

MAD MARCH 2014

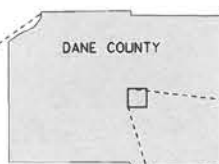
PROJECT ID: 1007-10-71

COUNTY: DANE

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 = 372



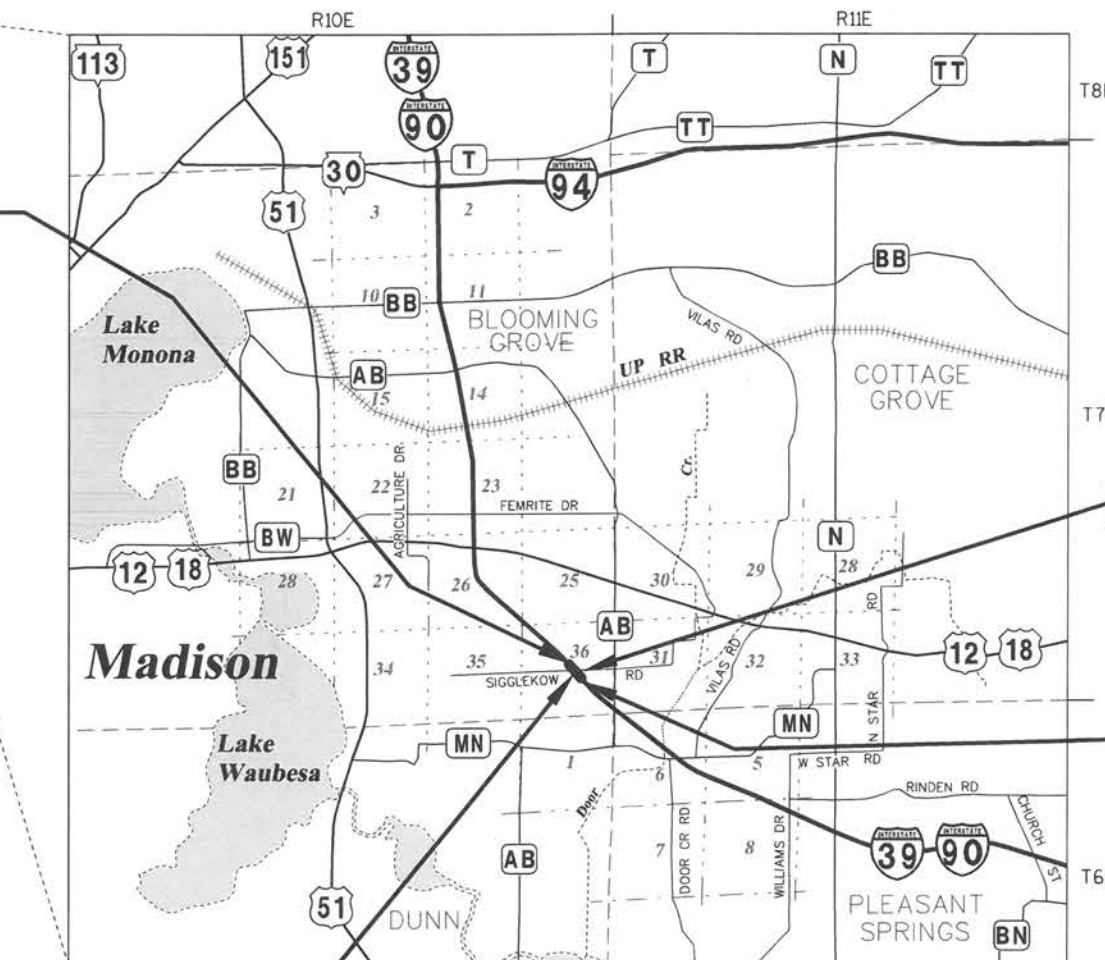
END PROJECT 1007-10-71  
STA. 2470+00 SB

DESIGN DESIGNATION	IH 39 TRANSITIONS	STA 2466+00 TO STA 2470+00	SIGGELKOW ROAD
A.A.D.T.	= 52,517 (2014)	49,100 (2009)	1,310 (2014)
A.A.D.T.	= 55,960 (2019)	70,300 (2040)	1,747 (2034)
D.H.V.	= -	7,539	-
D.D.	= -	60/40	-
T.	= 29.1%	29.1%	-
DESIGN SPEED	= 70 MPH	70 MPH	50 MPH
ESALS	= 10,199,925 (2019)	28,068,500 (2040)	138,700 (2034)

CONVENTIONAL SYMBOLS

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

SB BRIDGE STRUCTURE  
B-13-727



LAYOUT  
SCALE 0 1 mi.

TOTAL NET LENGTH OF CENTERLINE = 0.076 mi.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, DANE COUNTY ZONE, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88 (2007).

STATE PROJECT NUMBER  
1007-10-71

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

ILLINOIS STATE LINE - MADISON

SIGGELKOW RD BRDGS B-13-0138/0727

IH 39

DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1007-10-71		

ORIGINAL PLANS PREPARED BY:

**AYRES ASSOCIATES**

N17 W24222 Riverwood Dr, Suite 310  
Waukesha, Wisconsin



*Philip J. Bain Jr.* 11/01/13

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	WisDOT/DANE PARTNERS
Surveyor	AYRES ASSOCIATES
Designer	CRAIG PRINGLE
Project Manager	REGIONAL EXAMINER
Regional Examiner	JOHN STEINER
Regional Supervisor	

APPROVED FOR THE DEPARTMENT  
DATE: 11/01/13 *John Steiner* (Signature)

E

UTILITY CONTACTS

ALLIANT ENERGY - ELECTRICITY  
MR. JASON HOGAN  
ALLIANT ENERGY - ELECTRICITY  
4902 N BILTMORE LANE, SUITE 1000  
MADISON, WI 53718  
PHONE: (608) 395-7395  
EMAIL: JASONHOGAN@ALLIANTENERGY.COM

MADISON GAS AND ELECTRIC COMPANY - GAS/PETROLEUM  
MR. TIM STATZ  
MADISON GAS AND ELECTRIC COMPANY - ELECTRICITY  
PO BOX 1231  
MADISON, WI 53701-1231  
PHONE: (608) 252-4708  
EMAIL: TSTATZ@MGE.COM

FRONTIER COMMUNICATIONS OF WI, LLC - COMMUNICATION LINE  
MR. ROBERT CHURCH  
FRONTIER COMMUNICATIONS OF WI, LLC - COMMUNICATION LINE  
2222 WEST WISCONSIN ST.  
PORTAGE, WI 53901  
PHONE: (608) 742-1817  
EMAIL: ROBERT.CHURCH@FTR.COM

WINDSTREAM KDL TELECOMMUNICATION SERVICES INC - COMMUNICATION LINE  
MR. JIM KOSTUCH  
WINDSTREAM KDL TELCOMMUNICATION SERVICES INC - COMMUNICATION LINE  
13935 BISHOPS DR.  
BROOKFIELD, WI 53005  
PHONE: (262) 792-7938  
EMAIL: JAMES.KOSTUCH@WINDSTREAM.COM

ATC MANAGEMENT, INC. - ELECTRICITY  
MR. MIKE OLSEN  
ATC MANAGEMENT, INC. - ELECTRICITY  
801 O'KEEFE RD  
P.O. BOX 6113  
DE PERE, WI 54115-6113  
PHONE: (920) 338-6582  
EMAIL: MOLSEN@ATCLLC.COM

WISCONSIN DEPARTMENT OF TRANSPORTATION - COMMUNICATION/STOC  
MR. JEFFERY MADSON  
WISCONSIN DEPARTMENT OF TRANSPORTATION - COMMUNICATION LINE  
433 W ST. PAUL AVE, SUITE 300  
MILWAUKEE, WI 53203-3007  
PHONE: (414) 225-3723  
EMAIL: JEFFERY.MADSON@DOT.WI.GOV

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.



OTHER AGENCIES

DNR AREA LIAISON  
MR. ERIC HEGGELUND  
DEPARTMENT OF NATURAL RESOURCES  
3911 FISH HATCHERY ROAD  
FITCHBURG, WI 53711-5397  
PHONE: (608) 275-3301  
EMAIL: Eric.Heggelund@wisconsin.gov

MR. LUKE HOLMAN  
ITS MANAGEMENT ENGINEER  
STRAND ASSOCIATES  
910 W. WINGRA DR.  
MADISON, WI 53715  
PHONE: (608) 251-4843  
EMAIL: Luke.holman@strand.com

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- REMOVAL PLANS
- PLAN DETAILS
- PAVING GRADES
- EROSION CONTROL
- STORM SEWER
- EXISTING AND PERMANENT SIGNING
- PAVEMENT MARKING
- STAGE CONSTRUCTION
- TRAFFIC CONTROL
- ALIGNMENT PLANS

GENERAL NOTES

-NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

-THE LOCATIONS 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.

-THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

-ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE FILLED WITH GRANULAR BACKFILL AND IS INCLUDED IN THE COST OF THE ABANDONMENT OR REMOVAL ITEMS.

-WHEN THE QUANTITY OF HMA PAVEMENT OR BASE AGGREGATE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

-PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLANS WITH THE ENGINEER.

-INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN MAY BE ADJUSTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

-TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL WILL NOT BE PERMITTED IN WETLANDS.

-BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP.

-CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE REPLACED WITH 4-INCH TYPICAL DEPTH.

-TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

-REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

-PRIOR TO PLACING ANY EROSION CONTROL MEASURES THE LOCATIONS AND LIMITS WILL BE VERIFIED BY THE PROJECT ENGINEER. LIMITS MAY BE MODIFIED TO FIT FIELD CONDITIONS BASED ON THE FIELD REVIEW BY THE ENGINEER. LOCATIONS AND LIMITS SHOULD BE VERIFIED FOR THE PROJECT SITE AS WELL AS THE SELECTED BORROW SITES. IF THE EROSION CONTROL MEASURE IS BEING PAID THROUGH THE PROJECT, IT WILL BE VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.

-ASPHALTIC AND CONCRETE SURFACES SHALL BE SAWCUT AT THE MATCH LINE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

-DISTURBED AREAS WITHIN THE RIGHT OF WAY SHALL BE RESTORED WITH SALVAGED TOPSOIL AND TREATED AS SHOWN ON THE EROSION CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

-PLACE SALVAGED TOPSOIL IN ALL GRADED AREAS AS DESIGNATED BY THE ENGINEER IMMEDIATELY AFTER GRADING HAS BEEN COMPLETED. INSTALL PERMANENT RESTORATION WITHIN 5 DAYS AFTER PLACEMENT OF SALVAGED TOPSOIL AS SHOWN ON THE EROSION CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

-ALL TYPES OF ASPHALTIC PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

ROADWAY SEGMENT	PAVEMENT TYPE	TOTAL LAYER PAVEMENT THICKNESS	LAYERS	NOMINAL MAXIMUM SIZE GRADATION	ASPHALTIC MATERIAL
NORTHBOUND WIDENING	E-30X	6.0 INCHES	UPPER: 2.25 INCHES LOWER: 3.75 INCHES	UPPER: 12.5 LOWER: 19.0	UPPER: PG64-28P LOWER: PG58-28
SOUTHBOUND CROSSOVERS	E-30X	6.25 INCHES	UPPER: 2.25 INCHES LOWER: 4.0 INCHES	UPPER: 12.5 LOWER: 19.0	UPPER: PG64-28P LOWER: PG58-28
SOUTHBOUND TRANSITION SECTIONS	E-30X	6.75 INCHES	UPPER: 1.75 INCHES LOWER (MID): 2.5 INCHES LOWER: 2.5 INCHES	UPPER: 12.5 LOWER (MID): 19.0 LOWER: 19.0	UPPER: PG64-28P LOWER (MID): PG58-28 LOWER: PG58-28
SIGGELKOW ROAD & MAINTENANCE CROSSOVER	E-0.3	4.0 INCHES	UPPER: 1.75 INCHES LOWER: 2.25 INCHES	UPPER: 12.5 LOWER: 19.0	UPPER: PG58-28 LOWER: PG58-28

-WETLANDS, WATERWAYS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.

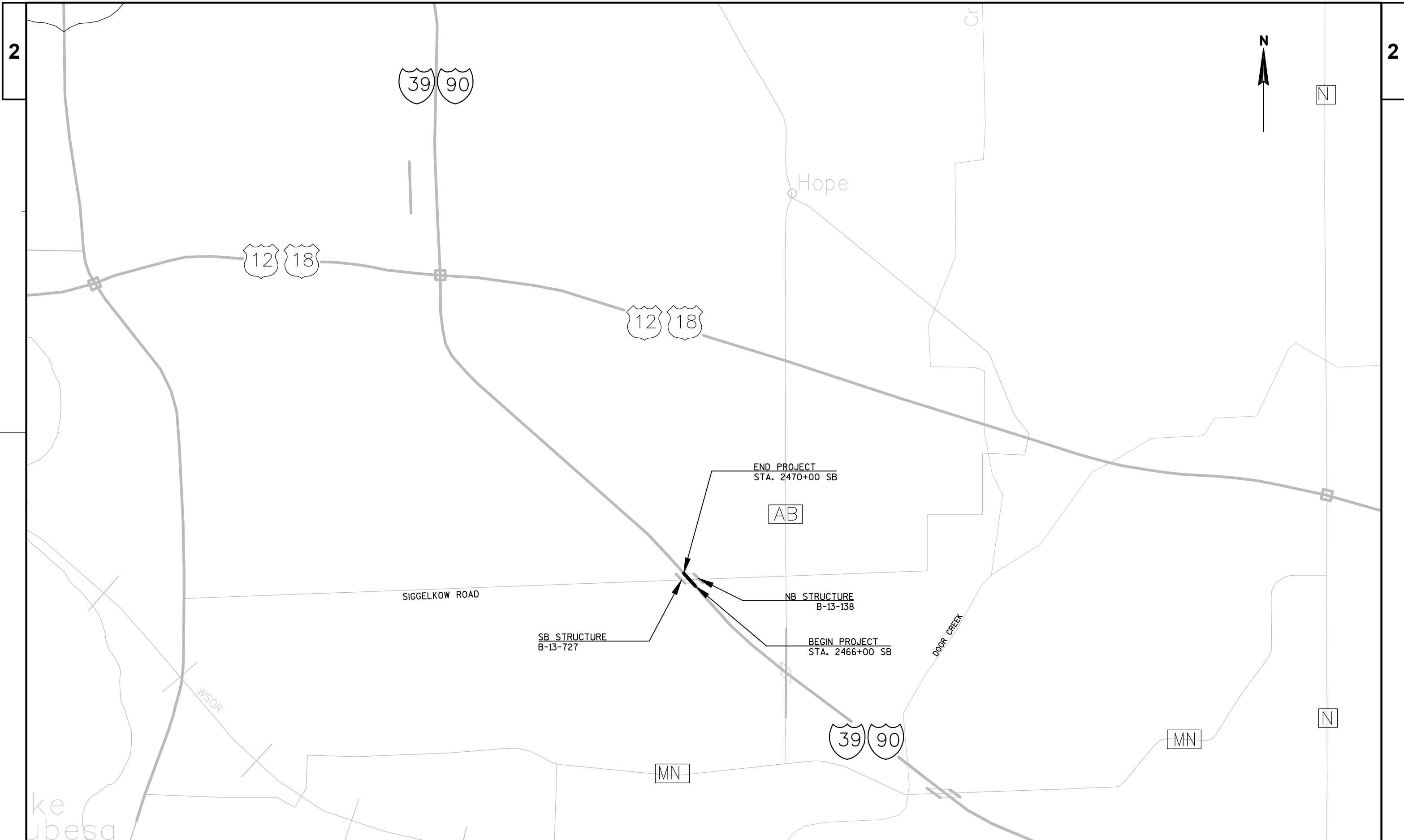
-INLET PROTECTION REQUIRED AT ALL INLETS AS PER DETAIL OR AS DIRECTED BY THE ENGINEER.

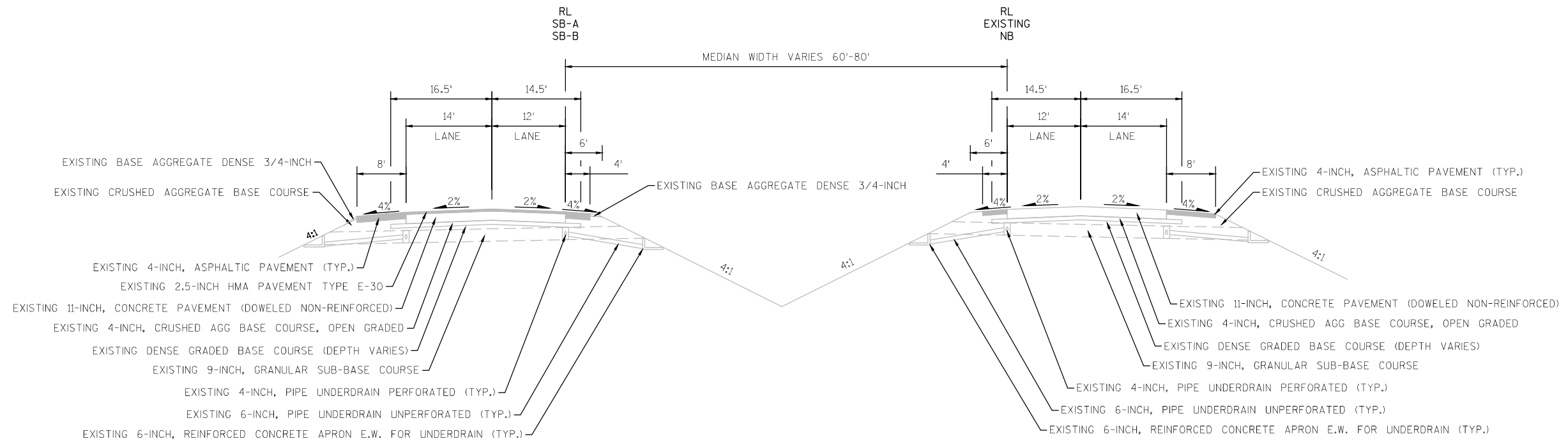
-FERTILIZER SHALL NOT BE USED NEAR NAVIGABLE WATERWAYS OR WETLANDS.

-STATIONING, DISTANCES AND OFFSETS FOR SIGNS SHOWN ON THE PLANS ARE APPROXIMATE AND THE LOCATIONS OF SIGNS ARE TO BE VERIFIED BY THE ENGINEER.

STANDARD ABBREVIATIONS

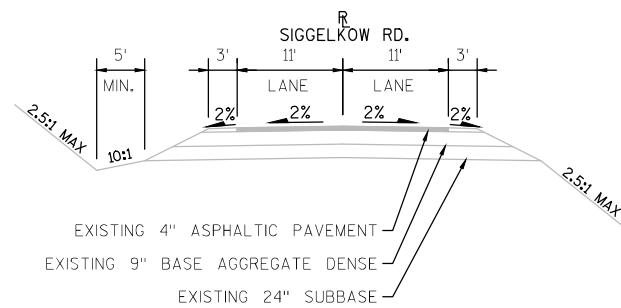
- AECPRC APRON ENDWALL CULVERT PIPE REINFORCED CONCRETE
- AECPRCHE APRON ENDWALL CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
- AECPSS APRON ENDWALL CULVERT PIPE SLOPED SECTION
- AEW APRON END WALL
- AGG AGGREGATE
- ASPH ASPHALT
- BAD BASE AGGREGATE DENSE
- B/C BACK OF CURB
- BM BENCH MARK
- C&G CURB AND GUTTER
- C/L OR CENTER OR CONSTRUCTION LINE
- CONC CONCRETE
- CP CULVERT PIPE
- CPCM CULVERT PIPE CORRUGATED METAL
- CPRC CULVERT PIPE REINFORCED CONCRETE
- CPRCHE CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
- CSD CONCRETE SURFACE DRAIN
- CY CUBIC-YARD
- D DEGREE OF CURVE
- Δ DELTA
- DISCH DISCHARGE
- EL ELEVATION
- ESTR EXISTING SIGN TO REMAIN
- FE FIELD ENTRANCE
- FMS FIXED MESSAGE SIGN
- HMA HOT MIX ASPHALT
- INV INVERT
- L LENGTH OF CURVE
- LHF LEFT HAND FORWARD
- LT LEFT
- MID MIDDLE OF RADIUS
- MIN MINIMUM
- M/L MATCHLINE
- NB NORTHBOUND
- NC NORMAL CROWN
- PAVT PAVEMENT
- PC POINT-OF CURVE
- PCC POINT OF COMPOUND CURVE
- PE PRIVATE ENTRANCE
- PGL PROFILE GRADE LINE
- PI POINT OF INTERSECTION
- PLE PERMANENT LIMITED EASEMENT
- PT POINT OF TANGENT
- R RADIUS OF CURVE
- R/L REFERENCE LINE
- R/W RIGHT OF WAY
- RC REVERSE CROWN
- RCAEW APRON ENDWALL FOR CULVERT PIPE REINFORCE CONCRETE REQUIRED
- RHF RIGHT HAND FORWARD
- RO RUN OFF LENGTH
- RT RIGHT
- SALV SALVAGED
- SB SOUTHBOUND
- SDD STANDARD DETAIL DRAWING
- SE SUPER ELEVATION
- SF SQUARE FOOT
- SSPRC STORM SEWER PIPE REINFORCED CONCRETE
- SSPRCHE STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
- STA STATION
- SY SQUARE YARD
- T TANGENT LENGTH
- TLE TEMPORARY LIMITED EASEMENT
- TYP TYPICAL
- VCL VERTICAL CURVE LENGTH
- VPC POINT OF VERTICAL CURVE
- VPI POINT OF VERTICAL INTERSECTION
- VPT POINT OF VERTICAL TANGENT





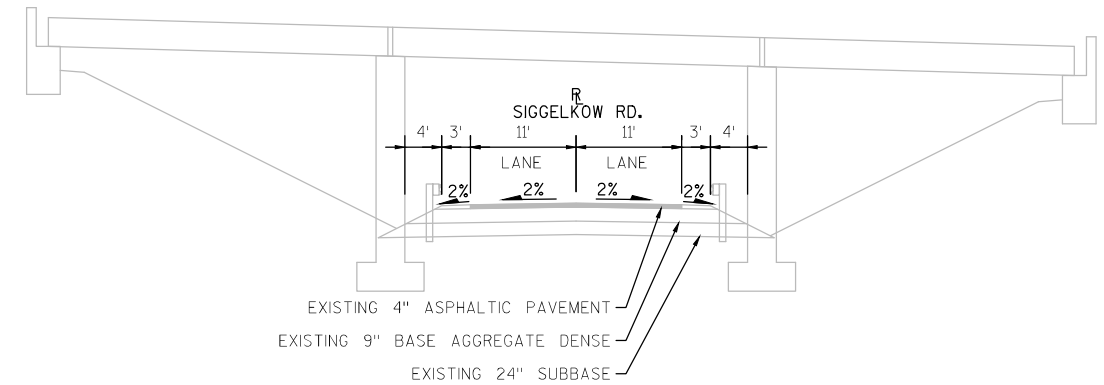
**TYPICAL EXISTING SECTION**

IH 39  
STA. 435+60'NB' TO STA. 489+00'NB'



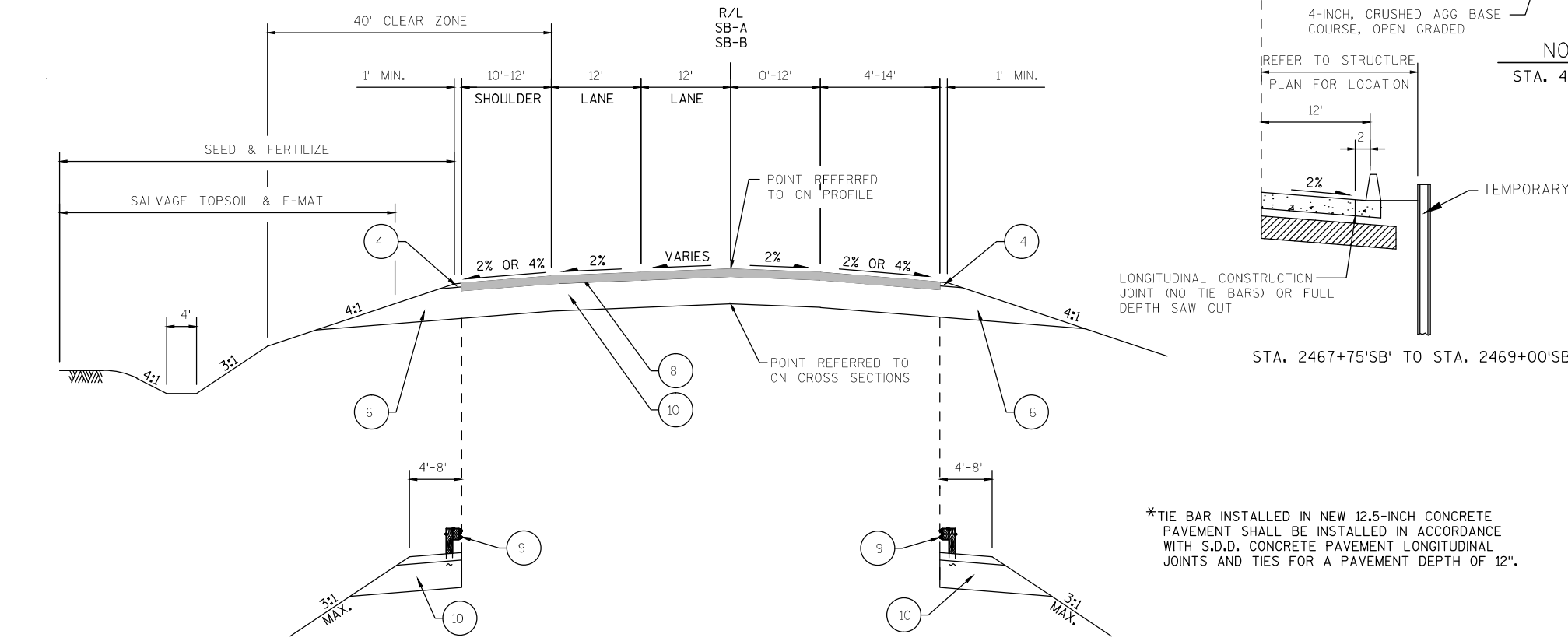
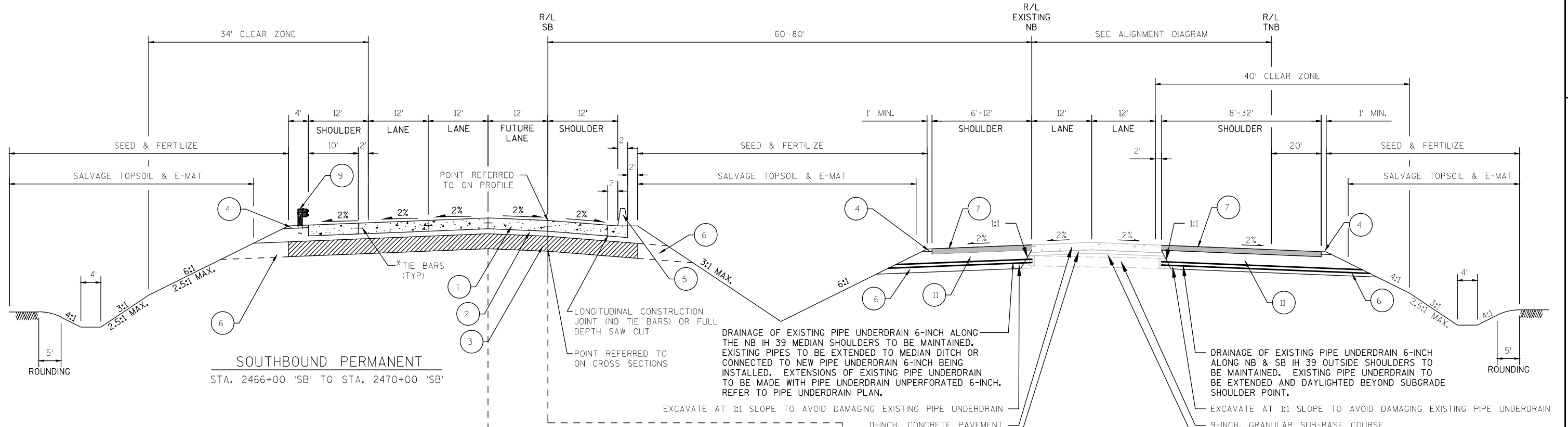
**TYPICAL EXISTING SECTION**

SIGGELKOW ROAD  
STA. 46+85'SK' TO STA. 49+00'SK'  
STA. 51+25'SK' TO STA. 53+60'SK'



**TYPICAL EXISTING SECTION**

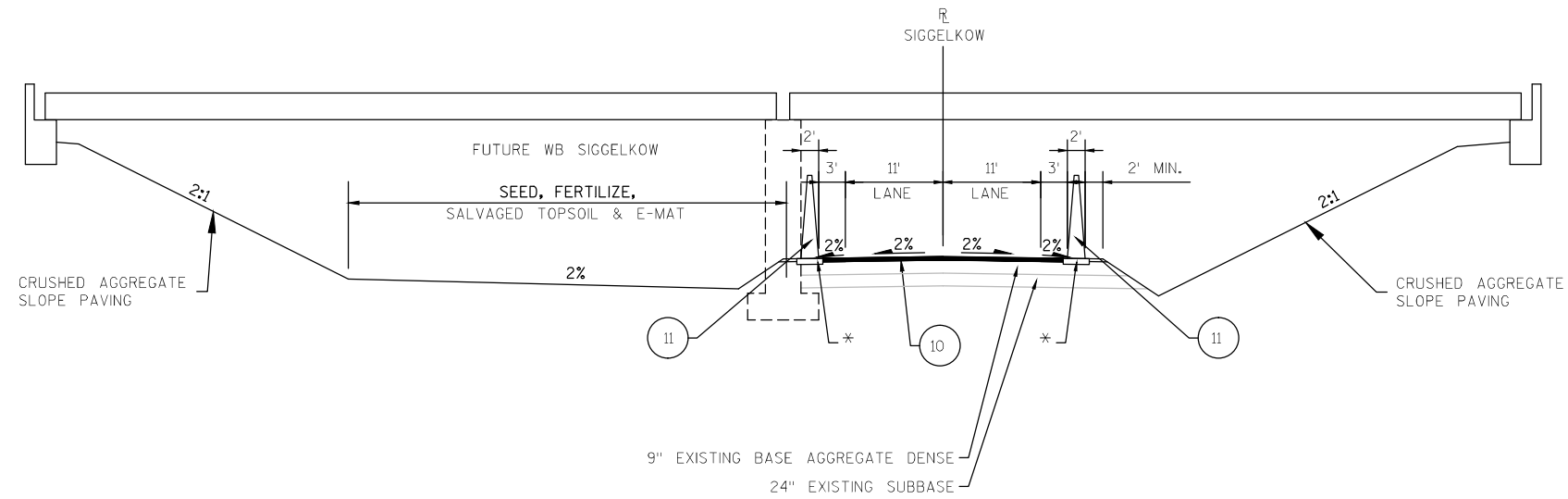
SIGGELKOW ROAD UNDER IH 39  
STA. 49+00'SK' TO STA. 51+25'SK'



**TYPICAL FINISHED SECTIONS**

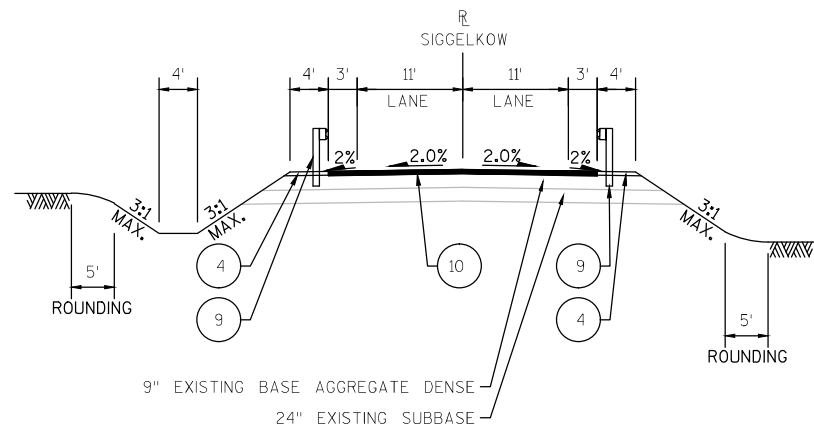
I-39/90

- LEGEND**
- 1 12.5-INCH CONCRETE PAVEMENT - DOWELED AND TINED
  - 2 6-INCH BASE AGGREGATE DENSE 1 1/4-INCH
  - 3 16-INCH SELECT CRUSHED MATERIAL
  - 4 3-INCH BASE AGGREGATE DENSE 3/4-INCH
  - 5 CONCRETE BARRIER TYPE S42
  - 6 CONSTRUCT FRENCH DRAIN AT DITCH SAG POINTS OR EVERY 200' (SEE CONSTRUCTION DETAIL)
  - 7 HMA PAVEMENT, TYPE E-30X, 6-INCH
  - 8 HMA PAVEMENT, TYPE E-30X, 6.75-INCH
  - 9 MIDWEST GUARDRAIL SYSTEM (SEE PLAN DETAIL FOR LOCATION)
  - 10 19-INCH BASE AGGREGATE DENSE 1 1/4-INCH
  - 11 17-INCH BASE AGGREGATE DENSE 1 1/4-INCH



**TYPICAL FINISHED SECTION**  
 SIGGELKOW ROAD UNDER IH 39  
 STA. 49+00'SK' TO STA. 51+25'SK'

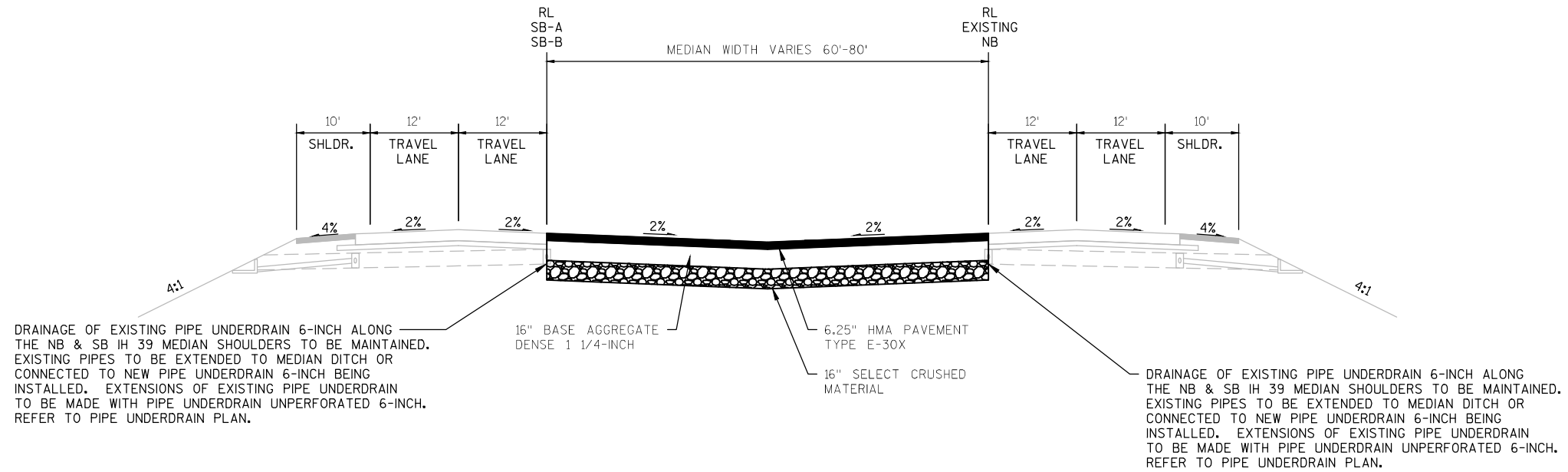
\* 6" CONCRETE PAD  
 (INCLUDED WITH CONCRETE  
 BARRIER, TYPE S56)



**TYPICAL FINISHED SECTION**  
 SIGGELKOW ROAD  
 STA. 46+85'SK' TO STA. 49+00'SK'  
 STA. 51+25'SK' TO STA. 53+60'SK'

**LEGEND**

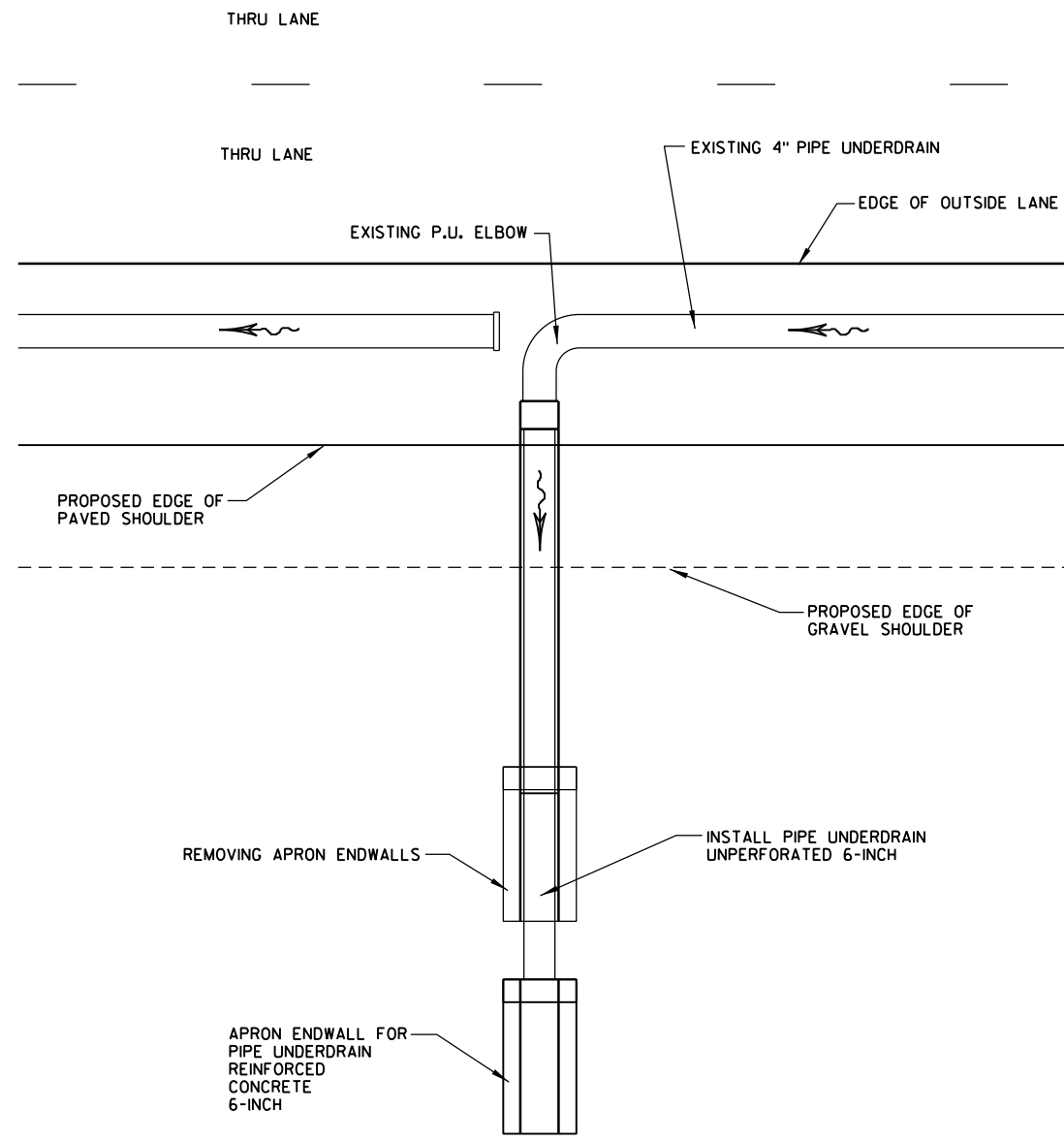
- 1 12.5-INCH CONCRETE PAVEMENT - DOWELED AND TINED
- 3 16-INCH SELECT CRUSHED MATERIAL
- 4 3-INCH BASE AGGREGATE DENSE 3/4-INCH
- 5 CONCRETE BARRIER TYPE S42
- 6 CONSTRUCT FRENCH DRAIN AT DITCH SAG POINTS OR EVERY 200" (SEE CONSTRUCTION DETAIL)
- 9 MIDWEST GUARDRAIL SYSTEM (SEE PLAN DETAIL FOR LOCATION)
- 10 TYPE E-0.3, 4-INCH HMA PAVEMENT
- 11 CONCRETE BARRIER, TYPE S56



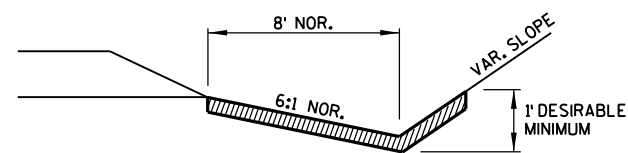
**TYPICAL FINISHED SECTION - CROSSOVER**

STA. 440+48'TSB' TO STA. 452+00'TSB'  
 STA. 472+00'TSB' TO STA. 484+50'TSB'

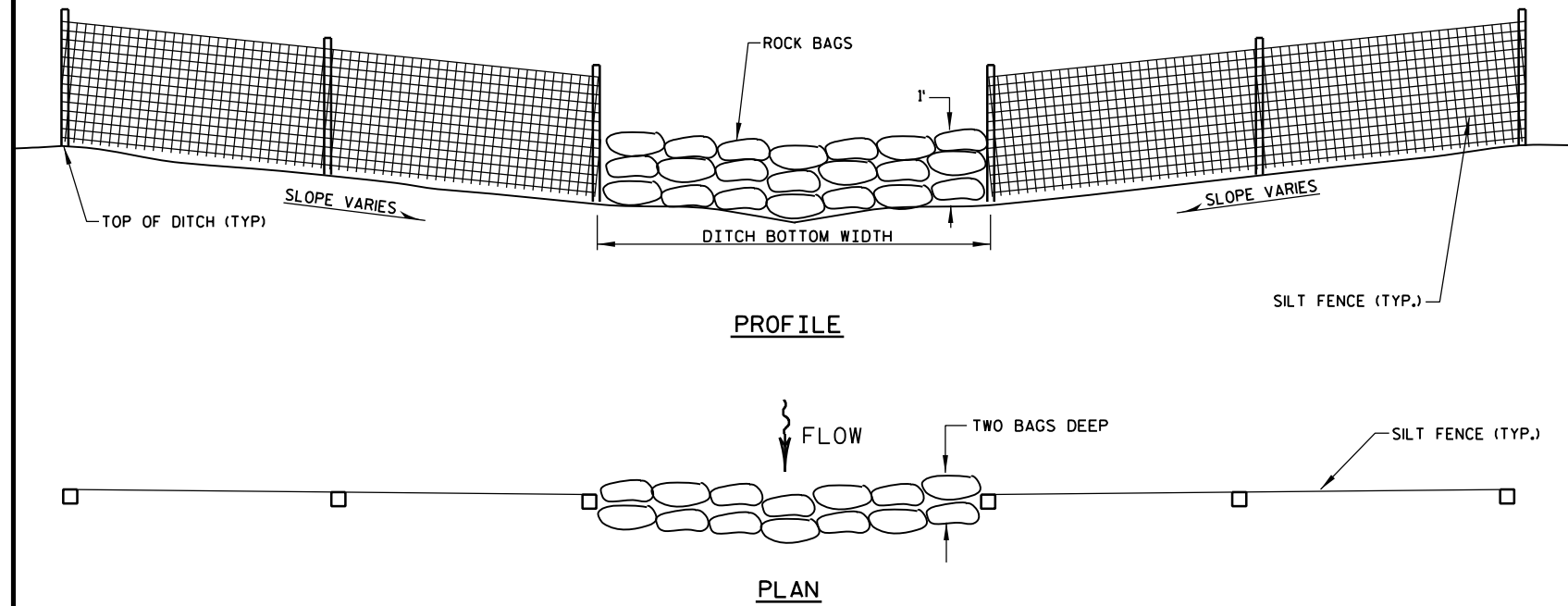




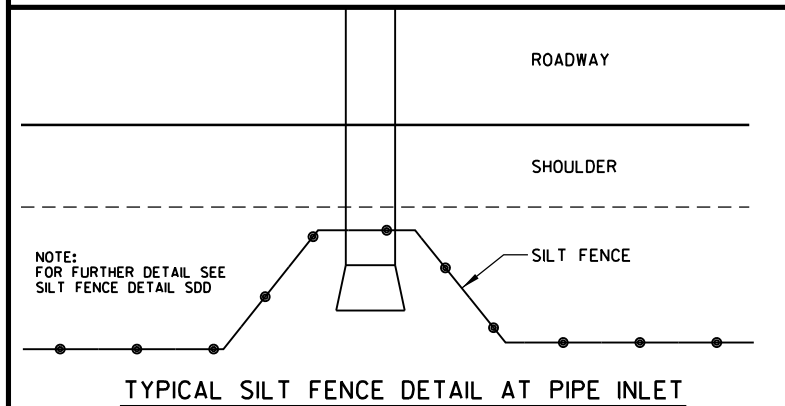
**DETAIL FOR EXTENSION OF UNDERDRAIN OUTFALLS**  
INTERMEDIATE LOCATIONS - NO INLETS



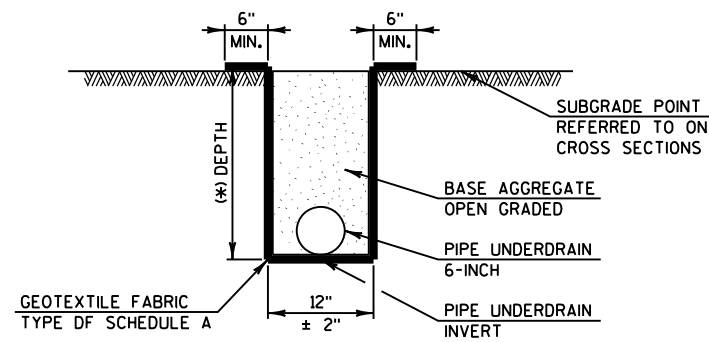
**EROSION MAT DETAIL FOR DITCHES**



**EROSION CONTROL ROCK BAG OPENING IN SILT FENCE DETAIL**

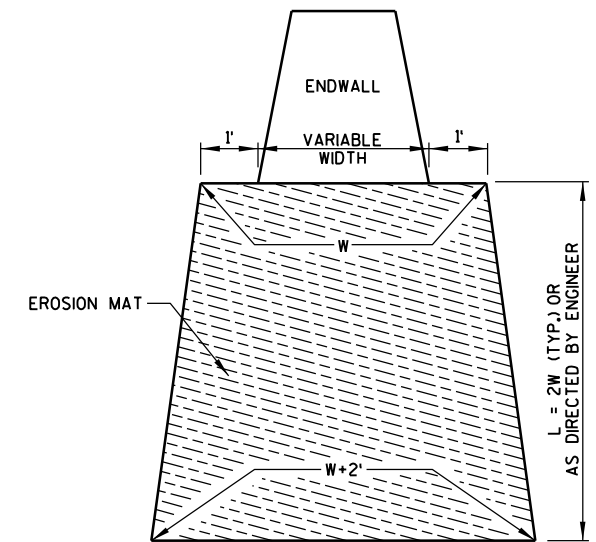


**TYPICAL SILT FENCE DETAIL AT PIPE INLET**

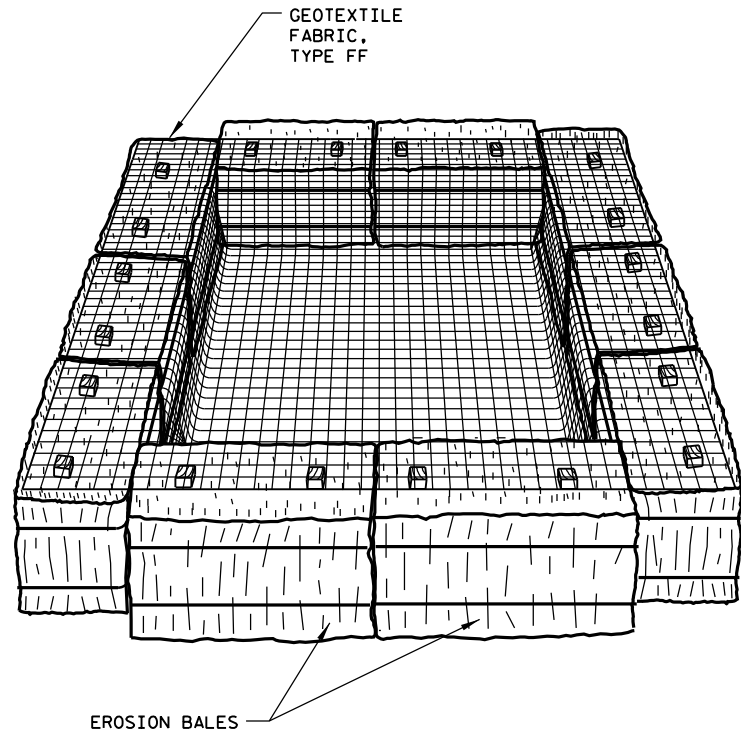


**NOTES:**  
 (\*) DEPTH VARIES FROM 0'-4', OR AS DIRECTED BY ENGINEER TO MAINTAIN POSITIVE DRAINAGE.  
 FOR ADDITIONAL INFORMATION ON MATERIALS AND CONSTRUCTION REFER TO:  
 SDD:EDGE DRAIN OUTLET AND OUTFALL MARKERS.  
 SDD:EDGEDRAIN AND BASE AGGREGATE OPEN GRADES.

**PIPE UNDERDRAIN INSTALLATION**  
REFER TO PIPE UNDERDRAIN PLAN FOR LOCATIONS



**EROSION MAT TREATMENT AT CULVERTS**



NOTES:

1. CONTRACTOR SHALL PUMP WATER FROM WORK AREA EXCAVATION TO BASIN PRIOR TO DISCHARGING.
2. BASIN SHALL BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT SITE.
3. GEOTEXTILE FABRIC SHALL BE REPLACED AS NEEDED. USED GEOTEXTILE FABRIC AND SEDIMENTS SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT SITE AT NO COST TO THE DEPARTMENT.
4. TEMPORARY SETTLING BASIN TO BE PAID FOR UNDER ITEM SEDIMENTATION BASIN..

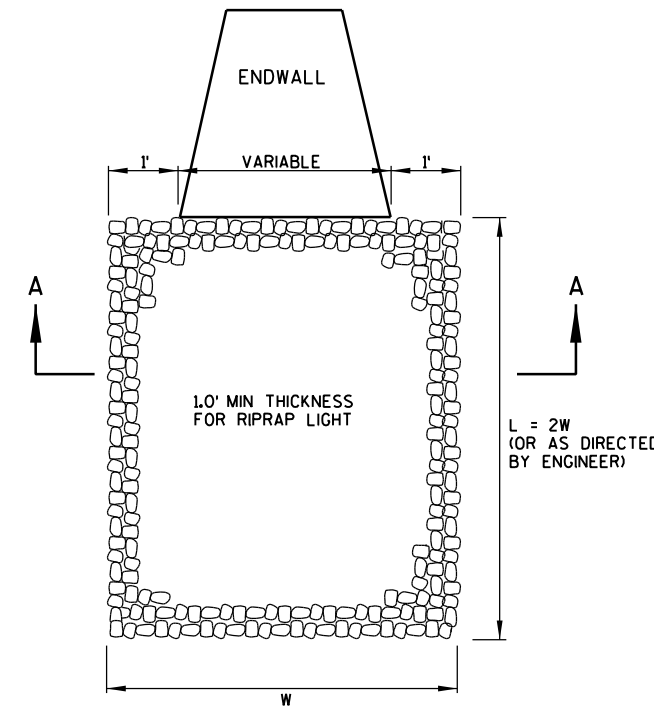
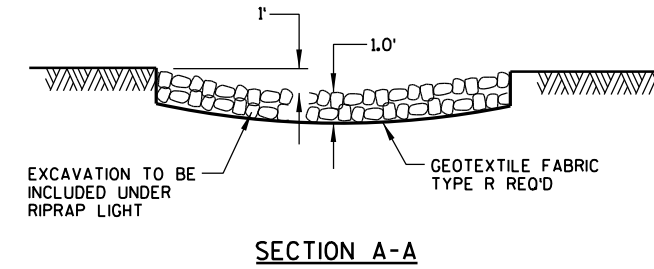
STORAGE VOLUME (C.F.) = 18 x GPM (PUMP RATE)

EXAMPLE:  
 CONTRACTOR INDICATES PUMP CAPABLE OF 50 CPM  
 HEIGHT OF BALES = 1.5 FT.  
 SOLUTION:  
 SV (C.F.) = 18 x 50  
 SV = 900 C.F.

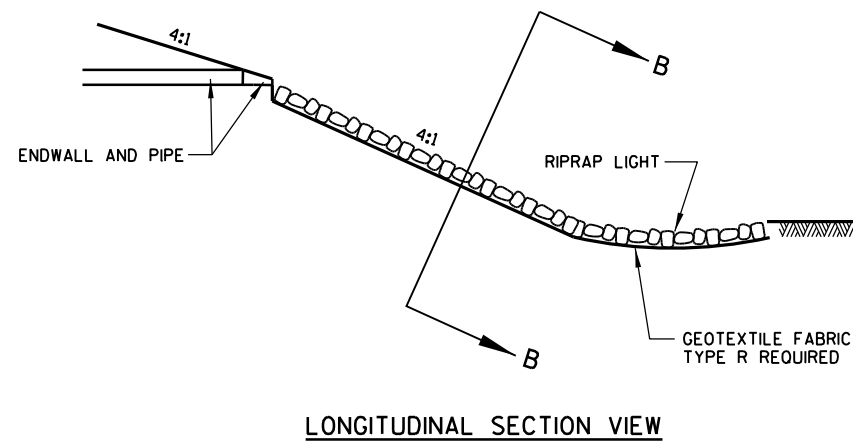
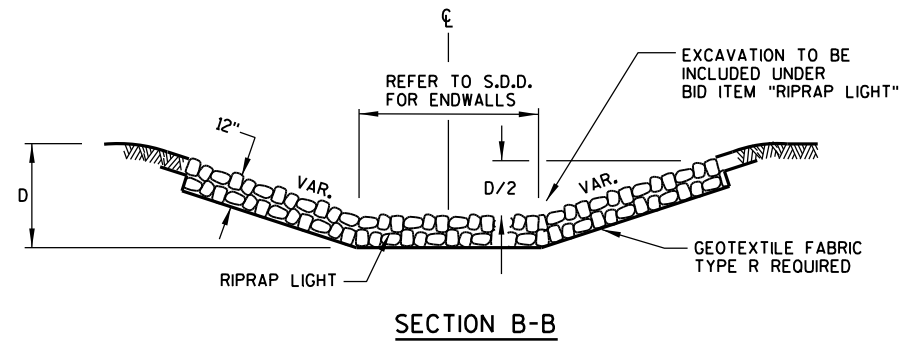
$$\frac{900 \text{ C.F.}}{1.5 \text{ FT.}} = 600 \text{ S.F.}$$

USE A 30 FT. x 20 FT. BASIN

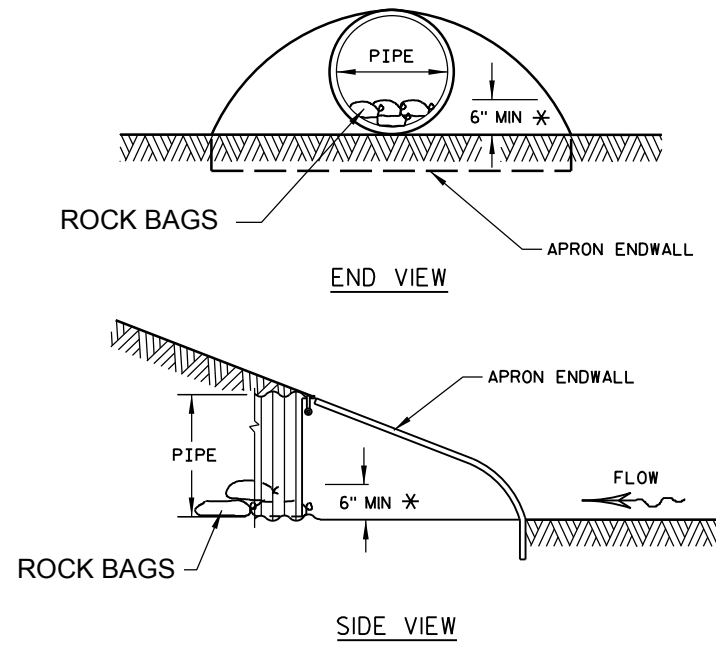
SEDIMENTATION BASIN



RIPRAP TREATMENT AT CULVERTS

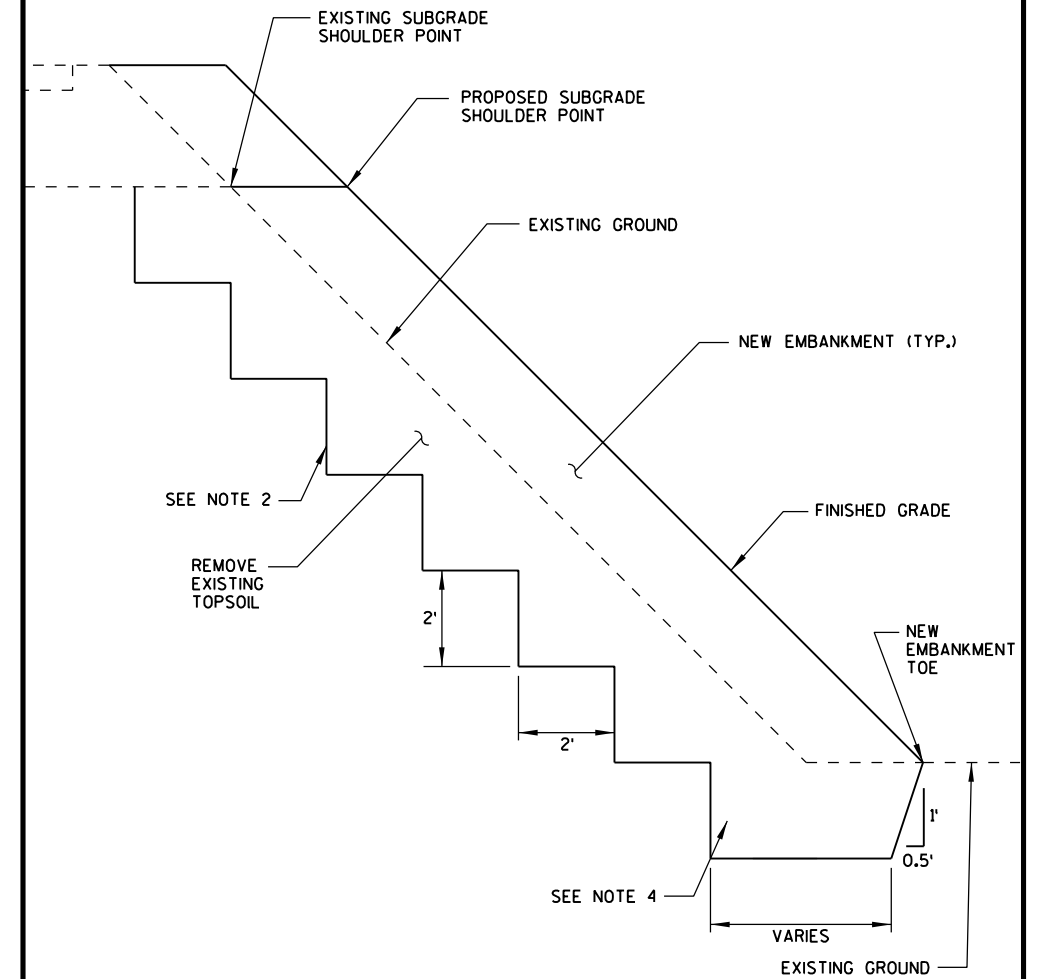


EROSION CONTROL DETAIL FOR DRAIN OUT ON HIGH FILL SECTION



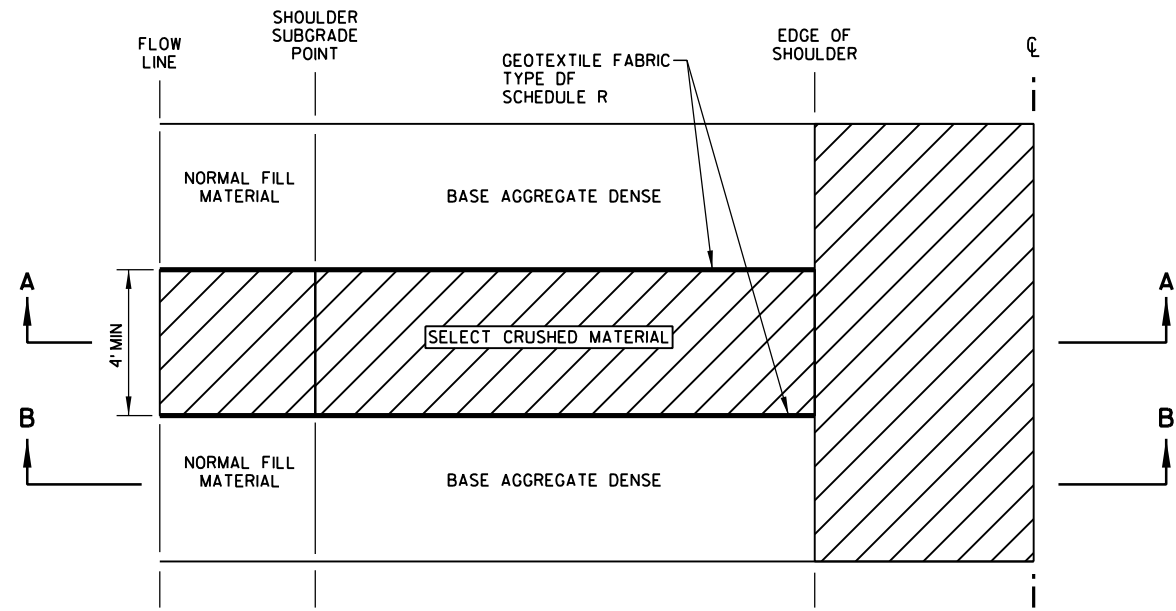
CULVERT PIPE CHECK AT INLETS

\* OR AS DIRECTED BY THE ENGINEER

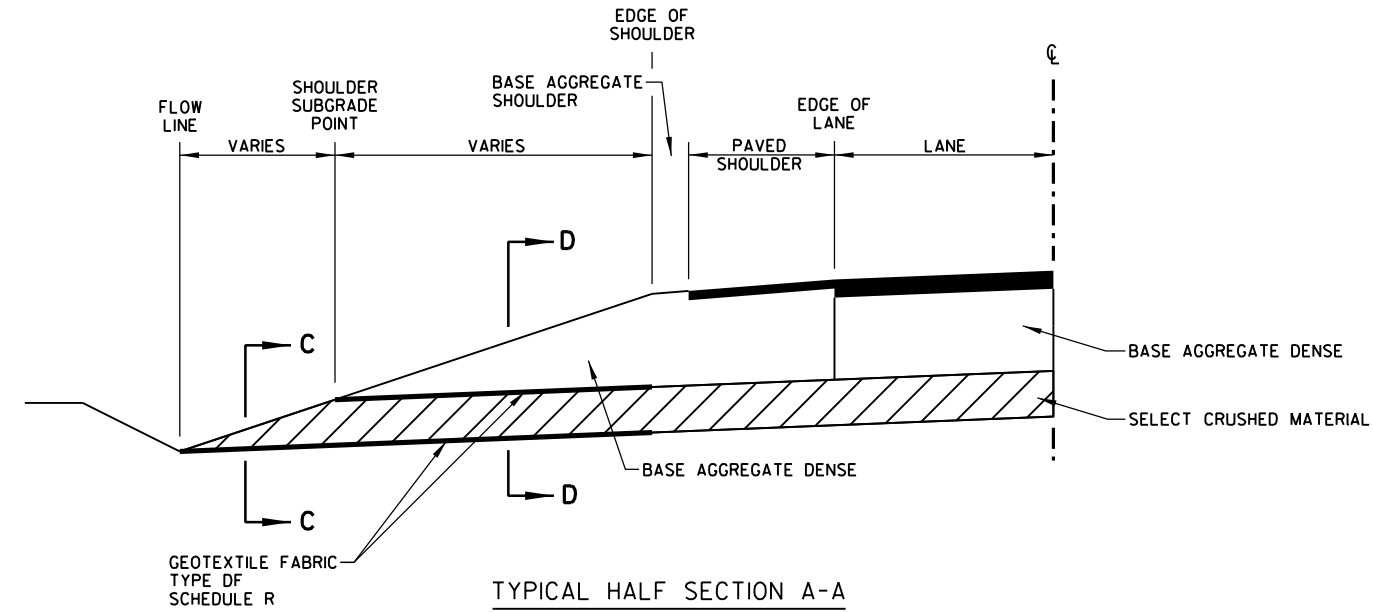


DETAIL FOR STEPPED EMBANKMENT

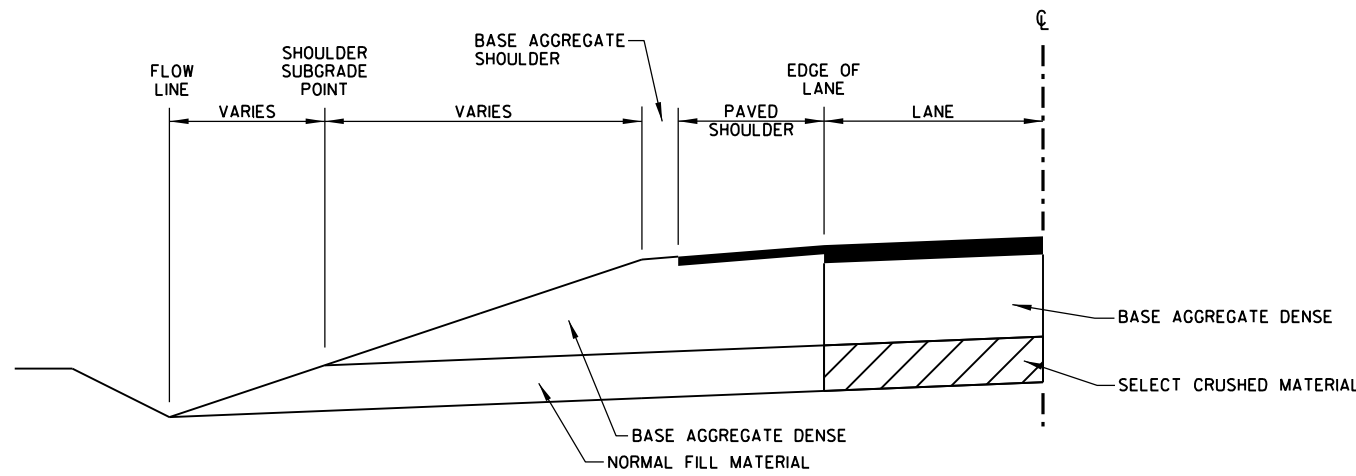
- NOTES:
1. EMBANKMENT PLACED IN LAYERS AND COMPACTED PER SPECIFICATIONS.
  2. BENCH AS REQUIRED TO FACILITATE CONSTRUCTION FILLING OPERATIONS (4' BENCH DEPTH, INCLUDED IN EMBANKMENT).
  3. EBS AS REQUIRED IN THE PLANS OR DIRECTED BY THE ENGINEER SHALL BE PAID UNDER THE ITEM "EXCAVATION COMMON".
  4. KEY INTO EXISTING GROUND TO FACILITATE FILLING OPERATIONS (INCLUDED IN EMBANKMENT).



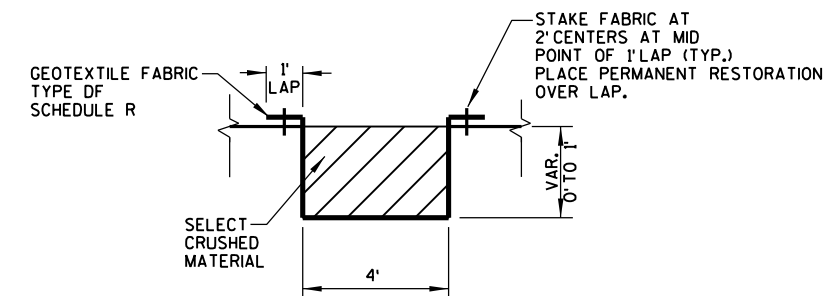
FRENCH DRAIN DETAIL - PLAN VIEW



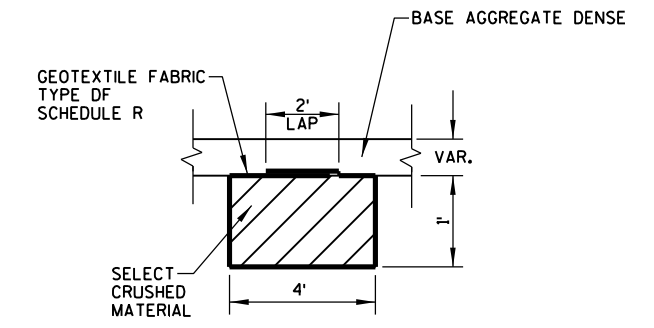
TYPICAL HALF SECTION A-A



TYPICAL HALF SECTION B-B



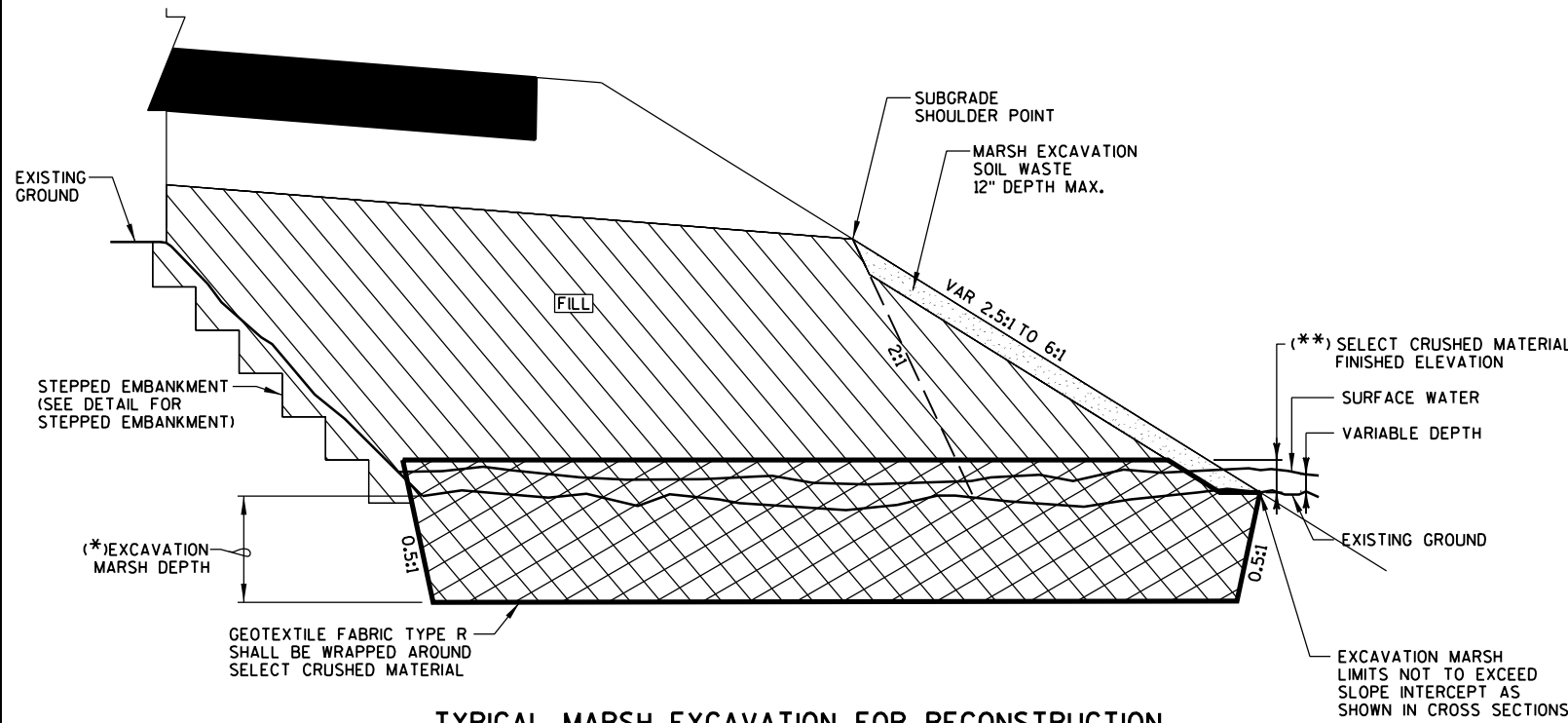
TYPICAL SECTION C-C



TYPICAL SECTION D-D

**DETAIL FOR FRENCH DRAIN**

- NOTES:  
 -CONSTRUCT RELIEF TRENCH AT SAG POINTS OR EVERY 200 FT. REFER TO PIPE UNDERDRAIN PLAN FOR LOCATIONS.  
 -EXCAVATION REQUIRED FOR CONSTRUCTION OF FRENCH DRAIN INCLUDED IN THE COST OF SELECT CRUSHED MATERIAL.



**TYPICAL MARSH EXCAVATION FOR RECONSTRUCTION**

REFER TO CROSS SECTIONS FOR LOCATIONS.

**NOTES:**

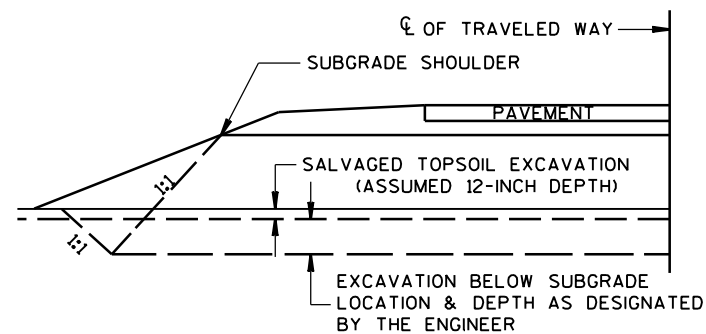
**(\*) EXCAVATION MARSH DEPTH:**

1) NB IH 39 (APPROXIMATELY STA. 459+50 'TNB' TO STA. 465+00 'TNB', RT)-ALL MARSH MATERIAL SHALL BE REMOVED AS DIRECTED BY THE ENGINEER WITH A MINIMUM DEPTH OF EXCAVATION OF 10' REGARDLESS OF SOIL PROPERTIES. MINIMUM DEPTH OF EXCAVATION REQUIRED TO CONSTRUCT FOUNDATION FOR FILL MATERIAL.

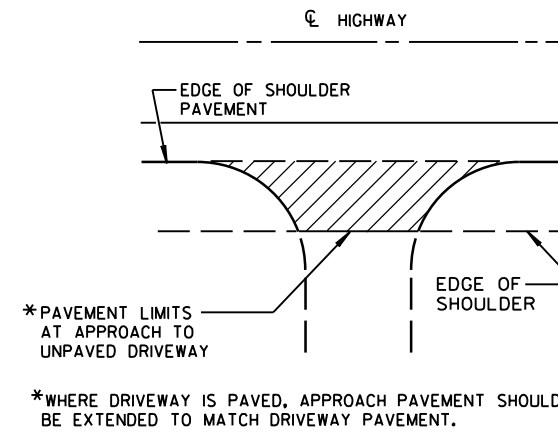
2) SB IH 39 (APPROXIMATELY STA. 59+00 'SB-A' TO STA. 64+00 'SB-A', LT)-ALL MARSH MATERIAL SHALL BE REMOVED AS DIRECTED BY THE ENGINEER WITH A MINIMUM DEPTH OF EXCAVATION OF 6' REGARDLESS OF SOIL PROPERTIES. MINIMUM DEPTH OF EXCAVATION REQUIRED TO CONSTRUCT FOUNDATION FOR FILL MATERIAL.

**(\*\*) SELECT CRUSHED MATERIAL TO BE PLACED TO A MINIMUM OF 1' ABOVE THE EXISTING GROUND ELEVATION OR 1' ABOVE THE EXISTING SURFACE WATER ELEVATION, WHICHEVER ELEVATION IS GREATER.**

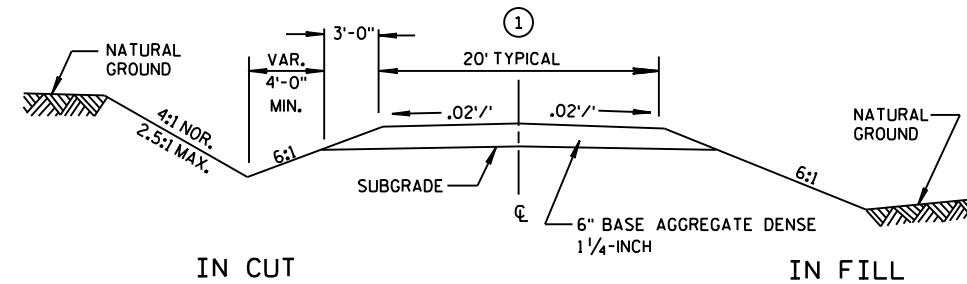
NOTE: EXACT LOCATIONS AND EXTENT OF E.B.S. SECTIONS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.  
E.B.S. AREA TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL.



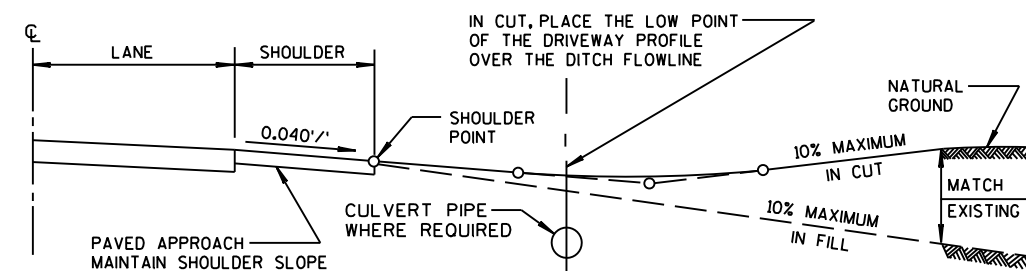
**DETAIL FOR EXCAVATION BELOW SUBGRADE**



**PLAN VIEW**



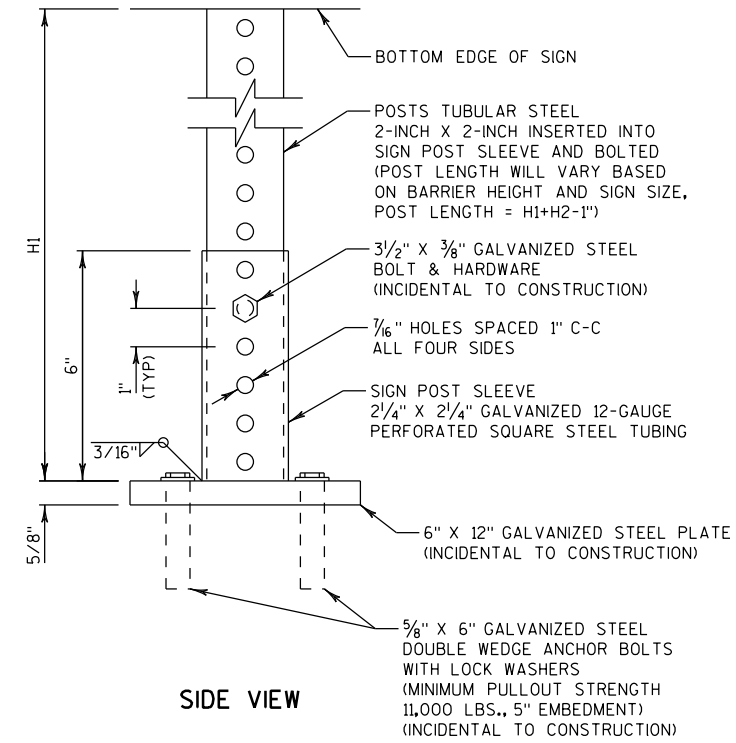
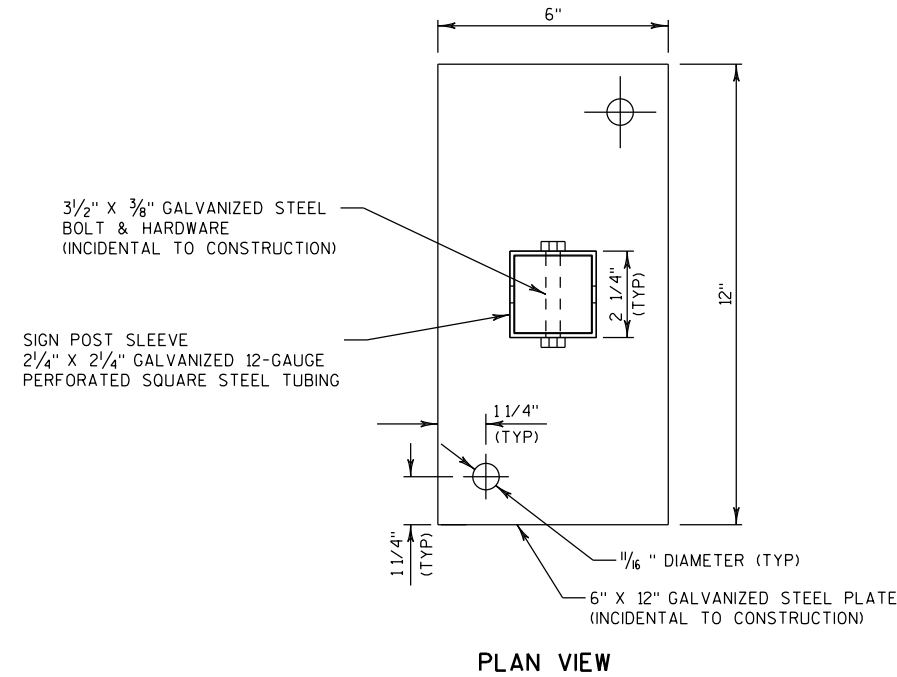
**TYPICAL CROSS SECTION**



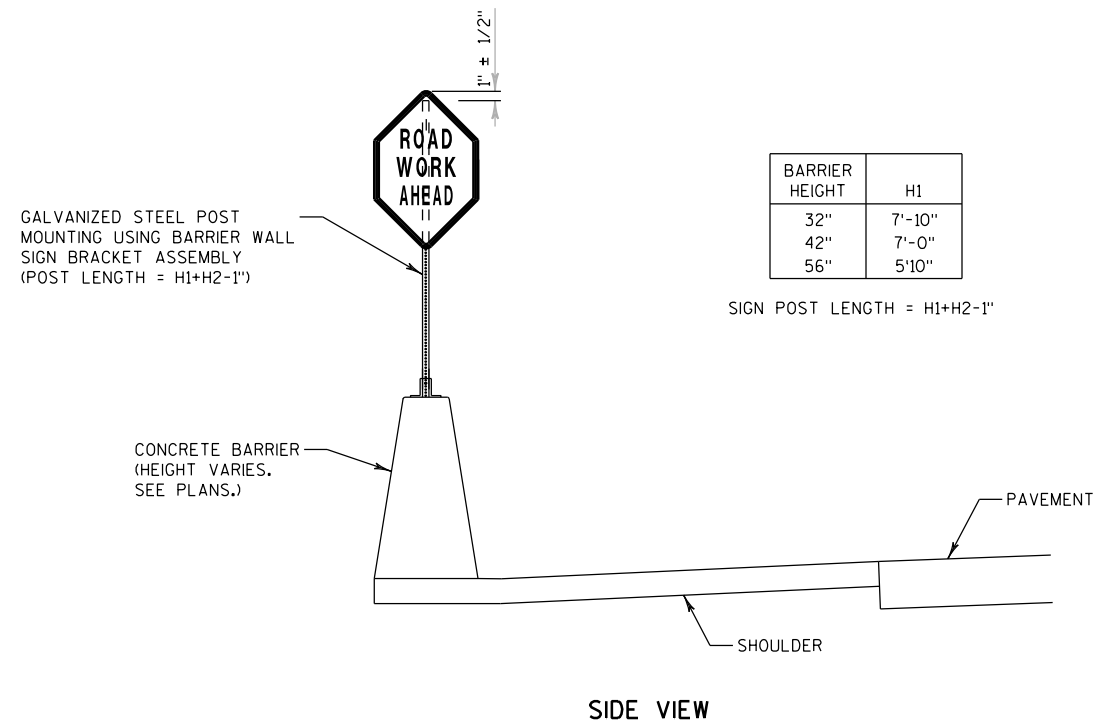
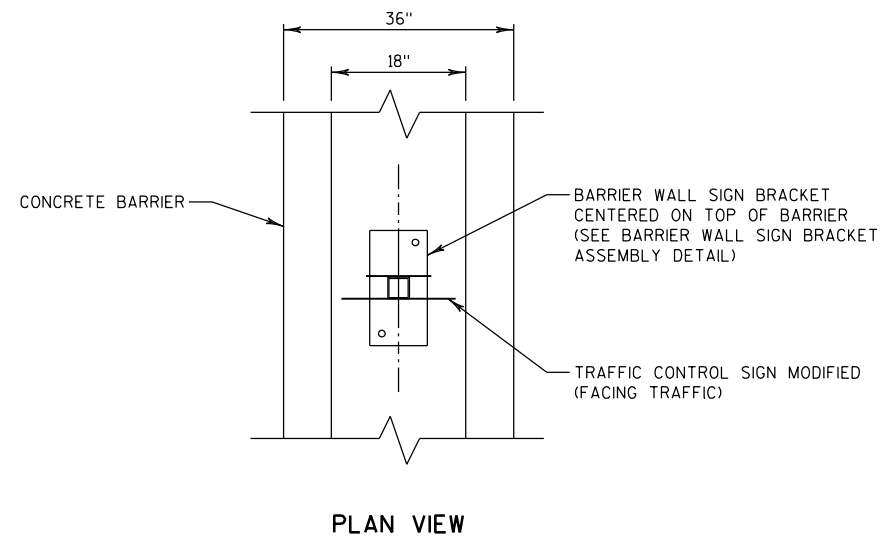
**TYPICAL PROFILE**

**RURAL DRIVEWAY DETAIL**

① DRIVEWAY WIDTHS:  
COMMERCIAL, 35' MAX, 12' MIN  
NON-COMMERCIAL, 24' MAX, 12' MIN  
SEE PAVING DETAIL SHEETS FOR WIDTH REQUIRED



BARRIER WALL SIGN BRACKET ASSEMBLY DETAIL






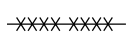

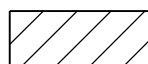



MEDIAN BARRIER MOUNTING DETAIL

MOUNTING TRAFFIC CONTROL SIGNS TO MEDIAN BARRIER

N.T.S.

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
-  REMOVING PAVEMENT MARKING
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  PORTABLE CHANGEABLE MESSAGE BOARD

NOTES:

SPACING AND LOCATIONS OF DEVICES IN THE FIELD SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.

SEE OTHER TRAFFIC CONTROL DETAILS AND STANDARD DETAIL DRAWINGS FOR LANE CLOSURE DETAILS.

PORTABLE MESSAGE SIGN MESSAGES SHOULD READ:

FRAME 1	FRAME 2
TRUCKS EXITING RIGHT	TRAFFIC STAY LEFT

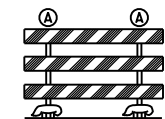
DURING NON-WORKING HOURS, THE OPENING IN TRAFFIC CONTROL DRUMS SHALL BE SECURED WITH TRAFFIC CONTROL DRUMS AND WARNING LIGHTS TYPE C AT A 50-FOOT SPACING ALONG THE TAPER.

REPEAT AFTER EACH RAMP OR SIDE ROAD

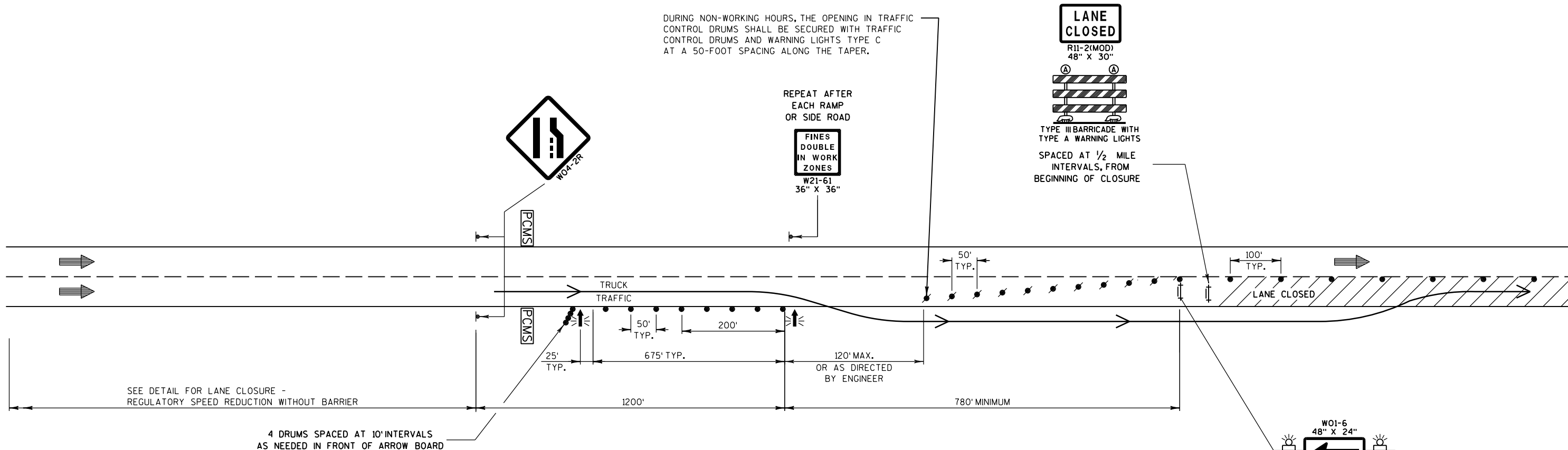
FINES DOUBLE IN WORK ZONES  
W21-61  
36" X 36"

LANE CLOSED

R11-2(MOD)  
48" X 30"



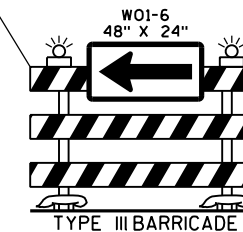
TYPE III BARRICADE WITH TYPE A WARNING LIGHTS  
SPACED AT 1/2 MILE INTERVALS, FROM BEGINNING OF CLOSURE

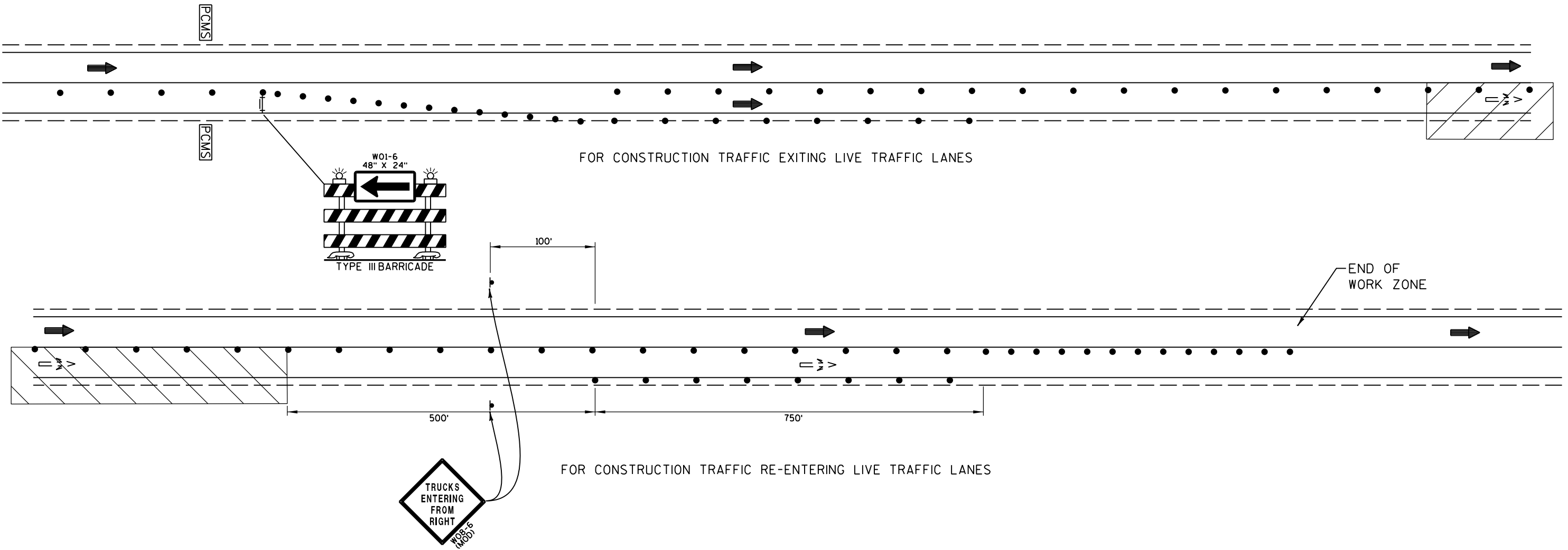


SEE DETAIL FOR LANE CLOSURE - REGULATORY SPEED REDUCTION WITHOUT BARRIER

4 DRUMS SPACED AT 10' INTERVALS AS NEEDED IN FRONT OF ARROW BOARD

TRAFFIC CONTROL DETAIL FOR CONSTRUCTION ACCESS AT LANE CLOSURE  
NIGHT USE ONLY

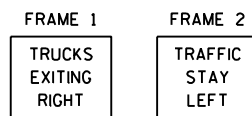




NOTE:  
 SPACING AND LOCATIONS OF DEVICES IN THE FIELD  
 SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER

SEE OTHER TRAFFIC CONTROL DETAILS AND STANDARD  
 DETAIL DRAWINGS FOR LANE CLOSURE DETAILS

PORTABLE MESSAGE SIGN MESSAGES SHOULD READ:

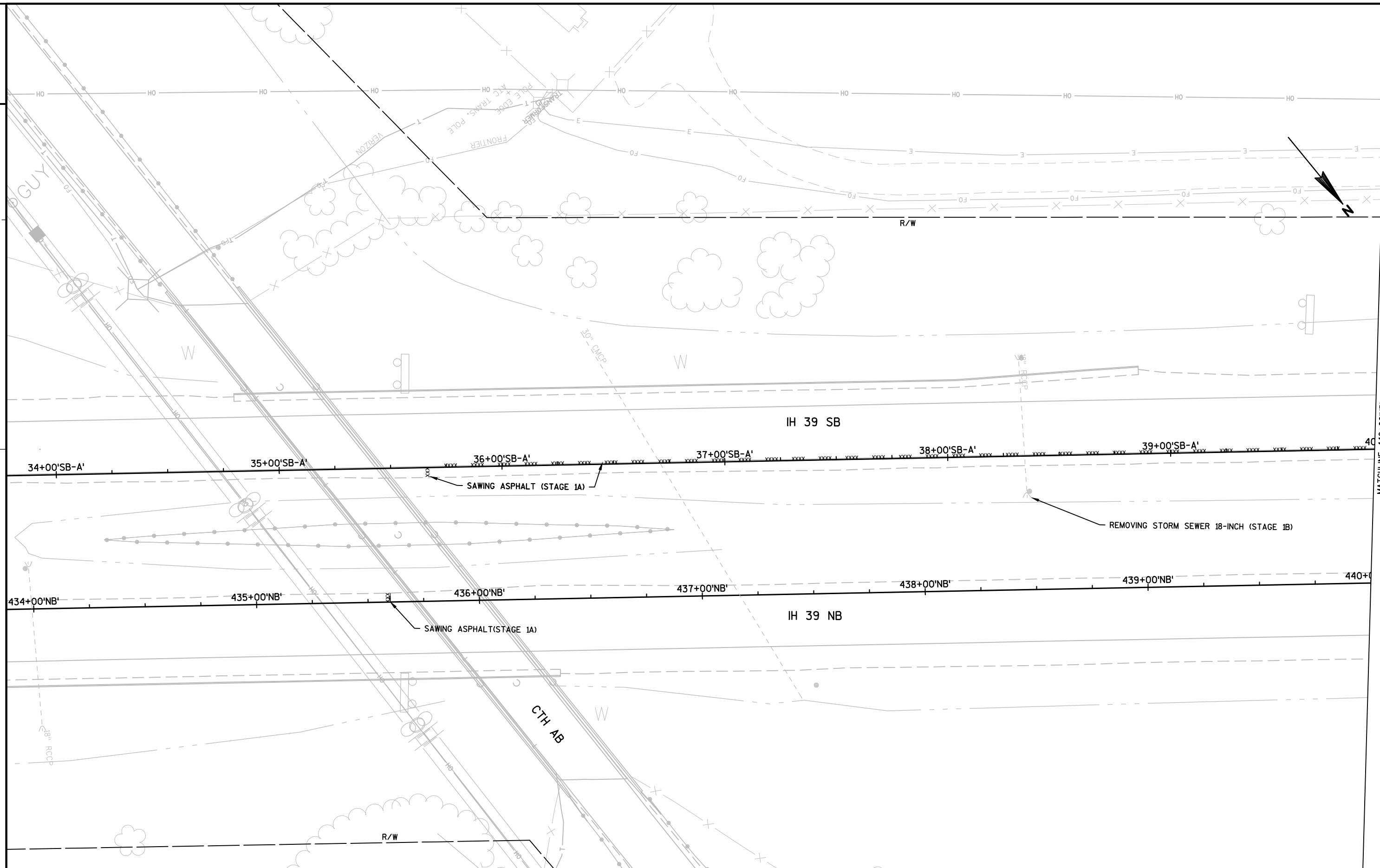


**TRAFFIC CONTROL DETAIL FOR CONSTRUCTION ACCESS AT LANE CLOSURES**  
**NIGHT USE ONLY**

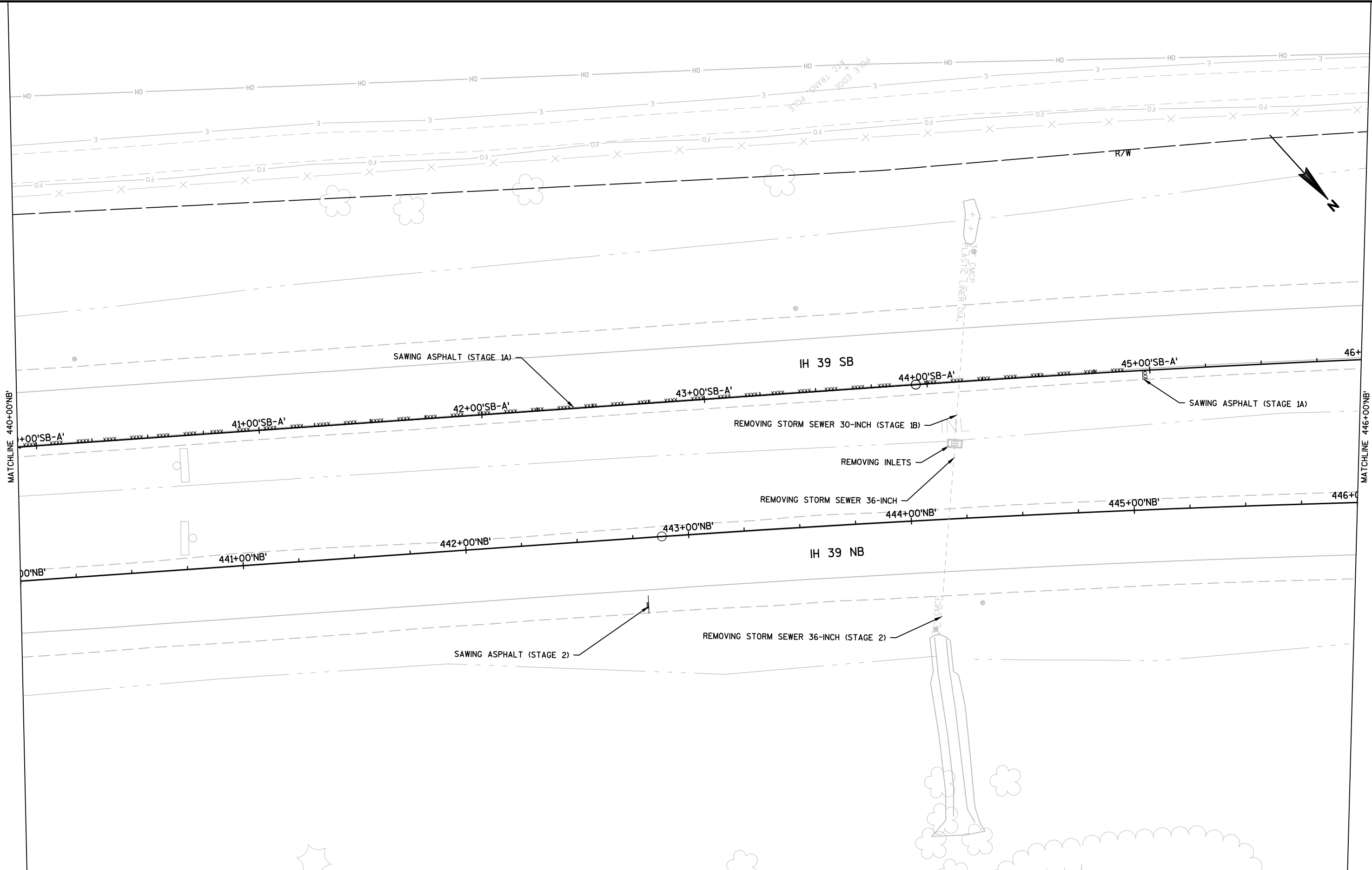
**LEGEND**

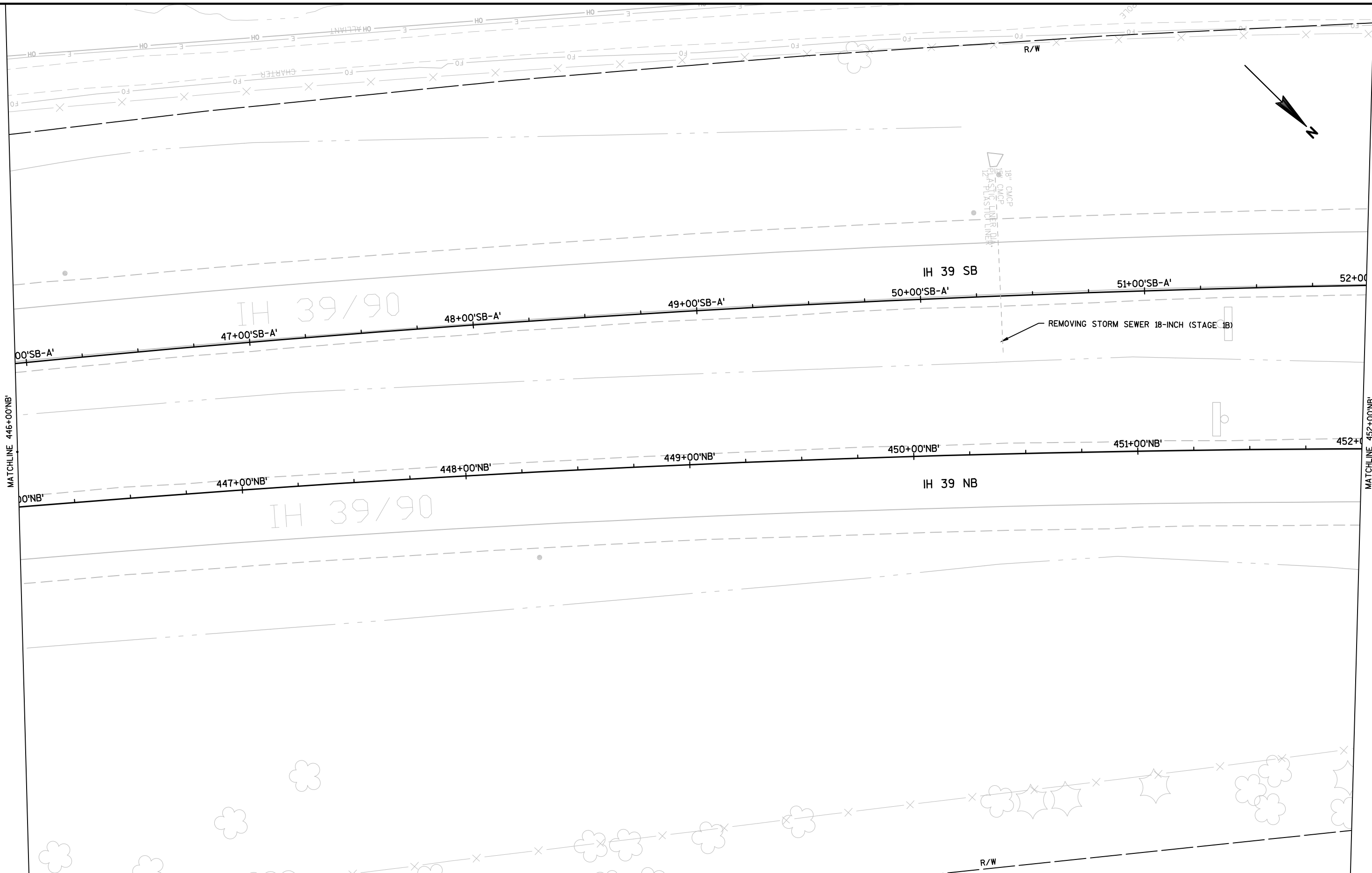
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL SIGN
- IH 39 TRAFFIC
- CONSTRUCTION TRAFFIC
- WORK ZONE
- PORTABLE CHANGEABLE MESSAGE BOARD

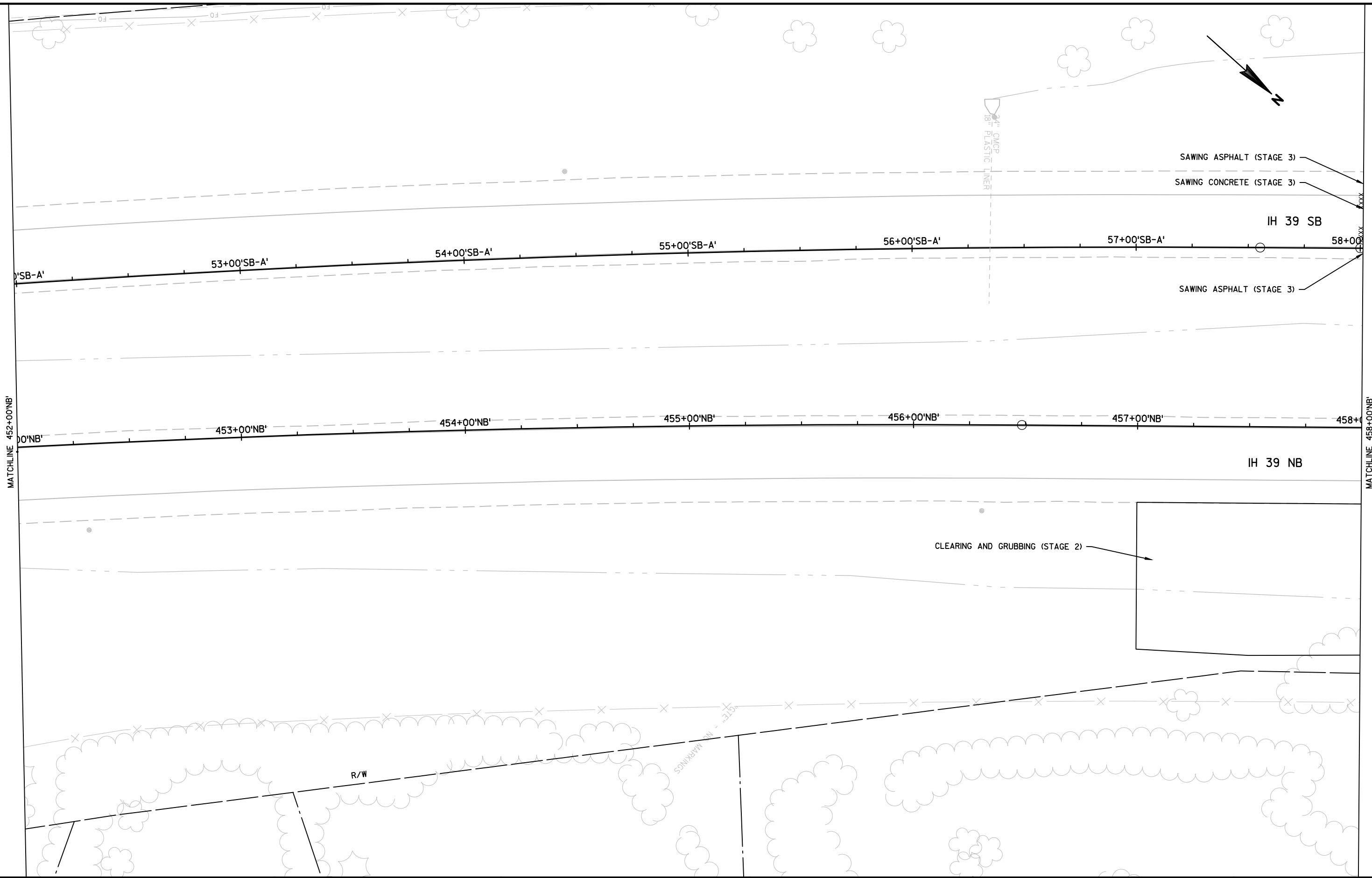


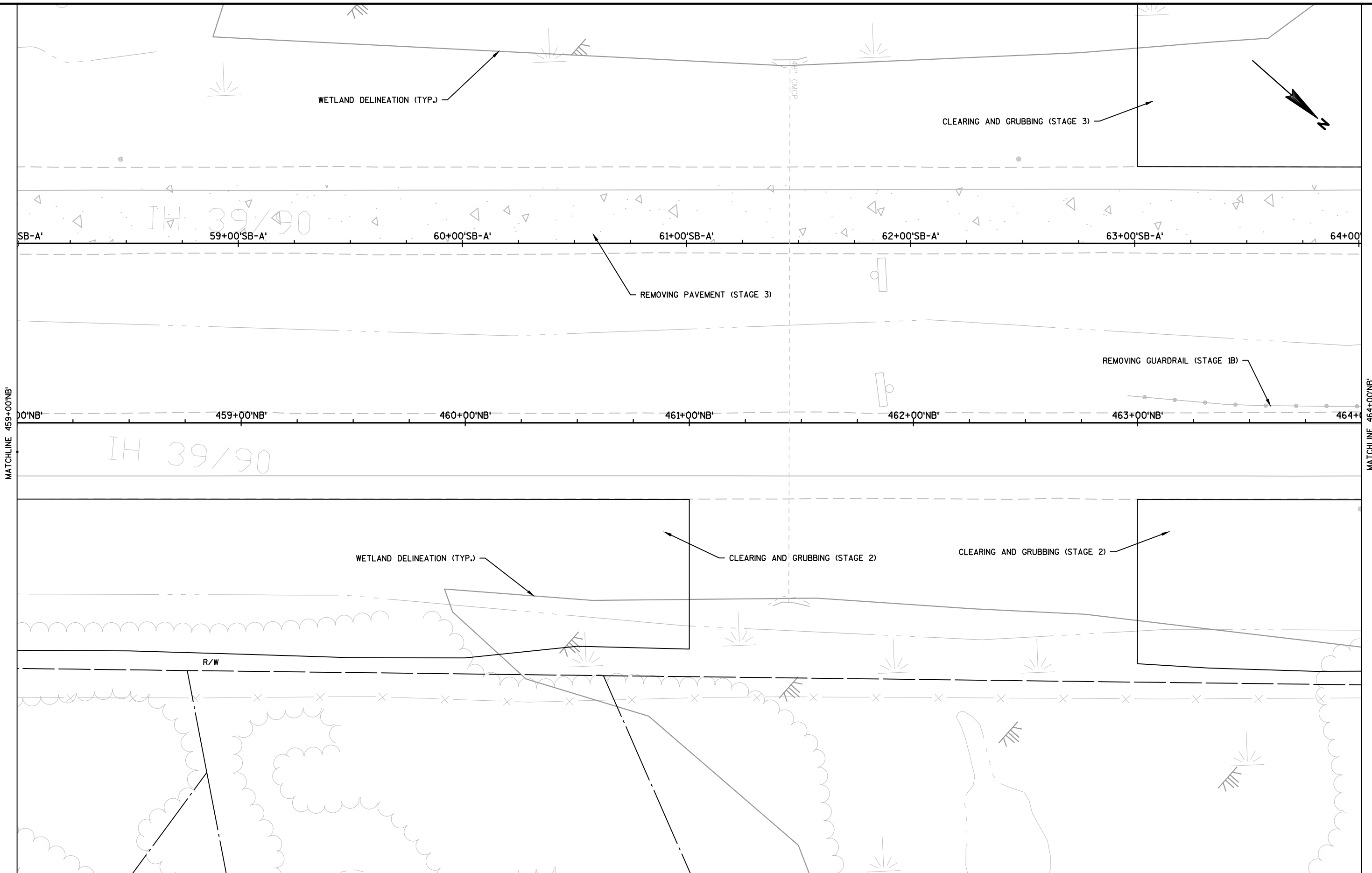


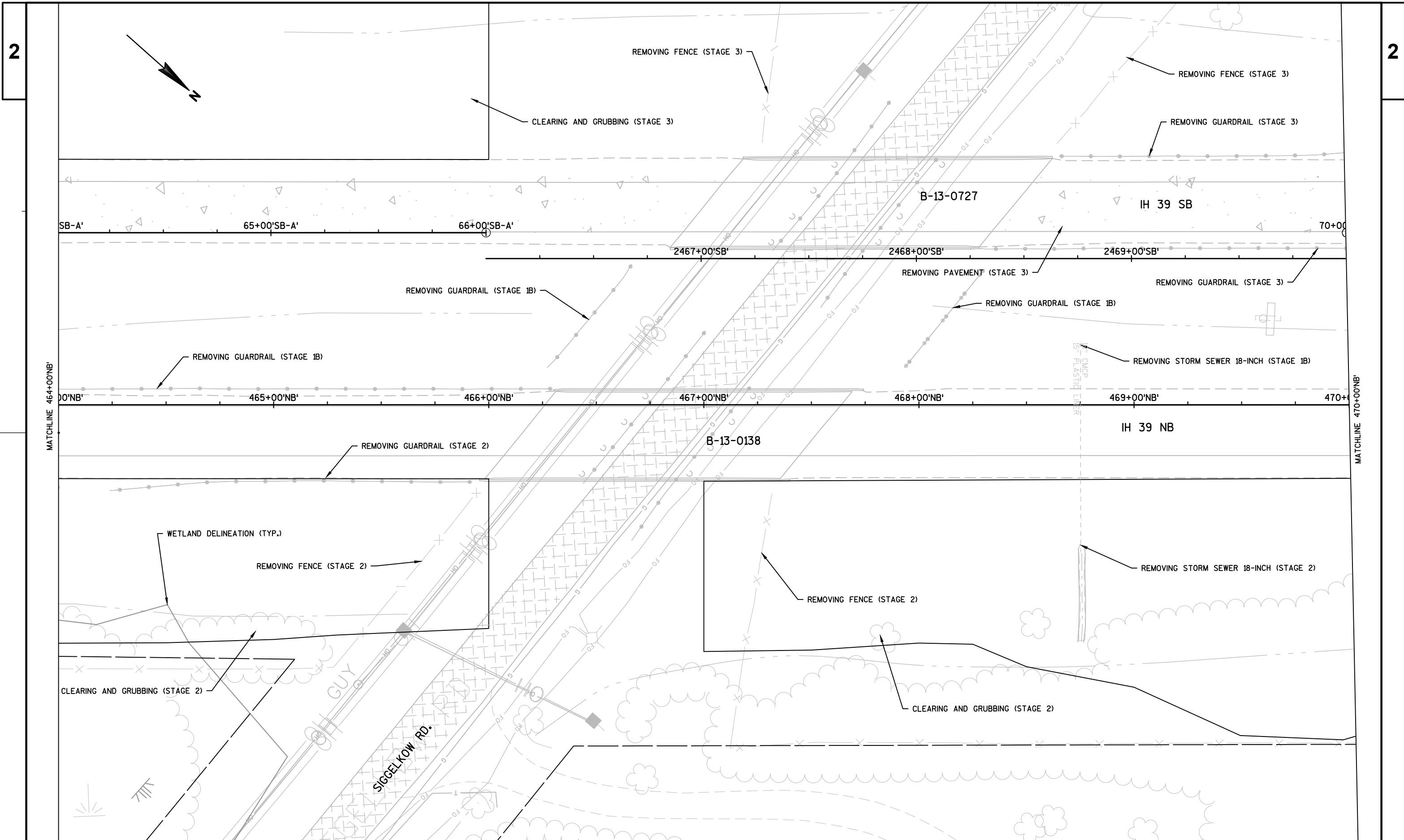
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	REMOVAL PLAN	SHEET E
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2

2

PROJECT NO:1007-10-71

HWY: IH 39

COUNTY: DANE

REMOVAL PLAN

SHEET

E

FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\020501\_RP.DWG

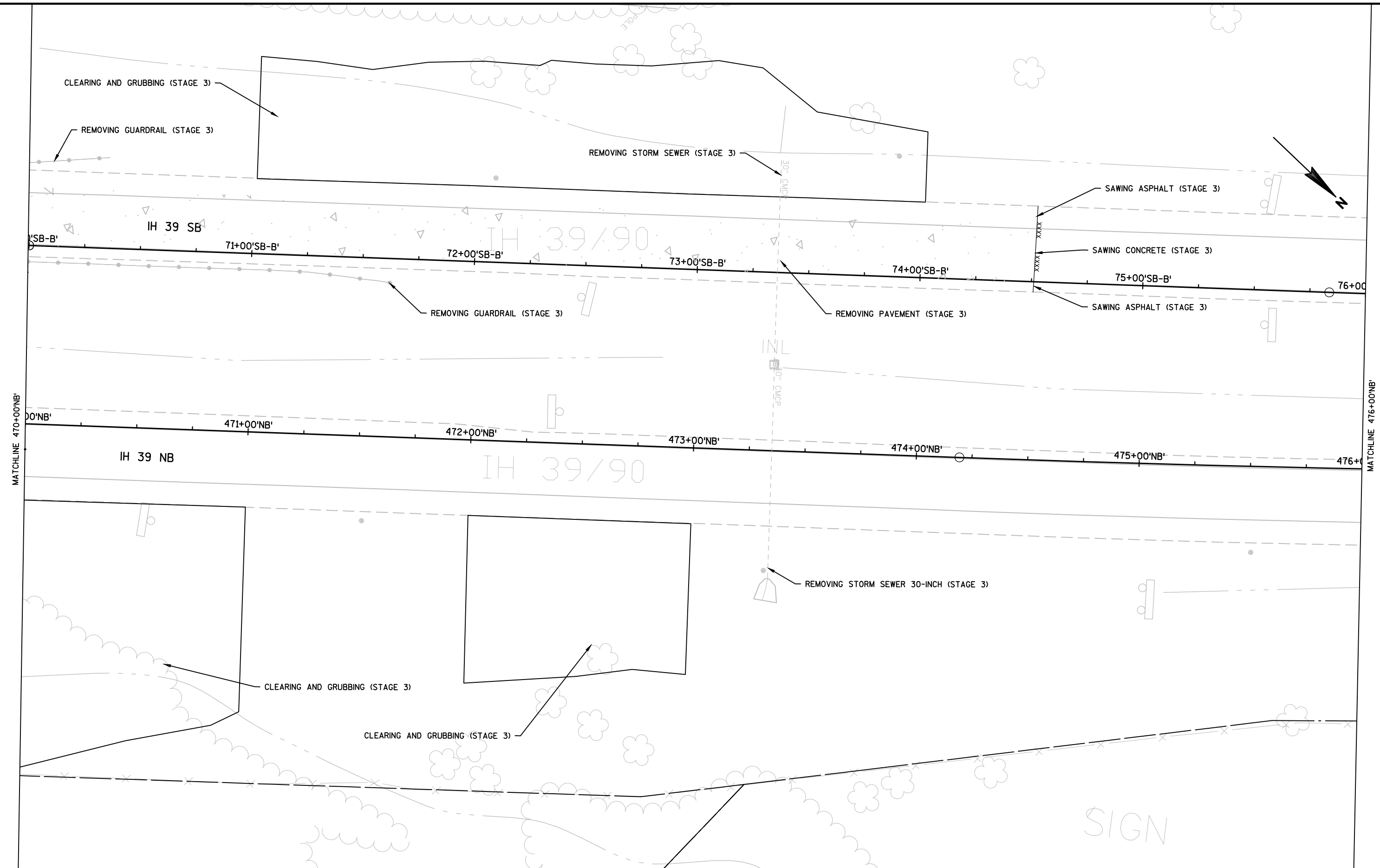
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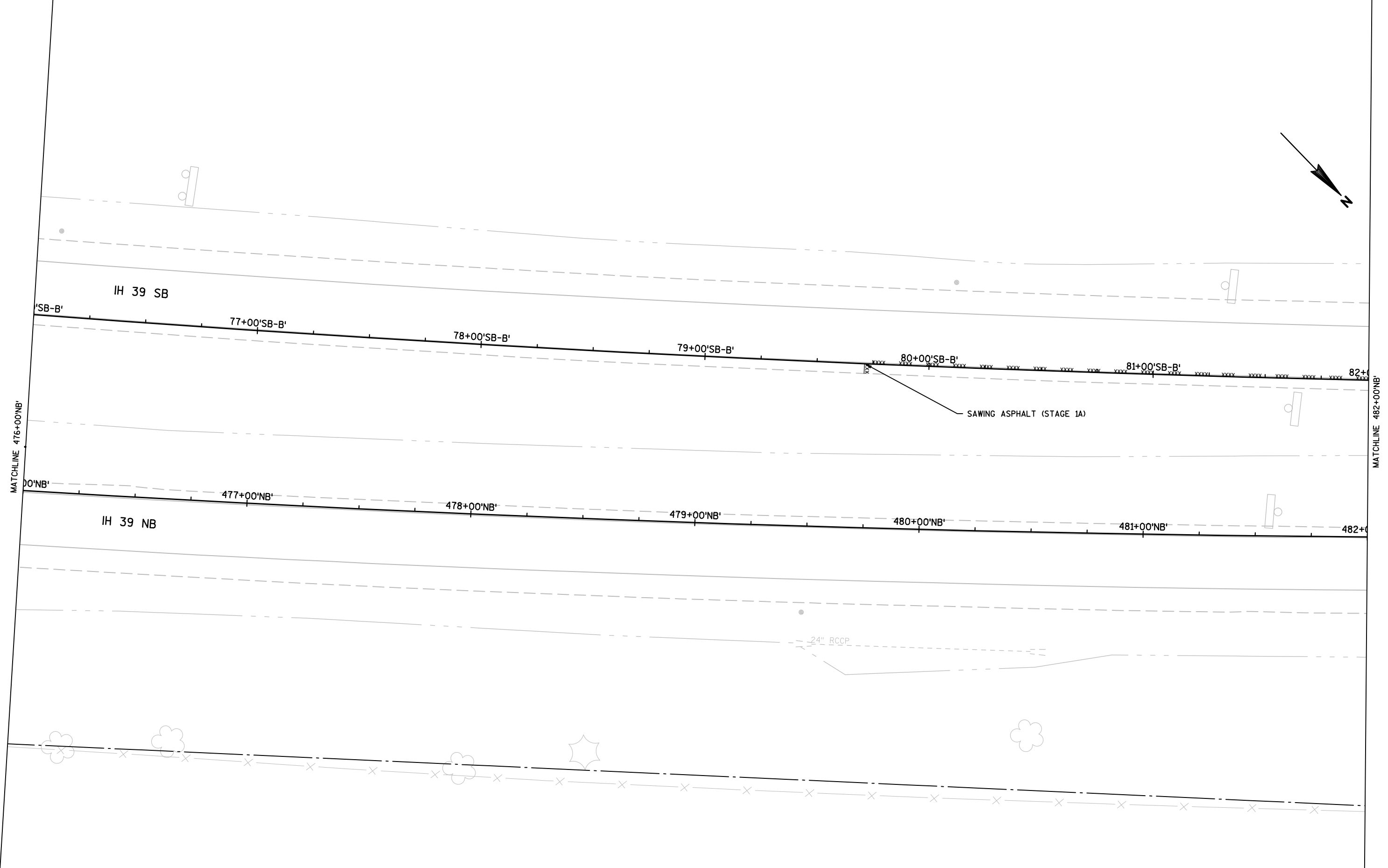
PLOT BY : PIOJDA, EDWARD

PLOT NAME :

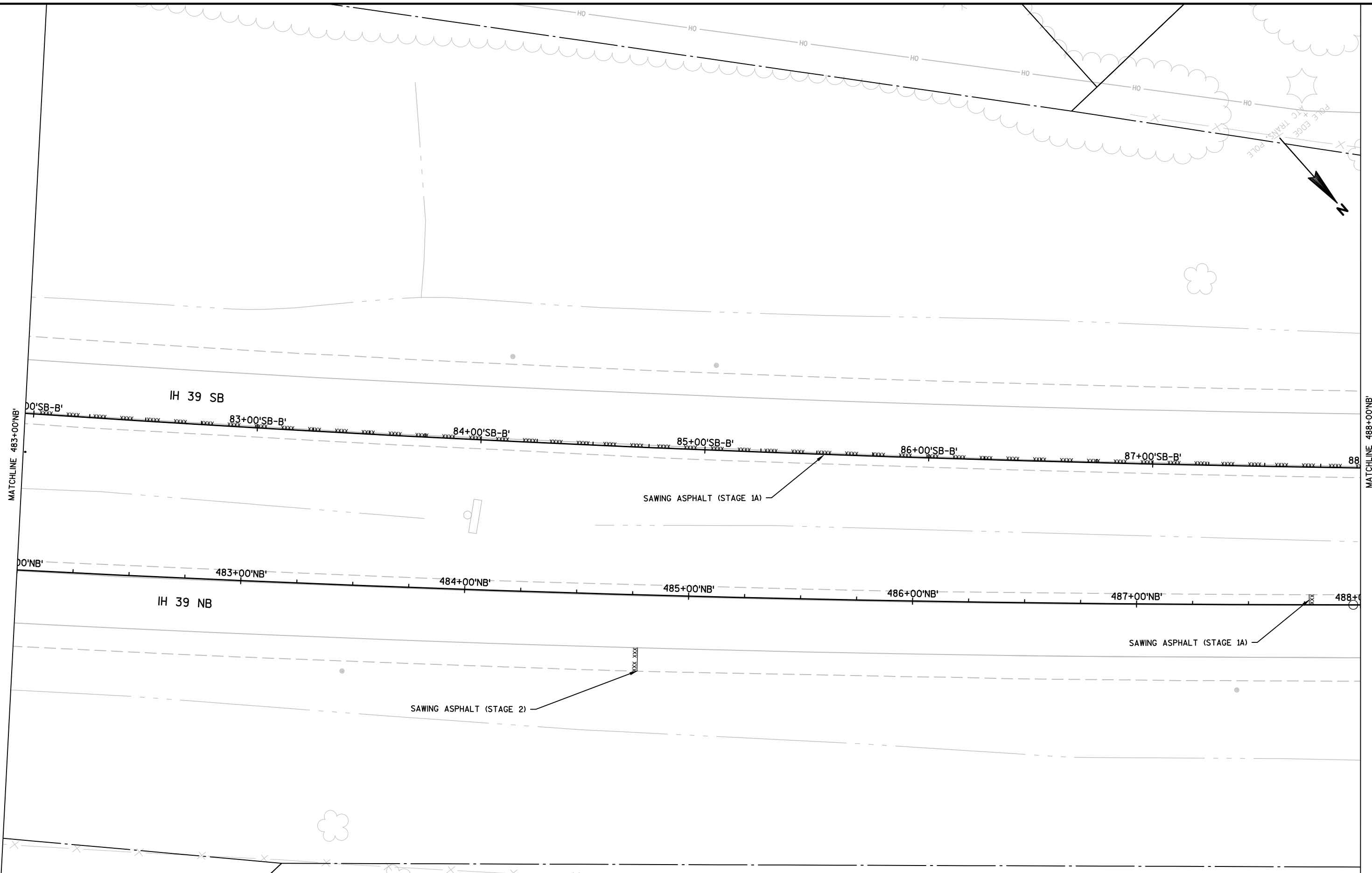
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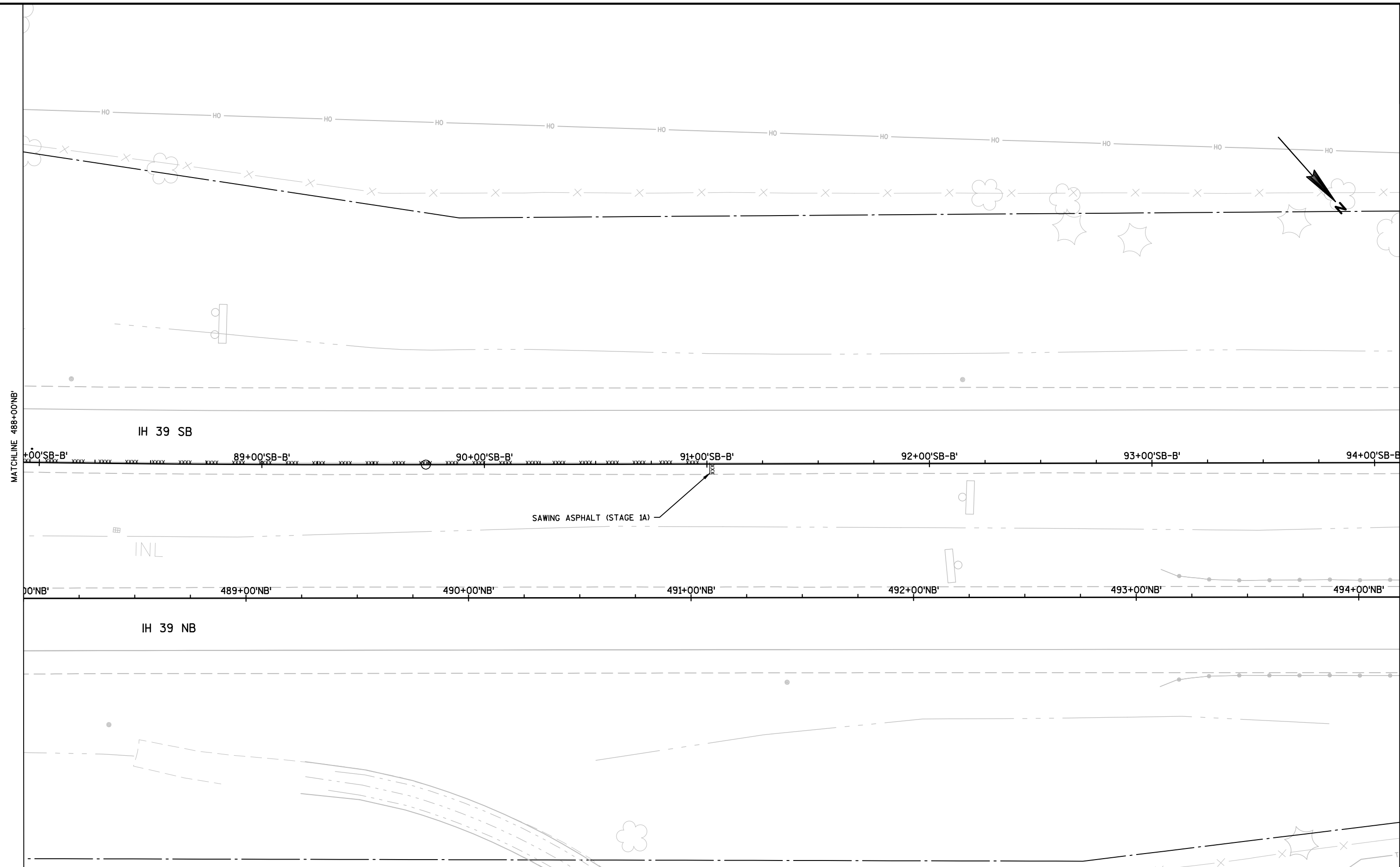
WISDOT/CADD SHEET 42











PROJECT NO:1007-10-71

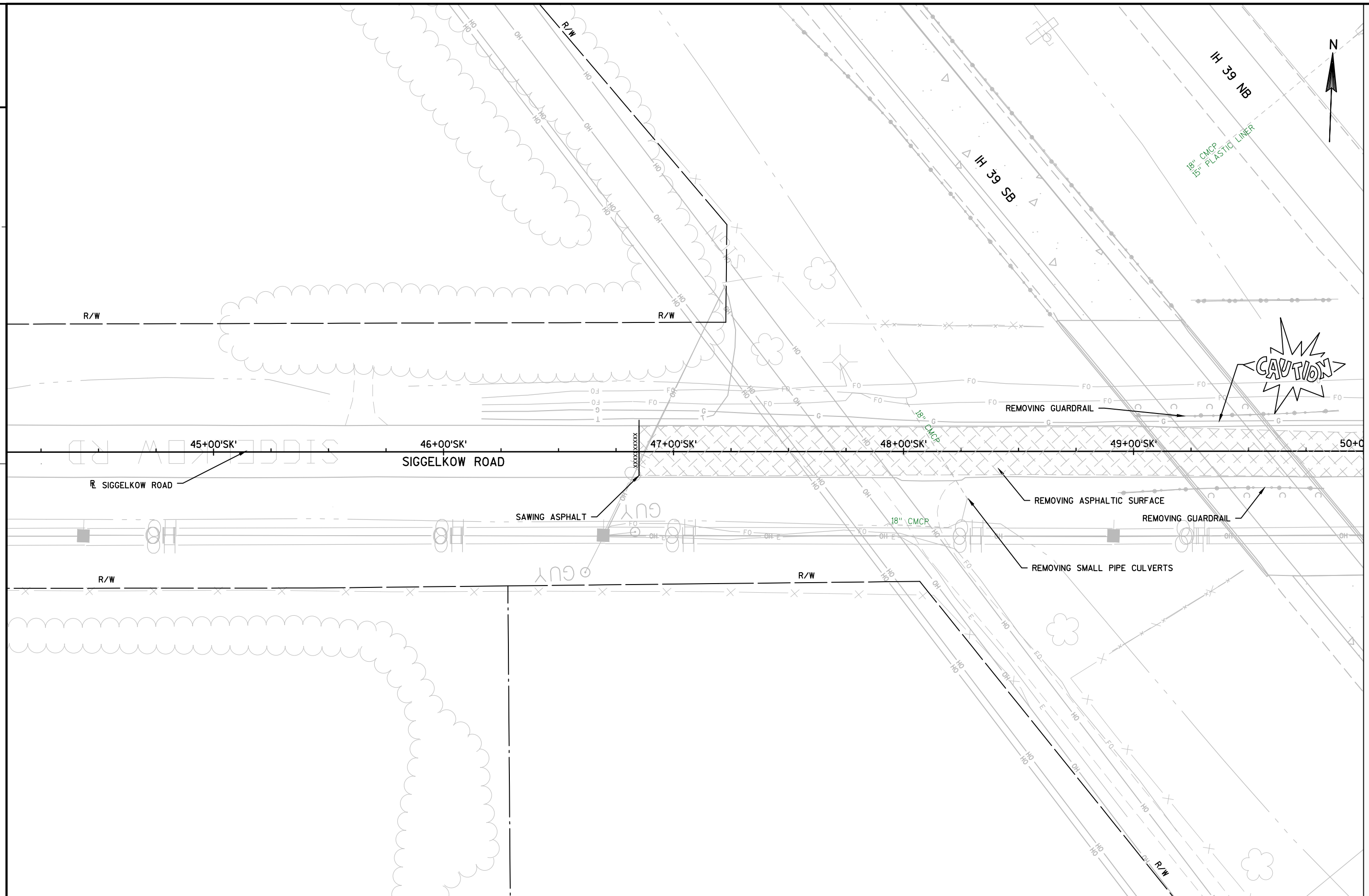
HWY: IH 39

COUNTY: DANE

REMOVAL PLAN

SHEET

E



**CAUTION**

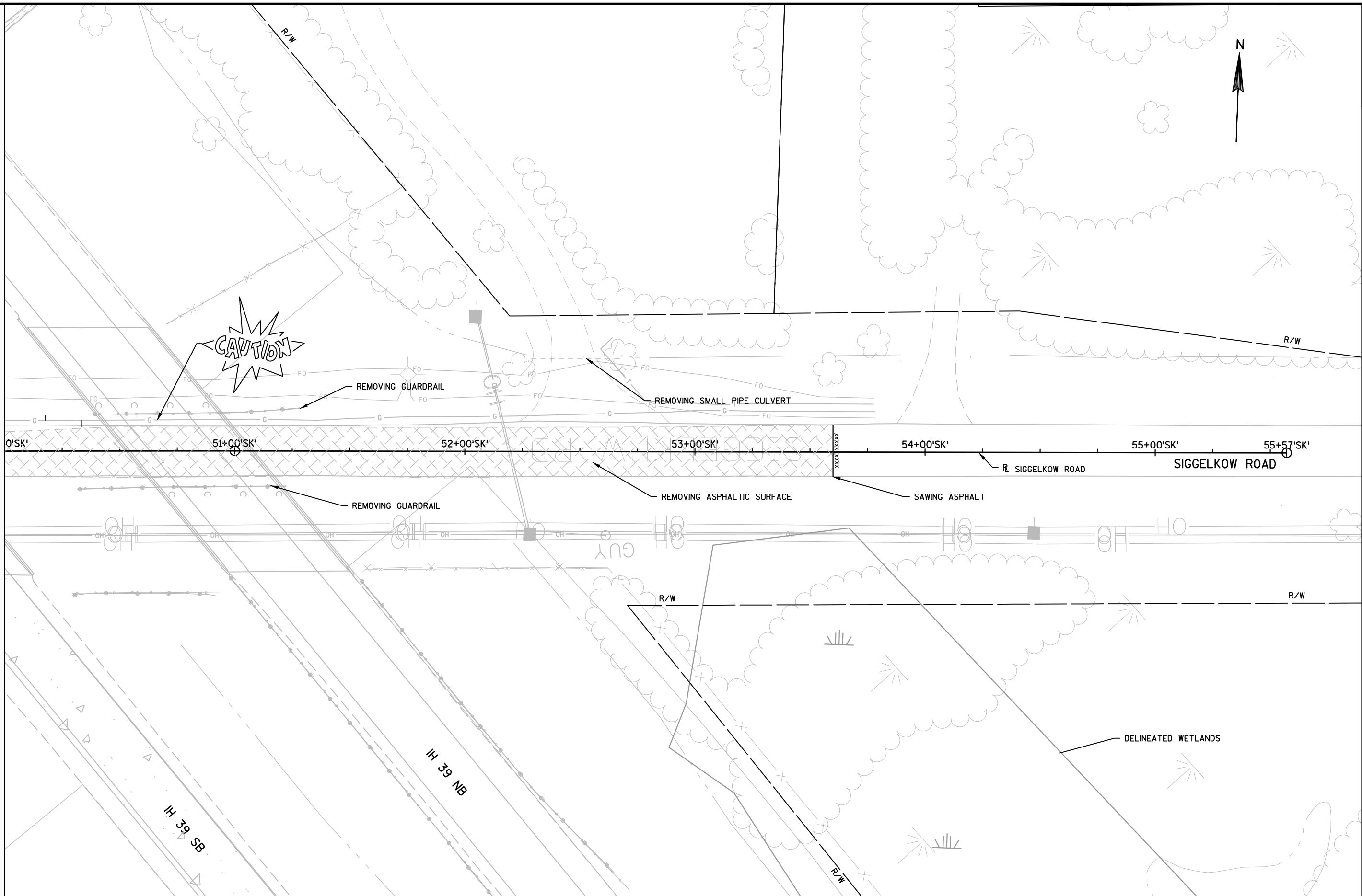


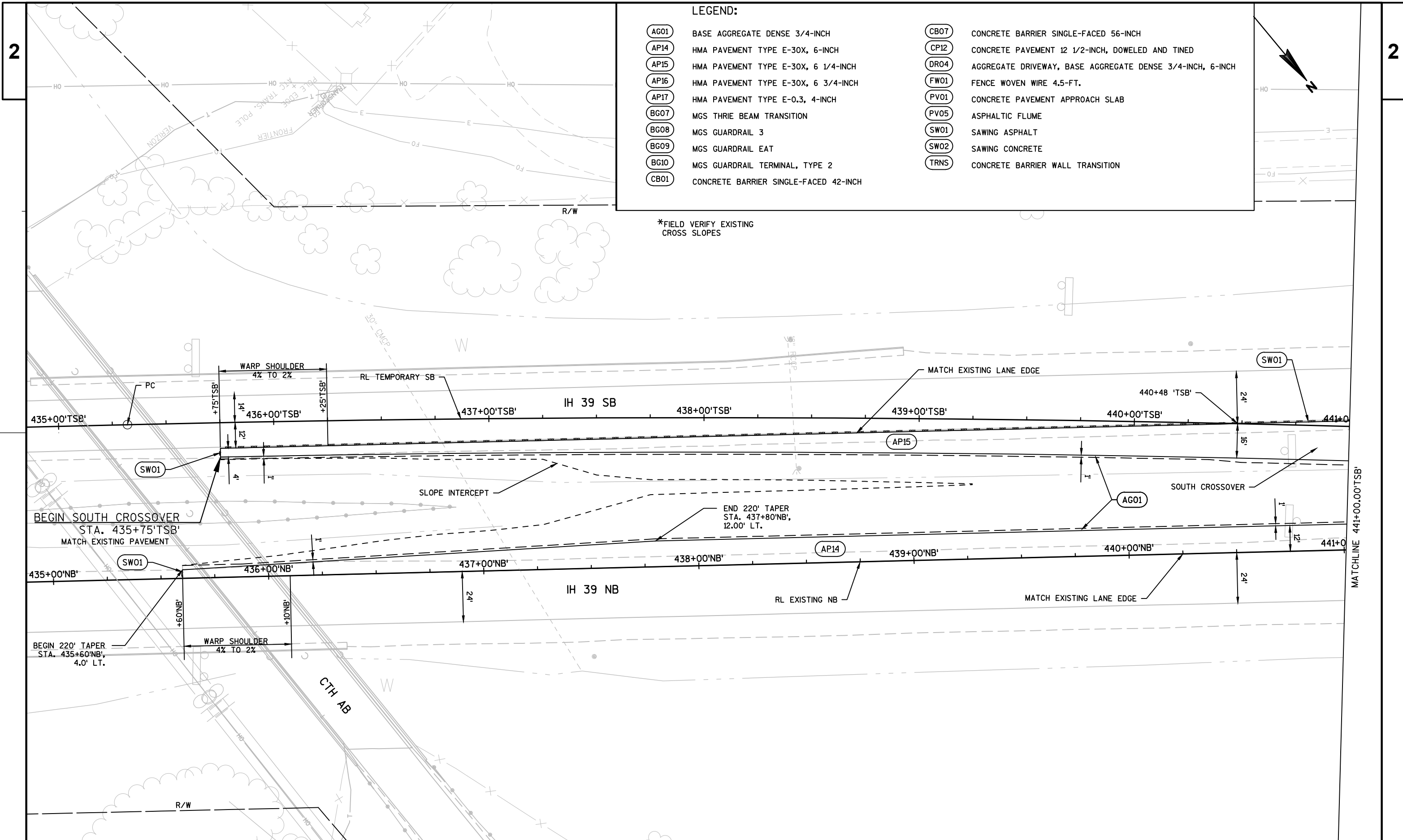
MATCHLINE 50+00.00'SK'

PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	REMOVAL PLANS	SHEET	E
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MATCHLINE 50+00.00'SK'





**LEGEND:**

- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

\*FIELD VERIFY EXISTING CROSS SLOPES

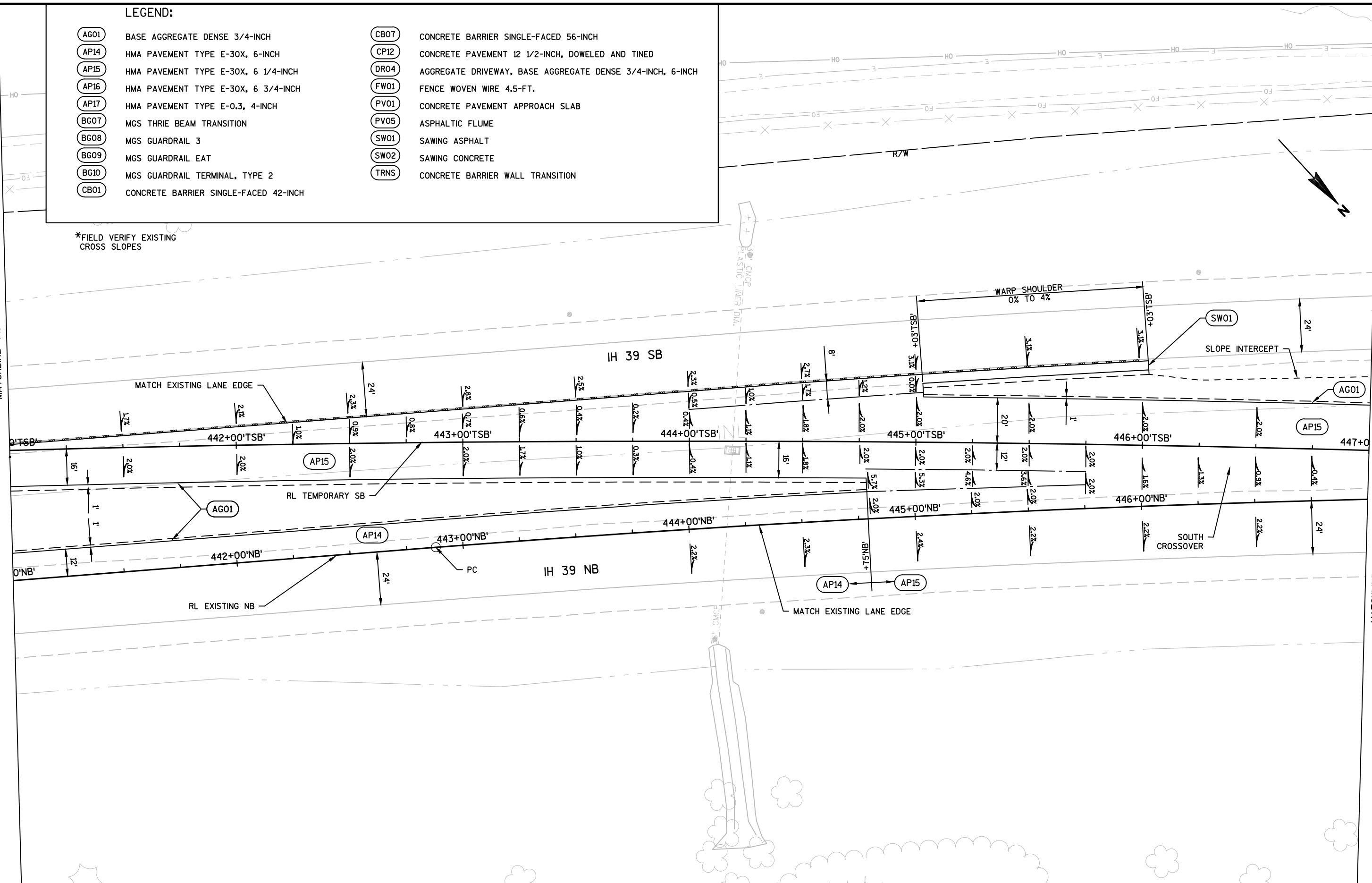
LEGEND:

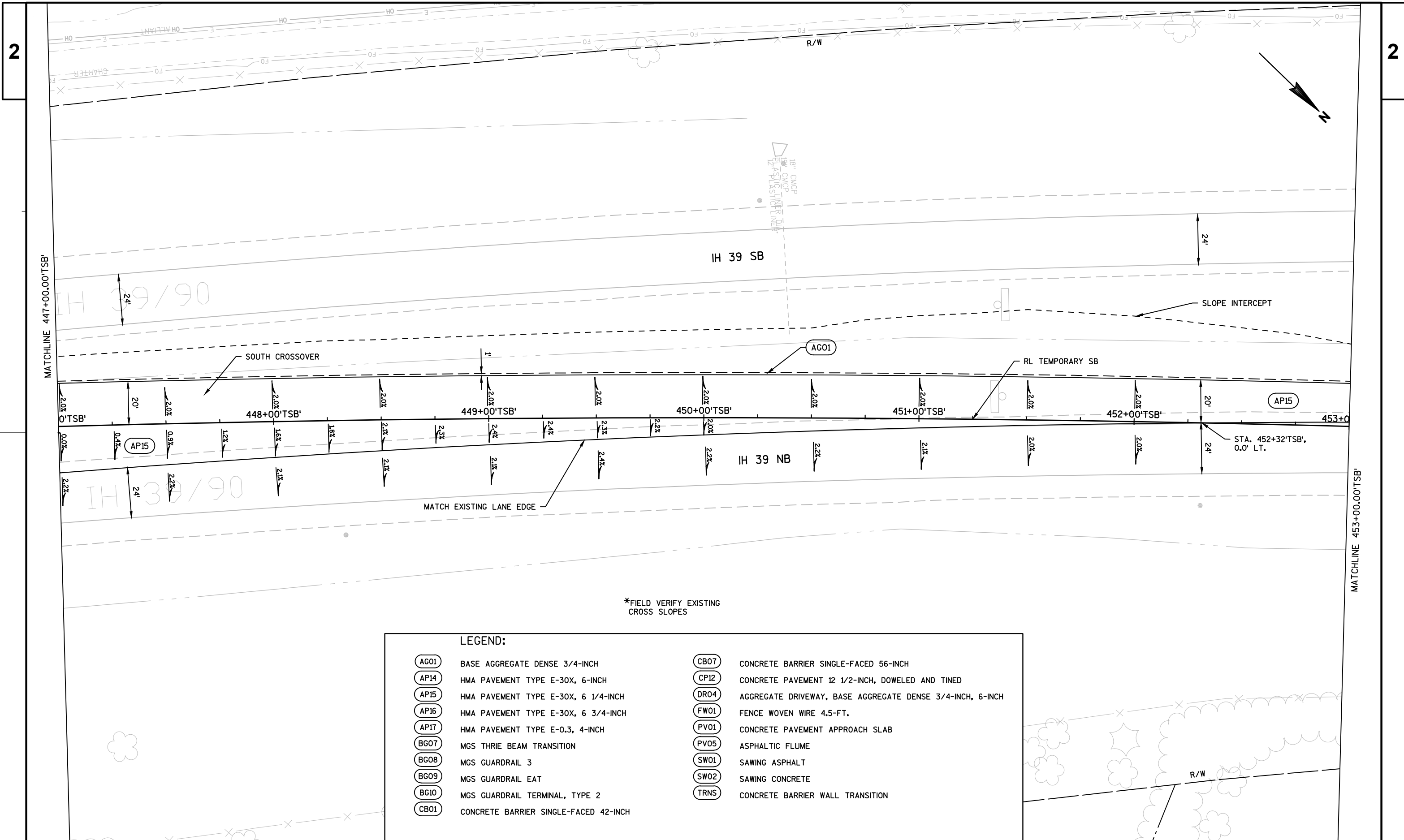
- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

\*FIELD VERIFY EXISTING CROSS SLOPES

MATCHLINE 441+00.00'TSB'

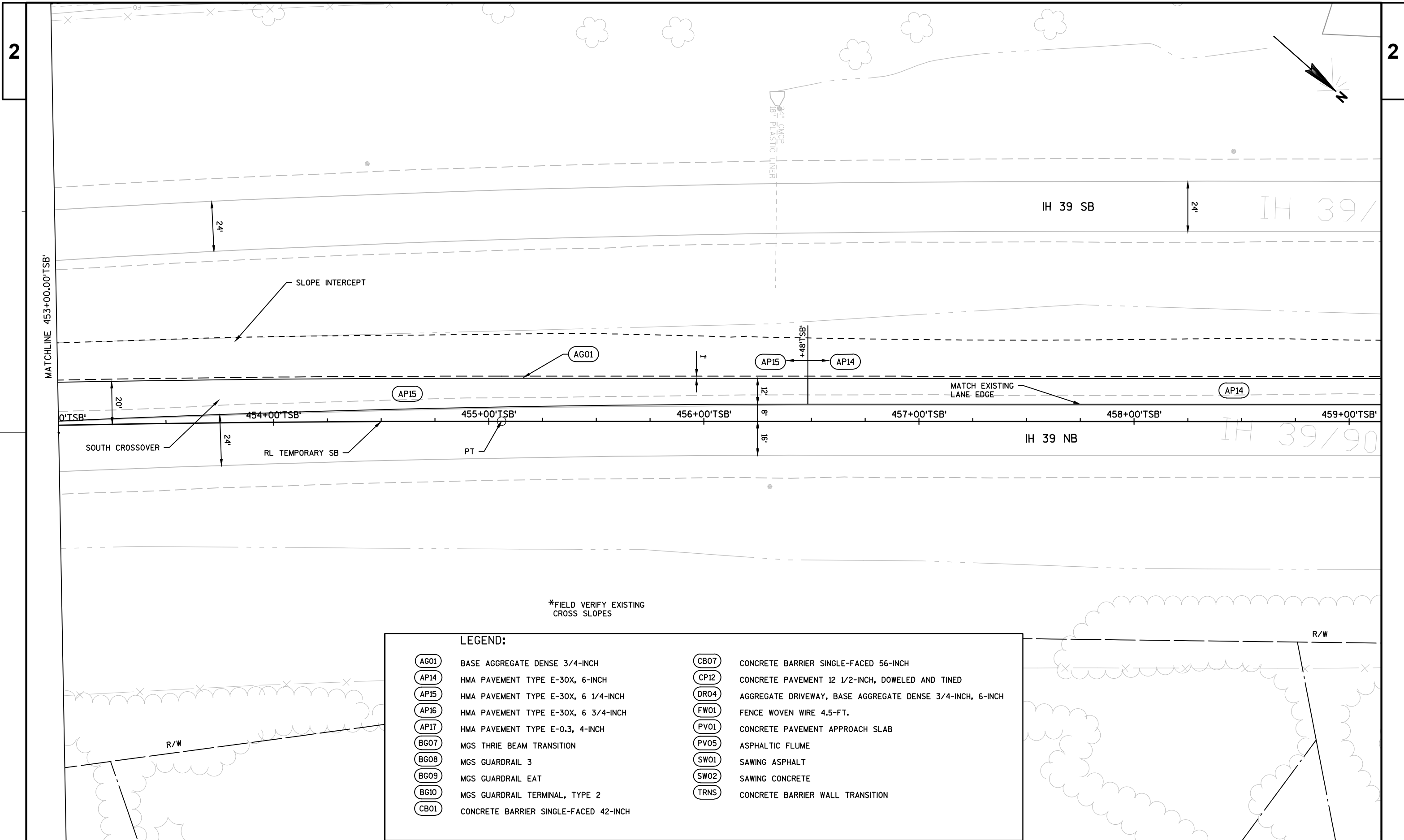
MATCHLINE 447+00.00'TSB'





\*FIELD VERIFY EXISTING CROSS SLOPES

LEGEND:	
AG01	BASE AGGREGATE DENSE 3/4-INCH
AP14	HMA PAVEMENT TYPE E-30X, 6-INCH
AP15	HMA PAVEMENT TYPE E-30X, 6 1/4-INCH
AP16	HMA PAVEMENT TYPE E-30X, 6 3/4-INCH
AP17	HMA PAVEMENT TYPE E-0.3, 4-INCH
BG07	MGS THRIE BEAM TRANSITION
BG08	MGS GUARDRAIL 3
BG09	MGS GUARDRAIL EAT
BG10	MGS GUARDRAIL TERMINAL, TYPE 2
CB01	CONCRETE BARRIER SINGLE-FACED 42-INCH
CB07	CONCRETE BARRIER SINGLE-FACED 56-INCH
CP12	CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
DRO4	AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
FW01	FENCE WOVEN WIRE 4.5-FT.
PV01	CONCRETE PAVEMENT APPROACH SLAB
PV05	ASPHALTIC FLUME
SW01	SAWING ASPHALT
SW02	SAWING CONCRETE
TRNS	CONCRETE BARRIER WALL TRANSITION

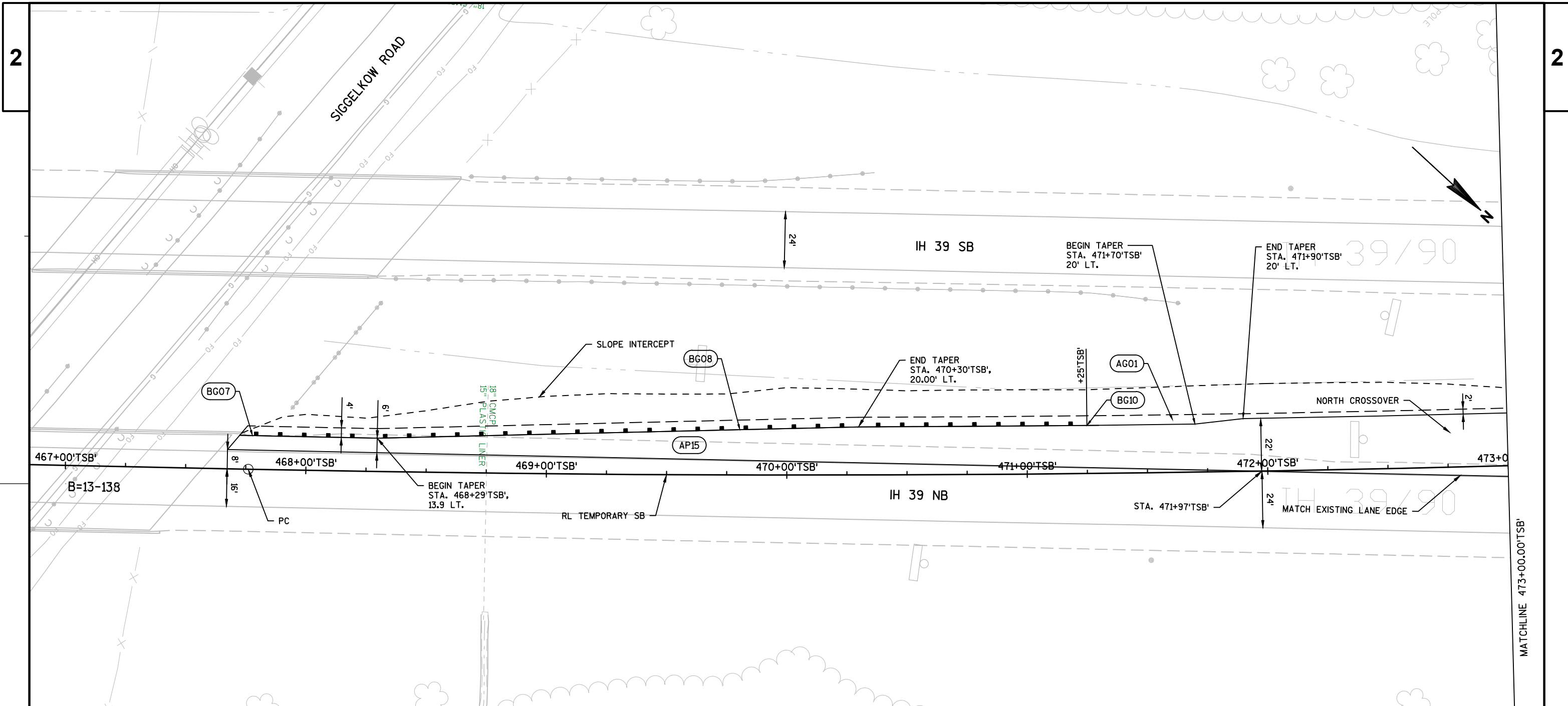


\*FIELD VERIFY EXISTING  
CROSS SLOPES

**LEGEND:**

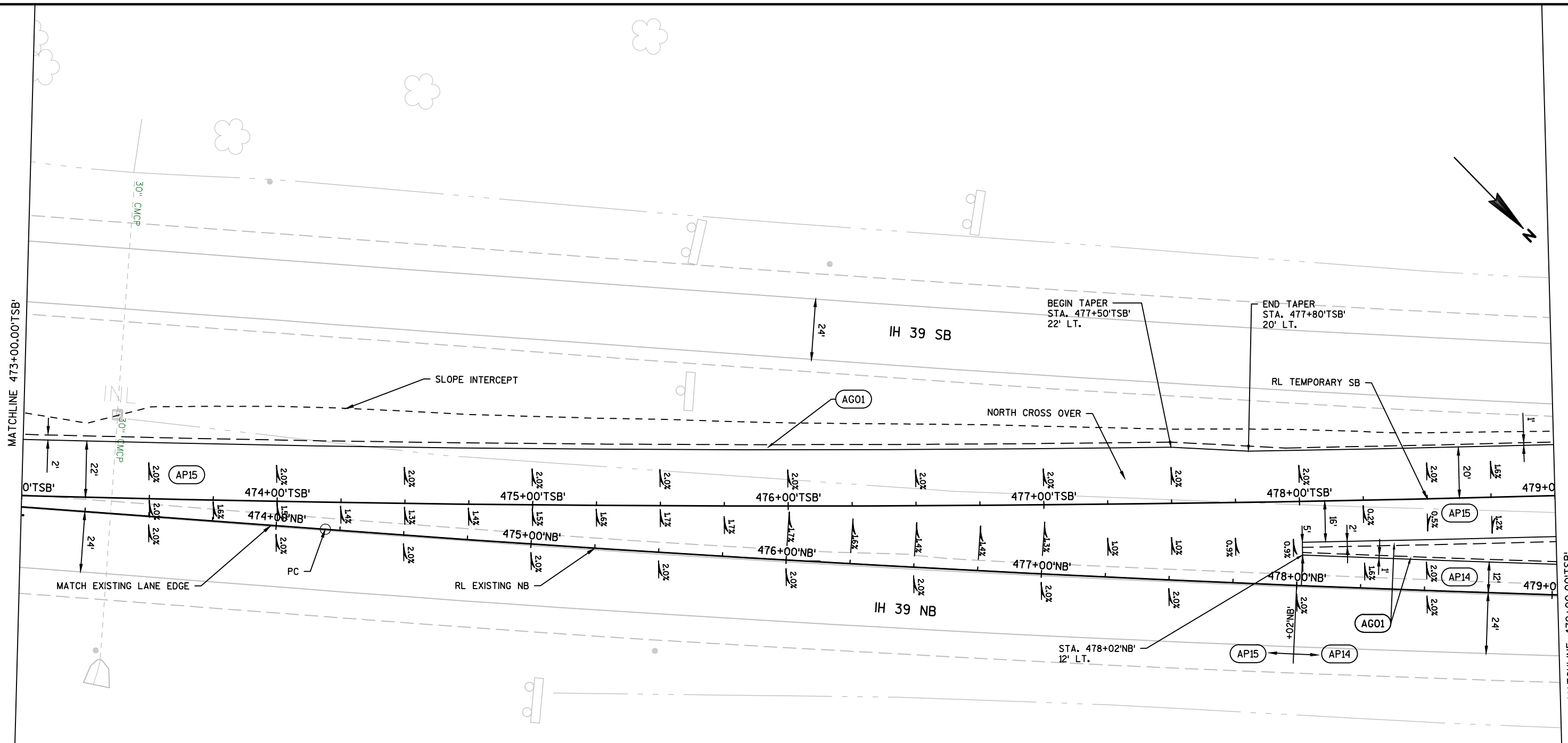
- |        |                                       |        |   |
|--------|---------------------------------------|--------|---|
| (AG01) | BASE AGGREGATE DENSE 3/4-INCH         | (CB07) | CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) | HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) | CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) | HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) | AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) | HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) | FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) | HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) | CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) | MGS THRIE BEAM TRANSITION             | (PV05) | ASPHALTIC FLUME   |
| (BG08) | MGS GUARDRAIL 3                       | (SW01) | SAWING ASPHALT  |
| (BG09) | MGS GUARDRAIL EAT                     | (SW02) | SAWING CONCRETE   |
| (BG10) | MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) | CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) | CONCRETE BARRIER SINGLE-FACED 42-INCH |        |   |





**LEGEND:**

- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |



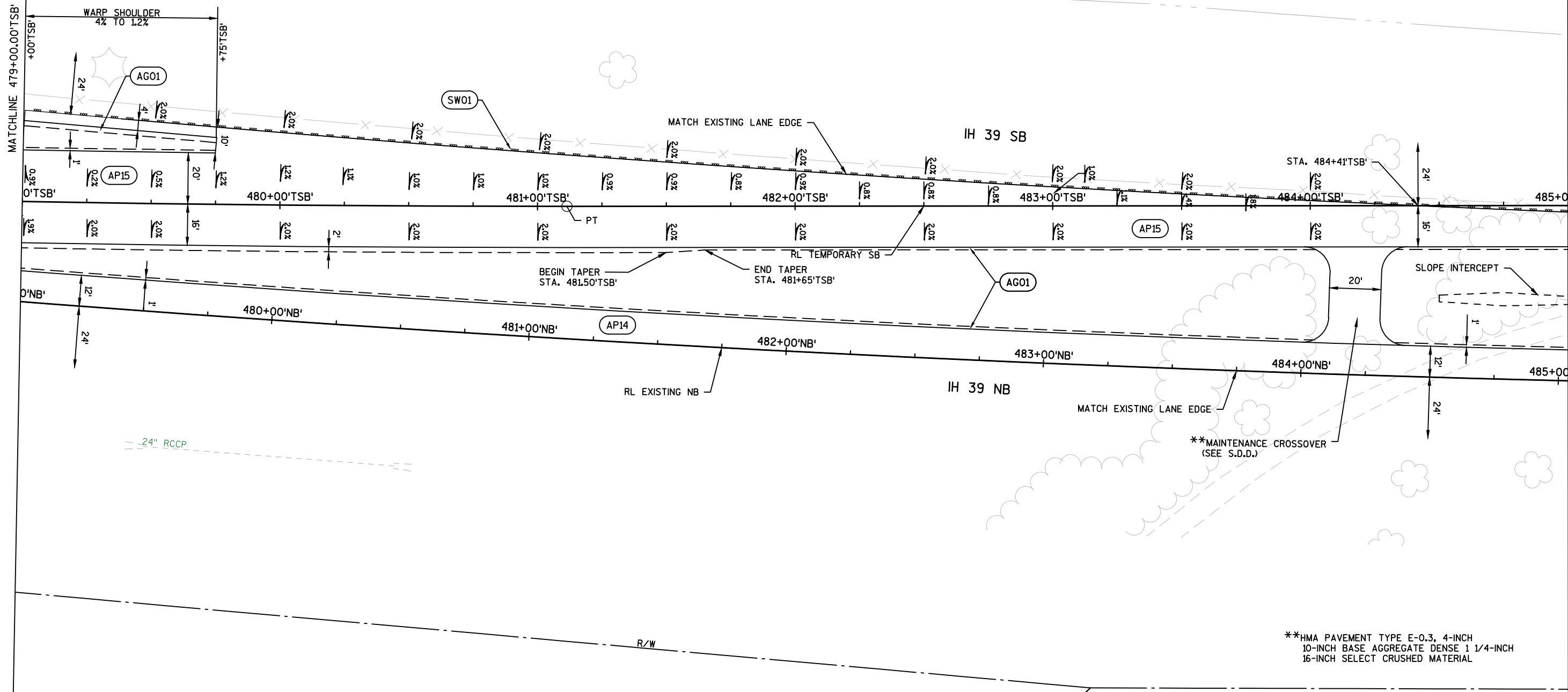
LEGEND:

- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

LEGEND:

- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

\*FIELD VERIFY EXISTING CROSS SLOPES

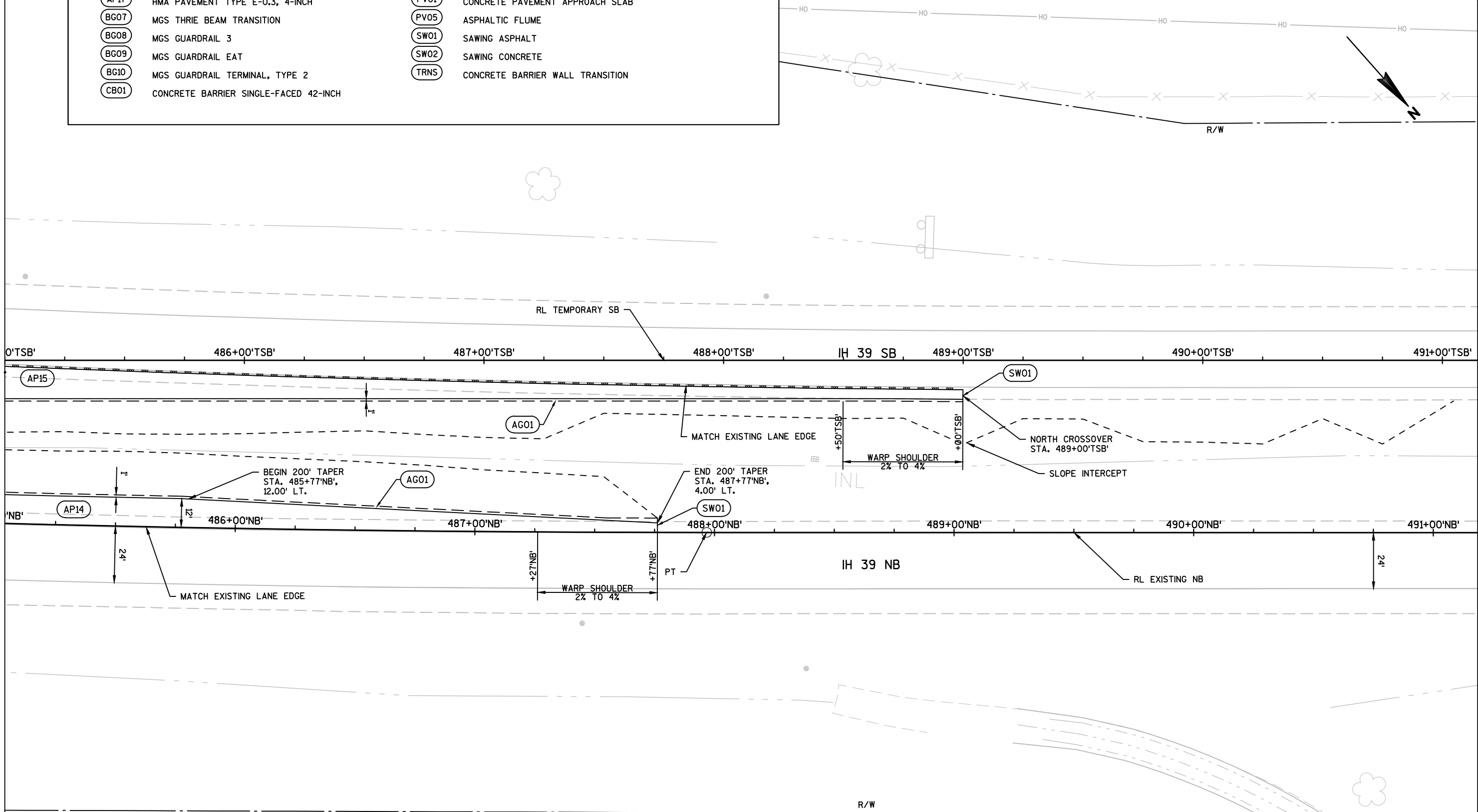


\*\*HMA PAVEMENT TYPE E-0.3, 4-INCH  
10-INCH BASE AGGREGATE DENSE 1 1/4-INCH  
16-INCH SELECT CRUSHED MATERIAL

LEGEND:

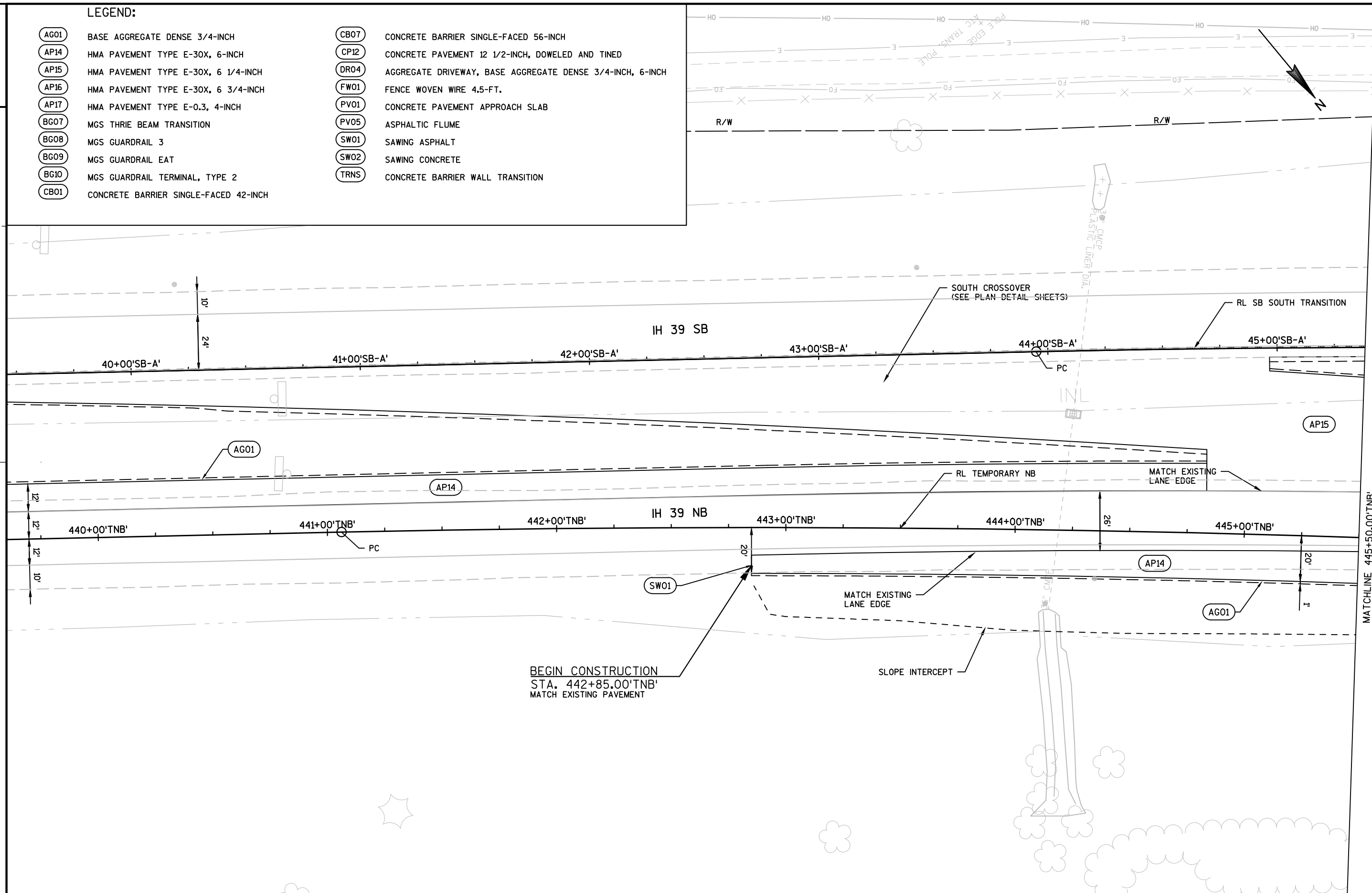
- (AG01) BASE AGGREGATE DENSE 3/4-INCH
- (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH
- (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH
- (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH
- (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH
- (BG07) MGS THRIE BEAM TRANSITION
- (BG08) MGS GUARDRAIL 3
- (BG09) MGS GUARDRAIL EAT
- (BG10) MGS GUARDRAIL TERMINAL, TYPE 2
- (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH
- (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH
- (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
- (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
- (FW01) FENCE WOVEN WIRE 4.5-FT.
- (PV01) CONCRETE PAVEMENT APPROACH SLAB
- (PV05) ASPHALTIC FLUME
- (SW01) SAWING ASPHALT
- (SW02) SAWING CONCRETE
- (TRNS) CONCRETE BARRIER WALL TRANSITION

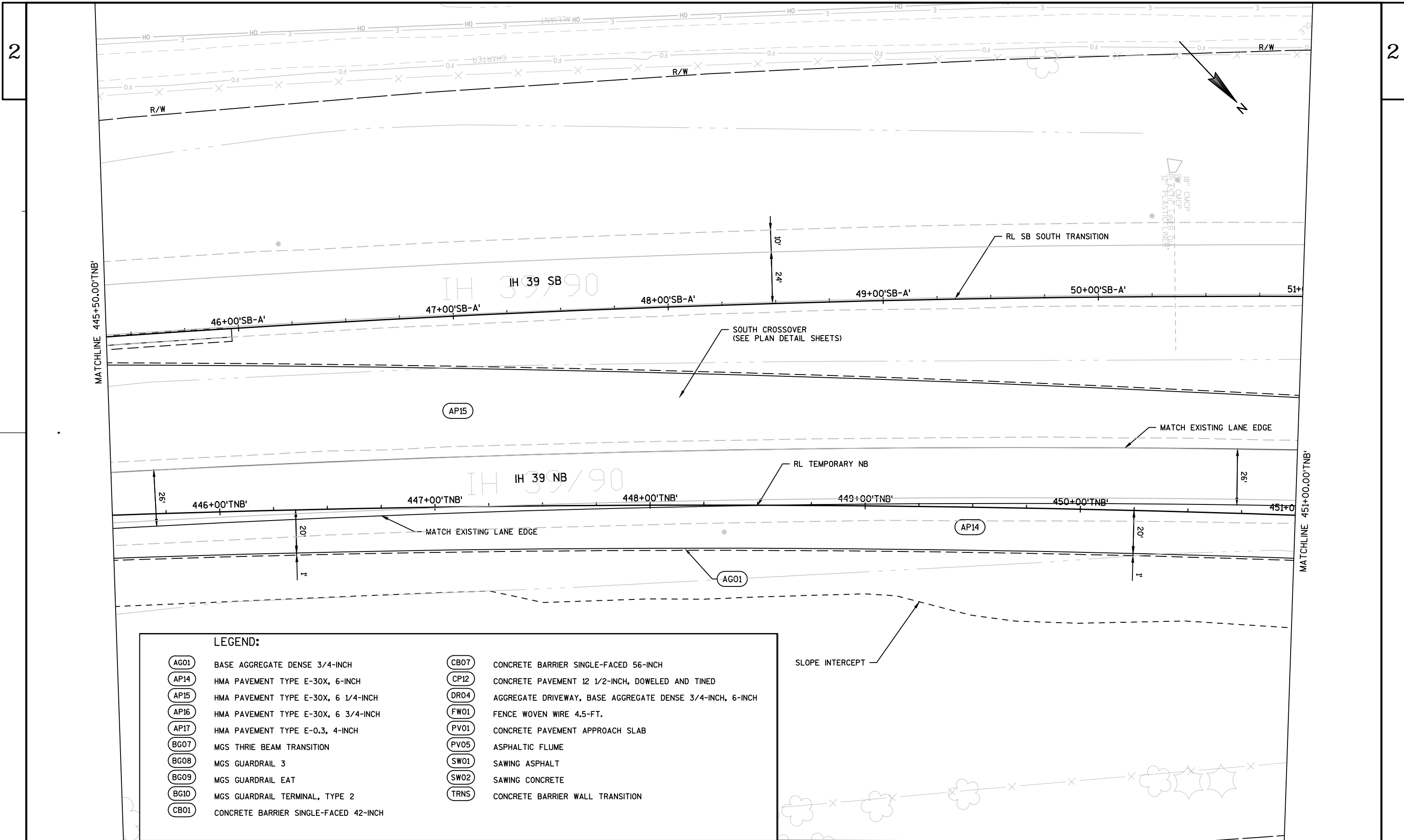
MATCHLINE 485+00.00'TSB'



LEGEND:

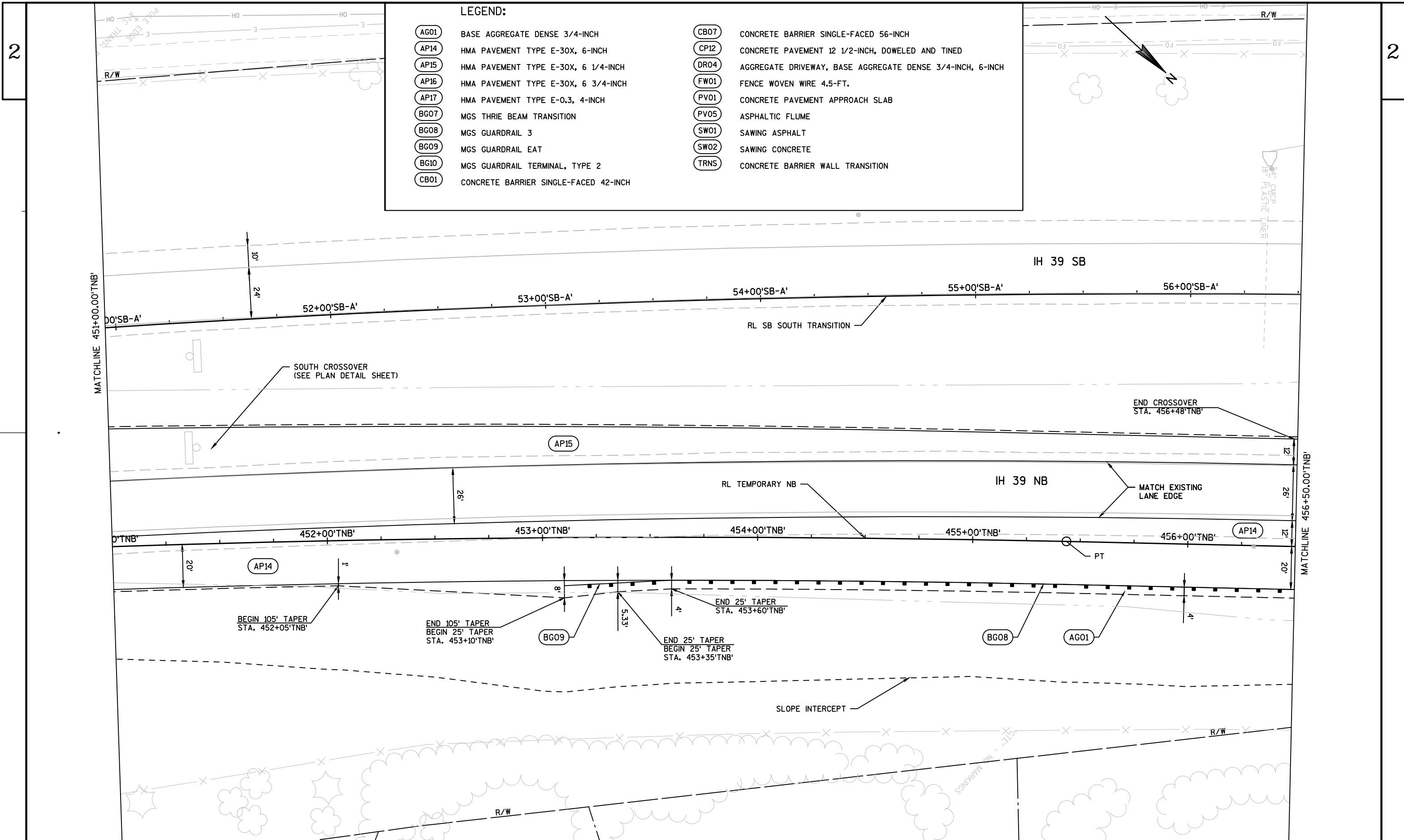
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| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |





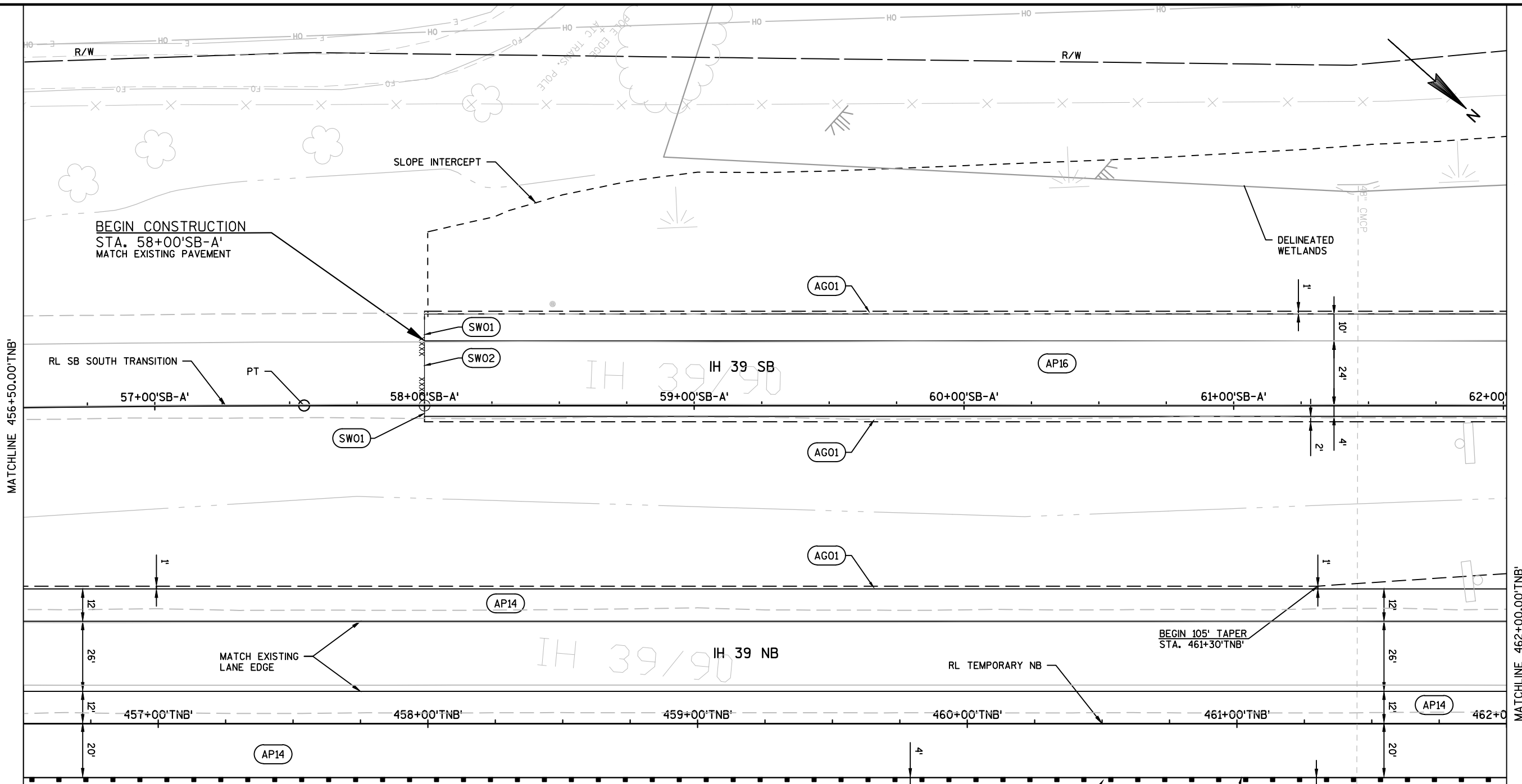
**LEGEND:**

AG01	BASE AGGREGATE DENSE 3/4-INCH	CB07	CONCRETE BARRIER SINGLE-FACED 56-INCH
AP14	HMA PAVEMENT TYPE E-30X, 6-INCH	CP12	CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
AP15	HMA PAVEMENT TYPE E-30X, 6 1/4-INCH	DR04	AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
AP16	HMA PAVEMENT TYPE E-30X, 6 3/4-INCH	FW01	FENCE WOVEN WIRE 4.5-FT.
AP17	HMA PAVEMENT TYPE E-0.3, 4-INCH	PV01	CONCRETE PAVEMENT APPROACH SLAB
BG07	MGS THRIE BEAM TRANSITION	PV05	ASPHALTIC FLUME
BG08	MGS GUARDRAIL 3	SW01	SAWING ASPHALT
BG09	MGS GUARDRAIL EAT	SW02	SAWING CONCRETE
BG10	MGS GUARDRAIL TERMINAL, TYPE 2	TRNS	CONCRETE BARRIER WALL TRANSITION
CB01	CONCRETE BARRIER SINGLE-FACED 42-INCH		



**LEGEND:**

AG01	BASE AGGREGATE DENSE 3/4-INCH	CB07	CONCRETE BARRIER SINGLE-FACED 56-INCH
AP14	HMA PAVEMENT TYPE E-30X, 6-INCH	CP12	CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
AP15	HMA PAVEMENT TYPE E-30X, 6 1/4-INCH	DR04	AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
AP16	HMA PAVEMENT TYPE E-30X, 6 3/4-INCH	FW01	FENCE WOVEN WIRE 4.5-FT.
AP17	HMA PAVEMENT TYPE E-0.3, 4-INCH	PV01	CONCRETE PAVEMENT APPROACH SLAB
BG07	MGS THRIE BEAM TRANSITION	PV05	ASPHALTIC FLUME
BG08	MGS GUARDRAIL 3	SW01	SAWING ASPHALT
BG09	MGS GUARDRAIL EAT	SW02	SAWING CONCRETE
BG10	MGS GUARDRAIL TERMINAL, TYPE 2	TRNS	CONCRETE BARRIER WALL TRANSITION
CB01	CONCRETE BARRIER SINGLE-FACED 42-INCH		



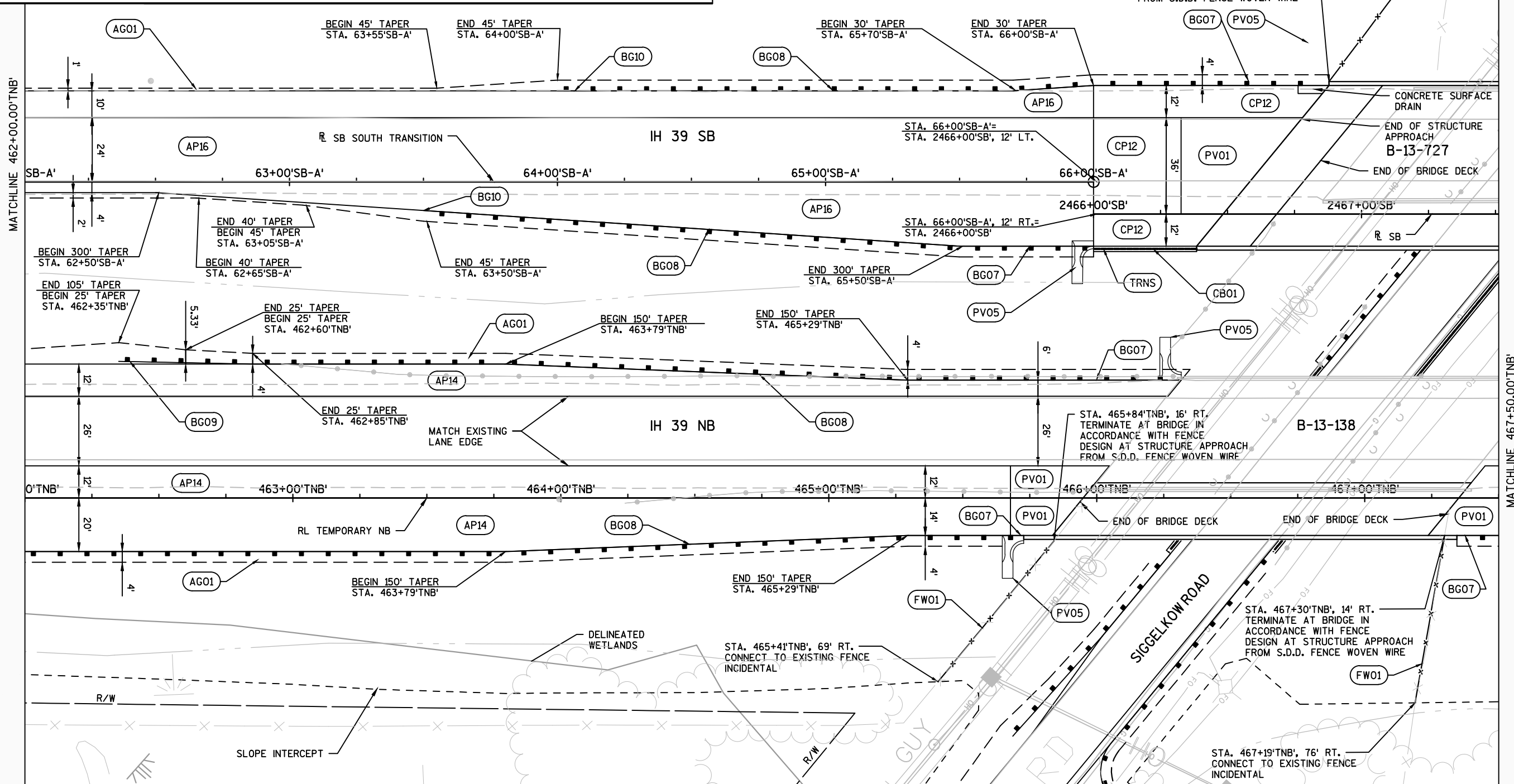
**LEGEND:**

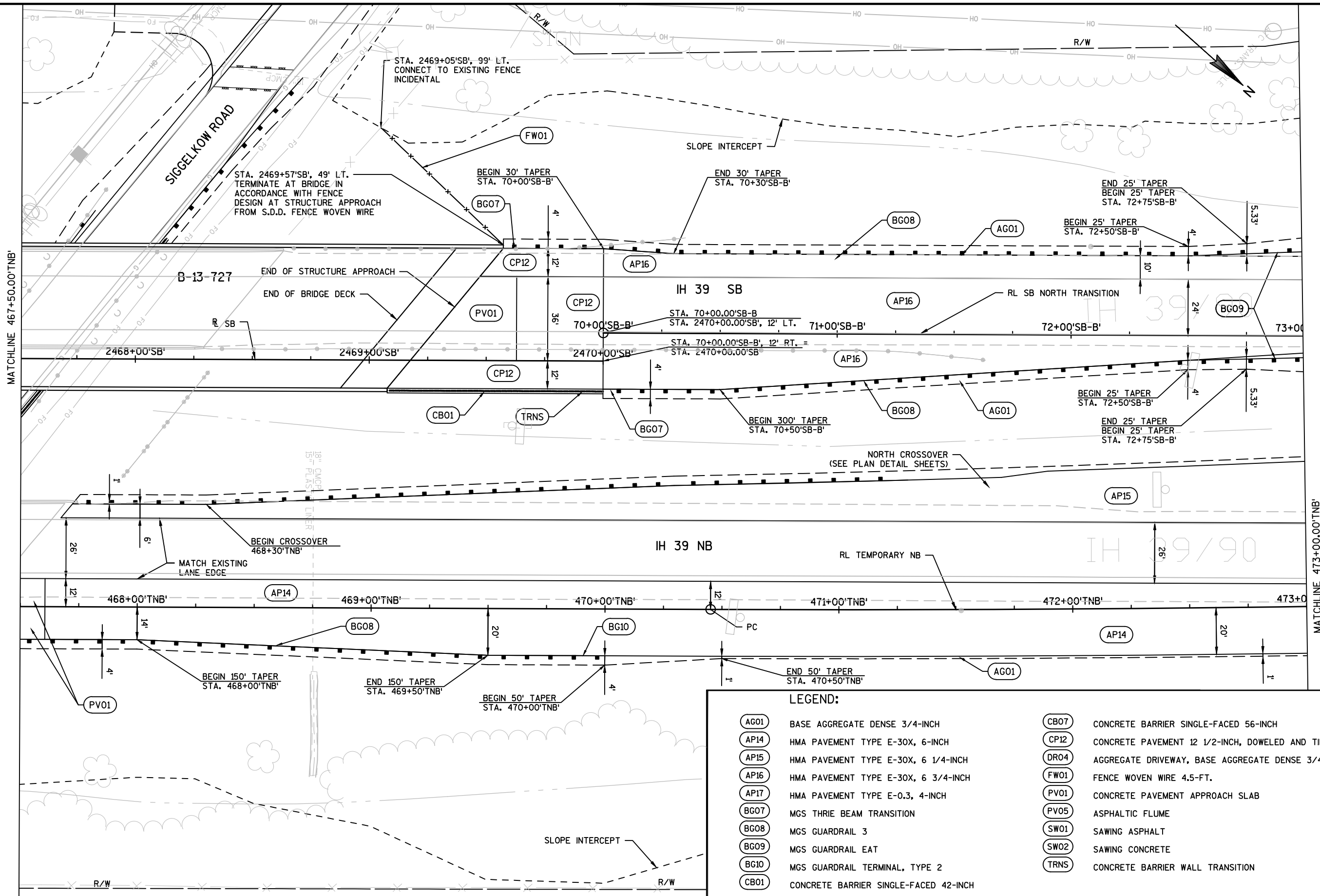
(AG01) BASE AGGREGATE DENSE 3/4-INCH	(CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH
(AP14) HMA PAVEMENT TYPE E-30X, 6-INCH	(CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
(AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH	(DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
(AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH	(FW01) FENCE WOVEN WIRE 4.5-FT.
(AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH	(PV01) CONCRETE PAVEMENT APPROACH SLAB
(BG07) MGS THRIE BEAM TRANSITION	(PV05) ASPHALTIC FLUME
(BG08) MGS GUARDRAIL 3	(SW01) SAWING ASPHALT
(BG09) MGS GUARDRAIL EAT	(SW02) SAWING CONCRETE
(BG10) MGS GUARDRAIL TERMINAL, TYPE 2	(TRNS) CONCRETE BARRIER WALL TRANSITION
(CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH	



LEGEND:

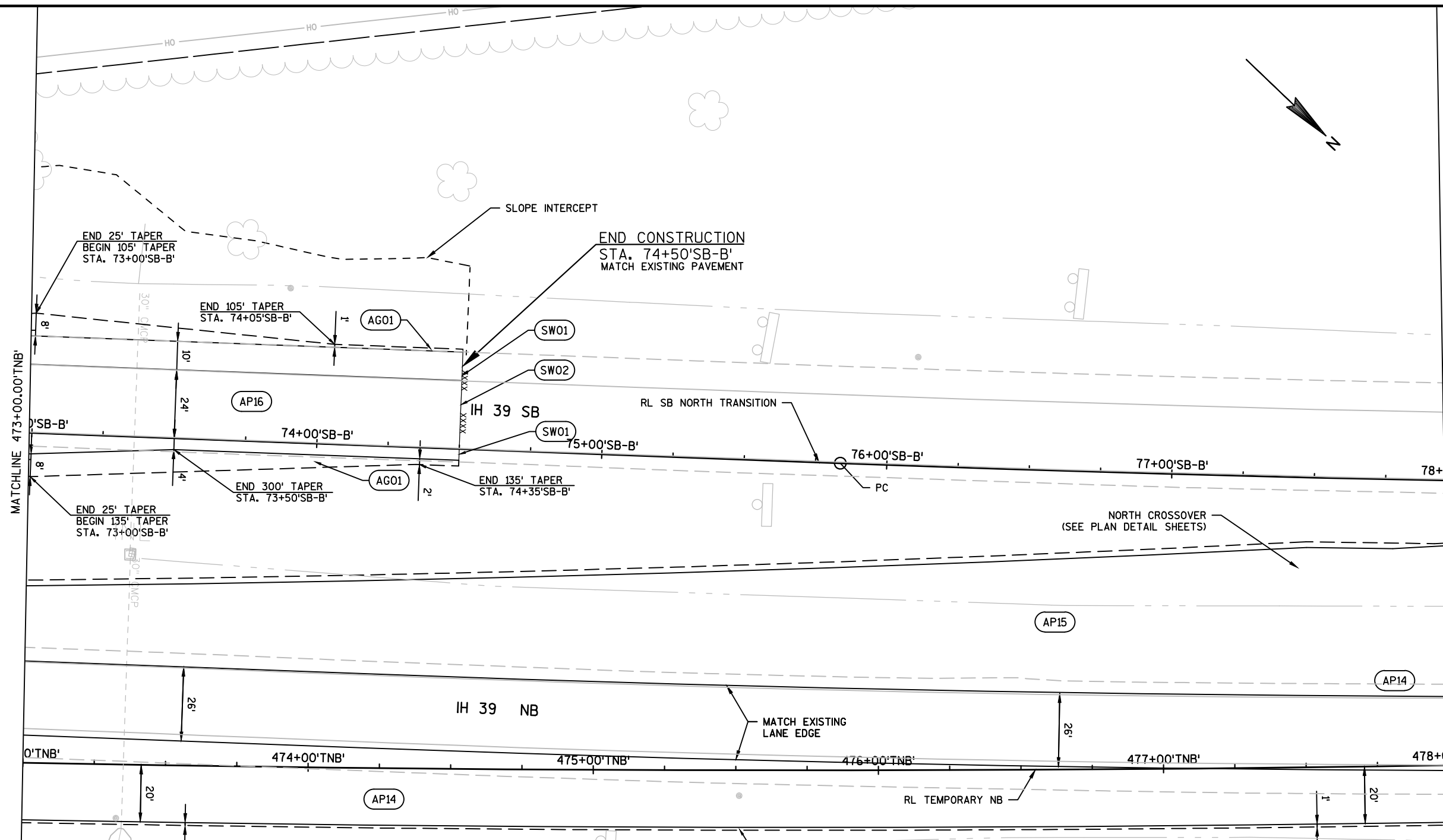
- (AG01) BASE AGGREGATE DENSE 3/4-INCH
- (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH
- (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH
- (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH
- (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH
- (BG07) MGS THRIE BEAM TRANSITION
- (BG08) MGS GUARDRAIL 3
- (BG09) MGS GUARDRAIL EAT
- (BG10) MGS GUARDRAIL TERMINAL, TYPE 2
- (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH
- (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH
- (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
- (DRO4) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
- (FW01) FENCE WOVEN WIRE 4.5-FT.
- (PV01) CONCRETE PAVEMENT APPROACH SLAB
- (PV05) ASPHALTIC FLUME
- (SW01) SAWING ASPHALT
- (SW02) SAWING CONCRETE
- (TRNS) CONCRETE BARRIER WALL TRANSITION





**LEGEND:**

(AG01)	BASE AGGREGATE DENSE 3/4-INCH	(CBO7)	CONCRETE BARRIER SINGLE-FACED 56-INCH
(AP14)	HMA PAVEMENT TYPE E-30X, 6-INCH	(CP12)	CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED
(AP15)	HMA PAVEMENT TYPE E-30X, 6 1/4-INCH	(DR04)	AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH
(AP16)	HMA PAVEMENT TYPE E-30X, 6 3/4-INCH	(FW01)	FENCE WOVEN WIRE 4.5-FT.
(AP17)	HMA PAVEMENT TYPE E-0.3, 4-INCH	(PV01)	CONCRETE PAVEMENT APPROACH SLAB
(BG07)	MGS THRIE BEAM TRANSITION	(PV05)	ASPHALTIC FLUME
(BG08)	MGS GUARDRAIL 3	(SW01)	SAWING ASPHALT
(BG09)	MGS GUARDRAIL EAT	(SW02)	SAWING CONCRETE
(BG10)	MGS GUARDRAIL TERMINAL, TYPE 2	(TRNS)	CONCRETE BARRIER WALL TRANSITION
(CBO1)	CONCRETE BARRIER SINGLE-FACED 42-INCH		

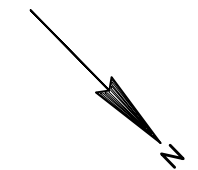


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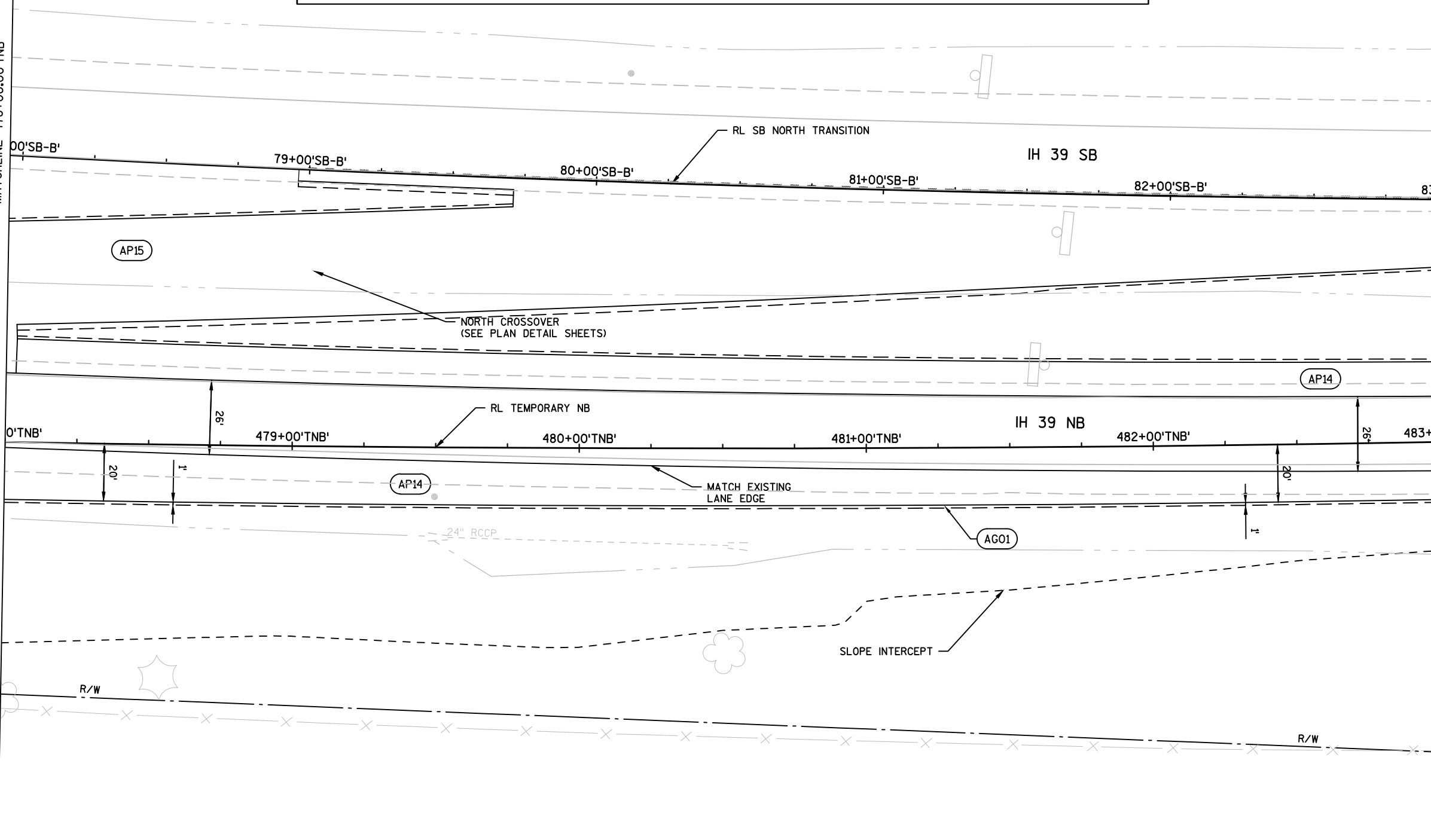
- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DRO4) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

LEGEND:

- |        |                                       |        |   |
|--------|---------------------------------------|--------|---|
| (AG01) | BASE AGGREGATE DENSE 3/4-INCH         | (CB07) | CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) | HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) | CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) | HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) | AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) | HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) | FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) | HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) | CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) | MGS THRIE BEAM TRANSITION             | (PV05) | ASPHALTIC FLUME   |
| (BG08) | MGS GUARDRAIL 3                       | (SW01) | SAWING ASPHALT  |
| (BG09) | MGS GUARDRAIL EAT                     | (SW02) | SAWING CONCRETE   |
| (BG10) | MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) | CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) | CONCRETE BARRIER SINGLE-FACED 42-INCH |        |   |



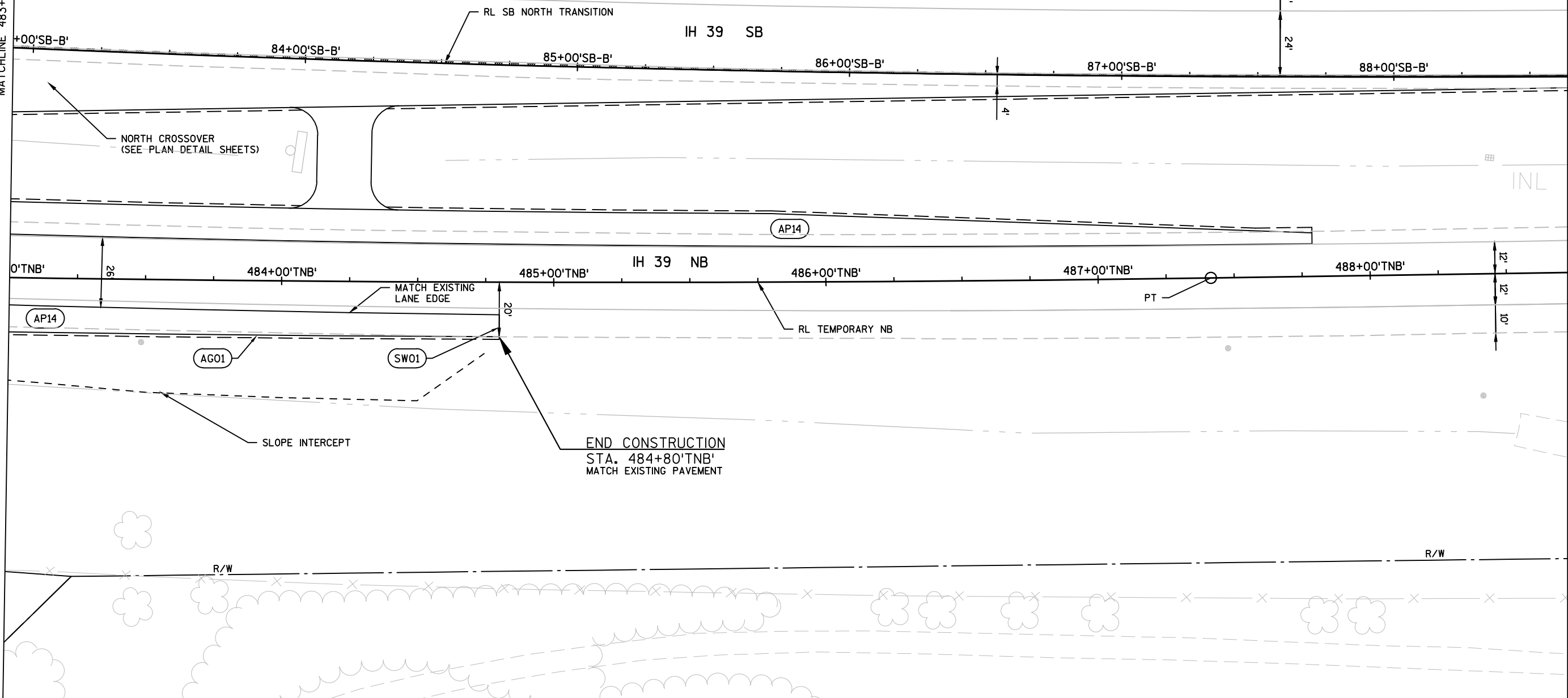
MATCHLINE 476+00.00'TNB'

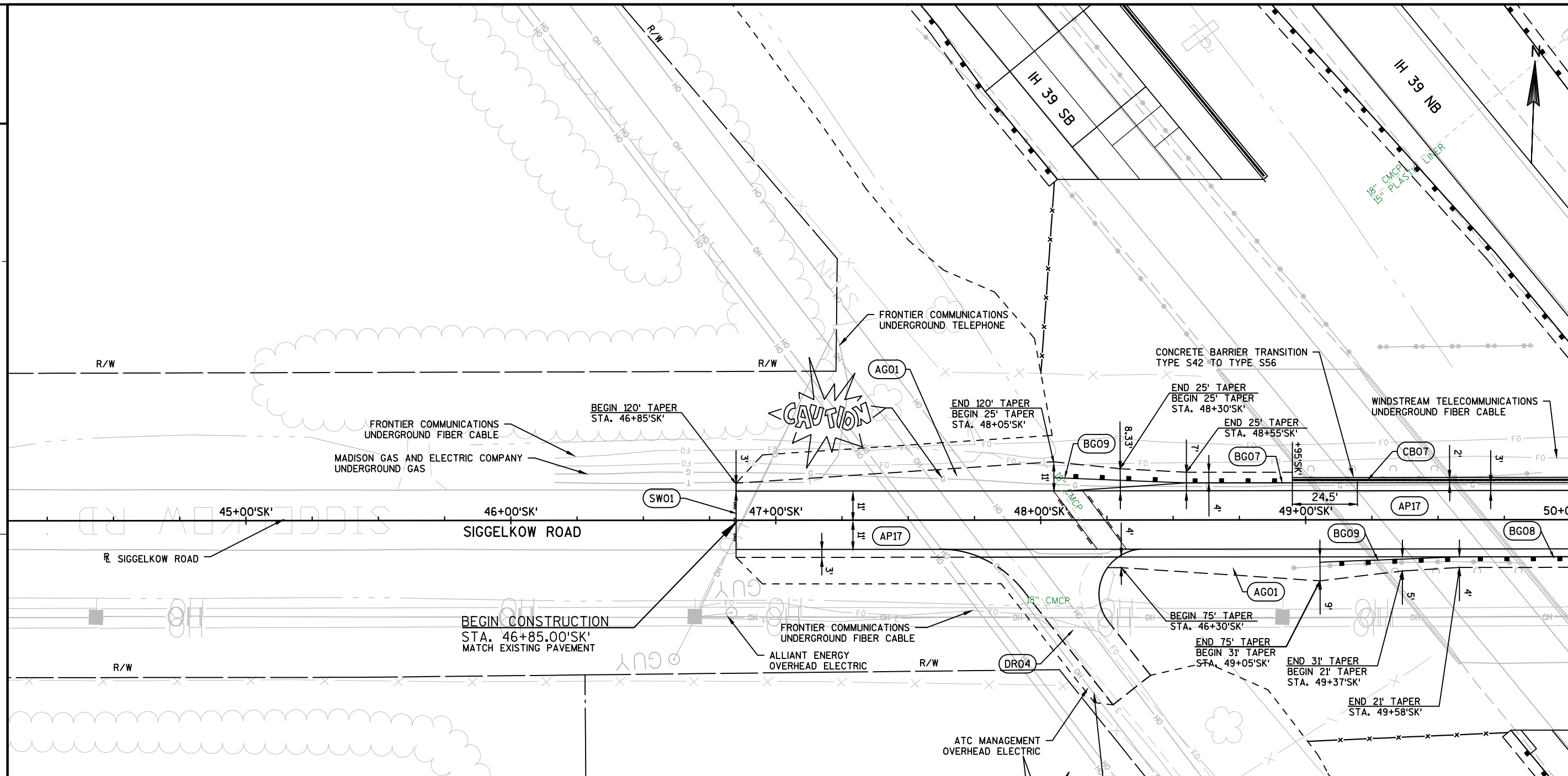


LEGEND:

- |  |  |
|--|--|
| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

MATCHLINE 483+00.00'TNB'





LEGEND:

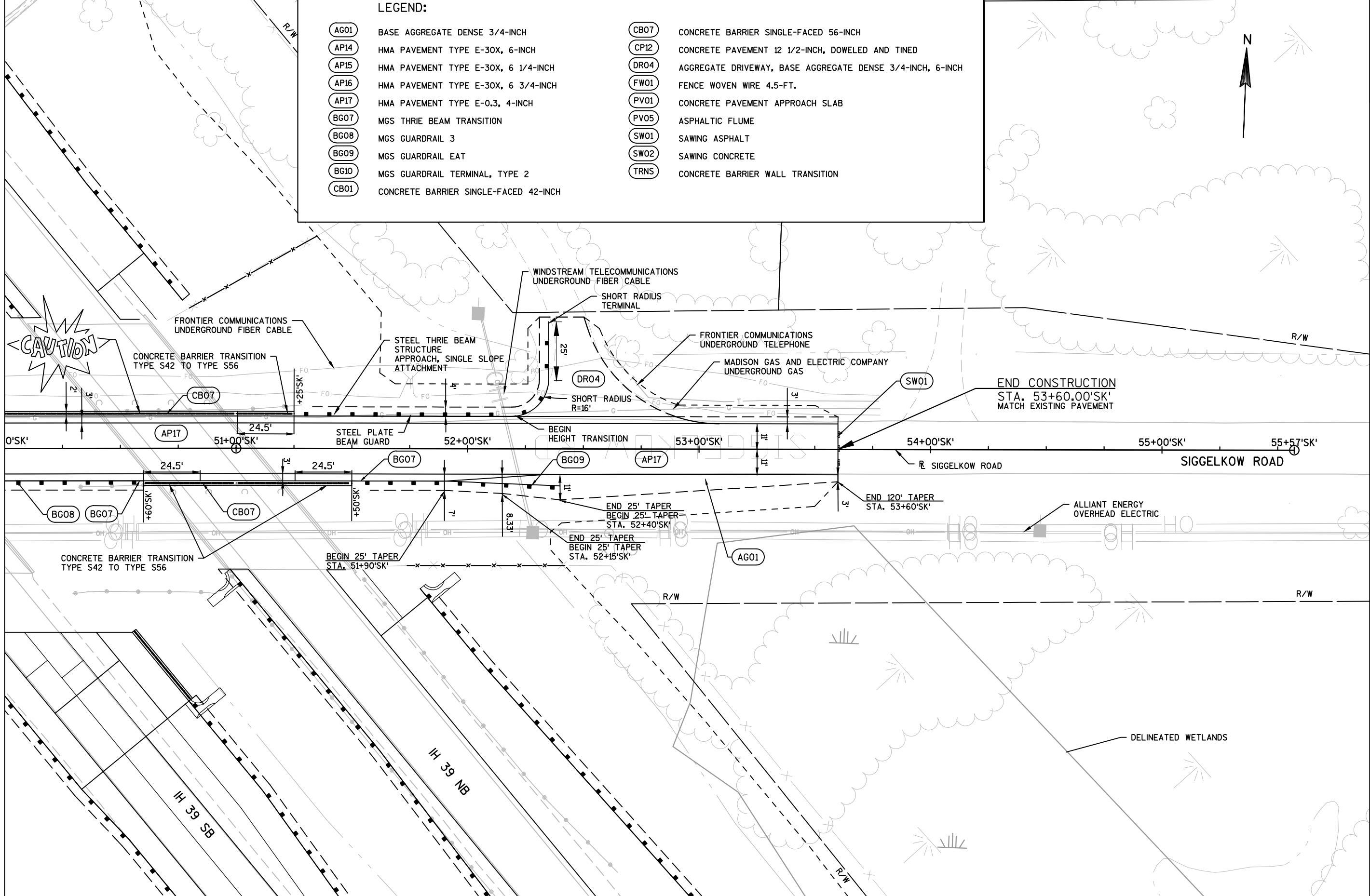
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| (AG01) BASE AGGREGATE DENSE 3/4-INCH         | (CB07) CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) MGS THRIE BEAM TRANSITION             | (PV05) ASPHALTIC FLUME   |
| (BG08) MGS GUARDRAIL 3                       | (SW01) SAWING ASPHALT  |
| (BG09) MGS GUARDRAIL EAT                     | (SW02) SAWING CONCRETE   |
| (BG10) MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) CONCRETE BARRIER SINGLE-FACED 42-INCH |  |

LEGEND:

- |        |                                       |        |   |
|--------|---------------------------------------|--------|---|
| (AG01) | BASE AGGREGATE DENSE 3/4-INCH         | (CB07) | CONCRETE BARRIER SINGLE-FACED 56-INCH                     |
| (AP14) | HMA PAVEMENT TYPE E-30X, 6-INCH       | (CP12) | CONCRETE PAVEMENT 12 1/2-INCH, DOWELED AND TINED          |
| (AP15) | HMA PAVEMENT TYPE E-30X, 6 1/4-INCH   | (DR04) | AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH |
| (AP16) | HMA PAVEMENT TYPE E-30X, 6 3/4-INCH   | (FW01) | FENCE WOVEN WIRE 4.5-FT.                                  |
| (AP17) | HMA PAVEMENT TYPE E-0.3, 4-INCH       | (PV01) | CONCRETE PAVEMENT APPROACH SLAB                           |
| (BG07) | MGS THRIE BEAM TRANSITION             | (PV05) | ASPHALTIC FLUME   |
| (BG08) | MGS GUARDRAIL 3                       | (SW01) | SAWING ASPHALT  |
| (BG09) | MGS GUARDRAIL EAT                     | (SW02) | SAWING CONCRETE   |
| (BG10) | MGS GUARDRAIL TERMINAL, TYPE 2        | (TRNS) | CONCRETE BARRIER WALL TRANSITION                          |
| (CB01) | CONCRETE BARRIER SINGLE-FACED 42-INCH |        |   |



MATCHLINE 50+00.00'SK'



END CONSTRUCTION  
STA. 53+60.00'SK'  
MATCH EXISTING PAVEMENT

CONCRETE BARRIER TRANSITION  
TYPE S42 TO TYPE S56

BEGIN 25' TAPER  
STA. 51+90'SK'

END 25' TAPER  
STA. 52+40'SK'

END 120' TAPER  
STA. 53+60'SK'

ALLIANT ENERGY  
OVERHEAD ELECTRIC

DELINEATED WETLANDS

BEGIN CONSTRUCTION  
STA. 58+00'SB-A'  
MATCH EXISTING PAVEMENT

PT

57+00'SB-A'

58+00'SB-A'

59+00'SB-A'

IH 39 SB

60+00'SB-A'

61+00'SB-A'

62+00'SB-A'

63+00'

876.97	877.12	877.41	877.89	878.56	879.25	880.07	881.03	882.11	883.00
876.91	877.18	877.59	878.13	878.80	879.49	880.31	881.27	882.35	883.00
876.67	876.94	877.35	877.89	878.56	879.37	880.31	881.39	882.59	883.00

RL SB SOUTH TRANSITION

WARP SHOULDER  
4% TO 2%

WARP SHOULDER  
4% TO 2%

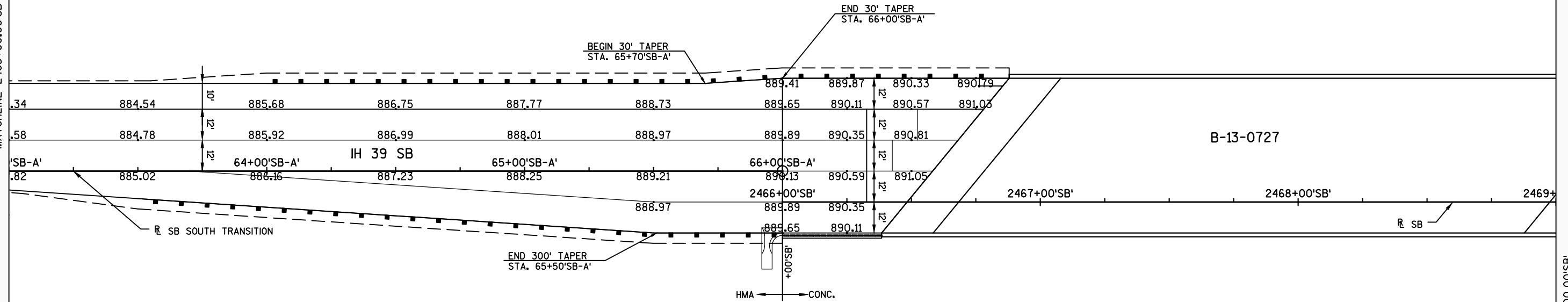
BEGIN 300' TAPER  
STA. 62+50'SB-A'

MATCHLINE 2463+00.00'SB'

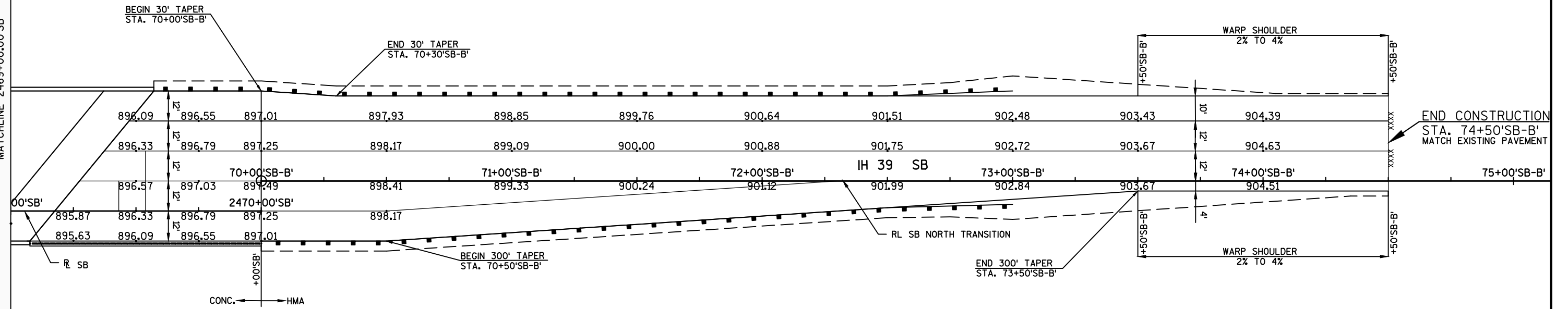


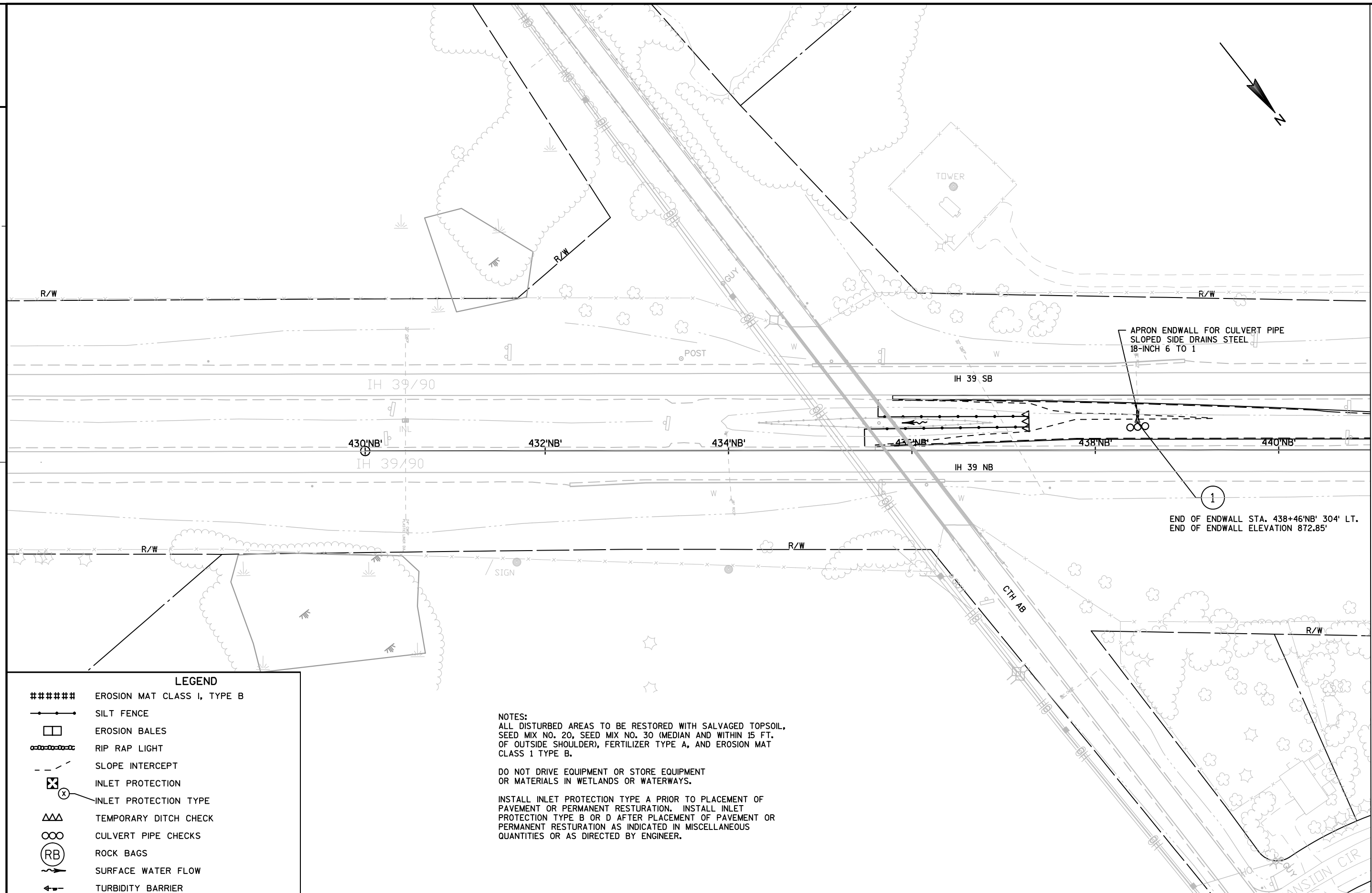
MATCHLINE 2463+00.00'SB'

MATCHLINE 2469+00.00'SB'



MATCHLINE 2469+00.00'SB'





APRON ENDWALL FOR CULVERT PIPE  
SLOPED SIDE DRAINS STEEL  
18-INCH 6 TO 1

1  
END OF ENDWALL STA. 438+46'NB' 304' LT.  
END OF ENDWALL ELEVATION 872.85'

MATCHLINE 441+00.00'NB'

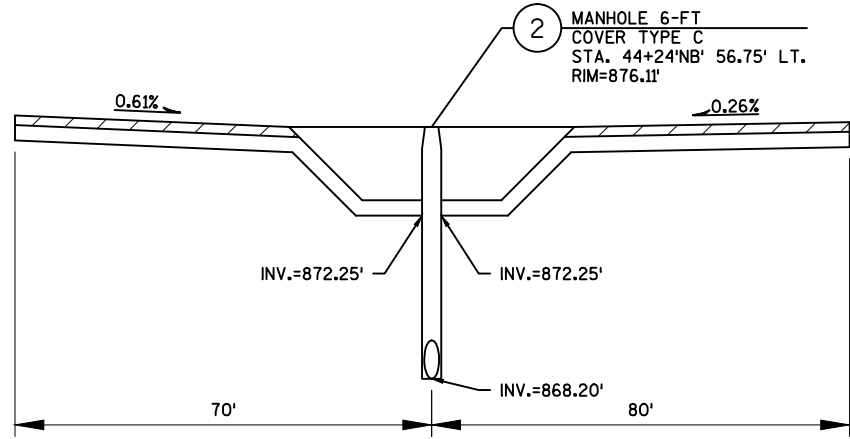
**LEGEND**

- ##### EROSION MAT CLASS I, TYPE B
- SILT FENCE
- EROSION BALES
- RIP RAP LIGHT
- - - SLOPE INTERCEPT
- ⊗ INLET PROTECTION
- ⊗ INLET PROTECTION TYPE
- △△△ TEMPORARY DITCH CHECK
- ∞∞∞ CULVERT PIPE CHECKS
- (RB) ROCK BAGS
- SURFACE WATER FLOW
- ← TURBIDITY BARRIER

**NOTES:**  
ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS 1 TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.

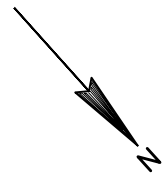
INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF PAVEMENT OR PERMANENT RESTURATION. INSTALL INLET PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR PERMANENT RESTURATION AS INDICATED IN MISCELLANEOUS QUANTITIES OR AS DIRECTED BY ENGINEER.



NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS 1 TYPE B.

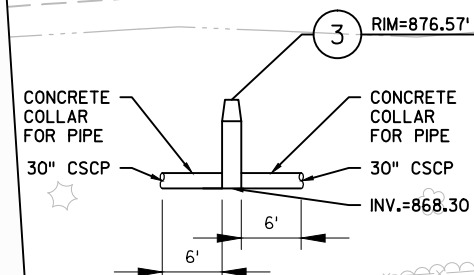
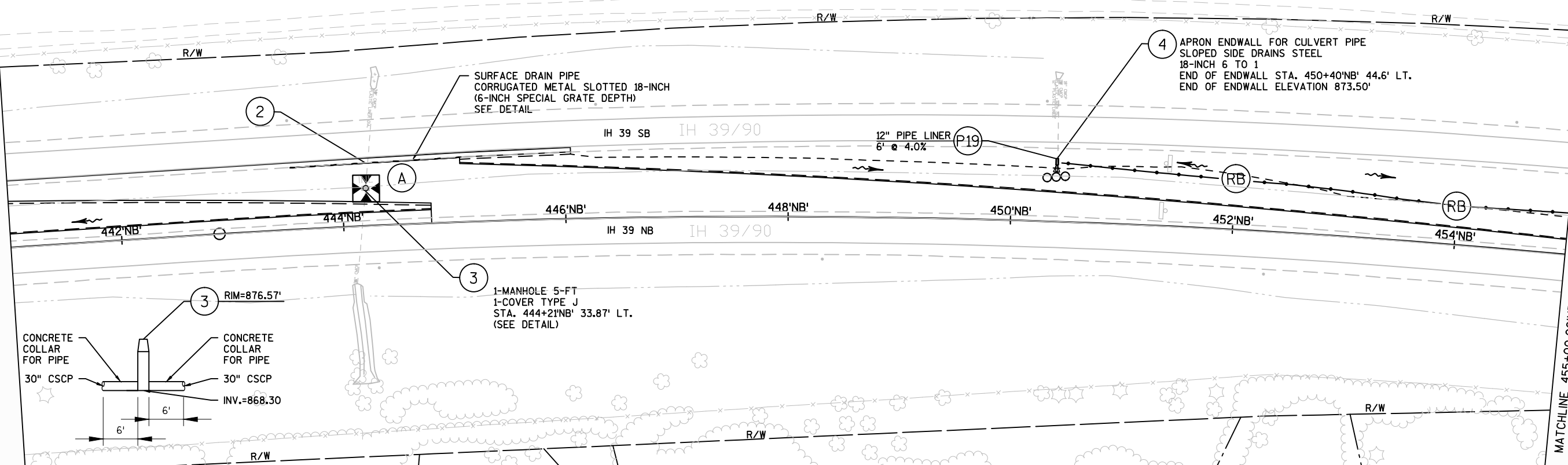
DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.

INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF PAVEMENT OR PERMANENT RESTORATION. INSTALL INLET PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR PERMANENT RESTORATION AS INDICATED IN MISCELLANEOUS QUANTITIES OR AS DIRECTED BY ENGINEER.



MATCHLINE 441+00.00'NB'

MATCHLINE 455+00.00'NB'



3 1-MANHOLE 5-FT  
 1-COVER TYPE J  
 STA. 444+21'NB' 33.87' LT.  
 (SEE DETAIL)

**LEGEND**

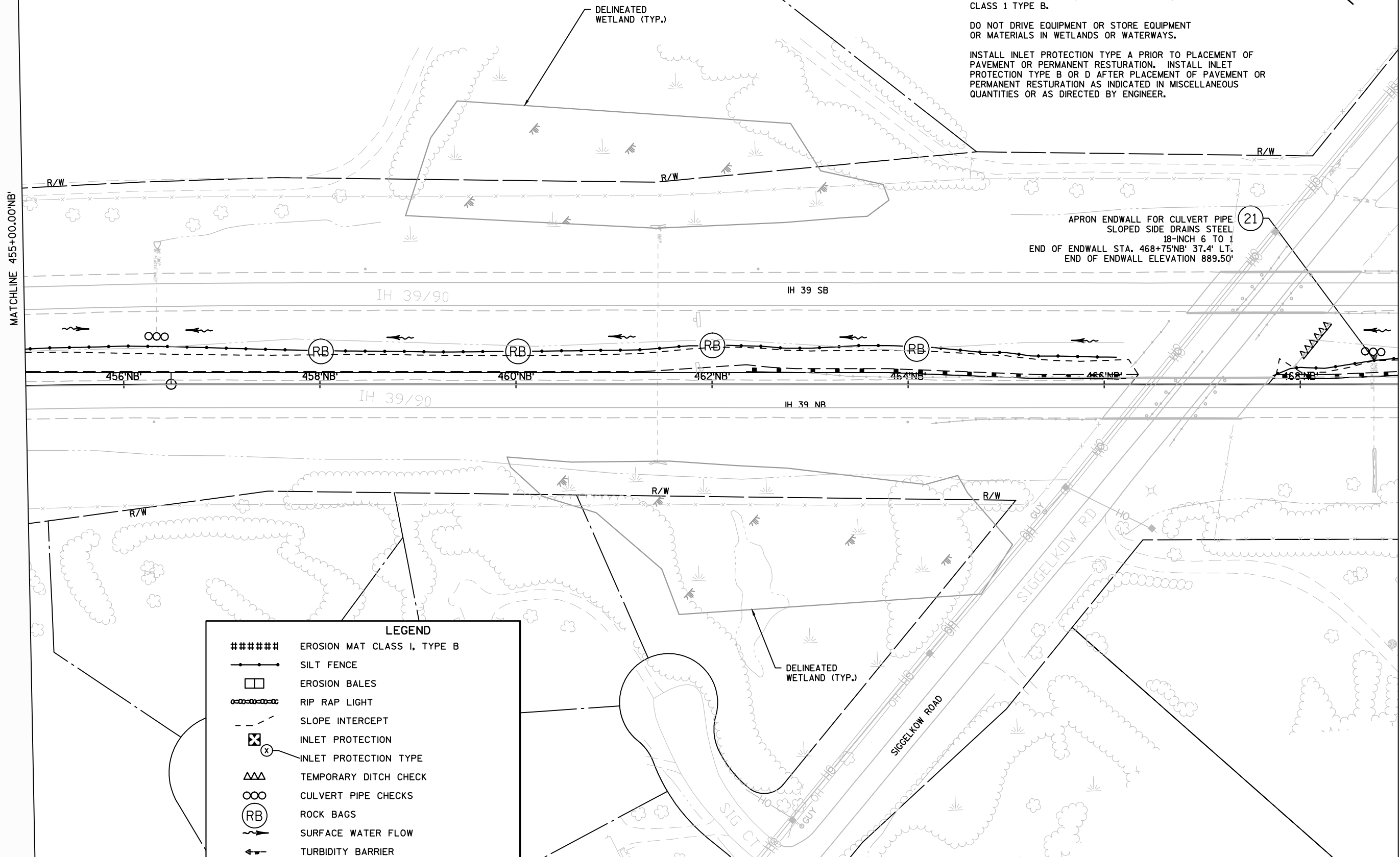
#####	EROSION MAT CLASS I, TYPE B
— — —	SILT FENCE
□	EROSION BALES
—x—x—x—x—	RIP RAP LIGHT
- - -	SLOPE INTERCEPT
⊠	INLET PROTECTION
⊠ x	INLET PROTECTION TYPE
△△△	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
(RB)	ROCK BAGS
→	SURFACE WATER FLOW
←	TURBIDITY BARRIER

NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL,  
 SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT.  
 OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT  
 CLASS 1 TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT  
 OR MATERIALS IN WETLANDS OR WATERWAYS.

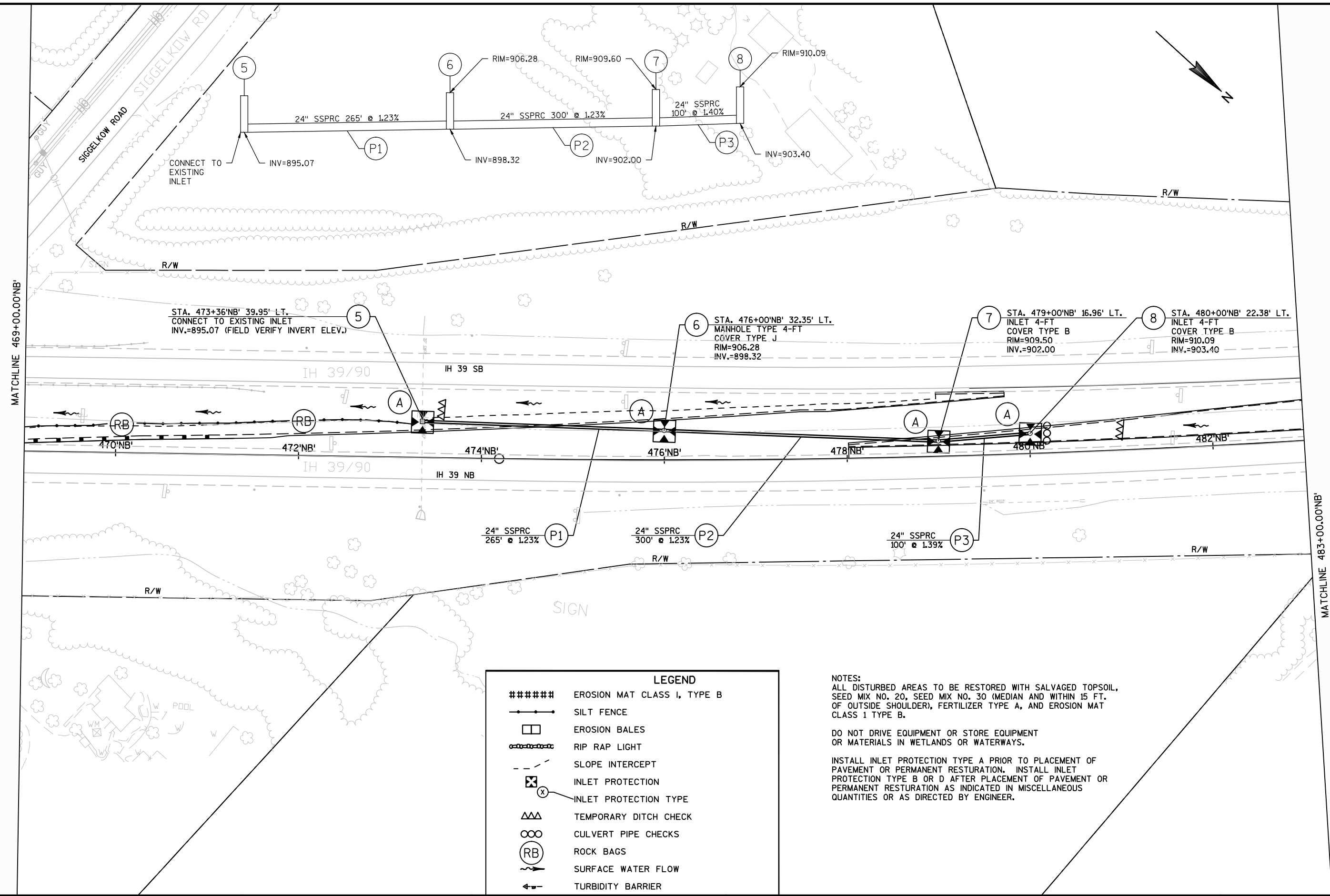
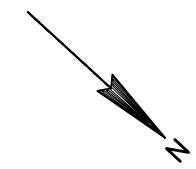
INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF  
 PAVEMENT OR PERMANENT RESTORATION. INSTALL INLET  
 PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR  
 PERMANENT RESTORATION AS INDICATED IN MISCELLANEOUS  
 QUANTITIES OR AS DIRECTED BY ENGINEER.

APRON ENDWALL FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL  
 18-INCH 6 TO 1  
 END OF ENDWALL STA. 468+75'NB' 37.4' LT.  
 END OF ENDWALL ELEVATION 889.50'



**LEGEND**

#####	EROSION MAT CLASS 1, TYPE B
—●—●—●—	SILT FENCE
□	EROSION BALES
—○—○—○—	RIP RAP LIGHT
- - -	SLOPE INTERCEPT
⊗	INLET PROTECTION
⊗	INLET PROTECTION TYPE
△△△	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
(RB)	ROCK BAGS
→	SURFACE WATER FLOW
←	TURBIDITY BARRIER



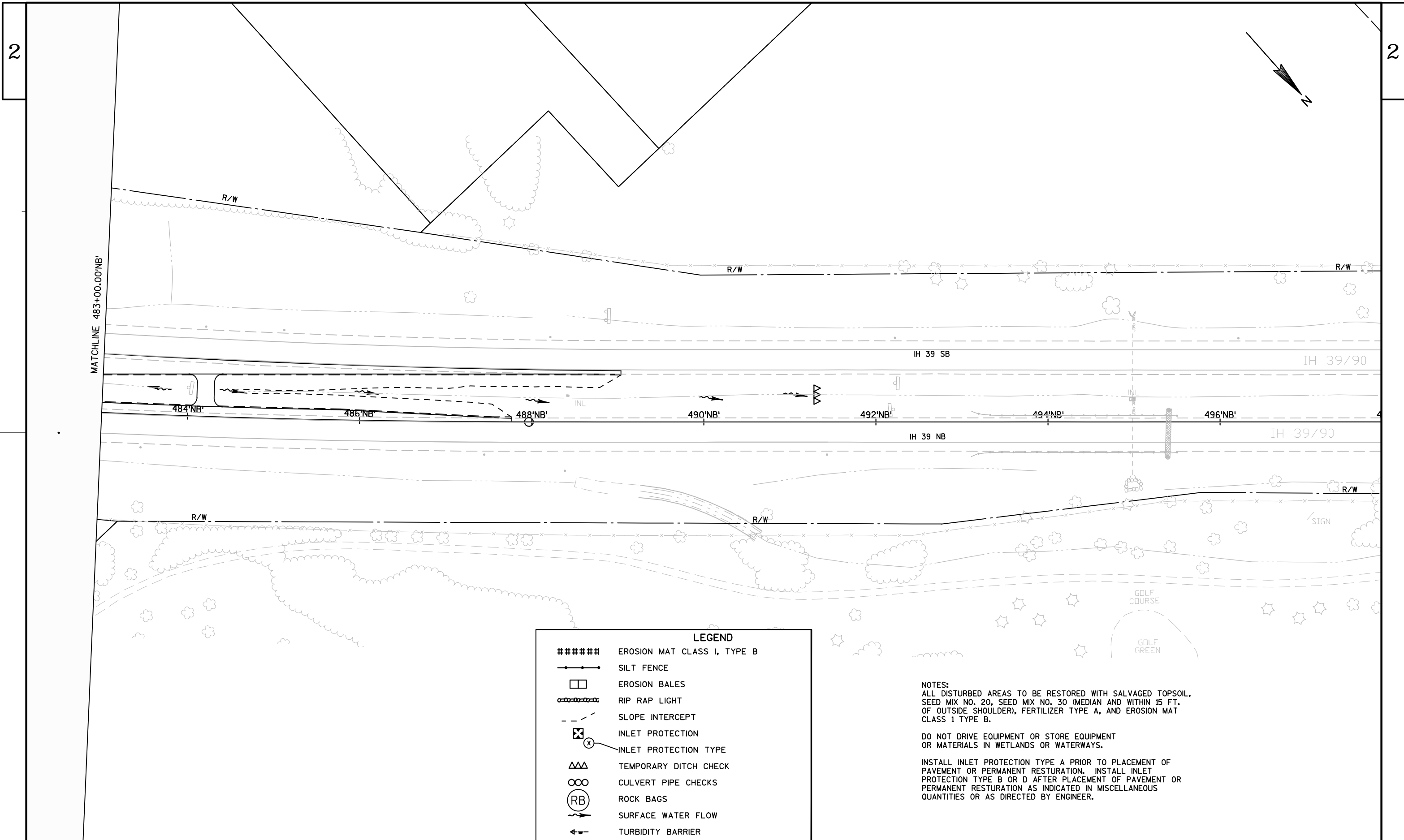
**LEGEND**

#####	EROSION MAT CLASS I, TYPE B
— — — — — —	SILT FENCE
□	EROSION BALES
—x—x—x—x—x—x—	RIP RAP LIGHT
- - -	SLOPE INTERCEPT
⊗	INLET PROTECTION
⊗	INLET PROTECTION TYPE
△△△	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
(RB)	ROCK BAGS
→	SURFACE WATER FLOW
←←←	TURBIDITY BARRIER

**NOTES:**  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS I TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.

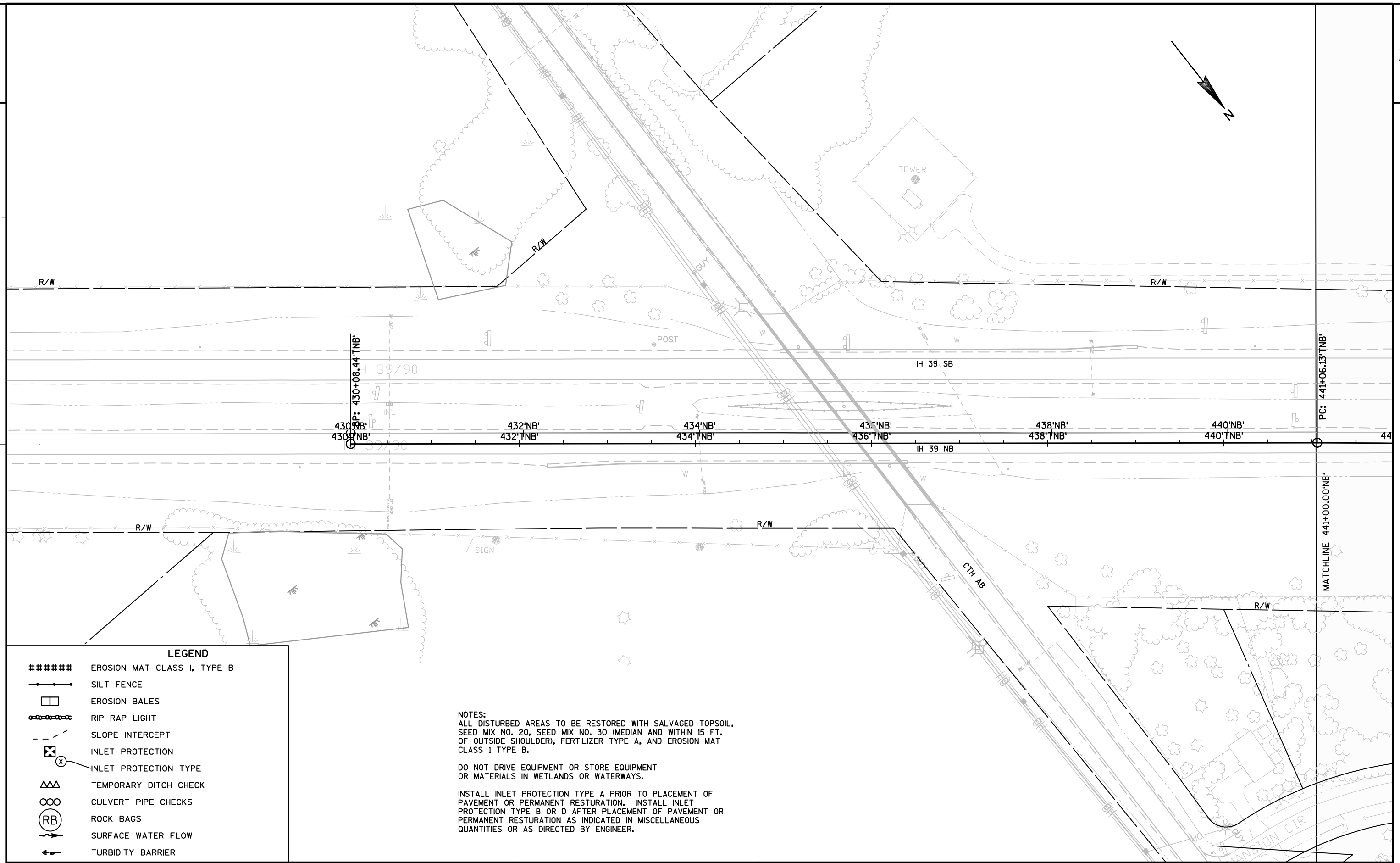
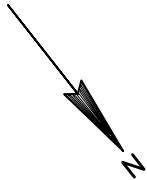
INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF PAVEMENT OR PERMANENT RESTORATION. INSTALL INLET PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR PERMANENT RESTORATION AS INDICATED IN MISCELLANEOUS QUANTITIES OR AS DIRECTED BY ENGINEER.



**LEGEND**

#####	EROSION MAT CLASS I, TYPE B
— — — —	SILT FENCE
▭	EROSION BALES
—x—x—x—x—x—	RIP RAP LIGHT
- - -	SLOPE INTERCEPT
⊠	INLET PROTECTION
⊠ (x)	INLET PROTECTION TYPE
ΔΔΔ	TEMPORARY DITCH CHECK
∞∞∞	CULVERT PIPE CHECKS
(RB)	ROCK BAGS
→	SURFACE WATER FLOW
←	TURBIDITY BARRIER

**NOTES:**  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS 1 TYPE B.  
 DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.  
 INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF PAVEMENT OR PERMANENT RESTURATION. INSTALL INLET PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR PERMANENT RESTURATION AS INDICATED IN MISCELLANEOUS QUANTITIES OR AS DIRECTED BY ENGINEER.



**LEGEND**

- ##### EROSION MAT CLASS I, TYPE B
- SILT FENCE
- EROSION BALES
- RIP RAP LIGHT
- - - SLOPE INTERCEPT
- ⊗ INLET PROTECTION
- ⊗ INLET PROTECTION TYPE
- △△△ TEMPORARY DITCH CHECK
- CULVERT PIPE CHECKS
- (RB) ROCK BAGS
- SURFACE WATER FLOW
- ←←← TURBIDITY BARRIER

NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS 1 TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.

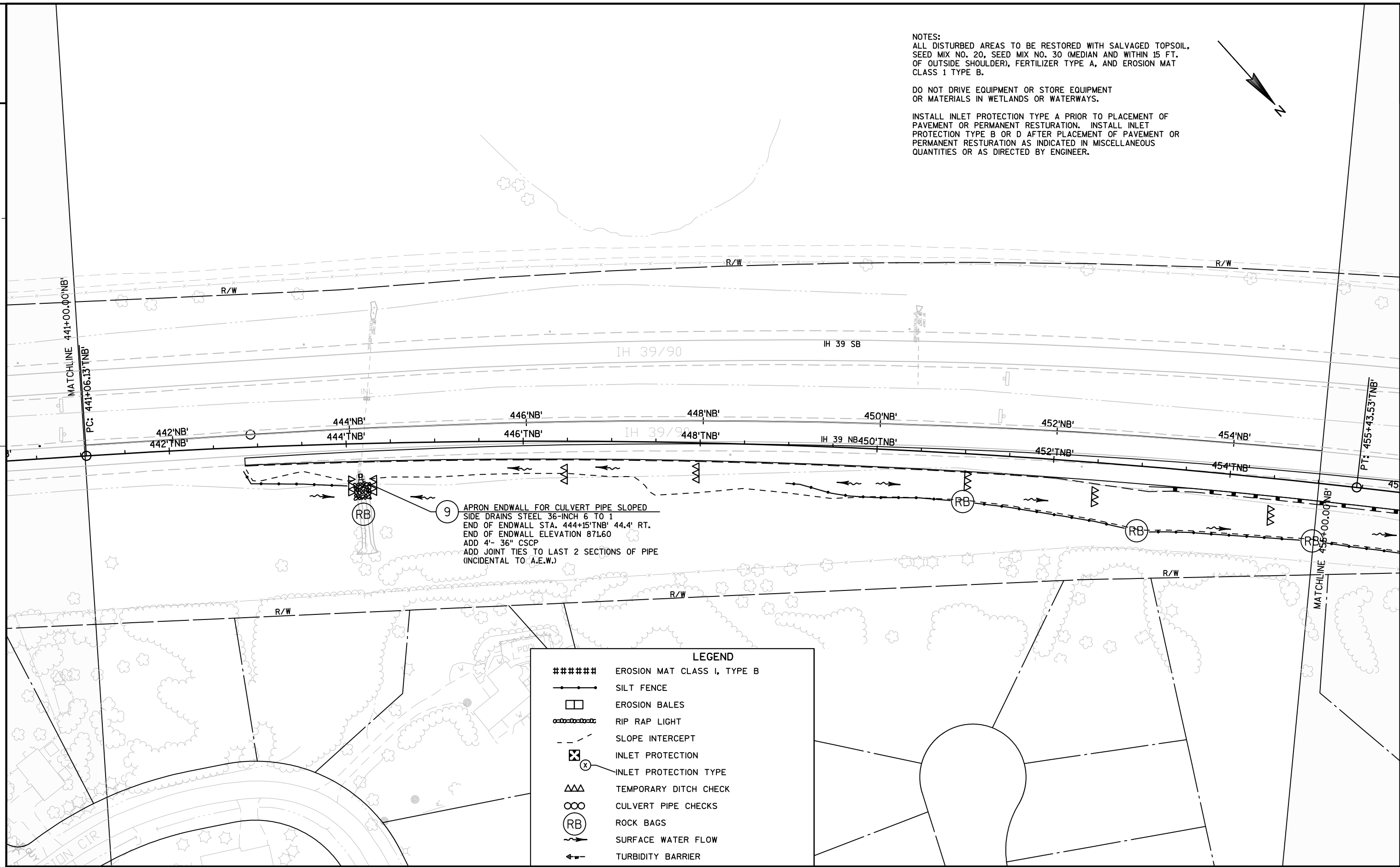
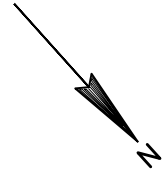
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NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS 1 TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT OR MATERIALS IN WETLANDS OR WATERWAYS.

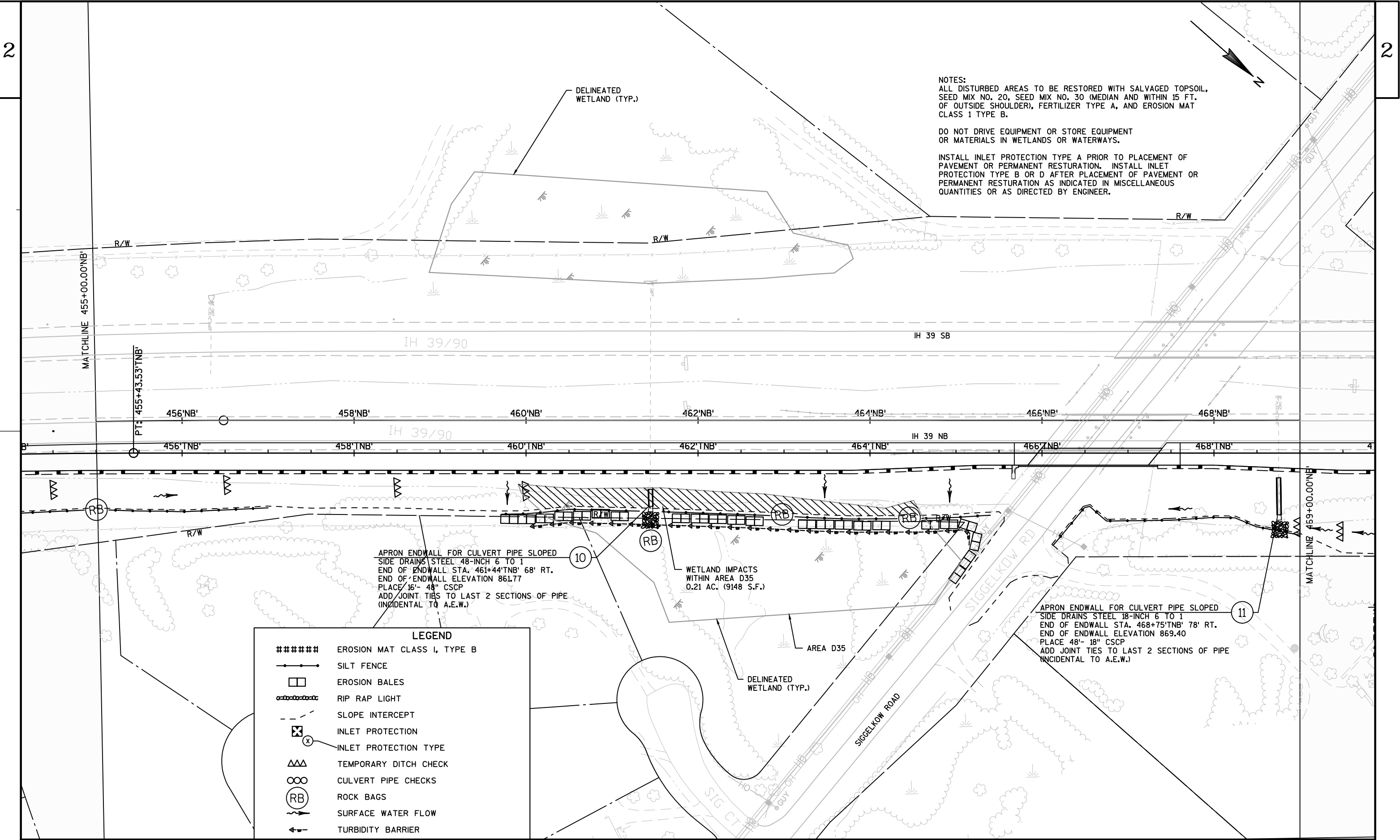
INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF PAVEMENT OR PERMANENT RESTURATION. INSTALL INLET PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR PERMANENT RESTURATION AS INDICATED IN MISCELLANEOUS QUANTITIES OR AS DIRECTED BY ENGINEER.



9 APRON ENDWALL FOR CULVERT PIPE SLOPED  
 SIDE DRAINS STEEL 36-INCH 6 TO 1  
 END OF ENDWALL STA. 444+15'TNB' 44.4' RT.  
 END OF ENDWALL ELEVATION 871.60  
 ADD 4'- 36" CSCP  
 ADD JOINT TIES TO LAST 2 SECTIONS OF PIPE  
 (INCIDENTAL TO A.E.W.)

**LEGEND**

#####	EROSION MAT CLASS I, TYPE B
—●—	SILT FENCE
▭	EROSION BALES
—○—○—○—	RIP RAP LIGHT
- - - - -	SLOPE INTERCEPT
⊠	INLET PROTECTION
⊠ (X)	INLET PROTECTION TYPE
△△△	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
⊙ (RB)	ROCK BAGS
→	SURFACE WATER FLOW
←	TURBIDITY BARRIER



PROJECT NO:1007-10-71

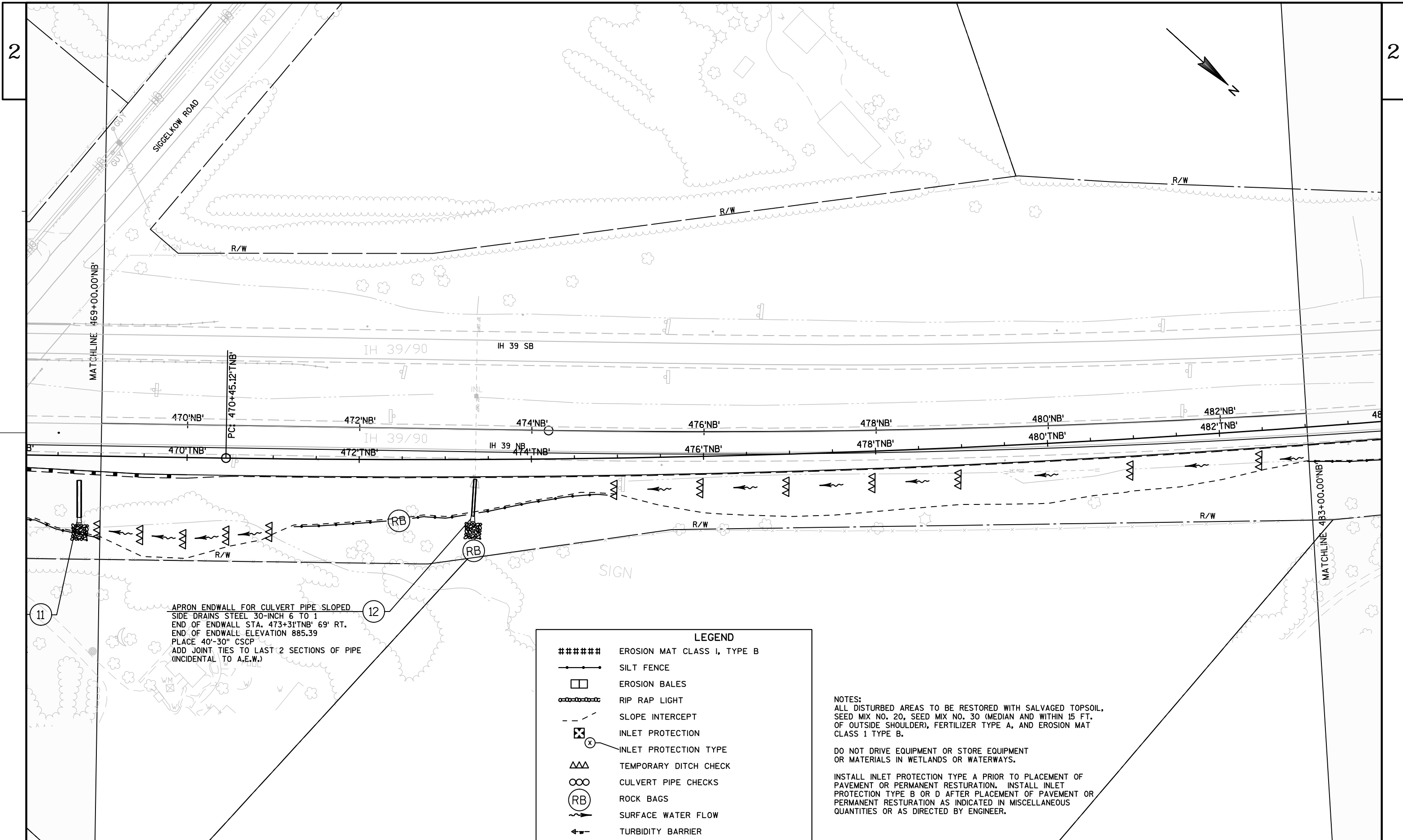
HWY: IH 39

COUNTY: DANE

EROSION CONTROL & DRAINAGE - STAGE 2

SHEET

E



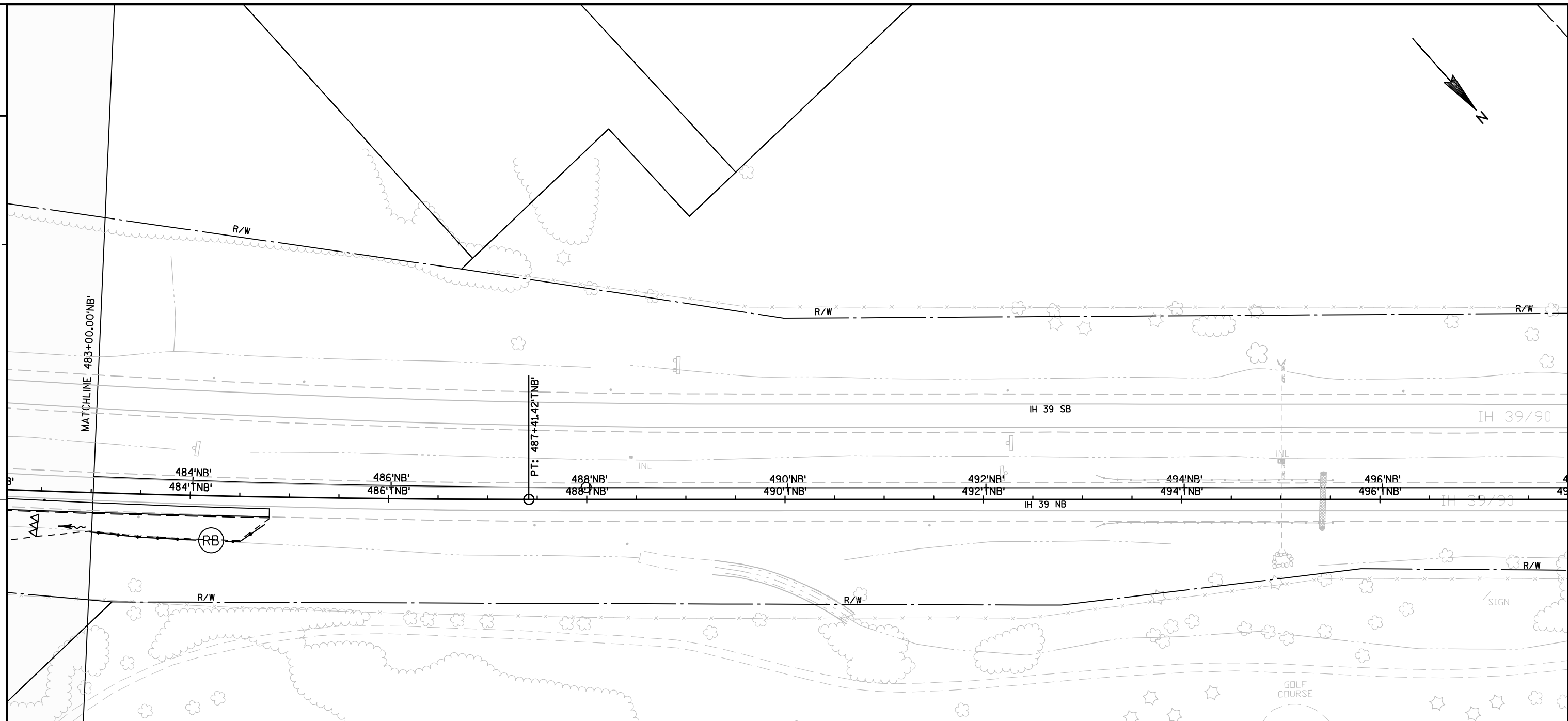
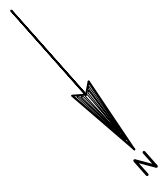
APRON ENDWALL FOR CULVERT PIPE SLOPED  
 SIDE DRAINS STEEL 30-INCH 6 TO 1  
 END OF ENDWALL STA. 473+31'TNB' 69' RT.  
 END OF ENDWALL ELEVATION 885.39  
 PLACE 40'-30" CSCP  
 ADD JOINT TIES TO LAST 2 SECTIONS OF PIPE  
 (INCIDENTAL TO A.E.W.)

LEGEND	
#####	EROSION MAT CLASS 1, TYPE B
- - - - -	SILT FENCE
[ ]	EROSION BALES
o-o-o-o-o	RIP RAP LIGHT
- - - - -	SLOPE INTERCEPT
[X]	INLET PROTECTION
(X)	INLET PROTECTION TYPE
ΔΔΔ	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
(RB)	ROCK BAGS
~ ~ ~	SURFACE WATER FLOW
← - -	TURBIDITY BARRIER

NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL,  
 SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT.  
 OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT  
 CLASS 1 TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT  
 OR MATERIALS IN WETLANDS OR WATERWAYS.

INSTALL INLET PROTECTION TYPE A PRIOR TO PLACEMENT OF  
 PAVEMENT OR PERMANENT RESTURATION. INSTALL INLET  
 PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR  
 PERMANENT RESTURATION AS INDICATED IN MISCELLANEOUS  
 QUANTITIES OR AS DIRECTED BY ENGINEER.



**LEGEND**

#####	EROSION MAT CLASS I, TYPE B
— — —	SILT FENCE
▣	EROSION BALES
—x—x—x—x—	RIP RAP LIGHT
- - -	SLOPE INTERCEPT
⊠	INLET PROTECTION
⊠ X	INLET PROTECTION TYPE
△△△	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
⊙ RB	ROCK BAGS
~>	SURFACE WATER FLOW
← ←	TURBIDITY BARRIER

**NOTES:**  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT CLASS 1 TYPE B.

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2

2

NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL,  
 SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT.  
 OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT  
 CLASS 1 TYPE B.

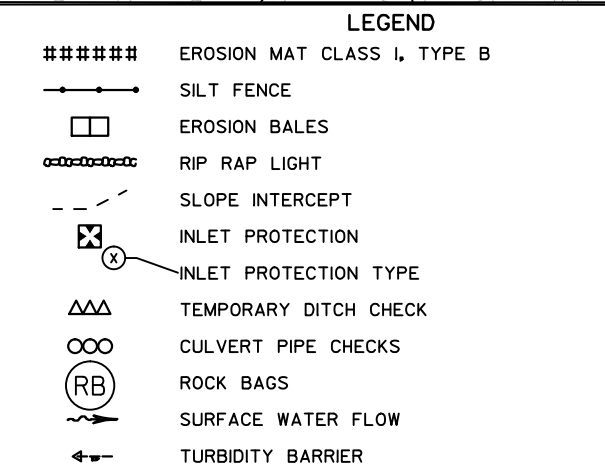
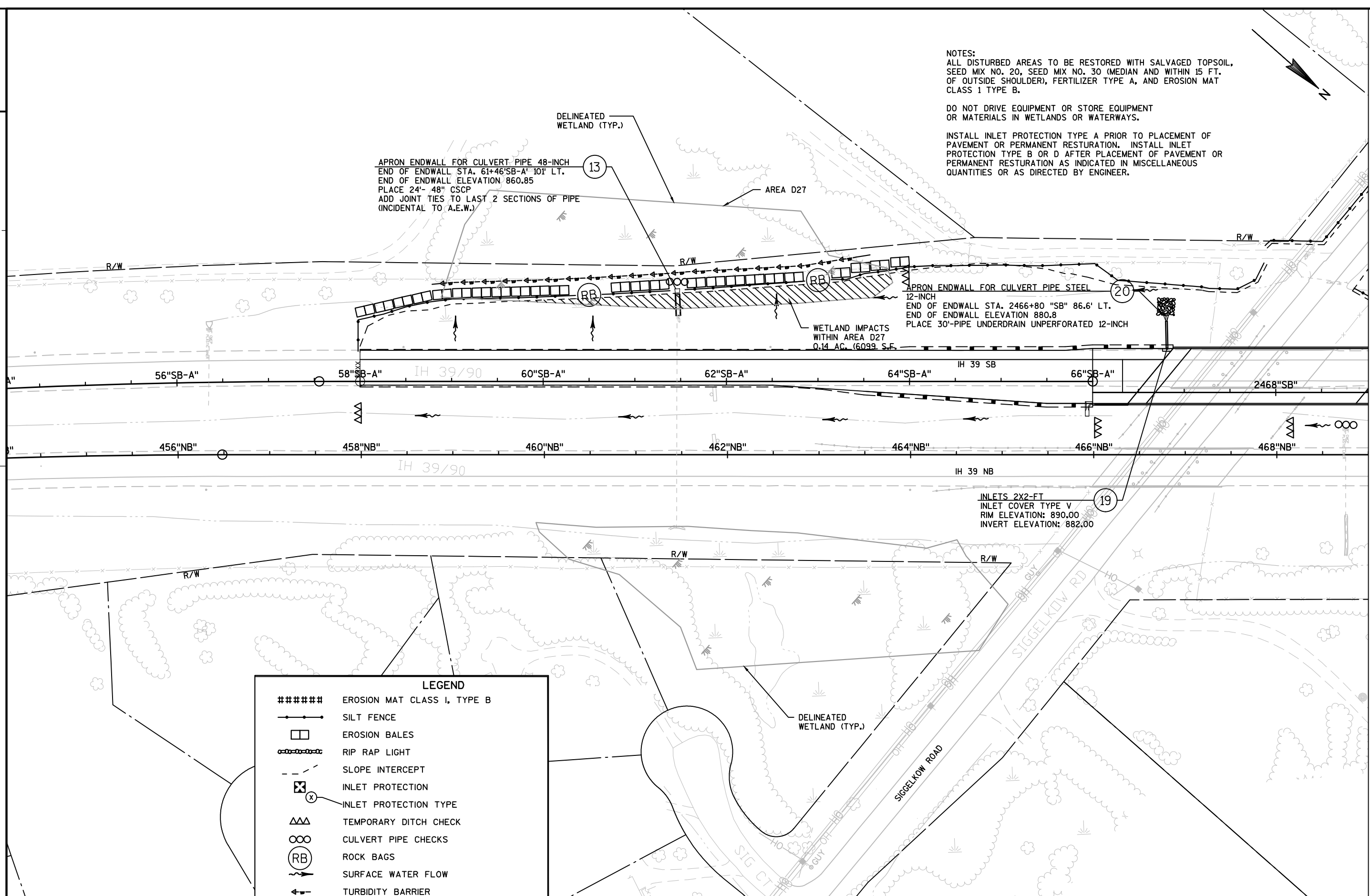
DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT  
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 QUANTITIES OR AS DIRECTED BY ENGINEER.

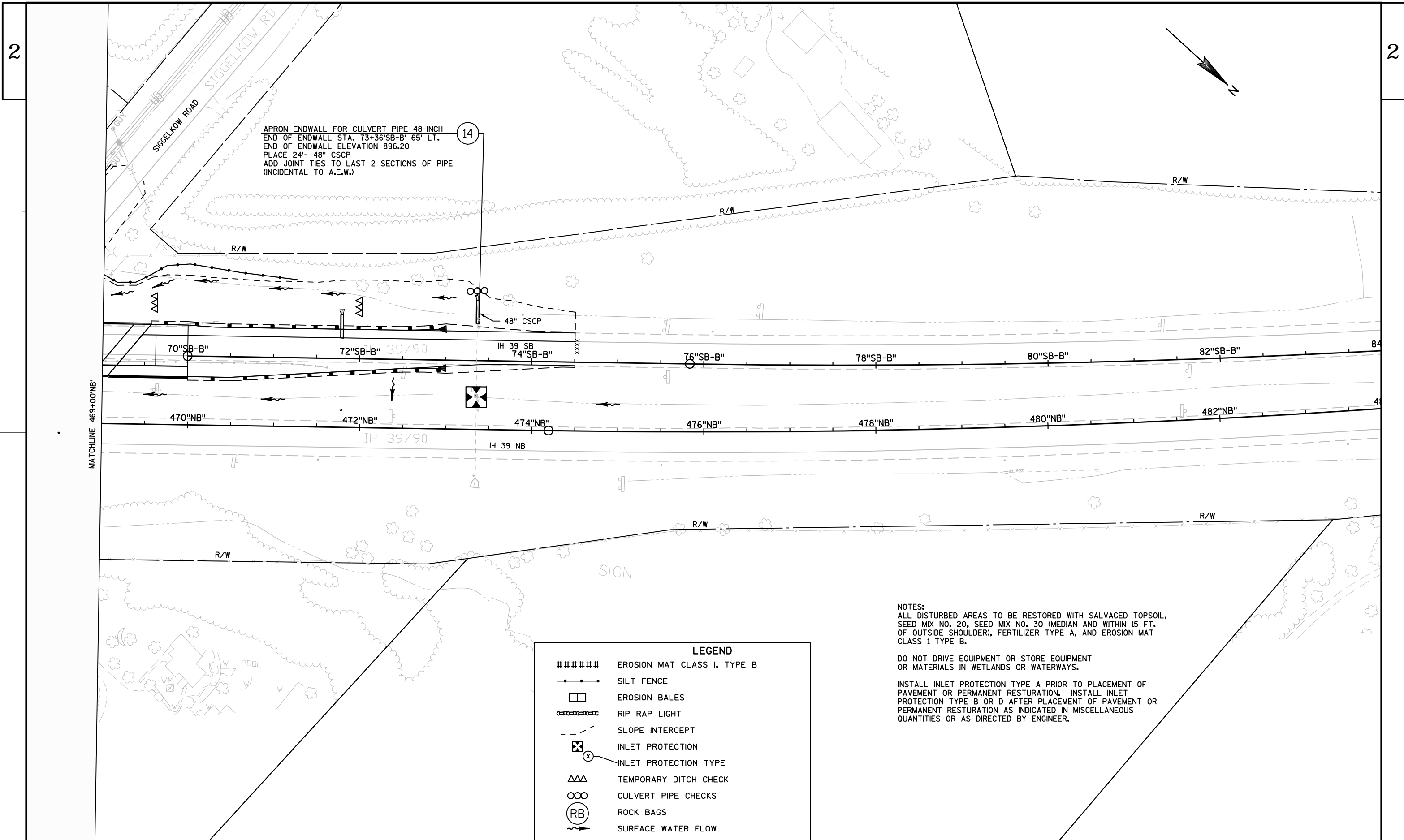
APRON ENDWALL FOR CULVERT PIPE 48-INCH  
 END OF ENDWALL STA. 61+46"SB-A' 101' LT.  
 END OF ENDWALL ELEVATION 860.85  
 PLACE 24'- 48" CSCP  
 ADD JOINT TIES TO LAST 2 SECTIONS OF PIPE  
 (INCIDENTAL TO A.E.W.)

APRON ENDWALL FOR CULVERT PIPE STEEL  
 12-INCH  
 END OF ENDWALL STA. 2466+80 "SB" 86.6' LT.  
 END OF ENDWALL ELEVATION 880.8  
 PLACE 30'-PIPE UNDERDRAIN UNPERFORATED 12-INCH

INLETS 2X2-FT  
 INLET COVER TYPE V  
 RIM ELEVATION: 890.00  
 INVERT ELEVATION: 882.00



MATCHLINE 469+00'NB'



APRON ENDWALL FOR CULVERT PIPE 48-INCH  
 END OF ENDWALL STA. 73+36'SB-B' 65' LT.  
 END OF ENDWALL ELEVATION 896.20  
 PLACE 24'- 48" CSCP  
 ADD JOINT TIES TO LAST 2 SECTIONS OF PIPE  
 (INCIDENTAL TO A.E.W.)

14

MATCHLINE 469+00'NB'

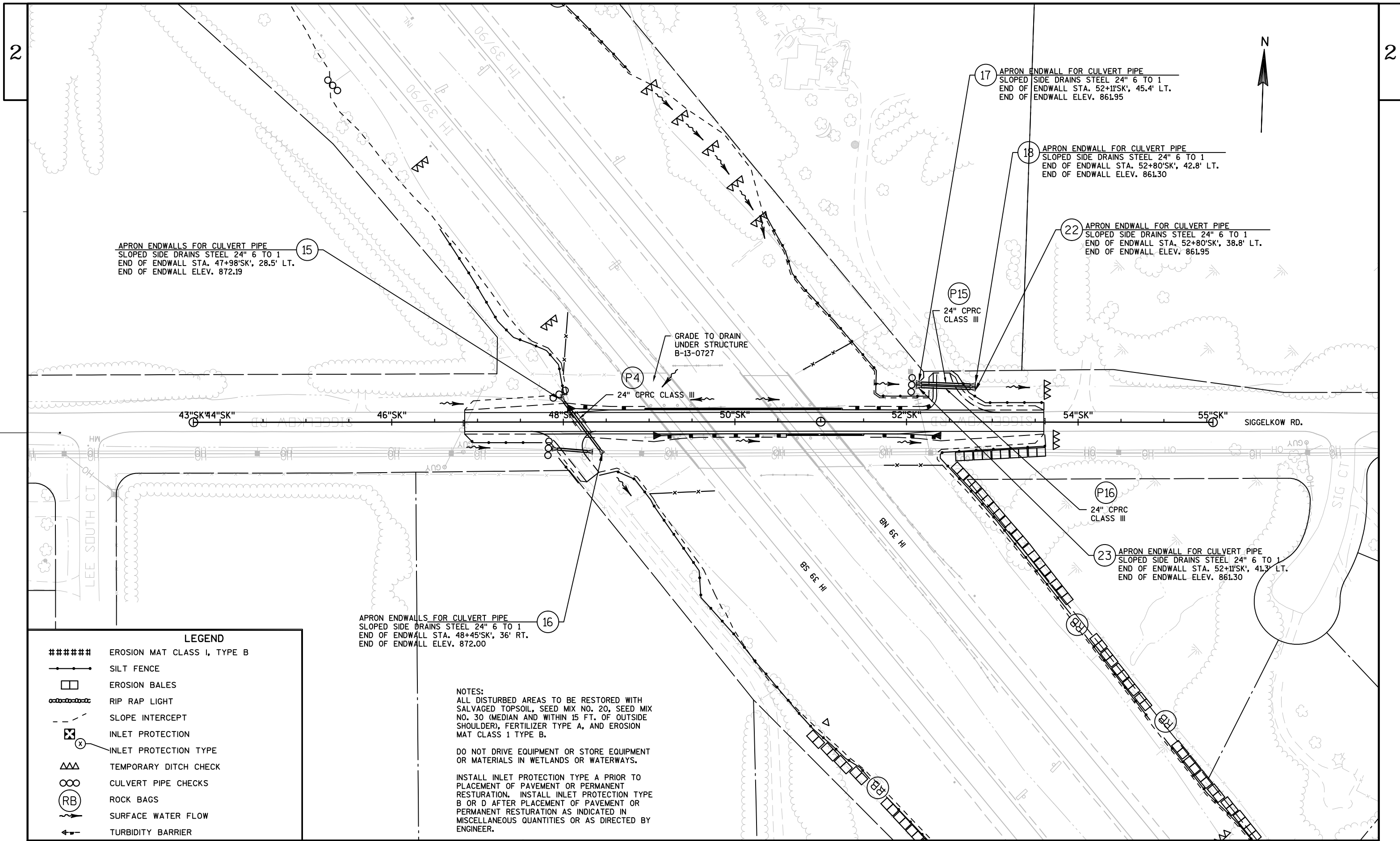
**LEGEND**

- ##### EROSION MAT CLASS I, TYPE B
- SILT FENCE
- EROSION BALES
- RIP RAP LIGHT
- - - SLOPE INTERCEPT
- ⊗ INLET PROTECTION
- ⊗ INLET PROTECTION TYPE
- △△△ TEMPORARY DITCH CHECK
- ∞ CULVERT PIPE CHECKS
- Ⓡ ROCK BAGS
- ~> SURFACE WATER FLOW

**NOTES:**  
 ALL DISTURBED AREAS TO BE RESTORED WITH SALVAGED TOPSOIL,  
 SEED MIX NO. 20, SEED MIX NO. 30 (MEDIAN AND WITHIN 15 FT.  
 OF OUTSIDE SHOULDER), FERTILIZER TYPE A, AND EROSION MAT  
 CLASS 1 TYPE B.

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 OR MATERIALS IN WETLANDS OR WATERWAYS.

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 PROTECTION TYPE B OR D AFTER PLACEMENT OF PAVEMENT OR  
 PERMANENT RESTORATION AS INDICATED IN MISCELLANEOUS  
 QUANTITIES OR AS DIRECTED BY ENGINEER.



APRON ENDWALLS FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL 24" 6 TO 1  
 END OF ENDWALL STA. 47+98'SK', 28.5' LT.  
 END OF ENDWALL ELEV. 872.19

15

APRON ENDWALL FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL 24" 6 TO 1  
 END OF ENDWALL STA. 52+11'SK', 45.4' LT.  
 END OF ENDWALL ELEV. 861.95

17

APRON ENDWALL FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL 24" 6 TO 1  
 END OF ENDWALL STA. 52+80'SK', 42.8' LT.  
 END OF ENDWALL ELEV. 861.30

18

APRON ENDWALL FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL 24" 6 TO 1  
 END OF ENDWALL STA. 52+80'SK', 38.8' LT.  
 END OF ENDWALL ELEV. 861.95

22

P4

GRADE TO DRAIN  
 UNDER STRUCTURE  
 B-13-0727

P15

24" CPRC  
 CLASS III

P16

24" CPRC  
 CLASS III

23

APRON ENDWALL FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL 24" 6 TO 1  
 END OF ENDWALL STA. 52+11'SK', 41.3' LT.  
 END OF ENDWALL ELEV. 861.30

APRON ENDWALLS FOR CULVERT PIPE  
 SLOPED SIDE DRAINS STEEL 24" 6 TO 1  
 END OF ENDWALL STA. 48+45'SK', 36' RT.  
 END OF ENDWALL ELEV. 872.00

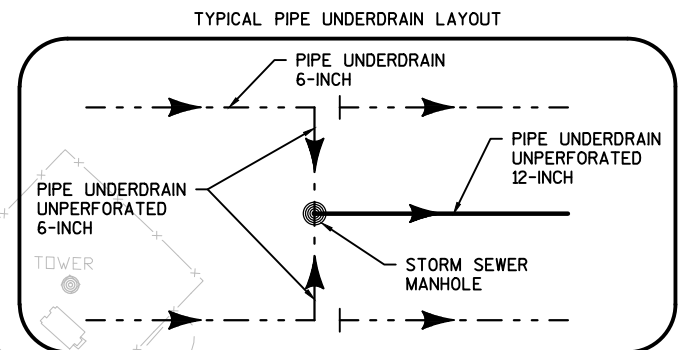
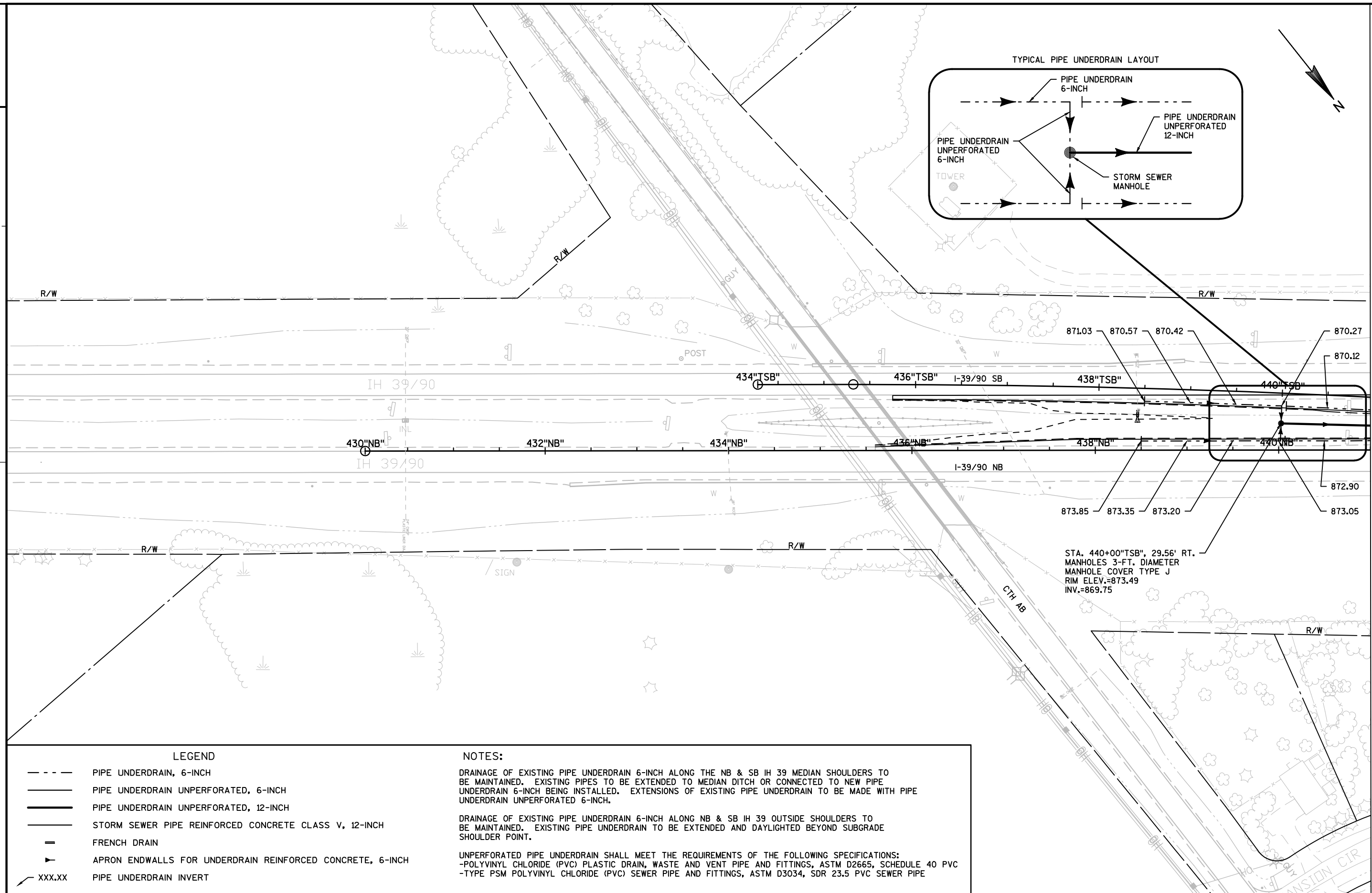
16

NOTES:  
 ALL DISTURBED AREAS TO BE RESTORED WITH  
 SALVAGED TOPSOIL, SEED MIX NO. 20, SEED MIX  
 NO. 30 (MEDIAN AND WITHIN 15 FT. OF OUTSIDE  
 SHOULDER), FERTILIZER TYPE A, AND EROSION  
 MAT CLASS 1 TYPE B.

DO NOT DRIVE EQUIPMENT OR STORE EQUIPMENT  
 OR MATERIALS IN WETLANDS OR WATERWAYS.

INSTALL INLET PROTECTION TYPE A PRIOR TO  
 PLACEMENT OF PAVEMENT OR PERMANENT  
 RESTORATION. INSTALL INLET PROTECTION TYPE  
 B OR D AFTER PLACEMENT OF PAVEMENT OR  
 PERMANENT RESTORATION AS INDICATED IN  
 MISCELLANEOUS QUANTITIES OR AS DIRECTED BY  
 ENGINEER.

LEGEND	
#####	EROSION MAT CLASS I, TYPE B
— — —	SILT FENCE
[ ]	EROSION BALES
— — —	RIP RAP LIGHT
- - -	SLOPE INTERCEPT
[X]	INLET PROTECTION
(X)	INLET PROTECTION TYPE
△△	TEMPORARY DITCH CHECK
∞	CULVERT PIPE CHECKS
(RB)	ROCK BAGS
→	SURFACE WATER FLOW
←	TURBIDITY BARRIER



**LEGEND**

---	PIPE UNDERDRAIN, 6-INCH
—	PIPE UNDERDRAIN UNPERFORATED, 6-INCH
—	PIPE UNDERDRAIN UNPERFORATED, 12-INCH
—	STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH
—	FRENCH DRAIN
▶	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH
XXX.XX	PIPE UNDERDRAIN INVERT

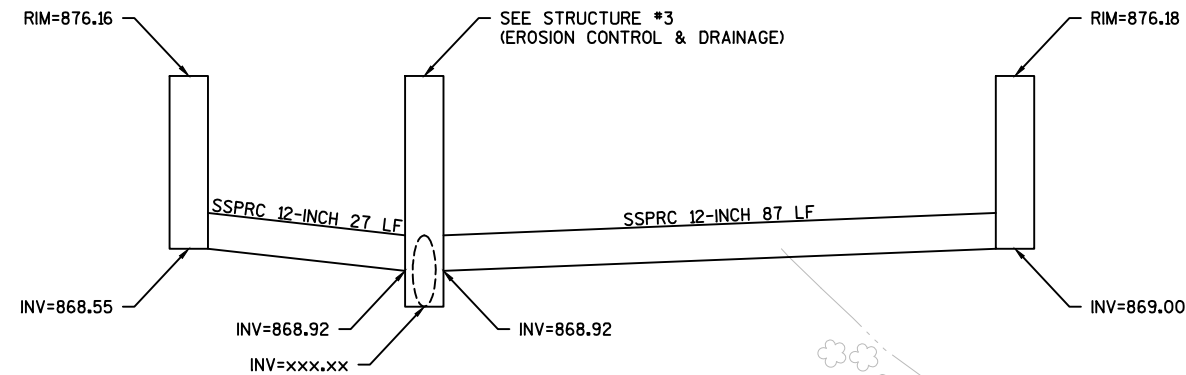
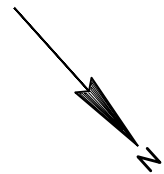
**NOTES:**

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.

UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:  
 -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC  
 -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE





3 STA. 444+21"TSB", 33.87' LT.  
SEE EROSION CONTROL & DRAINAGE DETAILS

SSPRC CLASS V  
12-INCH (87 LF)

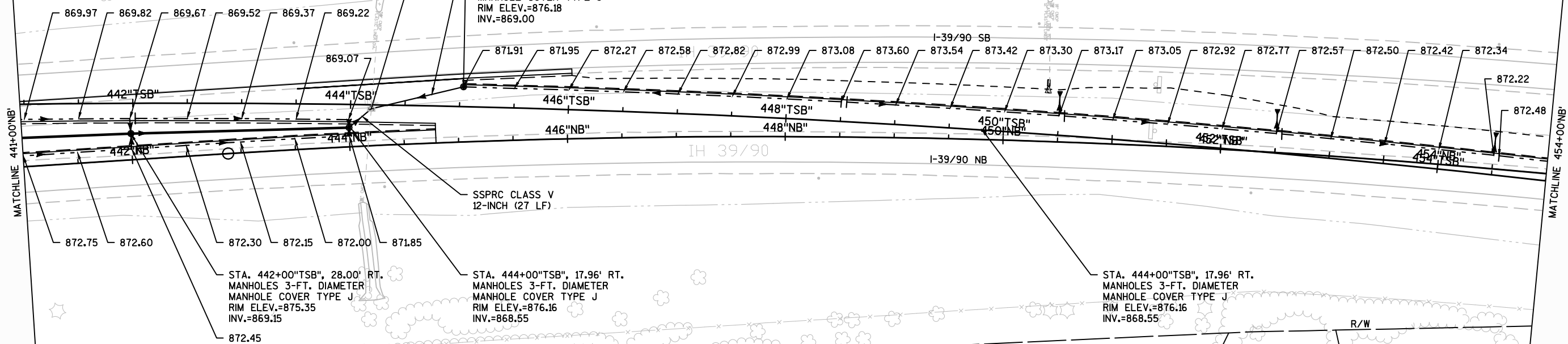
STA. 445+00"TSB", 18.00' LT.  
MANHOLES 3-FT. DIAMETER  
MANHOLE COVER TYPE J  
RIM ELEV.=876.18  
INV.=869.00

SSPRC CLASS V  
12-INCH (27 LF)

STA. 442+00"TSB", 28.00' RT.  
MANHOLES 3-FT. DIAMETER  
MANHOLE COVER TYPE J  
RIM ELEV.=875.35  
INV.=869.15

STA. 444+00"TSB", 17.96' RT.  
MANHOLES 3-FT. DIAMETER  
MANHOLE COVER TYPE J  
RIM ELEV.=876.16  
INV.=868.55

STA. 444+00"TSB", 17.96' RT.  
MANHOLES 3-FT. DIAMETER  
MANHOLE COVER TYPE J  
RIM ELEV.=876.16  
INV.=868.55



LEGEND	
	PIPE UNDERDRAIN, 6-INCH
	PIPE UNDERDRAIN UNPERFORATED, 6-INCH
	PIPE UNDERDRAIN UNPERFORATED, 12-INCH
	STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH
	FRENCH DRAIN
	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH
	PIPE UNDERDRAIN INVERT

**NOTES:**

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.

UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:  
 -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC  
 -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE

**LEGEND**

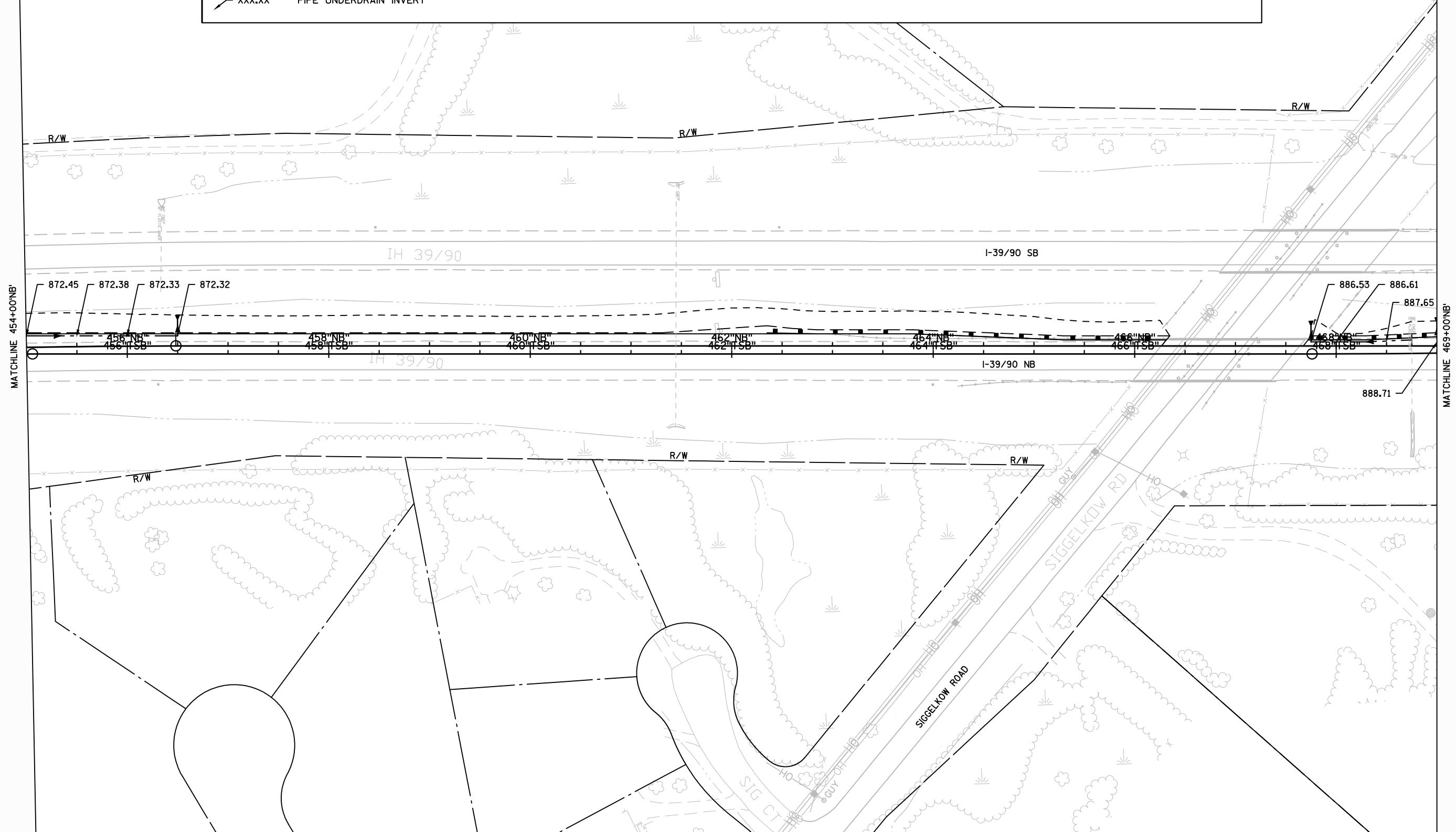
- PIPE UNDERDRAIN, 6-INCH
- PIPE UNDERDRAIN UNPERFORATED, 6-INCH
- PIPE UNDERDRAIN UNPERFORATED, 12-INCH
- STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH
- FRENCH DRAIN
- ▶ APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH
- XXX.XX PIPE UNDERDRAIN INVERT

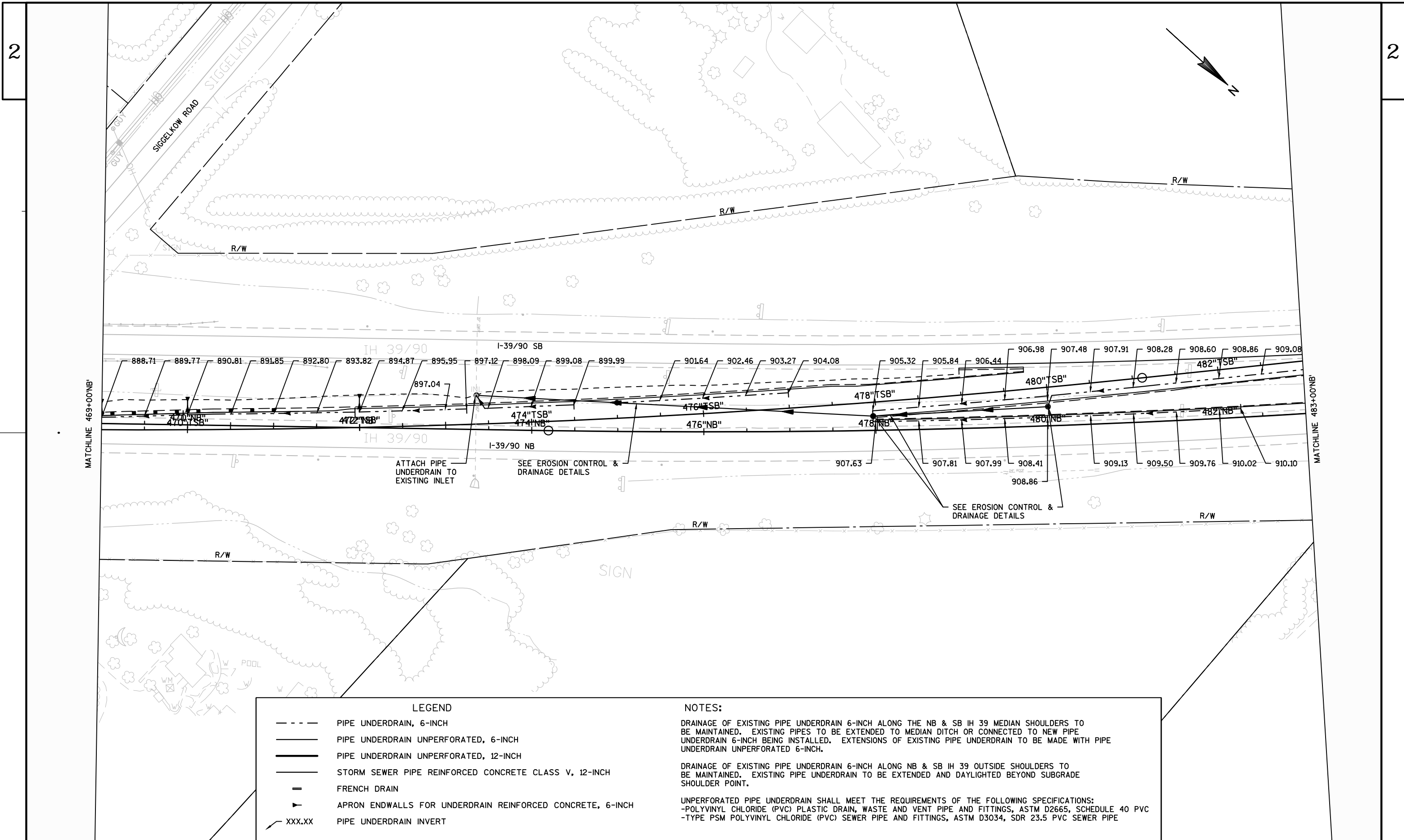
**NOTES:**

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.

UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:  
 -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC  
 -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE





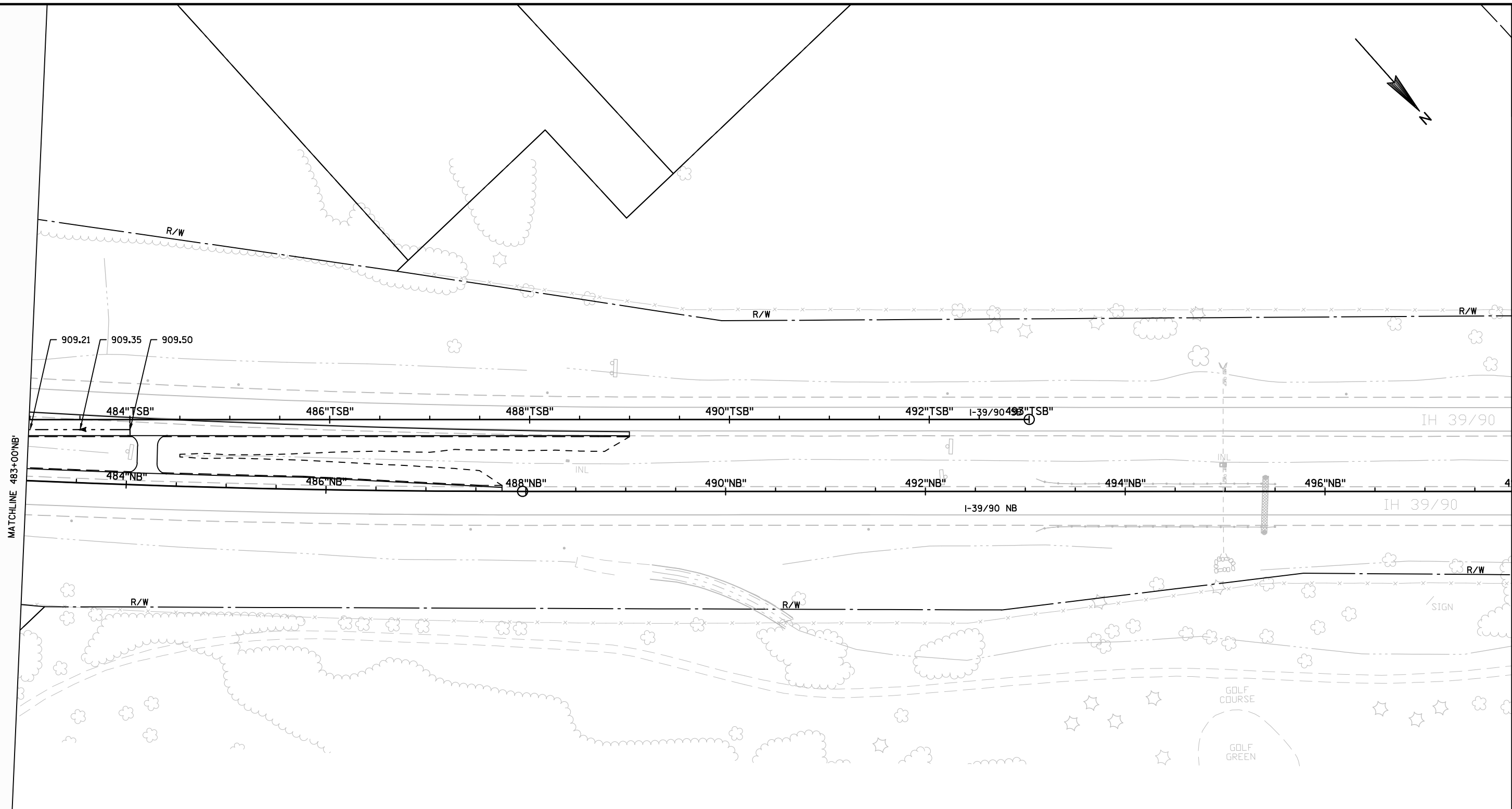
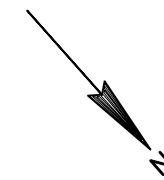
LEGEND	
---	PIPE UNDERDRAIN, 6-INCH
—	PIPE UNDERDRAIN UNPERFORATED, 6-INCH
—	PIPE UNDERDRAIN UNPERFORATED, 12-INCH
—	STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH
—	FRENCH DRAIN
▶	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH
XXX.XX	PIPE UNDERDRAIN INVERT

**NOTES:**

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.

UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:  
 -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC  
 -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE



LEGEND		NOTES:
	PIPE UNDERDRAIN, 6-INCH	DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.
	PIPE UNDERDRAIN UNPERFORATED, 6-INCH	
	PIPE UNDERDRAIN UNPERFORATED, 12-INCH	
	STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH	DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.
	FRENCH DRAIN	
	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH	UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS: -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE
	PIPE UNDERDRAIN INVERT	

**LEGEND**

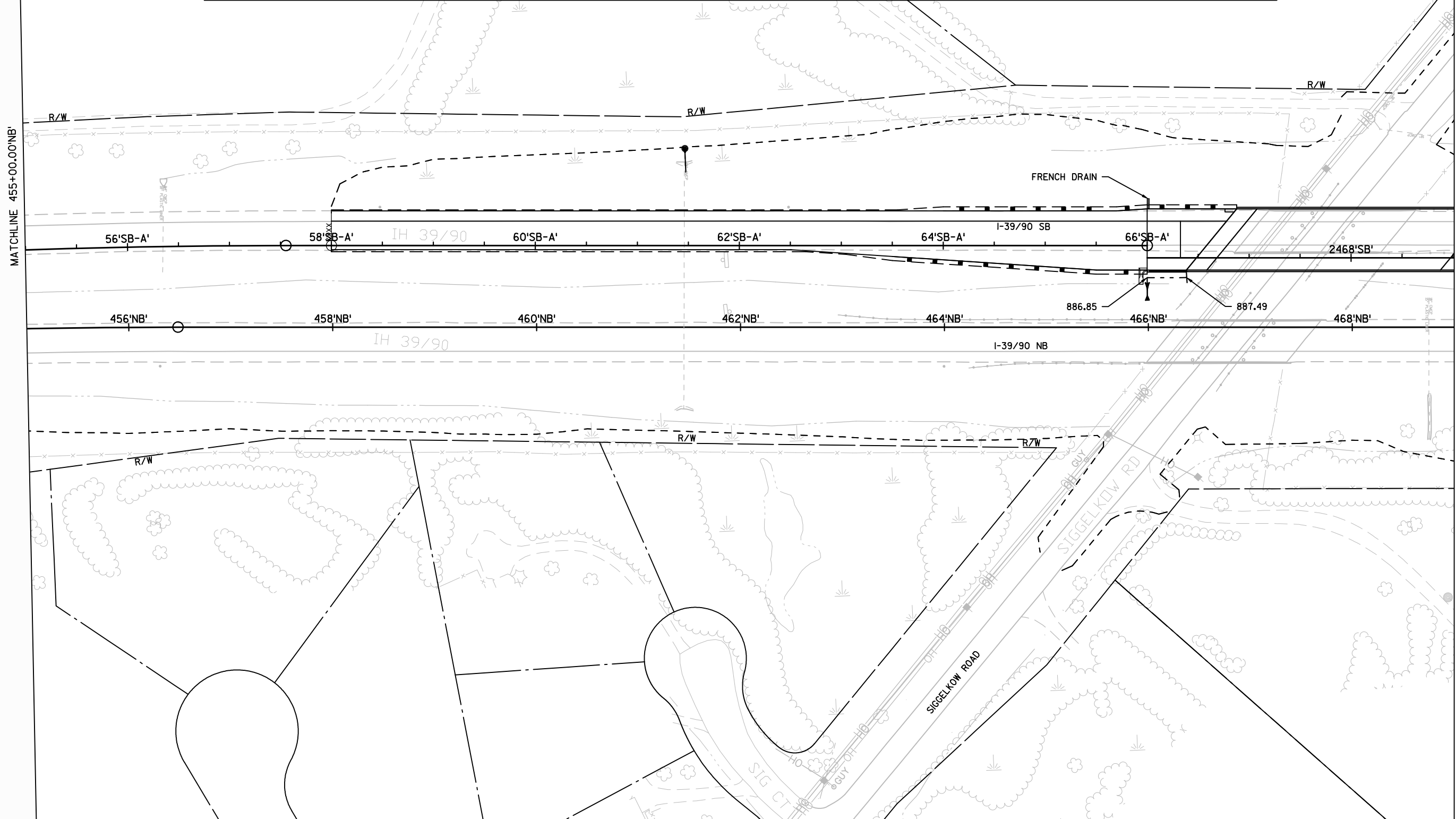
- PIPE UNDERDRAIN, 6-INCH
- PIPE UNDERDRAIN UNPERFORATED, 6-INCH
- PIPE UNDERDRAIN UNPERFORATED, 12-INCH
- STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH
- FRENCH DRAIN
- ▶ APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH
- XXX.XX PIPE UNDERDRAIN INVERT

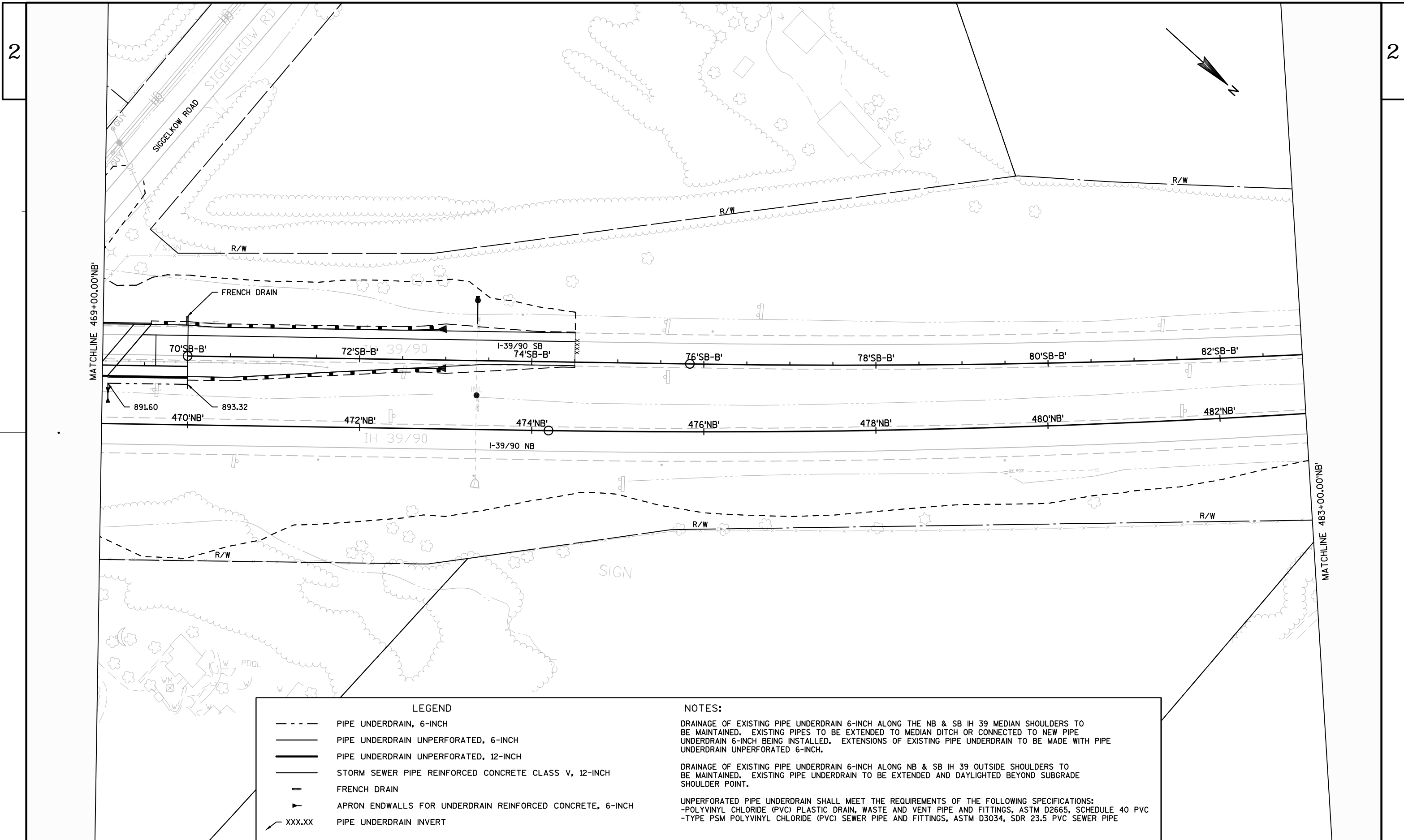
**NOTES:**

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.

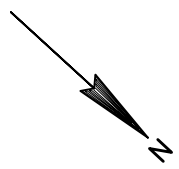
UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:  
 -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC  
 -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE





2

2



MATCHLINE 469+00.00'NB'

MATCHLINE 483+00.00'NB'

LEGEND	
	PIPE UNDERDRAIN, 6-INCH
	PIPE UNDERDRAIN UNPERFORATED, 6-INCH
	PIPE UNDERDRAIN UNPERFORATED, 12-INCH
	STORM SEWER PIPE REINFORCED CONCRETE CLASS V, 12-INCH
	FRENCH DRAIN
	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE, 6-INCH
	PIPE UNDERDRAIN INVERT

**NOTES:**

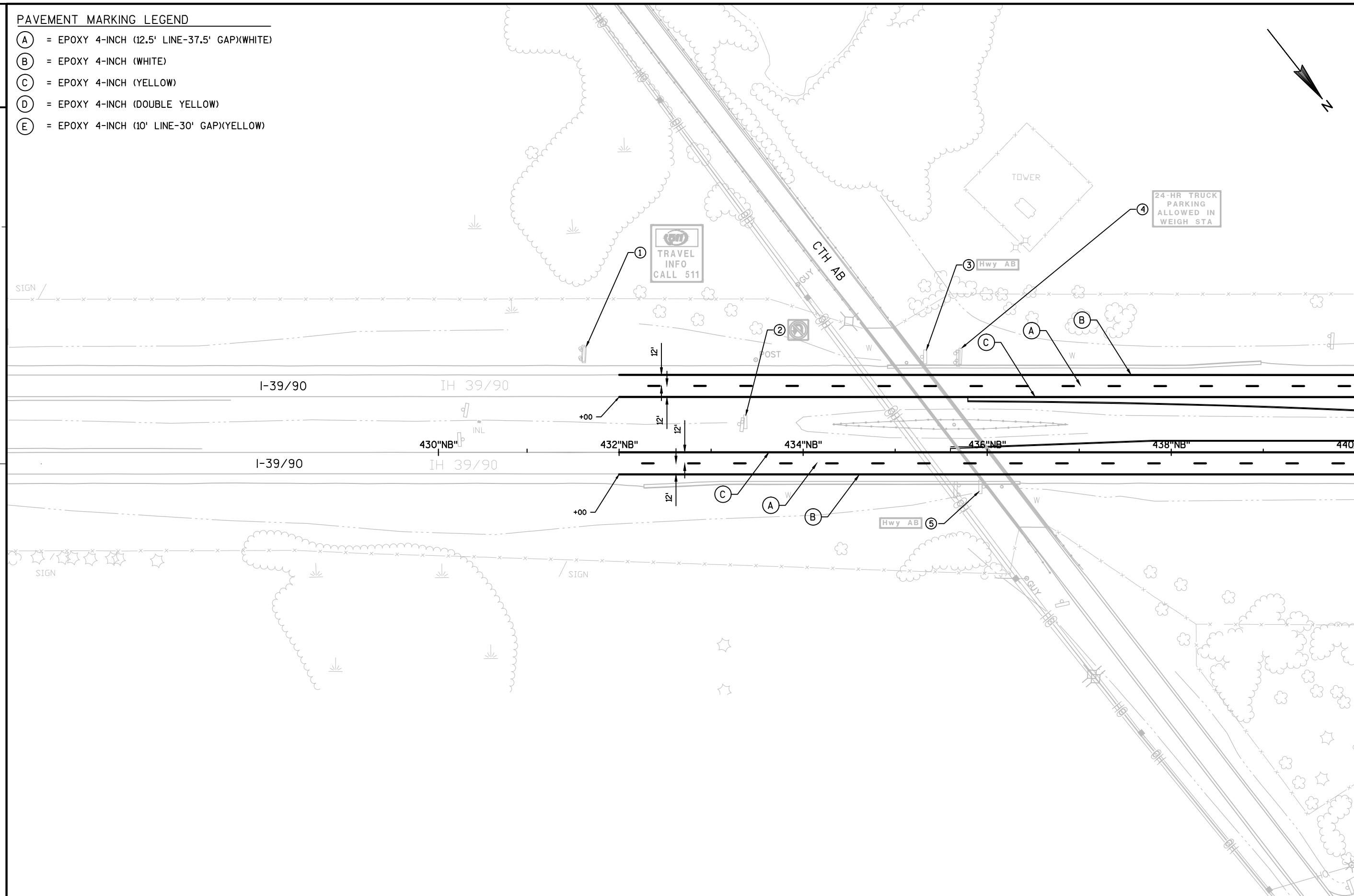
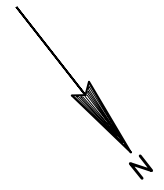
DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG THE NB & SB IH 39 MEDIAN SHOULDERS TO BE MAINTAINED. EXISTING PIPES TO BE EXTENDED TO MEDIAN DITCH OR CONNECTED TO NEW PIPE UNDERDRAIN 6-INCH BEING INSTALLED. EXTENSIONS OF EXISTING PIPE UNDERDRAIN TO BE MADE WITH PIPE UNDERDRAIN UNPERFORATED 6-INCH.

DRAINAGE OF EXISTING PIPE UNDERDRAIN 6-INCH ALONG NB & SB IH 39 OUTSIDE SHOULDERS TO BE MAINTAINED. EXISTING PIPE UNDERDRAIN TO BE EXTENDED AND DAYLIGHTED BEYOND SUBGRADE SHOULDER POINT.

UNPERFORATED PIPE UNDERDRAIN SHALL MEET THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS:  
 -POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM D2665, SCHEDULE 40 PVC  
 -TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D3034, SDR 23.5 PVC SEWER PIPE

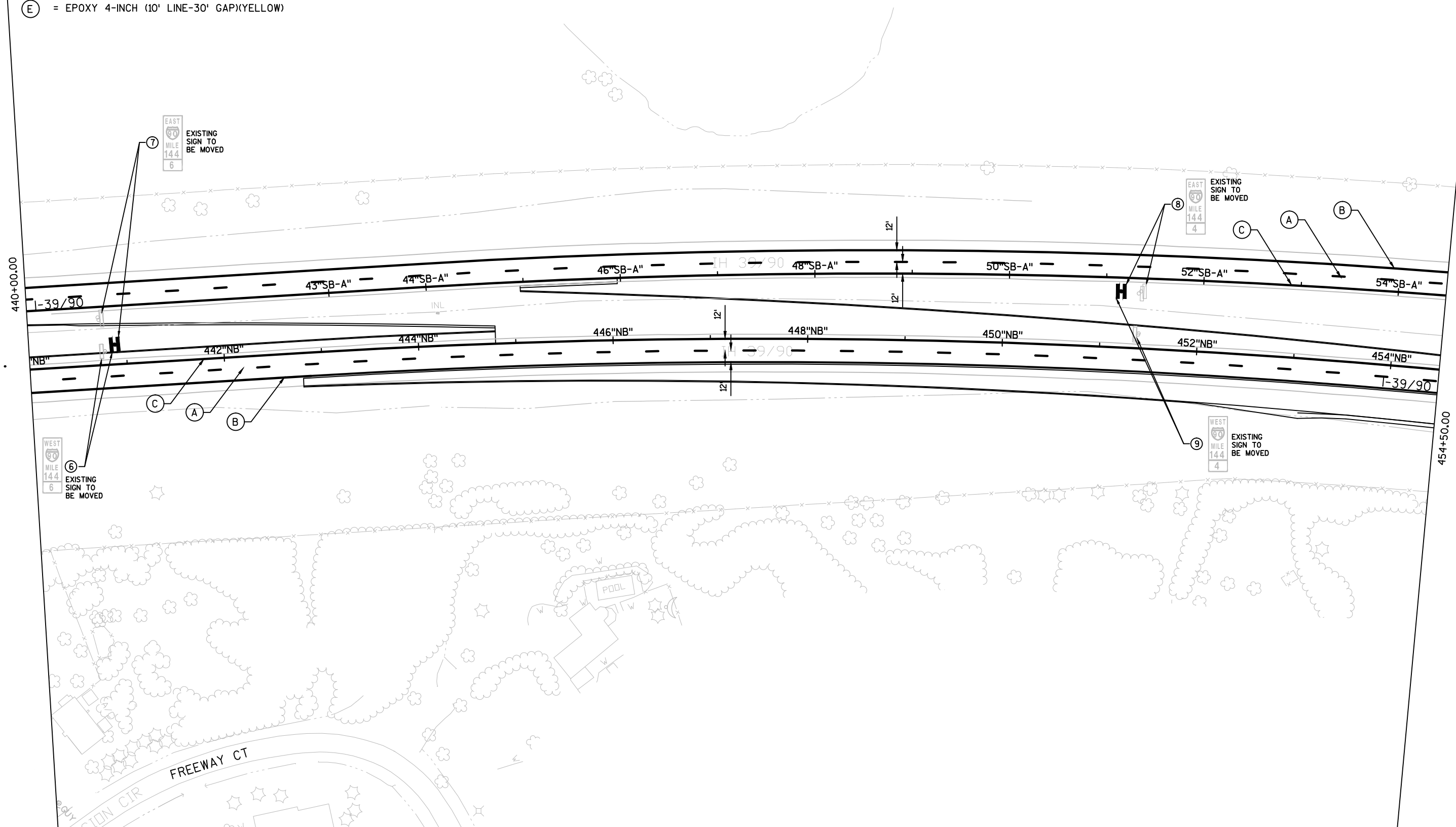
PAVEMENT MARKING LEGEND

- (A) = EPOXY 4-INCH (12.5' LINE-37.5' GAP)(WHITE)
- (B) = EPOXY 4-INCH (WHITE)
- (C) = EPOXY 4-INCH (YELLOW)
- (D) = EPOXY 4-INCH (DOUBLE YELLOW)
- (E) = EPOXY 4-INCH (10' LINE-30' GAP)(YELLOW)



PAVEMENT MARKING LEGEND

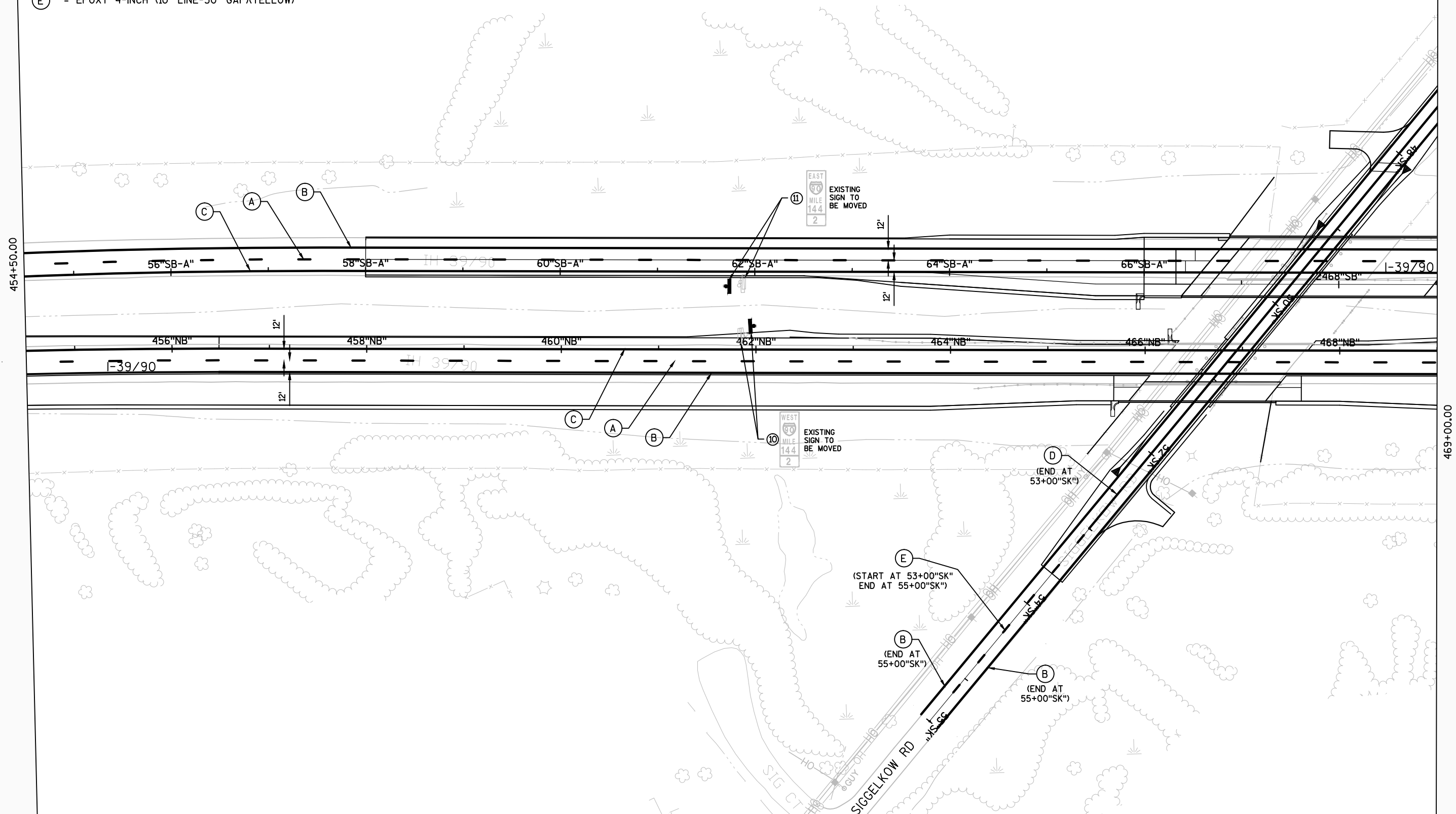
- (A) = EPOXY 4-INCH (12.5' LINE-37.5' GAP)(WHITE)
- (B) = EPOXY 4-INCH (WHITE)
- (C) = EPOXY 4-INCH (YELLOW)
- (D) = EPOXY 4-INCH (DOUBLE YELLOW)
- (E) = EPOXY 4-INCH (10' LINE-30' GAP)(YELLOW)

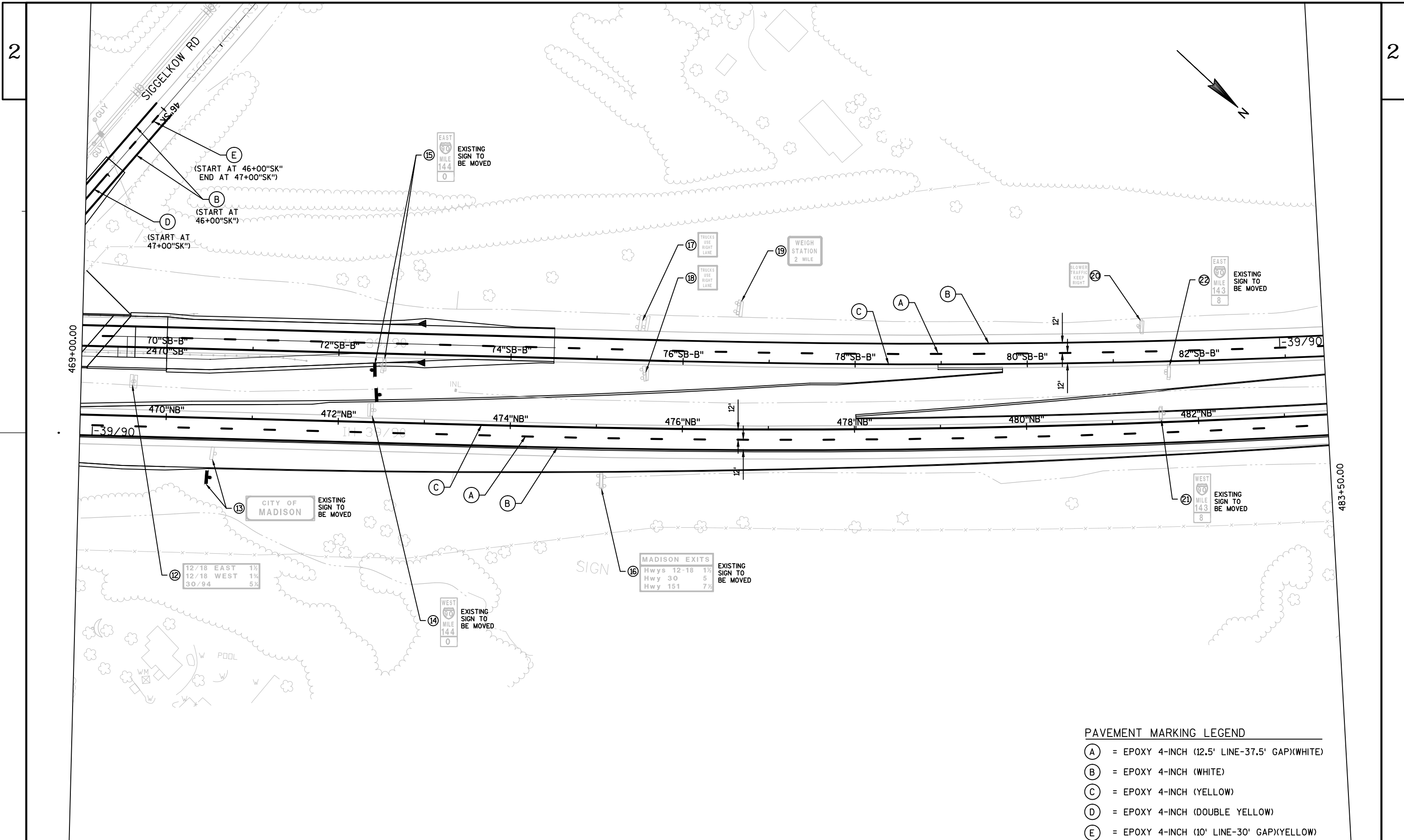




PAVEMENT MARKING LEGEND

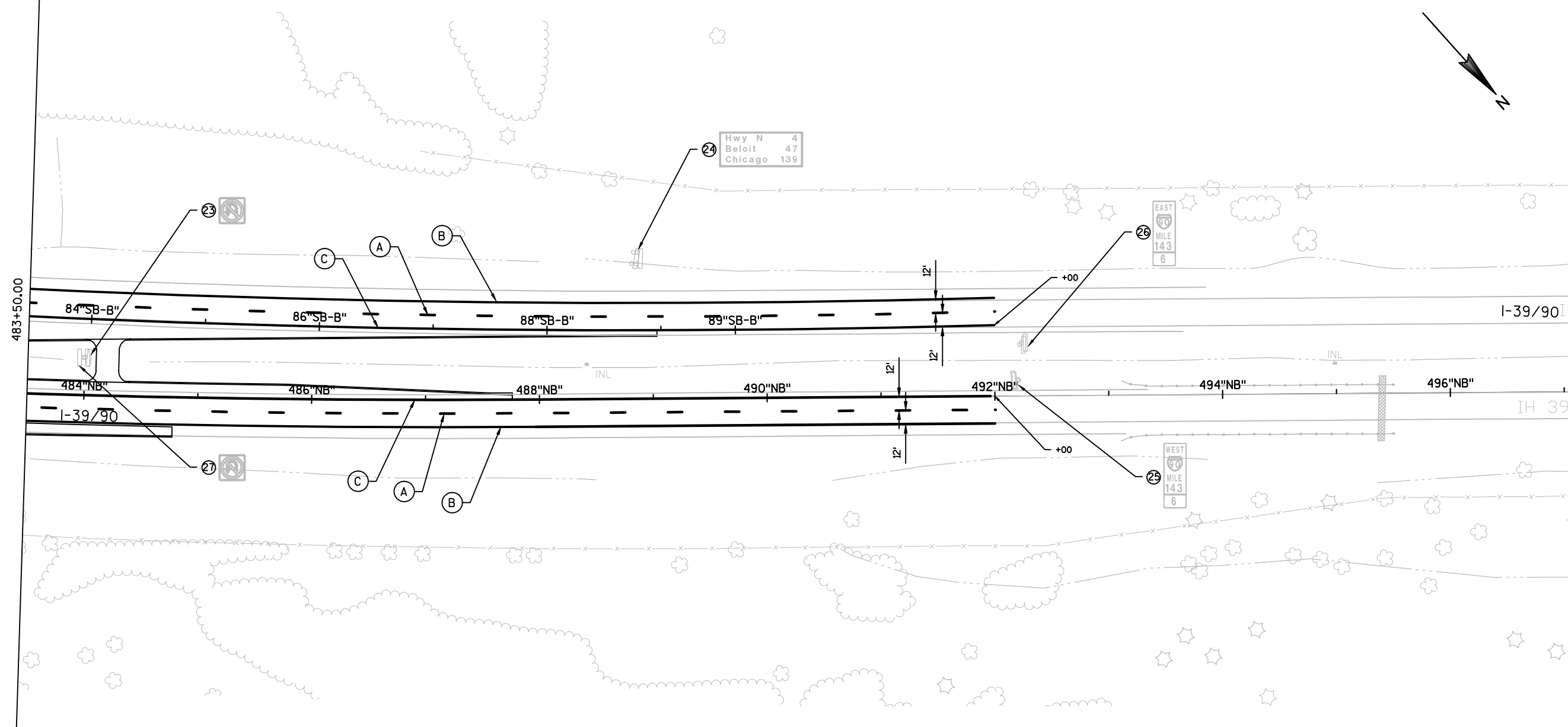
- (A) = EPOXY 4-INCH (12.5' LINE-37.5' GAP)(WHITE)
- (B) = EPOXY 4-INCH (WHITE)
- (C) = EPOXY 4-INCH (YELLOW)
- (D) = EPOXY 4-INCH (DOUBLE YELLOW)
- (E) = EPOXY 4-INCH (10' LINE-30' GAP)(YELLOW)





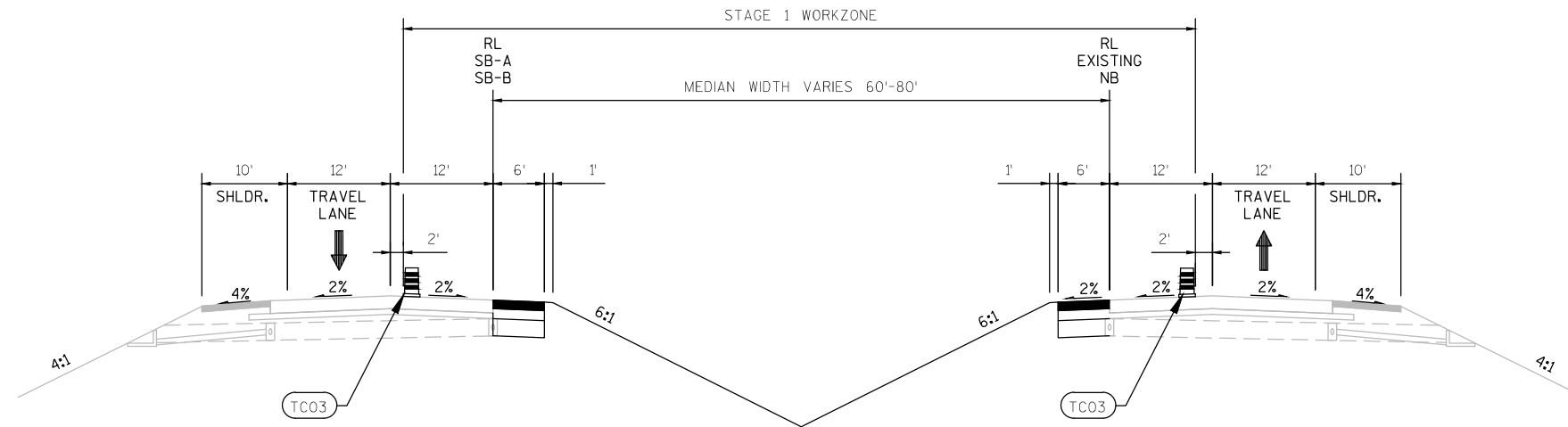
**PAVEMENT MARKING LEGEND**

(A)	= EPOXY 4-INCH (12.5' LINE-37.5' GAP)(WHITE)
(B)	= EPOXY 4-INCH (WHITE)
(C)	= EPOXY 4-INCH (YELLOW)
(D)	= EPOXY 4-INCH (DOUBLE YELLOW)
(E)	= EPOXY 4-INCH (10' LINE-30' GAP)(YELLOW)



**PAVEMENT MARKING LEGEND**

(A)	= EPOXY 4-INCH (12.5' LINE-37.5' GAP)(WHITE)
(B)	= EPOXY 4-INCH (WHITE)
(C)	= EPOXY 4-INCH (YELLOW)
(D)	= EPOXY 4-INCH (DOUBLE YELLOW)
(E)	= EPOXY 4-INCH (10' LINE-30' GAP)(YELLOW)



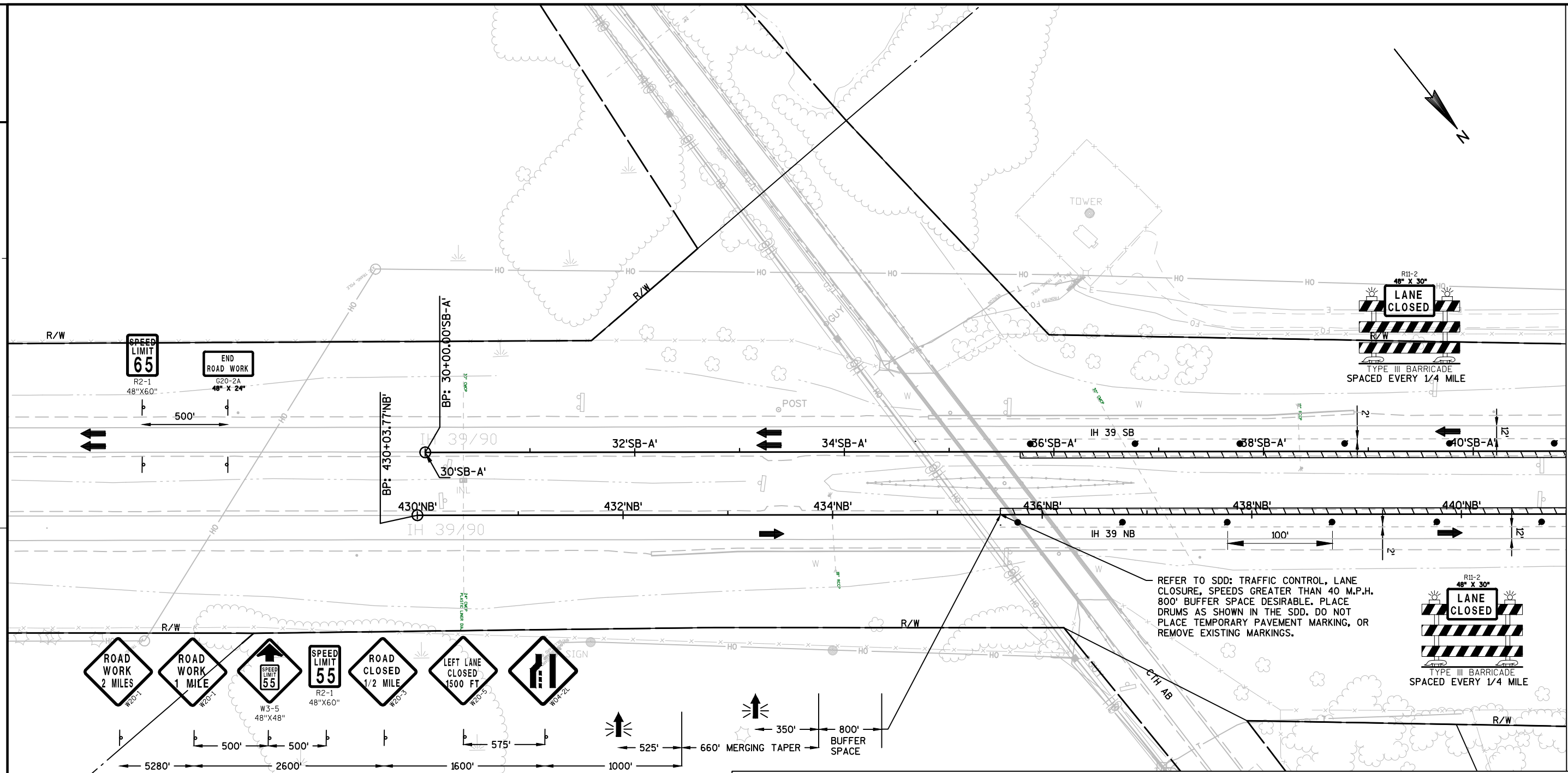
TRAFFIC:  
 CLOSE INSIDE LANE ON NORTHBOUND AND SOUTHBOUND IH 39.  
 MAINTAIN 12' OUTSIDE LANE ON NORTHBOUND AND SOUTHBOUND IH 39

CONSTRUCTION:  
 CONSTRUCT INSIDE MEDIAN SHOULDER ON NORTHBOUND AND  
 SOUTHBOUND IH 39

**STAGE 1A TYPICAL**  
 IH 39  
 NIGHT CLOSURE  
 STA. 435+60'NB' TO STA. 491+08'NB'

TYPICAL SECTION LEGEND

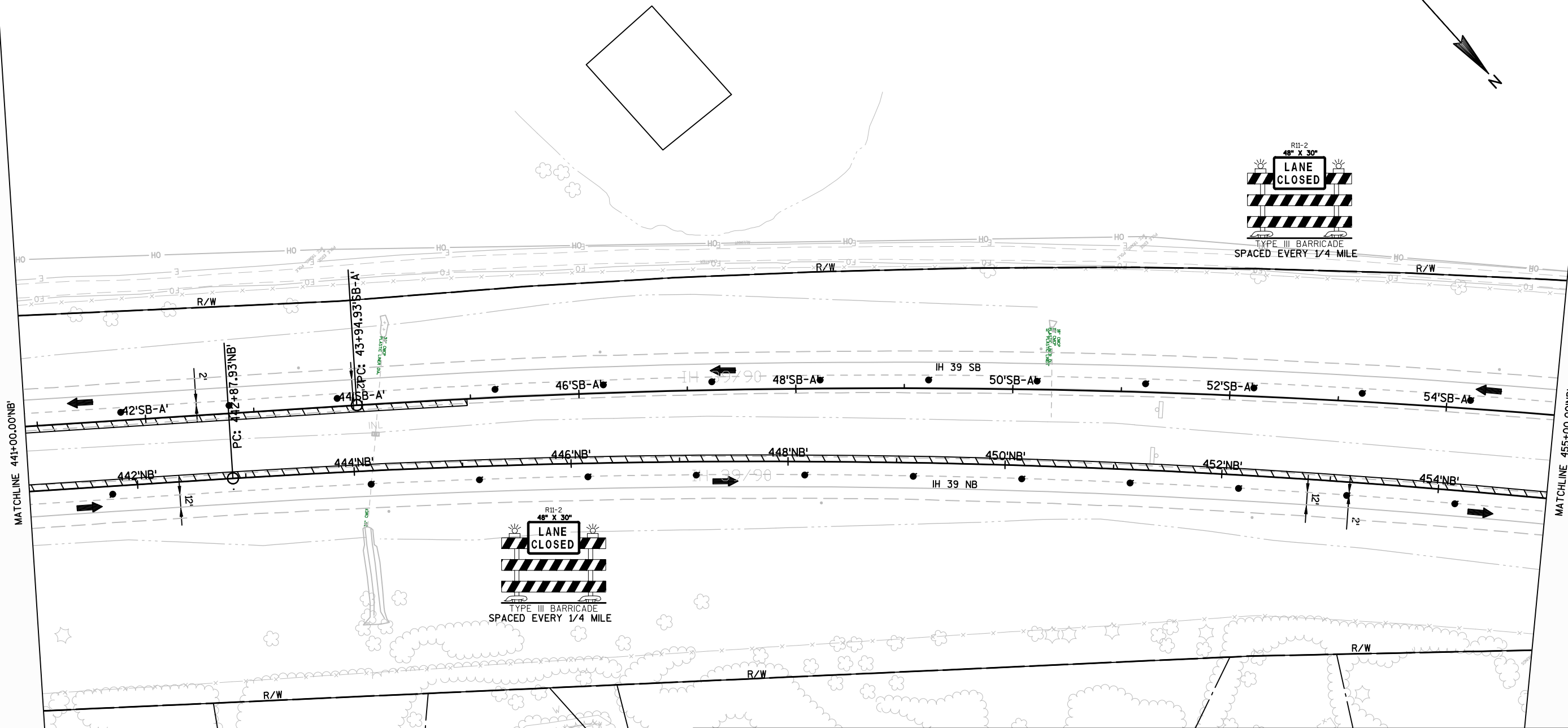
- (50) REMOVING PAVEMENT MARKINGS
- (TP1) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
- (TP2) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
- (TP3) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
- (TC03) DRUM 100' SPACING, TYP
- (CB99) CONCRETE BARRIER TEMPORARY PRECAST
- (TC04) FLEXIBLE TUBULAR MARKERS 50' SPACING



MATCHLINE 441+00.00'NB'

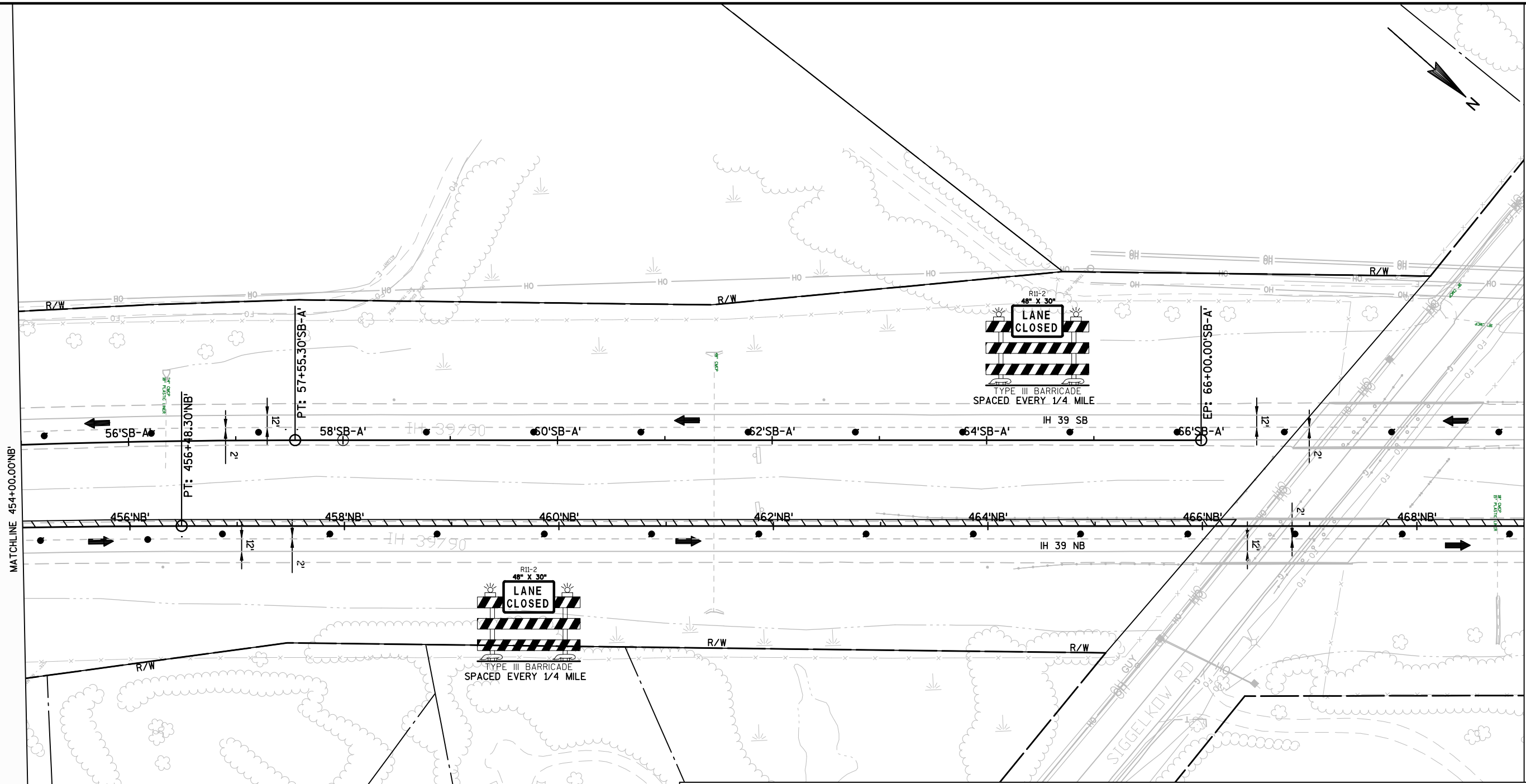
TRAFFIC CONTROL LEGEND

	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WITH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		



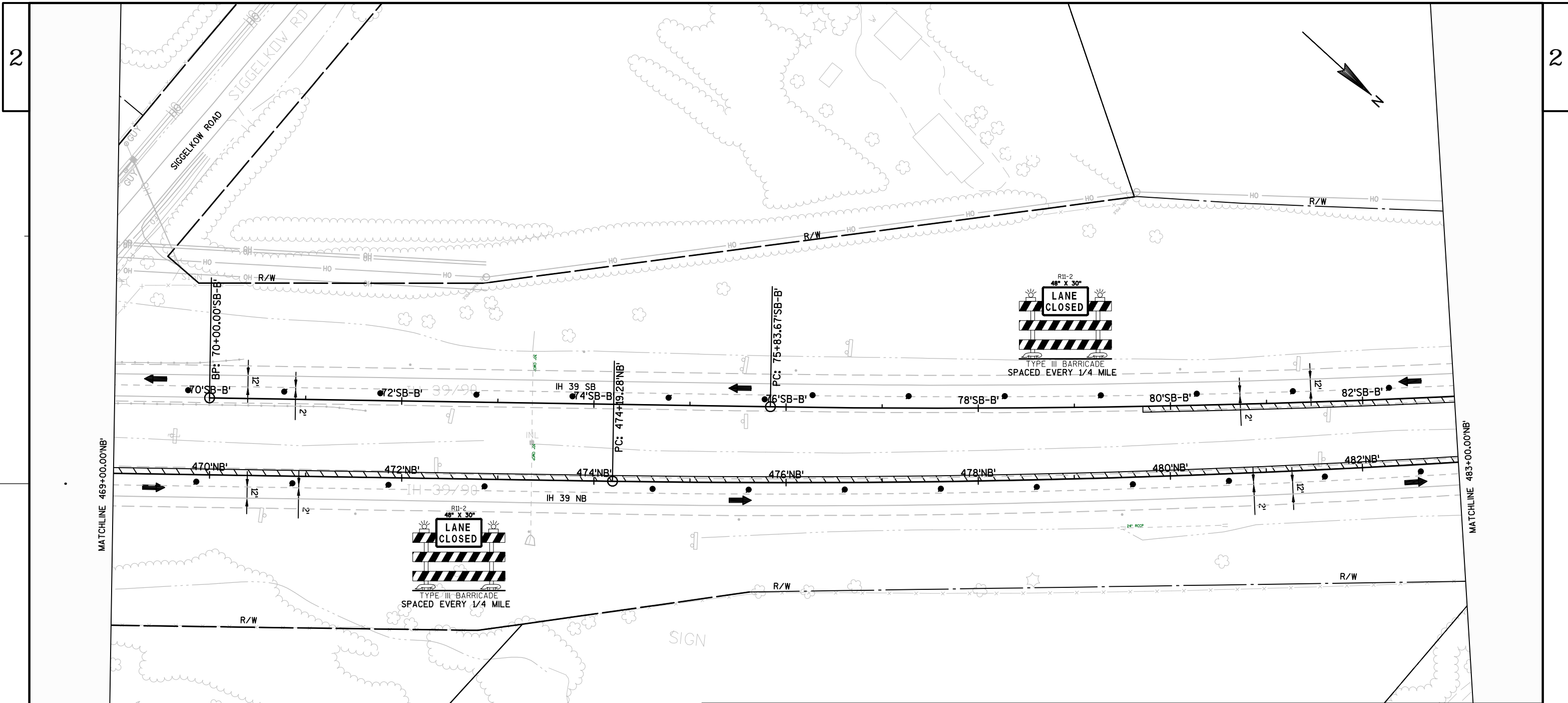
**TRAFFIC CONTROL LEGEND**

<ul style="list-style-type: none"> <li>↑ TYPE III BARRICADE</li> <li>↑ TYPE III BARRICADE WITH ATTACHED SIGN</li> <li>● TRAFFIC CONTROL DRUM</li> <li>● TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT</li> <li>⚡ FLASHING ARROW BOARD</li> <li>▬ SIGN ON PERMANENT SUPPORT</li> <li>⊥ SIGN ON TEMPORARY SUPPORT</li> <li>○ DELINEATOR FLEXIBLE/TUBULAR MARKER</li> <li>▨ WORK AREA</li> <li>→ DIRECTION OF TRAFFIC</li> </ul>	<ul style="list-style-type: none"> <li>MB PORTABLE CHANGEABLE MESSAGE BOARD</li> <li>50 REMOVING PAVEMENT MARKINGS</li> <li>TP1 TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID</li> <li>TP2 TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID</li> <li>TP3 TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP</li> <li>TC03 DRUM 100' SPACING, TYP</li> <li>CB99 CONCRETE BARRIER TEMPORARY PRECAST</li> <li>TC04 FLEXIBLE TUBULAR MARKERS 50' SPACING</li> </ul>
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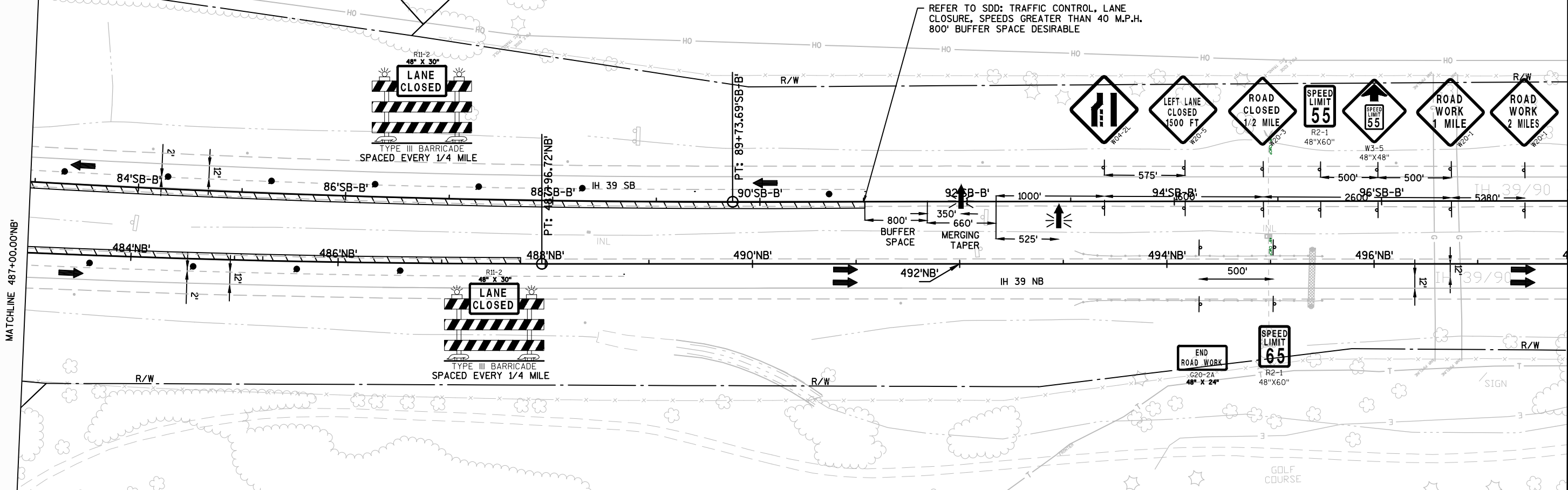
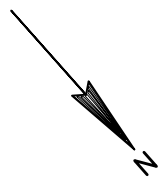
TRAFFIC CONTROL LEGEND

- |   |  |        |  |
|---|--|--------|--|
| ↑ | TYPE III BARRICADE                                 | MB     | PORTABLE CHANGEABLE MESSAGE BOARD                                |
| ↑ | TYPE III BARRICADE WTH ATTACHED SIGN               | (50)   | REMOVING PAVEMENT MARKINGS                                       |
| ● | TRAFFIC CONTROL DRUM                               | (TP1)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
| ● | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | (TP2)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
| ⚡ | FLASHING ARROW BOARD                               | (TP3)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
| ⌄ | SIGN ON PERMANENT SUPPORT                          | (TC03) | DRUM 100' SPACING, TYP   |
| ⌄ | SIGN ON TEMPORARY SUPPORT                          | (CB99) | CONCRETE BARRIER TEMPORARY PRECAST                               |
| ○ | DELINEATOR FLEXIBLE/TUBULAR MARKER                 | (TC04) | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
| ▨ | WORK AREA  |        |  |
| → | DIRECTION OF TRAFFIC                               |        |  |



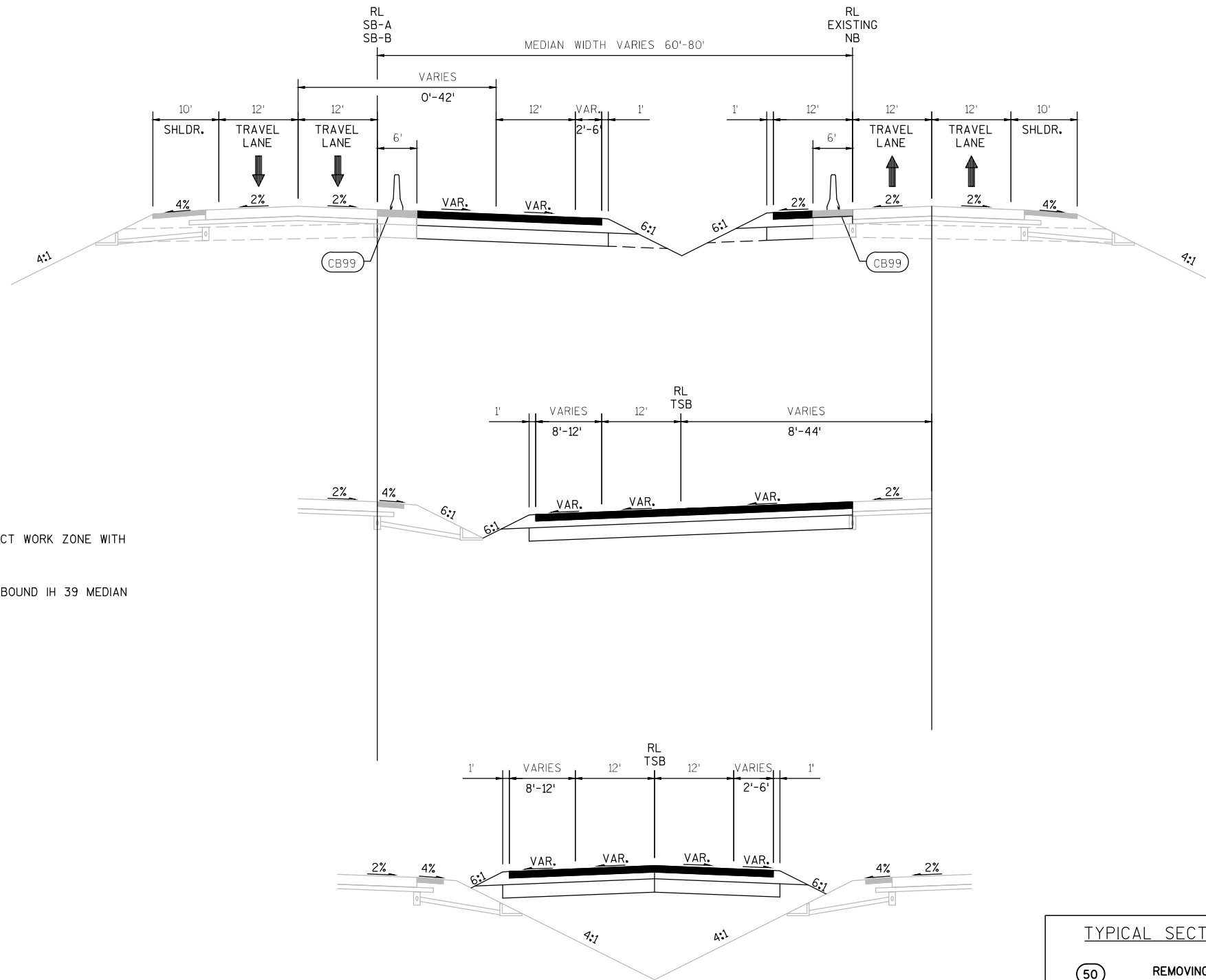
TRAFFIC CONTROL LEGEND			
	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WITH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		





MATCHLINE 487+00.00'NB'

TRAFFIC CONTROL LEGEND			
	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WITH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		



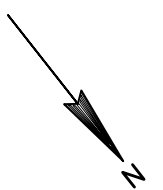
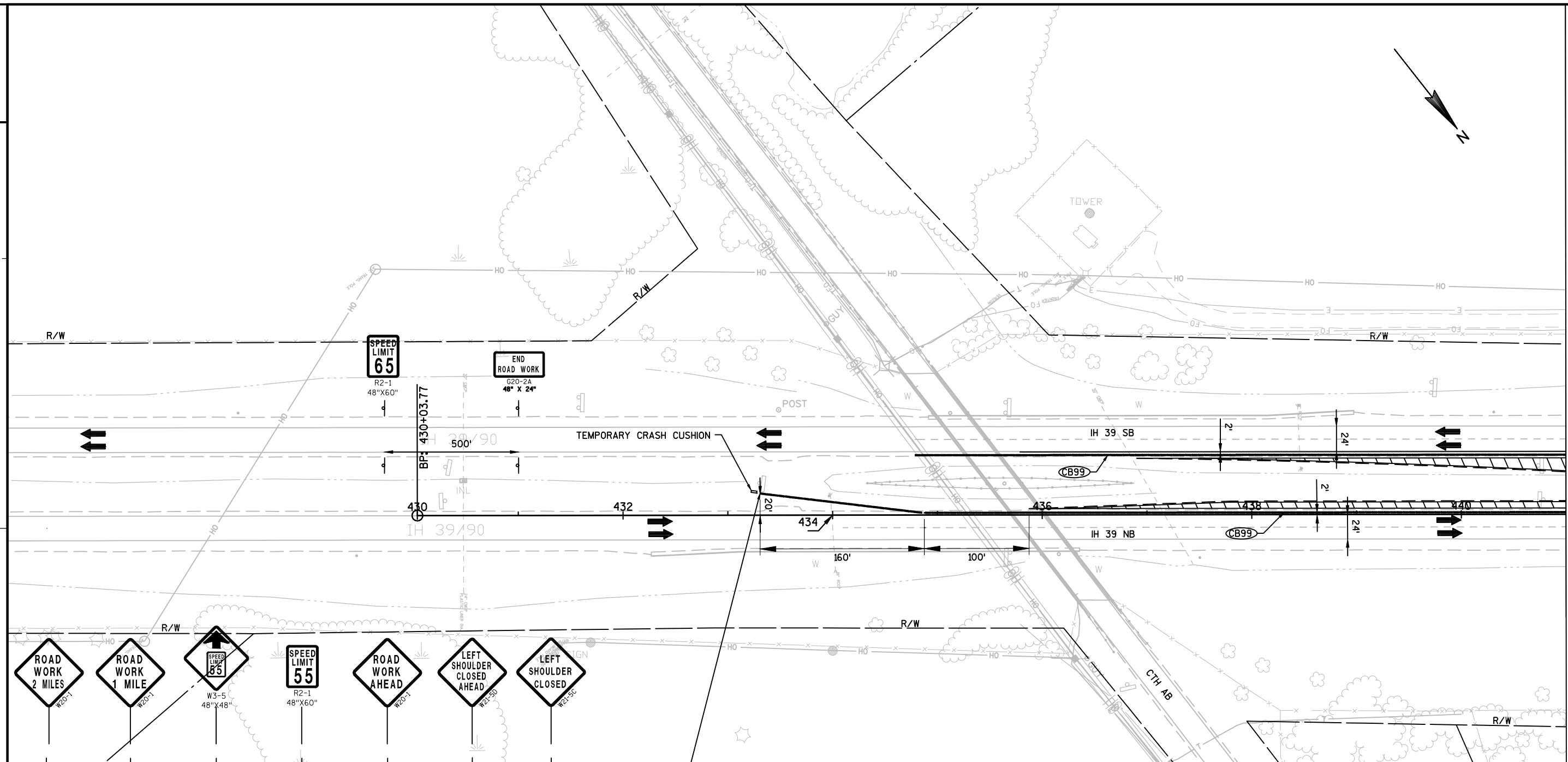
TRAFFIC:  
 MAINTAIN 2-12' LANES IN EACH DIRECTION. PROTECT WORK ZONE WITH  
 TEMPORARY CONCRETE BARRIER.

CONSTRUCTION:  
 CONSTRUCT INSIDE MEDIAN SHOULDER AND SOUTHBOUND IH 39 MEDIAN  
 CROSSOVER

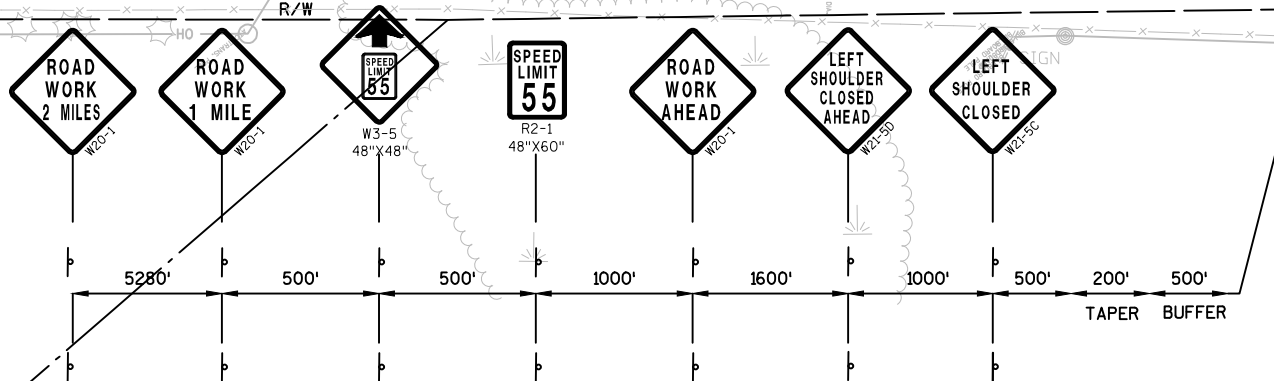
**STAGE 1B TYPICAL**  
 I-39/90  
 STA. 435+60'NB' TO STA. 491+08'NB'

TYPICAL SECTION LEGEND

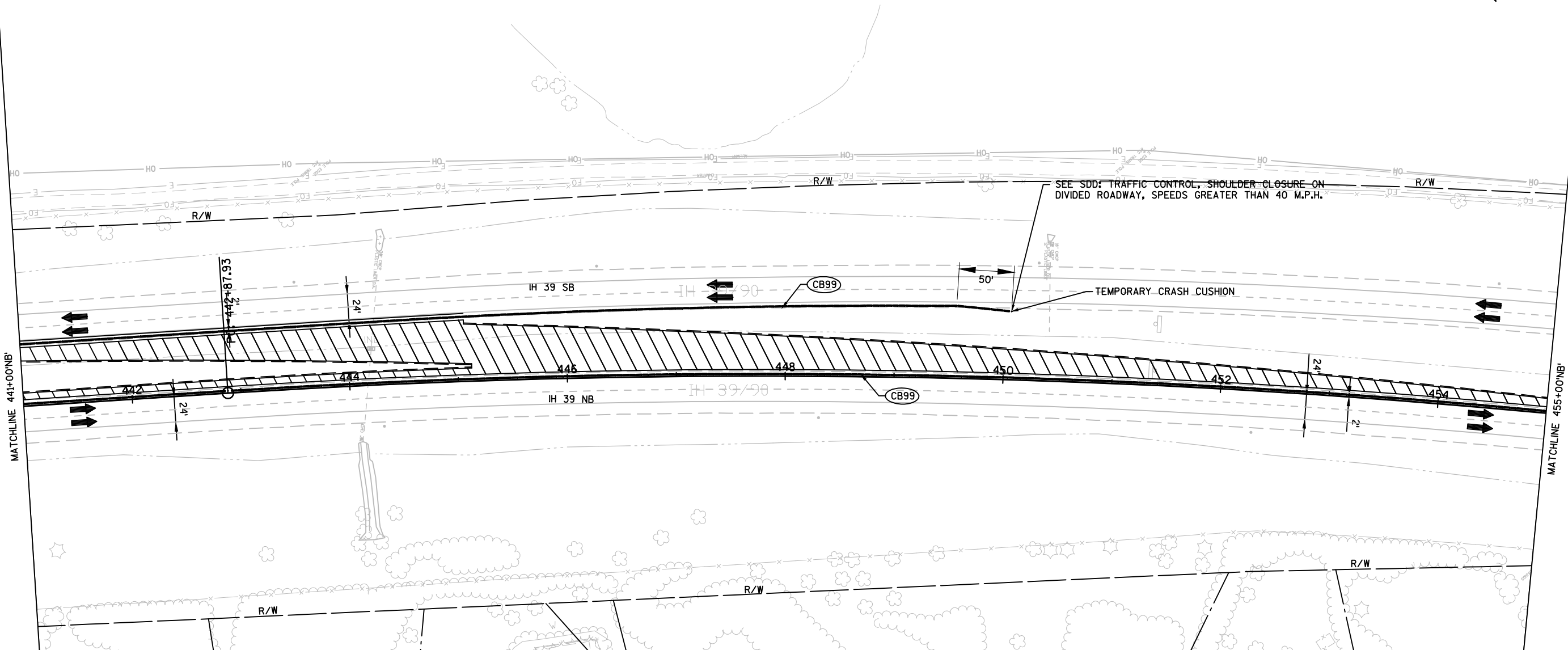
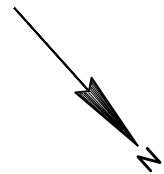
- (50) REMOVING PAVEMENT MARKINGS
- (TP1) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
- (TP2) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
- (TP3) TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
- (TC03) DRUM 100' SPACING, TYP
- (CB99) CONCRETE BARRIER TEMPORARY PRECAST
- (TC04) FLEXIBLE TUBULAR MARKERS 50' SPACING



MATCHLINE 441+00'NB'



TRAFFIC CONTROL LEGEND			
	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WTH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		

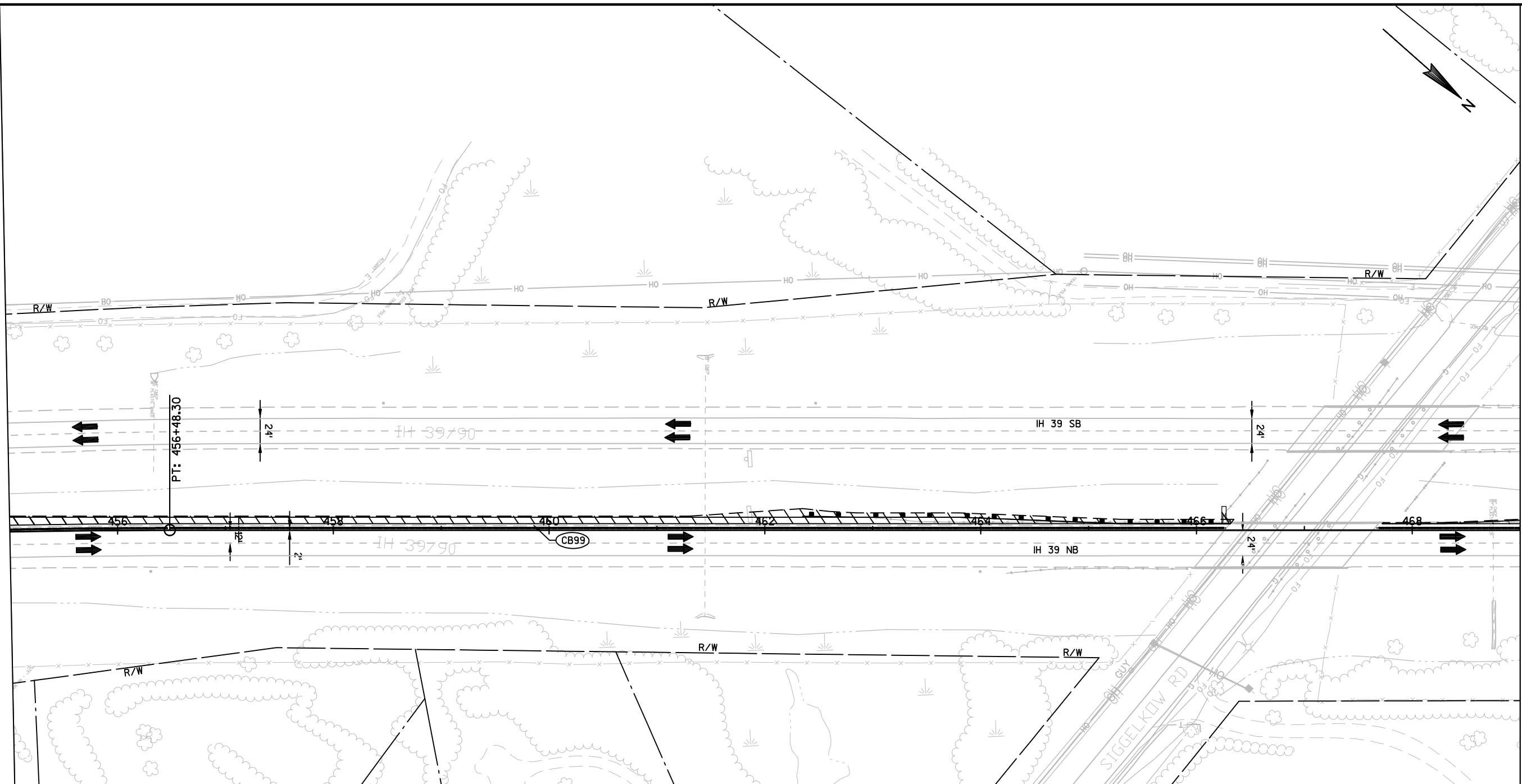


TRAFFIC CONTROL LEGEND

- |  |  |  |  |
|--|--|--|--|
|  | TYPE III BARRICADE                                 |  | PORTABLE CHANGEABLE MESSAGE BOARD                                |
|  | TYPE III BARRICADE WTH ATTACHED SIGN               |  | REMOVING PAVEMENT MARKINGS                                       |
|  | TRAFFIC CONTROL DRUM                               |  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
|  | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT |  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
|  | FLASHING ARROW BOARD                               |  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
|  | SIGN ON PERMANENT SUPPORT                          |  | DRUM 100' SPACING, TYP   |
|  | SIGN ON TEMPORARY SUPPORT                          |  | CONCRETE BARRIER TEMPORARY PRECAST                               |
|  | DELINEATOR FLEXIBLE/TUBULAR MARKER                 |  | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
|  | WORK AREA  |  |  |
|  | DIRECTION OF TRAFFIC                               |  |  |

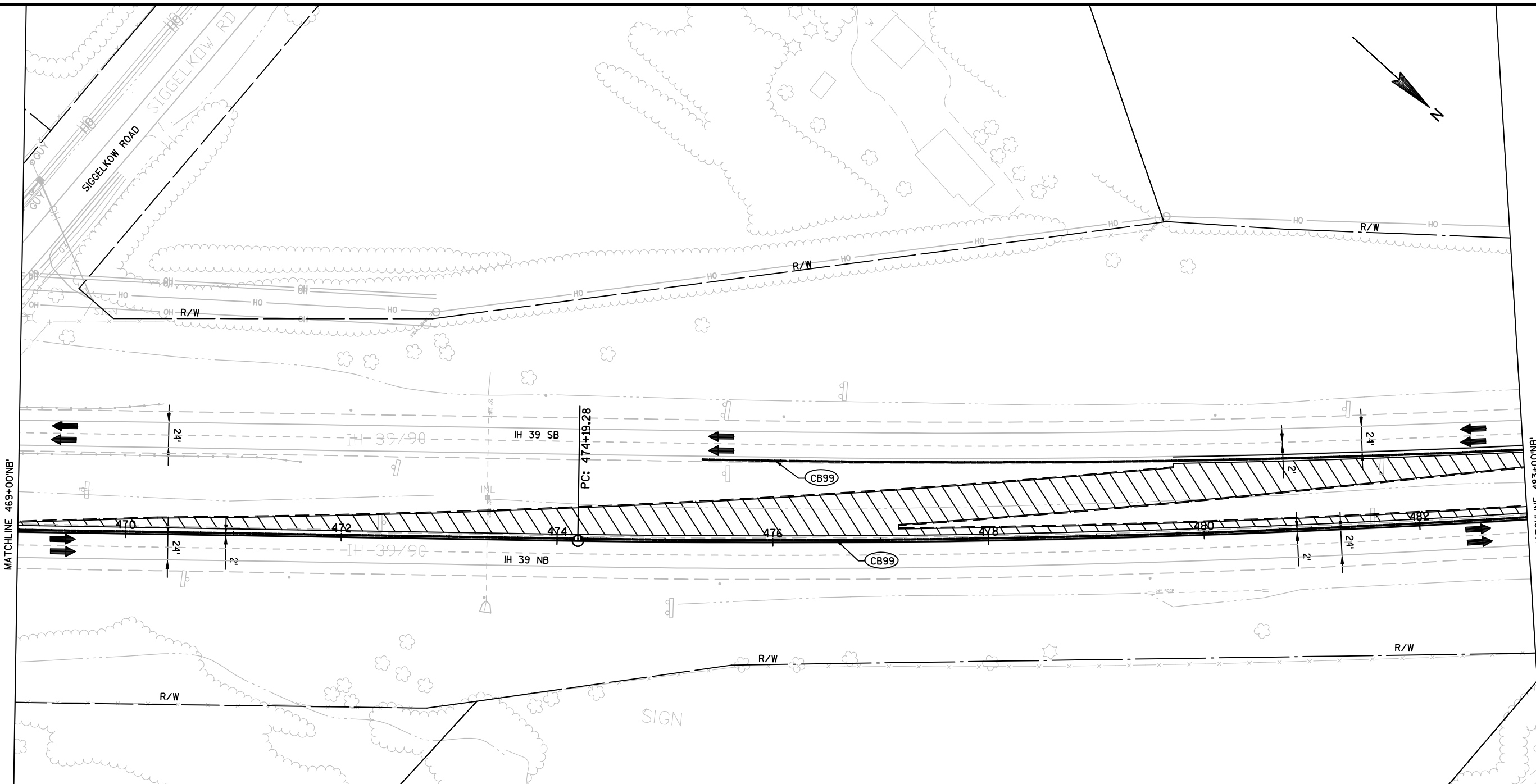
MATCHLINE 455+00'NB'

MATCHLINE 469+00'NB'



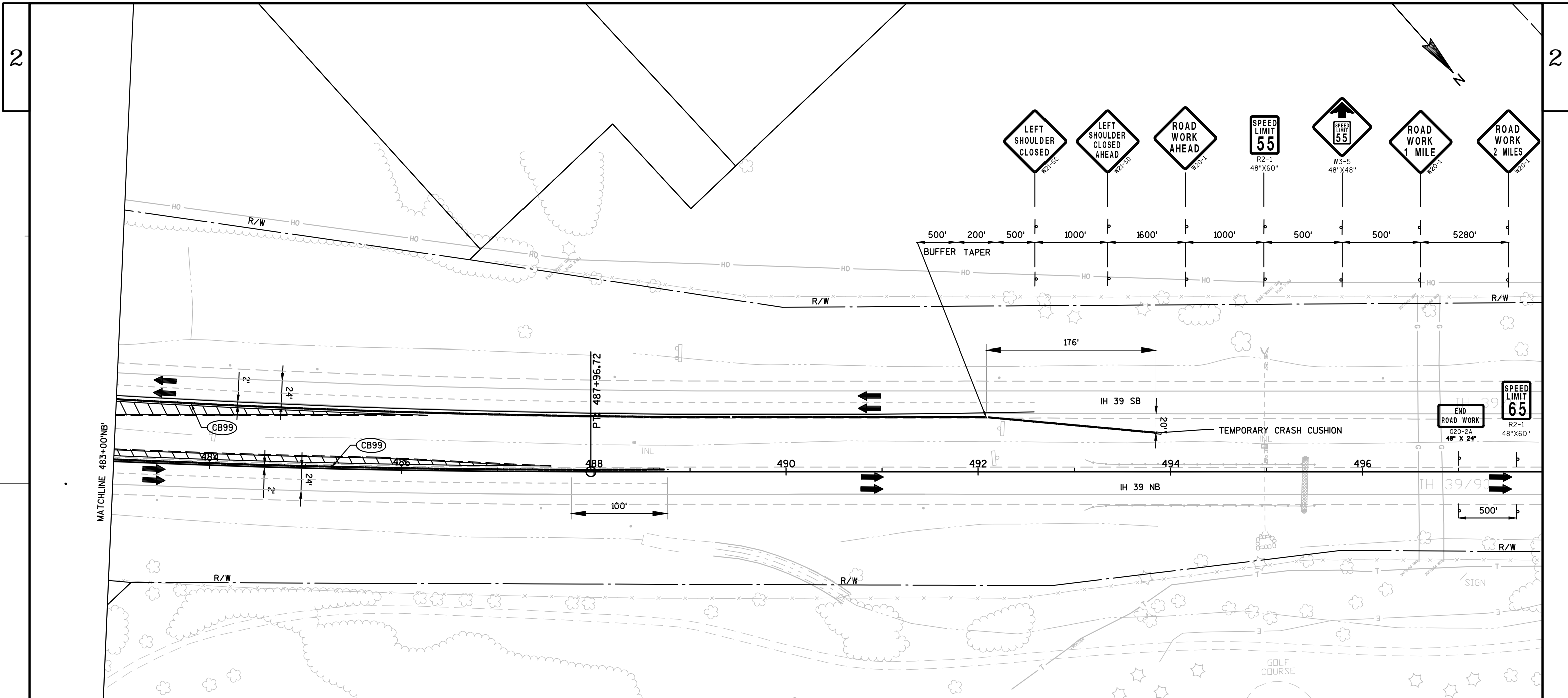
TRAFFIC CONTROL LEGEND

	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WTH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP DRUM 100' SPACING, TYP
	SIGN ON PERMANENT SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	SIGN ON TEMPORARY SUPPORT		FLEXIBLE TUBULAR MARKERS 50' SPACING
	DELINEATOR FLEXIBLE/TUBULAR MARKER		
	WORK AREA		
	DIRECTION OF TRAFFIC		



TRAFFIC CONTROL LEGEND

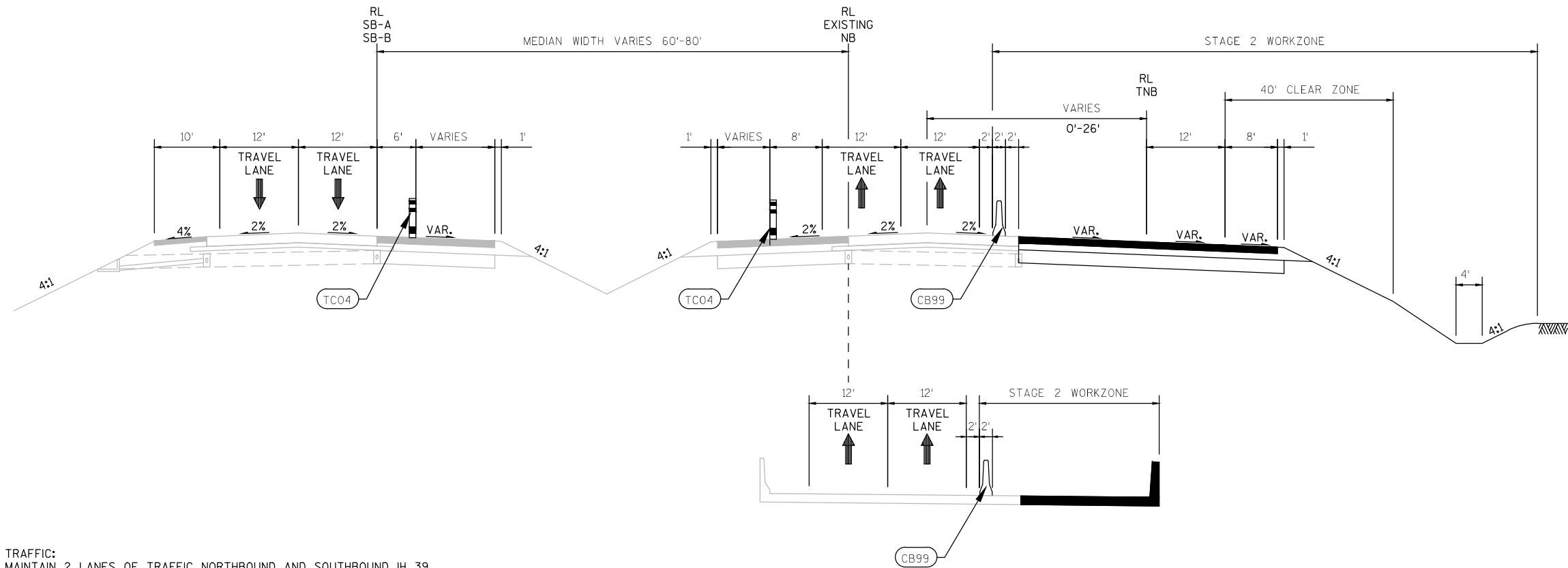
- |    |  |        |  |
|----|--|--------|--|
| ↑  | TYPE III BARRICADE                                 | MB     | PORTABLE CHANGEABLE MESSAGE BOARD                                |
| ↑↓ | TYPE III BARRICADE WTH ATTACHED SIGN               | (50)   | REMOVING PAVEMENT MARKINGS                                       |
| ●  | TRAFFIC CONTROL DRUM                               | (TP1)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
| ●* | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | (TP2)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
| ⚡  | FLASHING ARROW BOARD                               | (TP3)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
| ♣  | SIGN ON PERMANENT SUPPORT                          | (TC03) | DRUM 100' SPACING, TYP   |
| ♣  | SIGN ON TEMPORARY SUPPORT                          | (CB99) | CONCRETE BARRIER TEMPORARY PRECAST                               |
| ○  | DELINEATOR FLEXIBLE/TUBULAR MARKER                 | (TC04) | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
| ▨  | WORK AREA  |        |  |
| →  | DIRECTION OF TRAFFIC                               |        |  |



MATCHLINE 483+00NB'

**TRAFFIC CONTROL LEGEND**

↑	TYPE III BARRICADE	MB	PORTABLE CHANGEABLE MESSAGE BOARD
↑	TYPE III BARRICADE WITH ATTACHED SIGN	(50)	REMOVING PAVEMENT MARKINGS
●	TRAFFIC CONTROL DRUM	(TP1)	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
●	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT	(TP2)	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
⚡	FLASHING ARROW BOARD	(TP3)	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
↑	SIGN ON PERMANENT SUPPORT	(TC03)	DRUM 100' SPACING, TYP
F	SIGN ON TEMPORARY SUPPORT	(CB99)	CONCRETE BARRIER TEMPORARY PRECAST
○	DELINEATOR FLEXIBLE/TUBULAR MARKER	(TC04)	FLEXIBLE TUBULAR MARKERS 50' SPACING
▨	WORK AREA		
→	DIRECTION OF TRAFFIC		



**TRAFFIC:**  
 MAINTAIN 2 LANES OF TRAFFIC NORTHBOUND AND SOUTHBOUND IH 39.  
 SET UP DETOUR FOR SIGGELKOW ROAD CLOSURE, AND CLOSE SIGGELKOW ROAD.

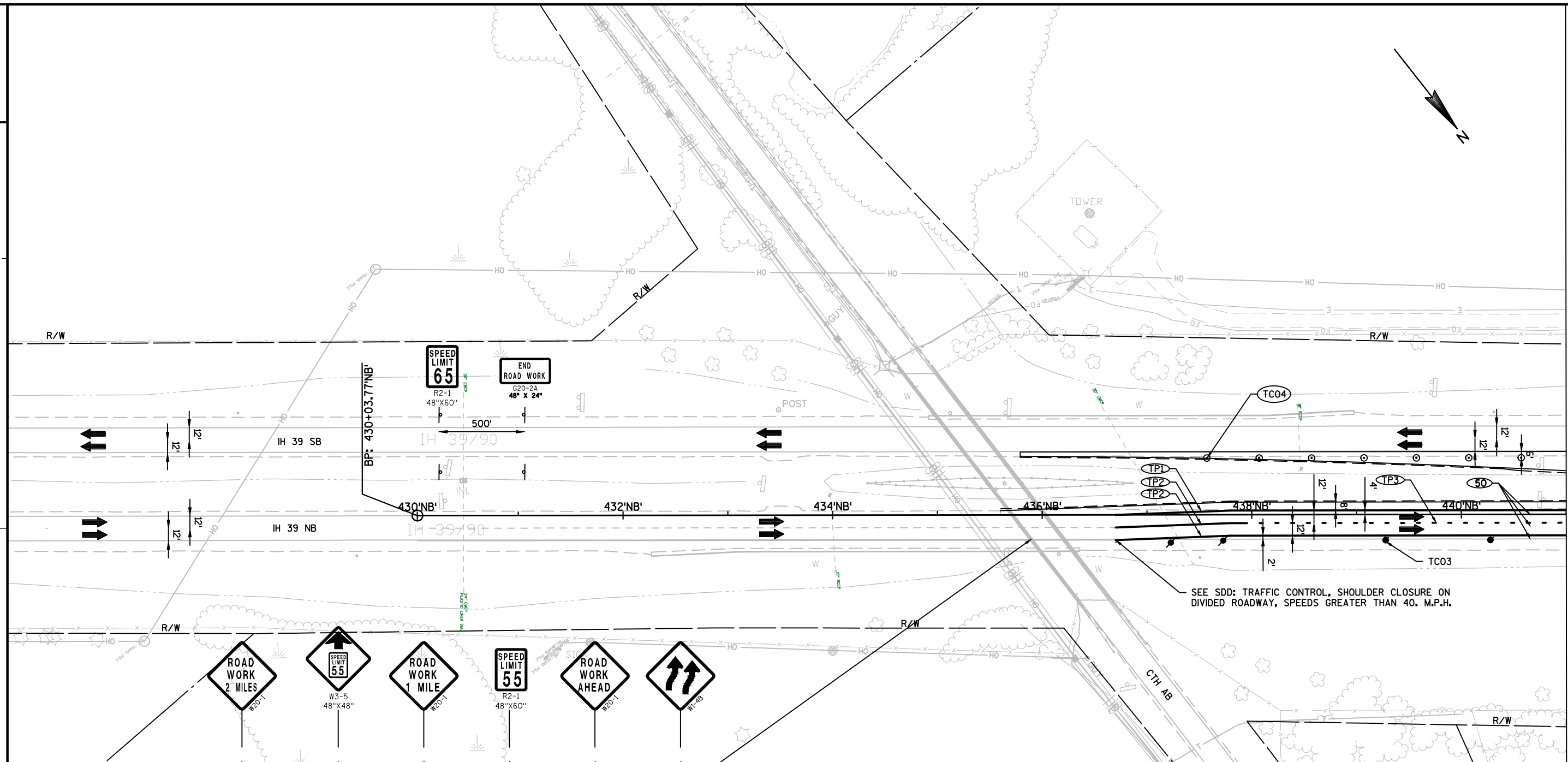
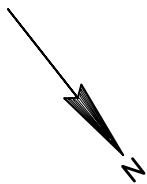
**CONSTRUCTION:**  
 PLACE ASPHALT WIDENING ON OUTSIDE EDGE OF NORTHBOUND IH 39.  
 WIDEN STRUCTURE B-13-0138 (NORTHBOUND IH 39 OVER SIGGELKOW ROAD).

TYPICAL SECTION LEGEND

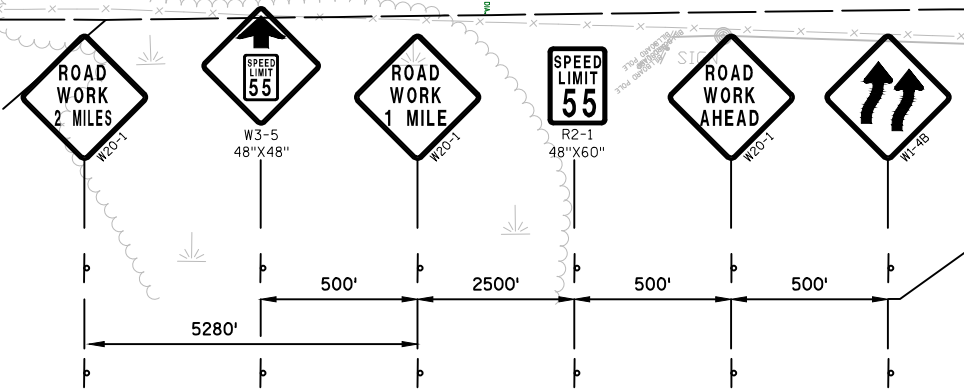
- (50) REMOVING PAVEMENT MARKINGS
- (TP1) TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE, 4-INCH YELLOW SOLID
- (TP2) TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE, 4-INCH WHITE SOLID
- (TP3) TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE, 4-INCH WHITE SKIP
- (TC03) DRUM 100' SPACING, TYP
- (CB99) CONCRETE BARRIER TEMPORARY PRECAST
- (TC04) FLEXIBLE TUBULAR MARKERS 50' SPACIN

**STAGE 2 TYPICAL**  
 I-39/90  
 DAYTIME NO LANE CLOSURE  
 STA. 442+85'TNB' TO STA. 484+80'TNB'



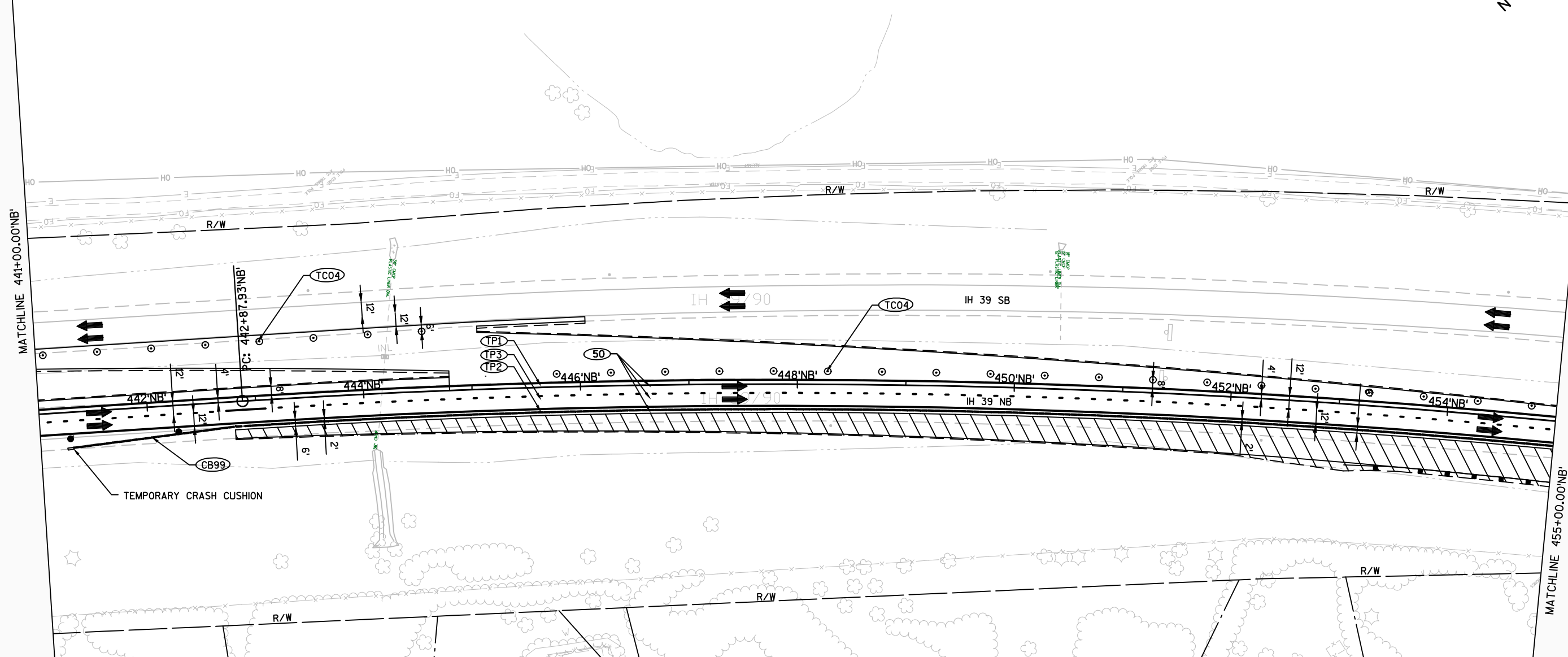
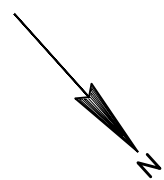


MATCHLINE 441+00.00'NB'



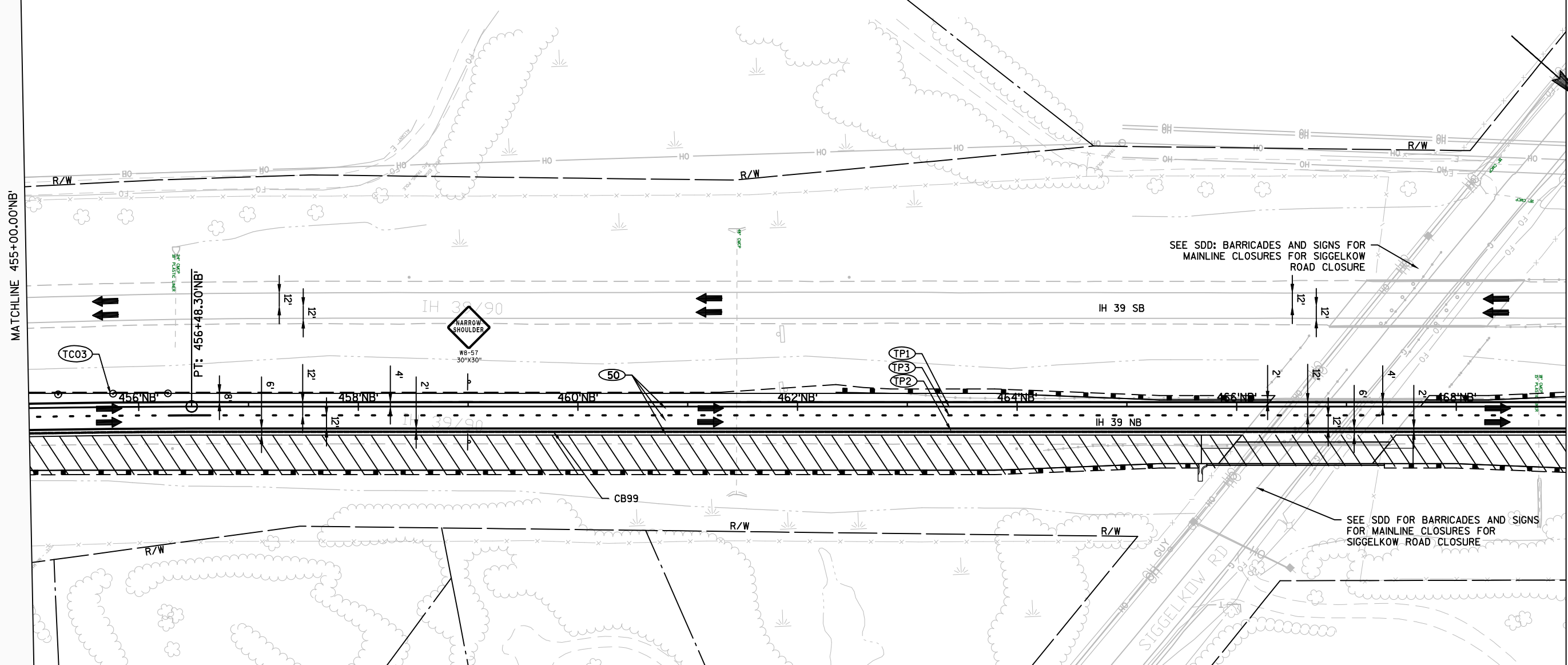
**TRAFFIC CONTROL LEGEND**

	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WITH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		



TRAFFIC CONTROL LEGEND

	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WTH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		

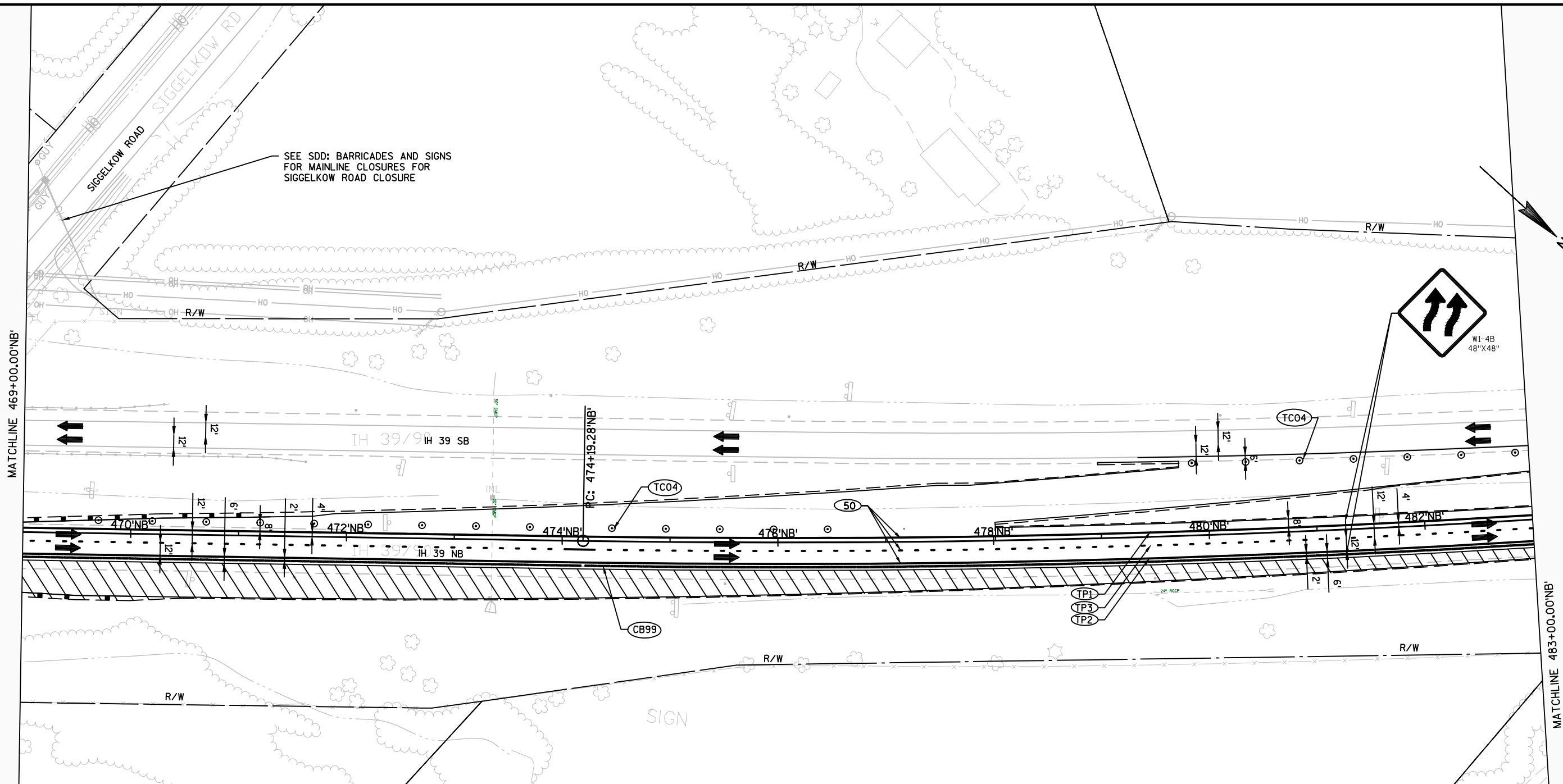


SEE SDD: BARRICADES AND SIGNS FOR MAINLINE CLOSURES FOR SIGELKOW ROAD CLOSURE

SEE SDD FOR BARRICADES AND SIGNS FOR MAINLINE CLOSURES FOR SIGELKOW ROAD CLOSURE

**TRAFFIC CONTROL LEGEND**

- |    |  |      |  |
|----|--|------|--|
| ↑  | TYPE III BARRICADE                                 | MB   | PORTABLE CHANGEABLE MESSAGE BOARD                                |
| ↑↓ | TYPE III BARRICADE WTH ATTACHED SIGN               | 50   | REMOVING PAVEMENT MARKINGS                                       |
| ●  | TRAFFIC CONTROL DRUM                               | TP1  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
| ●  | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | TP2  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
| ⚡  | FLASHING ARROW BOARD                               | TP3  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
| ♣  | SIGN ON PERMANENT SUPPORT                          | TC03 | DRUM 100' SPACING, TYP   |
| ♣  | SIGN ON TEMPORARY SUPPORT                          | CB99 | CONCRETE BARRIER TEMPORARY PRECAST                               |
| ○  | DELINEATOR FLEXIBLE/TUBULAR MARKER                 | TC04 | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
| ▨  | WORK AREA  |      |  |
| →  | DIRECTION OF TRAFFIC                               |      |  |



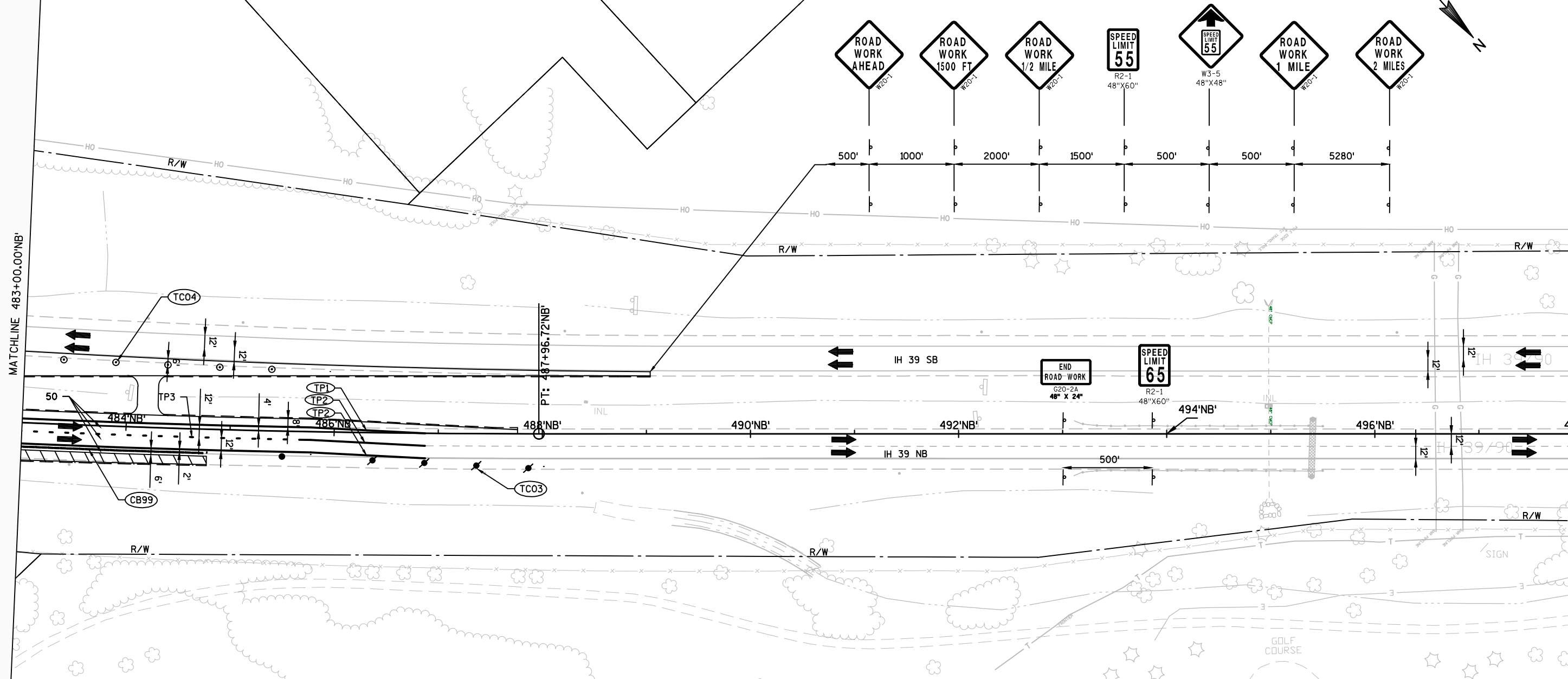
SEE SDD: BARRICADES AND SIGNS FOR MAINLINE CLOSURES FOR SIGGELKOW ROAD CLOSURE

MATCHLINE 469+00.00'NB'

MATCHLINE 483+00.00'NB'

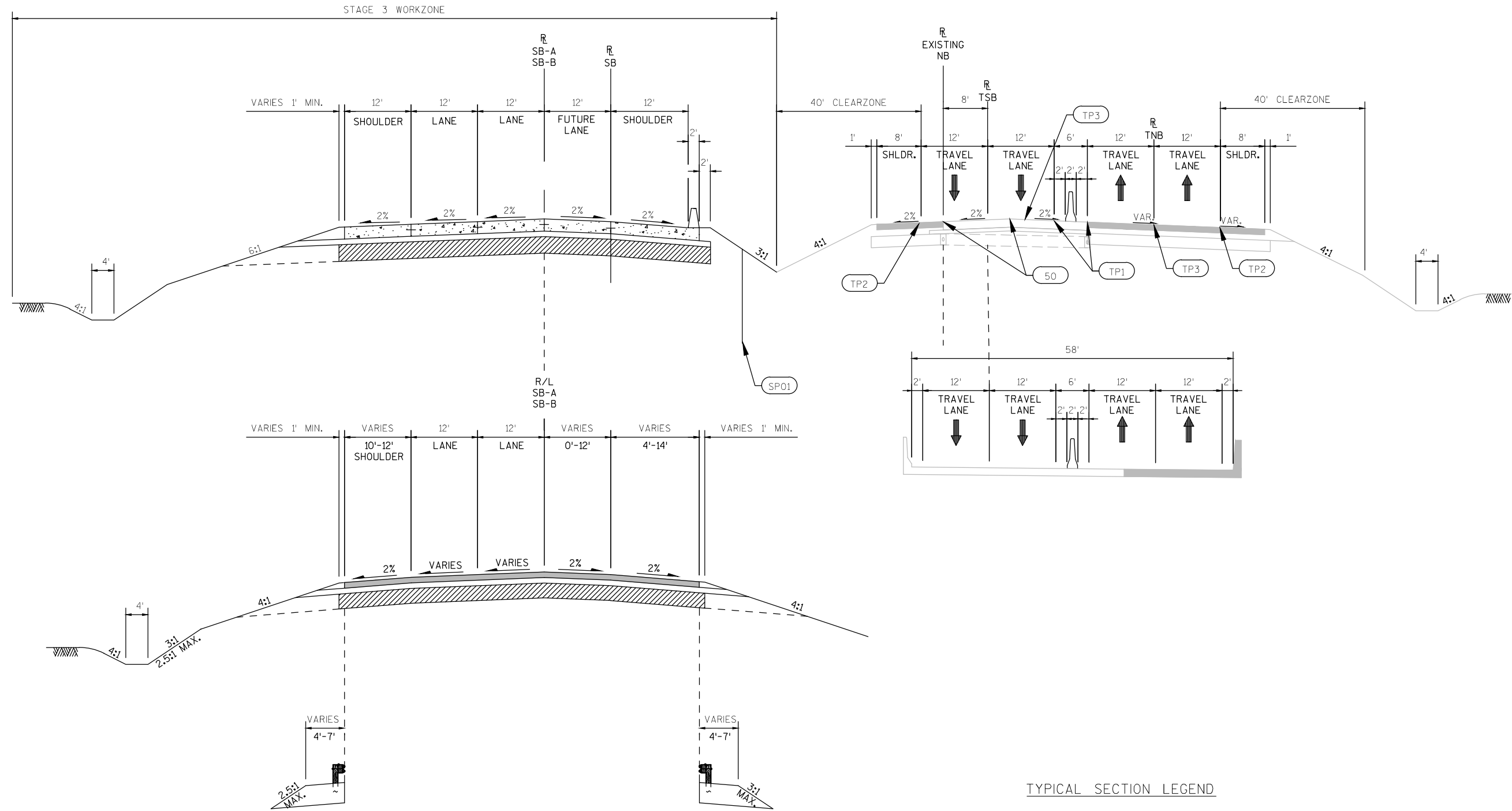
**TRAFFIC CONTROL LEGEND**

	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WITH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		



TRAFFIC CONTROL LEGEND

- |   |  |      |  |
|---|--|------|--|
| ↓ | TYPE III BARRICADE                                 | MB   | PORTABLE CHANGEABLE MESSAGE BOARD                                |
| ↓ | TYPE III BARRICADE WITH ATTACHED SIGN              | 50   | REMOVING PAVEMENT MARKINGS                                       |
| ● | TRAFFIC CONTROL DRUM                               | TP1  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
| ● | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | TP2  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
| ↔ | FLASHING ARROW BOARD                               | TP3  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
| ⊥ | SIGN ON PERMANENT SUPPORT                          | TC03 | DRUM 100' SPACING, TYP   |
| ⊥ | SIGN ON TEMPORARY SUPPORT                          | CB99 | CONCRETE BARRIER TEMPORARY PRECAST                               |
| ○ | DELINEATOR FLEXIBLE/TUBULAR MARKER                 | TC04 | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
| ▨ | WORK AREA  |      |  |
| → | DIRECTION OF TRAFFIC                               |      |  |



**TRAFFIC:**  
 MAINTAIN 2 LANES OF TRAFFIC NORTHBOUND AND SOUTHBOUND IH 39.  
 SHIFT NORTHBOUND IH 39 TRAFFIC TO WIDENED NORTHBOUND OUTSIDE LANES.  
 SHIFT SOUTHBOUND IH 39 TRAFFIC ONTO EXISTING NORTHBOUND IH 39 LANES  
 BY USING MEDIAN CROSS OVER CONSTRUCTED IN STAGE 1B.

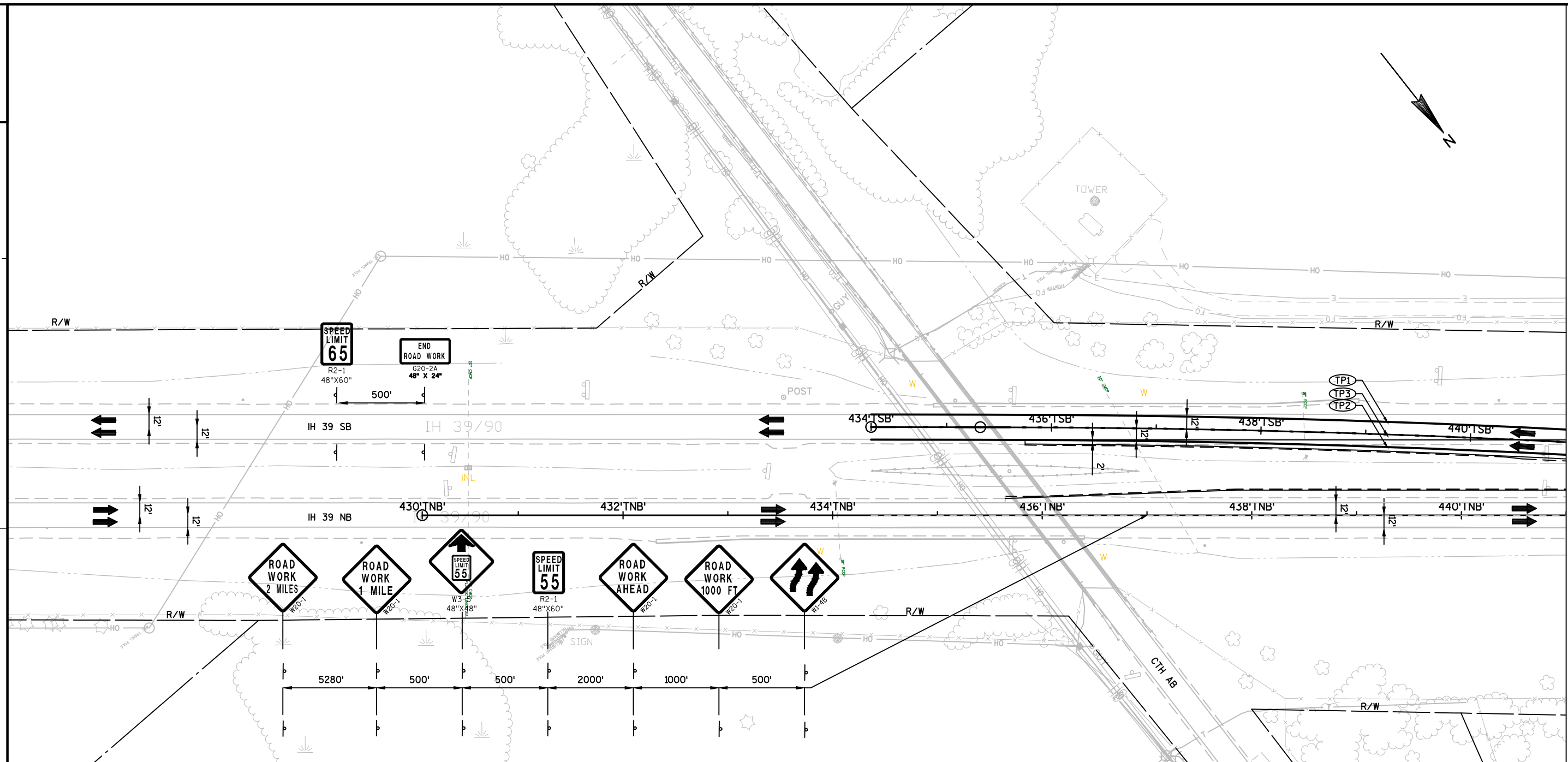
**CONSTRUCTION:**  
 CONSTRUCT SOUTHBOUND LANES, AND TRANSITIONS SECTIONS AS SHOWN IN THE PLANS.  
 REMOVE B-13-0137 AND CONSTRUCT B-13-0727 (SOUTHBOUND BRIDGE OVER SIGGELKOW ROAD).  
 REHABILITATE SIGGELKOW ROAD AS SHOWN IN THE PLANS.

**STAGE 3 TYPICAL**

**I-39/90  
 DAYTIME NO LANE CLOSURE  
 STA. 54+43'SB-A' TO STA. 61+00'SB-A'  
 STA. 2461+00'SB' TO STA. 2472+00'SB'  
 STA. 72+00'SB-B' TO STA. 78+50'SB-B'**

**TYPICAL SECTION LEGEND**

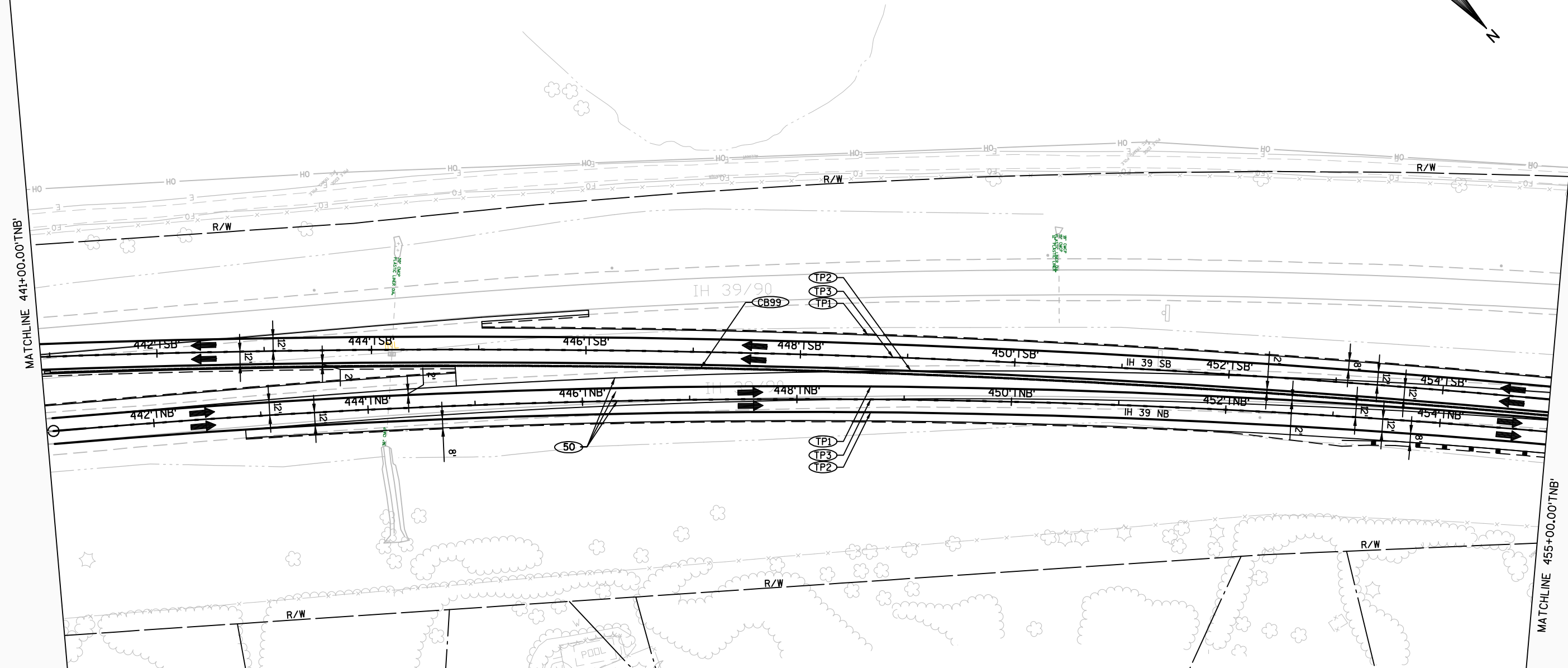
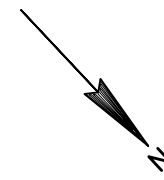
- (50) REMOVING PAVEMENT MARKINGS
- (TP1) TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE, 4-INCH YELLOW SOLID
- (TP2) TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE, 4-INCH WHITE SOLID
- (TP3) TEMPORARY PAVEMENT MARKING REFLECTIVE TAPE, 4-INCH WHITE SKIP
- (TC03) DRUM 100' SPACING, TYP
- (CB99) CONCRETE BARRIER TEMPORARY PRECAST
- (TC04) FLEXIBLE TUBULAR MARKERS 50' SPACING
- (SP01) SEMI-PERMANENT SHORING (SEE BRIDGE PLANS B-13-727)



MATCHLINE 441+00.00'TNB'

TRAFFIC CONTROL LEGEND

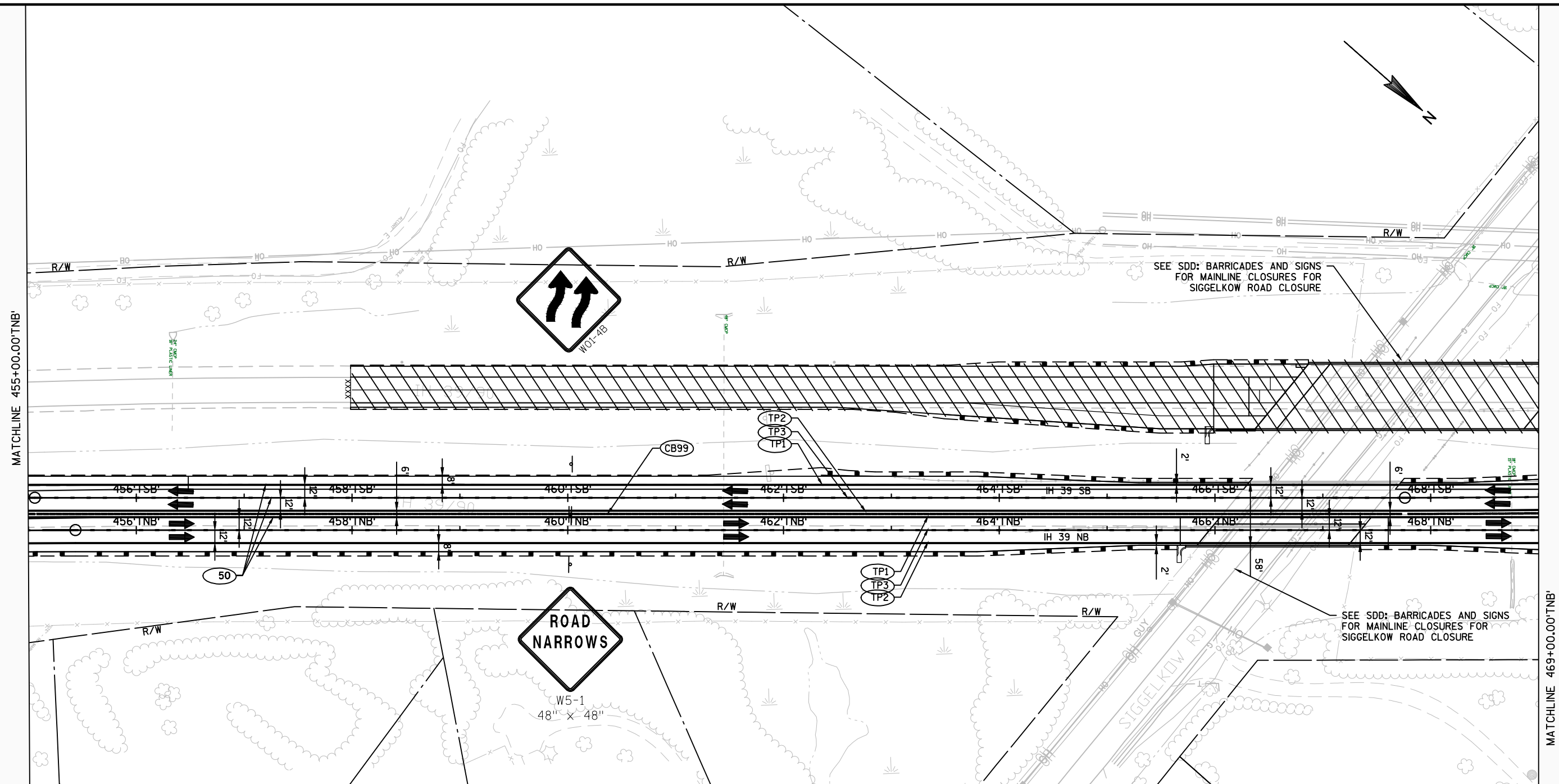
- |   |  |        |  |
|---|--|--------|--|
| ↓ | TYPE III BARRICADE                                 | MB     | PORTABLE CHANGEABLE MESSAGE BOARD                                |
| ↓ | TYPE III BARRICADE WTH ATTACHED SIGN               | (50)   | REMOVING PAVEMENT MARKINGS                                       |
| ● | TRAFFIC CONTROL DRUM                               | (TP1)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
| ● | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | (TP2)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
| ⚡ | FLASHING ARROW BOARD                               | (TP3)  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
| ⌋ | SIGN ON PERMANENT SUPPORT                          | (TC03) | DRUM 100' SPACING, TYP   |
| ⌋ | SIGN ON TEMPORARY SUPPORT                          | (CB99) | CONCRETE BARRIER TEMPORARY PRECAST                               |
| ○ | DELINEATOR FLEXIBLE/TUBULAR MARKER                 | (TC04) | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
| ▨ | WORK AREA  |        |  |
| → | DIRECTION OF TRAFFIC                               |        |  |



TRAFFIC CONTROL LEGEND

- |   |  |      |  |
|---|--|------|--|
| ↑ | TYPE III BARRICADE                                 | MB   | PORTABLE CHANGEABLE MESSAGE BOARD                                |
| ↑ | TYPE III BARRICADE WTH ATTACHED SIGN               | 50   | REMOVING PAVEMENT MARKINGS                                       |
| ● | TRAFFIC CONTROL DRUM                               | TP1  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID |
| ● | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | TP2  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID  |
| ⚡ | FLASHING ARROW BOARD                               | TP3  | TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP   |
| ▸ | SIGN ON PERMANENT SUPPORT                          | TC03 | DRUM 100' SPACING, TYP   |
| ⊥ | SIGN ON TEMPORARY SUPPORT                          | CB99 | CONCRETE BARRIER TEMPORARY PRECAST                               |
| ○ | DELINEATOR FLEXIBLE/TUBULAR MARKER                 | TC04 | FLEXIBLE TUBULAR MARKERS 50' SPACING                             |
| ▨ | WORK AREA  |      |  |
| → | DIRECTION OF TRAFFIC                               |      |  |





MATCHLINE 455+00.00' TNB

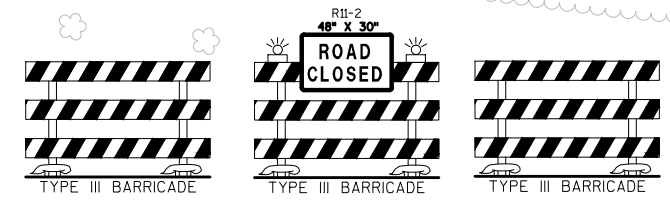
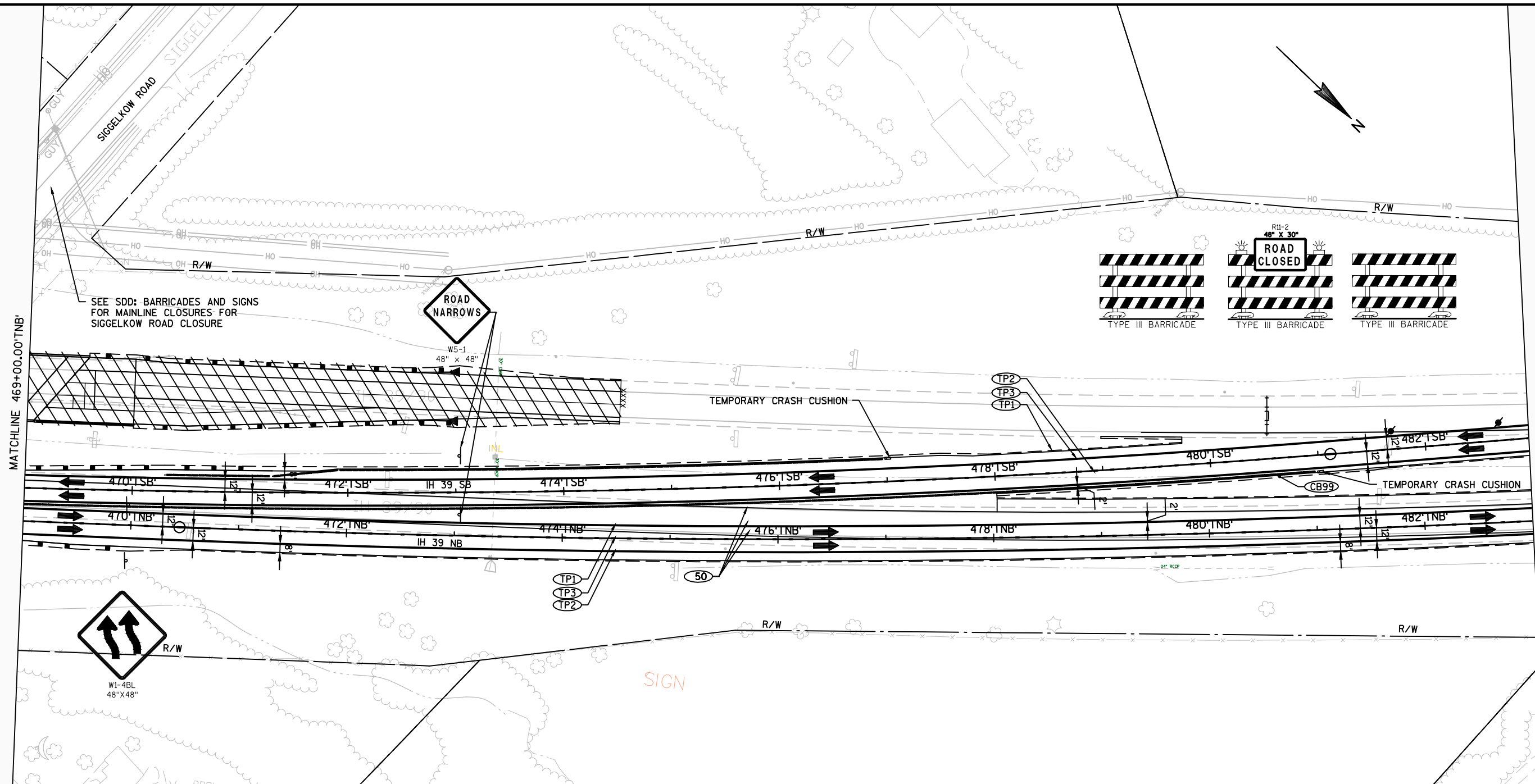
MATCHLINE 469+00.00' TNB

SEE SDD: BARRICADES AND SIGNS FOR MAINLINE CLOSURES FOR SIGGELKOW ROAD CLOSURE

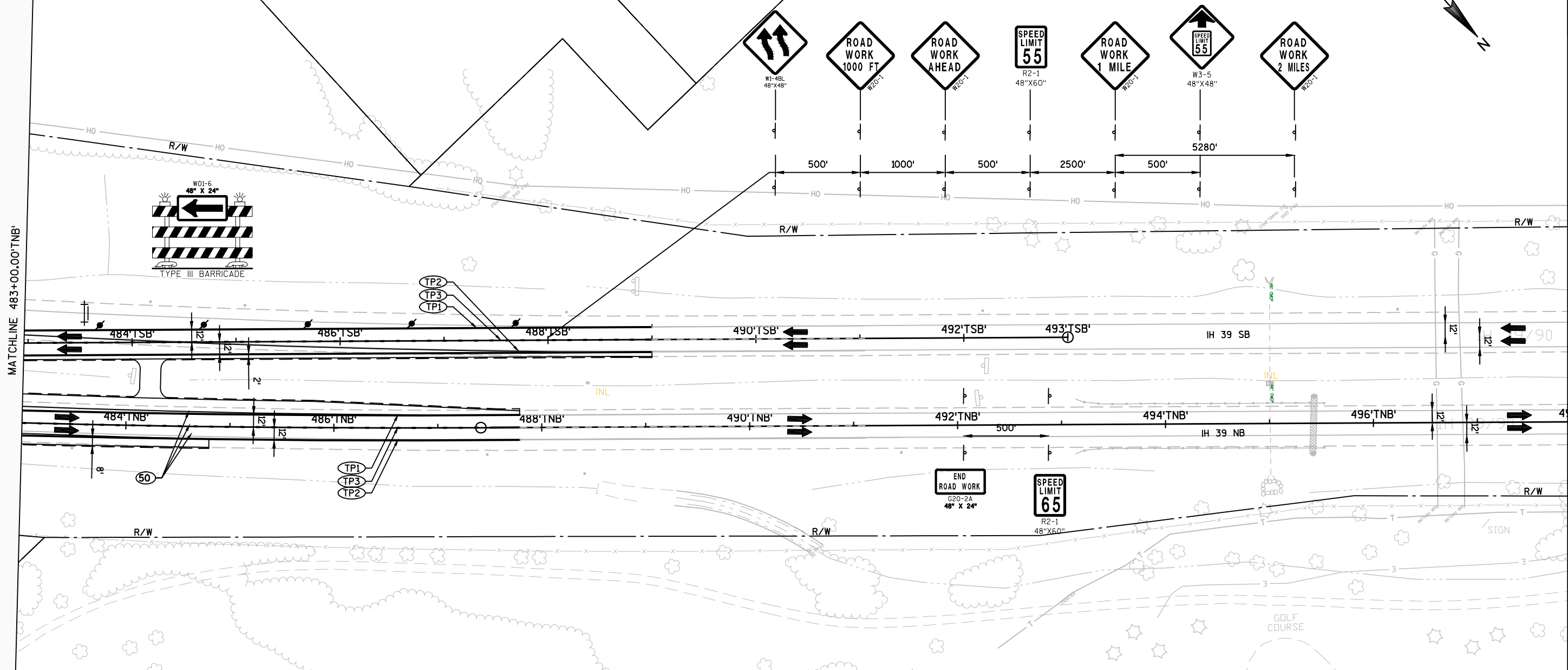
SEE SDD: BARRICADES AND SIGNS FOR MAINLINE CLOSURES FOR SIGGELKOW ROAD CLOSURE

TRAFFIC CONTROL LEGEND

	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WTH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		



TRAFFIC CONTROL LEGEND			
	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WTH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		



TRAFFIC CONTROL LEGEND			
	TYPE III BARRICADE		PORTABLE CHANGEABLE MESSAGE BOARD
	TYPE III BARRICADE WITH ATTACHED SIGN		REMOVING PAVEMENT MARKINGS
	TRAFFIC CONTROL DRUM		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH YELLOW SOLID
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SOLID
	FLASHING ARROW BOARD		TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT, 4-INCH WHITE SKIP
	SIGN ON PERMANENT SUPPORT		DRUM 100' SPACING, TYP
	SIGN ON TEMPORARY SUPPORT		CONCRETE BARRIER TEMPORARY PRECAST
	DELINEATOR FLEXIBLE/TUBULAR MARKER		FLEXIBLE TUBULAR MARKERS 50' SPACING
	WORK AREA		
	DIRECTION OF TRAFFIC		

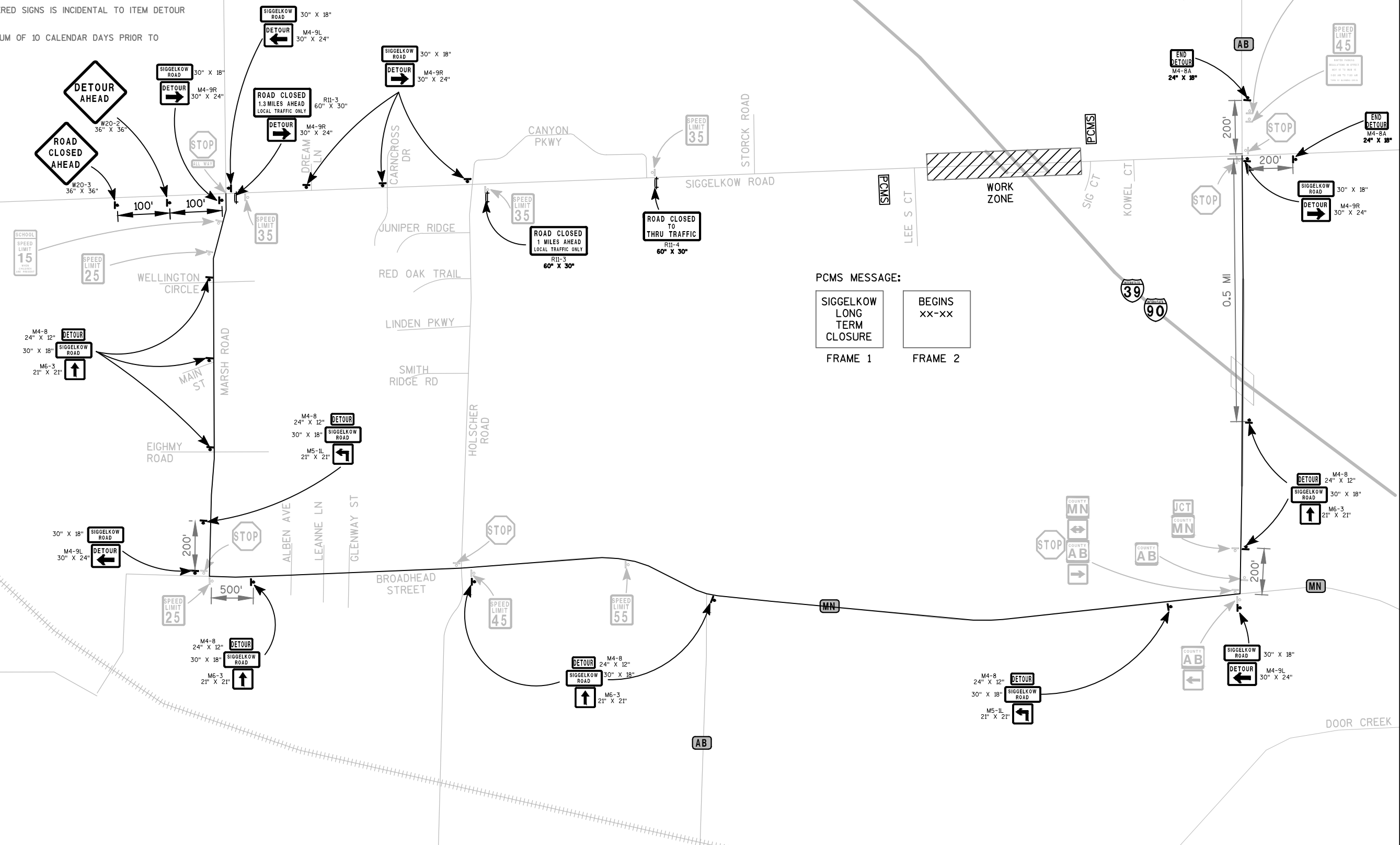
NOTES:  
 ALL FIXED MESSAGE DETOUR SIGNS SHALL BE BLACK NON REFLECTIVE MESSAGE ON ORANGE REFLECTIVE BACKGROUND.

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

THE ERECTION AND PLACEMENT OF SIGNS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SIGNS SHALL BE PLACED A MINIMUM OF 10 CALENDAR DAYS PRIOR TO CONSTRUCTION, AND COVERED UNTIL NEEDED. COVERED SIGNS IS INCIDENTAL TO ITEM DETOUR SIGNS.

PCMS SIGNS TO BE PLACED A MINIMUM OF 10 CALENDAR DAYS PRIOR TO SIGGELKOW RD. CLOSURE.



PCMS MESSAGE:  
 SIGGELKOW LONG TERM CLOSURE  
 BEGINS XX-XX  
 FRAME 1      FRAME 2

NOTES:  
 ALL FIXED MESSAGE DETOUR SIGNS SHALL BE BLACK NON REFLECTIVE MESSAGE ON ORANGE REFLECTIVE BACKGROUND.

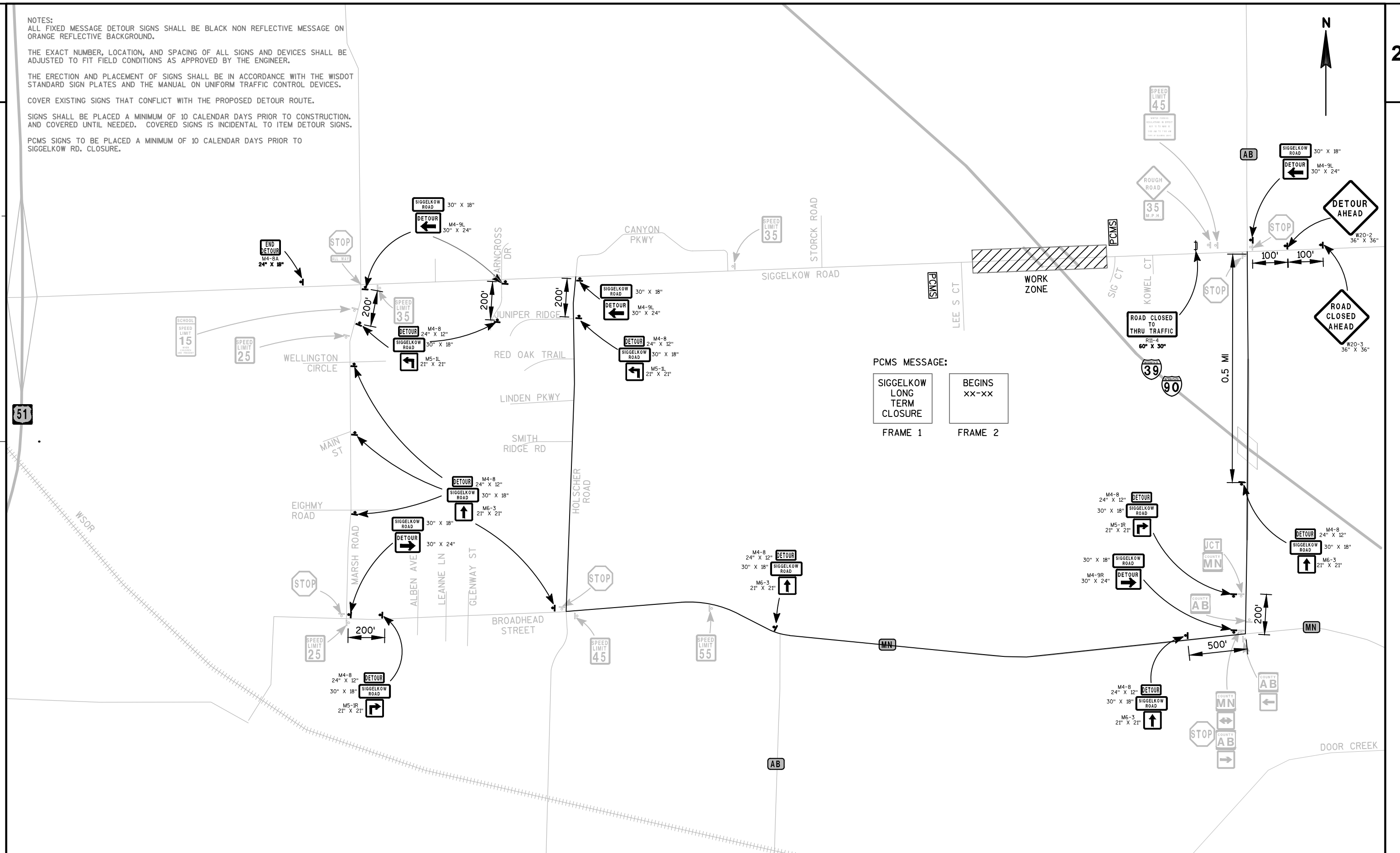
THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE ERECTION AND PLACEMENT OF SIGNS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

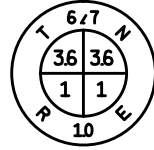
COVER EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED DETOUR ROUTE.

SIGNS SHALL BE PLACED A MINIMUM OF 10 CALENDAR DAYS PRIOR TO CONSTRUCTION, AND COVERED UNTIL NEEDED. COVERED SIGNS IS INCIDENTAL TO ITEM DETOUR SIGNS.

PCMS SIGNS TO BE PLACED A MINIMUM OF 10 CALENDAR DAYS PRIOR TO SIGGELKOW RD. CLOSURE.



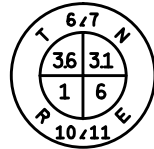
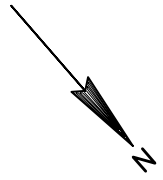
PCMS MESSAGE:  
 SIGGELKOW LONG TERM CLOSURE  
 BEGINS XX-XX  
 FRAME 1      FRAME 2



DANE COUNTY  
ALUMINUM MONUMENT  
Y = 462,821.88  
X = 855,216.32

PI STA = 445+21.60'TSB'  
Y = 463851.378  
X = 857054.247  
DELTA = 10°11'20"  
D = 0°30'58"  
T = 989.57'  
L = 1973.92'  
R = 11100.00'  
PC STA = 435+32.03'TSB'  
PT STA = 455+05.95'TSB'  
S.E. = N.C.

PI STA = 448+26.74'TNB'  
Y = 464100.596  
X = 856873.256  
DELTA = 10°12'10"  
D = 0°42'35"  
T = 720.60'  
L = 1437.40'  
R = 8072.00'  
PC STA = 441+06.13'TNB'  
PT STA = 455+43.53'TNB'  
S.E. = 2.0%



RED CAPPED DANE COUNTY  
SECTION CORNER  
Y = 462,927.96  
X = 857,834.62

BP: 430+08.44'TNB'  
X 858301.80  
Y 462915.67

N51° 46' 01"W  
BP: 434+27.83'TSB'  
X 857935.40  
Y 465174.49

434'TSB'  
435'TSB'

PC: 435+32.03'TSB'

430'TNB'

N51° 46' 51"W

435'TNB'

440'TSB'

440'TNB'

PC: 441+06.13'TNB'

445'TSB'

445'TNB'

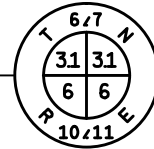
PI: 445+21.60'TSB'

PI: 448+26.74'TNB'

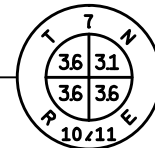
450'TSB'

450'TNB'

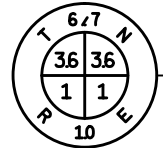
MATCHLINE 455+00.00'TNB'



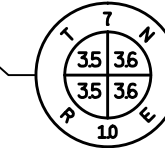
CONCRETE MONUMENT  
WITH BRASS CAP  
Y = 463,024.58  
X = 859,925.07



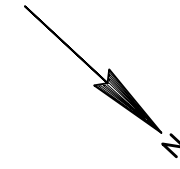
RAILROAD SPIKE  
Y = 465,557.68  
X = 857,843.46



DANE COUNTY  
ALUMINUM MONUMENT  
Y = 462,821.88  
X = 855,216.32



BRASS CAP  
MONUMENT  
Y = 465,362.30  
X = 852,576.50



MATCHLINE 455+00.00'TNB'  
PT: 455+05.95'TSB'  
PT: 455+43.53'TNB'

TSB'  
TNB'

N41° 34' 41"W

460'TSB'  
460'TNB'

N41° 34' 41"W

465'TSB'  
465'TNB'

STA 466+87.53 'TSB'=  
STA 50+72.62 'SK'

PC: 467+76.00'TSB'

470'TSB'  
470'TNB'

STA 466+62.84 'TNB'=  
STA 51+11.48 'SK'

PC: 470+45.12'TNB'

475'TSB'

475'TNB'

PI: 474+44.50'TSB'

480'TSB'

480'TNB'

PI: 478+94.29'TNB'

PT: 481+11.38'TSB'

PC: 467+76.00'TSB'

PC: 467+76.00'TSB'

EP: 55+57.12'SK  
Y X 856091.59  
Y 465492.54

N87° 59' 41"E

STA 466+62.84 'TNB'=  
STA 51+11.48 'SK'

PI: 51+00.00'SK  
Y X 855640.75  
Y 465476.55

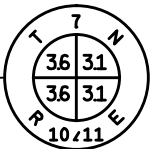
PC: 467+76.00'TSB'

N87° 50' 38"E

PC: 467+76.00'TSB'

PC: 467+76.00'TSB'

BP: 43+68.88'SK  
Y X 854910.14  
Y 465449.04

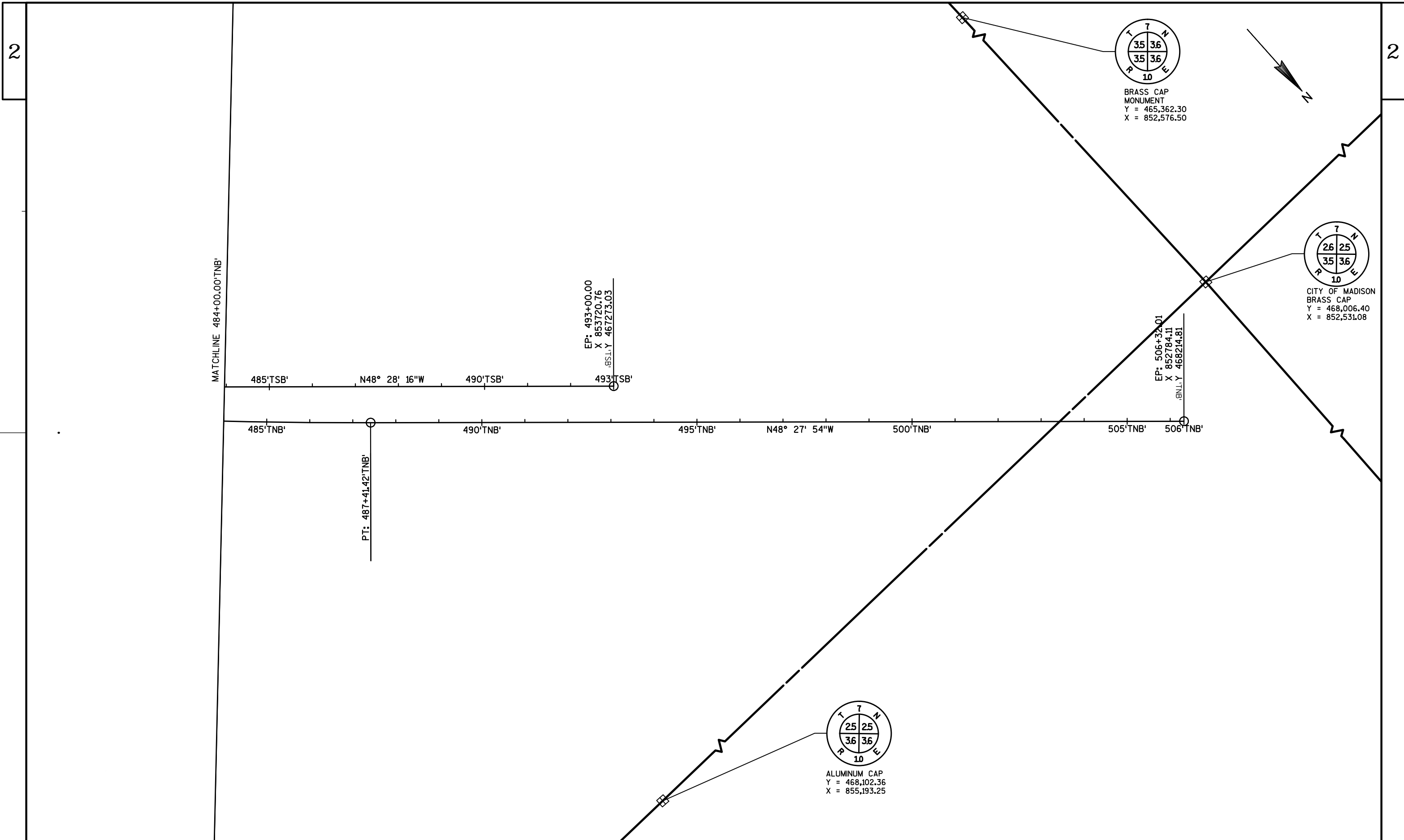


RAILROAD SPIKE  
Y = 465,557.68  
X = 857,843.46

PI STA = 474+44.50'TSB'  
Y = 466041.762  
X = 855111.032  
DELTA = 6°53'35"  
D = 0°30'58"  
T = 668.50'  
L = 1335.38'  
R = 11100.00'  
PC STA = 467+76.00'TSB'  
PT STA = 481+11.38'TSB'  
S.E. = N.C.

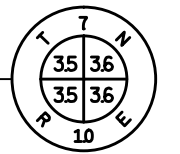
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Y = 466398.140  
X = 854834.973  
DELTA = 6°53'13"  
D = 0°24'22"  
T = 849.17'  
L = 1696.29'  
R = 14112.00'  
PC STA = 470+45.12'TNB'  
PT STA = 487+41.42'TNB'  
S.E. = N.C.

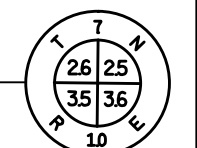
MATCHLINE 484+00.00'TNB'

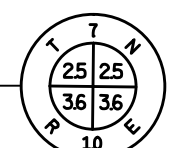


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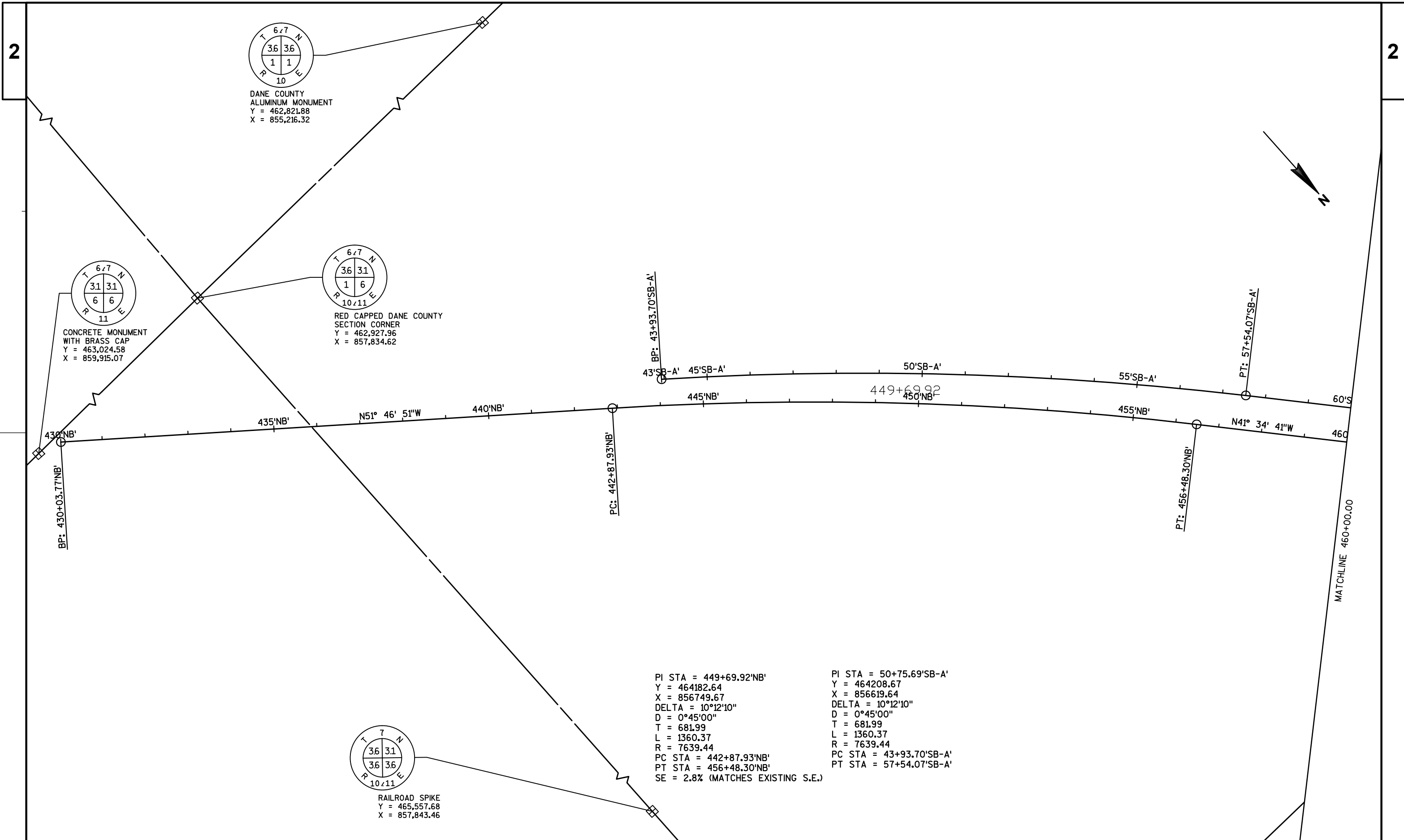
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 BRASS CAP  
 MONUMENT  
 Y = 465,362.30  
 X = 852,576.50

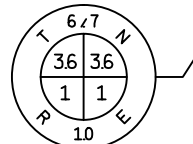
  
 CITY OF MADISON  
 BRASS CAP  
 Y = 468,006.40  
 X = 852,531.08

  
 ALUMINUM CAP  
 Y = 468,102.36  
 X = 855,193.25

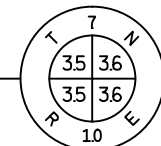




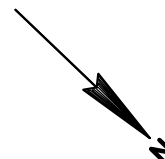
PI STA = 449+69.92' NB'	PI STA = 50+75.69' SB-A'
Y = 464182.64	Y = 464208.67
X = 856749.67	X = 856619.64
DELTA = 10°12'10"	DELTA = 10°12'10"
D = 0°45'00"	D = 0°45'00"
T = 681.99	T = 681.99
L = 1360.37	L = 1360.37
R = 7639.44	R = 7639.44
PC STA = 442+87.93' NB'	PC STA = 43+93.70' SB-A'
PT STA = 456+48.30' NB'	PT STA = 57+54.07' SB-A'
SE = 2.8% (MATCHES EXISTING S.E.)	



DANE COUNTY  
ALUMINUM MONUMENT  
Y = 462,821.88  
X = 855,216.32

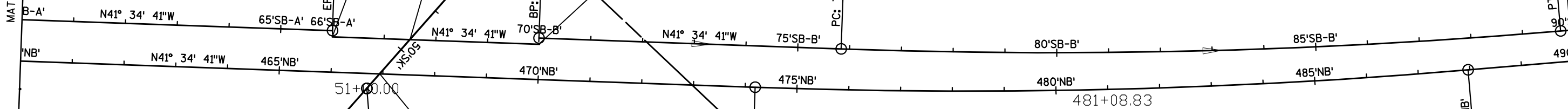


BRASS CAP  
MONUMENT  
Y = 465,362.30  
X = 852,576.50



MATCHLINE 460+00.00

MATCHLINE 490+00.00



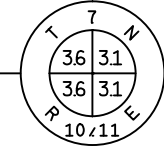
STA. 2466+00'SB' =  
STA. 66+00'SB-A' 12' RT.

STA 2467+50.01 'SB'=  
STA 49+74.23 'SK'

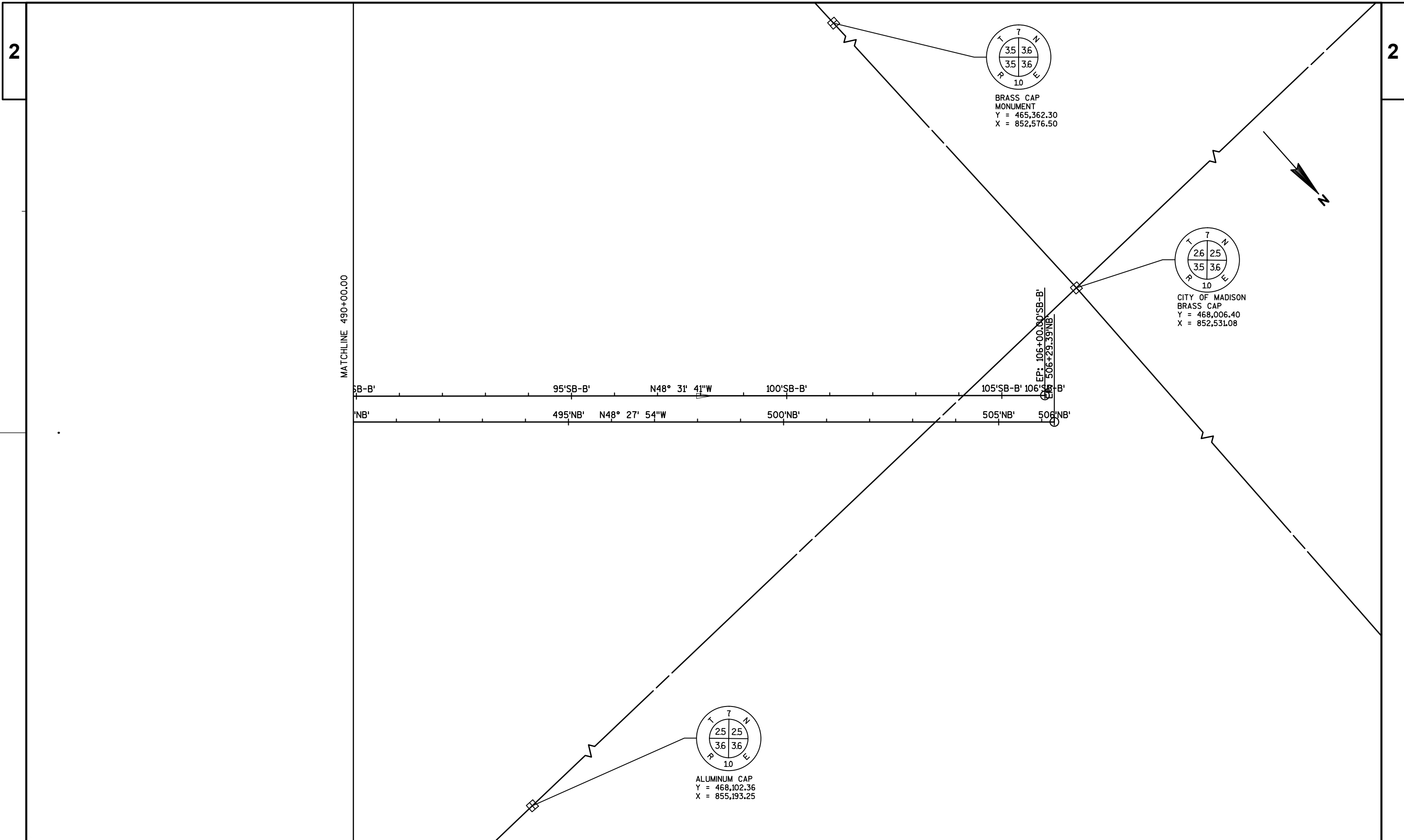
STA. 2470+00'SB' =  
STA. 70+00'SB-B' 12' RT.

STA 466+94.12 'NB'=  
STA 50+62.26 'SK'

PI STA = 481+08.83'NB'  
Y = 466533.41  
X = 854664.17  
DELTA = 6°53'13"  
D = 0°30'00"  
T = 689.55  
L = 1377.43  
R = 11459.30  
PC STA = 474+19.28'NB'  
PT STA = 487+96.72'NB'  
SE = 2.8% (MATCHES EXISTING S.E.)



RAILROAD SPIKE  
Y = 465,557.68  
X = 857,843.46



PROJECT NO:1007-10-71

HWY: IH 39

COUNTY: DANE

ALIGNMENT DETAILS

SHEET

E

DATE 10JAN14

## ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1007-10-71 QUANTITY
0010	201.0105	CLEARING **P**	STA	15.000	15.000
0020	201.0205	GRUBBING **P**	STA	15.000	15.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	3.000	3.000
0040	203.0200	REMOVING OLD STRUCTURE (STATION) 701. 2467' SB' +64	LS	1.000	1.000
0050	203.0200	REMOVING OLD STRUCTURE (STATION) 702. STA. 466+94.12 I.H. 39	LS	1.000	1.000
0060	204.0100	REMOVING PAVEMENT **P**	SY	4,355.000	4,355.000
0070	204.0125	REMOVING ASPHALTIC SURFACE MILLING	TON	355.000	355.000
0080	204.0165	REMOVING GUARDRAIL	LF	1,563.000	1,563.000
0090	204.0170	REMOVING FENCE	LF	295.000	295.000
0100	204.0220	REMOVING INLETS	EACH	1.000	1.000
0110	204.0245	REMOVING STORM SEWER (SIZE) 001. 18-INCH	LF	35.000	35.000
0120	204.0245	REMOVING STORM SEWER (SIZE) 002. 30-INCH	LF	20.000	20.000
0130	204.0245	REMOVING STORM SEWER (SIZE) 003. 36-INCH	LF	16.000	16.000
0140	204.0245	REMOVING STORM SEWER (SIZE) 004. 48-INCH	LF	16.000	16.000
0150	204.9060.S	REMOVING (ITEM DESCRIPTION) 001. APRON ENDWALLS	EACH	20.000	20.000
0160	205.0100	EXCAVATION COMMON	CY	27,322.000	27,322.000
0170	205.0200	EXCAVATION ROCK	CY	948.000	948.000
0180	205.0400	EXCAVATION MARSH	CY	4,626.000	4,626.000
0190	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 701. B-13-727	LS	1.000	1.000
0200	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 702. B-13-138	LS	1.000	1.000
0210	206.6000.S	TEMPORARY SHORING	SF	1,375.000	1,375.000
0220	208.0100	BORROW	CY	17,635.000	17,635.000
0230	210.0100	BACKFILL STRUCTURE **P**	CY	780.000	780.000
0240	213.0100	FINISHING ROADWAY (PROJECT) 001. 1007-10-71	EACH	1.000	1.000
0250	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	1,900.000	1,900.000
0260	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	40,380.000	40,380.000
0270	305.0500	SHAPING SHOULDERS	STA	250.000	250.000
0280	310.0110	BASE AGGREGATE OPEN GRADED	TON	315.000	315.000
0290	312.0110	SELECT CRUSHED MATERIAL	TON	35,220.000	35,220.000
0300	415.0125	CONCRETE PAVEMENT 12 1/2-INCH **P**	SY	630.000	630.000
0310	415.0410	CONCRETE PAVEMENT APPROACH SLAB **P**	SY	402.000	402.000
0320	416.1010	CONCRETE SURFACE DRAINS	CY	14.000	14.000
0330	440.4410.S	INCENTIVE IRI RIDE	DOL	1,440.000	1,440.000
0340	455.0105	ASPHALTIC MATERIAL PG58-28	TON	410.000	410.000
0350	455.0140	ASPHALTIC MATERIAL PG64-28P	TON	205.000	205.000
0360	455.0605	TACK COAT	GAL	990.000	990.000
0370	460.1100	HMA PAVEMENT TYPE E-0.3	TON	460.000	460.000
0380	460.1132	HMA PAVEMENT TYPE E-30X	TON	10,560.000	10,560.000
0390	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	7,270.000	7,270.000
0400	465.0315	ASPHALTIC FLUMES	SY	24.000	24.000
0410	502.0100	CONCRETE MASONRY BRIDGES **P**	CY	506.000	506.000
0420	502.2000	COMPRESSION JOINT SEALER PREFORMED ELASTOMERIC (WIDTH) 701. 2 1/2-INCH **P**	LF	27.000	27.000
0430	502.3100	EXPANSION DEVICE (STRUCTURE) 701. B-13-138 **P**	LS	1.000	1.000
0440	502.3200	PROTECTIVE SURFACE TREATMENT **P**	SY	710.000	710.000
0450	502.5002	MASONRY ANCHORS TYPE L NO. 4 BARS **P**	EACH	48.000	48.000
0460	502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS **P**	EACH	6.000	6.000

DATE 10JAN14

## ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1007-10-71 QUANTITY
0470	502.5010	MASONRY ANCHORS TYPE L NO. 6 BARS **P**	EACH	16.000	16.000
0480	502.5015	MASONRY ANCHORS TYPE L NO. 7 BARS **P**	EACH	24.000	24.000
0490	502.5020	MASONRY ANCHORS TYPE L NO. 8 BARS **P**	EACH	10.000	10.000
0500	503.0128	PRESTRESSED GIRDER TYPE I 28-INCH **P**	LF	416.000	416.000
0510	503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH **P**	LF	2,268.000	2,268.000
0520	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	23,350.000	23,350.000
0530	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	182,370.000	182,370.000
0540	506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED **P**	EACH	40.000	40.000
0550	506.2610	BEARING PADS ELASTOMERIC LAMINATED **P**	EACH	15.000	15.000
0560	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 701. B-13-727 **P**	EACH	36.000	36.000
0570	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 702. B-13-138 **P**	EACH	6.000	6.000
0580	506.5000	BEARING ASSEMBLIES FIXED (STRUCTURE) 701. B-13-138 **P**	EACH	3.000	3.000
0590	514.0445	FLOOR DRAINS TYPE GC	EACH	2.000	2.000
0600	514.2625	DOWNSPOUT 6-INCH **P**	LF	6.000	6.000
0610	516.0500	RUBBERIZED MEMBRANE WATERPROOFING **P**	SY	51.000	51.000
0620	517.1050.S	ARCHITECTURAL SURFACE TREATMENT (STRUCTURE) 701. B-13-727 **P**	SF	1,395.000	1,395.000
0630	520.8000	CONCRETE COLLARS FOR PIPE	EACH	2.000	2.000
0640	520.9700.S	CULVERT PIPE LINERS (SIZE) 001. 12-INCH	LF	6.000	6.000
0650	520.9750.S	CLEANING CULVERT PIPES FOR LINER VERIFICATION	EACH	1.000	1.000
0660	521.0118	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	48.000	48.000
0670	521.0130	CULVERT PIPE CORRUGATED STEEL 30-INCH	LF	52.000	52.000
0680	521.0136	CULVERT PIPE CORRUGATED STEEL 36-INCH	LF	4.000	4.000
0690	521.0148	CULVERT PIPE CORRUGATED STEEL 48-INCH	LF	64.000	64.000
0700	521.1012	APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH	EACH	1.000	1.000
0710	521.1048	APRON ENDWALLS FOR CULVERT PIPE STEEL 48-INCH	EACH	2.000	2.000
0720	521.1518	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18-INCH 6 TO 1	EACH	4.000	4.000
0730	521.1524	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 24-INCH 6 TO 1	EACH	6.000	6.000
0740	521.1530	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 30-INCH 6 TO 1	EACH	1.000	1.000
0750	521.1536	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 36-INCH 6 TO 1	EACH	1.000	1.000
0760	521.1548	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 48-INCH 6 TO 1	EACH	1.000	1.000
0770	521.2005.S	SURFACE DRAIN PIPE CORRUGATED METAL SLOTTED (INCH) 001. 18-INCH	LF	150.000	150.000
0780	522.0124	CULVERT PIPE REINFORCED CONCRETE CLASS III 24-INCH	LF	184.000	184.000
0790	550.1100	PIILING STEEL HP 10-INCH X 42 LB	LF	5,670.000	5,670.000
0800	603.1142	CONCRETE BARRIER TYPE S42	LF	133.000	133.000
0810	603.1156	CONCRETE BARRIER TYPE S56	LF	222.000	222.000
0820	603.3559	CONCRETE BARRIER TRANSITION TYPE S42 TO S56	EACH	4.000	4.000
0830	603.8000	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	17,236.000	17,236.000
0840	603.8125	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF	17,236.000	17,236.000

DATE 10JAN14

## E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1007-10-71 QUANTITY
0850	604.0500	SLOPE PAVING CRUSHED AGGREGATE **P**	SY	1,360.000	1,360.000
0860	606.0100	RIPRAP LIGHT	CY	45.000	45.000
0870	608.0324	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH	LF	665.000	665.000
0880	608.0512	STORM SEWER PIPE REINFORCED CONCRETE CLASS V 12-INCH	LF	114.000	114.000
0890	611.0530	MANHOLE COVERS TYPE J	EACH	5.000	5.000
0900	611.0606	INLET COVERS TYPE B	EACH	2.000	2.000
0910	611.0612	INLET COVERS TYPE C	EACH	1.000	1.000
0920	611.0654	INLET COVERS TYPE V	EACH	1.000	1.000
0930	611.2003	MANHOLES 3-FT DIAMETER	EACH	3.000	3.000
0940	611.2004	MANHOLES 4-FT DIAMETER	EACH	1.000	1.000
0950	611.2005	MANHOLES 5-FT DIAMETER	EACH	1.000	1.000
0960	611.2006	MANHOLES 6-FT DIAMETER	EACH	1.000	1.000
0970	611.3004	INLETS 4-FT DIAMETER	EACH	2.000	2.000
0980	611.3220	INLETS 2X2-FT	EACH	1.000	1.000
0990	612.0106	PIPE UNDERDRAIN 6-INCH	LF	4,330.000	4,330.000
1000	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	760.000	760.000
1010	612.0212	PIPE UNDERDRAIN UNPERFORATED 12-INCH	LF	438.000	438.000
1020	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	345.000	345.000
1030	612.0806	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	EACH	22.000	22.000
1040	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4.000	4.000
1050	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	20.600	20.600
1060	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	75.000	75.000
1070	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	25.000	25.000
1080	614.0390	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	EACH	1.000	1.000
1090	614.0905	CRASH CUSHIONS TEMPORARY	EACH	7.000	7.000
1100	614.2300	MGS GUARDRAIL 3	LF	2,950.000	2,950.000
1110	614.2500	MGS THRIE BEAM TRANSITION	LF	433.400	433.400
1120	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	7.000	7.000
1130	614.2620	MGS GUARDRAIL TERMINAL TYPE 2	EACH	4.000	4.000
1140	616.0100	FENCE WOVEN WIRE (HEIGHT) 001. 4.5-FT	LF	216.000	216.000
1150	616.0700.S	FENCE SAFETY	LF	1,000.000	1,000.000
1160	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 001. 1007-10-71	EACH	1.000	1.000
1170	619.1000	MOBILIZATION	EACH	1.000	1.000
1180	625.0500	SALVAGED TOPSOIL	SY	57,325.000	57,325.000
1190	627.0200	MULCHING	SY	2,000.000	2,000.000
1200	628.1104	EROSION BALES	EACH	440.000	440.000
1210	628.1504	SILT FENCE	LF	7,210.000	7,210.000
1220	628.1520	SILT FENCE MAINTENANCE	LF	7,210.000	7,210.000
1230	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
1240	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	8.000	8.000
1250	628.2004	EROSION MAT CLASS I TYPE B	SY	57,325.000	57,325.000
1260	628.6005	TURBIDITY BARRIERS	SY	575.000	575.000
1270	628.6510	SOIL STABILIZER TYPE B	ACRE	0.400	0.400
1280	628.7005	INLET PROTECTION TYPE A	EACH	7.000	7.000
1290	628.7010	INLET PROTECTION TYPE B	EACH	4.000	4.000
1300	628.7020	INLET PROTECTION TYPE D	EACH	1.000	1.000
1310	628.7504	TEMPORARY DITCH CHECKS	LF	510.000	510.000
1320	628.7555	CULVERT PIPE CHECKS	EACH	48.000	48.000

DATE 10JAN14

## ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1007-10-71 QUANTITY
1330	628.7560	TRACKING PADS	EACH	6.000	6.000
1340	628.7570	ROCK BAGS	EACH	440.000	440.000
1350	629.0205	FERTILIZER TYPE A	CWT	36.200	36.200
1360	630.0120	SEEDING MIXTURE NO. 20	LB	640.000	640.000
1370	630.0130	SEEDING MIXTURE NO. 30	LB	681.000	681.000
1380	630.0200	SEEDING TEMPORARY	LB	520.000	520.000
1390	630.0300	SEEDING BORROW PIT	LB	150.000	150.000
1400	633.0500	DELINEATOR REFLECTORS	EACH	8.000	8.000
1410	633.1000	DELINEATOR BRACKETS	EACH	8.000	8.000
1420	638.2101	MOVING SIGNS TYPE I	EACH	1.000	1.000
1430	638.2102	MOVING SIGNS TYPE II	EACH	11.000	11.000
1440	638.4000	MOVING SMALL SIGN SUPPORTS	EACH	11.000	11.000
1450	638.4100	MOVING STRUCTURAL STEEL SIGN SUPPORTS	EACH	2.000	2.000
1460	642.5201	FIELD OFFICE TYPE C	EACH	1.000	1.000
1470	643.0200	TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 200. 1007-10-71	DAY	220.000	220.000
1480	643.0300	TRAFFIC CONTROL DRUMS	DAY	3,763.000	3,763.000
1490	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	2,135.000	2,135.000
1500	643.0500	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS	EACH	63.000	63.000
1510	643.0600	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES	EACH	63.000	63.000
1520	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	2,602.000	2,602.000
1530	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	2,434.000	2,434.000
1540	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	145.000	145.000
1550	643.0900	TRAFFIC CONTROL SIGNS	DAY	10,958.000	10,958.000
1560	643.1000	TRAFFIC CONTROL SIGNS FIXED MESSAGE	SF	67.500	67.500
1570	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	20.000	20.000
1580	643.2000	TRAFFIC CONTROL DETOUR (PROJECT) 200. 1007-10-71	EACH	1.000	1.000
1590	643.3000	TRAFFIC CONTROL DETOUR SIGNS	DAY	22,440.000	22,440.000
1600	645.0111	GEOTEXTILE FABRIC TYPE DF SCHEDULE A	SY	2,165.000	2,165.000
1610	645.0130	GEOTEXTILE FABRIC TYPE R	SY	5,035.000	5,035.000
1620	646.0106	PAVEMENT MARKING EPOXY 4-INCH **P**	LF	29,879.000	29,879.000
1630	646.0600	REMOVING PAVEMENT MARKINGS	LF	48,772.000	48,772.000
1640	649.0200	TEMPORARY PAVEMENT MARKING REFLECTIVE PAINT 4-INCH	LF	37,827.000	37,827.000
1650	652.0125	CONDUIT RIGID METALLIC 2-INCH **P**	LF	55.000	55.000
1660	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH **P**	LF	1,410.000	1,410.000
1670	653.0222	JUNCTION BOXES 18X12X6-INCH	EACH	2.000	2.000
1680	690.0150	SAWING ASPHALT	LF	2,276.000	2,276.000
1690	690.0250	SAWING CONCRETE	LF	52.000	52.000
1700	715.0415	INCENTIVE STRENGTH CONCRETE PAVEMENT	DOL	500.000	500.000
1710	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	7,392.000	7,392.000
1720	SPV.0035	SPECIAL 701. HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES **P**	CY	767.000	767.000
1730	SPV.0060	SPECIAL 001. BASELINE CPM PROGRESS SCHEDULE	EACH	1.000	1.000
1740	SPV.0060	SPECIAL 002. CPM PROGRESS SCHEDULE UPDATES AND ACCEPTED REVISIONS	EACH	10.000	10.000
1750	SPV.0060	SPECIAL 150. SEDIMENTATION BASIN	EACH	4.000	4.000
1760	SPV.0060	SPECIAL 701. GROUTED BAR COUPLERS	EACH	216.000	216.000
1770	SPV.0085	SPECIAL 701. BAR STEEL REINFORCEMENT HS STAINLESS BRIDGES	LB	2,140.000	2,140.000

DATE 10JAN14

E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1007-10-71 QUANTITY
1780	SPV.0090	SPECIAL 701. PRECAST PIER COLUMNS **P**	LF	83.000	83.000
1790	SPV.0090	SPECIAL 702. PRECAST PIER CAPS **P**	LF	78.000	78.000
1800	SPV.0105	SPECIAL 001. SURVEY PROJECT 1007-10-71	LS	1.000	1.000
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1810	SPV.0165	SPECIAL 701. SEMI-PERMANENT SHORING	SF	2,975.000	2,975.000
1820	SPV.0165	SPECIAL 702. LONGITUDINAL GROOVING BRIDGE DECK **P**	SF	16,155.000	16,155.000

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**CLEARING AND GRUBBING**

201.0105 201.0205

**CLEARING GRUBBING**

STAGE	LOCATION	STA	STA
2	457+00'TNB' - 461+00'TNB', RT	4	4
2	463+00'TNB' - 466+00'TNB', RT	3	3
2	467+00'TNB' - 471+00'TNB', RT	4	4
2	472+00'TNB' - 473+00'TNB', RT	1	1
SUBTOTAL		12	12
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3	71+00'SB-B' - 74+00'SB-B', LT	3	3
SUBTOTAL		3	3
<hr/>			
SIGGELKOW RD			
	52+00'SK' - 53+00'SK', LT	1	1
SUBTOTAL		1	1
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TOTAL		15	15

**REMOVING PAVEMENT**

204.0100  
REMOVING  
PAVEMENT

STAGE	LOCATION	SY
3	IH 39 SB, NORTH OF B-13-0727	1750
3	IH 39 SB, SOUTH OF B-13-0727	2605
TOTAL		4355

**REMOVING ASPHALTIC SURFACE MILLING**

204.0125  
REMOVING  
ASPHALTIC  
SURFACE  
MILLING

STAGE	LOCATION	TON
	SIGGELKOW ROAD 46+85'SK' - 53+60'SK'	355
TOTAL		355

**REMOVING GUARDRAIL**

204.0165  
REMOVING GUARDRAIL

STAGE	LOCATION	LF
1	462+87'TNB' - 466+35'TNB', LT	348
SUBTOTAL		348
<hr/>		
2	464+01'TNB' - 465+85'TNB', RT	184
SUBTOTAL		184
<hr/>		
3	2466+50'SB', RT (MEDIAN)	64
3	2468+10'SB', RT (MEDIAN)	64
3	2468+25'SB' - 71+83'SB-B', RT	358
3	2468+50'SB' - 70+35'SB-B', LT	185
SUBTOTAL		671
<hr/>		
SIGGELKOW RD		
	48+95'SK' - 49+85'SK', RT	90
	49+00'SK' - 49+90'SK', LT	90
	50+30'SK' - 51+20'SK', RT	90
	50+40'SK' - 51+30'SK', LT	90
SUBTOTAL		360
<hr/>		
TOTAL		1563

**REMOVING FENCE**

204.0170  
REMOVING FENCE

STAGE	LOCATION	LF
2	465+40'TNB' - 466+00'TNB', RT	90
2	467+20'TNB' - 467+30'TNB', RT	80
SUBTOTAL		170
<hr/>		
3	2467+25'SB' - 2467+35'SB', LT	60
3	2468+60'SB' - 2469+00'SB', LT	65
SUBTOTAL		125
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TOTAL		295

**REMOVING SMALL PIPE CULVERTS**

203.0100  
REMOVING SMALL  
PIPE CULVERTS

STAGE	LOCATION	EA	COMMENTS
SIGGELKOW RD			
	48+15'SK', LT & RT	1	18-INCH CMP
	52+50'SK', LT	1	24-INCH CMP
	52+50'SK', LT	1	24-INCH CMP
TOTAL		3	

**REMOVING INLETS**

204.0220  
REMOVING  
INLETS

STAGE	LOCATION	EA
1	444+00'TSB', RT	1
TOTAL		1

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET NO:

E

**REMOVING STORM SEWER**

		204.0245	204.0245	204.0245	204.0245	
		REMOVING STORM SEWER (size)	REMOVING STORM SEWER (size)	REMOVING STORM SEWER (size)	REMOVING STORM SEWER (size)	COMMENTS
		001. 18-INCH	002. 30-INCH	003. 36-INCH	004. 48-INCH	
STAGE	LOCATION	LF	LF	LF	LF	
1	438+40'TSB', RT	6	0	0	0	AEW REMOVAL
1	450+40'TSB', LT	6	0	0	0	AEW REMOVAL
1	444+20'TSB', RT	0	8	0	0	
1	444+20'TSB', LT	0	0	8	0	
1	468+75'TSB', LT	11	0	0	0	AEW REMOVAL AND 5-FT OF LINED PIPE
1	450+40'TSB', LT	6	0	0	0	AEW REMOVAL
SUBTOTAL		29	8	8	0	
2	444+10'TNB', RT	0	0	8	0	
2	461+45'TNB', RT	0	0	0	8	AEW REMOVAL
2	468+75'TNB', RT	6	0	0	0	AEW REMOVAL
2	473+35'TNB', RT	0	6	0	0	AEW REMOVAL
SUBTOTAL		6	6	8	8	AEW REMOVAL
3	61+45'SB-A', LT	0	0	0	8	AEW REMOVAL
3	73+35'SB-B', LT	0	6	0	0	AEW REMOVAL
SUBTOTAL		0	6	0	8	
TOTAL		35	20	16	16	

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

EARTHWORK

Division	From/To Station	Location	Common Excavation (1)		Salvaged/Unusable Pavement Material (4)	Available Material (5)	Marsh Exc. (6)	Rock Exc. (7)	Red. Marsh in Fill (8)	Red. EBS in Fill (9)	Exp. Marsh Backfill (10)	Exp. EBS Backfill (11)	Exp. Rock (12)	Unexp. Fill	Exp. Fill (13)	Mass Ordinate +/- (14)	Waste	Borrow Exc.	(*)	(*)	Comment:									
			item 205.0100																item 205.0400	item 205.0200		Factor 0.60	Factor 0.80	Factor 1.50	Factor 1.30	Factor 1.10	Factor 1.15	item 208.0100	item 312.0110	item 645.0130
			Cut (2)	EBS (3)																										
Division 1 Subtotal			9,454	1,900	0	9,454	0	500	0	1,520	0	2,470	550	3,176	1,271	8,182	8,182	0	4,940	0										
Division 2																														
	442+85'TNB' - 484+80'TNB'	IH 39 NB UNDISTRIBUTED	7,516 0	0 1,100	0 0	7,516 0	3,196 0	448 0	1,917 0	0 880	4,793 0	0 1,430	493 0	19,285 0	19,406 -1,012	-11,890 1,012	0 0	11,890 -1,012	10,972 2,860	2,833 0										
Division 2 Subtotal			7,516	1,100	0	7,516	3,196	448	1,917	880	4,793	1,430	493	19,285	18,394	-10,878	0	10,878	13,832	2,833										
Division 3																														
	58+00'SB-A' - 66+00'SB-A'	IH 39 SB SOUTH TRANS.	1,712	0	706	1,006	1,430	0	858	0	2,145	0	0	9,127	9,510	-8,504	0	8,504	5,676	1,994										
	2466+00'SB' - 2470+00'SB'	IH 39 SB	328	0	193	135	0	0	0	0	0	0	0	1,430	1,645	-1,510	0	1,510	0	0										
	70+00'SB-B' - 74+50'SB-B'	IH 39 SB NORTH TRANS.	1,819	0	397	1,421	0	0	0	0	0	0	0	686	789	633	0	-633	0	0										
	2467+80'SB' - 2468+97'SB'	STRUCTURE B-13-727	2,670	0	0	2,670	0	0	0	0	0	0	0	0	0	2,670	0	-2,670	0	0										
	46+85'SK' - 53+60'SK'	SIGGELKOW ROAD UNDISTRIBUTED	323 0	0 500	0 0	323 0	0 0	0 0	0 400	0 0	0 650	0 0	0 0	61 0	70 -460	253 460	0 0	-253 -460	0 1,300	0 0										
Division 3 Subtotal			6,852	500	1,297	5,555	1,430	0	858	400	2,145	650	0	11,305	11,554	-5,998	0	5,998	6,976	1,994										
Grand Total			23,822	3,500	1,297	22,525	4,626	948	2,775	2,800	6,939	4,550	1,043	33,765	31,219	-8,694	8,182	16,876	25,748	4,828										
Total Common Excavation			27,322																											

(\* ) QUANTITY LISTED ELSEWHERE.

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unusable Pavement Material is included in Cut.
- 3) EBS Excavation to be backfilled with Select Crushed Material.
- 4) Salvaged/Unusable Pavement Material
- 5) Available Material = Cut - Salvaged/Unusable Pavement Material
- 6) Marsh Excavation - to be backfilled with Select Crushed Material. Item number 312.0110
- 7) Rock Excavation item number 205.0200
- 8) Reduced Marsh in Fill - Excavated Marsh material is usable in Fills outside the 2:1 slope. Marsh in Fill Reduction factor = 0.6
- 9) Reduced EBS in Fill - Excavated EBS material is usable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
- 10) Expanded Marsh Backfill & Expanded EBS Backfill -This is to be filled with Select Crushed Material. Marsh Backfill Factor = 1.5. Item number 312.0100
- 11) Select Crushed Material place in Marsh Excavation locations shall be wrapped in Geotextile Fabric Type R. Item number 645.0130
- 12) Expanded Rock Factor = 1.1
- 13) Expanded Fill Factor = 1.15  
Expanded Fill = (Unexpanded Fill - Rock\* Rock Factor - Reduced Marsh - Reduced EBS) \* 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.

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

**BASE AGGREGATE DENSE**

STAGE	LOCATION	305.0110	305.0120
		BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON
1	IH 39 NB MEDIAN WIDENING, SOUTH OF B-13-138	210	3580
1	IH 39 NB MEDIANWIDENING, NORTH OF B-13-138	80	1810
1	IH 39 SOUTH CROSSOVER	170	5990
1	IH 39 NORTH CROSSOVER	210	6030
1	MAINTENANCE CROSSOVER	0	60
SUBTOTAL		670	17470
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2	IH 39 NB OUTSIDE WIDENING, SOUTH OF B-13-138	330	8020
2	IH 39 NB OUTSIDE WIDENING, NORTH OF B-13-138	170	5110
SUBTOTAL		500	13130
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3	IH 39 SB ASPHALT SECTION, SOUTH OF B-13-0727	300	5200
3	IH 39 SB ASPHALT SECTION, NORTH OF B-13-0727	250	3370
3	IH 39 SB CONCRETE SECTION, SOUTH OF B-13-0727	10	190
3	IH 39 SB CONCRETE SECTION, NORTH OF B-13-0727	10	200
3	B-13-0727 SOUTH STRUCTURAL APPROACH SLAB	0	210
3	B-13-0727 NORTH STRUCTURAL APPROACH SLAB	0	210
3	SIGGELKOW ROAD	160	400
SUBTOTAL		730	9780
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TOTAL		1900	40380

**SHAPING SHOULDERS**

305.0500	SHAPING SHOULDERS
LOCATION	STA
UNDISTRIBUTED - ALONG DETOUR ROUTE FOR SIGGELKOW ROAD	250
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TOTAL	250

**FENCE SAFETY**

616.0700.S		
FENCE SAFETY		
STAGE	LOCATION	LF
2	NB	500
3	SB	500
TOTAL		1000

**MAINTENANCE AND REPAIR OF HAUL ROADS**

618.0100	
MAINTENANCE AND REPAIR OF HAUL ROADS	
001. 1007-10-71	
LOCATION	EA
PROJECT 1007-10-71	1
<hr/>	
TOTAL	1

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

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BEAM GUARD ITEMS

STAGE	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH	614.0305 STEEL PLATE BEAM GUARD CLASS A	614.0345 STEEL PLATE BEAM GUARD RADIUS	614.0309 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINIAL	614.2300 MGS GUARDRAIL 3	614.2500 MGS THRIE BEAM TRANSITION	614.2610 MGS GUARDRAIL TERMINAL EAT	614.2620 MGS GUARDRAIL TERMINAL TYPE 2	603.1142 CONCRETE BARRIER TYPE S42	603.1156 CONCRETE BARRIER TYPE S56	603.3559 CONCRETE BARRIER TRANSITION TYPE S42 TO S56
		LF	LF	LF	EA	LF	LF	EA	EA	LF	LF	EA
1	462+35'TNB' - 466+32'TNB', LT	0	0	0	0	312.5	39.4	1	0	0	0	0
1	467+72'TSB' - 471+25'TSB', LT	0	0	0	0	237.5	39.4	0	1	0	0	0
SUBTOTAL		0	0	0	0	550	78.8	1	1	0	0	0
2	453+10'TNB' - 465+70'TNB', RT	0	0	0	0	1175	39.4	1	0	0	0	0
2	467+33'TNB' - 470+00'TNB', RT	0	0	0	0	237.5	39.4	0	1	0	0	0
SUBTOTAL		0	0	0	0	1412.5	78.8	1	1	0	0	0
3	63+50'SB-A' - 2466+40'SB', RT	0	0	0	0	212.5	39.4	0	1	41	0	0
3	64+00'SB-A' - 2466+87'SB', LT	0	0	0	0	250	39.4	0	1	0	0	0
3	2469+55'SB' - 73+00'SB-B', LT	0	0	0	0	250	39.4	1	0	0	0	0
3	2469+08'SB-B' - 73+00'SB-B', RT	0	0	0	0	212.5	39.4	1	0	92	0	0
SUBTOTAL		0	0	0	0	925	157.6	2	2	133	0	0
SIGGELKOW RD												
	48+05'SK' - 48+95'SK', LT	0	0	0	0	0	39.4	1	0	0	0	0
	49+05'SK' - 50+60'SK', RT	0	0	0	0	62.5	39.4	1	0	0	0	0
	48+95'SK' - 51+25'SK', LT	0	0	0	0	0	0	0	0	0	181	2
	50+60'SK' - 51+50'SK', RT	0	0	0	0	0	0	0	0	0	41	2
	51+25'SK' - 52+25'SK', LT	20.6	75	25	1	0	0	0	0	0	0	0
	51+50'SK' - 52+40'SK', RT	0	0	0	0	0	39.4	1	0	0	0	0
SUBTOTAL		20.6	75	25	1	62.5	118.2	3	0	0	222	4
TOTAL		20.6	75	25	1	2950	433.4	7	4	133	222	4

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

SELECT CRUSHED MATERIAL

(\*)  
312.0110  
SELECT CRUSHED MATERIAL

STAGE	LOCATION	TON
1	IH 39 SOUTH CROSSOVER	4440
1	IH 39 NORTH CROSSOVER	4240
SUBTOTAL		8680
3	IH 39 SB MAINLINE, SOUTH OF B-13-0727	380
3	IH 39 SB MAINLINE, NORTH OF B-13-0727	400
SUBTOTAL		780
TOTAL		9460

(\*) QUANTITY LISTED ELSEWHERE

CONCRETE PAVEMENT

STAGE	LOCATION	415.0125	415.0410	416.1010
		CONCRETE PAVEMENT 12 1/2-INCH SY	CONCRETE PAVEMENT APPROACH SLAB SY	CONCRETE SURFACE DRAINS CY
2	IH 39 NB, NORTH OF B-13-138	0	76	0
2	IH 39 NB, SOUTH OF B-13-138	0	76	0
SUBTOTAL		0	152	0
3	IH 39 SB, NORTH OF B-13-0727	330	125	0
3	IH 39 SB, SOUTH OF B-13-0727	300	125	0
3	IH 39 SB, SOUTH OF B-13-0727	0	0	14
SUBTOTAL		630	250	14
TOTAL		630	402	14

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

**APRON ENDWALL ITEMS**

STRUCTURE NUMBER	STATION	LOCATION	ALIGNMENT	521.1012		521.1048		521.1518		521.1524		521.1530		521.1536		521.1548		END OF ENDWALL ELEVATION	NOTES
				APRON ENDWALLS FOR CULVERT PIPE STEEL				APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL											
				12-INCH EACH	48-INCH EACH	18-INCH 6 TO 1 EACH	24-INCH 6 TO 1 EACH	30-INCH 6 TO 1 EACH	36-INCH 6 TO 1 EACH	48-INCH 6 TO 1 EACH									
1	438+46	30.4' LT	NB	-	-	1	-	-	-	-	-	-	-	-	-	-	872.85		
4	450+40	44.6' LT	NB	-	-	1	-	-	-	-	-	-	-	-	-	-	873.50		
9	444+15	44.4' RT	TNB	-	-	-	-	-	-	-	1	-	-	-	-	-	871.60	A	
10	461+44	68' RT	TNB	-	-	-	-	-	-	-	-	-	1	-	-	-	861.66	A	
11	468+75	78' RT	TNB	-	-	1	-	-	-	-	-	-	-	-	-	-	869.40	A	
12	473+31	69' RT	TNB	-	-	-	-	-	-	1	-	-	-	-	-	-	885.39	A	
13	61+46	101' RT	SB-A	-	1	-	-	-	-	-	-	-	-	-	-	-	860.85	A	
14	73+36	65' LT	SB-B	-	1	-	-	-	-	-	-	-	-	-	-	-	896.20	A	
15	47+98	28.5' LT	SK	-	-	-	-	-	1	-	-	-	-	-	-	-	872.19	A	
16	48+45	36' RT	SK	-	-	-	-	-	1	-	-	-	-	-	-	-	872.00	A	
17	52+11	45.4' LT	SK	-	-	-	-	-	1	-	-	-	-	-	-	-	861.95	A	
18	52+80	42.8' LT	SK	-	-	-	-	-	1	-	-	-	-	-	-	-	861.30	A	
20	2466+80	86.6' LT	SB	1	-	-	-	-	-	-	-	-	-	-	-	-	880.20		
21	468+75	37.4' LT	NB	-	-	1	-	-	-	-	-	-	-	-	-	-	889.50	A,B	
22	52+80	38.8' LT	SK	-	-	-	-	-	1	-	-	-	-	-	-	-	861.95	A	
23	52+11	41.3' LT	SK	-	-	-	-	-	1	-	-	-	-	-	-	-	861.30	A	
<b>TOTAL</b>				<b>1</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>			

NOTES:

- A ADD JOINT TIES TO LAST 2 SECTIONS OF PIPE AS SHOWN IN THE STANDARD DETAIL DRAWINGS (INCIDENTAL TO APRON ENDWALL INSTALLATION)
- B REMOVE EXISTING ENDWALL AND LAST 5 FEET OF PIPE BEFORE PLACING ENDWALL

**REINFORCED CONCRETE CULVERT PIPE ITEMS**

PIPE I.D.	LOCATION	522.0124 CULVERT PIPE REINFORCED CONCRETE CLASS III 24-INCH LF
P4	SIGGELKOW ROAD	70
P15	SIGGELKOW ROAD	57
P16	SIGGELKOW ROAD	57
<b>TOTAL:</b>		<b>184</b>

**CULVERT PIPES**

STRUCTURE NUMBER	STATION	LOCATION	ALIGNMENT	MINIMUM STEEL THICKNESS INCHES	520.9700.S	520.9750.S	521.0118	521.0130	521.0136	521.0148
					CULVERT PIPE LINERS	CLEANING CULVERT PIPES FOR LINER	CULVERT PIPE CORRUGATED STEEL			
					12-INCH LF	VERIFICATION EACH	18-INCH LF	30-INCH LF	36-INCH LF	48-INCH LF
3	444+21	33.87' LT	NB	0.064	-	-	-	12	-	-
4	450+40	44.6' LT	NB	-	6	1	-	-	-	-
9	444+15	44.4' RT	TNB	0.064	-	-	-	-	4	-
10	461+44	68' RT	TNB	0.064	-	-	-	-	-	16
11	468+75	78' RT	TNB	0.064	-	-	48	-	-	-
12	473+31	69' RT	TNB	0.064	-	-	-	40	-	-
13	61+46	101' RT	SB-A	0.064	-	-	-	-	-	24
14	73+36	65' LT	SB-B	0.064	-	-	-	-	-	24
<b>TOTAL</b>					<b>6</b>	<b>1</b>	<b>48</b>	<b>52</b>	<b>4</b>	<b>64</b>

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

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FENCE WOVEN WIRE

616.0100 FENCE WOVEN WIRE 001. 4.5-FT		
STAGE	LOCATION	LF
2	465+41'TNB' - 465+84'TNB', RT	68
2	467+19'TNB' - 467+30'TNB', RT	64
SUBTOTAL		64
3	2466+88'SB' - 2467+36'SB', LT	80
3	2469+05'SB' - 2469+57'SB', LT	72
SUBTOTAL		152
TOTAL		216

TRAFFIC CONTROL SIGNS FIXED MESSAGE

643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE			
SIGNS NO.	SIGN SIZE INCHES	SF	COMMENTS
18	30"X18"	67.5	SIGGELKOW ROAD
TOTAL		67.5	

TRAFFIC CONTROL DETOUR SIGNS

643.2000 TRAFFIC CONTROL DETOUR .200 1007-10-71			643.3000 TRAFFIC CONTROL DETOUR SIGNS		
EACH		DAY		PROJECT ID: 1007-10-71	
1		22440			

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ASPHALTIC PAVEMENT

STAGE	LOCATION	455.0105	455.0140	455.0605	460.1100	460.1132
		ASPHALTIC MATERIAL PG58-28 TON	ASPHALTIC MATERIAL PG64-28P TON	TACK COAT GAL	HMA PAVEMENT TYPE E-0.3 TON	HMA PAVEMENT TYPE E-30X TON
1	IH 39 NB MEDIAN WIDENING, SOUTH OF B-13-138	27	17	60	0	780
1	IH 39 NB MEDIANWIDENING, NORTH OF B-13-138	15	9	35	0	410
1	IH 39 SOUTH CROSSOVER	66	37	140	0	1860
1	IH 39 NORTH CROSSOVER	63	36	130	0	1770
1	MAINTENANCE CROSSOVER	2	0	5	30	0
SUBTOTAL		173	99	370	30	4820
2	IH 39 NB OUTSIDE WIDENING, SOUTH OF B-13-138	74	45	165	0	2160
2	IH 39 NB OUTSIDE WIDENING, NORTH OF B-13-138	48	29	105	0	1380
SUBTOTAL		122	74	270	0	3540
3	IH 39 SB MAINLINE, SOUTH OF B-13-0727	56	20	185	0	1360
3	IH 39 SB MAINLINE, NORTH OF B-13-0727	35	12	115	0	840
3	SIGGELKOW ROAD	24	0	50	430	0
SUBTOTAL		115	32	350	430	2200
TOTAL		410	205	990	460	10560

FIELD OFFICE

642.5201 FIELD OFFICE TYPE C	
LOCATION	EA
PROJECT 1007-10-71	1
TOTAL	1

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED



3

ASPHALTIC FLUMES

465.0315 ASPHALTIC FLUMES		
STAGE	LOCATION	SY
1	466+25'TNB', LT	7
SUBTOTAL		7
2	465+80'TNB', RT	10
SUBTOTAL		10
3	66+90'SB-A', RT	7
SUBTOTAL		7
SIGGELKOW RD		
	51+30'SK', LT	0
	51+55'SK', RT	0
SUBTOTAL		0
TOTAL		24

SLOTTED VAIN DRAIN

521.2005.S* SURFACAE DRAIN PIPE CORRUGATED METAL SLOTTED 001. 18-INCH		
STAGE	LOCATION	LF
1	443+54 TO 445+04 NB	150
TOTAL		150

\* 6-INCH SPECIAL GRATE DEPTH (SEE STANDARD DETAIL DRAWINGS)

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

REMOVING PAVEMENT MARKING

646.0600 REMOVING PAVEMENT MARKING			
STAGE	LOCATION	LF	COMMENTS
1	430+00'NB' - 441+00'NB', RT	1015	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	441+00'NB' - 455+00'NB', RT	3150	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	455+00'NB' - 469+00'NB', RT	3150	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	469+00'NB' - 483+00'NB', RT	3150	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	483+00'NB' - 496+00'NB', RT	900	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
SUBTOTAL		11365	
2	430+00'NB' - 441+00'NB', RT & LT	1457	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	441+00'NB' - 455+00'NB', RT & LT	3550	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	455+00'NB' - 469+00'NB', RT	3150	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	469+00'NB' - 483+00'NB', RT	3150	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	483+00'NB' - 496+00'NB', RT	900	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
SUBTOTAL		12207	
3	430+00'NB' - 441+00'NB', RT	2700	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	441+00'NB' - 455+00'NB', RT	6300	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	455+00'NB' - 469+00'NB', RT	6300	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	469+00'NB' - 483+00'NB', RT	6300	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
	483+00'NB' - 496+00'NB', RT	3600	WHITE EDGELINE, YELLOW EDGELINE, AND SKIPS
SUBTOTAL		25200	
TOTAL		48772	

EROSION CONTROL ITEMS

LOCATION	628.1905	628.1910
	MOBILIZATIONS EROSION CONTROL	MOBILIZATIONS EMERGENCY EROSION CONTROL
	EA	EA
IH 39 - STAGE 1	1	0
IH 39 - STAGE 2	1	0
IH 39 - STAGE 3	1	0
SIGGELKOW RD	1	0
UNDISTRIBUTED	0	8
TOTAL		4

3

**EROSION CONTROL ITEMS**

STAGE	LOCATION	606.0100	628.1104	628.1504	628.1520	628.6005	628.7005	628.7010	628.7020	628.7504	628.7555	628.7560	628.7570	(*)	SPV.0060.150
		RIRPAP LIGHT	EROSION BALES	SILT FENCE	SILT FENCE MAINTENANCE	TURBIDITY BARRIER	INLET PROTECTION TYPE A	INLET PROTECTION TYPE B	INLET PROTECTION TYPE D	TEMPORARY DITCH CHECKS	CULVERT PIPE CHECKS	TRACKING PADS	ROCK BAGS	645.0130	GEOTEXTILE FABRIC TYPE R
		CY	EA	LF	LF	SY	EA	EA	EA	LF	EA	EA	EA	SY	EA
1	435+00'NB' - 440+00'NB', LT	0	0	400	400	0	0	0	0	15	4	0	0	0	0
1	440+00'NB' - 445+00'NB', LT	0	0	0	0	0	1	1	0	0	0	0	0	0	0
1	445+00'NB' - 450+00'NB', LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	450+00'NB' - 455+00'NB', LT	0	0	500	500	0	0	0	0	0	4	0	40	0	0
1	455+00'NB' - 460+00'NB', LT	0	0	500	500	0	0	0	0	0	4	0	40	0	0
1	460+00'NB' - 465+00'NB', LT	0	0	500	500	0	0	0	0	0	0	0	40	0	0
1	465+00'NB' - 470+00'NB', LT	4	0	360	360	0	0	0	0	15	4	0	20	17	0
1	470+00'NB' - 475+00'NB', LT	0	0	350	350	0	1	1	0	15	0	0	20	0	0
1	475+00'NB' - 480+00'NB', LT	0	0	0	0	0	3	1	0	0	4	0	0	0	0
1	480+00'NB' - 485+00'NB', LT	0	0	0	0	0	0	0	0	15	0	0	0	0	0
1	485+00'NB' - 490+00'NB', LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	490+00'NB' - 495+00'NB', LT	0	0	0	0	0	0	0	0	15	0	0	0	0	0
1	UNDISTRIBUTED	0	0	0	0	0	0	0	0	0	0	2	0	0	1
SUBTOTAL		4	0	2610	2610	0	5	3	0	75	20	2	160	17	1
2	440+00'TNB' - 445+00'TNB', RT	3	0	150	150	0	0	0	0	30	0	0	20	15	0
2	445+00'TNB' - 450+00'TNB', RT	0	0	100	100	0	0	0	0	30	0	0	0	0	0
2	450+00'TNB' - 455+00'TNB', RT	0	0	500	500	0	0	0	0	45	0	0	60	0	0
2	455+00'TNB' - 460+00'TNB', RT	0	20	250	250	280	0	0	0	45	0	0	0	0	0
2	460+00'TNB' - 465+00'TNB', RT	4	170	500	500	0	0	0	0	0	0	0	60	16	0
2	465+00'TNB' - 470+00'TNB', RT	19	20	500	500	0	0	0	0	45	4	0	0	72	0
2	470+00'TNB' - 475+00'TNB', RT	3	0	400	400	0	0	0	0	45	0	0	40	11	0
2	475+00'TNB' - 480+00'TNB', RT	0	0	0	0	0	0	0	0	60	0	0	0	0	0
2	480+00'TNB' - 485+00'TNB', RT	0	0	200	200	0	0	0	0	30	0	0	20	0	0
2	UNDISTRIBUTED	0	0	0	0	0	0	0	0	0	0	2	0	0	1
SUBTOTAL		29	210	2600	2600	280	0	0	0	330	4	0	200	114	1
3	58+00'SB-A' - 60+00'SB-A', LT & RT	0	65	250	250	70	0	0	0	0	0	0	0	0	0
3	60+00'SB-A' - 66+00'SB-A', LT & RT	0	130	600	600	225	0	0	0	15	4	0	40	0	0
3	2466+00'SB' - 2470+00'SB', LT & RT	12	0	400	400	0	1	0	1	45	0	0	0	36	0
3	70+00'SB-B' - 76+00'SB-B', LT & RT	0	0	150	150	0	1	1	0	15	8	0	0	0	0
3	UNDISTRIBUTED	0	0	0	0	0	0	0	0	0	0	2	0	0	1
SUBTOTAL		12	195	1400	1400	295	2	1	1	75	12	2	40	36	1
SIGGELKOW RD															
	46+85'SK' - 53+60'SK', LT	0	0	300	300	0	0	0	0	15	12	0	0	0	0
	46+85'SK' - 53+60'SK', RT	0	35	300	300	0	0	0	0	15	0	0	0	0	0
	UNDISTRIBUTED	0	0	0	0	0	0	0	0	0	0	2	0	0	1
SUBTOTAL		0	35	600	600	0	0	0	0	30	12	2	0	0	1
TOTAL		45	440	7210	7210	575	7	4	1	510	48	6	440	167	4

(\*) QUANTITY LISTED ELSEWHERE

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

**STORM SEWER ITEMS**

STRUCTURE NUMBER	STATION	LOCATION	ALIGNMENT	(*)											RIM ELEVATION	INVERT ELEVATION	NOTES
				520.8000 CONCRETE COLLARS FOR PIPE EACH	611.0530 MANHOLE COVERS TYPE J EACH	611.0606 INLET COVERS TYPE B EACH	611.0612 INLET COVERS TYPE C EACH	611.0654 INLET COVERS TYPE V EACH	611.2004 MANHOLES 4-FT DIAMETER EACH	611.2005 MANHOLES 5-FT DIAMETER EACH	611.2006 MANHOLES 6-FT DIAMETER EACH	611.3004 INLETS 4-FT DIAMETER EACH	611.3220 INLETS 2X2-FT EACH				
2	444+24	56.75' LT	NB	-	-	-	1	-	-	-	-	1	-	-	876.11	868.20	A
3	444+21	33.87' LT	NB	2	1	-	-	-	-	-	1	-	-	-	876.57	868.30	B
19	2466+80	48.00' LT	SB	-	-	-	-	1	-	-	-	-	-	1	890.00	882.00	
5	473+36	39.95' LT	NB	-	-	-	-	-	-	-	-	-	-	-	-	895.07	C
6	476+00	32.35' LT	NB	-	1	-	-	-	-	1	-	-	-	-	906.28	898.32	
7	479+00	16.96' LT	NB	-	-	1	-	-	-	-	-	-	1	-	909.60	902.00	
8	480+00	22.38' LT	NB	-	-	1	-	-	-	-	-	-	1	-	910.09	903.40	
<b>TOTAL</b>				<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>			

NOTES:

- A CONNECT SURFACE DRAIN PIPE CORRUGATED METAL SLOTTED 18-INCH TO EXISTING CULVERT PIPE
- B CONNECT MANHOLE TO EXISTING CULVERT PIPE
- C CONNECT TO EXISTING MEDIAN INLET (FIELD ENGINEER TO VERIFY INVERT ELEVATION)
- \* QUANTITY LISTED ELSEWHERE

**STORM SEWER PIPES**

PIPE NUMBER	FROM STR	TO STR	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH LF
P1	6	5	898.32	895.07	-1.23%	265
P2	7	6	902.00	898.32	-1.23%	300
P3	8	7	903.40	902.00	-1.40%	100
<b>TOTAL</b>						<b>665</b>

**CRASH CUSHIONS TEMPORARY**

LOCATION	614.0905 CRASH CUSHIONS TEMPORARY EA	
IH 39 - STAGE 1B	3	
IH 39 - STAGE 2	1	
IH 39 - STAGE 3	3	
<b>TOTAL</b>		<b>7</b>

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET NO:

**E**

**LANDSCAPING ITEMS**

		625.0500	627.0200	628.2004	628.6510	629.0205	630.0120	630.0130	630.0200	630.0300
		SALVAGED	MULCHING	EROSION MAT	SOIL	FERTILIZER TYPE A	SEEDING MIXTURE	SEEDING MIXTURE	SEEDING	SEEDING
		TOPSOIL		CLASS I TYPE B	STABILIZER		NO. 20	NO. 30	TEMPORARY	BORROW
STAGE	LOCATION	SY	SY	SY	TYPE B	CWT	LBS	LBS	LBS	PIT
					ACRE					LBS
1	435+00'NB' - 440+00'NB', LT	2025	0	2025	0	1.3	0	37	0	0
1	440+00'NB' - 445+00'NB', LT	1075	0	1075	0	0.7	0	20	0	0
1	445+00'NB' - 450+00'NB', LT	1265	0	1265	0	0.8	0	23	0	0
1	450+00'NB' - 455+00'NB', LT	2155	0	2155	0	1.4	0	39	0	0
1	455+00'NB' - 460+00'NB', LT	1600	0	1600	0	0.9	0	29	0	0
1	460+00'NB' - 465+00'NB', LT	1475	0	1475	0	0.9	0	27	0	0
1	465+00'NB' - 470+00'NB', LT	1225	0	1225	0	0.8	0	23	0	0
1	470+00'NB' - 475+00'NB', LT	2155	0	2155	0	1.4	0	39	0	0
1	475+00'NB' - 480+00'NB', LT	1445	0	1445	0	0.9	0	27	0	0
1	480+00'NB' - 485+00'NB', LT	1750	0	1750	0	1.1	0	32	0	0
1	485+00'NB' - 490+00'NB', LT	2615	0	2615	0	1.6	0	48	0	0
1	490+00'NB' - 495+00'NB', LT	695	0	695	0	0.4	0	13	0	0
1	UNDISTRIBUTED	0	0	0	0	0	0	0	175	0
SUBTOTAL		19480	0	19480	0	12.2	0	357	175	0
2	440+00'TNB' - 445+00'TNB', RT	560	0	560	0	0.4	10	4	0	0
2	445+00'TNB' - 450+00'TNB', RT	1310	0	1310	0	0.8	22	9	0	0
2	450+00'TNB' - 455+00'TNB', RT	2185	0	2185	0	1.4	37	15	0	0
2	455+00'TNB' - 460+00'TNB', RT	2320	0	2320	0	1.5	39	16	0	0
2	460+00'TNB' - 465+00'TNB', RT	2500	0	2500	0	1.6	42	18	0	0
2	465+00'TNB' - 470+00'TNB', RT	2765	0	2765	0	1.7	47	19	0	0
2	470+00'TNB' - 475+00'TNB', RT	2700	0	2700	0	1.7	46	19	0	0
2	475+00'TNB' - 480+00'TNB', RT	2530	0	2530	0	1.6	43	18	0	0
2	480+00'TNB' - 485+00'TNB', RT	1515	0	1515	0	1	26	11	0	0
2	UNDISTRIBUTED	0	1000	0	0	0	0	0	165	0
SUBTOTAL		18385	1000	18385	0	11.7	312	129	165	0
3	58+00'SB-A' - 60+00'SB-A', LT & RT	1765	0	1765	0	1.1	30	20	0	0
3	60+00'SB-A' - 66+00'SB-A', LT & RT	6750	0	6750	0	4.3	113	73	0	0
3	2466+00'SB' - 2470+00'SB', LT & RT	1365	0	1365	0	0.9	23	15	0	0
3	70+00'SB-B' - 76+00'SB-B', LT & RT	4280	0	4280	0	2.7	72	47	0	0
3	UNDISTRIBUTED	0	700	0	0.4	0	0	0	130	150
SUBTOTAL		14160	700	14160	0.4	9	238	155	130	150
SIGGELKOW RD										
	46+85'SK' - 53+60'SK', LT	3500	0	3500	0	2.2	59	20	0	0
	46+85'SK' - 53+60'SK', RT	1800	0	1800	0	1.1	31	20	0	0
	UNDISTRIBUTED	0	300	0	0	0	0	0	50	0
SUBTOTAL		5300	300	5300	0	3.3	90	40	50	0
TOTAL		57325	2000	57325	0.4	36.2	640	681	520	150

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET NO:

E

3

3

TRAFFIC CONTROL

STA.	TO STA.	DIRECTION	603.8000	603.8125	643.0300		643.0420		643.0500	643.0600	643.0705		643.0715		643.0800		643.0900		643.1050		
			CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	DRUMS		BARRICADES TYPE III		MARKER POSTS EACH	MARKER BASES EACH	WARNING LIGHTS TYPE A		WARNING LIGHTS TYPE C		ARROW BOARDS		SIGNS		SIGNS PCMS		
			LF	LF	NO.	DAYS	NO.	DAYS	EACH	EACH	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS	
STAGE 1A																					
430+00	441+00	NB	0	0	42	210	2	10	0	0	4	20	13	65	2	10	16	80	0	0	
		SB	0	0	6	30	0	0	0	0	0	0	0	0	0	4	20	0	0		
441+00	455+00	NB	0	0	13	65	2	10	0	0	4	20	0	0	0	0	2	10	0	0	
		SB	0	0	13	65	1	5	0	0	2	10	0	0	0	0	1	5	0	0	
455+00	469+00	NB	0	0	15	75	1	5	0	0	2	10	0	0	0	0	1	5	0	0	
		SB	0	0	15	75	1	5	0	0	2	10	0	0	0	0	1	5	0	0	
469+00	483+00	NB	0	0	13	65	1	5	0	0	2	10	0	0	0	0	1	5	0	0	
		SB	0	0	13	65	1	5	0	0	2	10	0	0	0	0	1	5	0	0	
483+00	496+00	NB	0	0	5	25	0	0	0	0	0	0	0	0	0	5	25	0	0		
		SB	0	0	44	220	2	10	0	0	4	20	13	65	2	10	16	80	0	0	
		SUBTOTAL	0	0	179	895	11	55	0	0	22	110	26	130	4	20	48	240	0	0	
STAGE 1B																					
430+00	441+00	NB	810	810	10	90	0	0	0	0	0	0	0	0	1	9	14	126	0	0	
		SB	600	600	0	0	0	0	0	0	0	0	0	0	0	0	4	36	0	0	
441+00	455+00	NB	1400	1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		SB	900	900	10	90	0	0	0	0	0	0	0	0	1	9	6	54	0	0	
455+00	469+00	NB	1250	1250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
469+00	483+00	NB	1400	1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		SB	875	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
483+00	496+00	NB	575	575	0	0	0	0	0	0	0	0	0	0	0	0	4	36	0	0	
		SB	1076	1076	10	90	0	0	0	0	0	0	0	0	1	9	14	126	0	0	
		SUBTOTAL	8886	8886	30	270	0	0	0	0	0	0	0	0	3	27	42	378	0	0	
STAGE 2																					
430+00	441+00	NB	0	0	14	1372	0	0	0	0	0	0	14	1372	1	98	12	1176	0	0	
		SB	0	0	0	0	0	0	7	7	0	0	0	0	0	0	4	392	0	0	
441+00	455+00	NB	1375	1375	2	196	0	0	19	19	0	0	0	0	0	0	0	0	0	0	
		SB	0	0	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	
455+00	469+00	NB	1400	1400	0	0	0	0	3	3	0	0	0	0	0	0	2	196	0	0	
		SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
469+00	483+00	NB	1400	1400	0	0	0	0	14	14	0	0	0	0	0	0	2	196	0	0	
		SB	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	
483+00	496+00	NB	175	175	5	490	0	0	0	0	0	0	4	392	0	0	4	392	0	0	
		SB	0	0	0	0	0	0	5	5	0	0	0	0	0	0	14	1372	0	0	
SIGGELKOW			0	0	0	0	8	784	0	0	10	980	0	0	0	0	8	784	2	20	
		SUBTOTAL	4350	4350	21	2058	8	784	63	63	10	980	18	1764	1	98	46	4508	2	20	
STAGE 3																					
430+00	441+00	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	1512	0	0	
		SB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	432	0	0	
441+00	455+00	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		SB	1400	1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
455+00	469+00	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	216	0	0	
		SB	1400	1400	0	0	0	0	0	0	0	0	0	0	0	0	2	216	0	0	
469+00	483+00	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	216	0	0	
		SB	1200	1200	0	0	3	324	0	0	2	216	0	0	0	0	3	324	0	0	
483+00	496+00	NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	432	0	0	
		SB	0	0	5	540	1	108	0	0	2	216	5	540	0	0	15	1620	0	0	
SIGGELKOW			0	0	0	0	8	864	0	0	10	1080	0	0	0	0	8	864	0	0	
		SUBTOTAL	4000	4000	5	540	12	1296	0	0	14	1512	5	540	0	0	54	5832	0	0	
TOTAL			17236	17236	235	3763	31	2135	63	63	46	2602	49	2434	8	145	190	10958	2	20	

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET NO:

E

**TEMPORARY PAVEMENT MARKING**

649.0200

REFLECTIVE PAINT 4-INCH

WHITE YELLOW WHITE SKIP  
(12.5' LINE; 37.5' GAP)

STA.	TO STA.	DIRECTION	LF	LF	LF
<b>STAGE 1A</b>					
430+00	441+00	NB	---	660	---
		SB	---	---	---
441+00	455+00	NB	---	---	---
		SB	---	---	---
455+00	469+00	NB	---	---	---
		SB	---	---	---
469+00	483+00	NB	---	---	---
		SB	---	---	---
483+00	496+00	NB	---	---	---
		SB	---	660	---
SUBTOTAL			0	1320	0

**STAGE 1B**

430+00	441+00	NB	---	---	---
		SB	---	---	---
441+00	455+00	NB	---	---	---
		SB	---	---	---
455+00	469+00	NB	---	---	---
		SB	---	---	---
469+00	483+00	NB	---	---	---
		SB	---	---	---
483+00	496+00	NB	---	---	---
		SB	---	---	---
SUBTOTAL			0	0	0

**TEMPORARY PAVEMENT MARKING**

649.0200

REFLECTIVE PAINT 4-INCH

WHITE YELLOW WHITE SKIP  
(12.5' LINE; 37.5' GAP)

STA.	TO STA.	DIRECTION	LF	LF	LF
<b>STAGE 2</b>					
430+00	441+00	NB	425	425	107
		SB	---	---	---
441+00	455+00	NB	1400	1400	350
		SB	---	---	---
455+00	469+00	NB	1400	1400	350
		SB	---	---	---
469+00	483+00	NB	1400	1400	350
		SB	---	---	---
483+00	496+00	NB	400	400	100
		SB	---	---	---
SUBTOTAL			5025	5025	1257

**STAGE 3**

430+00	441+00	NB	500	500	125
		SB	700	700	175
441+00	455+00	NB	1400	1400	350
		SB	1400	1400	350
455+00	469+00	NB	1400	1400	350
		SB	1400	1400	350
469+00	483+00	NB	1400	1400	350
		SB	1400	1400	350
483+00	496+00	NB	800	800	200
		SB	800	800	200
SUBTOTAL			11200	11200	2800

TOTAL 16225 17545 4057

TOTAL (ALL) 37827

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET NO:

E

**PERMANENT PAVEMENT MARKING**

LOCATION	646.0106 EPOXY 4-INCH (12.5' LINE - 37.5' GAP) (WHITE) LF	646.0106 EPOXY 4-INCH (SOLID) (WHITE) LF	646.0106 EPOXY 4-INCH (SOLID) (YELLOW) LF	646.0106 EPOXY 4-INCH (SOLID) (DOUBLE YELLOW) LF	646.0106 EPOXY 4-INCH (10' LINE - 30' GAP) (YELLOW) LF
<b>IH 39 NB</b>					
432+00"NB"	440+00"NB"	200	800	800	0
440+00"NB"	454+50"NB"	363	1450	1450	0
454+50"NB"	469+00"NB"	363	1450	1450	0
469+00"NB"	483+50"NB"	363	1450	1450	0
483+50"NB"	492+00"NB"	213	850	850	0
	SUBTOTAL	1502	6000	6000	0
<b>IH 39 SB</b>					
EST. 30+50"SB"	38+50"SB"	200	800	800	0
38+50"SB"	54+50"SB"	363	1450	1450	0
54+50"SB"	2469+00"SB"	363	1450	1450	0
2469+00"SB"	83+50"SB"	363	1450	1450	0
83+50"SB"	92+00"SB"	213	850	850	0
	SUBTOTAL	1502	6000	6000	0
<b>SIGGELKOW RD</b>					
46+00'SK'	48+00'SK'	0	400	0	0
48+00'SK'	53+00'SK'	0	1000	0	1000
53+00'SK'	55+00'SK'	0	400	0	0
	SUBTOTAL	0	1800	0	1000
	SUBTOTAL	3004	13800	12000	1000
	TOTAL			29879	

**PERMANENT SIGNING ITEMS**

SIGN NO.	638.2101 MOVING SIGNS TYPE I EACH	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	638.4100 MOVING STRUCTURAL STEEL SIGN SUPPORTS EACH	COMMENTS
1	---	---	---	---	SIGN TO REMAIN
2	---	---	---	---	SIGN TO REMAIN
3	---	---	---	---	SIGN TO REMAIN
4	---	---	---	---	SIGN TO REMAIN
5	---	---	---	---	SIGN TO REMAIN
6	---	1	1	---	---
7	---	1	1	---	---
8	---	1	1	---	---
9	---	1	1	---	---
10	---	1	1	---	---
11	---	1	1	---	---
12	---	---	---	---	SIGN TO REMAIN
13	---	1	1	---	---
14	---	1	1	---	---
15	---	1	1	---	---
16	1	---	---	2	---
17	---	---	---	---	SIGN TO REMAIN
18	---	---	---	---	SIGN TO REMAIN
19	---	---	---	---	SIGN TO REMAIN
20	---	---	---	---	SIGN TO REMAIN
21	---	1	1	---	---
22	---	1	1	---	---
23	---	---	---	---	SIGN TO REMAIN
24	---	---	---	---	SIGN TO REMAIN
25	---	---	---	---	SIGN TO REMAIN
26	---	---	---	---	SIGN TO REMAIN
TOTAL	1	11	11	2	

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

3

3

PIPE UNDERDRAIN AND FRENCH DRAIN ITEMS

STAGE	LOCATION	204.9060.S REMOVING APRON ENDWALLS EACH	310.0110 BASE AGGREGATE OPEN GRADED TONS	(*) 312.0110 SELECT CRUSHED MATERIAL TONS	608.0512 SSPRC CLASS V 12-INCH LF	(*) 611.0530 MANHOLE COVERS TYPE J EACH	611.2003 MANHOLES 3-FT DIAMETER EACH	612.0106 PIPE UNDERDRAIN 6-INCH LF	612.0206 PIPE UNDERDRAIN UNPERFORATED 6-INCH LF	612.0212 PIPE UNDERDRAIN UNPERFORATED 12-INCH LF	612.0806 AEW FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH EACH	645.0111 GEOTEXTILE FABRIC TYPE DF SCHEDULE A SY	(*) 645.0130 GEOTEXTILE FABRIC TYPE R SY	COMMENTS
1	438+50'NB' - 444+00'NB', LT	0	40	0	0	0	0	550	45	0	0	370	0	
1	438+50'TSB' - 444+00'TSB', RT	0	40	0	0	1	1	550	45	0	0	370	0	A
1	440+00'TSB' - 444+00'TSB', RT	0	0	0	0	0	0	0	0	400	0	0	0	
1	444+00'TSB', 20'RT - 444+20,TSB', 4' RT	0	0	0	27	1	1	0	0	0	0	0	0	A
1	444+20'TSB', 4'RT - 445+00'TSB', 19' LT	0	0	0	87	1	1	0	0	0	0	0	0	A
1	445+00'TSB' - 456+50'TSB', LT	0	81	0	0	0	0	1150	80	4	0	490	0	
1	467+75'TSB' - 477+00'TSB', LT	0	69	0	0	0	0	925	100	4	0	415	0	
1	478+00'TSB' - 484+00'TSB', RT	0	44	0	0	0	0	600	30	0	0	270	0	
1	478+00'NB' - 482+25, 'NB', LT	0	31	0	0	0	0	425	30	0	0	190	0	
1	UNDISTRIBUTED	10	0	0	0	0	0	0	200	0	10	0	0	
SUBTOTAL		10	305	0	114	3	3	4200	530	408	10	2105	0	
2	UNDISTRIBUTED	10	0	0	0	0	0	0	200	0	10	0	0	MAINTAIN EXIST. PIPE UNDERDRAIN
SUBTOTAL		10	0	0	0	0	0	0	200	0	10	0	0	
3	66+00'SB-A', LT	0	0	6	0	0	0	0	0	0	0	0	20	FRENCH DRAIN
3	2466+00'SB' - 2466+40'SB', RT	0	3	0	0	0	0	40	15	0	1	20	0	
3	2469+10'SB' - 2470+00'SB', RT	0	7	0	0	0	0	90	15	0	1	40	0	
3	70+00'SB-A', LT	0	0	6	0	0	0	0	0	0	0	0	20	FRENCH DRAIN
3	2466+80 'SB', 48' LT	0	0	0	0	0	0	0	0	30	0	0	0	CONCRETE SURFACE DRAIN, SEE
SUBTOTAL		0	10	12	0	0	0	130	30	30	2	60	40	
TOTAL		20	315	12	114	3	3	4330	760	438	22	2165	40	

(\*) QUANTITY LISTED ELSEWHERE

A) INVERT AND RIM ELEVATIONS SHOWN IN THE PIPE UNDERDRAIN PLAN DETAILS

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET NO:

E



**SAWING ASPHALT AND SAWING CONCRETE**

STAGE	LOCATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
1	435+75'TSB', RT	4	0
1	435+75'TSB', RT - 445+03'TSB', LT	928	0
1	435+60'NB', LT	4	0
1	445+03'TSB', LT	4	0
1	479+75'TSB', LT	4	0
1	479+75'TSB' - 491+05'TSB', LT	1130	0
1	484+25'TSB', RT	30	0
1	484+25'NB', LT	30	0
1	487+77'NB', LT	4	0
1	491+05'TSB', RT	4	0
SUBTOTAL		2142	0
2	442+85'TNB', RT	8	0
2	484+80'TNB', RT	8	0
SUBTOTAL		16	0
3	58+00'SB-A', LT	8	0
3	58+00'SB-A', RT	4	0
3	58+00'SB-A', LT & RT	0	26
3	74+50'SB-B', LT	8	0
3	74+50'SB-B', RT	4	0
3	74+50'SB-B', LT & RT	0	26
SUBTOTAL		24	52
SIGGELKOW RD			
	46+85'SK', LT & RT	22	0
	48+15'SK', LT & RT	50	0
	53+60'SK', LT & RT	22	0
SUBTOTAL		94	0
TOTAL		2276	52

**PROGRESS SCHEDULE**

	SPV.0060.001 BASELINE CPM PROGRESS SCHEDULE EACH	SPV.0060.002 CPM PROGRESS SCHEDULE UPDATES AND ACCEPTED REVISIONS EACH
PROJECT 1007-10-71	1	10
TOTAL	1	10

**SURVEY PROJECT**

LOCATION	SPV.0105.001 SURVEY PROJECT 1007-10-71 LS
PROJECT 1007-10-71	1
TOTAL	1

**TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE**

643.0200 TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE .200 1007-10-71 DAY	
PROJECT 1007-10-71	220

**MISC. ITEMS**

LOCATION	213.0100 FINISHING ROADWAY .001 1007-10-71 EACH	619.1000 MOBILIZATION EACH
PROJECT 1007-10-71	1	1
TOTAL	1	1

**DELINEATORS**

LOCATION	633.0500 REFLECTORS EA	633.1000 BRACKETS EA	DELINEATOR COLOR	MOUNT TYPE
IH 39 NB	2	2	YELLOW	CONC. BARRIER (MEDIAN / ONE SIDE)
IH 39 SB	2	2	YELLOW	CONC. BARRIER (MEDIAN / ONE SIDE)
SIGGELKOW ROAD	4	4	WHITE	CONC. BARRIER
TOTAL	8	8		

ALL QUANTITIES ARE CATEGORY 1000 UNLESS NOTED

STATE PROJECT NUMBER: 1007-10-71

HWY: IH 39

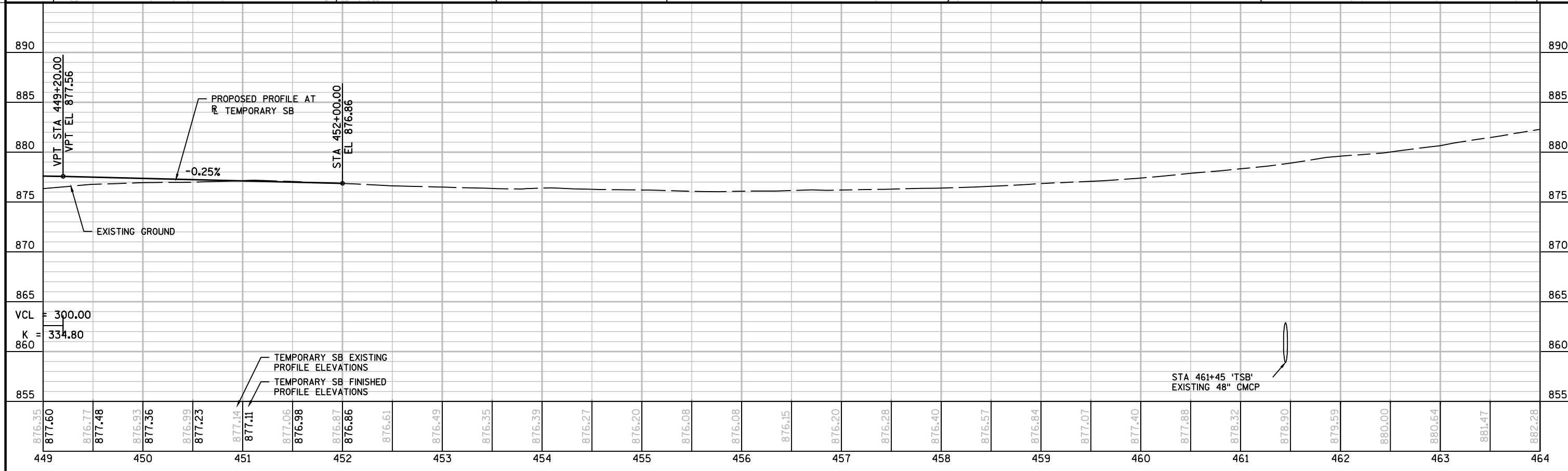
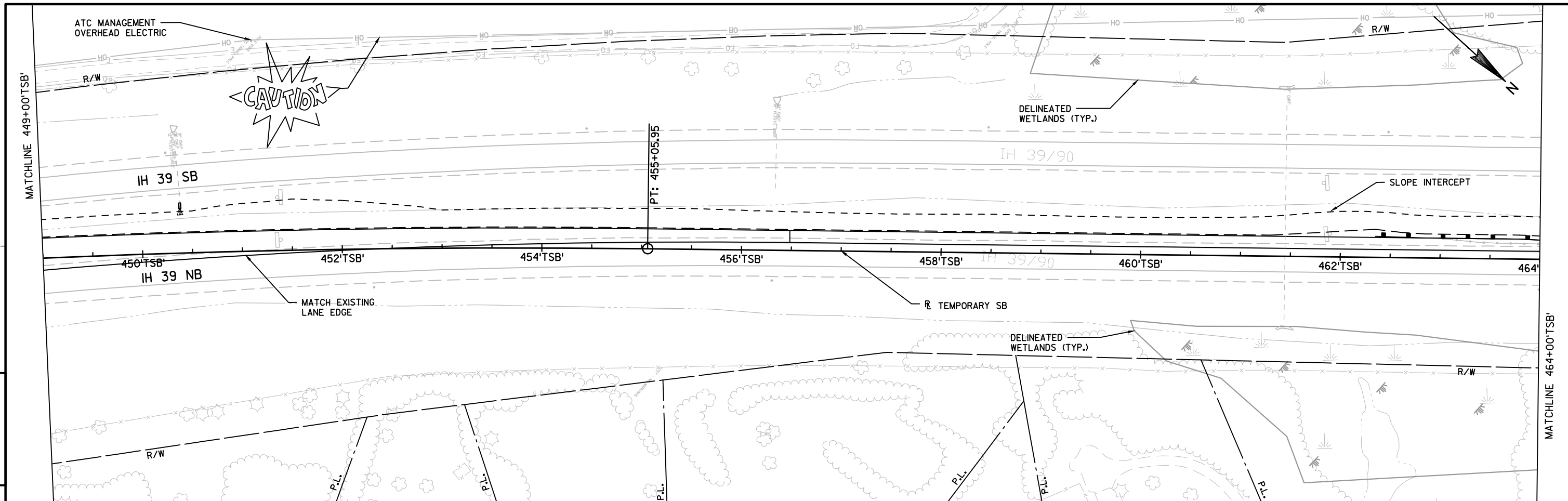
COUNTY: DANE

MISCELLANEOUS QUANTITIES

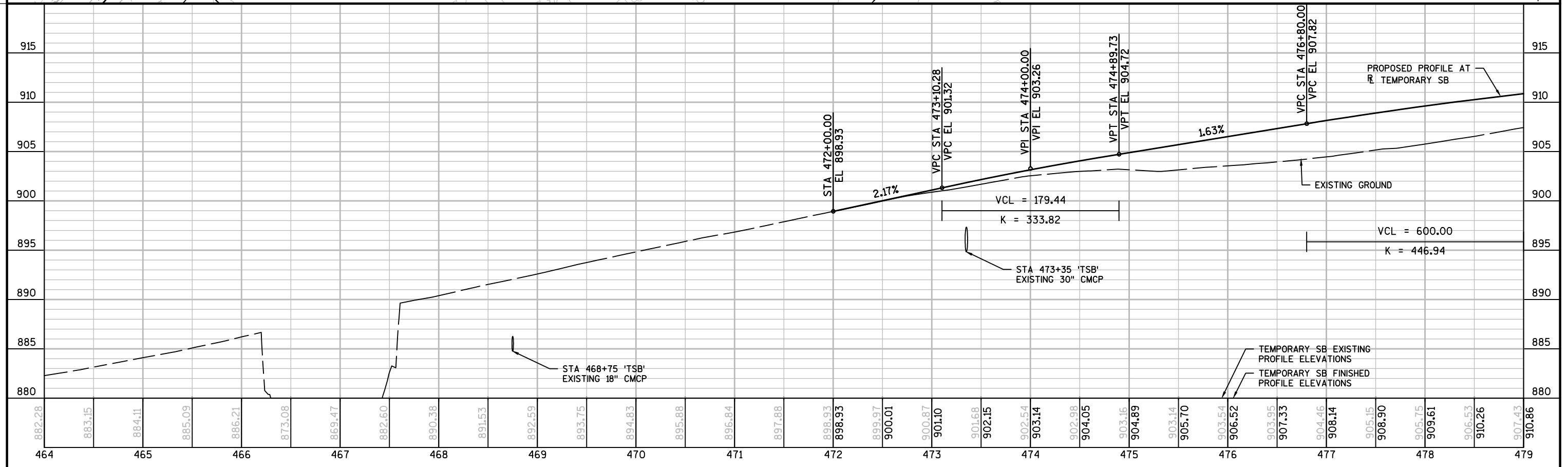
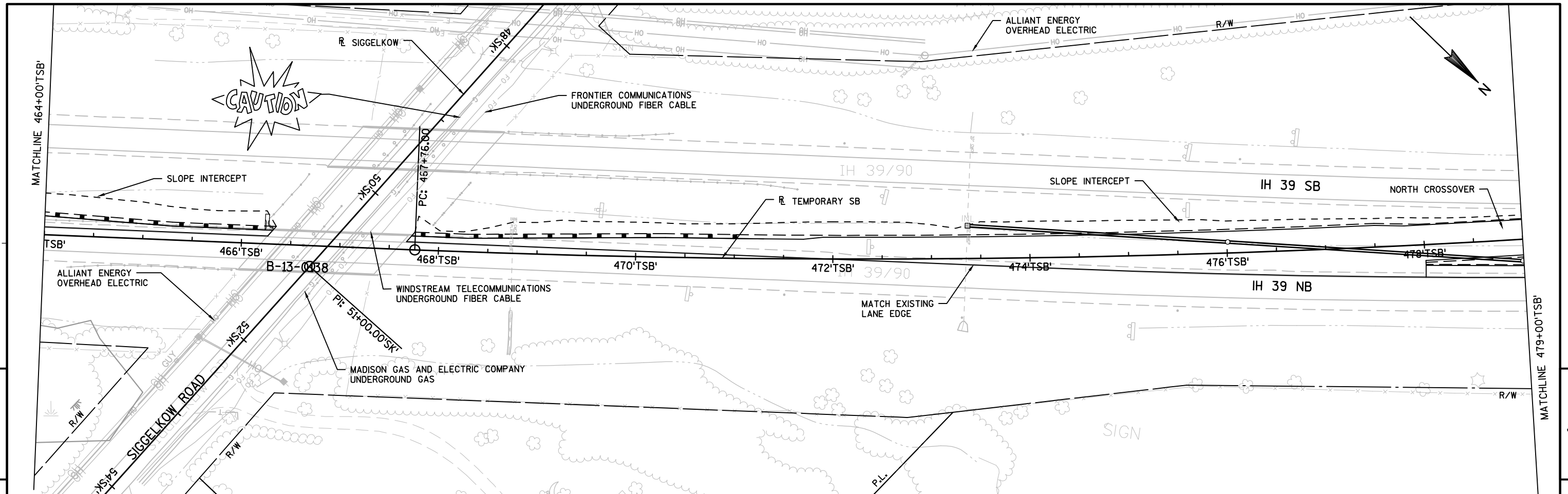
SHEET NO:

E

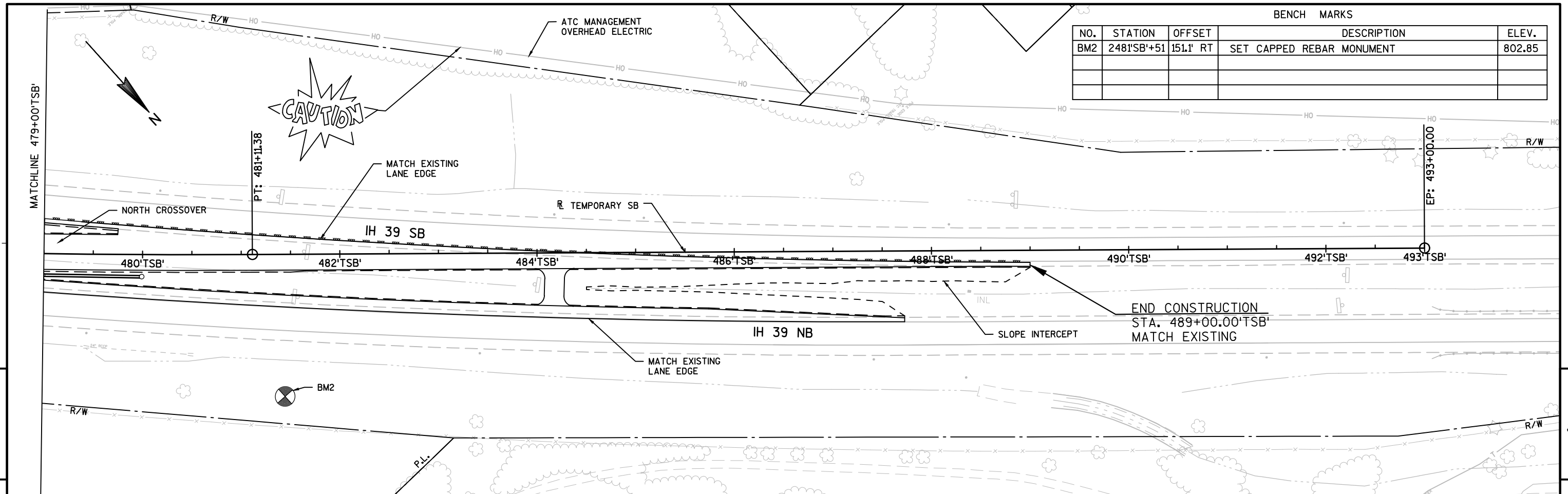




PROJECT NO: 1007-10-71      HWY: IH 39      COUNTY: DANE      PLAN AND PROFILE: SOUTH CROSSOVER      SHEET E



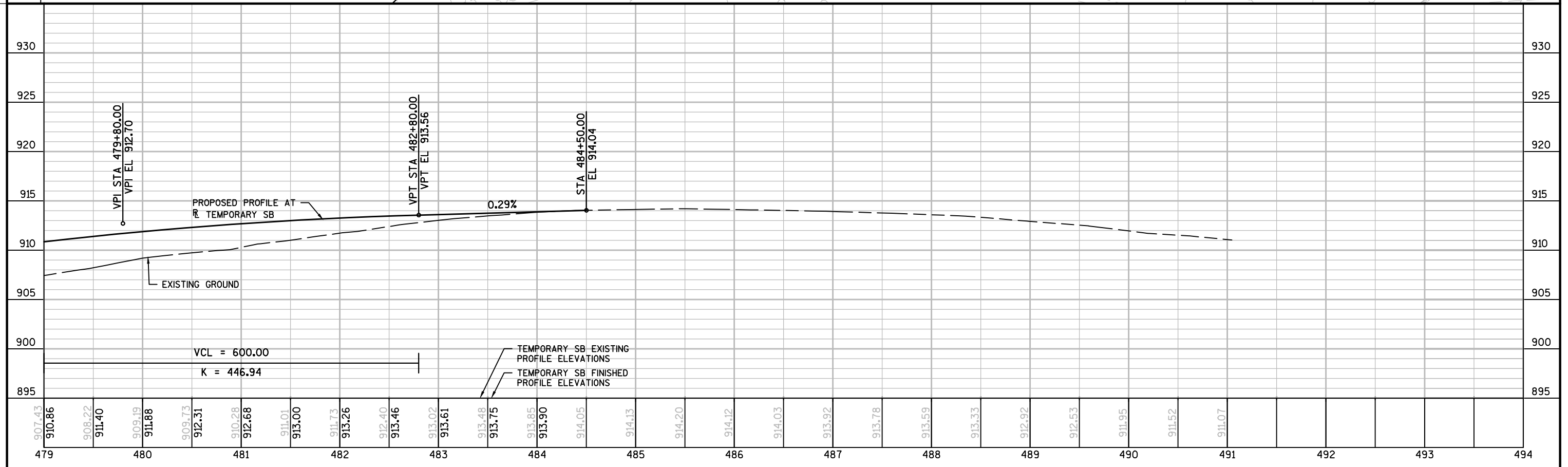
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	PLAN AND PROFILE: NORTH CROSSOVER	SHEET	E
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BENCH MARKS				
NO.	STATION	OFFSET	DESCRIPTION	ELEV.
BM2	248' SB'+51	151.1' RT	SET CAPPED REBAR MONUMENT	802.85

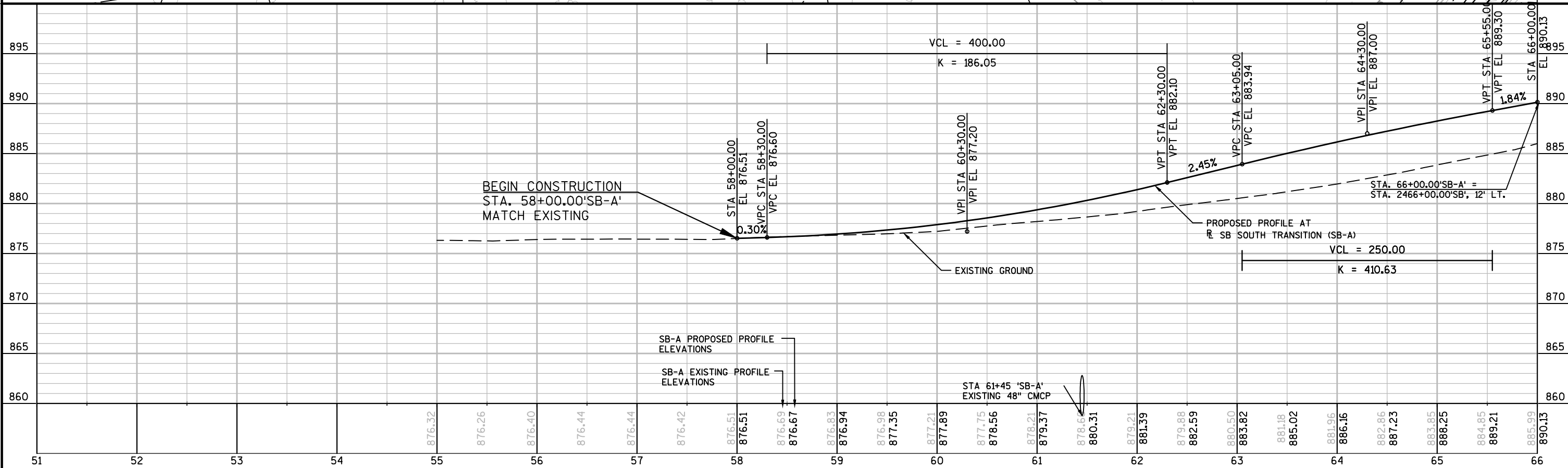
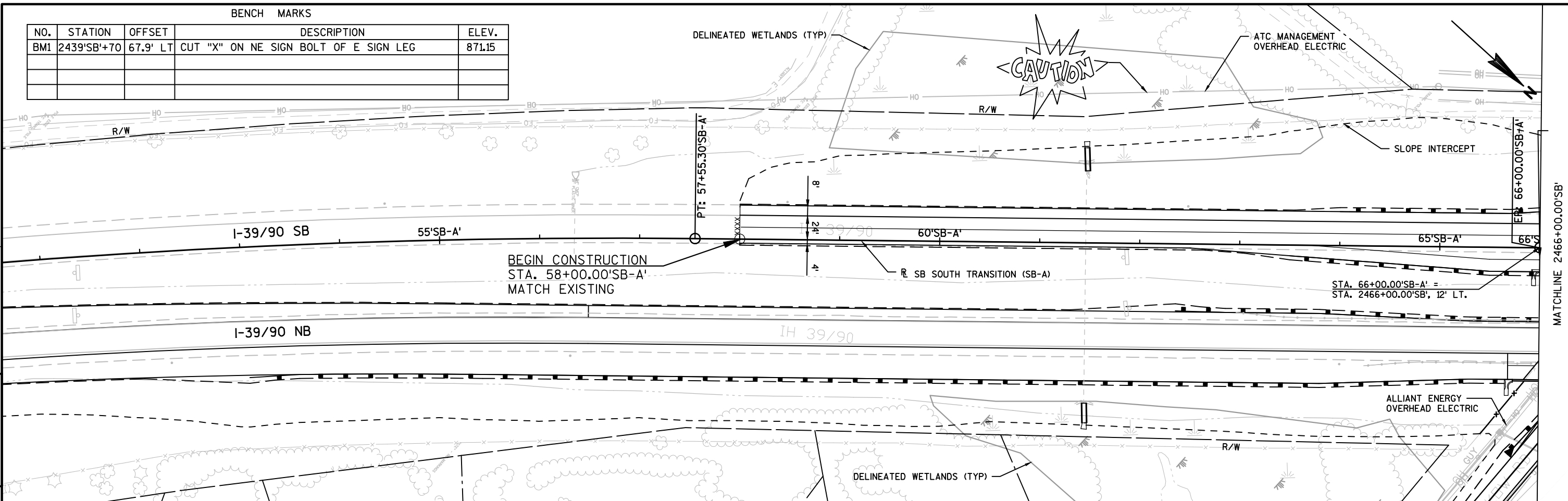
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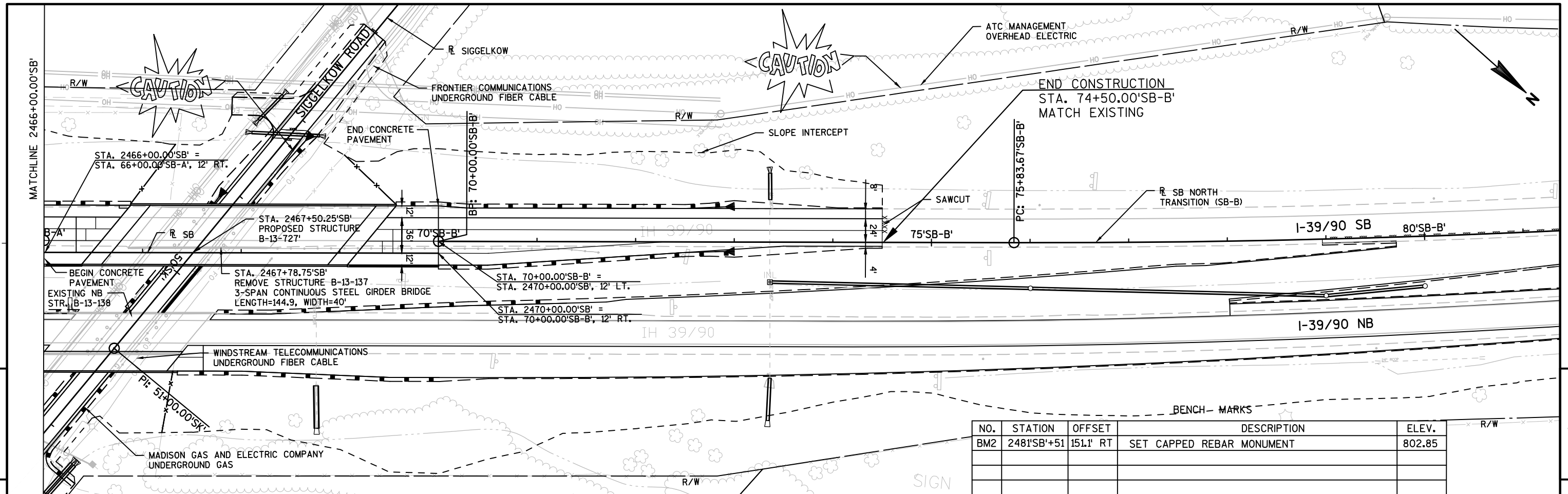
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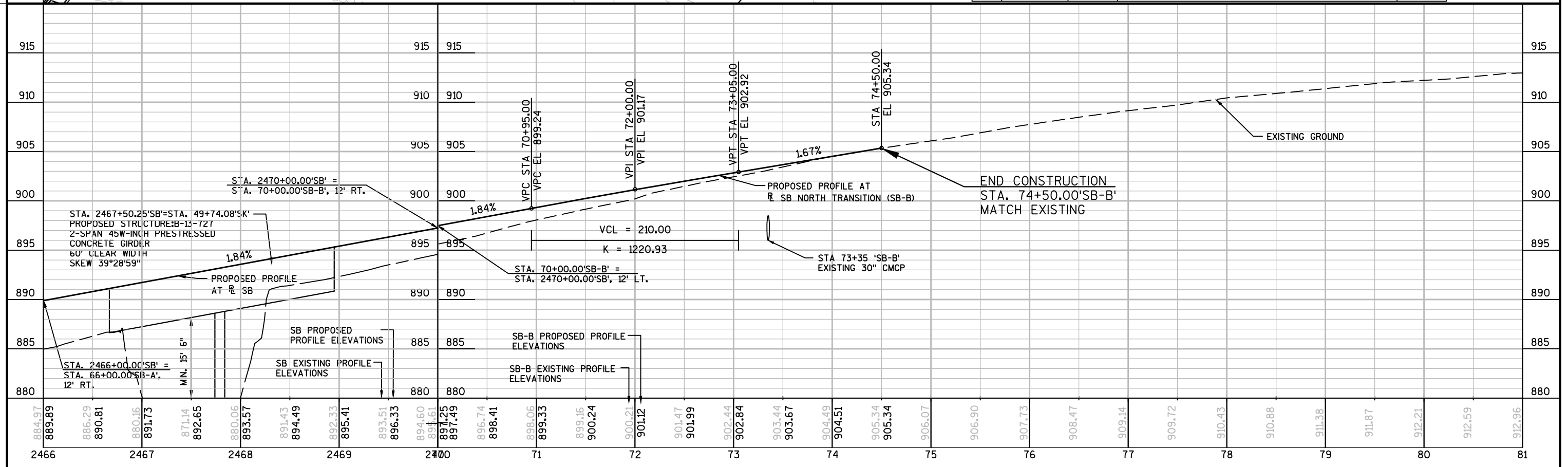
PROJECT NO: 1007-10-71	HWY: IH 39	COUNTY: DANE	PLAN AND PROFILE: NORTH CROSSOVER	SHEET	E
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BENCH MARKS				
NO.	STATION	OFFSET	DESCRIPTION	ELEV.
BM1	2439'SB'+70	67.9' LT	CUT "X" ON NE SIGN BOLT OF E SIGN LEG	871.15





NO.	STATION	OFFSET	DESCRIPTION	ELEV.	R/W
BM2	2481'SB'+51	151.1' RT	SET CAPPED REBAR MONUMENT	802.85	



PROJECT NO: 1007-10-71      HWY: IH 39      COUNTY: DANE      PLAN AND PROFILE: IH 39 SOUTHBOUND      SHEET      E

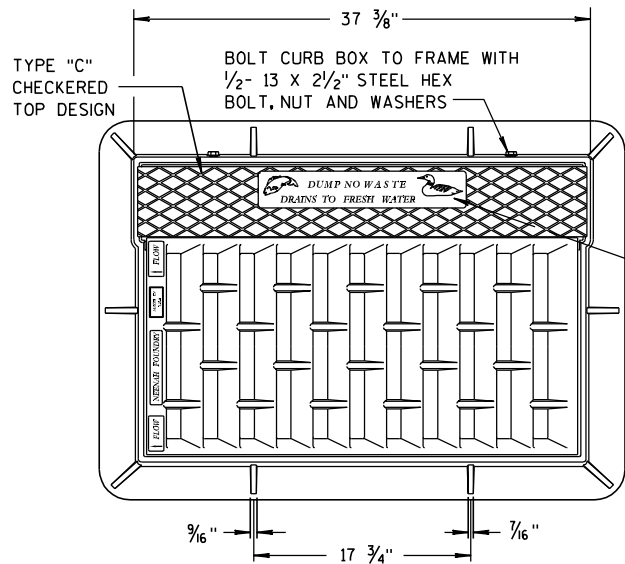
## Standard Detail Drawing List

08A05-18A	INLET COVERS TYPE A, H, A-S, & H-S
08A05-18B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-18C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-18D	INLET COVER, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C06-01	INLETS 3-FT AND 4-FT DIAMETER
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D03-06	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D13-01	SLOTTED CORRUGATED METAL PIPE SURFACE DRAINS
08D15-04A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D15-04B	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08D15-04C	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE FRAINS
12A03-10	NAME PLATE (STRUCTURES)
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
13C04-16	URBAN NON-DOWELED CONCRETE PAVEMENT
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
13C18-02A	CONCRETE PAVEMENT JOINTING
13C18-02B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-02C	CONCRETE PAVEMENT JOINT TIES
14B07-13A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-13H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-01A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDERoads/DRI VEWAYS)
14B20-11A	STEEL THRI E BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11G	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-11H	STEEL THRI E BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B25-01	STEEL PLATE BEAM GUARD, CLASS "A", OVER LOW FILL CULVERTS
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADI US TERMIN AL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADI US TERMIN AL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADI US TERMIN AL
14B29-01	SAFETY EDGE
14B32-02A	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-02B	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-02C	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-02D	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-02E	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B33-01G	CONCRETE BARRIER SINGLE SLOPE 42" THRI E BEAM ANCHOR
14B33-01H	CONCRETE BARRIER SINGLE SLOPE 42" THRI E BEAM ANCHOR
14B39-01E	42-INCH SSCB TO 56-INCH SSCB HEIGHT TRANSITION
14B42-02A	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-02B	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-02C	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L

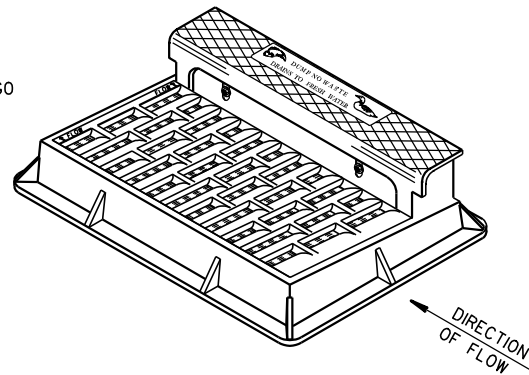


## Standard Detail Drawing List

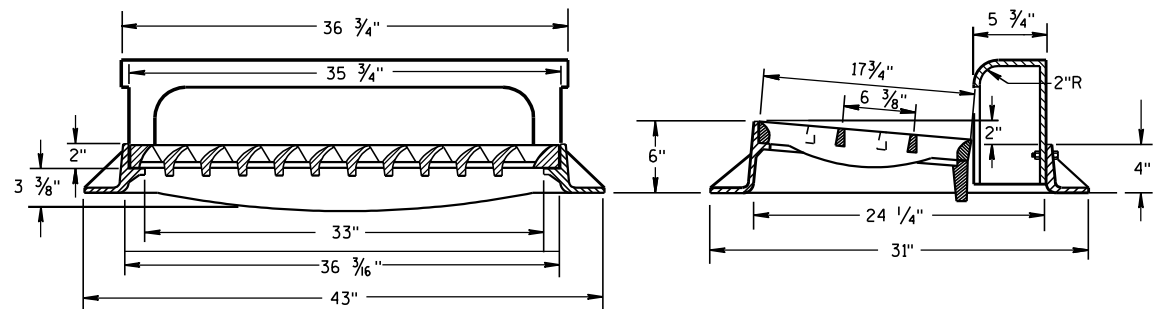
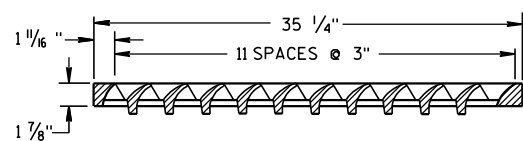
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B47-01A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15A02-08	DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A06-02	DELINEATOR LAYOUT
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-02	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C11-05	FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES
15C19-02A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C19-02C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15D03-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M. P. H. WITH BARRIER
15D12-03	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M. P. H.
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D29-03	TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD



NOTE:  
GRATE IS REVERSIBLE.



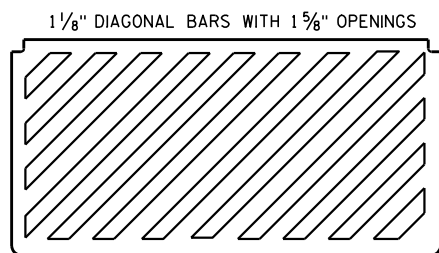
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



**TYPE "H"**

(APPROXIMATE WEIGHT 441 LBS.)

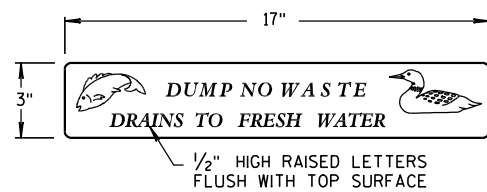
FRAME..... 181 LBS.  
GRATE..... 146 LBS.  
CURB BOX..... 114 LBS.



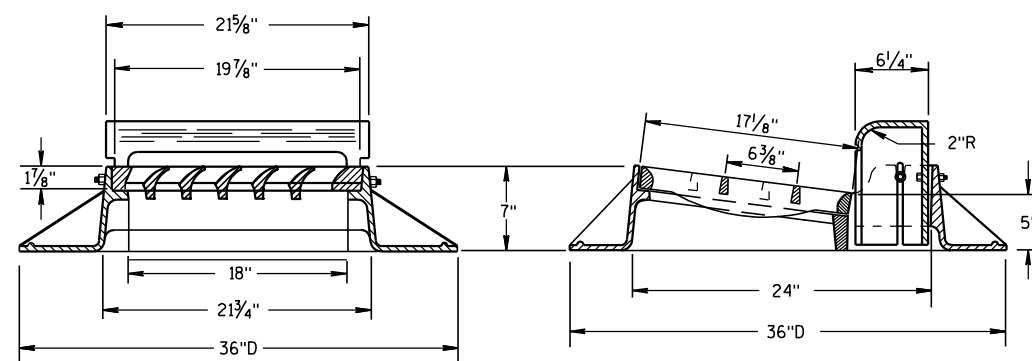
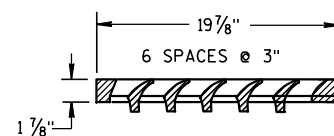
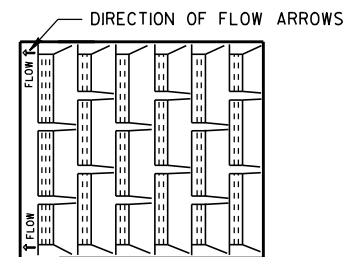
**SPECIAL GRATE FOR  
TYPE "H" COVER**

(MEASURES 35 1/4" X 17 3/4" X 2")  
(APPROXIMATE WEIGHT 159 LBS.)  
GRATE..... 159 LBS.

(NOTED AS TYPE H-S ON DRAINAGE TABLE)



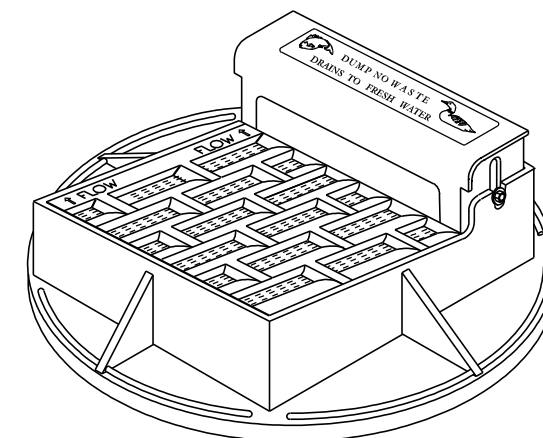
**LOGO DETAIL**



**TYPE "A"**

(APPROXIMATE WEIGHT 340 LBS.)

FRAME..... 185 LBS.  
GRATE..... 71 LBS.  
CURB BOX..... 84 LBS.



NOTE: CURB BOX ADJUSTABLE 4" TO 9"

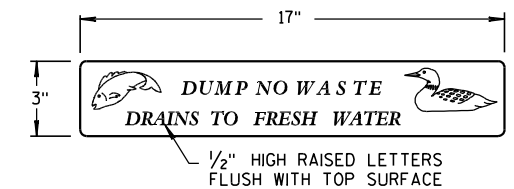
**GENERAL NOTES**

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

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

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

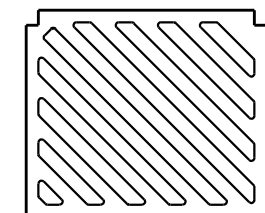
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



**LOGO DETAIL**

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 7/8")  
GRATE..... 84 LBS.

(NOTED AS TYPE A-S ON DRAINAGE TABLE)

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

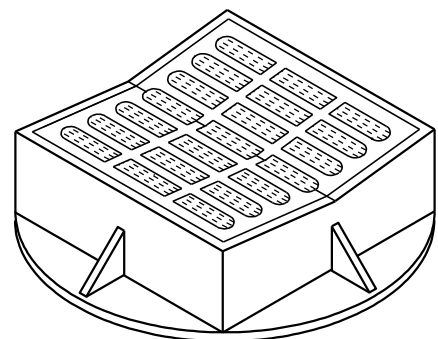
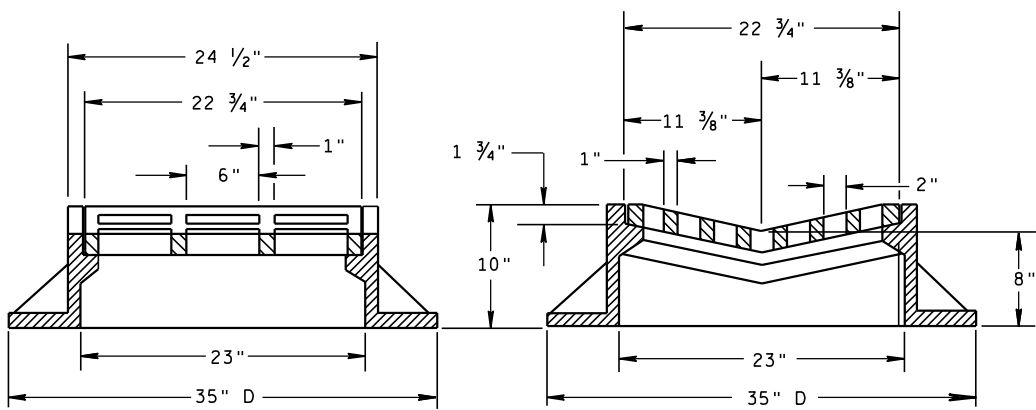
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

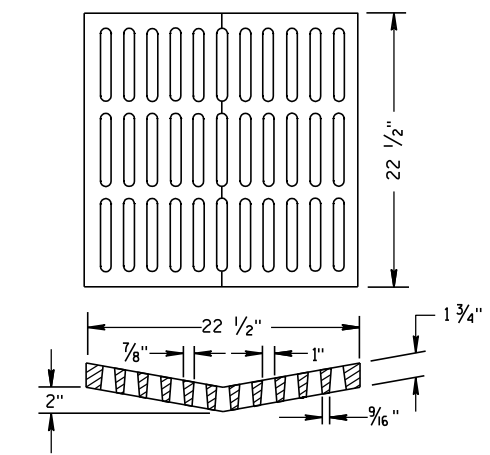
6/5/2012  
DATE

FHWA

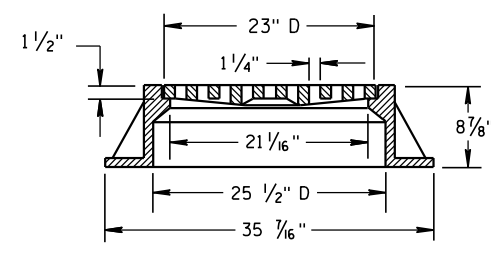
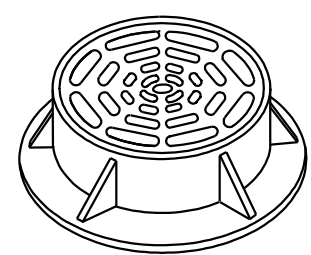
/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



**TYPE "B"**  
(APPROXIMATE WEIGHT 405 LBS.)  
FRAME..... 294 LBS.  
GRATE..... 111 LBS.



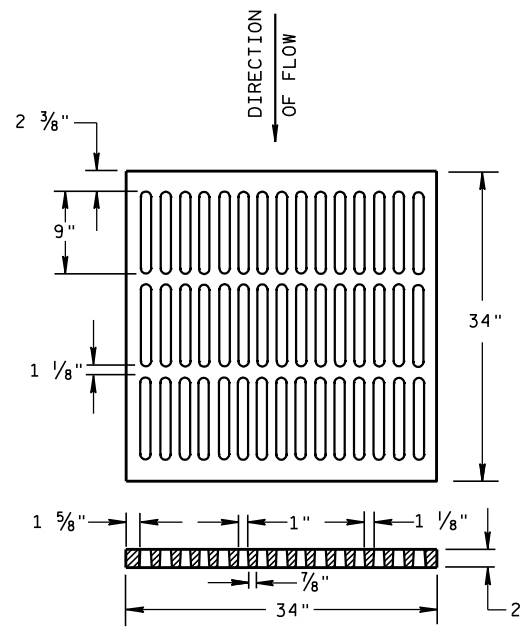
**ALTERNATIVE GRATE FOR TYPE "B" COVER**  
(APPROXIMATE GRATE WEIGHT 134 LBS.)  
USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.  
**NOTED AS TYPE B-A ON THE DRAINAGE TABLE**



**TYPE "C"**  
(APPROXIMATE WEIGHT 259 LBS.)  
FRAME..... 152 LBS.  
GRATE..... 107 LBS.

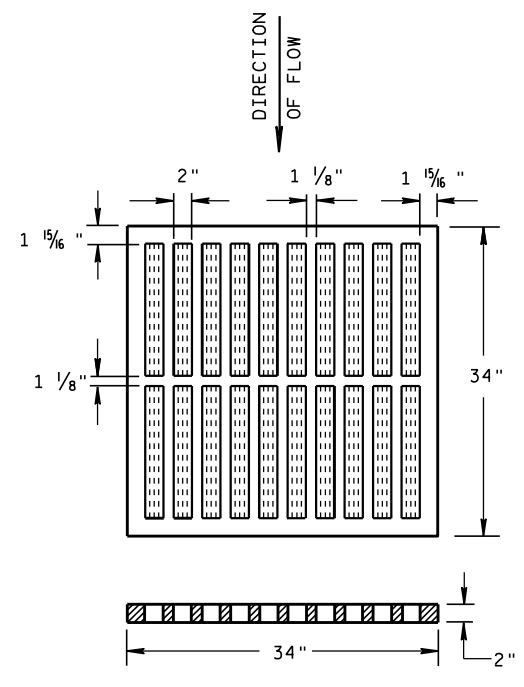
**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.  
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.  
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.  
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



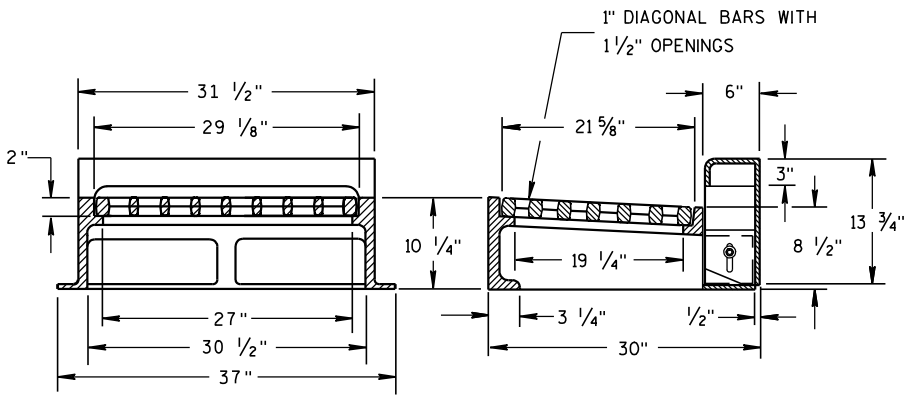
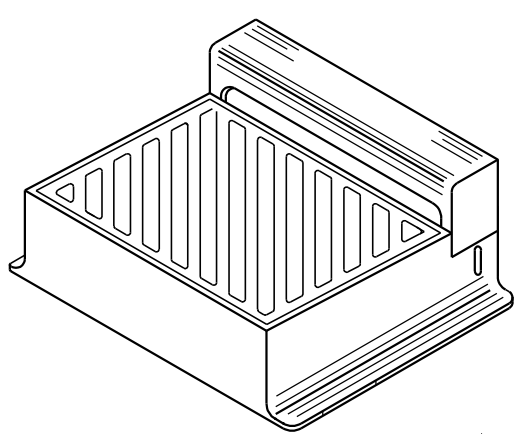
**ALTERNATIVE TYPE "MS"**  
(APPROXIMATE GRATE WEIGHT 329 LBS.)

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



**TYPE "MS"**  
(APPROXIMATE GRATE WEIGHT 268 LBS.)

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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

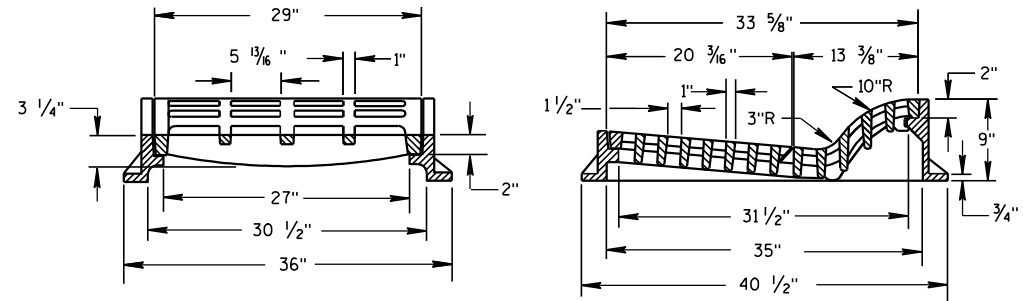
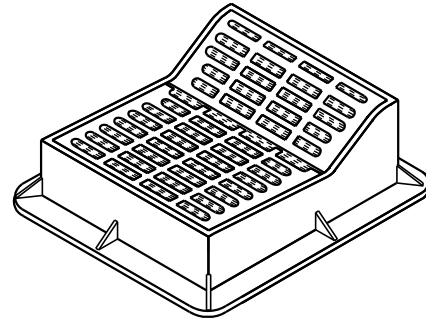
**TYPE "WM"**  
(APPROXIMATE WEIGHT 648 LBS.)  
FRAME..... 355 LBS.  
GRATE..... 156 LBS.  
CURB BOX..... 137 LBS.

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

**INLET COVERS**  
**TYPE B, B-A, C, MS, MS-A, & WM**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



**TYPE "F"**

(APPROXIMATE WEIGHT 644 LBS.)

FRAME.....302 LBS.  
 GRATE.....160 LBS.  
 GRATE.....182 LBS.

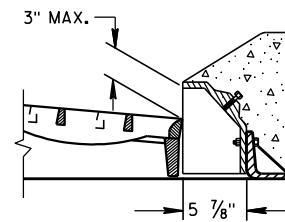
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

**GENERAL NOTES**

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

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

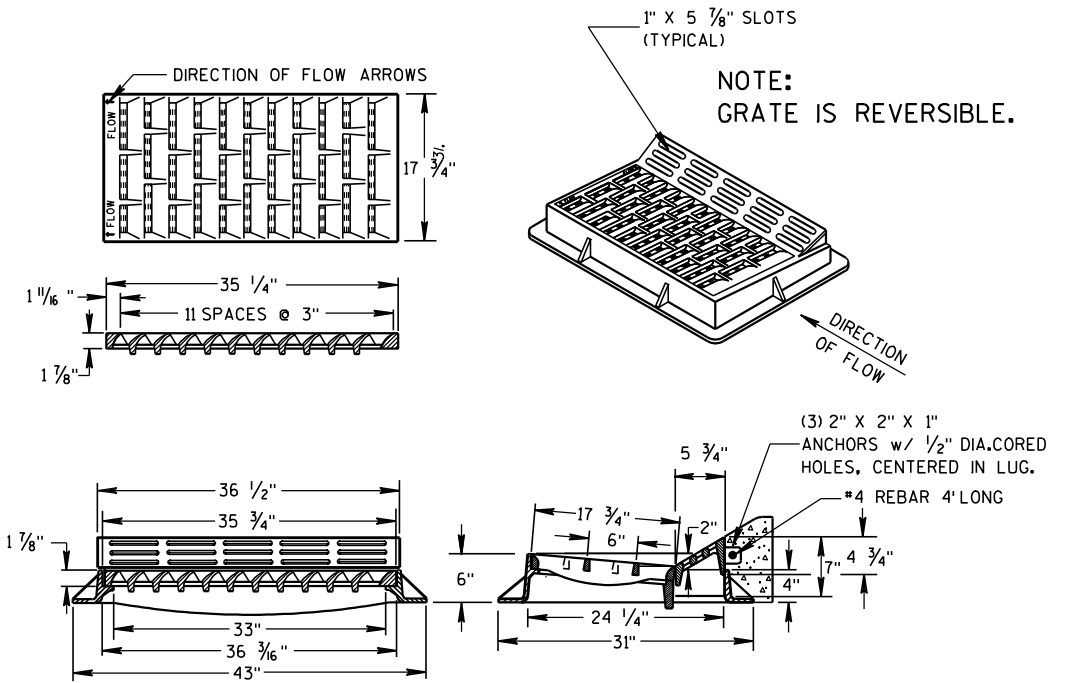
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



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

(APPROXIMATE WEIGHT CURB BOX 68 LBS.)

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



**TYPE "HM"**

(APPROXIMATE WEIGHT 414 LBS.)

FRAME.....181 LBS.  
 GRATE.....159 LBS.  
 CURB BOX.....74 LBS.

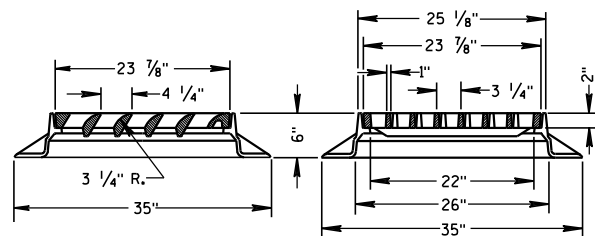
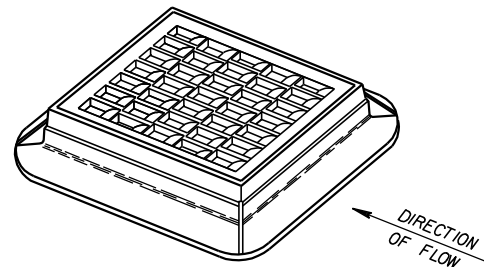
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

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

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

6

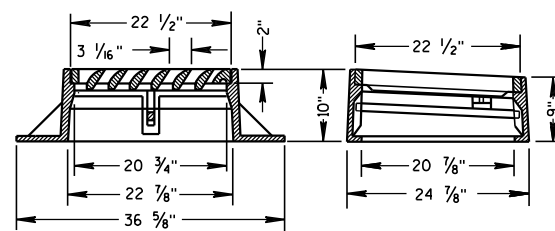
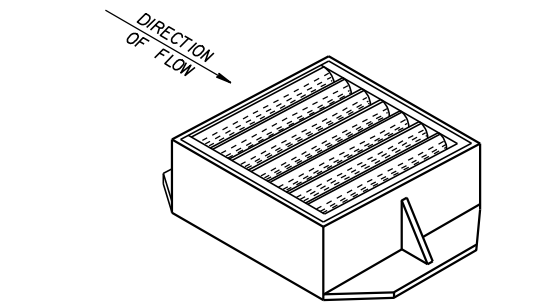
6



**TYPE "S"**

(APPROXIMATE WEIGHT 333 LBS.)

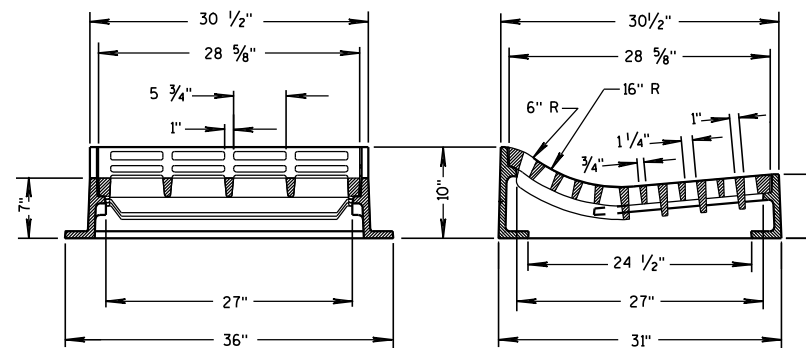
FRAME.....164 LBS.  
 GRATE.....169 LBS.



**TYPE "V"**

(APPROXIMATE WEIGHT 410 LBS.)

FRAME.....269 LBS.  
 GRATE.....136 LBS.  
 SAFETY BAR.....5 LBS.

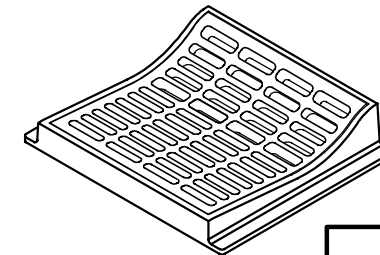


**TYPE "T"**

(APPROXIMATE WEIGHT 530 LBS.)

FRAME.....270 LBS.  
 GRATE.....260 LBS.

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



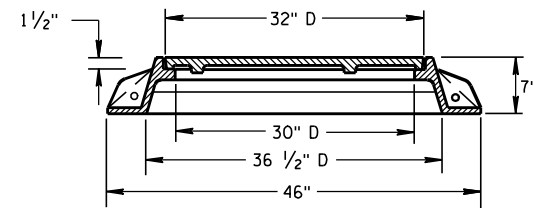
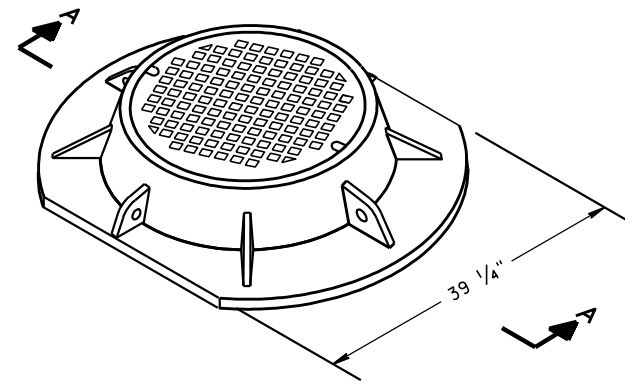
**INLET COVERS  
 TYPE F, HM, HM-S, S, T, V,  
 HM-GJ, & HM-GJ-S**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

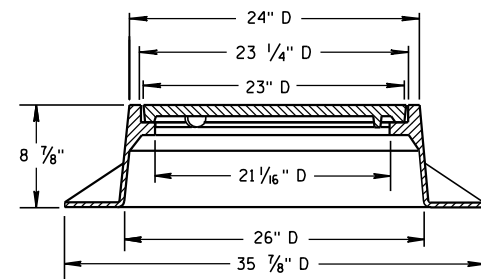
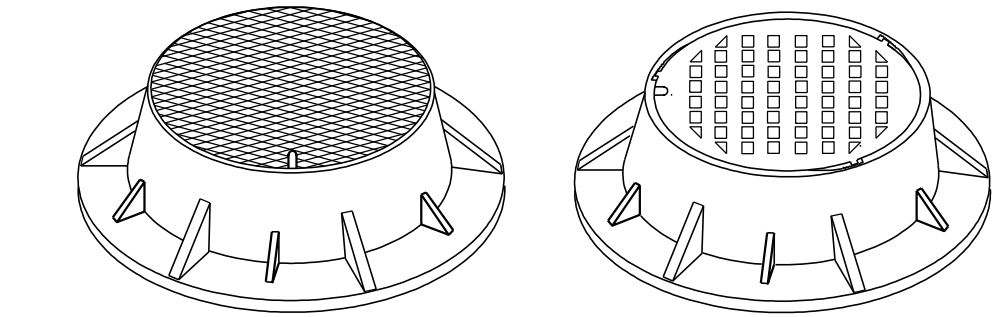
APPROVED  
 6/5/2012 /s/ Jerry H. Zogg  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 ENGINEER  
 FHWA

S.D.D. 8 A 5-18c

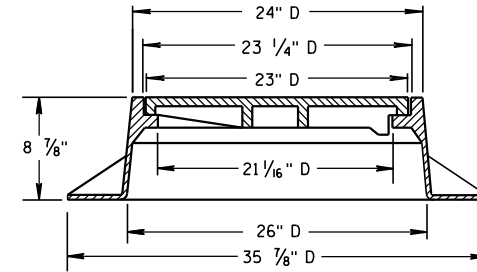
S.D.D. 8 A 5-18c



**SECTION A-A  
TYPE "K"**  
(APPROXIMATE WEIGHT 439 LBS.)  
FRAME.....216 LBS.  
LID.....223 LBS.



**TYPE "J"**  
(APPROXIMATE WEIGHT 267 LBS.)  
FRAME.....152 LBS.  
LID.....115 LBS.



**TYPE "J" SPECIAL**  
TYPE "B" NON-ROCKING SELF-SEAL LID  
(APPROXIMATE WEIGHT 267 LBS.)  
FRAME.....158 LBS.  
LID.....109 LBS.  
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

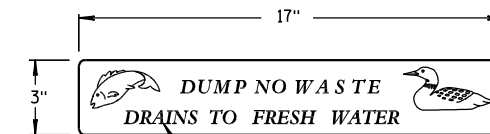
**GENERAL NOTES**

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

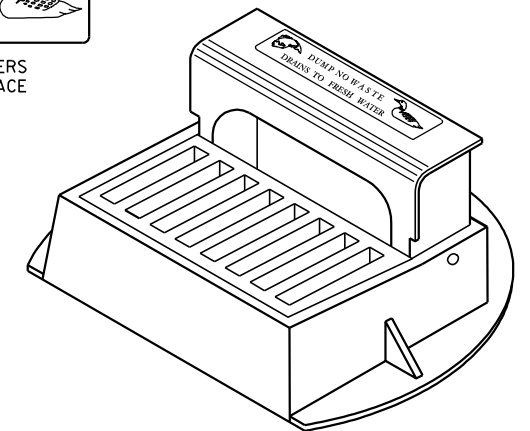
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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

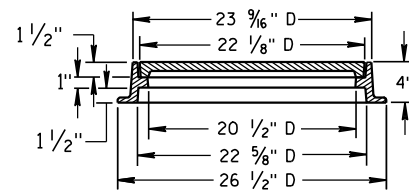
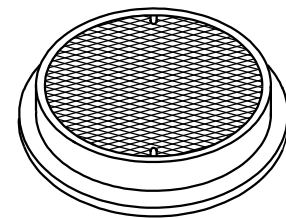
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



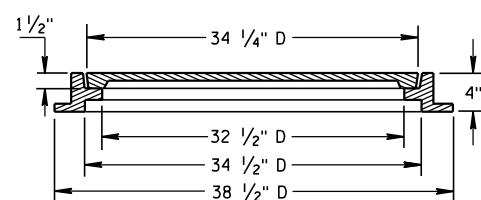
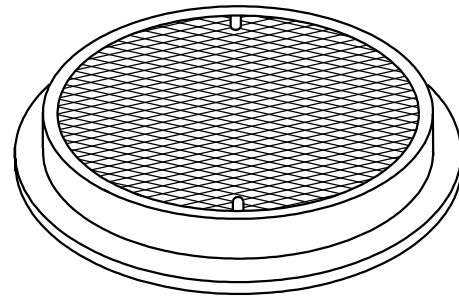
**LOGO DETAIL**



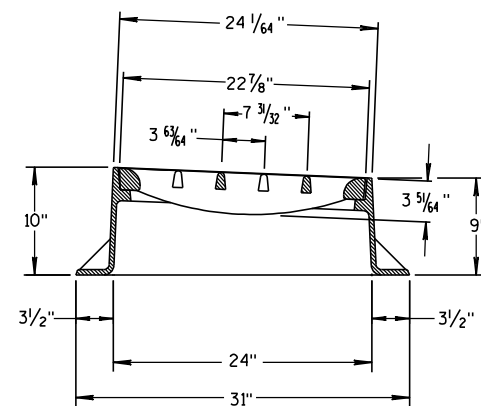
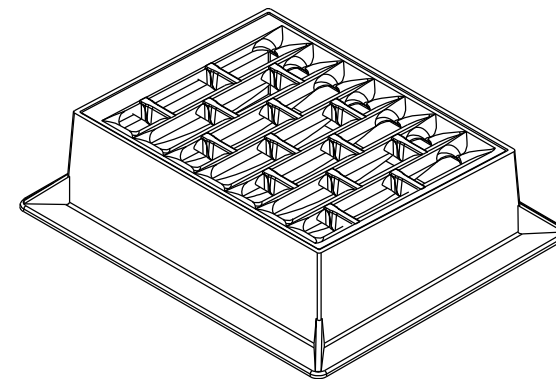
6



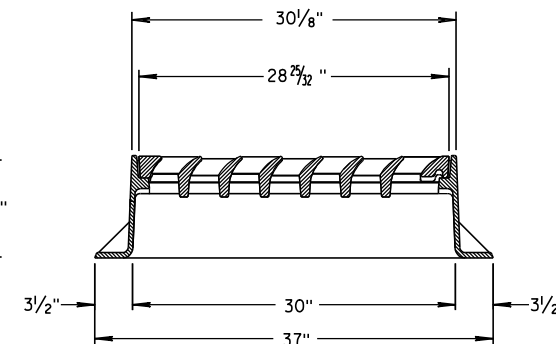
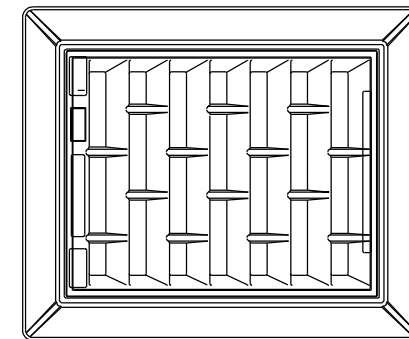
**TYPE "L"**  
(APPROXIMATE WEIGHT 158 LBS.)  
FRAME.....81 LBS.  
LID.....77 LBS.



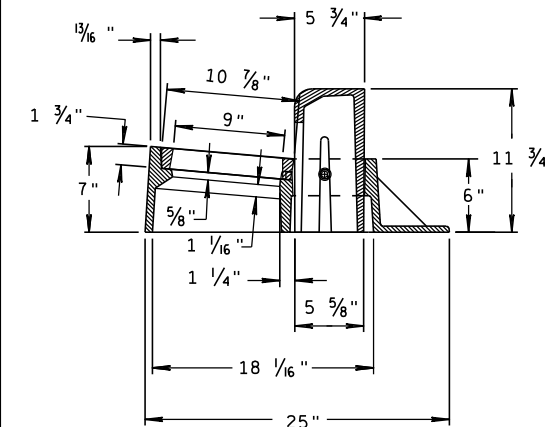
**TYPE "M"**  
(APPROXIMATE WEIGHT 377 LBS.)  
FRAME.....125 LBS.  
LID.....252 LBS.



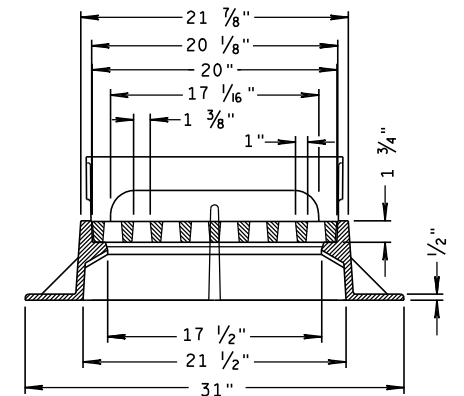
**INLET COVER TYPE "BW"**



6



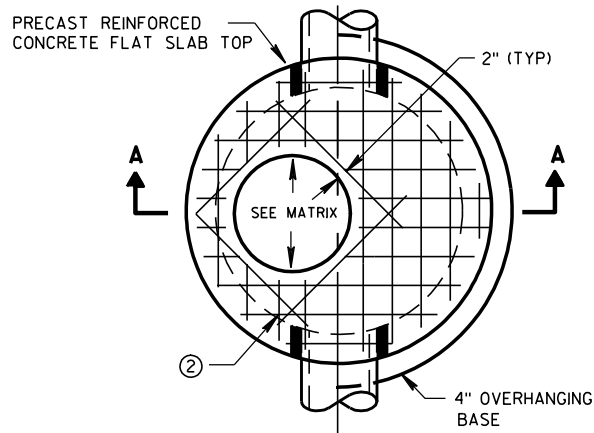
**INLET COVER TYPE "Z"**  
(APPROXIMATE WEIGHT 344 LBS.)  
FRAME.....206 LBS.  
GRATE.....46 LBS.  
CURB BOX.....92 LBS.



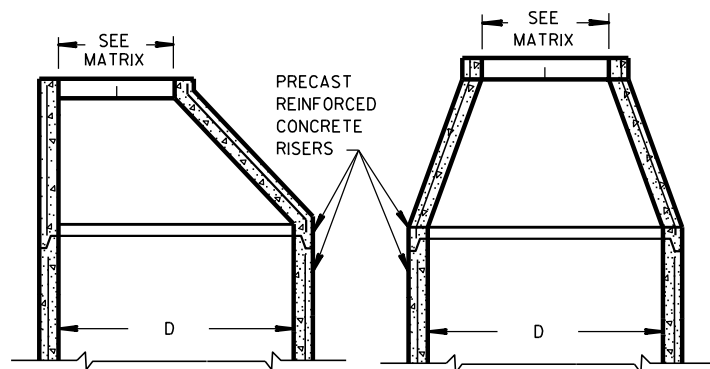
**INLET COVERS, TYPE BW, Z  
MANHOLE COVERS, TYPE  
K, J, J-S, L & M**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

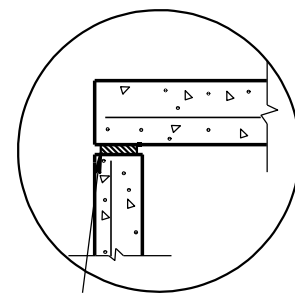


PLAN VIEW CIRCULAR OPENING

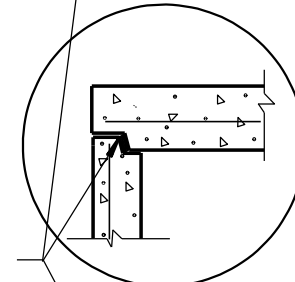


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

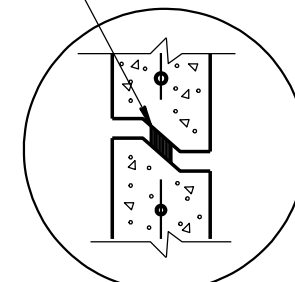
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



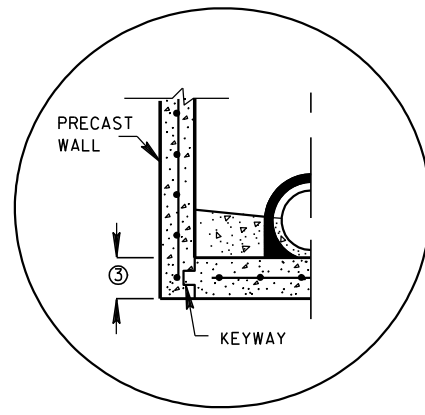
TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT

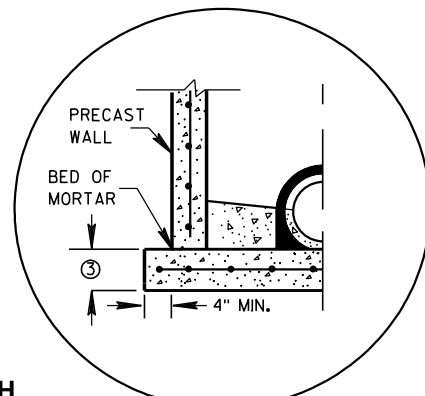


RISER WITH TONGUE AND GROOVE JOINT

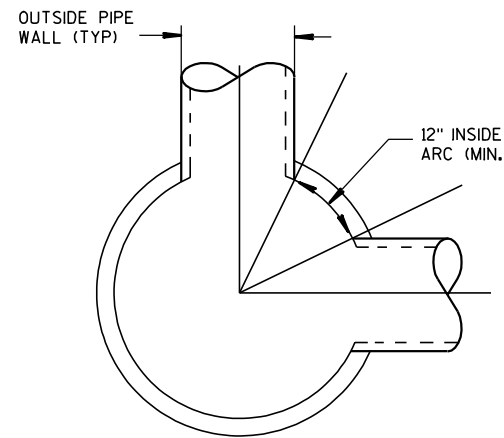


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

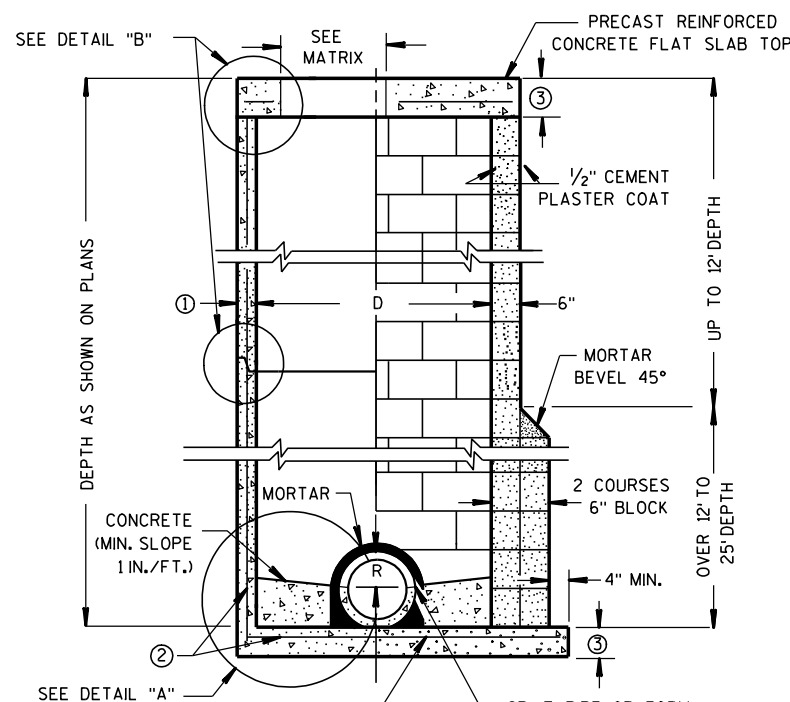
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION



DETAIL "C"



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

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

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

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

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

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

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

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

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

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

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

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

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

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

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

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

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

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

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

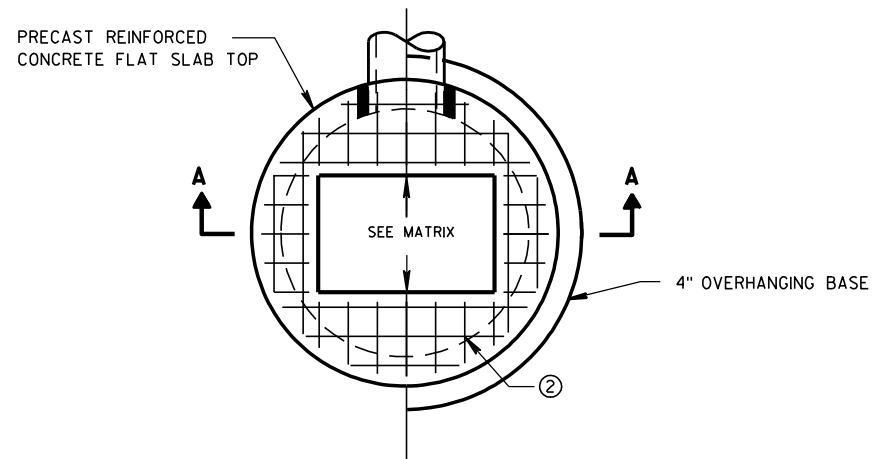
PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

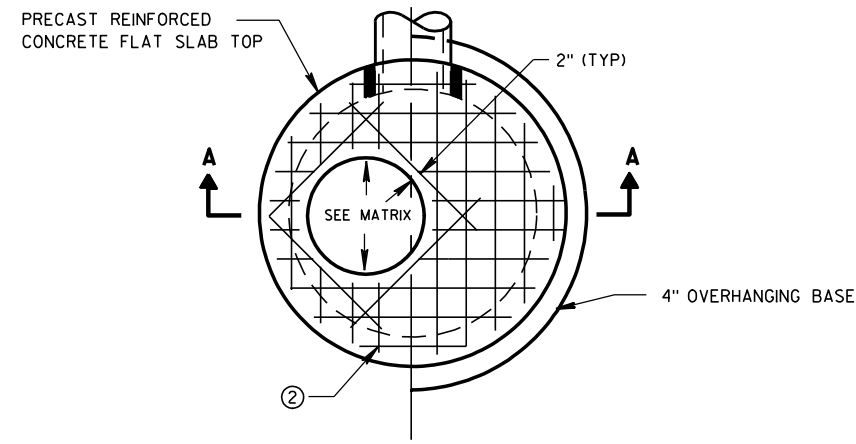
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

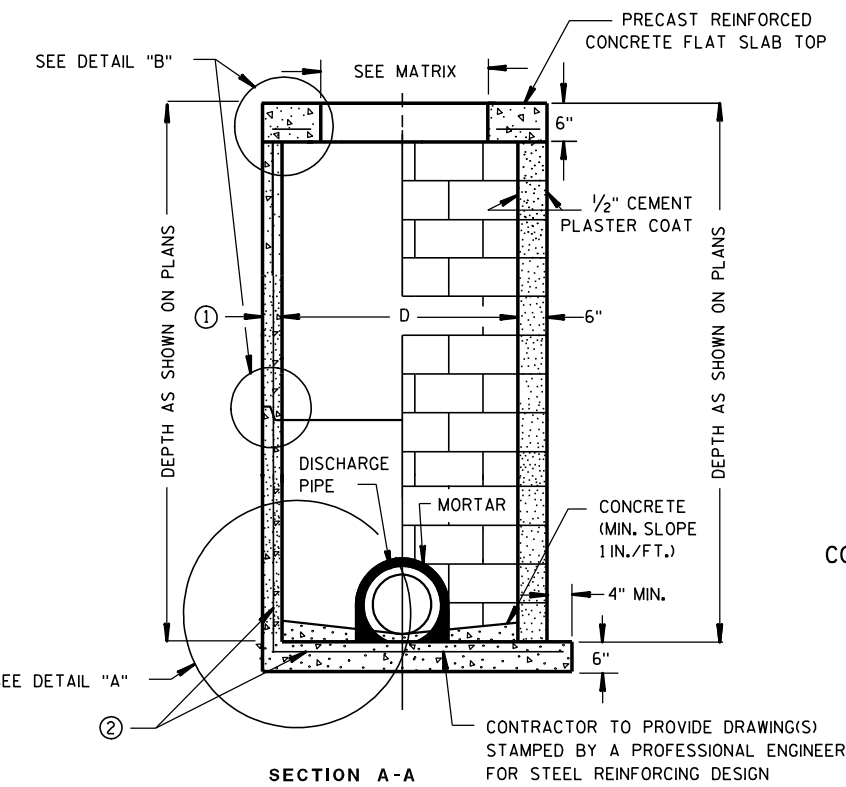
APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



**PLAN VIEW RECTANGULAR OPENING**



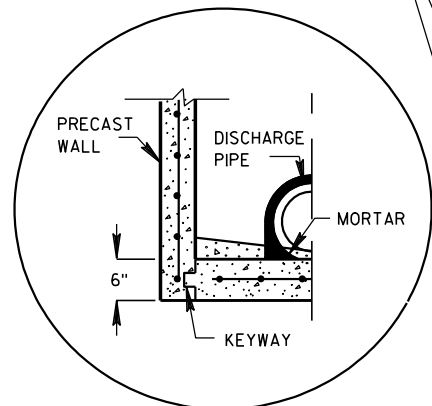
**PLAN VIEW CIRCULAR OPENING**



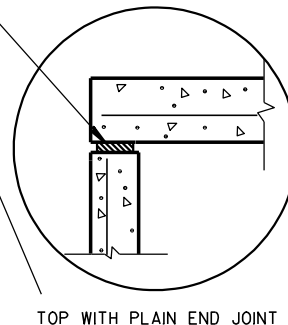
**PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE**  
**CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

**CIRCULAR INLETS W/ FLAT TOP**

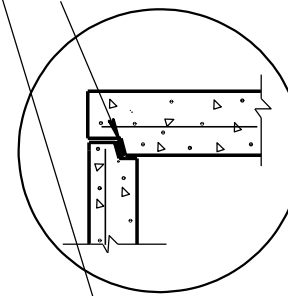
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



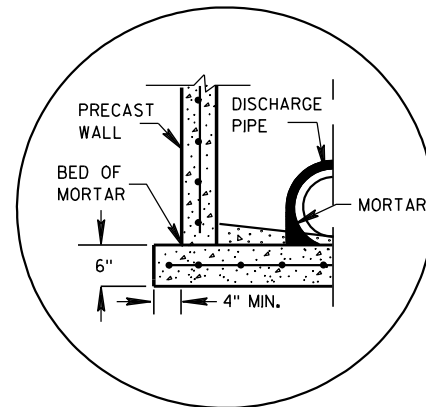
**PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION**



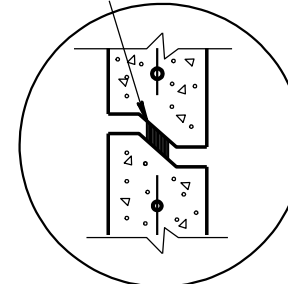
**TOP WITH PLAIN END JOINT**



**TOP WITH TONGUE AND GROOVE JOINT**



**SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION**



**RISER WITH TONGUE AND GROOVE JOINT**

**DETAIL "A"**

**DETAIL "B"**

**INLETS 3-FT AND 4-FT DIAMETER**

**GENERAL NOTES**

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

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

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

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

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

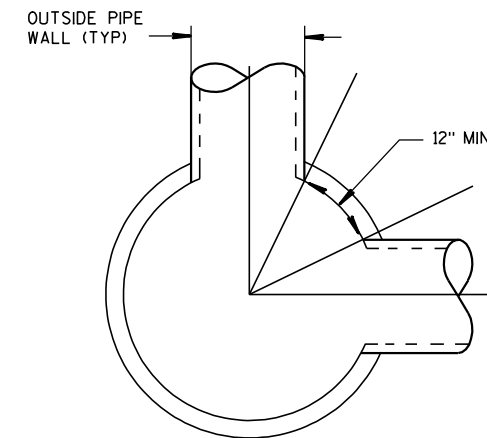
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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

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

**INLET COVER OPENING MATRIX**

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



**DETAIL "C"**

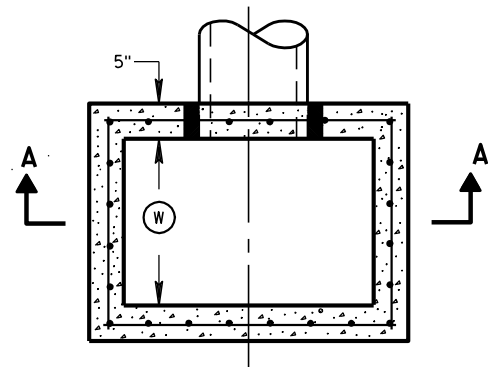
**PIPE MATRIX**

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

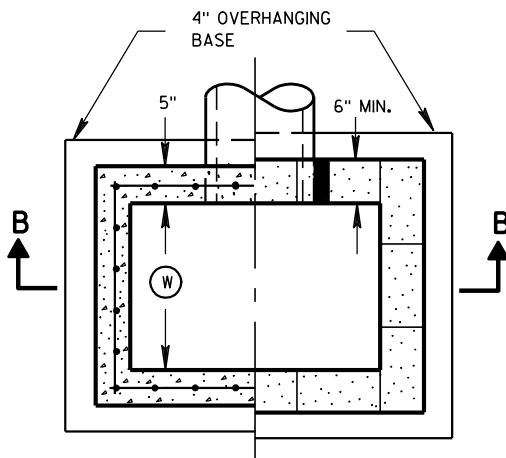
**INLETS 3-FT AND 4-FT DIAMETER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 6/5/2012 /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

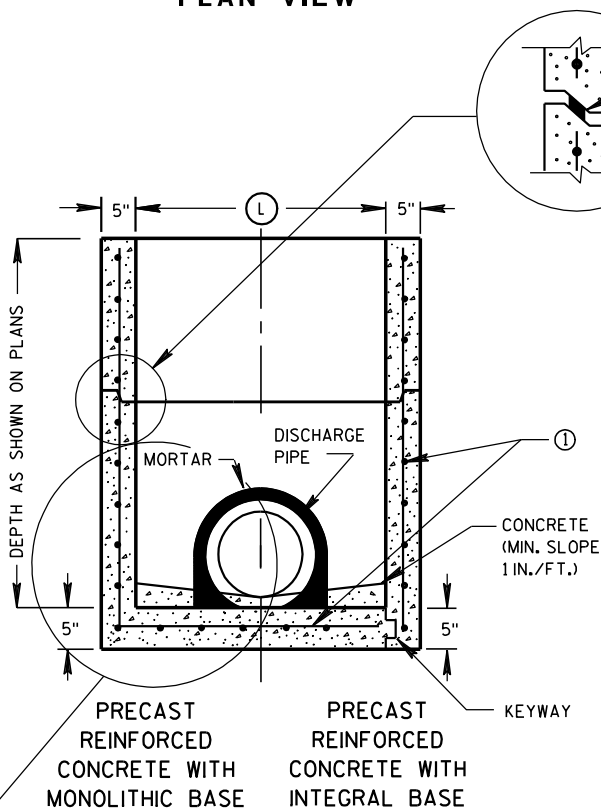


PLAN VIEW

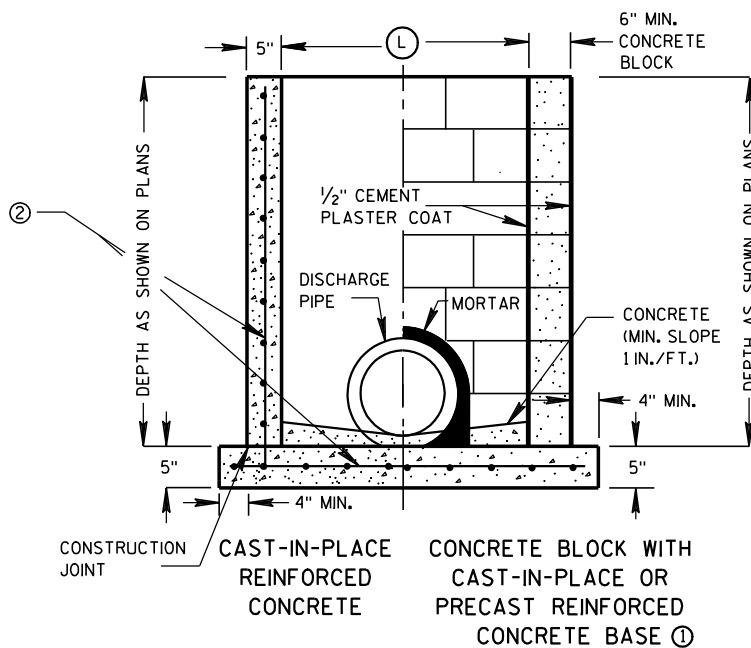


PLAN VIEW

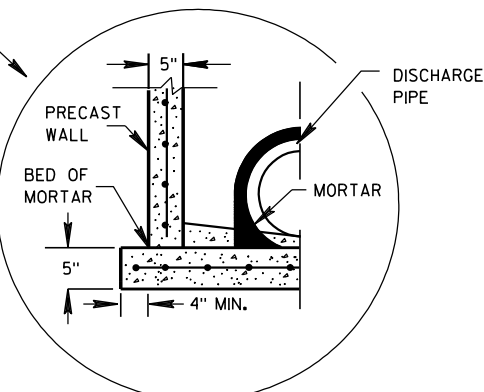
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPERATE 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.

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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 GRANULAR 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 SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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

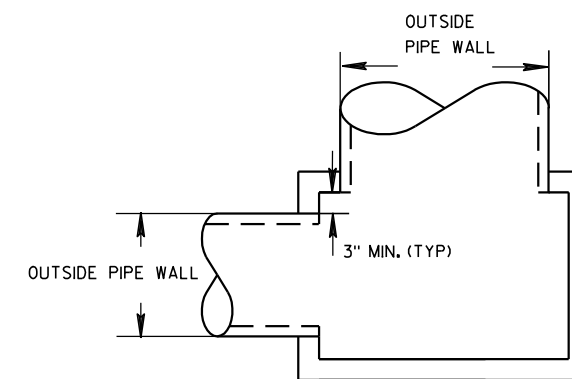
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

**INLET COVER MATRIX**

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

**PIPE MATRIX**

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



DETAIL "A"

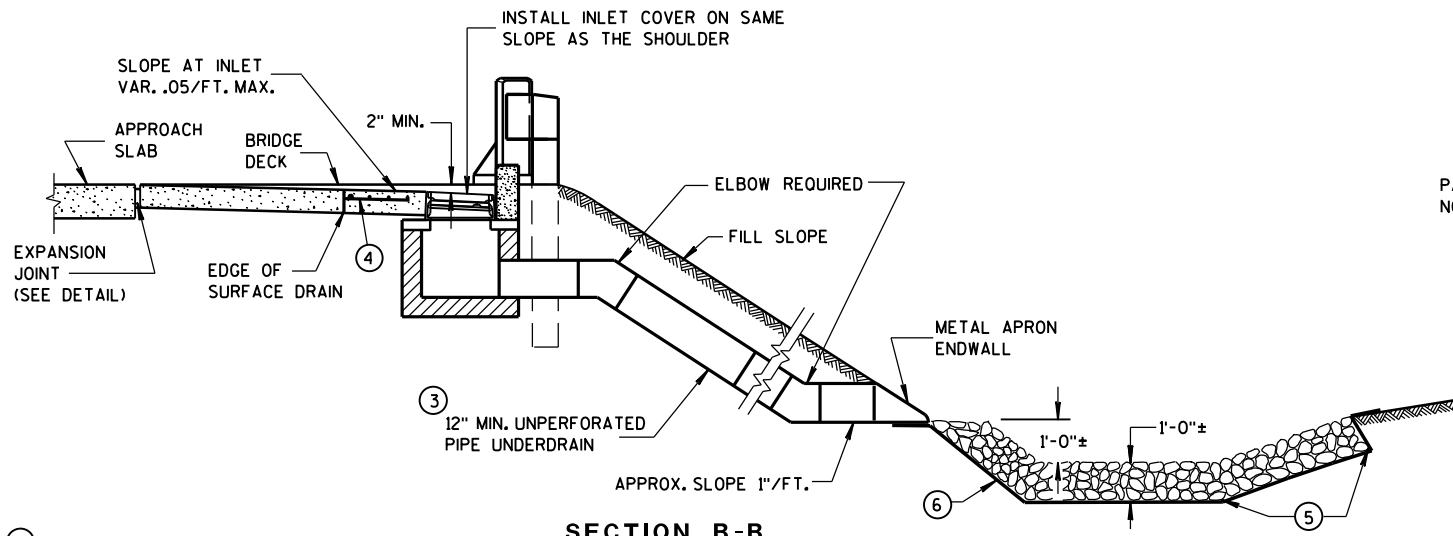
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

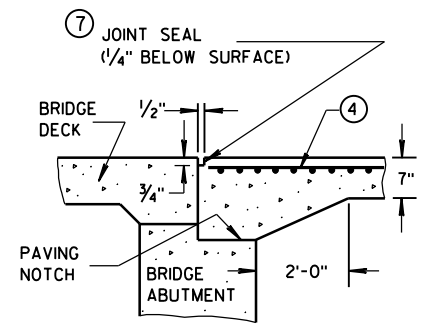
APPROVED  
DATE 6/5/2012 /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

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

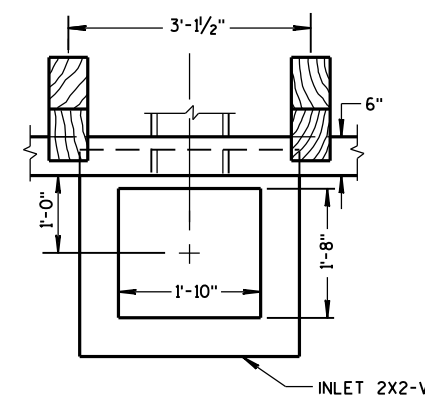




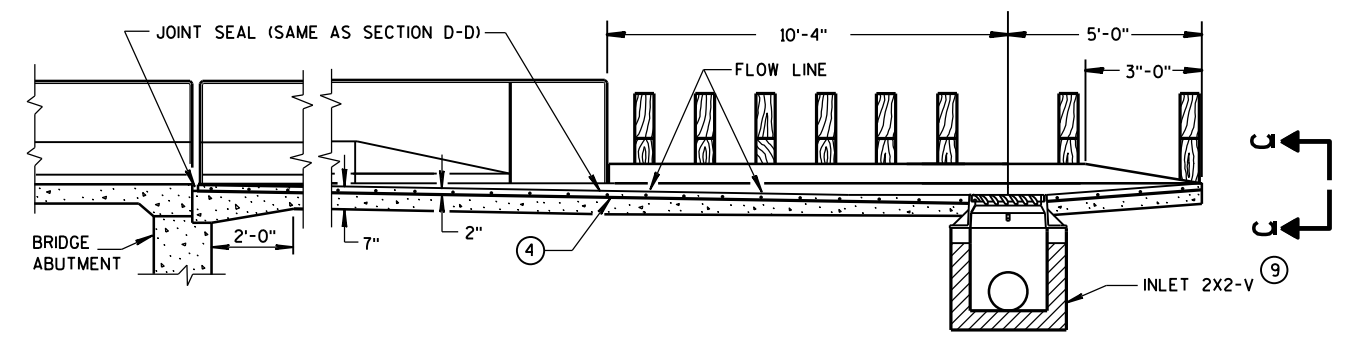
SECTION B-B



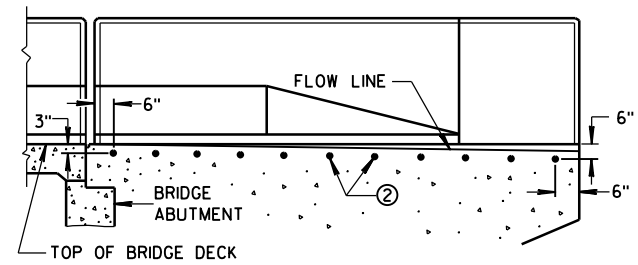
SECTION D-D



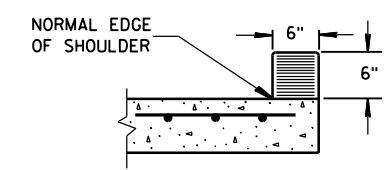
PLAN VIEW



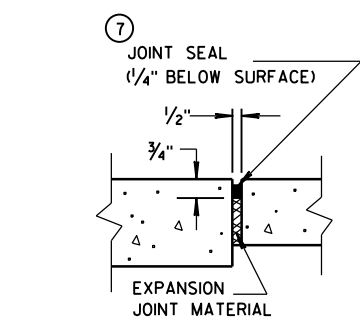
SECTION A-A



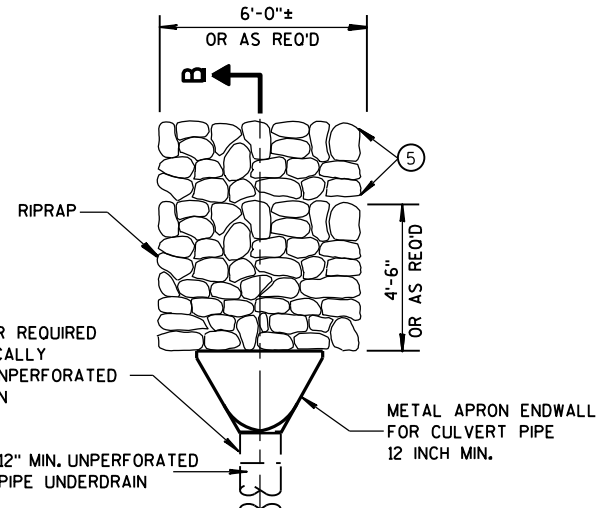
LOCATION OF TIE BARS IN WINGWALL



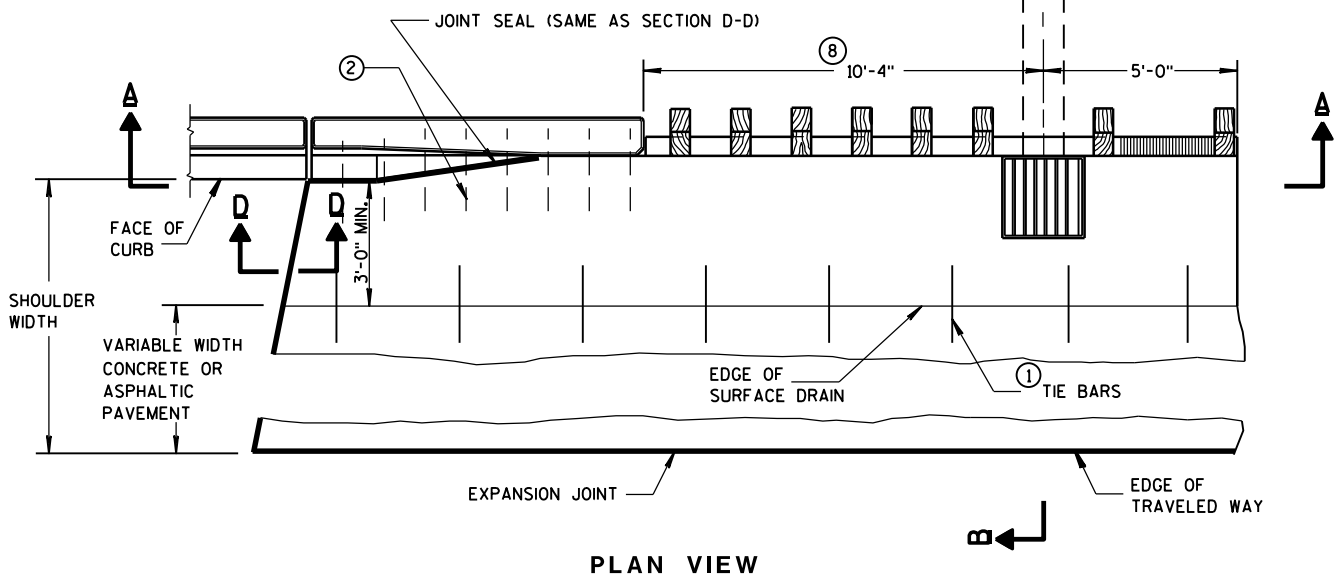
SECTION C-C



EXPANSION JOINT DETAIL



12" MIN. UNPERFORATED PIPE UNDERDRAIN  
 12" MIN. ADAPTER REQUIRED ONLY FOR HELICALLY CORRUGATED, UNPERFORATED PIPE UNDERDRAIN  
 METAL APRON ENDWALL FOR CULVERT PIPE 12 INCH MIN.



PLAN VIEW

**GENERAL NOTES**

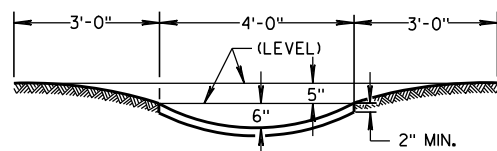
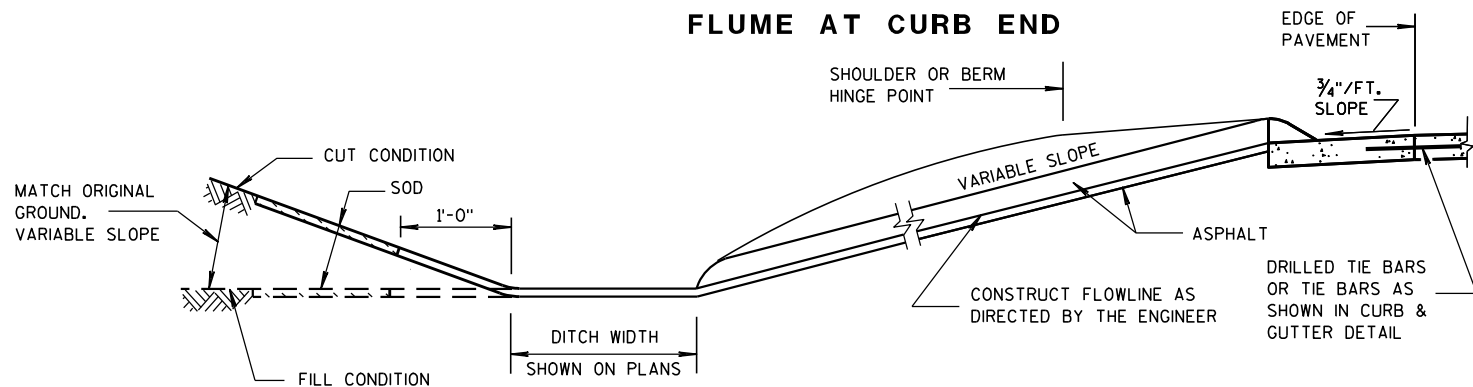
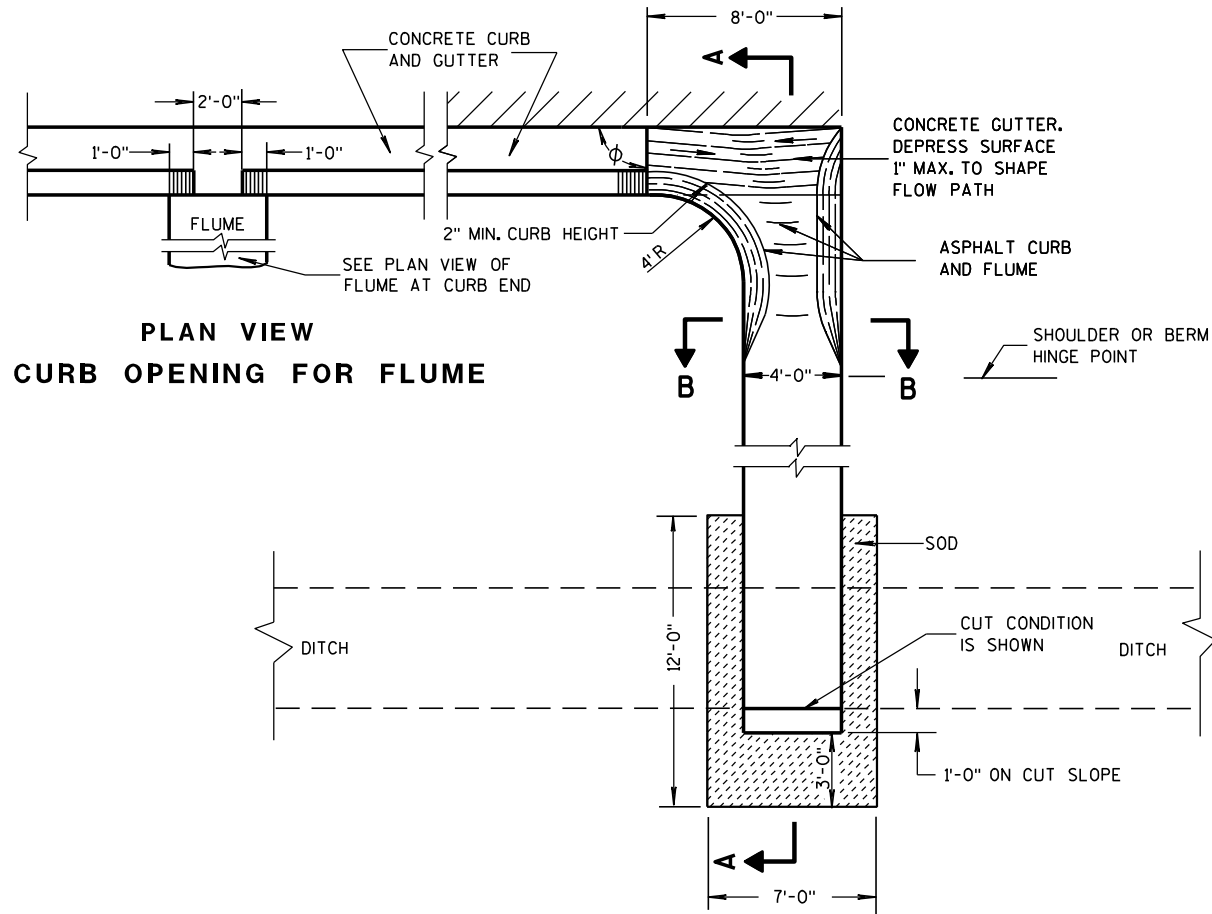
- DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- ① NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.
  - ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
  - ③ THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.
  - ④ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
  - ⑤ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
  - ⑥ GEOTEXTILE FABRIC, TYPE 'R'
  - ⑦ HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.
  - ⑧ THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1/2".
  - ⑨ SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

<b>CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 9/4/08 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

### ASPHALTIC FLUME

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

INCREASE  $\phi$  FROM RIGHT ANGLE TO BEST FIT FIELD CONDITIONS



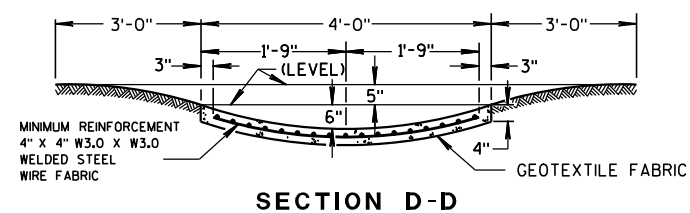
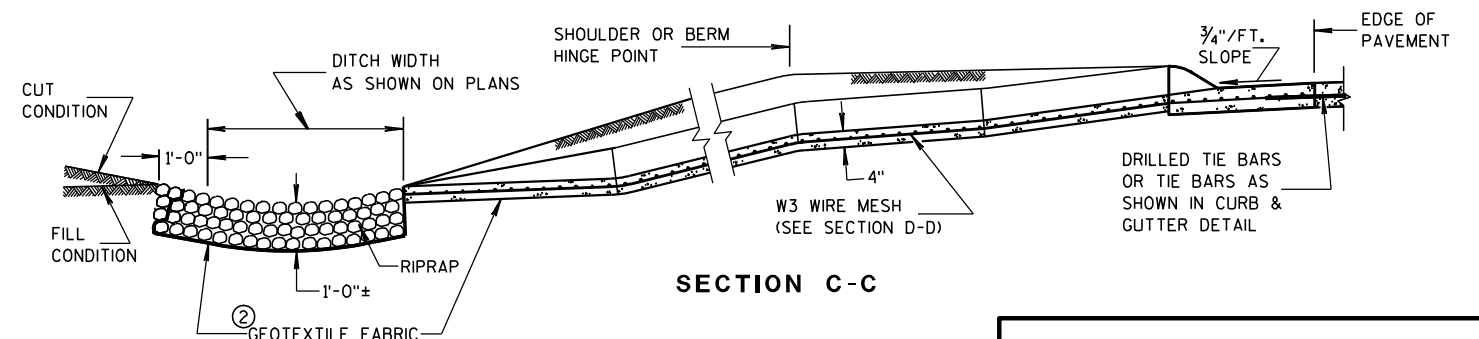
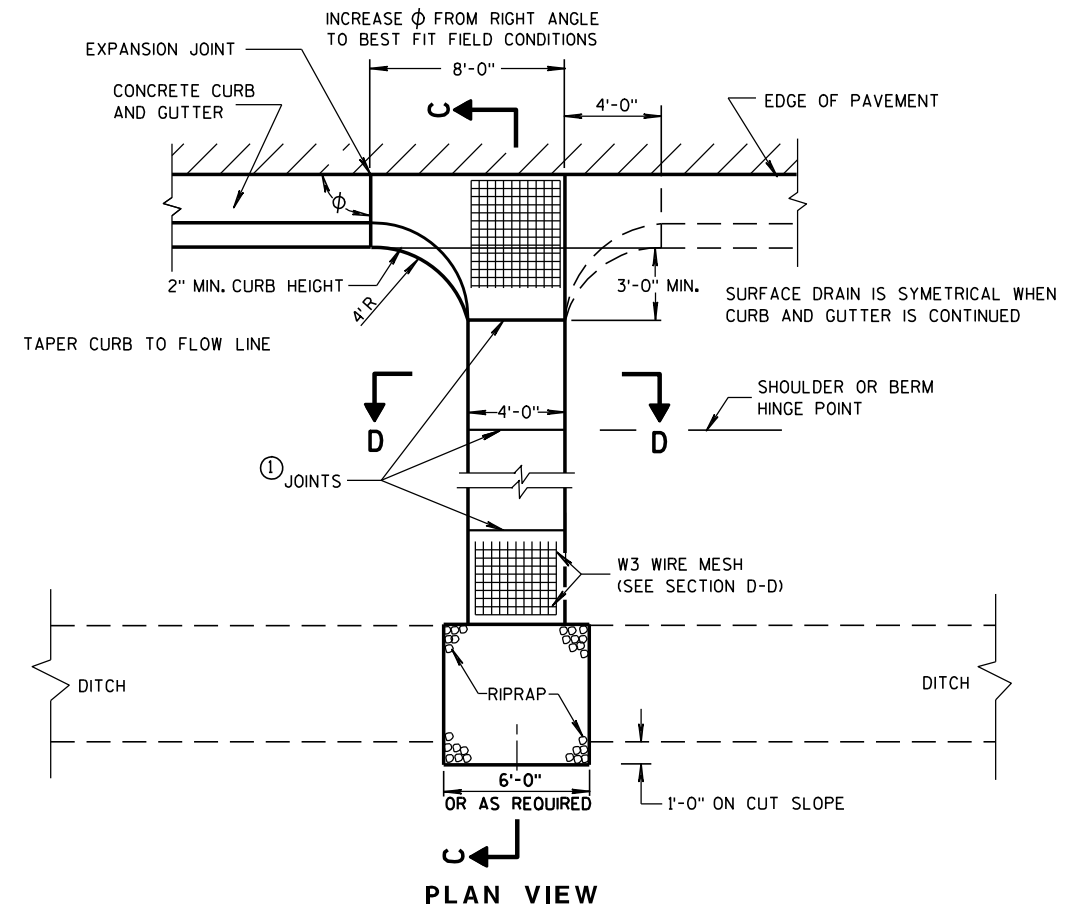
### GENERAL NOTES

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

- ① JOINTS SHALL BE 1/8 TO 1/4 INCH WIDE BY 1/2 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



### CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08

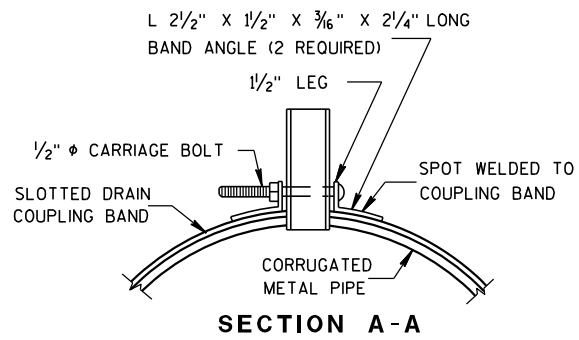
DATE

/s/ Jerry H. Zogg

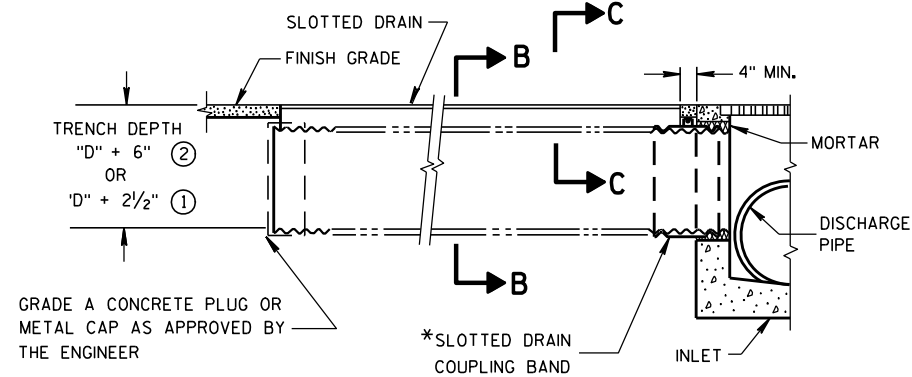
ROADWAY STANDARDS DEVELOPMENT

ENGINEER

FHWA

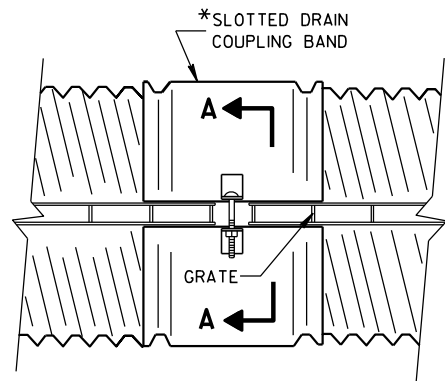


SECTION A-A

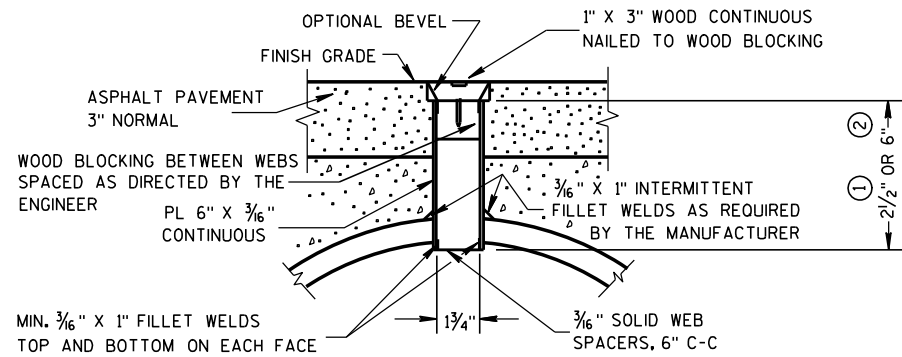


SECTION B-B

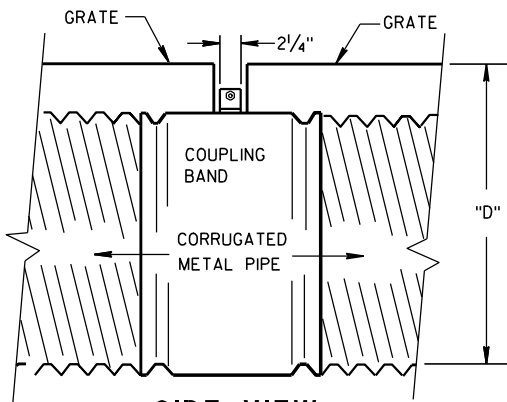
**SLOTTED DRAIN INSTALLATION TYPE "A"**



PLAN VIEW



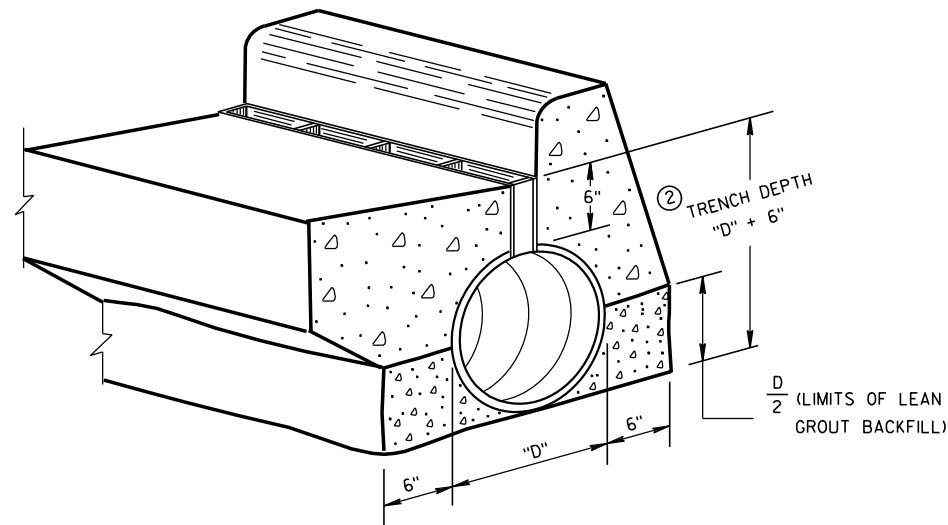
SECTION C-C  
**GRATE SLOT DETAIL**



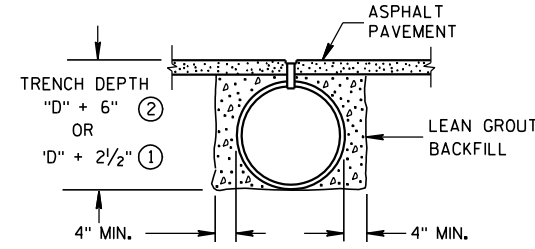
SIDE VIEW

**\*TYPICAL COUPLING BAND FOR SLOTTED DRAIN**

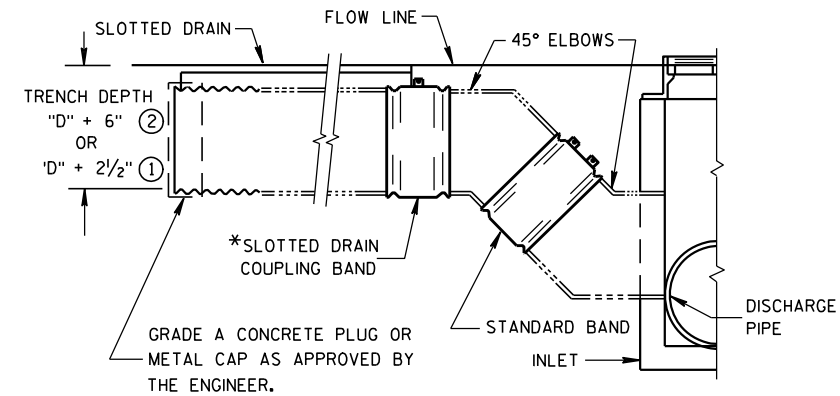
(ALTERNATES PERMITTED AS APPROVED BY THE ENGINEER)



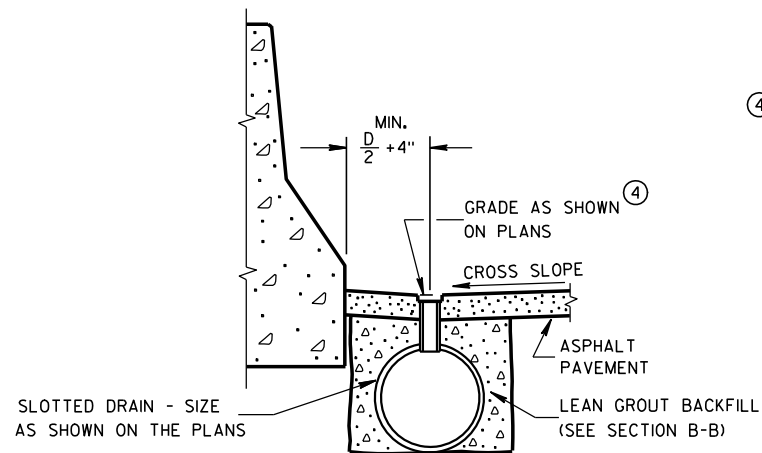
**SLOTTED DRAIN INSTALLATION IN FLOW LINE OF CURB & GUTTER TYPE "C"**



**SLOTTED DRAIN INSTALLATION TYPE "B"**



NOTE:  
TO PREVENT "FLOATING" OF THE SLOTTED DRAIN DURING BACKFILL OPERATIONS PROVIDE ADEQUATE WEDGES, OR POUR THE LEAN GROUT ON TOP OF THE PLUGGED SLOT ALLOWING IT TO SLOUGH TO THE SIDES OF THE PIPE. THIS WILL PROVIDE ENOUGH WEIGHT ON TOP TO KEEP THE PIPE FROM FLOATING.



**SLOTTED DRAIN INSTALLATION AT MEDIAN BARRIER TYPE "D"**

**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.

**BACKFILL MATERIAL**  
THE LEAN GROUT BACKFILL MATERIAL SHALL BE A FINE AGGREGATE, IN ACCORDANCE WITH SUBSECTION 501.3.6.3.6 OF THE STANDARD SPECIFICATIONS, MIXED WITH 150 POUNDS OF CEMENT AND APPROXIMATELY 30 GALLONS OF WATER FOR EACH 3000 POUNDS OF FINE AGGREGATE.

THE PIPE FOR THE SLOTTED DRAIN SHALL MEET AASHTO DESIGNATION M-36, AND THE GRATE ASSEMBLIES SHALL BE MADE FROM STRUCTURAL STEEL SUITABLY WELDED TO FORM THE OPEN SLOT AND HOT-DIP GALVANIZED TO MEET THE PROVISIONS OF AASHTO DESIGNATION M-11L.

NORMAL PIPE SIZES ARE 12-INCH THROUGH 24-INCH DIAMETER IN 0.064 INCH THICKNESS, AND 30-INCH DIAMETER PIPE IN 0.079 INCH THICKNESS.

- ① 2 1/2" NORMAL GRATE DEPTH.
- ② 6" SPECIAL GRATE DEPTH, WHEN SPECIFIED ON THE PLANS.
- ③ FOR SCREEDING DIRECTLY OVER THE SLOTTED DRAIN WITH ASPHALT PAVER. FOR CONCRETE SURFACE USE 3" WIDE TAPE OVER THE SLOT TO KEEP MATERIAL OUT OF THE PIPE.
- ④ WHEN THE SURFACE IS CONCRETE PAVEMENT THE GRADE AS SHOWN ON THE PLANS WILL BE FLUSH WITH THE TOP OF THE SLOTTED DRAIN.

**SLOTTED CORRUGATED METAL PIPE SURFACE DRAINS**

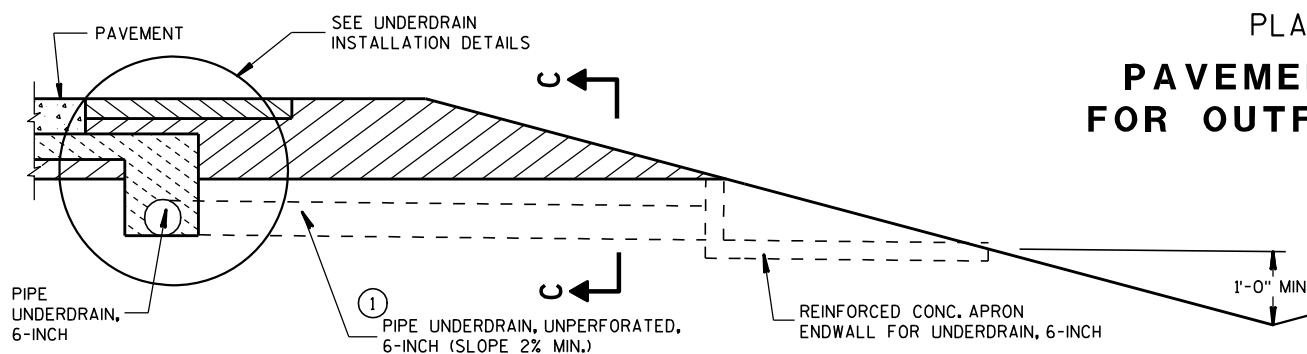
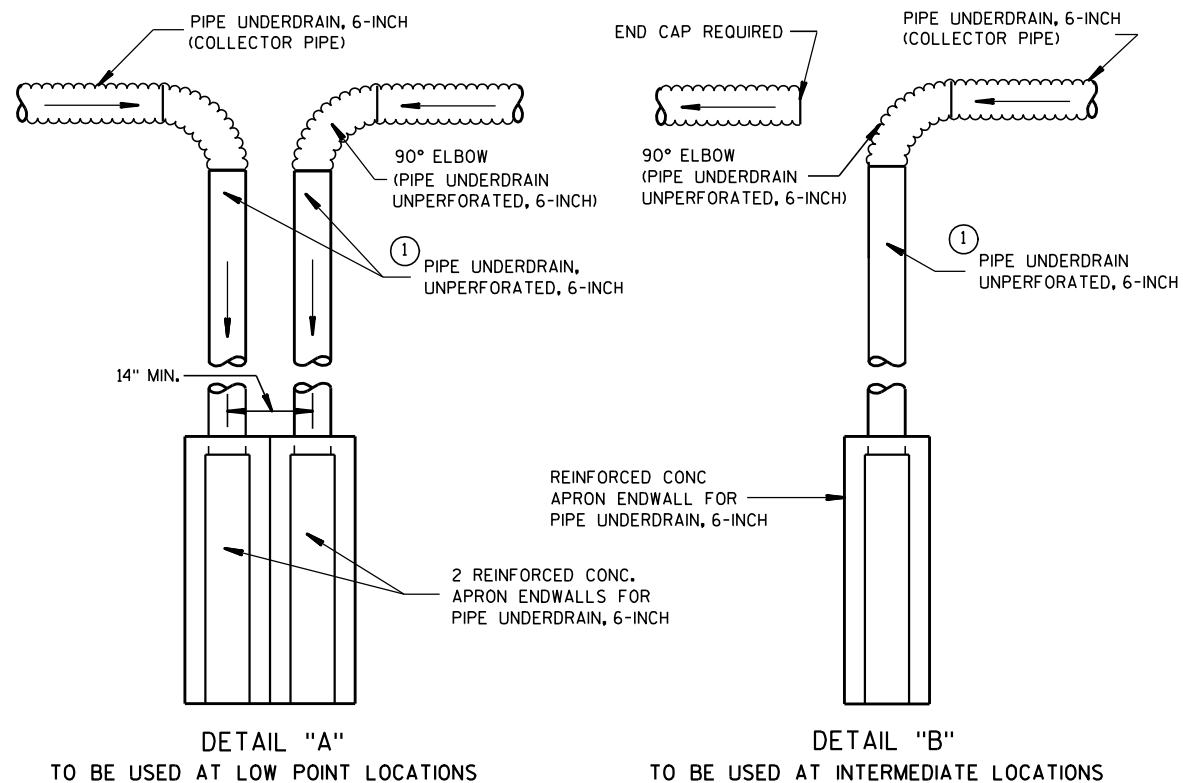
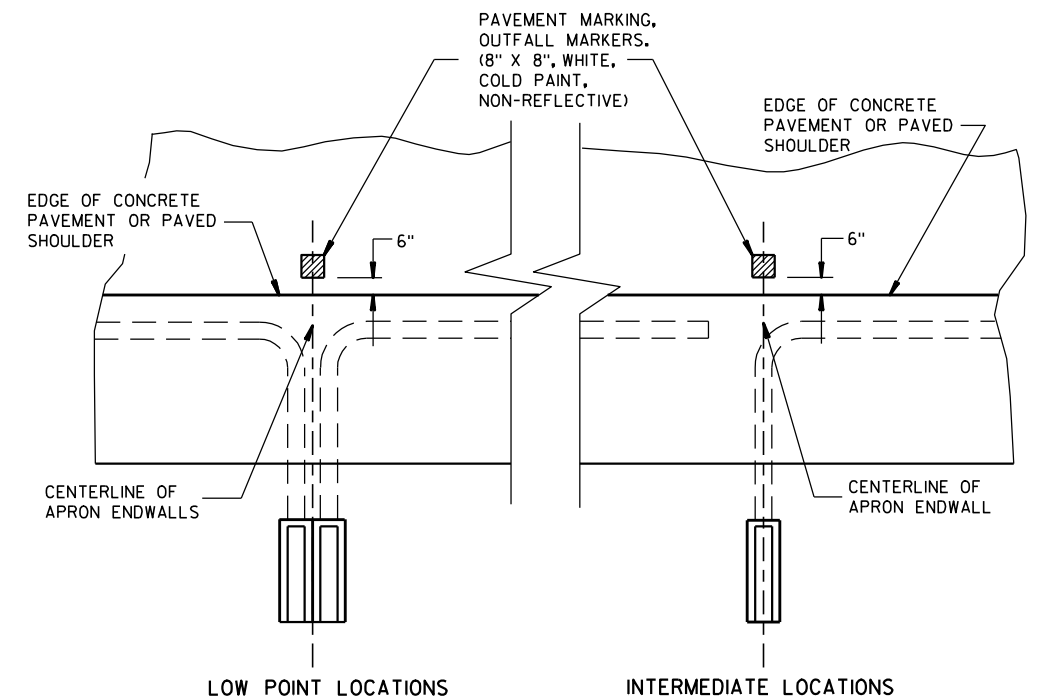
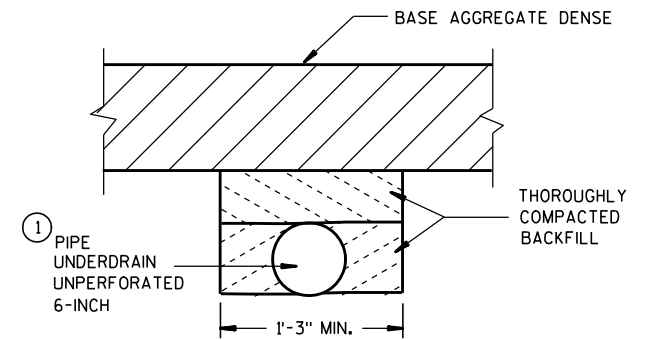
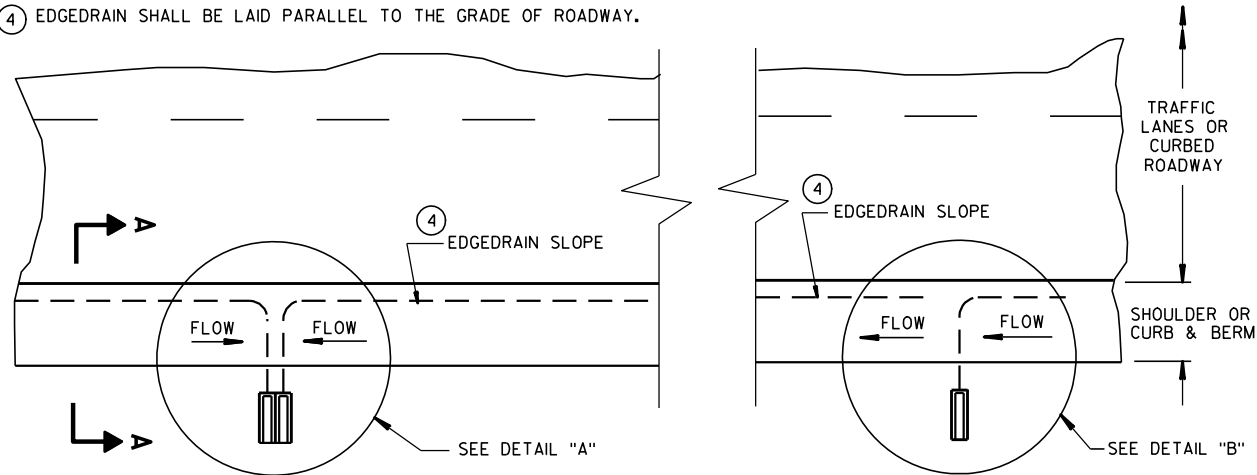
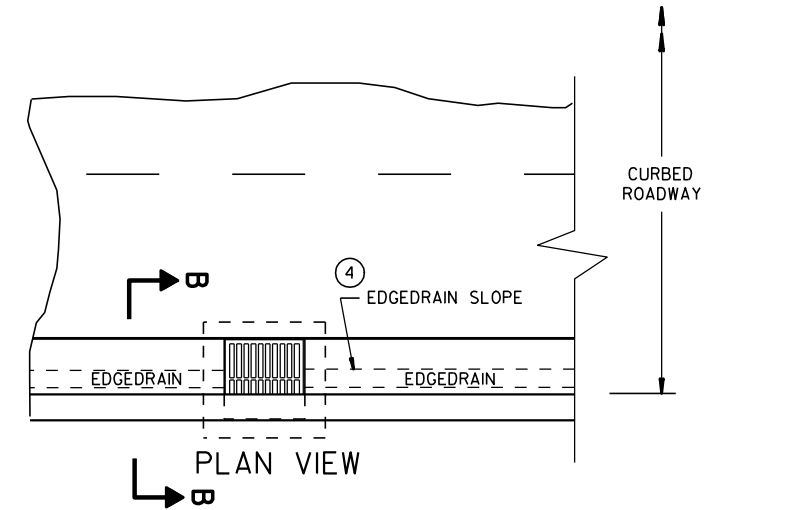
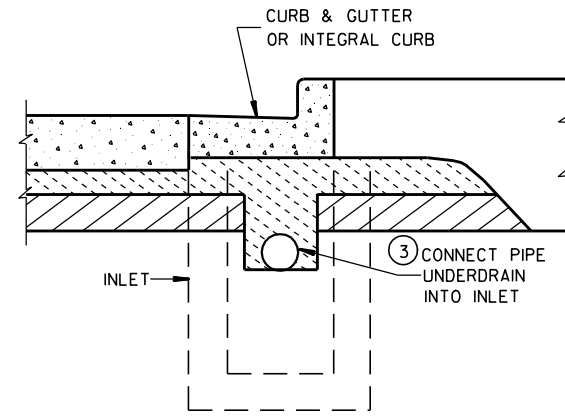
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/30/79 /S/ D.L. Strand  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA

# GENERAL NOTES

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

- ① UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:  
 POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.  
 TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.
- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



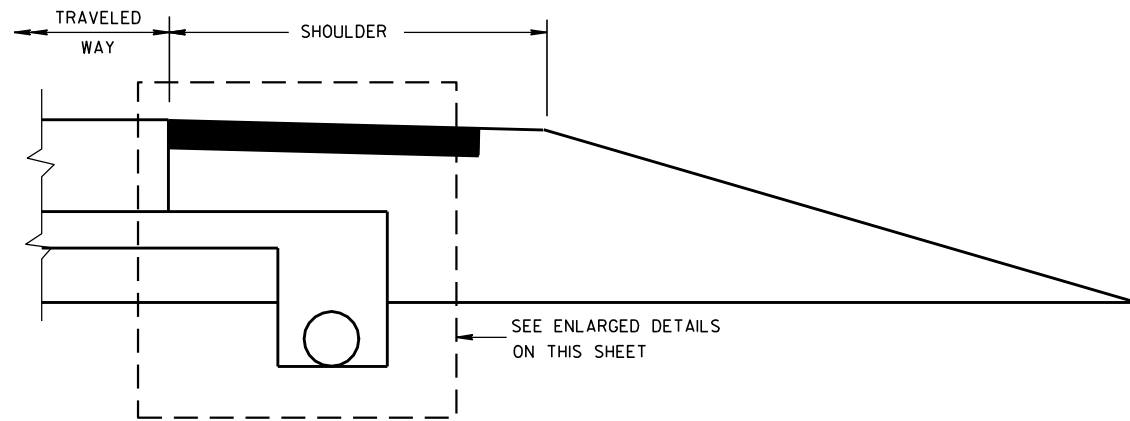
**EDGEDRAIN OUTLET AND OUTFALL MARKERS**  
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 8 D 15-4a

S.D.D. 8 D 15-4a



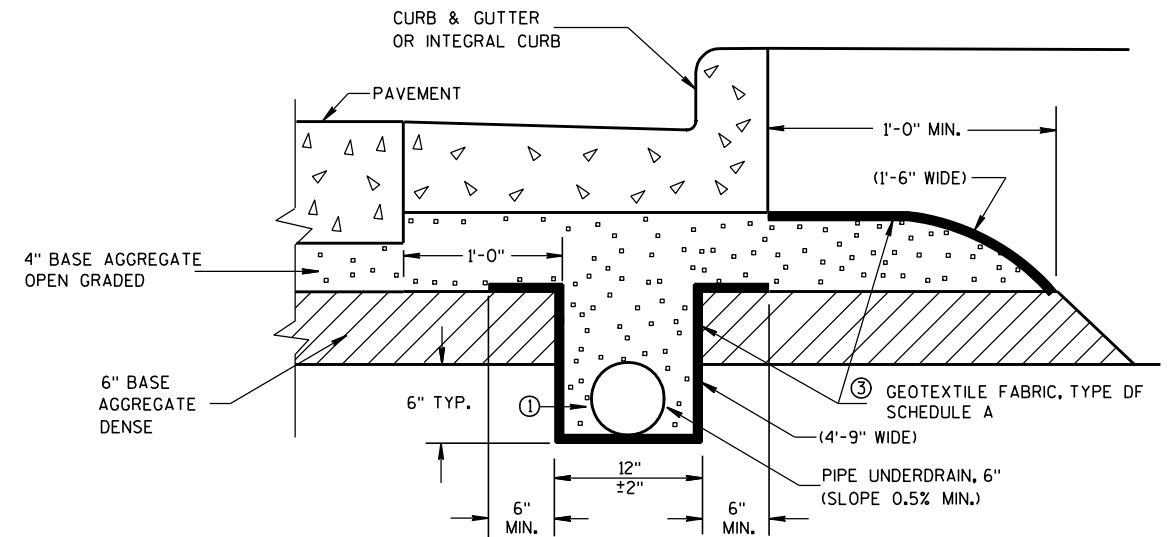
**RURAL CROSS SECTION**

**GENERAL NOTES**

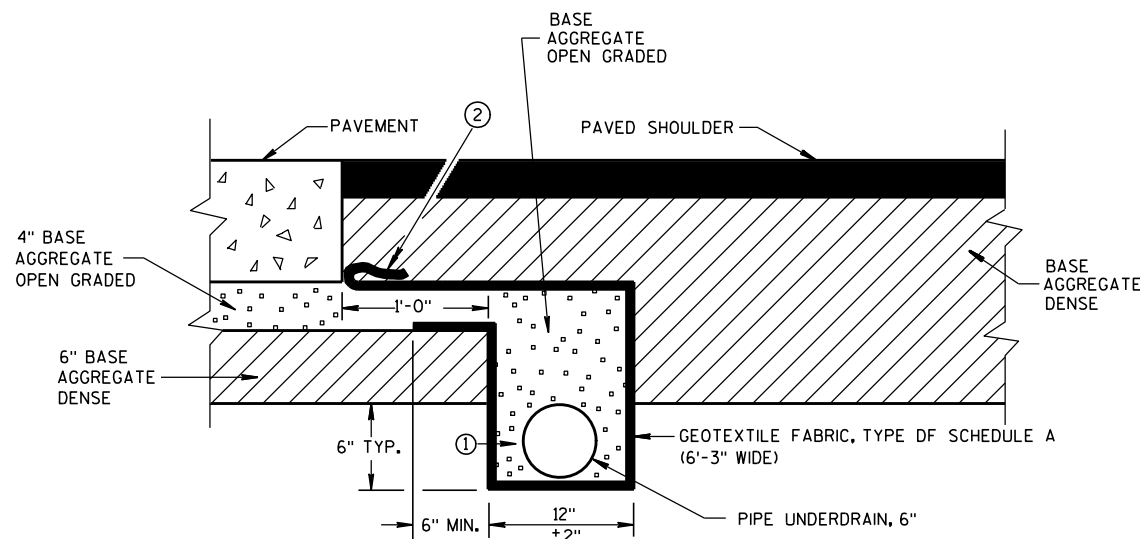
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

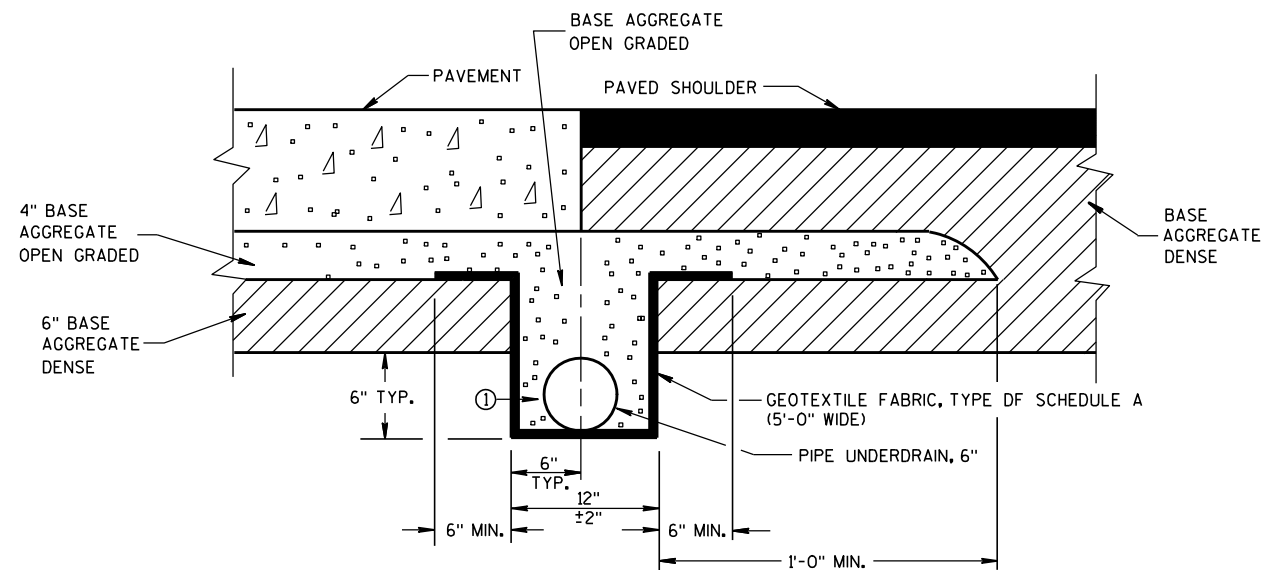
- ① TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.
- ② FOLD OVER EXCESS GEOTEXTILE FABRIC AT THIS LOCATION.
- ③ TOTAL FABRIC WIDTH IS 6'-3" FOR PAYMENT.



**EDGEDRAIN IN URBAN ROADWAY**



**POST PAVING INSTALLATION**  
(QUANTITIES ARE BASED ON THIS DETAIL)



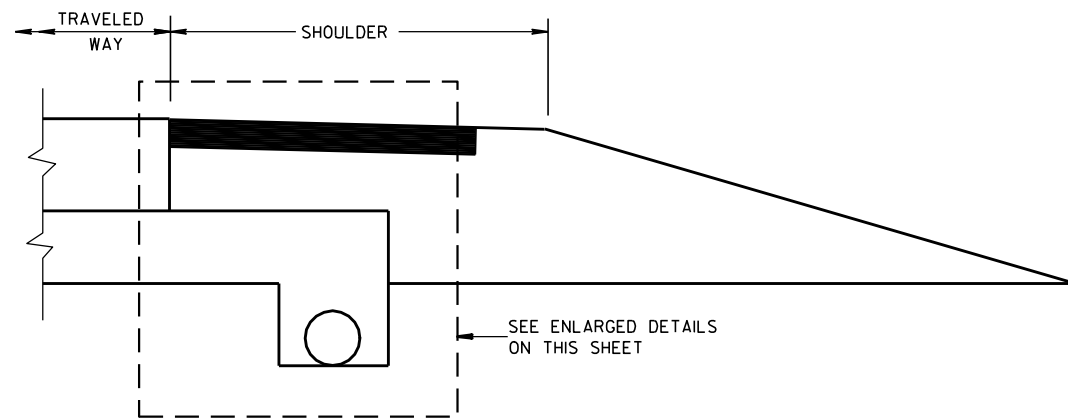
**PRE-PAVING INSTALLATION ALTERNATE**

**EDGEDRAIN IN RURAL ROADWAY**

**EDGEDRAIN AND BASE  
AGGREGATE OPEN GRADED**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/21/07 /S/ Steven W. Krebs  
DATE CHIEF MATERIALS MANAGEMENT ENGINEER  
FHWA



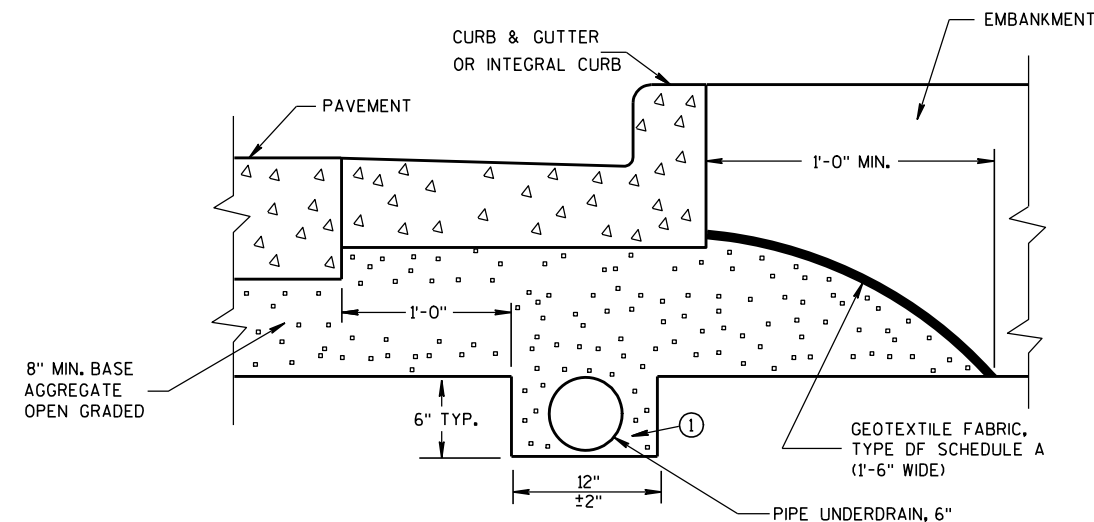
**RURAL CROSS SECTION**

**GENERAL NOTES**

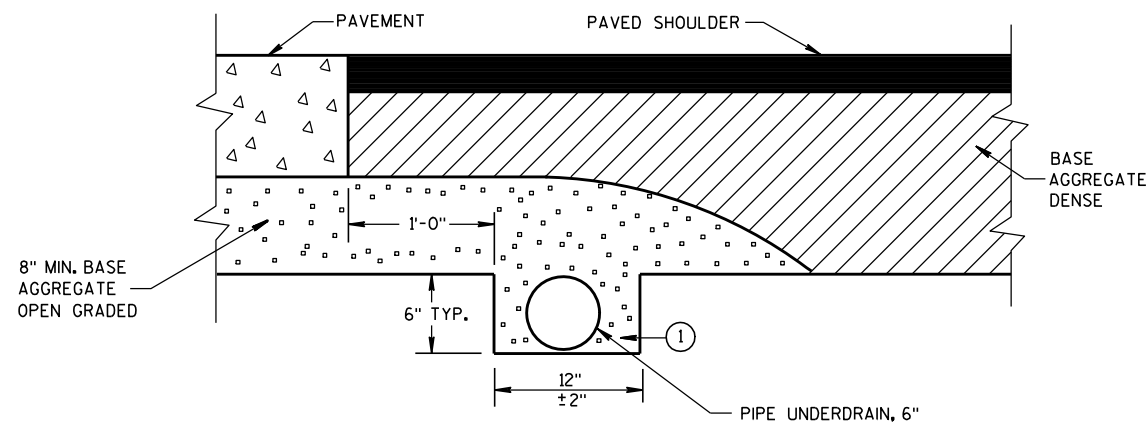
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

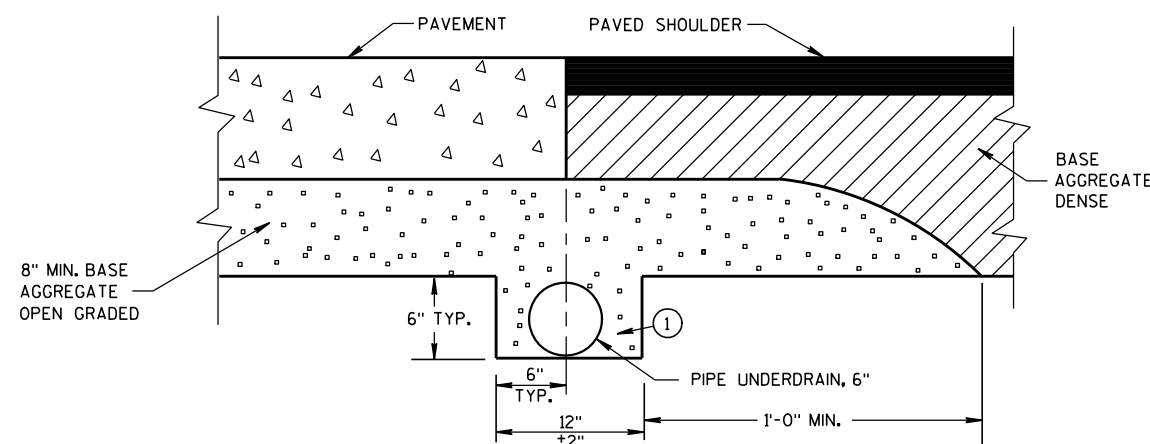
① TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.



**EDGEDRAIN IN URBAN ROADWAY**



**POST PAVING INSTALLATION**  
(QUANTITIES ARE BASED ON THIS DETAIL)



**PRE-PAVING INSTALLATION ALTERNATIVE**

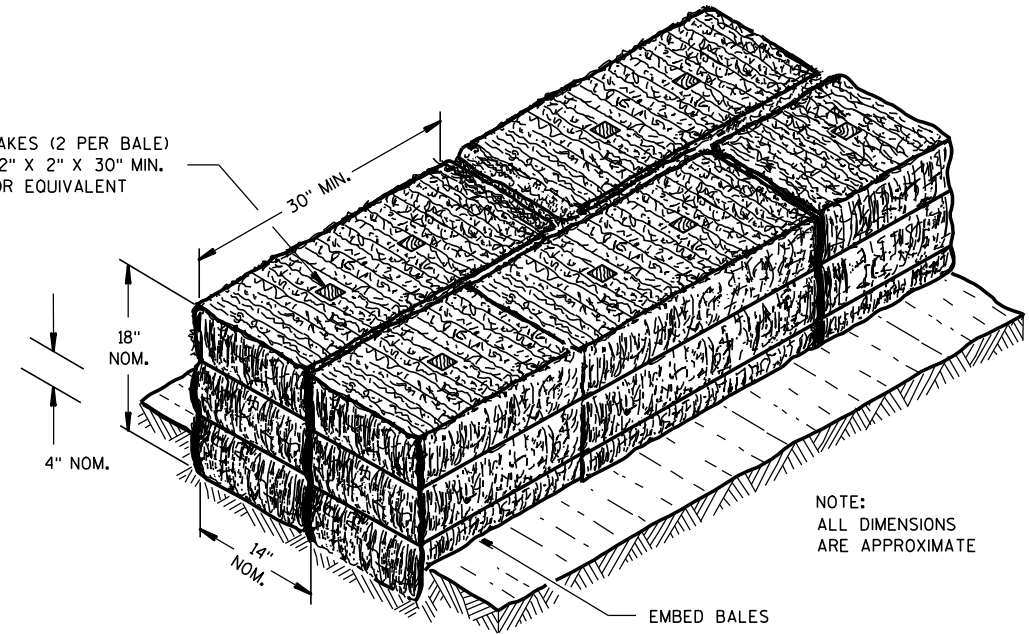
**EDGEDRAIN IN RURAL ROADWAY**

**EDGEDRAIN AND BASE AGGREGATE OPEN GRADED**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/21/07 /S/ Steven W. Krebs  
DATE CHIEF MATERIALS MANAGEMENT ENGINEER  
FHWA

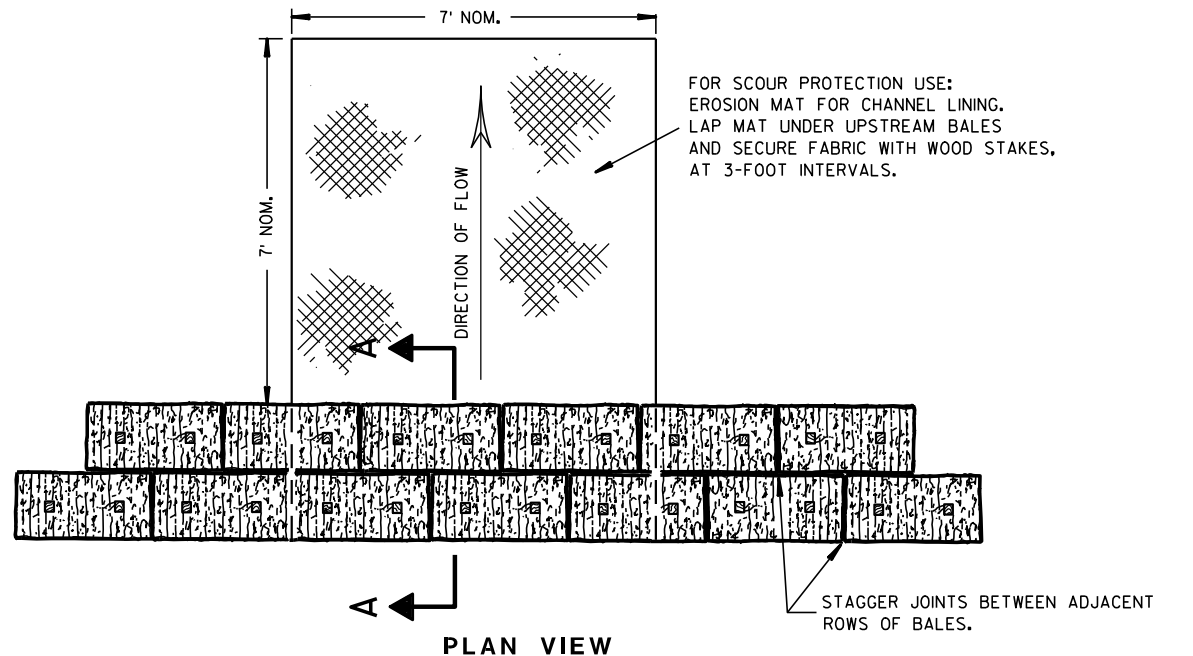
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

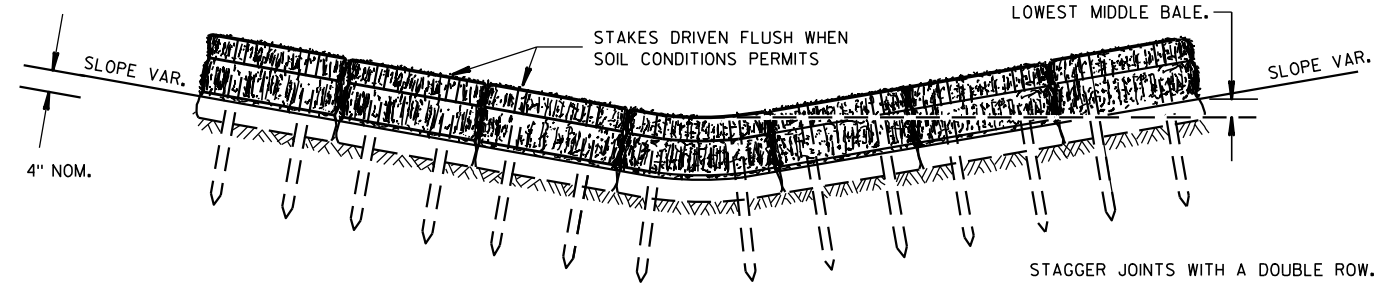
EMBED BALES

SECTION A-A



PLAN VIEW

BOTTOM ELEVATION OF END BALE SHALL BE EQUAL TO OR GREATER THAN TOP OF LOWEST MIDDLE BALE.



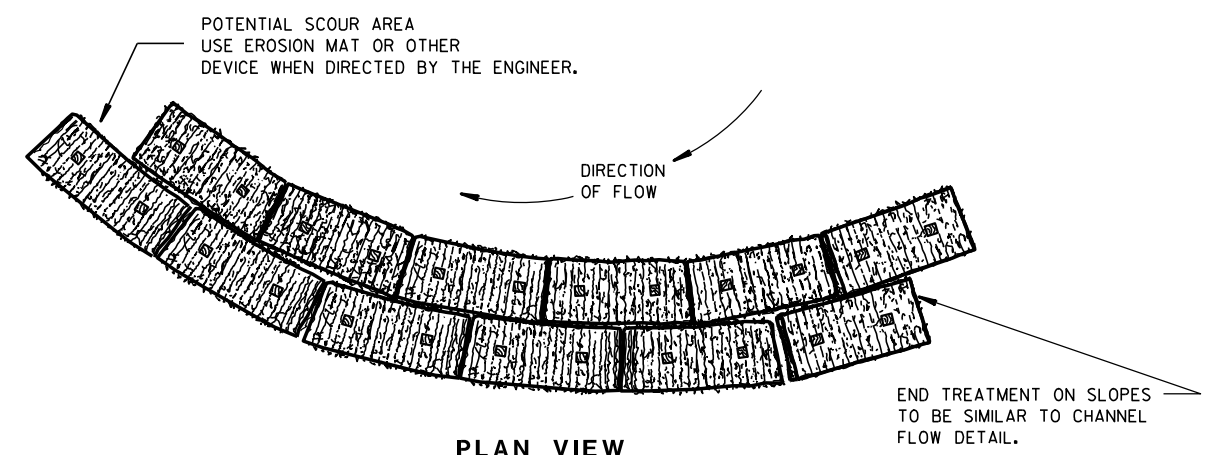
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

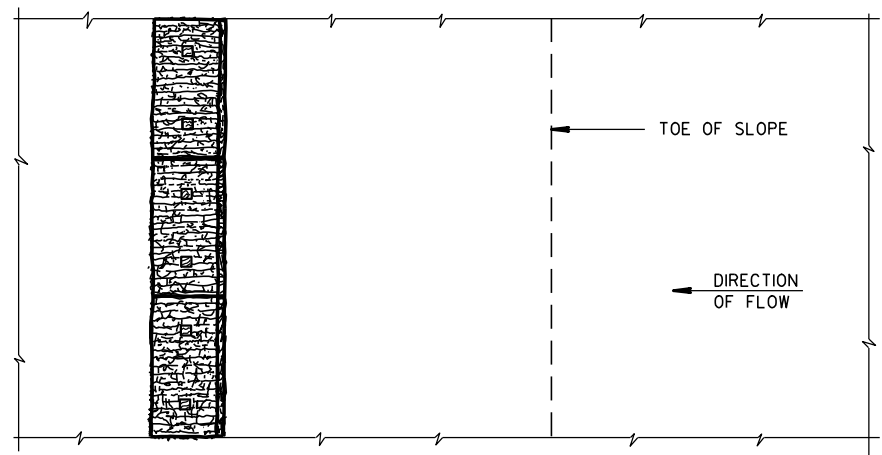
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

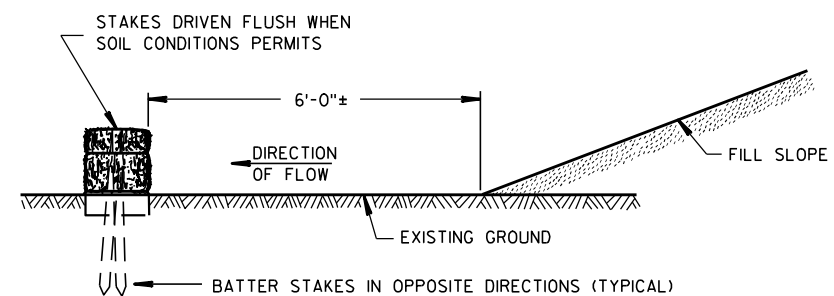


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

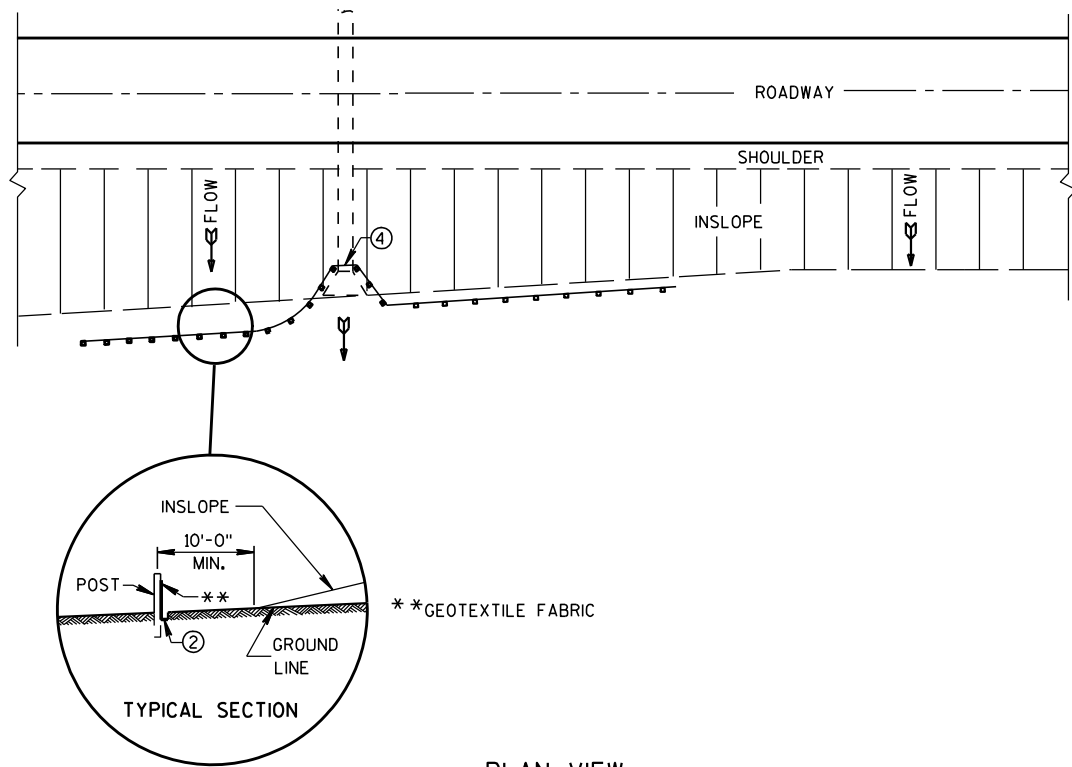
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

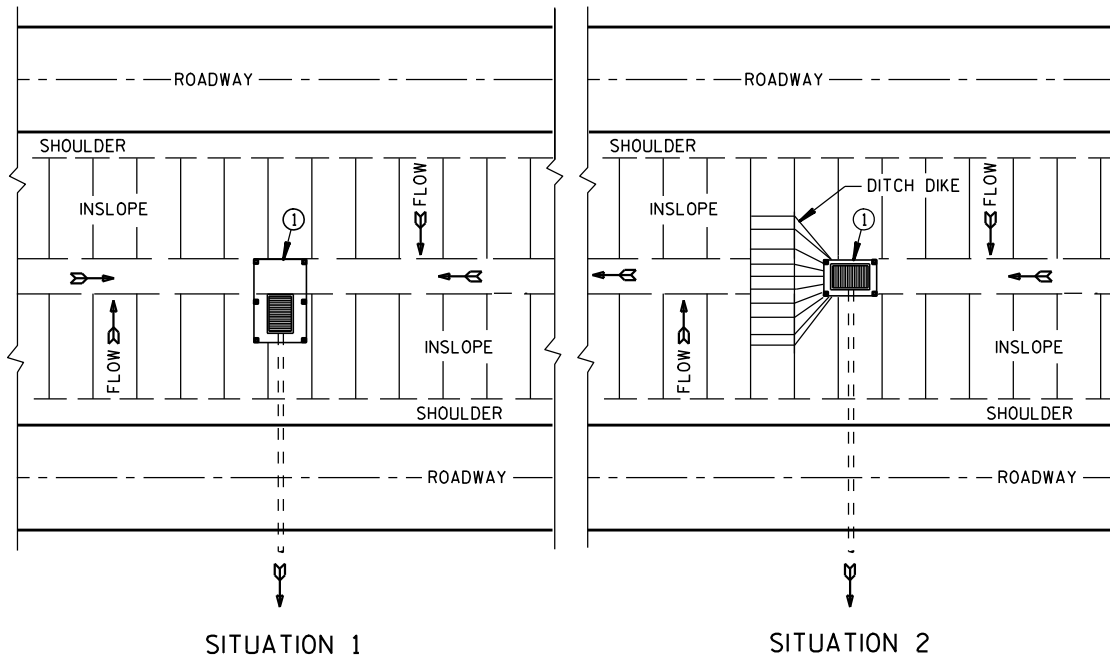
TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

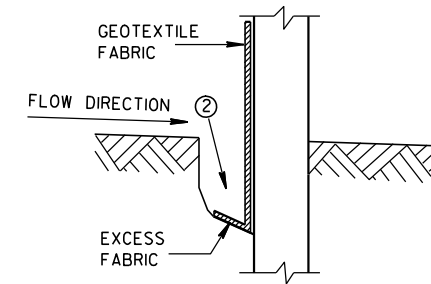


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

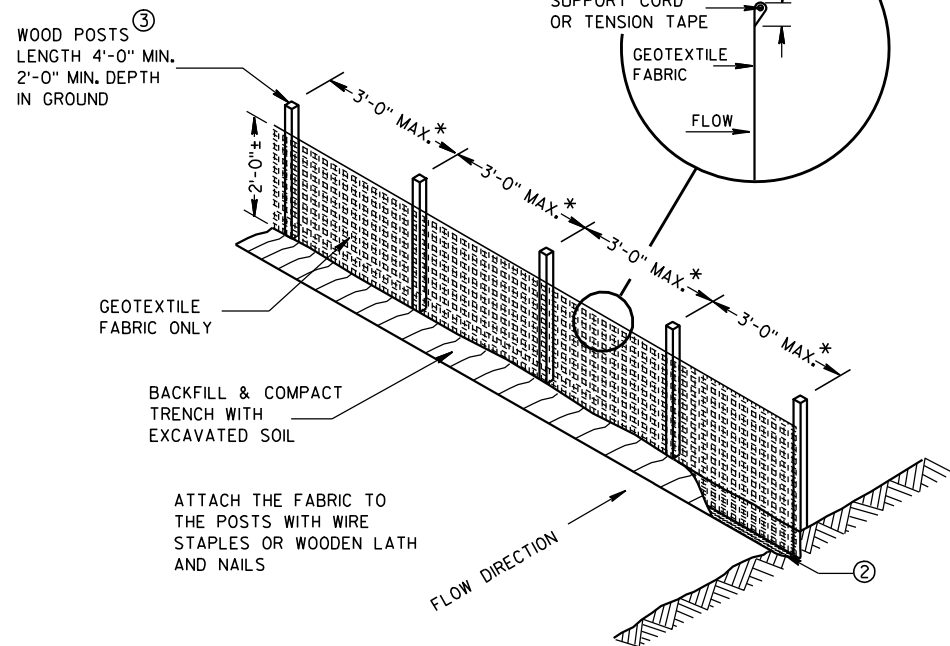
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



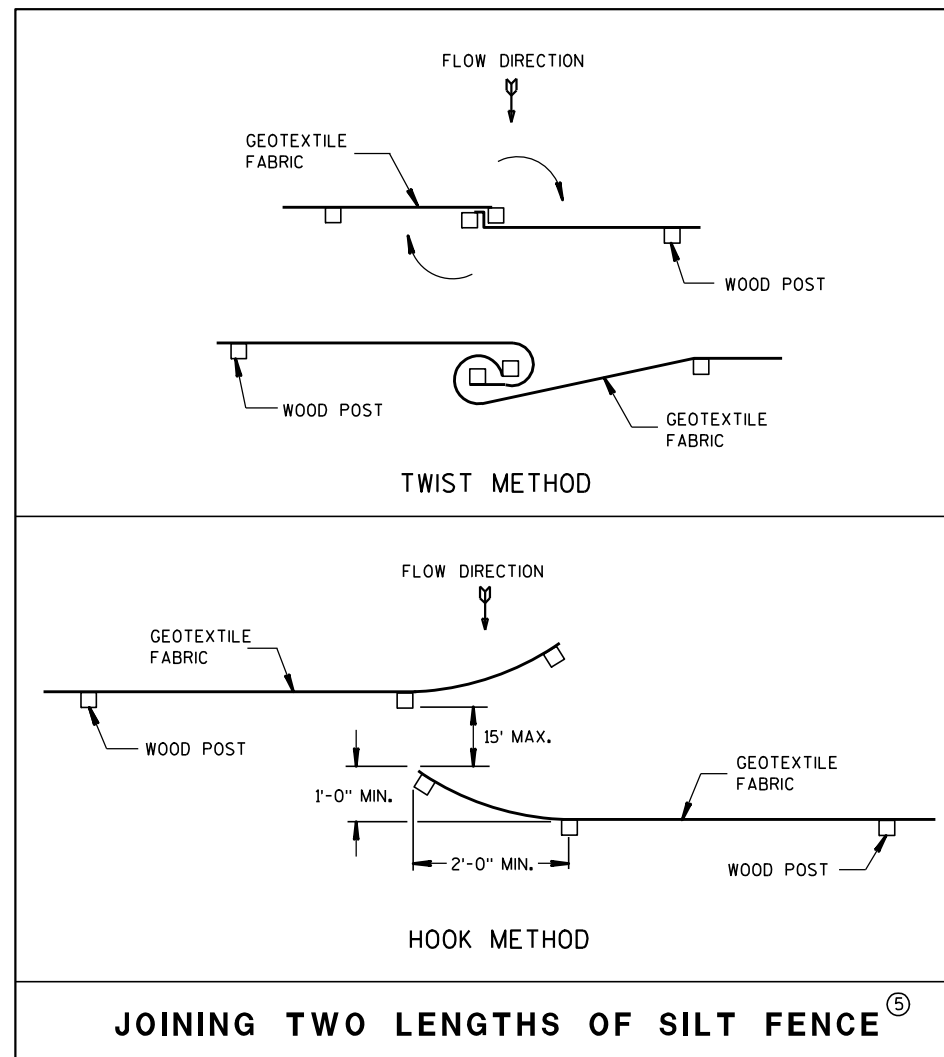
TRENCH DETAIL

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

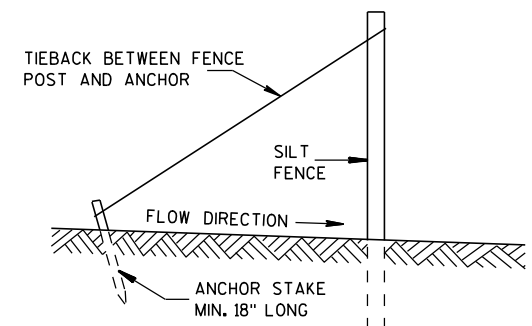


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE



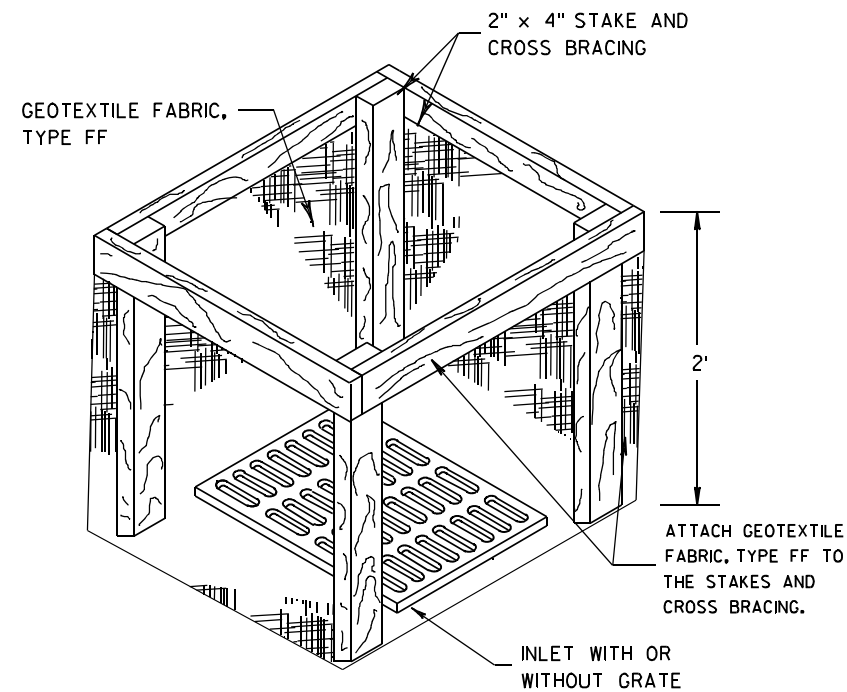
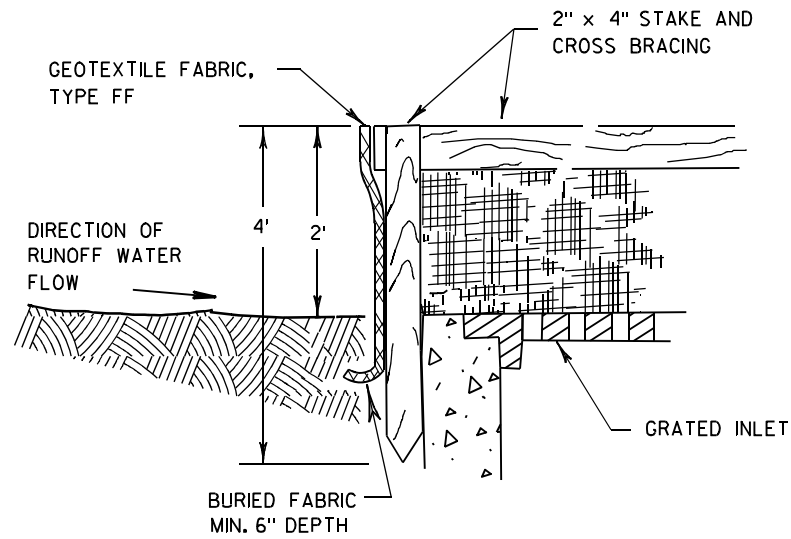
SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
4-29-05 /S/ Beth Canestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA





**INLET PROTECTION, TYPE A**

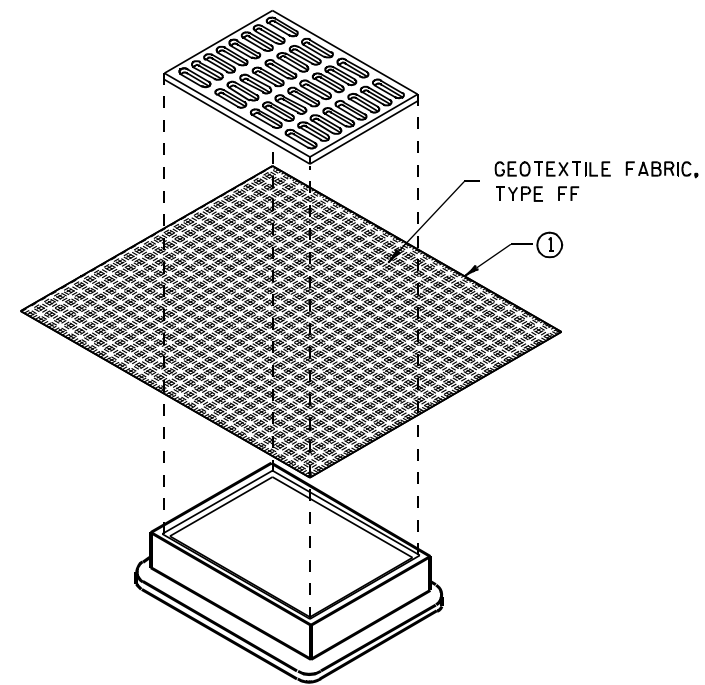
**GENERAL NOTES**

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

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

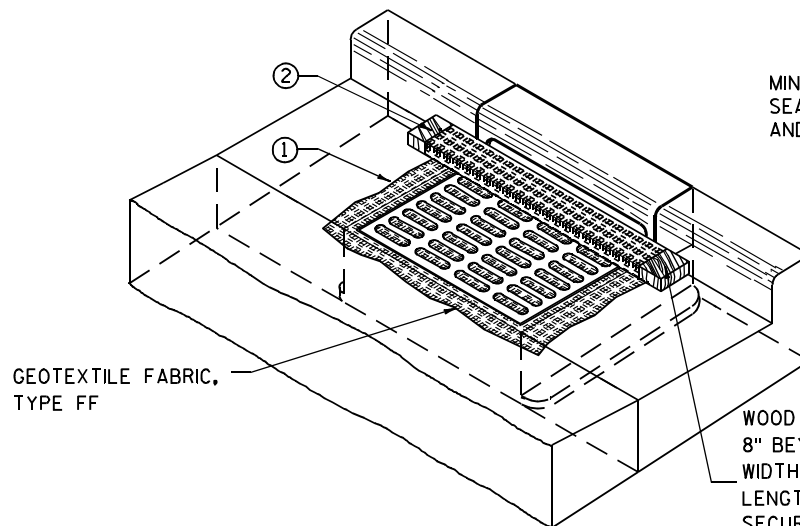
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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

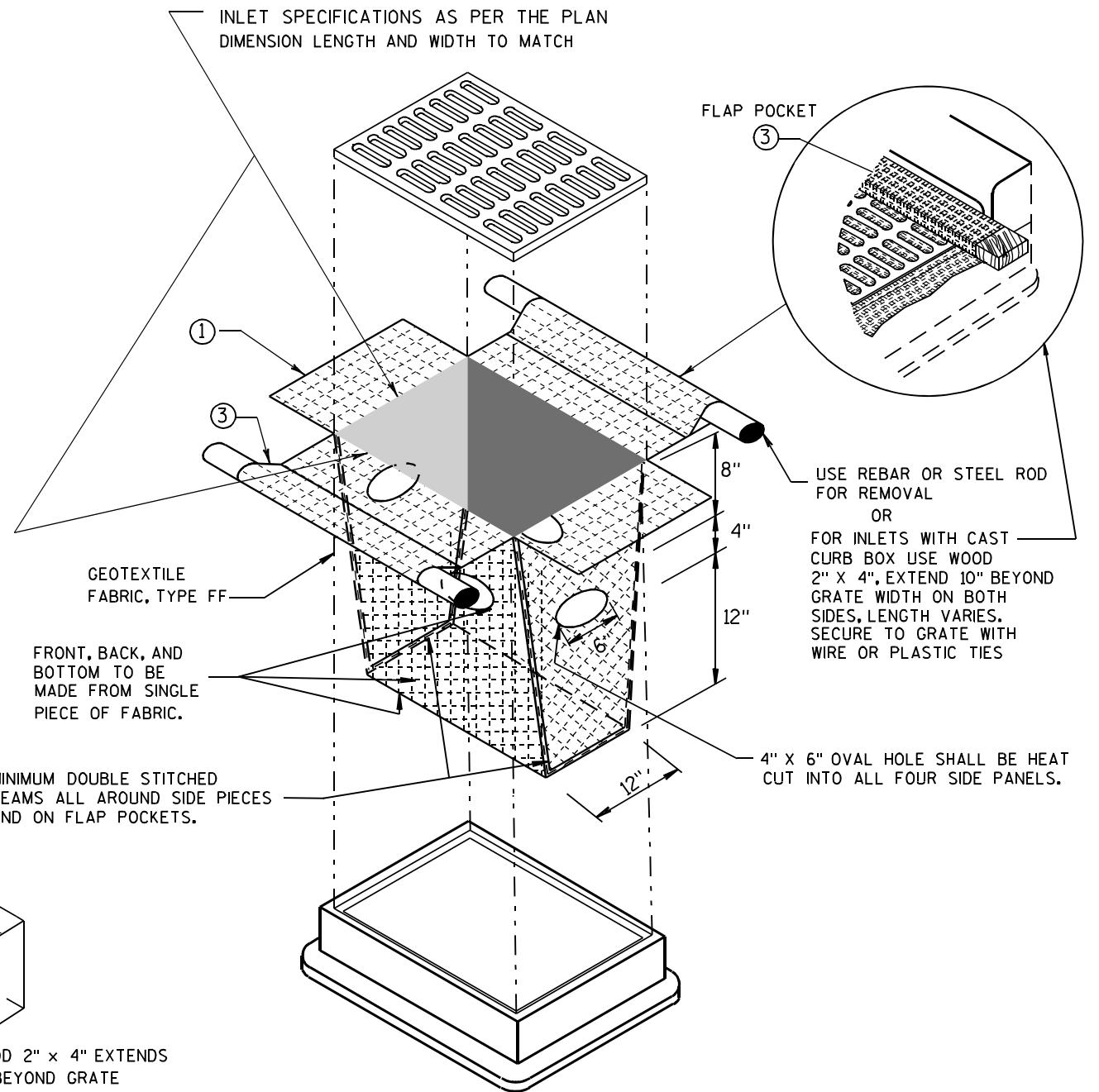


**INLET PROTECTION, TYPE B  
(WITHOUT CURB BOX)**

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



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



**INLET PROTECTION, TYPE D**

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

**INSTALLATION NOTES**

**TYPE B & C**

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

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

**TYPE D**

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

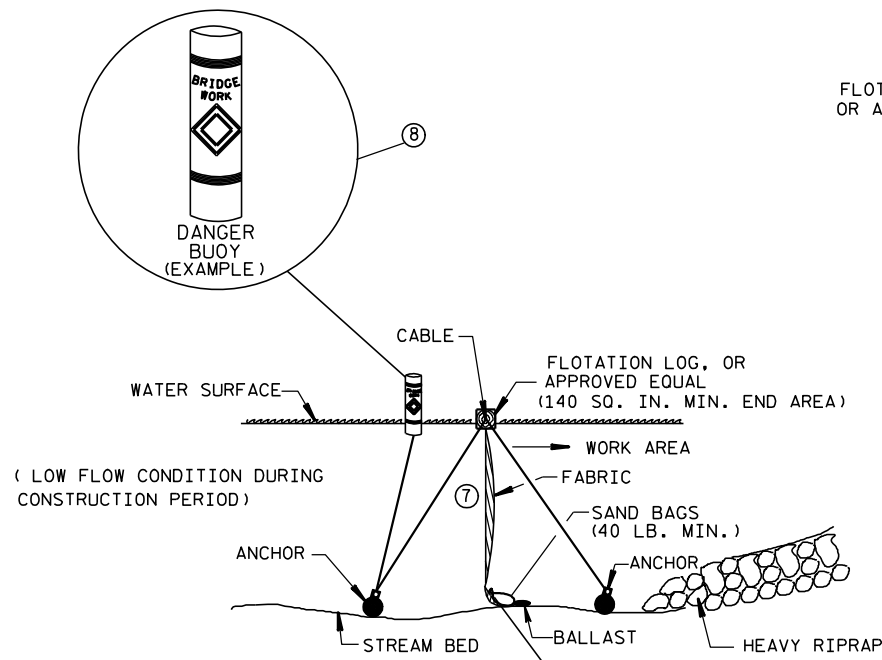
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

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

**INLET PROTECTION  
TYPE A, B, C, AND D**

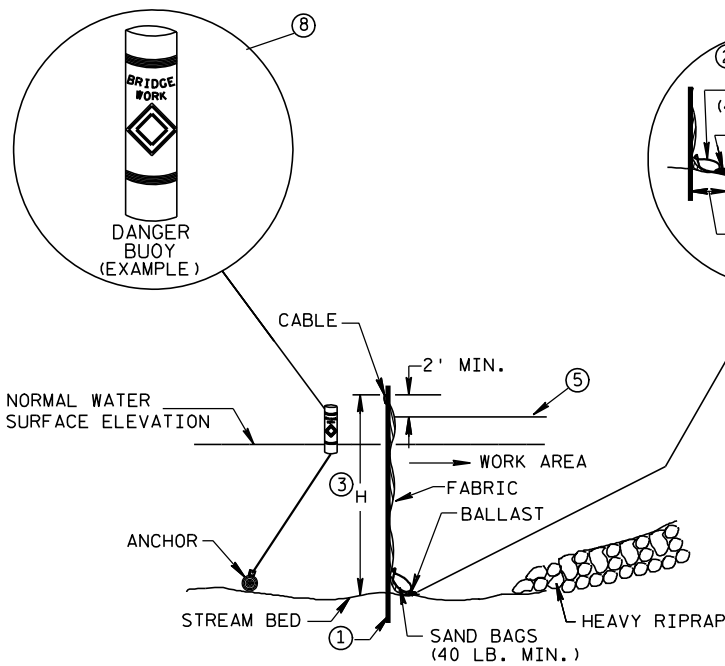
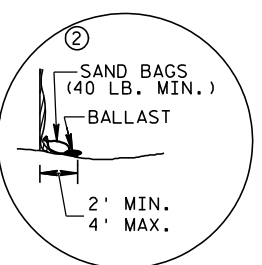
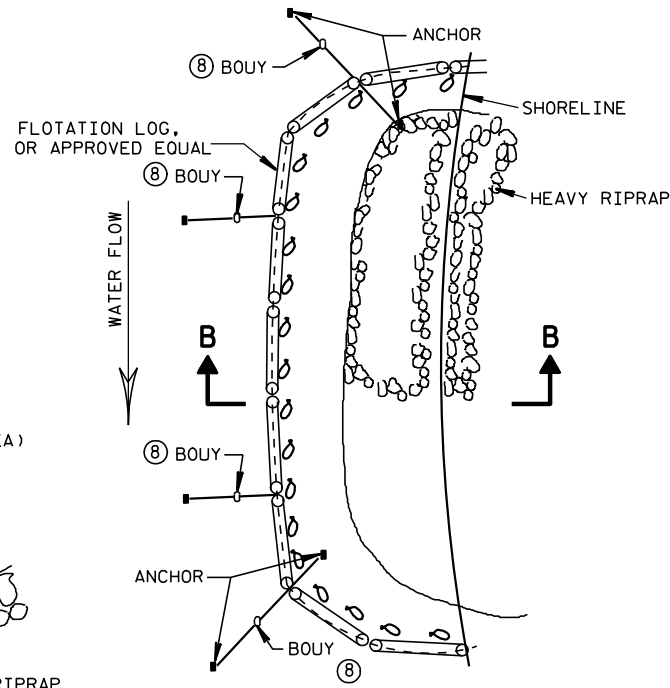
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10/16/02 /S/ Beth Connestra  
DATE  
CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



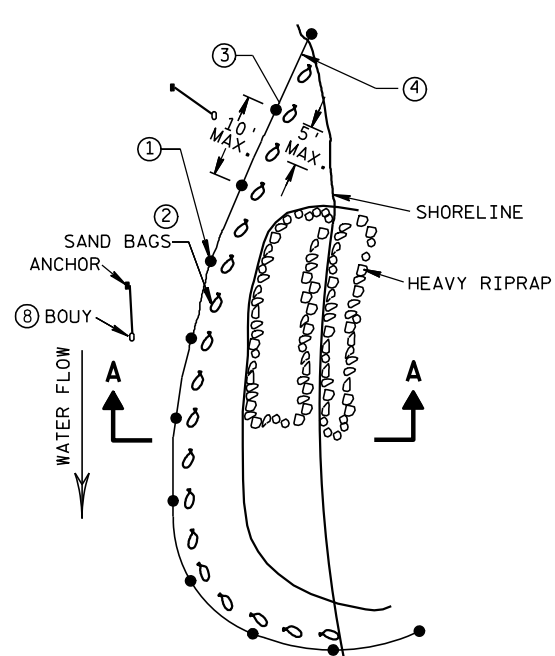
SECTION B-B

TURBIDITY BARRIER FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6



SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION



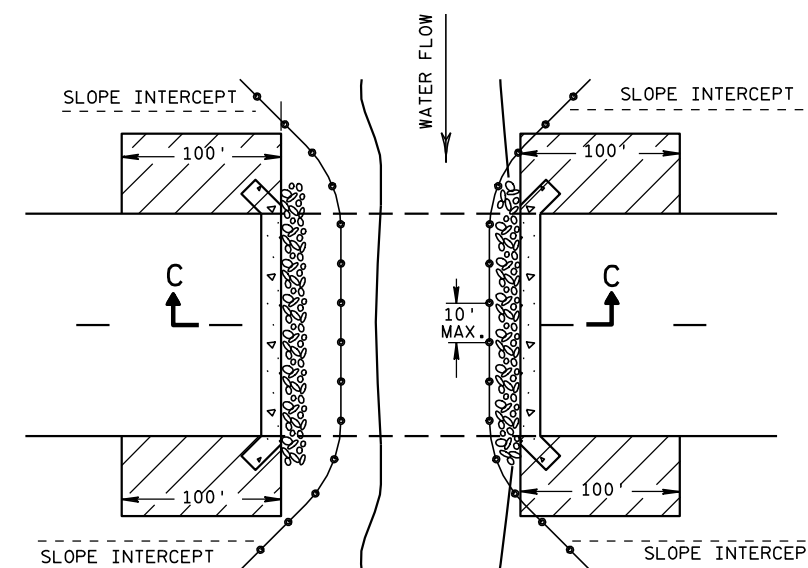
PLAN VIEW

**GENERAL NOTES**

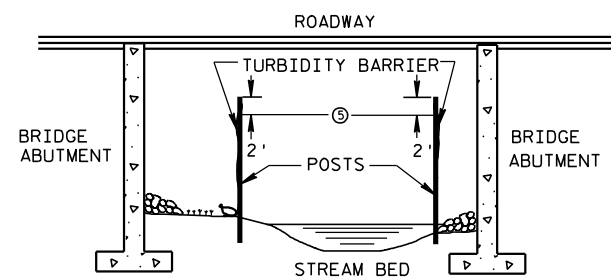
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

### GENERAL NOTES

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

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

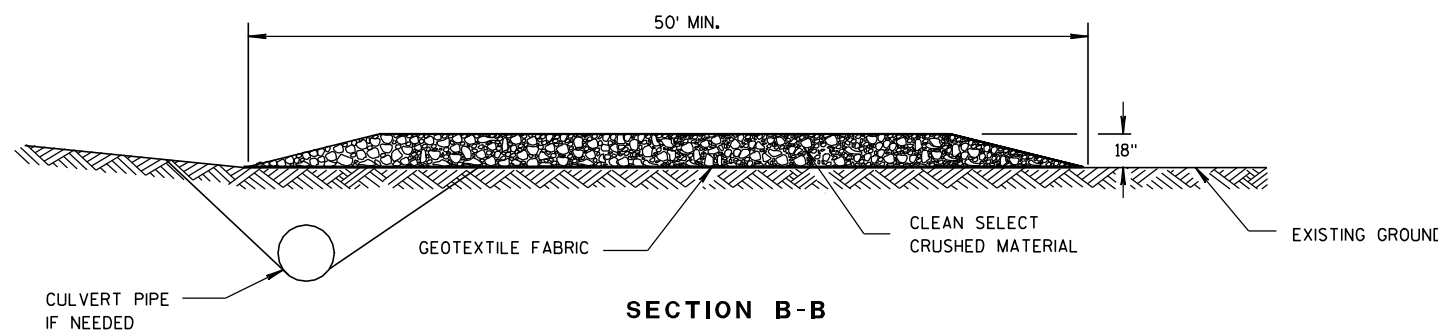
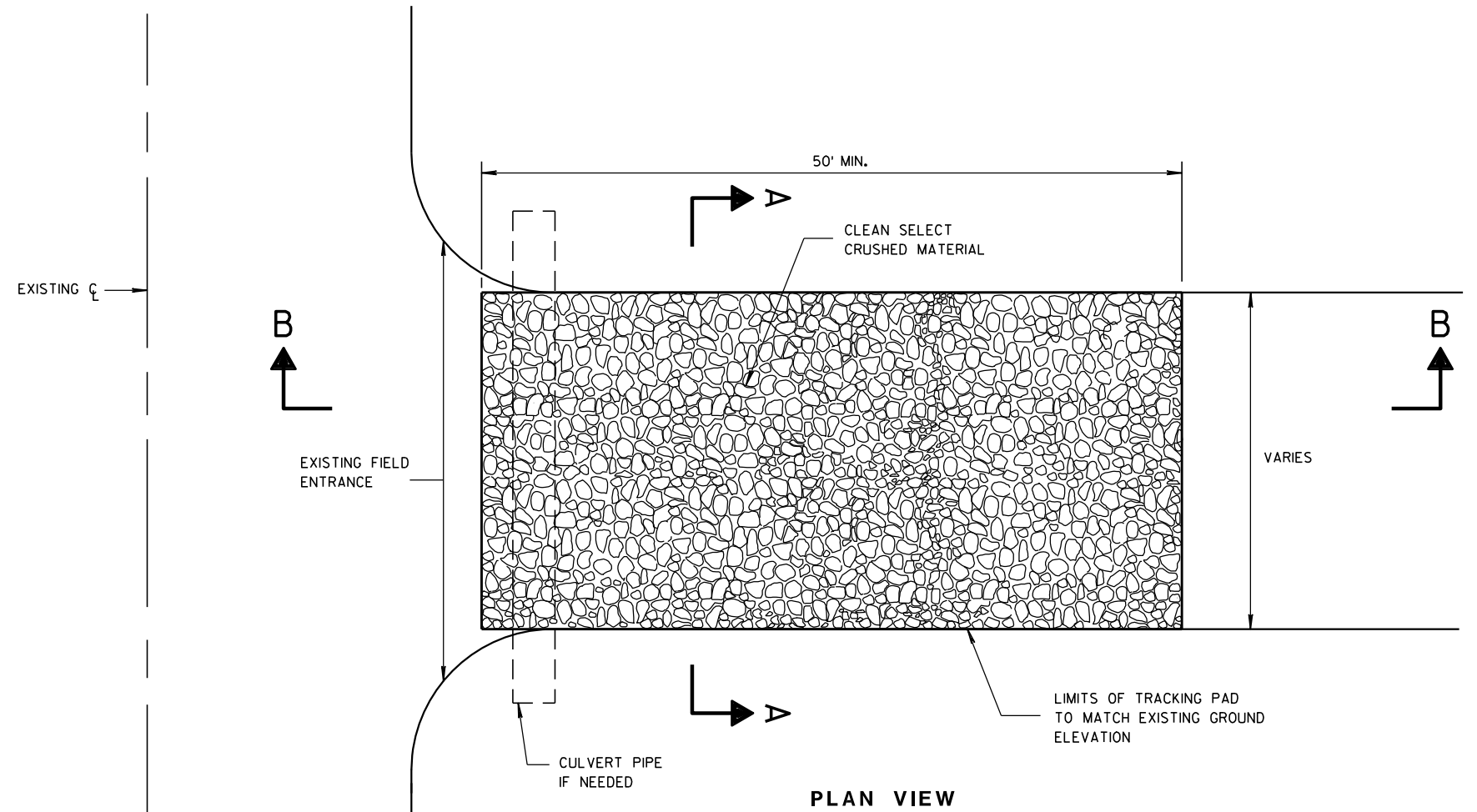
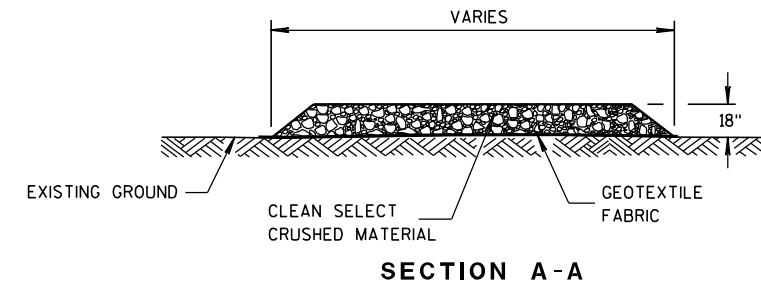
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



### TRACKING PAD

#### TRACKING PAD

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

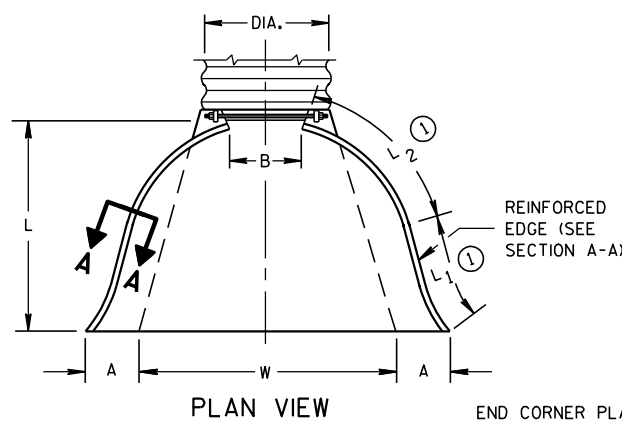
APPROVED  
3/24/2011 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1	L2	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

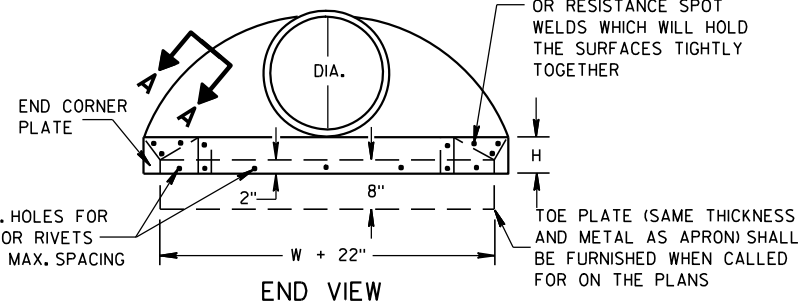
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

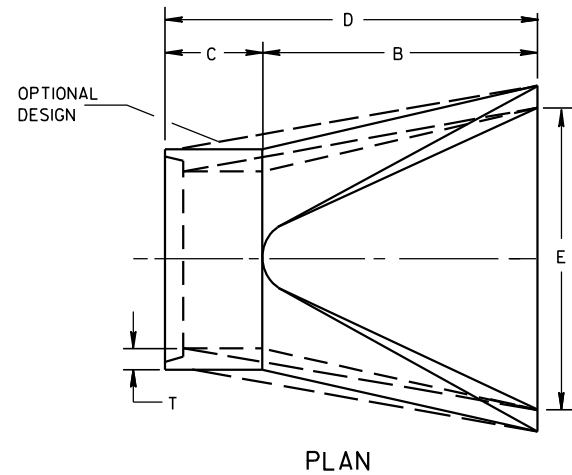
\* MINIMUM  
\*\* MAXIMUM



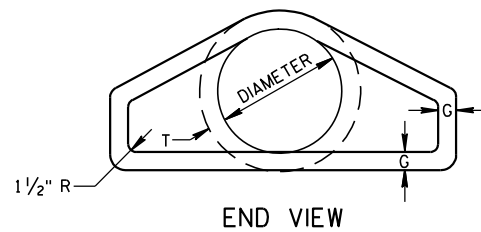
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



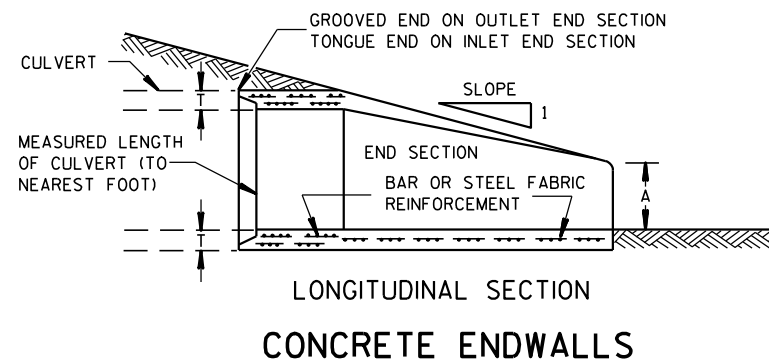
SIDE ELEVATION  
METAL ENDWALLS



PLAN

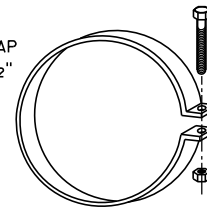


END VIEW

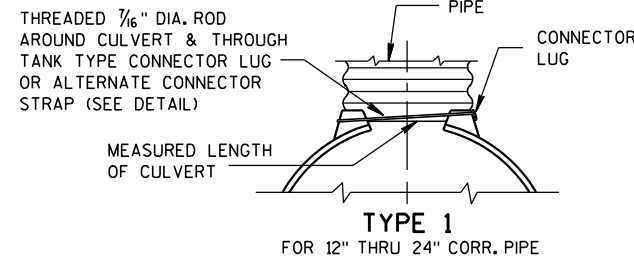


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

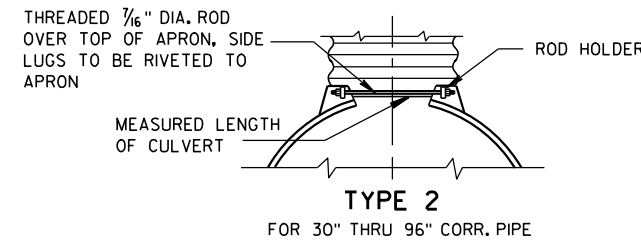
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



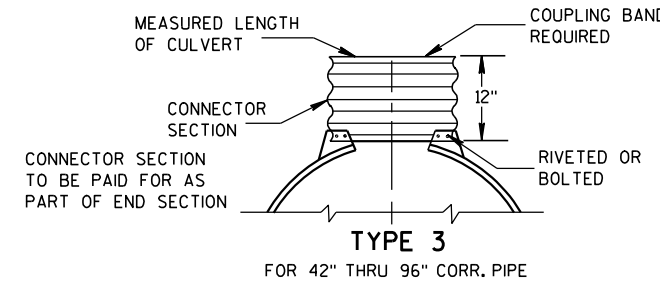
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



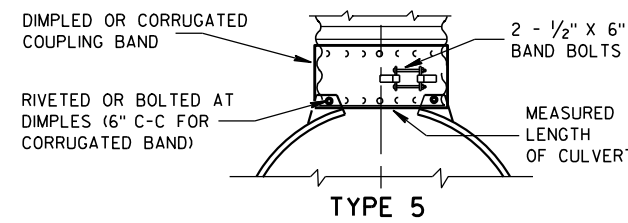
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



TYPE 2  
FOR 30" THRU 96" CORR. PIPE



TYPE 3  
FOR 42" THRU 96" CORR. PIPE



ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

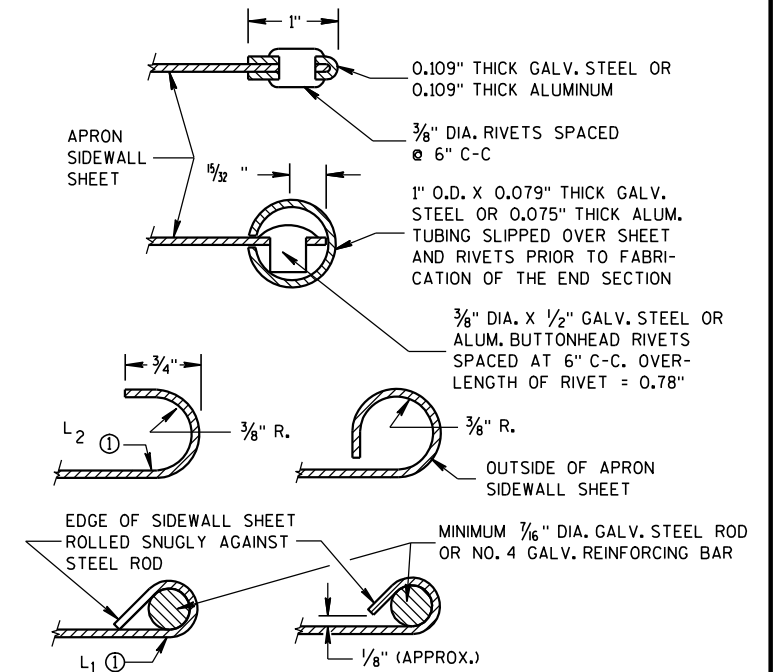
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

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

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

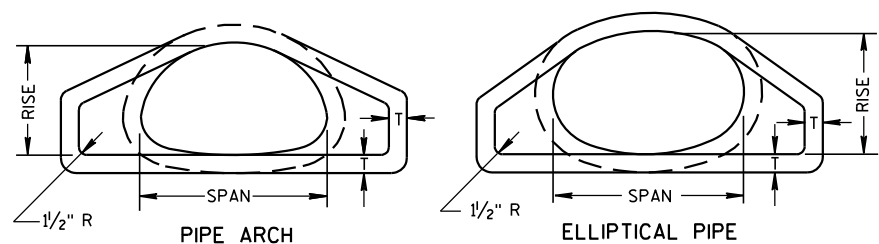
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

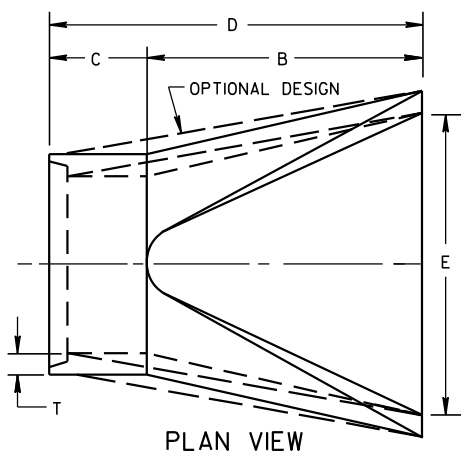
APRON ENDWALLS FOR  
CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

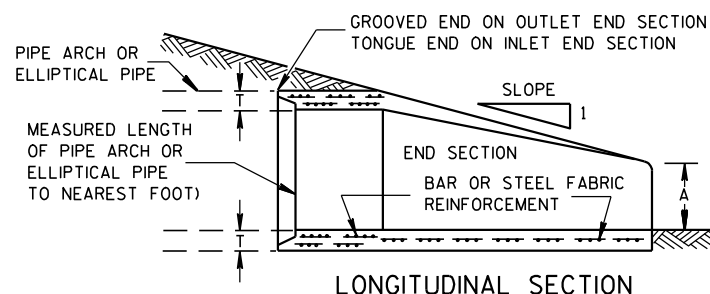
APPROVED  
11/30/94 DATE /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



END VIEW

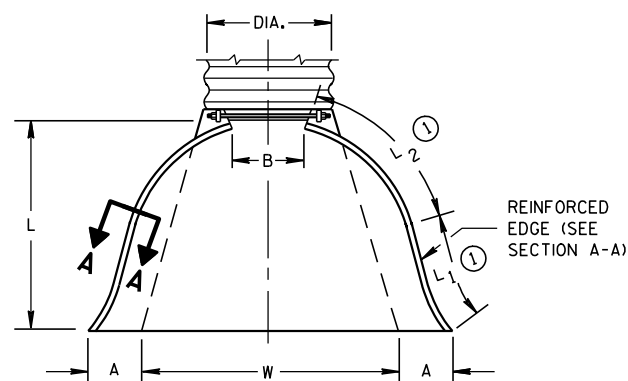


PLAN VIEW



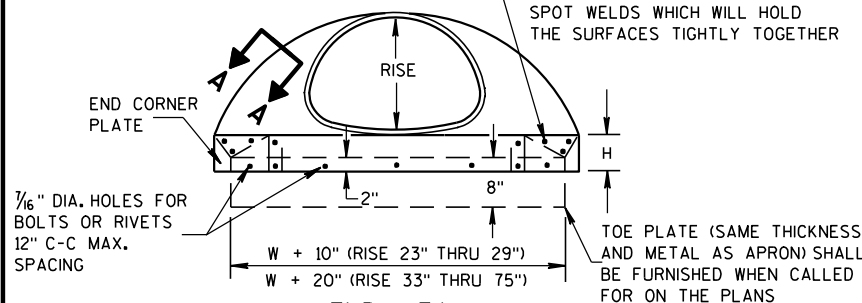
LONGITUDINAL SECTION

CONCRETE ENDWALLS

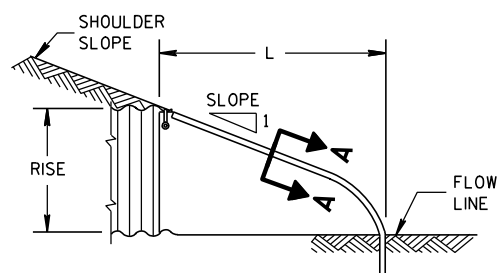


PLAN VIEW

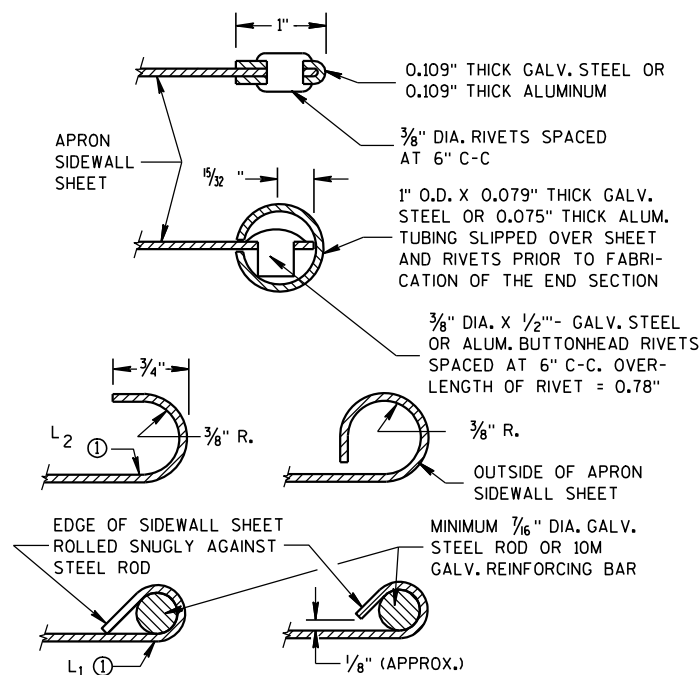
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW



SIDE ELEVATION  
METAL ENDWALLS



SECTION A-A

2- 2/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (±1")	L2 (±1")	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (±1")	L2 (±1")	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED. \* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE PIPE ARCH										
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)									APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E		
24	29	18	3	8 1/2	39	33	72	48	3 to 1	
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1	
36	44	27	4	11 1/8	60	36	96	72	3 to 1	
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1	
48	58	36	5	21	60	36	96	84	3 to 1	
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1	
60	73	45	6	31	60	36	96	96	3 to 1	
72	88	54	7	31	60	39	99	120	2 to 1	
84	102	62	8	28 1/2	83	19	102	144	2 to 1	

REINFORCED CONCRETE ELLIPTICAL PIPE										
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)									APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E		
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1	
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1	
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1	
42	53	34	5	15 3/4	60	36	96	78	2 1/2 to 1	
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1	
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1	
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1	

\*\*NOMINAL SIZE

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 APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH 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 ARCH 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 77" X 52" THROUGH 112" X 75" 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.

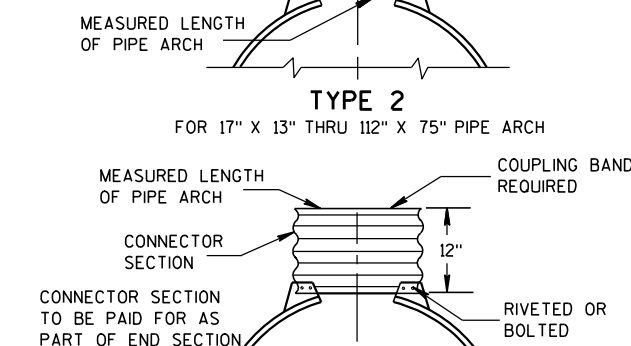
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.



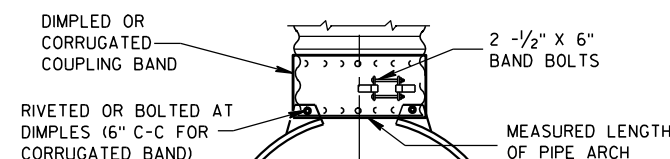
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:  
ALL SIZES CORRUGATED PIPE ARCHES

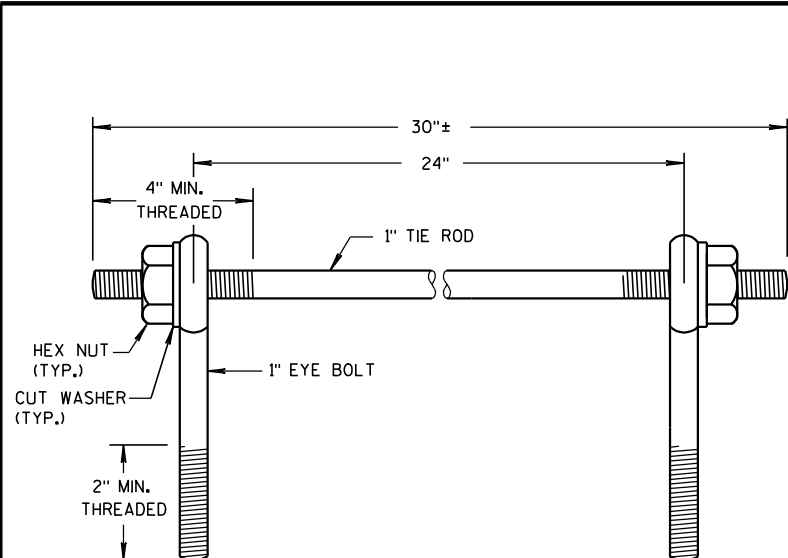
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

APRON ENDWALLS FOR  
PIPE ARCH AND  
ELLIPTICAL PIPE

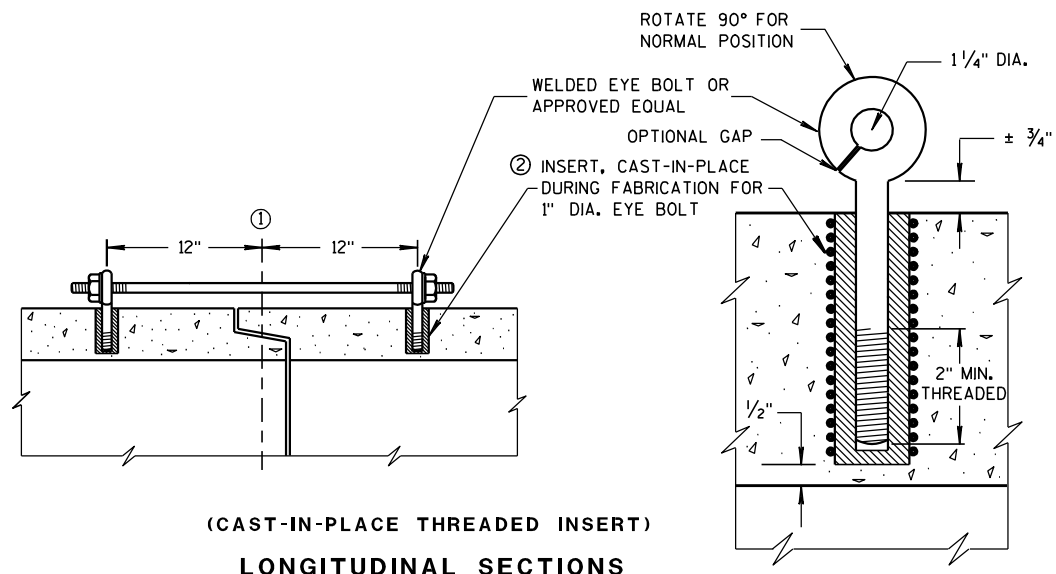
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/30/94 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST-IN-PLACE THREADED INSERT)  
LONGITUDINAL SECTIONS

GENERAL NOTES

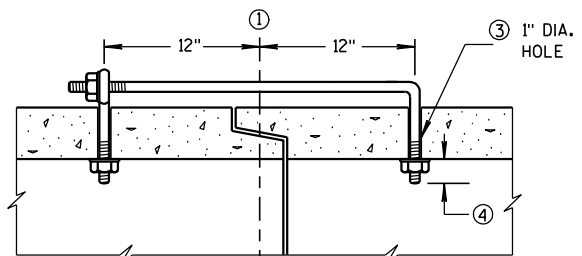
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

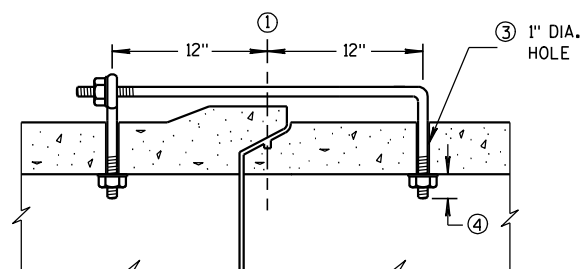
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ①  $\phi$  OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM  $\phi$  OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN  $\frac{1}{2}$  INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)  
LONGITUDINAL SECTION

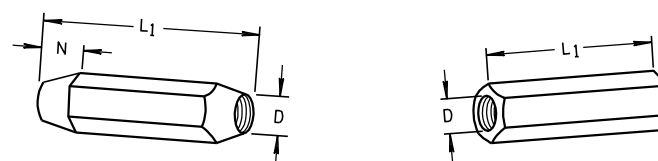
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	

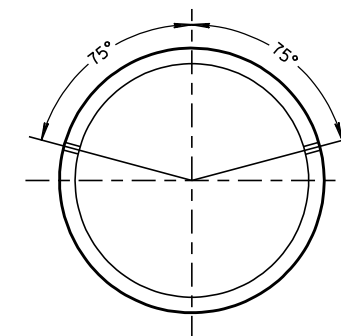
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L <sub>1</sub>	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/6

DIMENSIONS SHOWN ARE IN INCHES

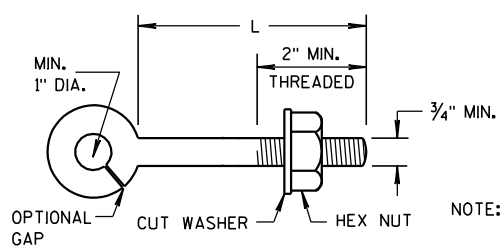


TAPERED PLAIN  
RIGHT AND LEFT THREADS  
SLEEVE NUTS



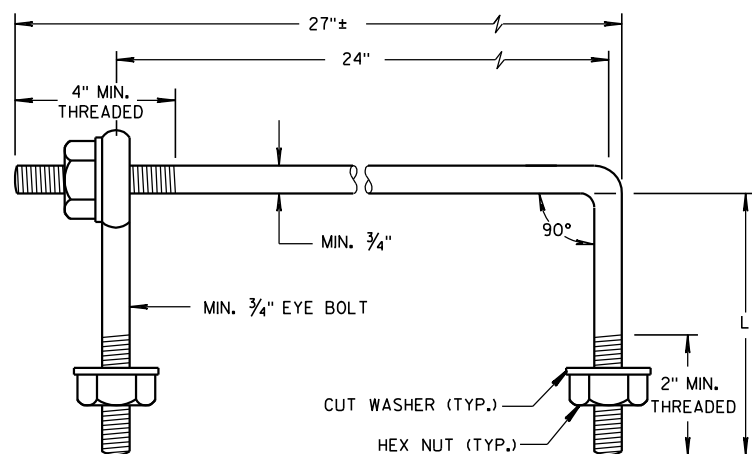
PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



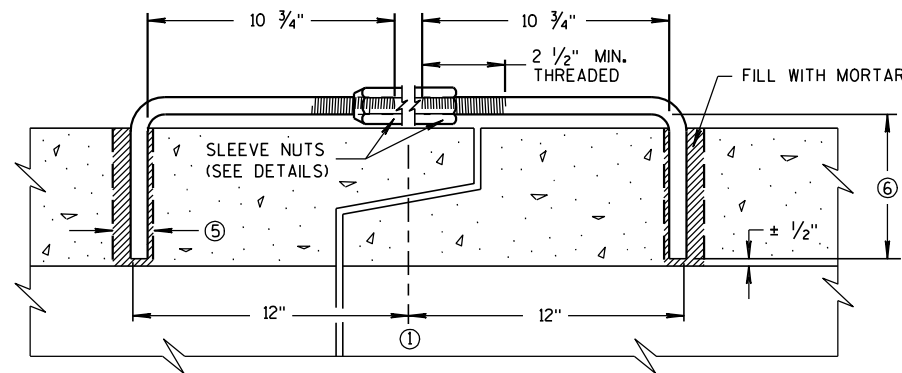
EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.

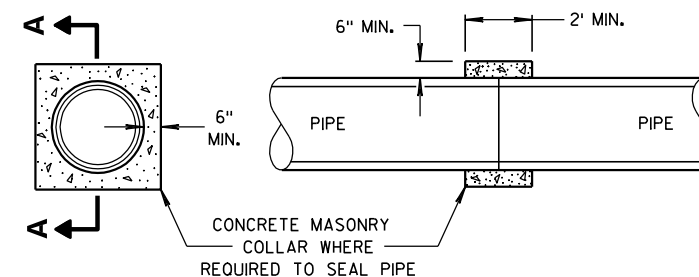


EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)  
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION  
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)  
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



SECTION A-A  
CONCRETE COLLAR DETAIL

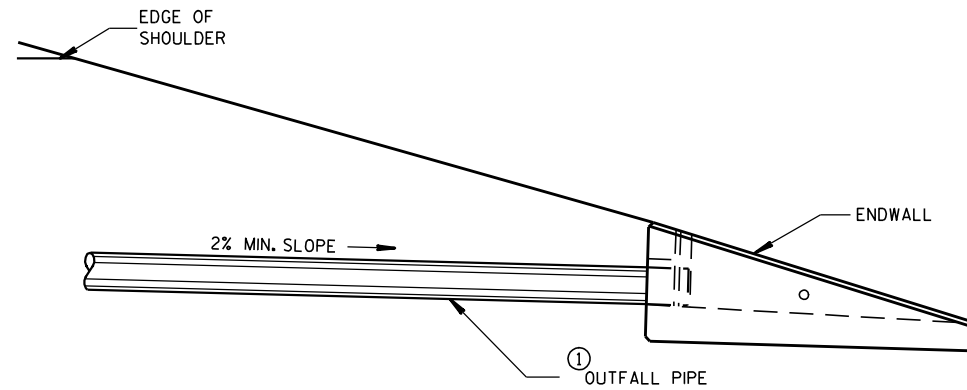
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

\*\* APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



INSTALLATION DETAIL

**GENERAL NOTES**

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

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

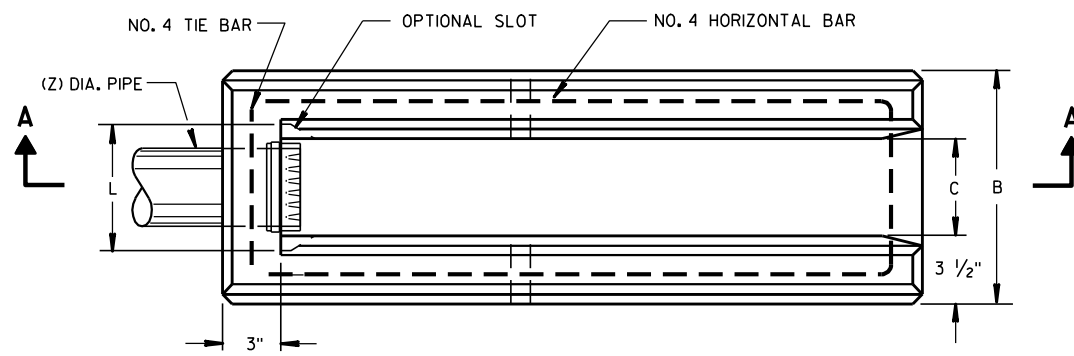
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

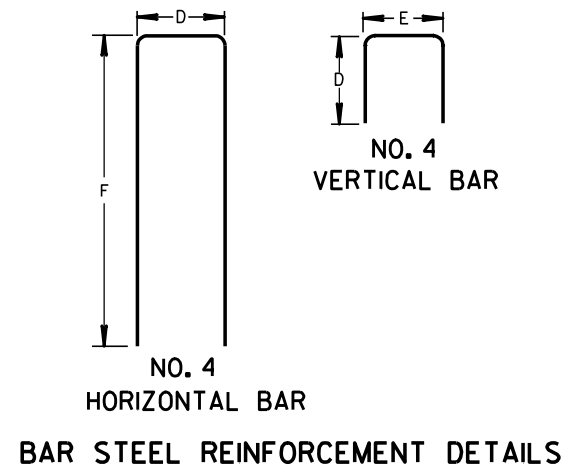
① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

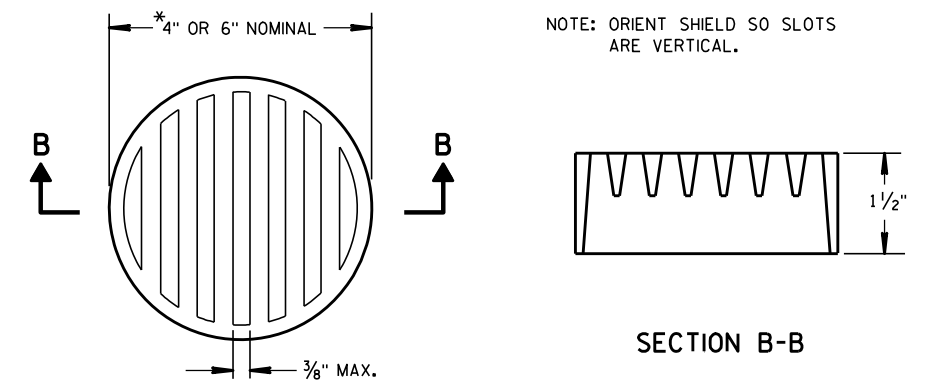
② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



PLAN VIEW

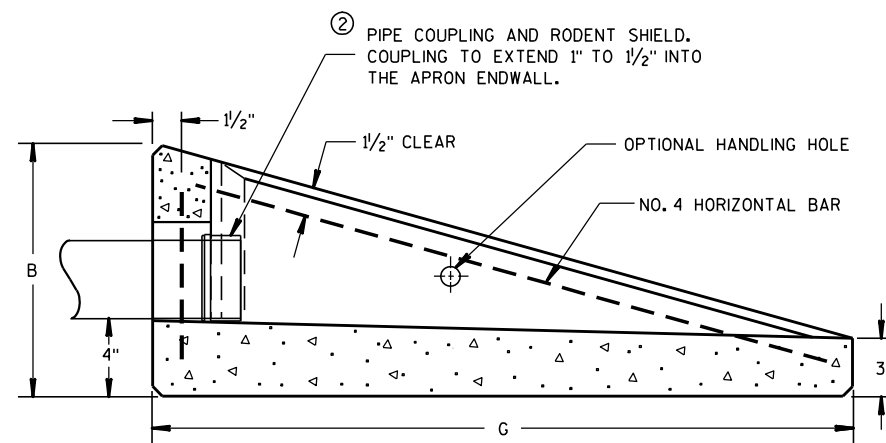


BAR STEEL REINFORCEMENT DETAILS



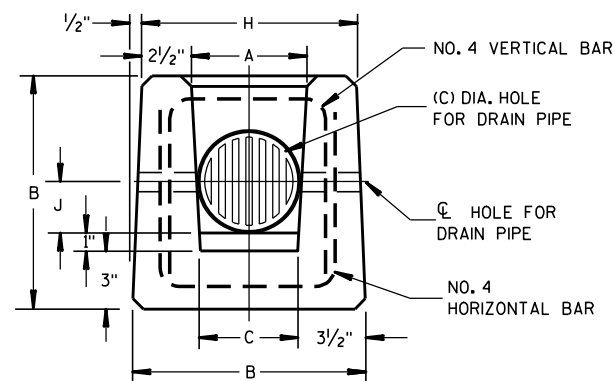
② RODENT SHIELD

\*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN

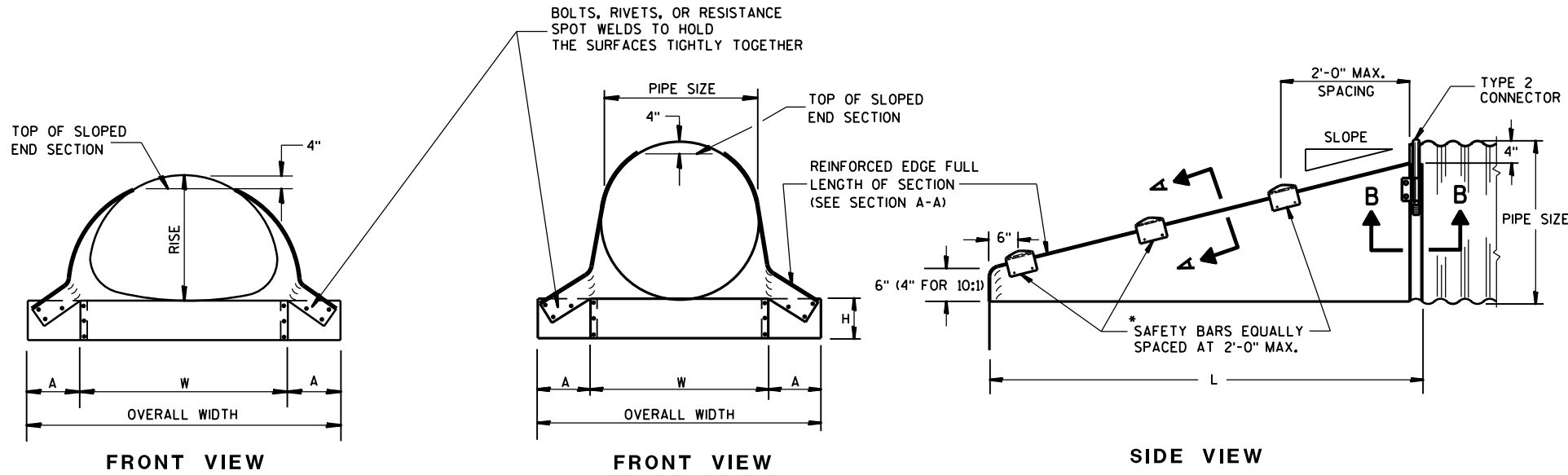


END VIEW

**REINFORCED  
CONCRETE APRON ENDWALL  
FOR PIPE UNDERDRAIN**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3/10/98 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



**GENERAL NOTES**

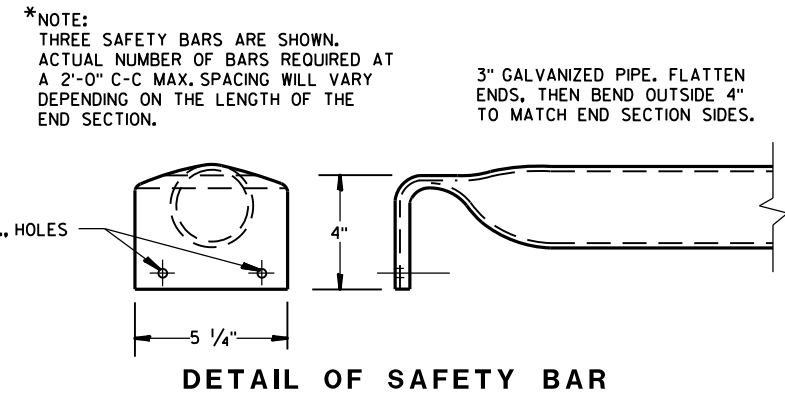
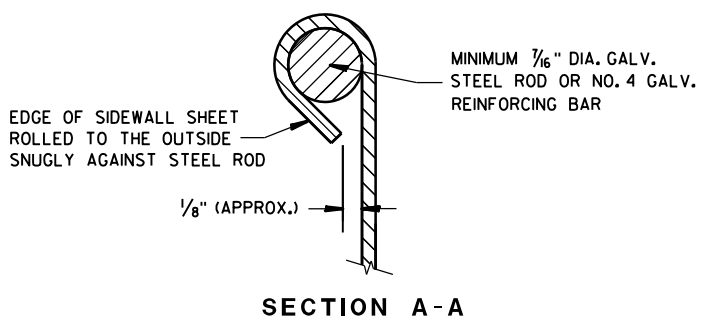
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

**STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS**

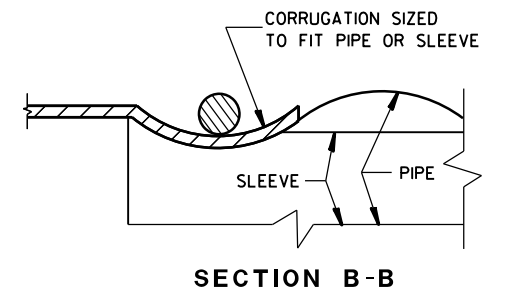
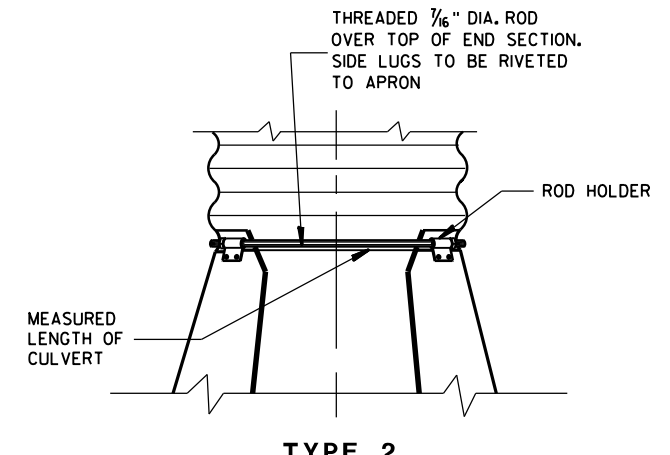
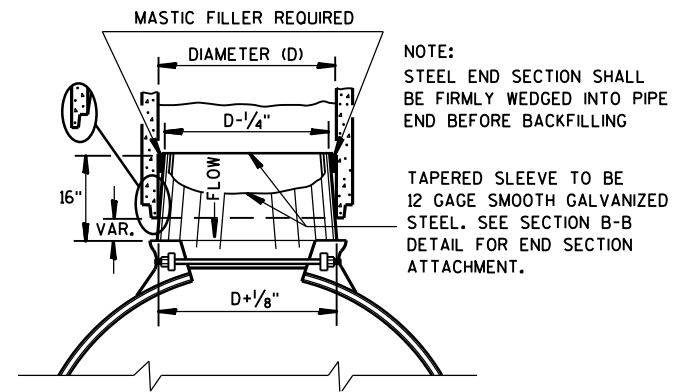
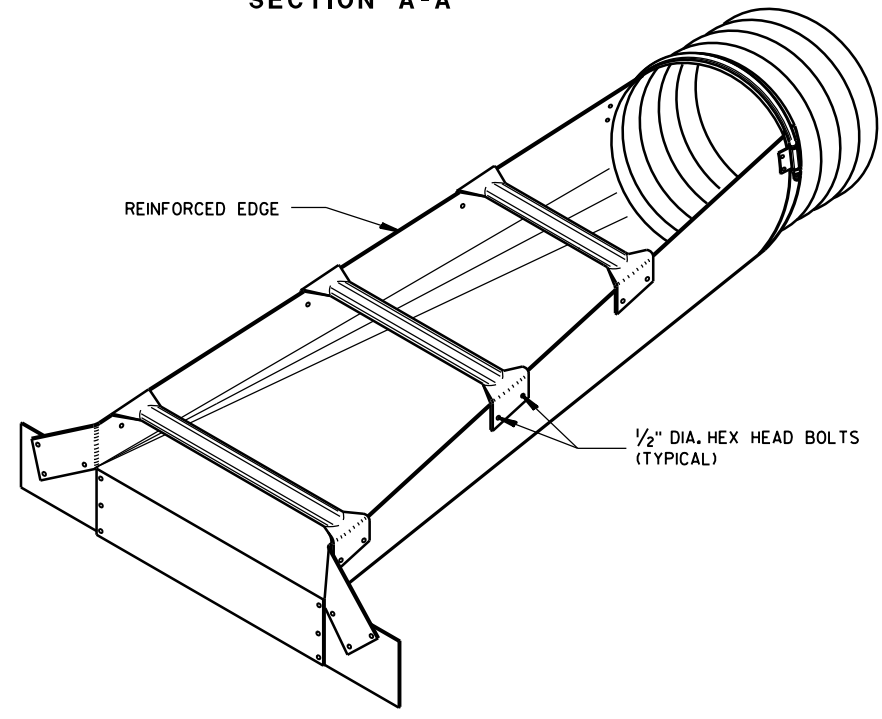
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



**STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS**

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches) ①	DIMENSIONS (Inches)				L DIMENSIONS					
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	—	—
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	—	—
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	—	—

① \* MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".  
 ② ACTUAL SLOPE GREATER THAN 10:1.



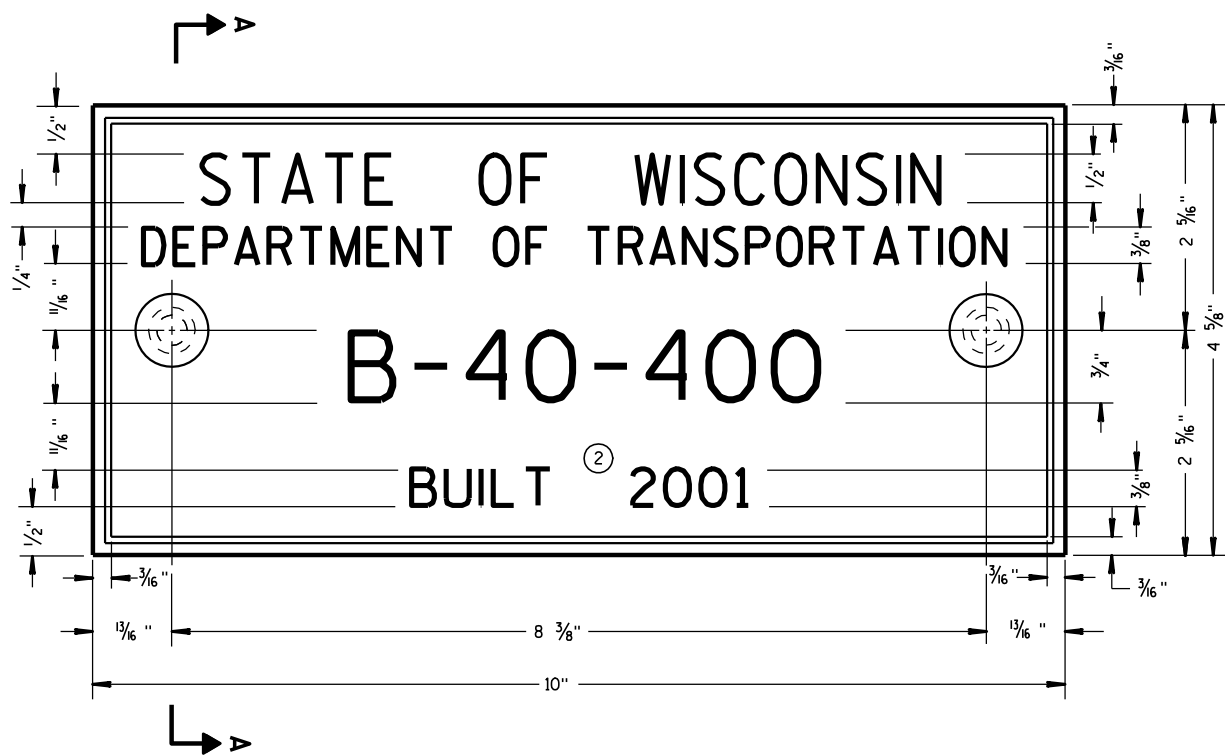
**STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 9/14/2012 /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA





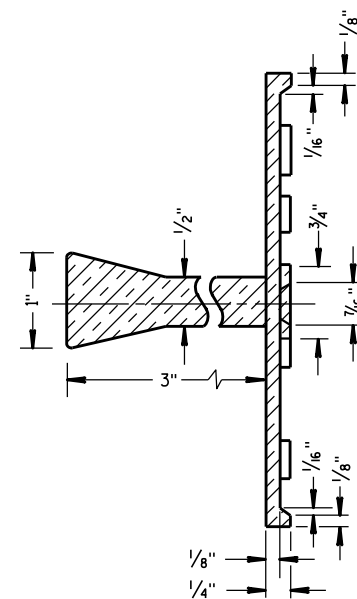
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

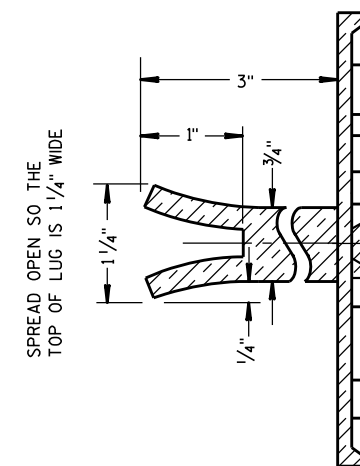
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

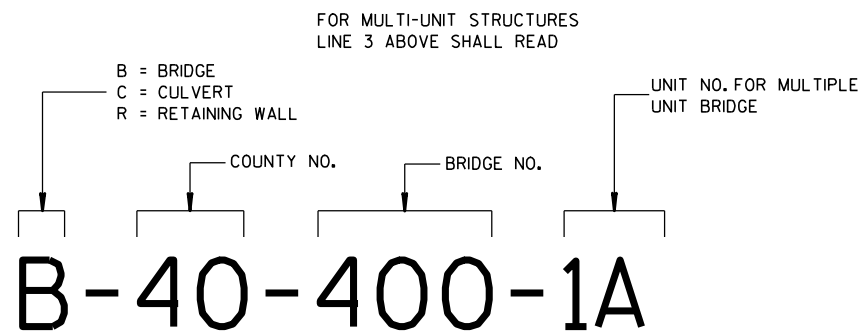
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



**SECTION A-A**

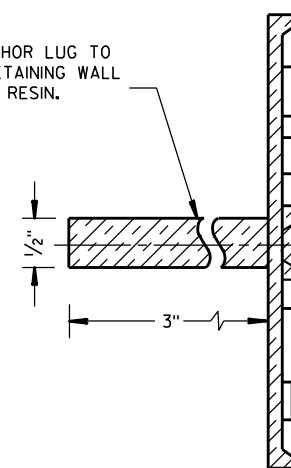


**ALTERNATE LUG**



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.

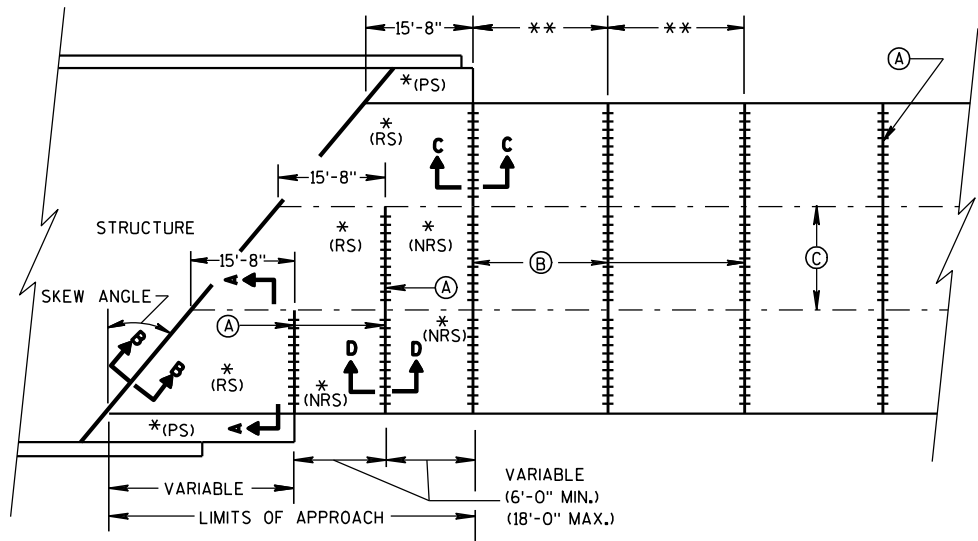


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

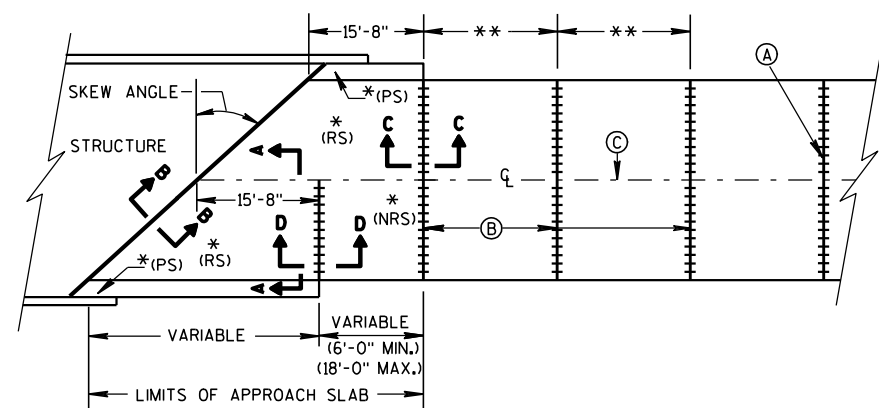
**NAME PLATE  
(STRUCTURES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

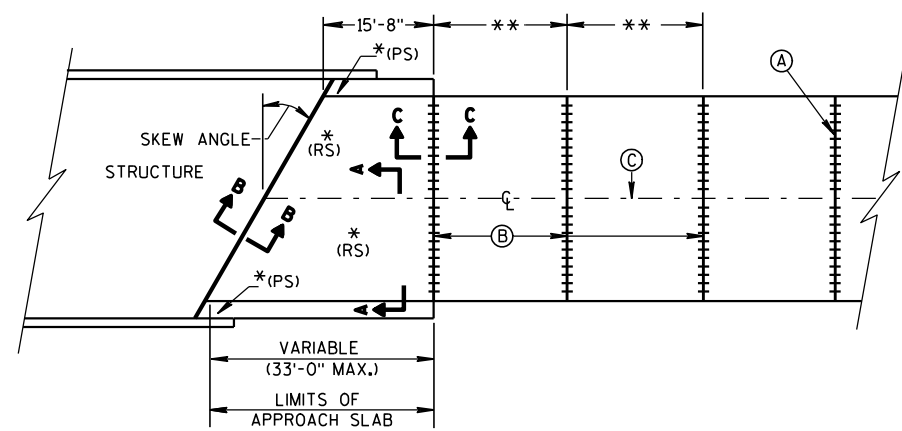
APPROVED  
DATE 3/26/10 /S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER  
FHWA



**SKewed APPROACH  
(PAVEMENT MORE THAN 2 LANES)**

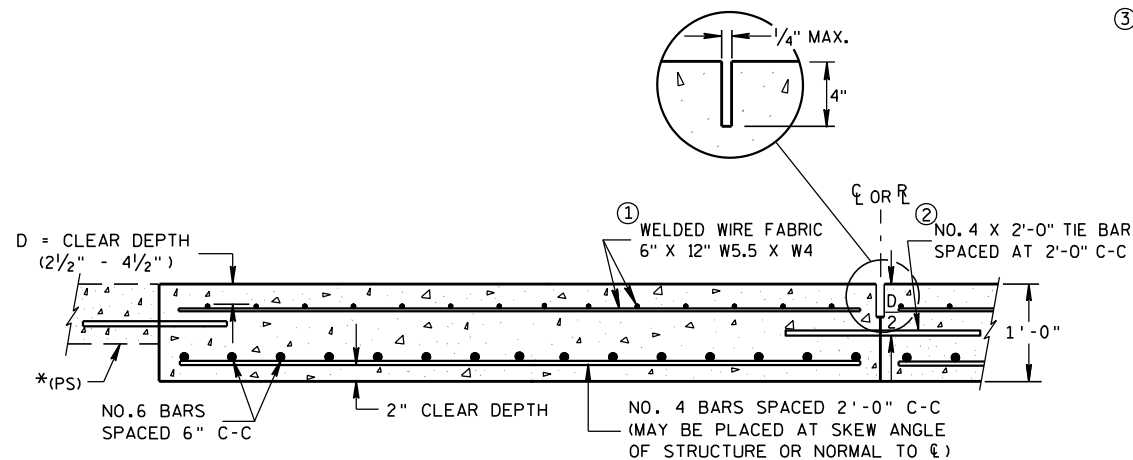


**SKEWS > 30°  
(PAVEMENT WIDTH ≤ 30')**

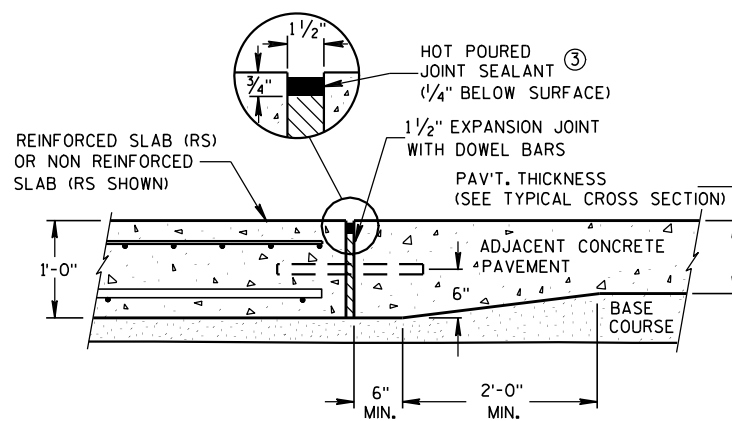


**SKEWS ≤ 30°  
(PAVEMENT WIDTH ≤ 30')  
APPROACH SLAB AND ADJACENT PAVEMENT**

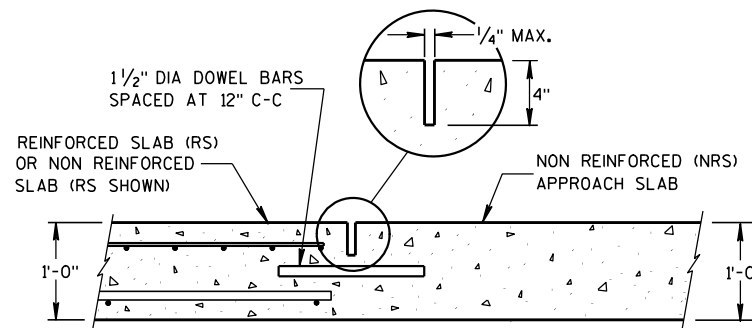
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
- \* (NRS) = NON-REINFORCED CONCRETE SLAB
- \*\* STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
- (A) STANDARD CONTRACTION JOINT NORMAL TO  $R_L$  OR  $R_C$
- (B) 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $R_L$  OR  $R_C$
- (C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



**SECTION A-A  
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**



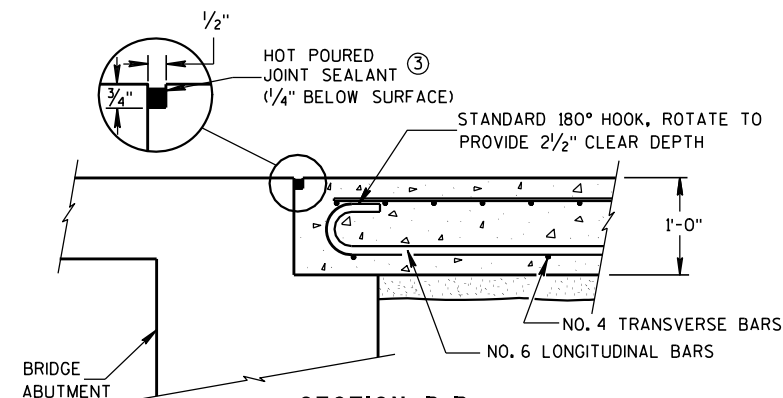
**SECTION D-D  
CONTRACTION JOINT**

**GENERAL NOTES**

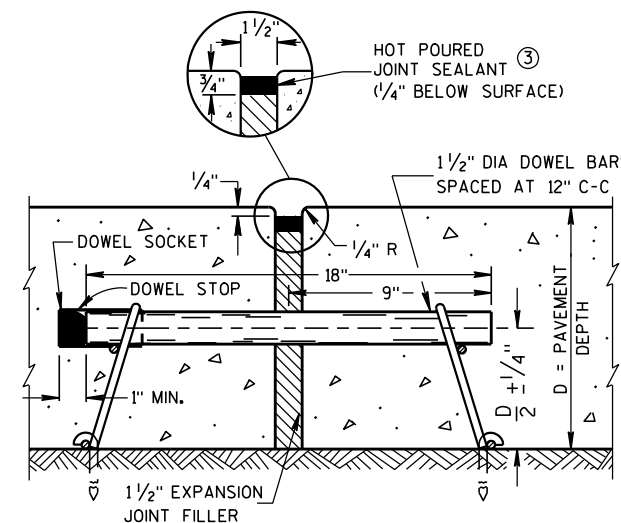
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



**SECTION B-B  
BEND DETAIL  
BOTTOM REINFORCEMENT**

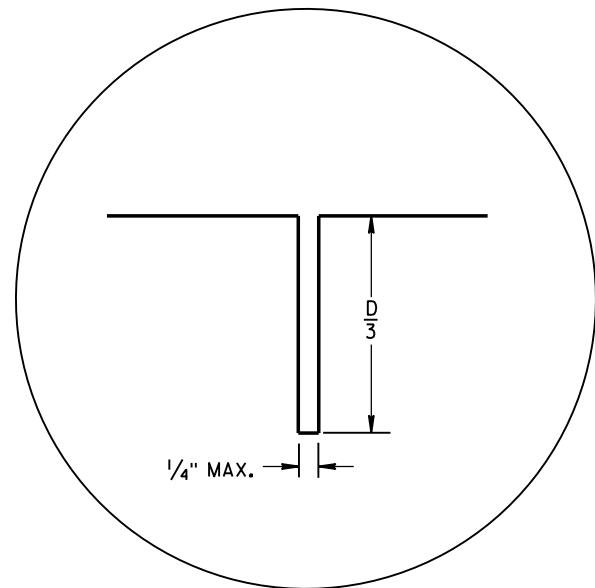


**EXPANSION JOINT**

**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

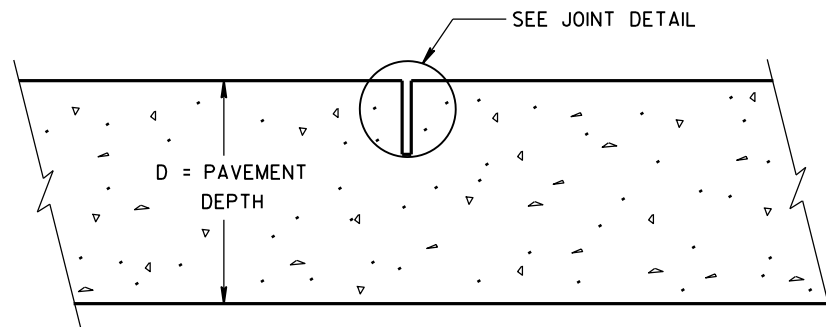
APPROVED  
12/11/2009 /S/ Deb Bischoff  
DATE PAVEMENT POLICY & DESIGN ENGINEER  
FHWA



**JOINT DETAIL**

**PAVEMENT DEPTH AND JOINT SPACING TABLE**

PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



**CONTRACTION JOINT**

**GENERAL NOTES**

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE.

LOCATE AND ORIENT CONTRACTION JOINTS THROUGH INTERSECTIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

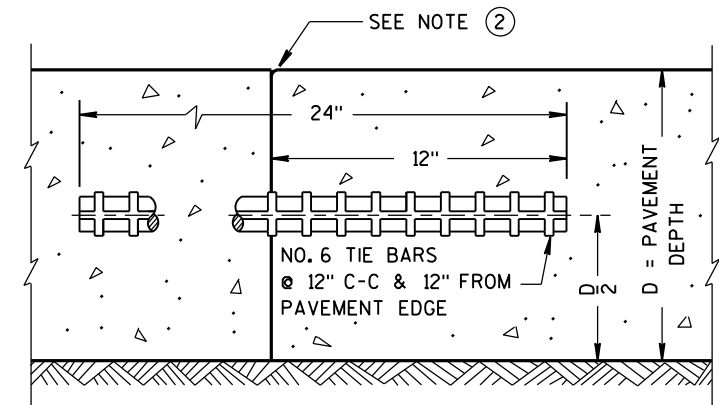
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

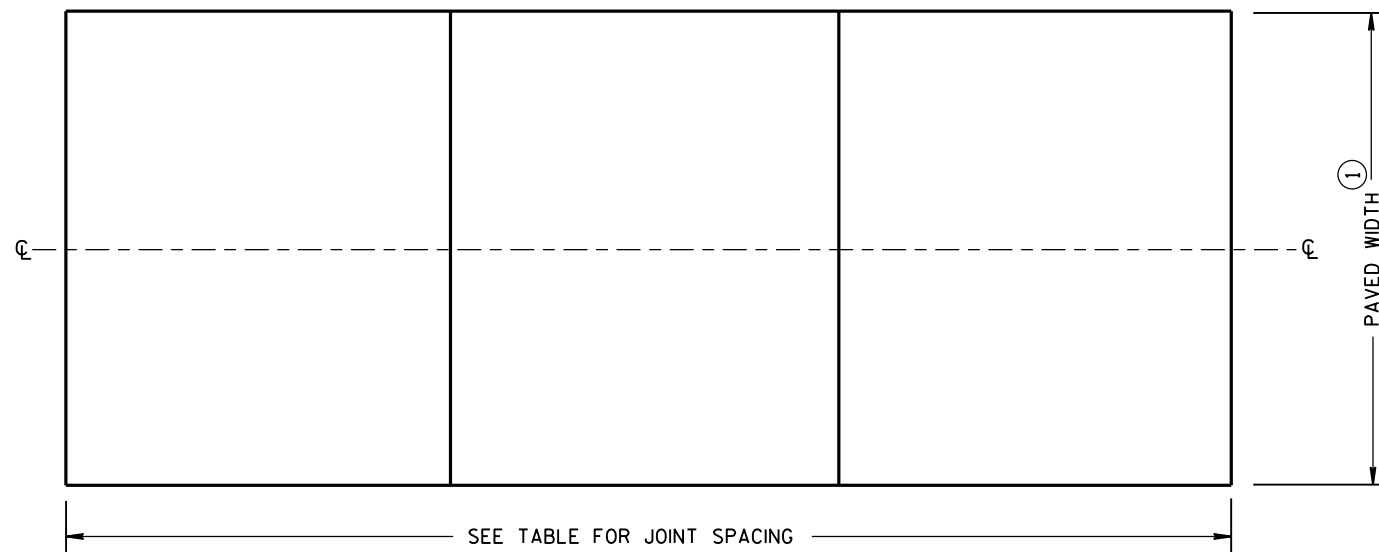
FORM OR SAW CONSTRUCTION JOINTS.

THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

- ① REFER TO TYPICAL CROSS SECTIONS FOR PAVED WIDTH AND LOCATION OF LONGITUDINAL JOINTS.
- ② PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

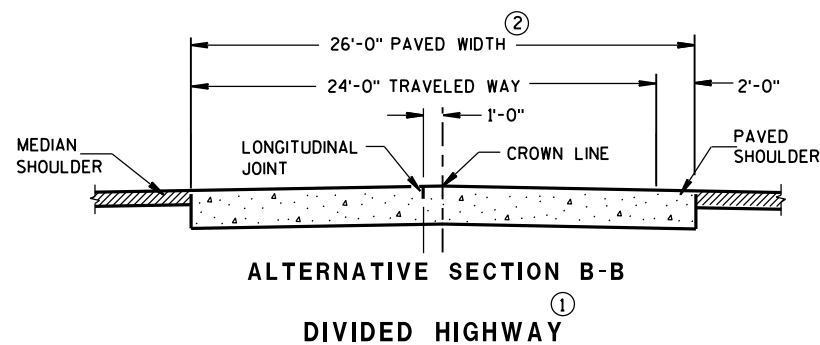
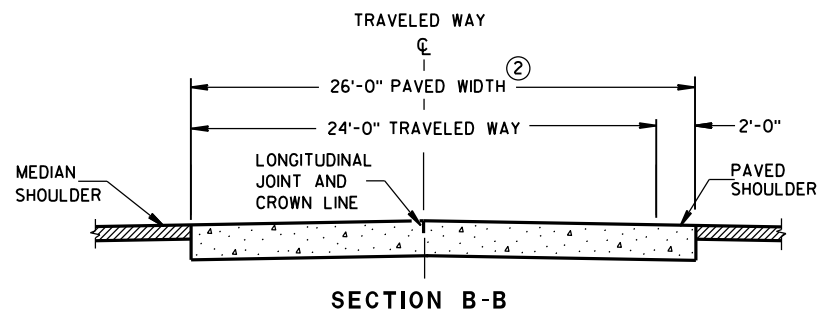
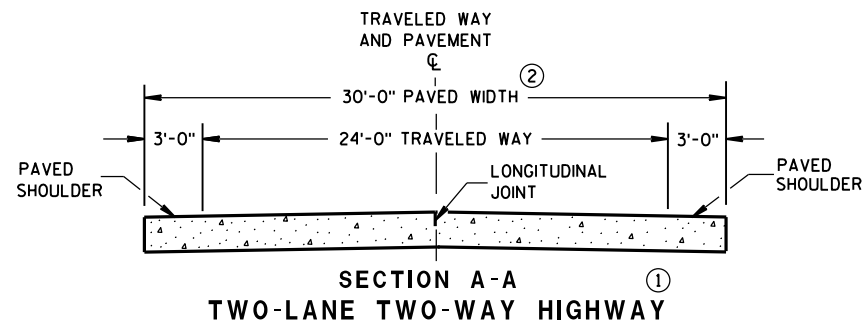


**TIED TRANSVERSE CONSTRUCTION JOINT**



**CONTRACTION JOINT LOCATIONS**

<b>URBAN NON-DOWELED CONCRETE PAVEMENT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	



**GENERAL NOTES**

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

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

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

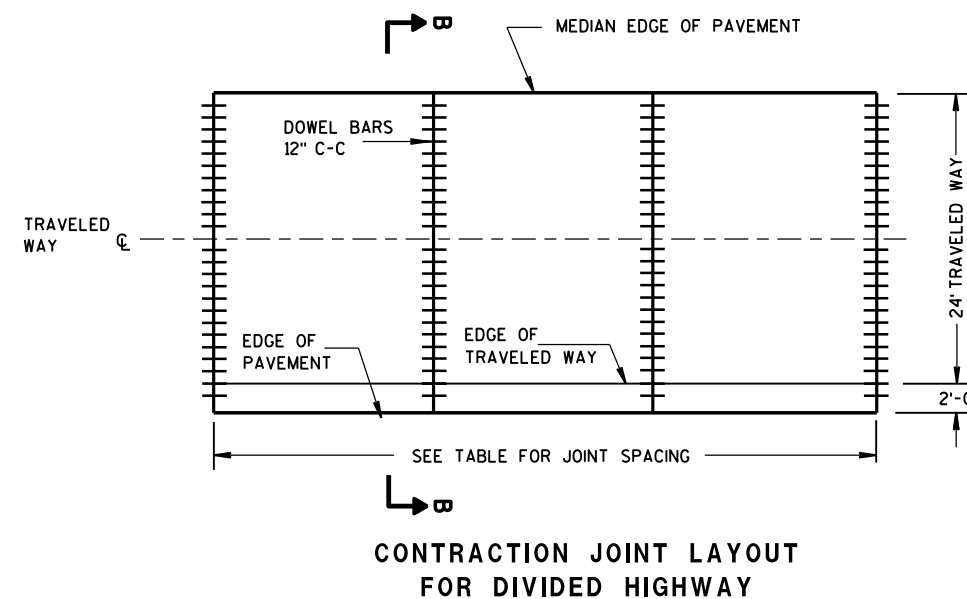
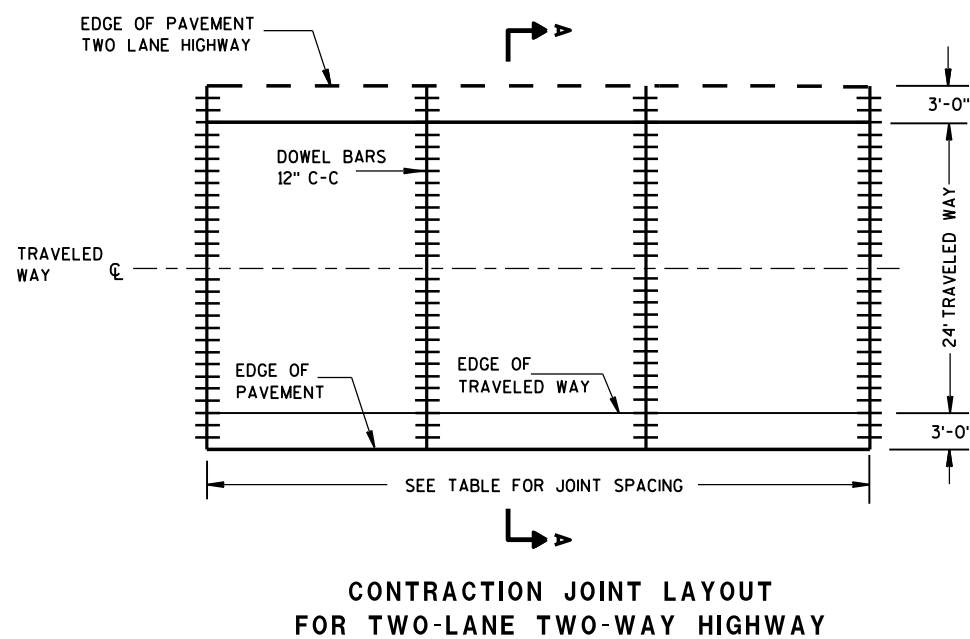
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

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

6

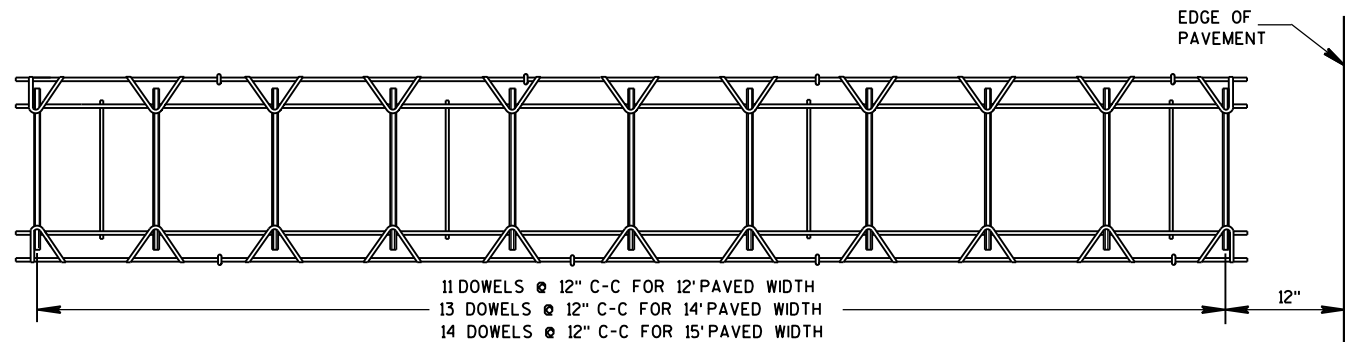
6



**RURAL DOWELED  
CONCRETE PAVEMENT**

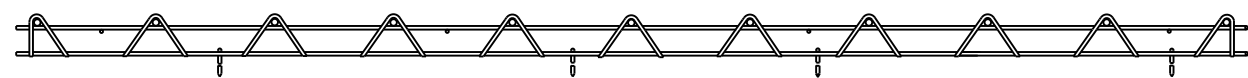
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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



11 DOWELS @ 12" C-C FOR 12' PAVED WIDTH  
 13 DOWELS @ 12" C-C FOR 14' PAVED WIDTH  
 14 DOWELS @ 12" C-C FOR 15' PAVED WIDTH

PLAN VIEW

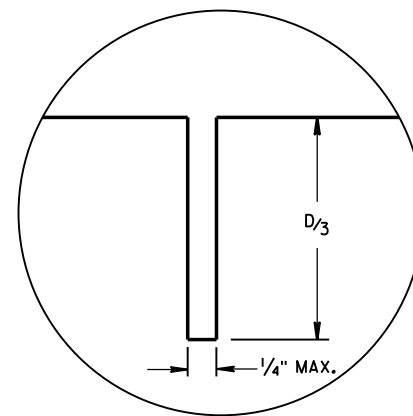


②

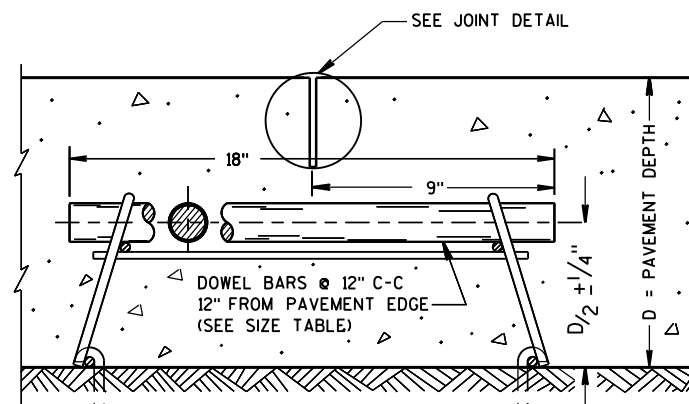
SIDE VIEW

(NORMAL TO CENTERLINE)

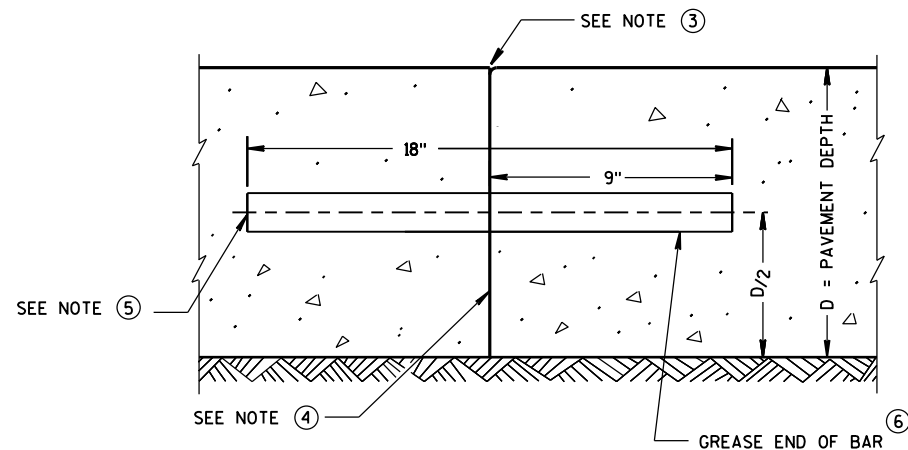
CONTRACTION JOINT DOWEL ASSEMBLY ①



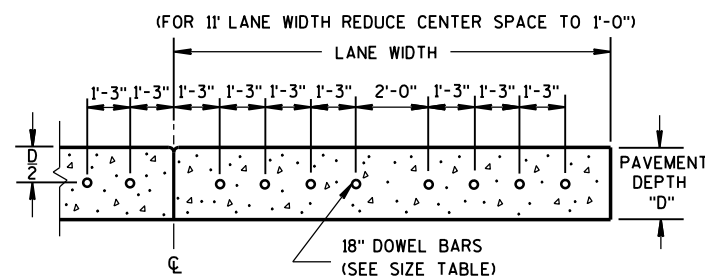
JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT

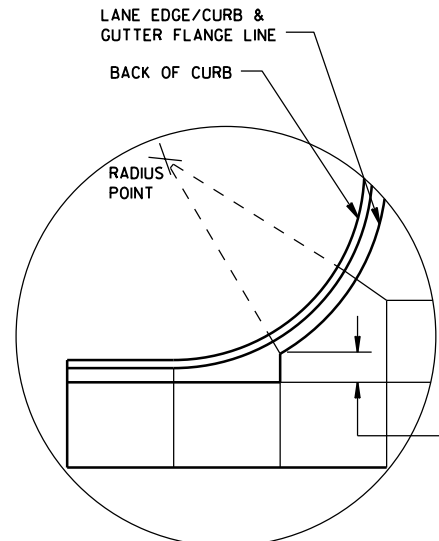


DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

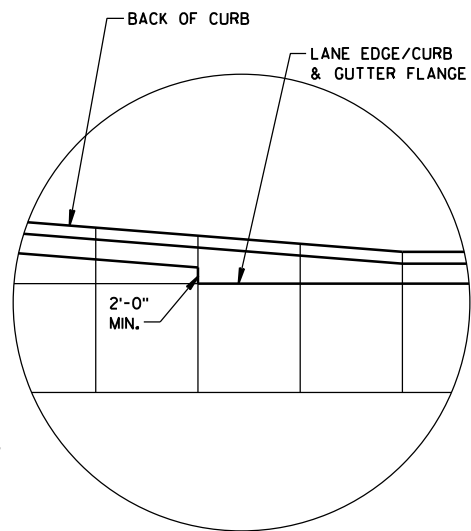
GENERAL NOTES

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.

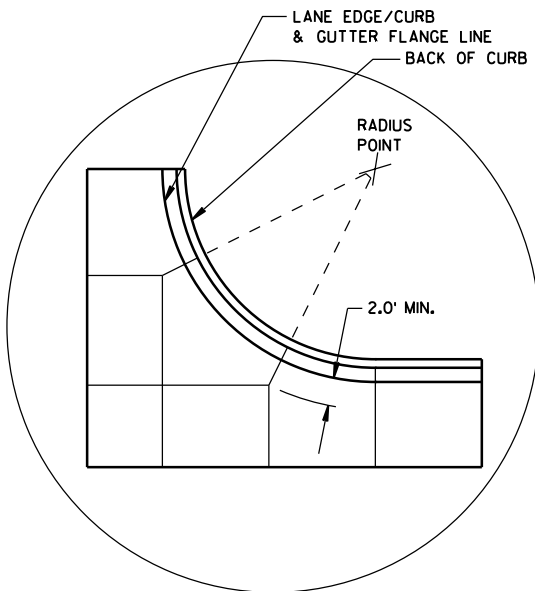
<b>RURAL DOWELED CONCRETE PAVEMENT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/S/ Deb Bischoff
DATE	PAVEMENT POLICY & DESIGN ENGINEER
5/3/2013	
FHWA	



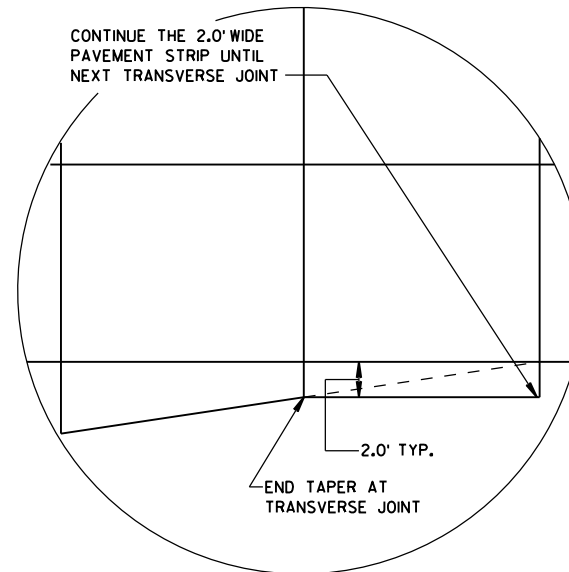
DETAIL "A"



DETAIL "B"



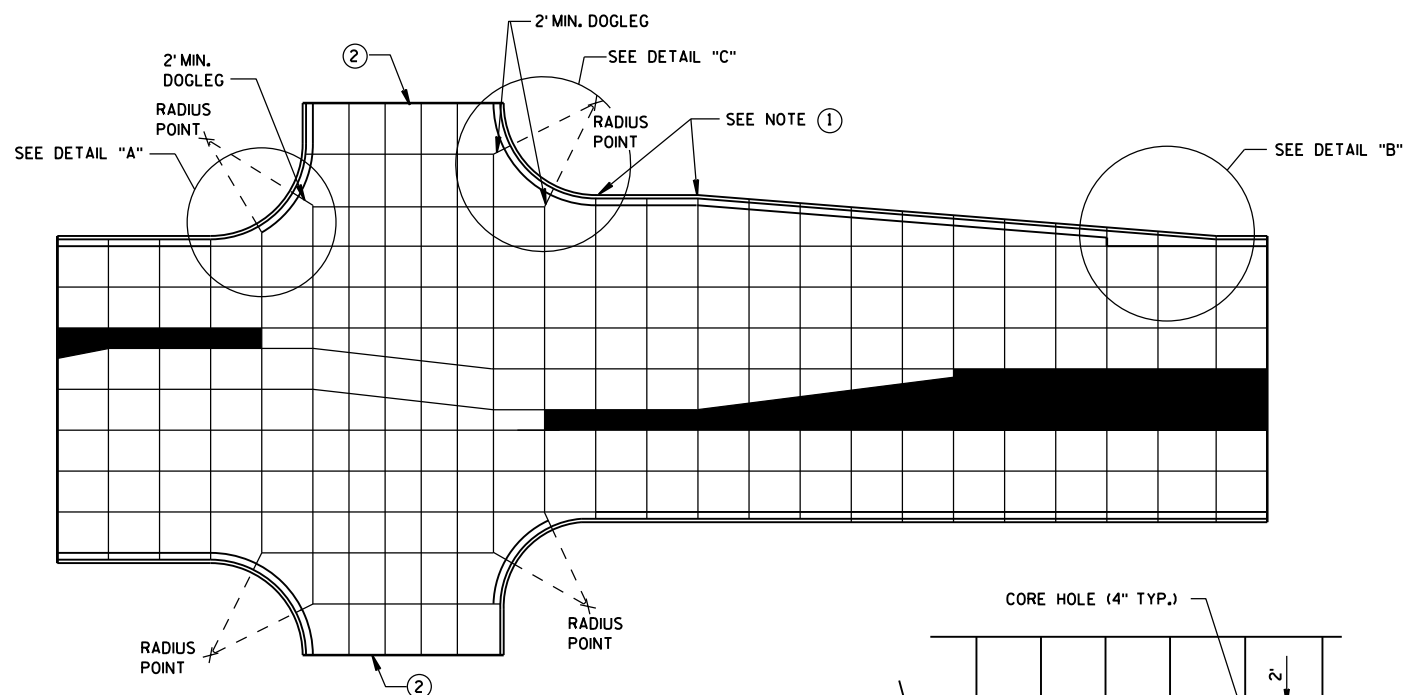
DETAIL "C"



DETAIL "D"

**GENERAL NOTES**

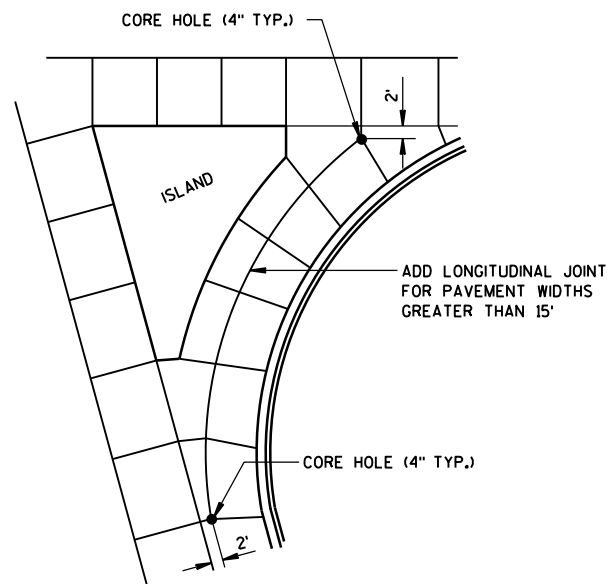
- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- 1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- 2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- 3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



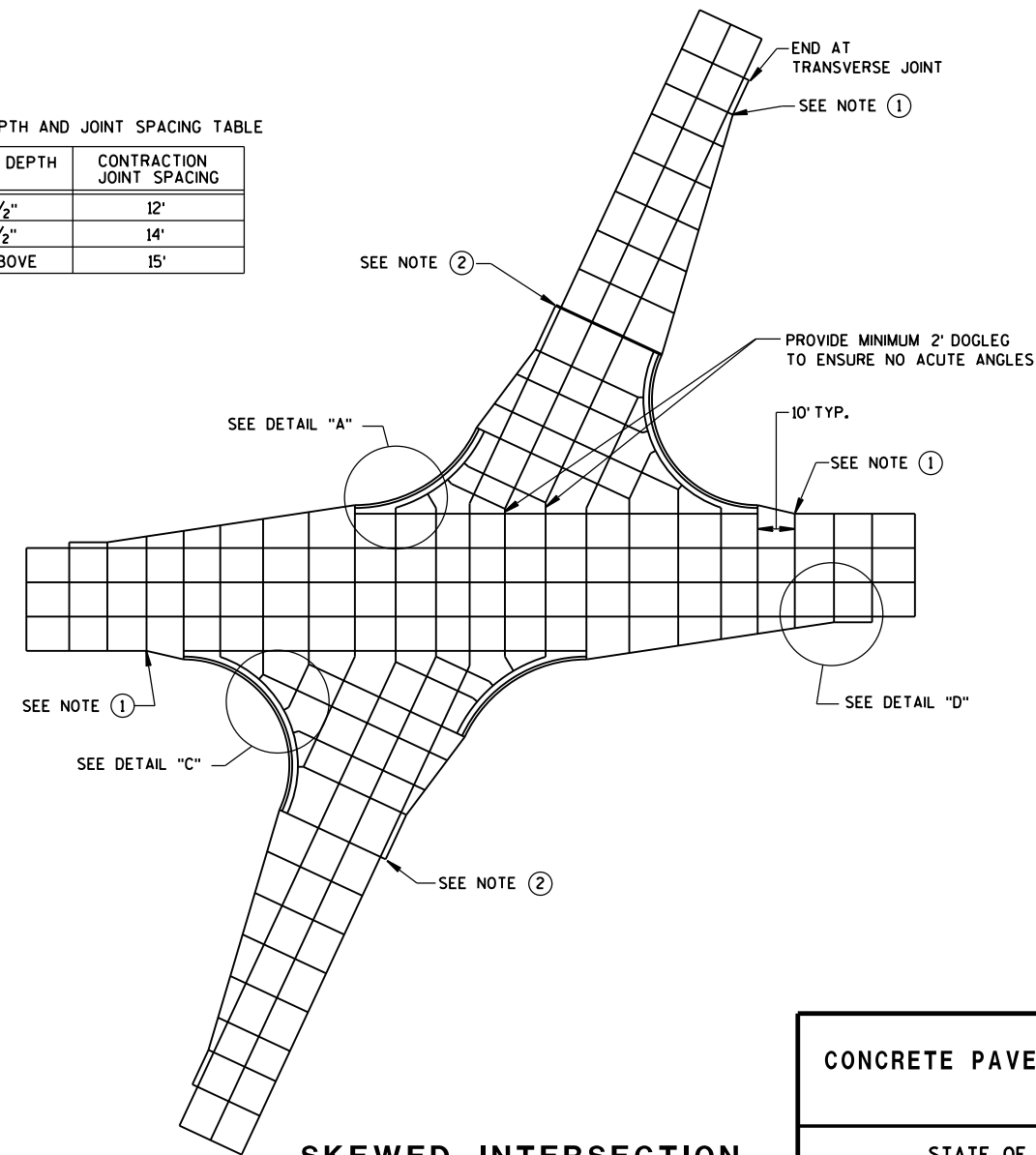
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

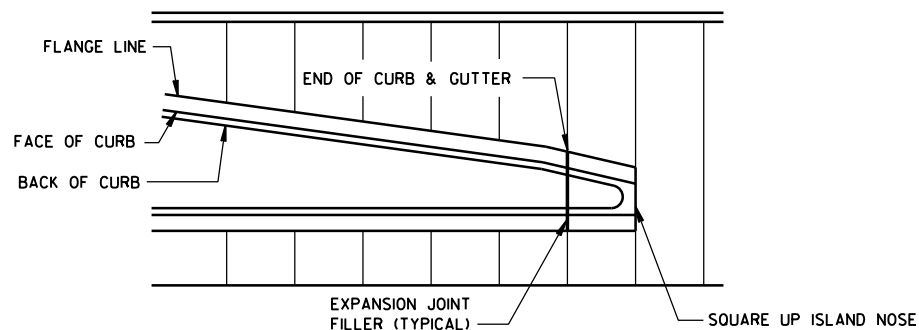
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



LARGE RIGHT TURN



SKEWED INTERSECTION



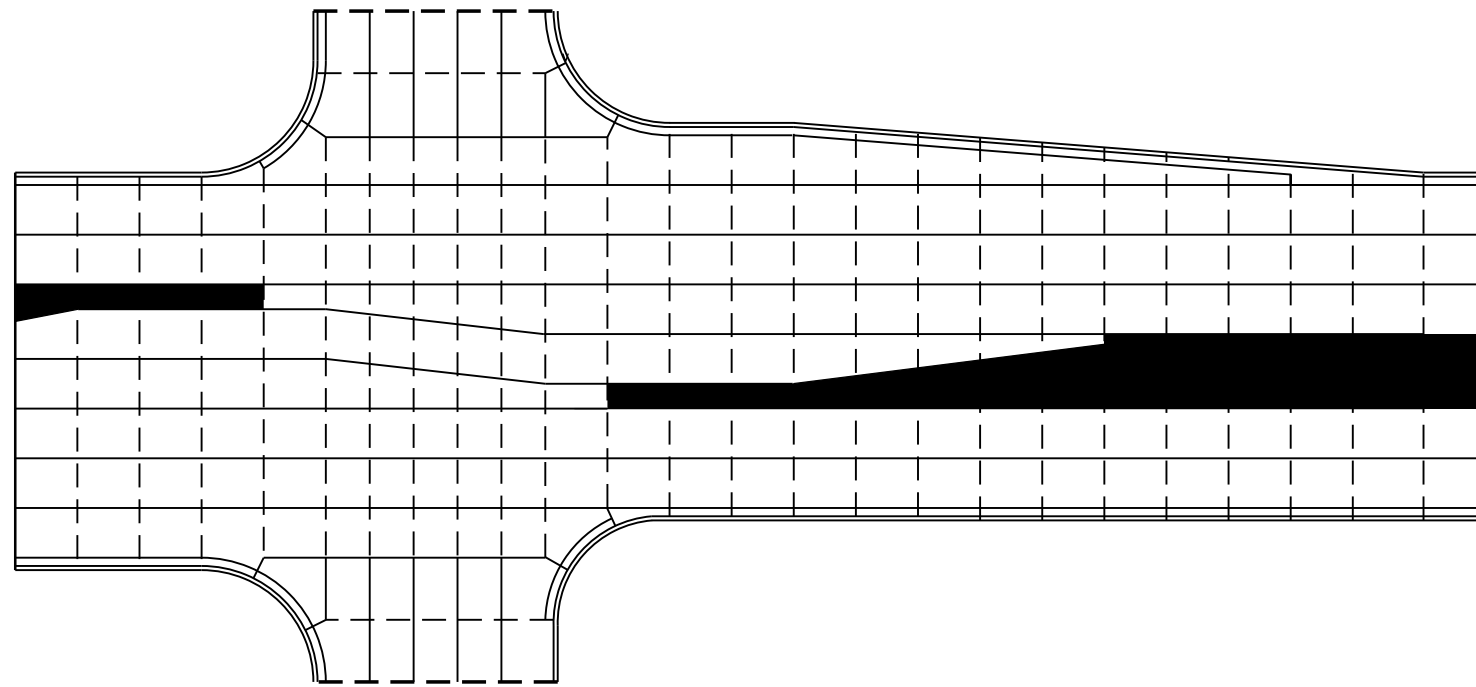
APPROACH TO MEDIAN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**LEGEND**

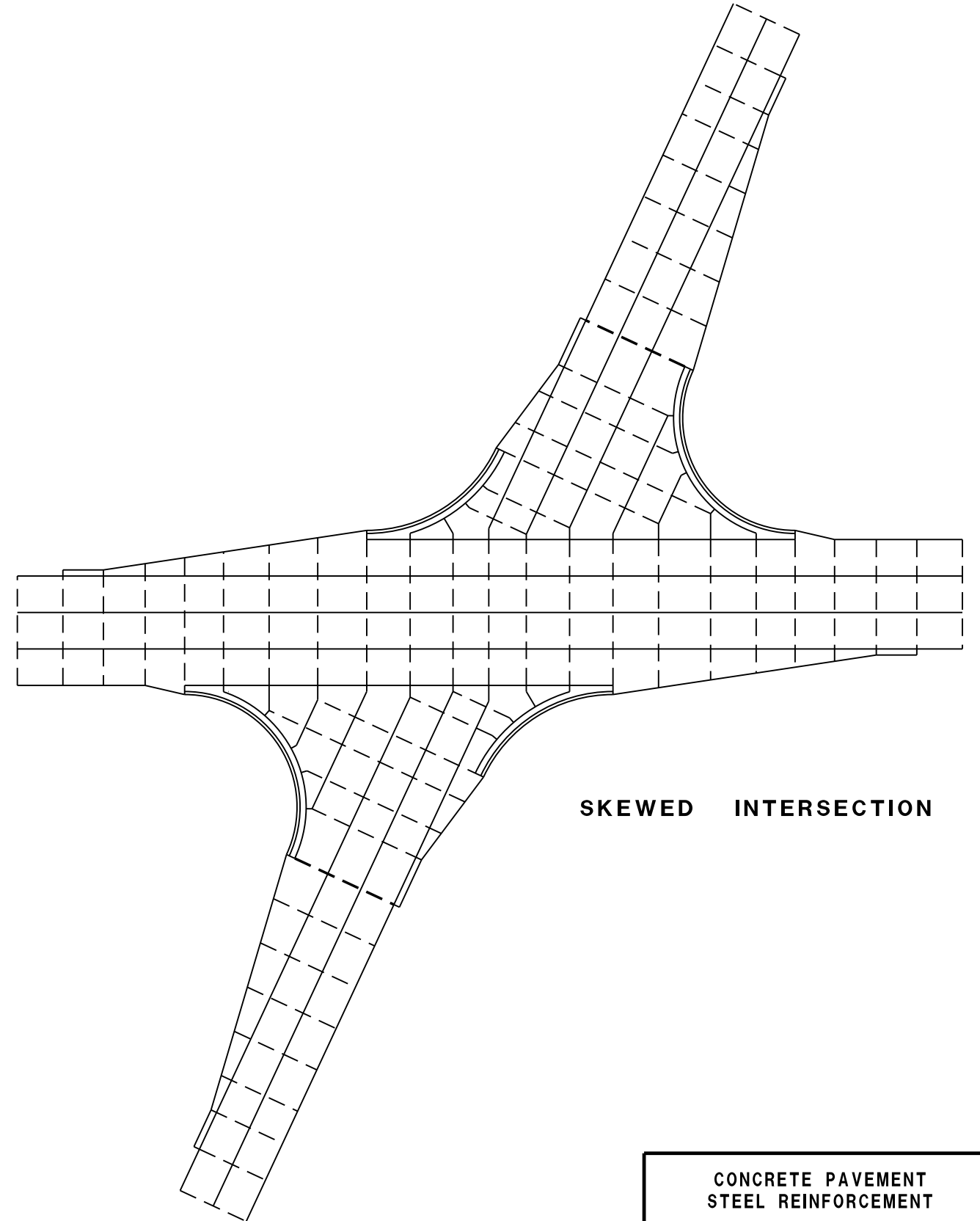
- POTENTIAL DOWELED EXPANSION JOINT
- - - - - DOWELED JOINT
- TIED JOINT



**STANDARD INTERSECTION**

**GENERAL NOTES**

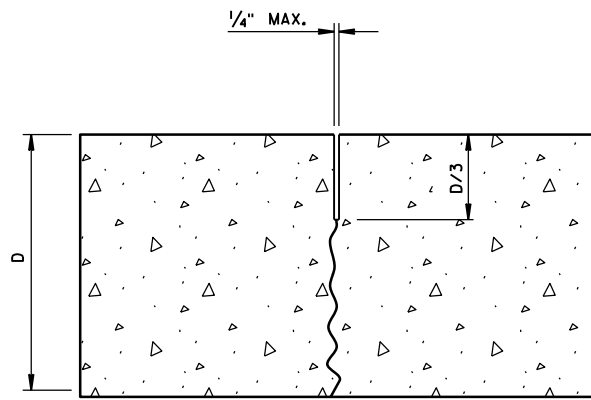
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



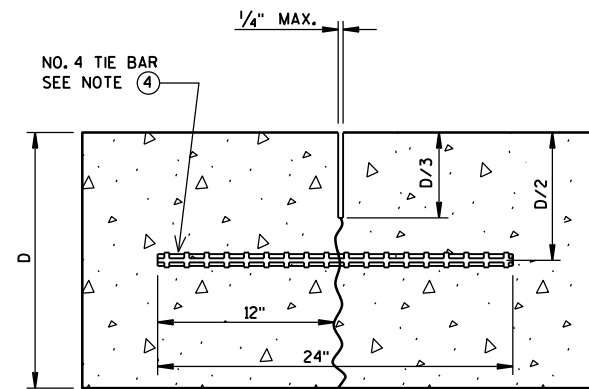
**SKewed INTERSECTION**

CONCRETE PAVEMENT  
STEEL REINFORCEMENT

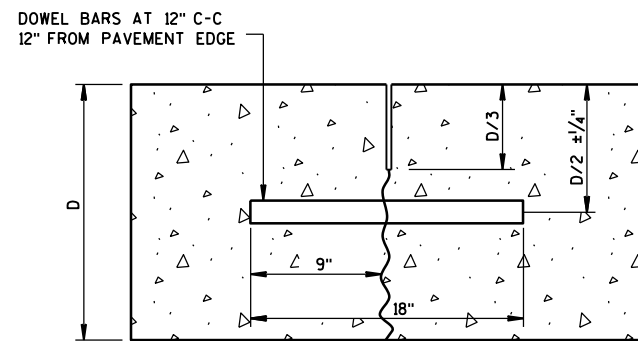
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



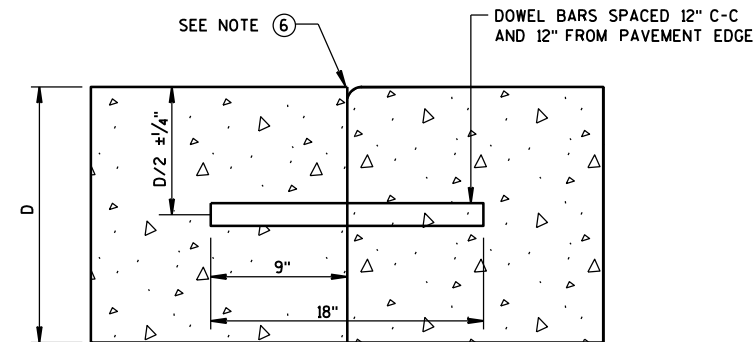
UNDOWELED-TRANSVERSE



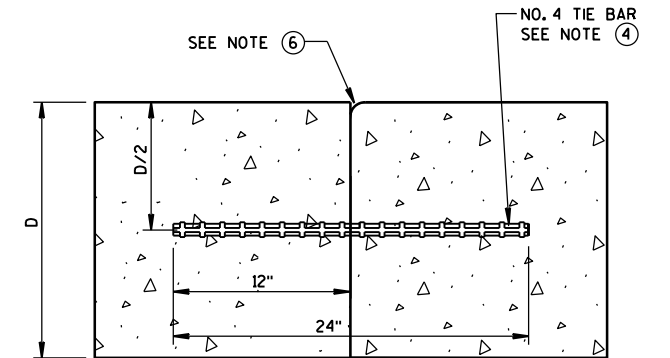
TIED LONGITUDINAL



DOWELED-TRANSVERSE



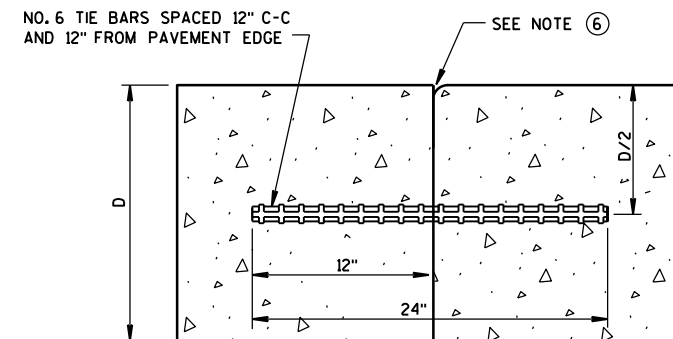
DOWELED TRANSVERSE



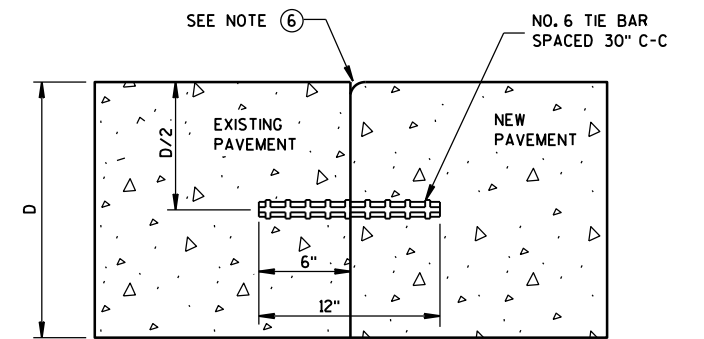
TIED LONGITUDINAL

CONTRACTION JOINTS

SEE NOTE ②



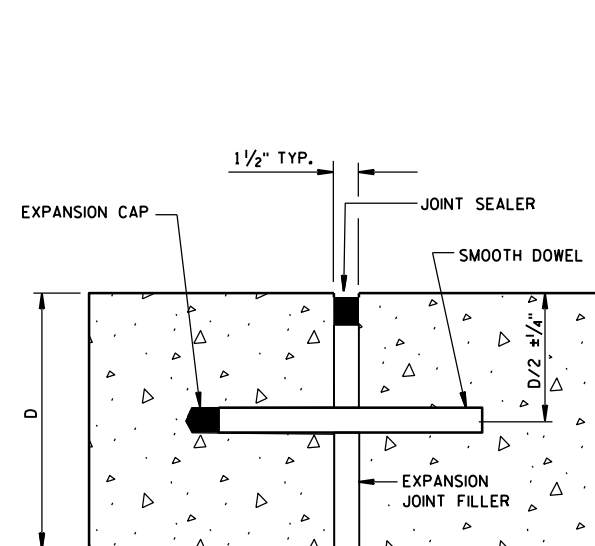
TIED TRANSVERSE  
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



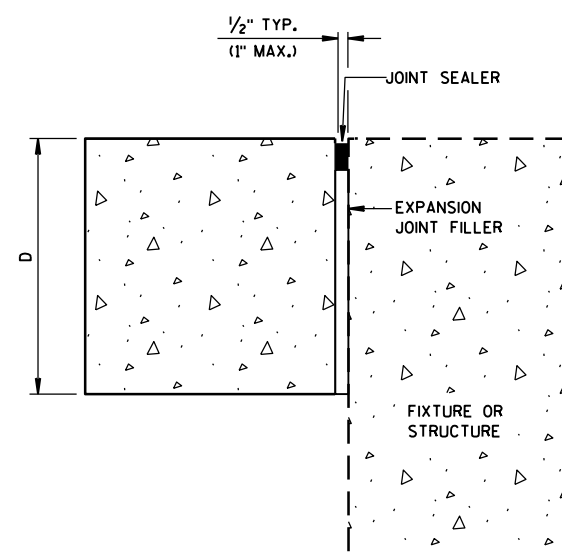
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE ⑤



DOWELED-TRANSVERSE  
SEE NOTE ①



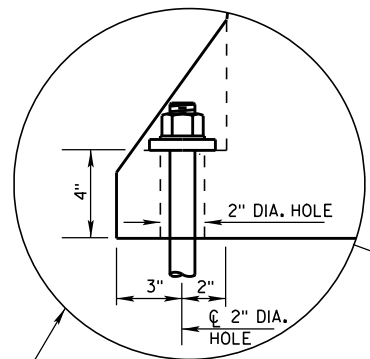
UNTIED-LONGITUDINAL

EXPANSION JOINTS

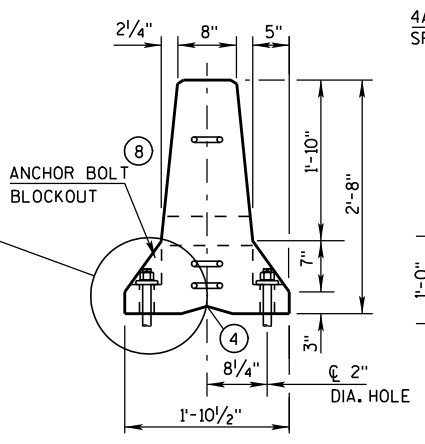
GENERAL NOTES

1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.

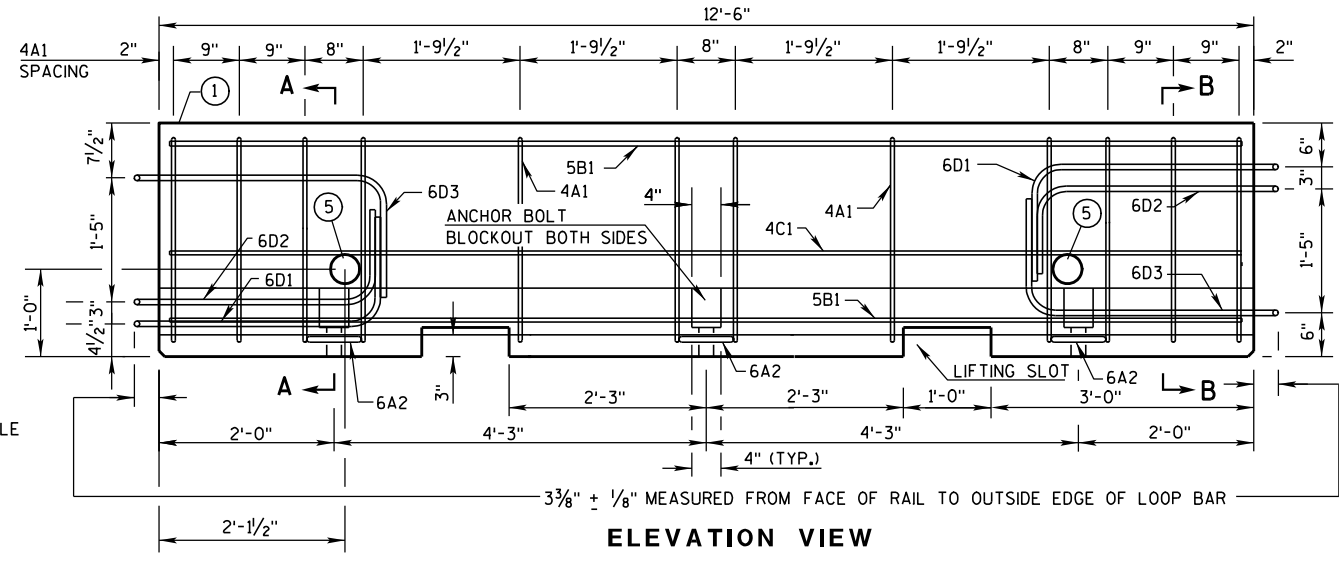




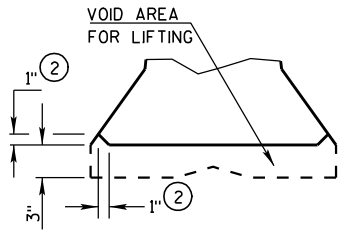
ANCHOR ON TRAFFIC SIDE ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



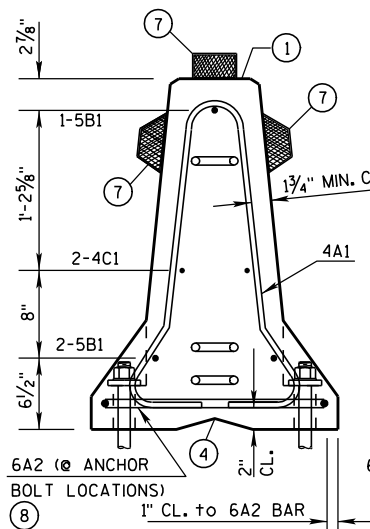
END VIEW



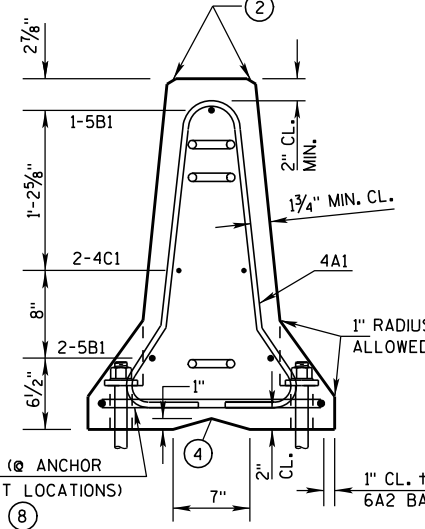
ELEVATION VIEW



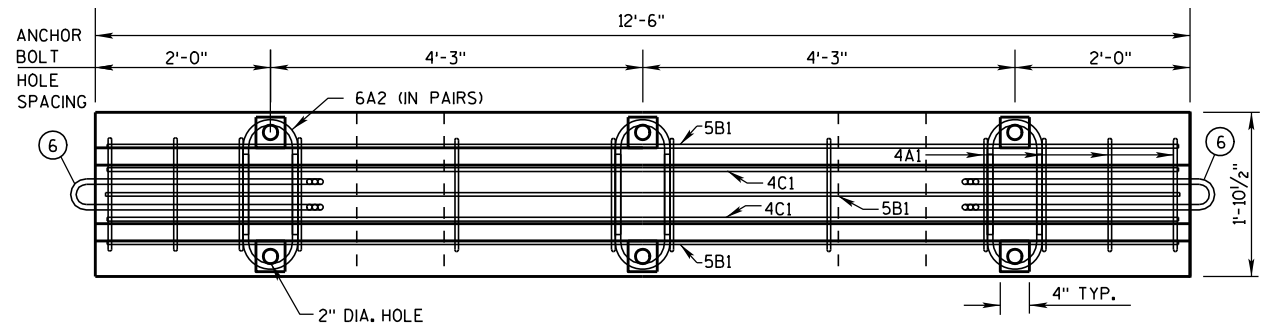
DETAIL "B" LIFTING SLOT DETAIL



SECTION A-A (STIRRUP PLACEMENT)



SECTION B-B (STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-13(g) THRU 14B7-13(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 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.

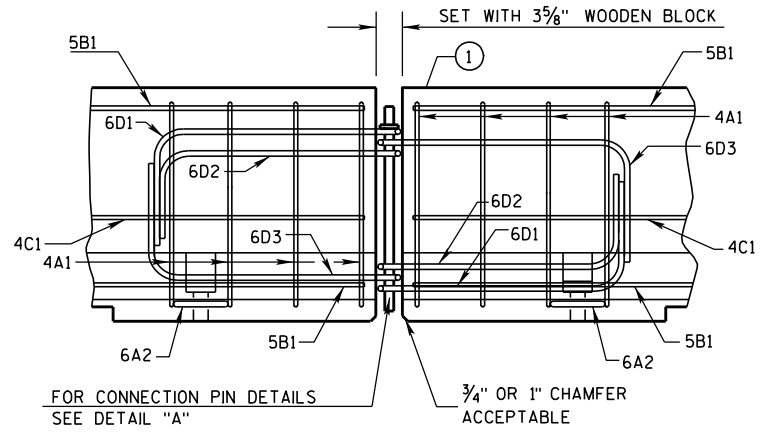
LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

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

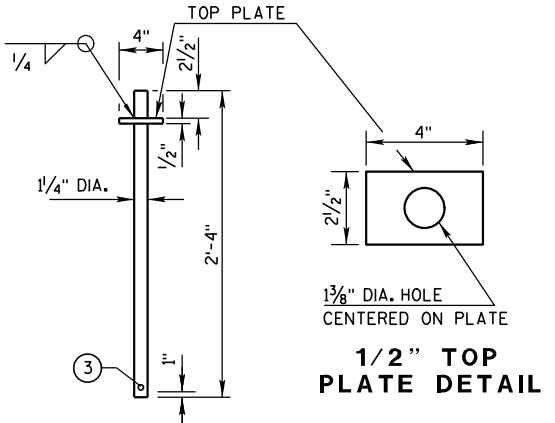
PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

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

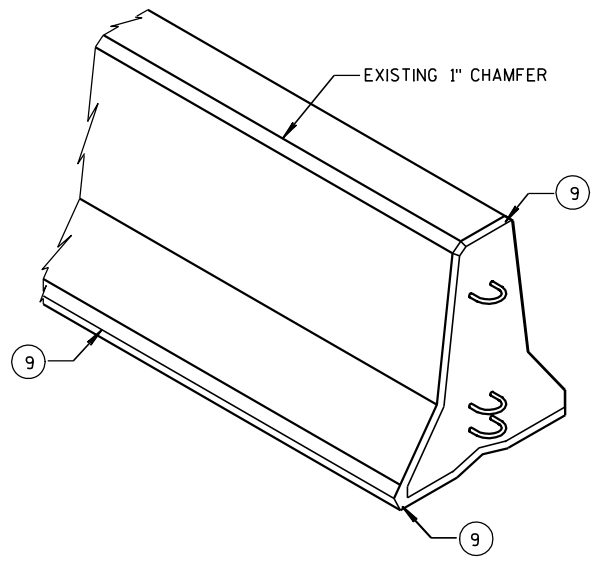
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
  - a. TYPE: WICBTP
  - b. MANUFACTURER
  - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT 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 MANUFACTURER'S 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 ANCHORING CRITERIA.
- ⑨ 1" CHAMFER OPTIONAL.



DETAILS OF BARRIER CONNECTION

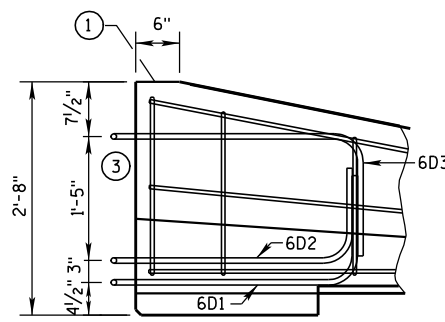
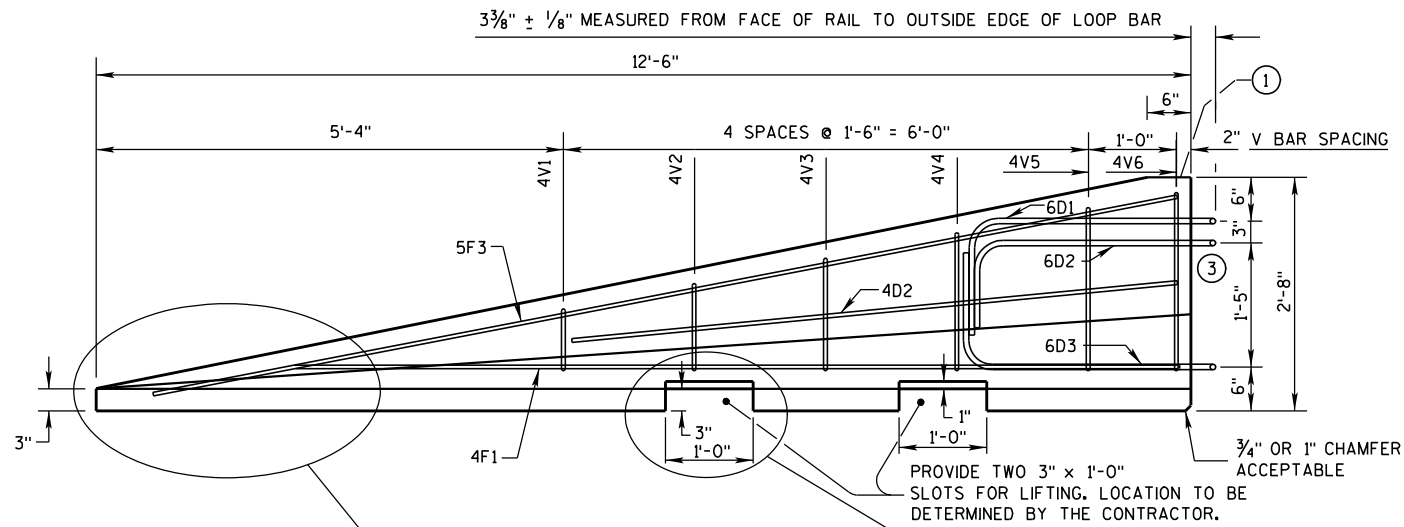


DETAIL "A" CONNECTION PIN (A36 STEEL (10.9 LB EACH))



CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

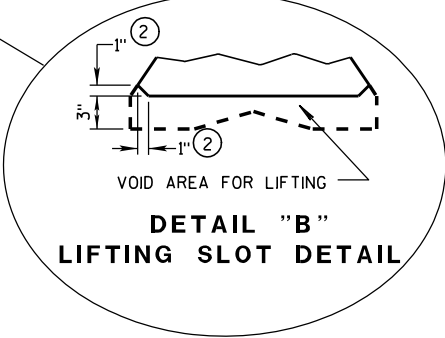
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



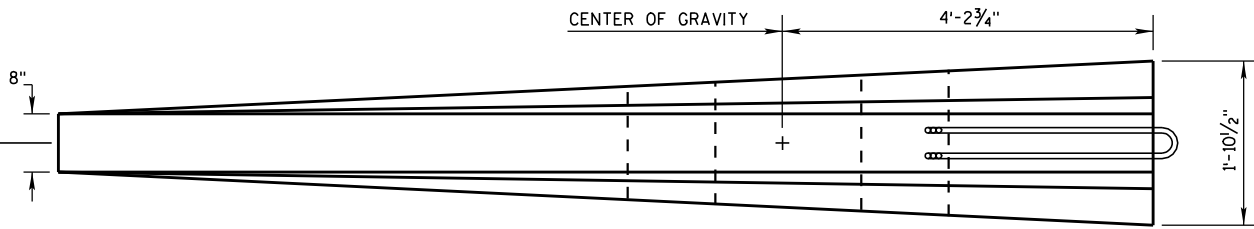
**SIDE ELEVATION**  
 LOOP BAR ASSEMBLY INVERTED  
 FOR OPPOSITE END.  
 (FOR CONNECTION TO RIGHT END OF BARRIER)

**GENERAL NOTES**

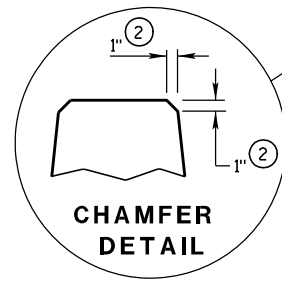
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:  
 a. TYPE WICBTP  
 b. MANUFACTURER  
 c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



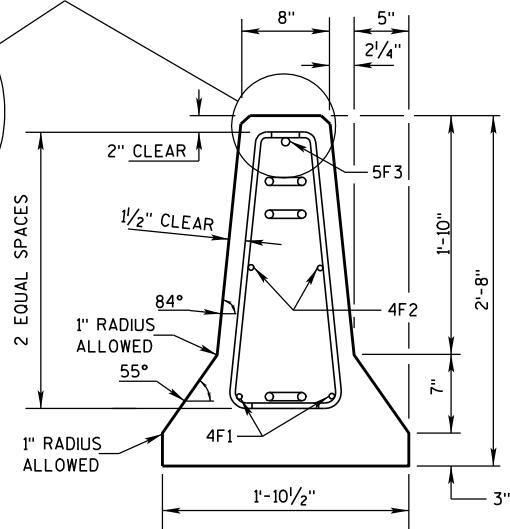
**DETAIL "B"**  
**LIFTING SLOT DETAIL**



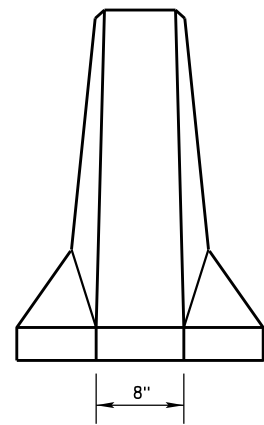
**PLAN VIEW**



**CHAMFER DETAIL**

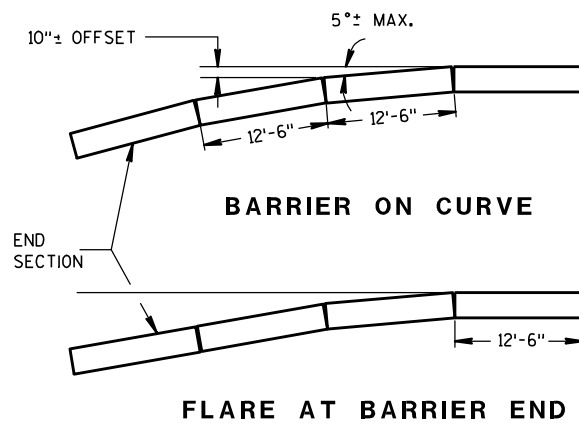


**END SECTION**



**FRONT ELEVATION**

**DETAILS OF BARRIER TAPER SECTION**



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

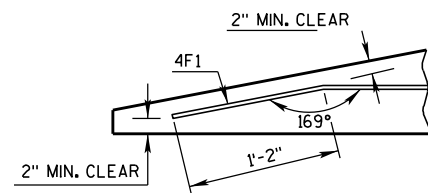
**CONCRETE BARRIER  
 TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

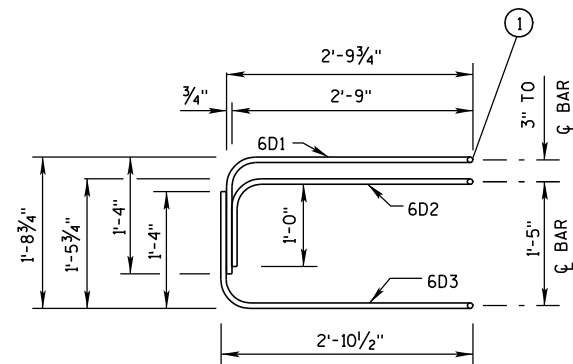
**BARRIER TAPER SECTION  
BILL OF MATERIALS**

(PER 12'-6" BARRIER TAPER SECTION)

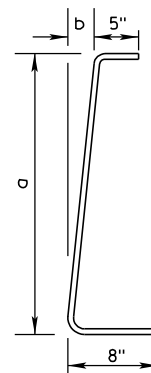
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



**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**

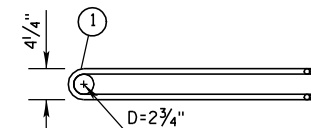
**GENERAL NOTES**

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

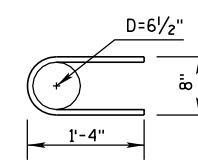
**BARRIER SECTION  
BILL OF MATERIALS**

(PER 12'-6" BARRIER SECTION)

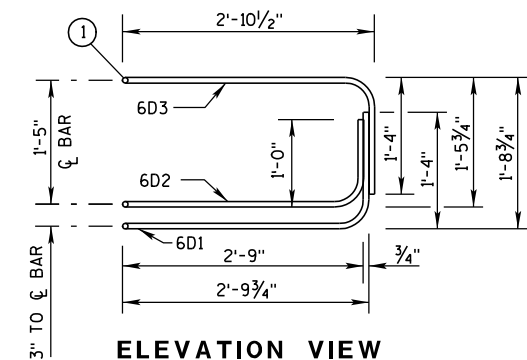
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



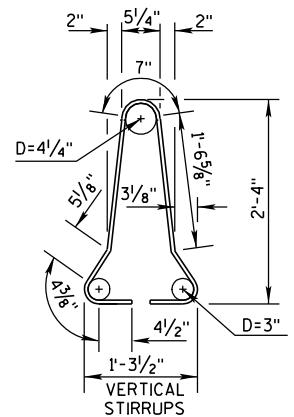
**PLAN VIEW  
LOOP BAR ASSEMBLY**  
(MARKED END SHOWN, INVERT FOR OTHER END)



**6A2**



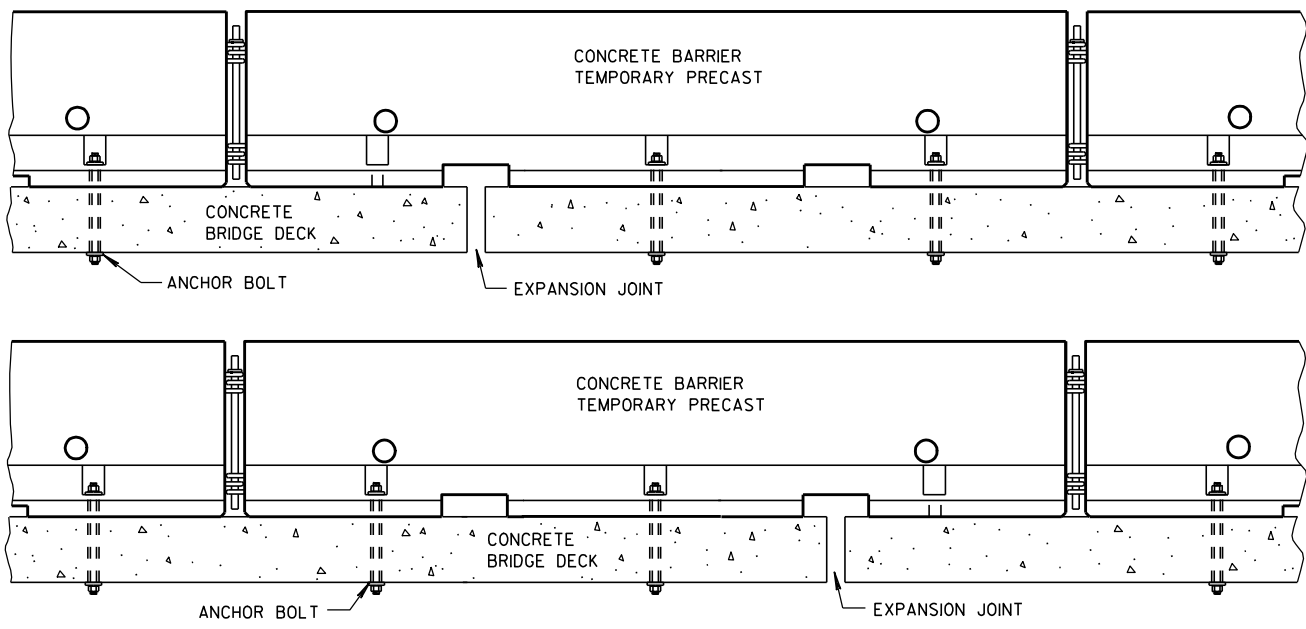
**ELEVATION VIEW**



**4A1**

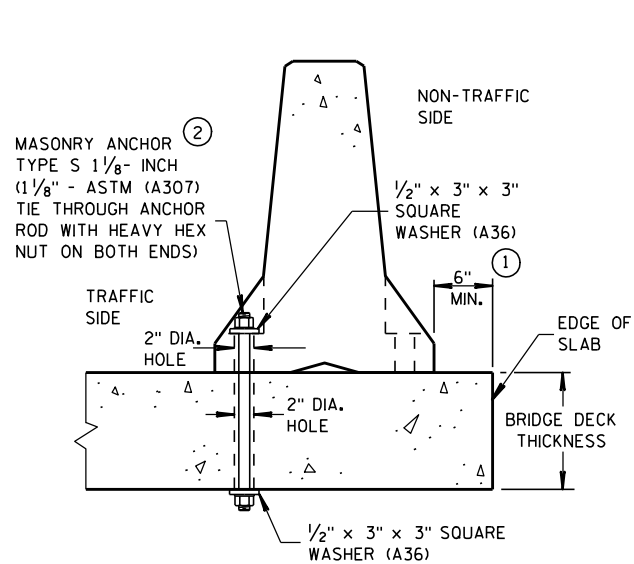
**BARRIER SECTION**

**CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"**  
  
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



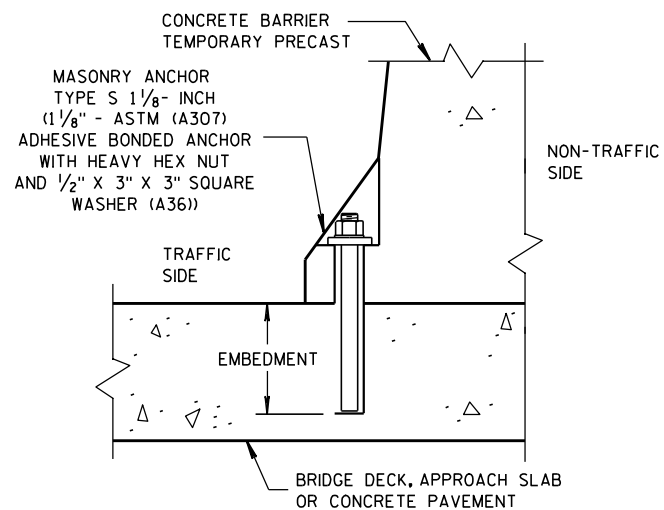
**TREATMENT AT BRIDGE DECK EXPANSION JOINTS**

(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.)



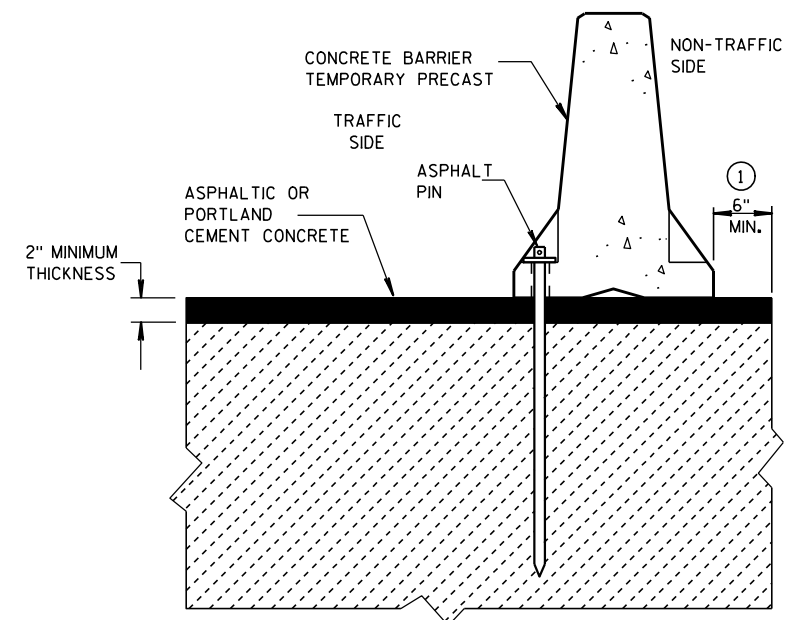
**THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK**

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



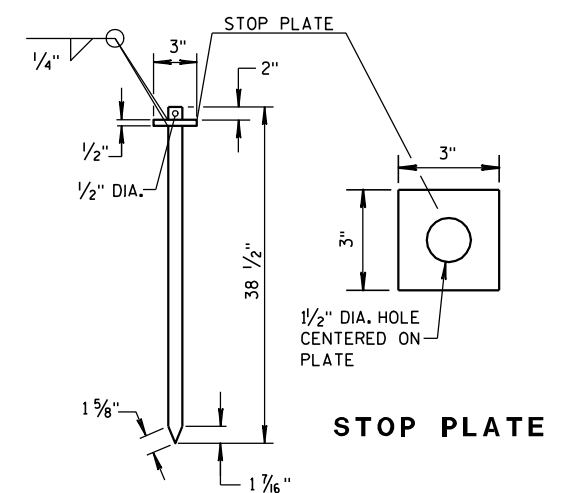
**REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT**

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



**STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE**

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



**ASPHALT PIN (ASTM A36 STEEL)**

**GENERAL NOTES**

① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:  
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : IV, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : IV, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

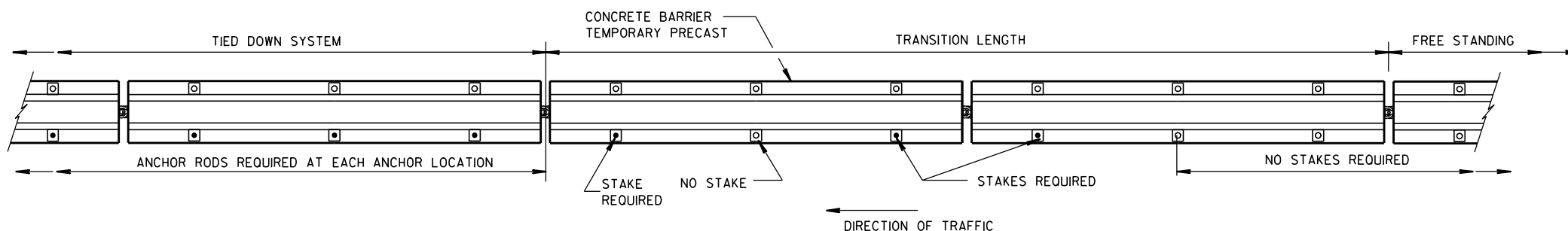
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED (EPOXY) ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1 1/8-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERCIAL GROUT OR EPOXY MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

6

6



**FREE STANDING TRANSITION TO TIED-DOWN SYSTEM**

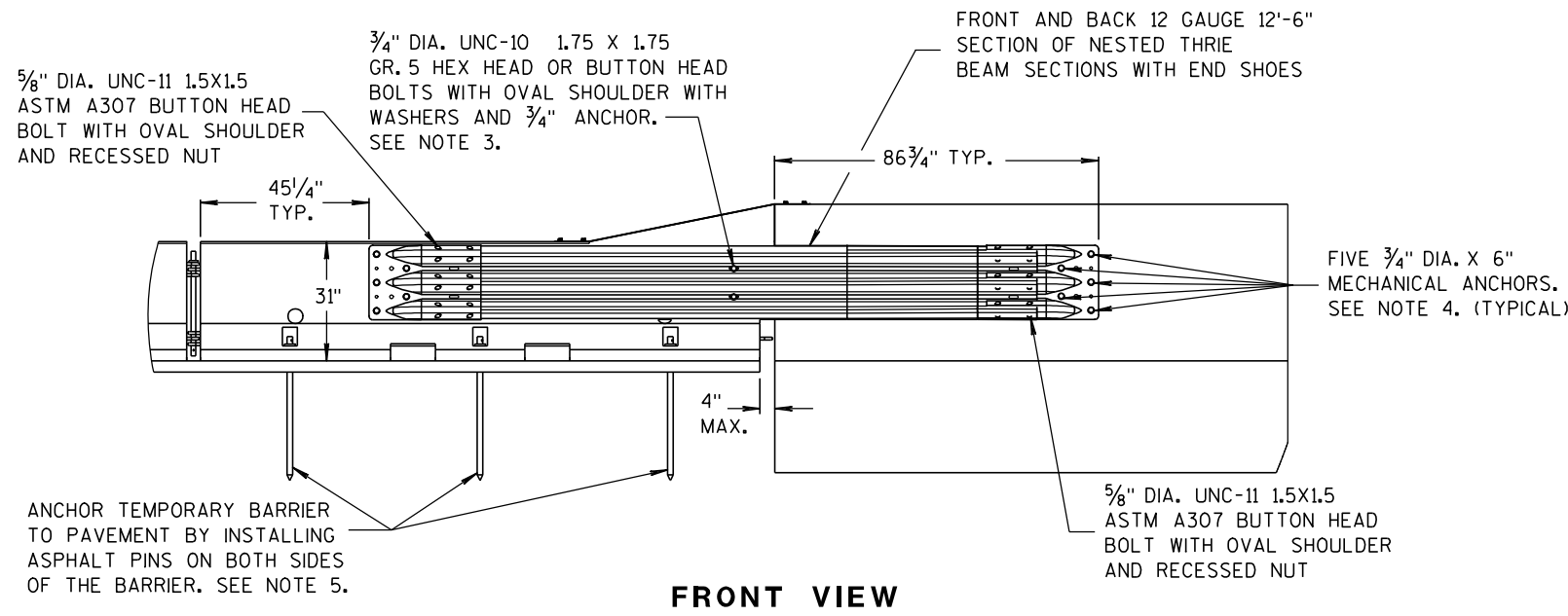
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

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

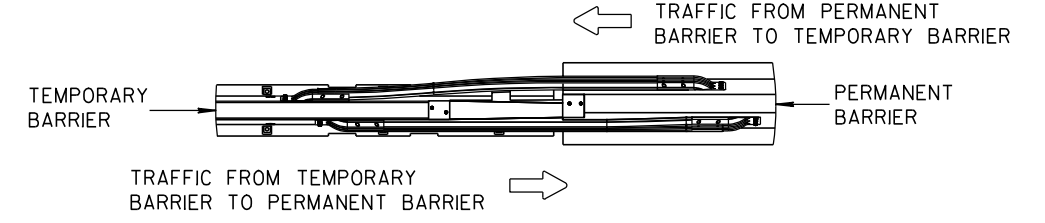
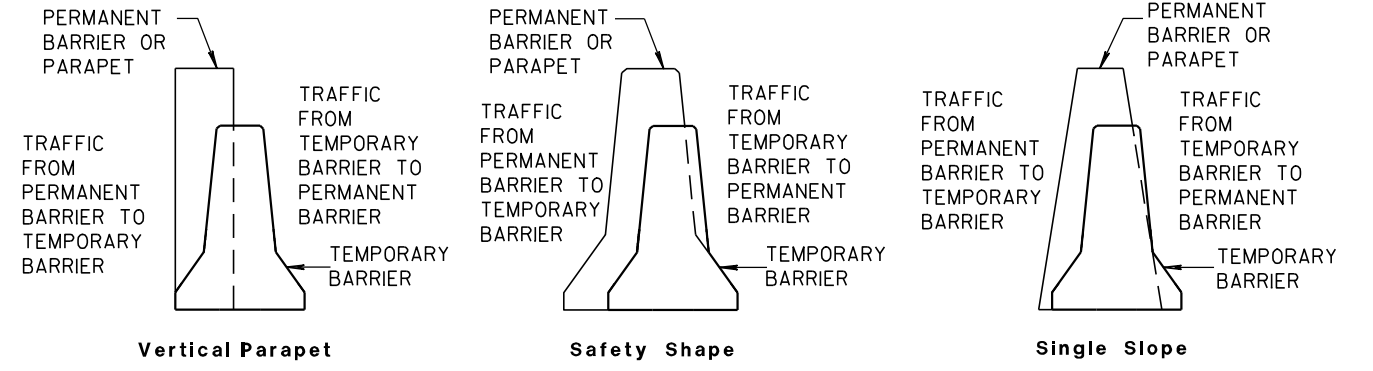
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

S.D.D. 14 B 7-13d

S.D.D. 14 B 7-13d

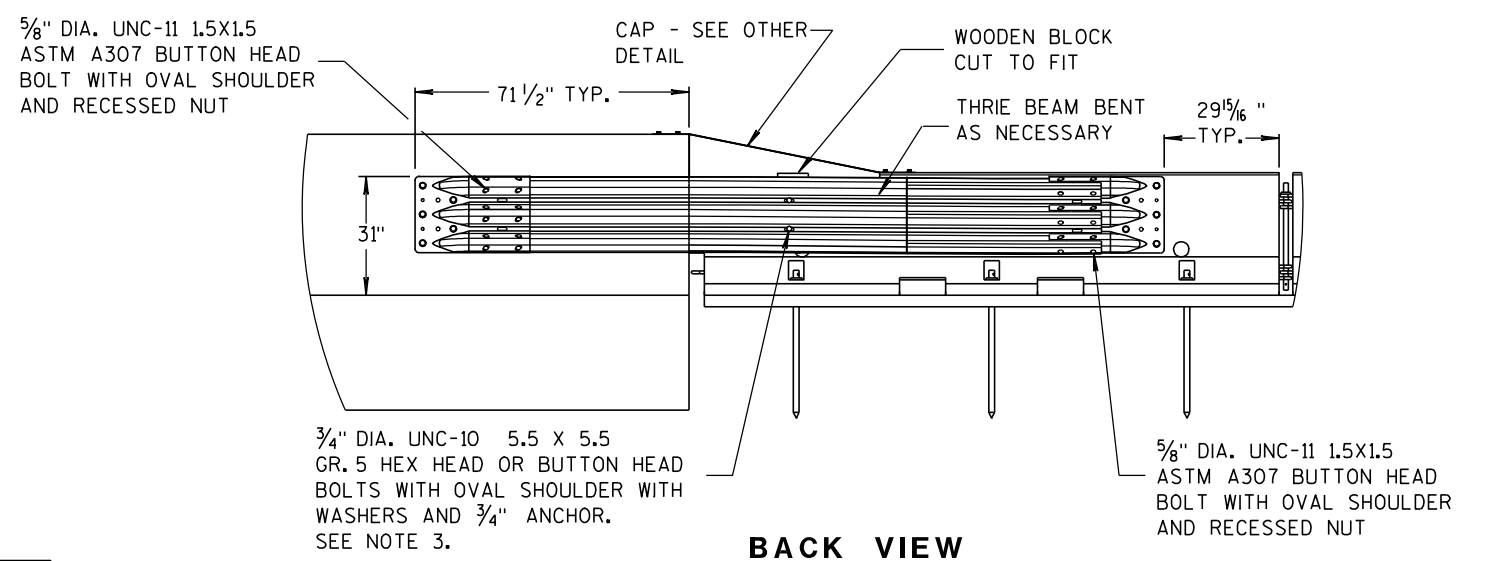


**FRONT VIEW**

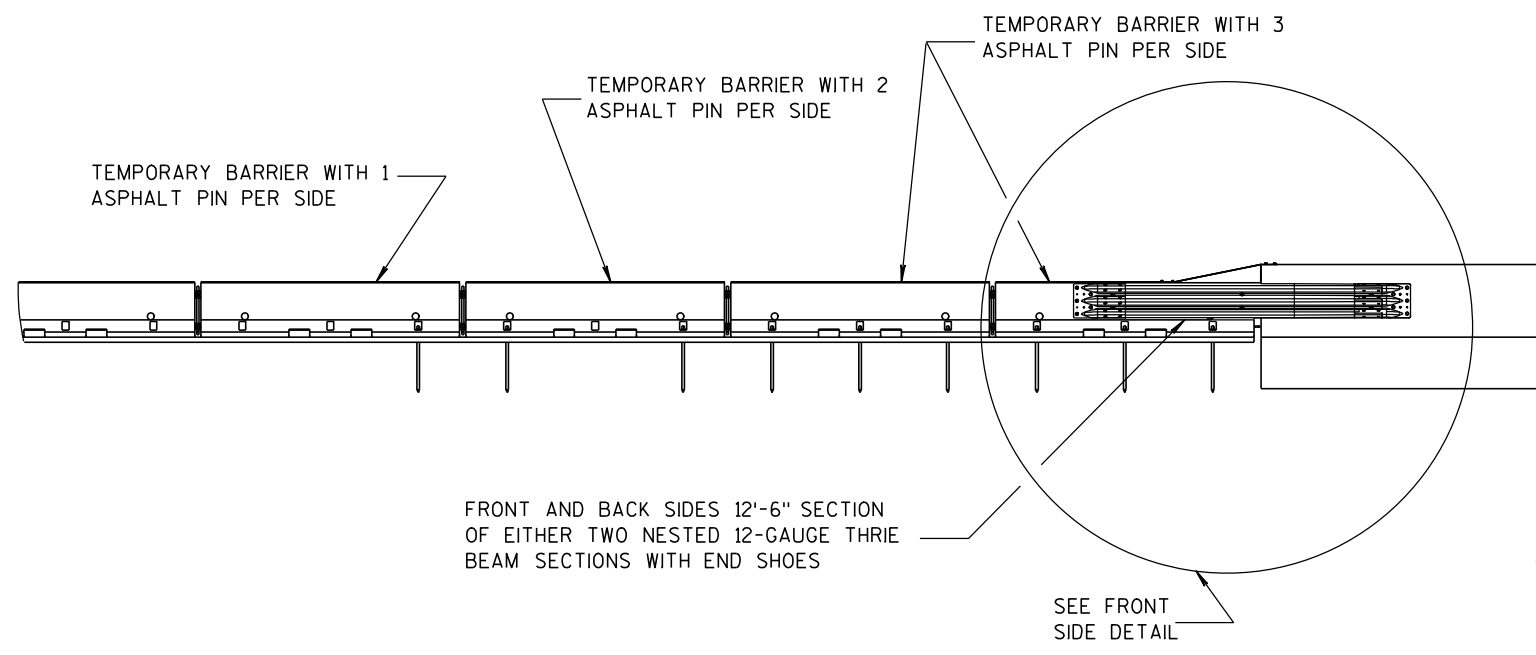


**TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM**

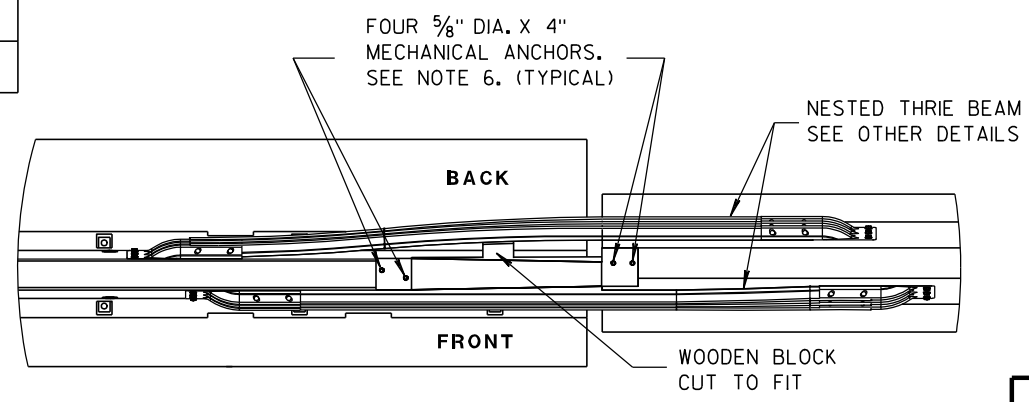
- NOTES**
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
  2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
  3. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
  4. MINIMUM MECHANICAL OR EPOXY 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 EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



**BACK VIEW**



**FRONT VIEW**

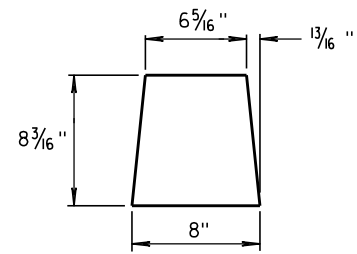


**PLAN VIEW**

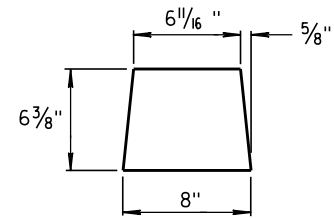
**BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM**

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

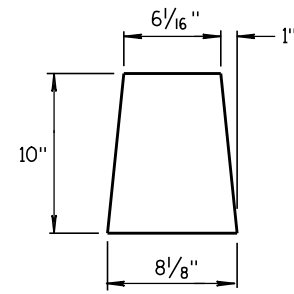
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



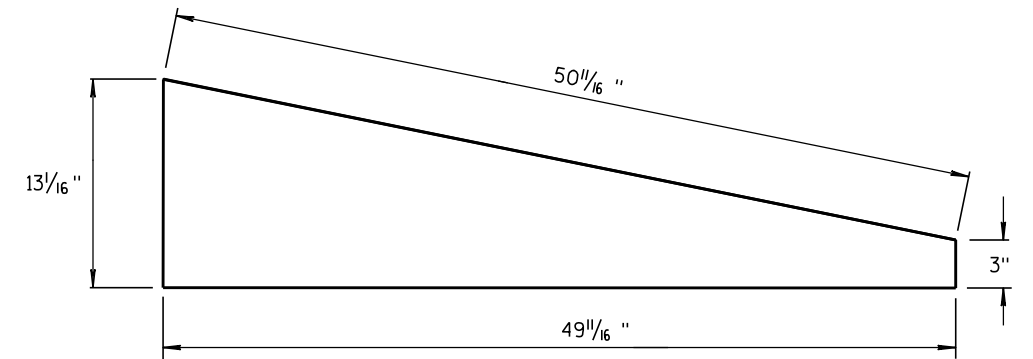
**GUSSET 1**



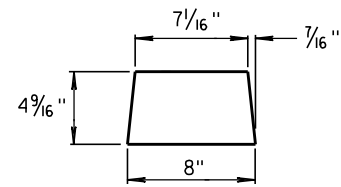
**GUSSET 2**



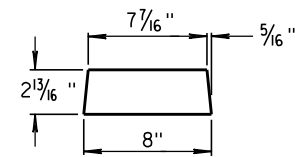
**END PLATE**



**SIDE PLATE**

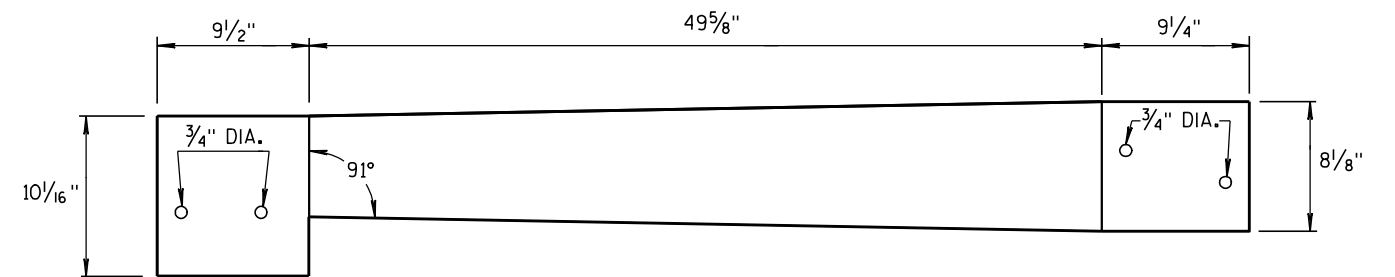


**GUSSET 3**

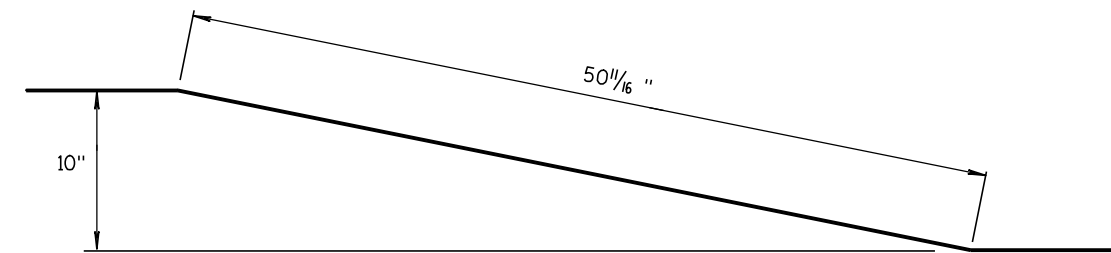


**GUSSET 4**

**GUSSETS**

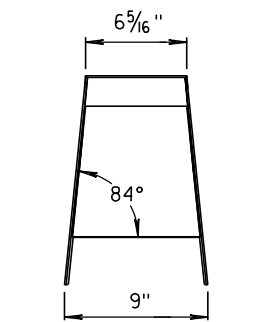
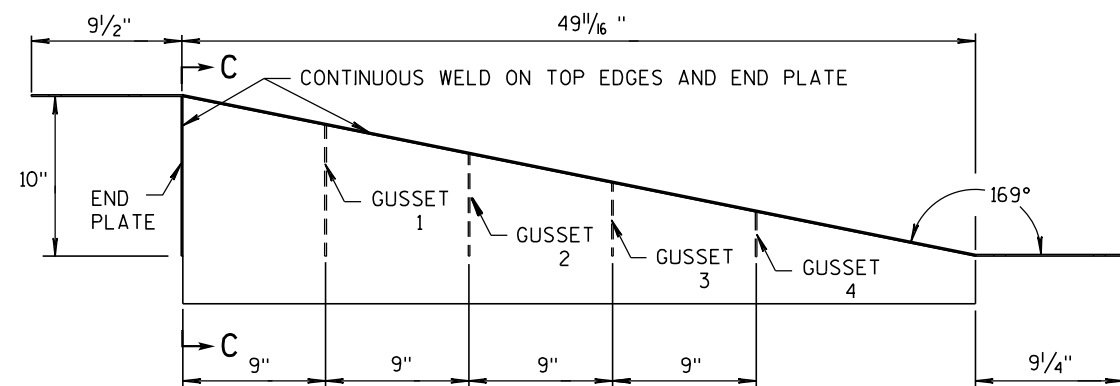
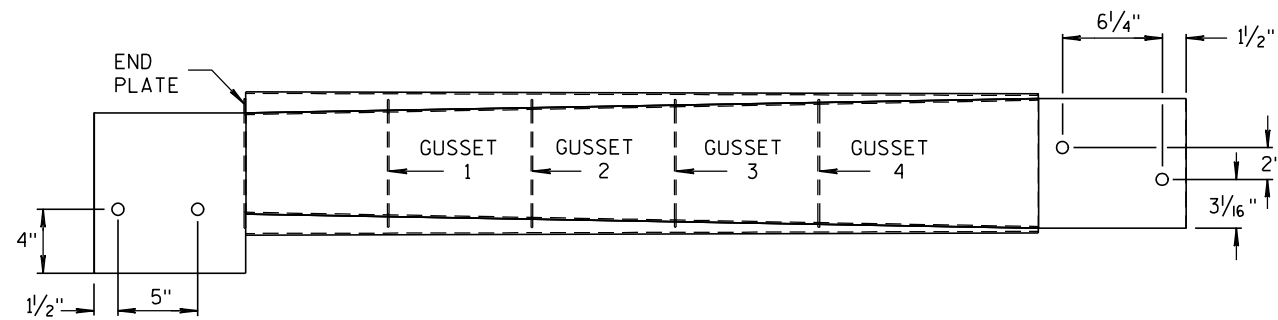


**TOP PLATE**



**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**

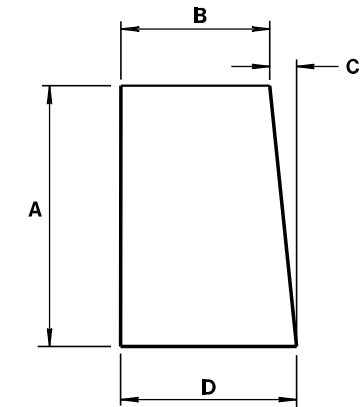
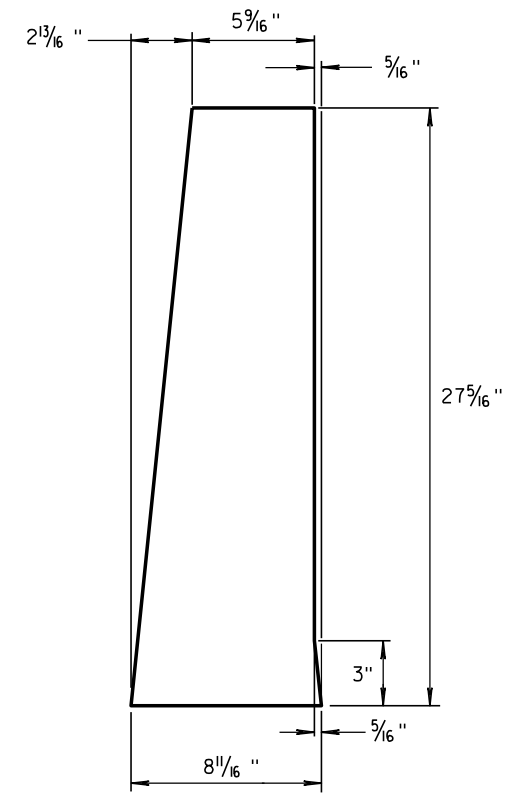
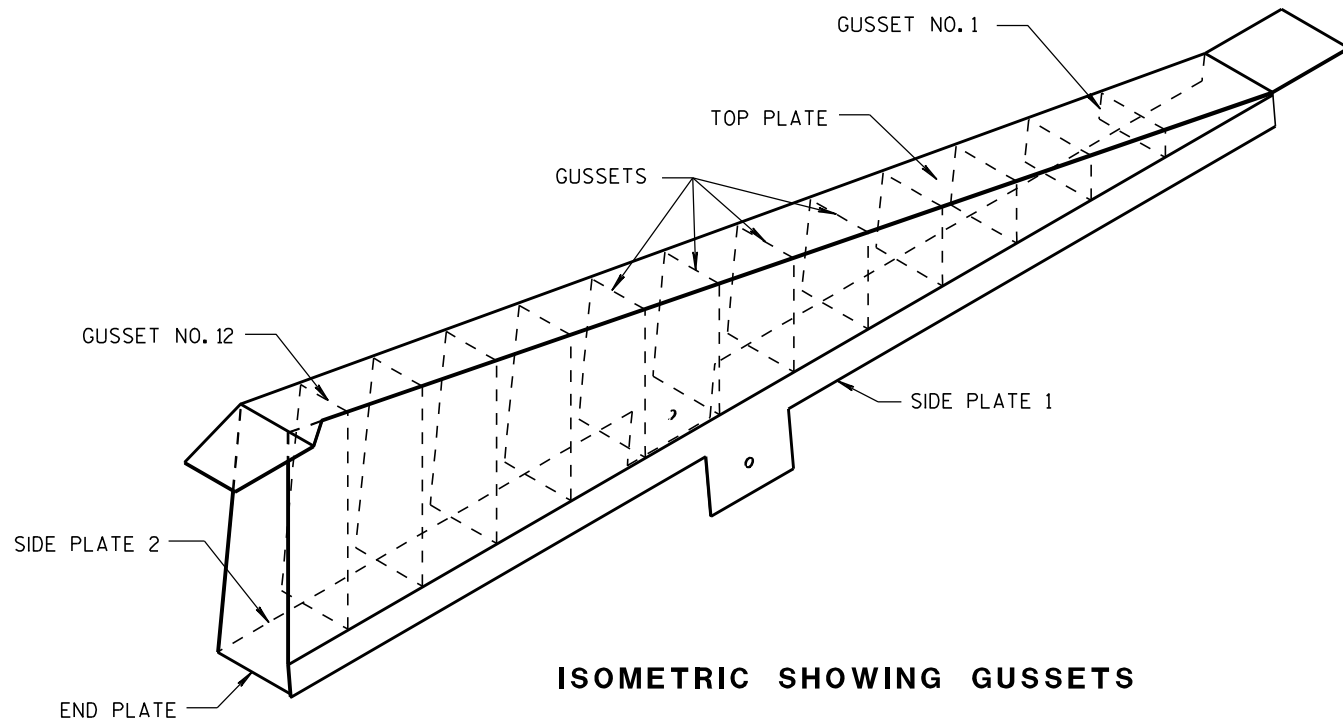
**NOTES**

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.

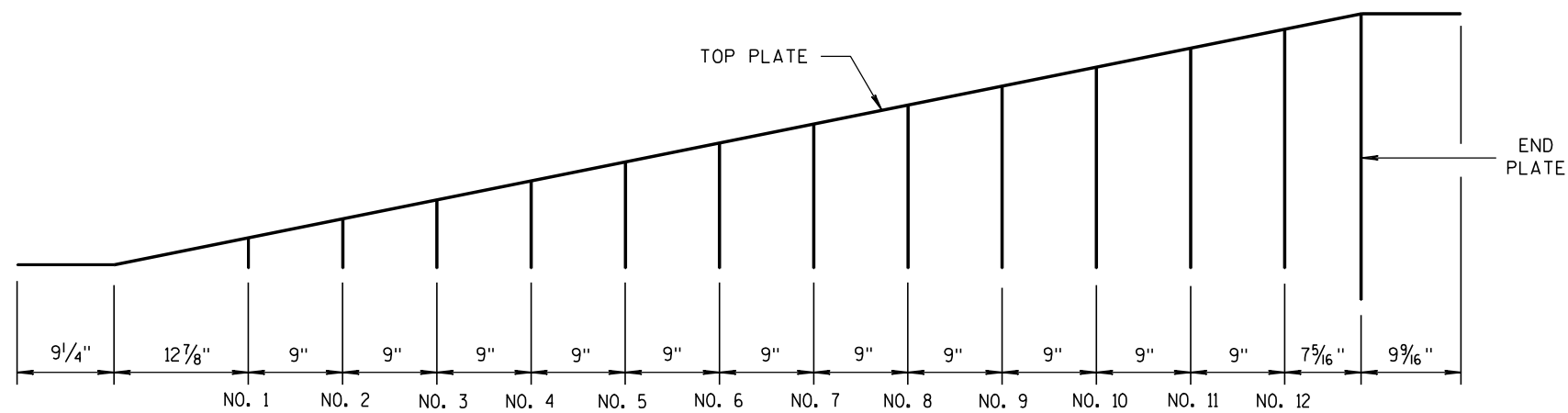
**CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	$2\frac{7}{8}$ "	$7\frac{3}{4}$ "	$\frac{1}{4}$ "	8
2	$4\frac{11}{16}$ "	$7\frac{9}{16}$ "	$\frac{1}{2}$ "	8
3	$6\frac{1}{2}$ "	$7\frac{3}{8}$ "	$\frac{11}{16}$ "	$8\frac{1}{16}$ "
4	$8\frac{5}{16}$ "	$7\frac{3}{16}$ "	$\frac{7}{8}$ "	$8\frac{1}{16}$ "
5	$10\frac{1}{8}$ "	7"	$1\frac{1}{16}$ "	$8\frac{1}{16}$ "
6	$11\frac{5}{16}$ "	$6\frac{13}{16}$ "	$1\frac{1}{4}$ "	$8\frac{1}{16}$ "
7	$13\frac{3}{4}$ "	$6\frac{5}{8}$ "	$1\frac{7}{16}$ "	$8\frac{1}{16}$ "
8	$15\frac{9}{16}$ "	$6\frac{7}{16}$ "	$1\frac{9}{16}$ "	$8\frac{1}{16}$ "
9	$17\frac{3}{8}$ "	$6\frac{1}{4}$ "	$1\frac{13}{16}$ "	$8\frac{1}{16}$ "
10	$19\frac{3}{16}$ "	$6\frac{1}{16}$ "	$1\frac{15}{16}$ "	$8\frac{1}{16}$ "
11	21"	$5\frac{7}{8}$ "	$2\frac{3}{16}$ "	$8\frac{1}{16}$ "
12	$22\frac{13}{16}$ "	$5\frac{11}{16}$ "	$2\frac{5}{16}$ "	$8\frac{1}{16}$ "



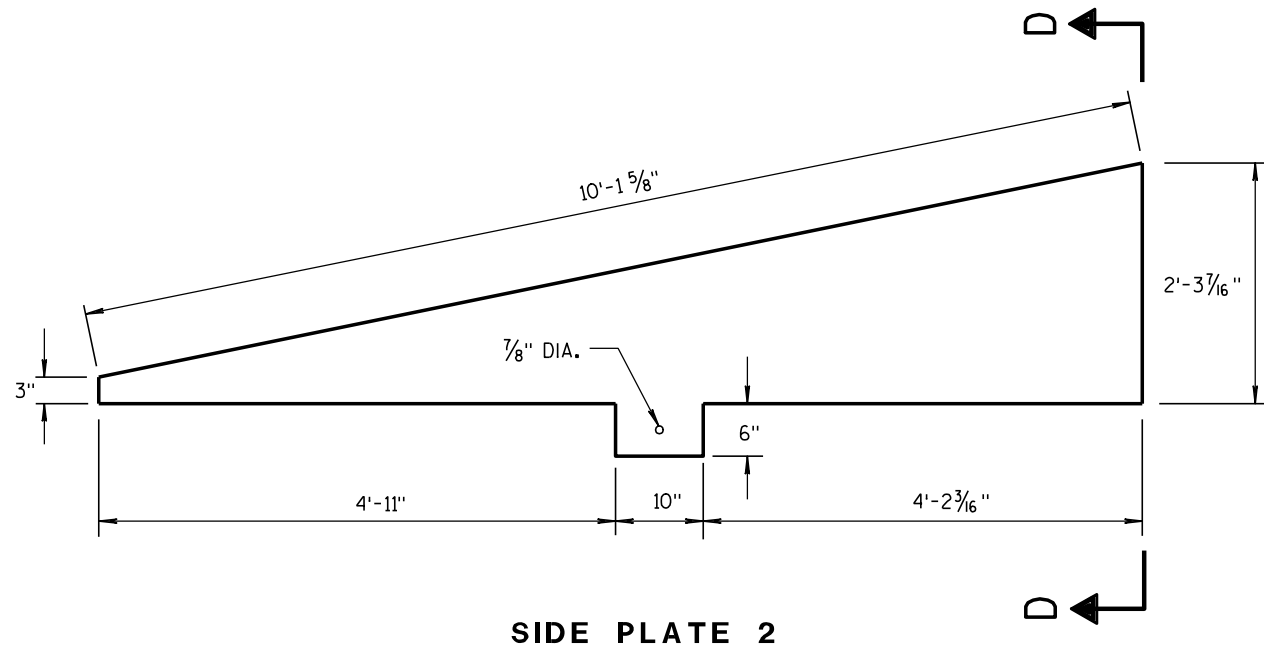
SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

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

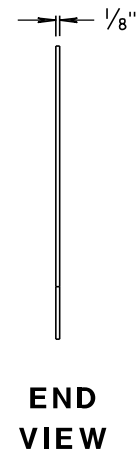
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

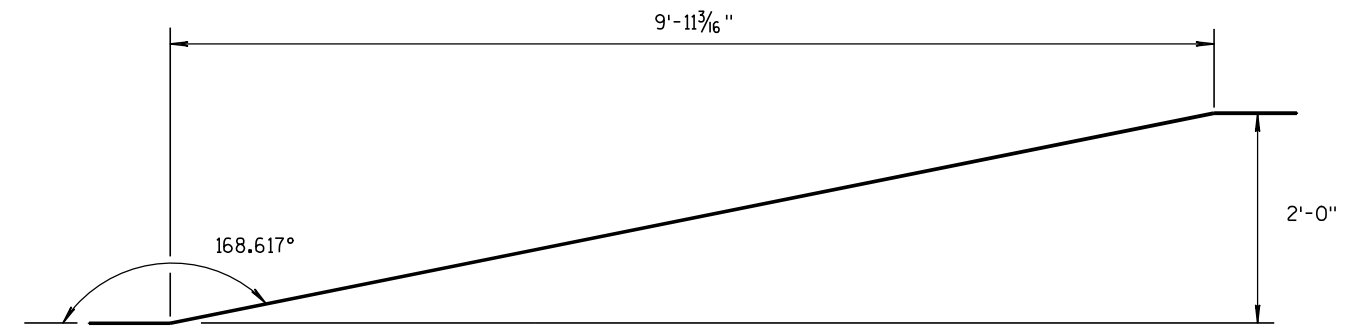
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



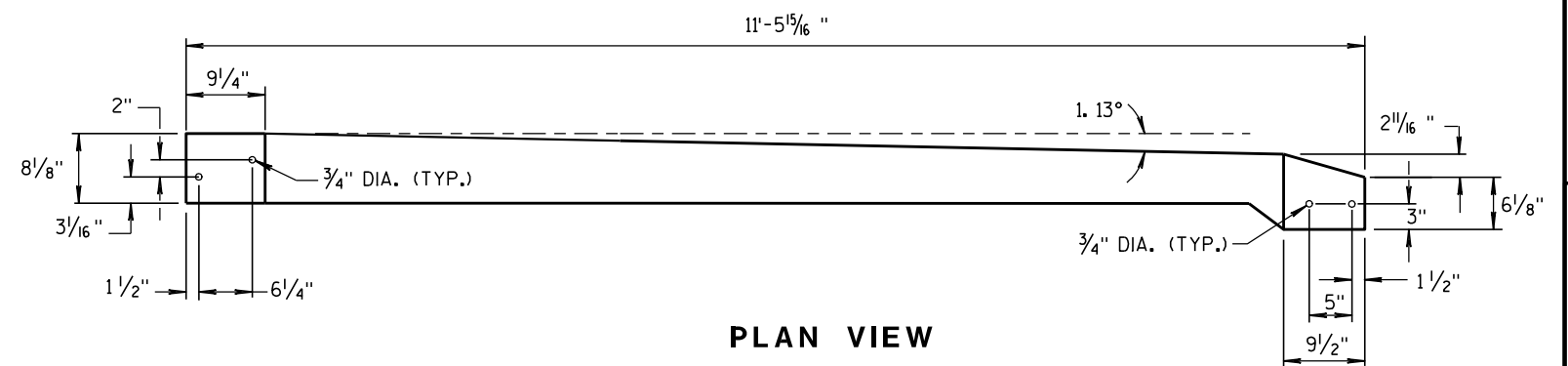
**SIDE PLATE 2**



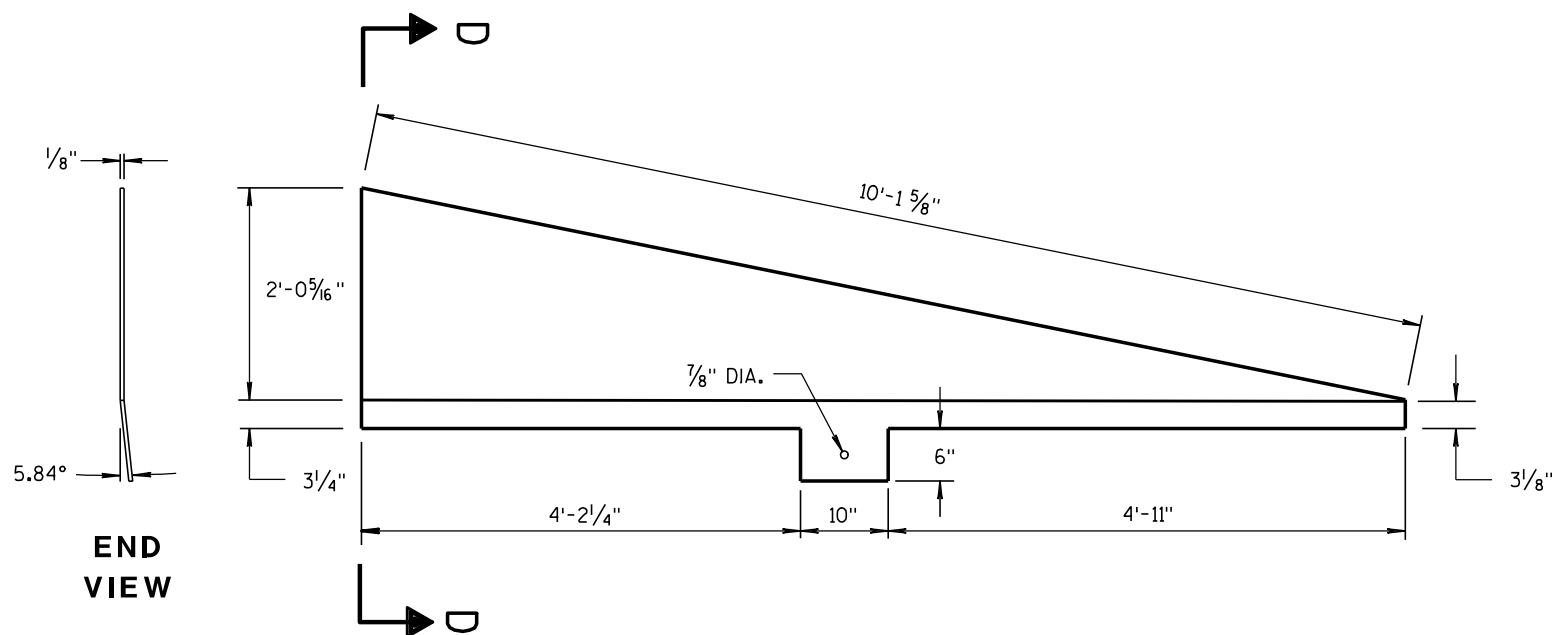
**END VIEW**



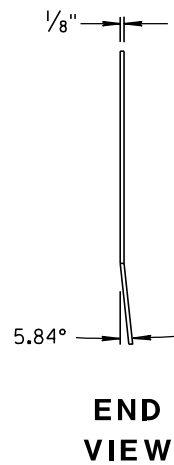
**SIDE VIEW  
TOP PLATE**



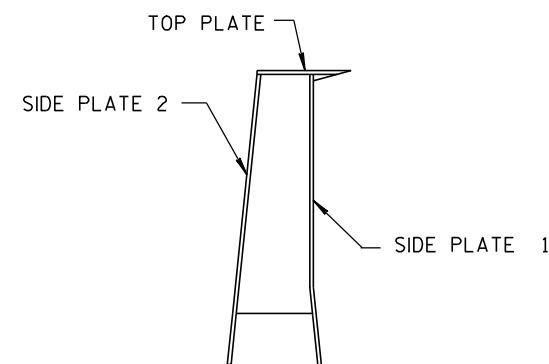
**PLAN VIEW  
TOP PLATE**



**SIDE PLATE 1**



**END VIEW**



**SECTION D-D**

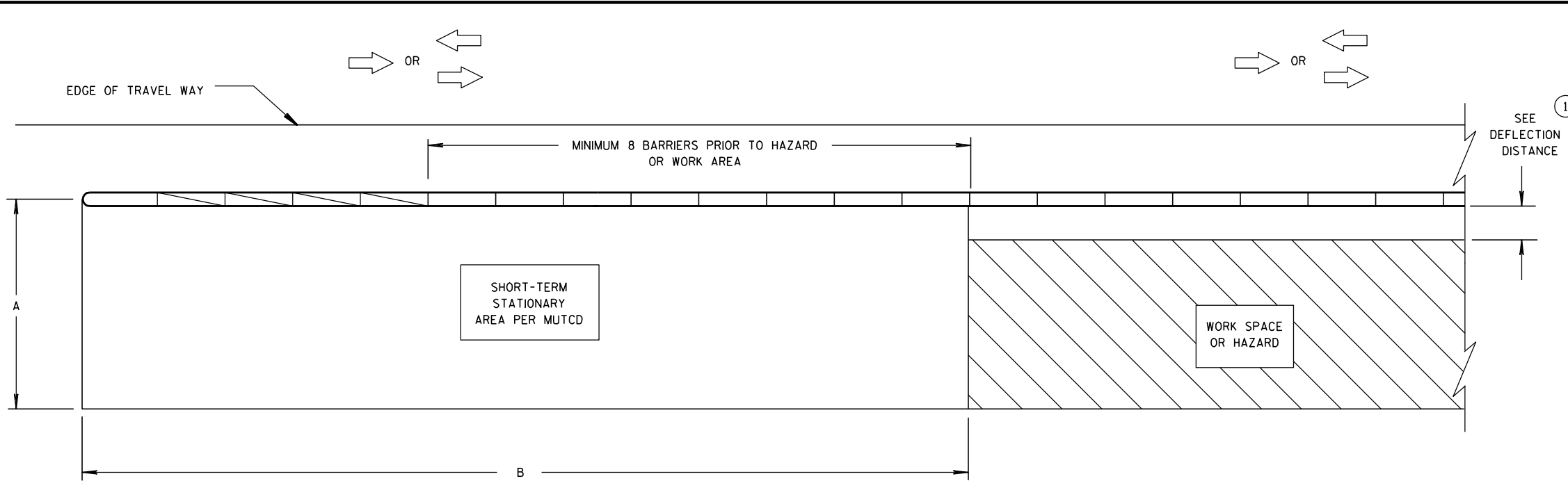
**CAP DETAILS FOR TEMPORARY CONCRETE  
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARD DEVELOPMENT  
ENGINEER  
FHWA





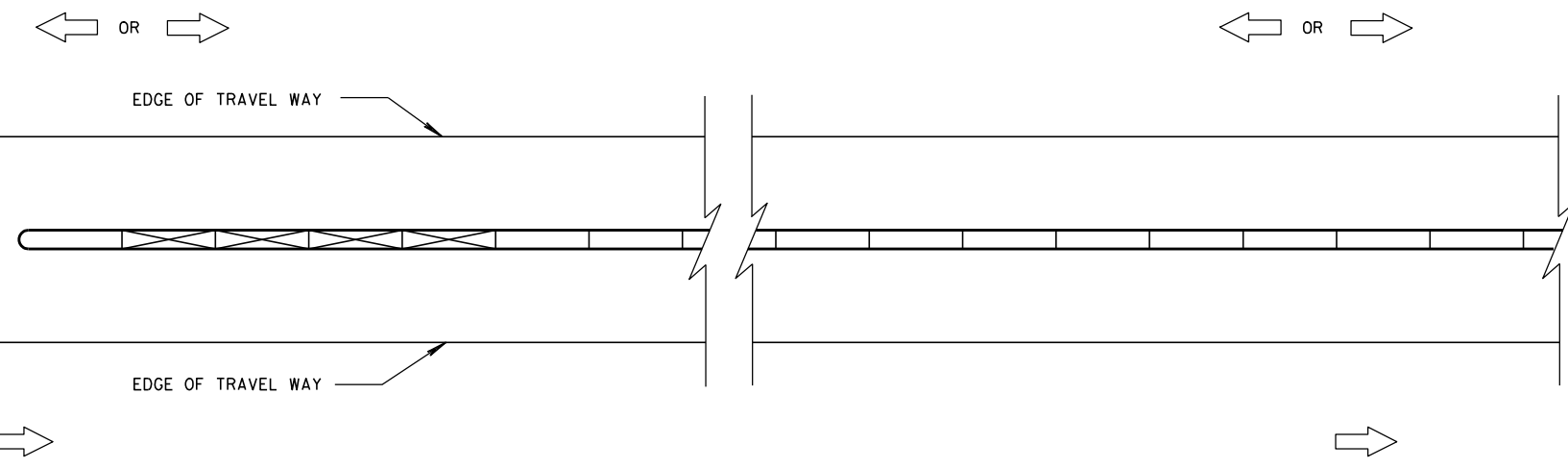
**DIMENSION A TABLE** <sup>2</sup>

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

**DIMENSION B TABLE** <sup>2</sup>

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**GENERAL NOTES**

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

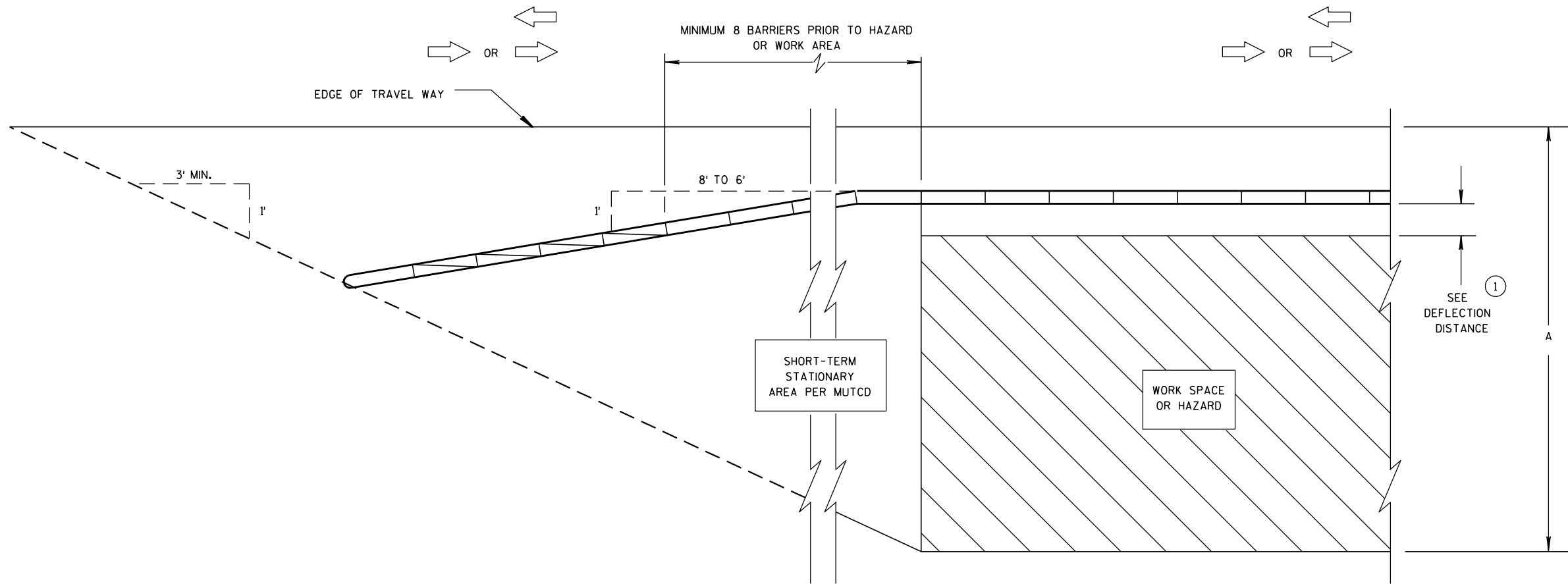
- 1 FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- 2 VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

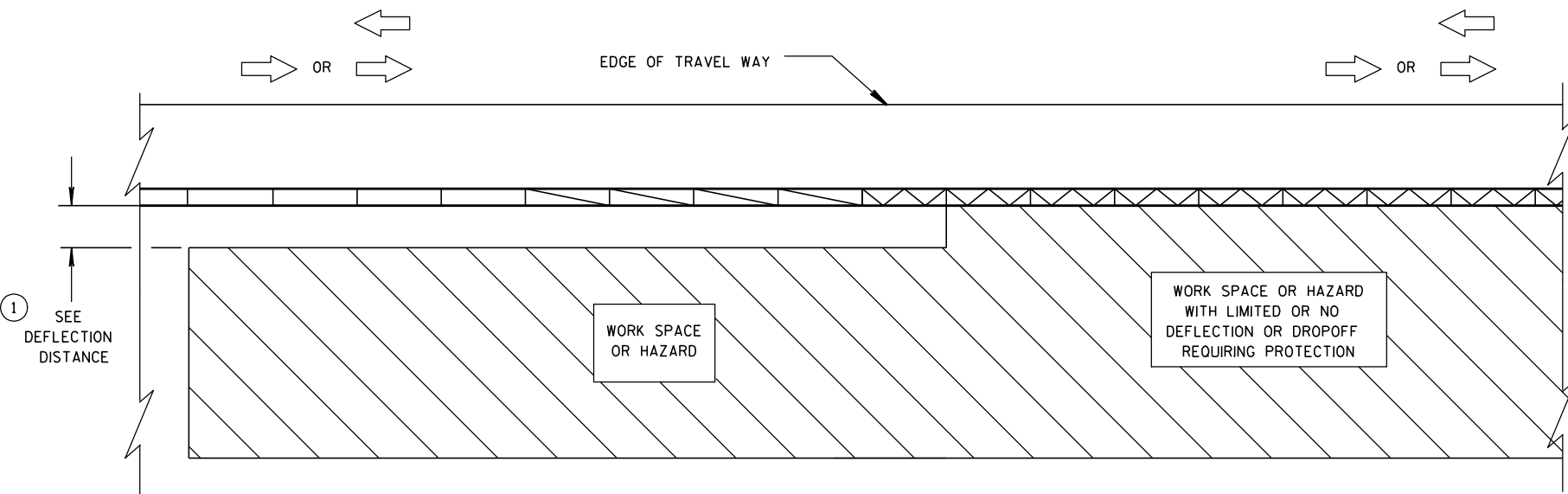
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

S.D.D. 14 B 8-1a

S.D.D. 14 B 8-1a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



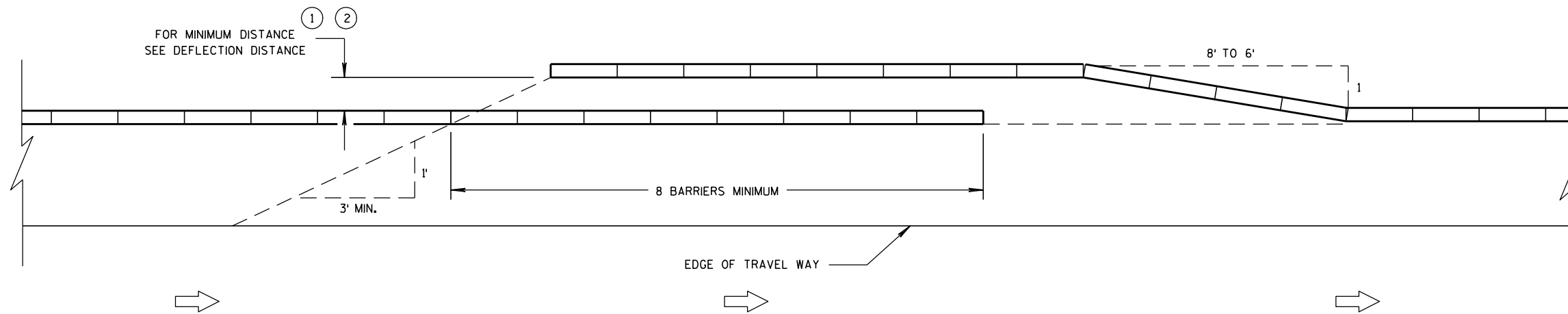
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER  
TO ANCHORED BARRIER**

**LEGEND**

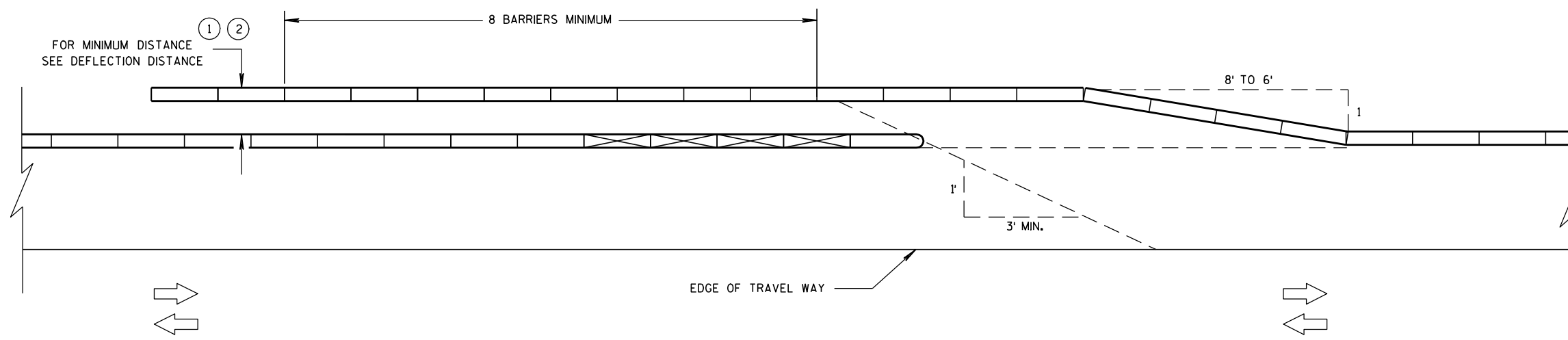
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

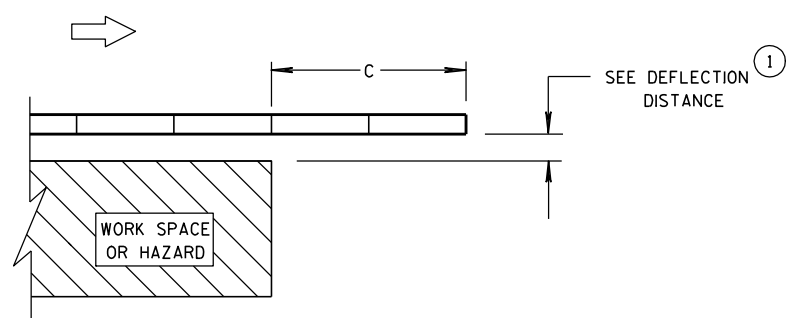
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



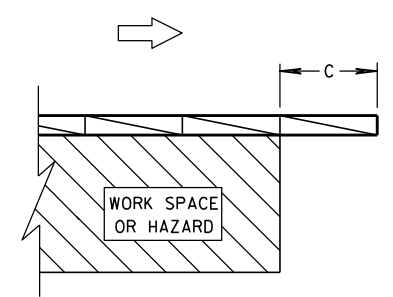
**TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC**



**TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - ANCHORED**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

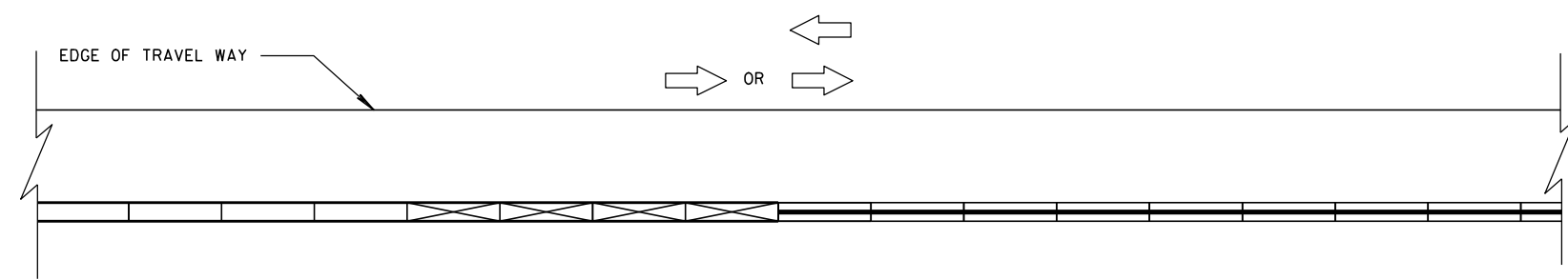
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

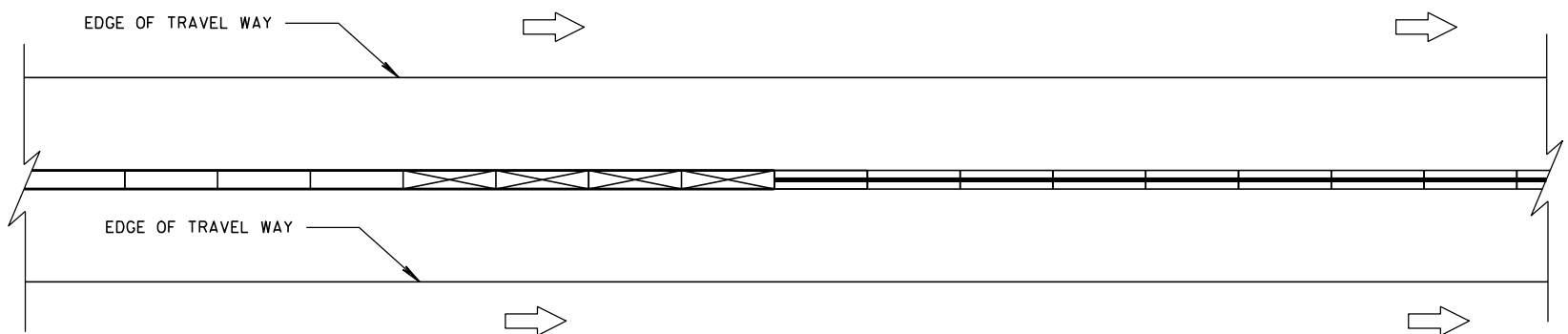
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S.D.D. 14 B 8-1c

S.D.D. 14 B 8-1c



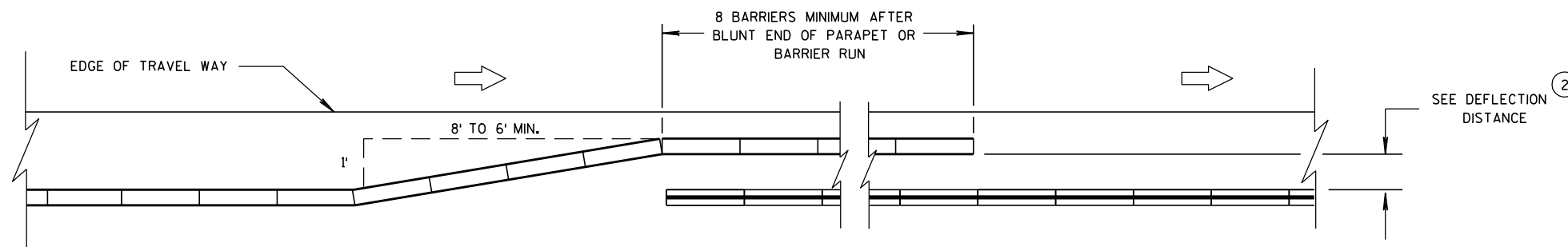
**CONNECTING TEMPORARY BARRIER TO PERMANENT  
CONCRETE BARRIER-TRAFFIC ON ONE SIDE**



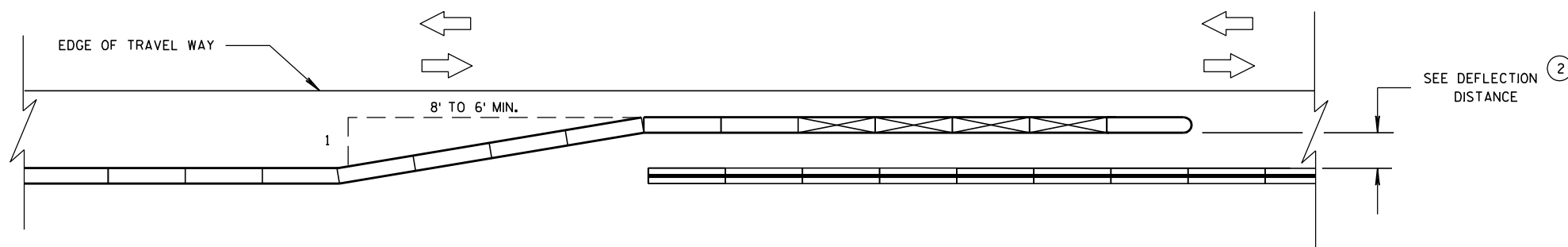
**CONNECTING TEMPORARY BARRIER TO PERMANENT  
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -  
ONE WAY TRAFFIC**


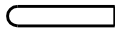


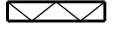

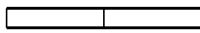


**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -  
TWO WAY TRAFFIC**

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

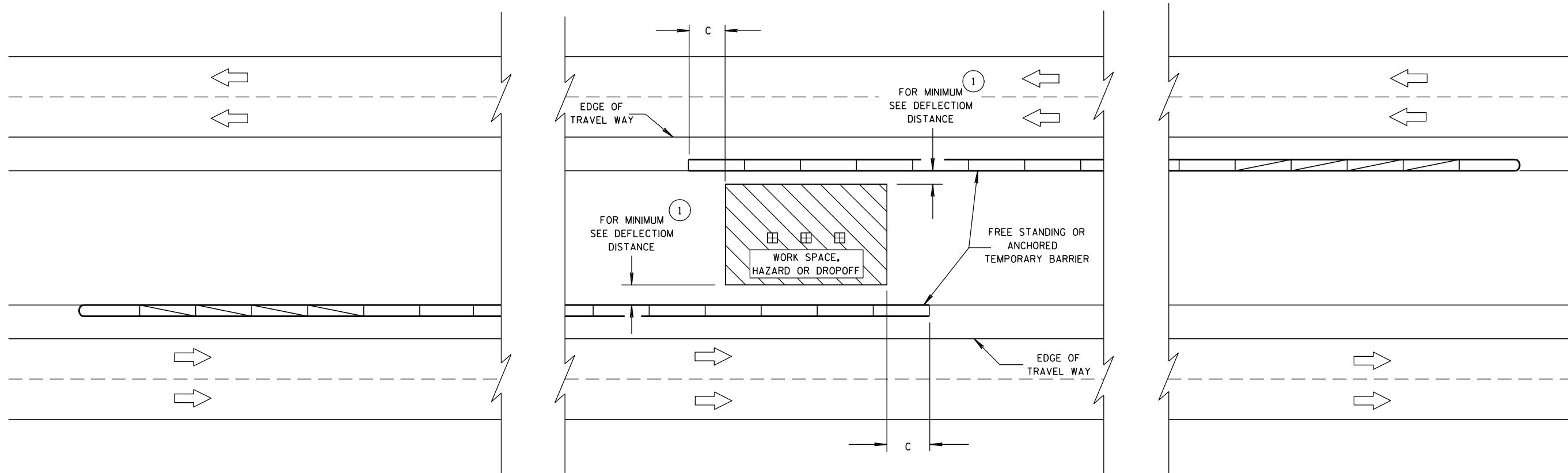
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**LEGEND**

- DIRECTION OF TRAVEL 
- CRASH CUSHION OR SAND BARREL ARRAY 
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS 
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS 
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER 
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET 
- FREE STANDING TEMPORARY BARRIER 

**DIMENSION C TABLE** <sup>2</sup>

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

6

S.D.D. 14 B 8-1e

S.D.D. 14 B 8-1e

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/31/2012 /s/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

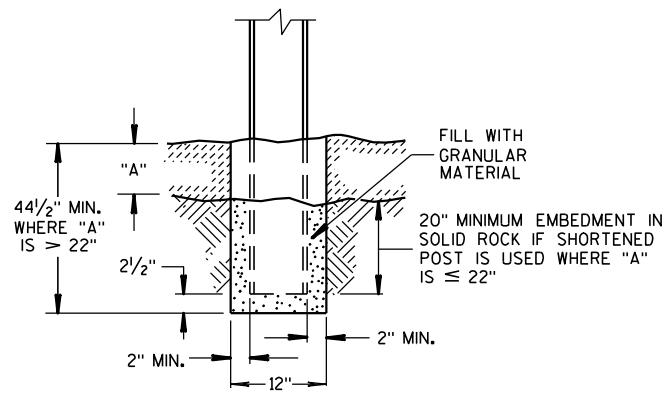
FHWA

**GENERAL NOTES**

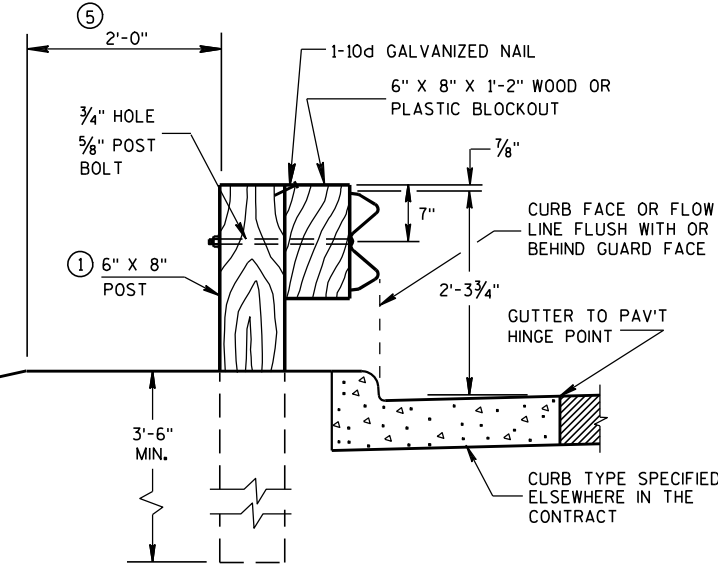
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

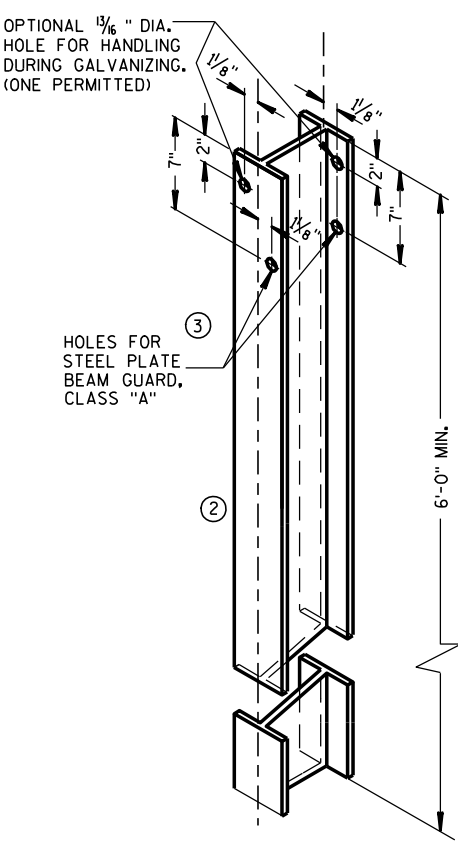
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



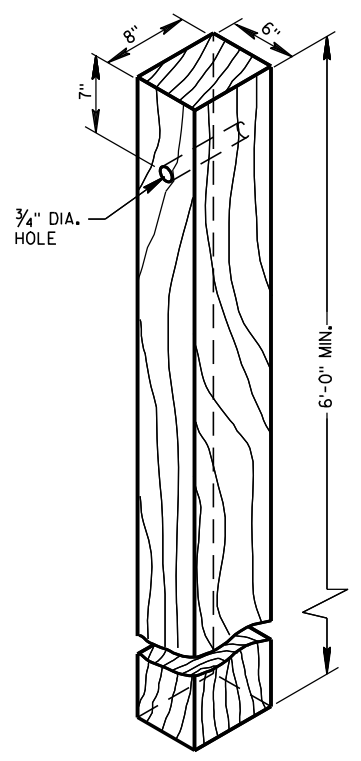
**END VIEW  
SETTING STEEL OR WOOD POST IN ROCK** ⑥



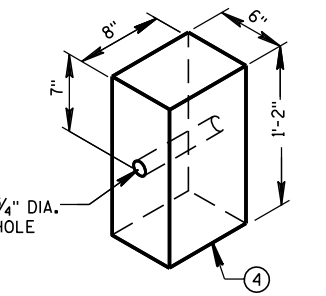
**END VIEW  
LOCATED ALONG A CURBED ROADWAY**



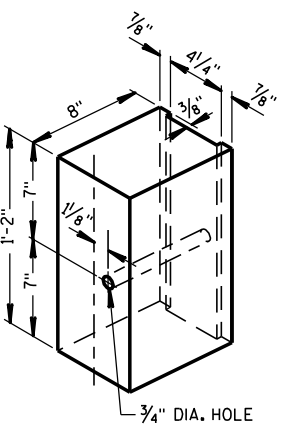
**STEEL POST &  
HOLE PUNCHING DETAIL  
(W6 X 9)** ①  
ALL HOLES 1/8" DIAMETER EXCEPT AS NOTED



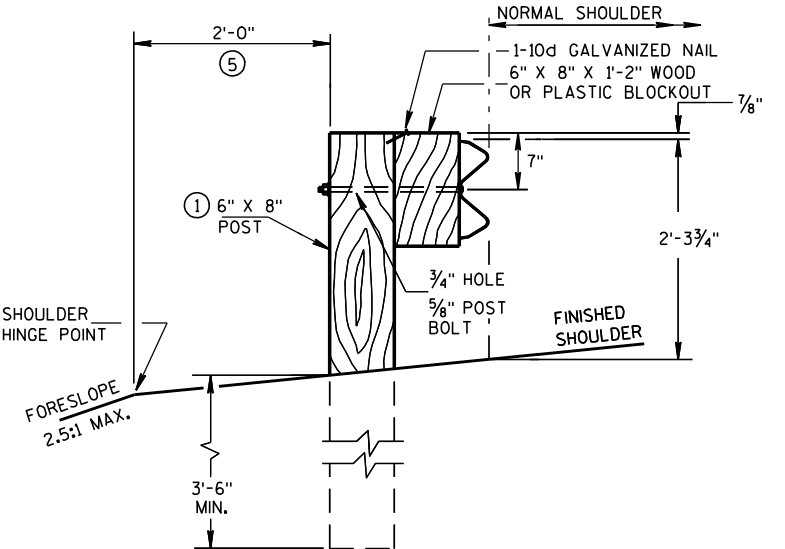
**WOOD POST  
(6" X 8") NOMINAL**



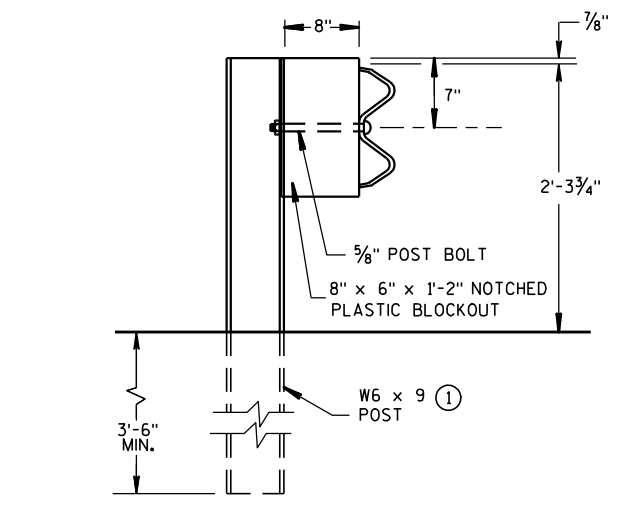
**WOOD OR PLASTIC  
BLOCKOUT FOR  
WOOD POSTS**



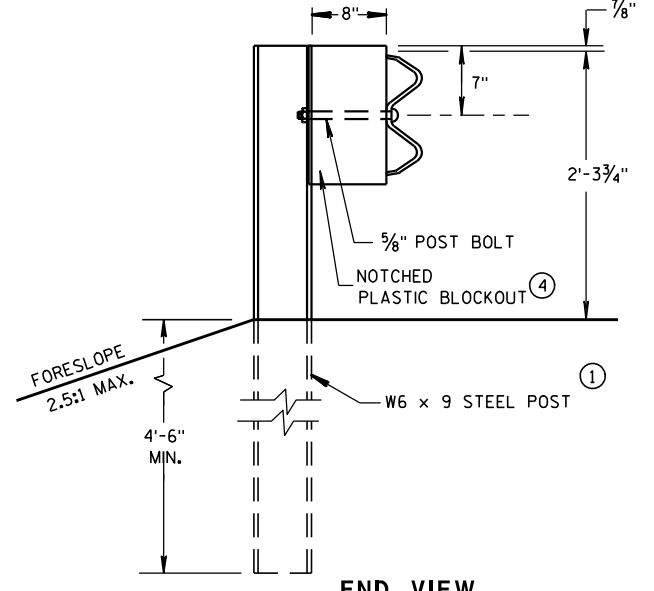
**TYPICAL NOTCHED  
PLASTIC BLOCKOUT  
FOR STEEL POSTS** ①



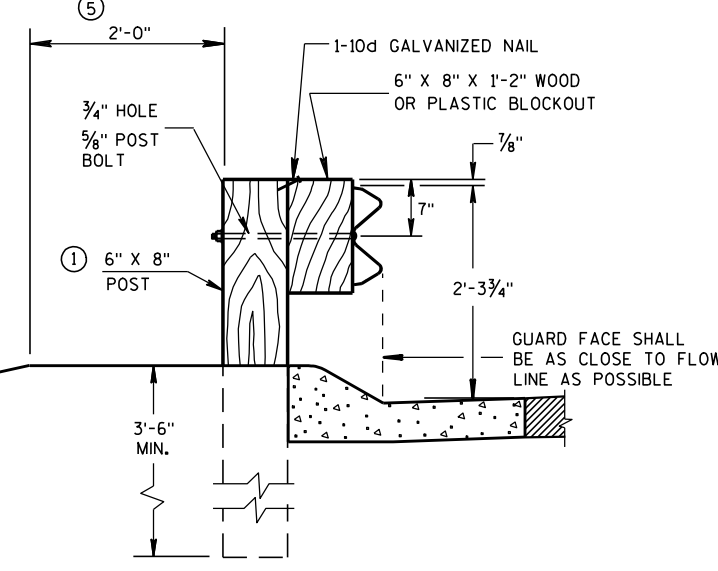
**END VIEW  
LOCATED ALONG A ROADWAY SHOULDER  
STANDARD INSTALLATION**



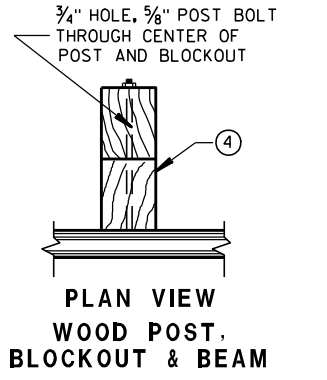
**END VIEW  
STEEL POST & NOTCHED  
PLASTIC BLOCKOUT ALTERNATIVE  
STANDARD INSTALLATION**



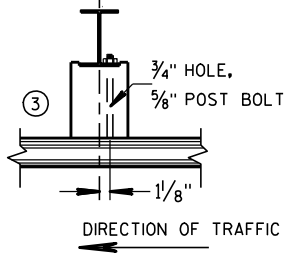
**END VIEW  
LONGER POST AT HALF  
POST SPACING W BEAM  
(LHW)**



**END VIEW  
LOCATED ALONG A  
MOUNTABLE CURBED ROADWAY**



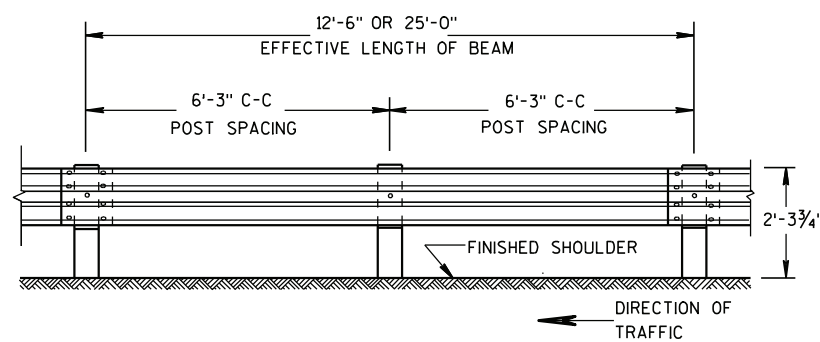
**PLAN VIEW  
WOOD POST,  
BLOCKOUT & BEAM**



**PLAN VIEW  
STEEL POST, NOTCHED  
PLASTIC BLOCKOUT & BEAM**

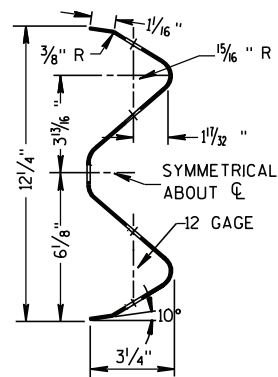
**STEEL PLATE BEAM GUARD,  
CLASS "A"  
INSTALLATION & ELEMENTS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

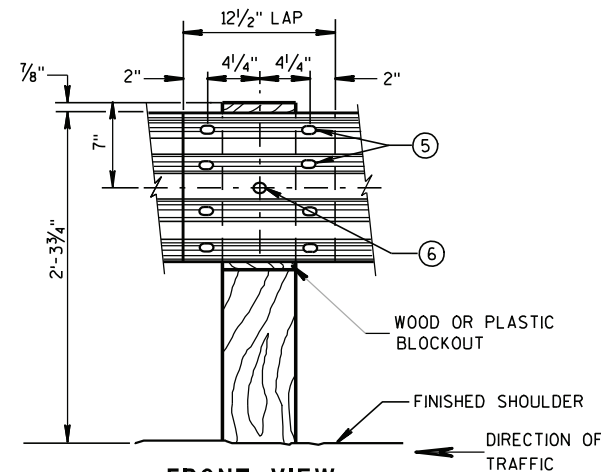


FRONT VIEW

**POST SPACING STANDARD INSTALLATION**

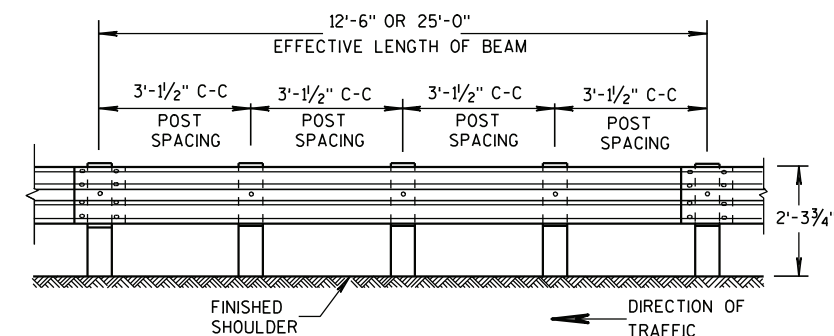


SECTION THRU W BEAM



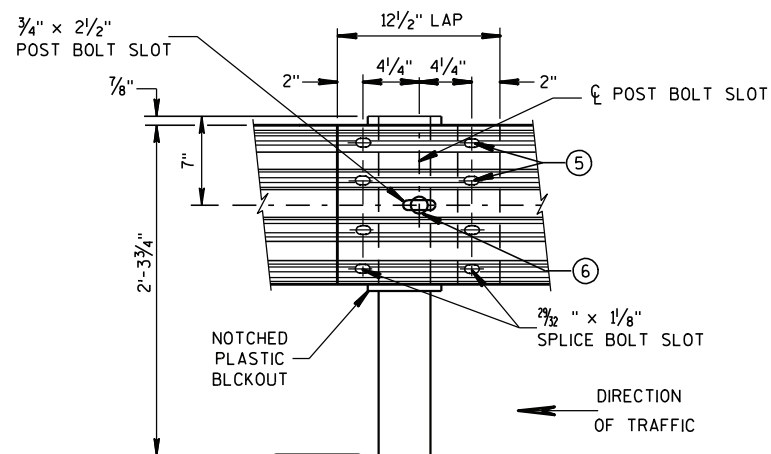
FRONT VIEW

**BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL**



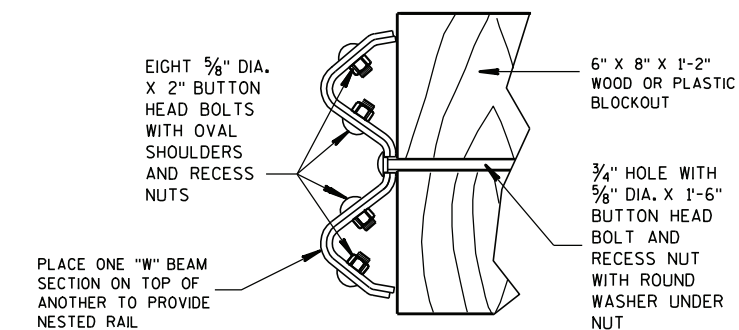
FRONT VIEW

**POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)**



FRONT VIEW

**BEAM SPLICE AT STEEL POST  
TYPICAL SPLICING DETAILS  
OF STEEL PLATE BEAM GUARD**

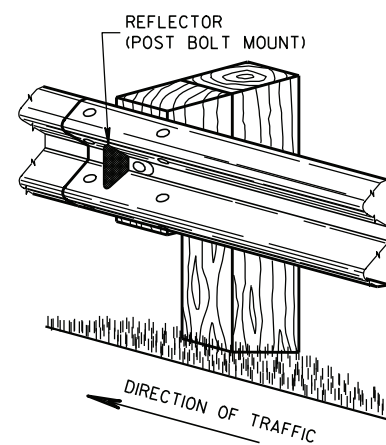


**NESTED W BEAM (NW)**

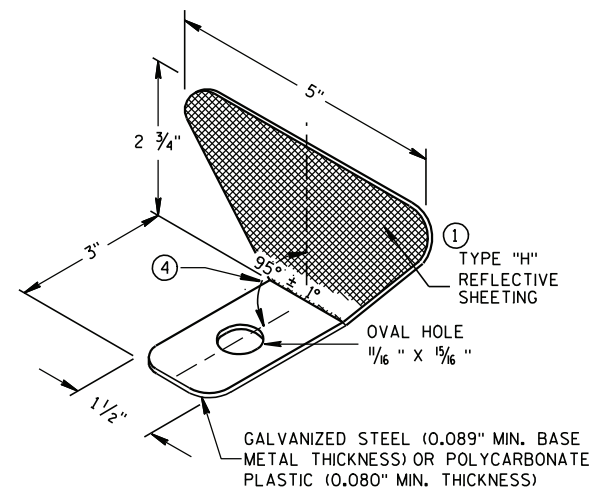
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING<sup>②</sup>

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	3
TWO WAY TRAFFIC	< 200'	25' C-C	1 <sup>③</sup>	6
	> 200'	50' C-C	1 <sup>③</sup>	6
TWO WAY TRAFFIC	< 200'	50' C-C	2 <sup>④</sup>	3
	> 200'	100' C-C	2 <sup>④</sup>	3



**ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION**



**GENERAL NOTES**

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - 5/8" φ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ 5/8" φ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.

**STEEL PLATE BEAM GUARD,  
CLASS "A",  
INSTALLATION & ELEMENTS**

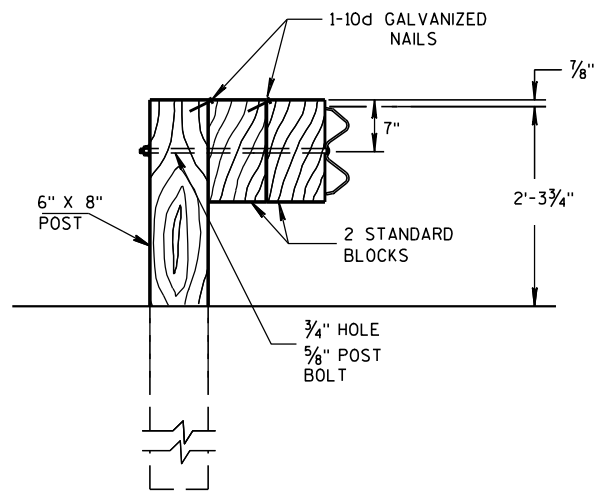
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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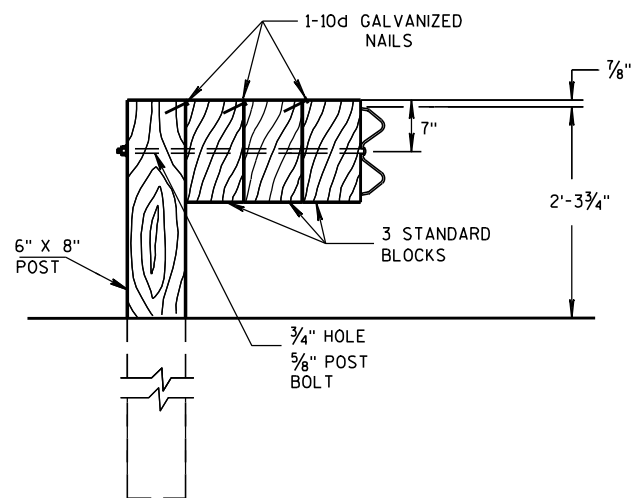
S.D.D. 14 B 15-7b

S.D.D. 14 B 15-7b



**DETAIL FOR DOUBLE BLOCKS**

THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED

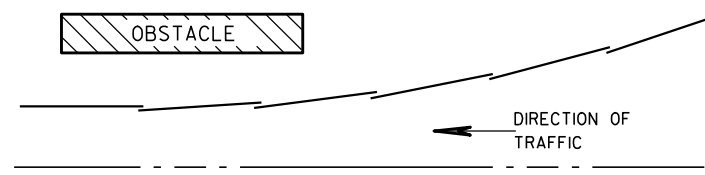


**DETAIL FOR TRIPLE BLOCKS**

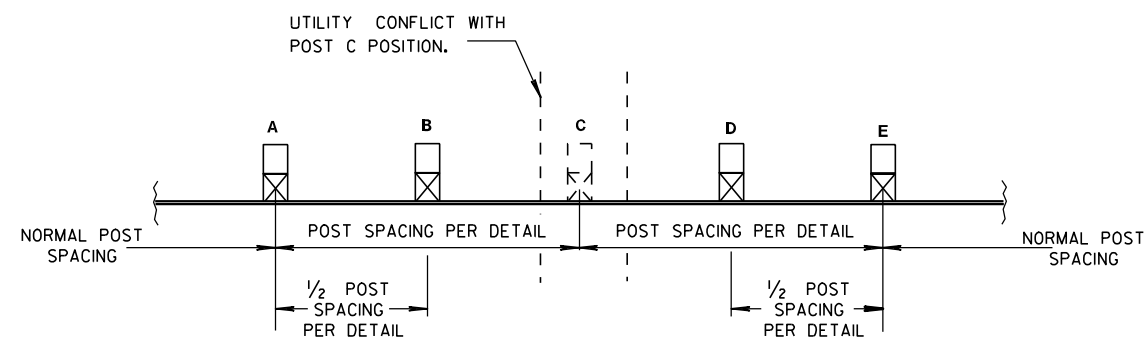
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA 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.



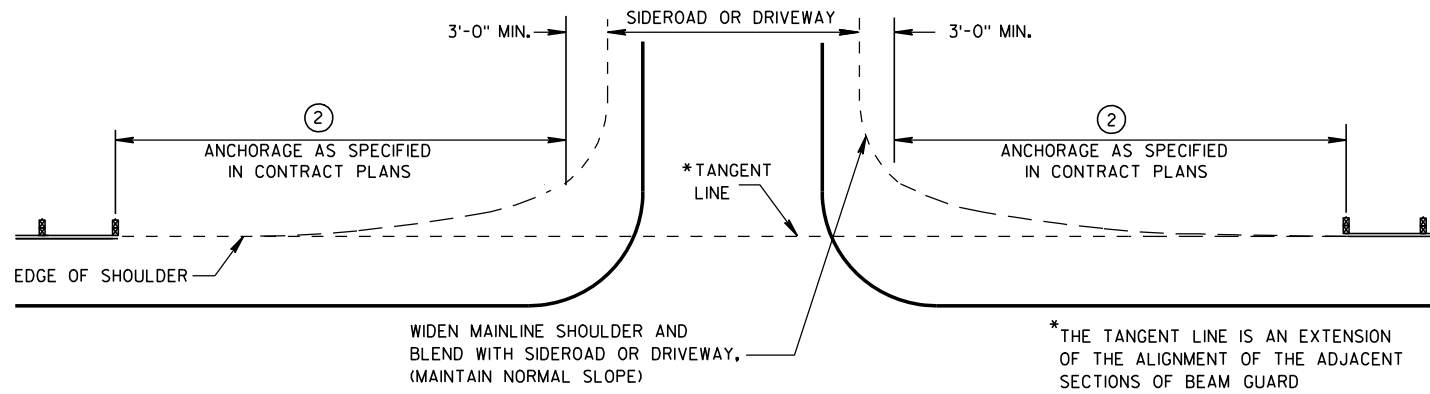
**PLAN VIEW  
BEAM LAPPING DETAIL**



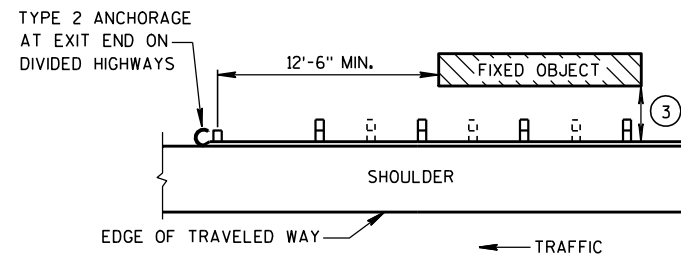
**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

<b>STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION &amp; ELEMENTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/23/11 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	





**BEAM GUARD AT SIDEROADS OR DRIVEWAYS**



**BEAM GUARD AT OBSTACLES  
EXIT END - ONE WAY TRAFFIC**

**GENERAL NOTES**

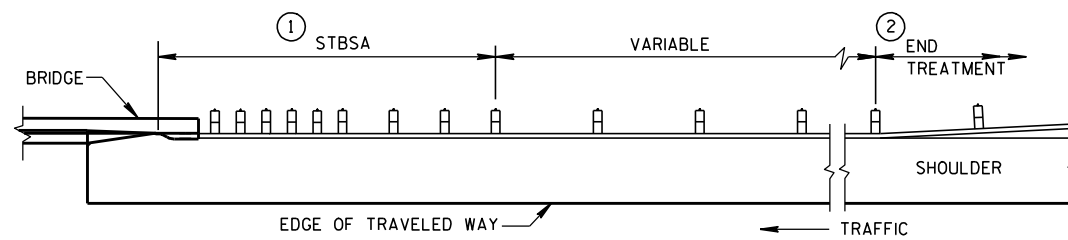
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

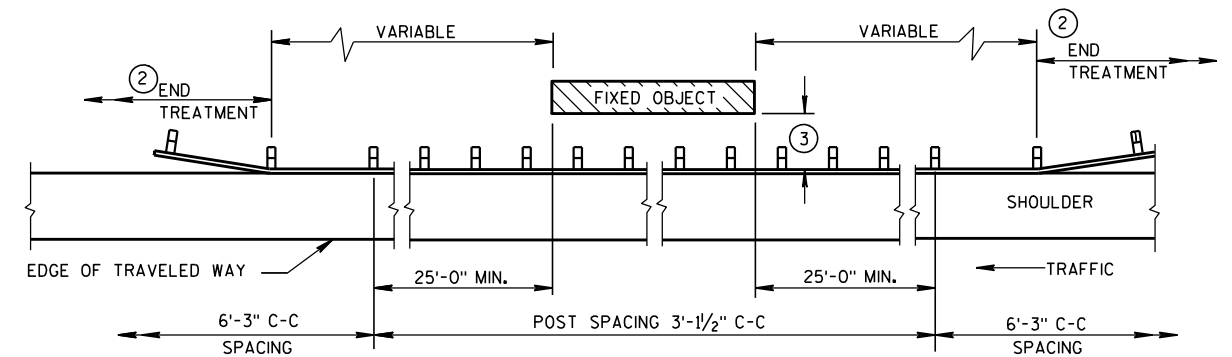
THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"



**BEAM GUARD AT FULL WIDTH BRIDGES**

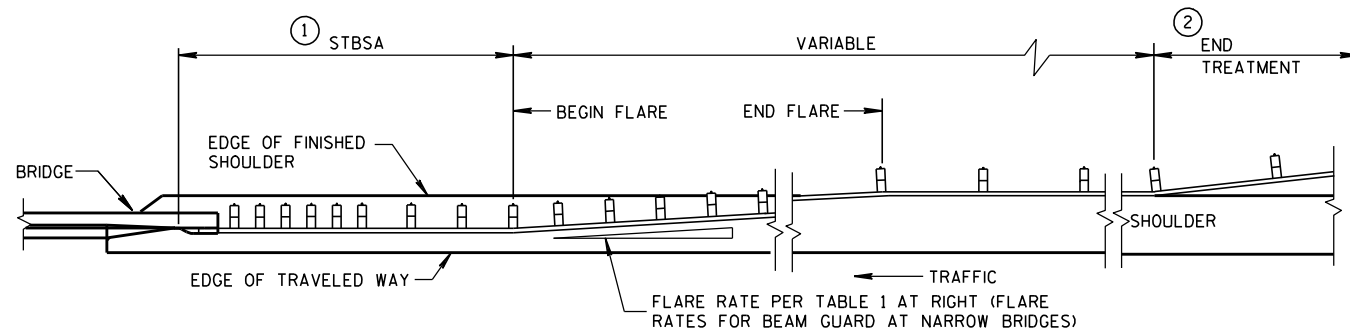


**BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC**

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

**TABLE 1  
FLARE RATES FOR BEAM  
GUARD AT NARROW BRIDGES**

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



**BEAM GUARD AT NARROW BRIDGES  
(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)**

**STEEL PLATE BEAM GUARD  
CLASS "A"  
AT BRIDGES, OBSTACLES  
AND SIDEROADS/DRIVEWAYS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8-21-07 /s/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

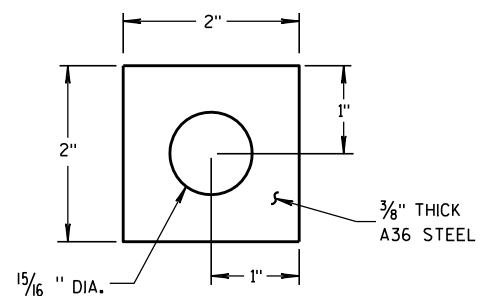
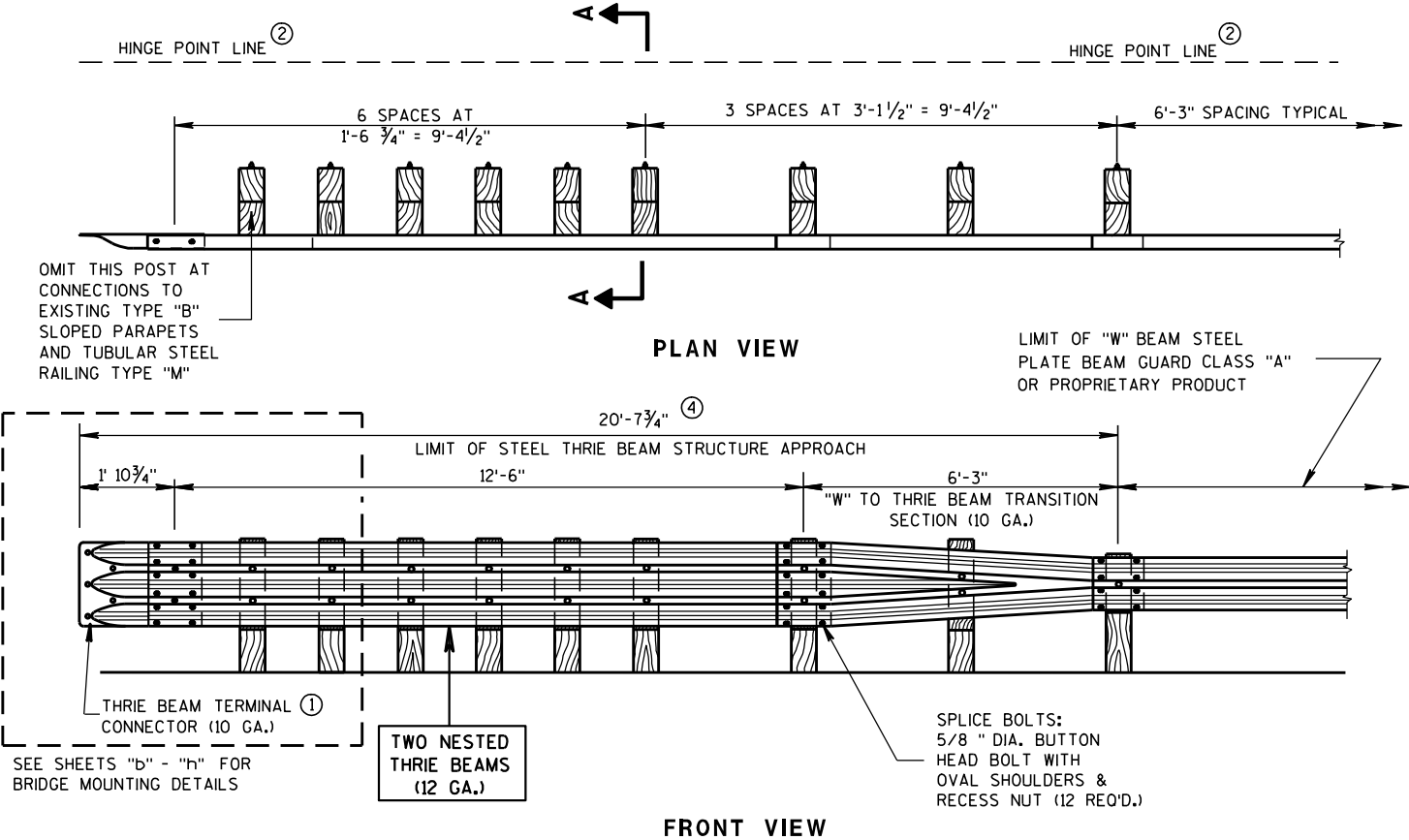
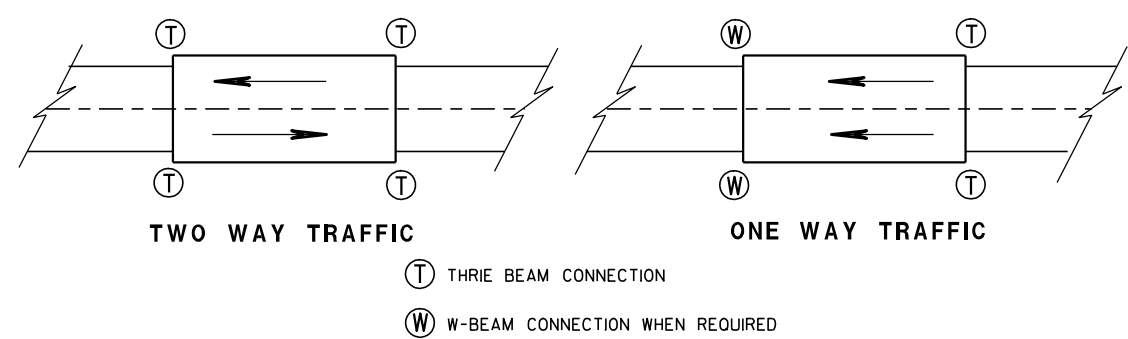


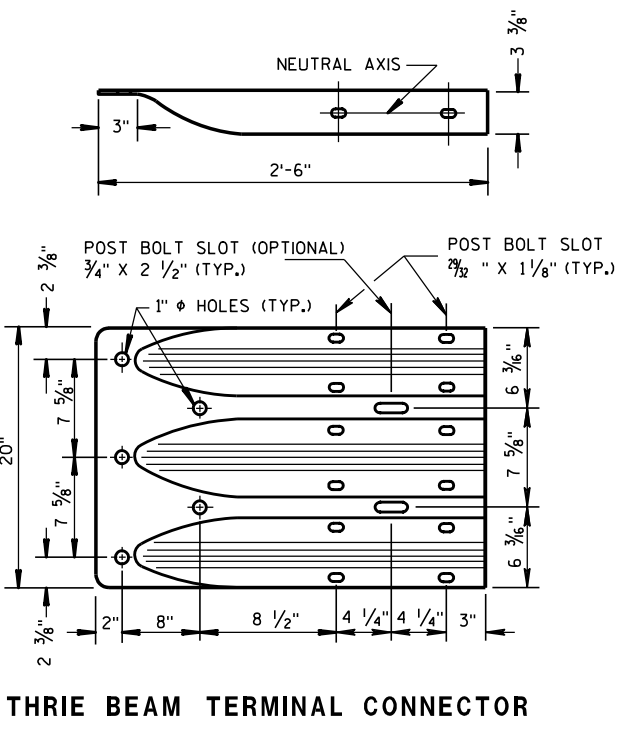
PLATE WASHER DETAIL

GENERAL NOTES

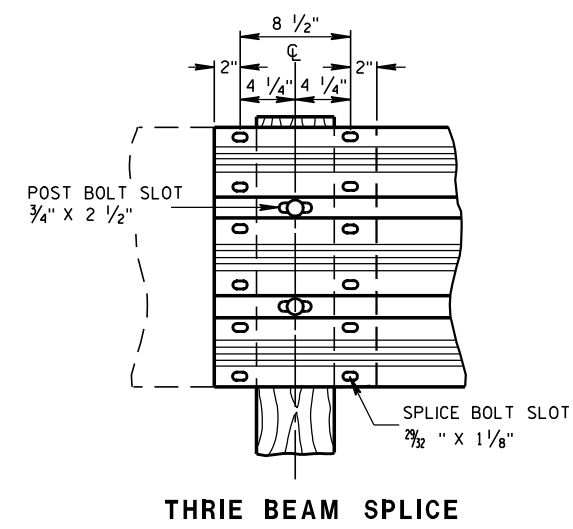
- BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".
- DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.
- IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



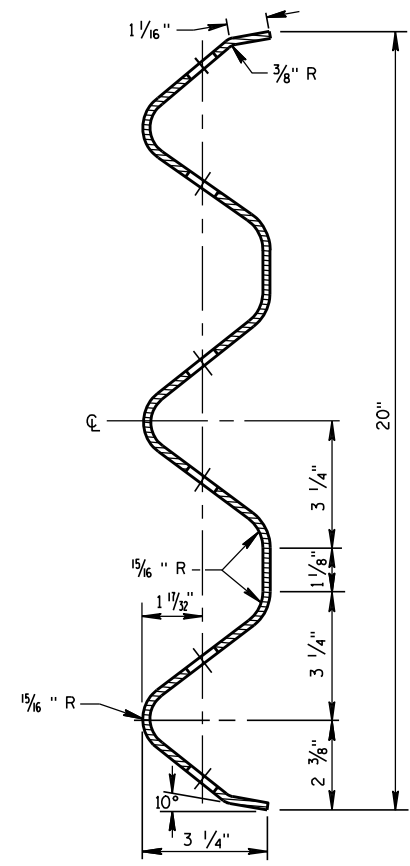
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



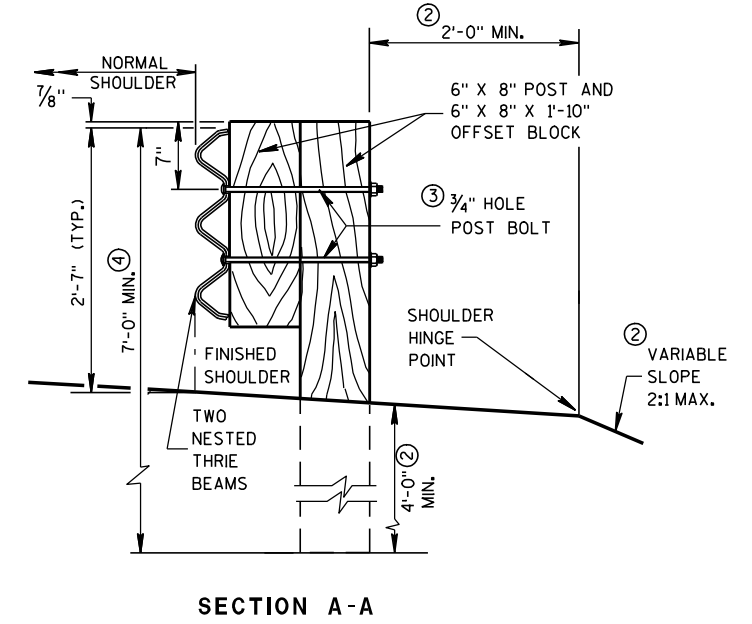
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



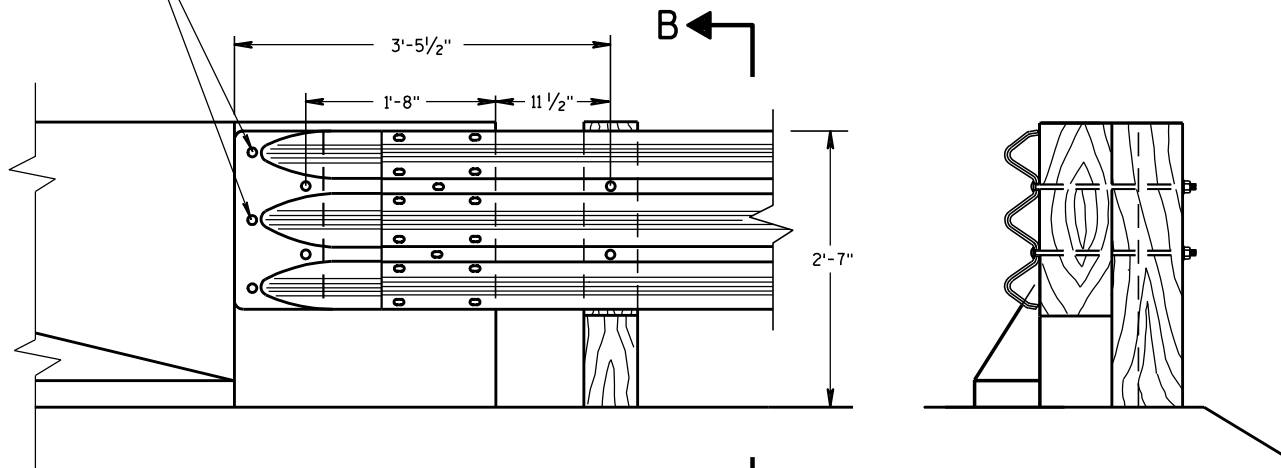
SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

<b>STEEL THRIE BEAM STRUCTURE APPROACH</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)



FRONT VIEW

SECTION B-B

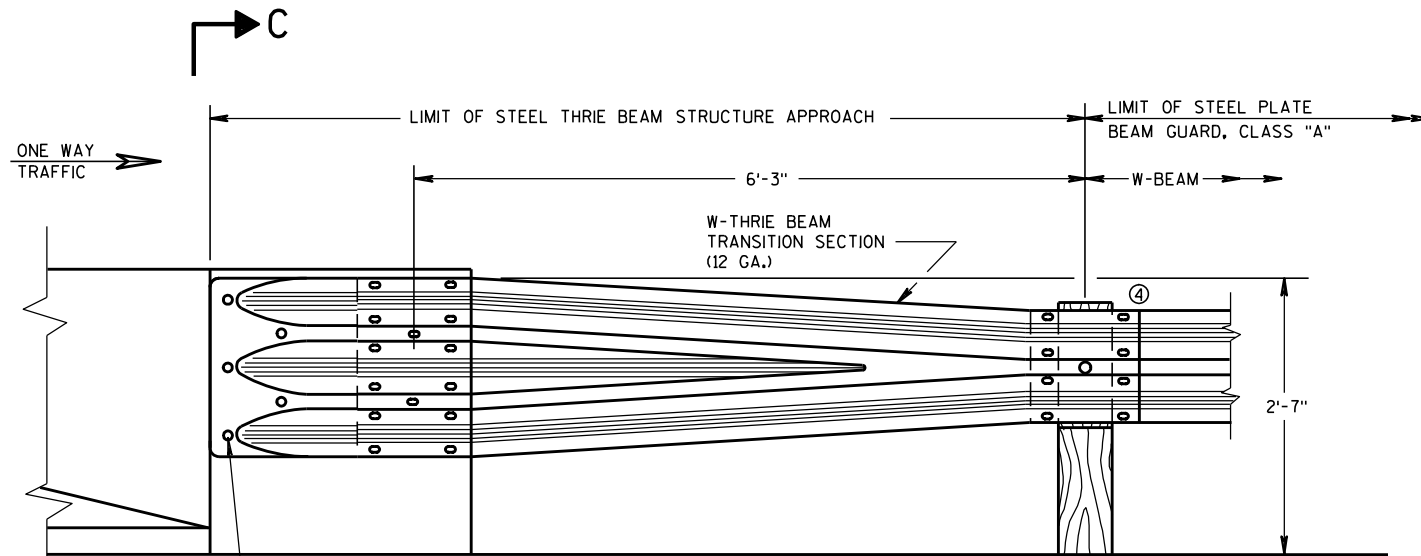
**THRIE BEAM CONNECTION TO BRIDGE  
PARAPET WITH SQUARE ENDS**

**GENERAL NOTES**

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

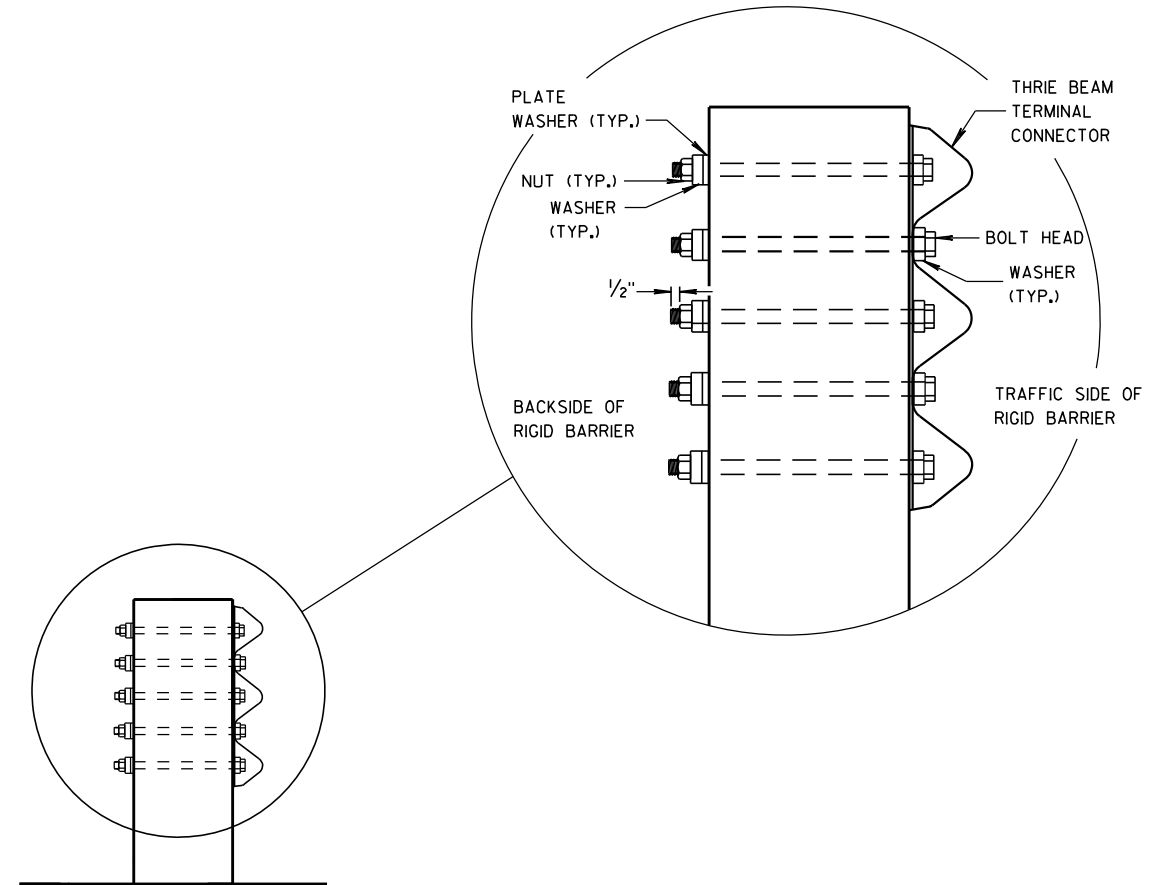
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ 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".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.  
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)

FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO  
BRIDGE PARAPETS WITH SQUARE ENDS  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**



SECTION C-C

**STEEL THRIE BEAM STRUCTURE  
APPROACH, CONNECTION TO  
SQUARE END PARAPETS**

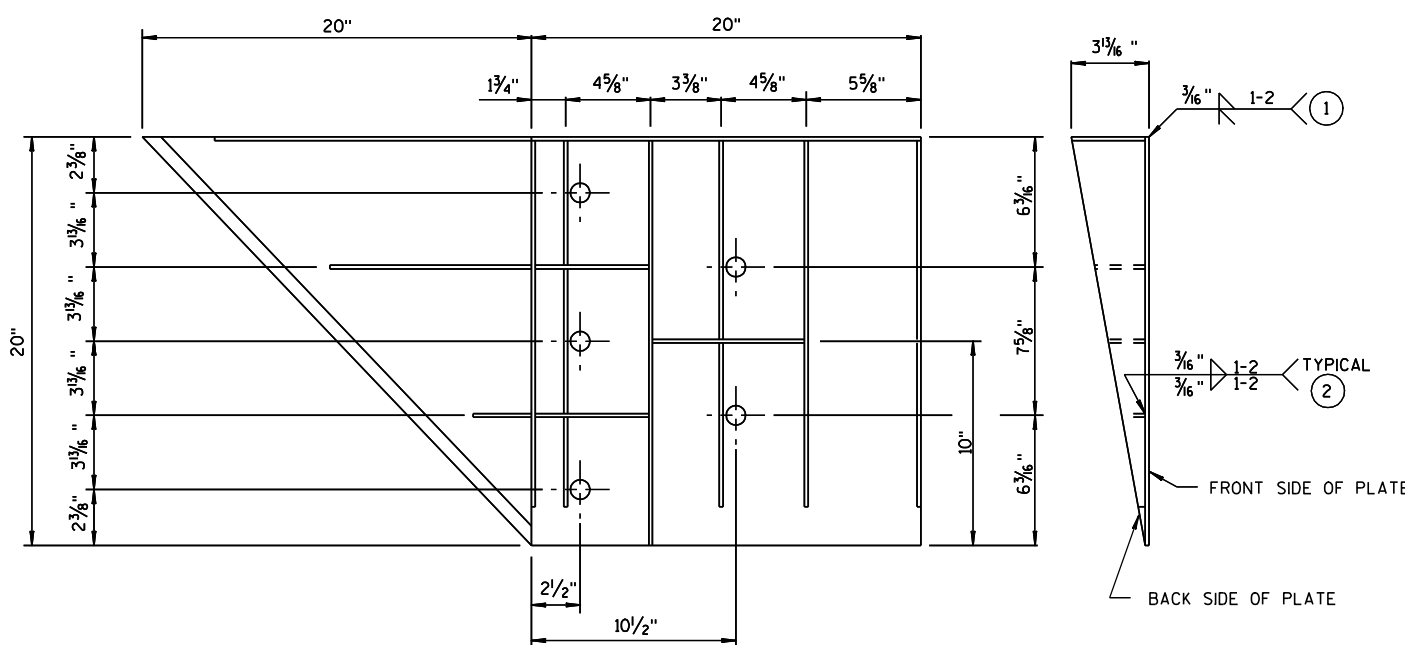
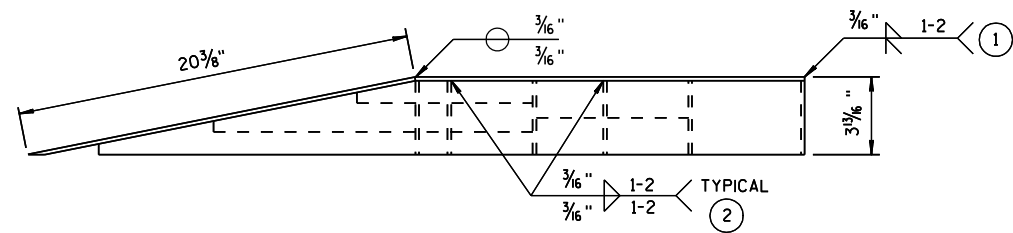
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

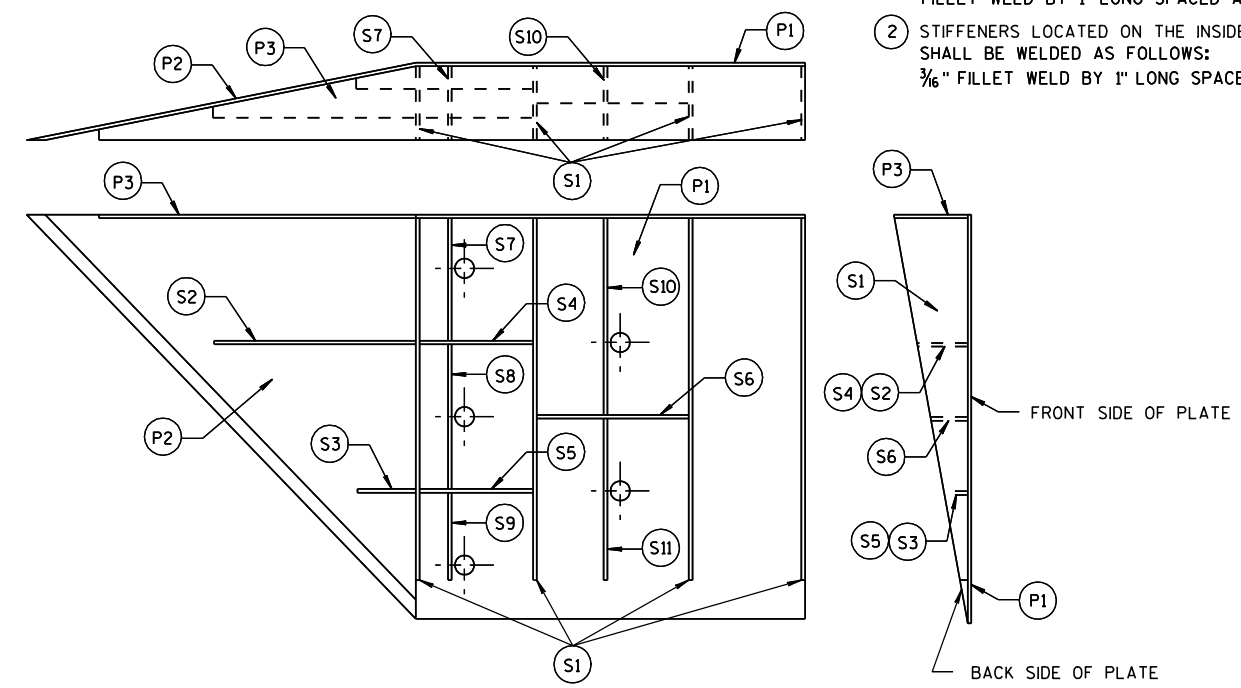
### GENERAL NOTES

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

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



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



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

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 1/16" 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 1/16"	1/4"
S5	1		6 1/8" x 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 1/8"	1/4"
S8	1		1 3/32" 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 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 1/16"	1/4"

**STEEL THRIE BEAM STRUCTURE APPROACH**

**STEEL THRIE BEAM  
STRUCTURE APPROACH,  
CONNECTOR PLATE DETAIL**

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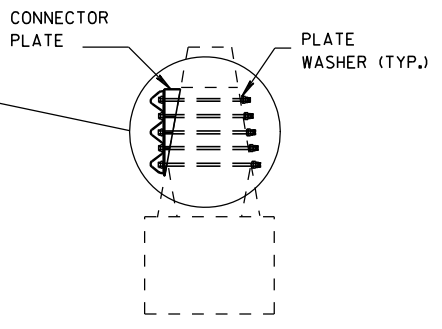
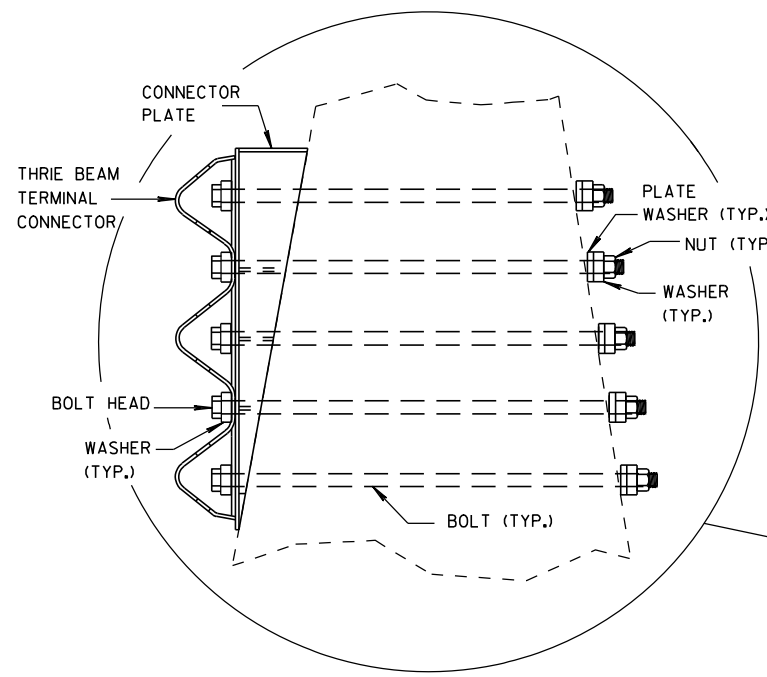
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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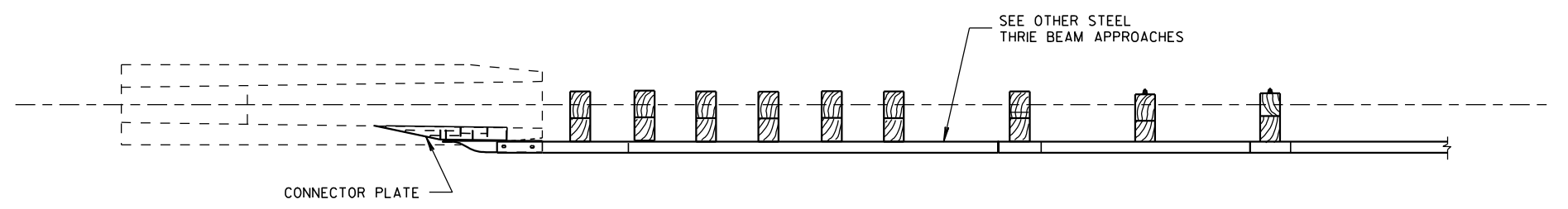
APPROVED  
8/31/2012  
DATE

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

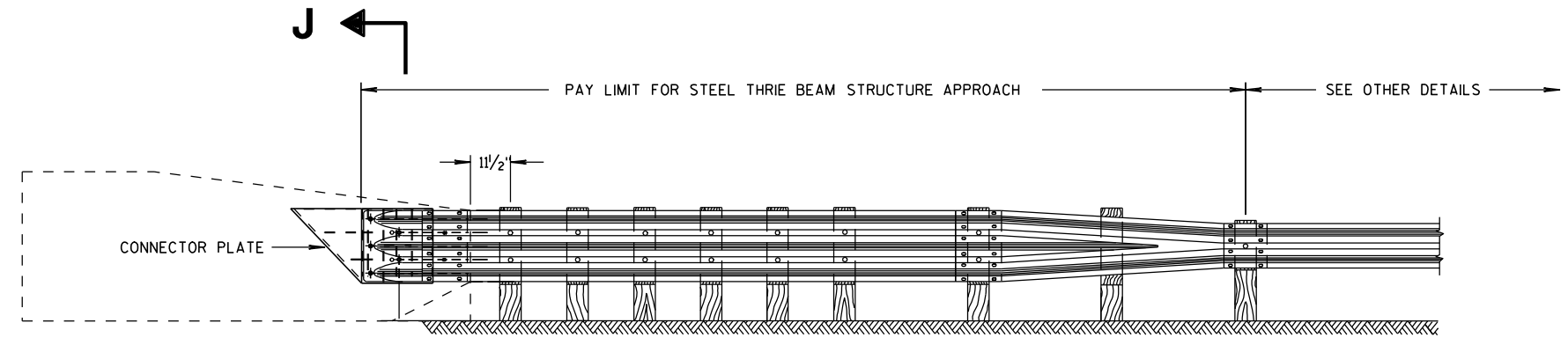
FHWA



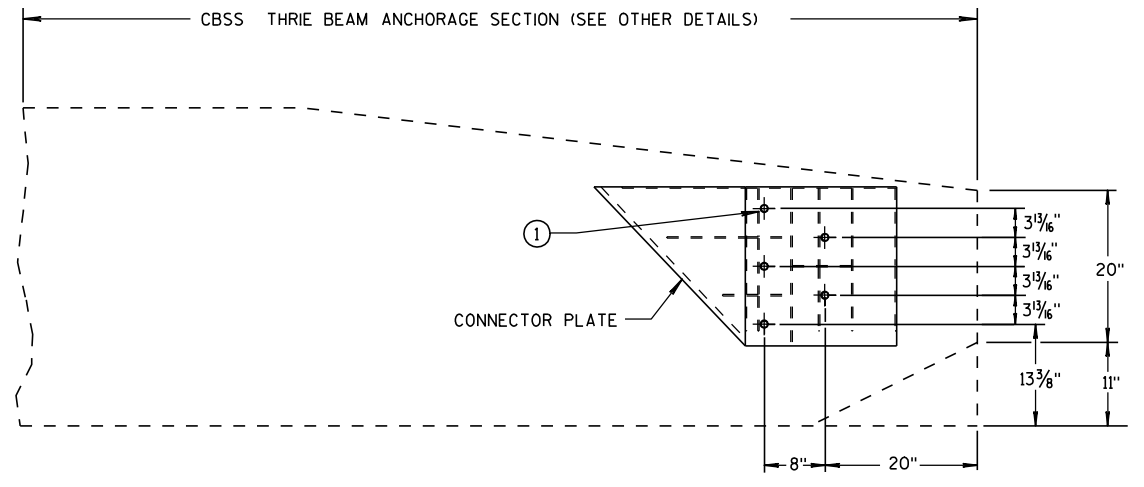
SECTION J-J



PLAN VIEW



FRONT VIEW



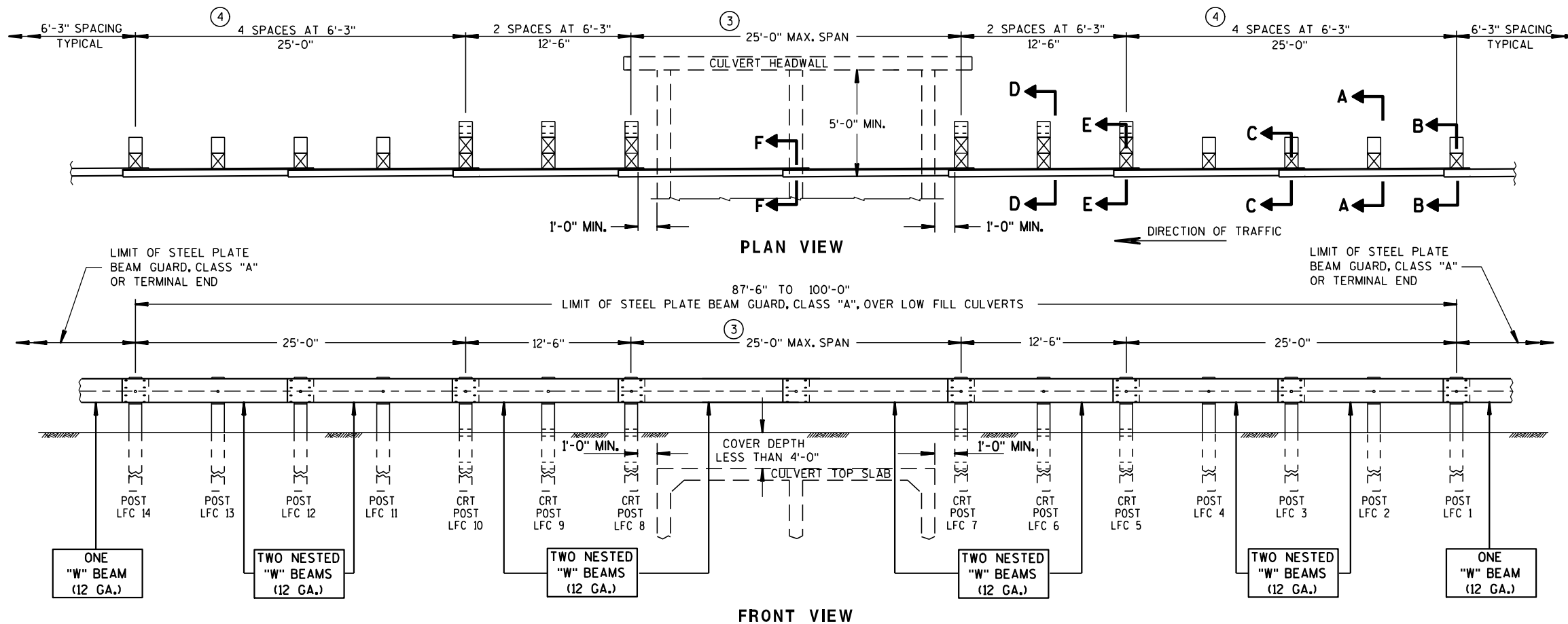
CONNECTOR PLATE LOCATION

STEEL THRIE BEAM STRUCTURE APPROACH

GENERAL NOTES

- CONSTRUCT PER STANDARD SPECIFICATION 614.
- CONNECTOR PLATE, DRILLING HOLES THROUGH PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ① 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 TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

<b>STEEL THRIE BEAM STRUCTURE APPROACH. SINGLE SLOPE ATTACHMENT</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

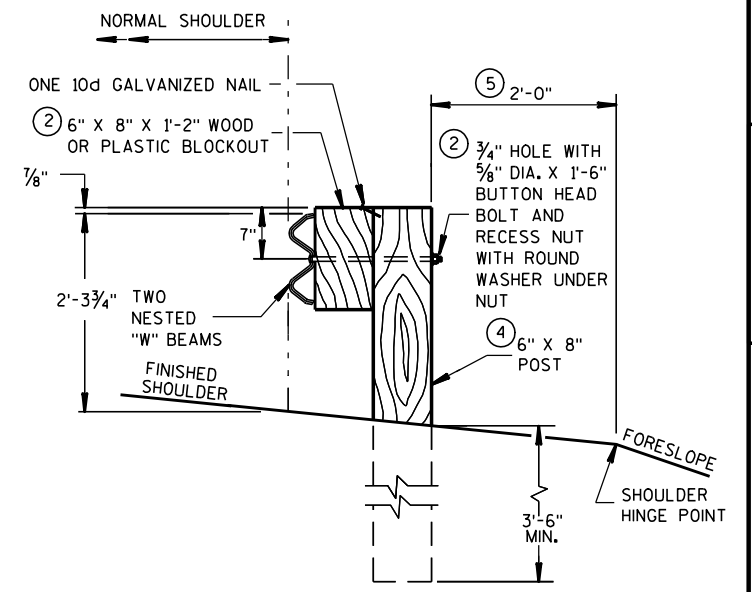
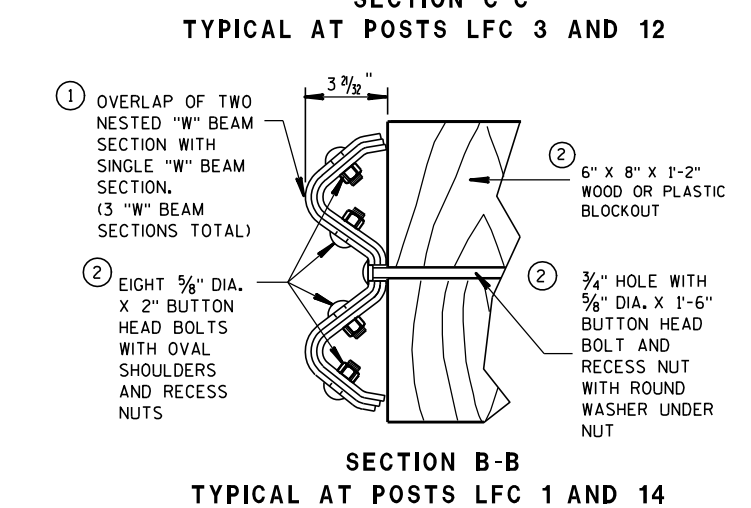
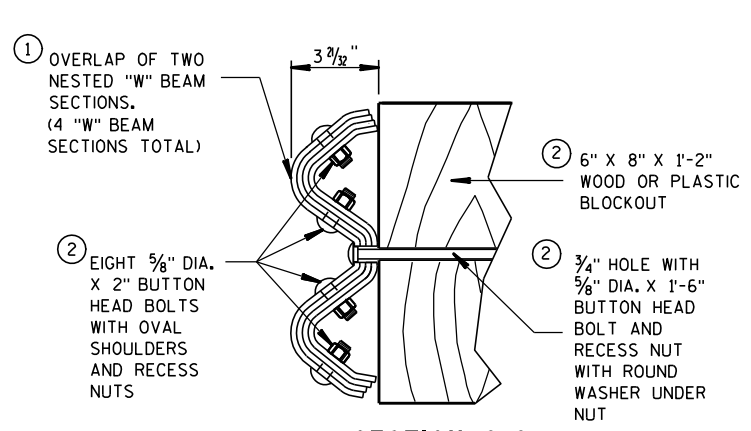
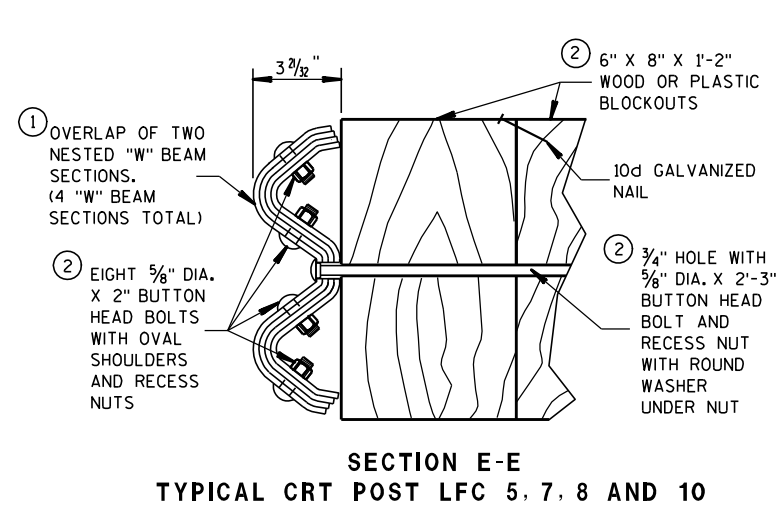
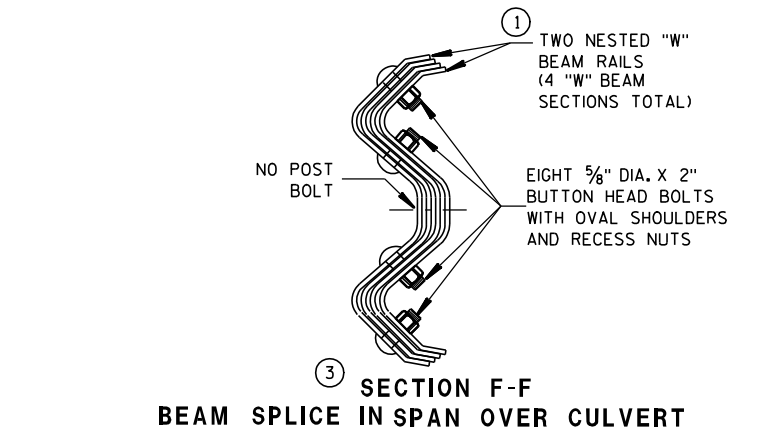
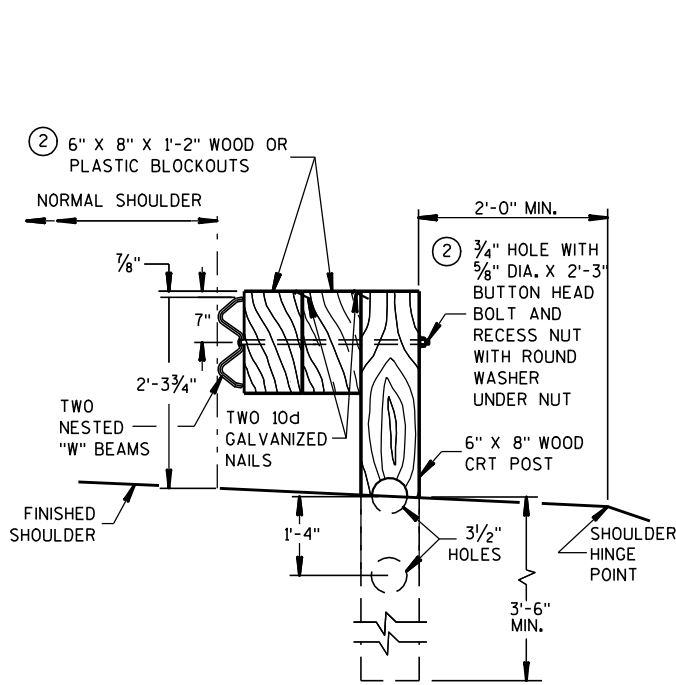


**TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD OVER LOW FILL CULVERTS**

**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.

- MAINTAIN THE NESTING OF EACH NESTED PAIR OF "W" BEAM SECTIONS THROUGH SPLICES. ORIENTATE NESTED "W" BEAM SPLICES IN THE DIRECTION OF TRAFFIC AS THE PLAN VIEW SHOWS. SEE S.D.D. 14 B 15 FOR SPLICE INSTALLATION.
- THE CONTRACTOR MAY USE APPROVED PLASTIC BLOCKOUTS IN LIEU OF WOOD BLOCKOUTS. SEE S.D.D. 14 B 15 FOR TYPICAL BLOCKOUT, SPLICE AND REFLECTOR INSTALLATIONS. USE BOLT SIZES AND LENGTHS AS SHOWN ON THIS DETAIL.
- PROVIDE 12'-6", 18'-9" AND 25'-0" SPANS ONLY. USE A MAXIMUM OF ONE SPLICE LOCATED ANYWHERE WITHIN THE SPAN SECTION. LOCATE ALL OTHER SPLICES AT BEAM GUARD POSTS.
- IN THE FIRST AND LAST 25 FOOT SECTIONS (POSTS LFC 1-4 & LFC 11-14), THE CONTRACTOR MAY USE W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS OR 6" X 8" WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS. DO NOT MIX STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS AND WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS IN THE SAME INSTALLATION.
- WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK, THE PLAN TYPICAL SECTIONS OR DETAILS MAY SHOW, OR THE ENGINEER MAY ALLOW, THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT, BUILD AS THE PLAN SHOWS OR ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST SOIL DEPTH TO 4'-6" OR MORE.



<b>STEEL PLATE BEAM GUARD, CLASS "A", OVER LOW FILL CULVERTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/8/00 DATE	/s/ John Haverberg CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

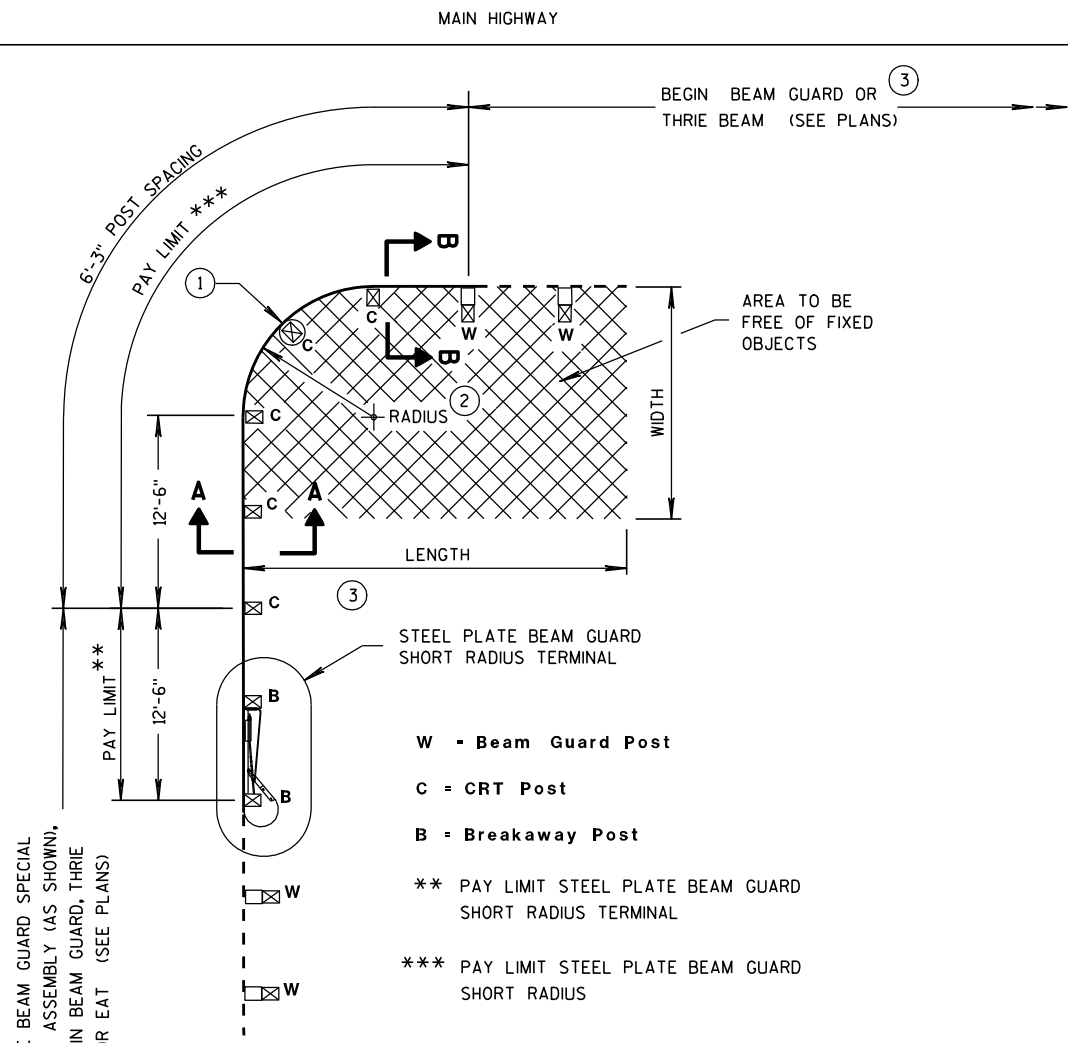
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6

S.D.D. 14 B 25-1

S.D.D. 14 B 25-1

FARM ENTRANCE, FIELD ENTRANCE, DRIVEWAY,  
SERVICE ROAD OR INTERSECTING ROAD



PROVIDE BEAM GUARD SPECIAL ANCHOR ASSEMBLY (AS SHOWN), OR BEGIM BEAM GUARD, THRIE BEAM, OR EAT (SEE PLANS)

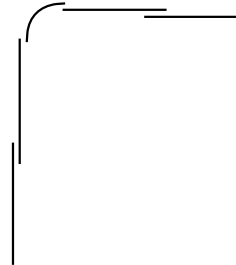
TYPICAL LAYOUT (8' RADIUS SHOWN)

- W - Beam Guard Post
- C = CRT Post
- B = Breakaway Post

\*\* PAY LIMIT STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

\*\*\* PAY LIMIT STEEL PLATE BEAM GUARD SHORT RADIUS

TYPICAL LAP SPLICES (8' RADIUS SHOWN)



GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

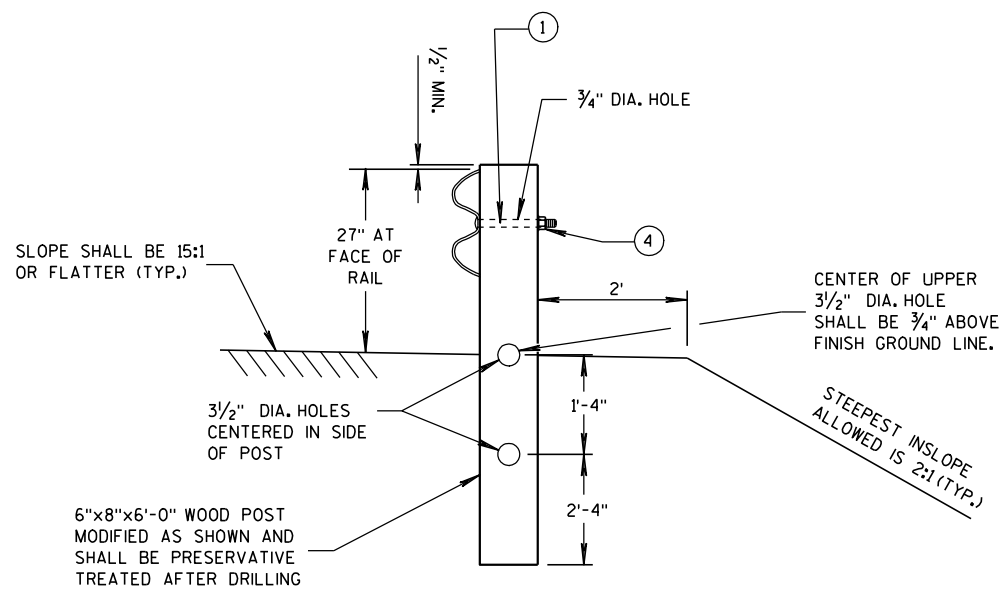
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

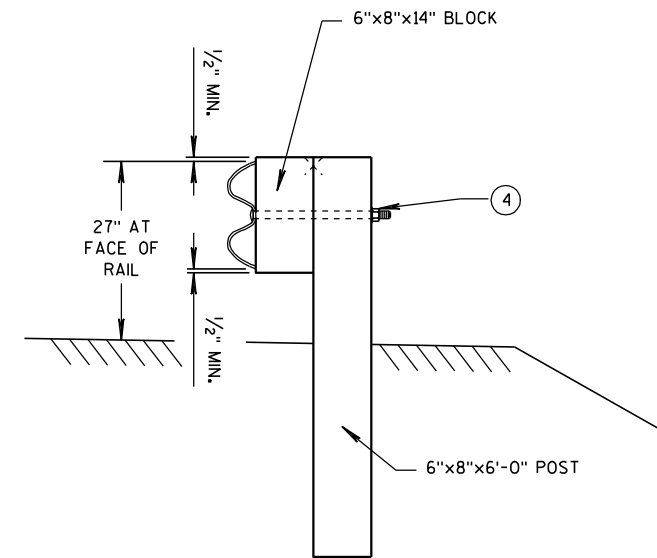
- ① ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- ② RADIUS FROM 8' - 36'. SEE PLAN.
- ③ HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- ④ 5/8"  $\phi$  X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	* NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

\* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A (CRT POST)

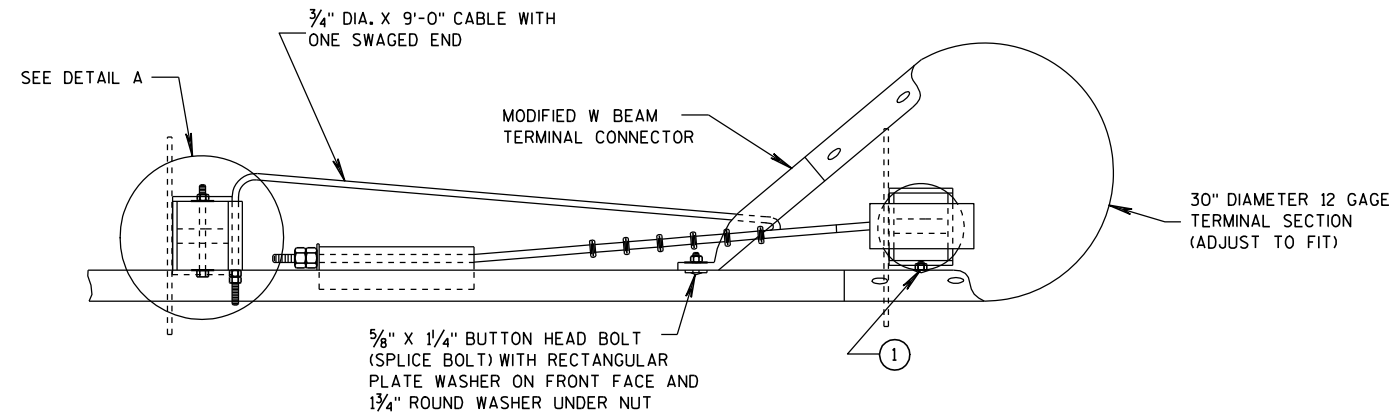


SECTION B-B (BEAM GUARD POST)

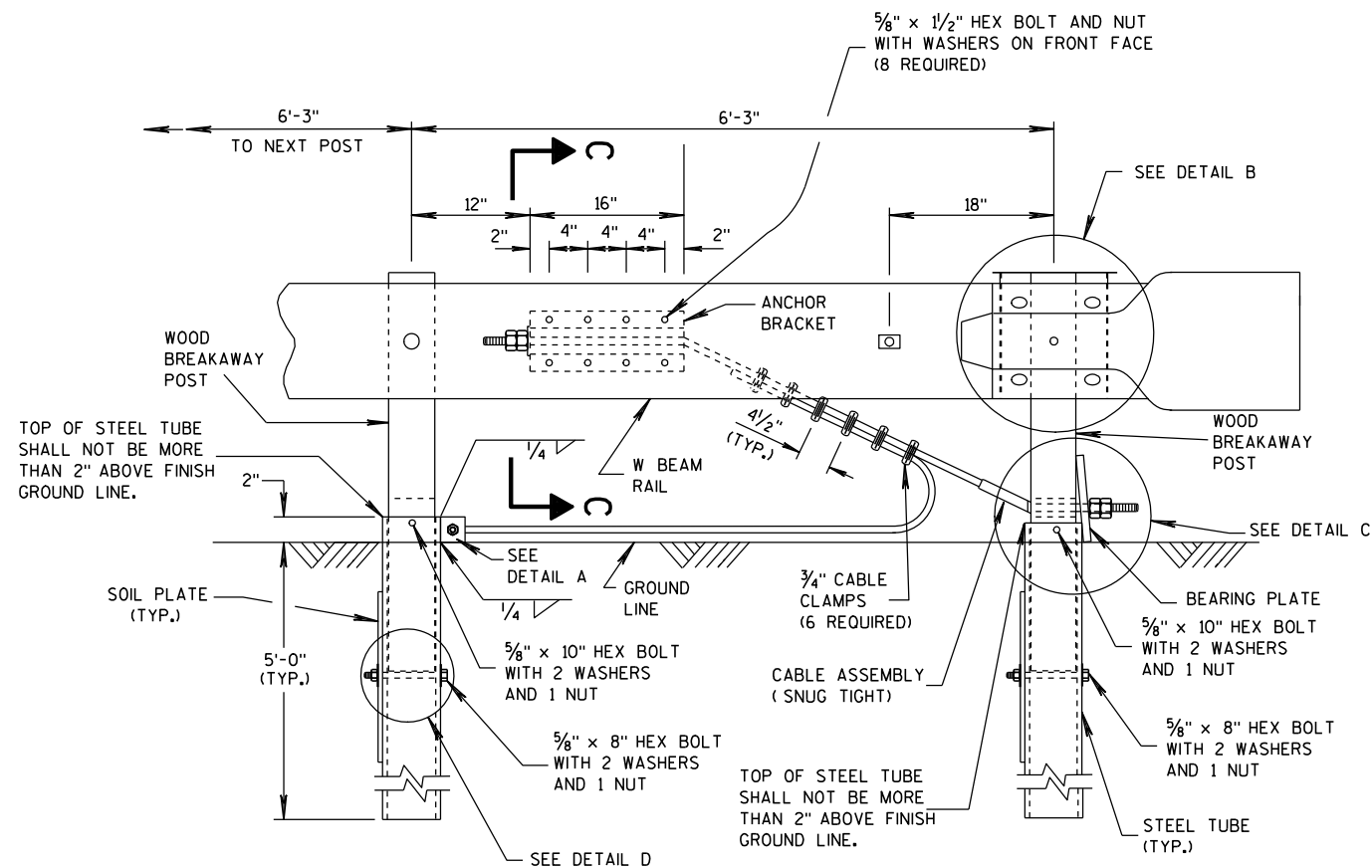
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



PLAN VIEW



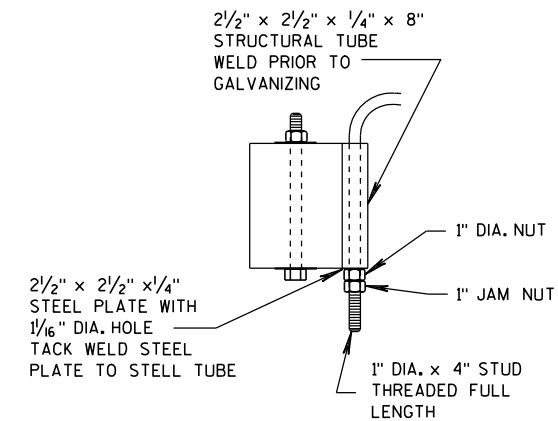
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

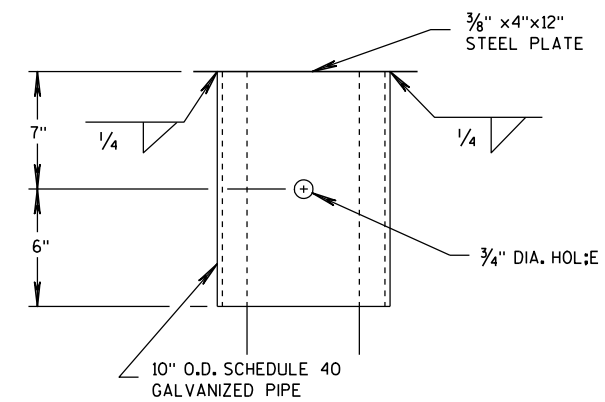
GENERAL NOTES

1 ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5/8" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED FLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



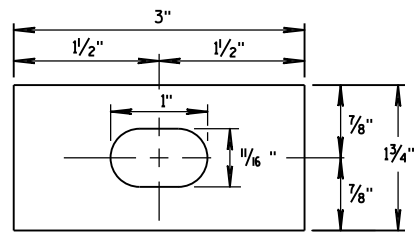
DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

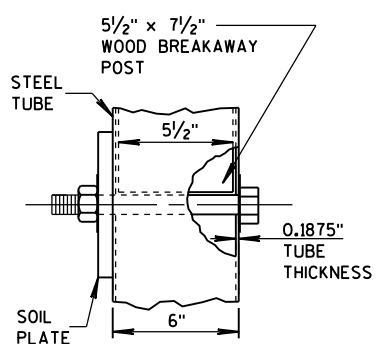
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

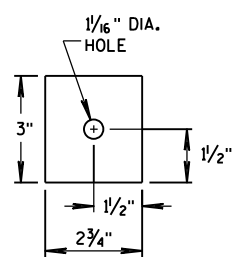




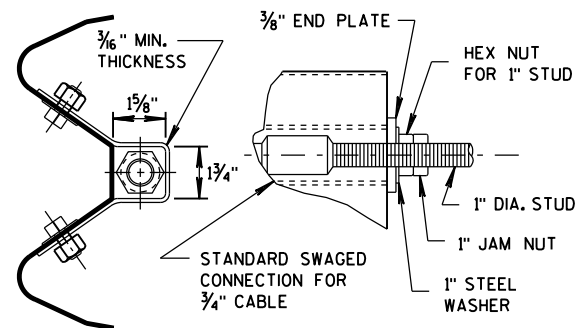
**RECTANGULAR  
PLATE WASHER**



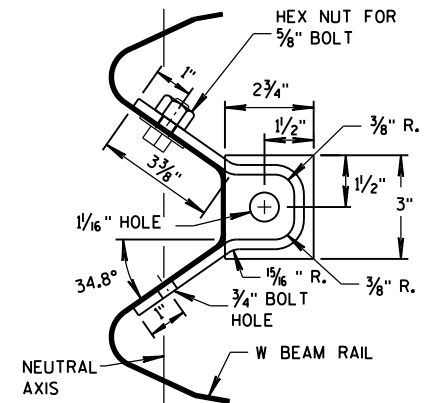
**DETAIL D**



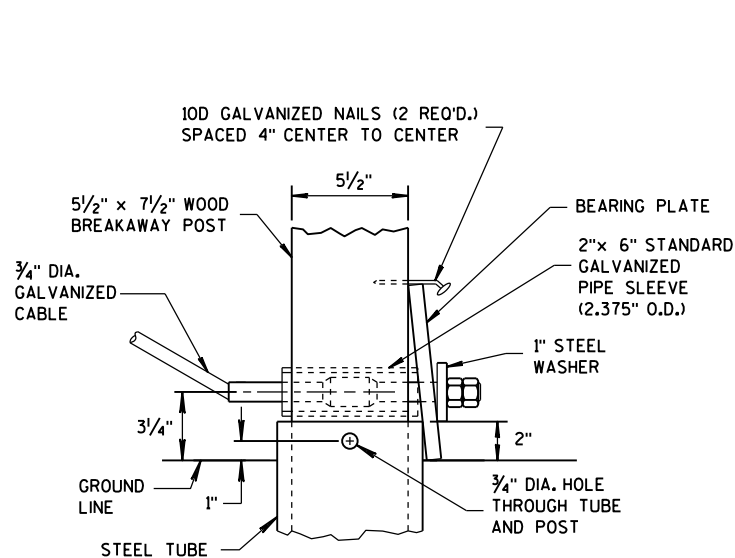
**END PLATE**



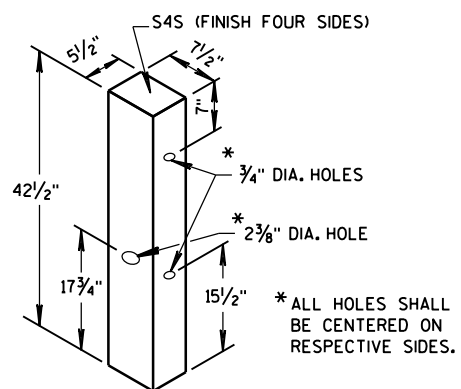
**SECTION C-C  
(END PLATE REMOVED)**



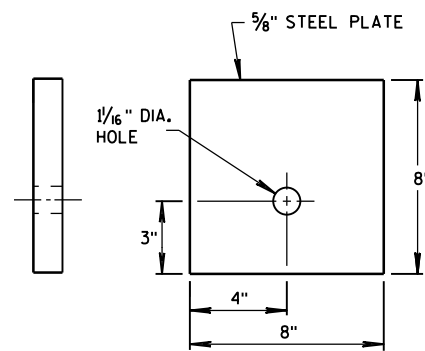
**ANCHOR BRACKET**



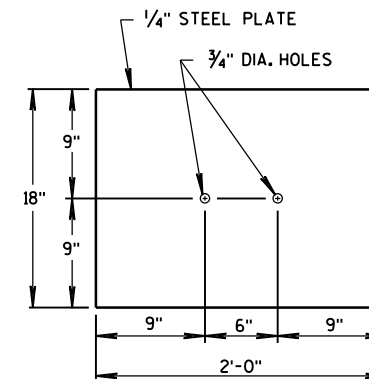
**DETAIL C**



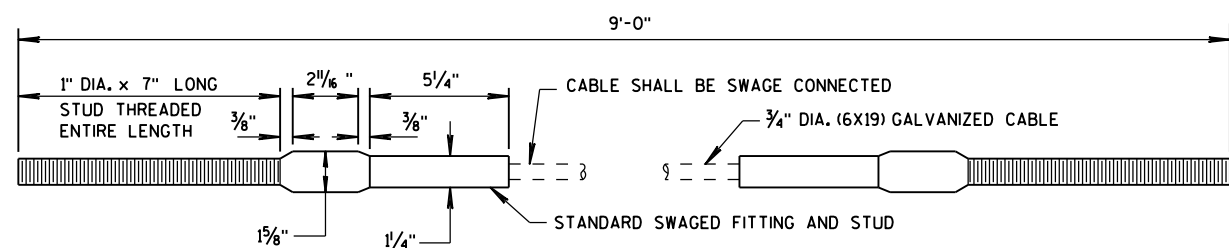
**WOOD BREAKAWAY POST**



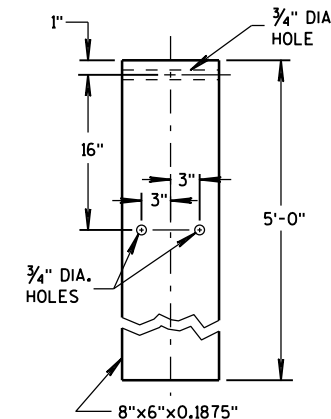
**BEARING PLATE**



**SOIL PLATE**



**CABLE ASSEMBLY**

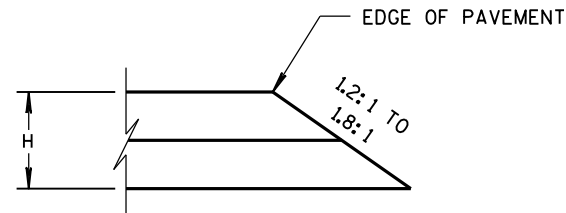


**STEEL TUBE**

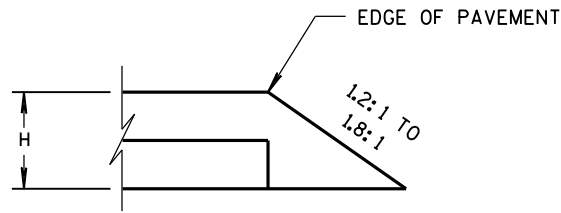
**STEEL PLATE BEAM GUARD  
SHORT RADIUS TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

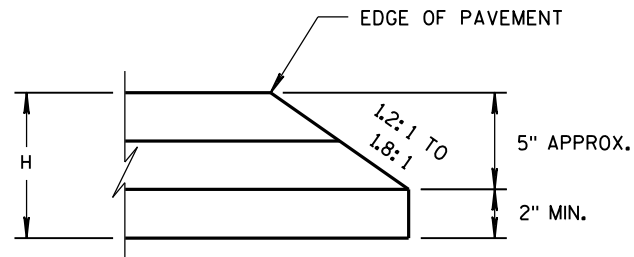
APPROVED  
12/18/08 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



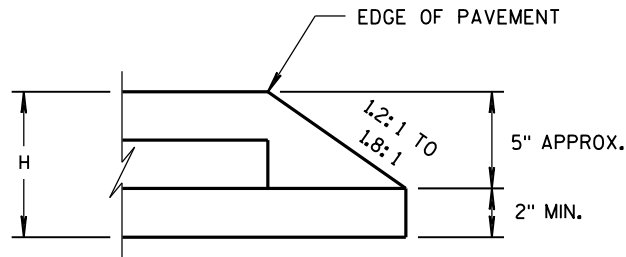
CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER  
FOR H 5" OR LESS

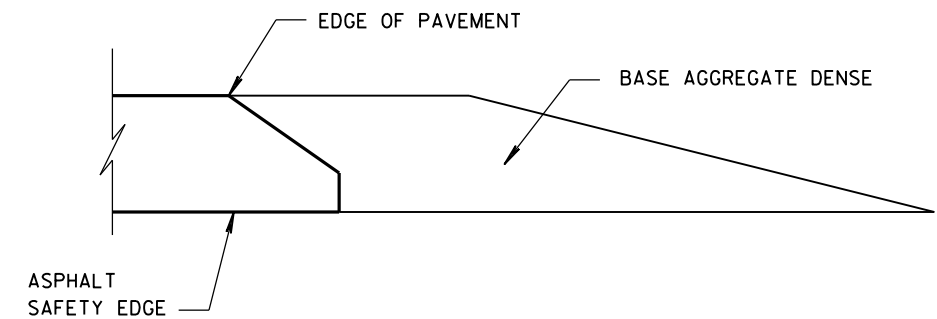


CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER  
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

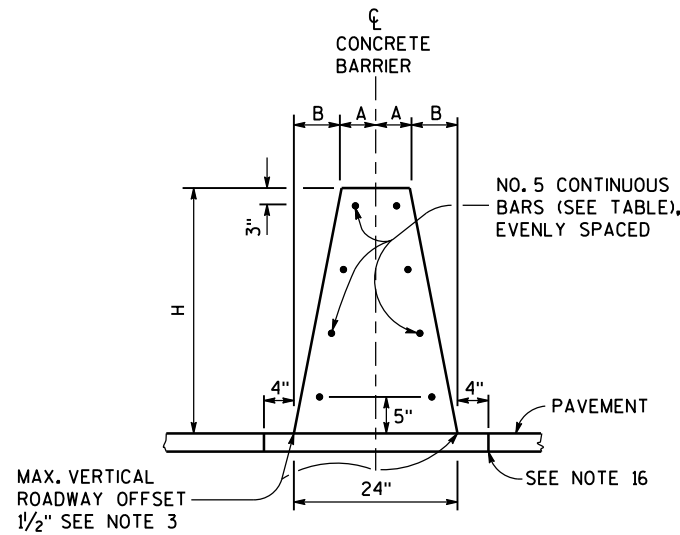
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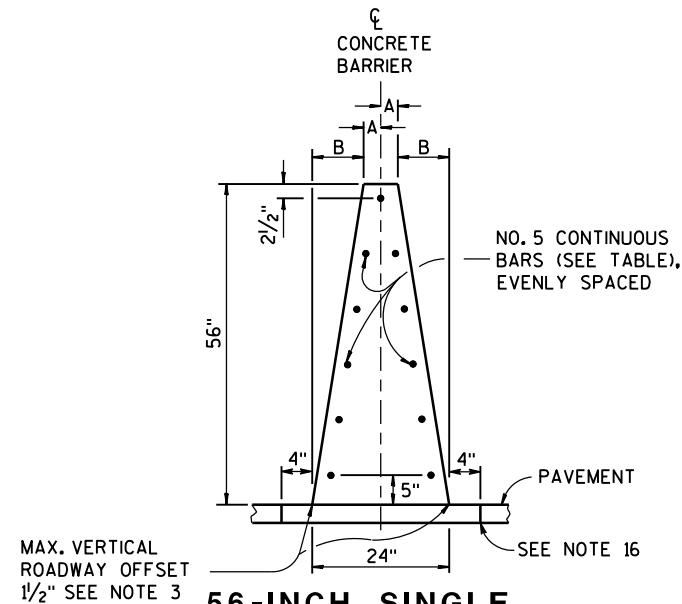
S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

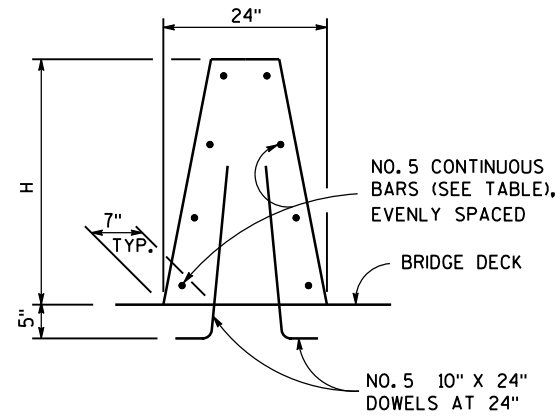
SAFETY EDGE <sub>SM</sub>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**32-INCH, 36-INCH OR 42-INCH SINGLE SLOPE CONCRETE BARRIER (TYPE S32, TYPE S36, AND TYPE S42)**



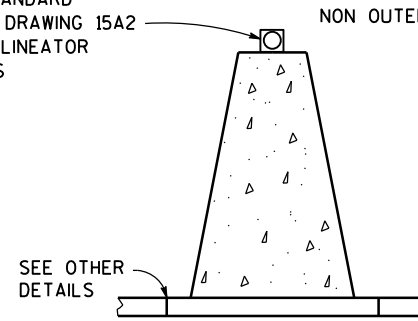
**56-INCH SINGLE SLOPE CONCRETE BARRIER (TYPE S56)**



**SINGLE SLOPE CONCRETE BARRIER ON BRIDGE**

BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 1/4	5 3/4	8
42	5 1/4	6 3/4	10
56	3	9	11

SEE STANDARD DETAIL DRAWING 15A2 FOR DELINEATOR DETAILS



**DELINEATION**

**GENERAL NOTES**

- WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.
- EXPANSION JOINTS IN CONCRETE BARRIER SHALL BE LOCATED AT ALL DECK, PAVEMENT AND PRINCIPAL WALL JOINTS. EXPANSION JOINT FILLER MATERIAL SHALL BE THE SAME SIZE AS JOINT OR 1/2" MINIMUM.
- WHERE VERTICAL ROADWAY OFFSET IS GREATER THAN 1/2", USE TYPE A
- PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.
- EXCEPT IN ANCHORS, VERTICAL REINFORCING STIRRUP NOT REQUIRED FOR ROADWAY OFFSETS LESS THAN 1'-0".
- FOR TYPE S32, TYPE S36, TYPE S42, AND S56 MONOLITHIC FOOTING OR DOWELED FOOTING WITH 2-\*8 x 8" @ 2'-0".
- STAGGER LAPPING OF LONGITUDINAL STEEL. MINIMUM OVERLAP OF STEEL 2 FEET. BARS AT LAPS TO BE FIRMLY TIED OR CONNECTED.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATION 501.
- WHEN SWITCHING BETWEEN SLIP FORM AND CAST-IN-PLACE OPERATIONS, EXTEND LONGITUDINAL STEEL 3 FEET BEYOND SLIP-FORMING CUT OFF POINT. EXPOSED STEEL INTO NEXT POURS REINFORCEMENT. LAPS TO BE FIRMLY TIED.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- 2" CLEAR COVER TYPICAL.
- COLD-JOINTS MAY BE USED BETWEEN ANCHOR INSTALLATIONS. WHEN A COLD JOINT IS NEEDED, 3 FEET OF LAP OF LONGITUDINAL STEEL IS REQUIRED. LAPS TO BE FIRMLY TIED.
- IN TYPE S32, TYPE S36, TYPE S42 AND TYPE S56 NO ADDITIONAL VERTICAL STEEL NEEDED. IN TYPE S32A, TYPE S36A, TYPE S42A AND TYPE S56A REQUIRES VERTICAL STEEL. SEE OTHER DETAIL.

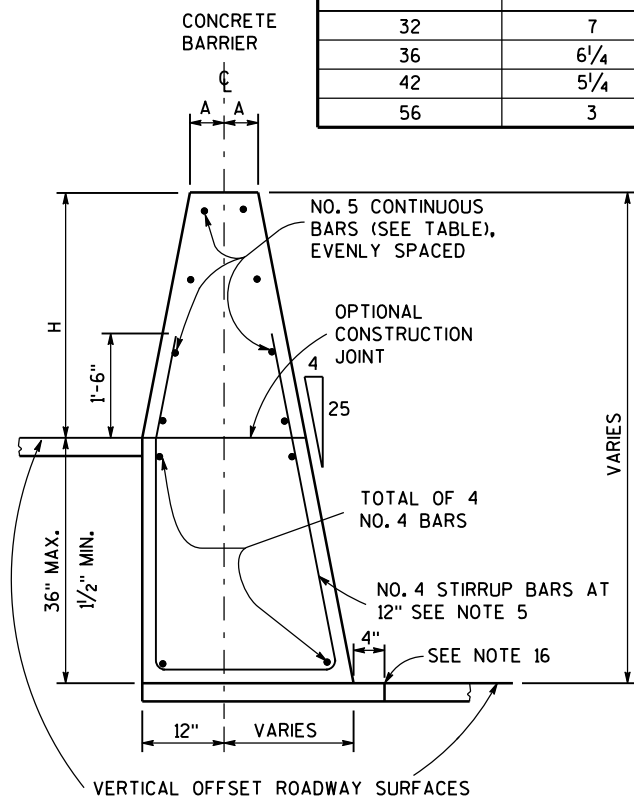
- IN TYPE S32, TYPE S36, TYPE S42 AND TYPE S56 DEPTH OF FOOTING 10". IN TYPE S32A, TYPE S36A, TYPE S42A AND TYPE S56A MATCH TOTAL HEIGHT OF SINGLE SLOPE BARRIER RETAINING WALL.
- FOR ALL BARRIER TYPES SHOWN, ANCHOR IS REQUIRED AT CONCRETE BARRIER ENDS AND AT INTERRUPTIONS IN CONCRETE BARRIER. ANCHOR MAY BE AS SHOWN ON DRAWING OR DETAILS SHOWN ON S.D.D. 14B33. ANCHORS INCIDENTAL TO CBSS.
- CONCRETE PAD UNDER CBSS MAY BE PLACED INTEGRAL WITH BARRIER, PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED FULL DEPTH. SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRET BARRIER BID ITEM. CONCRETE PAD MINIMUM DEPTH IS 6 INCHES, OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.

**DELINEATOR SPACING ON HORIZONTAL CURVES**

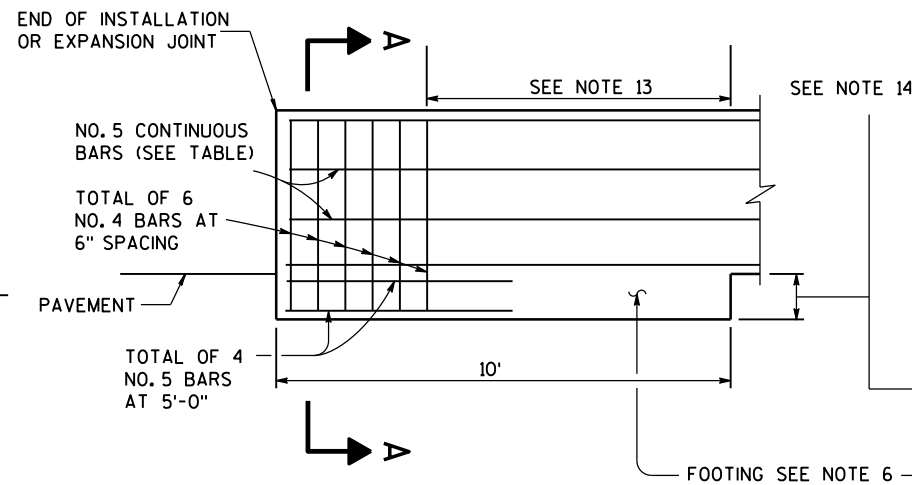
RADIUS OF CURVE	APPROXIMATE SPACING ON CURVE
50 FEET	20 FEET
115 FEET	25 FEET
180 FEET	35 FEET
250 FEET	40 FEET
300 FEET	50 FEET
400 FEET	55 FEET
500 FEET	65 FEET
600 FEET	70 FEET
700 FEET	75 FEET
800 FEET	80 FEET
900 FEET	85 FEET
1000 FEET	90 FEET

**DELINEATOR SPACING ON RADIUS GREATER THAN 1000 FEET OR TANGENT SECTIONS**

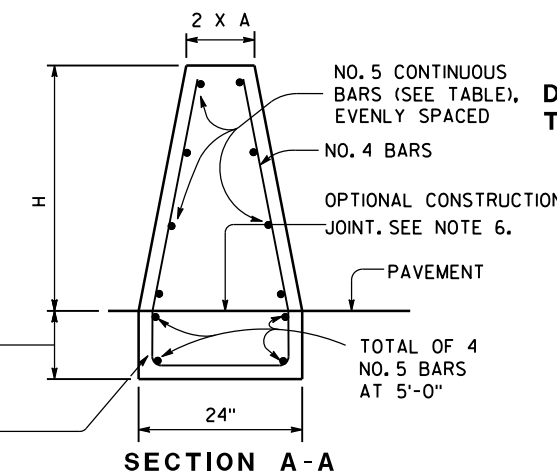
	LENGTH OF BARRIER	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	3
TWO WAY TRAFFIC	< 200'	25' C-C	1	6
	> 200'	50' C-C	1	6
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2	3



**SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL (TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A) (BETWEEN ADJACENT ROADWAYS)**



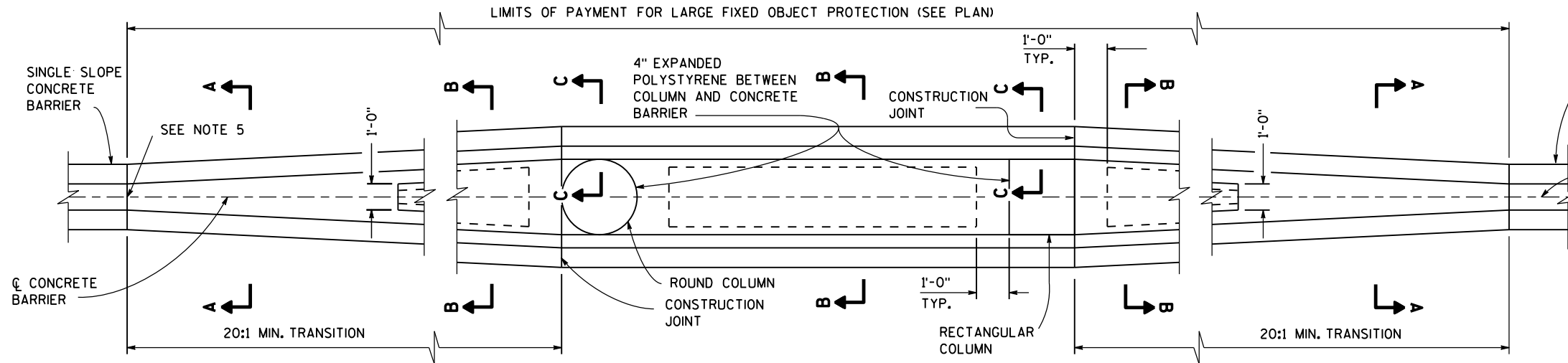
**END ANCHOR SINGLE SLOPE CONCRETE BARRIER AT CONSTRUCTION JOINT**



**SECTION A-A**

**CONCRETE BARRIER SINGLE SLOPE (CBSS)**

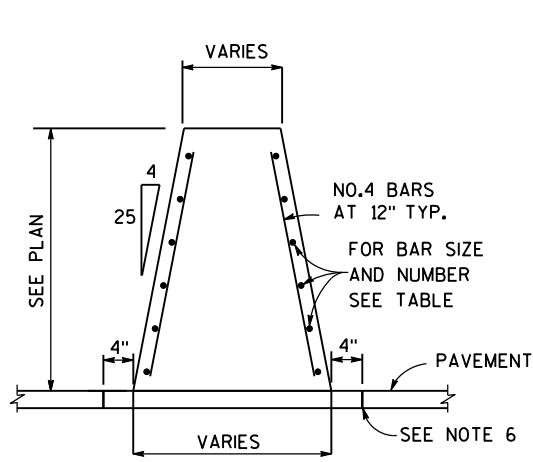
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



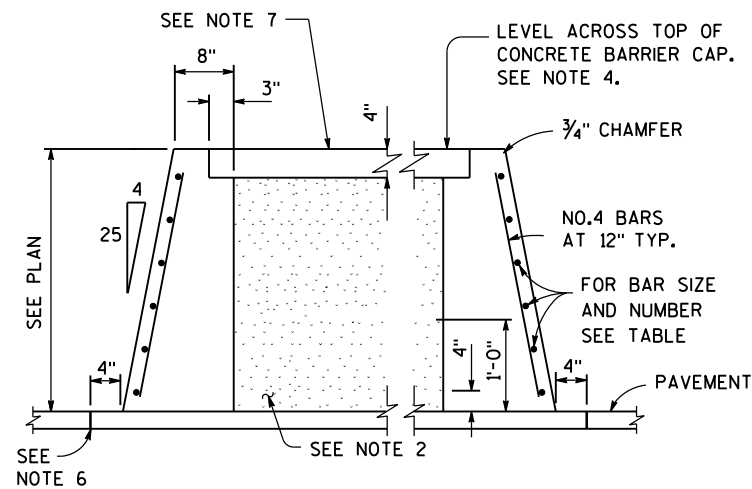
**LARGE FIXED OBJECTS PROTECTION**  
**TYPE S32, TYPE S36, TYPE S42, TYPE S56**

**GENERAL NOTES**

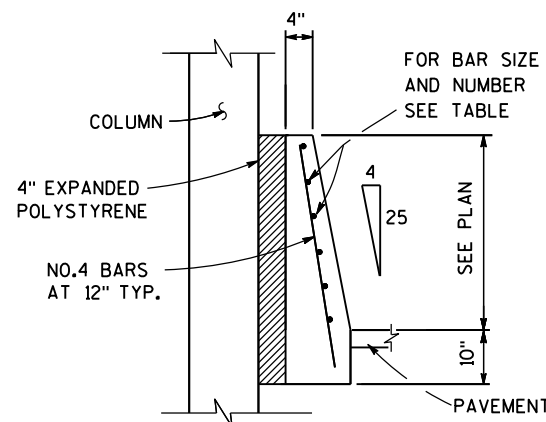
1. INSTALL 1-INCH DIAMETER DRAIN PIPE EVERY 20 FEET OF CROSS SECTION B-B. MINIMUM 1 DRAIN PER CAVITY.
2. BETWEEN CONCRETE BARRIER WALLS FILL WITH GRANULAR BACKFILL GRADE 2
3. REINFORCING STEEL SHALL EXTEND CONTINUOUS THROUGH CONSTRUCTION JOINTS.
4. ADJUST HEIGHT OF CONCRETE BARRIER WALL ON LOW SIDE OF OFFSET OR SUPERELEVATED ROADWAYS TO PROVIDE LEVEL GRADE ACROSS TOP OF CONCRETE CAP.
5. IF FIXED OBJECT PROTECTION IS INSTALLED FIRST, USE COLD JOINTS. IF CBSS PLACED FIRST, USE EXPANSION JOINT.
6. CONCRETE PAD UNDER CBSS MAY BE PLACED INTEGRAL WITH BARRIER, PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED FULL DEPTH. SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE PAD MINIMUM DEPTH IS 6 INCHES, OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
7. USE NO. 3 BAR SPACED 12 INCHES CENTER TO CENTER (PLACED IN EACH DIRECTION) OR EQUIVALENT WIRE MESH.



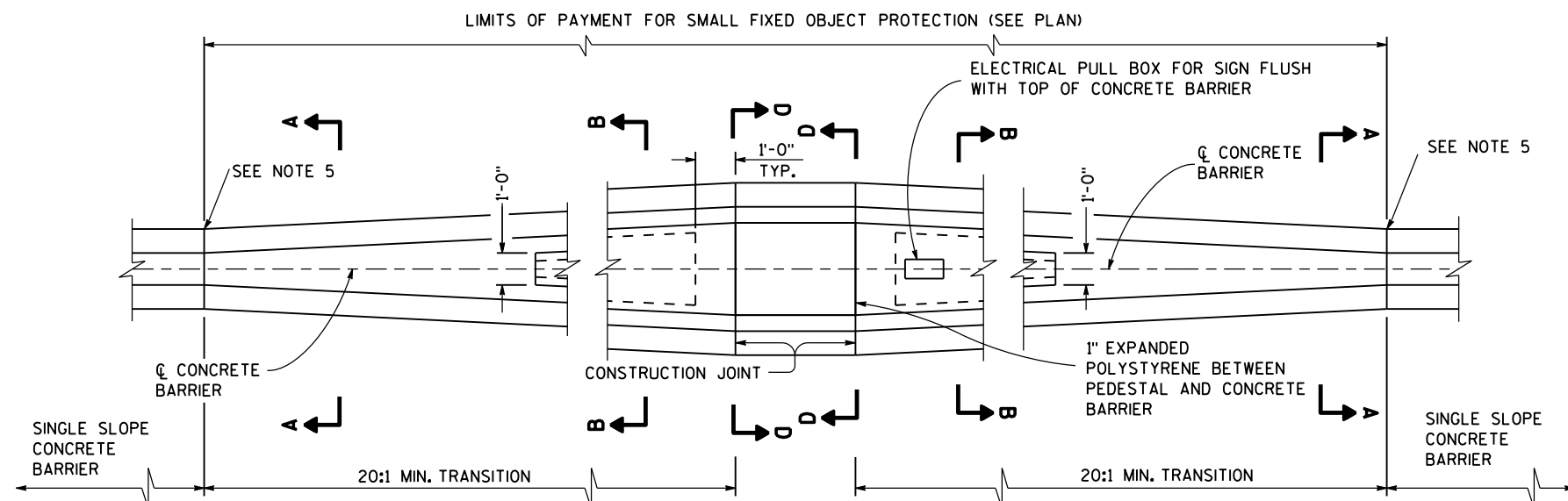
**SECTION A-A**



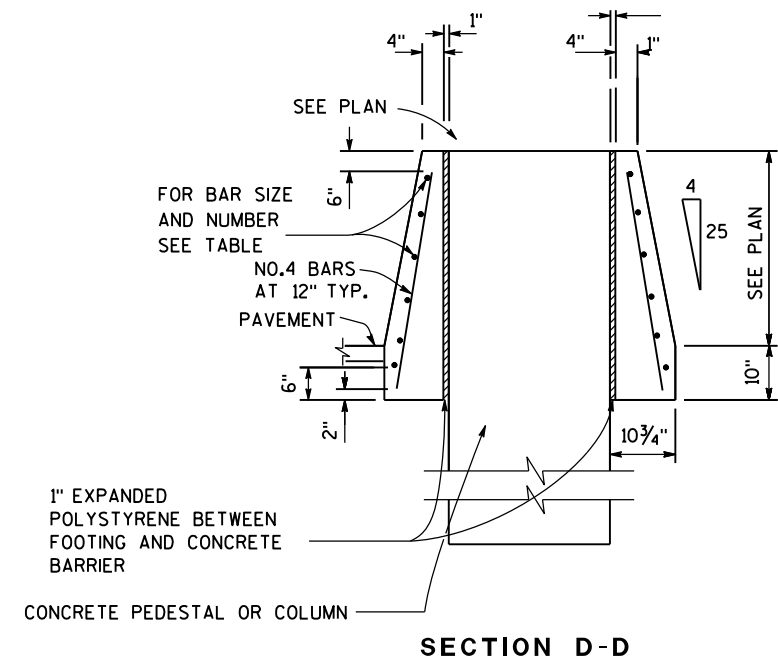
**SECTION B-B**



**SECTION C-C**



**SMALL FIXED OBJECTS PROTECTION**  
**TYPE S32, TYPE S36, TYPE S42, TYPE S56**

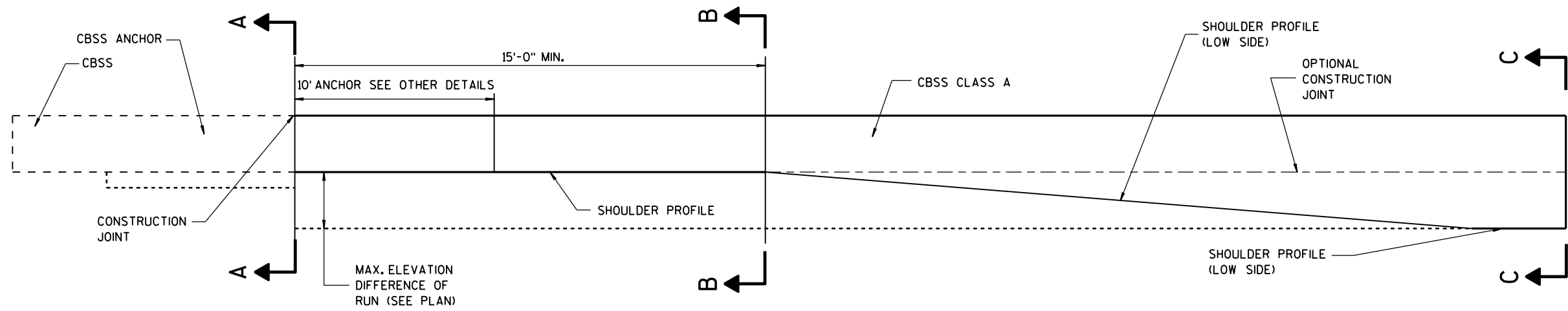


**SECTION D-D**

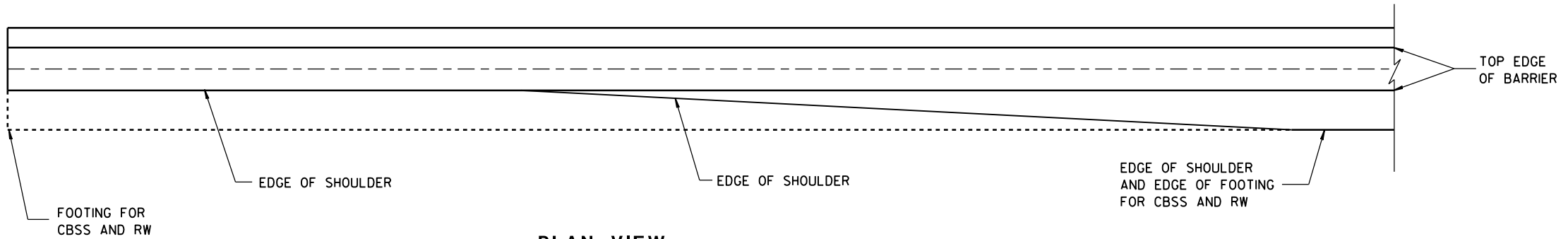
BARRIER HEIGHT H INCHES	BAR SIZE	NUMBER OF BARS EACH
32	4	6
36	4	6
42	5	6
56	5	9

**CONCRETE BARRIER SINGLE SLOPE (CBSS)**

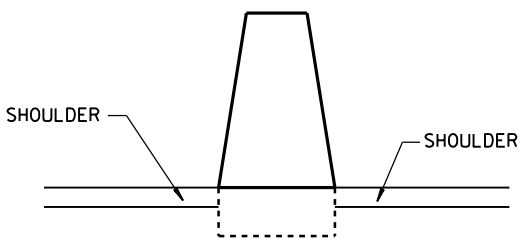
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



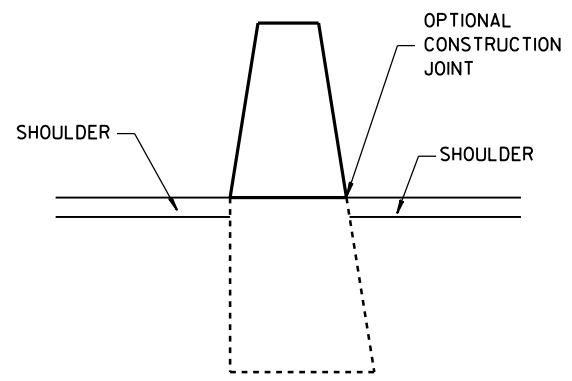
**ELEVATION VIEW  
TRANSITION TO CBSS CLASS A  
(TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A)**



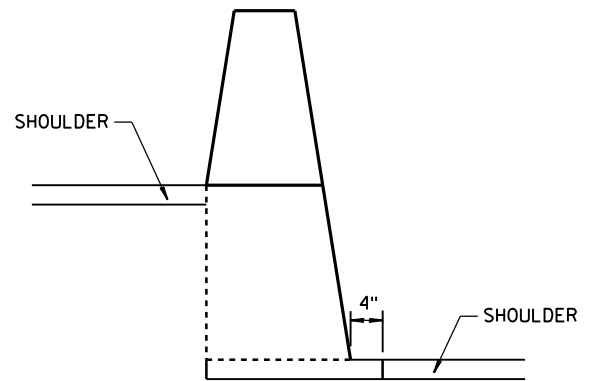
**PLAN VIEW  
TRANSITION TO CBSS CLASS A  
(TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A)**



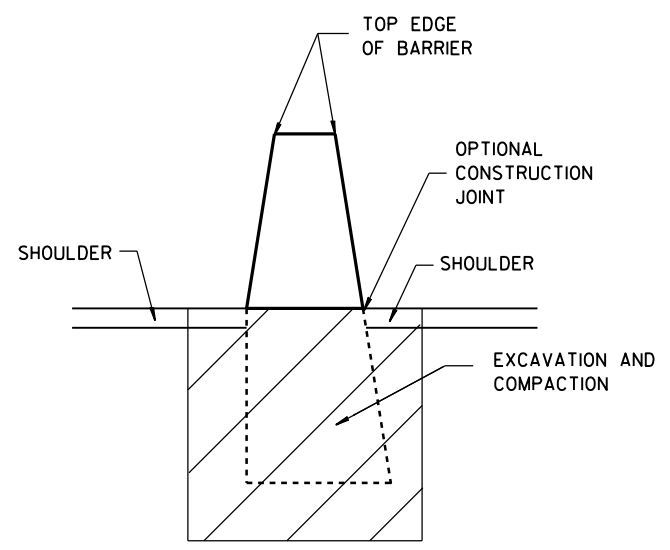
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**CONCRETE BARRIER SINGLE SLOPE  
(CBSS)**

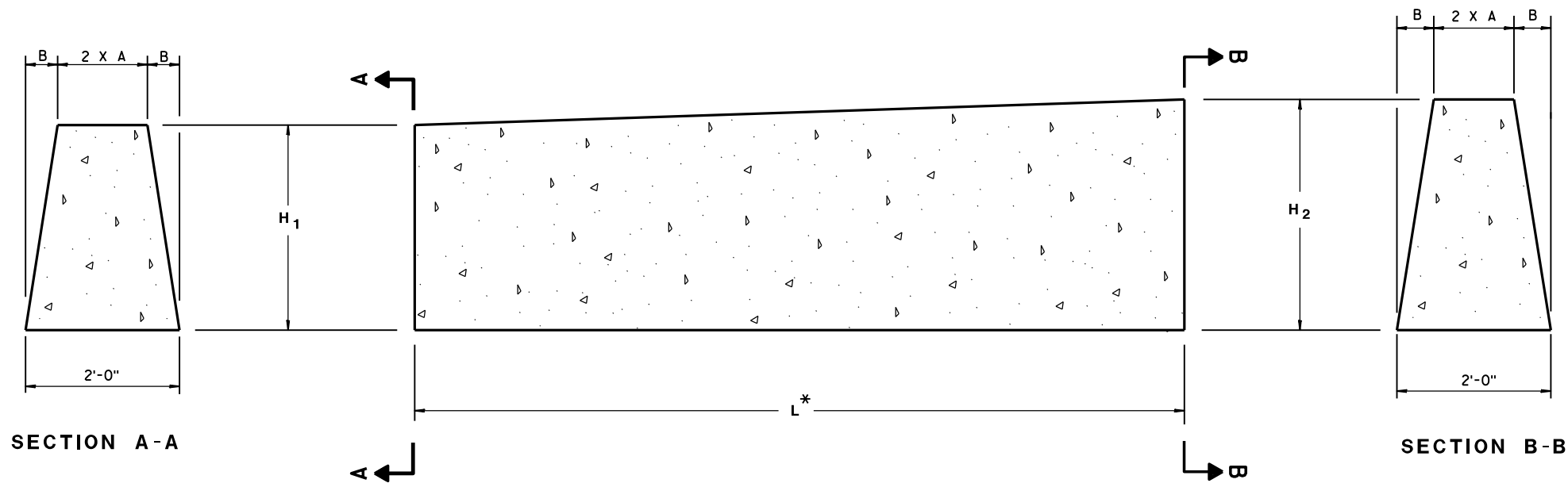
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 14 B 32-2c

S.D.D. 14 B 32-2c



**BARRIER DIMENSIONS**

BARRIER HEIGHT INCHES	A INCHES	B INCHES
32	7	5
36	6 <sup>1</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>
42	5 <sup>1</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>
56	3	9

MULTIPLE HEIGHT TRANSITIONS MAY BE USED IN SEQUENCE TO GET TO APPROPRIATE HEIGHT.

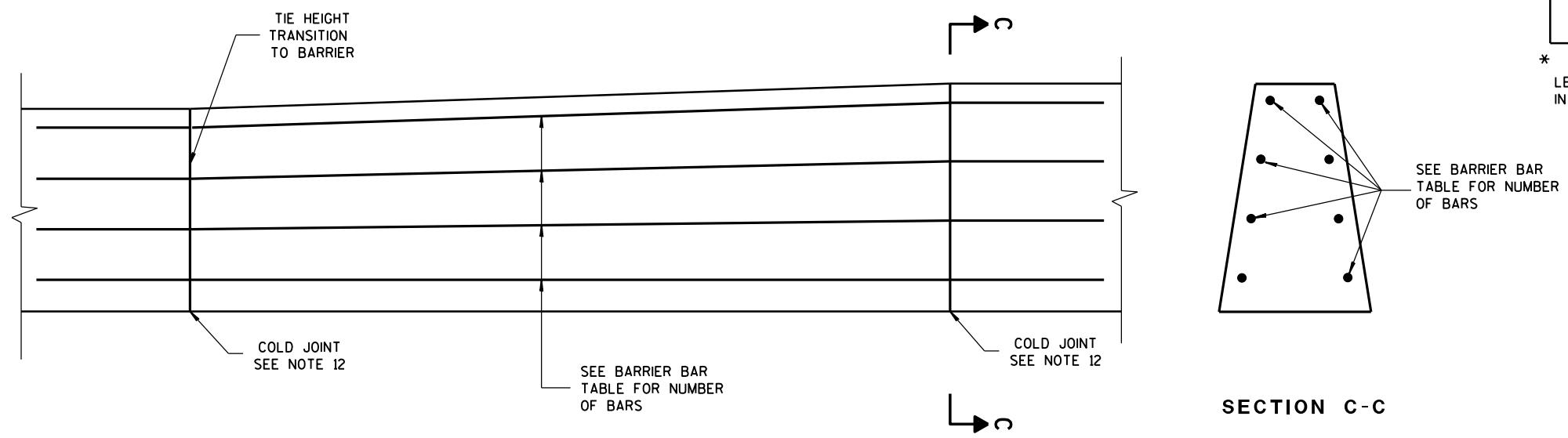
USE COLD JOINT TO CONNECT MULTIPLE HEIGHT TRANSITIONS.

**DOUBLE COLD JOINT HEIGHT TRANSITION**

**BARRIER BARS**

H <sub>1</sub>	H <sub>2</sub>	L*	NUMBER OF NO. 5 BARS
32"	36"	10'-0"	8
36"	42"	10'-6"	10
42"	56"	24'-6"	11

\* LENGTH OF DOUBLE COLD JOINT INCLUDED IN THE TOTAL LENGTH OF CBSS.



**STEEL REINFORCEMENT DETAIL**

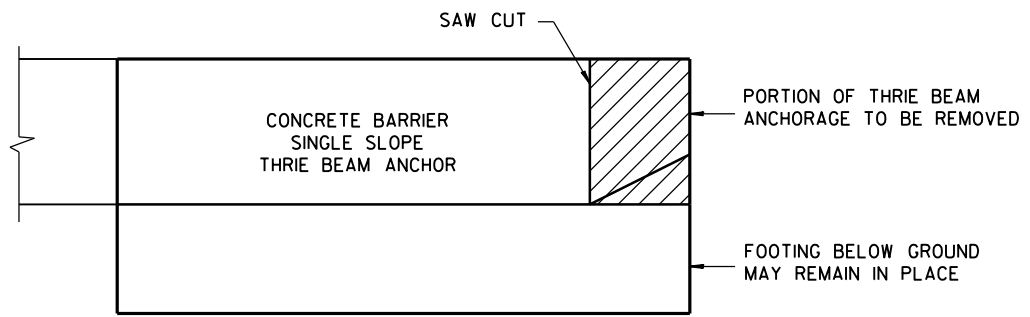
**SECTION C-C**

**CONCRETE BARRIER  
SINGLE SLOPE**

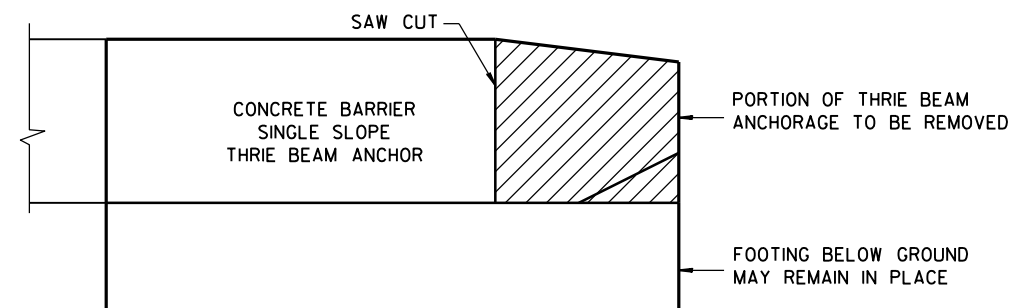
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5-10-2013  
DATE  
FHWA

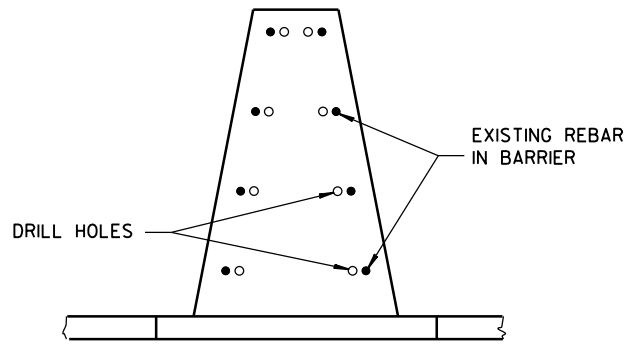
/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



**REMOVAL AREA OF 32" CONCRETE THRIE BEAM ANCHORAGE**



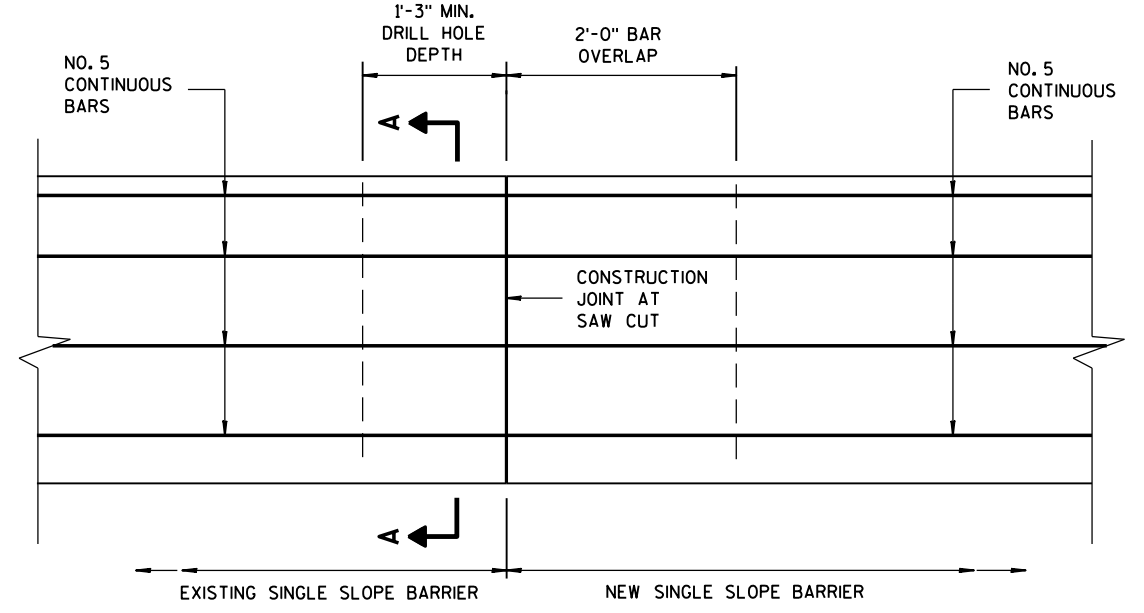
**REMOVAL AREA OF CONCRETE THRIE BEAM ANCHORAGE WITH HEIGHT GREATER THAN 32"**



**SECTION A-A**

**GENERAL NOTES**

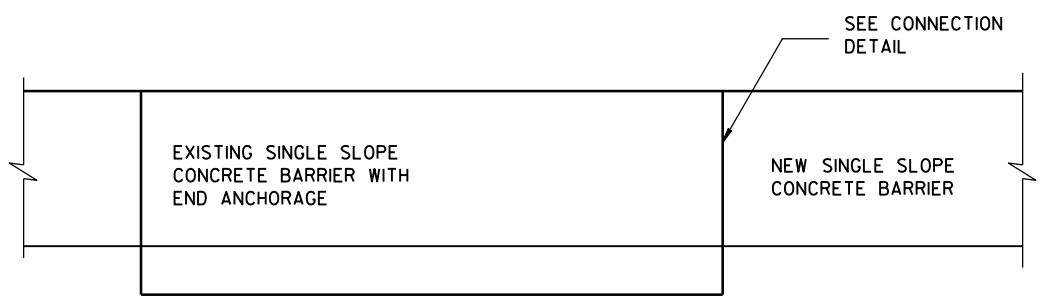
1. THE NUMBER OF DRILL HOLES IS EQUAL TO THE NUMBER OF REBAR IN BARRIER (SEE OTHER DETAILS).
2. MINIMUM DEPTH OF DRILL HOLES IS 1'-3".
3. DRILL HOLES TO BE A MINIMUM OF 4 INCHES FROM THE EDGE OF CONCRETE.
4. INSTALL EPOXY COATED NO. 5 BARS IN DRILL HOLES.
5. END ANCHORAGE MAY OR MAY NOT BE PRESENT ON EXISTING BARRIER.
6. REMOVE THRIE BEAM ANCHORAGE AS SHOWN.
7. ALL ITEMS INCLUDED WITH CONCRETE BARRIER ITEMS EXCEPT FOR REMOVAL.



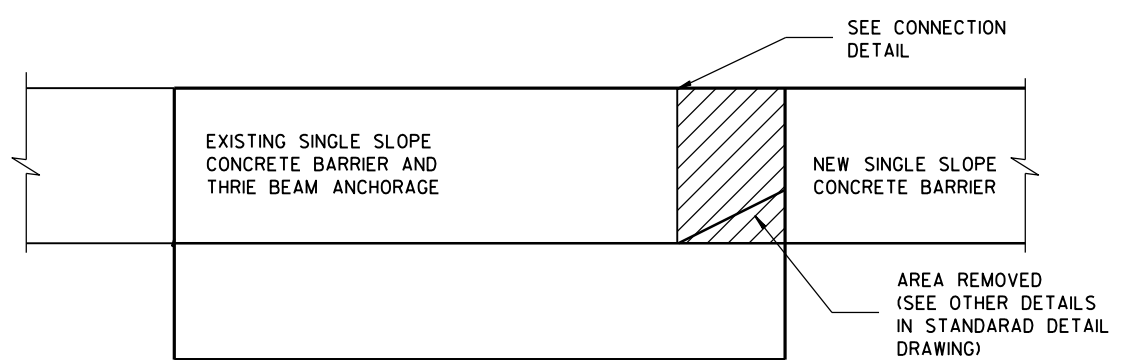
**CONNECTION OF EXISTING SINGLE SLOPE CONCRETE BARRIER TO NEW SINGLE SLOPE CONCRETE BARRIER**

6

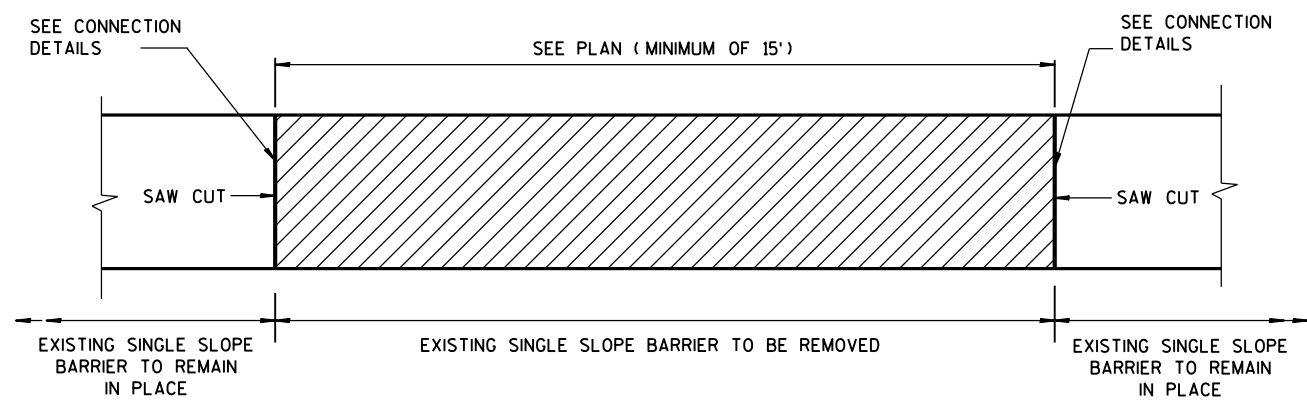
6



**ELEVATION VIEW OF CONCRETE BARRIER EXTENSION NEAR END ANCHORAGE**



**ELEVATION VIEW OF CONCRETE BARRIER EXTENSION NEAR THRIE BEAM TERMINAL**



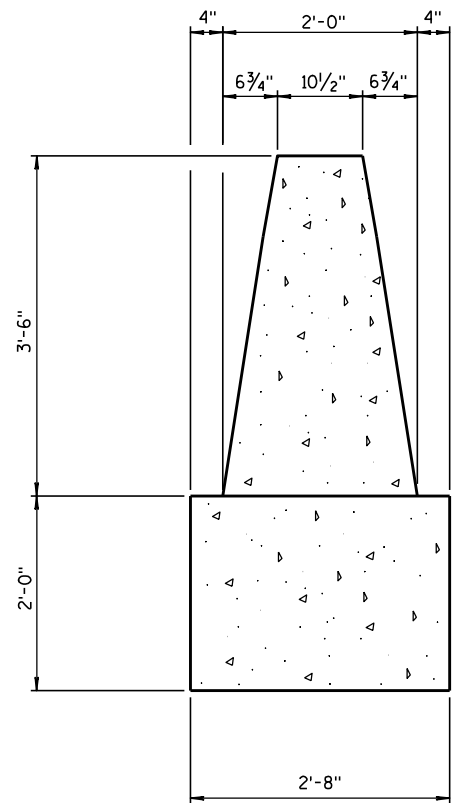
**ELEVATION FILE BARRIER REMOVAL AND REPLACEMENT**

S.D.D. 14 B 32-2e

S.D.D. 14 B 32-2e

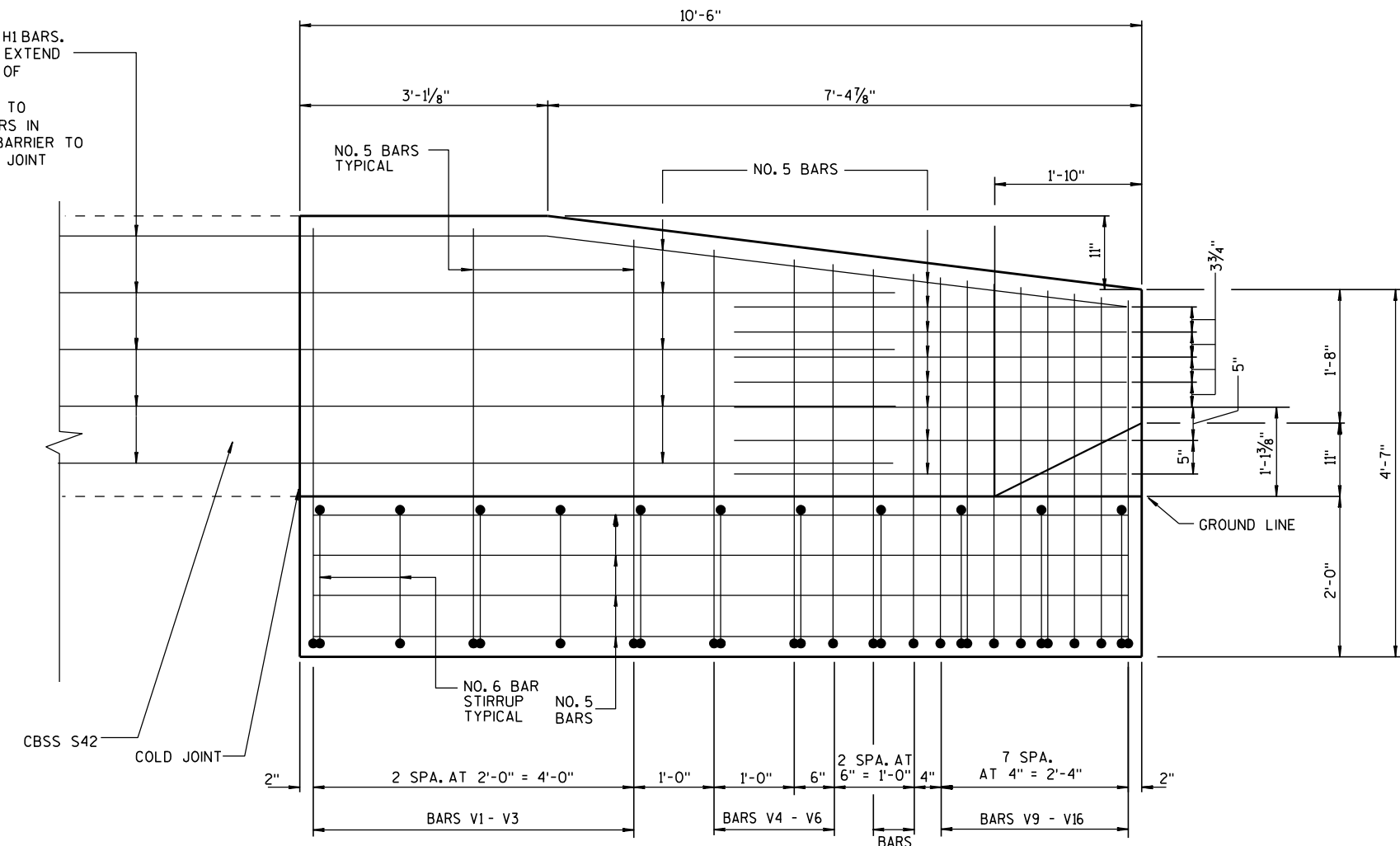
**RETROFIT OR REPAIR SINGLE SLOPE CONCRETE BARRIER**

<b>CONCRETE BARRIER SINGLE SLOPE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-10-2013 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

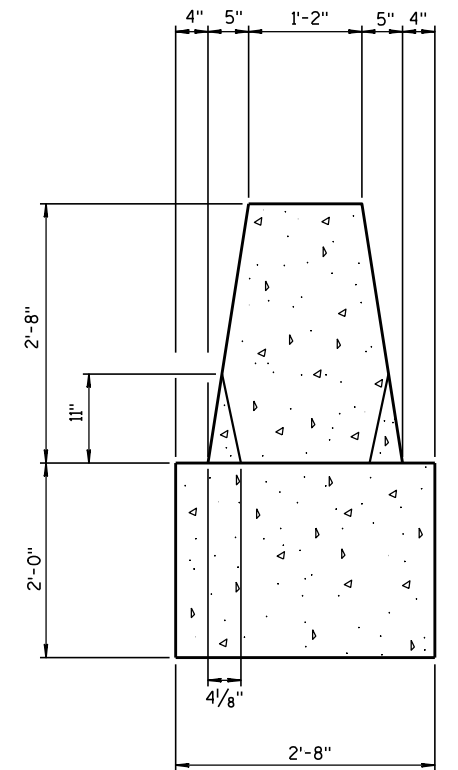


SECTION A-A

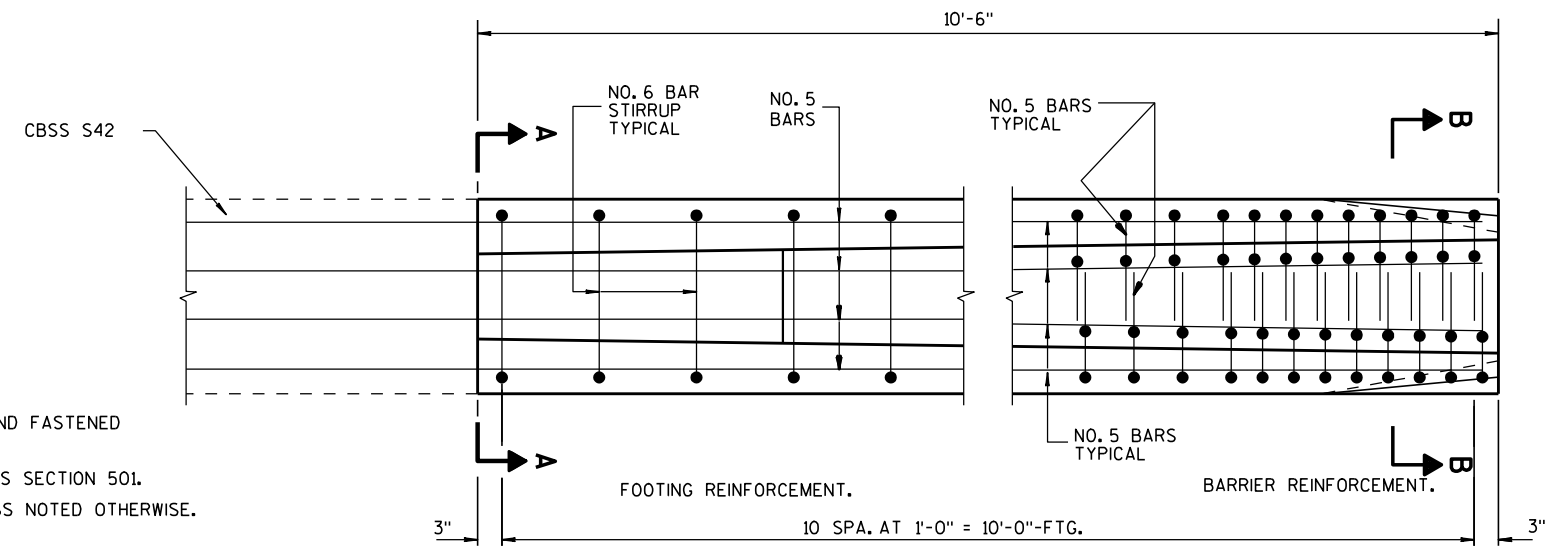
EVENLY SPACE H1 BARS.  
NO. 5 BARS TO EXTEND  
3' BEYOND END OF  
TRANSITION  
TIE NO. 5 BARS TO  
HORIZONTAL BARS IN  
SINGLE SLOPE BARRIER TO  
TO FORM COLD JOINT



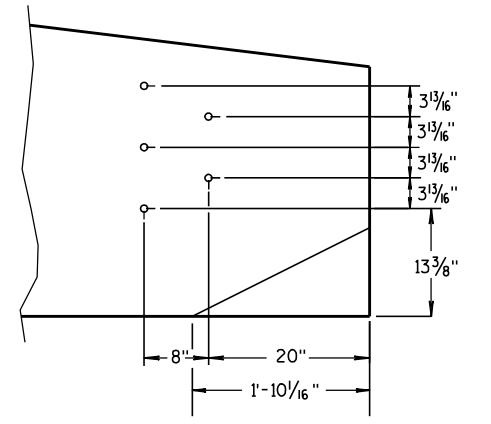
SEE SECTIONS ① THRU ⑯  
ELEVATION VIEW



SECTION B-B



PLAN VIEW



PVC PIPE LOCATIONS

**GENERAL NOTES**

- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS NOTED OTHERWISE.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.
- THREE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.
- INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.
- EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.
- CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE OF BARRIER.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.

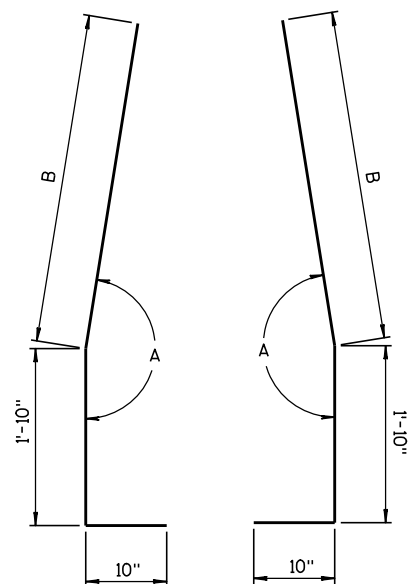
**CONCRETE BARRIER  
SINGLE SLOPE 42"  
THREE BEAM ANCHOR**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**BAR CHART  
SECTIONS V1 - V11**

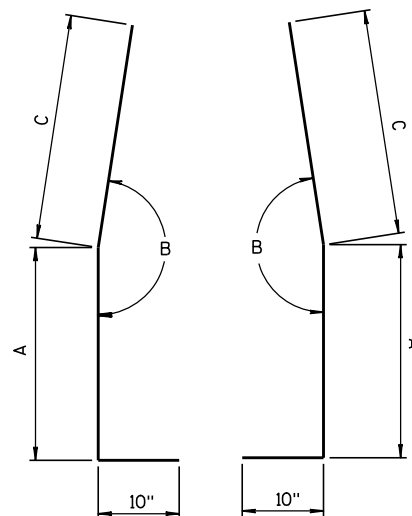
BAR	A	B
V1	170°-50'	3'-4½"
V2	171°-20'	3'-4½"
V3	171°-30'	3'-2½"
V4	171°-25'	3'-1½"
V5	171°-15'	3'-0"
V6	171°-15'	2'-11"
V7	171°-20'	2'-10½"
V8	171°-10'	2'-9½"
V9	171°-10'	2'-9"
V10	171°-05'	2'-8½"
V11	171°-10'	2'-8"



**BAR BENDING DETAIL  
FOR BARS V1 - V11**

**BAR CHART  
SECTIONS V12 - V13**

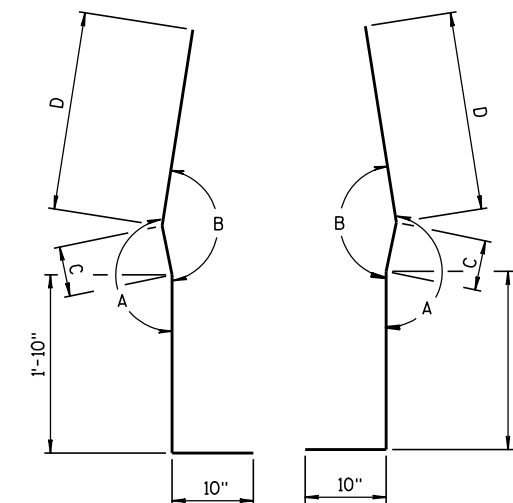
BAR	A	B	C
V12	2'-2"	171°-15'	2'-3½"
V13	2'-7"	171°-05'	1'-10"



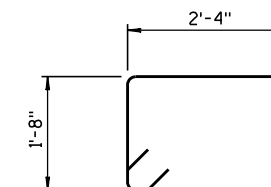
**BAR BENDING DETAIL  
FOR BARS V12 - V13**

**BAR CHART  
SECTIONS V14 - V16**

BAR	A	B	C	D
V14	168°-15'	159°-15'	6"	2'-0"
V15	169°-20'	161°-00'	8"	1'-10"
V16	168°-40'	160°-10'	10"	1'-8"



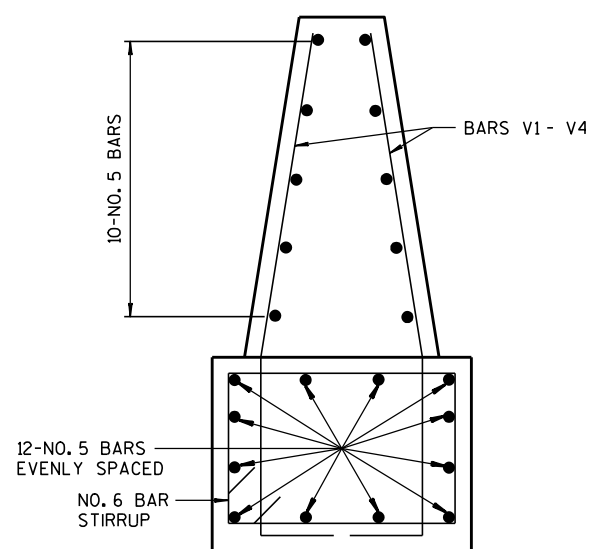
**BAR BENDING DETAIL  
FOR BARS V14 - V16**



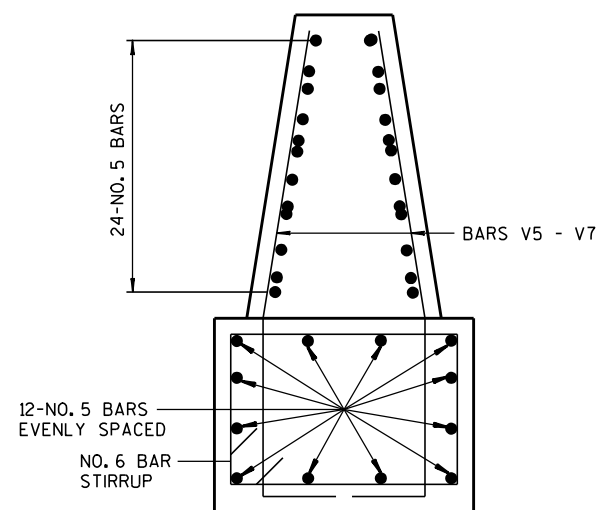
**STIRRUP BAR  
BENDING DETAIL**

6

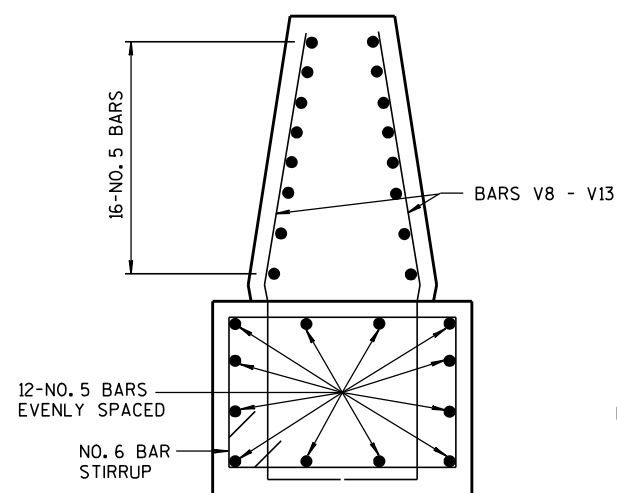
6



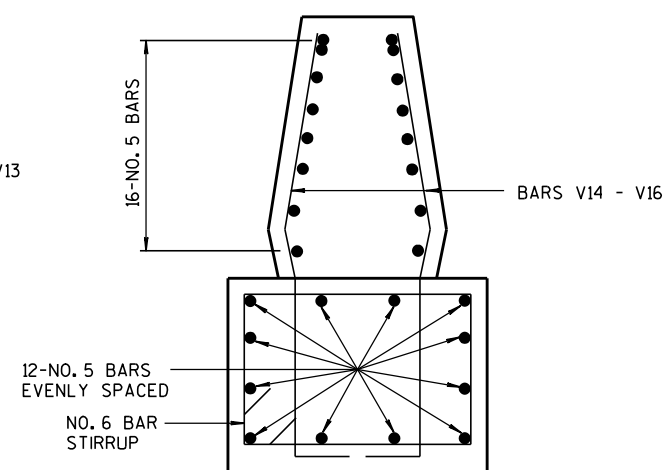
**BAR DETAIL  
SECTIONS V1 - V4**



**BAR DETAIL  
SECTIONS V5 - V7**



**BAR DETAIL  
SECTIONS V8 - V13**



**BAR DETAIL  
SECTIONS V14 - V16**

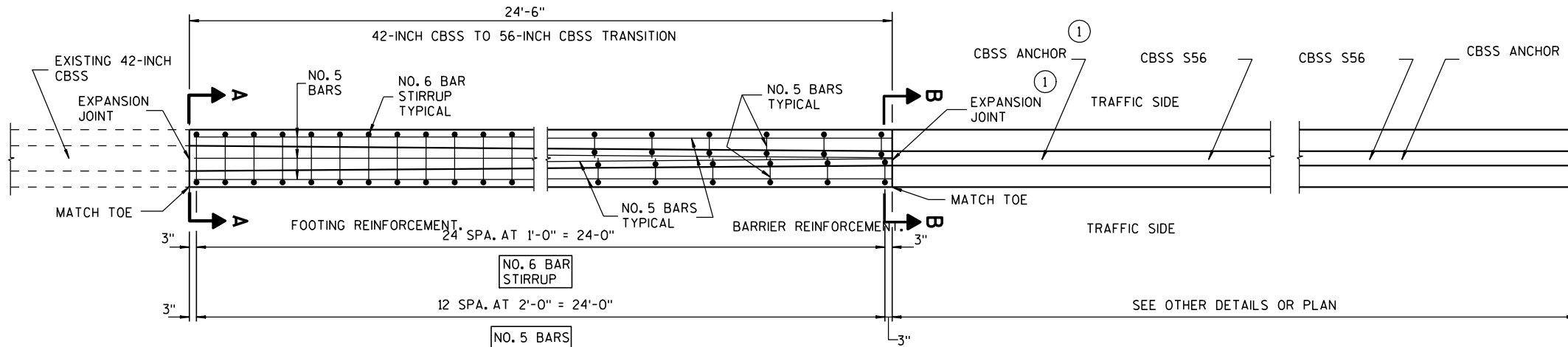
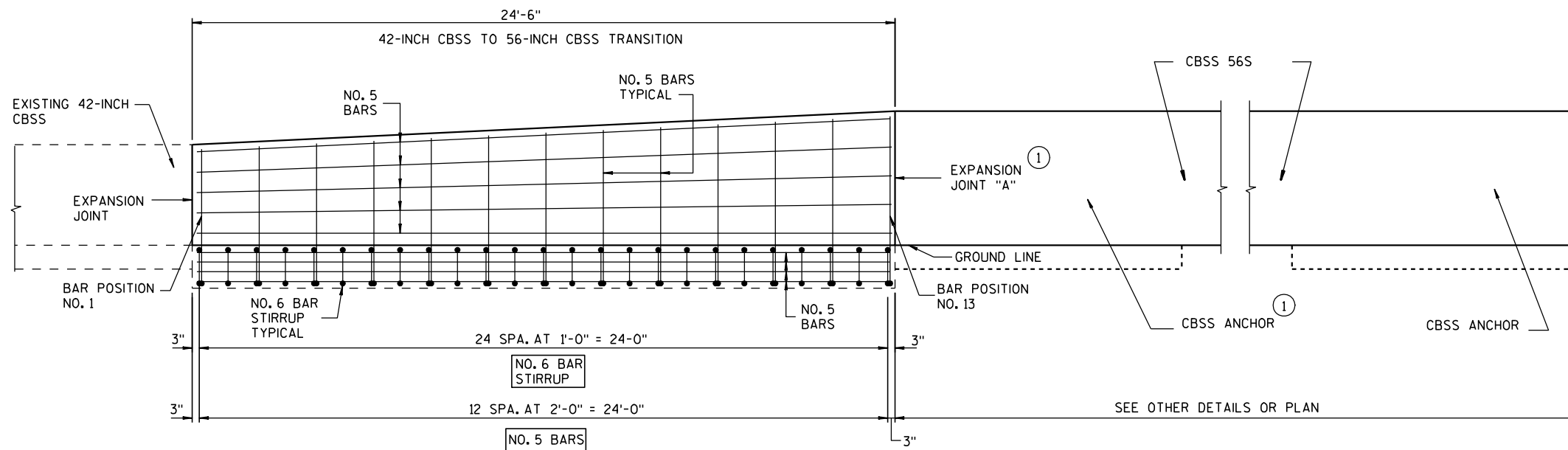
**CONCRETE BARRIER  
SINGLE SLOPE 42"  
THREE BEAM ANCHOR**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6-3-2010 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

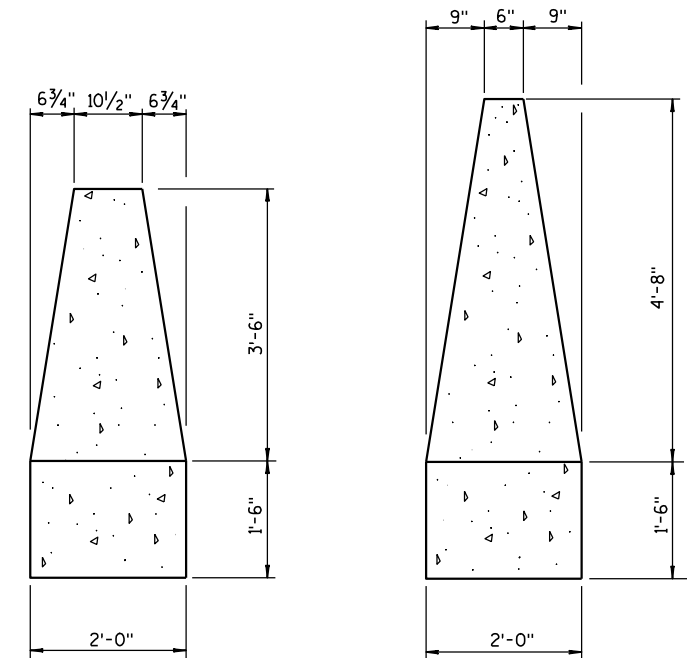
S.D.D. 14 B 33-1h

S.D.D. 14 B 33-1h



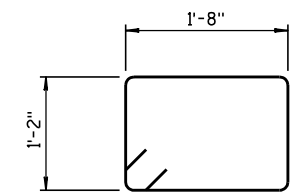
**GENERAL NOTES**

- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS NOTED OTHERWISE.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.
- ① EXPANSION JOINT "A" MAY BE REPLACED WITH A COLD-JOINT PROVIDED THAT 3 FEET OF LAP OF LONGITUDINAL STEEL IS PROVIDED. IF COLD-JOINT IS USED ANCHOR NOT REQUIRED.



SECTION A-A

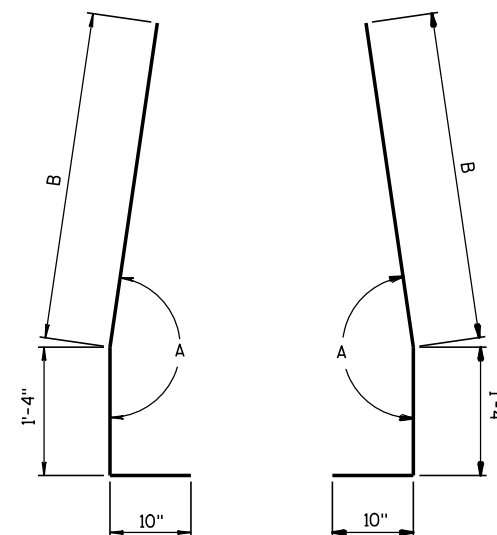
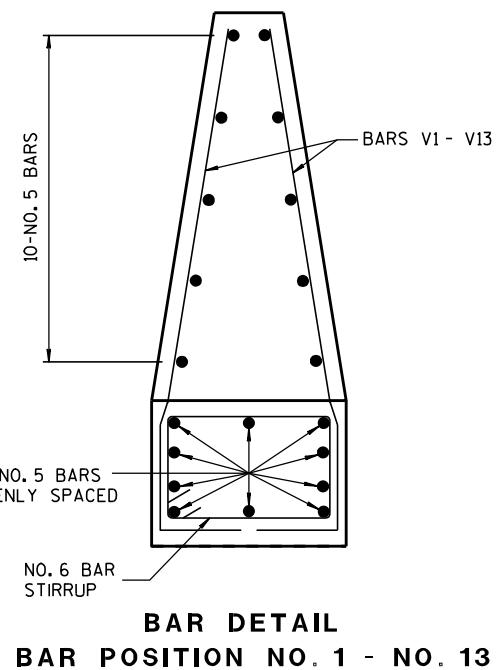
SECTION B-B



**STIRRUP BAR BENDING DETAIL**

**BAR CHART SECTIONS V1 - V13**

BAR	A	B	BAR	A	B
V1	170°-50'	3'-4 1/2"	V8	170°-55'	4'-0 1/2"
V2	170°-50'	3'-6"	V9	170°-50'	4'-2"
V3	170°-55'	3'-7"	V10	170°-50'	4'-3"
V4	171°	3'-8"	V11	170°-50'	4'-4 1/2"
V5	170°-55'	3'-9 1/2"	V12	170°-55'	4'-5 1/2"
V6	170°-50'	3'-10 1/2"	V13	170°-50'	4'-6 1/2"
V7	170°-50'	3'-11 1/2"			



**BAR BENDING DETAIL FOR BARS V1 - V13**

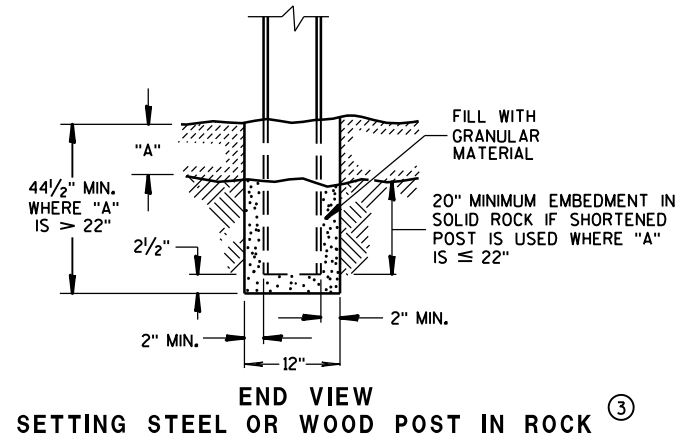
**42-INCH SINGLE SLOPE CONCRETE BARRIER TO 56-INCH SINGLE SLOPE CONCRETE BARRIER HEIGHT TRANSITION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

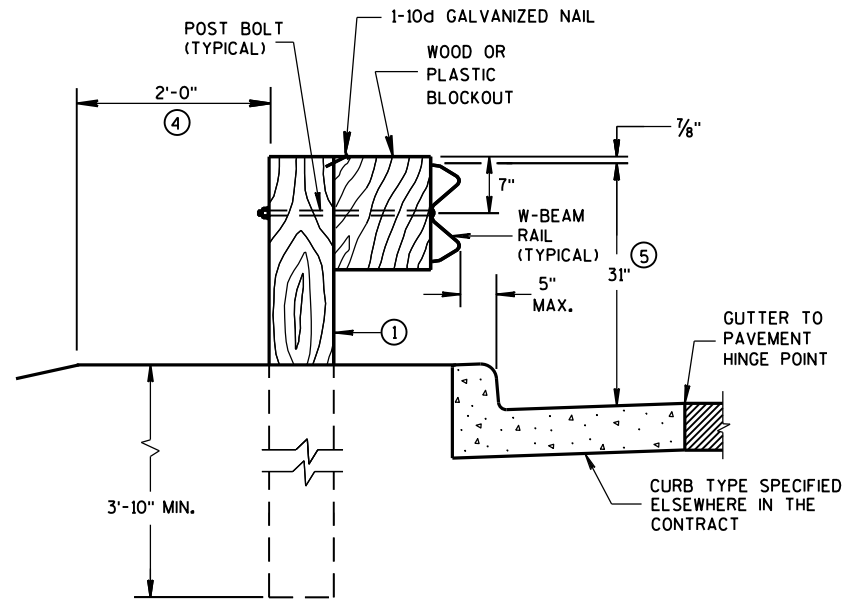
APPROVED  
6-3-2010 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA ENGINEER

**GENERAL NOTES**

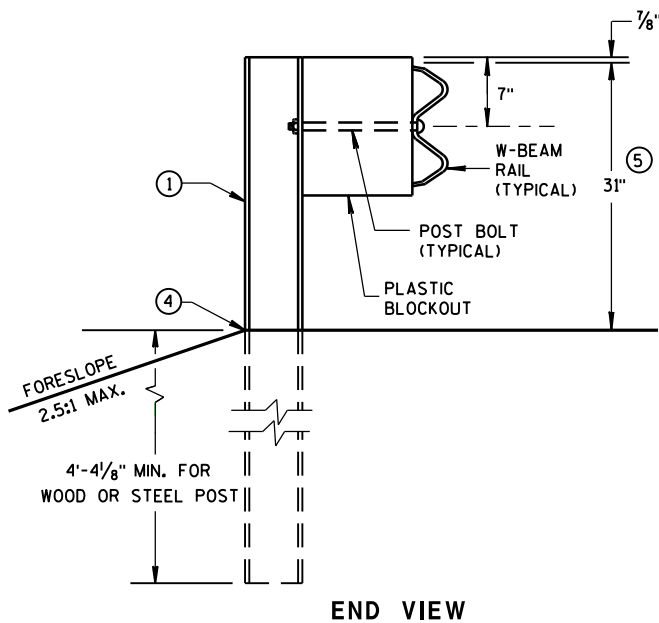
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 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".



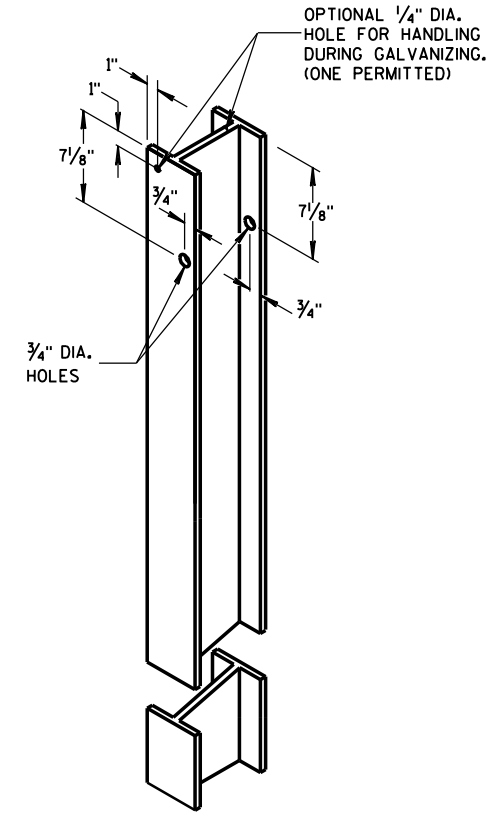
**END VIEW SETTING STEEL OR WOOD POST IN ROCK ③**



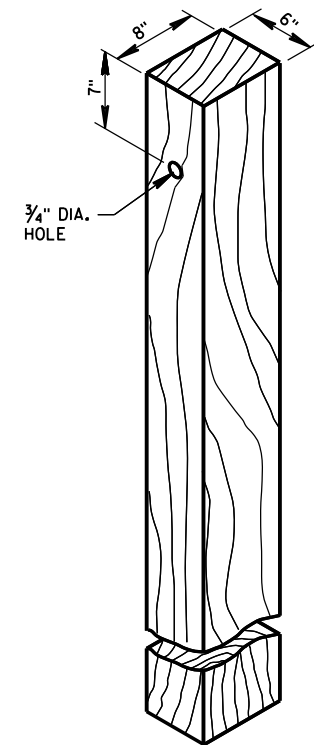
**END VIEW LOCATED ALONG A CURBED ROADWAY**



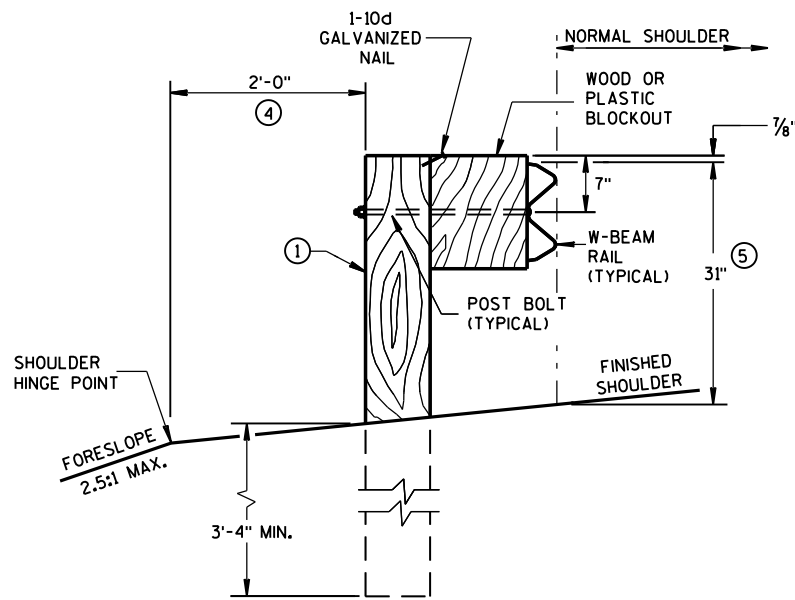
**END VIEW MGS LONGER POST AT HALFPOST SPACING W BEAM (K)**



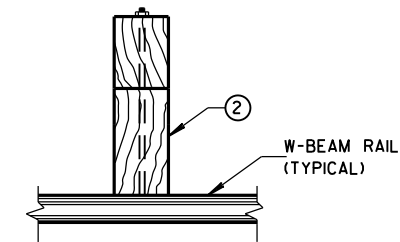
**STEEL POST & HOLE PUNCHING DETAIL (w6X9) ①**



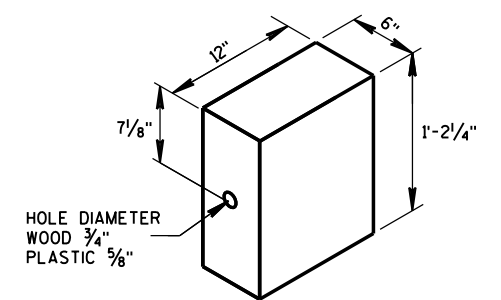
**WOOD POST (6" X 8") NOMINAL ①**



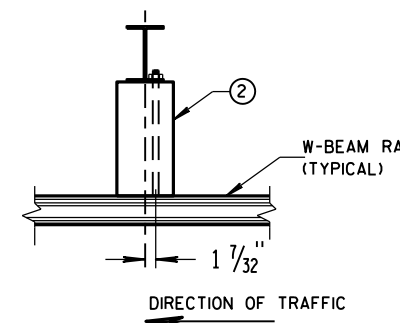
**END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION**



**PLAN VIEW WOOD POST, BLOCKOUT & BEAM**



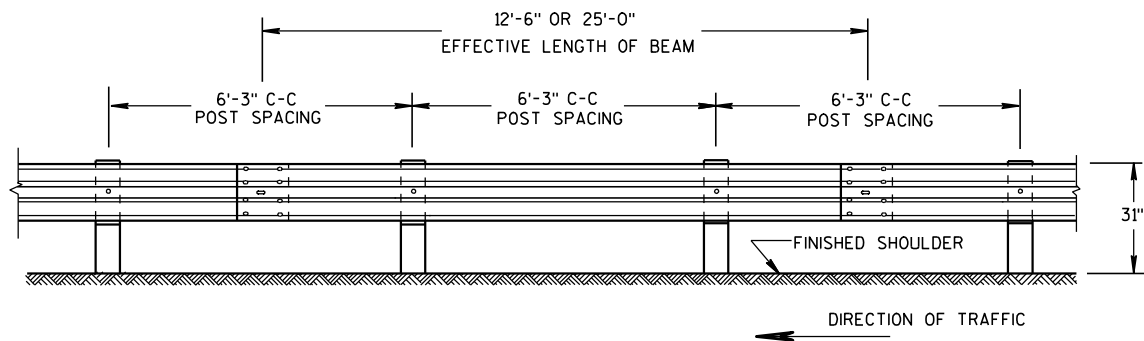
**WOOD OR PLASTIC BLOCKOUT ②**



**PLAN VIEW STEEL POST, PLASTIC BLOCKOUT & BEAM**

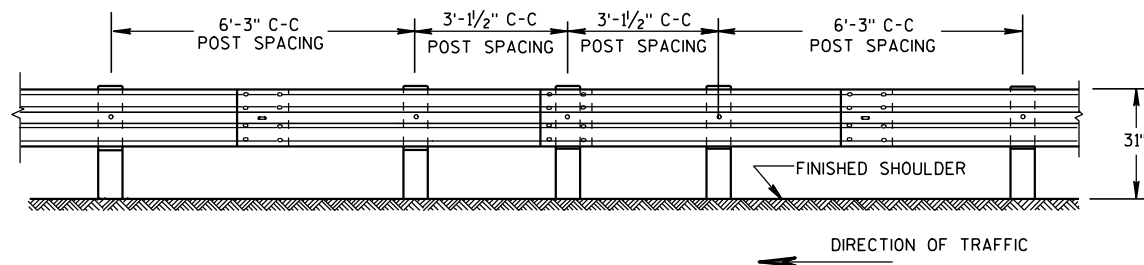
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



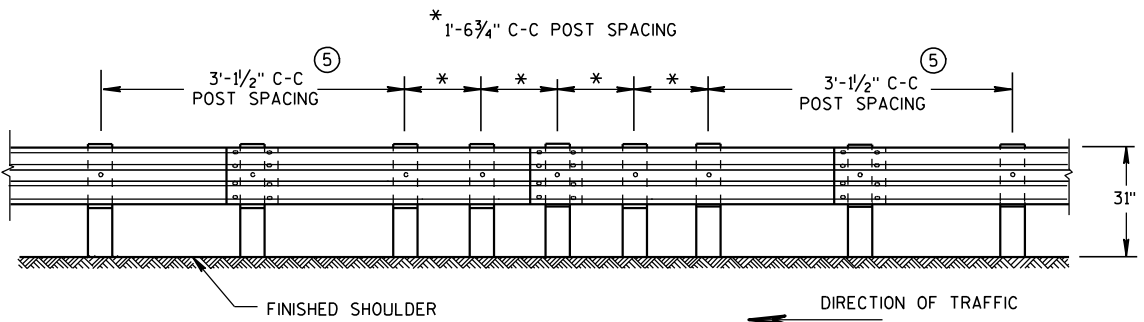
FRONT VIEW

**POST SPACING STANDARD INSTALLATION**



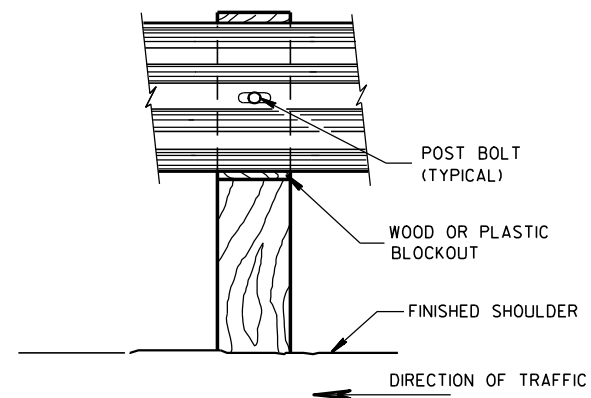
FRONT VIEW

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

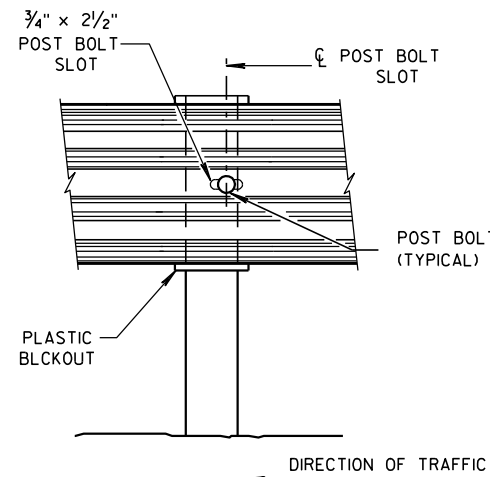


FRONT VIEW

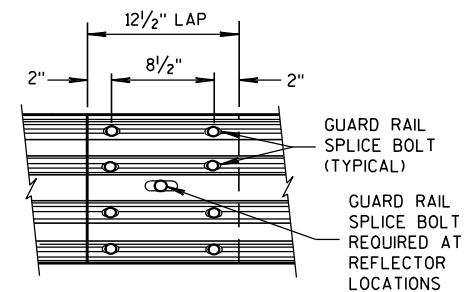
**QUARTER POST SPACING (QS)**



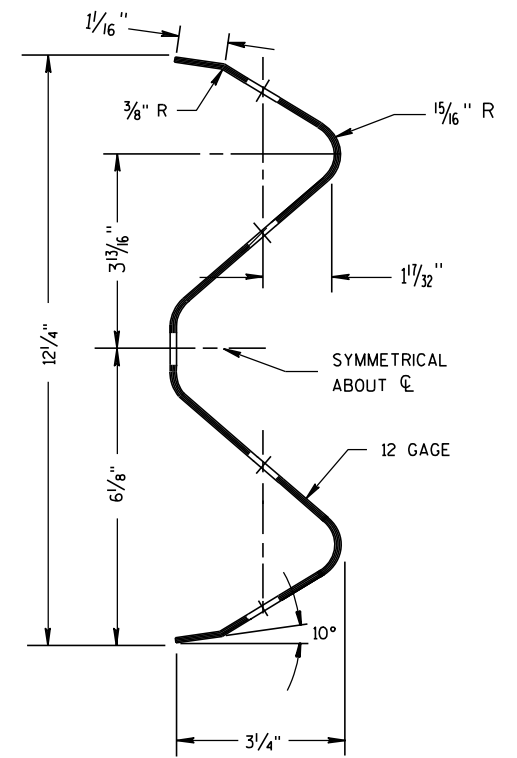
FRONT VIEW AT WOOD POST



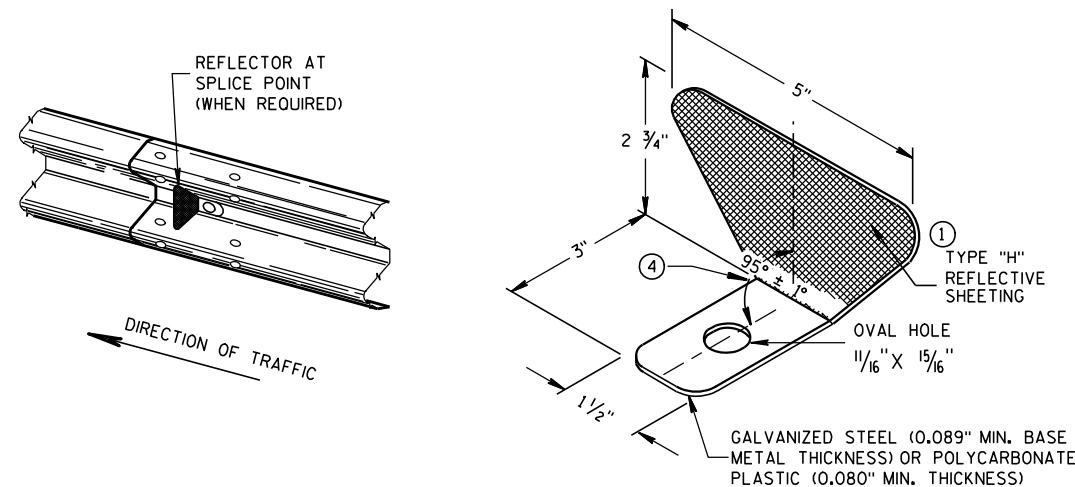
FRONT VIEW AT STEEL POST



FRONT VIEW  
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



**ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION**

**GENERAL NOTES**

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑤ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

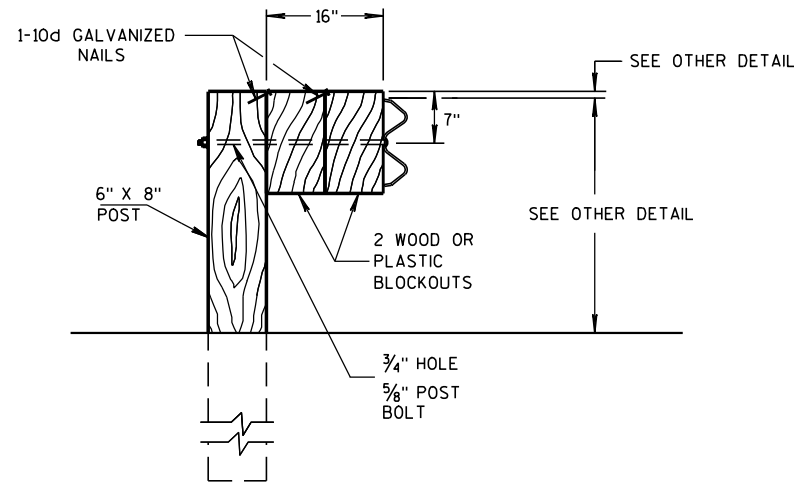
GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

**REFLECTOR SPACING**

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	3
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	6
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	3

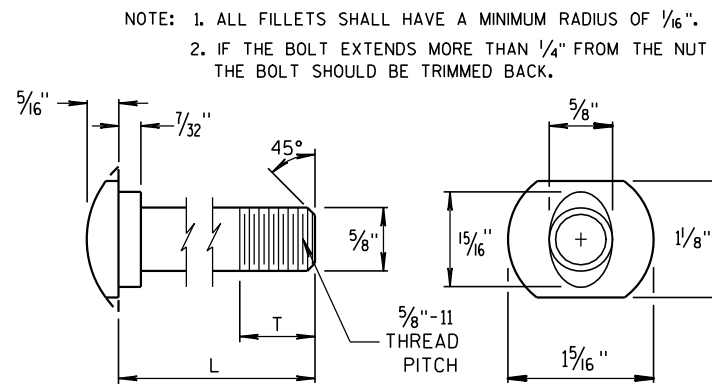
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



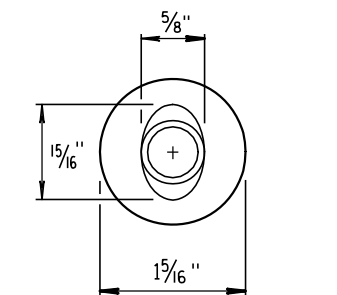
**DETAIL FOR 16" BLOCKOUT DEPTH**

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.

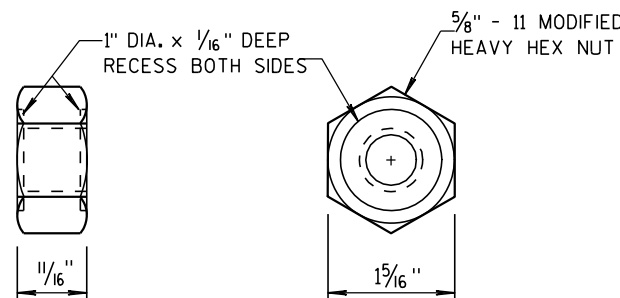


**POST BOLT TABLE**

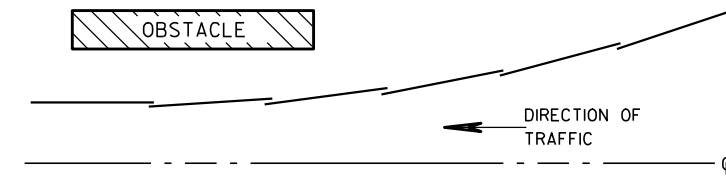
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



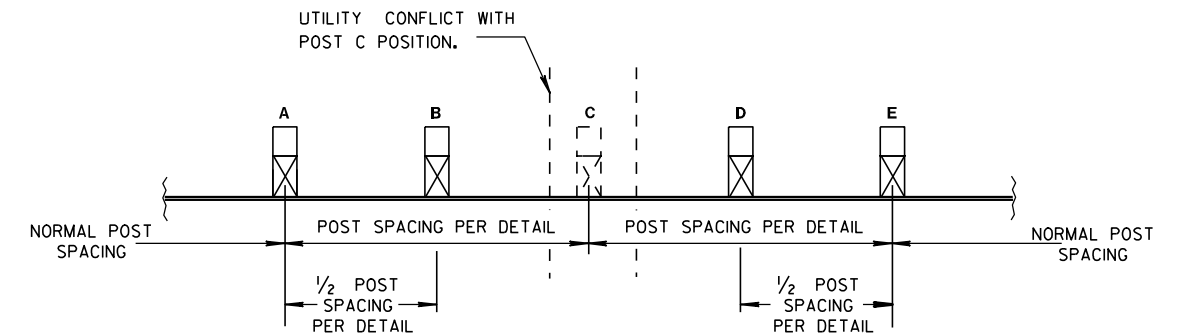
**ALTERNATE BOLT HEAD**



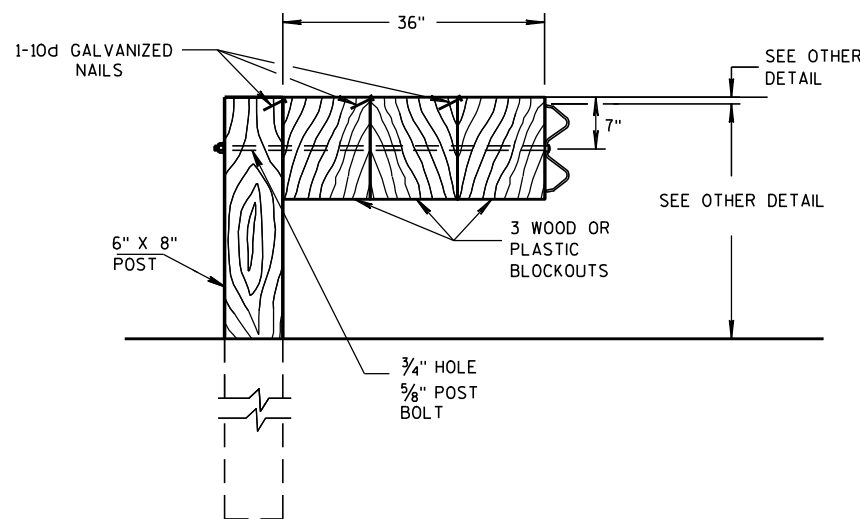
**POST BOLT AND RECESS NUT**



**PLAN VIEW  
BEAM LAPPING DETAIL**



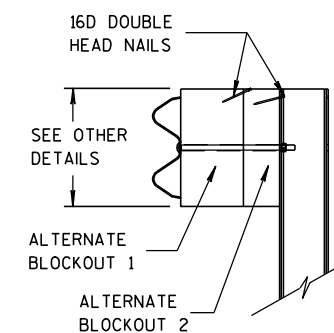
**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**



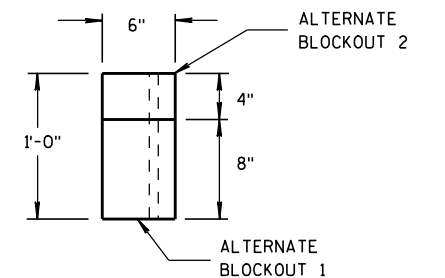
**DETAIL FOR 36" BLOCKOUT DEPTH**

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.



**SIDE VIEW**



**TOP VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011  
DATE

FHWA

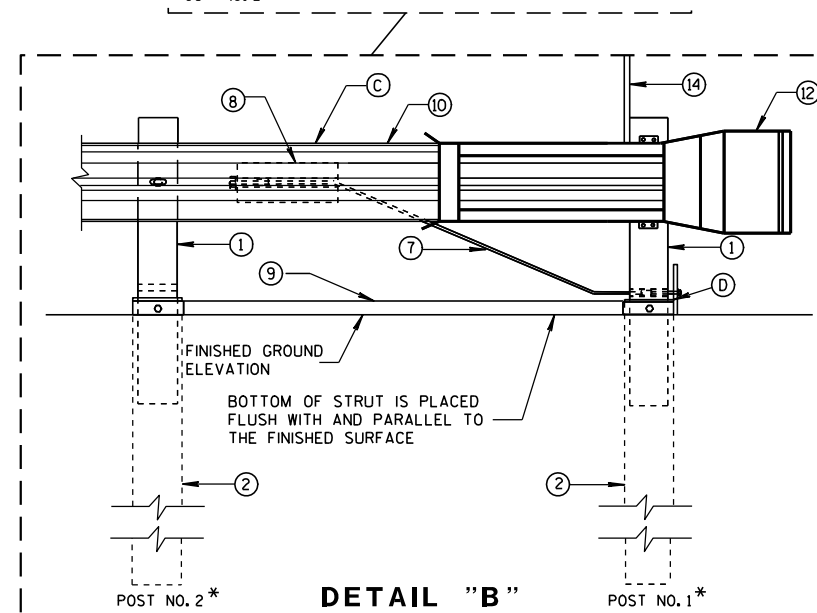
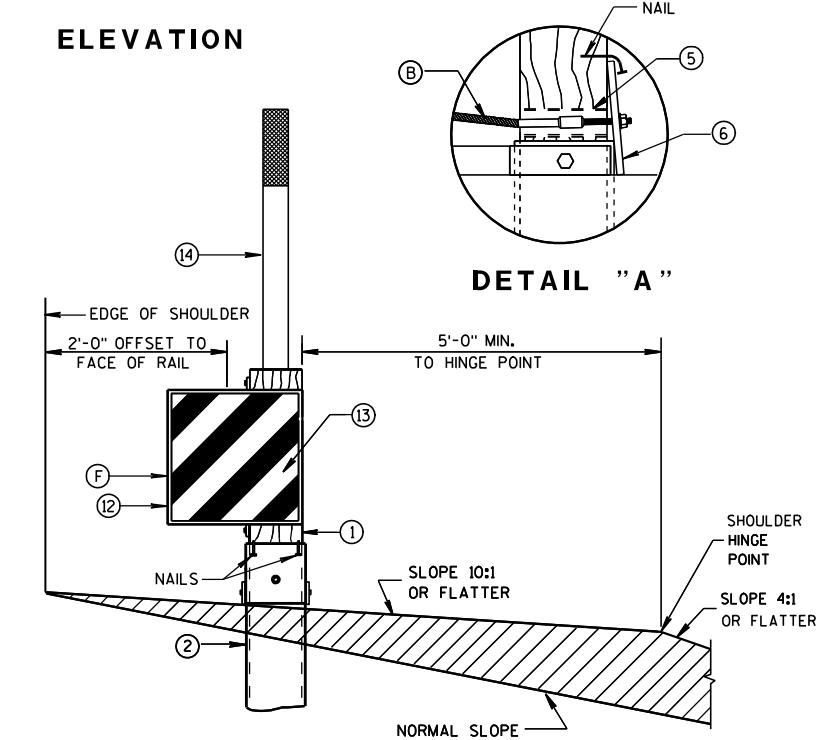
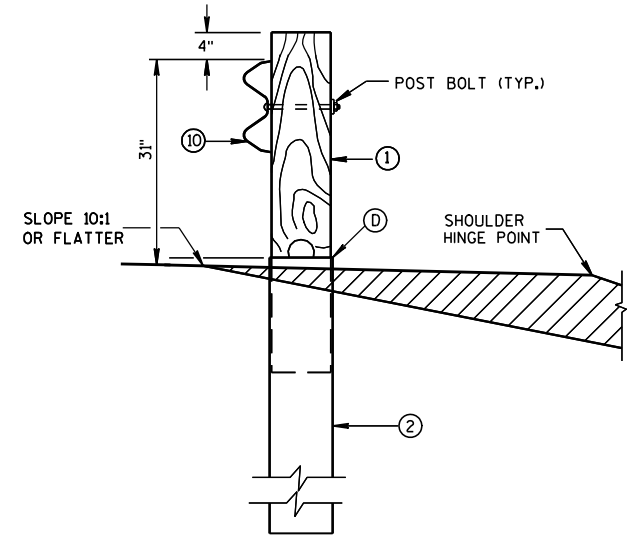
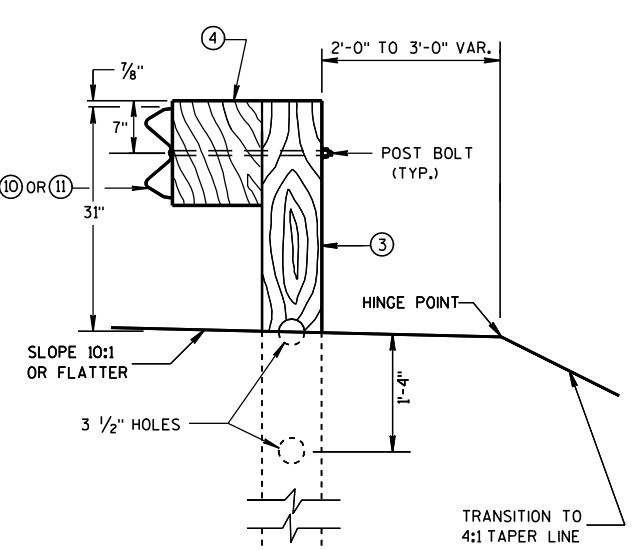
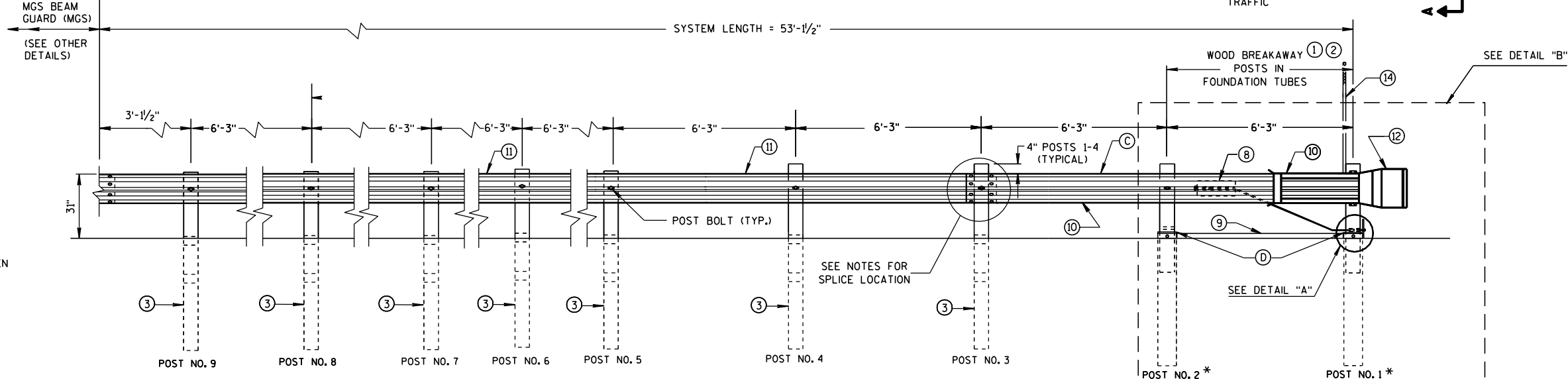
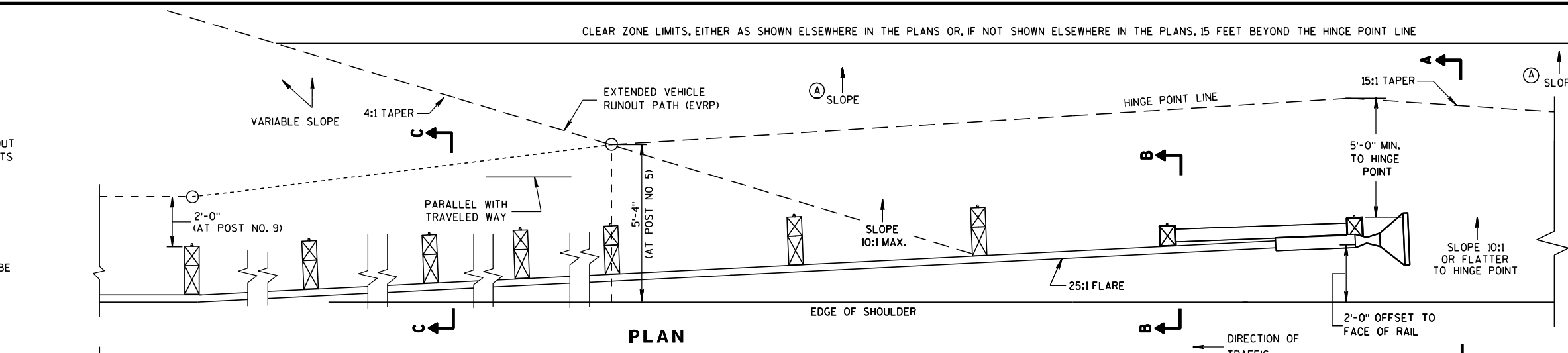
/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE

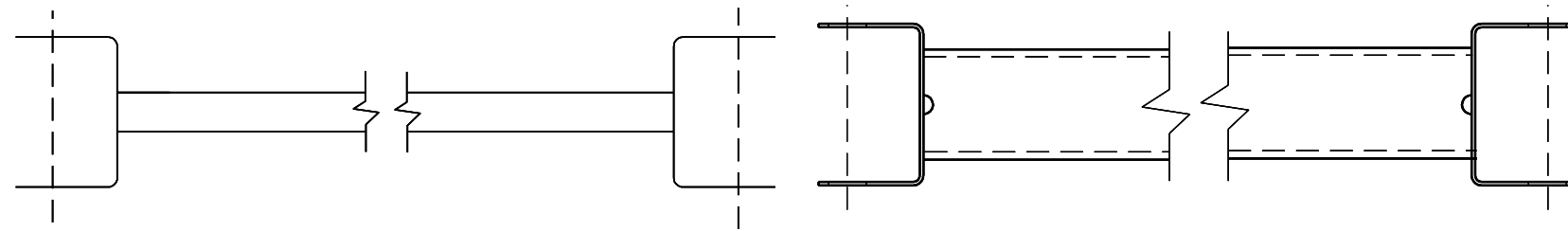
**GENERAL NOTES**

- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), 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) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER OF E.A.T.
- (F) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (G) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURERS. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- (H) DIMENSIONS MAY VARY. SEE MANUFACTURER'S INFORMATION.

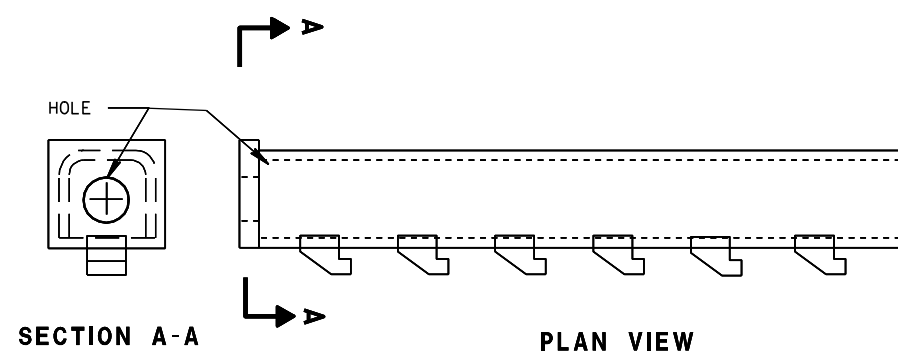
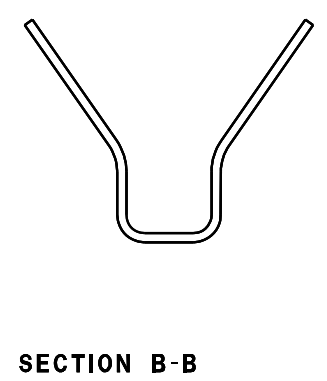
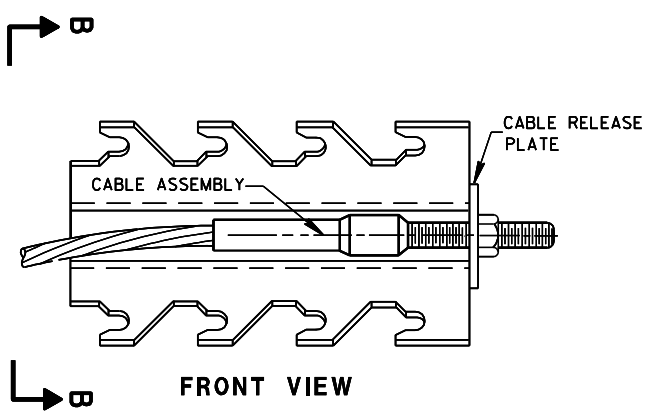
SEE SDD 14B42 FOR MORE INFORMATION.  
 \* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.  
 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.  
 W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.  
 PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.  
 THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE ( $\pm 3/4$ ")



**MIDWEST GUARDRAIL SYSTEM  
 ENERGY ABSORBING TERMINAL  
 (MGS)**  
 STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



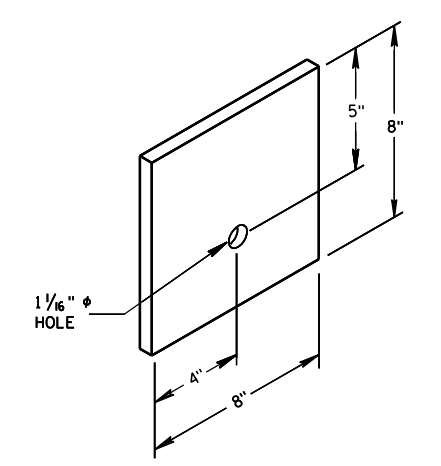
⑨ H  
**GENERIC GROUND STRUT**



⑧ H  
**GENERIC ANCHOR CABLE BOX**

**BILL OF MATERIALS**

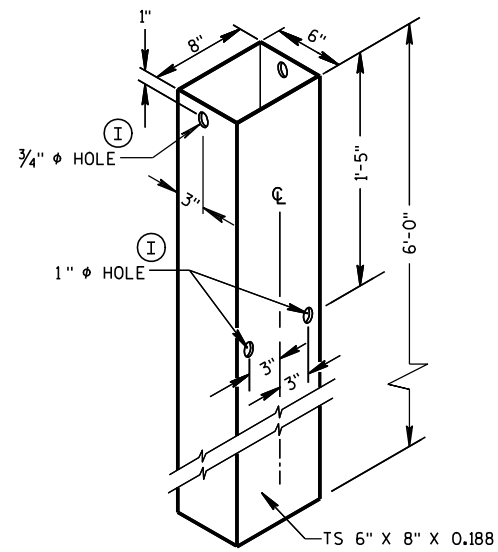
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL, MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



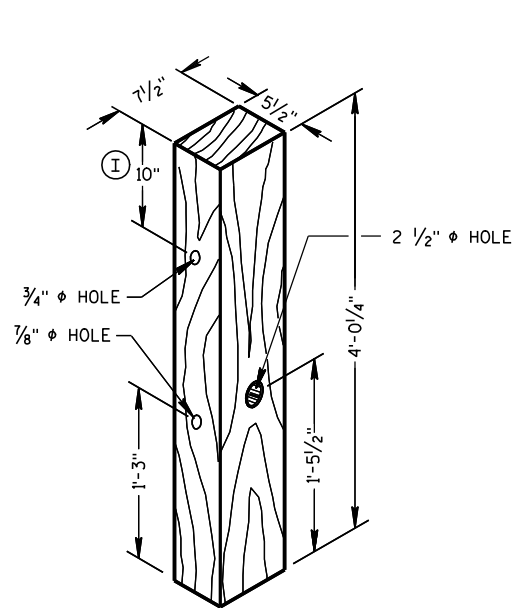
⑥  
**BEARING PLATE**

6

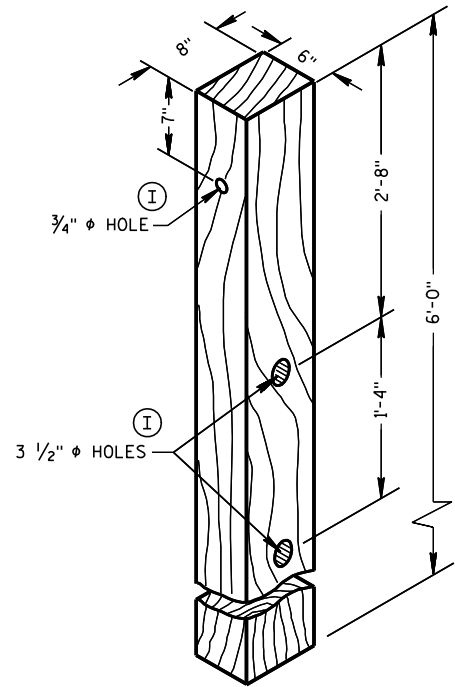
6



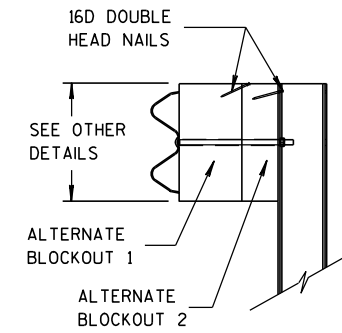
**FOUNDATION TUBE** ②



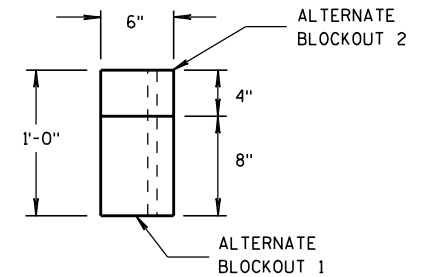
POSTS NUMBER 1 AND 2  
**WOOD BREAKAWAY POST** ①



POSTS NUMBER 3-9  
**WOOD CRT POST** ③

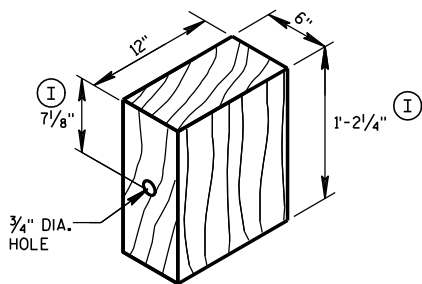


**SIDE VIEW**



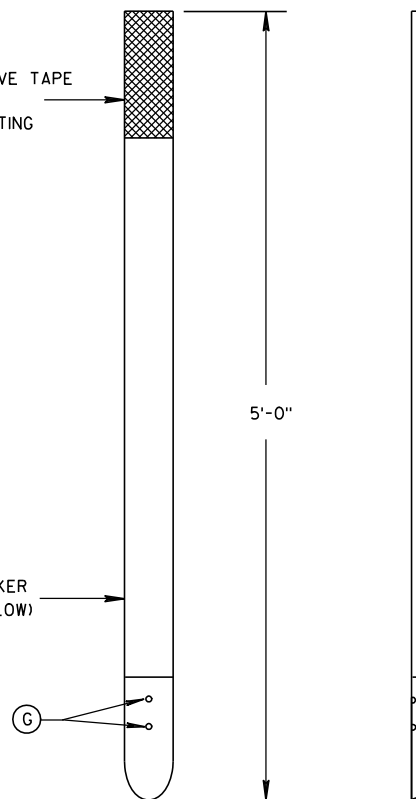
**TOP VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**



**WOOD BLOCKOUT** ④  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

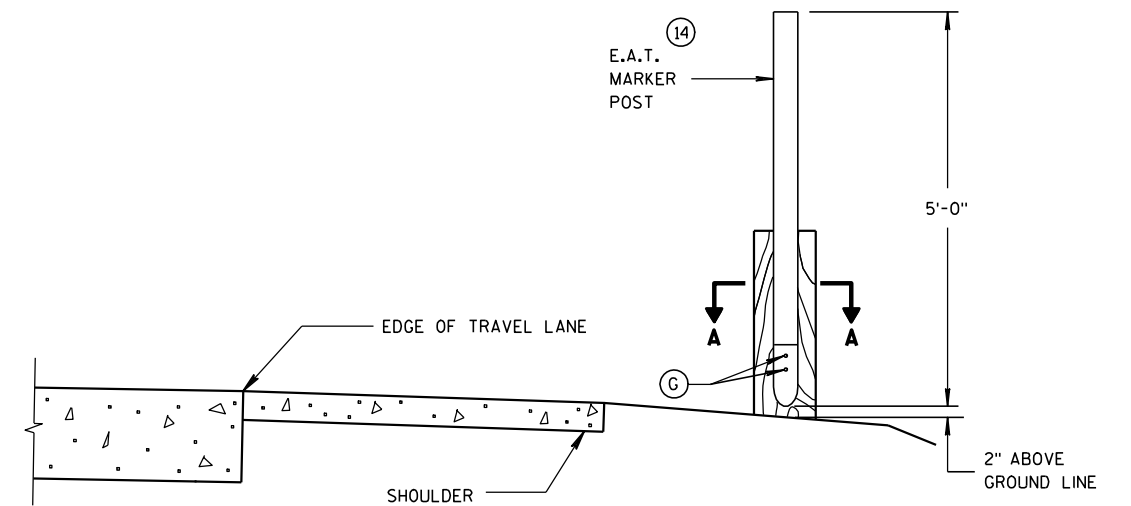
YELLOW REFLECTIVE TAPE  
3" X 9" TYPE H  
REFLECTIVE SHEETING



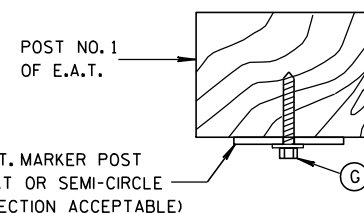
**FRONT VIEW**

**SIDE VIEW**

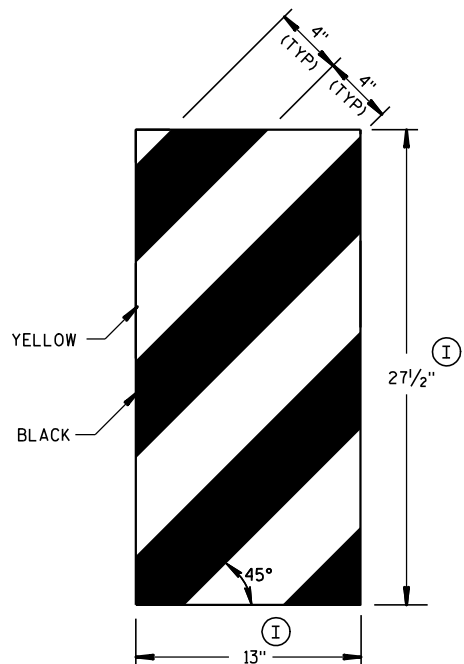
**E.A.T. MARKER POST** ⑭



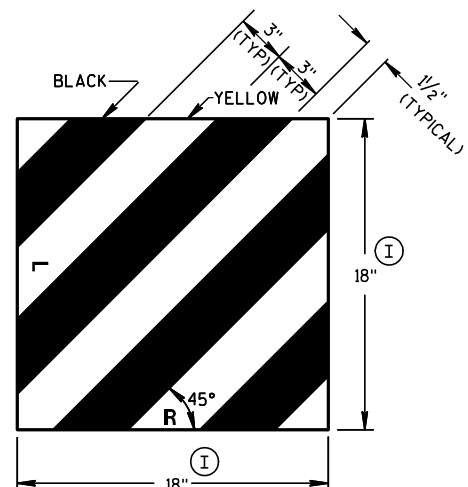
**TYPICAL INSTALLATION OF E.A.T.  
MARKER POST BACKSIDE OF POST NO. 1**  
(E.A.T. AND RAIL REMOVED FOR CLARITY)



**SECTION A-A**



**GENERIC REFLECTIVE SHEETING** ⑬ ①

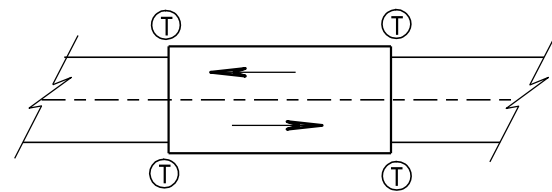


**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

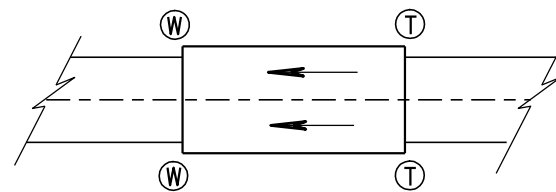
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5/23/2011 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA





TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

**GENERAL NOTES**

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

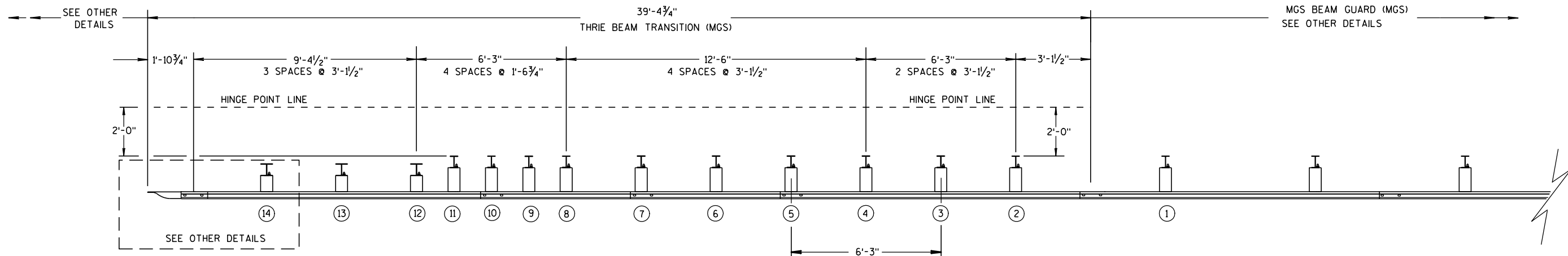
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

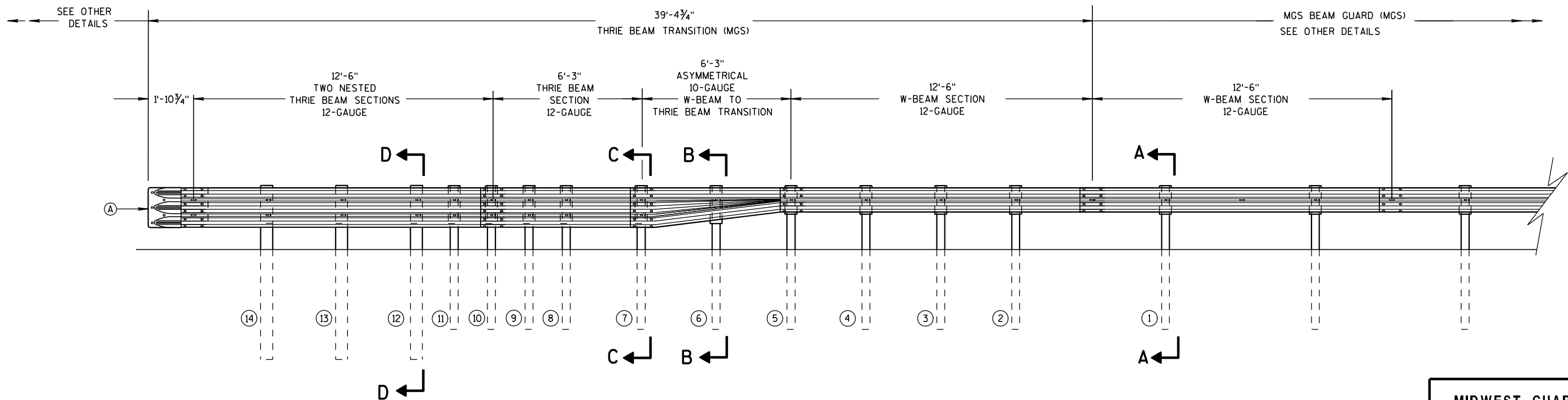
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

**TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE**



PLAN VIEW



ELEVATION VIEW

**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

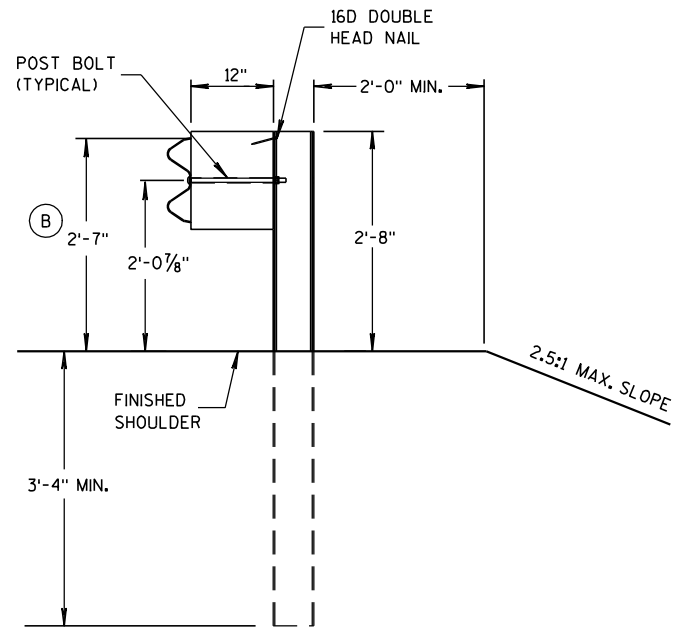
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S.D.D. 14 B 45-3a

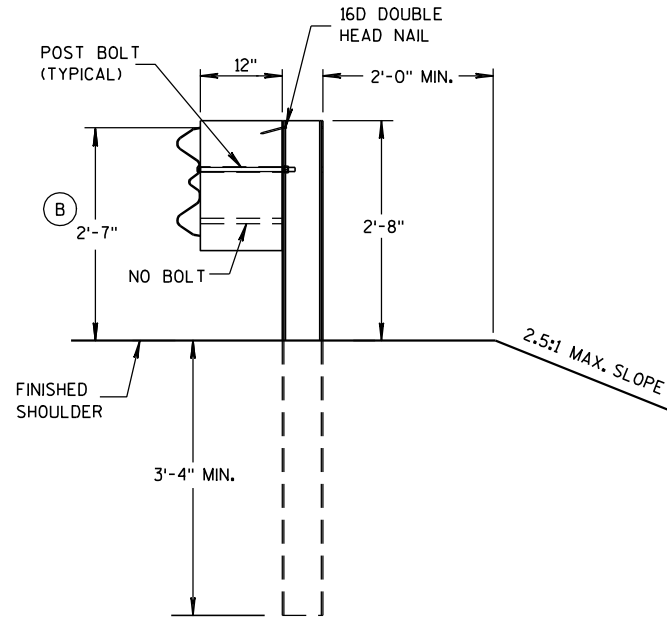
S.D.D. 14 B 45-3a

**GENERAL NOTES**

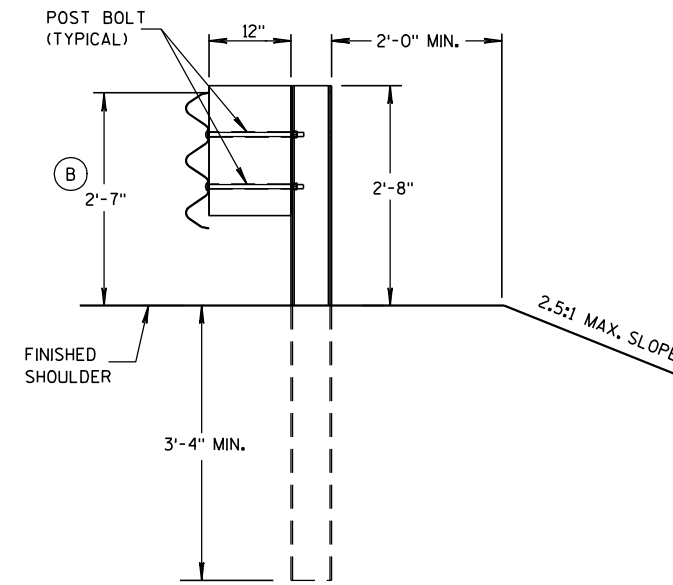
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm 1"$ .



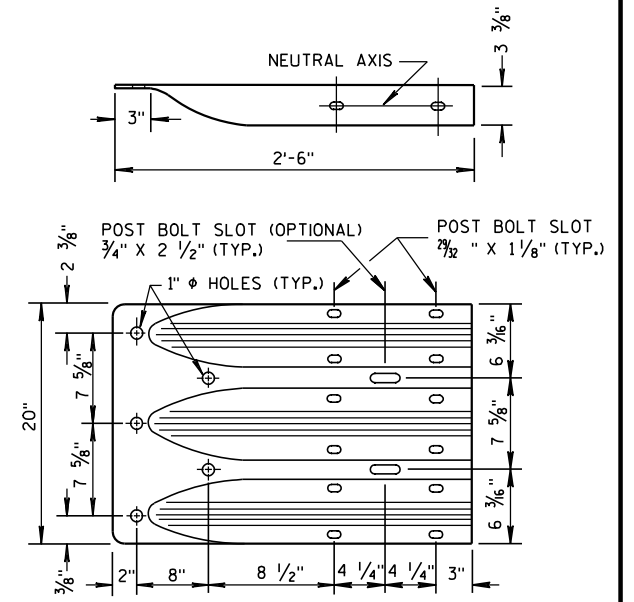
**SECTION A-A  
POSTS 1-5**



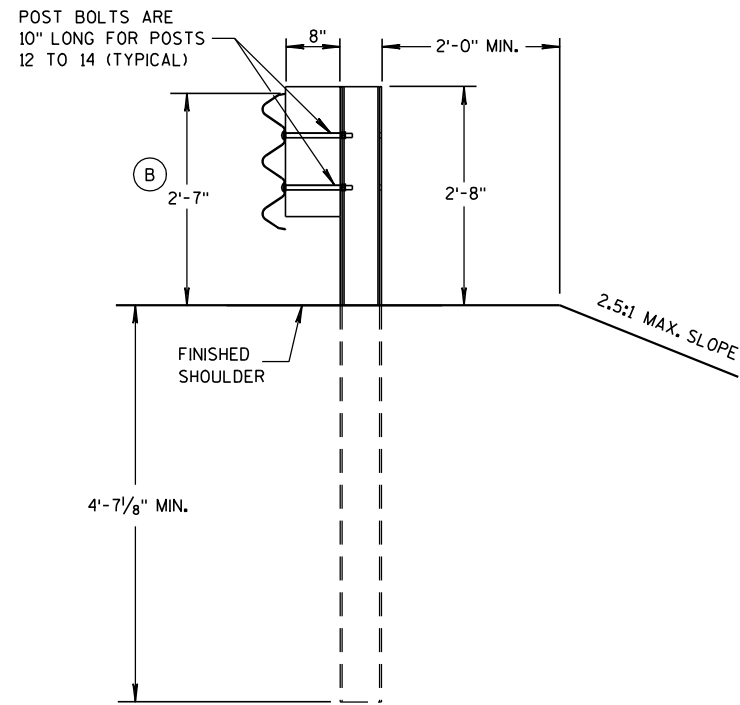
**SECTION B-B  
POST 6**



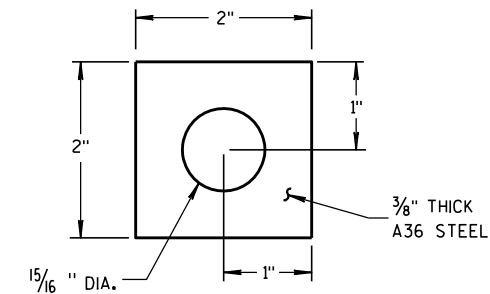
**SECTION C-C  
POSTS 7-11**



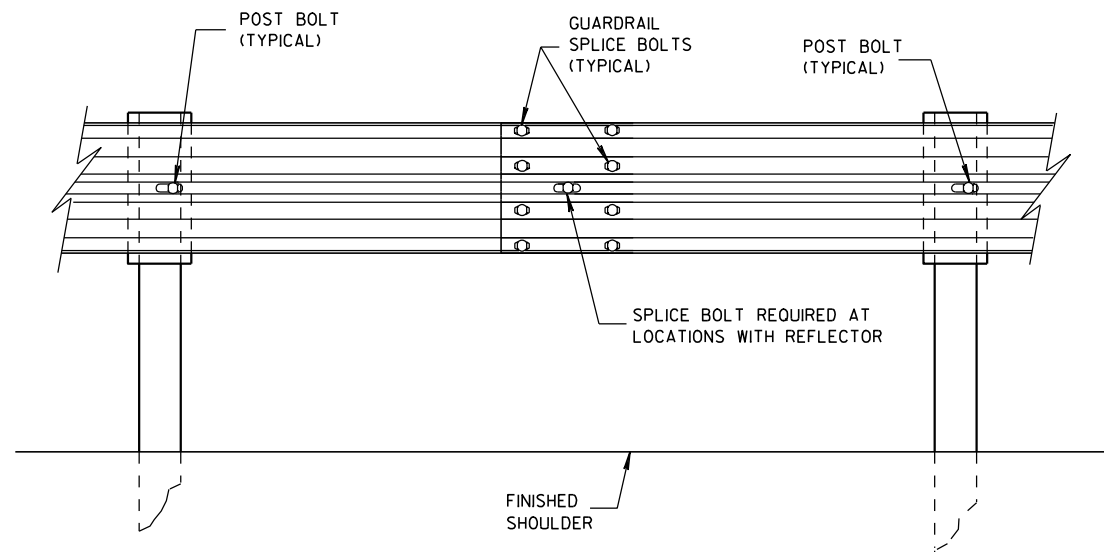
**THRIE BEAM  
TERMINAL CONNECTOR**



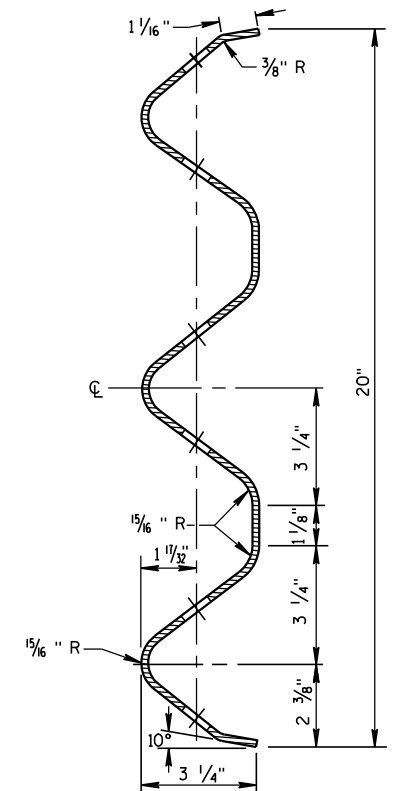
**SECTION D-D  
POSTS 12-14**



**PLATE WASHER DETAIL**



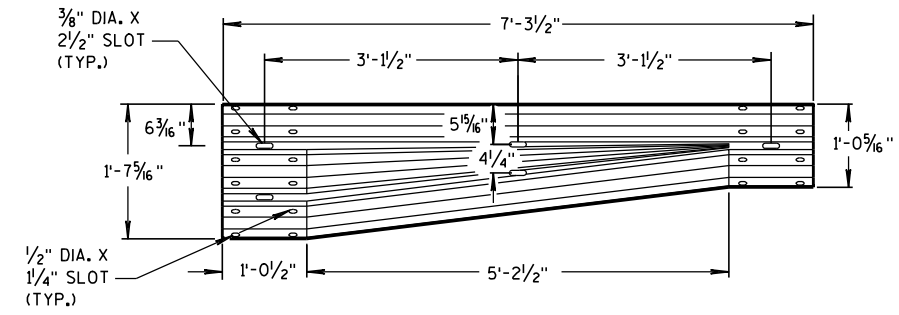
**SPlice DETAIL**



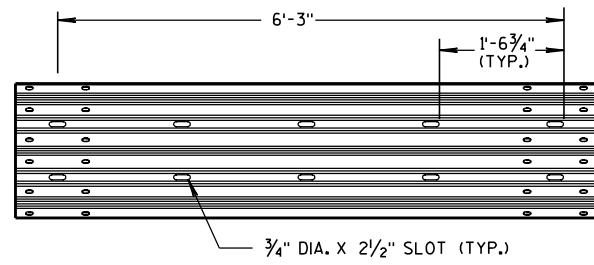
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

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

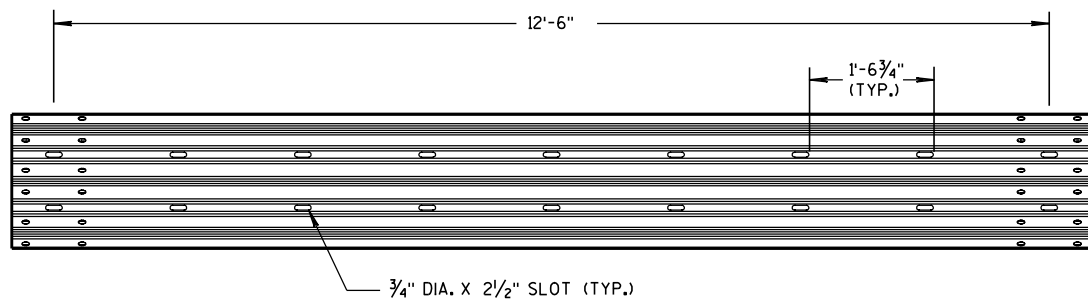
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



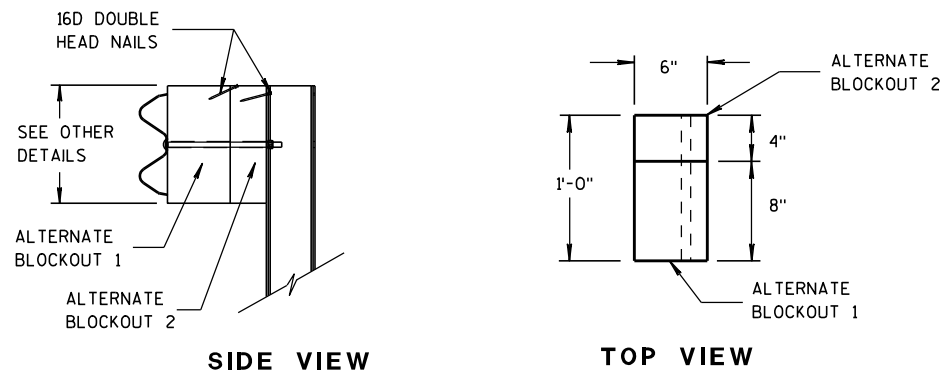
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



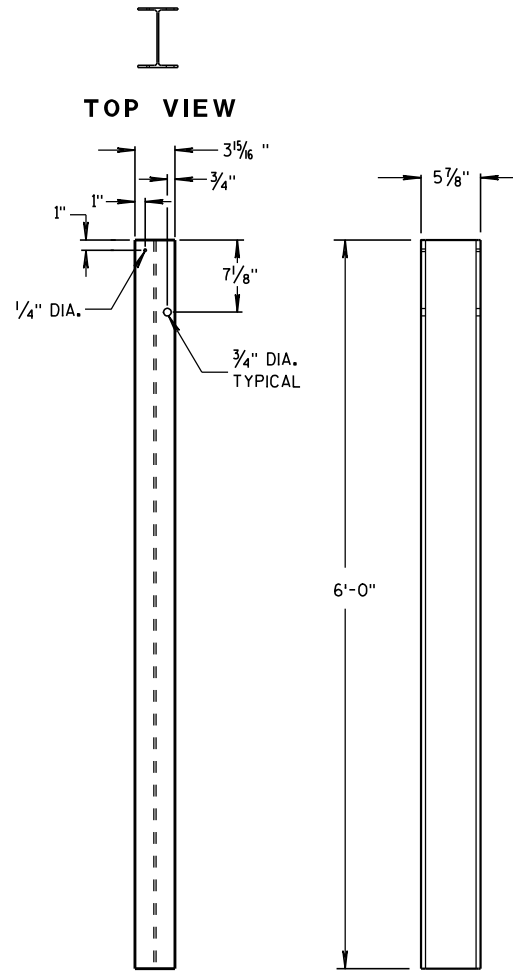
**6'-3" THRIE BEAM SECTION**



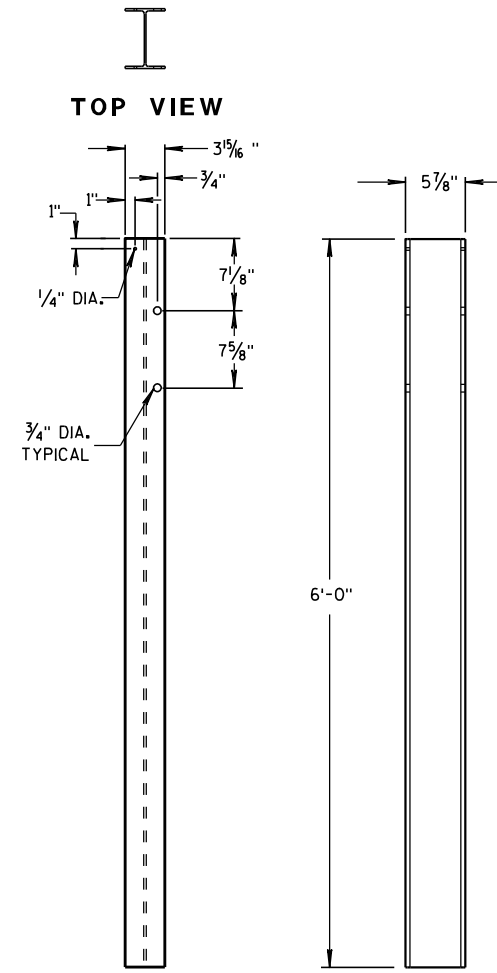
**12'-6" THRIE BEAM SECTION**



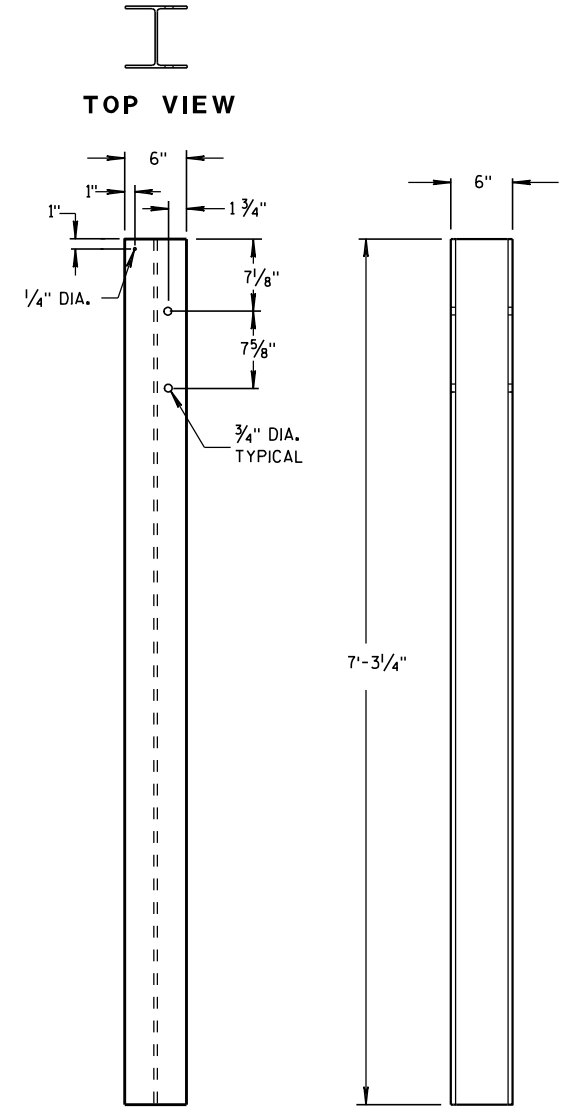
**ALTERNATE WOOD BLOCKOUT DETAIL**



**STEEL POSTS 1-5**

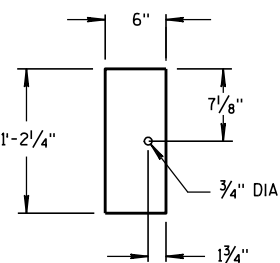
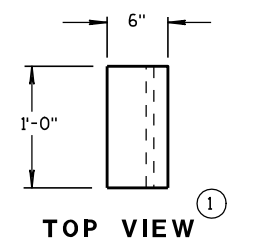


**STEEL POSTS 6-11**

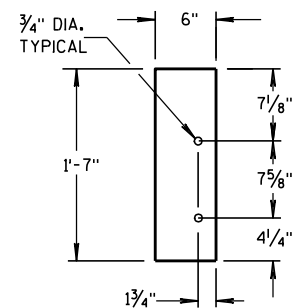
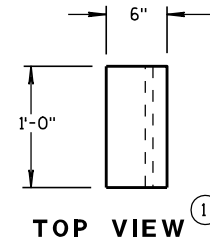


**STEEL POSTS 12-14**

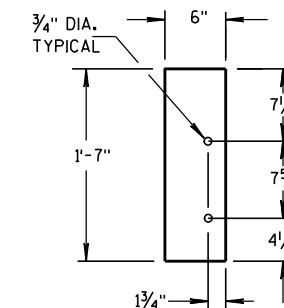
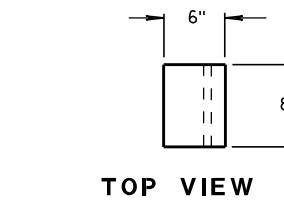
① WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



**BLOCKOUT POSTS 1-5**



**BLOCKOUT POSTS 6-11**



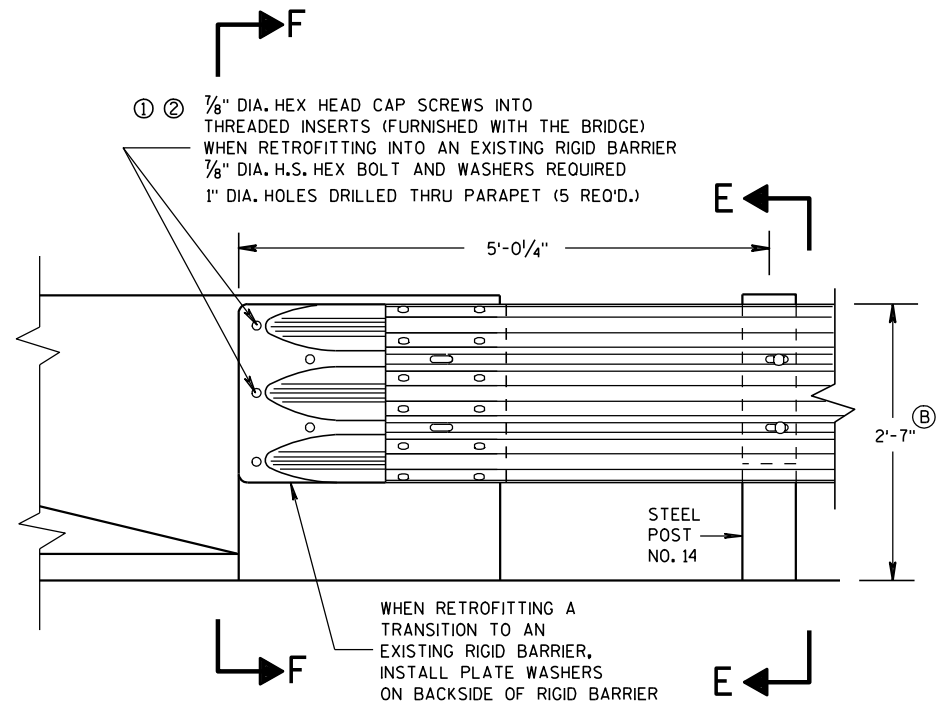
**BLOCKOUT POSTS 12-14**

**STEEL POST SIZES**

POST NUMBER	SECTION TYPE	LENGTH
①	W6x9	72"
②	W6x9	72"
③	W6x9	72"
④	W6x9	72"
⑤	W6x9	72"
⑥	W6x9	72"
⑦	W6x9	72"
⑧	W6x9	72"
⑨	W6x9	72"
⑩	W6x9	72"
⑪	W6x9	72"
⑫	W6x15	87 1/8"
⑬	W6x15	87 1/8"
⑭	W6x15	87 1/8"

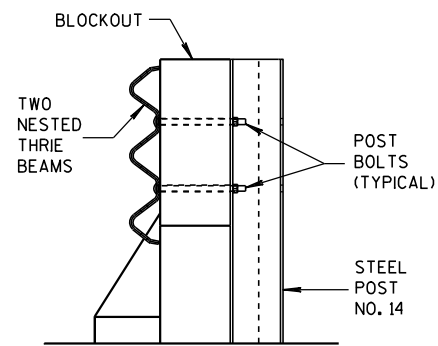
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPET WITH SQUARE ENDS**

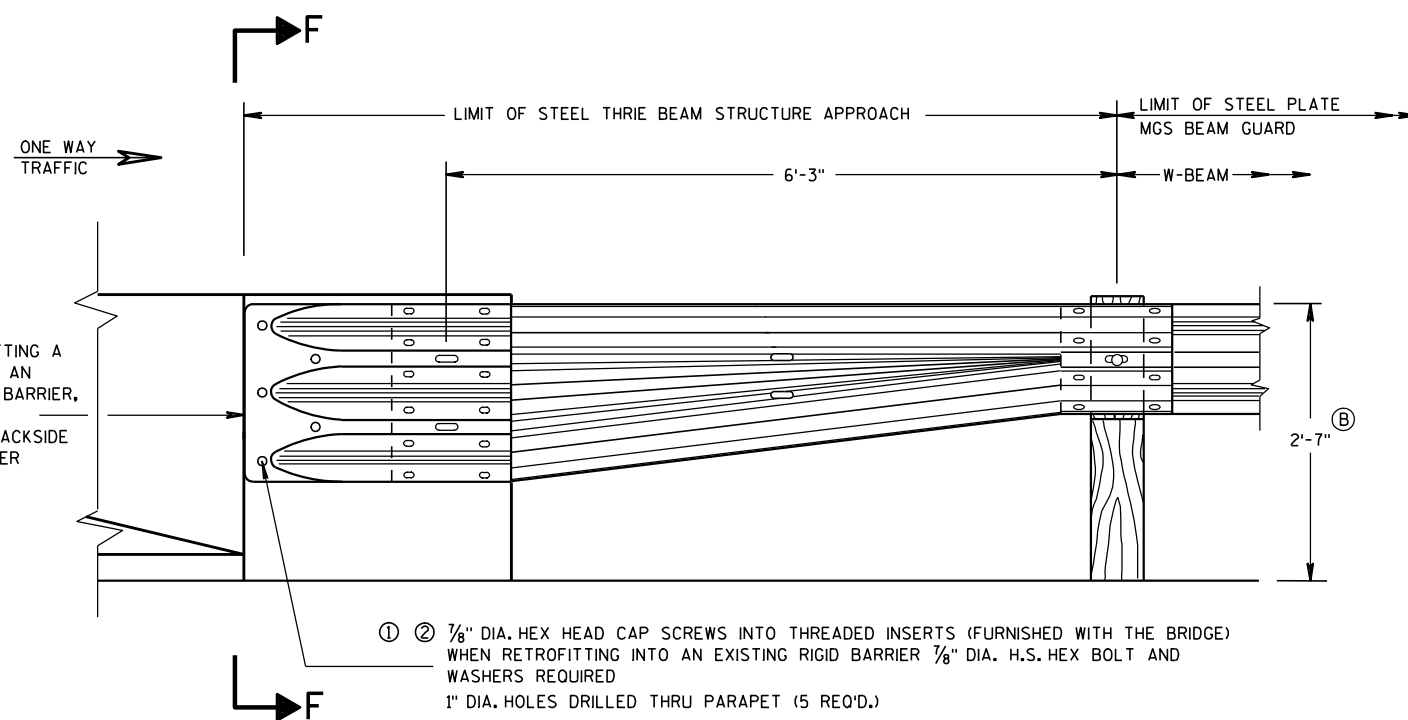


SECTION E-E

**GENERAL NOTES**

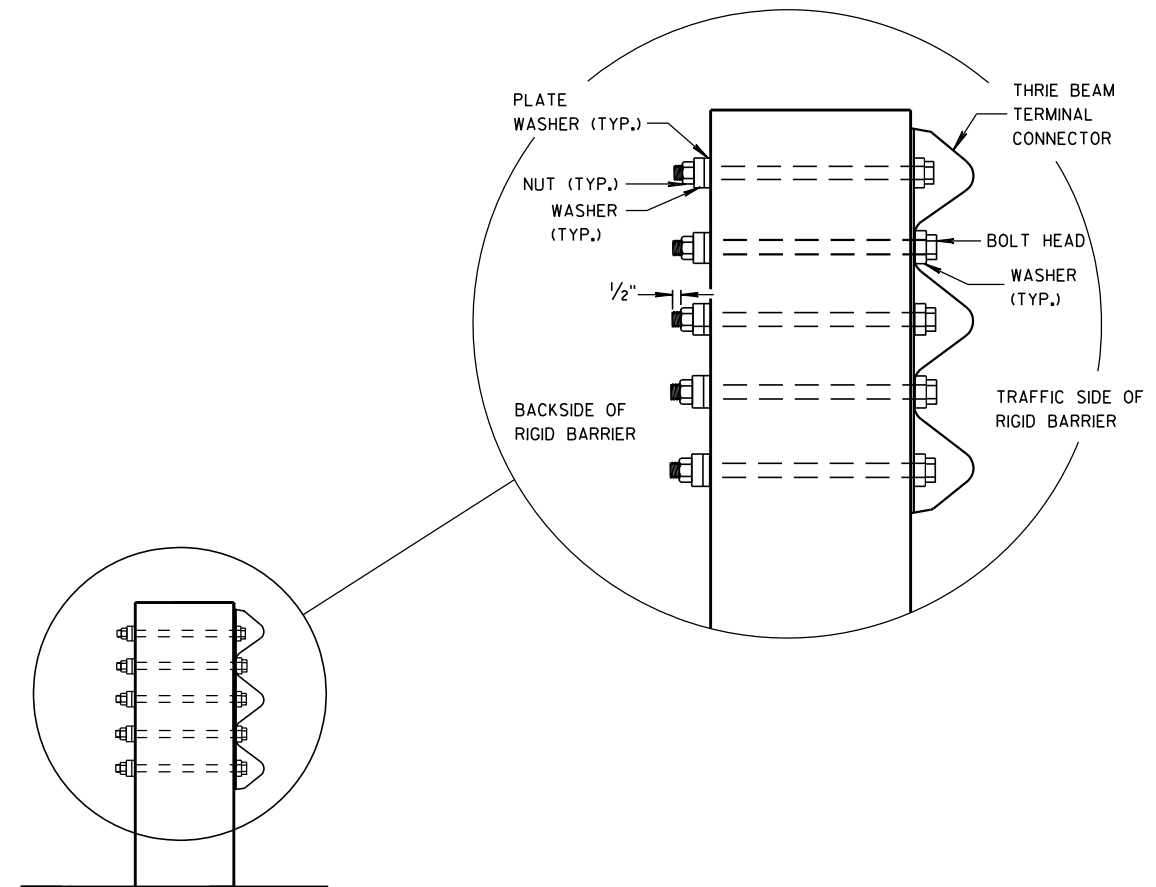
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ 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".
- (B) TOLERANCE FOR TOP OF BEAM IS ± 1".



FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO  
BRIDGE PARAPETS WITH SQUARE ENDS  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**



SECTION F-F

6

6

S.D.D. 14 B 45-3d

S.D.D. 14 B 45-3d

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

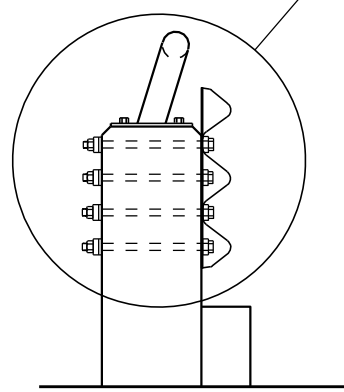
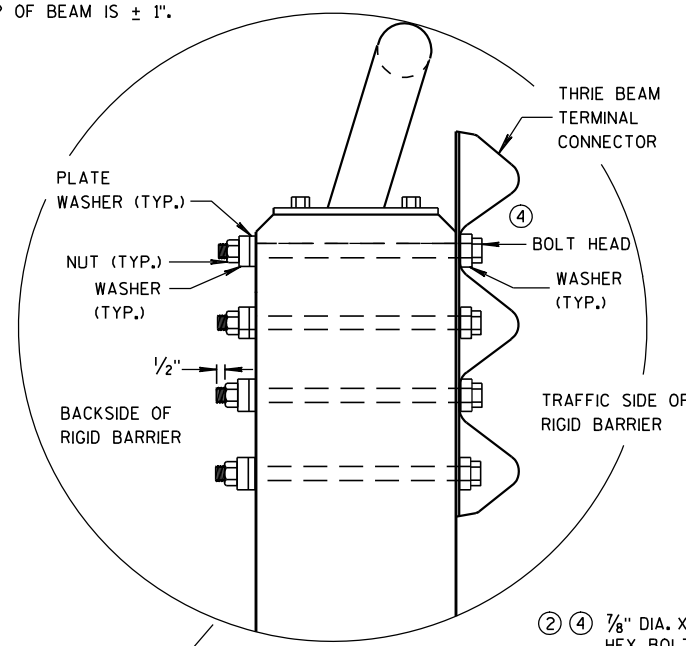
FHWA

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

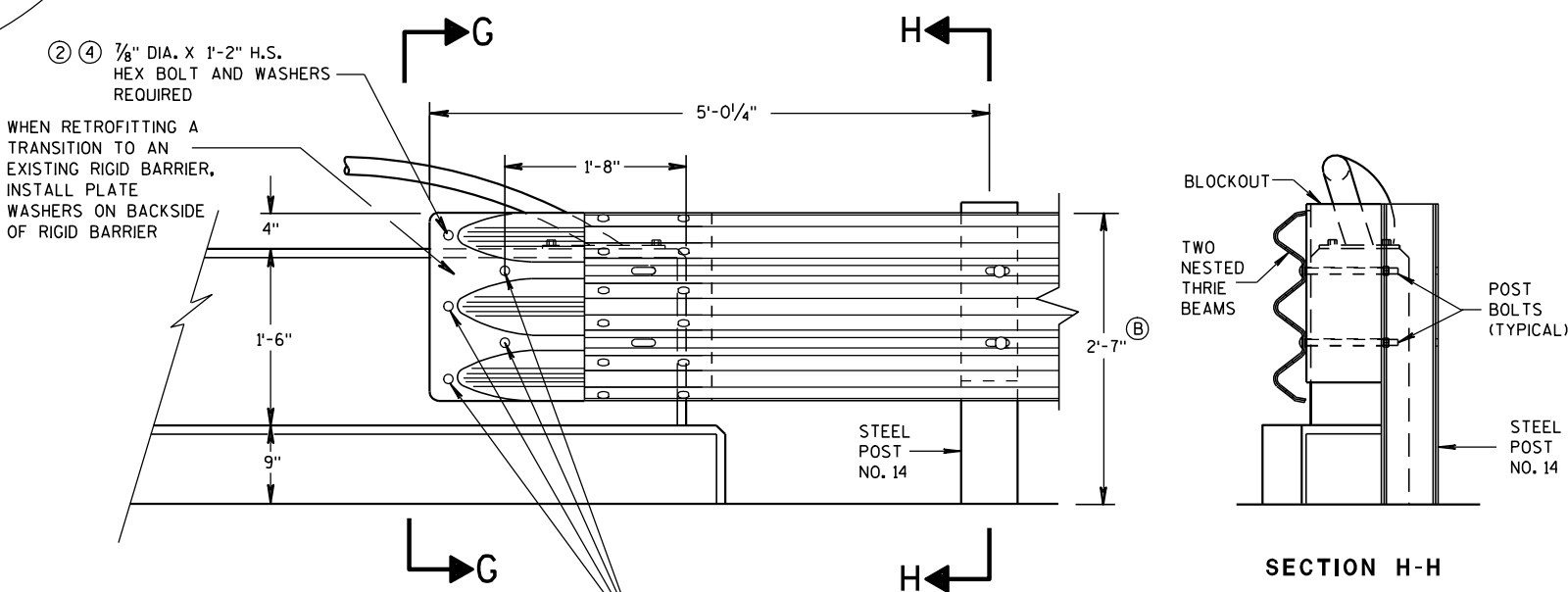
**GENERAL NOTES**

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

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ 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". BLOCK IS INCIDENTAL TO THE CONTRACT.
- ④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PARAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.
- ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



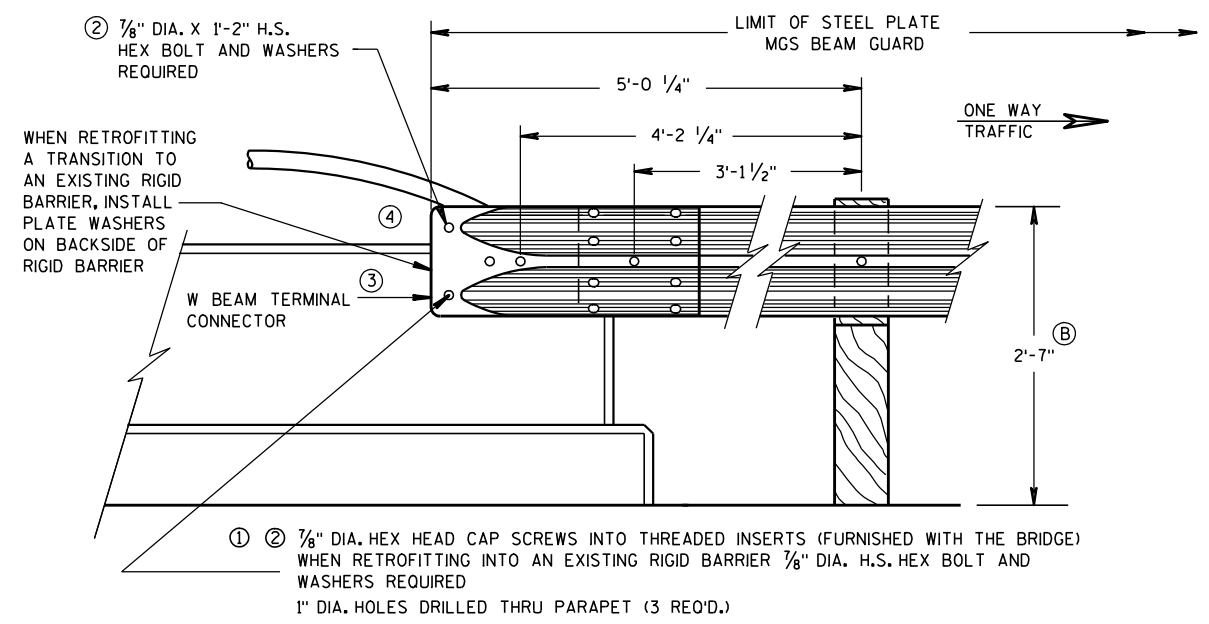
SECTION G-G



FRONT VIEW

**THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS**

- ① ② 3/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 3/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)



FRONT VIEW

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

- ① ② 3/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 3/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (3 REQ'D.)

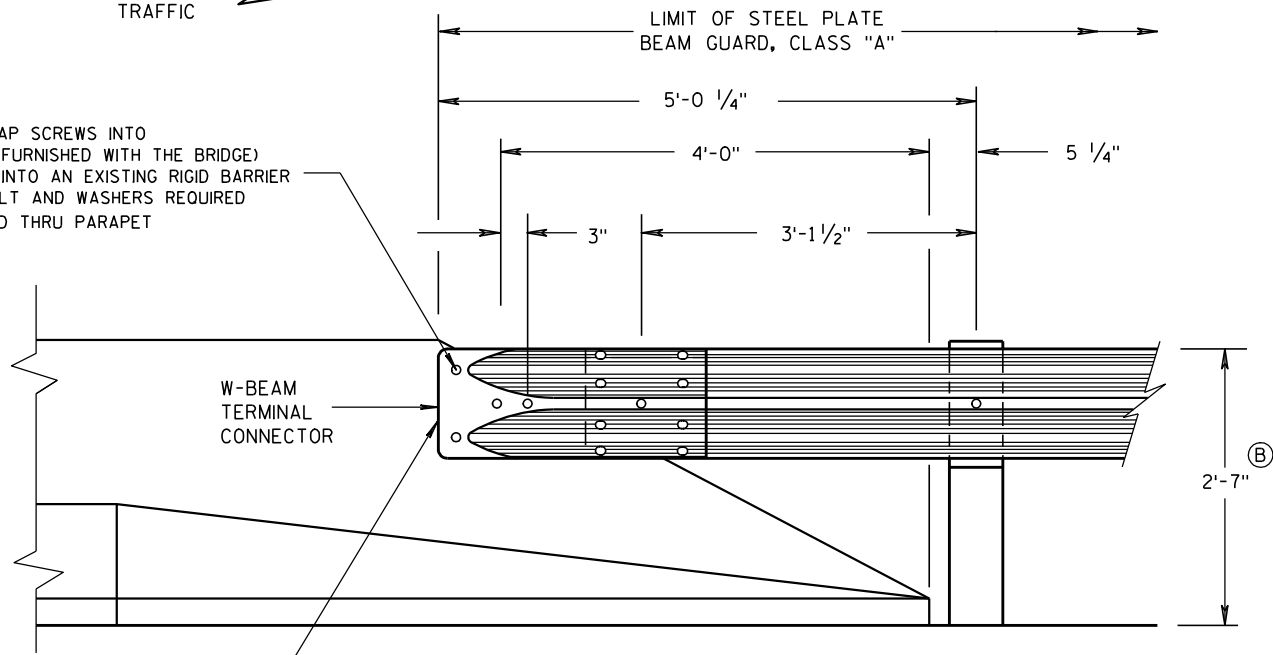
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8-31-2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

ONE WAY  
TRAFFIC →

① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)



WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

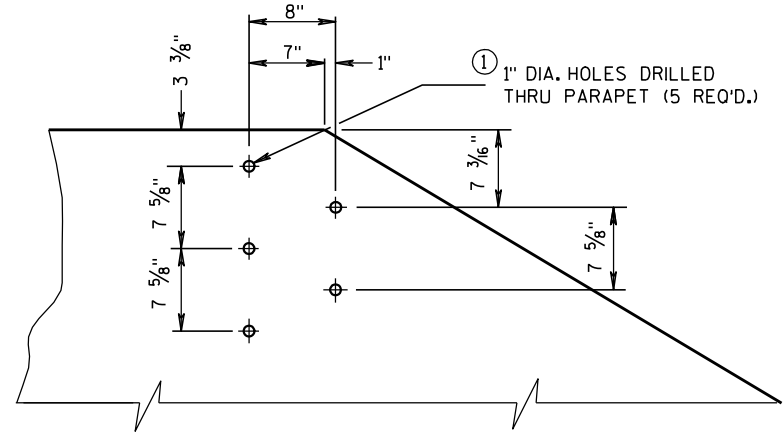
FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

**GENERAL NOTES**

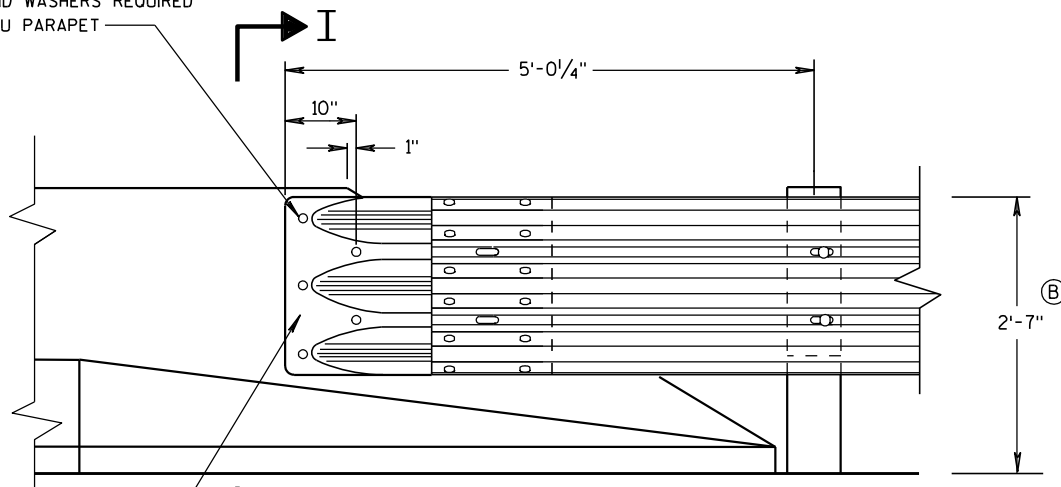
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



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

6

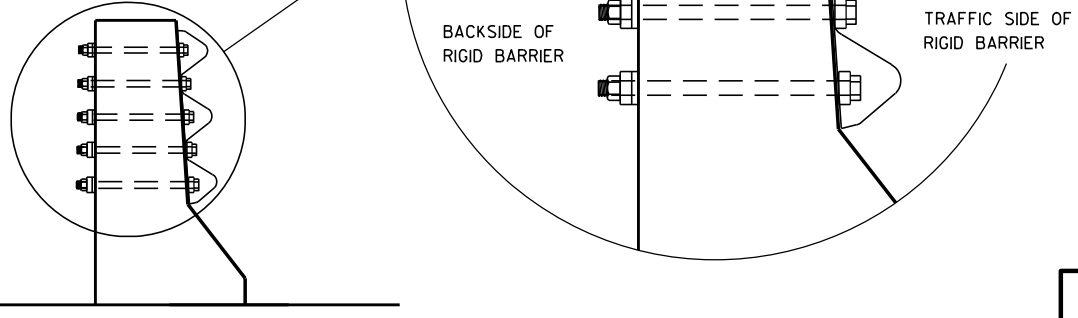
① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)



WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

FRONT VIEW

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



SECTION I-I

6

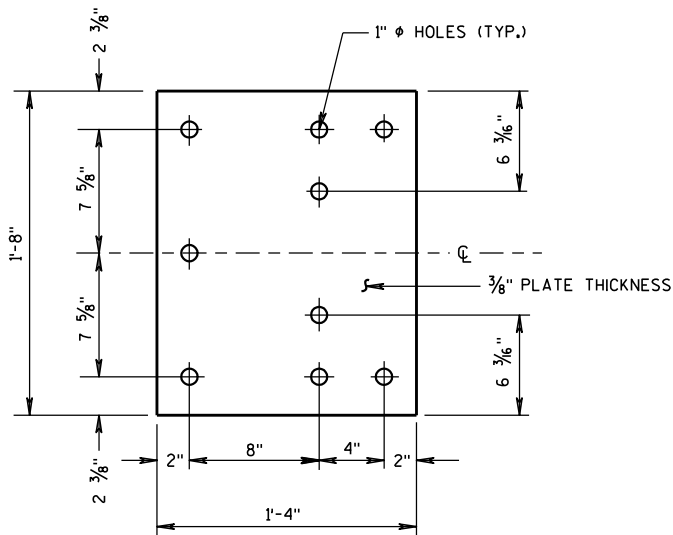
S.D.D. 14 B 45-3f

S.D.D. 14 B 45-3f

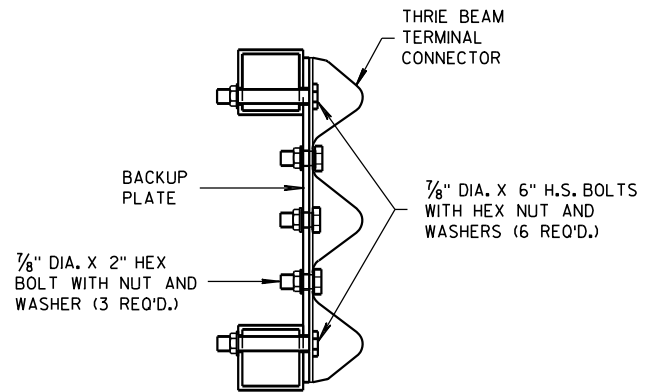
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

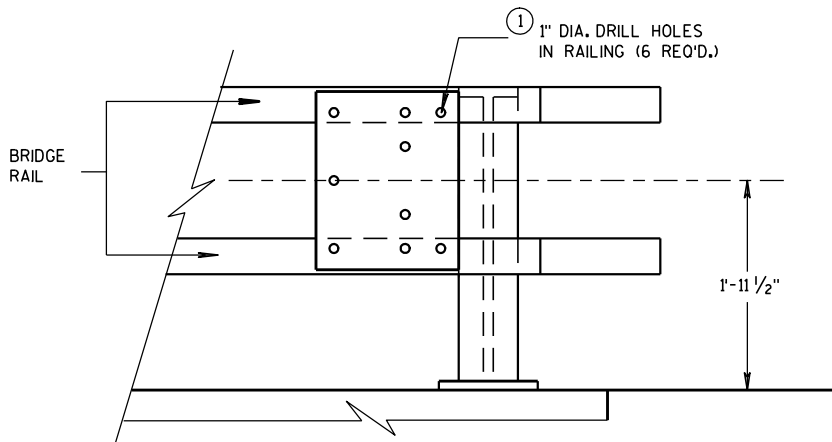
APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



**BACK-UP PLATE DETAIL**



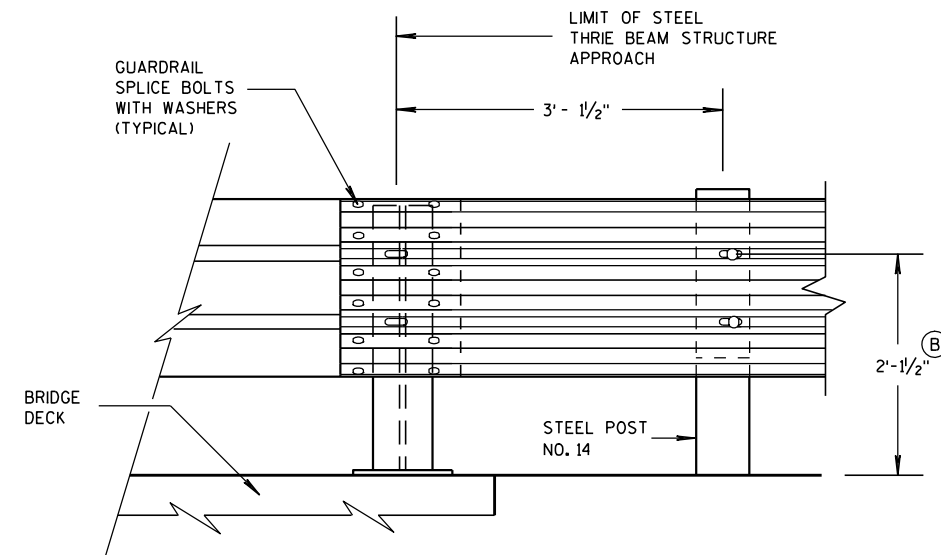
**SECTION J-J**



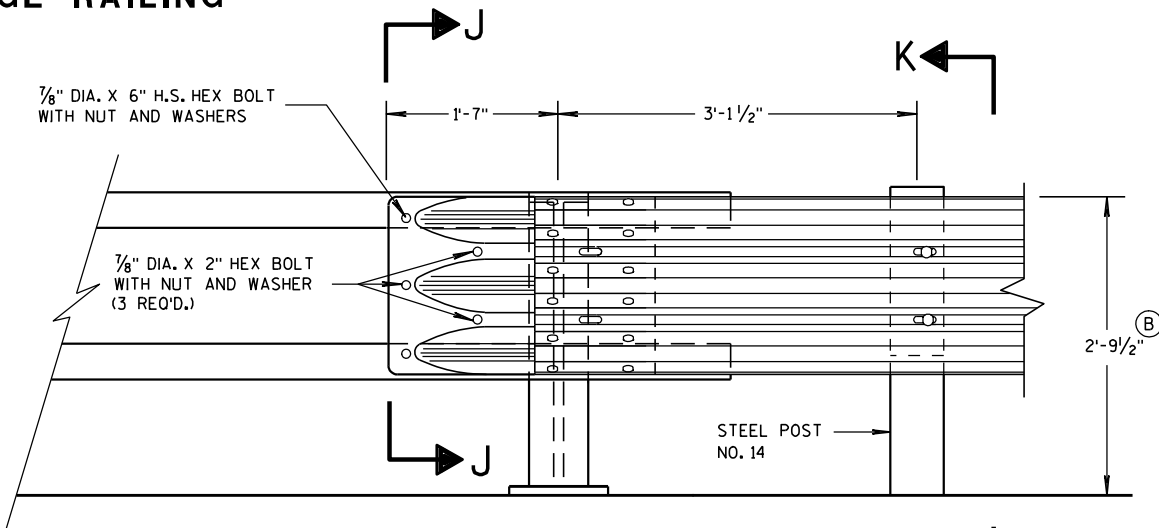
**BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING**

**GENERAL NOTES**

- ① DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .

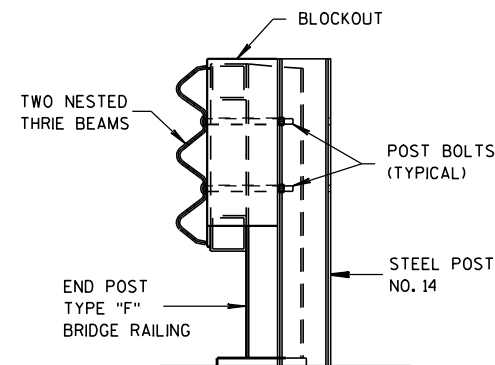


**FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"**



**FRONT VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"**



**SECTION K-K**

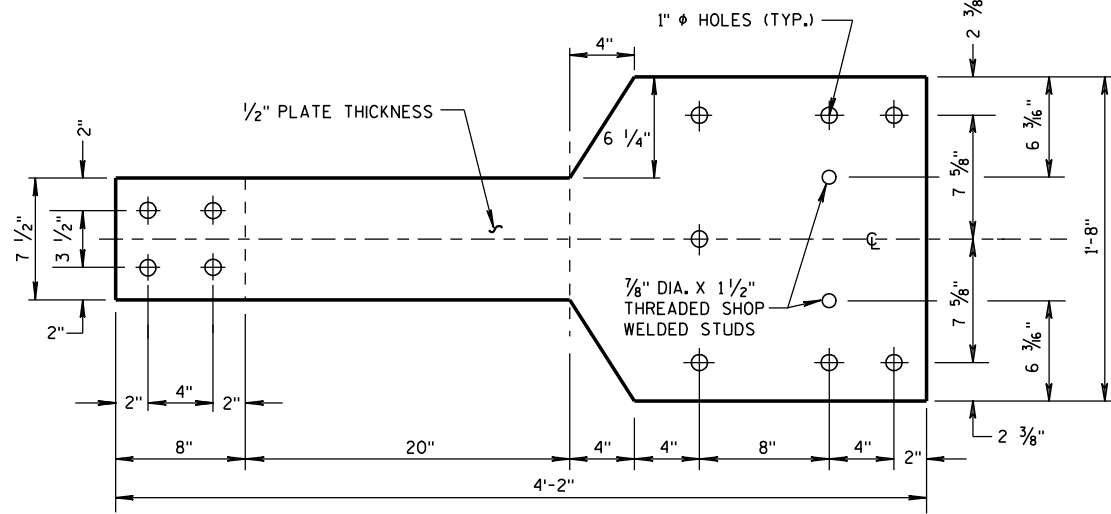
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

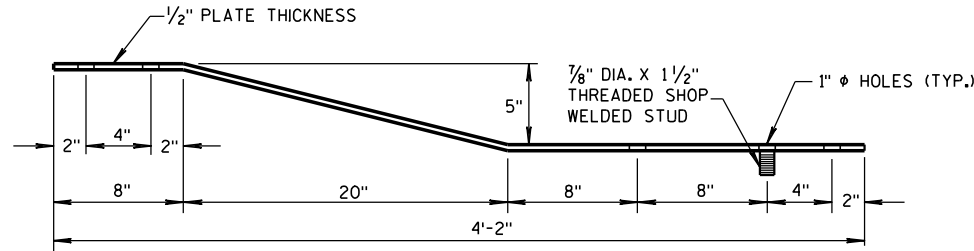
APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

**GENERAL NOTES**

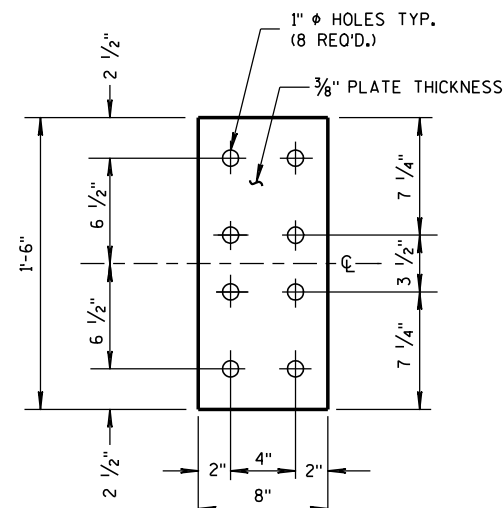
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm 1"$ .



**FRONT VIEW**

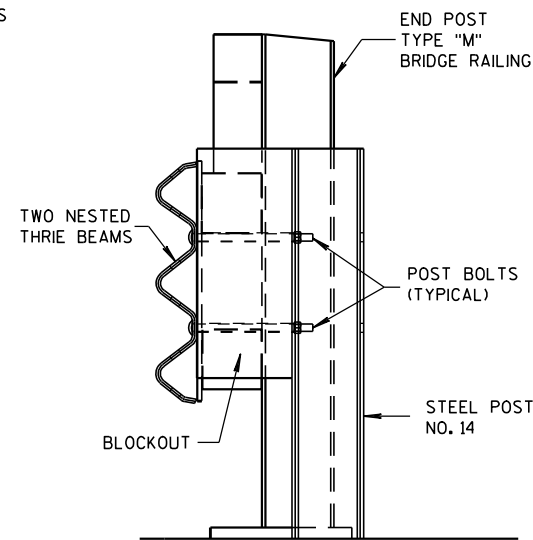


**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**

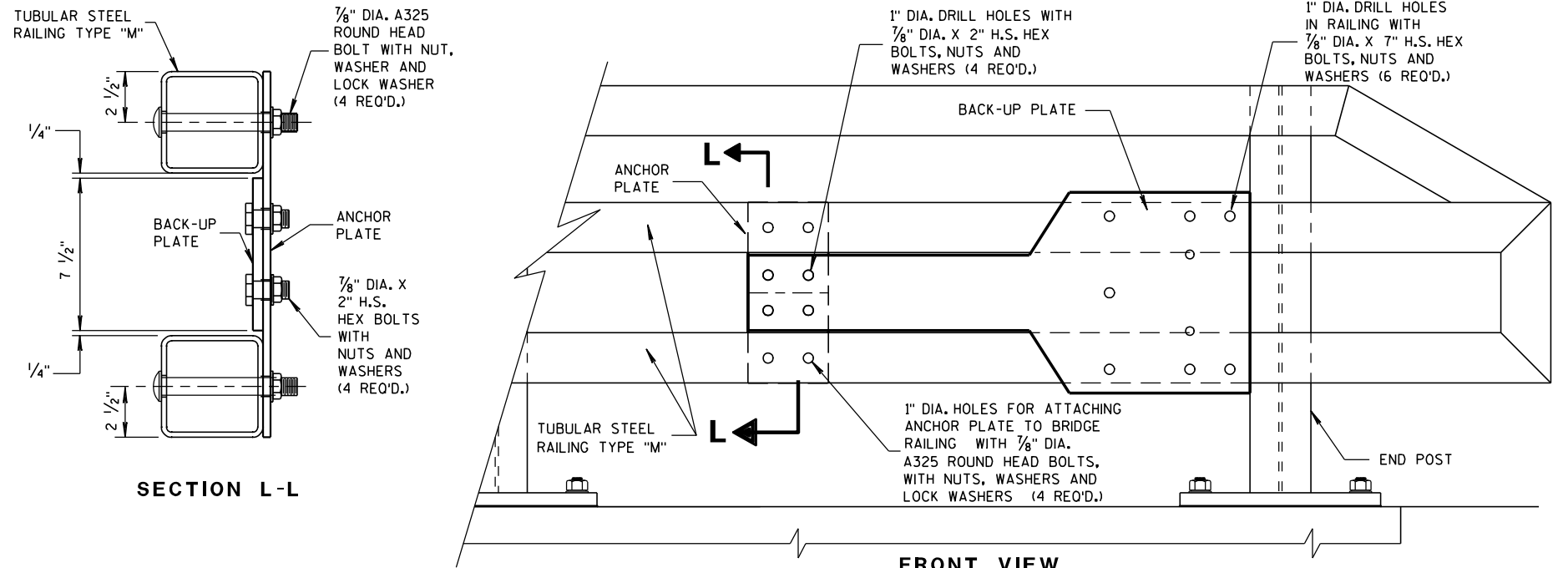


**FRONT VIEW**

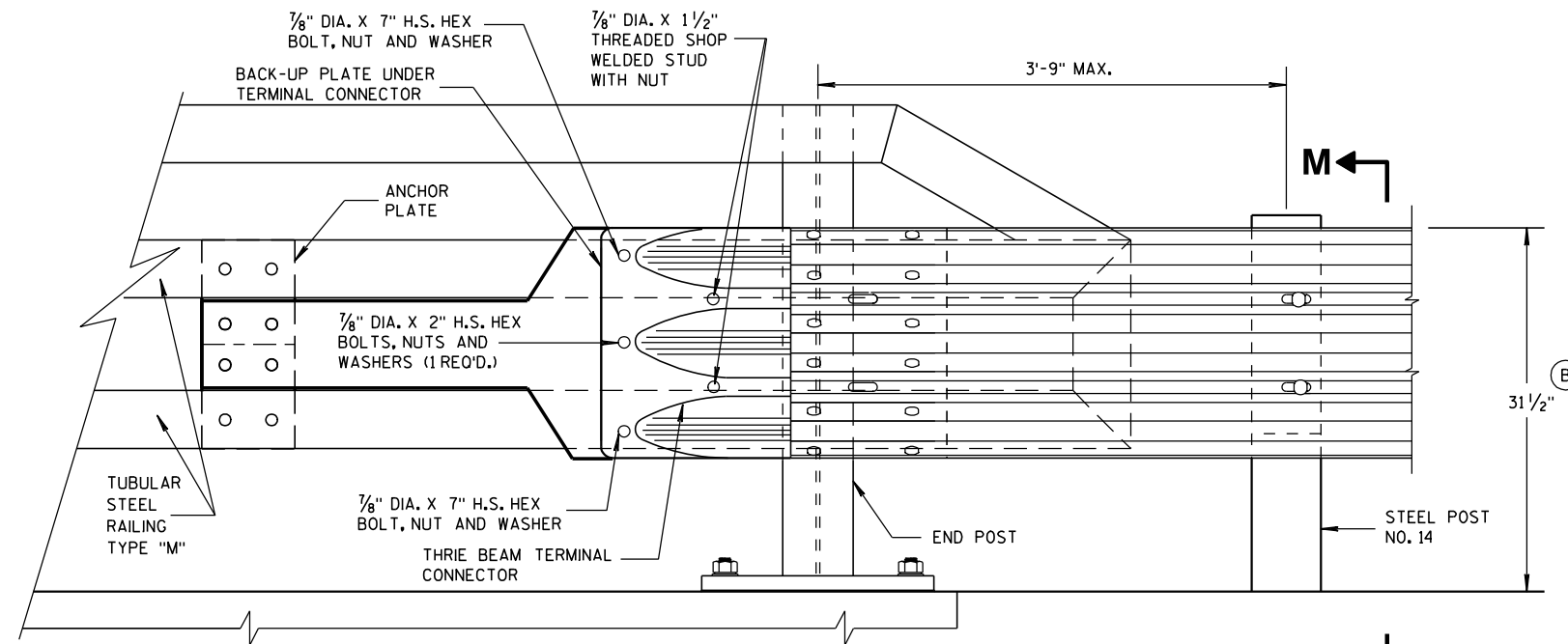
**ANCHOR  
PLATE DETAIL,  
TYPE "M"**



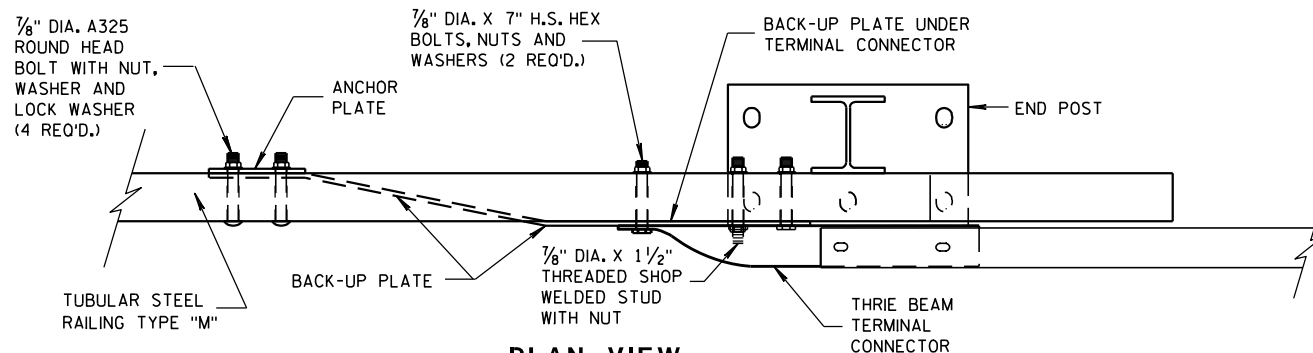
**SECTION M-M**



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



**FRONT VIEW**



**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

6

6

S.D.D. 14 B 45-3h

S.D.D. 14 B 45-3h

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-31-2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



### GENERAL NOTES

COVER PLATE PANELS ARE  $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE  $\frac{1}{4}$ " THICK.

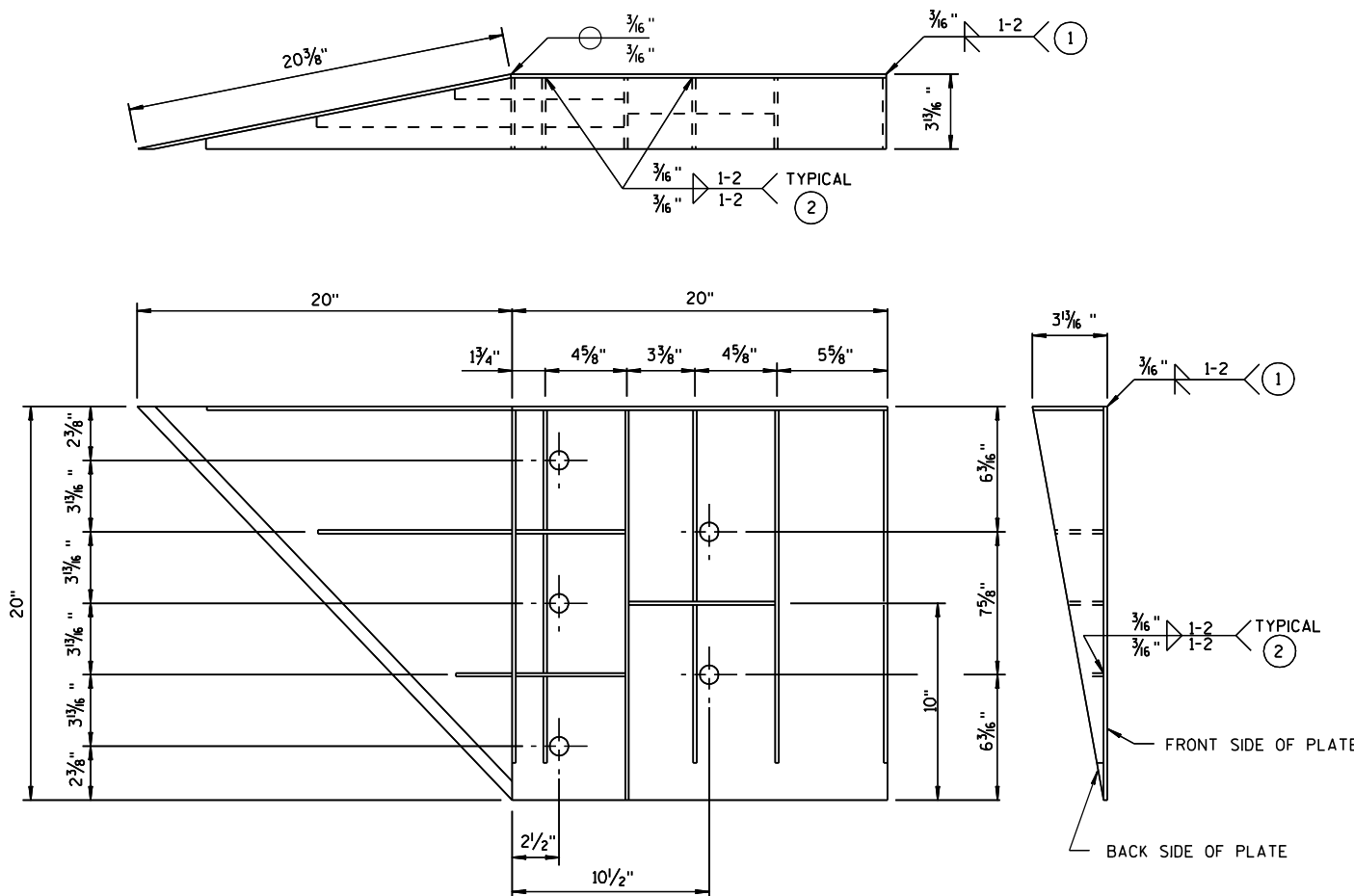
CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

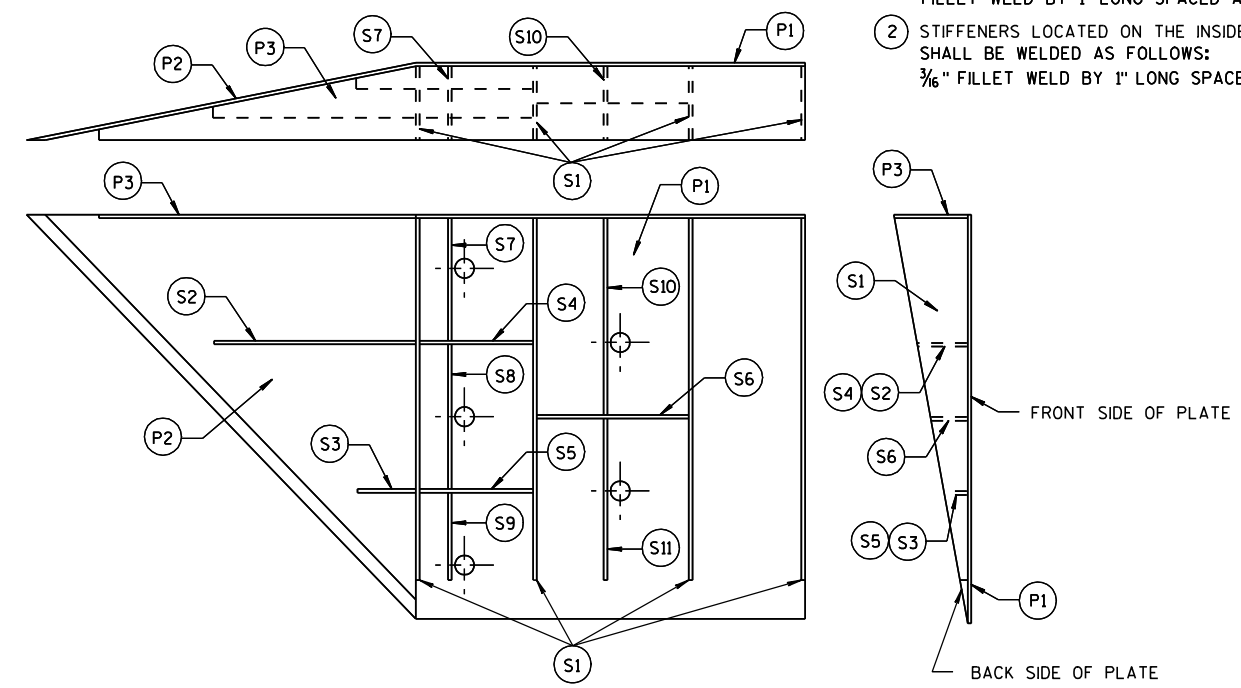
ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- ① STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND  $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- ② STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
 $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



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

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	$\frac{3}{16}$ "
P2	1		20" x 20" x 28 $\frac{3}{16}$ "	$\frac{3}{16}$ "
P3	1		39" x 3 $\frac{5}{8}$ " x 20" x 19 $\frac{5}{16}$ "	$\frac{3}{16}$ "
S1	4		18 $\frac{1}{16}$ " x 3 $\frac{3}{8}$ " x 18 $\frac{3}{4}$ "	$\frac{1}{4}$ "
S2	1		10 $\frac{1}{4}$ " x 2 $\frac{1}{16}$ " x 10 $\frac{3}{8}$ " x $\frac{1}{2}$ "	$\frac{1}{4}$ "
S3	1		3" x 1 $\frac{1}{16}$ " x 3 $\frac{3}{8}$ " x $\frac{1}{2}$ "	$\frac{1}{4}$ "
S4	1		6 $\frac{1}{8}$ " x 2 $\frac{1}{16}$ "	$\frac{1}{4}$ "
S5	1		6 $\frac{1}{8}$ " x $\frac{1}{16}$ "	$\frac{1}{4}$ "
S6	1		7 $\frac{3}{4}$ " x 1 $\frac{3}{4}$ "	$\frac{1}{4}$ "
S7	1		2 $\frac{3}{16}$ " x 6" x 3 $\frac{5}{8}$ " x 5 $\frac{1}{8}$ "	$\frac{1}{4}$ "
S8	1		1 $\frac{3}{32}$ " x 7 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x 7 $\frac{3}{8}$ "	$\frac{1}{4}$ "
S9	1		6 $\frac{1}{16}$ " x 6 $\frac{3}{16}$ " x 1 $\frac{1}{32}$ "	$\frac{1}{4}$ "
S10	1		1 $\frac{7}{8}$ " x 9 $\frac{7}{8}$ " x 3 $\frac{5}{8}$ " x 9 $\frac{1}{16}$ "	$\frac{1}{4}$ "
S11	1		8 $\frac{1}{2}$ " x 8 $\frac{3}{4}$ " x 1 $\frac{1}{16}$ "	$\frac{1}{4}$ "

**SINGLE SLOPE CONNECTION PLATE**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

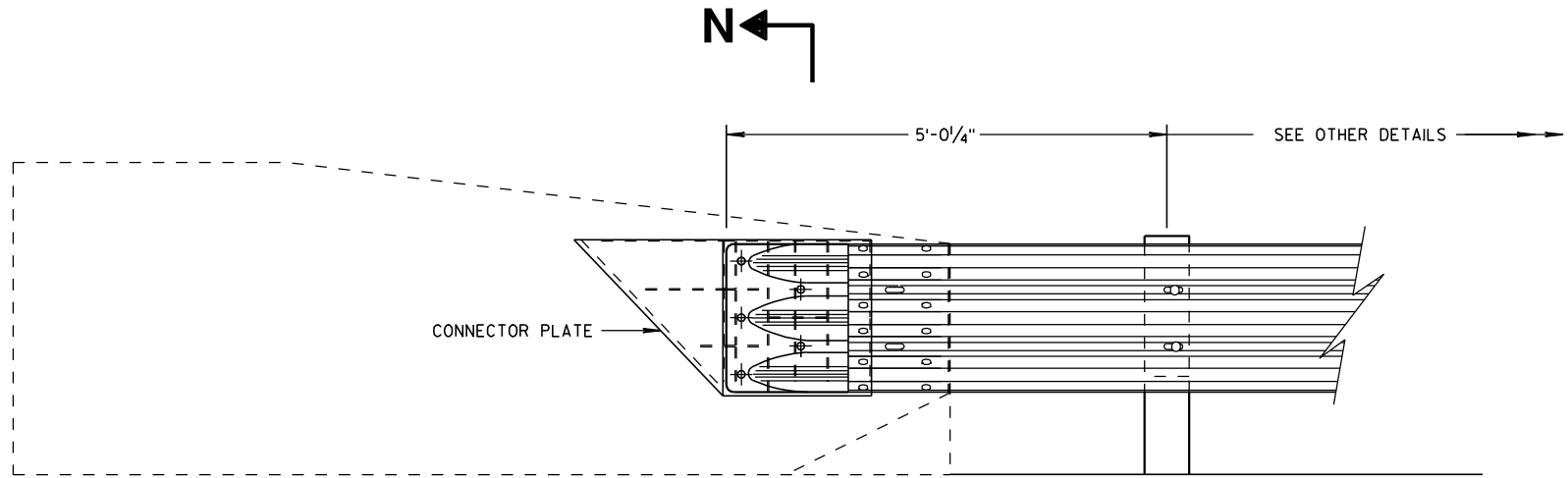
APPROVED  
8/31/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA

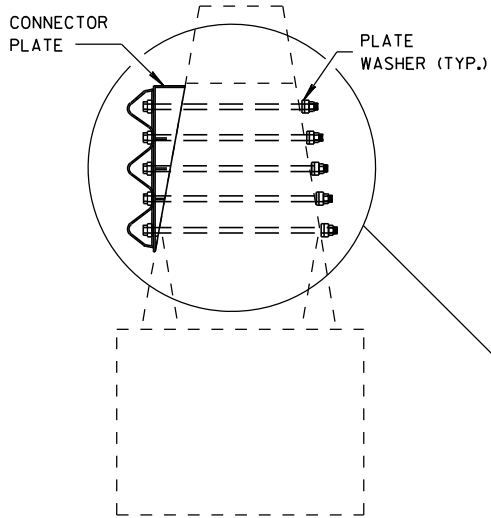
**GENERAL NOTES**

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

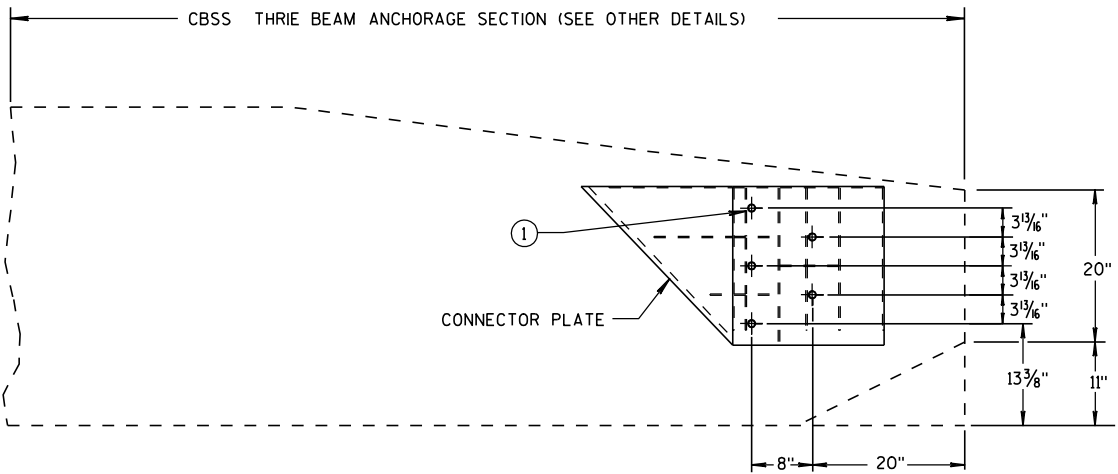
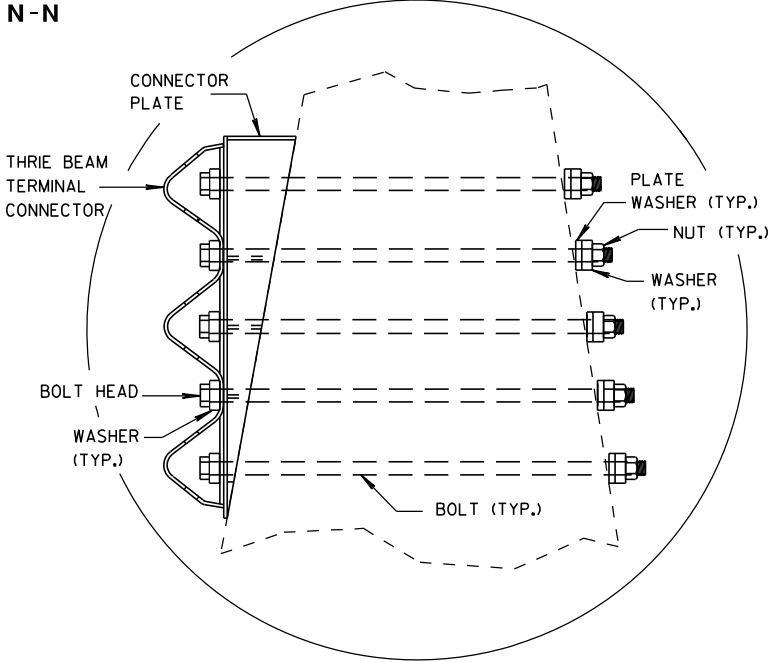
- ① BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**



**SECTION N-N**

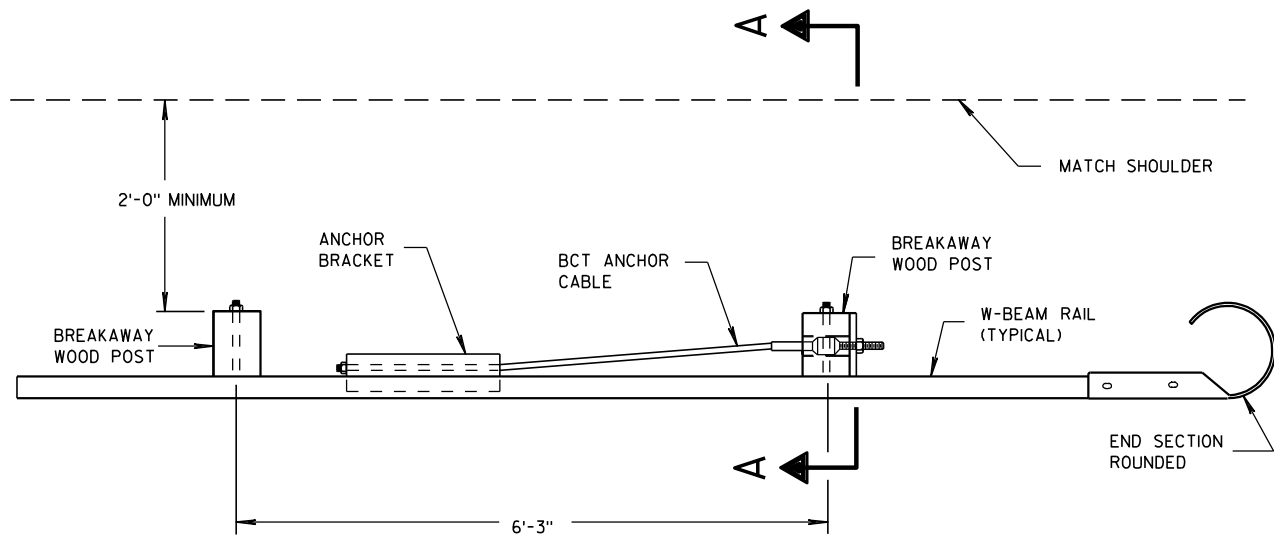


**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

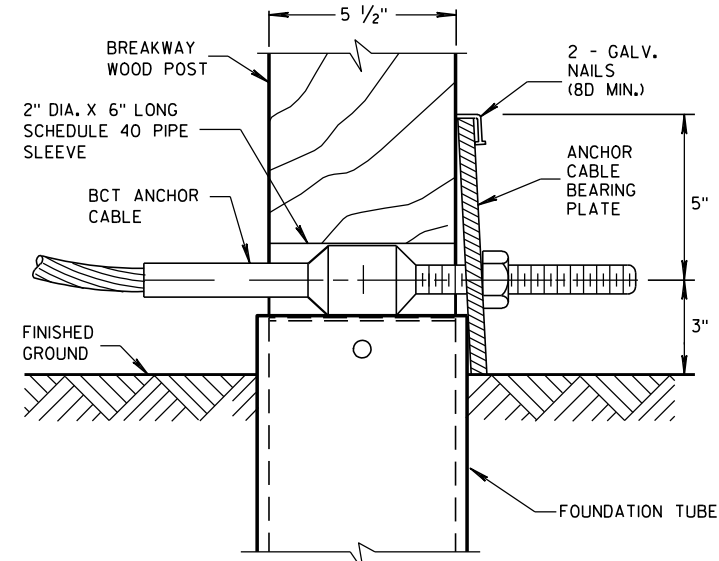
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA

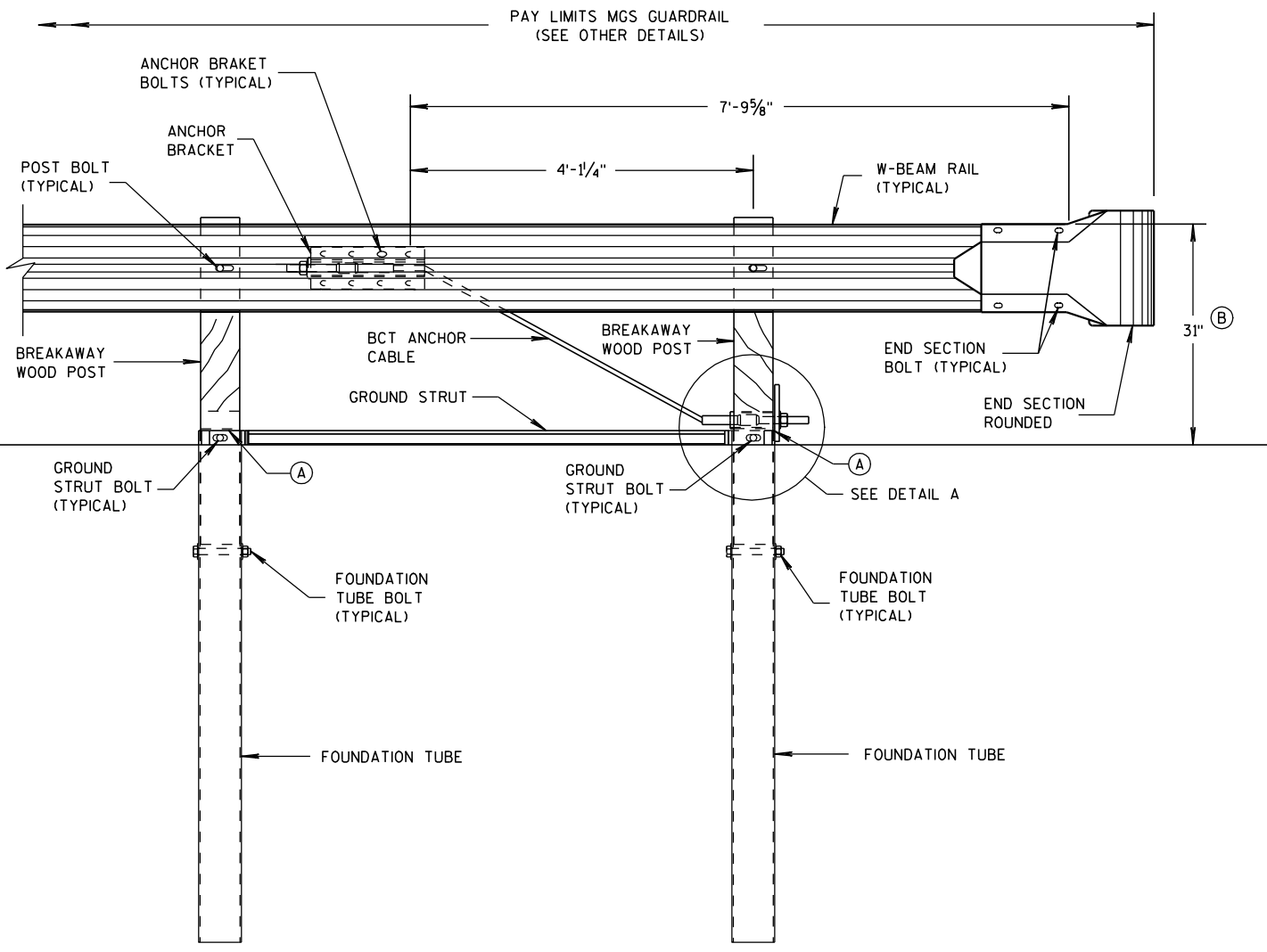


**PLAN VIEW**



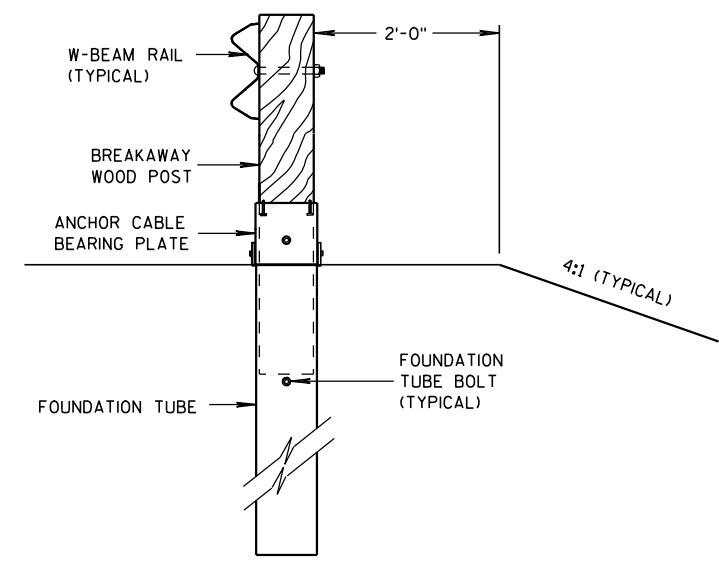
**DETAIL A**

POST NO. 1  
GROUND STRUT NOT SHOWN FOR CLARITY.



**FRONT VIEW**

**END RAIL DETAIL**



**SECTION A-A**

**GENERAL NOTES**

SEE SDD 14 B 42 FOR MORE INFORMATION.

POST BOLTS ARE A 5/8" DIAMETER X 10" LONG GUARDRAIL BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER DH MODIFIED (RECESSED) HEAVY HEX NUT AND 5/8" DIAMETER FLAT WASHER.

FOUNDATION TUBE BOLTS ARE A 7/8" DIAMETER X 7 1/2" LONG HEAVY HEX HEAD BOLT. A FOUNDATION TUBE BOLT REQUIRES A 7/8" DIAMETER DH HEAVY HEX NUT AND A 5/8" DIAMETER FLAT WASHER.

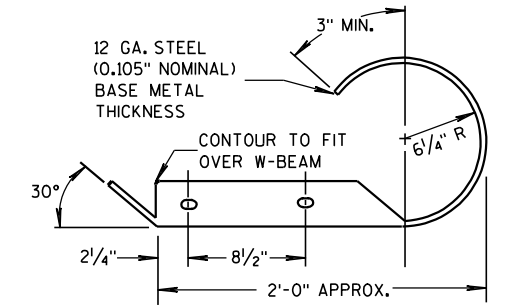
GROUND STRUT BOLTS ARE A 5/8" DIAMETER X 10" LONG HEAVY HEX HEAD BOLT. A GROUND STRUT BOLT REQUIRES A 5/8" DIAMETER DH HEAVY HEX NUT AND A 5/8" DIAMETER FLAT WASHER.

ANCHOR BRACKET BOLTS ARE A 5/8" DIAMETER X 1 1/2" LONG HEAVY HEX HEAD BOLT. AN ANCHOR BRACKET BOLT REQUIRES A 5/8" DIAMETER DH HEAVY HEX NUT AND A FLAT WASHER.

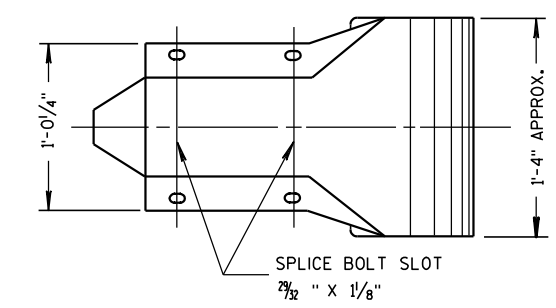
END SECTION BOLTS ARE A 5/8" DIAMETER X 1 1/2" HEAVY HEX HEAD BOLT. AN END SECTION BOLT REQUIRES 5/8" DIAMETER DH HEAVY HEX NUT AND A 5/8" DIAMETER FLAT WASHER.

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" ± 1". FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27 3/4" TO 32" ± 1".



**PLAN VIEW**

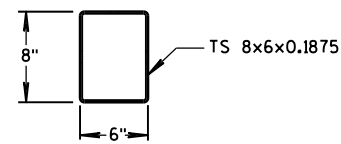


**FRONT VIEW**

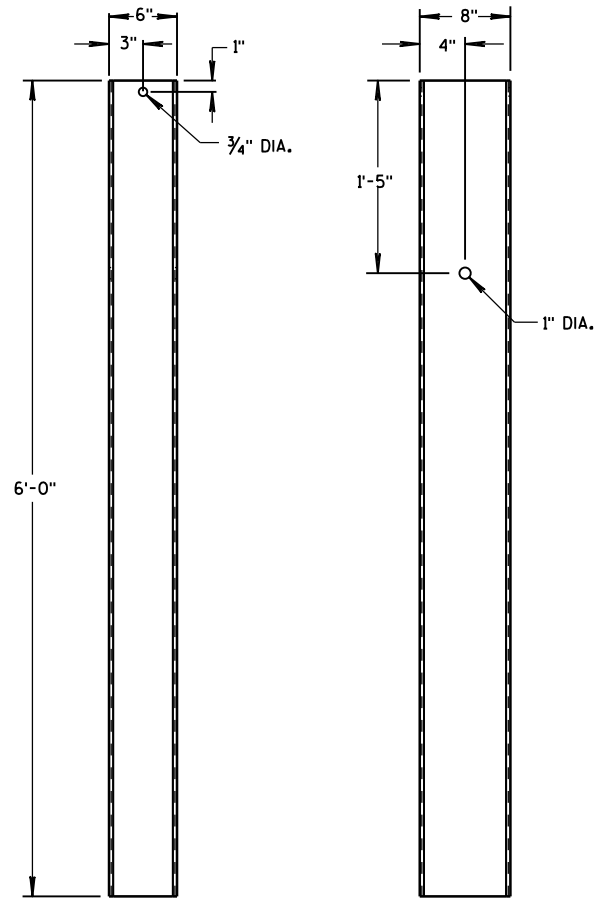
**W BEAM END SECTION ROUNDED**

**MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL**

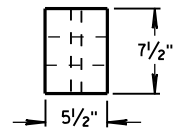
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



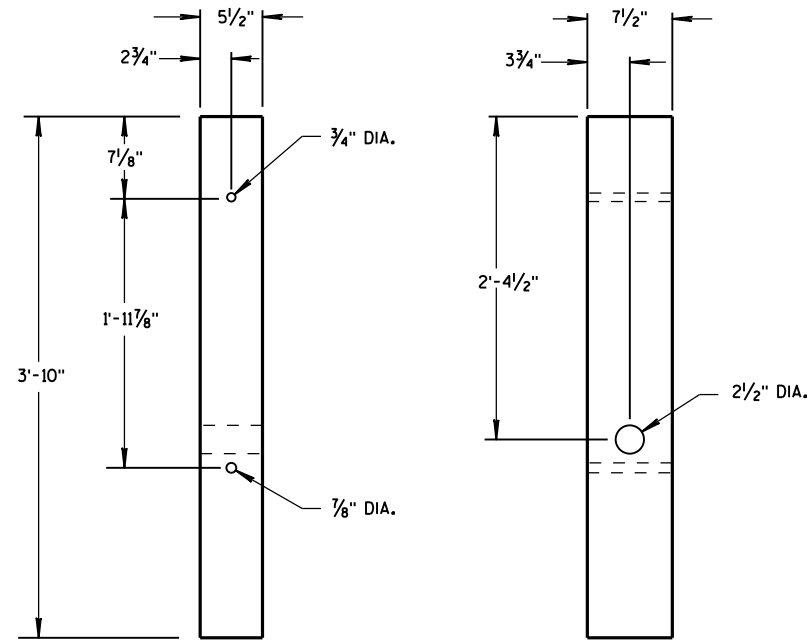
PLAN VIEW



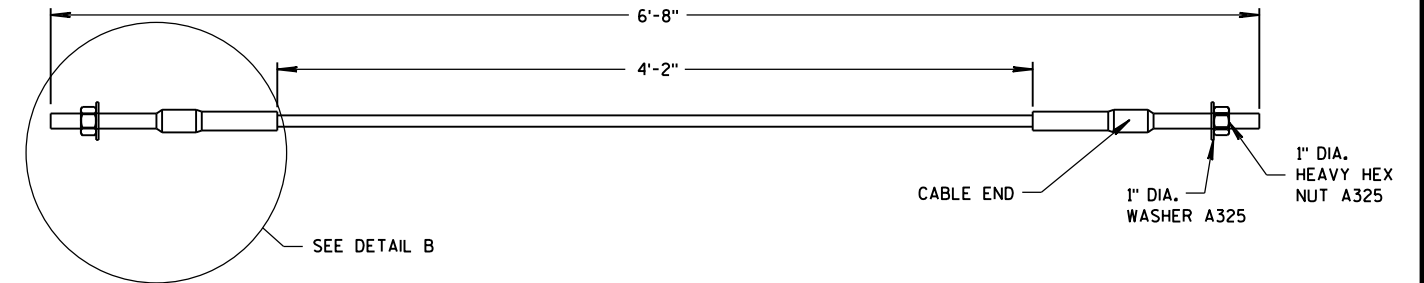
FRONT VIEW SIDE VIEW  
FOUNDATION TUBE



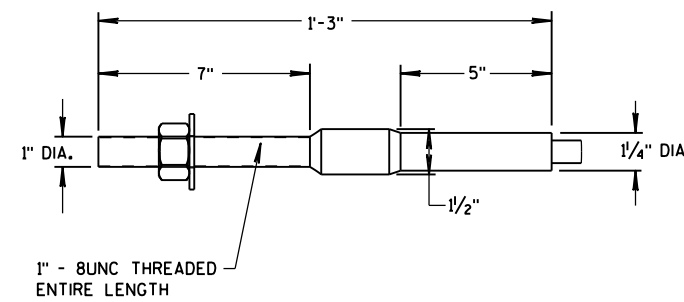
PLAN VIEW



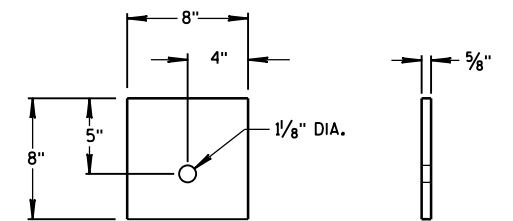
FRONT VIEW SIDE VIEW  
BREAKAWAY WOOD POST



BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW  
ANCHOR CABLE BEARING PLATE

**GENERAL NOTES**

BCT ANCHOR CABLE IS A 3/8" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. THE END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. THE TREADED STUD SHOULD CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

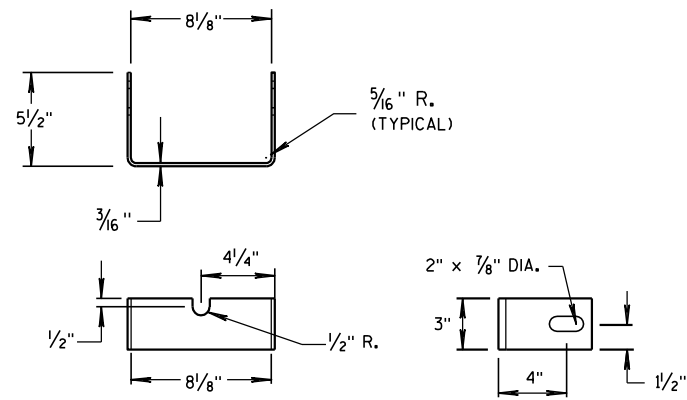
6

6

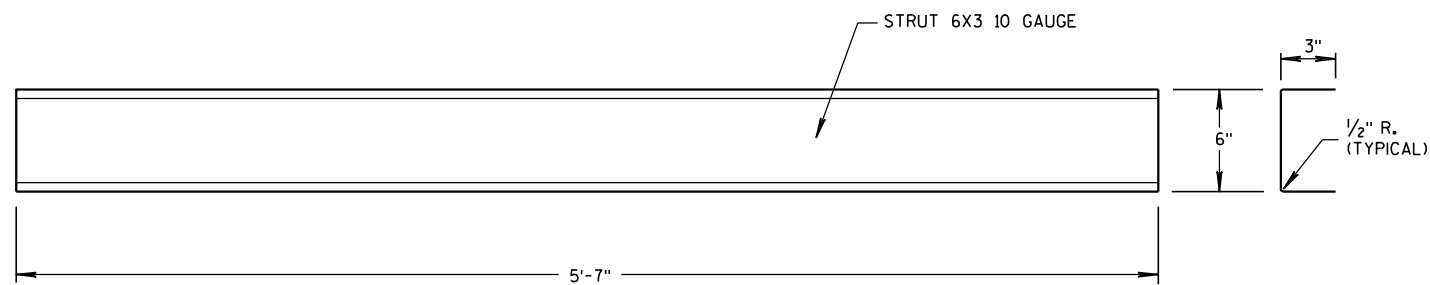
S.D.D. 14 B 47-1b

S.D.D. 14 B 47-1b

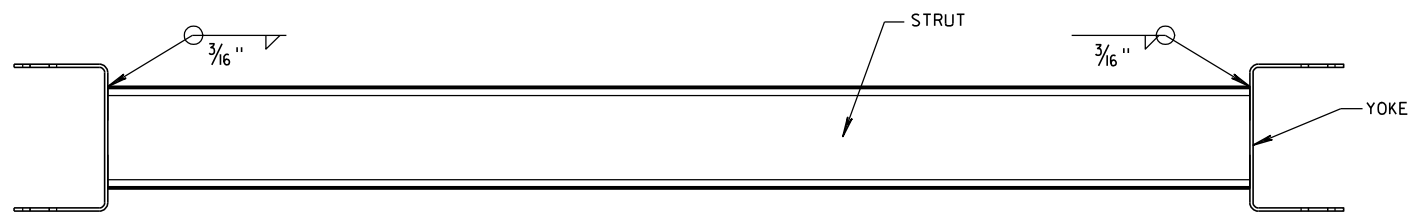
MIDWEST GUARDRAIL  
SYSTEM (MGS) TYPE 2 TERMINAL  
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



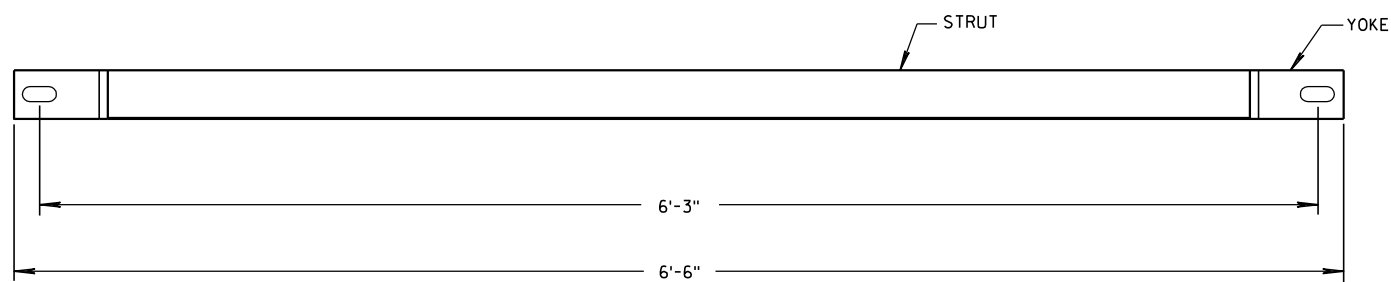
**YOKE DETAIL**



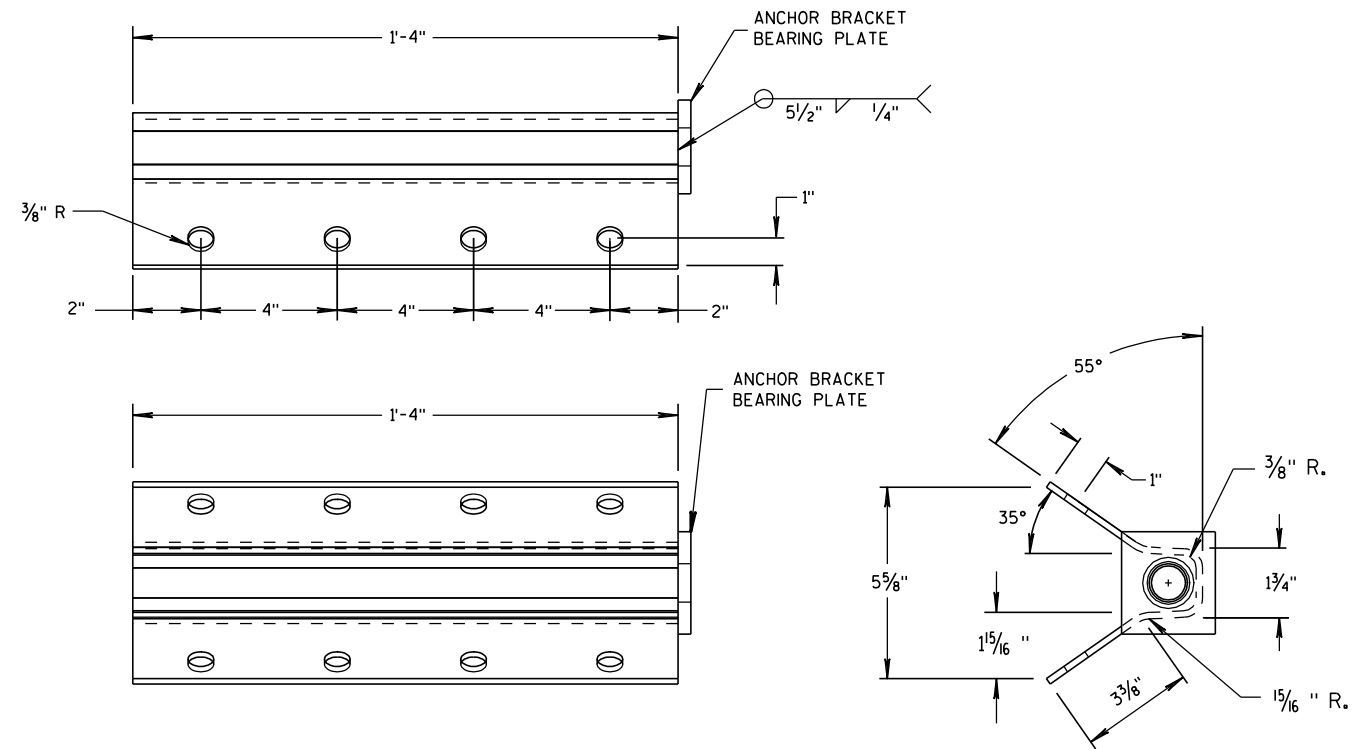
**STRUT DETAIL**



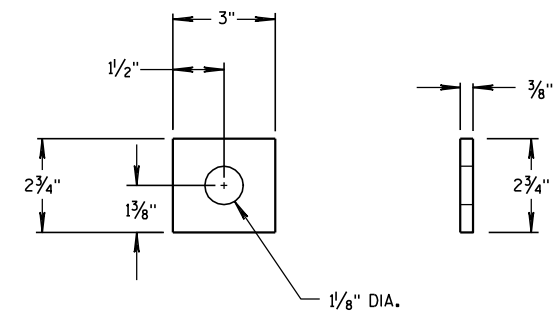
**PLAN VIEW**



**FRONT VIEW  
GROUND STRUT DETAIL**

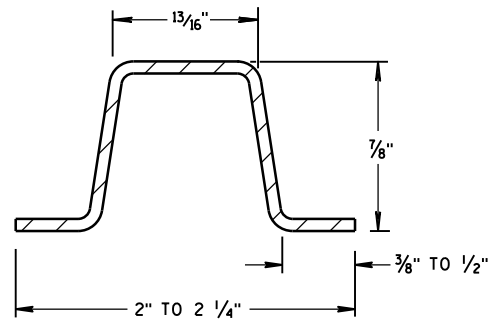
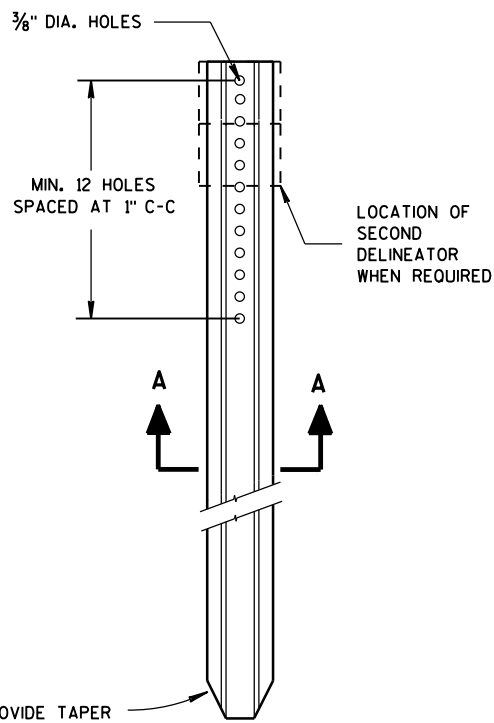


**ANCHOR BRACKET**

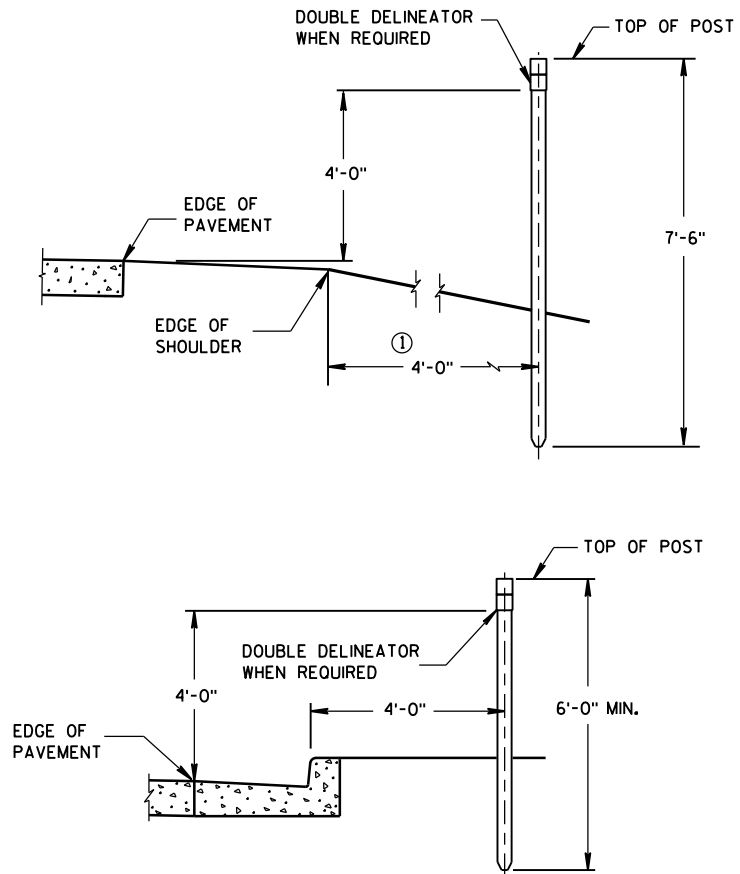


**ANCHOR BRACKET  
BEARING PLATE**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/23/2011 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**SECTION A-A**  
WEIGHT 1.12 LBS PER FT. ± 0.1 LB.

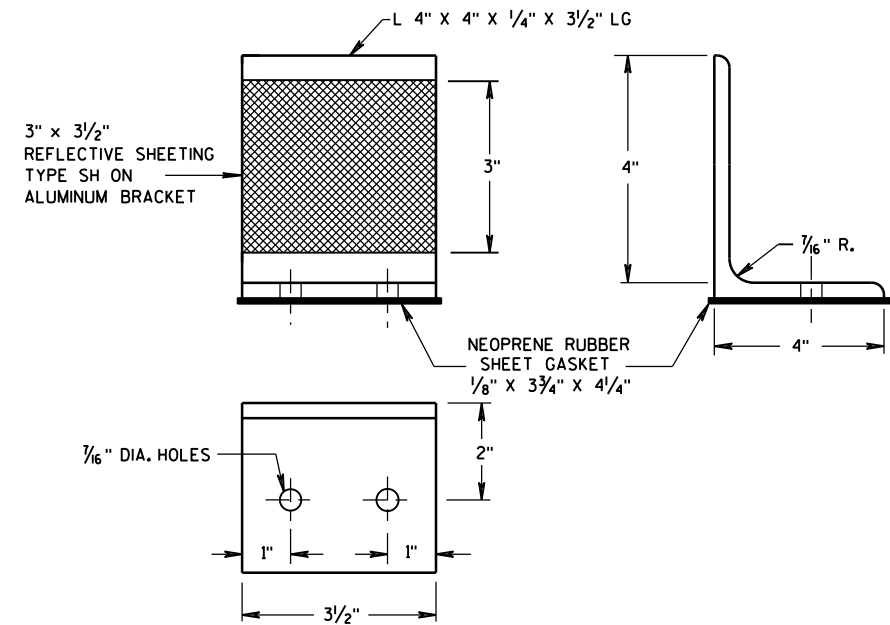


**TYPICAL INSTALLATIONS OF DELINEATOR POSTS**

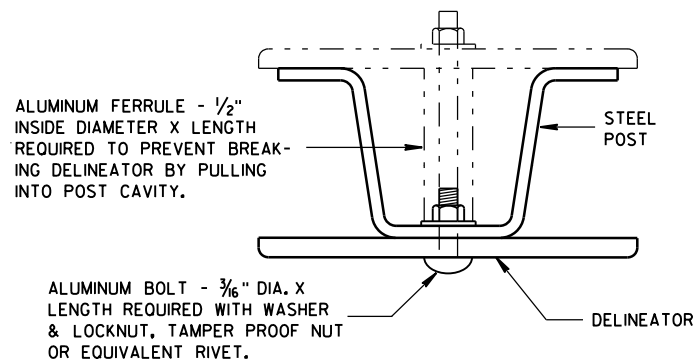
**GENERAL NOTES**

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

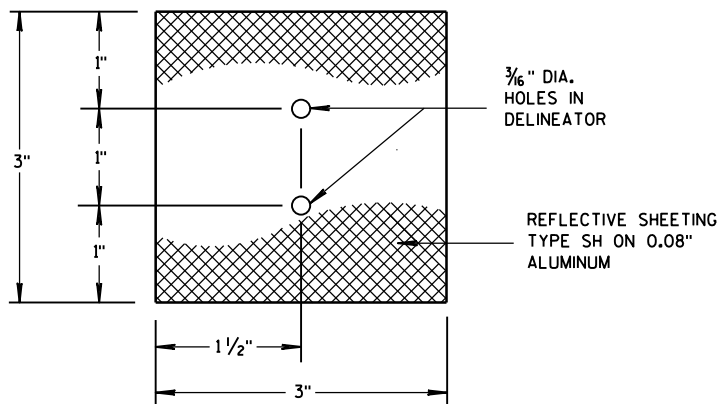
① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



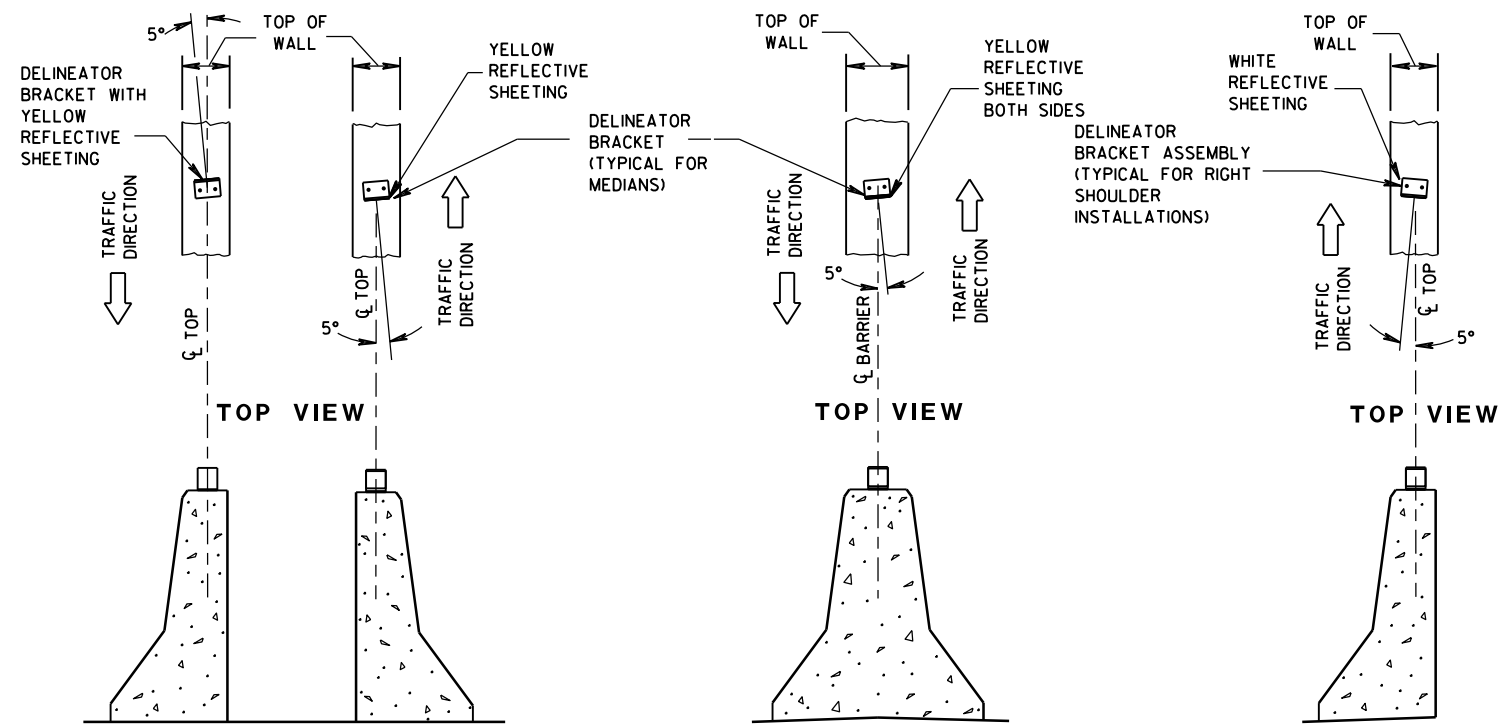
**DELINEATOR BRACKET**



**MOUNTING DETAIL FOR DELINEATOR**



**3" X 3" DELINEATOR**

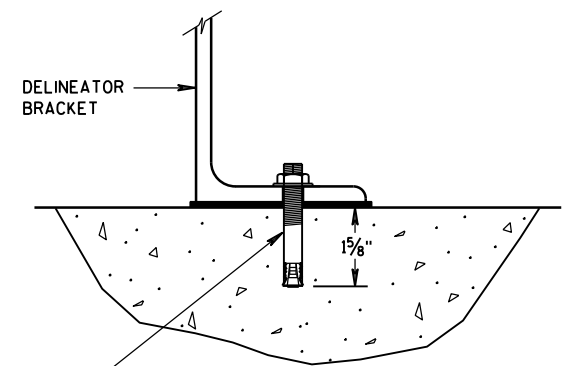


**DOUBLE BARRIERS IN MEDIAN**

**MEDIAN BARRIER**

**BARRIER LOCATED TO RT. OF TRAFFIC FLOW**

**LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS**



**DELINEATOR BRACKET MOUNTING DETAIL**

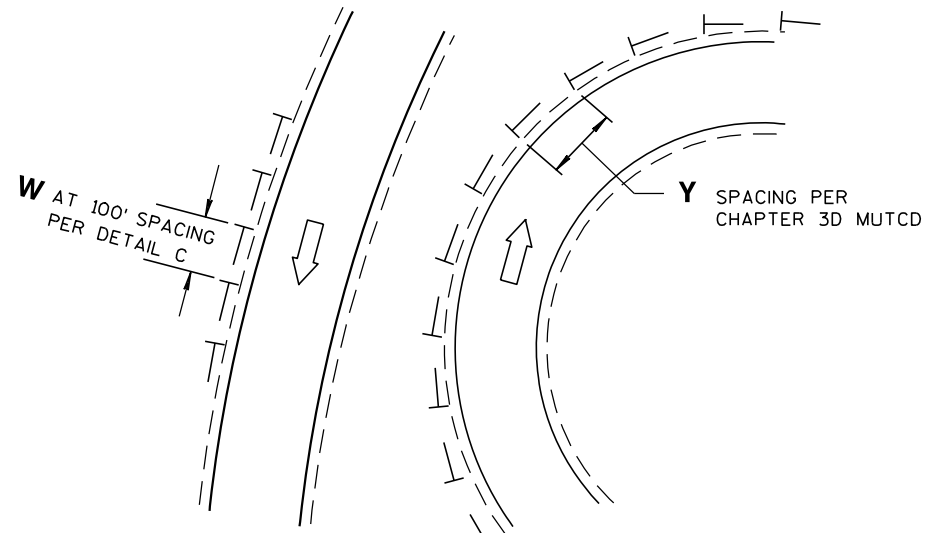
**DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

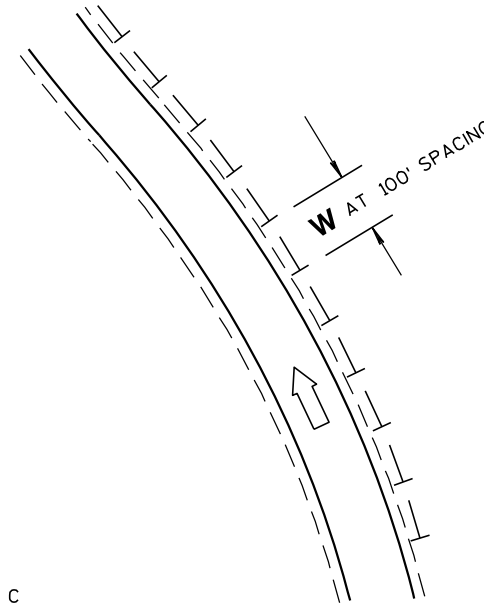
APPROVED  
7/2013 DATE /s/ Travis Feltes  
STATE TRAFFIC ENGINEER  
FHWA

**GENERAL NOTES**

\* USE DOUBLE DELINEATOR ALONG ACCELERATION-DECELERATION LANES AND TAPERS.  
USE SINGLE DELINEATOR WHEN RAMP PAVEMENT IS FULL WIDTH.



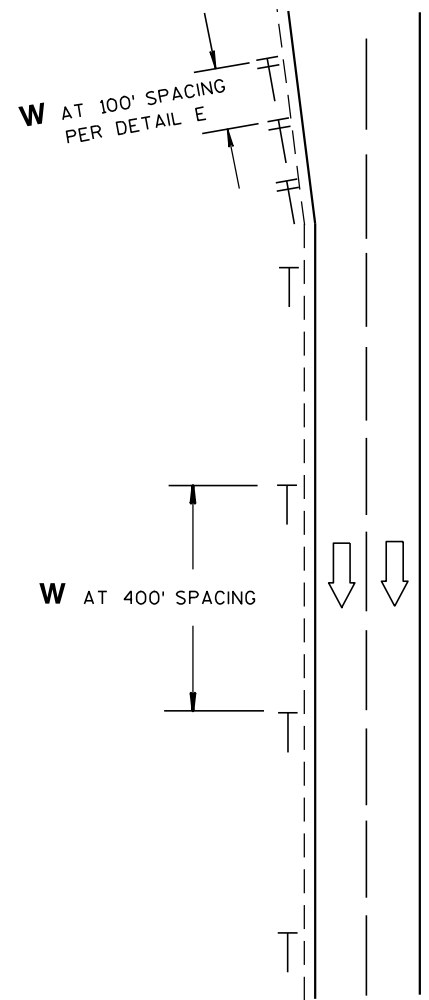
**DETAIL A  
DELINEATOR LAYOUT AT CURVED RAMP**



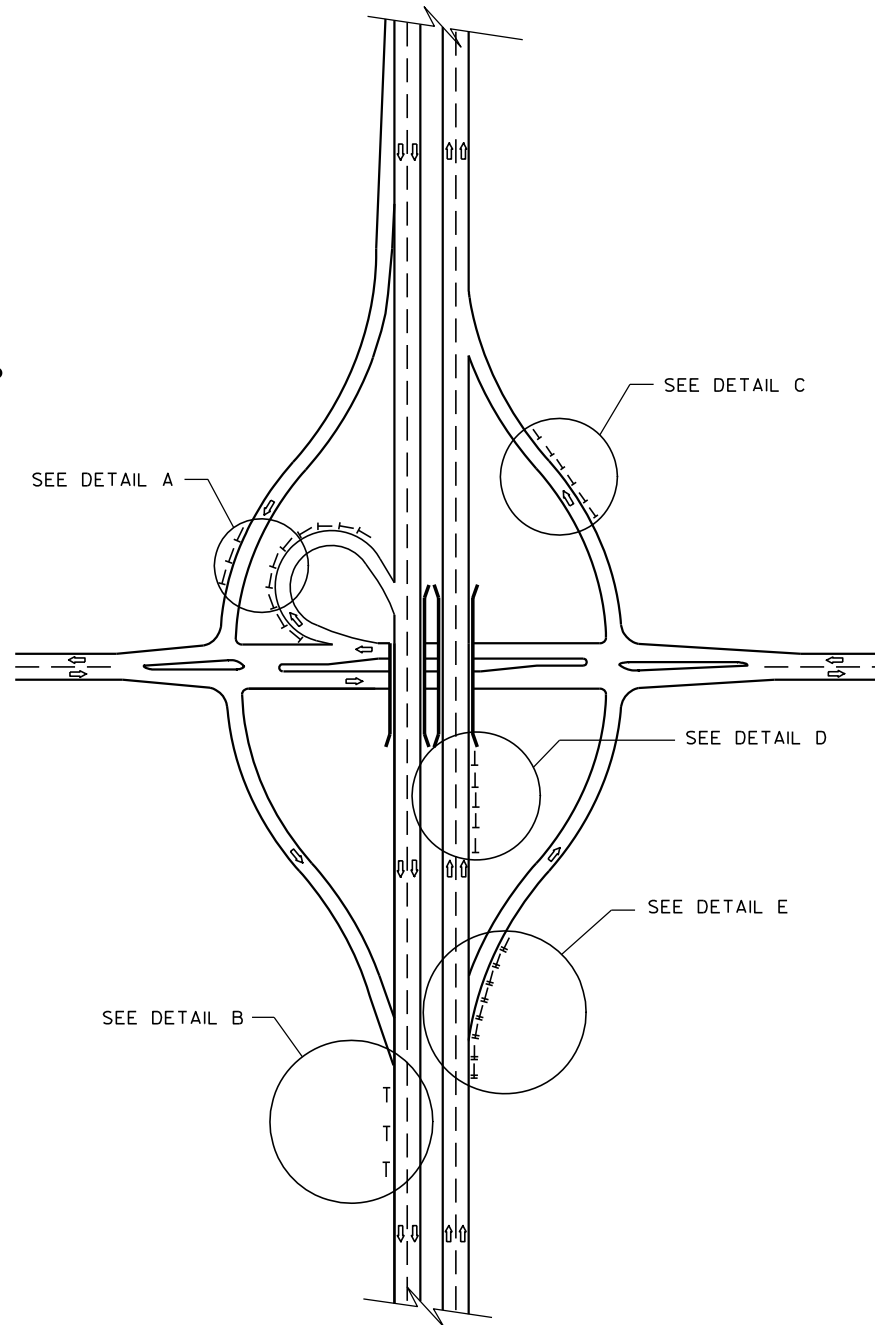
**DETAIL C  
DELINEATOR LAYOUT ALONG RAMP**

**LEGEND**

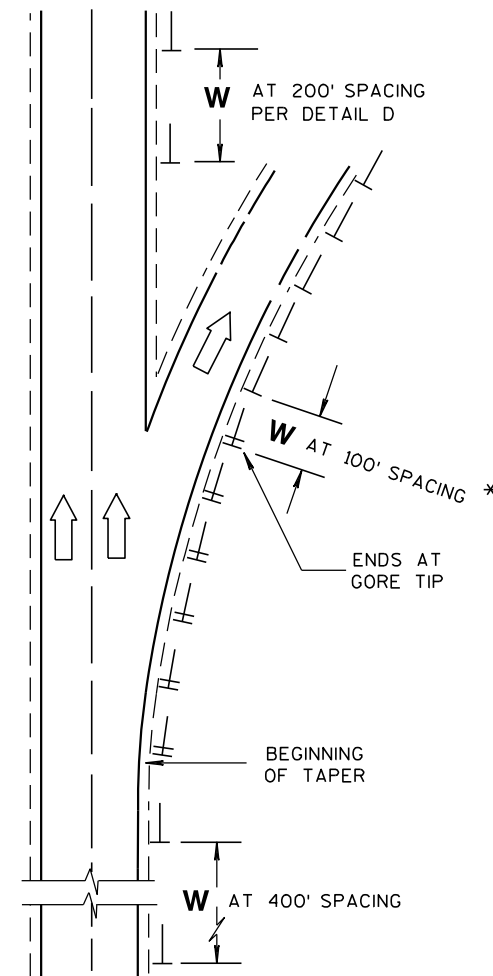
- DIRECTION OF TRAFFIC FLOW
- SINGLE DELINEATOR
- DOUBLE DELINEATOR
- W** WHITE
- Y** YELLOW



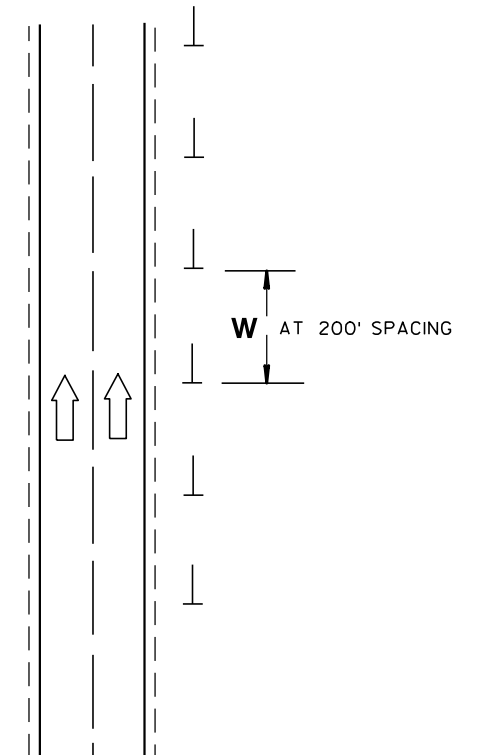
**DETAIL B  
DELINEATOR LAYOUT  
ALONG MAINLINE**



**DELINEATOR LAYOUT**



**DETAIL E  
DELINEATOR LAYOUT FOR ACCELERATION  
- DECELERATION LANES AND TAPERS AT RAMPS**



**DETAIL D  
DELINEATOR LAYOUT  
BETWEEN INTERCHANGE RAMPS**

6

6

**DELINEATOR LAYOUT**

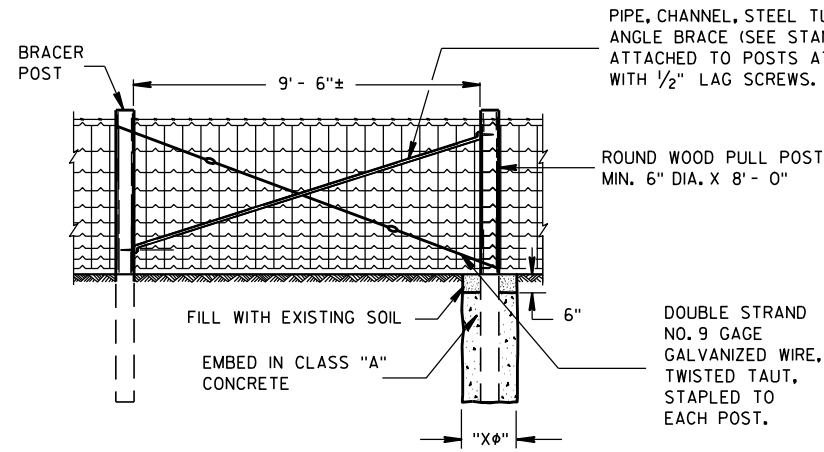
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
2/5/09 /S/ Thomas N. Notbohm  
DATE STATE TRAFFIC ENGINEER OF DESIGN

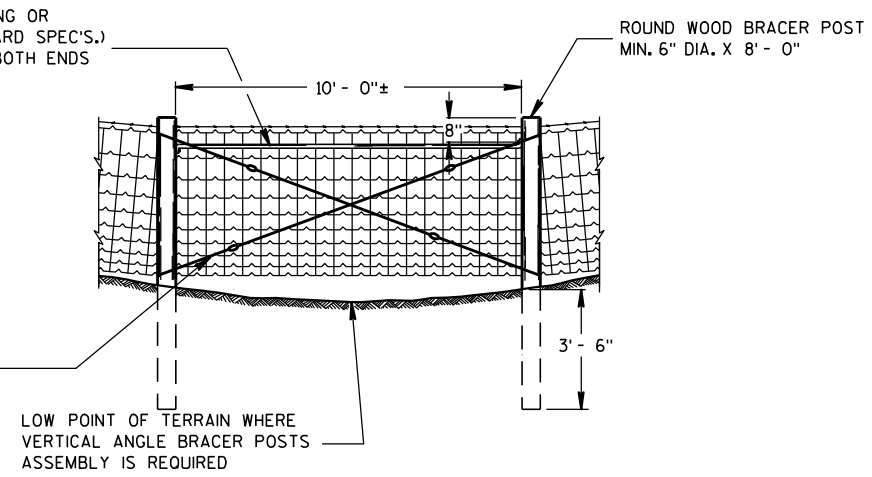
FHWA

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



**PULL OR STRETCHER POSTS ASSEMBLY**



**VERTICAL ANGLE BRACER POSTS ASSEMBLY**

**GENERAL NOTES**

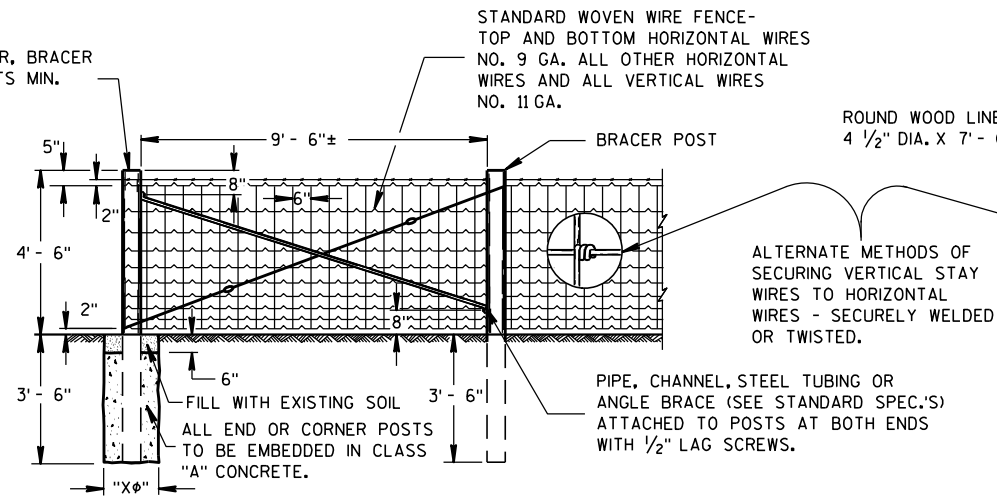
"Xφ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

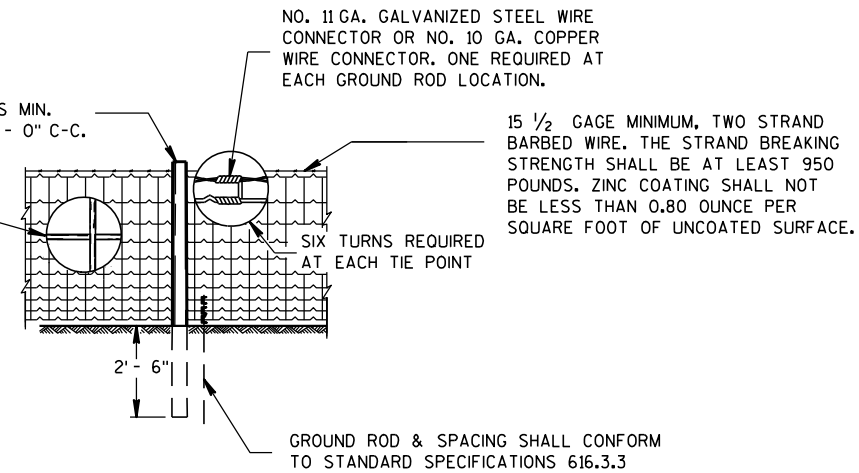
FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

ROUND WOOD END, CORNER, BRACER OR VERTICAL ANGLE POSTS MIN. 6" DIA. X 8' - 0"



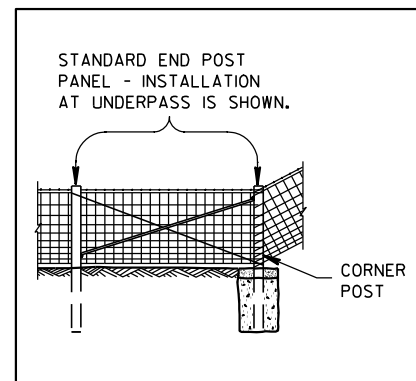
**END OR CORNER POSTS ASSEMBLY**

NOTE: FENCE CORNERS - ABOVE ILLUSTRATION SHOWS ONE LEG OF FENCE CONSTRUCTION AT FENCE CORNER. THE CONTIGUOUS LEG TO BE IDENTICAL CONSTRUCTION.

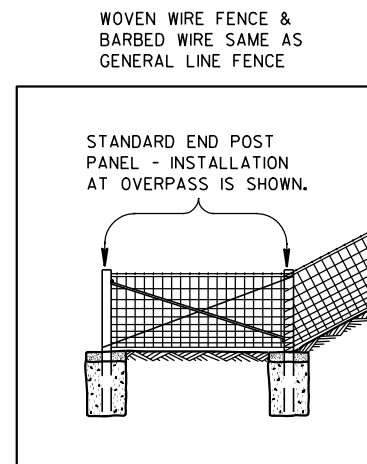


**LINE FENCE CONSTRUCTION**

**GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE**



**ALTERNATE FENCE DESIGN AT STRUCTURE**



**FENCE DESIGN AT STRUCTURE APPROACH**

NOTE: STRUCTURE APPROACH SECTION - ALL ROUND WOOD POSTS 6" MIN. DIA. X 8' - 0"

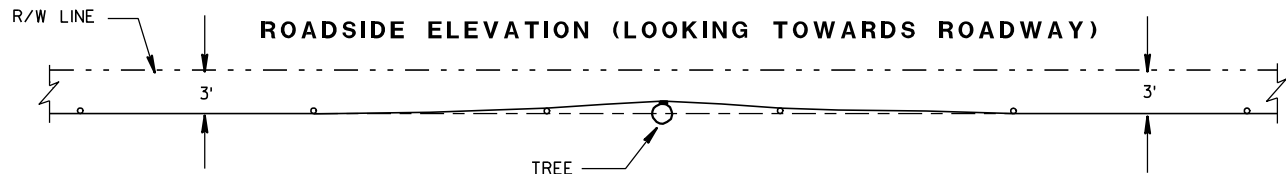
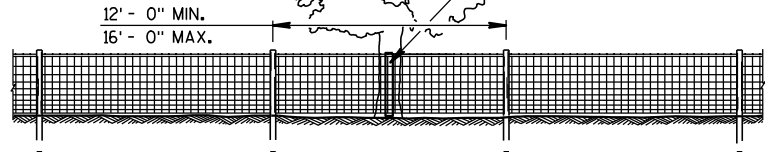
**FENCE WOVEN WIRE**

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DEPARTMENT OF TRANSPORTATION

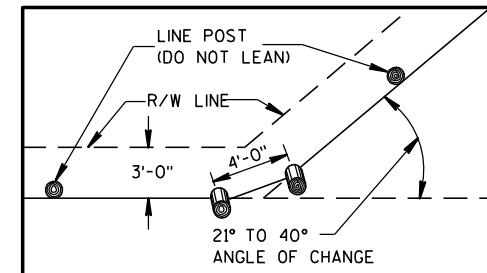
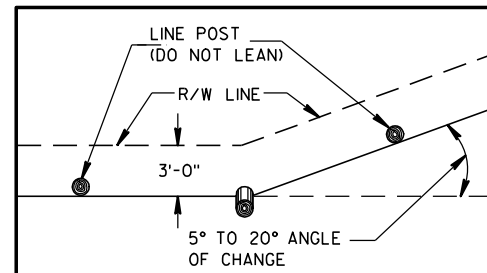


NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



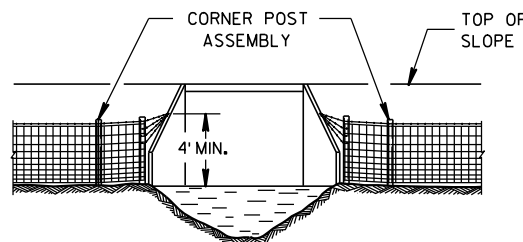
PLAN VIEW  
FENCE DESIGN AT TREES REMAINING  
IN NORMAL FENCE LINE



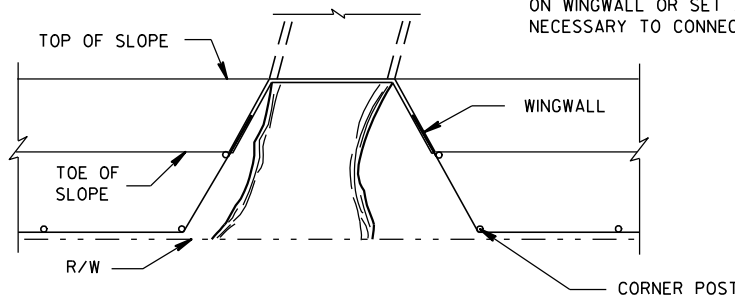
PLAN VIEW  
SINGLE POST CORNER  
PLAN VIEW  
DOUBLE POST CORNER  
RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

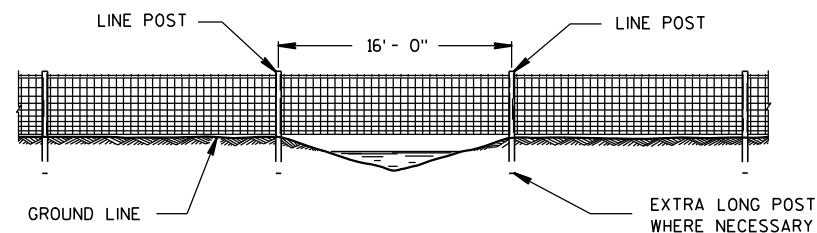
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



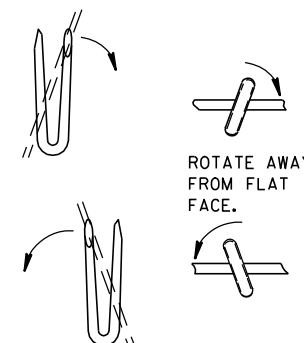
NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



FENCE INSTALLATION TO WINGWALLS

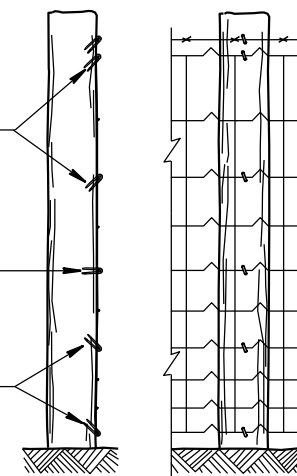


FENCE CONSTRUCTION OVER STREAM  
COURSES OF 15 FT. OR LESS IN WIDTH

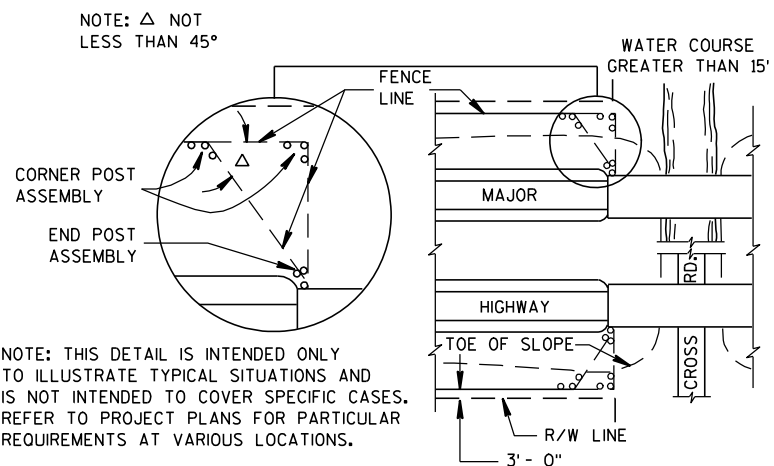


LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

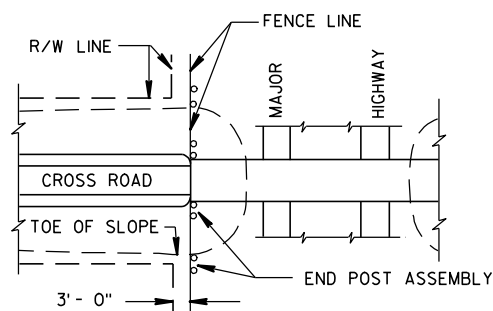


END ELEVATION  
FARM SIDE ELEVATION  
FENCE MOUNTING DETAIL



PLAN VIEW  
MAJOR HIGHWAY OVERPASS OR STREAM COURSE  
CROSSING OF GREATER THAN 15 FT. IN WIDTH

NOTE: THIS DETAIL IS INTENDED ONLY TO ILLUSTRATE TYPICAL SITUATIONS AND IS NOT INTENDED TO COVER SPECIFIC CASES. REFER TO PROJECT PLANS FOR PARTICULAR REQUIREMENTS AT VARIOUS LOCATIONS.



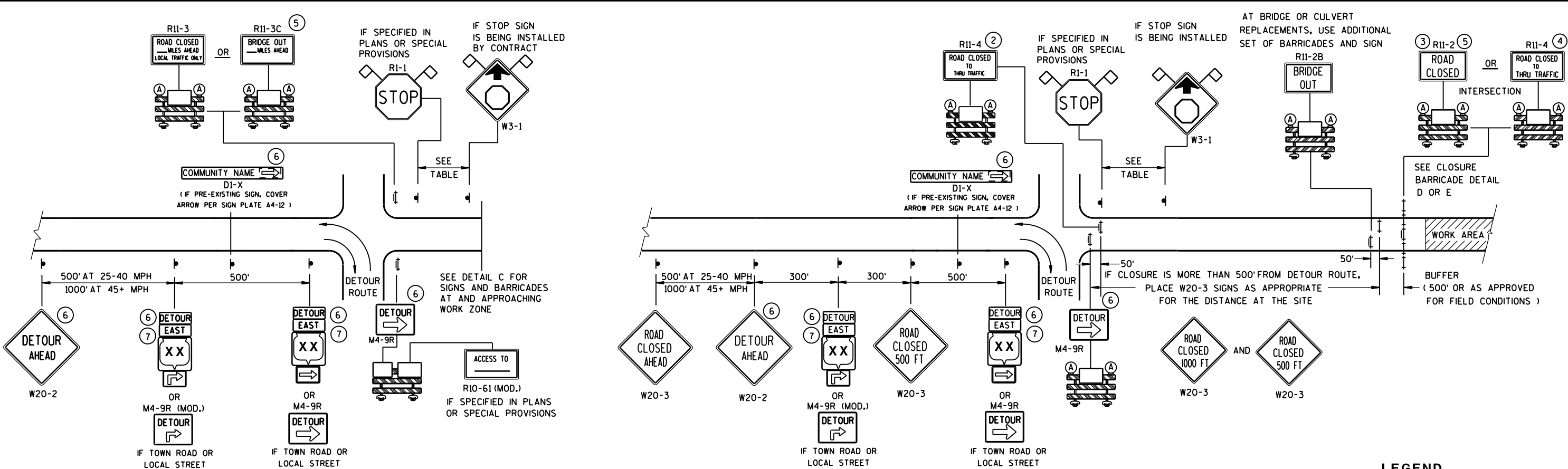
PLAN VIEW  
MAJOR HIGHWAY UNDERPASS

FENCE LOCATION AT STRUCTURES

<b>FENCE WOVEN WIRE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/4/2008 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

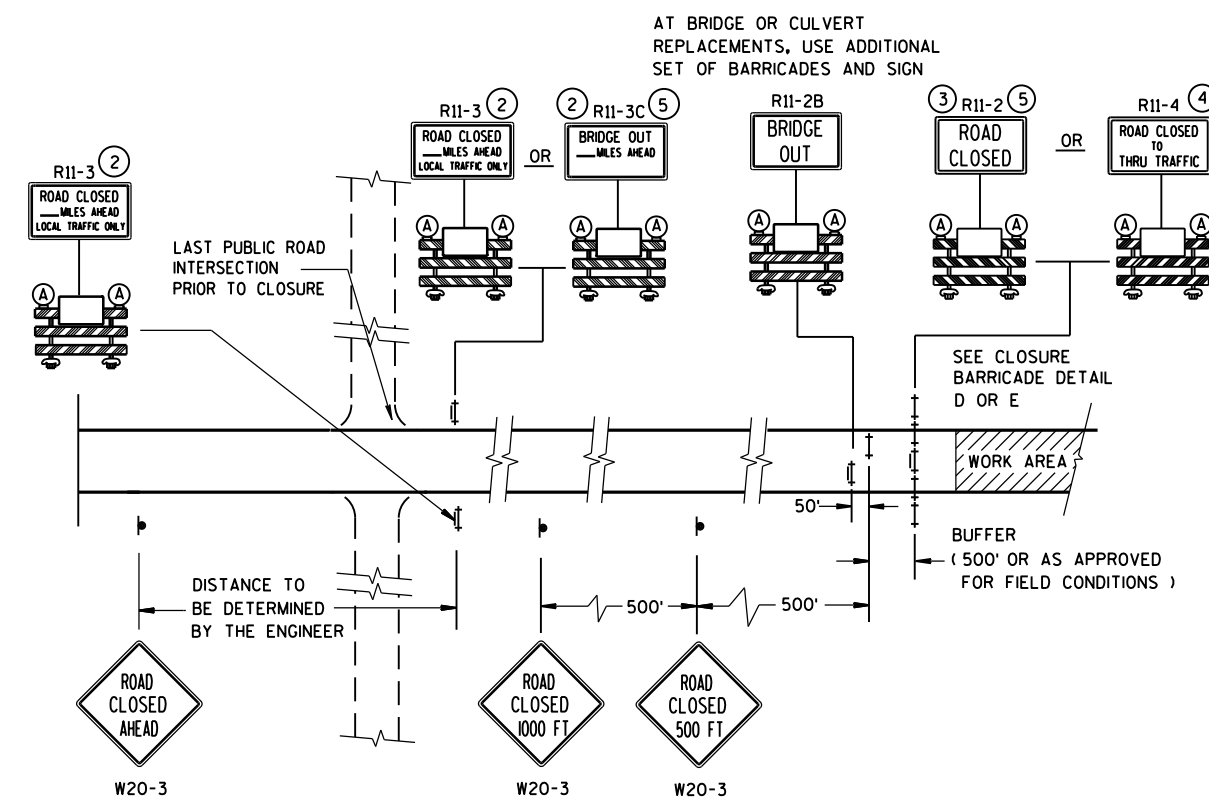
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6



**DETAIL A**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

- LEGEND**
- SIGN ON PERMANENT SUPPORT
  - TYPE III BARRICADE
  - TYPE III BARRICADE WITH ATTACHED SIGN
  - (A) TYPE "A" WARNING LIGHT (FLASHING)
  - ▨ WORK AREA

**DETOUR EAST** M4-8  
M3-X

**COUNTY XX** OR **COUNTY XX** OR **COUNTY XX**  
M1-4 M1-5A M1-6

OR

**M05-1** OR **M06-1**

◇ ◇ FLAGS, 16" X 16" MIN., (ORANGE)

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

**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

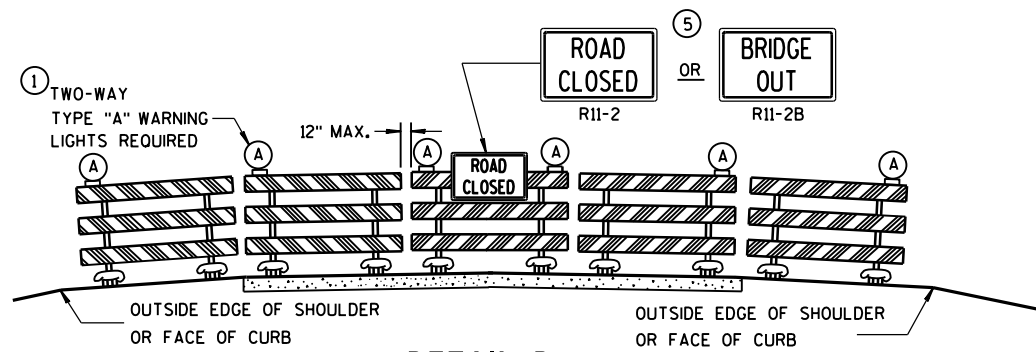
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN

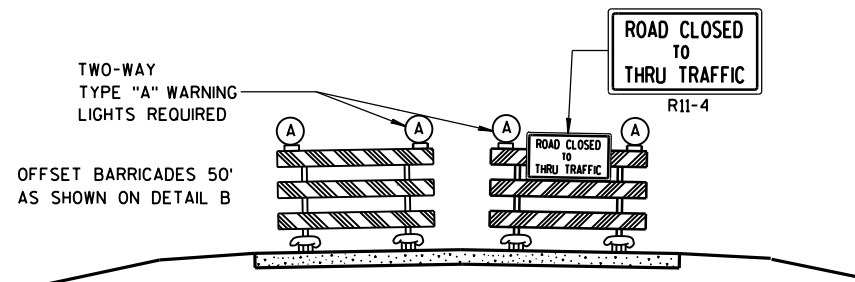
FHWA

S.D.D. 15 C 2-5a

S.D.D. 15 C 2-5a



**DETAIL D**  
**ROAD CLOSURE BARRICADE DETAIL**  
 APPROACH VIEW



**DETAIL E**  
**LANE CLOSURE BARRICADE DETAIL**  
 APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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, 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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- 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 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 LANE 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.

<b>BARRICADES AND SIGNS FOR MAINLINE CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

**THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.**

**GENERAL NOTES**

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

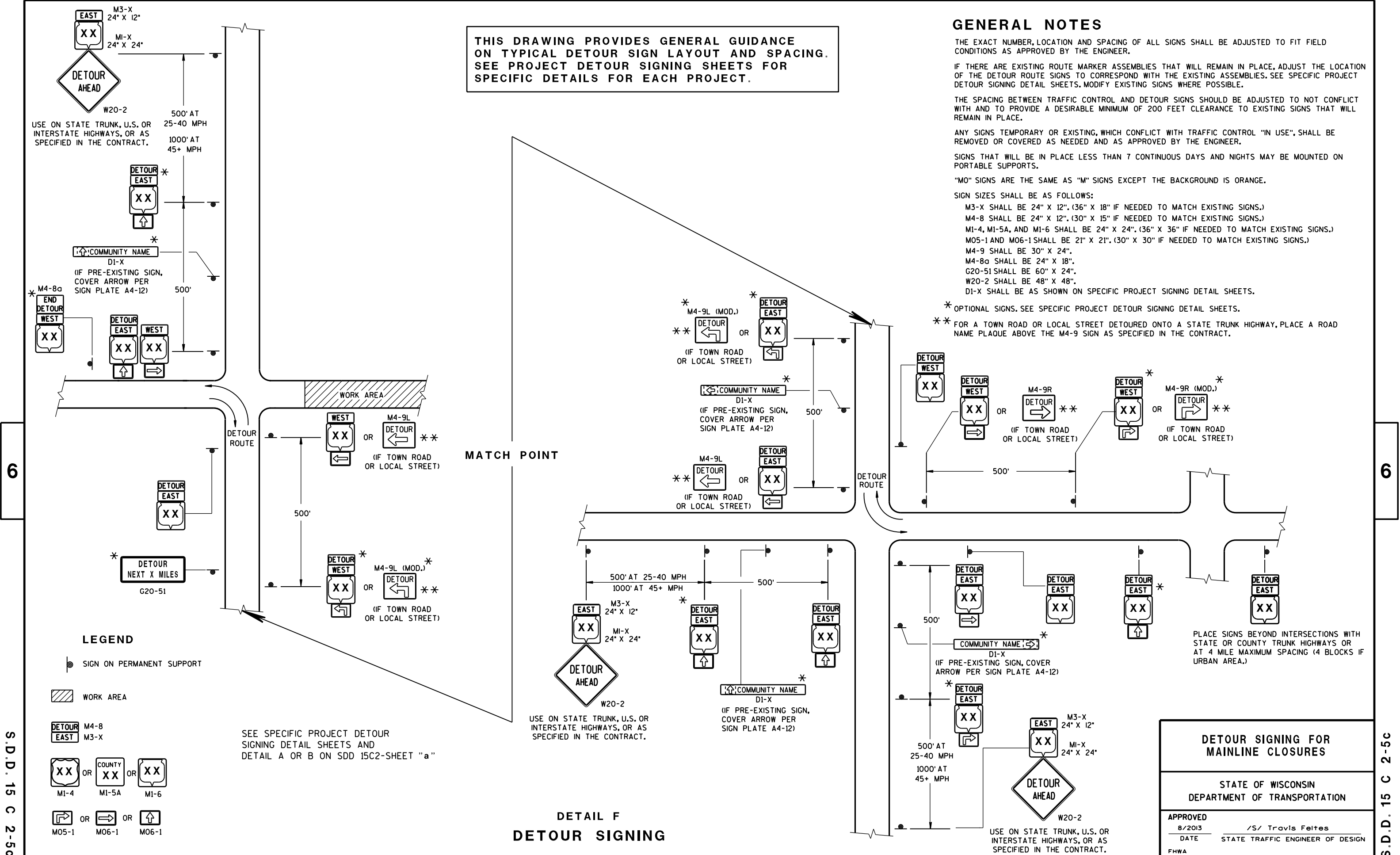
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- MI-4, MI-5A, AND MI-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.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- DI-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

\* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

\*\* FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



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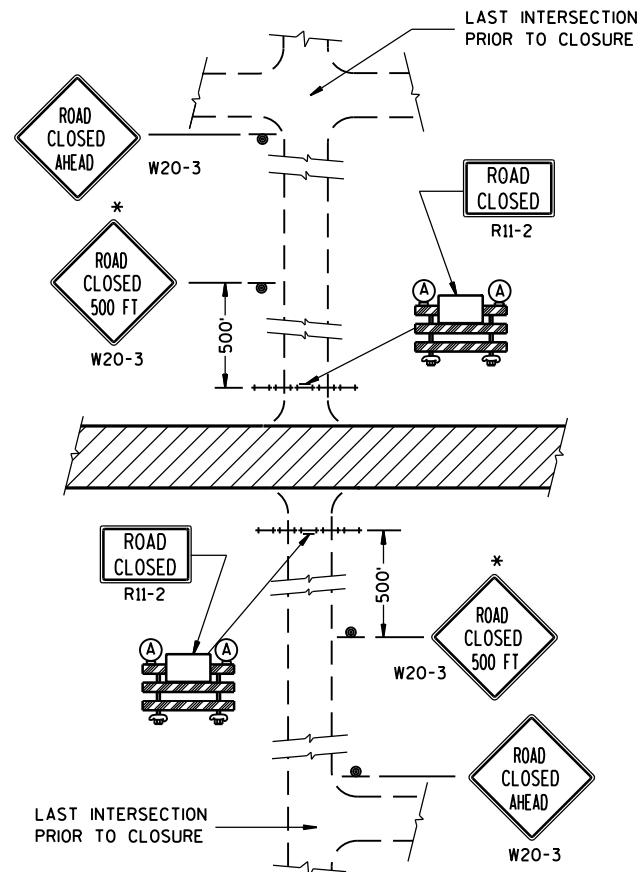
S.D.D. 15 C 2-5c

S.D.D. 15 C 2-5c

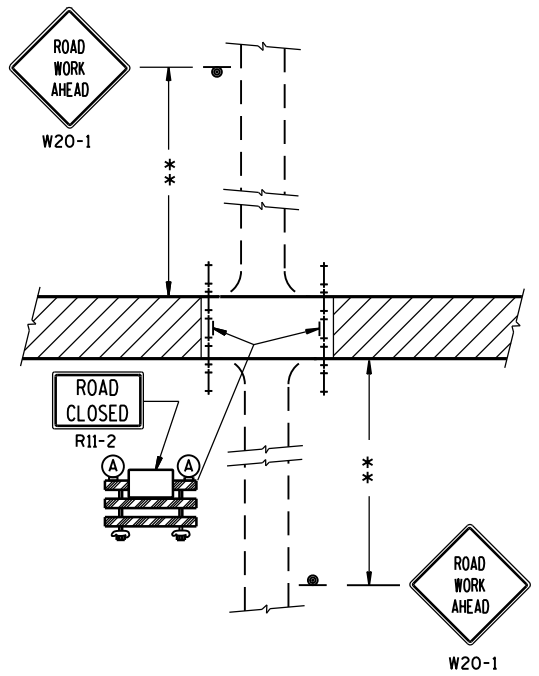
SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

**DETAIL F  
DETOUR SIGNING**

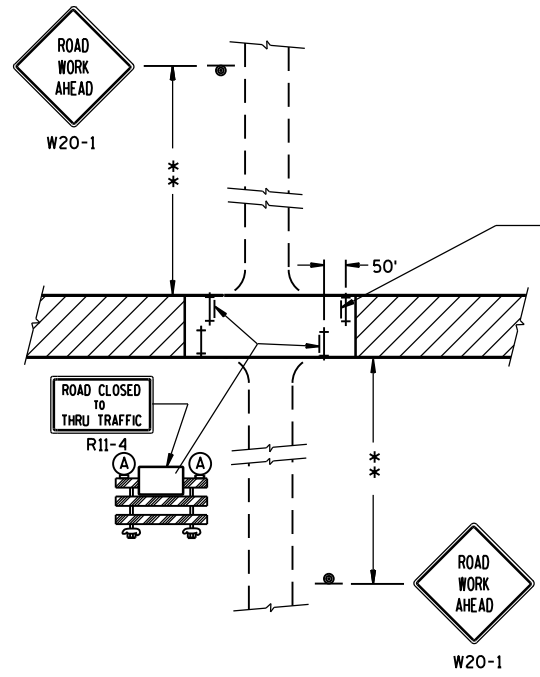
<b>DETOUR SIGNING FOR MAINLINE CLOSURES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013	/s/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



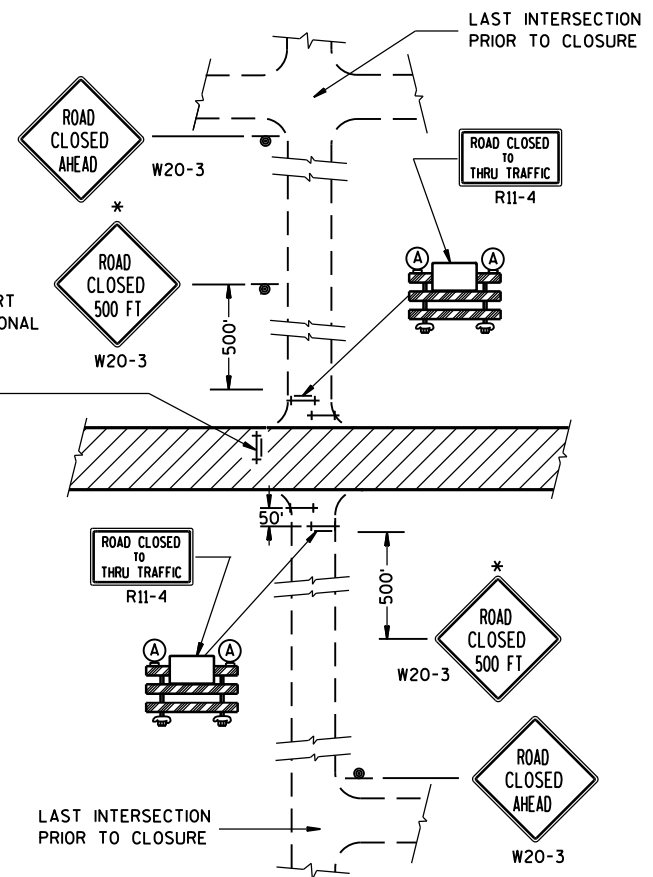
**DETAIL 1**  
(NO ACCESS TO PROJECT)



**DETAIL 2**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
NO ACCESS TO PROJECT).



**DETAIL 3**  
(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR,  
LOCAL BUSINESS AND RESIDENT ACCESS).



**DETAIL 4**  
(CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)

**GENERAL NOTES**

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

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

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 AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

\*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

\*\*500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

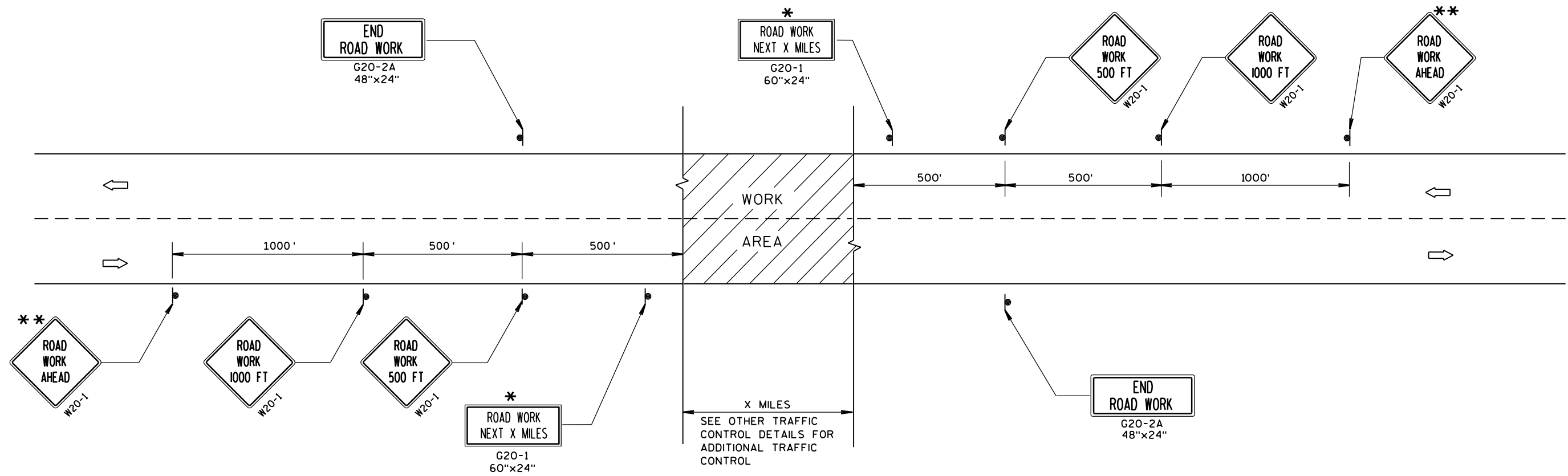
**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

**BARRICADES AND SIGNS  
FOR  
SIDEROAD CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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.

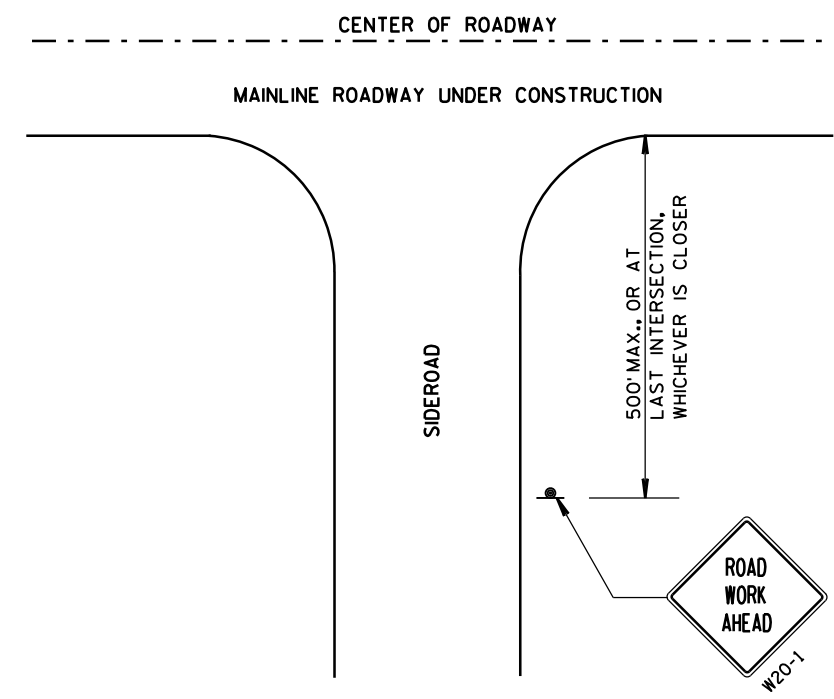
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

\* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

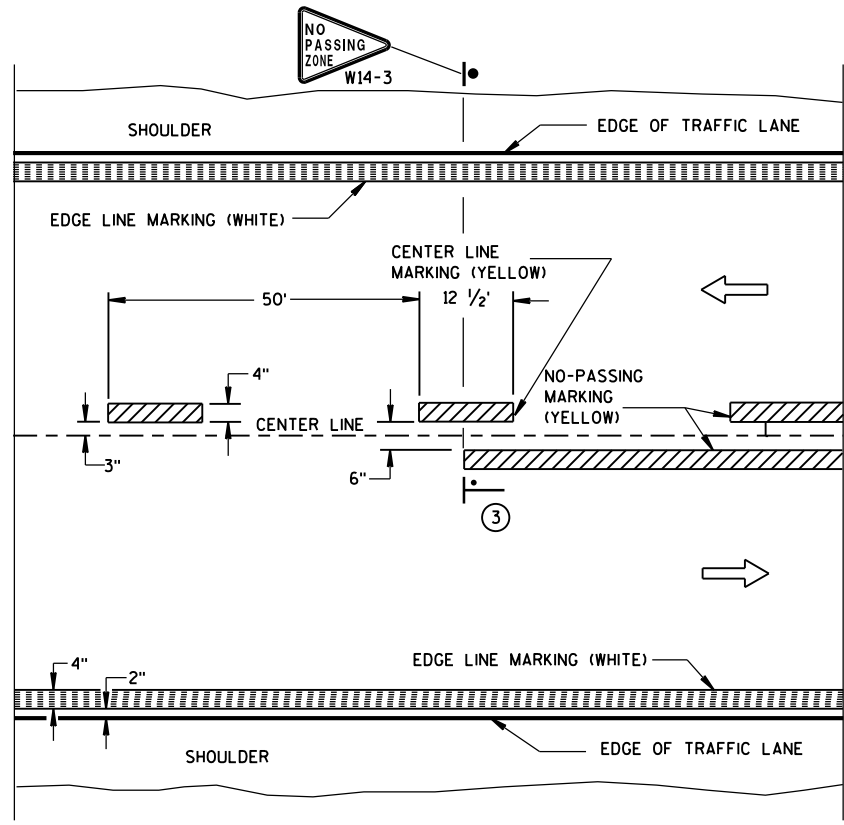
\*\* PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



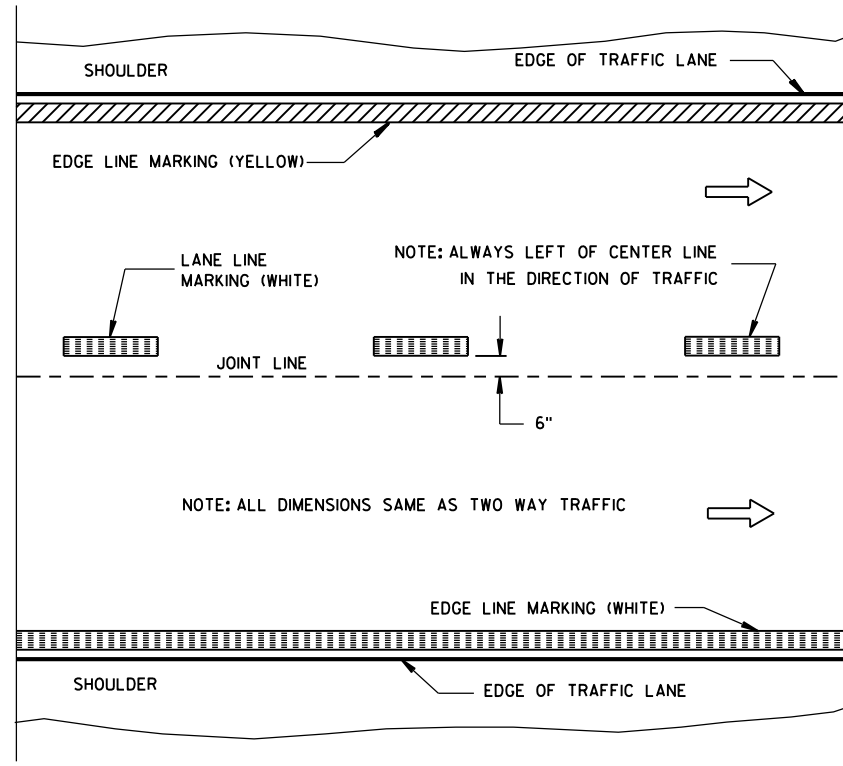
LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



TWO WAY TRAFFIC



ONE WAY TRAFFIC

**PERMANENT PAVEMENT MARKING**

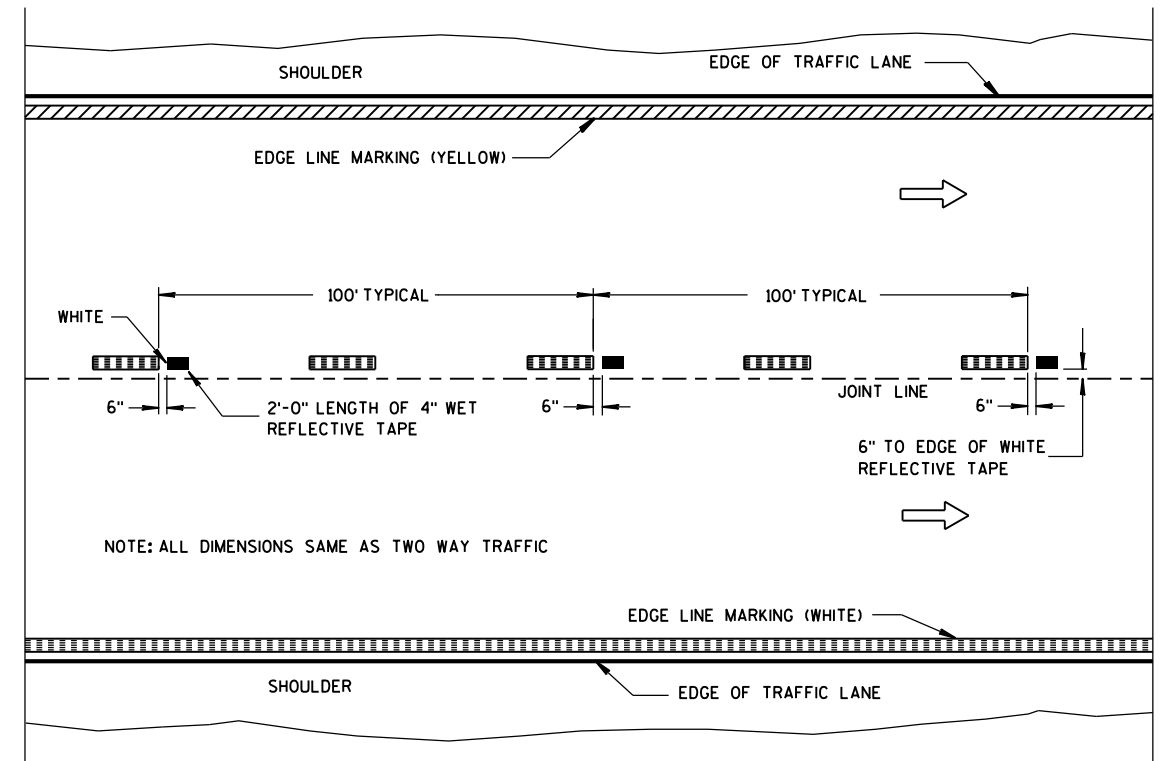
**GENERAL NOTES**

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

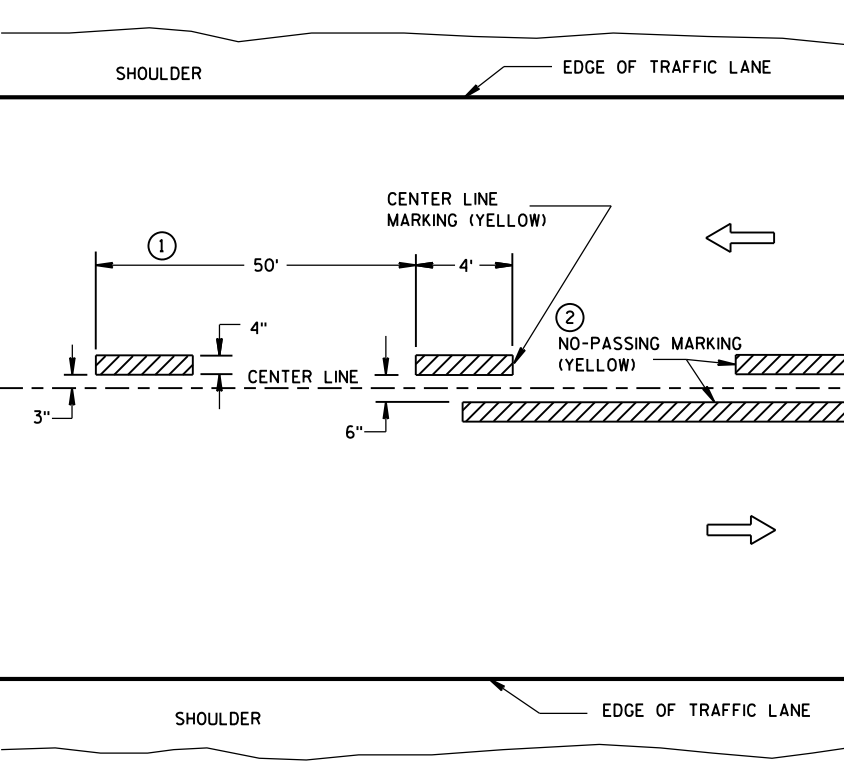
- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

**NOTE**

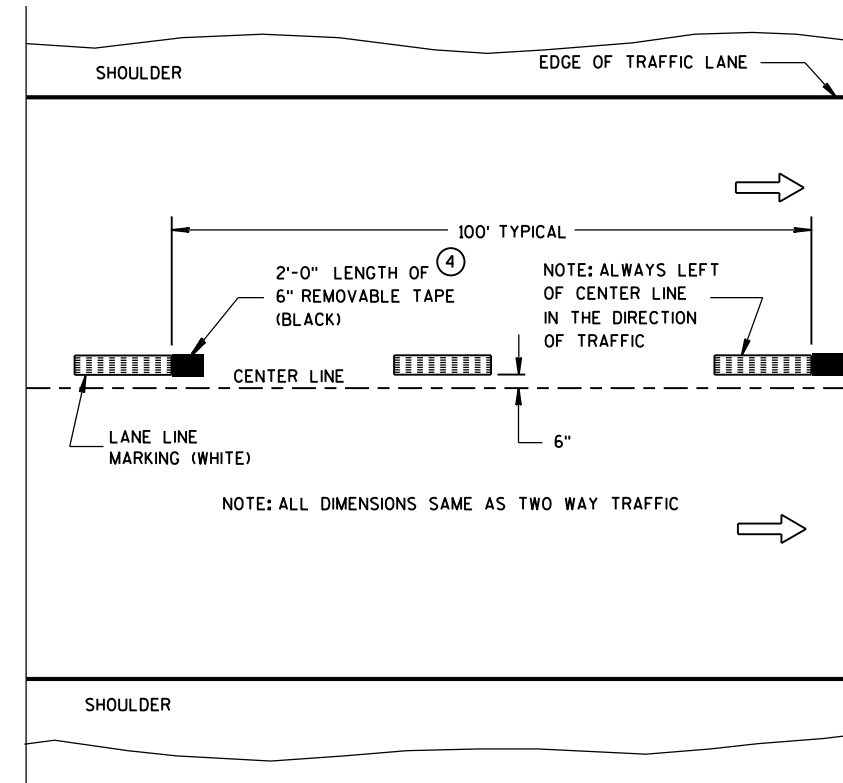
ARROW SYMBOL ( → ) SHOWS DIRECTION OF TRAVEL



**WET REFLECTIVE TAPE SUPPLEMENT TO SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE**



TWO WAY TRAFFIC



ONE WAY TRAFFIC

**TEMPORARY (INTERMEDIATE) PAVEMENT MARKING**  
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

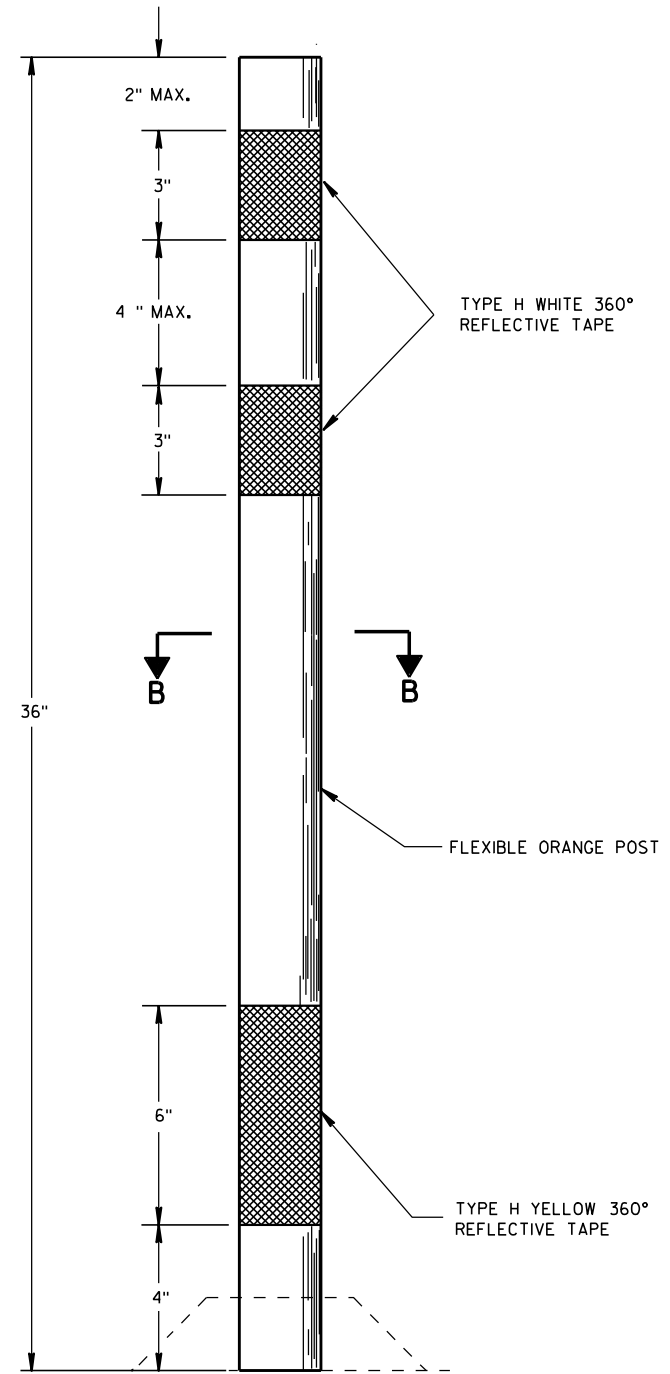
**LEGEND**

- "T" MARKING
- POST MOUNTED SIGN

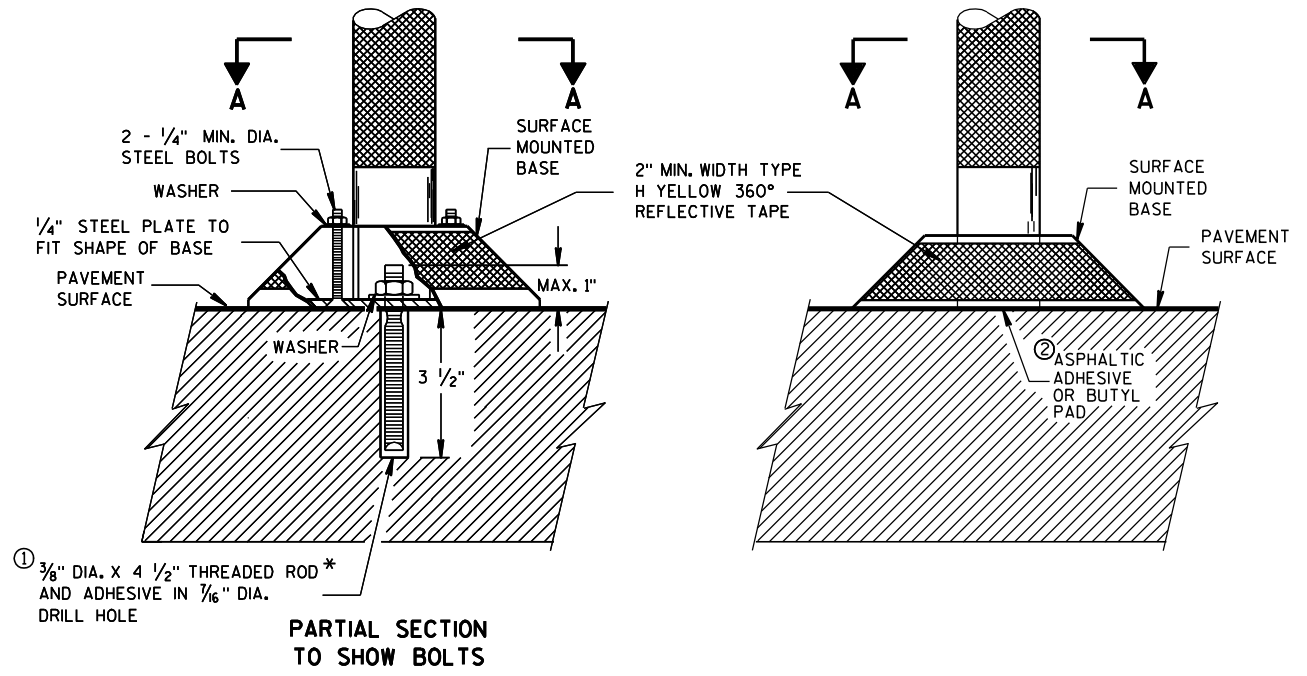
**PAVEMENT MARKING (MAINLINE)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

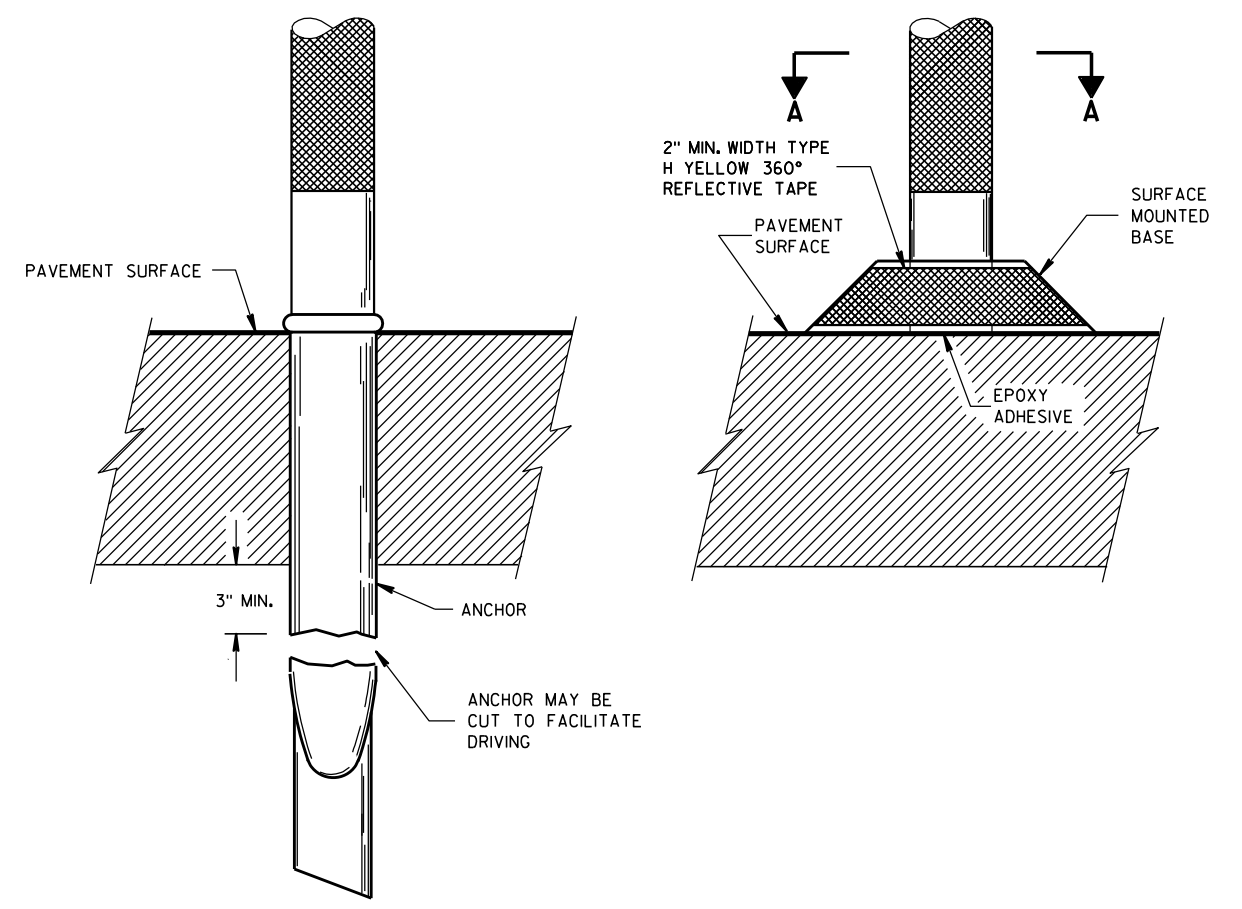
APPROVED  
5-13-2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER  
FHWA



FLEXIBLE TUBULAR MARKER POST



PARTIAL SECTION TO SHOW BOLTS  
POST BASES ON NEW OR EXISTING PAVEMENT



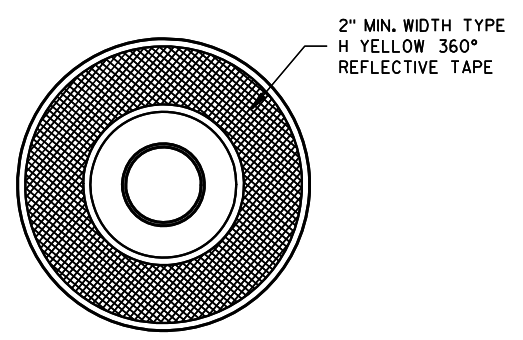
POST ANCHOR AND BASE ON PAVEMENT WHICH WILL BE REMOVED

GENERAL NOTES

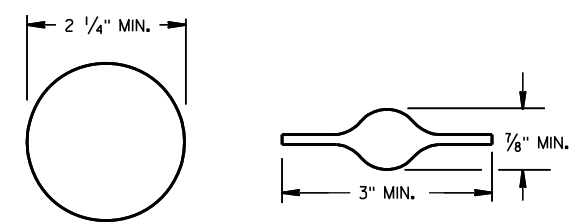
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

- ① THREADED ROD SHALL BE MACHINED DOWN TO 0.280 INCH DIA. 1 1/4 INCHES FROM THE TOP.
- ② THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



SECTION A-A  
SURFACE MOUNTED BASE



SECTION B-B  
ALTERNATIVE SHAPES

FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
 2/17/94 DATE /S/ Chester J. Spang  
 DIRECTOR, OFFICE OF TRAFFIC  
 FHWA



### GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

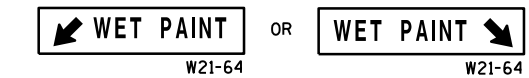
THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.



③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.

④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

### LEGEND

**V1** LEAD VEHICLE

**V2** SHADOW VEHICLE

**V3** TRAIL VEHICLE WITH TMA

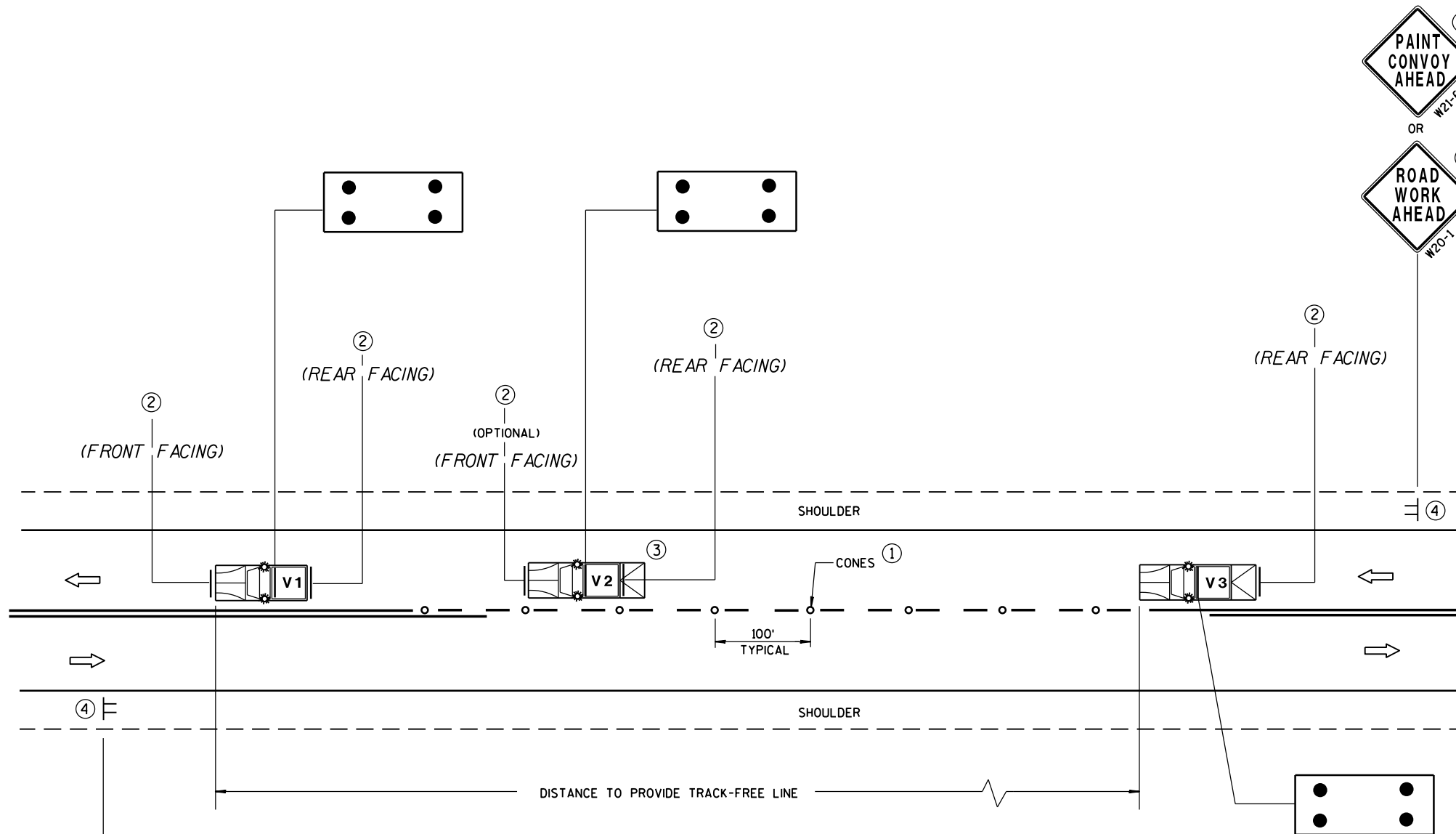
**TMA** TRUCK-MOUNTED ATTENUATOR

SIGN ON TEMPORARY SUPPORT

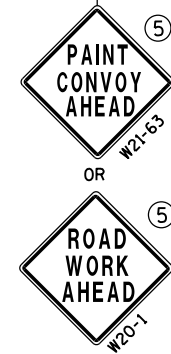
DIRECTION OF TRAFFIC

CONES

FLASHING ARROW PANEL (CAUTION)



## MOVING PAVEMENT MARKING OPERATIONS TWO-LANE TWO-WAY ROADWAY



MOVING PAVEMENT MARKING  
OPERATION  
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5/3/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER  
FHWA

**GENERAL NOTES**

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.  
 ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.  
 ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.  
 IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.  
 ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.  
 WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.  
 FOR EDGELINE MARKING OR IF CONES ARE NOT USED, POSITION THE REARMOST SHADOW VEHICLE ON THE SHOULDER AS SHOWN IN THE MUTCD IF THE SHOULDER HAS ADEQUATE WIDTH. USE DOUBLE ARROWS WHEN CONVOY IS IN CENTER LANE ONLY.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

THIS DRAWING SHALL BE USED FOR EDGELINE OR LANELINE MARKING FOR MULTILANE DIVIDED ROADWAYS.

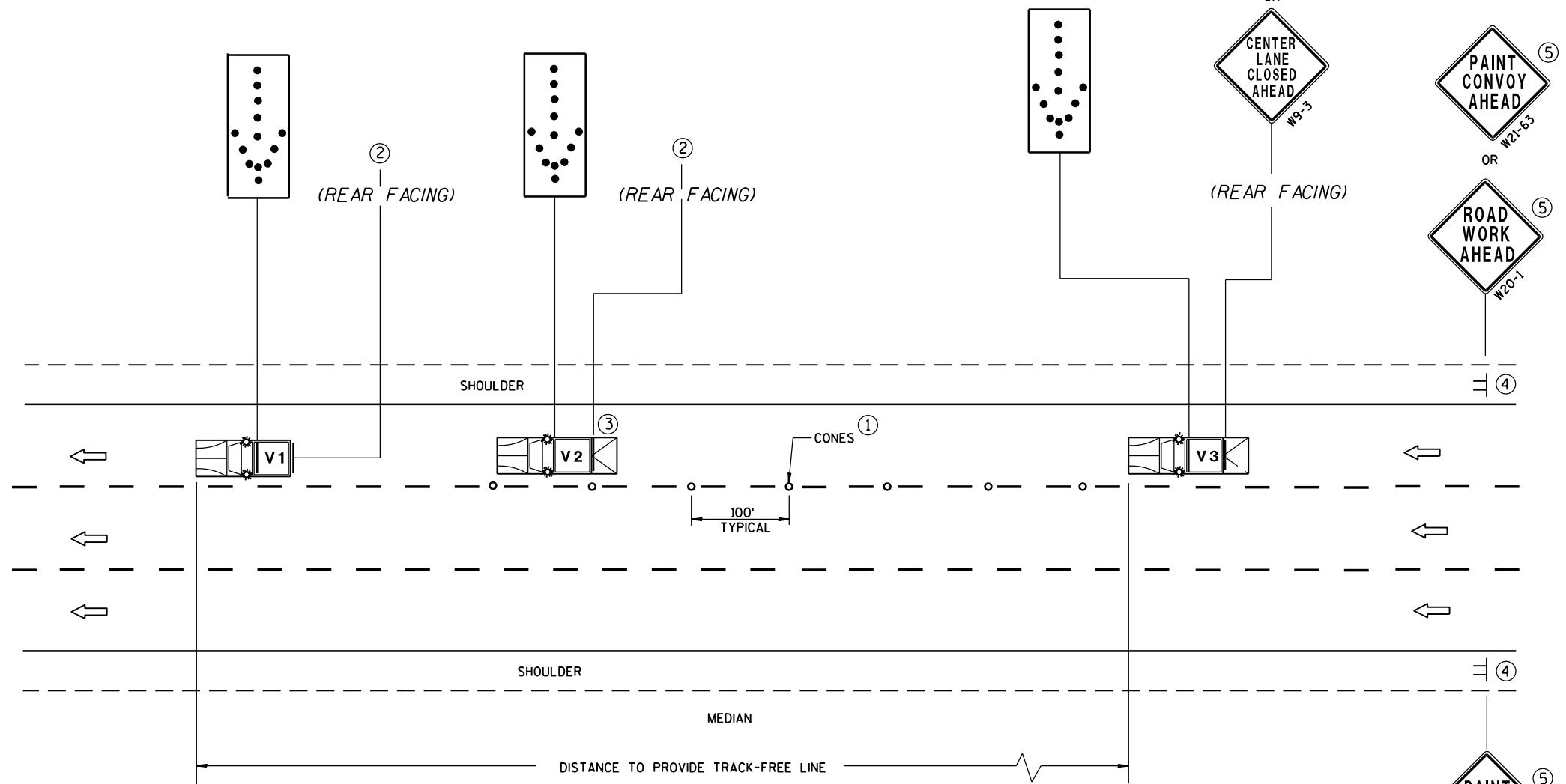
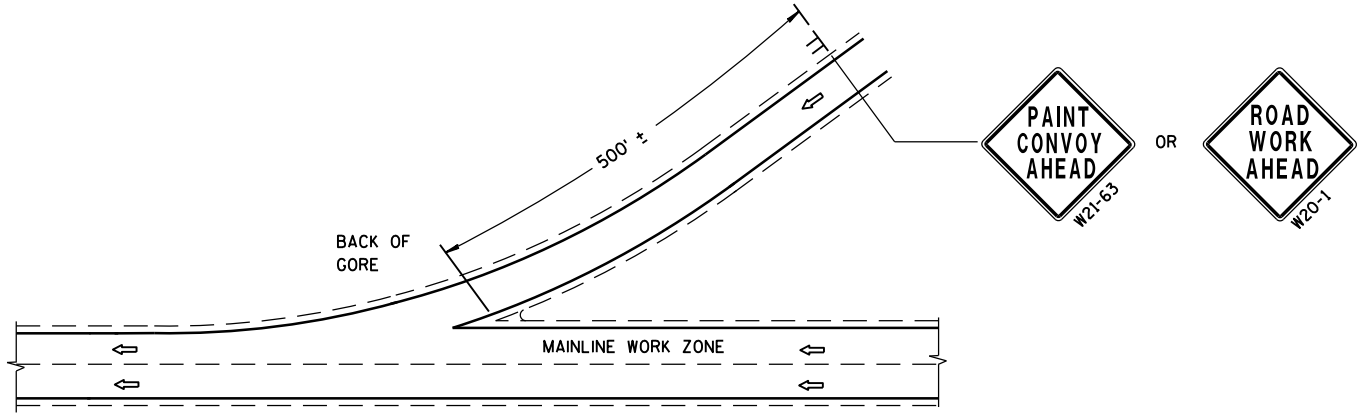
- ① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.
  - ② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.
- W21-64

OR

W21-64
- ③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.
  - ④ SIGNS SHALL BE REPEATED AFTER EVERY ON RAMP OR EVERY THREE MILES.
  - ⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

**LEGEND**

- V 1** LEAD VEHICLE
- V 2** SHADOW VEHICLE
- V 3** TRAIL VEHICLE WITH TMA
- TMA** TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (MERGE)



**MOVING PAVEMENT MARKING OPERATIONS  
 MULTI-LANE DIVIDED ROADWAY**

<b>MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/3/2013 DATE	/s/ Travis Feltes STATE TRAFFIC ENGINEER
FHWA	

**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



INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).



LOCATED 500 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.



R2-1 48"x60" (BLACK AND WHITE)

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. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

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

**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"x48" 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.

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 FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

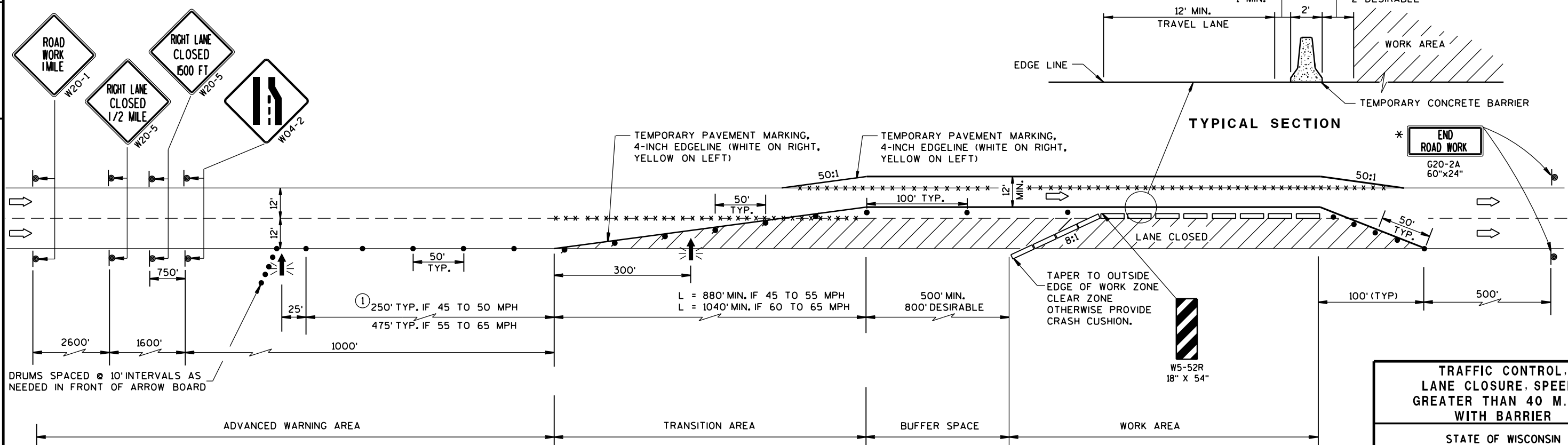
FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 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 1/2 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.

6













6

S.D.D. 15 D 3-2

<b>TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013	/S/ Travis Feltes
DATE	STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

S.D.D. 15 D 3-2

**LEGEND**

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMENENT SUPPORT
-  POST WITH ATTACHED SIGN IN DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TRAFFIC CONTROL DRUM
-  FLASHING ARROW BOARD
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKING
-  DIRECTION OF TRAFFIC
-  WORK AREA

**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 DESIREABLE) DISTANCE TO EXISTING SIGNS.

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

ALL SIGNS ARE 48"x48" 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 AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

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 FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

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

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. 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 1/2 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 MANUEVER.

\* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



LOCATED 500 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.

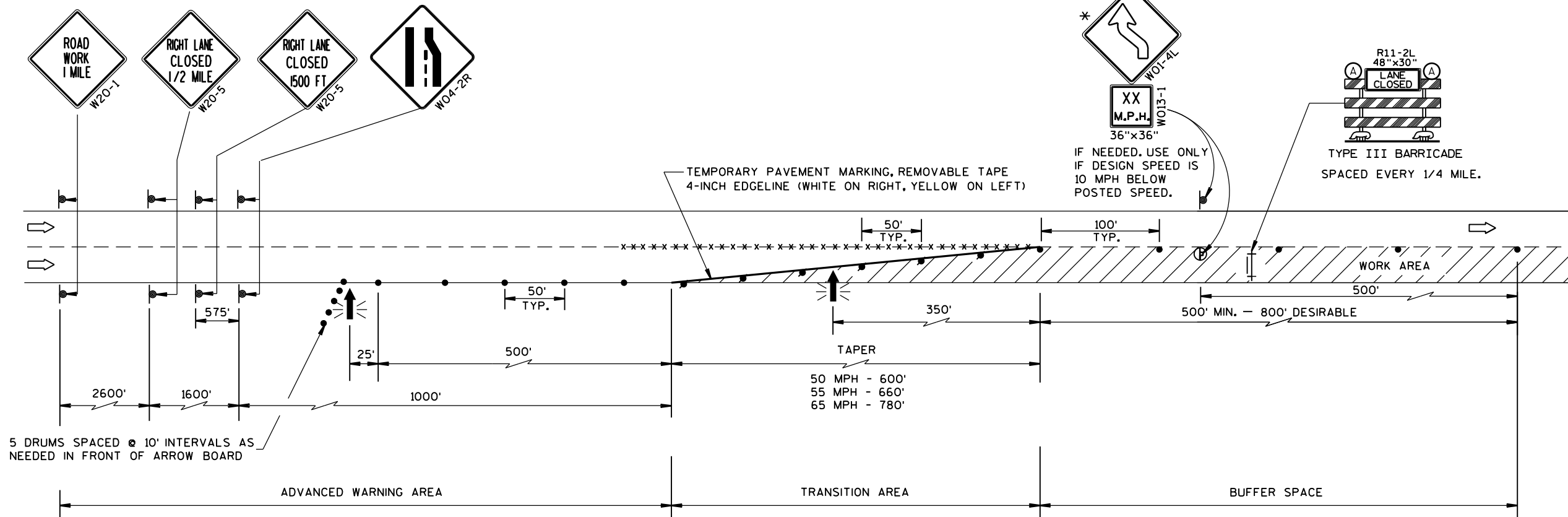


R2-1  
48"x60"  
(BLACK AND WHITE)

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. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

6

6



S.D.D. 15 D 12-3

S.D.D. 15 D 12-3

<b>TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013	/s/ Travis Feltes
DATE	STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

### 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.

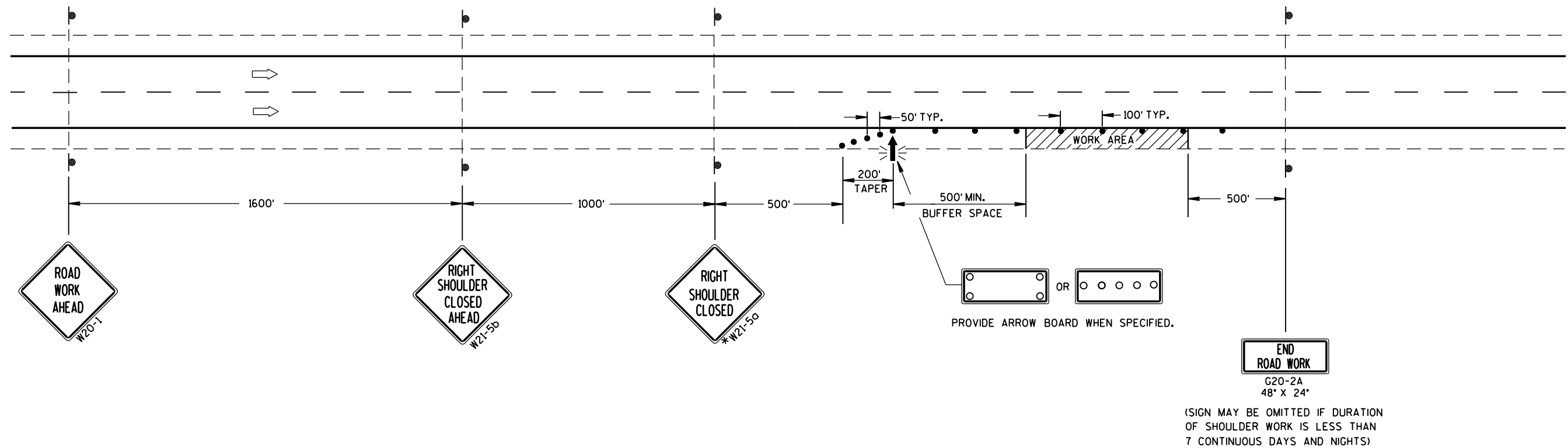
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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.

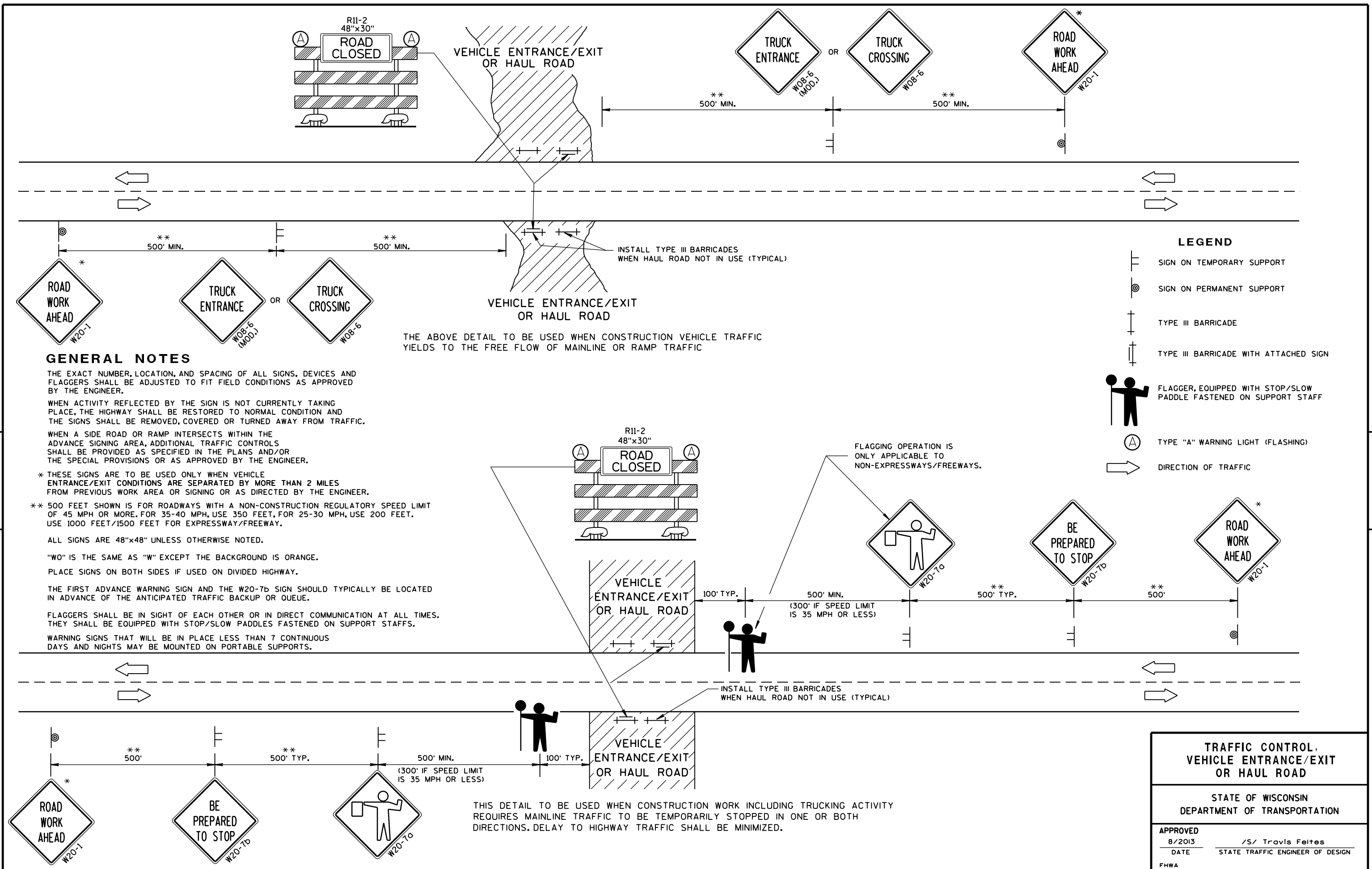
\*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.

### LEGEND

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



<b>TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



**GENERAL NOTES**

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

WHEN ACTIVITY REFLECTED BY THE SIGN IS NOT CURRENTLY TAKING PLACE, THE HIGHWAY SHALL BE RESTORED TO NORMAL CONDITION AND THE SIGNS SHALL BE REMOVED, COVERED OR TURNED AWAY FROM TRAFFIC.

WHEN A SIDE ROAD OR RAMP INTERSECTS WITHIN THE ADVANCE SIGNING AREA, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

\* THESE SIGNS ARE TO BE USED ONLY WHEN VEHICLE ENTRANCE/EXIT CONDITIONS ARE SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA OR SIGNING OR AS DIRECTED BY THE ENGINEER.

\*\* 500 FEET SHOWN IS FOR ROADWAYS WITH A NON-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FEET, FOR 25-30 MPH, USE 200 FEET. USE 1000 FEET/1500 FEET FOR EXPRESSWAY/FREEWAY.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

PLACE SIGNS ON BOTH SIDES IF USED ON DIVIDED HIGHWAY.

THE FIRST ADVANCE WARNING SIGN AND THE W20-7b SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS.

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

THE ABOVE DETAIL TO BE USED WHEN CONSTRUCTION VEHICLE TRAFFIC YIELDS TO THE FREE FLOW OF MAINLINE OR RAMP TRAFFIC

INSTALL TYPE III BARRICADES WHEN HAUL ROAD NOT IN USE (TYPICAL)

FLAGGING OPERATION IS ONLY APPLICABLE TO NON-EXPRESSWAYS/FREEWAYS.

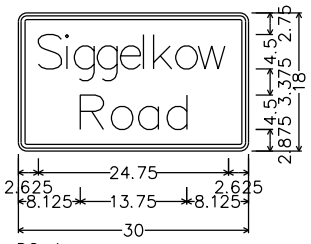
INSTALL TYPE III BARRICADES WHEN HAUL ROAD NOT IN USE (TYPICAL)

THIS DETAIL TO BE USED WHEN CONSTRUCTION WORK INCLUDING TRUCKING ACTIVITY REQUIRES MAINLINE TRAFFIC TO BE TEMPORARILY STOPPED IN ONE OR BOTH DIRECTIONS. DELAY TO HIGHWAY TRAFFIC SHALL BE MINIMIZED.

**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

<b>TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013 DATE	/s/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

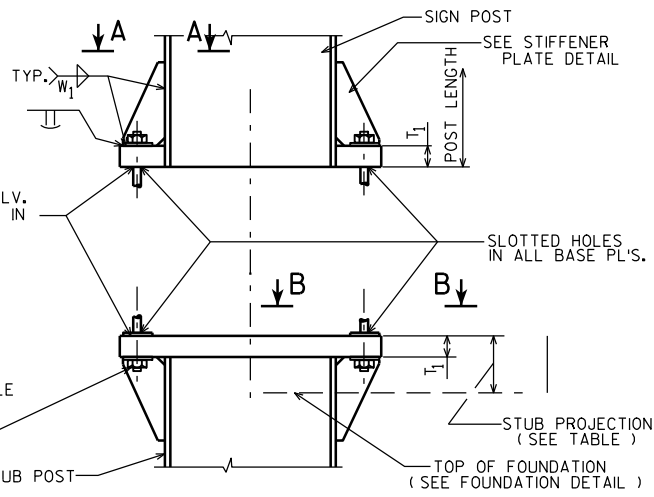


D2-1;  
 1.125" Radius, 0.500" Border, 0.375" Indent, Black on Orange;  
 [Siggelkow] D 40} spacing;  
 [Road] D;

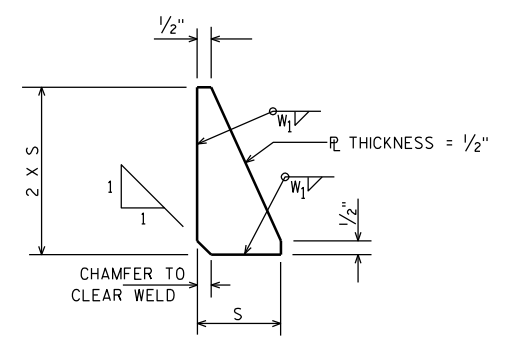
TRAFFIC CONTROL SIGNS FIXED MESSAGE

7

7



**SIGN POST AND STUB POST ELEVATION**



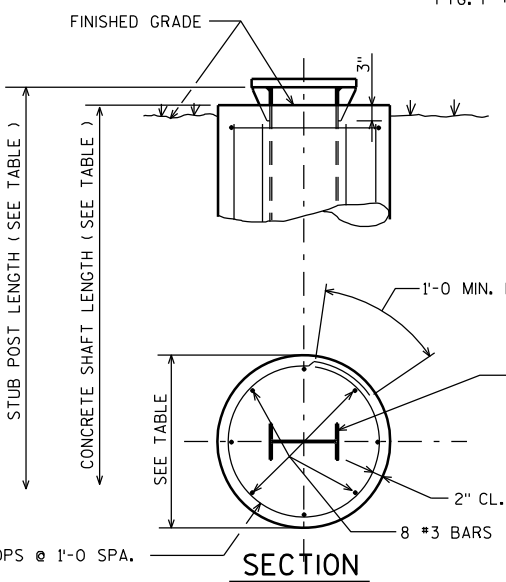
**STIFFENER PLATE DETAIL**  
(SEE TABLE FOR DIMENSIONS)

FURNISH 2 @ .012" ± THICK AND 2 @ .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M.- B36.

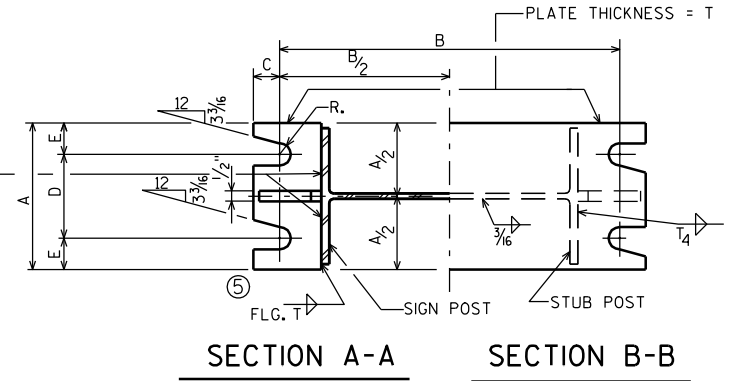
**SHIM DETAIL**

QUANTITIES FOR 1 FOOTING		
	CONC. MASONRY C.Y.	REINF. STEEL LBS.
A	0.6	34
B	0.8	49
C	0.9	50
D	0.9	56
E	1.0	62

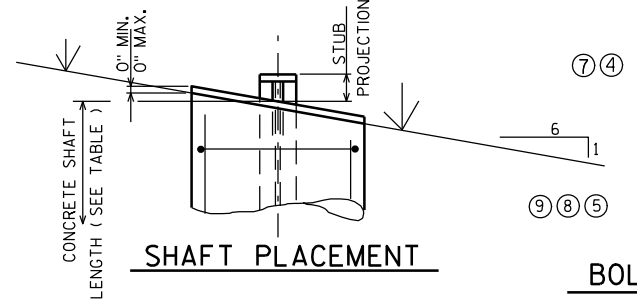
REINF.	TYPE	#3	#4
		A	8 @ 4'-5"
B	8 @ 6'-5"	7 @ 6'-3"	
C	8 @ 6'-11"	7 @ 6'-3"	
D	8 @ 7'-5"	8 @ 6'-3"	
E	8 @ 7'-11"	9 @ 6'-3"	



**FOUNDATION DETAIL**



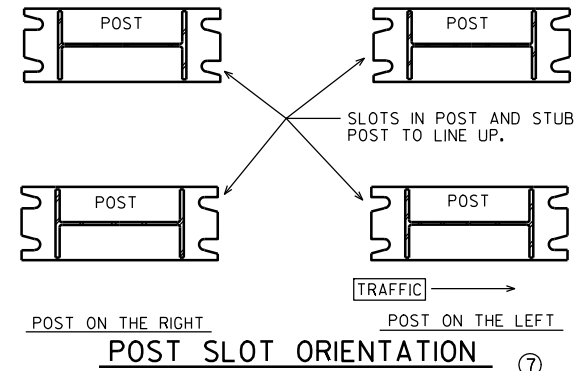
**SECTION A-A SECTION B-B**



**SHAFT PLACEMENT**

**BOLTING PROCEDURE - BASE CONNECTION**

- ASSEMBLE SIGN POST TO STUB POST WITH BOLTS AND ONE OF THE FLAT WASHERS ON EACH BOLT BETW. PLATES.
  - SHIM AS REQ'D. TO PLUMB POST.
  - TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" OR 15" WRENCH TO BED WASHERS & SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. (SEE TABLE)
  - BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.
- NOTE:  
TIGHTEN THE HIGH STRENGTH BOLTS TO THE TORQUE SHOWN. DO NOT OVERTIGHTEN.



**POST SLOT ORIENTATION**

TYPE	DIMENSION POST SIZE	BOLT SIZE & TORQUE	BASE CONNECTION DATA TABLE										FOUNDATION DATA				K	
			A	B	C	D	E	T1	T4	W1	R	S	STUB LENGTH	STUB PROJECTION	SHAFT DIAMETER	SHAFT LENGTH		
A	W10"X12.0 #/FT.	3/4" φ @ 75#-FT.	5 1/4"	1'-0 3/8"	7/8"	3 1/2"	7/8"	1"	3/16"	5/16"	1 1/2"	1 1/2"	3"	6'-0"	3"	2'-0 φ	5'-0"	76.0#
B	W12"X16.0 #/FT.	7/8" φ @ 85#-FT.	5 1/2"	1'-4 1/4"	1"	3 1/2"	1"	1 1/4"	1/4"	5/16"	1 1/2"	1 1/2"	3"	5'-6"	3"	2'-0 φ	7'-0"	146.5#
C	W12"X19.0 #/FT.	7/8" φ @ 85#-FT.	5 1/2"	1'-4 1/4"	1"	3 1/2"	1"	1 1/2"	3/16"	5/16"	1 1/2"	1 1/2"	3"	6'-0"	3"	2'-0 φ	7'-6"	182.1#
D	W12"X22.0 #/FT.	7/8" φ @ 85#-FT.	5 1/2"	1'-4 1/4"	1"	3 1/2"	1"	1 1/2"	3/16"	5/16"	1 1/2"	1 1/2"	3"	6'-6"	3"	2'-0 φ	8'-0"	210.5#
E	W12"X26.0 #/FT.	1" φ @ 90#-FT.	7"	1'-4 1/4"	1 1/4"	4"	1 1/2"	1 1/2"	3/8"	5/16"	1 1/2"	1 1/2"	3"	7'-0"	3"	2'-0 φ	8'-6"	293.0#

STRUCTURAL CARBON STEEL PAY WTS. (1POST) = K + (POST LENGTH X POST WT.)  
"K" INCLUDES STUB, BASE PLATES, STIFFS., BOLTS, AND WASHERS.

**DESIGN DATA**

WIND PRESSURE = 75 M.P.H.  
WIND COMPONENTS - NORMAL = 1.0 TRANSVERSE = 0.0  
ICE LOAD = 3 P.S.F.  
GROUP LOADS PERCENT OF ALLOWABLE STRESS  
1. DEAD 100  
2. DEAD & WIND 140  
3. DEAD, ICE & 1/2 WIND 140  
ALLOWABLE SOIL PRESSURE = 1 1/2 T / SQ. FT.  
WIND LOAD WAS APPLIED TO THE AREA OF THE SIGN AND TO THE SUPPORTING MEMBERS.  
ICE LOAD WAS APPLIED TO ONE FACE OF THE SIGN AND AROUND THE SURFACE OF THE SUPPORTING MEMBERS.

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.  
DESIGN CONFORMS WITH A.A.S.H.T.O. SPECIFICATIONS 1985.  
ALL POSTS, POST STUBS & ATTACHMENTS SHALL BE A.S.T.M. A709 GRADE 50.  
THE POST, BASE PLATES, UPPER SIX INCHES OF STUB POST FLANGE SPICE PLATE AND FUSE PLATE SHALL BE GALVANIZED AFTER FABRICATION.  
H.S. BOLTS, WASHERS & NUTS SHALL BE A325 GALVANIZED WHEN POSTS, POST STUBS AND ATTACHMENTS ARE A709 GRADE 50 AND GALVANIZED.

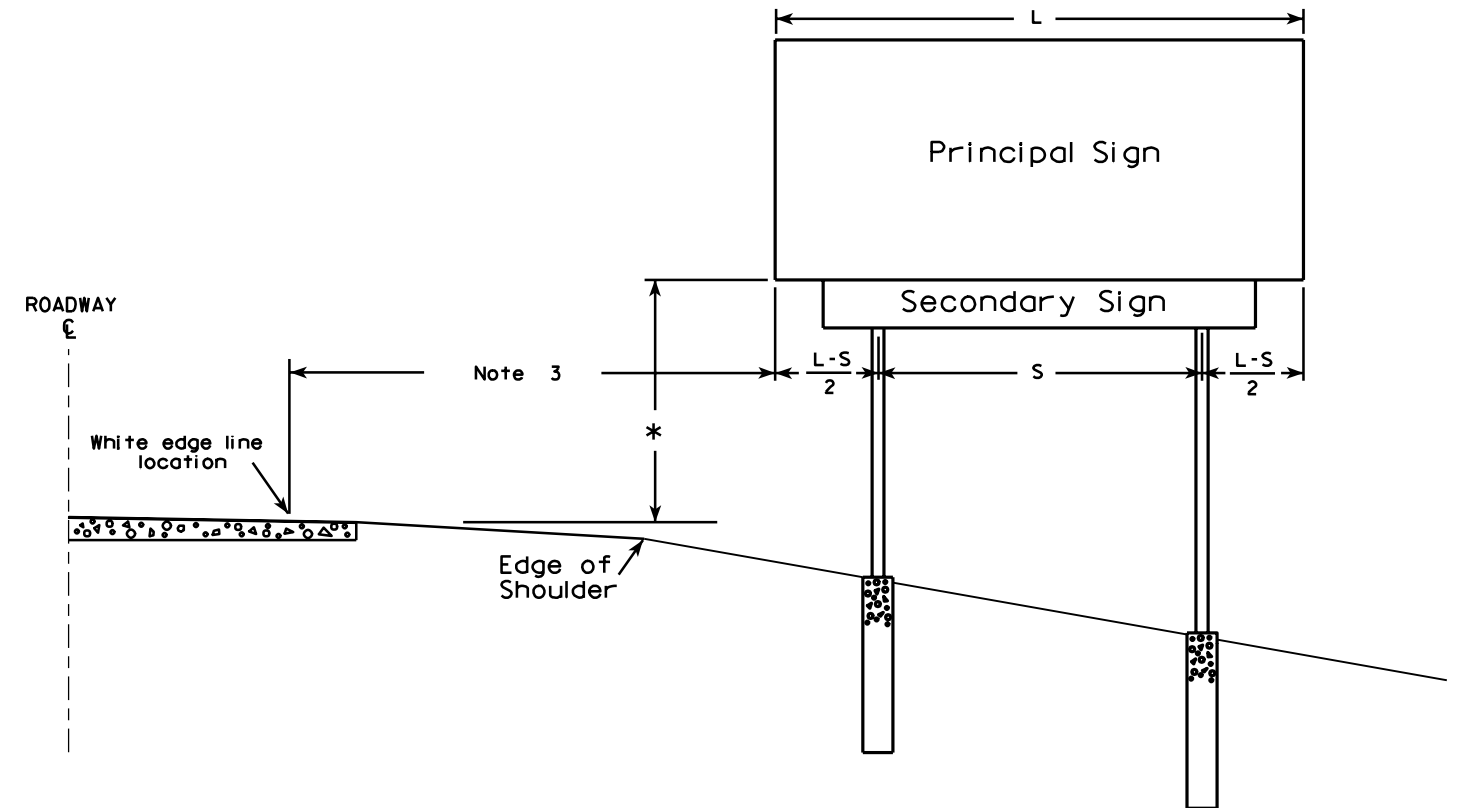
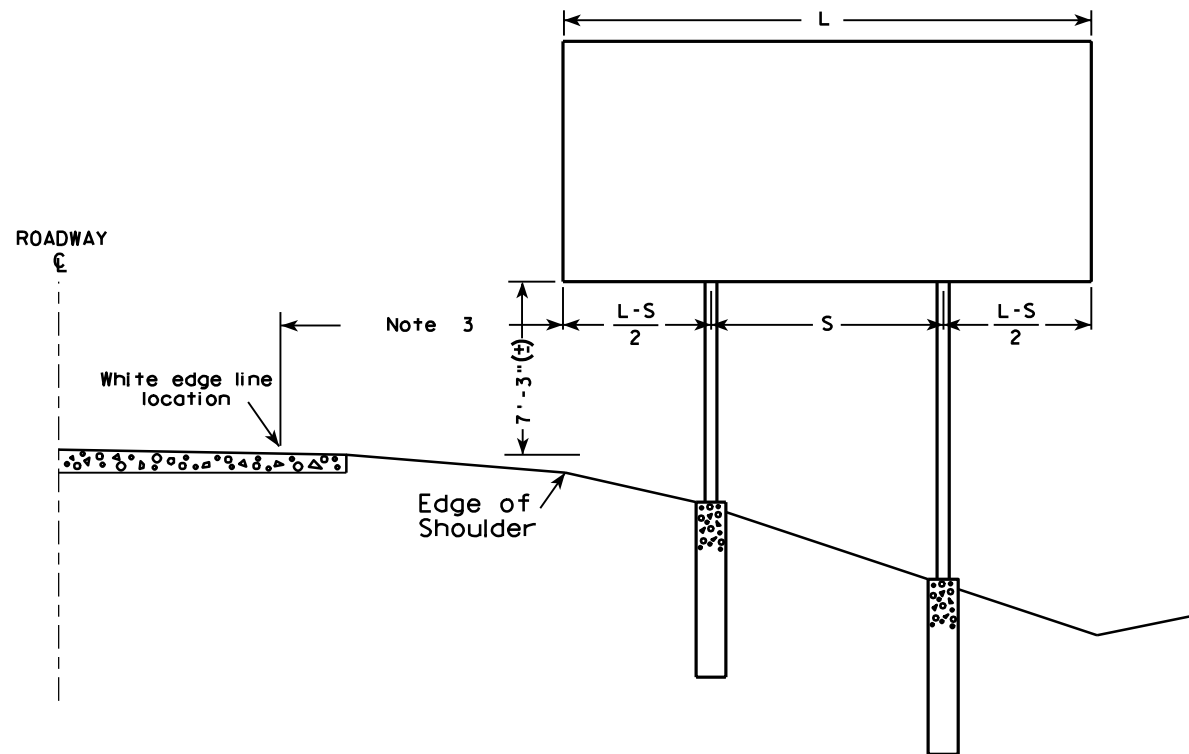
7

7

WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/26/11	PLATE NO. A3-1.13
④ 4-26-11	REMOVE NON-GALVANIZED
⑧ 10-30-96	NOT GALVANIZED/GALVANIZED
⑦ 10-30-92	QUANT., A588 EXCEPT., ADD SLOT VIEW
⑥ 8-24-87	BASE CONN. WELD
⑤ 10-13-81	BASE CONN. WELD & FUSE PLATE WASHERS
④ 10-19-79	POST A & B, A572 GR. 50, & K
② 11-28-78	"K" ③ 4-23-79 TYPE "E"
① 5-4-78	T1, T2 & W1
NO. DATE	REVISION

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		
TYPE A, B, C, D, & E		
CONST. SPEC.	2011	DRAWN BY JPH PLANS CK'D.
FTG. & SIGN SUPPORT DETAILS GROUND MOUNT BREAK-AWAY SIGNS		SHEET





GENERAL NOTES

1. For a 2 post installation, S equals  $3L/5$ , but shall not be less than 9 ft.
2. For a 3 post installation, S equals  $5L/7$ , but shall not be less than 18 ft., and the space between any two posts shall not be less than 9 ft.
3. Unless noted in the plan, the sign offset distance shall be a minimum of 17'-6", desirable 30'-0".
4. The (±) tolerance shown on this sheet is 3 in.
5. The vertical sign height clearance detailed is measured from the bottom of the sign to the near edge of pavement.
6. Post lengths shown in the miscellaneous quantities are estimated lengths. The contractor shall verify post lengths at the time of final grading.
7. Refer to the Traffic Guidelines Manual for further guidance on minimum vertical clearance requirements.

\* Clearance is 8'-3" (±) when the secondary sign is 3 ft. or less in height. For secondary signs larger than 3 ft., the clearance to the bottom of the secondary sign shall be 5'-3" (±).

TYPICAL INSTALLATION  
OF TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Raush*  
for State Traffic Engineer

DATE 4/02/08 PLATE NO. A4-1.9

PROJECT NO:

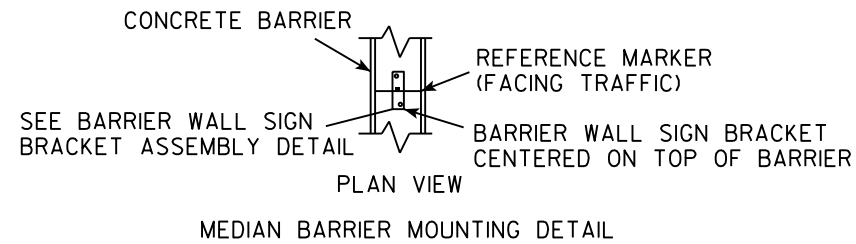
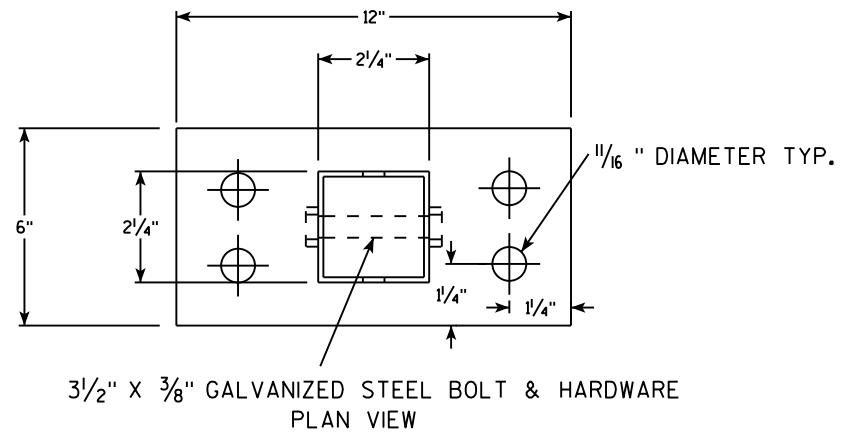
SHEET NO:

E

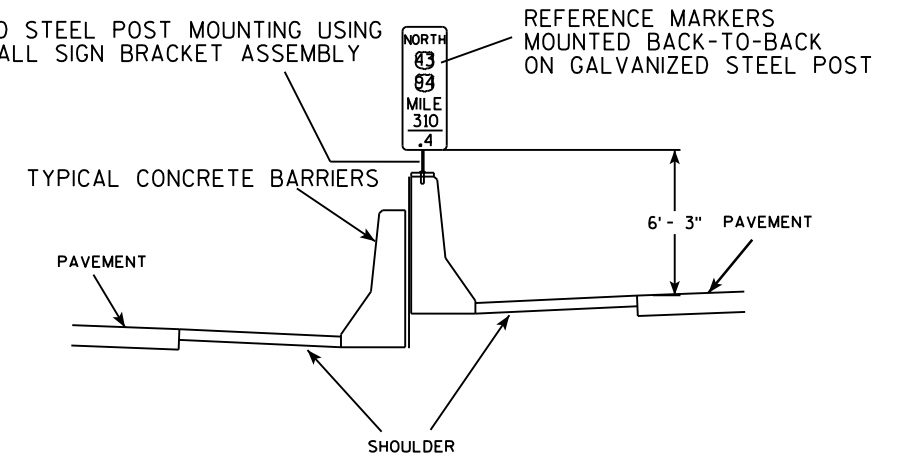
# TYPICAL BARRIER WALL SIGN PLACEMENT DETAILS

## TYPICAL REFERENCE MARKER MOUNTING DETAILS

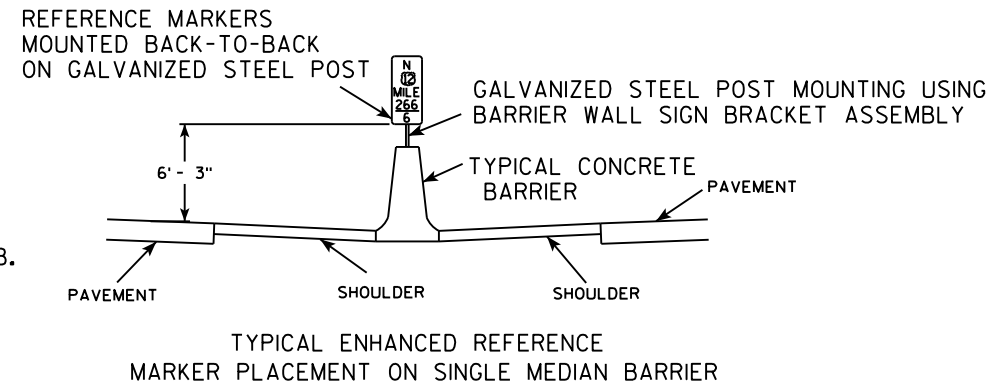
BARRIER WALL SIGN BRACKET ASSEMBLY  
NOT TO SCALE



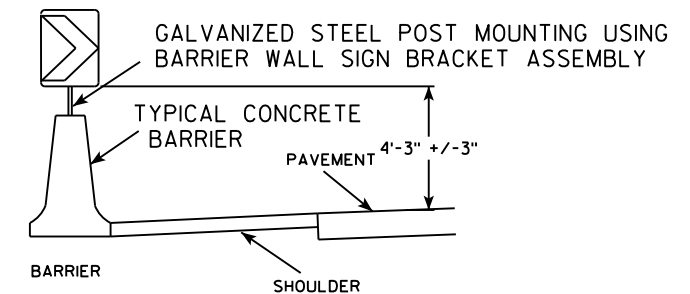
GALVANIZED STEEL POST MOUNTING USING  
BARRIER WALL SIGN BRACKET ASSEMBLY



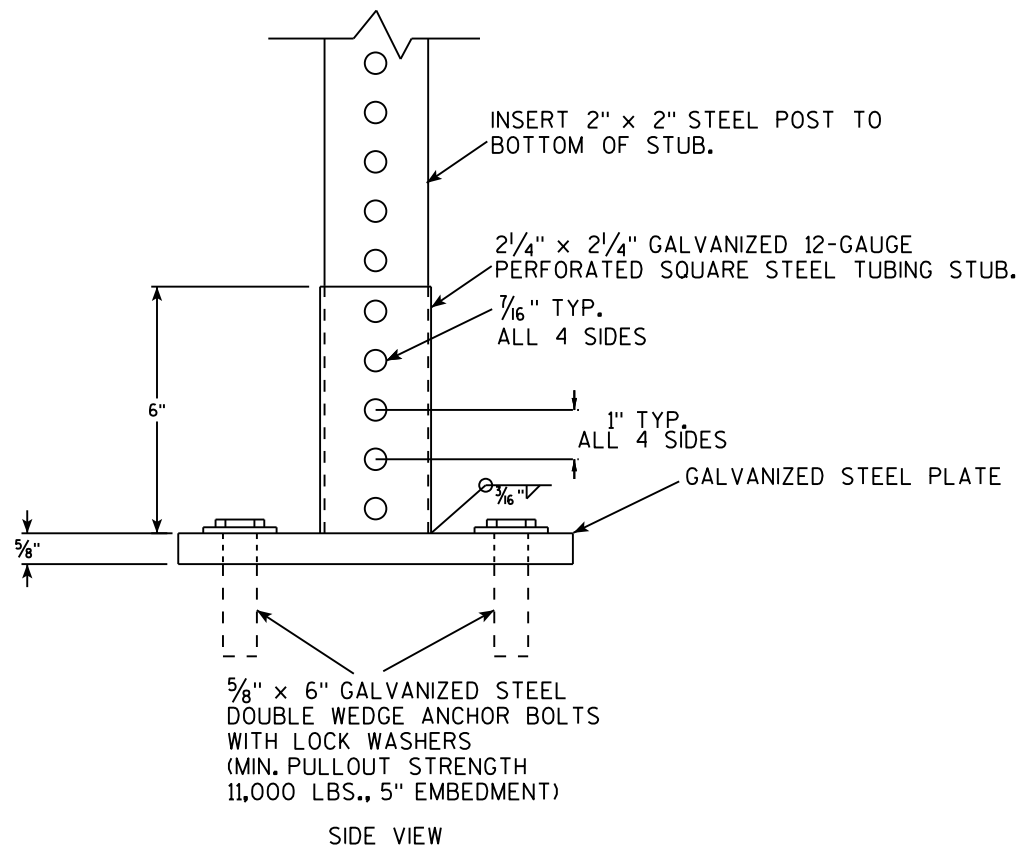
TYPICAL ENHANCED REFERENCE  
MARKER PLACEMENT ON DOUBLE MEDIAN BARRIER



TYPICAL ENHANCED REFERENCE  
MARKER PLACEMENT ON SINGLE MEDIAN BARRIER



TYPICAL CHEVRON MARKER PLACEMENT



SIDE VIEW

### NOTES

- 1) ALL MATERIAL TO BE APPROVED BY ENGINEER BEFORE INSTALLATION
- 2) SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS.

## SIGN MOUNTING ON BARRIER WALL

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-10.3

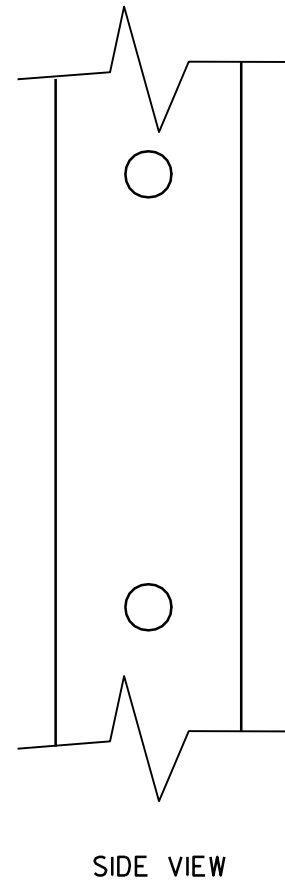
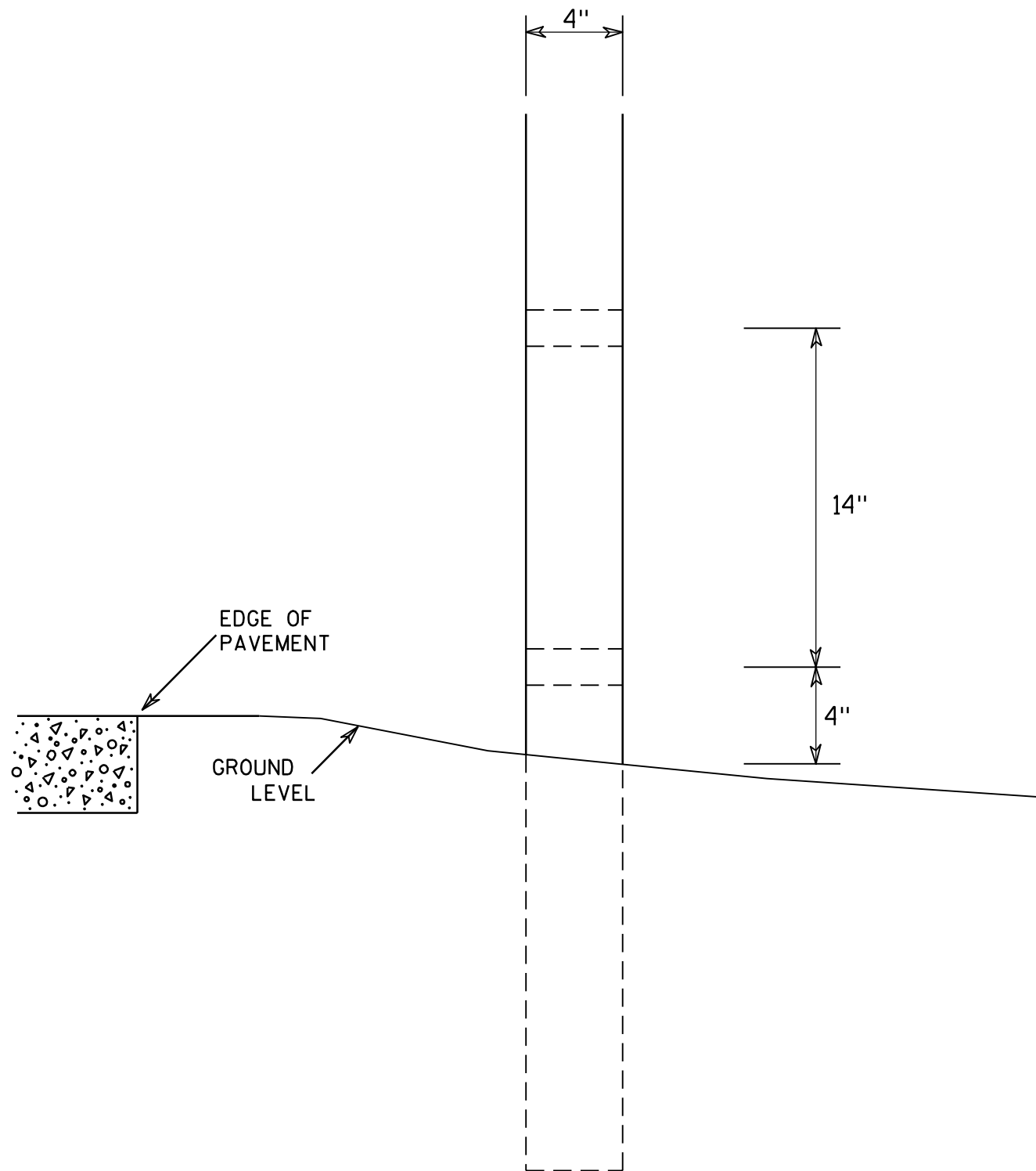
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



GENERAL NOTES

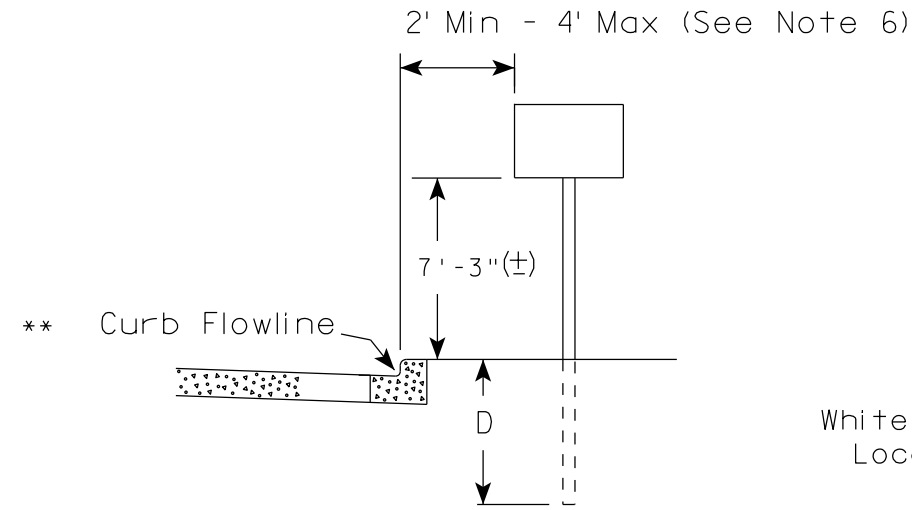
1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

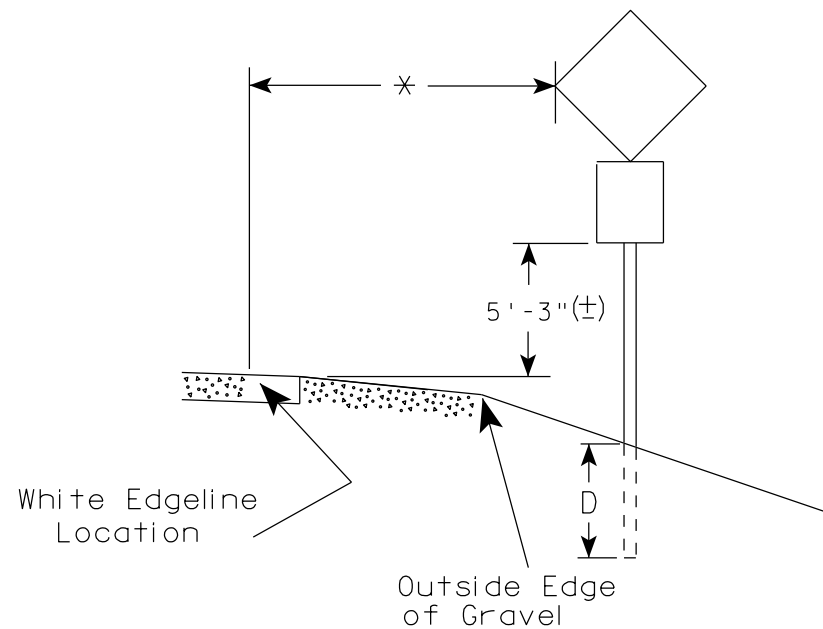
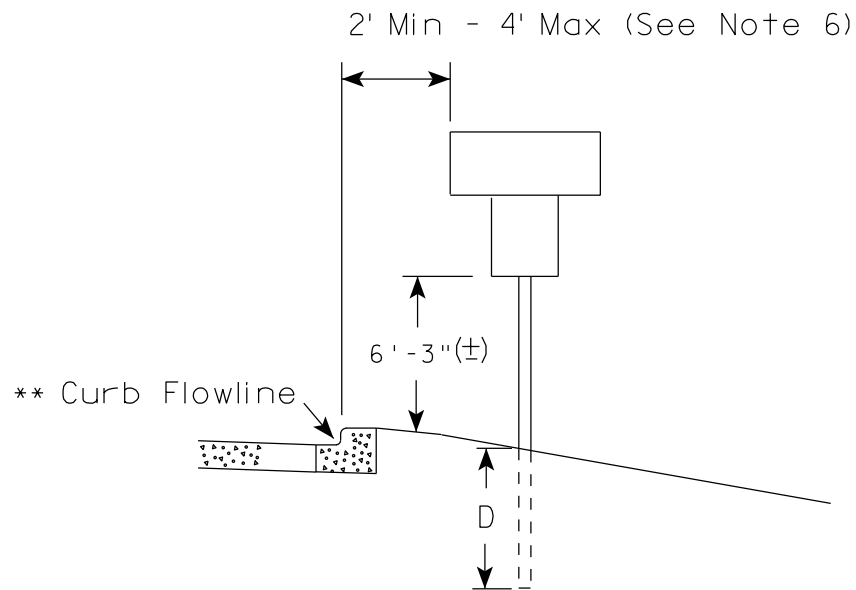
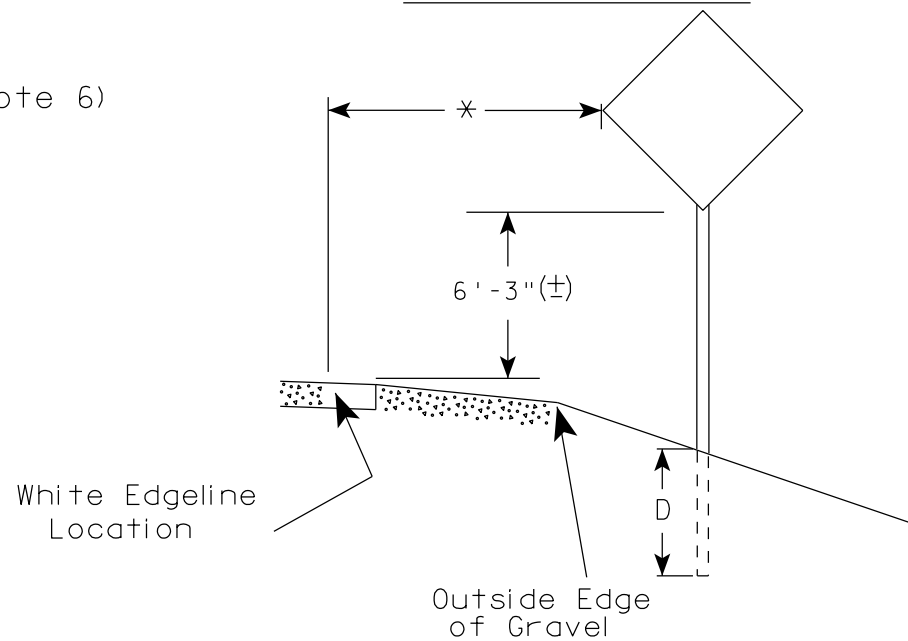
7

<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. 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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

Area of Sign Installation ( Sq.Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

✖✖ The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

**GENERAL NOTES**

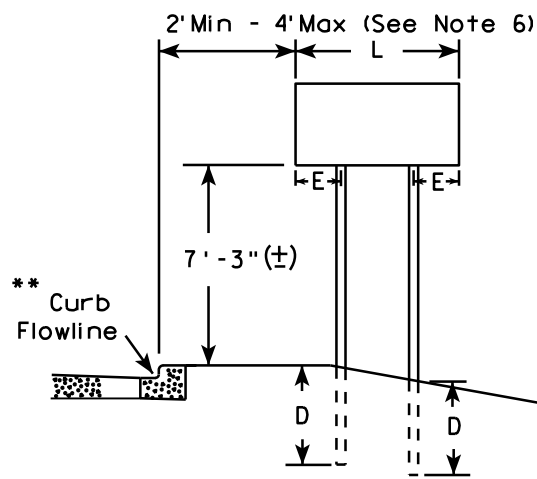
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) 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) & End of Road Markers (W5-56 & W5-56A) 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.

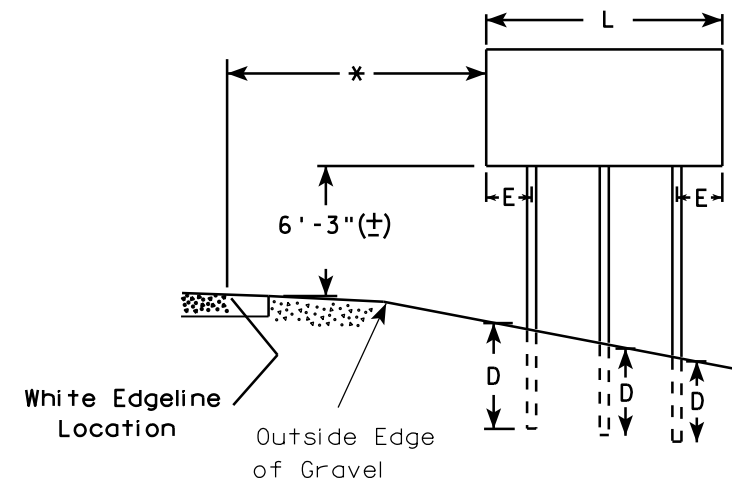
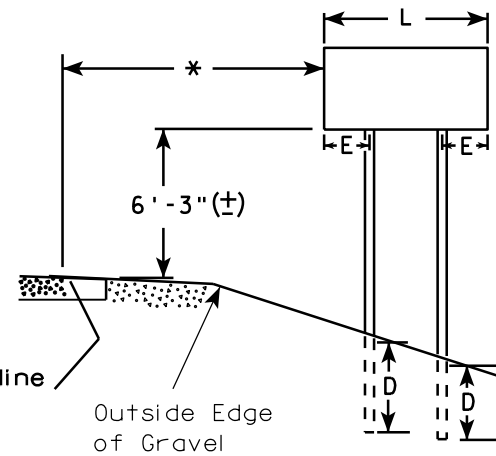
\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

\*\*\* See A4-3 sign plate for signs 4' or less in width or 20 S.F. or less in area.

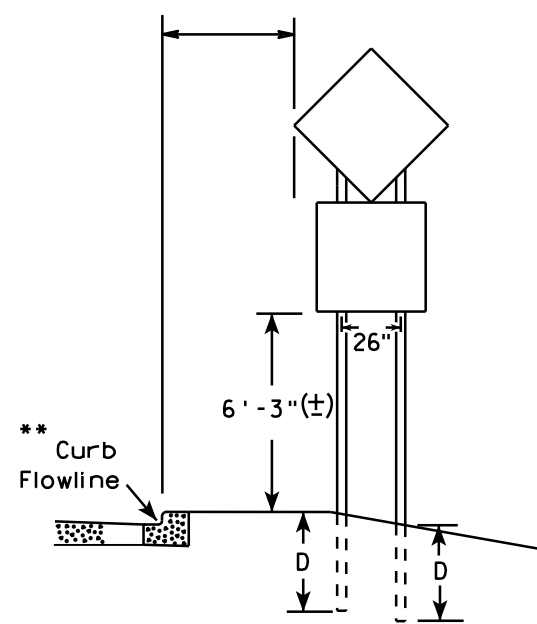
**URBAN AREA**



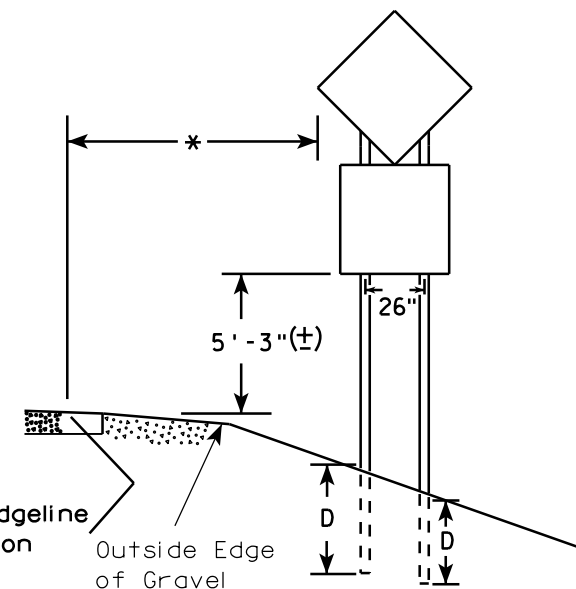
**RURAL AREA (See Note 3)**



2' Min - 4' Max (See Note 6)



**48" DIAMOND WARNING SIGN**



**48" DIAMOND WARNING SIGN**

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48"	12"
Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120"	12"
less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

**POST EMBEDMENT DEPTH**

Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

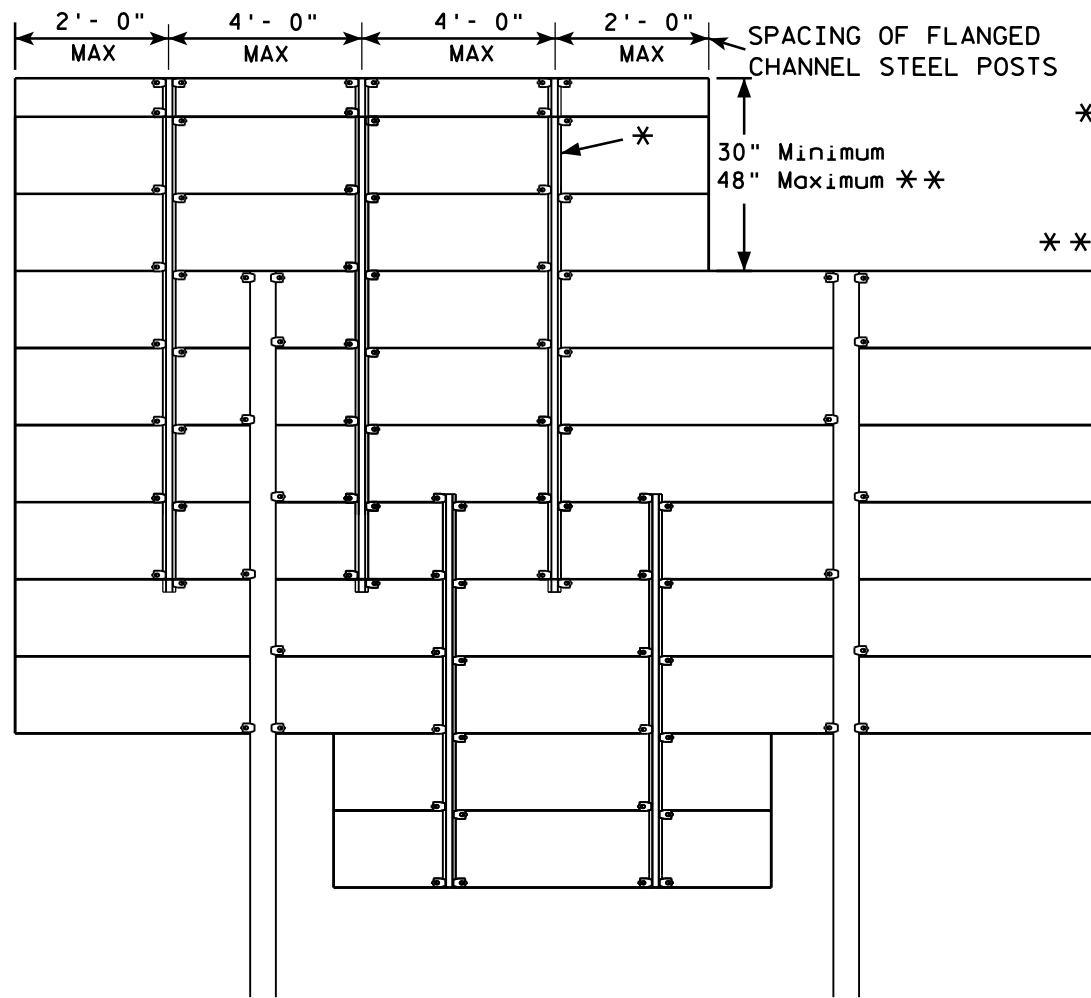
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-4.12

GROUND MOUNTED SIGN

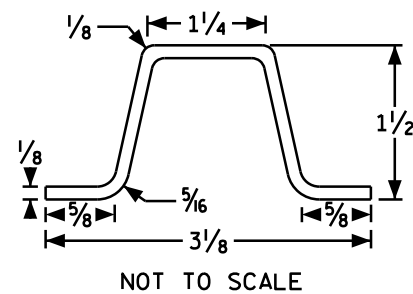


\* = 2.00 lb/ft FLANGED CHANNEL, MIN. YIELD STRENGTH = 60,000 PSI (GRADE 60) GALVANIZED

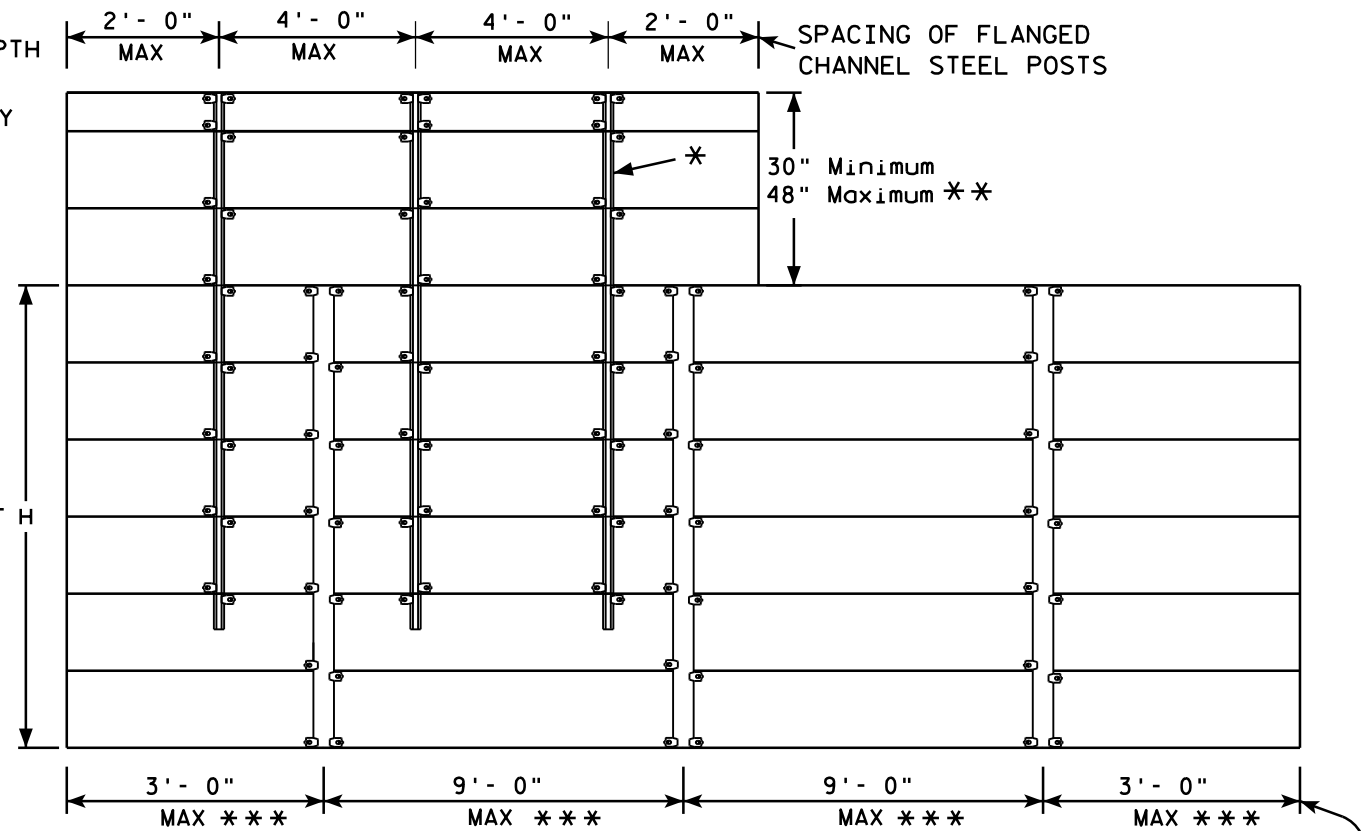
\*\* = FOR 48" HEIGHT PANELS ON OVERHEAD STRUCTURES, ENTIRE SIGN SHALL BE CENTERED VERTICALLY ABOUT THE DEPTH OF THE TRUSS.

\*\*\* THESE SPACING DISTANCES SHALL ONLY BE USED WHEN THE MAIN SIGN HAS A MAXIMUM HEIGHT (DIMENSION H) OF 16 FT OR LESS. FOR SIGNS WITH A HEIGHT OF GREATER THAN 16 FT, STRUCTURAL CALCULATIONS SHALL BE PERFORMED.

FLANGE CHANNEL DETAIL



SIGN BRIDGE MOUNTED SIGN



SPACING OF ALUMINUM SIGN SUPPORTS 5" X 3.5" X 3.7 LBS./ft.

GENERAL NOTES

1. Flanged channel steel posts shall conform to size and material above, and shall be considered as incidental to other items in the contract.
2. Number of Flanged channel steel supports varies with length of panel and shall be spaced as shown:  
 PANEL LENGTH 8'-0" OR LESS = 2 CHANNELS  
 PANEL LENGTH 9'-0" - 12'-0" = 3 CHANNELS  
 PANEL LENGTH 13'-0" OR MORE = 4 CHANNELS  
 If the flanged channel steel posts can not be horizontally spaced as shown, they can be moved so as to securely hold the sign.

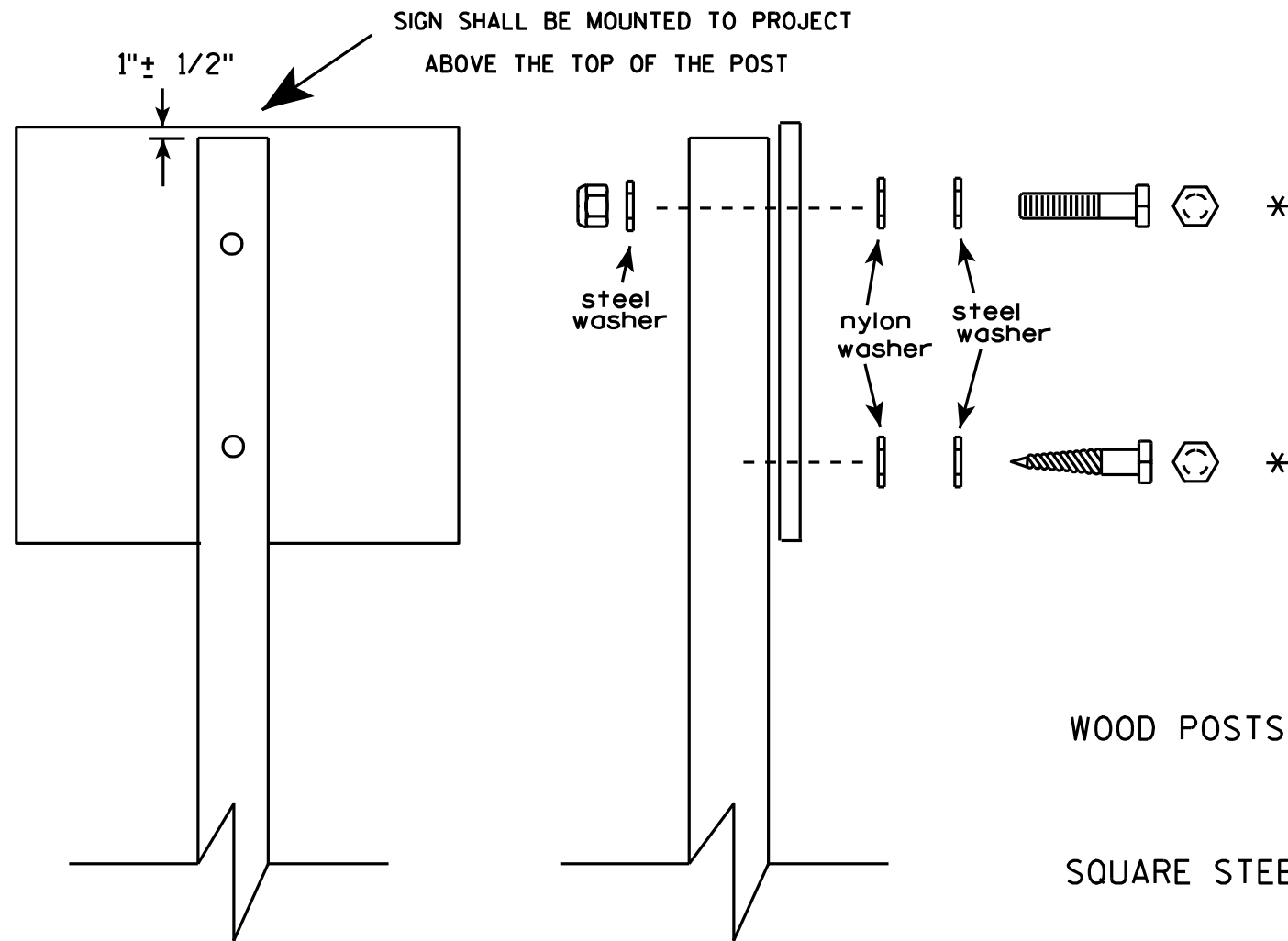
3. The EXIT NUMBER PANEL shall normally be positioned above the guide sign aligned with the right edge of the guide sign. If the guide sign indicates a left exit, the EXIT NUMBER PANEL shall be aligned with the left edge of the guide sign.
4. If the bolt holes in the top panel (EXIT NUMBER), or sub panel (NEXT EXIT) line up with holes in main sign panel, stitch bolts shall be used in addition to the channels.
5. Provide post clips for each sign as shown. (Please note the differences between a ground mounted versus Sign bridge mounted sign as far as number of clips required on the main supports or beams)
6. Structural steel sign supports shall extend to the top of the main signs, as shown on the above details.

ATTACHMENT OF GUIDE SIGNS TO SUPPORTS

WISCONSIN DEPT OF TRANSPORTATION

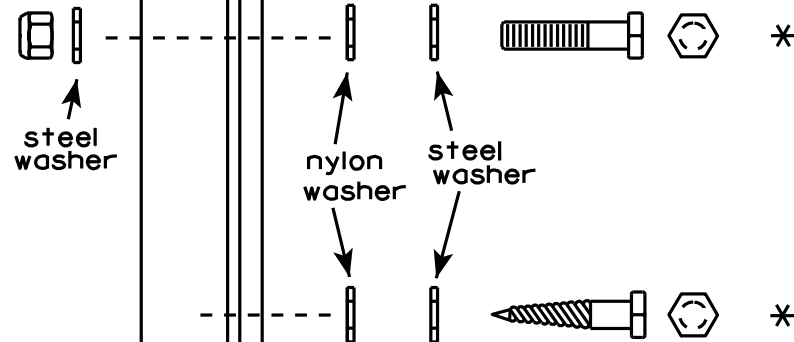
APPROVED *Matthew R. Rauch*  
 for State Traffic Engineer

DATE 12/05/13 PLATE NO. A4-6.12



SIGN SHALL BE MOUNTED TO PROJECT  
ABOVE THE TOP OF THE POST

1" ± 1/2"



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 POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts

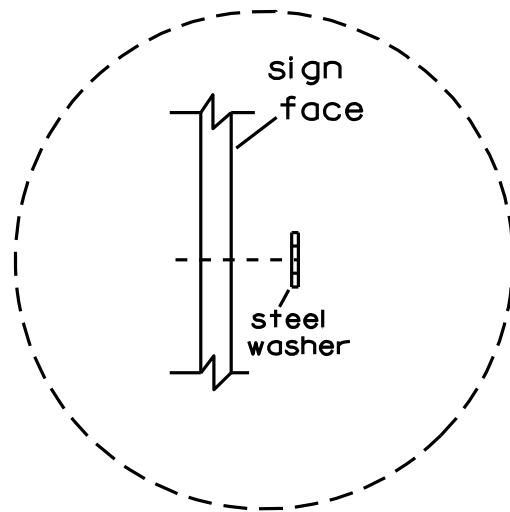
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL

O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 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.



Washer Placement when Sign Has Other Than Type H or Type F Face

\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS  
TO POSTS

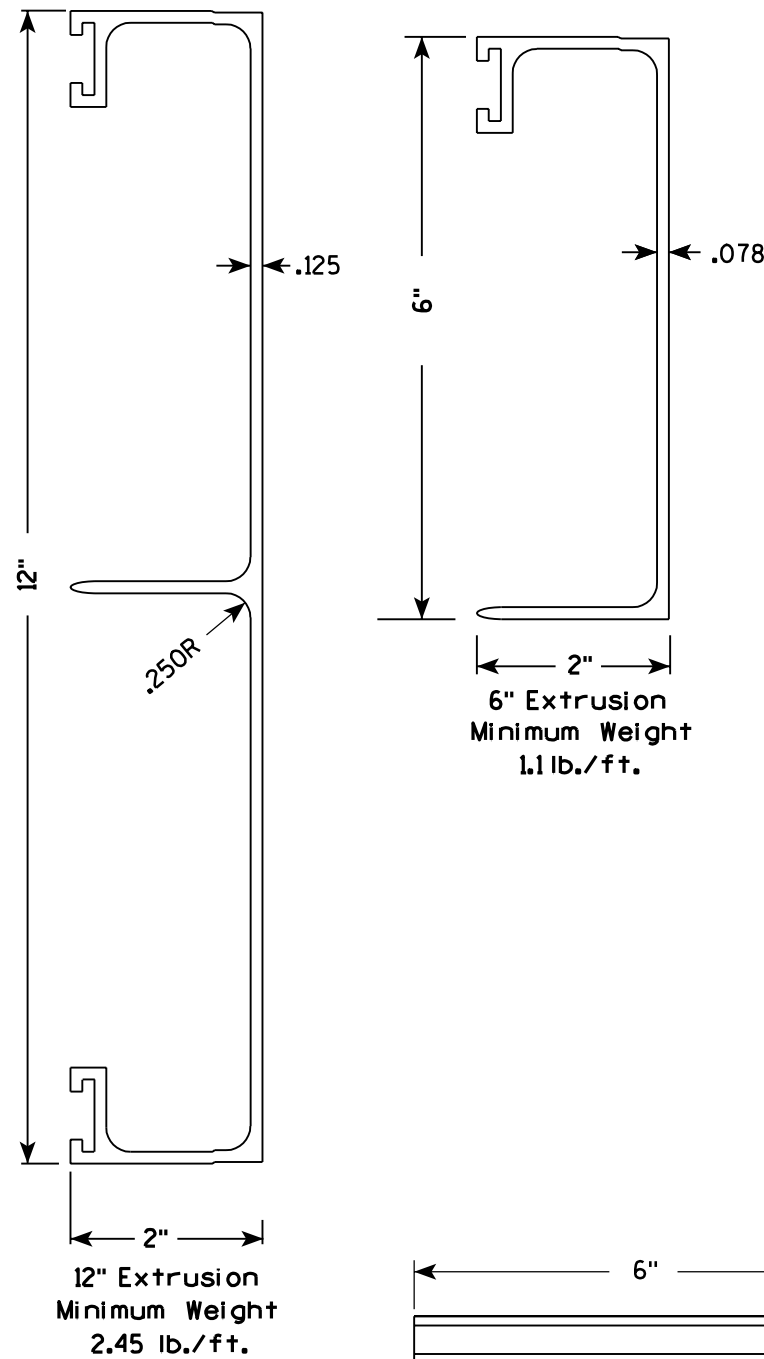
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

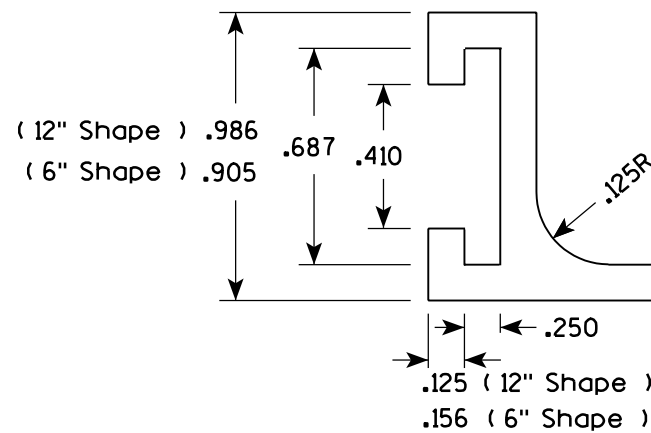
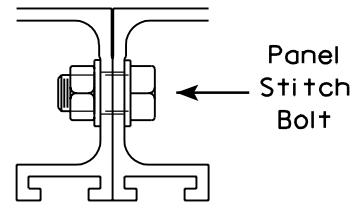
Extruded Shape

Hardware



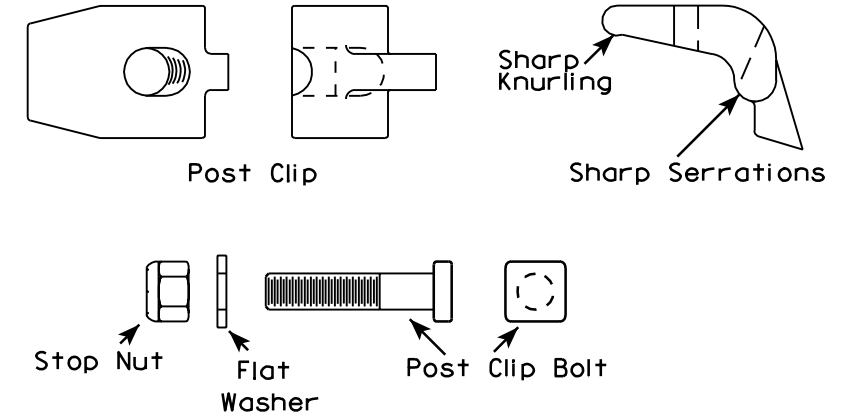
STITCH BOLT, WASHER & NUT

The hardware includes:  
 3/8 " - 16 X 3/4 " Economy Bolt 2024-T4 alloy  
 3/8 " - Stainless steel stop nut  
 3/8" X .064 Flat Washers, Alclad 2024-T4 alloy



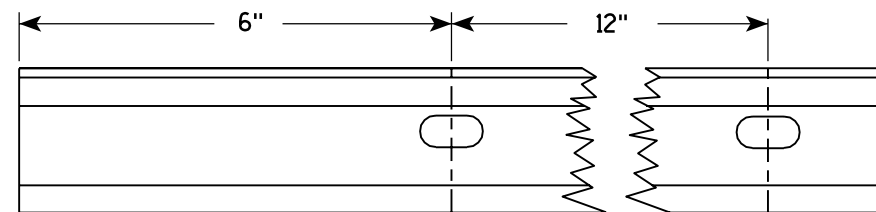
POST CLIP, POST CLIP BOLT, WASHER & NUT

Post Clip shall be Alum. Alloy 356-T6  
 Post Clip Bolt shall be Stainless Steel.  
 Flat washer shall be 3/8" X .091, Stainless Steel.  
 Stop nut shall be stainless steel.

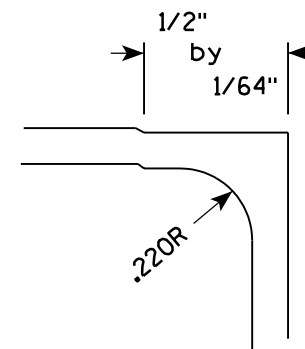


NOTES

1. The contractor may select any brand of extrusion that conforms to the illustrations or meets with the approval of the engineer, but all extrusions used on this contract shall be of the same brand.
2. Panel Stitch Bolts shall be used to assemble adjacent panels. Maximum stitch bolt spacing shall be 24" C-C, and a minimum of 4 bolts shall be used to connect any two extrusions.
3. Post Clips shall be used to attach the sign panel to the sign support.



Punch 7/16" x 7/8" oval holes beginning 6" in from end of extrusion 12" CC on both edges of 6" and 12" panels.



ALUMINUM EXTRUSIONS FOR  
 TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Chester J. Spang*  
 for State Traffic Engineer  
 DATE 11/18/99 PLATE NO. A5-2.9

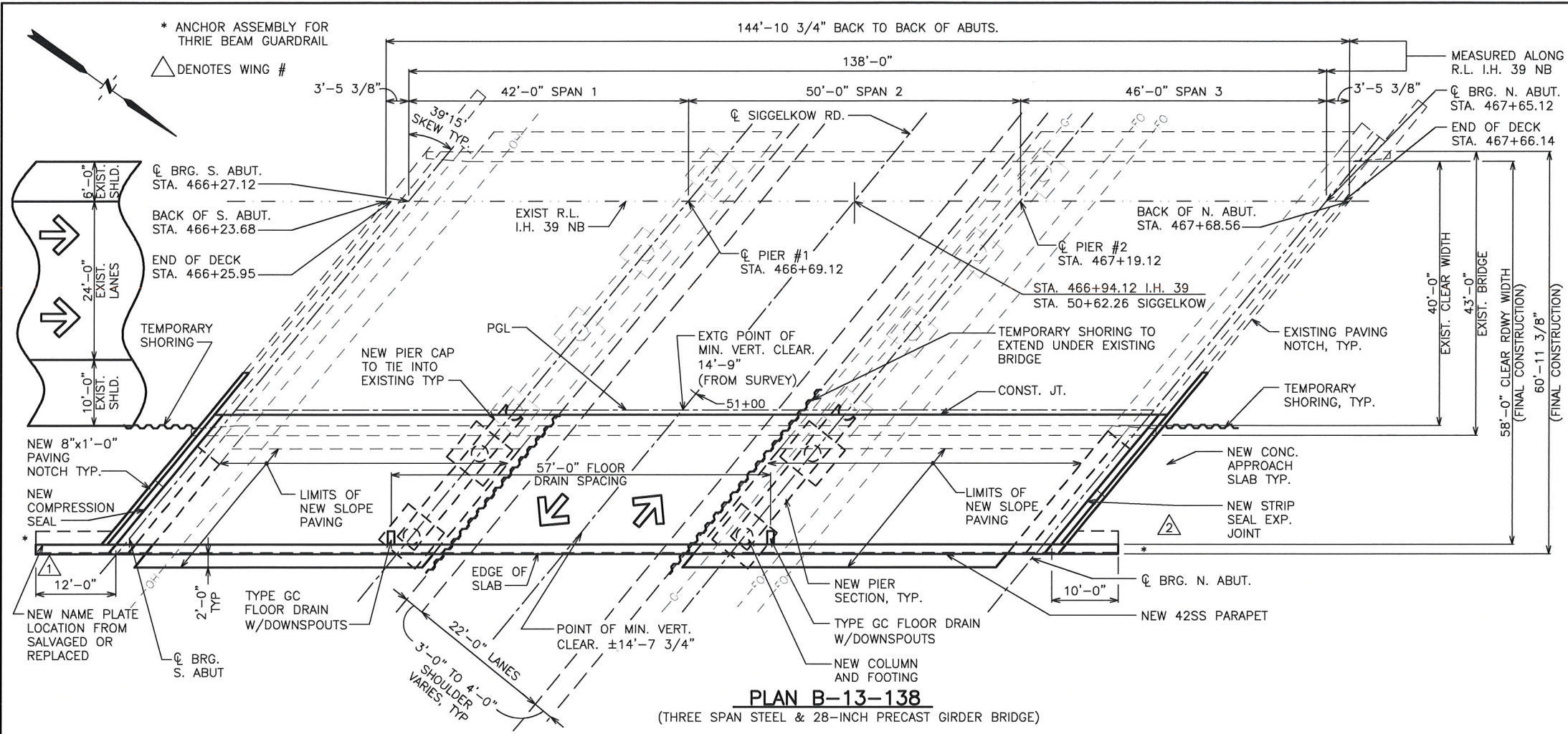


**LIST OF DRAWINGS**

1. GENERAL PLAN
2. TYPICAL SECTIONS
3. ESTIMATED QUANTITIES AND NOTES
4. SUBSURFACE EXPLORATION
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT WING 1 DETAILS
7. SOUTH ABUTMENT DETAILS
8. NORTH ABUTMENT
9. NORTH ABUTMENT WING 2 DETAILS
10. NORTH ABUTMENT DETAILS
11. PIER 1 & 2
12. FIXED STEEL BEARING DETAILS
13. LAMINATED ELASTOMERIC BEARINGS
14. COMPRESSION SEAL JOINT DETAILS AT SOUTH ABUTMENT
15. STRIP SEAL EXPANSION JOINT DETAILS AT NORTH ABUTMENT
16. STRIP SEAL EXPANSION JOINT DETAILS AT NORTH ABUTMENT
17. 28" PRESTRESSED GIRDER DETAILS
18. STEEL DIAPHRAGM DETAILS
19. DECK ELEVATIONS AND TABLE OF DEFLECTIONS
20. SUPERSTRUCTURE
21. SUPERSTRUCTURE PLAN
22. SUPERSTRUCTURE DETAILS AND BILL OF BARS
23. TYPE GC DRAIN DETAIL
24. SINGLE SLOPE PARAPET 42SS
25. SLOPE PAVING CRUSHED AGGREGATE

**TRAFFIC DATA:**

AVERAGE DAILY TRAFFIC (ADT)	
IH39	49,100 (2009)
	70,300 (2040)
R.D.S.	70 MPH
SIGGELKOW RD	1,310 (2014)
	1,747 (2034)
R.D.S.	50 MPH



**PLAN B-13-138**

(THREE SPAN STEEL & 28-INCH PRECAST GIRDER BRIDGE)

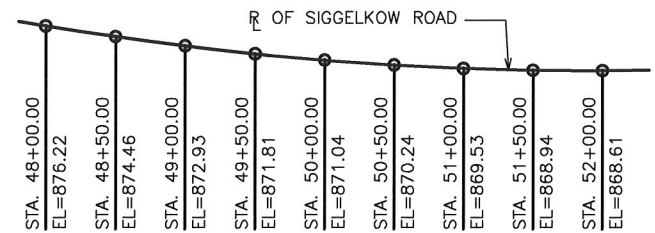
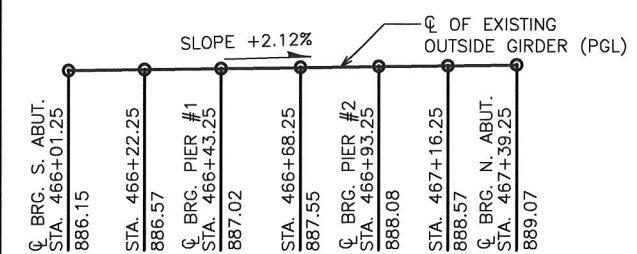
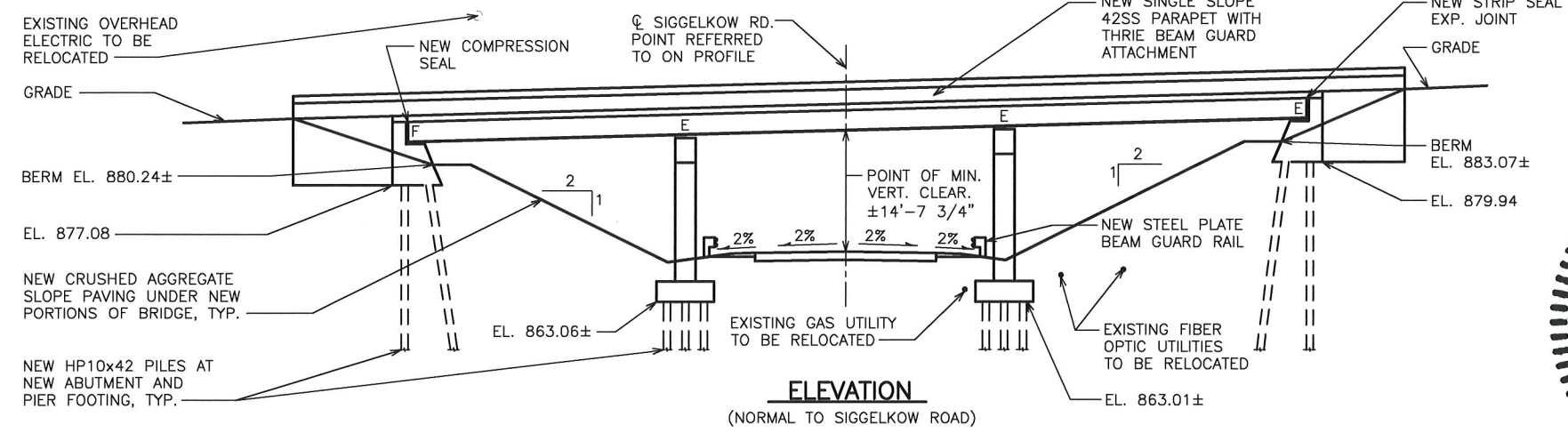
**FOR DESIGN DATA SEE SHEET 2**

WISDOT BRIDGE OFFICE CONTACT:  
WILLIAM DREHER, PE  
608.266.8489

OTIE CONTACT:  
SAM BARGHOUT, PE, SE  
608.241.6704



*Sam Barghout 11/18/2013*



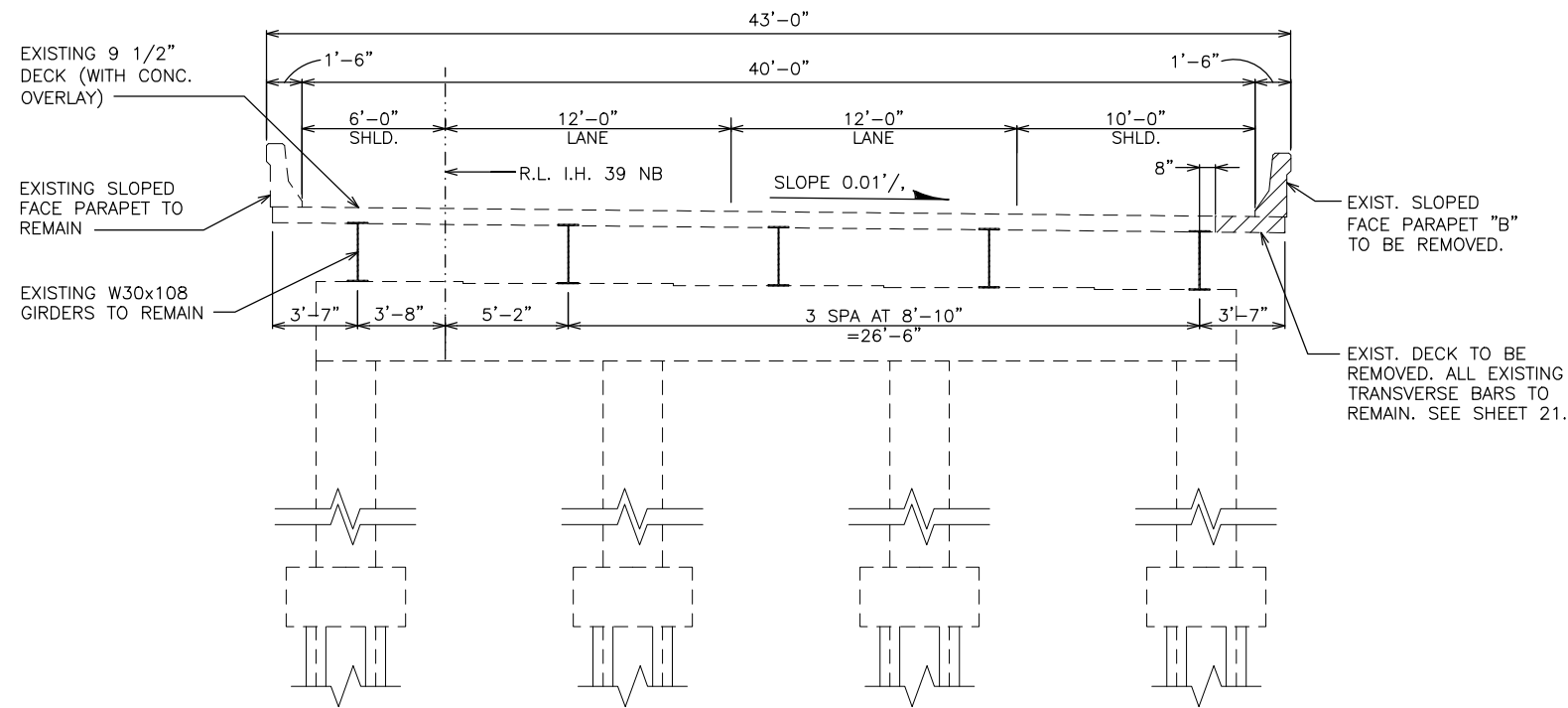
**BENCH MARKS**

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
BM1	STA.2439'SB'+70	67.9" LT	CUT "X" ON THE NE SIGN BOLT OF E. SIGH LEG	871.15

NO.	DATE	REVISION	BY
PLANS PREPARED BY			
		5100 Eastpark Blvd Suite 200 Madison, WI 53718 www.OTIE.com	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED			DATE <b>12/6/13</b>
CHIEF STRUCTURES DESIGN ENGINEER			
<b>STRUCTURE B-13-138</b>			
I.H.39 NB OVER SIGGELKOW RD			
COUNTY	DANE	TOWN/CITY/VILLAGE	BLOOMING GROVE
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	SDB	DESIGN CK'D.	JJH
DRAWN BY	DAS	PLANS CK'D.	JSM
<b>GENERAL PLAN</b>			SHEET 1 OF 25

8

8



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

**DESIGN DATA**

LRFD DESIGN FOR NEW GIRDERS AND SUBSTRUCTURES.

LIVE LOAD:  
 DESIGN LOADING: HL-93  
 INVENTORY RATING FACTOR: RF=1.05  
 OPERATING RATING FACTOR: RF=1.37  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 190 KIPS

- INVENTORY AND OPERATIONAL RATINGS DO NOT INCLUDE A FUTURE WEARING SURFACE.
- STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF

ULTIMATE DESIGN STRESSES:  
 CONCRETE MASONRY-SLAB-----f'c = 4,000 PSI  
 -ALL OTHERS-----f'c = 3,500 PSI  
 HIGH STRENGTH BAR STEEL REINF.  
 AASHTO GRADE 60-----Fy = 60,000 PSI  
 28" PRESTRESSED GIRDERS,  
 CONCRETE MASONRY-----f'c = 8,000 PSI FINAL  
 STRANDS-0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 PSI  
 STRUCTURAL STEEL  
 ASTM A709 GRADE 36-----Fy = 36,000 PSI (DIAPHRAGMS)

**EXISTING GIRDERS AND SUBSTRUCTURES**

INVENTORY RATING = HS-16  
 OPERATIONAL RATING= HS-25

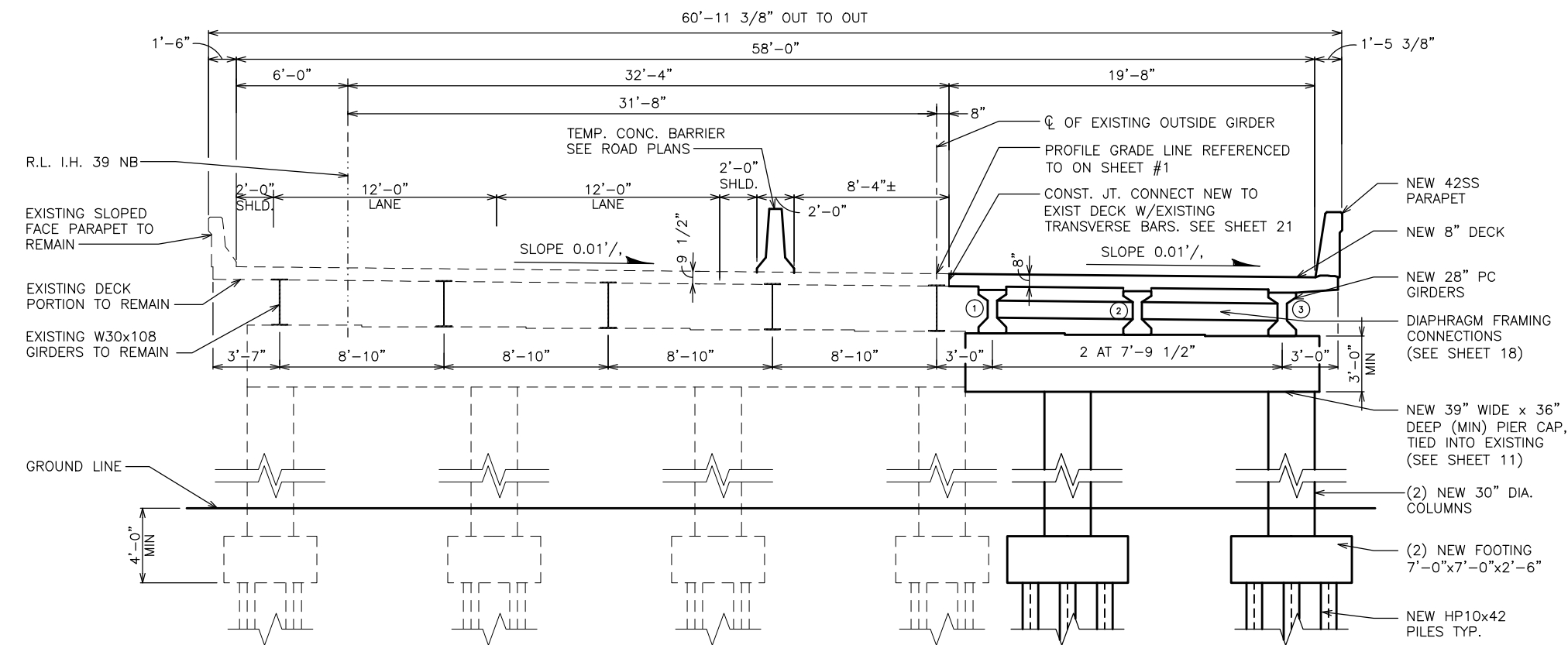
ALLOWABLE DESIGN STRESSES:  
 CONCRETE MASONRY SUPERSTRUCTURE-----f'c = 3,500 P.S.I.  
 BAR STEEL REINF., GRADE 40-----Fy = 40,000 P.S.I.  
 STEEL GIRDERS, CARBON STEEL-----Fy = 33,000 P.S.I.

**FOUNDATION DATA**

ABUTMENT WIDENINGS SHALL BE SUPPORTED ON HP 10x42 STEEL PILES WITH A REQUIRED DRIVING RESISTANCE OF 75 TONS\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH OF 45 FEET FOR THE NORTH ABUTMENT AND SOUTH ABUTMENT.

PIERS SHALL BE SUPPORTED ON HP 10x42 STEEL PILES WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH OF 35 FEET.

\*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.



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

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>TYPICAL SECTIONS</b>			SHEET 2 OF 25

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEM DESCRIPTION	UNIT	SOUTH ABUT.	PIER 1	PIER 2	NORTH ABUT.	SUPER STRUCT.	TOTALS
203.0200	REMOVING OLD STRUCTURE STATION STA. 466+94.12 I.H. 39	LS	--	--	--	--	--	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-13-138	LS	--	--	--	--	--	1
206.6000.S	TEMPORARY SHORING	SF	150	200	200	150	--	700
210.0100	BACKFILL STRUCTURE	CY	60	--	--	70	--	130
502.0100	CONCRETE MASONRY BRIDGES	CY	31.1	23.9	24.2	30.1	110.7	220
502.2000	COMPRESSION JOINT SEALER PREFORMED ELASTOMERIC 2 1/2"	LF	27	--	--	--	--	27
502.3100	EXPANSION DEVICE B-13-138	LS	--	--	--	1	--	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	--	--	--	400	400
502.5002	MASONRY ANCHORS TYPE L NO. 4 BARS	EA	8	16	16	8	--	48
502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EA	3	--	--	3	--	6
502.5010	MASONRY ANCHORS TYPE L NO. 6 BARS	EA	8	--	--	8	--	16
502.5015	MASONRY ANCHORS TYPE L NO. 7 BARS	EA	--	12	12	--	--	24
502.5020	MASONRY ANCHORS TYPE L NO. 8 BARS	EA	5	--	--	5	--	10
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	--	--	--	--	416	416
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	1,530	700	700	1,440	--	4,370
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1,120	4,240	4,350	1,030	24,110	34,850
506.2610	BEARING PADS ELASTOMERIC LAMINATED	EA	--	6	6	3	--	15
506.4000	STEEL DIAPHRAGMS B-13-138	EA	--	--	--	--	6	6
506.5000	BEARING ASSEMBLIES FIXED B-13-138	EA	3	--	--	--	--	3
514.0445	FLOOR DRAINS TYPE GC	EA	--	--	--	--	2	2
514.2625	DOWNSPOUT 6-INCH	LF	--	--	--	--	6	6
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	--	--	6	--	13
550.1100	PILING STEEL HP 10x42	LF	270	350	350	270	--	1,240
604.0500	SLOPE PAVING CRUSHED AGGREGATE	SY	100	--	--	110	--	210
612.0406	PIPE UNDERDRAIN WRAPPED 6"	LF	60	--	--	45	--	105
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	1	--	--	1	--	2
	NON-BID-ITEMS							

**GENERAL NOTES**

DRAWINGS ARE NOT TO BE SCALED.

DIMENSIONS AND ELEVATIONS ARE BASED ON EXISTING ORIGINAL STRUCTURE PLANS, CONCRETE OVERLAY PLANS, AND FIELD SURVEY.

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

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

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

SALVAGE EXISTING NAME PLATE IF POSSIBLE, OTHERWISE 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 1961.

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES SHALL BE THE EXISTING GROUNDLINE.

SEE ROADWAY PLANS FOR LANE STAGING AND TRAFFIC.

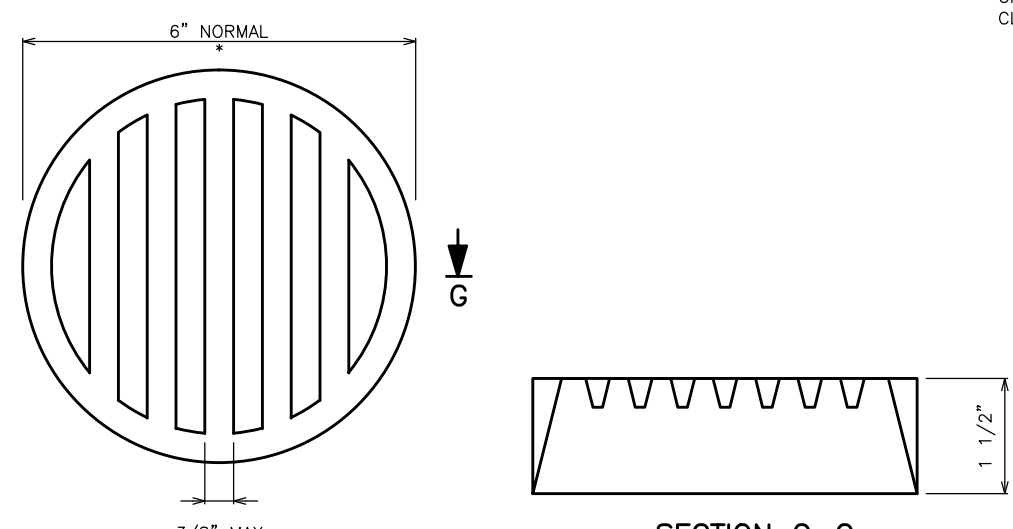
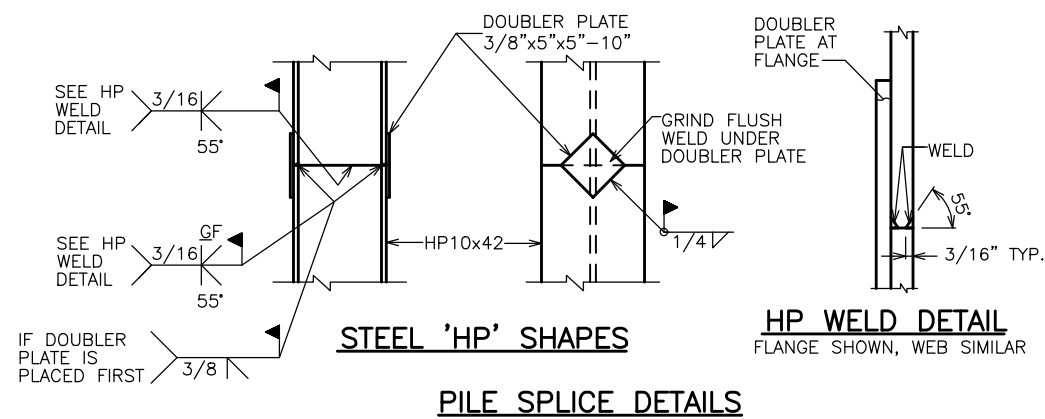
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING (CRUSHED AGGREGATE) TO THE EXTENT SHOWN ON THE GENERAL PLAN, ABUTMENT DETAILS AND ALL DETAILS SHOWN IN PLAN.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON SHEET 17.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

APPLY PROTECTIVE SURFACE TREATMENT TO TOP OF NEW BRIDGE DECK AND TOP AND INSIDE FACES OF PARAPETS.

THE EXISTING BRIDGE B-13-138 IS A 3-SPAN CONTINUOUS STEEL GIRDER BRIDGE WITH AN OVERALL LENGTH OF 144'-10 3/4" AND A CLEAR ROADWAY WIDTH OF 40'.



**RODENT SCREEN DETAIL**

\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SCREEN, PIPE COUPLING AND SCREWS SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6 INCH".

THE RODENT SCREEN SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1" SHEET METAL SCREWS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>ESTIMATED QUANTITIES AND NOTES</b>			SHEET 3 OF 25

8

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STATE PROJECT NUMBER

1007-10-71

ABBREVIATIONS  
 F— Fine M— Medium C— Coarse  
 Ws— Weathered So— Sound

MATERIAL SYMBOLS


LEGEND OF PROBING

95/6=95 Blows for 6"  
 Penetration Probing  
 taken with a 350#wt.  
 Falling 18" on a 2"  
 O.D. Point.

Probing No.  
 Sta.  
 Elevation  
 7 Average Blows Per Foot  
 Refusal 95/6

LEGEND OF BORING

BORING NO.  
 STA.  
 Elev.

Unconfined Strength → 7.7  
 Blows Per Ft. →  
 Using 140# Wt.  
 Falling 30"  
 Wash Sample →

Sandy Gravel  
 F.  
 Boulders or  
 Cobbles  
 Sand  
 Shelby Tube — S.T.  
 Silty Clay  
 So  
 Limestone

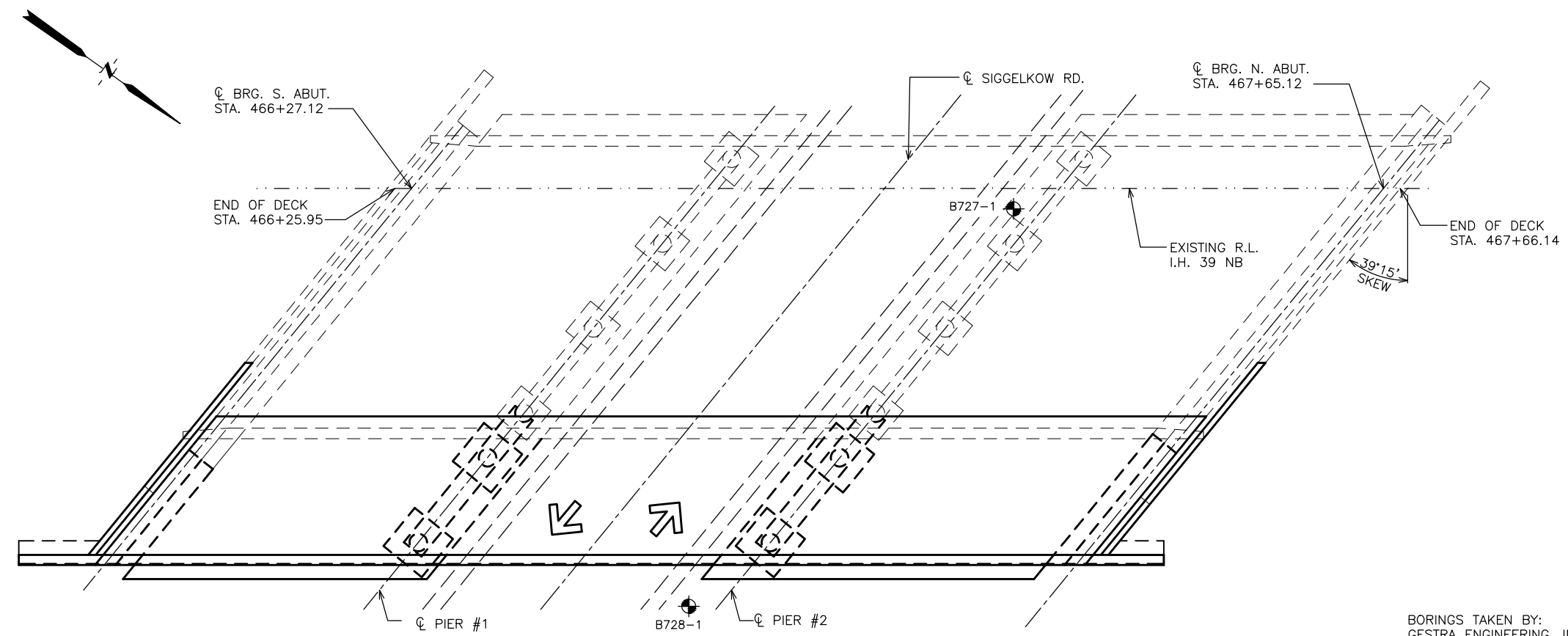
Ground Water  
 Elevation  
 No Ground Water  
 Observed Above  
 This Elevation

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2"O.D.x1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

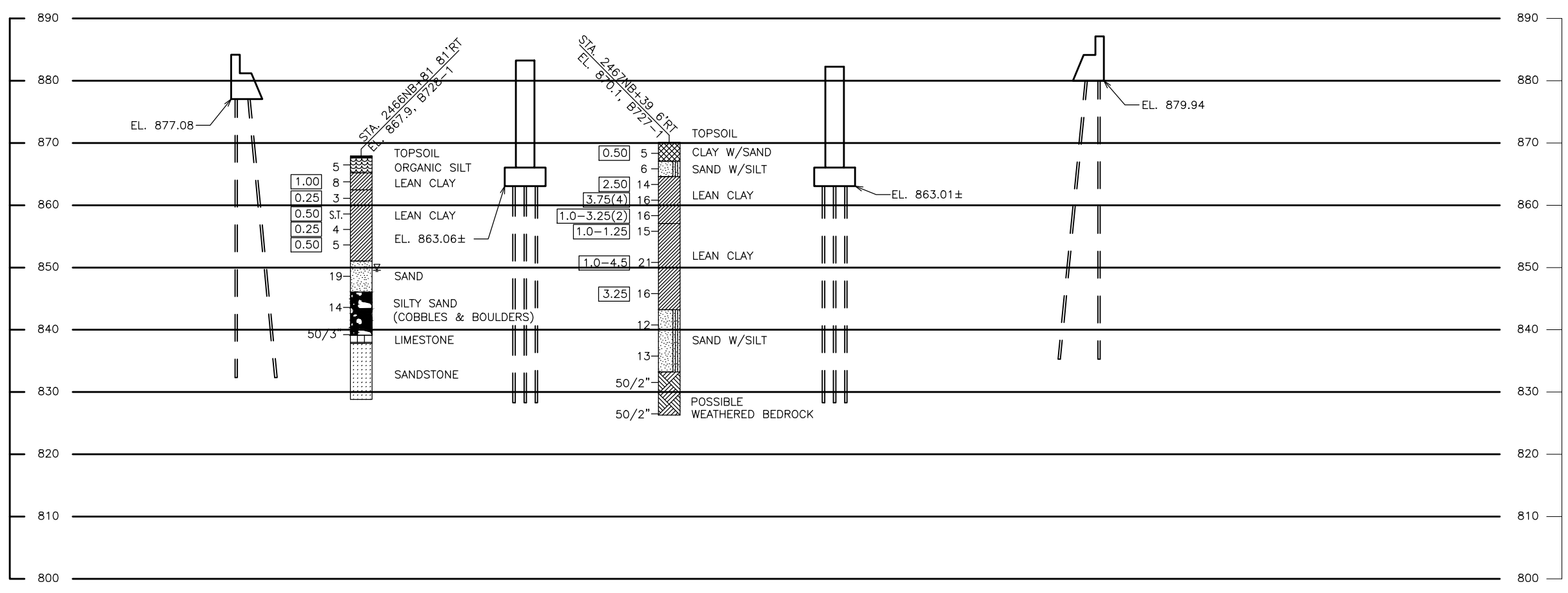
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>SUBSURFACE EXPLORATION</b>		SHEET 4 OF 25	

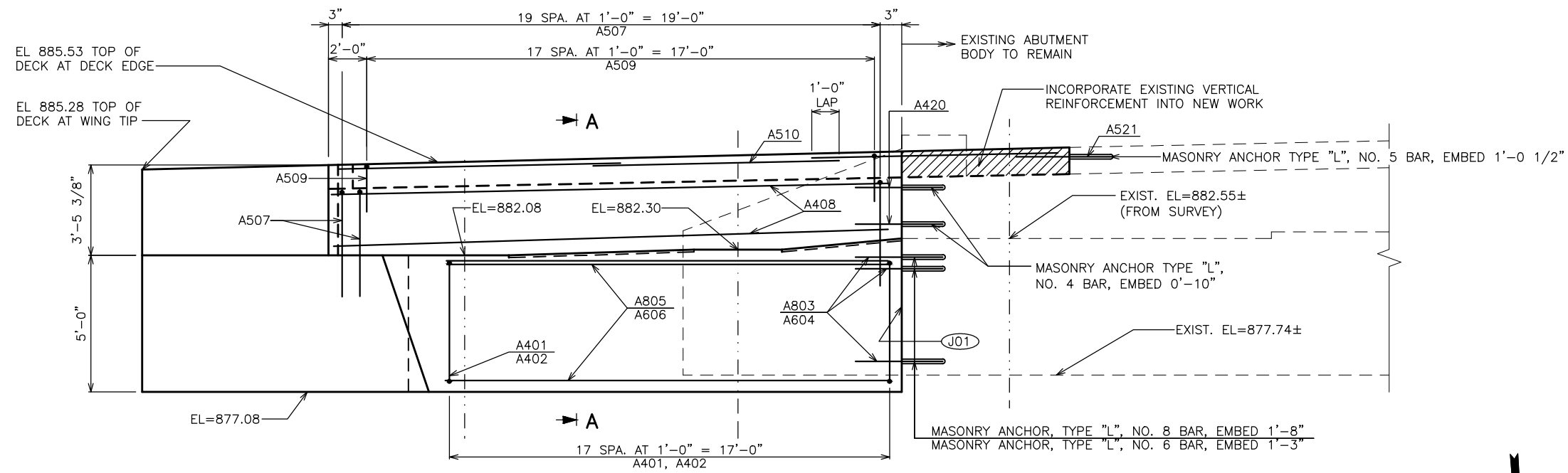


BORINGS TAKEN BY:  
 GESTRA ENGINEERING, INC.  
 MILWAUKEE, WI  
 OCT 16, 2012 - NOV 27, 2012



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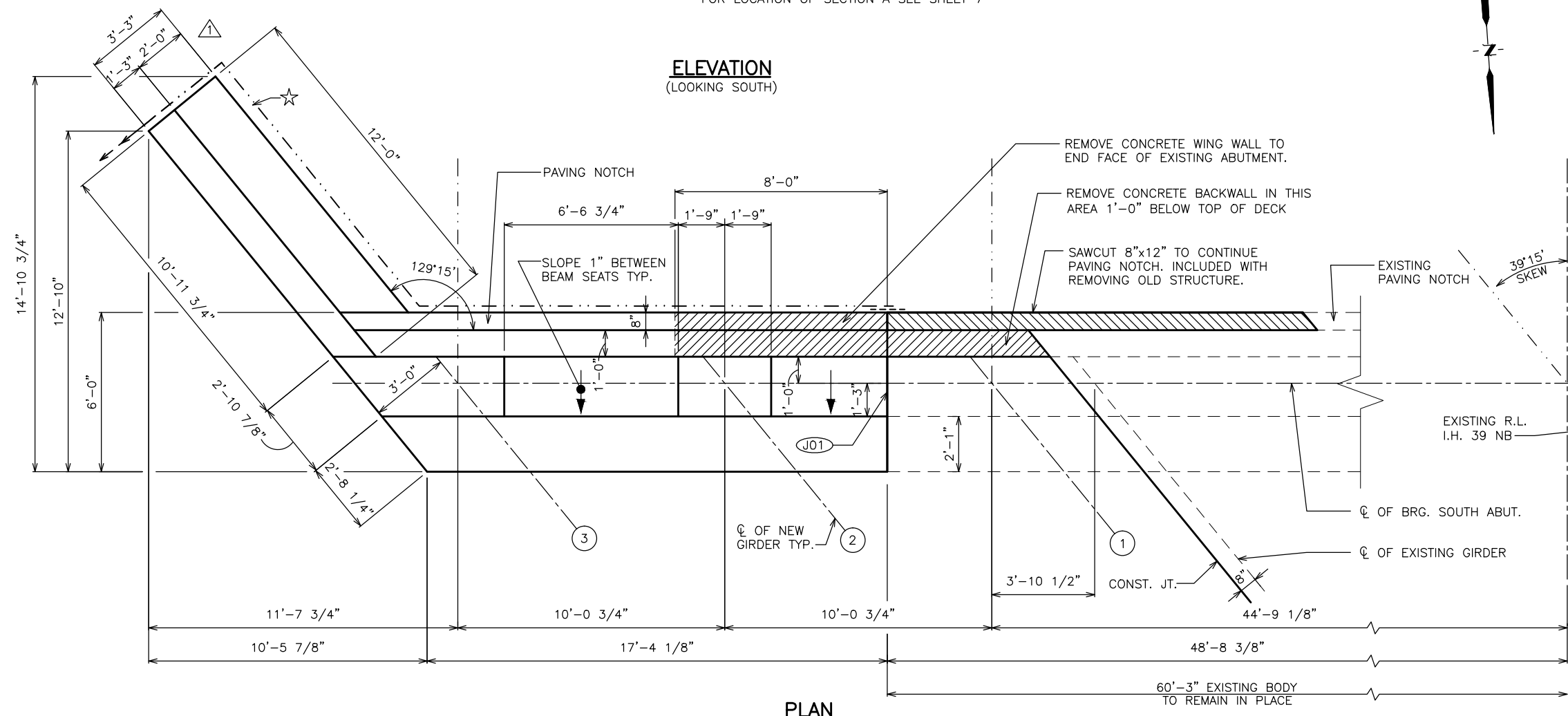


(J01) ROUGHEN SURFACE OF CONCRETE 1/4\" DEEP MIN. ALL AREAS OF NEW TO EXISTING CONCRETE CONTACT.

☆ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPED TO DRAIN. SEE SHEET 6.

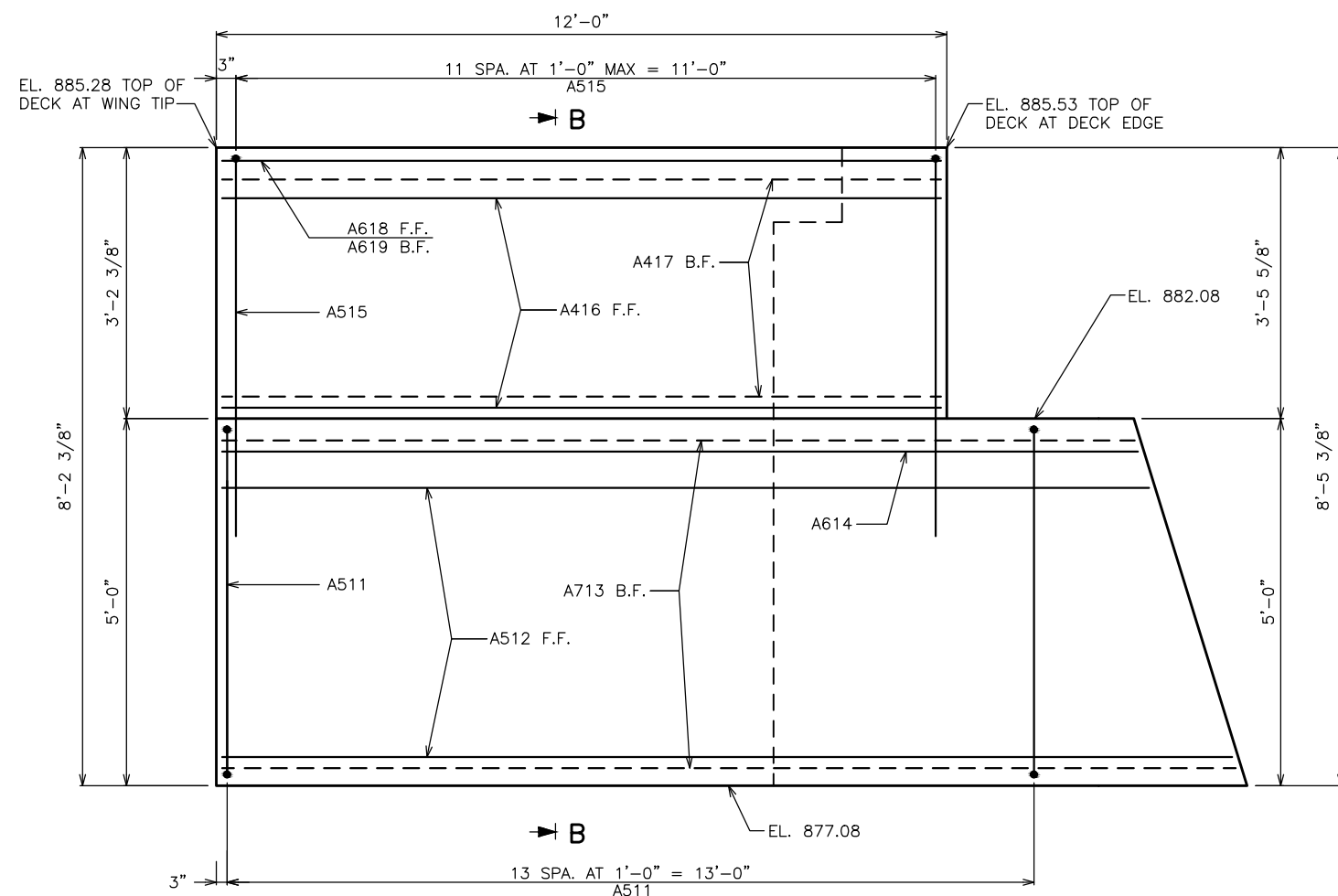
FOR LOCATION OF SECTION A SEE SHEET 7

**ELEVATION**  
(LOOKING SOUTH)

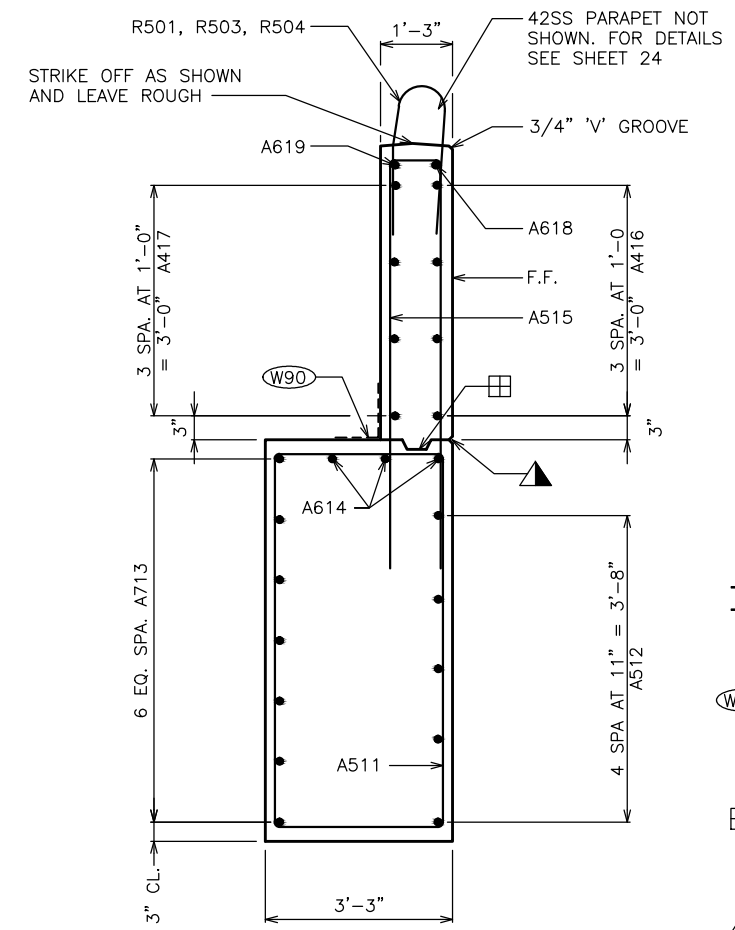


**PLAN**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>SOUTH ABUTMENT</b>			SHEET 5 OF 25



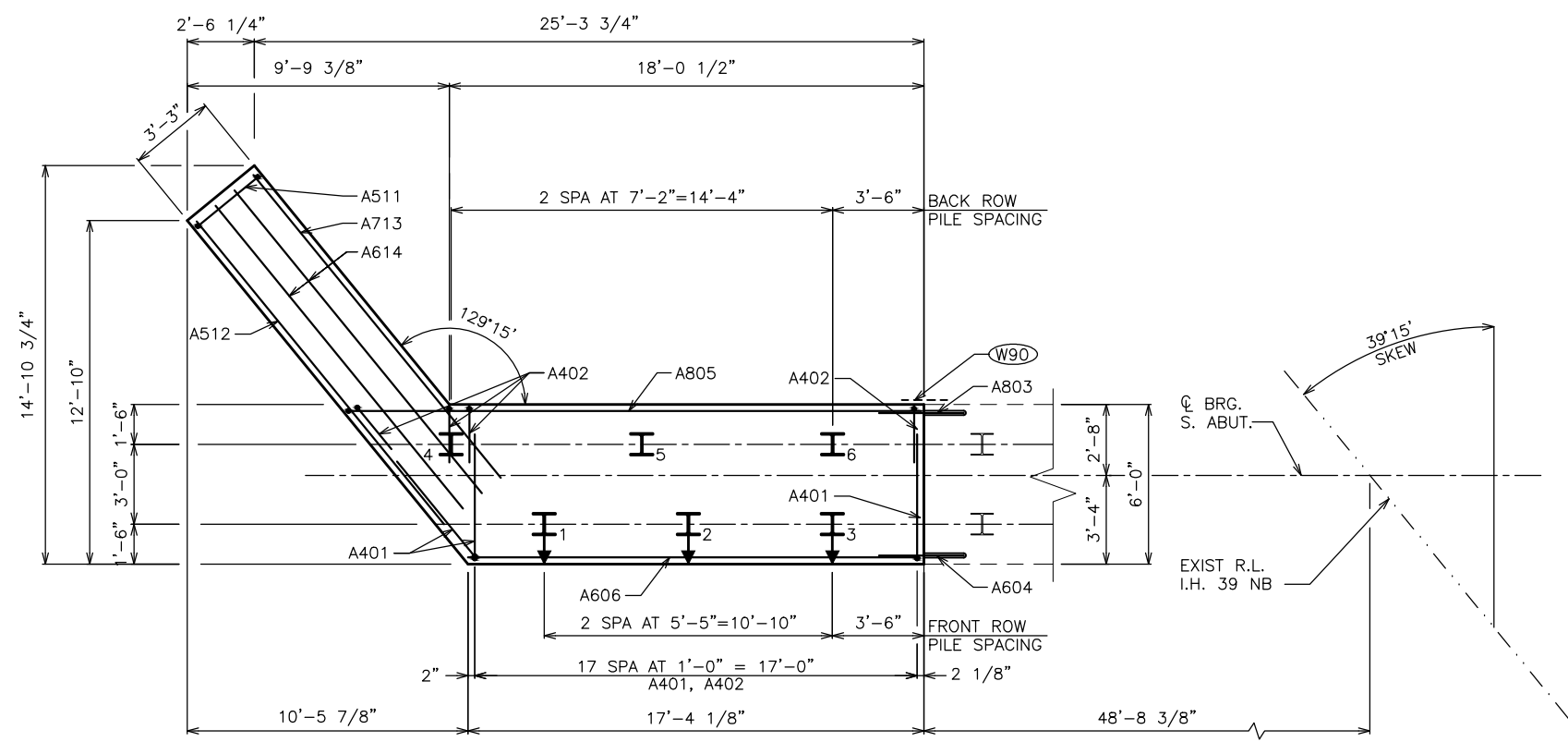
**ELEVATION WING 1**



**SECTION B**

- DENOTES BATTERED PILES. BATTER 3"/FOOT IN DIRECTION SHOWN
- 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2"x6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- 3/4" 'V' GROOVE ON F.F. OF WINGWALL. OMIT IF CONST. JOINT NOT USED.

F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE



**PLAN WING 1**

08

08

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>SOUTH ABUTMENT WING 1 DETAILS</b>			SHEET 6 OF 25

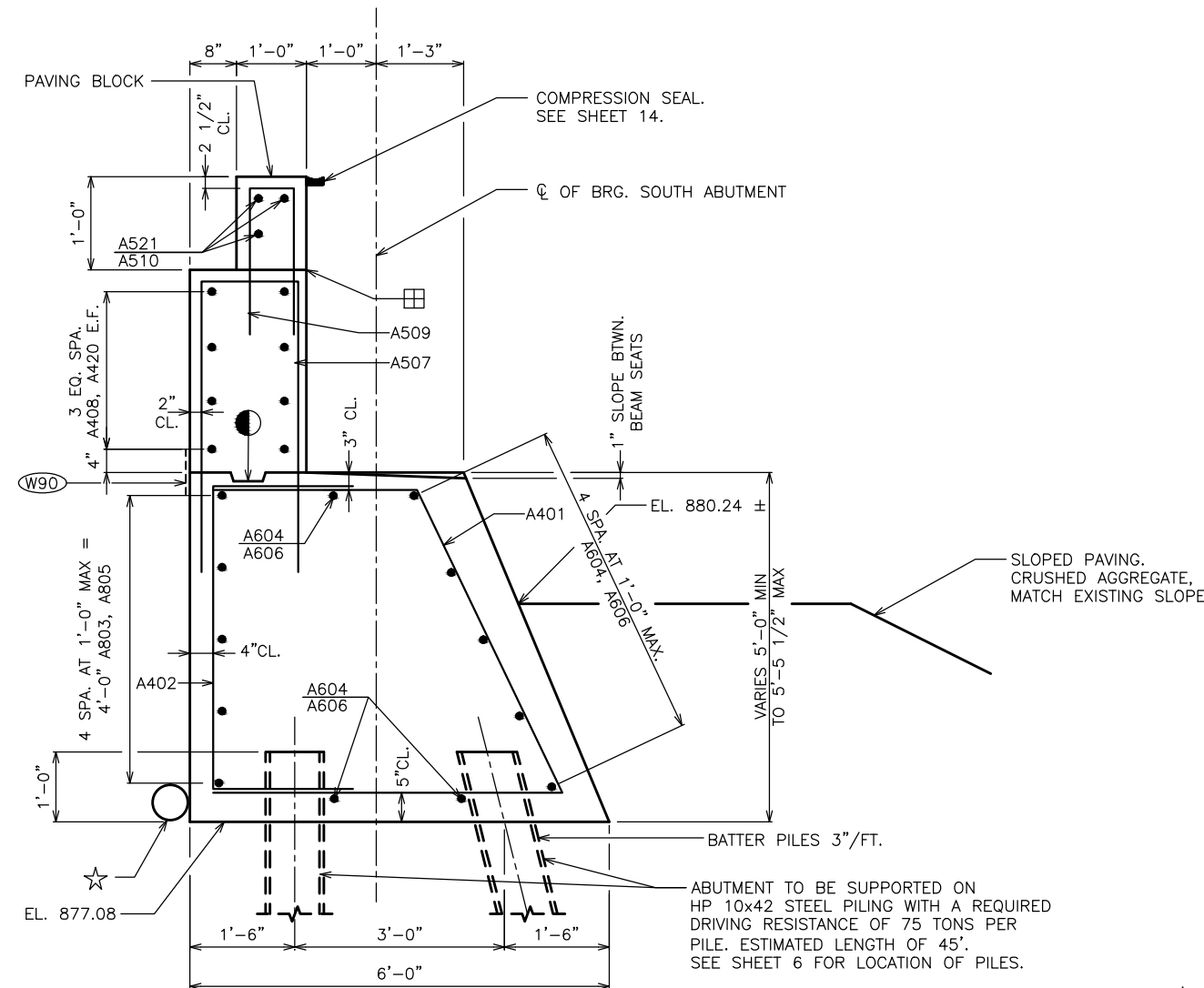
WEIGHTS INCLUDE PARAPET  
STEEL SHOWN ON SHEET 24

COATED: 1,120 LBS  
UNCOATED: 1,530 LBS

**BILL OF BARS**  
FOR SOUTH ABUTMENT

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		19	12-7	X		BODY VERT. F.F
A402		20	11-2	X		BODY VERT. B.F.
A803		5	6-9			BODY DOWELS B.F.
A604		8	4-2			BODY DOWELS
A805		5	21-8			BODY HORIZ. B.F.
A606		8	16-11			BODY HORIZ.
A507	X	20	8-1	X		BACKWALL VERT.
A408	X	8	18-11			BACKWALL HORIZ.
A509	X	18	4-7	X		BACKWALL AT PAVING BLOCK VERT.
A510	X	9	9-0			PAVING BLOCK HORIZ.
A511		14	15-6	X		WING 1 VERT
A512		5	14-9			WING 1 HORIZ. F.F.
A713		7	14-9			WING 1 HORIZ. B.F.
A614		3	14-9			WING 1 HORIZ.
A515	X	12	10-8	X		WING 1 VERT.
A416	X	4	10-8			WING 1 HORIZ. F.F.
A417	X	4	11-5			WING 1 HORIZ. B.F.
A618	X	1	10-8			WING 1 HORIZ. TOP F.F.
A619	X	1	11-5			WING 1 HORIZ. TOP B.F.
A420	X	8	3-2			BACKWALL DOWELS
A521	X	3	4-0			PAVING BLOCK DOWELS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



☆ PIPE UNDERDRAIN WRAPPED (6-INCH).  
SLOPE 0.5% MIN. TO SUITABLE  
DRAINAGE. ATTACH RODENT SHIELD AT  
DISCHARGE END OF PIPE UNDERDRAIN  
AND CAP AT THE OTHER END. RODENT  
SHIELD TO BE INCLUDED IN BID PRICE  
OF "PIPE UNDERDRAIN WRAPPED  
6-INCH". SEE SHEET 3.

(W90) 18" RUBBERIZED MEMBRANE  
WATERPROOFING SEAL ALL  
HORIZONTAL AND VERTICAL JOINTS  
ON BACK FACE OF ABUTMENT

● OPT. KEYED CONST. JOINT -  
FORMED BY A SURFACED BEVELED  
2"x6" WITH RUBBERIZED MEMBRANE  
WATERPROOFING ON B.F.

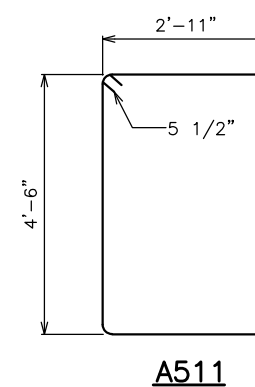
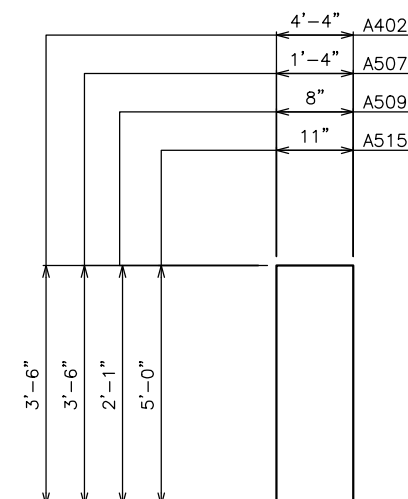
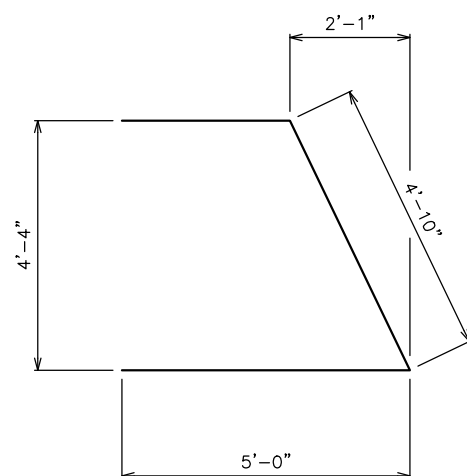
▣ CONSTRUCTION JOINT - POUR  
CONCRETE ABOVE THIS JOINT  
AFTER SUPERSTRUCTURE IS IN  
PLACE. STRIKE OFF AND LEVEL ROUGH.

F.F DENOTES FRONT FACE

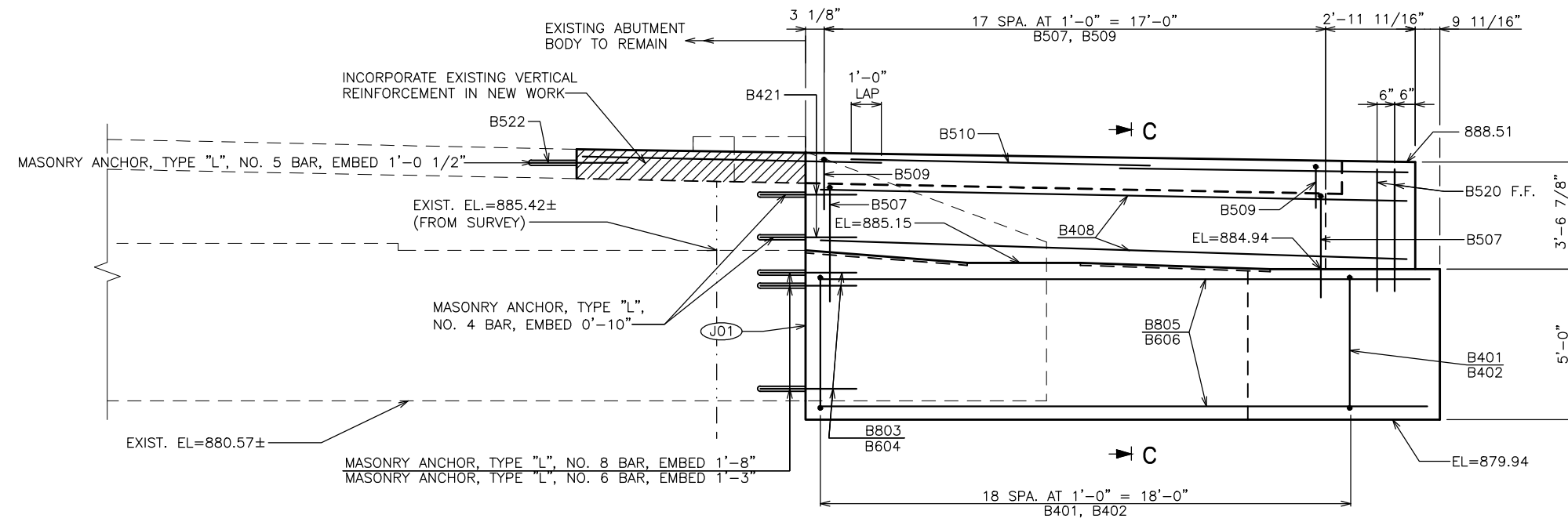
B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

SEE SHEET 3 FOR PILE SPLICE DETAIL.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>SOUTH ABUTMENT DETAILS</b>			SHEET 7 OF 25

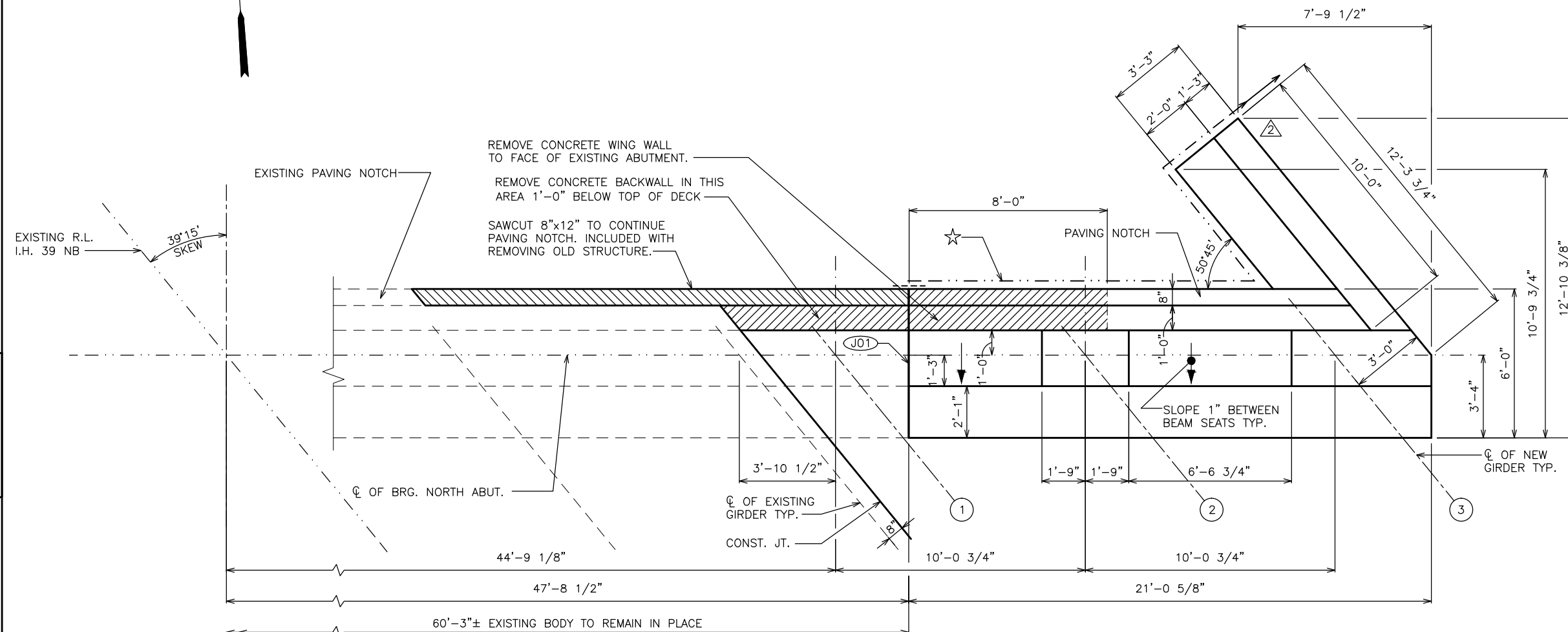


FOR LOCATION OF SECTION C SEE SHEET 10

**ELEVATION**  
(LOOKING NORTH)

(J01) ROUGHEN SURFACE OF CONCRETE 1/4" DEEP MIN. ALL AREAS OF NEW TO EXISTING CONCRETE CONTACT.

☆ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPED TO DRAIN. SEE SHEET 9.



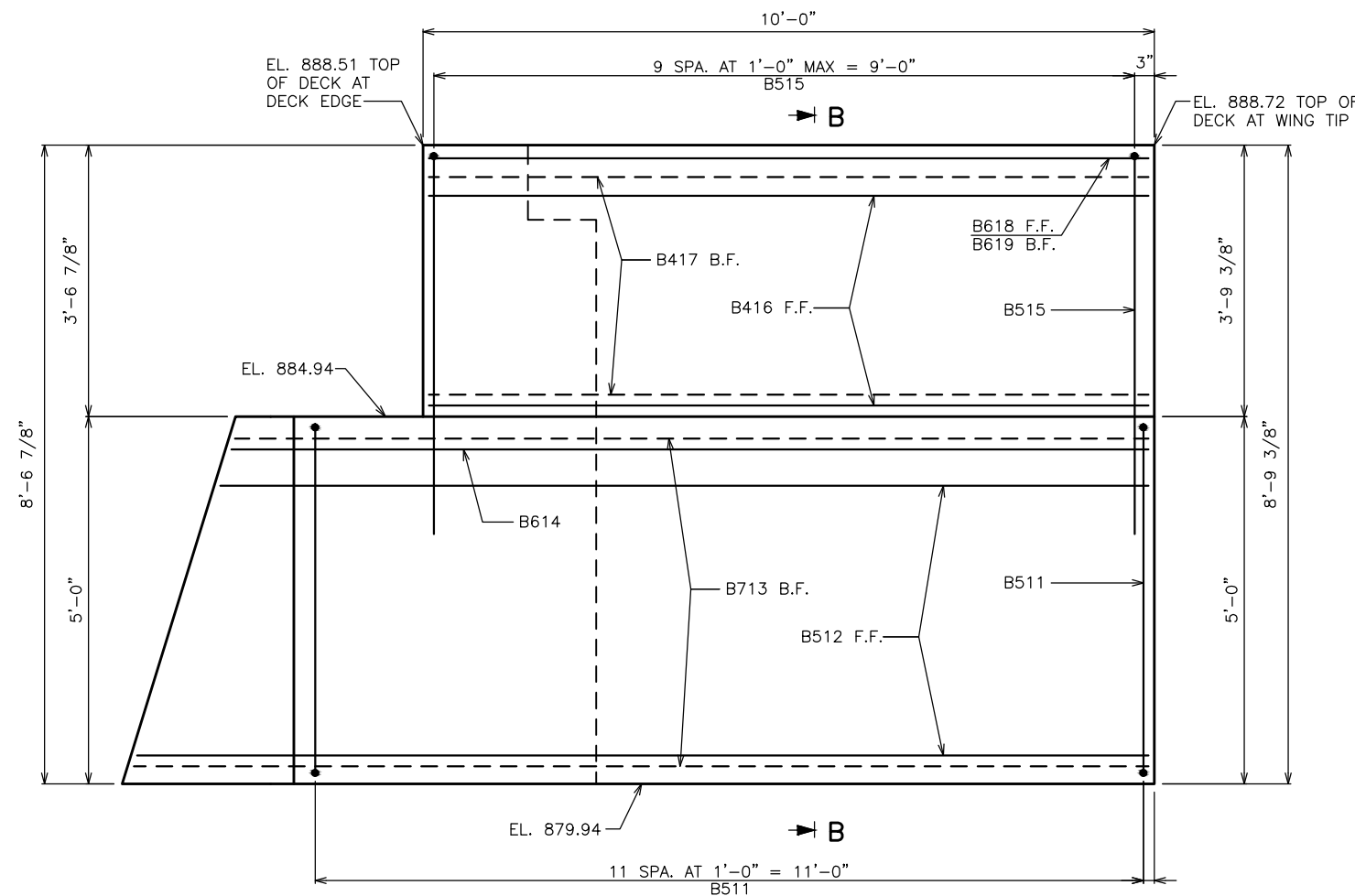
**PLAN**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>NORTH ABUTMENT</b>			SHEET 8 OF 25

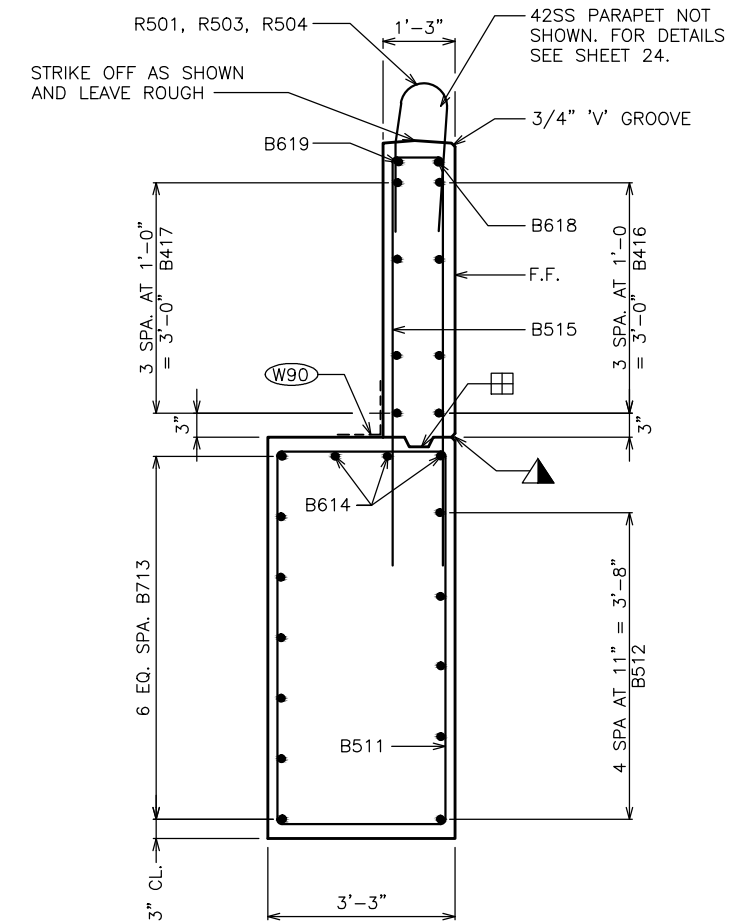
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**ELEVATION WING 2**



**SECTION B**

⊥ DENOTES BATTERED PILES.  
BATTER 3"/FOOT IN DIRECTION SHOWN

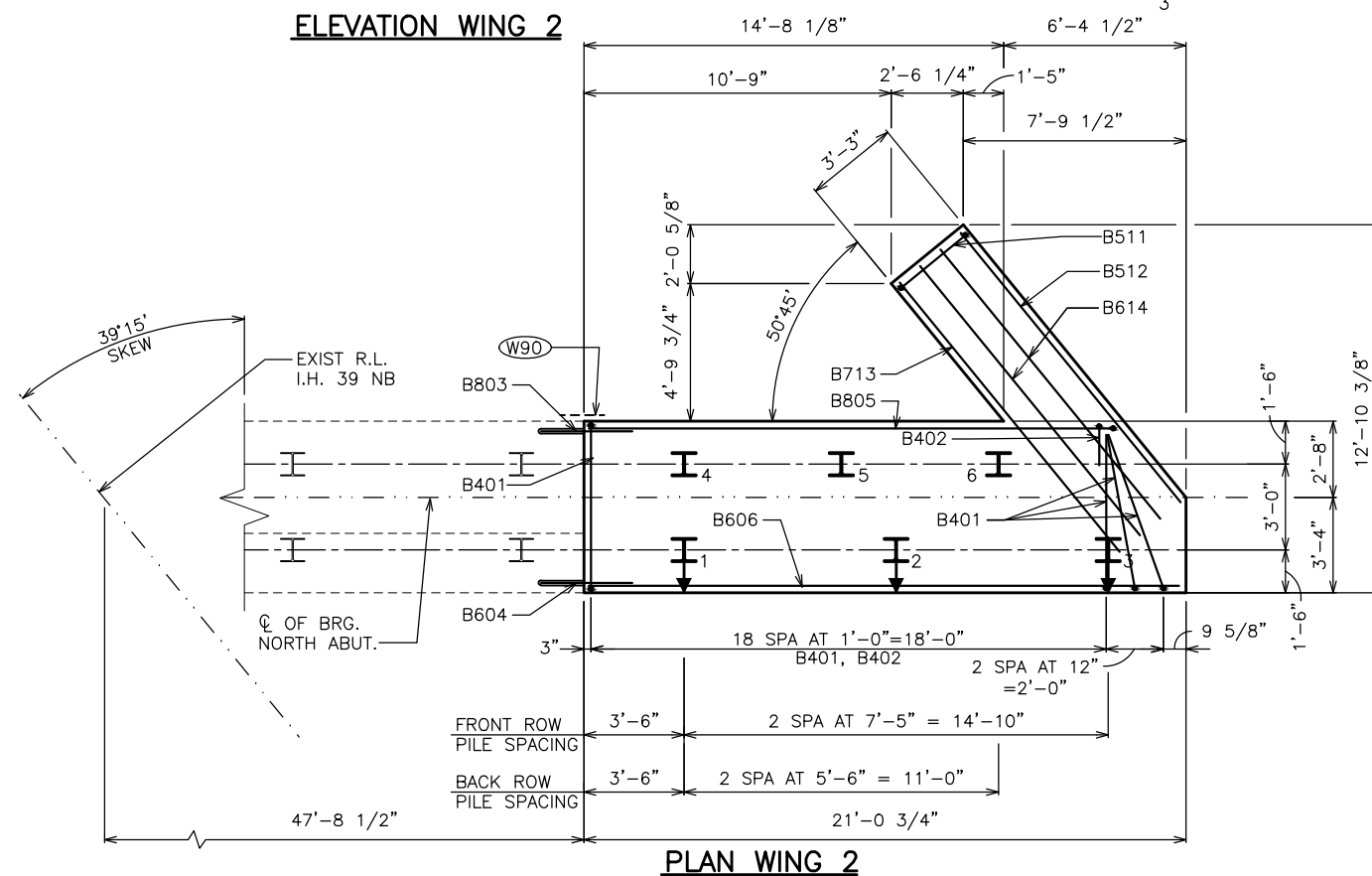
(W90) 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT

⊞ OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2"x6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

▲ 3/4" V GROOVE ON F.F. OF WINGWALL. OMIT IF CONST. JOINT NOT USED.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE



**PLAN WING 2**

08

08

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>NORTH ABUTMENT WING 2 DETAILS</b>			SHEET 9 OF 25

WEIGHTS INCLUDE PARAPET STEEL SHOWN ON SHEET 24

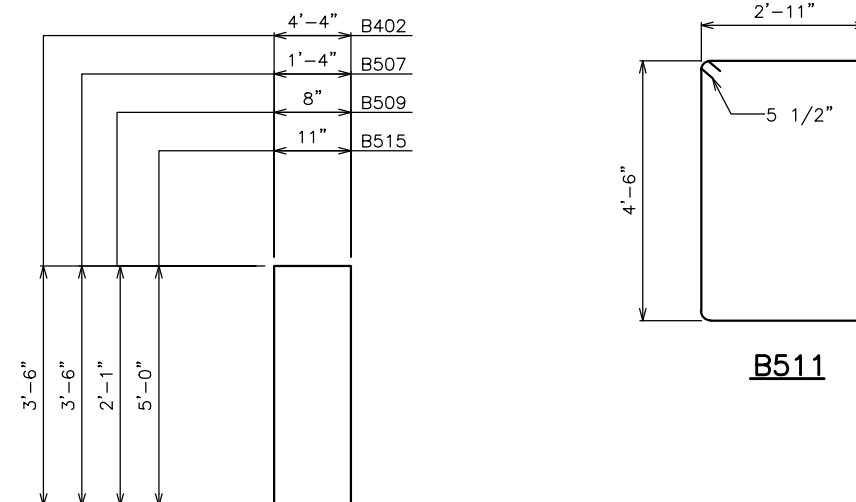
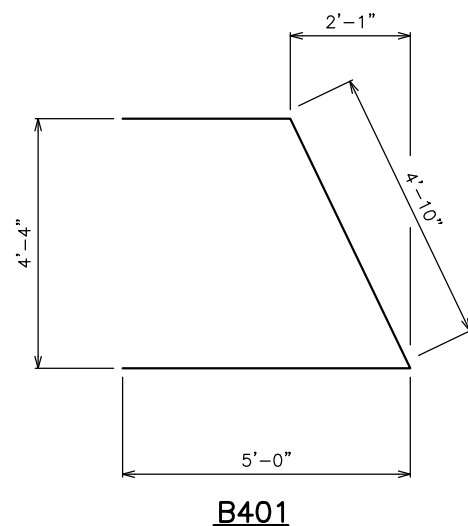
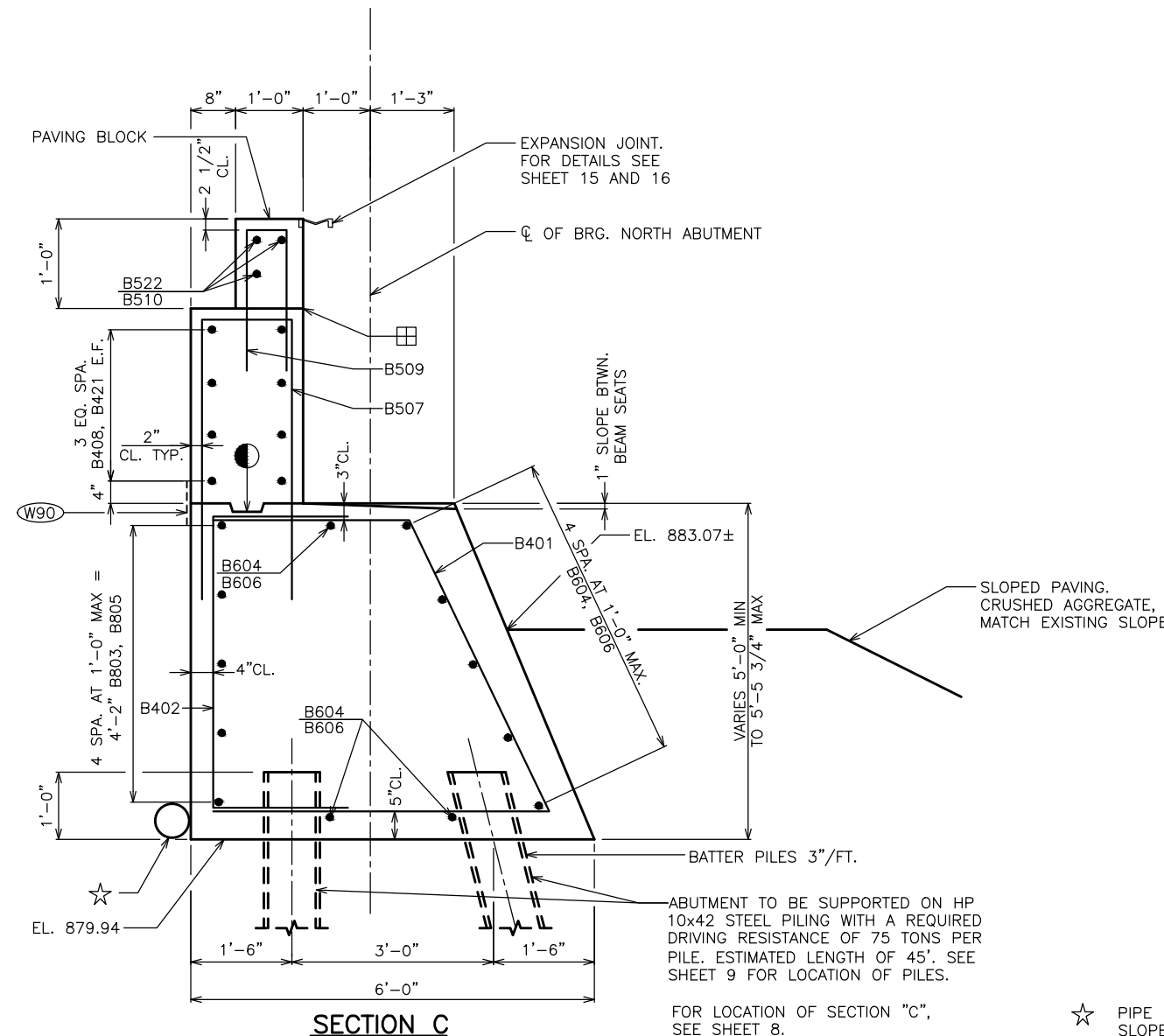
COATED: 1,030 LBS  
UNCOATED: 1,440 LBS

### BILL OF BARS

FOR NORTH ABUTMENT

BAR MARK	CONT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		21	12-7	X		BODY VERT. F.F.
B402		19	11-2	X		BODY VERT. B.F.
B803		5	6-9			BODY DOWELS B.F.
B604		8	4-2			BODY DOWELS
B805		5	18-7			BODY HORIZ. B.F.
B606		8	20-8			BODY HORIZ.
B507	X	18	8-1	X		BACKWALL VERT.
B408	X	8	19-10			BACKWALL HORIZ.
B509	X	18	4-7	X		BACKWALL AT PAVING BLOCK VERT.
B510	X	9	9-0			PAVING BLOCK HORIZ.
B511		12	15-6	X		WING 2 VERT.
B512		5	12-0			WING 2 HORIZ. F.F.
B713		7	12-0			WING 2 HORIZ. B.F.
B614		3	12-0			WING 2 HORIZ.
B515	X	10	10-8	X		WING 2 VERT.
B416	X	4	10-6			WING 2 HORIZ. F.F.
B417	X	4	9-9			WING 2 HORIZ. B.F.
B618	X	1	10-6			WING 2 HORIZ. TOP F.F.
B619	X	1	9-9			WING 2 HORIZ. TOP B.F.
B520	X	2	3-9			BACKWALL VERT. AT WING 2 F.F.
B421	X	8	3-2			BACKWALL DOWELS
B522	X	3	4-0			PAVING BLOCK DOWELS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



08

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☆ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT DISCHARGE END OF PIPE UNDERDRAIN AND CAP AT THE OTHER END. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". SEE SHEET 3.

W90 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT

● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2"x6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

▣ CONSTRUCTION JOINT - POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE. STRIKE OFF AND LEVEL ROUGH.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

SEE SHEET 3 FOR PILE SPLICE DETAIL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY		PLANS CHK'D	
DAS		JSM	
<b>NORTH ABUTMENT DETAILS</b>			SHEET 10 OF 25

UNCOATED: 1,400 LBS  
COATED: 8,590 LBS

**BILL OF BARS**

BAR MARK	COAT	PIER 1 NO. REQ'D.	PIER 2 NO. REQ'D.	LENGTH	BENT BAR	BAR SERIES	LOCATION
P701		20	20	6-6			FOOTINGS TOP
P702		32	32	6-6			FOOTINGS BOT.
P903	X	28	28	10-2	X		FOOTING DOWELS
P904	X	28	0	17-2			COLUMNS-VERT.
P905	X	0	28	18-2			COLUMNS-VERT.
P406	X	36	38	8-0	X		HOOPS AT FOOTINGS AND COL
P507	X	3	3	6-0	X		CAP-NOSE BARS
P808	X	6	6	24-0			CAP-HORIZ. BOTTOM
P409	X	60	60	8-8	X		CAP-STIRRUPS
P710	X	12	12	6-2			CAP-CONC. MASONRY ANCHORS
P511	X	4	4	25-4			CAP-SIDE
P412	X	16	16	1-7	X		DOWELS-PIER CAP
P813	X	6	6	26-3	X		CAP-HORIZ. TOP

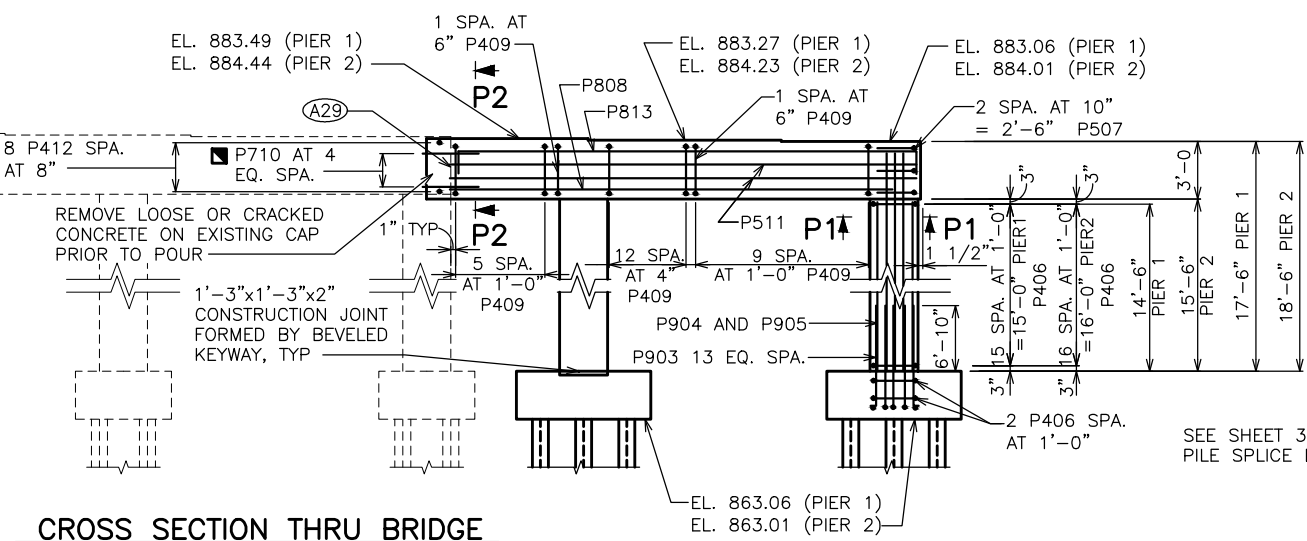
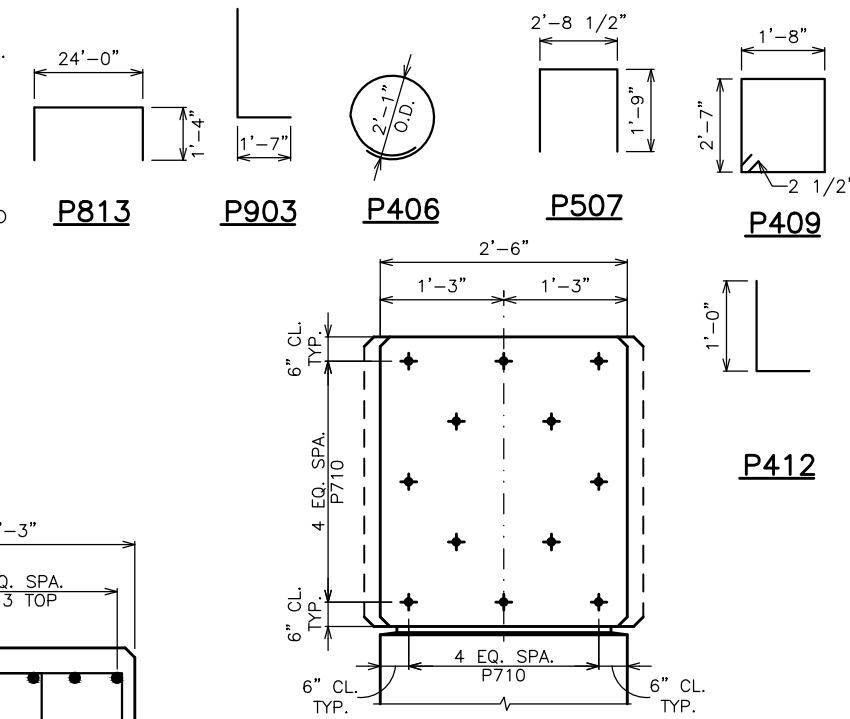
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.  
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

● MASONRY ANCHORS TYPE L NO. 4 BARS, EMBED 10" INTO EXISTING CONCRETE. EPOXY ANCHORED.

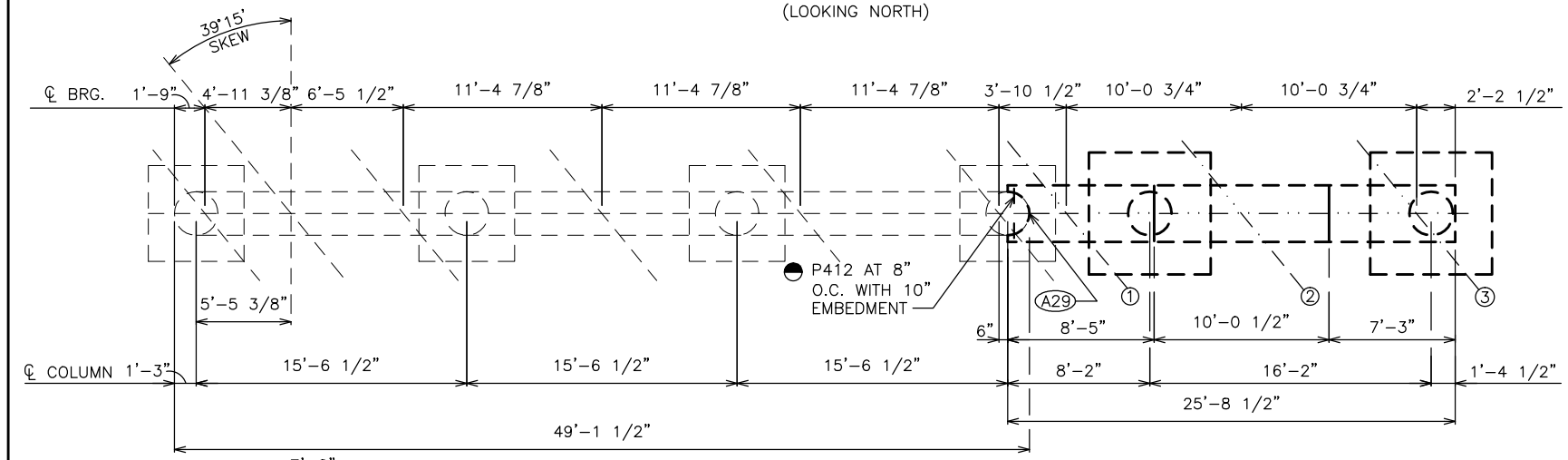
■ MASONRY ANCHORS TYPE L NO. 7 BARS, EMBED 1'-6" INTO EXISTING CONCRETE. EPOXY ANCHORED.

Ⓟ PILING AT PIERS TO BE SUPPORTED ON HP 10x42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. ESTIMATED LENGTH OF 35'.

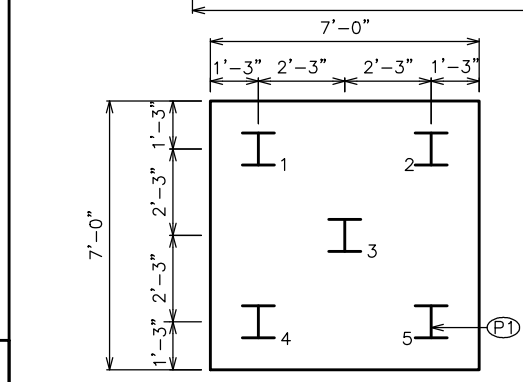
Ⓐ29 ROUGHEN SURFACE OF CONCRETE 1/4" DEEP MINIMUM ALL AREAS OF NEW TO EXISTING CONCRETE CONTACT.



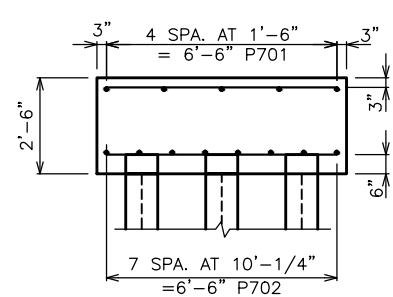
**CROSS SECTION THRU BRIDGE**  
(LOOKING NORTH)



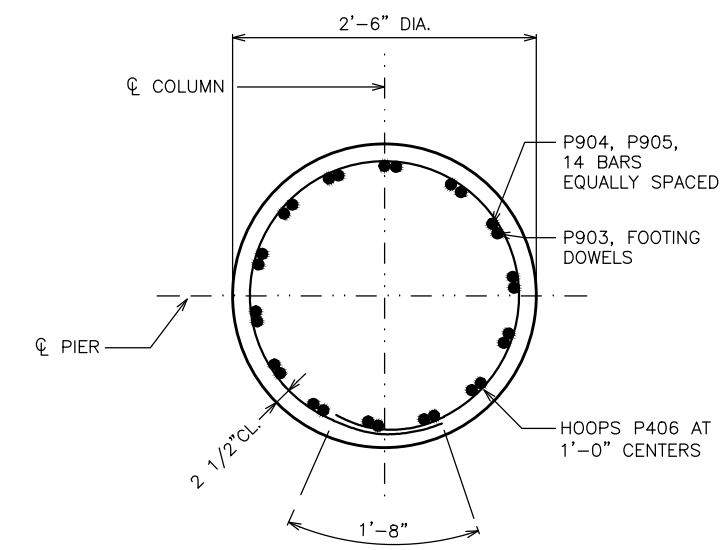
**PLAN**



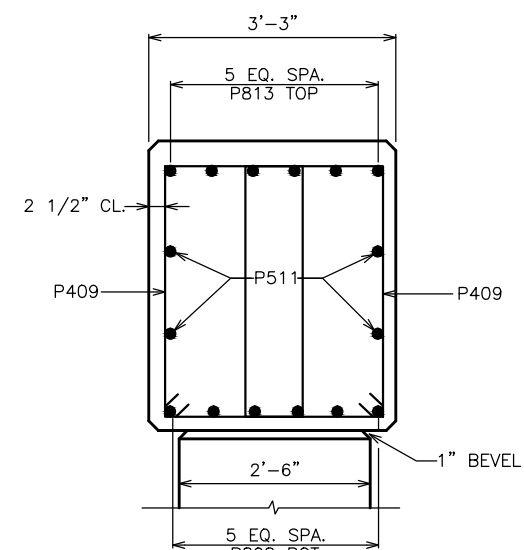
**FOOTING/PILE PLAN**



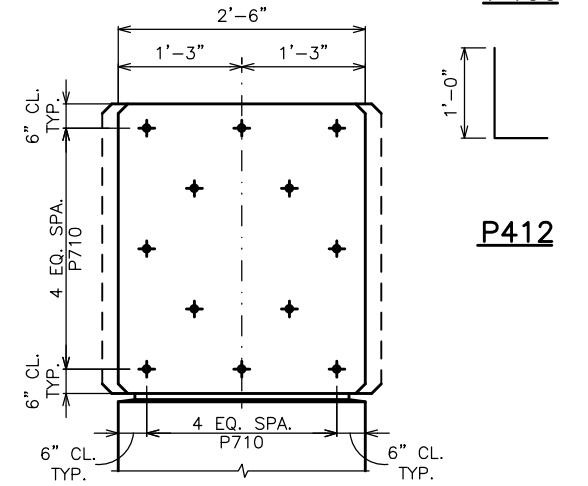
**FOOTING ELEVATION**



**SECTION P1**

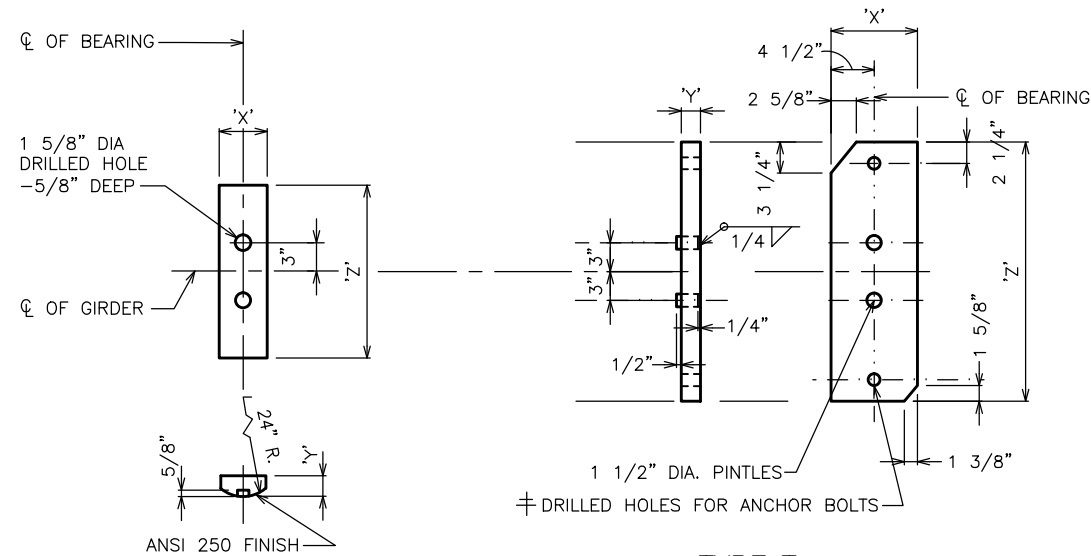


**SECTION P2**



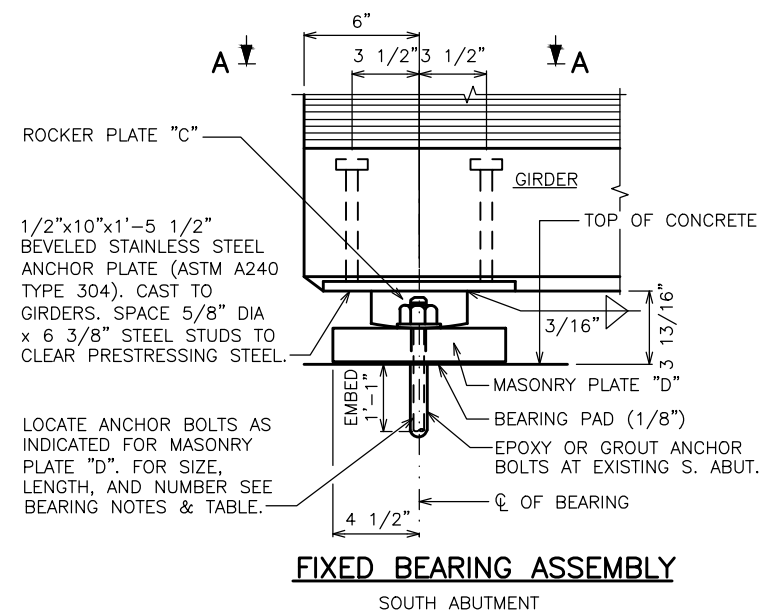
**SECTION THRU CAP**  
SHOWING MASONRY ANCHOR SPACING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b> <b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>PIER 1 &amp; 2</b>			SHEET 11 OF 25



**ROCKER PLATE "C"**

**TYPE I  
MASONRY PLATE "D"  
FIXED BEARING**



**FIXED BEARING ASSEMBLY  
SOUTH ABUTMENT**

**BEARING NOTES**

ALL BEARINGS ARE SYMMETRICAL ABOUT  $\phi$  OF GIRDER AND  $\phi$  OF BEARING.  
IN LIEU OF USING SHIM PLATES, FABRICATION MAY INCREASE THICKNESS OF MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-5" FOR 1 1/4" BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE.

FOR GIRDER #1, DRILL ANCHOR INTO EXISTING ABUTMENT.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING ANCHOR BOLTS, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES FIXED B-13-138", EACH.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

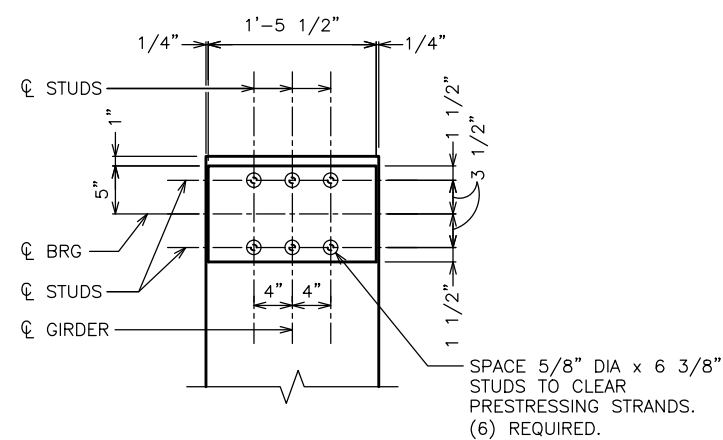
ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.

MASONRY PLATE "D" SHALL BE GALVANIZED.

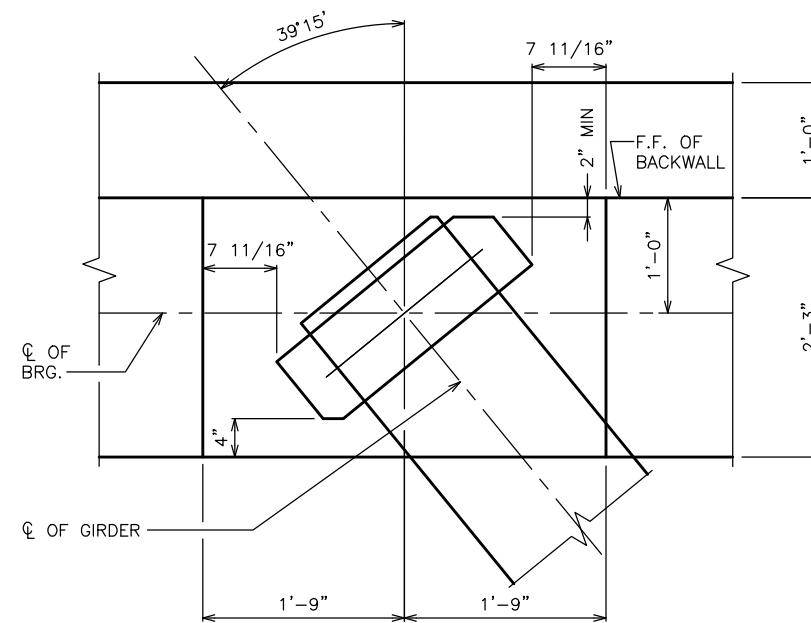
PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE 'X' AND 'Z' DIMENSIONS THAT MATCH MASONRY PLATE "D".

DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE "D" SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT.

	PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRGS. REQ'D.	LOCATION
	'X'	'Y'	'Z'	'X'	'Y'	'Z'				
FIXED BEARING	5"	1 15/16"	1'-6"	9"	1 3/4"	2'-3"	I	1 1/4"	3	SOUTH ABUT

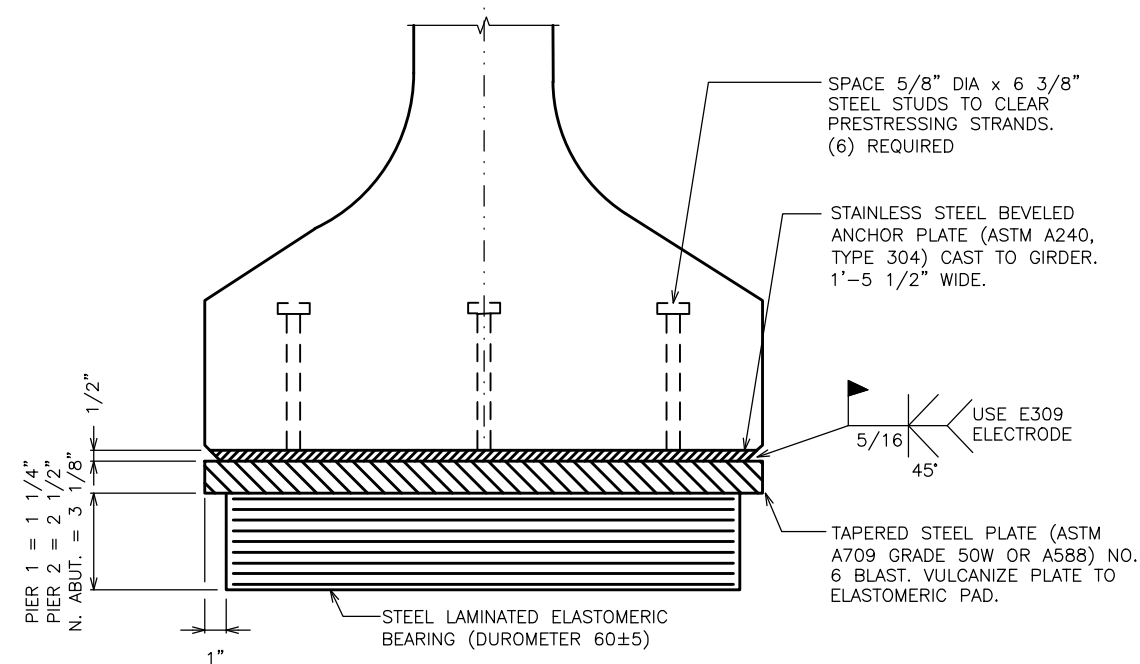


**SECTION A-A  
PLAN VIEW**

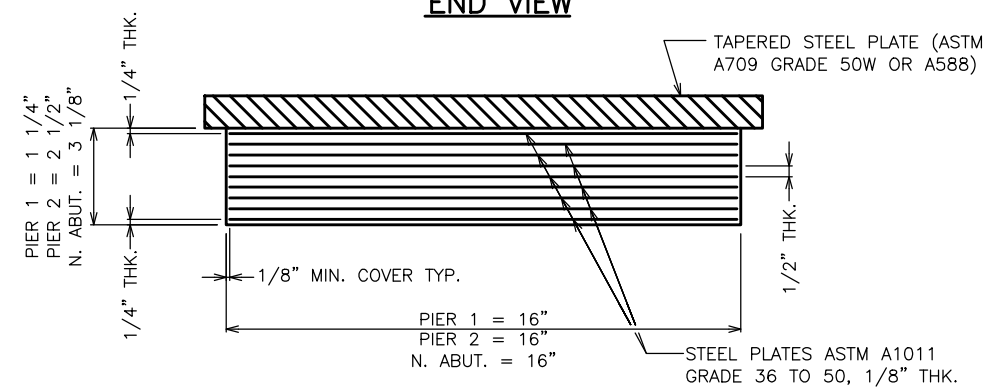


**STEEL FIXED BEARING CLEARANCE DIAGRAM AT  
SKEWED SOUTH ABUTMENT**

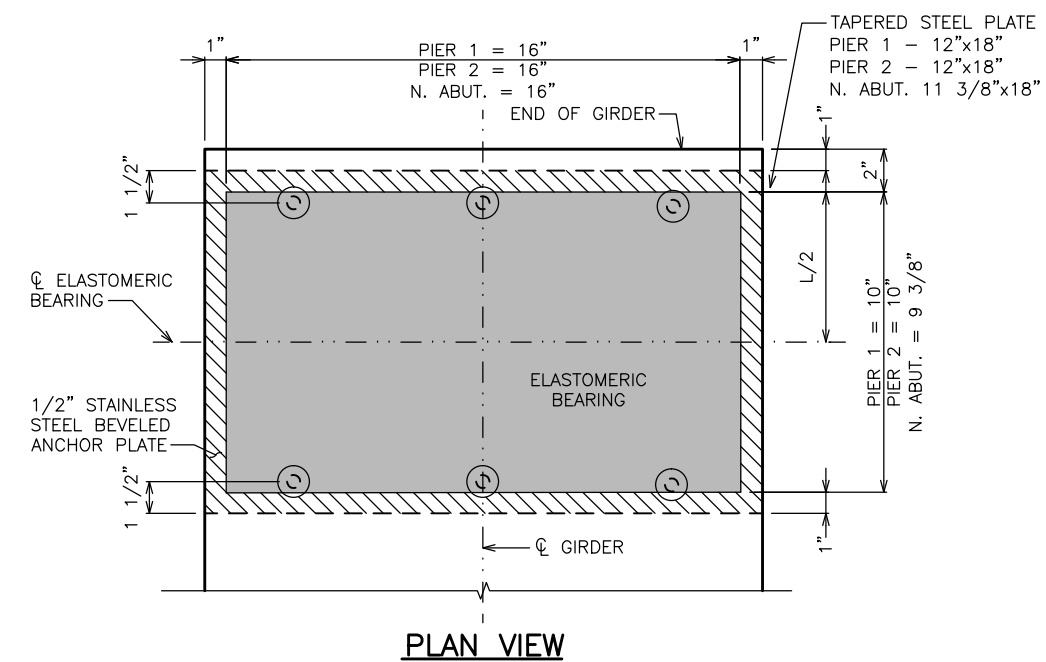
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>FIXED STEEL BEARING DETAILS</b>			SHEET 12 OF 25



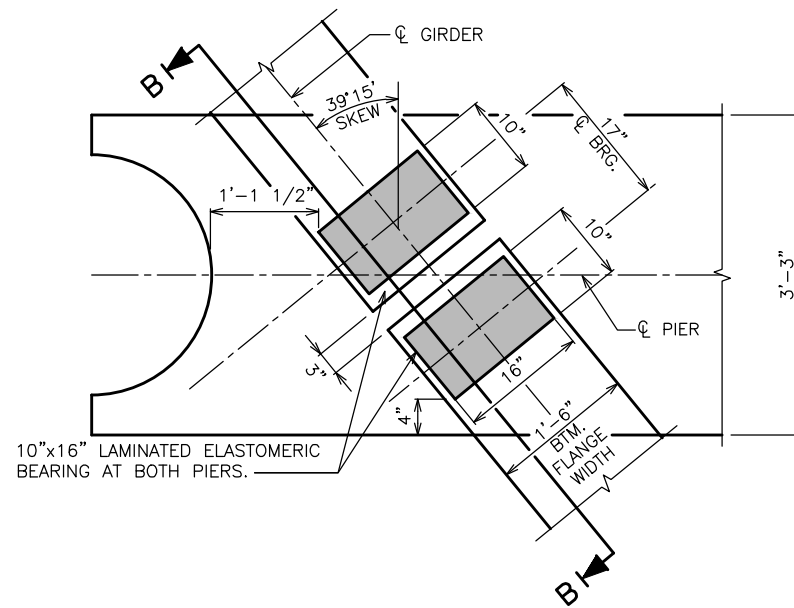
**END VIEW**



**SECTION THRU ELASTOMERIC BEARING**

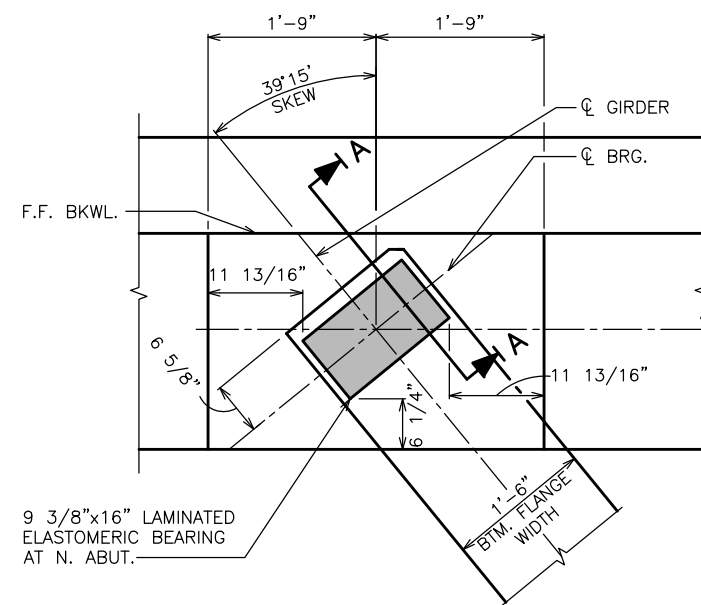


**PLAN VIEW**



**LAMINATED ELASTOMERIC EXP. BRG. AT SKEWED PIERS**

**CLEARANCE DIAGRAM**



**LAMINATED ELASTOMERIC EXP. BRG. AT SKEWED NORTH ABUTMENT**

**CLEARANCE DIAGRAM**

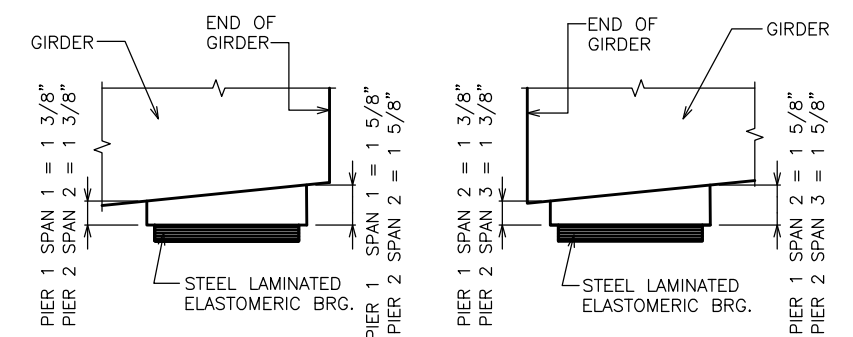
**BEARING NOTES**

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 85° F.

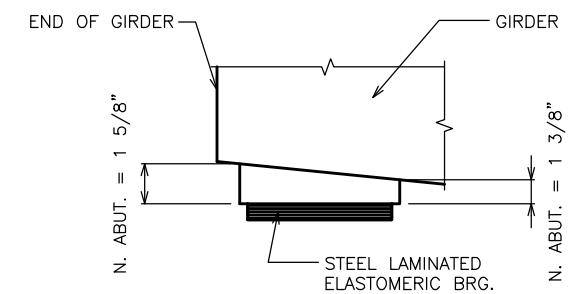
ALL MATERIAL USED FOR BEARINGS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING PADS ELASTOMERIC LAMINATED", EACH.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.



**SECTION B**



**SECTION A**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>LAMINATED ELASTOMERIC BEARINGS</b>			SHEET 13 OF 25

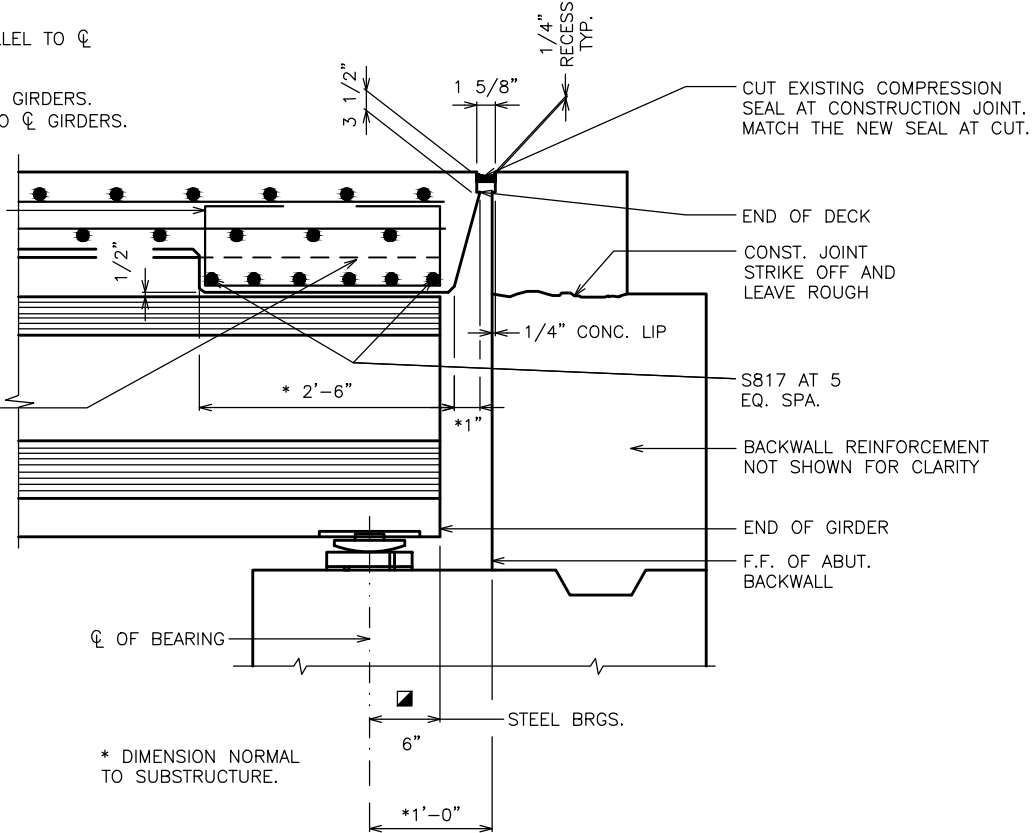
**LEGEND**

■ DIMENSION IS TAKEN PARALLEL TO  $\phi$  GIRDER.

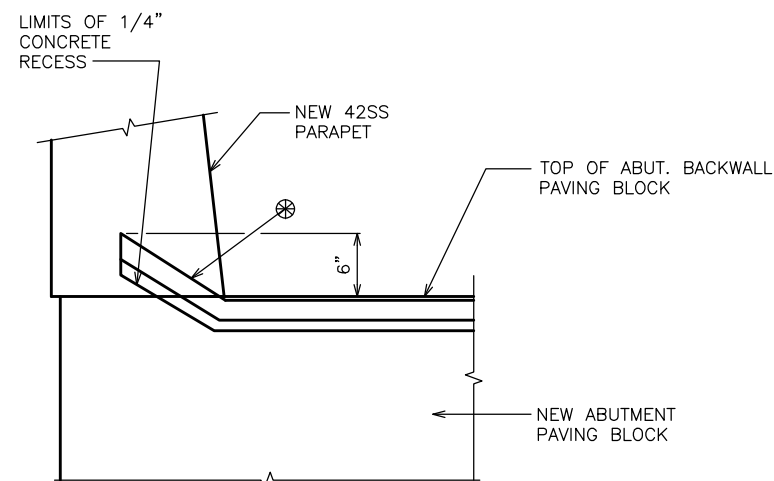
† BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO  $\phi$  GIRDERS.

† S418 STIRRUPS AT 10" CTRS. BETWEEN GIRDERS

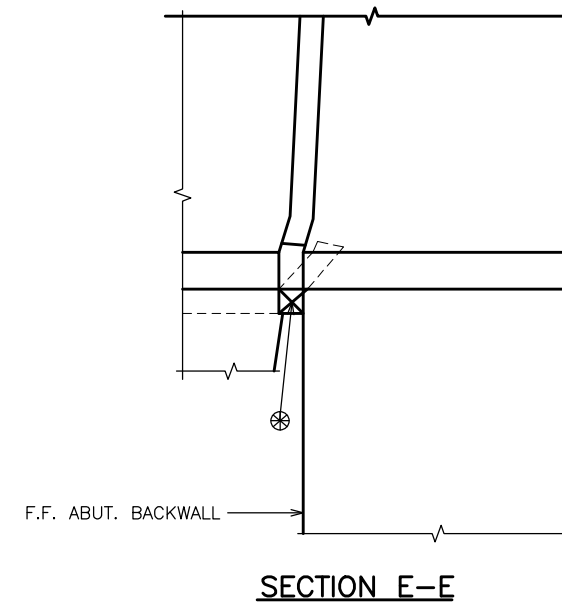
CONCRETE DIAPHRAGM TO EXTEND BETWEEN INSIDE FACES OF EXTERIOR GIRDER AND GIRDER ①



**TYP. SECTION COMPRESSION SEAL**

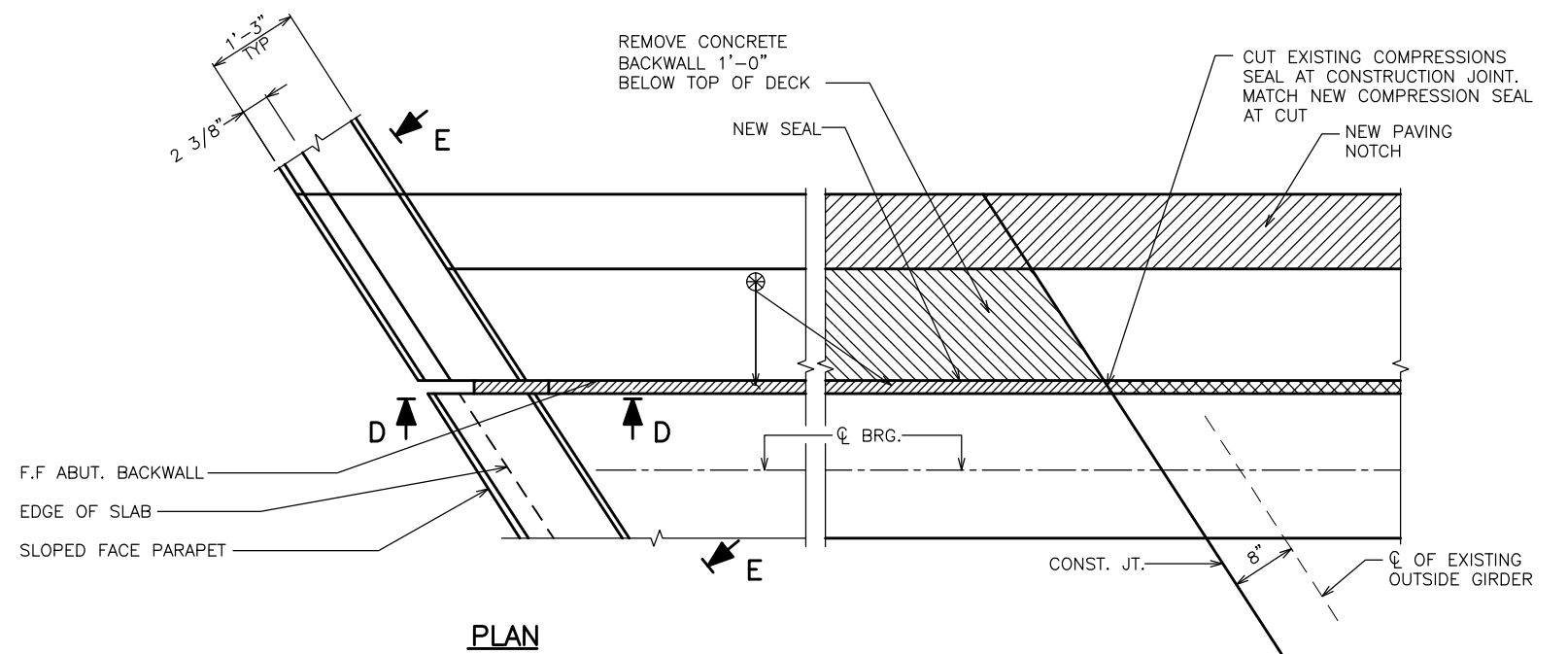


**SECTION D**



**SECTION E-E**

⊗ 2 1/2" NEOPRENE COMPRESSION SEAL. NO SPLICING PERMITTED. CAP ENDS OF NEOPRENE SEAL. (VERT. FACES OF JOINT OPENING SHALL BE VERT AND PARALLEL TO WITHIN 1/16" IN EVERY 10'-0") MANUF. TO FURNISH SEAL WITH TOP SURFACE LABELED.

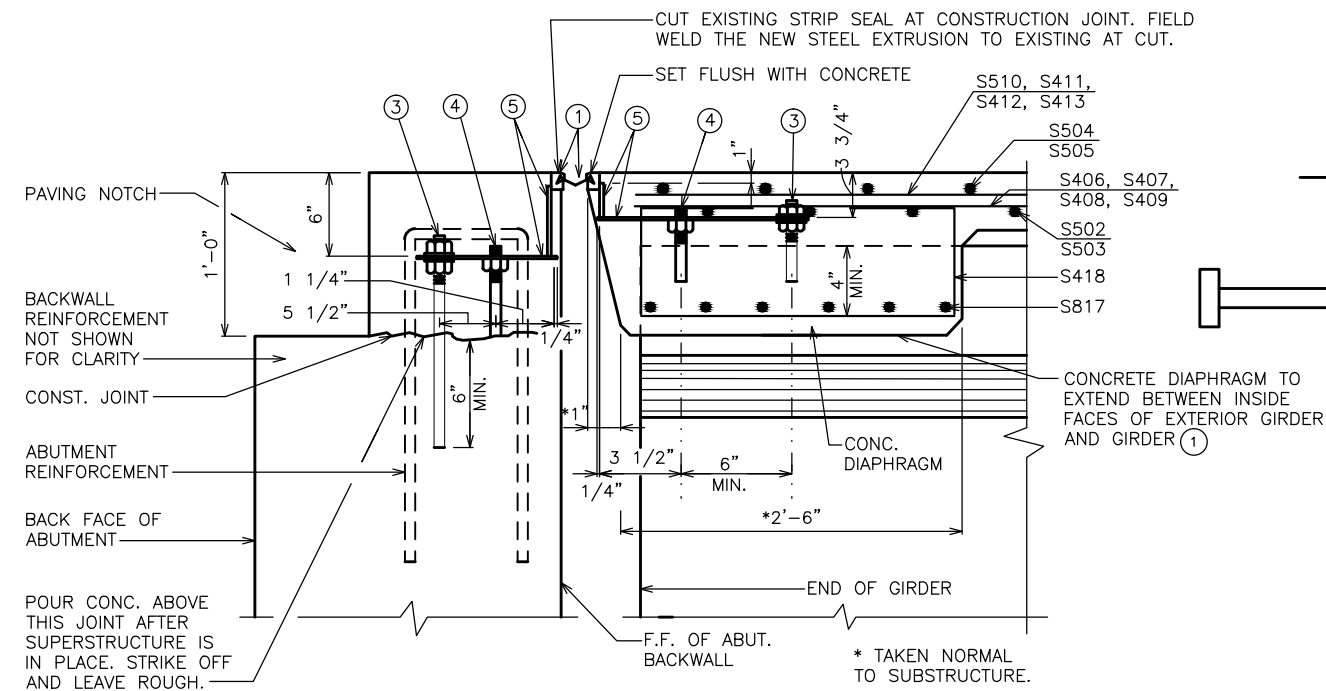


**PLAN**

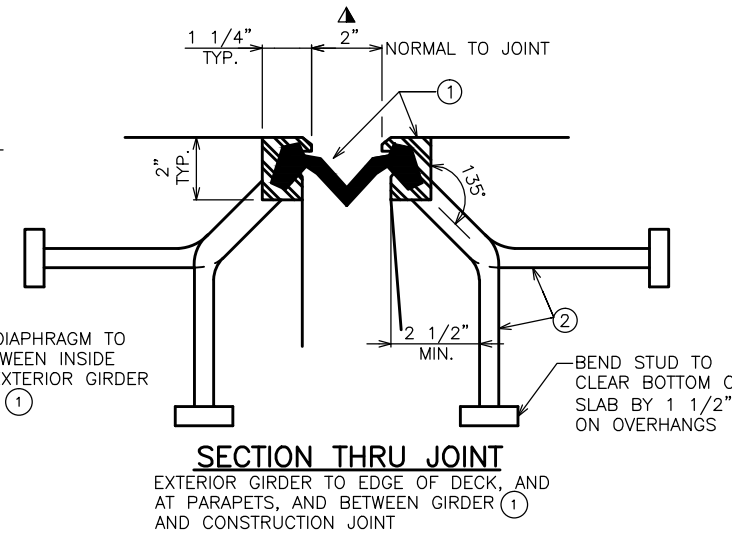
8

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>COMPRESSION SEAL JOINT DETAILS AT SOUTH ABUTMENT</b>			SHEET 14 OF 25



TYPICAL SECTION THRU JOINT AT PRECAST GIRDER  
NORMAL TO  $\phi$  SUBSTRUCTURE



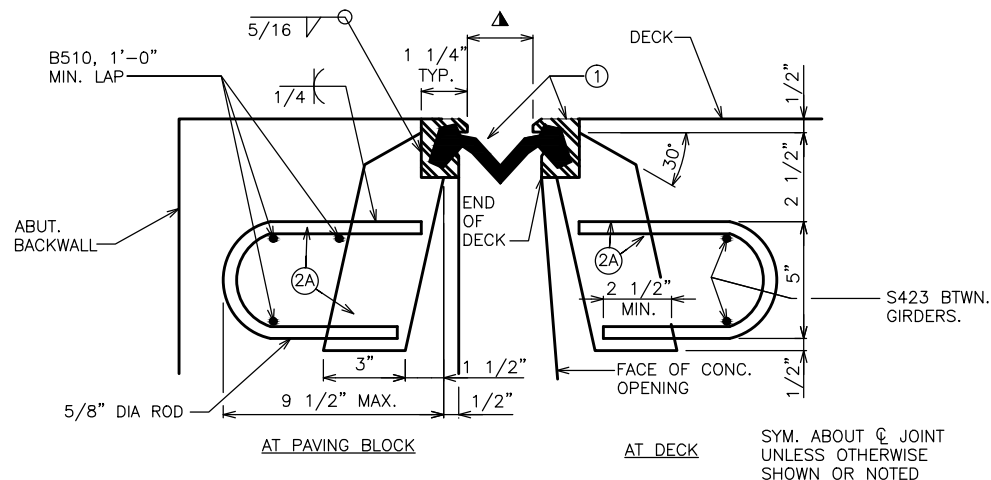
SECTION THRU JOINT  
EXTERIOR GIRDER TO EDGE OF DECK, AND AT PARAPETS, AND BETWEEN GIRDER AND CONSTRUCTION JOINT

LEGEND

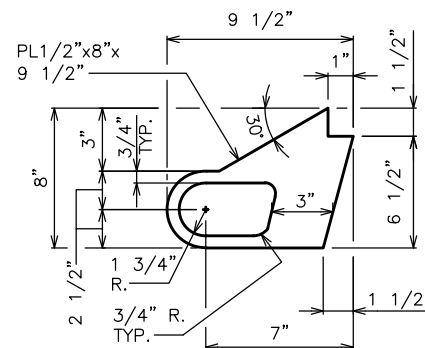
- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT  $1\ 3/4\ \pm$ . MATCH EXISTING OPENING AT TIME OF PLACEMENT.
- ② STUDS  $5/8\ \text{DIA} \times 6\ 3/8\ \text{LONG}$  AT  $6\ \text{ALTERNATE CENTERS}$ . WELD EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A  $1/2\ \text{THICK ANCHOR PLATE WITH } 5/8\ \text{DIA ROD (OR ALTERNATE STRIP SEAL ANCHOR)}$ . WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT  $1\ \text{--}\ 6\ \text{CENTERS BETWEEN GIRDERS}$ .
- ③  $3/4\ \text{DIA THREADED ROD WITH 2 NUTS AND PLATE WASHERS}$ . GROUT THREADED ROD INTO FIELD DRILLED HOLES ON  $\phi$  OF GIRDER. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACK WALL AS SHOWN.
- ④  $3/4\ \text{DIA THREADED ROD WITH NUT}$ . TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM  $3\ \times\ 1\ 1/2\ \text{BAR AS SHOWN OR EQUIVALENT}$ . ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE  $1\ 1/2\ \text{DIA HOLE FOR NO. 3}$  AND  $1\ \text{DIA HOLE FOR NO. 4}$ .
- ⑥ GALVANIZED PLATE  $3/8\ \times\ 10\ \times\ 2\ \text{--}\ 2\ \text{LONG WITH HOLES FOR NO. 7}$ .
- ⑦  $3/4\ \text{DIA} \times 1\ 1/2\ \text{STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT}$ . PLACE IN COUNTERSUNK HOLE. RECESS  $1/16\ \text{BELOW PLATE SURFACE}$ .
- ⑧  $3/4\ \text{DIA} \times 4\ \text{GALVANIZED HEX HEAD BOLT}$ . BEND  $45\ \text{DEGREES}$ .
- ⑨  $3/4\ \text{DIA} \times 2\ 1/4\ \text{GALVANIZED THREADED COUPLING}$ .
- ⑩  $1\ \times\ 5\ \text{SLOTTED COUNTERSUNK HOLE FOR NO. 7}$ . PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⑪ FIELD WELD TOP AND VERTICAL FACES OF EXISTING STEEL EXTRUSION TO NEW EXPANSION JOINT. GRIND OFF GALVANIZING FIELD WELD AND FIELD APPLY COLD GALVANIZE TREATMENT. SEAL JOINT BETWEEN RUBBER ELEMENTS WITH AN APPROVED JOINT SEALER. COST IS INCLUDED IN BID ITEM EXPANSION DEVICE B-13-138.

NOTES

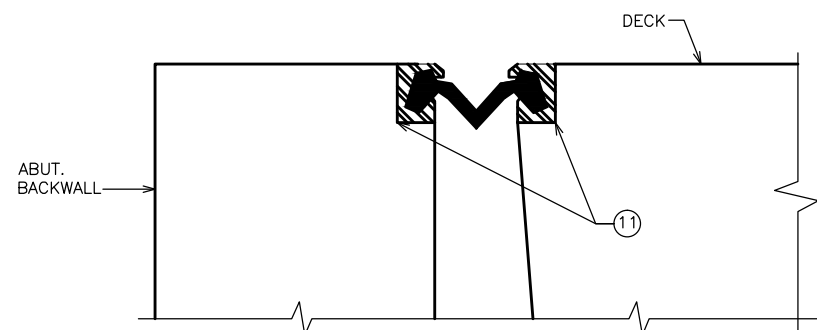
- ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.
- AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.
- FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.
- SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.
- ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153 CLASS C AND D.
- STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-13-138."



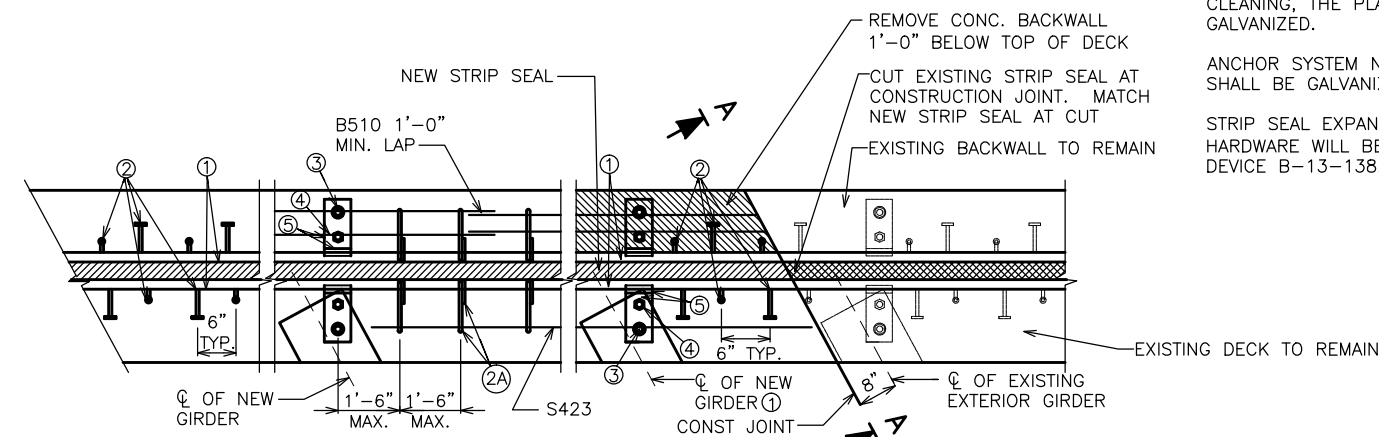
SECTION THRU JOINT  
ROADWAY TRAFFIC AREA BETWEEN GIRDERS ① AND ③



ALTERNATE STRIP SEAL ANCHOR



SECTION A-A



STRIP SEAL AT NEW OVERHANG

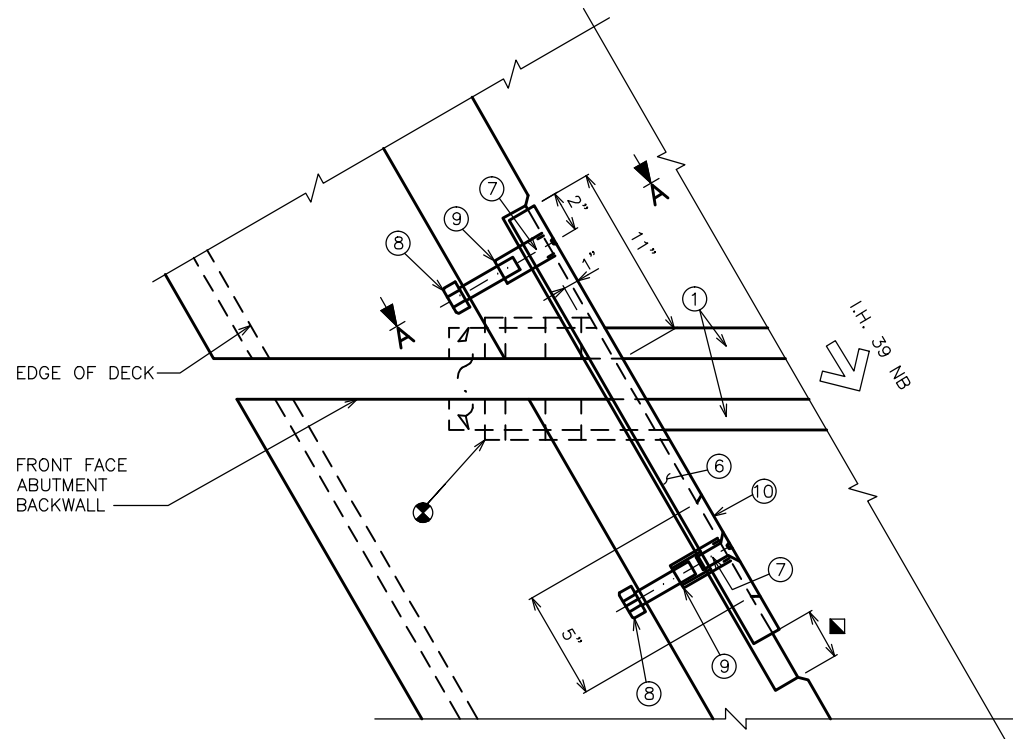
STRIP SEAL BETWEEN NEW GIRDERS

STRIP SEAL BETWEEN NEW AND EXISTING GIRDERS

PARTIAL PLAN

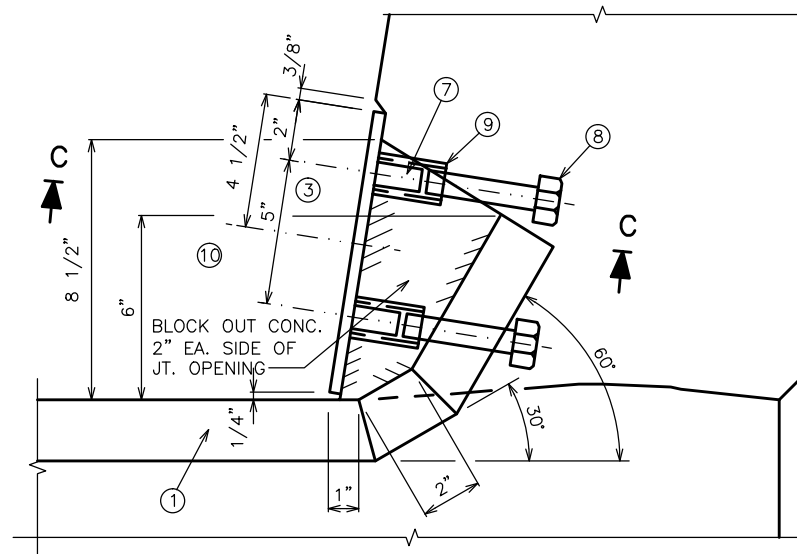
SEE SHEET 16 FOR DETAILS OF STRIP SEAL AT PARAPET

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION STRUCTURE B-13-138			
DRAWN BY DAS		PLANS CHK'D JSM	
STRIP SEAL EXPANSION JOINT DETAILS AT NORTH ABUTMENT			SHEET 15 OF 25

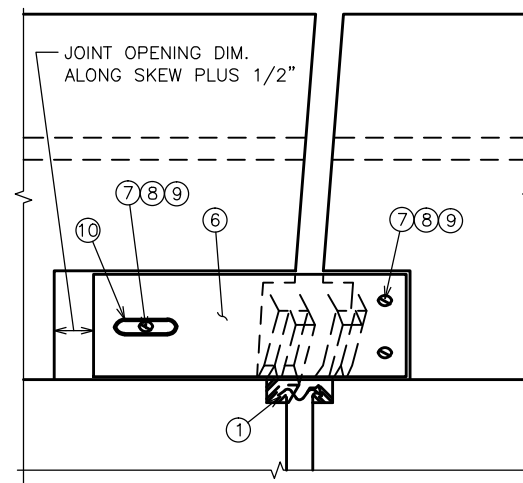


**PLAN AT PARAPET**  
SINGLE SLOPE PARAPET

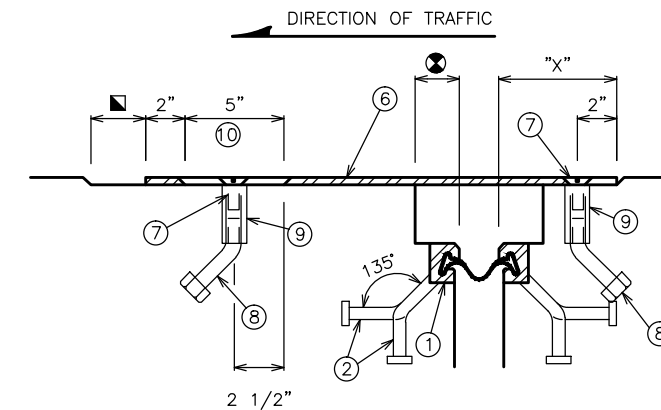
- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING
- ▣ JOINT OPENING DIM. ALONG SKEW PLUS 1/2"



**SECTION A-A**  
SINGLE SLOPE PARAPET



**VIEW OF PARAPET PLATES FROM ROADWAY**  
SINGLE SLOPE PARAPET



**SECTION C-C**

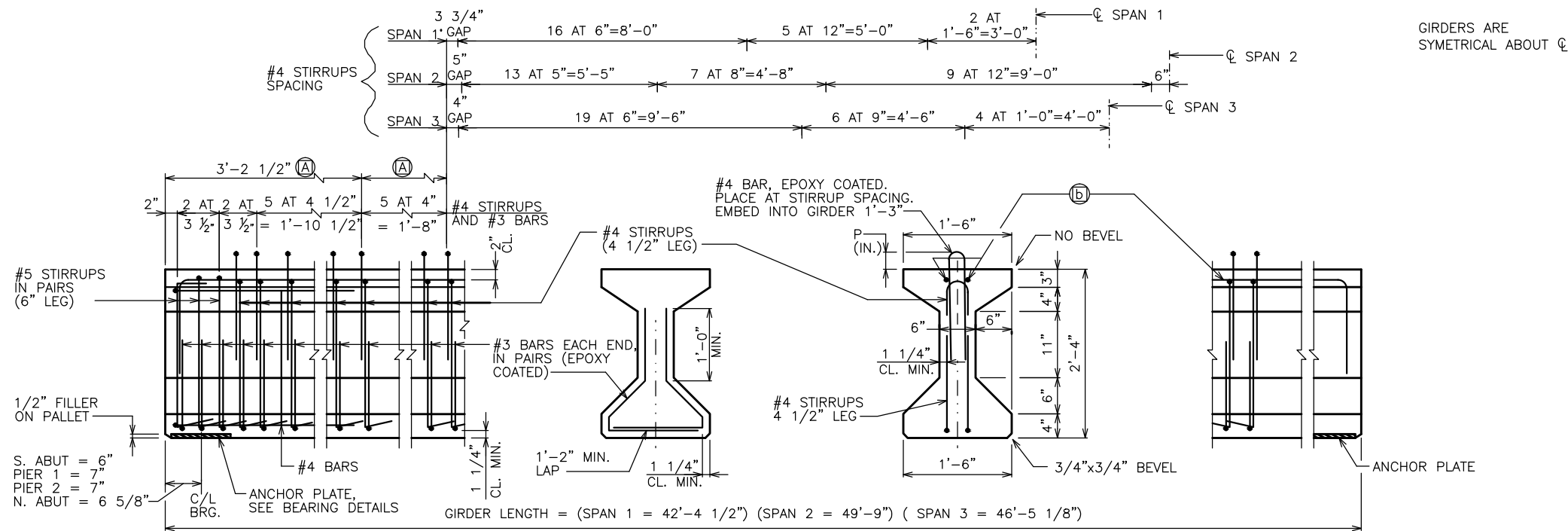
\* SEE SHEET 15 FOR LEGEND AND NOTES

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
STRIP SEAL EXPANSION JOINT DETAILS AT NORTH ABUTMENT			SHEET 16 OF 25

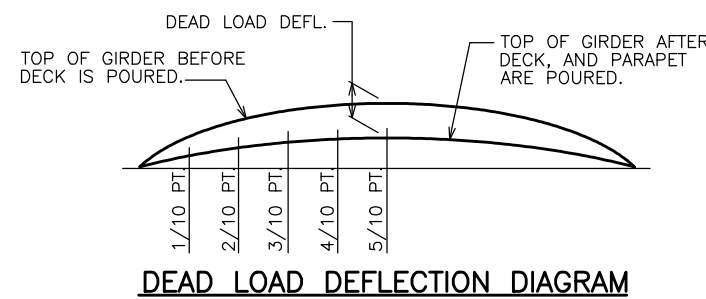
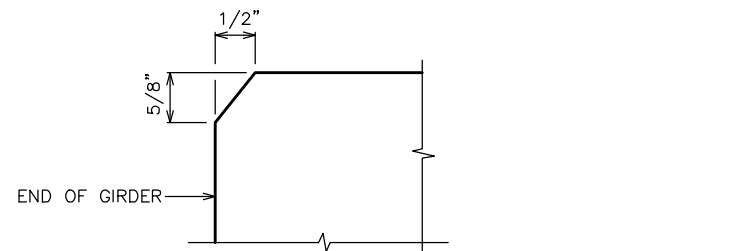
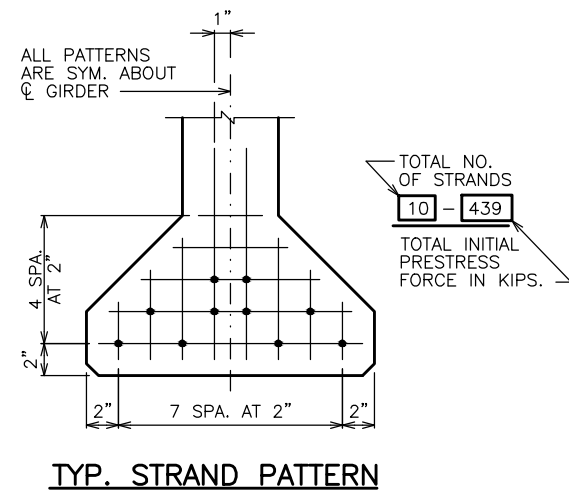
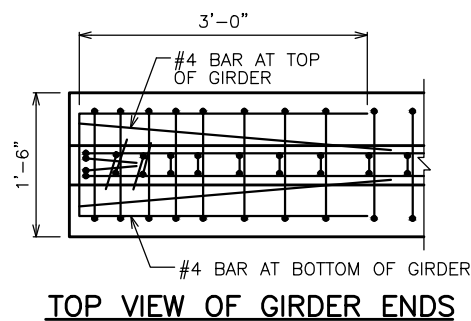




**SIDE VIEW & TYPICAL SECTION IN SPAN**

- (A) DETAIL TYP. AT EACH END
- (B) (2) #4 BARS BEND DOWN 16 BAR DIA. AT ENDS

S. ABUT = 6"  
PIER 1 = 7"  
PIER 2 = 7"  
N. ABUT = 6 5/8"



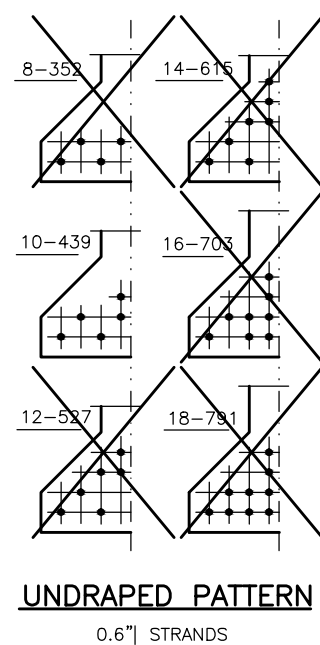
**NOTES**

- TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.
- DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.
- THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.
- STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.
- ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.
- SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.
- AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.
- 28" PRESTRESSED GIRDERS, CONCRETE MASONRY F'C = 6,800 PSI RELEASE
- PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.
- BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".
- FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE SHEET 18.
- 2 1/2" AVERAGE HAUNCH HEIGHT WAS USED FOR CONCRETE MASONRY QUANTITY COMPS. HAUNCH HEIGHT VARIES DUE TO RESIDUAL CAMBER. 1 1/4" MIN HAUNCH IS PERMITTED.
- MINIMUM THEORETICAL HAUNCH OF GIRDER 1 AT  $\bar{C}$  OF SPAN 1 AND 3 ARE 1 7/8" AND 1 3/4" BASED ON EXISTING SURVEYED BEAM SEAT ELEVATIONS OF NORTH AND SOUTH ABUTMENTS.

\* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.)*
1	1"
2	1 1/4"
3	1 1/8"

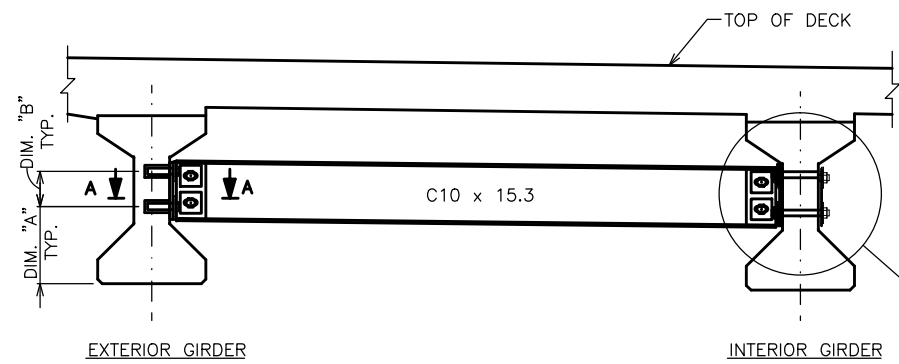
THESE VALUES ARE NOT TO BE USED IN DETERMINING 't', USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



\*MINIMUM CYLINDER STRENGTH OF CONCRETE AT TIME OF TRANSFER OF PRESTRESS FORCE.

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (p.s.i.)	"p" OF GIRDER	"p" MID 1/3 OF GIRDER	"p" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN				UNDRAPED PATTERN		
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	( IN. )			TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
			SEE DEFLECTION TABLE ON SHEET 19														"A"	"B" MIN.	"B" MAX.	"C"			
1	1,2,3	42'-4 1/2"	SEE DEFLECTION TABLE ON SHEET 19									8,000	6	6	6	.6					10	6,800	
2	1,2,3	49'-9"	SEE DEFLECTION TABLE ON SHEET 19									8,000	6	6	6	.6					10	6,800	
3	1,2,3	46'-5 1/8"	SEE DEFLECTION TABLE ON SHEET 19									8,000	6	6	6	.6					10	6,800	

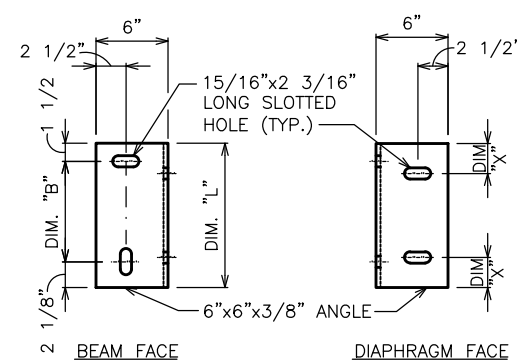
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>28" PRESTRESSED GIRDER DETAILS</b>			SHEET 17 OF 25



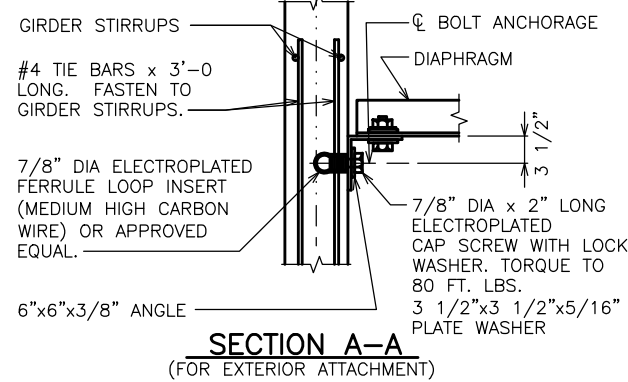
**TABLE**

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
28"	1'-0 7/8"	5 7/8"	9 1/2"	2 1/4"

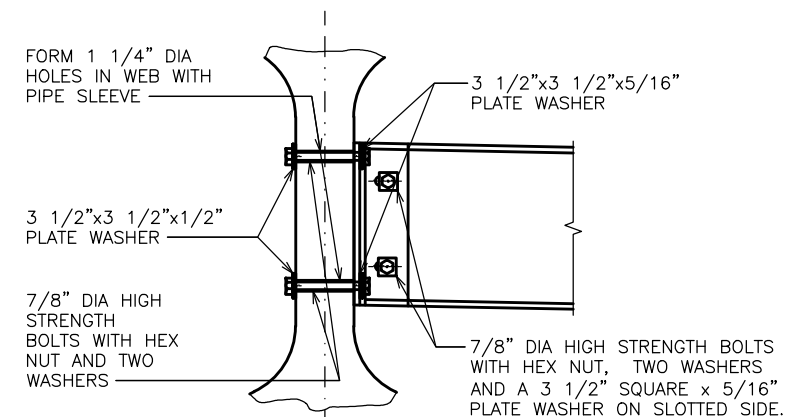
**PART TRANSVERSE SECTION AT DIAPHRAGM**



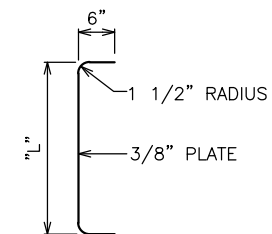
**DIAPHRAGM SUPPORT**



**SECTION A-A (FOR EXTERIOR ATTACHMENT)**



**DETAIL B SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM**



**SECTION THRU ALTERNATE DIAPHRAGM**

\*DIM "X" = 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

**NOTES**

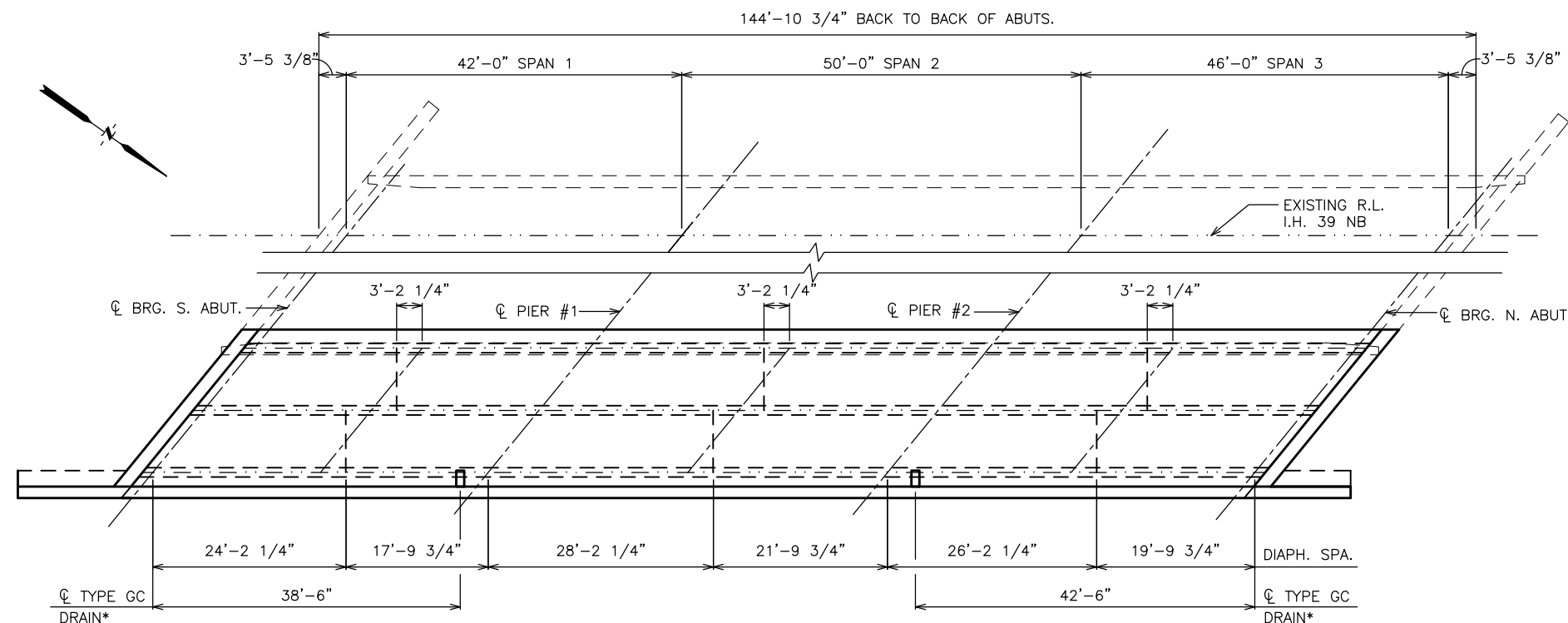
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-13-138, EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

\* FABRICATOR TO PROVIDE HOLES IN WEB FOR 3/4" DIA BOLTS FOR TYPE GC DRAIN DOWNSPOUT BRACKETS. SEE SHEET 23 FOR DETAILS.



**PLAN**  
SHOWING DIAPH. SPACING

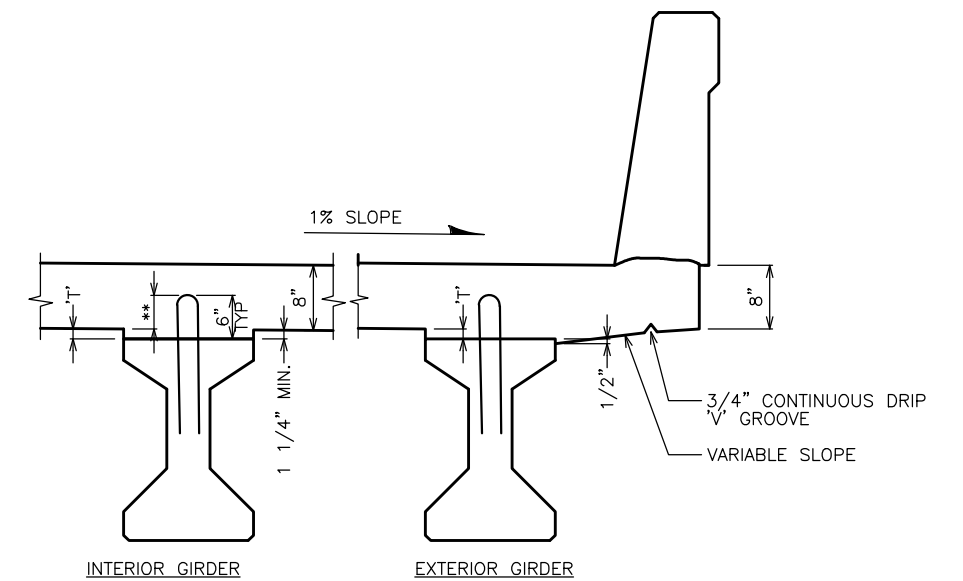
8

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>STEEL DIAPHRAGM DETAILS</b>			SHEET 18 OF 25

**TOP OF DECK ELEVATIONS (FEET)**

SPAN	DESCRIPTION	C/L BRG. S. ABUT.	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	C/L PIER 1
1	SURVEY PGL	886.15	886.24	886.33	886.42	886.51	886.59	886.68	886.77	886.86	886.95	887.04
1	NEW GIRDER 1	886.07	886.16	886.25	886.33	886.42	886.51	886.60	886.69	886.78	886.87	886.96
1	NEW GIRDER 2	885.86	885.94	886.03	886.12	886.21	886.30	886.39	886.48	886.57	886.66	886.74
1	NEW GIRDER 3	885.64	885.73	885.82	885.91	886.00	886.09	886.18	886.26	886.35	886.44	886.53
1	EAST EDGE	885.56	885.65	885.74	885.83	885.92	886.01	886.09	886.18	886.27	886.36	886.45
SPAN	DESCRIPTION	C/L PIER 1	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	C/L PIER 2
2	SURVEY PGL	887.04	887.14	887.25	887.36	887.46	887.57	887.67	887.78	887.89	887.99	888.10
2	NEW GIRDER 1	886.96	887.06	887.17	887.27	887.38	887.49	887.59	887.70	887.80	887.91	888.01
2	NEW GIRDER 2	886.74	886.85	886.96	887.06	887.17	887.27	887.38	887.48	887.59	887.70	887.80
2	NEW GIRDER 3	886.53	886.64	886.74	886.85	886.95	887.06	887.17	887.27	887.38	887.48	887.59
2	EAST EDGE	886.45	886.56	886.66	886.77	886.87	886.98	887.08	887.19	887.30	887.40	887.51
SPAN	DESCRIPTION	C/L PIER 2	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	C/L BRG. N. ABUT.
3	SURVEY PGL	888.10	888.19	888.29	888.39	888.49	888.58	888.68	888.78	888.88	888.97	889.07
3	NEW GIRDER 1	888.01	888.11	888.21	888.31	888.40	888.50	888.60	888.70	888.79	888.89	888.99
3	NEW GIRDER 2	887.80	887.90	888.00	888.09	888.19	888.29	888.39	888.48	888.58	888.68	888.78
3	NEW GIRDER 3	887.59	887.69	887.78	887.88	887.98	888.08	888.17	888.27	888.37	888.47	888.56
3	EAST EDGE	887.51	887.61	887.70	887.80	887.90	887.99	888.09	888.19	888.29	888.38	888.48



**CONCRETE HAUNCH DETAIL**

\*\* NOTIFY THE STRUCTURES SECTION IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T': AFTER ALL PRESTRESSED GIRDERS HAVE BEEN ERECTED, ELEVATIONS OF TOP OF GIRDER SHALL BE TAKEN AT CENTERLINE OF BEARINGS AND AT TENTH POINTS OF EACH SPAN.

TOP OF DECK ELEVATION AT FINAL GRADE  
 -TOP OF GIRDER ELEVATION AFTER PLACEMENT  
 +CONCRETE ONLY DEFLECTION: DOWNWARD DEFLECTION IS ADDED.  
 UPWARD DEFLECTION IS SUBTRACTED  
 =SLAB THICKNESS (8")  
 =HAUNCH THICKNESS 'T'

**TABLE OF THEORETICAL CONCRETE ONLY DEAD LOAD DEFLECTIONS (INCHES)**

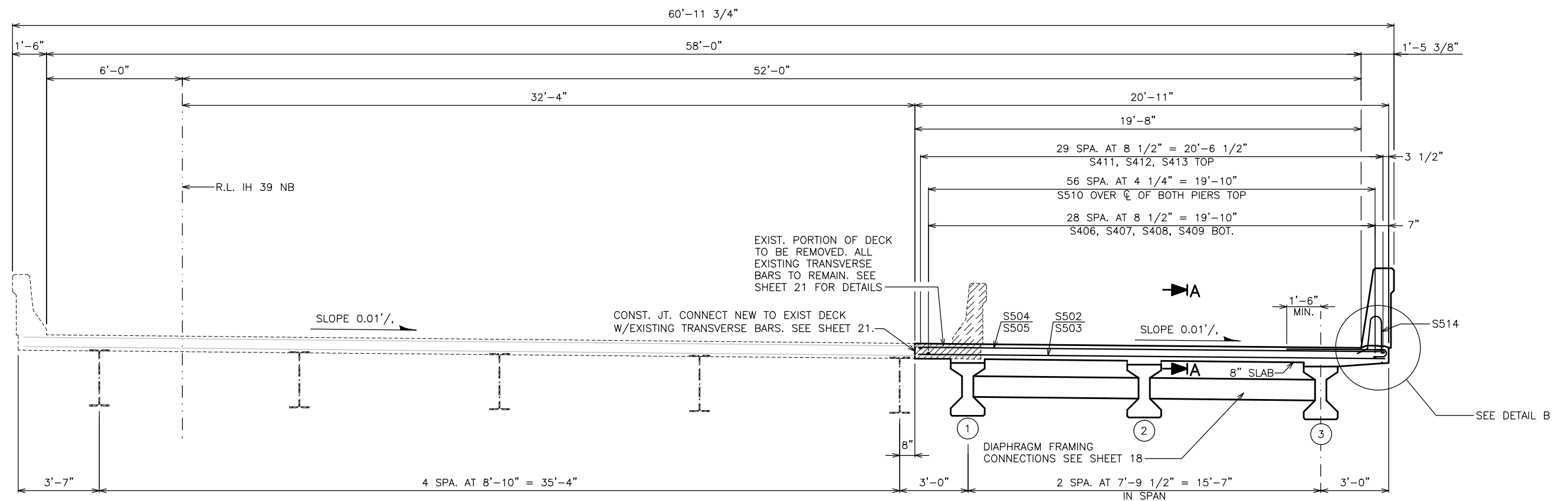
SPAN	DESCRIPTION	C/L BRG. S. ABUT.	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	C/L PIER 1
1	NEW GIRDER 1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0
1	NEW GIRDER 2	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.0
1	NEW GIRDER 3	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.0
SPAN	DESCRIPTION	C/L PIER 1	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	C/L PIER 2
2	NEW GIRDER 1	0.0	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.0
2	NEW GIRDER 2	0.0	0.2	0.3	0.5	0.5	0.6	0.5	0.5	0.3	0.2	0.0
2	NEW GIRDER 3	0.0	0.1	0.3	0.4	0.5	0.5	0.5	0.4	0.3	0.1	0.0
SPAN	DESCRIPTION	C/L PIER 2	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	C/L BRG. N. ABUT.
3	NEW GIRDER 1	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.0
3	NEW GIRDER 2	0.0	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.0
3	NEW GIRDER 3	0.0	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.0

NOTE: DEFLECTIONS ARE THEORETICAL AND MAY VARY IN THE FIELD.  
 THEORETICAL CONCRETE ONLY DEAD LOAD DEFLECTION = DECK AND HAUNCH DL DEF. + DIAPHRAGM DL DEF. + COMPOSITE DL DEF.

8

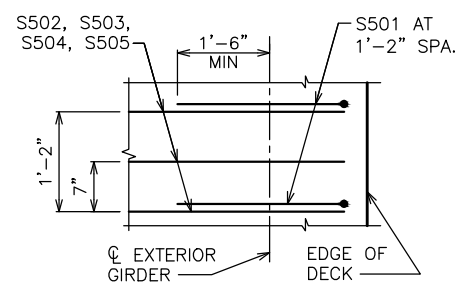
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>DECK ELEVATIONS AND TABLE OF DEFLECTIONS</b>			SHEET 19 OF 25

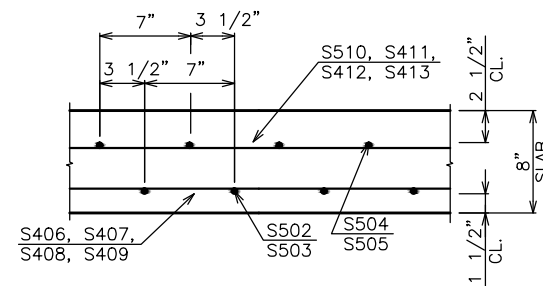


**TYPICAL CROSS SECTION THRU DECK**

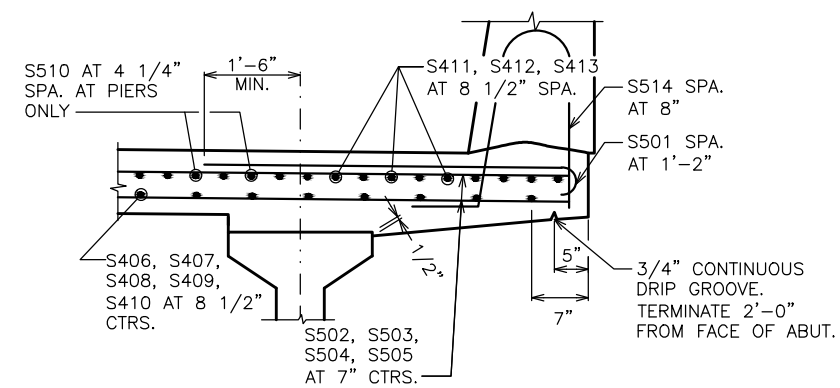
LOOKING NORTH



**PLAN VIEW OF  
ADDITIONAL OVERHANG  
REINFORCEMENT DETAIL**



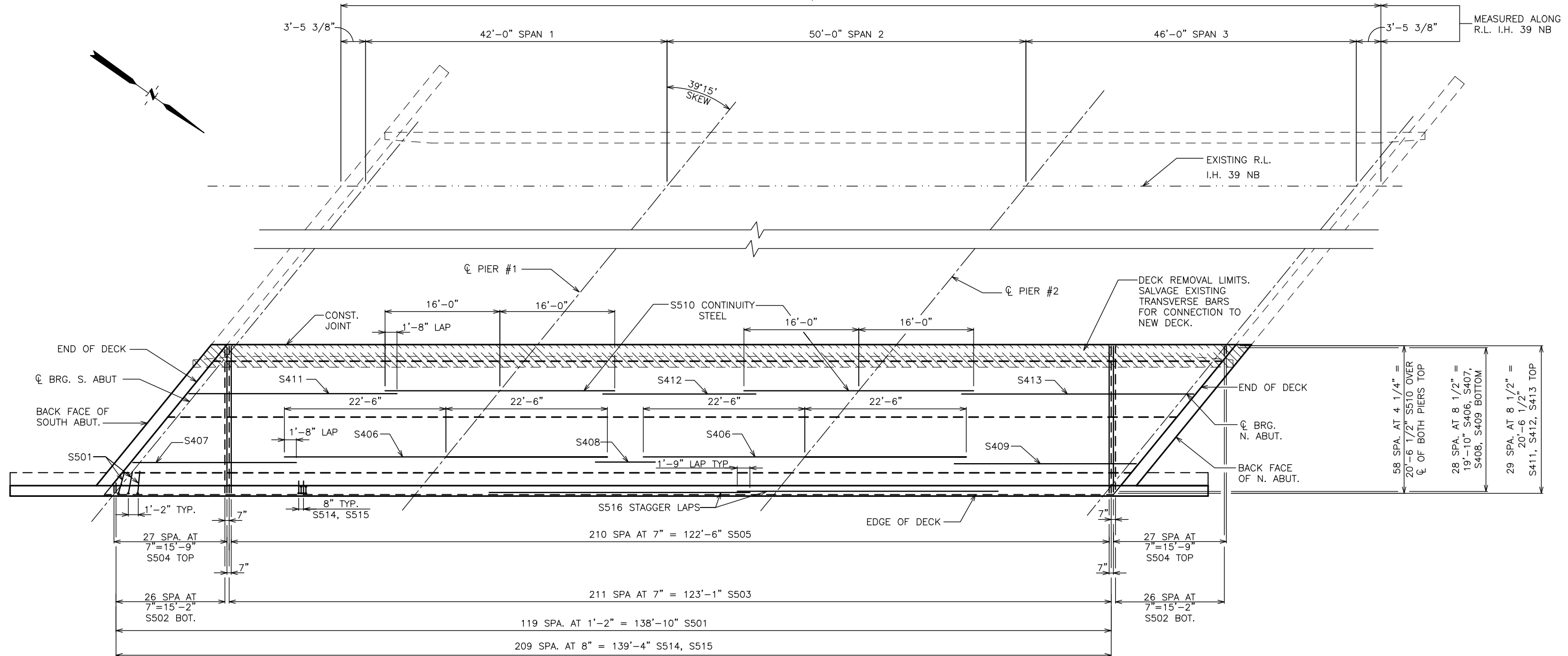
**SECTION A**



**DETAIL B**

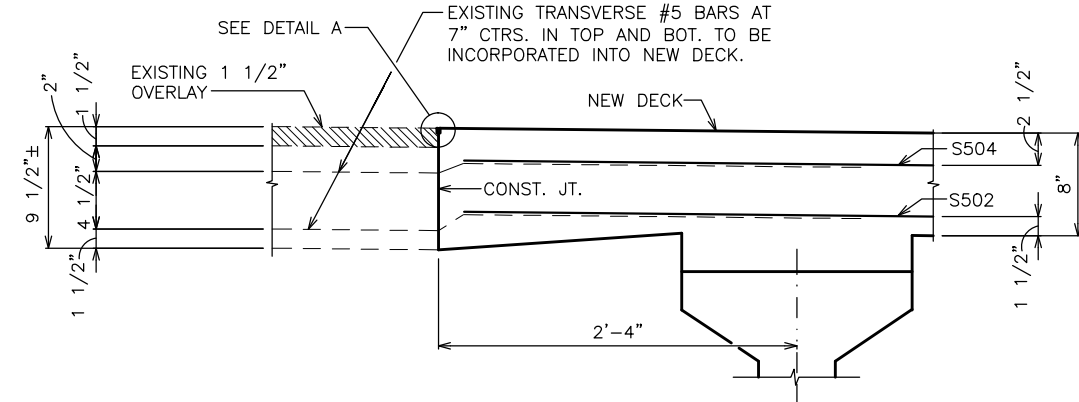
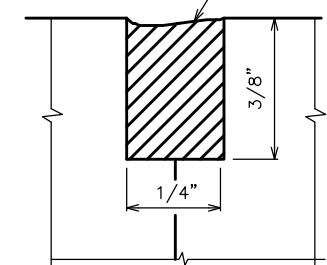
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION <b>STRUCTURES DESIGN SECTION</b>			
<b>STRUCTURE B-13-138</b>			
DRAWN BY: DAS		PLANS CHK'D: JSM	
<b>SUPERSTRUCTURE</b>			SHEET 20 OF 25

144'-10 3/4" BACK TO BACK OF ABUTS.



PLAN

ROUTE OUT 1/4"x3/8" DEEP AT JOINT. FILL IN WITH LOW VISCOSITY CRACK SEALER PER THE APPROVED PRODUCTS LIST. (INCLUDED WITH "CONCRETE MASONRY BRIDGES")

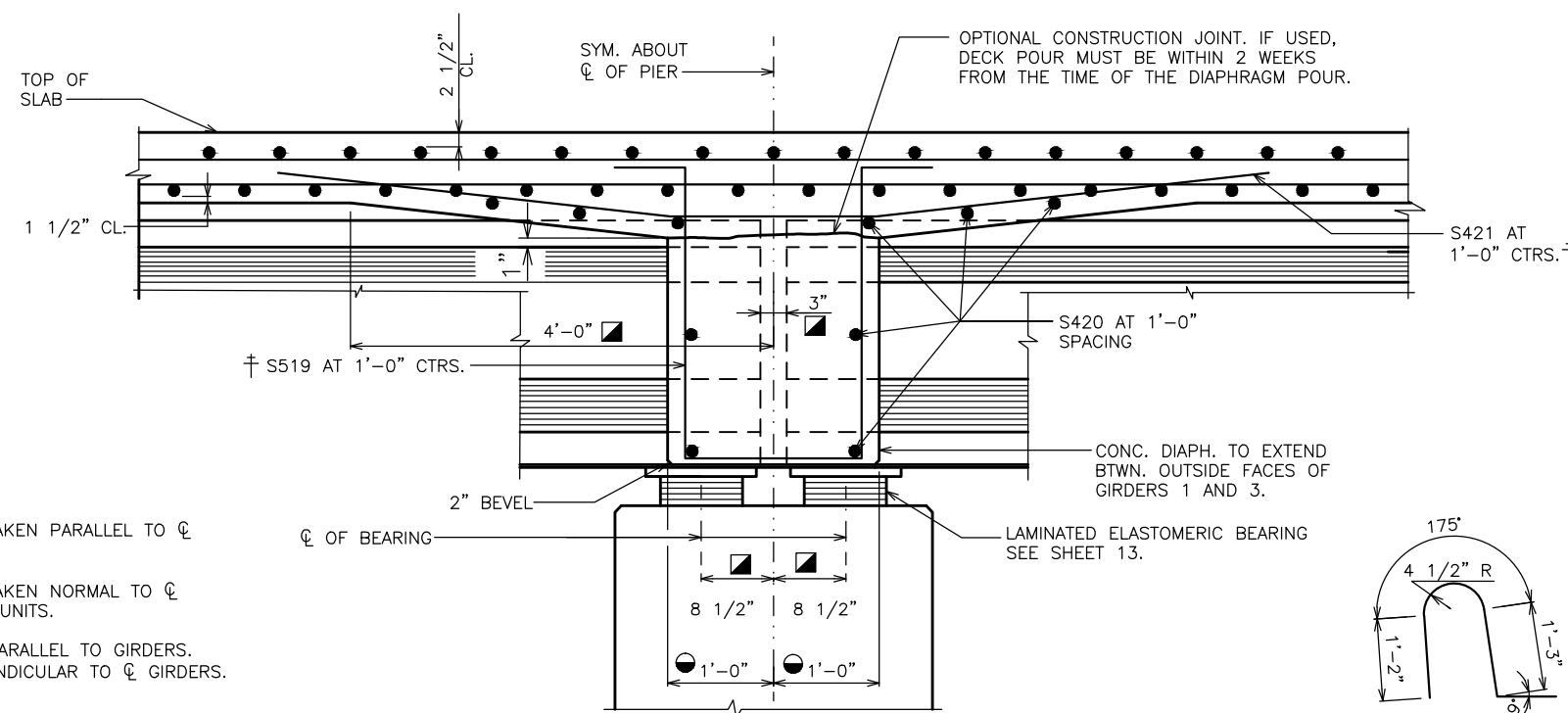


LONGITUDINAL CONSTRUCTION JOINT DETAIL

08

08

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
SUPERSTRUCTURE PLAN			SHEET 21 OF 25



**DIAPHRAGM AT LAMINATED ELASTOMERIC BEARINGS AT PIERS**

**BILL OF BARS**

COATED: 24,110 LBS

BAR MARK	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BAR SERIES	LOCATION
S501	X	120	4-10	X		SLAB TRANS. - OVERHANG
S502	X	54	10-7		*	SLAB TRANS. BOT.
S503	X	212	20-5			SLAB TRANS. BOT.
S504	X	56	10-8		*	SLAB TRANS. TOP.
S505	X	211	20-5			SLAB TRANS. TOP.
S406	X	58	45-0			SLAB LONG. BOT. AT PIER 1 AND 2
S407	X	29	22-3			SLAB LONG. BOT. SPAN 1
S408	X	29	8-4			SLAB LONG. BOT. SPAN 2
S409	X	29	25-4			SLAB LONG. BOT. SPAN 3
S510	X	114	32-0			SLAB LONG. TOP AT PIER 1 AND 2
S411	X	30	29-0			SLAB LONG. TOP AT SPAN 1
S412	X	30	21-4			SLAB LONG. TOP AT SPAN 2
S413	X	30	32-4			SLAB LONG. TOP AT SPAN 3
S514	X	212	4-5	X		SLAB AT PARAPET VERT.
S515	X	212	6-8	X		PARAPET VERT.
S516	X	32	36-4			PARAPET HORIZ.
S817	X	24	7-10			DIAPH. AT SOUTH AND NORTH ABUT.
S418	X	32	4-9	X		DIAPH. AT S. AND N. ABUT.-STIRRUPS
S519	X	28	8-4	X		DIAPH. AT PIER 1 AND 2
S420	X	40	7-10			DIAPH. AT PIER 1 AND 2 - HORIZ.
S421	X	28	10-7	X		DIAPH. AT PIER 1 AND 2 - VERT.
S522	X	8	5-0			FLOOR DRAINS
S423	X	6	7-6			EXP. JOINT AT NORTH ABUT. - 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.

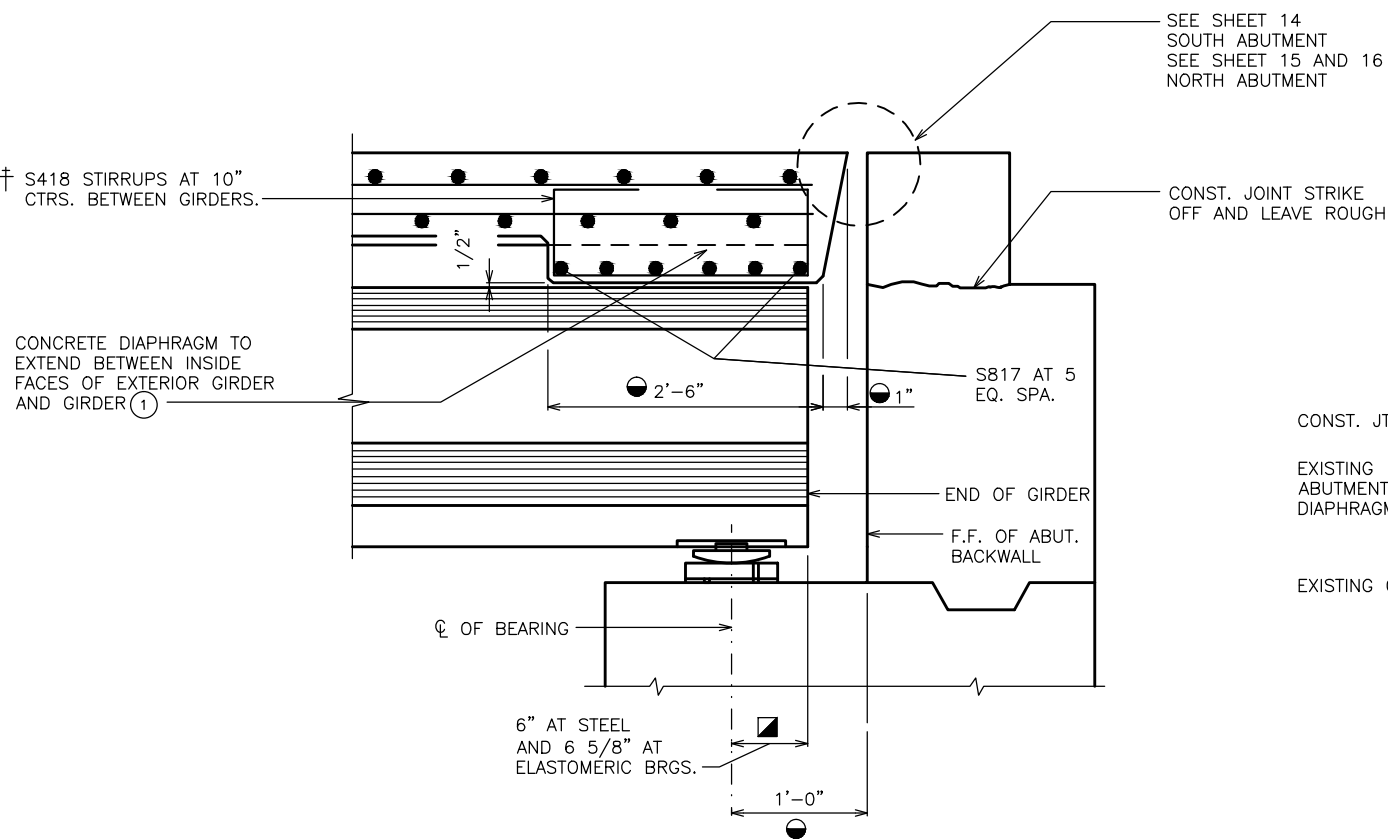
**BAR SERIES TABLE**

MARK	NO. REQ'D.	LENGTH
S502	2 SERIES OF 27	1'-4" TO 19'-11"
S504	2 SERIES OF 28	1'-0" TO 20'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY.

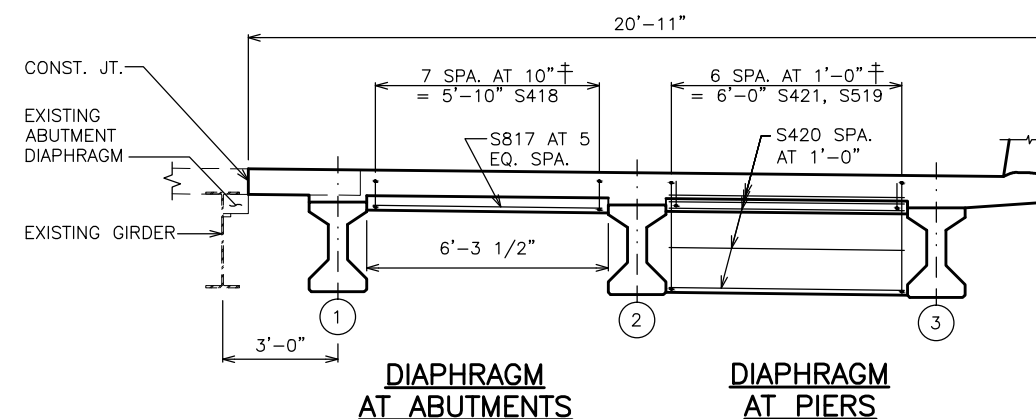
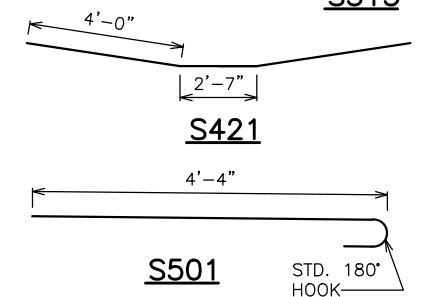
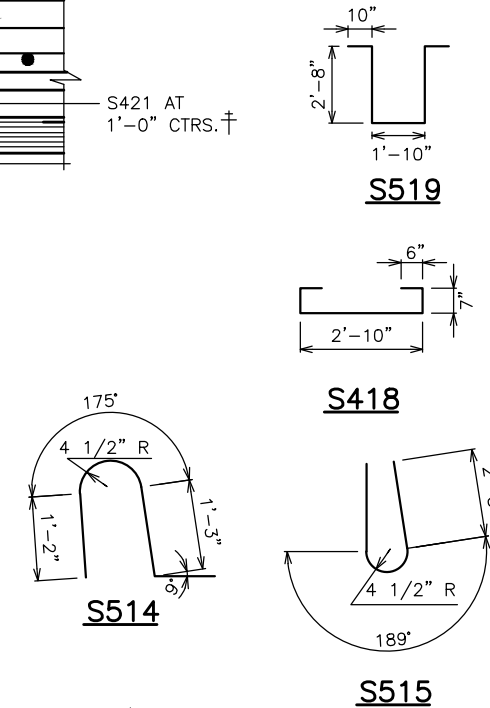
**LEGEND**

- ▣ DIMENSION IS TAKEN PARALLEL TO CL. OF GIRDER.
- DIMENSION IS TAKEN NORMAL TO CL. OF SUBSTRUCTURE UNITS.
- † BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL. GIRDERS.



**FIXED AND EXPANSION END DIAPHRAGM AT ABUTS.**

N. ABUT: ELASTOMERIC BEARING  
S. ABUT: STEEL FIXED BEARING



**DIAPHRAGM AT ABUTMENTS**

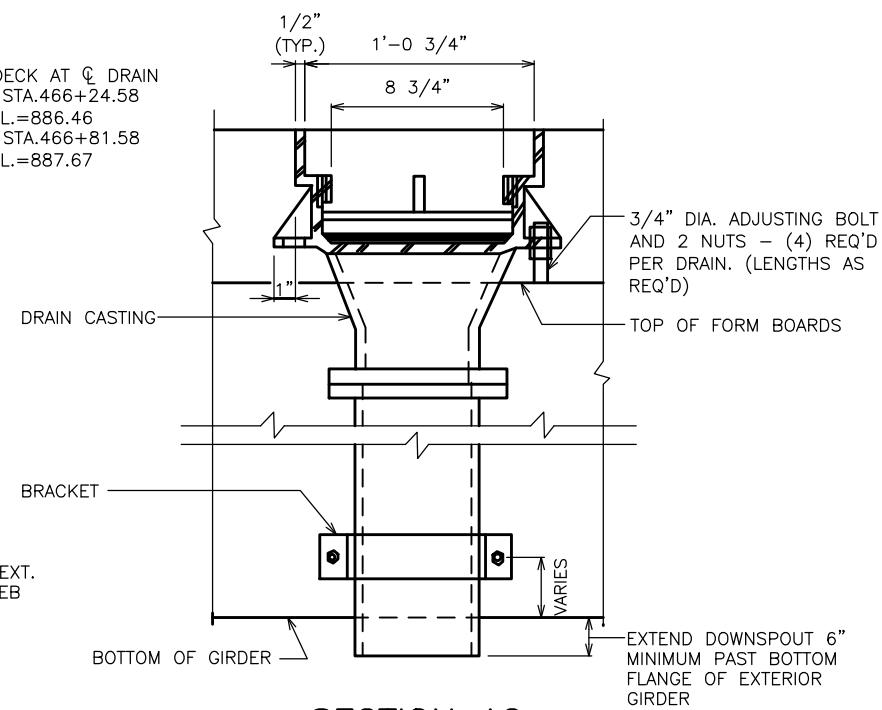
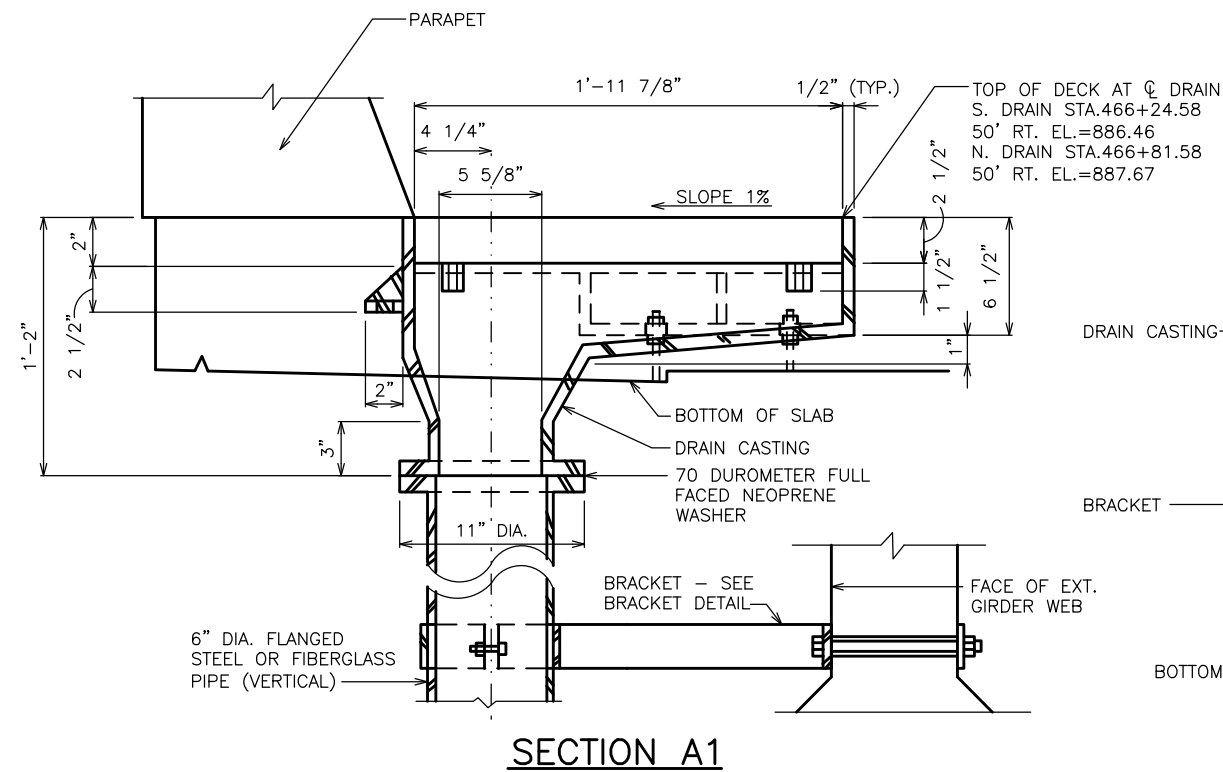
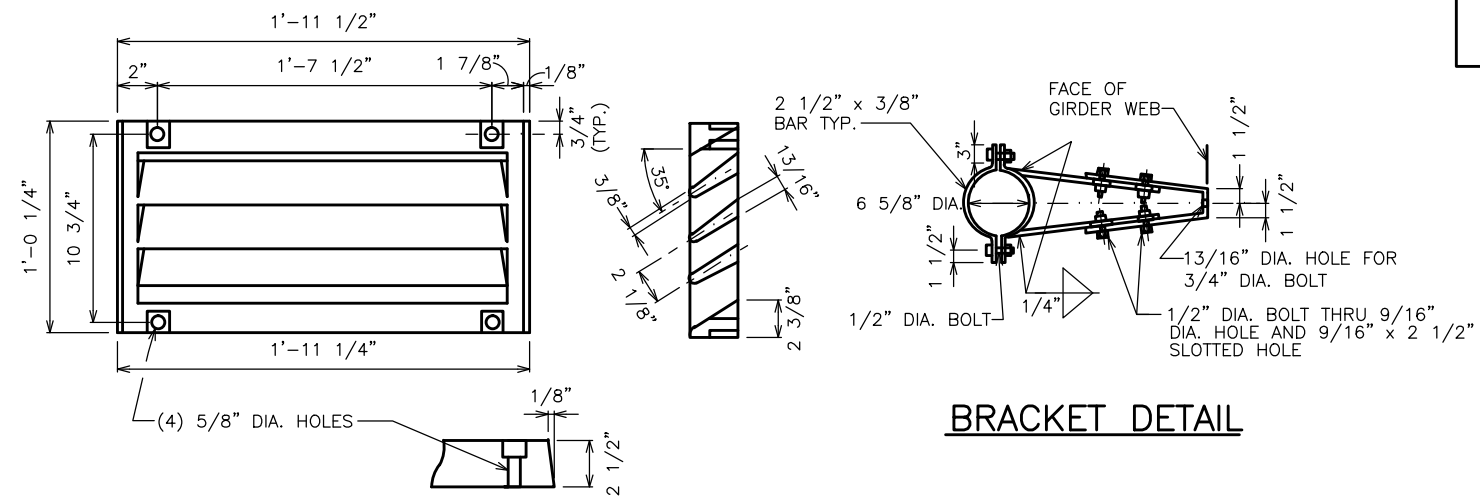
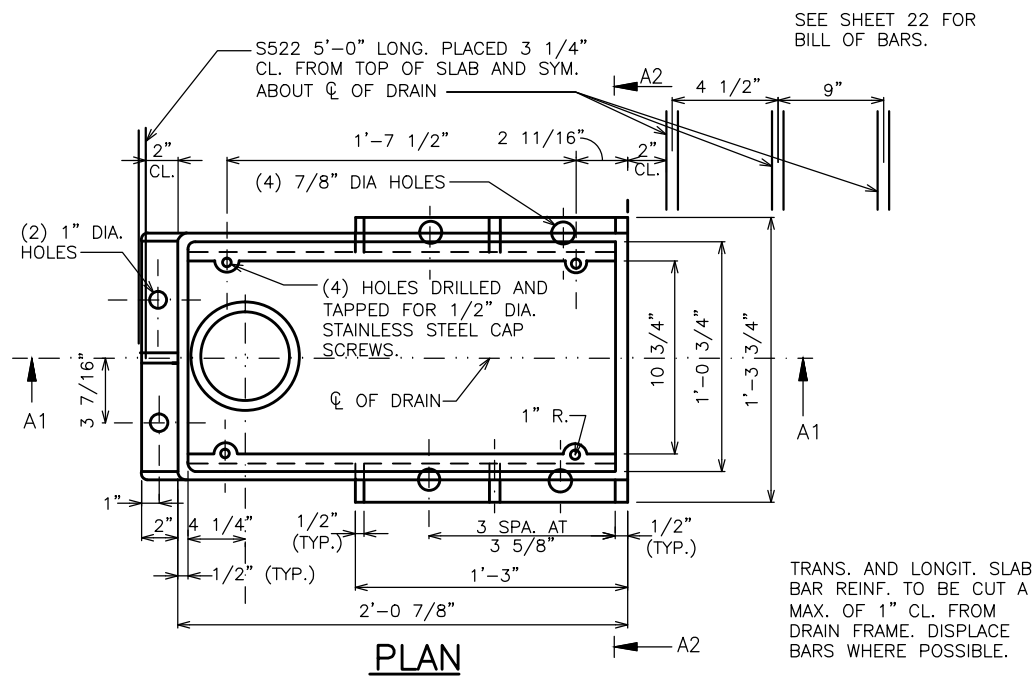
**DIAPHRAGM AT PIERS**

**PARTIAL SECTION THRU ROADWAY**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>SUPERSTRUCTURE DETAILS AND BILL OF BARS</b>			SHEET 22 OF 25

8

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**GENERAL NOTES**

ALL MATERIAL FOR TYPE "GC" CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48, CLASS 30. (APPROX. WEIGHT = 225#)

MATERIAL FOR BRACKETS SHALL CONFORM TO A.S.T.M. A36.

THE CONTRACTOR MAY PROPOSE AN ALTERNATE TYPE OF BRACKET. THE PROPOSED ALTERNATE DETAILS SHALL BE SUBMITTED AND SUBJECT TO THE APPROVAL OF THE ENGINEER.

FLANGED 6" DIA. DOWNSPOUTS SHALL BE EITHER STEEL OR REINFORCED THERMOSETTING RESIN PIPE CONFORMING TO SECTION 514 OF THE STANDARD SPECIFICATIONS.

8

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>TYPE GC DRAIN DETAIL</b>			SHEET 23 OF 25

WEIGHTS INCLUDED IN ABUTMENT WEIGHT SHOWN ON SHEET 3, 6, AND 9.

**BILL OF BARS**

S. ABUT. COATED: 420 LBS  
N. ABUT. COATED: 370 LBS

BAR MARK	COAT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	6	3	5-10	X		PARAPET-VERT.
R502	X	6	3	6-8	X		PARAPET-VERT.
R503	X	11	11	3-0	X		PARAPET-VERT.
R504	X	17	17	5-7	X		PARAPET-VERT.
R505	X	5	5	6-5	X		PARAPET-VERT.
R506	X	6	6	6-6	X		PARAPET-VERT.
R507	X	1	--	11-7	X		PARAPET-HORIZ.
R508	X	--	1	9-7	X		PARAPET-HORIZ.
R509	X	5	--	11-8			PARAPET-HORIZ.
R510	X	--	5	9-8			PARAPET-HORIZ.
R511	X	6	6	5-5	X	▲	PARAPET-VERT.
R512	X	2	--	11-7	X		PARAPET-HORIZ.
R513	X	--	2	9-7	X		PARAPET-HORIZ.

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

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

**BAR SERIES TABLE**

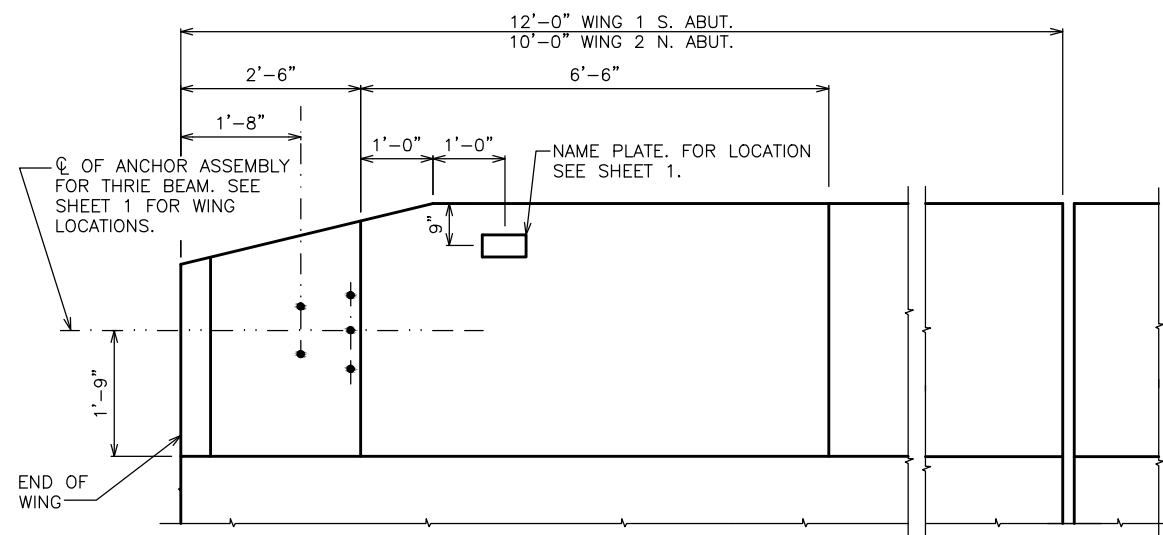
MARK	NO. REQ'D	LENGTH
R511	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

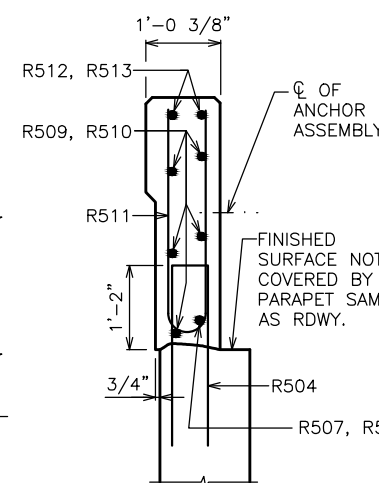
● CONST. JOINT - STRIKE OFF AS SHOWN.

■ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 OR S503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

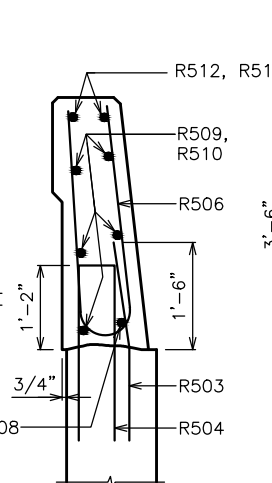
▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.



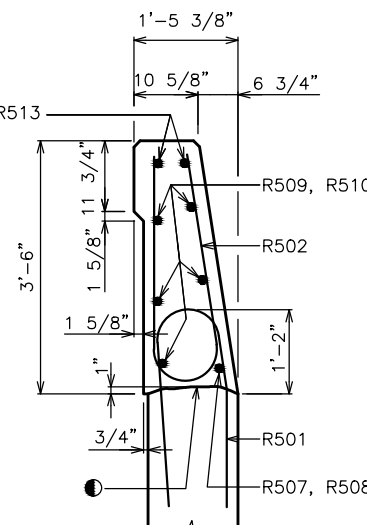
**INSIDE ELEVATION**



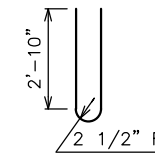
**SECTION A**



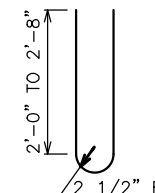
**SECTION B**



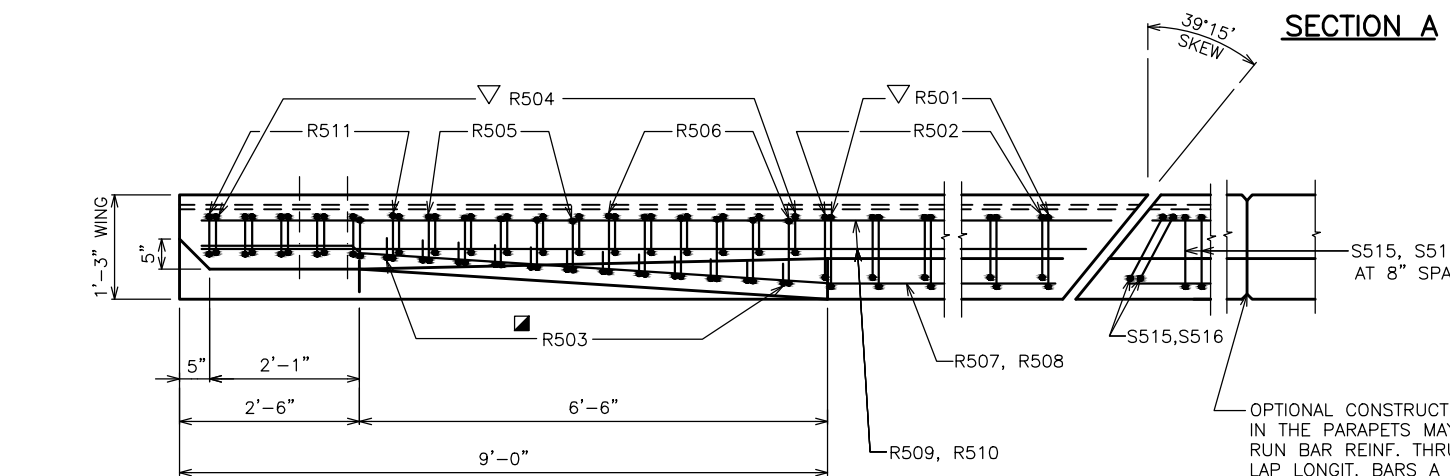
**SECTION C**



**R505**

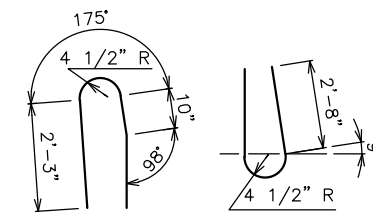


**R511**

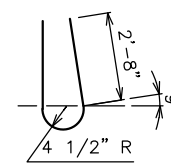


**PLAN**

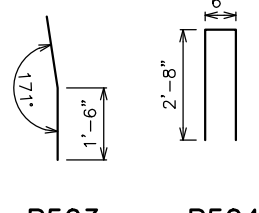
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0" DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



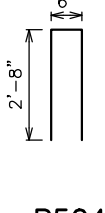
**R501**



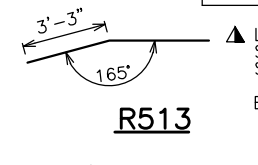
**R502**



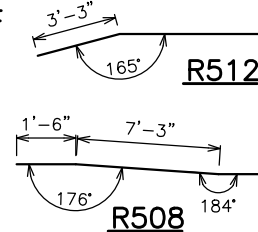
**R503**



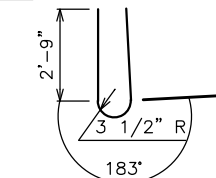
**R504**



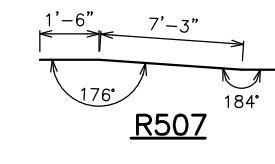
**R512**



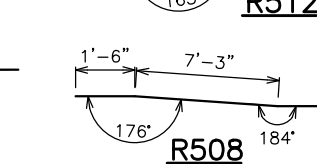
**R513**



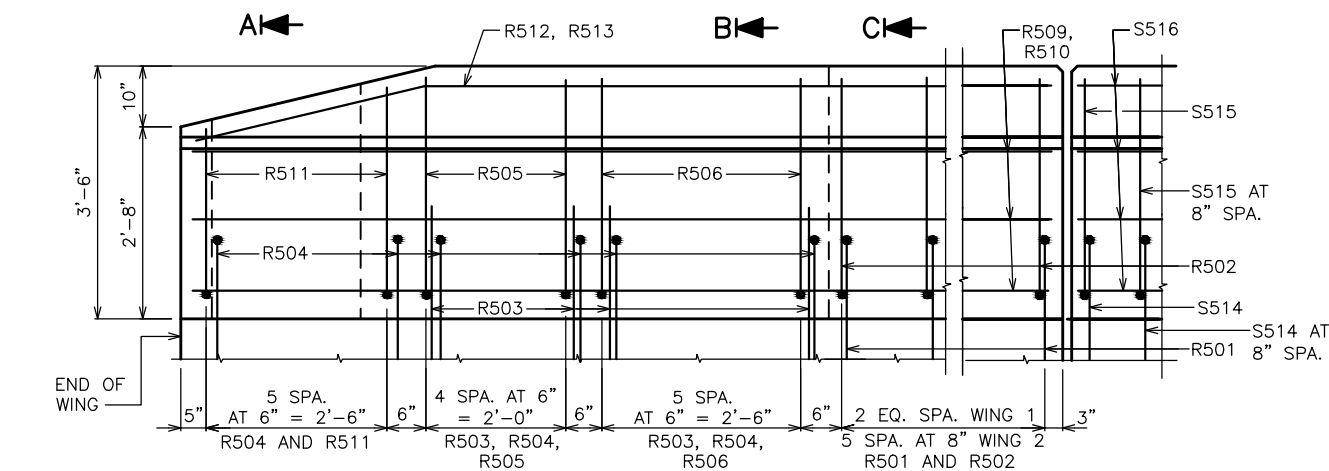
**R506**



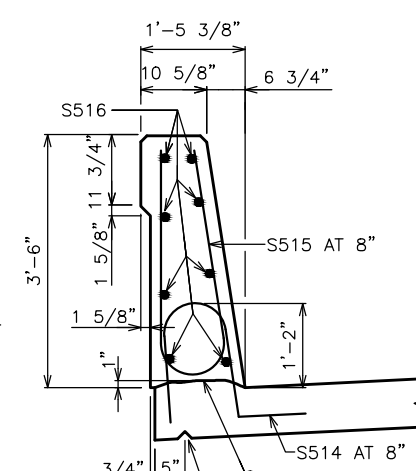
**R507**



**R508**

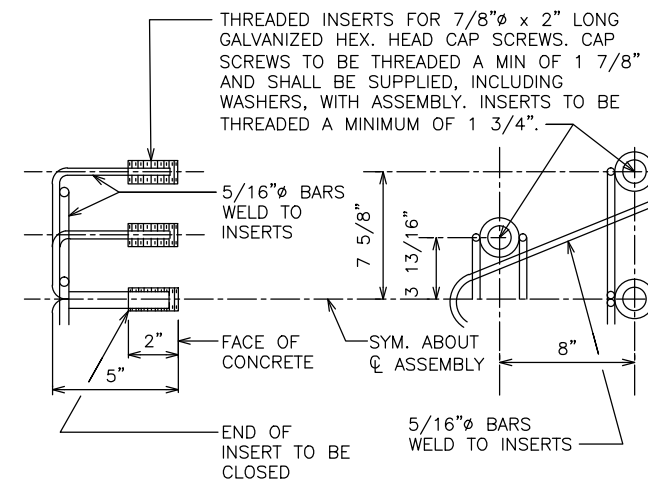


**OUTSIDE ELEVATION**



**SECTION THRU PARAPET ON BRIDGE**

3/4" V-GROOVE. TERMINATE 2'-0" FROM FRONT FACE OF ABUTMENTS.

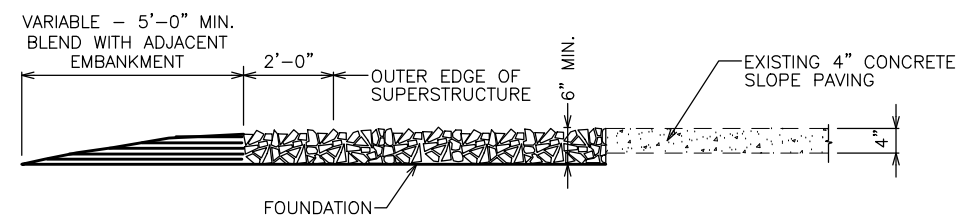


**DETAIL OF ANCHOR ASSEMBLY**

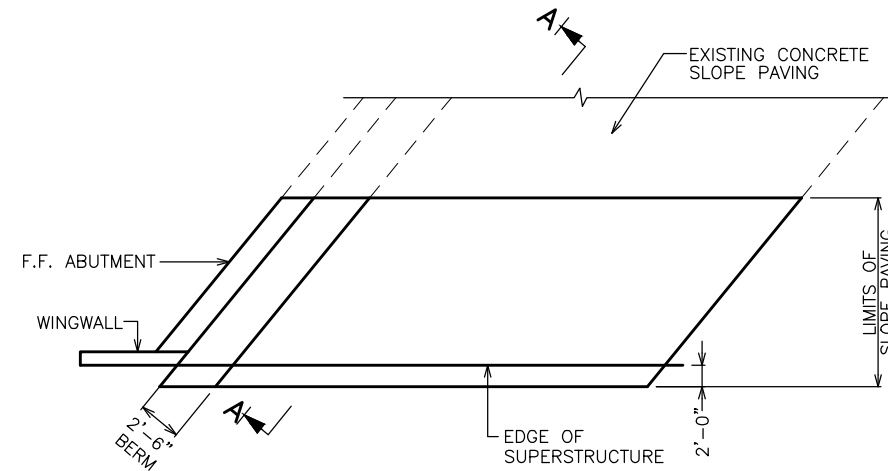
NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-13-138			
DRAWN BY DAS		PLANS CHK'D JSM	
SINGLE SLOPE PARAPET 42SS			SHEET 24 OF 25

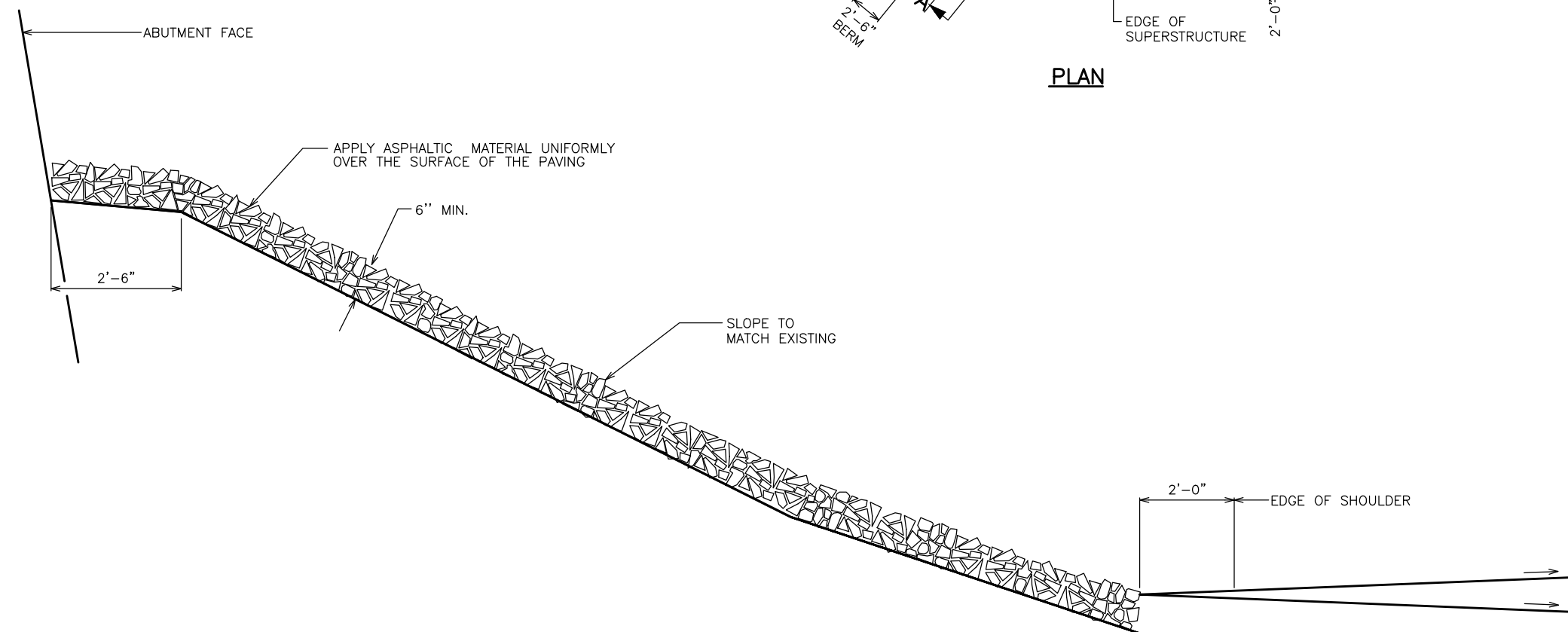




**SECTION A-A**



**PLAN**



**STANDARD CROSS SECTION THRU CRUSHED AGGREGATE**

ROUND STONE WILL NOT BE ACCEPTED.

**GENERAL NOTES**

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

WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.

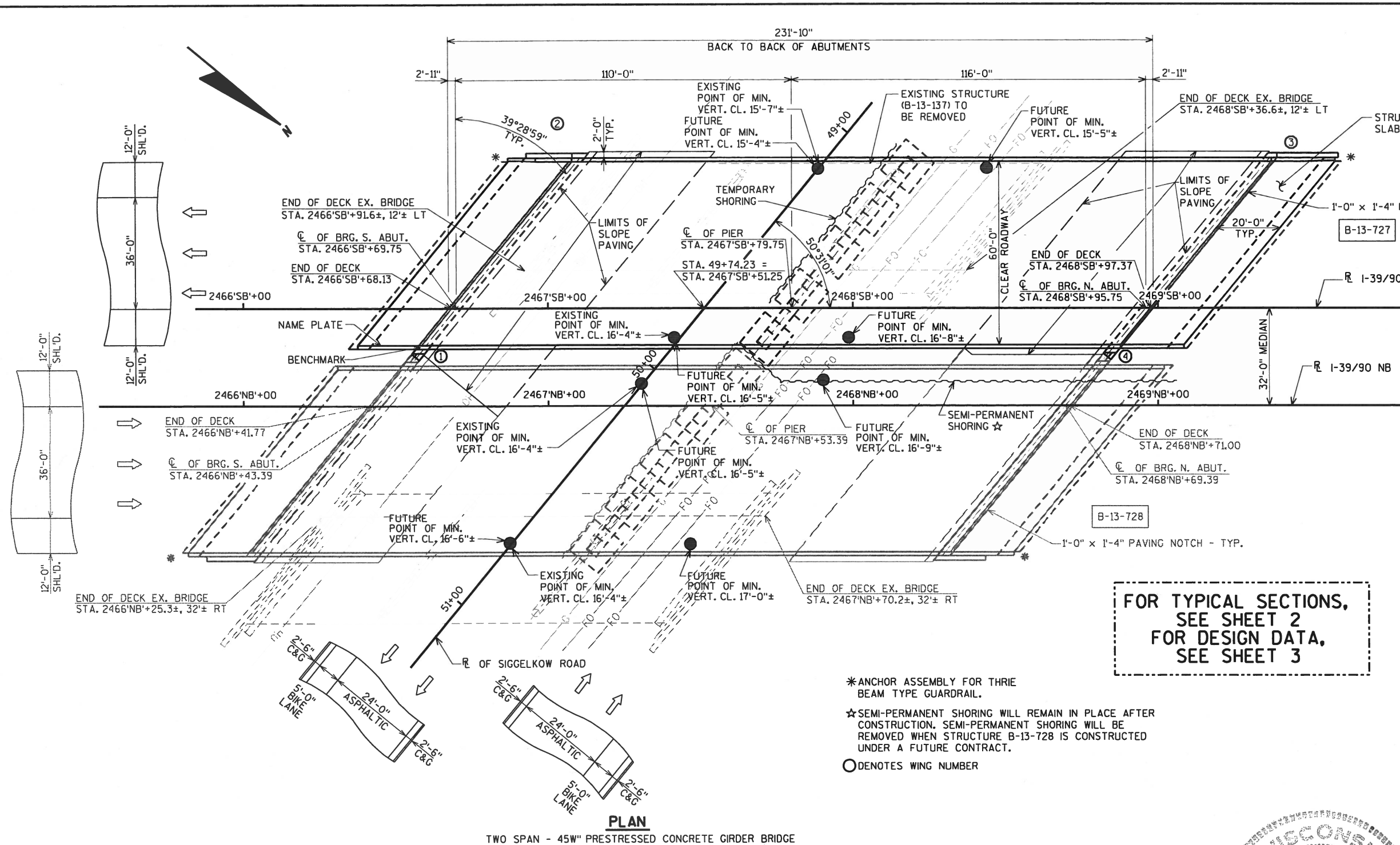
8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-138</b>			
DRAWN BY DAS		PLANS CHK'D JSM	
<b>SLOPE PAVING CRUSHED AGGREGATE</b>			SHEET 25 OF 25

\$PRNAME\$ U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\1-39 over Siggelkow Road\Sou

DATE: DATE: DATE: CHECKED BY: BACK CHECKED BY: CORRECTED BY:



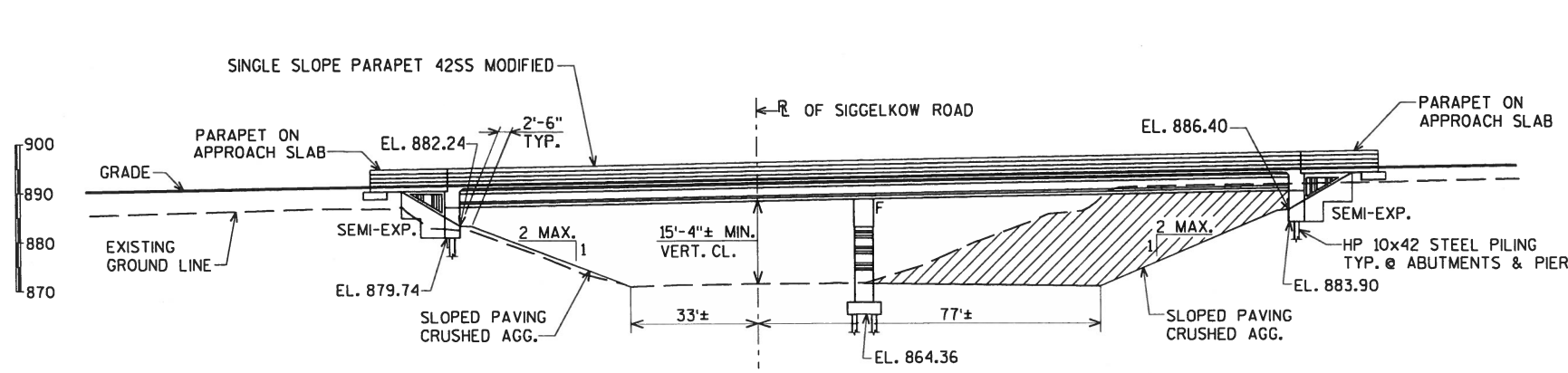
FOR TYPICAL SECTIONS, SEE SHEET 2 FOR DESIGN DATA, SEE SHEET 3

- \* ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.
- ☆ SEMI-PERMANENT SHORING WILL REMAIN IN PLACE AFTER CONSTRUCTION. SEMI-PERMANENT SHORING WILL BE REMOVED WHEN STRUCTURE B-13-728 IS CONSTRUCTED UNDER A FUTURE CONTRACT.
- DENOTES WING NUMBER

LIST OF DRAWINGS

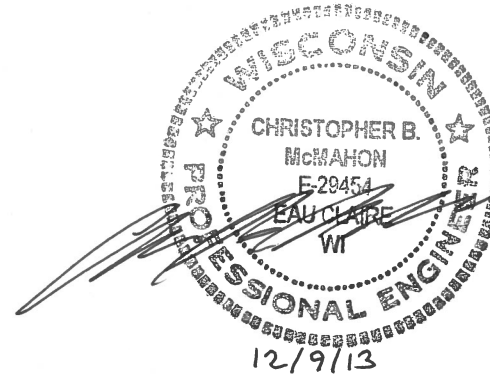
1. GENERAL PLAN
2. TYPICAL SECTION AND NOTES
3. DESIGN DATA AND QUANTITIES
4. SUBSURFACE EXPLORATION
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT PILE LAYOUT
7. SOUTH ABUTMENT WING 1 DETAILS
8. SOUTH ABUTMENT WING 2 DETAILS
9. SOUTH ABUTMENT DETAILS
10. NORTH ABUTMENT
11. NORTH ABUTMENT PILE LAYOUT
12. NORTH ABUTMENT WING 3 DETAILS
13. NORTH ABUTMENT WING 4 DETAILS
14. NORTH ABUTMENT DETAILS
15. ABUTMENT ARCH. TREATMENT DETAILS
16. ALTERNATE CONSTRUCTION JOINT
17. PIER
18. PIER FOOTINGS
19. PIER COLUMNS
20. PIER CAPS
21. PRECAST PIER CAP AND COLUMN DETAILS
22. PIER DETAILS
23. 45W" PRESTRESSED GIRDER DETAILS
24. 45W" PRESTRESSED GIRDER DETAILS
25. STEEL DIAPHRAGM DETAILS
26. SUPERSTRUCTURE
27. SUPERSTRUCTURE PLAN
28. SUPERSTRUCTURE TRANSVERSE STEEL LAYOUT
29. SUPERSTRUCTURE DETAILS
30. SUPERSTRUCTURE CORNER DETAILS
31. SUPERSTRUCTURE DETAILS
32. NORTH STRUCTURAL APPROACH SLAB
33. SOUTH STRUCTURAL APPROACH SLAB
34. STRUCTURAL APPROACH SLAB DETAILS
35. SINGLE SLOPE SS42 PARAPET MODIFIED
36. SINGLE SLOPE SS42 PARAPET MODIFIED
37. SLOPE PAVING CRUSHED AGGREGATE

PLAN TWO SPAN - 45W" PRESTRESSED CONCRETE GIRDER BRIDGE



ELEVATION (NORMAL TO R OF SIGGELKOW ROAD)

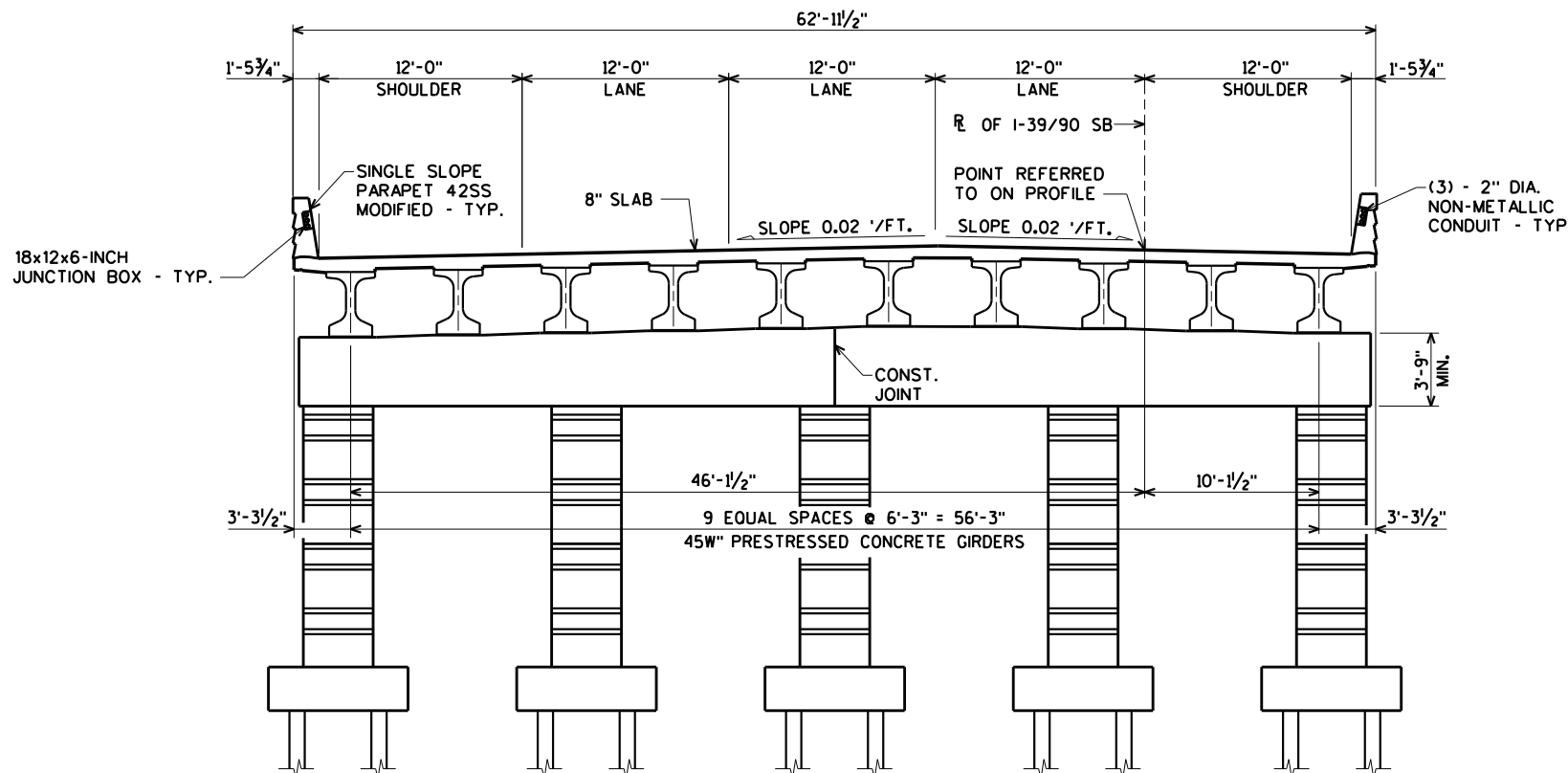
COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE CONSIDERED "EXCAVATION COMMON." SEE ROADWAY PLANS.



BRIDGE OFFICE CONTACT:  
WILLIAM DREHER  
(608)-266-8489

CONSULTANT CONTACT:  
CHRIS MCMAHON  
(715)-834-3161

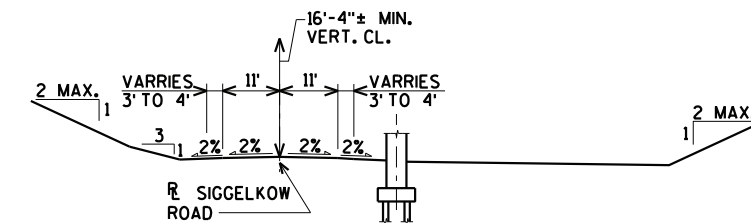
NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
<b>AYRES ASSOCIATES</b> 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>William C. Dreher</i> CHIEF STRUCTURES DESIGN ENGINEER		12/11/13 DATE
<b>STRUCTURE B-13-727</b>			
I-39/90 SB OVER SIGGELKOW ROAD			
COUNTY	DANE	TOWN/VILLAGE	BLOOMING GROVE
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.			
DESIGNED BY	JCK	CHK'D. AEB	DRAWN BY JCK PLANS CK'D. CBM
<b>GENERAL PLAN</b>			SHEET 1 OF 37



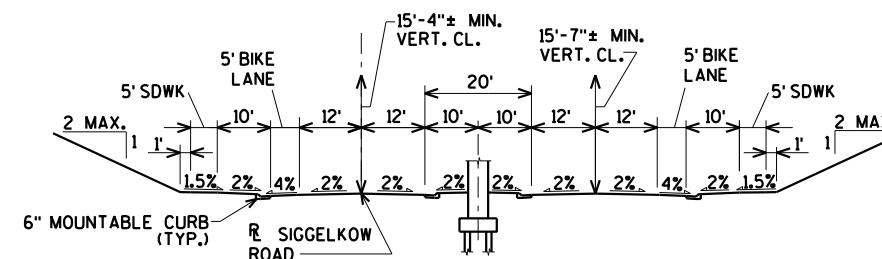
**CROSS SECTION THRU ROADWAY**  
(LOOKING NORTH)

**GENERAL NOTES**

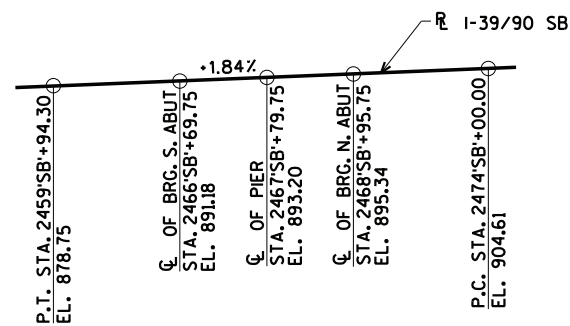
DRAWINGS SHALL NOT BE SCALED.  
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
 THE FIRST DIGIT OF A THREE DIGIT BAR NO. OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.  
 JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II, OR III OR A.A.S.H.T.O. DESIGNATION M 213.  
 THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.  
 THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-13-727" AT THE SOUTH ABUTMENT AND PIER. THE PROPOSED FINISHED PROFILE AROUND THE ABUTMENT SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-13-727" AT THE NORTH ABUTMENT.  
 AT THE BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.  
 THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.  
 BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.  
 THE EXISTING BRIDGE B-13-137 IS A 3-SPAN CONTINUOUS STEEL GIRDER BRIDGE WITH AN OVERALL LENGTH OF 144'-10 1/2" AND A CLEAR ROADWAY WIDTH OF 40'-0". THE EXISTING BRIDGE IS TO BE REMOVED BEFORE CONSTRUCTING B-13-727.  
 APPLY PROTECTIVE SURFACE TREATMENT TO TOP AND INSIDE FACES OF PARAPETS.  
 ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.



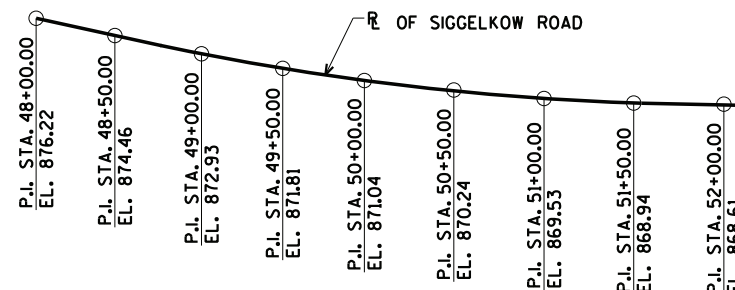
**EXISTING TYPICAL FINISHED SECTION SIGGELKOW ROAD**  
(LOOKING WEST)



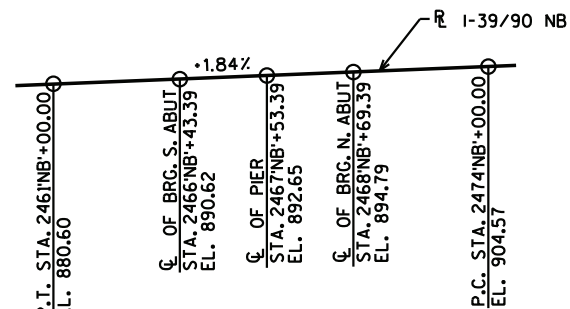
**FUTURE TYPICAL FINISHED SECTION SIGGELKOW ROAD**  
ALLOWANCE FOR POTENTIAL FUTURE EXPANSION  
(LOOKING WEST)



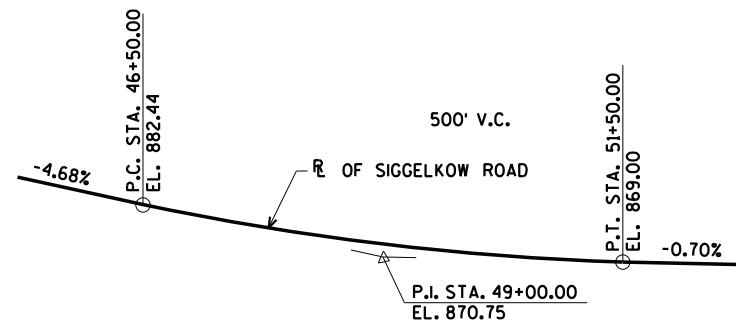
**PROFILE GRADE LINE**  
(I-39/90 SB)



**EXISTING PROFILE GRADE LINE**  
(SIGGELKOW ROAD)



**PROFILE GRADE LINE**  
(I-39/90 NB)



**FUTURE PROFILE GRADE LINE**  
(SIGGELKOW ROAD)

BENCHMARK:  
 CUT "X" ON NE SIGN BOLT OF E. SIGN LEG  
 STA. 2439+SB+70, 67.9' LT.  
 EL. 871.15

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>TYPICAL SECTION AND NOTES</b>			SHEET 2 OF 37

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	S. STR. APR. SLAB	S. ABUT.	PIER	N. ABUT.	N. STR. APR. SLAB	SUPER.	TOTAL
203.0200	REMOVING OLD STRUCTURE STATION 2467'SB'+64	LS	----	----	----	----	----	----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-13-727	LS	----	----	----	----	----	----	1
206.6000.S	TEMPORARY SHORING	SF	----	----	675	----	----	----	675
210.0100	BACKFILL STRUCTURE	CY	----	315	----	335	----	----	650
502.0100	CONCRETE MASONRY BRIDGES	CY	----	92	94	100	----	----	286
502.3200	PROTECTIVE SURFACE TREATMENT	SY	20	20	----	20	20	230	310
503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH	LF	----	----	----	----	----	2,268	2,268
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	----	6,380	5,270	7,330	----	----	18,980
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	15,650	520	3,000	640	15,650	112,060	147,520
506.2605	BEARING PADS ELASTOMERIC NON-LAMINTED	EACH	----	10	20	10	----	----	40
506.4000	STEEL DIAPHRAGMS B-13-727	EACH	----	----	----	----	----	36	36
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	----	18	----	20	----	----	38
517.1050.S	ARCHITECTURAL SURFACE TREATMENT B-13-727	SF	----	700	----	695	----	----	1,395
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	----	750	2,800	880	----	----	4,430
604.0500	SLOPE PAVING CRUSHED AGGREGATE	SY	----	605	----	545	----	----	1,150
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	----	115	----	125	----	----	240
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1	----	----	----	1	----	2
652.0125	CONDUIT RIGID METALLIC 2-INCH	LF	----	----	----	----	55	55	55
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	----	----	----	----	1,410	1,410	1,410
653.0222	JUNCTION BOXES 18x12x6-INCH	EACH	----	----	----	----	2	2	2
SPV.0035.701	HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES	CY	91	----	----	----	91	585	767
SPV.0060.701	GROUTED BAR COUPLERS	EACH	----	----	216	----	----	----	216
SPV.0085.701	BAR STEEL REINFORCEMENT HS STAINLESS BRIDGES	LB	1,070	----	----	----	1,070	----	2,140
SPV.0090.701	PRECAST PIER COLUMNS	LF	----	----	83	----	----	----	83
SPV.0090.702	PRECAST PIER CAPS	LF	----	----	78	----	----	----	78
SPV.0165.701	SEMI-PERMANENT SHORING	SF	----	----	----	----	----	----	2,975
SPV.0165.702	LONGITUDINAL GROOVING BRIDGE DECK	SF	1,200	----	----	----	1,200	13,755	16,155
	NON-BID ITEMS								
	FILLER	SIZE	-----	-----	-----	-----	-----	-----	1/2" & 3/4"

**DESIGN DATA**

**LIVE LOAD:**

DESIGN LOADING: HL-93  
 INVENTORY RATING FACTOR: 1.06  
 OPERATING RATING FACTOR: 1.38  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS RATED FOR A POLYMER OVERLAY OF 5"/S.F. THAT WILL BE APPLIED TO THE ENTIRE BRIDGE DECK UNDER A FUTURE CONTRACT.

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 "/S.F.

**ULTIMATE DESIGN STRESSES:**

CONCRETE MASONRY { SLAB (HPC)  $f'_c = 4,000$  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.  
 STRUCTURAL CARBON STEEL ASTM A709 (GRADE 36)  $f_y = 36,000$  p.s.i.

45W" PRESTRESSED GIRDER  
 CONCRETE MASONRY  $f'_c = 8,000$  p.s.i.  
 STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF = 270,000 p.s.i.

**FOUNDATION DATA:**

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS \* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 50'-0".

PIER TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS \* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 35'-0".

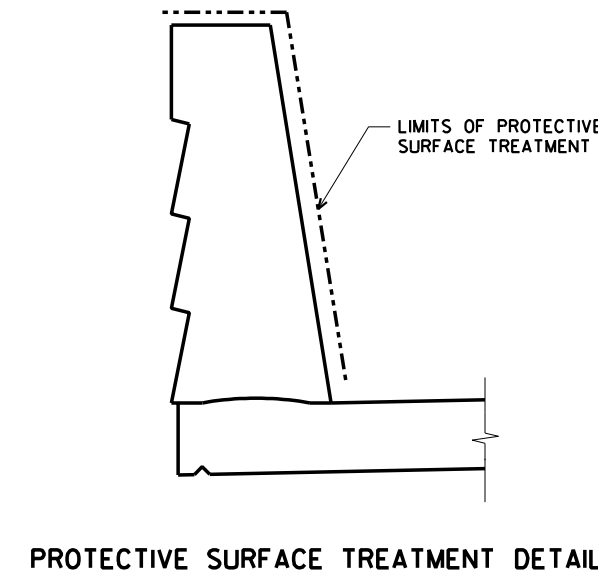
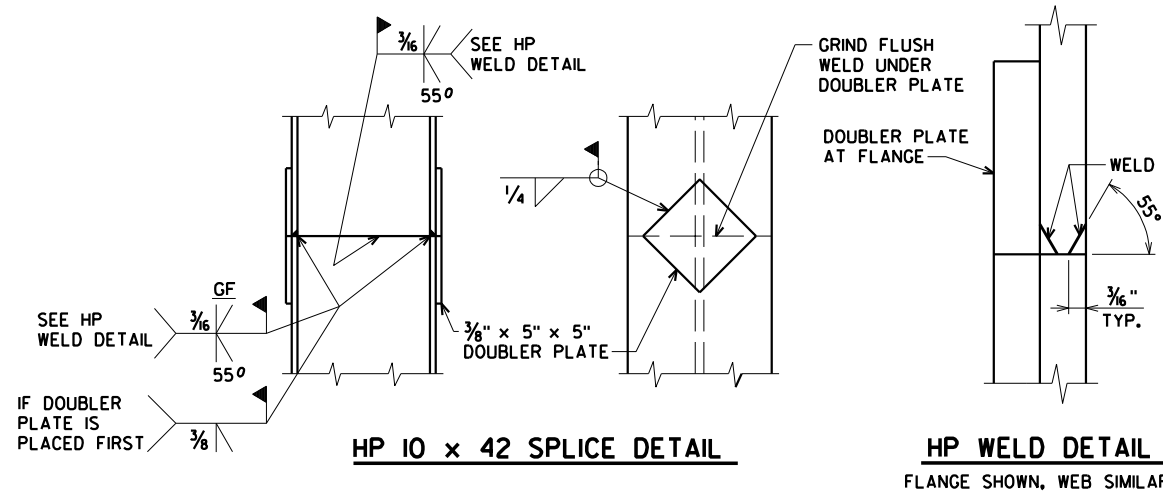
NORTH ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS \* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 55'-0".

\*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

**TRAFFIC DATA:**

I-39/90 SB  
 A.D.T. = 49,100 (2009)  
 A.D.T. = 70,300 (2040)  
 R.D.S. = 70 M.P.H.

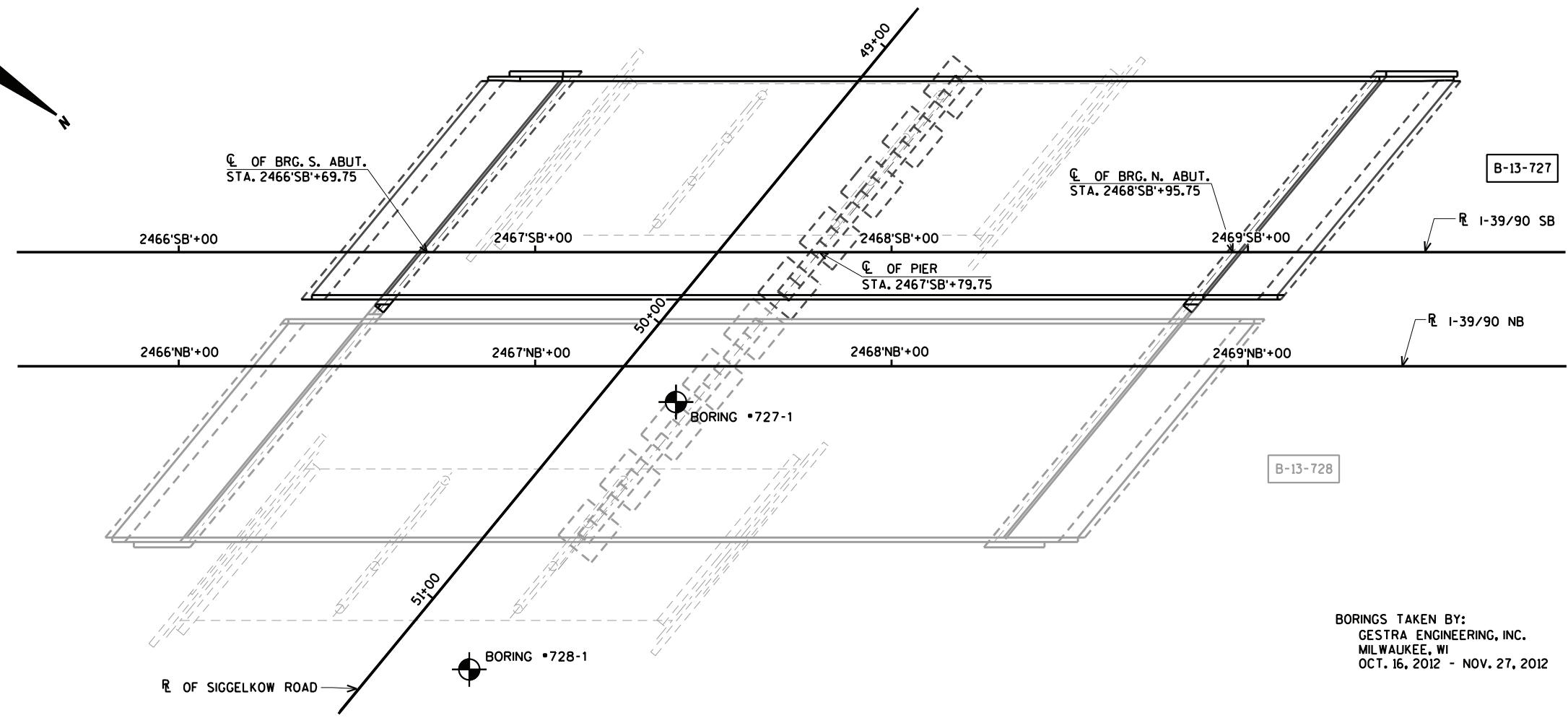
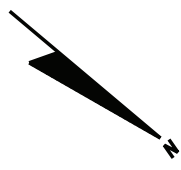
SIGGELKOW ROAD  
 A.D.T. = 1,310 (2014)  
 A.D.T. = 1,747 (2034)  
 R.D.S. = 50 M.P.H.



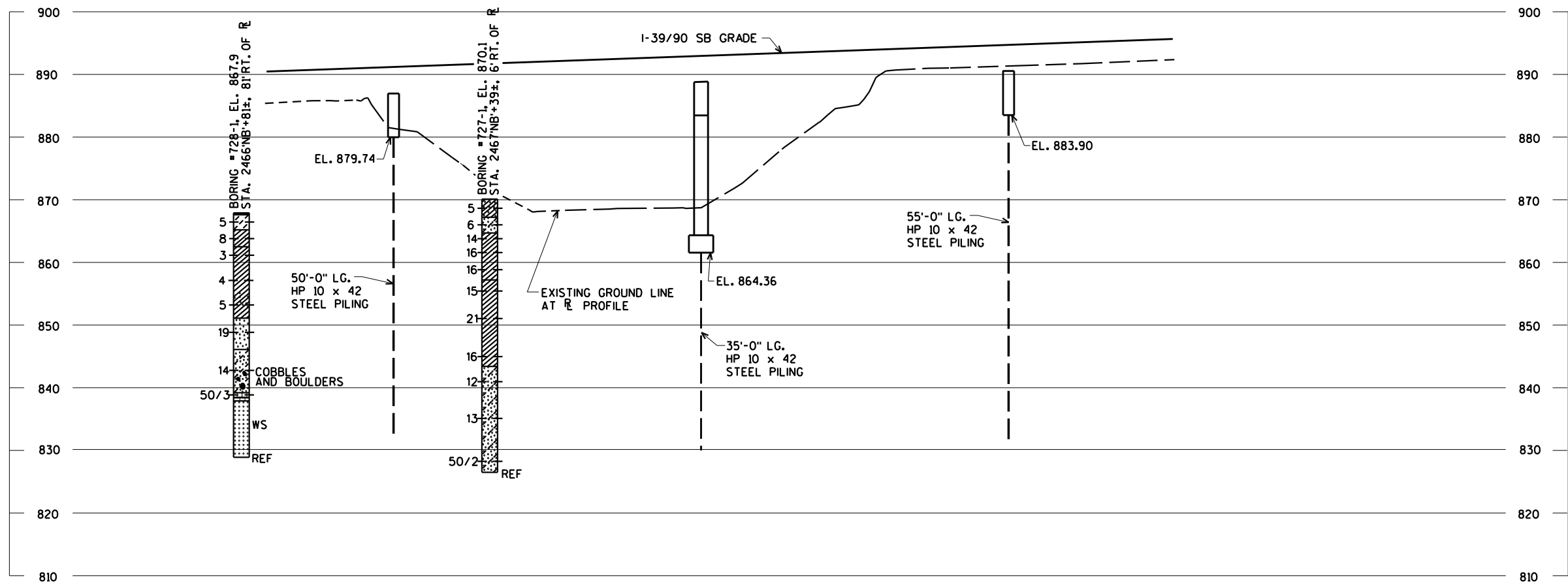
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>DESIGN DATA AND QUANTITIES</b>			SHEET 3 OF 37

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
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\$PRNAME\$  
 U:\45-036L\00 - IH-39 Done Partners General Bridge Information\I-39 over Siggelkow Road\Southbound\I-39 over Siggelkow



BORINGS TAKEN BY:  
 GESTRA ENGINEERING, INC.  
 MILWAUKEE, WI  
 OCT. 16, 2012 - NOV. 27, 2012



STATE PROJECT NUMBER		
1007-10-71		
ABBREVIATIONS		
F — FINE	M — MEDIUM	C — COARSE
WS — WEATHERED		SO — SOUND
MATERIAL SYMBOLS		
TOPSOIL	SILT	SANDSTONE
SAND	PEAT	LIMESTONE
GRAVEL	CLAY	IGNEOUS ROCK
LEGEND OF PROBING		
PROBING NO. STA. ELEVATION 95/6=95 BLOWS FOR 6" PENETRATION PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT. 7 AVERAGE BLOWS PER FOOT REFUSAL 95/6		

LEGEND OF BORING	
ELEV.	BORING NO. STA.
UNCONFINED STRENGTH → 7.7	SANDY GRAVEL
BLOWS PER FT. USING 140# WT. FALLING 30"	F. BOULDERS OR COBBLES
WASH SAMPLE	SAND
SHELBY TUBE — S.T.	SILTY CLAY
GROUND WATER ELEVATION	SO LIMESTONE
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION	

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

**SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION**  
 TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-727			
DRAWN BY JCK		PLANS CK'D. CBM	
SUBSURFACE EXPLORATION			SHEET 4 OF 37

8

8

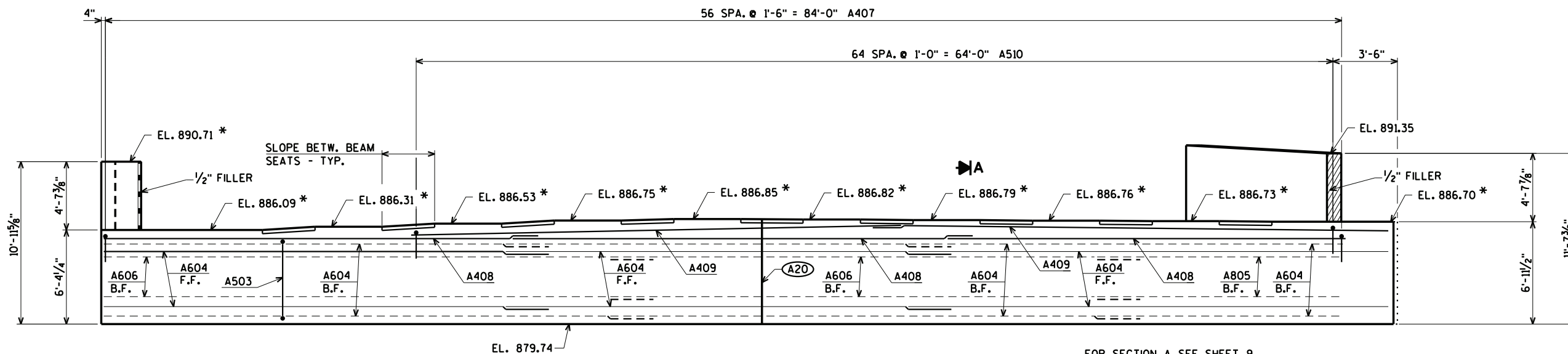
\$PRFNAME\$  
 U:\45-036100 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\I-39 over Siggeikow

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

\* ELEVATIONS AND DIMENSIONS TAKEN AT C OF BRG. & PILES S. ABUT.

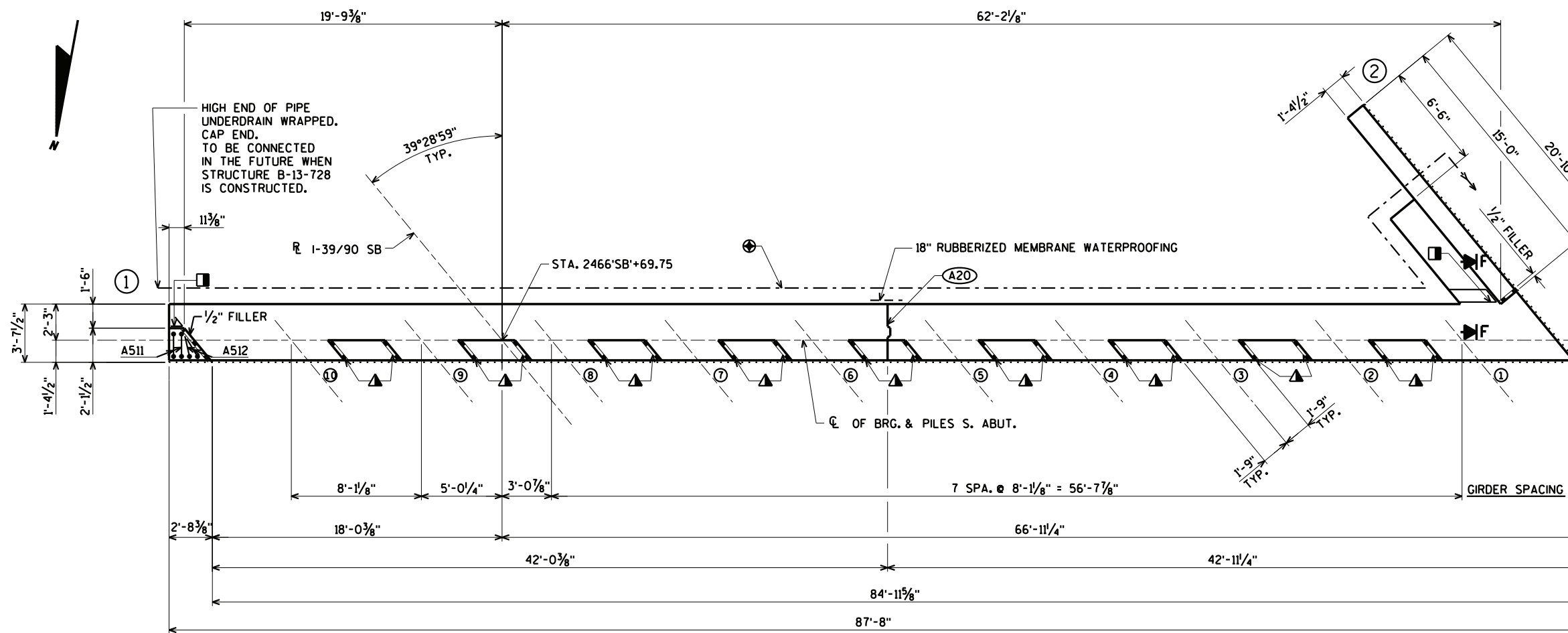
STATE PROJECT NUMBER

1007-10-71

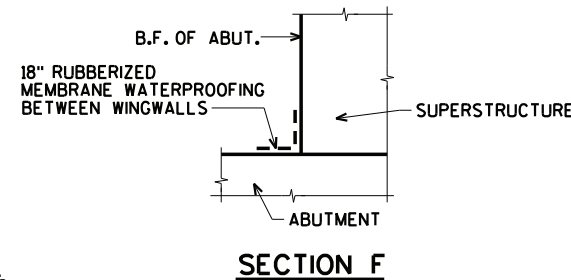


**ELEVATION**  
(LOOKING SOUTH)

FOR SECTION A SEE SHEET 9



**PLAN**



**SECTION F**

⊕ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". CAP END AS SHOWN

⊙ VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" x 8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 16

■ 18" RUBBERIZED MEMBRANE WATERPROOFING FROM BRIDGE SEAT TO TOP OF WING.

▲ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

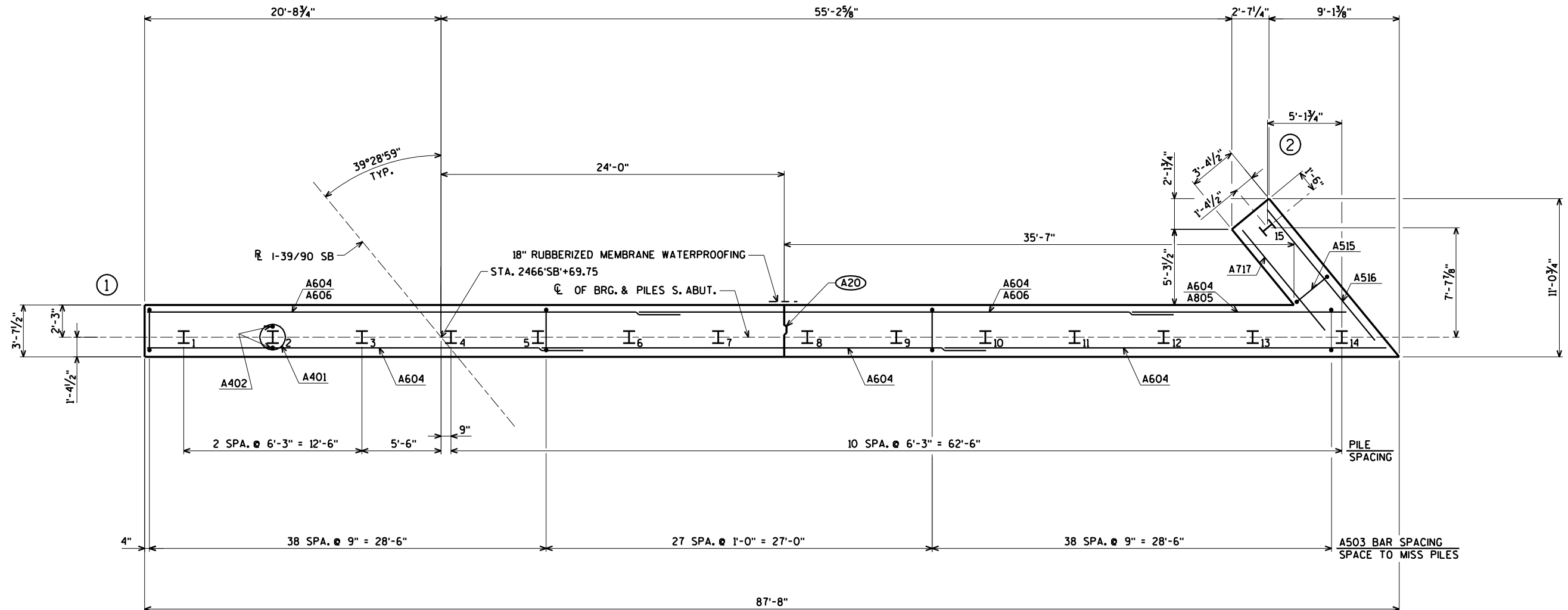
WORK THIS SHEET WITH SHEETS 6 THRU 9

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

F.F. DENOTES FRONT FACE  
 B.F. DENOTES BACK FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SOUTH ABUTMENT</b>			SHEET 5 OF 37

\$PRNAME\$  
U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\_I-39 over Siggeikow



**PILE LAYOUT**

(A20) VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" x 8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 16

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SOUTH ABUTMENT PILE LAYOUT</b>			SHEET 6 OF 37

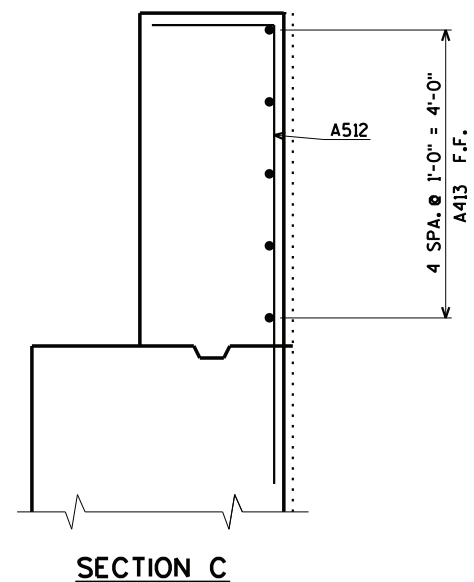
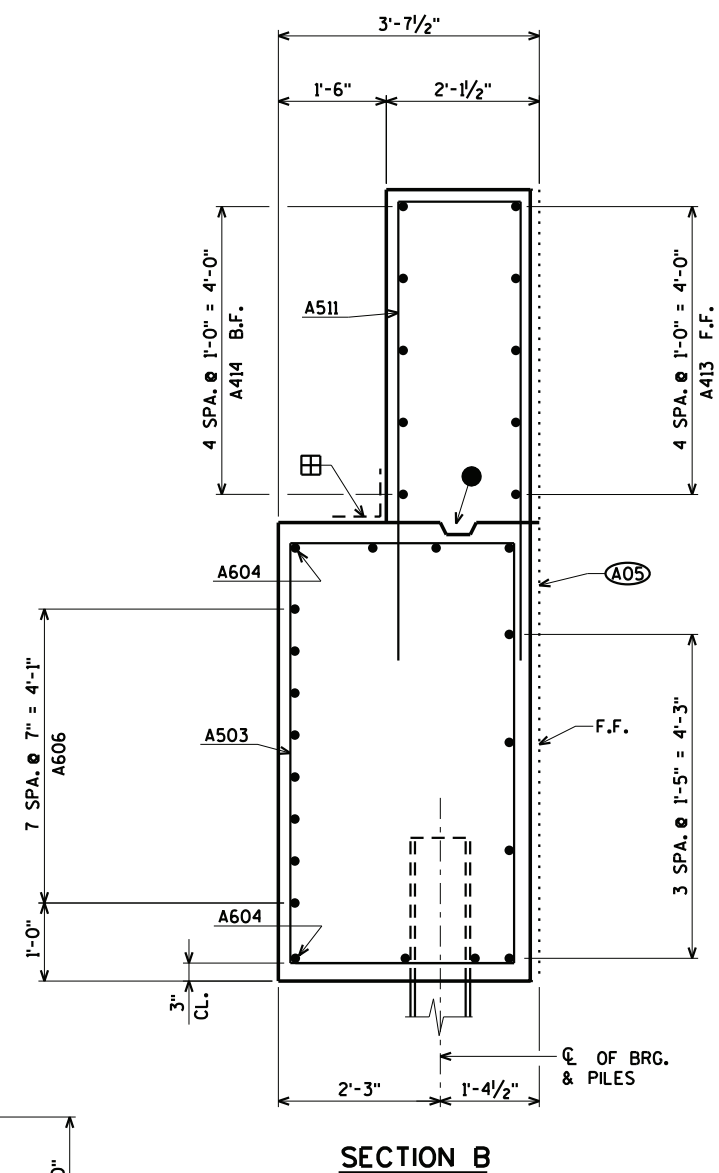
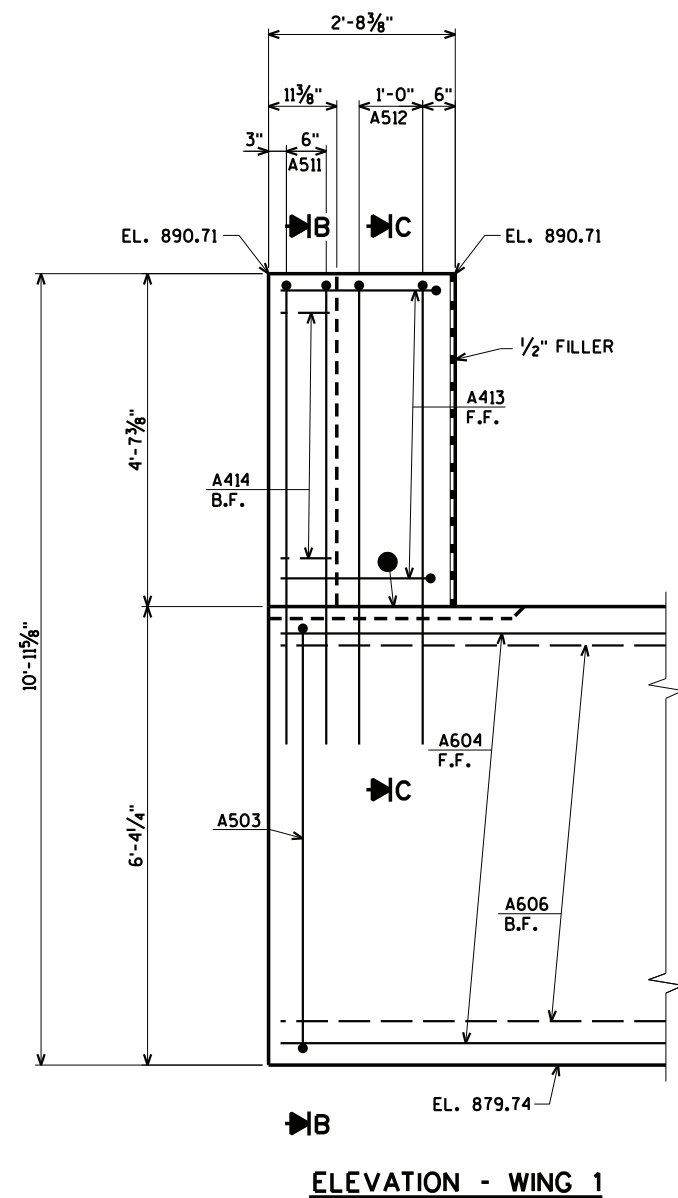
FOR PILE SPLICE DETAIL SEE SHEET 3  
WORK THIS SHEET WITH SHEETS 5 & 7 THRU 9

ORIGINAL PLANS PREPARED BY  
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 U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\_I-39 over Siggeikow

STATE PROJECT NUMBER

1007-10-71



ALL HORIZONTAL BARS IN BODY ARE A604 BARS UNLESS SHOWN OTHERWISE.

- (A05) LIMITS OF ARCHITECTURAL SURFACE TREATMENT. FOR DETAILS SEE SHEET 15
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6".
- ▣ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.
- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY		JCK	PLANS CK'D. CBM
<b>SOUTH ABUTMENT WING 1 DETAILS</b>			SHEET 7 OF 37

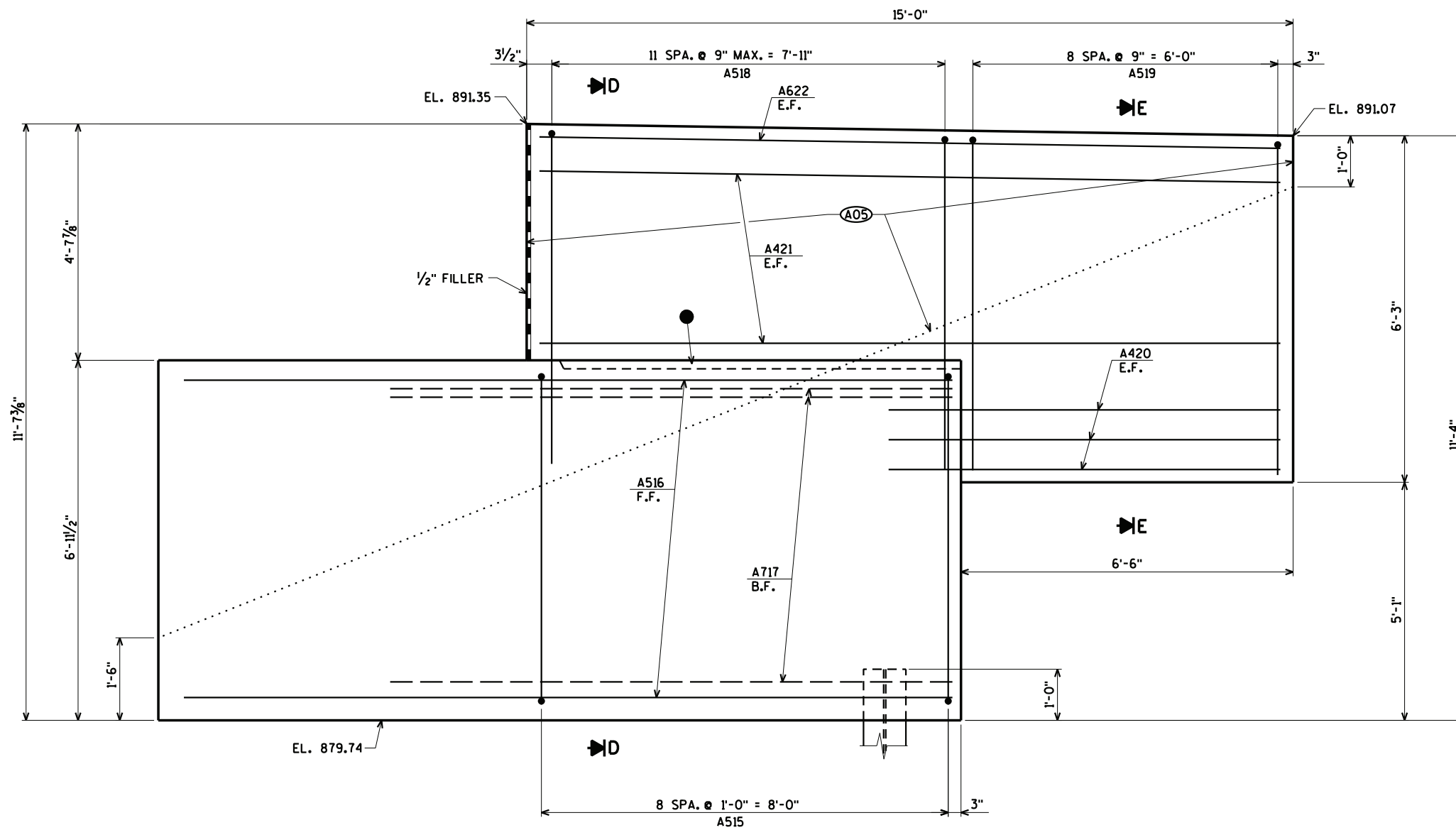
WORK THIS SHEET WITH SHEETS 5 THRU 6 & 8 THRU 9

ORIGINAL PLANS PREPARED BY

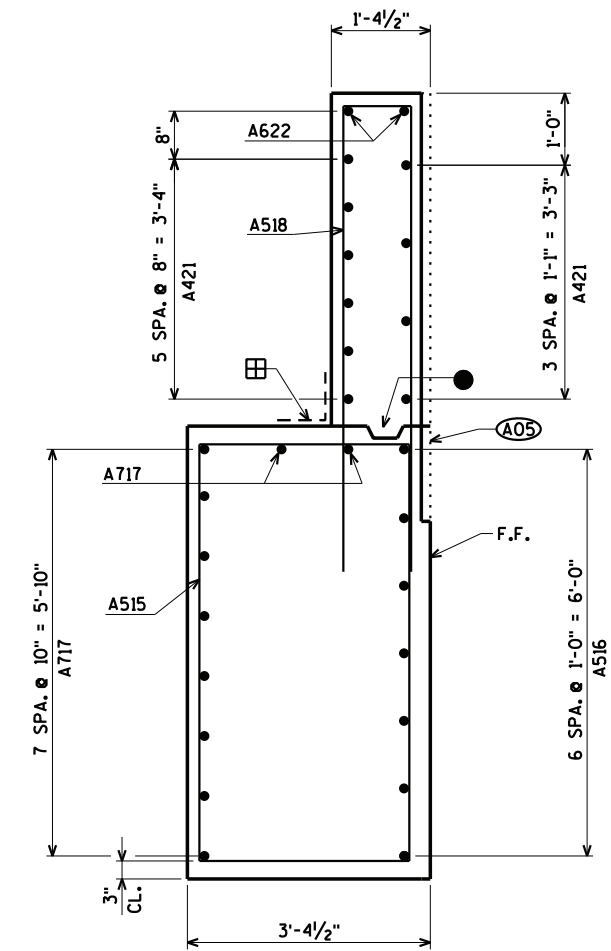
AYRES ASSOCIATES

3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

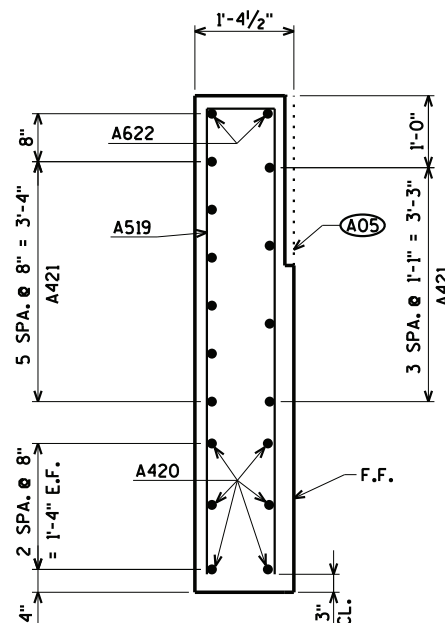




**ELEVATION - WING 2**



**SECTION D**



**SECTION E**

**(A05)** LIMITS OF ARCHITECTURAL SURFACE TREATMENT. FOR DETAILS SEE SHEET 15

● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6".

☒ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.

F.F. DENOTES FRONT FACE  
 B.F. DENOTES BACK FACE  
 E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-13-727**

DRAWN BY JCK PLANS CK'D. CBM

**SOUTH ABUTMENT  
 WING 2 DETAILS**

SHEET 8 OF 37

WORK THIS SHEET WITH SHEETS 5 THRU 7 & 9

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

**BILL OF BARS**

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	520# COATED
							6,380# UNCOATED
							LOCATION
A401		14	28-0	X			BODY @ PILES
A402		28	2-3				BODY @ PILES
A503		104	18-2	X			BODY VERT.
A604		33	30-11				BODY HORIZ.
A805		8	15-0				BODY HORIZ. B.F. @ WING 2
A606		16	37-5				BODY HORIZ. B.F.
A407		57	5-1	X			BODY VERT.
A408		6	29-5				BODY HORIZ.
A409		6	34-9				BODY HORIZ.
A510		65	6-7	X			BODY VERT.
A511	X	2	13-6	X			WING 1 VERT.
A512	X	2	7-4	X			WING 1 VERT. F.F.
A413	X	5	4-1	X			WING 1 HORIZ. F.F.
A414	X	5	0-8				WING 1 HORIZ. B.F.
A515		9	19-6	X			WING 2 VERT.
A516		7	11-1				WING 2 HORIZ. F.F.
A717		10	9-7				WING 2 HORIZ. B.F.
A518	X	12	13-9	X			WING 2 VERT.
A519	X	9	12-5	X			WING 2 VERT.
A420	X	6	7-9				WING 2 HORIZ. E.F.
A421	X	10	14-6				WING 2 HORIZ. E.F.
A622	X	2	14-6				WING 2 HORIZ. TOP E.F.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR PILE SPLICE DETAIL  
SEE SHEET 3

(A05) LIMITS OF ARCHITECTURAL SURFACE  
TREATMENT.  
FOR DETAILS SEE SHEET 15

18" RUBBERIZED MEMBRANE WATERPROOFING  
SEAL ALL HORIZONTAL AND VERTICAL JOINTS  
ON BACKFACE OF ABUTMENT.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

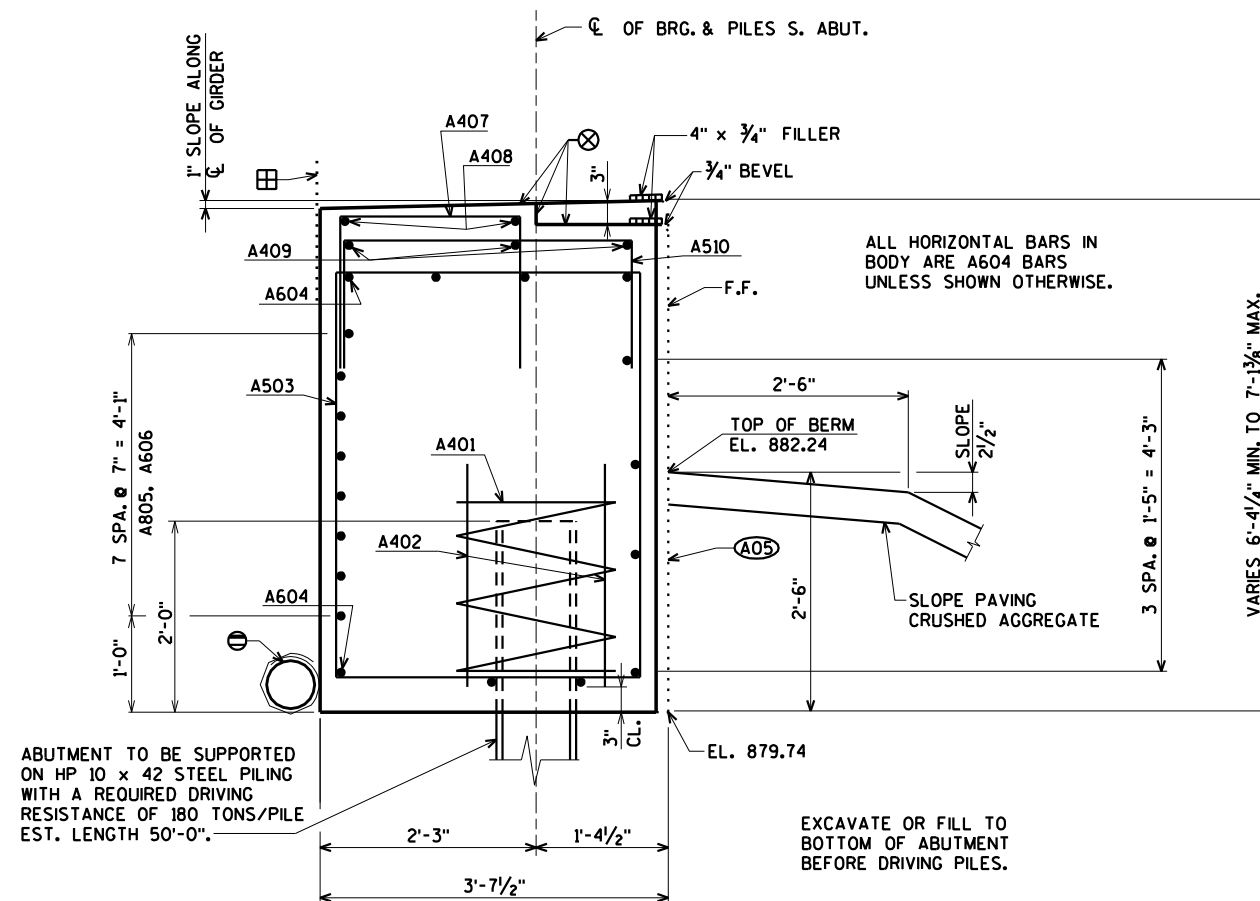
**STRUCTURE B-13-727**

DRAWN BY	JCK	PLANS CK'D.	CBM
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**SOUTH ABUTMENT DETAILS** SHEET 9 OF 37

WORK THIS SHEET WITH SHEETS 5 THRU 8

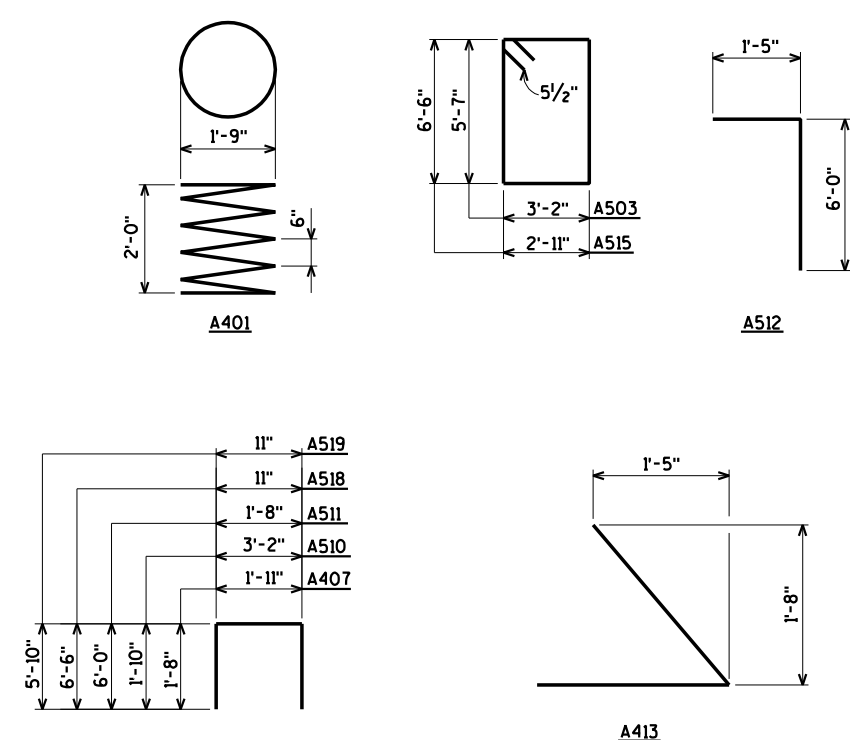
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
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 Eau Claire, WI 54701  
 www.AyresAssociates.com



**SECTION A**  
FOR LOCATION SEE SHEET 5

⊖ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". SEE DETAIL. CAP END AS SHOWN.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03\"/>



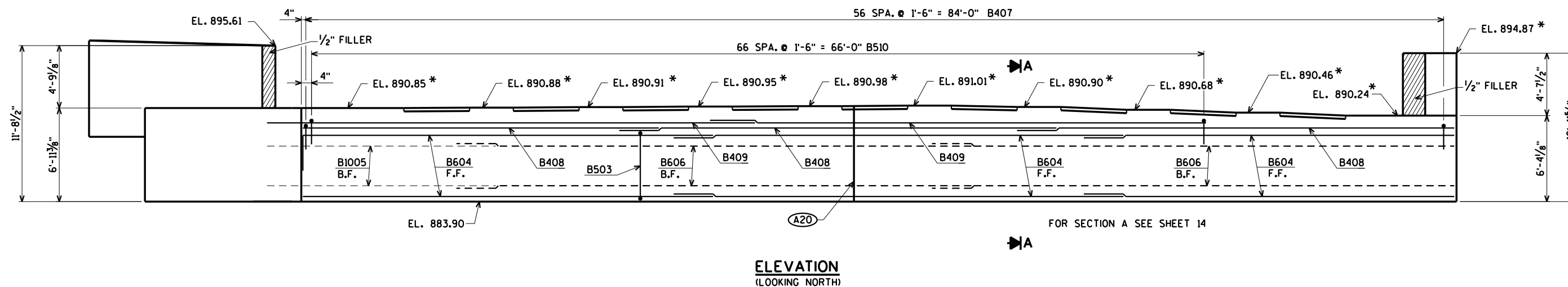
\$PRFNAME\$  
 Ut:45-036100 - IH-39 Dane Partners General Bridge Information: I-39 over Siggeikow Road+Southbound\_I-39 over Siggeikow

STATE PROJECT NUMBER

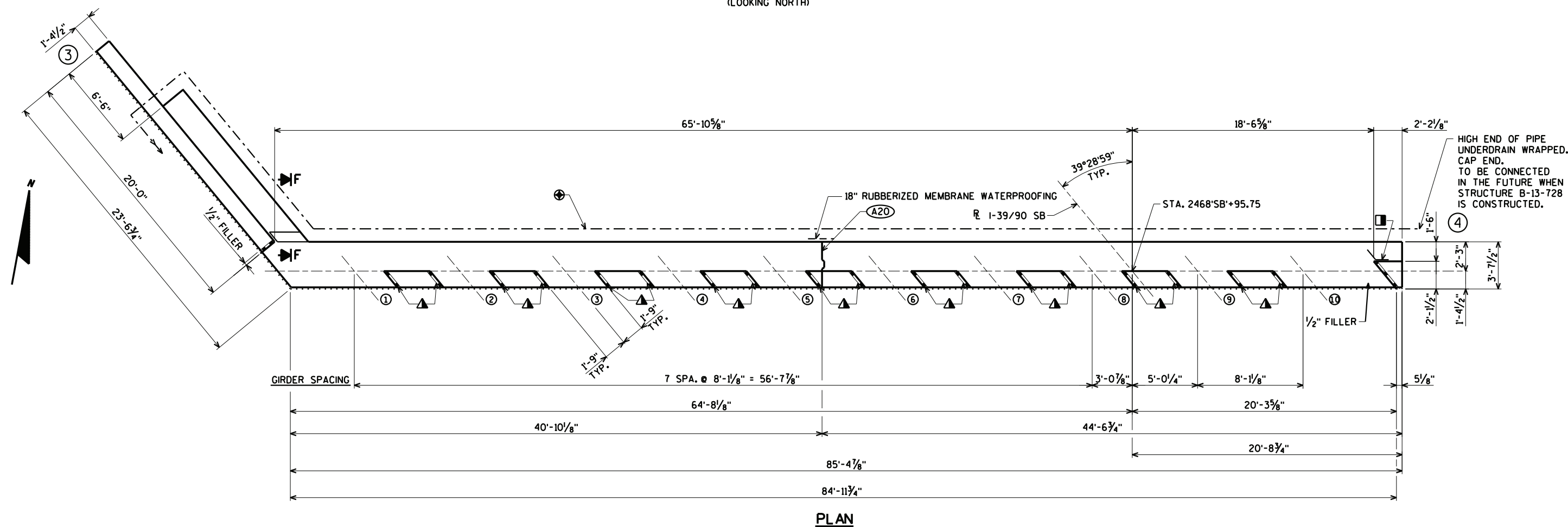
1007-10-71

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

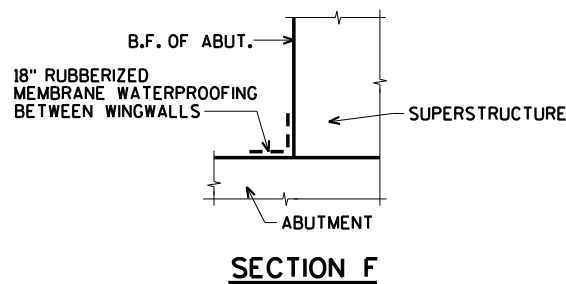
\* ELEVATIONS AND DIMENSIONS TAKEN AT C OF BRG. & PILES N. ABUT.



**ELEVATION**  
(LOOKING NORTH)



**PLAN**



⊕ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". CAP END AS SHOWN

(A20) VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" x 8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 16

- 18" RUBBERIZED MEMBRANE WATERPROOFING FROM BRIDGE SEAT TO TOP OF WING.
- ▲ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

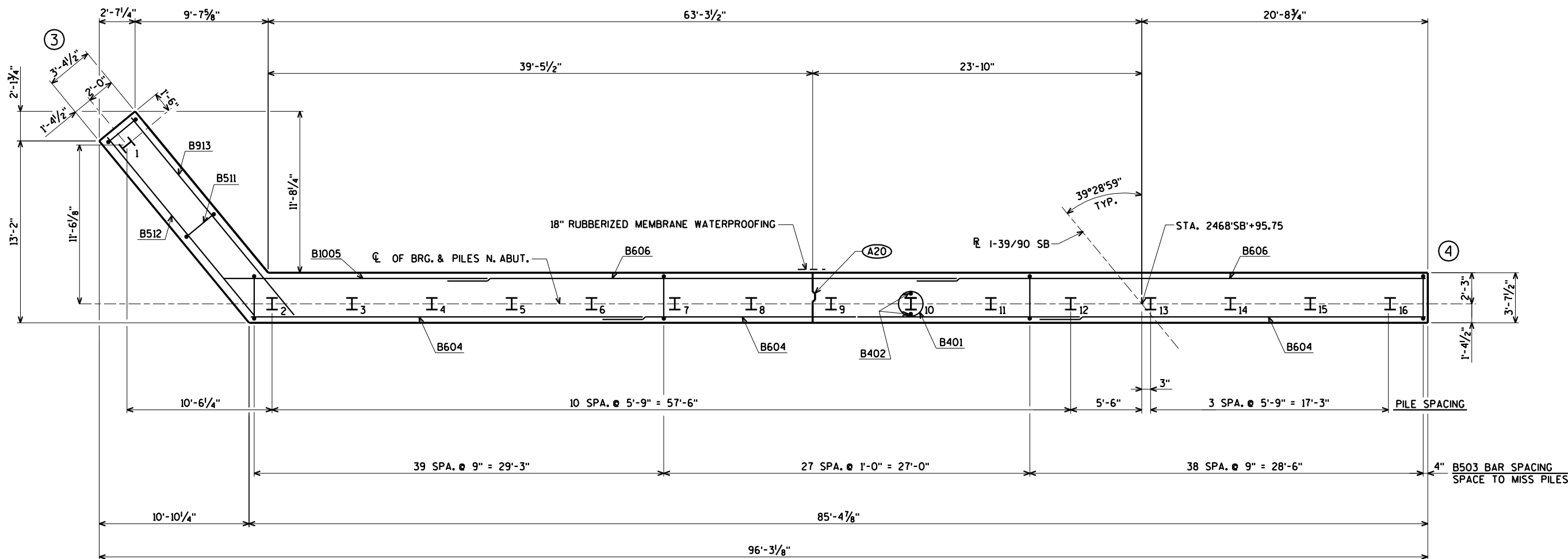
F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

WORK THIS SHEET WITH SHEETS 11 THRU 14

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
 3433 Oakwood Hills Parkway  
 Eau Claire, WI 54701  
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>NORTH ABUTMENT</b>			SHEET 10 OF 37



**PILE LAYOUT**

(A20) VERT. CONST. JT. - KEYWAY FORMED BY A SURFACED BEVELED 2" x 8", BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST. JT. DETAILS SEE SHEET 16

FOR PILE SPLICE DETAIL SEE SHEET 3.  
WORK THIS SHEET WITH SHEETS 10 & 12 THRU 14

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>NORTH ABUTMENT PILE LAYOUT</b>			SHEET 11 OF 37

\$PRNAME\$  
U:\45-0361\00 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\I-39 over Siggeikow

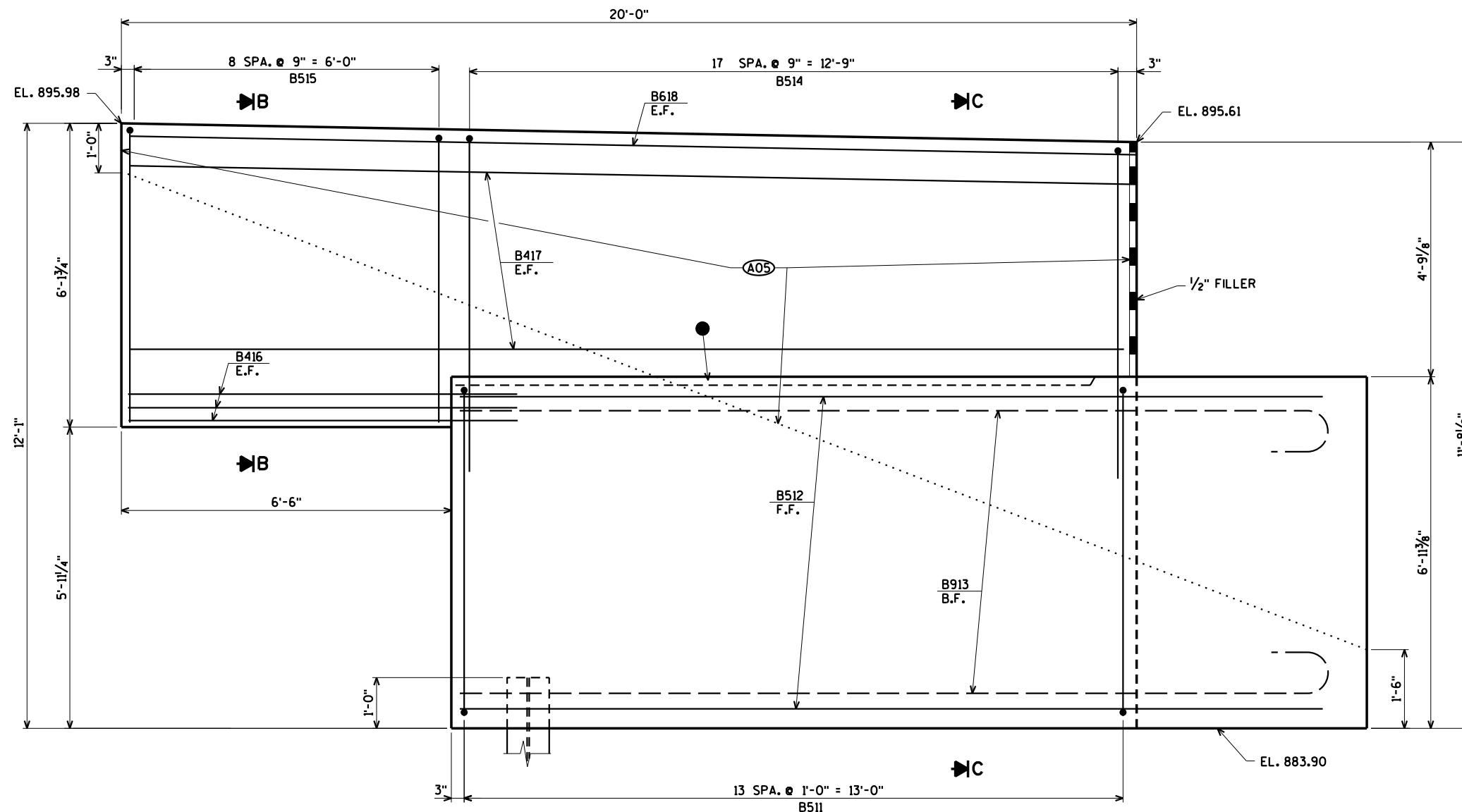
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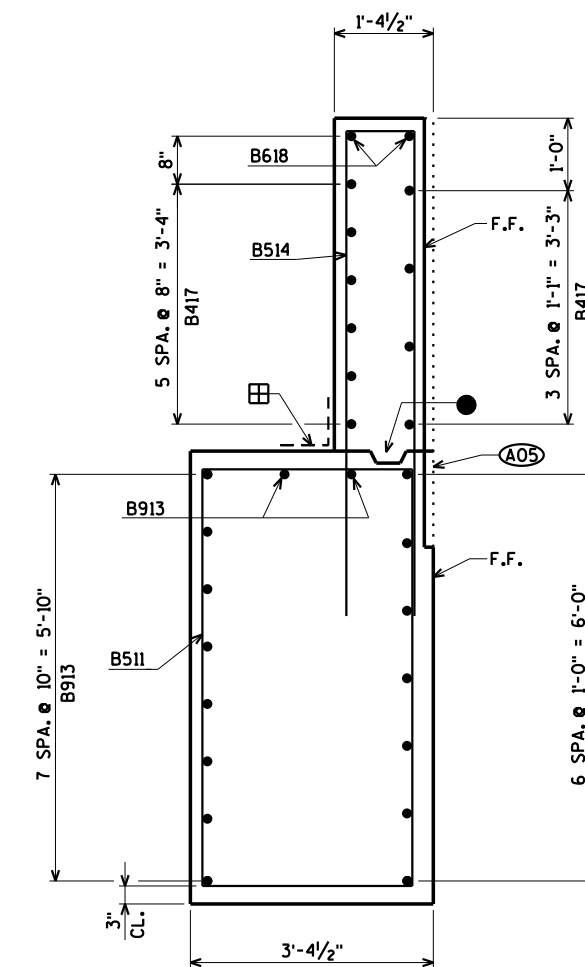
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STATE PROJECT NUMBER

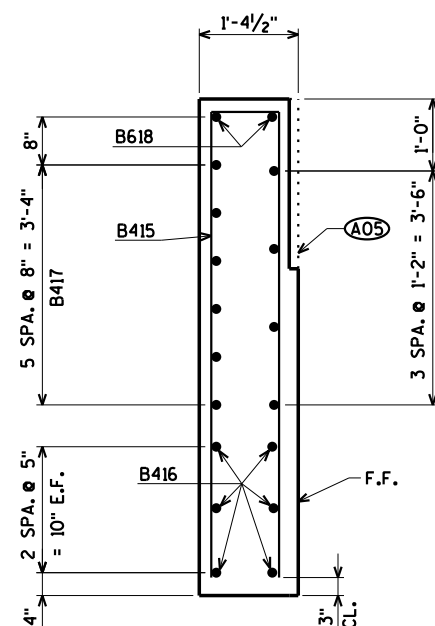
1007-10-71



**ELEVATION - WING 3**



**SECTION C**



**SECTION B**

**(A05)** LIMITS OF ARCHITECTURAL SURFACE TREATMENT. FOR DETAILS SEE SHEET 15

● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6".

▣ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-13-727**

DRAWN BY JCK PLANS CK'D. CBM

WORK THIS SHEET WITH SHEETS 10 THRU 11 & 13 THRU 14

ORIGINAL PLANS PREPARED BY  
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 Eau Claire, WI 54701  
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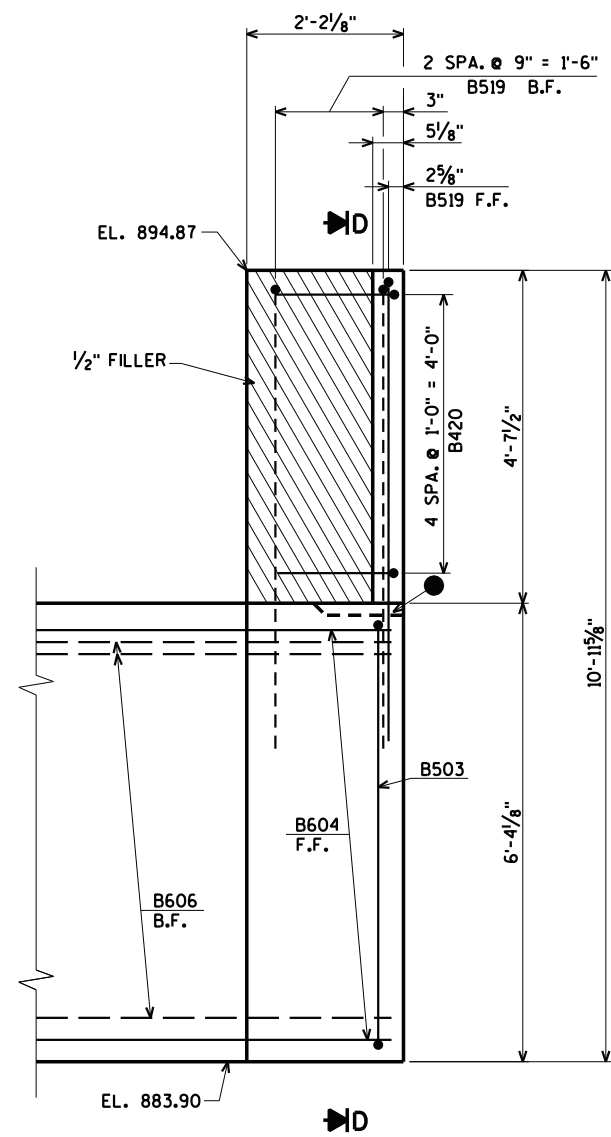
**NORTH ABUTMENT  
WING 3 DETAILS**

SHEET 12 OF 37

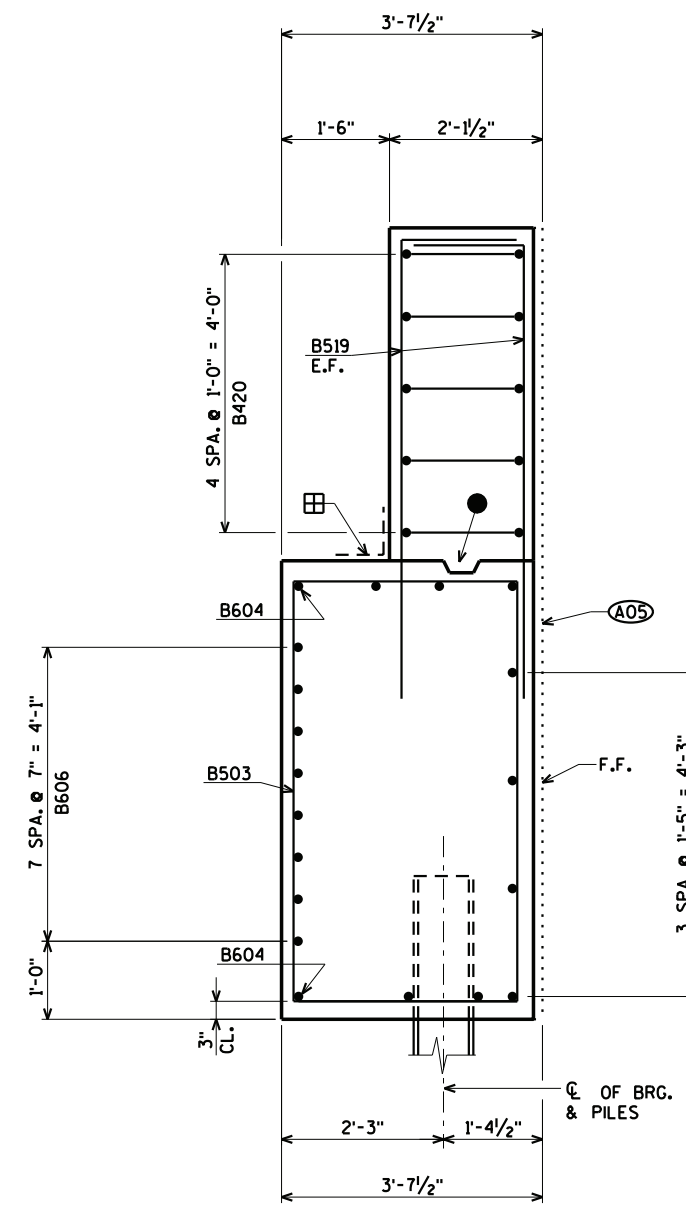
\$PRFNAME\$  
 U:\45-036100 - IH-39 Dane Partners General Bridge Information\45-036100\I-39 over Siggeikow Road\Southbound\I-39 over Siggeikow

STATE PROJECT NUMBER

1007-10-71



**ELEVATION - WING 4**



**SECTION D**

ALL HORIZONTAL BARS IN BODY ARE B604 BARS UNLESS SHOWN OTHERWISE.

- (A05) LIMITS OF ARCHITECTURAL SURFACE TREATMENT. FOR DETAILS SEE SHEET 15
- OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6".
- ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.
- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- E.F. DENOTES EACH FACE.

8

8

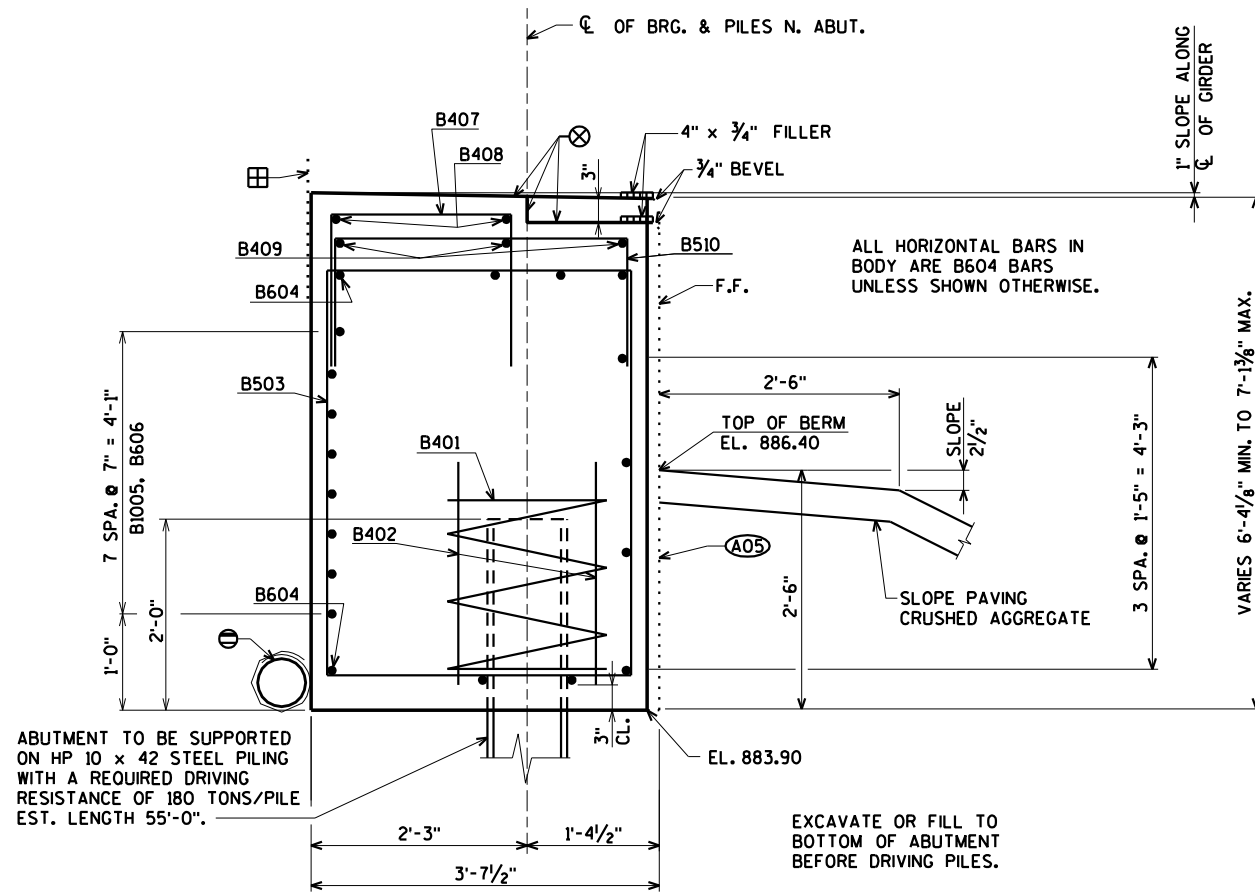
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY		JCK	PLANS CK'D. CBM
<b>NORTH ABUTMENT WING 4 DETAILS</b>			SHEET 13 OF 37

WORK THIS SHEET WITH SHEETS 10 THRU 12 & 14

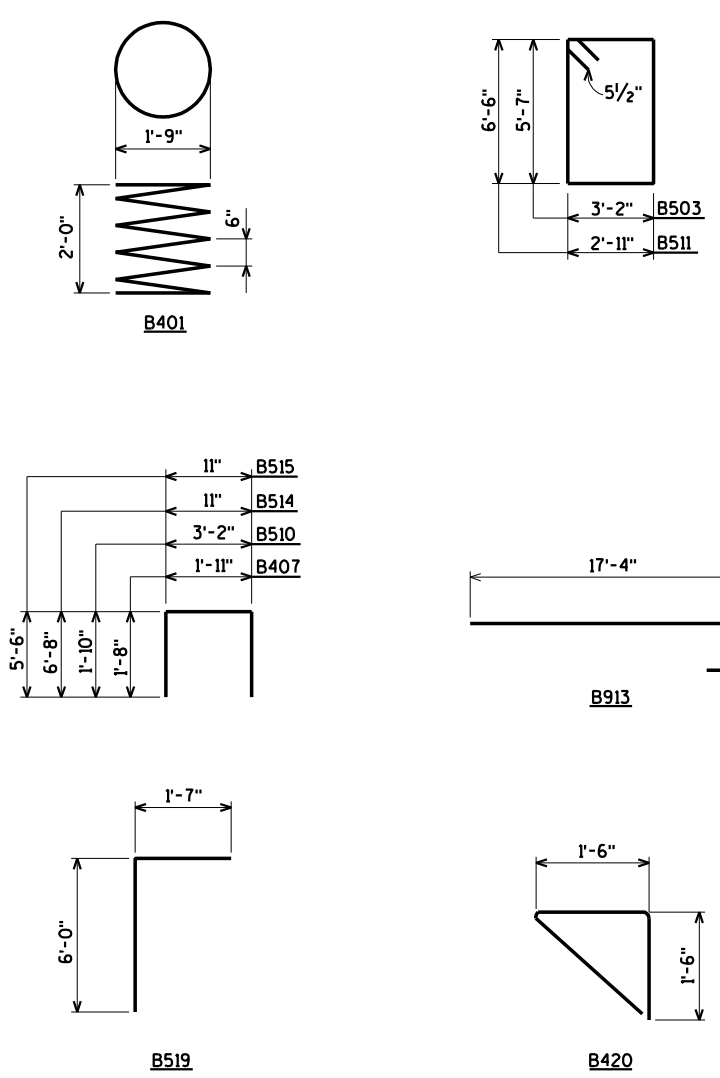
ORIGINAL PLANS PREPARED BY

AYRES ASSOCIATES

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Eau Claire, WI 54701  
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**SECTION A**  
FOR LOCATION SEE SHEET 10



**BILL OF BARS**

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	640# COATED
							7,330# UNCOATED
							LOCATION
B401		15	28-0	X			BODY @ PILES
B402		30	2-3				BODY @ PILES
B503		105	18-2	X			BODY VERT.
B604		33	30-4				BODY HORIZ.
B1005		8	20-0				BODY HORIZ. B.F. @ WING 3
B606		16	36-11				BODY HORIZ. B.F.
B407		57	5-1	X			BODY VERT.
B408		6	29-5				BODY HORIZ.
B409		6	33-8				BODY HORIZ.
B510		66	6-7	X			BODY VERT.
B511		14	19-6	X			WING 3 VERT.
B512		7	16-6				WING 3 HORIZ. F.F.
B913		10	18-8	X			WING 3 HORIZ. B.F.
B514	X	18	14-1	X			WING 3 VERT.
B515	X	9	11-9	X			WING 3 VERT.
B416	X	6	7-9				WING 3 HORIZ. E.F.
B417	X	10	19-6				WING 3 HORIZ. E.F.
B618	X	2	19-6				WING 3 HORIZ. TOP E.F.
B519	X	4	7-6	X			WING 4 HORIZ. E.F.
B420	X	5	4-11	X			WING 4 HORIZ.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

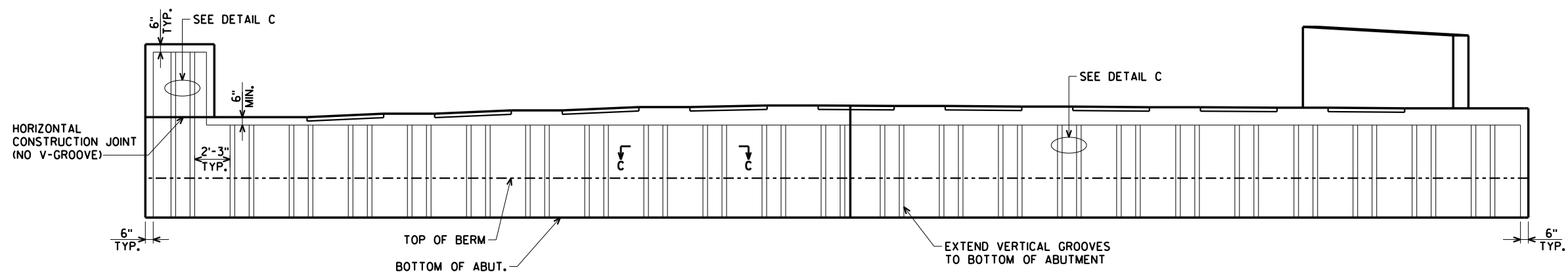
- ⊖ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH". CAP END AS SHOWN.
- ⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

- FOR PILE SPLICE DETAIL SEE SHEET 3
- ⓐ LIMITS OF ARCHITECTURAL SURFACE TREATMENT. FOR DETAILS SEE SHEET 15
- ⓑ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF ABUTMENT.
- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE
- E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>NORTH ABUTMENT DETAILS</b>			SHEET 14 OF 37

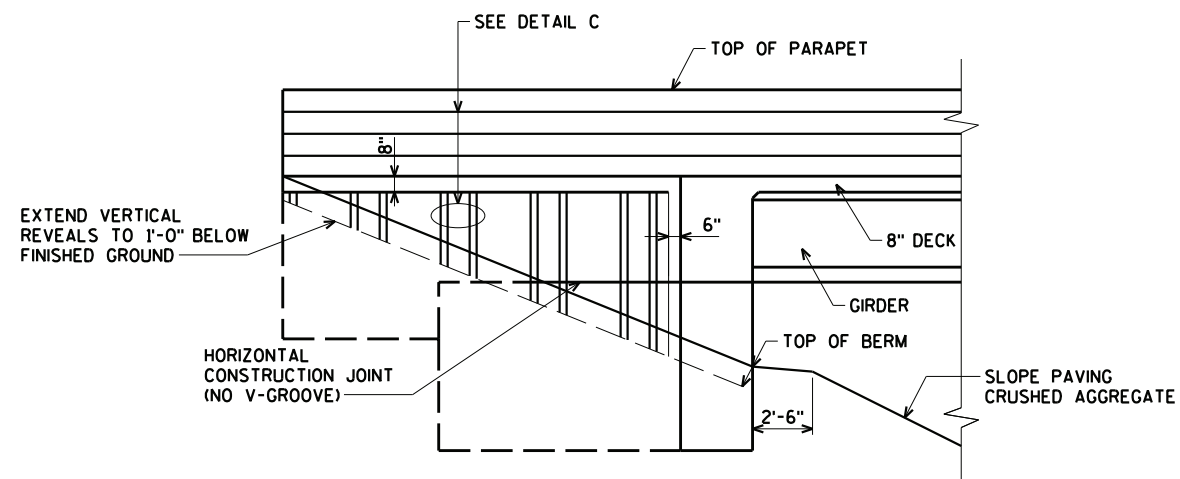
WORK THIS SHEET WITH SHEETS 10 THRU 13

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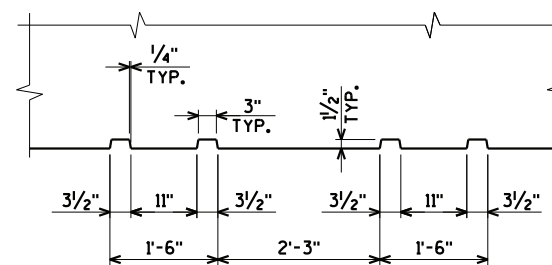


**TYPICAL ABUTMENT AND WINGWALL PARALLEL TO CENTERLINE OF ABUTMENT**

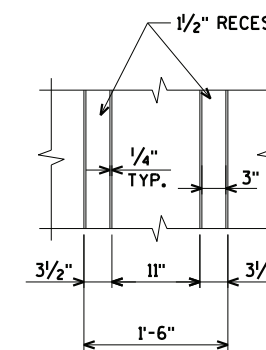
(SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR)



**TYPICAL WINGWALL PARALLEL TO ROADWAY**



**SECTION C-C**



**DETAIL C**

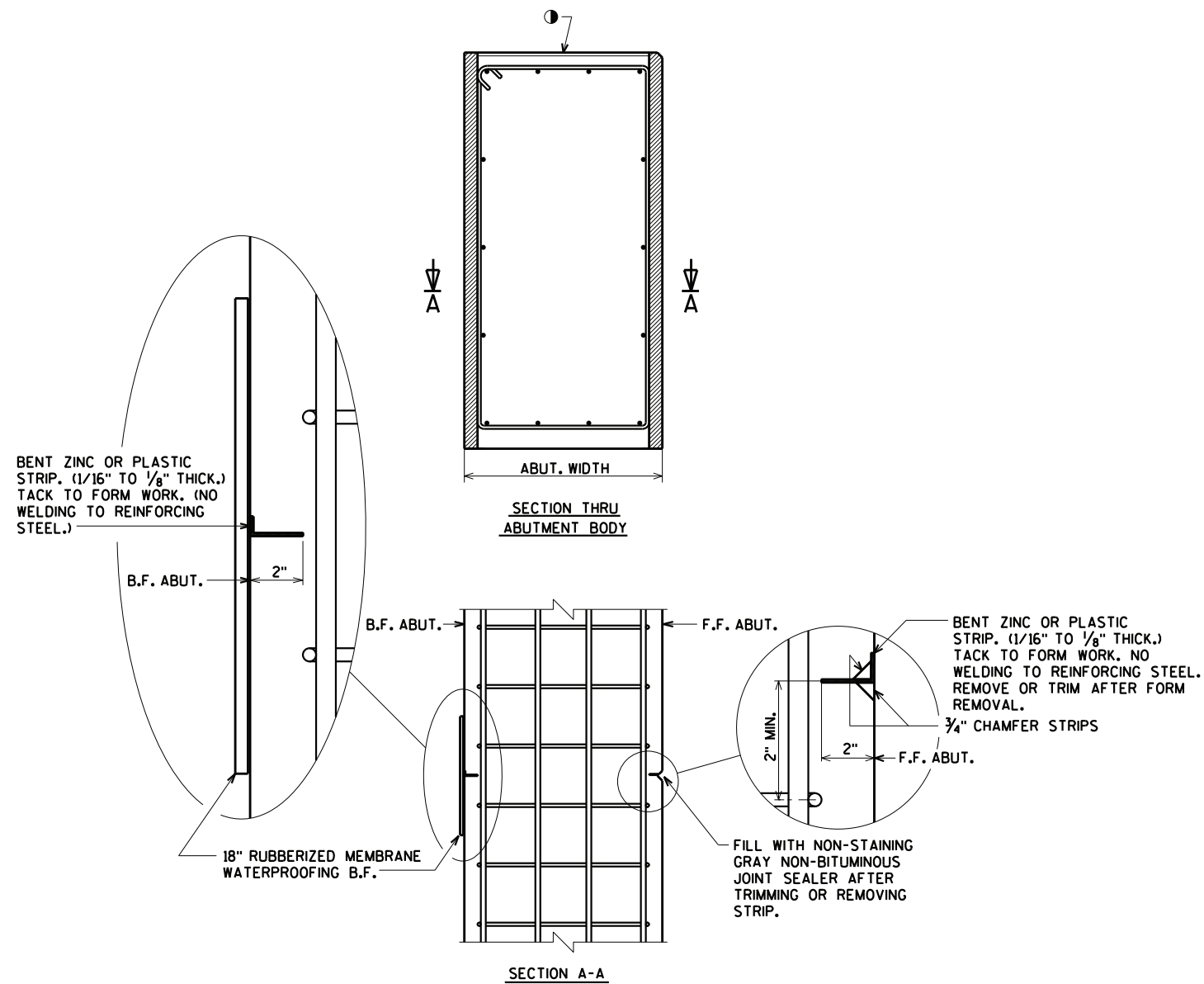
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>ABUTMENT ARCH. TREATMENT DETAILS</b>			SHEET 15 OF 37

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**ALTERNATE CONSTRUCTION JOINT AT ABUTMENT**

**NOTES**

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

① USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

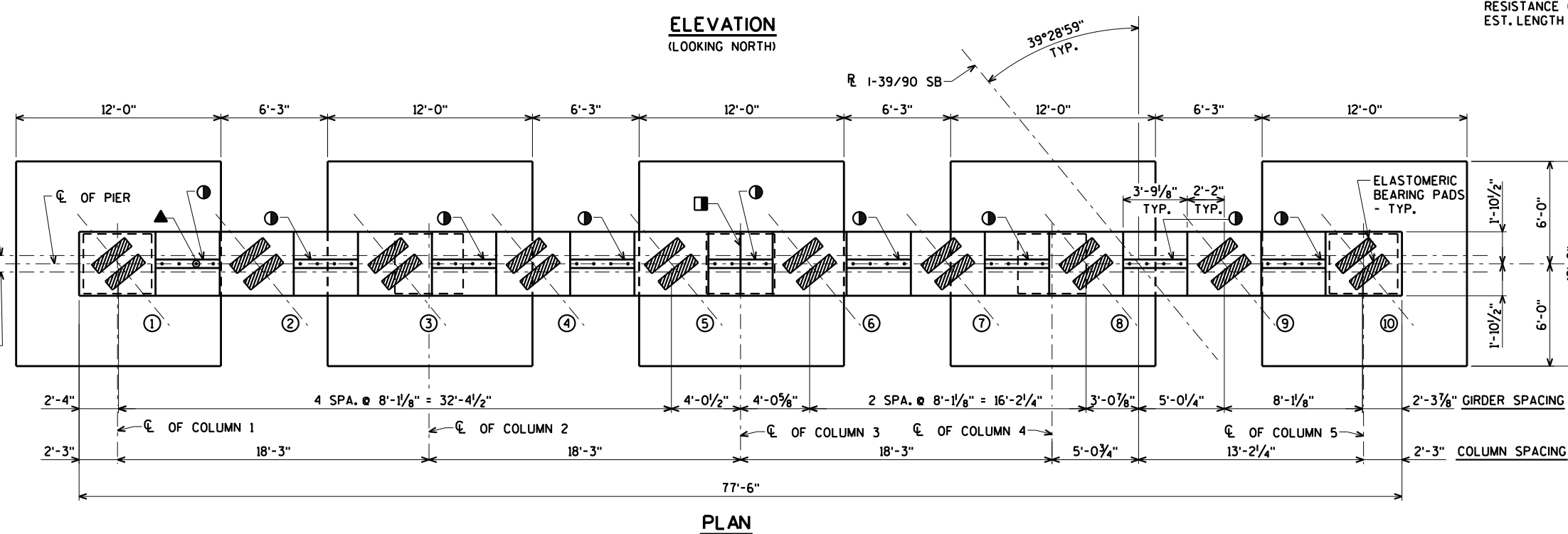
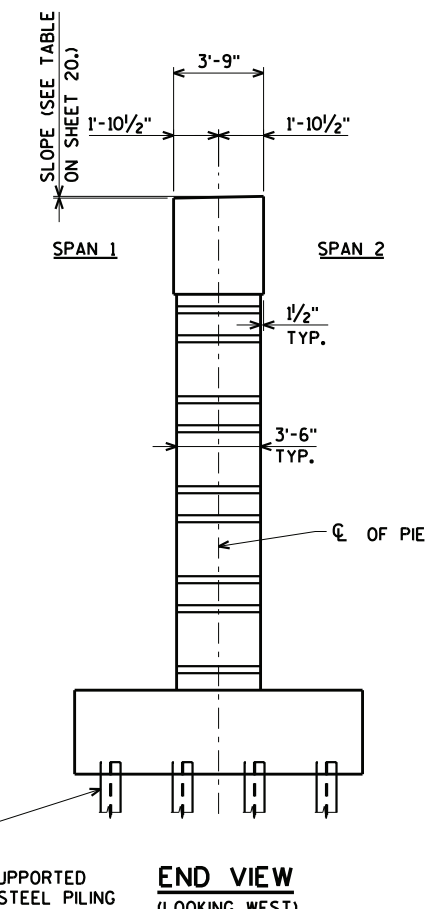
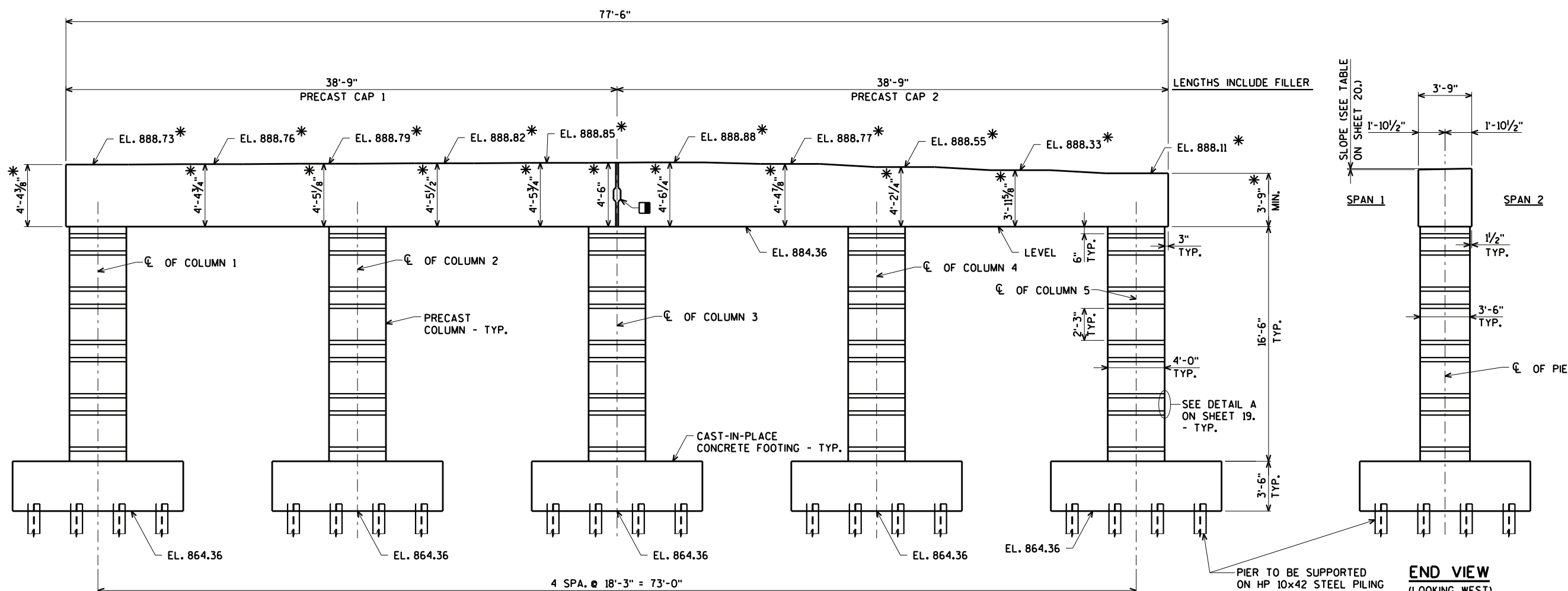
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY		JCK	PLANS CK'D. CBM
<b>ALTERNATE CONSTRUCTION JOINT</b>			SHEET 16 OF 37

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\* ELEVATIONS AND DIMENSIONS TAKEN AT C OF PIER.



**GENERAL NOTES**

- PROVIDE A SUITABLE LIFTING DEVICE FOR THE PRECAST CAP AND COLUMN UNITS.
- CAST-IN-PLACE ALTERNATIVE IS NOT ALLOWED.
- STIRRUPS AT THE GROUTED COUPLERS ARE SIZED BASED ON A 1 3/8" OUTER DIAMETER COUPLER SLEEVE. ADJUST STIRRUP DIMENSIONS AS REQUIRED IF THE ACTUAL COUPLER SLEEVE DIAMETER DIFFERS.
- ARCHITECTURAL SURFACE TREATMENT ON THE PIER COLUMNS IS INCIDENTAL TO THE BID ITEM "PRECAST PIER COLUMNS".

WORK THIS SHEET WITH SHEETS 18 THRU 22

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>PIER</b>			SHEET 17 OF 37

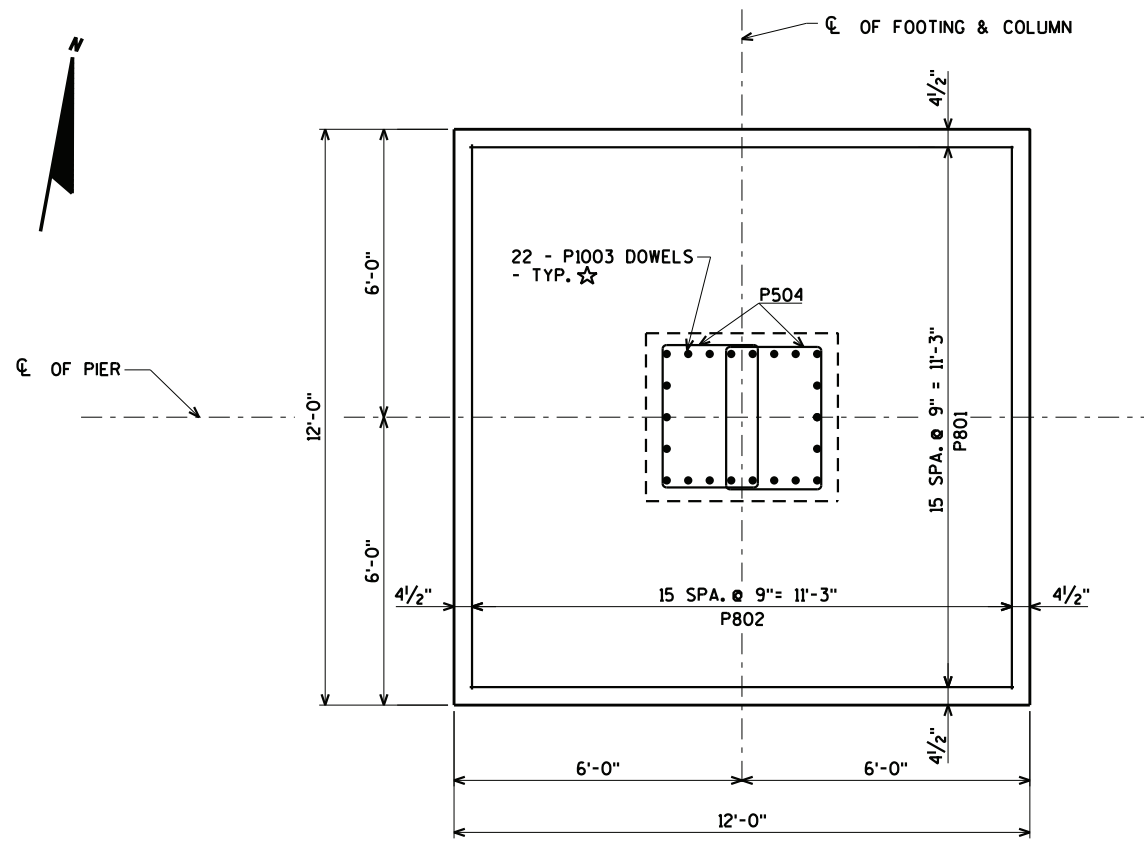
- KEYED CONSTRUCTION JOINT. FILL WITH NON-SHRINK GROUT AFTER SUPERSTRUCTURE IS SET ONTO PIER. SEE SHEET 21 FOR DETAILS
- KEYED CONSTRUCTION JOINT. FORMED BY SURFACED BEVELED 2" X 6" BETWEEN BEAM SEATS.
- P528 BARS AT 1'-0" CENTERS, BETWEEN BEAM SEATS. EMBED 1'-0" INTO CAP CONCRETE.

ORIGINAL PLANS PREPARED BY

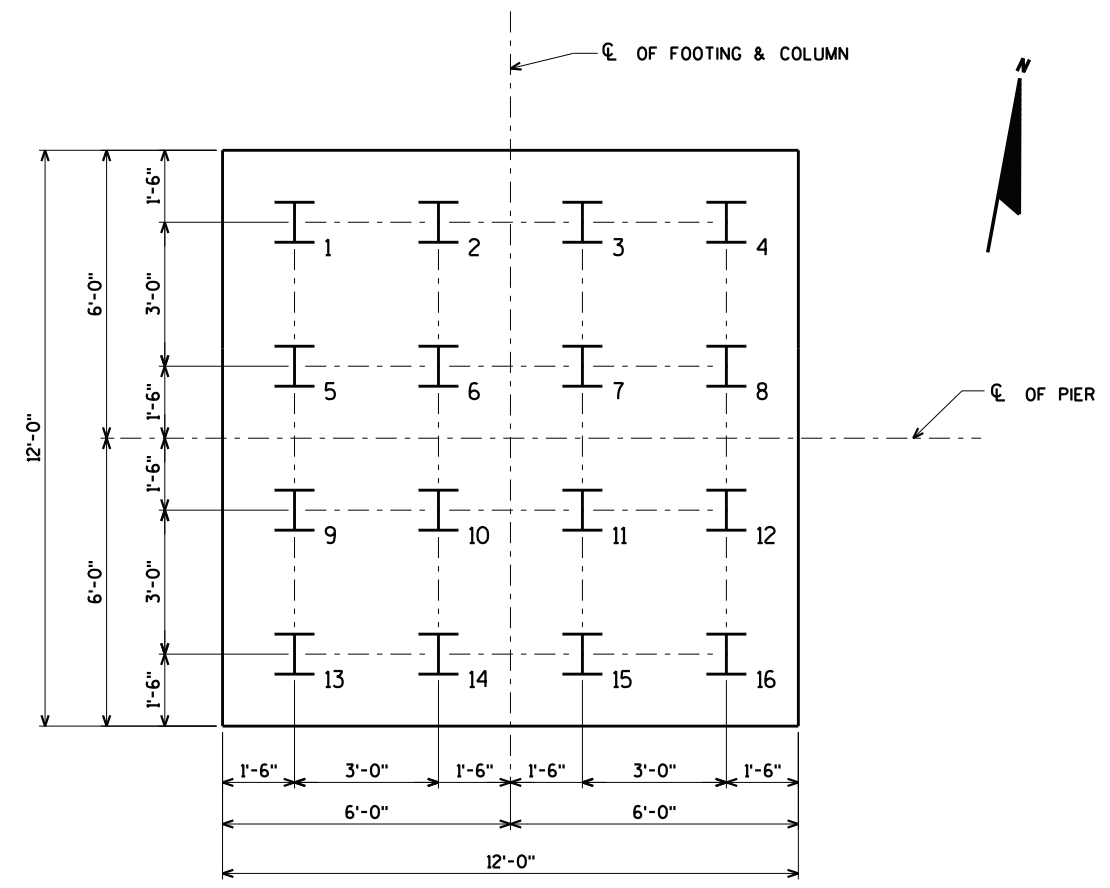
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U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\1-39 over Siggelkow Road\Southbound\1-39 over Siggelkow Road\BRIDGE



**TYPICAL FOOTING REINFORCEMENT PLAN**  
(5 FOOTINGS REQUIRED)



**TYPICAL FOOTING PILE LAYOUT**  
(5 FOOTINGS REQUIRED)

**NOTE:**  
USE TEMPLATE TO ALIGN P1003 DOWELS INTO PRECAST COLUMNS. TEMPLATE TO BE PROVIDED BY PRECASTER.  
★ SUPPLY REINFORCEMENT BARS ACCORDING TO GROUDED COUPLER REQUIREMENTS FOR EMBEDMENT. BARS MAY BE FIELD CUT IF NEEDED. PAYMENT IS BASED ON PLAN LENGTH FOR P1003 BARS.

8

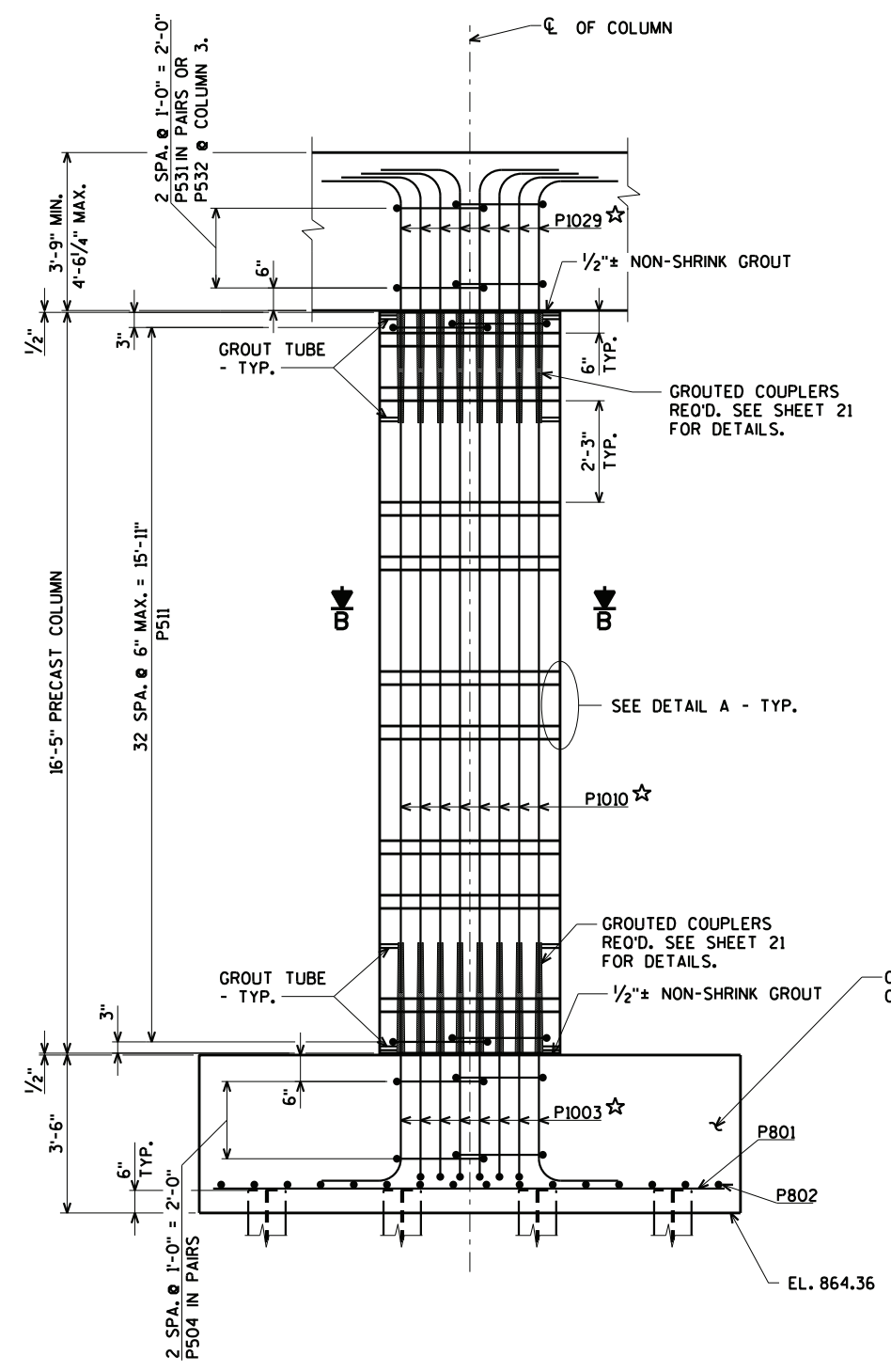
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WORK THIS SHEET WITH SHEETS 17 & 19 THRU 22

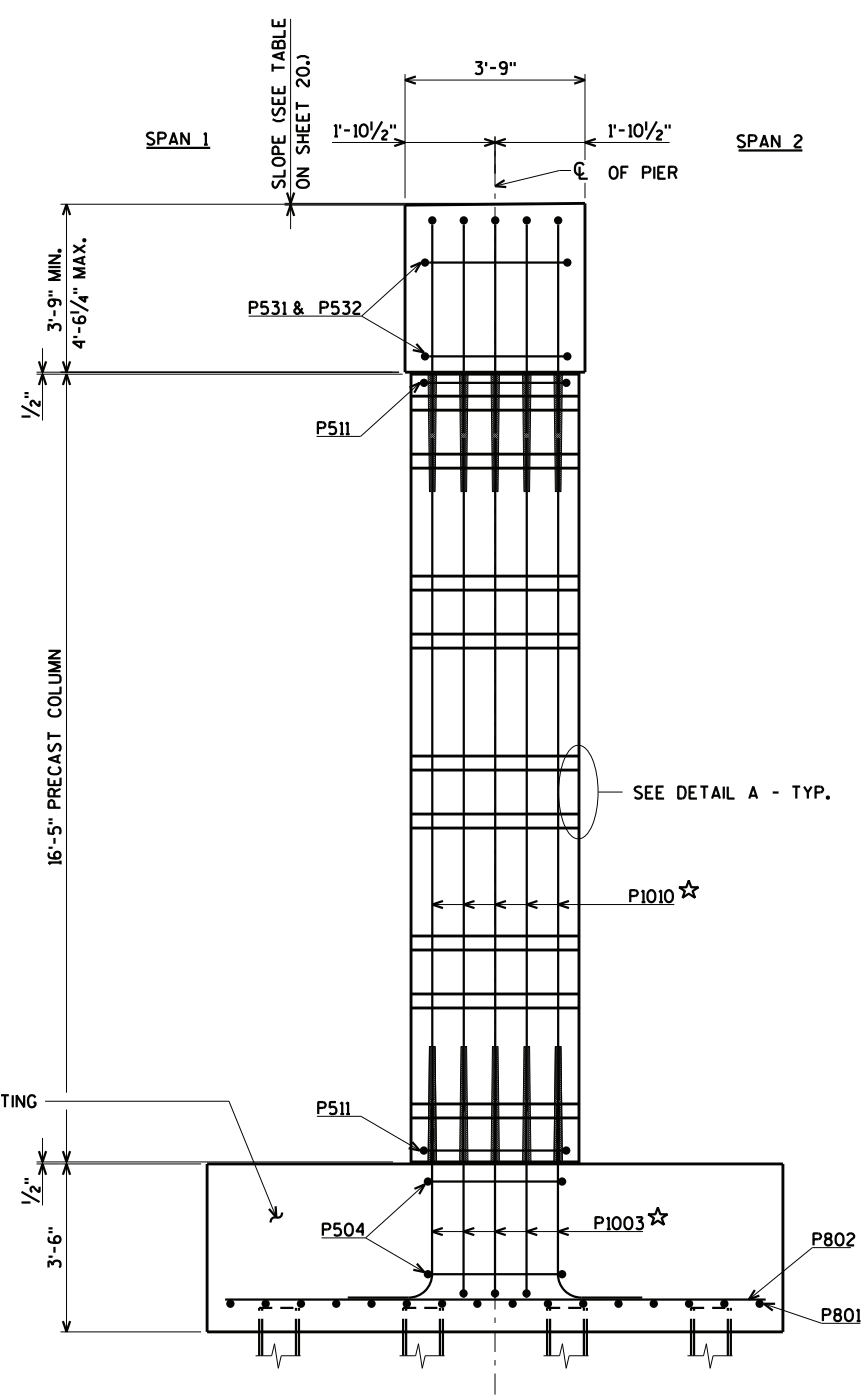
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>PIER FOOTINGS</b>			SHEET 18 OF 37

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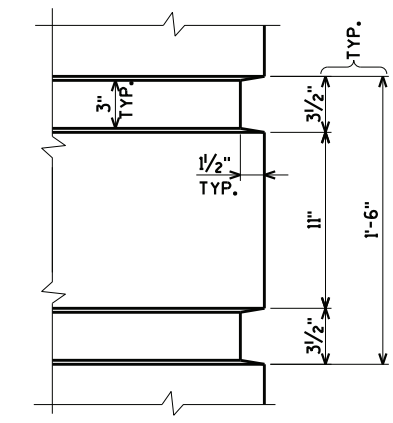
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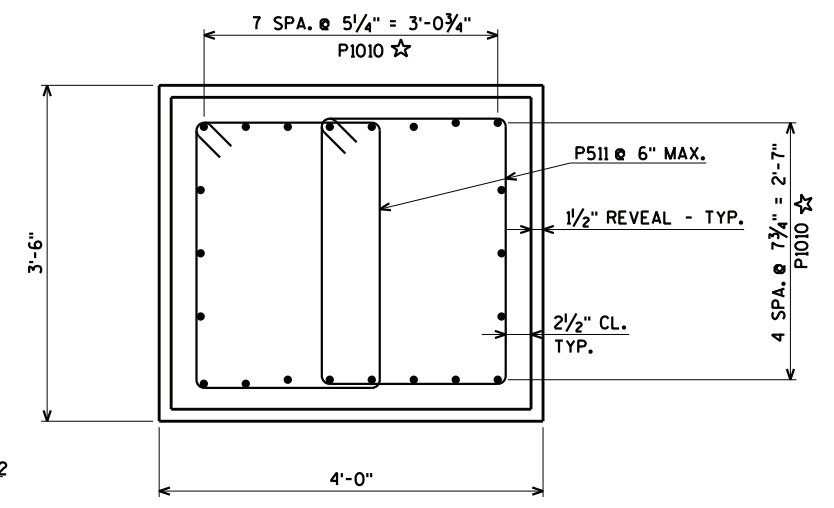
**PRECAST COLUMN ELEVATION**  
(COLUMNS 1, 2, 4, & 5 SHOWN, COLUMN 3 SIMILAR)



**PRECAST COLUMN ELEVATION - END VIEW**  
(LOOKING WEST)



**DETAIL A**  
ARCHITECTURAL SURFACE TREATMENT ON THE PIER COLUMNS IS INCIDENTAL TO THE BID ITEM "PRECAST PIER COLUMNS".



**SECTION B**

☆ SUPPLY REINFORCEMENT BARS ACCORDING TO GROUDED COUPLER REQUIREMENTS FOR EMBEDMENT. BARS MAY BE FIELD CUT IF NEEDED. PAYMENT IS BASED ON PLAN LENGTH FOR P1003 BARS.

WORK THIS SHEET WITH SHEETS 17 THRU 18 & 20 THRU 22

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>PIER COLUMNS</b>			SHEET 19 OF 37

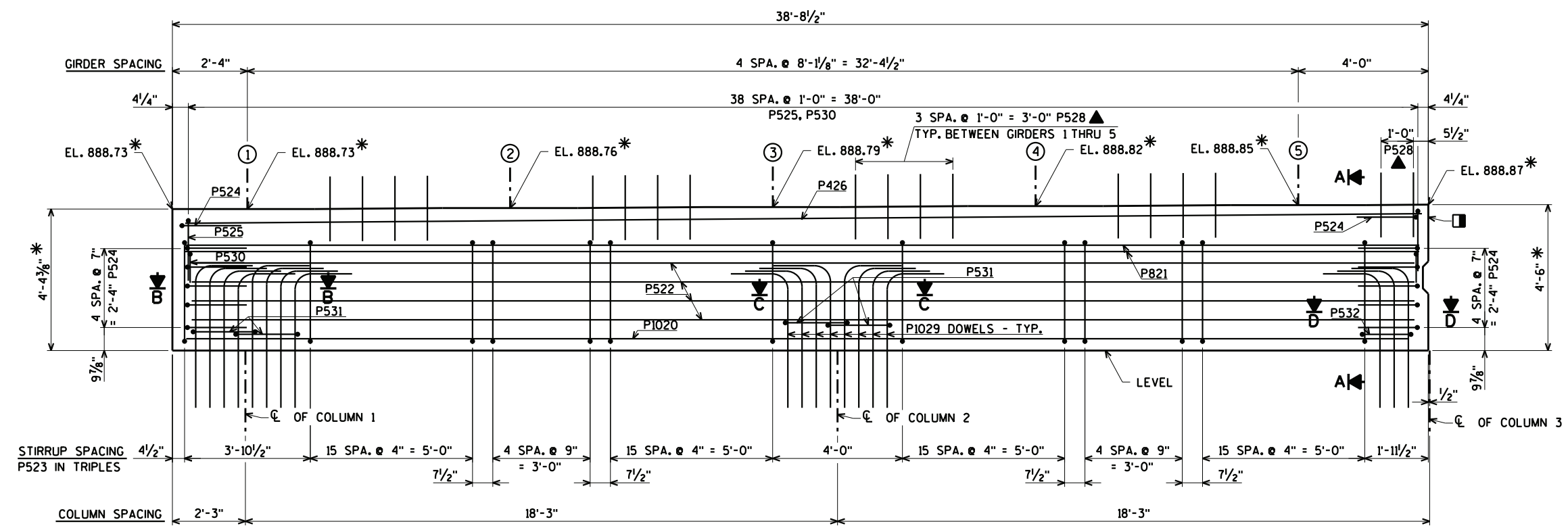
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U:\45-036100 - IH-39 Done Partners General Bridge Information\I-39 over Siggelkow Road\Southbound\I-39 over Siggelkow Road\BRIDGE

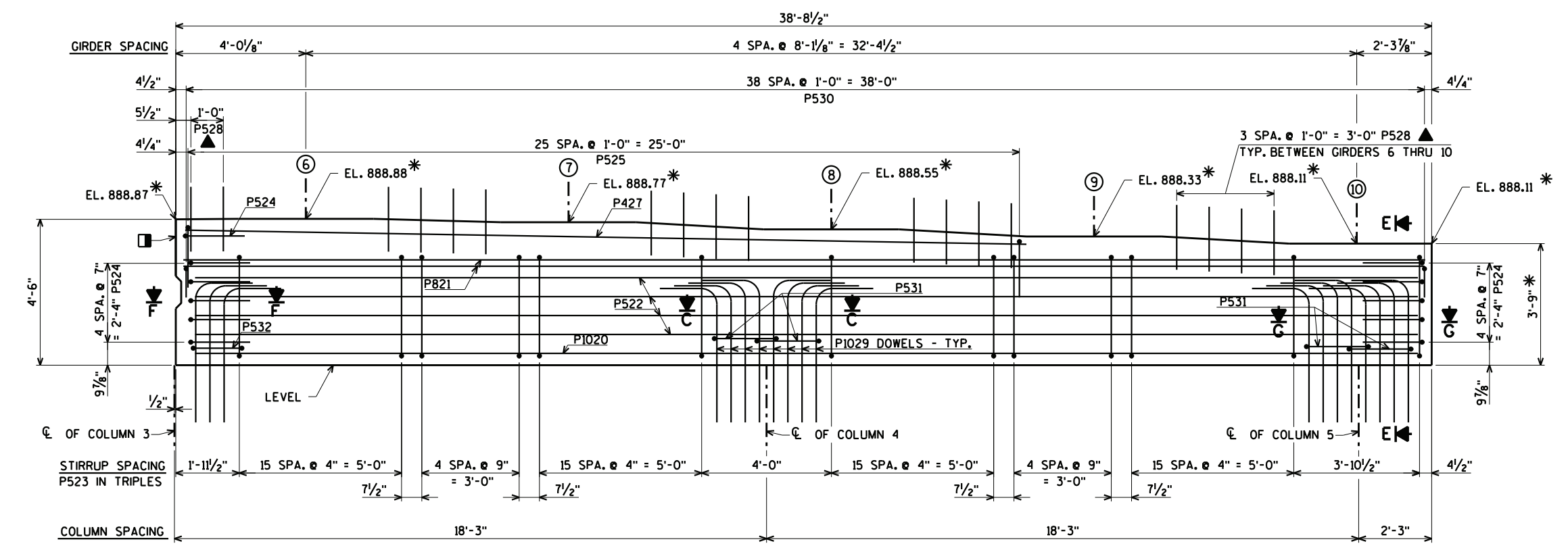
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1007-10-71

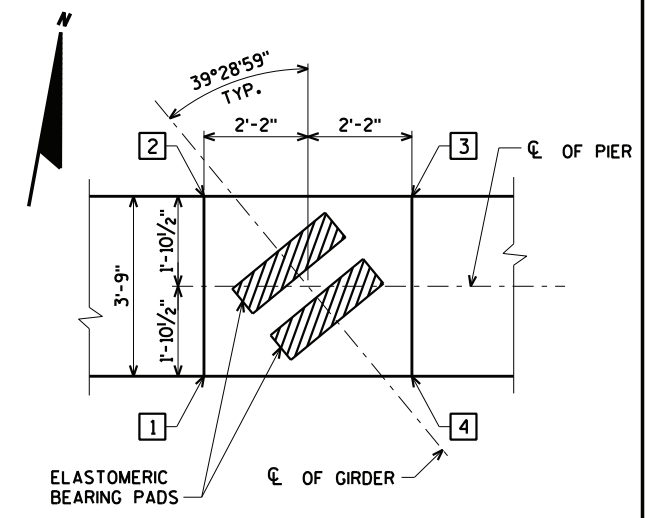
\* ELEVATIONS AND DIMENSIONS TAKEN AT  $\epsilon$  OF PIER.



**PRECAST CAP 1 ELEVATION**  
(LOOKING NORTH)



**PRECAST CAP 2 ELEVATION**  
(LOOKING NORTH)



**SLOPING BEAM SEAT DETAILS**  
(SEATS @ GIRDERS 2 THRU 9 SHOWN, GIRDERS 1 & 10 SIMILAR)

**PIER BEAM SEAT ELEVATION CORRECTIONS**

GIRDER	ELEVATION CORRECTION AT POINTS			
	1	2	3	4
1 - 10	-0.00	+0.05	+0.00	-0.05

VALUES ARE IN FEET. ADD THESE VALUES TO THE SEAT ELEVATIONS SHOWN TO OBTAIN ELEVATIONS OF POINTS 1, 2, 3 & 4.

FOR SECTIONS A THRU G, SEE SHEET 22.

FOR DEPTH OF CAP AT BEAM SEATS ALONG  $\epsilon$  PIER, SEE SHEET 17.

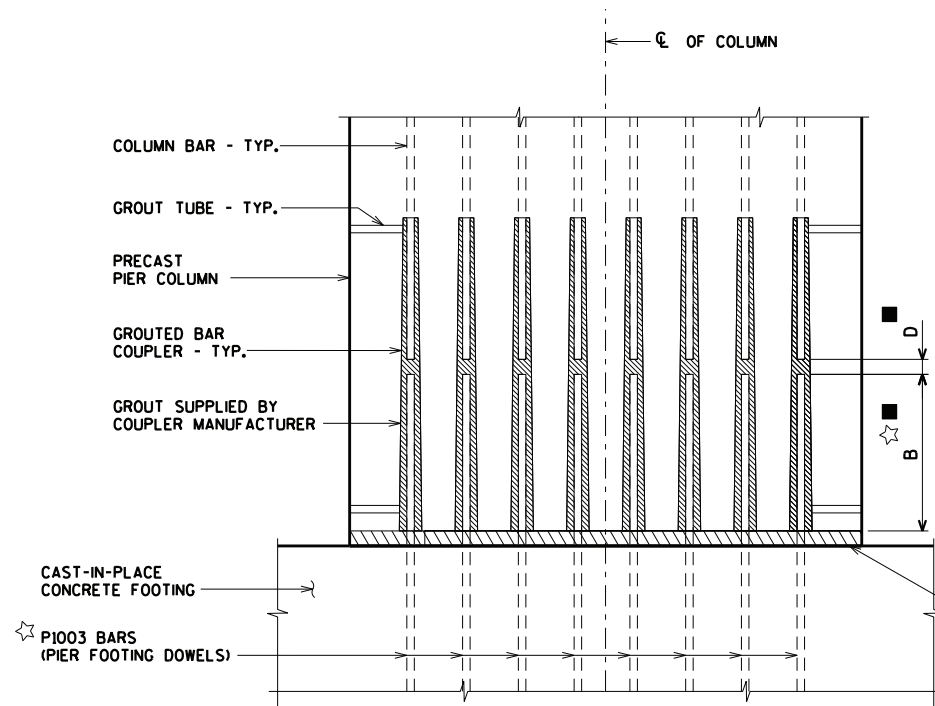
EMBED P528 BARS 1'-0" INTO CAP CONCRETE.

KEYED CONSTRUCTION JOINT. FILL WITH NON-SHRINK GROUT AFTER SUPERSTRUCTURE IS SET ONTO PIER. SEE SHEET 21 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 17 THRU 19 & 21 THRU 22

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>PIER CAPS</b>			SHEET 20 OF 37

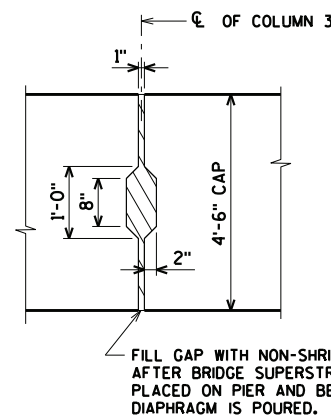
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**GROUDED BAR COUPLER DETAILS**

(PIER COLUMN/FOOTING CONNECTION SHOWN. PIER CAP/COLUMN CONNECTION SIMILAR)

1/2" ± NON-SHRINK GROUT AND STEEL SHIMS. BEDDING GROUT TO HAVE THICKNESS SLIGHTLY LARGER THAN SHIMS IF PLACED IN SEAT BEFORE COLUMN. BEDDING GROUT SHALL BE NONMETALLIC.



**KEYED CONSTR. JOINT ELEVATION DETAIL AT COLUMN 3**

**GROUDED SPLICE COUPLER CONNECTION SEQUENCE**

FOLLOW THE WRITTEN INSTALLATION PROCEDURES OF THE COUPLER MANUFACTURER. THE FOLLOWING ARE GENERAL PROCEDURES THAT APPLY TO MOST COUPLER MANUFACTURERS:

1. IT IS RECOMMENDED THAT THE ELEMENT WITH THE REINFORCEMENT BARS EXTENDING OUT BE FABRICATED WITH EXTRA BAR LENGTHS.
2. SURVEY LOCATION AND ELEVATION OF LOWER ELEMENT.
3. DETERMINE THE REQUIRED REINFORCING BAR EXTENSION LENGTHS AND THE REQUIRED SHIM HEIGHTS BASED ON THE SURVEY.
4. CUT THE BAR EXTENSIONS TO THE REQUIRED LENGTH BASED ON THE SURVEY AND THE COUPLER MANUFACTURER'S RECOMMENDATIONS. FOR COATED BARS, THE ENDS OF THE BARS SHALL BE RE-COATED.
5. PLACE BEDDING GROUT ON TOP OF LOWER ELEMENT. THE USE OF EXTRA GROUT THAT IS ALLOWED TO FLOW OUT DURING ELEMENT PLACEMENT IS RECOMMENDED. IN LIEU OF PRE-PLACEMENT OF BEDDING GROUT, THE BEDDING GROUT CAN BE FLOWED INTO PLACE AFTER ELEMENT ERECTION BUT PRIOR TO GROUING OF COUPLERS.
6. ERECT UPPER ELEMENT TO WITHIN THE SPECIFIED ERECTION TOLERANCES INDICATED IN THE SPECIAL PROVISIONS. PREVENT BEDDING GROUT FROM FLOWING INTO COUPLER.
7. MAINTAIN INTEGRITY OF GROUT BED DURING SETTING OPERATION. REPAIR GROUT THAT IS DISPLACED OR GAPS THAT DEVELOP IN THE GROUT JOINT USING HAND TOOLS.
8. BRACE THE UPPER ELEMENT.
9. INSTALL GROUT IN COUPLERS FOLLOWING THE MANUFACTURER'S WRITTEN PROCEDURES. IF THE COUPLER IS BELOW THE JOINT, COUPLER GROUT CAN BE INSTALLED PRIOR TO APPLICATION OF BEDDING GROUT.
10. ERECTION OF SUBSEQUENT ELEMENTS ABOVE A CONNECTION SHALL NOT COMMENCE UNTIL THE CONNECTION HAS ACHIEVED ADEQUATE STRENGTH AS DETERMINED THROUGH STRENGTH TESTING OF THE GROUT. THE TIMING OF SUBSEQUENT CONSTRUCTION STEPS SHOULD BE SPECIFIED IN BRIDGE ASSEMBLY PLAN.

**GROUDED COUPLER NOTES**

USE MATCHING TEMPLATES FOR THE LOCATION OF REINFORCEMENT AND GROUDED COUPLER PLACEMENT WITHIN THE ELEMENTS TO CONTROL CRITICAL DIMENSIONS AND ORIENTATION IN ALL DIRECTIONS.

- CONSULT MANUFACTURER OF THE GROUDED COUPLER FOR PROPER DIMENSIONS "B" AND "D" AND FOR TOLERANCE OF THESE DIMENSIONS. FIELD CUT FOOTING AND CAP DOWELS AS REQUIRED.

BEFORE EXECUTING GROUDED COUPLER ASSEMBLIES, ALWAYS SEEK INSTALLATION RECOMMENDATIONS FROM THE MANUFACTURER OF THE GROUDED COUPLER USED.

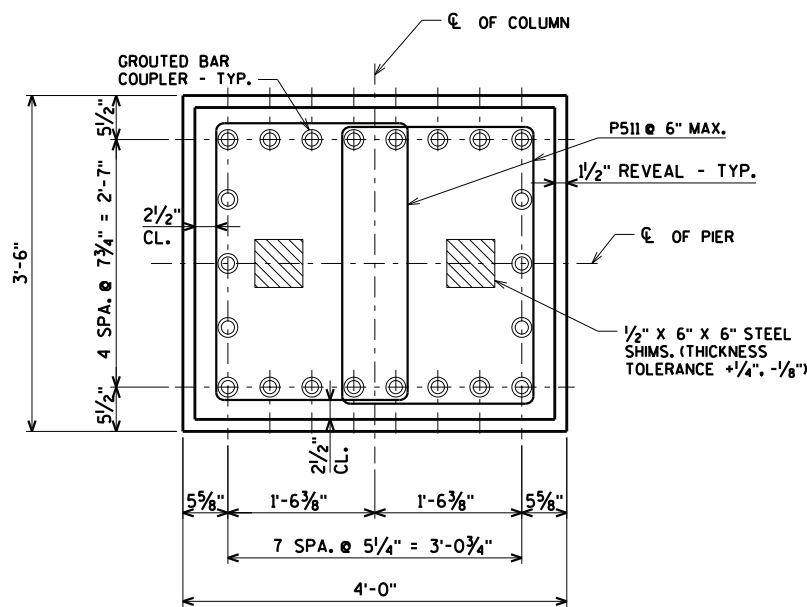
CONTRACTOR TO PROVIDE ADEQUATE BRACING OF COLUMNS UNTIL GROUDED COUPLER CONNECTIONS HAVE ACHIEVED ADEQUATE STRENGTH.

ALL GROUDED COUPLERS SHALL BE EPOXY COATED.

ADJUST SHIM STACK HEIGHT TO CONTROL ERECTION ELEVATIONS.

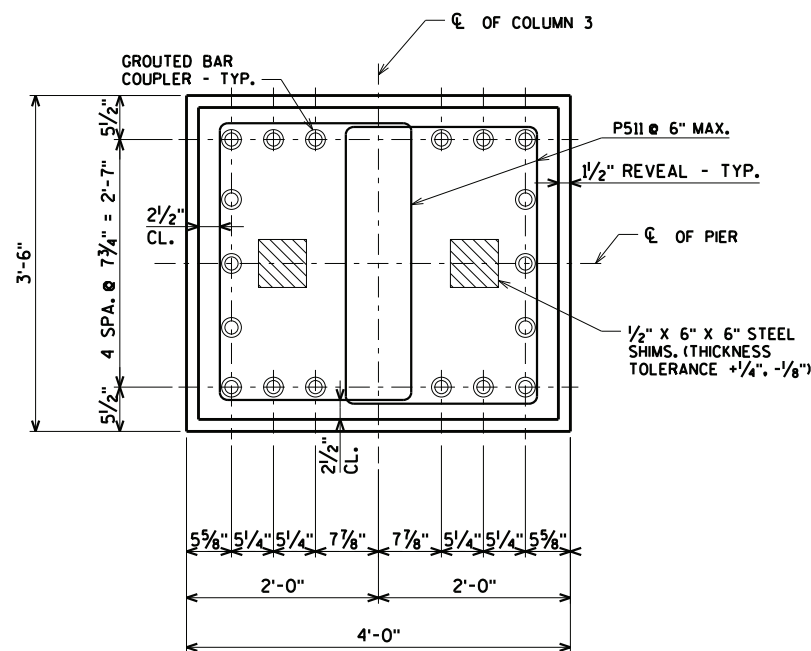
- ☆ SUPPLY REINFORCING BARS ACCORDING TO GROUDED COUPLER REQUIREMENTS FOR EMBEDMENT. BARS MAY BE FIELD CUT IF NEEDED.

PRECASTER SHALL PROVIDE PORTS IN THE PRECAST ELEMENTS TO ALLOW THE COUPLERS TO BE GROUDED AFTER THE PRECAST ELEMENTS HAVE BEEN ERECTED.



**GROUDED COUPLER PLAN AT TOP AND BOTTOM OF COLUMN**

(BOTTOM OF COLUMNS 1 THRU 5; TOP OF COLUMNS 1, 2, 4 & 5)



**GROUDED COUPLER PLAN AT TOP OF COLUMN 3**

\$PRFNAME\$ U:\45-036100 - IH-39 Dane Partners General Bridge Information\1-39 over Siggelkow Road\Southbound\1-39 over Siggelkow Road.BRIDG

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WORK THIS SHEET WITH SHEETS 17 THRU 20 & 22

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>PRECAST PIER CAP AND COLUMN DETAILS</b>			SHEET 21 OF 37

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**BILL OF BARS - PIER FOOTINGS**

BAR NO.	COATED BAR NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	LOCATION
P801	80	11-6				PIER FOOTING, BOT.
P802	80	11-6				PIER FOOTING, BOT.
★ P1003	X 110	6-4	X			PIER VERT. DOWELS TO COLUMN
P504	30	11-4	X			PIER FOOTING TIES

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

**BILL OF BARS - PIER PRECAST COLUMNS**

BAR NO.	COATED BAR NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	LOCATION
★ P1010	X 110	13-2				COLUMN VERTICAL
P511	X 330	11-4	X			COLUMN TIES

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

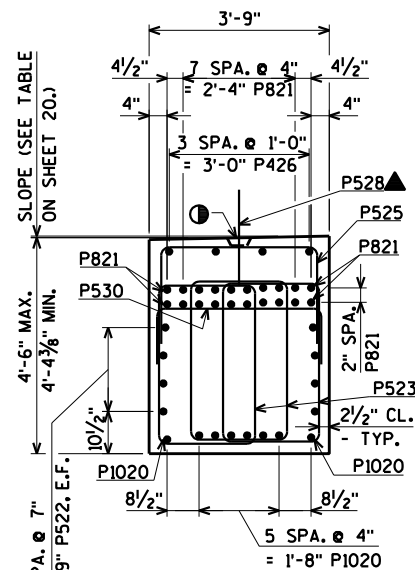
**BILL OF BARS - PIER PRECAST CAPS**

BAR NO.	COATED BAR NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	LOCATION
P1020	X 16	38-2				CAP HORIZ. BOT.
P821	X 40	38-2				CAP HORIZ. TOP
P522	X 16	38-2				CAP HORIZ.
P523	X 450	11-4	X			CAP VERT.
P524	X 23	6-7	X			CAP ENDS HORIZ.
P525	X 65	6-9	X			CAP VERT.
P426	X 4	38-2				CAP #1 HORIZ. TOP
P427	X 4	25-4				CAP #2 HORIZ. TOP
P528	X 36	2-0				CAP VERT. TOP BTWN. BEAM SEATS
★ P1029	X 106	6-8	X			CAP VERT. DOWELS TO COLUMN
P530	X 78	5-2	X			CAP VERT.
P531	X 24	11-4	X			CAP TIES
P532	X 6	8-8	X			CAP TIES @ COLUMN 3

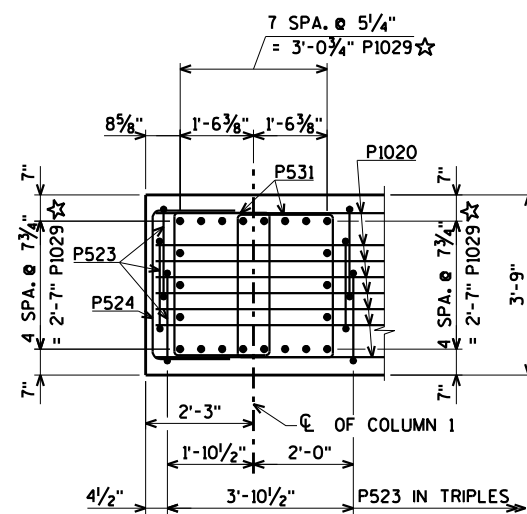
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

NOTE: THIS BILL OF BARS IS SHOWN FOR INFORMATION ONLY. PAYMENT FOR REINFORCEMENT IN PRECAST COLUMNS AND PRECAST CAPS ARE INCLUDED IN THE BID ITEMS "PRECAST PIER COLUMNS" AND "PRECAST PIER CAPS".

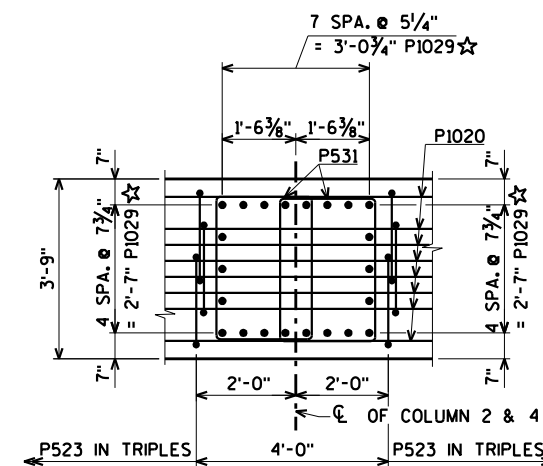
★ SUPPLY REINFORCING BARS ACCORDING TO GROUTED COUPLER REQUIREMENTS FOR EMBEDMENT. BARS MAY BE FIELD CUT IF NEEDED. PAYMENT IS BASED ON PLAN LENGTH FOR P1003 BARS.



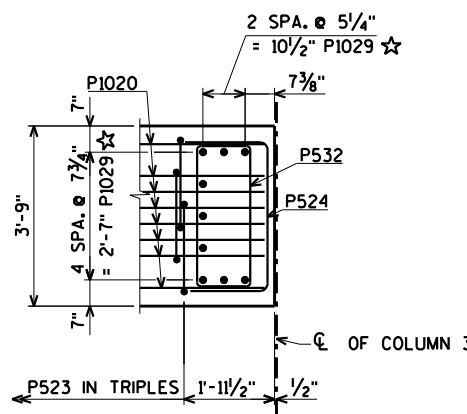
**SECTION A**  
(LOOKING WEST)



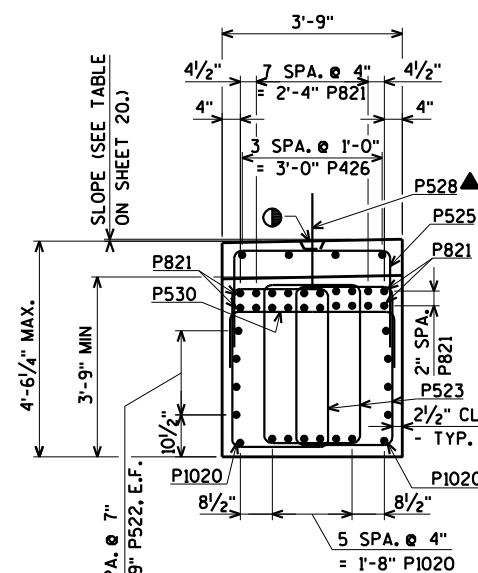
**SECTION B**



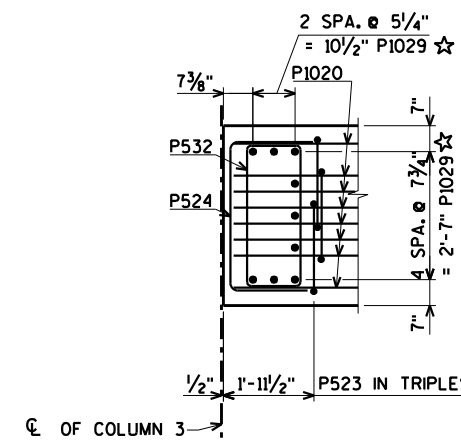
**SECTION C**



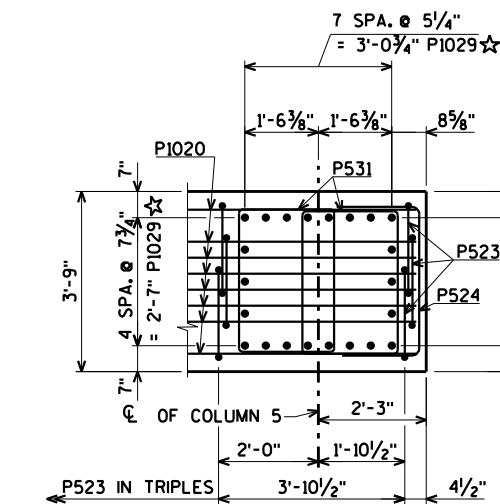
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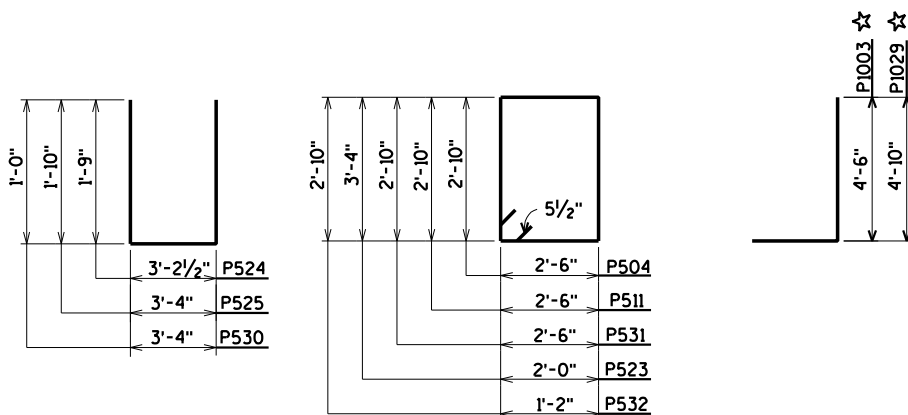
**SECTION E**  
(LOOKING WEST)



**SECTION F**



**SECTION G**



KEYED CONSTRUCTION JOINT FORMED BY A SURFACED BEVELED 2" x 6" BETWEEN BEAM SEATS.

EMBED P528 BARS 1'-0" INTO CAP CONCRETE.

FOR LOCATIONS OF SECTIONS A THRU G, SEE SHEET 20.

WORK THIS SHEET WITH SHEETS 17 THRU 21.

E.F. DENOTES EACH FACE.

ORIGINAL PLANS PREPARED BY  
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>PIER DETAILS</b>			SHEET 22 OF 37

**GIRDER NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO APPLICATION OF THE SEALER.

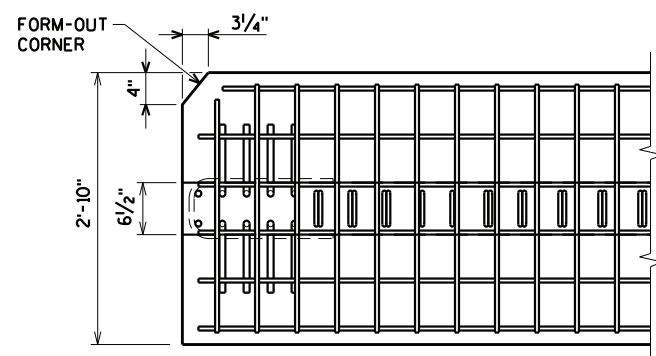
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

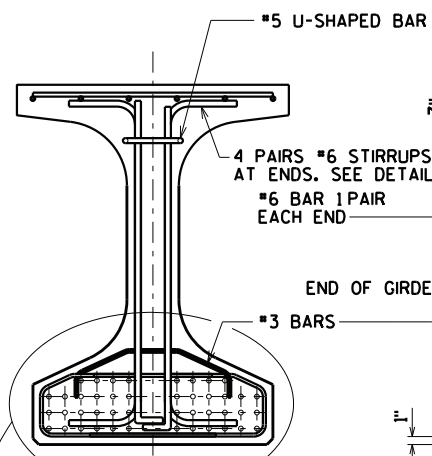
AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE 0.6"  $\phi$  -7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi.

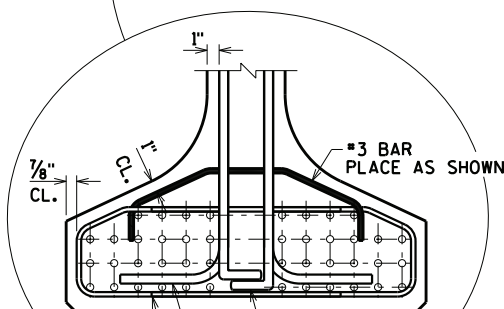
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM DETAILS" SHEET.



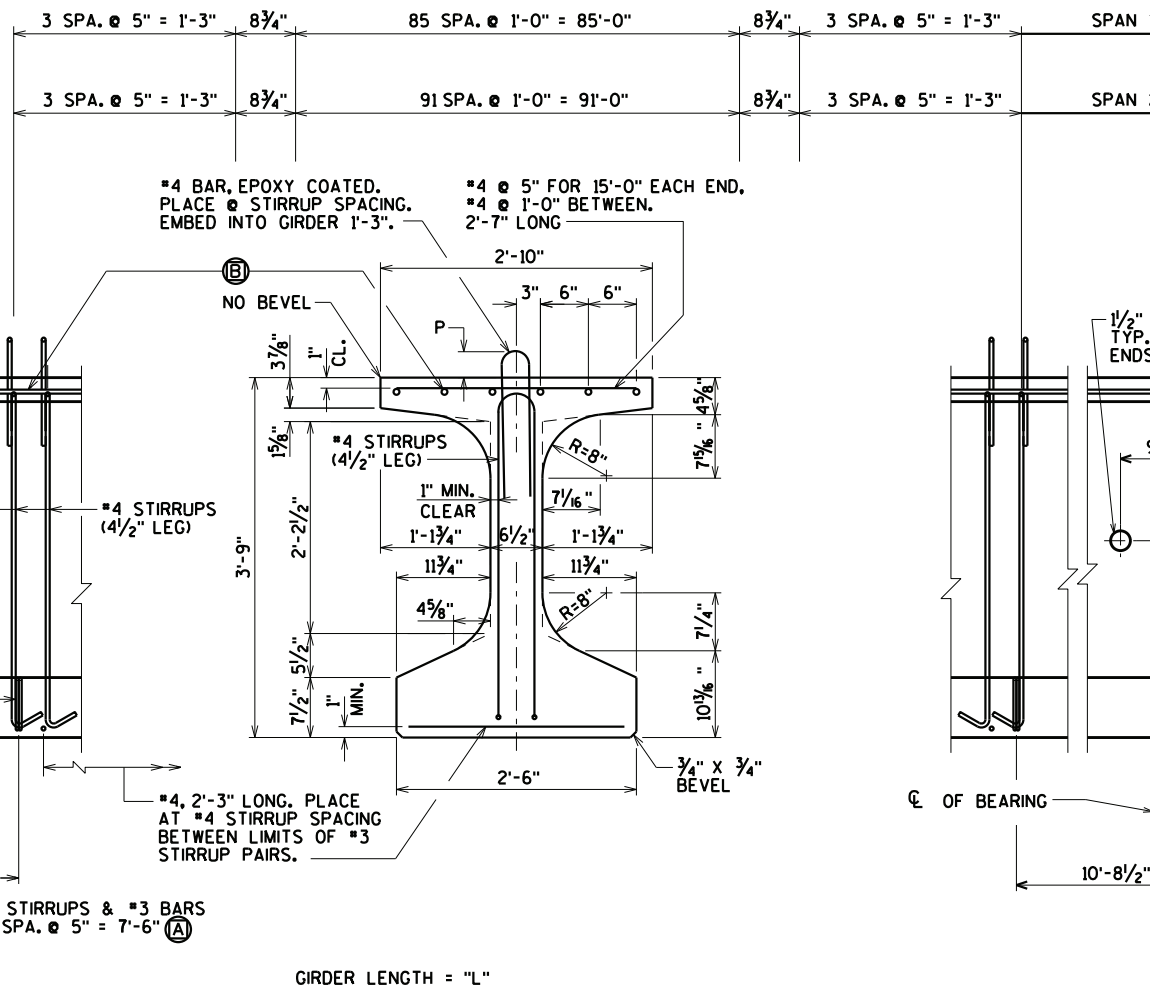
**TOP FLANGE**



**SECTION A-A**



**DETAIL A  
BOTTOM FLANGE**



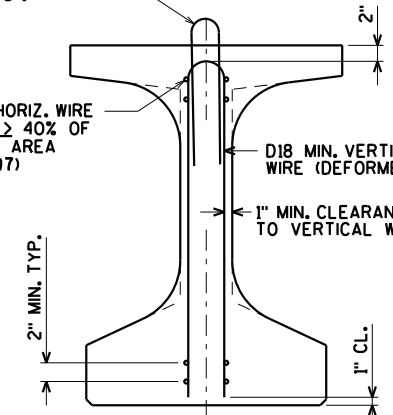
**SIDE VIEW & TYP. SECTION IN SPAN**

- (A) DETAIL TYP. AT EACH END
- (B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-11"

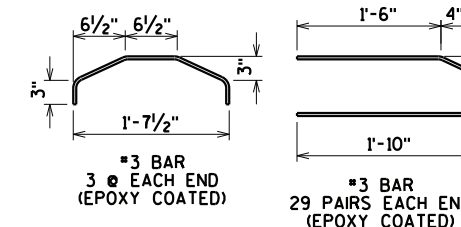
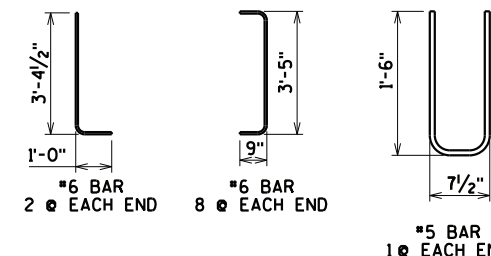
#4 BAR, EPOXY COATED. PLACE # STIRRUP SPACING REQUIRED FOR NON WWF STIRRUPS. EMBED INTO GIRDER 1'-3".

HORIZ. WIRES SHALL BE LOCATED IN TOP AND BOT. FLANGES AND NOT IN THE WEB.

AREA OF HORIZ. WIRE SHALL BE  $\geq$  40% OF VERT. WIRE AREA (ASTM A497)



**SECTION THRU GIRDER**  
SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS  
ASTM A497 (FY = 70 KSI)



\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

**GIRDER DATA**

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)								CONC. STRGTH. f'c (p.s.i.)	"P" 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)						
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10						9/10	TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	"A"	"B" MIN.	"B" MAX.	"C"
1	ALL	110'-4 1/2"	0.7	1.3	1.7	2.0	2.1	2.0	1.7	1.3	0.7	8,000	8"	7"	8"	0.6	32	6,400	39	13.5	16.5	5
2	ALL	116'-4 1/2"	0.8	1.5	2.1	2.5	2.7	2.5	2.1	1.5	0.8	8,000	8"	7"	8"	0.6	34	6,400	39	13.5	16.5	5

ORIGINAL PLANS PREPARED BY

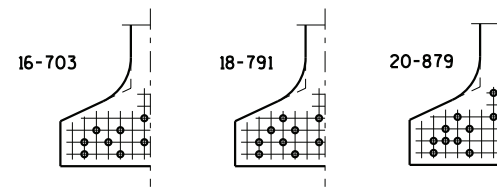


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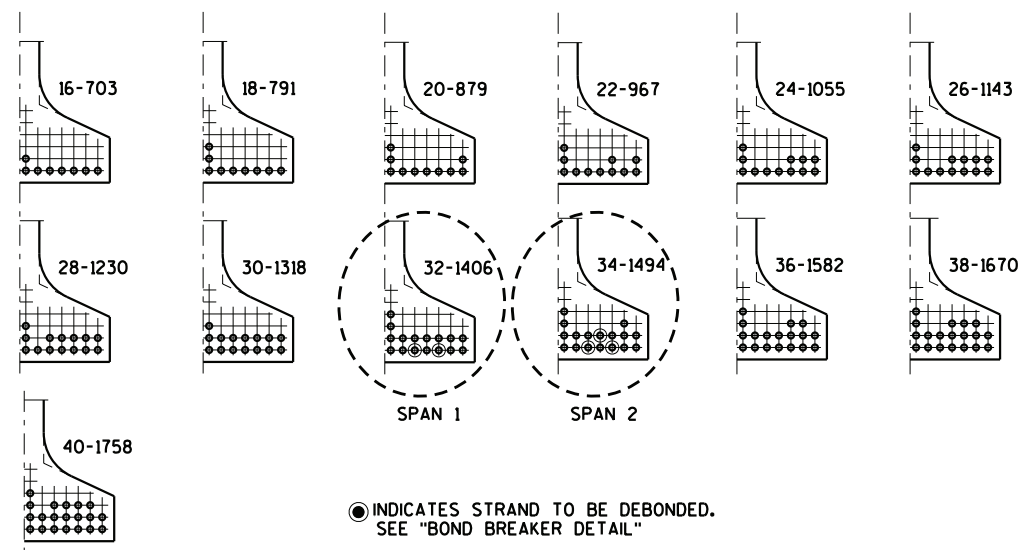
**45W" PRESTRESSED  
GIRDER DETAILS**

SHEET 23 OF 37



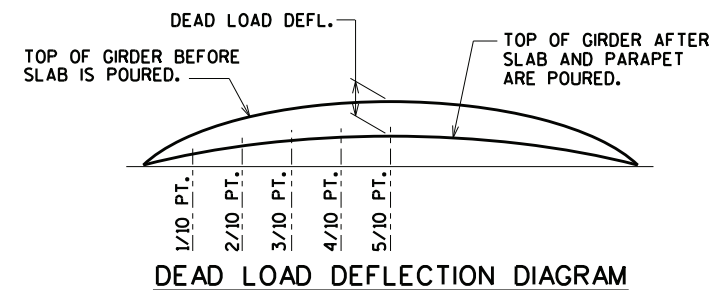


**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS**  
0.6"  $\phi$  STRANDS

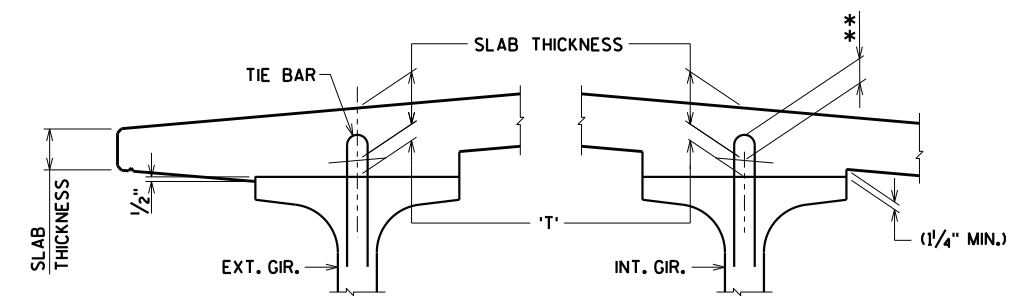


● INDICATES STRAND TO BE DEBONDED. SEE "BOND BREAKER DETAIL"

**ARRANGEMENT AT  $\phi$  SPAN - FOR GIRDERS WITH DRAPED STRANDS**  
0.6"  $\phi$  STRANDS



**DEAD LOAD DEFLECTION DIAGRAM**



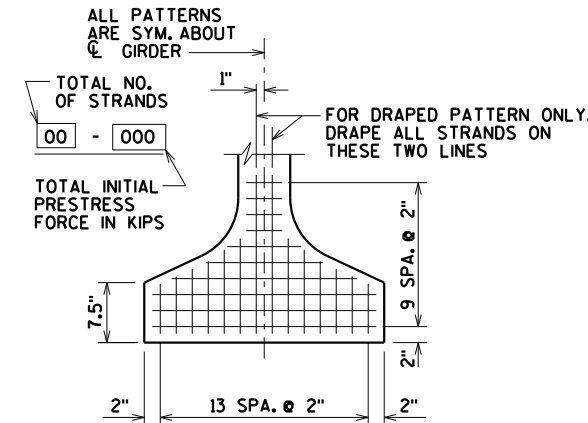
**SLAB HAUNCH DETAIL**

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR.  
\*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

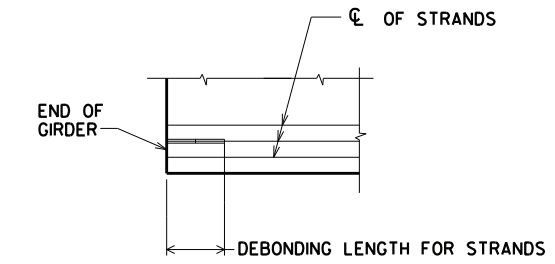
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT  $\phi$  OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

$$\begin{aligned} & \text{TOP OF DECK ELEV. AT FINAL GRADE} \\ & - \text{TOP OF GIRDER ELEVATION} \\ & + \text{DEAD LOAD DEFLECTION} \\ & - \text{SLAB THICKNESS} \\ & \hline & = \text{HAUNCH HEIGHT 'T'} \end{aligned}$$

NOTE: AN AVERAGE HAUNCH ('T') OF 2 5/8" WAS USED IN THE QUANTITY "HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES".

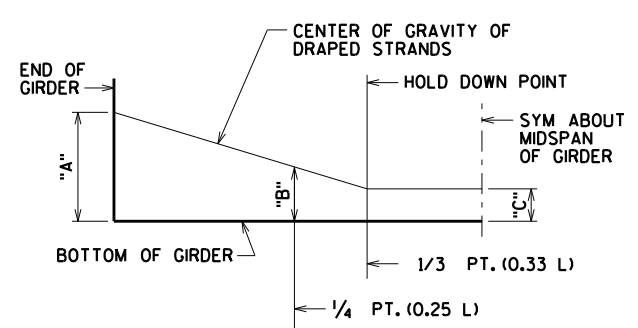


**TYP. STRAND PATTERN**



**BOND BREAKER DETAIL**

SHOWING LENGTHS OF DEBONDING FROM END OF GIRDER.



**DRAPED STRAND PROFILE**

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN

SPAN	CAMBER (IN.)
1	3.4
2	3.8

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

SYM.	HEIGHT	NO. OF STRANDS	DEBOND LENGTH
□	2"	4	2'

**DEBONDING DETAIL SPAN 1**

SYM.	HEIGHT	NO. OF STRANDS	DEBOND LENGTH
□	4"	2	4'
△	2"	2	2'
○	2"	2	2'

**DEBONDING DETAIL SPAN 2**

8

8

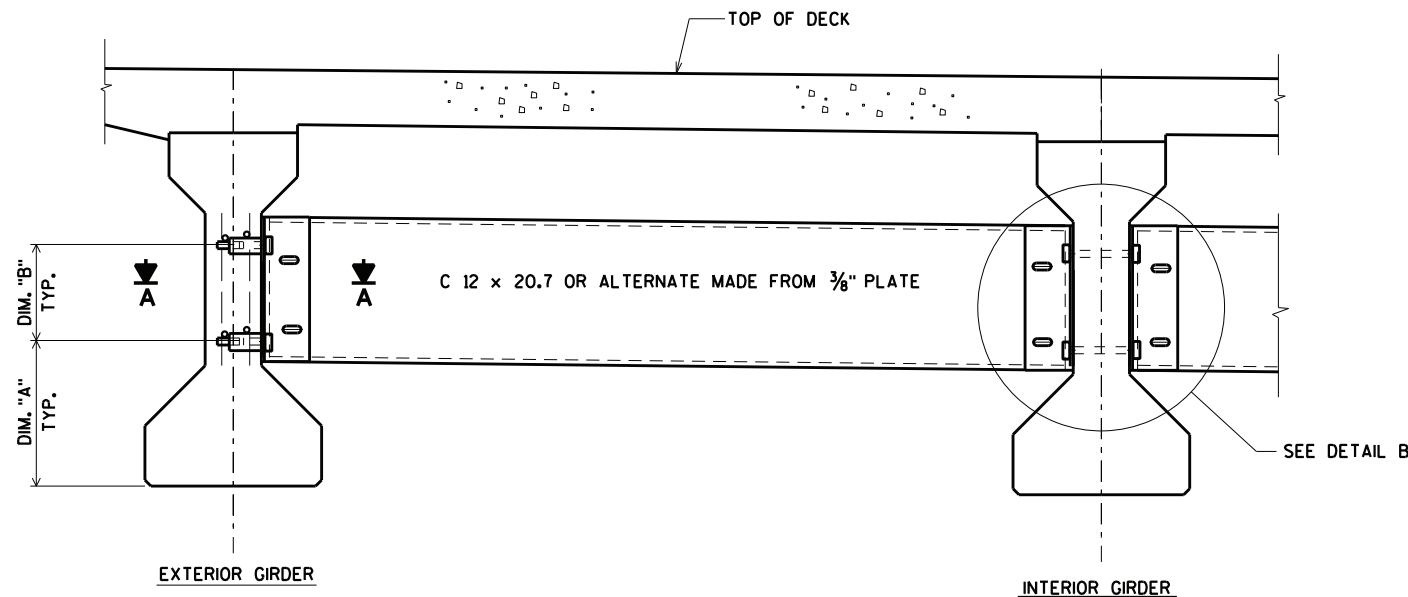
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>45W" PRESTRESSED GIRDER DETAILS</b>			SHEET 24 OF 37

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Eau Claire, WI 54701  
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U:\45-036100 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\_I-39 over Siggeikow

**TABLE**

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	*DIM. "X"
45W"	1'-9 1/8"	8 7/8"	1'-0 1/2"	2 3/4"



**NOTES**

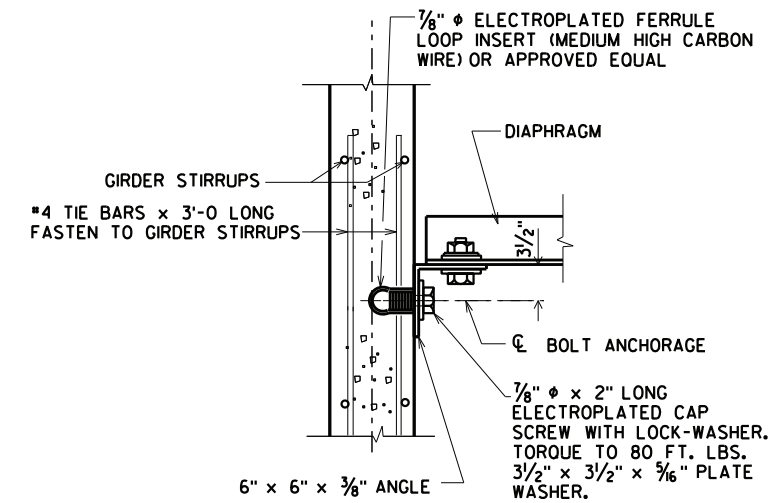
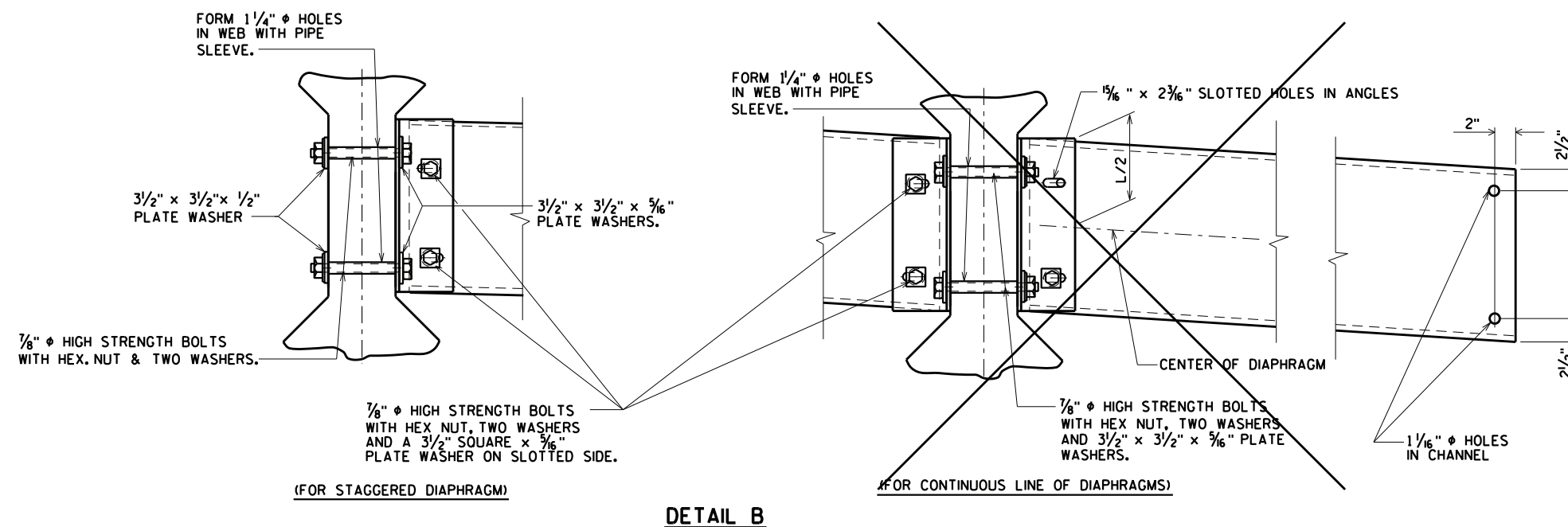
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-13-727", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

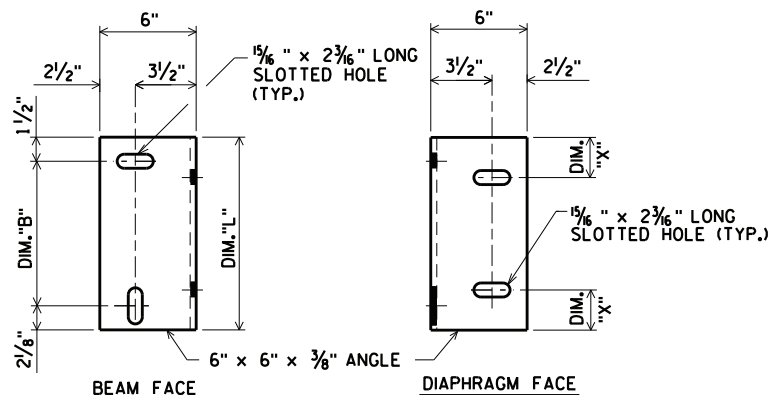
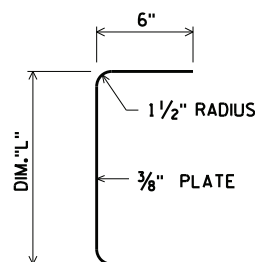
**PART TRANSVERSE SECTION AT DIAPHRAGM**



**SECT. A-A**  
(FOR EXTERIOR ATTACHMENT)

**SECTION THRU ALTERNATE DIAPHRAGM**

\*DIM. "X" = 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

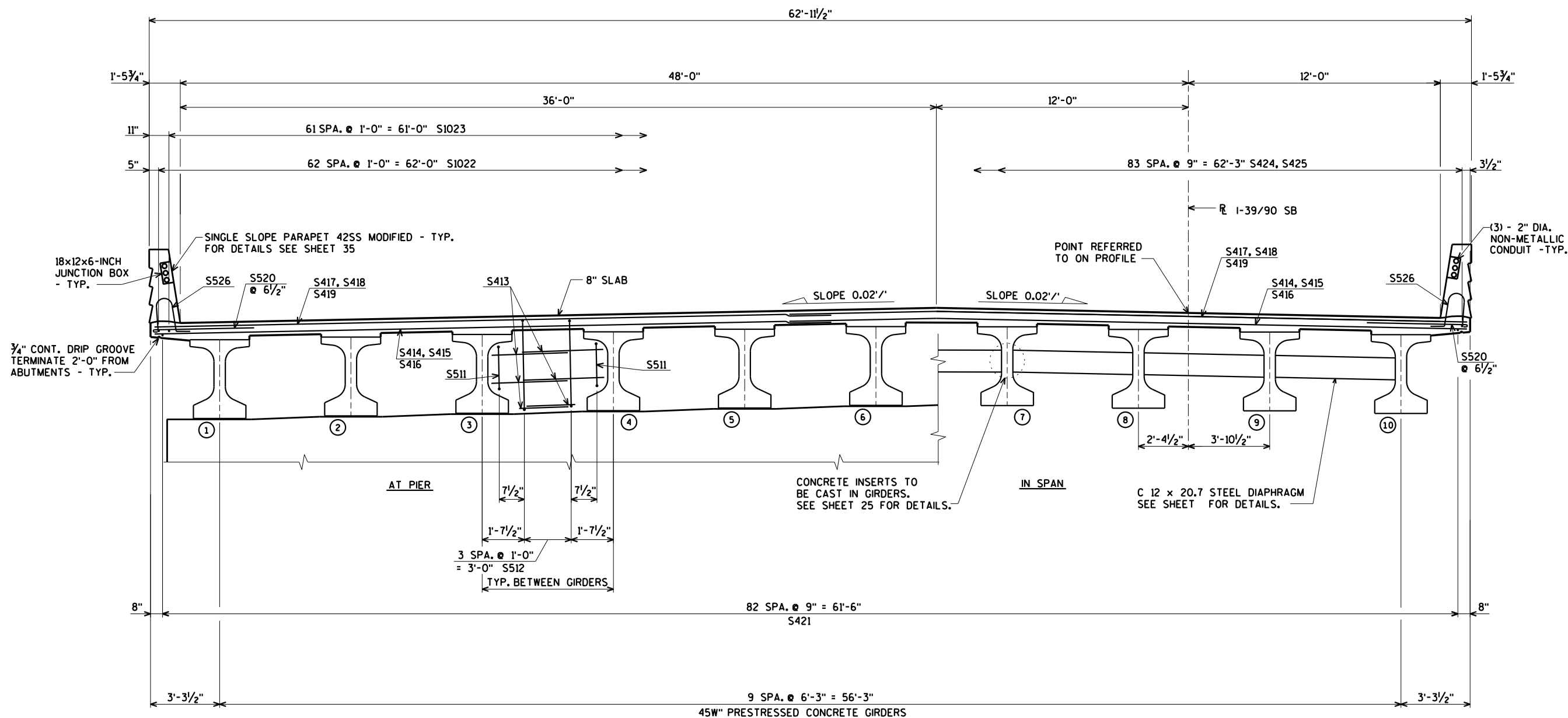


**DIAPHRAGM SUPPORT**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>STEEL DIAPHRAGM DETAILS</b>			SHEET 25 OF 37

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**TYPICAL CROSS SECTION THRU DECK**  
(LOOKING NORTH)

8

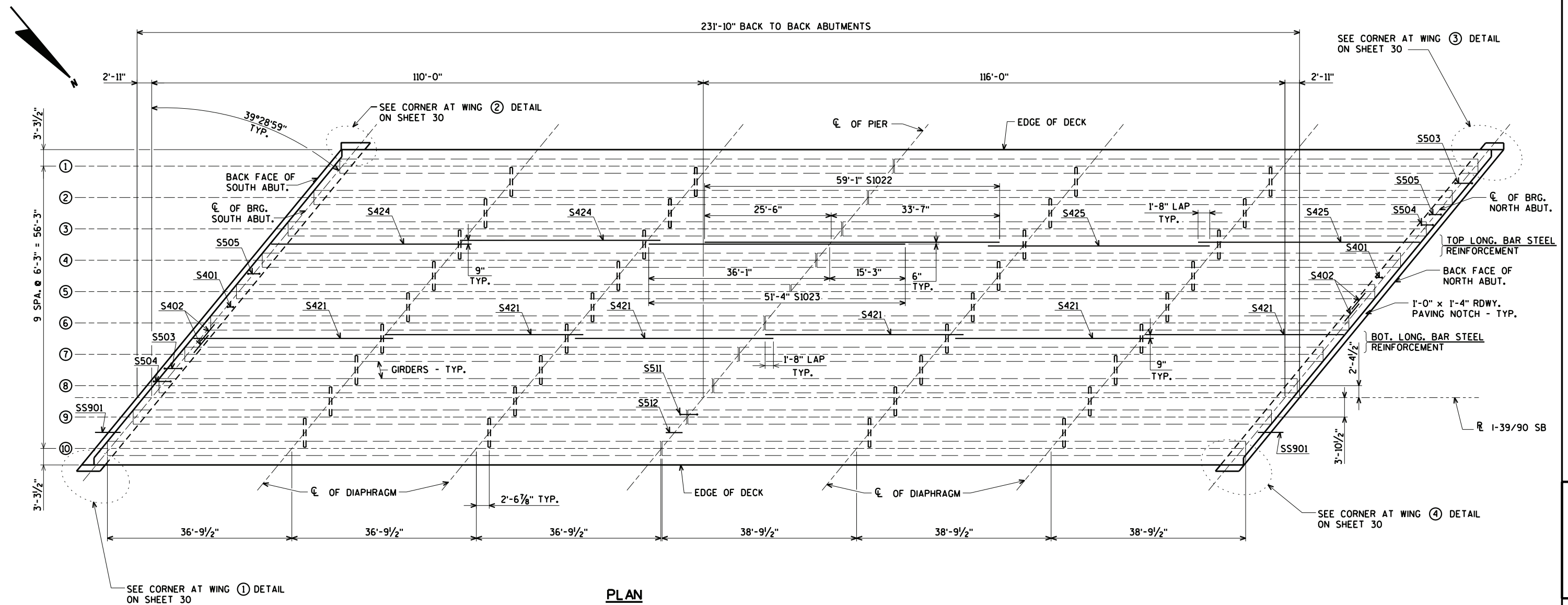
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SUPERSTRUCTURE</b>			SHEET 26 OF 37

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**TOP OF DECK ELEVATIONS**

LOCATION	CL BEARING S. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	CL PIER	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	CL BEARING N. ABUT.
WEST EDGE OF DECK	891.42	891.62	891.83	892.03	892.23	892.43	892.63	892.84	893.04	893.24	893.44	893.66	893.87	894.08	894.30	894.51	894.72	894.94	895.15	895.36	895.58
GIRDER 1	891.44	891.64	891.84	892.04	892.25	892.45	892.65	892.85	893.06	893.26	893.46	893.67	893.89	894.10	894.31	894.53	894.74	894.95	895.17	895.38	895.59
GIRDER 2	891.47	891.67	891.87	892.07	892.28	892.48	892.68	892.88	893.09	893.29	893.49	893.70	893.92	894.13	894.34	894.56	894.77	894.98	895.20	895.41	895.62
GIRDER 3	891.50	891.70	891.90	892.10	892.31	892.51	892.71	892.91	893.12	893.32	893.52	893.73	893.95	894.16	894.37	894.59	894.80	895.01	895.23	895.44	895.65
GIRDER 4	891.53	891.73	891.93	892.13	892.34	892.54	892.74	892.94	893.15	893.35	893.55	893.76	893.98	894.19	894.40	894.62	894.83	895.04	895.26	895.47	895.69
GIRDER 5	891.56	891.76	891.96	892.16	892.37	892.57	892.77	892.97	893.18	893.38	893.58	893.79	894.01	894.22	894.44	894.65	894.86	895.08	895.29	895.50	895.72
GIRDER 6	891.59	891.79	891.99	892.20	892.40	892.60	892.80	893.00	893.21	893.41	893.61	893.83	894.04	894.25	894.47	894.68	894.89	895.11	895.32	895.53	895.75
GIRDER 7	891.48	891.69	891.89	892.09	892.29	892.50	892.70	892.90	893.10	893.30	893.51	893.72	893.93	894.15	894.36	894.57	894.79	895.00	895.21	895.43	895.64
GIRDER 8	891.26	891.47	891.67	891.87	892.07	892.28	892.48	892.68	892.88	893.08	893.29	893.50	893.71	893.93	894.14	894.35	894.57	894.78	894.99	894.21	895.42
GIRDER 9	891.04	891.25	891.45	891.65	891.85	892.06	892.26	892.46	891.66	892.87	893.07	893.28	893.49	893.71	893.92	894.13	894.35	894.56	894.77	894.99	895.20
GIRDER 10	890.82	891.03	891.23	891.43	891.63	891.84	892.04	892.24	892.44	892.65	892.85	893.06	893.27	893.49	893.70	893.91	894.13	894.34	894.56	894.77	894.98
EAST EDGE OF DECK	890.71	890.91	891.11	891.32	891.52	891.72	891.92	892.13	892.33	892.53	892.73	892.95	893.16	893.37	893.59	893.80	894.01	894.23	894.44	894.65	894.87



**PLAN**

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8

8

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-13-727**

DRAWN BY JCK PLANS CK'D. CBM

**SUPERSTRUCTURE PLAN**

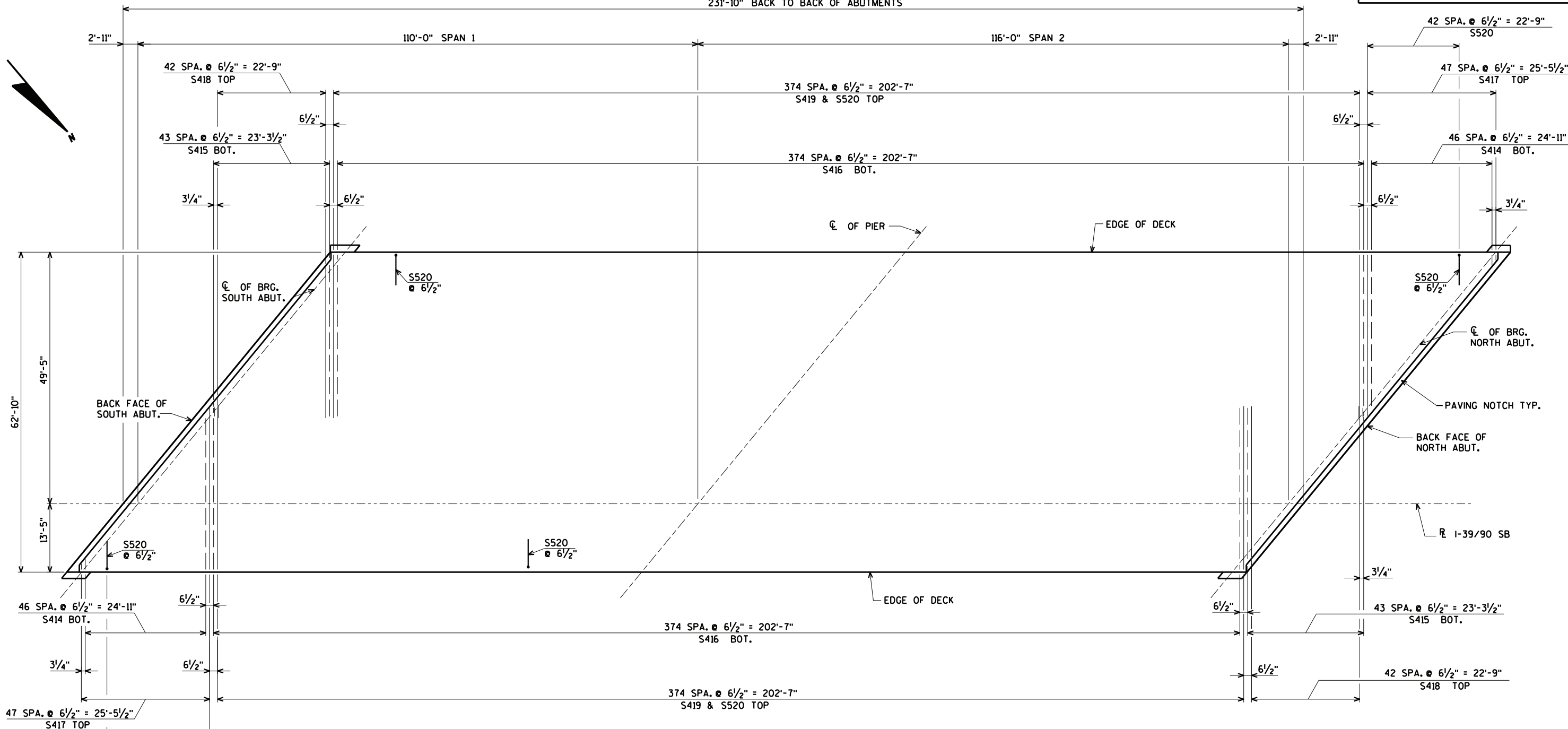
SHEET 27 OF 37

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231'-10" BACK TO BACK OF ABUTMENTS

110'-0" SPAN 1

116'-0" SPAN 2



**TRANSVERSE BAR STEEL LAYOUT**

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STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

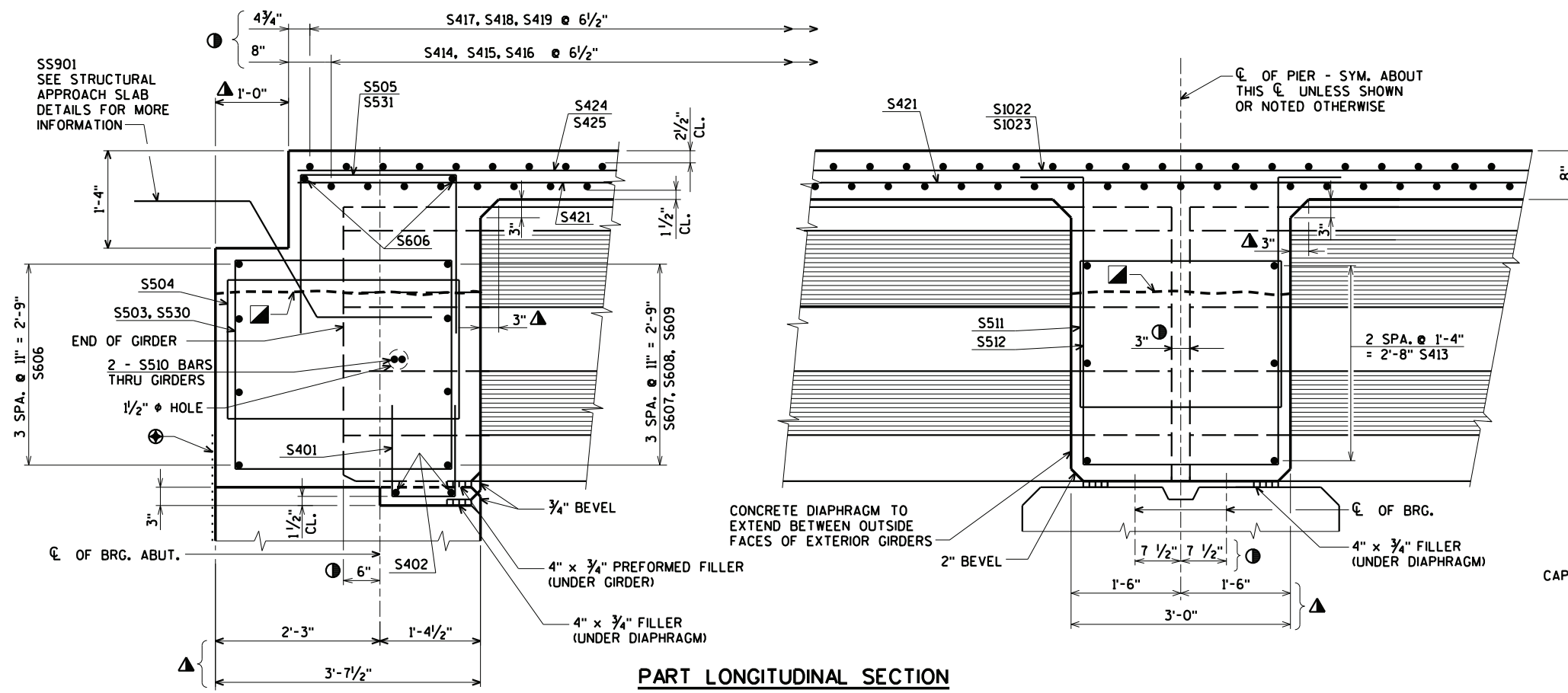
**STRUCTURE B-13-727**

DRAWN BY JCK PLANS CK'D. CBM

**SUPERSTRUCTURE  
TRANSVERSE SLAB  
STEEL LAYOUT**

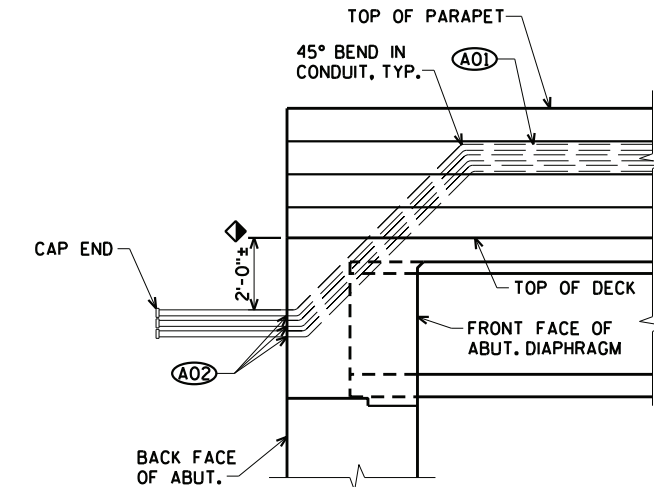
SHEET 28 OF 37

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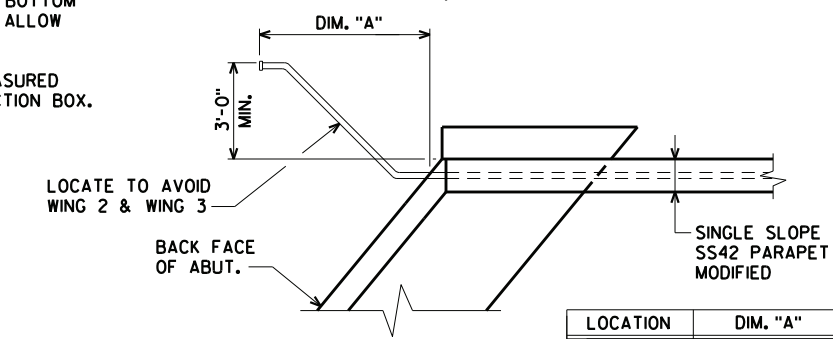
**PART LONGITUDINAL SECTION**

- ⊗ 18" RUBBERIZED MEMBRANE WATERPROOFING
- ⊙ DIMENSIONS MEASURED ALONG CL. OF GIRDER.
- ▲ DIMENSIONS MEASURED NORMAL TO CL. OF SUBSTRUCTURE UNIT.
- ▣ OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.

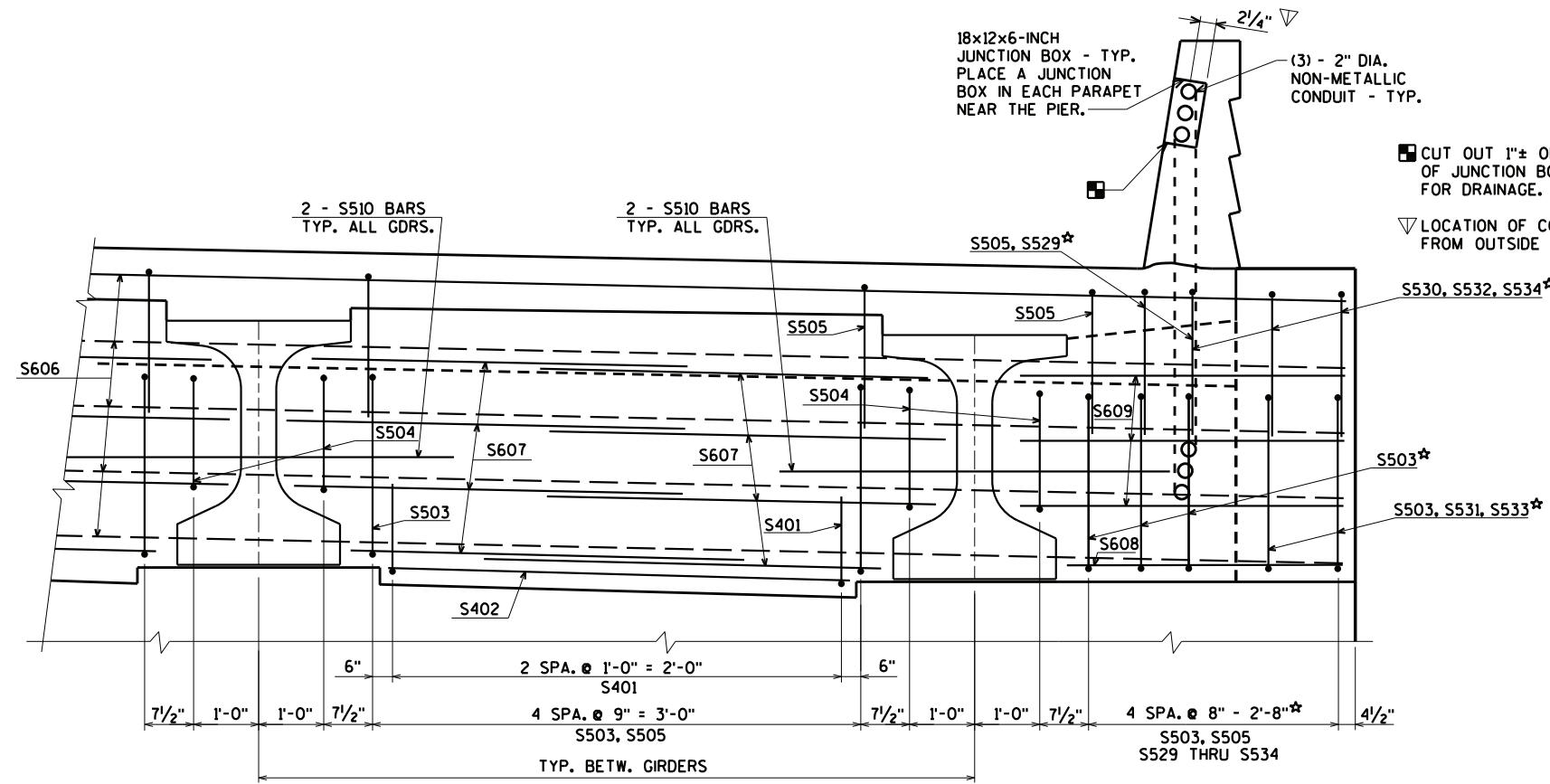


**ELEVATION AT ABUTMENT SHOWING CONDUITS**

◆ BEND DOWN AT SLEEPER SLAB IF NEEDED.



**PLAN OF PARAPET AT ABUTMENT SHOWING CONDUITS**



**PART TRANSVERSE SECTION AT ABUTMENT DIAPHRAGM**

★ SEE SUPERSTRUCTURE CORNER DETAILS ON SHEET 30

(A01) EXPANSION FITTINGS, ANGLES AND ADAPTER FITTINGS TO BE INCIDENTAL TO THE BID ITEM "CONDUIT RIGID METALLIC 2-INCH".

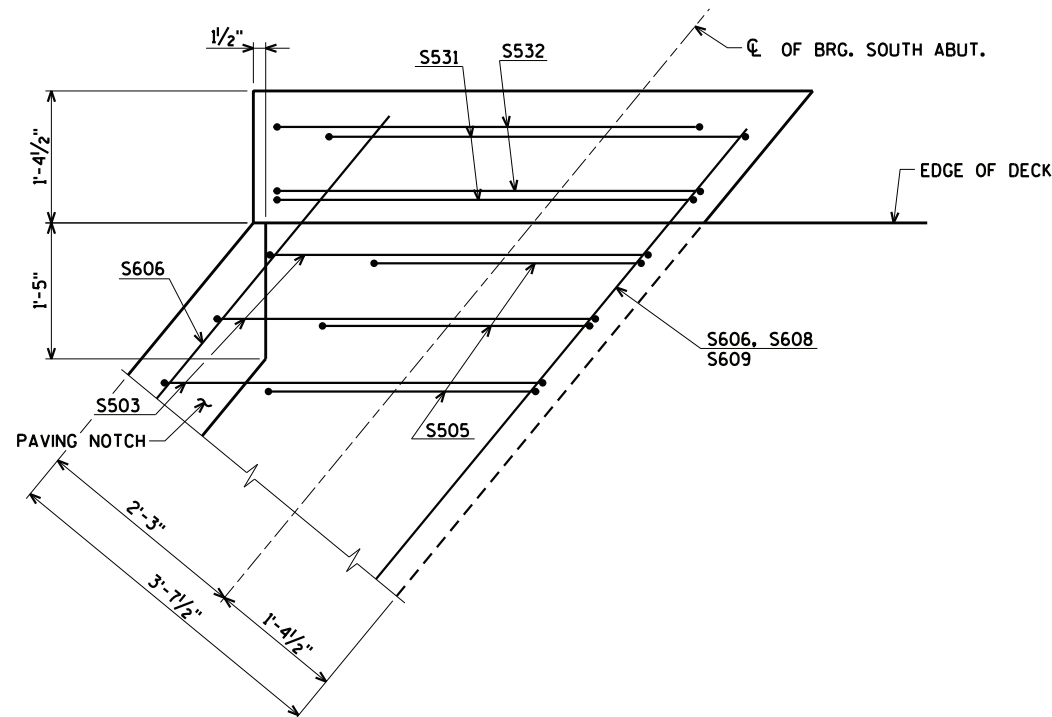
WHEN CONNECTING METALLIC CONDUIT, ONLY ADAPTER FITTINGS U.L. LISTED FOR ELECTRICAL USE SHALL BE USED

(A02) APPROVED MANUFACTURER OR EQUIVALENT- EXPANSION FITTING: O-2/GEDNEY TYPE AXDX AND BONDING JUMPER (4" TOTAL LONGITUDINAL CONDUIT MOVEMENT). ALSO USE EXPANSION FITTING AT PARAPET DEFLECTION JOINTS.

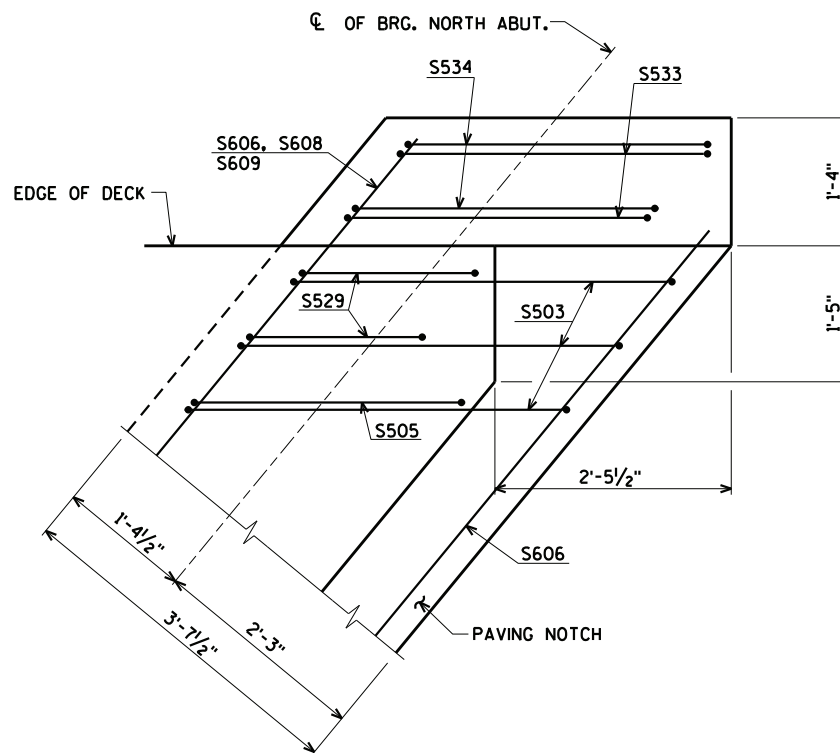
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SUPERSTRUCTURE DETAILS</b>			SHEET 29 OF 37

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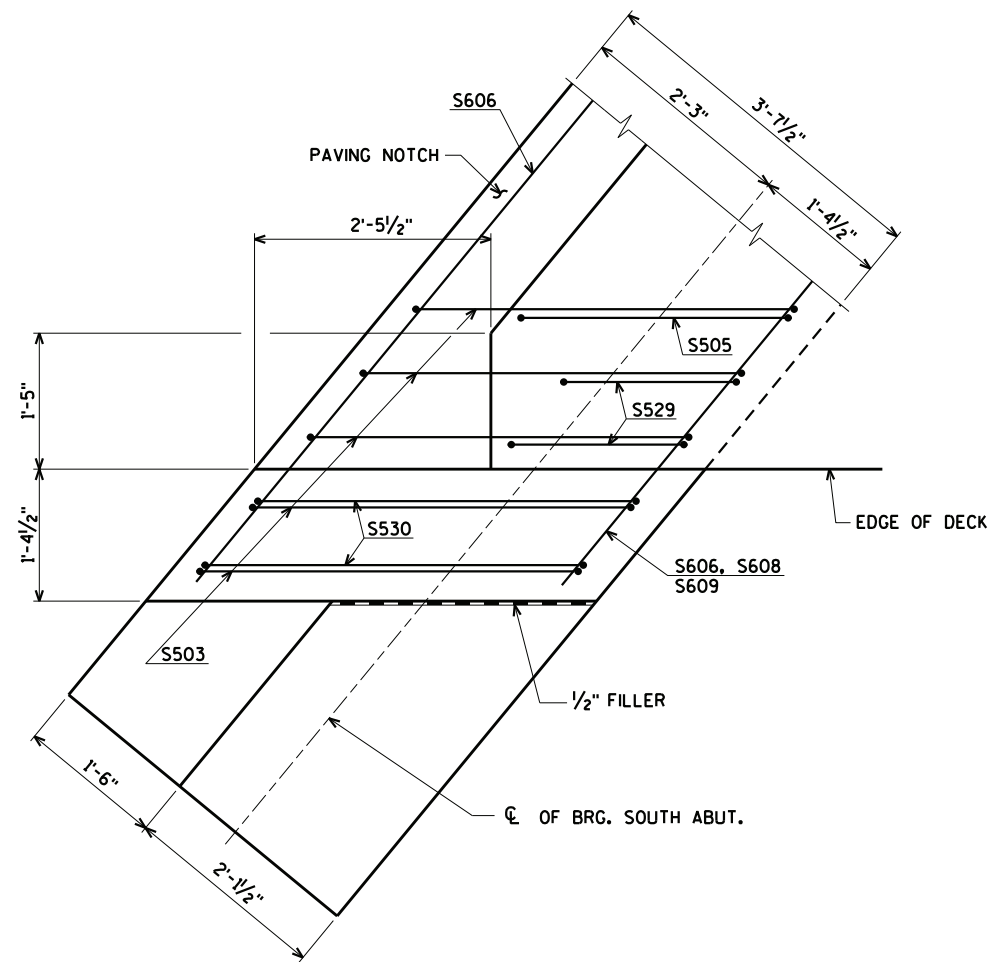
\$PRFNAME\$ U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\1-39 over Siggeikow Road\Southbound\1-39 over Siggeikow Road



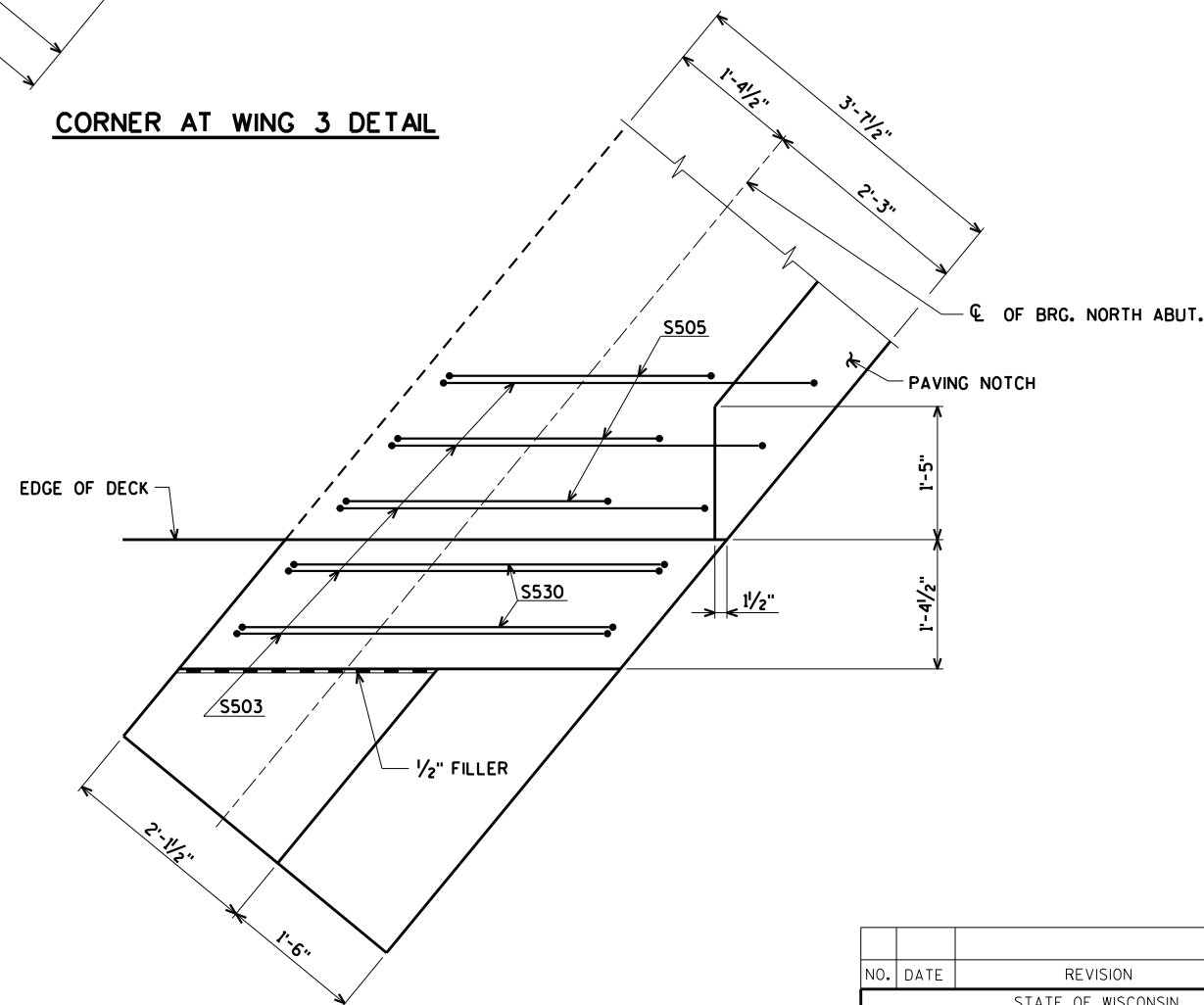
**CORNER AT WING 2 DETAIL**



**CORNER AT WING 3 DETAIL**



**CORNER AT WING 1 DETAIL**



**CORNER AT WING 4 DETAIL**

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U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\1-39 over Siggeikow Road\Southbound\1-39 over Siggeikow Road

8

8

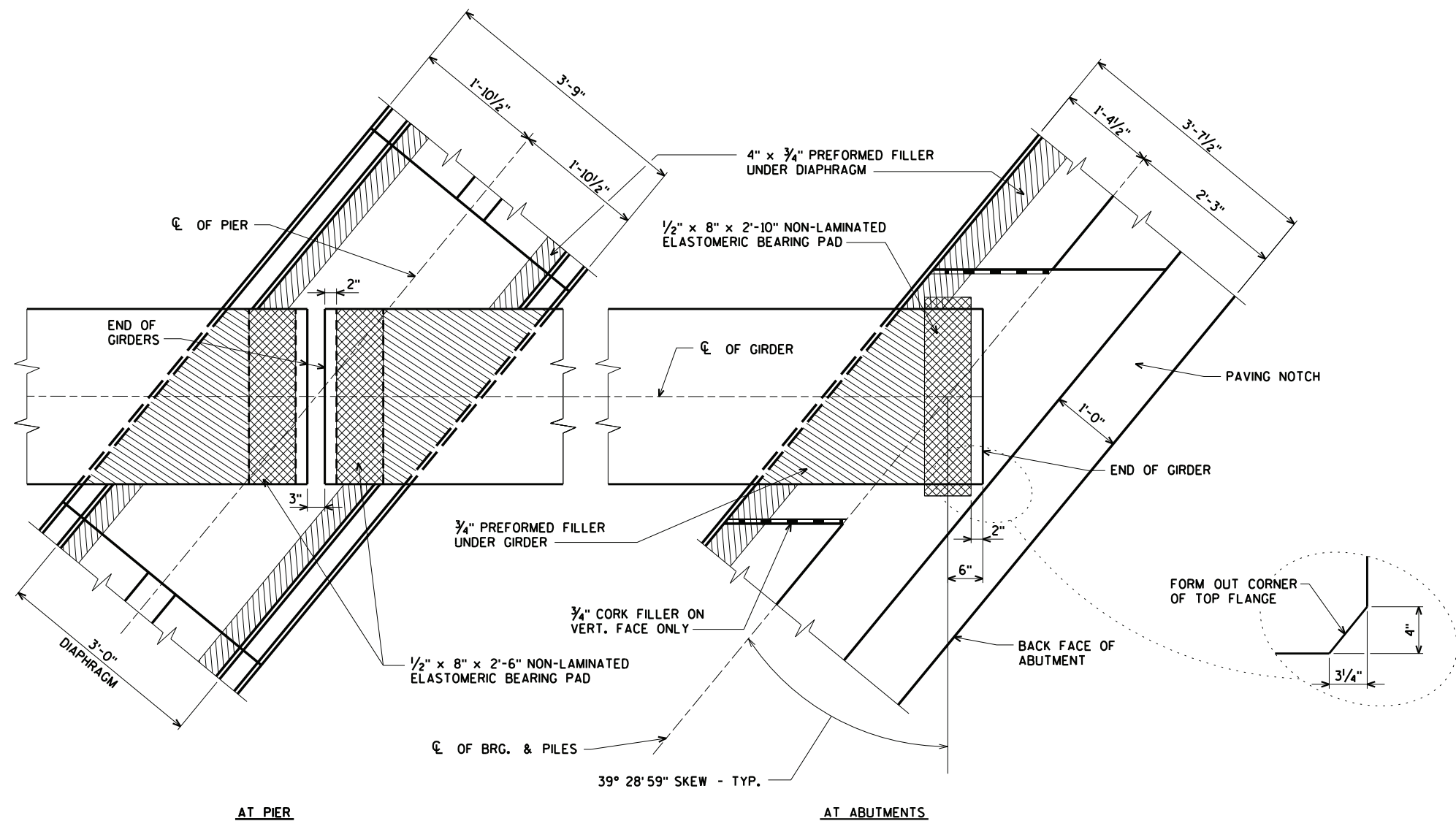
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>SUPERSTRUCTURE CORNER DETAILS</b>			SHEET 30 OF 37

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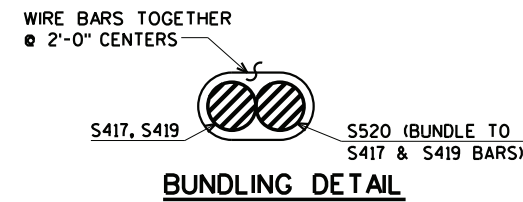
\$PRFNAME\$  
 U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\_I-39 over Siggeikow

STATE PROJECT NUMBER

1007-10-71



**BEARING PAD DETAILS**



**BILL OF BARS**

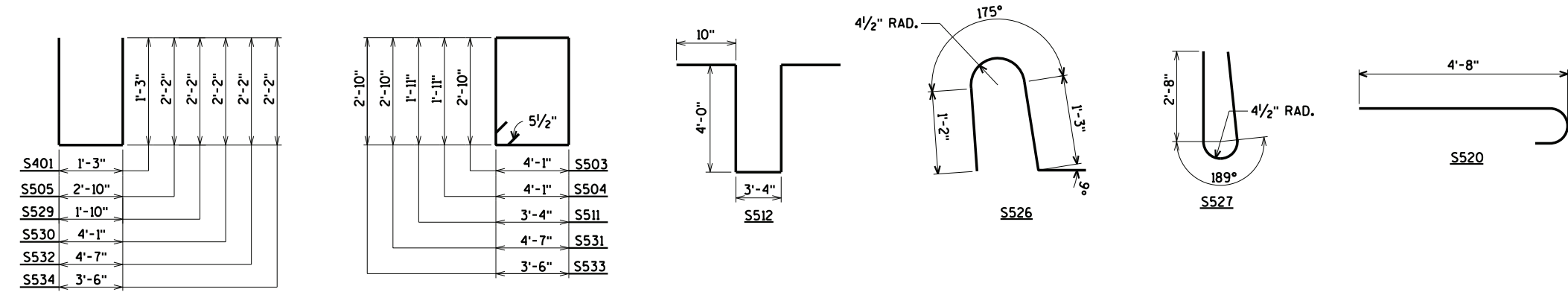
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	112,060* COATED	
						BAR SERIES	LOCATION
S401	X	54	3-7	X			DIAPH. @ ABUT. VERT. @ NOTCH
S402	X	36	3-0				DIAPH. @ ABUT. HORIZ. @ NOTCH
S503	X	106	14-6	X			DIAPH. @ ABUT. VERT.
S504	X	40	12-8	X			DIAPH. @ ABUT. VERT.
S505	X	98	7-0	X			DIAPH. @ ABUT. VERT.
S606	X	24	43-5				DIAPH. @ ABUT. HORIZ.
S607	X	144	4-3				DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S608	X	4	3-9				DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S609	X	12	5-6				DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S510	X	40	6-0				DIAPH. @ ABUT. HORIZ. THRU GDRS.
S511	X	18	11-2	X			DIAPH. @ PIER VERT.
S512	X	36	12-8	X			DIAPH. @ PIER. VERT.
S413	X	108	4-1				DIAPH. @ PIER HORIZ.
S414	X	94	16-7		X		SLAB TRANS. BOT.
S415	X	88	17-2		X		SLAB TRANS. BOT.
S416	X	750	32-1				SLAB TRANS. BOT.
S417	X	96	16-7		X	X	SLAB TRANS. TOP
S418	X	86	17-2		X	X	SLAB TRANS. TOP
S419	X	750	32-1		X		SLAB TRANS. TOP
S520	X	836	5-3	X	X		SLAB TRANS. TOP @ EDGES
S421	X	498	39-7				SLAB LONG. BOT.
S1022	X	63	59-1				SLAB LONG. TOP @ PIER
S1023	X	62	51-4				SLAB LONG. TOP @ PIER
S424	X	168	39-3				SLAB LONG. TOP SPAN 1
S425	X	168	43-6				SLAB LONG. TOP SPAN 2
S526	X	688	4-5	X			SLAB @ PARAPET
S527	X	688	6-8	X			PARAPET VERT.
S528	X	96	40-9				PARAPET HORIZ.
S529	X	4	6-0	X			DIAPH. @ ABUT. VERT. CORNER
S530	X	4	8-3	X			DIAPH. @ ABUT. VERT. CORNER
S531	X	2	15-6	X			DIAPH. @ ABUT. VERT. CORNER
S532	X	2	8-9	X			DIAPH. @ ABUT. VERT. CORNER
S533	X	2	13-4	X			DIAPH. @ ABUT. VERT. CORNER
S534	X	2	7-8	X			DIAPH. @ ABUT. VERT. CORNER

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
S414	2 SERIES OF 47	1'-5" TO 31'-9"
S415	2 SERIES OF 44	3'-0" TO 31'-4"
S417	2 SERIES OF 48	1'-1" TO 32'-1"
S418	2 SERIES OF 43	3'-4" TO 31'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.



8

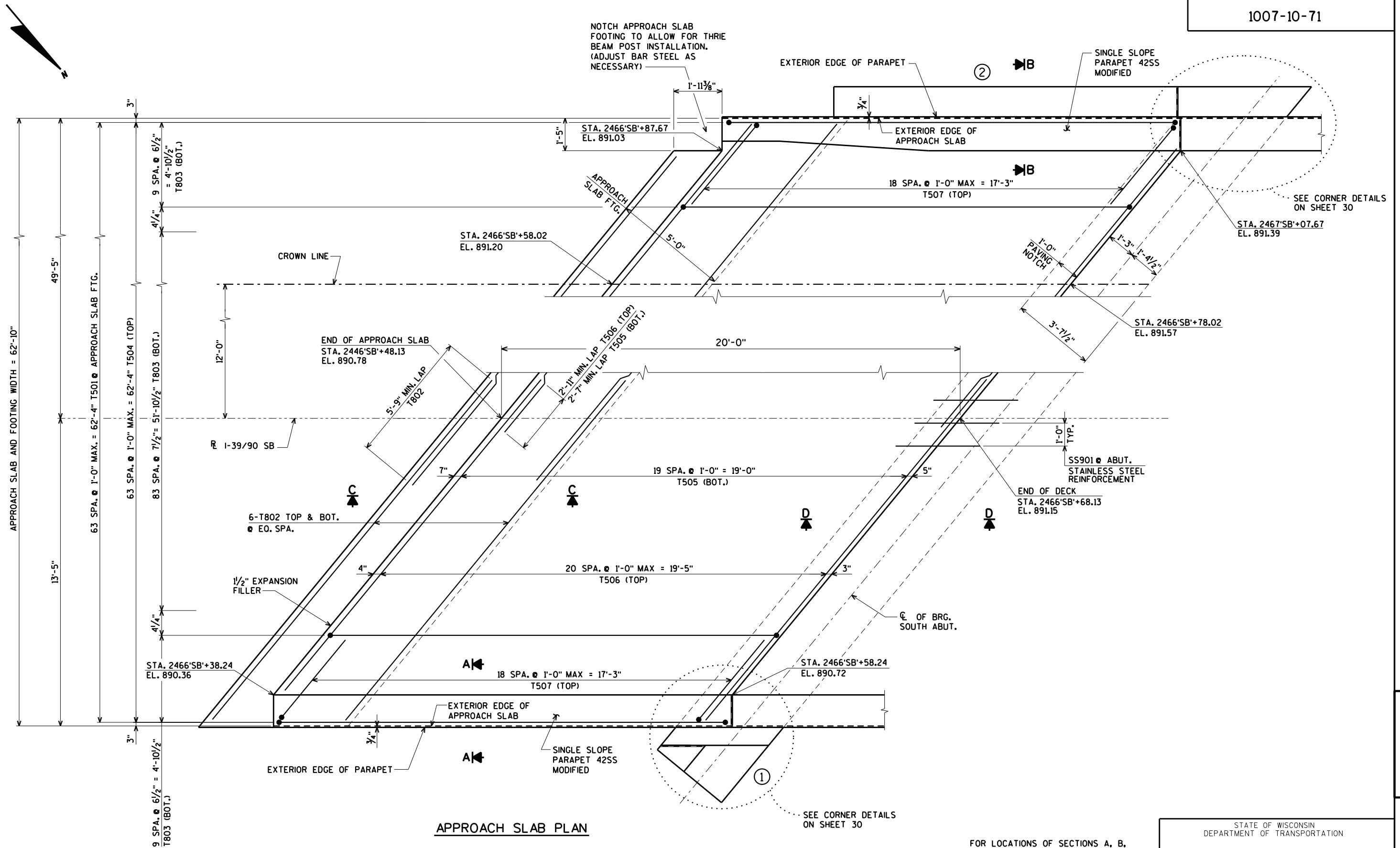
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SUPERSTRUCTURE DETAILS</b>			SHEET 31 OF 37

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APPROACH SLAB PLAN

FOR LOCATIONS OF SECTIONS A, B, C, & D SEE SHEET 34

WORK THIS SHEET WITH SHEET 34



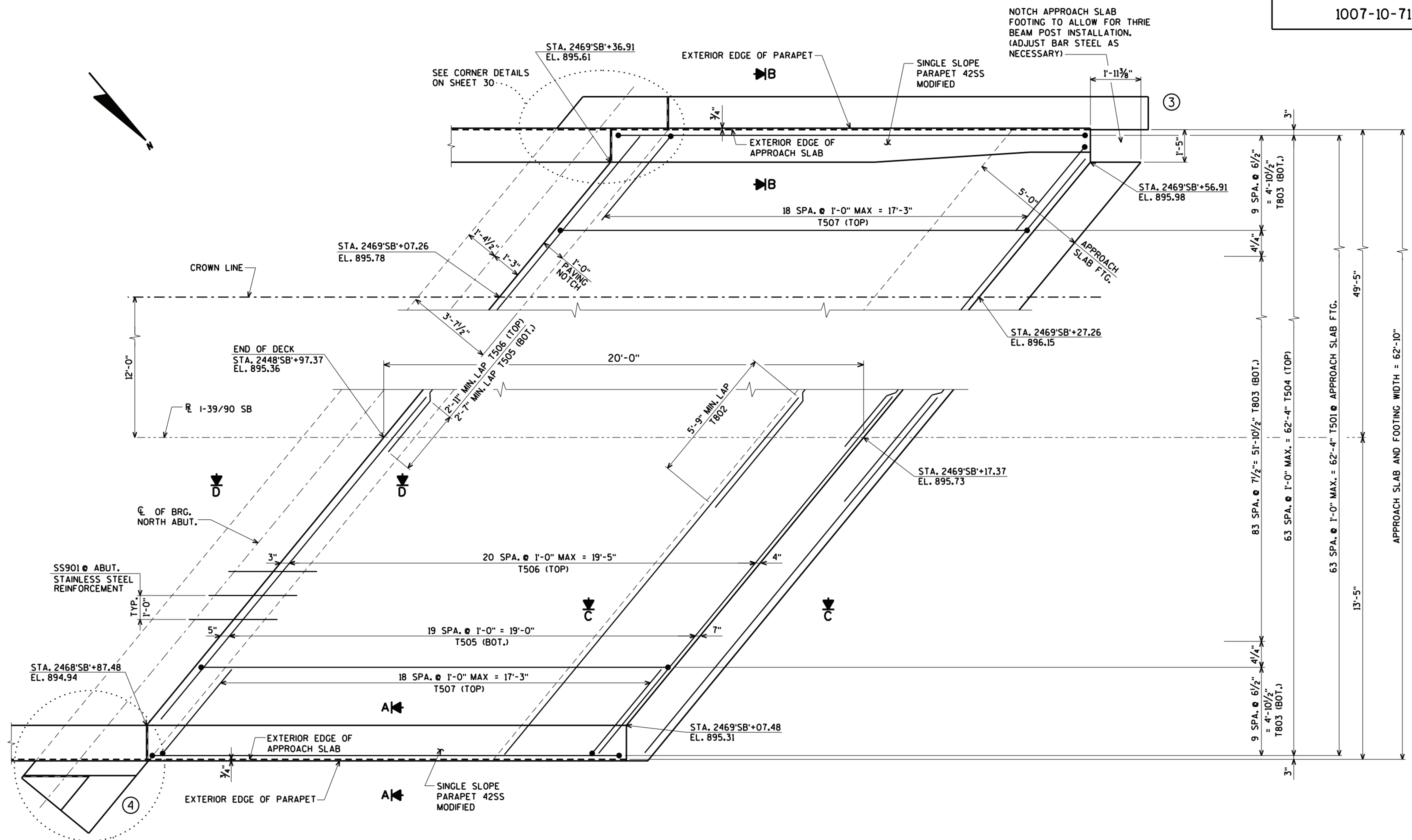
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-727			
DRAWN BY	JCK	PLANS CK'D.	CBM
SOUTH STRUCTURAL APPROACH SLAB			SHEET 32 OF 37

\$PRNAME\$  
 U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\1-39 over Siggeikow Road\Southbound\1-39 over Siggeikow Road

STATE PROJECT NUMBER

1007-10-71



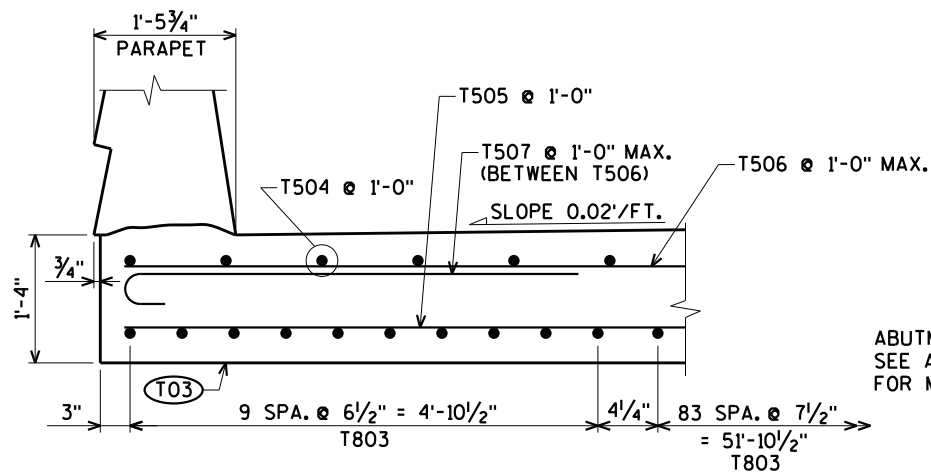
APPROACH SLAB PLAN

FOR LOCATIONS OF SECTIONS A, B, C, & D SEE SHEET 34

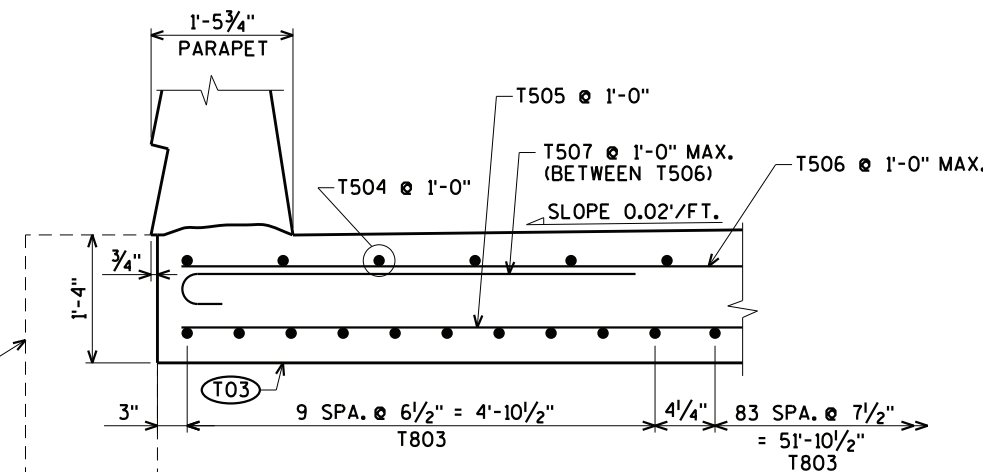
WORK THIS SHEET WITH SHEET 34

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-727			
DRAWN BY	JCK	PLANS CK'D.	CBM
NORTH STRUCTURAL APPROACH SLAB			SHEET 33 OF 37



**SECTION A**  
FOR LOCATION SEE SHEETS 32 & 33



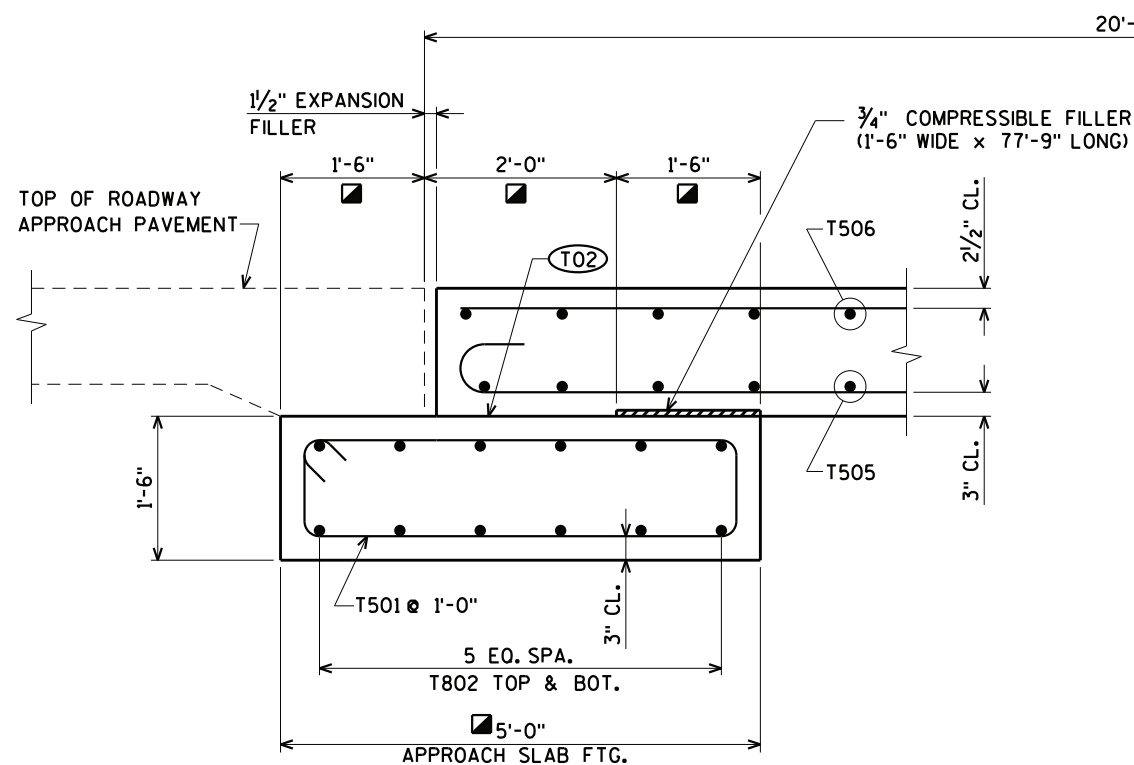
**SECTION B**  
FOR LOCATION SEE SHEETS 32 & 33

**BILL OF BARS**

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	LOCATION
SS901		63	5'-0"	X		1,070# STAINLESS STEEL (PER APPROACH SLAB) CONC. ABUT. DIAPH. TO APPROACH SLAB

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	LOCATION
T501	X	64	14'-6"	X		14,550# COATED (PER APPROACH SLAB) APPROACH SLAB FTG. - STIRRUP
T802	X	24	43'-4"			APPROACH SLAB FTG. - TRANS.
T803	X	104	20'-9"	X		APPROACH SLAB - LONG. - BOT.
T504	X	64	19'-6"			APPROACH SLAB - LONG. - TOP
T505	X	40	41'-9"			APPROACH SLAB - TRANS. - BOT.
T506	X	42	41'-11"			APPROACH SLAB - TRANS. - TOP
T507	X	38	4'-1"	X		APPROACH SLAB - TRANS. - TOP

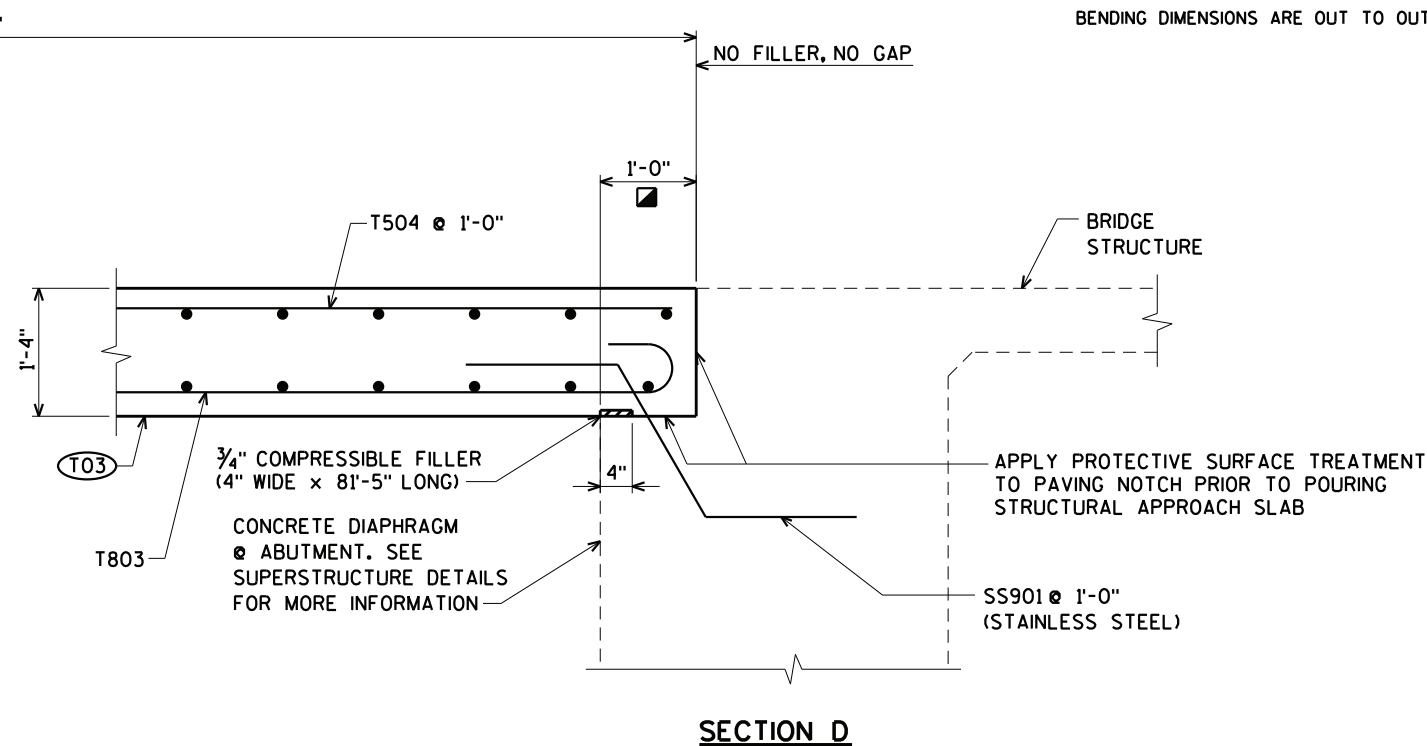
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



**SECTION C**

**SECTION THRU APPROACH SLAB**

MEASURED NORMAL TO ABUTMENT



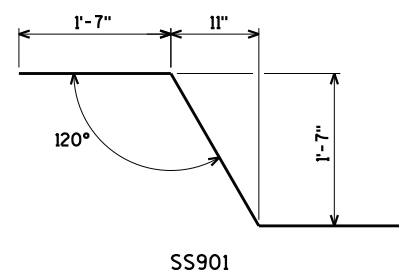
**SECTION D**

(T02) STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.

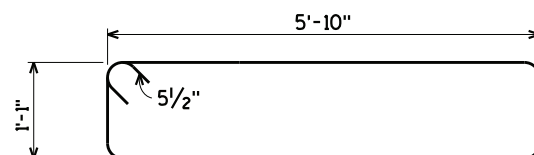
(T03) PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE.

POLYETHYLENE SHEETS ARE INCIDENTAL TO "HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES".

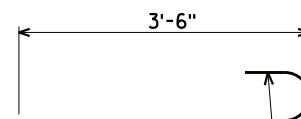
ALL STRUCTURAL APPROACH SLAB CONCRETE PAID FOR UNDER "HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES".



SS901

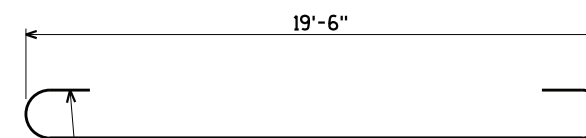


T501



T507

STD. 180° HOOK - TYP.



T803

STD. 180° HOOK - TYP.

WORK THIS SHEET WITH SHEETS 32 THRU 33

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-727			
DRAWN BY	JCK	PLANS CK'D.	CBM
STRUCTURAL APPROACH SLAB DETAILS			SHEET 34 OF 37

\$PRNAME\$  
 U:\45-036100 - IH-39 Dane Partners General Bridge Information\I-39 over Siggeikow Road\Southbound\_I-39 over Siggeikow

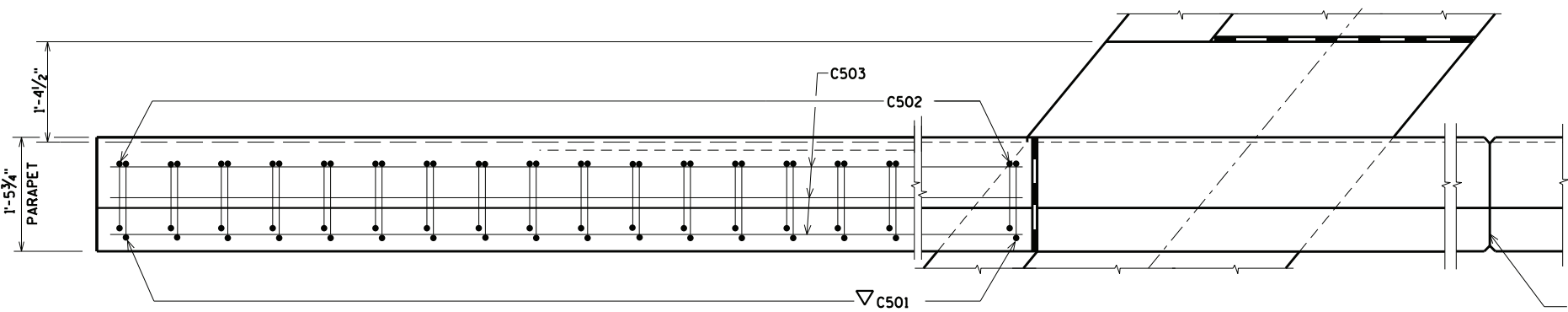
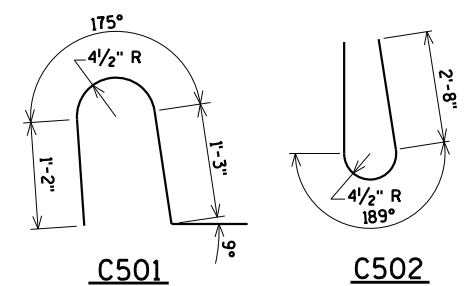
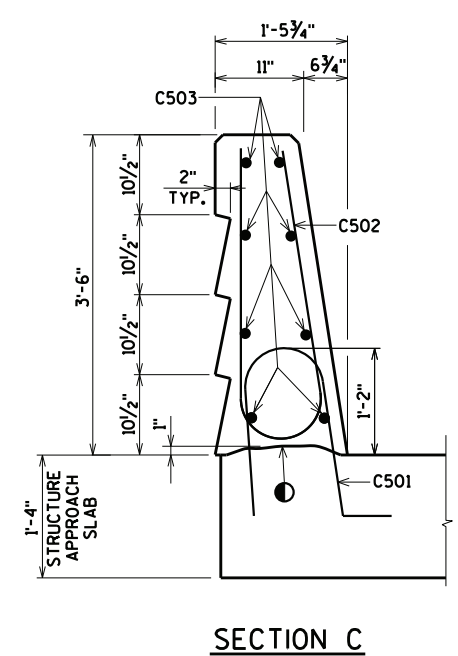
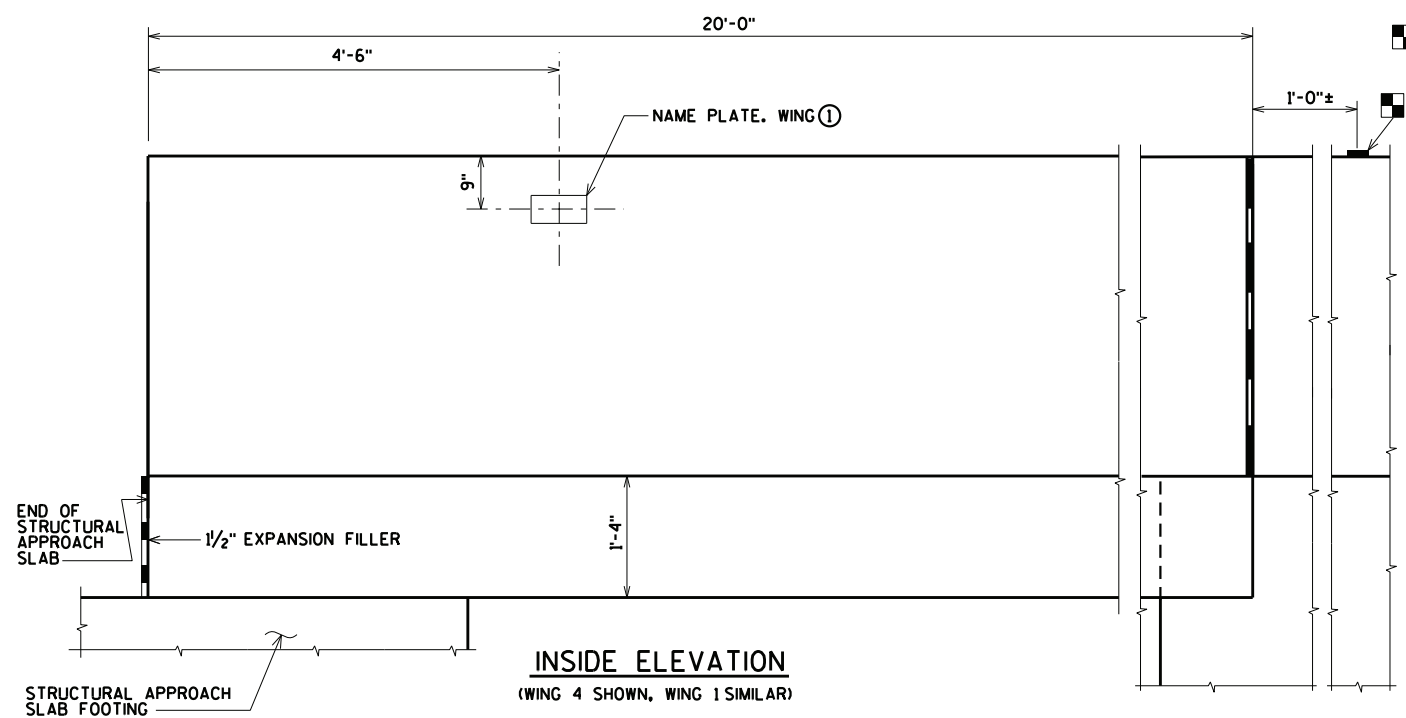
STATE PROJECT NUMBER

1007-10-71

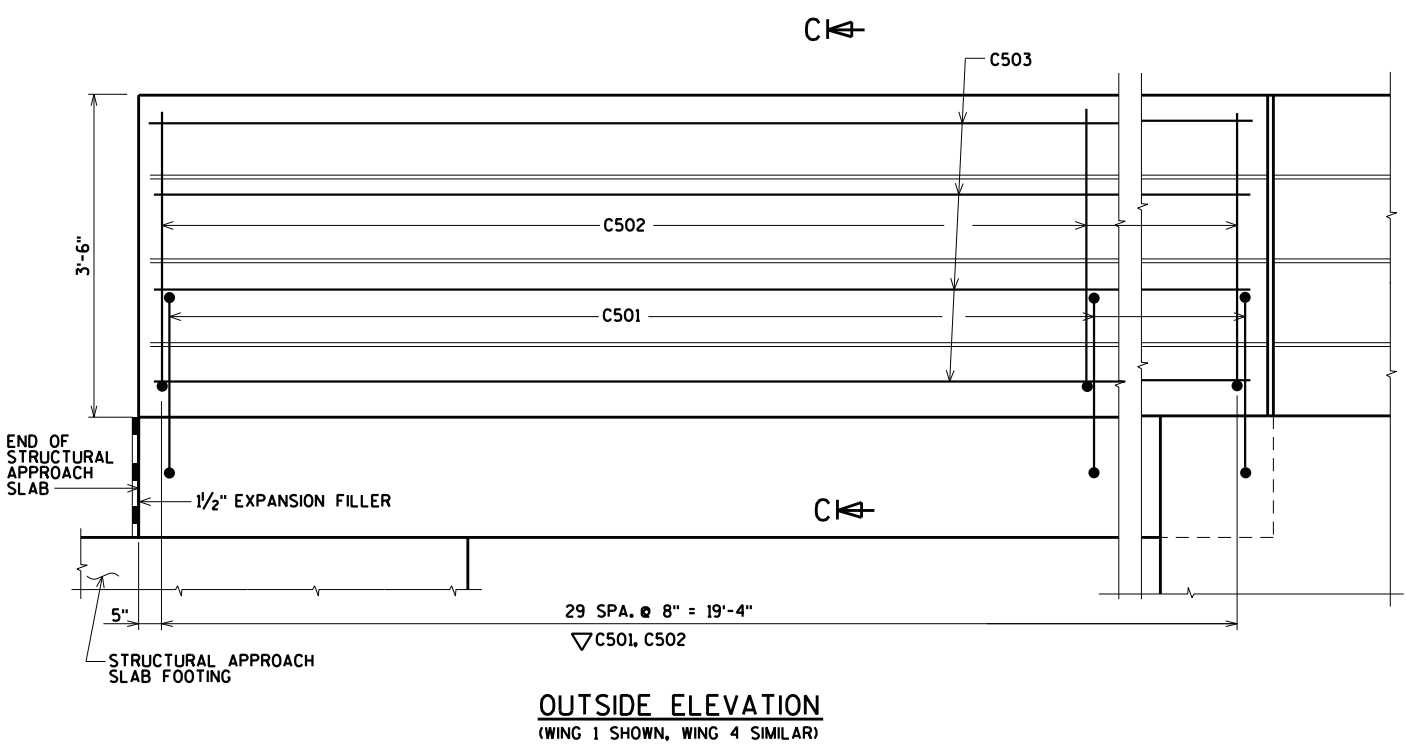
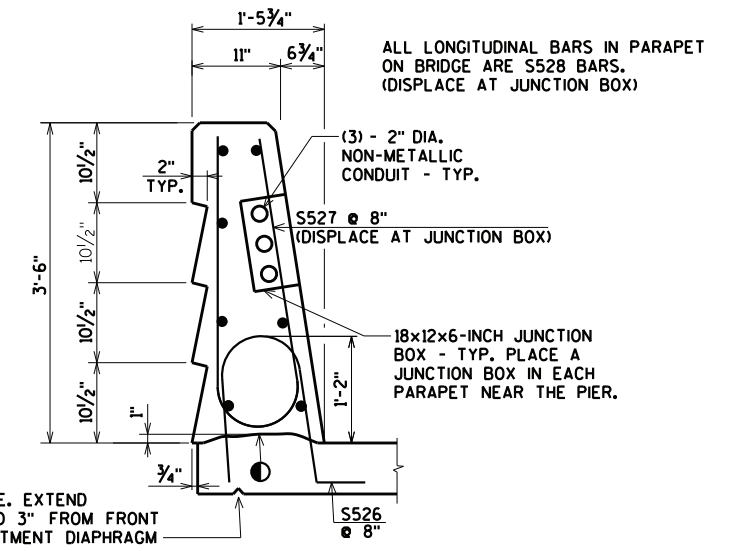
510" COATED SOUTH STRUCTURAL APPROACH SLAB  
 510" COATED NORTH STRUCTURAL APPROACH SLAB

**BILL OF BARS**  
 FOR STRUCTURAL APPROACH SLAB PARAPETS

BAR MARK	COAT	SOUTH STRUCT. APPR. SLAB	NORTH STRUCT. APPR. SLAB	LENGTH	BENT	BAR SERIES	LOCATION
C501	X	30	30	4-5	X		PARAPET VERT.
C502	X	30	30	6-8	X		PARAPET VERT.
C503	X	8	8	19-6			PARAPET HORIZ.



OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



● CONST. JOINT - STRIKE OFF AS SHOWN.

▽ C501 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.

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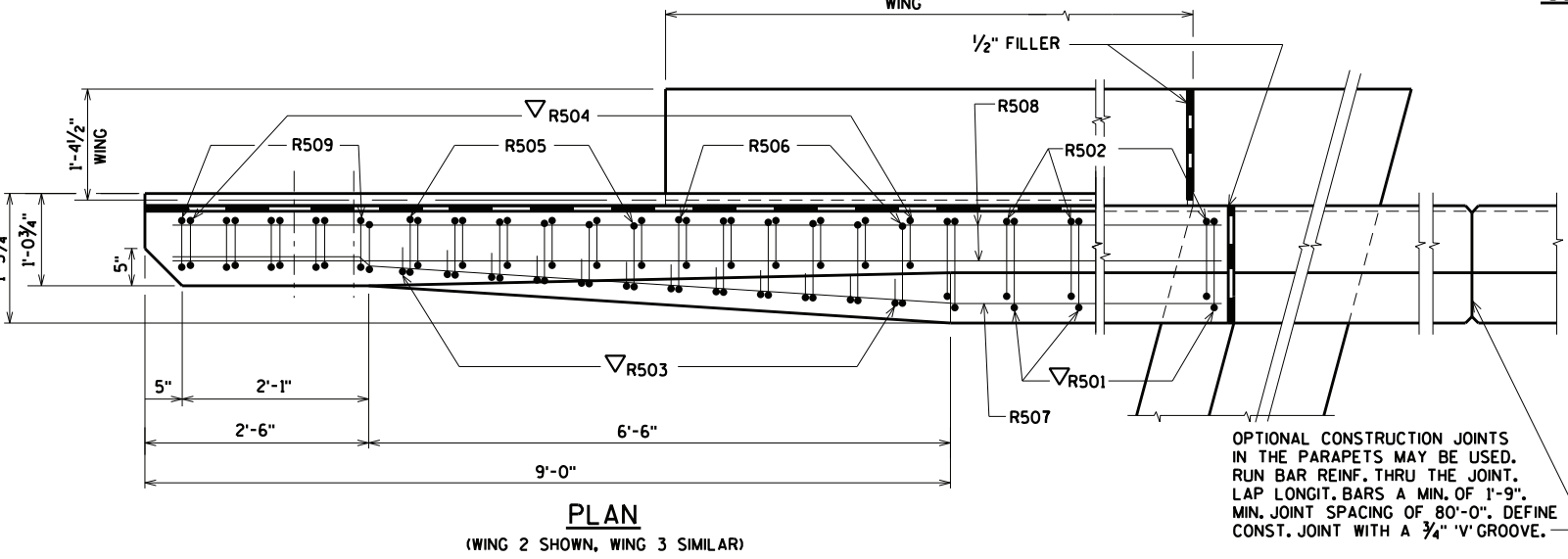
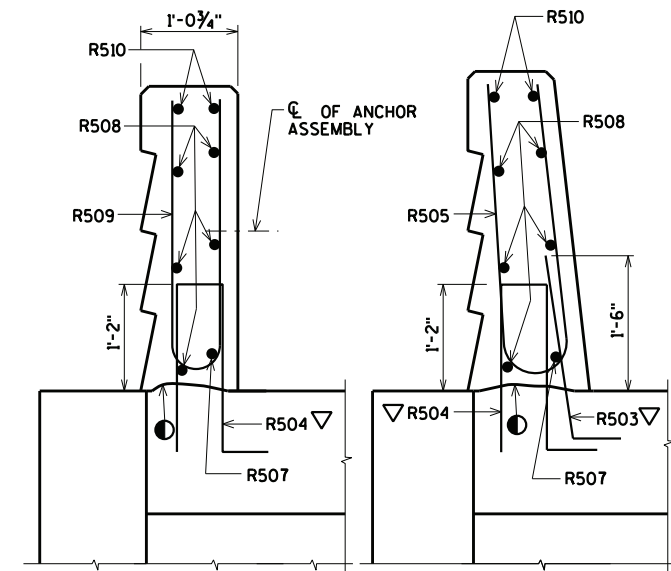
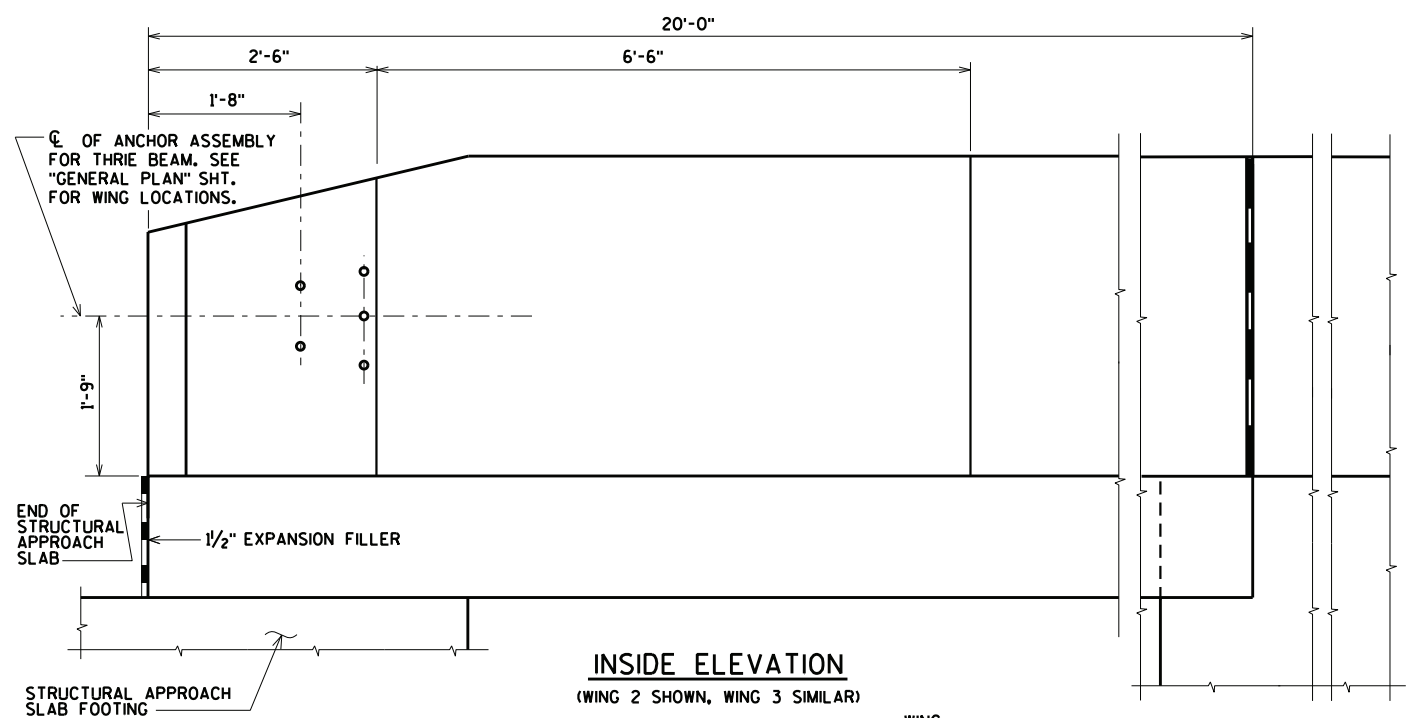
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SINGLE SLOPE PARAPET MODIFIED 42SS</b>			SHEET 35 OF 37

590° COATED SOUTH STRUCTURAL APPROACH SLAB  
590° COATED NORTH STRUCTURAL APPROACH SLAB

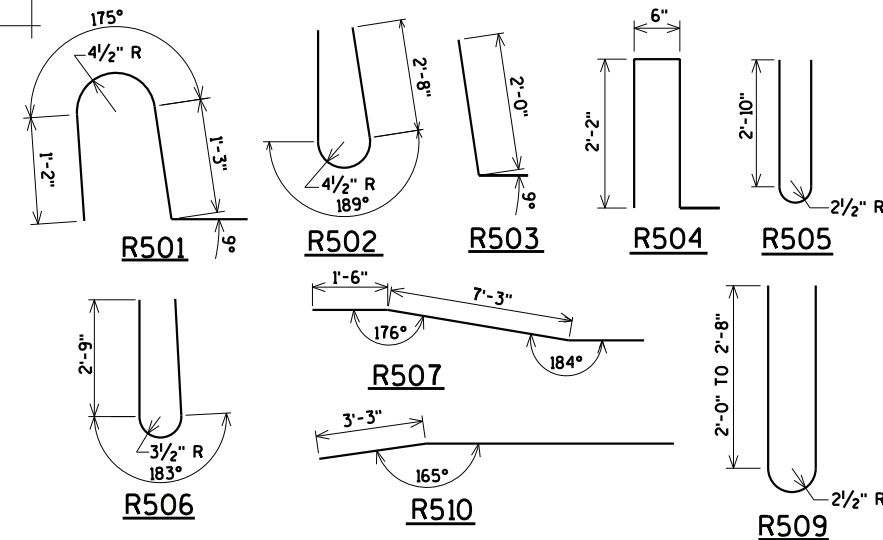
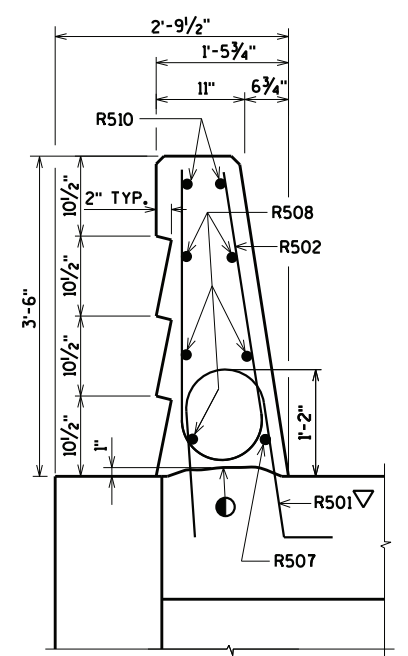
**BILL OF BARS**

FOR STRUCTURAL APPROACH SLAB PARAPETS

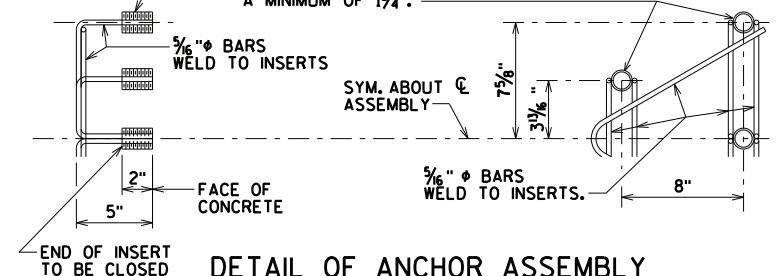
BAR MARK	COY.	SOUTH STRUCT. APPR. SLAB	NORTH STRUCT. APPR. SLAB	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	17	17	4-5	X		PARAPET VERT.
R502	X	17	17	6-8	X		PARAPET VERT.
R503	X	11	11	2-9	X		PARAPET VERT.
R504	X	17	17	5-4	X		PARAPET VERT.
R505	X	5	5	6-5	X		PARAPET VERT.
R506	X	6	6	6-6	X		PARAPET VERT.
R507	X	1	1	19-6	X		PARAPET HORIZ.
R508	X	5	5	19-6			PARAPET HORIZ.
R509	X	6	6	5-5	X	▲	PARAPET VERT.
R510	X	2	2	19-6	X		PARAPET HORIZ.



OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" 'V' GROOVE.



THREADED INSERTS FOR 3/8" Ø X 2" LONG GALVANIZED HEX HEAD CAP SCREWS. CAP SCREWS TO BE THREADED A MIN. OF 1 1/4" AND SHALL BE SUPPLIED, INCLUDING WASHERS. WITH ASSEMBLY, INSERTS TO BE THREADED A MINIMUM OF 1 3/4".



NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.  
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

**BAR SERIES TABLE**

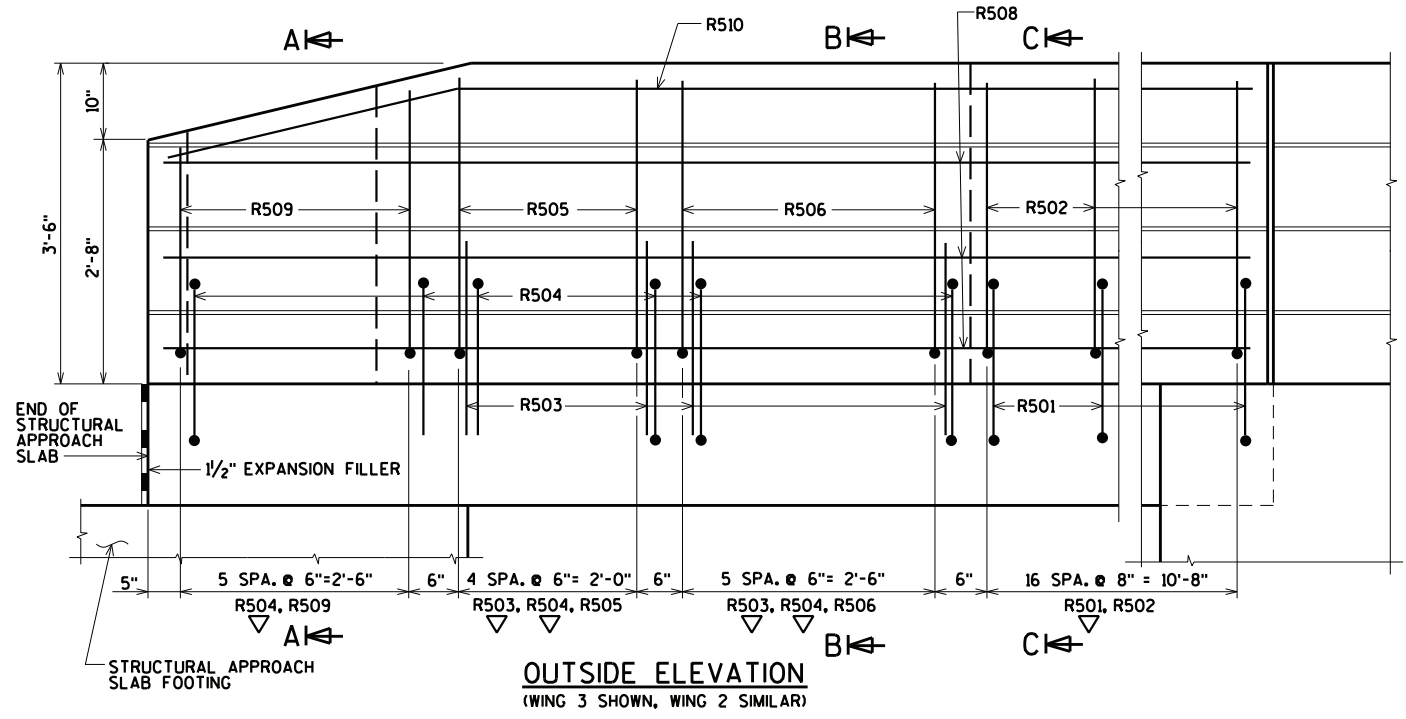
BAR MARK	NO REQ'D.	LENGTH
R509	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

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

● CONST. JOINT - STRIKE OFF AS SHOWN.

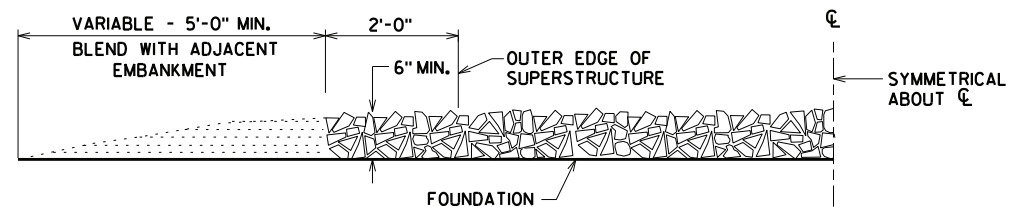
▽ R501, R503 AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.



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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-13-727</b>			
DRAWN BY JCK		PLANS CK'D. CBM	
<b>SINGLE SLOPE PARAPET MODIFIED 42SS</b>			SHEET 36 OF 37

\$PRFNAME\$ U:\45-0361.00 - IH-39 Dane Partners General Bridge Information\1-39 over Siggeikow Road\Southbound\1-39 over Siggeikow Road#BRIDGE#45

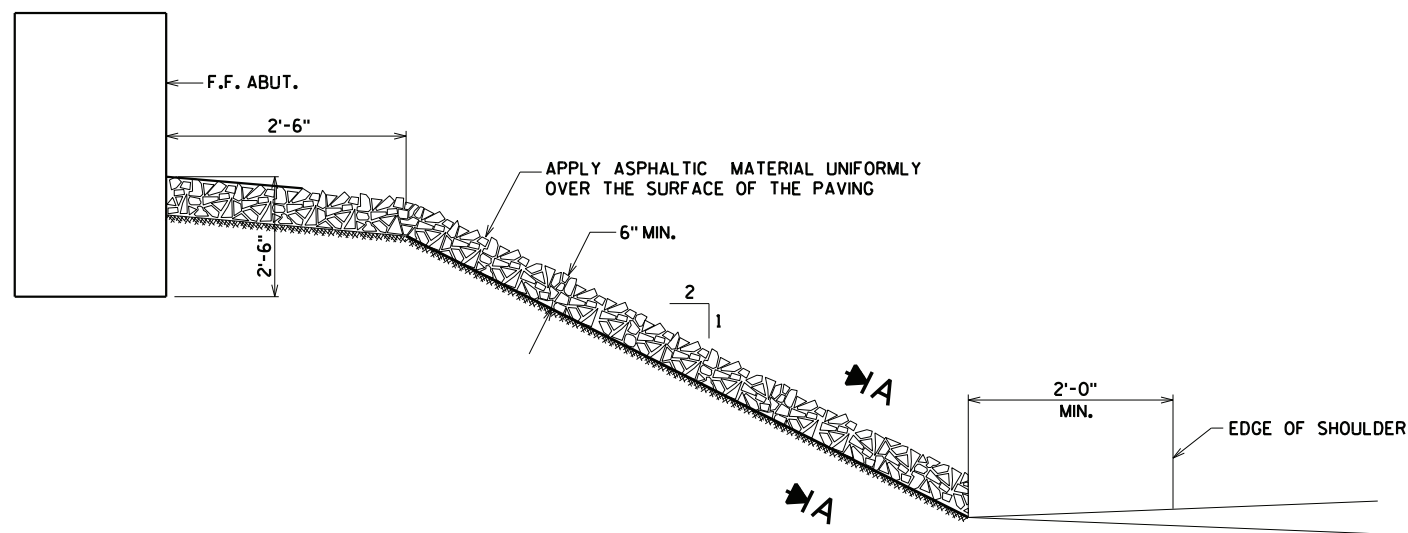


**SECTION A**

**GENERAL NOTES**

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

WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.



**STANDARD CROSS SECTION**

ROUND STONE WILL NOT BE ACCEPTED

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-13-727			
DRAWN BY CLS		PLANS CK'D. CBM	
<b>SLOPE PAVING CRUSHED AGGREGATE</b>			SHEET 37 OF 37

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# SOUTH CROSSOVER

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate			
			Cut	Salvaged/Unusable		Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Salvaged/Unusable		Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Exp. Fill	Exp. Marsh Backfill	Exp. Rock		Exp. EBS Backfill	Red. Marsh in Fill	Red. EBS In Fill
				Pave. Mat.							Pave. Mat.													
435+75	43575	0	27.3	0.0	0.1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
436+00	43600	25	28.5	0.0	0.3	0.0	0.0	0.0	26	0	0	0	0	0	26	0	0	0	0	0	0.0	0.0	25.7	
436+50	43650	50	32.8	0.0	1.6	0.0	0.0	0.0	57	0	2	0	0	0	83	2	0	0	0	0	0.0	0.0	80.5	
437+00	43700	50	37.1	0.0	3.0	0.0	0.0	0.0	65	0	4	0	0	0	147	7	0	0	0	0	0.0	0.0	140.4	
437+50	43750	50	41.8	0.0	6.7	0.0	0.0	0.0	73	0	9	0	0	0	220	17	0	0	0	0	0.0	0.0	203.0	
438+00	43800	50	45.8	0.0	16.2	0.0	0.0	0.0	81	0	21	0	0	0	301	42	0	0	0	0	0.0	0.0	259.7	
438+50	43850	50	49.1	0.0	19.0	0.0	0.0	0.0	88	0	33	0	0	0	389	79	0	0	0	0	0.0	0.0	310.1	
439+00	43900	50	53.4	0.0	22.7	0.0	0.0	0.0	95	0	39	0	0	0	484	124	0	0	0	0	0.0	0.0	360.6	
439+50	43950	50	56.8	0.0	27.4	0.0	0.0	0.0	102	0	46	0	0	0	586	177	0	0	0	0	0.0	0.0	409.3	
440+00	44000	50	60.0	0.0	30.6	0.0	0.0	0.0	108	0	54	0	0	0	694	239	0	0	0	0	0.0	0.0	455.6	
440+50	44050	50	65.5	0.0	31.6	0.0	0.0	0.0	116	0	58	0	0	0	810	305	0	0	0	0	0.0	0.0	505.5	
441+00	44100	50	68.7	0.0	32.1	0.0	0.0	0.0	124	0	59	0	0	0	935	373	0	0	0	0	0.0	0.0	561.8	
441+50	44150	50	71.3	0.0	31.8	0.0	0.0	0.0	130	0	59	0	0	0	1,064	441	0	0	0	0	0.0	0.0	623.4	
442+00	44200	50	72.6	0.0	28.7	0.0	0.0	0.0	133	0	56	0	0	0	1,197	505	0	0	0	0	0.0	0.0	692.3	
442+50	44250	50	67.7	0.0	24.5	0.0	0.0	0.0	130	0	49	0	0	0	1,327	562	0	0	0	0	0.0	0.0	765.5	
443+00	44300	50	74.6	0.0	19.8	0.0	0.0	0.0	132	0	41	0	0	0	1,459	609	0	0	0	0	0.0	0.0	850.1	
443+50	44350	50	74.5	0.0	15.1	0.0	0.0	0.0	138	0	32	0	0	0	1,597	646	0	0	0	0	0.0	0.0	951.0	
444+00	44400	50	75.1	0.0	9.6	0.0	0.0	0.0	139	0	23	0	0	0	1,736	672	0	0	0	0	0.0	0.0	1,063.3	
444+50	44450	50	78.1	0.0	5.7	0.0	0.0	0.0	142	0	14	0	0	0	1,878	689	0	0	0	0	0.0	0.0	1,188.9	
445+00	44500	50	96.3	0.0	2.1	0.0	0.0	0.0	161	0	7	0	0	0	2,039	697	0	0	0	0	0.0	0.0	1,342.0	
445+50	44550	50	57.9	0.0	10.0	0.0	0.0	0.0	143	0	11	0	0	0	2,182	710	0	0	0	0	0.0	0.0	1,471.9	
446+00	44600	50	53.1	0.0	17.4	0.0	0.0	0.0	103	0	25	0	0	0	2,285	739	0	0	0	0	0.0	0.0	1,545.5	
446+50	44650	50	52.1	0.0	24.2	0.0	0.0	0.0	97	0	39	0	0	0	2,382	783	0	0	0	0	0.0	0.0	1,598.6	
447+00	44700	50	52.4	0.0	28.9	0.0	0.0	0.0	97	0	49	0	0	0	2,479	840	0	0	0	0	0.0	0.0	1,638.8	
447+50	44750	50	53.3	0.0	31.1	0.0	0.0	0.0	98	0	56	0	0	0	2,577	904	0	0	0	0	0.0	0.0	1,672.8	
448+00	44800	50	54.8	0.0	32.0	0.0	0.0	0.0	100	0	58	0	0	0	2,677	971	0	0	0	0	0.0	0.0	1,705.8	
448+50	44850	50	50.3	0.0	36.4	0.0	0.0	0.0	97	0	63	0	0	0	2,774	1,044	0	0	0	0	0.0	0.0	1,730.3	
449+00	44900	50	48.2	0.0	39.0	0.0	0.0	0.0	91	0	70	0	0	0	2,865	1,124	0	0	0	0	0.0	0.0	1,741.2	
449+50	44950	50	47.9	0.0	40.1	0.0	0.0	0.0	89	0	73	0	0	0	2,954	1,208	0	0	0	0	0.0	0.0	1,746.0	
450+00	45000	50	48.1	0.0	40.6	0.0	0.0	0.0	89	0	75	0	0	0	3,043	1,294	0	0	0	0	0.0	0.0	1,749.0	
450+50	45050	50	49.2	0.0	40.8	0.0	0.0	0.0	90	0	75	0	0	0	3,133	1,381	0	0	0	0	0.0	0.0	1,752.4	
451+00	45100	50	51.0	0.0	52.4	0.0	0.0	0.0	93	0	86	0	0	0	3,226	1,480	0	0	0	0	0.0	0.0	1,746.0	
451+50	45150	50	52.4	0.0	58.8	0.0	0.0	0.0	96	0	103	0	0	0	3,322	1,598	0	0	0	0	0.0	0.0	1,723.3	
452+00	45200	50	53.9	0.0	44.4	0.0	0.0	0.0	98	0	96	0	0	0	3,420	1,708	0	0	0	0	0.0	0.0	1,711.7	
452+50	45250	50	54.0	0.0	30.2	0.0	0.0	0.0	100	0	69	0	0	0	3,520	1,788	0	0	0	0	0.0	0.0	1,732.2	

# SOUTH CROSSOVER

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut Note 1	Salvaged/ Unusable Pave. Mat. Note 2	Fill Note 3	Marsh Exc.	Rock Exc.	EBS	Cut 1.00 Note 1	Exp. Fill 1.15	Exp. Marsh Backfill 1.50 Note 4	Exp. Rock 1.10	Exp. EBS Backfill 1.30 Note 5	Red. Marsh in Fill 0.60 Note 6		Red. EBS In Fill 0.80 Note 7
453+00	45300	50	52.6	0.0	16.1	0.0	0.0	0.0	99	0	43	0	0	0	3,619	1,837	0	0	0	0.0	0.0	1,781.6
453+50	45350	50	49.8	0.0	16.5	0.0	0.0	0.0	95	0	30	0	0	0	3,713	1,872	0	0	0	0.0	0.0	1,841.7
454+00	45400	50	46.8	0.0	17.7	0.0	0.0	0.0	89	0	32	0	0	0	3,803	1,908	0	0	0	0.0	0.0	1,894.7
454+50	45450	50	44.2	0.0	17.2	0.0	0.0	0.0	84	0	32	0	0	0	3,887	1,945	0	0	0	0.0	0.0	1,941.8
455+00	45500	50	42.9	0.0	16.6	0.0	0.0	0.0	81	0	31	0	0	0	3,968	1,981	0	0	0	0.0	0.0	1,986.3
455+50	45550	50	40.8	0.0	16.5	0.0	0.0	0.0	77	0	31	0	0	0	4,045	2,017	0	0	0	0.0	0.0	2,028.6
456+00	45600	50	39.2	0.0	14.5	0.0	0.0	0.0	74	0	29	0	0	0	4,119	2,049	0	0	0	0.0	0.0	2,069.8
456+50	45650	50	25.4	0.0	3.8	0.0	0.0	0.0	60	0	17	0	0	0	4,179	2,069	0	0	0	0.0	0.0	2,110.2
457+00	45700	50	25.2	0.0	3.0	0.0	0.0	0.0	47	0	6	0	0	0	4,226	2,076	0	0	0	0.0	0.0	2,149.9
457+50	45750	50	25.5	0.0	2.6	0.0	0.0	0.0	47	0	5	0	0	0	4,273	2,082	0	0	0	0.0	0.0	2,190.9
458+00	45800	50	24.9	0.0	3.1	0.0	0.0	0.0	47	0	5	0	0	0	4,320	2,088	0	0	0	0.0	0.0	2,231.5
458+50	45850	50	24.2	0.0	4.0	0.0	0.0	0.0	46	0	7	0	0	0	4,365	2,096	0	0	0	0.0	0.0	2,269.4
459+00	45900	50	24.6	0.0	2.9	0.0	0.0	0.0	45	0	6	0	0	0	4,410	2,103	0	0	0	0.0	0.0	2,307.2
459+50	45950	50	23.4	0.0	2.3	0.0	0.0	0.0	44	0	5	0	0	0	4,455	2,109	0	0	0	0.0	0.0	2,346.0
460+00	46000	50	23.9	0.0	2.1	0.0	0.0	0.0	44	0	4	0	0	0	4,498	2,113	0	0	0	0.0	0.0	2,385.0
460+50	46050	50	23.6	0.0	2.4	0.0	0.0	0.0	44	0	4	0	0	0	4,542	2,118	0	0	0	0.0	0.0	2,424.2
461+00	46100	50	24.1	0.0	3.3	0.0	0.0	0.0	44	0	5	0	0	0	4,587	2,124	0	0	0	0.0	0.0	2,462.4
461+50	46150	50	23.4	0.0	5.9	0.0	0.0	0.0	44	0	9	0	0	0	4,631	2,134	0	0	0	0.0	0.0	2,496.6
462+00	46200	50	25.2	0.0	8.1	0.0	0.0	0.0	45	0	13	0	0	0	4,676	2,149	0	0	0	0.0	0.0	2,526.7
462+50	46250	50	26.4	0.0	8.0	0.0	0.0	0.0	48	0	15	0	0	0	4,724	2,166	0	0	0	0.0	0.0	2,557.3
463+00	46300	50	28.2	0.0	5.8	0.0	0.0	0.0	51	0	13	0	0	0	4,774	2,181	0	0	0	0.0	0.0	2,593.1
463+50	46350	50	23.0	0.0	7.7	0.0	0.0	0.0	47	0	13	0	0	0	4,822	2,195	0	0	0	0.0	0.0	2,626.2
464+00	46400	50	22.8	0.0	9.0	0.0	0.0	0.0	42	0	15	0	0	0	4,864	2,213	0	0	0	0.0	0.0	2,650.8
464+50	46450	50	22.7	0.0	6.2	0.0	0.0	0.0	42	0	14	0	0	0	4,906	2,229	0	0	0	0.0	0.0	2,676.7
465+00	46500	50	23.9	0.0	2.2	0.0	0.0	0.0	43	0	8	0	0	0	4,949	2,238	0	0	0	0.0	0.0	2,711.1
465+50	46550	50	27.0	0.0	0.0	0.0	0.0	0.0	47	0	2	0	0	0	4,996	2,240	0	0	0	0.0	0.0	2,755.8
466+00	46600	50	29.3	0.0	0.0	0.0	0.0	0.0	52	0	0	0	0	0	5,048	2,241	0	0	0	0.0	0.0	2,807.9
466+25	46625	25	26.2	0.0	0.0	0.0	0.0	0.0	26	0	0	0	0	0	5,074	2,241	0	0	0	0.0	0.0	2,833.6

5,074      0      1,948      0      0      0



# NORTH CROSSOVER

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Cut	Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut 1.00	Fill 1.15	Exp. Marsh Backfill 1.50	Exp. Rock Backfill 1.10	Exp. EBS Backfill 1.30	Red. Marsh in Fill 0.60		Red. EBS In Fill 0.80
467+75	46775		0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
468+00	46800	25	32.8	0.0	0.0	0.0	0.0	0.0	15	0	0	0	0	0	15	0	0	0	0.0	0.0	15.2	
468+50	46850	50	33.3	0.0	1.4	0.0	0.0	0.0	61	0	1	0	0	0	76	1	0	0	0.0	0.0	74.9	
469+00	46900	50	38.6	0.0	4.2	0.0	0.0	0.0	67	0	5	0	0	0	143	7	0	0	0.0	0.0	135.5	
469+50	46950	50	43.2	0.0	8.3	0.0	0.0	0.0	76	0	12	0	0	0	219	21	0	0	0.0	0.0	197.9	
470+00	47000	50	47.9	0.0	8.1	0.0	0.0	0.0	84	0	15	0	0	0	303	38	0	0	0.0	0.0	264.8	
470+50	47050	50	51.6	0.0	7.2	0.0	0.0	0.0	92	0	14	0	0	0	395	54	0	0	0.0	0.0	340.6	
471+00	47100	50	52.0	0.0	9.5	0.0	0.0	0.0	96	0	15	0	0	0	491	72	0	0	0.0	0.0	418.8	
471+50	47150	50	52.4	0.0	12.7	0.0	0.0	0.0	97	0	21	0	0	0	587	96	0	0	0.0	0.0	491.9	
472+00	47200	50	52.8	0.0	15.0	0.0	0.0	0.0	97	0	26	0	0	0	685	125	0	0	0.0	0.0	559.8	
472+50	47250	50	57.2	0.0	14.5	0.0	0.0	0.0	102	0	27	0	0	0	787	156	0	0	0.0	0.0	630.3	
473+00	47300	50	63.5	0.0	9.5	0.0	0.0	0.0	112	0	22	0	0	0	898	182	0	0	0.0	0.0	716.4	
473+50	47350	50	63.5	0.0	15.8	0.0	0.0	0.0	118	0	23	0	0	0	1,016	209	0	0	0.0	0.0	807.0	
474+00	47400	50	63.1	0.0	17.3	0.0	0.0	0.0	117	0	31	0	0	0	1,133	244	0	0	0.0	0.0	889.0	
474+50	47450	50	63.8	0.0	16.5	0.0	0.0	0.0	118	0	31	0	0	0	1,251	280	0	0	0.0	0.0	970.5	
475+00	47500	50	58.5	0.0	15.3	0.0	0.0	0.0	113	0	29	0	0	0	1,364	314	0	0	0.0	0.0	1,049.9	
475+50	47550	50	54.9	0.0	13.4	0.0	0.0	0.0	105	0	27	0	0	0	1,469	344	0	0	0.0	0.0	1,124.4	
476+00	47600	50	54.4	0.0	11.3	0.0	0.0	0.0	101	0	23	0	0	0	1,570	371	0	0	0.0	0.0	1,199.4	
476+50	47650	50	52.0	0.0	9.2	0.0	0.0	0.0	99	0	19	0	0	0	1,669	393	0	0	0.0	0.0	1,276.1	
477+00	47700	50	48.8	0.0	10.9	0.0	0.0	0.0	93	0	19	0	0	0	1,762	414	0	0	0.0	0.0	1,348.0	
477+50	47750	50	51.9	0.0	8.4	0.0	0.0	0.0	93	0	18	0	0	0	1,855	435	0	0	0.0	0.0	1,420.7	
478+00	47800	50	38.2	0.0	14.0	0.0	0.0	0.0	83	0	21	0	0	0	1,939	458	0	0	0.0	0.0	1,480.2	
478+50	47850	50	31.7	0.0	14.9	0.0	0.0	0.0	65	0	27	0	0	0	2,003	489	0	0	0.0	0.0	1,514.3	
479+00	47900	50	36.8	0.0	14.6	0.0	0.0	0.0	63	0	27	0	0	0	2,067	520	0	0	0.0	0.0	1,546.3	
479+50	47950	50	47.0	0.0	18.4	0.0	0.0	0.0	78	0	31	0	0	0	2,144	556	0	0	0.0	0.0	1,588.7	
480+00	48000	50	78.3	0.0	22.5	0.0	0.0	0.0	116	0	38	0	0	0	2,260	599	0	0	0.0	0.0	1,661.2	

# NORTH CROSSOVER

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Cut	Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut 1.00	Fill 1.15	Backfill 1.50	Rock 1.10	Backfill 1.30	Red. Marsh in Fill 0.60		Red. EBS In Fill 0.80
480+50	48050	50	80.7	0.0	28.2	0.0	0.0	0.0	147	0	47	0	0	0	2,408	653	0	0	0	0.0	0.0	1,754.5
481+00	48100	50	81.1	0.0	33.6	0.0	0.0	0.0	150	0	57	0	0	0	2,557	719	0	0	0	0.0	0.0	1,838.4
481+50	48150	50	80.2	0.0	39.6	0.0	0.0	0.0	149	0	68	0	0	0	2,707	797	0	0	0	0.0	0.0	1,909.7
482+00	48200	50	76.4	0.0	43.4	0.0	0.0	0.0	145	0	77	0	0	0	2,852	885	0	0	0	0.0	0.0	1,966.3
482+50	48250	50	72.7	0.0	49.8	0.0	0.0	0.0	138	0	86	0	0	0	2,990	985	0	0	0	0.0	0.0	2,005.1
483+00	48300	50	69.5	0.0	63.9	0.0	0.0	0.0	132	0	105	0	0	0	3,121	1,106	0	0	0	0.0	0.0	2,015.7
483+50	48350	50	72.6	0.0	66.0	0.0	0.0	0.0	132	0	120	0	0	0	3,253	1,244	0	0	0	0.0	0.0	2,009.0
484+00	48400	50	83.6	0.0	8.2	0.0	0.0	0.0	145	0	69	0	0	0	3,398	1,323	0	0	0	0.0	0.0	2,074.6
484+50	48450	50	68.4	0.0	11.7	0.0	0.0	0.0	141	0	18	0	0	0	3,538	1,344	0	0	0	0.0	0.0	2,194.2
485+00	48500	50	63.9	0.0	8.1	0.0	0.0	0.0	122	0	18	0	0	0	3,661	1,365	0	0	0	0.0	0.0	2,295.6
485+50	48550	50	59.0	0.0	7.8	0.0	0.0	0.0	114	0	15	0	0	0	3,775	1,382	0	0	0	0.0	0.0	2,392.3
486+00	48600	50	56.7	0.0	5.2	0.0	0.0	0.0	107	0	12	0	0	0	3,882	1,396	0	0	0	0.0	0.0	2,485.6
486+50	48650	50	55.6	0.0	2.5	0.0	0.0	0.0	104	0	7	0	0	0	3,986	1,404	0	0	0	0.0	0.0	2,581.4
487+00	48700	50	52.8	0.0	2.0	0.0	0.0	0.0	100	0	4	0	0	0	4,086	1,409	0	0	0	0.0	0.0	2,677.0
487+50	48750	50	54.3	0.0	0.0	0.0	0.0	0.0	99	0	2	0	0	0	4,185	1,411	0	0	0	0.0	0.0	2,773.9
488+00	48800	50	31.9	0.0	0.0	0.0	0.0	0.0	80	0	0	0	0	0	4,265	1,411	0	0	0	0.0	0.0	2,853.7
488+50	48850	50	30.5	0.0	0.0	0.0	0.0	0.0	58	0	0	0	0	0	4,323	1,411	0	0	0	0.0	0.0	2,911.3
489+00	48900	50	30.8	0.0	0.0	0.0	0.0	0.0	57	0	0	0	0	0	4,379	1,411	0	0	0	0.0	0.0	2,968.1
									4,379	0	1,227	0	0	0								

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# IH 39 NB

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut 1.00	Exp. Fill 1.15	Exp. Marsh Backfill 1.50	Exp. Rock 1.10	Exp. EBS Backfill 1.30	Red. Marsh in Fill 0.60		Red. EBS In Fill 0.80
442+85	44285	0	25.6	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
443+00	44300	15	25.4	0.0	0.0	0.0	0.0	0.0	14	0	0	0	0	0	14	0	0	0	0	0.0	0.0	14.2
444+00	44400	100	25.6	0.0	4.1	0.0	0.0	0.0	95	0	8	0	0	0	109	9	0	0	0	0.0	0.0	100.0
445+00	44500	100	24.8	0.0	6.2	0.0	0.0	0.0	93	0	19	0	0	0	202	31	0	0	0	0.0	0.0	171.6
446+00	44600	100	25.7	0.0	5.5	0.0	0.0	0.0	94	0	22	0	0	0	296	55	0	0	0	0.0	0.0	240.5
447+00	44700	100	26.2	0.0	7.9	0.0	0.0	0.0	96	0	25	0	0	0	392	84	0	0	0	0.0	0.0	308.2
448+00	44800	100	34.8	0.0	10.5	0.0	0.0	0.0	113	0	34	0	0	0	505	123	0	0	0	0.0	0.0	382.0
449+00	44900	100	30.9	0.0	12.9	0.0	0.0	0.0	122	0	43	0	0	0	627	173	0	0	0	0.0	0.0	453.7
450+00	45000	100	60.1	0.0	7.7	0.0	0.0	0.0	168	0	38	0	0	0	795	217	0	0	0	0.0	0.0	578.2
451+00	45100	100	70.1	0.0	2.5	0.0	0.0	0.0	241	0	19	0	0	0	1,036	239	0	0	0	0.0	0.0	797.4
452+00	45200	100	75.7	0.0	17.9	0.0	0.0	0.0	270	0	38	0	0	0	1,306	282	0	0	0	0.0	0.0	1,023.9
453+00	45300	100	76.2	0.0	43.0	0.0	0.0	0.0	281	0	113	0	0	0	1,587	412	0	0	0	0.0	0.0	1,175.3
454+00	45400	100	60.9	0.0	75.6	0.0	0.0	0.0	254	0	220	0	0	0	1,841	665	0	0	0	0.0	0.0	1,176.5
455+00	45500	100	40.2	0.0	109.2	0.0	0.0	0.0	187	0	342	0	0	0	2,028	1,058	0	0	0	0.0	0.0	970.2
456+00	45600	100	36.4	0.0	140.3	0.0	0.0	0.0	142	0	462	0	0	0	2,170	1,589	0	0	0	0.0	0.0	580.6
457+00	45700	100	41.4	0.0	119.1	0.0	0.0	0.0	144	0	480	0	0	0	2,314	2,142	0	0	0	0.0	0.0	172.1
458+00	45800	100	52.4	0.0	122.4	0.0	0.0	0.0	174	0	447	0	0	0	2,488	2,656	0	0	0	0.0	0.0	-168.5
459+00	45900	100	41.8	0.0	186.0	0.0	0.0	0.0	174	0	571	0	0	0	2,662	3,313	0	0	0	0.0	0.0	-650.8
460+00	46000	100	29.9	0.0	261.4	174.2	0.0	0.0	133	0	829	323	0	0	2,795	4,266	484	0	0	193.6	0.0	-1,664.4
461+00	46100	100	23.6	0.0	300.7	199.2	0.0	0.0	99	0	1,041	691	0	0	2,894	5,463	1,521	0	0	608.4	0.0	-3,177.3
462+00	46200	100	23.1	0.0	333.9	207.2	0.0	0.0	86	0	1,175	753	0	0	2,980	6,814	2,650	0	0	1,060.0	0.0	-4,893.8
463+00	46300	100	24.1	0.0	356.2	170.0	0.0	0.0	87	0	1,278	699	0	0	3,067	8,284	3,698	0	0	1,479.1	0.0	-6,695.3
464+00	46400	100	26.1	0.0	383.3	112.2	0.0	0.0	93	0	1,370	523	0	0	3,160	9,859	4,482	0	0	1,792.7	0.0	-8,490.9

# IH 39 NB

STATION	Real Station	Distance	AREA (SF)					Incremental Vol (CY) (Unadjusted)					Cumulative Vol (CY)					Mass Ordinate				
			Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut 1.00	Exp. Fill 1.15	Exp. Marsh Backfill 1.50		Exp. Rock 1.10	Exp. EBS Backfill 1.30	Red. Marsh in Fill 0.60	Red. EBS In Fill 0.80
465+00	46500	100	25.4	0.0	312.5	0.0	0.0	0.0	95	0	1,289	125	0	0	3,256	11,340	3,144	0	0	1,257.8	0.0	-9,342.5
465+83	46583	83	20.7	0.0	236.1	0.0	0.0	0.0	71	0	843	0	0	0	3,327	12,310	3,144	0	0	1,257.8	0.0	-10,241.3
<b>SIGGELKOW ROAD</b>																						
467+43	46743		26.4	0.0	315.0	0.0	0.0	0.0	0	0	0	0	0	0	3,327	12,310	3,144	0	0	1,257.8	0.0	-10,241.3
468+00	46800	57	27.0	0.0	266.9	0.0	0.0	0.0	56	0	614	0	0	0	3,383	13,016	3,144	0	0	1,257.8	0.0	-10,891.3
469+00	46900	100	27.4	0.0	472.2	0.0	0.0	0.0	101	0	1,369	0	0	0	3,484	14,590	3,144	0	0	1,257.8	0.0	-12,364.5
470+00	47000	100	106.2	0.0	595.9	0.0	0.0	0.0	248	0	1,978	0	0	0	3,731	16,865	3,144	0	0	1,257.8	0.0	-14,391.7
471+00	47100	100	24.2	0.0	428.9	0.0	0.0	0.0	242	0	1,898	0	0	0	3,973	19,047	3,144	0	0	1,257.8	0.0	-16,332.6
472+00	47200	100	25.4	0.0	293.1	0.0	0.0	0.0	92	0	1,337	0	0	0	4,064	20,585	3,144	0	0	1,257.8	0.0	-17,778.5
473+00	47300	100	26.2	0.0	126.8	0.0	0.0	0.0	95	0	778	0	0	0	4,160	21,479	3,144	0	0	1,257.8	0.0	-18,577.4
474+00	47400	100	25.5	0.0	74.2	0.0	0.0	0.0	96	0	372	0	0	0	4,256	21,908	3,144	0	0	1,257.8	0.0	-18,909.8
475+00	47500	100	31.0	0.0	15.6	0.0	0.0	0.0	105	0	166	0	0	0	4,360	22,099	3,144	0	0	1,257.8	0.0	-18,996.5
476+00	47600	100	161.9	0.0	0.0	0.0	57.3	0.0	357	0	29	0	106	0	4,717	21,998	3,144	117	0	1,257.8	0.0	-18,538.2
477+00	47700	100	167.4	0.0	0.5	0.0	24.0	0.0	610	0	1	0	151	0	5,327	21,808	3,144	282	0	1,257.8	0.0	-17,739.1
478+00	47800	100	122.2	0.0	3.1	0.0	3.0	0.0	536	0	7	0	50	0	5,863	21,753	3,144	337	0	1,257.8	0.0	-17,147.1
479+00	47900	100	87.6	0.0	4.6	0.0	8.0	0.0	389	0	14	0	20	0	6,252	21,743	3,144	360	0	1,257.8	0.0	-16,749.2
480+00	48000	100	138.9	0.0	0.0	0.0	28.7	0.0	419	0	9	0	68	0	6,671	21,667	3,144	435	0	1,257.8	0.0	-16,253.8
481+00	48100	100	43.8	0.0	2.6	0.0	0.0	0.0	338	0	5	0	53	0	7,010	21,606	3,144	493	0	1,257.8	0.0	-15,853.7
482+00	48200	100	39.5	0.0	0.0	0.0	0.0	0.0	154	0	5	0	0	0	7,164	21,611	3,144	493	0	1,257.8	0.0	-15,704.9
483+00	48300	100	32.7	0.0	0.0	0.0	0.0	0.0	134	0	0	0	0	0	7,298	21,611	3,144	493	0	1,257.8	0.0	-15,571.2
484+00	48400	100	35.8	0.0	0.0	0.0	0.0	0.0	127	0	0	0	0	0	7,425	21,611	3,144	493	0	1,257.8	0.0	-15,444.3
484+80	48480	80	26.2	0.0	0.0	0.0	0.0	0.0	92	0	0	0	0	0	7,516	21,611	3,144	493	0	1,257.8	0.0	-15,352.5

7,516      0      19,285   2,096   448   0

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## IH 39 SB - SOUTH TRANSITION

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut 1.00	Exp. Fill 1.15	Exp. Marsh Backfill 1.50	Exp. Rock 1.10	Exp. EBS Backfill 1.30	Red. Marsh in Fill 0.60		Red. EBS In Fill 0.80
58+00	5800	0	122.6	23.8	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.0	
58+50	5850	50	122.6	23.8	15.4	0.0	0.0	0.0	227	44	14	0	0	0	227	16	0	0	0.00	0.00	166.4	
59+00	5900	50	112.5	23.8	44.4	0.0	0.0	0.0	218	44	55	0	0	0	445	80	0	0	0.00	0.00	276.3	
59+50	5950	50	99.7	23.8	69.5	0.0	0.0	0.0	196	44	105	0	0	0	641	201	0	0	0.00	0.00	307.4	
60+00	6000	50	81.3	23.8	83.6	23.8	0.0	0.0	168	44	142	22	0	0	809	364	33	0	13.22	0.00	254.6	
60+50	6050	50	60.9	23.8	106.1	47.2	0.0	0.0	132	44	176	66	0	0	940	566	132	0	52.67	0.00	100.8	
61+00	6100	50	67.1	23.8	171.4	77.7	0.0	0.0	119	44	257	116	0	0	1,059	862	305	0	122.06	0.00	-189.8	
61+50	6150	50	48.2	23.8	231.5	121.5	0.0	0.0	107	44	373	184	0	0	1,166	1,291	582	0	232.72	0.00	-666.9	
62+00	6200	50	31.4	23.8	252.1	112.7	0.0	0.0	74	44	448	217	0	0	1,239	1,806	907	0	362.83	0.00	-1,282.3	
62+50	6250	50	23.8	23.8	289.4	121.4	0.0	0.0	51	44	501	217	0	0	1,291	2,382	1,232	0	492.89	0.00	-1,981.9	
63+00	6300	50	23.8	23.8	408.8	125.1	0.0	0.0	44	44	646	228	0	0	1,335	3,126	1,575	0	629.83	0.00	-2,862.3	
63+50	6350	50	24.1	23.8	506.0	142.9	0.0	0.0	44	44	847	248	0	0	1,379	4,100	1,947	0	778.72	0.00	-3,985.0	
64+00	6400	50	29.2	23.8	616.7	0.0	0.0	0.0	49	44	1,040	132	0	0	1,429	5,295	2,145	0	858.11	0.00	-5,254.6	
64+50	6450	50	36.2	23.8	672.9	0.0	0.0	0.0	61	44	1,194	0	0	0	1,489	6,669	2,145	0	858.11	0.00	-6,611.3	
65+00	6500	50	45.9	23.8	663.4	0.0	0.0	0.0	76	44	1,237	0	0	0	1,565	8,092	2,145	0	858.11	0.00	-8,002.3	
65+50	6550	50	42.0	23.8	597.8	0.0	0.0	0.0	81	44	1,168	0	0	0	1,647	9,434	2,145	0	858.11	0.00	-9,308.0	
66+00	6600	50	28.6	23.8	399.7	0.0	0.0	0.0	65	44	924	0	0	0	1,712	10,497	2,145	0	858.11	0.00	-10,348.9	

1,712      706      9,127      1,430      0      0

# IH 39 SB

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Salvaged/		Fill	Marsh Exc.	Rock Exc.	EBS	Salvaged/		Fill	Marsh Exc.	Rock Exc.	EBS	Exp. Cut 1.00	Exp. Fill 1.15	Exp. Marsh Backfill 1.50	Exp. Rock 1.10	Exp. EBS Backfill 1.30	Red. Marsh in Fill 0.60		Red. EBS In Fill 0.80
			Cut	Unusable Pave. Mat.					Cut	Unusable Pave. Mat.												
2466+00	246600		28.6	23.8	399.7	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.0	
2466+38	246638	38	25.1	23.8	338.4	0.0	0.0	0.0	38	34	519	0	0	0	38	597	0	0	0	0.00	0.00	-593.0
2466+50	246650	12	24.7	23.8	315.4	0.0	0.0	0.0	11	11	145	0	0	0	49	764	0	0	0	0.00	0.00	-759.6
2466+58	246658	8	24.6	23.8	305.7	0.0	0.0	0.0	7	7	92	0	0	0	56	870	0	0	0	0.00	0.00	-865.2
2466+87	246687	29	24.1	23.8	188.2	0.0	0.0	0.0	26	26	265	0	0	0	82	1,175	0	0	0	0.00	0.00	-1,169.7
2467+00	246700	13	23.8	23.8	68.6	0.0	0.0	0.0	12	11	62	0	0	0	94	1,246	0	0	0	0.00	0.00	-1,240.7
2467+07	246707	7	23.8	23.8	76.9	0.0	0.0	0.0	6	6	19	0	0	0	100	1,268	0	0	0	0.00	0.00	-1,262.4
<b>SIGGELKOW ROAD</b>																						
2468+88	246888		23.8	23.8	30.4	0.0	0.0	0.0	0	0	0	0	0	100	1,268	0	0	0	0.00	0.00	-1,262.4	
2469+00	246900	12	23.9	23.8	40.7	0.0	0.0	0.0	11	11	16	0	0	0	111	1,286	0	0	0	0.00	0.00	-1,280.6
2469+08	246908	8	29.1	23.8	40.5	0.0	0.0	0.0	8	7	12	0	0	0	118	1,300	0	0	0	0.00	0.00	-1,293.6
2469+38	246938	30	66.2	23.8	85.6	0.0	0.0	0.0	53	26	70	0	0	0	171	1,380	0	0	0	0.00	0.00	-1,347.7
2469+50	246950	12	69.4	23.8	94.3	0.0	0.0	0.0	30	11	40	0	0	0	202	1,426	0	0	0	0.00	0.00	-1,374.1
2469+58	246958	8	72.2	23.8	111.9	0.0	0.0	0.0	21	7	31	0	0	0	222	1,462	0	0	0	0.00	0.00	-1,395.4
2470+00	247000	42	64.1	23.8	93.1	0.0	0.0	0.0	106	37	159	0	0	0	328	1,645	0	0	0	0.00	0.00	-1,509.8

328      193      1,430      0      0      0

# IH 39 SB - NORTH TRANSITION

STATION	Real Station	Distance	AREA (SF)						Incremental Vol (CY) (Unadjusted)						Cumulative Vol (CY)						Mass Ordinate	
			Salvaged/		Fill	Marsh Exc.	Rock Exc.	EBS	Salvaged/		Fill	Marsh Exc.	Rock Exc.	EBS	Exp. Cut 1.00	Exp. Fill 1.15	Exp. Marsh Backfill 1.50	Exp. Rock 1.10	Exp. EBS Backfill 1.30	Red. Marsh in Fill 0.60		Red. EBS In Fill 0.80
			Cut	Unusable Pave. Mat.					Cut	Unusable Pave. Mat.												
70+00	7000		64.1	23.8	93.1	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.0	
70+50	7050	50	45.0	23.8	73.9	0.0	0.0	0.0	101	44	155	0	0	0	101	178	0	0	0	0.00	0.00	-120.9
71+00	7100	50	58.9	23.8	82.8	0.0	0.0	0.0	96	44	145	0	0	0	197	345	0	0	0	0.00	0.00	-235.5
71+50	7150	50	77.0	23.8	61.4	0.0	0.0	0.0	126	44	133	0	0	0	323	498	0	0	0	0.00	0.00	-307.4
72+00	7200	50	111.9	23.8	45.9	0.0	0.0	0.0	175	44	99	0	0	0	498	612	0	0	0	0.00	0.00	-291.0
72+50	7250	50	162.1	23.8	21.1	0.0	0.0	0.0	254	44	62	0	0	0	752	684	0	0	0	0.00	0.00	-152.8
73+00	7300	50	204.3	23.8	14.6	0.0	0.0	0.0	339	44	33	0	0	0	1,091	722	0	0	0	0.00	0.00	104.4
73+50	7350	50	118.3	23.8	15.9	0.0	0.0	0.0	299	44	28	0	0	0	1,390	754	0	0	0	0.00	0.00	326.4
74+00	7400	50	115.4	23.8	5.7	0.0	0.0	0.0	216	44	20	0	0	0	1,606	777	0	0	0	0.00	0.00	475.6
74+50	7450	50	114.3	23.8	5.1	0.0	0.0	0.0	213	44	10	0	0	0	1,819	789	0	0	0	0.00	0.00	632.7

1,819      397      686      0      0      0

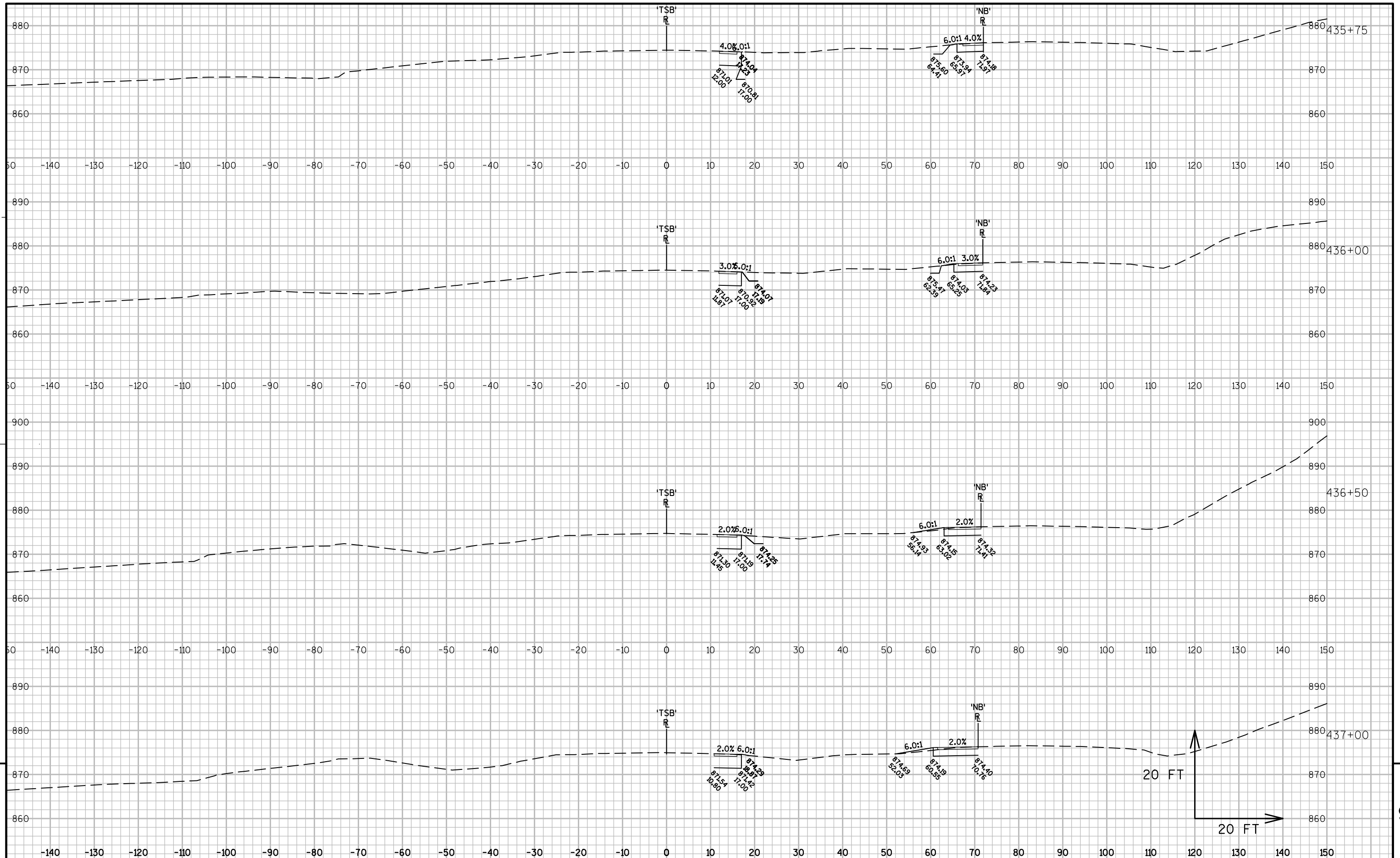
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# SIGGELKOW ROAD

STATION	Real Station	Distance	AREA (SF)					Incremental Vol (CY) (Unadjusted)					Cumulative Vol (CY)					Mass Ordinate					
			Cut	Salvaged/ Unusable Pave. Mat.	Fill	Marsh Exc.	Rock Exc.	EBS	Cut Note 1	Unusable Note 2	Fill Note 3	Marsh Exc.	Rock Exc.	EBS	Cut 1.00 Note 1	Exp. Fill 1.15	Exp. Marsh Backfill 1.50 Note 4		Exp. Rock 1.10	Exp. EBS Backfill 1.30 Note 5	Red. Marsh in Fill 0.60 Note 6	Red. EBS In Fill 0.80 Note 7	Note 8
46+85	4685		6.11	0.00	1.34	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.0		
47+00	4700	15	7.21	0.00	1.54	0.00	0.00	0.00	4	0	1	0	0	0	4	1	0	0	0	0.00	0.00	2.8	
47+50	4750	50	10.48	0.00	2.67	0.00	0.00	0.00	16	0	4	0	0	0	20	5	0	0	0	0.00	0.00	14.7	
48+00	4800	50	4.01	0.00	4.87	0.00	0.00	0.00	13	0	7	0	0	0	33	13	0	0	0	0.00	0.00	20.1	
48+50	4850	50	21.59	0.00	0.81	0.00	0.00	0.00	24	0	5	0	0	0	57	19	0	0	0	0.00	0.00	37.7	
49+00	4900	50	19.30	0.00	0.71	0.00	0.00	0.00	38	0	1	0	0	0	95	21	0	0	0	0.00	0.00	74.0	
49+50	4950	50	17.26	0.00	0.02	0.00	0.00	0.00	34	0	1	0	0	0	129	22	0	0	0	0.00	0.00	107.0	
50+00	5000	50	16.74	0.00	0.00	0.00	0.00	0.00	31	0	0	0	0	0	160	22	0	0	0	0.00	0.00	138.5	
50+50	5050	50	14.32	0.00	0.25	0.00	0.00	0.00	29	0	0	0	0	0	189	22	0	0	0	0.00	0.00	167.0	
51+00	5100	50	8.04	0.00	0.48	0.00	0.00	0.00	21	0	1	0	0	0	210	23	0	0	0	0.00	0.00	186.9	
51+50	5150	50	17.62	0.00	0.74	0.00	0.00	0.00	24	0	1	0	0	0	234	24	0	0	0	0.00	0.00	209.4	
52+00	5200	50	14.86	0.00	1.89	0.00	0.00	0.00	30	0	2	0	0	0	264	27	0	0	0	0.00	0.00	236.7	
52+50	5250	50	8.42	0.00	13.90	0.00	0.00	0.00	22	0	15	0	0	0	285	44	0	0	0	0.00	0.00	241.4	
53+00	5300	50	10.49	0.00	4.51	0.00	0.00	0.00	18	0	17	0	0	0	303	63	0	0	0	0.00	0.00	239.3	
53+50	5350	50	8.31	0.00	1.35	0.00	0.00	0.00	17	0	5	0	0	0	320	70	0	0	0	0.00	0.00	250.5	
53+60	5360	10	6.39	0.00	1.31	0.00	0.00	0.00	3	0	0	0	0	0	323	70	0	0	0	0.00	0.00	252.6	

323      0      61      0      0      0

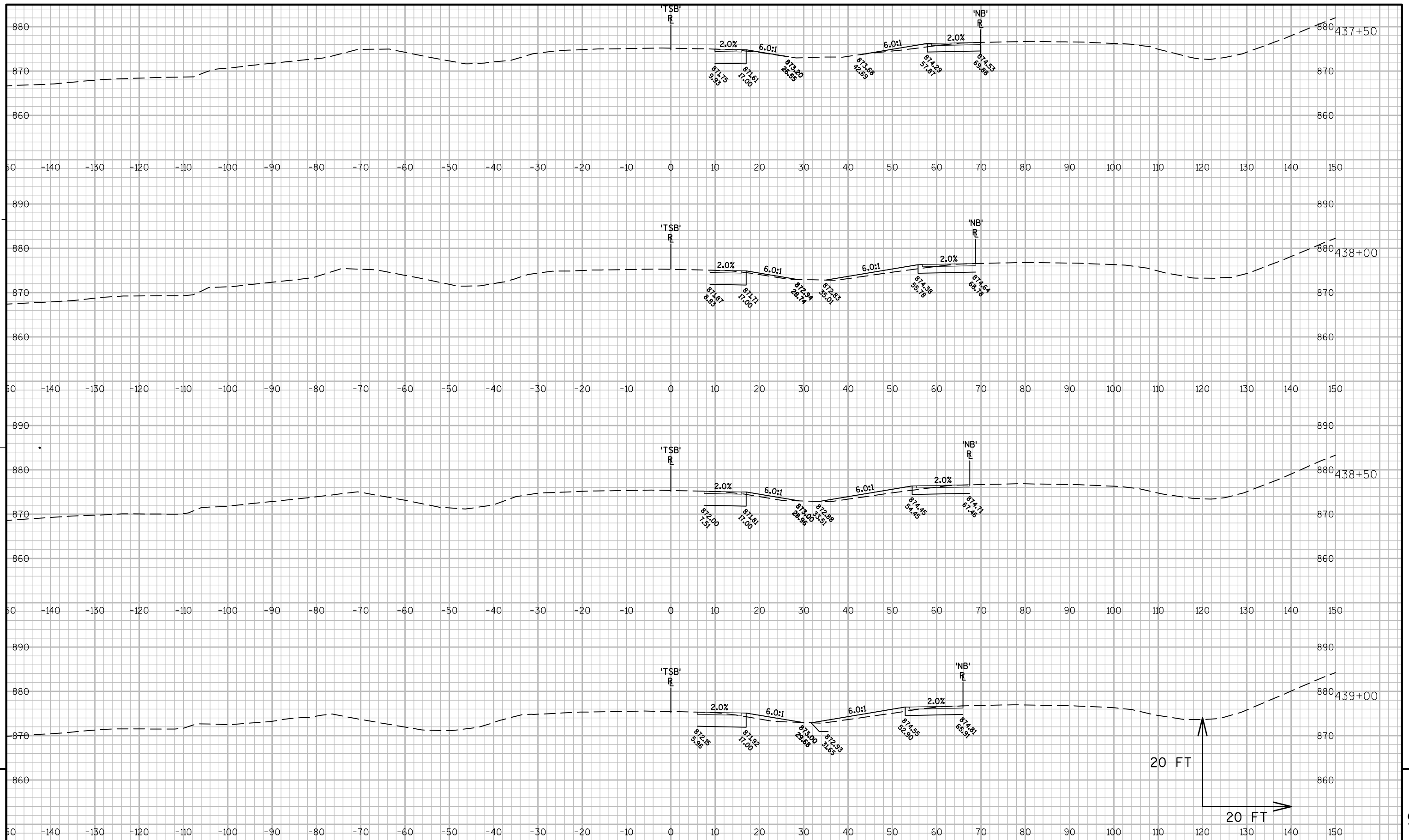


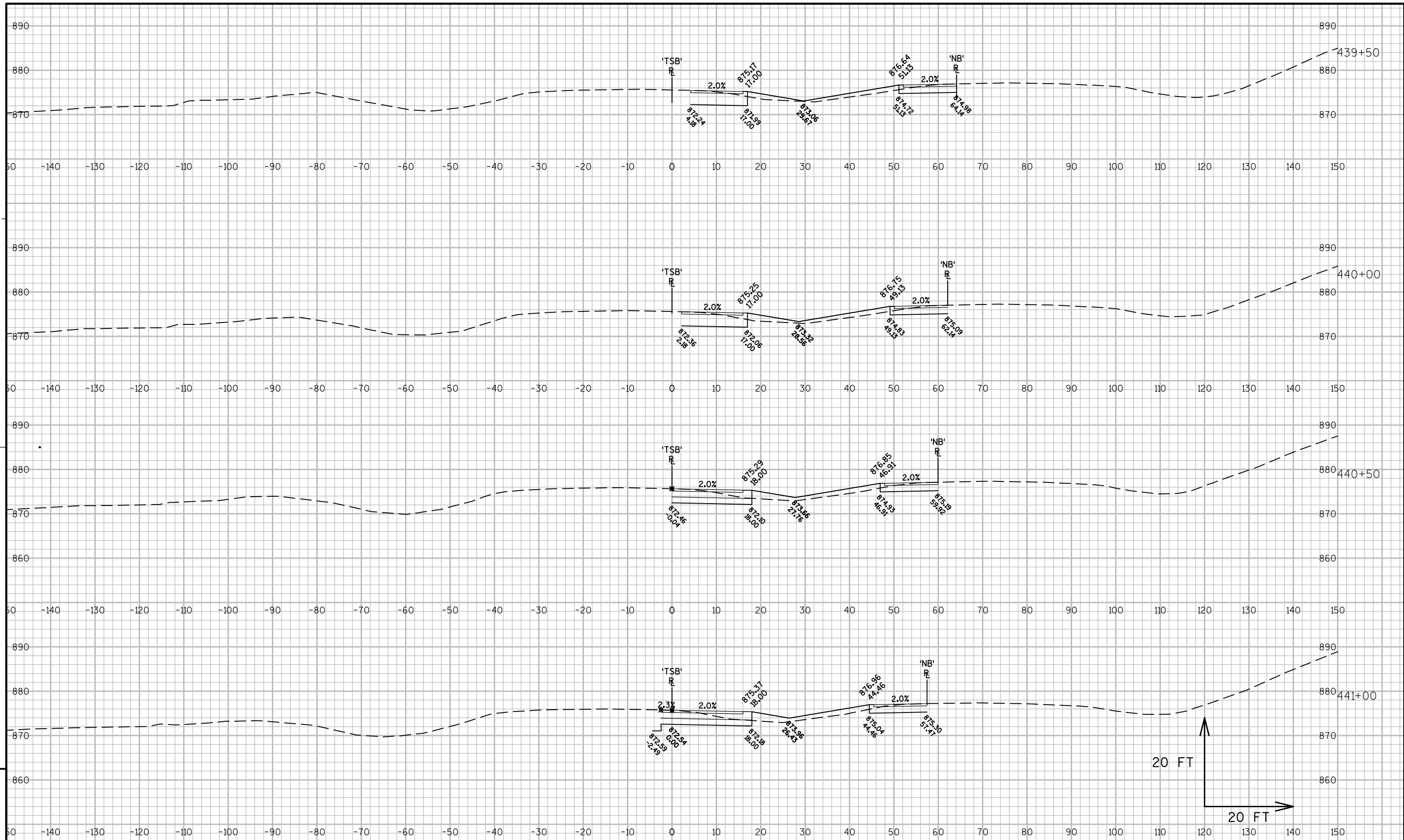
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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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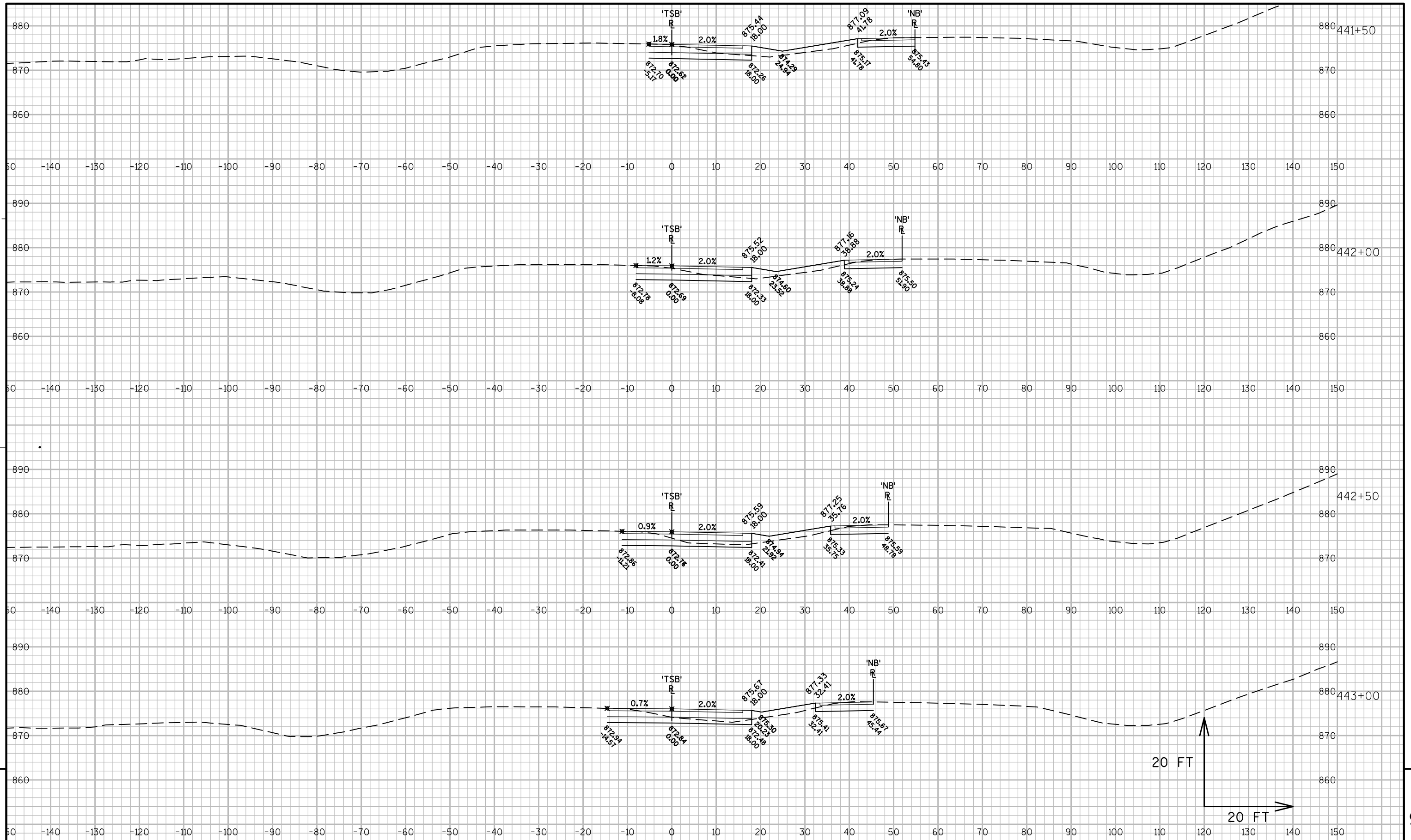




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PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: IH 39 TEMPORARY SB      SHEET      E

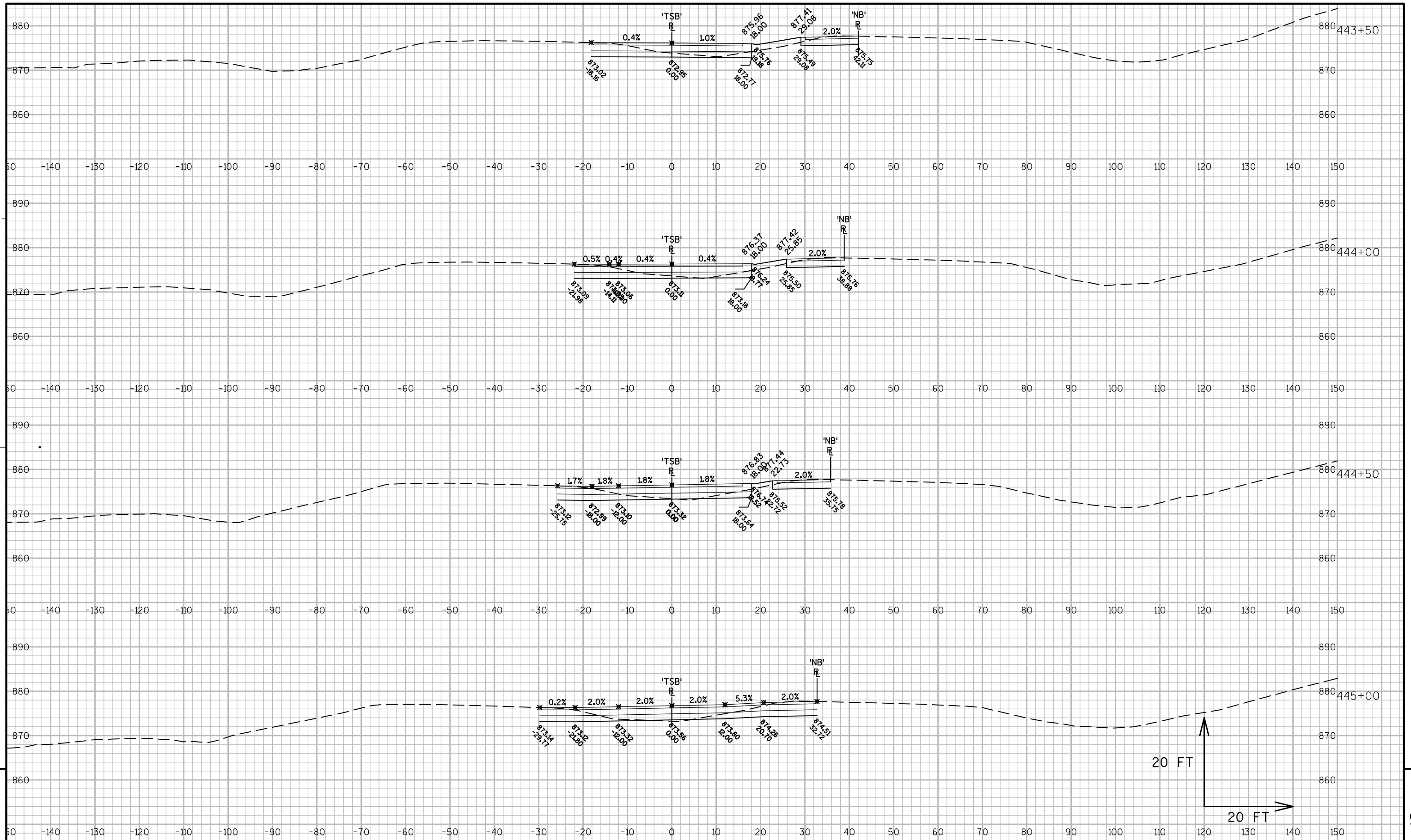


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PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: IH 39 TEMPORARY SB      SHEET      E

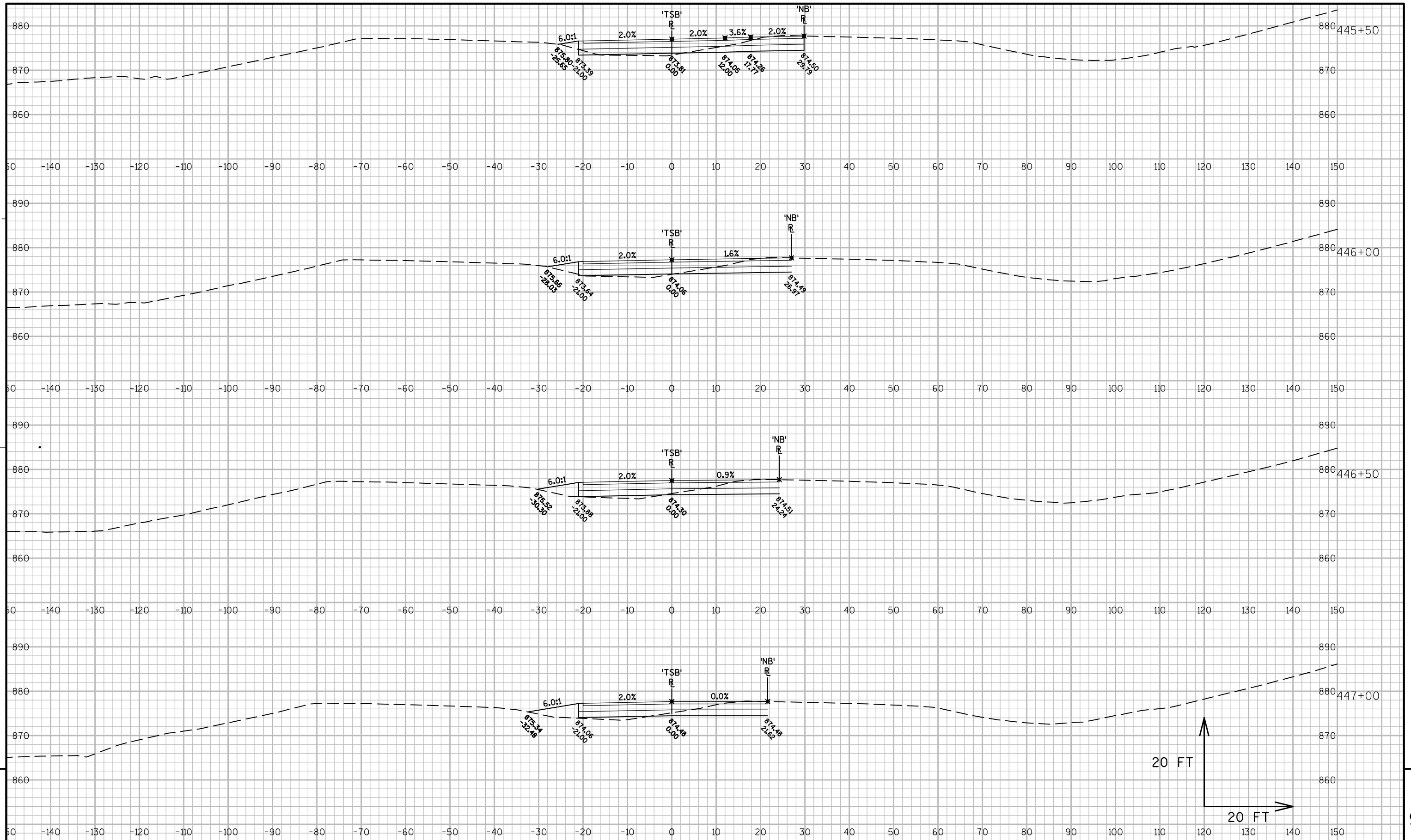
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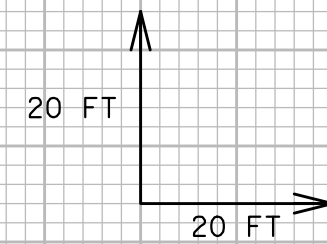
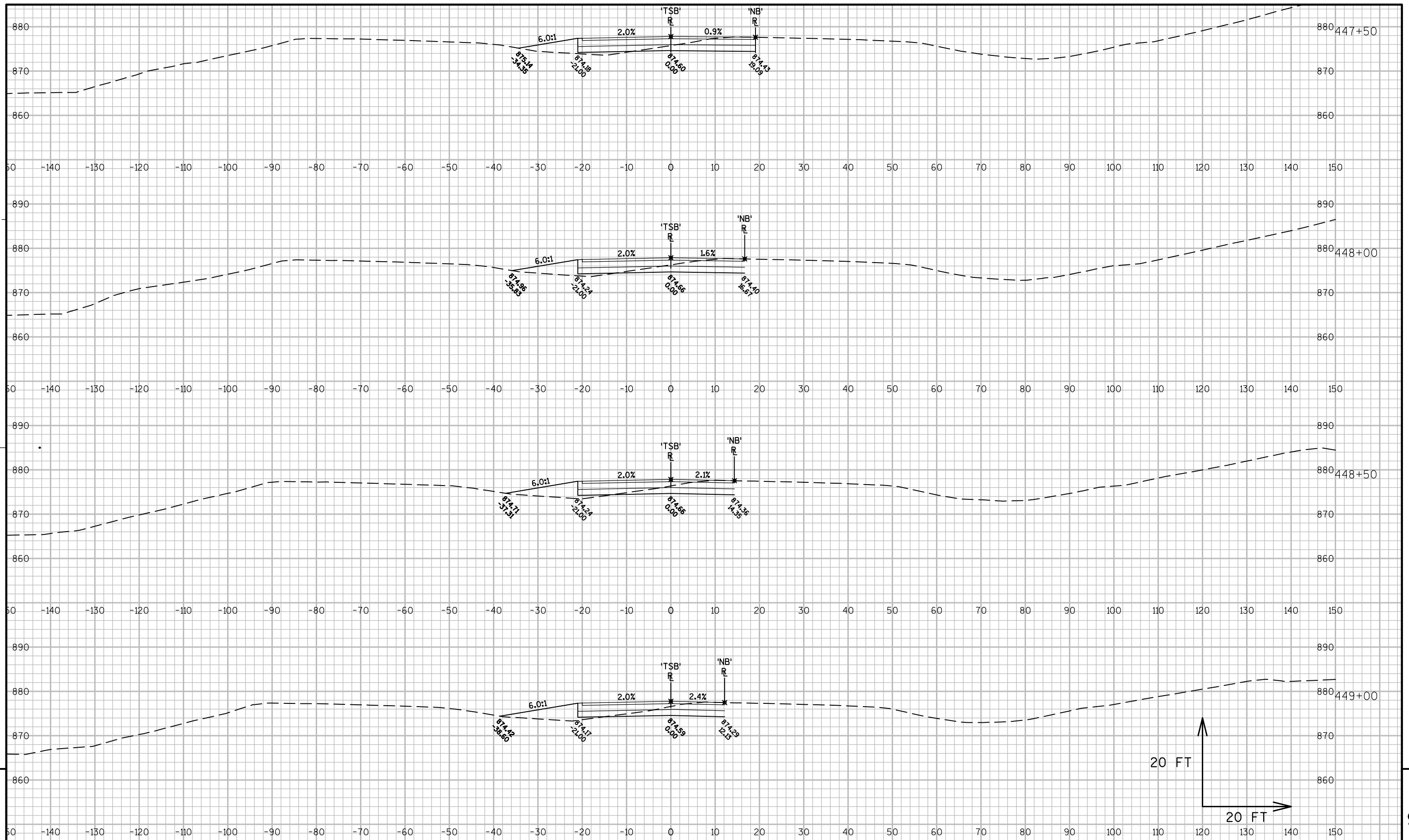
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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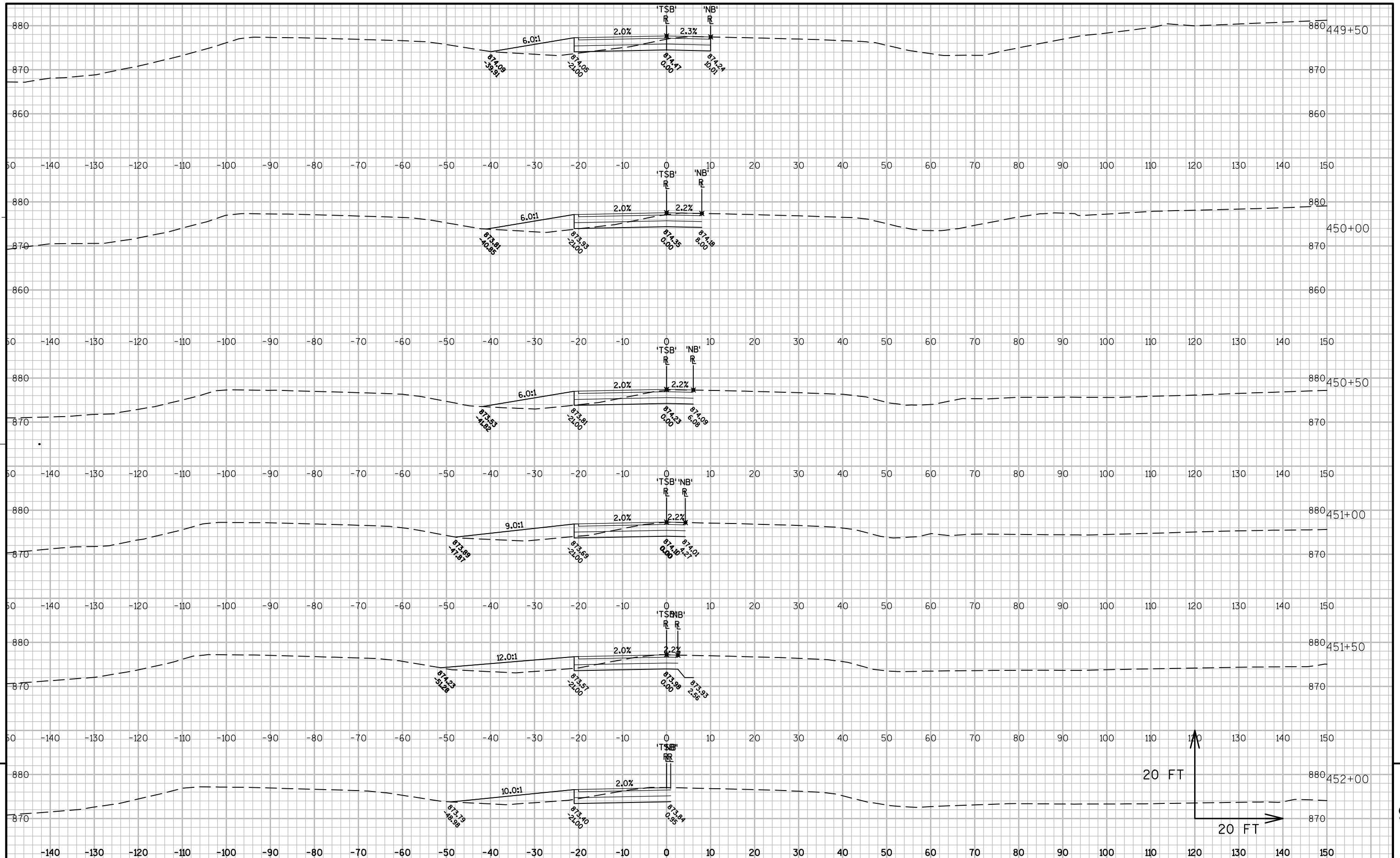
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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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PROJECT NO:1007-10-71

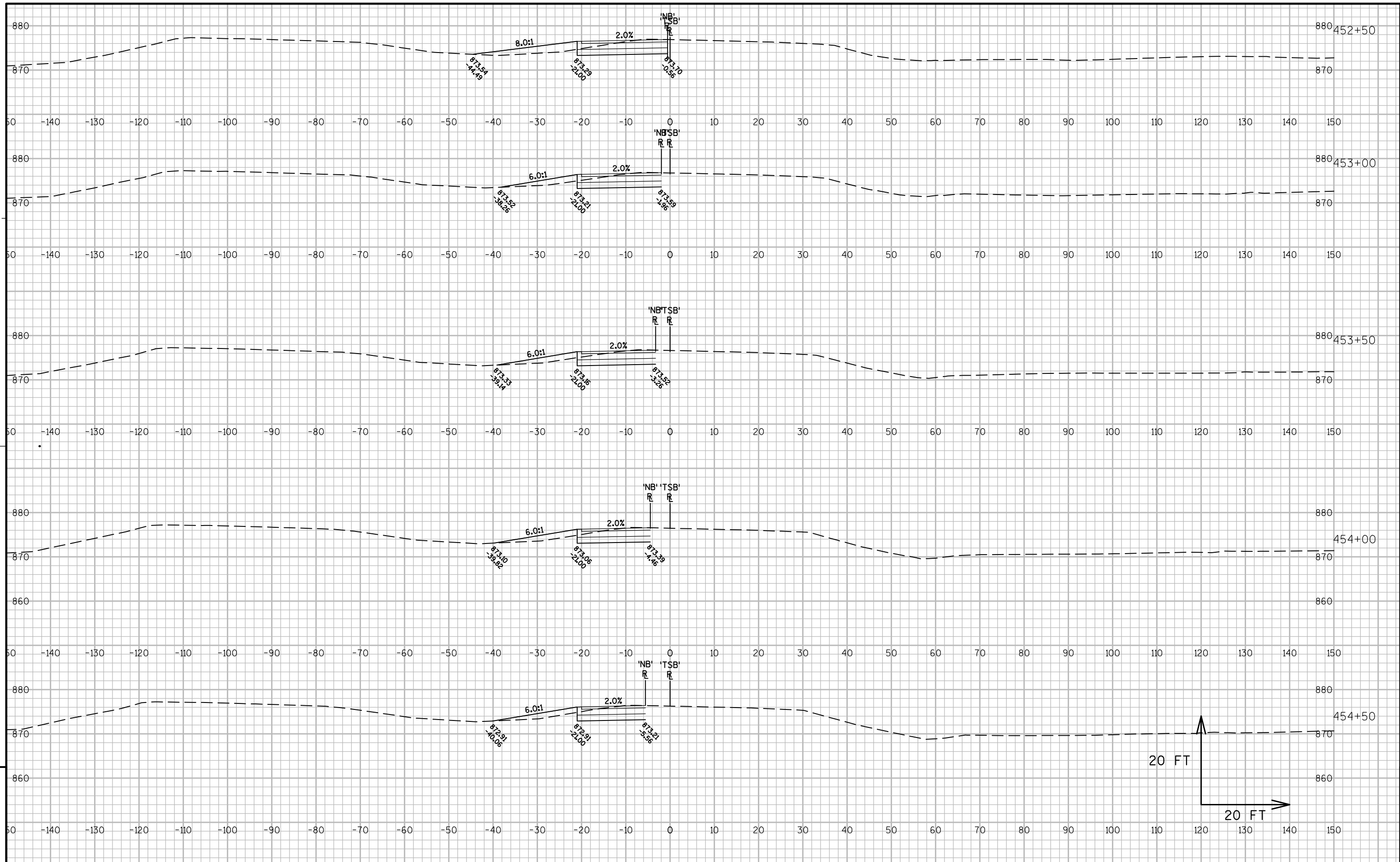
HWY: IH 39

COUNTY: DANE

CROSS SECTIONS: IH 39 TEMPORARY SB

SHEET

E



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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090101\_XS.DWG

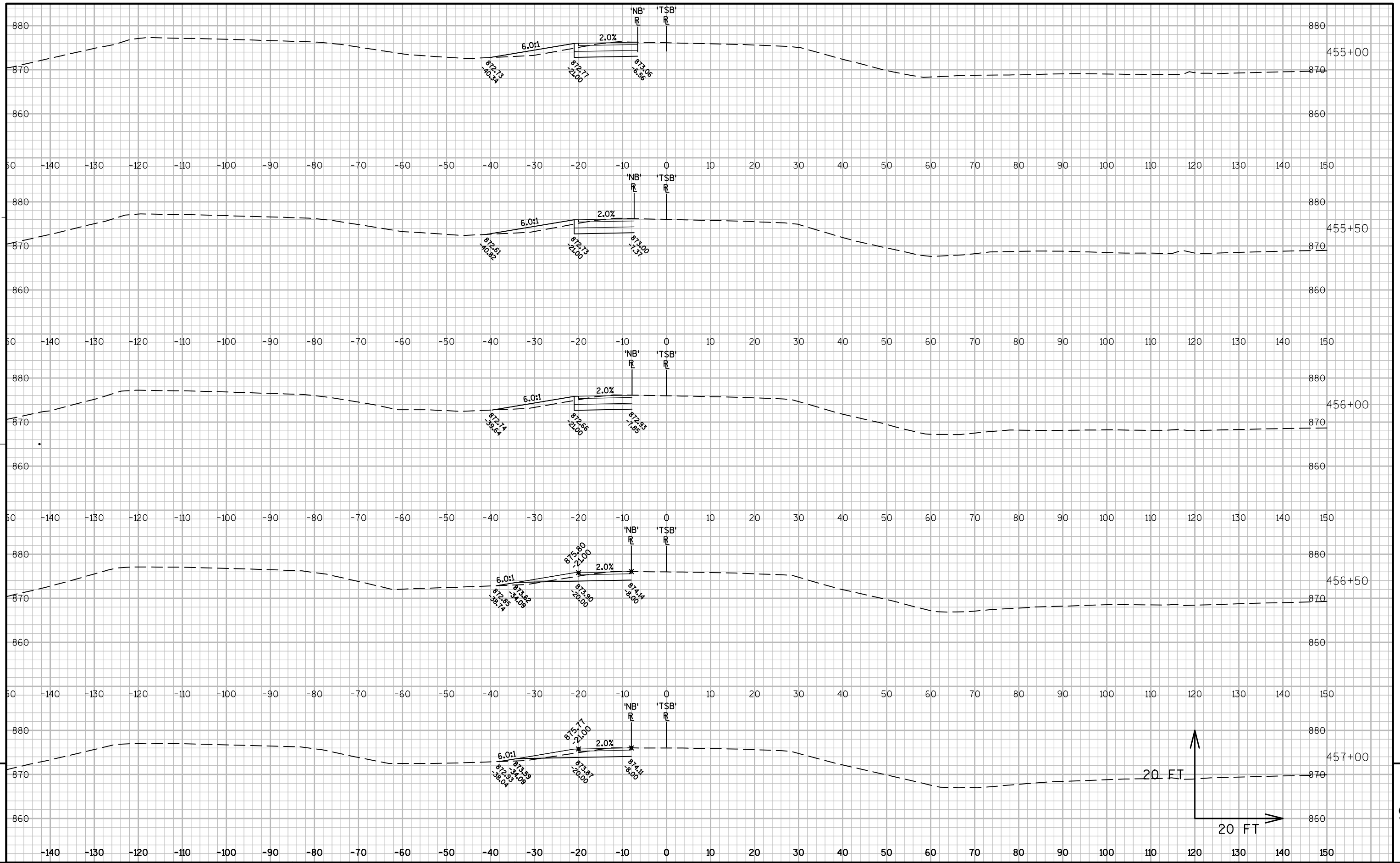
PLOT DATE : 10/30/2013 8:09 AM

PLOT BY : SANDERFOOT, JASON PLOT NAME :

PLOT SCALE : 1:20-XREF

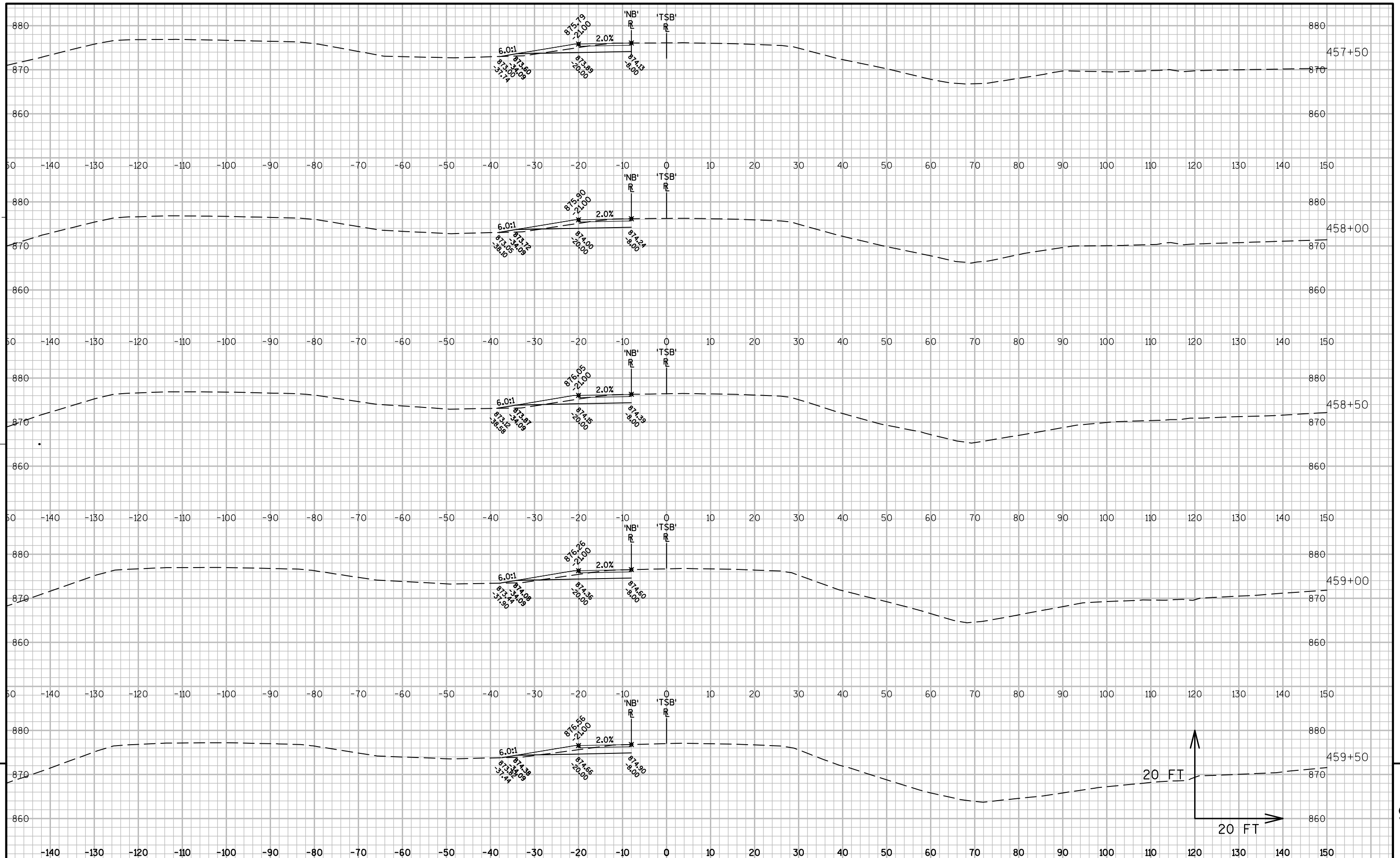
WISDOT/CADDS SHEET 49





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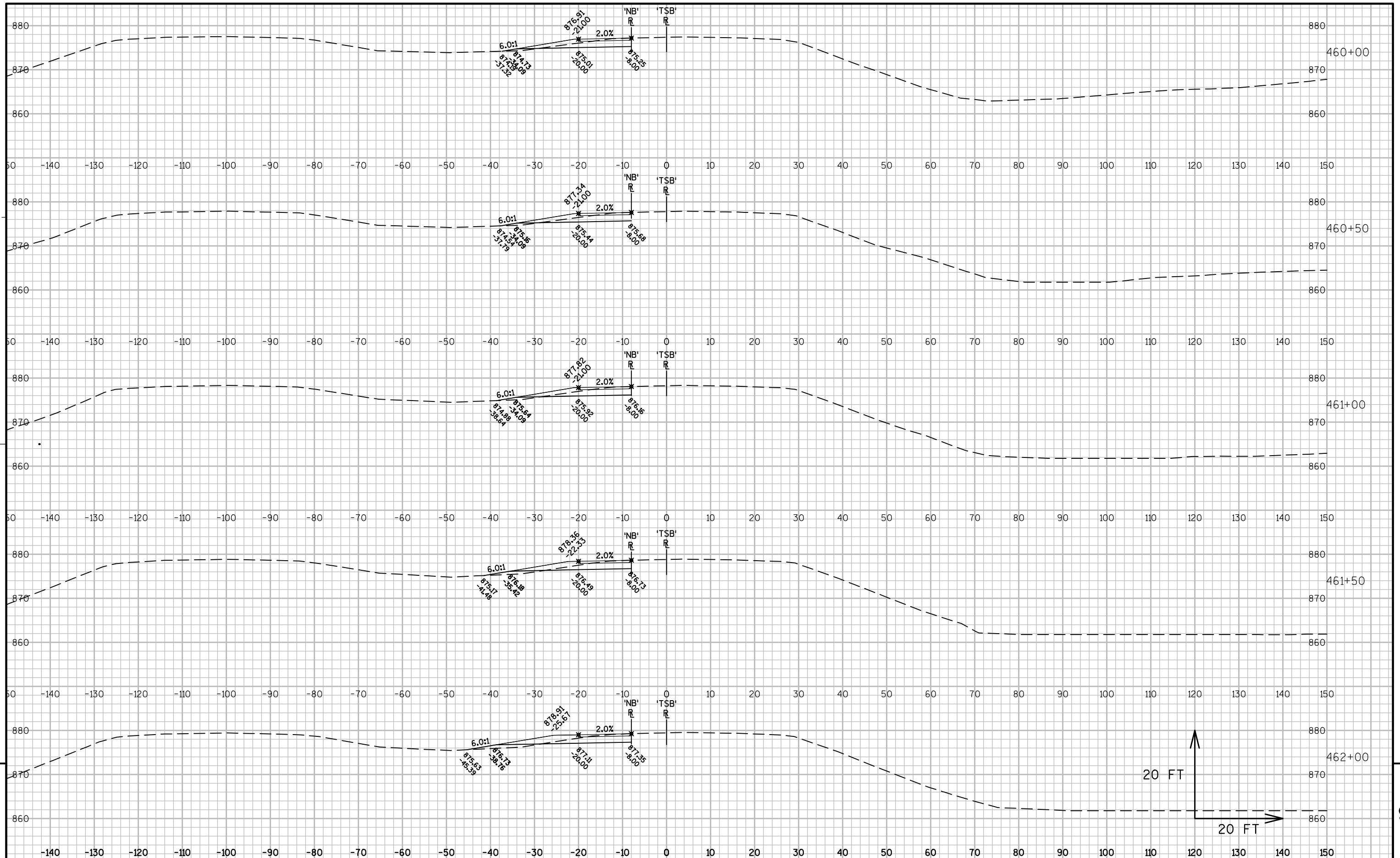
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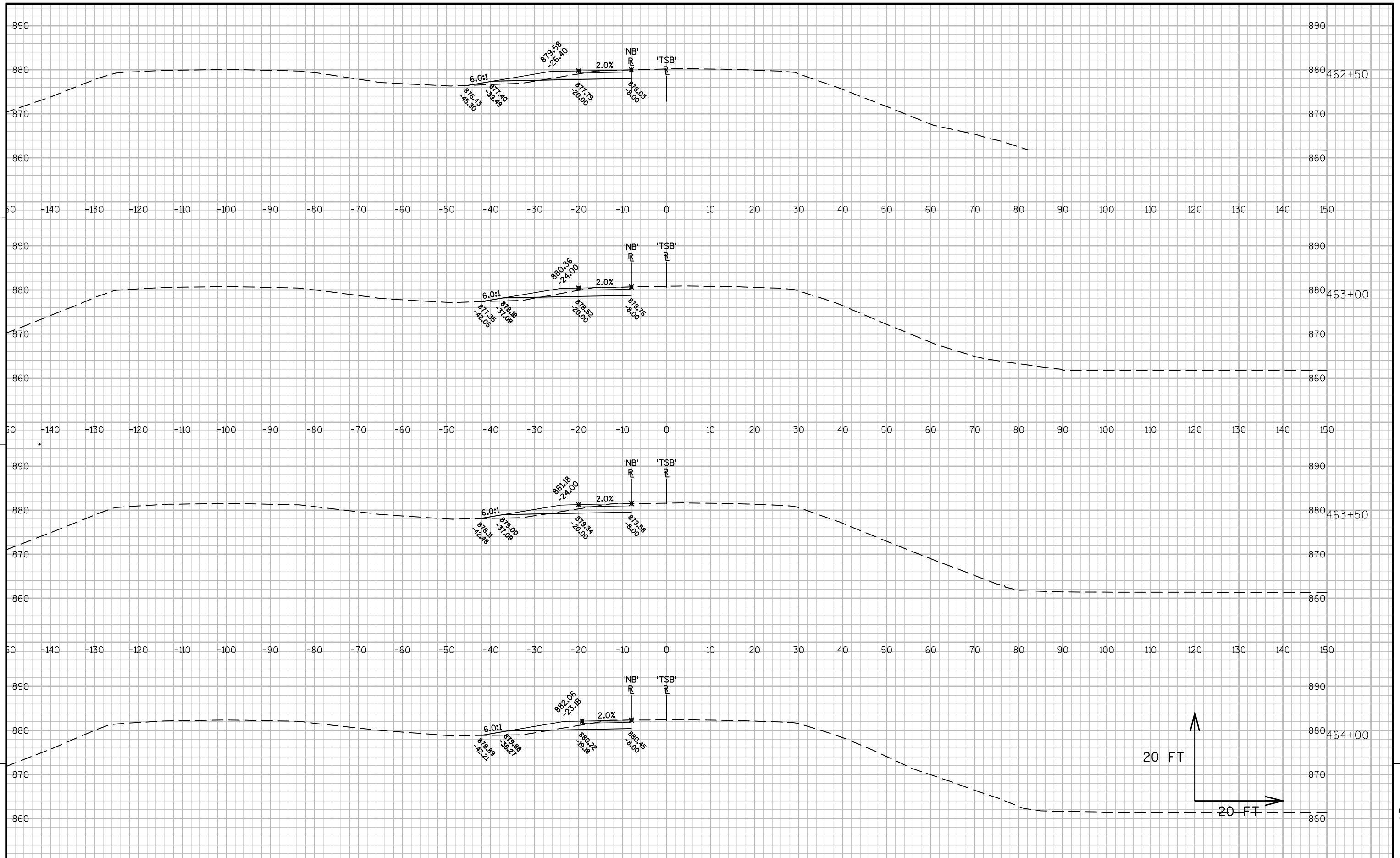
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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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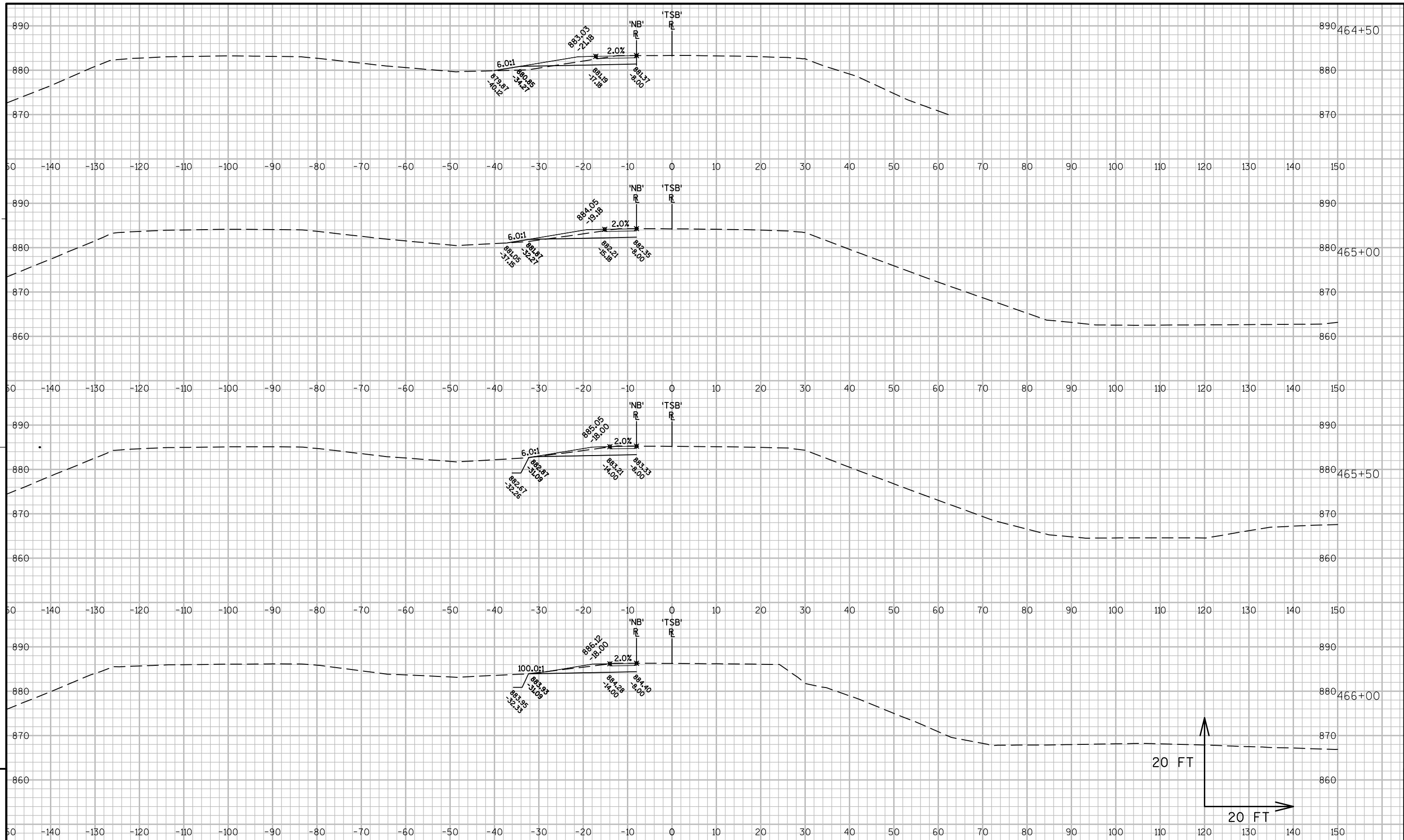
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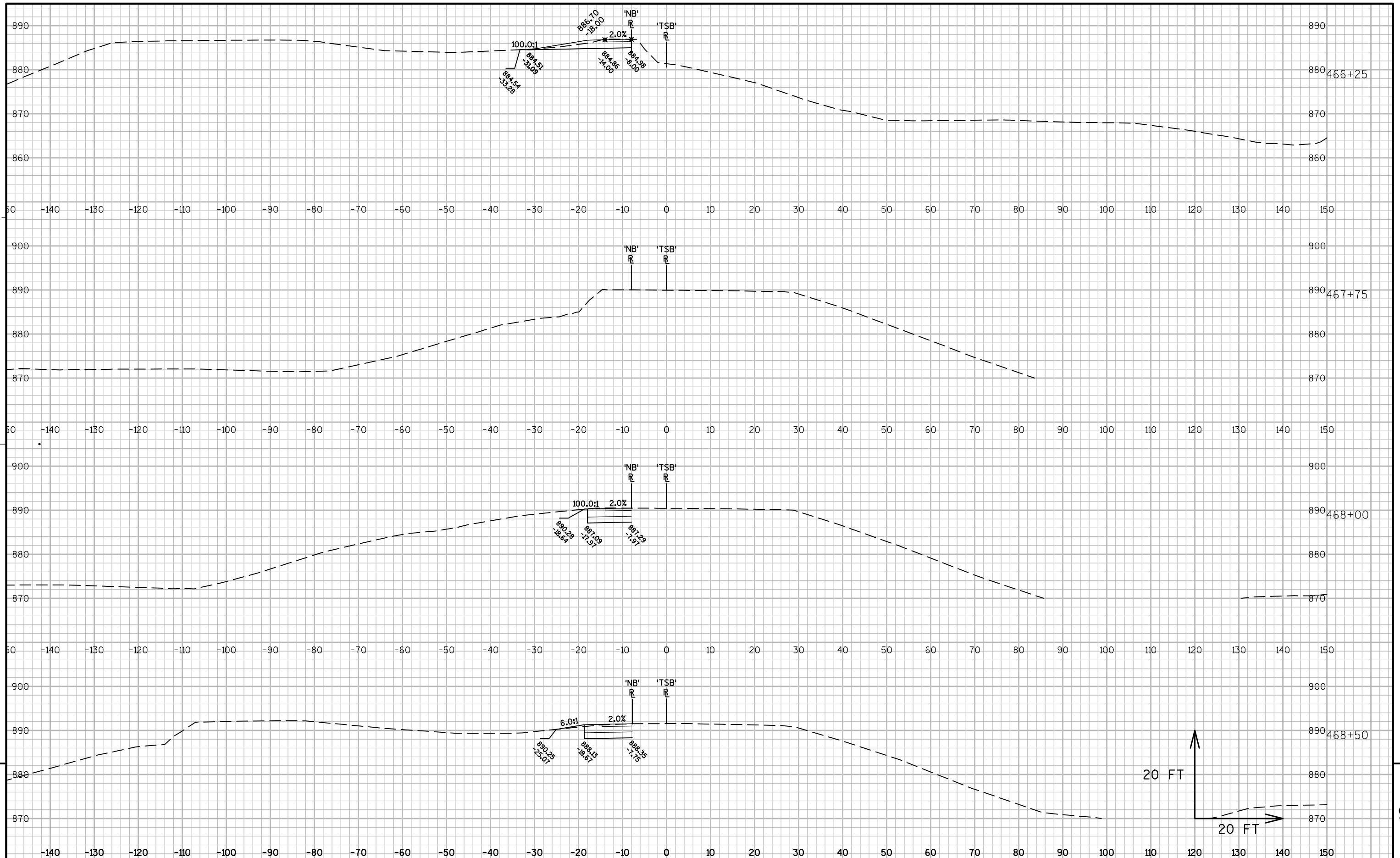
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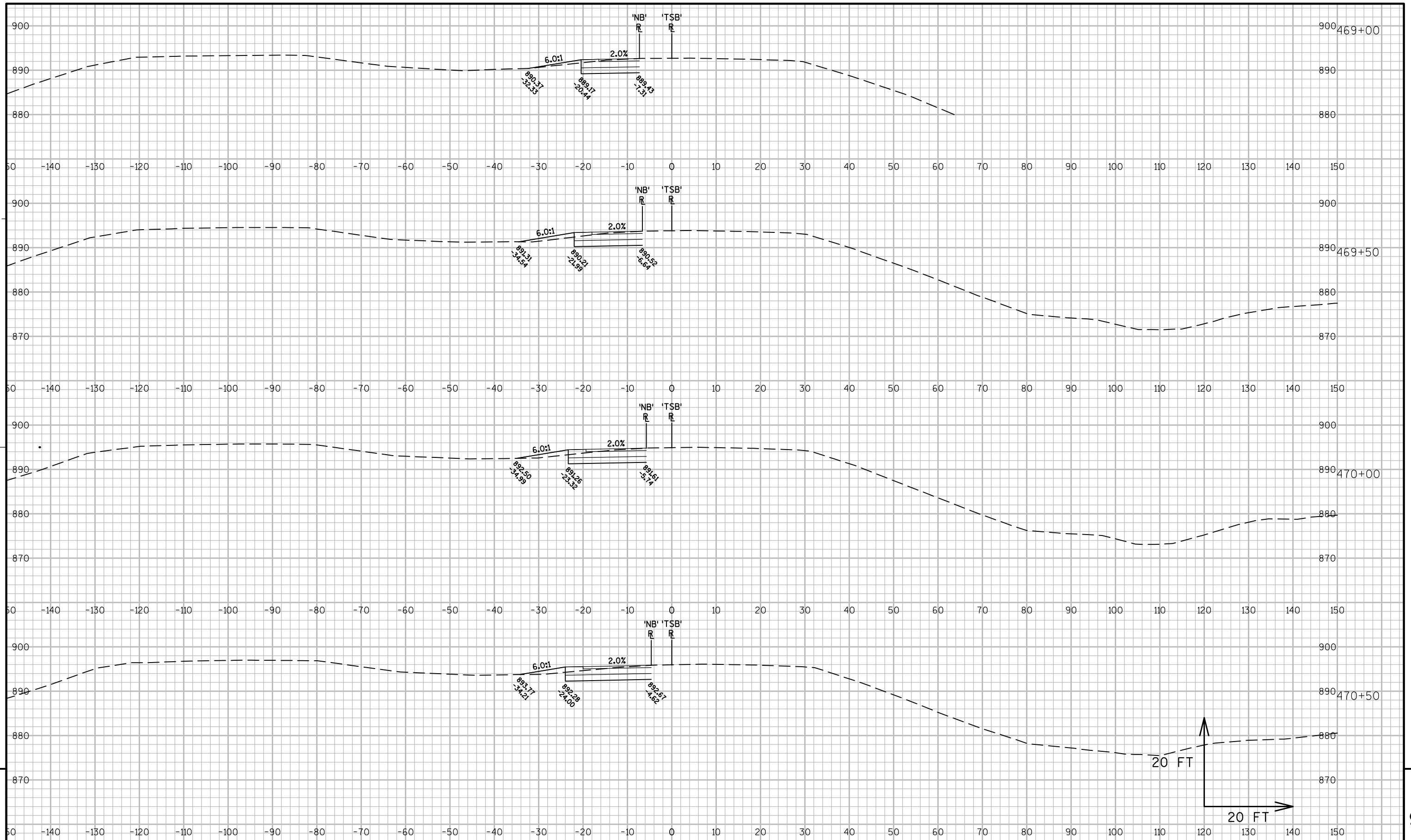
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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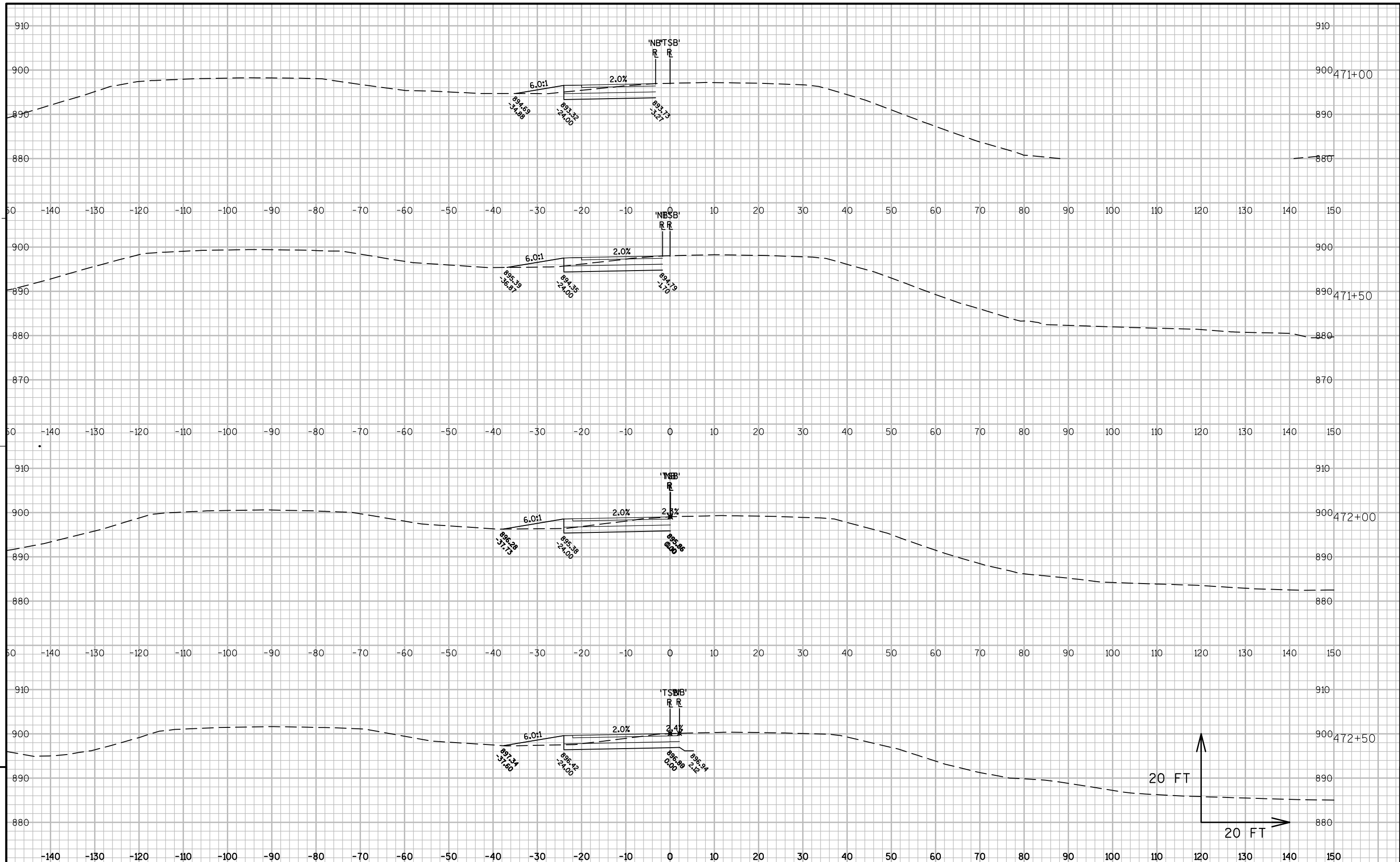
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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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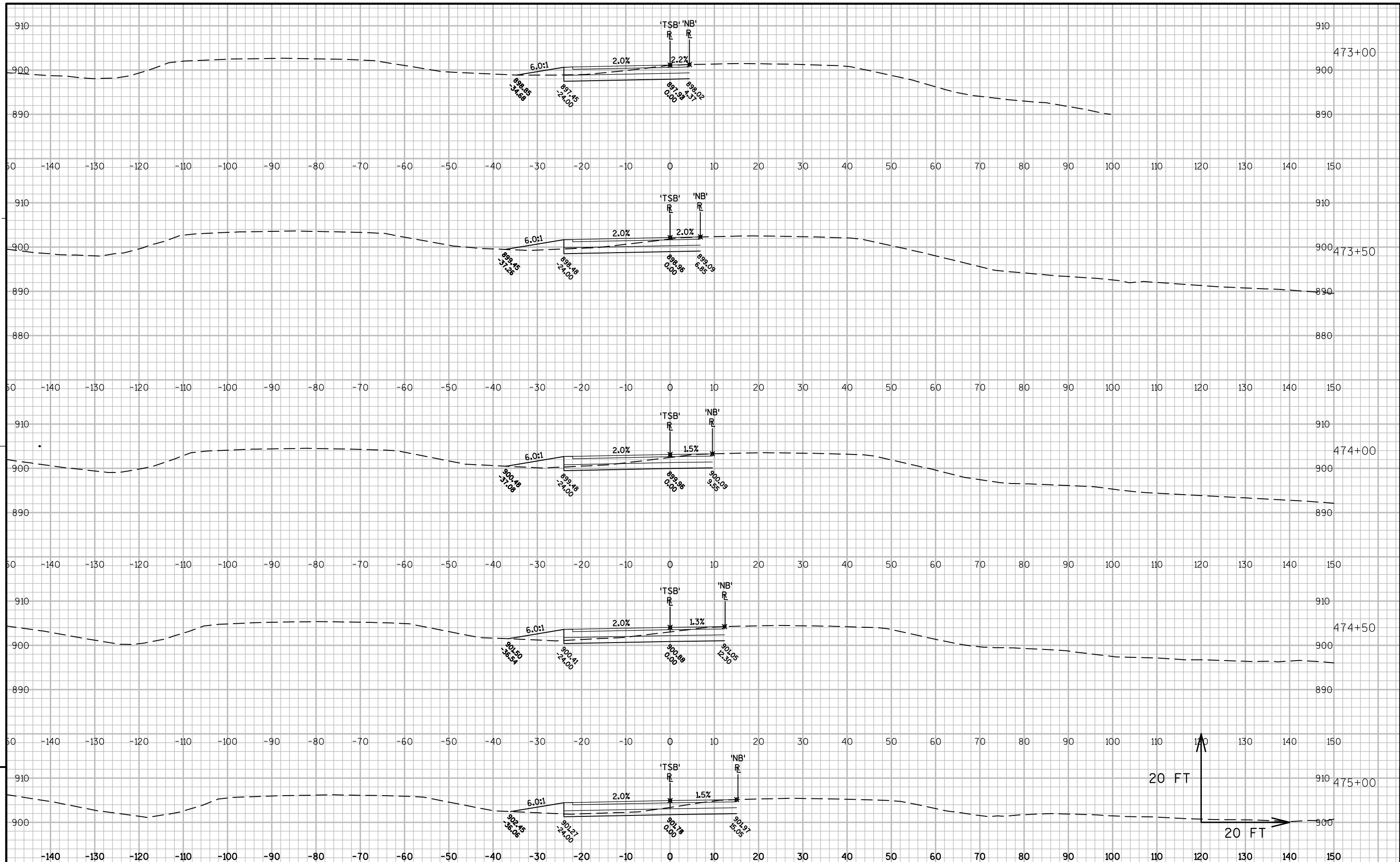
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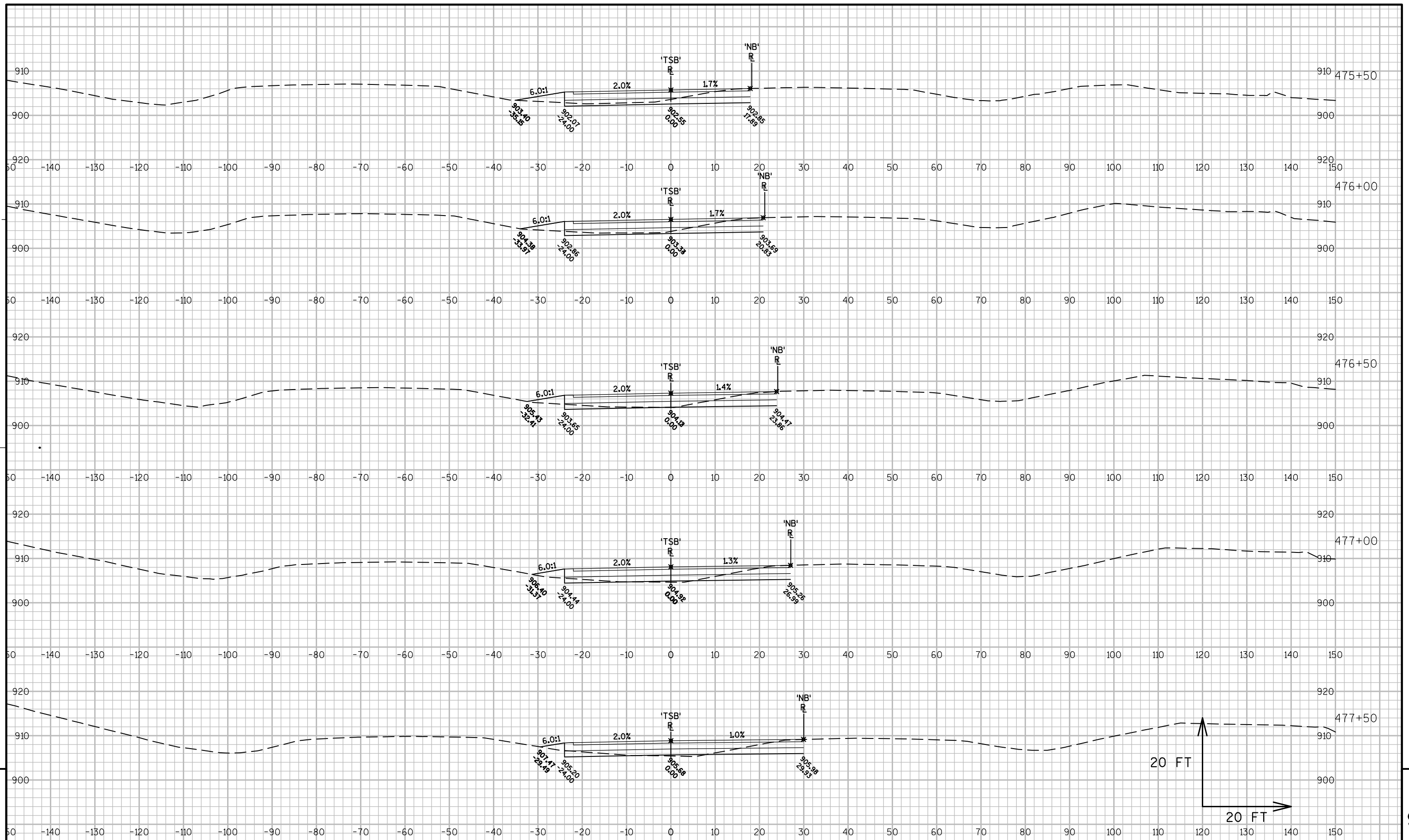
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PROJECT NO:1007-10-71

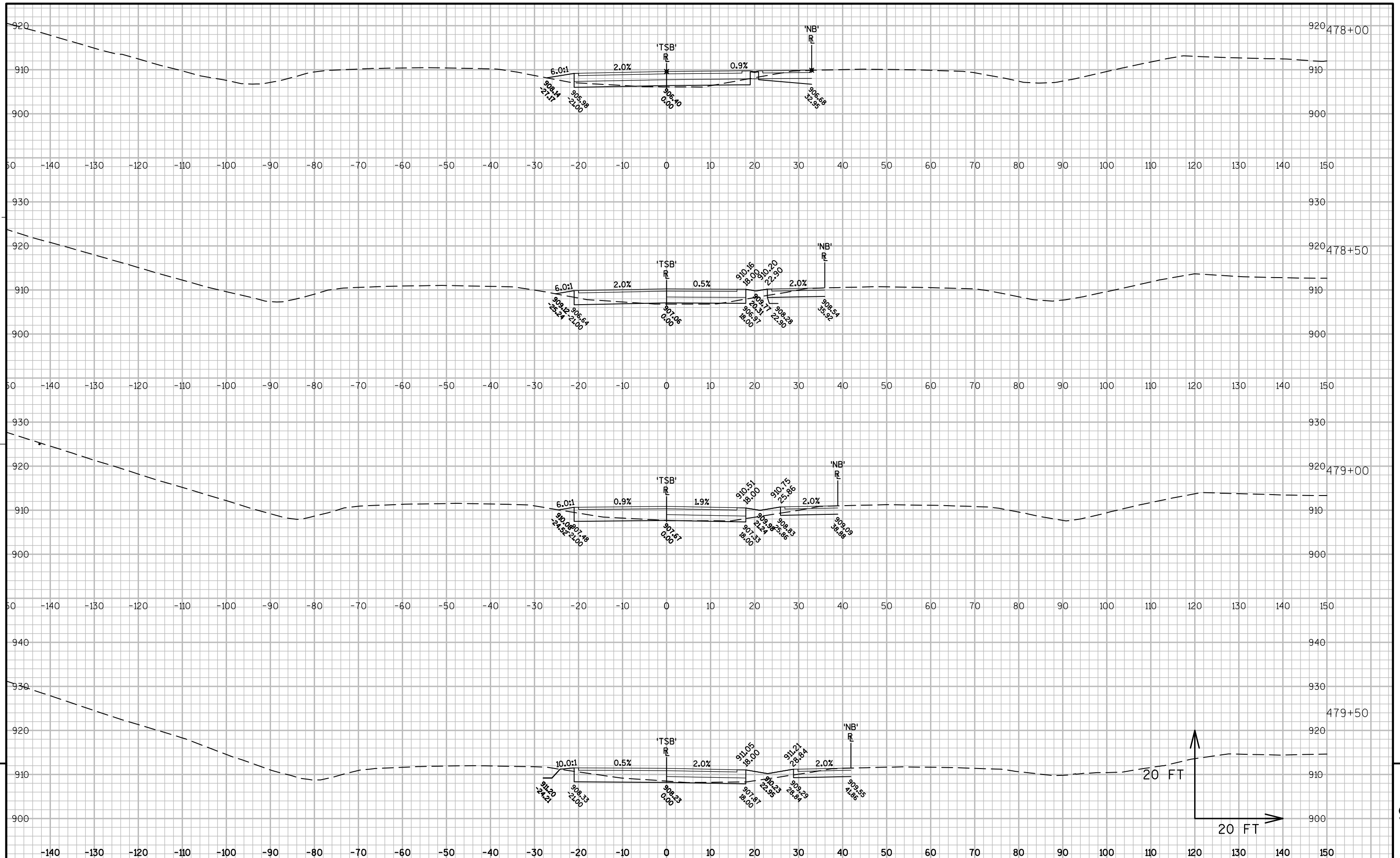
HWY: IH 39

COUNTY: DANE

CROSS SECTIONS: IH 39 TEMPORARY SB

SHEET

E



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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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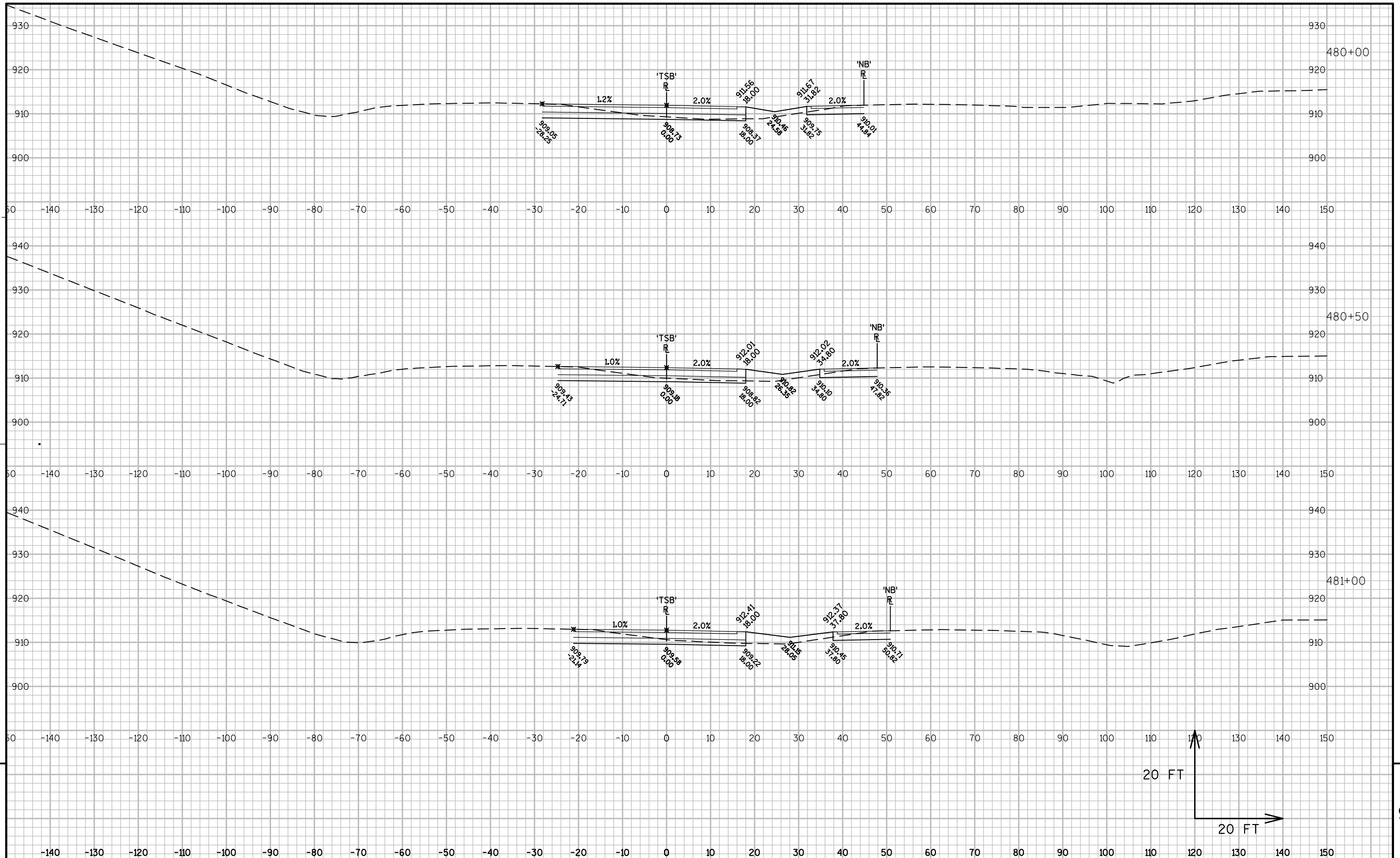
FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090101\_XS.DWG

PLOT DATE : 10/30/2013 8:11 AM

PLOT BY : SANDERFOOT, JASON PLOT NAME :

PLOT SCALE : 1:20-XREF

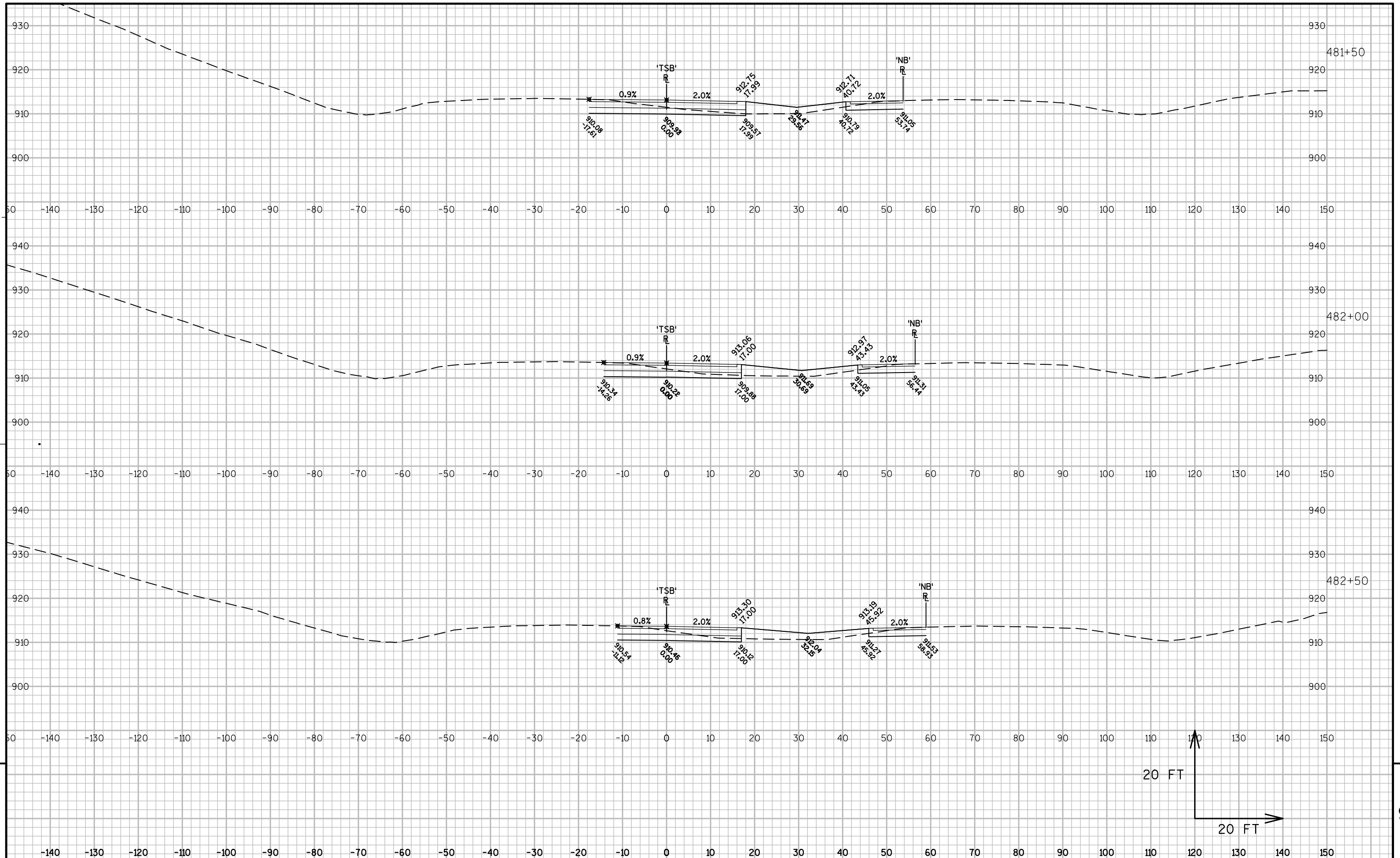
WISDOT/CADDS SHEET 49



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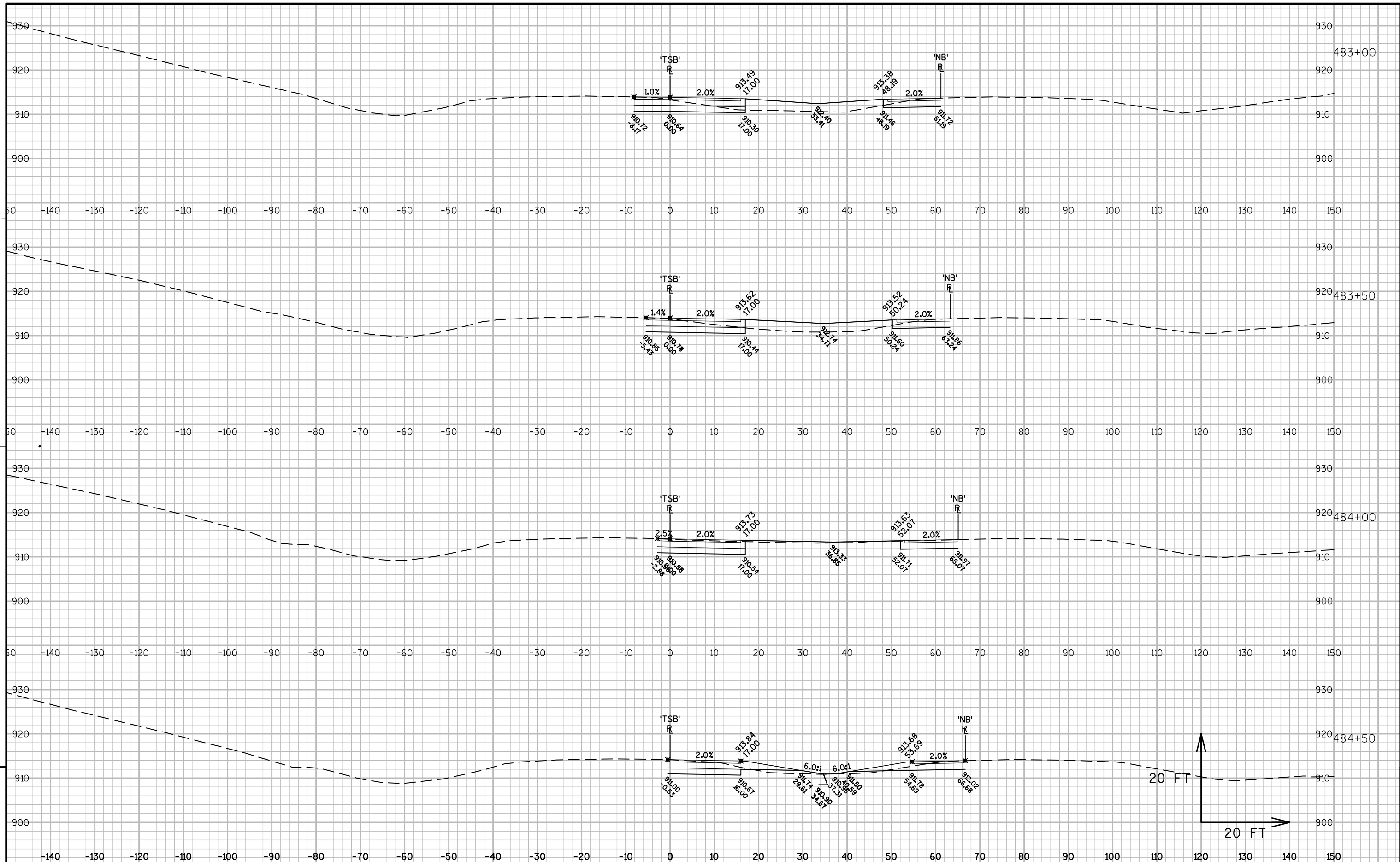
PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: IH 39 TEMPORARY SB      SHEET      E



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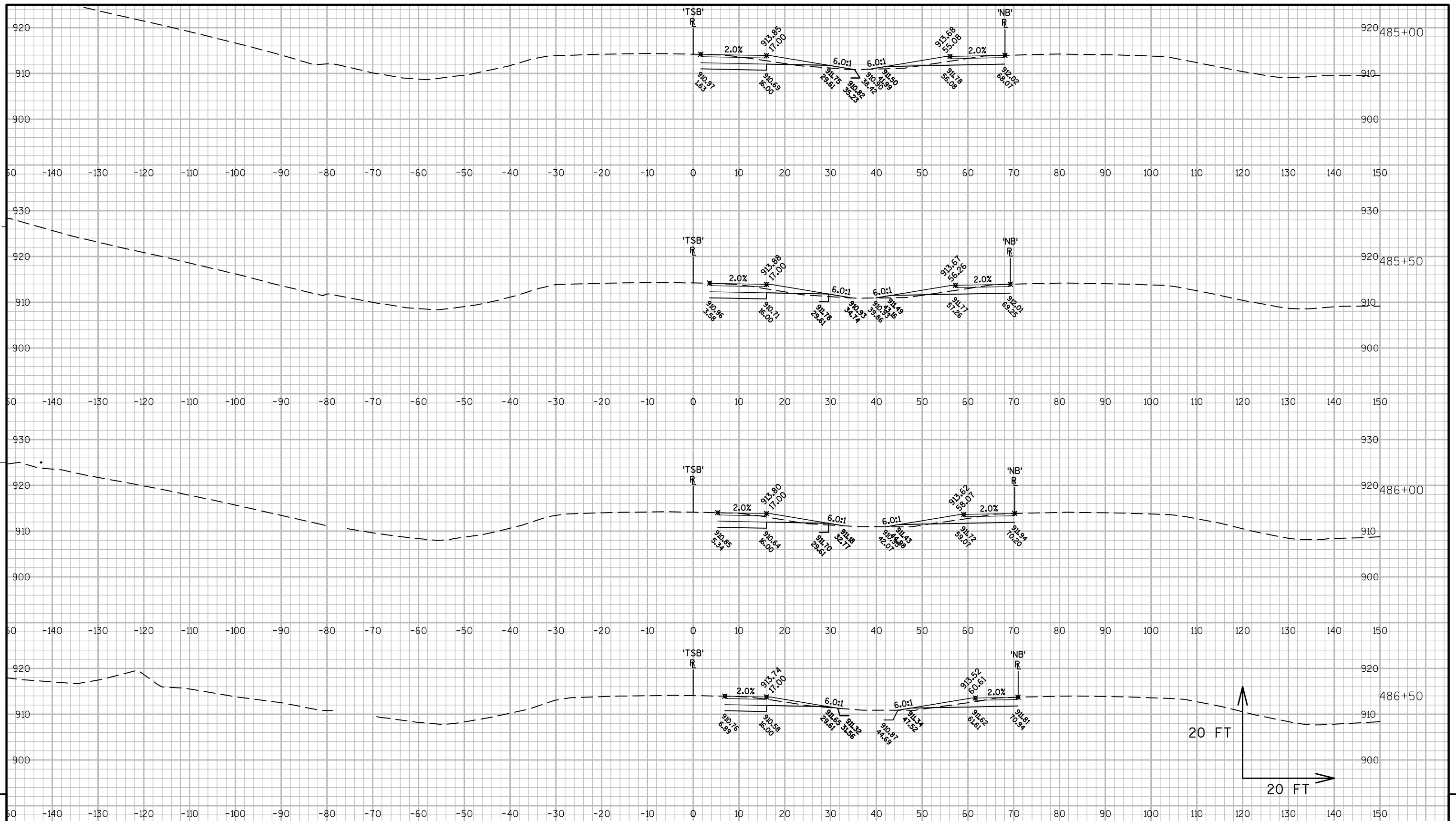
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PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: IH 39 TEMPORARY SB      SHEET      E



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PROJECT NO:1007-10-71

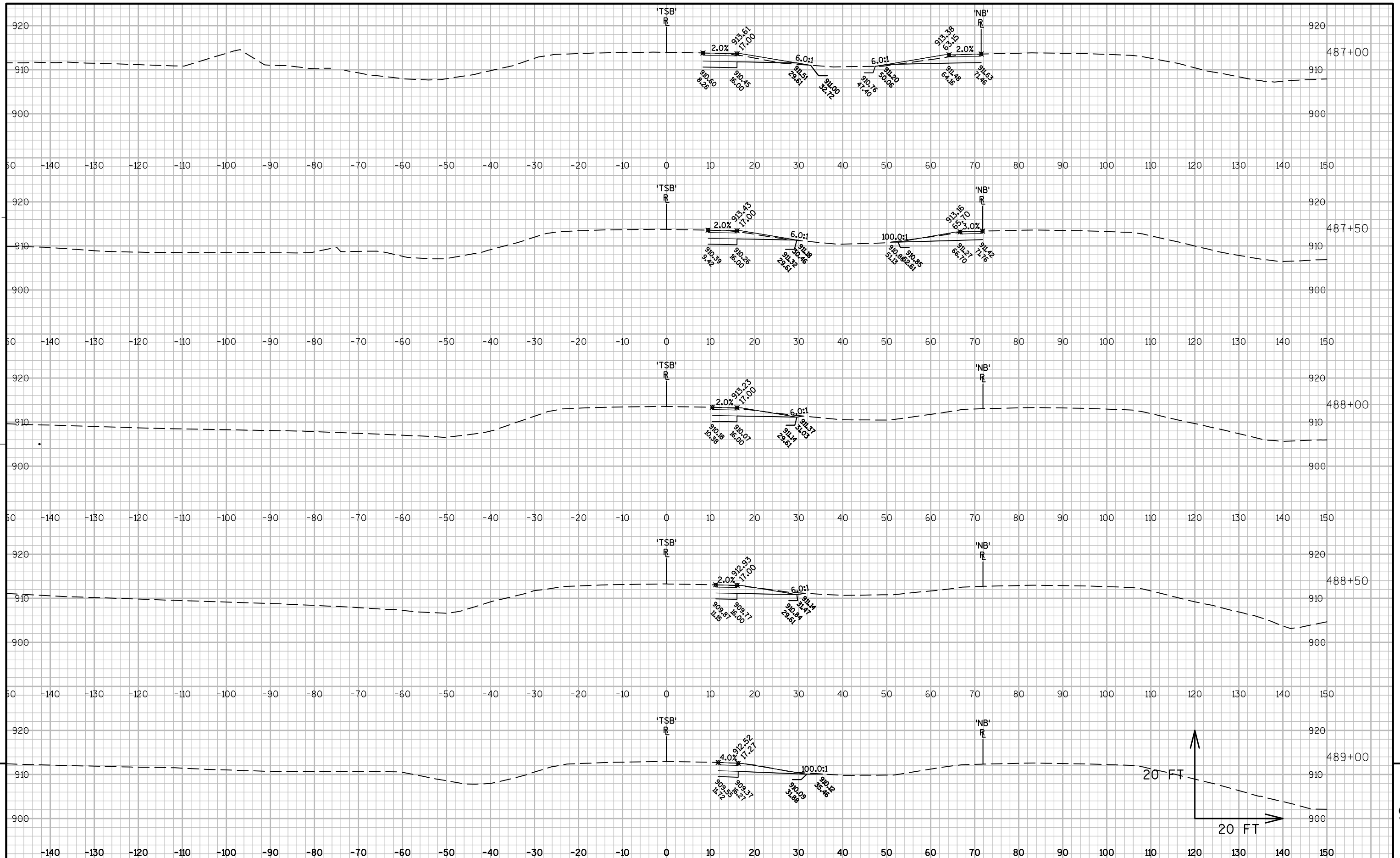
HWY: IH 39

COUNTY: DANE

CROSS SECTIONS: IH 39 TEMPORARY SB

SHEET

E



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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY SB	SHEET	E
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FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090101\_XS.DWG

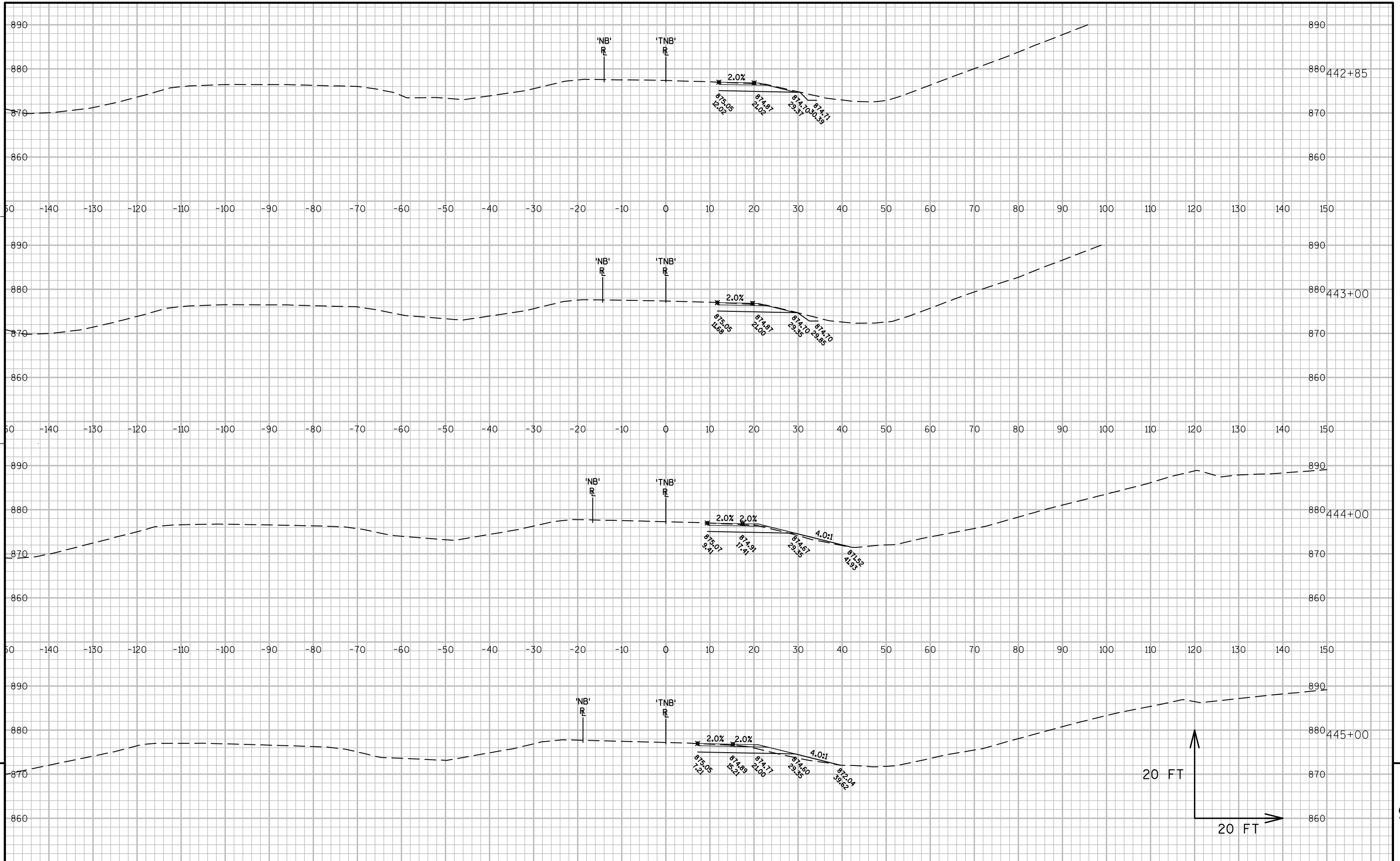
PLOT DATE : 10/30/2013 8:12 AM

PLOT BY : SANDERFOOT, JASON PLOT NAME :

PLOT SCALE : 1:20-XREF

WISDOT/CADDs SHEET 49

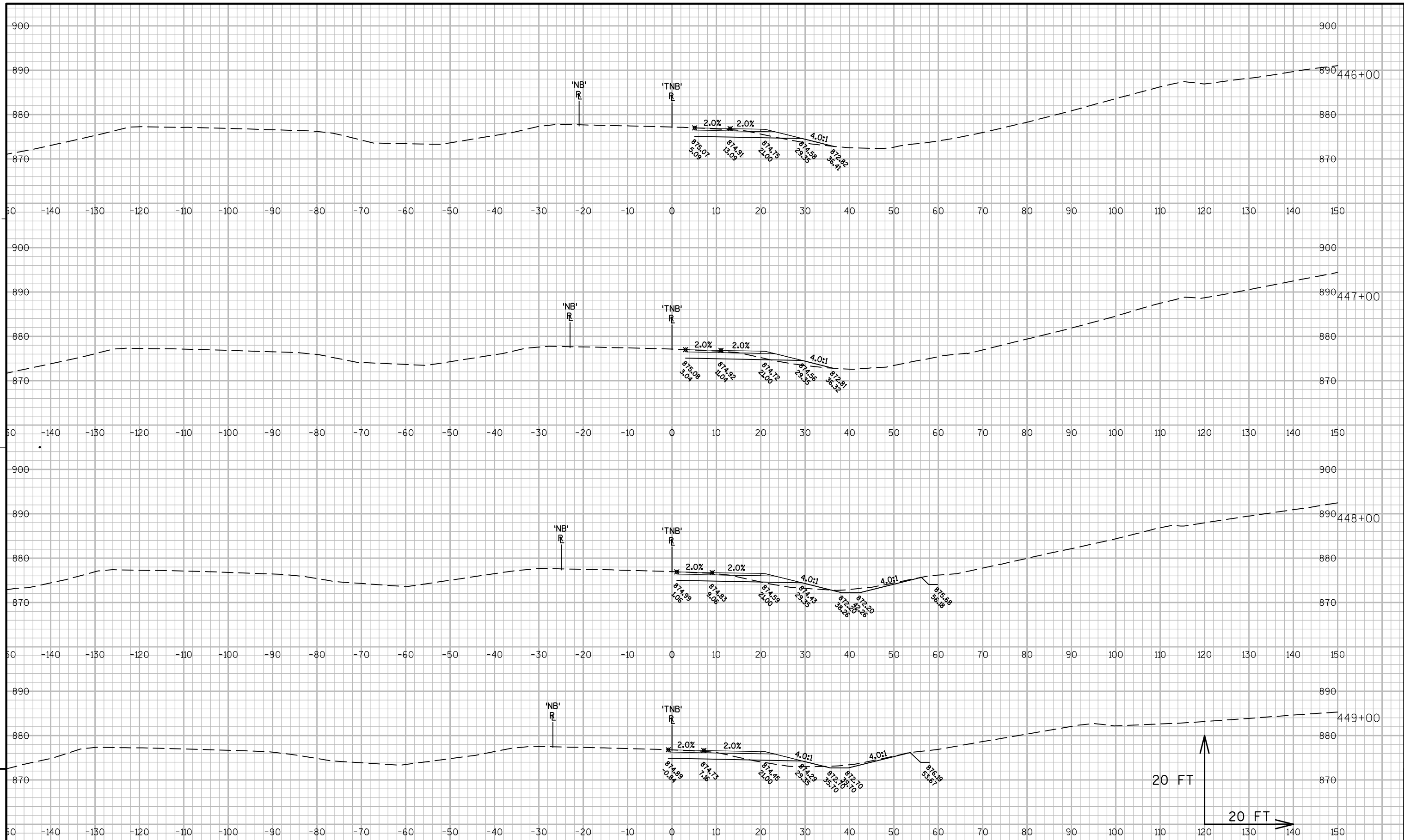




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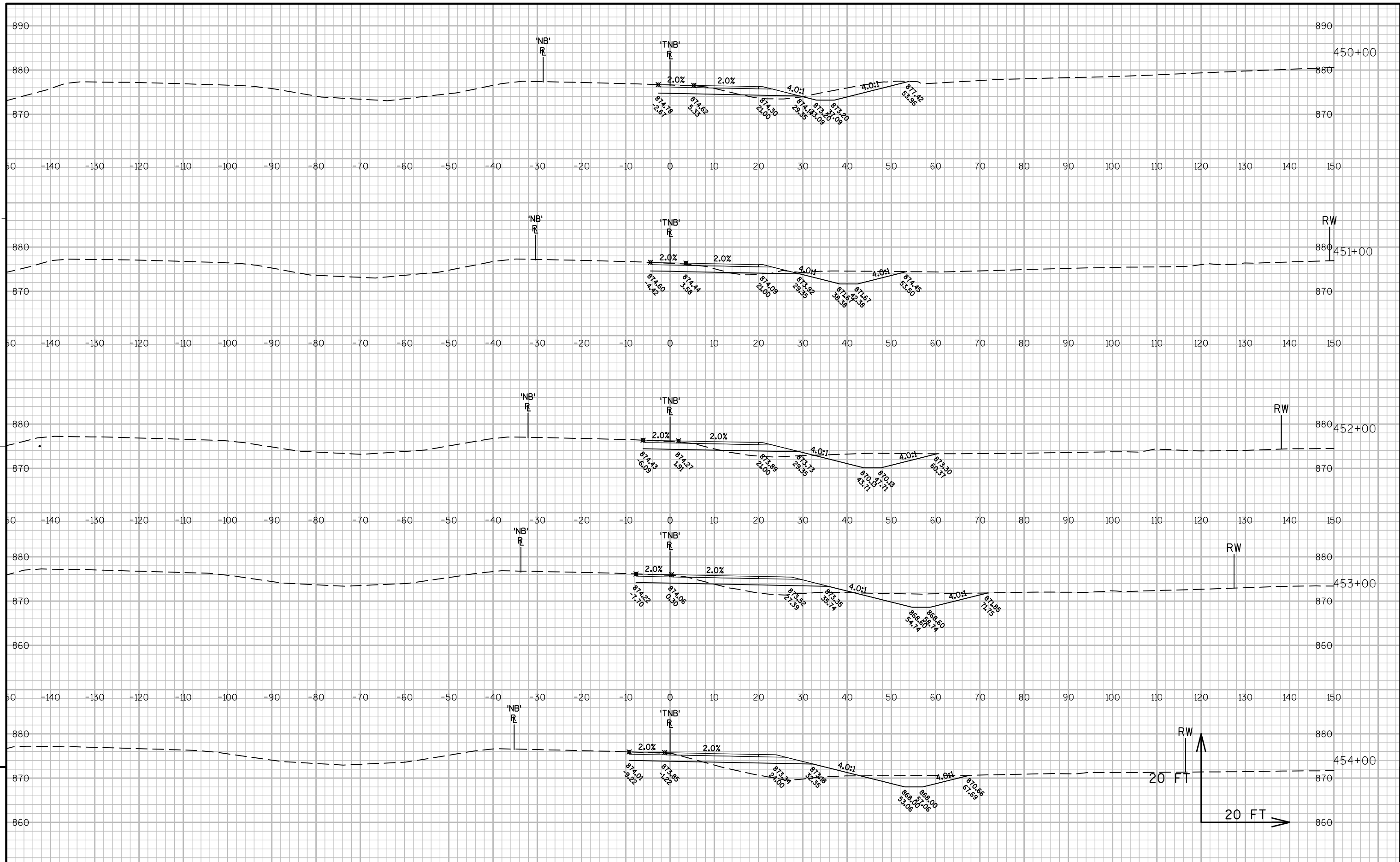
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY NB	SHEET	E
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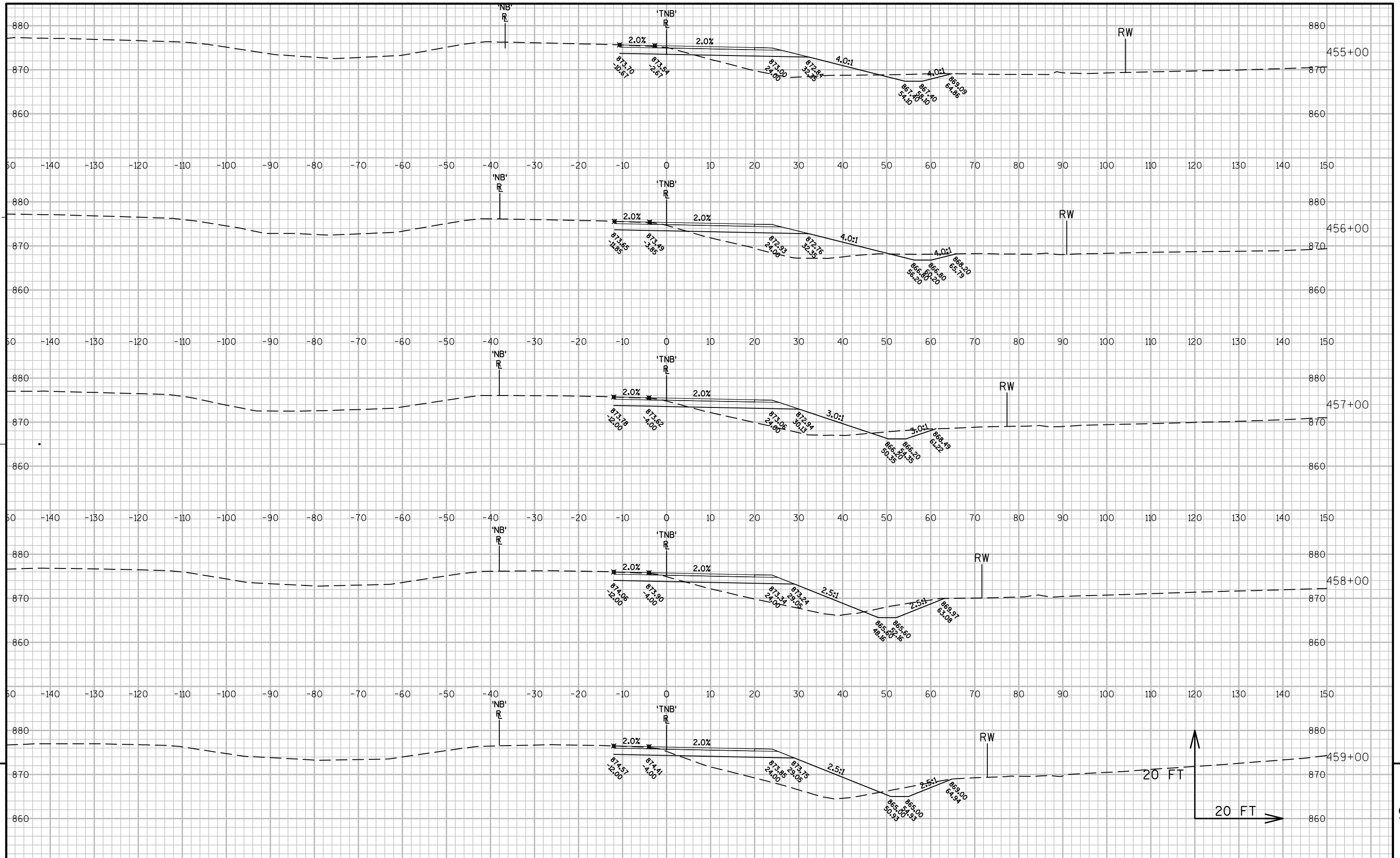
9

PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY NB	SHEET	E
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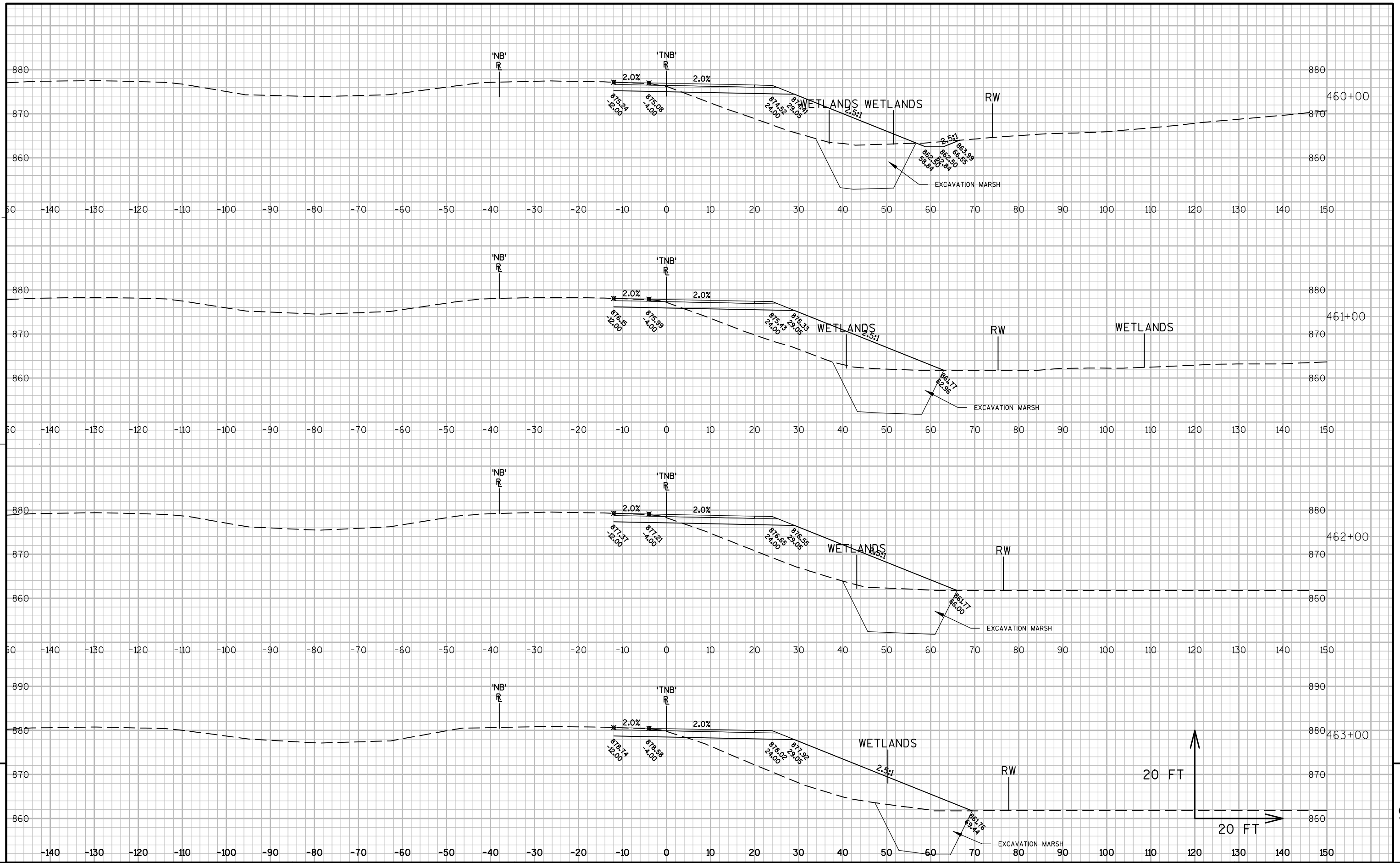
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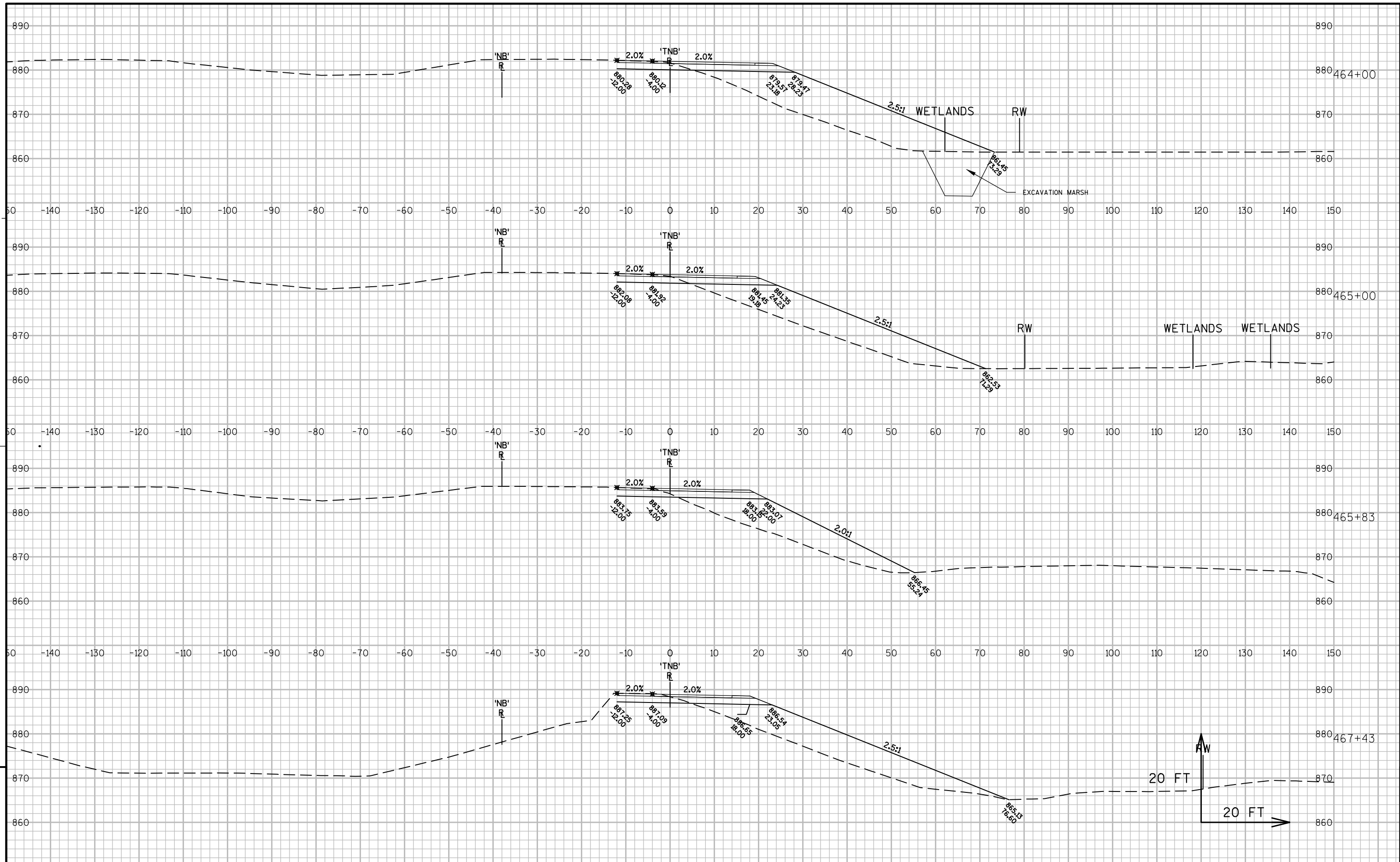
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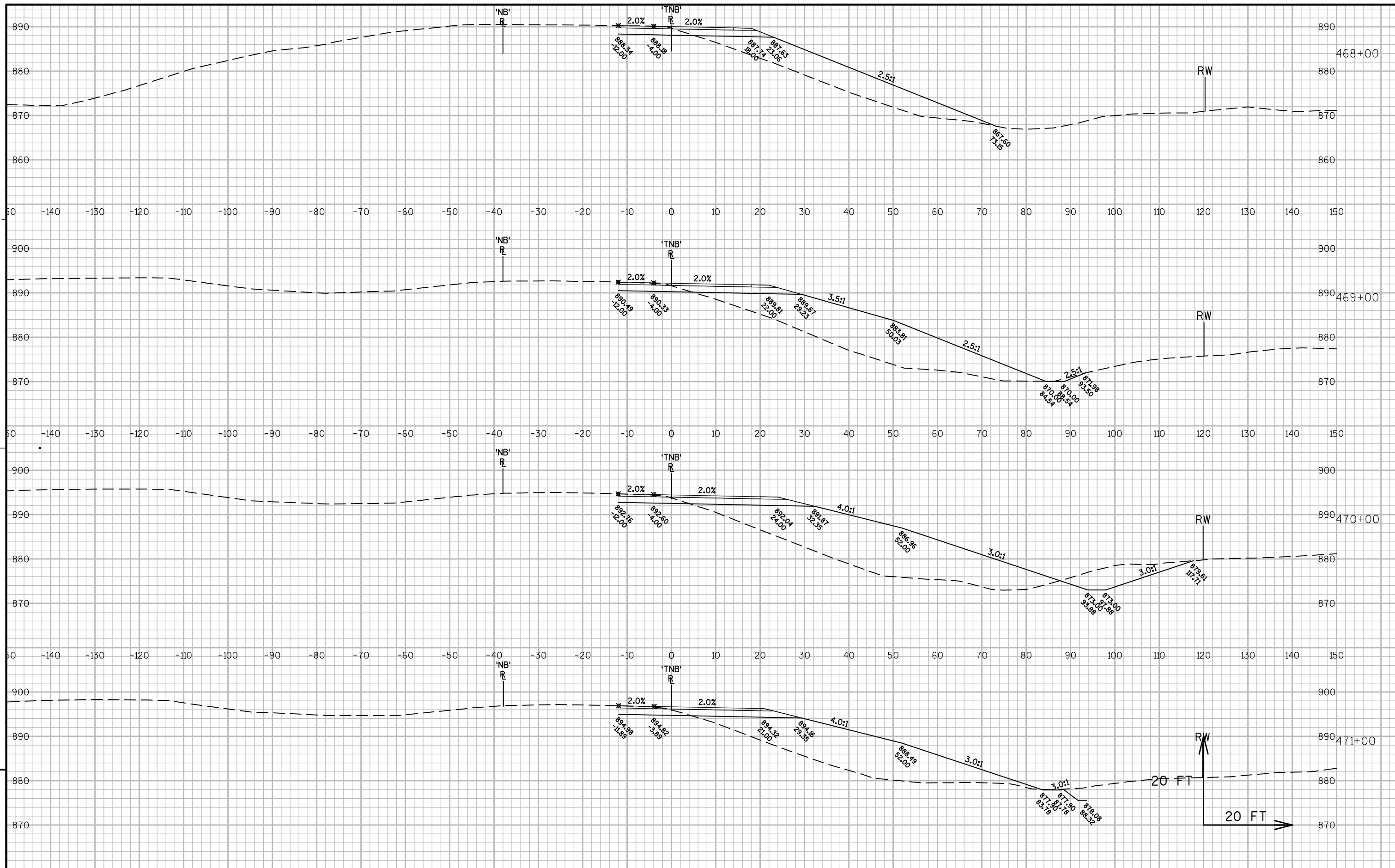
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY NB	SHEET	E
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PROJECT NO:1007-10-71

HWY: IH 39

COUNTY: DANE

CROSS SECTIONS: IH 39 TEMPORARY NB

SHEET

E

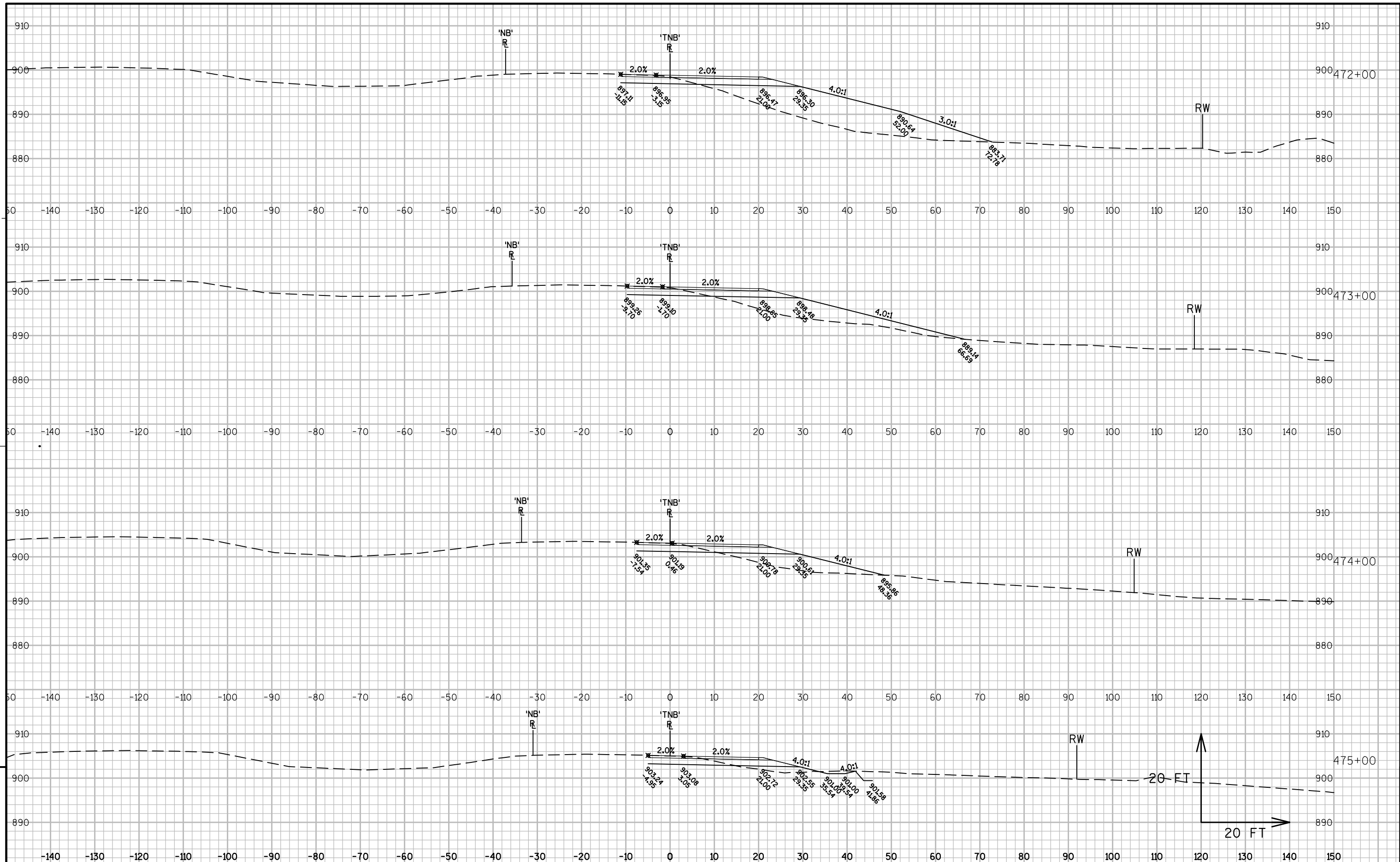
FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090102\_XS.DWG

PLOT DATE : 10/29/2013 9:06 AM

PLOT BY : SANDERFOOT, JASON PLOT NAME :

PLOT SCALE : 1" = 20' XREF

WISDOT/CADD SHEET 49

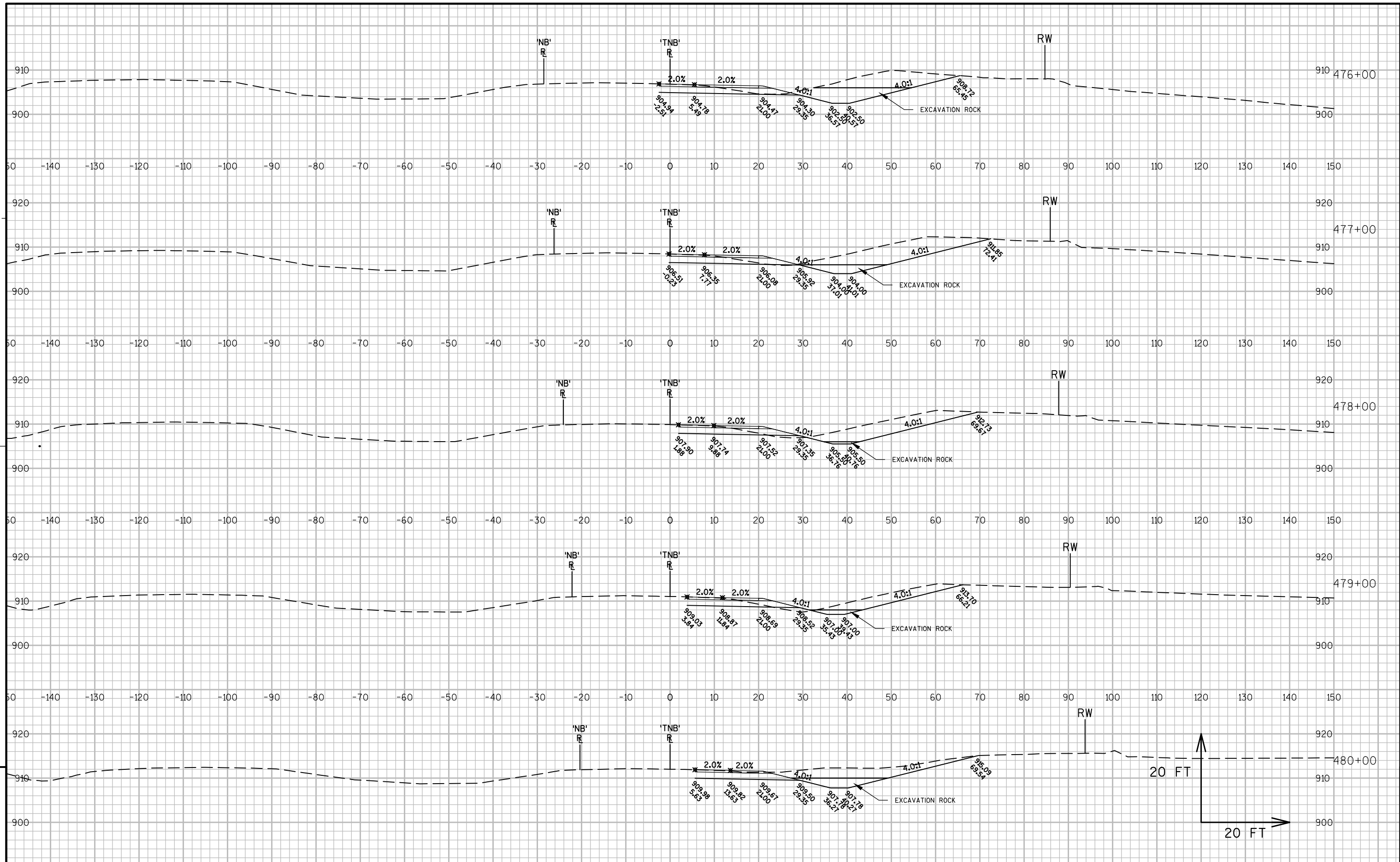


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PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: IH 39 TEMPORARY NB      SHEET      E

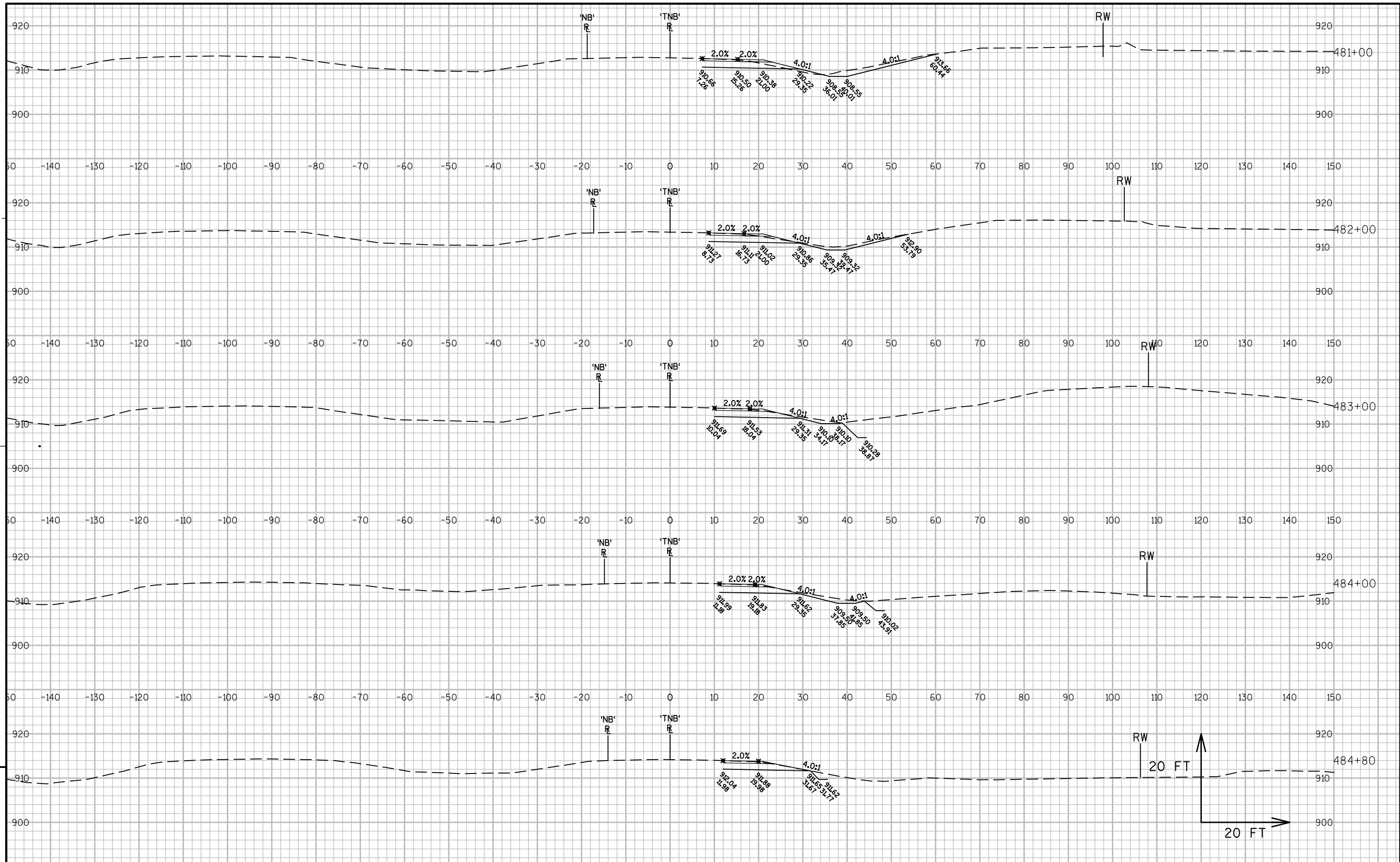




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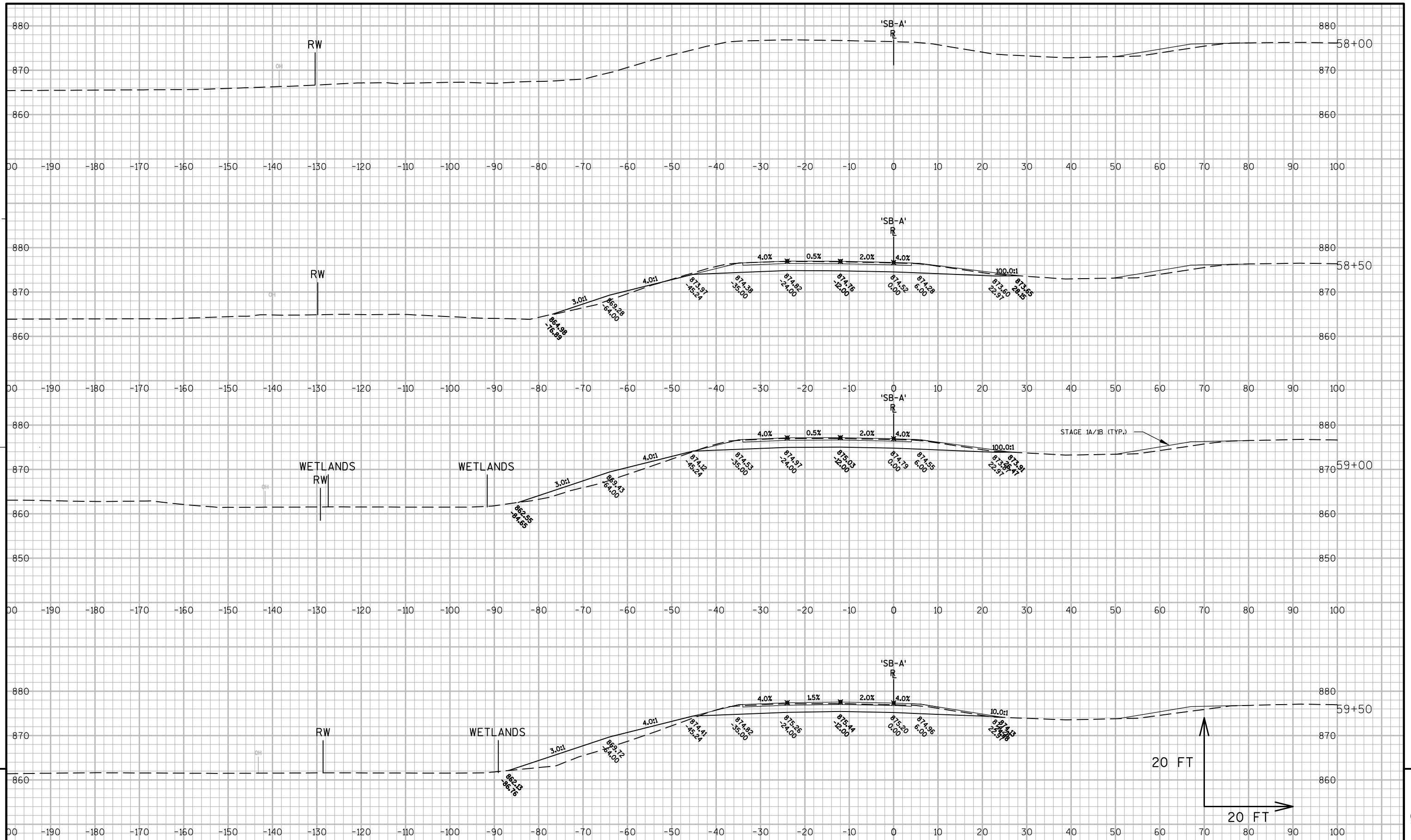
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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 TEMPORARY NB	SHEET	E
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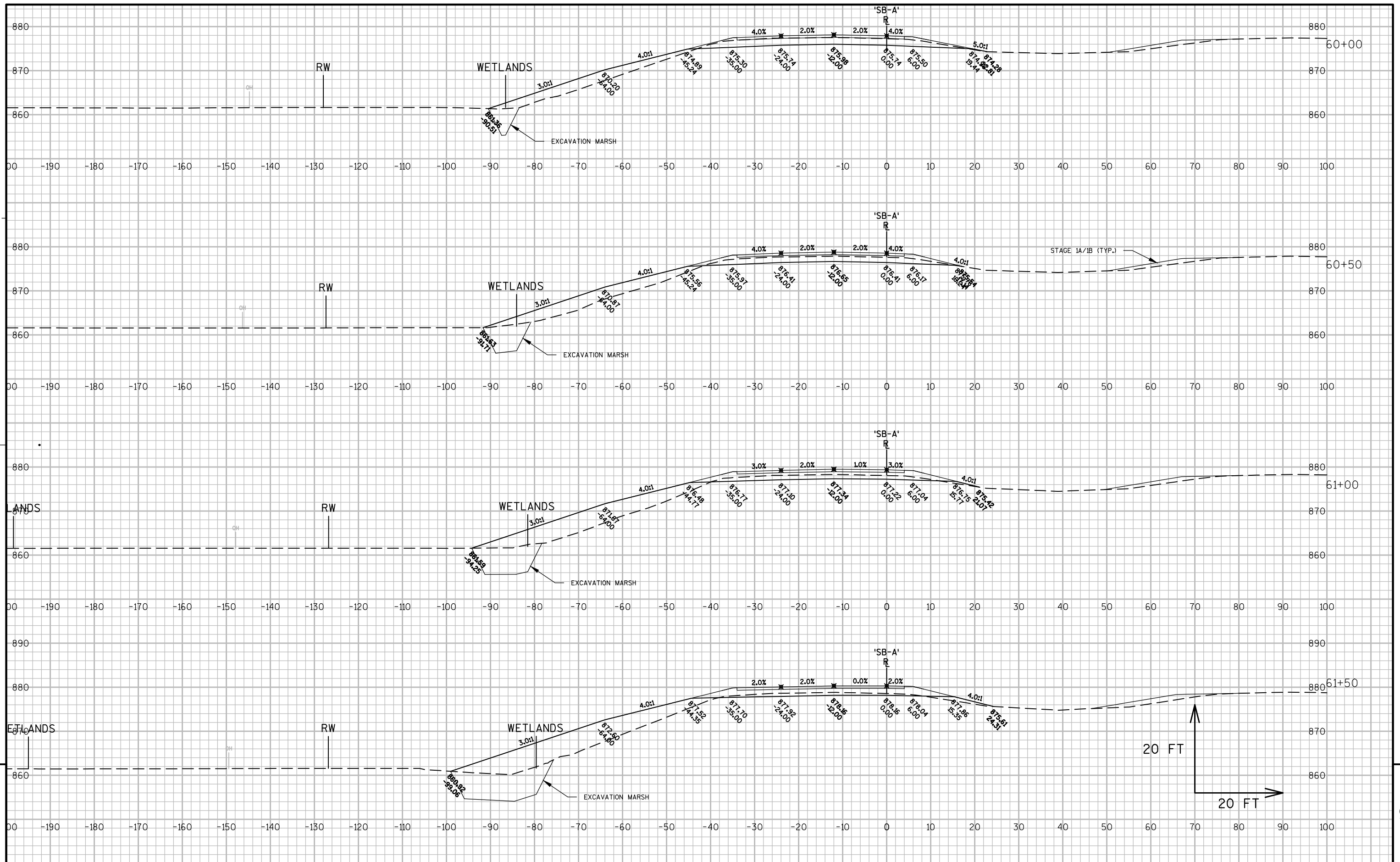
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PROJECT NO:1007-10-71

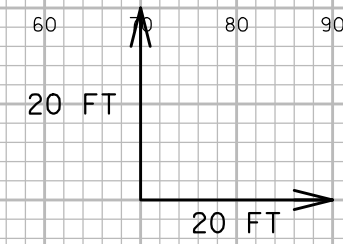
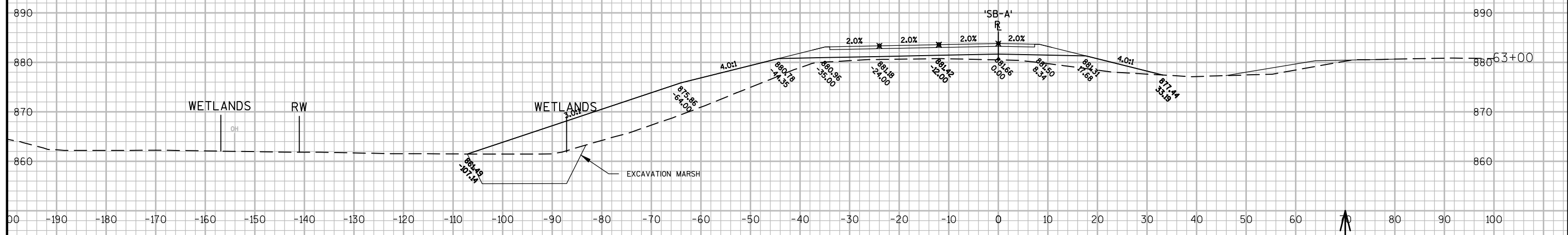
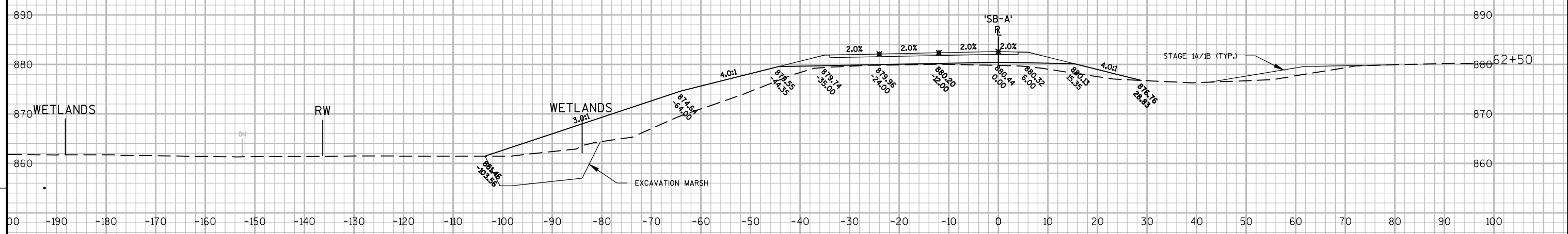
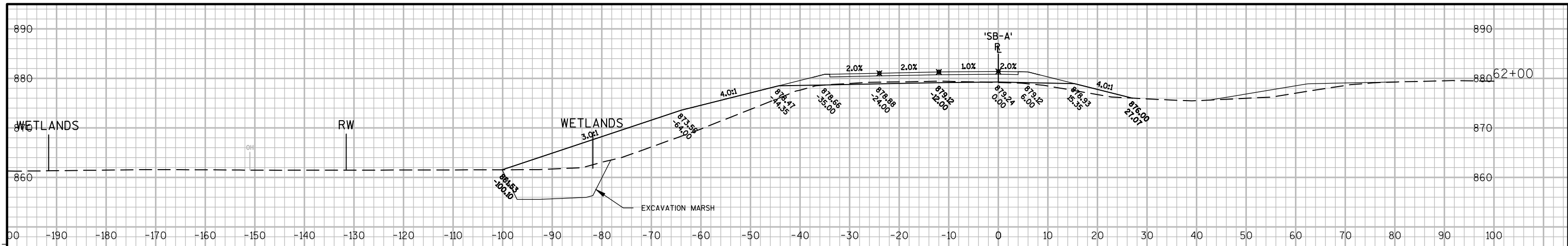
HWY: IH 39

COUNTY: DANE

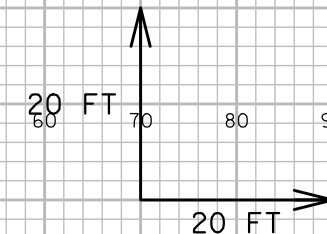
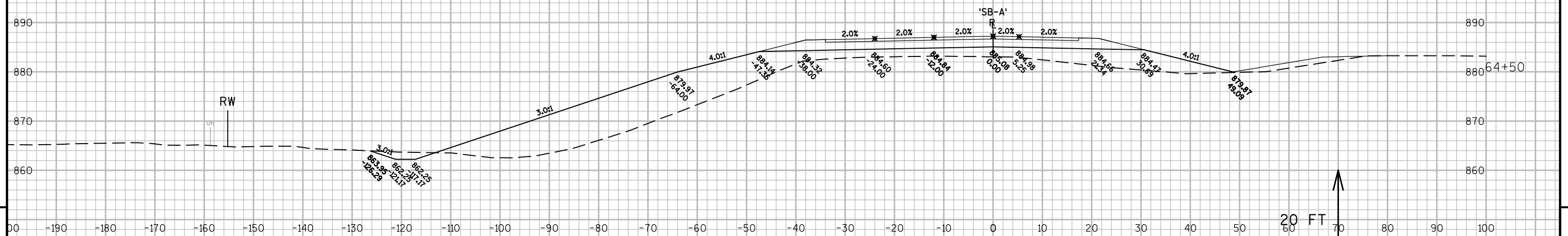
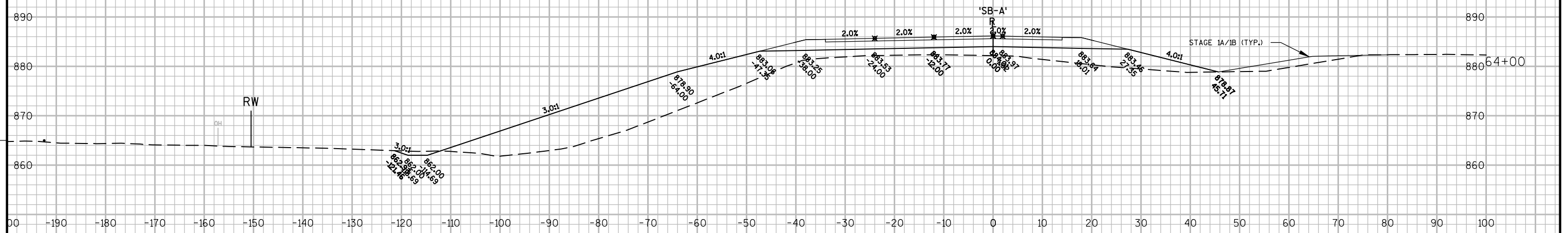
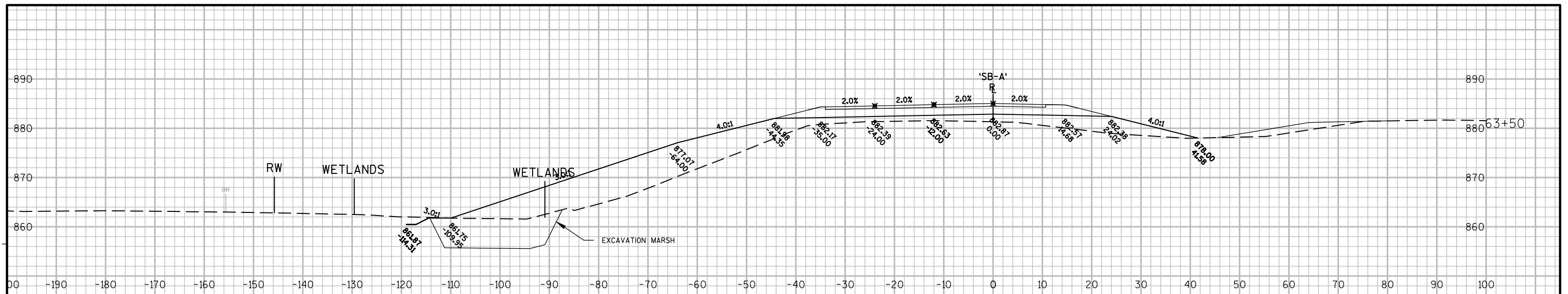
CROSS SECTIONS: IH 39 SB

SHEET

E



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PROJECT NO:1007-10-71

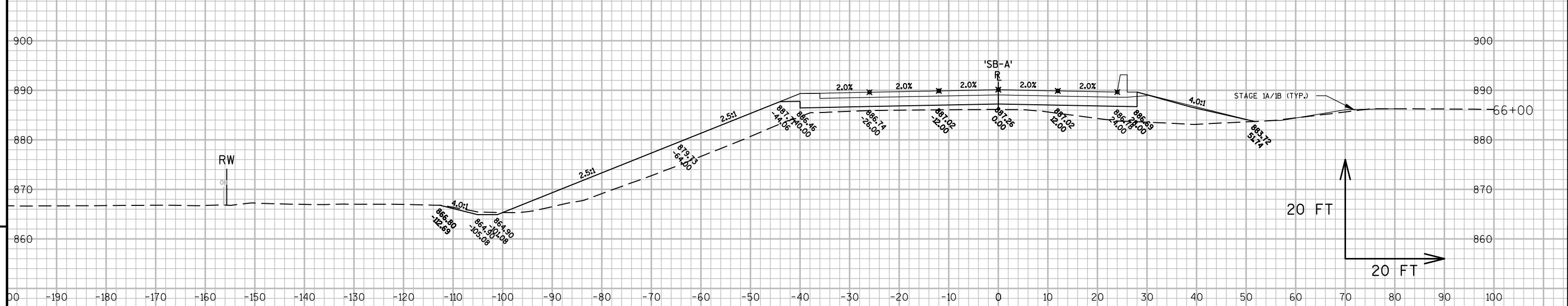
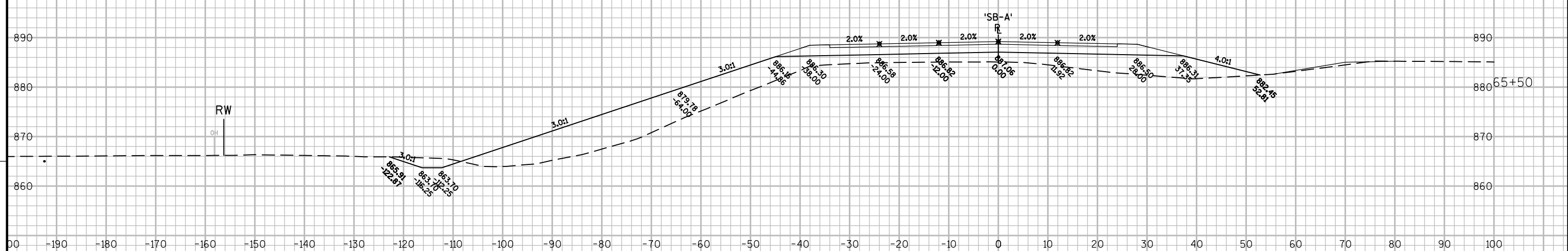
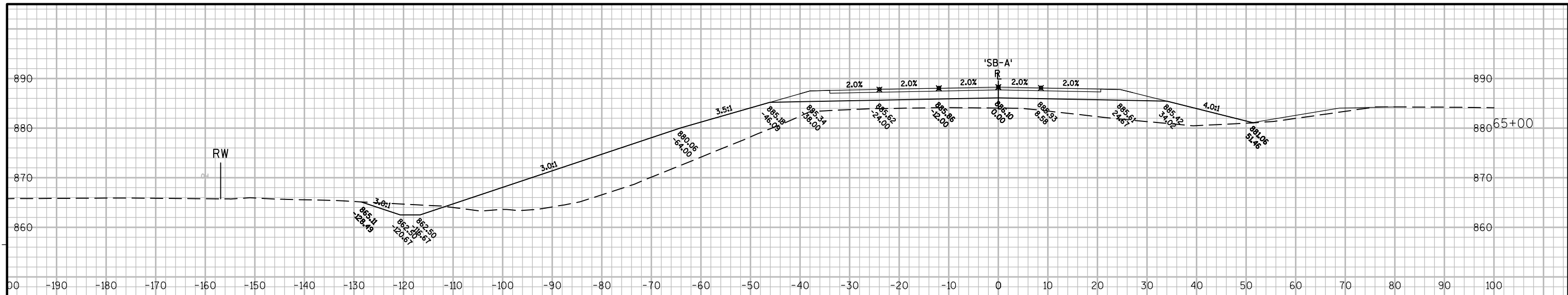
HWY: IH 39

COUNTY: DANE

CROSS SECTIONS: IH 39 SB

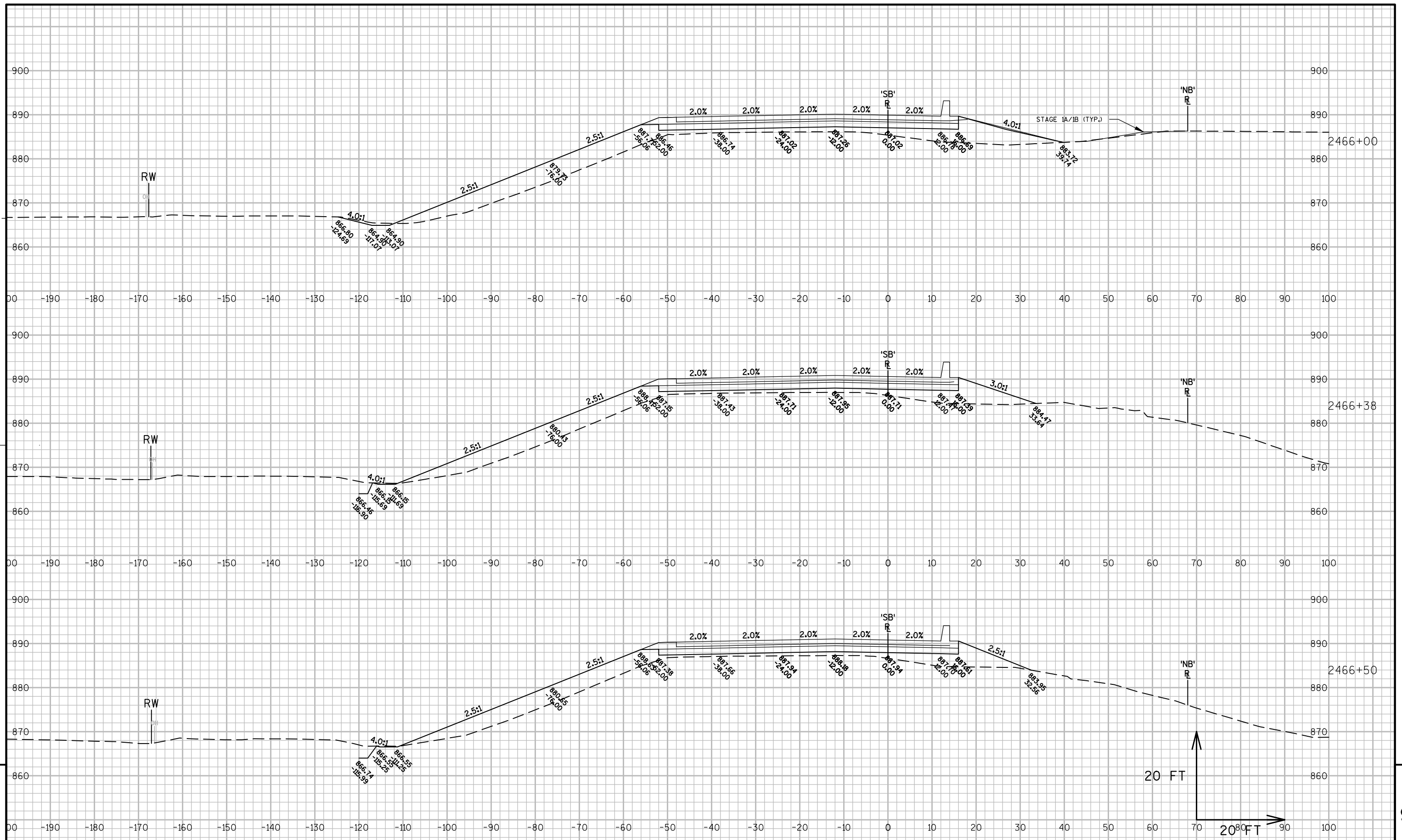
SHEET

E



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PROJECT NO:1007-10-71

HWY: IH 39

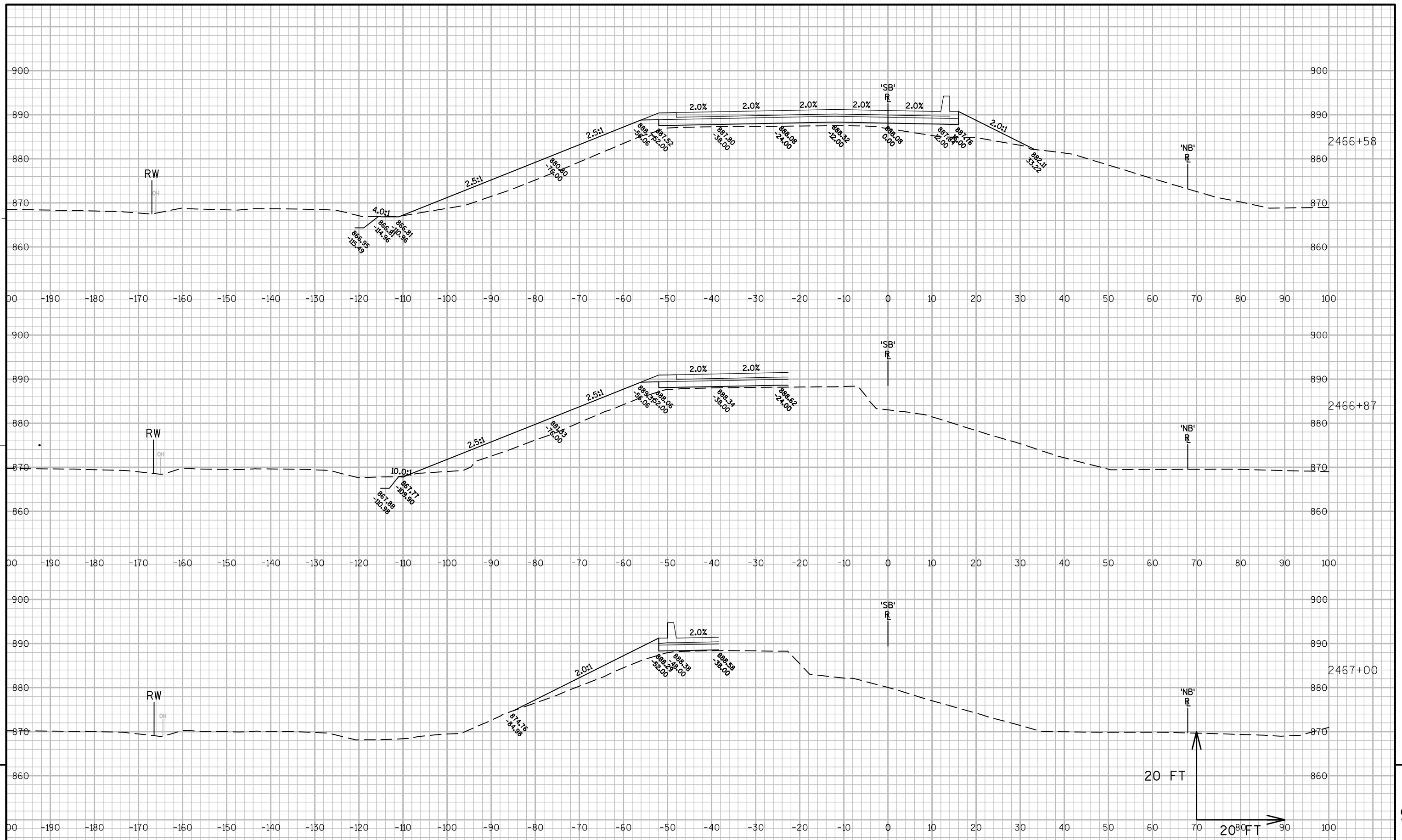
COUNTY: DANE

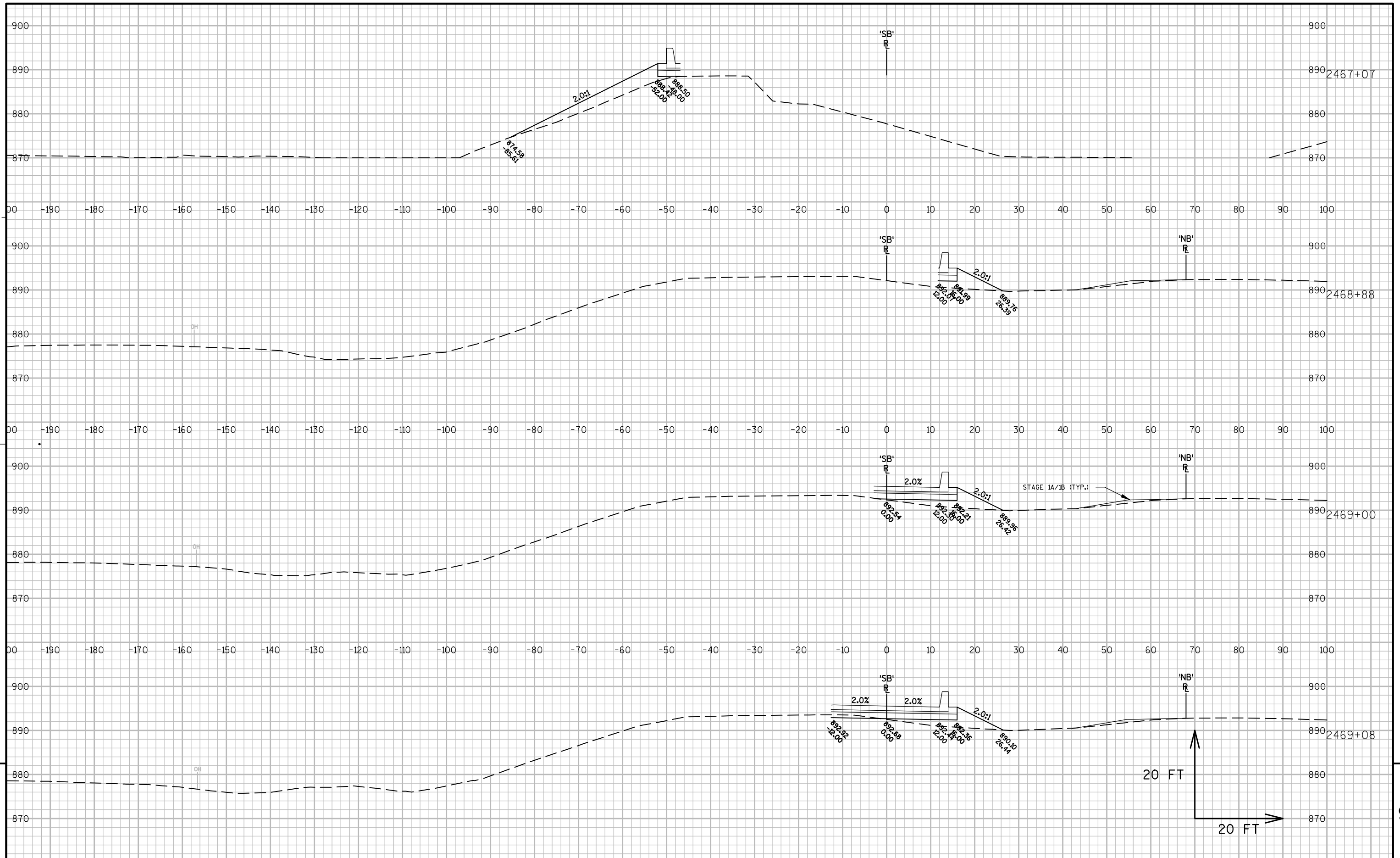
CROSS SECTIONS: IH 39 SB

SHEET

E







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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 SB	SHEET	E
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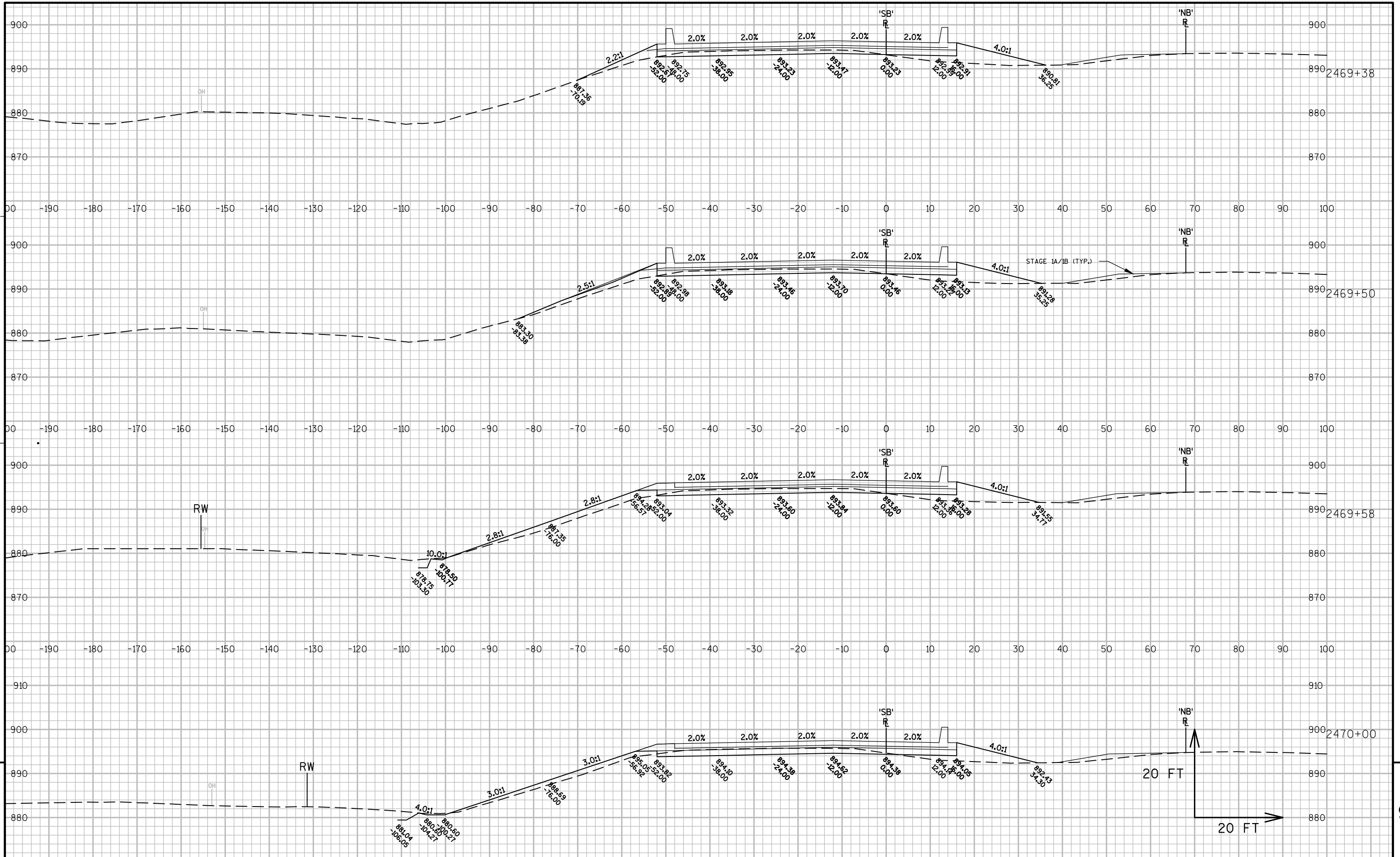
FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090104\_XS.DWG

PLOT DATE : 10/30/2013 1:42 PM

PLOT BY : SANDERFOOT, JASON PLOT NAME :

PLOT SCALE : 1:20-XREF

WISDOT/CADD SHEET 49



PROJECT NO:1007-10-71

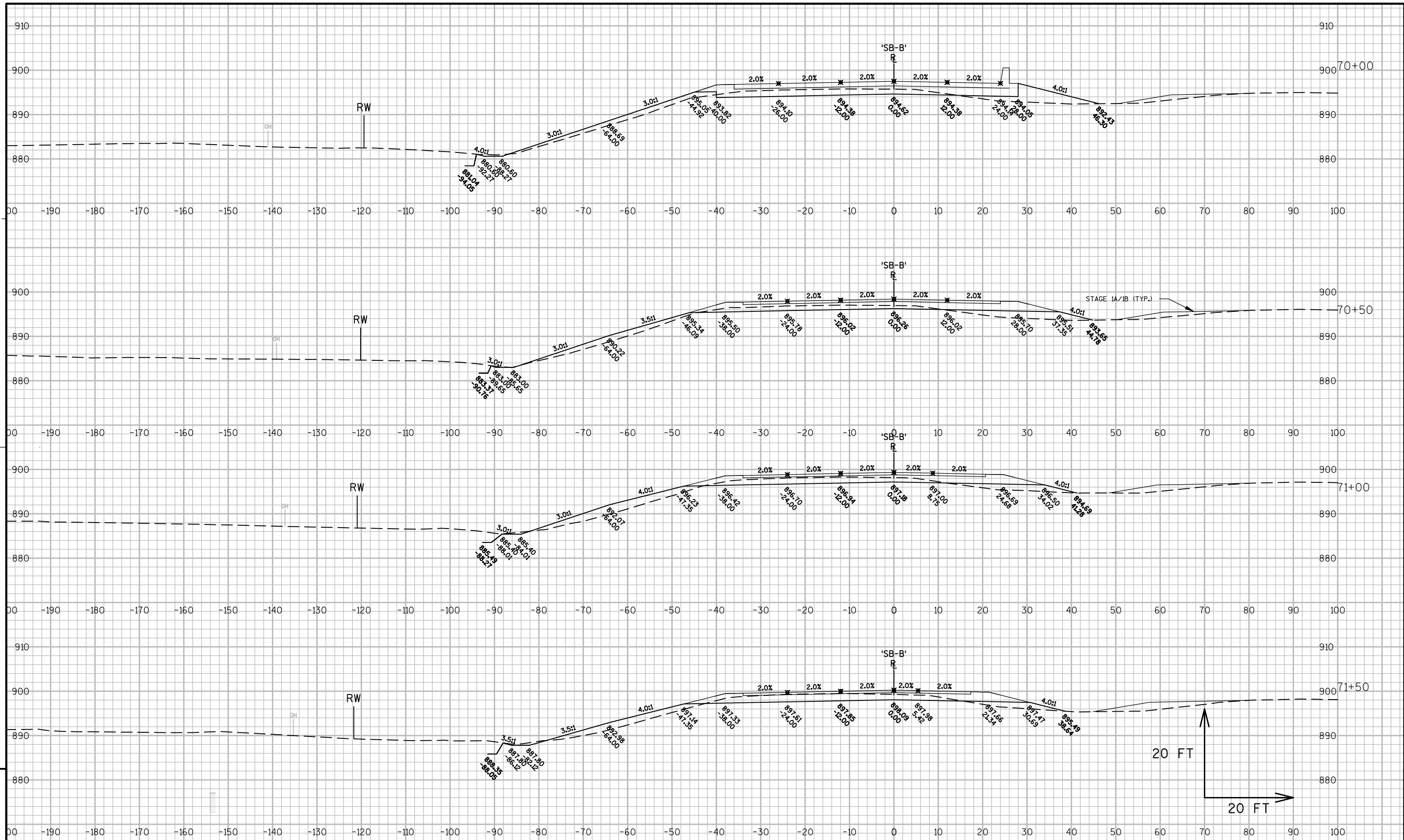
HWY: IH 39

COUNTY: DANE

CROSS SECTIONS: IH 39 SB

SHEET

E

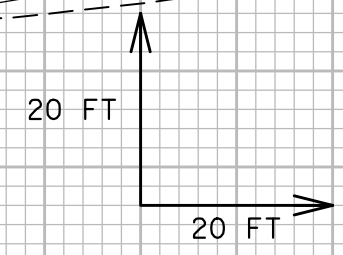


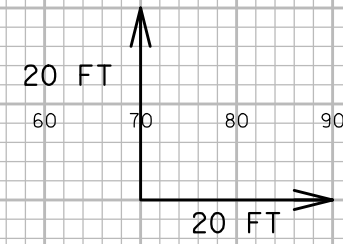
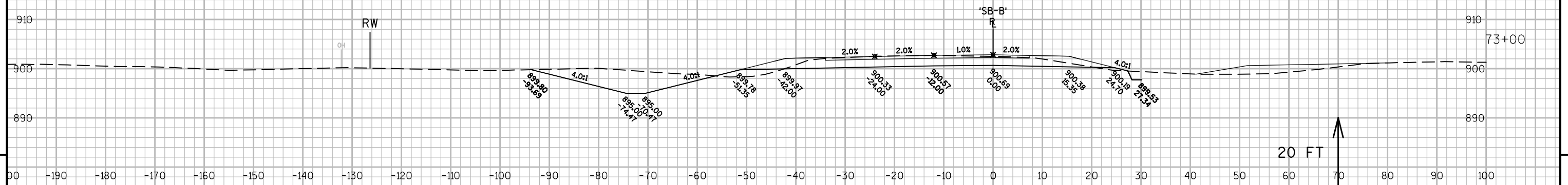
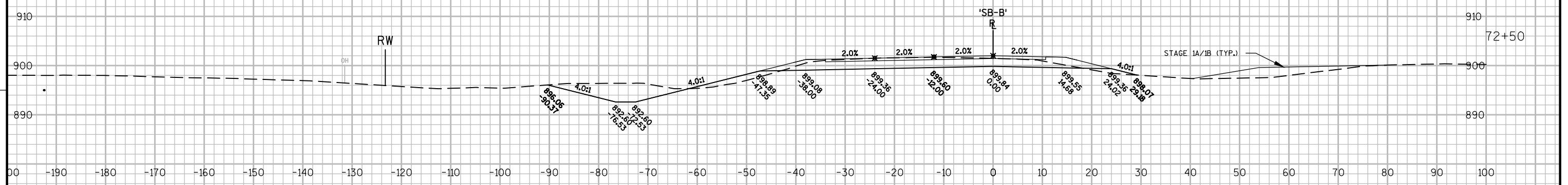
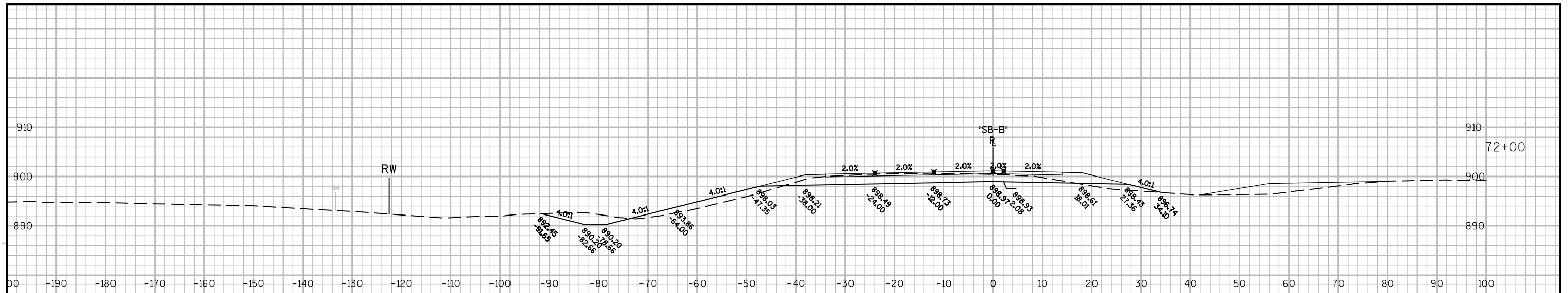
9

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PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: IH 39 SB      SHEET      E

FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090105\_XS.DWG      PLOT DATE : 10/30/2013 1:47 PM      PLOT BY : SANDERFOOT, JASON      PLOT NAME :      PLOT SCALE : 1:20-XREF      WISDOT/CADD SHEET 49

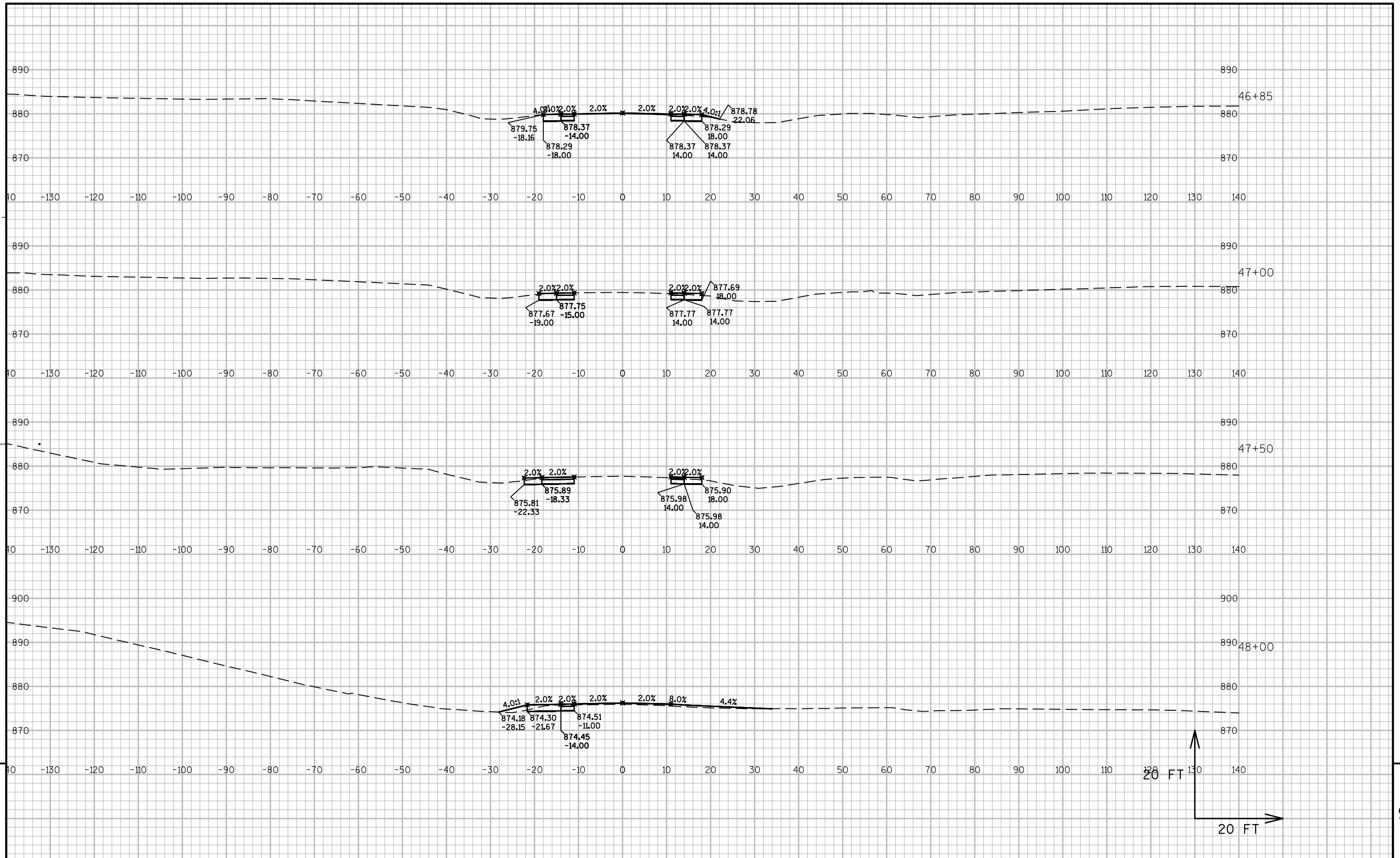




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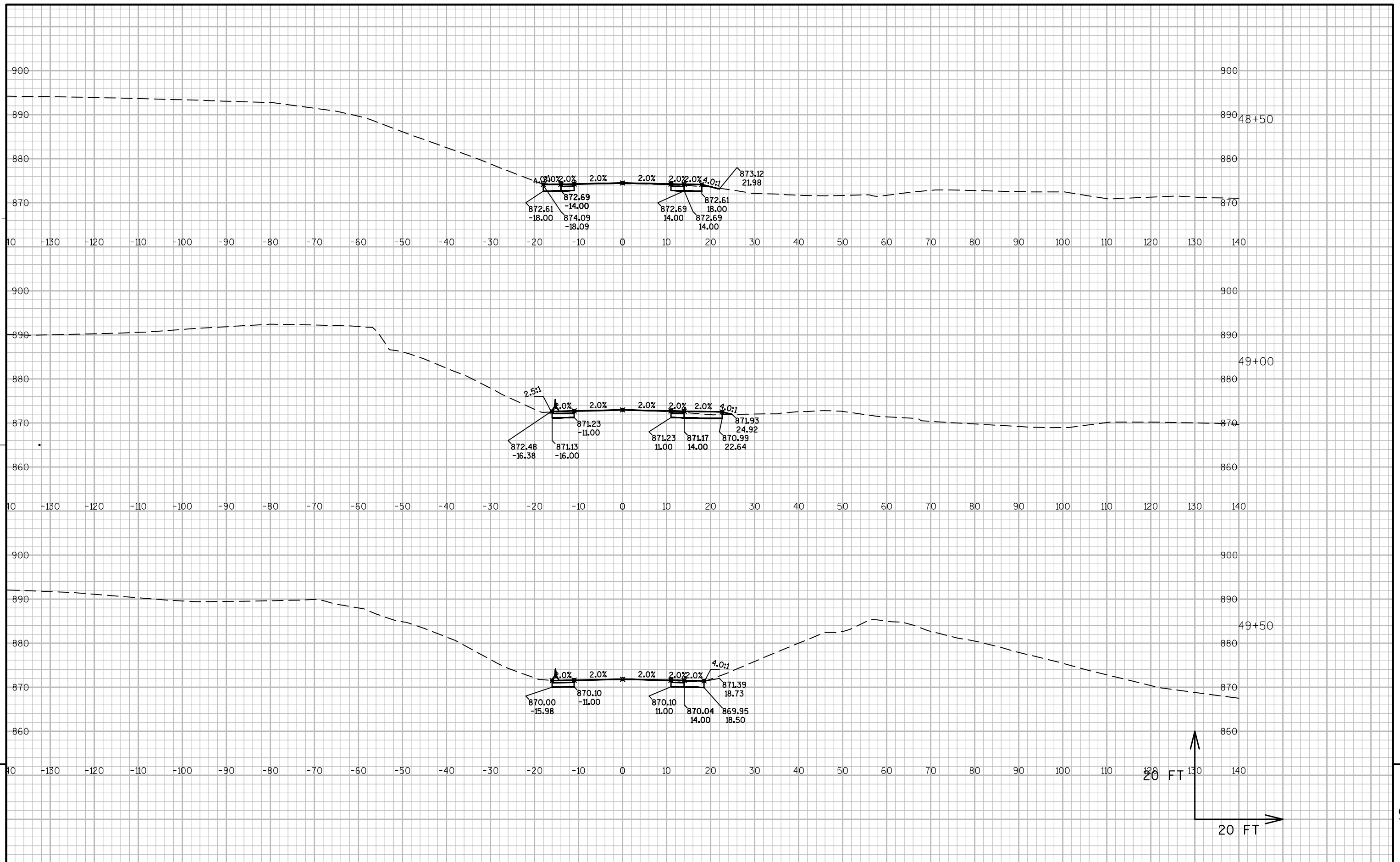
PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: IH 39 SB	SHEET	E
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20 FT

20 FT

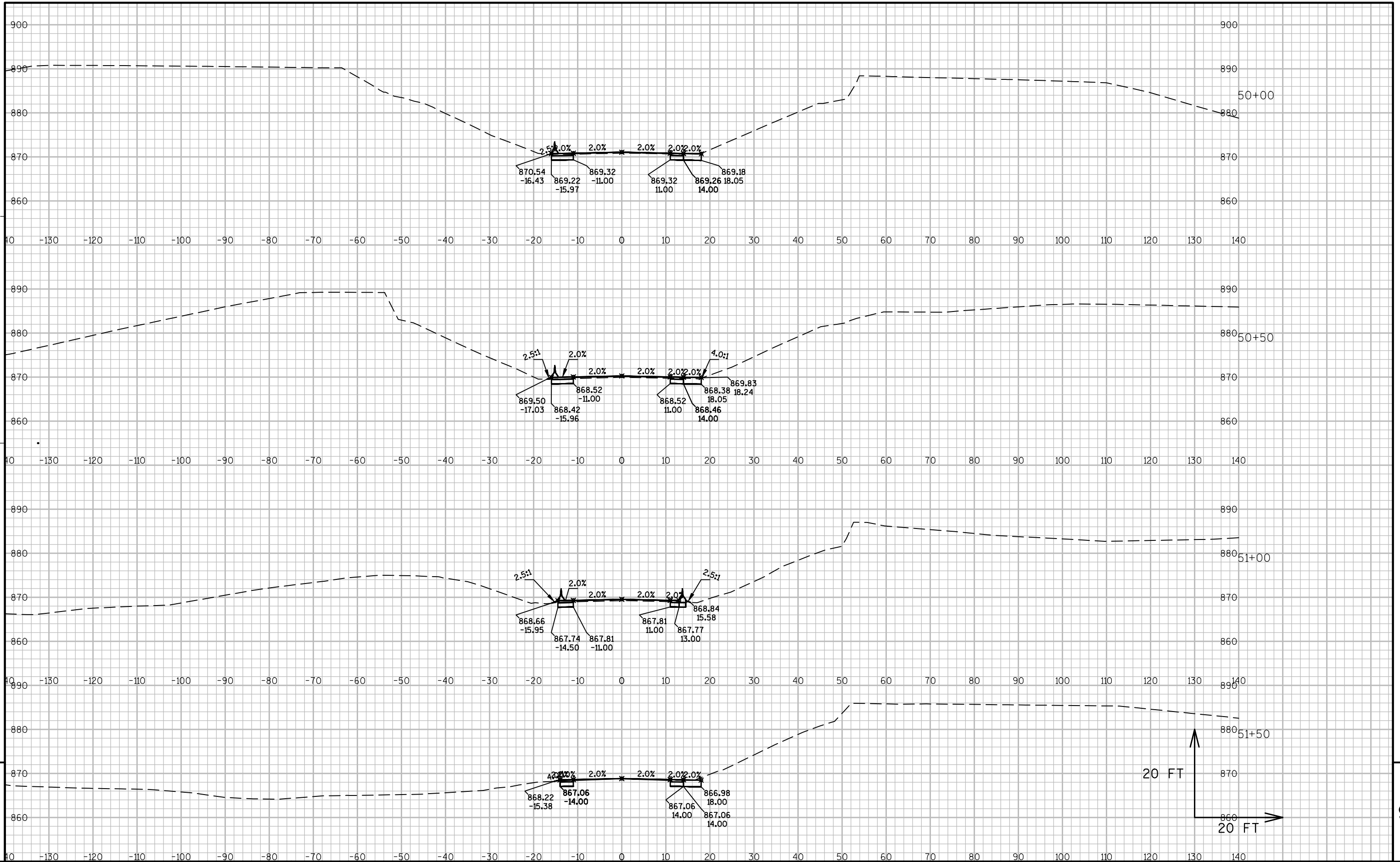


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20 FT  
20 FT

9



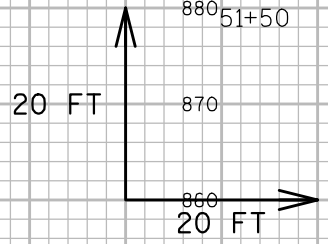


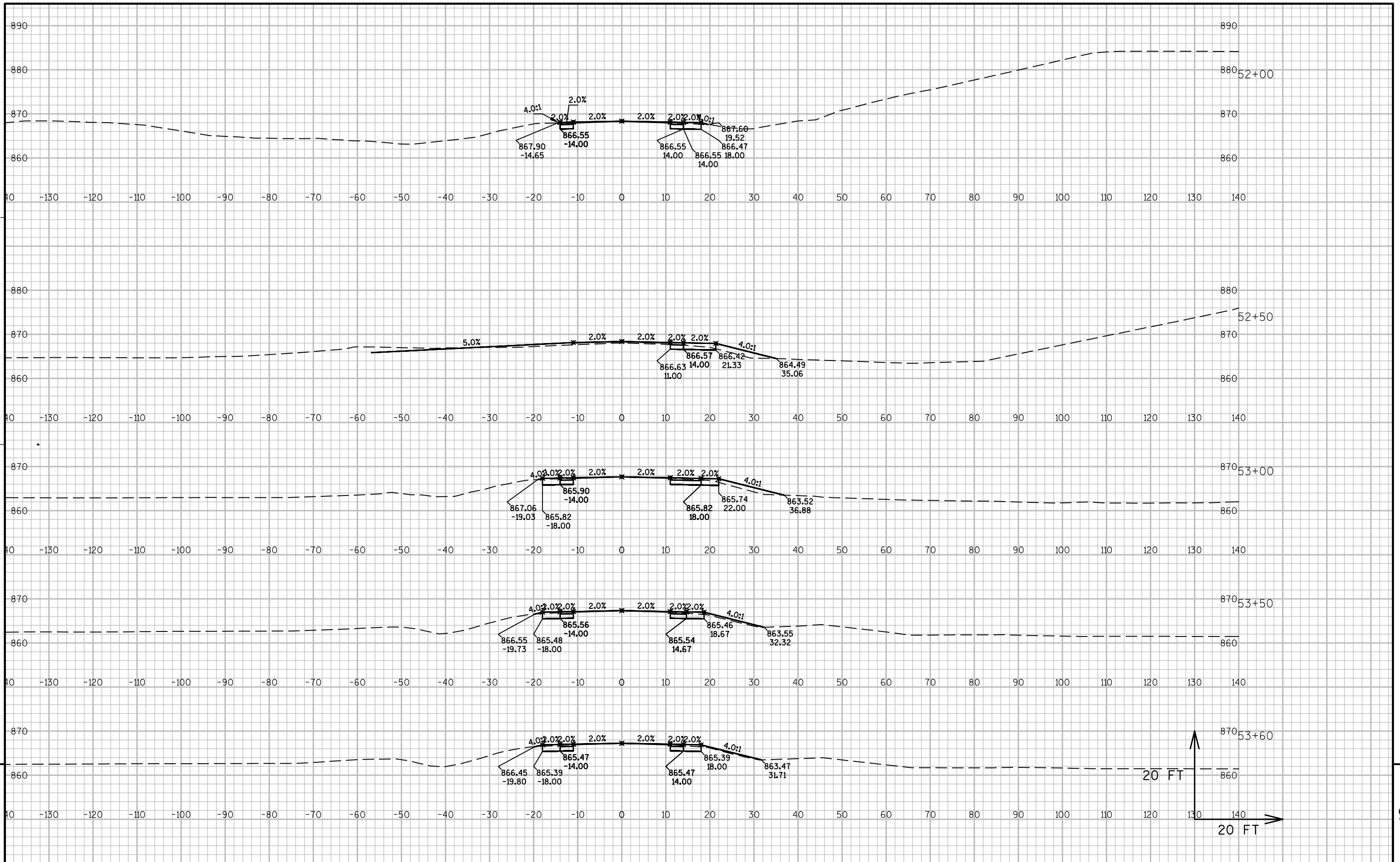
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PROJECT NO:1007-10-71      HWY: IH 39      COUNTY: DANE      CROSS SECTIONS: SIGGELKOW ROAD      SHEET      E

FILE NAME : N:\C3D\45036104 - SIGGELKOW\SHEETS\PLAN\090106\_XS.DWG      PLOT DATE : 10/29/2013 12:18 PM      PLOT BY : HARDY, CRAIG      PLOT NAME :      PLOT SCALE : 1" = 20' \_XREF      WISDOT/CADD SHEET 49





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PROJECT NO:1007-10-71	HWY: IH 39	COUNTY: DANE	CROSS SECTIONS: SIGGELKOW ROAD	SHEET	E
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# Notes



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

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>