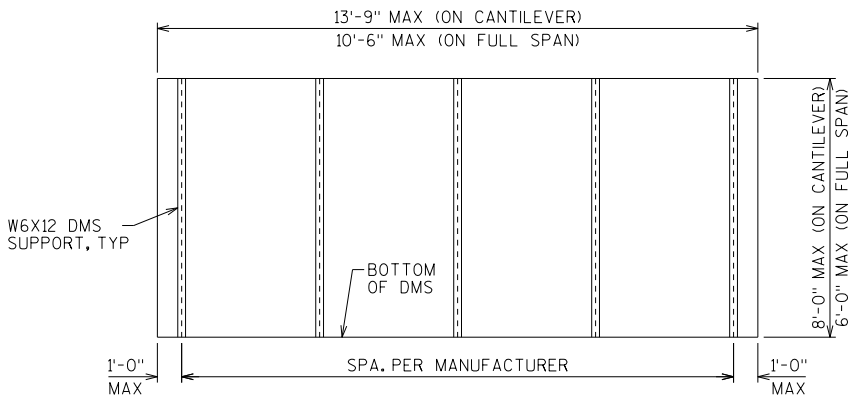
**DMS WELDED PLATE CONNECTION DETAILS**

TOP PLATE CLAMP SHOWN  
BOTTOM PLATE CLAMP SIMILIAR



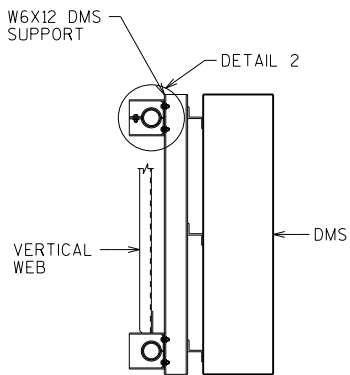
**3-D VIEW DMS CONNECTION**

CHORD NOT SHOWN FOR CLARITY



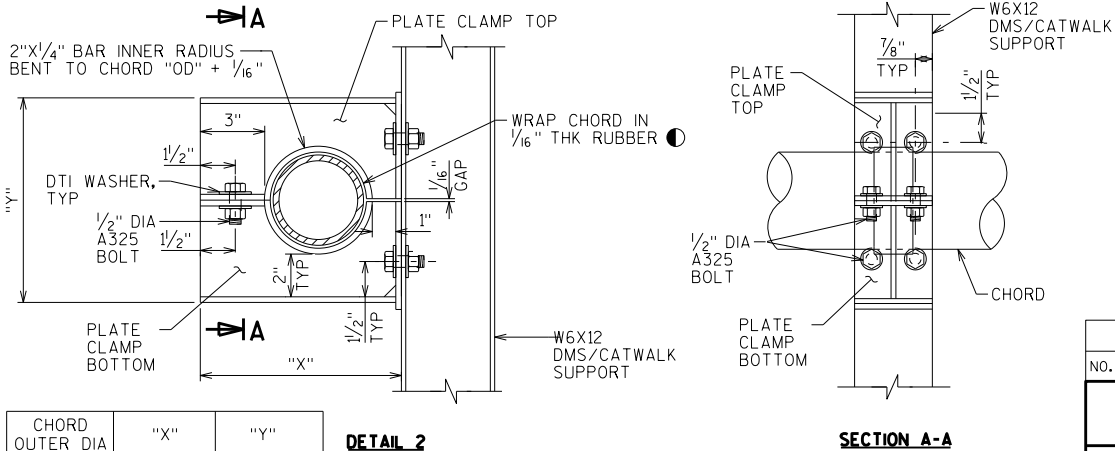
**DMS MOUNTING POST SPACING DETAIL**

POST SPACING MAY BE ADJUSTED AS REQUIRED IF CONFLICT WITH TRUSS IS ENCOUNTERED.



**SECTION THRU TRUSS**

FOR DMS CONNECTION



**TYPICAL DMS CONNECTION**

NEOPRENE, GRADE 45±5, OTHERWISE MEETING THE REQUIREMENTS OF STD SPEC 506.2.6.1

|                 |              |              |
|-----------------|--------------|--------------|
| CHORD OUTER DIA | "X"          | "Y"          |
| "OD"            | "OD"+4 1/16" | "OD"+5 1/16" |

|                                                                                 |      |           |                 |
|---------------------------------------------------------------------------------|------|-----------|-----------------|
| NO.                                                                             | DATE | REVISION  | BY              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION<br>STRUCTURES DESIGN SECTION |      |           |                 |
| UPDATED:                                                                        |      | DEC. 2020 |                 |
| DRAWN BY                                                                        |      | BOS       | PLANS CK'D. BOS |
| MONOTUBE & 2-CHORD TRUSS DETAILS 2                                              |      |           | SHEET 11 OF 14  |
|                                                                                 |      |           | 233             |



UNLESS NOTED OTHERWISE, ALL HANDHOLE ELEMENTS TO BE GALVANIZED PER THE WISDOT STANDARD SPECIFICATIONS.

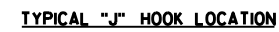


Diagram illustrating the assembly of a pole-mounted equipment grounding conductor:

- HEX HEAD BOLT  $\frac{1}{4}$ " X 1" X 20TPI
- FLAT WASHER
- EQUIPMENT GROUNDING CONDUCTORS
- NEMA APPROVED FEED THROUGH TYPE MECHANICAL CONNECTOR (LUG) AL/CU - U.L. LISTED
- LOCK WASHER
- NUT
- FACTORY WELDED BRACKET TO POLE

### GROUNDING LUG DETAIL

NUT, BOLT AND WASHERS SHALL  
BE STAINLESS STEEL



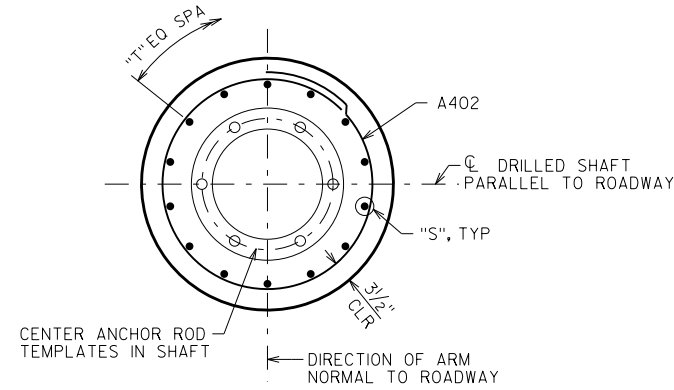
(ONLY REQ'D. WHEN ELECTRICAL DEVICES ARE INSTALLED)

|                                                                                        |      |                  |                           |
|----------------------------------------------------------------------------------------|------|------------------|---------------------------|
|                                                                                        |      |                  |                           |
| NO.                                                                                    | DATE | REVISION         | BY                        |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION<br><b>STRUCTURES DESIGN SECTION</b> |      |                  |                           |
| <b>UPDATED:</b>                                                                        |      | <b>DEC. 2020</b> |                           |
|                                                                                        |      | DRAWN<br>BY      | PLANS<br>CK'D. <b>BOS</b> |
| <b>MONOTUBE &amp;<br/>2-CHORD TRUSS<br/>ELECTRICAL DETAILS</b>                         |      | SHEET III OF IV  |                           |
|                                                                                        |      | 234              |                           |

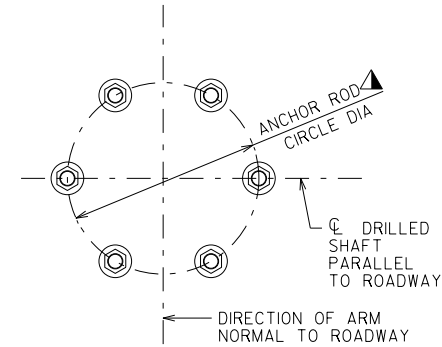


FOUNDATION & REINFORCING DATA

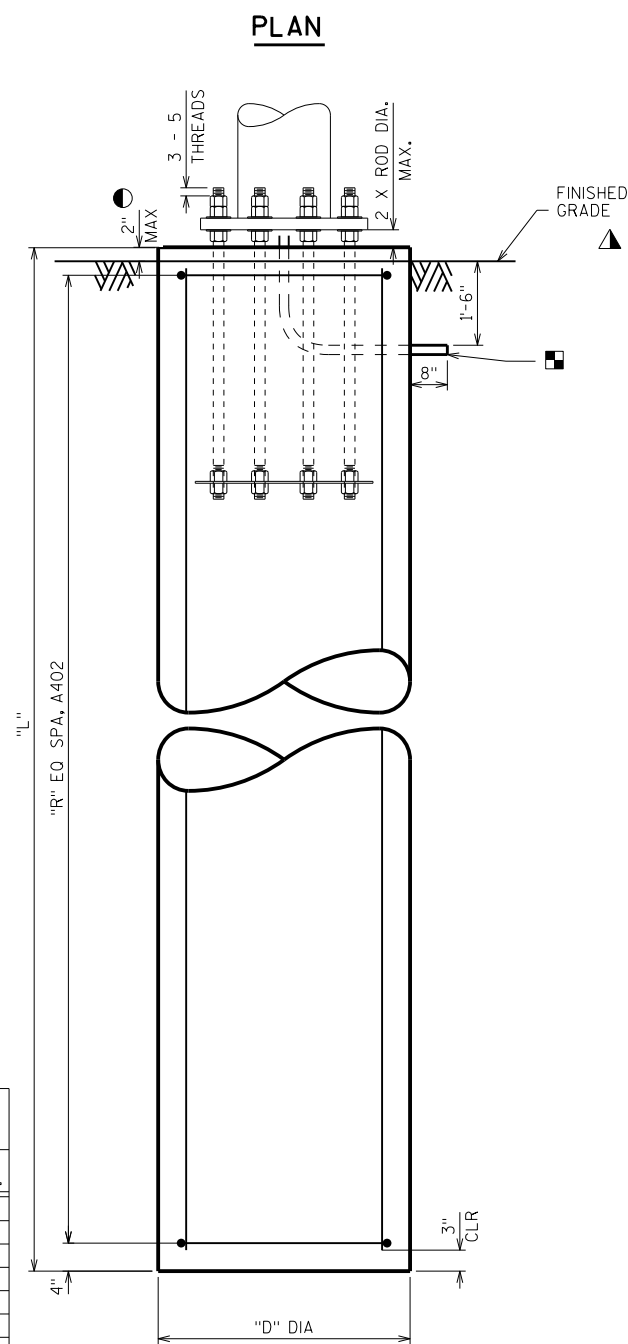
| STANDARD FOUNDATION TYPE | SHAFT VARIABLES |        |     |       |     |          |
|--------------------------|-----------------|--------|-----|-------|-----|----------|
|                          | "D"             | "L"    | "R" | "S"   | "T" | "BC" MAX |
| MF I                     | 2'-0"           | 12'-0" | 12  | A801  | 6   | 12"      |
| MF II                    | 2'-6"           | 13'-0" | 13  | A801  | 10  | 17"      |
| MC I/MC II/TF I          | 2'-6"           | 17'-0" | 17  | A801  | 10  | 17"      |
| TC I                     | 3'-0"           | 18'-0" | 18  | A801  | 14  | 22"      |
| TF II                    | 3'-0"           | 20'-0" | 20  | A801  | 14  | 22"      |
| MC III/TC II/TF III      | 3'-6"           | 18'-0" | 18  | A901  | 14  | 28"      |
| MC IV/TF IV              | 3'-6"           | 23'-0" | 23  | A901  | 14  | 28"      |
| TC III                   | 4'-0"           | 23'-0" | 23  | A1001 | 14  | 34"      |
| TC IV                    | 4'-0"           | 28'-0" | 28  | A1001 | 14  | 34"      |



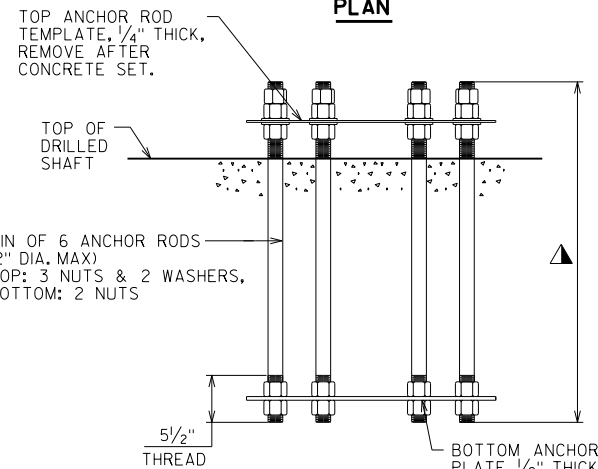
PLAN



PLAN



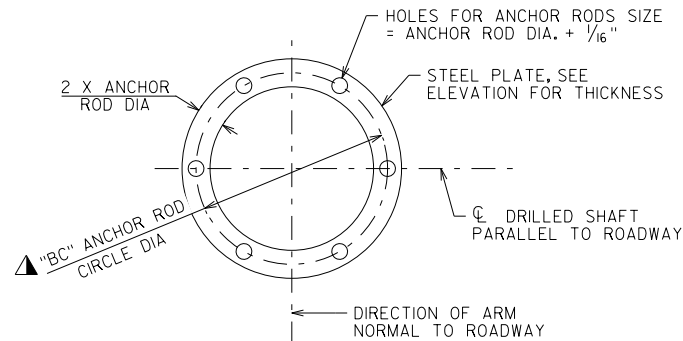
ELEVATION



ELEVATION

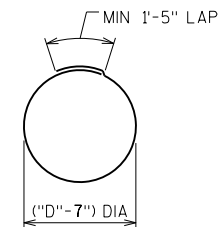
ANCHOR ROD ASSEMBLY DETAILS

ANCHOR ROD NUMBER, DIAMETER, LENGTH & ORIENTATION AS SHOWN ON FABRICATION DRAWING.



ANCHOR PLATE/TOP TEMPLATE

PLAN



A402

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.

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 MF I

| 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 MF II

| 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 MC I/MC II/TF I

| 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 TC I

| 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 TF I

| 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 MC III/TC II/TF III

| 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 MC IV/TF IV

| 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 TC III

| 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 TC IV

| 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 |

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. |
| MF I                     | 2                     | 240                          | 12                       |          |          |          |          |
| MF II                    | 3                     | 410                          |                          | 13       |          |          |          |
| MC I/MC II/TF I          | 4                     | 540                          |                          | 17       |          |          |          |
| TC I                     | 5                     | 780                          |                          |          | 18       |          |          |
| TF II                    | 6                     | 860                          |                          |          | 20       |          |          |
| MC III/TC II/TF III      | 7                     | 970                          |                          |          |          | 18       |          |
| MC IV/TF IV              | 9                     | 1,250                        |                          |          |          | 23       |          |
| TC III                   | 11                    | 1,560                        |                          |          |          |          | 23       |
| TC IV                    | 13                    | 1,900                        |                          |          |          |          | 28       |

\*\* QUANTITIES ARE FOR INFORMATION ONLY AND ARE BASED ON STANDARD STRUCTURE DIMENSIONS

| NO.                                                                             | DATE | REVISION  | BY             |
|---------------------------------------------------------------------------------|------|-----------|----------------|
|                                                                                 |      |           |                |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION<br>STRUCTURES DESIGN SECTION |      |           |                |
| UPDATED:                                                                        |      | DEC. 2020 |                |
|                                                                                 |      | DRAWN BY  | PLANS CK'D.    |
|                                                                                 |      | BOS       | BOS            |
| MONOTUBE &<br>2-CHORD TRUSS<br>FOUNDATIONS                                      |      |           | SHEET IV OF IV |
|                                                                                 |      |           | 235            |

SCALE = 1:67

DIVISION 1 - 39N

| STATION | AREA (SF) |                                     |       | INCREMENTAL VOL (CY) (UNADJUSTED) |                                     |        | CUMULATIVE VOL (CY) |               |              |
|---------|-----------|-------------------------------------|-------|-----------------------------------|-------------------------------------|--------|---------------------|---------------|--------------|
|         | CUT       | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL  | CUT                               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL   | CUT                 | EXPANDED FILL | MASS ORDNATE |
|         |           |                                     |       |                                   |                                     |        |                     |               |              |
|         |           |                                     |       |                                   |                                     |        |                     |               |              |
|         |           |                                     |       | NOTE 1                            | NOTE 2                              | NOTE 3 | NOTE 1              | 1.00          | NOTE 8       |
| 1024+00 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 1025+00 | 0.00      | 0.00                                | 38.22 | 0                                 | 0                                   | 71     | 0                   | 71            | -71          |
| 1025+31 | 0.00      | 0.00                                | 55.58 | 0                                 | 0                                   | 54     | 0                   | 125           | -125         |
| 1025+56 | 0.43      | 0.00                                | 60.08 | 0                                 | 0                                   | 54     | 0                   | 179           | -179         |
| 1025+81 | 0.00      | 0.00                                | 63.83 | 0                                 | 0                                   | 57     | 0                   | 236           | -236         |
| 1026+06 | 0.88      | 0.00                                | 45.07 | 0                                 | 0                                   | 50     | 0                   | 286           | -286         |
| 1026+31 | 1.21      | 0.00                                | 42.58 | 1                                 | 0                                   | 41     | 1                   | 327           | -326         |
| 1027+00 | 0.00      | 0.00                                | 0.00  | 2                                 | 0                                   | 54     | 3                   | 381           | -378         |
| 1036+00 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 0      | 3                   | 381           | -378         |
| 1036+89 | 1.77      | 0.00                                | 13.30 | 3                                 | 0                                   | 22     | 6                   | 403           | -397         |
| 1037+14 | 0.99      | 0.00                                | 13.89 | 1                                 | 0                                   | 13     | 7                   | 416           | -409         |
| 1037+40 | 0.11      | 0.00                                | 22.02 | 1                                 | 0                                   | 17     | 8                   | 433           | -425         |
| 1037+65 | 2.91      | 0.00                                | 16.39 | 1                                 | 0                                   | 18     | 9                   | 451           | -442         |
| 1037+89 | 1.78      | 0.00                                | 6.63  | 2                                 | 0                                   | 10     | 11                  | 461           | -450         |
| 1038+00 | 0.11      | 0.00                                | 14.14 | 0                                 | 0                                   | 4      | 11                  | 465           | -454         |
| 1039+00 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 26     | 11                  | 491           | -480         |
| 1044+50 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 0      | 11                  | 491           | -480         |
| 1045+00 | 3.84      | 2.29                                | 0.01  | 4                                 | 2                                   | 0      | 15                  | 491           | -478         |
| 1046+00 | 5.52      | 3.19                                | 0.06  | 17                                | 10                                  | 0      | 32                  | 491           | -471         |
| 1047+00 | 6.99      | 3.60                                | 0.16  | 23                                | 13                                  | 0      | 55                  | 491           | -461         |
| 1048+00 | 8.46      | 4.00                                | 0.44  | 29                                | 14                                  | 1      | 84                  | 492           | -447         |
| 1049+00 | 10.00     | 4.47                                | 0.69  | 34                                | 16                                  | 2      | 118                 | 494           | -431         |
| 1050+00 | 11.04     | 4.44                                | 1.79  | 39                                | 17                                  | 5      | 157                 | 499           | -414         |
| 1051+00 | 10.78     | 4.22                                | 4.03  | 40                                | 16                                  | 11     | 197                 | 510           | -401         |
| 1052+00 | 10.08     | 4.88                                | 1.85  | 39                                | 17                                  | 11     | 236                 | 521           | -390         |
| 1053+00 | 8.87      | 5.46                                | 0.98  | 35                                | 19                                  | 5      | 271                 | 526           | -379         |
| 1054+00 | 7.01      | 5.52                                | 0.03  | 29                                | 20                                  | 2      | 300                 | 528           | -372         |
| 1054+50 | 0.00      | 0.00                                | 0.00  | 6                                 | 5                                   | 0      | 306                 | 528           | -371         |

DIVISION 2 - 39S

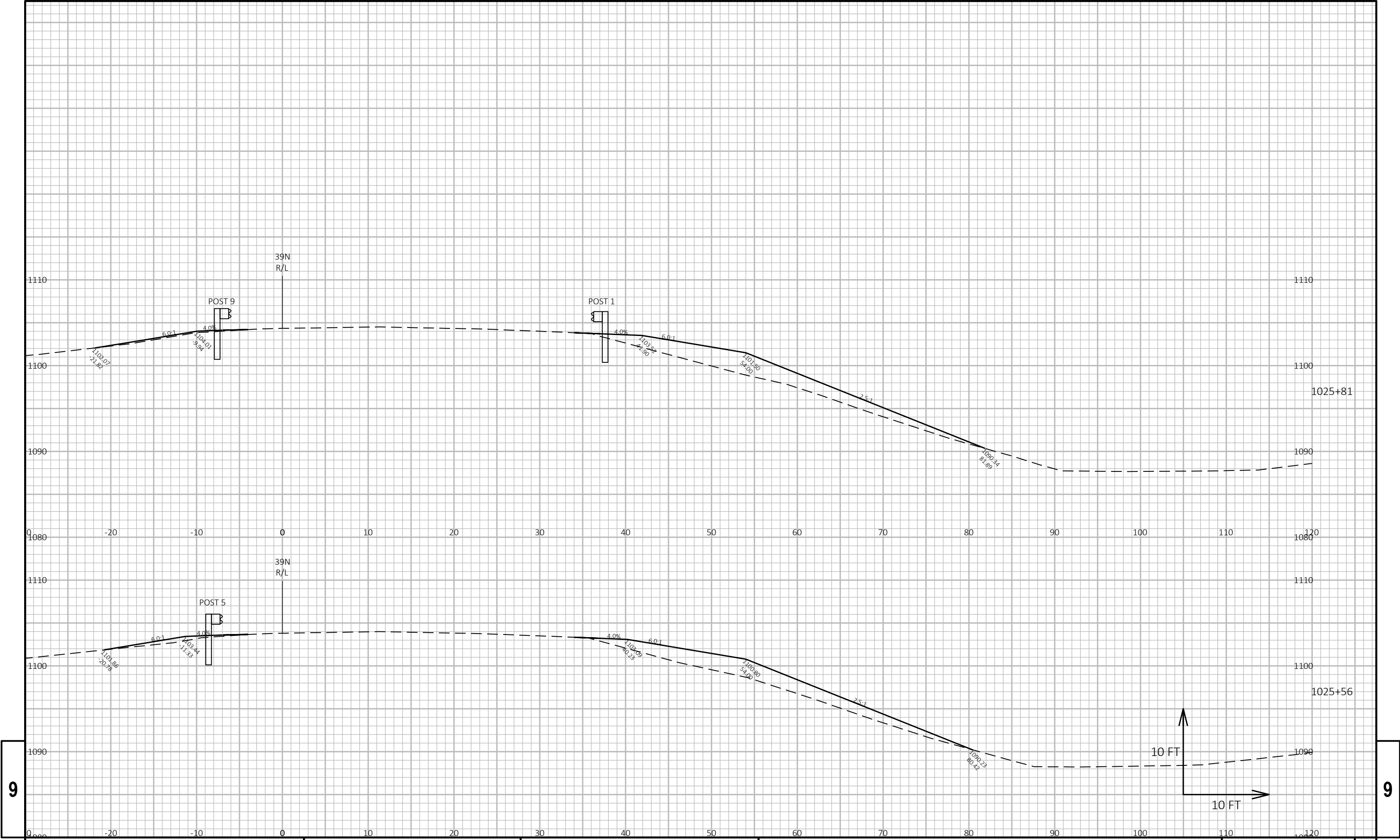
| STATION | AREA (SF) |                                     |       | INCREMENTAL VOL (CY) (UNADJUSTED) |                                     |        | CUMULATIVE VOL (CY) |               |              |
|---------|-----------|-------------------------------------|-------|-----------------------------------|-------------------------------------|--------|---------------------|---------------|--------------|
|         | CUT       | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL  | CUT                               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL   | CUT                 | EXPANDED FILL | MASS ORDNATE |
|         |           |                                     |       |                                   |                                     |        |                     |               |              |
|         |           |                                     |       |                                   |                                     |        |                     |               |              |
|         |           |                                     |       | NOTE 1                            | NOTE 2                              | NOTE 3 | NOTE 1              | 1.00          | NOTE 8       |
| 1031+50 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 1032+22 | 0.14      | 0.00                                | 16.92 | 0                                 | 0                                   | 23     | 0                   | 23            | -23          |
| 1032+47 | 0.01      | 0.00                                | 19.65 | 0                                 | 0                                   | 17     | 0                   | 40            | -40          |
| 1032+72 | 0.06      | 0.00                                | 29.71 | 0                                 | 0                                   | 23     | 0                   | 63            | -63          |
| 1032+97 | 0.00      | 0.00                                | 23.30 | 0                                 | 0                                   | 25     | 0                   | 88            | -88          |
| 1033+22 | 0.00      | 0.00                                | 26.54 | 0                                 | 0                                   | 23     | 0                   | 111           | -111         |
| 1034+00 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 38     | 0                   | 149           | -149         |
| 1043+00 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 0      | 0                   | 149           | -149         |
| 1043+76 | 0.43      | 0.00                                | 8.22  | 1                                 | 0                                   | 12     | 1                   | 161           | -160         |
| 1044+01 | 1.21      | 0.00                                | 15.78 | 1                                 | 0                                   | 11     | 2                   | 172           | -170         |
| 1044+26 | 0.00      | 0.00                                | 19.88 | 1                                 | 0                                   | 17     | 3                   | 189           | -186         |
| 1044+51 | 0.00      | 0.00                                | 23.09 | 0                                 | 0                                   | 20     | 3                   | 209           | -206         |
| 1044+76 | 0.00      | 0.00                                | 22.55 | 0                                 | 0                                   | 21     | 3                   | 230           | -227         |
| 1045+00 | 0.00      | 0.00                                | 16.12 | 0                                 | 0                                   | 17     | 3                   | 247           | -244         |
| 1046+00 | 0.00      | 0.00                                | 0.00  | 0                                 | 0                                   | 30     | 3                   | 277           | -274         |

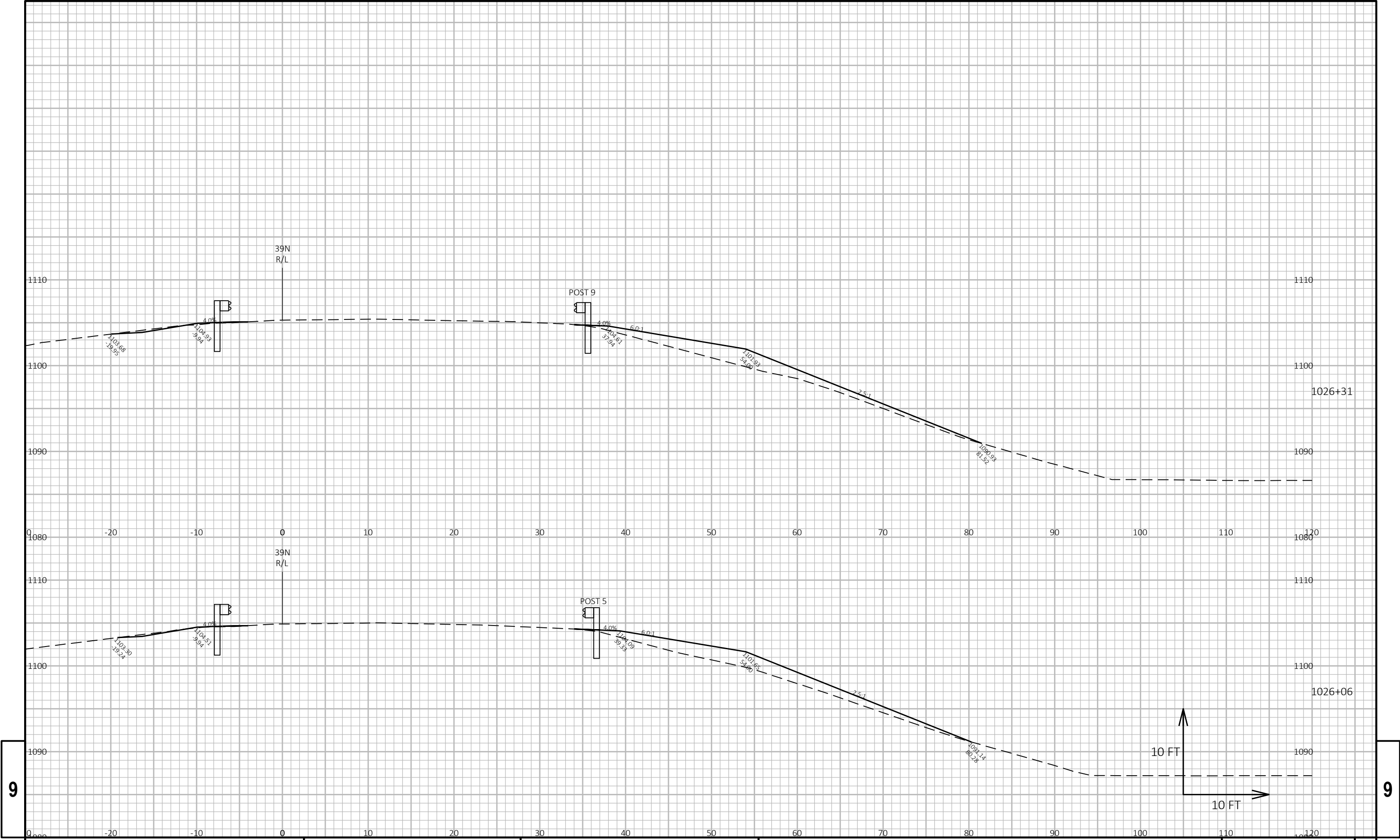
DIVISION 3 - BW

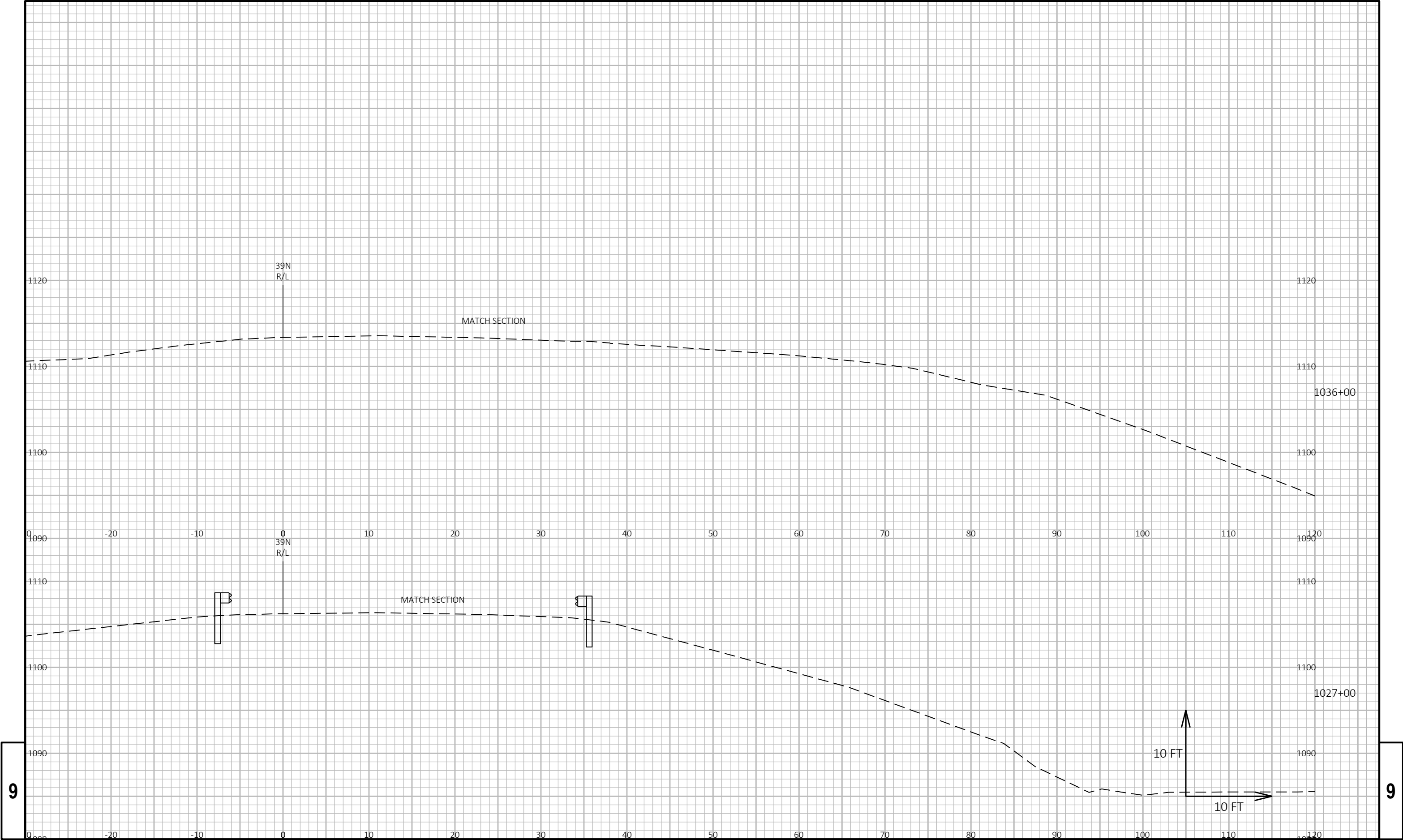
| STATION | AREA (SF) |                                     |      | INCREMENTAL VOL (CY) (UNADJUSTED) |                                     |        | CUMULATIVE VOL (CY) |               |              |
|---------|-----------|-------------------------------------|------|-----------------------------------|-------------------------------------|--------|---------------------|---------------|--------------|
|         | CUT       | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL | CUT                               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL   | CUT                 | EXPANDED FILL | MASS ORDNATE |
|         |           |                                     |      |                                   |                                     |        |                     |               |              |
|         |           |                                     |      |                                   |                                     |        |                     |               |              |
|         |           |                                     |      | NOTE 1                            | NOTE 2                              | NOTE 3 | NOTE 1              | 1.00          | NOTE 8       |
| 25+76   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 26+01   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 26+26   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 28+90   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 29+15   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 29+40   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 36+18   | 0.00      | 0.00                                | 0.00 | 0                                 | 0                                   | 0      | 0                   | 0             | 0            |
| 36+43   | 0.30      | 0.00                                | 2.43 | 0                                 | 0                                   | 1      | 0                   | 1             | -1           |
| 36+68   | 0.50      | 0.00                                | 2.27 | 0                                 | 0                                   | 2      | 0                   | 3             | -3           |
| 37+25   | 0.00      | 0.00                                | 0.00 | 1                                 | 0                                   | 2      | 1                   | 5             | -4           |



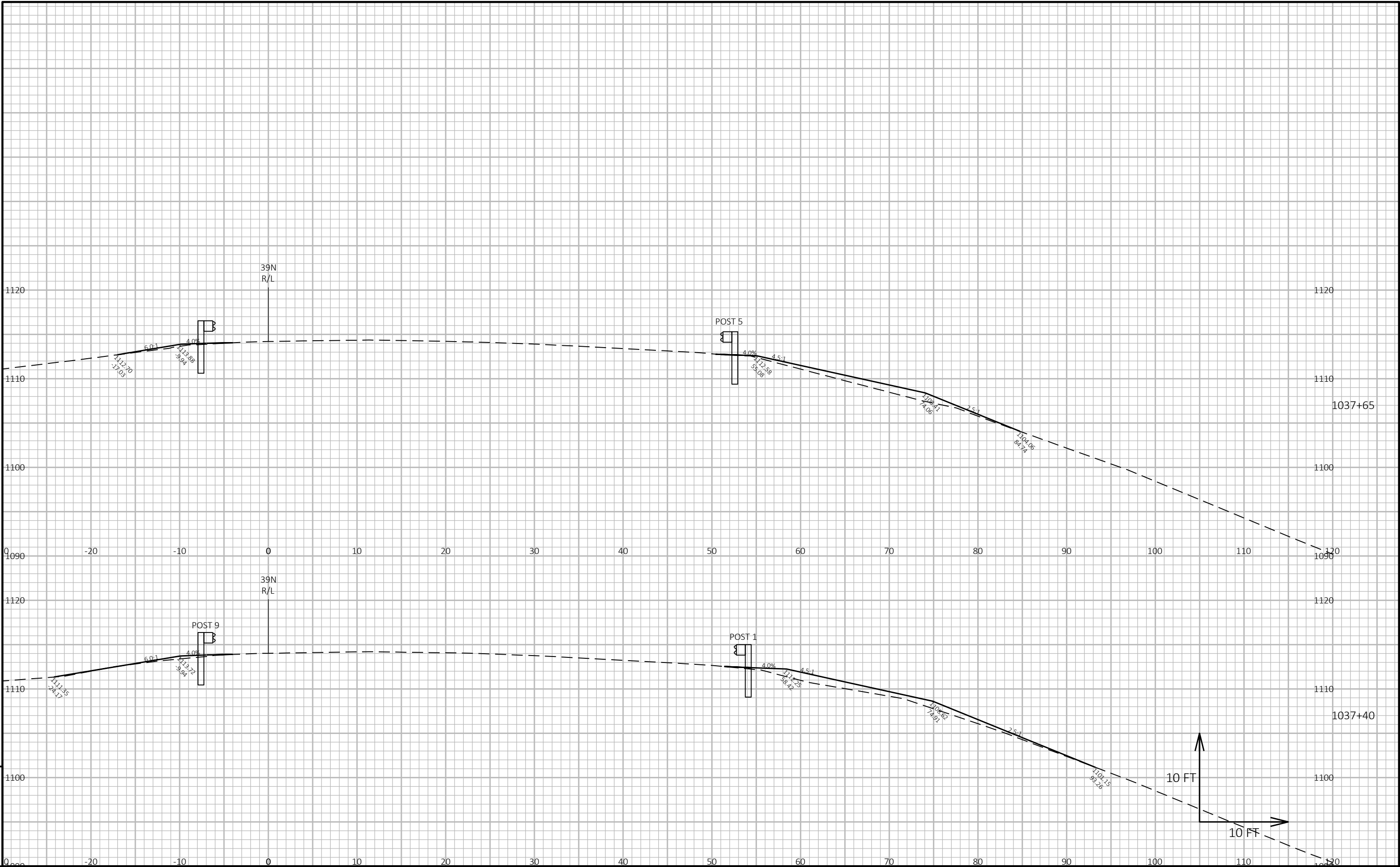




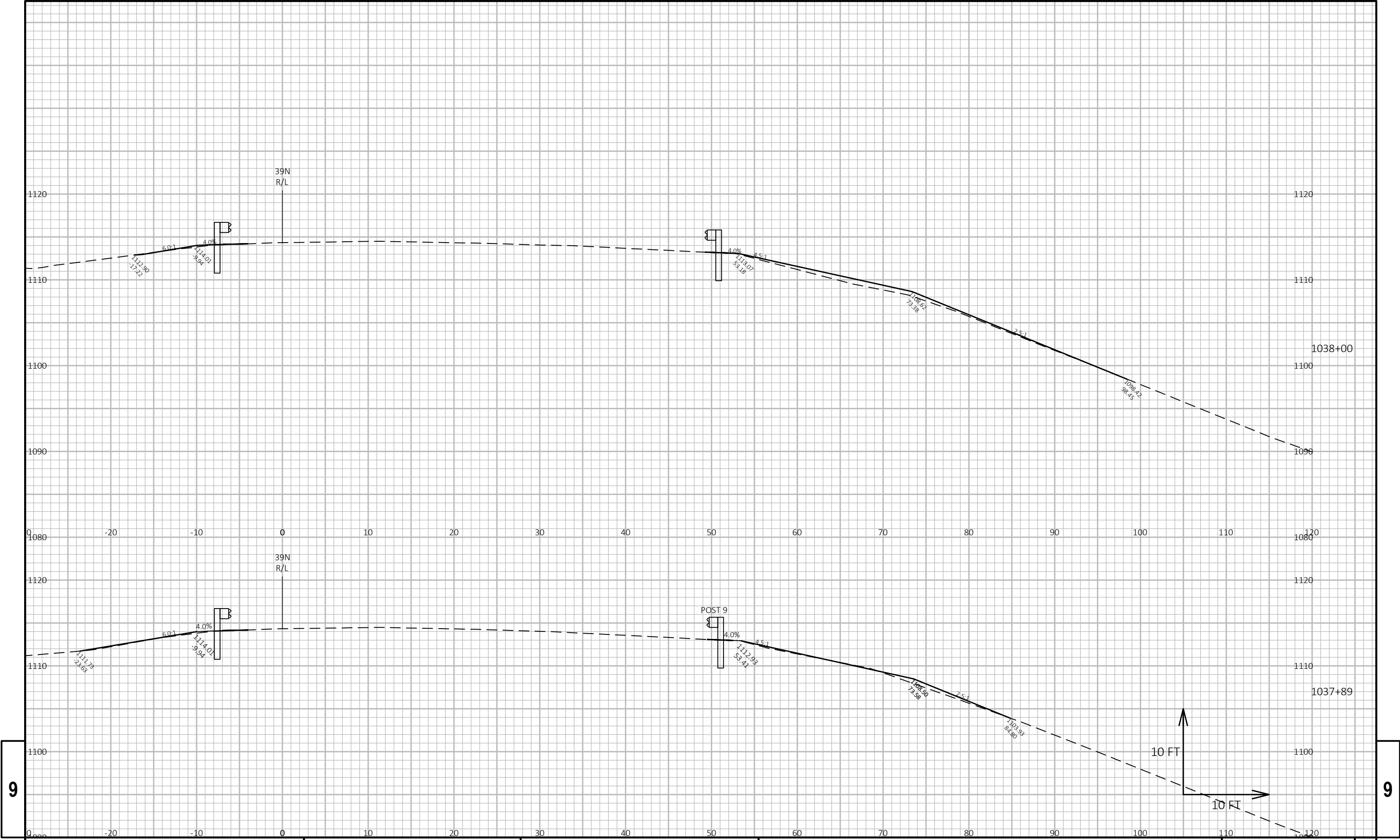


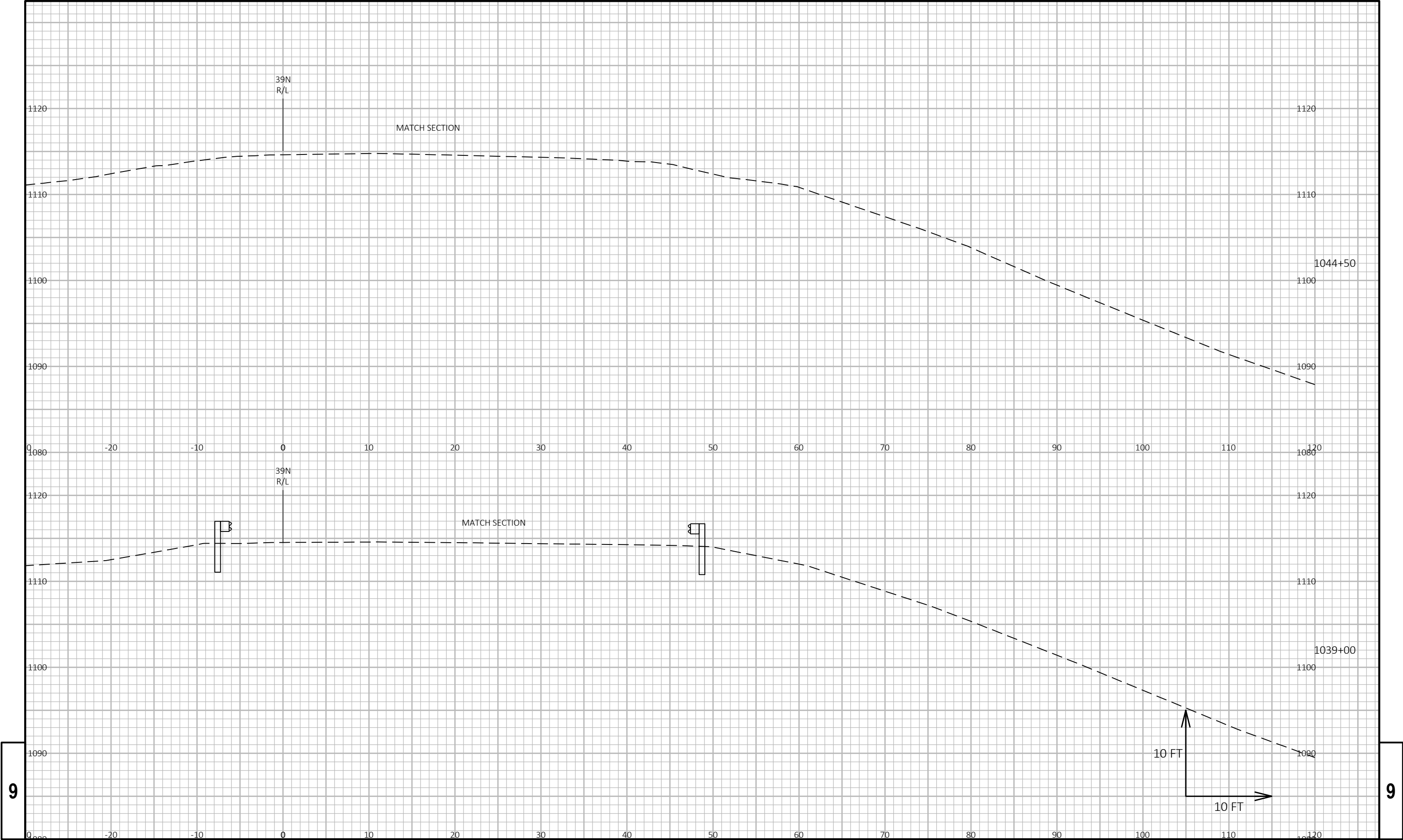




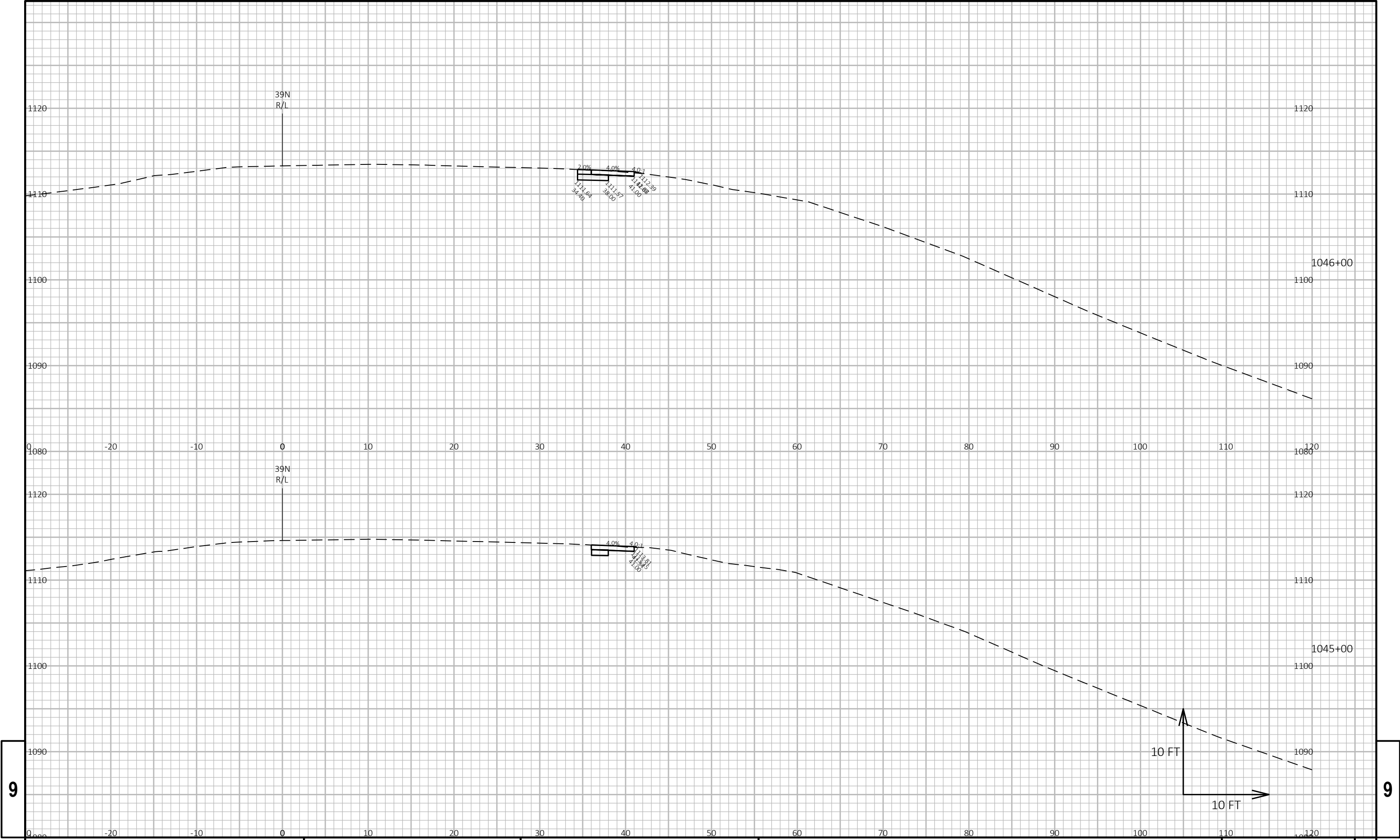


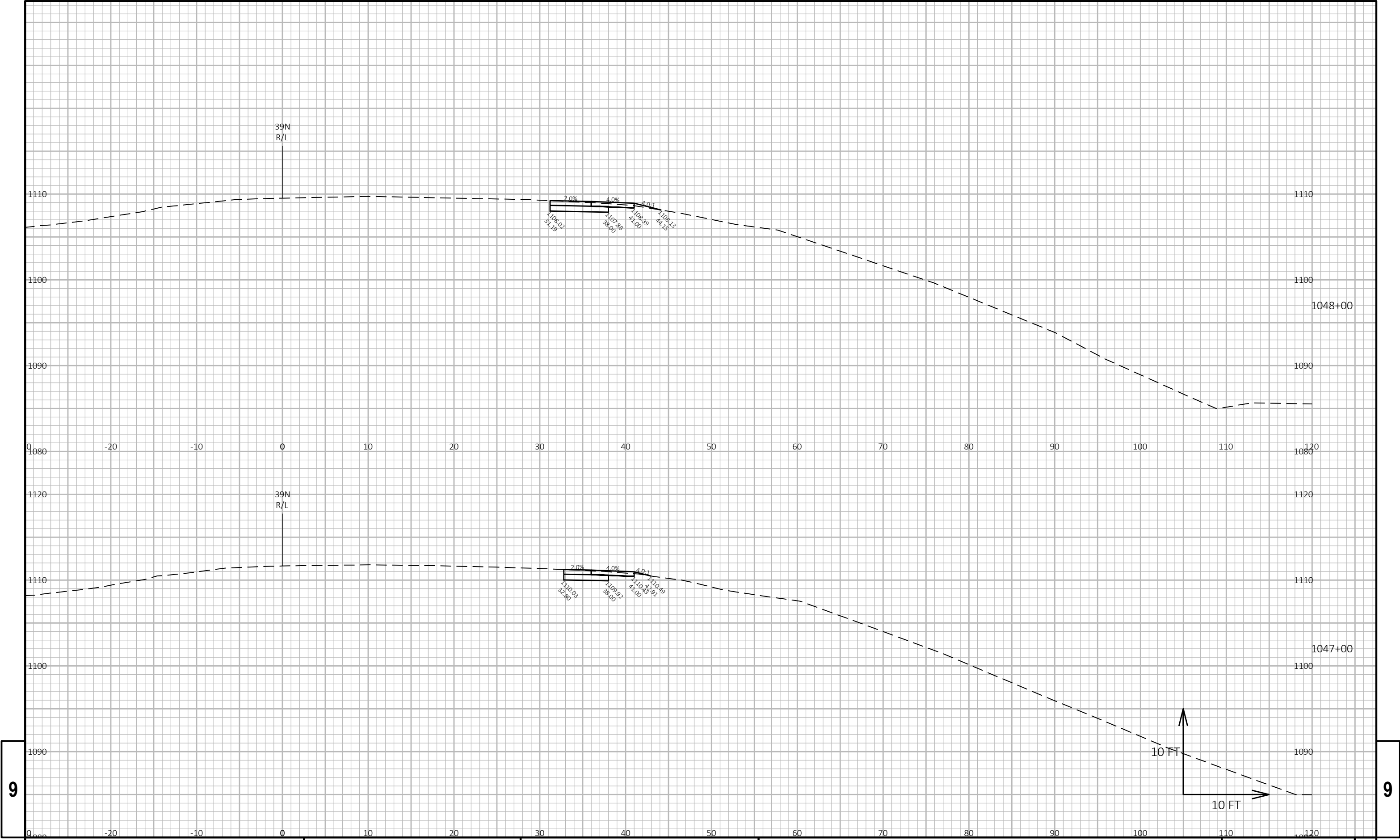


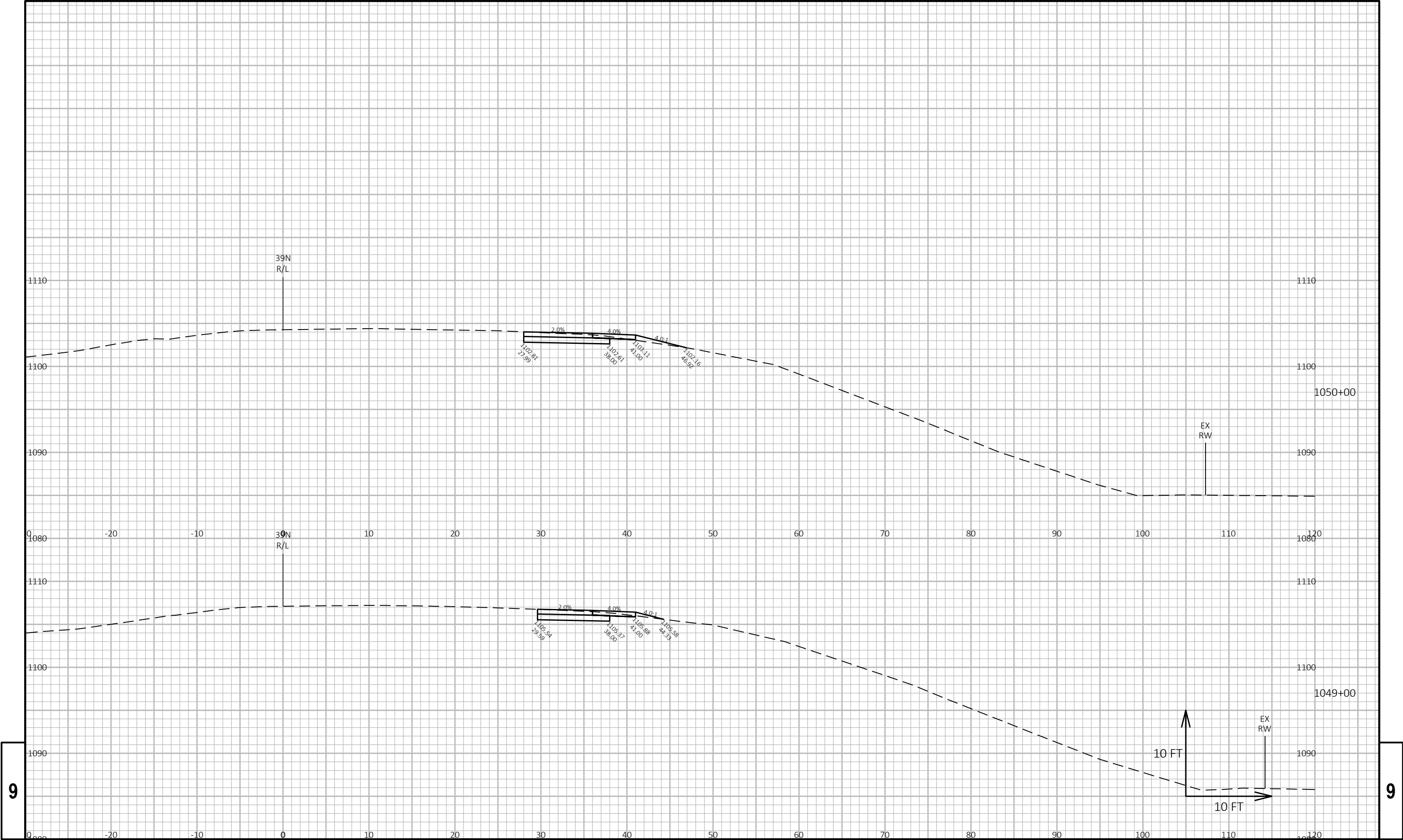


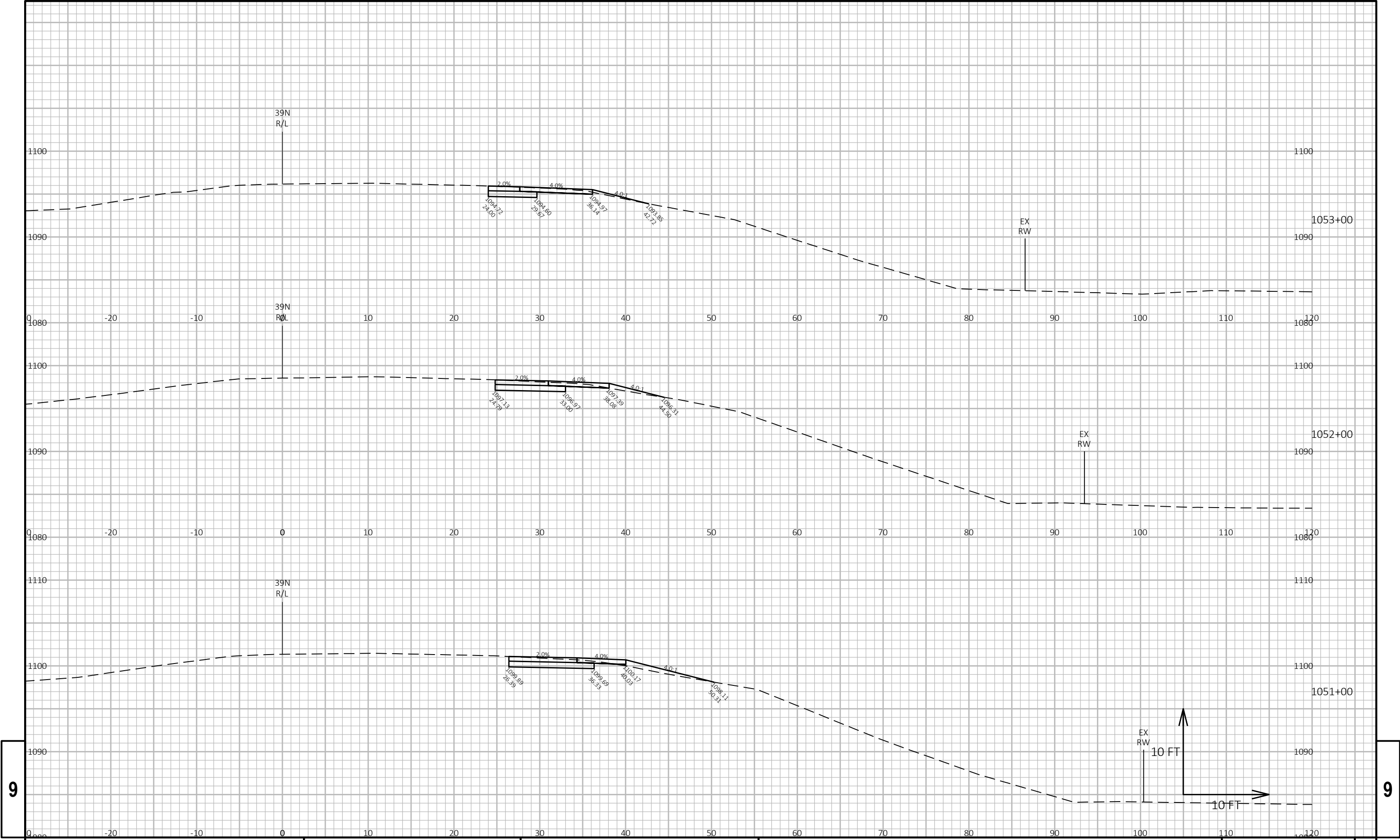




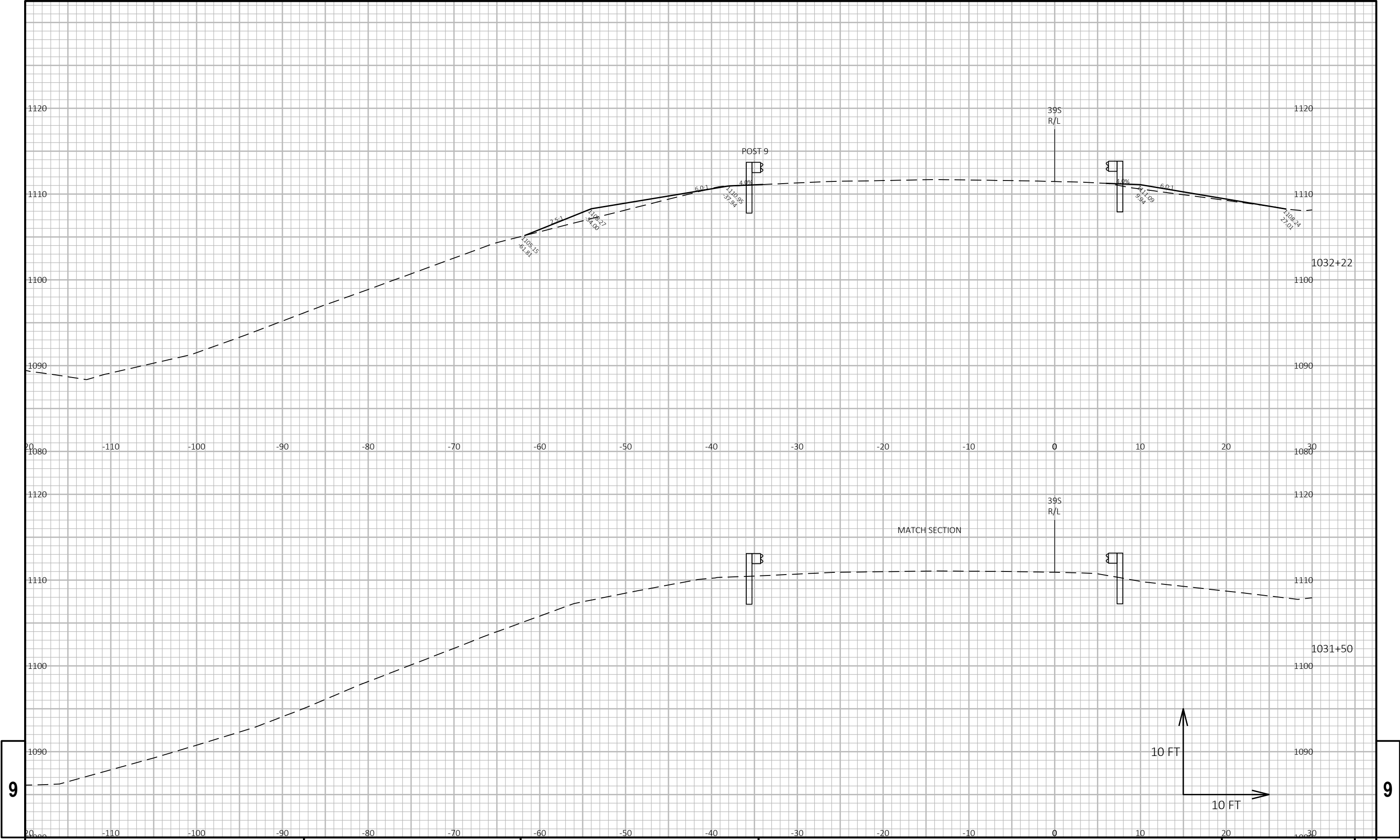








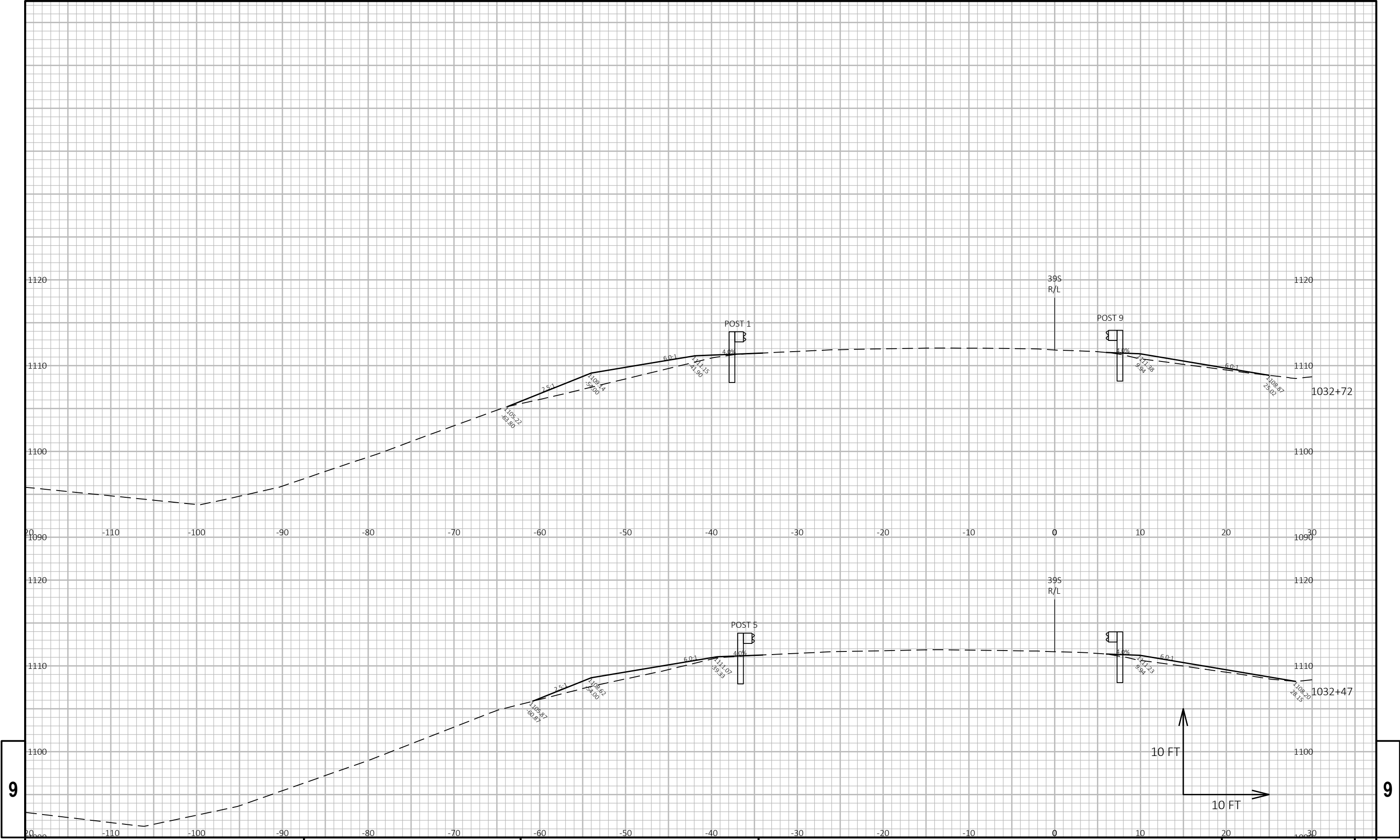


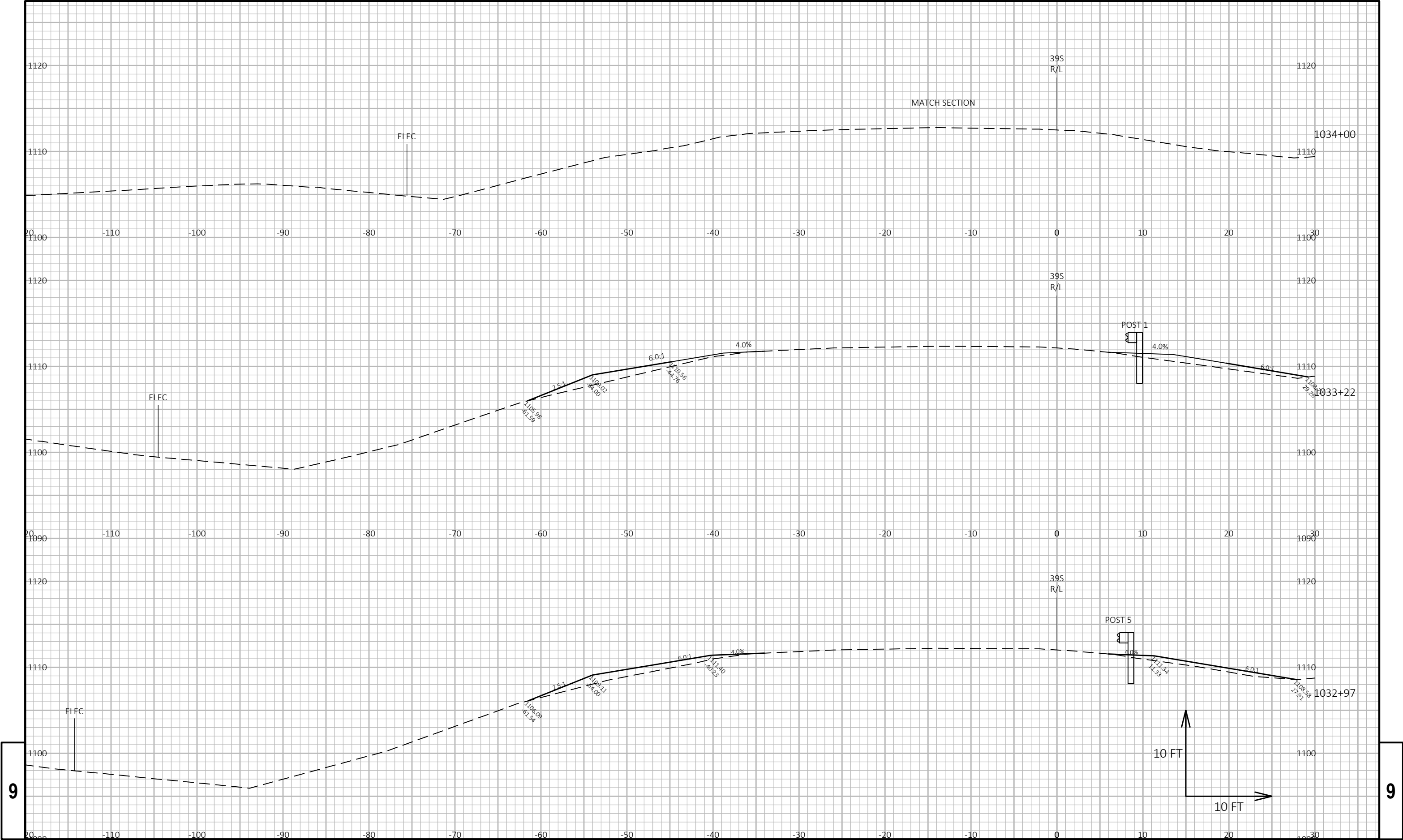


9

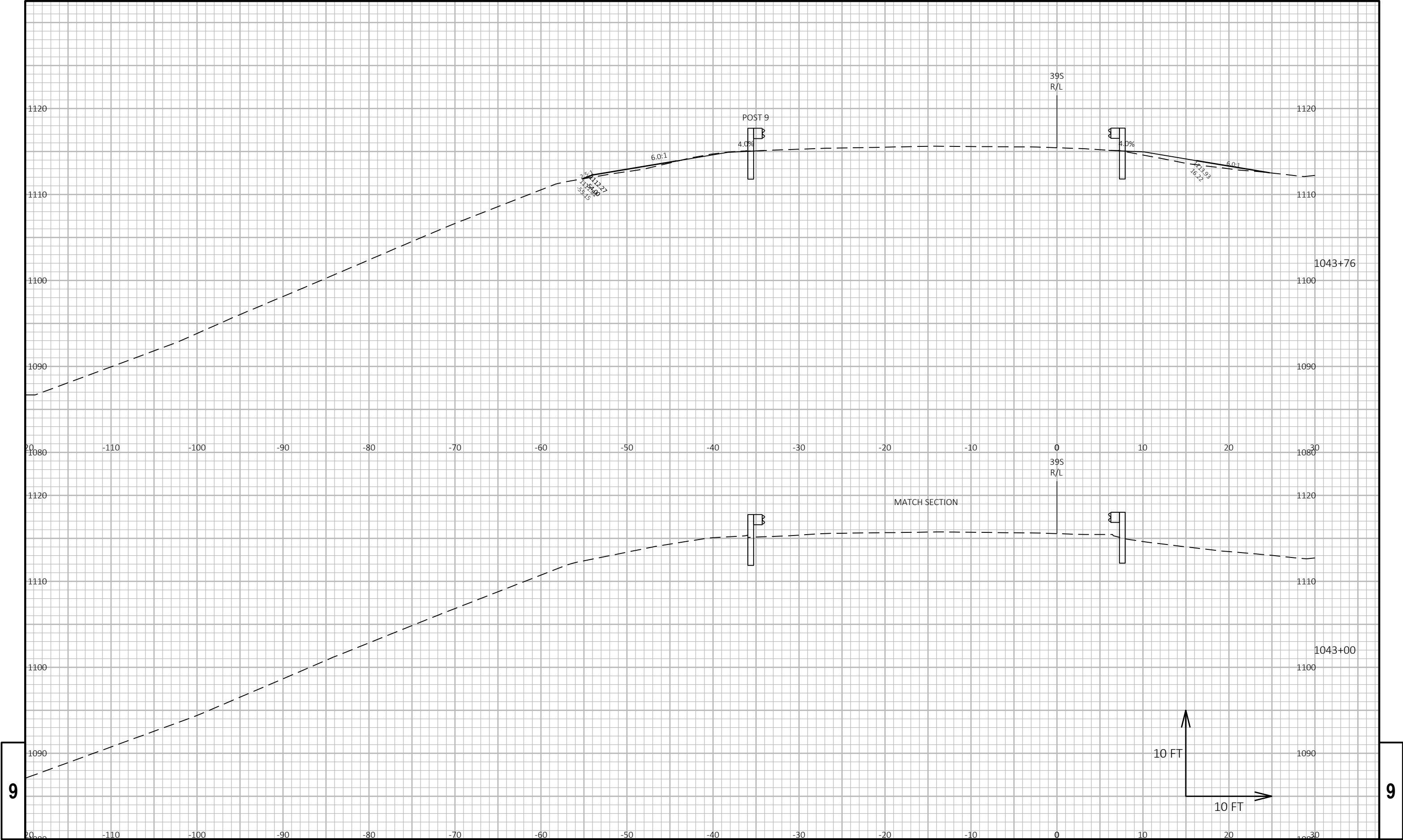
9

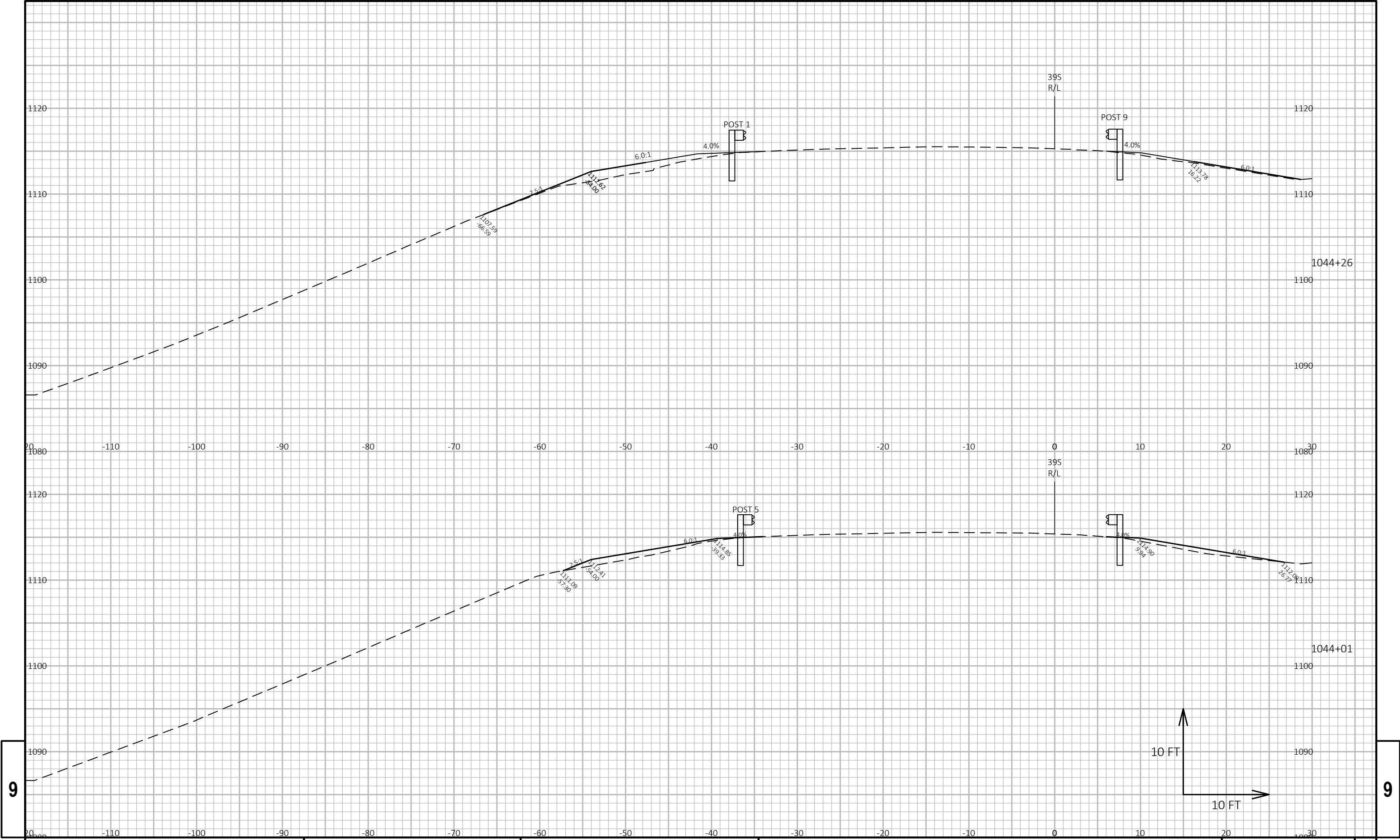


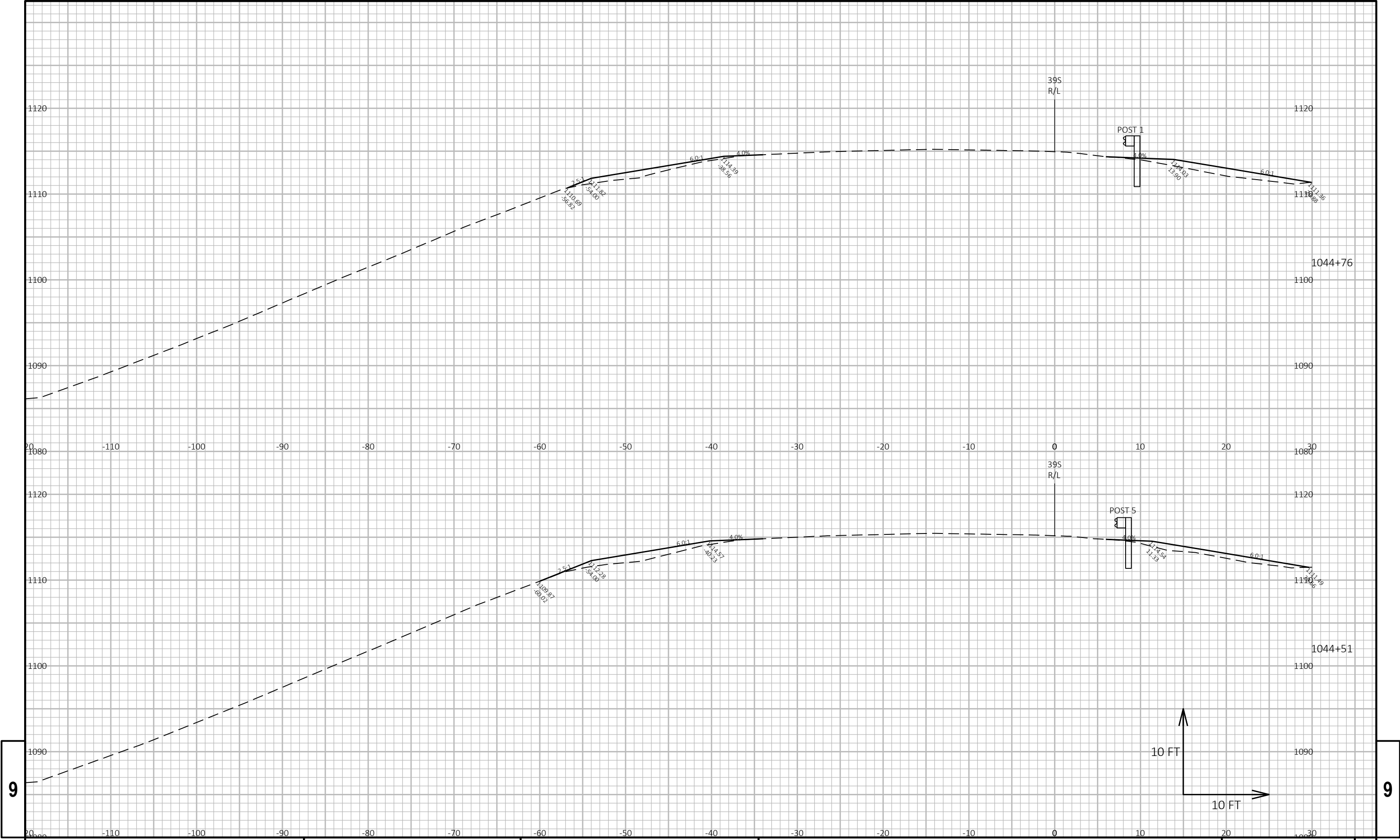


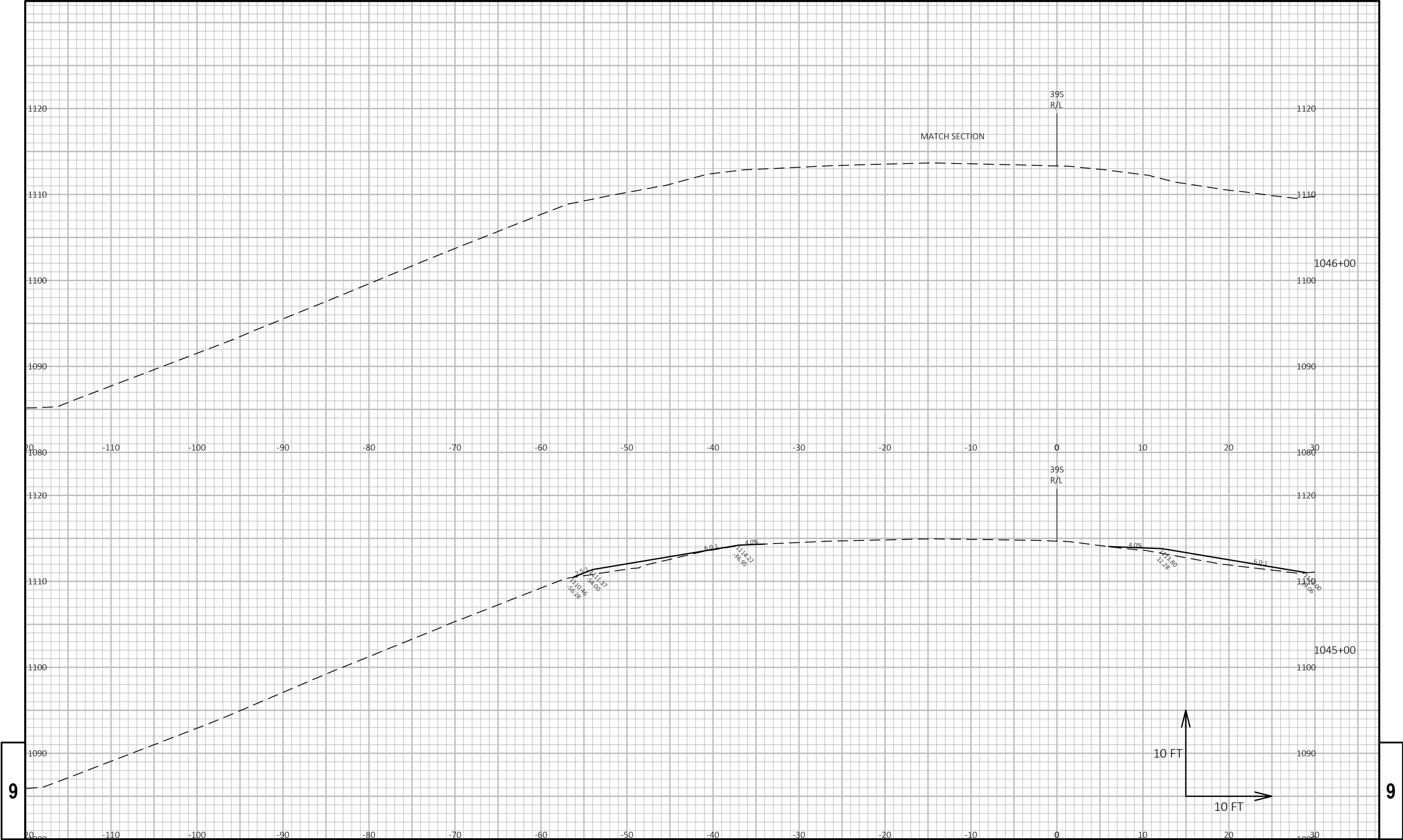


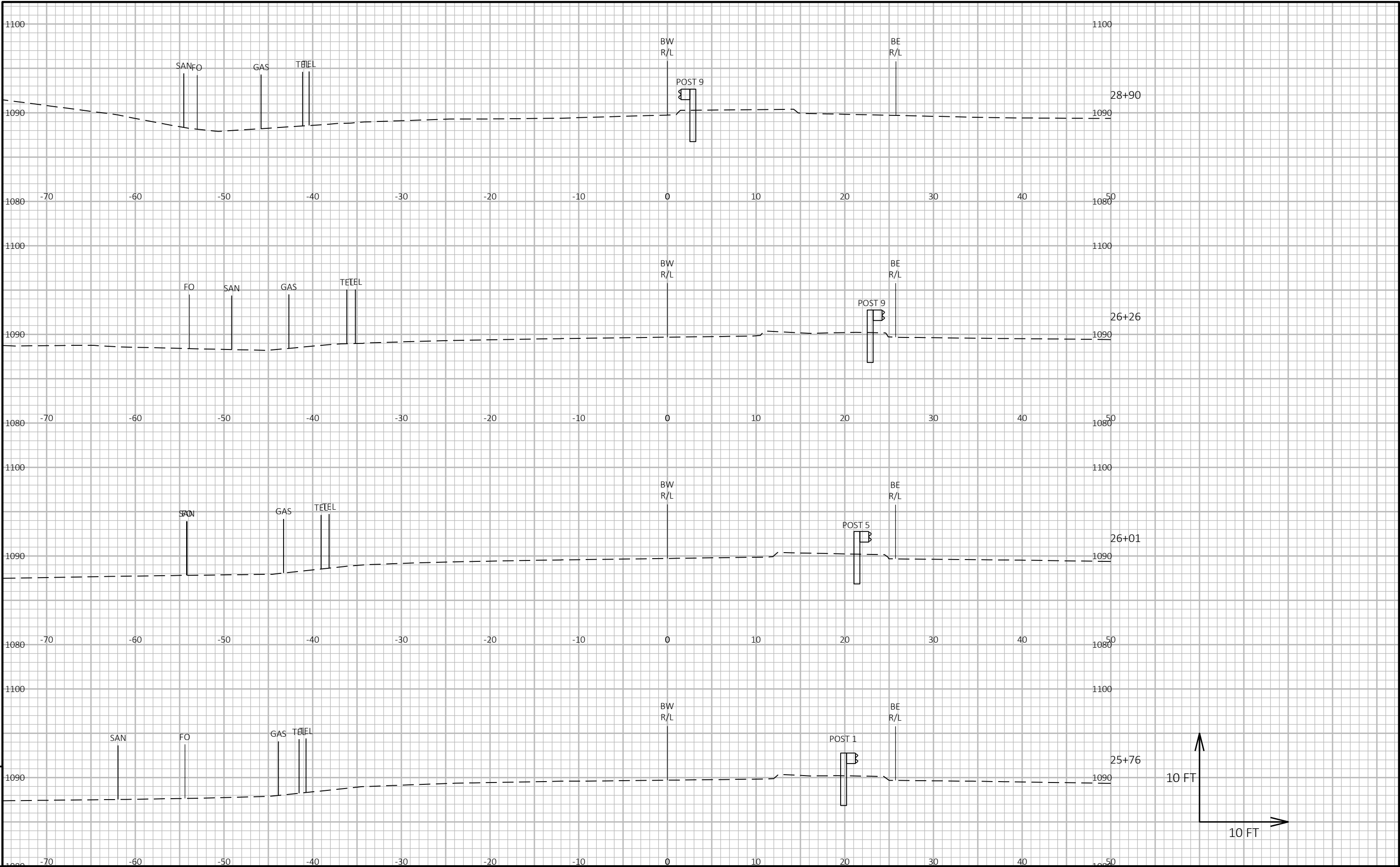


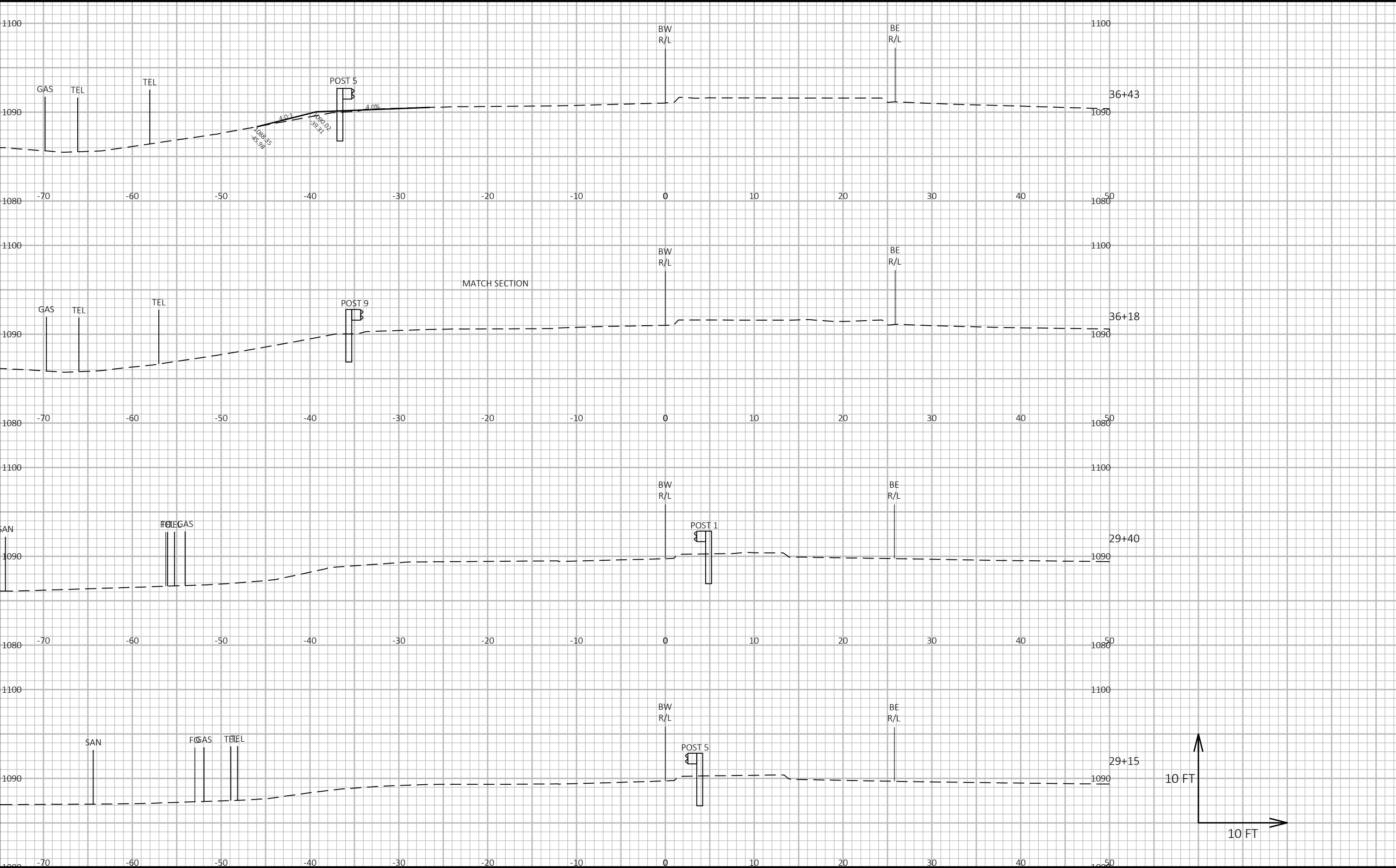




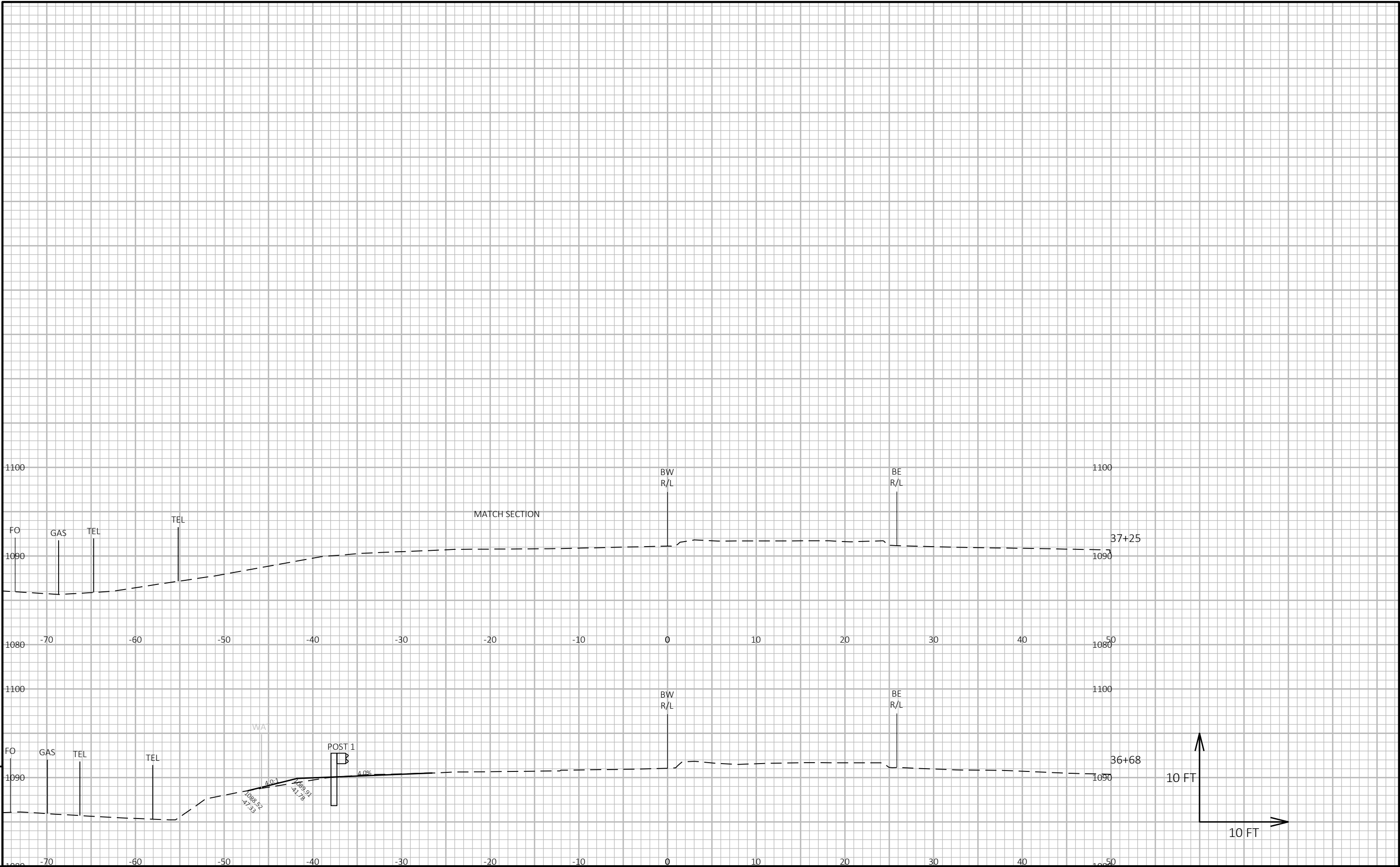


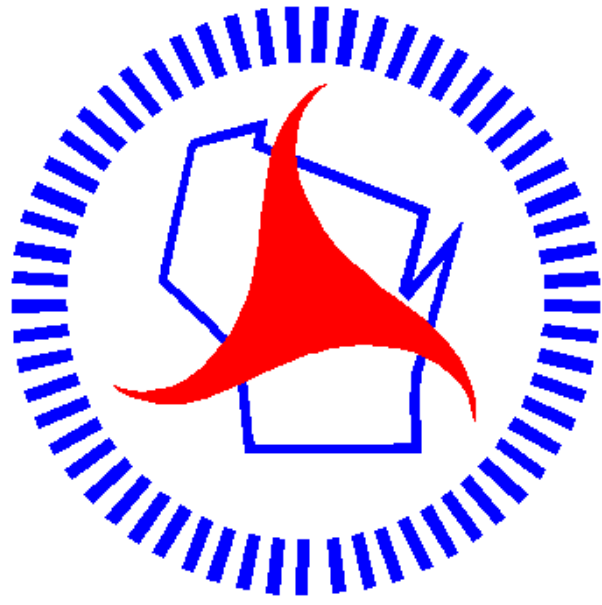












## ***Wisconsin Department of Transportation***

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