WIS

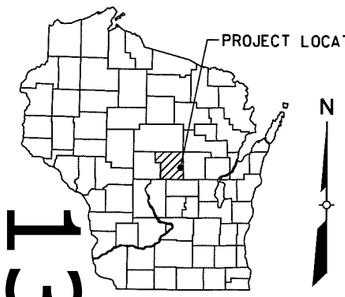
FEBRUARY 2019

PROJECT ID: 6784-00-70

WITH: N/A

ORDER OF SHEETS

TOTAL SHEETS = 80



13

DESIGN DESIGNATION

A.A.D.T.	2019	=	1300
A.A.D.T.	2039	=	1500
D.H.V.		=	206
D.D.		=	60-40
T.		=	5.4%
DESIGN SPEED		=	60 MPH
ESALS		=	190,000

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE (PL + 58.1)
- 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

- OVERHEAD UTILITIES (OH)
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

COUNTY: PORTAGE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

RIVER ROAD - USH 10

TOMORROW RIVER BRIDGE B-49-0187

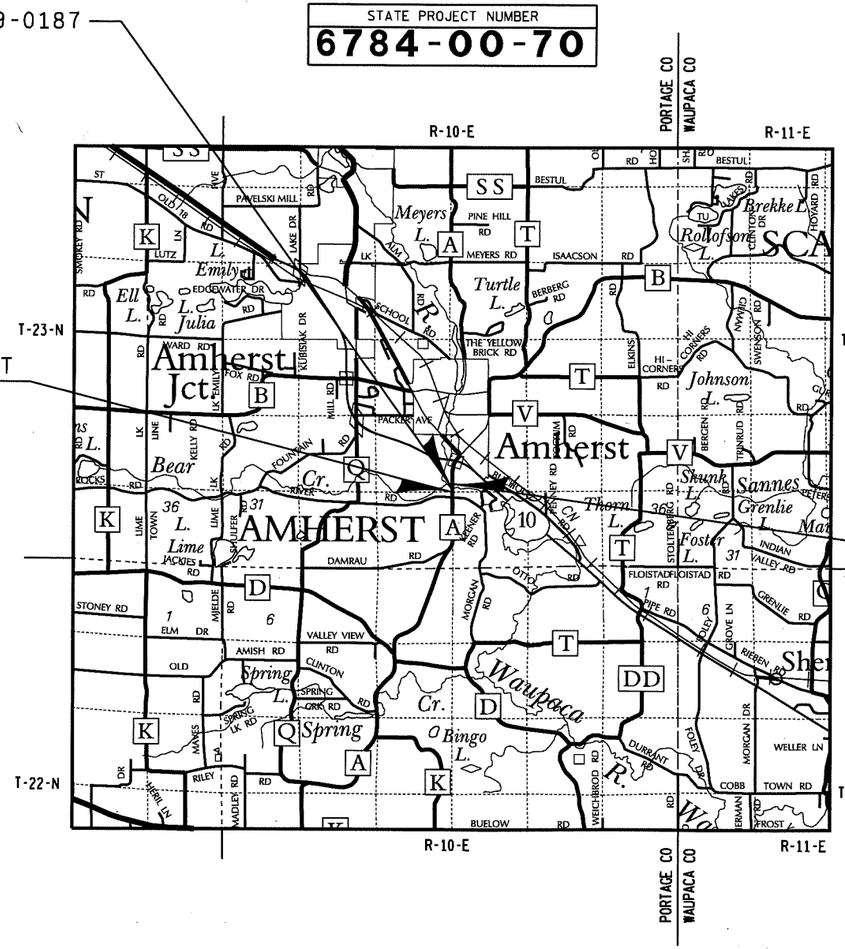
CTH A

PORTAGE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6784-00-70	———	———

STRUCTURE B-49-0187

STATE PROJECT NUMBER
6784-00-70



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.065 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, PORTAGE COUNTY.

ACCEPTED FOR COUNTY OF PORTAGE
BY

7/9/18 DATE

HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

AECOM

WISCONSIN
ISAAC W. DOLAN E-45009 WAUSAU, WI
PROFESSIONAL ENGINEER

07/05/2018 (Date)

(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

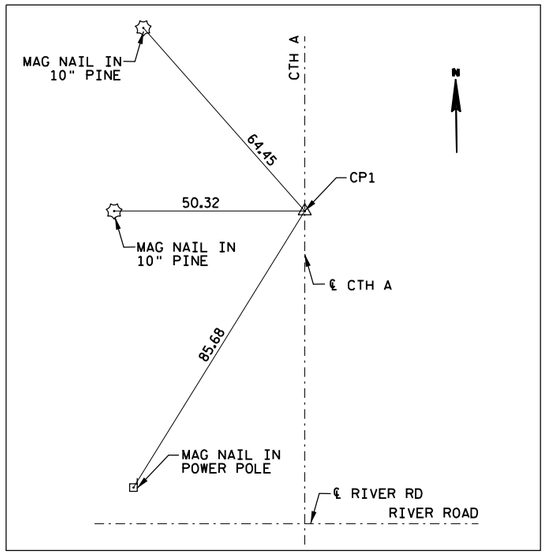
PREPARED BY

Surveyor	AECOM
Designer	AECOM
Management Consultant	CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT

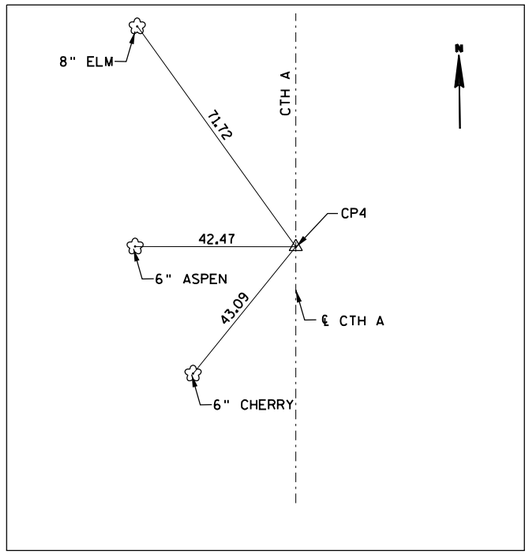
DATE: 7-27-2018 (Management Consultant Signature)

E



CONTROL POINT 1

MAG NAIL SET CL CTH A 500' SOUTH OF
BRIDGE AND 100' NORTH OF RIVER ROAD
Y=169,466.384
X=241,400.162



CONTROL POINT 4

MAG NAIL SET CL CTH A 500'
NORTH OF BRIDGE
Y=170,462.496
X=241,389.073

STANDARD ABBREVIATIONS

AVG	AVERAGE	EXC	EXCAVATION	R	RADIUS
BK	BACK	EXIST	EXISTING	RL OR ℄	REFERENCE LINE
BM	BENCH MARK	FE	FIELD ENTRANCE	RT	RIGHT
CL OR ℄	CENTER LINE	L	LENGTH OF CURVE	R/W	RIGHT OF WAY
△	CENTRAL ANGLE OR DELTA	N	NORTH	RD	ROAD
CE	COMMERCIAL ENTRANCE	PC	POINT OF CURVATURE	S	SOUTH
CTH	COUNTY TRUNK HIGHWAY	PI	POINT OF INTERSECTION	STA	STATION
CY OR CUYD	CUBIC YARD	PT	POINT OF TANGENCY	TLE	TEMPORARY LIMITED EASEMENT
CP	CULVERT PIPE	PE	PRIVATE ENTRANCE	T	TRUCKS (PERCENT OF)
D	DEGREE OF CURVE	PL	PROPERTY LINE	TYP	TYPICAL
DHV	DESIGN HOUR VOLUNE	PVC	VERTICAL POINT OF CURVE	USH	UNITED STATES HIGHWAY
DD	DIRECTIONAL DISTRIBUTION	PVI	VERTICAL POINT OF INTERSECTION	VC	VERTICAL CURVE
E	EAST	PVT	VERTICAL POINT OF TANGENCY	W	WEST
EL OR ELEV	ELEVATION				

UTILITY CONTACTS

ALLIANT ENERGY (ELECTRIC)
ATTN: CODY JACKSON
4040 SECOND STREET
AMHERST JUNCTION, WI 54407
(920) 322-6773 (OFFICE)
(920) 980-2271 (MOBILE)
codyjackson@alliantenergy.com

AMHERST TELEPHONE (TELEPHONE & FIBER OPTIC)
ATTN: THOMAS IVERSON
120 MILL STREET
PO BOX 279
AMHERST, WI 54406
(715) 824-5529

WDNR CONTACT

DEPARTMENT OF NATURAL RESOURCES
ATTN: CASEY JONES
473 GRIFFITH DRIVE
WISCONSIN RAPIDS, WI 54494
(715) 421-7867
casey.jones@wisconsin.gov

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

** DENOTES UTILITIES THAT ARE NOT DIGGER'S HOTLINE MEMBERS

GENERAL NOTES

THERE MAY BE UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IF REQUIRED, SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. LOCATION FOR EBS WILL BE DETERMINED BY THE ENGINEER.

SECTIONS AS SHOWN ON THE CROSS SECTION SHEETS INCLUDE THE THICKNESS OF TOPSOIL.

ELEVATIONS SHOWN ON THIS PLAN ARE BASED ON NAVD 88 DATUM.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

4.25-INCH HMA PAVEMENT SHALL BE CONSTRUCTED IN TWO (2) LAYERS.
THE UPPER LAYER SHALL BE 2-INCHES OF HMA PAVEMENT 4 LT 58-28 S.
THE LOWER LAYER SHALL BE 2.25-INCHES OF HMA PAVEMENT 3 LT 58-28 S.

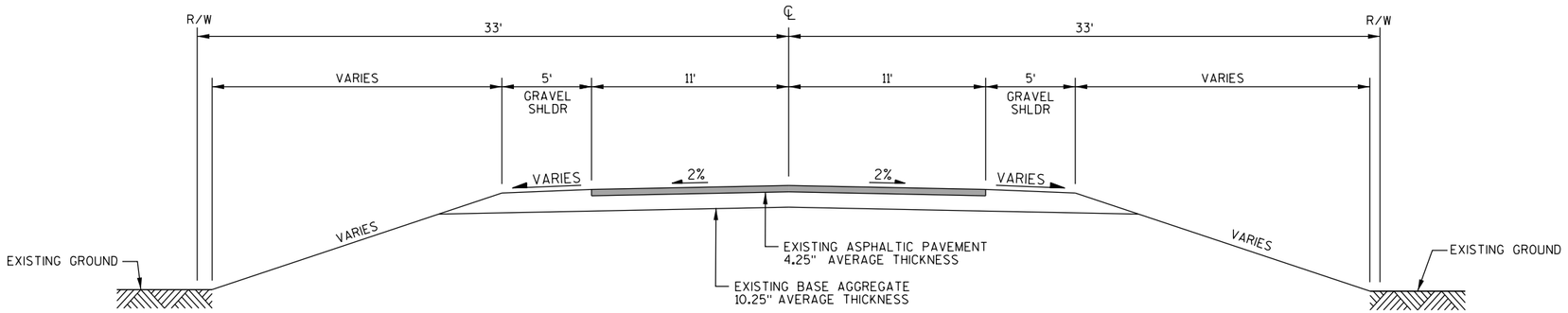
WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE EQUIPMENT OUTSIDE THE SLOPE INTERCEPTS.

THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR AN ALUMINUM MONUMENT TO SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER.

RUNOFF COEFFICIENT TABLE

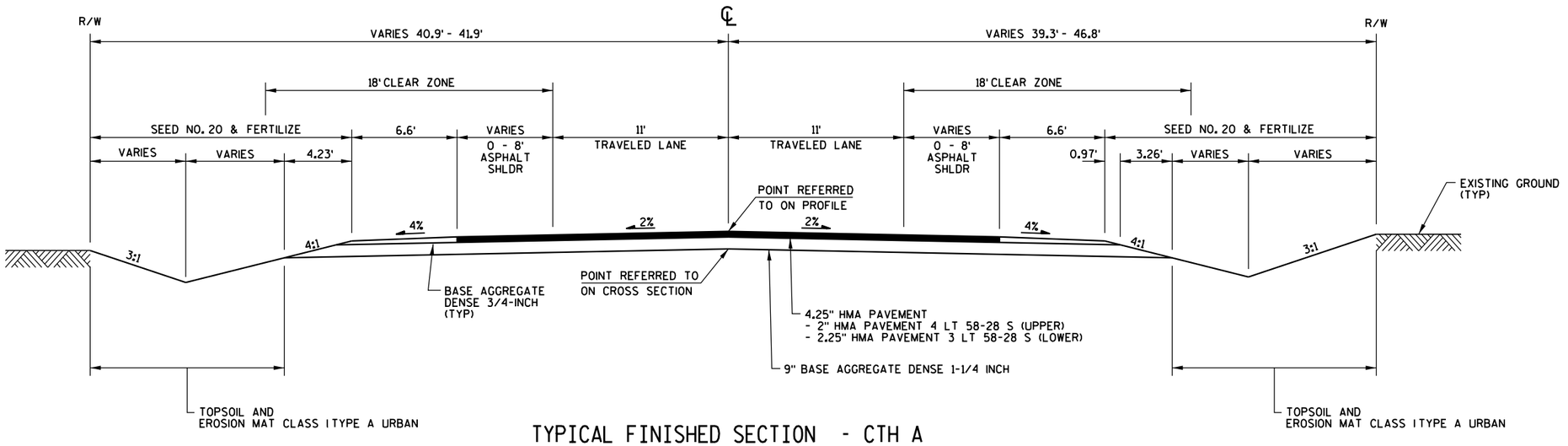
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

TOTAL PROJECT AREA = 1.183 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.726 ACRES



TYPICAL EXISTING SECTION - CTH A

STA 7+62.44 - STA 9+73.71
STA 10+26.29 - STA 11+07.20



TYPICAL FINISHED SECTION - CTH A

STA 7+62.44 - STA 8+54.12 LT
STA 7+62.44 - STA 8+63.24 RT

PROJECT NUMBER: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	TYPICAL SECTIONS	SHEET 3	E

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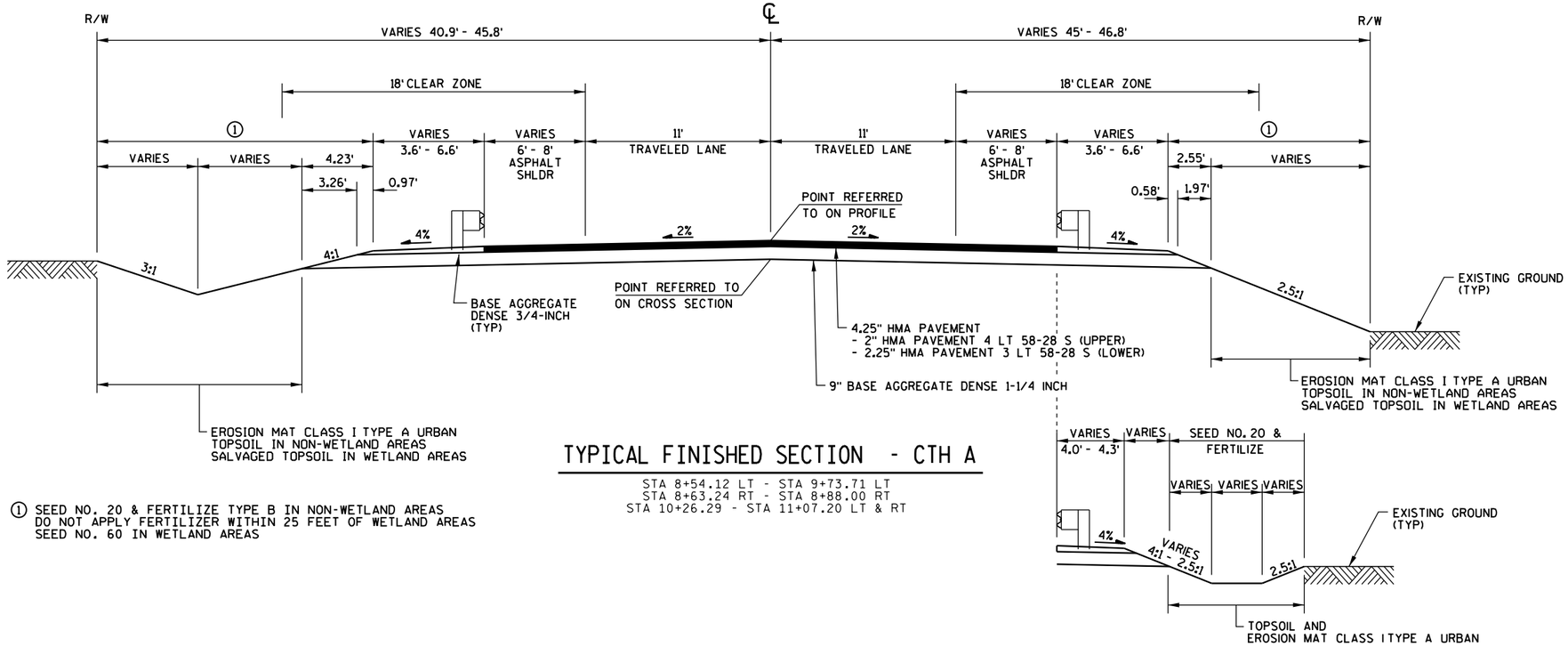
WISDOT/CADDS SHEET 42

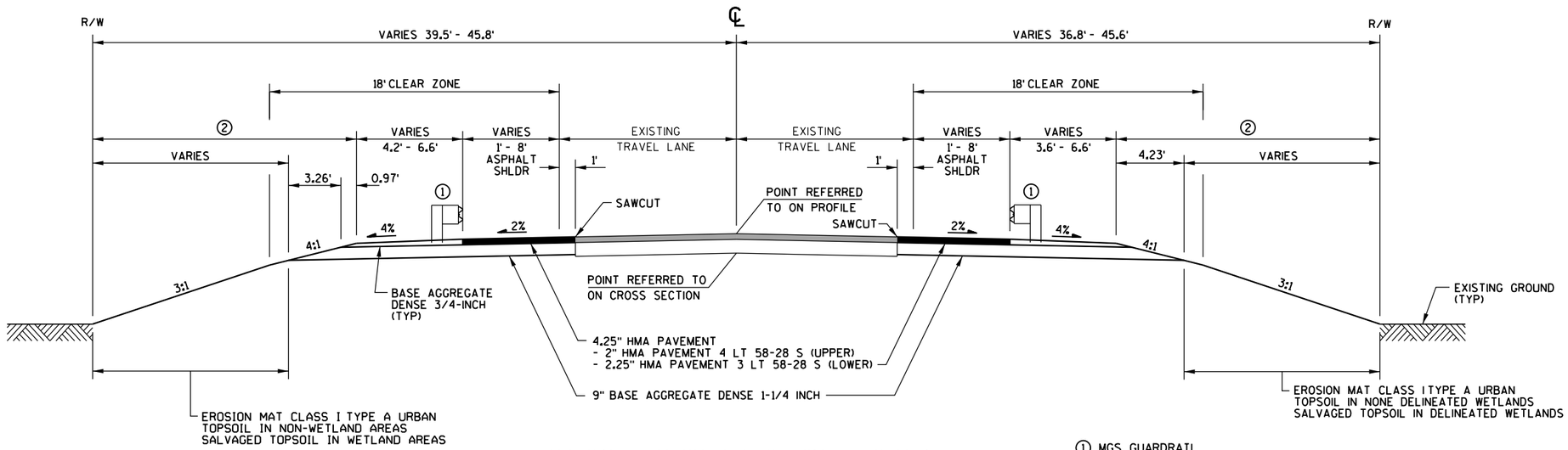


TYPICAL FINISHED SECTION - CTH A

STA 8+54.12 LT - STA 9+73.71 LT
STA 8+63.24 RT - STA 8+88.00 RT
STA 10+26.29 - STA 11+07.20 LT & RT

① SEED NO. 20 & FERTILIZE TYPE B IN NON-WETLAND AREAS
DO NOT APPLY FERTILIZER WITHIN 25 FEET OF WETLAND AREAS
SEED NO. 60 IN WETLAND AREAS

STA 8+88.00 RT - STA 9+73.71 RT



TYPICAL FINISHED SECTION - CTH A

STA 11+07.20 LT - STA 12+47.80 LT
STA 11+07.20 RT - STA 12+91.70 RT

① MGS GUARDRAIL
STA 11+07.20 LT - STA 11+36.76 LT
STA 11+07.20 RT - STA 11+57.81 RT

② SEED NO. 20 & FERTILIZE TYPE B IN NON-WETLAND AREAS
DO NOT APPLY FERTILIZER WITHIN 25 FEET OF WETLAND AREAS
SEED NO. 60 IN WETLAND AREAS

PROJECT NUMBER: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	TYPICAL SECTIONS	SHEET 4	E

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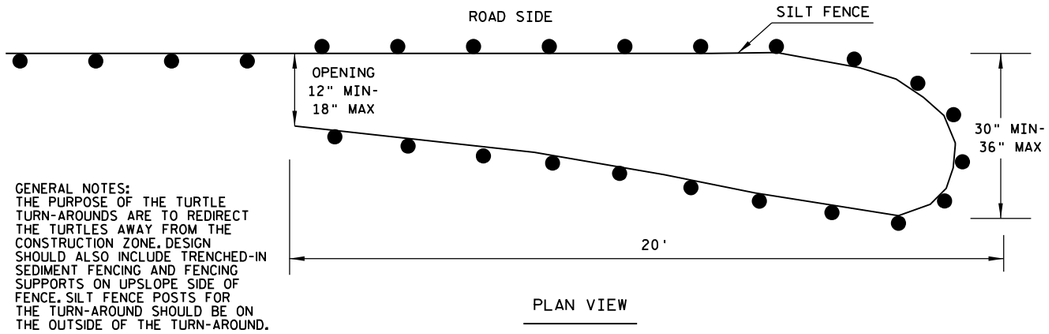
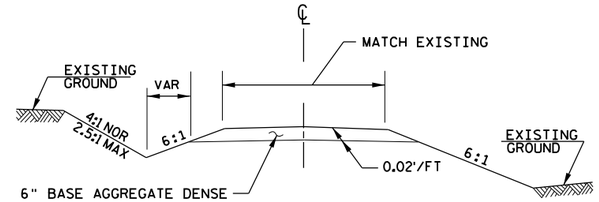


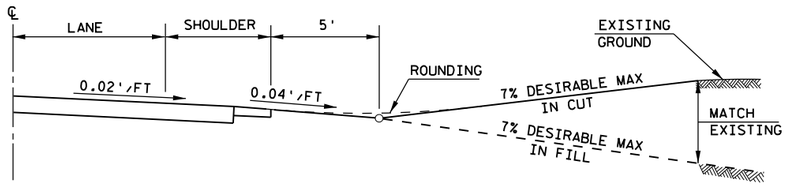
GENERAL NOTES:
THE PURPOSE OF THE TURTLE TURN-AROUNDS ARE TO REDIRECT THE TURTLES AWAY FROM THE CONSTRUCTION ZONE. DESIGN SHOULD ALSO INCLUDE TRENCHED-IN SEDIMENT FENCING AND FENCING SUPPORTS ON UPSLOPE SIDE OF FENCE. SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND.

PLAN VIEW

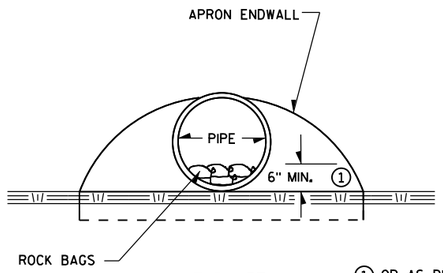
TEMPORARY TURTLE TURN-AROUND DETAIL



TYPICAL CROSS SECTION

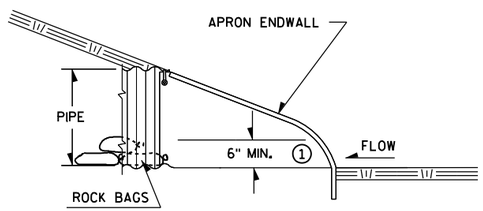


TYPICAL PROFILE VIEW



END VIEW

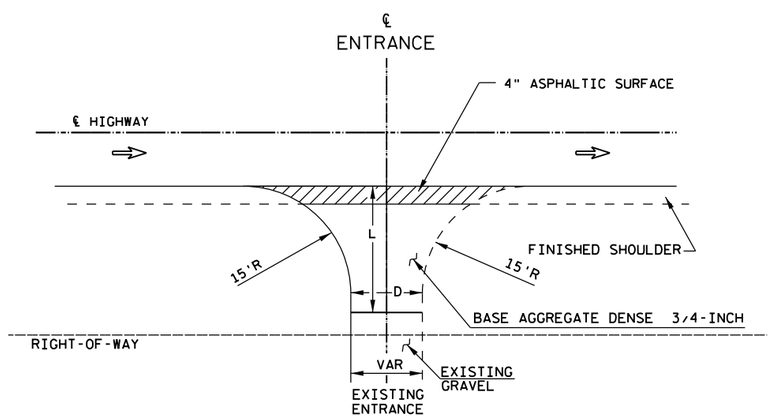
1 OR AS DIRECTED BY THE ENGINEER



SIDE VIEW

CULVERT PIPE CHECK

NTS



L=VARIABLE, EXACT LENGTH TO BE DETERMINED IN THE FIELD BY THE ENGINEER

D=DRIVEWAY WIDTH (MATCH EXISTING)

PLAN VIEW

RURAL DRIVEWAY INTERSECTION DETAIL

PROJECT NUMBER: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	CONSTRUCTION DETAILS	SHEET 5	E

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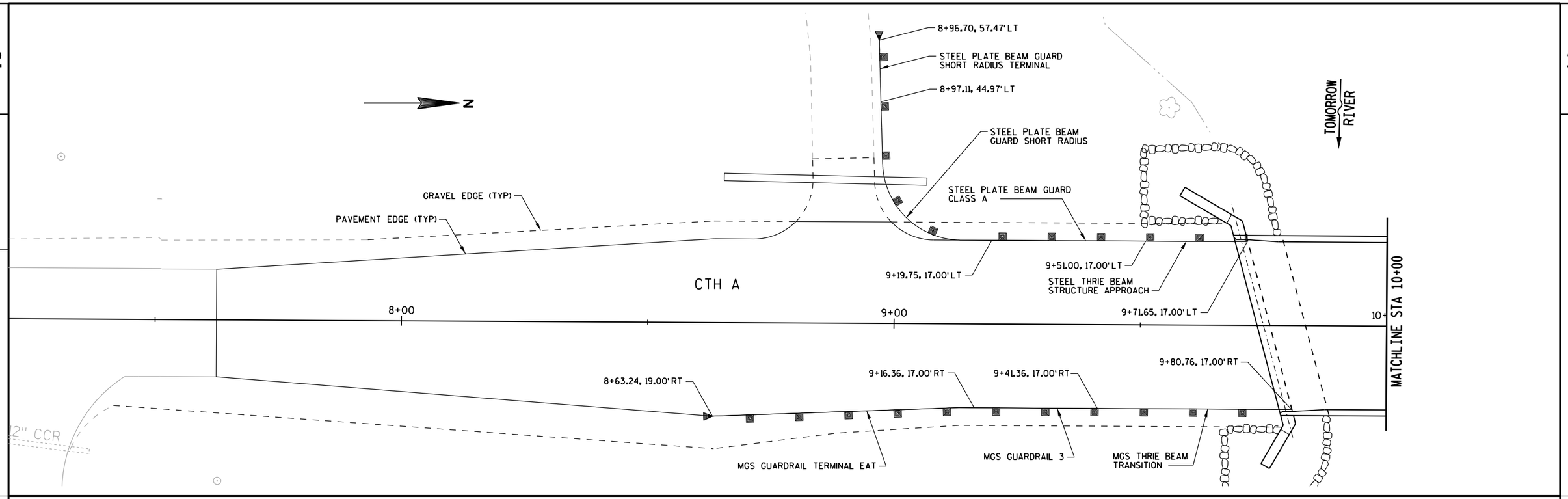

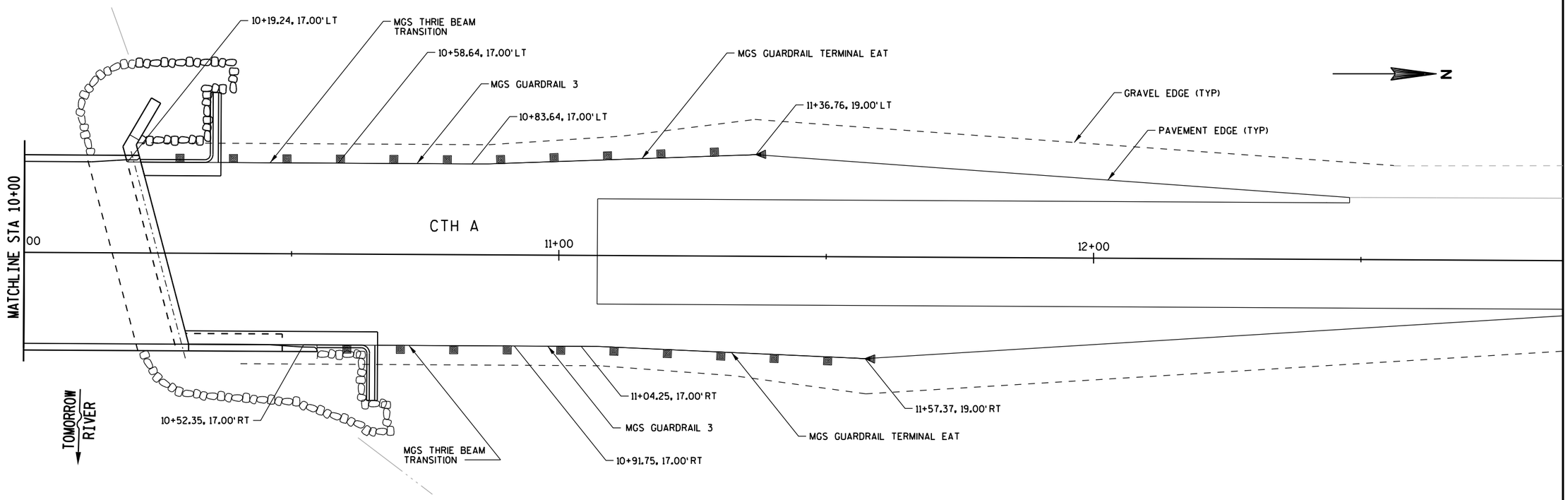

PROJECT NUMBER: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	CONSTRUCTION DETAILS - GUARDRAIL LAYOUT	SHEET 6	E

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PLOT SCALE: 1:20

2

N

BRIDGE OUT
R11-2B
48" X 30"

TOMORROW RIVER

BOAT PROHIBITED BUOY WITH FLASHING LIGHT (TYP)

BRIDGE OUT
R11-2B
48" X 30"

R/W

7+00 8+00 9+00 10+00 11+00 12+00 13+00

ASPHALT

CTH A

18" CCR

12" CCR

22' (TYP)

20' (TYP)

BEGIN PROJECT 6784-00-70
STA 7+62.44

END PROJECT 6784-00-70
STA 11+07.20

STRUCTURE B-49-187 REQUIRED

BRIDGE OUT
NO RECREATIONAL RIVER ACCESS
30" X 12"

EXAMPLE BUOY

NOTES:

ALL BUOYS TO BE LIGHTED FOR NIGHT TRAFFIC.

NAVIGATION SIGNAGE AND PERMITTING IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS INCIDENTAL TO THE CONTRACT.

PROJECT NUMBER: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	CONSTRUCTION DETAIL	SHEET 7	E

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PLOT DATE: 7/5/2018
PLOT TIME: 3:18:45 PM
PLOT SCALE: 1:40

6784-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	9.000	9.000
0004	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0006	203.0700.S	Removing Old Structure Over Waterway With Debris Capture System (station) 01. STA. 10+00	LS	1.000	1.000
0008	204.0165	Removing Guardrail	LF	287.000	287.000
0010	205.0100	Excavation Common	CY	663.000	663.000
0012	206.1000	Excavation for Structures Bridges (structure) 01. B-49-0187	LS	1.000	1.000
0014	208.0100	Borrow	CY	108.000	108.000
0016	210.1500	Backfill Structure Type A	TON	420.000	420.000
0018	213.0100	Finishing Roadway (project) 01. 6784-00-70	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	180.000	180.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,250.000	1,250.000
0024	312.0115	Select Crushed Material	CY	45.000	45.000
0026	416.1010	Concrete Surface Drains	CY	13.000	13.000
0028	455.0605	Tack Coat	GAL	70.000	70.000
0030	460.2000	Incentive Density HMA Pavement	DOL	200.000	200.000
0032	460.5223	HMA Pavement 3 LT 58-28 S	TON	163.000	163.000
0034	460.5224	HMA Pavement 4 LT 58-28 S	TON	144.000	144.000
0036	502.0100	Concrete Masonry Bridges	CY	257.000	257.000
0038	502.3200	Protective Surface Treatment	SY	200.000	200.000
0040	502.3210	Pigmented Surface Sealer	SY	64.000	64.000
0042	505.0400	Bar Steel Reinforcement HS Structures	LB	6,360.000	6,360.000
0044	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	39,860.000	39,860.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	24.000	24.000
0048	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	2.000
0050	520.3318	Culvert Pipe Class III-A 18-Inch	LF	40.000	40.000
0052	550.0500	Pile Points	EACH	18.000	18.000
0054	550.2104	Piling CIP Concrete 10 3/4 X 0.25-Inch	LF	1,980.000	1,980.000
0056	606.0300	Riprap Heavy	CY	170.000	170.000
0058	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	170.000	170.000
0060	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0062	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000
0064	614.0305	Steel Plate Beam Guard Class A	LF	31.000	31.000
0066	614.0345	Steel Plate Beam Guard Short Radius	LF	43.000	43.000
0068	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0070	614.2300	MGS Guardrail 3	LF	62.500	62.500
0072	614.2500	MGS Thrie Beam Transition	LF	112.500	112.500
0074	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0076	618.0100	Maintenance And Repair of Haul Roads (project) 01.	EACH	1.000	1.000

6784-00-70

Line	Item	Item Description	Unit	Total	Qty
		6784-00-70			
0078	619.1000	Mobilization	EACH	1.000	1.000
0080	624.0100	Water	MGAL	17.000	17.000
0082	625.0100	Topsoil	SY	455.000	455.000
0084	625.0500	Salvaged Topsoil	SY	945.000	945.000
0086	628.1504	Silt Fence	LF	1,180.000	1,180.000
0088	628.1520	Silt Fence Maintenance	LF	1,180.000	1,180.000
0090	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0092	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0094	628.2006	Erosion Mat Urban Class I Type A	SY	1,400.000	1,400.000
0096	628.6005	Turbidity Barriers	SY	300.000	300.000
0098	628.7504	Temporary Ditch Checks	LF	30.000	30.000
0100	628.7555	Culvert Pipe Checks	EACH	2.000	2.000
0102	628.7570	Rock Bags	EACH	1.000	1.000
0104	629.0210	Fertilizer Type B	CWT	1.100	1.100
0106	630.0120	Seeding Mixture No. 20	LB	20.000	20.000
0108	630.0160	Seeding Mixture No. 60	LB	35.000	35.000
0110	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0112	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0114	638.2102	Moving Signs Type II	EACH	3.000	3.000
0116	638.2602	Removing Signs Type II	EACH	4.000	4.000
0118	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0120	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0122	642.5001	Field Office Type B	EACH	1.000	1.000
0124	643.0420	Traffic Control Barricades Type III	DAY	980.000	980.000
0126	643.0705	Traffic Control Warning Lights Type A	DAY	1,960.000	1,960.000
0128	643.0900	Traffic Control Signs	DAY	840.000	840.000
0130	643.1000	Traffic Control Signs Fixed Message	SF	15.000	15.000
0132	643.5000	Traffic Control	EACH	1.000	1.000
0134	645.0111	Geotextile Type DF Schedule A	SY	110.000	110.000
0136	645.0120	Geotextile Type HR	SY	420.000	420.000
0138	646.1020	Marking Line Epoxy 4-Inch	LF	1,706.000	1,706.000
0140	650.4500	Construction Staking Subgrade	LF	293.000	293.000
0142	650.5000	Construction Staking Base	LF	486.000	486.000
0144	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0146	650.6500	Construction Staking Structure Layout (structure) 01. B-49-0187	LS	1.000	1.000
0148	650.9910	Construction Staking Supplemental Control (project) 01. 6784-00-70	LS	1.000	1.000
0150	650.9920	Construction Staking Slope Stakes	LF	486.000	486.000

6784-00-70

Line	Item	Item Description	Unit	Total	Qty
0152	690.0150	Sawing Asphalt	LF	369.000	369.000
0154	715.0502	Incentive Strength Concrete Structures	DOL	1,542.000	1,542.000

GRUBBING

STATION	-	STATION	LOCATION	201.0205 GRUBBING STA
7+62	-	8+50	LT	1
7+62	-	8+58	RT	1
9+42	-	9+79	LT	1
9+51	-	9+70	RT	1
10+29	-	12+26	LT	2
10+68	-	12+67	RT	2
UNDISTRIBUTED				1
PROJECT 6784-00-70 TOTAL				**9**

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	SIZE (IN)	TYPE	203.0100 REMOVING SMALL PIPE CULVERTS EACH
8+90	25' LT	18	CCR	1
PROJECT 6784-00-70 TOTAL				**1**

REMOVING GUARDRAIL

STATION	-	STATION	OFFSET	204.0165 REMOVING GUARDRAIL LF	COMMENTS
9+20	-	9+92	RT	72	REMOVE ALL EXISTING GUARDRAIL UP TO EXISTING W-SECTION BRIDGE RAILING
9+22	-	9+92	LT	71	REMOVE ALL EXISTING GUARDRAIL UP TO EXISTING W-SECTION BRIDGE RAILING
10+09	-	10+81	RT	72	REMOVE ALL EXISTING GUARDRAIL UP TO EXISTING W-SECTION BRIDGE RAILING
10+09	-	10+81	LT	72	REMOVE ALL EXISTING GUARDRAIL UP TO EXISTING W-SECTION BRIDGE RAILING
PROJECT 6784-00-70 TOTAL				**287**	

Division	From/To Station	Location	Excavation Common (1) (Item #205.0100) Cut (2)	Salvaged/ Unusable Pavement Material (3)	Available Material (4)	Unexpanded Fill	Expanded Fill (5) Factor 1.25	Mass Ordinate +/- (6)	Waste	Borrow (Item #208.0100)	Comment:
1	7+00.00 - 9+73.71	South Approach	303	66	237	143	178	59			
		CTH A South Approach Subtotal	303	66	237	143	178	59			
2	10+26.29 to 13+00.00	North Approach	360	25	335	401	501	-167			
		CTH A North Approach Subtotal	360	25	335	401	501	-167		108	See Note 7.
Grand Total			663	92	571	544	679	-108	0	108	

1) Excavation Common is the sum of the Cut column. Item No. 205.0100.
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) Salvaged/Unusable Pavement Material.
4) Available Material = Cut - Salvaged/Unusuable Pavement Material
5) Expanded Fill. Factor = 1.25
6) 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.
7) Use 59 CY of material from CTH A South Approach. Borrow item number 208.0100.

FINISHING ROADWAY

PROJECT	213.0100 FINISHING ROADWAY EACH
6784-00-70	1
PROJECT 6784-00-70 TOTAL	**1**

CONCRETE SURFACE DRAINS

STATION	OFFSET	LOCATION	416.1010 CONCRETE SURFACE DRAINS CY
10+30	14.5' LT	CTH A, NORTH APPROACH	6
10+61	14.5' RT	CTH A, NORTH APPROACH	7
PROJECT 6784-00-70 TOTAL			**13**

BASE AGGREGATE DENSE

STATION	-	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	624.0100 WATER MGAL	REMARKS
7+39	-	9+79	CTH A	65	550	7	SOUTH APPROACH & SHOULDERS
10+21	-	12+95	CTH A	80	480	6	NORTH APPROACH & SHOULDERS
8+90			CTH A, LT	6	---	1	PRIVATE ENTRANCE
UNDISTRIBUTED			CTH A	29	220	3	UNDISTRIBUTED QUANTITY
PROJECT 6784-00-70 TOTAL				**180**	**1,250**	**17**	

ASPHALT PAVEMENT ITEMS

STATION	-	STATION	OFFSET	LOCATION	455.0605 TACK COAT GAL	460.5223 HMA PAVEMENT 3 LT 58-28 S TON	460.5224 HMA PAVEMENT 4 LT 58-28 S TON
7+62	-	9+74	---	CTH A, SOUTH APPROACH	40	96	85
10+26	-	12+92	---	CTH A, NORTH APPROACH	30	67	59
PROJECT 6784-00-70 TOTAL					**70**	**163**	**144**

CULVERT PIPES

STATION	LOCATION	NUMBER OF CULVERTS	520.3318 CULVERT PIPE CLASS III-A 18-INCH LF	520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH EACH
8+90	CTH A, LT	1	40	2
PROJECT 6784-00-70 TOTAL			**40**	**2**

MINIMUM THICKNESS FOR STEEL CULVERT PIPE:
18-INCH THROUGH 24-INCH = 0.064 INCHES

GUARDRAIL

STATION - STATION	OFFSET	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+63 - 9+81	RT	---	---	---	---	25.0	37.5	1
8+97 - 9+72	LT	21	31	43	1	---	---	---
10+19 - 11+37	LT	---	---	---	---	25.0	37.5	1
10+52 - 11+57	RT	---	---	---	---	12.5	37.5	1
PROJECT 6784-00-70 TOTAL		**21**	**31**	**43**	**1**	**62.50**	**112.50**	**3**

LANDSCAPING

STATION - STATION	LOCATION	625.0100 TOPSOIL SY	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0160 SEEDING MIXTURE NO. 60 LB
7+62 - 8+84	LT	170	---	0.1	7	---
8+95 - 9+00	LT	10	---	0.1	1	---
9+00 - 9+50	LT	---	90	---	---	4
7+41 - 9+00	RT	183	---	0.2	7	---
9+00 - 9+67	RT	---	77	---	---	3
10+36 - 12+56	LT	---	280	0.2	---	11
10+66 - 12+96	RT	---	310	0.2	---	11
UNDISTRIBUTED		92	188	0.2	6	6
PROJECT 6784-00-70 TOTAL		**455**	**945**	**1.1**	**20**	**35**

EROSION CONTROL

STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	628.6005 TURBIDITY BARRIER SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH
8+00	RT	---	---	---	---	---	---	10	---	---
8+65	LT	---	---	---	---	---	---	---	2	---
9+00	RT	---	---	---	---	---	---	13	---	---
9+00 - 9+62	LT	102	102	---	---	---	---	---	---	---
7+67 - 9+78	RT	257	257	---	---	---	---	---	---	---
9+62 - 9+97	LT/RT	---	---	---	---	---	110	---	---	---
10+05 - 10+61	LT/RT	---	---	---	---	---	130	---	---	---
10+18 - 12+57	LT	284	284	---	---	---	---	---	---	---
10+61 - 12+96	RT	300	300	---	---	---	---	---	---	---
7+62 - 8+84	LT	---	---	---	---	170	---	---	---	---
8+95 - 9+50	LT	---	---	---	---	100	---	---	---	---
7+41 - 9+67	RT	---	---	---	---	260	---	---	---	---
10+36 - 12+56	LT	---	---	---	---	280	---	---	---	---
10+66 - 12+96	RT	---	---	---	---	310	---	---	---	---
6784-00-70		---	---	2	2	---	---	---	---	---
UNDISTRIBUTED		237	237	---	---	280	60	7	---	1
PROJECT 6784-00-70 TOTAL		**1,180**	**1,180**	**2**	**2**	**1,400**	**300**	**30**	**2**	**1**

TRAFFIC CONTROL

PROJECT	643.5000 TRAFFIC CONTROL EACH
6784-00-70	1
PROJECT 6784-00-70 TOTAL	1

PAVEMENT MARKING ITEMS

STATION - STATION	TYPE	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF	646.1020 MARKING LINE EPOXY 4-INCH YELLOW LF
7+62 - 11+07	BOTH EDGELINES (SOLID), CENTERLINE (DOUBLE SOLI	690	690
11+07 - 12+48	LEFT EDGELINE (SOLID)	141	---
11+07 - 12+92	RIGHT EDGELINE (SOLID)	185	---
SUBTOTAL		**1,016**	**690**
PROJECT 6784-00-70 TOTAL		**1,706**	

PERMANENT SIGNING

STATION	OFFSET	SIGN CODE	SIGN SIZE IN x IN	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
9+65	RT	---	---	---	---	1	---	---	1	EXISTING STA. 9+70, 15.8' RT, LOCAL SIGN.
9+65	RT	---	---	---	---	1	---	---	---	EXISTING STA. 9+70, 15.8' RT, MOUNTED ON SAME POST AS LOCAL SIGN
9+65	RT	---	---	---	---	1	---	---	---	EXISTING STA. 9+70, 15.8' RT, MOUNTED ON SAME POST AS LOCAL SIGN
9+68	LT	W5-52L	12"X36"	1	3.00	---	---	---	---	BRIDGE HASH MARKS
9+77	RT	W5-52R	12"X36"	1	3.00	---	---	---	---	BRIDGE HASH MARKS
9+80	RT	W5-52R	12"X36"	---	---	---	1	1	---	BRIDGE HASH MARKS (EXISTING)
9+80	LT	W5-52L	12"X36"	---	---	---	1	1	---	BRIDGE HASH MARKS (EXISTING)
10+20	RT	W5-52L	12"X36"	---	---	---	1	1	---	BRIDGE HASH MARKS (EXISTING)
10+20	LT	W5-52R	12"X36"	---	---	---	1	1	---	BRIDGE HASH MARKS (EXISTING)
10+23	LT	W5-52R	12"X36"	1	3.00	---	---	---	---	BRIDGE HASH MARKS
10+56	RT	W5-52L	12"X36"	1	3.00	---	---	---	---	BRIDGE HASH MARKS
				---	---	---	---	---	---	
PROJECT 6784-00-70 TOTAL				**4**	**12**	**3**	**4**	**4**	**1**	

CONSTRUCTION STAKING

STATION	-	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6000 PIPE CULVERTS EACH	650.9910 SUPPLEMENTAL CONTROL 6784-00-70 LS	650.9920 SLOPE STAKES LF
7+62	-	9+74	CTH A	212	212	---	---	212
8+90			DRIVEWAY, LT	---	---	1	---	---
10+26	-	11+07	CTH A	81	81	---	---	81
11+07	-	13+00	CTH A	---	193	---	---	193
6784-00-70			CTH A	---	---	---	1	---
PROJECT 6784-00-70 TOTAL				**293**	**486**	**1**	**1**	**486**

FIELD OFFICE

PROJECT	642.5001 TYPE B EACH
6784-00-70	1
PROJECT 6784-00-70 TOTAL	1

TRAFFIC CONTROL

LOCATION	DAYS IN SERVICE	643.0420 TRAFFIC CONTROL BARRICADES TYPE III NO.	DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO.	DAY	643.0900 TRAFFIC CONTROL SIGNS NO.	DAY	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE NO.	SIZE	SF
PROJECT	70	14	980	28	1,960	12	840	6	30" X 12"	15
PROJECT 6784-00-70 TOTAL			**980**		**1,960**		**840**			**15**

SAWING PAVEMENT

STATION	LOCATION	690.0150 SAWING ASPHALT LF
7+62	CTH A, SOUTH APPROACH	22
117+47	CTH A, NORTH APPROACH	347
PROJECT 6784-00-70 TOTAL		**369**

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
6784-00-00	4.01	2
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT-OF-WAY REQUIRED FOR

RIVER ROAD - USH 10
TOMORROW RIVER BRIDGE B-49-0320

CTH A — PORTAGE COUNTY

CONSTRUCTION PROJECT NUMBER
6784-00-70

CONVENTIONAL SIGNS AND ABBREVIATIONS

STATE LINE
COUNTY LINE
TOWNSHIP AND RANGE LINES
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W LINE
PROPERTY LINE (P.L.)
CORPORATE LIMITS (NAME)
LOT, TIE AND OTHER MINOR LINES
SLOPE INTERCEPTS
UNDERGROUND FACILITY (Communications, Electric, Etc.) (C (Type))
FENCE
FEE INTEREST
TEMPORARY INTEREST
EASEMENT (Highway, Permanent Limited or Restricted Development)
BEAM GUARD
TRANSMISSION STRUCTURES (Line Optional)
RAIL LINE (SMALL SCALE) (LARGE SCALE)

SECTION CORNER
NOTATION FOR COMBUSTABLE FLUIDS (CAUTION)
NOTATION FOR HIGH VOLTAGE TRANSMISSION LINES (CAUTION)
BRIDGE (NAME)
STREAM OR RIVER (NAME)
LAKE (NAME)
CULVERT (Box, Pipe Or Cattle Pass) (Type)
SIGN / SIGN
R/W POINT NUMBER (100)

FOUNDATION OR RUIN (FDN.)
BUILDING (TYPE)
CEMETERY
R/W MONUMENT
NON-MONUMENTED R/W POINT
IRON PIN (I.P.)
VALVE (GAS (TYPE))
WINDMILL
MANHOLE, SEPTIC VENT, WELL, ETC. (M.H. (Type))
GAS PUMPS (G.P.)
BUSHES
TREES (Deciduous) (Coniferous)
WOODS
ENCROACHING SIGN (E-1 SIGN)
FOUND MONUMENT NUMBER (100)

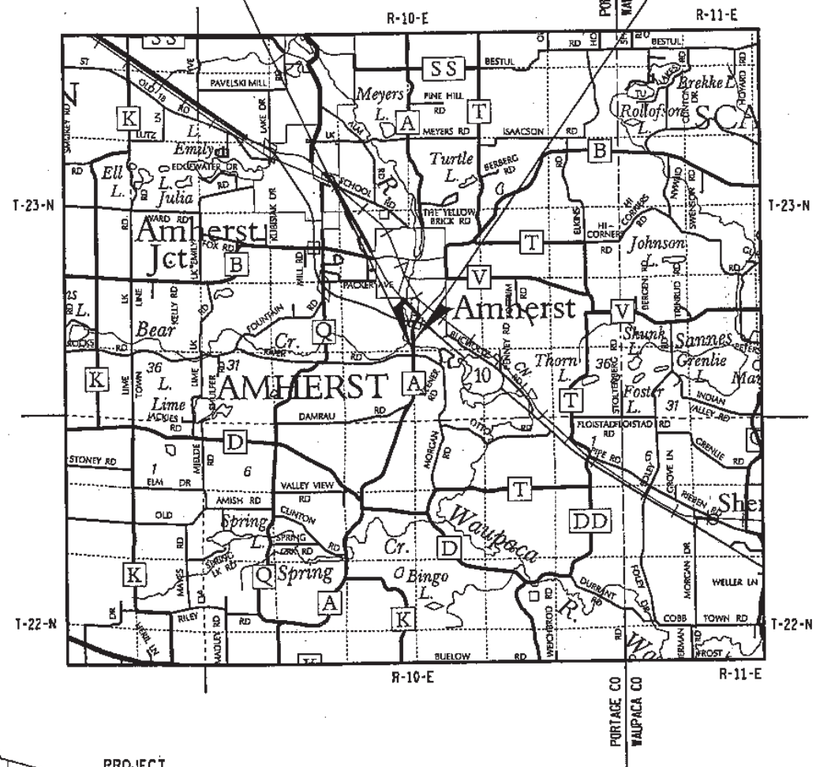
	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE		
TELEPHONE POLE		
PEDESTAL (Label Type - Communications, Electric)		

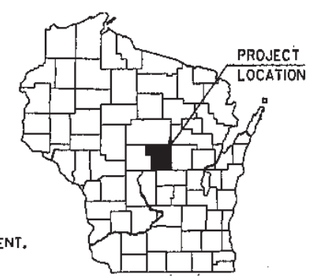
NO ACCESS (By Acquisition)
NO ACCESS (By Statutory Authority) 69,726.948
NO ACCESS (By Previous Project) 241.39T.169

PI or PI °	Point of Intersection Deflection Angle	ST	Street
D	Degree of Curve	IP	Iron Pipe or Iron Pin
T	Tangent Length	CSM	Certified Survey Map
L	Length	COR	Corner
R	Radius	LC	Long Chord
CATV	Cable Television Line	LCB	Long Chord Bearing
FO	Fiber Optic Cable	MI	Miles
G	Gas Line	MISC	Miscellaneous
GUY	Guy Wire	N/A	Not Available or Applicable
GV	Gas Valve	PL	Property Line
SAN	Sanitary Sewer Line	PLE	Permanent Limited Easement
SEPV	Septic Vent	POB	Point of Beginning
T	Telephone Line	PC	Point of Curvature
W	Water Line	PG	Page
ANT	Antenna	PROP	Property Corner
B	Barn or Building	PT	Point of Tangency
G	Garage	R/W	Right of Way
H	House	RD	Road
S	Shed	REM	Remnant
CTH	County Trunk Highway	SF	Square Feet
CORP	Corporation	SEC	Section
LLC	Limited Liability Corporation	STA	Station
RR	Railroad	TLE	Temporary Limited Easement
STH	State Trunk Highway	VOL	Volume

BEGIN RELOCATION ORDER
STA. 7+40.00
22.55' SOUTH AND 0.32' EAST OF THE SOUTHEAST CORNER OF SECTION 28, T23N, R10E.

END RELOCATION ORDER
STA. 13+30.00
567.43' NORTH AND 4.86' WEST OF THE SOUTHEAST CORNER OF SECTION 28, T23N, R10E.





LAYOUT
SCALE 0 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.112 MI.

ORIGINAL PLAT PREPARED BY
AECOM

WISCONSIN
LANCE J. HABECK
S-1444
PLOVER, WI
LAND SURVEYOR

Lance J. Habeck
LANCE J. HABECK, PLS-1444

DATE: 1/8/2018

REVISION DATE	PORTAGE COUNTY HIGHWAY DEPARTMENT
8/1/2018	APPROVED FOR THE DEPARTMENT DATE: 7/30/18 (Signature)

E

NOTES

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

RIGHT OF WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 3/4 " X 24" REBAR) 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 SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD.

FOR CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PORTAGE COUNTY COUNTY HIGHWAY DEPARTMENT.

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. EXCLUDING RIGHTOF WAY LINES, THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

FOUND PROPERTY IRON TABLE

POINT	Y	X	TYPE
201	169657.628	241430.691	3/4" REBAR FOUND
202	169677.737	241430.325	1" IRON PIPE FOUND
203	169659.053	241364.785	3/4" REBAR FOUND
204	169694.938	241364.503	3/4" REBAR FOUND
205	169727.550	241429.821	1" IRON PIPE FOUND
206	169872.170	241362.707	3/4" REBAR FOUND
207	169919.568	241428.370	1" IRON PIPE FOUND

NOTE: EXISTING RIGHT OF WAY FOR CTH A WAS ESTABLISHED BY CSM 1148, CSM 4372, CSM 9269 AND GOVERNMENT LAND LINES.

BRIDGE NUMBERS
EXISTING BRIDGE - B-49-0320
PROPOSED BRIDGE - B-49-0187

P.I. = 7+00.00
Y 169664.511
X 241397.717

P.I. = 13+50.00
Y 170314.486
X 241392.014

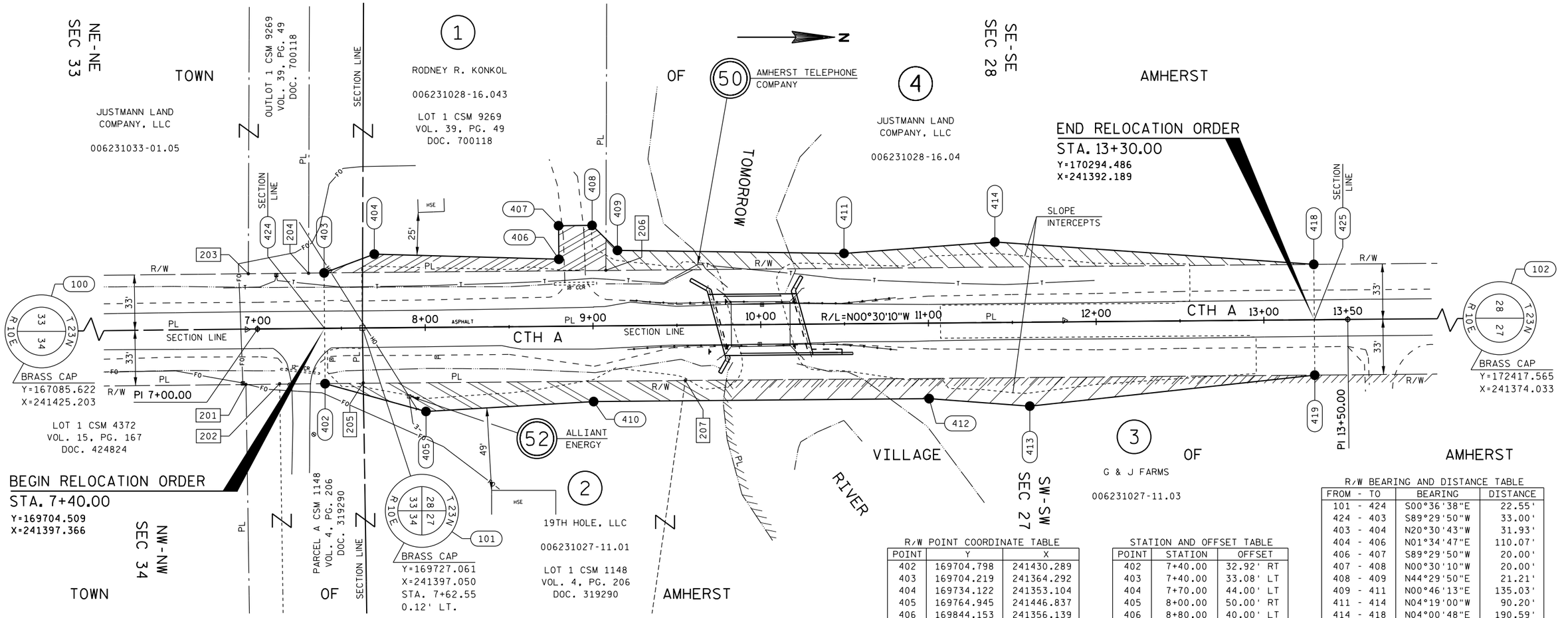
UTILITY SCHEDULE OF INTERESTS

PARCEL	UTILITY NAME	UTILITY INTEREST
50	AMHERST TELEPHONE COMPANY	RELEASE OF RIGHTS
52	ALLIANT ENERGY	RELEASE OF RIGHTS

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO PORTAGE COUNTY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES REQUIRED NEW	EXISTING	TOTAL
1	RODNEY R. KONKOL	FEE	0.043	-----	0.043
2	19TH HOLE, LLC	FEE	0.067	-----	0.067
3	G & J FARMS	FEE	0.087	0.430	0.517
4	JUSTMANN LAND COMPANY, LLC	FEE	0.092	0.447	0.539



UTILITY EASEMENT TABLE

UTILITY PARCEL	UTILITY NAME	DOCUMENT INFORMATION	PARCELS AFFECTED
50	AMHERST TELEPHONE COMPANY	VOL. 173, PG. 242, DOC. 170239	1 & 4
50	AMHERST TELEPHONE COMPANY	VOL. 173, PG. 241, DOC. 170235	1 & 4

R/W POINT COORDINATE TABLE

POINT	Y	X
402	169704.798	241430.289
403	169704.219	241364.292
404	169734.122	241353.104
405	169764.945	241446.837
406	169844.153	241356.139
407	169843.977	241336.140
408	169863.976	241335.964
409	169879.108	241350.832
410	169864.898	241440.960
411	170014.129	241352.647
412	170064.890	241439.205
413	170124.932	241443.679
414	170104.073	241345.858
418	170294.197	241359.197
419	170294.776	241425.194
424	169704.508	241397.290
425	170294.486	241392.196

STATION AND OFFSET TABLE

POINT	STATION	OFFSET
402	7+40.00	32.92' RT
403	7+40.00	33.08' LT
404	7+70.00	44.00' LT
405	8+00.00	50.00' RT
406	8+80.00	40.00' LT
407	8+80.00	60.00' LT
408	9+00.00	60.00' LT
409	9+15.00	45.00' LT
410	9+00.00	45.00' RT
411	10+50.00	42.00' LT
412	11+00.00	45.00' RT
413	11+60.00	50.00' RT
414	11+40.00	48.00' LT
418	13+30.00	32.99' LT
419	13+30.00	33.01' RT
424	7+40.00	0.08' LT
425	13+30.00	0.01' RT

R/W BEARING AND DISTANCE TABLE

FROM - TO	BEARING	DISTANCE
101 - 424	S00°36'38"E	22.55'
424 - 403	S89°29'50"W	33.00'
403 - 404	N20°30'43"W	31.93'
404 - 406	N01°34'47"E	110.07'
406 - 407	S89°29'50"W	20.00'
407 - 408	N00°30'10"W	20.00'
408 - 409	N44°29'50"E	21.21'
409 - 411	N00°46'13"E	135.03'
411 - 414	N04°19'00"W	90.20'
414 - 418	N04°00'48"E	190.59'
418 - 425	N89°29'50"E	33.00'
425 - 419	N89°29'50"E	33.00'
419 - 413	S06°12'40"E	170.85'
413 - 412	S04°15'39"W	60.21'
412 - 410	S00°30'10"E	200.00'
410 - 405	S03°21'54"E	100.12'
405 - 402	S15°22'59"W	62.38'
402 - 424	S89°29'50"W	33.00'
100 - 424	N00°36'38"W	2619.04'
101 - 424	S00°36'38"E	22.55'
101 - 425	N00°29'25"W	567.45'
102 - 425	S00°29'25"E	2123.16'

REVISION DATE 8/1/2018	DATE	SCALE: FEET 0 30 60	HWY: CTH A	STATE R/W PROJECT NUMBER 6784-00-00	PLAT SHEET 4.02
	GRID FACTOR N/A		COUNTY: PORTAGE	CONSTRUCTION PROJECT NUMBER 6784-00-70	PS&E SHEET 15 E

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PLOT DATE: 8/1/2018
PLOT TIME: 7:59:14 AM
PLOT SCALE: 1:60

BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEV.
1	7+90, 41' RT	60D SPIKE IN POWER POLE, EAST SIDE OF CTH A AT HOUSE NUMBER 4997	1038.33
2	10+15, 12' RT	CHISELED SQUARE ON TOP OF CURB AT NORTHEAST CORNER OF TOMORROW RIVER BRIDGE	1032.02

STA 8+90, LT
CONSTRUCT BASE AGGREGATE DENSE PE
REMOVING SMALL PIPE CULVERTS
1-18"X40' CULVERT PIPE CLASS III-A W/ APRON ENDWALLS
INV. 1031.67 (S)
INV. 1030.10 (N)

TOMORROW RIVER

STRUCTURE B-49-320 (TO BE REPLACED)

N

JUSTMANN LAND COMPANY LLC

EROSION CONTROL LEGEND

- SILT FENCE
- TURBIDITY BARRIER
- EROSION MAT CLASS I TYPE A URBAN
- CULVERT PIPE CHECK
- TEMPORARY DITCH CHECK

RODNEY KONKOL

CONTROL POINT 1
Y=169,466.38
X=241,400.16

AMHERST TELEPHONE
TELEPHONE
R/W

W5-52L 12" X 36" REMOVE
REMOVE W5-52R 12" X 36"

CONCRETE SURFACE DRAIN
SLOPE INTERCEPT
WETLAND BOUNDARY
GRUBBING LIMITS (TYP)

CONTROL POINT 4
Y=170,462.50
X=241,389.07

TEMPORARY TURTLE TURN-AROUND SEE DETAIL (TYP)

BEGIN CONSTRUCTION
STA 7+41.60

7+00 8+00 9+00 10+00 11+00 12+00 13+00

CTH A
N00°30'10"W
ASPHALT

MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
REMOVING GUARDRAIL
℄ CTH A
MARKING LINE EPOXY 4-INCH (WHITE)

CONTOL POINT 2
Y=169,658.17
X=241,397.99

18" CCR
12" CCR

BM 1
BM 2

P.I. STA. 7+00.00

STA 7+43.9, RT
MAILBOX REMOVAL AND REINSTALLING MAILBOXES

ALLIANT ENERGY
ELECTRIC

BEGIN PROJECT 6784-00-70
STA 7+62.44
MATCH EXISTING
SAWCUT REQ'D
Y=169,726.948
X=241,397.169

19TH HOLE LLC

STA 8+06.6, RT
MAILBOX REMOVAL AND REINSTALLING MAILBOXES

MOVING SIGNS TYPE II
MOVING SMALL SIGN SUPPORT

W5-52R 12" X 36" REMOVE
REMOVE W5-52L 12" X 36"

STRUCTURE B-49-187 REQUIRED

WETLAND BOUNDARY
CONCRETE SURFACE DRAIN

CONTROL POINT 3
Y=170,145.61
X=241,392.62

END CONSTRUCTION
STA 12+95.20

END PROJECT 6784-00-70
STA 11+07.20
MATCH EXISTING
SAWCUT REQ'D

G&J FARMS

PI 7+00.00
Y=169,664.51
X=241,397.72

PI 13+00.00
Y=170,264.49
X=241,392.45

HIGH WATER 100 YR
EL 1030.22

PROPOSED PROFILE AT REFERENCE LINE

SINGLE SLOPE PARAPET 42SS
SEE STRUCTURE PLANS

SSD=830'
K=136
340' V.C.

3.00%
-0.50%

P.I. 7+62.44 EL. 1037.18
P.C. 7+65.78 EL. 1037.07
P.I. 9+35.78 EL. 1031.97
P.T. 11+05.78 EL. 1031.12
P.I. 11+07.20 EL. 1031.12

EXISTING GROUND

EL 1023.96
EL 1023.34

OBSERVED WATER LEVEL
EL. 1024.15 (3-11-2016)

STREAM BED EL 1021.24

EXISTING PROFILE ELEVATION
PROPOSED PROFILE ELEVATION

1040 1035 1030 1025 1020 1015

1038.9 1037.5 1036.09 1035.9 1034.81 1034.5 1033.71 1033.1 1032.79 1032.1 1032.06 1022.0 1031.52 1031.4 1031.15 1031.1 1031.0 1030.8

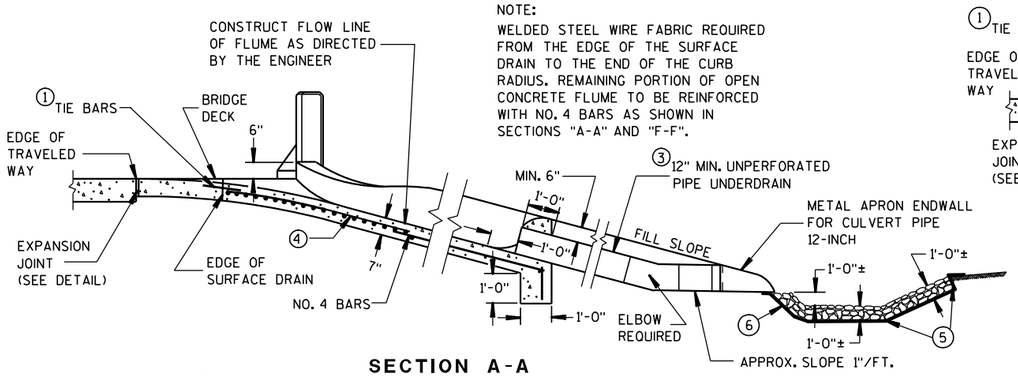
STA 10+00.00
STRUCTURE B-49-187 REQUIRED
SINGLE SPAN FLAT CONCRETE SLAB
52'-7" OVERALL LENGTH
34'-0" CLEAR ROAD WIDTH
15° SKEW RHF

STA 10+00.00
REMOVE STRUCTURE B-49-320
SINGLE SPAN STEEL DECK GIRDER
34'-0" OVERALL LENGTH
24'-0" CLEAR ROADWAY WIDTH
0° SKEW

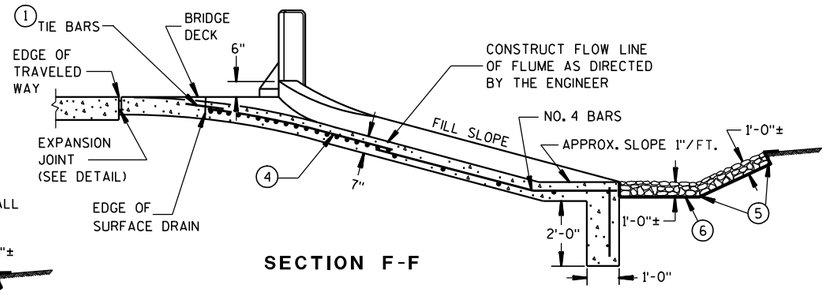
PROJECT NUMBER: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	PLAN AND PROFILE	SHEET 16	E

Standard Detail Drawing List

08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	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)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



SECTION A-A



SECTION F-F

GENERAL NOTES

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

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

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.

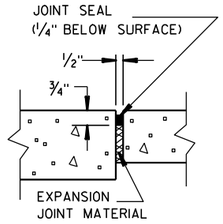
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

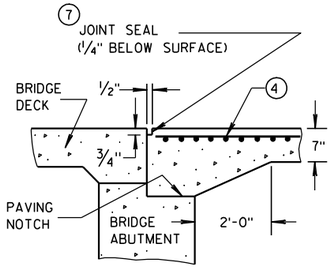
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

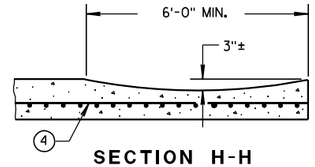
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



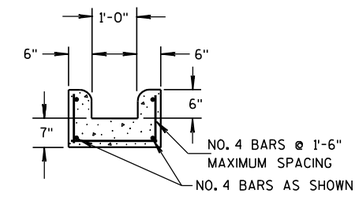
EXPANSION JOINT DETAIL



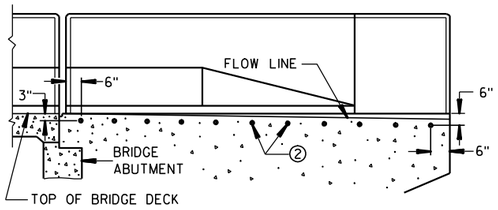
SECTION D-D



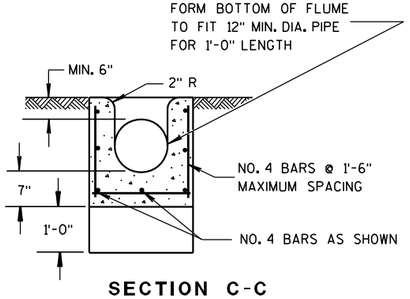
SECTION H-H



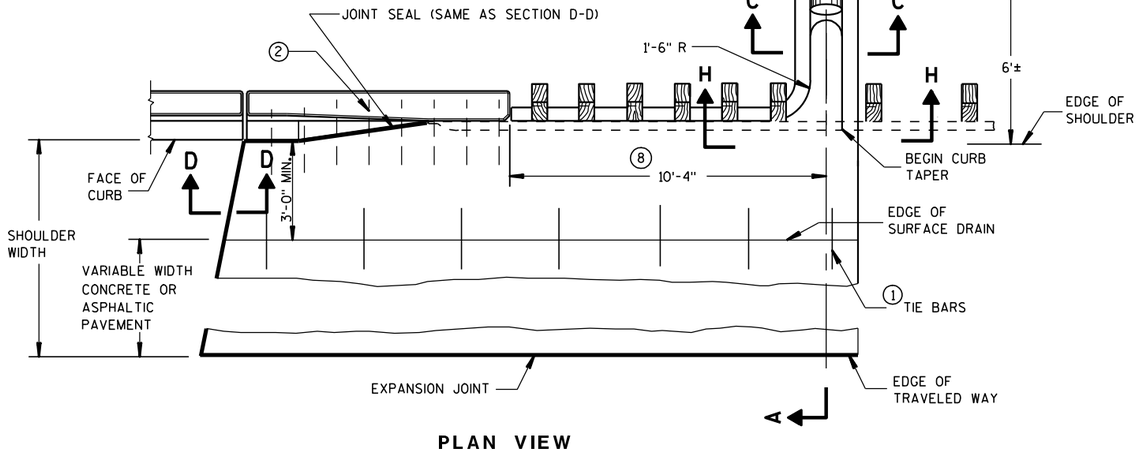
SECTION E-E



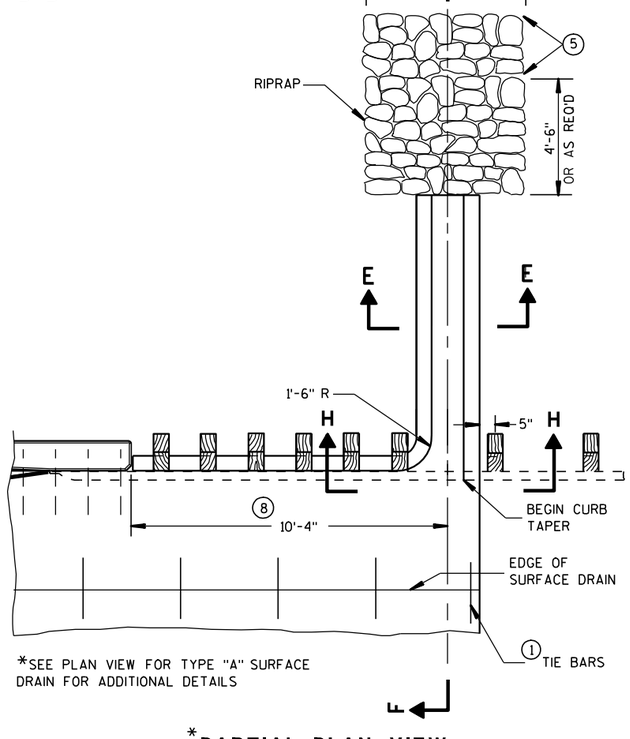
LOCATION OF TIE BARS IN WINGWALL



SECTION C-C



PLAN VIEW
SURFACE DRAIN WITH PIPE
TYPE "A"



*SEE PLAN VIEW FOR TYPE "A" SURFACE DRAIN FOR ADDITIONAL DETAILS

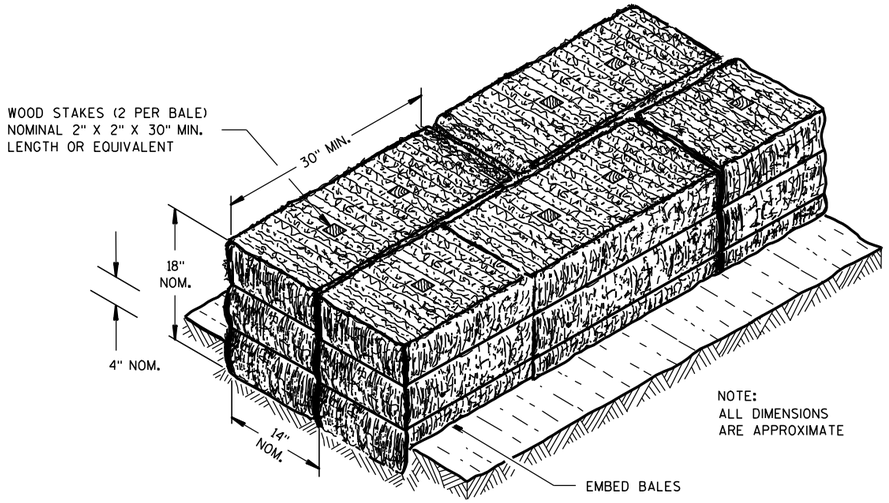
*PARTIAL PLAN VIEW
SURFACE DRAIN WITHOUT PIPE
TYPE "B"

CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

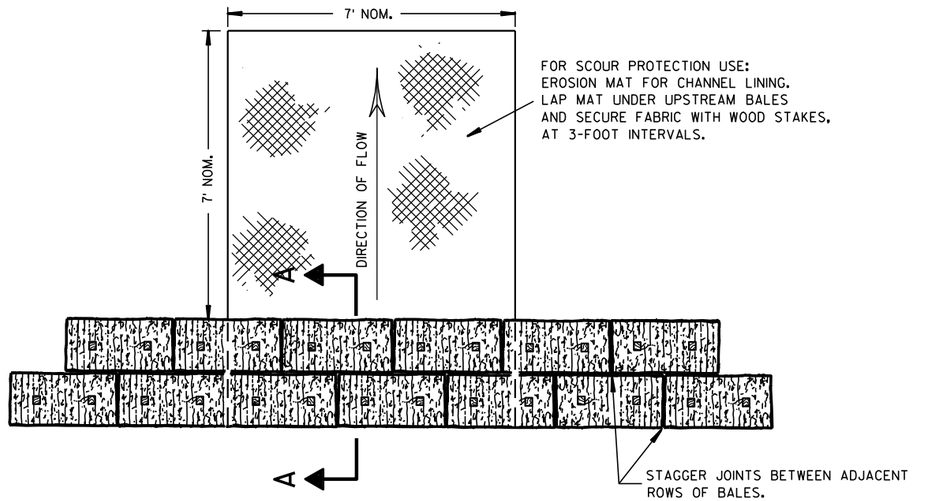
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

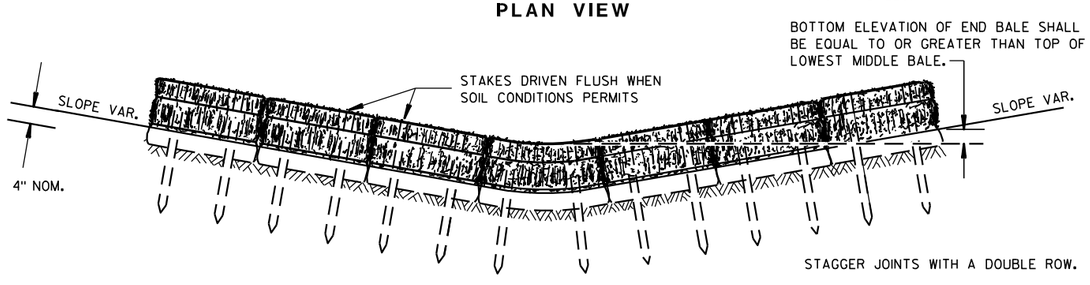
6
S.D.D. 8 D 2-6



SECTION A-A



PLAN VIEW



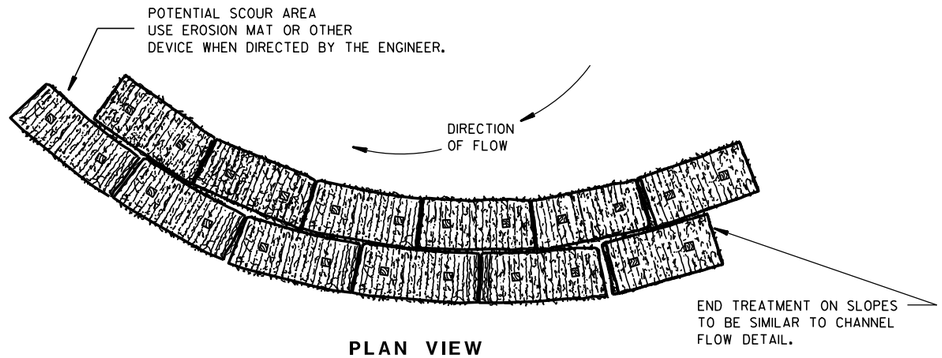
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

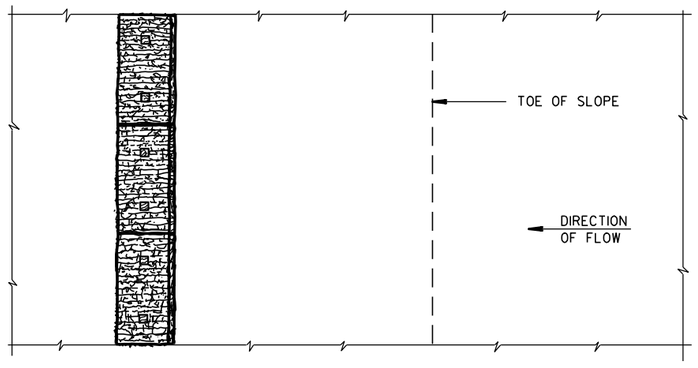
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

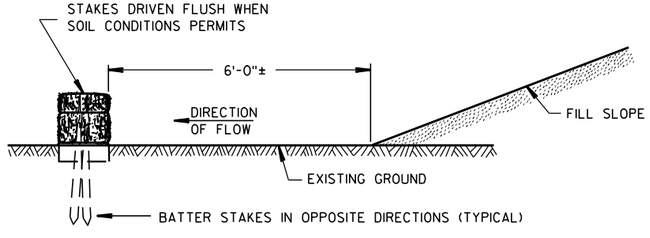


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

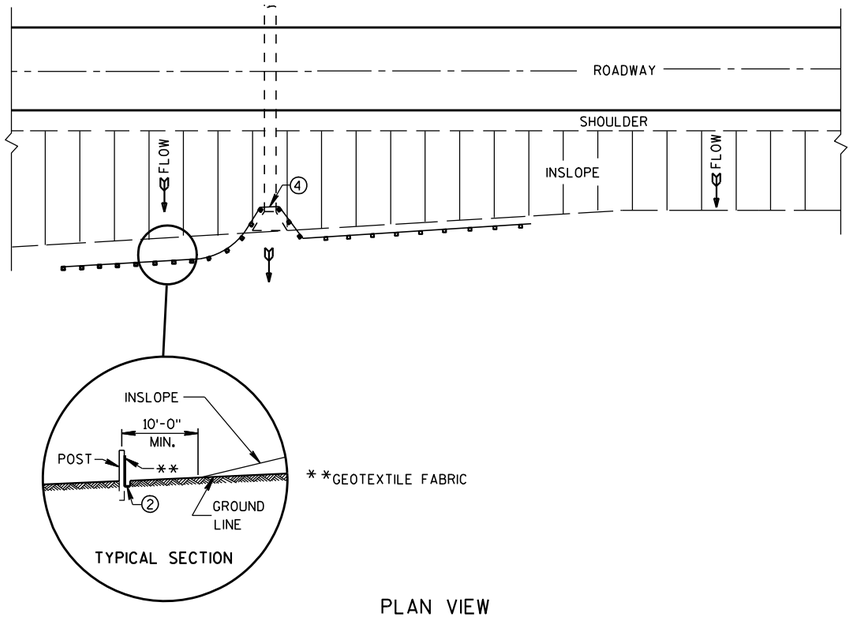
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 DATE — /S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

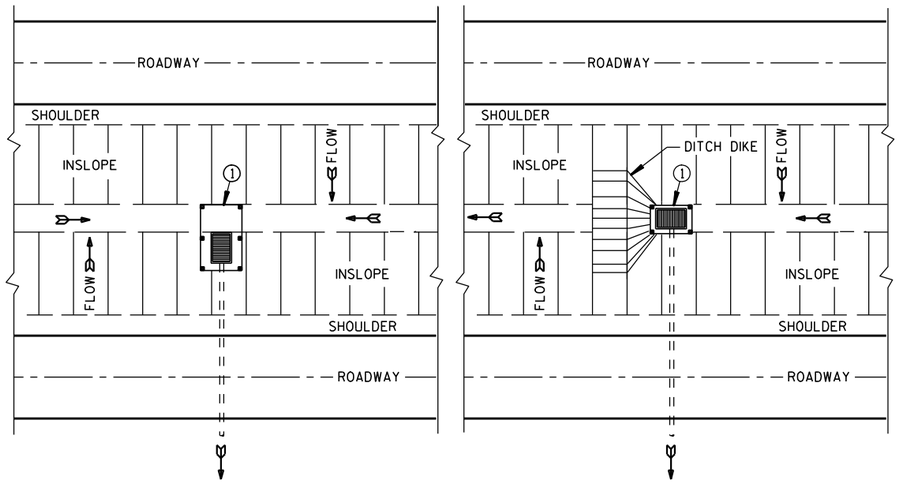
FHWA

6
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



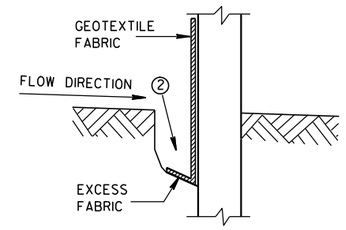
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

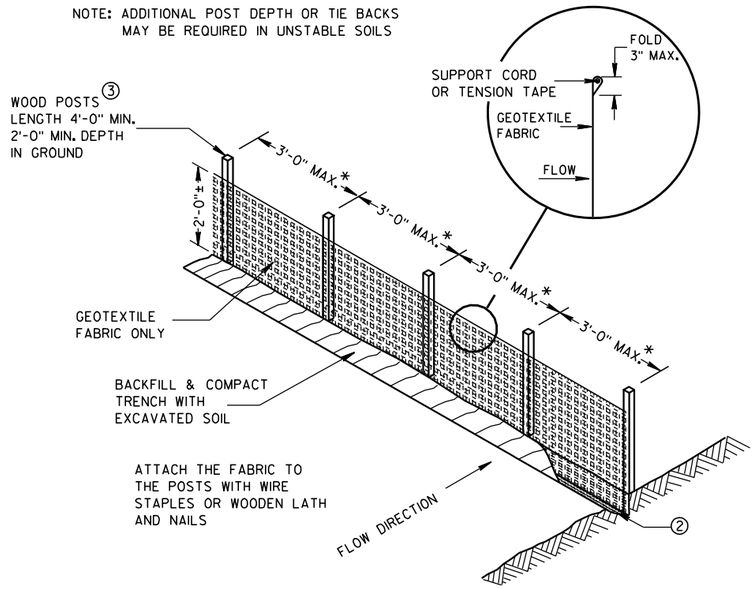
GENERAL NOTES

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

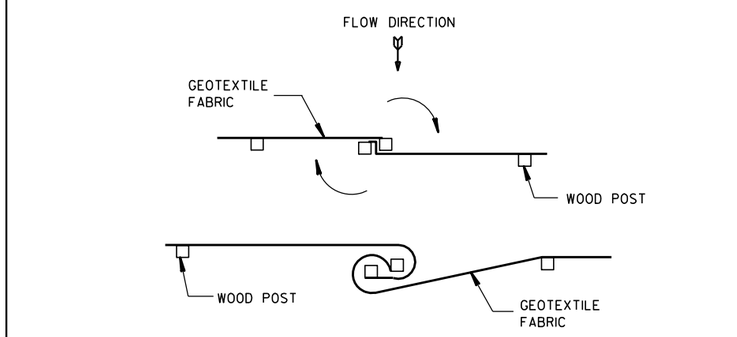
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



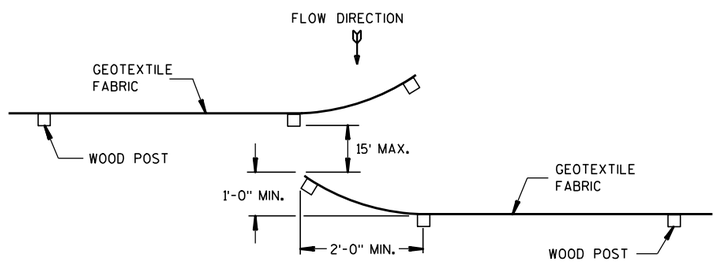
TRENCH DETAIL



SILT FENCE

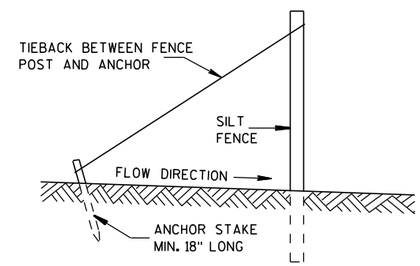


TWIST METHOD



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

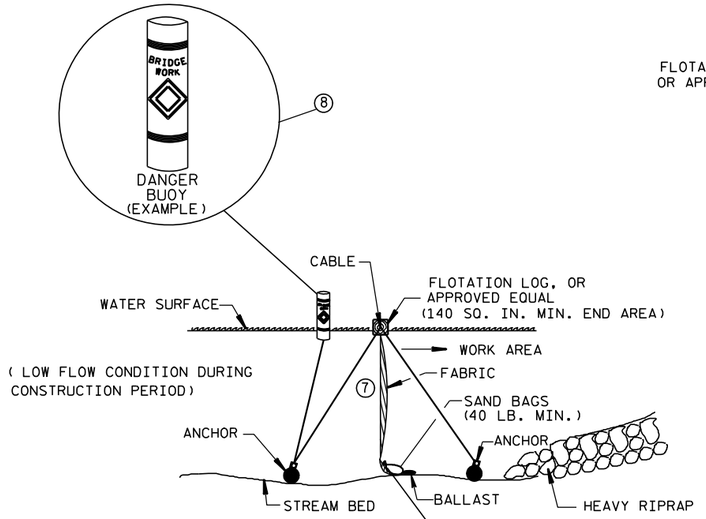
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

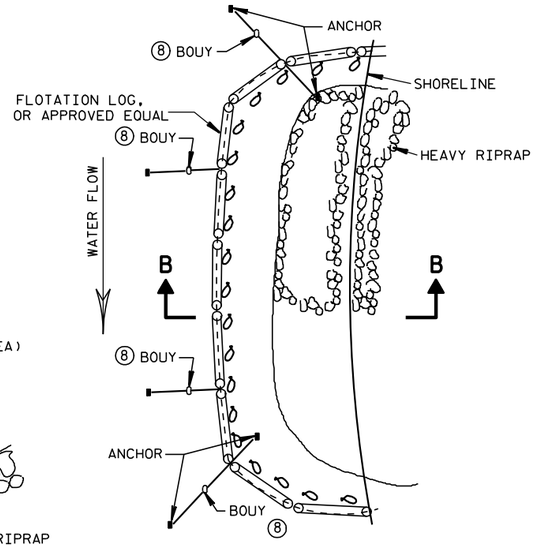
S.D.D. 8 E 9-6

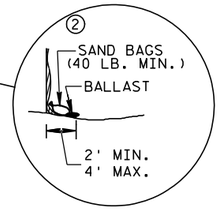
6

S.D.D. 8 E 9-6

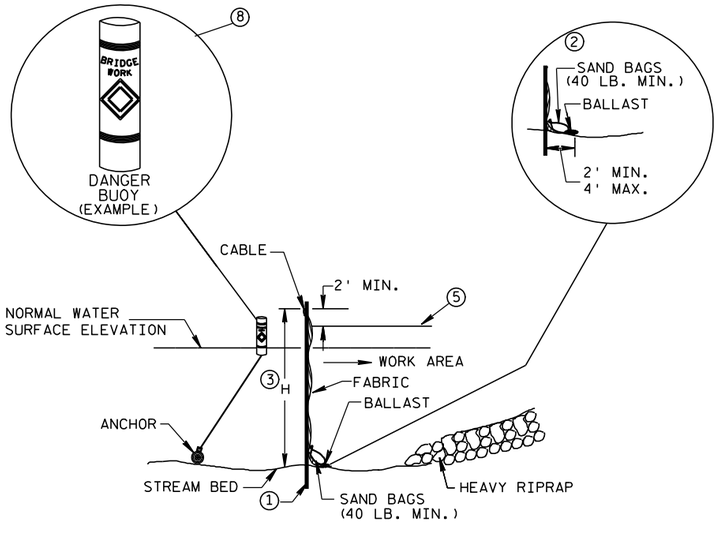


SECTION B-B

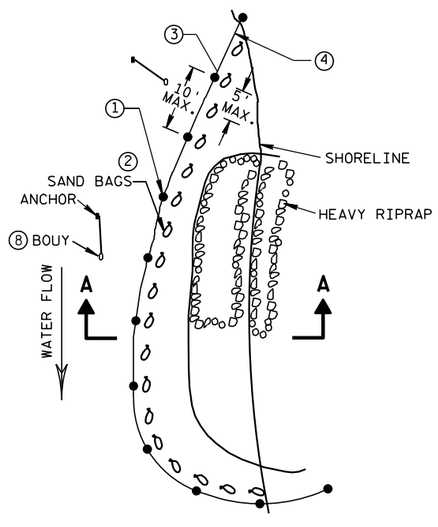




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

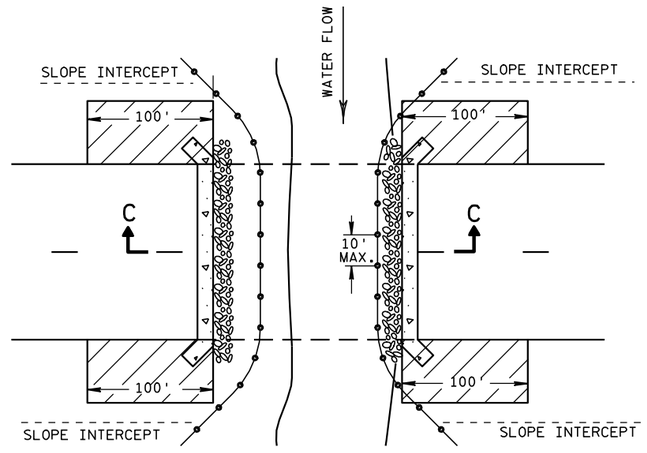
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

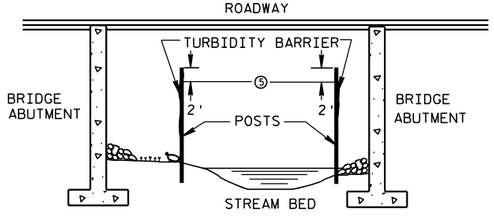
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

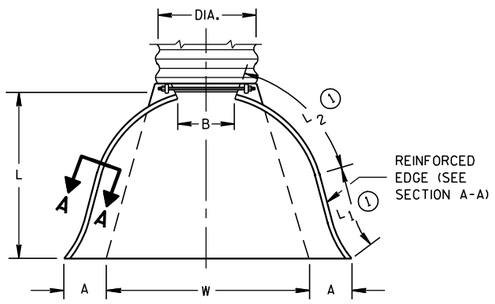
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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

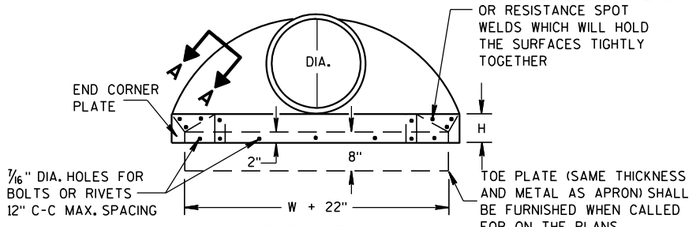
REINFORCED CONCRETE APRON ENDWALLS

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



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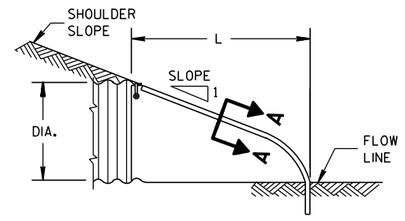
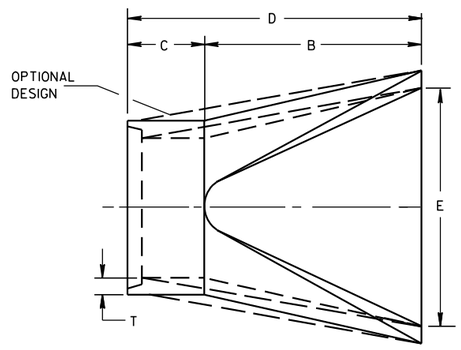
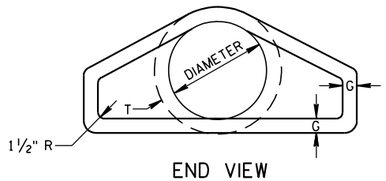


SIDE ELEVATION

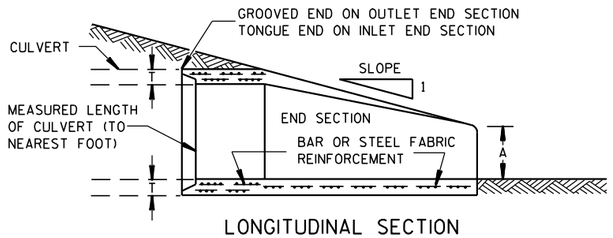
METAL ENDWALLS



PLAN

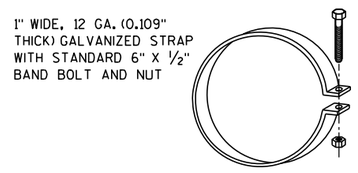


END VIEW



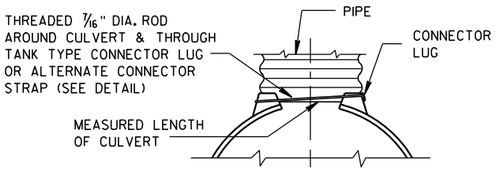
LONGITUDINAL SECTION

CONCRETE ENDWALLS

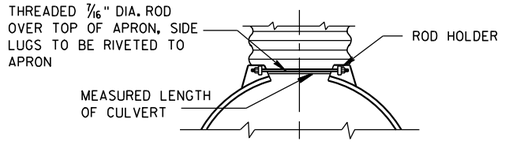


ALTERNATE FOR TYPE 1 CONNECTION

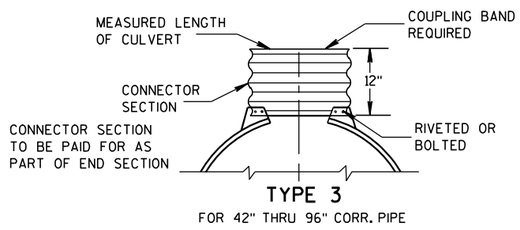
END SECTION CONNECTOR STRAP



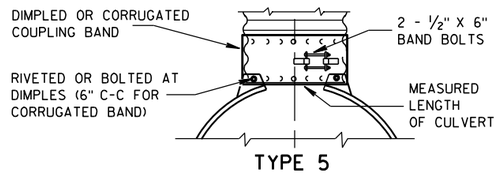
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

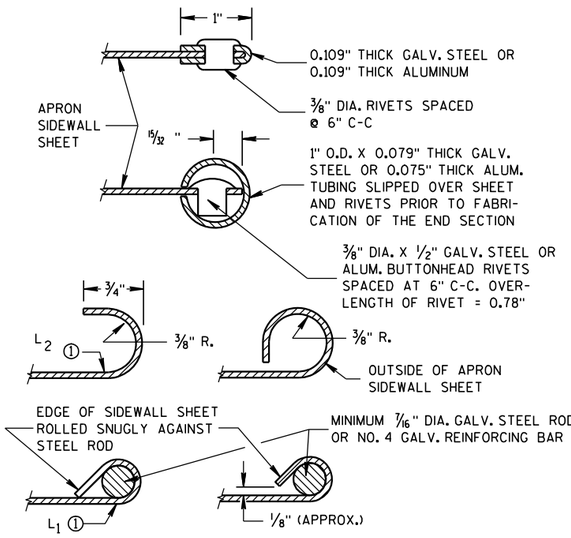
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

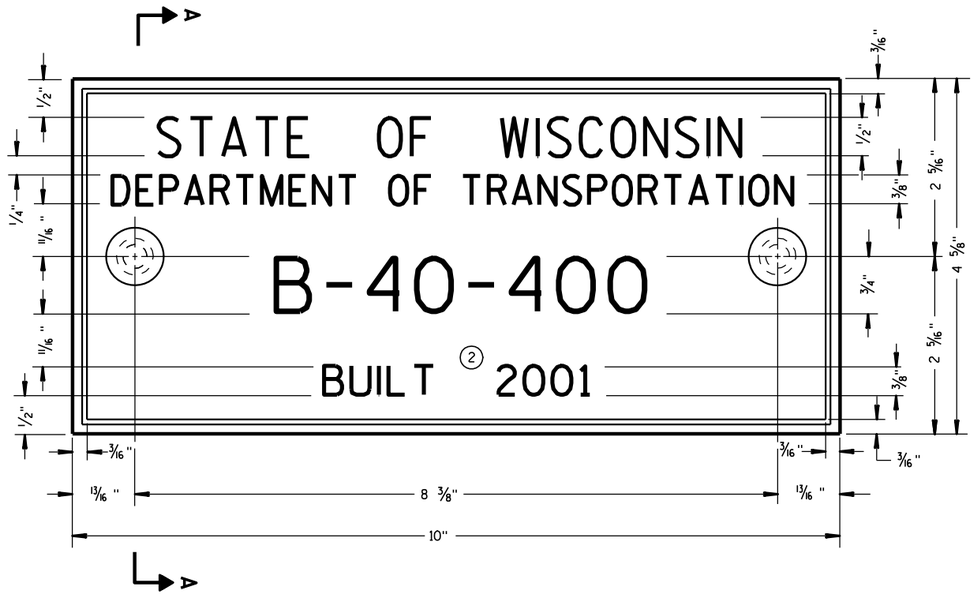
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

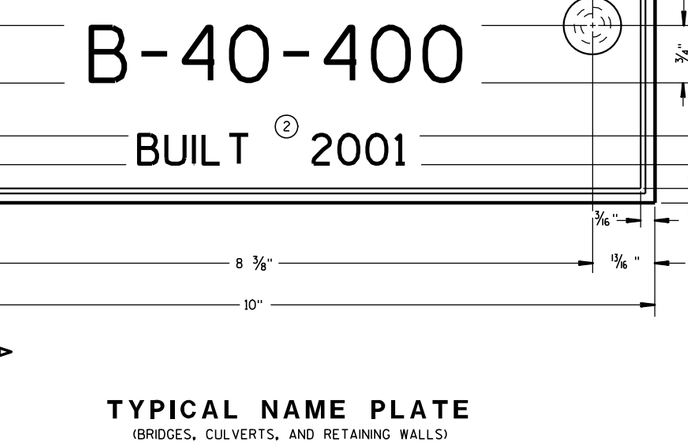
6

S.D.D. 8 F 1-11



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

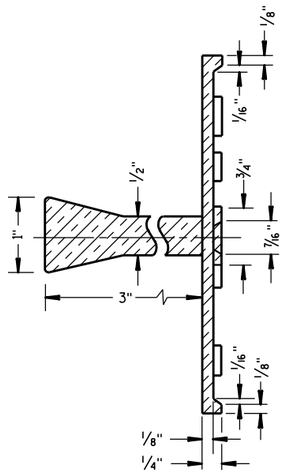
GENERAL NOTES

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.

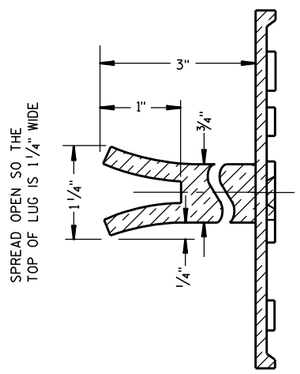
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

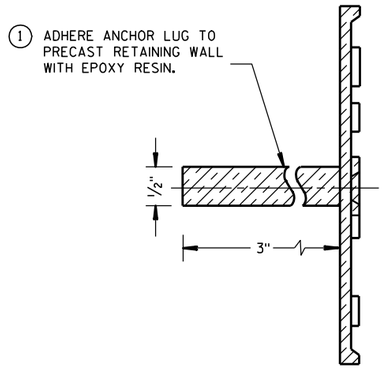
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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

GENERAL NOTES

(1) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

(2) USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.

(3) INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

(4) USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

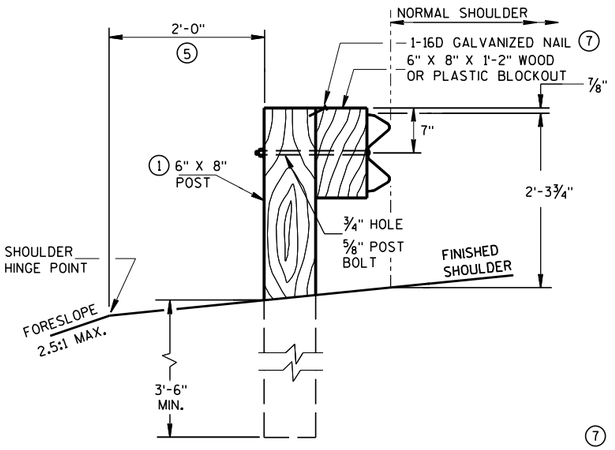
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

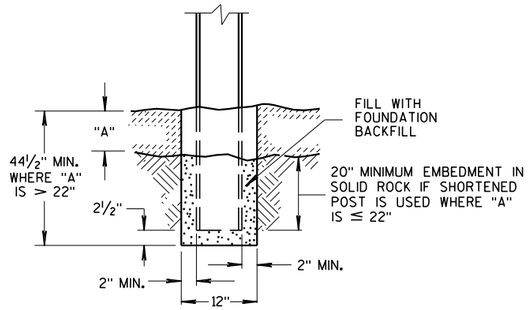
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

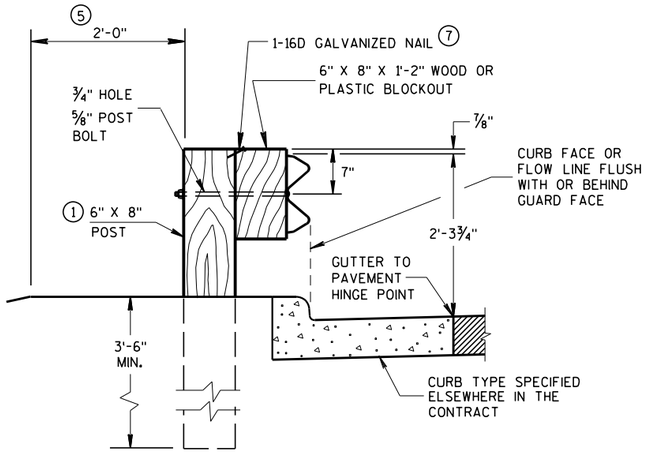
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



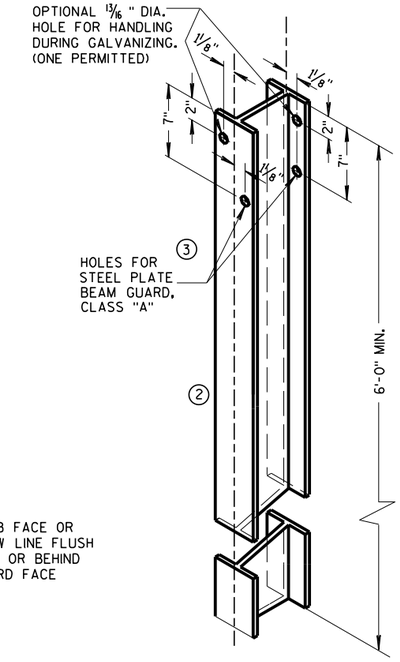
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)

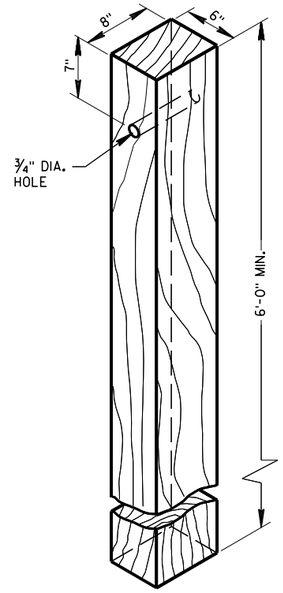


END VIEW
LOCATED ALONG A CURBED ROADWAY

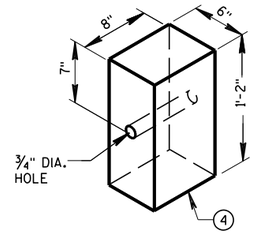


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

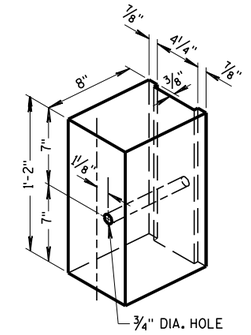
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



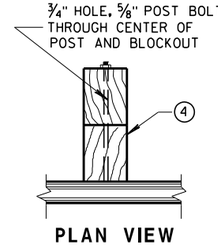
WOOD POST
(6"X8") NOMINAL



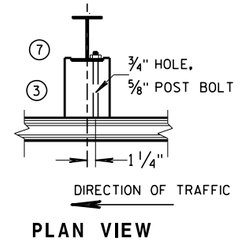
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



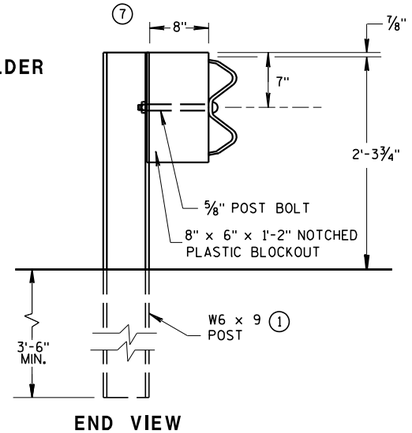
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS (1)



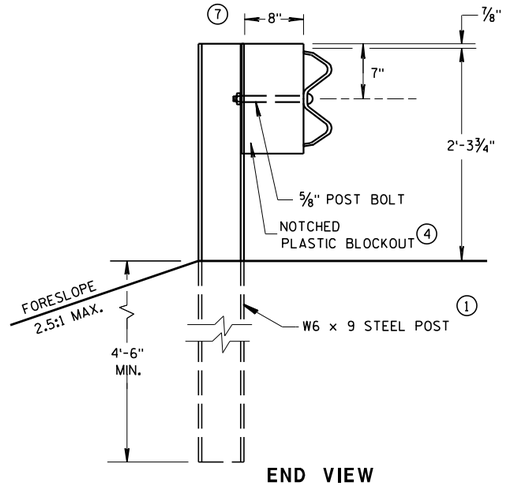
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



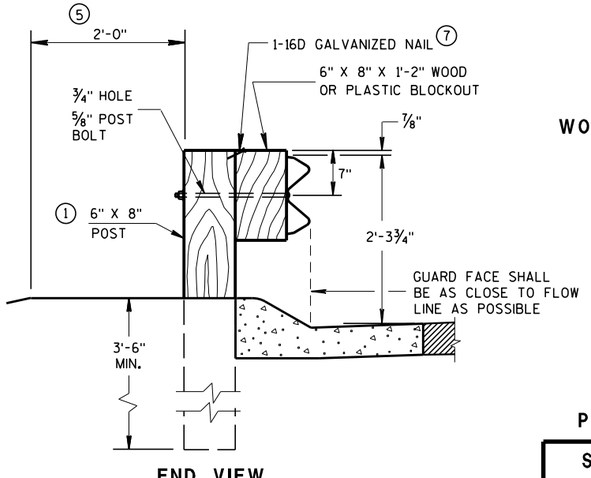
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



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



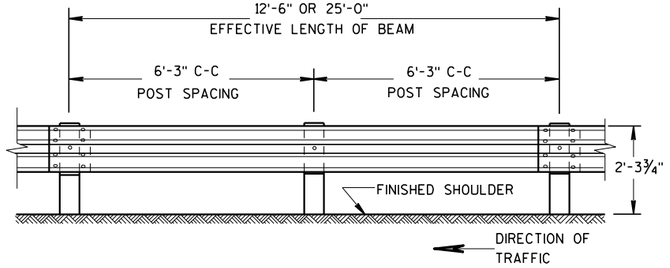
END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

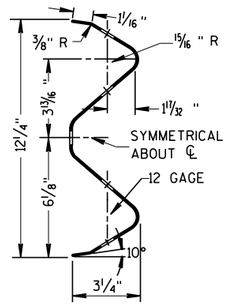
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-11a

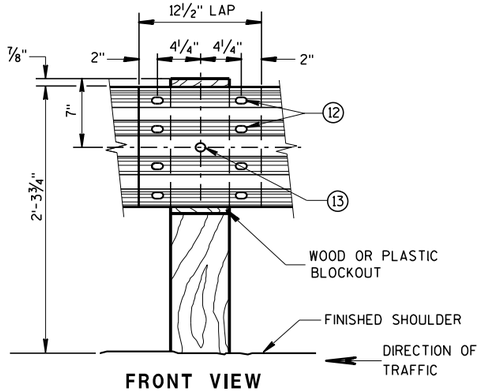


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

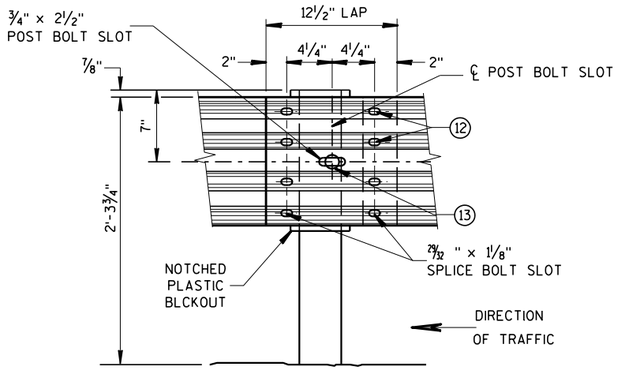
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.

(12) 8 -5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.

FRONT VIEW

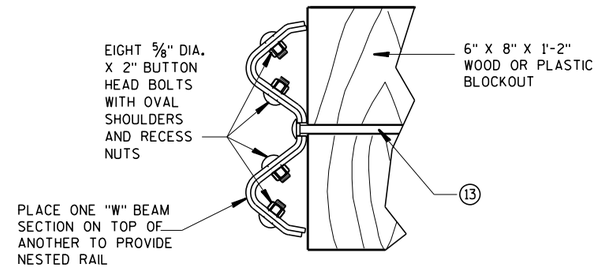
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

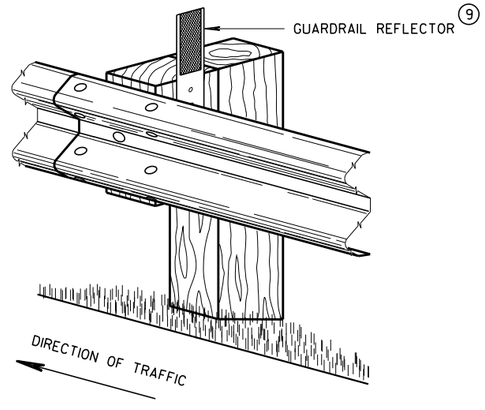
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



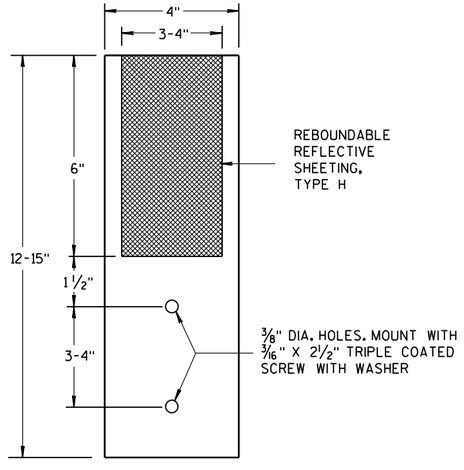
NESTED W BEAM (NW)

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

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

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

STATE OF WISCO 25
DEPARTMENT OF TRANSPORTATION

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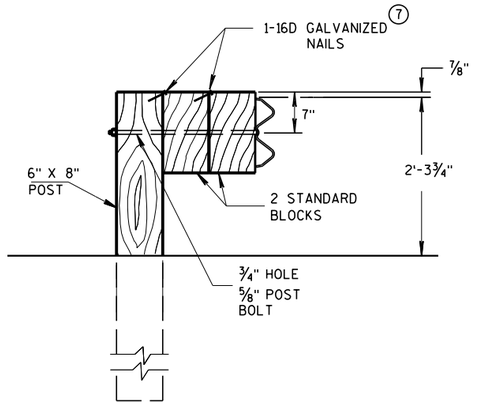
S.D.D. 14 B 15-11b

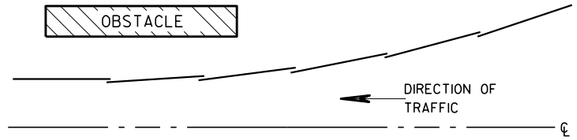
6

S.D.D. 14 B 15-11b

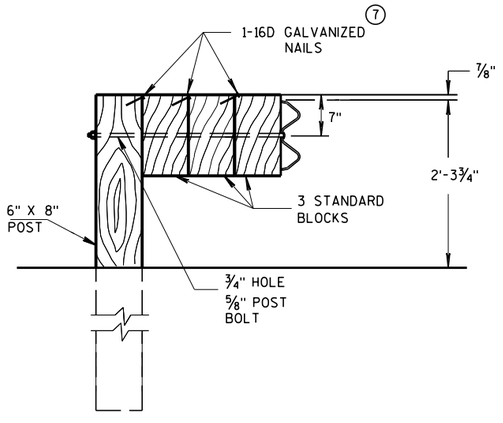


DETAIL FOR DOUBLE BLOCKS

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

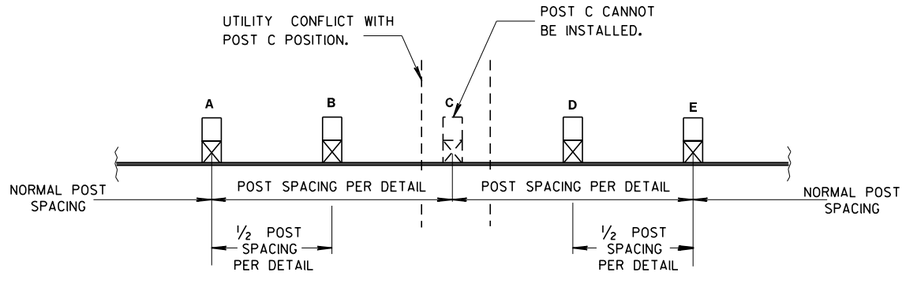


PLAN VIEW
BEAM LAPPING DETAIL



DETAIL FOR TRIPLE BLOCKS

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



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

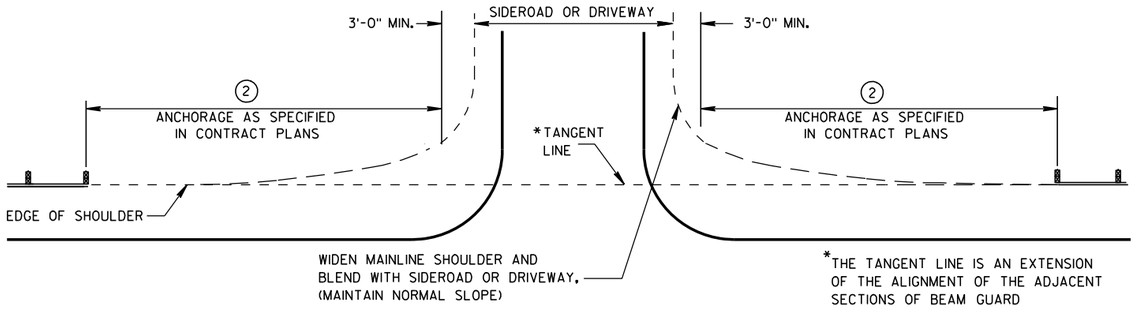
NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

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

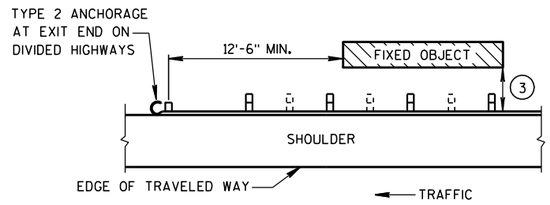
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

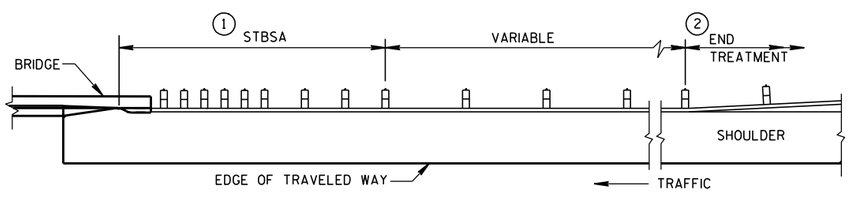
APPROVED
June 2017
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
FHWA



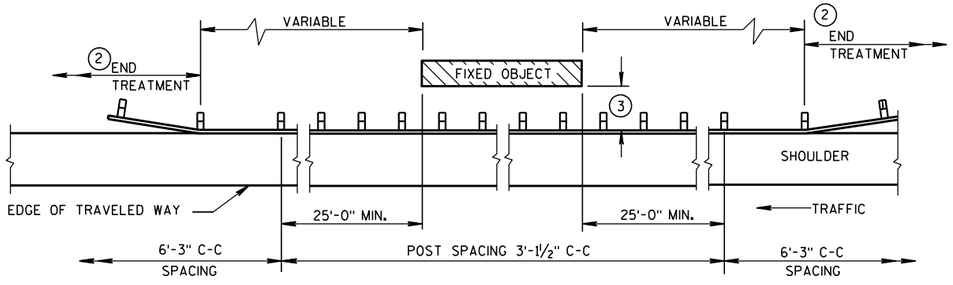
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

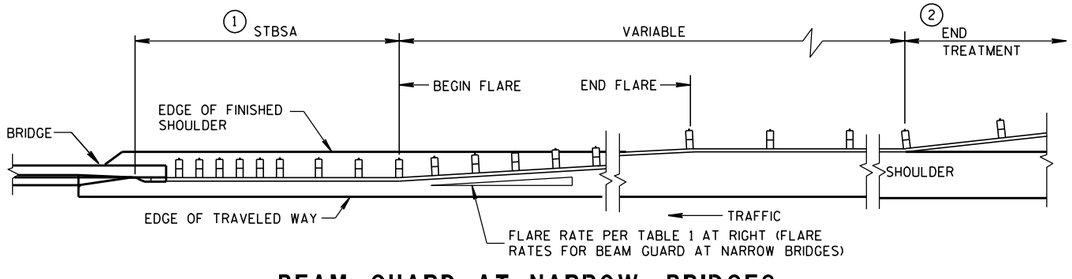


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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



BEAM GUARD AT NARROW BRIDGES

(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

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

GENERAL NOTES

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

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

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

(1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.

(2) USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

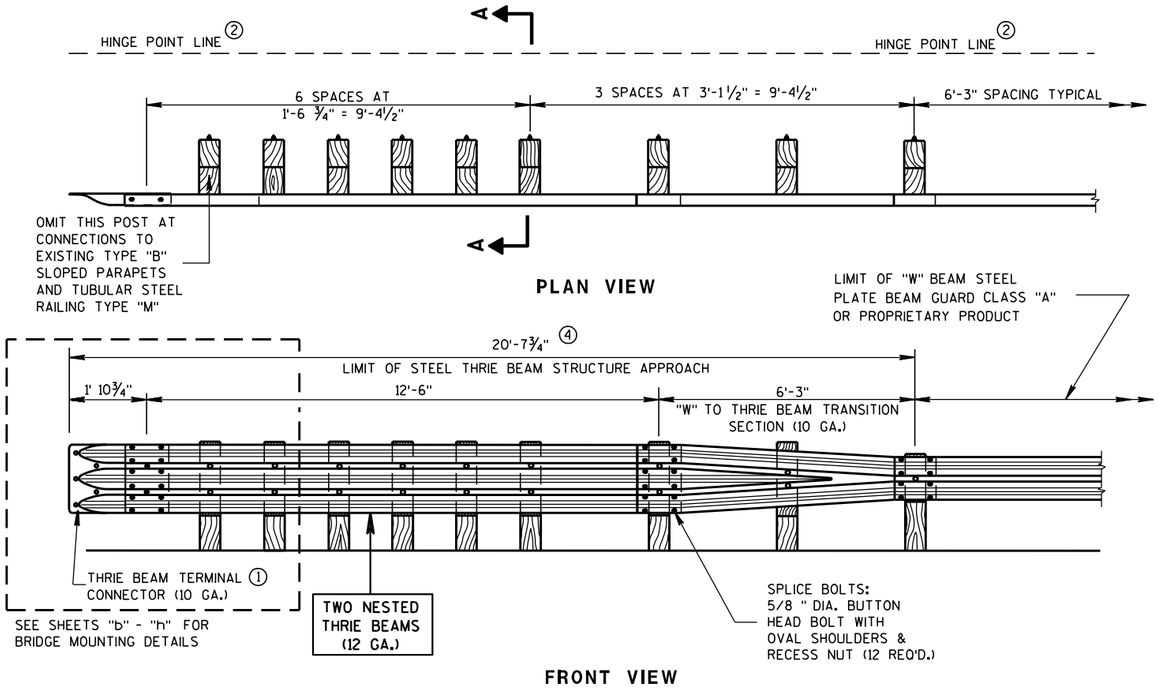
(3)

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



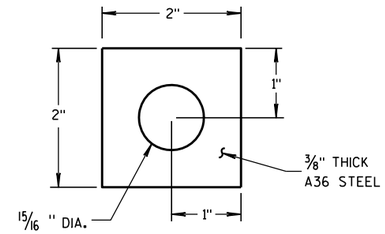


PLATE WASHER DETAIL

GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

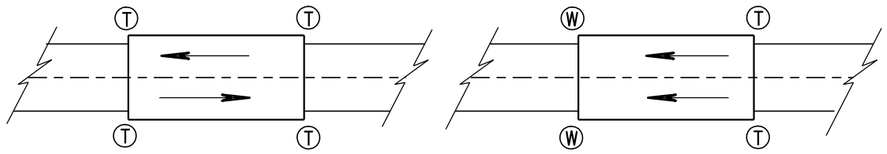
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.

③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.

④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



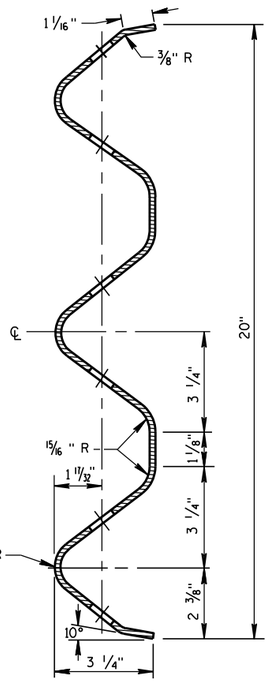
TWO WAY TRAFFIC

ONE WAY TRAFFIC

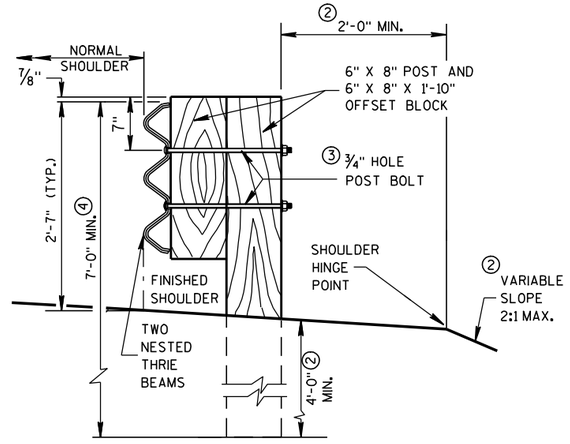
(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

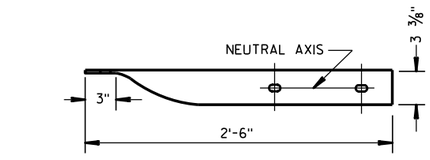
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

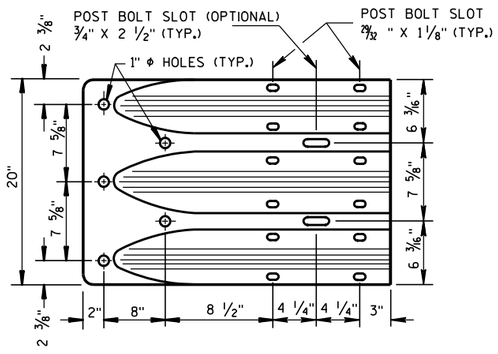


SECTION THRU THRIE BEAM RAIL ELEMENT

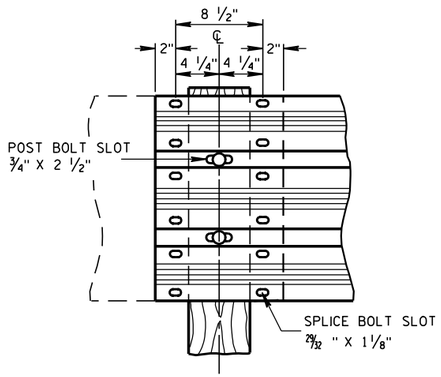


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

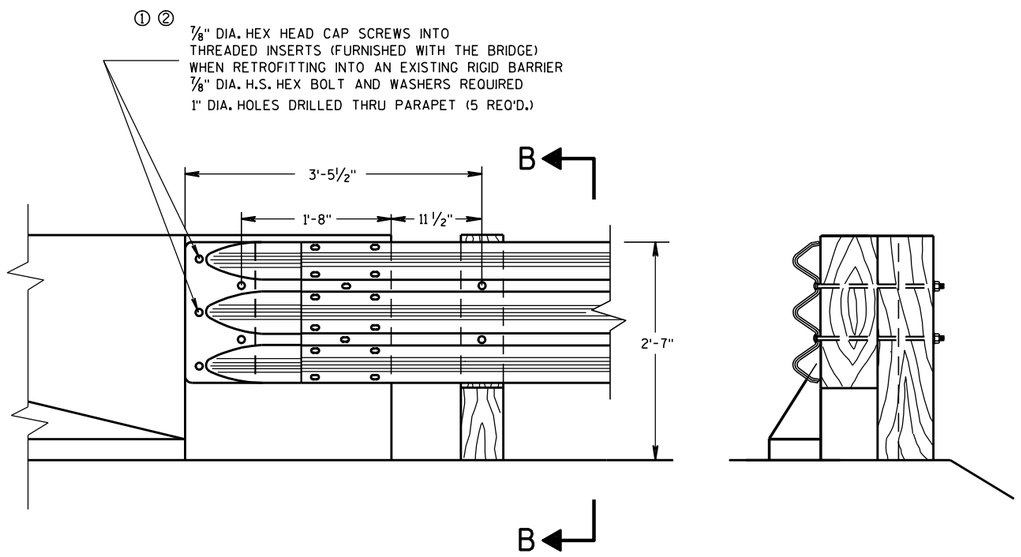
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

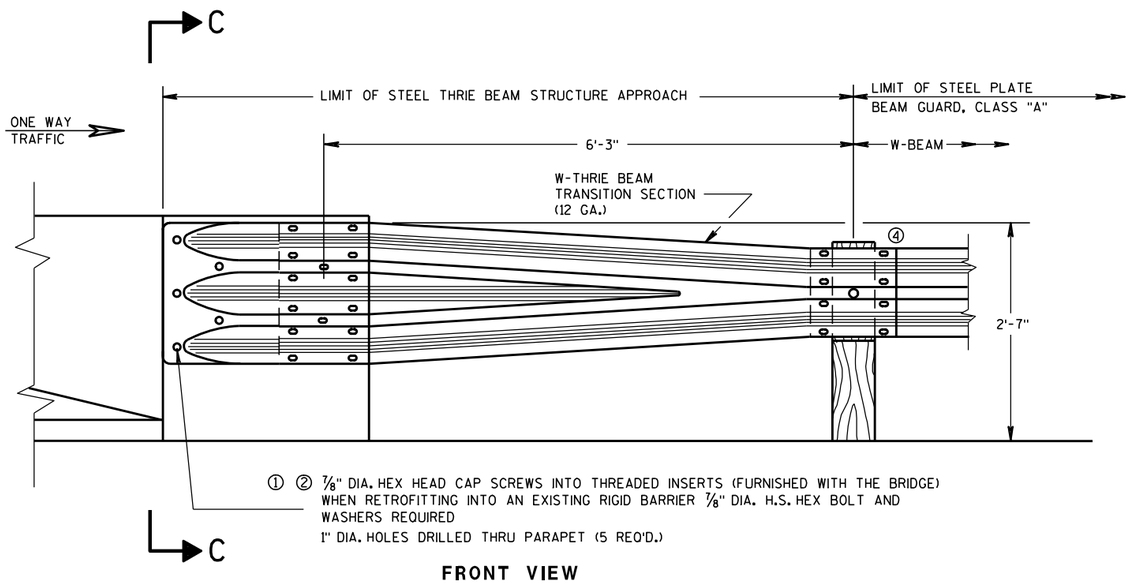
FHWA



FRONT VIEW

SECTION B-B

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER ⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

GENERAL NOTES

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

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

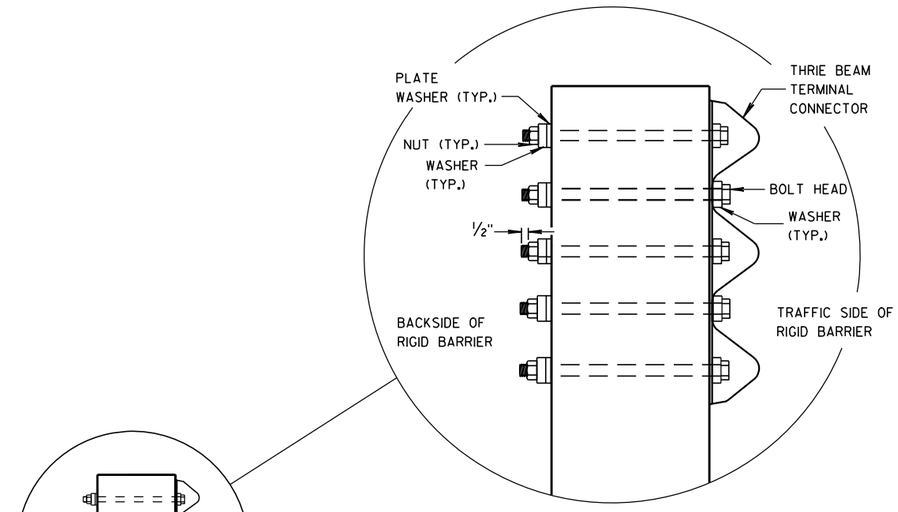
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

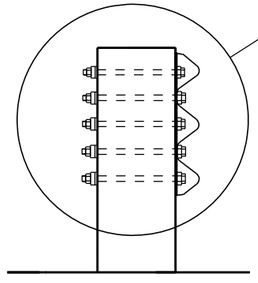
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.





SECTION C-C

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

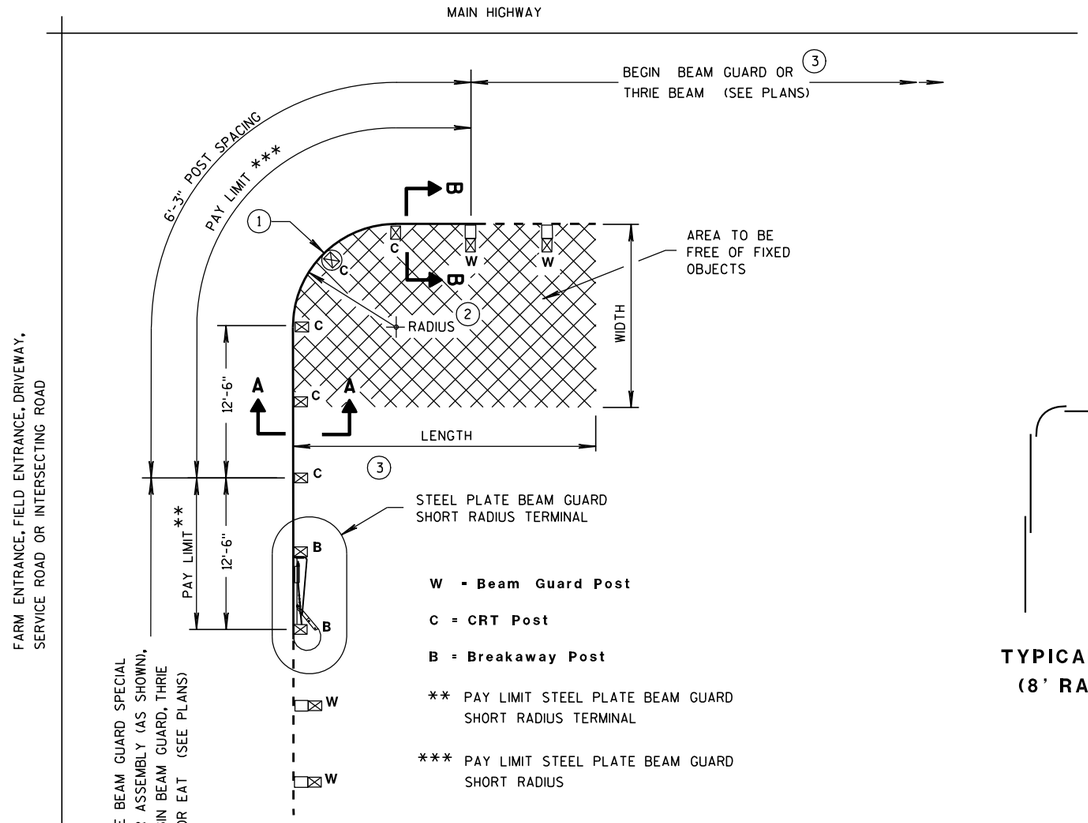
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

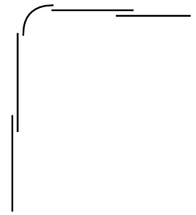
8/31/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

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

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

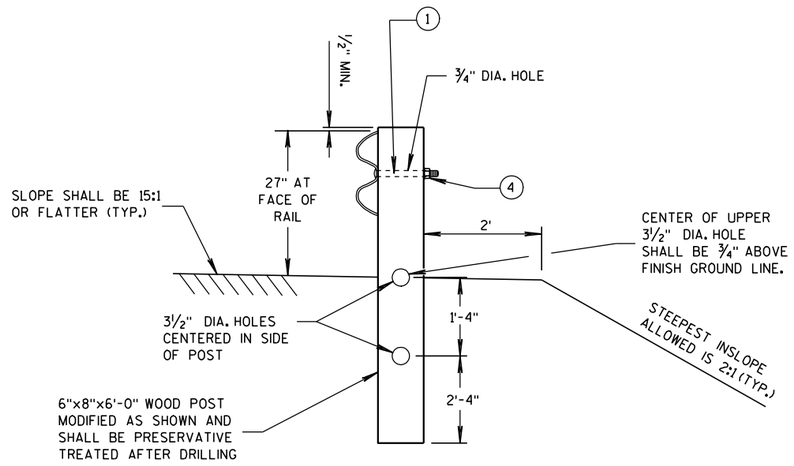
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

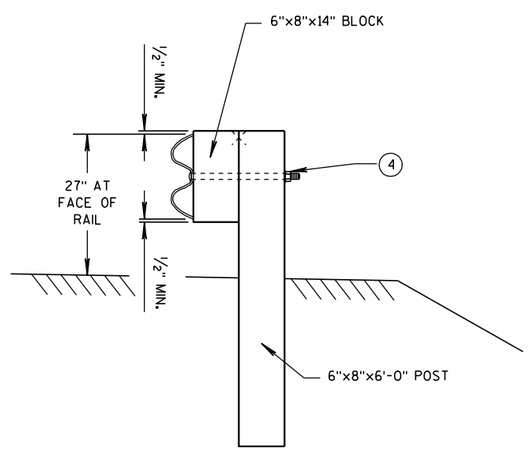
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

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



SECTION A-A
(CRT POST)

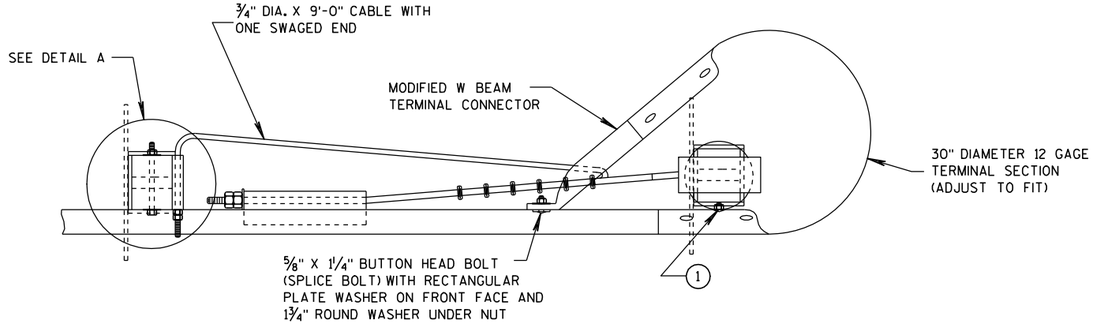


SECTION B-B
(BEAM GUARD POST)

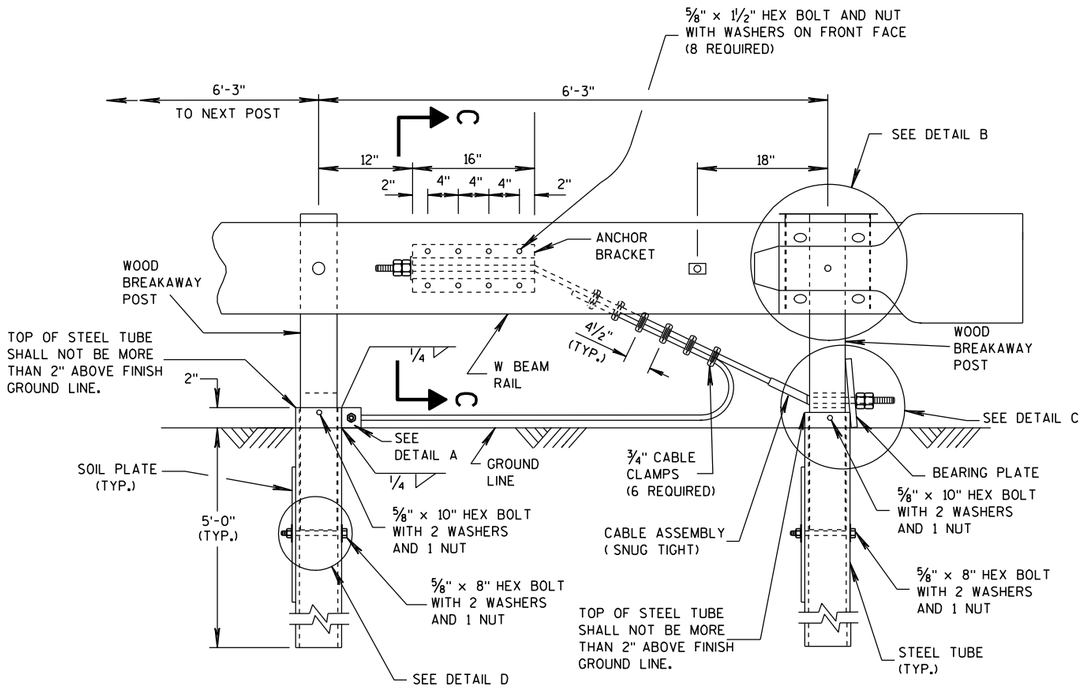
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 27-1a



PLAN VIEW



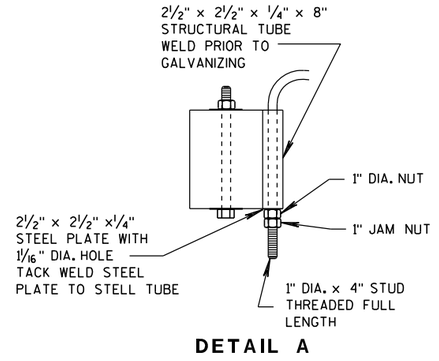
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

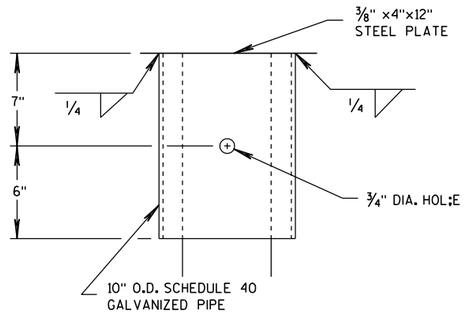
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

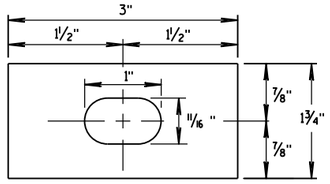
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

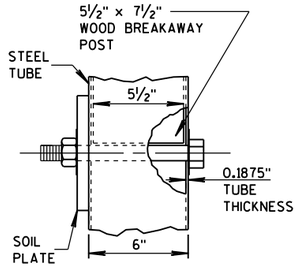
S.D.D. 14 B 27-1b

6

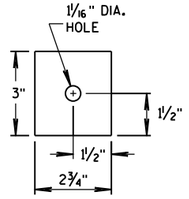
S.D.D. 14 B 27-1b



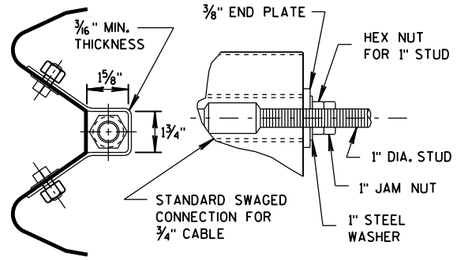
RECTANGULAR PLATE WASHER



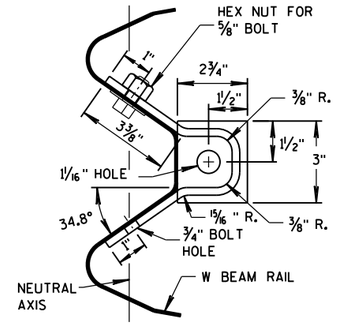
DETAIL D



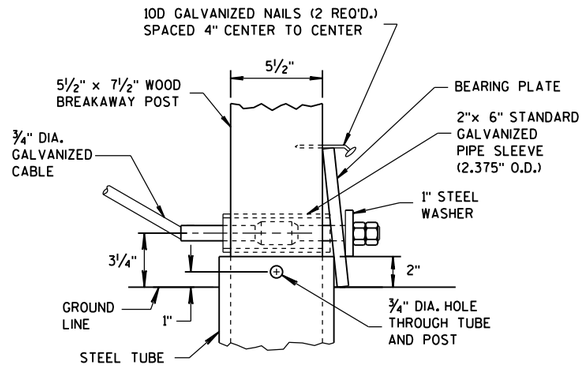
END PLATE



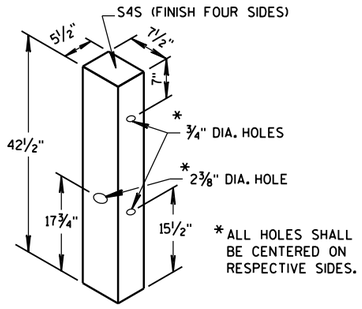
SECTION C-C
(END PLATE REMOVED)



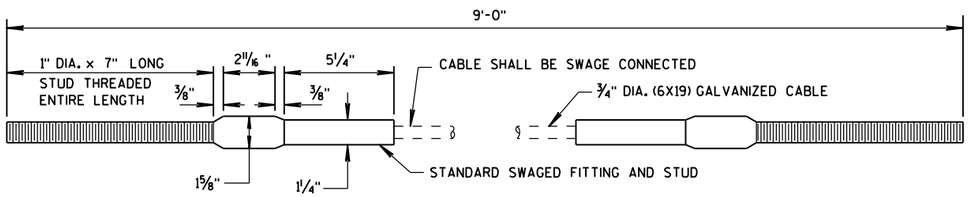
ANCHOR BRACKET



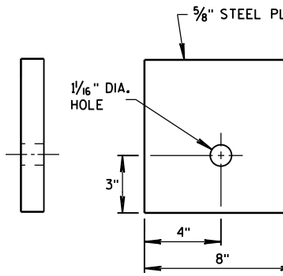
DETAIL C



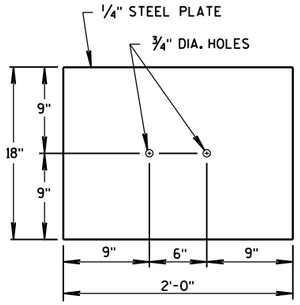
WOOD BREAKAWAY POST



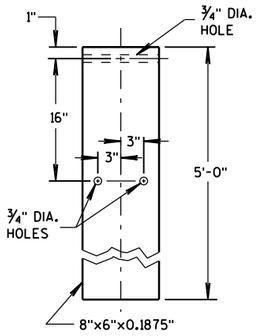
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 14 B 27-1c

6

S.D.D. 14 B 27-1c

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.

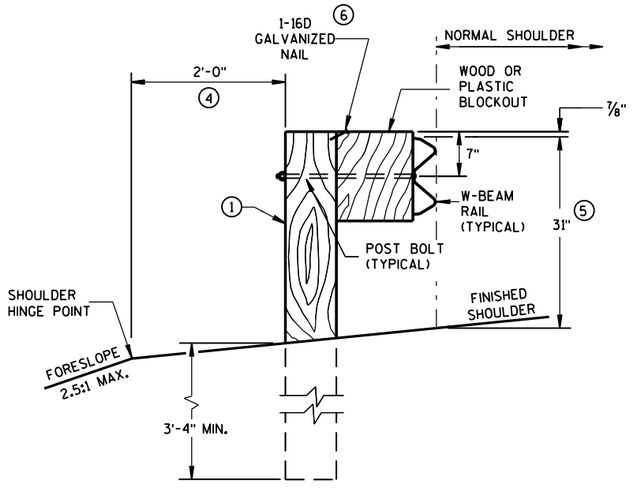
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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).

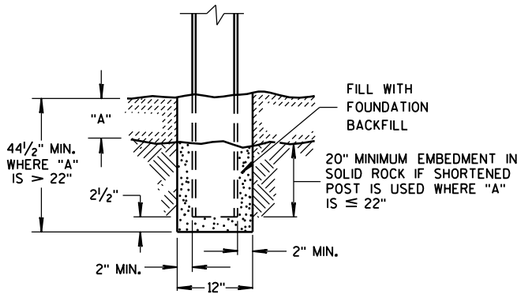
⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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.



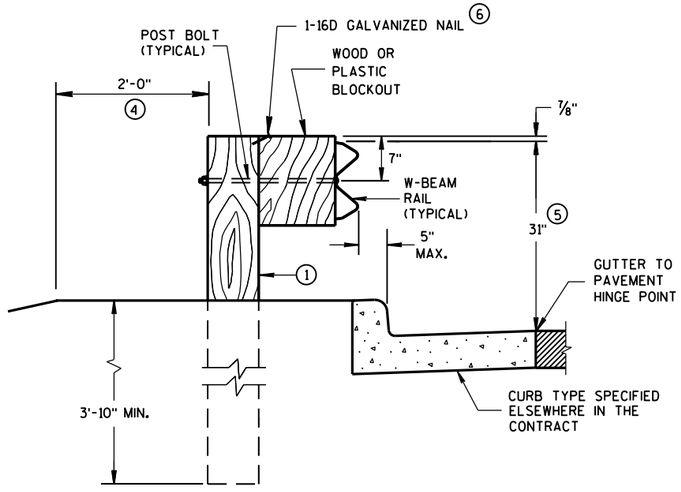
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



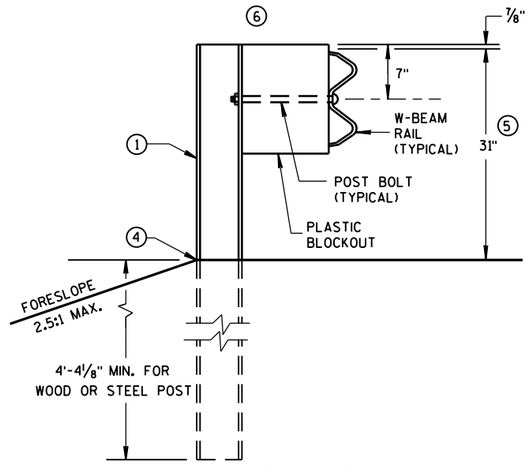
END VIEW

SETTING STEEL OR WOOD POST IN ROCK ③



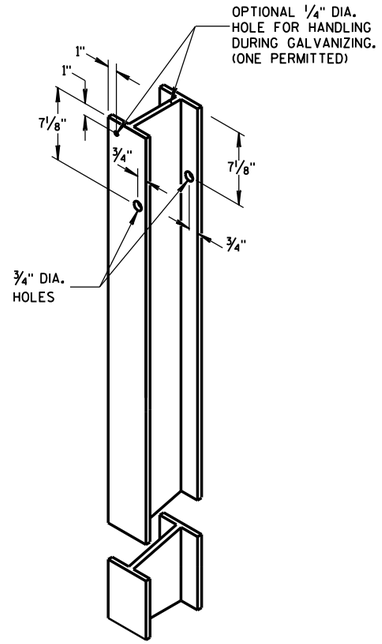
END VIEW

LOCATED ALONG A CURBED ROADWAY

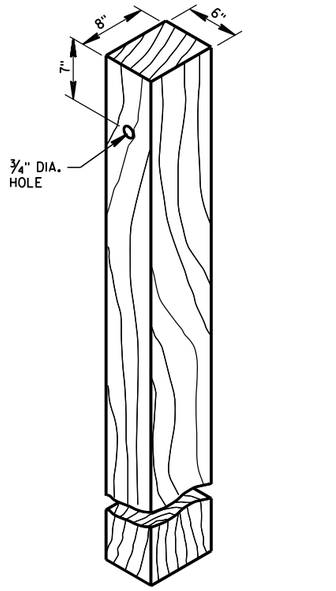


END VIEW

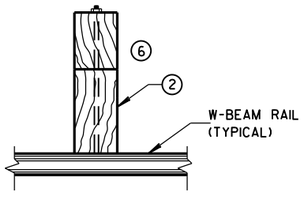
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



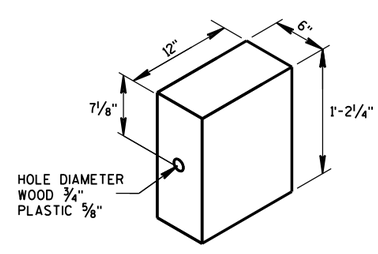
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



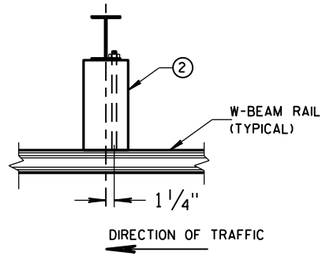
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



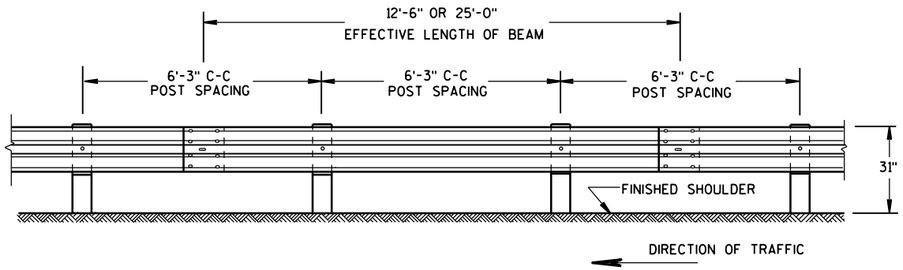
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

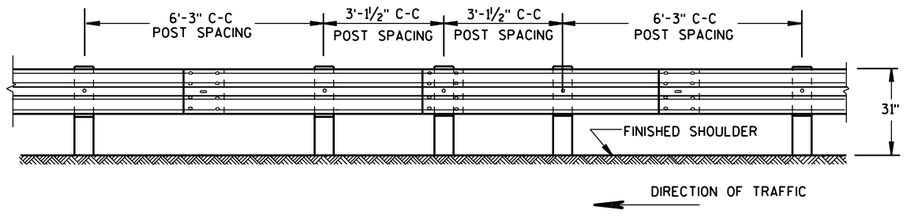
6

S.D.D. 14 B 42-5a



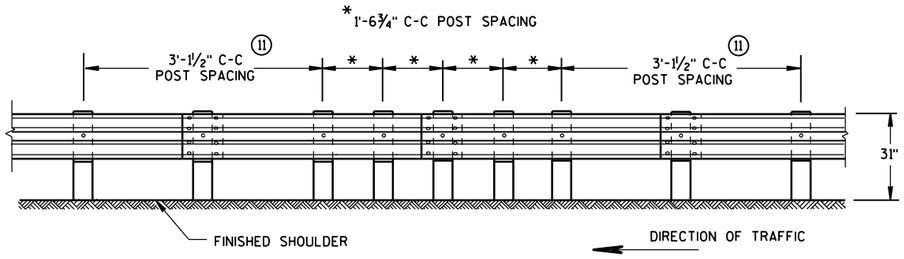
FRONT VIEW

POST SPACING STANDARD INSTALLATION



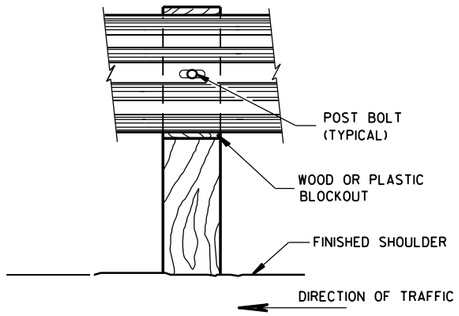
FRONT VIEW

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

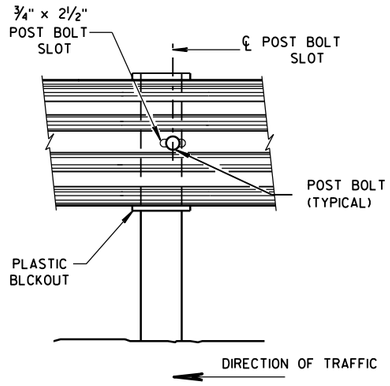


FRONT VIEW

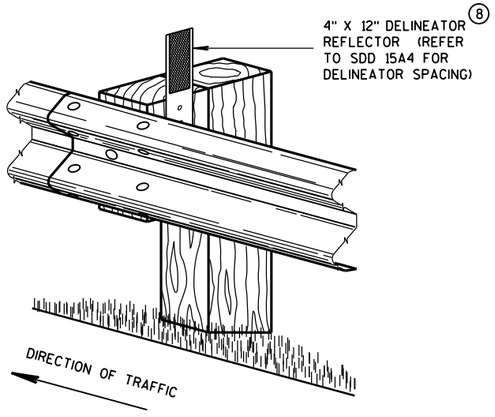
QUARTER POST SPACING (QS)



FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

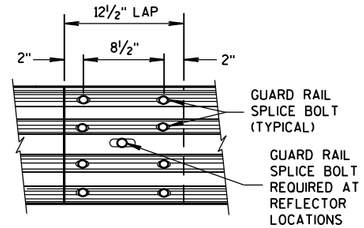
GENERAL NOTES

(8) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

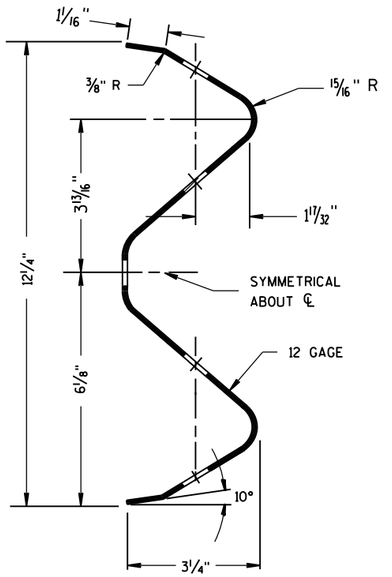
(11) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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.



FRONT VIEW
MID-SPAN BEAM SPLICE



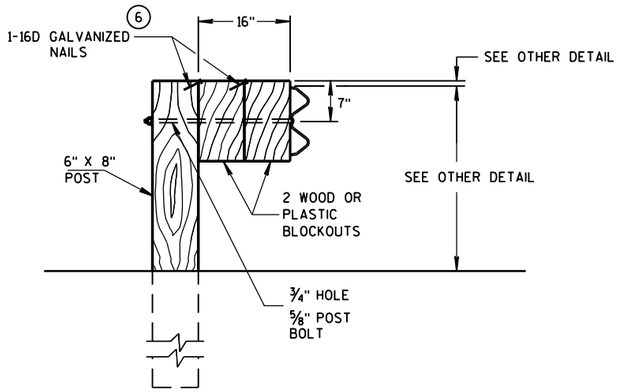
SECTION THRU W-BEAM RAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

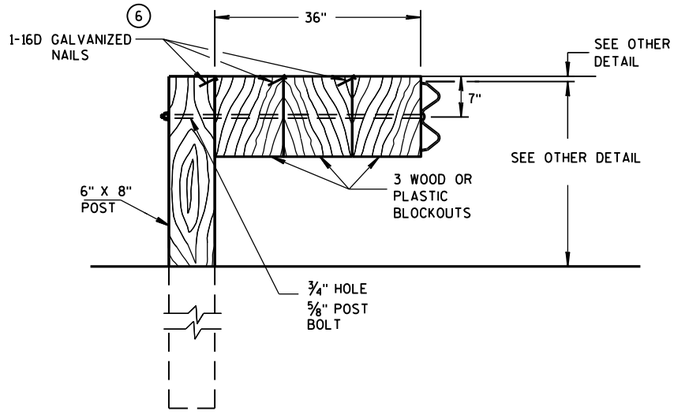
6

S.D.D. 14 B 42-5b



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.

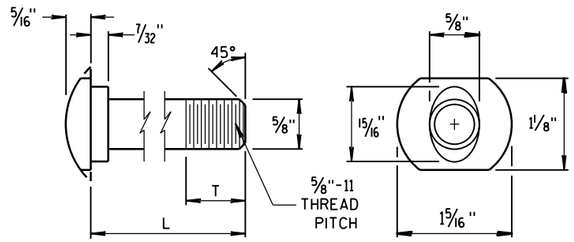


DETAIL FOR 36" BLOCKOUT DEPTH

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.

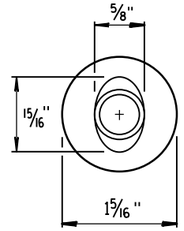
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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.

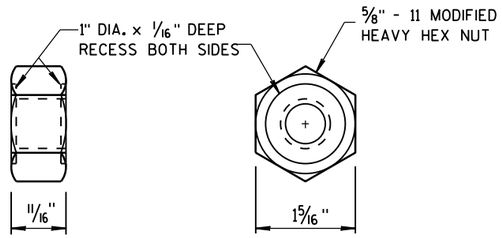


POST BOLT TABLE

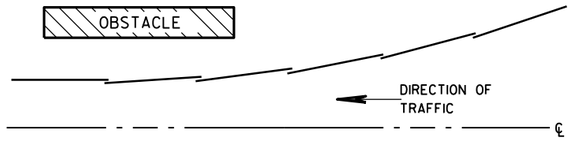
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

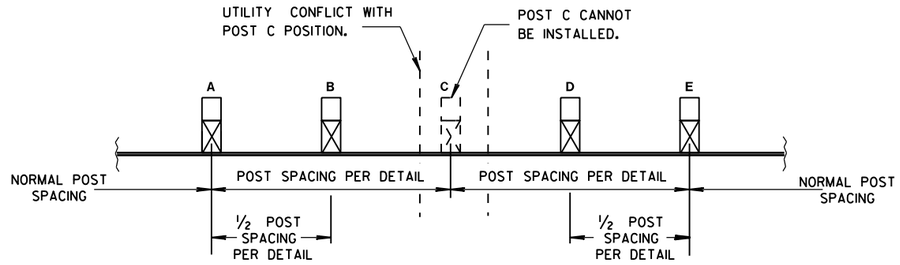


POST BOLT, SPLICE BOLT AND RECESS NUT

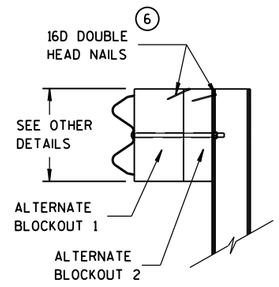


PLAN VIEW

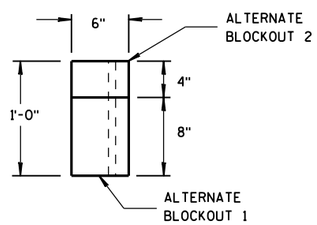
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 42-5c

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.

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

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

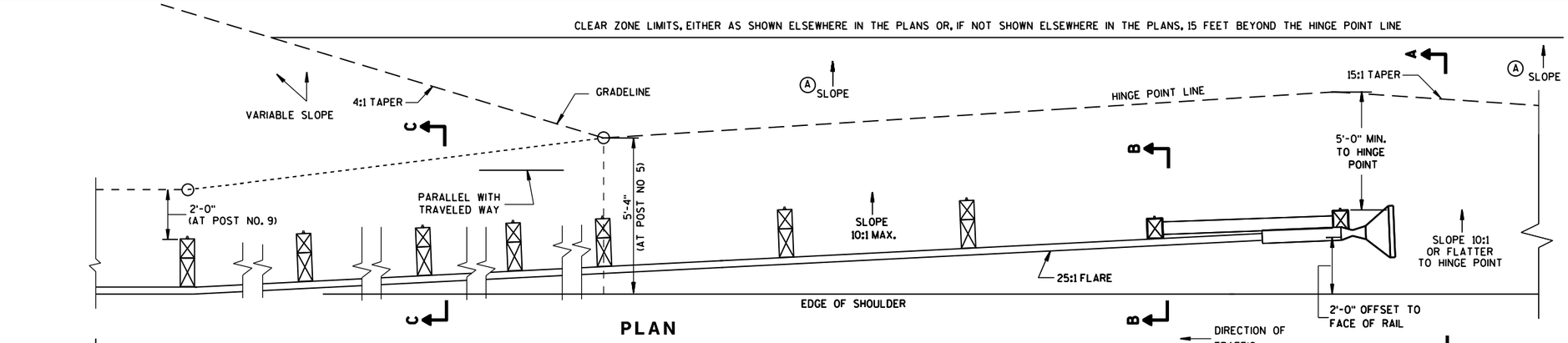
SEE SDD 14B42 FOR MORE INFORMATION.

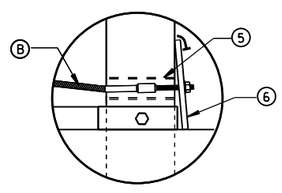
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

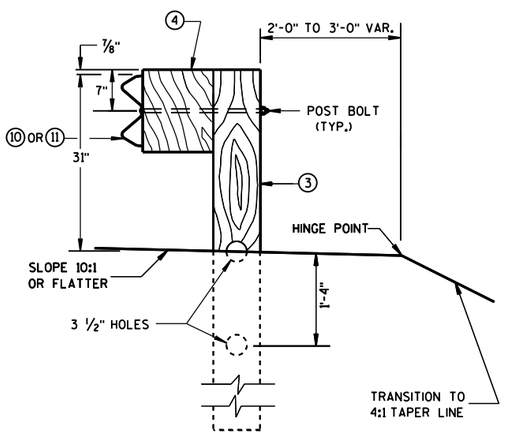
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

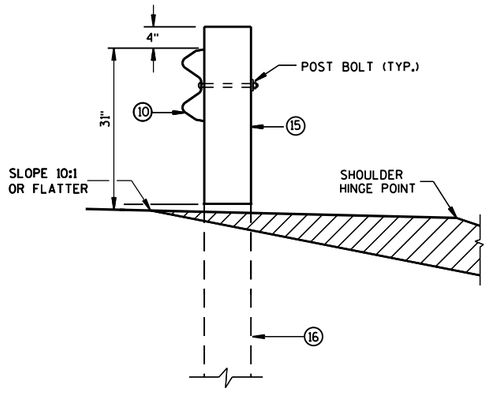
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

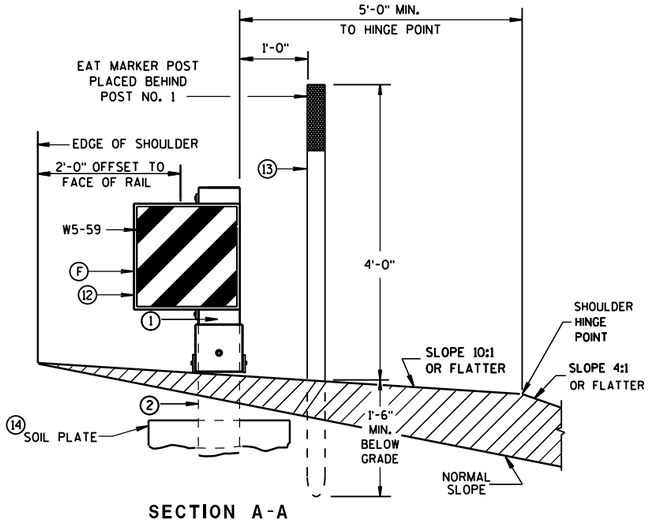
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

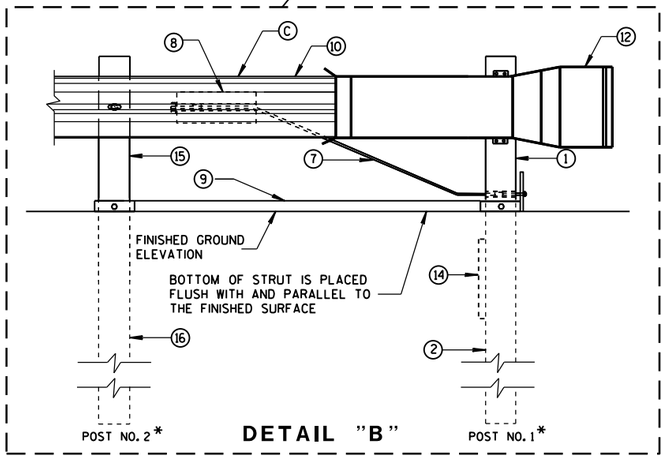












MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

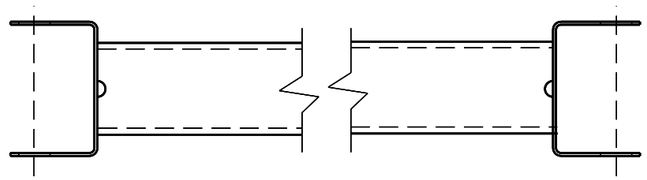
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

S.D.D. 14 B 44-3a

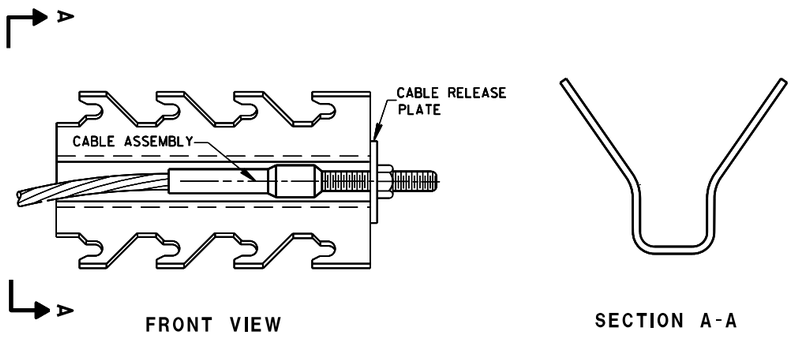
6

S.D.D. 14 B 44-3a



(9) (H)

GENERIC GROUND STRUT



FRONT VIEW

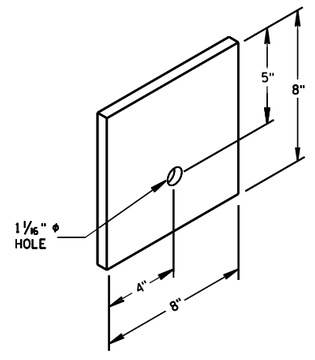
SECTION A-A

(8) (H)

GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	UPPER POST NO. 1 6" X 6" TUBE
(2)	LOWER POST NO. 1
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	IMPACT HEAD
(13)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
(14)	SOIL PLATE
(15)	UPPER POST NO. 2
(16)	LOWER POST NO. 2



(6)

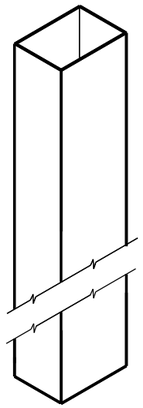
BEARING PLATE

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

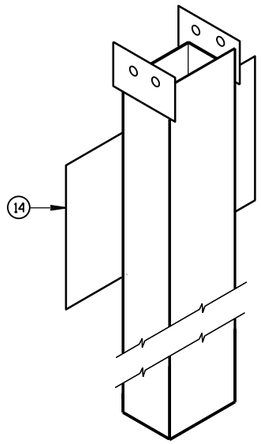
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

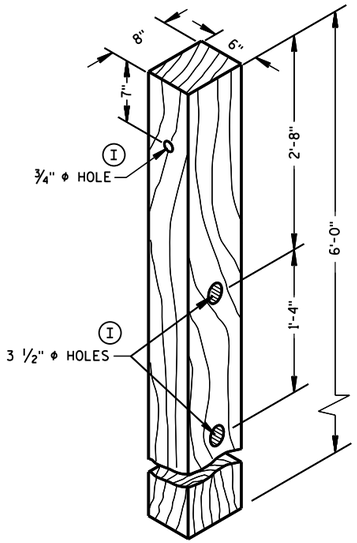
S.D.D. 14 B 44-3b



UPPER POST NO. 1 (1)

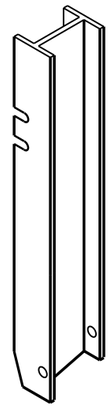


LOWER POST NO. 1 (2)

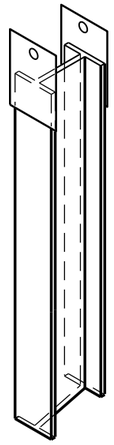


POSTS NUMBER 3-9

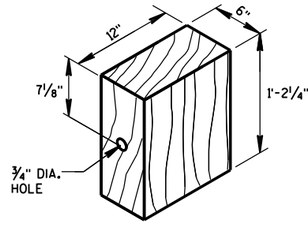
WOOD CRT POST (3)



UPPER POST NO. 2 (15)

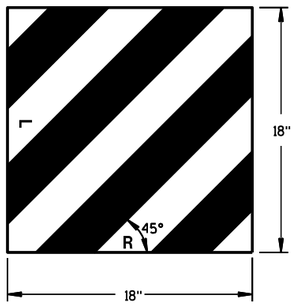


LOWER POST NO. 2 (16)



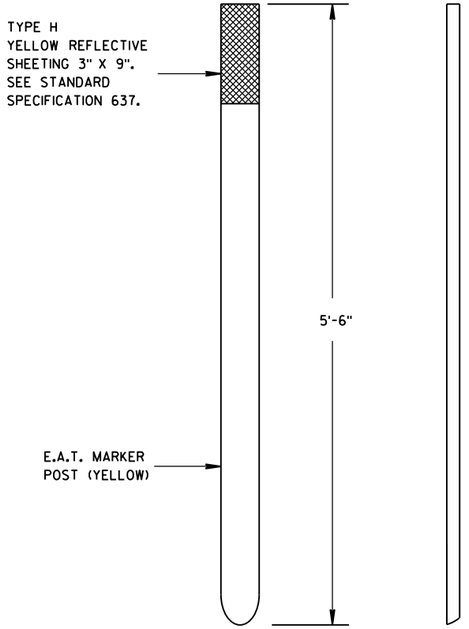
WOOD BLOCKOUT (4)

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



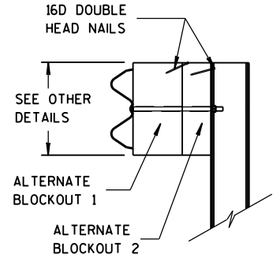
W5-59

REFLECTIVE SHEETING DETAIL (H)

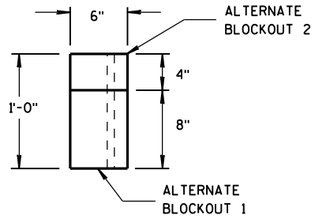


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

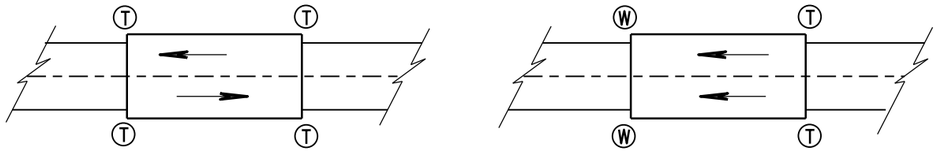
June 2017
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS
UNIT SUPERVISOR

FHWA

6

S.D.D. 14 B 44-3c



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

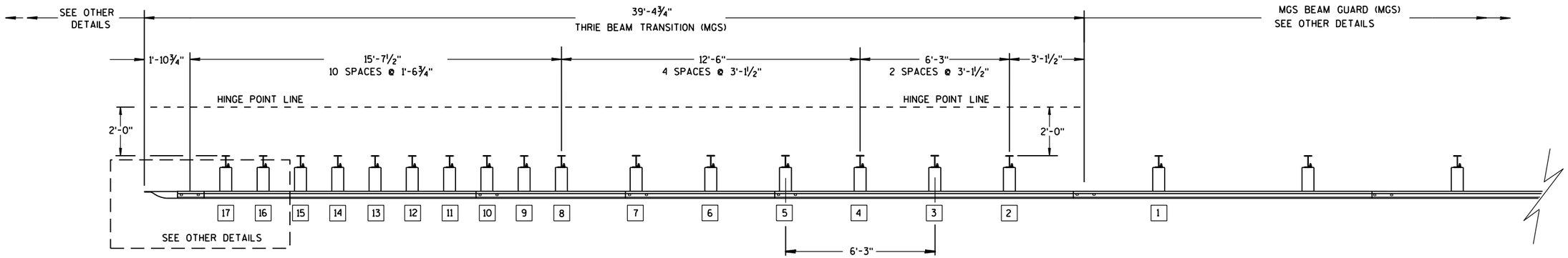
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

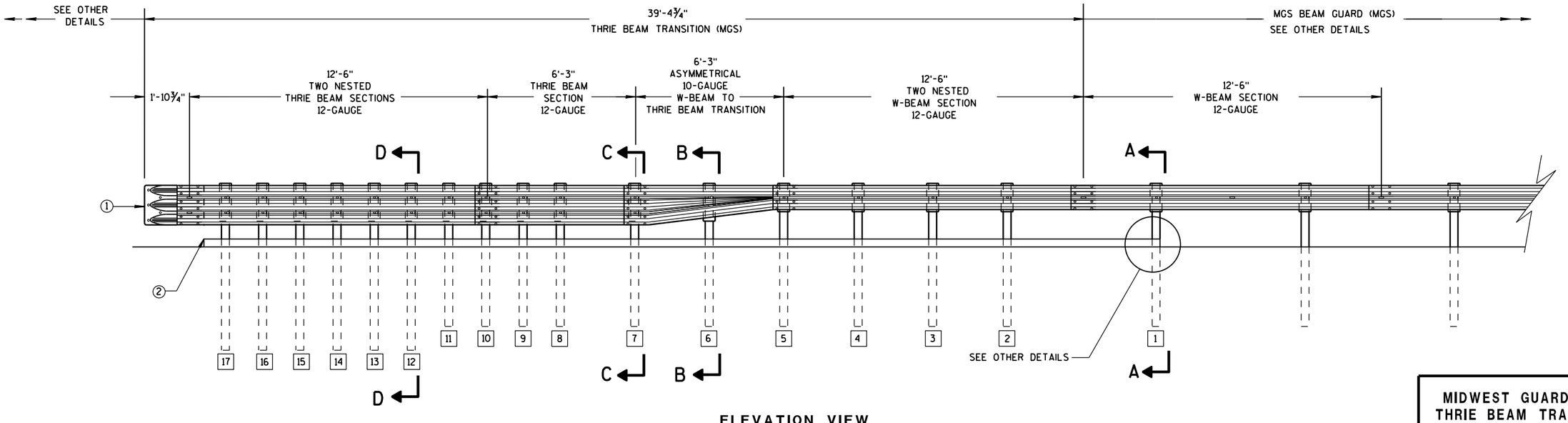
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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	39

6

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

6

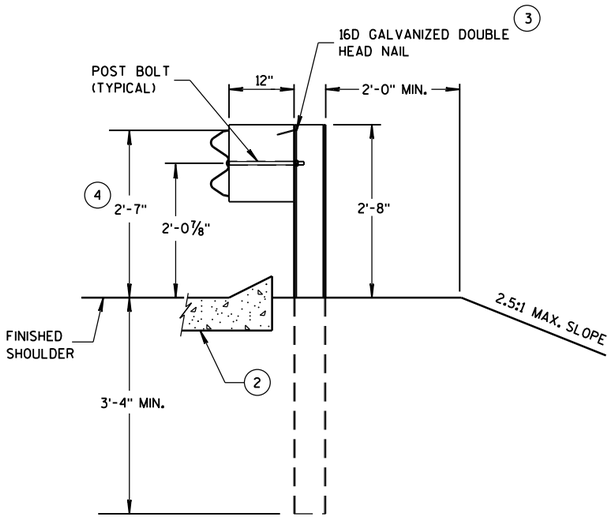
S.D.D. 14 B 45-4a

GENERAL NOTES

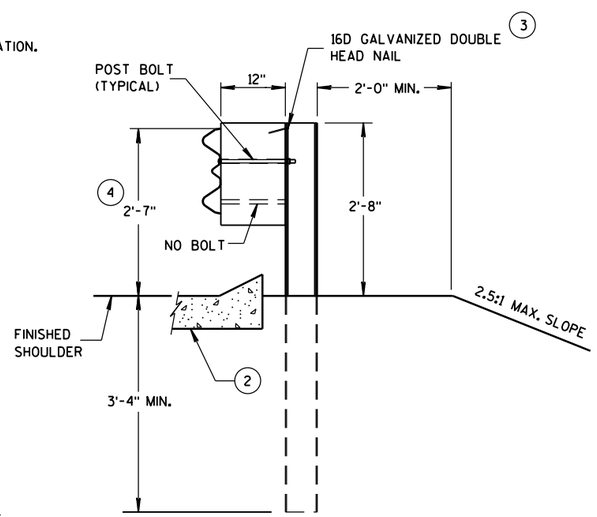
(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

(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.

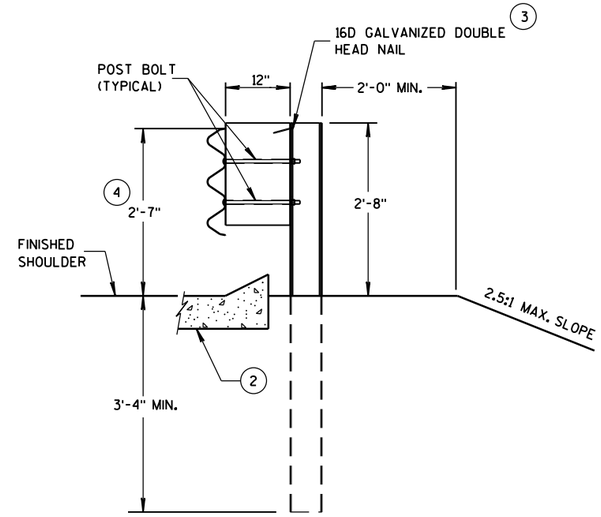
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



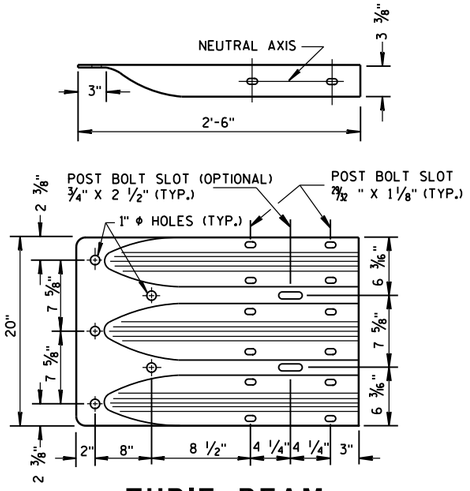
SECTION A-A
POSTS 1-5



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

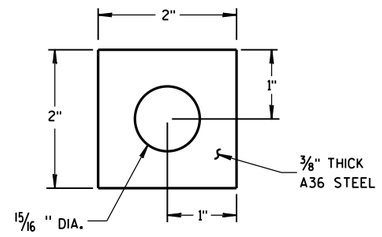
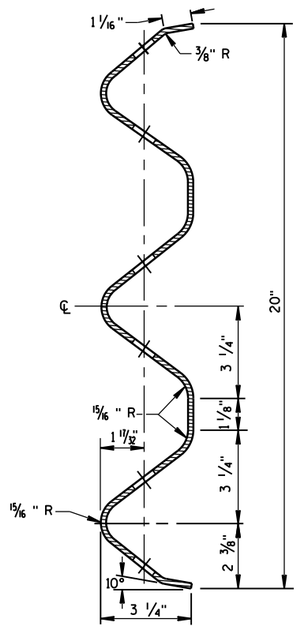
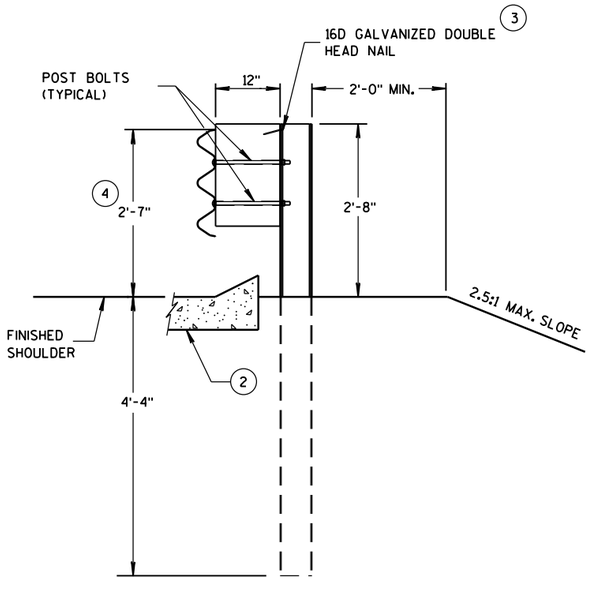


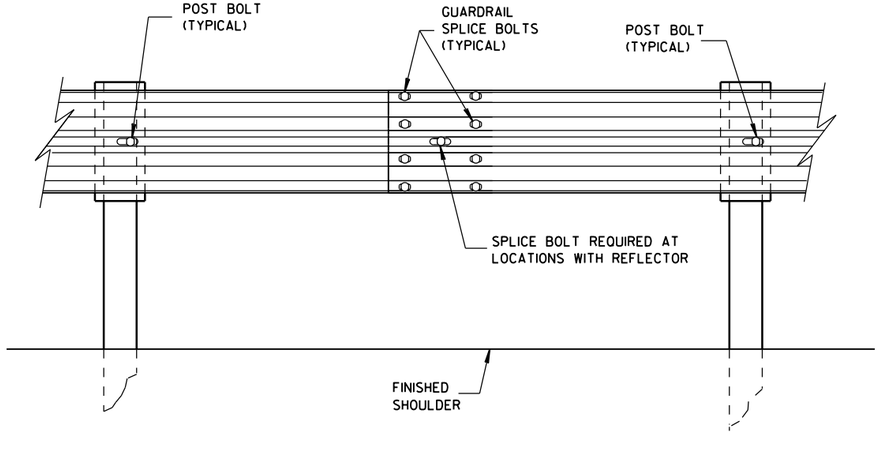
PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D
POSTS 12-17



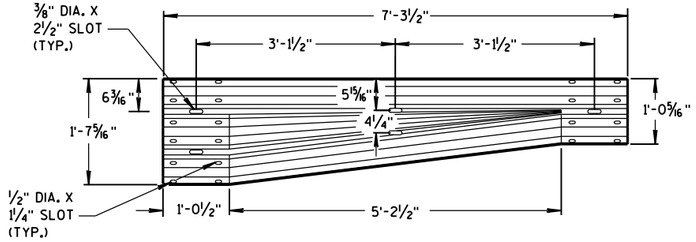
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

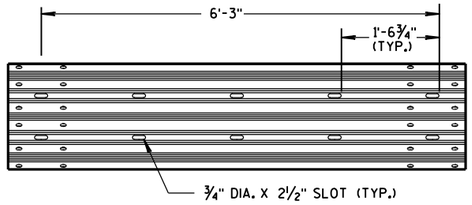
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

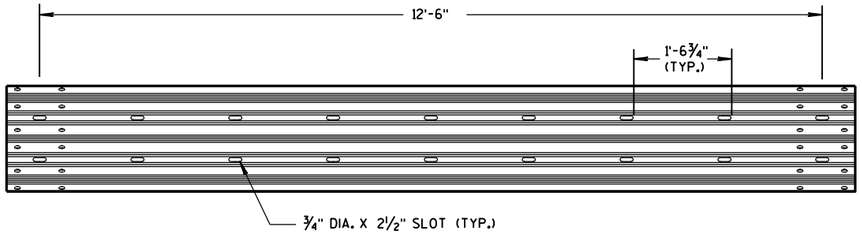
S.D.D. 14 B 45-4b



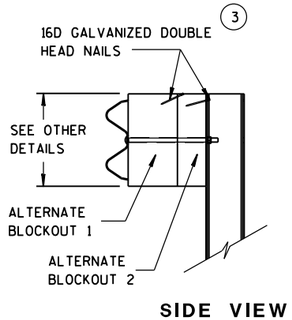
W-BEAM TO THRIE BEAM TRANSITION SECTION



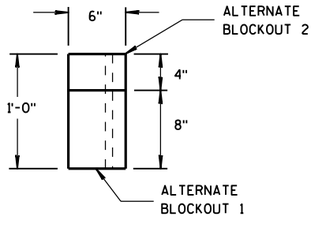
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

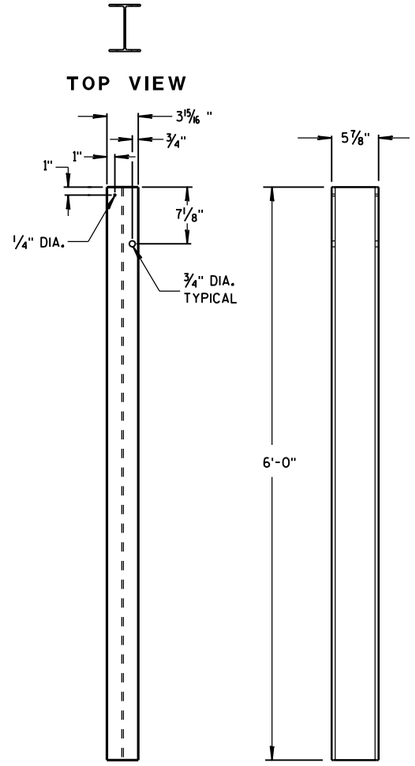


SIDE VIEW

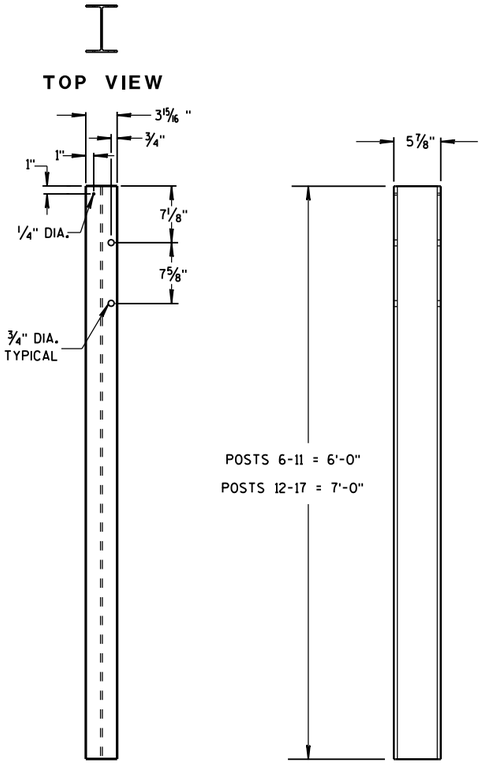


TOP VIEW

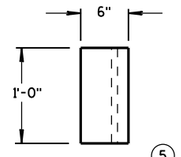
ALTERNATE WOOD BLOCKOUT DETAIL



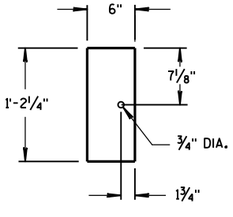
STEEL POSTS 1-5



STEEL POSTS 6-17

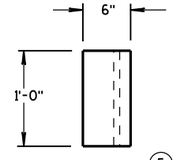


TOP VIEW

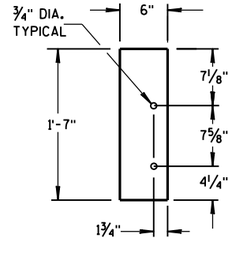


FRONT VIEW

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.

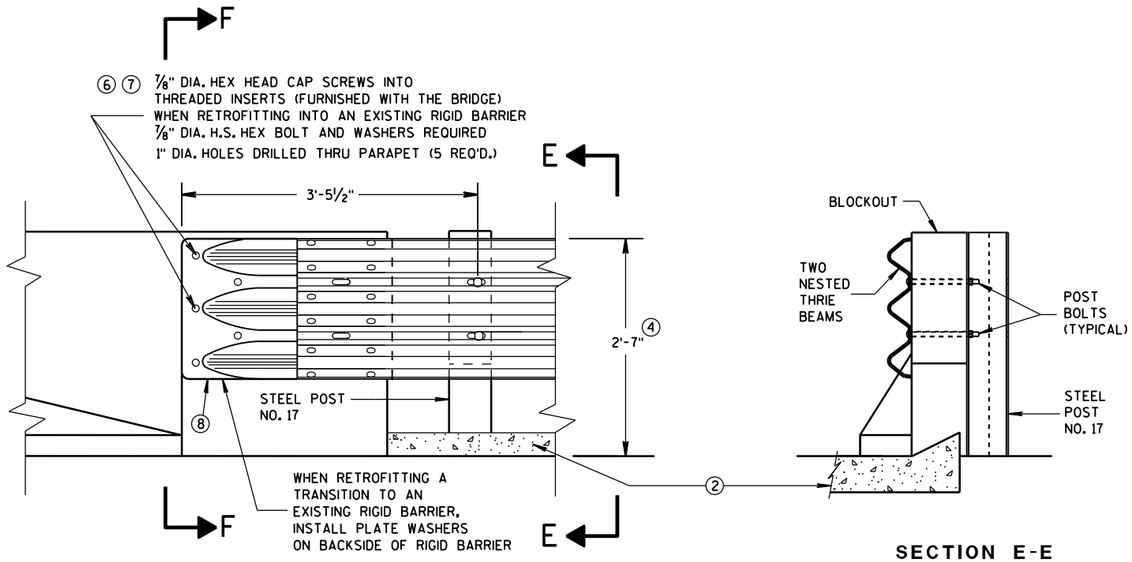
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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



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.

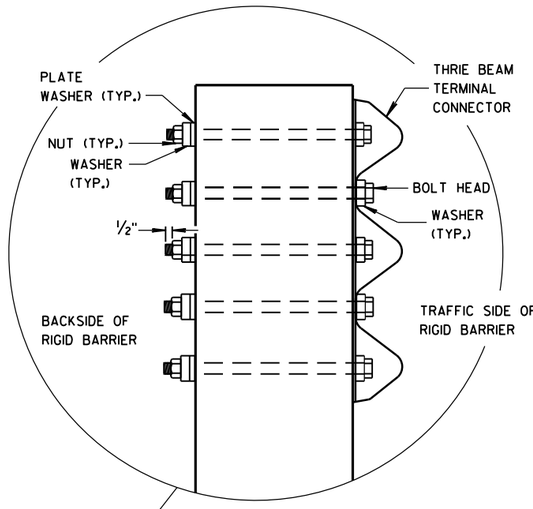
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

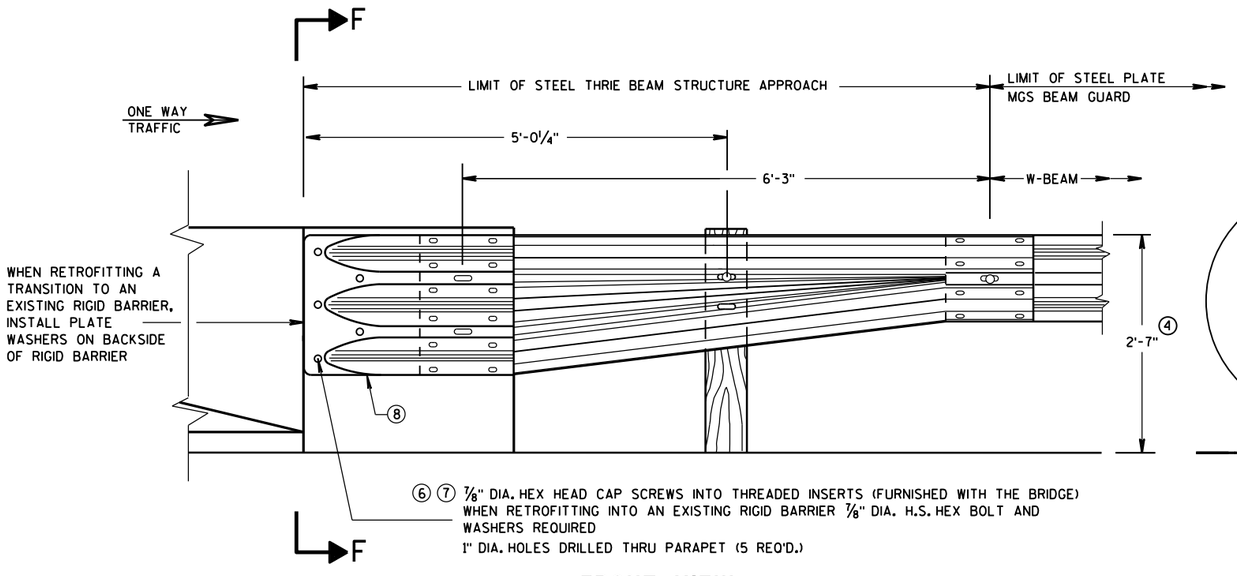
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

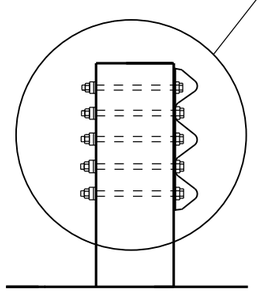
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

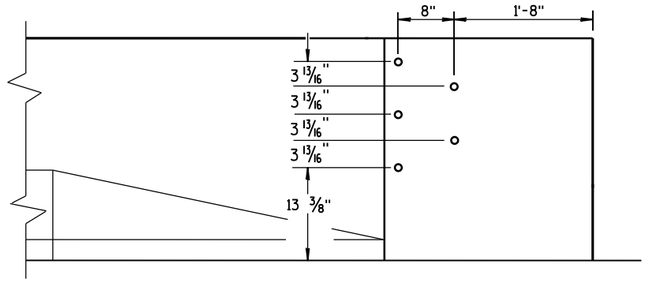




FRONT VIEW



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

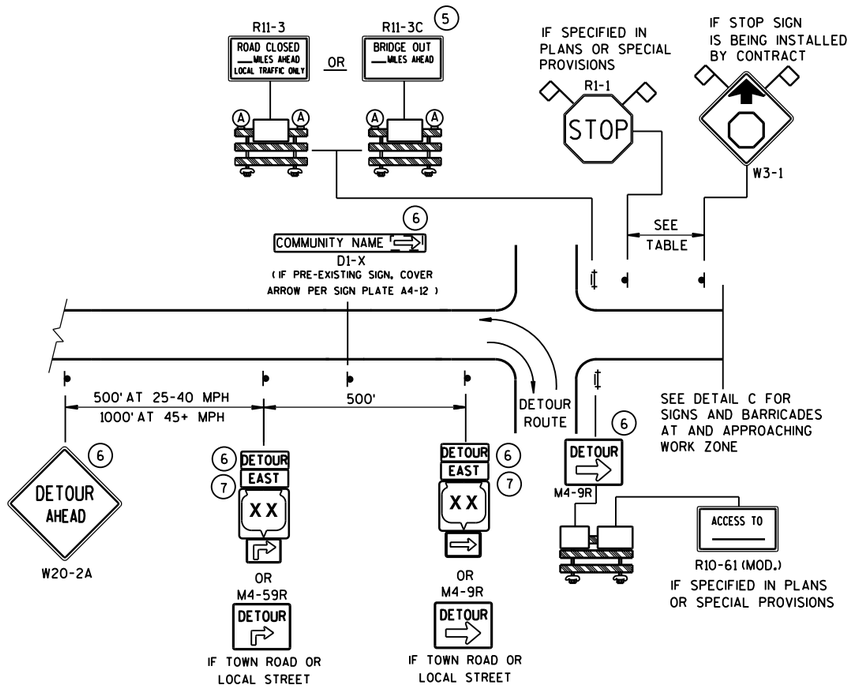
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

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

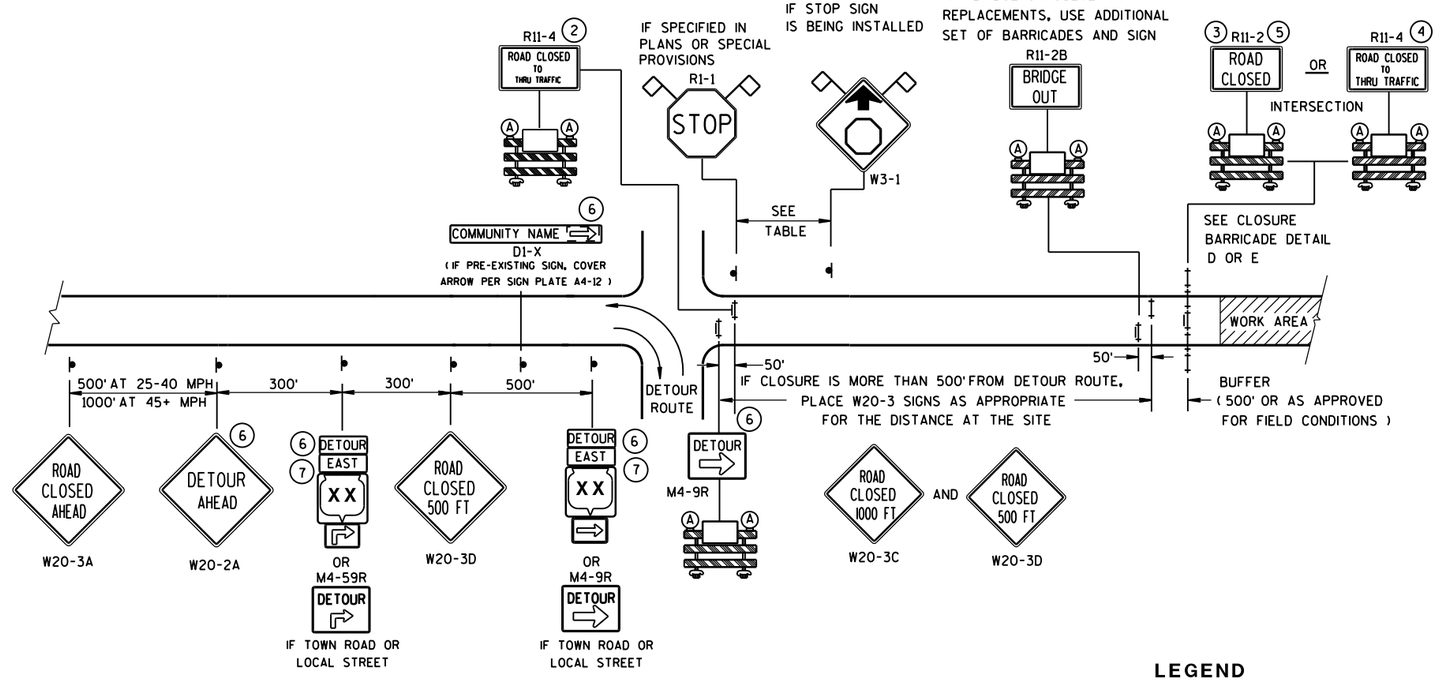
6

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



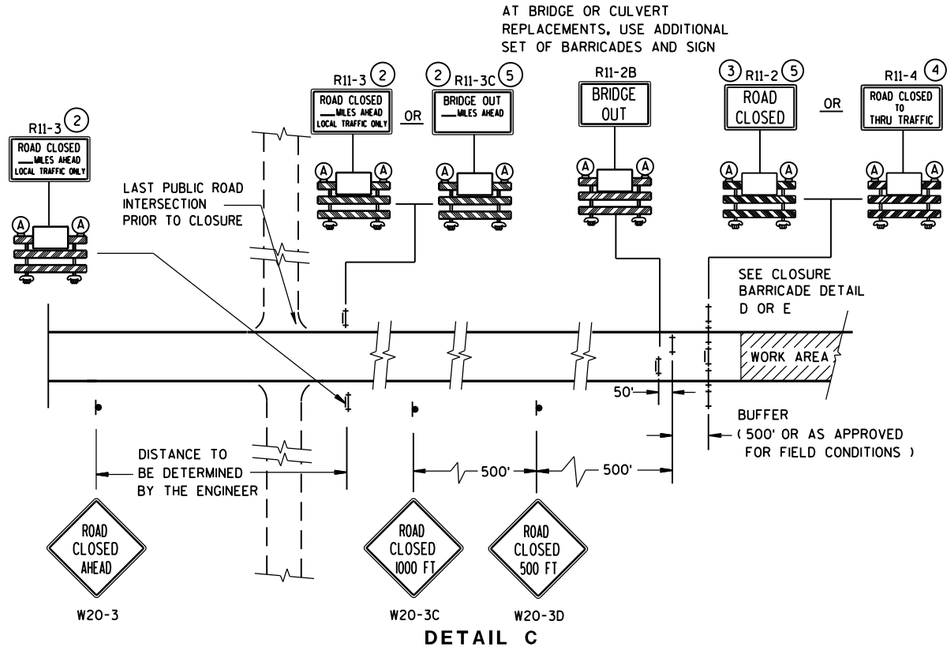
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

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

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)

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

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

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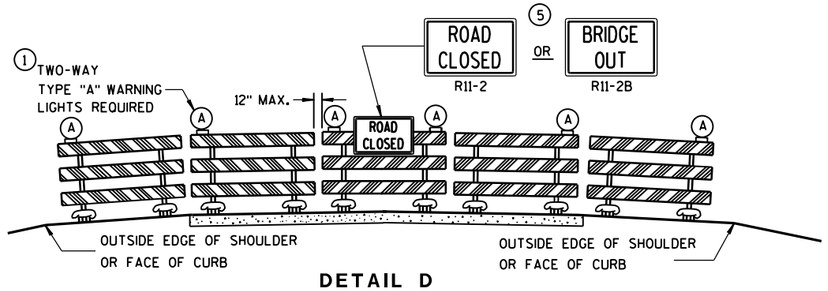
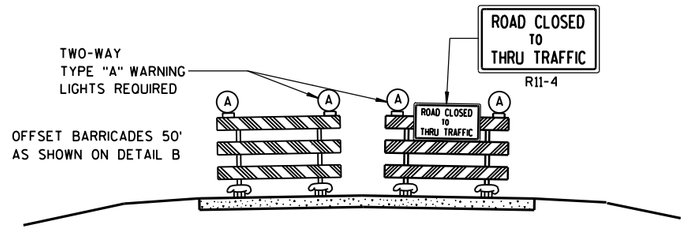
S.D.D. 15 C 2-6a



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

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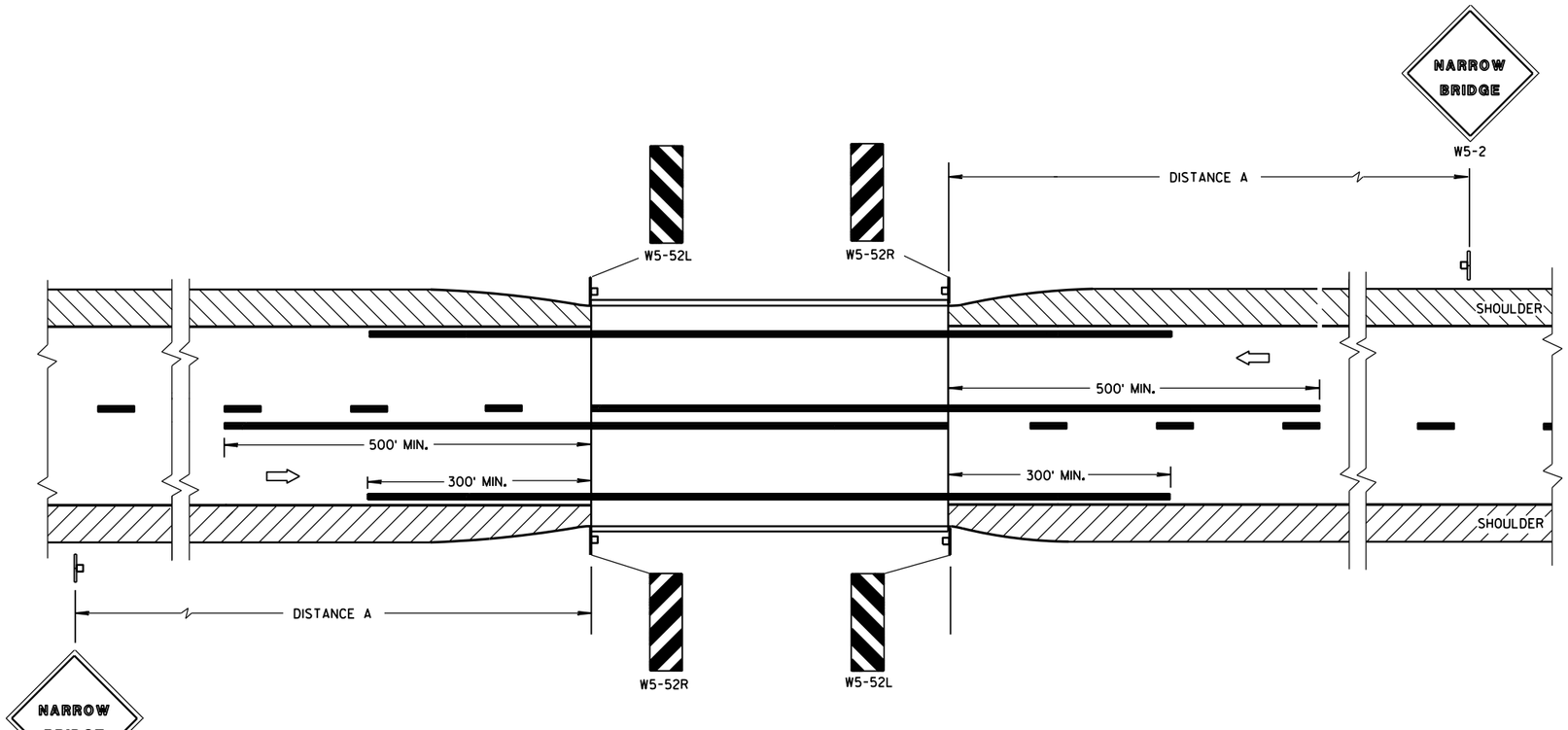
S.D.D. 15 C 2-6b



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

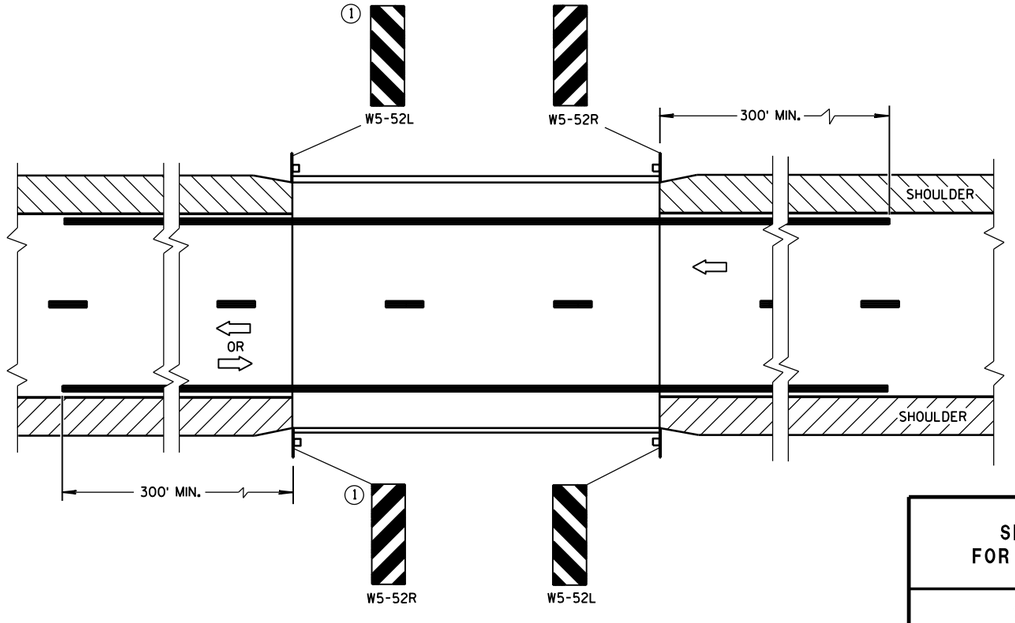
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

(1) OMIT ON ONE-WAY TRAVELLED WAYS.

⇨ DIRECTION OF TRAFFIC



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
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

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S.D.D. 15 C 6-9

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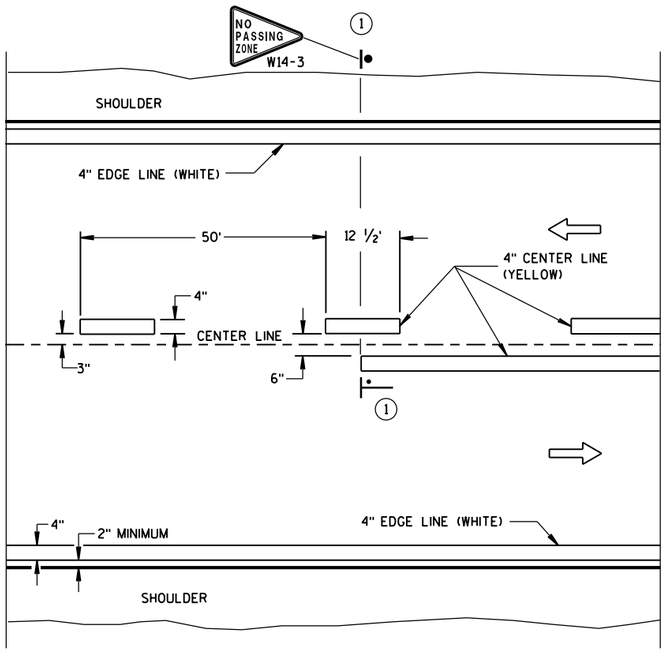
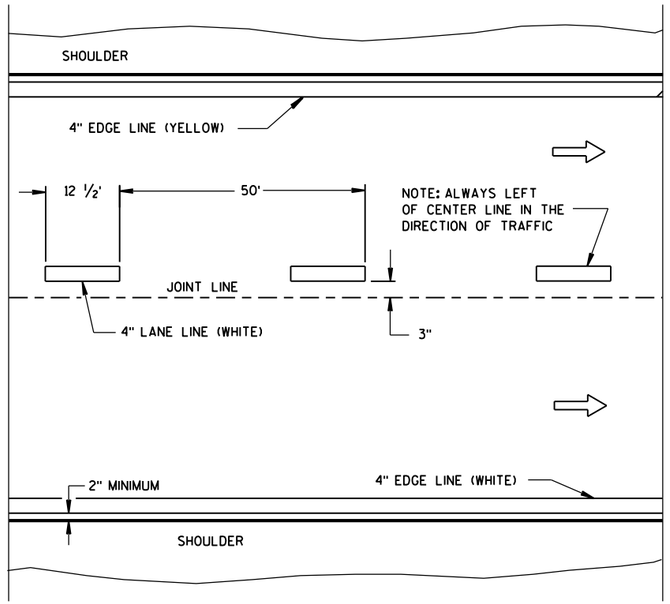
S.D.D. 15 C 6-9



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

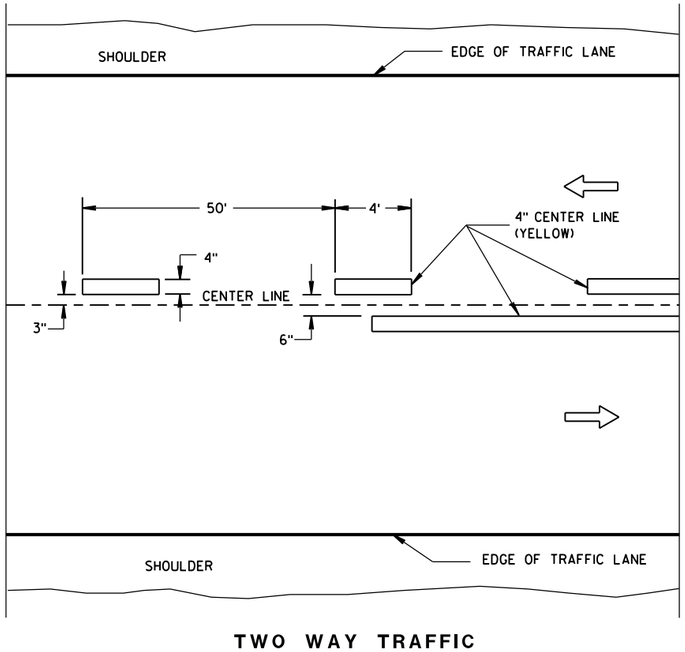
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

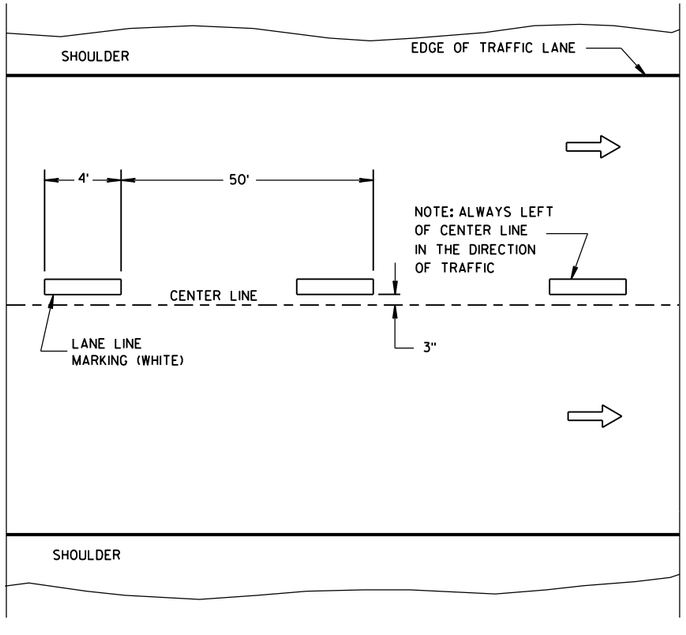
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]INEER
FHWA

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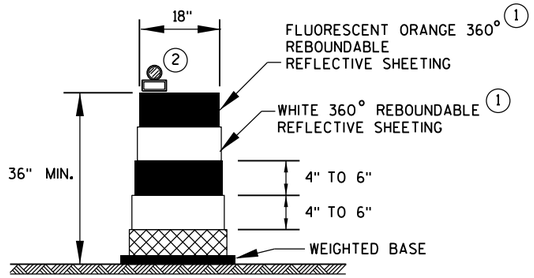
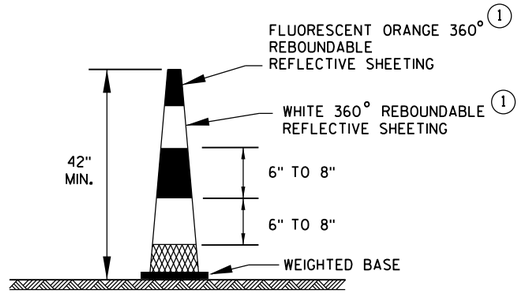
S.D.D. 15 C 8-18a



DRUM

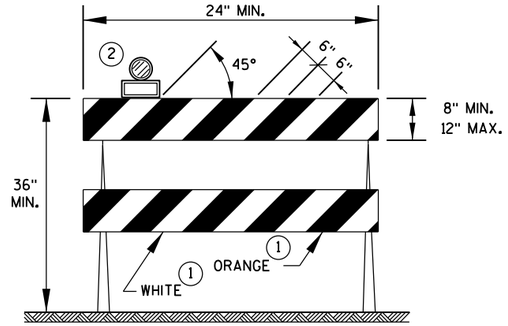


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

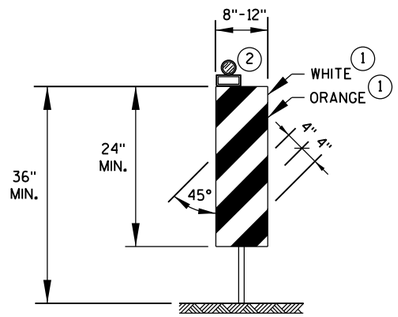
GENERAL NOTES

1. REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
2. LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



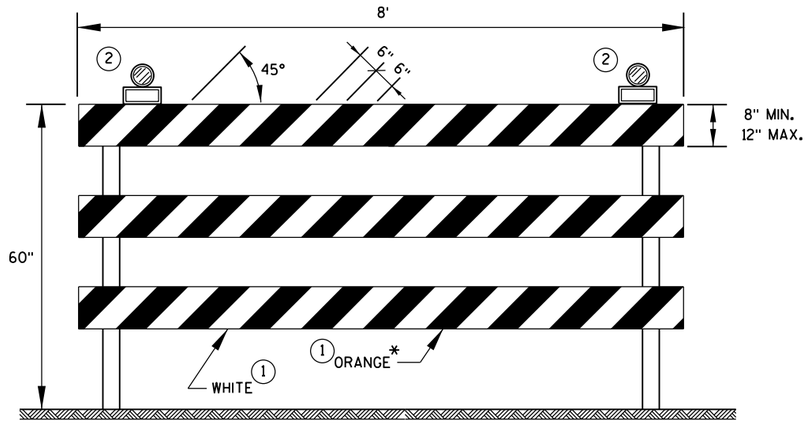
TYPE 2 BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



VERTICAL PANEL

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



TYPE 3 BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION, USE RED SHEETING.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017	/S/ Andrew Heidtke
DATE	WORK ZONE ENG

FHWA

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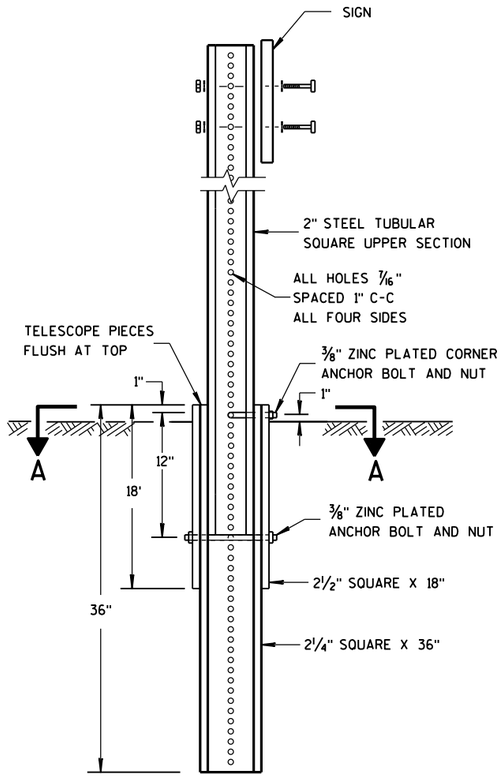
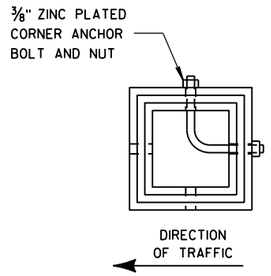
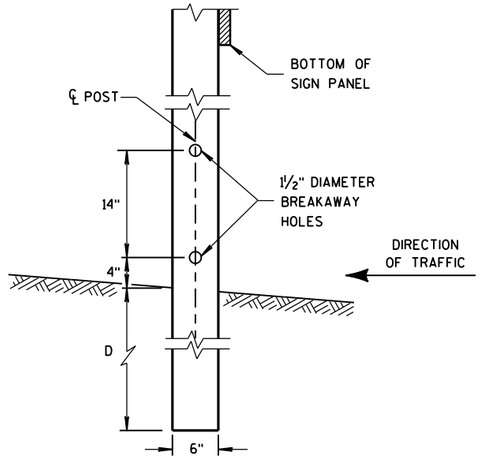
S.D.D. 15 C 11-7b



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



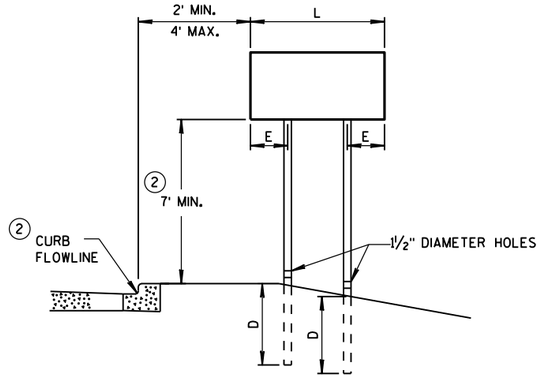
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

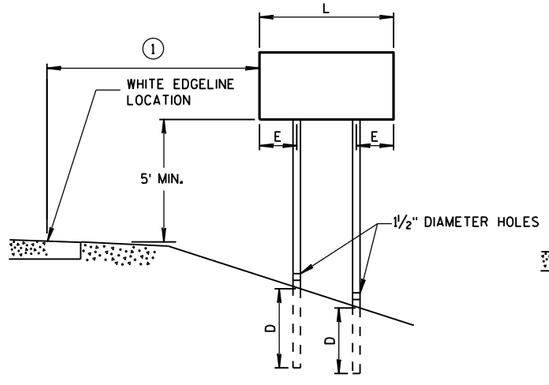
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

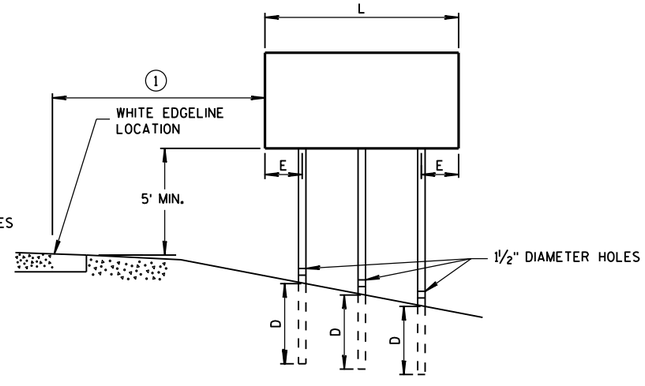
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK 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 SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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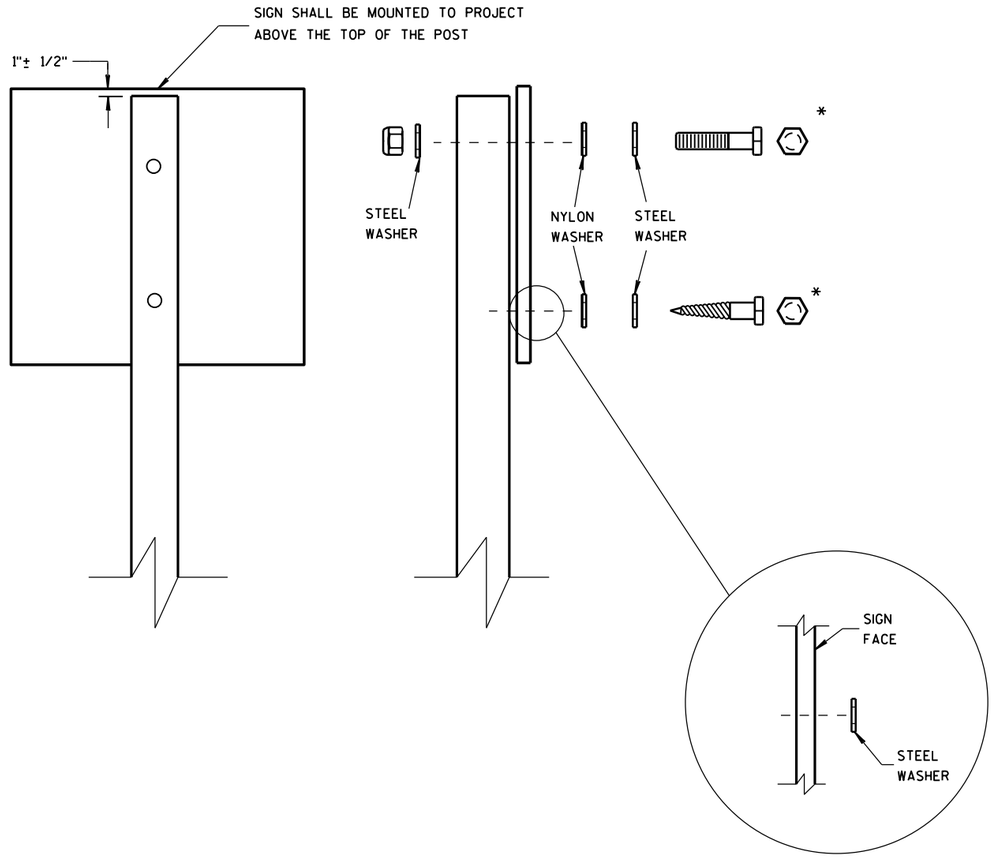
S.D.D. 15 D 38-2a
S.D.D. 15 D 38-2a



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 38-2b

S.D.D. 15 D 38-2b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

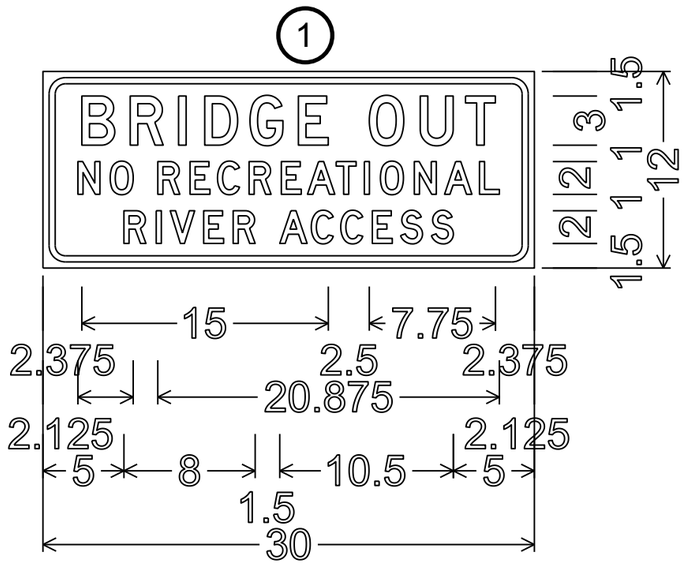
June 2017
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

FHWA

NOTES

1. All Signs Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D



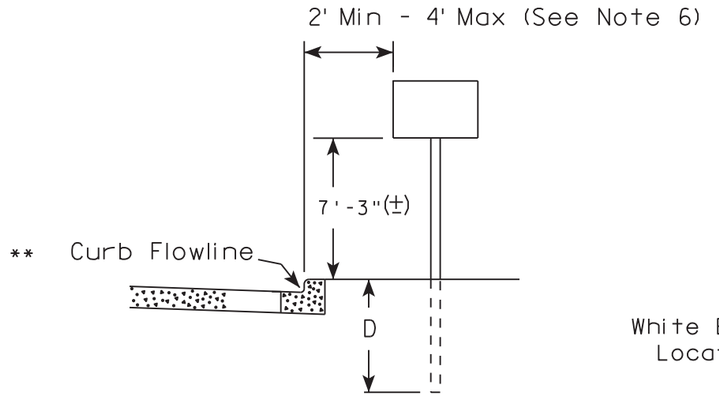
1.375" Radius, 0.375" Border, 0.375" Indent

7

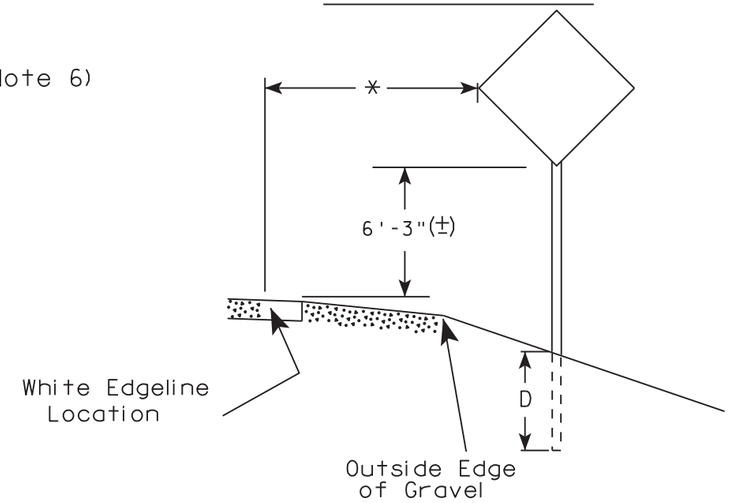
7

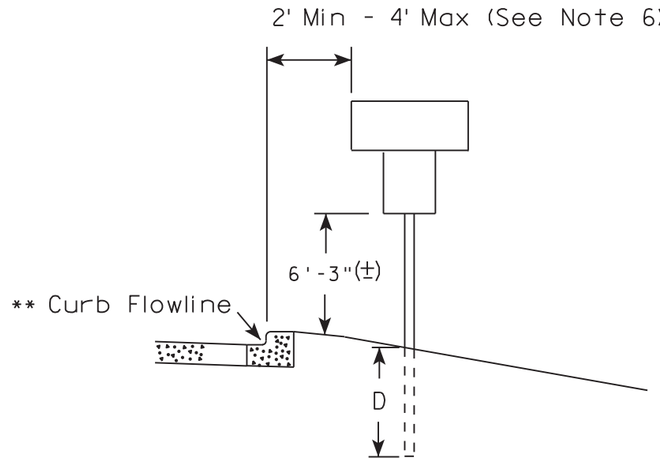
PROJECT NO: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	TEMPORARY SIGNING	SHEET NO: 50	E

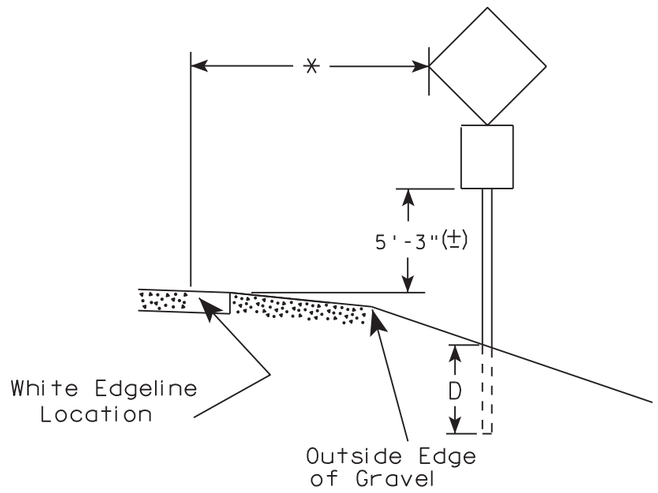
URBAN AREA



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.

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. J-Assemblies are considered to be one sign for mounting height.
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" (±).

POST EMBEDMENT DEPTH

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

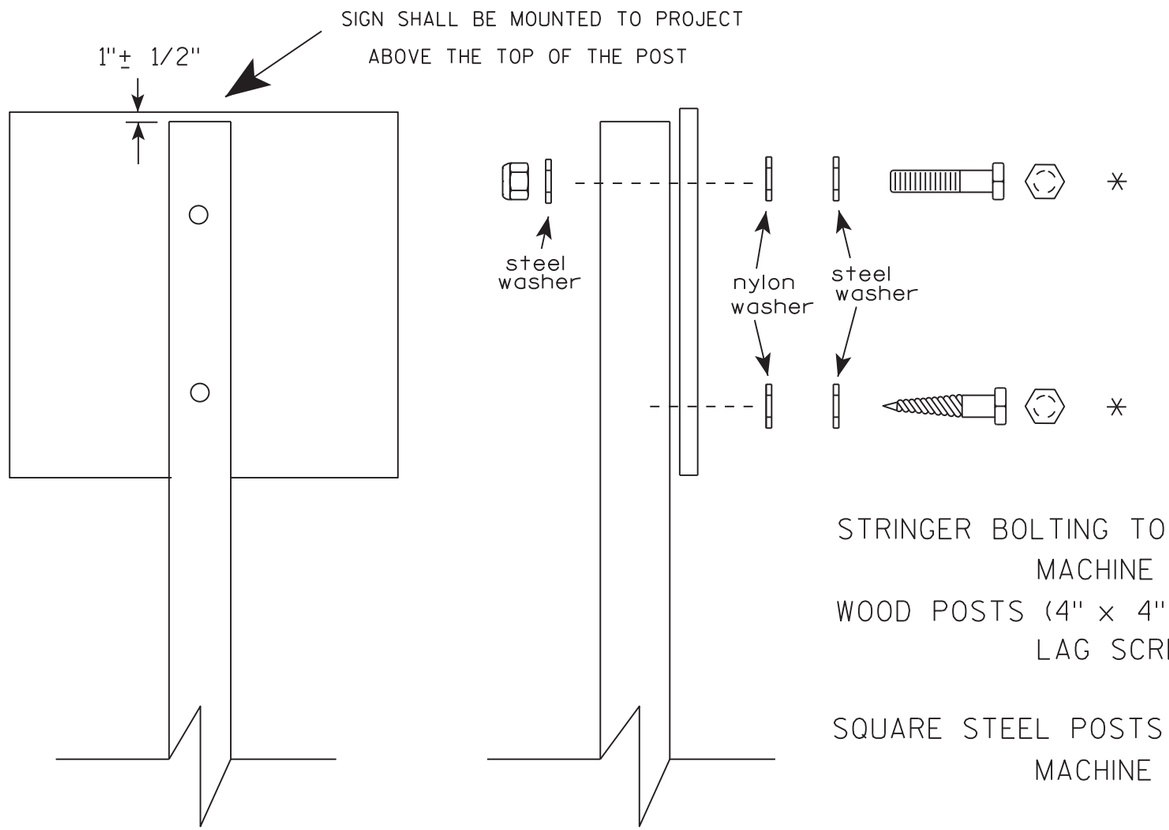
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-3.21

PROJECT NO: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	PERMANENT SIGNING - INSTALLATION	SHEET NO: 51	E



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

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

b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)

3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)

3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

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

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

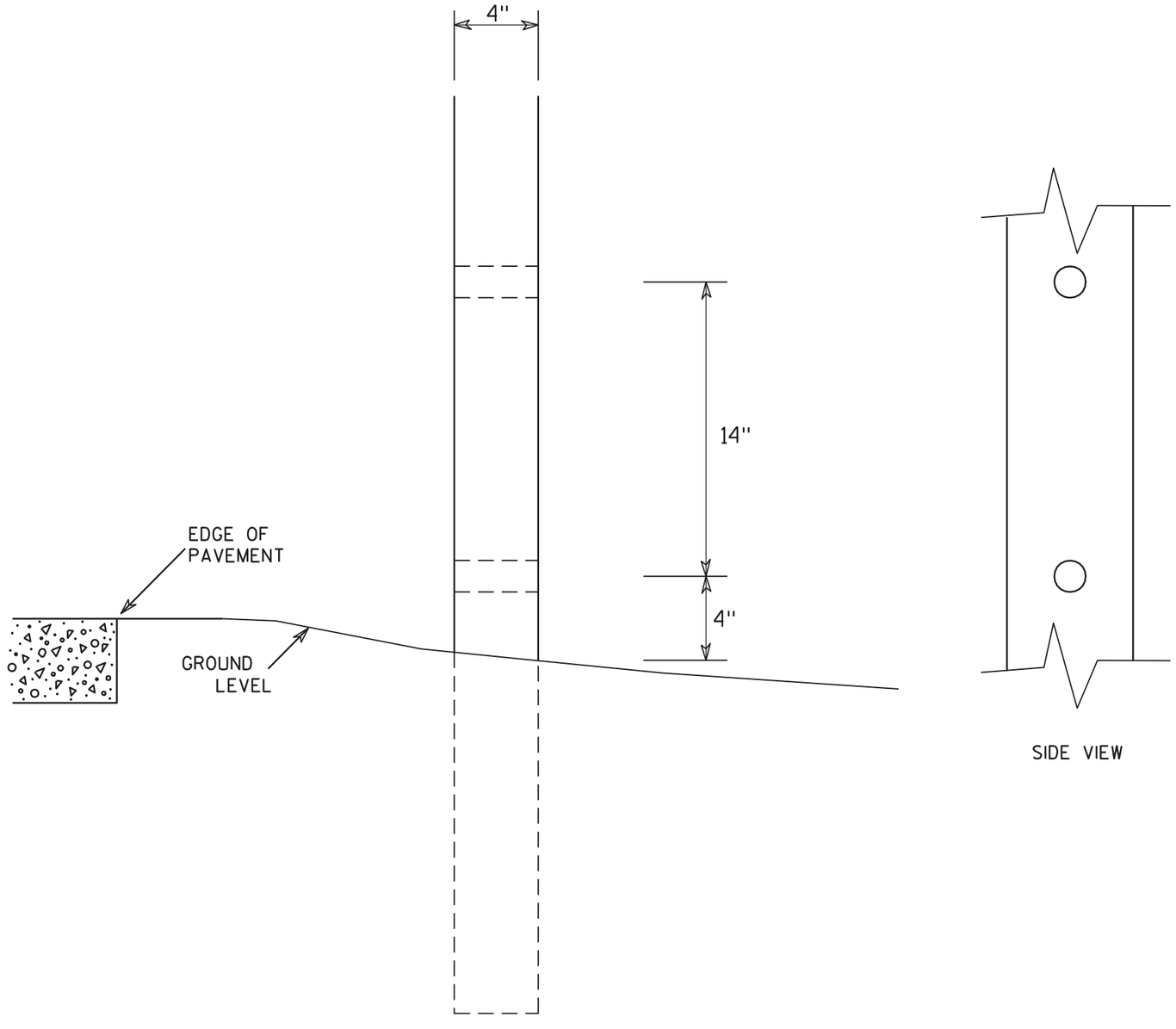
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

52

PROJECT NO: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	PERMANENT SIGNING - INSTALLATION	SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tc_stdplate\A48.DGN PLOT DATE : 11-AUG-2016 11:35 PLOT BY : $$ plotuser $$



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

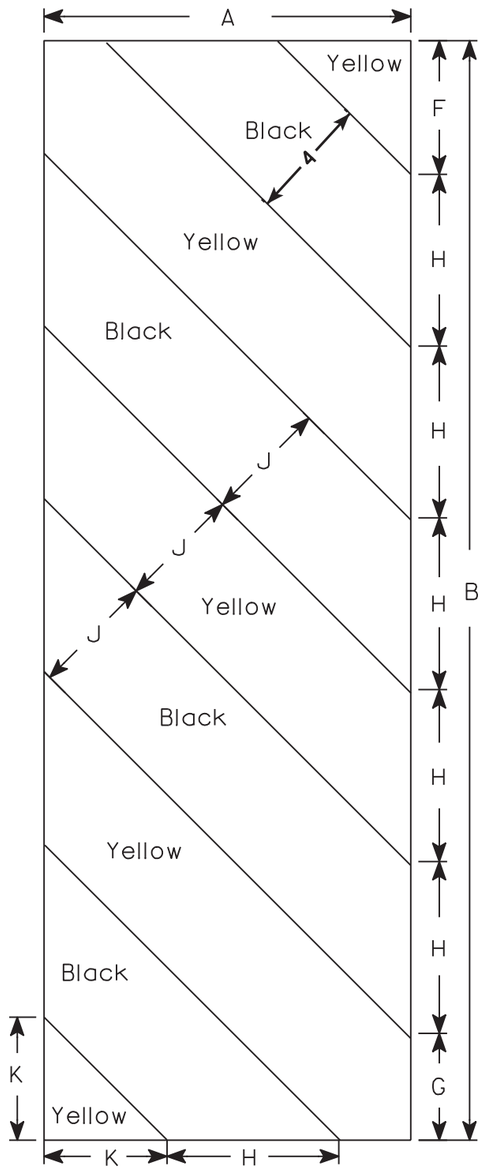
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

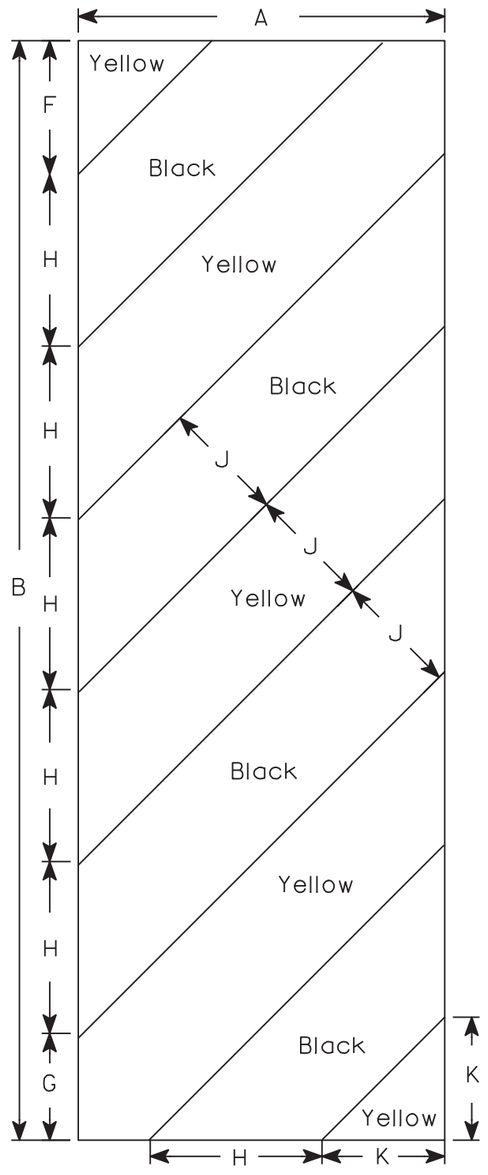
PROJECT NO: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	PERMANENT SIGNING - INSTALLATION	SHEET NO: 53	E

FILE NAME : C:\Users\Projects\tr_stdplate\A411.DGN PLOT DATE : 10-NOV-2005 10:09 PLOT BY : DOTSJA PLOT NAME : PLOT SCALE : 6.207338:1.000000

WISDOT/CADDS SHEET 42



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

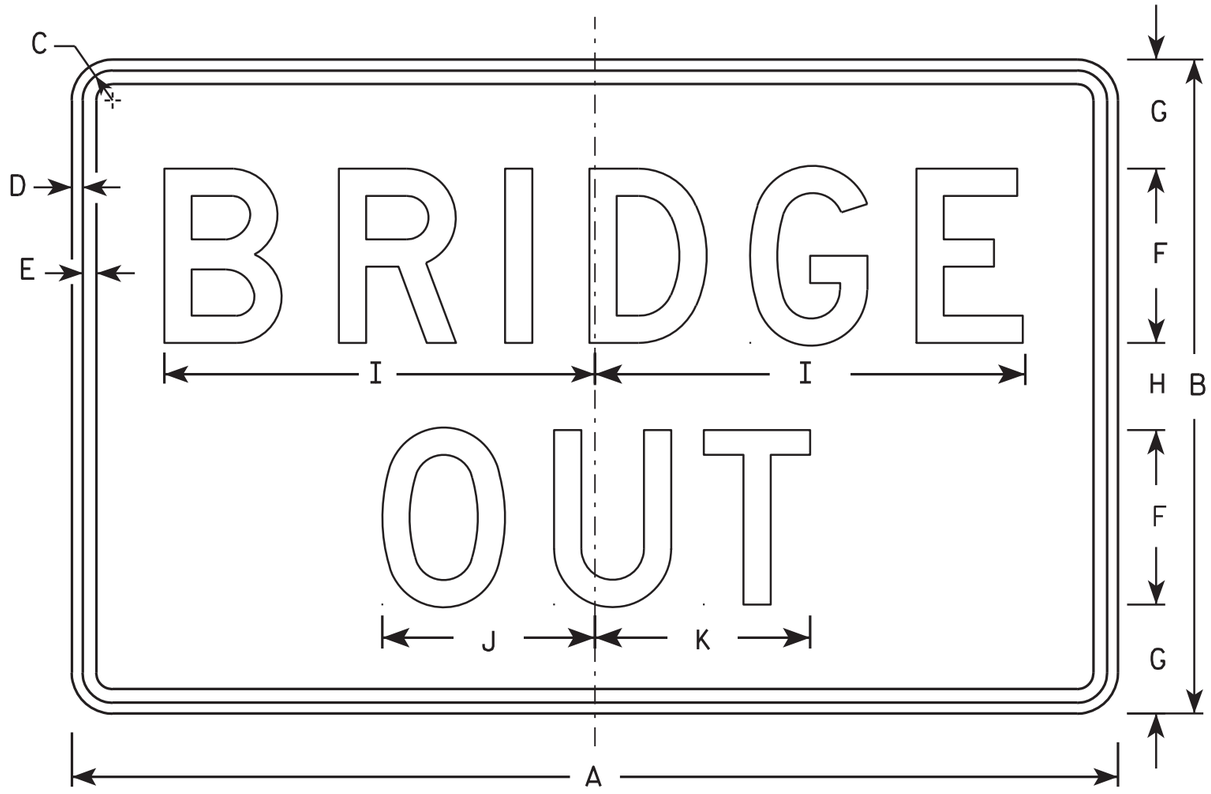
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	PERMANENT SIGNING	SHEET NO: 54	E



R11-2B

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO: 6784-00-70	HWY: CTH A	COUNTY: PORTAGE	TEMPORARY SIGNING	SHEET NO: 55	E

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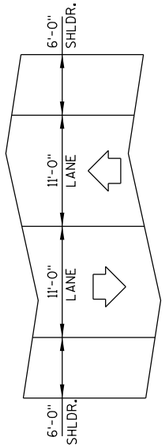
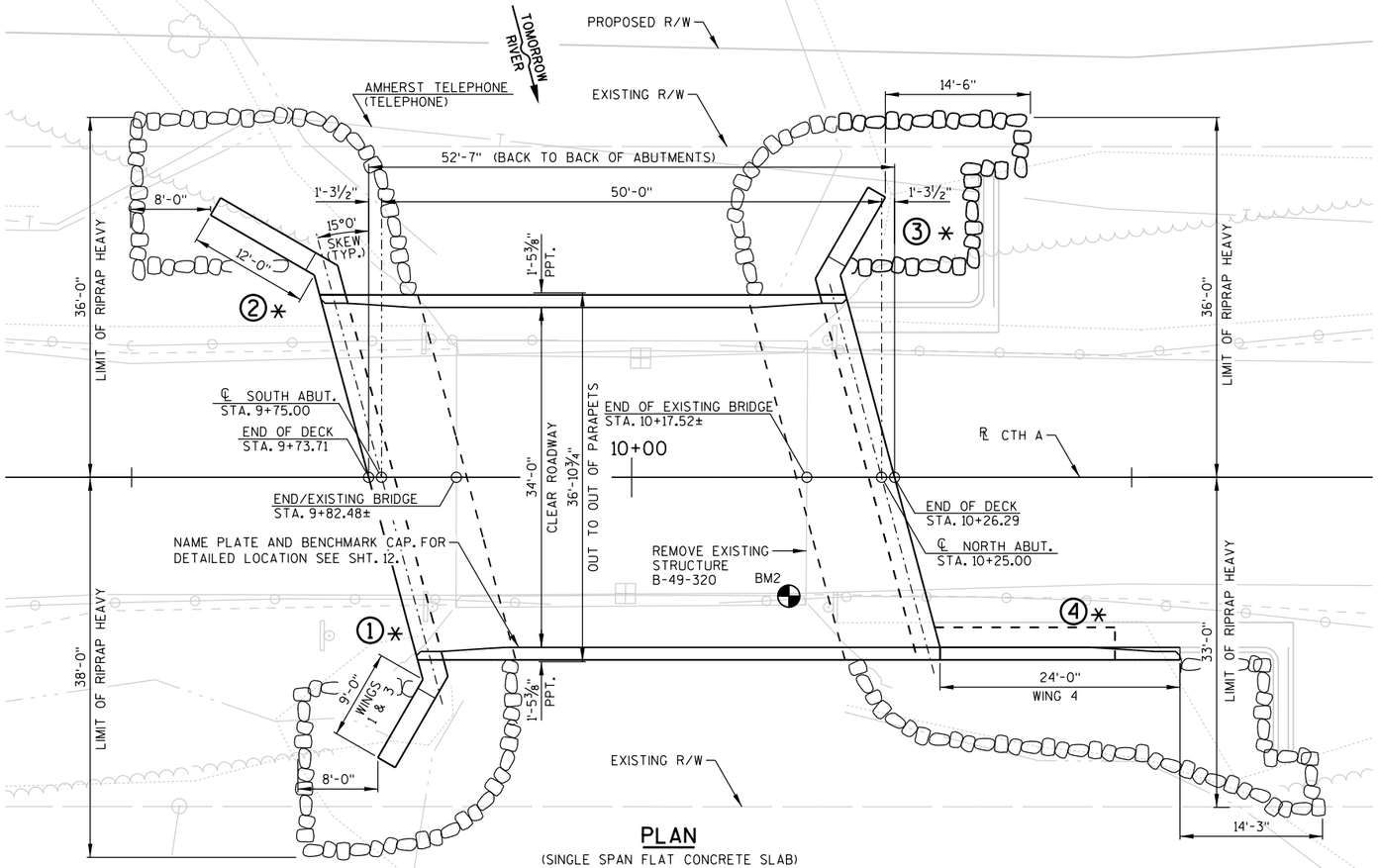
PLOT DATE: 6/1/2018 PLOT TIME: 2:14:36 PM
BATCH PRINT SHEET 1 OF 13

* PROVIDE ANCHOR ASSEMBLY FOR THRIE BEAM GUARDRAIL ATTACHMENT.

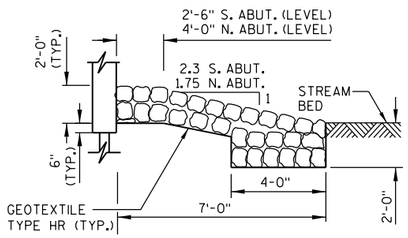
(X) INDICATES WING NUMBER

N

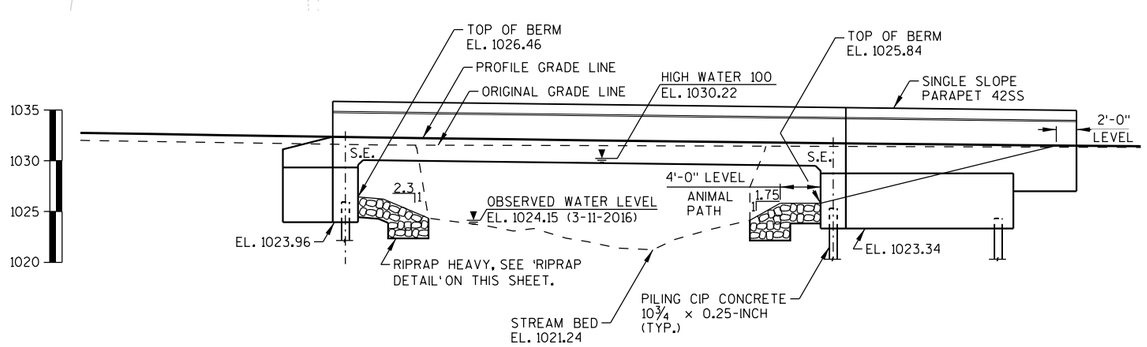




PLAN
(SINGLE SPAN FLAT CONCRETE SLAB)



RIPRAP DETAIL



ELEVATION
(NORMAL TO TOMORROW RIVER)

BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
1	7+90, 41' RT.	60d SPIKE IN PP EAST SIDE CTH 'A' AT HOUSE #4997.	1038.33
2	10+15, 12' RT	CHISELED SQUARE ON NE CORNER OF STRUCTURE B-49+320 OVER TOMORROW RIVER.	1032.02

COORDINATES TIED TO WISCONSIN COUNTY COORDINATES SYS., PORTAGE COUNTY NAD 83 (2011). NAVD 88 CHECKED TO AMHERST JUNCTION GPS STATION.

STATE PROJECT NUMBER

6784-00-70

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR = 1.28
OPERATING RATING FACTOR = 1.67
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

MATERIAL PROPERTIES:

CONCRETE MASONRY - SLAB & PARAPET — f'c = 4,000 P.S.I.
- ALL OTHER — f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 10¾×0.25-INCH. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 110'-0" LONG FOR THE SOUTH ABUTMENT AND 110'-0" LONG FOR THE NORTH ABUTMENT.

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING THE MODIFIED GATES DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC VOLUME

CTH A
A.A.D.T. (2019) = 1300
A.A.D.T. (2039) = 1500
DESIGN SPEED = 60 MPH

HYDRAULIC DATA

100 YEAR FREQUENCY

Q100	2,000 CFS
VELOCITY	10.0 FPS
HIGH WATER ELEVATION	1030.22
WATERWAY AREA	200 SQ. FT.
DRAINAGE AREA	94.3 SQ. MI.
ROAD OVERTOPPING	NA
SCOUR CRITICAL CODE	5

2 YEAR FREQUENCY

Q2	775 CFS
VELOCITY	6.4 FPS
HIGH WATER 2 ELEVATION	1027.31

LIST OF DRAWINGS

06/1/2018

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
BILL DREHER (608) 266-8489

CONSULTANT:
KEVIN HAGEN (715) 342-3053

AECOM PROJECT No. 60487024

NO.	DATE	REVISION	BY

AECOM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/29/18
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-49-187

CTH A OVER TOMORROW RIVER

COUNTY	TOWN ~~CITY/VILLAGE~~
PORTAGE	AMHERST

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
KB	KRH	KAM	KRH

GENERAL PLAN

SHEET 1 OF 13
56

8

8

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FILE NAME: P:\60487024\900_Work\910-CAD\20-SHEETS\Structure\15_Degree_Skew_50_Ft\02-187_General_Plan.dgn
PLOT DATE: 6/1/2018 PLOT TIME: 2:14:38 PM
BATCH PRINT SHEET 2 OF 13

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE 'HR' WITHIN THE LIMITS SHOWN ON SHEET 1, ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE EXISTING STRUCTURE (B-49-320) IS A STEEL DECK GIRDER BRIDGE, 34' LONG x 26.5' WIDE, TO BE REMOVED.

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM, STATION 10+00."

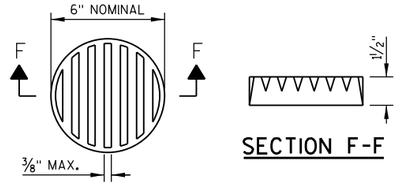
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER.

EXCAVATION REQUIRED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-49-187" IS NOT USED TO BALANCE THE EARTHWORK.

(1) FILL TOP SURFACE OF RIPRAP VOIDS WITH SELECT CRUSHED MATERIAL.

LEGEND

▲ 3/4" V-GROOVE REQUIRED, EXTEND TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.



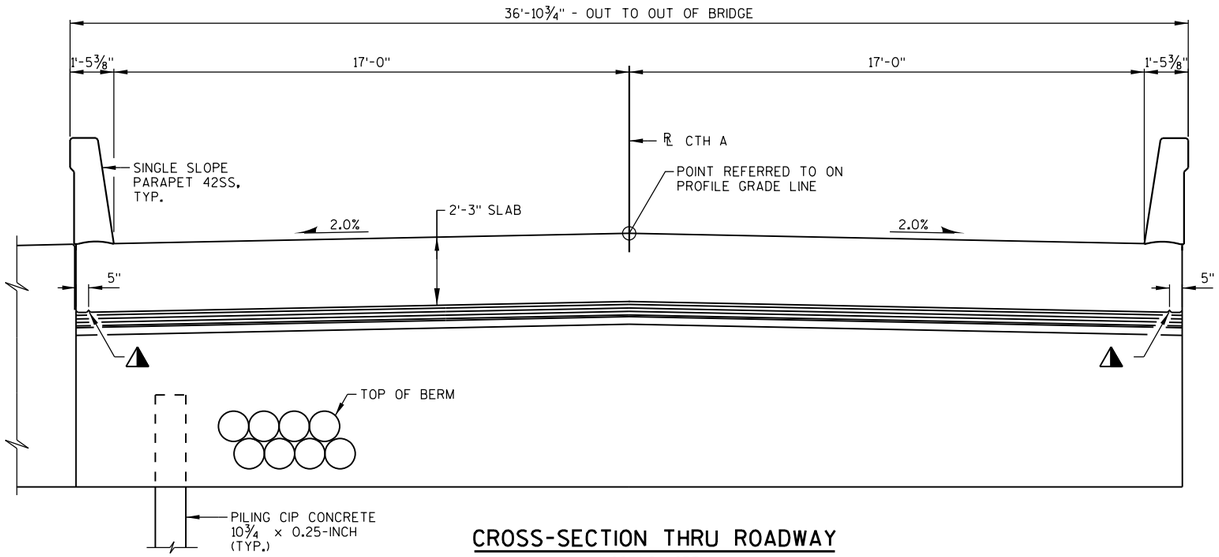
SECTION F-F

RODENT SHIELD DETAIL

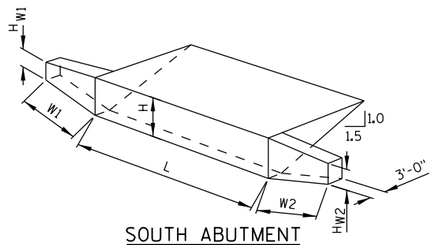
DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

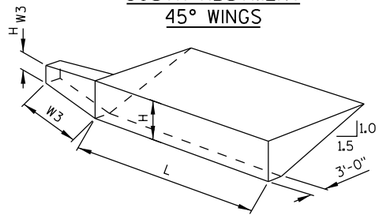
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X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



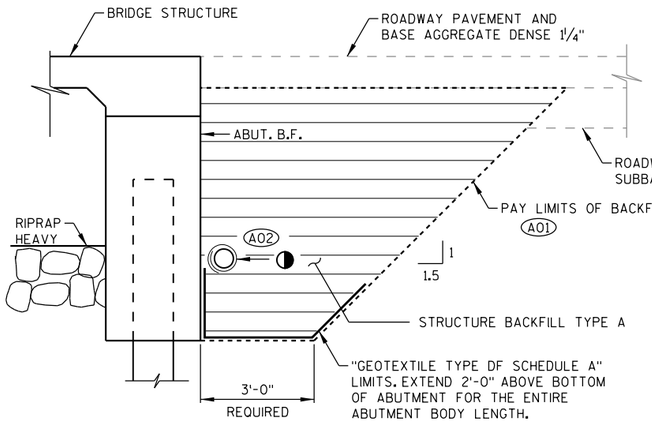
CROSS-SECTION THRU ROADWAY
(LOOKING NORTH)



SOUTH ABUTMENT
45° WINGS



NORTH ABUTMENT
45° WING & WING PARALLEL TO ROADWAY



SECTION THRU ABUTMENT

ABUTMENT BACKFILL DIAGRAM

L = OUT TO OUT OF ABUTMENT BODY, INCLUDING WING 4 (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
W1 = WING 1 LENGTH (FT)
W2 = WING 2 LENGTH (FT)
W3 = WING 3 LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS, AND 1.00 FOR TON BID ITEMS)
V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3.0')(0.5)(Wx)(H+Hwx)
V_{CY} = V_{CF} (EF)/27
V_{TON} = V_{CY} (2.0)

TOTAL ESTIMATED QUANTITES

	BID ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUTMENT	NORTH ABUTMENT	SUPER.	TOTALS
	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STA. 10+00	LS				1
	206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-49-187	LS				1
	210.1500	BACKFILL STRUCTURE TYPE A	TON	220	200		420
	312.0115	SELECT CRUSHED MATERIAL	CY	20	25		45
	502.0100	CONCRETE MASONRY BRIDGES	CY	33	43	181	257
	502.3200	PROTECTIVE SURFACE TREATMENT	SY			200	200
	502.3210	PIGMENTED SURFACE SEALER	SY			64	64
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3,180	3,180		6,360
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,935	2,705	35,220	39,860
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12	12		24
	550.0500	PILE POINTS	EACH	9	9		18
	550.2104	PILING CIP CONCRETE 10 3/4 X 0.25-INCH	LF	990	990		1,980
(1)	606.0300	RIPRAP HEAVY	CY	80	90		170
	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	85	85		170
	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH		1	3	4
	645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	55	55		110
	645.0120	GEOTEXTILE TYPE HR	SY	200	220		420
		NON-BID ITEMS					
		FILLER	SIZE				1/2" & 3/4"

BACKFILL STRUCTURE LIMITS

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-49-187" SHALL BE THE EXISTING GROUNDLINE.

(A01) BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

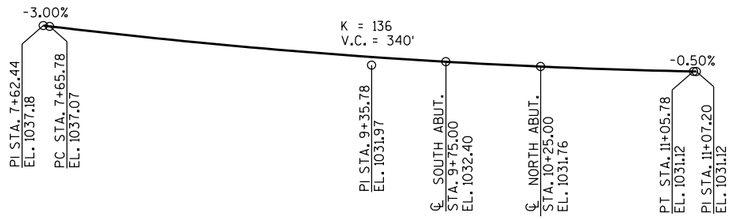
AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

(A02) PLACE PIPE UNDERDRAIN WRAPPED (6-INCH) ABOVE GROUND WATER. MIN. INVERT = EL. 1024.25±.

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 THE BOTTOM OF THE ABUTMENT.

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

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.



PROFILE GRADE LINE - CTH A

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

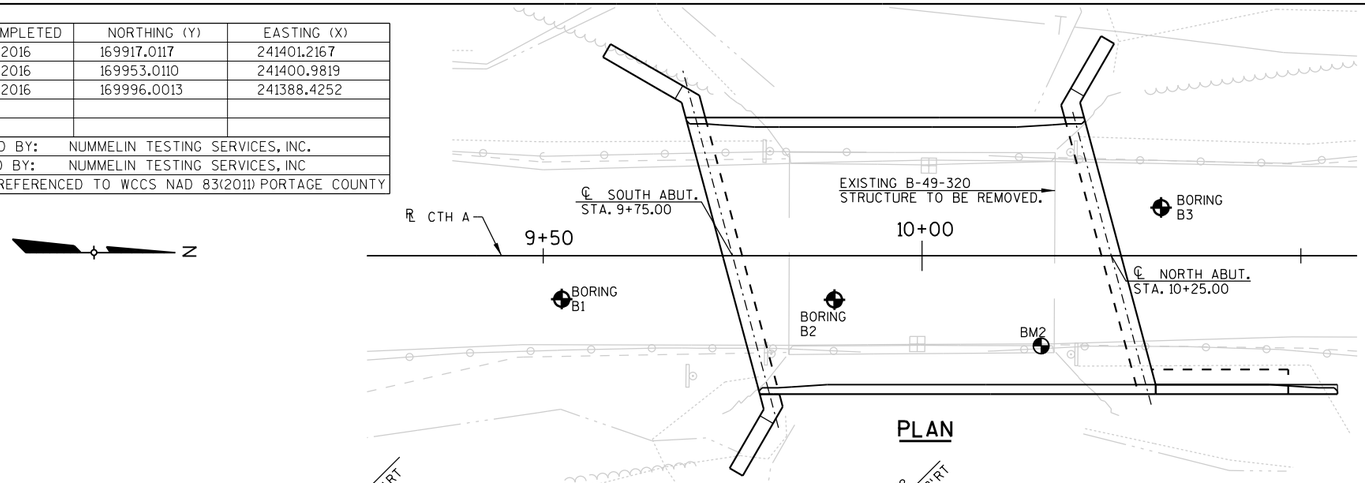
CROSS SECTION & QUANTITIES

SHEET 2 OF 13
57

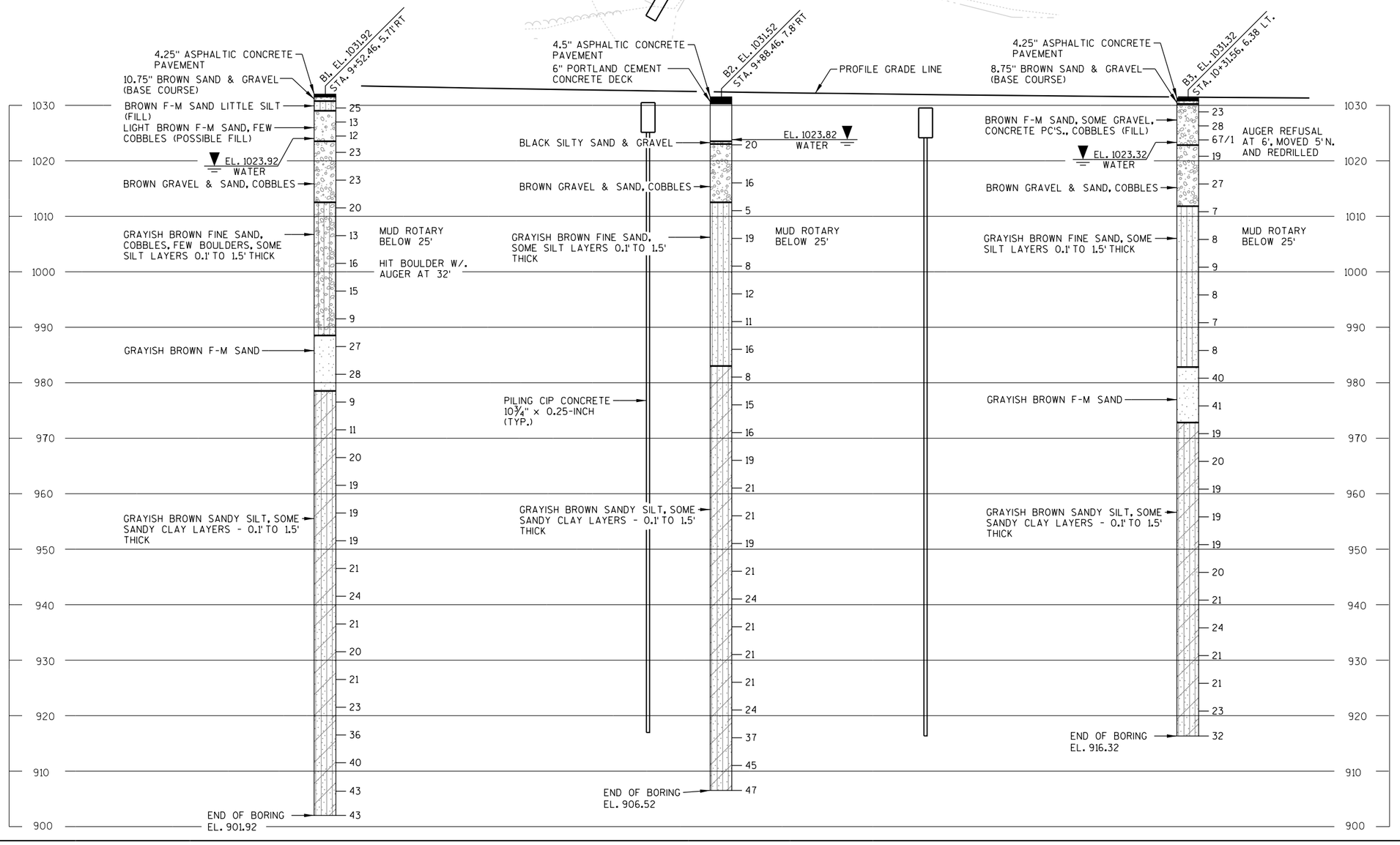
8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B1	4/12/2016	169917.0117	241401.2167
B2	4/14/2016	169953.0110	241400.9819
B3	4/13/2016	169996.0013	241388.4252
BORINGS COMPLETED BY:	NUMMELIN TESTING SERVICES, INC.		
REPORT COMPLETED BY:	NUMMELIN TESTING SERVICES, INC		
ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) PORTAGE COUNTY			



PLAN



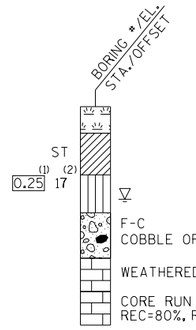
STATE PROJECT NUMBER

6784-00-70

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING

▼ END OF DRILLING

▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

SUBSURFACE EXPLORATION

SHEET 3 OF 13

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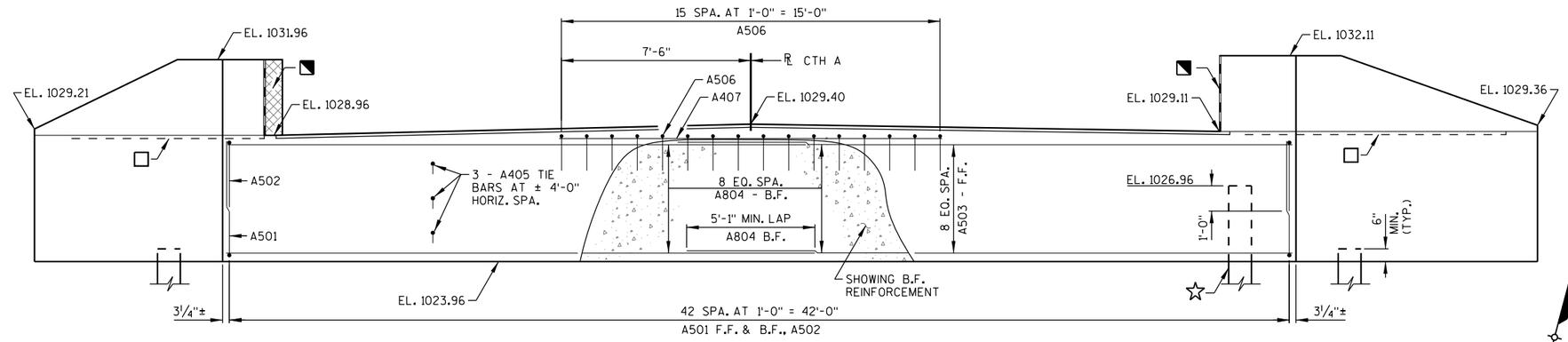
STATE PROJECT NUMBER

6784-00-70

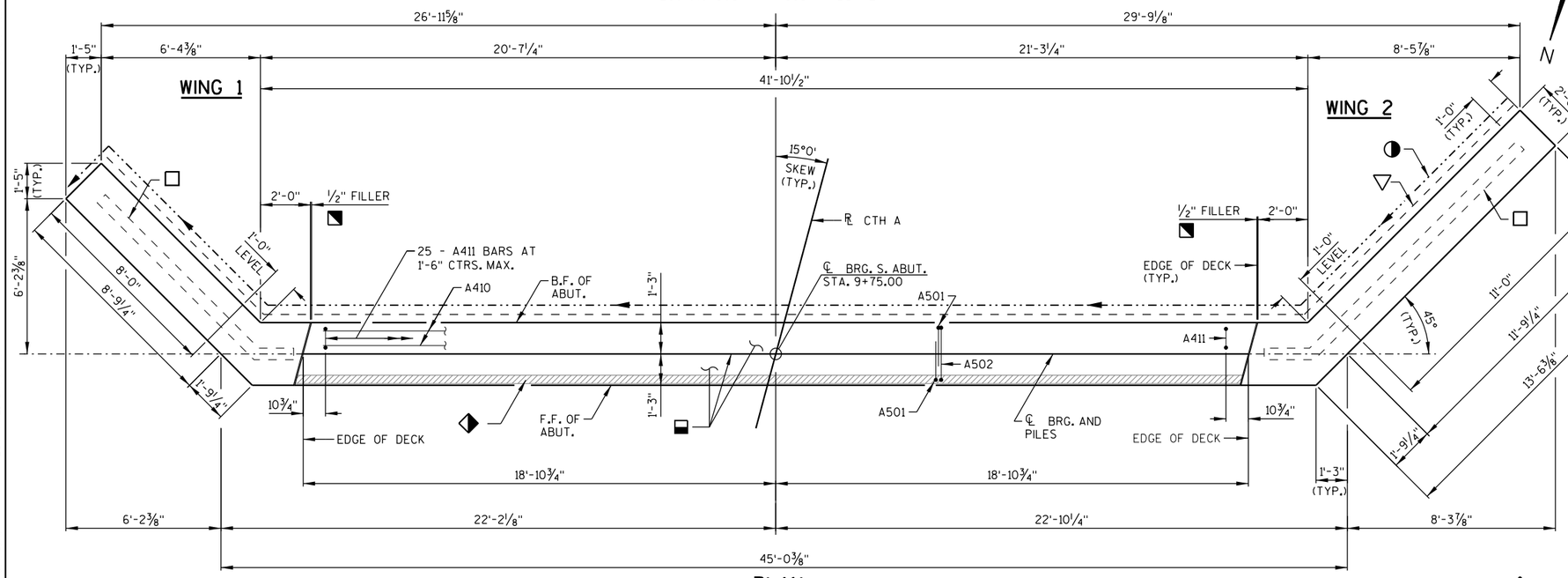


ELEVATION

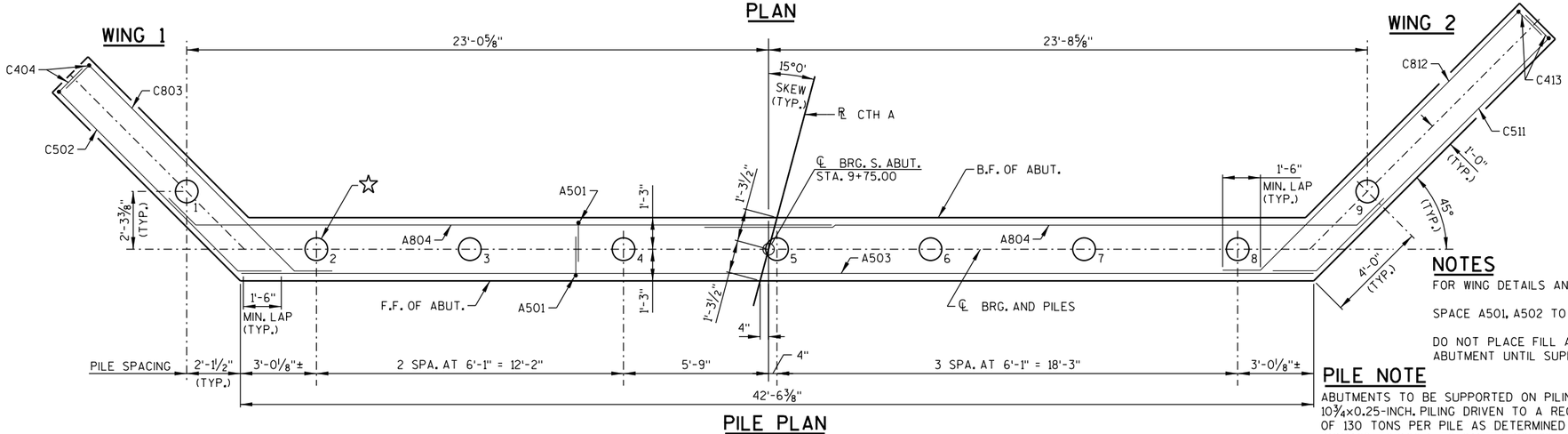
(LOOKING SOUTH AT SOUTH ABUTMENT)

LEGEND

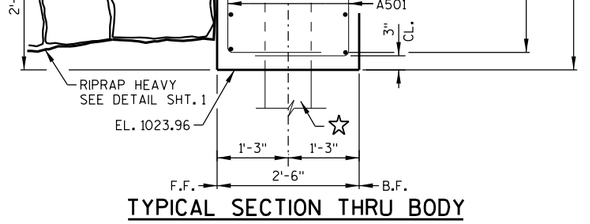
- ☆ SUPPORT ABUTMENTS ON PILING CIP CONCRETE 10¾x0.25-INCH. SEE PILE NOTE THIS SHT. OR SHT. 7 AND PILE SPLICE DETAIL ON SHT. 9.
- ◑ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHT. 2.
- ◪ ½" FILLER TO EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)
- ▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ◆ 4"x¾" FILLER - TO EXTEND BETWEEN EDGES OF SLAB AT ABUTMENTS.
- □ OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2"x6", WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
- ▬ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHELENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- △ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING, HORIZONTAL IN THIS AREA.



PLAN



PILE PLAN



TYPICAL SECTION THRU BODY

NOTES

FOR WING DETAILS AND ELEVATIONS SEE SHEET 5.

SPACE A501, A502 TO MISS PILING.

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTUCTURE IS IN PLACE.

PILE NOTE

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 10¾x0.25-INCH. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 110'-0" LONG.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

SOUTH ABUTMENT

SHEET 4 OF 13

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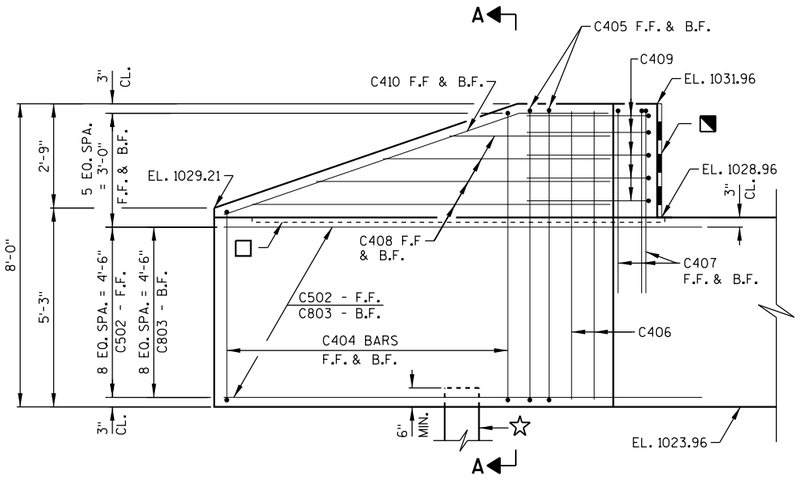
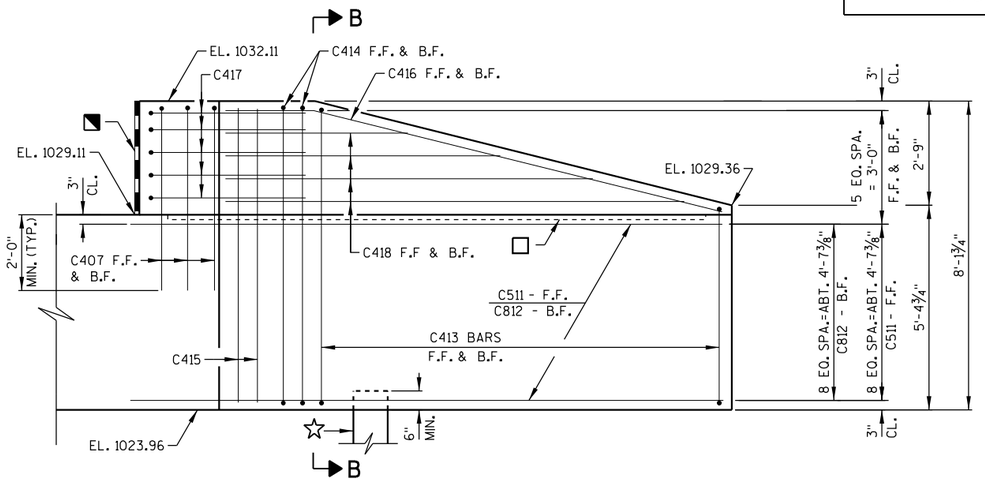
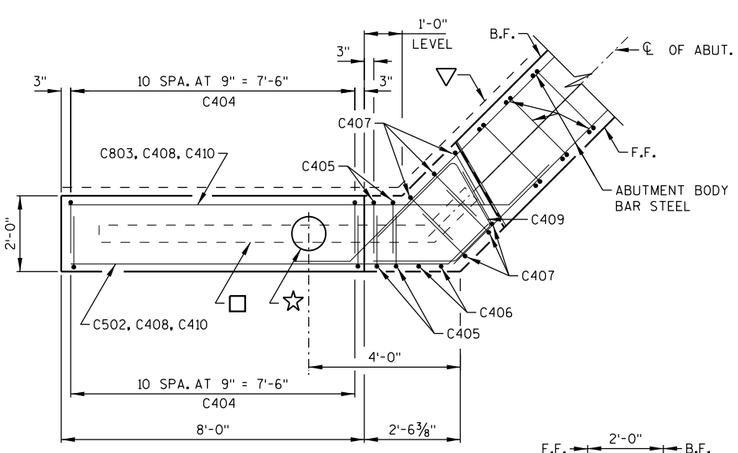


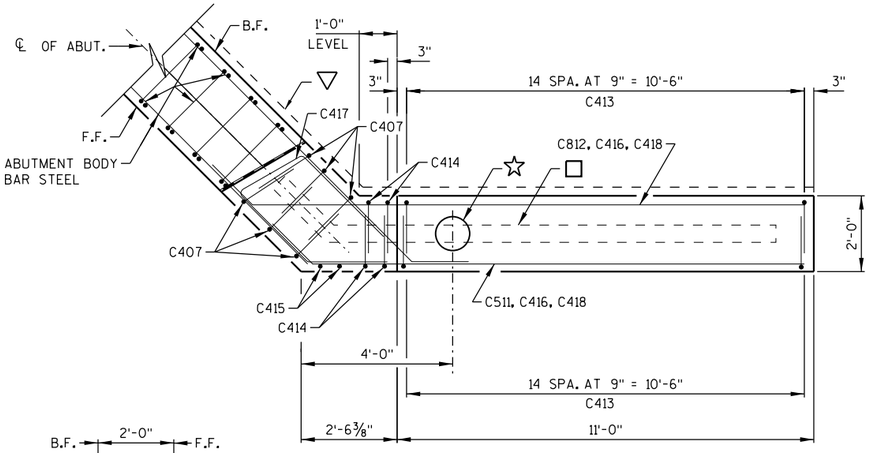
ELEVATION - WING 1



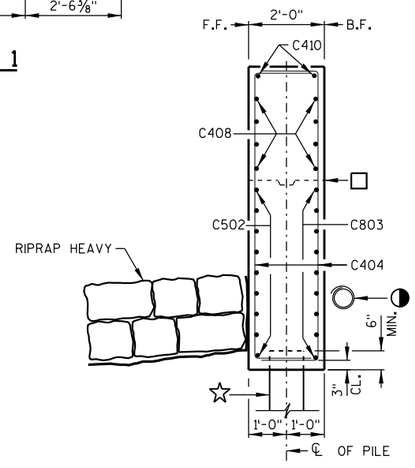
ELEVATION - WING 2



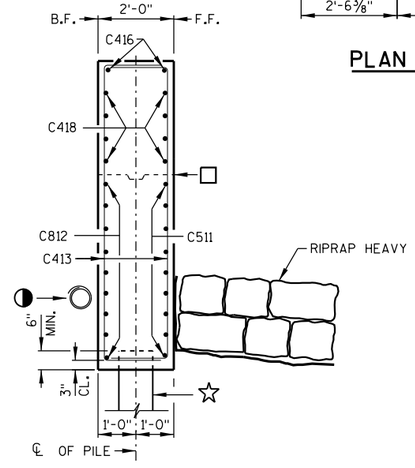
PLAN - WING 1



PLAN - WING 2



SECTION A-A



SECTION B-B

NOTE
ADJUST C404 & C413 BARS TO MISS PILING.

LEGEND
FOR SYMBOL DESCRIPTIONS SEE SHT. 4.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

WINGS 1 & 2

SHEET 5 OF 13
60

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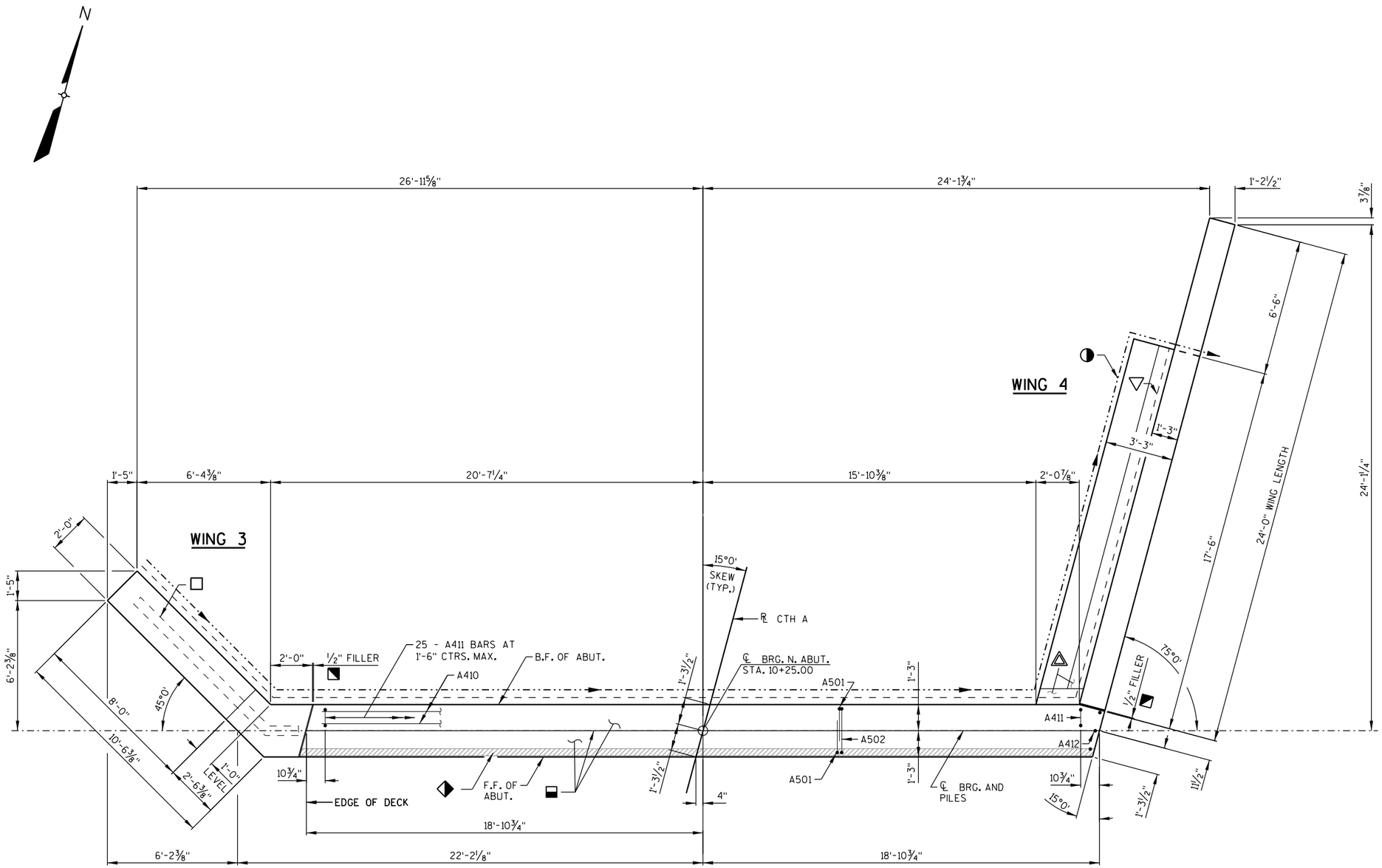
STATE PROJECT NUMBER
6784-00-70



PLAN

LEGEND

FOR SYMBOL DESCRIPTIONS SEE SHT. 4.

NOTES

FOR WING DETAILS AND ELEVATIONS SEE SHEET 8.

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTUCTURE IS IN PLACE.

WING LENGTH FOR WING 4 INCLUDES ½" FILLER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

NORTH ABUTMENT - 1

SHEET 6 OF 13
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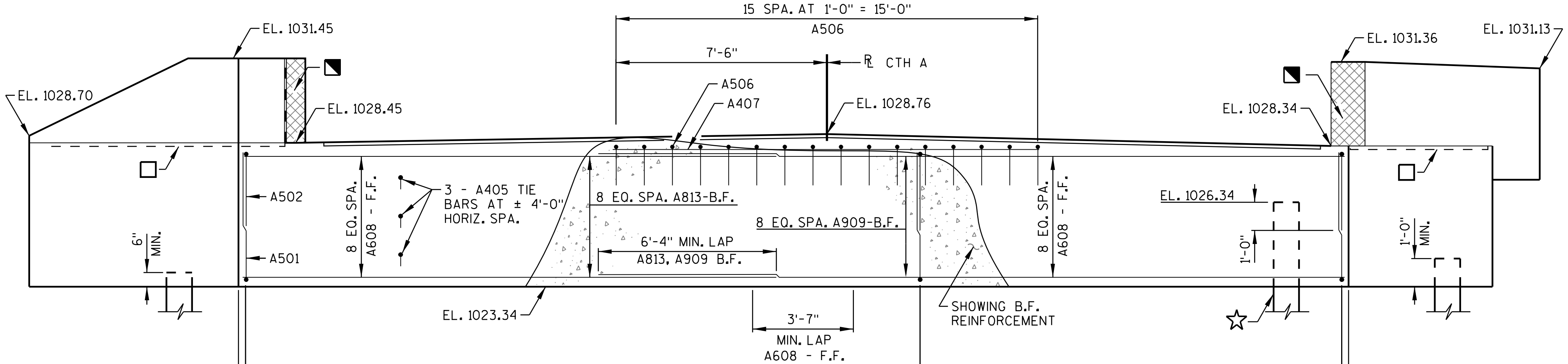
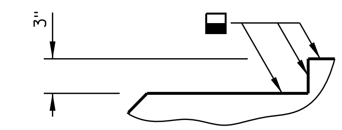
STATE PROJECT NUMBER

6784-00-70

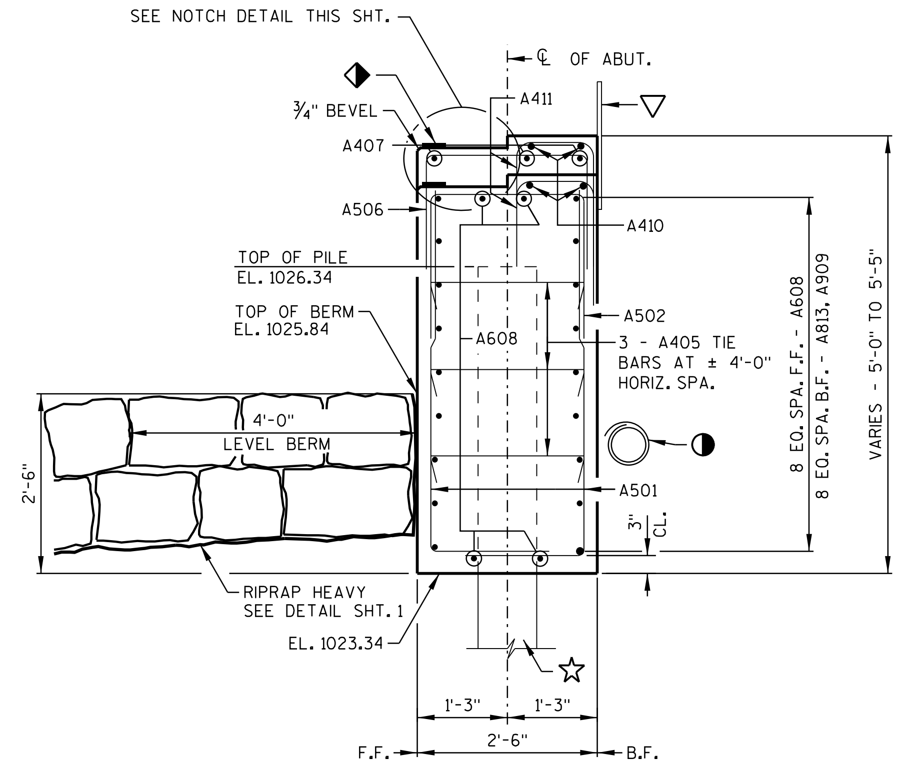


ELEVATION

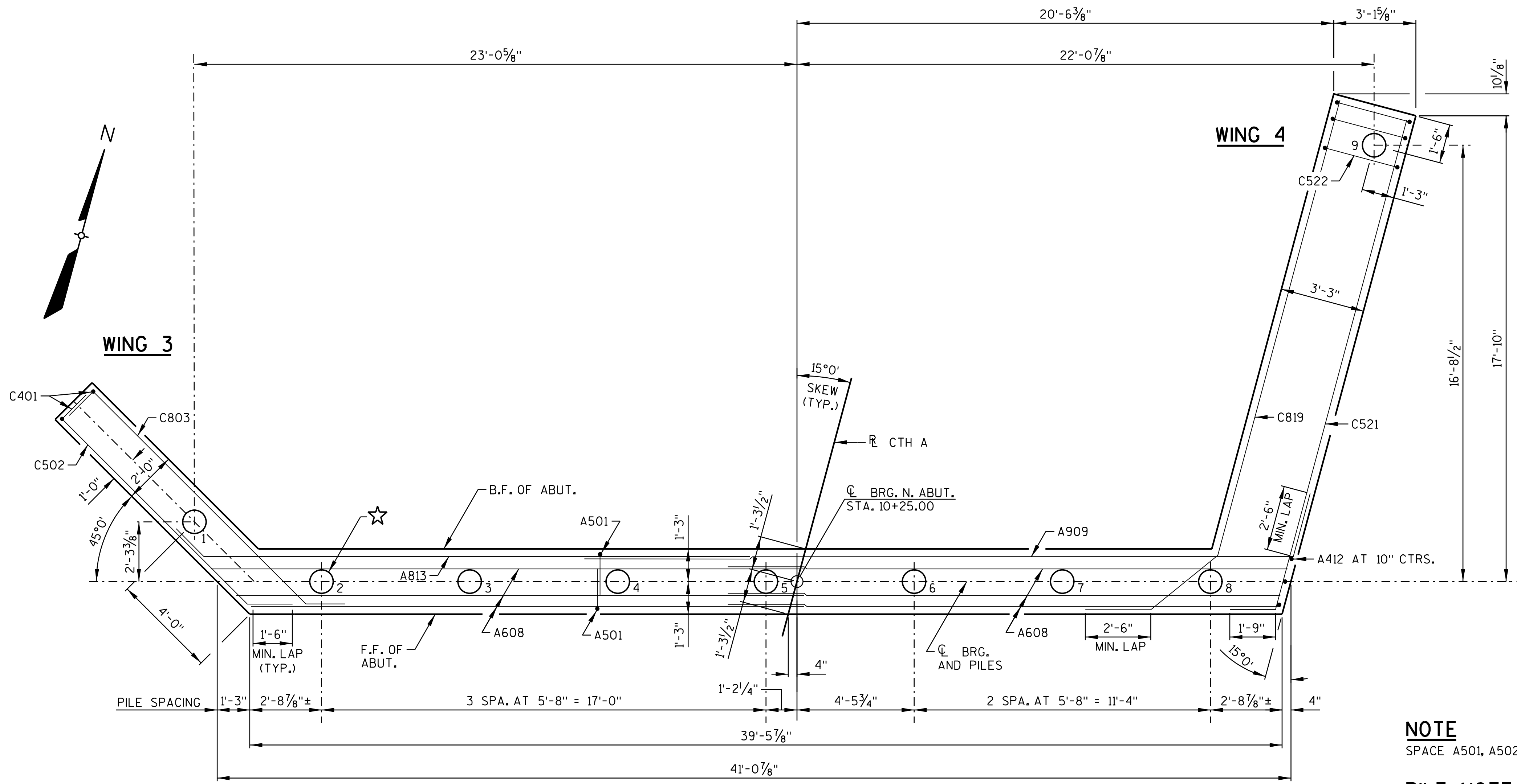
(LOOKING NORTH AT NORTH ABUTMENT)



NOTCH DETAIL



TYPICAL SECTION THRU BODY



PILE PLAN

LEGEND

FOR SYMBOL DESCRIPTIONS SEE SHT. 4.

NOTE

SPACE A501, A502 TO MISS PILING.

PILE NOTE

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 10¾x0.25-INCH. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 110'-0" LONG.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

NORTH ABUTMENT - 2

SHEET 7 OF 13

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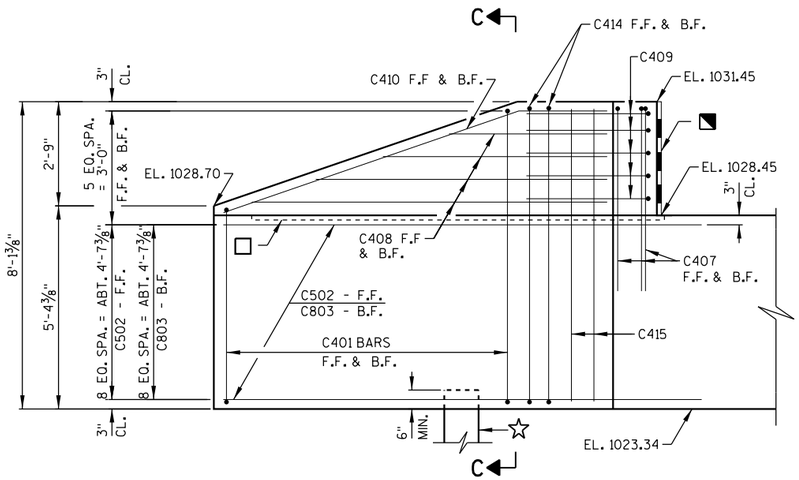
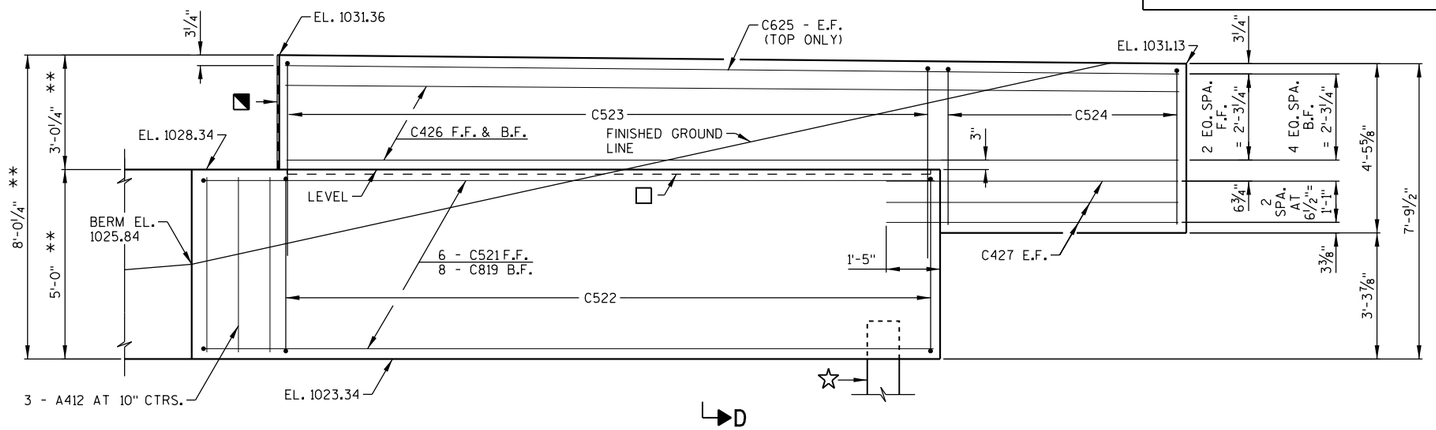
STATE PROJECT NUMBER

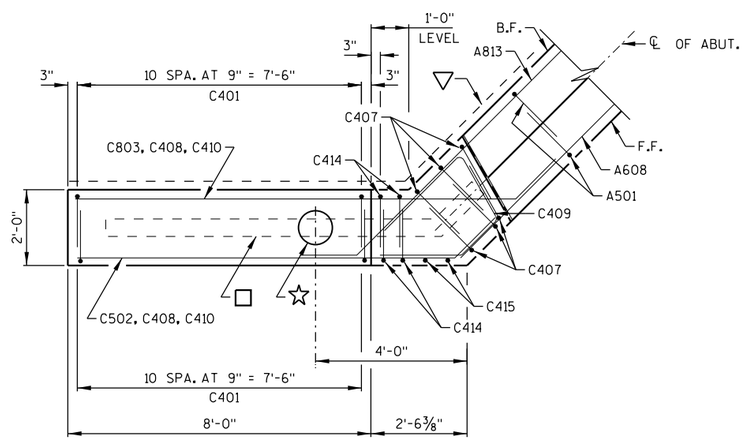
6784-00-70



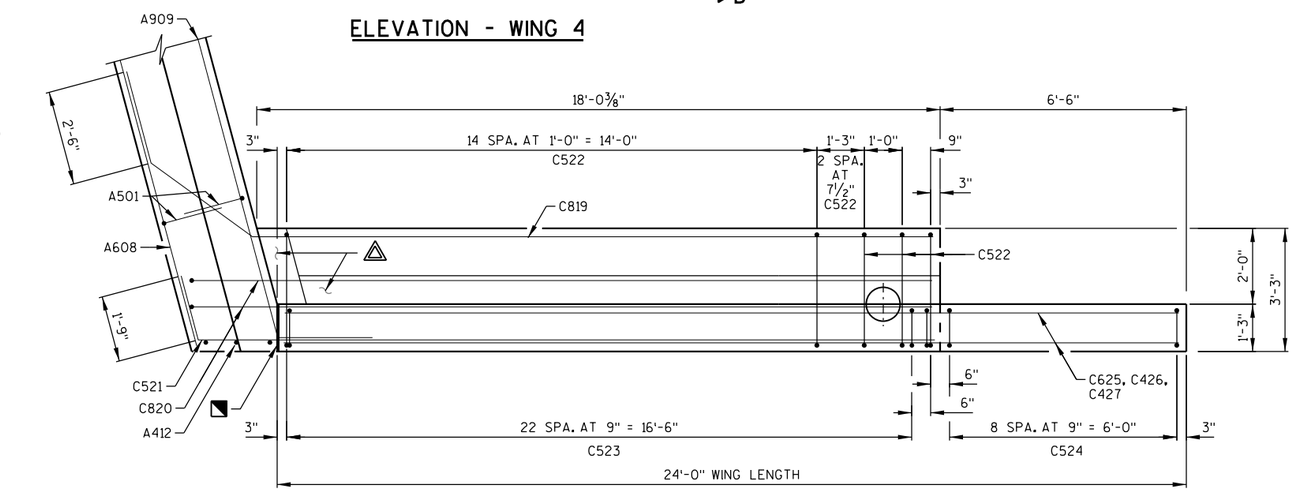
ELEVATION - WING 3



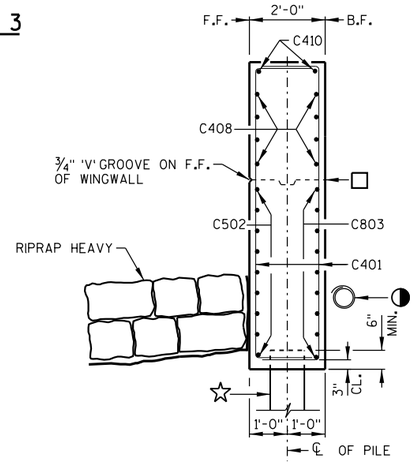
ELEVATION - WING 4



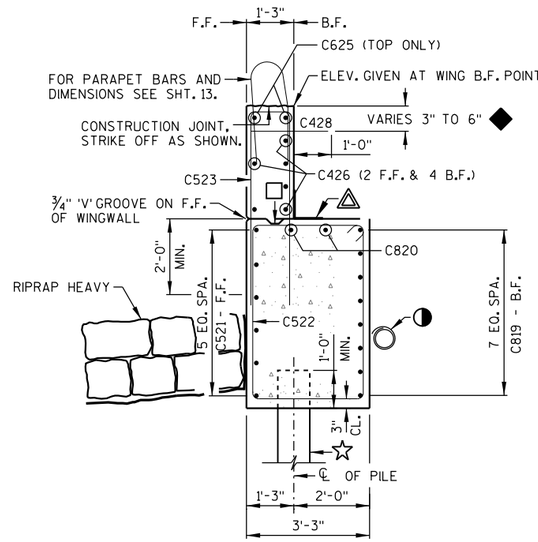
PLAN - WING 3



PLAN - WING 4



SECTION C-C



SECTION D-D

NOTE

ADJUST C401 & C522 BARS TO MISS PILING.

** DIMENSIONS GIVEN AT THE B.F. OF ABUTMENT.

LEGEND

◆ C428 BARS SPACED AT 1'-0" ALONG ENTIRE WING LENGTH.

FOR ADDITIONAL SYMBOL DESCRIPTIONS SEE SHT. 4.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

WINGS 3 & 4

SHEET 8 OF 13

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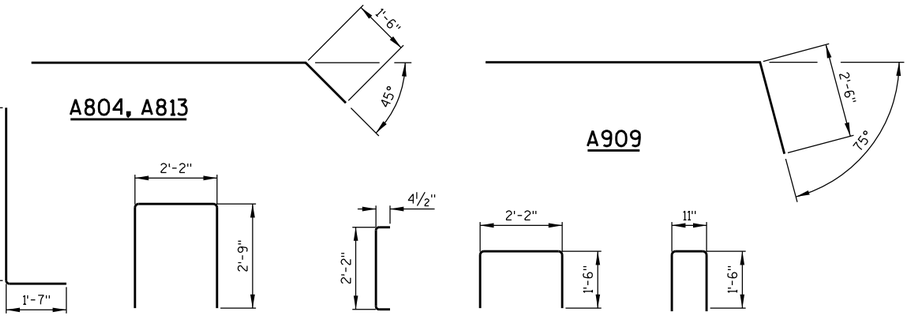
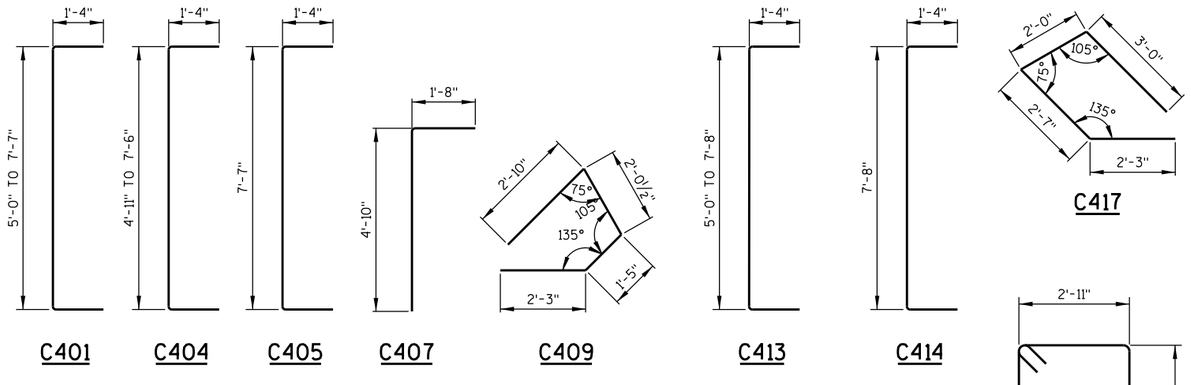
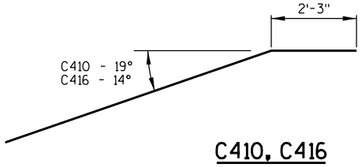
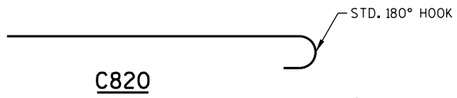
STATE PROJECT NUMBER

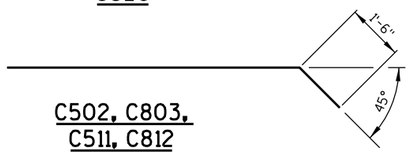
6784-00-70

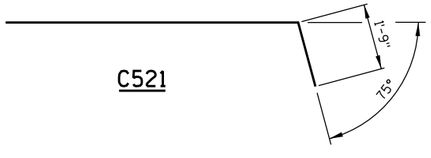


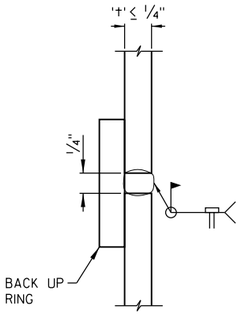


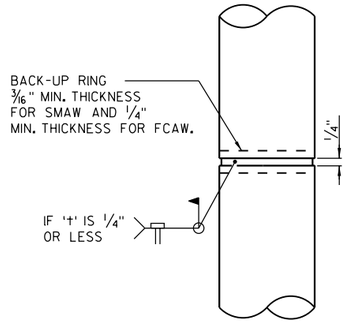












BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION	
						TOTAL WEIGHT = 6,360 LBS	
A501		176	5-10	X		ABUT. BODY - F.F. & B.F.	VERT.
A502		88	7-5	X		ABUT. BODY - TOP	VERT.
A503		9	42-4			SOUTH ABUT. BODY - F.F.	HORZ.
A804		18	27-4	X		SOUTH ABUT. BODY - B.F.	HORZ.
A405		69	2-9	X		ABUT. BODY TIES	HORZ.
A506		32	4-11	X		ABUT. BODY TOP	VERT.
A407		6	15-0			ABUT. BODY TOP	HORZ.
A608		26	22-3			NORTH ABUT. BODY - F.F., TOP, BOT.	HORZ.
A909		9	29-4	X		NORTH ABUT. BODY - B.F.	HORZ.
A410		4	36-0			ABUT. BODY - TOP	HORZ.
A411		50	3-9	X		ABUT. BODY - TOP	VERT.
A412		3	4-6			NORTH ABUT. - END	VERT.
A813		9	22-6	X		NORTH ABUT. BODY - B.F.	HORZ.
						TOTAL WEIGHT = 3,870 LBS	
C401	X	22	8-10	X	△	WING 3 F.F. & B.F.	VERT.
C502	X	18	11-6	X		WINGS 1 & 3 F.F.	HORZ.
C803	X	18	13-2	X		WINGS 1 & 3 B.F.	HORZ.
C404	X	22	8-9	X	△	WING 1 F.F. & B.F.	VERT.
C405	X	4	10-1	X		WING 1 F.F. & B.F.	VERT.
C406	X	2	7-7			WING 1 F.F. & B.F.	VERT.
C407	X	18	6-5	X		WINGS 1, 2, 3 F.F. & B.F.	VERT.
C408	X	16	6-9		△	WINGS 1 & 3 F.F. & B.F.	HORZ.
C409	X	10	8-4	X		WINGS 1 & 3	HORZ.
C410	X	4	10-5	X		WINGS 1 & 3 - TOP	HORZ.
C511	X	9	14-6	X		WING 2 F.F.	HORZ.
C812	X	9	16-3	X		WING 2 B.F.	HORZ.
C413	X	30	8-10	X	△	WING 2 F.F. & B.F.	VERT.
C414	X	8	10-2	X		WINGS 2 & 3	VERT.
C415	X	4	7-8			WINGS 2 & 3 F.F.	VERT.
C416	X	2	13-4	X		WING 2 - TOP	HORZ.
C417	X	5	9-7	X		WING 2	HORZ.
C418	X	8	8-4		△	WING 2 F.F. & B.F.	HORZ.
C819	X	8	23-7	X		WING 4 B.F.	HORZ.
C820	X	2	20-5	X		WING 4 - TOP	HORZ.
C521	X	6	21-0	X		WING 4 F.F.	HORZ.
C522	X	19	15-4	X		WING 4 - STIRRUP	VERT.
C523	X	24	10-4	X		WING 4 - TOP	VERT.
C524	X	9	8-8	X		WING 4 - TOP	VERT.
C625	X	2	23-6			WING 4 - TOP	HORZ.
C426	X	6	23-6			WING 4 F.F & B.F.	HORZ.
C427	X	6	7-8			WING 4 F.F & B.F.	HORZ.
C428	X	24	2-0			WING 4 - SURFACE DRAIN DOWELS	HORZ.

BAR SERIES

MARK	NO. REQ'D	LENGTH
C401	2 SERIES OF 11	7'-6" TO 10'-1"
C404	2 SERIES OF 11	7'-5" TO 10'-0"
C408	4 SERIES OF 4	4'-1" TO 9'-4"
C413	2 SERIES OF 15	7'-6" TO 10'-2"
C418	2 SERIES OF 4	4'-9" TO 11'-11"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. CAB

ABUTMENT DETAILS

SHEET 9 OF 13
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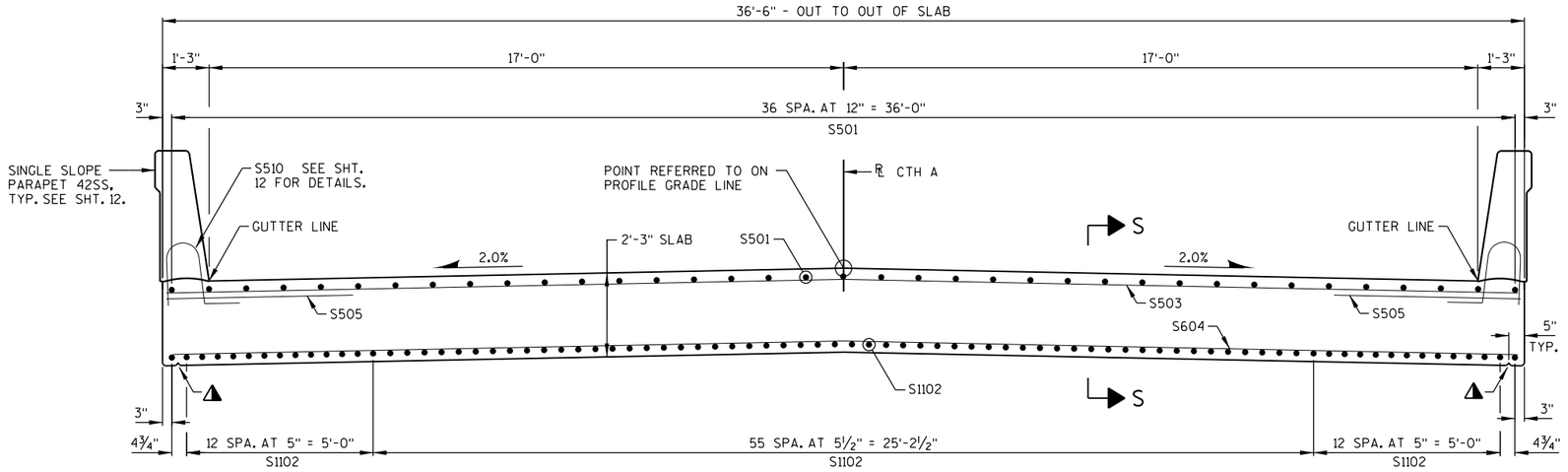
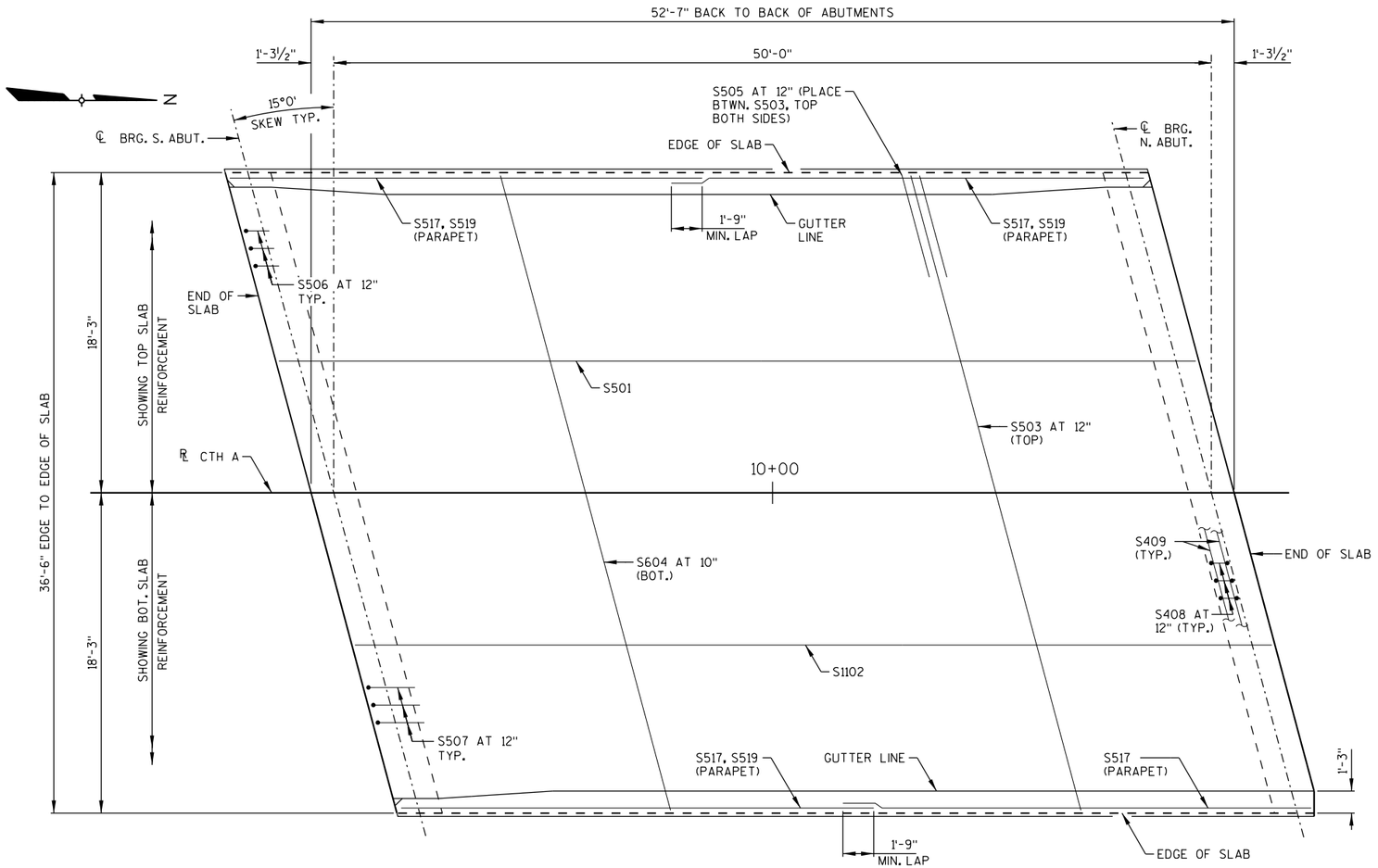
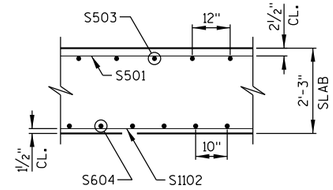


CROSS SECTION THRU BRIDGE

LOOKING UPSTATION



PLAN



SECTION S - S

NOTES

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

PARAPET SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

FIELD BEND S503 AT WING 4 CORNER TO FIT.

LEGEND

⚠ ¾" V-GROOVE REQUIRED. EXTEND TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

SUPERSTRUCTURE

SHEET 10 OF 13
65

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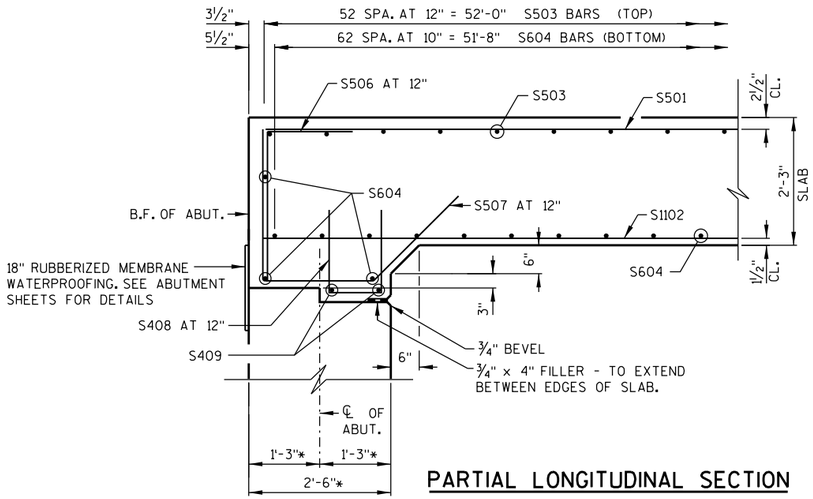


PARTIAL LONGITUDINAL SECTION

* DIMENSION TAKEN NORMAL TO SUBSTRUCTURE UNITS

BILL OF BARS

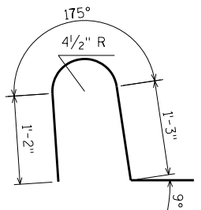
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
						TOTAL WEIGHT = 35,220 LBS
S501	X	37	52-0			SLAB - TOP LONG.
S1102	X	82	52-0			SLAB - BOTTOM LONG.
S503	X	53	37-5			SLAB - TOP TRANS.
S604	X	69	37-5			SLAB - BOTTOM TRANS.
S505	X	104	5-0			SLAB - TOP, EACH SIDE TRANS.
S506	X	74	3-11	X		SLAB - ENDS VERT.
S507	X	74	6-10	X		SLAB - ENDS VERT.
S408	X	74	3-8	X		SLAB - DIAPHRAGM VERT.
S409	X	4	37-5			SLAB - DIAPHRAGM TRANS.
S510	X	118	4-5	X		PARAPET VERT.
S511	X	118	6-8	X		PARAPET VERT.
S512	X	36	2-9	X		PARAPET VERT.
S513	X	54	4-4	X		PARAPET VERT.
S514	X	15	6-5	X		PARAPET VERT.
S515	X	21	6-6	X		PARAPET VERT.
S516	X	3	26-11	X		PARAPET HORIZ.
S517	X	23	26-11			PARAPET HORIZ.
S518	X	18	5-5	X	Δ	PARAPET VERT.
S519	X	6	26-10	X		PARAPET HORIZ.

BAR SERIES

MARK	NO. REQ'D	LENGTH
S518	3 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE & TAG EACH SERIES SEPARATELY.



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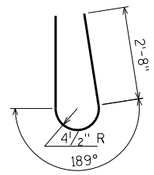

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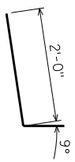

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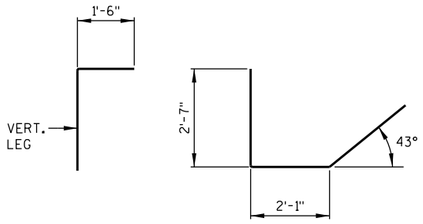
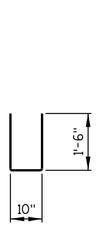


S506 S507



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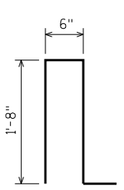

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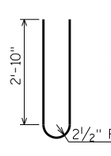

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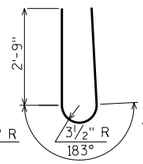

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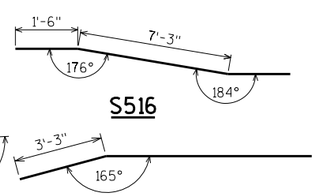

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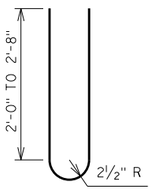

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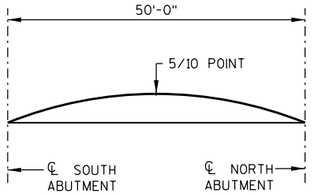
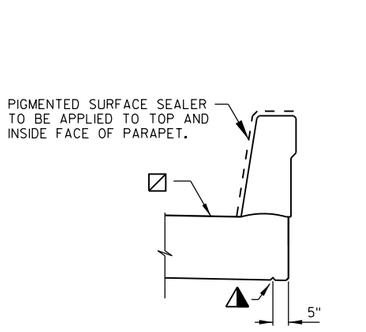


CAMBER DIAGRAM

	CL. BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL. BRG. N. ABUT.
CAMBER (IN.)	0.0	0.7	1.4	1.9	2.2	2.3	2.2	1.9	1.4	0.7	0.0

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEADLOAD 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 AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℄.



SURFACE PROTECTION DETAIL

TOP OF DECK ELEVATIONS

	CL BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. N. ABUT.
WEST EDGE OF DECK	1032.11	1032.03	1031.96	1031.89	1031.82	1031.75	1031.69	1031.63	1031.56	1031.51	1031.45
CL OF DECK	1032.40	1032.33	1032.26	1032.19	1032.13	1032.06	1032.00	1031.94	1031.88	1031.82	1031.76
EAST EDGE OF DECK	1031.96	1031.89	1031.82	1031.76	1031.69	1031.63	1031.57	1031.51	1031.45	1031.40	1031.34

NOTE: EDGE OF DECK ELEVATIONS ARE CALCULATED ASSUMING CROSS SLOPE CONTINUES TO EDGE.

ELEVATIONS SHOWN ARE FINISHED GRADE AND DO NOT INCLUDE ALLOWANCES FOR DEAD LOAD DEFLECTION AND FUTURE CREEP.

LEGEND

▨ COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.

▲ ¾" V-GROOVE REQUIRED, EXTEND TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

SUPERSTRUCTURE DETAILS

SHEET 11 OF 13
66

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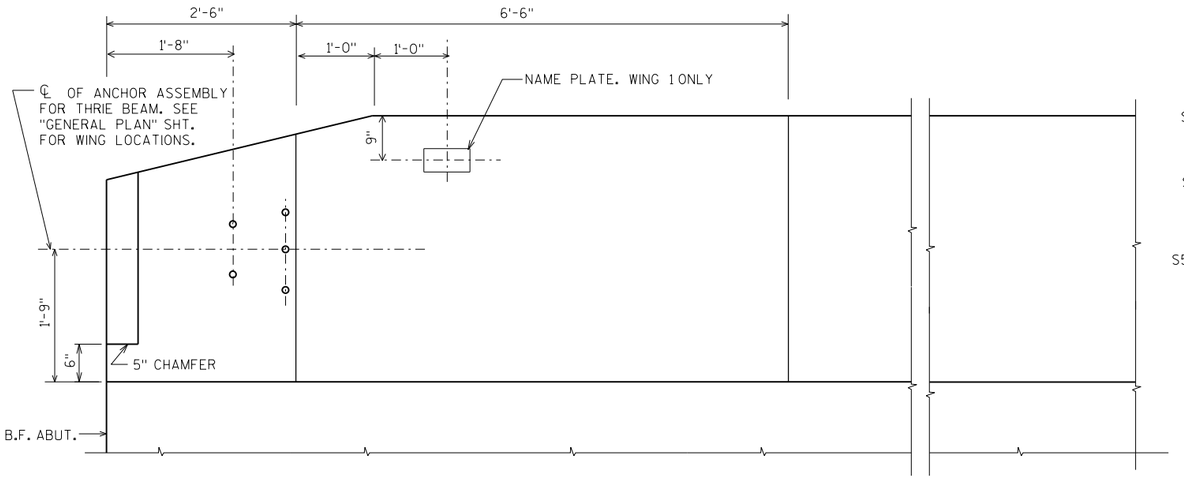
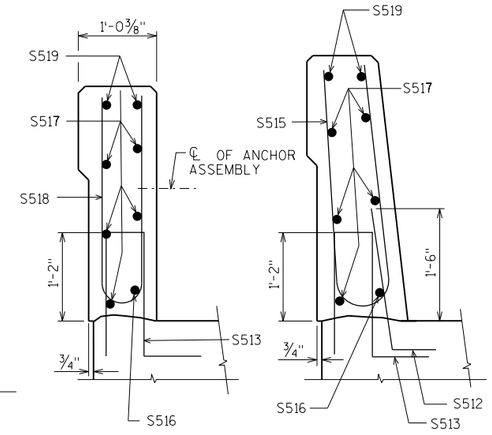
STATE PROJECT NUMBER

6784-00-70



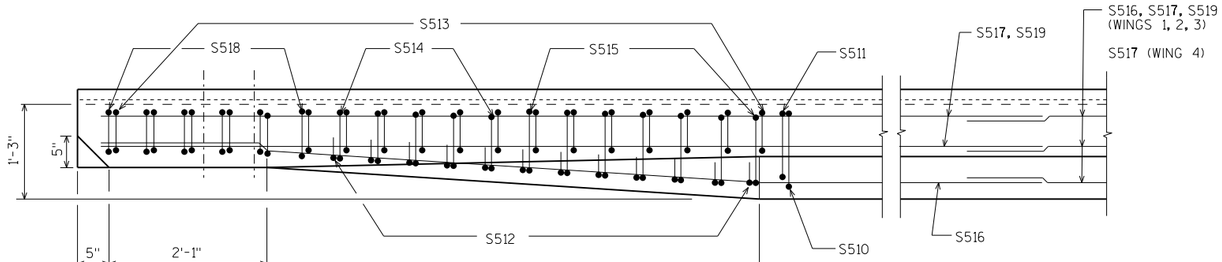
INSIDE ELEVATION



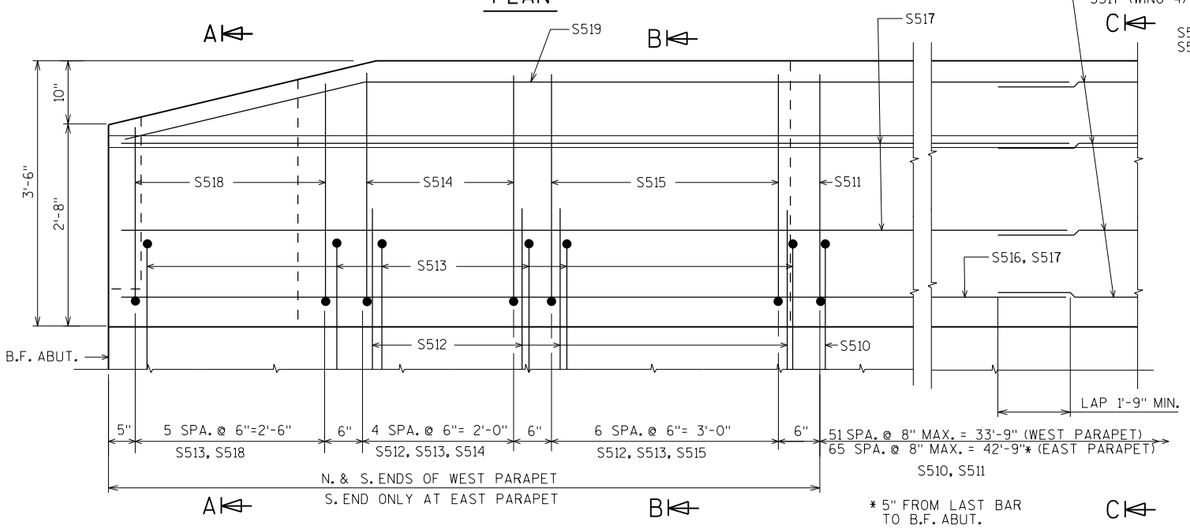
SECTION A

SECTION B

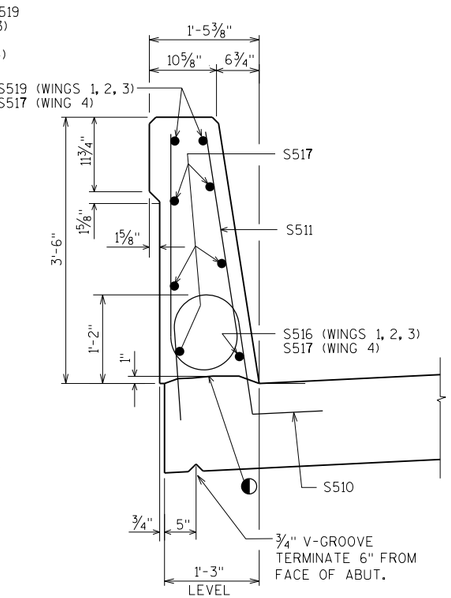
N. & S. ENDS OF WEST PARAPET
S. END ONLY AT EAST PARAPET



PLAN

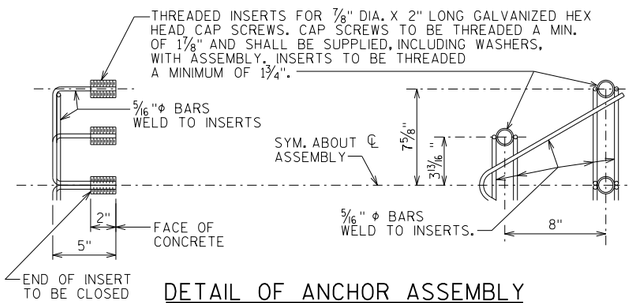


OUTSIDE ELEVATION



SECTION C

◐ CONST. JOINT - STRIKE OFF AS SHOWN.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

SINGLE SLOPE PARAPET 42SS WINGS 1, 2, 3

SHEET 12 OF 13
67

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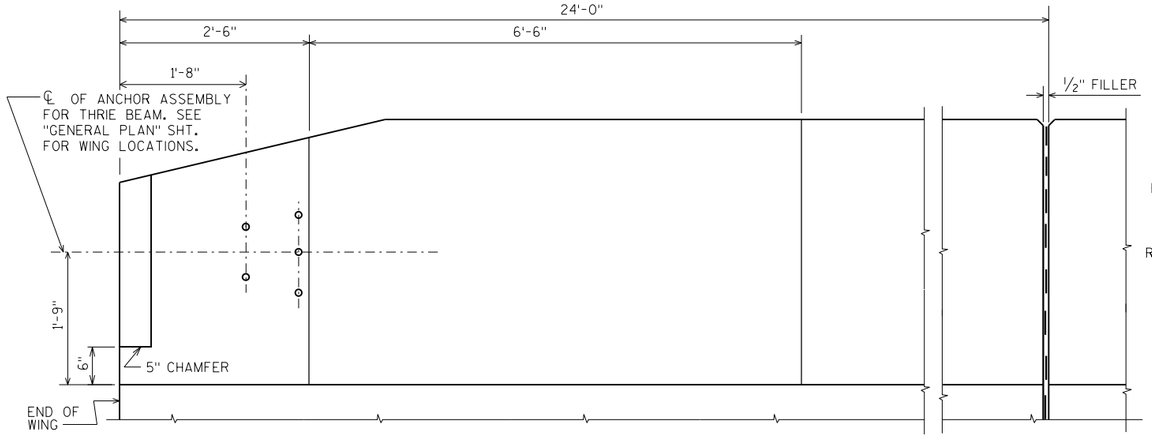
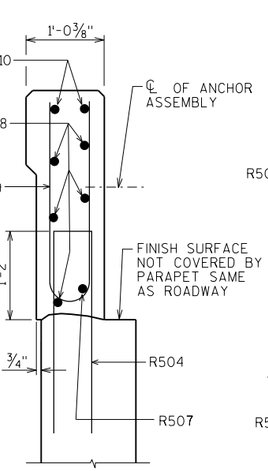
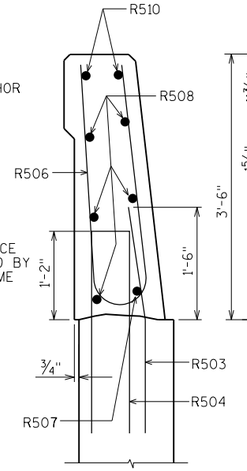


INSIDE ELEVATION



SECTION A



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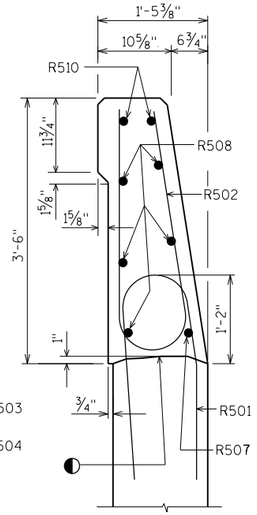

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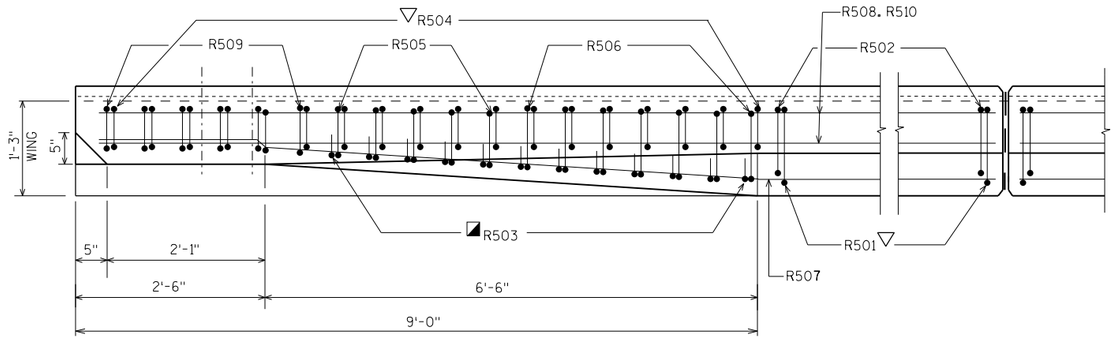
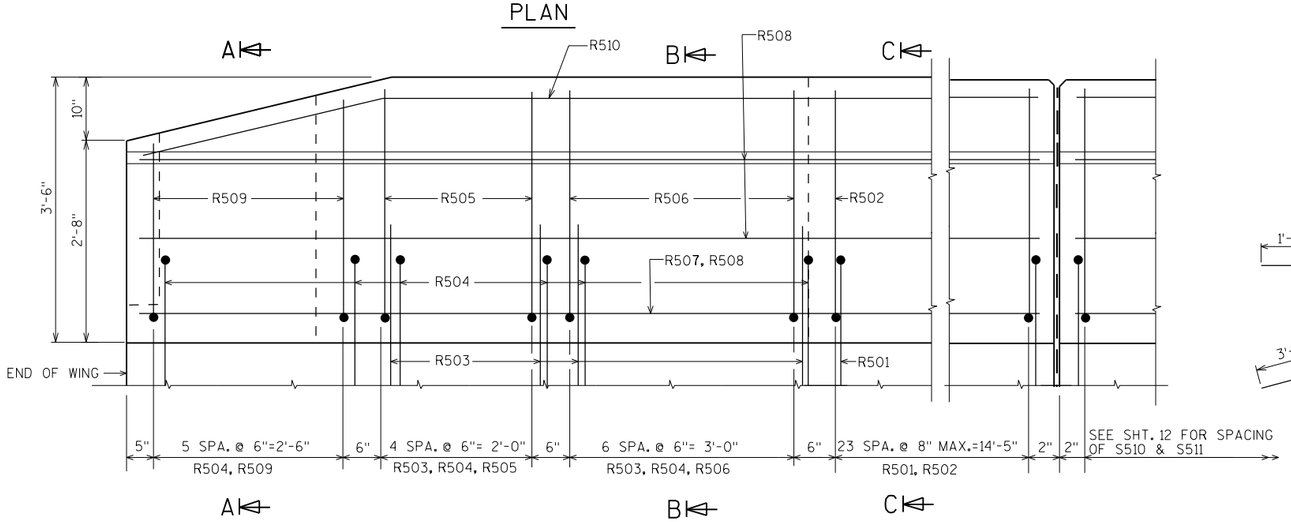
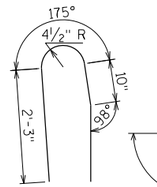


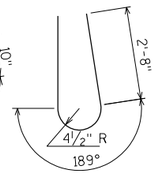
PLAN



OUTSIDE ELEVATION



R501



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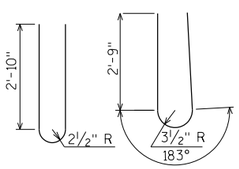
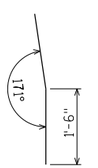
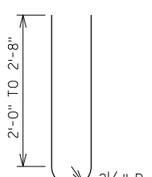


R505 R506



R503

R504



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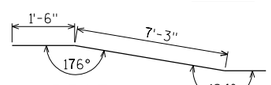

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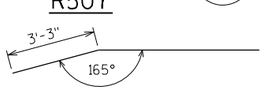

R510

BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
△ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION	
						TOTAL WEIGHT = 770 LBS	
R501	X	24	5-10	X		PARAPET-WING 4	VERT.
R502	X	24	6-8	X		PARAPET-WING 4	VERT.
R503	X	12	3-0	X		PARAPET-WING 4	VERT.
R504	X	18	5-7	X		PARAPET-WING 4	VERT.
R505	X	5	6-5	X		PARAPET-WING 4	VERT.
R506	X	7	6-6	X		PARAPET-WING 4	VERT.
R507	X	1	23-6	X		PARAPET-WING 4	HORIZ.
R508	X	5	23-5			PARAPET-WING 4	HORIZ.
R509	X	6	5-5	X	△	PARAPET-WING 4	VERT.
R510	X	2	23-6	X		PARAPET-WING 4	HORIZ.

BAR SERIES

MARK	NO. REQ'D	LENGTH
R509	1 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE & TAG.

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

SEE SHT. 12 FOR ANCHOR ASSEMBLY DETAIL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-187

DRAWN BY KAM | PLANS CK'D. KRH

SINGLE SLOPE PARAPET 42SS WING 4

SHEET 13 OF 13
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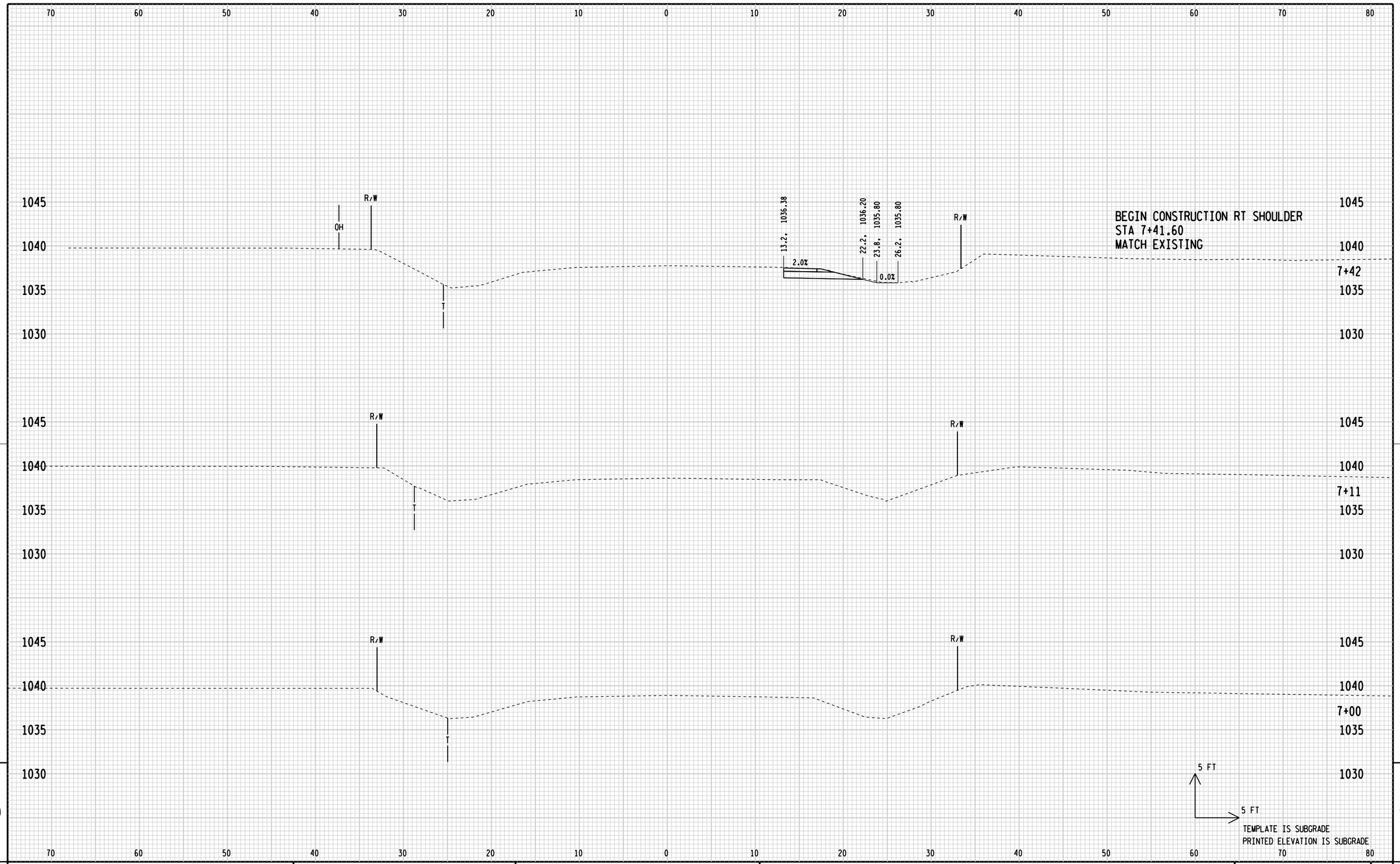
Station	Real Station	Distance	AREA (SF) Cut	AREA (SF) Salvaged/Unusable Pavement Material	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Salvaged/Unusable Pavement Material	Incremental Vol (CY) (Unadjusted) Fill	Cumulative Vol (CY) Cut **1.00**	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate
07+00.00	700.00		0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0
07+10.71	710.71	11	0.00	6.67	0.00	0.0	1.3	0.0	0.0	0.0	-1
07+41.60	741.60	31	8.04	6.67	0.00	4.6	7.6	0.0	4.6	0.0	-4
07+50.00	750.00	8	8.54	6.67	2.35	2.6	2.1	0.4	7.2	0.5	-4
07+62.44	762.44	12	47.76	6.67	5.49	13.0	3.1	1.8	20.1	2.7	3
08+00.00	800.00	38	57.75	6.67	8.75	73.4	9.3	9.9	93.5	15.1	55
08+50.00	850.00	50	40.61	6.67	13.03	91.1	12.3	20.2	184.6	40.3	109
08+63.24	863.24	13	38.45	6.67	11.96	19.4	3.3	6.1	204.0	48.0	117
08+88.24	888.24	25	32.89	6.67	2.40	33.0	6.2	6.6	237.0	56.3	136
08+89.80	889.80	2	32.12	6.67	2.28	1.9	0.4	0.1	238.9	56.4	137
09+00.00	900.00	10	25.99	6.67	5.03	11.0	2.5	1.4	249.9	58.2	144
09+13.24	913.24	13	28.80	6.67	10.82	13.4	3.3	3.9	263.3	63.0	149
09+50.00	950.00	37	13.46	6.67	31.33	28.8	9.1	28.7	292.1	98.9	133
09+54.15	954.15	4	14.31	6.67	37.07	2.1	1.0	5.3	294.2	105.5	127
09+73.71	973.71	20	10.50	6.67	123.98	9.0	4.8	58.3	303.2	178.4	59
				CTH A South Approach Totals		303	66	143			

Distance	AREA (SF) Cut	AREA (SF) Salvaged/Unusable Pavement Material	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Salvaged/Unusable Pavement Material	Incremental Vol (CY) (Unadjusted) Fill	Cumulative Vol (CY) Cut **1.00**	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate
	25.11	0.00	81.90	0.0	0.0	0.0	0.0	0.0	0
24	31.69	2.63	26.73	24.9	1.2	47.7	24.9	59.6	-36
37	37.39	2.63	28.73	47.0	3.6	37.8	72.0	106.8	-40
13	38.51	2.63	44.53	18.6	1.3	18.0	90.6	129.3	-45
7	39.49	2.63	49.15	10.4	0.7	12.5	101.0	144.9	-51
1	41.43	2.63	49.54	0.9	0.1	1.1	101.9	146.3	-51
4	41.47	2.63	63.83	6.1	0.4	8.3	108.0	156.6	-56
21	41.36	2.63	70.46	32.3	2.0	52.3	140.2	222.1	-91
4	41.30	2.63	72.70	6.0	0.4	10.5	146.3	235.2	-98
13	41.31	2.63	68.18	20.3	1.3	34.5	166.5	278.3	-123
8	41.46	2.63	62.96	12.0	0.8	19.0	178.5	302.0	-135
42	41.03	2.63	34.39	64.4	4.1	76.1	243.0	397.1	-170
50	40.65	2.63	24.05	75.6	4.9	54.1	318.6	464.8	-167
6	37.21	2.63	24.67	8.7	0.6	5.5	327.3	471.6	-165
39	7.04	2.63	7.03	32.1	3.8	23.0	359.4	500.3	-166
5	0.00	2.63	0.00	0.6	0.5	0.6	360.0	501.1	-167
		CTH A North Approach Totals		360	25	401			

Notes:

1 - Cut	Cut includes Salvaged/Unusable Pavement material
2 - Salvaged/Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Exc volume



STATE PROJECT NUMBER:6784-00-70	HWY:CTH A	COUNTY:PORTAGE	CROSS SECTIONS	SHEET 70	E

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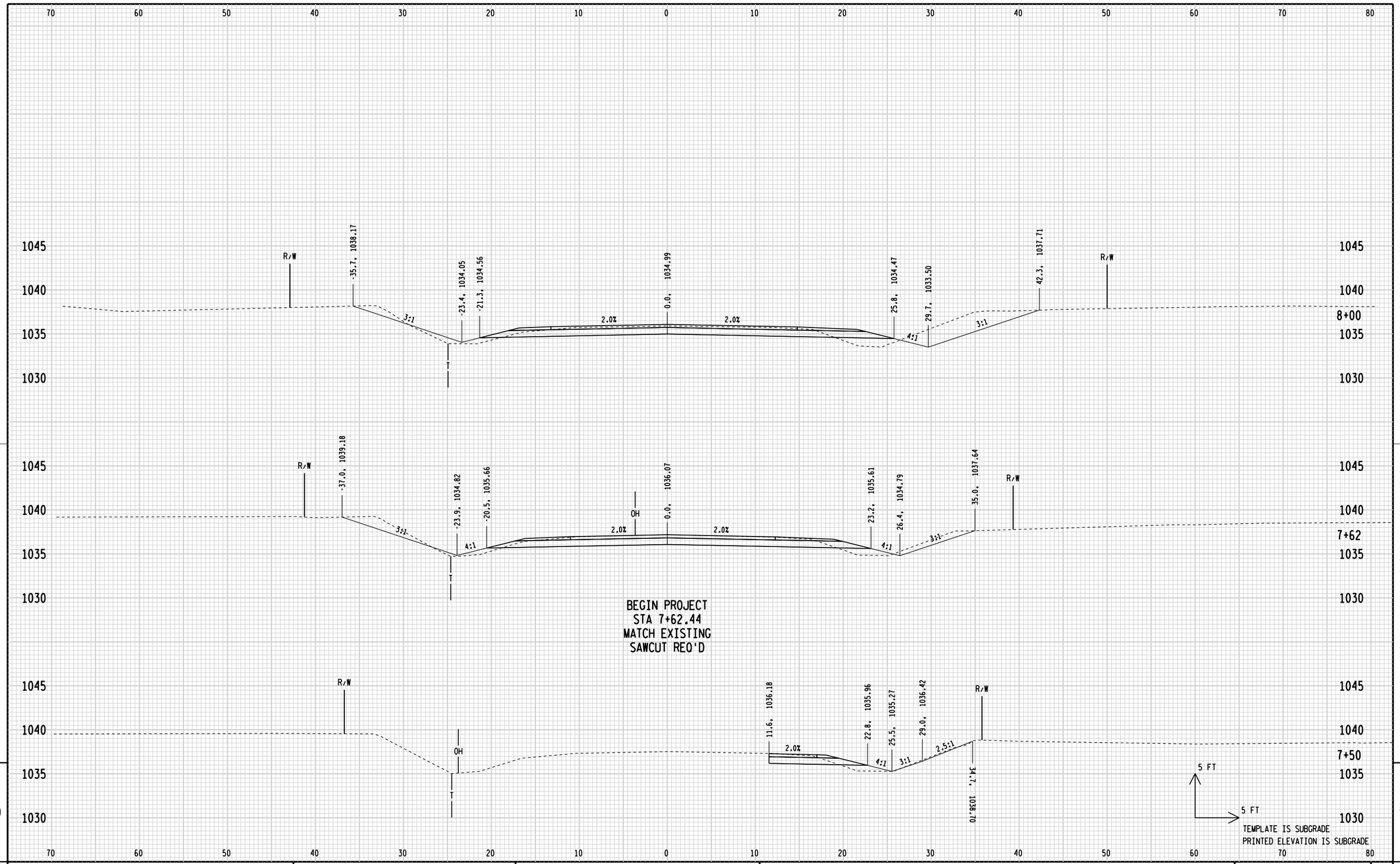
PLOT DATE: 5/24/2018
PLOT TIME: 9:17:28 AM
PLOT SCALE: 1:10
WISDOT/CADDS SHEET 21



9

9

STATE PROJECT NUMBER:6784-00-70	HWY:CTH A	COUNTY:PORTAGE	CROSS SECTIONS	SHEET	E

FILE NAME: P:\60487024\900_Work\910-CAD\20-SHEETS\090201_xs.dgn
BATCH PRINT SHEET 2 OF 10
PRINTER DRIVER: L:\library\TPN_CADstds\Workspace-Clients\WisDOT\Microstation\Resources\MS_Printing\Printer_Drivers\ET_PDF_11 x 17.plt
PEN TABLE: P:\60487024\900_Work\910-CAD\20-SHEETS\MS_Printing\Pen_Tables\ET_WisDOT.tbl
PLOT DATE: 5/24/2018
PLOT TIME: 9:17:29 AM
PLOT SCALE: 1:10
WISDOT/CADDS SHEET 21

STATE PROJECT NUMBER:6784-00-70	HWY:CTH A	COUNTY:PORTAGE	CROSS SECTIONS	SHEET 72	E

FILE NAME: P:\60487024\900_Work\910-CAD\20-SHEETS\090201_xs.dgn
BATCH PRINT SHEET 3 OF 10
PRINTER DRIVER: L:\library\TPN_CADstds\Workspace-Clients\WisDOT\Microstation\Resources\MS_Printing\Printer_Drivers\ET_PDF_11 x 17.plt
PEN TABLE: P:\60487024\900_Work\910-CAD\20-SHEETS\MS_Printing\Pen_Tables\ET_WisDOT.tbl
PLOT DATE: 5/24/2018
PLOT TIME: 9:17:29 AM
PLOT SCALE: 1:10
WISDOT/CADDS SHEET 21

STA 9+13 RT
MGS GUARDRAIL
TERMINAL EAT
POST #9
RIGHT

STA 8+90, LT
CONSTRUCT BASE AGGREGATE DENSE PE
REMOVING SMALL PIPE CULVERTS
1-18"X40' CULVERT PIPE CLASS III-A
W/ APRON ENDWALLS
INV. 1031.67 (S)
INV. 1030.10 (N)

TEMPLATE IS SUBGRADE
PRINTED ELEVATION IS SUBGRADE

STATE PROJECT NUMBER:6784-00-70	HWY:CTH A	COUNTY:PORTAGE	CROSS SECTIONS	SHEET 73 E

STA 10+26.29
END STRUCTURE
B-49-187

STA 9+73.71
BEGIN STRUCTURE
B-49-187

R/W
T
WETLAND DELINEATION
-38.1, 1025.40
2.5:1
-23.7, 1031.15
2.0%
0.0, 1031.62
2.0%
23.7, 1031.15
2.5:1
0.0%
31.1, 1030.40
26.8, 1029.89
29.8, 1029.89
10+00
9+54
-34.6, 1026.86
-23.7, 1031.22
0.0, 1031.69
23.7, 1031.22
31.1, 1030.40
26.3, 1030.19
29.3, 1030.19
9+50
5 FT
5 FT
TEMPLATE IS SUBGRADE
PRINTED ELEVATION IS SUBGRADE

STATE PROJECT NUMBER:6784-00-70	HWY: CTH A	COUNTY: PORTAGE	CROSS SECTIONS	SHEET 74	E

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

WETLAND DELINEATION

-29.0, 1028.83

-26.2, 1029.52

0.0, 1030.05

WETLAND DELINEATION

23.7, 1029.57

33.6, 1025.63

R/W

-39.9, 1025.20

3:1

4:1

2.0%

2.0%

2.5:1

1035
1030
1025
1020

11+00

STA 10+87 LT
MGS GUARDRAIL
TERMINAL EAT
POST #9
LEFT

WETLAND DELINEATION

-23.7, 1029.65

0.0, 1030.13

WETLAND DELINEATION

23.7, 1029.65

33.7, 1025.66

R/W

-34.1, 1025.50

2.5:1

2.0%

2.0%

2.5:1

1035
1030
1025
1020

10+87

WETLAND DELINEATION

-23.7, 1029.94

0.0, 1030.41

18.3, 1030.05

WETLAND DELINEATION

28.0, 1025.41

R/W

-35.3, 1025.30

2.5:1

2.0%

2.0%

2.1:1

1035
1030
1025
1020

10+50

5 FT

5 FT

TEMPLATE IS SUBGRADE
PRINTED ELEVATION IS SUBGRADE

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

9

9

STATE PROJECT NUMBER:6784-00-70 | HWY:CTH A | COUNTY:PORTAGE | CROSS SECTIONS | SHEET 75 | E

FILE NAME: P:\60487024\900.Work\910-CAD\20-SHEETS\090201_xs.dgn
BATCH PRINT SHEET 6 OF 10
PRINTER DRIVER: L:\library\TPN_CADstds\Workspace-Clients\WisDOT\Microstation\Resources\MS_Printing\Printer_Drivers\ET_PDF_11 x 17.plt
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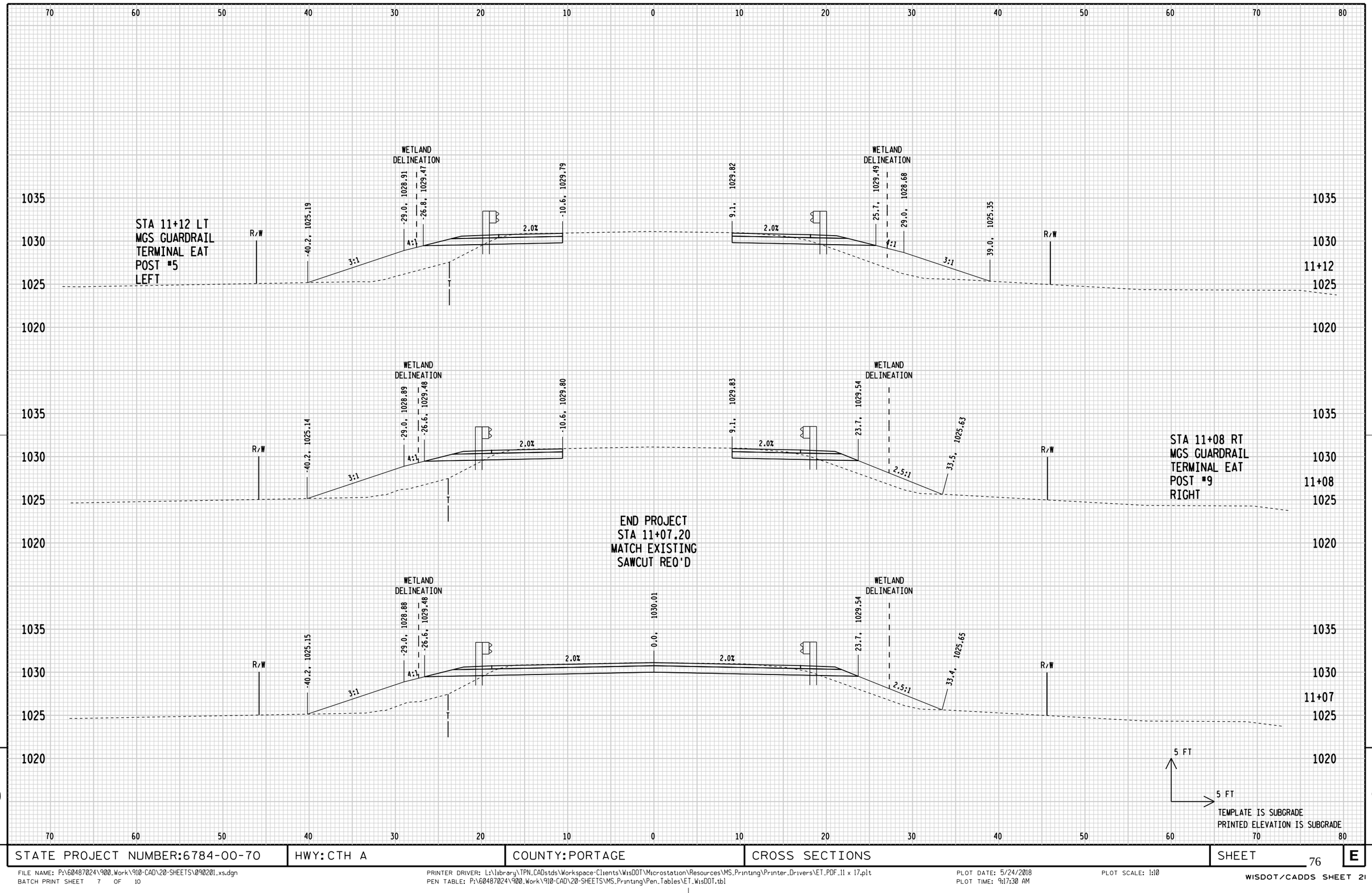
PLOT DATE: 5/24/2018
PLOT TIME: 9:17:29 AM
PLOT SCALE: 1:10
WISDOT/CADDS SHEET 21



9

9

STATE PROJECT NUMBER:6784-00-70	HWY:CTH A	COUNTY:PORTAGE	CROSS SECTIONS	SHEET 76	E

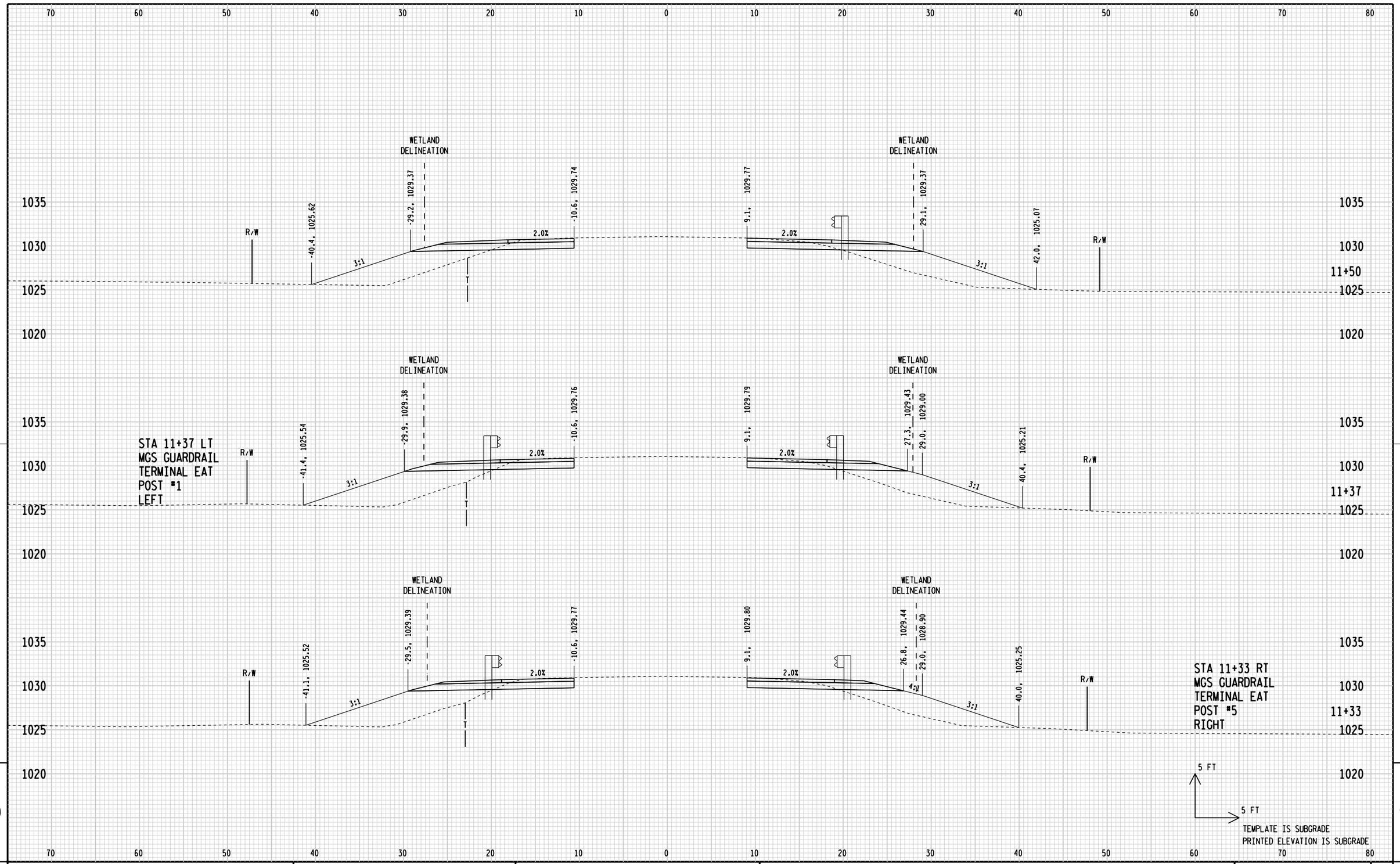
FILE NAME: P:\60487024\900.Work\910-CAD\20-SHEETS\090201_xs.dgn
BATCH PRINT SHEET 7 OF 10

PRINTER DRIVER: L:\library\TPN_CADstds\Workspace-Clients\WisDOT\Microstation\Resources\MS_Printing\Printer_Drivers\ET_PDF_11 x 17.plt
PEN TABLE: P:\60487024\900_Work\910-CAD\20-SHEETS\MS_Printing\Pen_Tables\ET_WisDOT.tbl

PLOT DATE: 5/24/2018
PLOT TIME: 9:17:30 AM

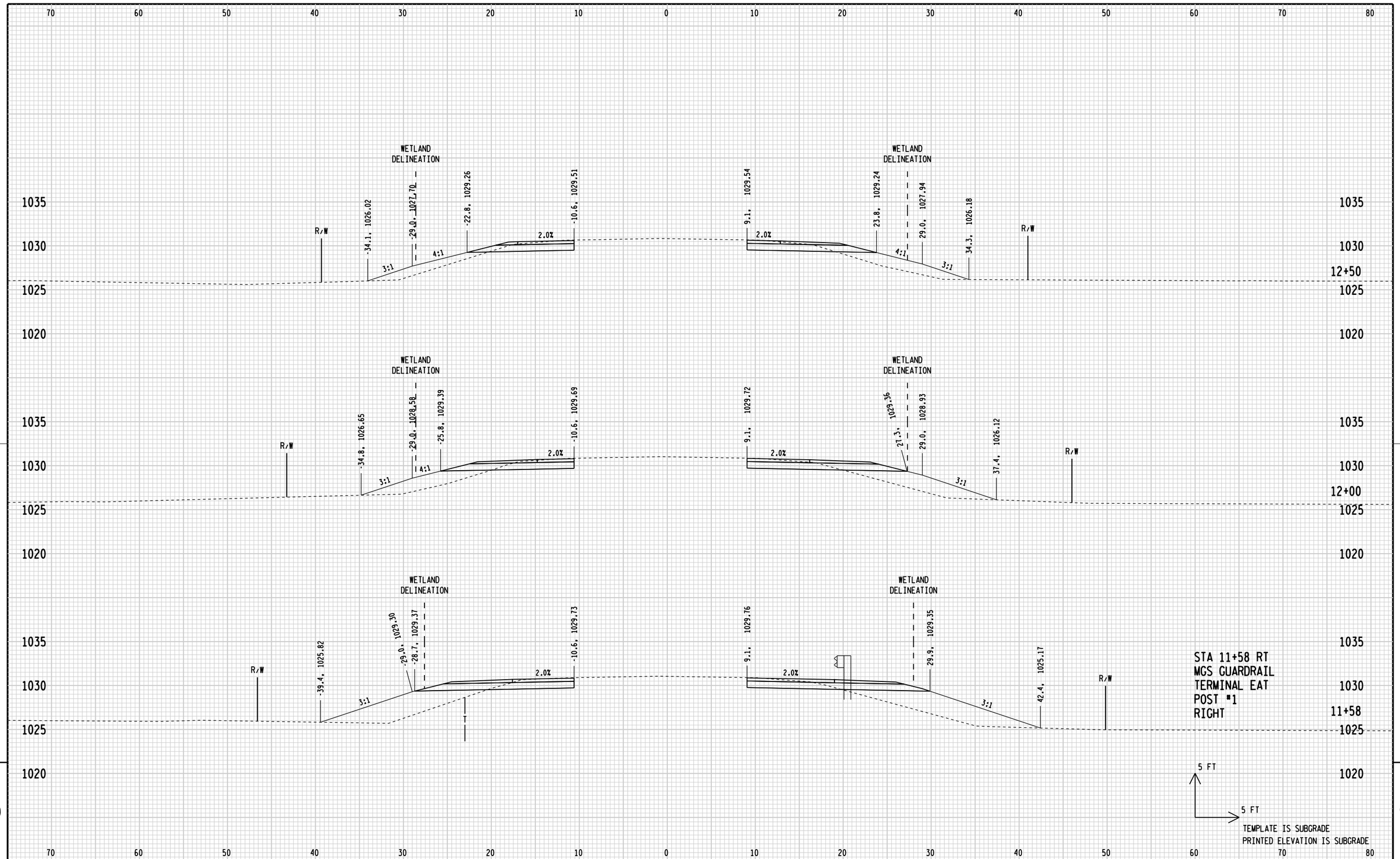
PLOT SCALE: 1:10

WISDOT/CADDS SHEET 21



STATE PROJECT NUMBER:6784-00-70	HWY: CTH A	COUNTY: PORTAGE	CROSS SECTIONS	SHEET 77	E

FILE NAME: P:\60487024\900_Work\910-CAD\20-SHEETS\090201_xs.dgn
BATCH PRINT SHEET 8 OF 10
PRINTER DRIVER: L:\library\TPN_CADstds\Workspace-Clients\WisDOT\Microstation\Resources\MS_Printing\Printer_Drivers\ET_PDF_11 x 17.plt
PEN TABLE: P:\60487024\900_Work\910-CAD\20-SHEETS\MS_Printing\Pen_Tables\ET_WisDOT.tbl
PLOT DATE: 5/24/2018
PLOT TIME: 9:17:30 AM
PLOT SCALE: 1:10
WISDOT/CADDS SHEET 21



9

9

STATE PROJECT NUMBER:6784-00-70	HWY:CTH A	COUNTY:PORTAGE	CROSS SECTIONS	SHEET 78	E

FILE NAME: P:\60487024\900_Work\910-CAD\20-SHEETS\090201_xs.dgn
BATCH PRINT SHEET 9 OF 10
PRINTER DRIVER: L:\library\TPN_CADstds\Workspace-Clients\WisDOT\Microstation\Resources\MS_Printing\Printer_Drivers\ET_PDF_11 x 17.plt
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PLOT DATE: 5/24/2018
PLOT TIME: 9:17:30 AM
PLOT SCALE: 1:10
WISDOT/CADDS SHEET 21

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

1035 1030 1025 1020

R/W

WETLAND DELINEATION

13+00

WETLAND DELINEATION

R/W

1035 1030 1025 1020

R/W

WETLAND DELINEATION

10.1, 1029.36

20.7, 1029.15

WETLAND DELINEATION

29.0, 1027.07

31.8, 1026.15

R/W

4.0%

4:1

3:1

END CONSTRUCTION RT SHOULDER
STA 12+95.21
MATCH EXISTING

12+95

1035 1030 1025 1020

WETLAND DELINEATION

25.99

33.8, 29.0, 1027.59

22.4, 1029.25

10.6, 1029.49

WETLAND DELINEATION

9.1, 1029.52

23.4, 1029.23

29.0, 1027.82

34.0, 1026.16

R/W

2.0%

4:1

3:1

END CONSTRUCTION LT SHOULDER
STA 12+56.06
MATCH EXISTING

12+56

1035 1030 1025 1020

5 FT

5 FT

TEMPLATE IS SUBGRADE
PRINTED ELEVATION IS SUBGRADE

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

9

9

STATE PROJECT NUMBER:6784-00-70 | HWY:CTH A | COUNTY:PORTAGE | CROSS SECTIONS | SHEET 79 | E

Wisconsin Department of Transportation

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