GRE

FEBRUARY 2018

ORDER OF SHEETS

TOTAL SHEETS = 80

PROJECT ID: 4200-05-71

WITH: N/A

COUNTY: SHEBOYGAN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4200-05-71	WISC 2018090	1

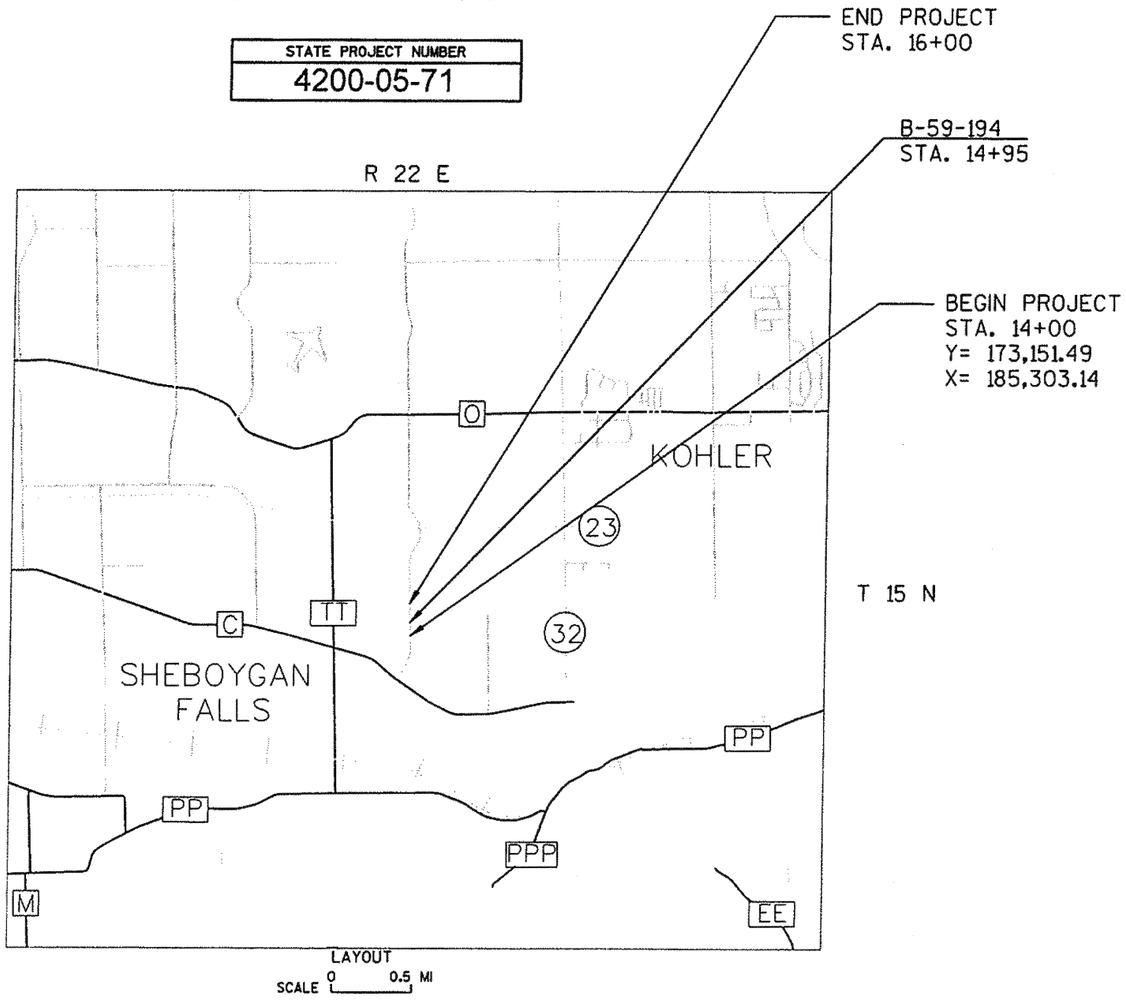
T SHEBOYGAN FALLS, MEADOWLARK RD

SHEBOYGAN RIVER BRIDGE & APPROACHES

LOCAL STR
SHEBOYGAN COUNTY

STATE PROJECT NUMBER
4200-05-71

15



TOTAL NET LENGTH OF CENTERLINE = 0.038 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, SHEBOYGAN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

DESIGN DESIGNATION

A.A.D.T. (2018)	=	250
A.A.D.T. (2038)	=	280
D.H.V.	=	4.1
D.D.	=	60/40
T.	=	4.9%
DESIGN SPEED	=	50 MPH
ESALS	=	21,900

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE
- CLEARING AND GRUBBING LIMITS

ACCEPTED FOR
SHEBOYGAN COUNTY

7/12/2017 (Date) (Signature & Title)

ORIGINAL PLANS PREPARED BY

WISCONSIN
TIMOTHY J. MOYER
E-39623
SHEBOYGAN, WI
PROFESSIONAL ENGINEER

7/20/2017 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor: TERRA TEC ENGINEERING, LLC

Designer: DONOHUE & ASSOCIATES, INC.

Management Consultant: JT ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT

DATE: 7/20/17 (Management Consultant Signature)

E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\010101_TI.DWG
LAYOUT NAME - 010101_TI - TITLE SHEET 1 IN EQ 1 MI

PLOT DATE : 6/29/2017 10:16 AM PLOT BY : MOYER, TIM PLOT NAME :

WISDOT/CADDS SHEET 10

GENERAL NOTES:

ALL DISTURBED AREAS WITHIN THE SLOPE INTERCEPTS SHALL BE RESTORED WITH TOPSOIL, SEED, SEEDING TEMPORARY, FERTILIZER AND MULCH OR EMAT AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. ANY OTHER DISTURBED AREAS ARE TO BE SEEDED, FERTILIZED AND MULCHED AT THE CONTRACTORS EXPENSE.

THE EXACT LOCATION AND WIDTHS OF PRIVATE AND COMMERCIAL DRIVEWAYS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD AND SHALL BE REPLACED IN KIND.

ALL DISTANCES ARE GROUND DISTANCES. TIES ARE HORIZONTAL UNLESS SHOWN OTHERWISE.

THE VERTICAL DATUM IS NAVD 1988.

THE LOCATIONS OF EXISTING UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

TREES DESIGNATED FOR REMOVAL ARE SHOWN ON THE PLANS. NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

THE CONTROL SURVEY CONDUCTED FOR THIS PROJECT MET THIRD ORDER CONTROL SURVEY SPECIFICATIONS.

EXCAVATION BELOW SUBGRADE (EBS) LOCATIONS ARE NOT SHOWN ON THE CROSS SECTIONS. IF EBS IS DETERMINED NECESSARY BY THE ENGINEER IN THE FIELD IT SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. BACKFILL EBS AREAS WITH BORROW MATERIAL. LONGITUDINAL TRANSITIONS OUT OF EBS AREAS SHALL BE AT A 5:1 SLOPE.

EROSION CONTROL DEVICES (BMP'S) ARE SHOWN ON THE EROSION CONTROL SHEETS AND IN THE SUMMARY OF MISCELLANEOUS QUANTITIES. BMP'S INCLUDE SILT FENCE, CULVERT PIPE CHECKS AND EROSION MAT. BMP'S ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTORS ECIP AND BY THE ENGINEER IN THE FIELD. EROSION CONTROL BMP'S SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

KEEP ALL EQUIPMENT AND MATERIALS OUT OF ADJACENT WETLANDS AND WATERWAYS. STORAGE OF ANY MATERIAL IN WETLANDS WILL NOT BE PERMITTED.

THE UPPER LAYER SHALL BE 1.75-INCH AND THE LOWER LAYER SHALL BE 2.25-INCH. UPPER AND LOWER LAYERS SHALL BE 12.5 MM AGGREGATE.

HMA WEIGHT CALCULATIONS ARE BASED ON 110 LBS/SY/IN.

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

ENERGY ABSORBING TERMINALS ARE ABBREVIATED AS "EATS" IN PLAN NOTES.

UTILITY CONTACTS

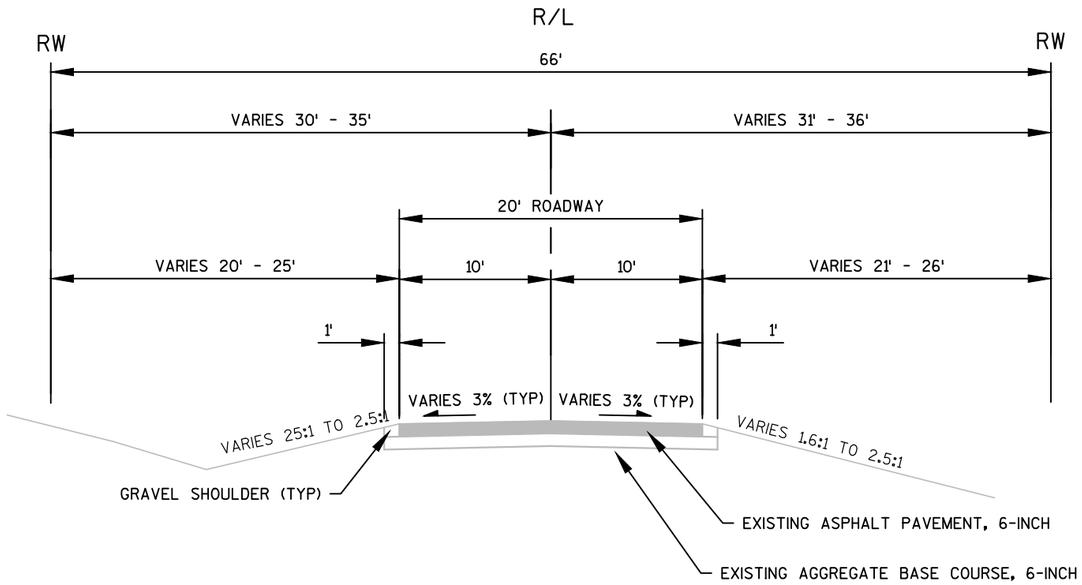
JOE KOCHAN
ALLIANT ENERGY
4421 TOWER DRIVE
SHEBOYGAN, WI 53081
(920) 459-6331 OFFICE
(920) 948-2052
JOEKOCHAN@ALLIANTENERGY.COM

CHUCK BARTELT
AT&T
70 EAST DIVISION ST
FOND DU LAC, WI 54935
(920) 929-1013 OFFICE
(920) 410-5104 MOBILE
CB1461@ATT.COM

DNR CONTACT

JAY SCHIEFELBEIN
WISCONSIN DNR NE REGION
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
920-360-3784
JEREMIAH.SCHIEFELBEIN@WI.GOV

2

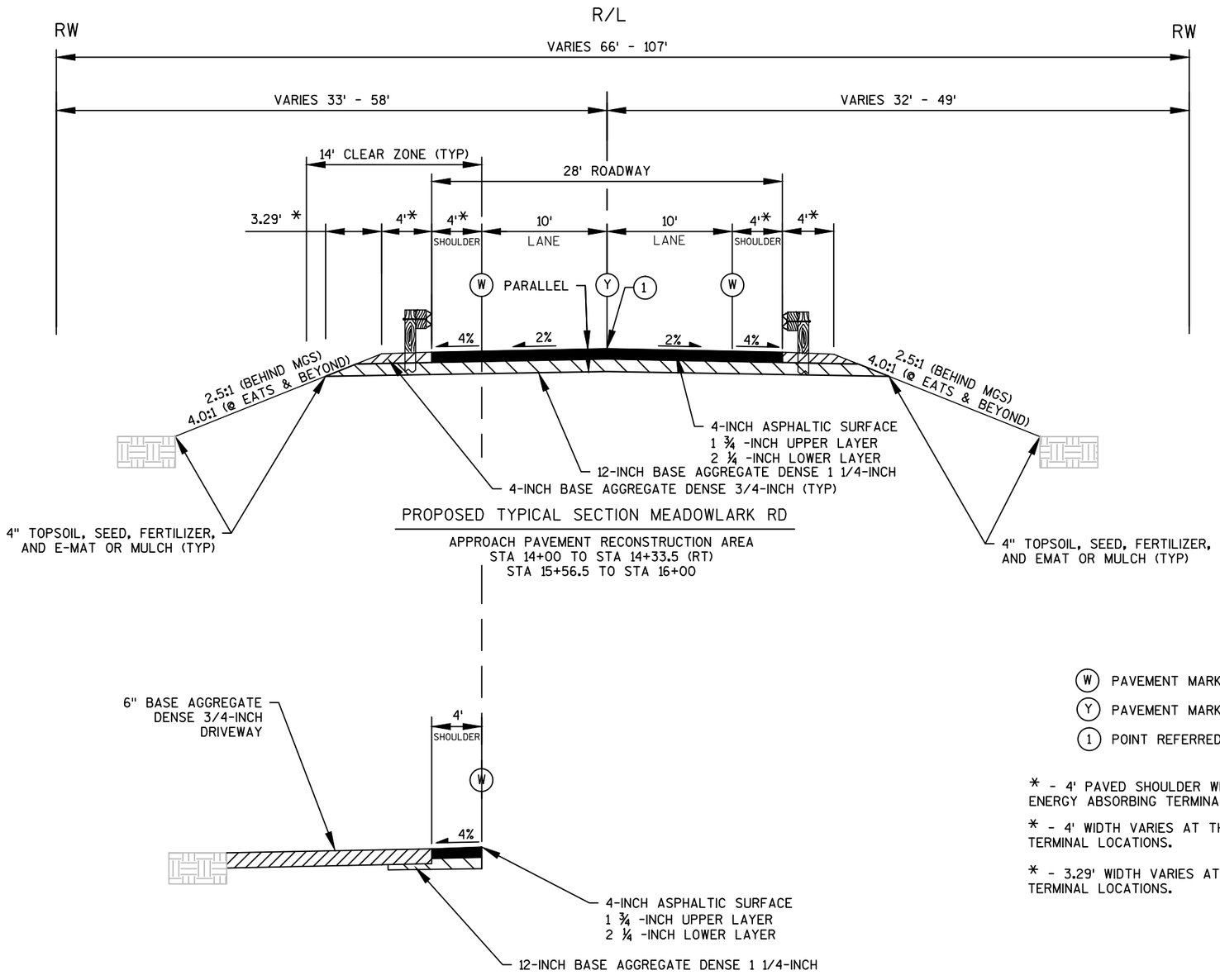


EXISTING TYPICAL SECTION MEADOWLARK RD

STA 11+66 TO STA 14+51
STA 15+49 TO STA 18+23

PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	PLAN: TYPICAL SECTION	SHEET 3	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\020301_TS.DWG
LAYOUT NAME - 020301_TS - 020301_TS 1 IN 10 SCALE
PLOT DATE : 7/28/2017 7:52 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



PROPOSED TYPICAL SECTION MEADOWLARK RD

APPROACH PAVEMENT RECONSTRUCTION AREA
STA 14+00 TO STA 14+33.5 (RT)
STA 15+56.5 TO STA 16+00

PROPOSED PARTIAL TYPICAL SECTION MEADOWLARK RD

APPROACH PAVEMENT RECONSTRUCTION AREA
STA 14+00 TO STA 14+38 (LT)

(W) PAVEMENT MARKING PAINT 4-INCH WHITE

(Y) PAVEMENT MARKING PAINT 4-INCH YELLOW (DASHES)

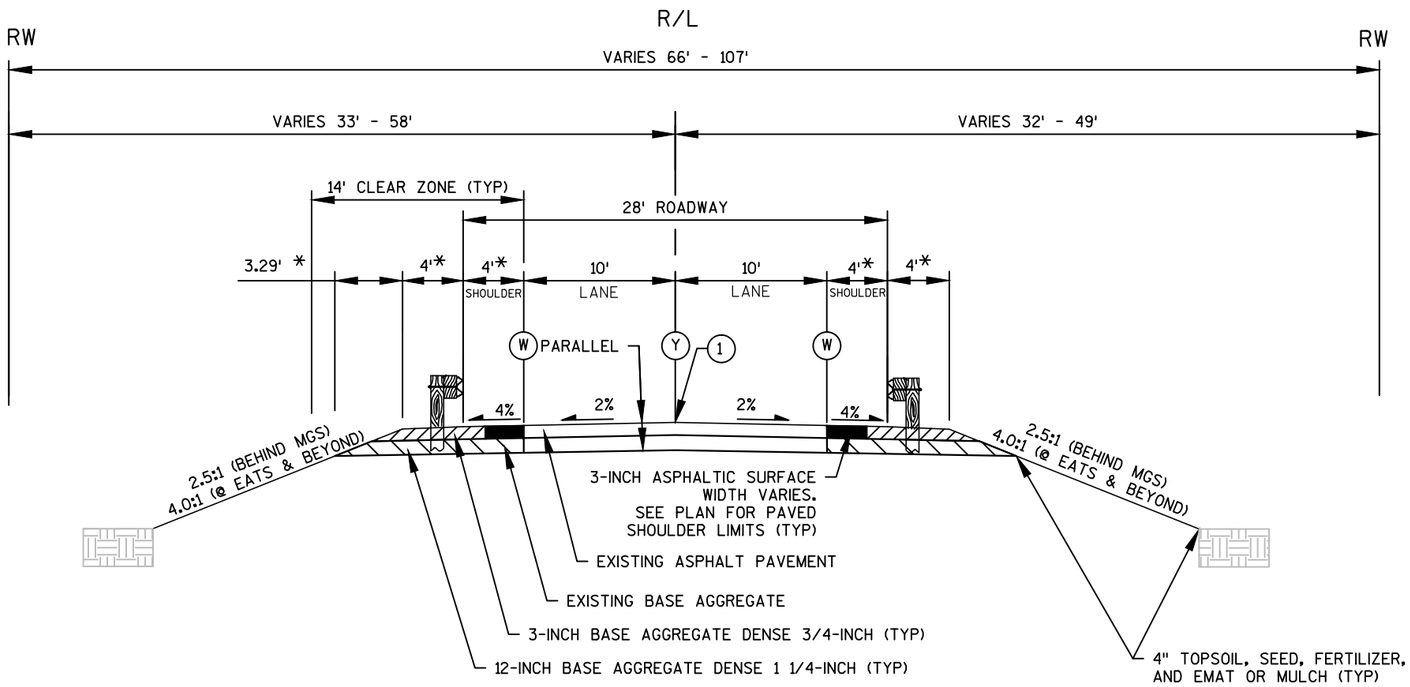
(1) POINT REFERRED TO ON PROFILE AND CROSS SECTIONS

* - 4' PAVED SHOULDER WIDTH VARIES AT THE MGS GUARDARIL ENERGY ABSORBING TERMINAL LOCATIONS. SEE PAVING DETAILS.

* - 4' WIDTH VARIES AT THE MGS GUARDARIL ENERGY ABSORBING TERMINAL LOCATIONS.

* - 3.29' WIDTH VARIES AT THE MGS GUARDARIL ENERGY ABSORBING TERMINAL LOCATIONS.

PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	PLAN: TYPICAL SECTION	SHEET 4	E



PROPOSED TYPICAL SECTION MEADOWLARK RD

GUARDRAIL APPROACHES OUTSIDE PAVING LIMITS
STA 13+10 - STA 14+00 (RT)
STA 13+75 - STA 14+00 (LT)
STA 16+00 - STA 16+55 (RT)
STA 16+00 - STA 16+75 (LT)

NOTE:

SEE SDD'S AND CROSS SECTIONS FOR APPROACH GRADING TO THE ENERGY ABSORBING TERMINALS OUTSIDE OF THE PAVING LIMITS FROM:
STA 11+66 TO STA 13+10 (RT)
STA 16+55 TO STA 18+21 (RT)
STA 16+75 TO STA 18+23 (LT)

APPROACH GRADING IS ALL FILL FROM:
STA. 11+66 TO STA. 12+75 RT
STA. 17+00 TO STA. 18+21 RT
STA. 17+50 TO STA. 18+23 LT

3-INCH BASE AGGREGATE DENSE SHOULDER OVER 12-INCH BASE AGGREGATE DENSE 1 1/4-INCH VARIES FROM:
0' AT 12+75.09 TO 10' AT STA. 13+10
10' AT STA. 16+55 RT TO 0' AT STA. 17+00 RT
10' AT STA. 16+79 LT TO 0' AT STA. 17+50, LT

(W) PAVEMENT MARKING PAINT 4-INCH WHITE

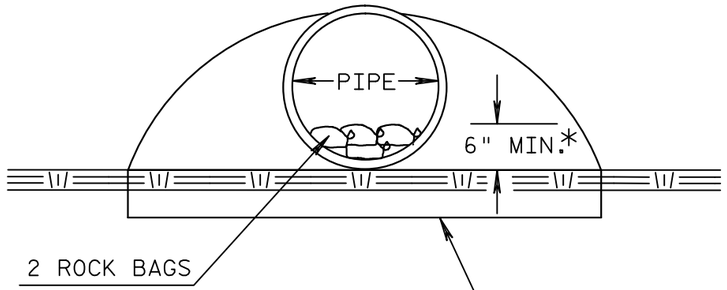
(Y) PAVEMENT MARKING PAINT 4-INCH YELLOW (DASHES)

(1) POINT REFERRED TO ON PROFILE AND CROSS SECTIONS

* - 4' SHOULDER WIDTH AND PAVED SHOULDER WIDTH VARIES AT THE MGS GUARDARIL ENERGY ABSORBING TERMINAL LOCATIONS. SEE PAVING DETAILS.

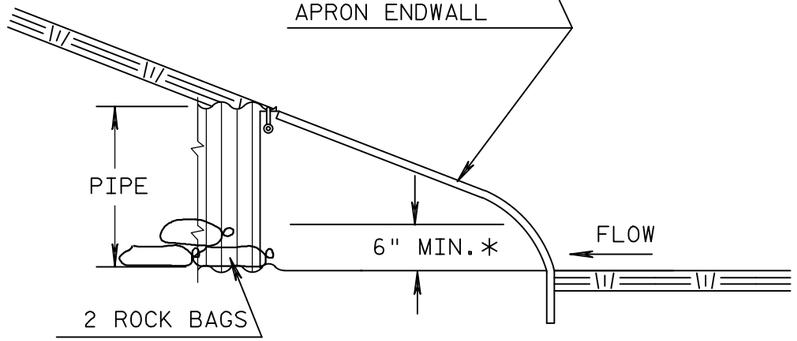
* - 4' WIDTH VARIES AT THE MGS GUARDARIL ENERGY ABSORBING TERMINAL LOCATIONS.

* - 3.29' WIDTH VARIES AT THE MGS GUARDARIL ENERGY ABSORBING TERMINAL LOCATIONS.



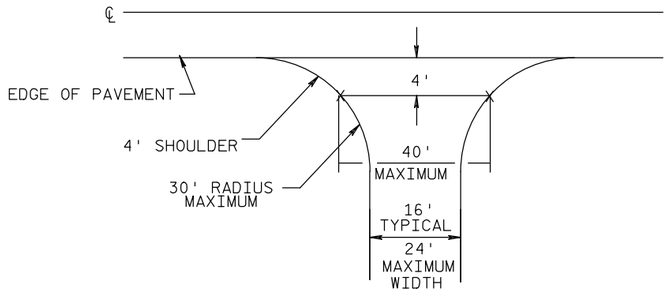
END VIEW

* OR AS DIRECTED BY THE ENGINEER

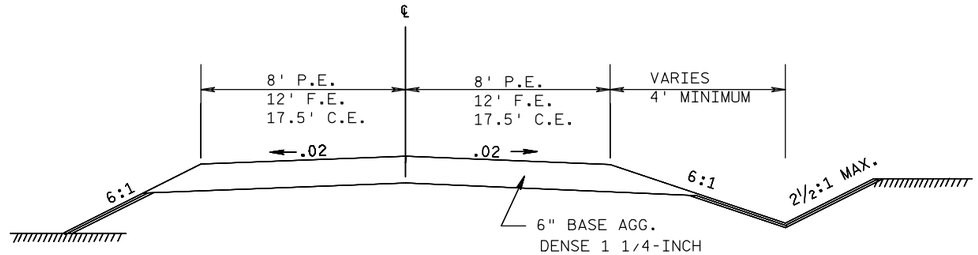


SIDE VIEW

CULVERT PIPE CHECK



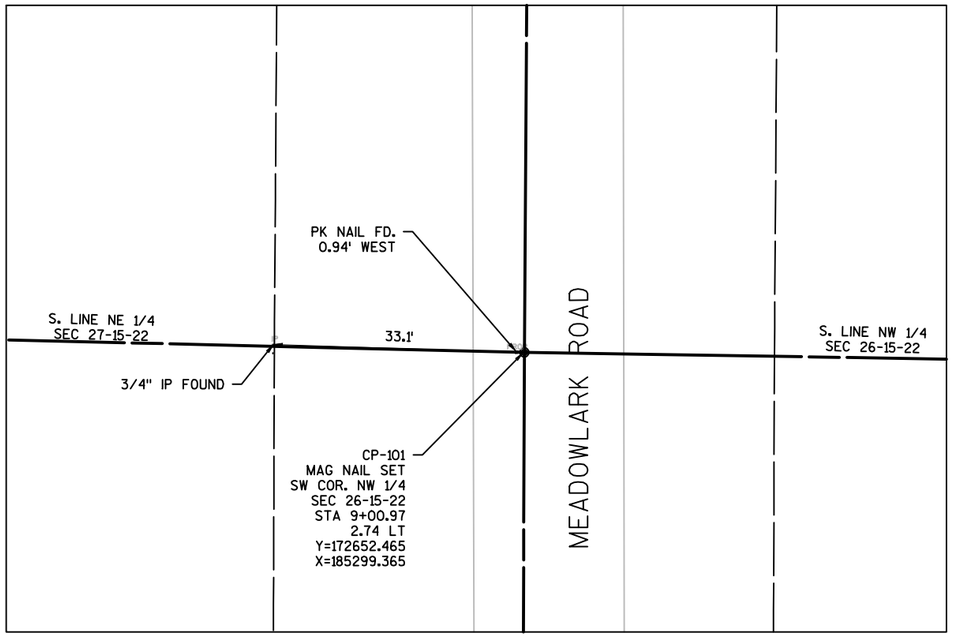
TYPICAL RURAL DRIVEWAY DETAIL



TYPICAL SECTION
FOR PRIVATE ENTRANCES

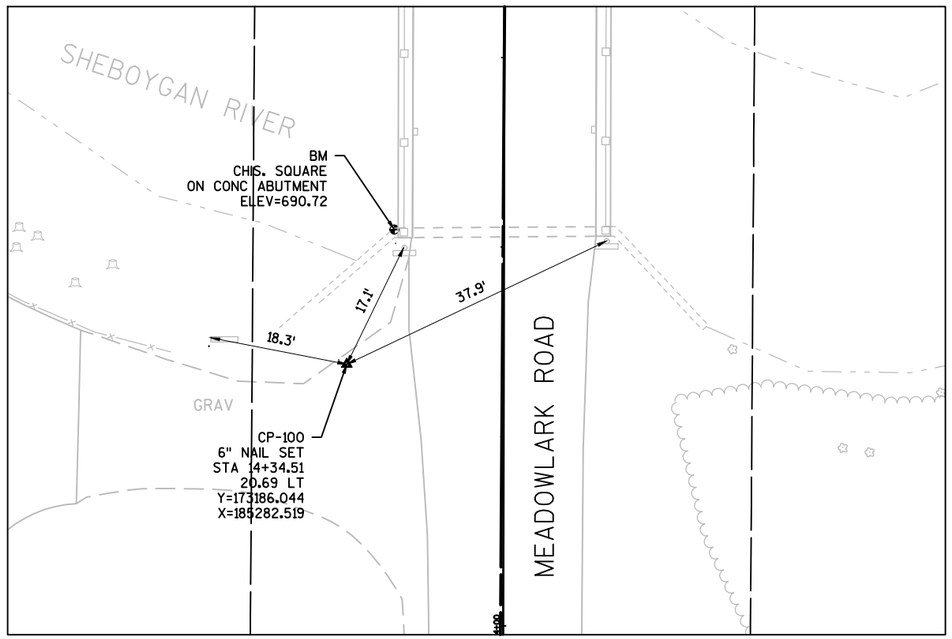
LOCATIONS
14+20, LT
16+76, RT
17+47, LT

2



CONTROL POINT CP-101

STA. 9+00.97, 2.74' LT



CONTROL POINT CP-100

STA. 14+34.51, 20.69' LT

2

N

END PROJECT
STA. 11+66

+74.33, -9.87'

+00.00, -14.00'

+75.09, 10.46'

13+00

14+00

15+00

16+00

17+00

HMA

END PROJECT
STA. 14+00

MGS GUARDRAIL
TERMINAL EAT

+28.35, 10.30'

MEADOWLARK RD

STRUCTURE B-59-0194

TLE

RW

MGS THRIE
BEAM TRANSITION

MGS GUARDRAIL 3

MGS GUARDRAIL
TERMINAL EAT

+29.29, -14.00'
POST 9

+54.29, -15.00'
POST 5

+79.29, -16.00'
POST 1

END CONSTRUCTION
STA. 18+23

END PROJECT
STA. 16+00

+62.58, -10.00'

N0° 07' 06"E

1000.00'

+38.68, 10.43'

MEADOWLARK

+10.70, -16.00'
POST 1

+35.70, -15.00'
POST 5

+60.70, -14.00'
POST 9

+06.61, -14.00'
POST 9

+31.61, -15.00'
POST 5

+56.61, -16.00'
POST 1

W5-52L
12"X36"

W5-52R
12"X36"

W5-52R
12"X36"

W5-52L
12"X36"

1

2

3

4

X

SHEBOYGAN RIVER

TLE

X = REMOVING SIGNS TYPE II AND
REMOVING SMALL SIGN SUPPORTS

PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	PLAN DETAIL	SHEET 8	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\021201_PD.DWG
021201_PD - 021201_PD

PLOT DATE : 6/29/2017 10:49 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : Custom

WISDOT/CADDS SHEET 42

2

BP: 10+00.00
N: 172751.49
E: 185302.31
BP: 10+00.00

R/W

11+00 12+00 13+00 14+00 15+00 16+00

MEADOWLARK RD

R/W

R/W

R/W

WETLAND BOUNDARY

TLE

R/W

COFFERDAM

WETLAND BOUNDARY

R/W

SHEBOYGAN RIVER

N

EROSION CONTROL LEGEND

- ###### EROSION MAT URBAN CLASS I, TYPE A
- SILT FENCE
- HEAVY RIPRAP
- SLOPE INTERCEPT
- TURBIDITY BARRIER
- SURFACE WATER FLOW
- CULVERT PIPE CHECK

ALL DISTURBED AREAS NOT DESIGNATED FOR PLACEMENT OF EROSION MAT SHALL BE RESTORED WITH MULCH.

R/W

TLE

R/W

EP: 20+00.00
N: 173751.49
E: 185304.38
EP: 20+00.00

16+00 17+00 MEADOWLARK RD 18+00 19+00

MEADOWLARK ROAD

R/W

R/W

TLE

PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	EROSION CONTROL	SHEET 9	E

4200-05-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	5.000	5.000
0004	201.0205	Grubbing	STA	5.000	5.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 14+95	LS	1.000	1.000
0008	205.0100	Excavation Common **P**	CY	395.000	395.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-59-0194	LS	1.000	1.000
0012	206.5000	Cofferdams (structure) 01. B-59-0194	LS	1.000	1.000
0014	208.0100	Borrow **P**	CY	1,050.000	1,050.000
0016	210.1500	Backfill Structure Type A	TON	536.000	536.000
0018	213.0100	Finishing Roadway (project) 01. ID 4200-05-71	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	36.000	36.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	270.000	270.000
0024	455.0605	Tack Coat	GAL	20.000	20.000
0026	465.0105	Asphaltic Surface	TON	64.000	64.000
0028	502.0100	Concrete Masonry Bridges	CY	436.000	436.000
0030	502.3200	Protective Surface Treatment	SY	482.000	482.000
0032	505.0400	Bar Steel Reinforcement HS Structures	LB	7,890.000	7,890.000
0034	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	71,290.000	71,290.000
0036	513.4061	Railing Tubular Type M (structure) 01. B-59-0194	LF	246.000	246.000
0038	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0040	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	4.000	4.000
0042	520.3318	Culvert Pipe Class III-A 18-Inch	LF	51.000	51.000
0044	550.0500	Pile Points	EACH	8.000	8.000
0046	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	736.000	736.000
0048	606.0300	Riprap Heavy	CY	101.000	101.000
0050	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	134.000	134.000
0052	614.2300	MGS Guardrail 3	LF	100.000	100.000
0054	614.2500	MGS Thrie Beam Transition	LF	80.700	80.700
0056	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0058	619.1000	Mobilization	EACH	1.000	1.000
0060	624.0100	Water	MGAL	2.700	2.700
0062	625.0100	Topsoil **P**	SY	2,100.000	2,100.000
0064	627.0200	Mulching **P**	SY	1,440.000	1,440.000
0066	628.1504	Silt Fence	LF	810.000	810.000
0068	628.1520	Silt Fence Maintenance	LF	810.000	810.000
0070	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0072	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0074	628.2002	Erosion Mat Class I Type A **P**	SY	770.000	770.000
0076	628.6005	Turbidity Barriers	SY	100.000	100.000

4200-05-71

Line	Item	Item Description	Unit	Total	Qty
0078	628.7555	Culvert Pipe Checks	EACH	4.000	4.000
0080	629.0210	Fertilizer Type B	CWT	1.400	1.400
0082	630.0120	Seeding Mixture No. 20	LB	57.000	57.000
0084	630.0200	Seeding Temporary	LB	57.000	57.000
0086	630.0300	Seeding Borrow Pit	LB	2.000	2.000
0088	634.0414	Posts Wood 4x4-Inch X 14-FT	EACH	4.000	4.000
0090	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0092	638.2602	Removing Signs Type II	EACH	4.000	4.000
0094	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0096	642.5001	Field Office Type B	EACH	1.000	1.000
0098	643.0420	Traffic Control Barricades Type III	DAY	3,348.000	3,348.000
0100	643.0705	Traffic Control Warning Lights Type A	DAY	3,162.000	3,162.000
0102	643.0900	Traffic Control Signs	DAY	1,302.000	1,302.000
0104	643.5000	Traffic Control	EACH	1.000	1.000
0106	645.0111	Geotextile Type DF Schedule A	SY	110.000	110.000
0108	645.0120	Geotextile Type HR	SY	173.000	173.000
0110	646.1005	Marking Line Paint 4-Inch	LF	647.000	647.000
0112	650.4500	Construction Staking Subgrade	LF	349.000	349.000
0114	650.5000	Construction Staking Base	LF	349.000	349.000
0116	650.6500	Construction Staking Structure Layout (structure) 01. B-59-0194	LS	1.000	1.000
0118	650.9910	Construction Staking Supplemental Control (project) 01. ID 4200-05-71	LS	1.000	1.000
0120	650.9920	Construction Staking Slope Stakes	LF	531.000	531.000
0122	690.0150	Sawing Asphalt	LF	240.000	240.000
0124	715.0502	Incentive Strength Concrete Structures	DOL	2,616.000	2,616.000
0126	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	300.000	300.000
0128	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	600.000	600.000

3

3

EARTHWORK SUMMARY TABLE

Division	From/To Station	Location	Common Excavation (1)	(item # 205.0100)	Salvaged/Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (6)	Mass Ordinate +/- (7)	Waste	Borrow	Comment:
			Cut (2)	EBS Excavation (3)				Factor 1.25			(item #208.0100)	
1	11+65 - 14+27	SOUTH	102	0	0	102	236	295	-193	0	193	
2	15+61 - 18+23	NORTH	293	0	0	293	920	1150	-857	0	857	
Grand Total			395	0	0	395	1156	1445	-1050	0	1050	
			Total Common Exc	395								

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut in reconstruction area.
3) If EBS Excavation is required, backfill with Borrow.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Expanded Fill. Factor = 1.25
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
8) All pavement material excavated from the existing roadway may be used in the fills outside of the subgrade shoulder points and shall be placed a minimum of 1-foot below the finished grade.

CLEARING AND GRUBBING

LOCATION	ITEM 201.0105 CLEARING STA	ITEM 201.0205 GRUBBING STA
13+00 - 14+50, RT	2	2
15+00 - 16+00, RT	1	1
15+50 - 17+00, LT	2	2
TOTAL	**5**	**5**

BASE AGGREGATE AND ASPHALTIC SURFACE

LOCATION	ITEM 305.0100 BASE AGGREGATE DENSE 3/4-INCH TONS	ITEM 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TONS	ITEM 455.0605 TACK COAT GAL	ITEM 465.0105 ASPHALTIC SURFACE TONS	624.0100 WATER MGAL
12+75 - 13+25	6	5	0	0	0.05
13+25 - 14+00	5	10	3	5	0.10
14+00 - 14+32	4	100	6	23	1.00
15+58 - 16+00	4	130	7	30	1.30
16+00 - 16+60	5	10	4	6	0.10
16+60 - 18+23	12	15	0	0	0.15
TOTAL	**36**	**270**	**20**	**64**	**2.7**

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010.

3

CULVERT PIPE, END WALLS AND CULVERT PIPE CHECKS

LOCATION	520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH EACH	520.3318 CULVERT PIPE CLASS III-A 18-INCH LF	628.7555 CULVERT PIPE CHECKS EACH
16+75, RT	2	28	2
17+50, LT	2	23	2
TOTAL	**4**	**51**	**4**

MIN. WALL THICKNESS STEEL 0.064
ALUM 0.060

GUARDRAIL QUANTITIES

LOCATION	ITEM 614.2300 MGS GUARDRAIL 3 LF	ITEM 614.2500 MGS THRIE BEAM TRANSITION LF	ITEM 614.2610 MGS GUARDRAIL TERMINAL EAT EACH
13+10.7 - 14+28.3, RT	37.5	26.9	1
15+51.6 - 16+56.6, RT	37.5	26.9	1
15+61.7 - 16+79.3, LT	25	26.9	1
TOTAL	**100**	**80.7**	**3**

3

EROSION CONTROL

LOCATION	ITEM 628.1504 SILT FENCE INSTALLED LF	ITEM 628.1520 SILT FENCE MAINTENANCE LF	ITEM 628.6005 TURBIDITY BARRIER SY
11+66 - 14+50, RT	265	265	0
13+75 - 14+50, LT	25	25	0
14+55	0	0	48
15+40	0	0	52
15+50 - 18+23, RT	275	275	0
15+50 - 18+23, LT	245	245	0
TOTAL	**810**	**810**	**100**

SIGNS AND POSTS

LOCATION	ITEM 634.0414 WOOD POSTS 4X4X14-FT EACH	SIGN #	SIGN CODE	SIZE	ITEM 637.2230 TYPE II SIGNS REFLECTIVE F SF
14+25, RT	1	1	W5-52R	12"X36"	3
14+35, LT	1	2	W5-52L	12"X36"	3
15+55, RT	1	3	W5-52R	12"X36"	3
16+67, LT	1	4	W5-52L	12"X36"	3
TOTAL	**4**				**12**

TOPSOIL, SEED, FERTILIZER, MULCH AND EMAT

LOCATION	ITEM 625.0100 TOPSOIL SY	ITEM 627.0200 MULCHING SY	ITEM 628.2002 EROSION MAT CLASS I TYPE A SY	ITEM 629.0210 FERTILIZER TYPE B CWT	ITEM 630.0120 SEED MIXTURE NO. 20 LBS	ITEM 630.0200 SEEDING TEMPORARY LBS	ITEM 630.0300 SEEDING BORROW PIT LBS
11+66 - 14+50, RT	660	415	245	0.4	18	18	---
13+75 - 14+50, LT	30	30	0	0	1	1	---
15+50 - 18+23, RT	750	490	260	0.5	20	20	---
15+50 - 18+23, LT	660	395	265	0.4	18	18	---
BORROW PIT	---	110	---	0.1	---	---	2
TOTAL	**2100**	**1440**	**770**	**1.4**	**57**	**57**	**2**

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010.

3

REMOVING SIGNS AND SMALL SIGN SUPPORTS

LOCATION	ITEM 638.2602 REMOVING SIGNS TYPE II EACH	ITEM 638.3000 REMOVING SMALL SIGN SUPPORTS EACH
14+50, LT & RT	2	2
15+50, LT & RT	2	2
TOTAL	**4**	**4**

TRAFFIC CONTROL

LOCATION	DAYS	ITEM 643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH	DAYS	ITEM 643.0705 TRAFFIC CONTROL WARNING LIGHTS TPE A EACH	DAYS	ITEM 643.0900 TRAFFIC CONTROL SIGNS EACH	DAYS
SOUTH APPROACH	93	18	1674	17	1581	7	651
NORTH APPROACH	93	18	1674	17	1581	7	651
TOTALS			**3348**		**3162**		**1302**

CONSTRUCTION STAKING

LOCATION	ITEM 650.4500 SUBGRADE LF	ITEM 650.5000 BASE LF	ITEM 650.9920 SLOPE STAKES LF
11+66 - 12+75	---	---	109
12+75 - 14+32	157	157	157
15+58 - 17+50	192	192	192
17+50 - 18+23	---	---	73
TOTALS	**349**	**349**	**531**

3

MARKING LINE PAINT 4-INCH, ITEM NO. 646.1005

LOCATION	DESCRIPTION	LF
14+00 - 16+00, CL	YELLOW SKIP	50
13+75 - 16+62, LT	WHITE EDGELINE	287
13+28 - 16+38, RT	WHITE EDGELINE	310
TOTAL		**647**

SAWING ASPHALT, ITEM NO. 690.0150

LOCATION	LF
13+75 - 14+00, LT	25
13+25 - 14+00, RT	75
14+00	20
16+00	20
16+00 - 16+38, RT	38
16+00 -16+62 , LT	62
TOTAL	**240**

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010.

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4200-05-00	4.01	2

PLAT OF RIGHT OF WAY REQUIRED FOR MEADOWLARK ROAD SHEBOYGAN RIVER BRIDGE & APPROACHES

TOWN OF SHEBOYGAN FALLS — SHEBOYGAN COUNTY

4200-05-00

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC) — W (TYPE)
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING — TO BE REMOVED
BRIDGE

SECTION CORNER SYMBOL (18, 23, 24, 16, 15, 9)
SECTION CORNER MONUMENT
SIGN — SIGN
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
OFF-PREMISE SIGN — I-25 — SIGN

R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED) — IP

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE	■	□
TELEPHONE POLE	●	⌀
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)	◆	◇

ACCESS RESTRICTED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
NO ACCESS (NEW HIGHWAY)

PARCEL NUMBER (25)
UTILITY NUMBER (40)
PARALLEL OFFSETS

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF INTERSECTION	PI
ACRES	AC	PROPERTY LINE	PL
AHEAD	AH	RECORDED AS	(100')
ALUMINUM	ALUM	REEL / IMAGE	R/I
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RESTICTIVE DEVELOPMENT EASEMENT	RDE
CENTERLINE	C/L	RIGHT	RT
CERTIFIED SURVEY MAP	CSM	RIGHT OF WAY	R/W
CONCRETE	CONC	SECTION	SEC
COUNTY	CO	SEPTIC VENT	SEPV
COUNTY TRUNK HIGHWAY	CTH	SQUARE FEET	SF
DISTANCE	DIST	STATE TRUNK HIGHWAY	STH
CORNER	COR	STATION	STA
DOCUMENT NUMBER	DOC	TELEPHONE PEDESTAL	TP
EASEMENT	EASE	TEMPORARY LIMITED EASEMENT	TLE
EXISTING	EX	TRANSPORTATION PROJECT PLAT	TPP
GAS VALVE	GV	UNITED STATES HIGHWAY	USH
GRID NORTH	GN	VOLUME	V
HIGHWAY EASEMENT	HE		
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		
POINT OF COMPOUND CURVE	PCC		

CURVE DATA

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WCCS), SHEBOYGAN COUNTY, NAD 83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 1" X 24" IRON PIPE) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT OF WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY OR OTHER SURVEYS OF PUBLIC RECORD.

CONVENTIONAL UTILITY SYMBOLS

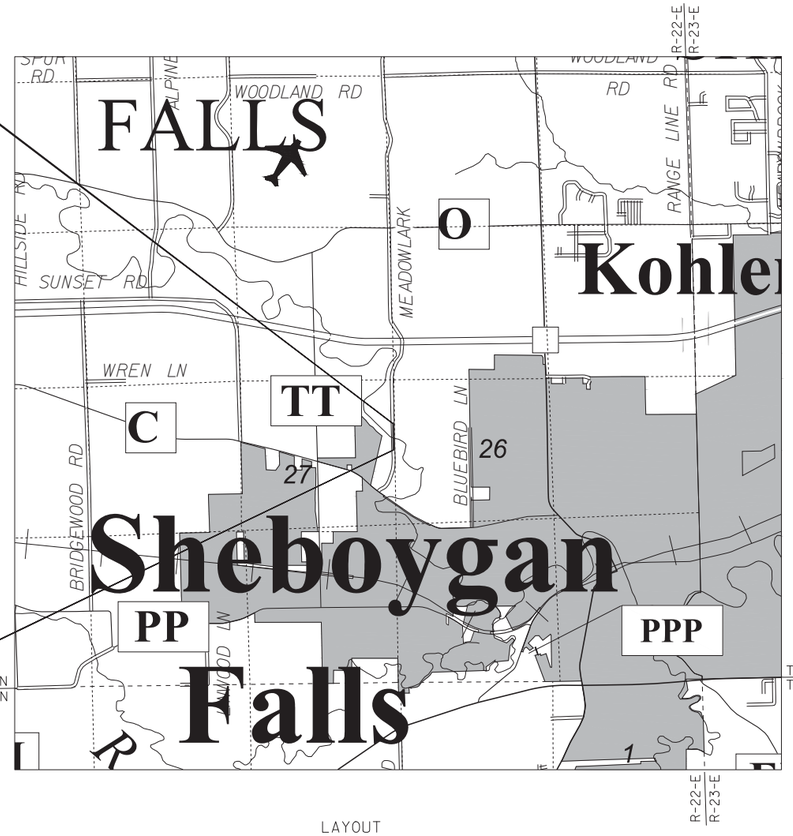
WATER	W
GAS	G
TELEPHONE	T
OVERHEAD TRANSMISSION LINES	OH
ELECTRIC	E
CABLE TELEVISION	TV
FIBER OPTIC	FO
SANITARY SEWER	SAN
STORM SEWER	SS

CAUTION
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

N

END RELOCATION ORDER
STA. 20+00
1099.04' NORTH OF AND 5.01' WEST OF THE SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 27, T.15N., R.22E.
Y=173751.49
X=185304.38

BEGIN RELOCATION ORDER
STA. 10+00
99.03' NORTH OF AND 2.95' EAST OF THE SOUTHEAST CORNER OF THE NORTHEAST 1/4 OF SECTION 27, T.15N., R.22E.
Y=172751.49
X=185302.31



LAYOUT
SCALE 0 SCALE
1" = 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.19 MI

WISCONSIN
ROBERT F. SCHMALZER
1760
COLGATE, WI
LAND SURVEYOR

ROBERT F. SCHMALZER, PLS 1760
DATE: NOVEMBER 28, 2016

TERRATEC ENGINEERING, LLC.
W67 N222 EVERGREEN BLVD., STE. 205
CEDARBURG, WI 53012
Tel.: 262.377.9905 - Fax: 262.376.1958

REVISION	DATE

APPROVED FOR TOWN OF SHEBOYGAN FALLS

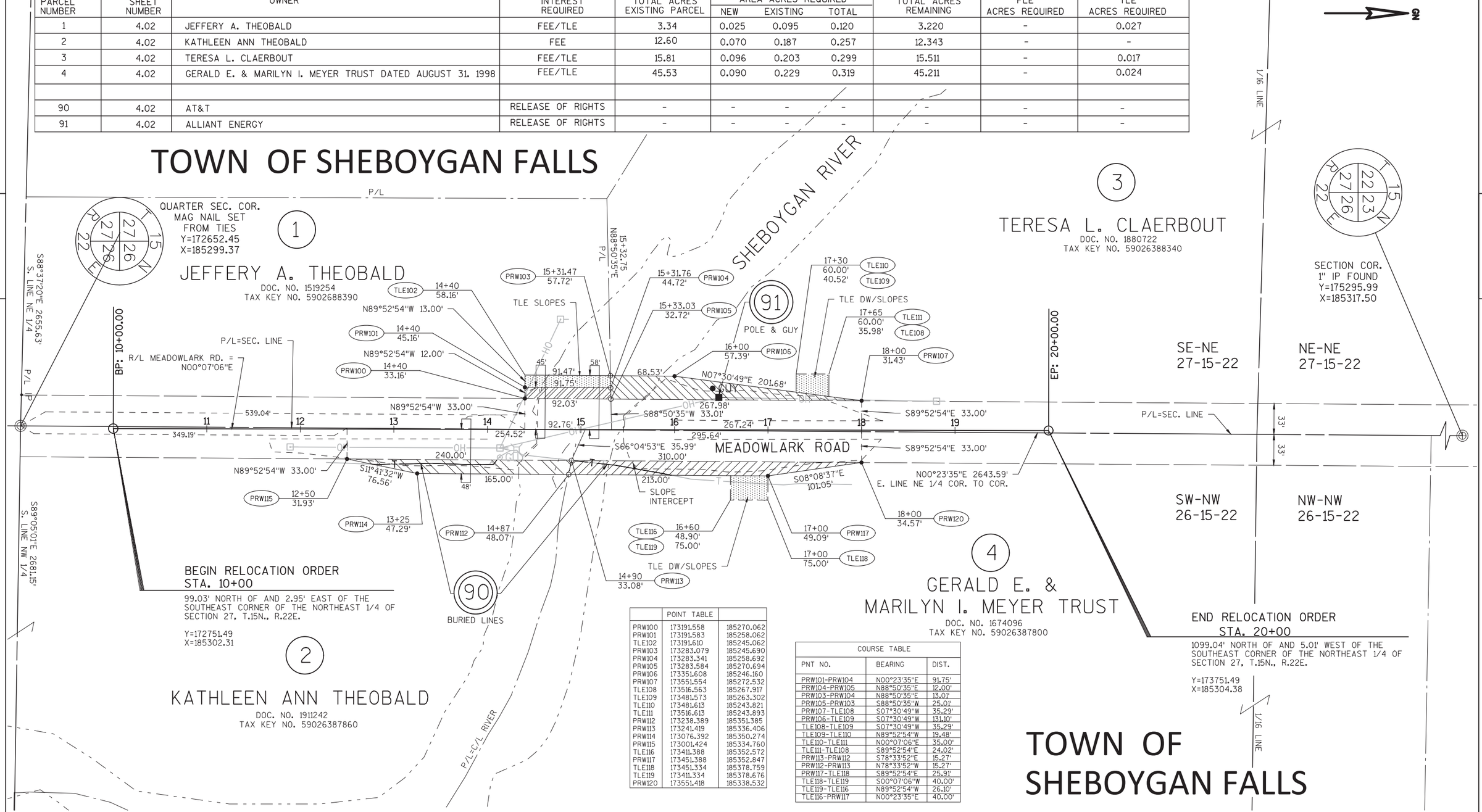
DATE: _____ _____ (Signature)

SCHEDULE OF LANDS AND INTEREST

"OWNERS" NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO SHEBOYGAN COUNTY. AREAS SHOWN IN THE TOTAL ACRES COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED.

PARCEL NUMBER	SHEET NUMBER	OWNER	INTEREST REQUIRED	TOTAL ACRES EXISTING PARCEL	AREA ACRES REQUIRED NEW	EXISTING	TOTAL	TOTAL ACRES REMAINING	PLE ACRES REQUIRED	TLE ACRES REQUIRED
1	4.02	JEFFERY A. THEOBALD	FEE/TLE	3.34	0.025	0.095	0.120	3.220	-	0.027
2	4.02	KATHLEEN ANN THEOBALD	FEE	12.60	0.070	0.187	0.257	12.343	-	-
3	4.02	TERESA L. CLAERBOUT	FEE/TLE	15.81	0.096	0.203	0.299	15.511	-	0.017
4	4.02	GERALD E. & MARILYN I. MEYER TRUST DATED AUGUST 31. 1998	FEE/TLE	45.53	0.090	0.229	0.319	45.211	-	0.024
90	4.02	AT&T	RELEASE OF RIGHTS	-	-	-	-	-	-	-
91	4.02	ALLIANT ENERGY	RELEASE OF RIGHTS	-	-	-	-	-	-	-

TOWN OF SHEBOYGAN FALLS



	POINT TABLE	
PRW100	173191.558	185270.062
PRW101	173191.583	185258.062
TLE102	173191.610	185245.062
PRW103	173283.079	185245.690
PRW104	173283.341	185258.692
PRW105	173283.584	185270.694
PRW106	173351.608	185246.160
PRW107	173551.554	185272.532
TLE108	173516.563	185267.917
TLE109	173481.573	185263.302
TLE110	173481.613	185243.821
TLE111	173516.613	185243.893
PRW112	173238.389	185351.385
PRW113	173241.419	185336.406
PRW114	173076.392	185350.274
PRW115	173001.424	185334.760
TLE116	173411.388	185352.572
PRW117	173451.388	185352.847
TLE118	173451.334	185378.759
TLE119	173411.334	185378.676
PRW120	173551.418	185338.532

COURSE TABLE		
PNT NO.	BEARING	DIST.
PRW101-PRW104	N00°23'35"E	91.75'
PRW104-PRW105	N88°50'35"E	12.00'
PRW103-PRW104	N88°50'35"E	13.01'
PRW105-PRW103	S88°50'35"W	25.01'
PRW107-TLE108	S07°30'49"W	35.29'
PRW106-TLE109	S07°30'49"W	131.10'
TLE108-TLE109	S07°30'49"W	35.29'
TLE109-TLE110	N89°52'54"W	19.48'
TLE110-TLE111	N00°07'06"E	35.00'
TLE111-TLE108	S89°52'54"E	24.02'
PRW113-PRW112	S78°33'52"E	15.27'
PRW112-PRW113	N78°33'52"W	15.27'
PRW117-TLE118	S89°52'54"E	25.91'
TLE118-TLE119	S00°07'06"W	40.00'
TLE119-TLE116	N89°52'54"W	26.10'
TLE116-PRW117	N00°23'35"E	40.00'

ROAD NAME	BASIS OF EXISTING R/W	WIDTH	YEAR
MEADOWLARK ROAD	TOWN ROAD RECORDS (ENTRY #7)	66	1950

REVISION DATE	DATE: 11-28-2016	SCALE, FEET 0 50' 100'	HWY: MEADOWLARK ROAD	STATE R/W PROJECT NUMBER 4200-05-00	PLAT SHEET 4.02
	GRID FACTOR: N/A		COUNTY: SHEBOYGAN	CONSTRUCTION PROJECT NUMBER 4200-05-71	PS&E SHEET E

FILE NAME : RWSHEET 4.02.DWG PLOT DATE : 12/2/2016 7:03 AM PLOT BY : terratec PLOT NAME : CONST. 4200-05-71 MEADOWLARK RD R/W 4200-05-00-4.02

xxxxxx = SAWCUT

BP: 10+00.00
N: 112751.49
E: 185302.31
BP: 10+00.00

BEGIN CONSTRUCTION
STA. 11+66

BM 1

R/W

MEADOWLARK RD

11+00 12+00 13+00 N0° 07' 06"E 1000.00' 14+00 15+00 16+00

MEADOWLARK ROAD

JEFFERY A THEOBALD

TERESA L. CLAERBOUT

STA. 15+00
REMOVE STRUCTURE P-59-116
2 SPAN CONCRETE DECK GIRDER
97.6' OVERALL LENGTH
27.3' OVERALL WIDTH

CLEARING & GRUBBING (TYP)

TLE

6-INCH BASE AGG. DENSE 3/4-INCH

STRUCTURE B-59-0194

BM 2

CLEARING & GRUBBING (TYP)

COFFERDAM

WETLAND BOUNDARY

SLOPE INTERCEPT (TYP)

BEGIN PROJECT 4200-05-71
STA. 14+00
Y=173,151.49
X=185,303.14

SEE DETAIL SHEET FOR NEW GUARDRAIL LAYOUT INFORMATION

KATHLEEN ANN THEOBALD

SHEBOYGAN RIVER

GERALD & MARYLIN MEYER

END PROJECT 4200-05-71
STA. 16+00

REMOVE EXISTING FE

BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
1	11+90	19.4' RT	RR SPIKE IN WESTFACE POWER POLE	685.84
2	14+52	14.4' LT	CHIS. SQUARE ON CONC ABUTMENT	690.72

(A) EXCAVATION OF EMBANKMENT BETWEEN EXISTING ABUTMENTS AND NEW ABUTMENTS TO BE PAID FOR AS EXCAVATION FOR STRUCTURES

(B) EXISTING DRY HYDRANT. EXPOSE AND PROTECT WITH 4-INCH SAND LAYER PRIOR TO RIPRAP PLACEMENT. INCLUDE COST OF SAND PLACEMENT IN RIPRAP HEAVY BID ITEM.

EXISTING PROFILE

PROPOSED PROFILE AT REFERENCE LINE

STA 14+00.00 EL 690.05
STA 14+30.00 EL 690.30
STA 15+60.00 EL 690.95
STA 16+00.00 EL 691.01

STA. 14+95
STRUCTURE B-59-0194
2 SPAN CONCRETE HAUNCH SLAB
28' CLEAR ROADWAY WIDTH
20 DEGREE SKEW LHF
122.17' OVERALL LENGTH

0.84% 0.50% 0.14%

OBSERVED WATER
EL=680.10
(04-19-2016)

HW2
EL=683.01

700 690 680 670

687.38 687.35 687.40 687.62 688.12 688.48 689.01 689.68 690.05 690.05 690.41 690.40 690.70 690.65 690.45 690.90 691.01 691.01

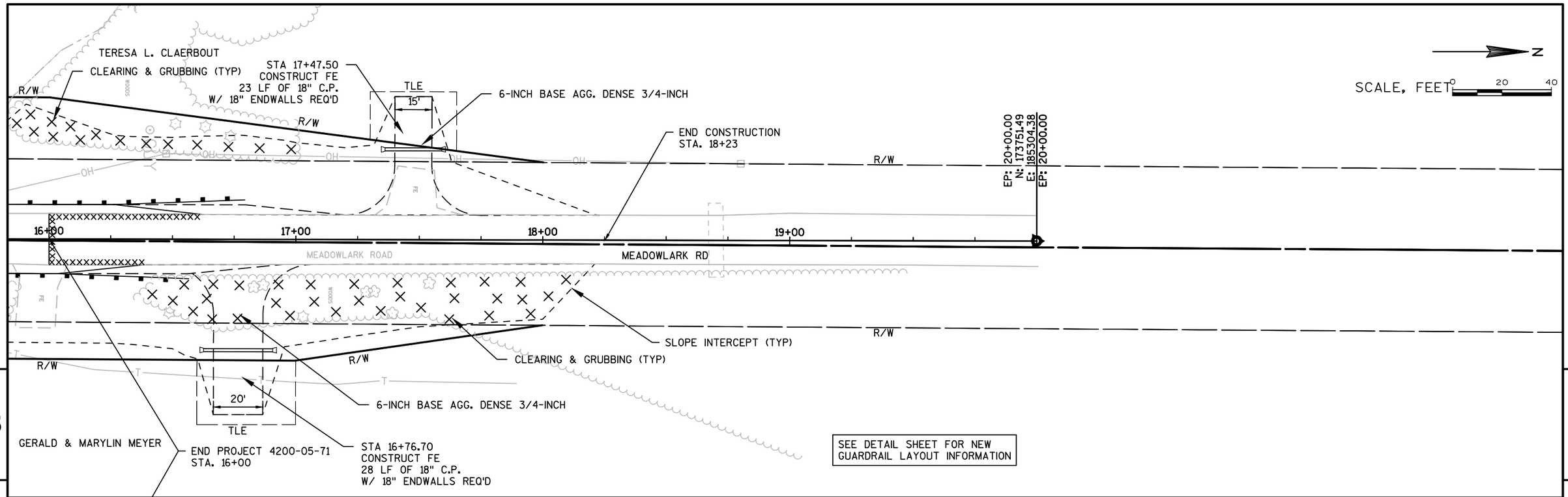
10 11 12 13 14 15 16

PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	PLAN AND PROFILE: MEADOWLARK ROAD	SHEET 17 E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\050101_PP.DWG
LAYOUT NAME - 050101_PP - 050101_PP

PLOT DATE : 7/20/2017 8:49 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44



PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	PLAN AND PROFILE: MEADOWLARK ROAD	SHEET 18	E

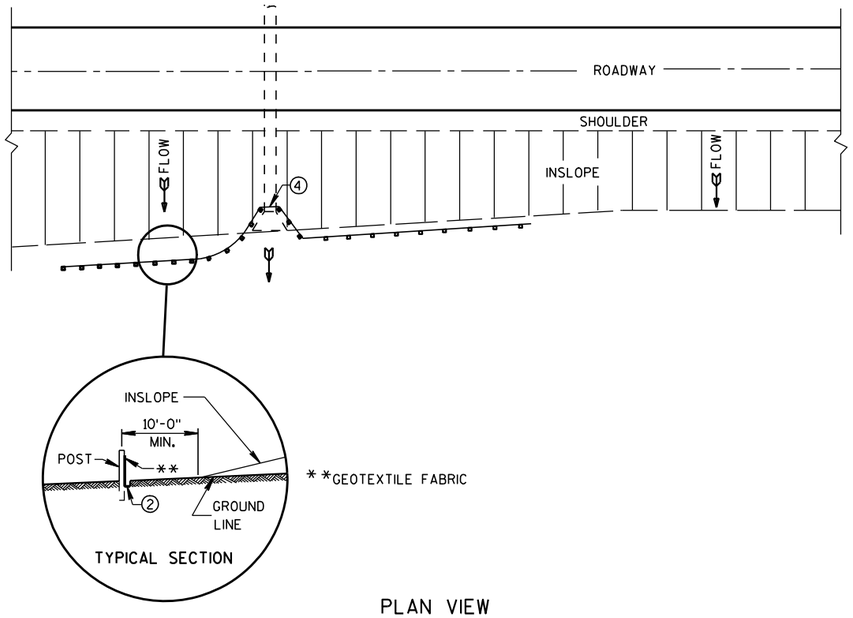
FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\050101_PP.DWG
LAYOUT NAME - 050101_PP - 050102_PP

PLOT DATE : 12/7/2017 11:30 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

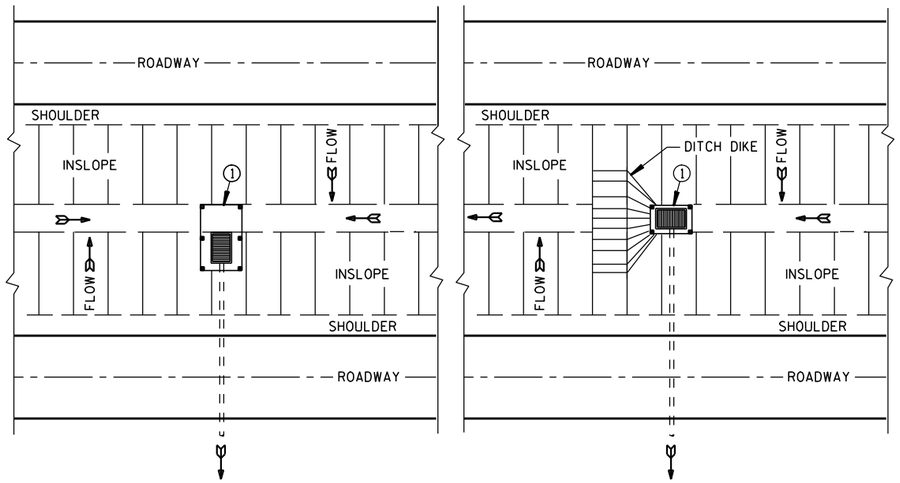
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



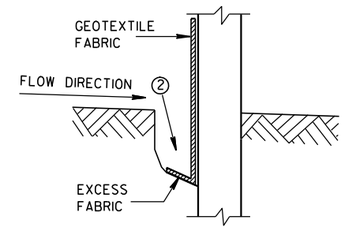
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

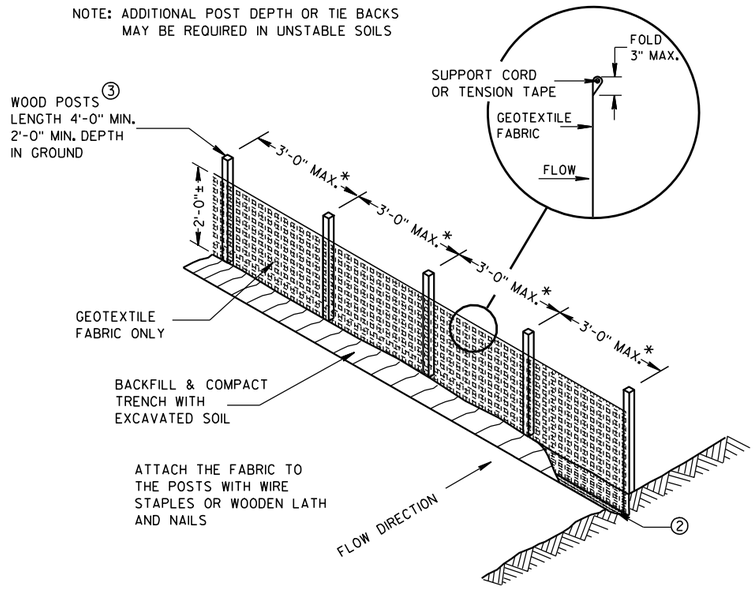
GENERAL NOTES

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

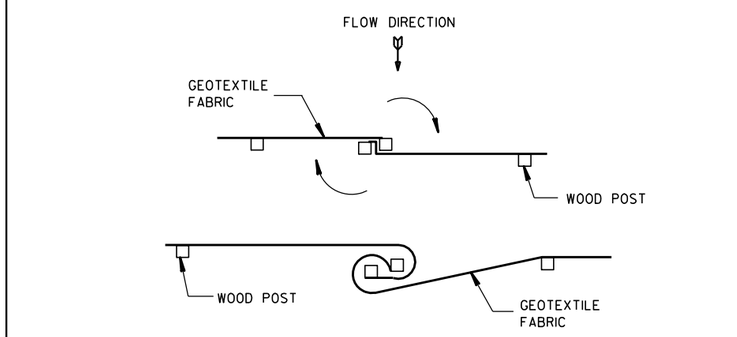
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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.



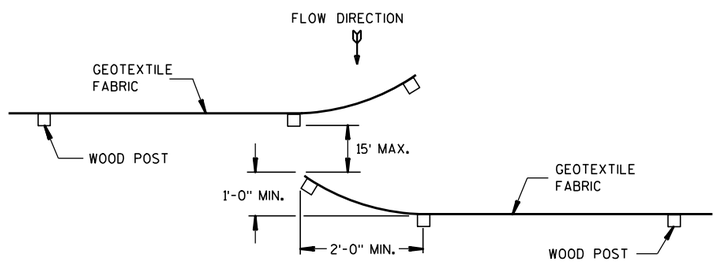
TRENCH DETAIL



SILT FENCE

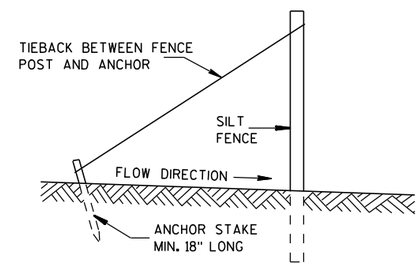


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

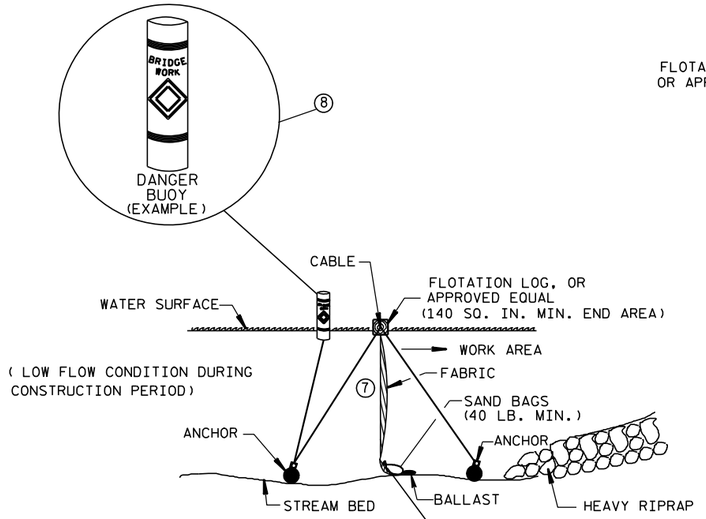
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

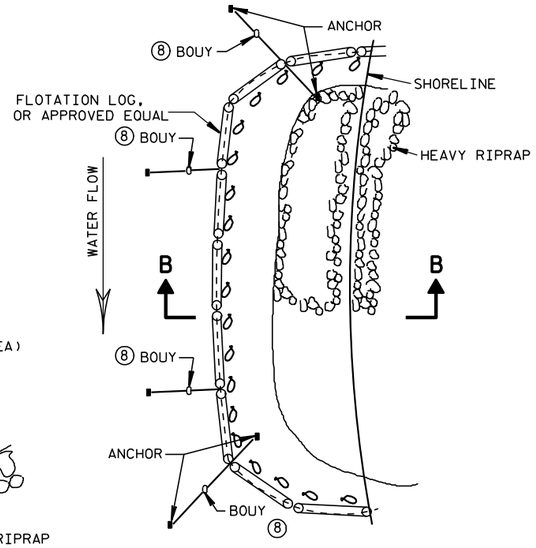
S.D.D. 8 E 9-6

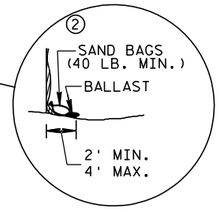
6

S.D.D. 8 E 9-6

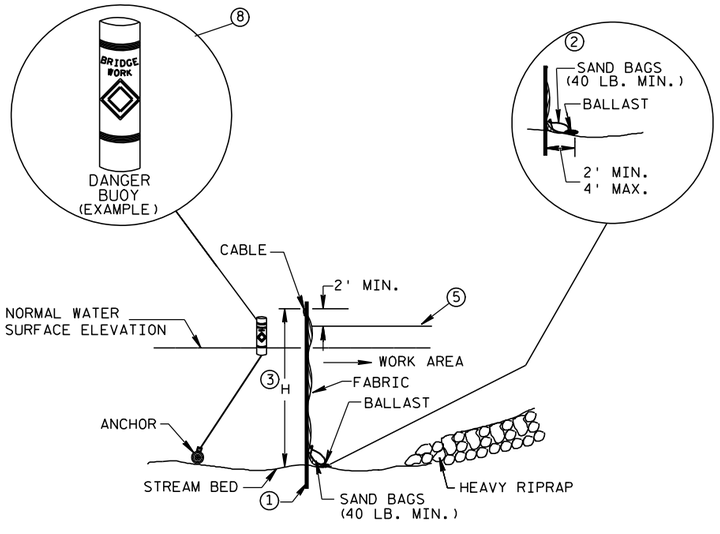


SECTION B-B

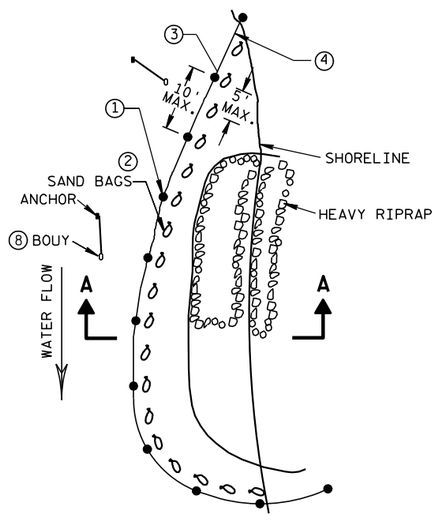




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

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.

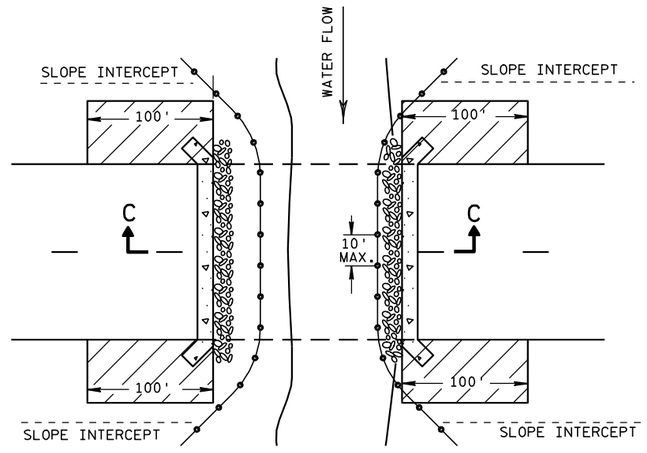
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

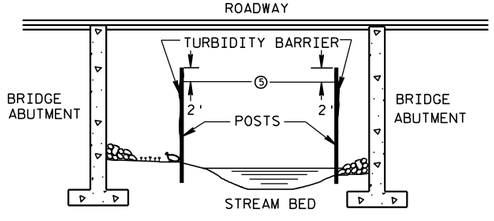
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

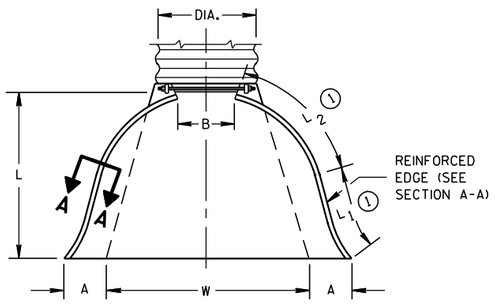
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

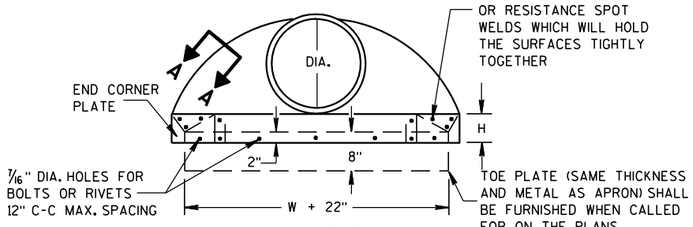
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	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 2/5 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

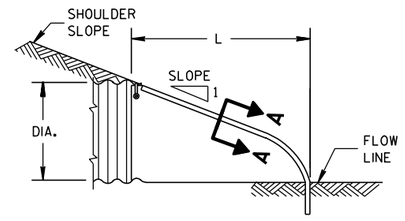
*MINIMUM
**MAXIMUM



PLAN VIEW

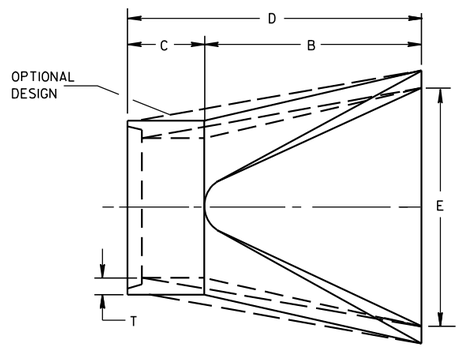


END VIEW

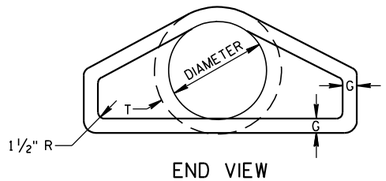


SIDE ELEVATION

METAL ENDWALLS



PLAN



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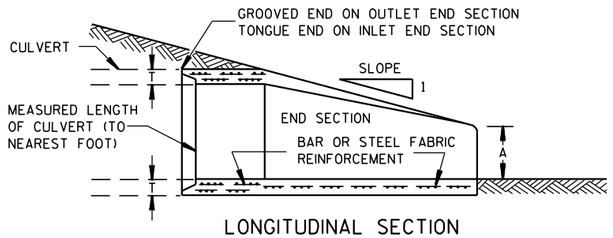
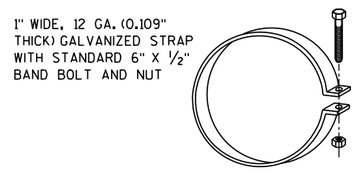


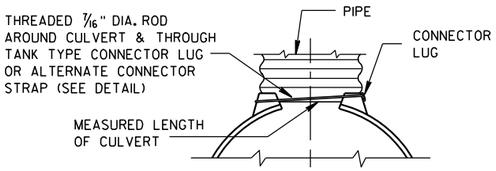
LONGITUDINAL SECTION

CONCRETE ENDWALLS

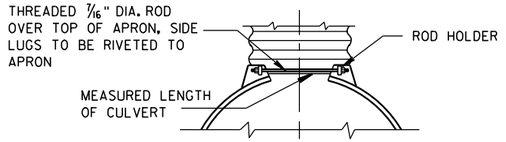


ALTERNATE FOR TYPE 1 CONNECTION

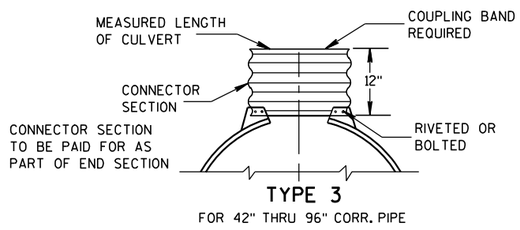
END SECTION CONNECTOR STRAP



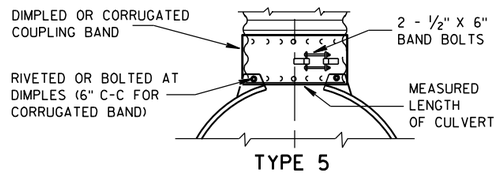
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

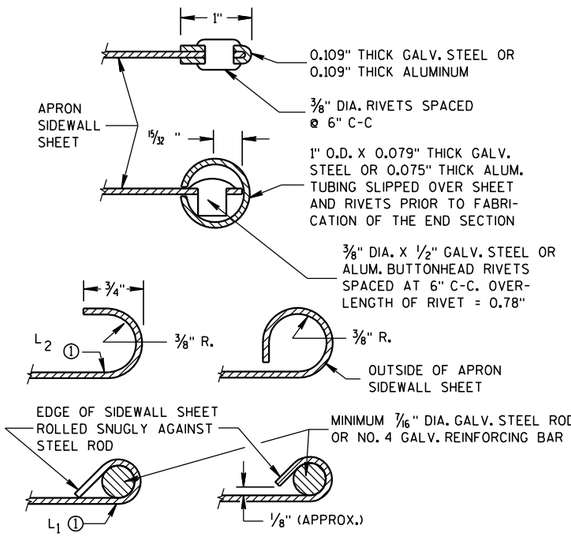
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

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

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

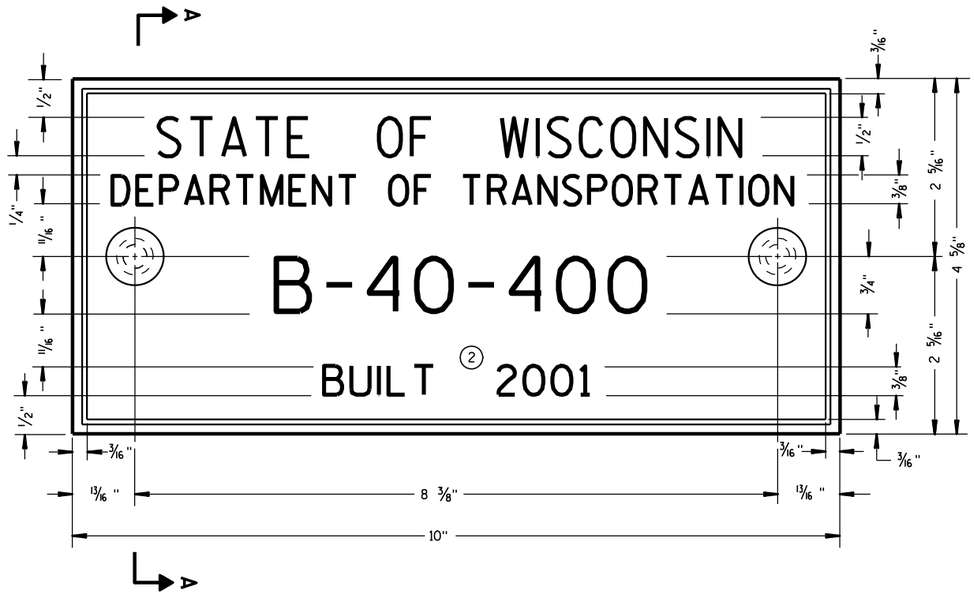
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

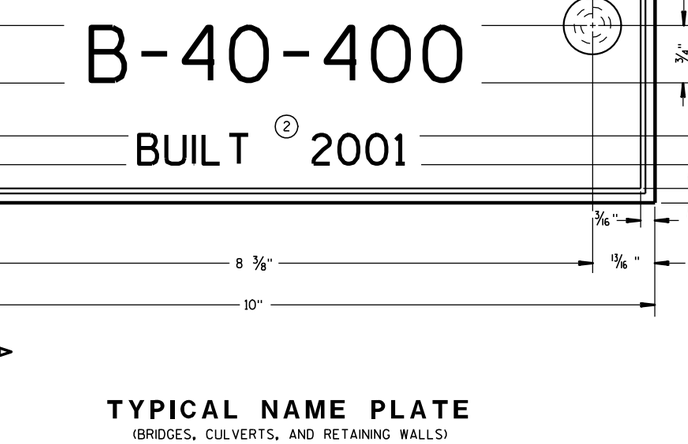
6

S.D.D. 8 F 1-11



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

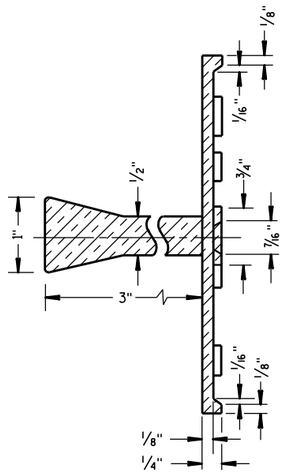
GENERAL NOTES

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.

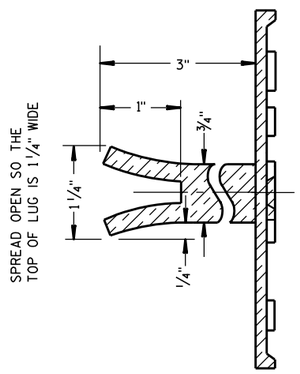
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

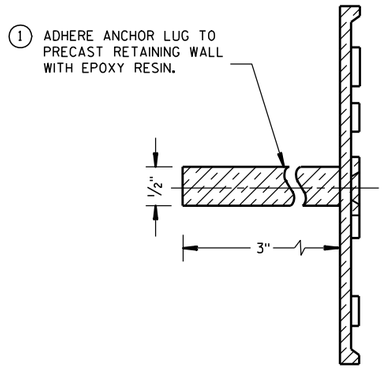
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
3/26/10 DATE	/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER
FHWA	

6

S.D.D. 12 A 3-10

(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.

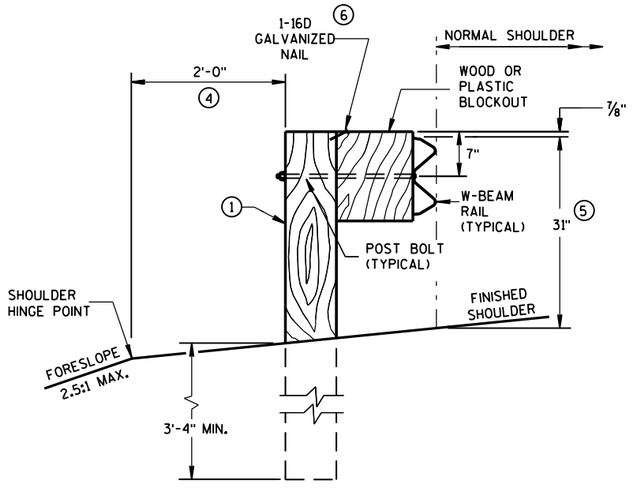
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD 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).

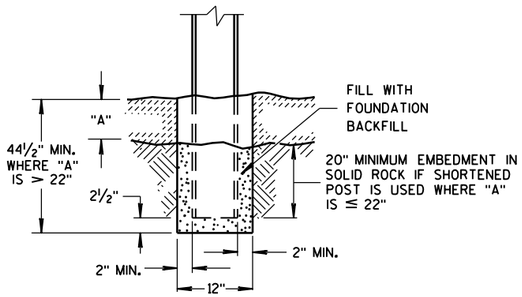
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



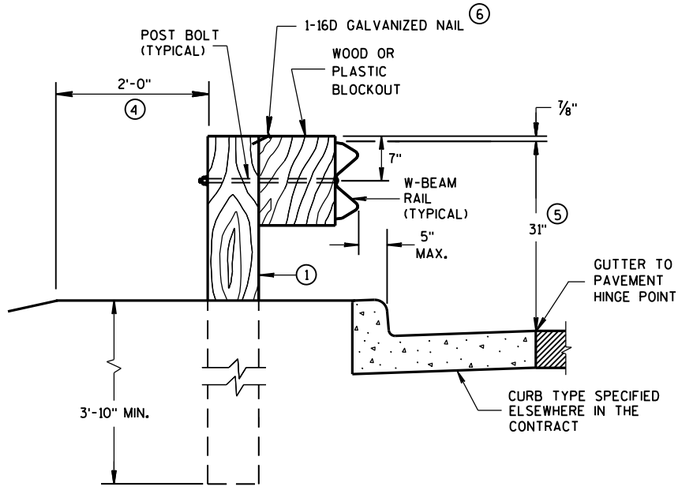
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



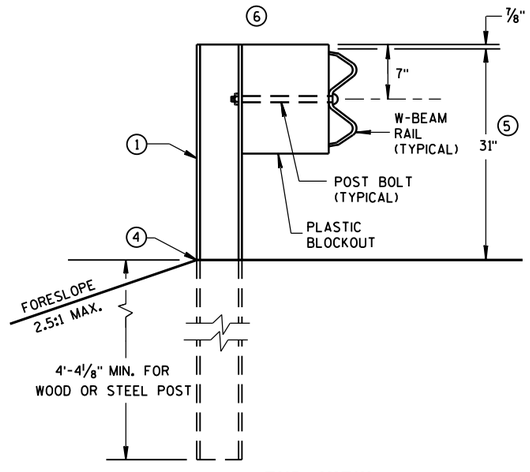
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



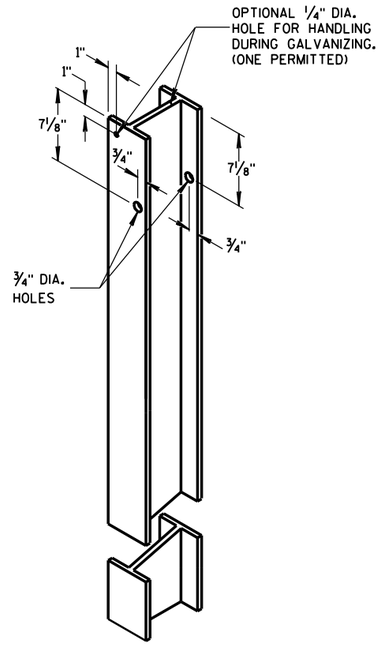
END VIEW

LOCATED ALONG A CURBED ROADWAY

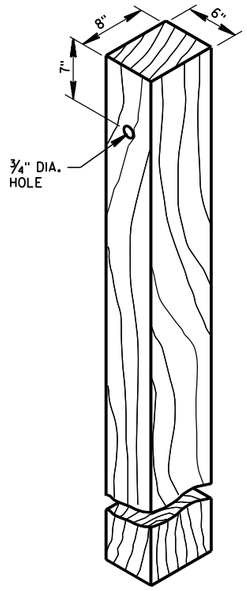


END VIEW

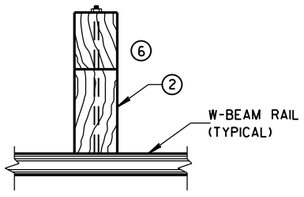
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



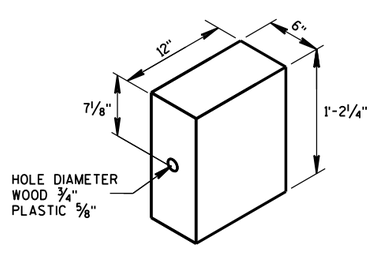
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



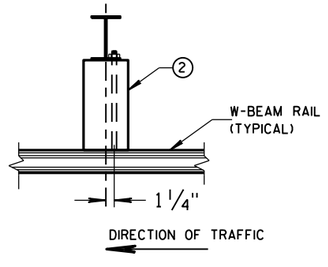
WOOD POST
(6" X 8") NOMINAL (1)



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 TRANSPOR

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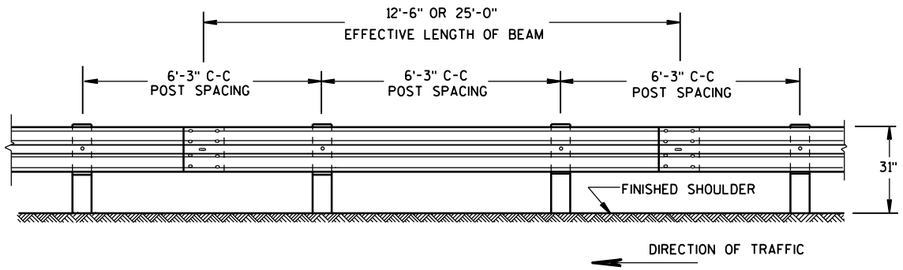
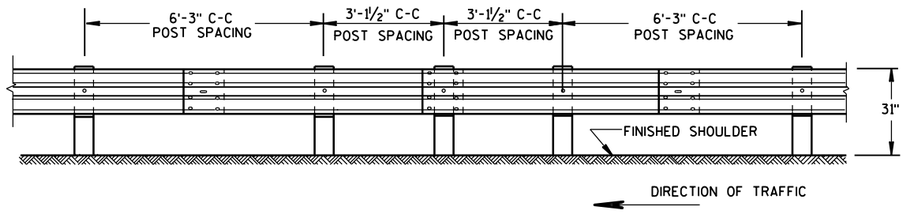
S.D.D. 14 B 42-4a



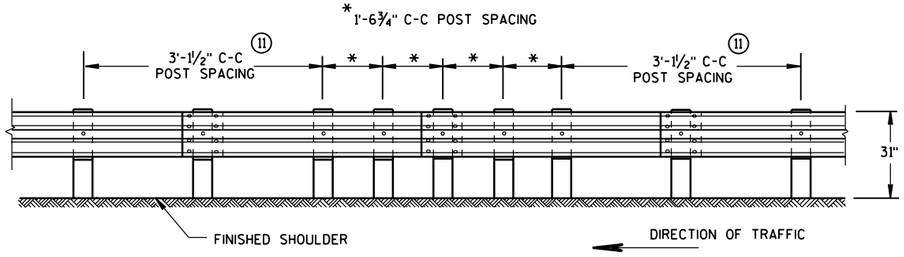
FRONT VIEW

POST SPACING STANDARD INSTALLATION



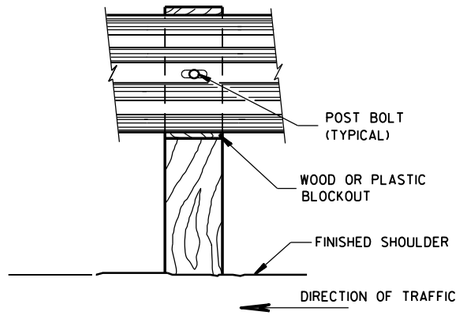
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

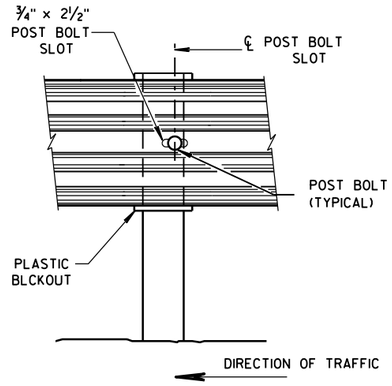


FRONT VIEW

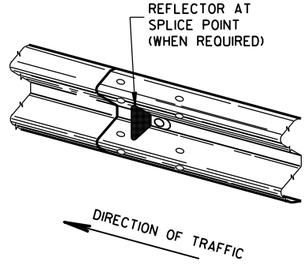
QUARTER POST SPACING (QS)

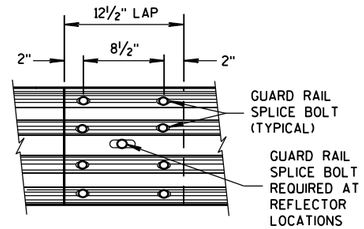


FRONT VIEW AT WOOD POST

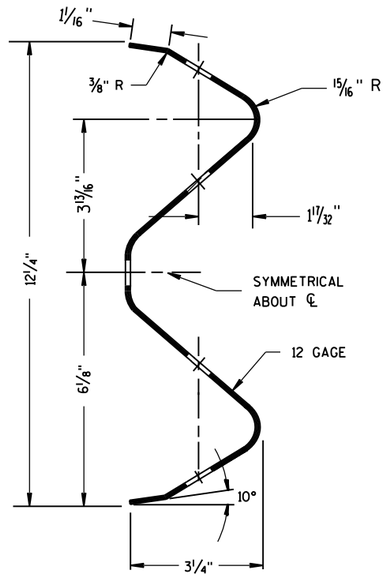


FRONT VIEW AT STEEL POST

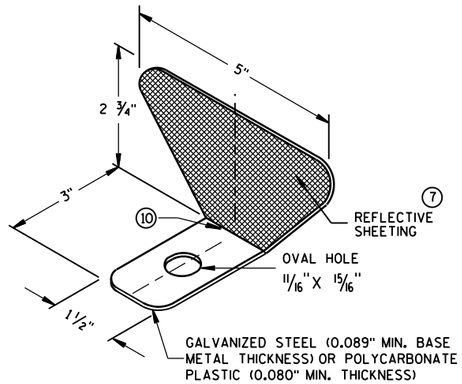




FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

⑧ 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.

⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

⑩ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ⑧

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ⑨ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⑩	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
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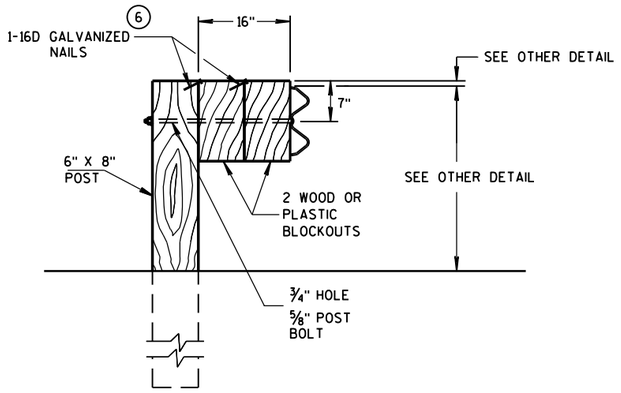
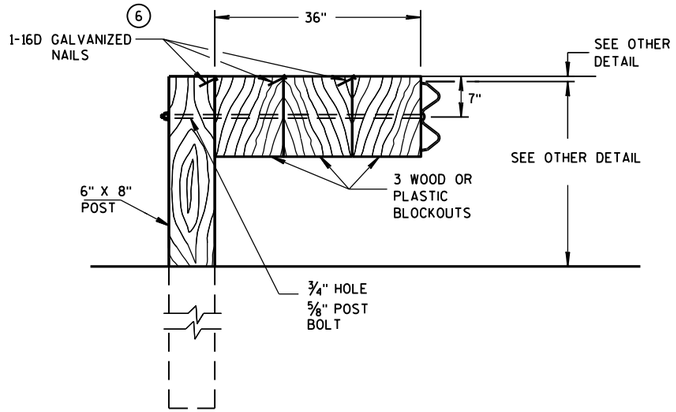


DETAIL FOR 16" BLOCKOUT DEPTH

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

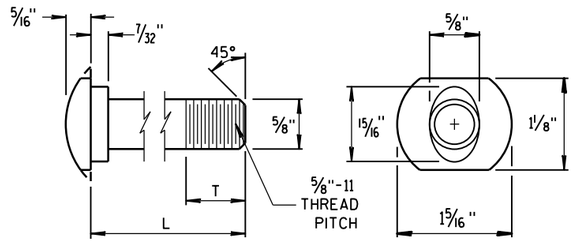


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

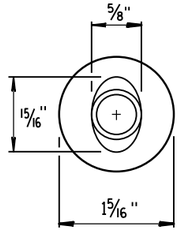
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

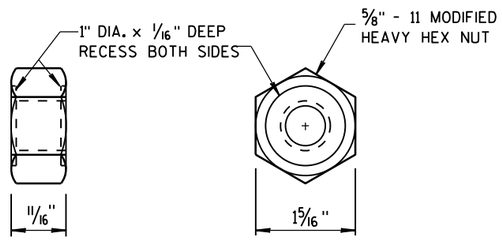


POST BOLT TABLE

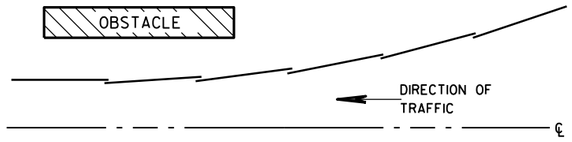
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

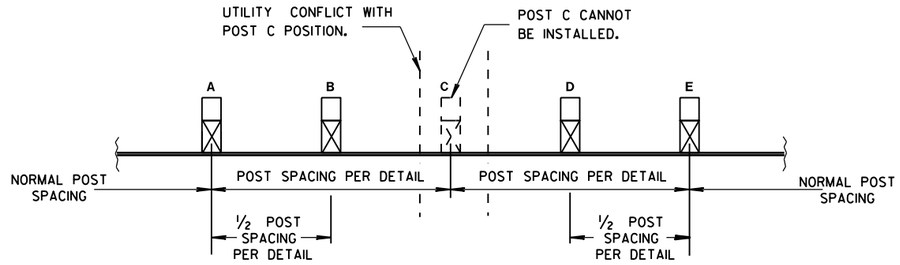


POST BOLT, SPLICE BOLT AND RECESS NUT

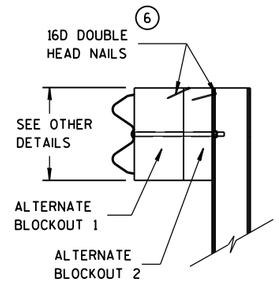


PLAN VIEW

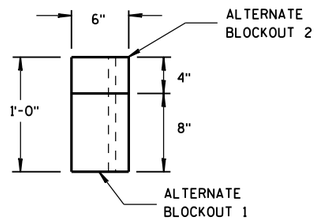
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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S.D.D. 14 B 42-4c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES 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.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

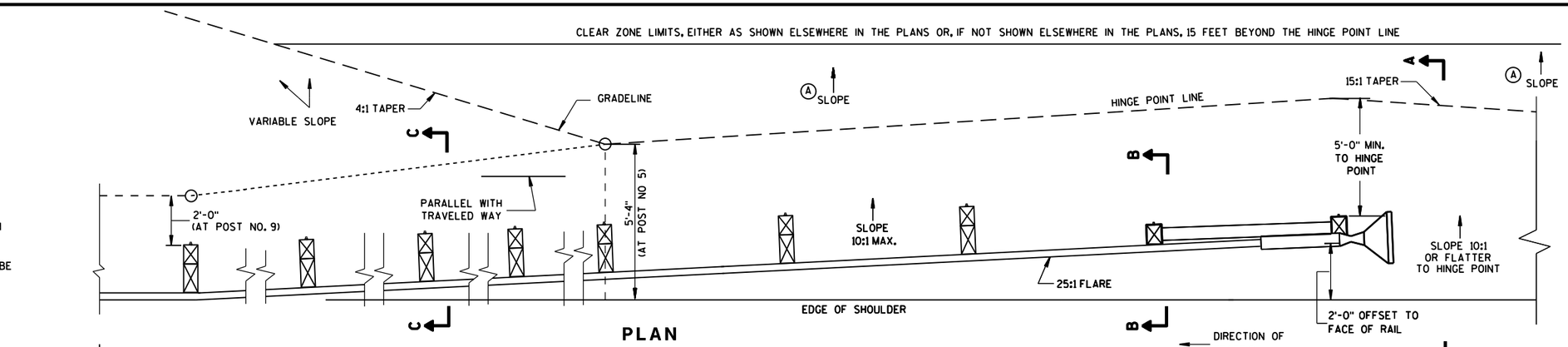
SEE SDD 14B42 FOR MORE INFORMATION.

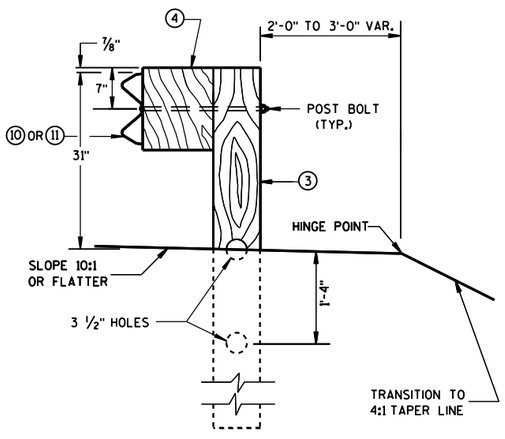
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

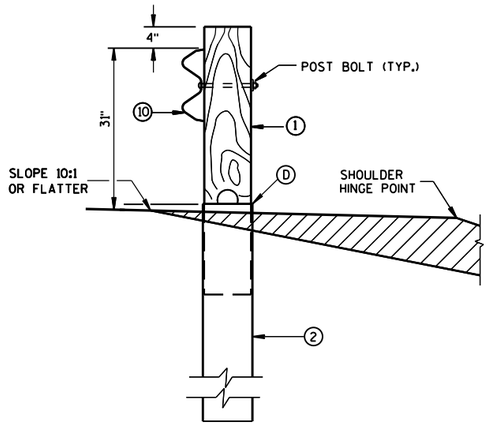
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

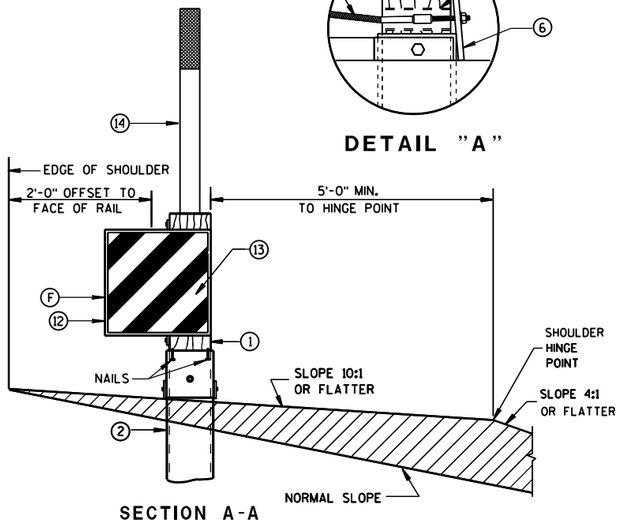




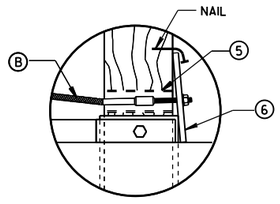
SECTION C-C
TYPICAL AT POST NOS. 3-9



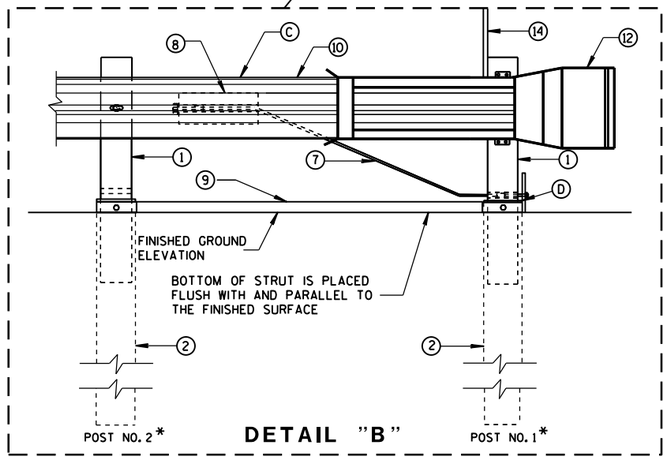
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



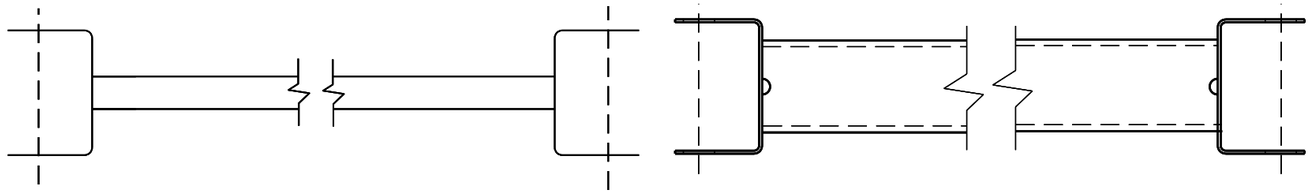
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

S.D.D. 14 B 44-2a

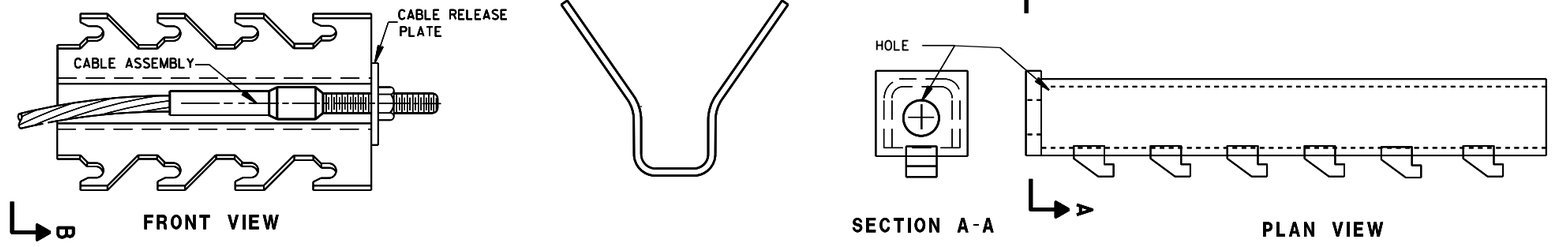
S.D.D. 14 B 44-2a



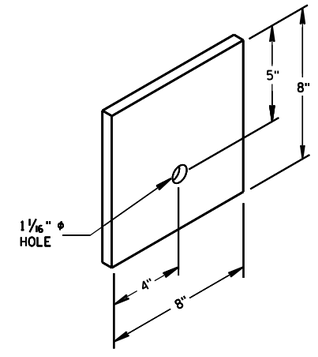
GENERIC GROUND STRUT (9) (H)

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 F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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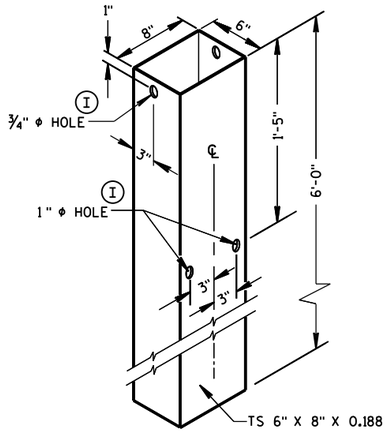
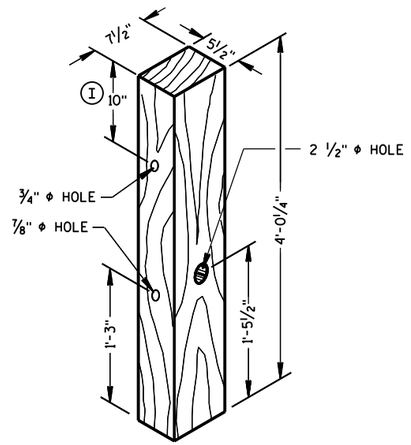
S.D.D. 14 B 44-2b

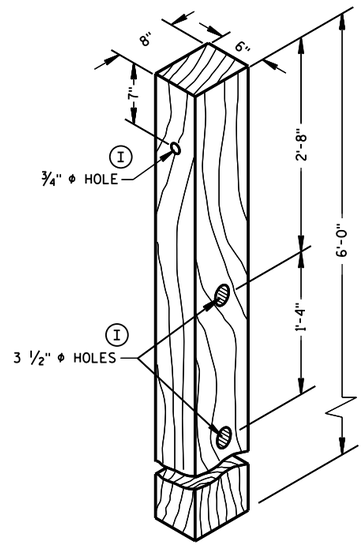


FOUNDATION TUBE (2)



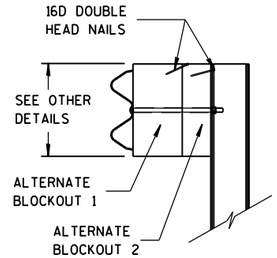
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

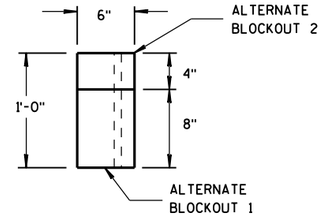


POSTS NUMBER 3-9

WOOD CRT POST (3)

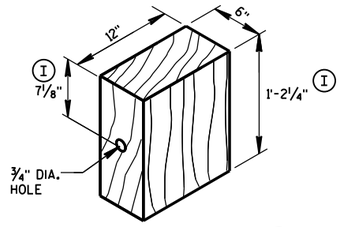


SIDE VIEW



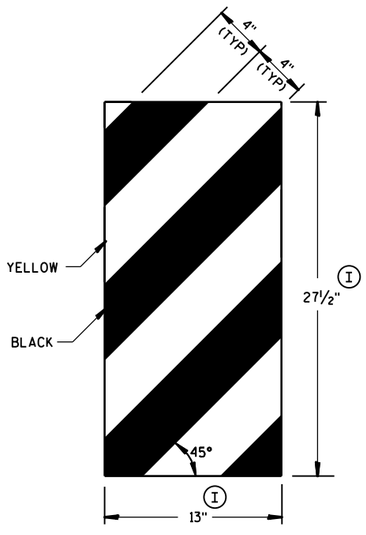
TOP VIEW

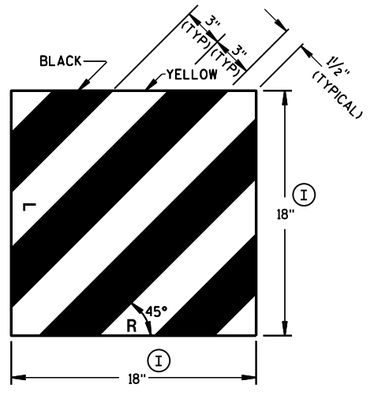
ALTERNATE WOOD BLOCKOUT DETAIL



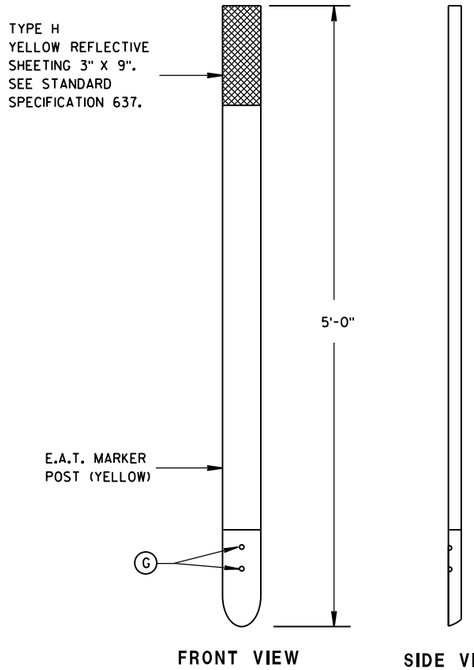
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





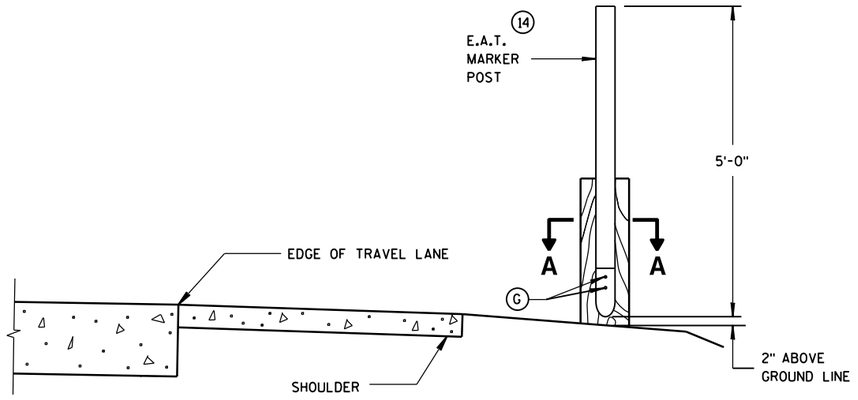
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

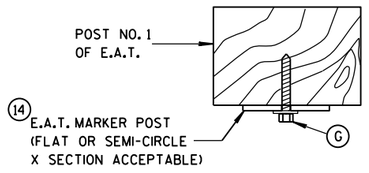
SIDE VIEW

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

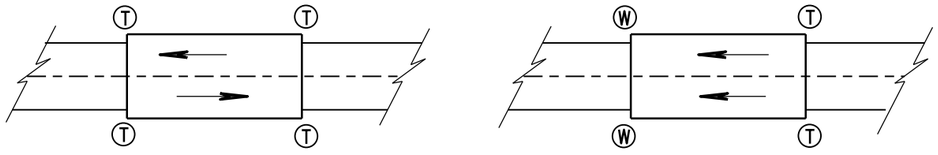
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

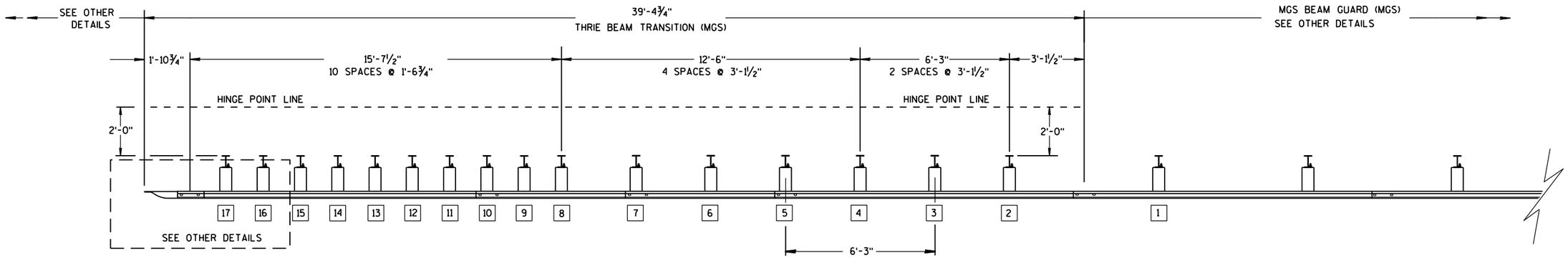
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

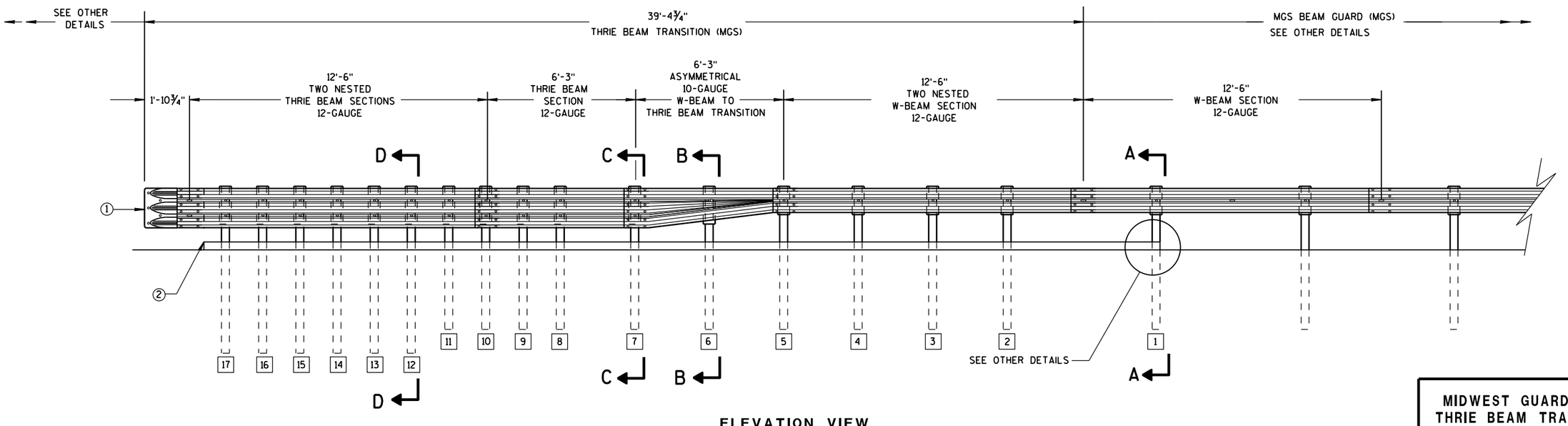
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4a

6

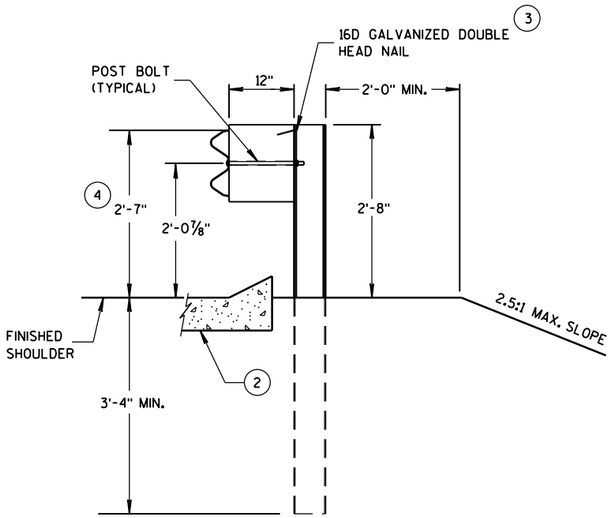
S.D.D. 14 B 45-4a

GENERAL NOTES

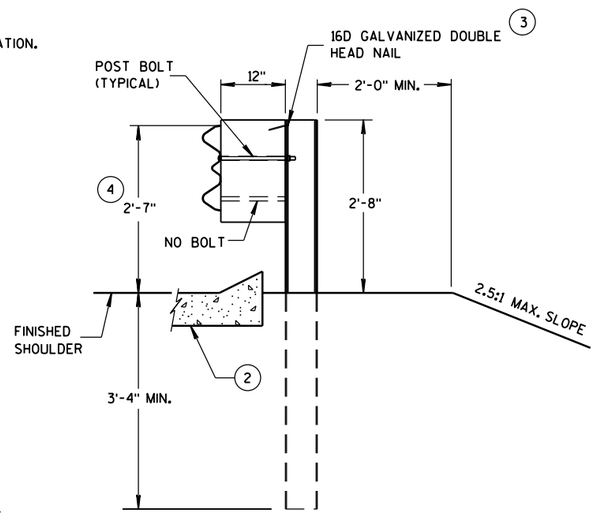
(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

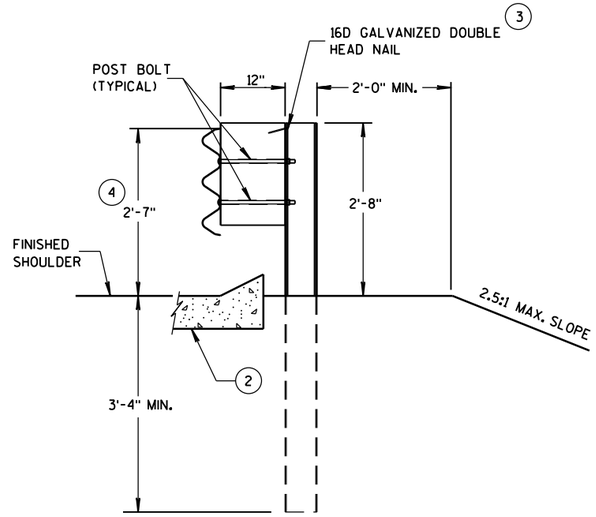
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



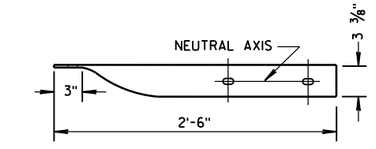
SECTION A-A
POSTS 1-5

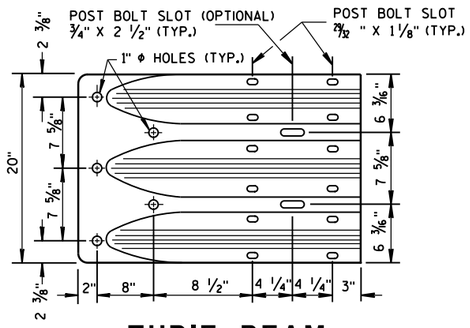


SECTION B-B
POST 6



SECTION C-C
POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

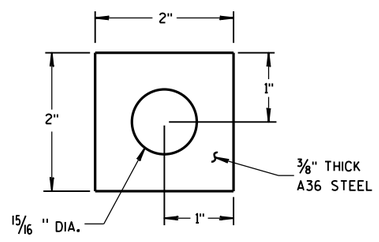
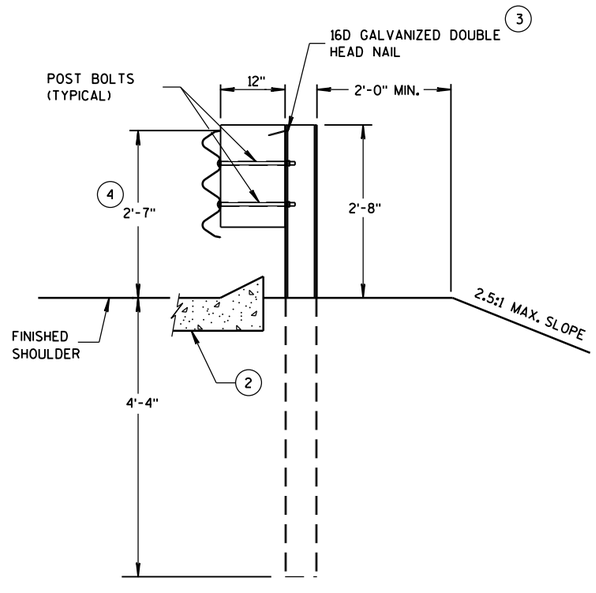
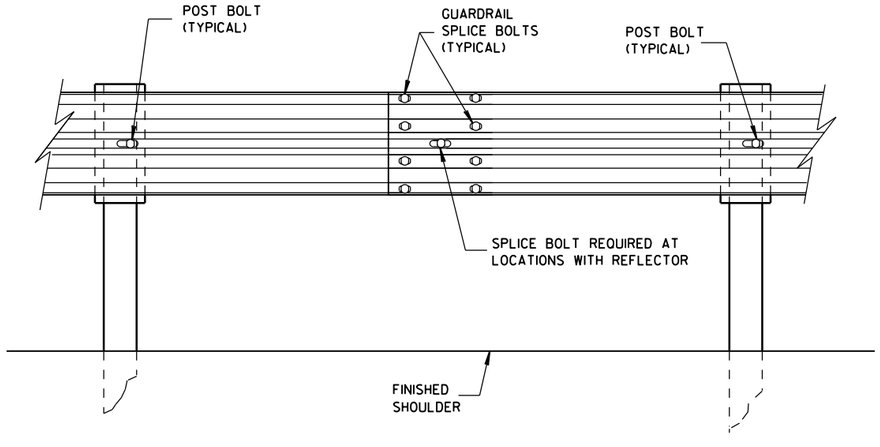


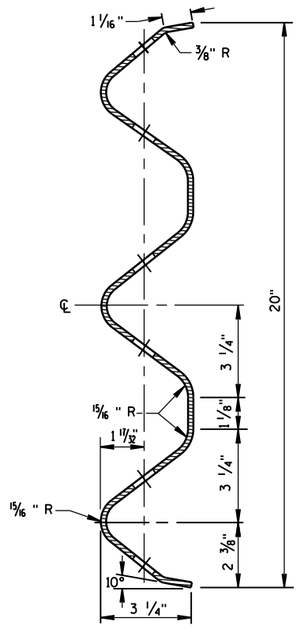
PLATE WASHER DETAIL



SECTION D-D
POSTS 12-17



SPLICE DETAIL



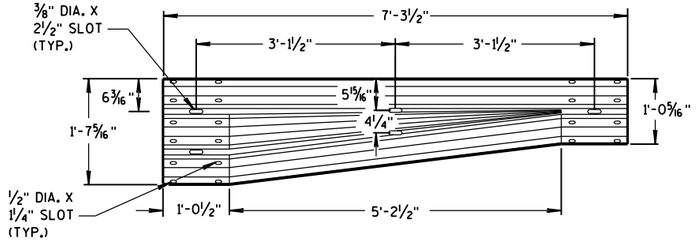
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

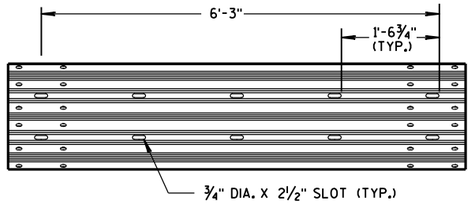
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

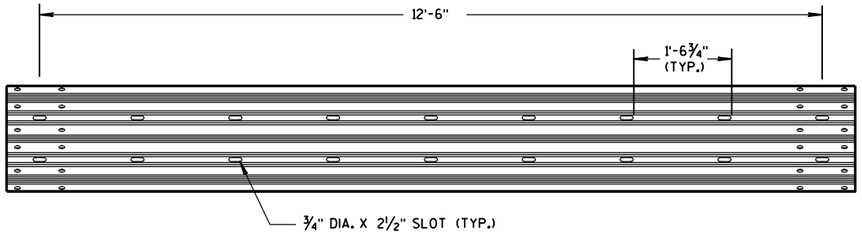
S.D.D. 14 B 45-4b



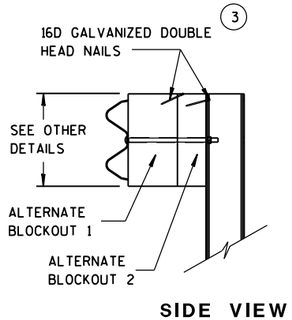
W-BEAM TO THRIE BEAM TRANSITION SECTION



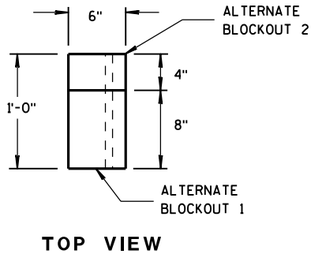
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

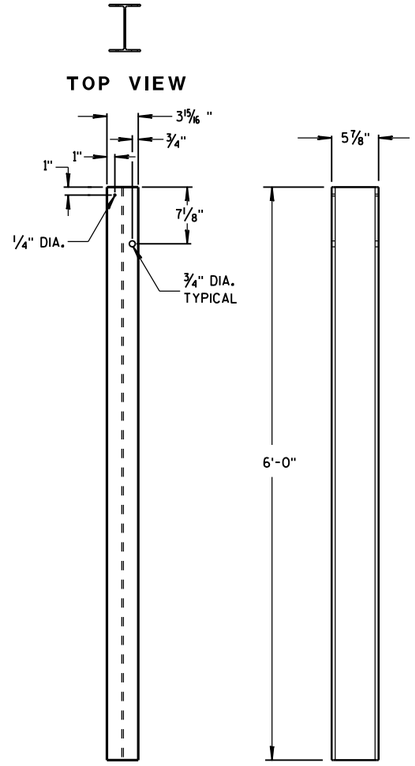


SIDE VIEW

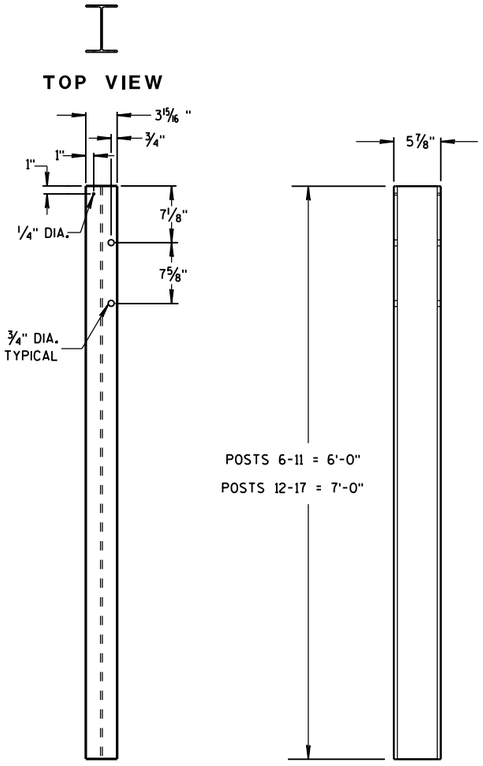


TOP VIEW

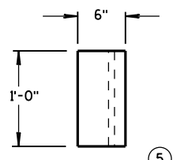
ALTERNATE WOOD BLOCKOUT DETAIL



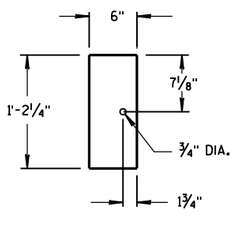
STEEL POSTS 1-5



STEEL POSTS 6-17

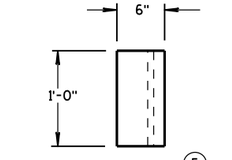


TOP VIEW

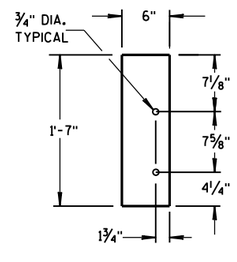


FRONT VIEW

BLOCKOUT POSTS 1-5



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

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

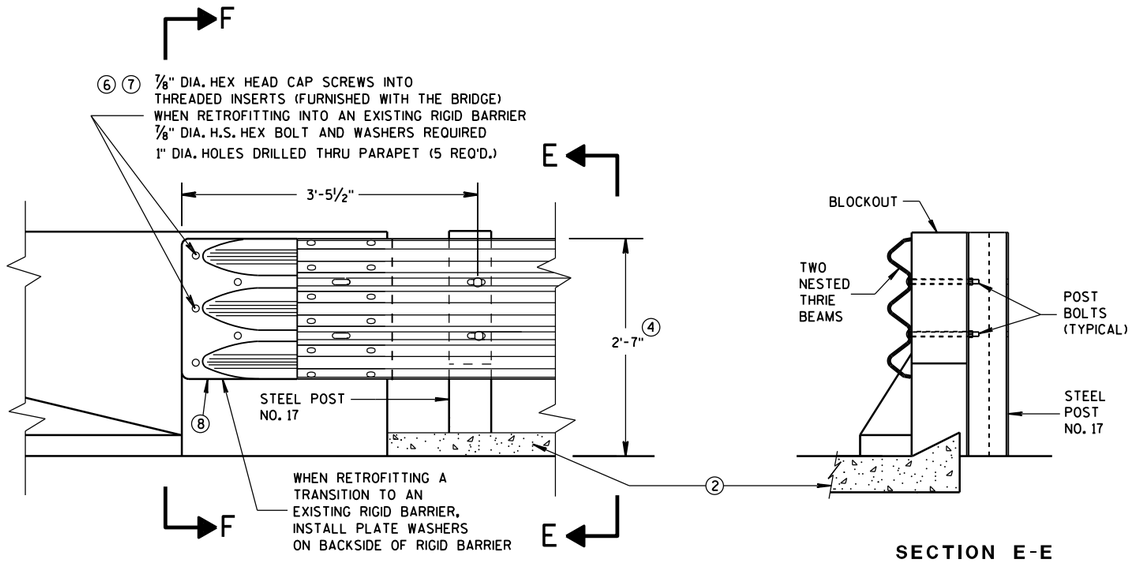
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4c
S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

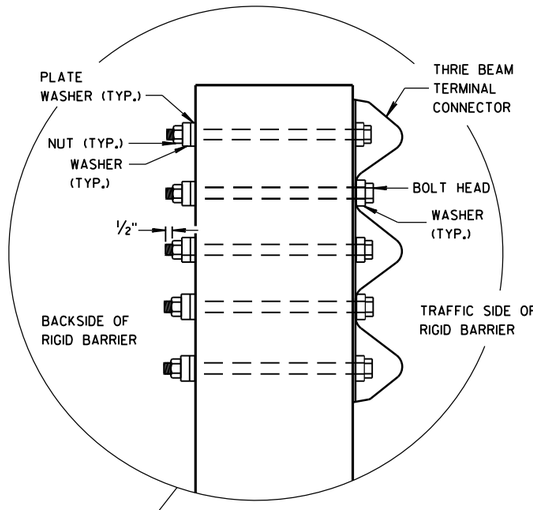
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

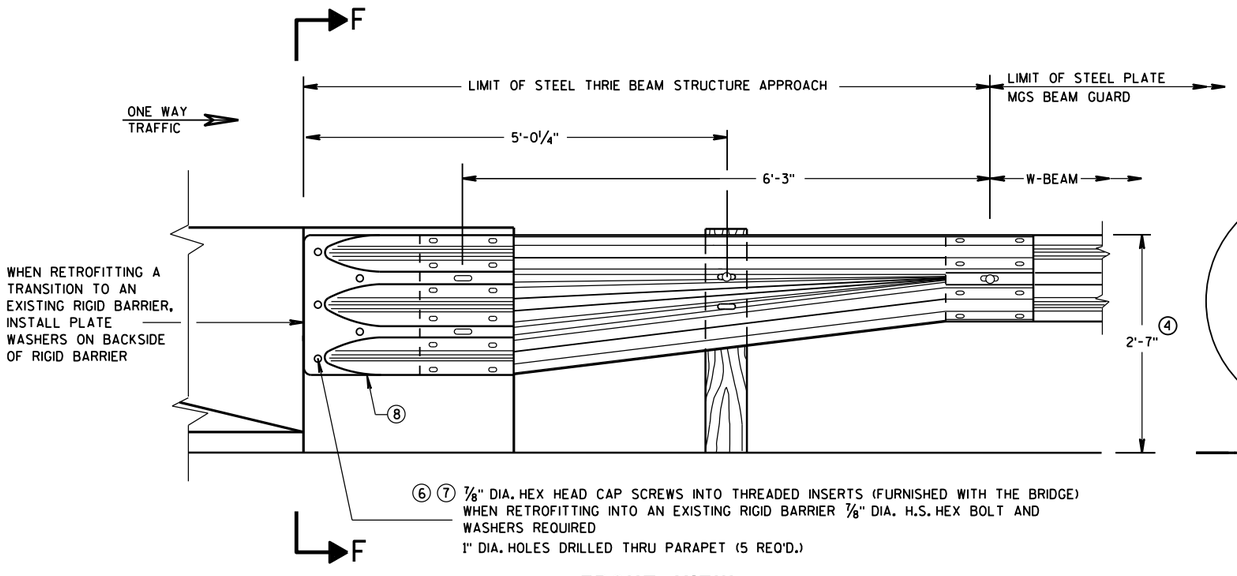
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

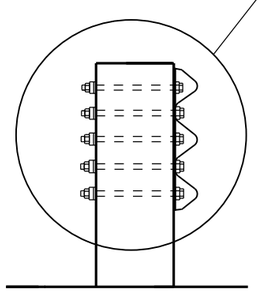
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

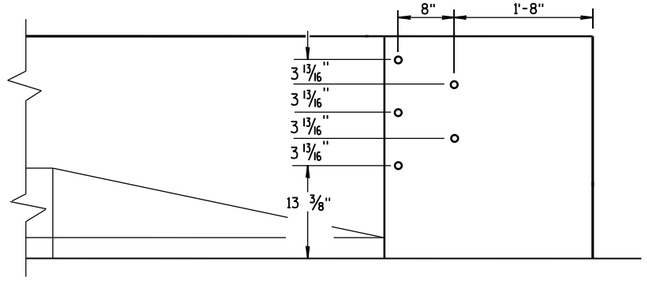




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA
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NT

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S.D.D. 14 B 45-4d

6

S.D.D. 14 B 45-4d

GENERAL NOTES

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

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

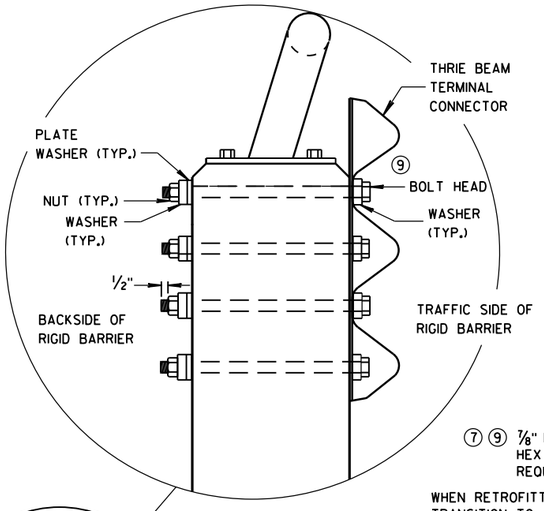
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

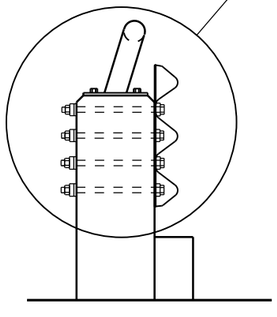
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

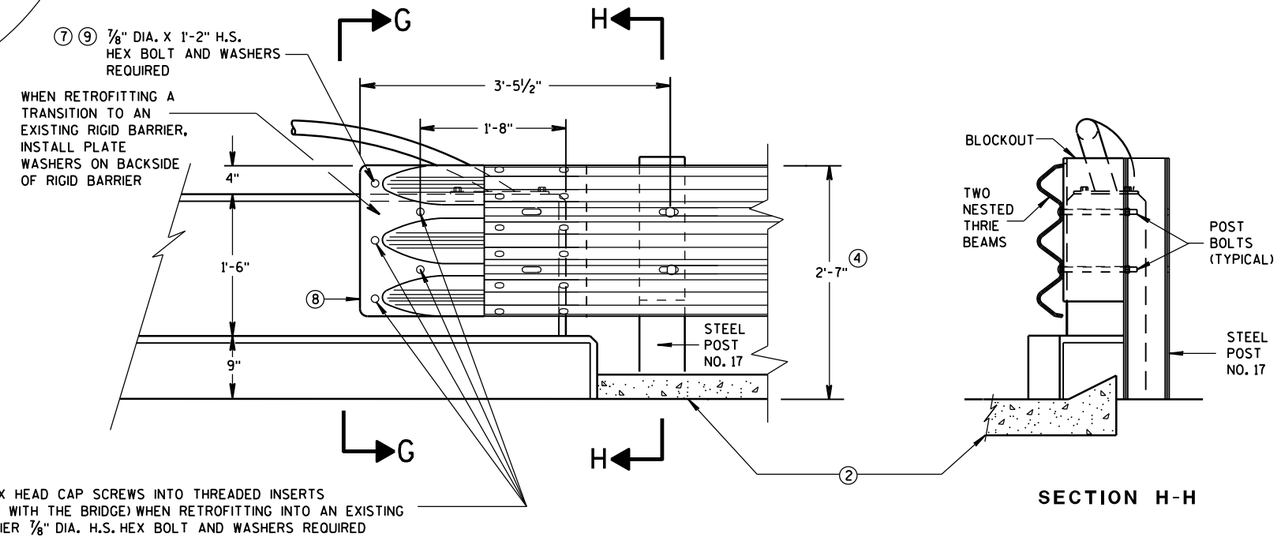
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





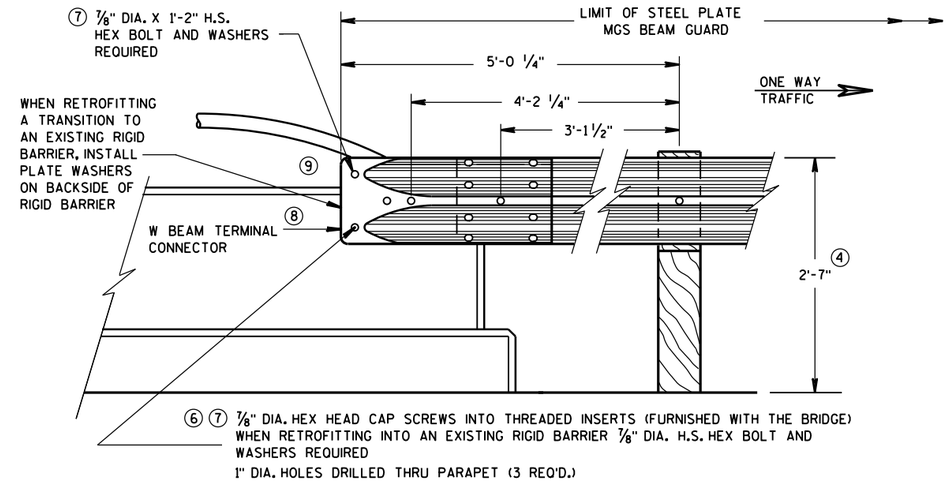
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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FHWA

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S.D.D. 14 B 45-4e

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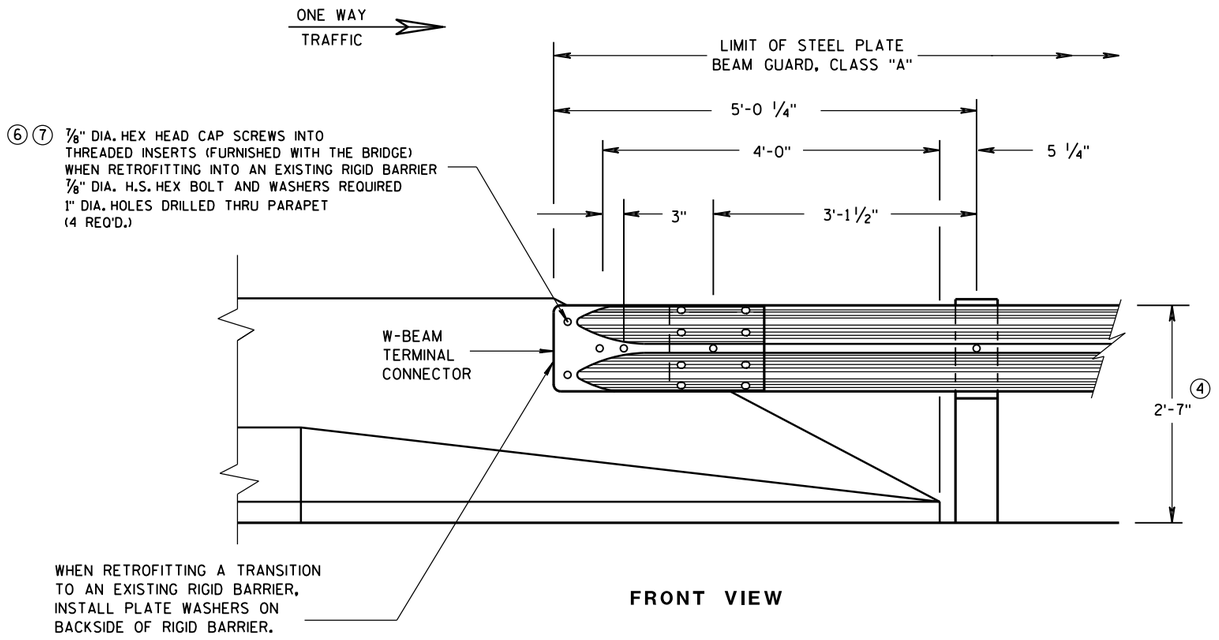
S.D.D. 14 B 45-4e



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

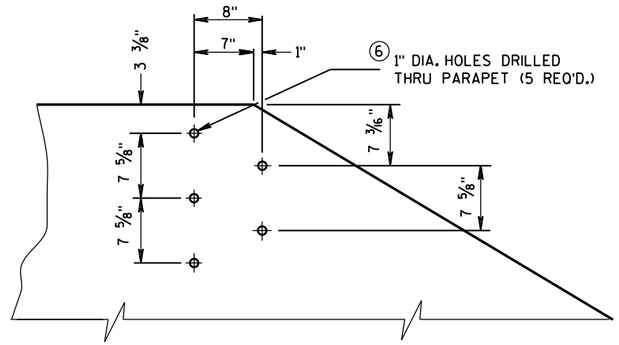
GENERAL NOTES

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

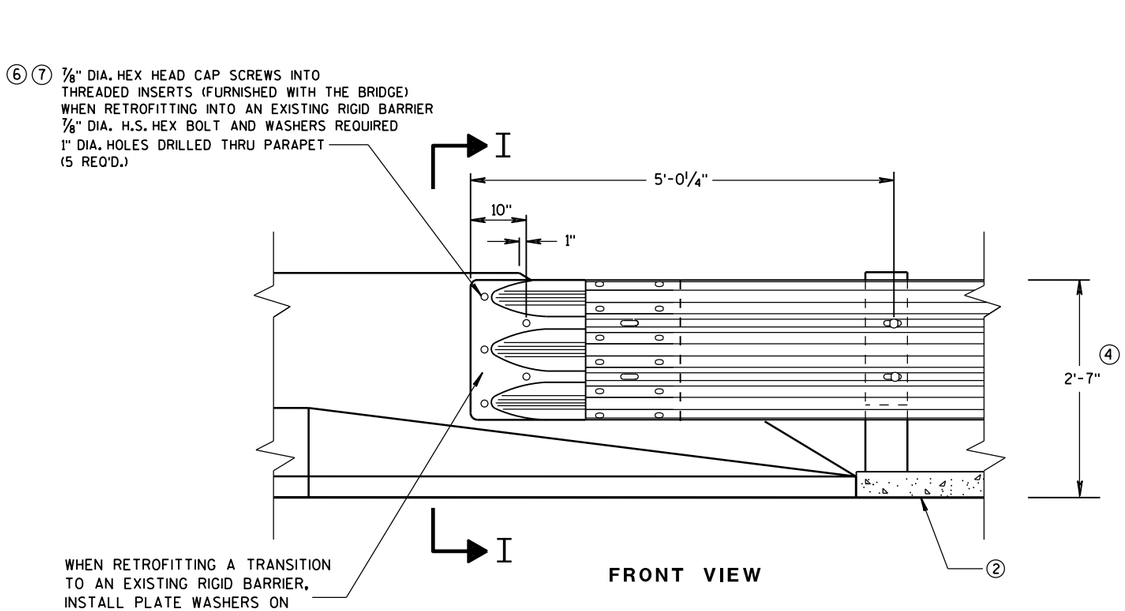
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

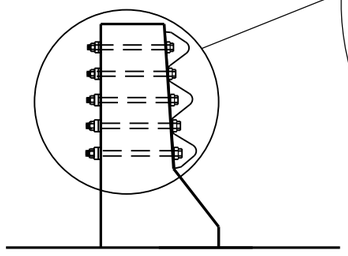
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



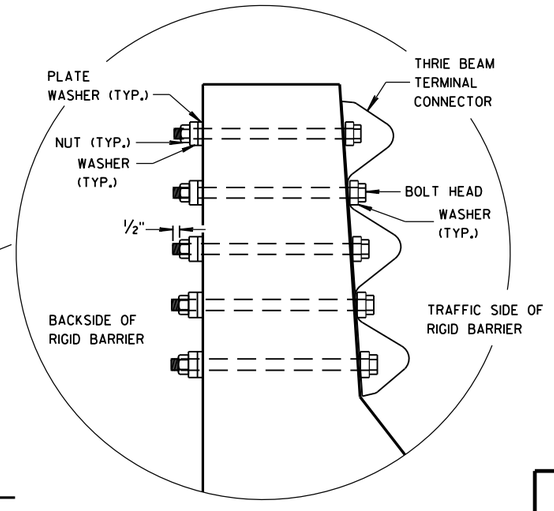
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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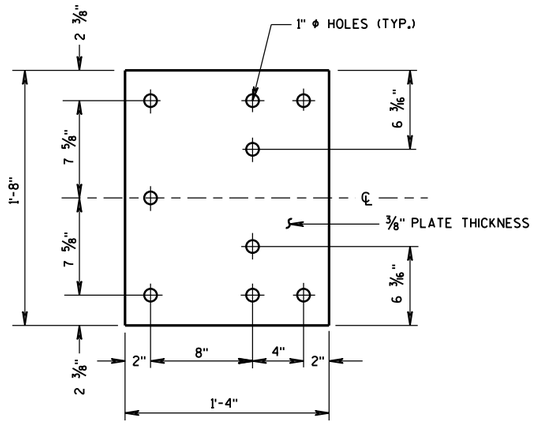
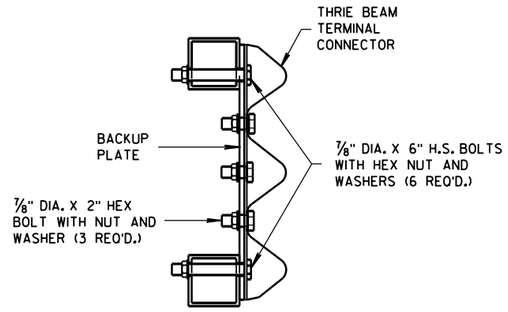
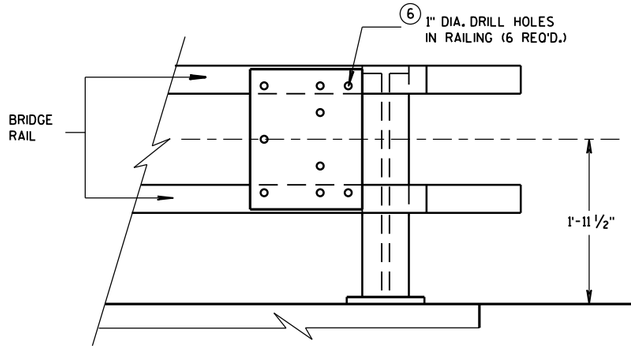


BACK-UP PLATE DETAIL



SECTION J-J

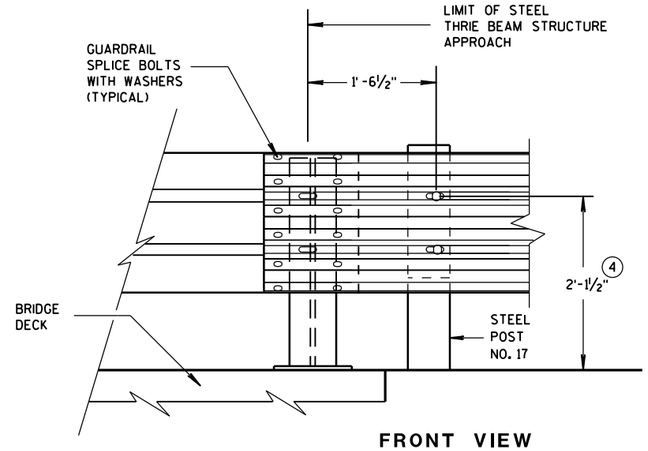


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

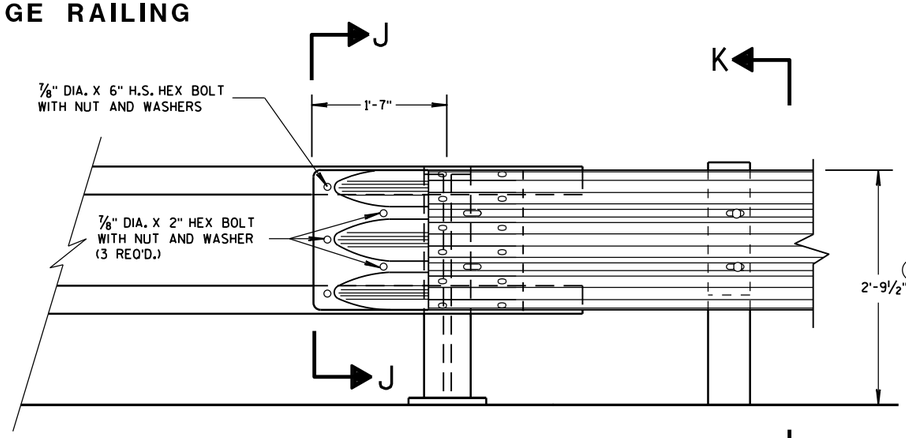
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

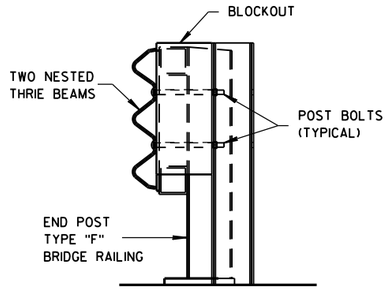


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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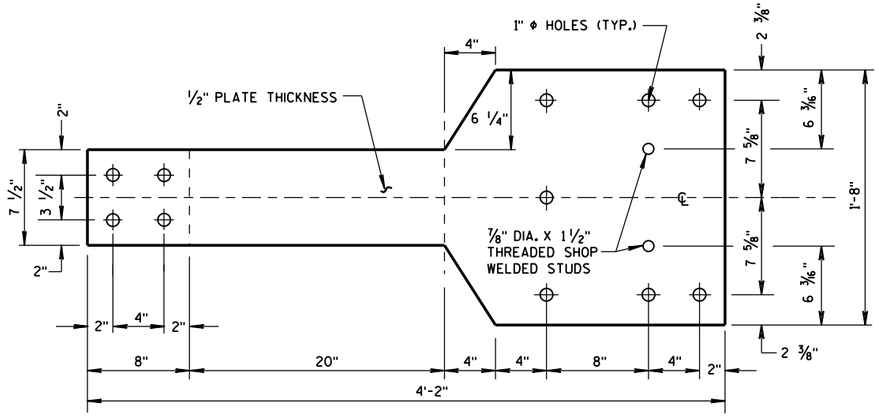
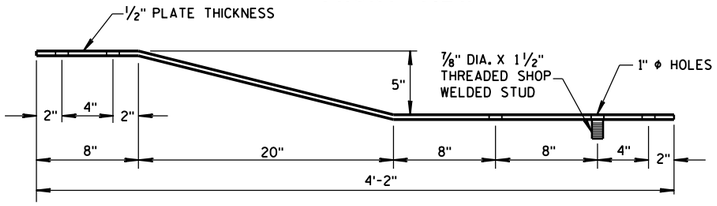
GENERAL NOTES

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

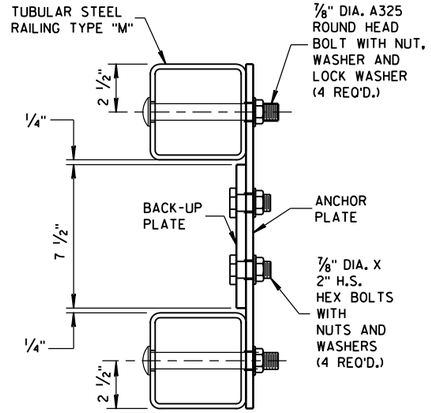


FRONT VIEW

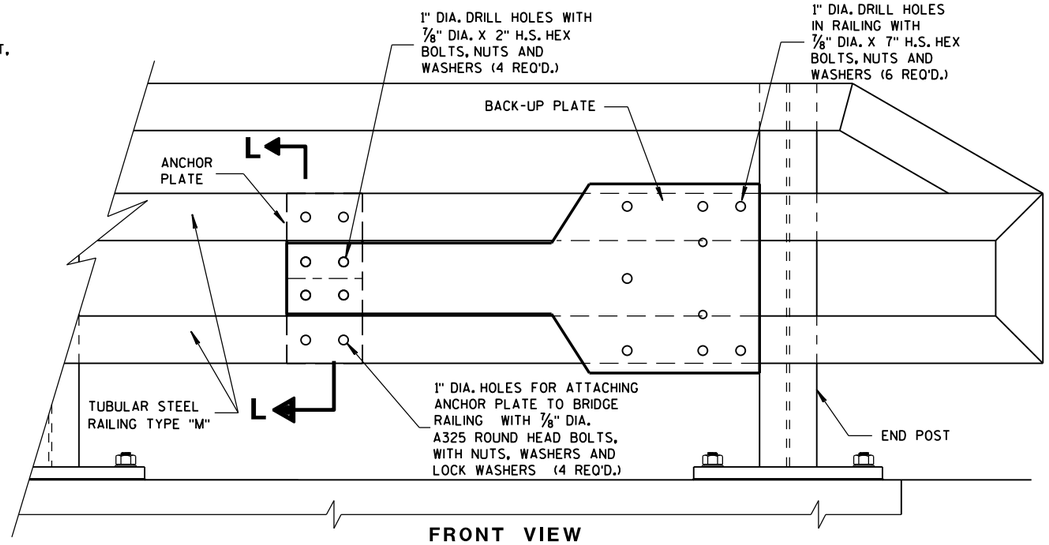


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

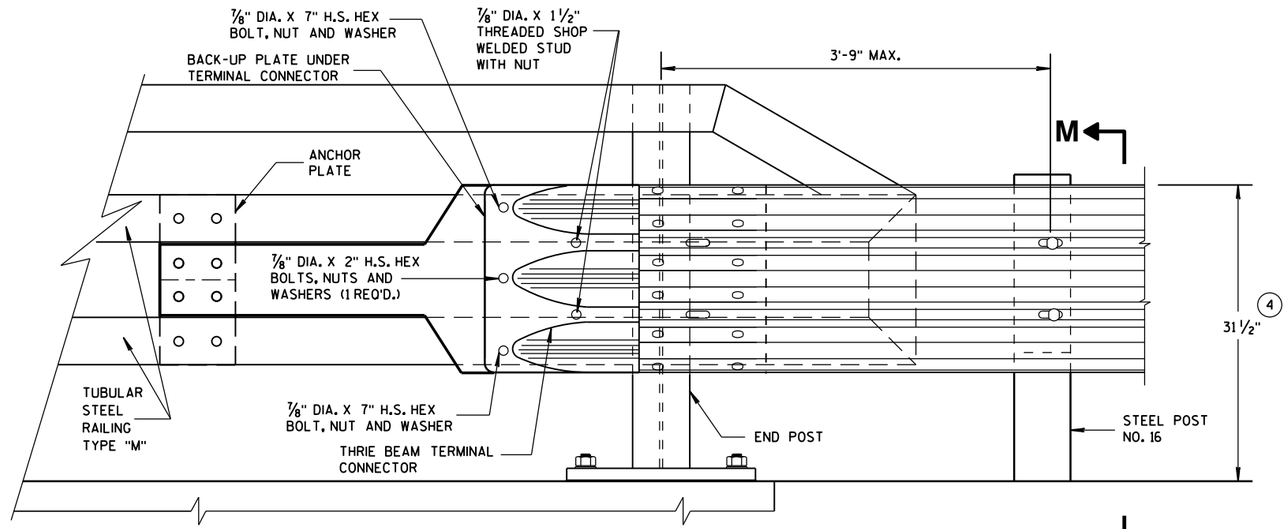


SECTION L-L

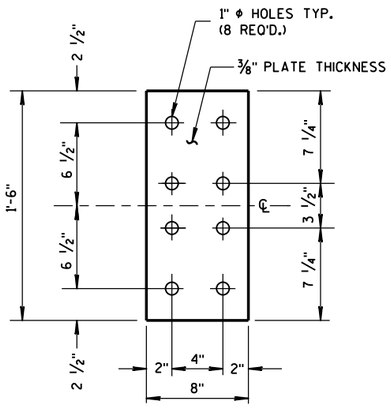


FRONT VIEW

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

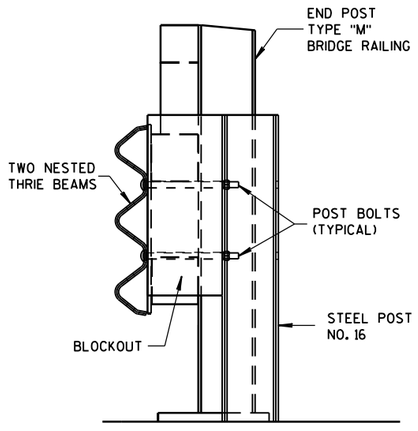


FRONT VIEW

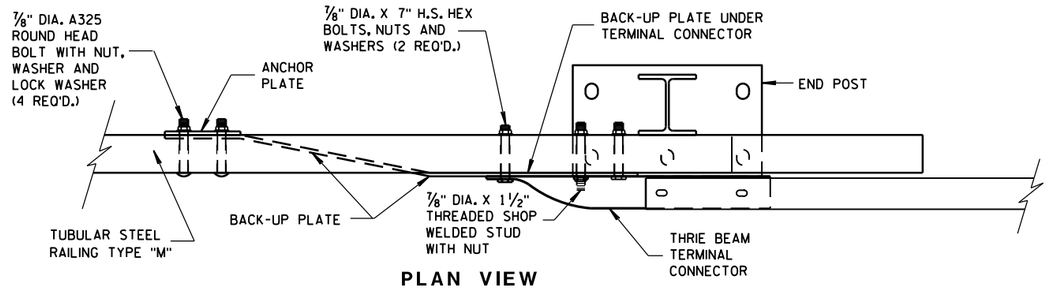


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June, 2015	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS ENGINEER
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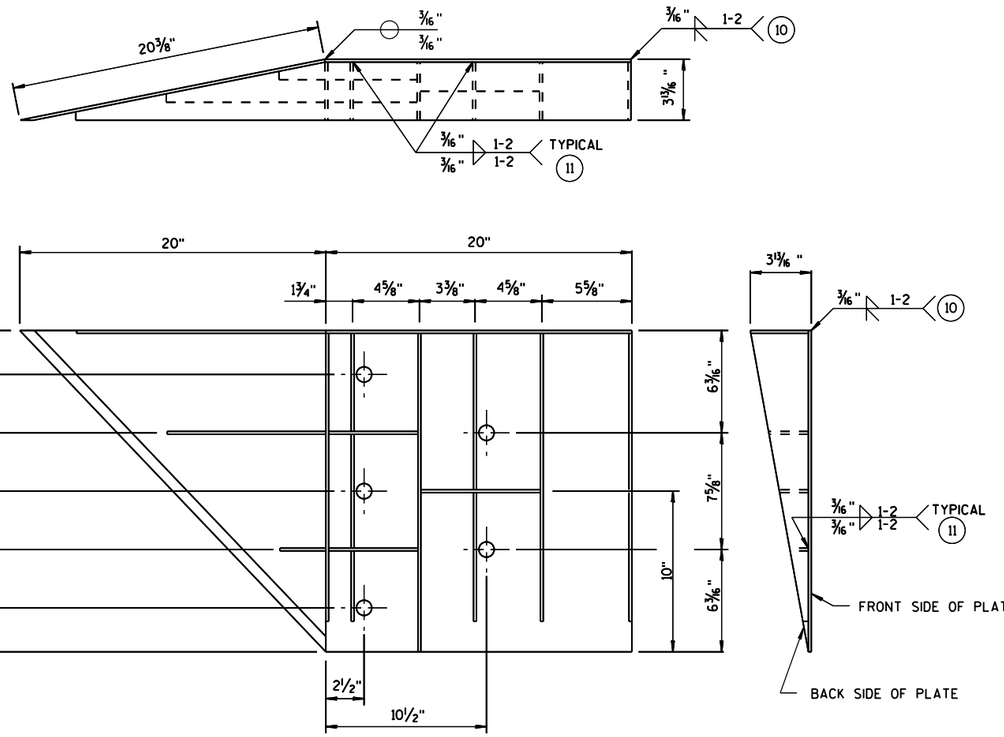

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

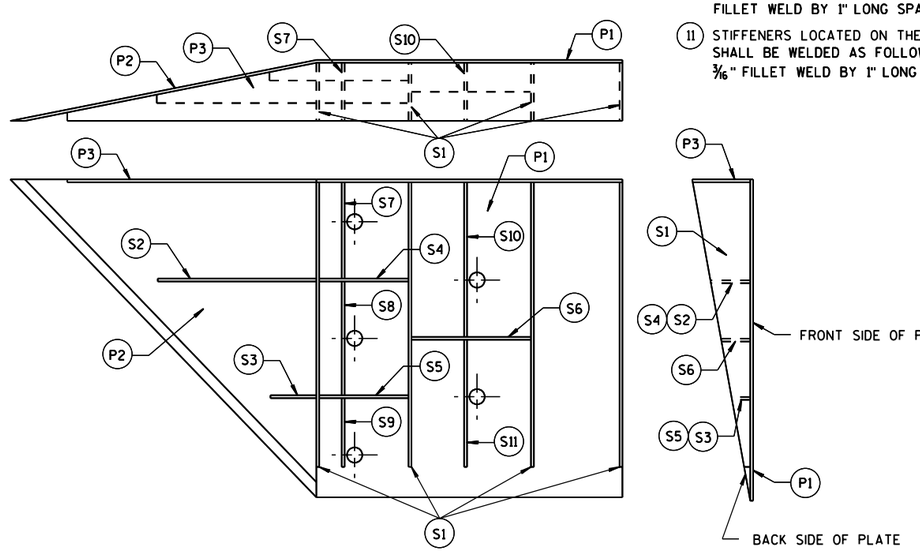

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

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

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 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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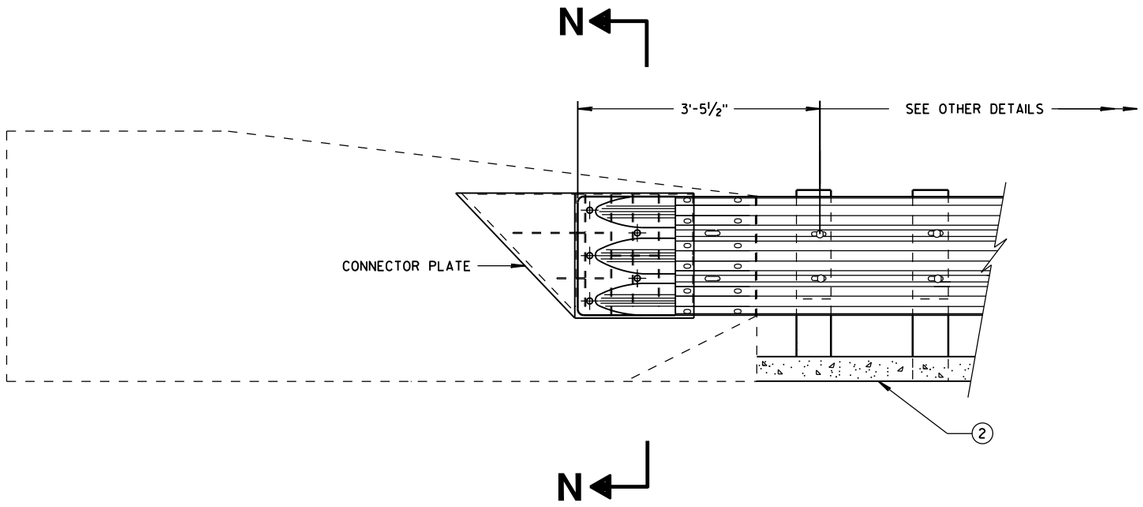
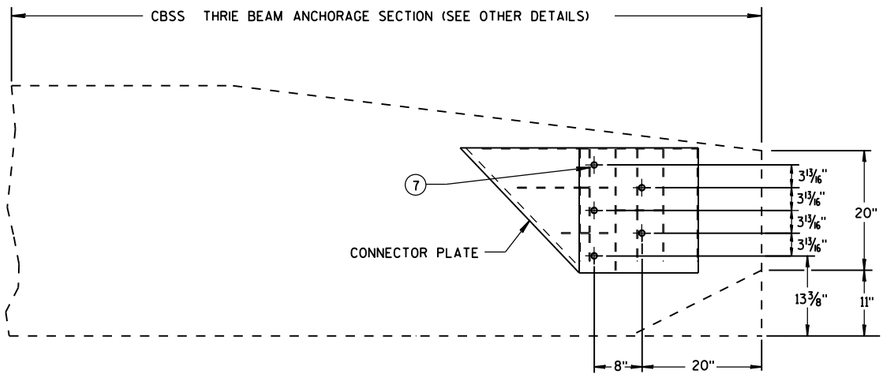
S.D.D. 14 B 45-4i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



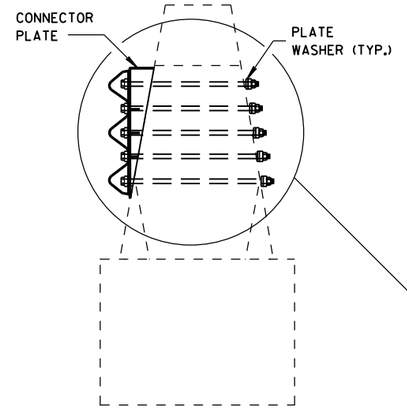
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

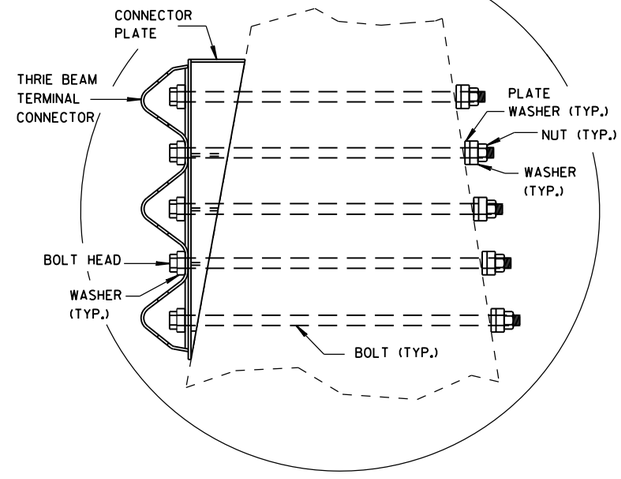
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM 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.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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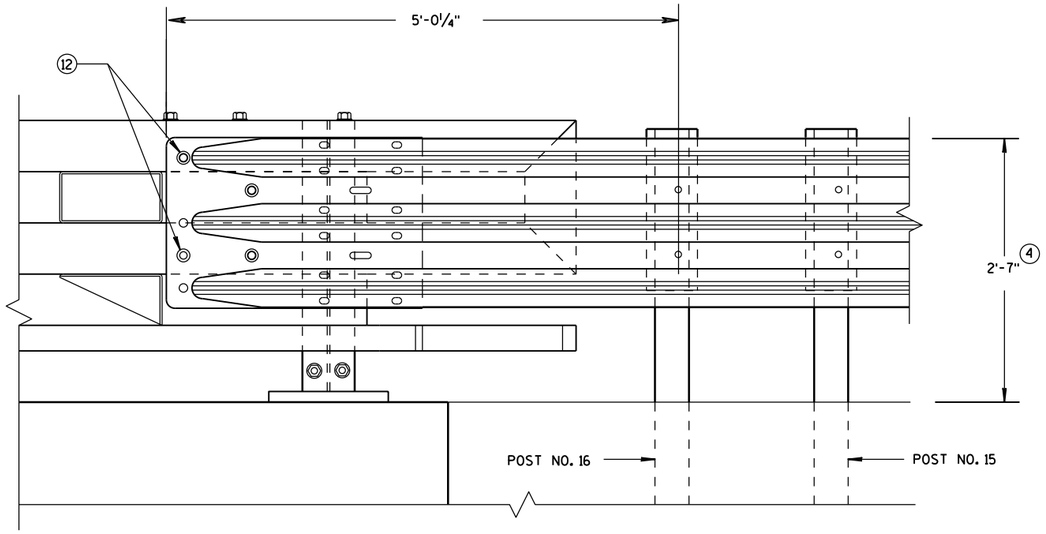
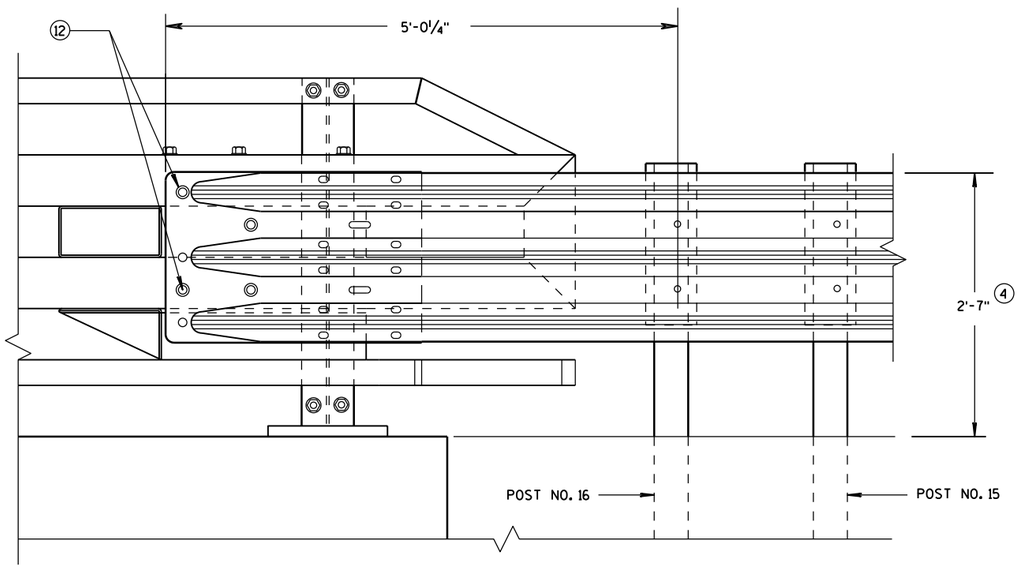


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D 40 NT
ENGINEER

FHWA

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S.D.D. 14 B 45-4k

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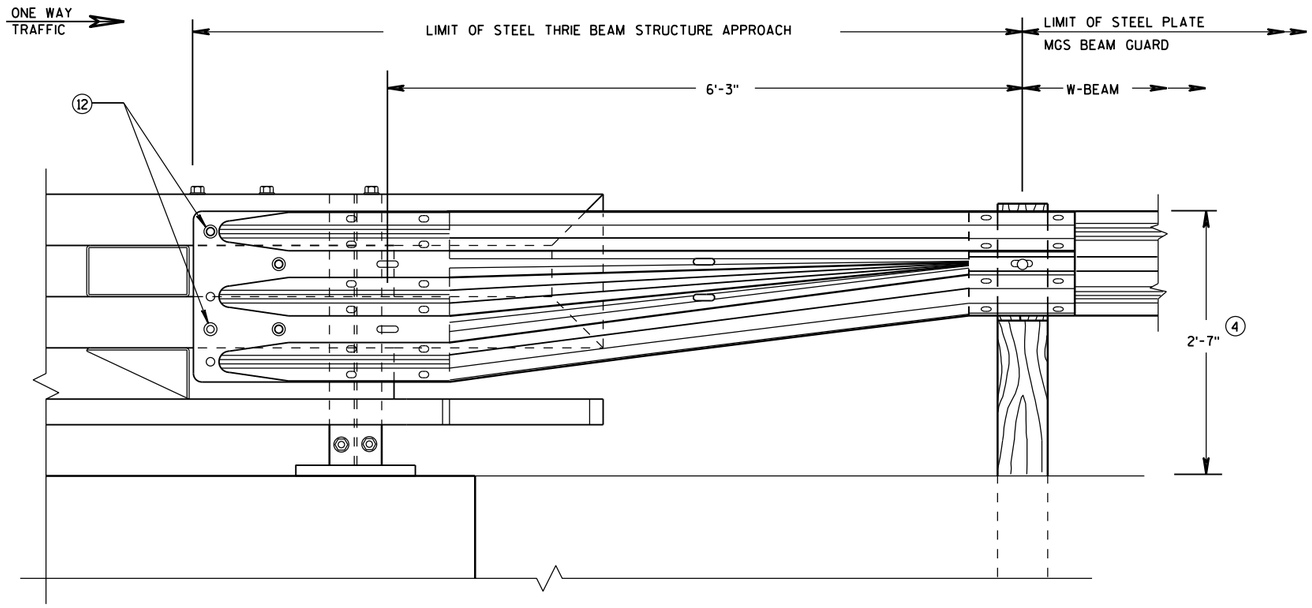
S.D.D. 14 B 45-4k



FRONT VIEW

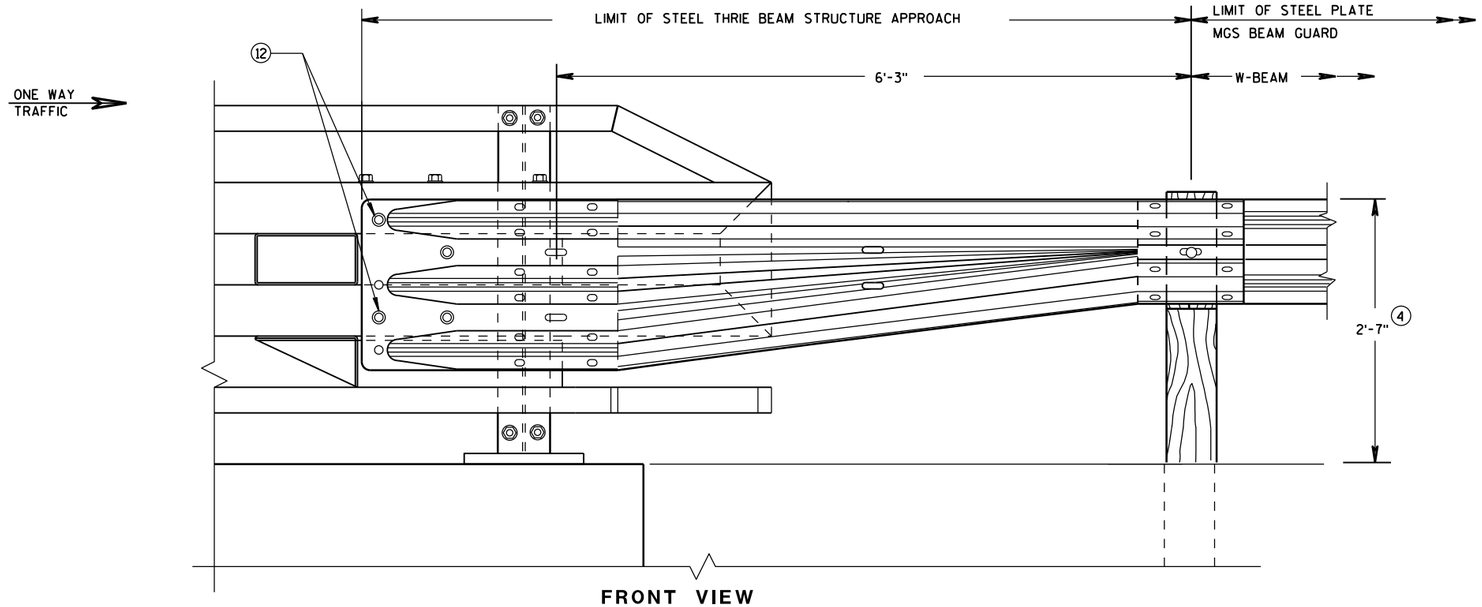
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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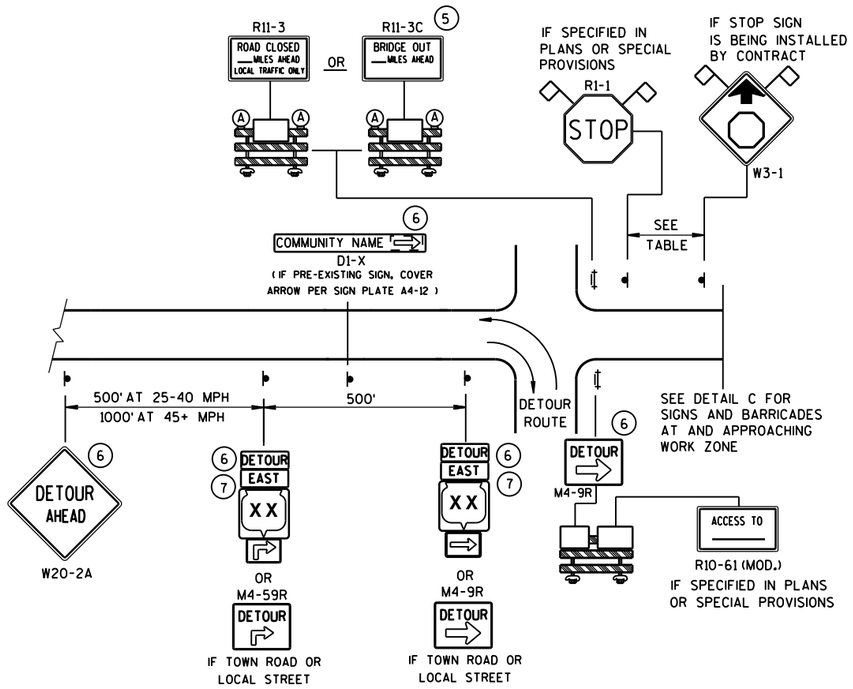
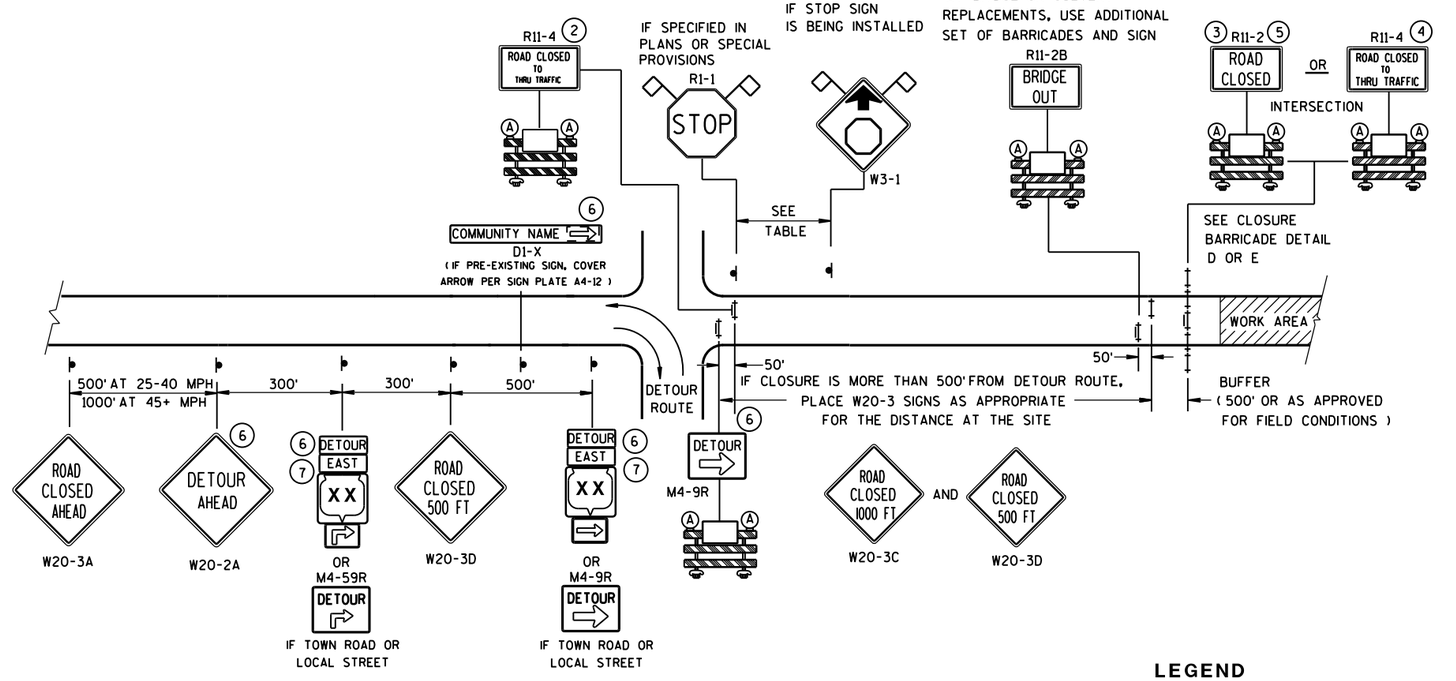


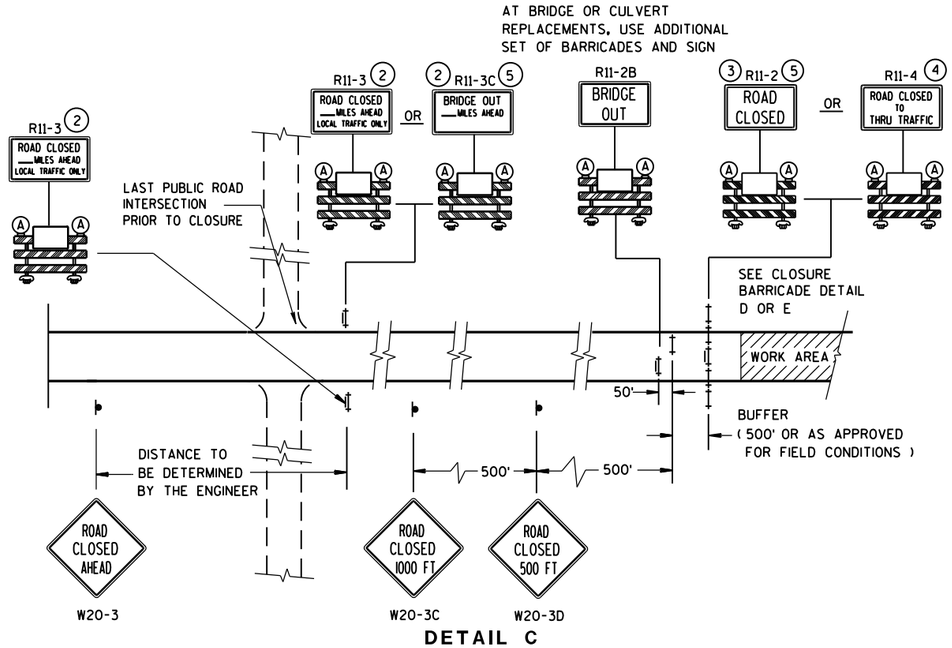
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

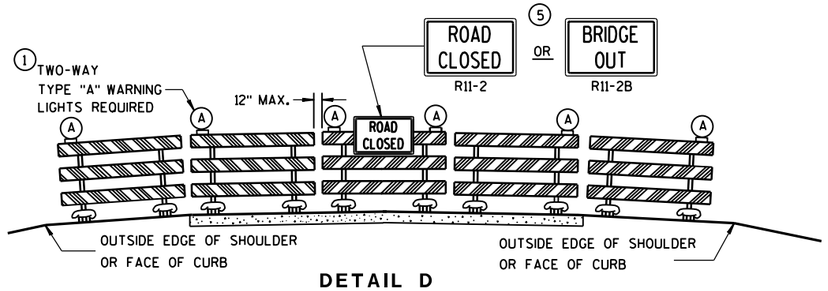
SEE SDD 15C2-SHEET "**b**" FOR GENERAL NOTES AND FOOTNOTES (1) THROUGH (7)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

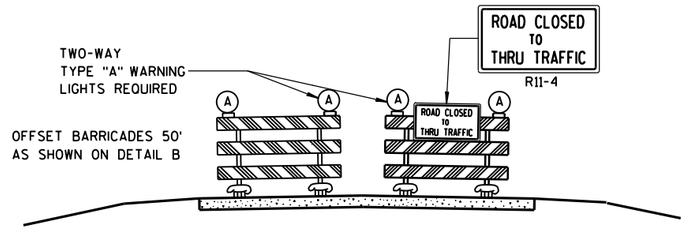
S.D.D. 15 C 2-6a



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.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

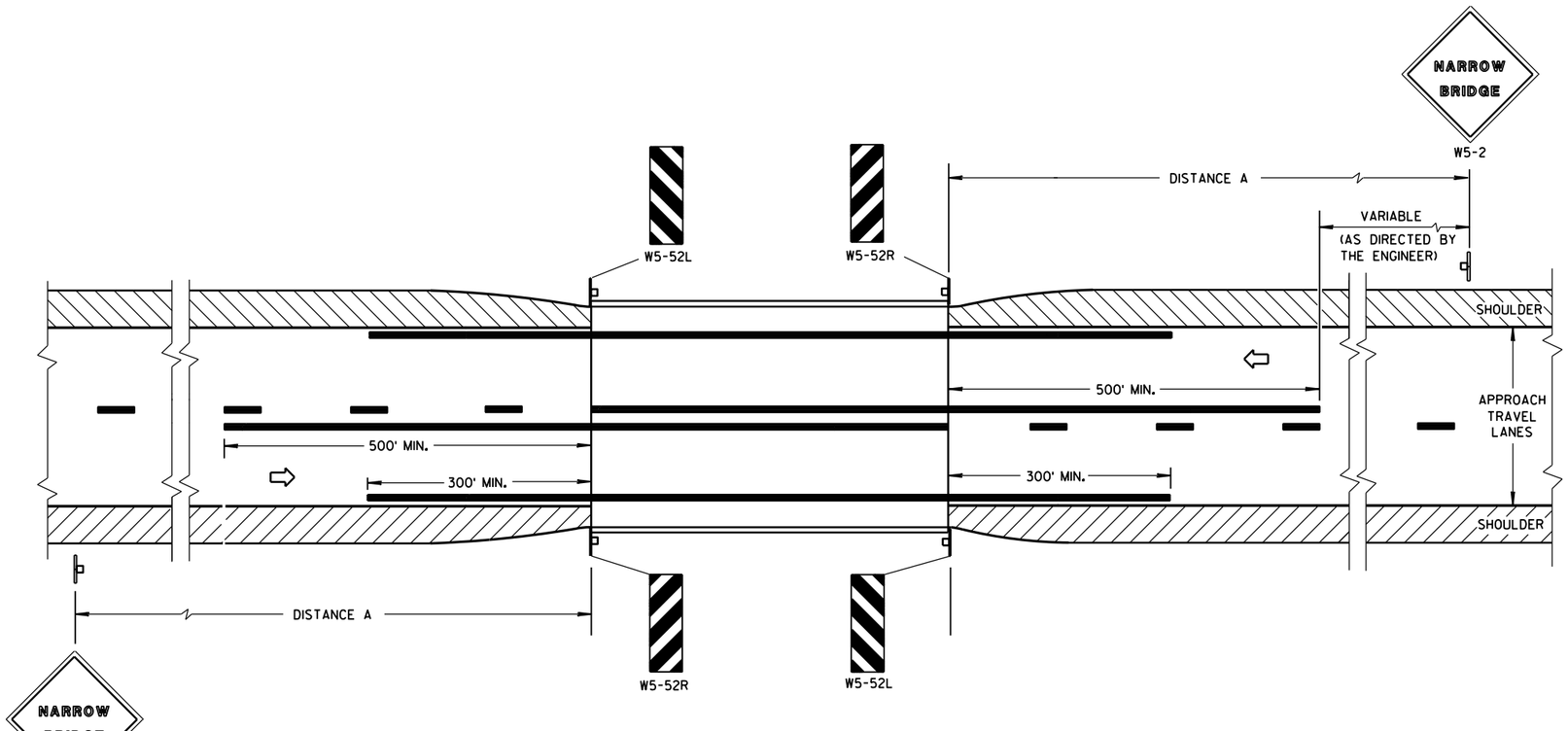
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI — FHWA — FIC

6

S.D.D. 15 C 2-6b



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

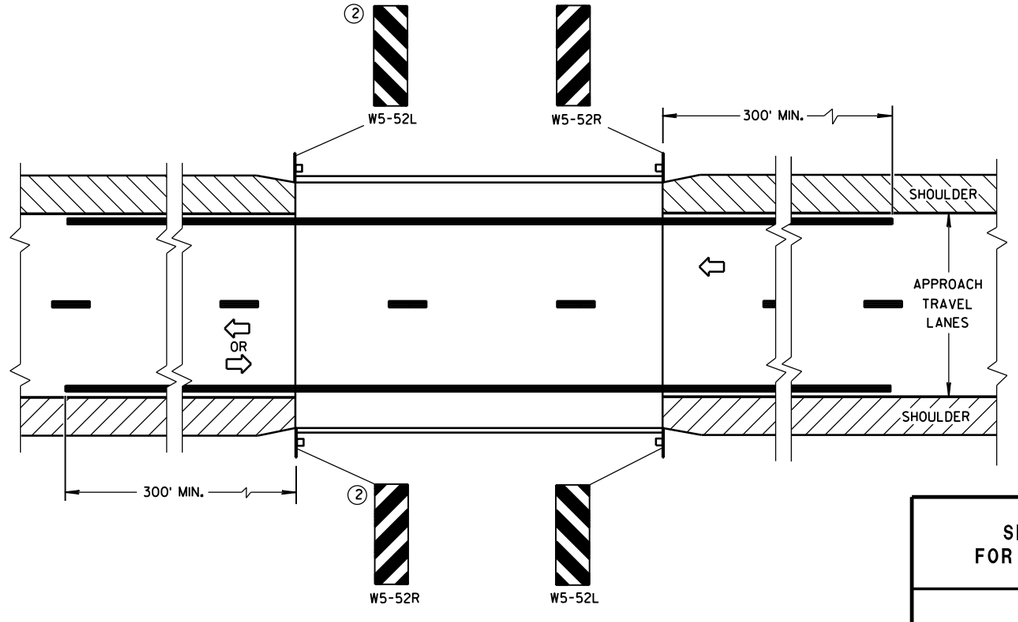
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

1. LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.
2. OMIT ON ONE-WAY TRAVELLED WAYS.
3. EDGE OF W5-52 SIGN SHALL BE PLACED IN LINE WITH FACE OF CURB OR PARAPET.



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

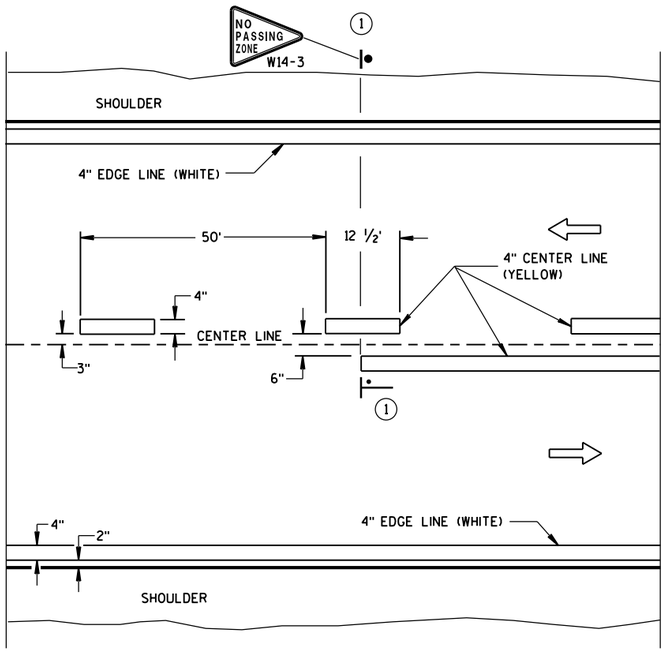
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

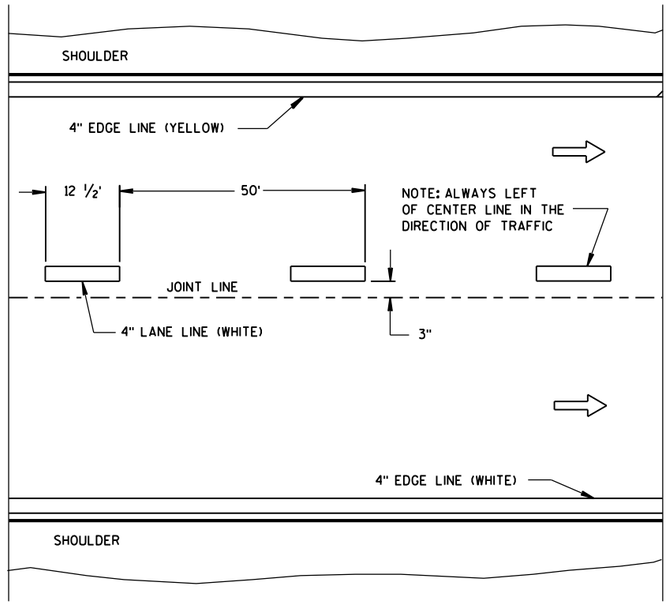
APPROVED
4-18-16 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

6

S.D.D. 15 C 6-8



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) NO PASSING ZONE W14-3 SIGN SHALL BE LOCATED WITHIN 50 FEET OF THE "T" MARKING.

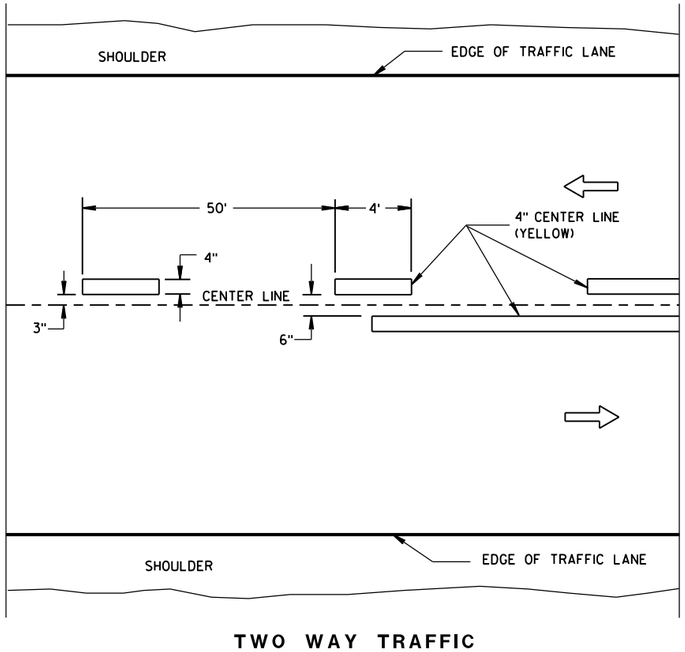
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

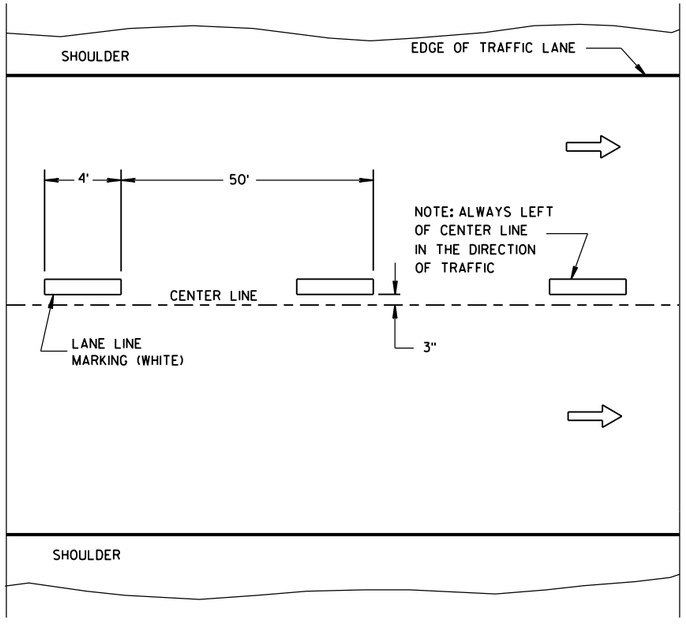
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



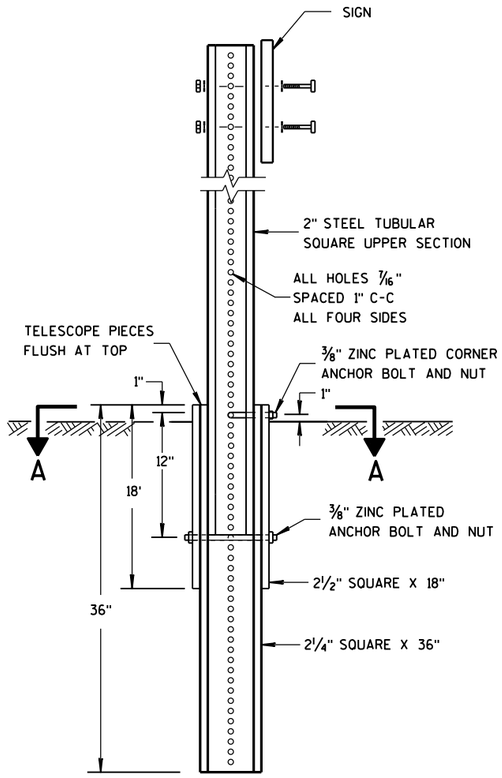
ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

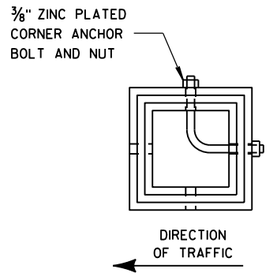
LONGITUDINAL MARKING (MAINLINE)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED Sept., 2016 /S/ Matthew R. Rauch DATE STATE SIGNING AND MAR ENGINEER FHWA

6

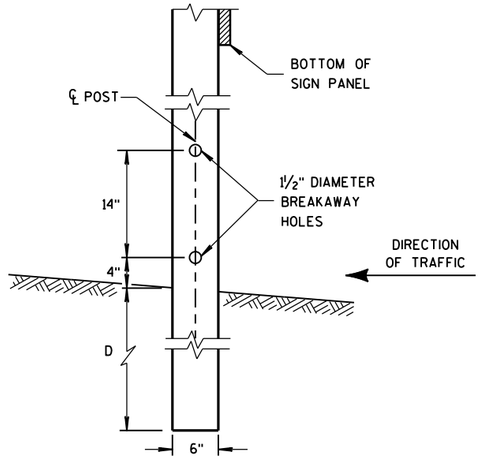
S.D.D. 15 C 8-17a



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



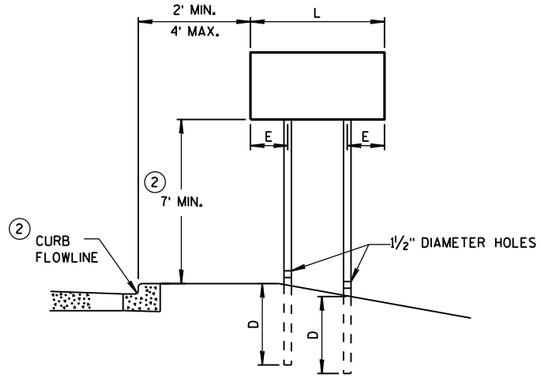
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

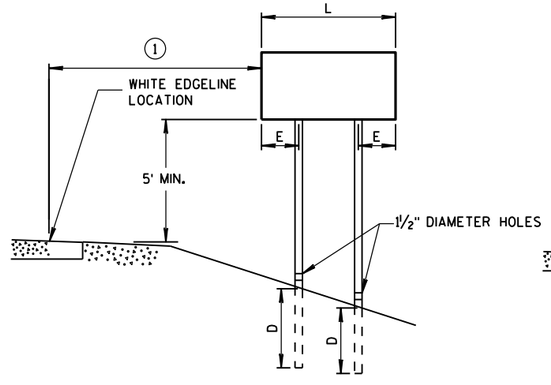
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

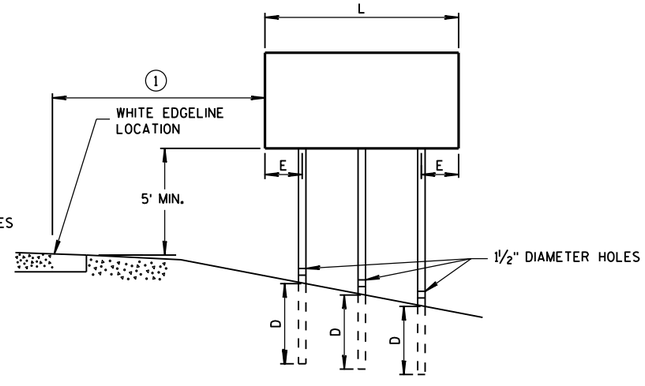
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

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

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

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

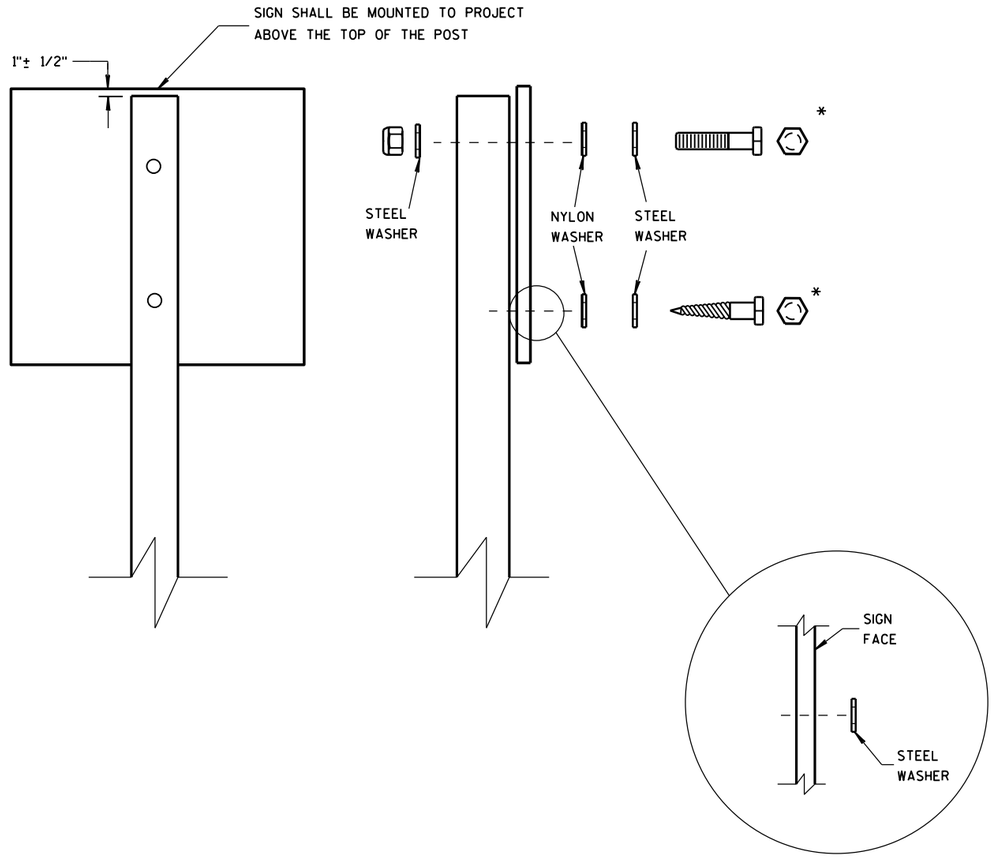
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

STATE OF WISCONSIN DEPARTMENT OF TRANSPO

6

S.D.D. 15 D 38-1a



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

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

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-1b

S.D.D. 15 D 38-1b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

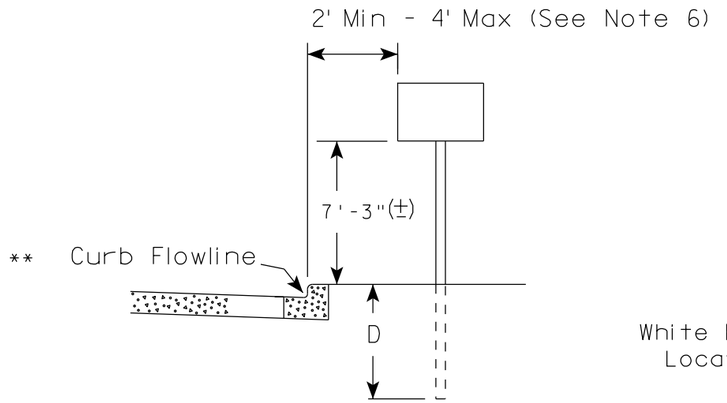
Feb. 2015 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

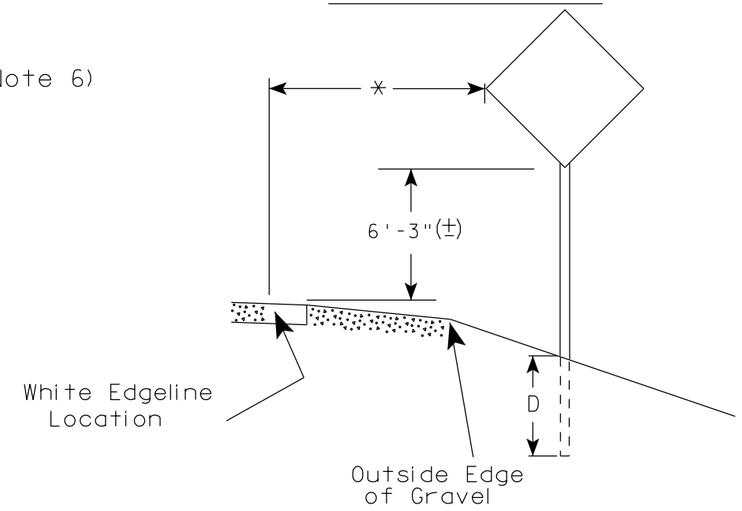
FHWA

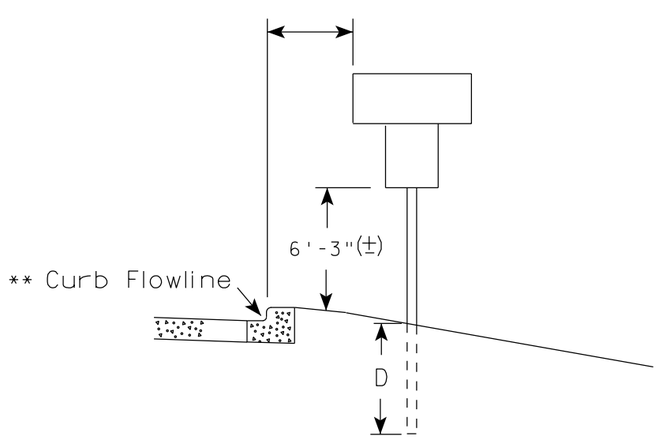
SIGN

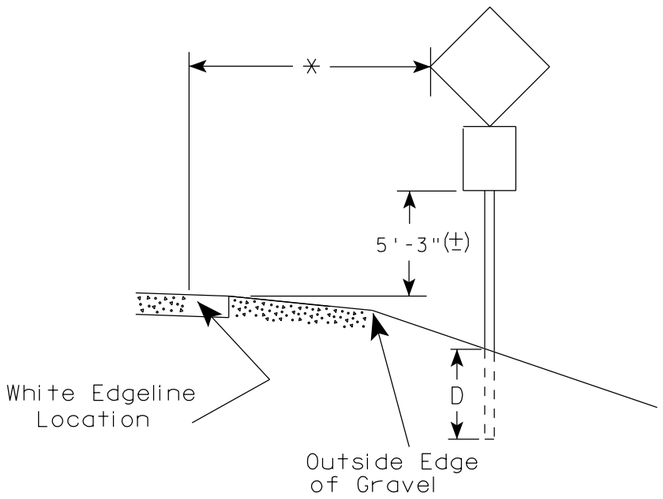
URBAN AREA



RURAL AREA (See Note 2)







** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. 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.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on 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 (A2-1S) 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 signs shall be mounted at a height of 5'-3" (±) or as directd 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), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

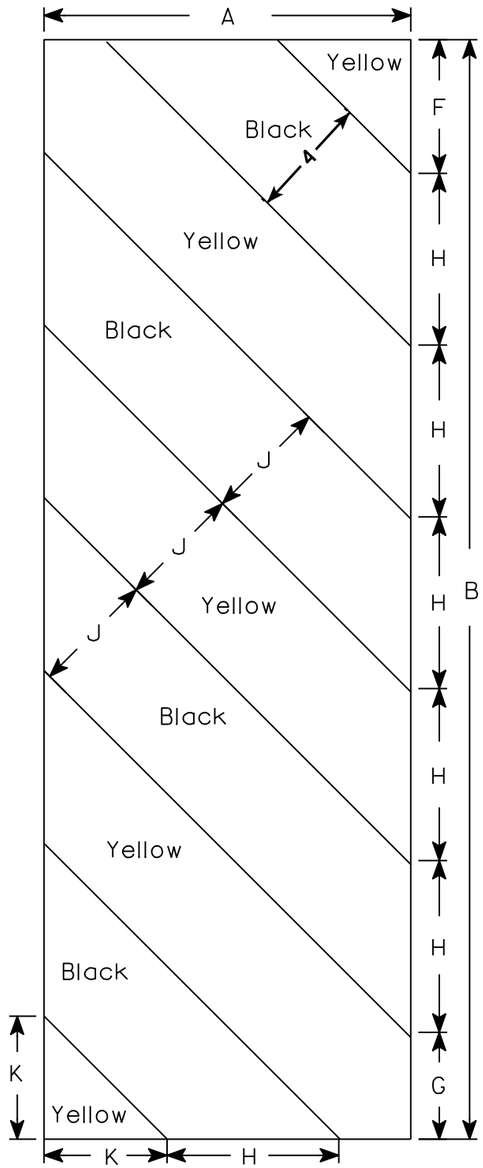
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

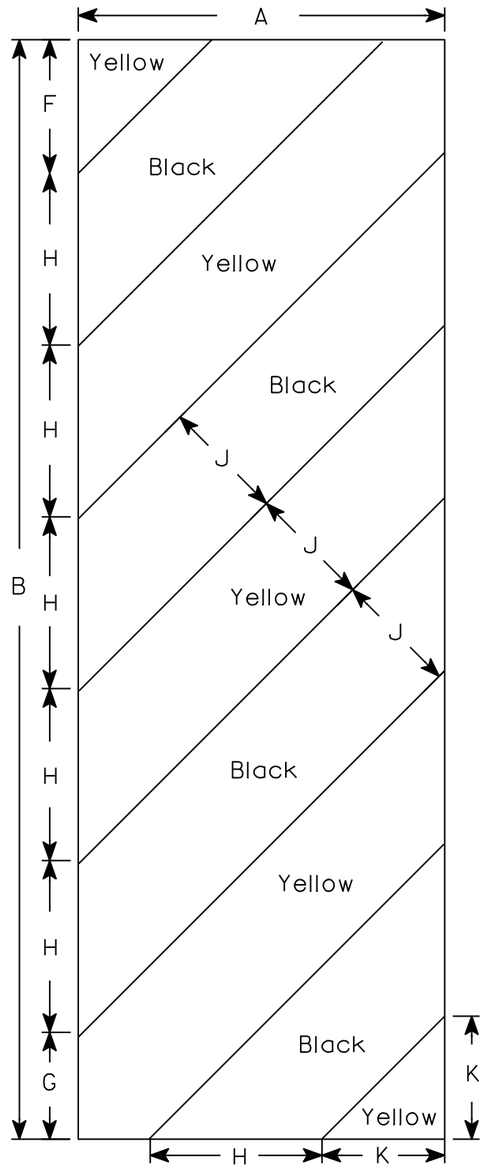
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

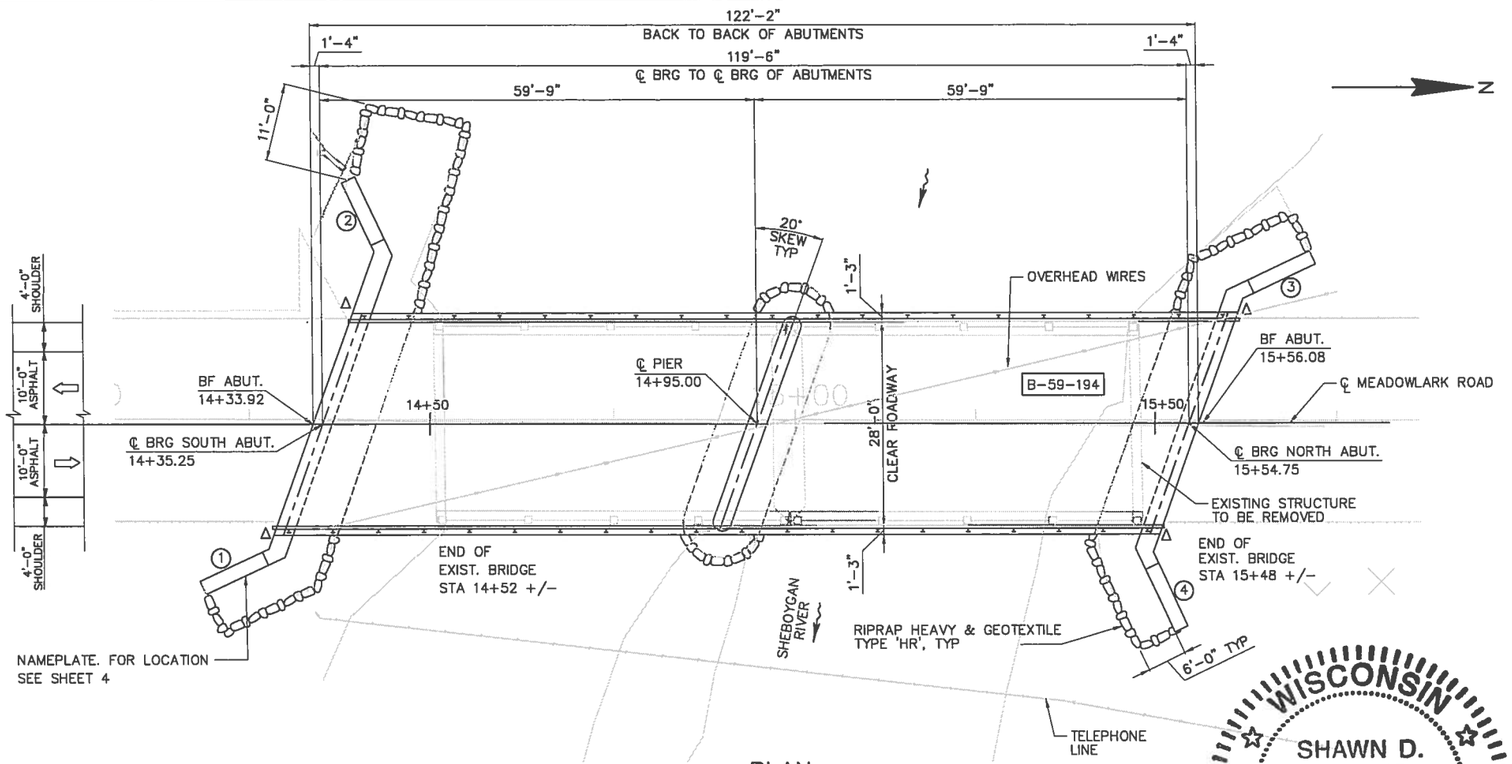
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 49 | E

STATE PROJECT NUMBER

4200-05-71



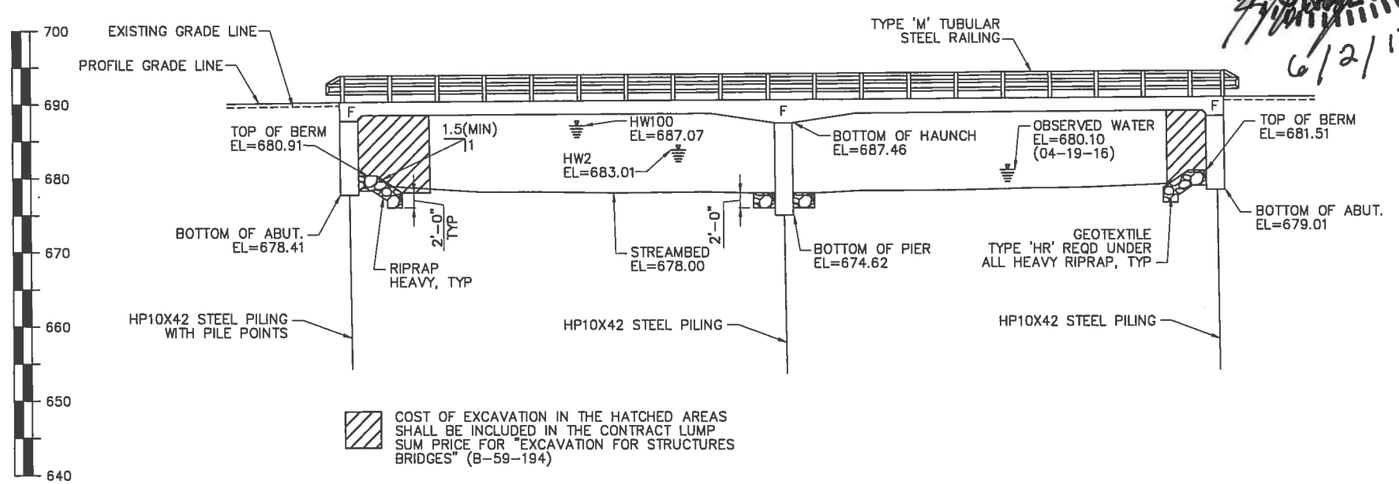
PLAN

(TWO SPAN CONCRETE HAUNCHED SLAB)

Δ BEAM GUARD ATTACHMENT

◯—INDICATES WING NUMBER

BM #—INDICATES BENCH MARK NUMBER



COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES" (B-59-194)

ELEVATION

(NORMAL TO ℄ OF SHEBOYGAN RIVER, LOOKING WEST)

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.26
OPERATING RATING FACTOR: 1.64
WISCONSIN STANDARD PERMIT VEHICLE (Wis-SPV) = 250 KIPS
STRUCTURE IS DESIGNED FOR 20#/SQ FT FUTURE WEARING SURFACE

MATERIAL PROPERTIES

CONCRETE MASONRY SUPERSTRUCTURE —— f'c = 4,000 psi
CONCRETE MASONRY ALL OTHER —— f'c = 3,500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT —— fy = 60,000 psi

TRAFFIC VOLUME

A.A.D.T. = 250 (2018)
A.A.D.T. = 280 (2038)
DESIGN SPEED = 50 MPH

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 226 SQ. MILES
WATERWAY AREA = 872 SQ. FEET
Q_{100} = 5350 CFS
VELOCITY = 6.14 FPS
HIGH $WATER_{100}$ = EL. 687.07
RDWY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2 YEAR FREQUENCY

Q_2 = 1500 CFS
VELOCITY = 2.87 FPS
HIGH $WATER_2$ = EL. 683.01

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 34'-0" LONG.

PIER TO BE SUPPORTED ON HP10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 32'-0" LONG.

WISCONSIN
SHAWN D. REIMES
E-42797
SHEBOYGAN, WI
PROFESSIONAL ENGINEER
6/2/17

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	14+53	CHISELED SQUARE ON CONC ABUTMENT	690.72

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

LIST OF DRAWINGS

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
608-266-8489

CONSULTANT CONTACT
KIM GAHAGAN
920-803-7310

NO.	DATE	REVISION	BY

DONOHUE

ACCEPTED William C. Dreher SDR 09/05/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-194

MEADOWLARK ROAD OVER SHEBOYGAN RIVER

COUNTY: SHEBOYGAN | TOWN/~~CITY/VILLAGE~~: SHEBOYGAN FALLS

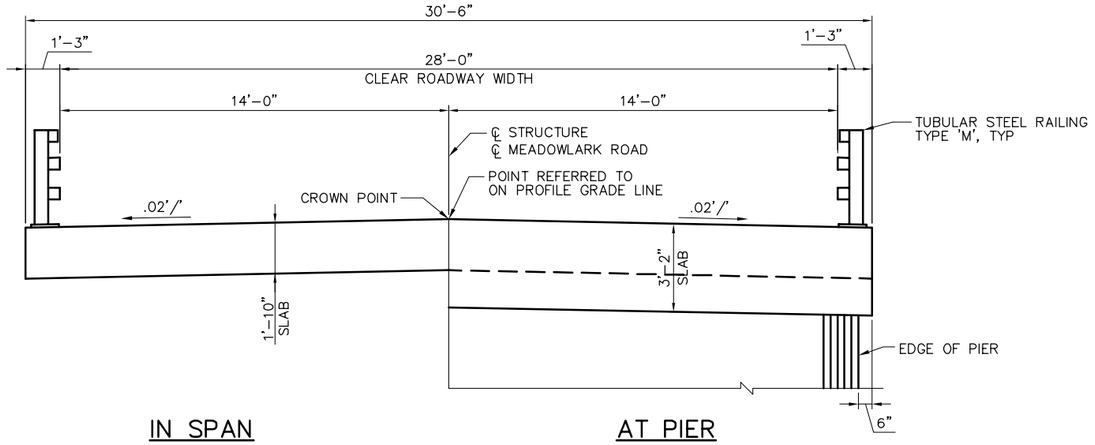
DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
SDR	FKH	SDR	FKH

GENERAL PLAN

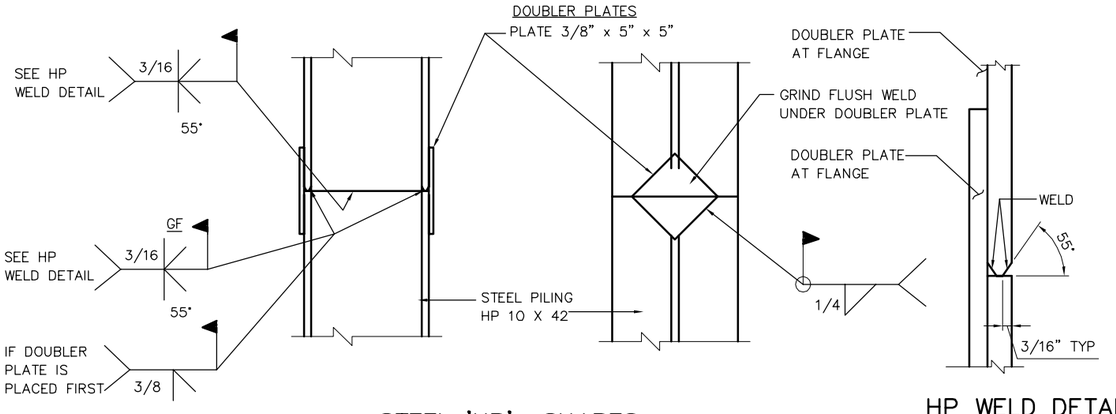
SHEET 1 OF 12

8

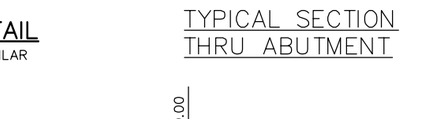


IN SPAN AT PIER

CROSS SECTION THROUGH BRIDGE



STEEL 'HP' SHAPES

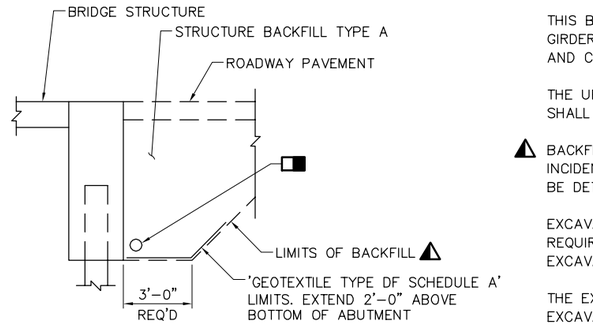


HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

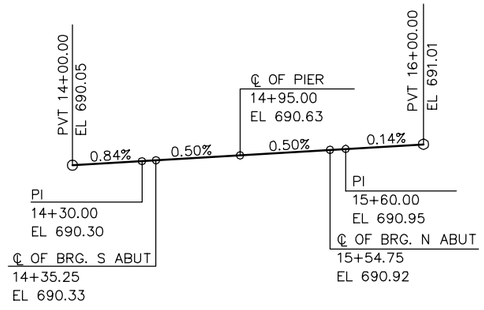
TOTAL ESTIMATED QUANTITIES

BID ITEMS NUMBER	BID ITEMS	UNIT	SOUTH ABUT.	PIER	NORTH ABUT.	SUPER.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY, MINIMAL DEBRIS, STA 14+95	LS	–	–	–	–	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-59-194	LS	–	–	–	–	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	276	–	260	–	536
502.0100	CONCRETE MASONRY BRIDGES	CY	65	37	57	277	436
502.3200	PROTECTIVE SURFACE TREATMENT	SY	–	–	–	482	482
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3,360	1,760	2,770	–	7,890
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,070	60	1,880	67,280	71,290
513.4061	RAILING TUBULAR TYPE M B-59-194	LF	–	–	–	246	246
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	–	7	–	14
550.0500	PILE POINTS	EACH	8	–	–	–	8
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	272	192	272	–	736
606.0300	RIPRAP HEAVY	CY	46	17	38	–	101
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	70	–	64	–	134
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	58	–	52	–	110
645.0120	GEOTEXTILE TYPE HR	SY	85	26	62	–	173
	NON-BID ITEMS						
	PREFORMED JOINT FILLER	SIZE					1" ,¾"



⚠ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHEET 8.

TYPICAL SECTION THRU ABUTMENT



PROFILE GRADE LINE

(MEADOWLARK ROAD)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

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 STRUCTURE BACKFILL.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND SIDES OF THE DECK AND 1'-0" UNDER DECK AT EDGES.

THIS BRIDGE WILL REPLACE P-59-116, A TWO SPAN PRESTRESSED CONCRETE GIRDER BRIDGE WITH TOTAL LENGTH OF 91' BETWEEN INSIDE FACE OF ABUTMENTS AND CLEAR ROADWAY WIDTH OF 26'.

THE UPPER LIMITS OF 'EXCAVATION FOR STRUCTURES BRIDGES B-59-194' SHALL BE THE EXISTING GROUNDLINE.

⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LMIITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

THE EXISTING STREAMBED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIER.

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STRUCTURE B-59-194

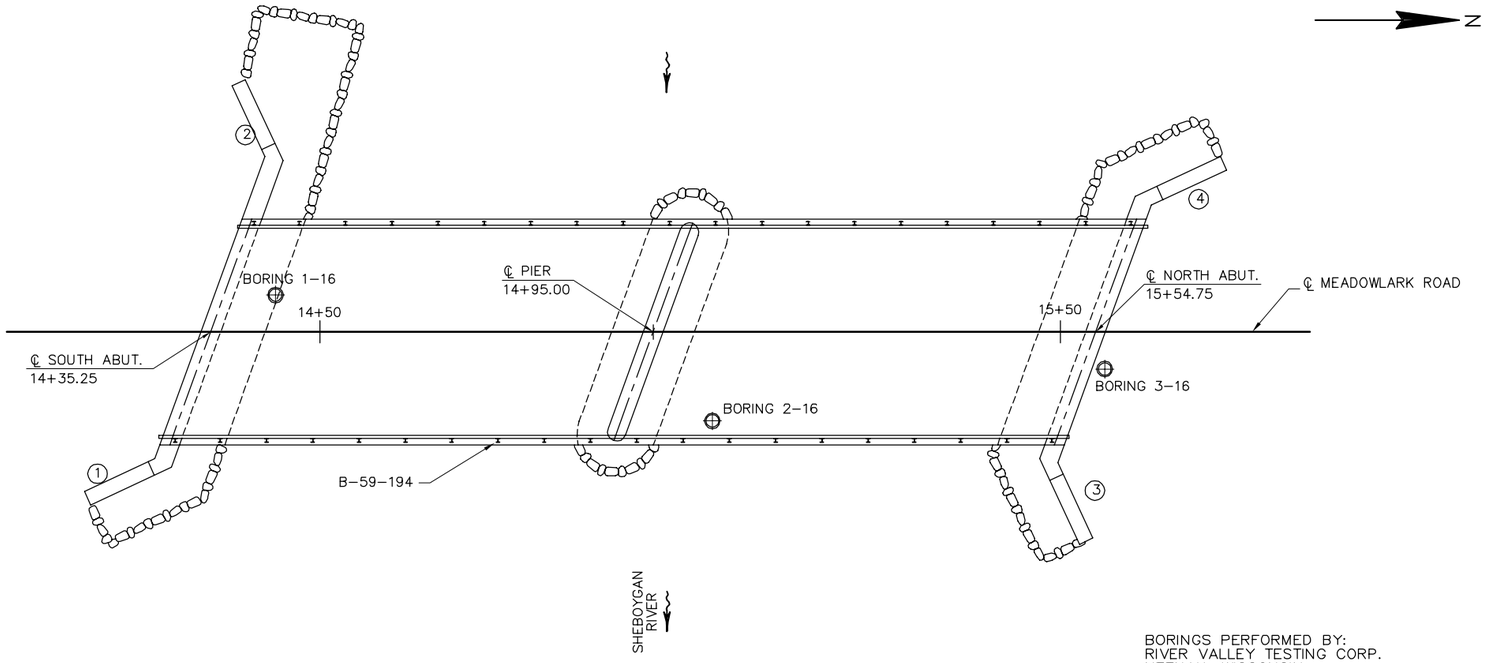
DRAWN BY SDR | PLANS CK'D. FKH

SECTIONS, NOTES, & QUANTITIES

SHEET 2 OF 12

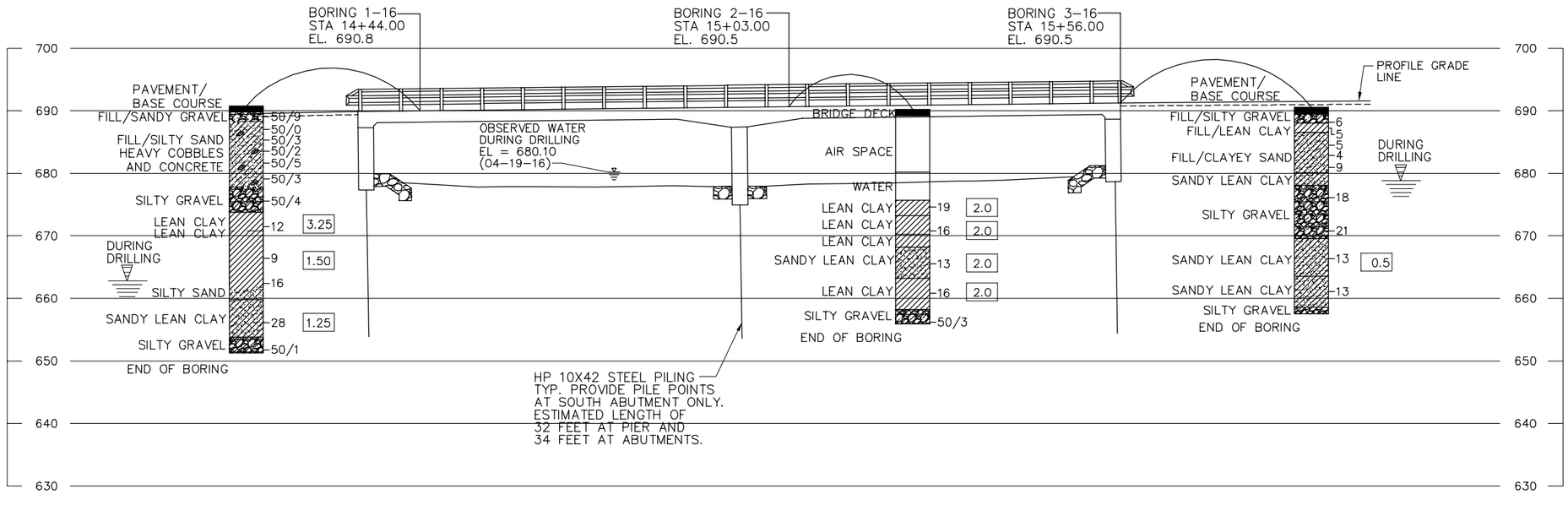
8

8



BORINGS PERFORMED BY:
RIVER VALLEY TESTING CORP.
NEENAH, WISCONSIN
APRIL 19–20, 2016

PLANS PREPARED BY DONOHUE & ASSOCIATES, INC.



STATE PROJECT NUMBER

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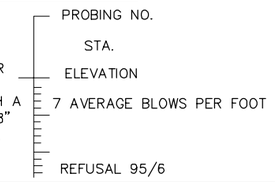
ABBREVIATIONS

F— FINE M—MEDIUM C— COARSE
WS— WEATHERED SO — SOUND

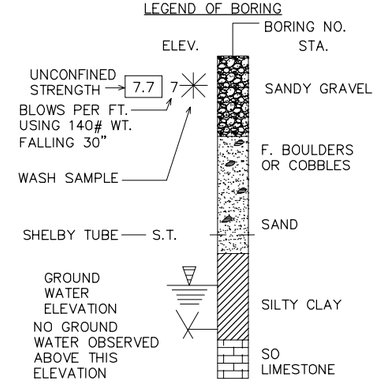
MATERIAL SYMBOLS

PAVEMENT, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



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.

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STRUCTURE B–59–194

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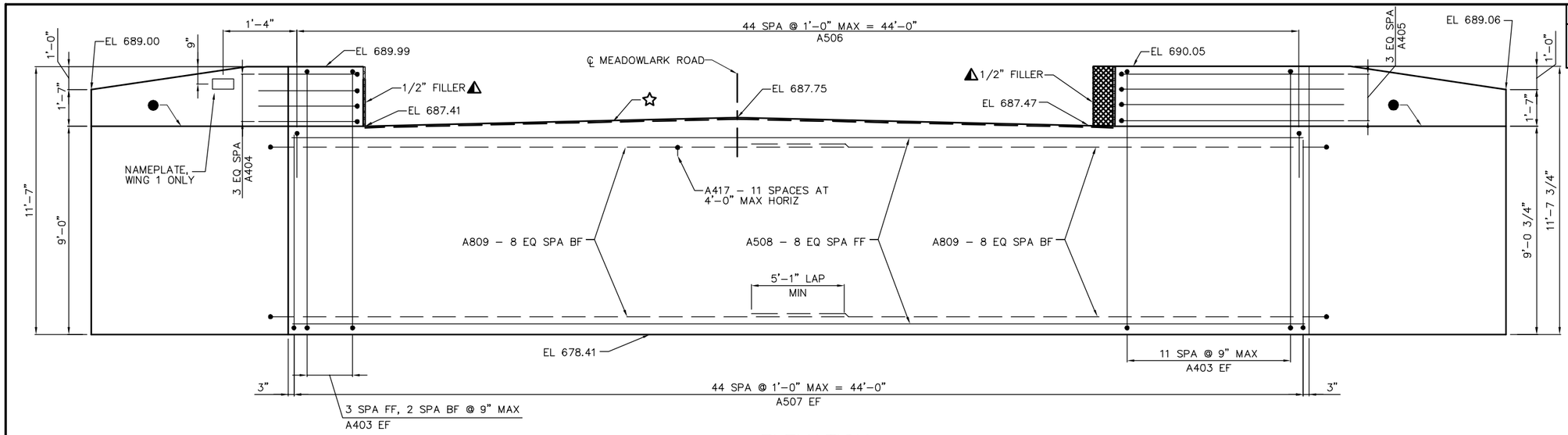
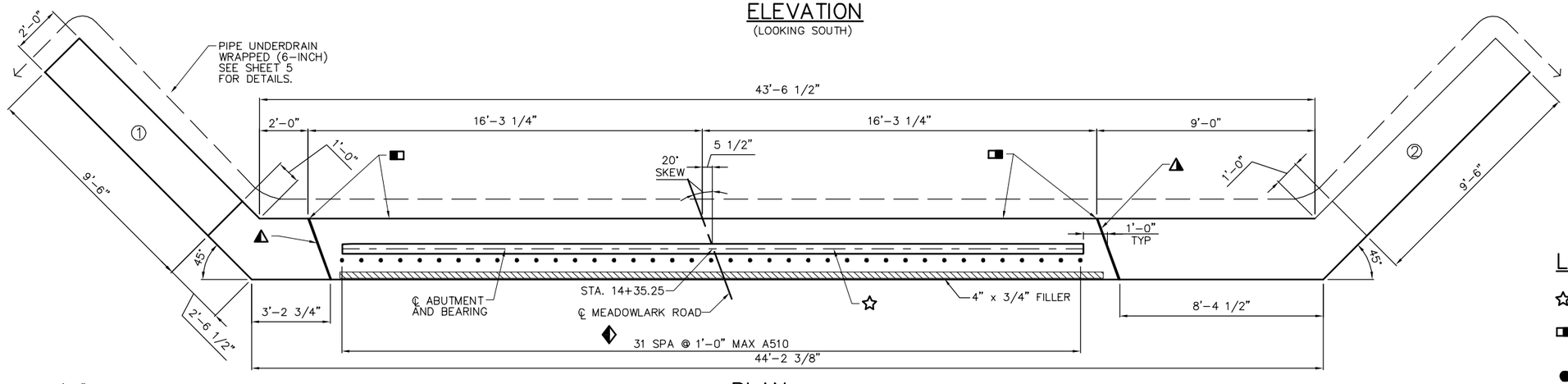
SUBSURFACE EXPLORATION

SHEET 3 OF 12

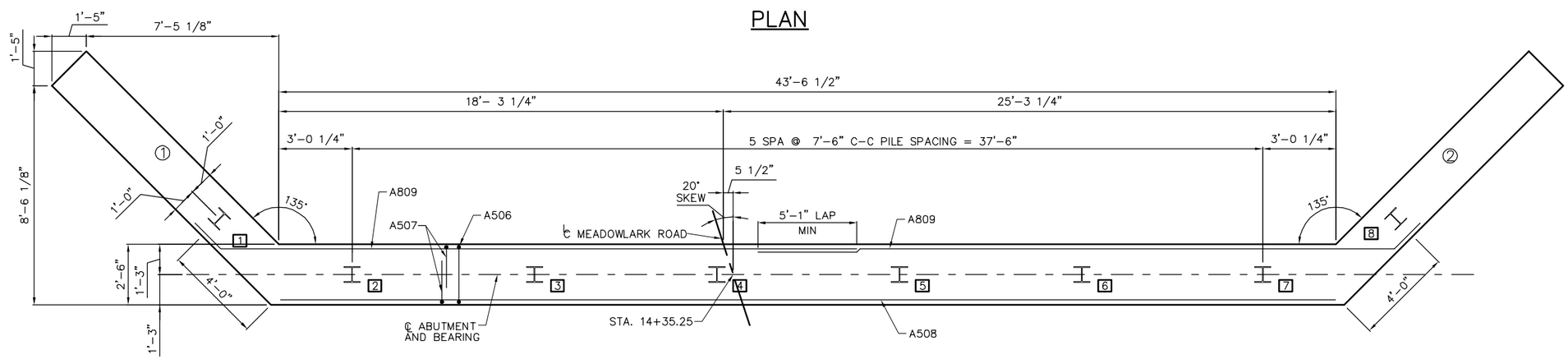
STATE PROJECT NUMBER
4200–05–71



ELEVATION
(LOOKING SOUTH)



PLAN



PILE PLAN

LEGEND

- ☆ KEYED CONST. JOINT – FORMED BY A SURFACED BEVELED 2" X 6".
- ◘ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ● OPT. KEYED CONST. JOINT – FORMED BY A SURFACED BEVELED 2" X 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ⚠ 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.)
- ◆ A510 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL CONCRETE SET HAS TAKEN PLACE. EMBED BARS 1'–0".

FOR PILE SPLICE DETAIL SEE SHEET 2

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

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STRUCTURE B–59–194

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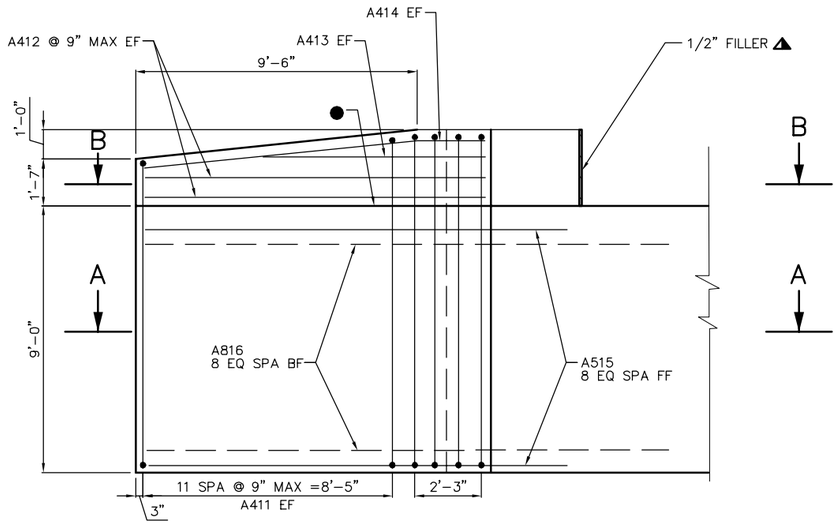
SOUTH ABUTMENT

SHEET 4 OF 12

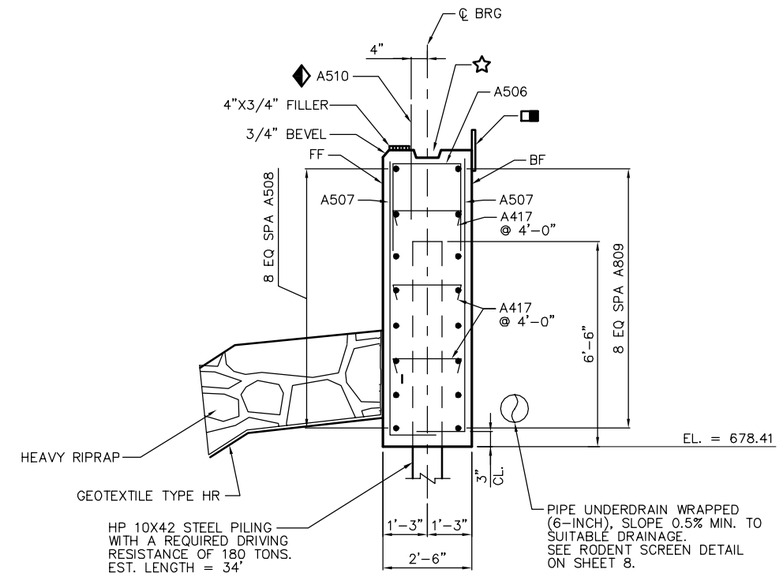
STATE PROJECT NUMBER

4200-05-71

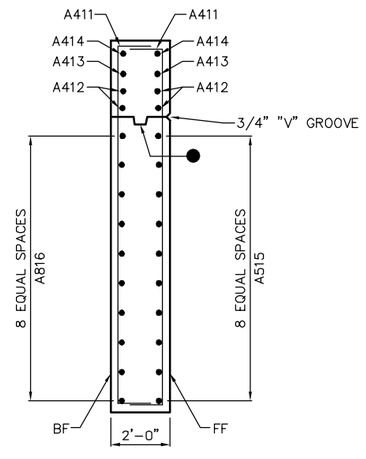


ELEVATION – WING 1

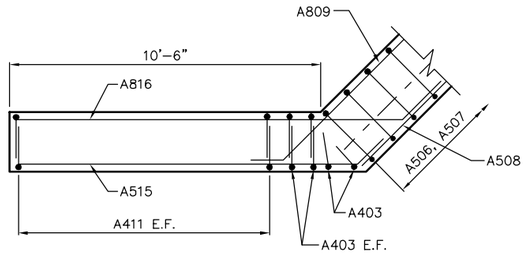
(LOOKING AT FRONT FACE)
(WING 2 SIMILAR)



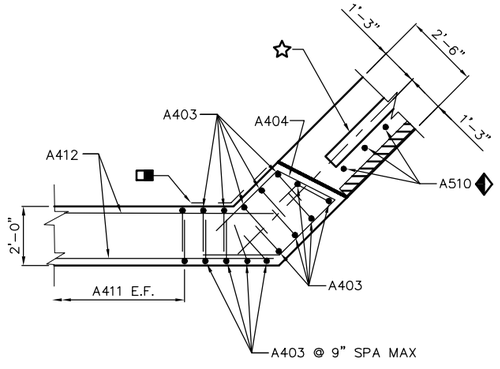
SECTION THRU ABUT BODY



SECTION THRU WING



SECTION A



SECTION B

LEGEND

- ● OPT. KEYED CONST. JOINT – FORMED BY A SURFACED BEVELED 2" X 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ◘ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ▲ 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.)
- ◆ A510 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL CONCRETE SET HAS TAKEN PLACE. EMBED BARS 1'-0".
- ☆ KEYED CONST. JOINT – FORMED BY A SURFACED BEVELED 2" X 6".

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-194

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SOUTH ABUTMENT WINGS 1 & 2

SHEET 5 OF 12

8

8

STATE PROJECT NUMBER
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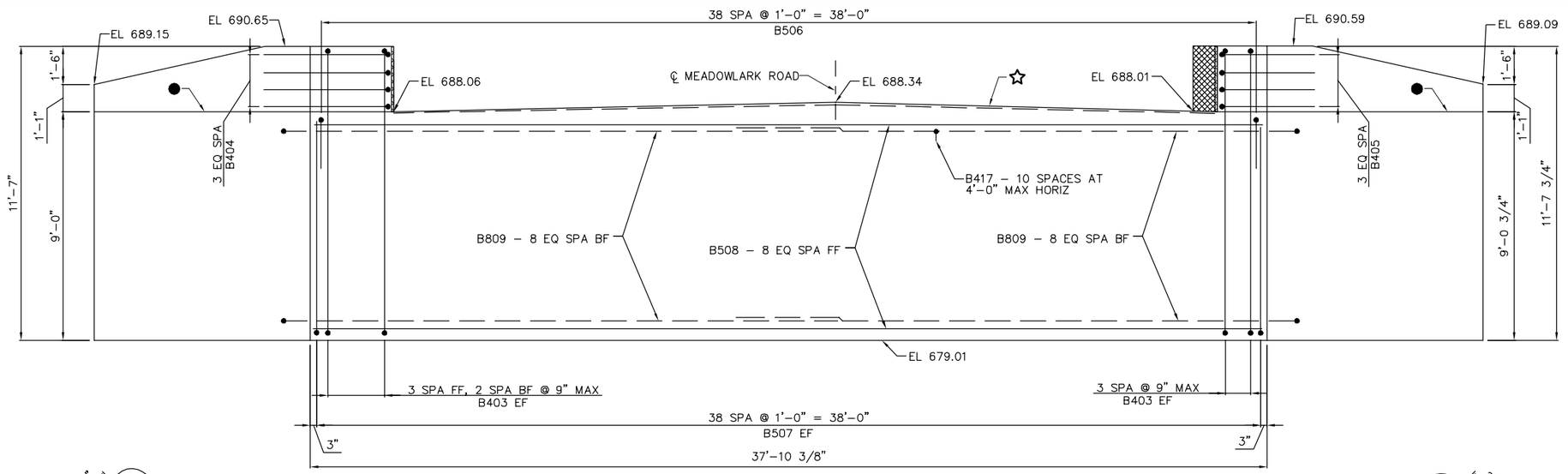
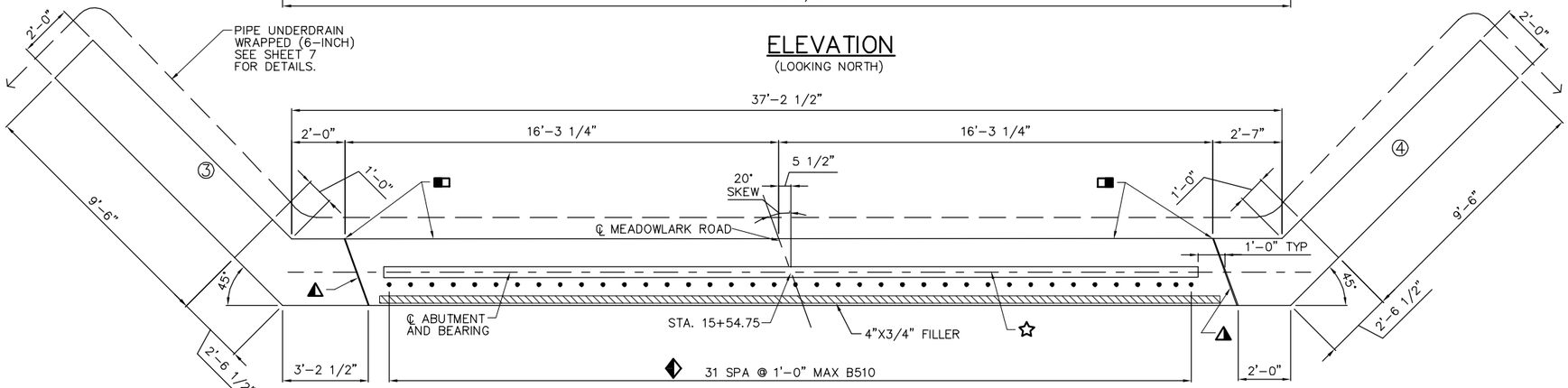
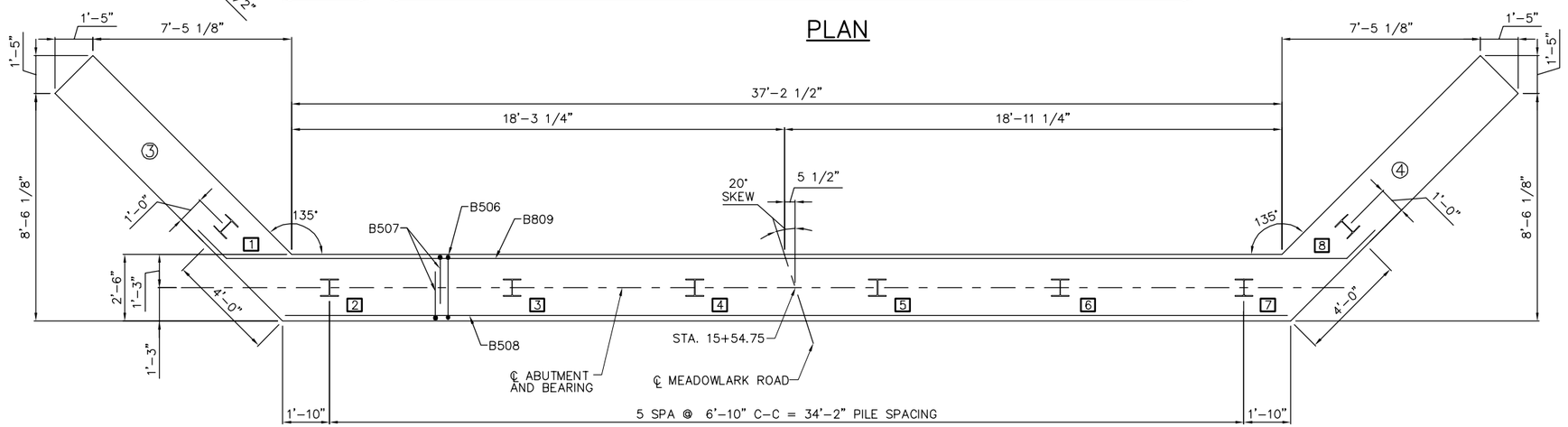


ELEVATION
(LOOKING NORTH)



PLAN



PILE PLAN

LEGEND

- ☆ KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" X 6".
- ▬ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" X 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ◭ 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.)
- ◆ B510 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL CONCRETE SET HAS TAKEN PLACE. EMBED BARS 1'-0".

FOR PILE SPLICE DETAIL SEE SHEET 2

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-194

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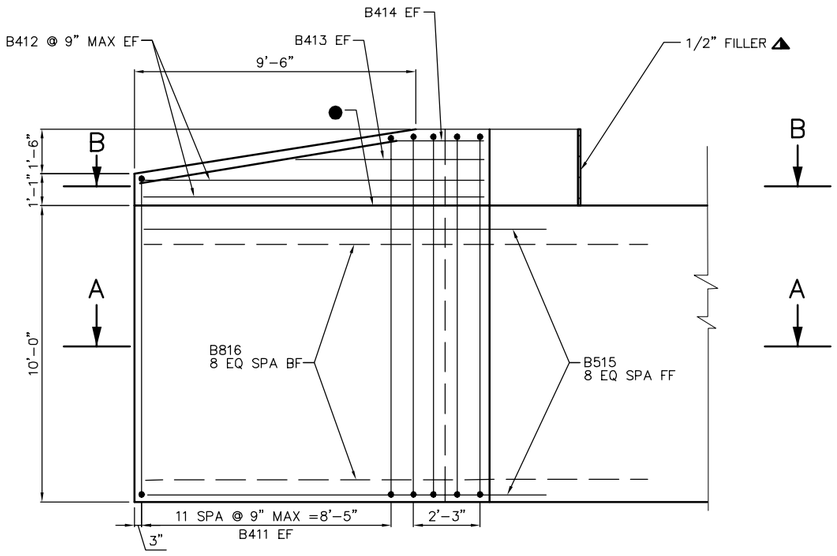
NORTH ABUTMENT

SHEET 6 OF 12

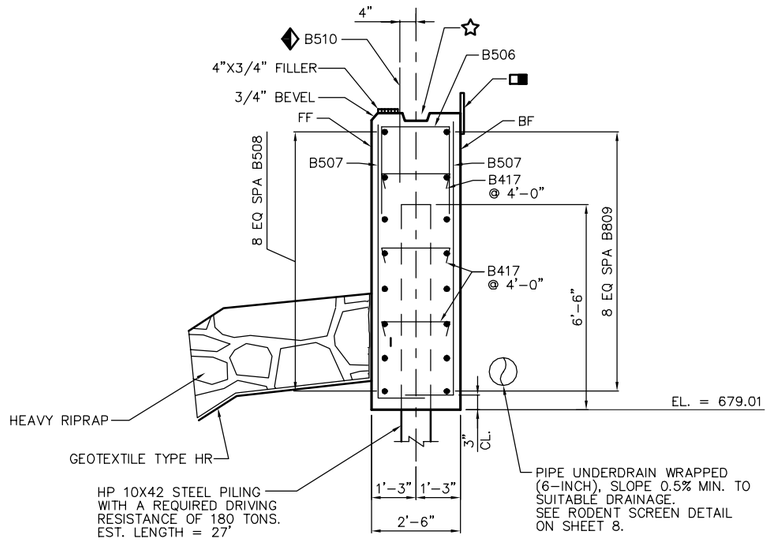
STATE PROJECT NUMBER

4200-05-71

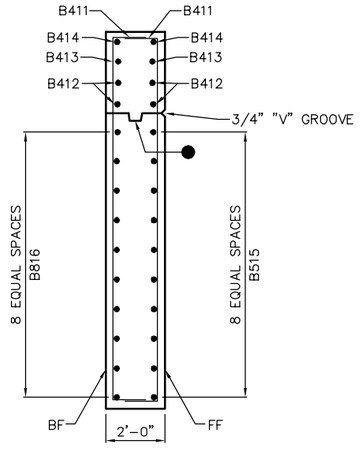


ELEVATION – WING 3

(LOOKING AT FRONT FACE)
(WING 4 SIMILAR)



SECTION THRU ABUT BODY



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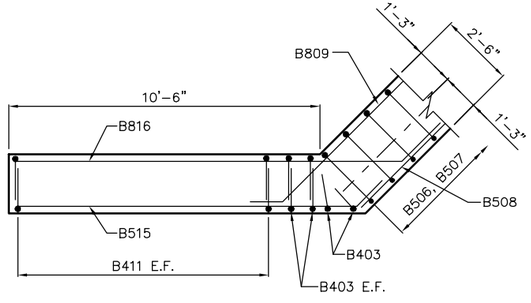
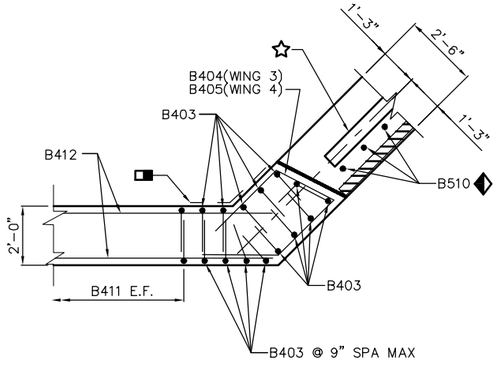


SECTION A



SECTION B

LEGEND

- ● OPT. KEYED CONST. JOINT – FORMED BY A SURFACED BEVELED 2" X 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ◨ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ◭ NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ." BELOW SURFACE OF CONCRETE.)
- ◆ B510 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL CONCRETE SET HAS TAKEN PLACE. EMBED BARS 1'-0".
- ☆ KEYED CONST. JOINT – FORMED BY A SURFACED BEVELED 2" X 6".

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-194

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NORTH ABUTMENT
WINGS 3 & 4

SHEET 7 OF 12

8

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STATE PROJECT NUMBER
4200–05–71

BILL OF BARS – SOUTH ABUTMENT

COATED: 2070 LBS
UNCOATED: 3360 LBS

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
A403	X	45	13'–8"		X	WING 1 & 2 VERTICAL EF
A404	X	4	9'–6"		X	WING 1 HORIZONTAL
A405	X	4	21'–7""		X	WING 2 HORIZONTAL
A506		45	10'–7"		X	BODY VERTICAL
A507		90	10'–2"		X	BODY VERTICAL EF
A508		9	43'–7"			BODY HORIZONTAL FF
A809		18	28'–10"		X	BODY HORIZONTAL BF
A510	X	32	2'–0"			BODY DOWELS
A411	X	48	13'–6"	(X)	X	WING 1 & 2 VERTICAL EF
A412	X	8	11'–8"			WING 1 & 2 HORIZONTAL EF
A413	X	4	9'–5"			WING 1 & 2 HORIZONTAL EF
A414	X	4	11'–7"		X	WING 1 & 2 HORIZONTAL EF
A515	X	18	13'–2"		X	WING 1 & 2 HORIZONTAL FF
A816	X	18	14'–9"		X	WING 1 & 2 HORIZONTAL BF
A417		36	2'–9"		X	BODY TIES

BILL OF BARS – NORTH ABUTMENT

COATED: 1880 LBS
UNCOATED: 2770 LBS

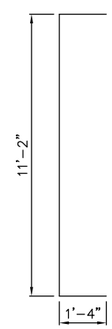
BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
B403	X	29	13'–8"		X	WING 3 & 4 VERTICAL EF
B404	X	4	9'–6"		X	WING 3 HORIZONTAL
B405	X	4	8'–9"		X	WING 4 HORIZONTAL
B506		39	10'–7"		X	BODY VERTICAL
B507		78	10'–2"		X	BODY VERTICAL EF
B508		9	37'–2"			BODY HORIZONTAL FF
B809		18	44'–6"		X	BODY HORIZONTAL BF
B510	X	32	2'–0"			BODY DOWELS
B411	X	48	13'–6"	(X)	X	WING 3 & 4 VERTICAL EF
B412	X	8	11'–8"			WING 3 & 4 HORIZONTAL EF
B413	X	4	9'–4"			WING 3 & 4 HORIZONTAL EF
B414	X	4	11'–8"		X	WING 3 & 4 HORIZONTAL EF
B515	X	18	13'–2"		X	WING 3 & 4 HORIZONTAL FF
B816	X	18	14'–9"		X	WING 3 & 4 HORIZONTAL BF
B417		33	2'–9"		X	BODY TIES

NOTES

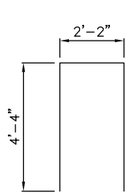
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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

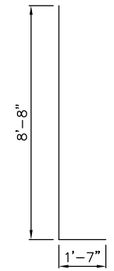
(X) LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



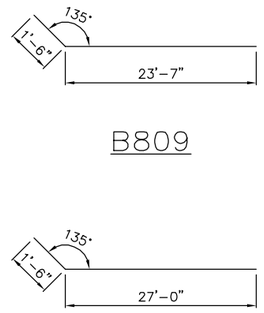
A403, B403



A506, B506

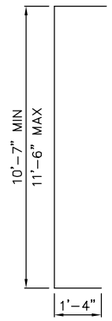


A507, B507

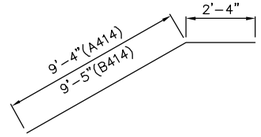


B809

A809



A411, B411

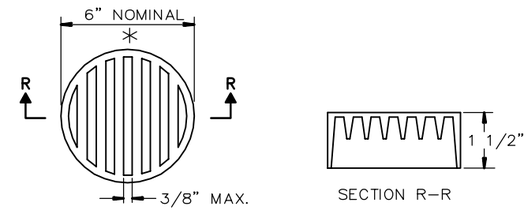


A414, B414

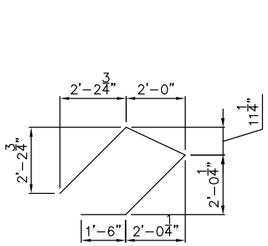
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X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

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6–INCH".

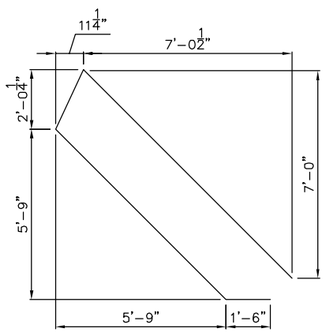
✳ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.



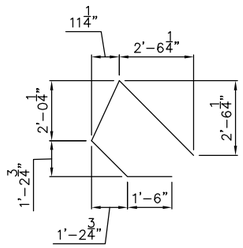
RODENT SCREEN



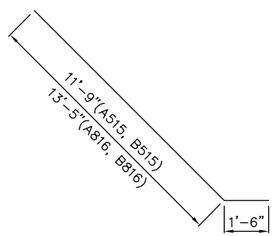
A404, B404



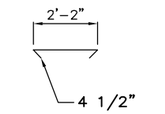
A405



B405



A515, A816, B515, B816



A417, B417

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A411	4 SERIES OF 12	13'–9" TO 14'–8"
B411	4 SERIES OF 12	13'–9" TO 14'–8"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–59–194

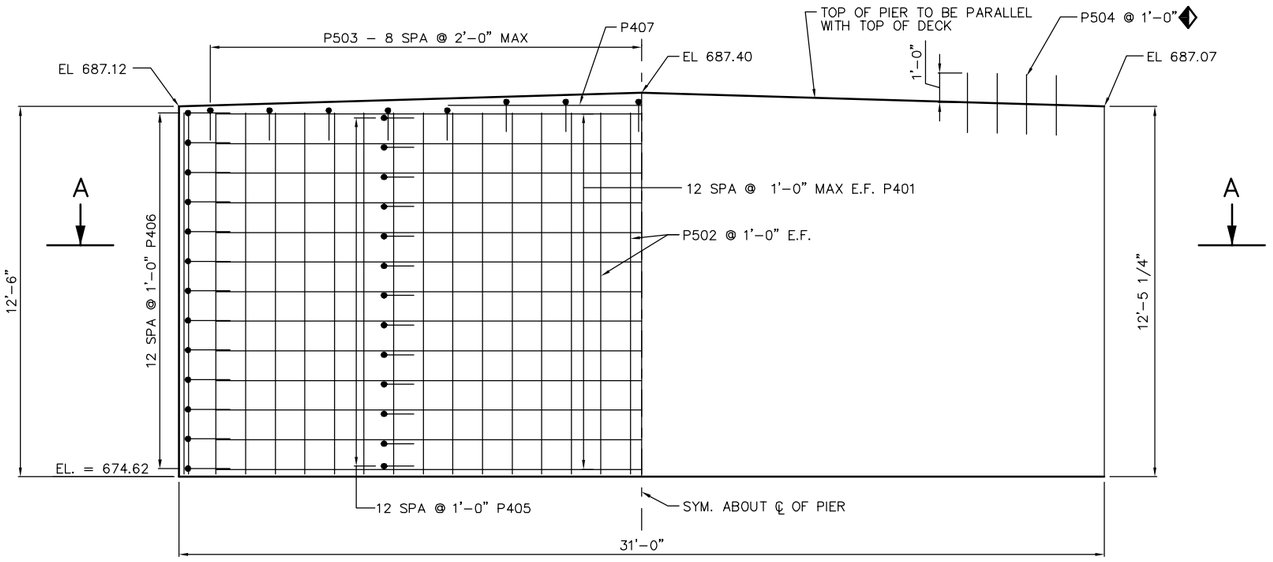
DRAWN BY SDR | PLANS CK'D. FKH

ABUTMENT
BILL OF BARS

SHEET 8 OF 12

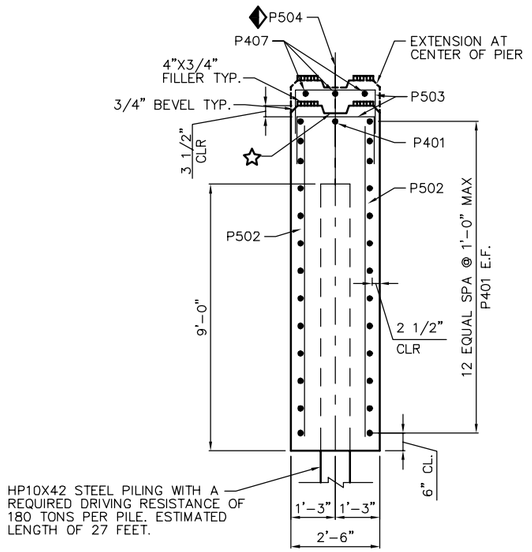
STATE PROJECT NUMBER

4200-05-71

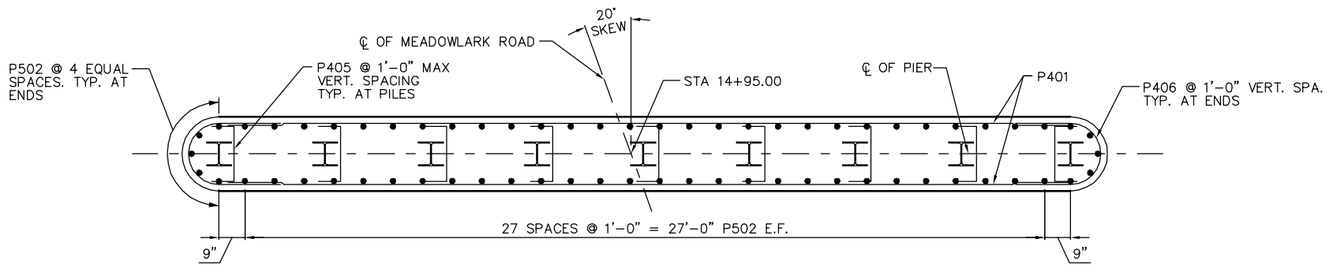


ELEVATION

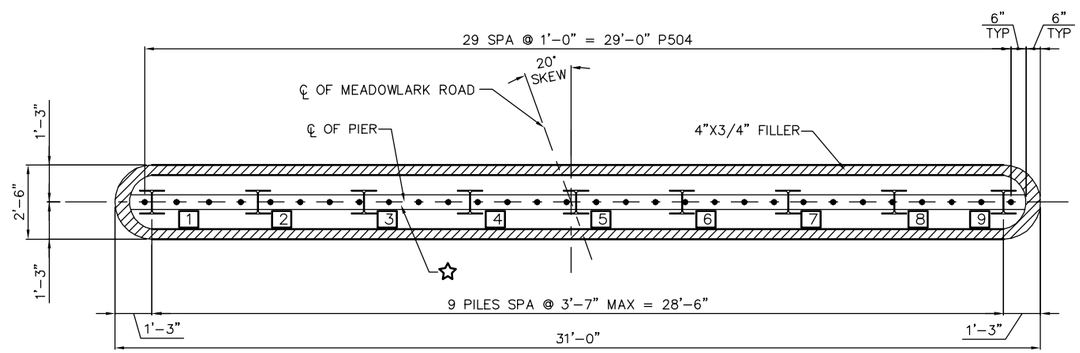
(LOOKING NORTH, PILING NOT SHOWN)
(ELEVATIONS AT ℄ OF PIER)



END VIEW



SECTION A

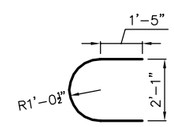


PLAN

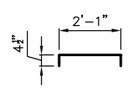
BILL OF BARS

COATED: 60 LBS
UNCOATED: 1760 LBS

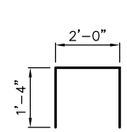
BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
P401		27	28'-9"'			BODY HORIZONTAL
P502		66	11'-9"			BODY VERTICAL
P503		17	4'-5"		X	BODY TOP
P504	X	30	2'-0"			BODY VERTICAL DOWELS
P405		117	2'-8"		X	BODY TIES
P406		28	6'-1"		X	BODY HORIZONTAL ENDS
P407		3	13'-0"			BODY HORIZONTAL



P406



P405



P503

LEGEND

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 3/4" FILLER WITH NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

☆ KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".

◆ P504 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL CONCRETE SET HAS TAKEN PLACE. EMBED BARS 1'-0".

FOR PILE SPLICE DETAIL SEE SHEET 2

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

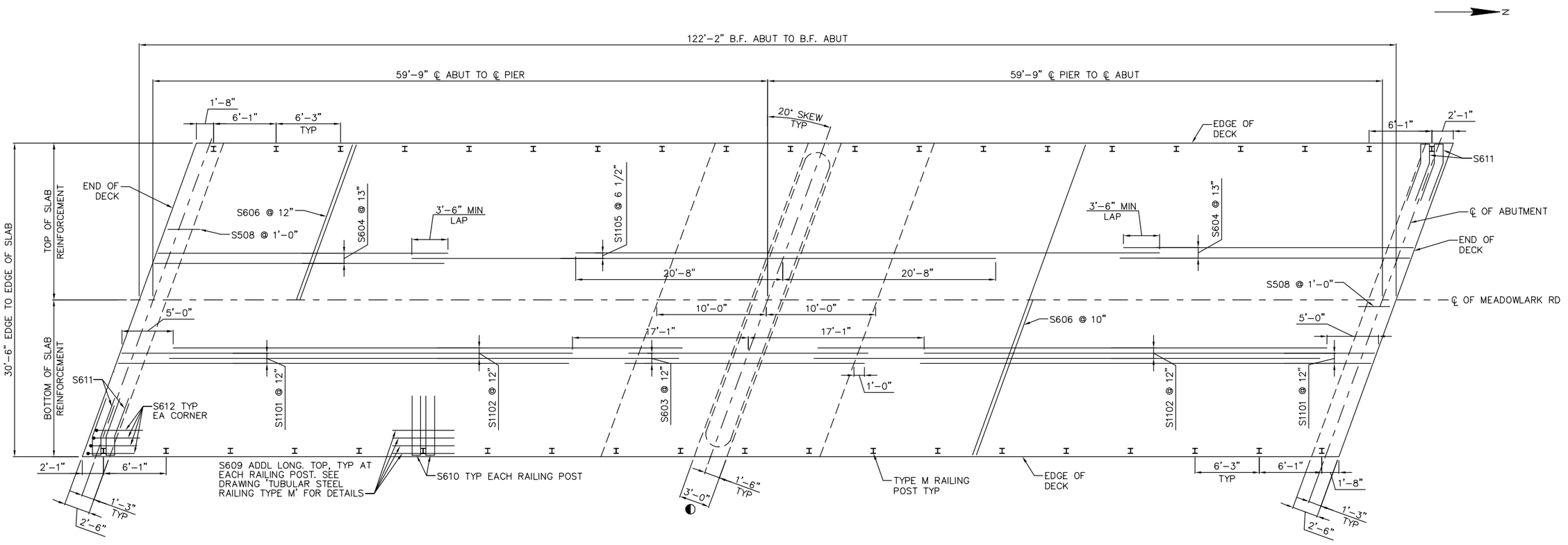
STRUCTURE B-59-194

DRAWN BY SDR | PLANS CK'D. FKH

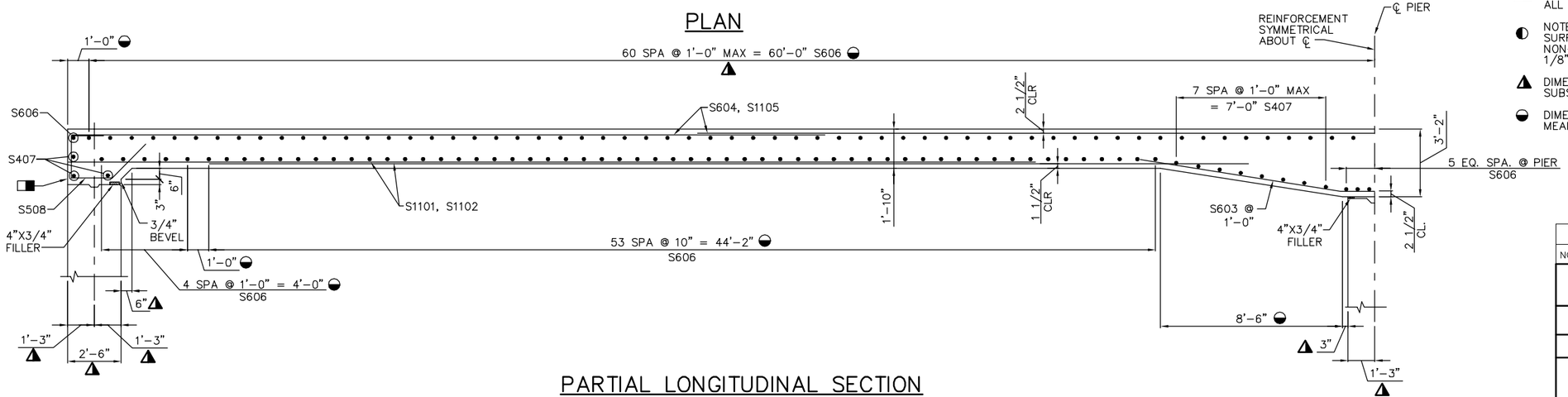
PIER DETAILS

SHEET 9 OF 12

STATE PROJECT NUMBER
4200-05-71



PLAN



PARTIAL LONGITUDINAL SECTION

LEGEND

- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- 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.)
- DIMENSIONS MEASURED NORMAL TO ℄ OF SUBSTRUCTURE
- DIMENSIONS MEASURED PARALLEL TO ℄ OF MEADOWLARK ROAD

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

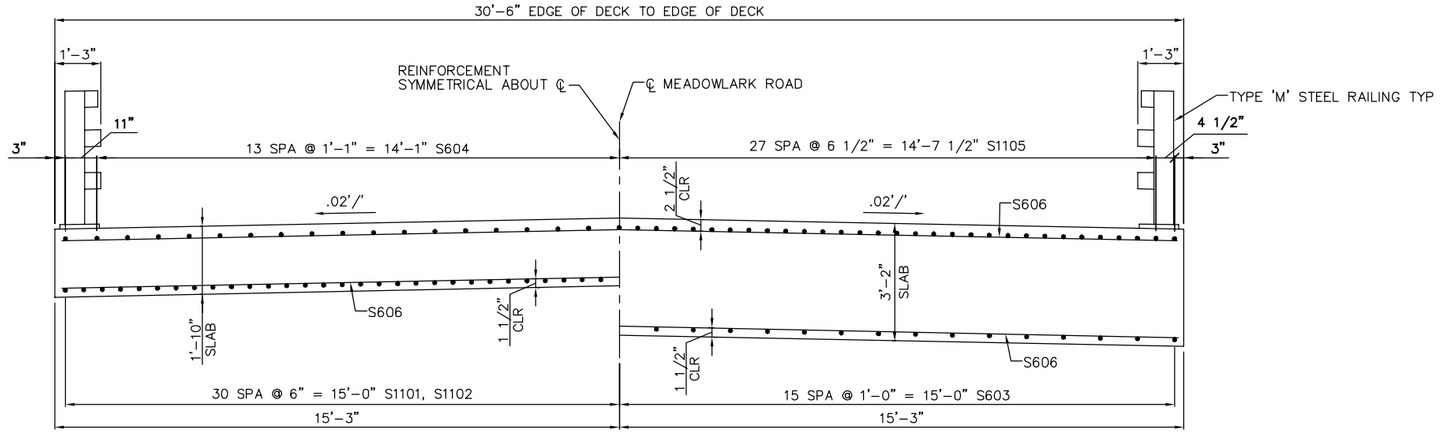
STRUCTURE B-59-194

DRAWN BY SDR | PLANS CK'D. FKH

SUPERSTRUCTURE

SHEET 10 OF 12

STATE PROJECT NUMBER
4200-05-71



IN SPAN AT PIER

CROSS SECTION THRU BRIDGE

(LOOKING NORTH)

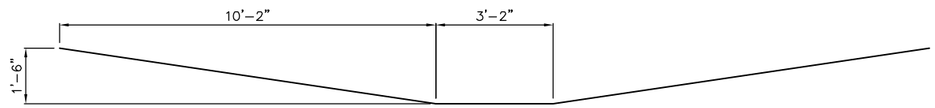
NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS, THE ℄ OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR ℄.

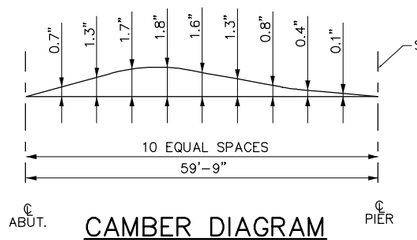


S603

BILL OF BARS

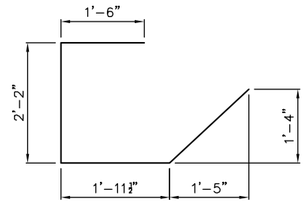
COATED: 67,280 LBS
UNCOATED: 0 LBS

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
S1101	X	62	43'-10"			LONGITUDINAL BOTTOM
S1102	X	62	49'-6"			LONGITUDINAL BOTTOM
S603	X	32	23'-5"		X	LONGITUDINAL BOTTOM OVER PIER
S604	X	57	28'-2"			LONGITUDINAL TOP
S1105	X	57	56'-9"			LONGITUDINAL TOP OVER PIER
S606	X	249	32'-1"			TRANSVERSE TOP & BOTTOM
S407	X	22	32'-1"			AT ABUTMENT
S508	X	62	7'-3"		X	AT ABUTMENT
S609	X	144	6'-0"			ADDL LONGITUDINAL TOP AT RAIL POSTS
S610	X	76	12'-0"		X	ADDL TRANSVERSE TOPAT RAIL POSTS
S611	X	4	12'-0"		X	ADDL TRANSVERSE TOPAT RAIL POSTS
S612	X	16	5'-10"		X	ADDL LONGITUDINAL TOP AT RAIL POSTS

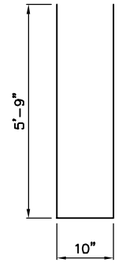


CAMBER DIAGRAM

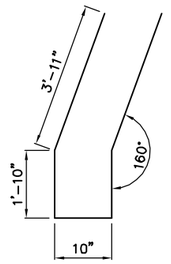
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.



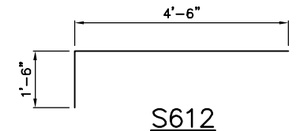
S508



S610



S611



S612

TOP OF DECK ELEVATIONS

(OUT-TO-OUT OF CLEARWAY)

	℄ OF 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.	℄ OF PIER	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.	℄ OF N. ABUT
WEST EDGE	689.99	690.02	690.05	690.09	690.12	690.15	690.18	690.21	690.24	690.27	690.30	690.33	690.36	690.39	690.42	690.45	690.48	690.51	690.54	690.57	690.60
℄	690.32	690.35	690.38	690.42	690.45	690.48	690.51	690.54	690.57	690.60	690.63	690.66	690.69	690.72	690.75	690.78	690.81	690.84	690.87	690.90	690.93
EAST EDGE	690.05	690.08	690.11	690.15	690.18	690.21	690.24	690.27	690.30	690.33	690.36	690.39	690.42	690.45	690.48	690.51	690.54	690.57	690.60	690.63	690.66

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-194

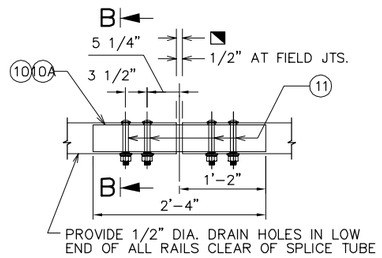
DRAWN BY SDR | PLANS CK'D. FKH

SUPERSTRUCTURE DETAILS

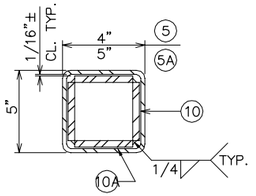
SHEET 11 OF 12

STATE PROJECT NUMBER
4200-05-71

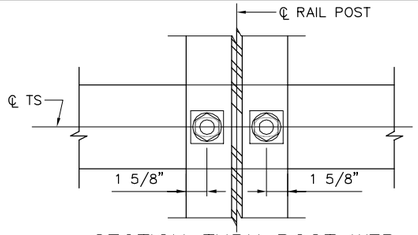
SECTION THRU RAILING ON DECK



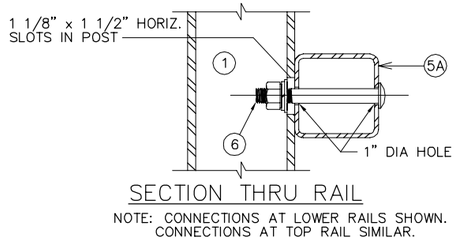
FIELD ERECTION JOINT DETAIL



SECTION B-B



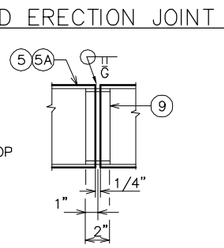
SECTION THRU POST WEB



SECTION THRU RAIL

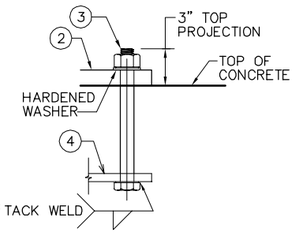
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

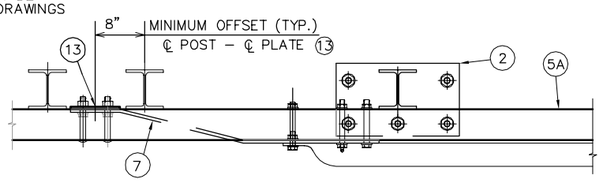


SHOP RAIL SPLICE DETAIL

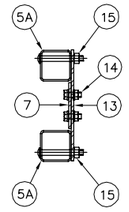
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



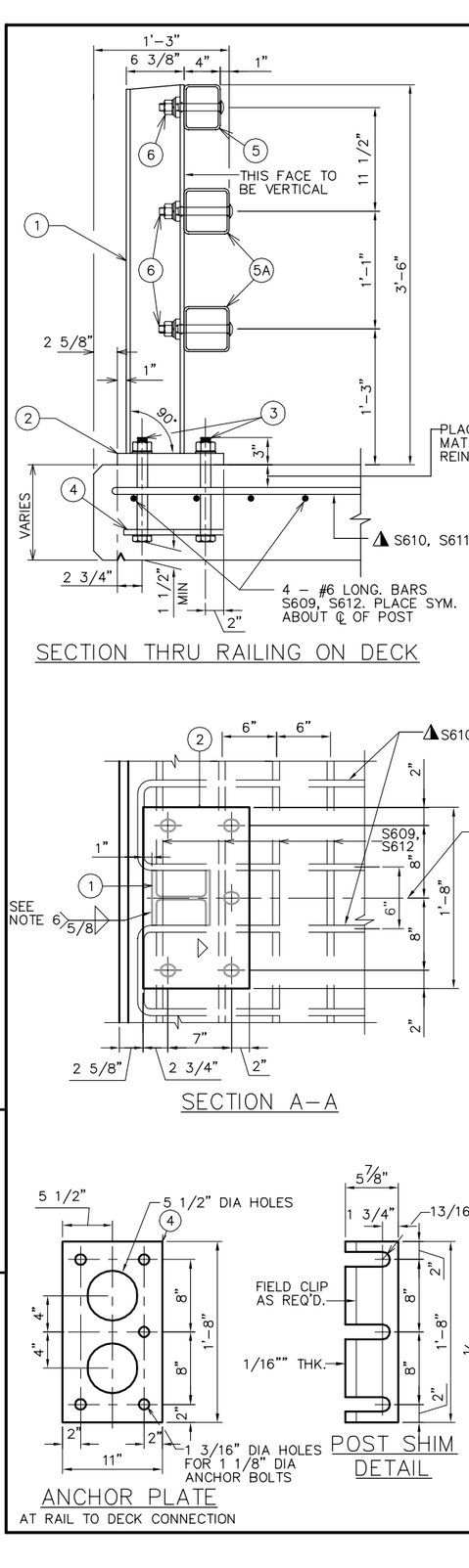
ANCHOR BOLTS



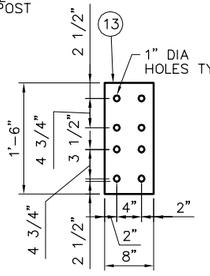
TOP VIEW AT END POST
(THRIE BEAM RAIL ATTACHMENT)



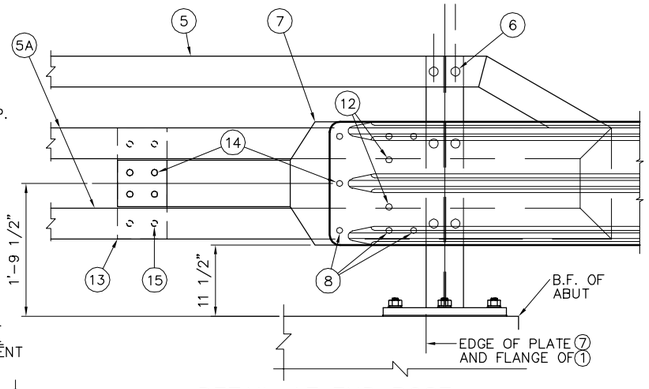
SECTION C-C



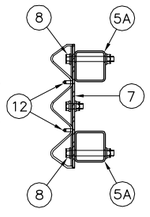
SECTION A-A



ANCHOR PLATE
AT BEAM GUARD ATTACHMENT



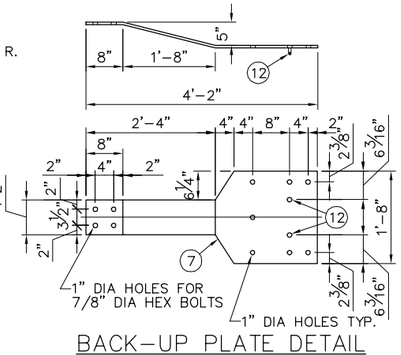
DETAIL AT END POST
(THRIE BEAM RAIL ATTACHMENT)



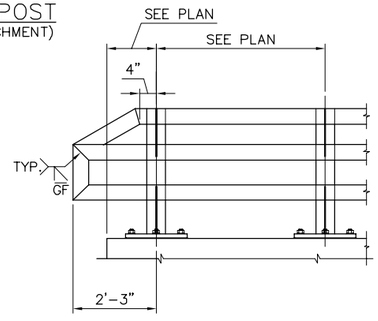
SECTION D-D

ANCHOR PLATE
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL
AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

(1) W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1 1/4" x 11 3/4" x 1'-8" WITH 1 5/16" X 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

(4) 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

(5) TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(5A) TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(6) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(8) 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

(9) SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

(10) 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

(10A) 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

(11) 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.

(12) 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

(13) 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

(14) 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

(15) 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-59-194" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8" TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

▲ TIE TO TOP MAT OF STEEL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-194

DRAWN BY	SDR	PLANS CK'D.	KAG

TUBULAR STEEL RAILING TYPE 'M'

SHEET 12 OF 12

EARTHWORK SUMMARY

Station	Cut Area (Sq.ft.)	Cut Volume (Cu.yd.)	Reusable Volume (Cu.yd.)	Fill Area (Sq.ft.)	Fill Volume (Cu.yd.)	Cum. Cut Vol. (Cu.yd.)	Cum. Reusable Vol. (Cu.yd.)	Cum. Fill Vol. (Cu.yd.)	Cum. Net Vol. (Cu.yd.)
11+65.775	0	0	0	0	0	0	0	0	0
12+00.000	0	0	0	12	8	0	0	8	-8
12+50.000	0	0	0	22	31	0	0	39	-39
12+75.085	0	0	0	30	24	0	0	63	-63
13+00.000	4	2	2	33	29	2	2	93	-91
13+10.700	4	1	1	38	14	3	3	107	-104
13+28.349	4	3	3	37	25	6	6	131	-126
13+35.700	4	1	1	37	10	7	7	141	-135
13+50.000	4	2	2	36	19	9	9	161	-152
13+60.700	4	2	2	35	14	11	11	175	-164
13+88.281	42	24	24	28	32	35	35	207	-172
13+99.000	43	17	17	24	10	52	52	217	-165
14+00.250	45	2	2	24	1	54	54	218	-165
14+17.663	50	30	30	22	15	84	84	233	-149
14+27.171	51	18	18	0	3	102	102	236	-135
STRUCTURE B-59-0194									
15+61.198	30	201	201	31	76	303	303	313	-10
15+72.327	33	13	13	106	28	316	316	341	-25
15+99.990	42	38	38	48	79	355	355	420	-65
16+01.000	13	1	1	47	2	356	356	421	-66
16+06.610	12	3	3	71	12	358	358	434	-75
16+29.231	10	9	9	109	75	367	367	509	-141
16+31.610	10	1	1	107	10	368	368	518	-150
16+38.612	9	2	2	106	28	371	371	546	-175
16+50.000	9	4	4	120	48	375	375	594	-219
16+54.290	9	1	1	126	20	376	376	613	-237
16+56.610	9	1	1	126	11	377	377	624	-247
16+62.505	9	2	2	126	27	379	379	651	-273
16+79.290	9	5	5	128	79	384	384	730	-346
16+94.841	8	5	5	121	72	389	389	802	-413
17+00.000	4	1	1	119	23	390	390	825	-435
17+19.544	4	3	3	99	79	393	393	904	-511
17+50.000	0	2	2	109	117	395	395	1021	-627
18+00.000	0	0	0	27	126	395	395	1147	-752
18+21.080	0	0	0	0	10	395	395	1150	-755
18+22.904	0	0	0	0	0	395	395	1150	-755

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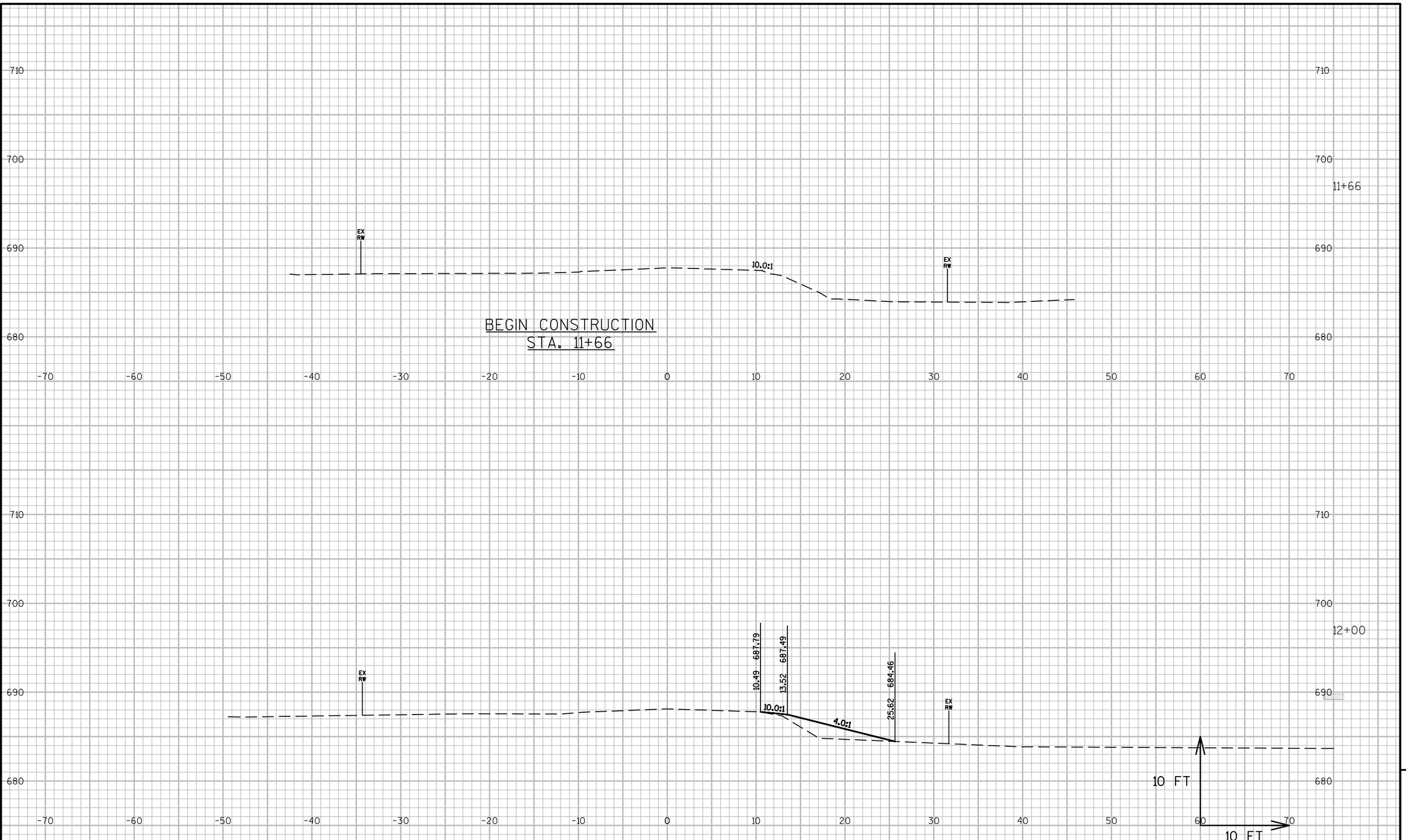

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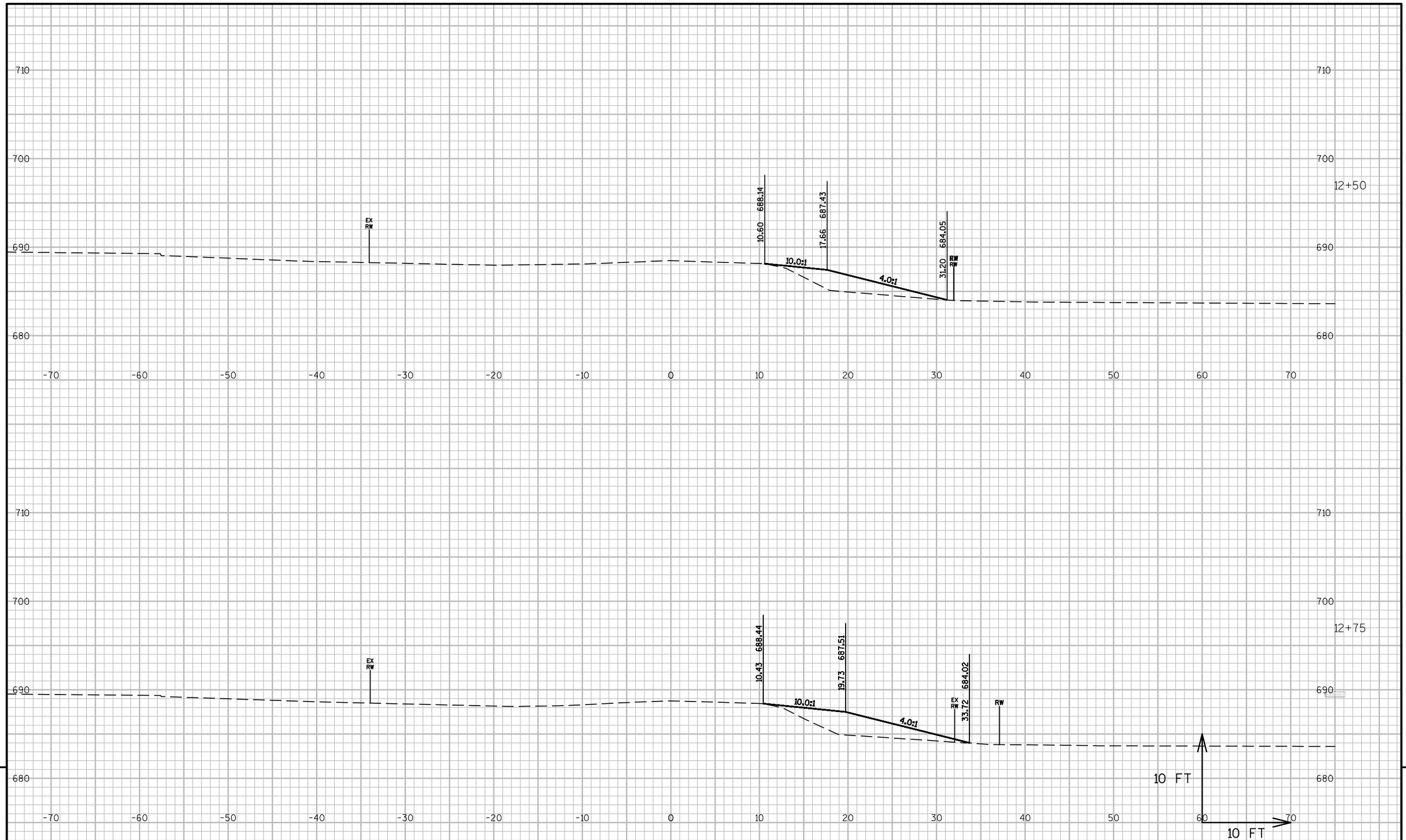
PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 63	E

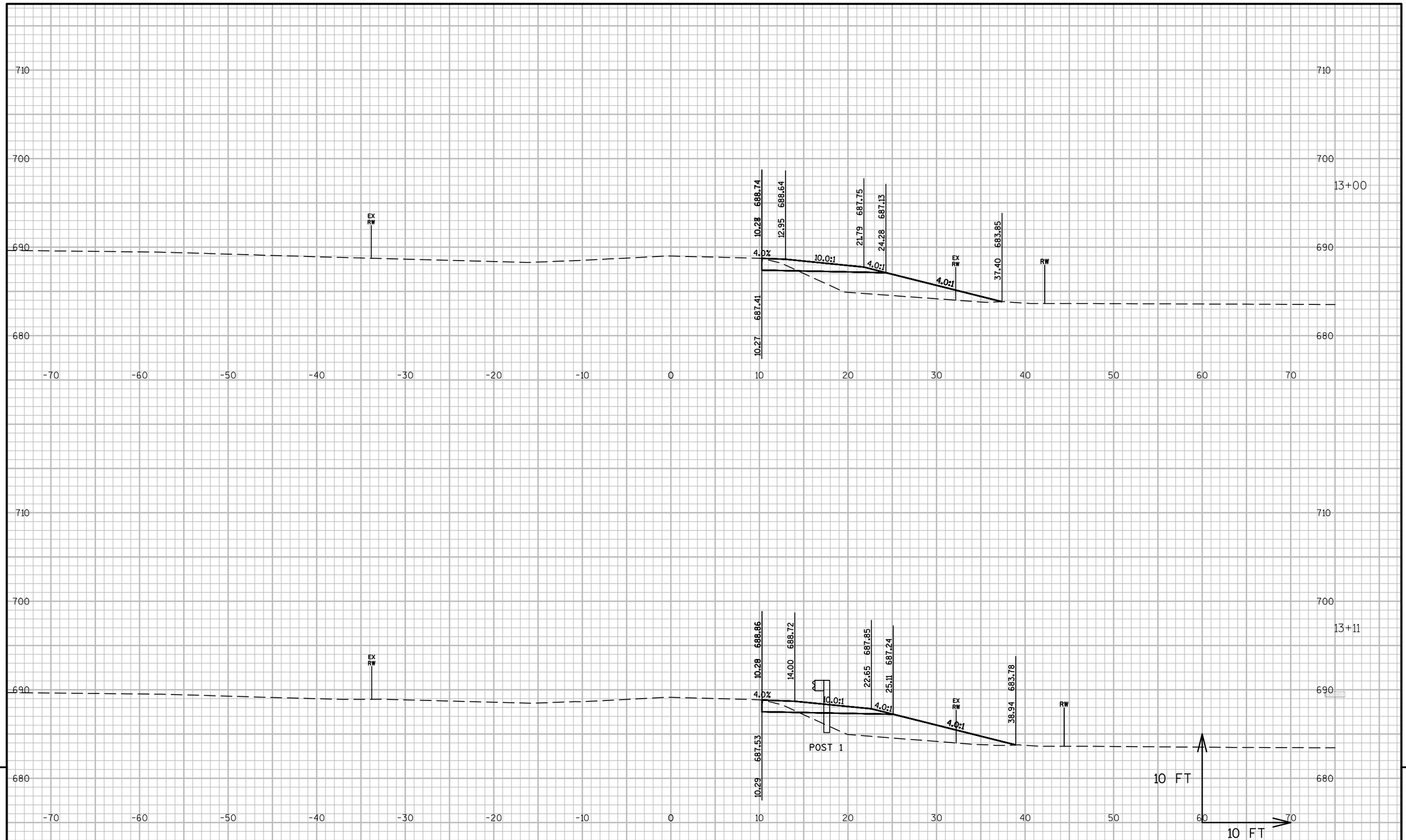
FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090201_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 64	E



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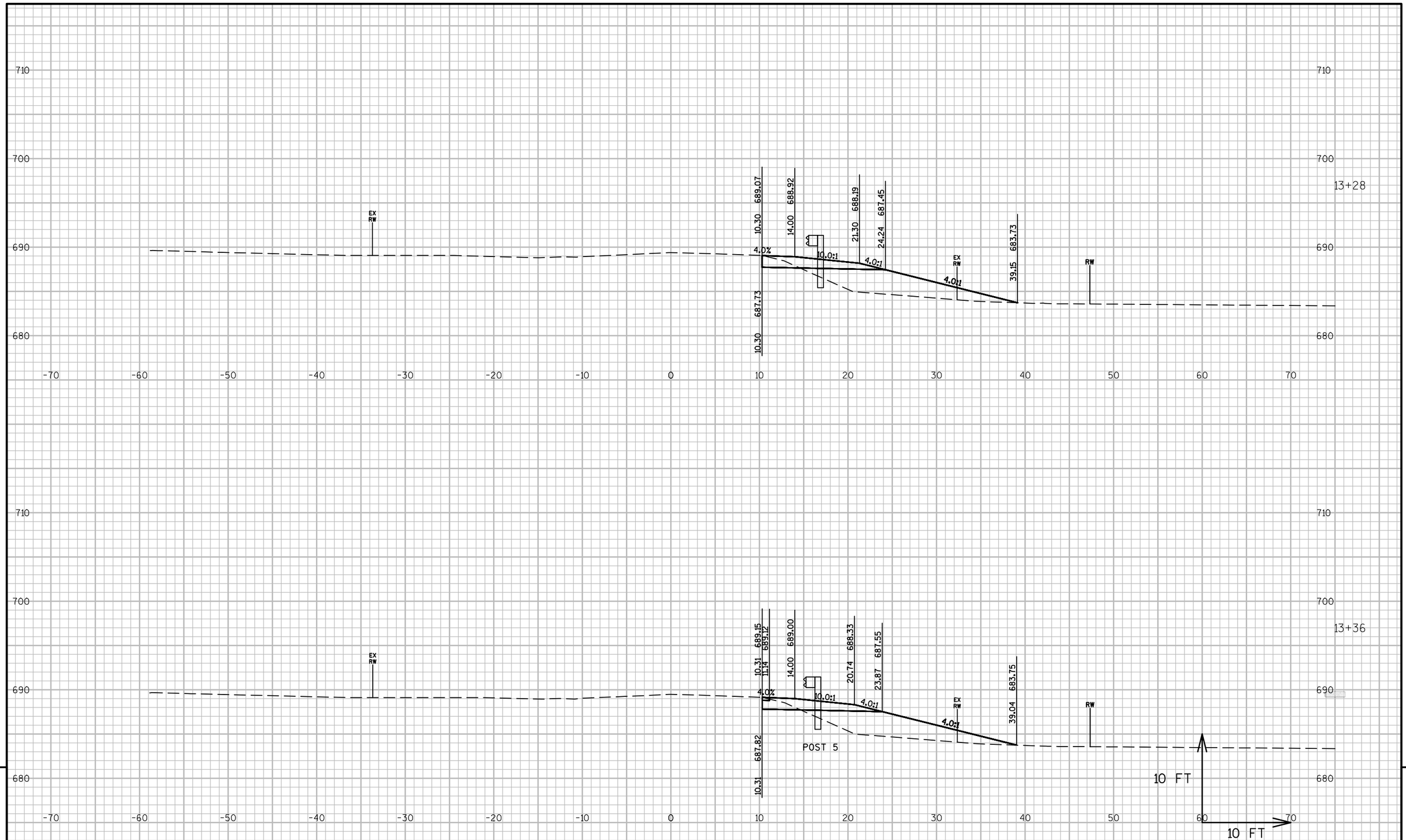
PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 65	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090203_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

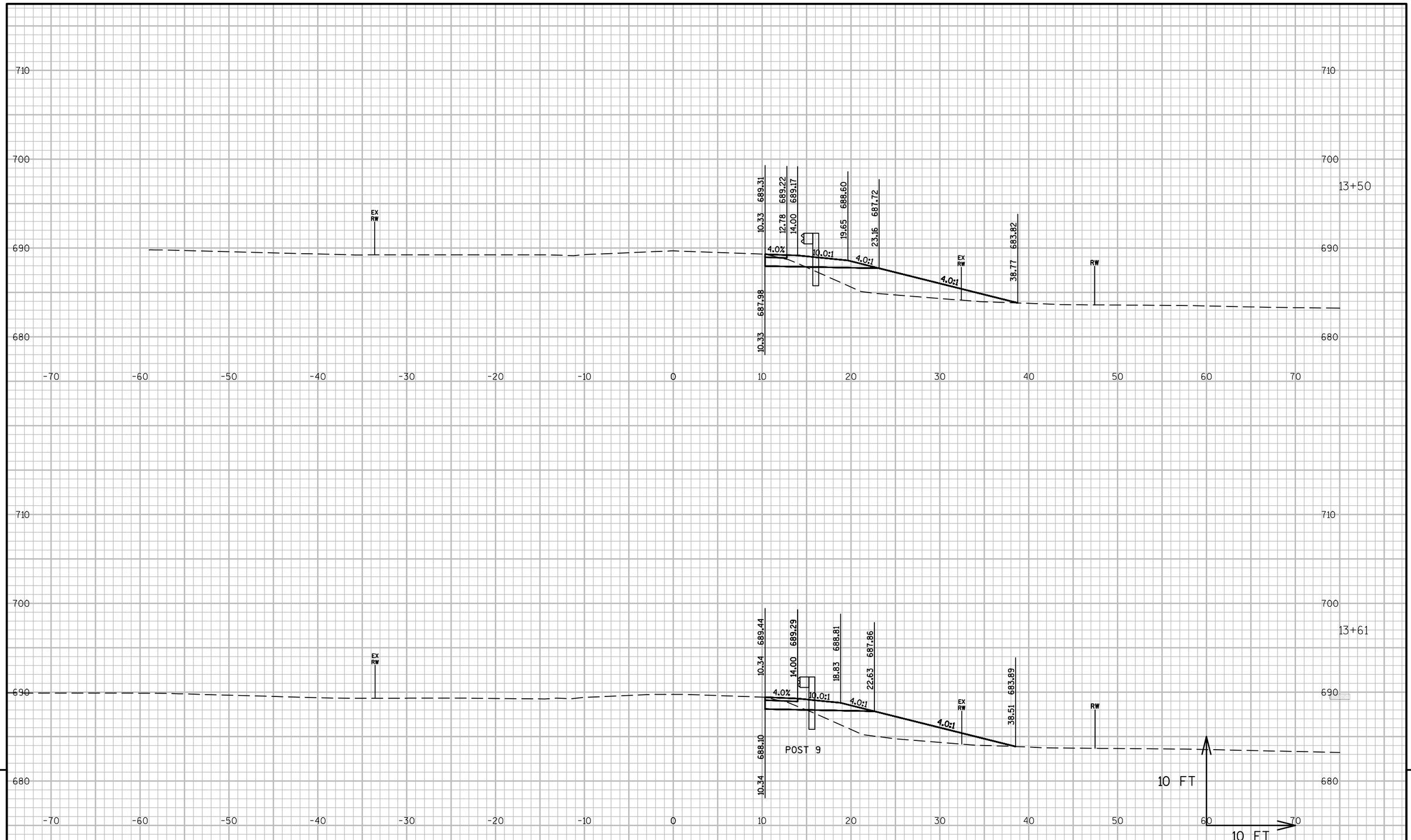


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 66	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090204_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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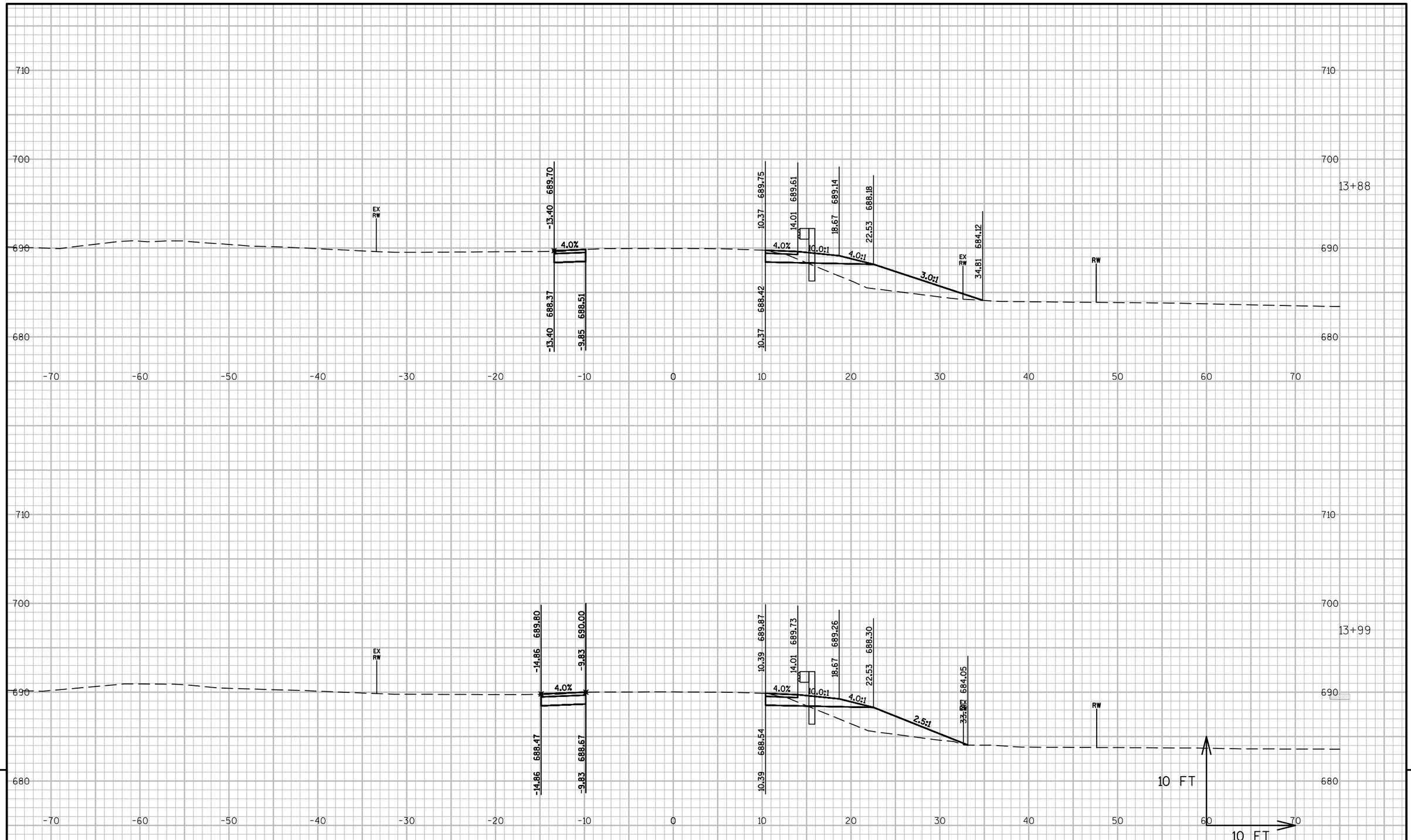
PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 67	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090205_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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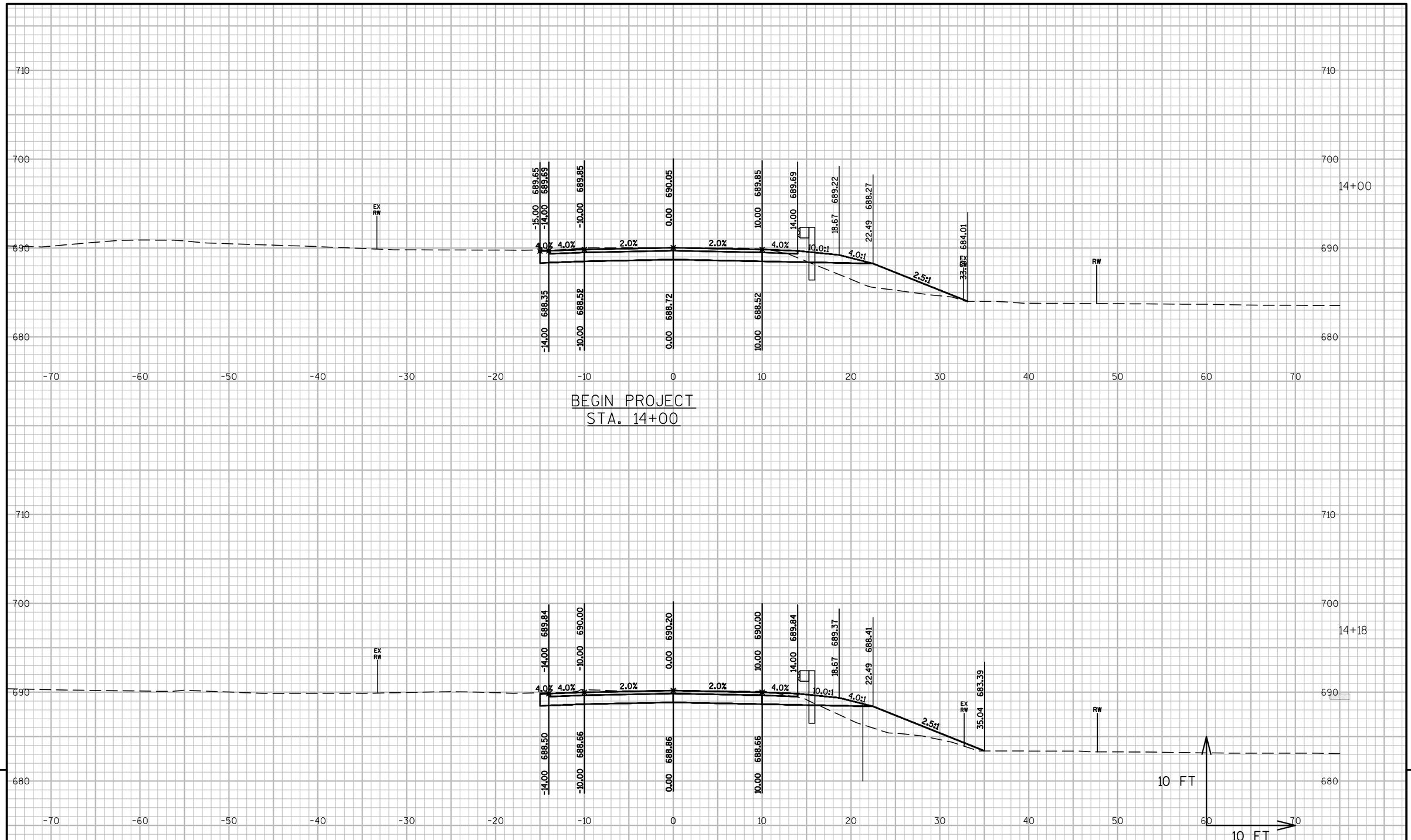
PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 68	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090206_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



BEGIN PROJECT
STA. 14+00

PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 69 E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090207_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

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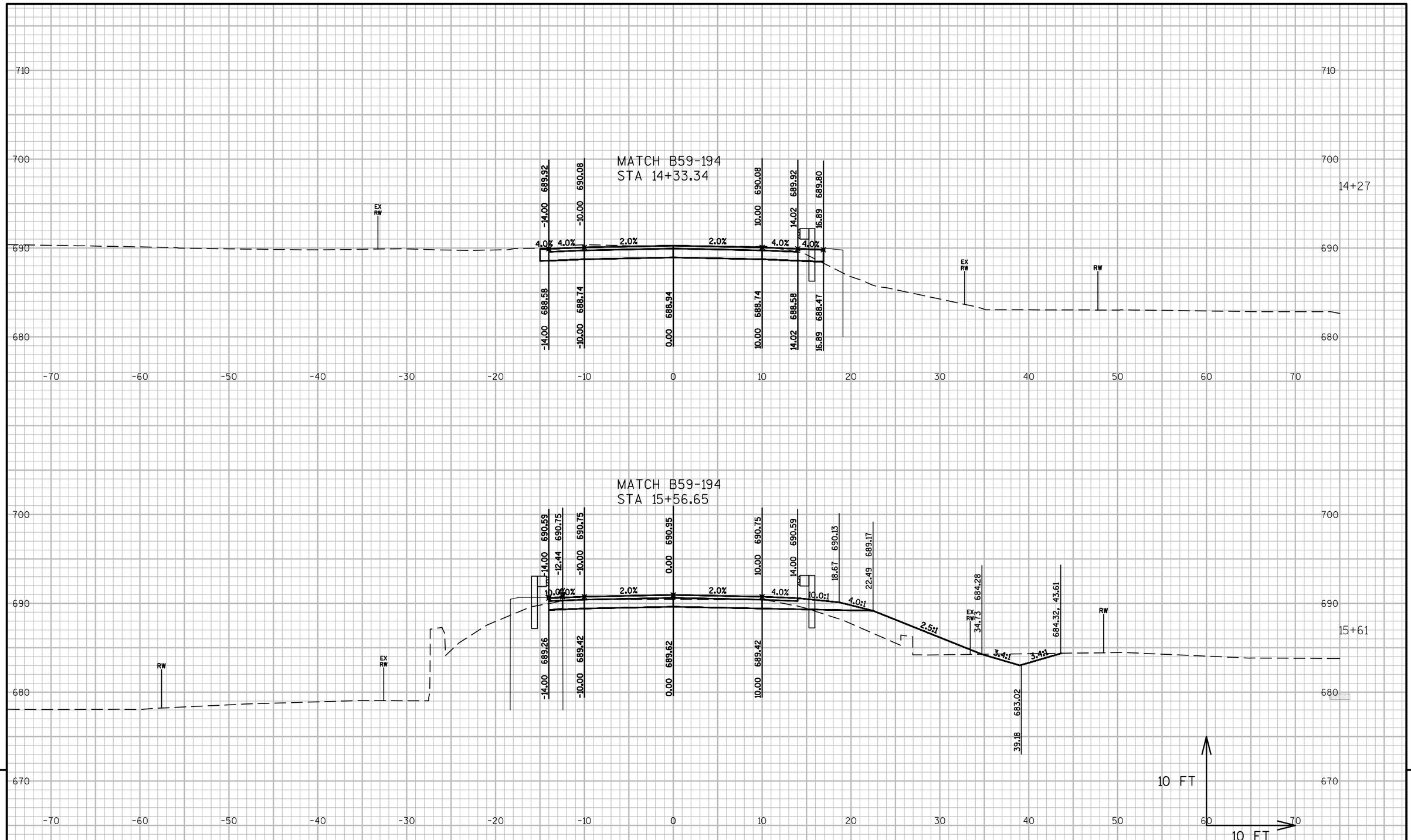
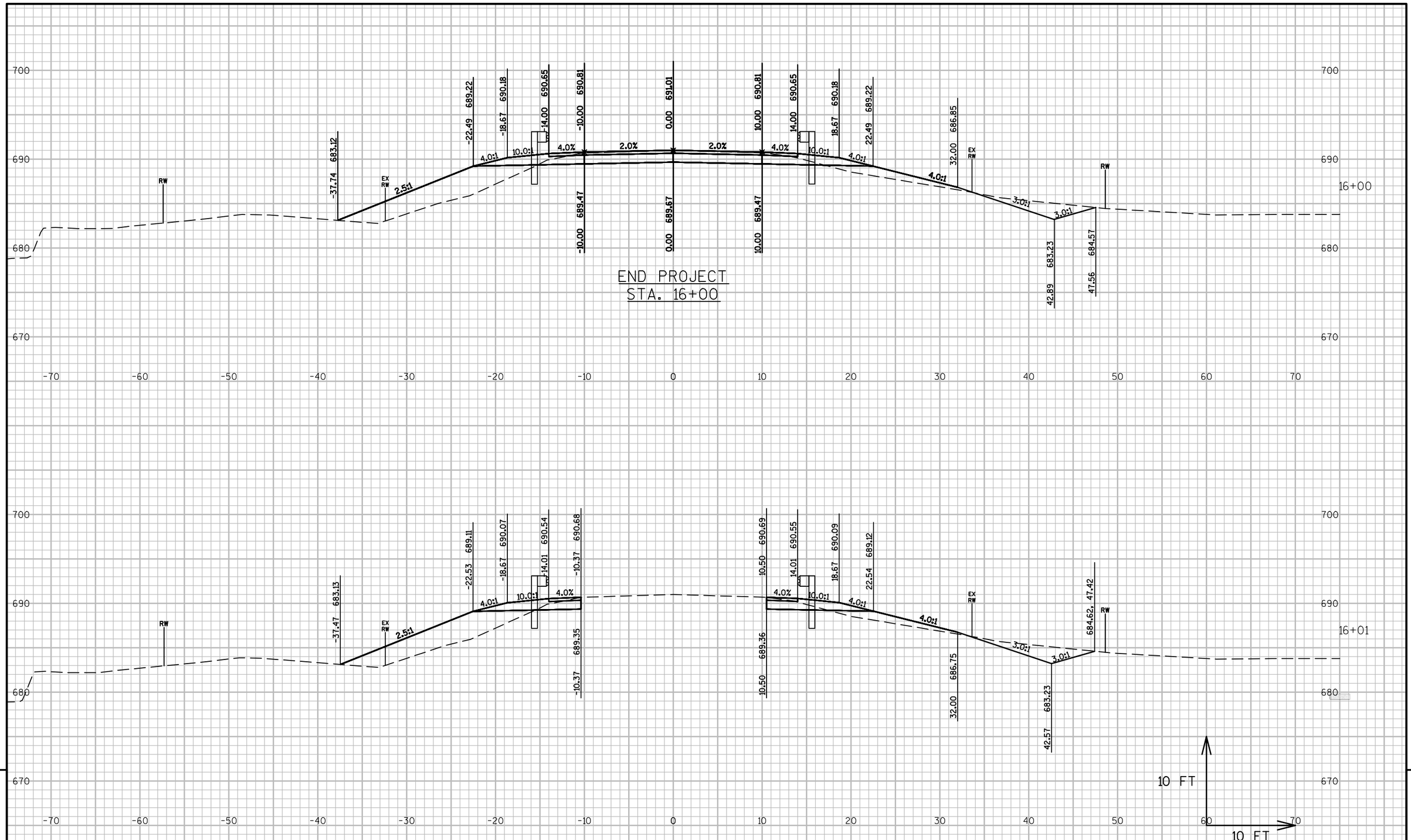


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 70	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090208_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

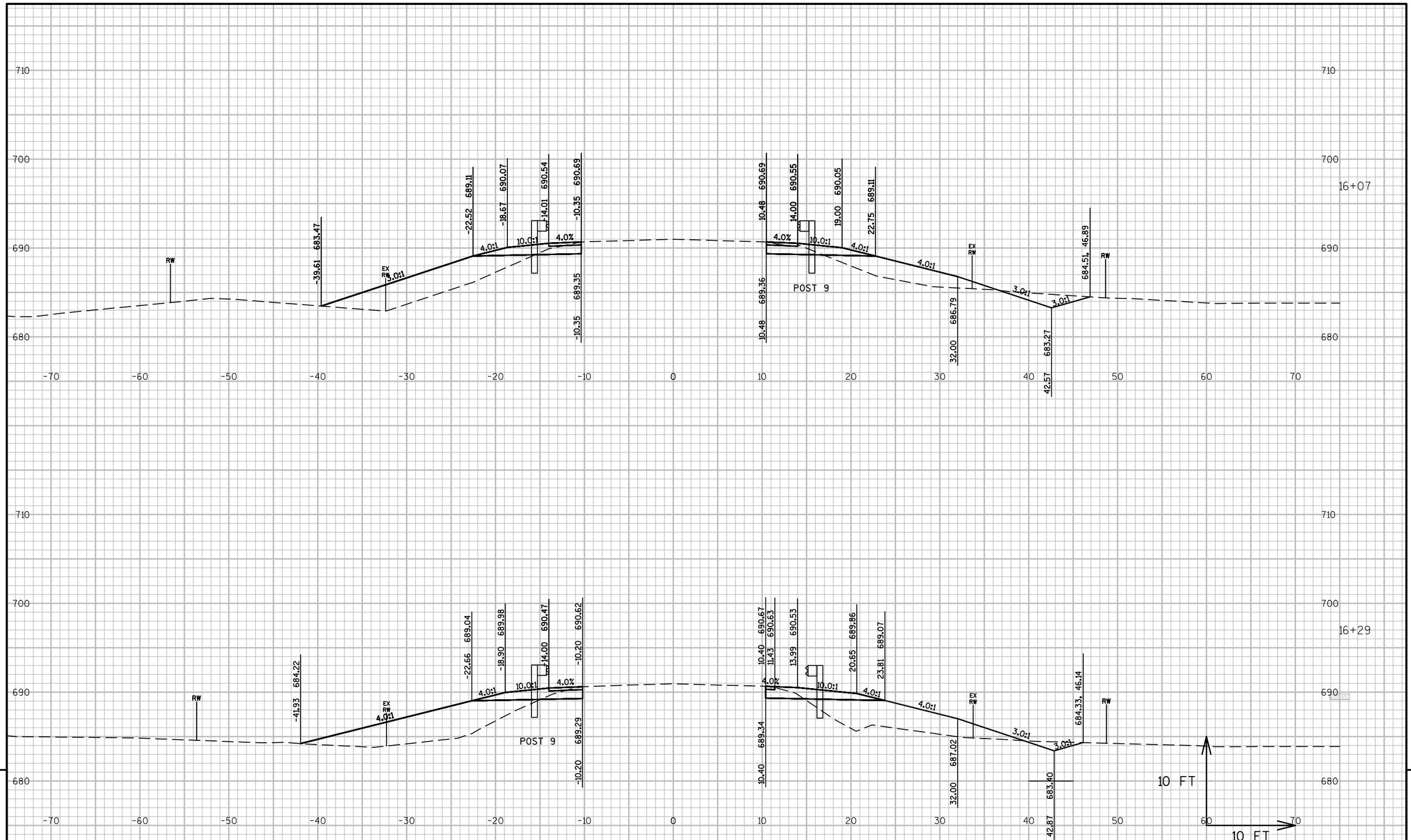


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 71 E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090209_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

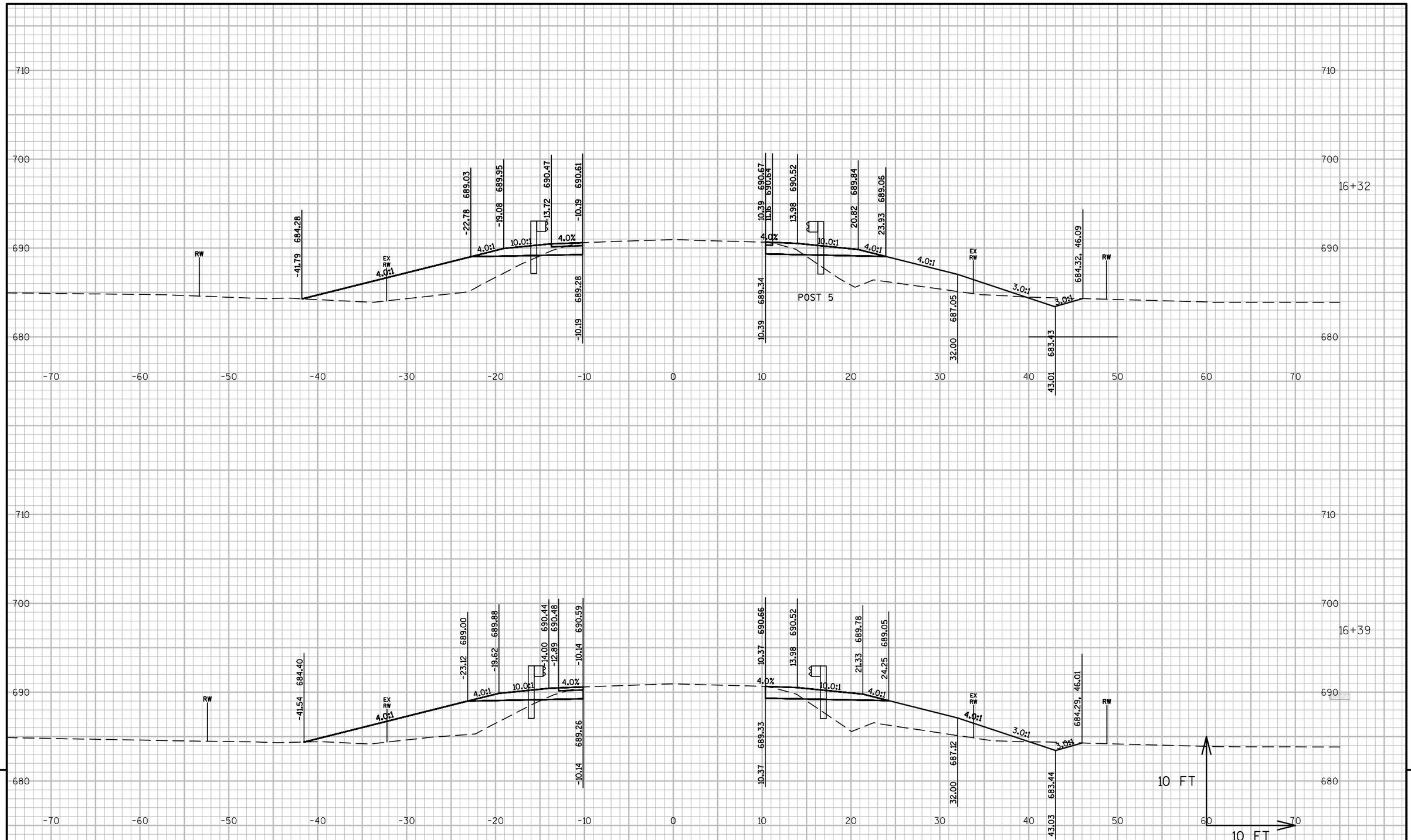


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 72	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090210_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

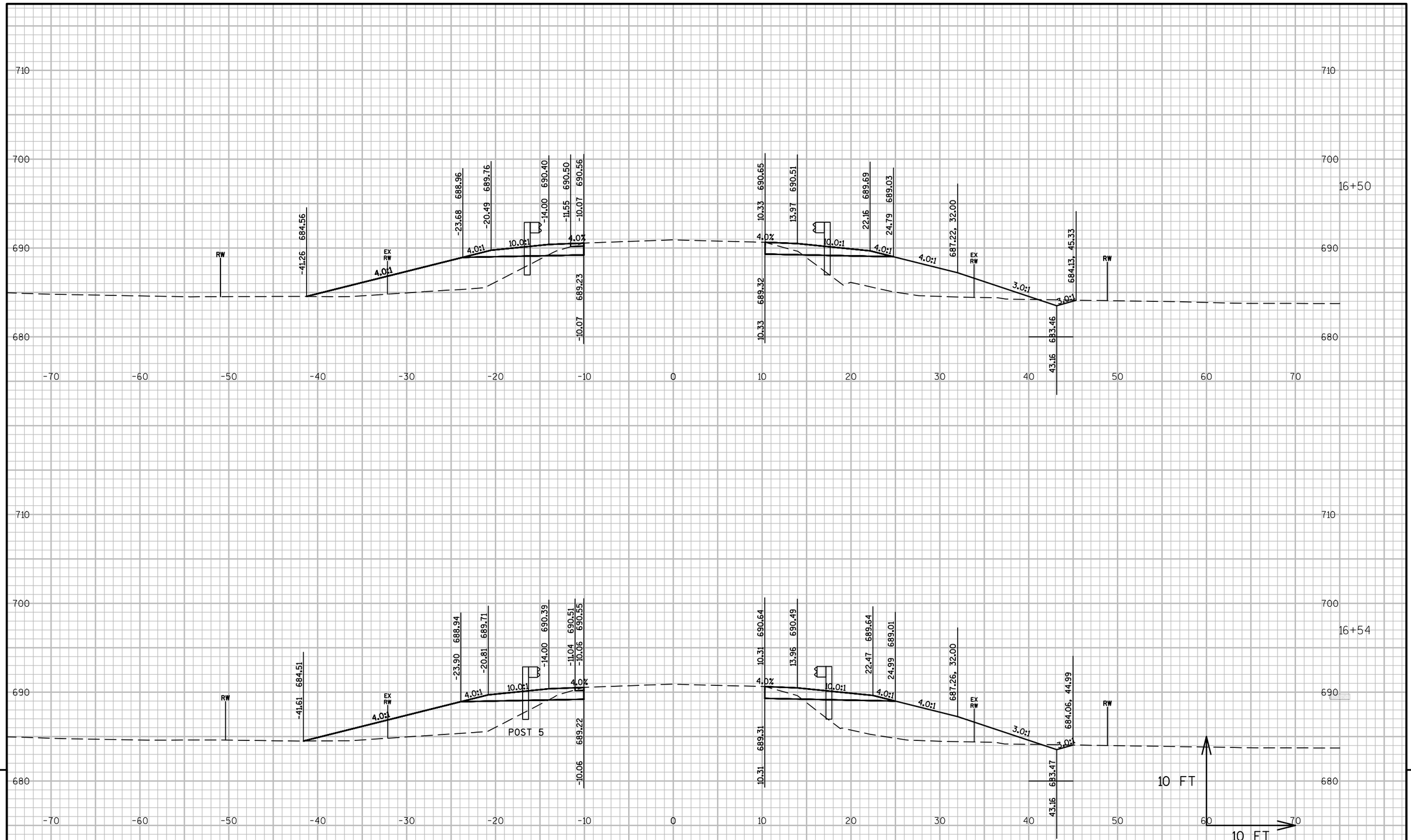


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 73	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090211_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

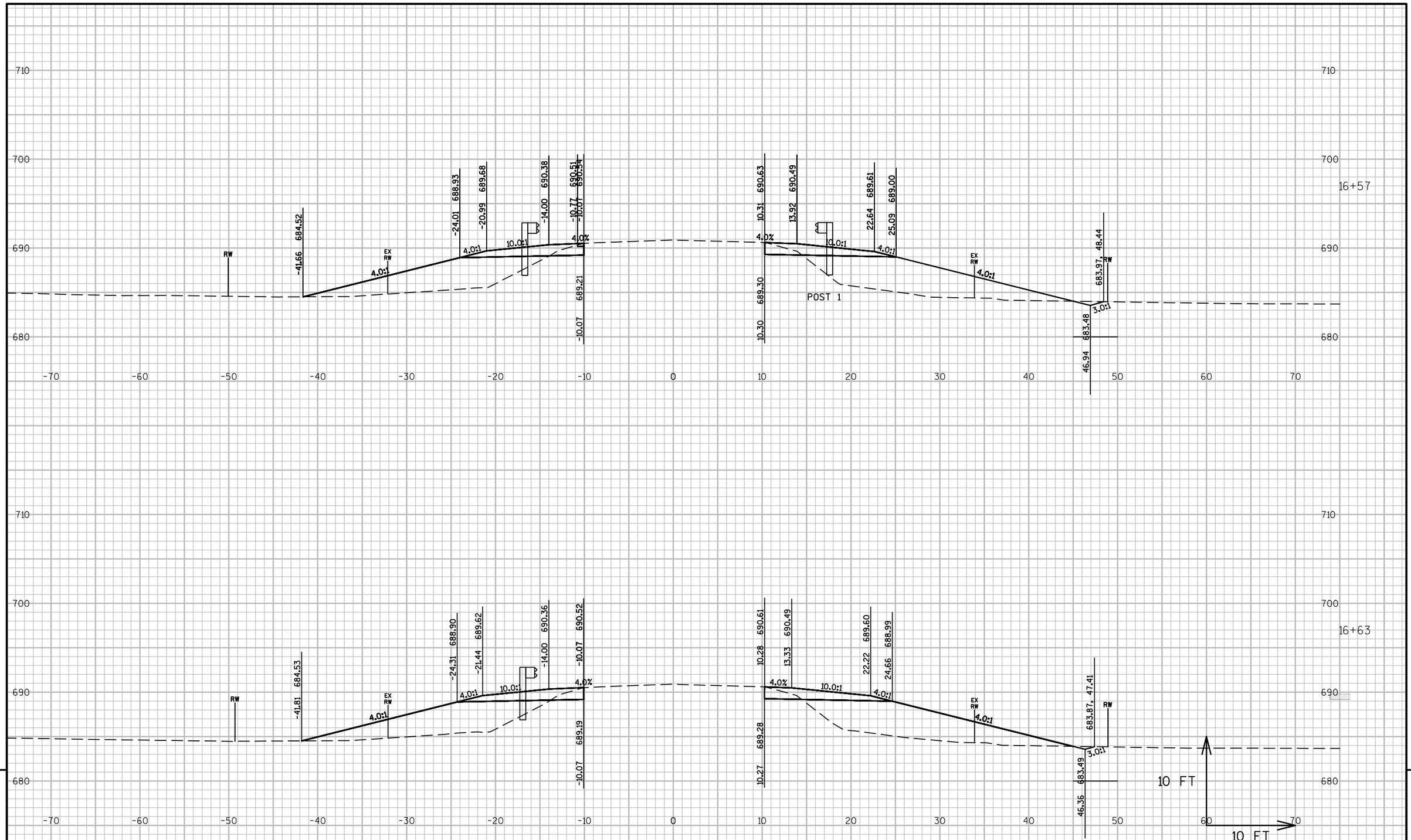


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 74	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090212_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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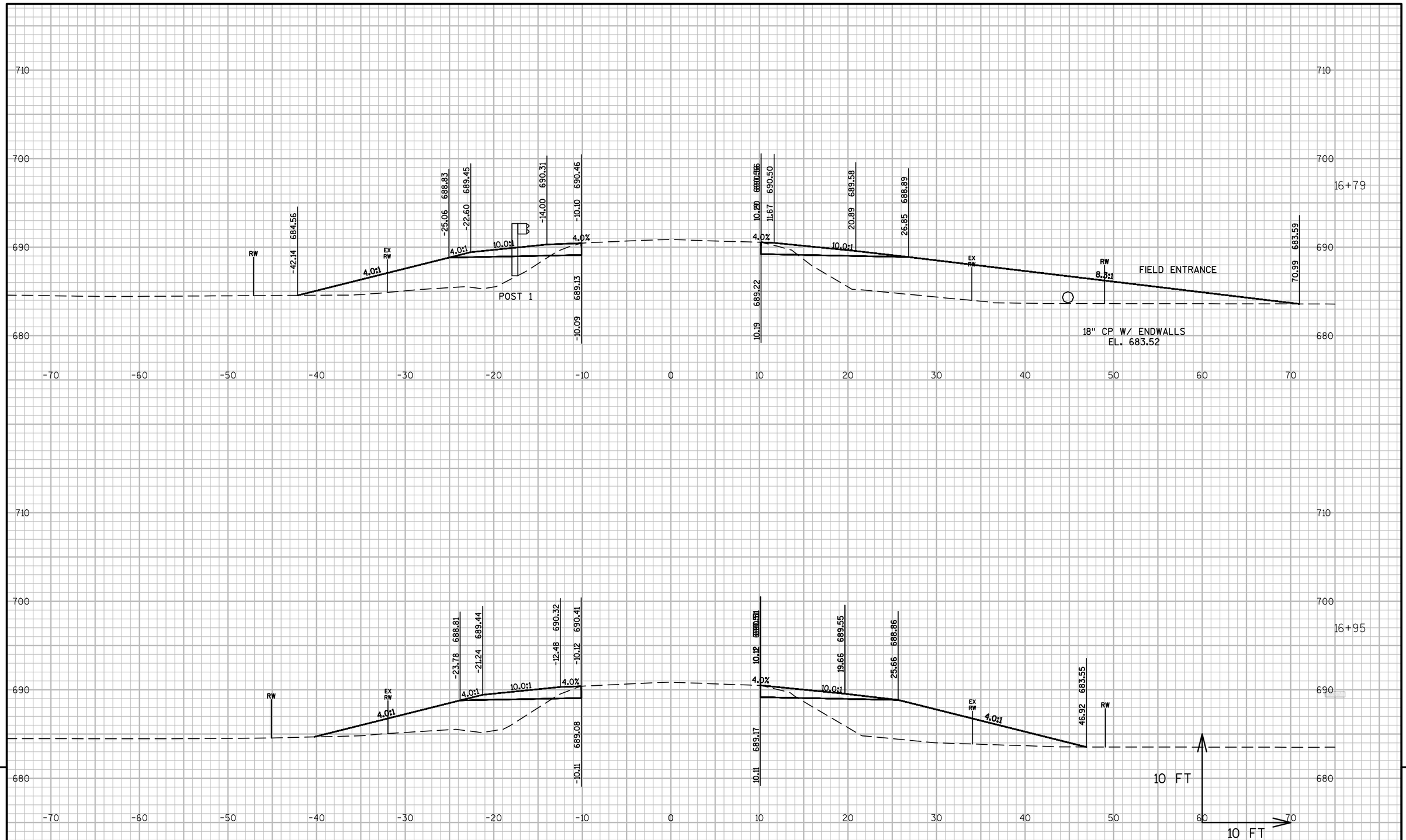
PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 75	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090213_XS

PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT



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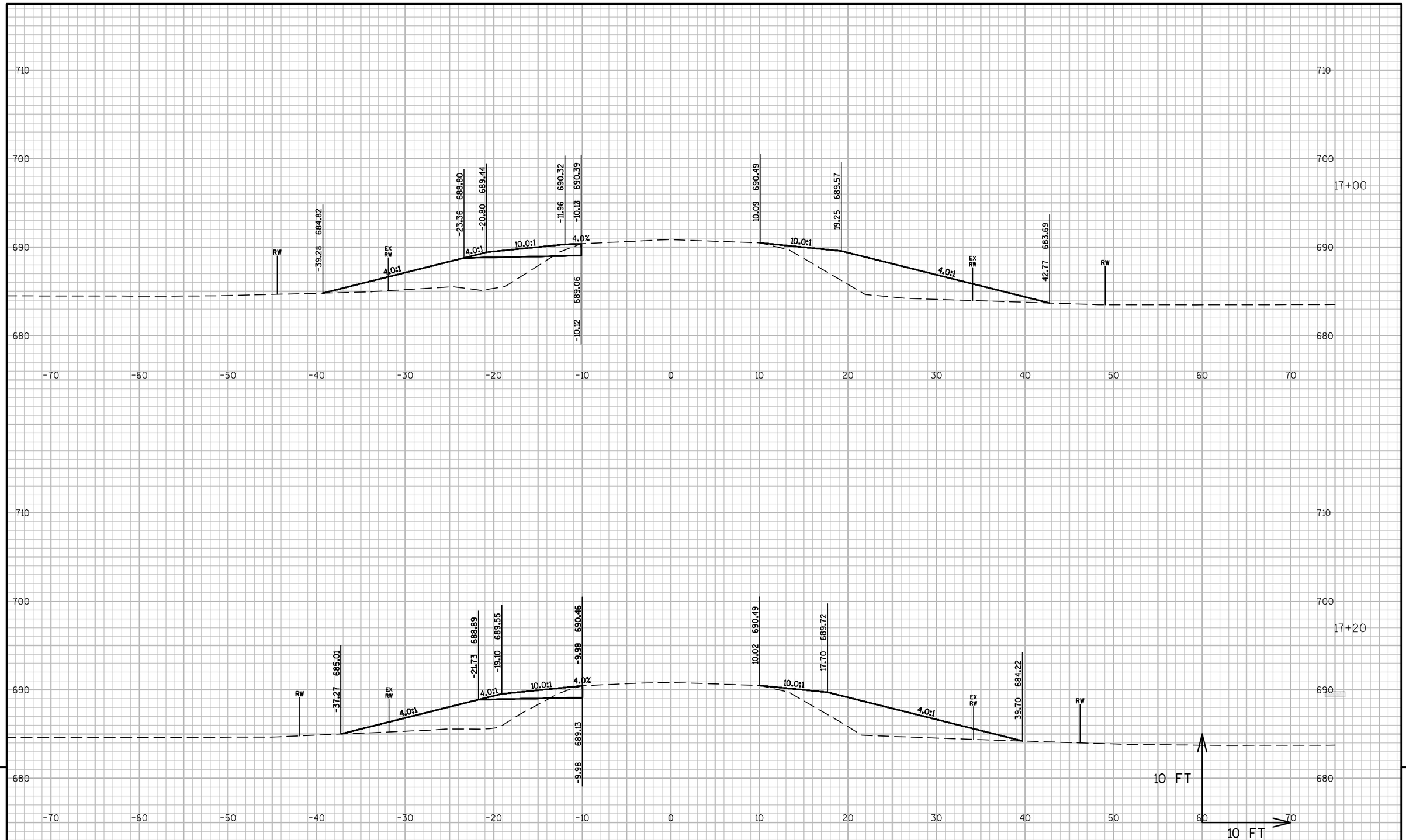
PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 76	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090214_XS

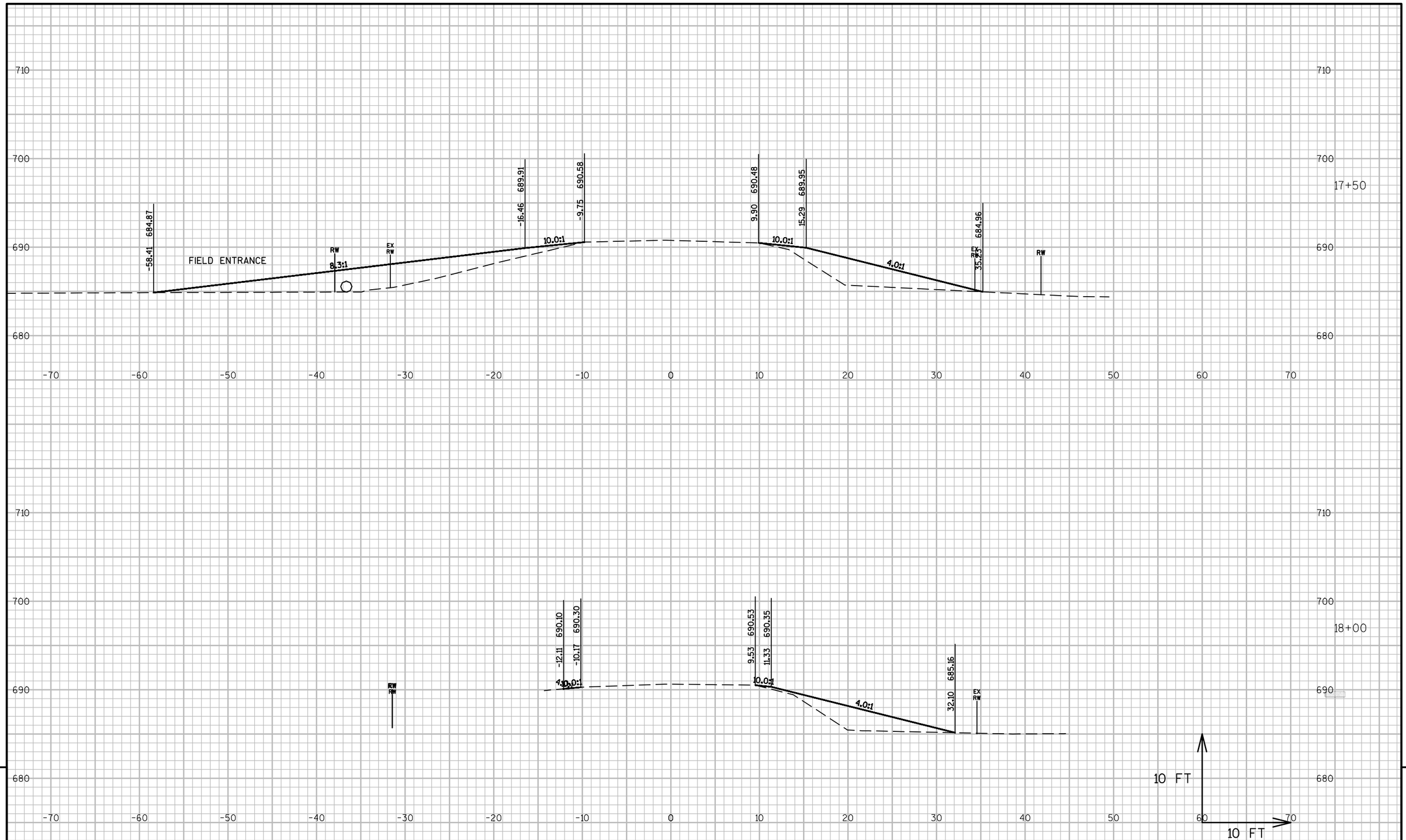
PLOT DATE : 6/29/2017 10:09 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT



PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 77	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090215_XS

PLOT DATE : 6/29/2017 10:10 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

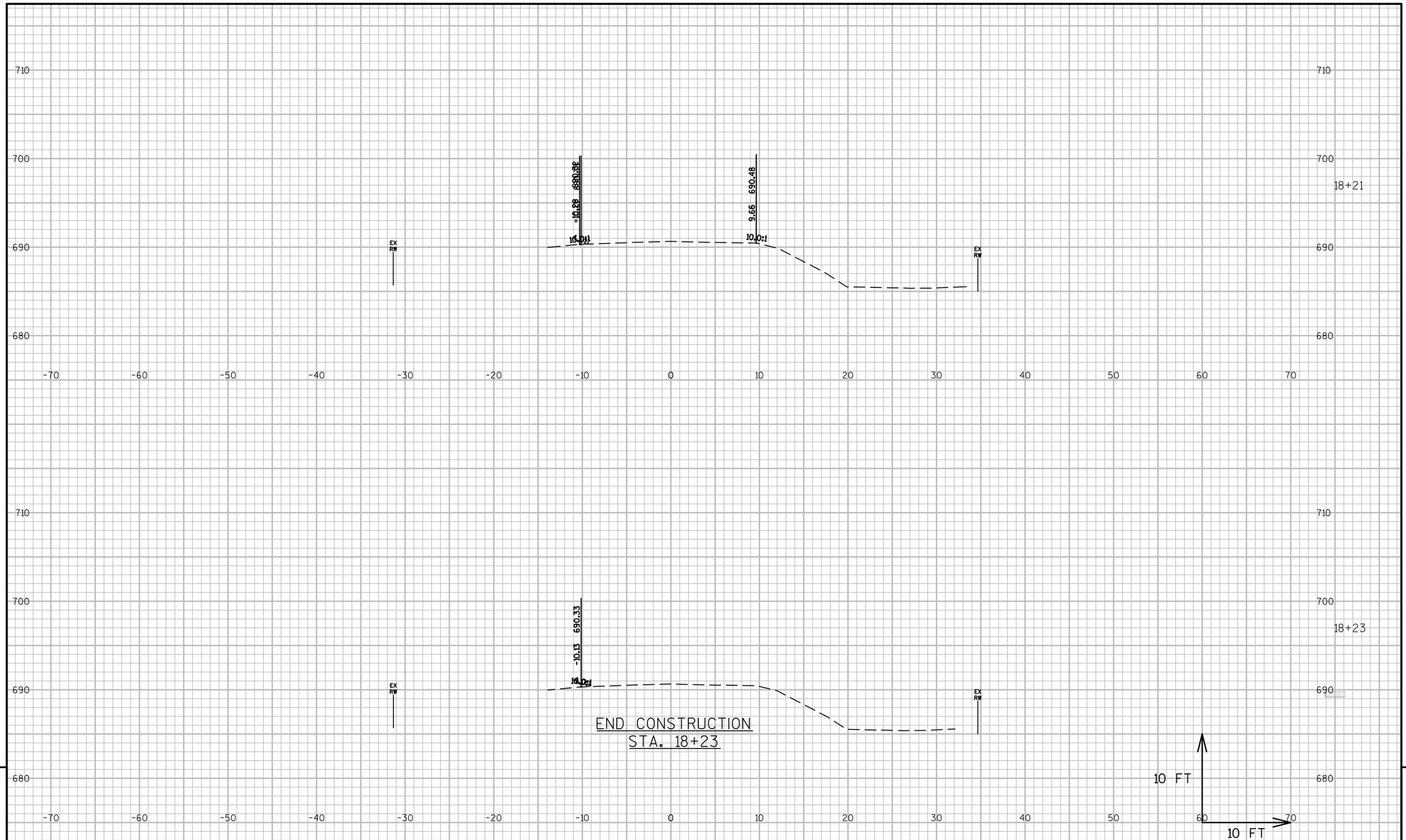


PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 78	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090216_XS

PLOT DATE : 6/29/2017 10:10 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 4200-05-71	HWY: MEADOWLARK RD	COUNTY: SHEBOYGAN	CROSS SECTIONS: MEADOWLARK ROAD	SHEET 79	E

FILE NAME : L:\PROJECTS\13018\DWG\4200-05-00\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 090217_XS

PLOT DATE : 6/29/2017 10:10 AM PLOT BY : MOYER, TIM PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

Wisconsin Department of Transportation

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