RHI

APRIL 2019

PROJECT ID: 9819-00-70

WITH: N/A

COUNTY: FOREST

ORDER OF SHEETS

TOTAL SHEETS = 40

29

DESIGN DESIGNATION

A.A.D.T.	2019	=	60 (EST.)
A.A.D.T.	2039	=	80 (EST.)
D.H.V.		=	<15 (EST.)
D.D.		=	50/50 (EST.)
T.		=	10% (EST.)
DESIGN SPEED		=	55 MPH
ESALS		=	N/A

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- 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 (955.36)
- CULVERT (Profile View)

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

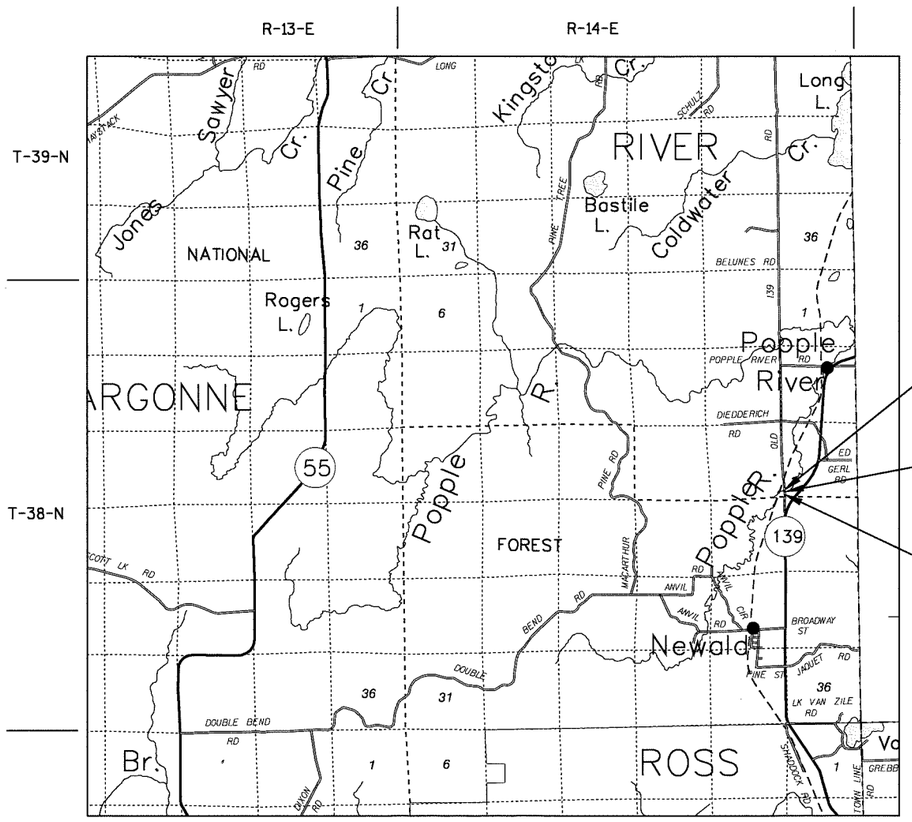
PLAN OF PROPOSED IMPROVEMENT

T POPPLE RIVER, LITTLE POPPLE BRDGE

OLD HWY 139 ROAD; FR 2404

LOCAL STREET
FOREST COUNTY

STATE PROJECT NUMBER
9819-00-70



LAYOUT

SCALE 0 2.0 MI

TOTAL NET LENGTH OF CENTERLINE = 0.063 MI

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9819-00-70	WISC 2019234	1

ACCEPTED FOR

TOWN of POPPLE RIVER

9-26-18 (Date) Dale Nichols

ACCEPTED FOR

US FOREST SERVICES

10/9/18 (Date) SUPERVISOR

ORIGINAL PLANS PREPARED BY

MSA

1835 N. Stevens St. Rhinelander, WI 54501
715-362-3244 1-800-844-7854 Fax: 715-362-4116

WISCONSIN
SEAN M. SPROMBERG
E-37771-006
SCHOFIELD, WI
PROFESSIONAL ENGINEER

DATE: 9/24/18 (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MSA PROFESSIONAL SERVICES, INC.
Designer	MSA PROFESSIONAL SERVICES, INC.
Management Consultant	CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT

DATE: 10-30-2018 (Management Consultant Signature)

E

FILE NAME : P:\18000S\18080S\18089\18089000\CADD\SHEETSPLAN\010101_TI.DWG PLOT DATE : 9/24/2018 2:49 PM PLOT BY : JOLIE SNYDER PLOT NAME :

GENERAL NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND MULCHED AS DIRECTED BY THE ENGINEER. OVERSOW PERMANENT SEEDING AREAS WITH TEMPORARY SEED.

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

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

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NAVD 88 (2012).

THE 3½" ASPHALTIC SURFACE SHALL CONSIST OF A 1¾" UPPER LAYER WITH NO. 4 (12.5 MM) NOMINAL SIZE AGGREGATE AND A 1¾" LOWER LAYER WITH WITH NO. 4 (12.5 MM) NOMINAL SIZE AGGREGATE.

SILT FENCE AND TURBIDITY BARRIER TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER AND IN PLACE PRIOR TO CONSTRUCTION OR BRIDGE REMOVAL.

WETLANDS ARE PRESENT OUTSIDE THE EXISTING SLOPE INTERCEPTS ON THE NW, SW & SE QUADRANTS OF THE BRIDGE. AREAS OUTSIDE OF THE SLOPE INTERCEPTS SHALL NOT BE DISTURBED IN THESE AREAS.

DESIGN CONTACT

MSA PROFESSIONAL SERVICES, INC.
1835 NORTH STEVENS ST.
RHINELANDER, WI 54501
SEAN SPROMBERG, PE
PHONE: (715) 384-2133
sspromberg@msa-ps.com

UTILITIES

OVERHEAD ELECTRIC:
WE ENERGIES
800 INDUSTRIAL PARK DRIVE
IRON MOUNTAIN, MI 49801
GEORGE JOHNSEN
PHONE: (906) 779-2486
george.johnsen@we-energies.com

BURIED TELEPHONE:
CENTURYLINK
2425 MARY STREET
MARINETTE, WI 54143
PETE JOHNSON
PHONE: 715-735-0059
peter.s.johnson@centurylink.com

TOWN CONTACT

TOWN OF POPPLE RIVER
P.O. BOX 82
LONG LAKE, WI 54542
JERRY GILLIGAN, TOWN CHAIRMAN
PHONE: (715) 674-7752
gilliganlodging@gmail.com

COUNTY CONTACT

FOREST COUNTY
5350 COUNTY HWY W
CRANDON, WI 54520
WILLIAM ANDERSON, HIGHWAY COMMISSIONER
PHONE: (715) 478-3516

DNR CONTACT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
DNR NORTHERN REGION HQ
107 SUTLIFF AVENUE
RHINELANDER, WI 54501
JON SIMONSEN
PHONE: (715) 367-1936
jonathan.simonsen@wisconsin.gov

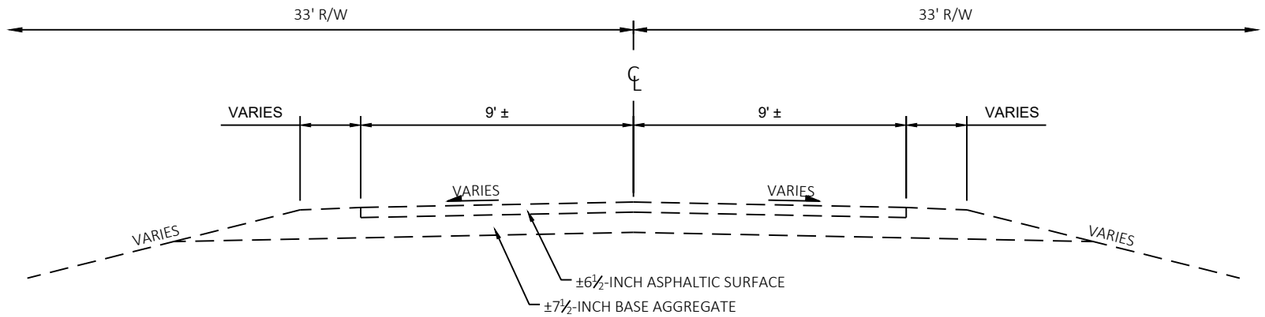
DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

EROSION CONTROL NOTES

RUNOFF COEFFICIENTS FOR THIS PROJECT: EXISTING SIDE SLOPES 0.30, PROPOSED SIDE SLOPES 0.30, EXISTING PAVEMENT 0.95, PROPOSED PAVEMENT 0.95.

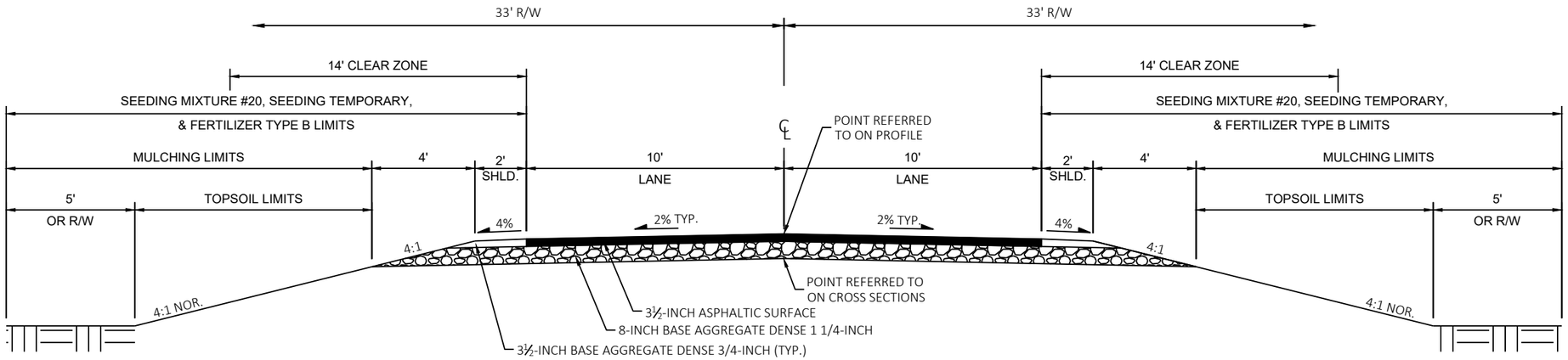
TOTAL PROJECT AREA = 0.50 ACRES

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.36 ACRES



EXISTING TYPICAL SECTION

OLD HWY 139 ROAD (FR 2404)

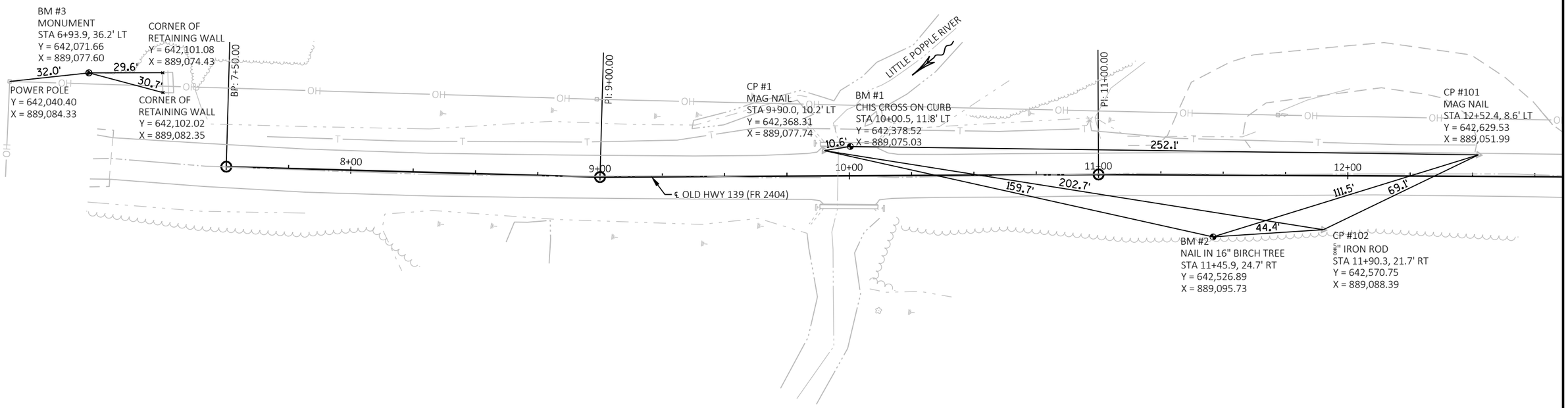


TYPICAL FINISHED SECTION

OLD HWY 139 ROAD (FR 2404)
STA. 8+30 - BRIDGE
BRIDGE - STA. 11+60

PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	TYPICAL SECTIONS	SHEET 3	E

2



PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	PROJECT CONTROL POINTS, TIES, AND COORDINATES	SHEET 4	E

FILE NAME : P:\18000S\18080S\18089\18089000\CADD\SHEETSPLAN\021001_CD.DWG
LAYOUT NAME - 021001_cd
PLOT DATE : 9/25/2018 10:36 AM
PLOT BY : JOLIE SNYDER
PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

9819-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. STA. 10+00	LS	1.000	1.000
0008	205.0100	Excavation Common	CY	229.000	229.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-21-29	LS	1.000	1.000
0012	208.0100	Borrow	CY	47.000	47.000
0014	210.1500	Backfill Structure Type A	TON	320.000	320.000
0016	213.0100	Finishing Roadway (project) 01. 9819-00-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	42.000	42.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	415.000	415.000
0022	455.0605	Tack Coat	GAL	34.000	34.000
0024	465.0105	Asphaltic Surface	TON	130.000	130.000
0026	502.0100	Concrete Masonry Bridges	CY	104.000	104.000
0028	502.3200	Protective Surface Treatment	SY	139.000	139.000
0030	505.0400	Bar Steel Reinforcement HS Structures	LB	4,140.000	4,140.000
0032	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	11,530.000	11,530.000
0034	513.4061	Railing Tubular Type M 01. B-21-29	LF	64.000	64.000
0036	516.0500	Rubberized Membrane Waterproofing	SY	11.000	11.000
0038	550.0500	Pile Points	EACH	13.000	13.000
0040	550.2108	Piling CIP Concrete 10 3/4 X 0.50-Inch	LF	345.000	345.000
0042	606.0300	Riprap Heavy	CY	60.000	60.000
0044	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	120.000	120.000
0046	618.0100	Maintenance And Repair of Haul Roads (project) 01. 9819-00-70	EACH	1.000	1.000
0048	619.1000	Mobilization	EACH	1.000	1.000
0050	624.0100	Water	MGAL	42.000	42.000
0052	625.0100	Topsoil	SY	520.000	520.000
0054	627.0200	Mulching	SY	920.000	920.000
0056	628.1504	Silt Fence	LF	625.000	625.000
0058	628.1520	Silt Fence Maintenance	LF	625.000	625.000
0060	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0062	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0064	628.6005	Turbidity Barriers	SY	185.000	185.000
0066	628.7504	Temporary Ditch Checks	LF	20.000	20.000
0068	629.0210	Fertilizer Type B	CWT	1.000	1.000
0070	630.0120	Seeding Mixture No. 20	LB	40.000	40.000
0072	630.0200	Seeding Temporary	LB	40.000	40.000
0074	630.0300	Seeding Borrow Pit	LB	2.000	2.000

9819-00-70

Line	Item	Item Description	Unit	Total	Qty
0076	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0078	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0080	638.2602	Removing Signs Type II	EACH	4.000	4.000
0082	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0084	642.5001	Field Office Type B	EACH	1.000	1.000
0086	643.0420	Traffic Control Barricades Type III	DAY	1,400.000	1,400.000
0088	643.0705	Traffic Control Warning Lights Type A	DAY	2,100.000	2,100.000
0090	643.0900	Traffic Control Signs	DAY	1,120.000	1,120.000
0092	643.5000	Traffic Control	EACH	1.000	1.000
0094	645.0111	Geotextile Type DF Schedule A	SY	90.000	90.000
0096	645.0120	Geotextile Type HR	SY	160.000	160.000
0098	650.4500	Construction Staking Subgrade	LF	300.000	300.000
0100	650.5000	Construction Staking Base	LF	300.000	300.000
0102	650.6500	Construction Staking Structure Layout (structure) 01. B-21-29	LS	1.000	1.000
0104	650.9910	Construction Staking Supplemental Control (project) 01. 9819-00-70	LS	1.000	1.000
0106	650.9920	Construction Staking Slope Stakes	LF	300.000	300.000
0108	690.0150	Sawing Asphalt	LF	34.000	34.000
0110	715.0502	Incentive Strength Concrete Structures	DOL	624.000	624.000
0112	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	150.000	150.000
0114	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

3

201.0105 CLEARING
201.0205 GRUBBING

STATION	-	STATION	LOCATION	CLEARING STA	GRUBBING STA
10+00	-	12+00	RT & LT	2	2
			TOTALS:	2	2

205.0100 EXCAVATION COMMON
208.0100 BORROW

LOCATION	EXC. COMMON CY (3)	FILL CY (1)	EXPANDED FILL CY (2)	WASTE CY	BORROW CY
STA 8+30 - STA. 9+81.75	106	98	127	-21	21
STA 10+12.25 - STA 11+60	123	34	44	79	-79
UNUSABLE PAVEMENT					105
TOTALS:	229	132	171	58	47

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 30%
(3) - EXISTING ASPHALTIC PAVEMENT IS INCLUDED IN COMMON EXCAVATION TOTALS. SEE EARTHWORK TABLE.

305.0110 BASE AGGREGATE DENSE 3/4-INCH
305.0120 BASE AGGREGATE DENSE 1 1/4-INCH
624.0100 WATER

STATION	-	STATION	BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	WATER* MGAL
8+30.00	-	9+81.75	14	210	4
10+12.25	-	11+60.00	28	205	5
		TOTALS:	42	415	9

*ADDITIONAL QUANTITY INCLUDED WITH EROSION CONTROL ITEMS

455.0605 TACK COAT
465.0105 ASPHALTIC SURFACE

STATION	-	STATION	TACK COAT GAL	ASPHALTIC SURFACE TON
SOUTH APPROACH			17	66
NORTH APPROACH			17	64
		TOTALS:	34	130

625.0100 TOPSOIL
627.0200 MULCHING
629.0210 FERTILIZER TYPE B
630.0120 SEEDING MIXTURE NO. 20
630.0200 SEEDING TEMPORARY
630.0300 SEEDING BORROW PIT
624.0100 WATER

STATION	-	STATION	LOCATION	TOPSOIL SY	MULCHING SY	FERTILIZER CWT	SEEDING #20 LB	SEEDING TEMPORARY LB	SEEDING BORROW PIT LB	WATER* MGAL
8+30	-	9+85	LT	120	205	0.20	8	8	--	7
8+30	-	9+85	RT	130	215	0.20	9	9	--	7
10+05	-	11+60	LT	80	145	0.15	7	7	--	6
10+05	-	11+60	RT	120	210	0.20	8	8	--	7
BORROW PIT				--	30	--	--	--	1	1
UNDISTRIBUTED				70	115	0.25	8	8	1	5
TOTALS:				520	920	1.00	40	40	2	33

*ADDITIONAL QUANTITY INCLUDED WITH BASE AGGREGATE ITEMS.

628.1504 SILT FENCE
628.1520 SILT FENCE MAINTENANCE

STATION	-	STATION	LOCATION	FENCE LF	MAINT. LF
8+30	-	9+77	LT	150	150
8+30	-	9+77	RT	150	150
10+18	-	11+60	LT	115	115
10+18	-	11+60	RT	130	130
UNDISTRIBUTED			-	80	80
			TOTALS:	625	625

628.6005 TURBIDITY BARRIERS

LOCATION	SY
SOUTH ABUT	74
NORTH ABUT	84
UNDISTRIBUTED	27
TOTAL:	185

628.7504 TEMPORARY DITCH CHECKS

STATION	LOCATION	TEMPORARY DITCH CHECKS LF
9+80	LT	15
UNDISTRIBUTED		5
	TOTAL:	20

NOTE: ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE.

634.0612 POSTS WOOD 4x6-INCH x 12-FT
637.2230 SIGNS TYPE II REFLECTIVE F
638.2602 REMOVING SIGNS TYPE II
638.3000 REMOVING SMALL SIGN SUPPORTS

STATION	LOCATION	SIGN CODE	SIZE	SIGNS TYPE II REFLECTIVE F SF	WOOD POSTS EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	COMMENTS
9+82	LT	W5-52L	12"x36"	3	1	-	-	OBJECT MARKER
9+82	RT	W5-52R	12"x36"	3	1	-	-	OBJECT MARKER
9+87	LT	-	-	-	-	1	1	EXISTING OBJECT MARKER
9+87	RT	-	-	-	-	1	1	EXISTING OBJECT MARKER
10+12	LT	W5-52R	12"x36"	3	1	-	-	OBJECT MARKER
10+12	RT	W5-52L	12"x36"	3	1	-	-	OBJECT MARKER
10+14	RT	-	-	-	-	1	1	EXISTING OBJECT MARKER
10+14	LT	-	-	-	-	1	1	EXISTING OBJECT MARKER
		TOTALS:		12	4	4	4	

643.0420 TRAFFIC CONTROL BARRICADES TYPE III
643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A
643.0900 TRAFFIC CONTROL SIGNS

LOCATION	DAYS	TRAFFIC CONTROL BARRICADES TYPE III EACH	TRAFFIC CONTROL BARRICADES TYPE III DAYS	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	TRAFFIC CONTROL SIGNS EACH	TRAFFIC CONTROL SIGNS DAYS
STH 139 INTERSECTION	70	2	140	4	280	5	350
BEGINNING OF PROJECT	70	7	490	10	700	2	140
END OF PROJECT	70	7	490	10	700	2	140
PERENICK RD (FR 2593) INTERSECTION	70	2	140	4	280	5	350
UNDISTRUBUTED	70	2	140	2	140	2	140
TOTALS:			1,400		2,100		1,120

650.4500 CONSTRUCTION STAKING SUBGRADE
650.5000 CONSTRUCTION STAKING BASE
650.9920 CONSTRUCTION STAKING SLOPE STAKES
650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 9819-00-70

STATION	-	STATION	SUBGRADE LF	BASE LF	SLOPE STAKES LF	SUPPLEMENTAL CONTROL LS
8+30	-	9+81.75	152	152	152	-
10+12.25	-	11+60	148	148	148	-
		TOTALS:	300	300	300	1

690.0150 SAWING ASPHALT

STATION	LF
8+30	17
11+60	17
TOTAL:	34

618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS*

DESCRIPTION	EACH
PROJECT 9819-00-70	1
TOTAL:	1

* CATEGORY 0030 ITEM

NOTE: ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE.

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
1	10+00.5, 11.8' LT	CHIS CROSS ON CURB	1544.00
2	11+45.9, 24.7' RT	NAIL IN 16" BIRCH TREE	1547.61
3	6+93.9, 36.2' LT	MONUMENT	1543.63

DANIEL D. PRICE ET UX

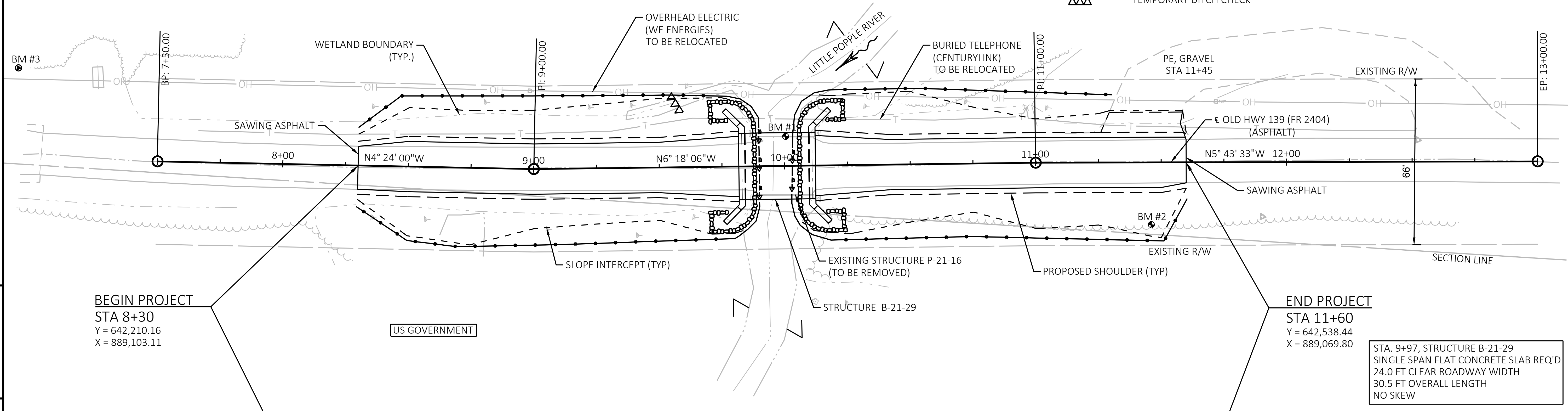
PI STA = 9+00.00
Y = 642,279.95
X = 889,097.74

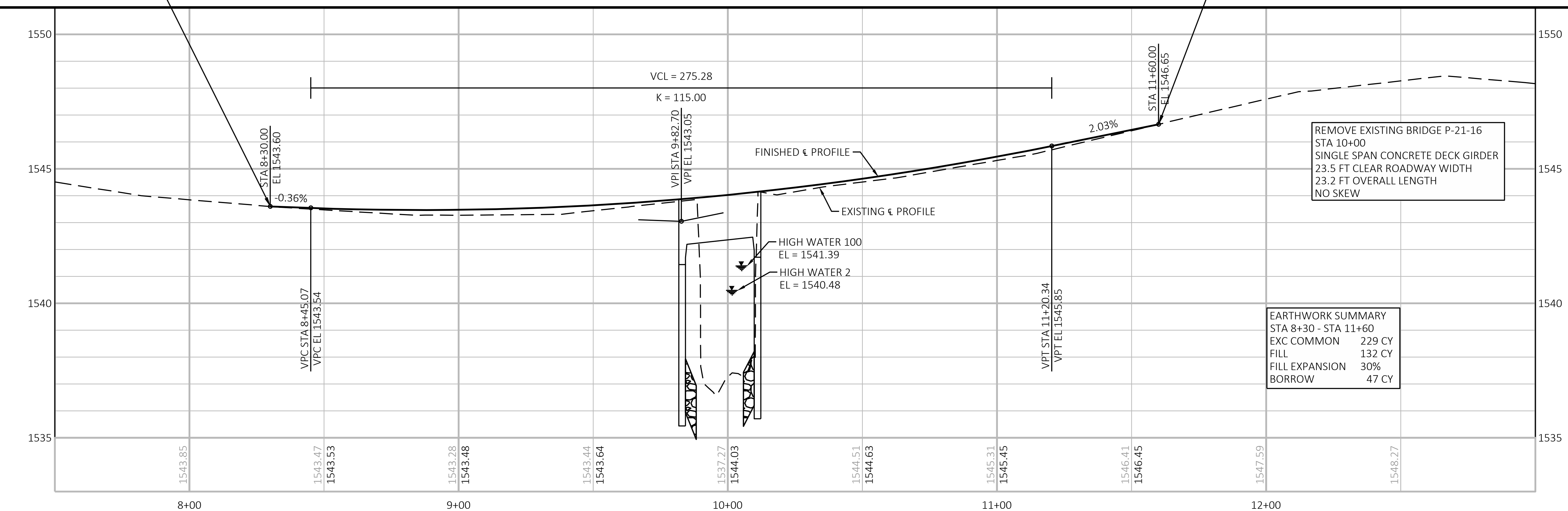
PI STA = 11+00.00
Y = 642,478.74
X = 889,075.78

LEGEND

SILT FENCE
RIPRAP HEAVY
TURBIDITY BARRIER
TEMPORARY DITCH CHECK

N

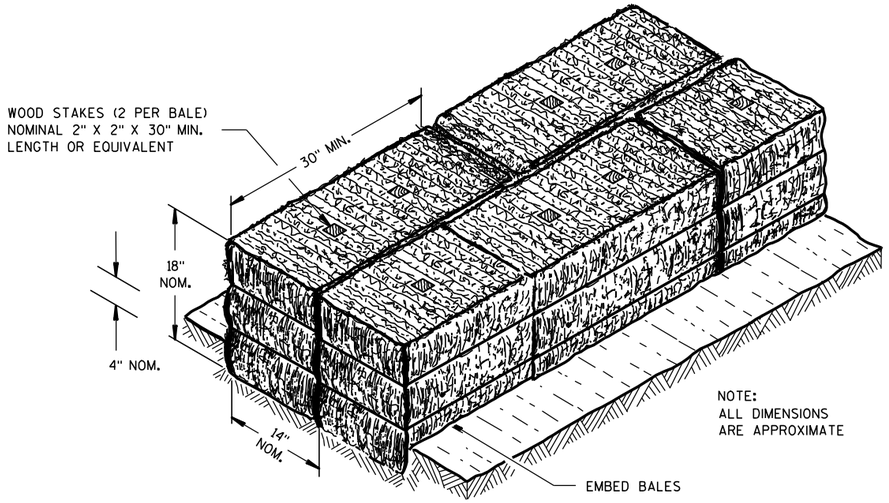




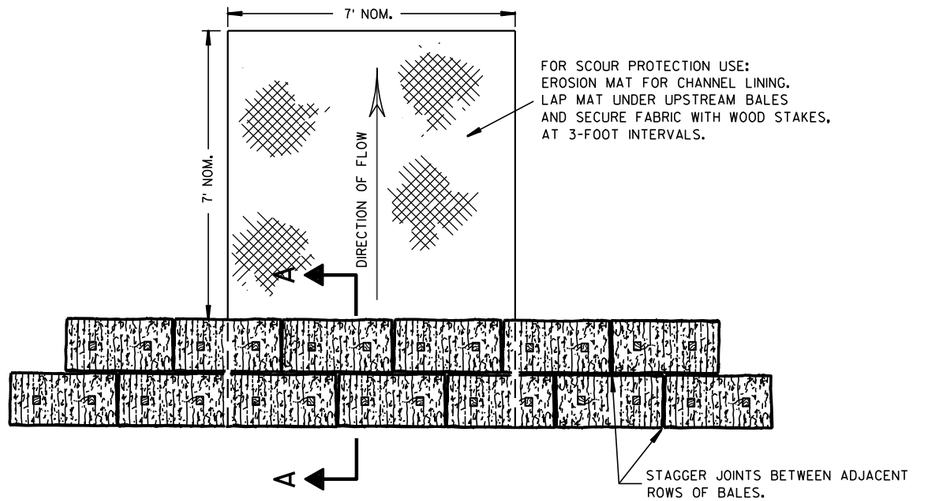
PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	PLAN AND PROFILE: OLD HWY 139 ROAD; FR 2404	SHEET 9	E

Standard Detail Drawing List

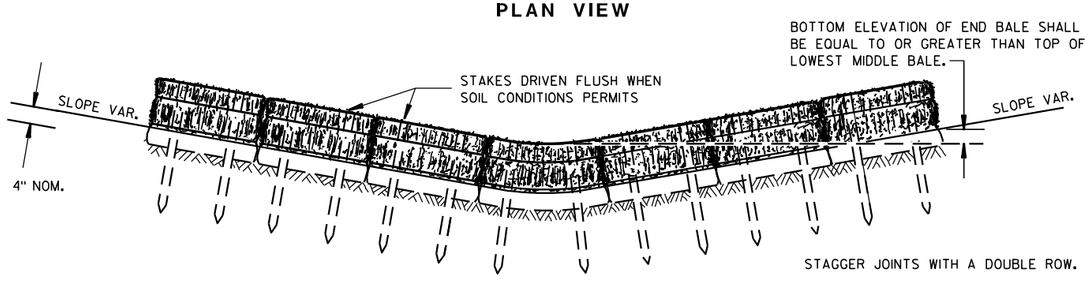
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
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



PLAN VIEW



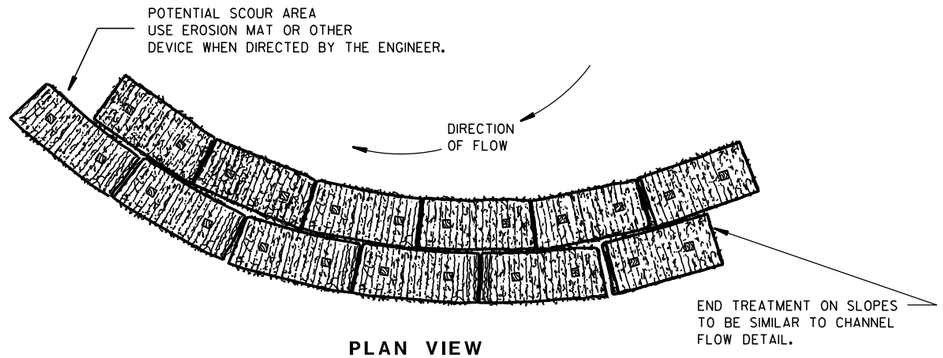
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

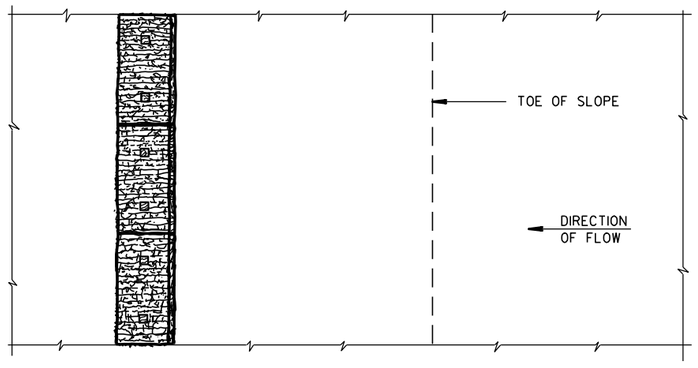
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

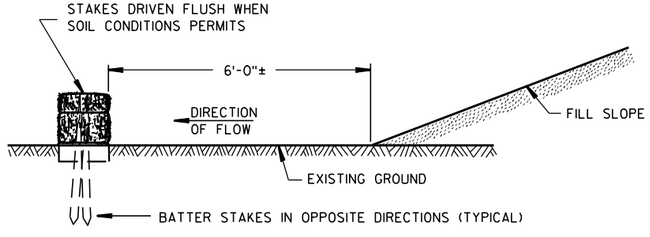


PLAN VIEW

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

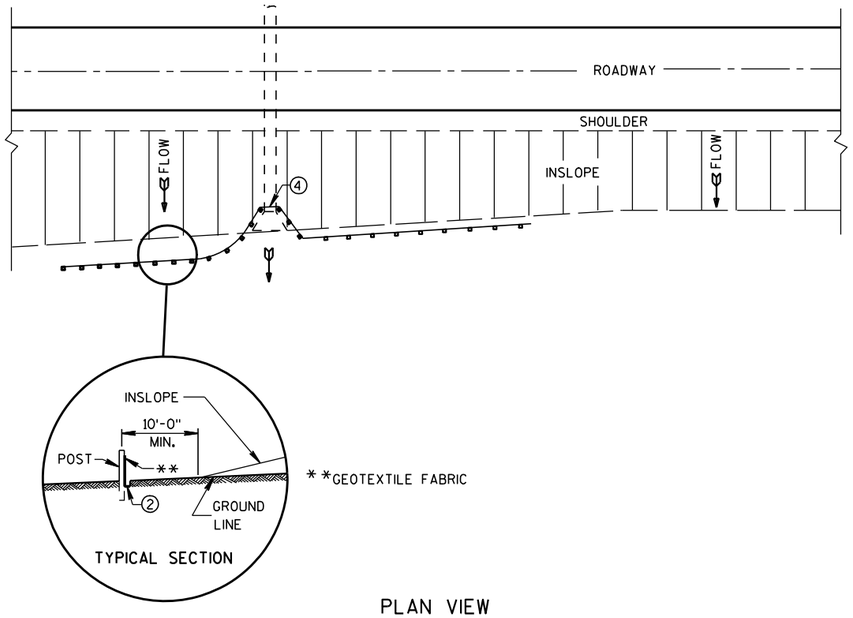
APPROVED
6/04/02 DATE
/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

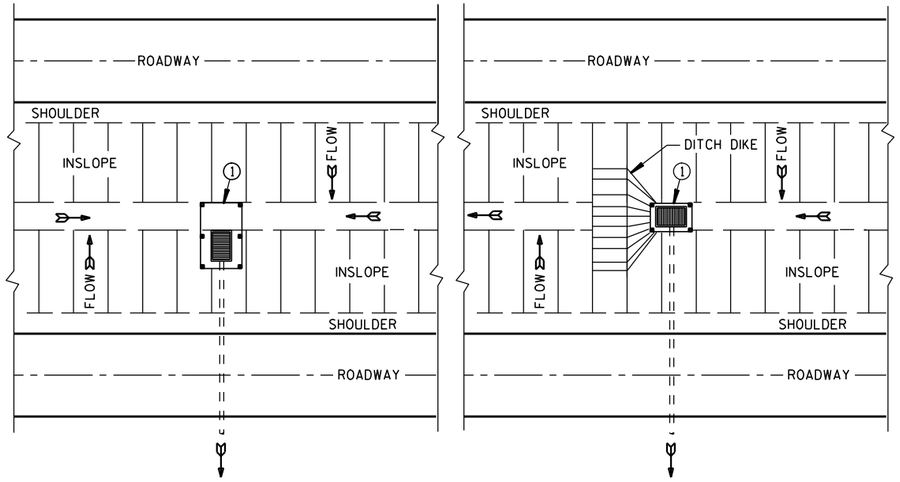
6

S.D.D. 8 E 8-3



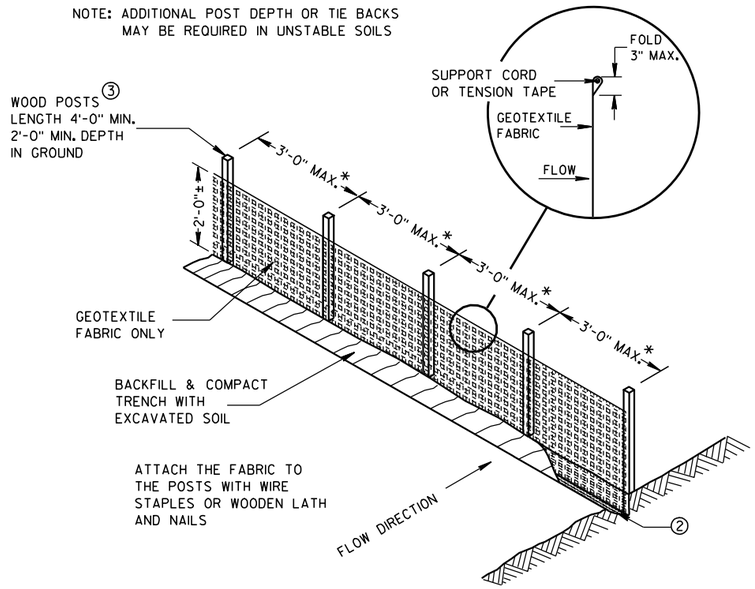
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



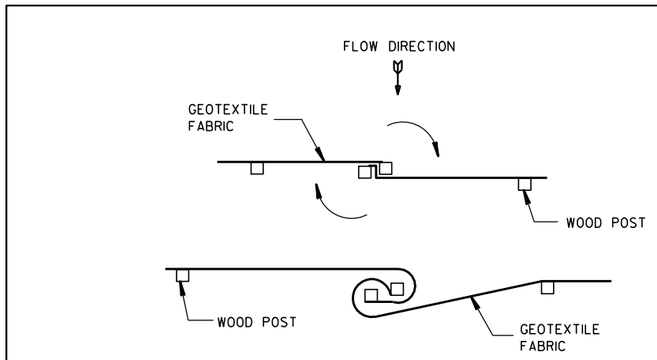
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS



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

SILT FENCE

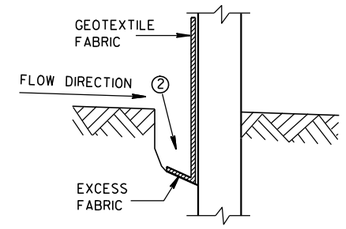


JOINING TWO LENGTHS OF SILT FENCE 5

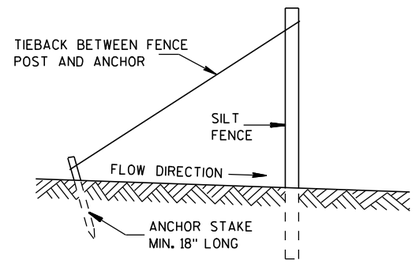
GENERAL NOTES

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 TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

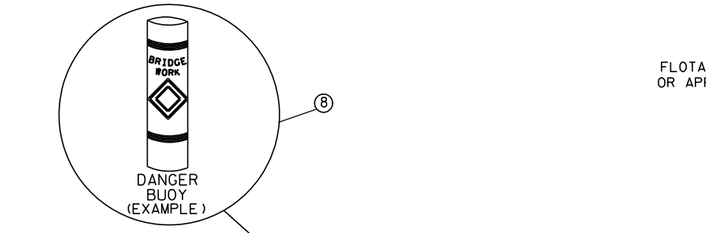
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

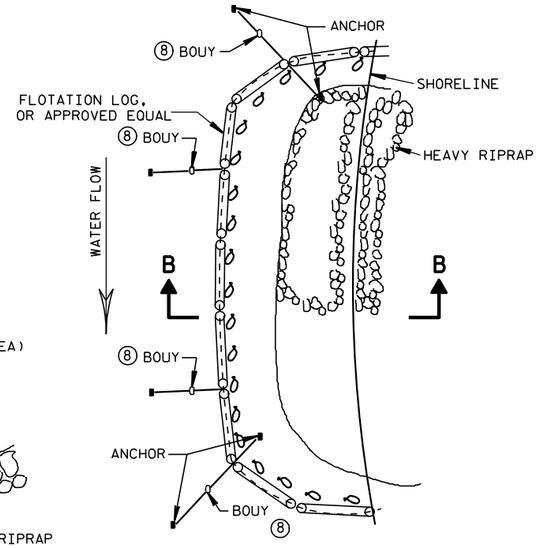
S.D.D. 8 E 9-6

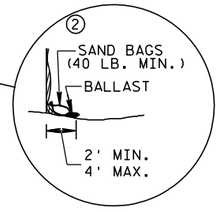
6

S.D.D. 8 E 9-6

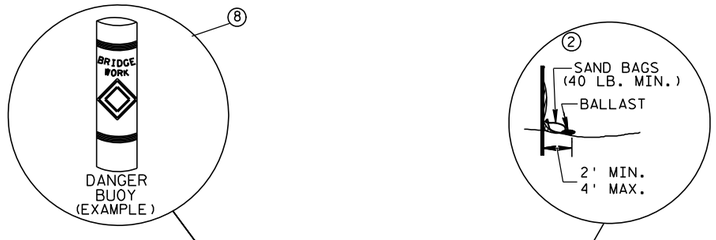


SECTION B-B

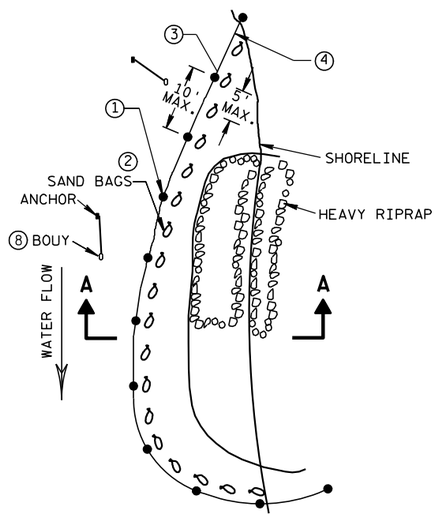




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

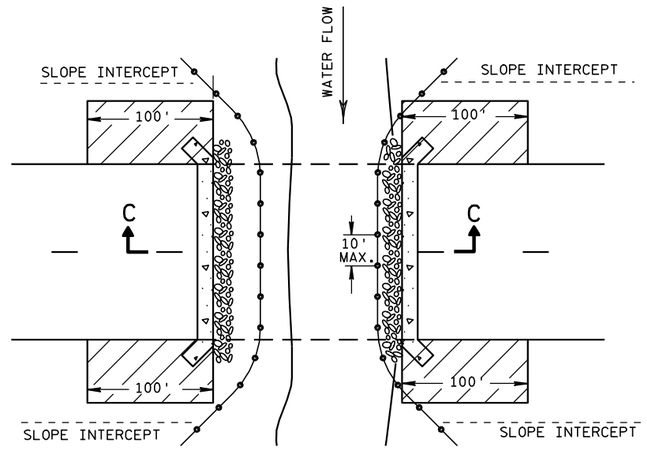
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

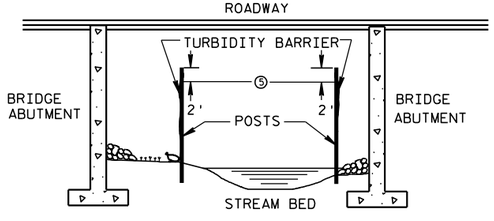
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

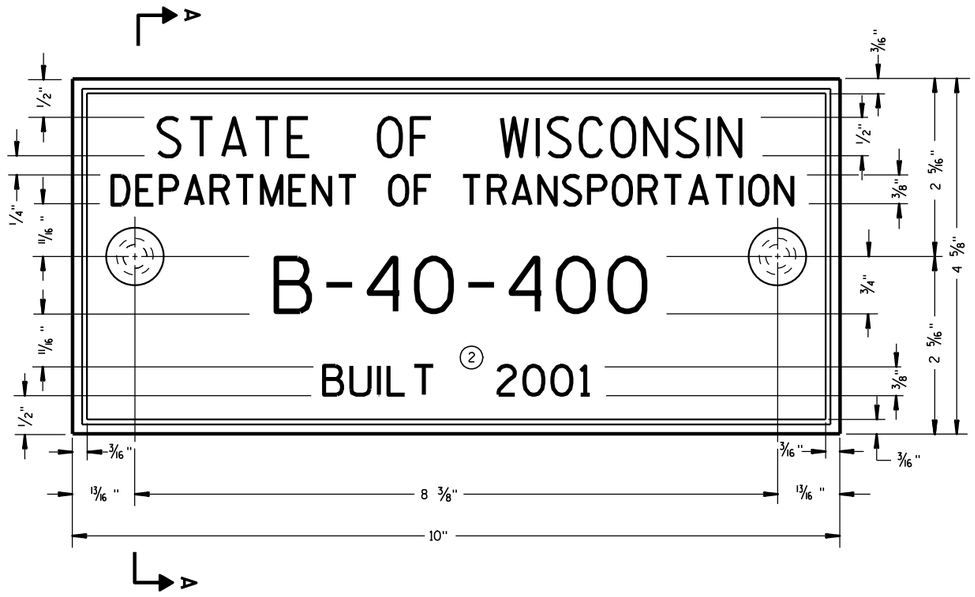
TURBIDITY BARRIER

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



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)

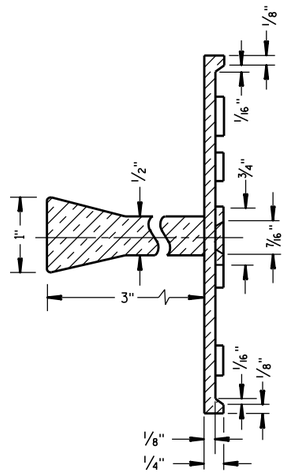
GENERAL NOTES

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

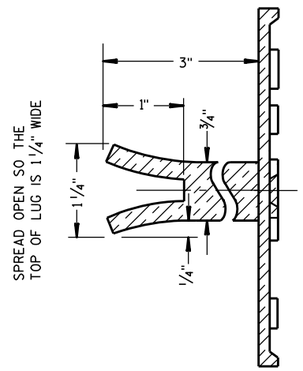
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

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



SECTION A-A



ALTERNATE LUG

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

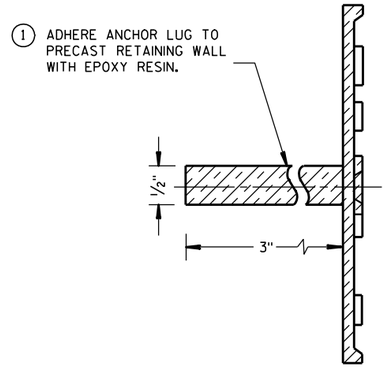
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION MULTI-UNIT STRUCTURES



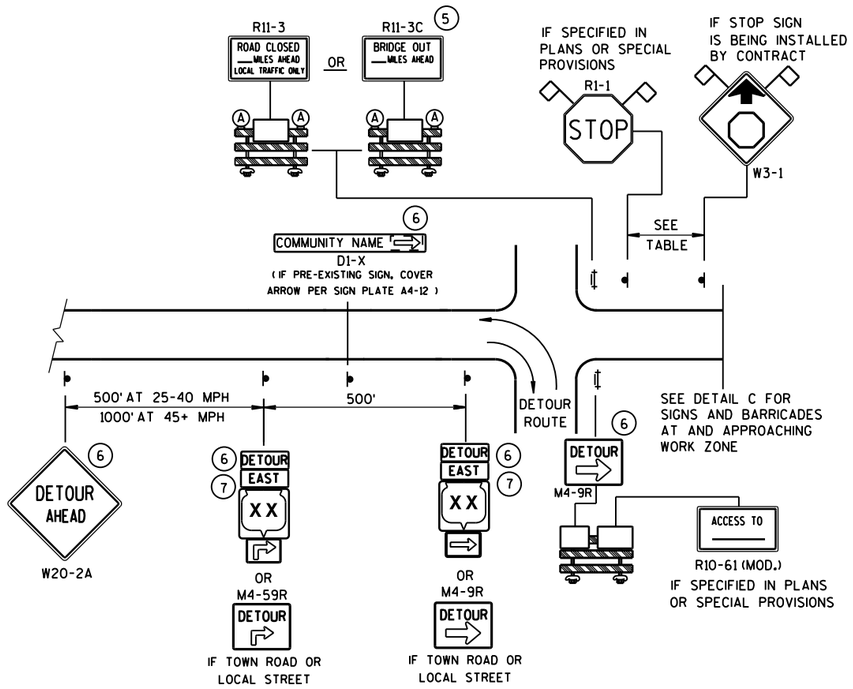
ALTERNATE LUG

(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

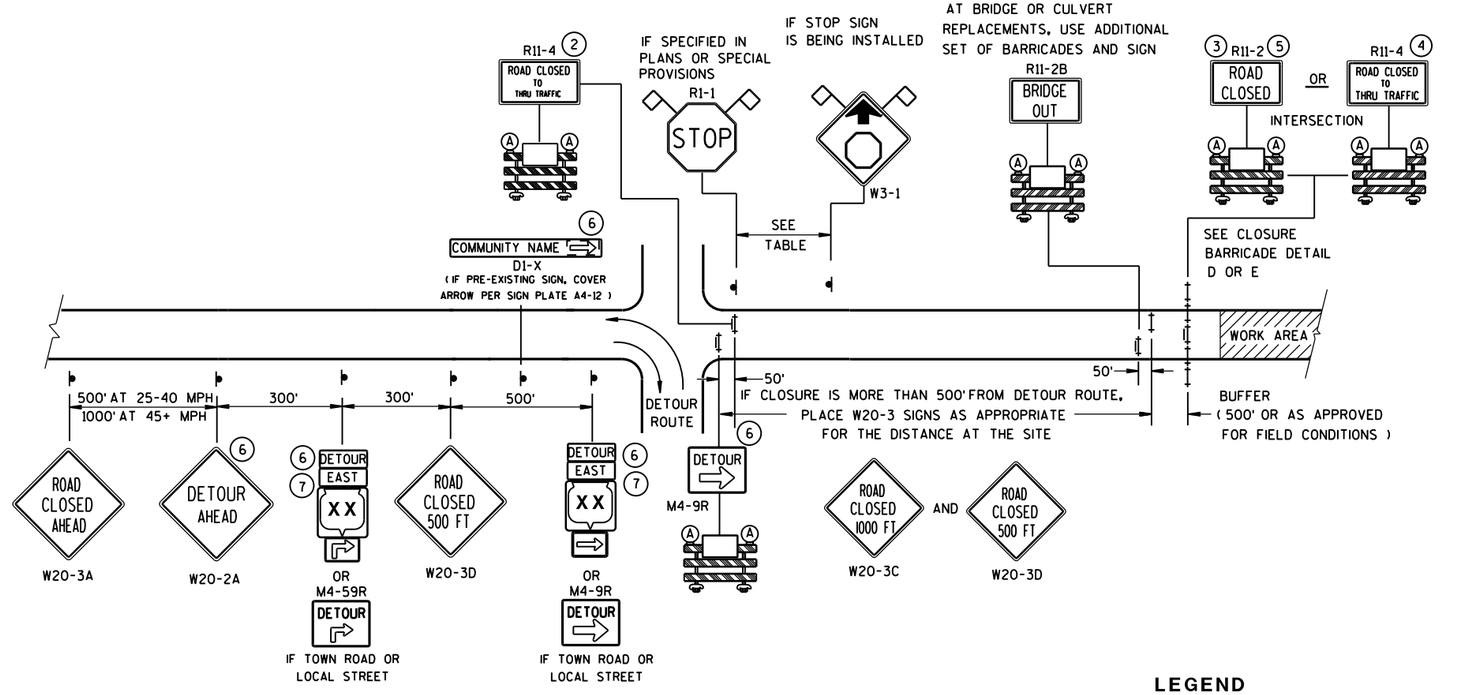
S.D.D. 12 A 3-10



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

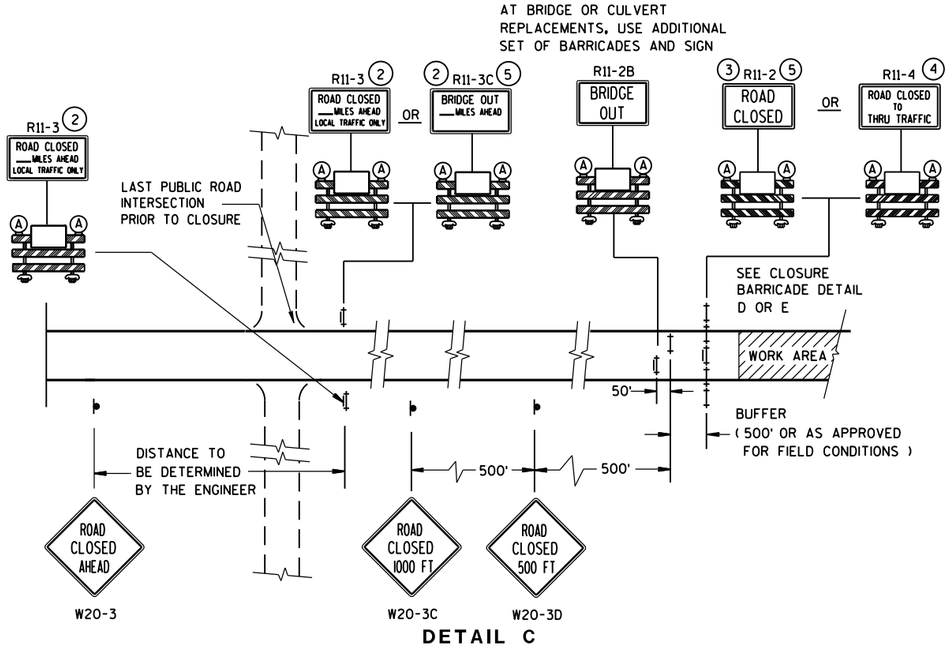
WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



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

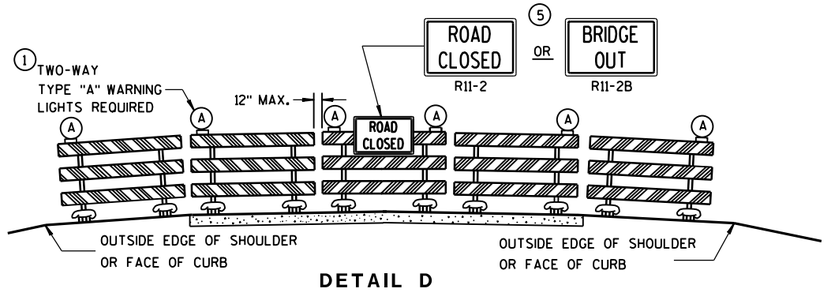
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

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

6

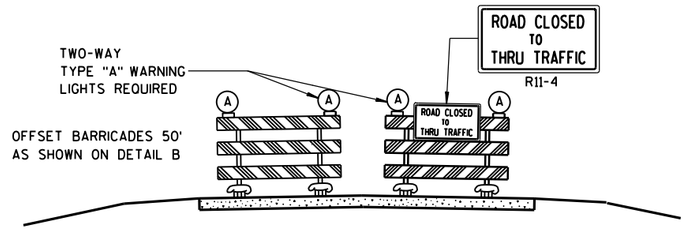
S.D.D. 15 C 2-6a



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

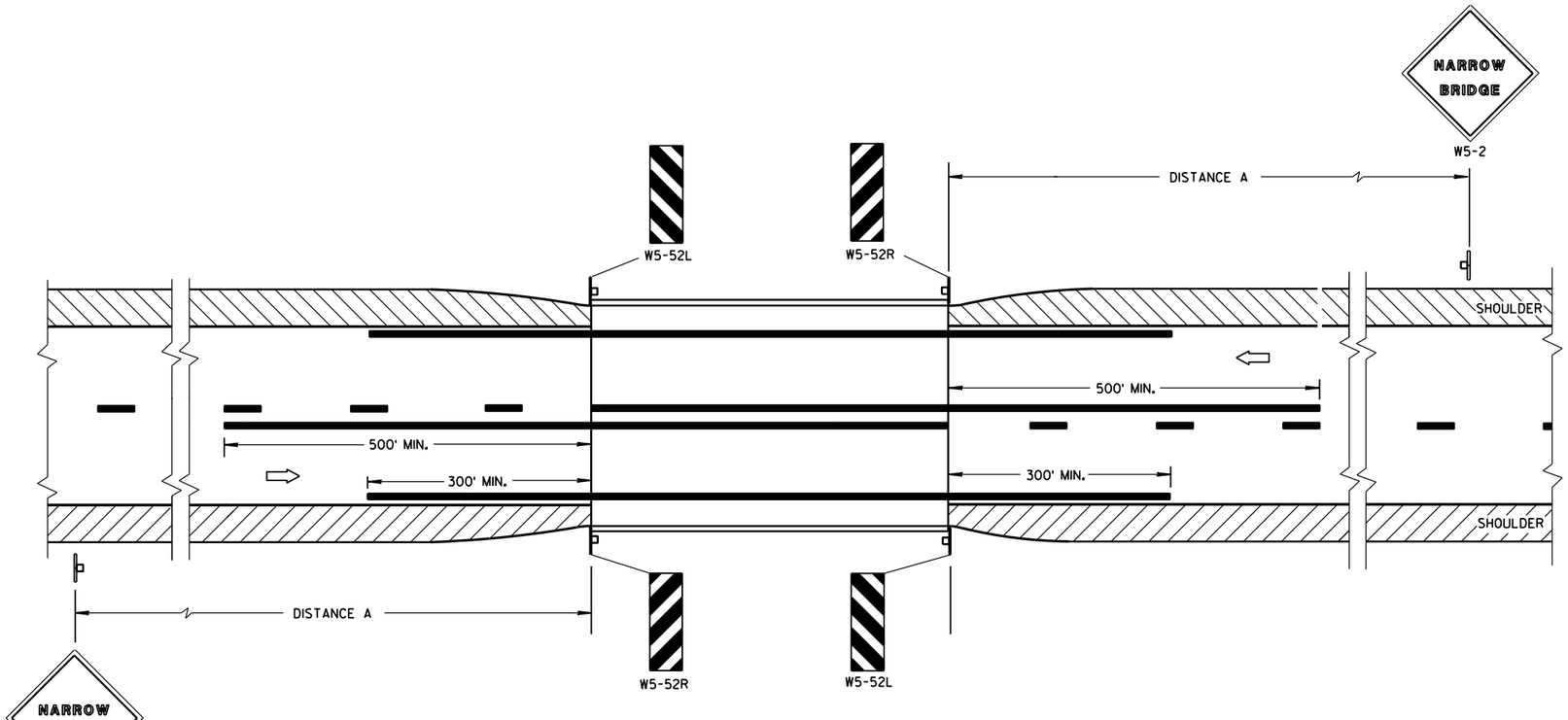
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO[illegible] SAFETY ENGI[illegible] — FHWA

6

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



SITUATION 1

WARRANTING CRITERIA:

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

DISTANCE TABLE

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

GENERAL NOTES

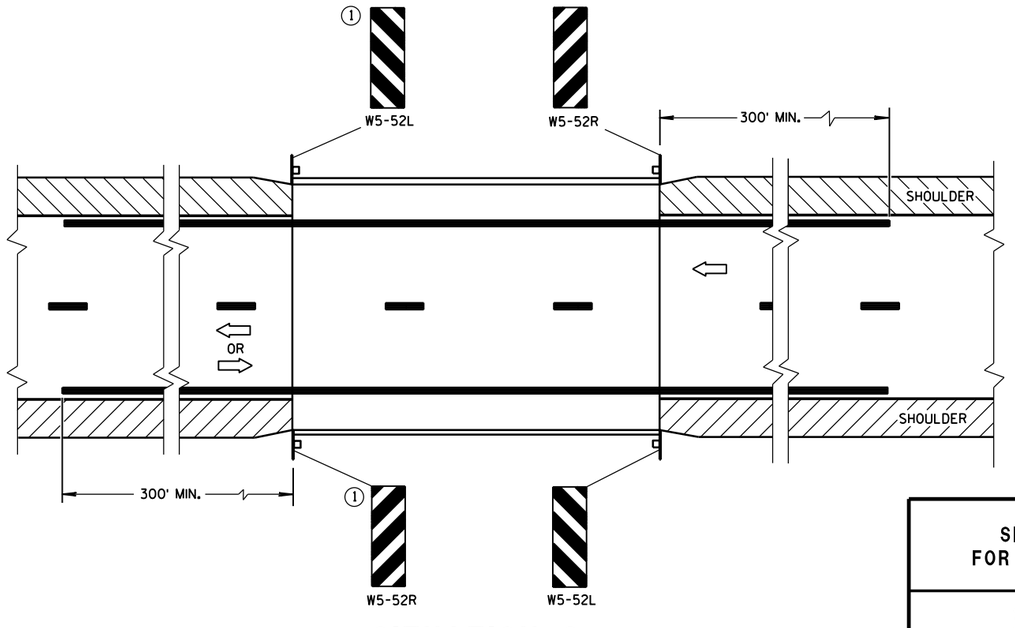
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

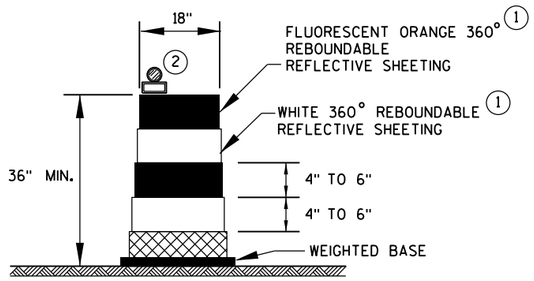
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

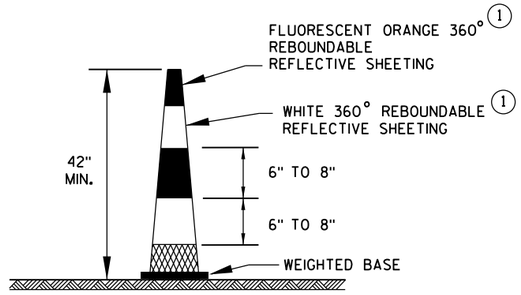
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]EER
FHWA

6

S.D.D. 15 C 6-9



DRUM

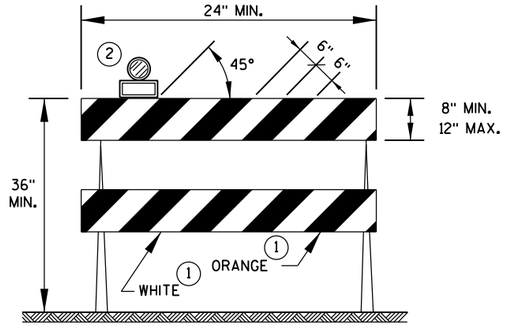


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

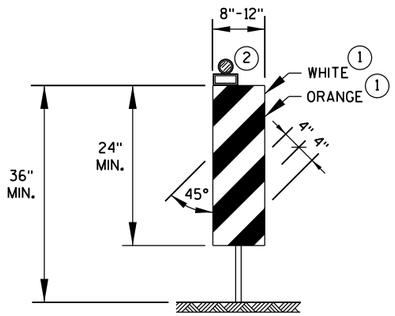
GENERAL NOTES

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.



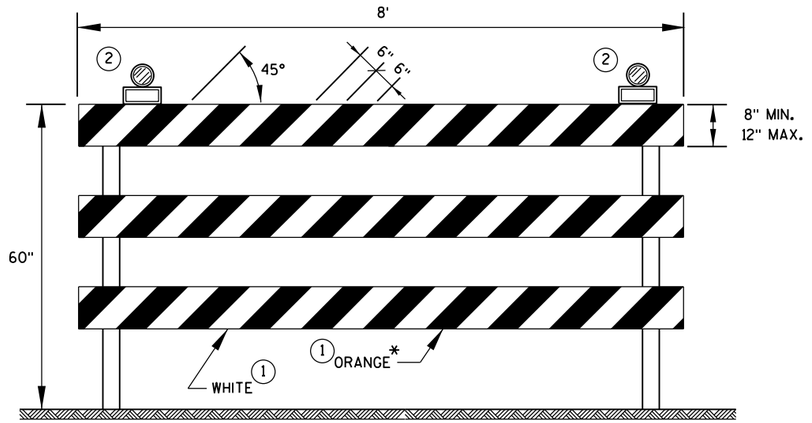
TYPE 2 BARRICADE

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

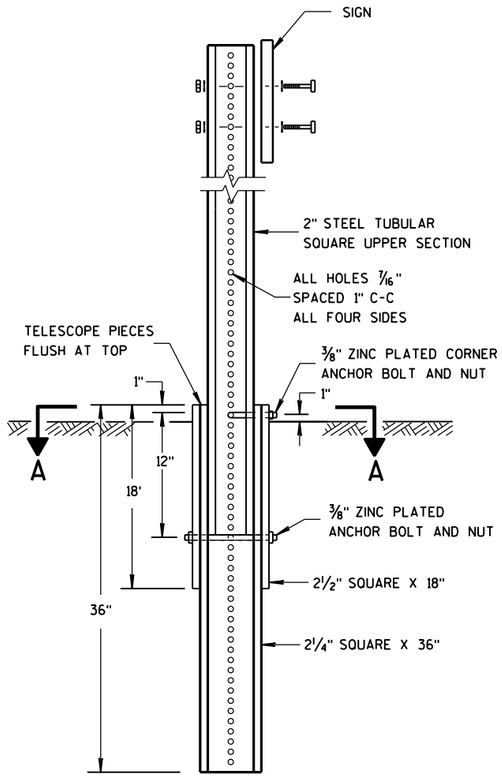
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

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

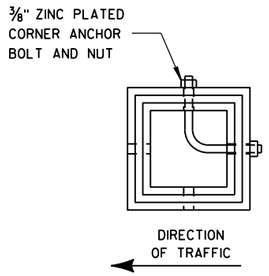
CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENG
FHWA	

6

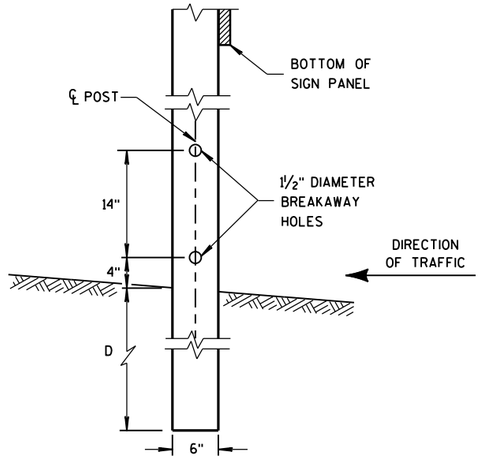
S.D.D. 15 C 11-7b



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



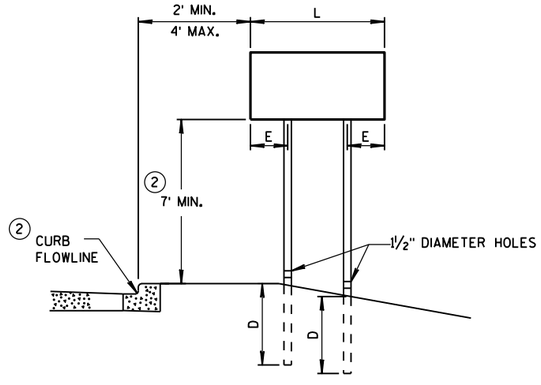
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

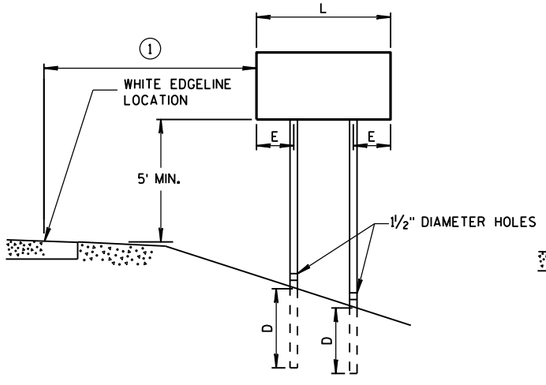
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

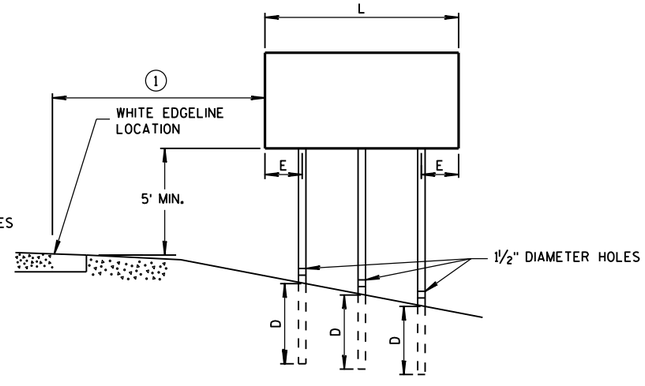
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK 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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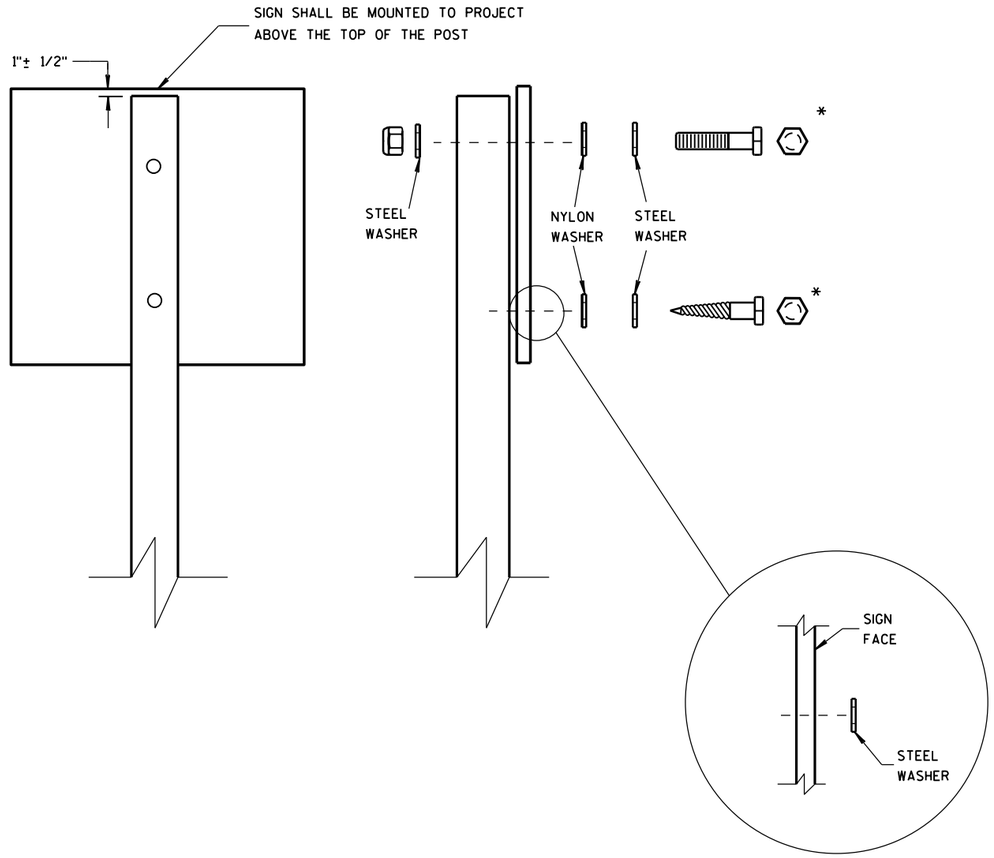
S.D.D. 15 D 38-2a

6

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

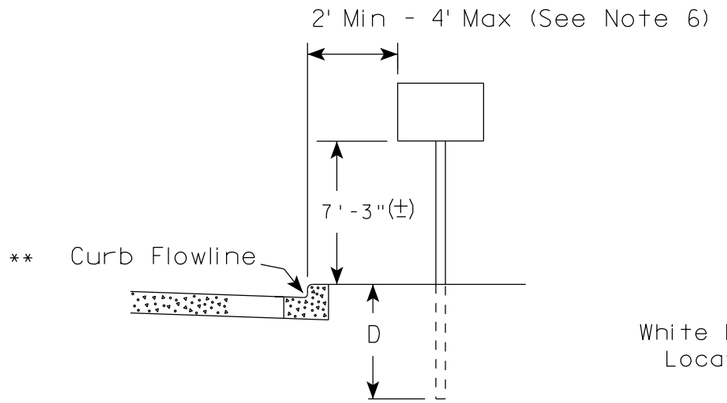
APPROVED

June 2017
DATE

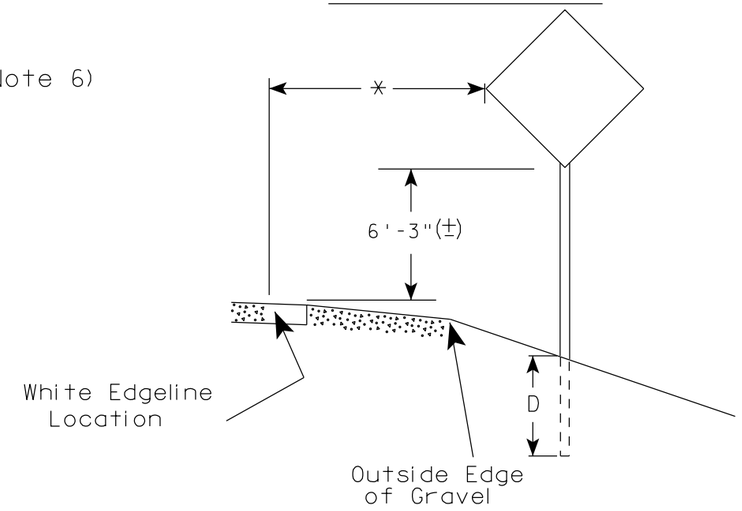
/S/ Andrew Heldtke
WORK ZONE ENG

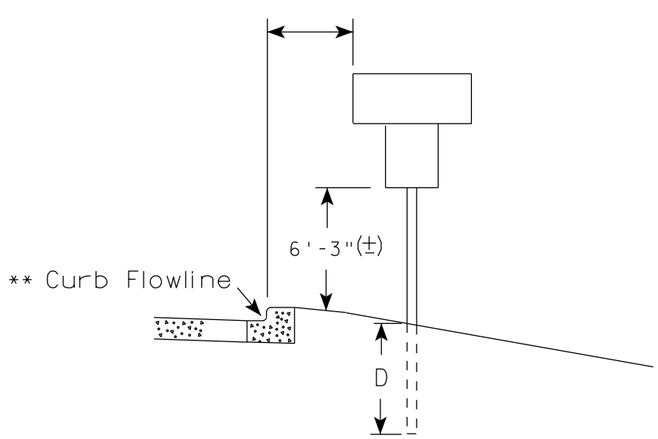
FHWA

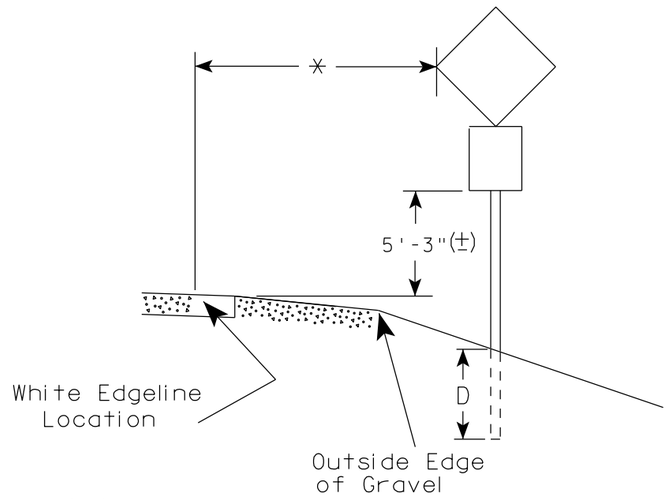
URBAN AREA



RURAL AREA (See Note 2)







GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

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

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

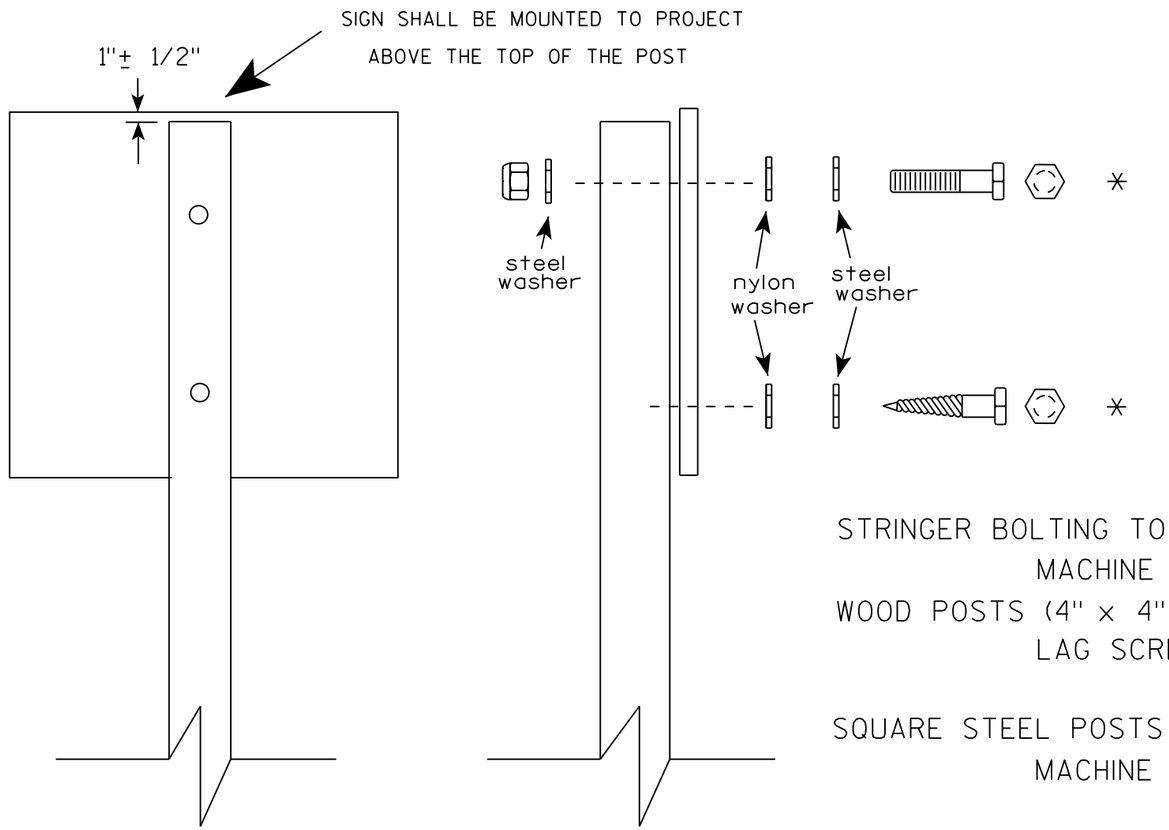
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	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.

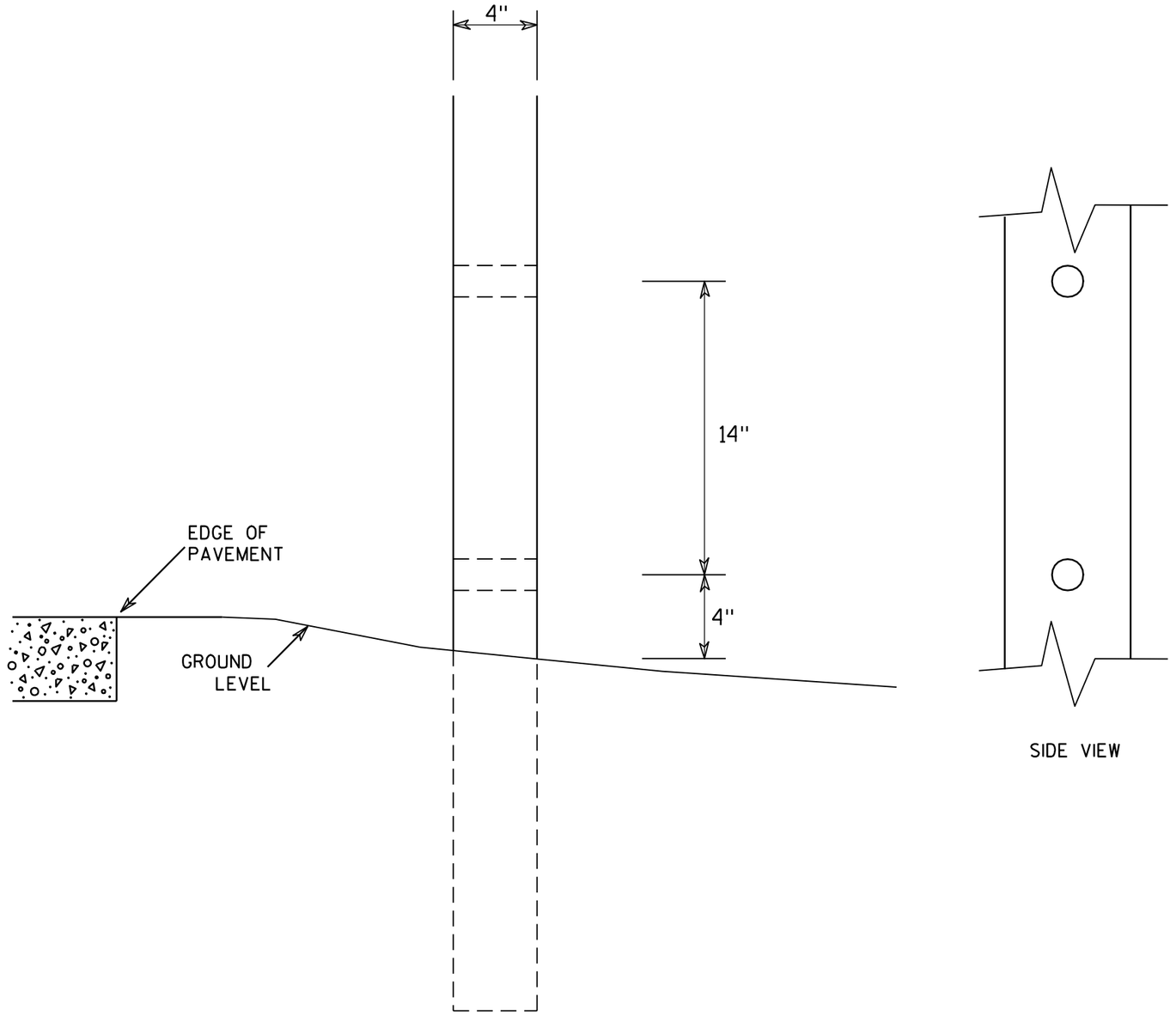
ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

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

PROJECT NO: SHEET NO: E



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.

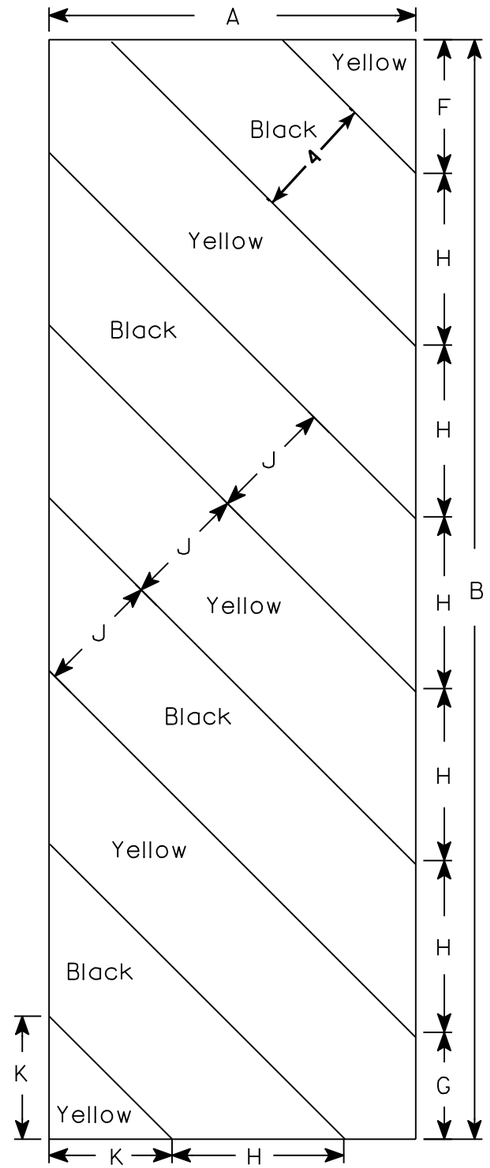
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

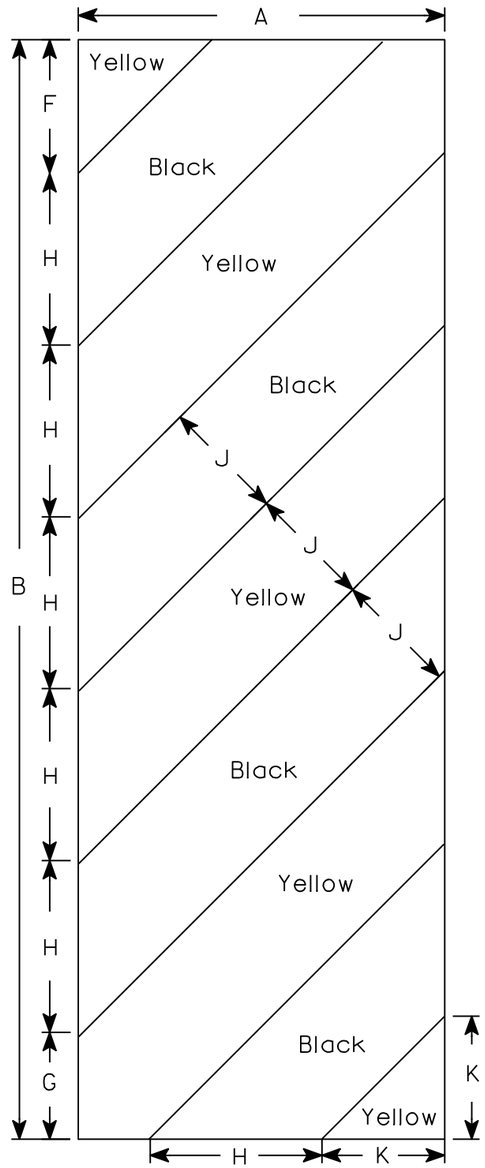
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 23	E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

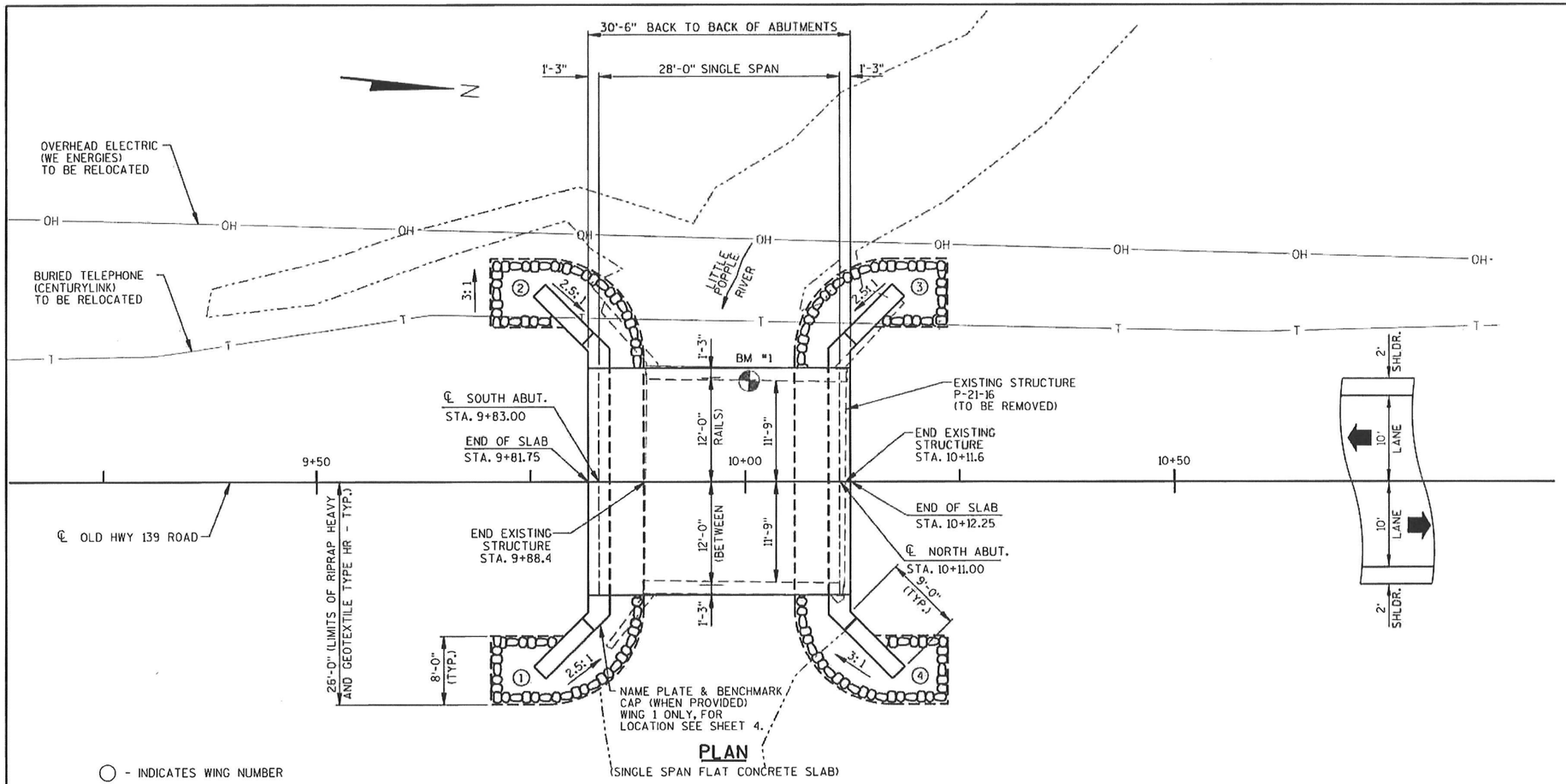
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 24 | E

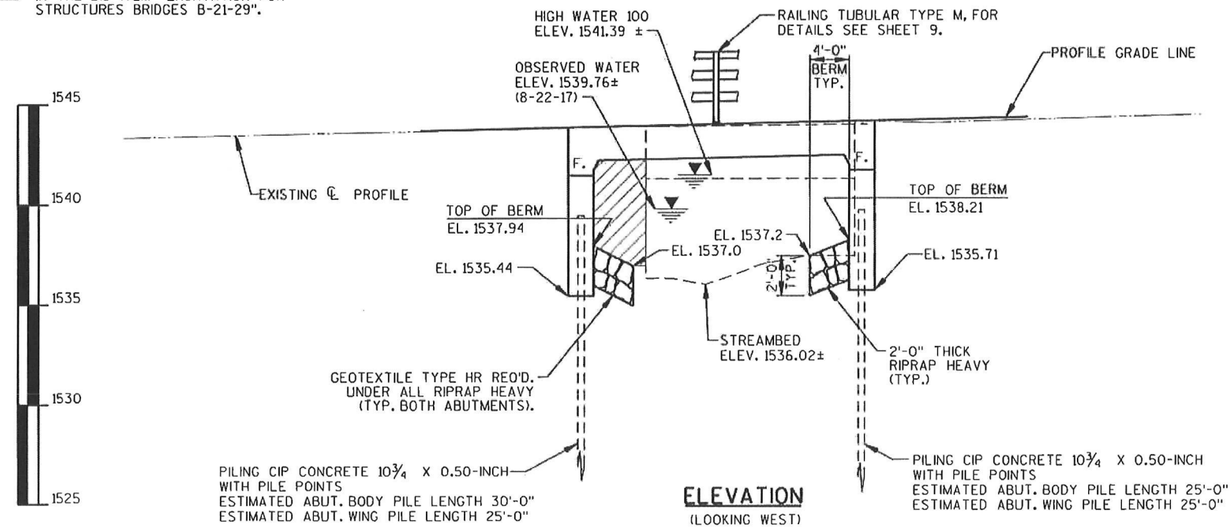


PLAN

(SINGLE SPAN FLAT CONCRETE SLAB)

○ - INDICATES WING NUMBER

▨ - REMOVAL OF THIS MATERIAL IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-21-29".



ELEVATION

(LOOKING WEST)

STATE PROJECT NUMBER
9819-00-70

BENCHMARKS ⊕ NAVD 88

NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	10+00.5, 11.8' LT	CHIS CROSS ON CURB	1544.00
2	11+45.9, 24.7' RT	NAIL IN 16" BIRCH TREE	1547.61
3	6+93.9, 36.2' LT	MONUMENT	1543.63

DESIGN DATA

LIVE LOAD:

DESIGN LOADING : HL-93
INVENTORY RATING FACTOR : 1.14
OPERATIONAL RATING FACTOR : 1.48

TRAFFIC DATA:

A.A.D.T. (2019) = 60
A.A.D.T. (2039) = 80
R.D.S. = 55 MPH

WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS.

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

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

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

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 10¾ X 0.50-INCH WITH PILE POINTS DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 110 TONS ✳ PER PILE AT THE SOUTH ABUTMENT BODY, 55 TONS ✳ PER PILE AT THE SOUTH ABUTMENT WINGS, 90 TONS ✳ PER PILE AT THE NORTH ABUTMENT BODY, 45 TONS ✳ PER PILE AT THE NORTH ABUTMENT WINGS. PILE DRIVING RESISTANCE IS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 30'-0" AT THE SOUTH ABUTMENT BODY, 25'-0" AT THE SOUTH ABUTMENT WINGS, 25'-0" AT THE NORTH ABUTMENT BODY AND 25'-0" AT THE NORTH ABUTMENT WINGS.

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

HYDRAULIC DATA:

100 YEAR FREQUENCY

DRAINAGE AREA	12.8 SQ. MI.
Q_{100}	200 C.F.S.
VELOCITY	2.03 FT./SEC.
WATERWAY AREA	99 SQ. FT.
SCOUR CRITICAL CODE	8
HIGH WATER $_{100}$ ELEVATION	1541.39
Q_2	80 C.F.S.
Q_2 ELEVATION	1540.48
VELOCITY$_2$	1.06 FT./SEC.

ROADWAY OVERFLOW DESIGN FREQUENCY

OVERTOPPING FREQUENCY — > 100 YEARS

LIST OF DRAWINGS

CONSULTANT DESIGN CONTACT:
JOLIE SNYDER
(608) 355-8912

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608) 266-8489

WISCONSIN PROFESSIONAL ENGINEER
JOLIE A. SNYDER
E-45364
LODI
WI

John A. Snyder
8/29/18

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com
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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR — 12/05/18
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-21-29

OLD HWY 139 ROAD OVER LITTLE POPPLE RIVER

COUNTY	TOWN/~~CITY/VILLAGE~~
FOREST	POPPLE RIVER

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
KHB	JAS	RLR	JAS

GENERAL PLAN

SHEET 1 OF 9

25

FILE= 18089000_01.DGN
DATE= 8/27/2018

8

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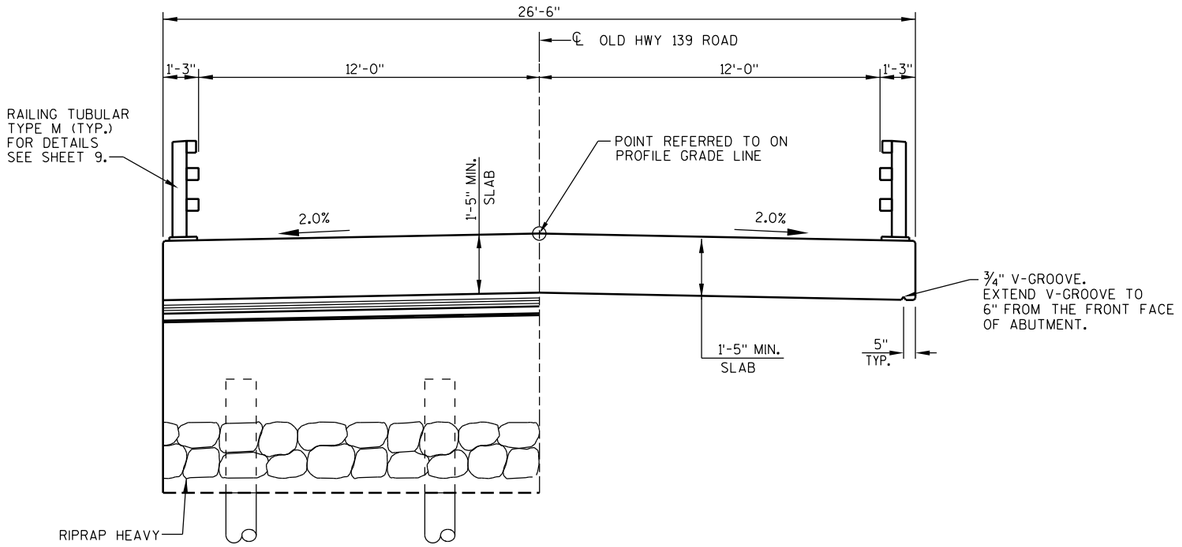


AT ABUTMENTS IN SPAN

CROSS SECTION THRU BRIDGE

(LOOKING NORTH)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

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

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE ABUTMENTS.

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

THIS STRUCTURE WILL REPLACE EXISTING STRUCTURE P-21-16, A 23.2 FT. LONG CONCRETE DECK GIRDER BRIDGE SUPPORTED ON FULL RETAINING CONCRETE ABUTMENTS WITH A 23.5 FT. CLEAR ROADWAY WIDTH.

Ⓑ -BACKFILL PAY LIMITS, BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

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 THE ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

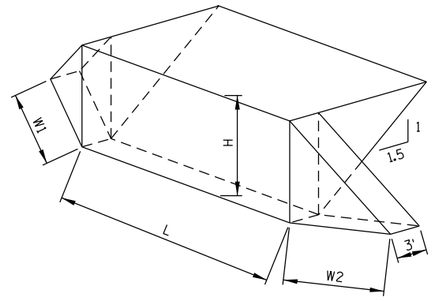
AT THE BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.

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

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

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EDGES OF SLAB, TO THE OUTSIDE 1'-0" OF THE UNDERSIDE OF SLAB, TO THE TOPS OF WINGS, TO THE EXPOSED EXTERIOR FACES OF WINGS, AND TO THE END 1'-0" OF THE FRONT FACE OF ABUTMENTS.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NAVD 88 (2012 ADJUSTED). BENCHMARK REFERENCES AT THE PROJECT SITE WERE SET BY THE CONSULTANT USING GPS TECHNOLOGY.

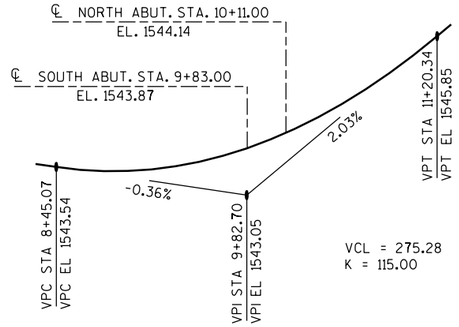


ABUTMENT BACKFILL DIAGRAM

L = OUT-TO-OUT OF ABUTMENT
H = AVERAGE ABUTMENT FILL HEIGHT
W1 = WING 1 LENGTH
W2 = WING 2 LENGTH

$V_{CF} = (L)(3.0')(H)+(L)(0.5)(1.5H)(H)+(0.5)(H)(W1+W2)(3.0')$

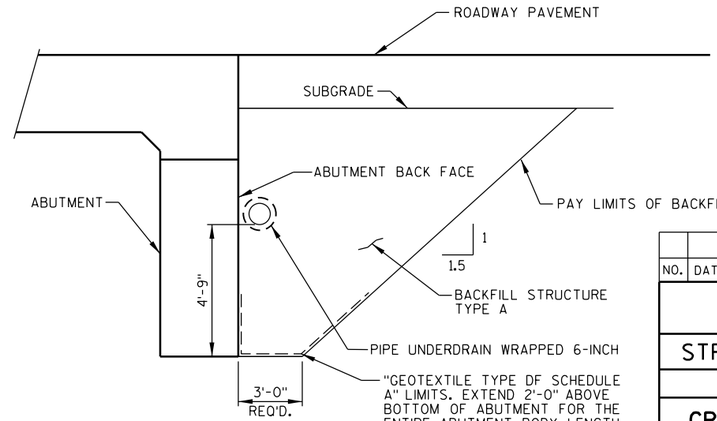
$V_{TON} = V_{CF}(2.0)/27$



PROFILE GRADE LINE - OLD HWY 139 ROAD

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	NORTH ABUT.	SUPER	TOTAL
203.0600.S.01	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-21-29	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	160	160	-	320
502.0100	CONCRETE MASONRY BRIDGES	CY	29	29	46	104
502.3200	PROTECTIVE SURFACE TREATMENT	SY	17	17	105	139
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2070	2070	-	4140
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1465	1465	8600	11530
513.4061.01	RAILING TUBULAR TYPE M B-21-29	LF	-	-	64	64
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	5.5	5.5	-	11
550.0500	PILE POINTS	EACH	6	7	-	13
5520.2108	PILING CIP CONCRETE 10 3/4 X 0.50-INCH	LF	170	175	-	345
606.0300	RIPRAP HEAVY	CY	30	30	-	60
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	60	60	-	120
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	45	45	-	90
645.0120	GEOTEXTILE TYPE HR	SY	80	80	-	160
	NON-BID ITEMS					
	PREFORMED FILLER	SIZE				½" & ¾"



STRUCTURE BACKFILL DETAIL

STATE PROJECT NUMBER

9819-00-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

CROSS SECTION, QUANTITIES & NOTES

SHEET 2 OF 9

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FILE= 18089000_02.DGN
DATE= 8/27/2018

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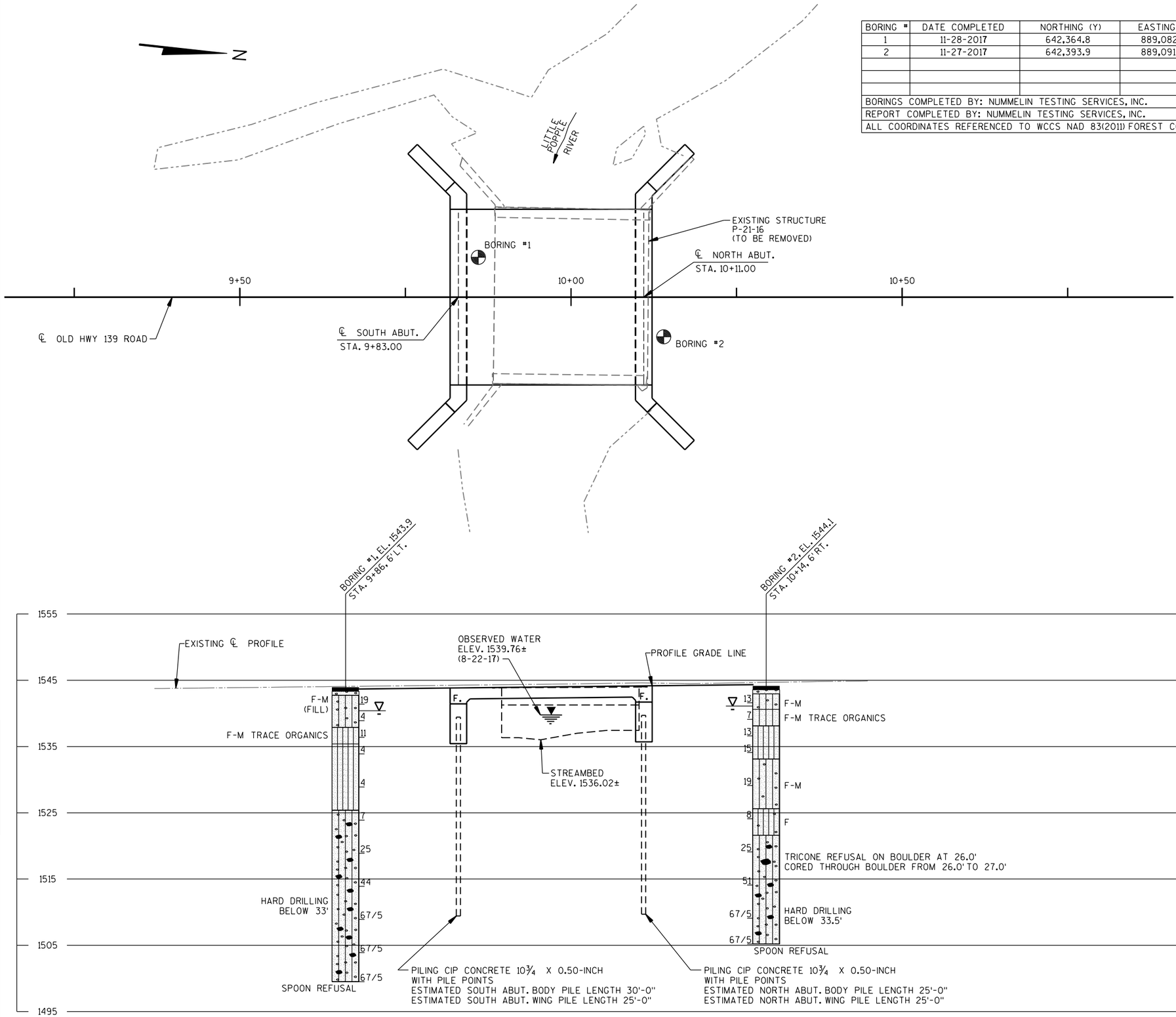
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	11-28-2017	642,364.8	889,082.3
2	11-27-2017	642,393.9	889,091.2
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) FOREST COUNTY			



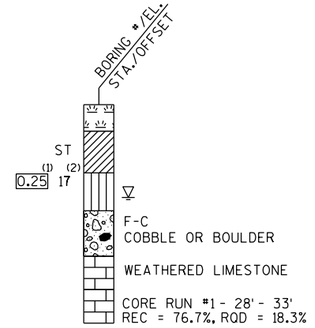
STATE PROJECT NUMBER

9819-00-70

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-21-29

DRAWN BY	PLANS CK'D.
RLR	JAS

SUBSURFACE EXPLORATION

SHEET 3 OF 9
27

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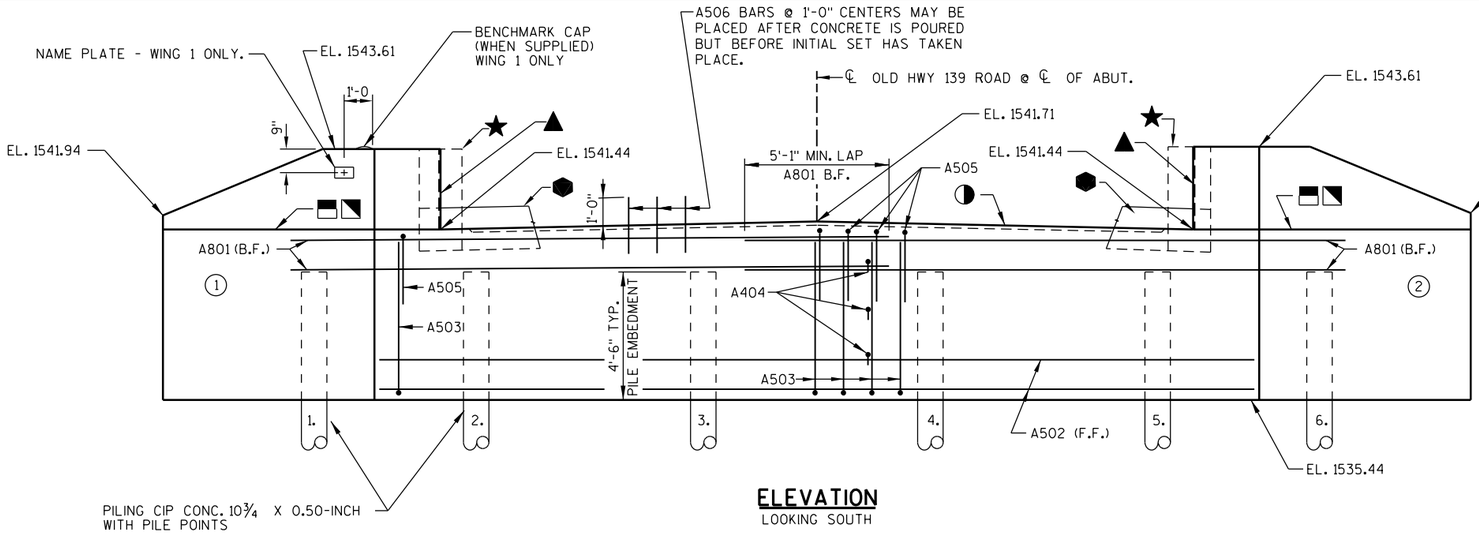
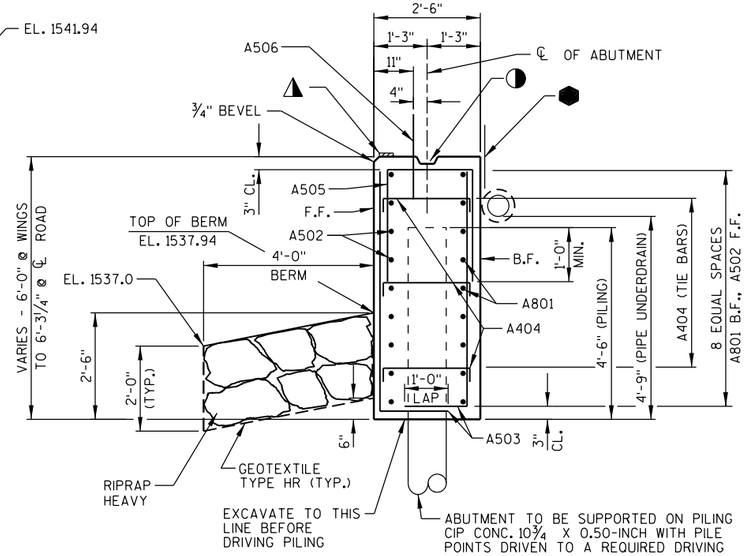
STATE PROJECT NUMBER

9819-00-70

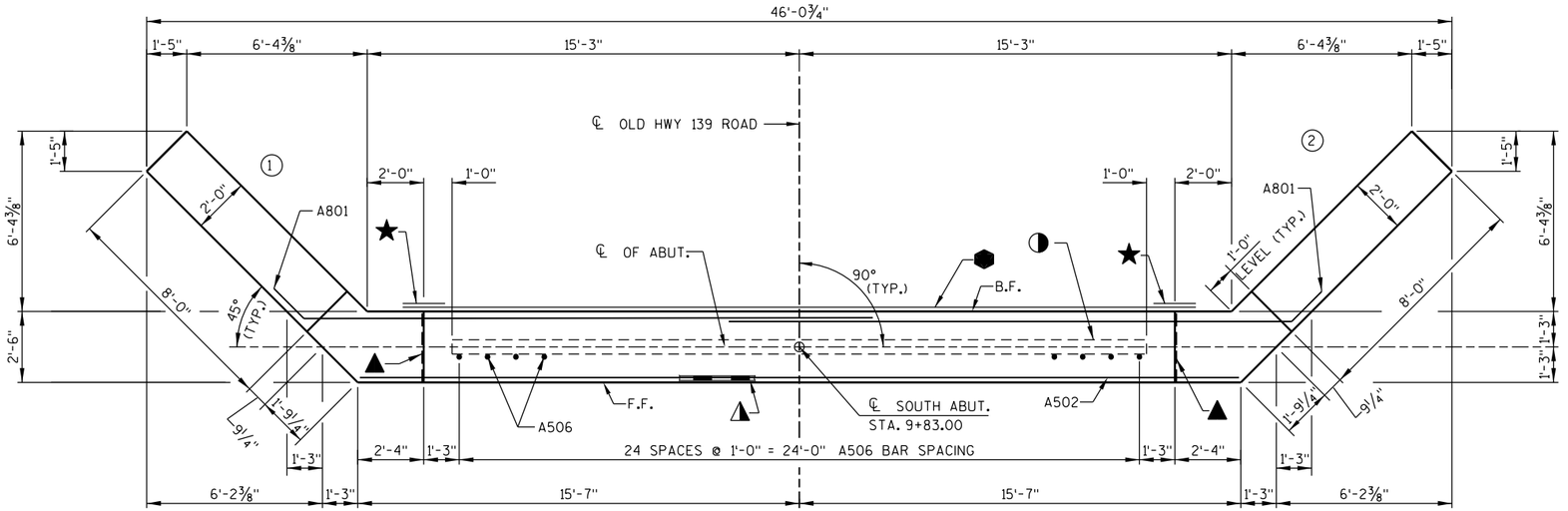


ELEVATION
LOOKING SOUTH

FOR WING DETAILS SEE SHEET 5.



ABUTMENT TO BE SUPPORTED ON PILING CIP CONC. 10¾ X 0.50-INCH WITH PILE POINTS DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER ABUTMENT BODY PILE AND 55 TONS PER WING PILE, AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 30'-0" IN THE ABUT. BODY AND 25'-0" IN THE WINGS. SEE SHEET 7 FOR PILE SPLICE DETAILS.



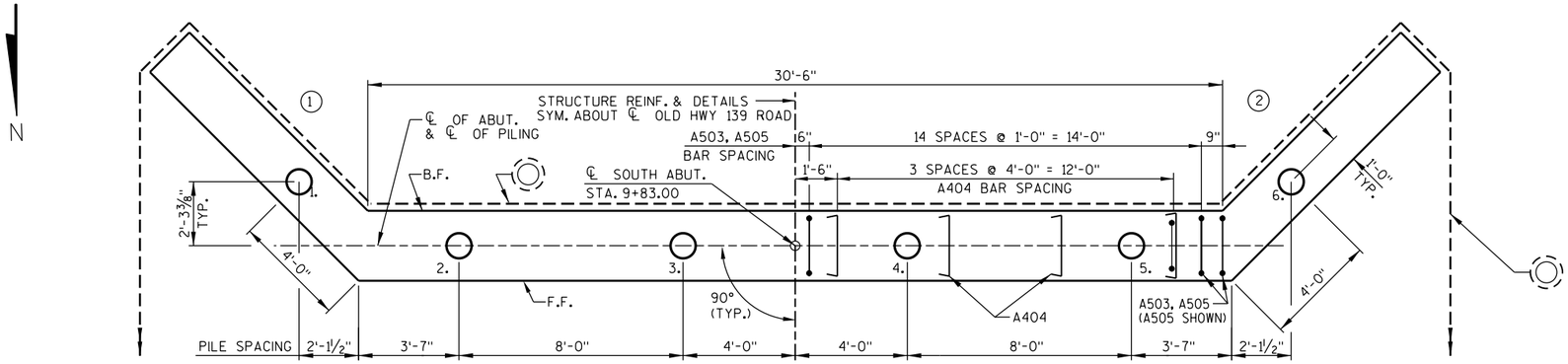
PLAN

TYPICAL SECTION THRU ABUTMENT

LEGEND

- ◯ — INDICATES WING NUMBER
- ◑ — KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- ▲ — ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).
- ◭ — 4"× ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- ★ — VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- ⬢ — HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS.
- ◨ — OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2 X 6. IF JOINT IS USED, PLACE ⬢ ON B.F. OF WING. COST OF ⬢ IS INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".
- ◹ — ¾" "V" GROOVE ON FRONT FACE OF WING WALL, REQUIRED ONLY WHERE CONSTRUCTION JOINT IS USED.
- ◎ — PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE TYPE HR AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE. FOR RODENT SHIELD DETAILS, SEE SHEET 5.

F.F. — FRONT FACE B.F. — BACK FACE CL. — CLEAR



PILE PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

SOUTH ABUTMENT

SHEET 4 OF 9
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DATE= 8/13/2018

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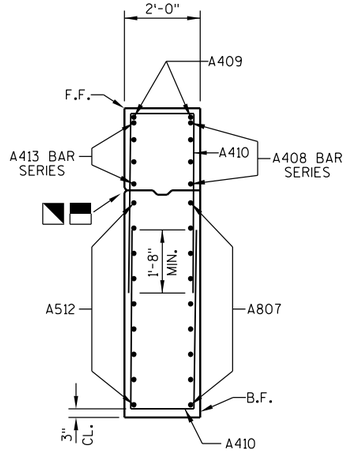
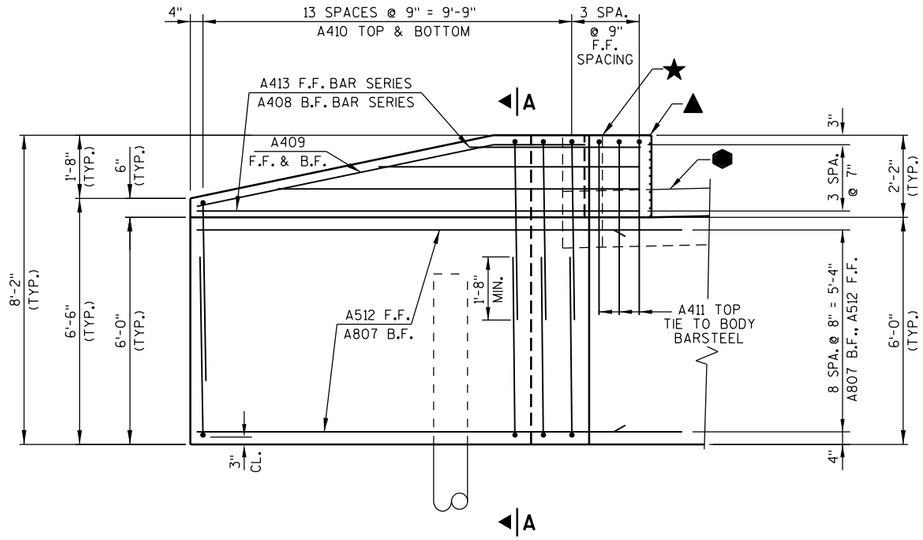
STATE PROJECT NUMBER
9819-00-70



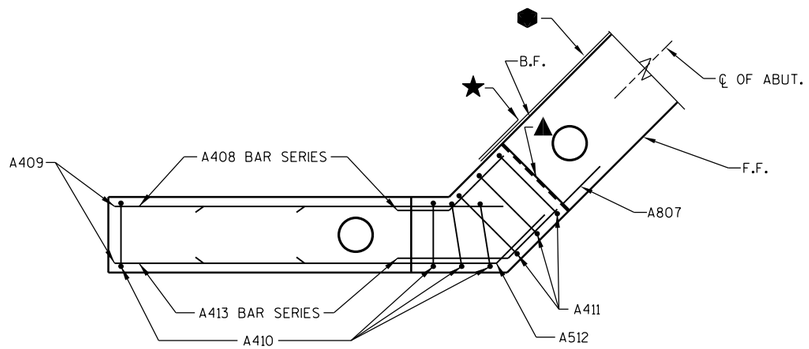
SECTION A-A THRU WING



ELEVATION

(LOOKING AT F.F. OF WING)

NOTE:
WING 1 SHOWN.
WING 2 SIMILAR.



PLAN

BILL OF BARS (SOUTH ABUT.)

UNCOATED 2070 LBS.
COATED 1465 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	BAR SERIES	LOCATION
A801	-	18	21'-6"	X		ABUTMENT BODY - B.F. - HORIZ.
A502	-	9	31'-0"			ABUTMENT BODY - F.F. - HORIZ.
A503	-	64	7'-0"	X		ABUTMENT BODY - F.F. & B.F. - VERT.
A404	-	24	2'-9"	X		ABUTMENT BODY - TIES - HORIZ.
A505	-	32	7'-1"	X		ABUTMENT BODY - TOP - VERT.
A506	25	-	2'-0"			ABUTMENT BODY - TOP - DOWEL - VERT.
A807	18	-	13'-2"	X		WINGS - B.F. - HORIZ.
A408	8	-	6'-10"	X	Ⓢ	WINGS - B.F. - HORIZ.
A409	4	-	10'-5"	X		WINGS - F.F. & B.F. - TOP - HORIZ.
A410	56	-	11'-0"	X		WINGS - TOP & BOTTOM - VERT.
A411	6	-	10'-0"	X		WINGS - TOP - VERT.
A512	18	-	11'-8"	X		WINGS - F.F. - HORIZ.
A413	8	-	8'-4"	X	Ⓢ	WINGS - F.F. - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

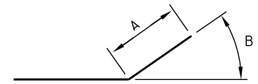
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BENT BARS IF USED IN BAR SERIES TABLE SHALL BE BENT AFTER CUTTING.

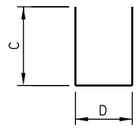
BAR MARK	NO. REQ'D.	LENGTH
A408	2 SERIES OF 4	2'-11" TO 10'-9"
A413	2 SERIES OF 4	4'-5" TO 12'-3"

BAR SERIES TABLE

A503



MARK	A	B
A801 A807 A512	1'-6"	45°
A408	1'-10"	45°
A409	2'-5"	13°
A413	2'-0"	45°

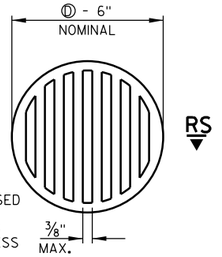


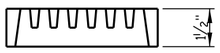
MARK	C	D
A404	4½"	2'-2"
A505	2'-7"	2'-2"
A410	4'-9"	1'-8"
A411	4'-0"	2'-2"

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER.
A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD, PIPE COUPLING AND SCREWS, SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".





SECTION RS-RS

RODENT SHIELD

Ⓓ - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

SEE LEGEND ON SHEET 4 FOR DESCRIPTION OF ★ ⬢ ◪ ◨ ▲

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

SOUTH ABUTMENT DETAILS

SHEET 5 OF 9
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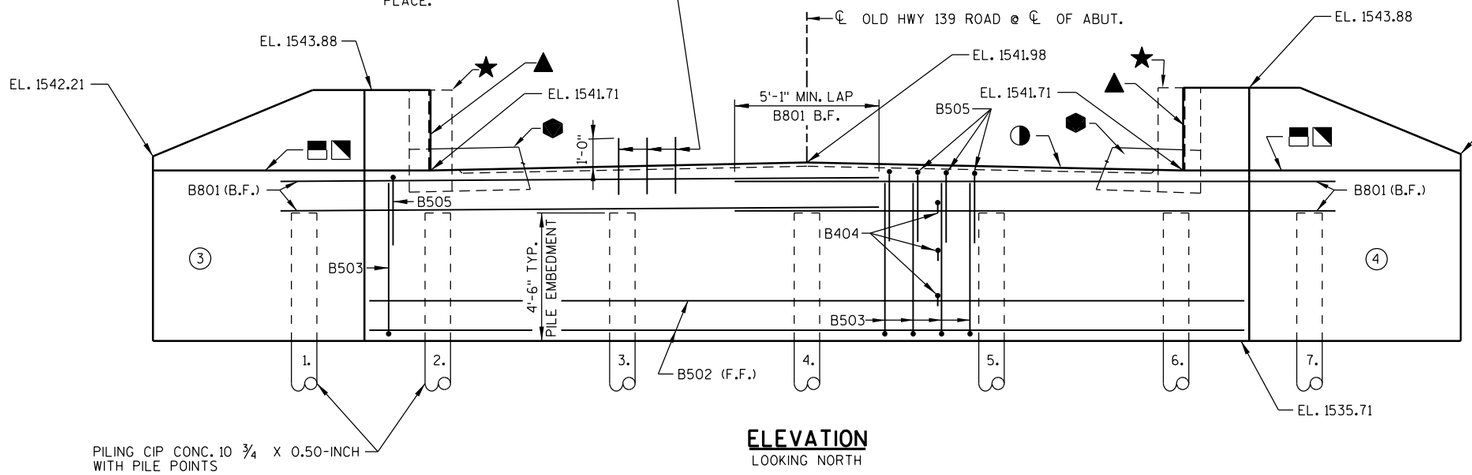
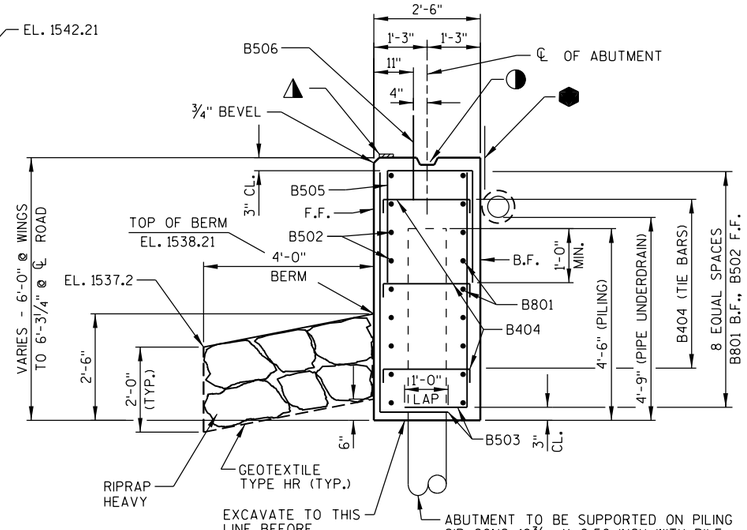
B506 BARS @ 1'-0" CENTERS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.



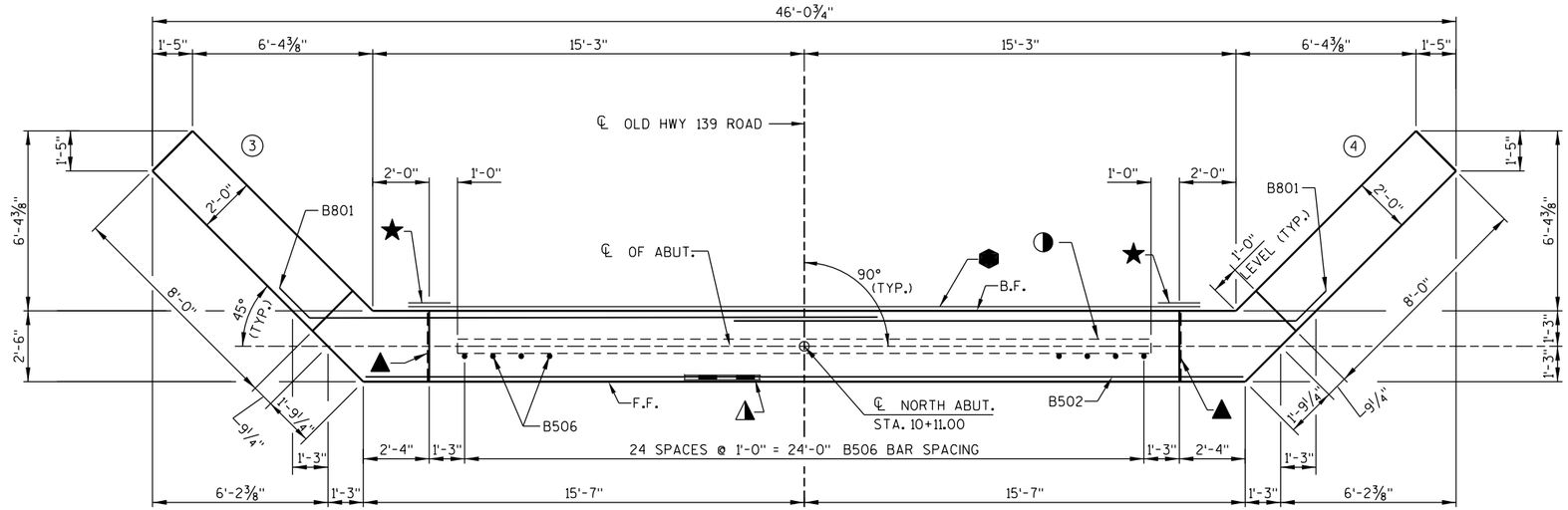
PILING CIP CONC. 10 ¾ X 0.50-INCH WITH PILE POINTS

ELEVATION
LOOKING NORTH

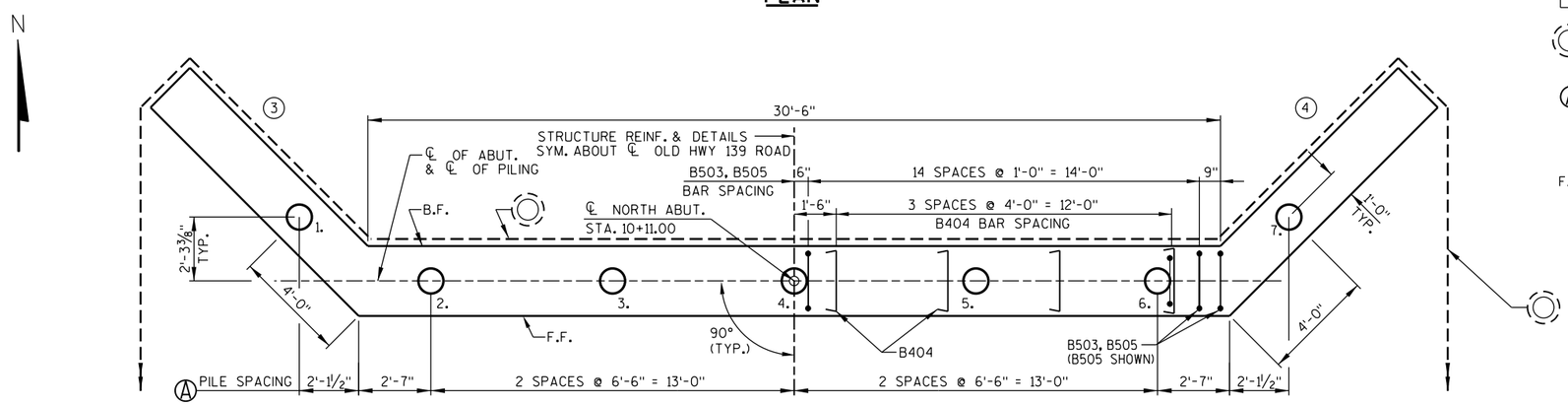
FOR WING DETAILS SEE SHEET 7.



ABUTMENT TO BE SUPPORTED ON PILING CIP CONC. 10¾ X 0.50-INCH WITH PILE POINTS DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 90 TONS PER ABUTMENT BODY PILE AND 45 TONS PER WING PILE, AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 25'-0" IN THE ABUT. BODY AND 25'-0" IN THE WINGS. SEE SHEET 7 FOR PILE SPLICE DETAILS.



PLAN



PILE PLAN

TYPICAL SECTION THRU ABUTMENT

LEGEND

- ◯ — INDICATES WING NUMBER
- ◑ — KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- ▲ — ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).
- ◭ — 4"× ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- ★ — VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- ⬢ — HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS.
- ◧ — OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2 X 6. IF JOINT IS USED, PLACE ⬢ ON B.F. OF WING. COST OF ⬢ IS INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".
- ◥ — ¾" "V" GROOVE ON FRONT FACE OF WING WALL, REQUIRED ONLY WHERE CONSTRUCTION JOINT IS USED.
- ◎ — PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE TYPE HR AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE. FOR RODENT SHIELD DETAILS, SEE SHEET 5.
- Ⓐ — EXISTING FOUNDATION TYPE IS UNKNOWN. IF EXISTING PILING ARE PRESENT AND THEY CONFLICT WITH THE NEW PILES, ADJUST THE LOCATION OF THE NEW PILES WITHIN A 2'-6" MINIMUM PILE SPACING AND AN 8'-0" MAXIMUM PILE SPACING. KEEP PILES 2 AND 6 BETWEEN A MINIMUM OF 2-0" AND A MAXIMUM OF 3'-3" FROM THE ABUTMENT F.F. CORNERS.

F.F. — FRONT FACE B.F. — BACK FACE CL. — CLEAR

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

NORTH ABUTMENT

SHEET 6 OF 9
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DATE= 8/13/2018

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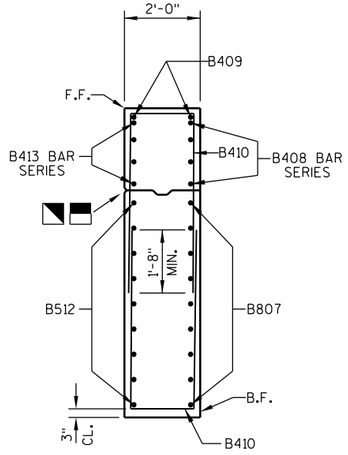
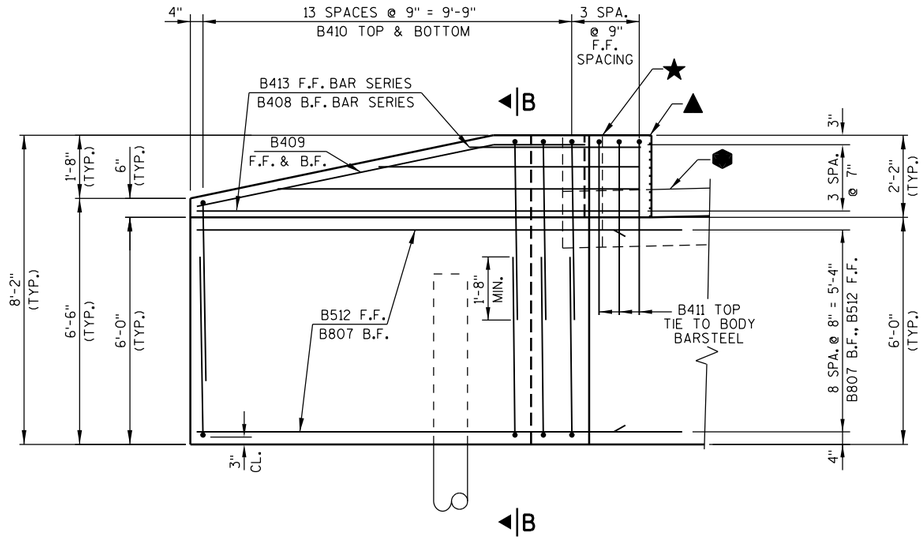
STATE PROJECT NUMBER
9819-00-70

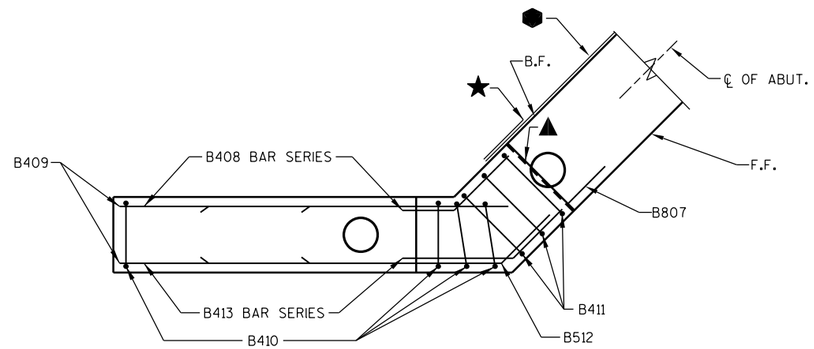


SECTION B-B THRU WING



ELEVATION
(LOOKING AT F.F. OF WING)

NOTE:
WING 3 SHOWN,
WING 4 SIMILAR.



PLAN

BILL OF BARS (NORTH ABUT.)

UNCOATED 2070 LBS.
COATED 1465 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	BAR SERIES	LOCATION
B801	-	18	21'-6"	X		ABUTMENT BODY - B.F. - HORIZ.
B502	-	9	31'-0"			ABUTMENT BODY - F.F. - HORIZ.
B503	-	64	7'-0"	X		ABUTMENT BODY - F.F. & B.F. - VERT.
B404	-	24	2'-9"	X		ABUTMENT BODY - TIES - HORIZ.
B505	-	32	7'-1"	X		ABUTMENT BODY - TOP - VERT.
B506	25	-	2'-0"			ABUTMENT BODY - TOP - DOWEL - VERT.
B807	18	-	13'-2"	X		WINGS - B.F. - HORIZ.
B408	8	-	6'-10"	X	Ⓢ	WINGS - B.F. - HORIZ.
B409	4	-	10'-5"	X		WINGS - F.F. & B.F. - TOP - HORIZ.
B410	56	-	11'-0"	X		WINGS - TOP & BOTTOM - VERT.
B411	6	-	10'-0"	X		WINGS - TOP - VERT.
B512	18	-	11'-8"	X		WINGS - F.F. - HORIZ.
B413	8	-	8'-4"	X	Ⓢ	WINGS - F.F. - HORIZ.

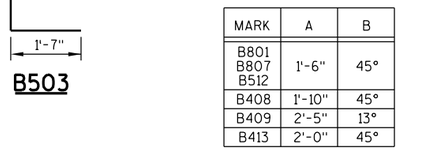
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

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

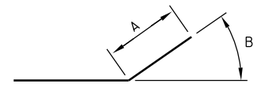
BENT BARS IF USED IN BAR SERIES TABLE SHALL BE BENT AFTER CUTTING.

BAR MARK	NO. REQ'D.	LENGTH
B408	2 SERIES OF 4	2'-11" TO 10'-9"
B413	2 SERIES OF 4	4'-5" TO 12'-3"

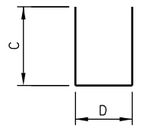
BAR SERIES TABLE



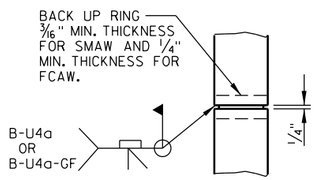
B503



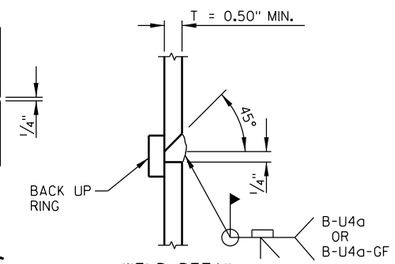
MARK	A	B
B801 B807 B512	1'-6"	45°
B408	1'-10"	45°
B409	2'-5"	13°
B413	2'-0"	45°



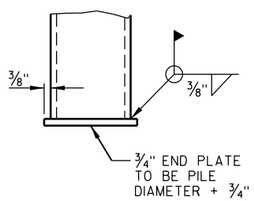
MARK	C	D
B404	4½"	2'-2"
B505	2'-7"	2'-2"
B410	4'-9"	1'-8"
B411	4'-0"	2'-2"



PILE SPLICE DETAILS



WELD DETAIL



END PLATE DETAIL

SEE LEGEND ON SHEET 6 FOR DESCRIPTION OF ★ ⬢ ◪ ▬ ▲

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

NORTH ABUTMENT DETAILS

SHEET 7 OF 9
31

FILE= 18089000_07.DGN
DATE= 8/27/2018

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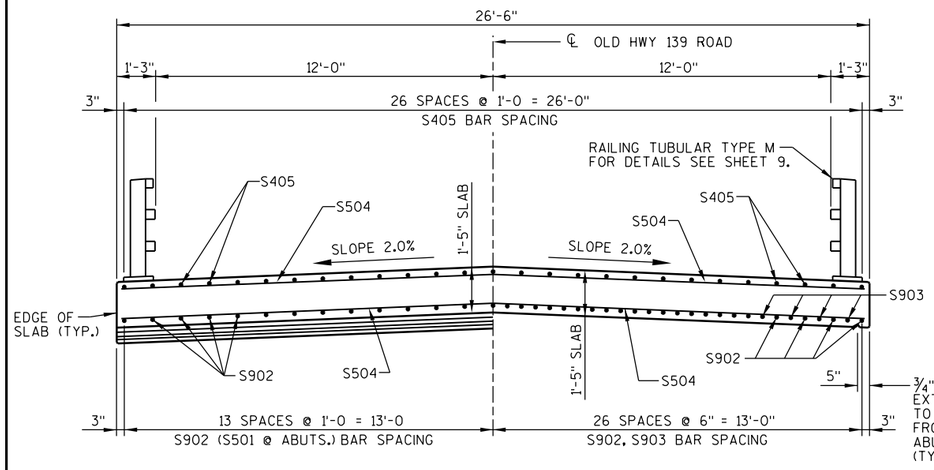
8

STATE PROJECT NUMBER

9819-00-70



AT ABUTMENTS IN SPAN

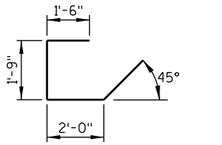
CROSS SECTION THRU BRIDGE

(LOOKING NORTH)

BILL OF BARS (COATED) 8,600 LBS.

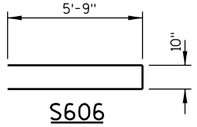
MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	54	7'-1"	X	DIAPHRAGM @ ABUTS. - LONGIT.
S902	27	30'-2"		SLAB BOTTOM - LONGIT.
S903	26	22'-0"		SLAB BOTTOM - LONGIT.
S504	76	26'-2"		SLAB TOP & BOTTOM - TRANS.
S405	27	30'-2"		SLAB TOP - LONGIT.
S606	24	12'-0"	X	SLAB TOP @ RAIL POST, 2 PER POST
S607	32	6'-0"		SLAB TOP @ RAIL POST, 4 PER POST
S608	16	6'-0"	X	SLAB TOP @ RAIL END POST AS NOTED

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL REINFORCEMENT.

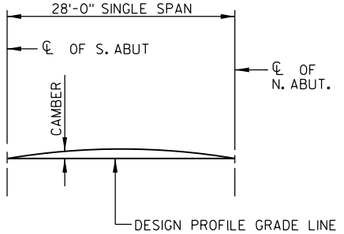


S501

S608



S606



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN ABOVE AND IN THE TABLE OF VALUES TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

GENERAL NOTES

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

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

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	SPAN POINT	EAST SLAB EDGE	C/L OLD HWY 139 ROAD	WEST SLAB EDGE
SOUTH ABUT.	1.0			
	1.5			
NORTH ABUT.	2.0			

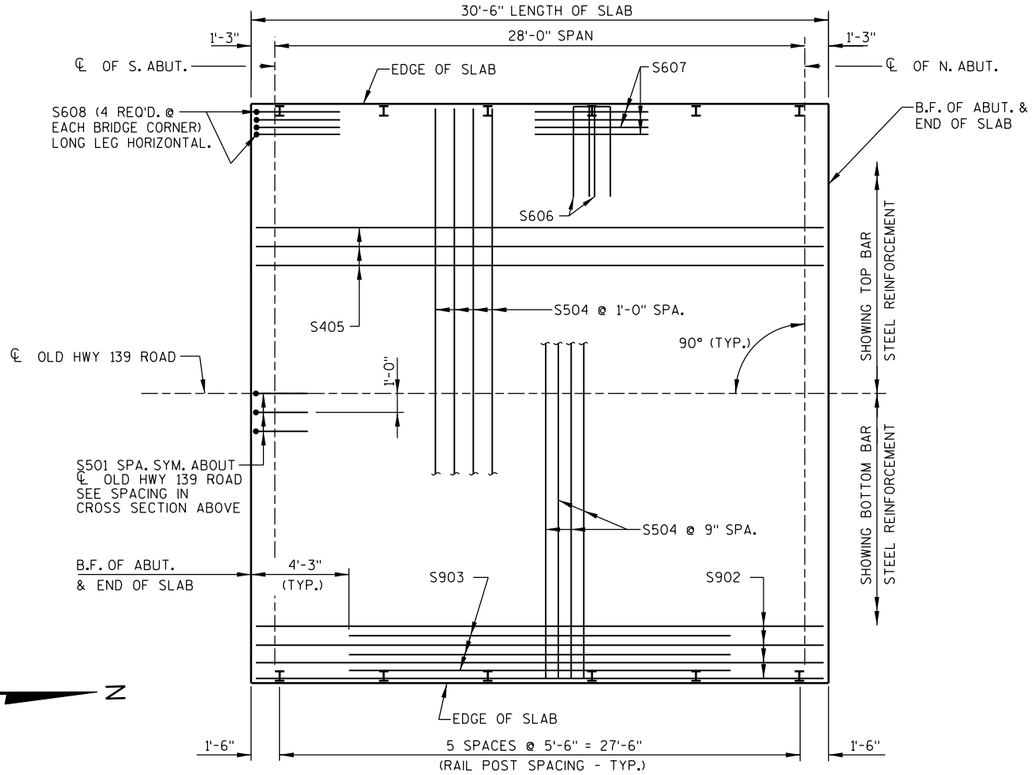
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS AND AT THE 0.5 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℄. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE, FOLLOW THIS PROCEDURE:

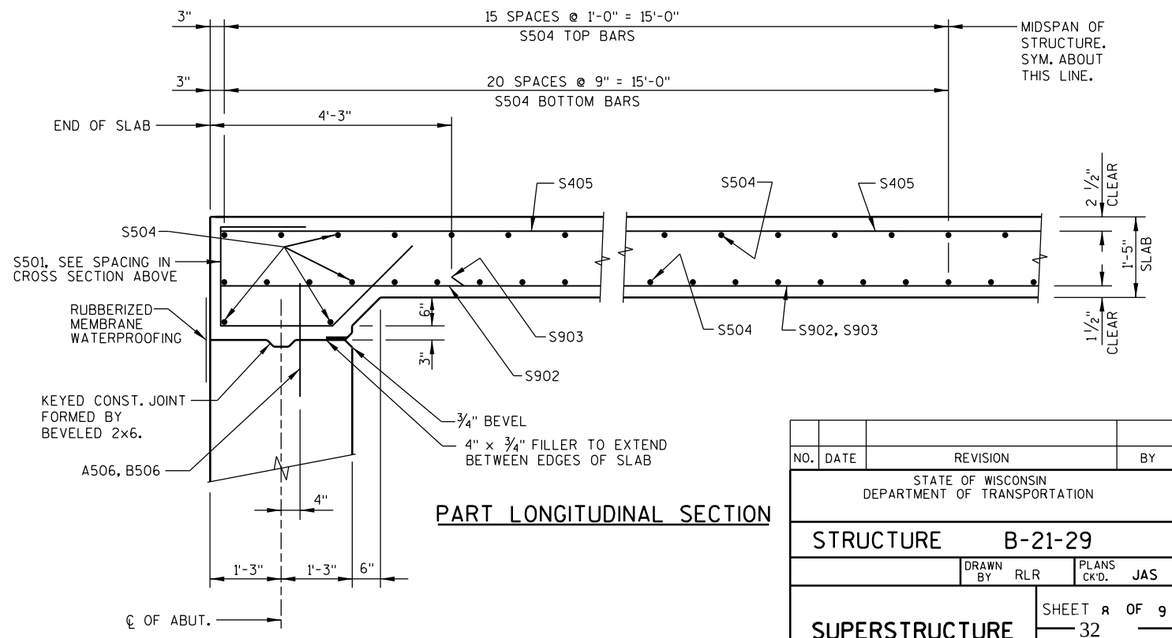
TOP OF SLAB ELEVATION AT FINAL GRADE
- SLAB THICKNESS
+ CAMBER
+ FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
= TOP OF SLAB FALSEWORK ELEVATION

TOP OF SLAB ELEVATIONS AND CAMBER VALUES

LOCATION	SPAN POINT	EAST SLAB EDGE	C/L OLD HWY 139 ROAD	WEST SLAB EDGE	CAMBER VALUE (INCHES)
SOUTH ABUT.	**1.0**	1543.61	1543.87	1543.61	0.0
	1.1	1543.63	1543.90	1543.63	0.2
	1.2	1543.66	1543.92	1543.66	0.3
	1.3	1543.68	1543.95	1543.68	0.4
	1.4	1543.71	1543.97	1543.71	0.5
	1.5	1543.73	1544.00	1543.73	0.5
	1.6	1543.76	1544.03	1543.76	0.5
	1.7	1543.79	1544.06	1543.79	0.4
	1.8	1543.82	1544.08	1543.82	0.3
	1.9	1543.85	1544.11	1543.85	0.2
NORTH ABUT.	**2.0**	1543.88	1544.14	1543.88	0.0



PLAN



PART LONGITUDINAL SECTION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

SUPERSTRUCTURE

SHEET 8 OF 9
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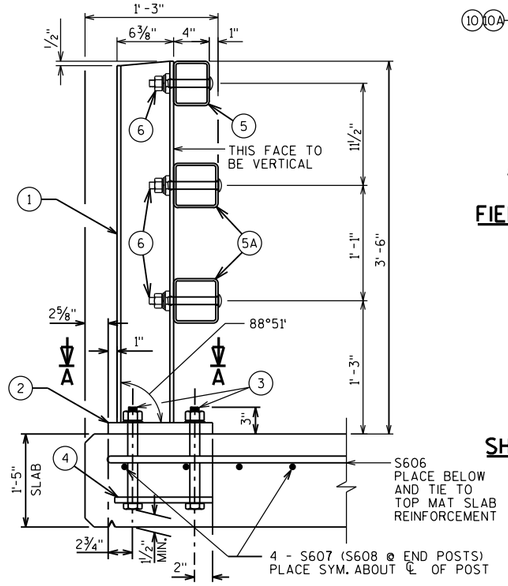
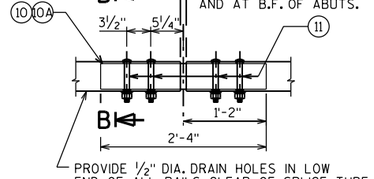
FILE= 18089000_08.DGN
DATE= 8/13/2018

STATE PROJECT NUMBER

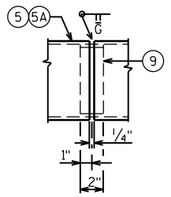
9819-00-70



SECTION THRU RAILING ON SLAB

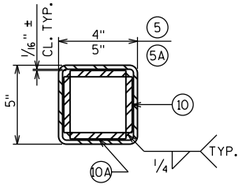


FIELD ERECTION JOINT DETAIL

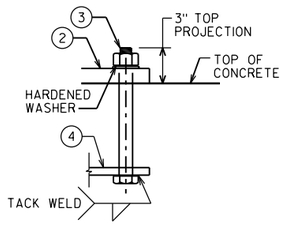


SHOP RAIL SPLICE DETAIL

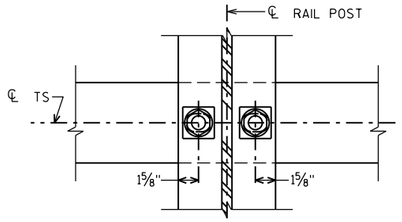
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



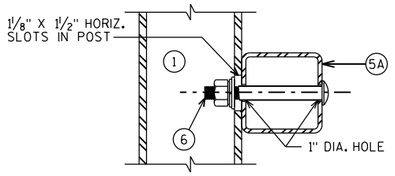
SECTION B-B



ANCHOR BOLTS



SECTION THRU POST WEB



SECTION THRU RAIL

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

TYPICAL RAIL TO POST CONNECTIONS

LEGEND

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

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

(3) ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-3" LONG IN SLAB STRUCTURE.

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

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

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

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

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

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

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

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

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

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

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

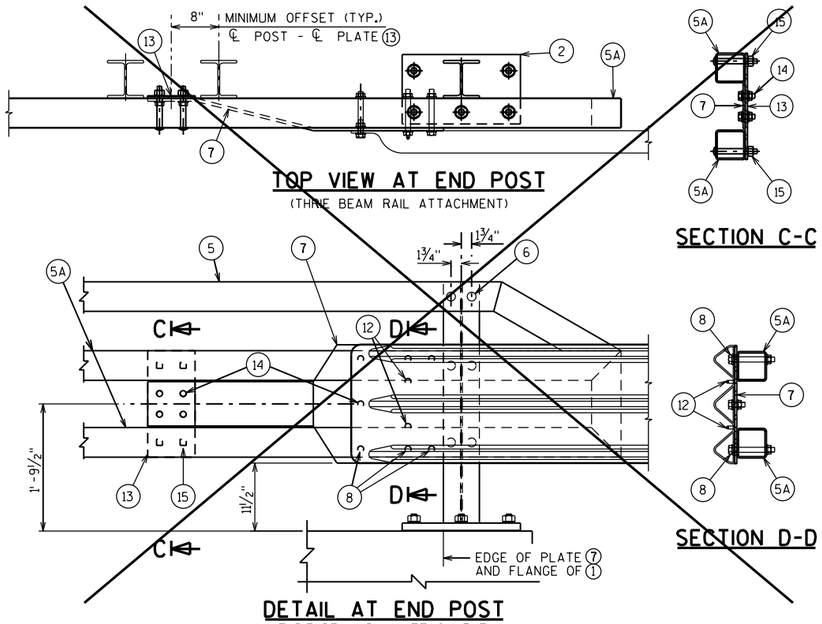
✳ (13) 3/8" X 8" X 1'-6" ANCHOR PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

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

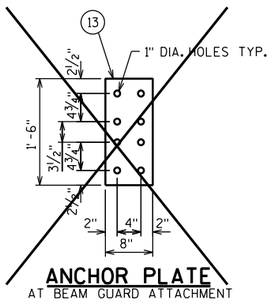
✳ (15) 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-21-29" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. PAINTING IS NOT REQUIRED.
11. THIS RAILING MEETS AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE FOR TEST LEVEL 2 (TL-2).
12. ✳ DO NOT FURNISH ITEMS (7), (8), (12), (13), (14) AND (15). THRIE BEAM RAIL ATTACHMENT IS NOT INCLUDED.

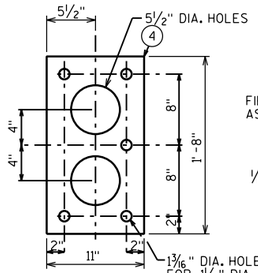


SECTION A-A



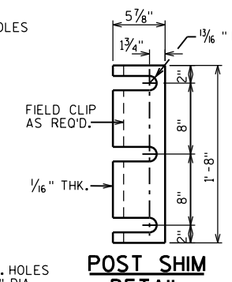
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

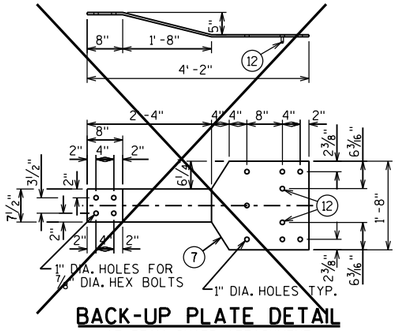


ANCHOR PLATE

AT RAIL TO SLAB ATTACHMENT

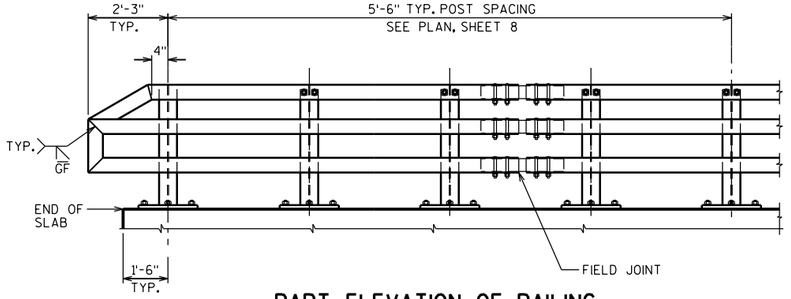


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-29

DRAWN BY RLR | PLANS CK'D. JAS

RAILING TUBULAR TYPE M

SHEET 9 OF 9

33

FILE= 18089000_09.DGN
DATE= 8/27/2018

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PROJECT I.D. 9819-00-70 EARTHWORK SUMMARY

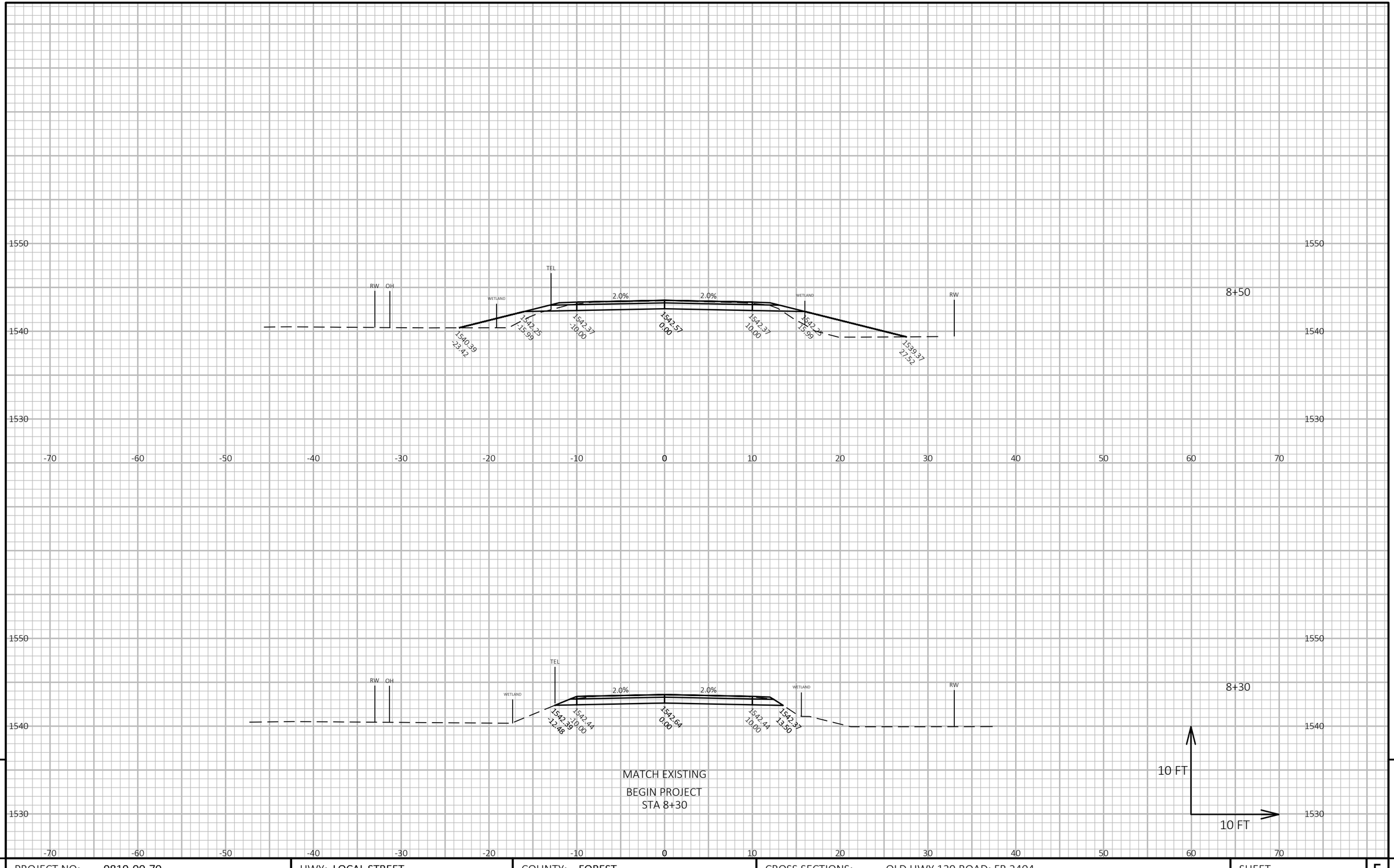
STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
8+30.00						
	16	0	9	12	4	-4
8+50.00						
	36	0	38	49	-13	13
9+00.00						
	33	0	31	40	-7	7
9+50.00						
	21	0	20	26	-5	5
9+81.75						
STRUCTURE B-21-29						
10+12.25						
	28	0	20	26	2	-2
10+50.00						
	38	0	14	18	20	-20
11+00.00						
	43	0	0	0	43	-43
11+45.00						
	14	0	0	0	14	-14
11+60.00						
SUBTOTALS						
SOUTH APPROACH	106	0	98	127	-21	21
NORTH APPROACH	123	0	34	44	79	-79
UNUSABLE PAVEMENT (3)						105
TOTALS	**229**	**0**	**132**	**171**	**58**	**47**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 30%
(3) - EXISTING PAVEMENT BASED ON AVE THK OF 6.5" OF ASPHALT PER BORING LOG.

9

9

FILE NAME : P:\18000S\18080S\18089\18089000\CADD\SHEETSPLAN\090101_EW.DWG
LAYOUT NAME - 090101_EW
PLOT DATE : 9/25/2018 10:37 AM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



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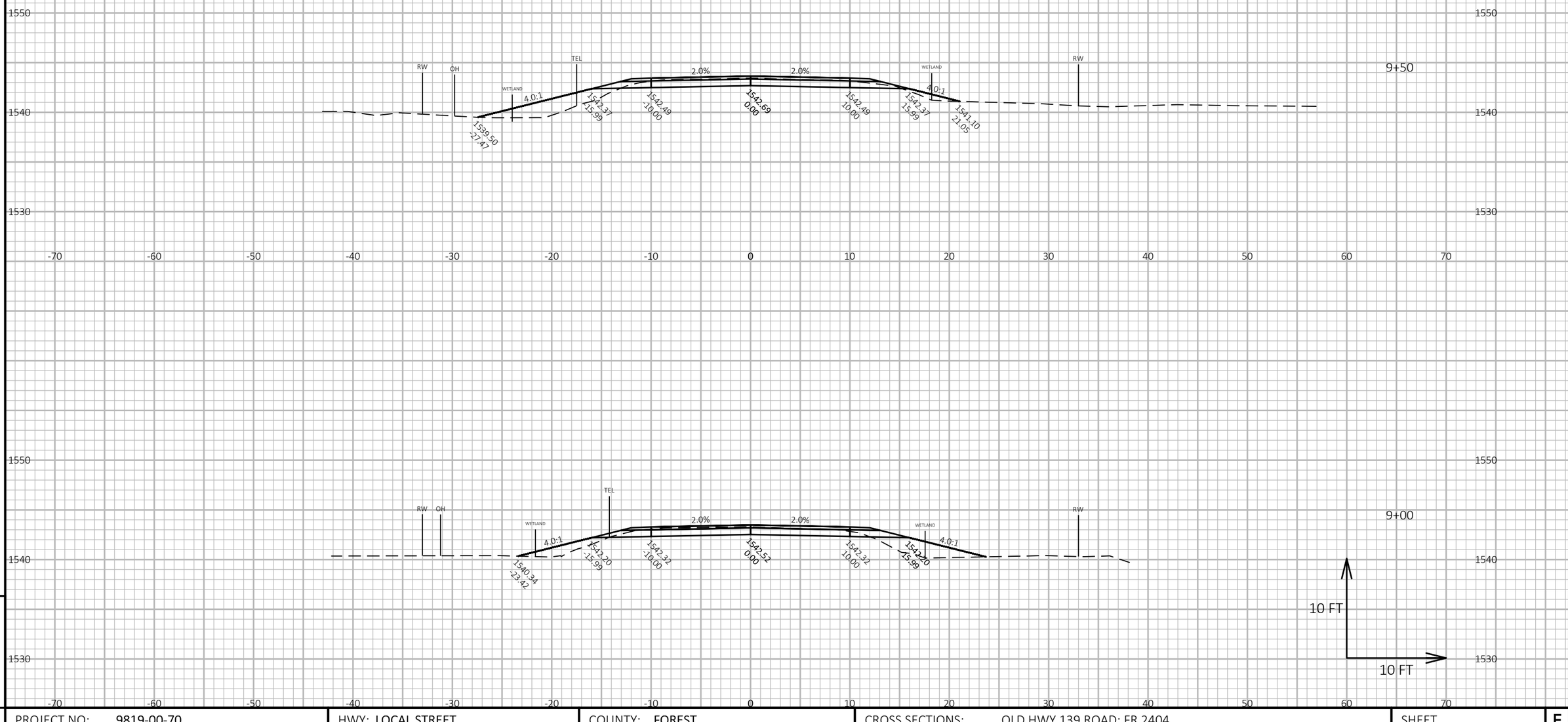
PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	CROSS SECTIONS: OLD HWY 139 ROAD; FR 2404	SHEET 35	E

FILE NAME : P:\180005\180805\18089\18089000\CADD\DESIGN\CORRIDORS\18089000 CORRIDOR-POPPLE RIVER.DWG
LAYOUT NAME - 090201_xs

PLOT DATE : 9/25/2018 10:37 AM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

STRUCTURE
B-21-29

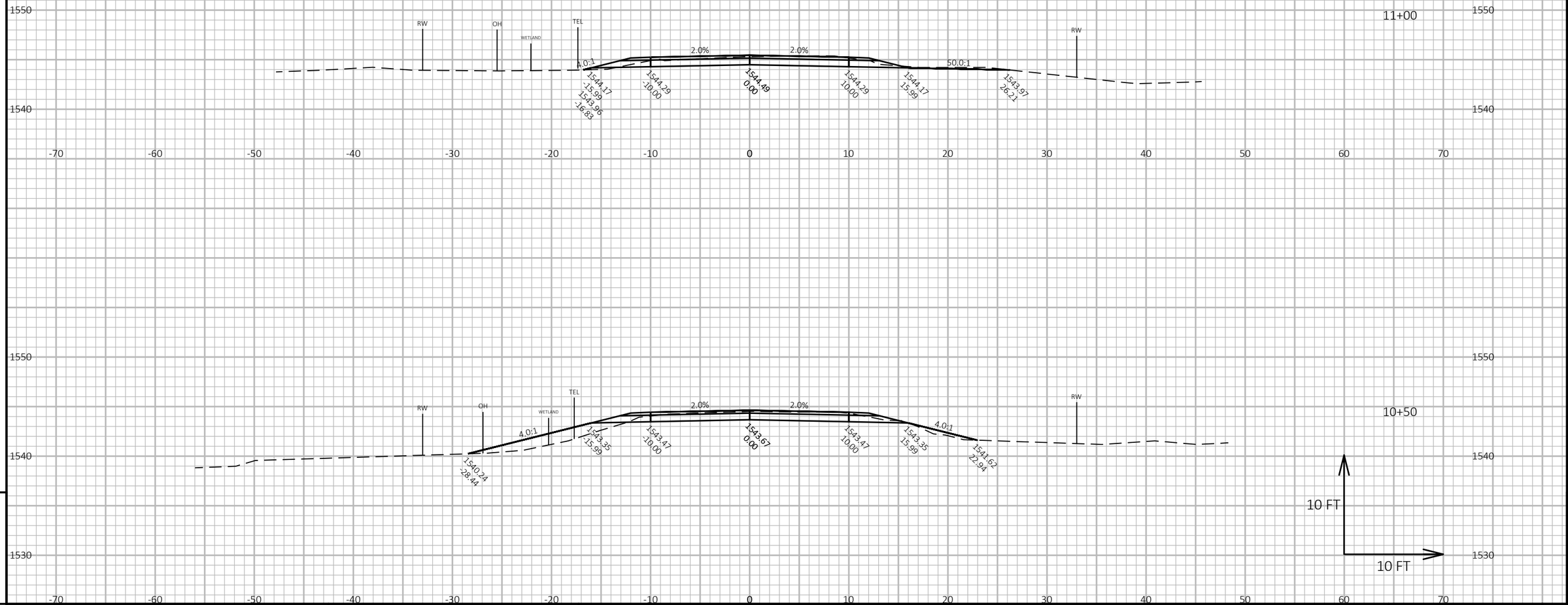


PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	CROSS SECTIONS: OLD HWY 139 ROAD; FR 2404	SHEET 36	E

FILE NAME : P:\18000S\18080S\18089\18089000\CADD\DESIGN\CORRIDORS\18089000 CORRIDOR-POPPLE RIVER.DWG
LAYOUT NAME - 090202_xs

PLOT DATE : 9/25/2018 10:37 AM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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9

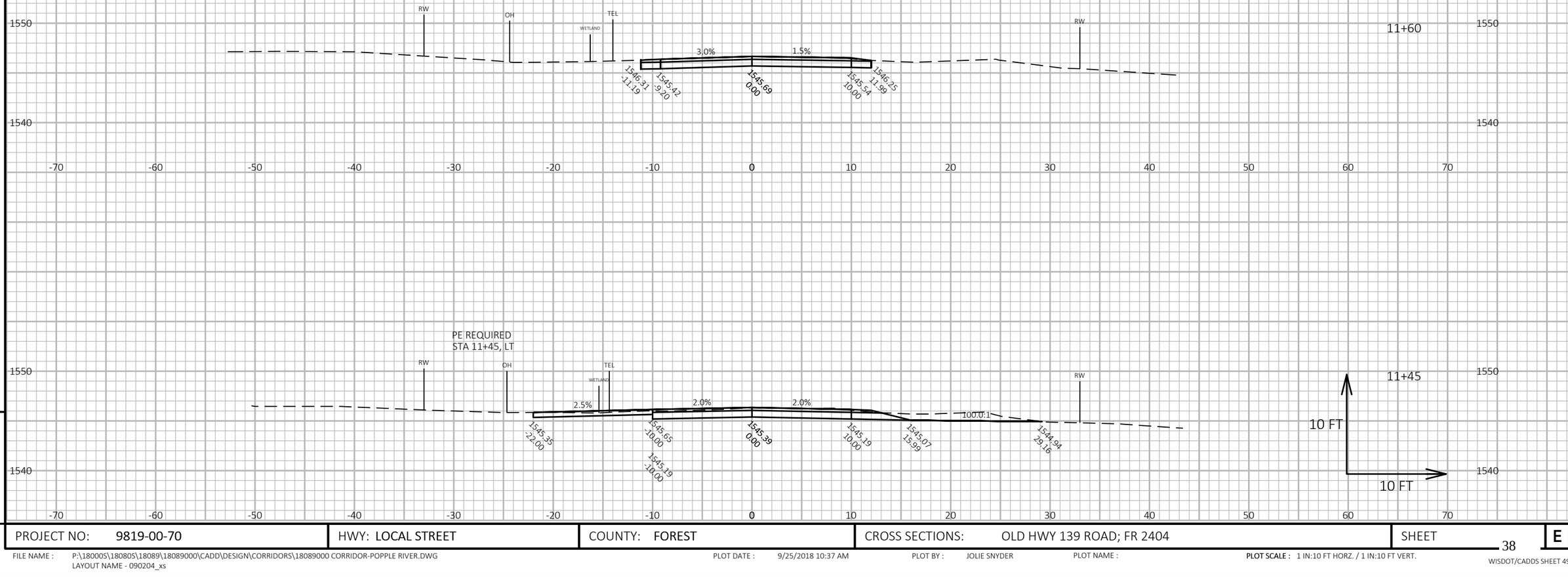
PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	CROSS SECTIONS: OLD HWY 139 ROAD; FR 2404	SHEET E

FILE NAME : P:\18000S\18080S\18089\18089000\CADD\DESIGN\CORRIDORS\18089000 CORRIDOR-POPPLE RIVER.DWG
LAYOUT NAME - 090203_xs

PLOT DATE : 9/25/2018 10:37 AM PLOT BY : JOLIE SNYDER PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

END PROJECT
STA 11+60
MATCH EXISTING



PE REQUIRED
STA 11+45, LT

9 9

PROJECT NO: 9819-00-70	HWY: LOCAL STREET	COUNTY: FOREST	CROSS SECTIONS: OLD HWY 139 ROAD; FR 2404	SHEET 38	E

FILE NAME : P:\18000S\18080S\18089\18089000\CADD\DESIGN\CORRIDORS\18089000 CORRIDOR-POPPLE RIVER.DWG
LAYOUT NAME - 090204_xs
PLOT DATE : 9/25/2018 10:37 AM PLOT BY : JOLIE SNYDER PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
WISDOT/CADDS SHEET 49

Notes

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