EAU

FEB 2016

PROJECT ID: 1570-04-72

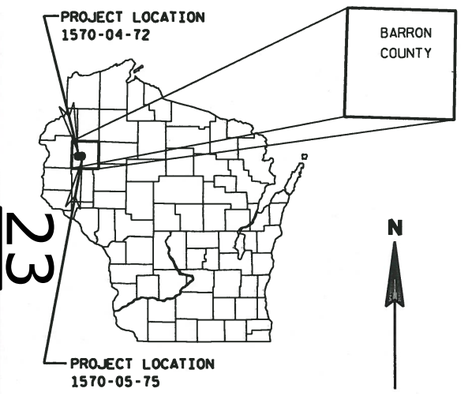
WITH: 1570-05-75

COUNTY: BARRON

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (includes Erosion Control Plans)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
~~Section No.~~	~~4~~	~~Right of Way Plat~~
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
~~Section No.~~	~~7~~	~~Sign Plates~~
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 98



DESIGN DESIGNATION

A.D.T.	(2016)	=	7,200
A.D.T.	(2036)	=	8,100
D.H.V.		=	---
D.		=	60/40
T.		=	22.3%
DESIGN SPEED		=	60 MPH
ESALS		=	N/A

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)

HIGH VOLTAGE (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 ELECTRIC (OH)

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

TURTLE LAKE - CAMERON

(LIGHTNING CREEK BRIDGE B-03-0072)

USH 8

BARRON COUNTY

STATE PROJECT NUMBER
1570-04-72

(HAY RIVER BRIDGE B-03-0073)

USH 8

BARRON COUNTY

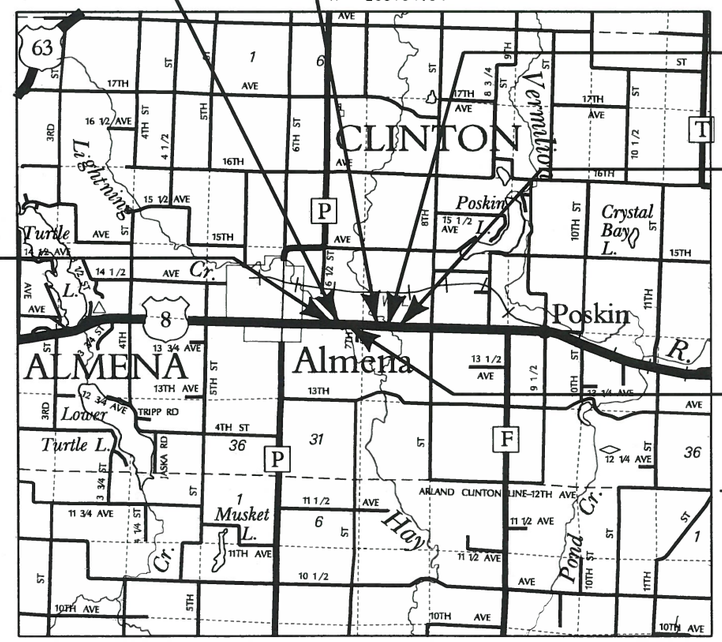
STATE PROJECT NUMBER
1570-05-75

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1570-04-72		
1570-05-75		

BEGIN PROJECT 1570-05-75
STA. 194+75
Y = 100816.93
X = 265784.84

STRUCTURE B-3-0072

STRUCTURE B-3-0073



END PROJECT 1570-05-75
STA. 197+65
Y = 100809.60
X = 266074.75

BEGIN PROJECT 1570-04-72
STA. 161+80
Y = 100800.29
X = 262490.69

END PROJECT 1570-04-72
STA. 164+85
Y = 100802.57
X = 262795.68

T-34-N
T-33-N

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.058 MI. (1570-04-72)
TOTAL NET LENGTH OF CENTERLINE = 0.055 MI. (1570-05-75)

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), BARRON COUNTY.

ORIGINAL PLANS PREPARED BY

AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER

DATE 6/2/15

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

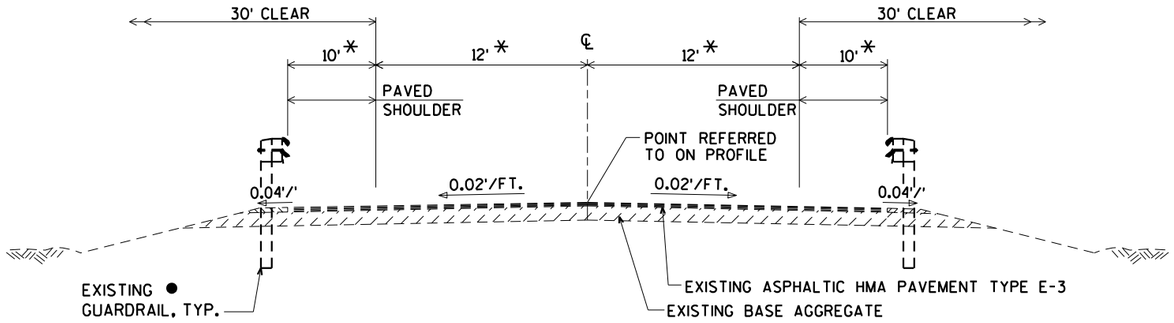
Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	BETH CUNNINGHAM, PE
Regional Engineer	
Regional Supervisor	ANDREW STENSLAND, PE

APPROVED FOR THE DEPARTMENT

DATE: 08/01/15 Beth Cunningham (Signature)

E

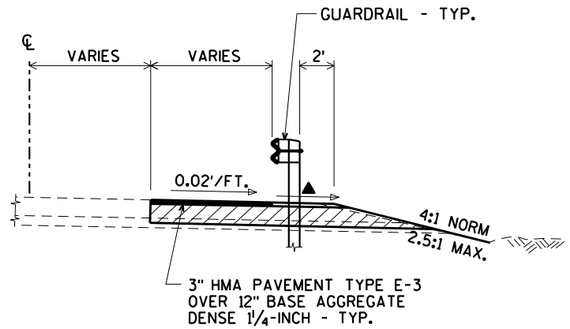
23



TYPICAL EXISTING SECTION
(USH 8)

* ASPHALTIC HMA PAVEMENT TYPE E-3 SHALL BE PLACED 44 FEET WIDE AT THE ENDS OF THE APPROACH SLAB AND CONCRETE SURFACE DRAINS, AND FOLLOW THE FACE OF EXISTING GUARDRAIL, AND TIE INTO EXISTING AT THE BEGIN/END PROJECT.

● EXISTING GUARDRAIL TO BE REPLACED.



TYPICAL FINISHED SECTION - SHOULDER WIDENING
▲0.04'/FT.

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

NO TREES (AND/OR SHRUBS) ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

EXCAVATION FOR STRUCTURES SHALL INCLUDE FURNISHING, PLACEMENT AND COMPACTION OF ANY FILL MATERIAL REQUIRED TO PROVIDE A SUITABLE FOUNDATION FOR SUBSTRUCTURE UNITS.

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCLUSIVE OF THE ROADBED, SHALL BE FERTILIZED, SEEDED AND MULCHED AS DIRECTED BY THE ENGINEER.

SALVAGE TOPSOIL SHALL BE PLACED ON THE SLOPES, TO THE POINT OF INTERCEPT WITH THE ORIGINAL GROUND SHOWN ON THE CROSS SECTIONS.

THE DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT TO BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

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

HMA PAVEMENT TYPE E-3 SHALL USE 12.5 mm NOMINAL AGGREGATE SIZE.

WETLANDS EXIST IN THE PROJECT AREA. NO DISTURBANCE IS ALLOWED OUTSIDE THE SLOPE INTERCEPT.

THE LOCATION AND WIDTH OF THE EXISTING RIGHT OF WAY WAS DETERMINED BY THE MUNICIPALITY FOR THIS PROJECT. AYRES ASSOCIATES DOES NOT WARRANT IT'S ACCURACY.

UTILITIES

XCEL ENERGY
801 KELLER AVE. S.
AMERY, WI 54001
ATTN: JAKE MILLER
715-268-3227
715-441-7021 (cell)
jake.i.miller@xcelenergy.com

DAIRYLAND POWER COOPERATIVE
3200 EAST AVE. S.
P.O. BOX 817
LA CROSSE, WI 54602
ATTN: KURT CHILDS
608-788-4000
kdc@dairynet.com

CHIBARDUN TELEPHONE COOPERATIVE, INC.
DBA MOSAIC TELECOM
401 S. 1st ST.
P.O. BOX 664
CAMERON, WI 54822
ATTN: DENNIS RUSSETT
715-458-5378
715-458-5518 (cell)
ctcdennis@mosaictelecom.com

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:

AMY CRONK
810 W. MAPLE STREET
SPOONER, WI 54801
715-635-4229
amy.cronk@wisconsin.gov

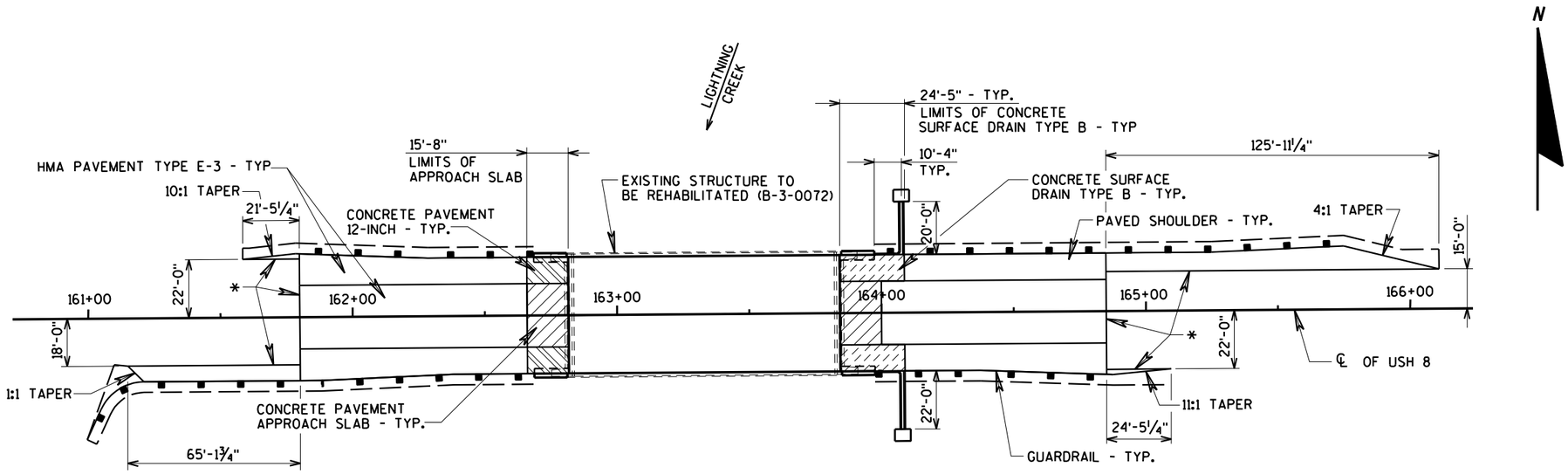
DESIGNER

AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: CHRISTOPHER B. McMAHON
715-834-3161
mcmahonc@AyresAssociates.com

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

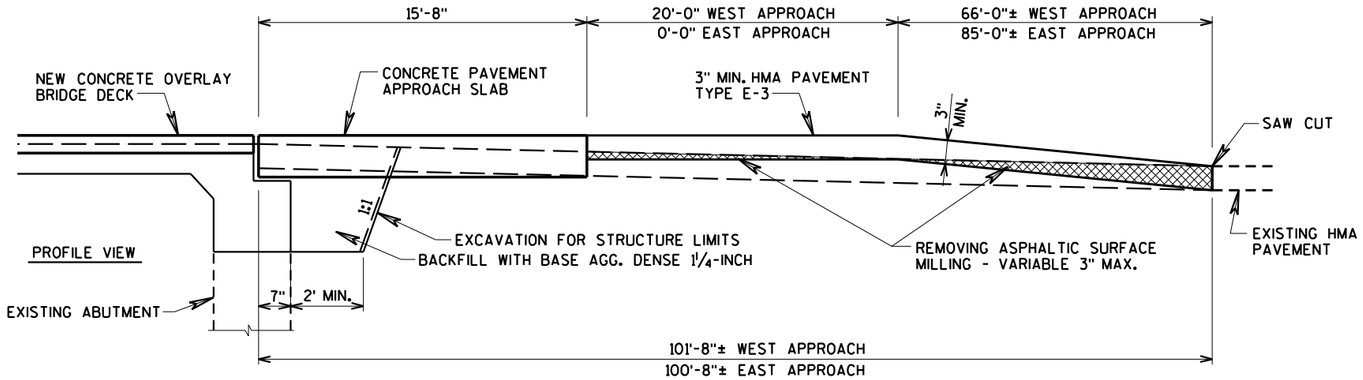
PROJECT NO: 1570-04-72 & 1570-05-75	HWY: USH 8	COUNTY: BARRON	TYPICAL SECTIONS & NOTES	SHEET 2

2



APPROACH SLAB DETAIL

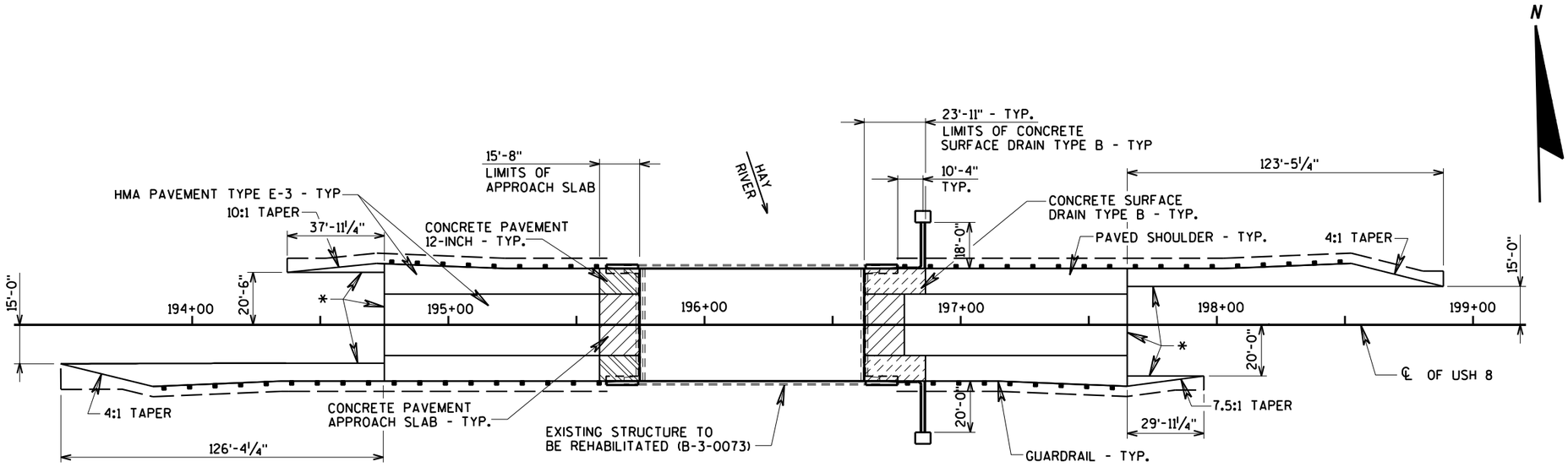
*SAW CUT REQ'D.



APPROACH REPLACEMENT DETAIL

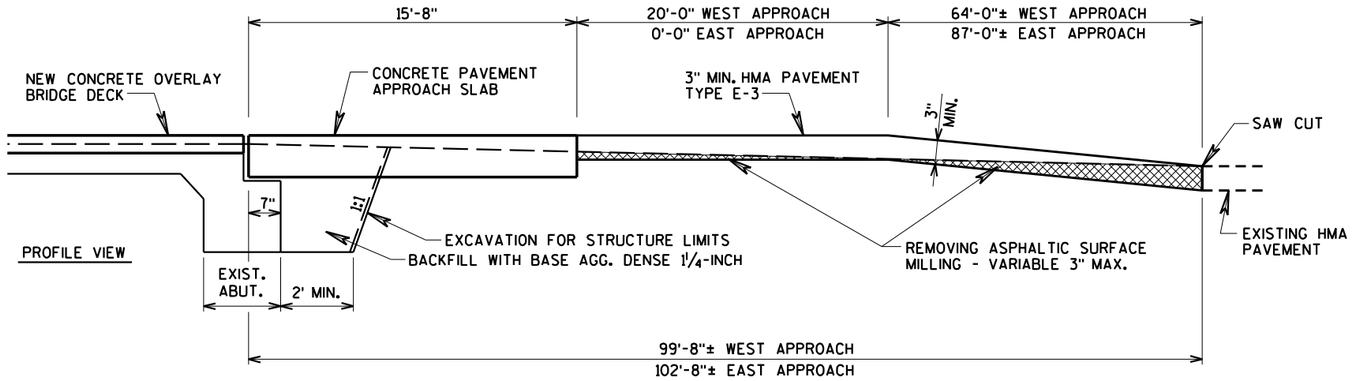
PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	APPROACH DETAILS - B-3-72	SHEET 3

2



APPROACH SLAB DETAIL

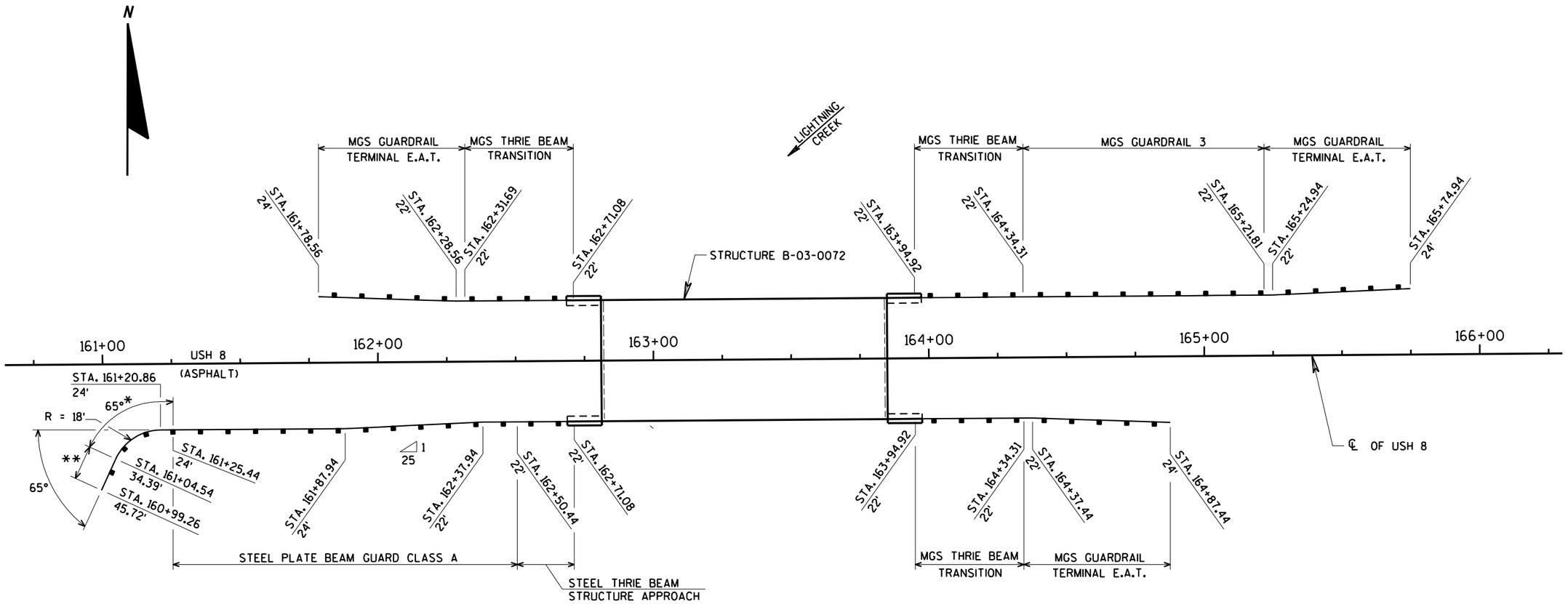
*SAW CUT REQ'D.



APPROACH REPLACEMENT DETAIL

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	APPROACH DETAILS - B-3-73	SHEET 4

2



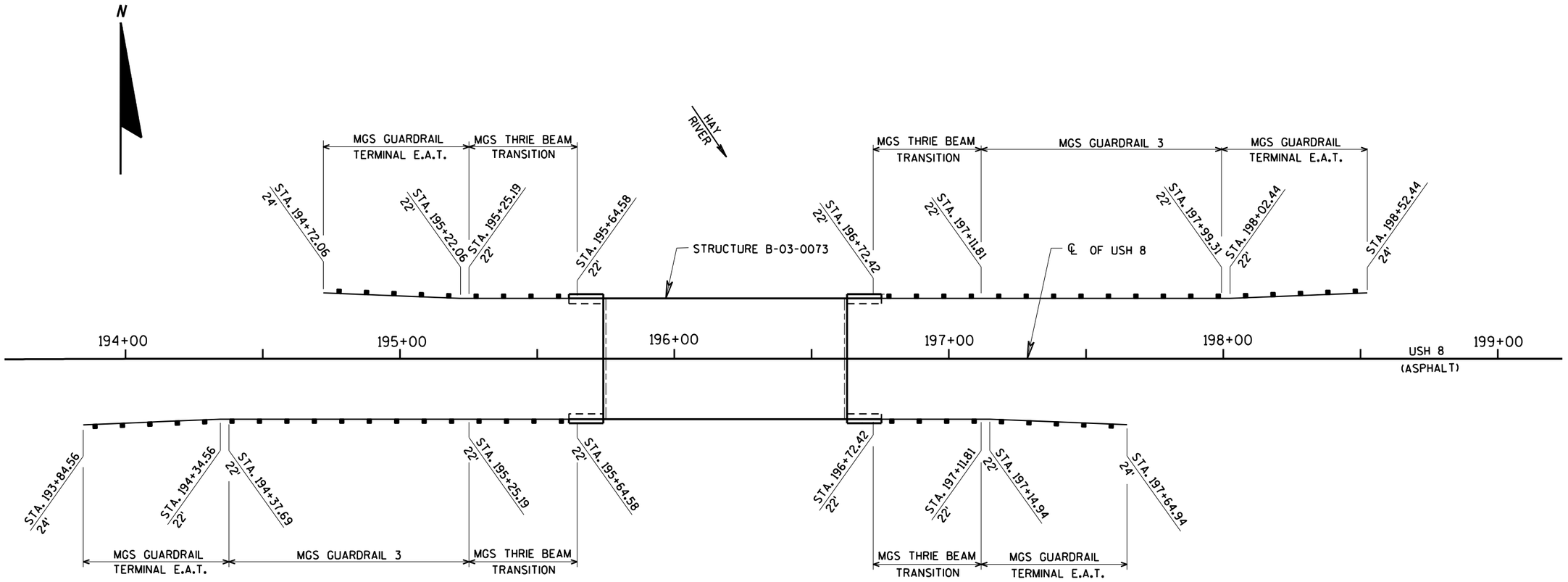
GUARDRAIL LAYOUT

*STEEL PLATE BEAM GUARD
SHORT RADIUS

**STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	GUARDRAIL LAYOUT	SCALE, FEET 0 20 40	SHEET 5	E

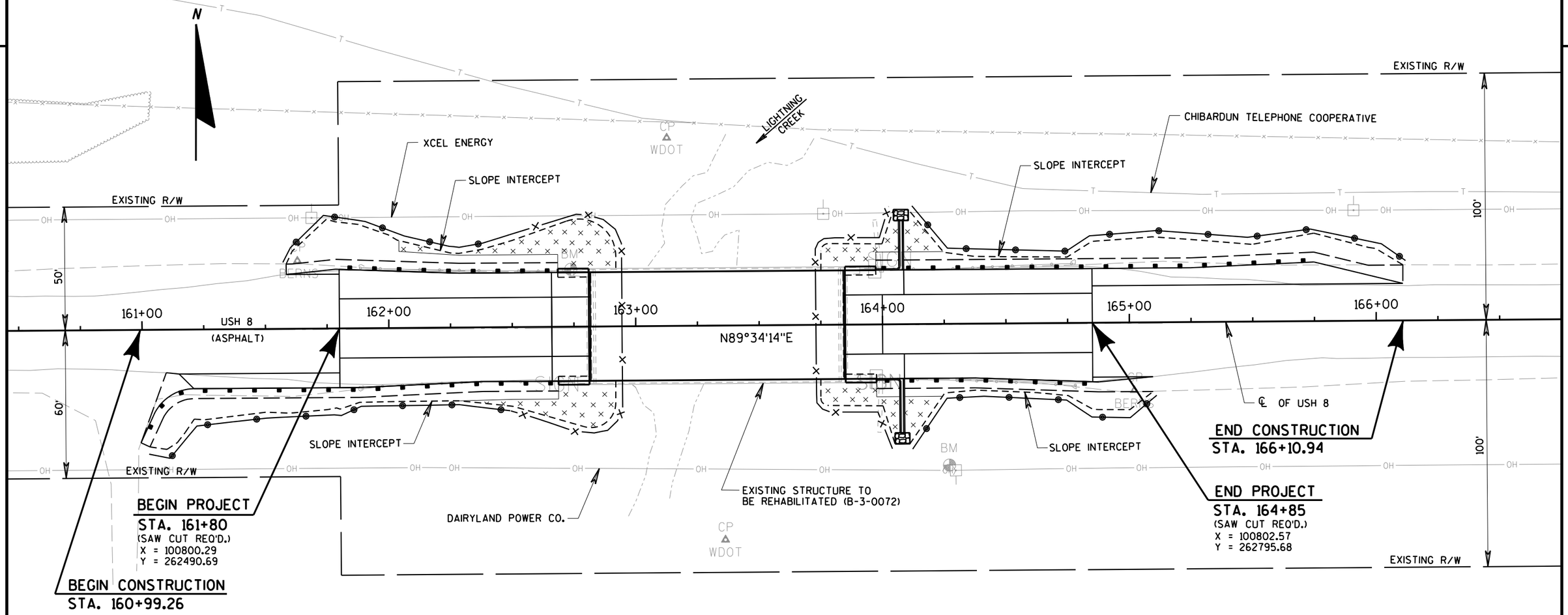
2



GUARDRAIL LAYOUT

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	GUARDRAIL LAYOUT	SCALE, FEET 0 20 40	SHEET 6	E

2

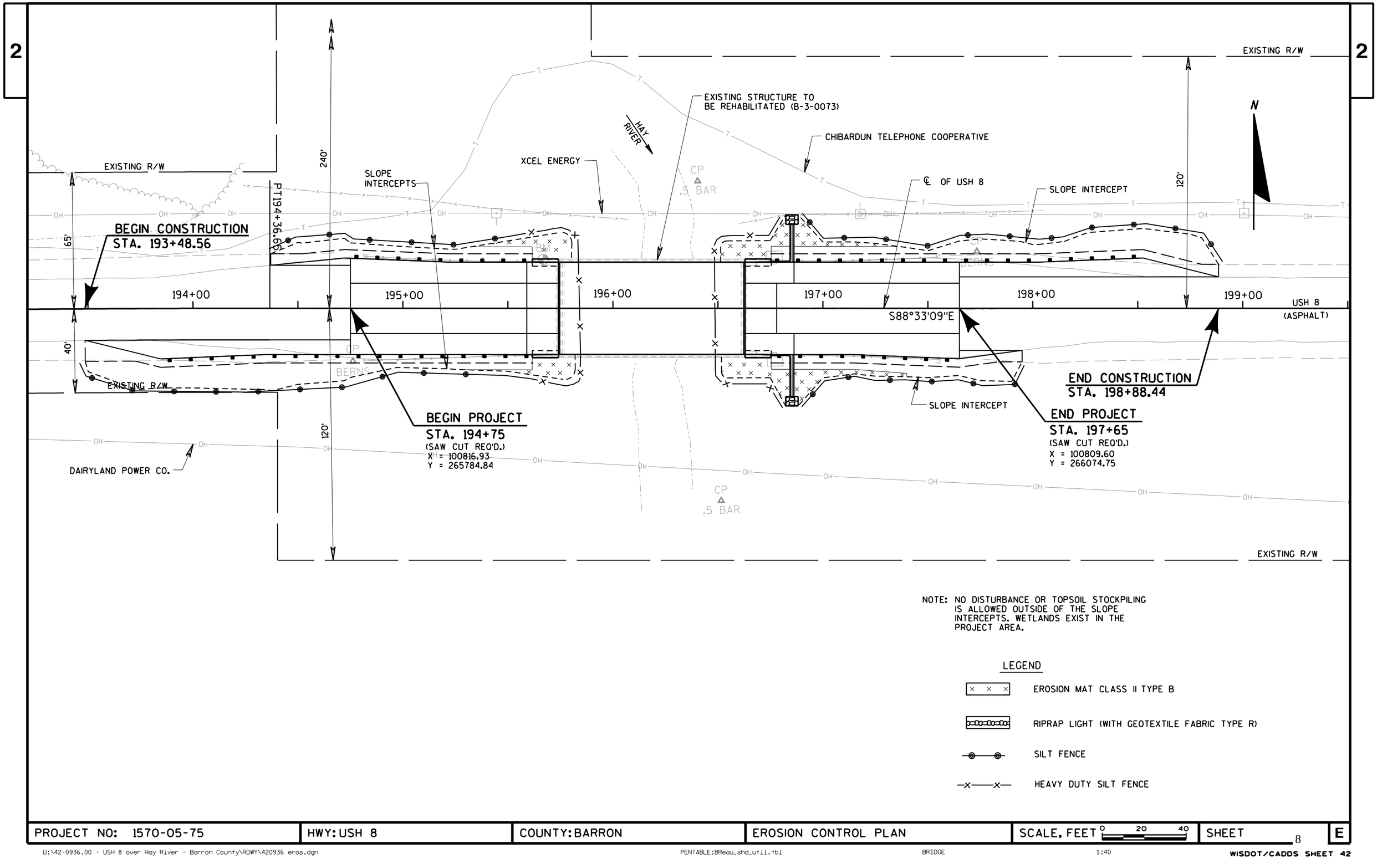


NOTE: NO DISTURBANCE OR TOPSOIL STOCKPILING IS ALLOWED OUTSIDE OF THE SLOPE INTERCEPTS. WETLANDS EXIST IN THE PROJECT AREA.

LEGEND

- EROSION MAT CLASS II TYPE B
- RIPRAP LIGHT (WITH GEOTEXTILE FABRIC TYPE R)
- SILT FENCE
- HEAVY DUTY SILT FENCE

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	EROSION CONTROL PLAN	SCALE, FEET 0 20 40	SHEET 7	E



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PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	EROSION CONTROL PLAN	SCALE, FEET 0 20 40	SHEET 8	E

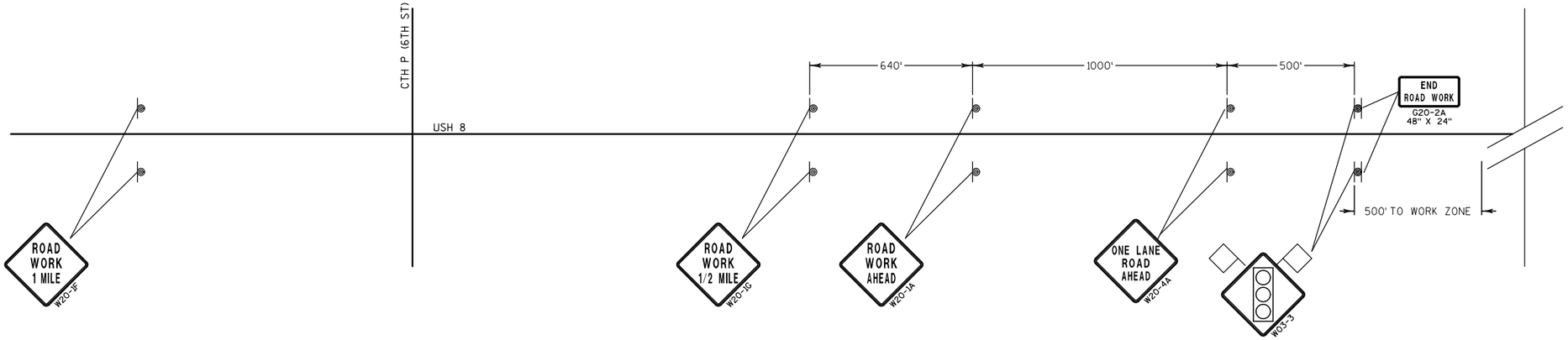
2

2

N

GENERAL NOTES

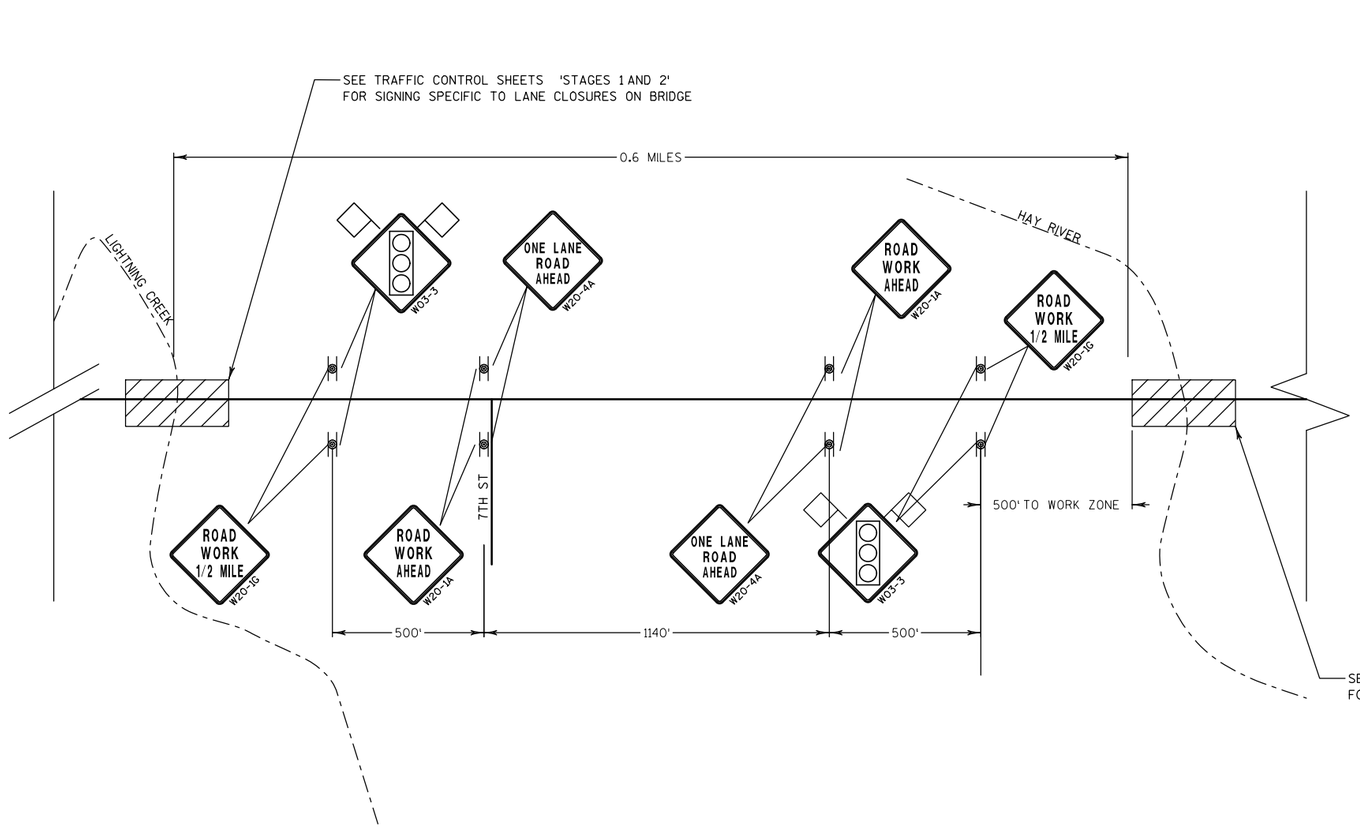
1. DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON CONTRACTORS METHODS OR SEQUENCE OF OPERATIONS.
2. ALL SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SIGN FACE LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLAN.
4. ROAD MACHINERY, TRUCK ENTRANCE, FLAGMAN AHEAD, ETC., SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED AT NIGHT, WEEKENDS OR WHEN THE ACTIVITY OR CONDITION DOES NOT EXIST. NO FLASHER SHALL BE USED WITH A COVERED SIGN.
5. ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
6. EXISTING TRAFFIC SIGNS MAY REQUIRE RELOCATION DURING STAGES OF CONSTRUCTION AND SHALL BE LOCATED AS REQUIRED BY THE ENGINEER IN THE FIELD.
7. STATIONING OR LENGTH SHOWN FOR PAVEMENT MARKING (OR REMOVAL) IS APPROXIMATE. ACTUAL LENGTH IS TO BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
8. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
9. SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS FOR ADDITIONAL DESIGN GUIDANCE.
10. FLAGS POSTED TO TRAFFIC CONTROL SIGNS ARE 16" X 16".



LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK ZONE AREA

PROJECT NO: 1570-04-72/1570-05-75	HWY: USH 8	COUNTY: BARRON	TRAFFIC CONTROL LAYOUT - ADVANCED WARNING	SHEET 9	E



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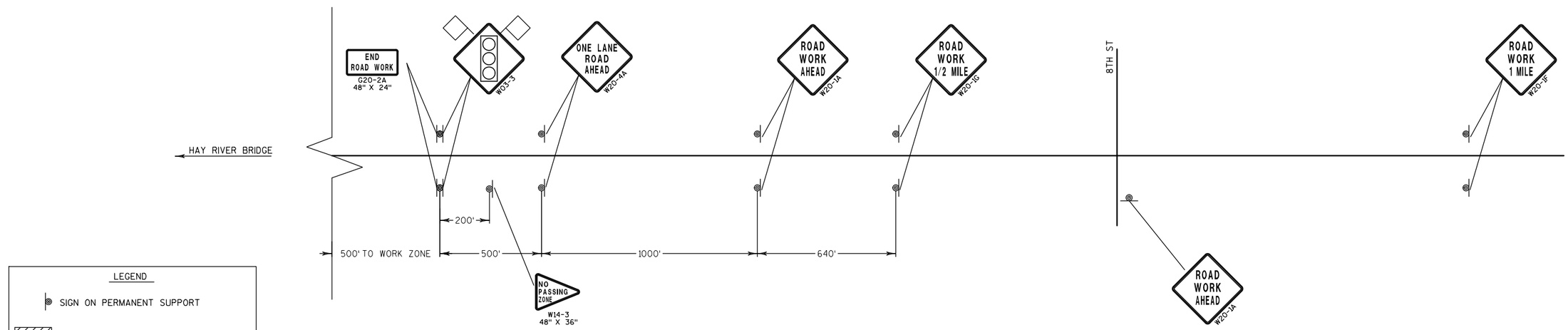

PROJECT NO: 1570-04-72/1570-05-75	HWY: USH 8	COUNTY: BARRON	TRAFFIC CONTROL LAYOUT - ADVANCED WARNING	SHEET 10	E

GENERAL NOTES

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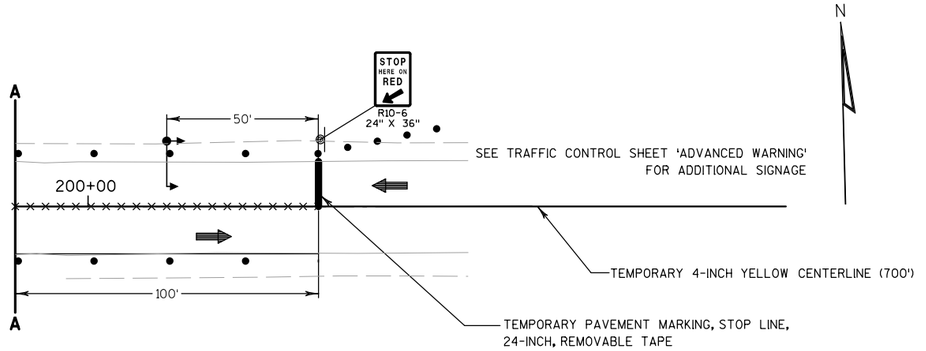
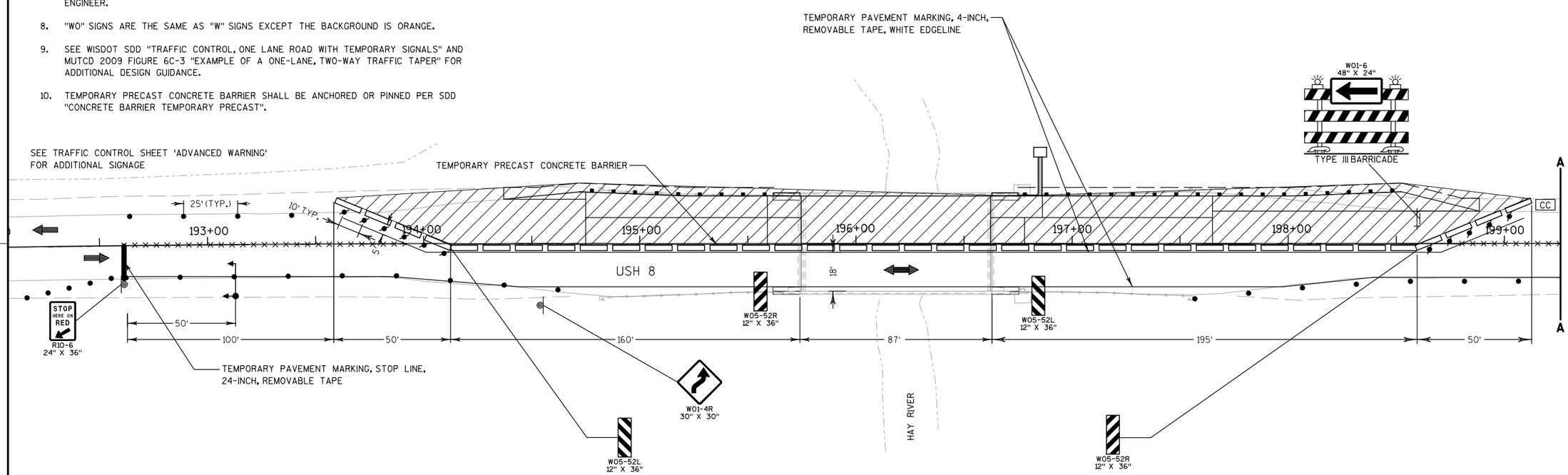
10. TEMPORARY PRECAST CONCRETE BARRIER SHALL BE ANCHORED OR PINNED PER SDD "CONCRETE BARRIER TEMPORARY PRECAST".





LEGEND

- XXXX — REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- SIGN ON PERMANENT SUPPORT
- WORK ZONE AREA
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE "C" STEADY BURN LIGHT
- DIRECTION OF TRAVEL
- TRAILER MOUNTED TEMPORARY TRAFFIC SIGNALS
- CC — TEMPORARY CRASH CUSHION

PROJECT NO: 1570-04-72/1570-05-75	HWY: USH 8	COUNTY: BARRON	TRAFFIC CONTROL LAYOUT - STAGE 1	SHEET 11	E

2

GENERAL NOTES

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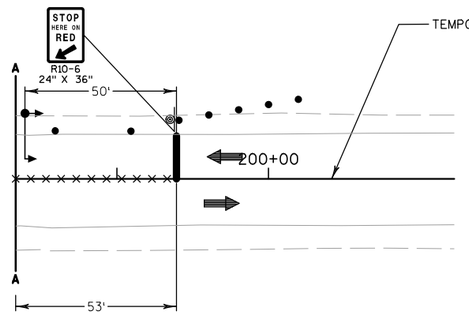

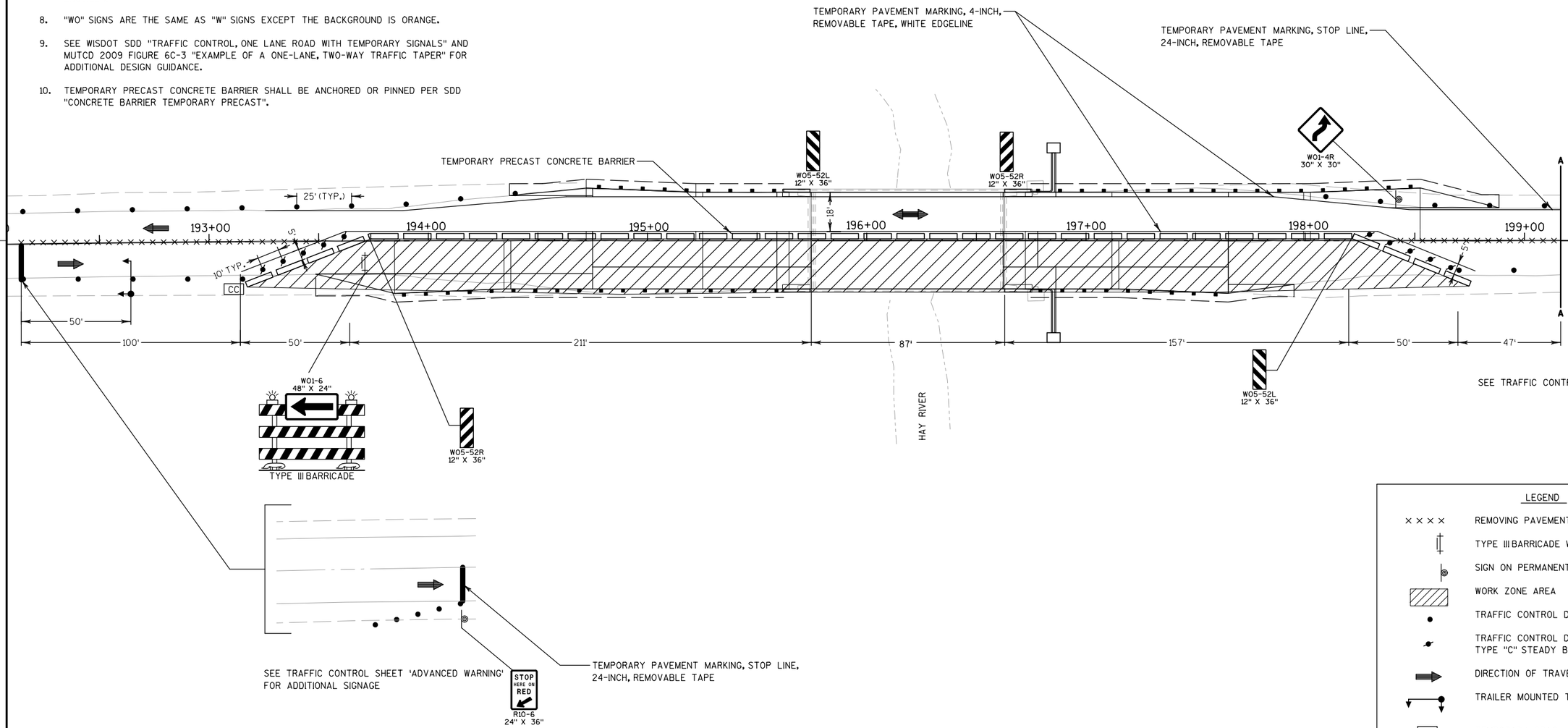

LEGEND

- XXXX — REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- SIGN ON PERMANENT SUPPORT
- WORK ZONE AREA
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE "C" STEADY BURN LIGHT
- DIRECTION OF TRAVEL
- TRAILER MOUNTED TEMPORARY TRAFFIC SIGNALS
- CC — TEMPORARY CRASH CUSHION

PROJECT NO: 1570-04-72/1570-05-75	HWY: USH 8	COUNTY: BARRON	TRAFFIC CONTROL LAYOUT - STAGE 2	SHEET 12	E

2

GENERAL NOTES

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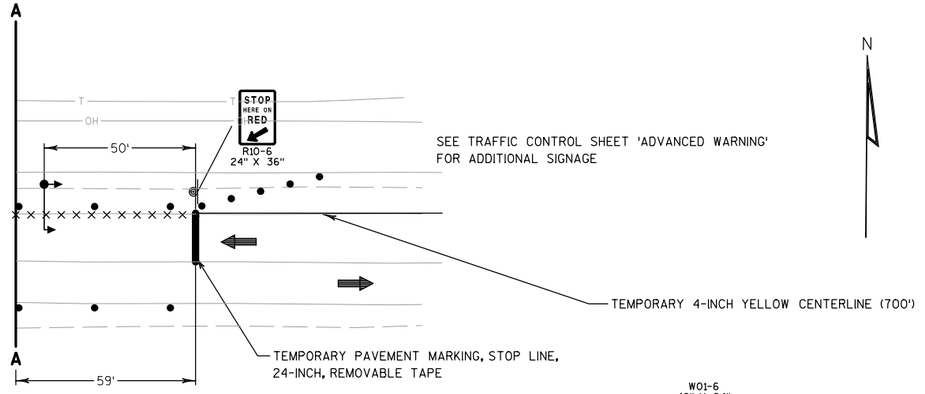
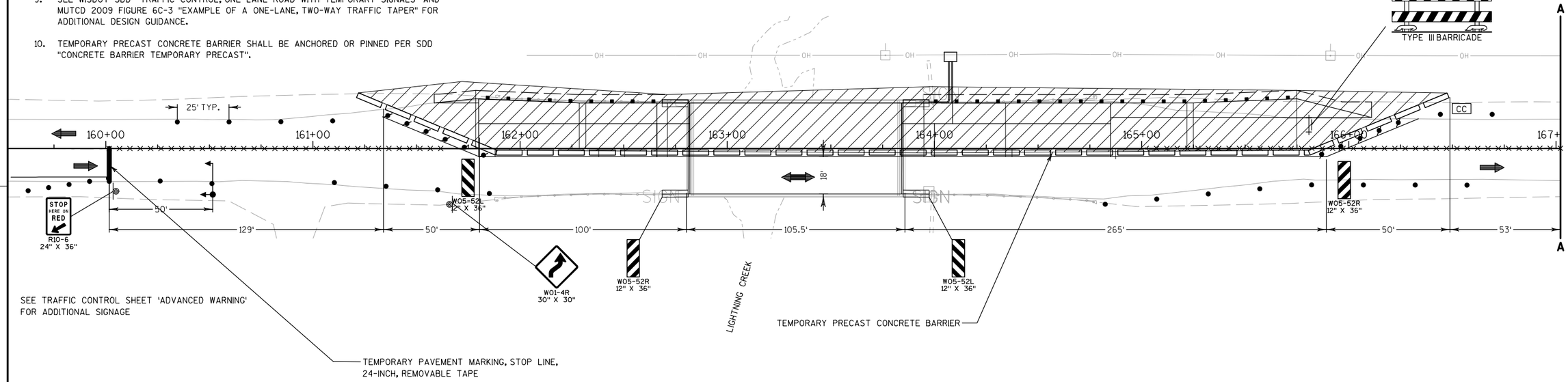
3. SIGN FACE LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLAN.
4. ROAD MACHINERY, TRUCK ENTRANCE, FLAGMAN AHEAD, ETC., SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED AT NIGHT, WEEKENDS OR WHEN THE ACTIVITY OR CONDITION DOES NOT EXIST. NO FLASHER SHALL BE USED WITH A COVERED SIGN.
5. ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
6. EXISTING TRAFFIC SIGNS MAY REQUIRE RELOCATION DURING STAGES OF CONSTRUCTION AND SHALL BE LOCATED AS REQUIRED BY THE ENGINEER IN THE FIELD.
7. STATIONING OR LENGTH SHOWN FOR PAVEMENT MARKING (OR REMOVAL) IS APPROXIMATE. ACTUAL LENGTH IS TO BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
8. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
9. SEE WISDOT SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" AND MUTCD 2009 FIGURE 6C-3 "EXAMPLE OF A ONE-LANE, TWO-WAY TRAFFIC TAPER" FOR ADDITIONAL DESIGN GUIDANCE.
10. TEMPORARY PRECAST CONCRETE BARRIER SHALL BE ANCHORED OR PINNED PER SDD "CONCRETE BARRIER TEMPORARY PRECAST".





LEGEND

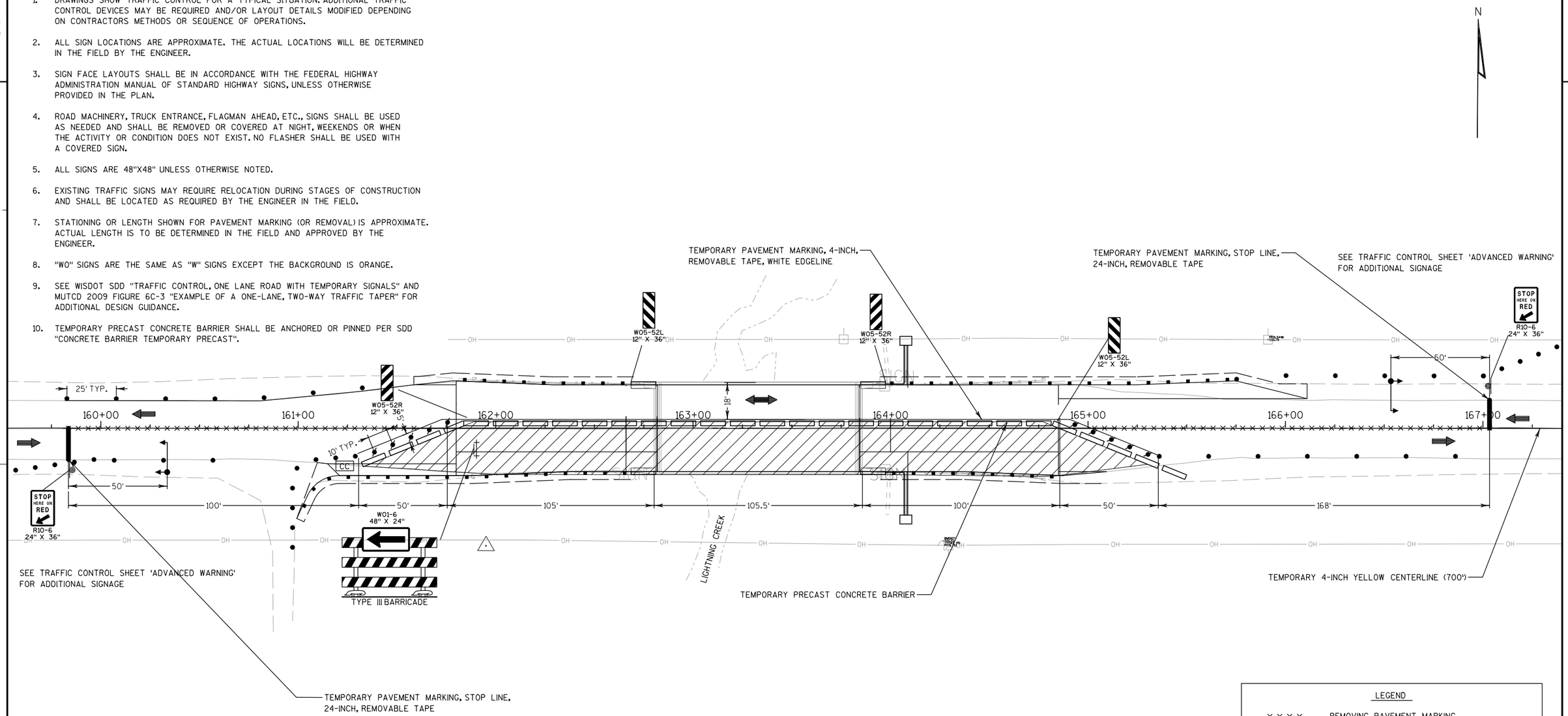
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- SIGN ON PERMANENT SUPPORT
- WORK ZONE AREA
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE "C" STEADY BURN LIGHT
- DIRECTION OF TRAVEL
- TRAILER MOUNTED TEMPORARY TRAFFIC SIGNALS
- CC — TEMPORARY CRASH CUSHION

PROJECT NO: 1570-04-72/1570-05-75	HWY: USH 8	COUNTY: BARRON	TRAFFIC CONTROL LAYOUT - STAGE 1	SHEET 13	E

2

GENERAL NOTES

1. DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON CONTRACTORS METHODS OR SEQUENCE OF OPERATIONS.
2. ALL SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SIGN FACE LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLAN.
4. ROAD MACHINERY, TRUCK ENTRANCE, FLAGMAN AHEAD, ETC., SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED AT NIGHT, WEEKENDS OR WHEN THE ACTIVITY OR CONDITION DOES NOT EXIST. NO FLASHER SHALL BE USED WITH A COVERED SIGN.
5. ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
6. EXISTING TRAFFIC SIGNS MAY REQUIRE RELOCATION DURING STAGES OF CONSTRUCTION AND SHALL BE LOCATED AS REQUIRED BY THE ENGINEER IN THE FIELD.
7. STATIONING OR LENGTH SHOWN FOR PAVEMENT MARKING (OR REMOVAL) IS APPROXIMATE. ACTUAL LENGTH IS TO BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
8. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
9. SEE WISDOT SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" AND MUTCD 2009 FIGURE 6C-3 "EXAMPLE OF A ONE-LANE, TWO-WAY TRAFFIC TAPER" FOR ADDITIONAL DESIGN GUIDANCE.
10. TEMPORARY PRECAST CONCRETE BARRIER SHALL BE ANCHORED OR PINNED PER SDD "CONCRETE BARRIER TEMPORARY PRECAST".



LEGEND

- XXXX — REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- SIGN ON PERMANENT SUPPORT
- WORK ZONE AREA
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE "C" STEADY BURN LIGHT
- DIRECTION OF TRAVEL
- TRAILER MOUNTED TEMPORARY TRAFFIC SIGNALS
- CC — TEMPORARY CRASH CUSHION

PROJECT NO: 1570-04-72/1570-05-75	HWY: USH 8	COUNTY: BARRON	TRAFFIC CONTROL LAYOUT - STAGE 2	SHEET 14	E

DATE 01DEC15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1570-04-72 QUANTITY	1570-05-75 QUANTITY
0010	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 163+33	LS	1.000	1.000	
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 02. 196+19	LS	1.000		1.000
0030	204.0120	Removing Asphaltic Surface Milling	SY	2,020.000	1,010.000	1,010.000
0040	204.0165	Removing Guardrail	LF	712.000	356.000	356.000
0050	204.0190	Removing Surface Drains	EACH	4.000	2.000	2.000
0060	205.0100	Excavation Common	CY	2.000	2.000	
0070	206.1000	Excavation for Structures Bridges (structure) 01. B-03-0072	LS	1.000	1.000	
0080	206.1000	Excavation for Structures Bridges (structure) 02. B-03-0073	LS	1.000		1.000
0090	210.0100	Backfill Structure	CY	510.000	260.000	250.000
0100	213.0100	Finishing Roadway (project) 01. 1570-04-72	EACH	1.000	1.000	
0110	213.0100	Finishing Roadway (project) 02. 1570-05-75	EACH	1.000		1.000
0120	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	840.000	365.000	475.000
0130	415.0120	Concrete Pavement 12-Inch	SY	80.000	40.000	40.000
0140	415.0410	Concrete Pavement Approach Slab	SY	168.000	84.000	84.000
0150	416.1010	Concrete Surface Drains	CY	40.000	20.000	20.000
0160	455.0105	Asphaltic Material PG58-28	TON	24.000	12.000	12.000
0170	455.0605	Tack Coat	GAL	155.000	75.000	80.000
0180	460.1103	HMA Pavement Type E-3	TON	385.000	185.000	200.000
0190	502.0100	Concrete Masonry Bridges	CY	88.000	45.000	43.000
0200	502.3200	Protective Surface Treatment	SY	945.000	510.000	435.000
0210	502.3210	Pigmented Surface Sealer	SY	40.000	20.000	20.000
0220	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	6,710.000	3,450.000	3,260.000
0230	509.0301	Preparation Decks Type 1	SY	95.000	50.000	45.000
0240	509.0302	Preparation Decks Type 2	SY	40.000	20.000	20.000
0250	509.0500	Cleaning Decks	SY	943.000	508.000	435.000
0260	509.1500	Concrete Surface Repair	SF	40.000	20.000	20.000
0270	509.2000	Full-Depth Deck Repair	SY	10.000	5.000	5.000
0280	509.2500	Concrete Masonry Overlay Decks	CY	76.000	39.000	37.000
0290	516.0500	Rubberized Membrane Waterproofing	SY	30.000	15.000	15.000
0300	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	470.000	200.000	270.000
0310	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,105.000	540.000	565.000
0320	603.8125	Concrete Barrier Temporary Precast Installed	LF	2,100.000	970.000	1,130.000
0330	606.0100	Riprap Light	CY	8.000	4.000	4.000
0340	614.0010	Barrier System Grading Shaping Finishing	EACH	8.000	4.000	4.000
0350	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	8.000	4.000	4.000
0360	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000	
0370	614.0305	Steel Plate Beam Guard Class A	LF	125.000	125.000	
0380	614.0345	Steel Plate Beam Guard Short Radius	LF	25.000	25.000	
0390	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000	
0400	614.0905	Crash Cushions Temporary	EACH	4.000	2.000	2.000
0410	614.2300	MGS Guardrail 3	LF	262.500	87.500	175.000
0420	614.2500	MGS Thrie Beam Transition	LF	280.000	120.000	160.000
0430	614.2610	MGS Guardrail Terminal EAT	EACH	7.000	3.000	4.000
0440	619.1000	Mobilization	EACH	1.000	0.500	0.500
0450	624.0100	Water	MGAL	10.000	4.500	5.500

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DATE 01DEC15 — E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1570-04-72 QUANTITY	1570-05-75 QUANTITY
0460	625.0500	Salvaged Topsoil	SY	390.000	220.000	170.000
0470	627.0200	Mulching	SY	985.000	500.000	485.000
0480	628.1504	Silt Fence	LF	1,580.000	740.000	840.000
0490	628.1520	Silt Fence Maintenance	LF	1,580.000	740.000	840.000
0500	628.1905	Mobilizations Erosion Control	EACH	4.000	2.000	2.000
0510	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	2.000	2.000
0520	628.2023	Erosion Mat Class II Type B	SY	590.000	340.000	250.000
0530	628.7504	Temporary Ditch Checks	LF	40.000	20.000	20.000
0540	629.0210	Fertilizer Type B	CWT	0.700	0.400	0.300
0550	630.0120	Seeding Mixture No. 20	LB	30.000	15.000	15.000
0560	630.0200	Seeding Temporary	LB	30.000	15.000	15.000
0570	642.5001	Field Office Type B	EACH	1.000	0.500	0.500
0580	643.0100	Traffic Control (project) 01. 1570-04-72	EACH	1.000	1.000	
0590	643.0100	Traffic Control (project) 02. 1570-05-75	EACH	1.000		1.000
0600	643.0300	Traffic Control Drums	DAY	5,790.000	3,000.000	2,790.000
0610	643.0420	Traffic Control Barricades Type III	DAY	120.000	60.000	60.000
0620	643.0705	Traffic Control Warning Lights Type A	DAY	240.000	120.000	120.000
0630	643.0715	Traffic Control Warning Lights Type C	DAY	1,290.000	630.000	660.000
0640	643.0900	Traffic Control Signs	DAY	2,370.000	1,110.000	1,260.000
0650	645.0130	Geotextile Fabric Type R	SY	32.000	16.000	16.000
0660	646.0106	Pavement Marking Epoxy 4-Inch	LF	3,600.000	1,600.000	2,000.000
0670	646.0600	Removing Pavement Markings	LF	543.000	281.000	262.000
0680	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	5,580.000	2,900.000	2,680.000
0690	649.1400	Temporary Pavement Marking Stop Line Removable Tape 24-Inch	LF	60.000	30.000	30.000
0700	650.6500	Construction Staking Structure Layout (structure) 01. B-03-0072	LS	1.000	1.000	
0710	650.6500	Construction Staking Structure Layout (structure) 02. B-03-0073	LS	1.000		1.000
0720	650.8000	Construction Staking Resurfacing Reference	LF	406.000	203.000	203.000
0730	650.9910	Construction Staking Supplemental Control (project) 01. 1570-04-72	LS	1.000	1.000	
0740	650.9910	Construction Staking Supplemental Control (project) 02. 1570-05-75	LS	1.000		1.000
0750	661.0100	Temporary Traffic Signals for Bridges (structure) 01. B-03-0072	LS	1.000	1.000	
0760	661.0100	Temporary Traffic Signals for Bridges (structure) 02. B-03-0073	LS	1.000		1.000
0770	690.0150	Sawing Asphalt	LF	743.000	332.000	411.000
0780	715.0415	Incentive Strength Concrete Pavement	DOL	1,000.000	500.000	500.000
0790	715.0502	Incentive Strength Concrete Structures	DOL	528.000	270.000	258.000
0800	SPV.0090	Special 01. HEAVY DUTY SILT FENCE	LF	610.000	325.000	285.000
0810	SPV.0180	Special 01. Reseal Parapets	SY	114.000	42.000	72.000

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204.0120 REMOVING ASPHALTIC SURFACE MILLING (CATEGORY 0010)

PROJECT ID	LOCATION	LOCATION	SY
1570-04-72	Sta. 161+80 to Sta. 162+82	USH 8 (Lightning Creek)	510
	Sta. 163+84 to Sta. 164+85	USH 8 (Lightning Creek)	500
TOTAL			1,010

PROJECT ID	LOCATION	LOCATION	SY
1570-05-75	Sta. 194+75 to Sta. 195+75	USH 8 (Hay River)	500
	Sta. 196+62 to Sta. 197+65	USH 8 (Hay River)	510
TOTAL			1,010

204.0165 REMOVING GUARDRAIL (CATEGORY 0010)

PROJECT ID	LOCATION	LOCATION	LF
1570-04-72	Sta. 161+88 to Sta. 162+73, LT	USH 8 (Lightning Creek)	89
	Sta. 161+88 to Sta. 162+73, RT	USH 8 (Lightning Creek)	89
	Sta. 163+93 to Sta. 164+78, LT	USH 8 (Lightning Creek)	89
	Sta. 163+93 to Sta. 164+78, RT	USH 8 (Lightning Creek)	89
TOTAL			356

PROJECT ID	LOCATION	LOCATION	LF
1570-05-75	Sta. 194+81 to Sta. 195+67, LT	USH 8 (Hay River)	89
	Sta. 194+81 to Sta. 195+67, RT	USH 8 (Hay River)	89
	Sta. 196+70 to Sta. 197+56, LT	USH 8 (Hay River)	89
	Sta. 196+70 to Sta. 197+56, RT	USH 8 (Hay River)	89
TOTAL			356

204.0190 REMOVING SURFACE DRAINS (CATEGORY 0010)

PROJECT ID	LOCATION	LOCATION	EACH
1570-04-72	Sta. 163+99, LT	USH 8 (Lightning Creek)	1
	Sta. 163+99, RT	USH 8 (Lightning Creek)	1
TOTAL			2

PROJECT ID	LOCATION	LOCATION	EACH
1570-05+75	Sta. 196+77, LT	USH 8 (Hay River)	1
	Sta. 196+77, RT	USH 8 (Hay River)	1
TOTAL			2

205.0100 EXCAVATION COMMON (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	CY
1570-04-72	Sta. 161+80 to Sta. 164+85	USH 8 (Lightning Creek)	2

213.0100 FINISHING ROADWAY (CATEGORY 0010)

LOCATION	EACH
PROJECT ID 1570-04-72	1
PROJECT ID 1570-05-75	1

305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	TON
1570-04-72	Sta. 160+99 to Sta. 161+80, RT	USH 8 (Lightning Creek)	70
	Sta. 161+59 to Sta. 161+80, LT	USH 8 (Lightning Creek)	15
	Sta. 161+80 to Sta. 162+69, LT	USH 8 (Lightning Creek)	25
	Sta. 161+80 to Sta. 162+69, RT	USH 8 (Lightning Creek)	30
	Sta. 163+97 to Sta. 164+85, RT	USH 8 (Lightning Creek)	25
	Sta. 163+97 to Sta. 164+85, LT	USH 8 (Lightning Creek)	25
	Sta. 164+85 to Sta. 166+11, LT	USH 8 (Lightning Creek)	150
	Sta. 164+85 to Sta. 165+09, RT	USH 8 (Lightning Creek)	25
TOTAL			365

PROJECT ID	STATION TO STATION	LOCATION	TON
1570-05-75	Sta. 193+49 to Sta. 194+75, RT	USH 8 (Hay River)	185
	Sta. 194+37 to Sta. 194+75, LT	USH 8 (Hay River)	30
	Sta. 194+75 to Sta. 195+62, LT	USH 8 (Hay River)	25
	Sta. 194+75 to Sta. 195+62, RT	USH 8 (Hay River)	30
	Sta. 196+75 to Sta. 197+65, LT	USH 8 (Hay River)	20
	Sta. 196+75 to Sta. 197+65, RT	USH 8 (Hay River)	30
	Sta. 197+65 to Sta. 198+88, LT	USH 8 (Hay River)	130
	Sta. 197+65 to Sta. 197+95, RT	USH 8 (Hay River)	25
TOTAL			475

415.0120 CONCRETE PAVEMENT 12-INCH (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-04-72	Sta. 162+66 to Sta. 162+82, LT	USH 8 (Lightning Creek)	20
	Sta. 162+66 to Sta. 162+82, RT	USH 8 (Lightning Creek)	20
TOTAL			40

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-05-75	Sta. 195+59 to Sta. 195+75, LT	USH 8 (Hay River)	20
	Sta. 195+59 to Sta. 195+75, RT	USH 8 (Hay River)	20
TOTAL			40

415.0410 CONCRETE PAVEMENT APPROACH SLAB (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-04-72	Sta. 162+66 to Sta. 162+82	USH 8 (Lightning Creek)	42
	Sta. 163+84 to Sta. 164+00	USH 8 (Lightning Creek)	42
TOTAL			84

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-05-75	Sta. 195+59 to Sta. 195+75	USH 8 (Hay River)	42
	Sta. 196+62 to Sta. 196+78	USH 8 (Hay River)	42
TOTAL			84

416.1010 CONCRETE SURFACE DRAINS (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	CY
1570-04-72	Sta. 163+84 to Sta. 164+09, LT	USH 8 (Lightning Creek)	10
	Sta. 163+84 to Sta. 164+09, LT	USH 8 (Lightning Creek)	10
TOTAL			20

PROJECT ID	STATION TO STATION	LOCATION	CY
1570-05-75	Sta. 196+62 to Sta. 196+86, LT	USH 8 (Hay River)	10
	Sta. 196+62 to Sta. 196+86, LT	USH 8 (Hay River)	10
TOTAL			20

455.0605 TACK COAT (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	GAL
1570-04-72	Sta. 161+15 to Sta. 162+66	USH 8 (Lightning Creek)	40
	Sta. 164+00 to Sta. 166+11	USH 8 (Lightning Creek)	35
TOTAL			75

PROJECT ID	STATION TO STATION	LOCATION	GAL
1570-05-75	Sta. 193+49 to Sta. 195+59	USH 8 (Hay River)	40
	Sta. 196+78 to Sta. 198+88	USH 8 (Hay River)	40
TOTAL			80

HMA PAVEMENT & ASPHALTIC MATERIAL (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	460.1103 TYPE E-3 TON	455.0105 PG58-28 TON
1570-04-72	Sta. 161+15 to Sta. 162+66	USH 8 (Lightning Creek)	90	6
	Sta. 164+00 to Sta. 166+11	USH 8 (Lightning Creek)	95	6
TOTALS			185	12

PROJECT ID	STATION TO STATION	LOCATION	460.1103 TYPE E-3 TON	455.0105 PG58-28 TON
1570-05-75	Sta. 193+49 to Sta. 195+59	USH 8 (Hay River)	100	6
	Sta. 196+78 to Sta. 198+88	USH 8 (Hay River)	100	6
TOTALS			200	12

606.0100 RIPRAP LIGHT (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	CY
1570-04-72	Sta. 164+05 to Sta. 164+11, LT	USH 8 (Lightning Creek)	2
	Sta. 164+05 to Sta. 164+11, RT	USH 8 (Lightning Creek)	2
TOTAL			4

PROJECT ID	STATION TO STATION	LOCATION	CY
1570-05+75	Sta. 196+82 to Sta. 196+88, LT	USH 8 (Hay River)	2
	Sta. 196+82 to Sta. 196+88, RT	USH 8 (Hay River)	2
TOTAL			4

614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	*COMMON EXCAVATION CY	*SALVAGED TOPSOIL SY	*MULCHING SY	*FERTILIZER TYPE B CWT	*SEEDING NO. 20 LB	EACH
1570-04-72	Sta. 160+99 to Sta. 161+80, RT	USH 8 (Lightning Creek)	55	20	105	0.1	3	1
	Sta. 161+59 to Sta. 161+80, LT	USH 8 (Lightning Creek)	6	30	45	0.1	1	1
	Sta. 164+85 to Sta. 166+11, LT	USH 8 (Lightning Creek)	85	40	170	0.1	5	1
	Sta. 164+85 to Sta. 165+09, RT	USH 8 (Lightning Creek)	11	5	25	0.1	1	1
TOTALS								4

PROJECT ID	STATION TO STATION	LOCATION	*COMMON EXCAVATION CY	*SALVAGED TOPSOIL SY	*MULCHING SY	*FERTILIZER TYPE B CWT	*SEEDING NO. 20 LB	EACH
1570-05-75	Sta. 193+49 to Sta. 194+75, RT	USH 8 (Hay River)	99	30	210	0.1	6	1
	Sta. 194+37 to Sta. 194+75, LT	USH 8 (Hay River)	14	15	50	0.1	1	1
	Sta. 197+65 to Sta. 198+88, LT	USH 8 (Hay River)	61	65	175	0.1	5	1
	Sta. 197+65 to Sta. 197+95, RT	USH 8 (Hay River)	13	10	40	0.1	1	1
TOTALS								4

* Items and Quantities listed for Bid Information Only

3

614.0200 STEEL THRIE BEAM STRUCTURE APPROACH (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-04-72	Sta. 162+50.44 to Sta. 162+71.08, RT	USH 8 (Lightning Creek)	21

614.0305 STEEL PLATE BEAM GUARD CLASS A (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-04-72	Sta. 161+25.44 to Sta. 162+50.44, RT	USH 8 (Lightning Creek)	125

614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-04-72	Sta. 161+04.54 to Sta. 161+25.44, RT	USH 8 (Lightning Creek)	25

614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	EACH
1570-04-72	Sta. 160+99.26 to Sta. 161+04.54, RT	USH 8 (Lightning Creek)	1

614.2300 MGS GUARDRAIL 3 (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-04-72	Sta. 164+34.31 to Sta. 165+21.81, LT	USH 8 (Lightning Creek)	87.5

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-05-75	Sta. 194+37.69 to Sta. 195+25.19, RT	USH 8 (Hay River)	87.5
	Sta. 197+11.81 to Sta. 197+99.31, LT	USH 8 (Hay River)	87.5
TOTAL			175

614.2500 MGS THRIE BEAM TRANSITION (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-04-72	Sta. 162+31.69 to Sta. 162+71.08, LT	USH 8 (Lightning Creek)	40
	Sta. 163+94.92 to Sta. 164+34.31, LT	USH 8 (Lightning Creek)	40
	Sta. 163+94.92 to Sta. 164+34.31, RT	USH 8 (Lightning Creek)	40
TOTAL			120

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-05-75	Sta. 195+25.19 to Sta. 195+64.58, LT	USH 8 (Hay River)	40
	Sta. 195+25.19 to Sta. 195+64.58, RT	USH 8 (Hay River)	40
	Sta. 196+72.42 to Sta. 197+11.81, LT	USH 8 (Hay River)	40
	Sta. 196+72.42 to Sta. 197+11.81, RT	USH 8 (Hay River)	40
TOTAL			160

614.2610 MGS GUARDRAIL TERMINAL EAT (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	EACH
1570-04-72	Sta. 161+78.56 to Sta. 162+31.69, LT	USH 8 (Lightning Creek)	1
	Sta. 164+34.31 to Sta. 164+87.44, RT	USH 8 (Lightning Creek)	1
	Sta. 165+21.81 to Sta. 165+74.94, LT	USH 8 (Lightning Creek)	1
TOTAL			3

PROJECT ID	STATION TO STATION	LOCATION	EACH
1570-05-75	Sta. 193+84.56 to Sta. 194+37.69, RT	USH 8 (Hay River)	1
	Sta. 194+72.06 to Sta. 195+25.19, LT	USH 8 (Hay River)	1
	Sta. 197+11.81 to Sta. 197+64.94, RT	USH 8 (Hay River)	1
	Sta. 197+99.31 to Sta. 198+52.44, LT	USH 8 (Hay River)	1
TOTAL			4

3

619.1000 MOBILIZATION

PROJECT ID	CATEGORY	EACH
1570-04-72	0010	0.3
	0020	0.2
TOTAL		0.5

PROJECT ID	CATEGORY	EACH
1570-05-75	0010	0.3
	0020	0.2
TOTAL		0.5

624.0100 WATER (CATEGORY 0010)

PROJECT ID	PURPOSE	MGAL
1570-04-72	COMPACTION	4.0
	DUST CONTROL	0.5
TOTAL		4.5

PROJECT ID	PURPOSE	MGAL
1570-05-75	COMPACTION	5.0
	DUST CONTROL	0.5
TOTAL		5.5

SALVAGED TOPSOIL, MULCHING FERTILIZER & SEED (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING NO. 20 LB	630.0200 SEEDING TEMPORARY LB
1570-04-72	Sta. 161+80 to Sta. 164+85	USH 8 (Lightning Creek)	175	400	0.3	12	12
	Undistributed		45	100	0.1	3	3
TOTALS			220	500	0.4	15	15

PROJECT ID	STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING NO. 20 LB	630.0200 SEEDING TEMPORARY LB
1570-05-75	Sta. 194+75 to Sta. 197+65	USH 8 (Hay River)	135	390	0.2	12	12
	Undistributed		35	95	0.1	3	3
TOTALS			170	485	0.3	15	15

SILT FENCE & SILT FENCE MAINTENANCE (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	628.1504 LF	628.1520 MAINTENANCE LF
1570-04-72	Sta. 161+03 to Sta. 162+49, RT	USH 8 (Lightning Creek)	155	155
	Sta. 161+57 to Sta. 162+49, LT	USH 8 (Lightning Creek)	105	105
	Sta. 164+12 to Sta. 166+11, LT	USH 8 (Lightning Creek)	215	215
	Sta. 164+12 to Sta. 165+09, RT	USH 8 (Lightning Creek)	115	115
	Undistributed		150	150
TOTALS			740	740

PROJECT ID	STATION TO STATION	LOCATION	628.1504 LF	628.1520 MAINTENANCE LF
1570-05-75	Sta. 194+37 to Sta. 195+50, LT	USH 8 (Hay River)	120	120
	Sta. 193+49 to Sta. 195+49, RT	USH 8 (Hay River)	210	210
	Sta. 196+90 to Sta. 198+88, LT	USH 8 (Hay River)	220	220
	Sta. 196+90 to Sta. 197+95, RT	USH 8 (Hay River)	120	120
	Undistributed		170	170
TOTALS			840	840

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL (CATEGORY 0010)

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT ID 1570-04-72	2	2
PROJECT ID 1570-05-75	2	2

628.2023 EROSION MAT CLASS II TYPE B (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-04-72	Sta. 162+04 to Sta. 162+92, LT	USH 8 (Lightning Creek)	90
	Sta. 162+29 to Sta. 162+92, RT	USH 8 (Lightning Creek)	65
	Sta. 163+75 to Sta. 164+25, LT	USH 8 (Lightning Creek)	55
	Sta. 163+75 to Sta. 164+24, RT	USH 8 (Lightning Creek)	60
	Undistributed		70
TOTAL			340

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-05-75	Sta. 195+33 to Sta. 195+80, LT	USH 8 (Hay River)	35
	Sta. 195+29 to Sta. 195+82, RT	USH 8 (Hay River)	30
	Sta. 196+51 to Sta. 197+36, LT	USH 8 (Hay River)	60
	Sta. 196+52 to Sta. 197+40, RT	USH 8 (Hay River)	75
	Undistributed		50
TOTAL			250

628.7504 TEMPORARY DITCH CHECKS (CATEGORY 0010)

PROJECT ID	STATION	LF
1570-04-72	Undistributed	20

PROJECT ID	STATION	LF
1570-05-75	Undistributed	20

642.5001 FIELD OFFICE TYPE B (CATEGORY 0010)

LOCATION	EACH
PROJECT ID 1570-04-72	0.5
PROJECT ID 1570-05-75	0.5
TOTAL	1

3

645.0130 GEOTEXTILE FABRIC TYPE R (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-04-72	Sta. 164+05 to Sta. 164+11, LT	USH 8 (Lightning Creek)	8
	Sta. 164+05 to Sta. 164+11, RT	USH 8 (Lightning Creek)	8
TOTAL			16

PROJECT ID	STATION TO STATION	LOCATION	SY
1570-05-75	Sta. 196+82 to Sta. 196+88, LT	USH 8 (Hay River)	8
	Sta. 196+82 to Sta. 196+88, RT	USH 8 (Hay River)	8
TOTAL			16

690.0150 SAWING ASPHALT (CATEGORY 0010)

PROJECT ID	STATION	LOCATION	LF
1570-04-72	Sta. 161+15 to Sta. 161+80, RT	USH 8 (Lightning Creek)	65
	Sta. 161+59 to Sta. 161+80, LT	USH 8 (Lightning Creek)	22
	Sta. 161+80	USH 8 (Lightning Creek)	48
	Sta. 164+85	USH 8 (Lightning Creek)	46
	Sta. 164+85 to Sta. 166+11, LT	USH 8 (Lightning Creek)	126
	Sta. 164+85 to Sta. 165+10, RT	USH 8 (Lightning Creek)	25
TOTAL			332

PROJECT ID	STATION	LOCATION	LF
1570-05-75	Sta. 193+49 to Sta. 194+75, RT	USH 8 (Hay River)	127
	Sta. 194+37 to Sta. 194+75, LT	USH 8 (Hay River)	38
	Sta. 194+75	USH 8 (Hay River)	46
	Sta. 197+65	USH 8 (Hay River)	46
	Sta. 197+65 to Sta. 198+88, LT	USH 8 (Hay River)	124
	Sta. 197+65 to Sta. 197+95, RT	USH 8 (Hay River)	30
TOTAL			411

CONSTRUCTION STAKING

PROJECT ID	CATEGORY	LOCATION	650.8000 RESURFACING REFERENCE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTARY CONTROL LS
1570-04-72	0010	PROJECT 1570-04-72, USH 8 (Lightning Creek)	203	---	1
	0020	B-03-0072, USH 8 (Lightning Creek)	---	1	---
TOTALS			203	1	1

PROJECT ID	CATEGORY	LOCATION	650.8000 RESURFACING REFERENCE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTARY CONTROL LS
1570-05-75	0010	PROJECT 1570-05-75, USH 8 (Hay River)	203	---	1
	0020	B-03-0073, USH 8 (Hay River)	---	1	---
TOTALS			203	1	1

SPV.0090.01 HEAVY DUTY SILT FENCE (CATEGORY 0010)

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-04-72	Sta. 162+49 to Sta. 162+95, RT & LT	USH 8 (Lightning Creek)	175
	Sta. 163+73 to Sta. 164+04, RT & LT	USH 8 (Lightning Creek)	150
TOTAL			325

PROJECT ID	STATION TO STATION	LOCATION	LF
1570-05-75	Sta. 195+49 to Sta. 195+84, RT & LT	USH 8 (Hay River)	140
	Sta. 196+48 to Sta. 196+81, RT & LT	USH 8 (Hay River)	145
TOTAL			285

3

TEMPORARY CONCRETE BARRIER

PROJECT ID	STAGE	LOCATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORAR PRECAST INSTALLED LF	614.0905 CRASH CUSHION TEMPORARY EACH	COMMENT
1570-04-72	1	N. SIDE OF BRIDGE CLOSED	540	540	1	ANCHOR CONCRETE BARRIER PER DETAIL
	2	S. SIDE OF BRIDGE CLOSED	--	430	1	ANCHOR CONCRETE BARRIER PER DETAIL
TOTAL			540	970	2	

PROJECT ID	STAGE	LOCATION	LF	LF	EACH	COMMENT
1570-05-75	1	N. SIDE OF BRIDGE CLOSED	565	565	1	ANCHOR CONCRETE BARRIER PER DETAIL
	2	S. SIDE OF BRIDGE CLOSED	--	565	1	ANCHOR CONCRETE BARRIER PER DETAIL
TOTAL			565	1130	2	

TEMPORARY TRAFFIC SIGNALS FOR BRIDGES

STRUCTURE NO.	PROJECT NO.	661.0100 (STRUCTURE) LS
B-03-0072	1570-04-72	1
B-03-0073	1570-05-75	1

TRAFFIC CONTROL

PROJECT NO.	643.0100 TRAFFIC CONTROL (PROJECT) EA
PROJECT 1570-04-02	1
PROJECT 1570-05-75	1

TRAFFIC CONTROL ITEMS

PROJECT ID	STAGE	LOCATION	DURATION (DAYS)	643.0300 DRUMS NO.	DAYS	643.0420 BARRICADES TYPE III NO.	DAYS	643.0705 WARNING LIGHTS TYPE A NO.	DAYS	643.0715 WARNING LIGHTS TYPE C NO.	DAYS
1570-04-72	1	LIGHTNING CREEK BRIDGE	30	48	1440	1	30	2	60	11	330
	2	LIGHTNING CREEK BRIDGE	30	52	1560	1	30	2	60	10	300
TOTAL					3000		60		120		630

PROJECT ID	STAGE	LOCATION	DURATION (DAYS)	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS
1570-05-75	1	HAY RIVER BRIDGE	30	49	1470	1	30	2	60	11	330
	2	HAY RIVER BRIDGE	30	44	1320	1	30	2	60	11	330
					2790		60		120		660

3

TRAFFIC CONTROL SIGNS

				643.0900	
PROJECT ID	STAGE	LOCATION	DURATION (DAYS)	NO.	DAYS
1570-04-02	ADVANCED WARNING	LIGHTNING CREEK BRIDGE	30	21	630
	1	LIGHTNING CREEK BRIDGE	30	8	240
	2	LIGHTNING CREEK BRIDGE	30	8	240
TOTAL					1110

PROJECT ID	STAGE	LOCATION	DURATION (DAYS)	NO.	DAYS
1570-05-75	ADVANCED WARNING	HAY RIVER BRIDGE	30	26	780
	1	HAY RIVER BRIDGE	30	8	240
	2	HAY RIVER BRIDGE	30	8	240
TOTAL					1260

PAVEMENT MARKING

			646.0600	649.0400		649.1400	646.0106		
				TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH		TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 24-INCH	PAVEMENT MARKING EPOXY 4-INCH YELLOW (12.5' SEG.; 37.5' GAP)	WHITE (SOLID)	
			REMOVING PAVEMENT MARKINGS	WHITE	YELLOW	WHITE			
PROJECT ID	STAGE	LOCATION	LF	LF	LF	LF	LF	LF	NOTES
1570-04-72	1	LIGHTNING CREEK BRIDGE	281	1100	700	30	--	--	
	2	LIGHTNING CREEK BRIDGE	--	1100		--	--	--	
	FINAL	LIGHTNING CREEK BRIDGE	--	--	--	--	400	1200	UNDISTRIBUTED
TOTAL			281	2200	700	30	400	1200	
PROJECT ID	STAGE	LOCATION	LF	LF	LF	LF	LF		
1570-05-75	1	HAY RIVER BRIDGE	262	990	700	30	--	--	
	2	HAY RIVER BRIDGE	--	990		--	--	--	
	FINAL	HAY RIVER BRIDGE	--	--	--	--	800	1200	UNDISTRIBUTED
			262	1980	700	30	800	1200	

NO.	STA.	BENCH MARKS DESCRIPTION	ELEV.
1	162+74	NGS BRASS CAP ON NW COR. OF WALL STAMPED V149, 23'LT	1147.01
2	164+27	CHIS. SQ. ON N SIDE OF CONCRETE PAD FOR PP #52, 57'RT	1136.57

EXISTING R/W

XCEL ENERGY

SLOPE INTERCEPT

BM #1

LIGHTNING CREEK

CP WDOT

CHIBARDUN TELEPHONE COOPERATIVE

SLOPE INTERCEPT

EXISTING R/W

N

50'

60'

100'

100'

160+00

161+00

162+00

163+00

164+00

165+00

166+00

167+00

USH 8 (ASPHALT)

SAW CUT REQ'D.

N89°34'14"E

SAW CUT REQ'D.

℄ OF USH 8

SLOPE INTERCEPT

BM #2

EXISTING R/W

DAIRYLAND POWER CO.

EXISTING STRUCTURE TO BE REHABILITATED (B-3-0072)

SLOPE INTERCEPT

CP WDOT

EXISTING R/W

BEGIN CONSTRUCTION
STA. 160+99.26

BEGIN PROJECT
STA. 161+80
(SAW CUT REQ'D.)
X = 100800.29
Y = 262490.69

END PROJECT
STA. 164+85
(SAW CUT REQ'D.)
X = 100802.57
Y = 262795.68

END CONSTRUCTION
STA. 166+10.94

WATER EL. 1133.1 (6-30-14)

HIGH WATER$_{100}$ EL. 1139.8 (PER EXISTING PLANS)

-0.29%

-0.60%

-1.00%

EXISTING ℄ PROFILE

PI STA 161+80.00
PI EL 1144.97

PI STA 162+46.00
PI EL 1144.77

PI STA 164+00.00
PI EL 1143.85

PI STA 164+85.00
PI EL 1143.00

STREAM BED EL. 1131.2±

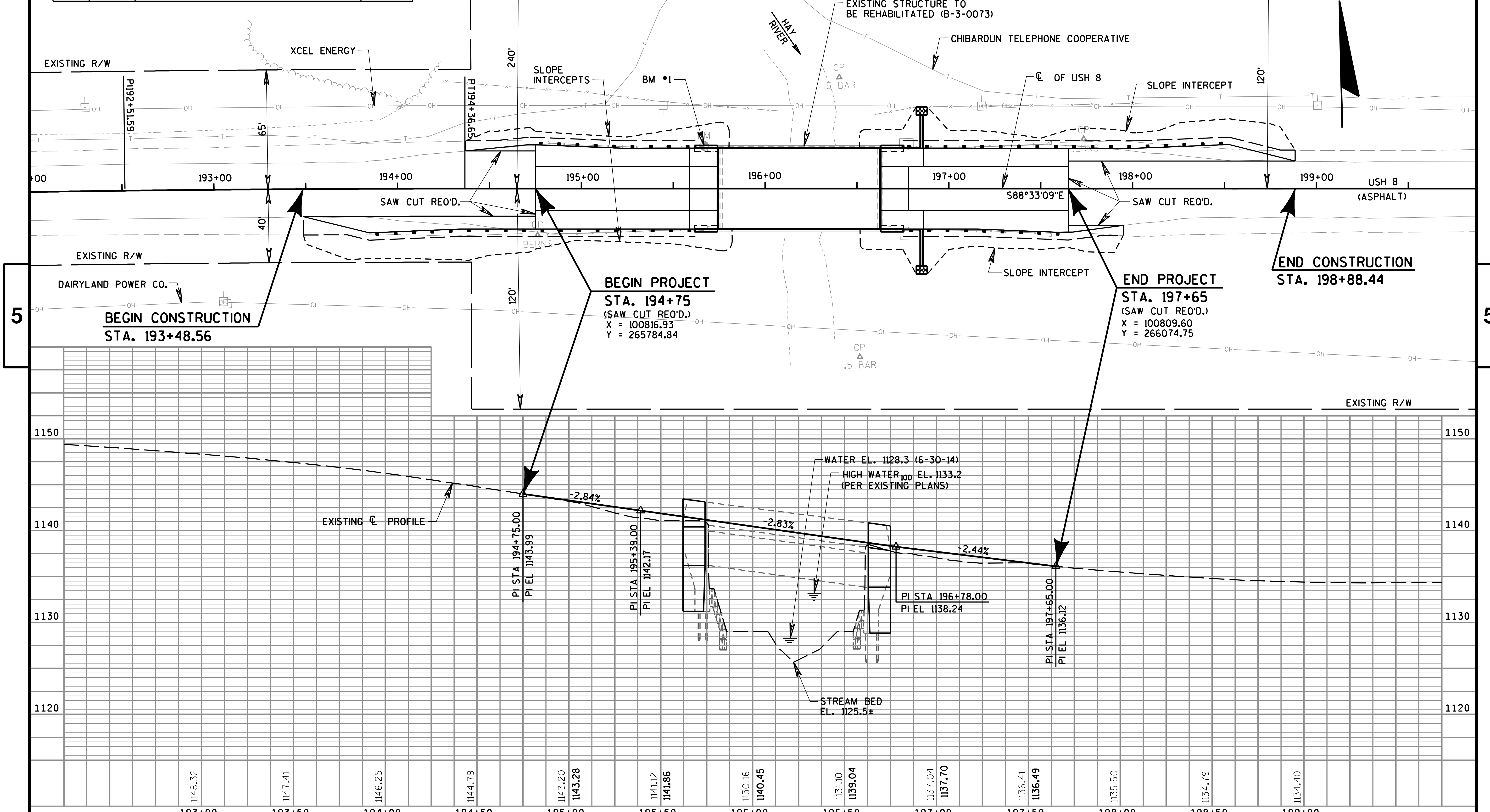
1160 1150 1140 1130 1120

1146.17 1145.88 1145.60 1145.20 1144.81 **1144.91** 1144.47 **1144.75** 1132.97 **1144.45** 1134.84 **1144.15** 1143.54 **1143.85** 1143.24 **1143.35** 1142.89 1142.72 1142.54 1142.22 1141.89

160+00 160+50 161+00 161+50 162+00 162+50 163+00 163+50 164+00 164+50 165+00 165+50 166+00 166+50 167+00

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	PLAN AND PROFILE	SCALE, FEET 0 25 50	SHEET 26	E

		BENCH MARKS	
NO.	STA.	DESCRIPTION	ELEV.
1	195+67	NGS BRASS CAP ON NW COR. OF WALL STAMPED U149, 23' LT	1143.64

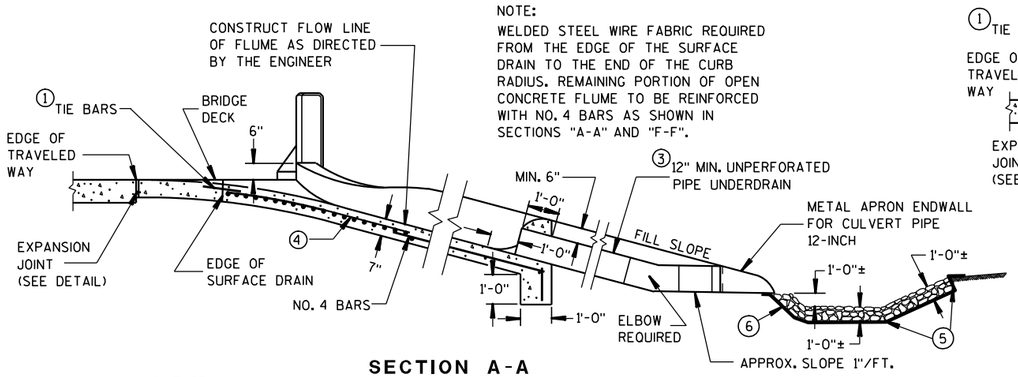


PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	PLAN AND PROFILE	SCALE, FEET 0 25 50	SHEET 27	E

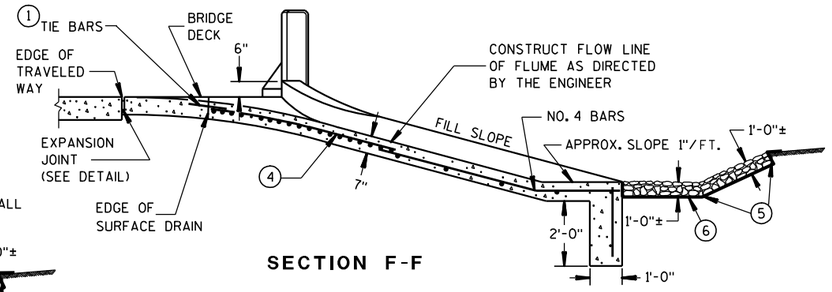
Standard Detail Drawing List

08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
09G01-04C	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G02-03A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
13B02-07A	CONCRETE BRIDGE APPROACH
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B15-08A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08C	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
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15D33-03	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

6



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.

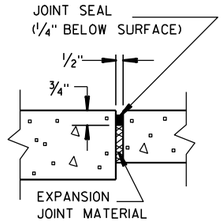
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

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

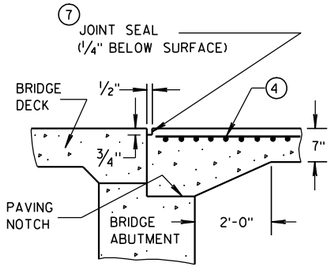
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

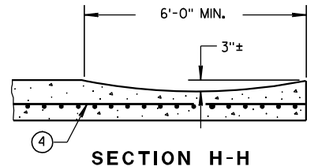
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



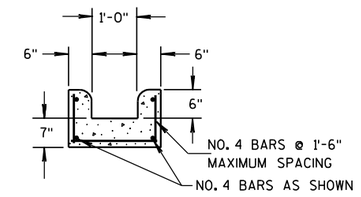
EXPANSION JOINT DETAIL



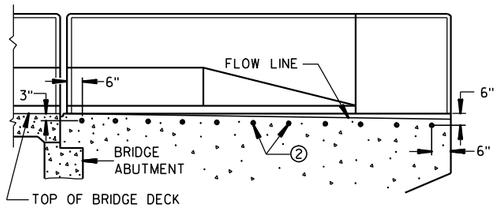
SECTION D-D



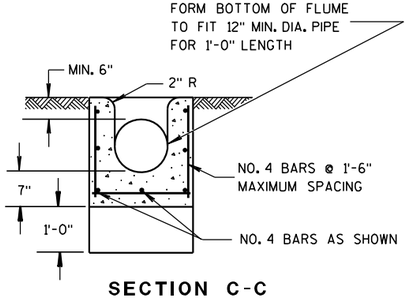
SECTION H-H



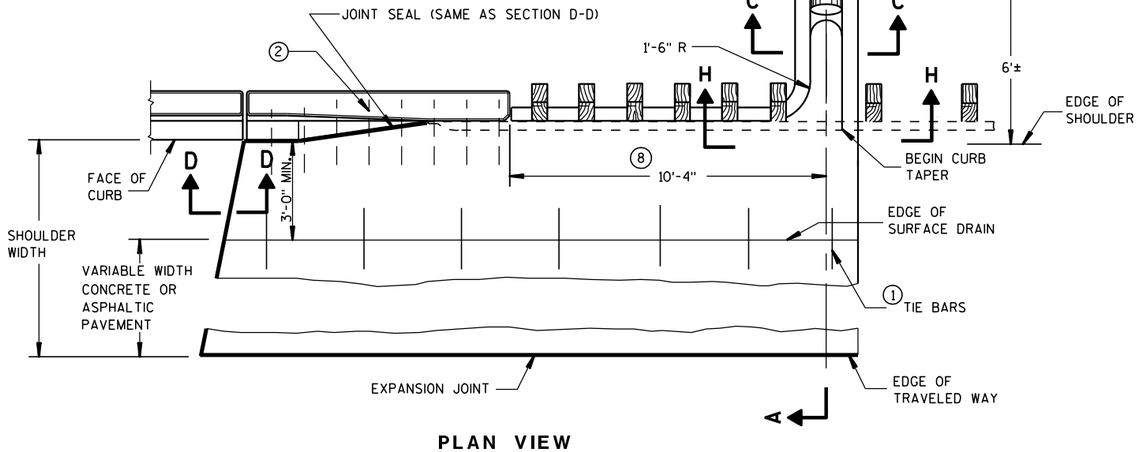
SECTION E-E



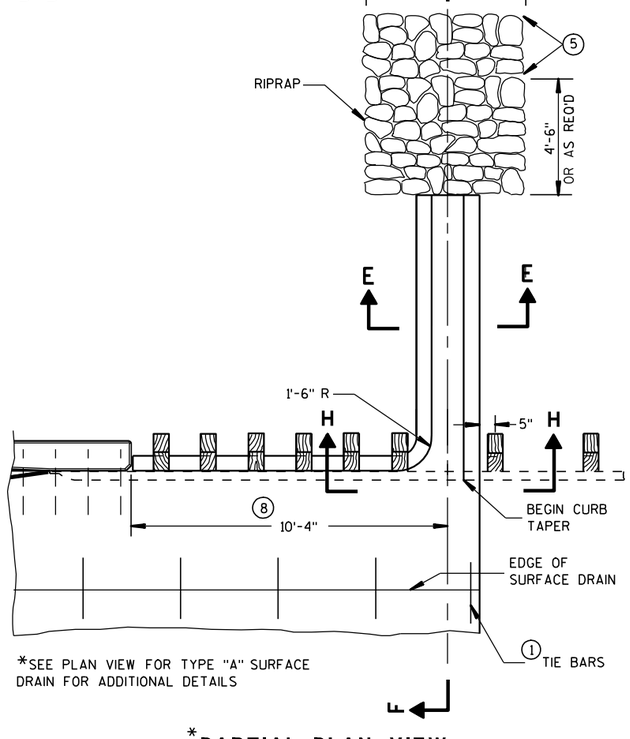
LOCATION OF TIE BARS IN WINGWALL



SECTION C-C



PLAN VIEW
SURFACE DRAIN WITH PIPE
TYPE "A"



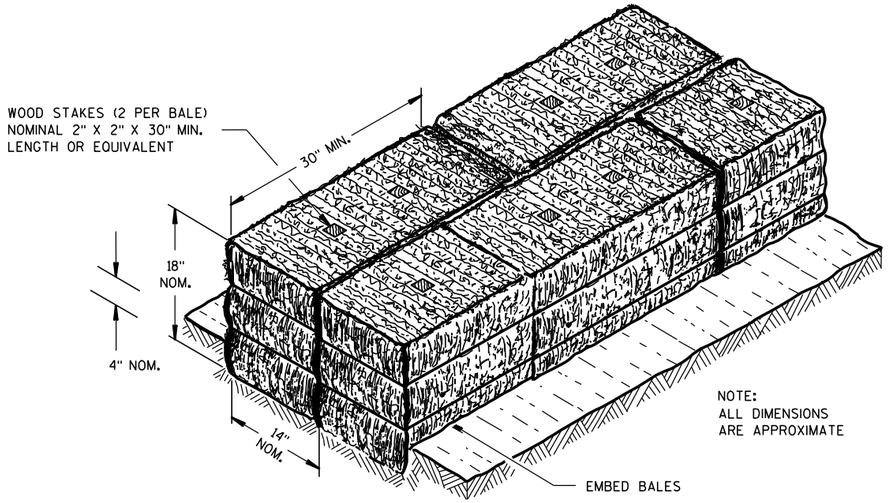
*SEE PLAN VIEW FOR TYPE "A" SURFACE DRAIN FOR ADDITIONAL DETAILS

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

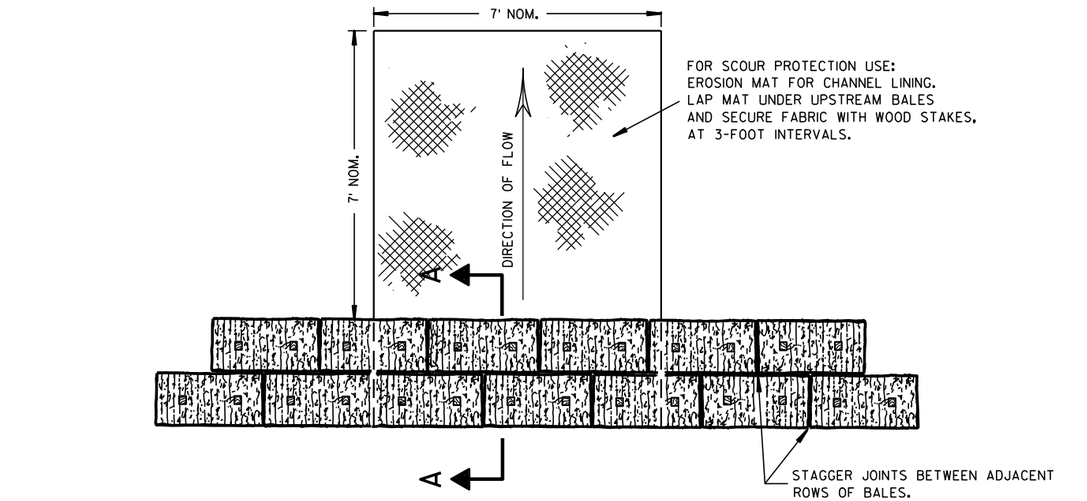
CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

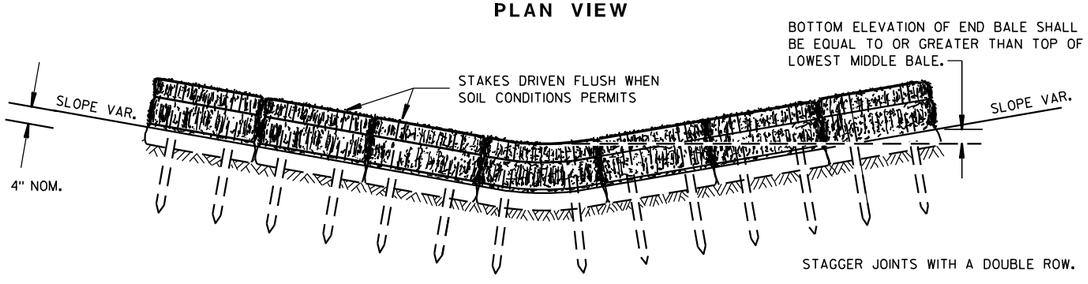
APPROVED
9/4/08
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA



SECTION A-A



PLAN VIEW



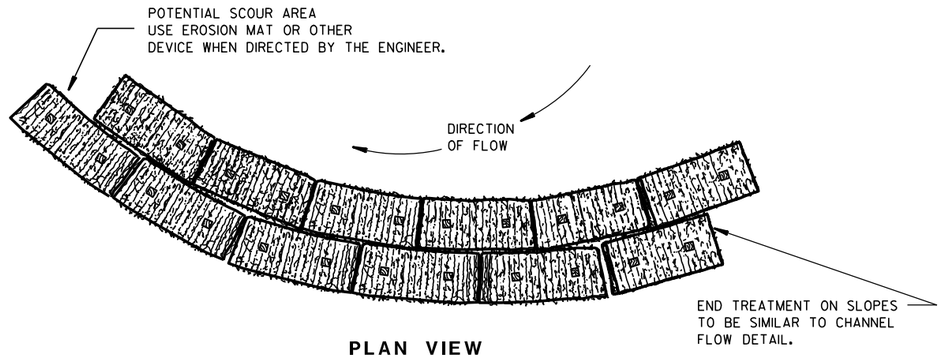
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

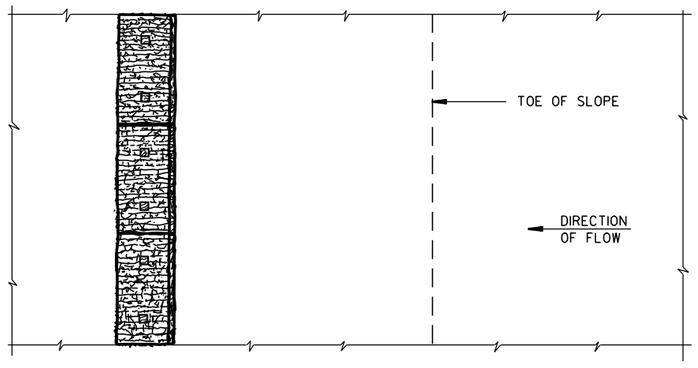
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

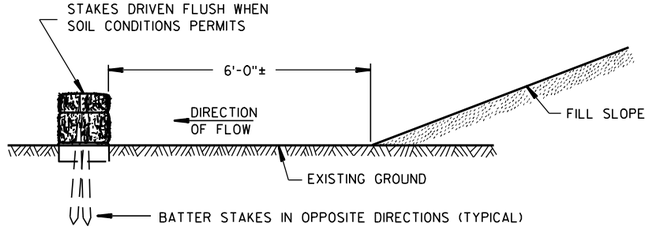


PLAN VIEW

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

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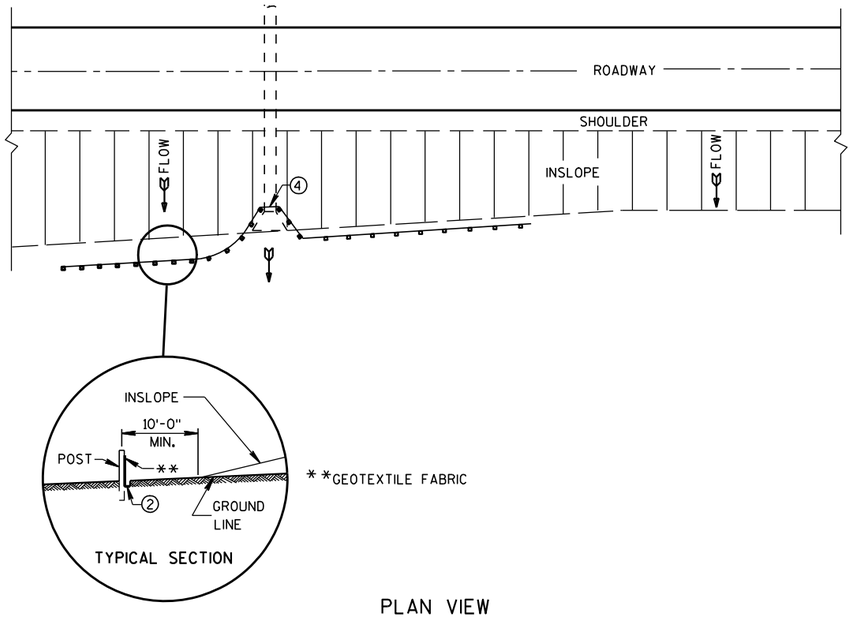
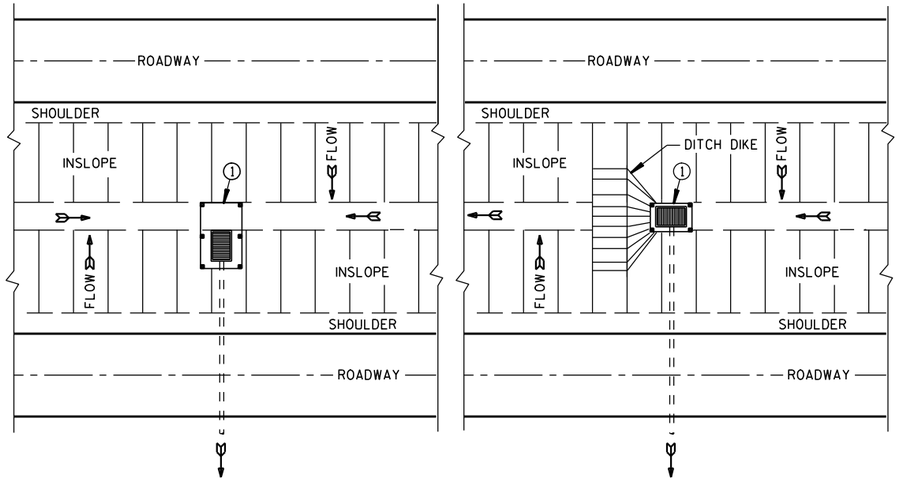


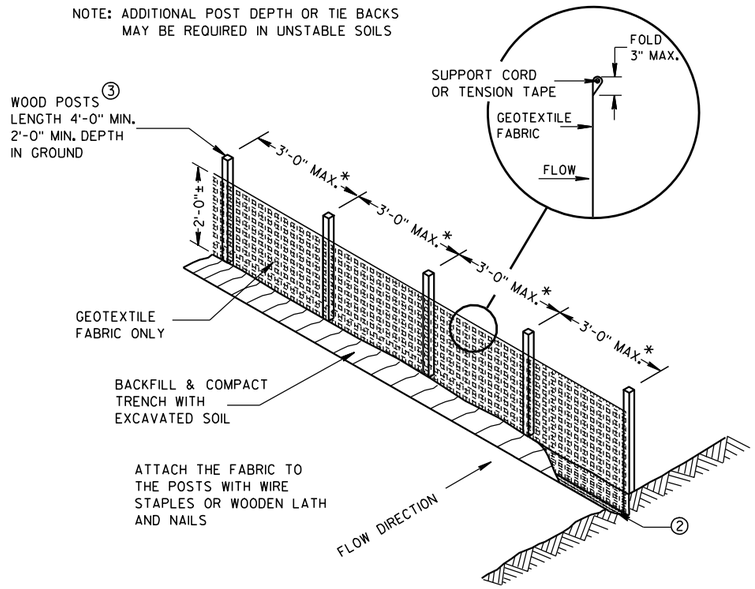
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE

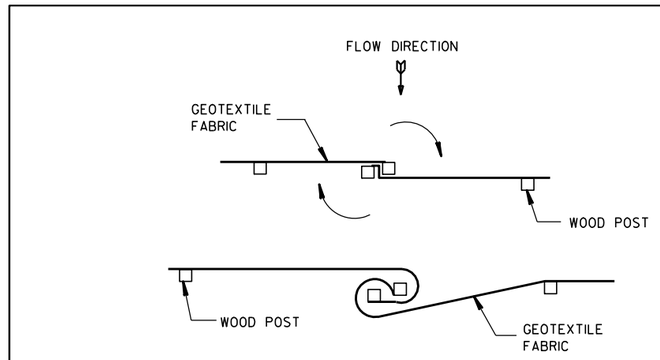


PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS



SILT FENCE

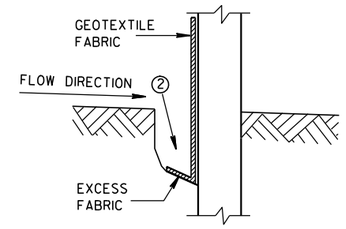


JOINING TWO LENGTHS OF SILT FENCE 5

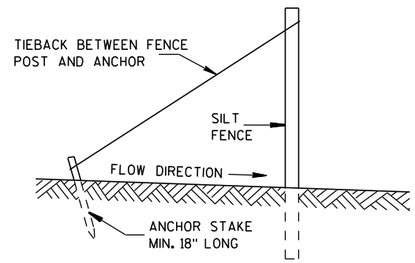
GENERAL NOTES

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

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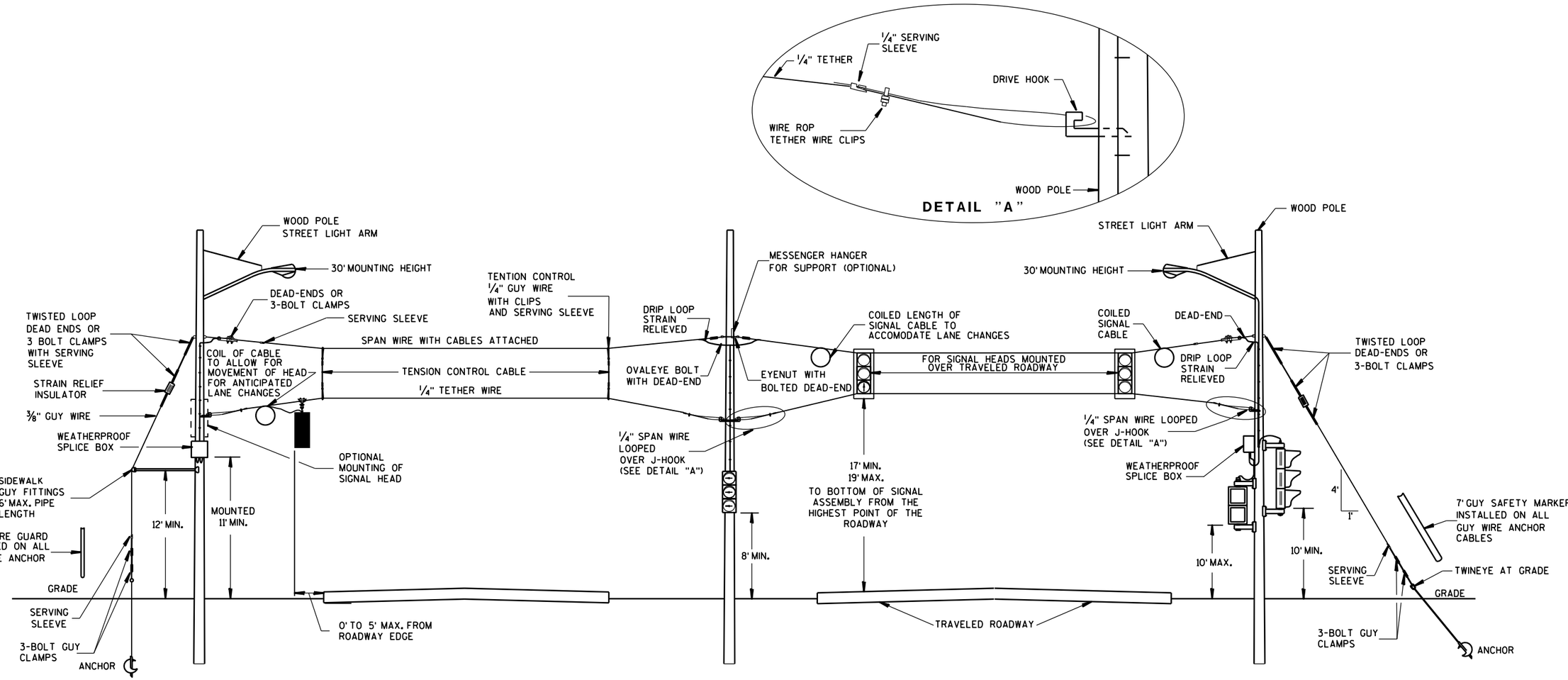
S.D.D. 8 E 9-6



SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
   A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
   B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.

3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

MINIMUM POLE LENGTHS	CLASS	MIN. BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June. 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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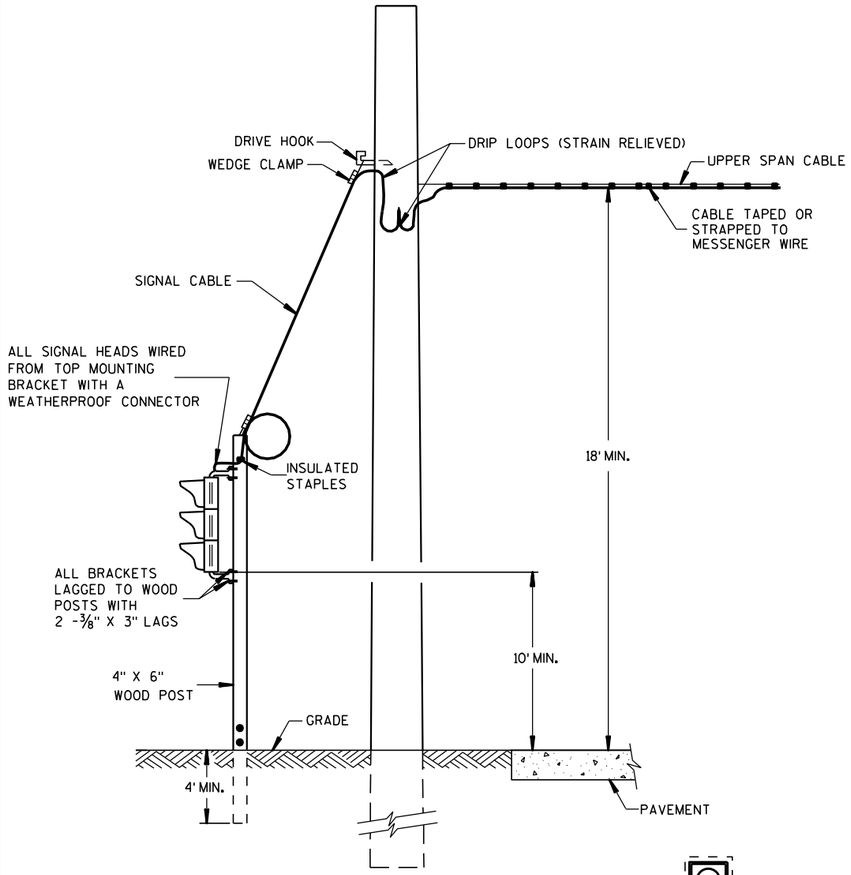
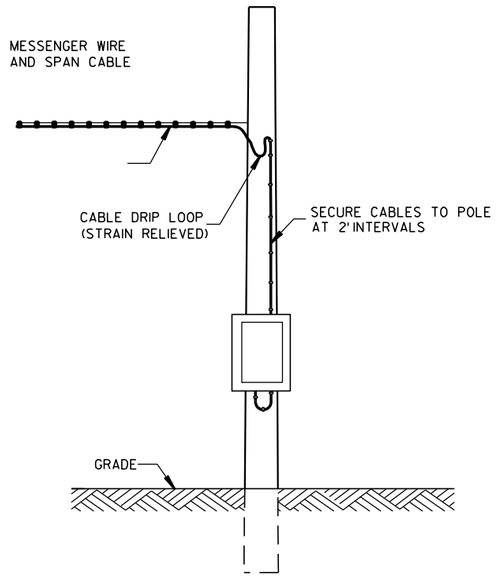
S.D.D. 9 G 1-4c



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION

GENERAL NOTES

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

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAYBE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY PLOLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

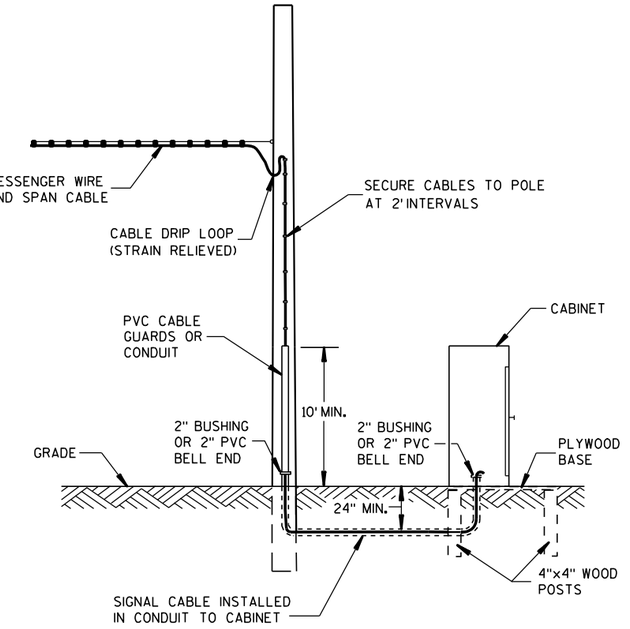
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

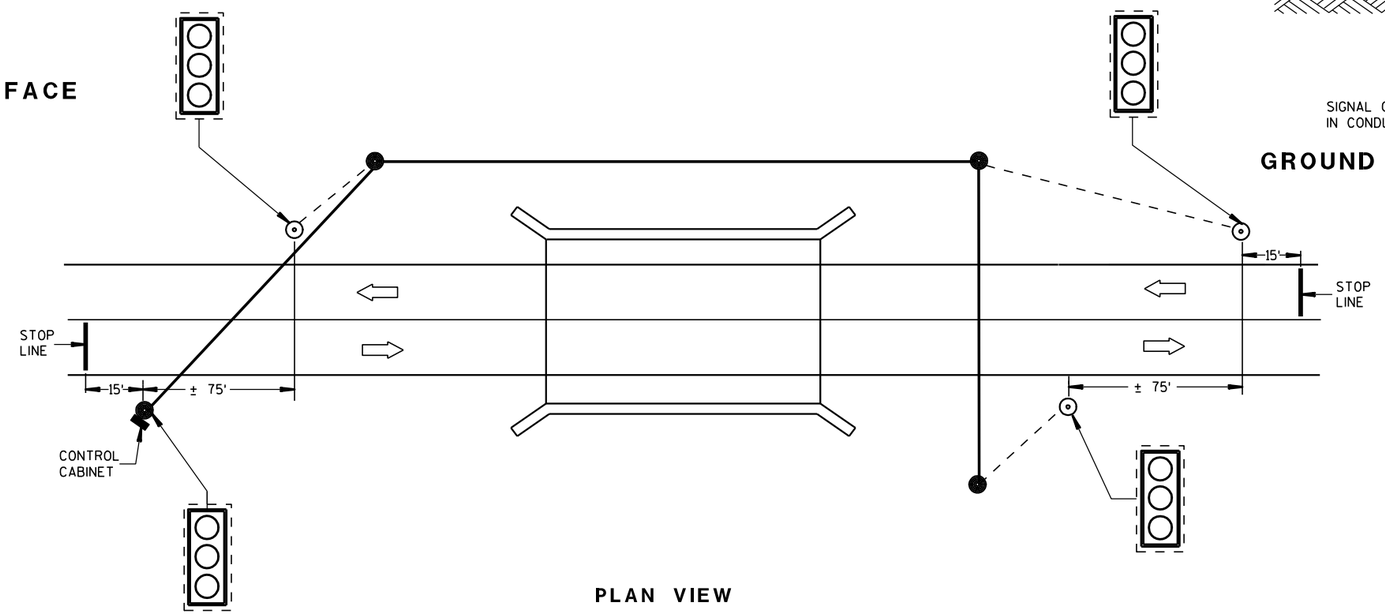
EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



GROUND MOUNT CABINET INSTALLATION

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE**
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/ CURBS	2 FT

**NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.



PLAN VIEW

TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

LEGEND

- WOOD POLE (NONBREAKAWAY)
- WOOD POST (BREAKAWAY)
- SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- LED TRAFFIC SIGNAL FACE WITH BACKPLATE (3-12")
- DIRECTION OF TRAFFIC

MINIMUM POLE LENGHTS	CLASS	MINIMUM BURIAL DEPTHS
25 FEET	V	5 FEET
30 FEET	V	6 FEET
35 FEET	IV	7 FEET
40 FEET	IV	8 FEET
45 FEET	IV	9 FEET

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/2/2011 DATE
/S/ Thomas J. Gosling STATE ELECTRICAL ENGI
HWYS
FHWA

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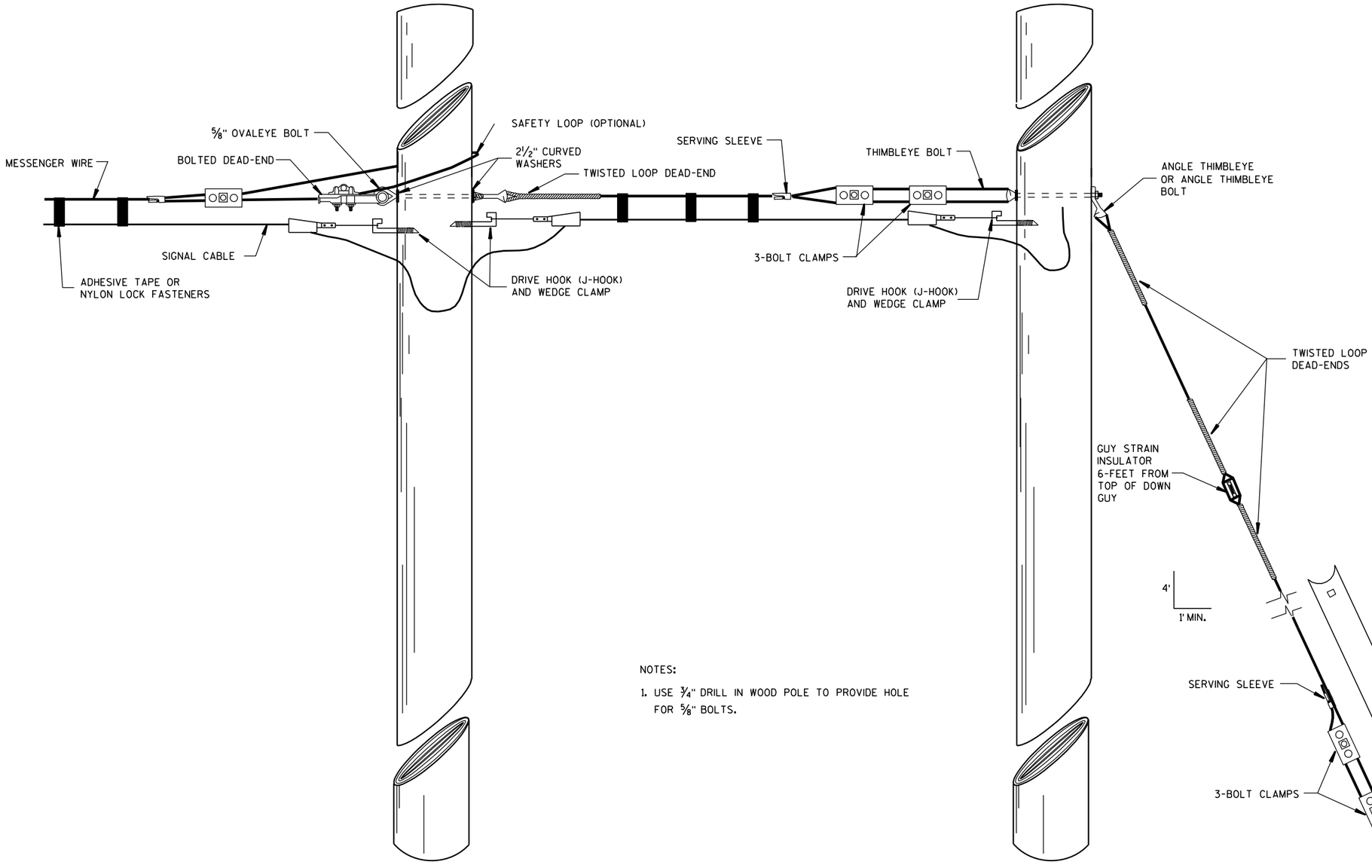

SPAN WIRE POLE

GUY POLE

NOTES:

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.

TYPICAL DEAD-ENDINGS OR GUYING

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 DATE — /S/ Thomas J. G... STATE ELECTRICAL ENGI — HWYS

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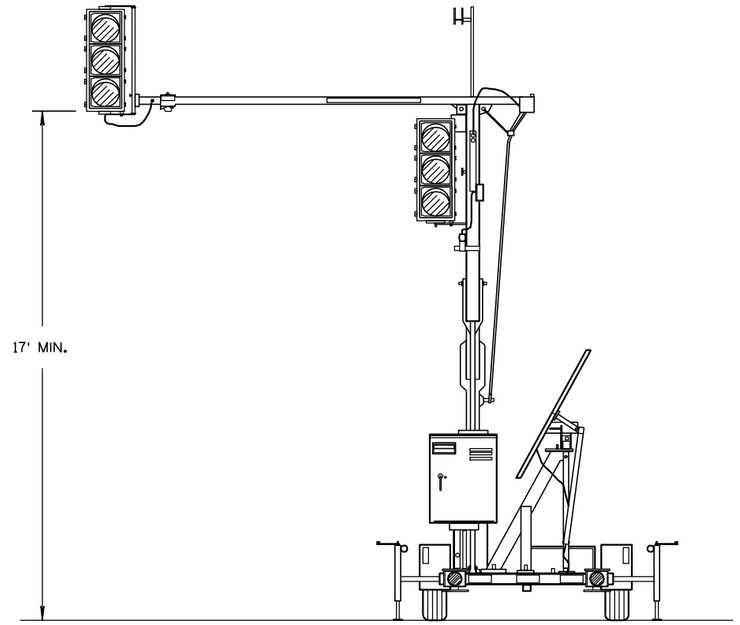
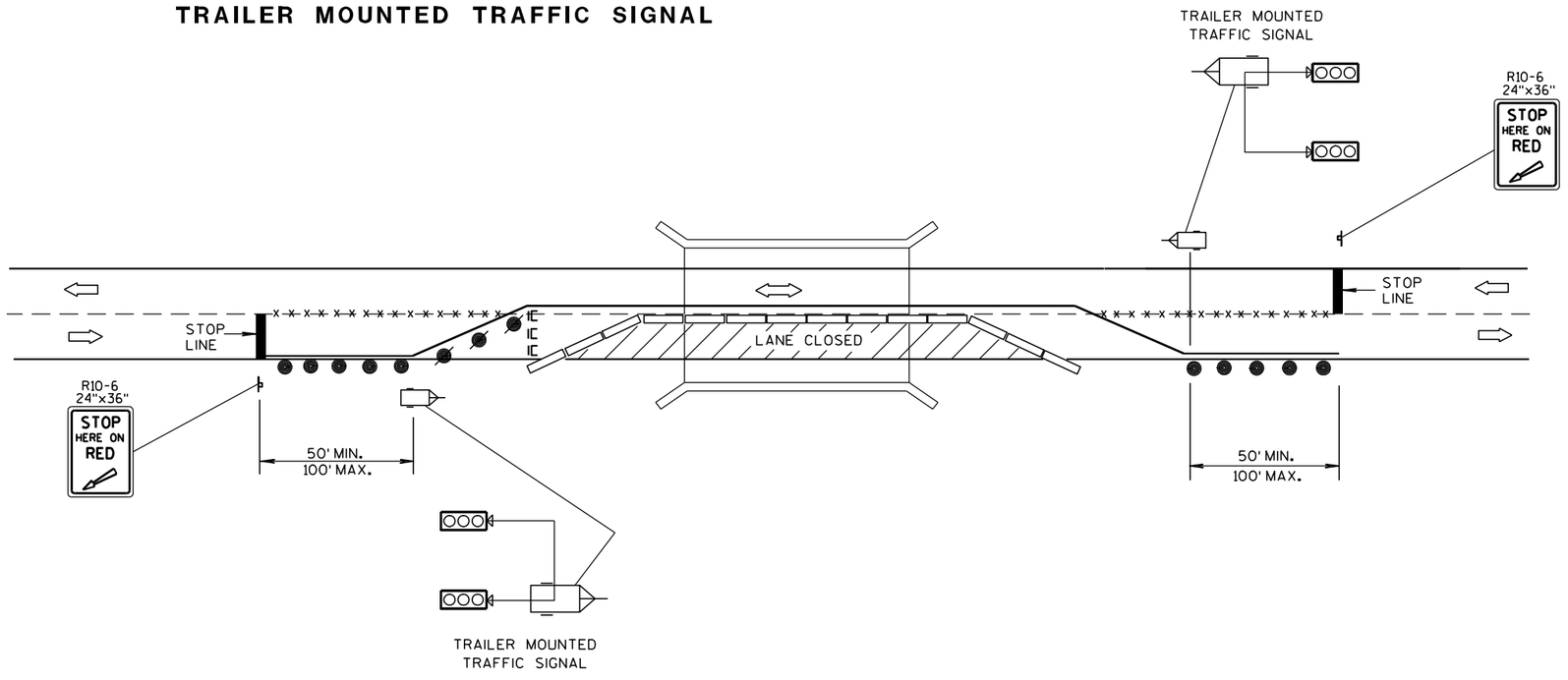


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15 D 33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- DIRECTION OF TRAFFIC FLOW

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Gosling — STATE ELECTRICAL ENGI 35 — HWYS

FHWA

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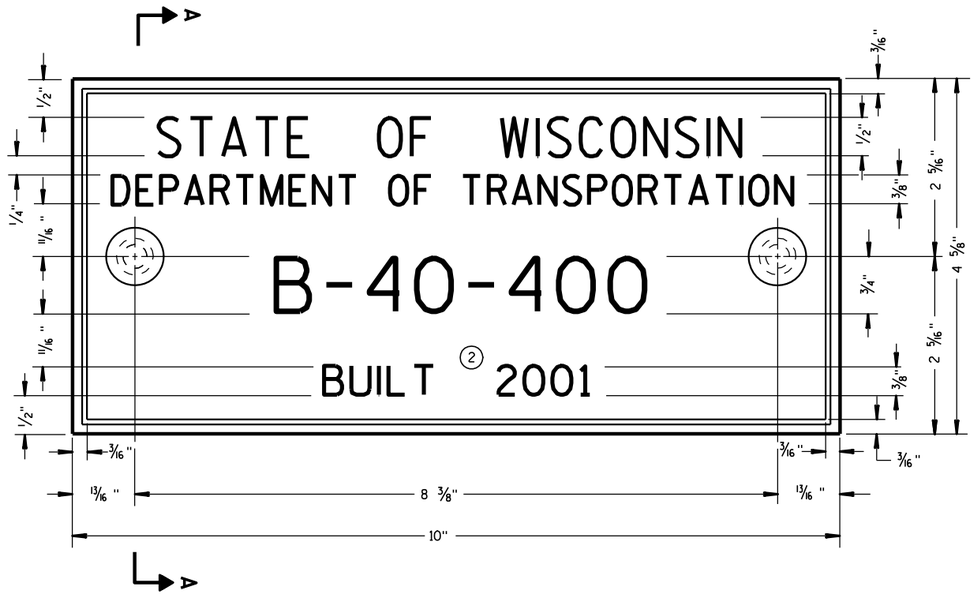
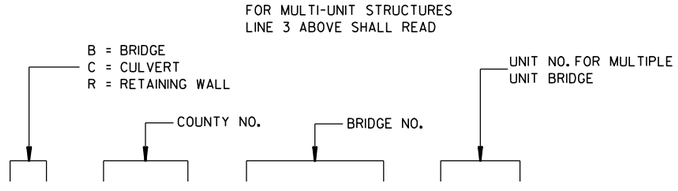


TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION MULTI-UNIT STRUCTURES

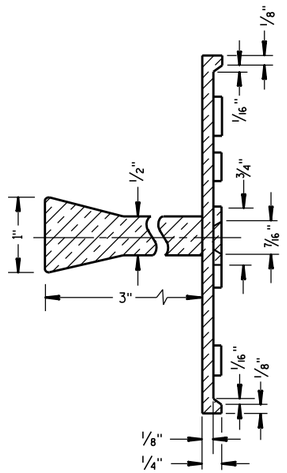
GENERAL NOTES

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.

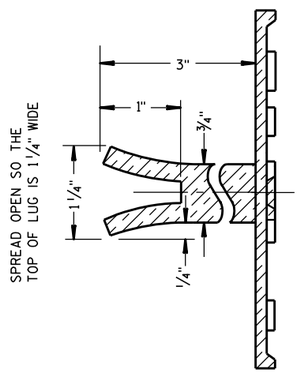
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

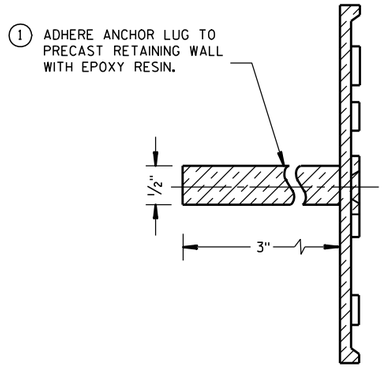
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 DEVELOPMENT ENGINEER

FHWA

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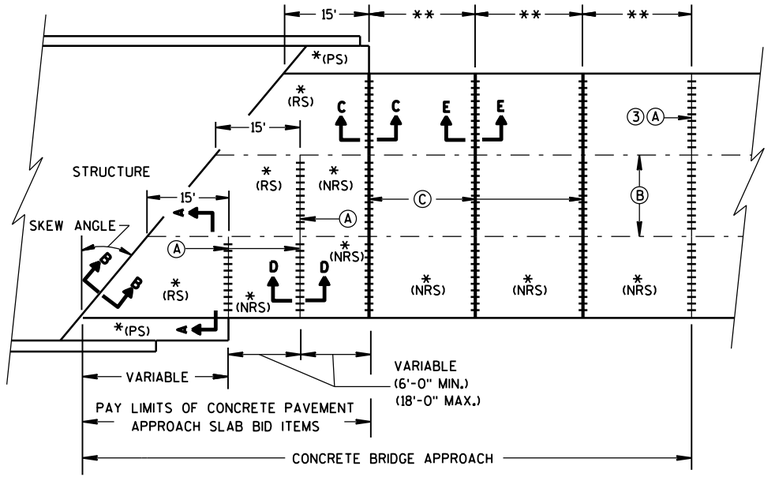
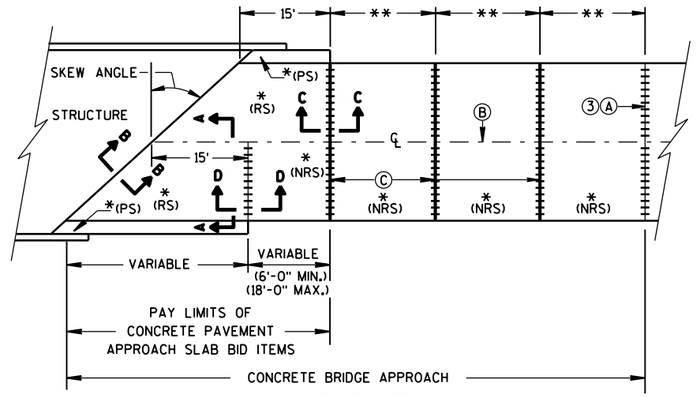
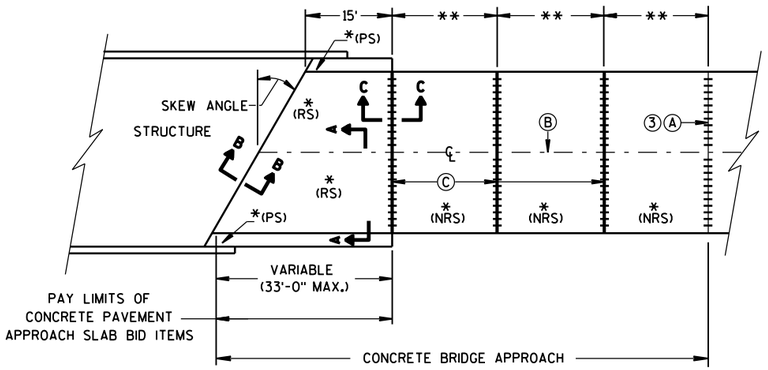
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



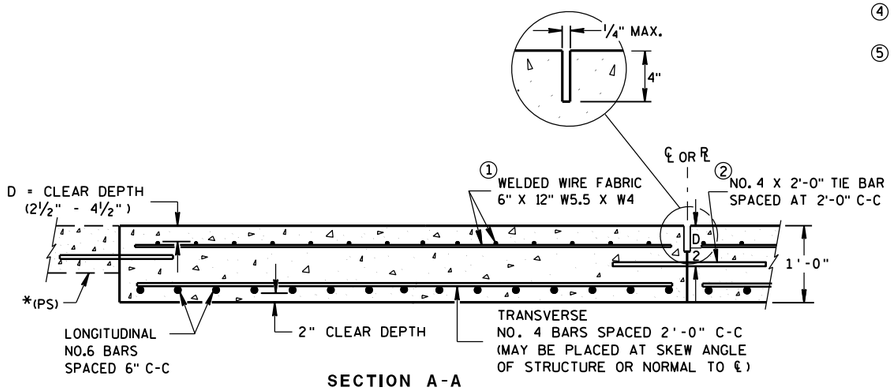
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

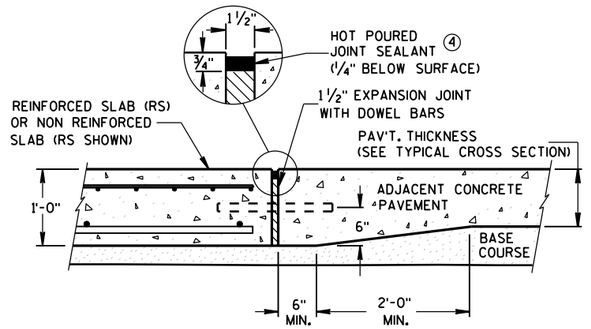
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
***STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11, & SDD 13C13)

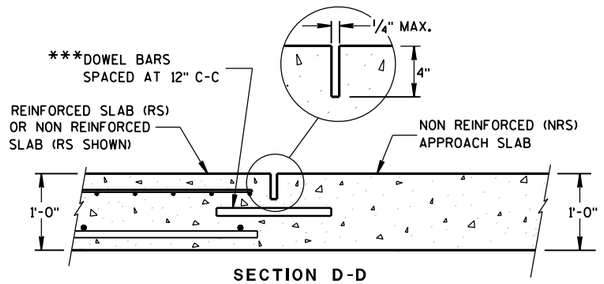
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
(B) STANDARD LONGITUDINAL JOINT AND TIE BARS.
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



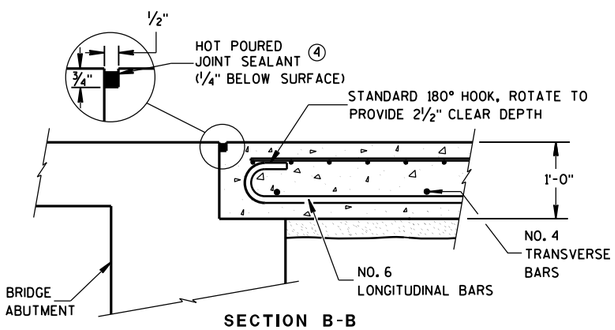
SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

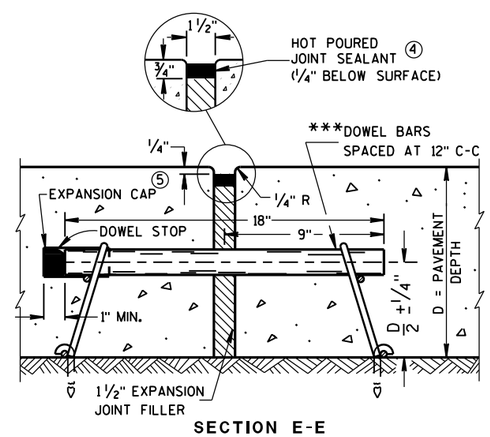
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

1. THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
2. THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
3. DO NOT DOWEL A CONTRACTION JOINT THAT ABUTS AN HMA PAVEMENT.
4. USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
5. PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



SECTION E-E
EXPANSION JOINT

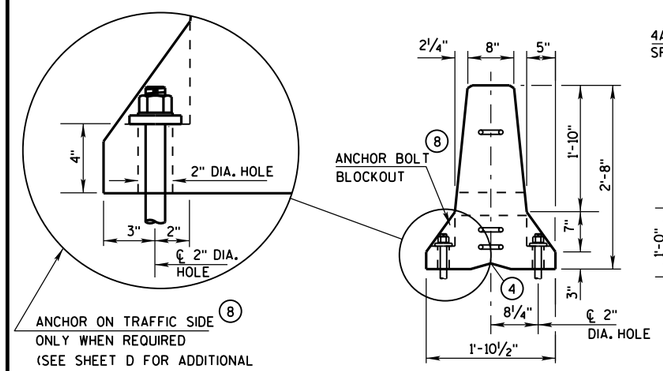
CONCRETE BRIDGE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

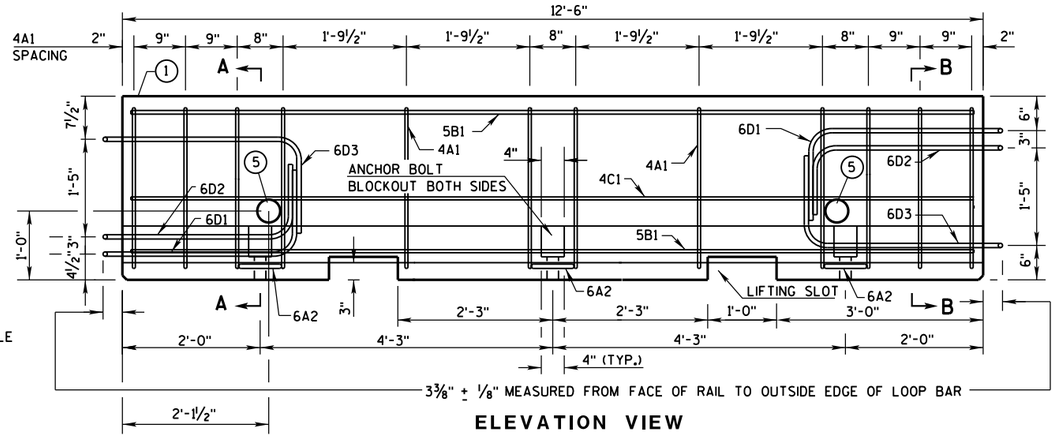
APPROVED
June, 2014 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DE
EER
FHWA

6

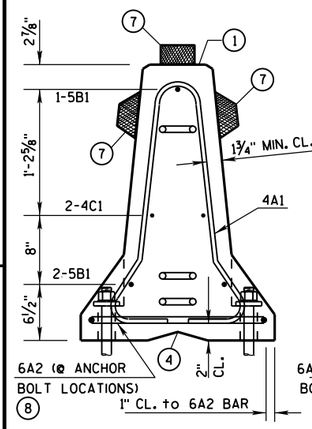
S.D.D. 13 B 2-7a



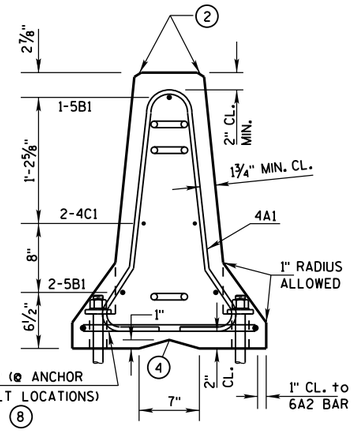
END VIEW



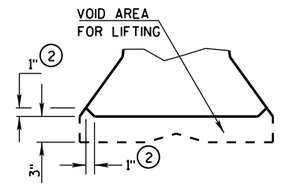
ELEVATION VIEW



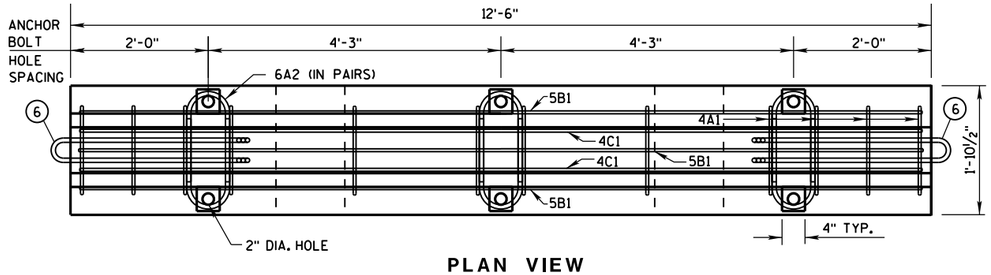
SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)

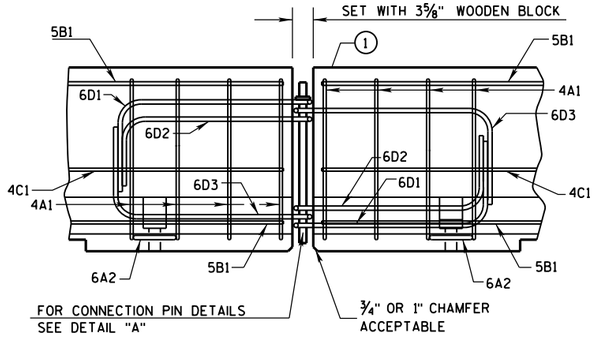


DETAIL "B"
LIFTING SLOT DETAIL

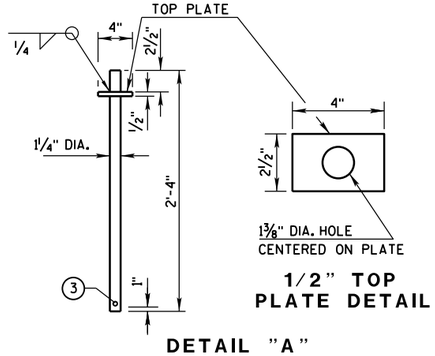


PLAN VIEW

DETAILS OF BARRIER SECTION

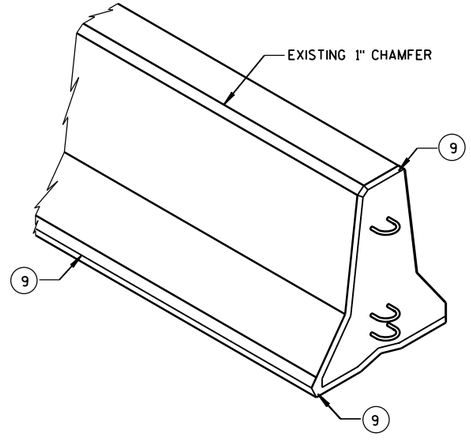


DETAILS OF BARRIER CONNECTION



1/2" TOP PLATE DETAIL

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



GENERAL NOTES

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

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

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

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

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

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

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

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

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

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
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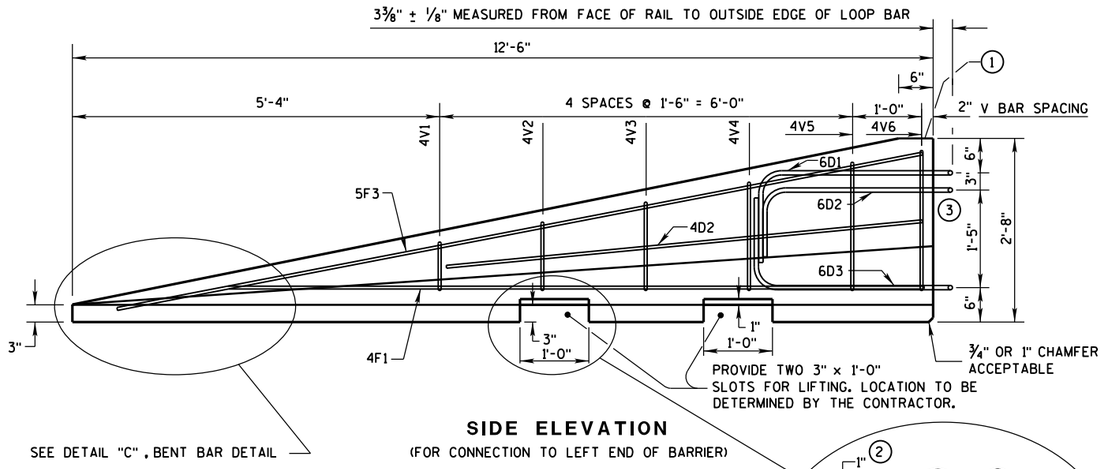
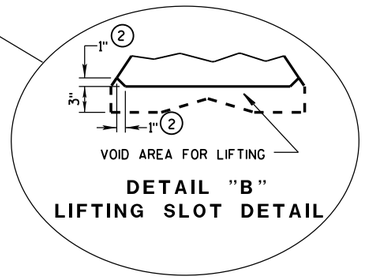
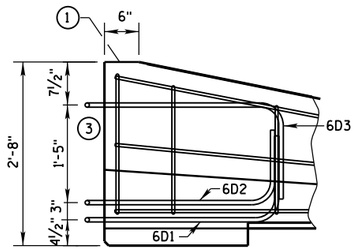


SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



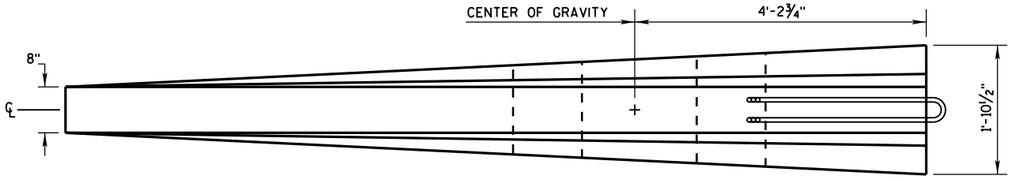
DETAIL "B"
LIFTING SLOT DETAIL



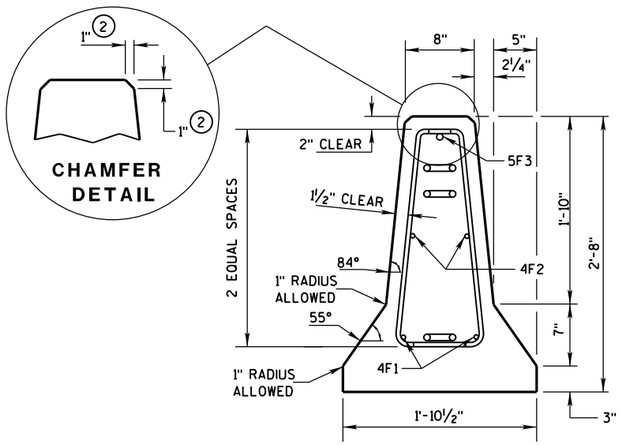
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

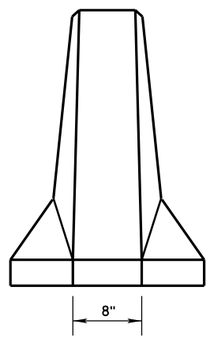
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



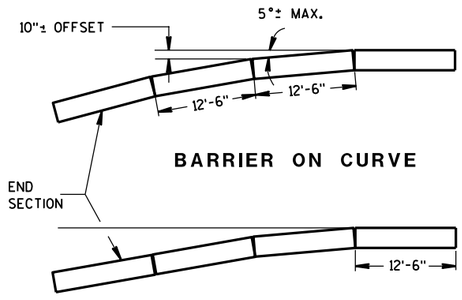
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

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

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
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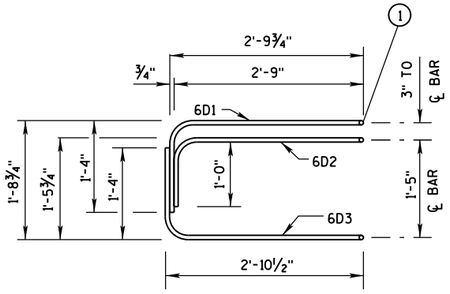
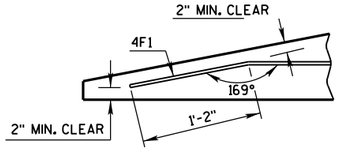
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

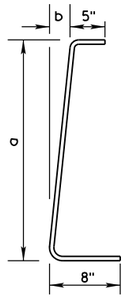
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

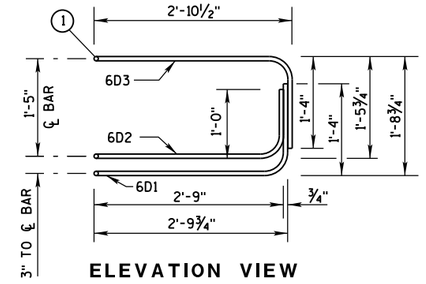
GENERAL NOTES

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

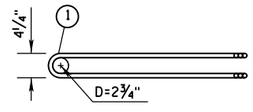
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

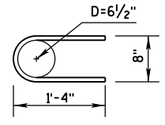
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



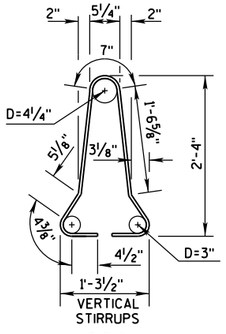
ELEVATION VIEW



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



6A2



4A1

BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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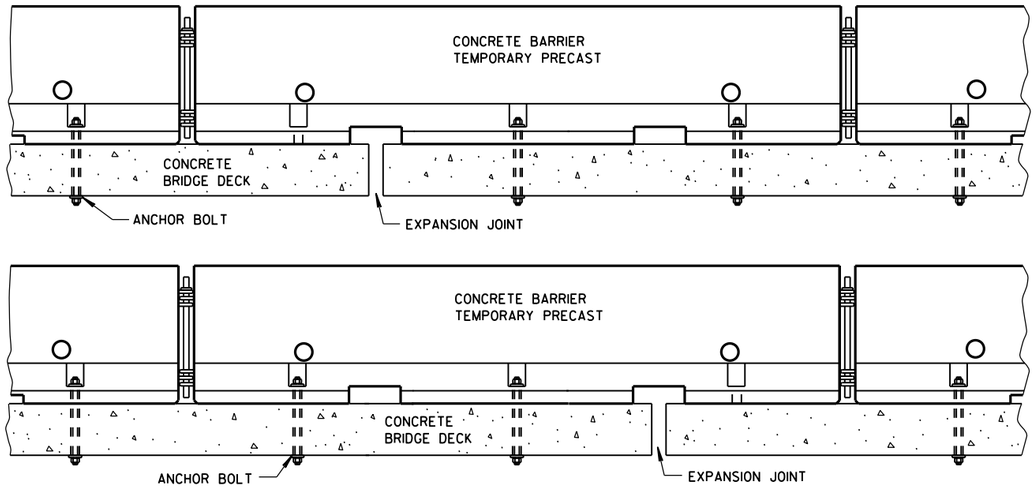
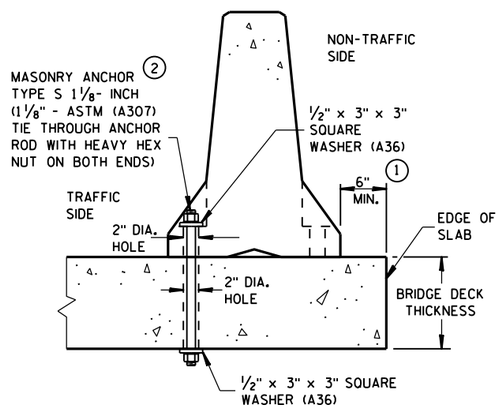
S.D.D. 14 B 7-14c



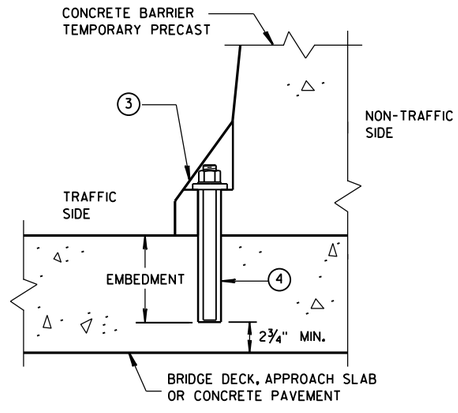
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

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



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT ②

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

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

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT. IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

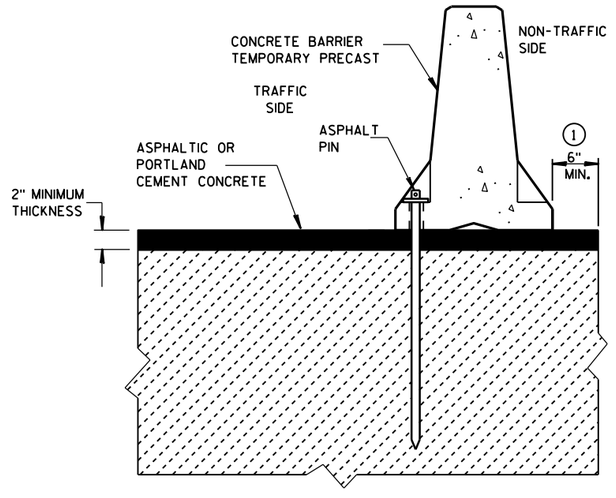
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

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

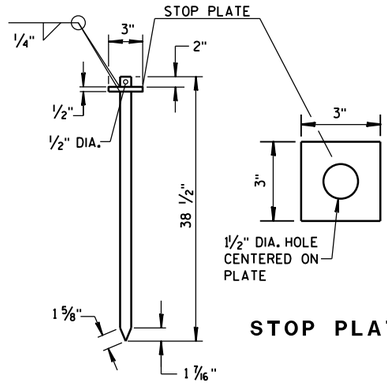
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.



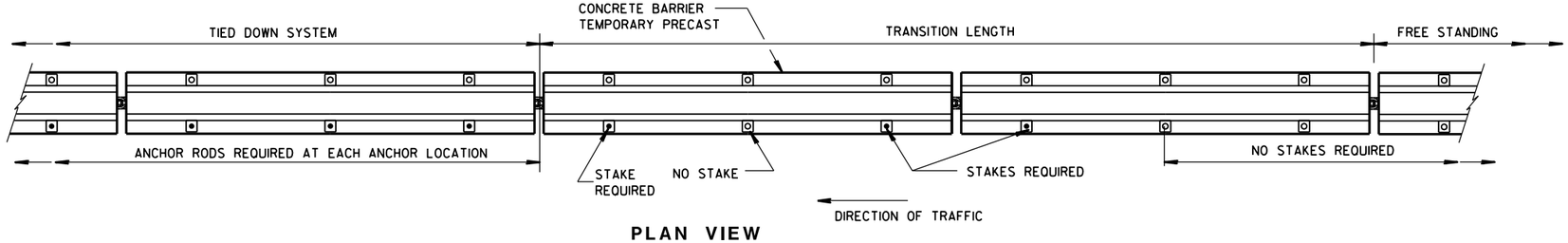
STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN
(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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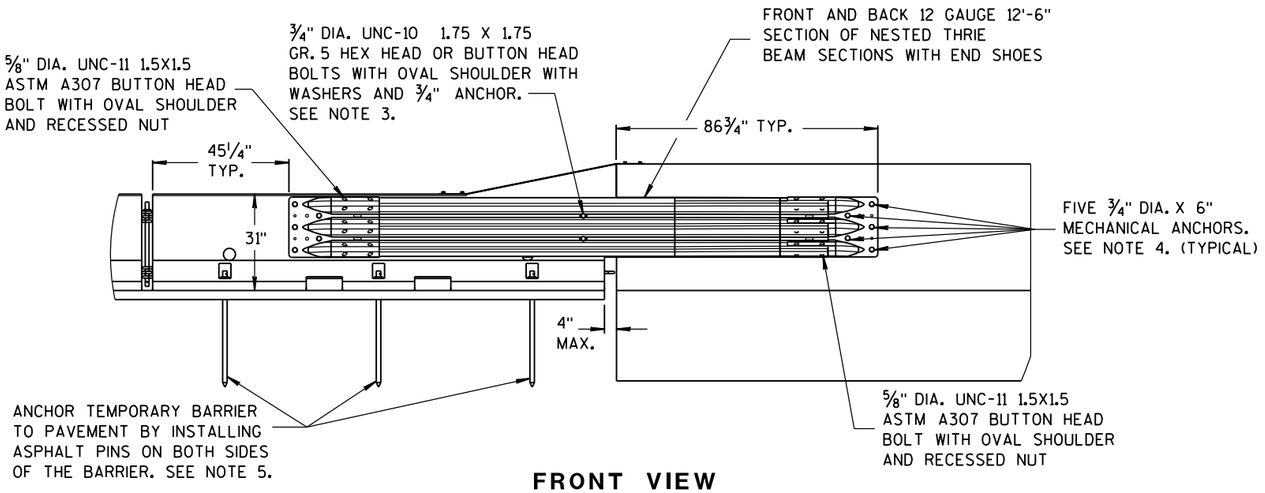
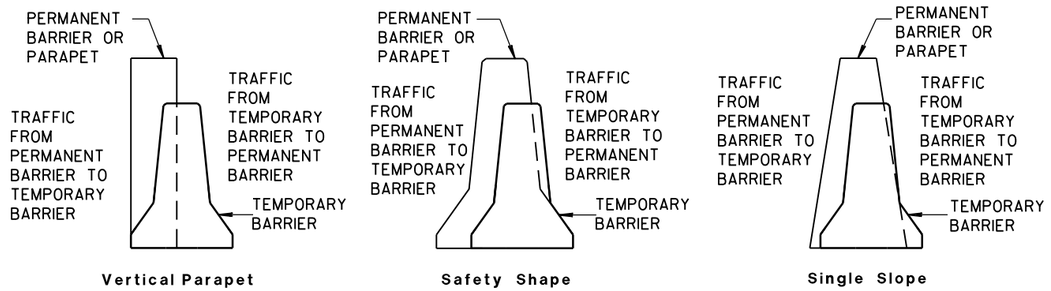
S.D.D. 14 B 7-14d



FRONT VIEW



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

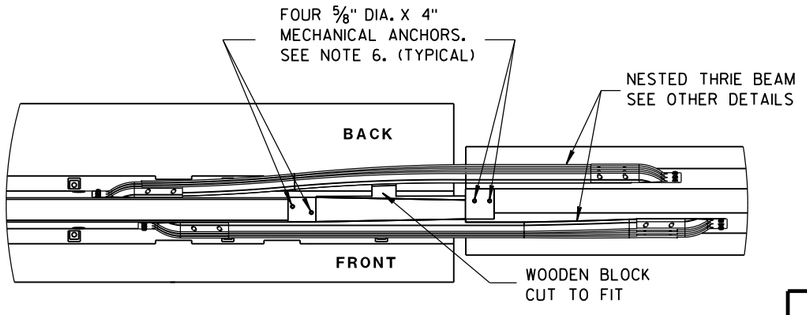
NOTES

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

1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

BACK VIEW

FRONT VIEW



PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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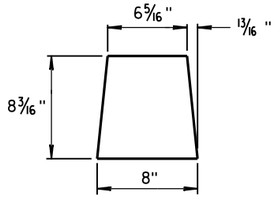
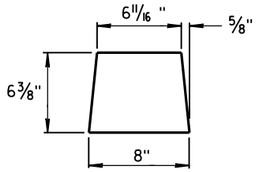
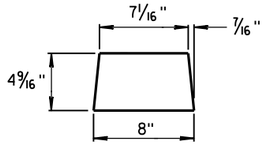
S.D.D. 14 B 7-14e



GUSSET 1



GUSSET 2



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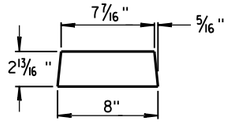
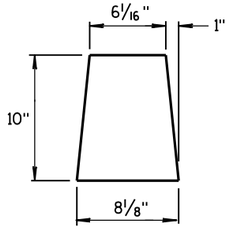
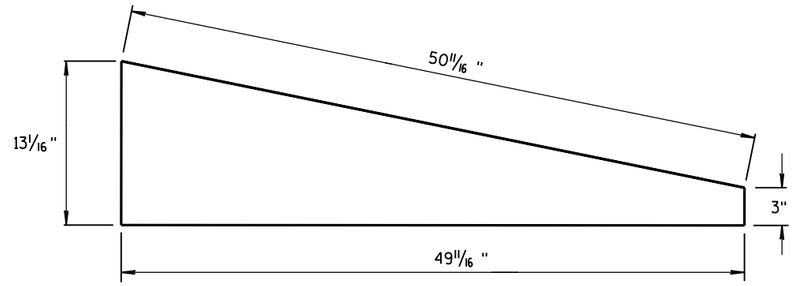


GUSSET 4

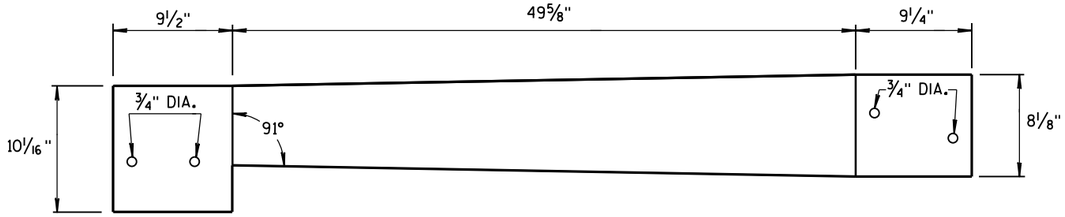
GUSSETS

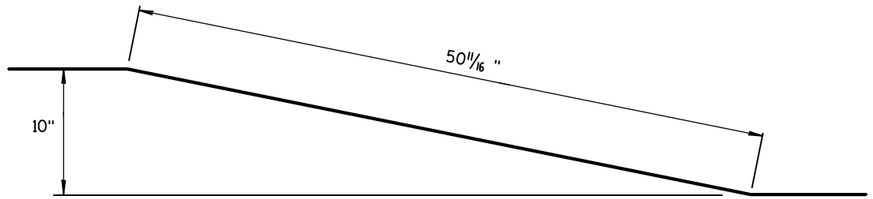


END PLATE



SIDE PLATE

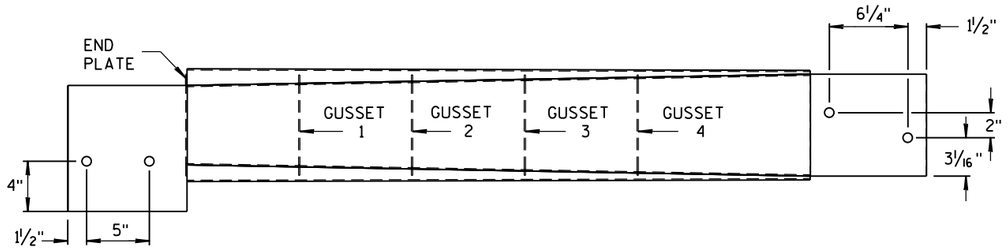


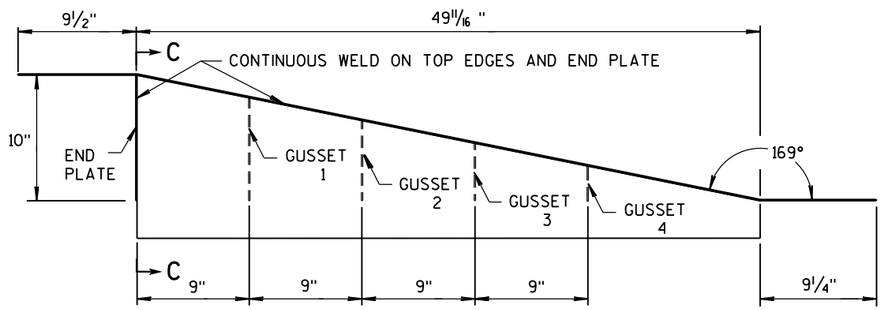


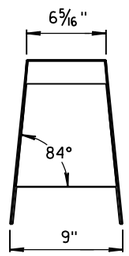
TOP PLATE

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

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







SECTION C-C

NOTES

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

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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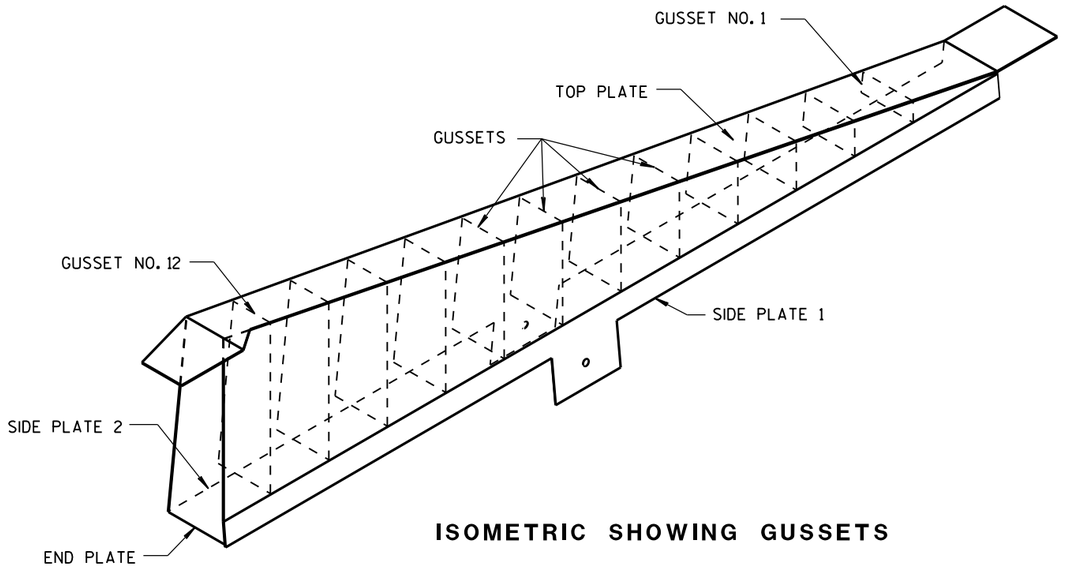
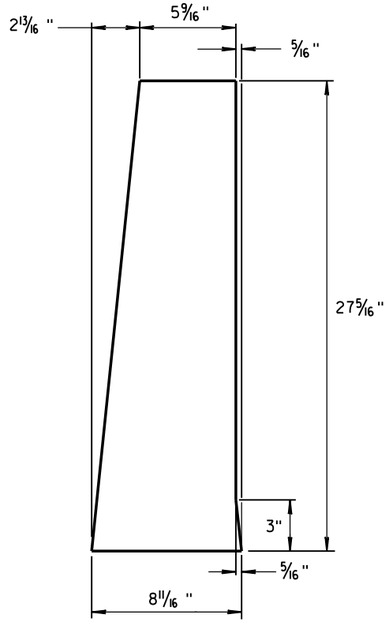
S.D.D. 14 B 7-14f

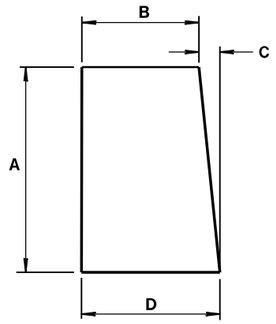


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



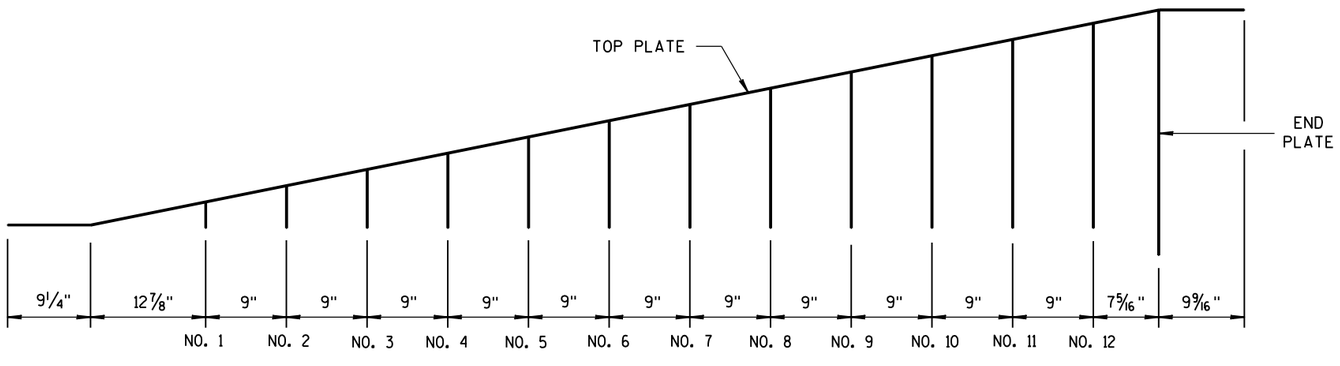
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

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

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

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



GUSSET LOCATION

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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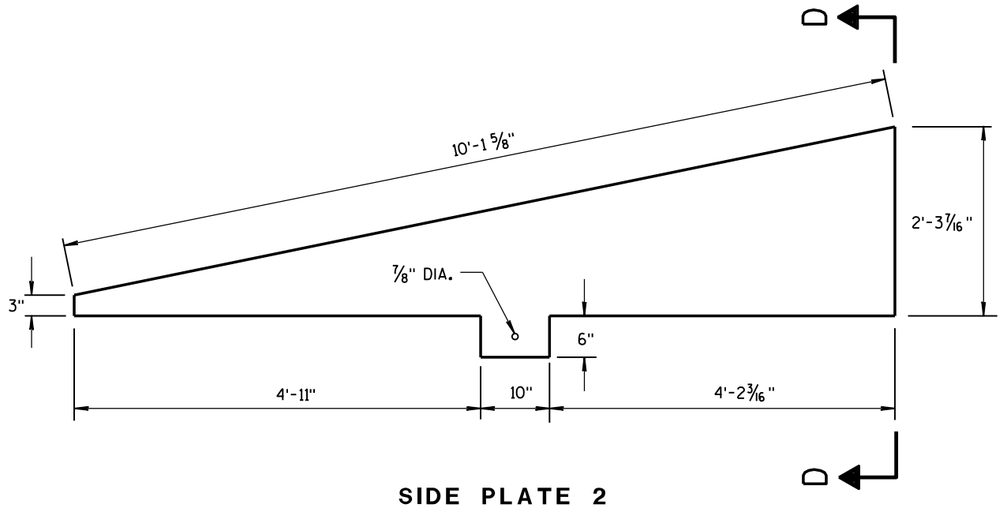
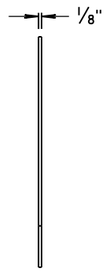
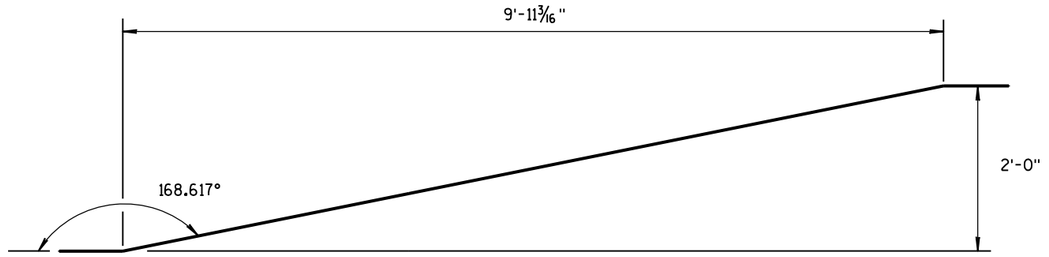
S.D.D. 14 B 7-14g



SIDE PLATE 2

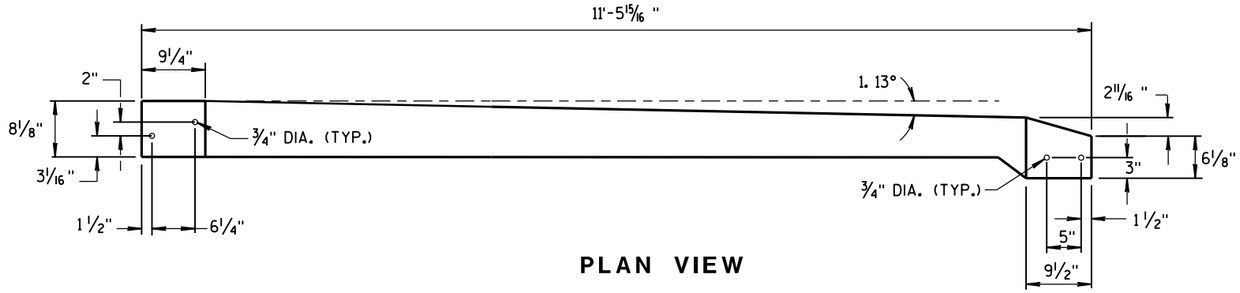


END VIEW



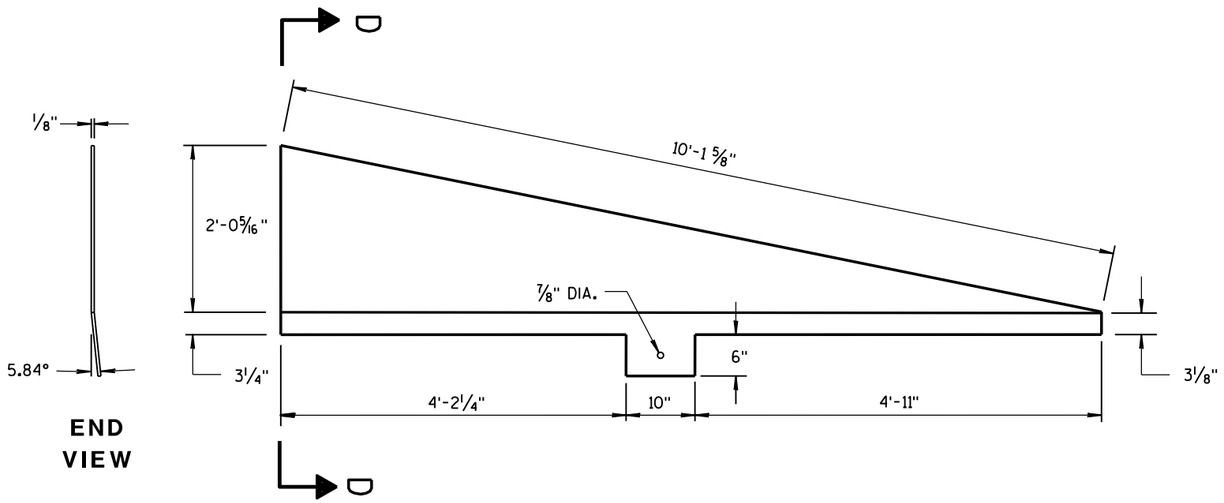
SIDE VIEW

TOP PLATE



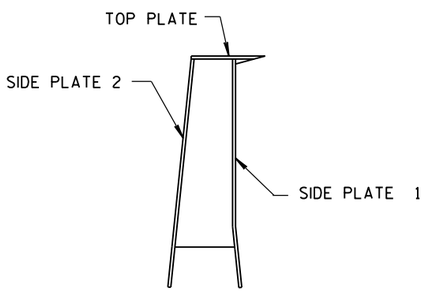
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARD DEVELOPMENT ENGINEER
FHWA

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S.D.D. 14 B 7-14h

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S.D.D. 14 B 7-14h

GENERAL NOTES

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

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

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

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

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

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

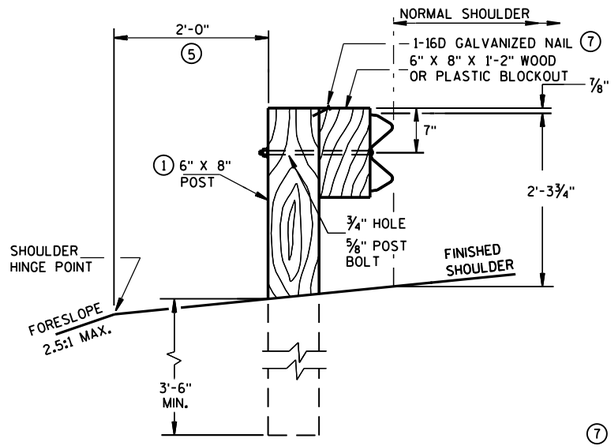
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

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

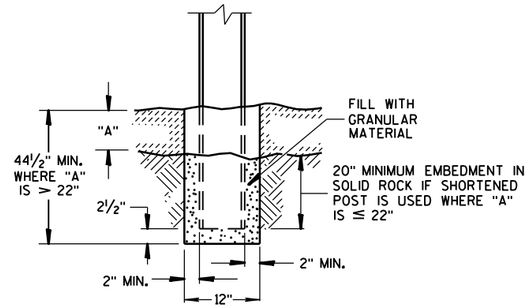
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

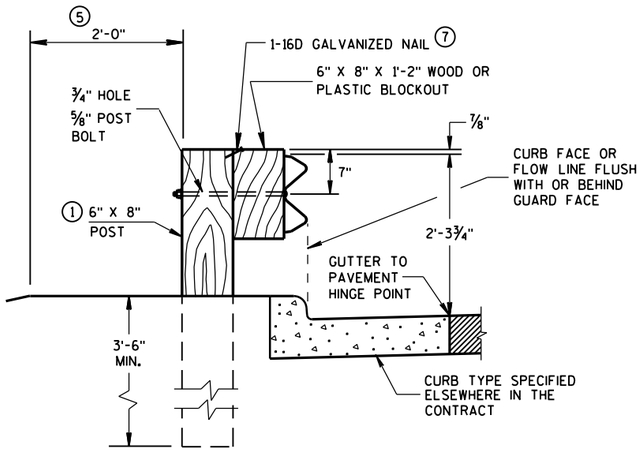
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



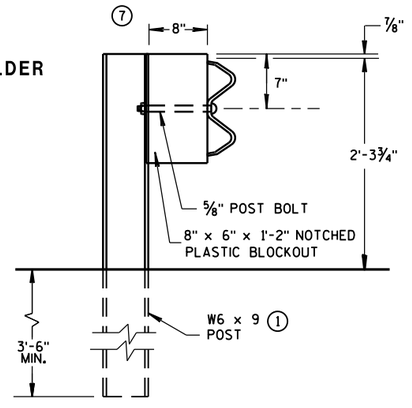
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



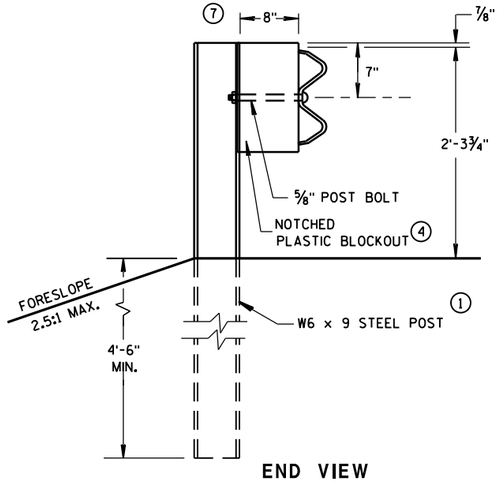
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



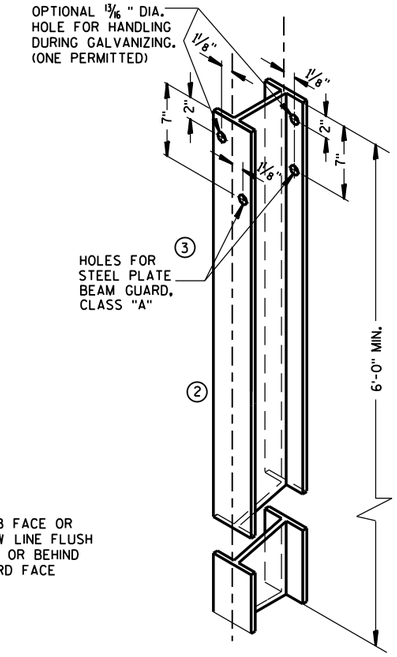
END VIEW
LOCATED ALONG A CURBED ROADWAY



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION

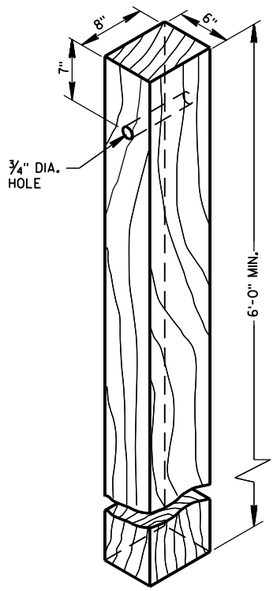


END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)

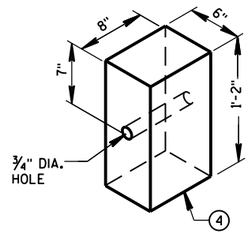


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

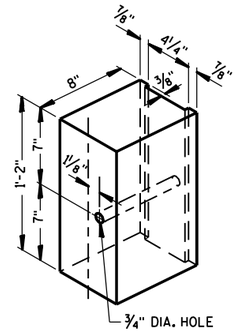
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



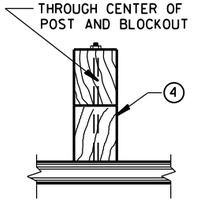
WOOD POST
(6"X8") NOMINAL



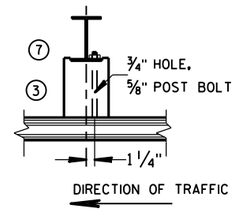
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



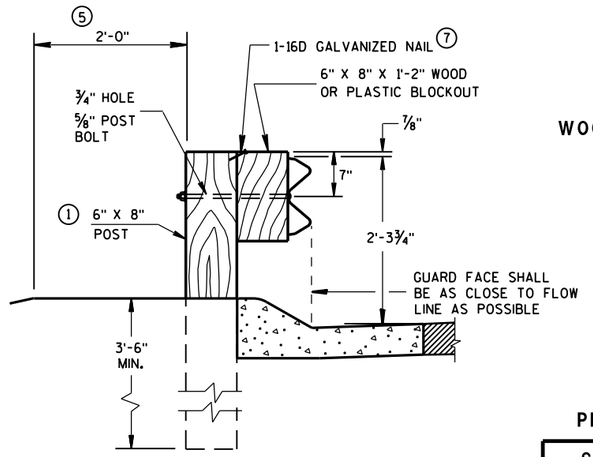
TYPICAL NOTCHED (1)
PLASTIC BLOCKOUT
FOR STEEL POSTS



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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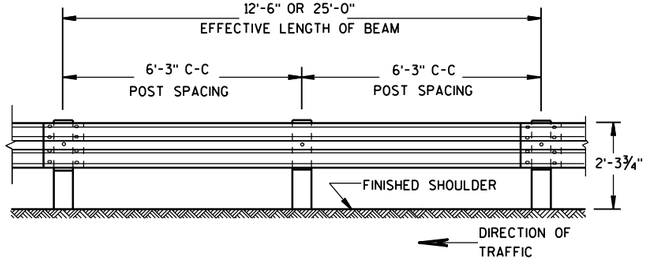
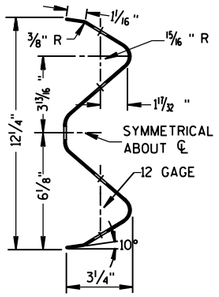
S.D.D. 14 B 15-8a

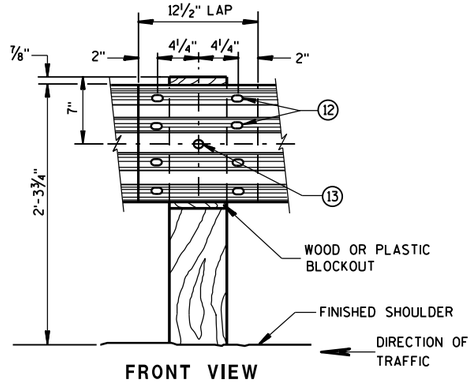


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

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

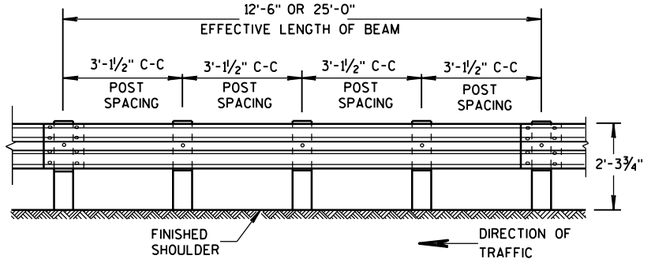
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

(11) PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

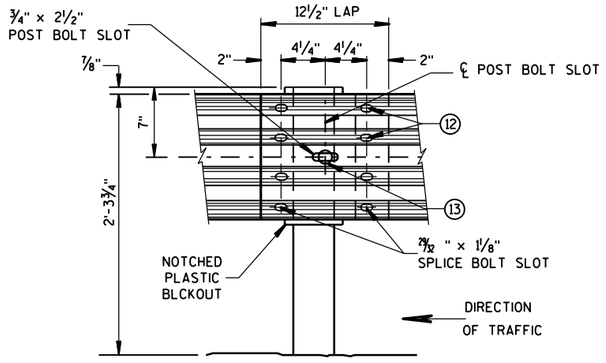
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) ⅝" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH ⅝" DIA. F844 FLAT WASHER UNDER NUT.



FRONT VIEW

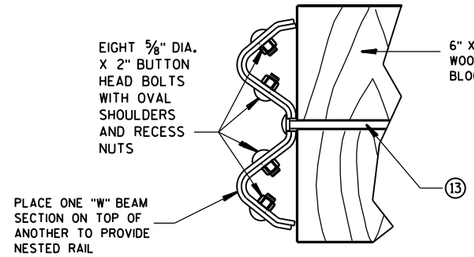
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

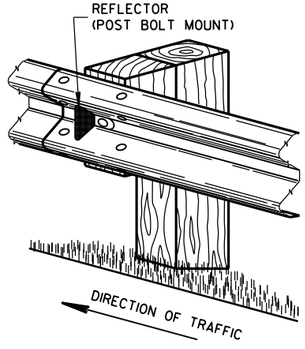


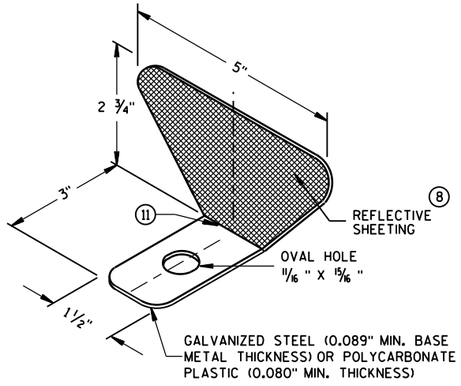
NESTED W BEAM (NW)

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

REFLECTOR SPACING (9)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 (10) 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 (11)	3



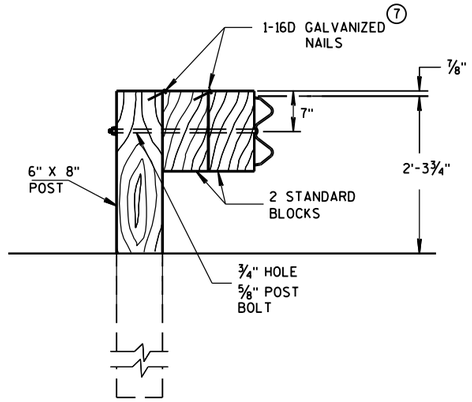


ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (8)

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

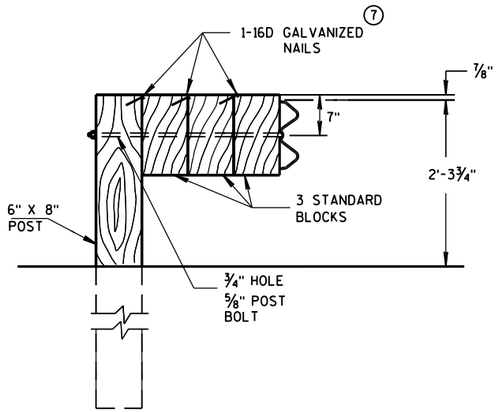
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 15-8b



DETAIL FOR DOUBLE BLOCKS

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

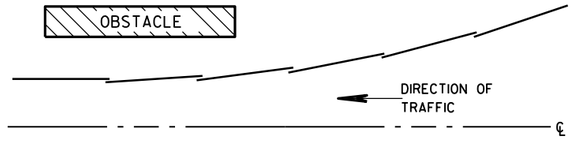


DETAIL FOR TRIPLE BLOCKS

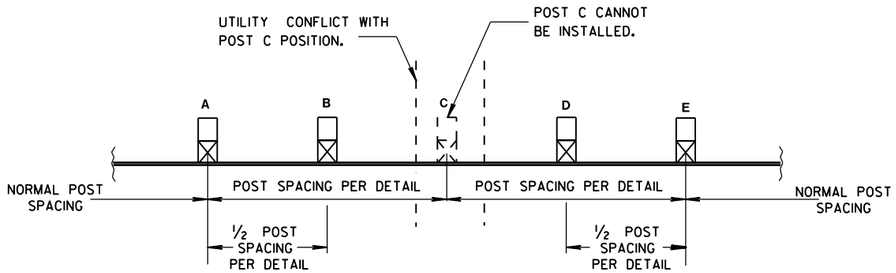
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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

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



PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

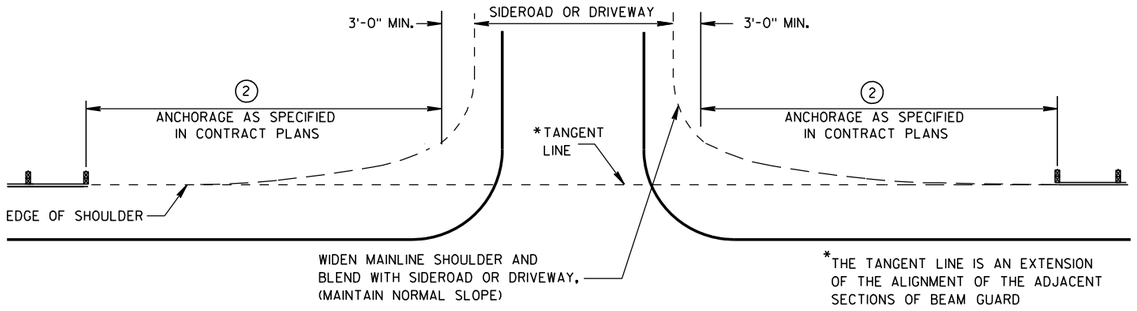
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

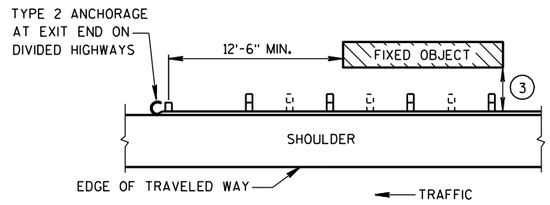
APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

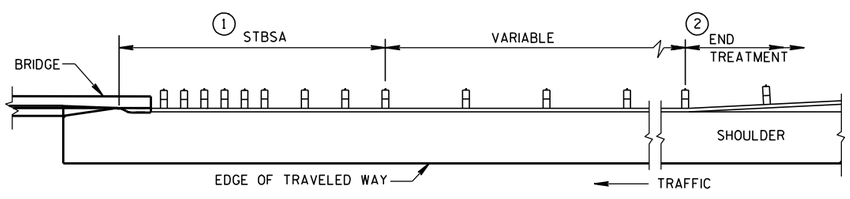
S.D.D. 14 B 15-8c



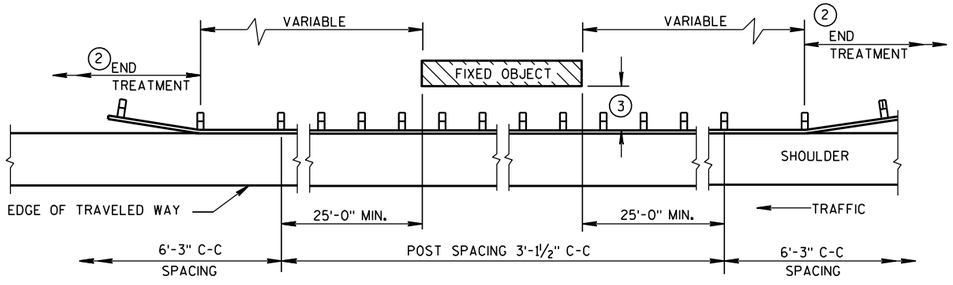
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

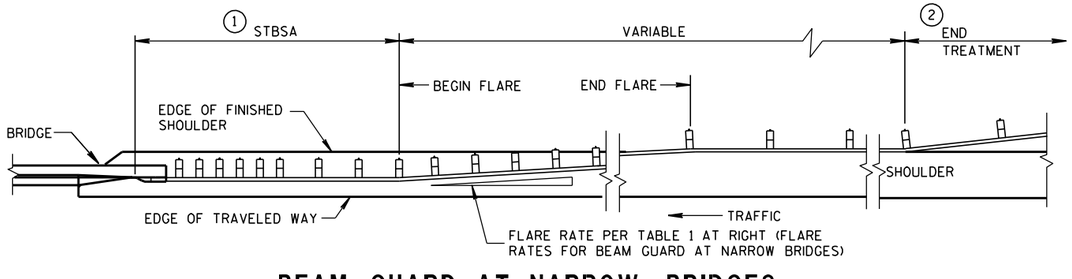


BEAM GUARD AT FULL WIDTH BRIDGES



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

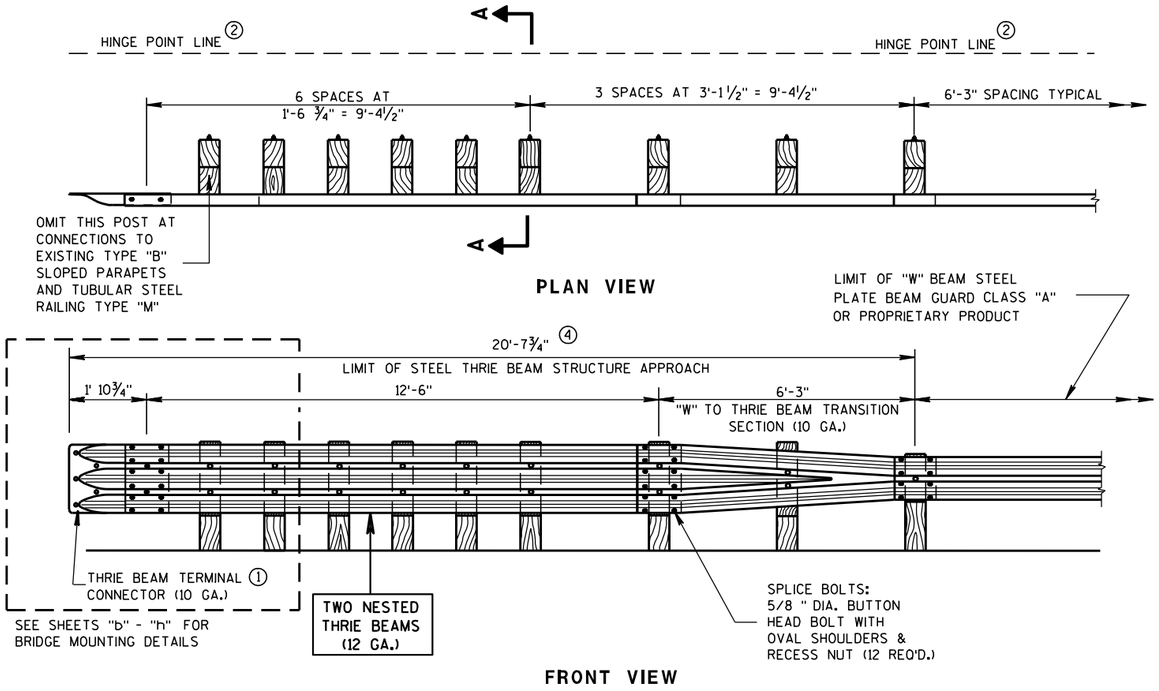
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



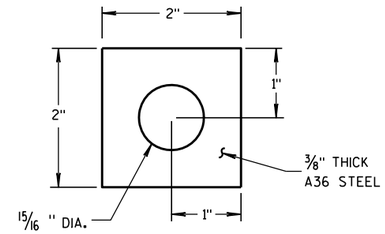


PLATE WASHER DETAIL

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.

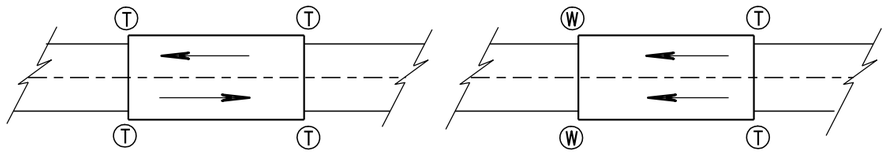
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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.



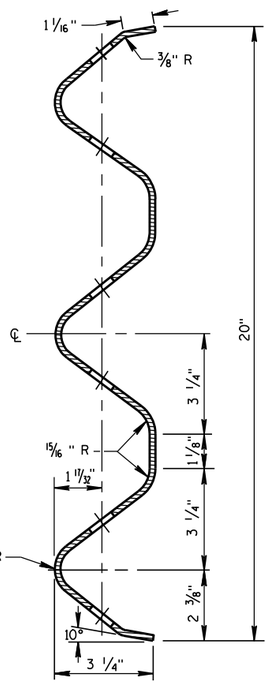
TWO WAY TRAFFIC

ONE WAY TRAFFIC

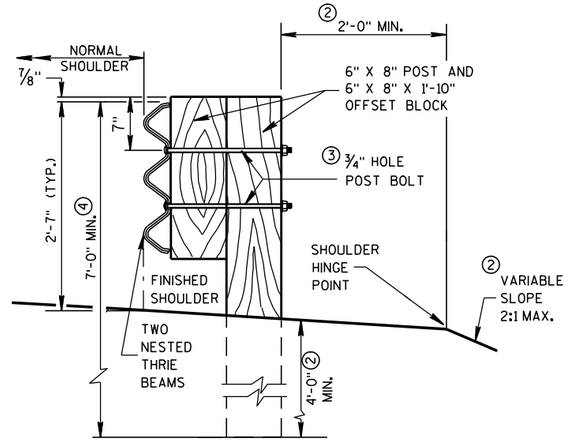
T THRIE BEAM CONNECTION

W W-BEAM CONNECTION WHEN REQUIRED

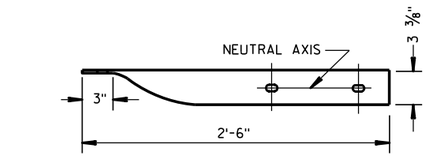
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

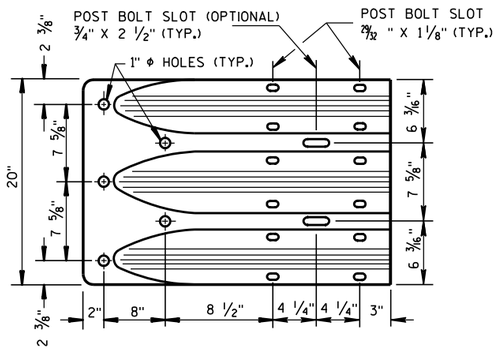


SECTION THRU THRIE BEAM RAIL ELEMENT

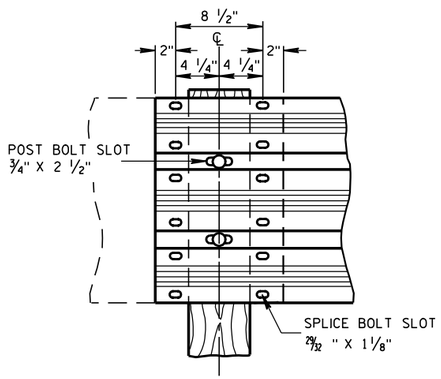


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



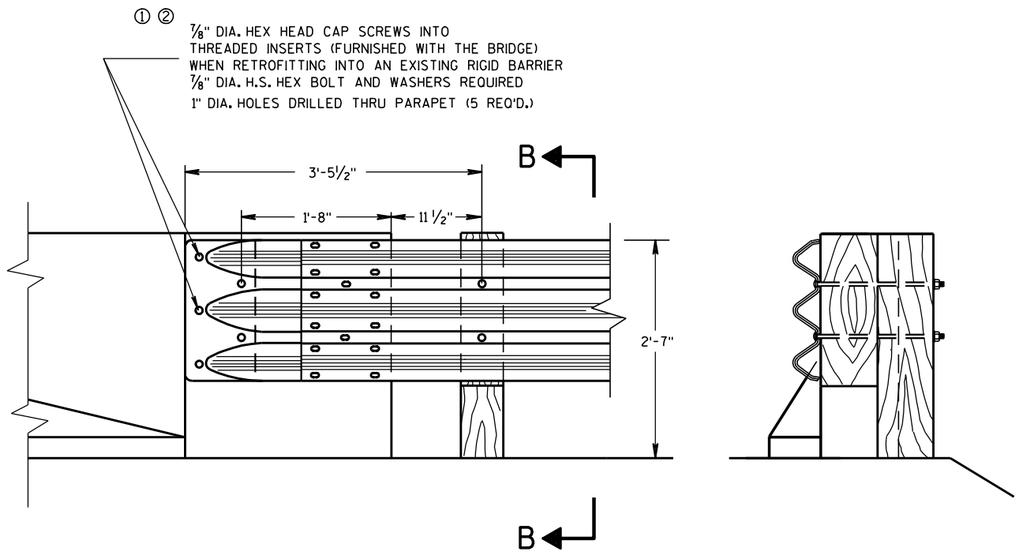
THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

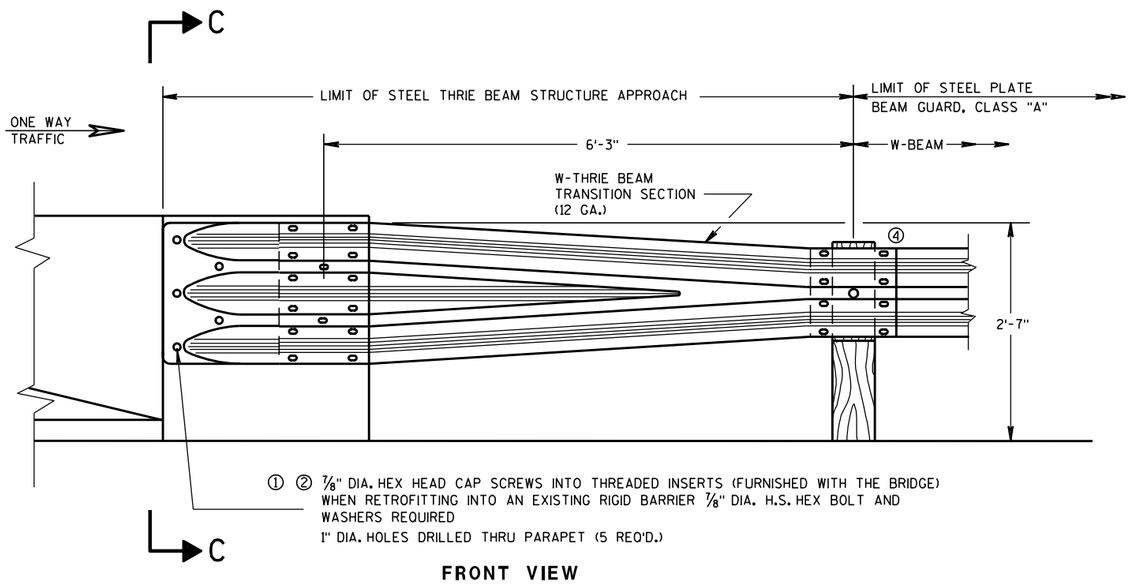
FHWA



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.

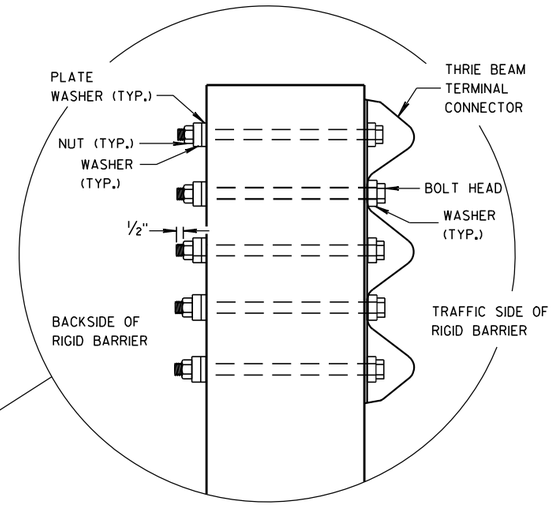
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

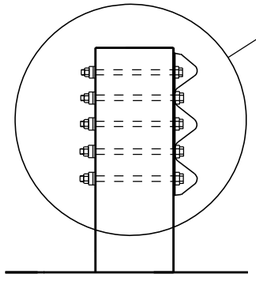
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. 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.



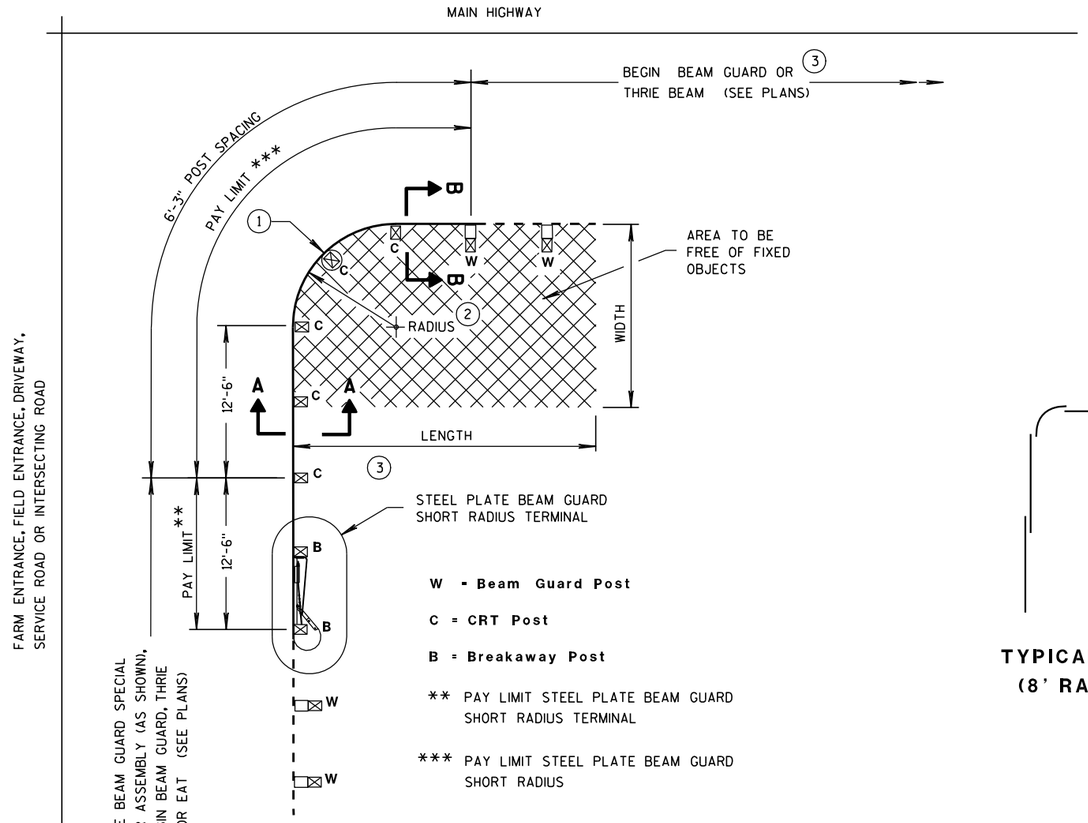


SECTION C-C

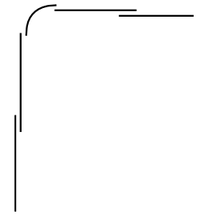
STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

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.

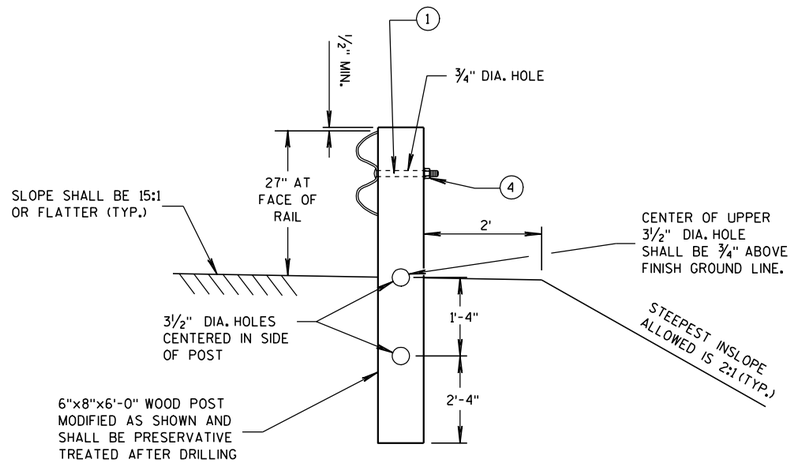
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

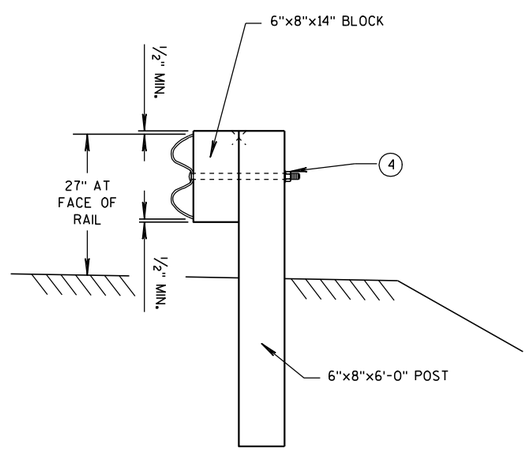
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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)

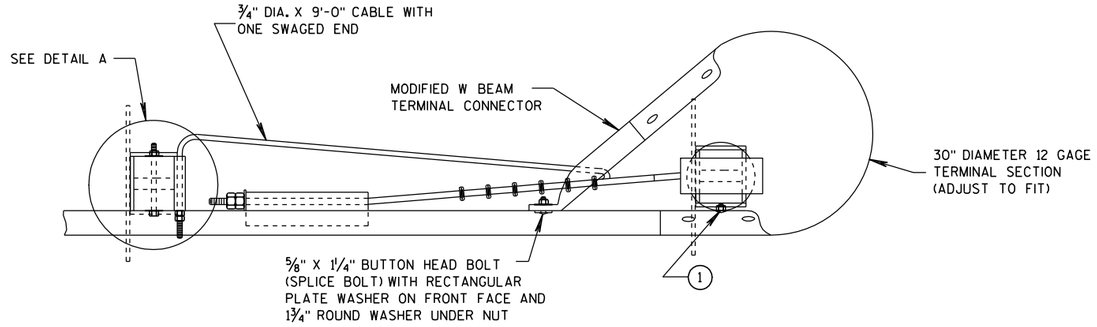


SECTION B-B
(BEAM GUARD POST)

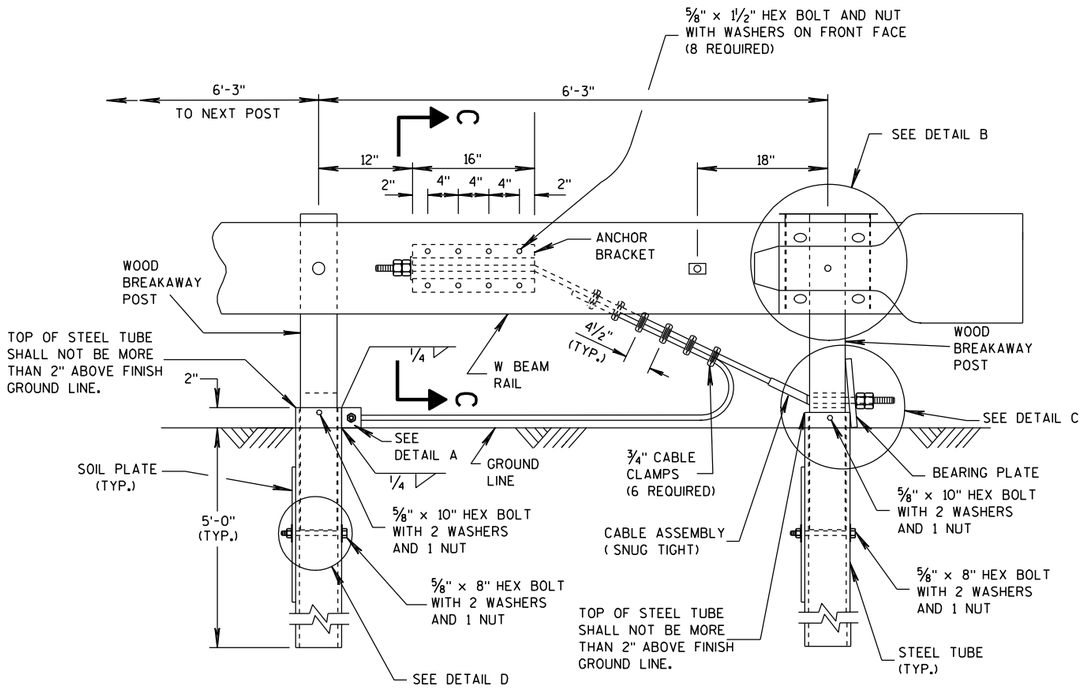
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

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

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



PLAN VIEW



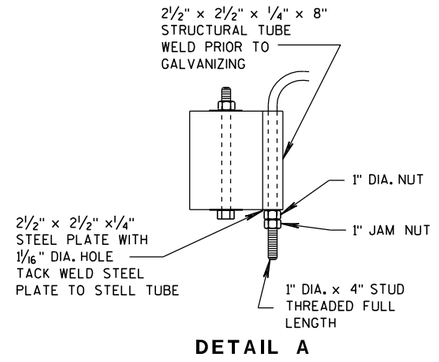
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

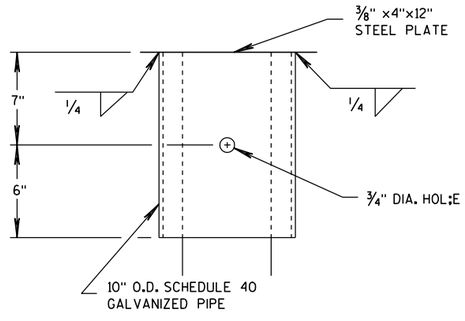
GENERAL NOTES

(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

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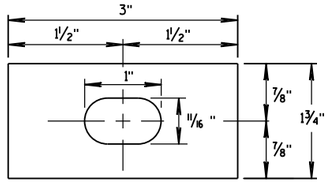
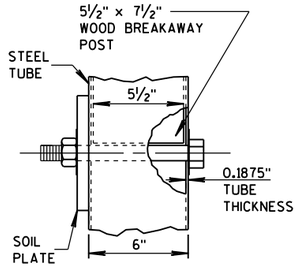
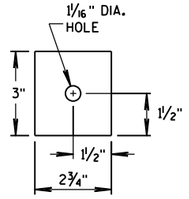
S.D.D. 14 B 27-1b



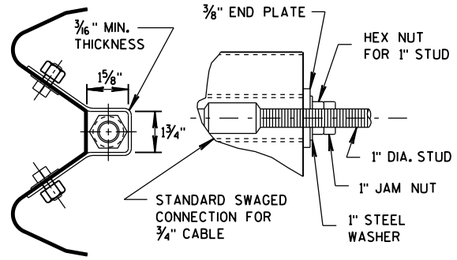
RECTANGULAR PLATE WASHER



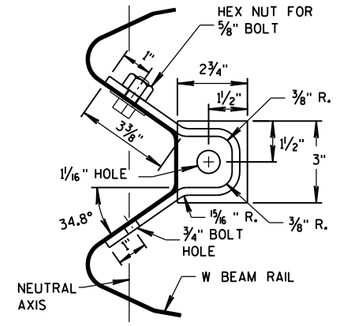
DETAIL D



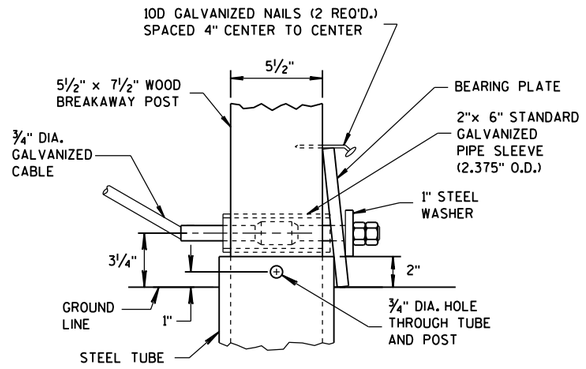
END PLATE



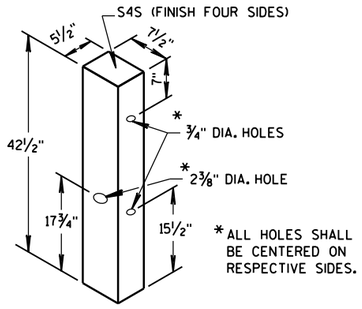
SECTION C-C
(END PLATE REMOVED)



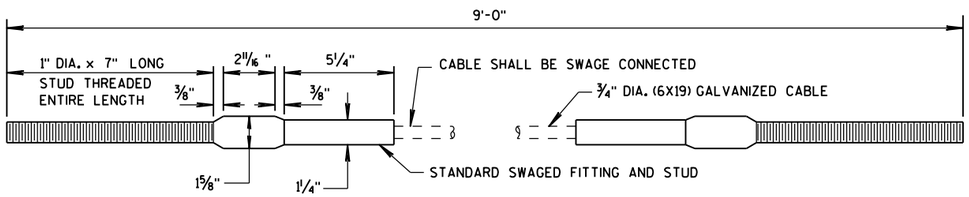
ANCHOR BRACKET



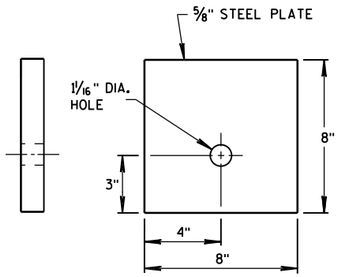
DETAIL C



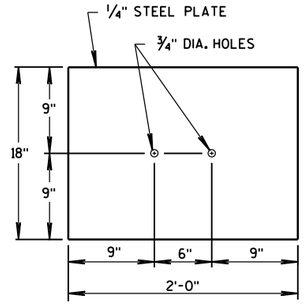
WOOD BREAKAWAY POST



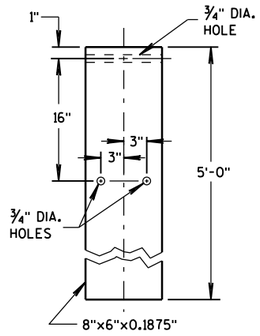
CABLE ASSEMBLY



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

GENERAL NOTES

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

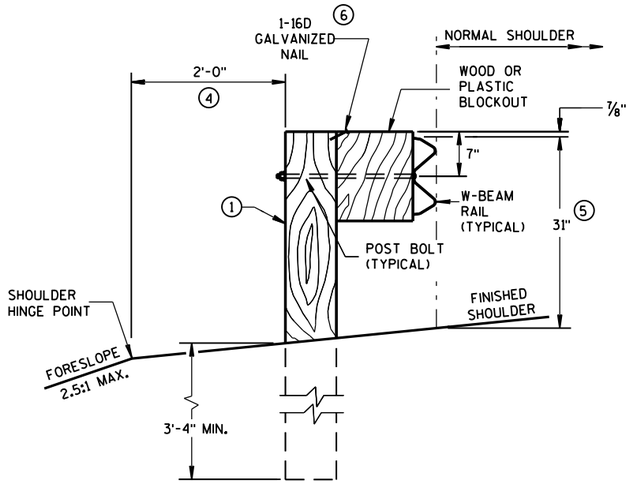
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

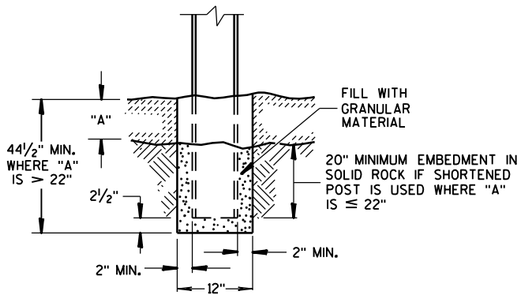
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



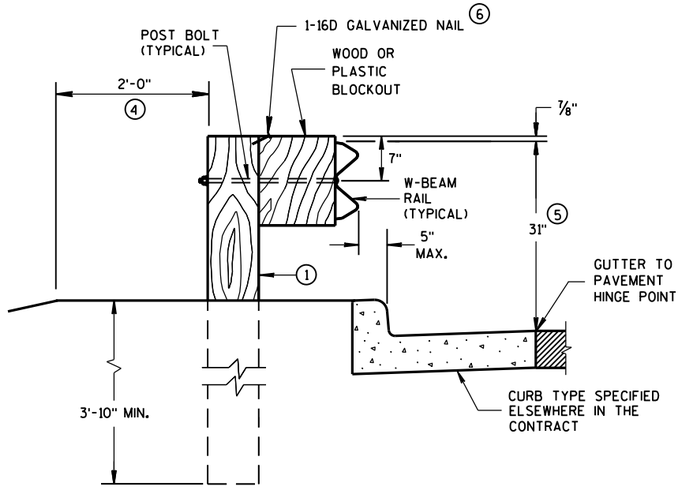
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



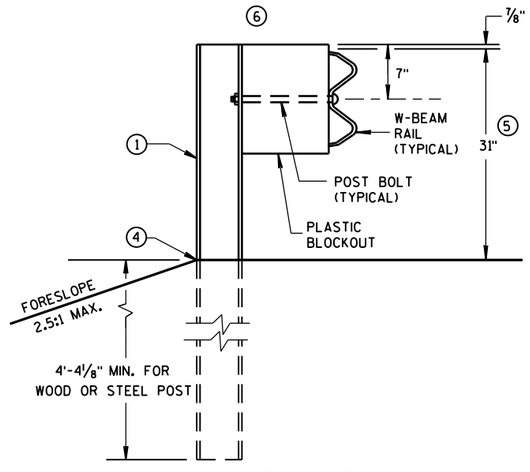
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



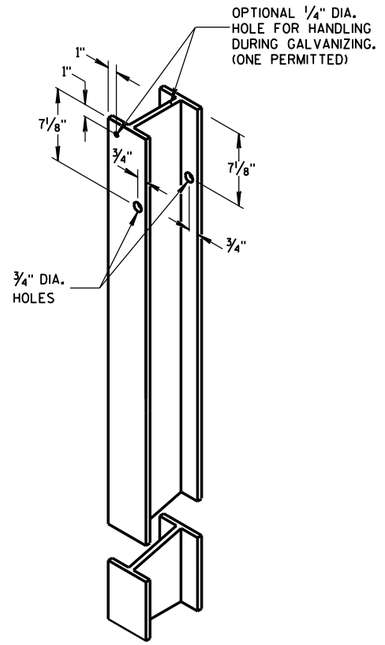
END VIEW

LOCATED ALONG A CURBED ROADWAY

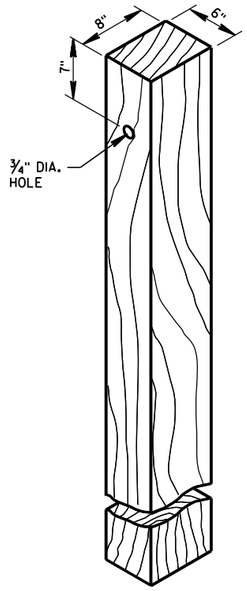


END VIEW

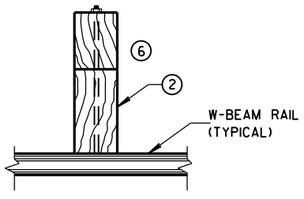
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



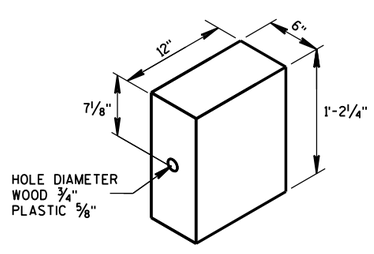
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



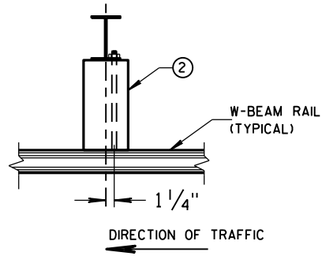
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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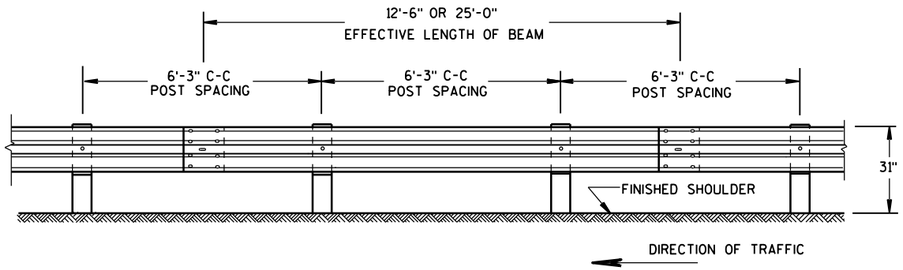
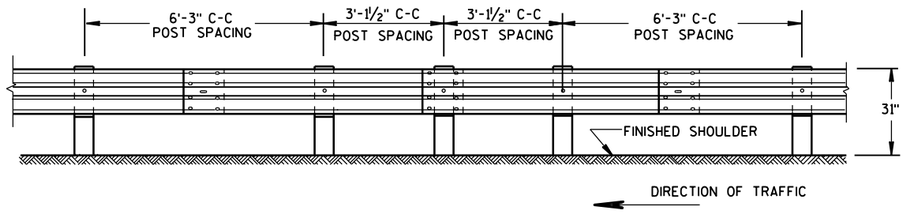
S.D.D. 14 B 42-3a



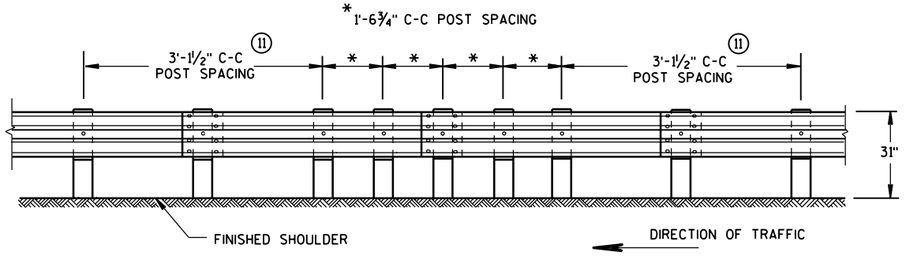
FRONT VIEW

POST SPACING STANDARD INSTALLATION



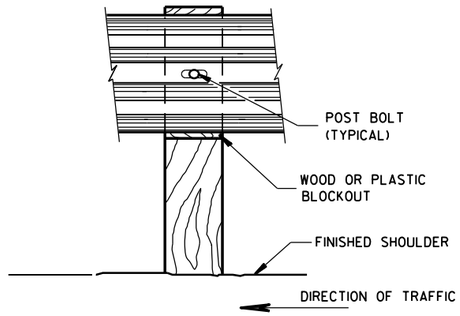
FRONT VIEW

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

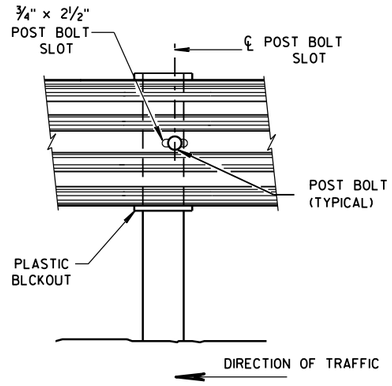


FRONT VIEW

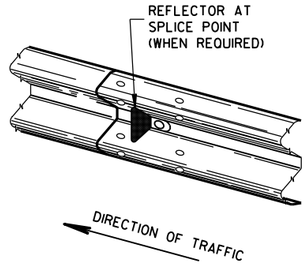
QUARTER POST SPACING (QS)

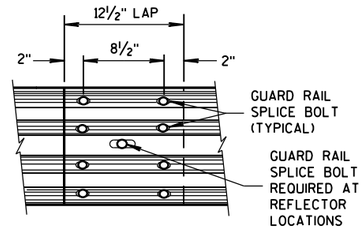


FRONT VIEW AT WOOD POST

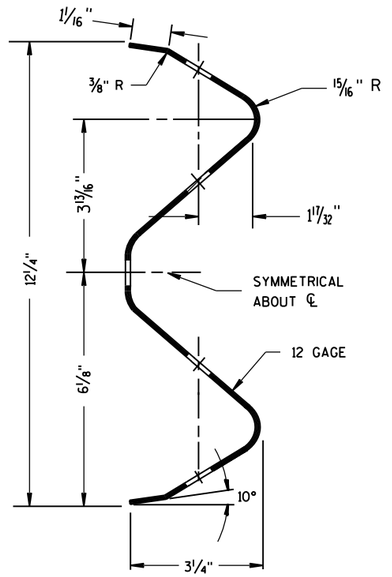


FRONT VIEW AT STEEL POST

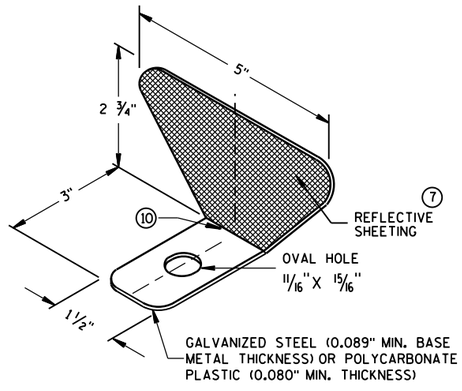




FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

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

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

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

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

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

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

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

REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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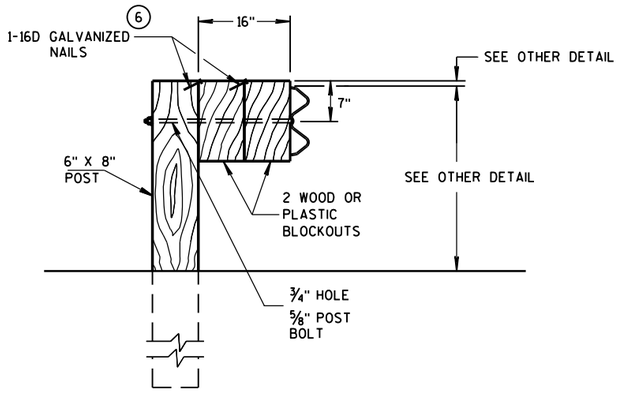
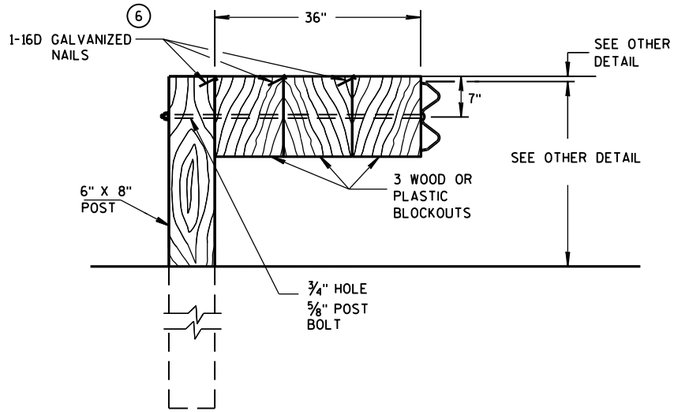
S.D.D. 14 B 42-3b



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.

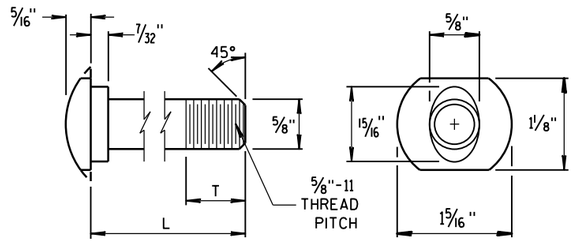


DETAIL FOR 36" BLOCKOUT DEPTH

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.

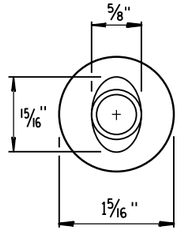
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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.

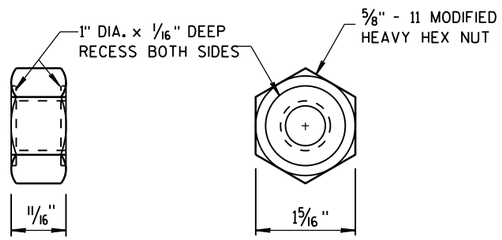


POST BOLT TABLE

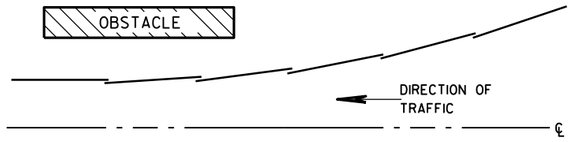
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

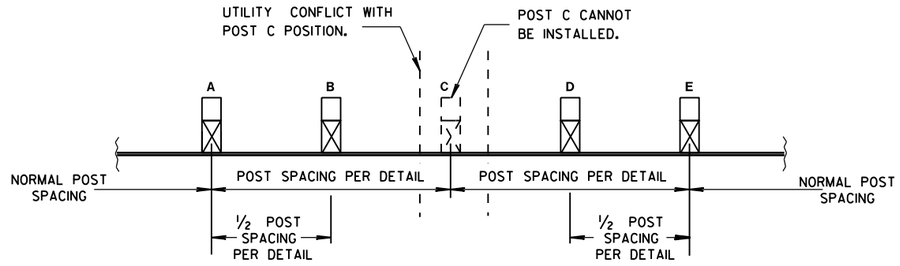


POST BOLT AND RECESS NUT

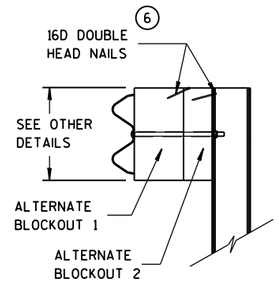


PLAN VIEW

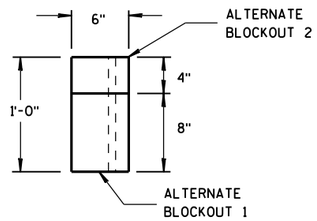
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

GENERAL NOTES

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

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

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

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

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

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

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

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

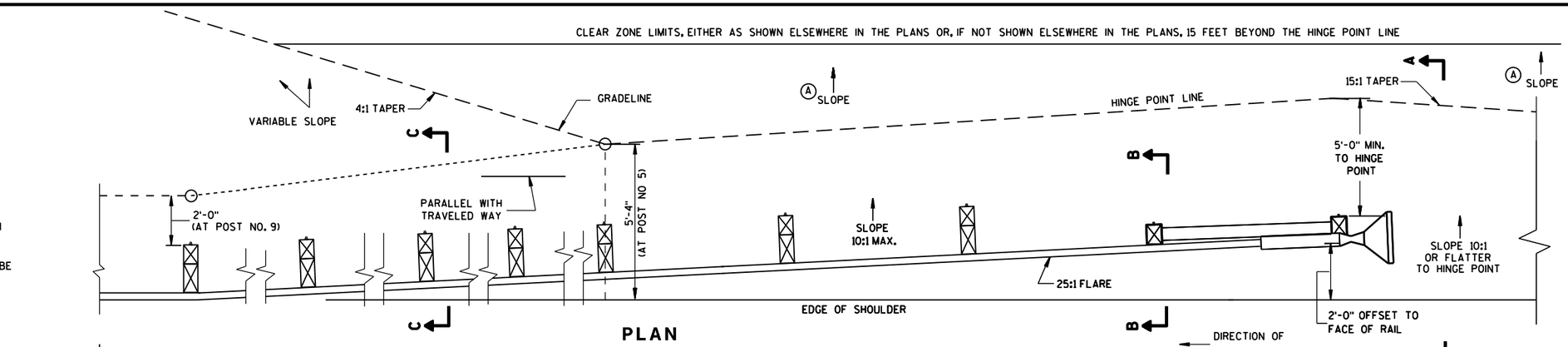
SEE SDD 14B42 FOR MORE INFORMATION.

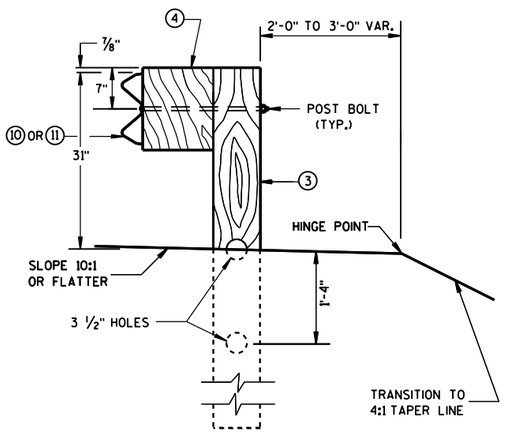
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

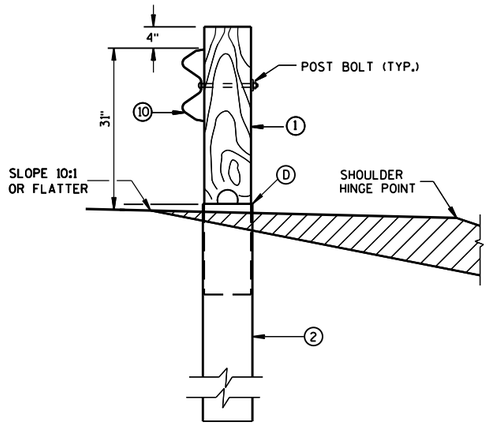
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

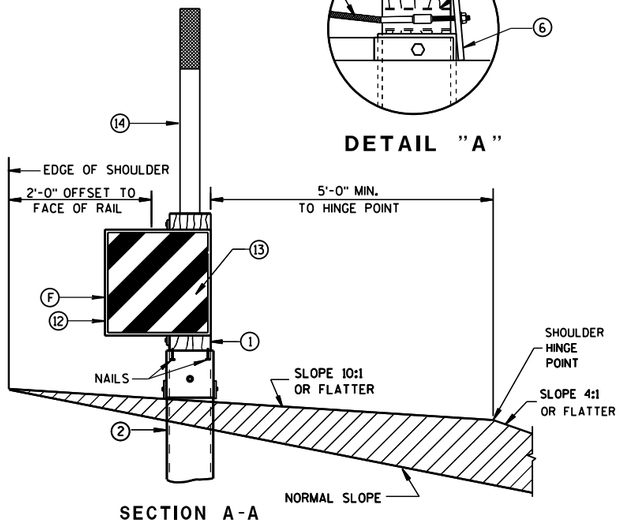




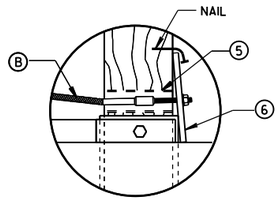
SECTION C-C
TYPICAL AT POST NOS. 3-9



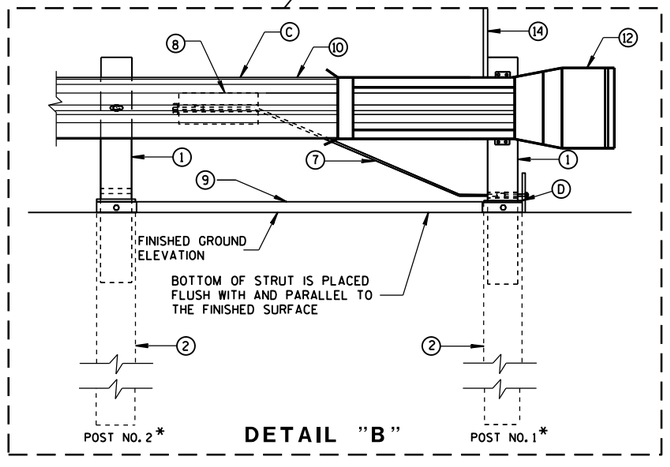
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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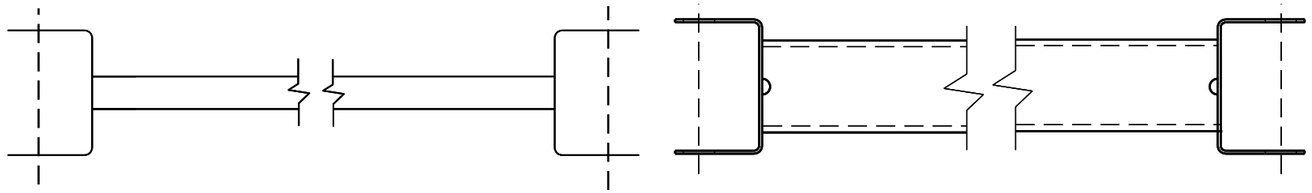
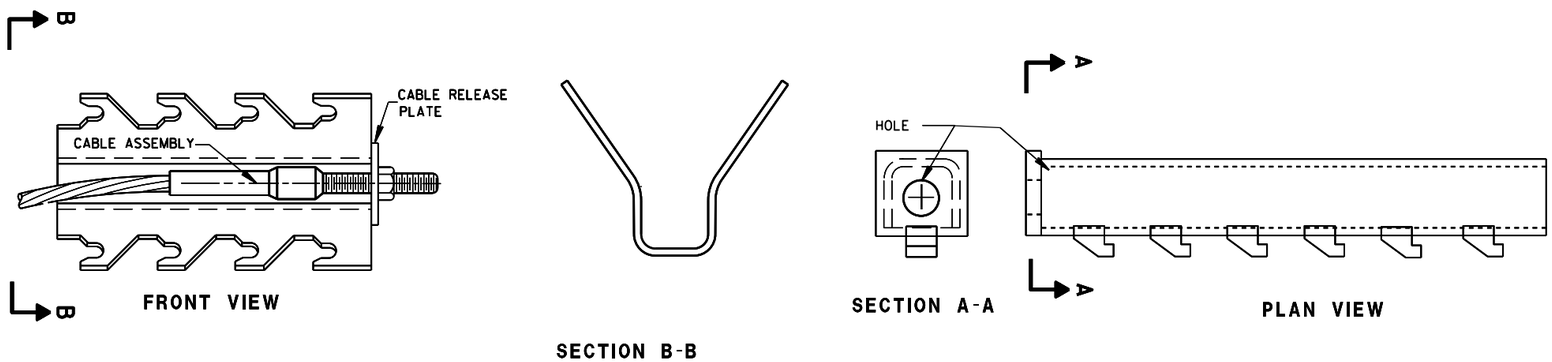
S.D.D. 14 B 44-2a



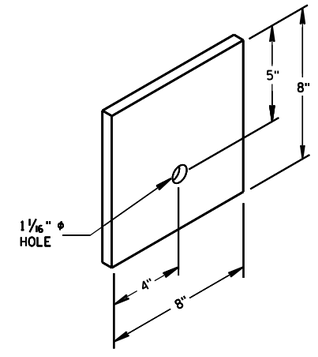
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



GENERIC ANCHOR CABLE BOX (8) (H)

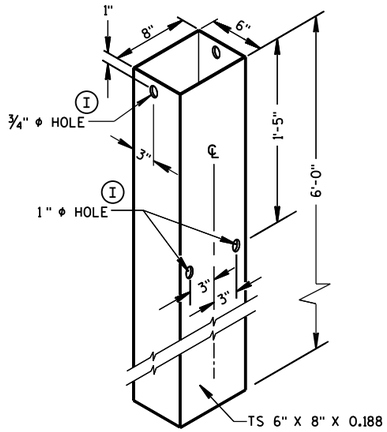


BEARING PLATE (6)

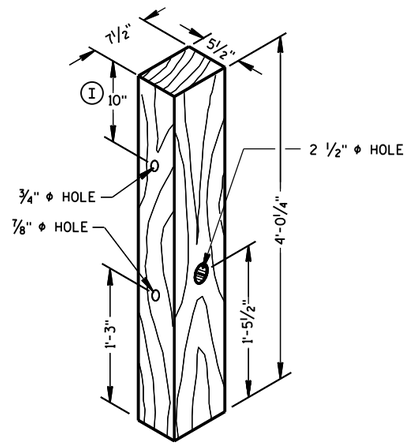
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 44-2b

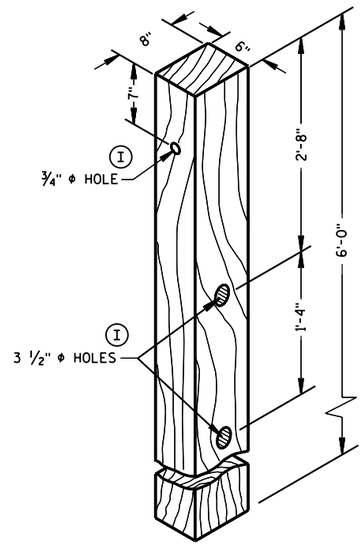


FOUNDATION TUBE (2)



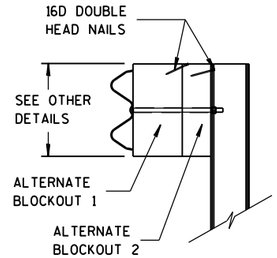
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

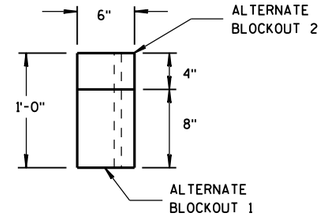


POSTS NUMBER 3-9

WOOD CRT POST (3)

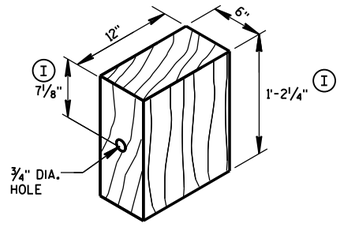


SIDE VIEW



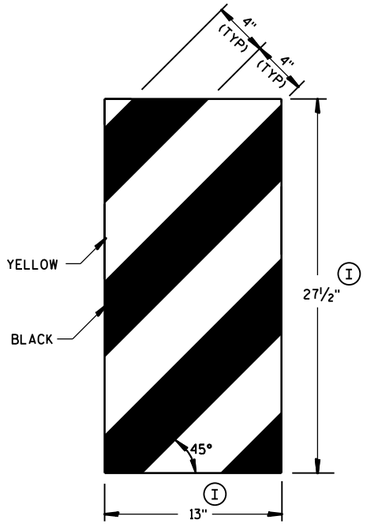
TOP VIEW

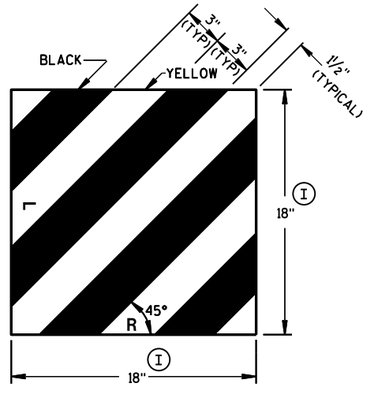
ALTERNATE WOOD BLOCKOUT DETAIL



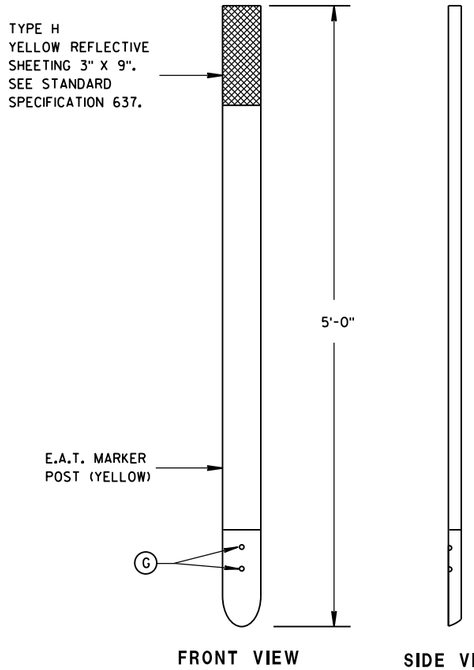
WOOD BLOCKOUT (4)

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





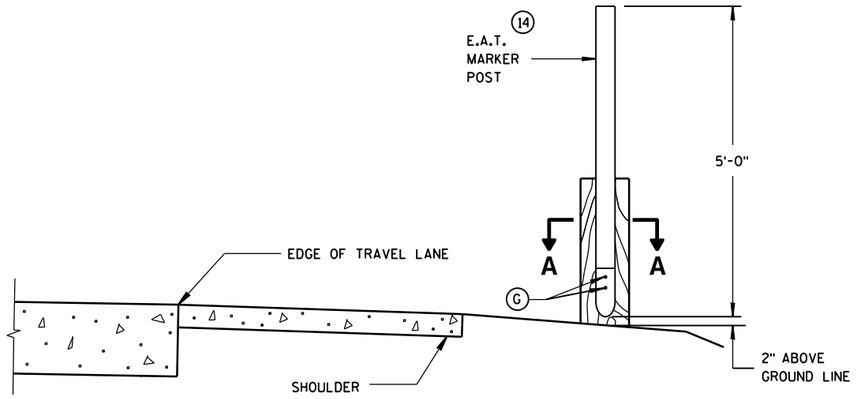
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

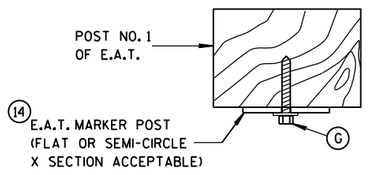
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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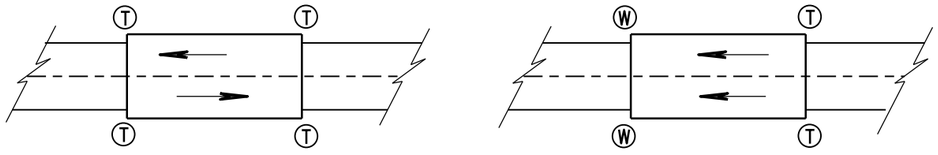
S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

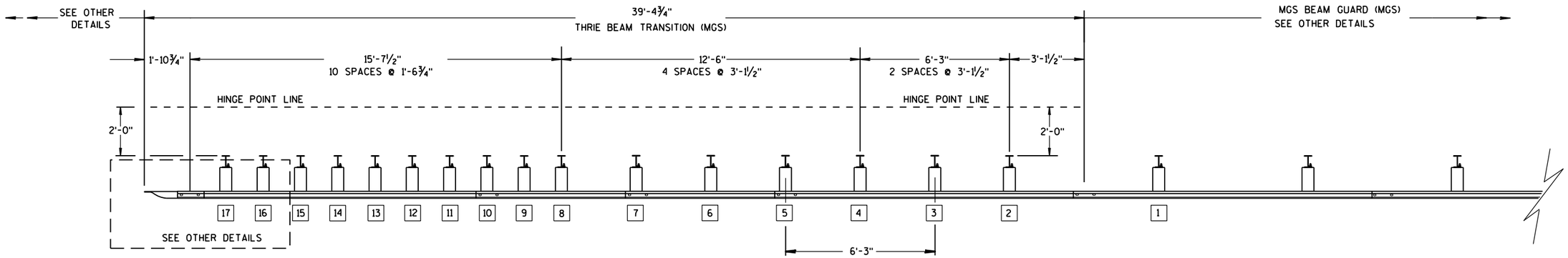
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

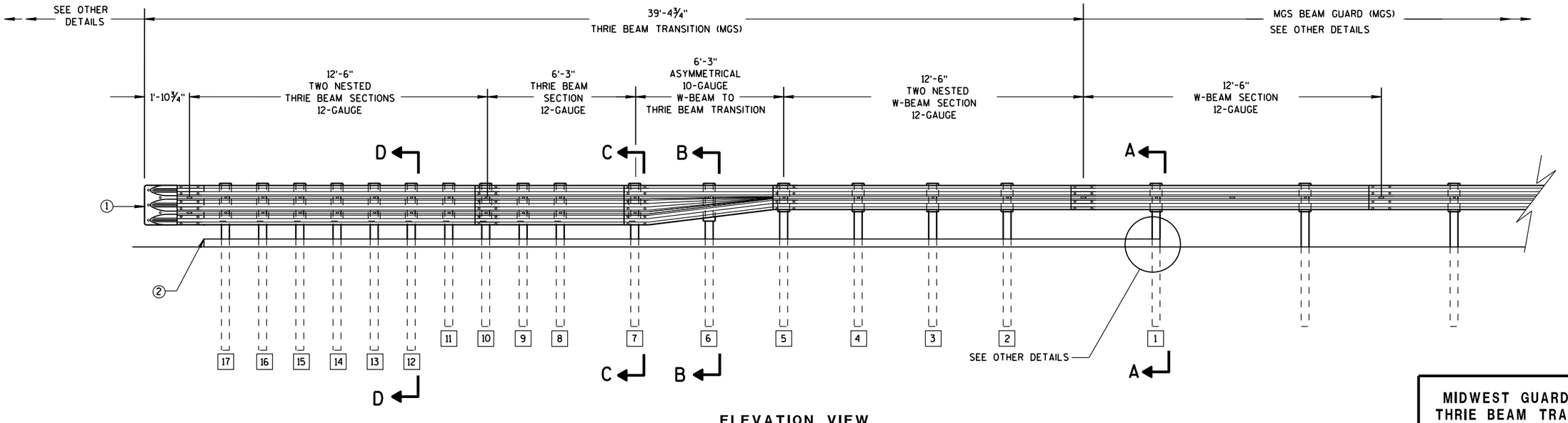
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

6

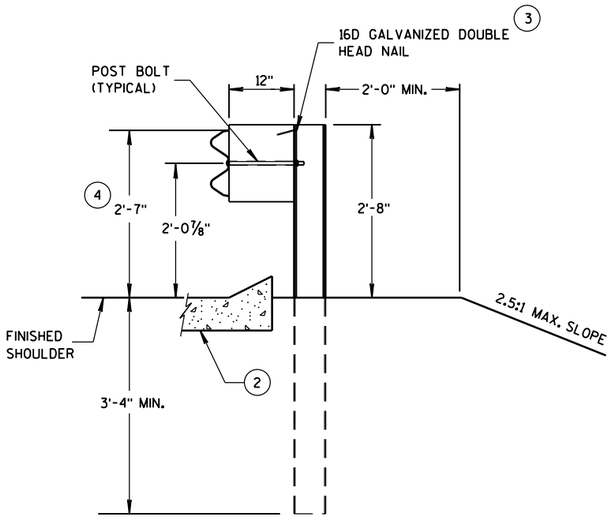
S.D.D. 14 B 45-4a

GENERAL NOTES

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

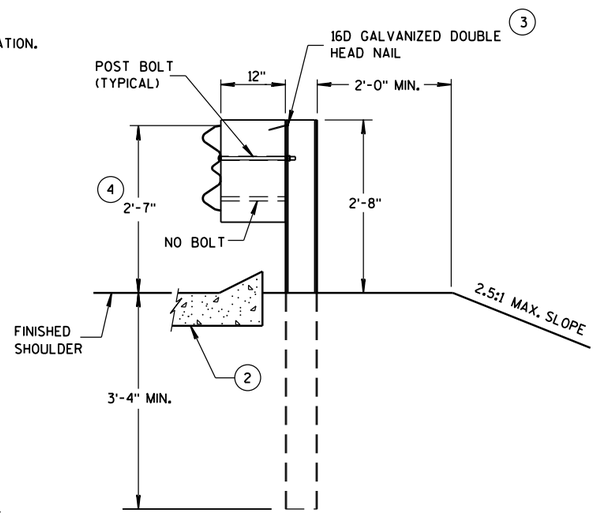
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



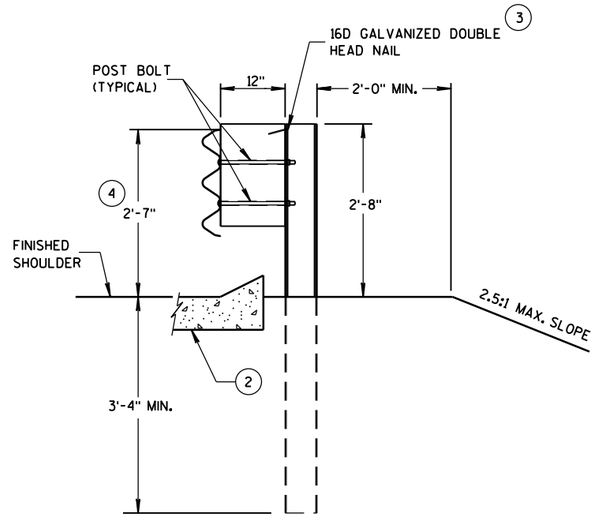
SECTION A-A

POSTS 1-5



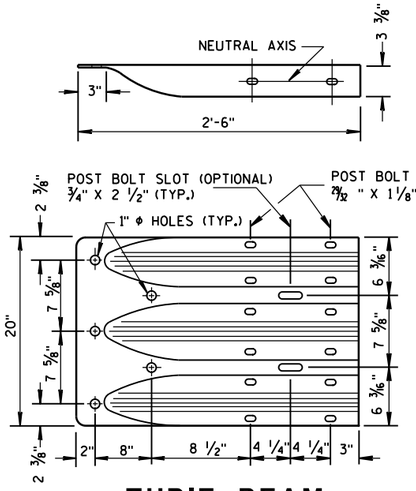
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

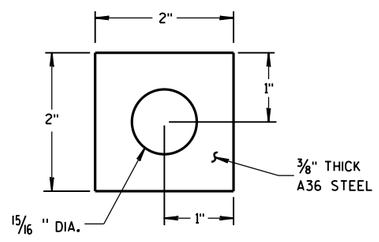
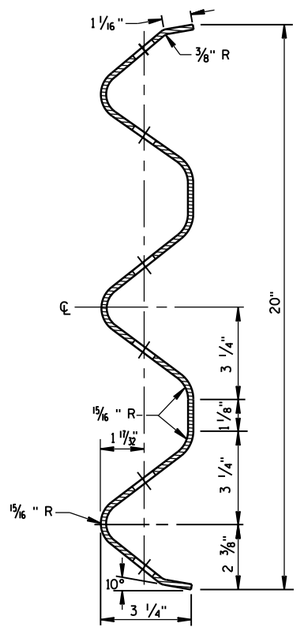
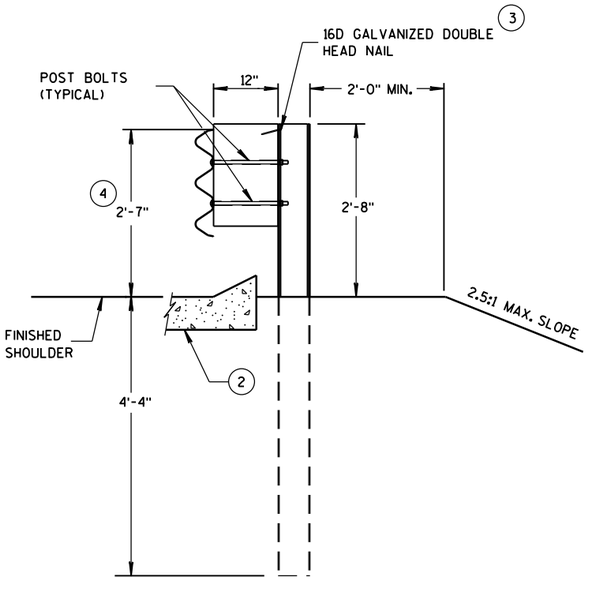


PLATE WASHER DETAIL

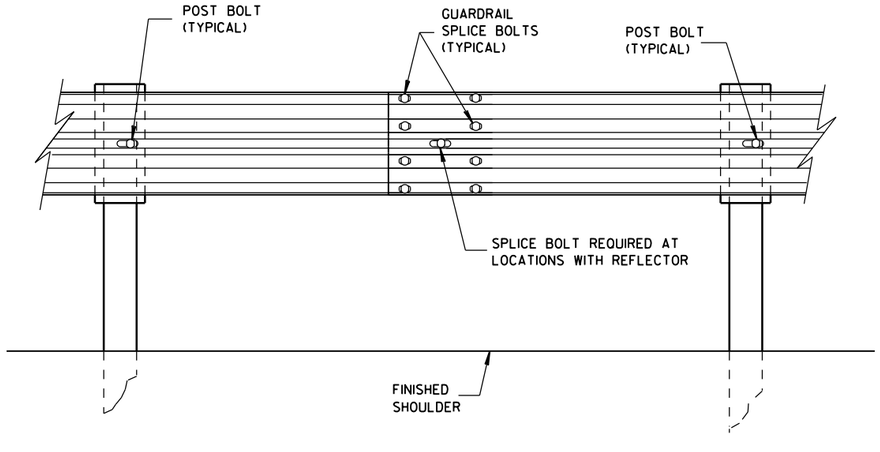


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



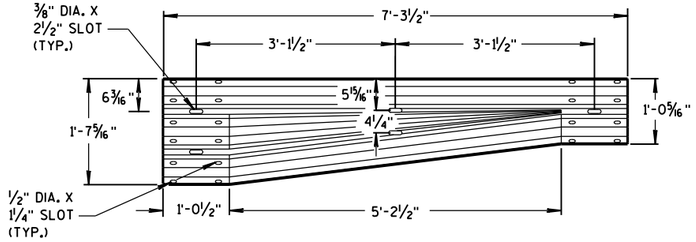
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

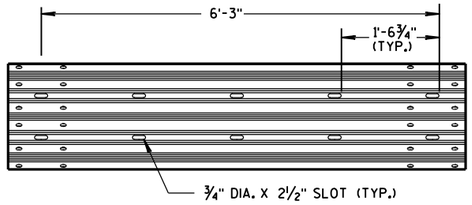
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

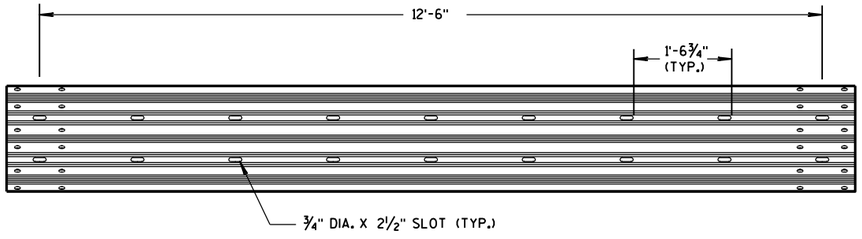
S.D.D. 14 B 45-4b



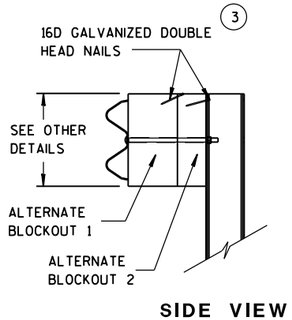
W-BEAM TO THRIE BEAM TRANSITION SECTION



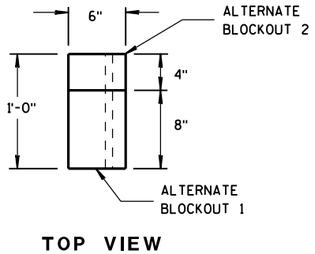
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

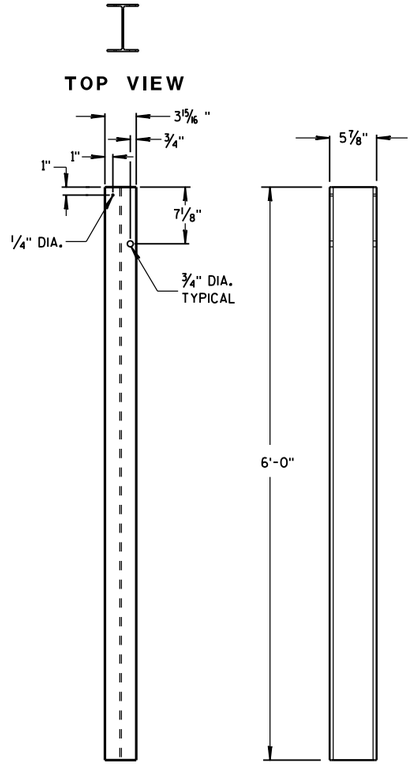


SIDE VIEW



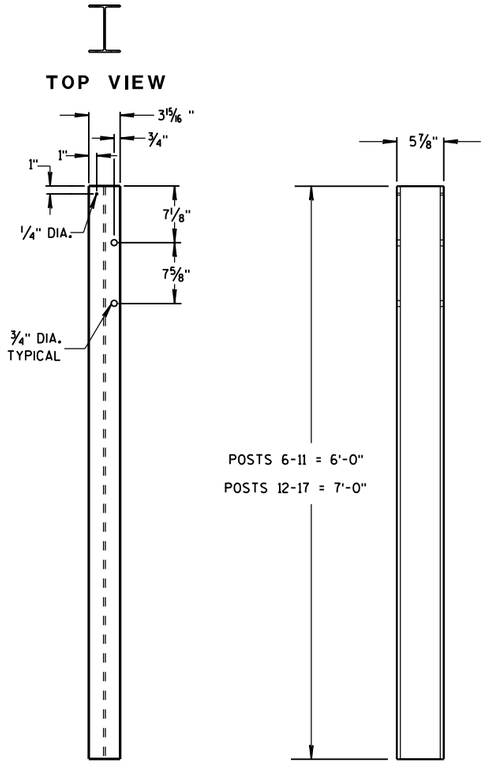
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



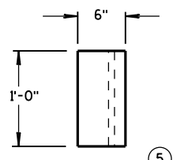
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

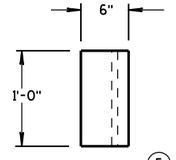


FRONT VIEW SIDE VIEW

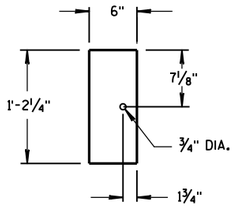
STEEL POSTS 6-17



TOP VIEW (5)

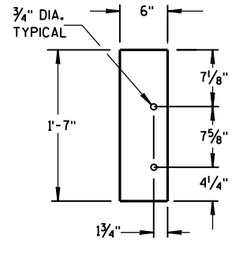


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



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.

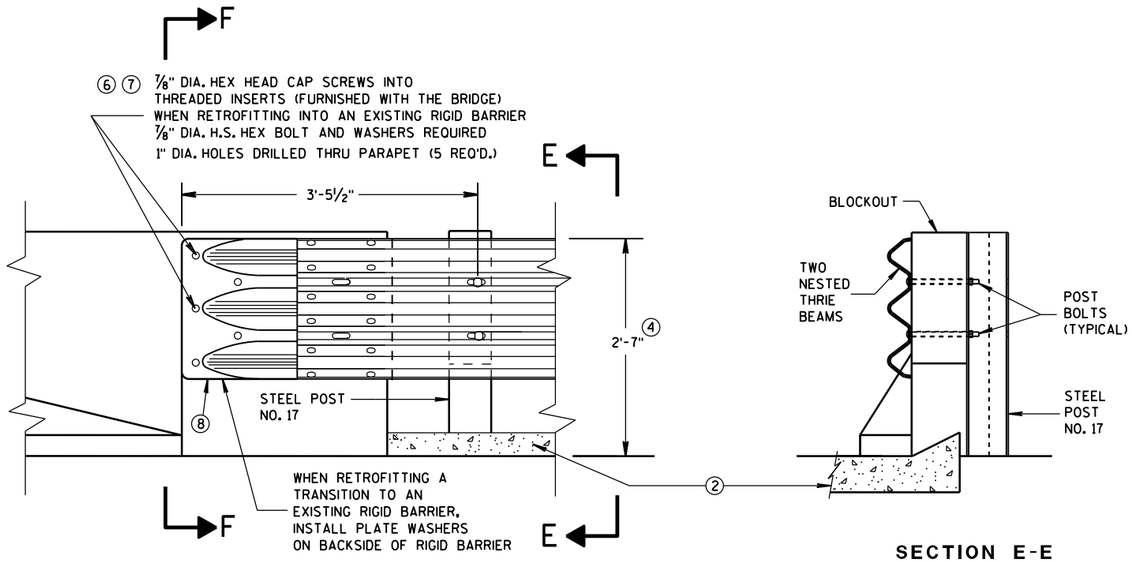
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

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.

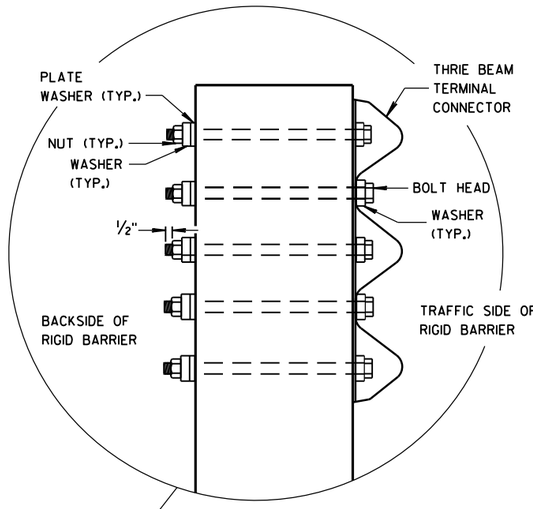
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

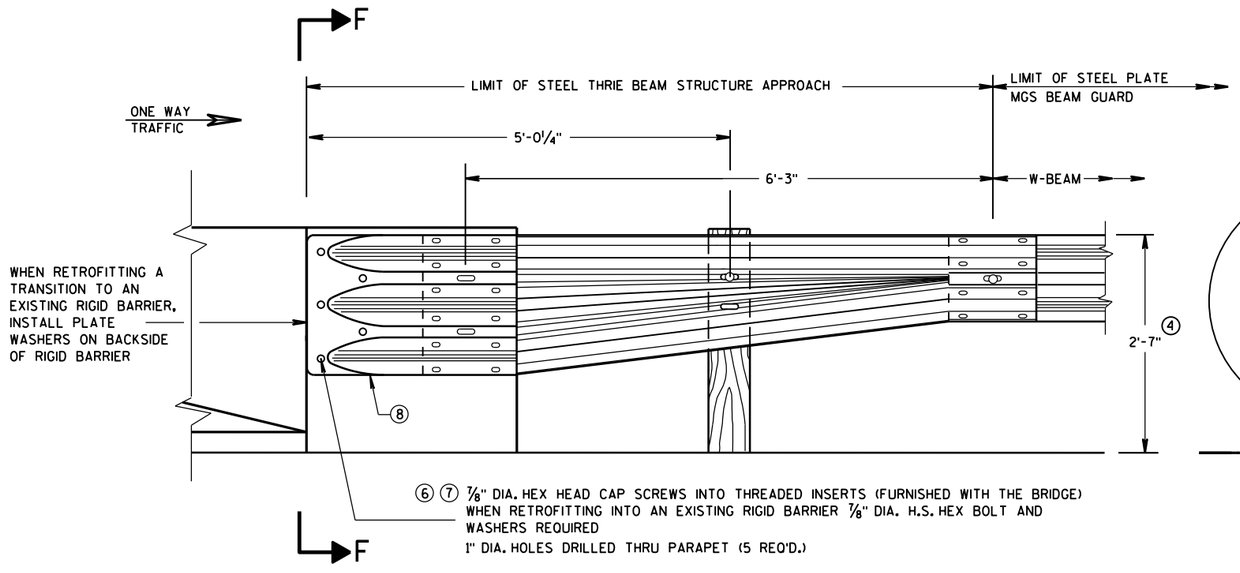
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

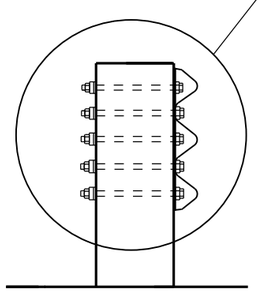
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

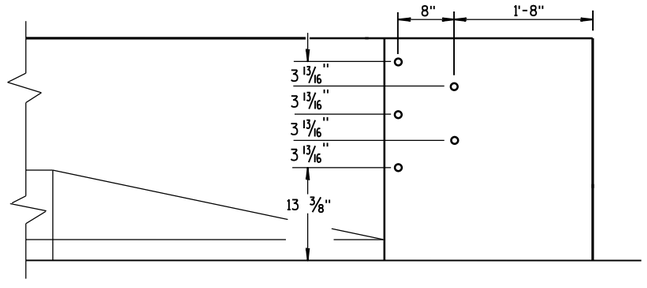




FRONT VIEW



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

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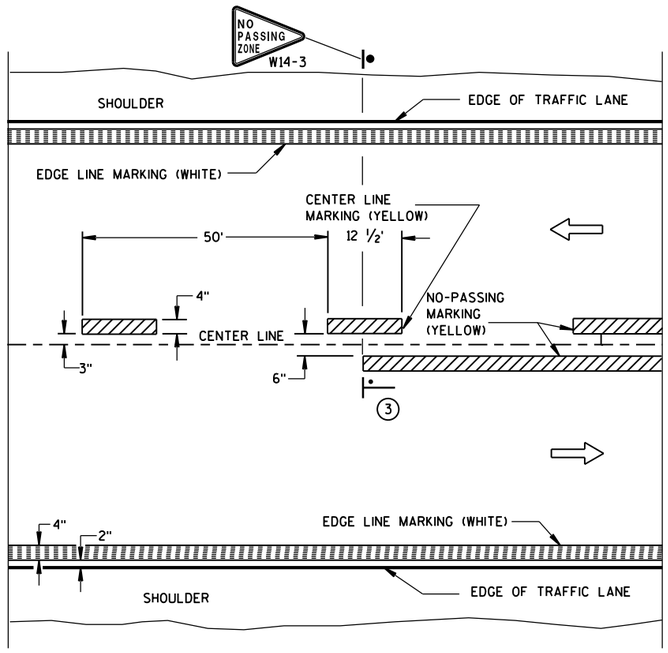
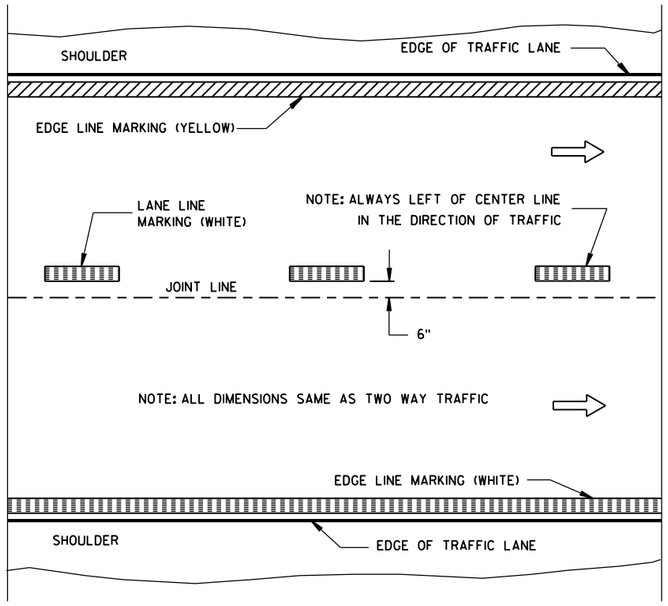
S.D.D. 14 B 45-4d

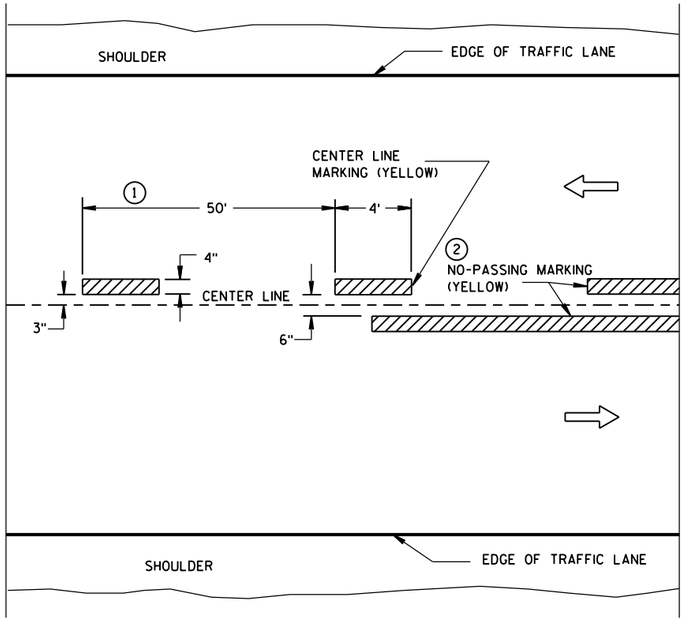


TWO WAY TRAFFIC

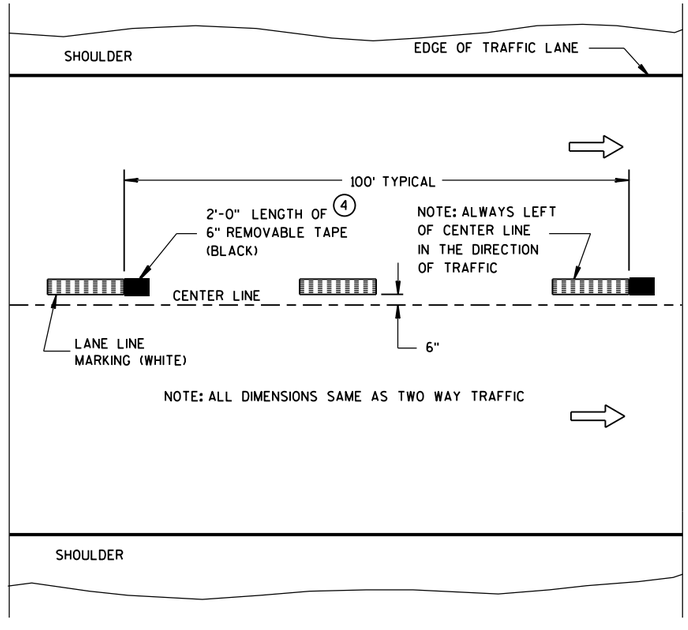


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

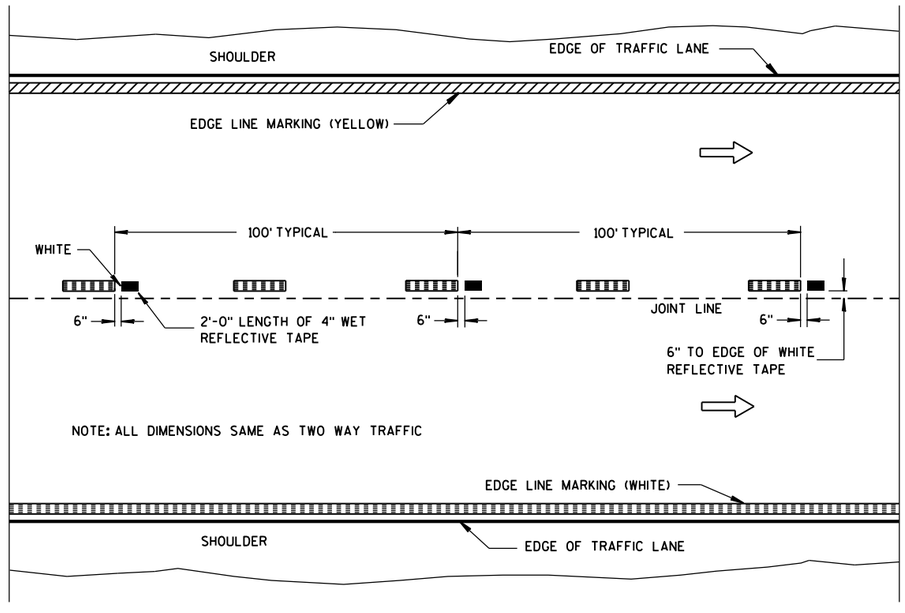
GENERAL NOTES

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

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

6

S.D.D. 15 C 8-16a

6

S.D.D. 15 C 8-16a

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

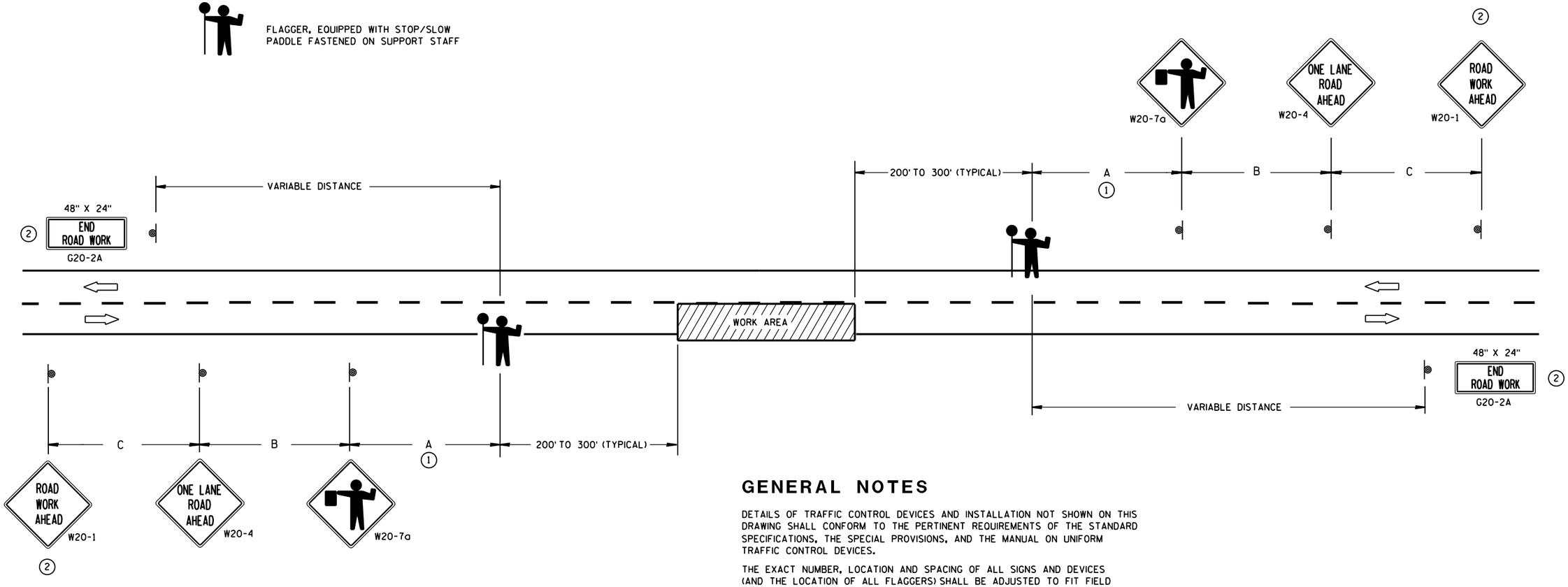
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 12-4

6

S.D.D. 15 C 12-4

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC
- 4" X 6" WOOD POST
- TEMPORARY SIGNAL WITH BACKPLATE AND 12-INCH LENSES ON BREAKAWAY POLE

W057-52
36"x24"

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET.)

GENERAL NOTES

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

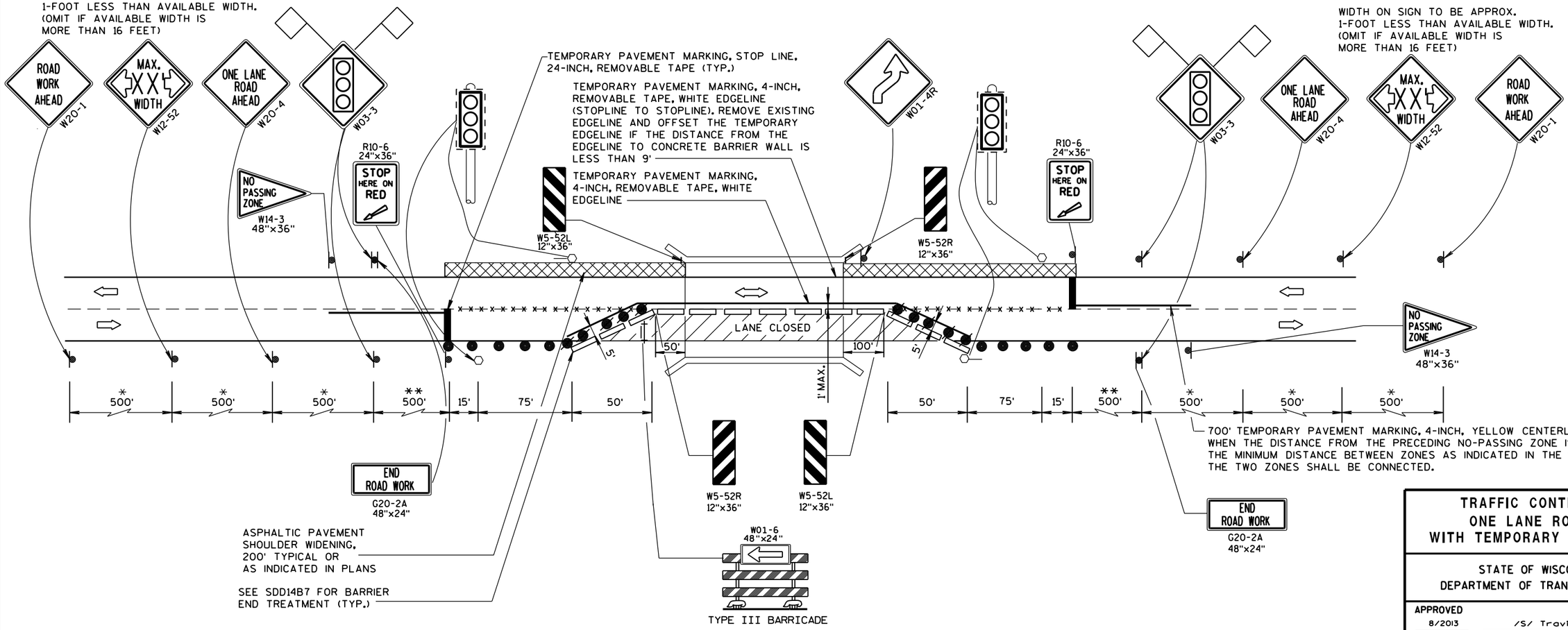
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 500-FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350-FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200-FOOT TYPICAL SPACING.

** USE 300' SPACING IF PRE-CONSTRUCTION REGULATORY SPEED LIMIT IS 35 MPH OR LESS.



TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

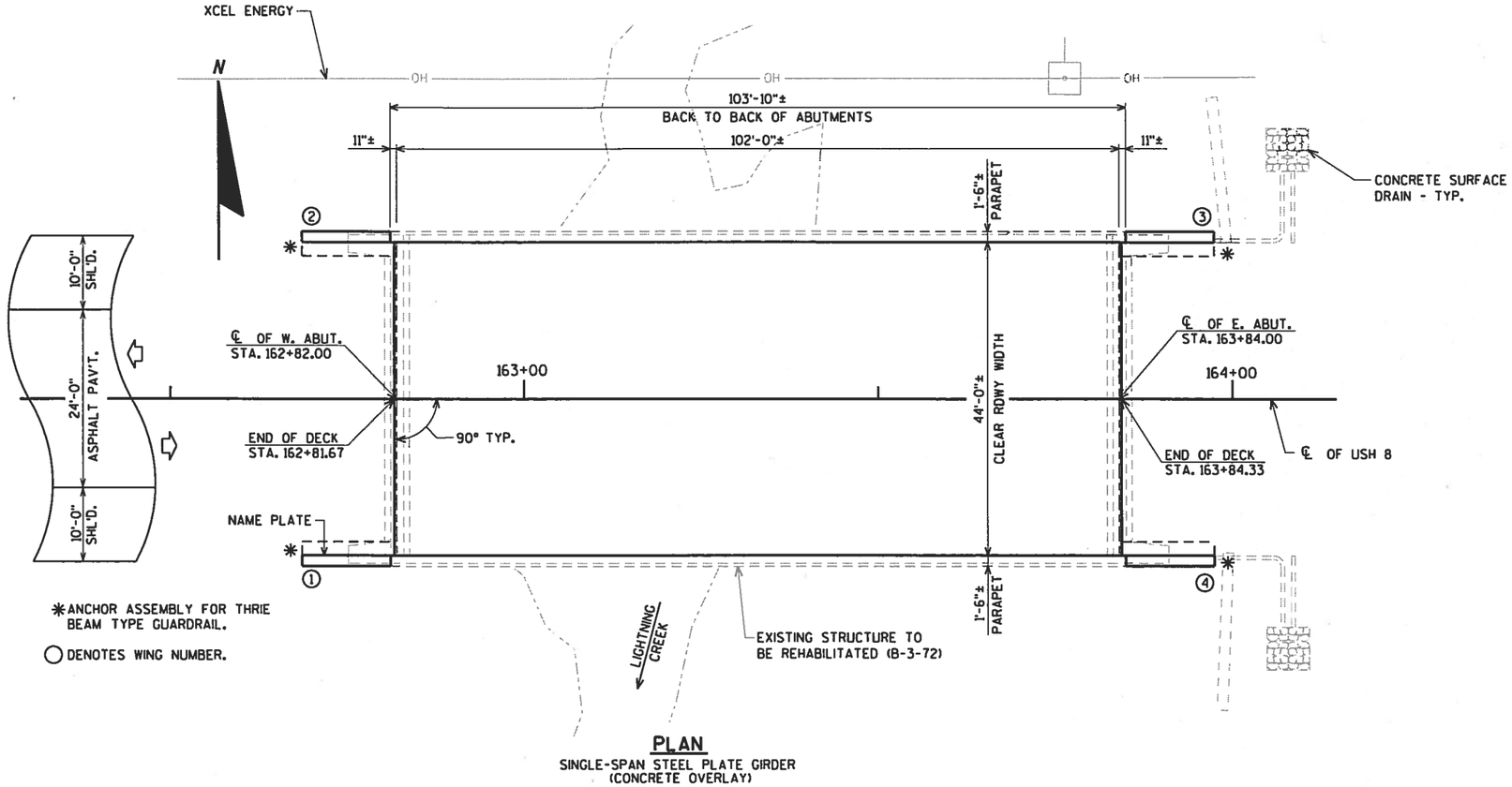
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 DATE
/S/ Travis Feltes STATE TRAFFIC ENGINEER
FHWA

6
S.D.D. 15 D 33-3

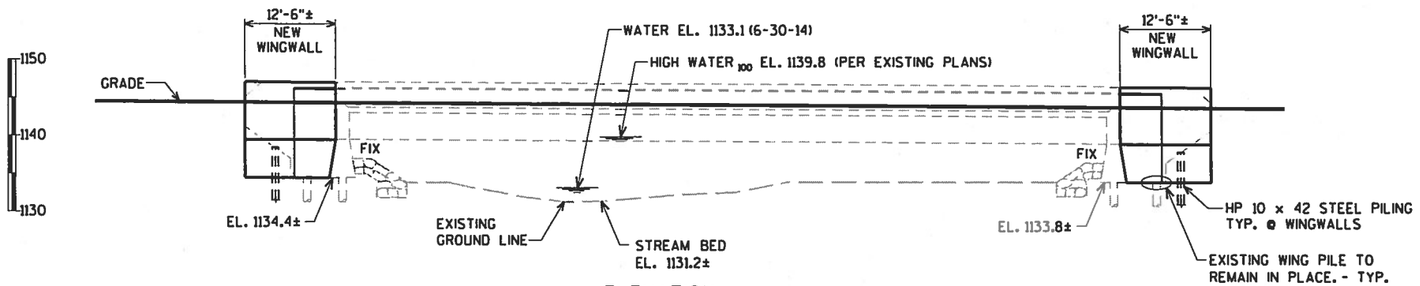
STATE PROJECT NUMBER

1570-04-72



PLAN

SINGLE-SPAN STEEL PLATE GIRDER
(CONCRETE OVERLAY)



ELEVATION

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL PLANS.

THE FIRST DIGIT OF A THREE DIGIT BAR NO. OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

PREPARATION DECKS AND CONCRETE SURFACE REPAIR AND FULL DEPTH DECK REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 2⅞" AT THE CENTERLINE AND 1½" AT THE FACE OF PARAPETS PLACED ABOVE THE DECK SURFACE AFTER "CLEANING DECKS". EXPECTED AVERAGE OVERLAY THICKNESS IS 2⅝". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER THE BID ITEM "PREPARATION DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM, "CLEANING DECKS", BUT LESS THAN 1½" MAXIMUM.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM 'CONCRETE MASONRY OVERLAY DECKS'.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE INSIDE FACES AND TOP SURFACES OF THE NEW PARAPETS ON THE WINGWALLS PER MANUFACTURERS RECOMMENDATIONS. THE COLOR OF THE PIGMENTED SURFACE SEALER SHALL BE WHITE.

THE INSIDE FACES AND TOP SURFACES OF THE EXISTING PARAPETS ON THE SUPERSTRUCTURE SHALL BE RESEALED. SEE SPECIAL PROVISIONS. THE COLOR OF THE SURFACE TREATMENT SHALL BE WHITE.

THE CONCRETE APPROACH SLABS AT THE ABUTMENTS WILL VARY IN THICKNESS FROM 1'-0½" MIN. AT EDGE OF SLAB TO 1'-1⅞" MAX. AT THE ℄ OF USH 8.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1979.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES AT THE WING REPAIR.

AT WING REPAIRS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW WING SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

FOR TYPICAL SECTIONS AND DESIGN DATA SEE SHEET 2

LIST OF DRAWINGS

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER
5/26/15

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

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/20/15
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-3-72

USH 8 OVER LIGHTNING CREEK

COUNTY	TOWN/~~CITY/VILLAGE~~
BARRON	CLINTON

DESIGN SPEC. REHABILITATION - N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JCK	JWZ	CLS	CBM

GENERAL PLAN

SHEET 1 OF 4
68

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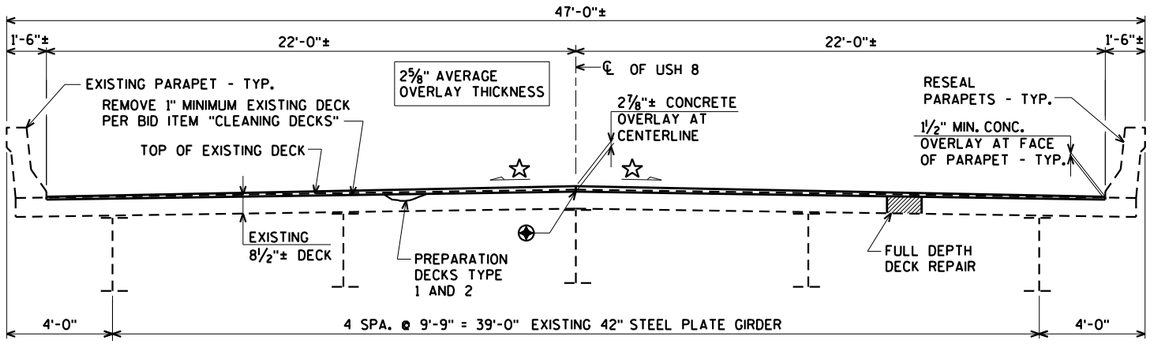
42-0937 gp FINAL.dgn

DATE: 5/26/15
DATE:
DATE:

CHECKED BY: CBM
BACK CHECKED BY:
CORRECTED BY:

8

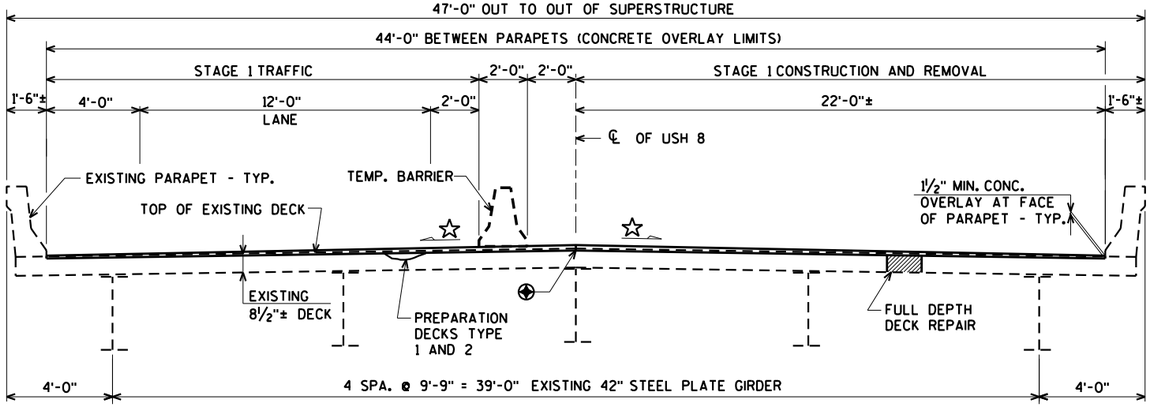
8



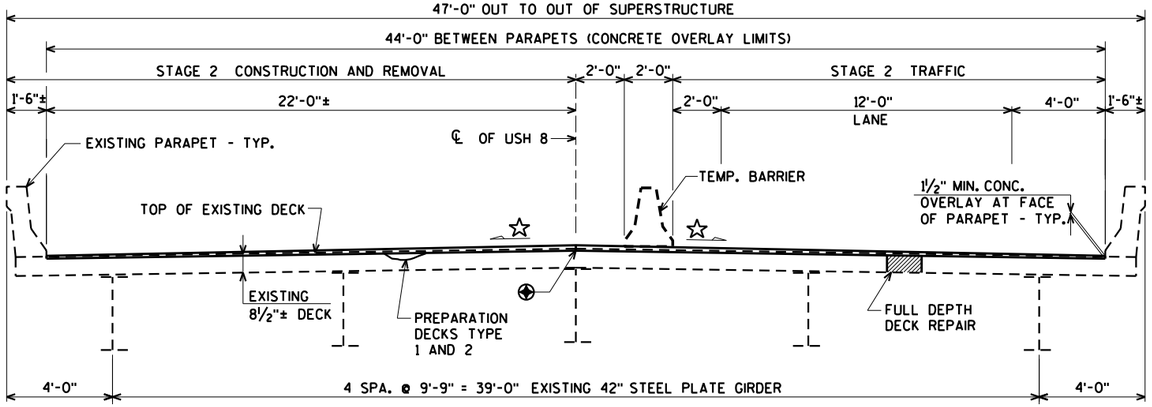
CROSS SECTION THRU ROADWAY
(LOOKING EAST)

⊕ LONG. CONST. JOINT (AT CROWN POINT) SEAL WITH CRACK SEALER PER SECTION 502.3.13 OF STD. SPEC.

☆ PROPOSED CONCRETE OVERLAY SLOPE = 2.0%
EXISTING CONCRETE DECK SLOPE = 1.5%



CROSS SECTION THRU ROADWAY
STAGE 1 TRAFFIC
(LOOKING EAST)



CROSS SECTION THRU ROADWAY
STAGE 2 TRAFFIC
(LOOKING EAST)

TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 163+33	LS	1
	206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-3-72	LS	1
	210.0100	BACKFILL STRUCTURE	CY	260
	502.0100	CONCRETE MASONRY BRIDGES	CY	45
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	510
	503.3210	PIGMENTED SURFACE SEALER	SY	20
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,450
	509.0301	PREPARATION DECKS TYPE 1	SY	50
	509.0302	PREPARATION DECKS TYPE 2	SY	20
	509.0500	CLEANING DECKS	SY	508
◑	509.1500	CONCRETE SURFACE REPAIR	SF	20
	509.2000	FULL-DEPTH DECK REPAIR	SY	5
△	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	39
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	15
	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	200
	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4
	SPV.0180.01	RESEAL PARAPETS	SY	42
		NON-BID ITEMS		
		FILLER	SIZE	½"

◑ UNDISTRIBUTED FOR ABUTMENTS AS DIRECTED BY THE ENGINEER IN THE FIELD.

△ BID ITEM ALSO INCLUDES CONCRETE FOR "PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2", AND "FULL DEPTH DECK REPAIR".

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-25
OPERATING RATING: HS-42
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY { OVERLAY AND BRIDGES ——— f'_c = 4,000 p.s.i.
ALL OTHER ——— f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ——— f_y = 60,000 p.s.i.

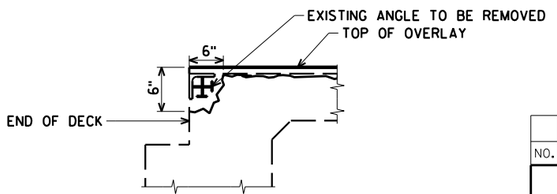
FOUNDATION DATA:

NEW WINGWALLS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 70 TONS* PER PILE. ESTIMATED LENGTH 50'-0".

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

TRAFFIC DATA:

A.D.T. = 7,200 (2016)
A.D.T. = 8,100 (2036)
R.D.S. = 60 M.P.H.



SECTION AT END OF SLAB

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-3-72

DRAWN BY CLS | PLANS CK'D. JWZ

TYPICAL SECTIONS AND QUANTITIES

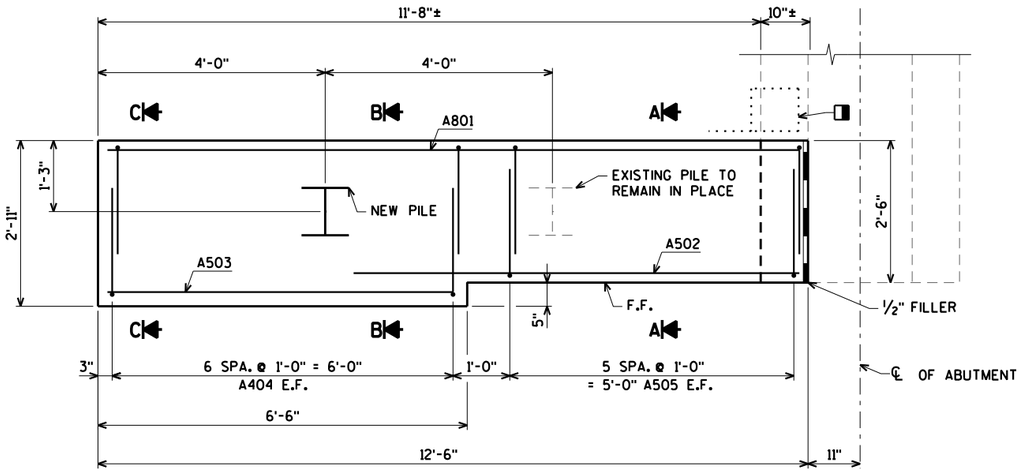
SHEET 2 OF 4
69

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

$PRFNAME$
U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\BRIDGE\42-0937 gp FINAL.dgn

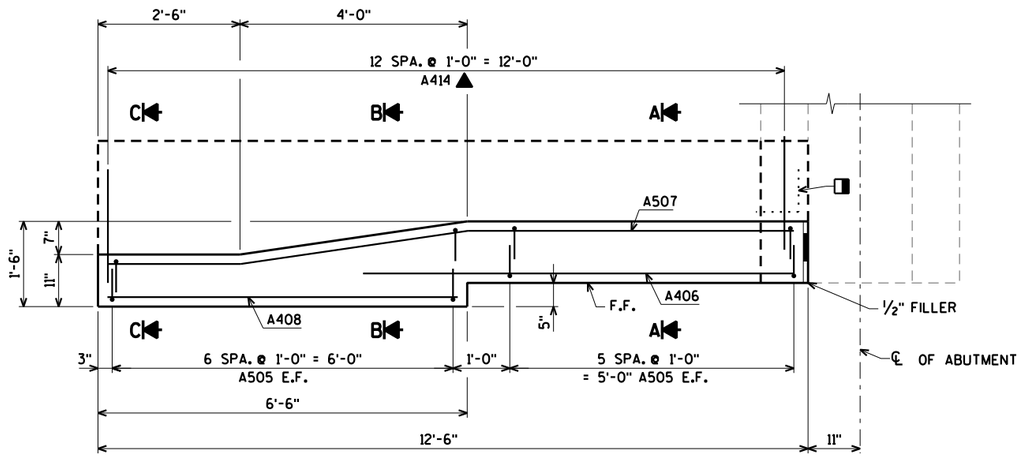
STATE PROJECT NUMBER

1570-04-72



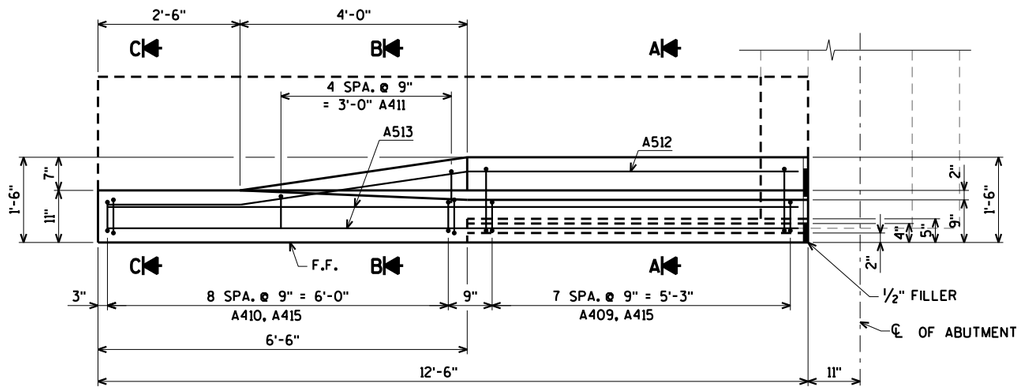
PLAN & PILE LAYOUT

(LOWER WING SHOWN)



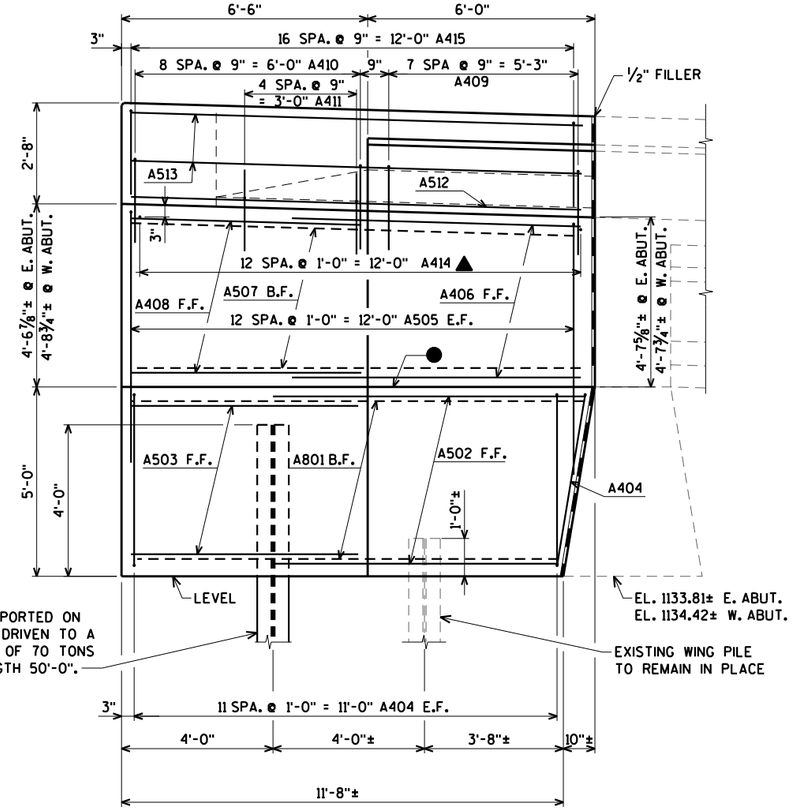
PLAN

(UPPER WING SHOWN)



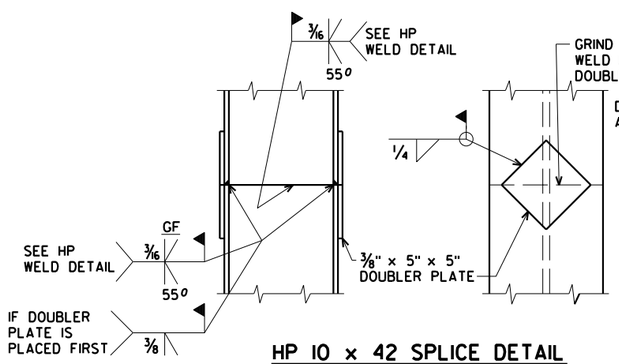
PLAN

(PARAPET SHOWN)

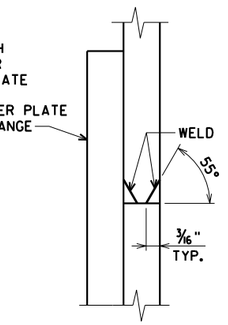


ELEVATION

(WING 1 SHOWN, WINGS 2-4 SIMILAR)



HP 10 x 42 SPLICE DETAIL



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

▲ WINGS 3 & 4 ONLY

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH 18" RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

FOR SECTIONS A, B, & C, SEE SHEET 4.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-3-72

DRAWN BY JCK | PLANS CK'D. JWZ

TYPICAL WING REPLACEMENT DETAILS

SHEET 3 OF 4
70

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

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5/26/2015

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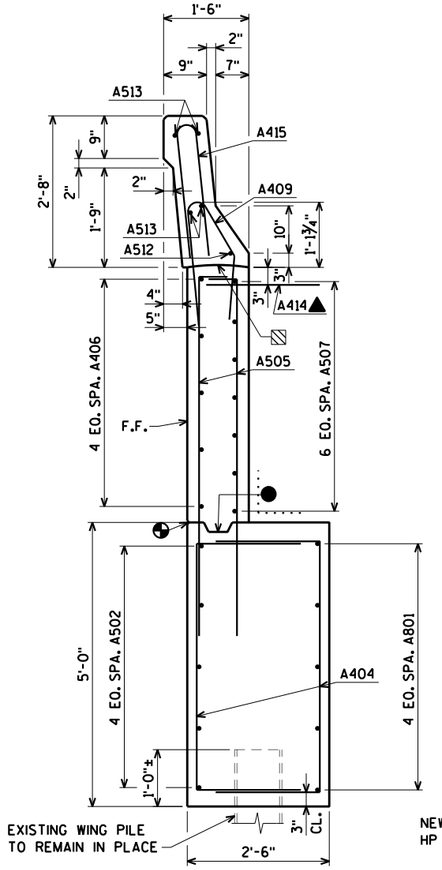
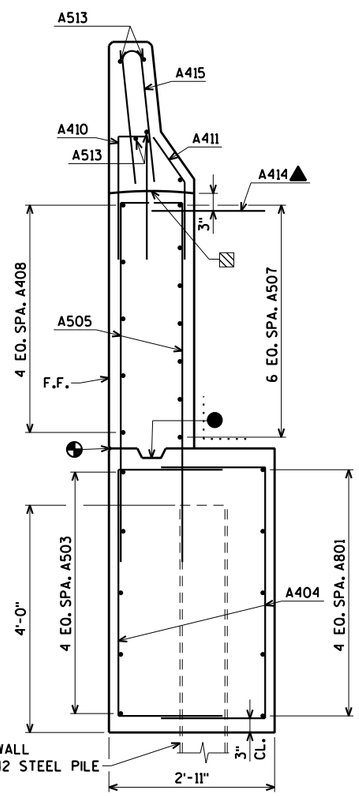
STATE PROJECT NUMBER

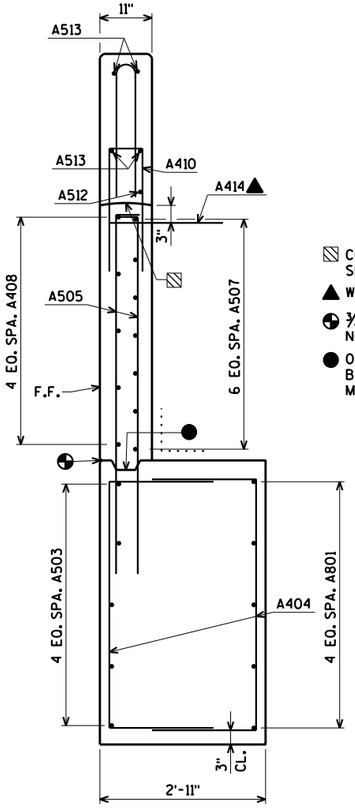
1570-04-72



SECTION A



SECTION B



SECTION C

FOR LOCATIONS OF SECTIONS A, B & C, SEE SHEET 3.

▨ CONSTRUCTION JOINT - STRIKE OFF AS SHOWN AND FINISH WITH A WOODEN TROWEL.

▲ WINGS 3 & 4 ONLY

◔ ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH 18" RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

BILL OF BARS (FOR ALL 4 WINGS)

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	3,450# COATED LOCATION
A801	X	20	11-9			⊗	B.F. LOWER WING BODIES HORIZ.
A502	X	20	8-6			⊗	F.F. LOWER WING BODIES HORIZ.
A503	X	20	6-2				F.F. LOWER WING BODIES HORIZ.
A404	X	104	6-8	X			E.F. LOWER WING BODIES VERT.
A505	X	104	7-1	X			E.F. UPPER WING BODIES VERT.
A406	X	20	7-2				F.F. UPPER WING BODIES HORIZ.
A507	X	28	12-2	X			B.F. UPPER WING BODIES HORIZ.
A408	X	20	6-2				F.F. UPPER WING BODIES HORIZ.
A409	X	32	4-7	X			PARAPETS VERT.
A410	X	36	4-8	X			PARAPETS VERT.
A411	X	20	2-5	X			PARAPETS VERT.
A512	X	4	12-2	X			PARAPETS HORIZ.
A513	X	16	12-2				PARAPETS HORIZ.
⊞ A414	X	26	2-0				CONCRETE SURFACE DRAIN ANCHORS
A415	X	68	4-10	X			PARAPETS VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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

⊞ SURFACE DRAIN DOWELS PLACED IN WINGS 3 & 4 ONLY.

B.F. DENOTES BACK FACE

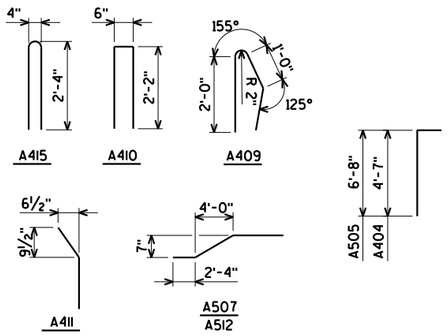
E.F. DENOTES EACH FACE

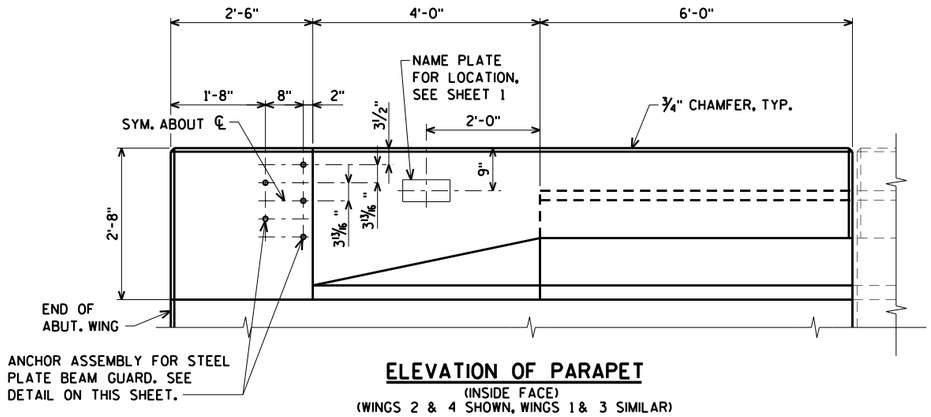
F.F. DENOTES FRONT FACE

BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A801	1 SERIES OF 5	11'-4" TO 12'-2"
A502	1 SERIES OF 5	8'-1" TO 8'-11"

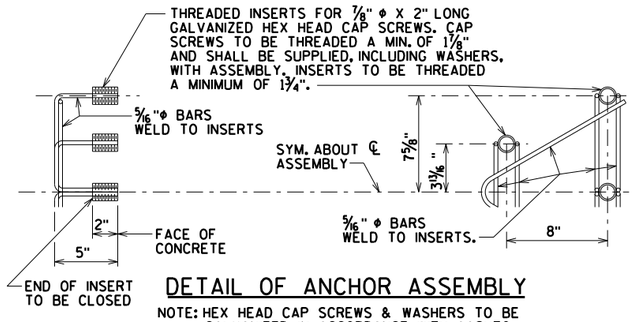
BUNDLE AND TAG EACH SERIES SEPARATELY.





ELEVATION OF PARAPET

(INSIDE FACE)
(WINGS 2 & 4 SHOWN, WINGS 1 & 3 SIMILAR)



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-3-72

DRAWN BY JCK | PLANS CK'D. JWZ

TYPICAL WING REPLACEMENT DETAILS

SHEET 4 OF 4
71

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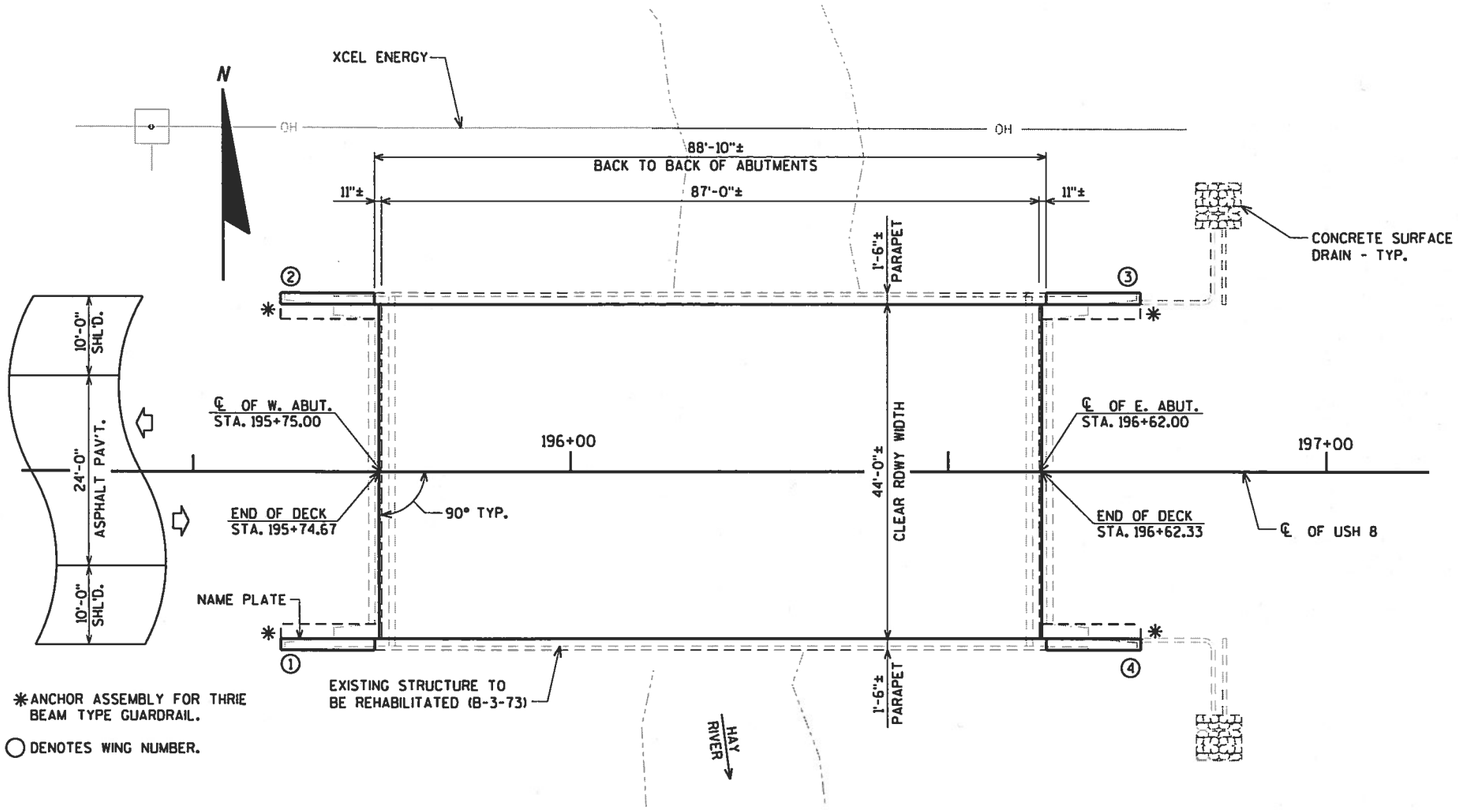
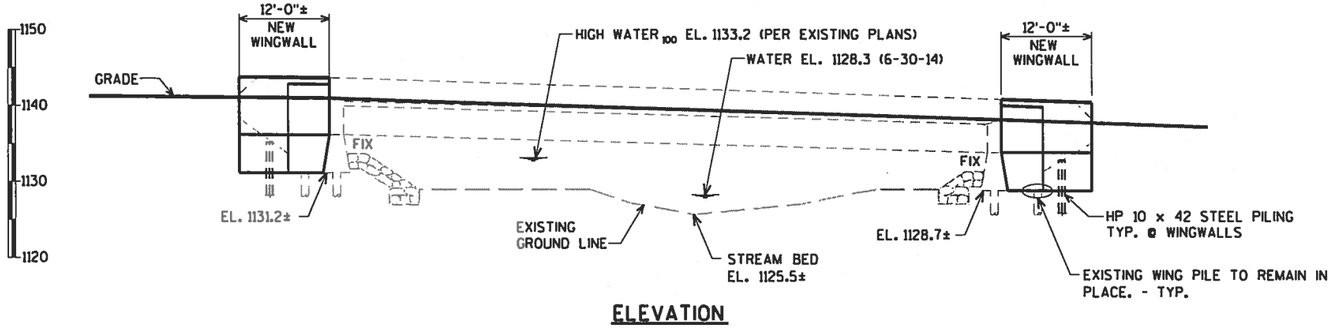
1570-05-75



PLAN

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



ELEVATION

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL PLANS.

THE FIRST DIGIT OF A THREE DIGIT BAR NO. OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

PREPARATION DECKS AND CONCRETE SURFACE REPAIR AND FULL DEPTH DECK REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 2⅛" AT THE CENTERLINE AND 1½" AT THE FACE OF PARAPETS PLACED ABOVE THE DECK SURFACE AFTER "CLEANING DECKS". EXPECTED AVERAGE OVERLAY THICKNESS IS 2⅝". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER THE BID ITEM "PREPARATION DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM, "CLEANING DECKS", BUT LESS THAN 1½" MAXIMUM.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM 'CONCRETE MASONRY OVERLAY DECKS'.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE INSIDE FACES AND TOP SURFACES OF THE NEW PARAPETS ON THE WINGWALLS PER MANUFACTURERS RECOMMENDATIONS. THE COLOR OF THE PIGMENTED SURFACE SEALER SHALL BE WHITE.

THE INSIDE FACES AND TOP SURFACES OF THE EXISTING PARAPETS ON THE SUPERSTRUCTURE SHALL BE RESEALED. SEE SPECIAL PROVISIONS. THE COLOR OF THE SURFACE TREATMENT SHALL BE WHITE.

THE CONCRETE APPROACH SLABS AT THE ABUTMENTS WILL VARY IN THICKNESS FROM 1'-0½" MIN. AT EDGE OF SLAB TO 1'-1⅞" MAX. AT THE ℄ OF USH 8.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1979.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES AT THE WING REPAIR.

AT WING REPAIRS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW WING SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

FOR TYPICAL SECTIONS AND DESIGN DATA SEE SHEET 2

LIST OF DRAWINGS

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
PROFESSIONAL ENGINEER
5/26/15

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

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/20/15
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-3-73

USH 8 OVER HAY RIVER

COUNTY	TOWN ~~/CITY/VILLAGE~~
BARRON	CLINTON

DESIGN SPEC. REHABILITATION - N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JCK	JWZ	CLS	CBM

GENERAL PLAN

SHEET 72 OF 4

8

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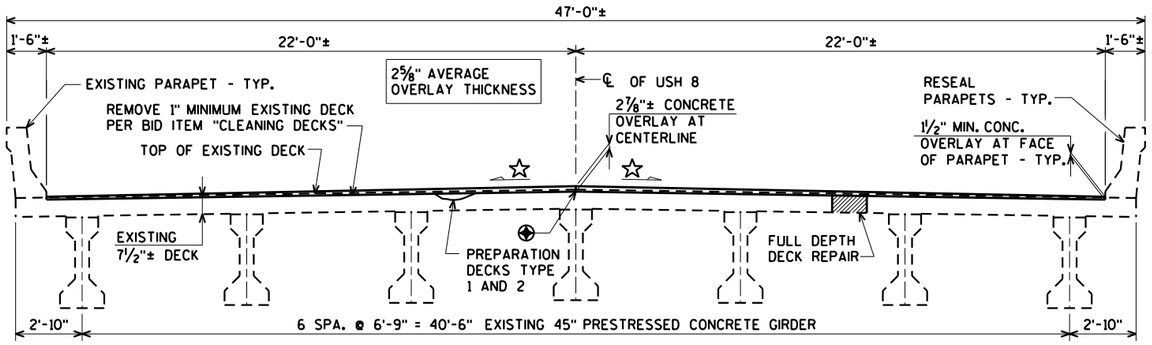
DATE: 5/26/15
DATE:
DATE:

CHECKED BY: CBM
BACK CHECKED BY:
CORRECTED BY:

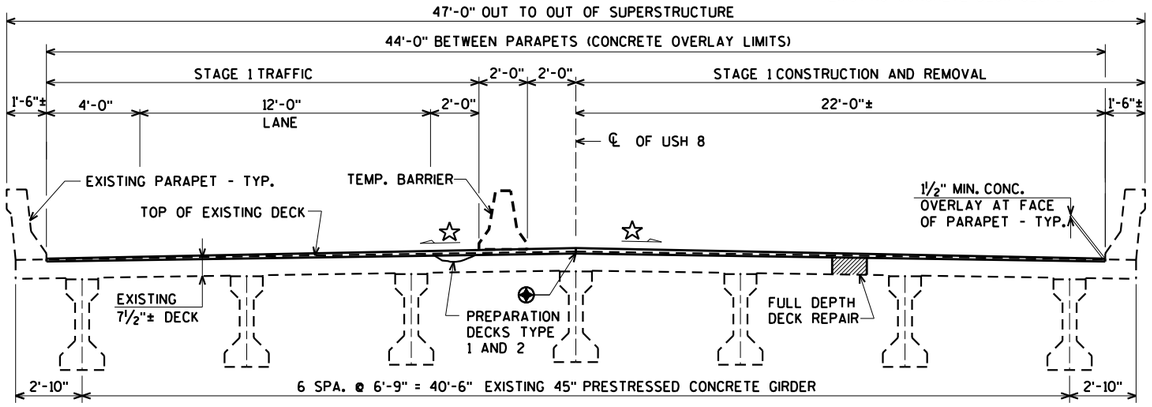
5/26/2015



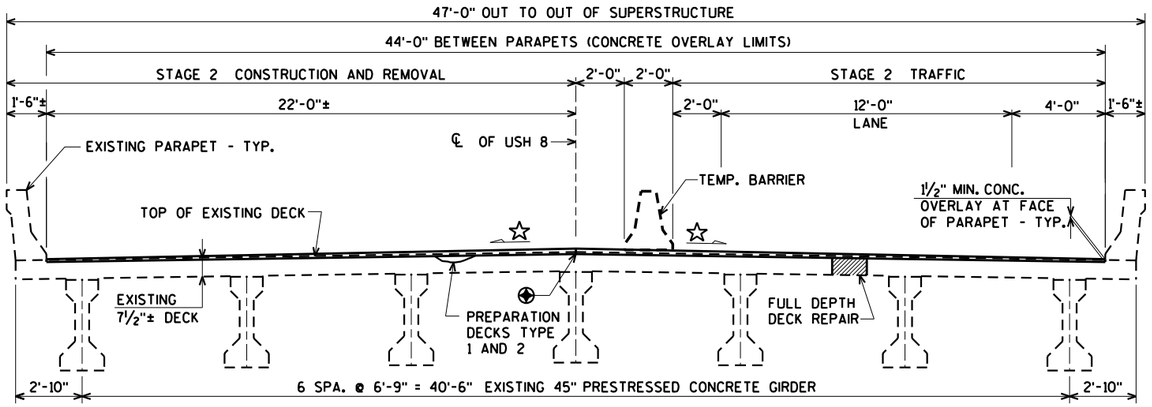
CROSS SECTION THRU ROADWAY
(LOOKING EAST)

⊕ LONG. CONST. JOINT (AT CROWN POINT) SEAL WITH CRACK SEALER PER SECTION 502.3.13 OF STD. SPEC.

☆ PROPOSED CONCRETE OVERLAY SLOPE = 2.0%
EXISTING CONCRETE DECK SLOPE = 1.5%



CROSS SECTION THRU ROADWAY
STAGE 1 TRAFFIC
(LOOKING EAST)



CROSS SECTION THRU ROADWAY
STAGE 2 TRAFFIC
(LOOKING EAST)

TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 196+19	LS	1
	206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-3-73	LS	1
	210.0100	BACKFILL STRUCTURE	CY	250
	502.0100	CONCRETE MASONRY BRIDGES	CY	43
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	435
	502.3210	PIGMENTED SURFACE SEALER	SY	20
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,260
	509.0301	PREPARATION DECKS TYPE 1	SY	45
	509.0302	PREPARATION DECKS TYPE 2	SY	20
	509.0500	CLEANING DECKS	SY	435
◑	509.1500	CONCRETE SURFACE REPAIR	SF	20
	509.2000	FULL-DEPTH DECK REPAIR	SY	5
△	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	37
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	15
	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	270
	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4
	SPV.0180.01	RESEAL PARAPETS	SY	72
		NON-BID ITEMS		
		FILLER	SIZE	½"

◑ UNDISTRIBUTED FOR ABUTMENTS AS DIRECTED BY THE ENGINEER IN THE FIELD.

△ BID ITEM ALSO INCLUDES CONCRETE FOR "PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2", AND "FULL DEPTH DECK REPAIR".

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-18
OPERATING RATING: HS-31
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY { OVERLAY AND BRIDGES ____ f'_c = 4,000 p.s.i.
ALL OTHER ____ f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ____ f_y = 60,000 p.s.i.

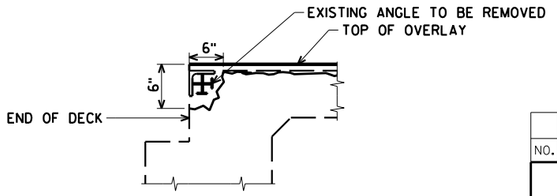
FOUNDATION DATA:

NEW WINGWALLS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 70 TONS‡ PER PILE. ESTIMATED LENGTH 60'-0" AT WINGS 1& 2 AND 75'-0" AT WINGS 3 & 4.

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

TRAFFIC DATA:

A.D.T. = 7,200 (2016)
A.D.T. = 8,100 (2036)
R.D.S. = 60 M.P.H.



SECTION AT END OF SLAB

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-3-73

DRAWN BY CLS | PLANS CK'D. JWZ

TYPICAL SECTIONS AND QUANTITIES

SHEET 2 OF 4
73

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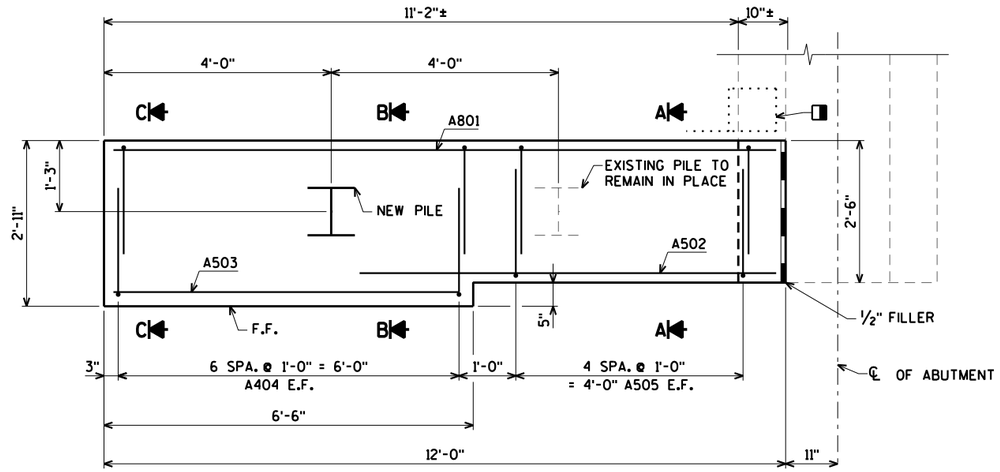
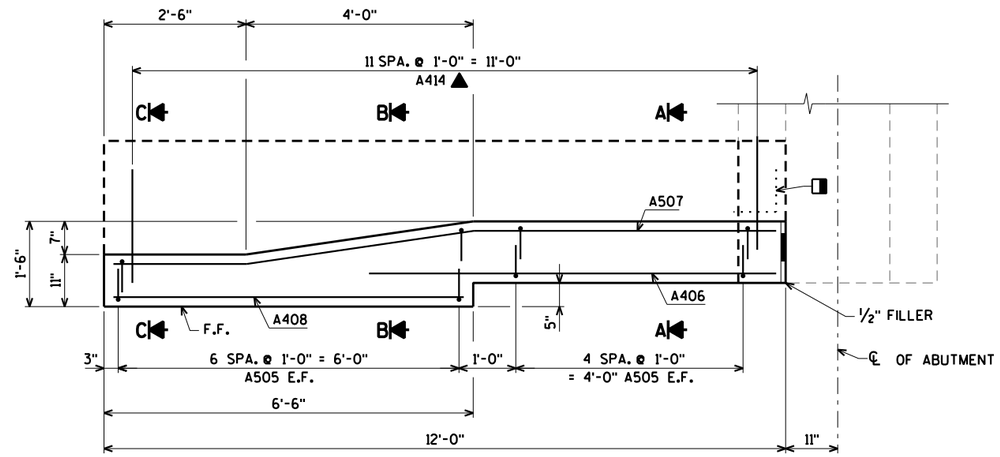
$PRFNAME$
U:±42-0936.00 - USH 8 over Hay River - Barron County±BRIDGE±42-0936 gp FINAL.dgn

STATE PROJECT NUMBER

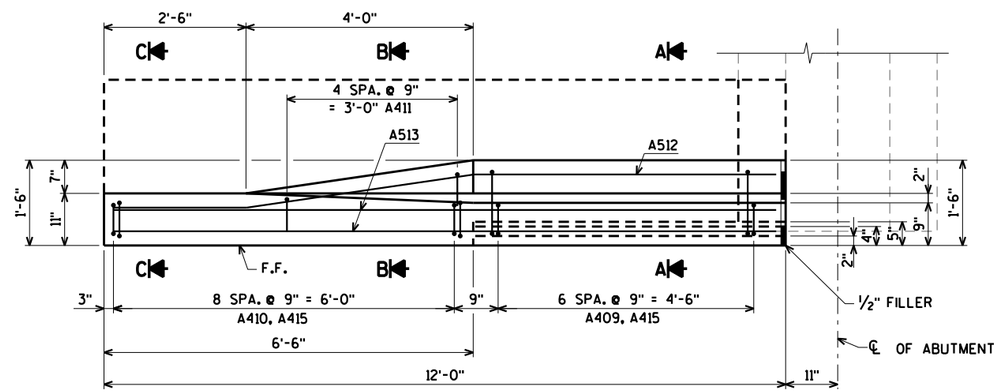
1570-05-75



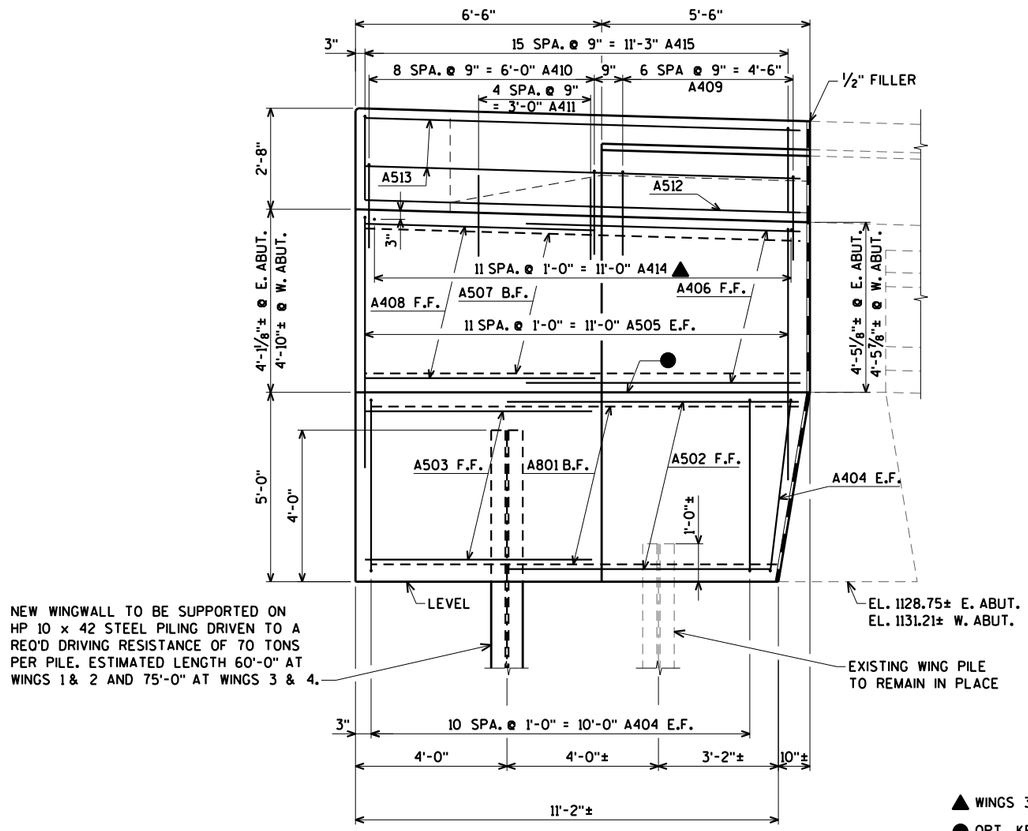
PLAN & PILE LAYOUT
(LOWER WING SHOWN)



PLAN
(UPPER WING SHOWN)



PLAN
(PARAPET SHOWN)



NEW WINGWALL TO BE SUPPORTED ON HP 10 x 42 STEEL PILING DRIVEN TO A REQ'D DRIVING RESISTANCE OF 70 TONS PER PILE. ESTIMATED LENGTH 60'-0" AT WINGS 1 & 2 AND 75'-0" AT WINGS 3 & 4.

ELEVATION
(WING 1 SHOWN, WINGS 2-4 SIMILAR)

▲ WINGS 3 & 4 ONLY

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH 18" RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

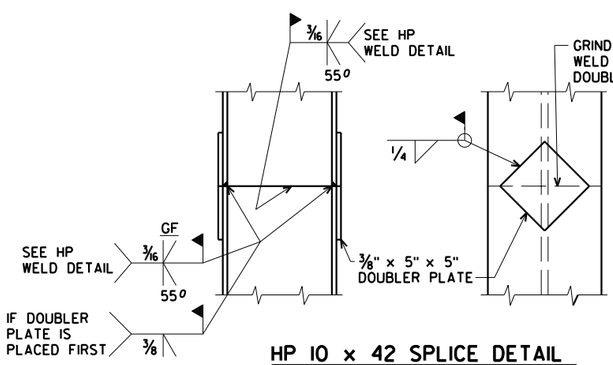
◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING

B.F. DENOTES BACK FACE

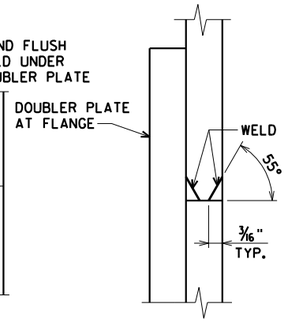
E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

FOR SECTIONS A, B, & C, SEE SHEET 4.



HP 10 x 42 SPLICE DETAIL
GRINDING MAY BE USED IN LIEU OF BACKGOUGING



HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-3-73

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TYPICAL WING REPLACEMENT

SHEET 3 OF 4
74

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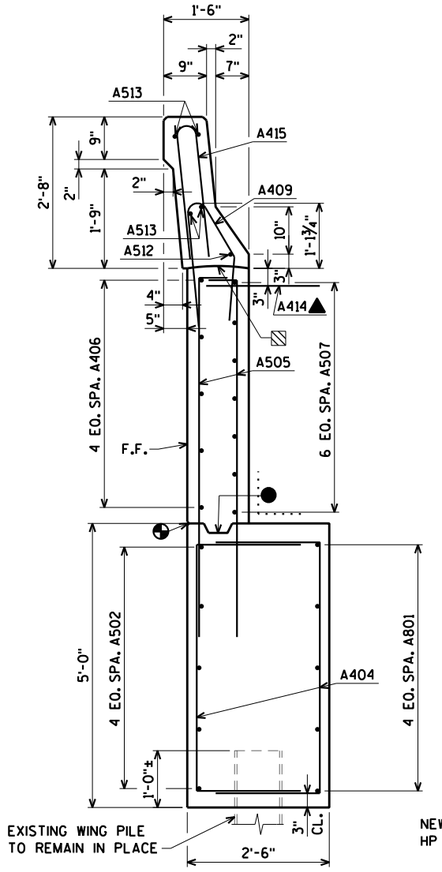
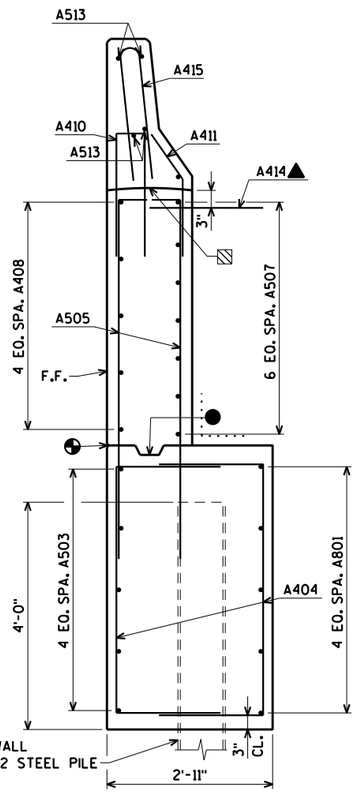
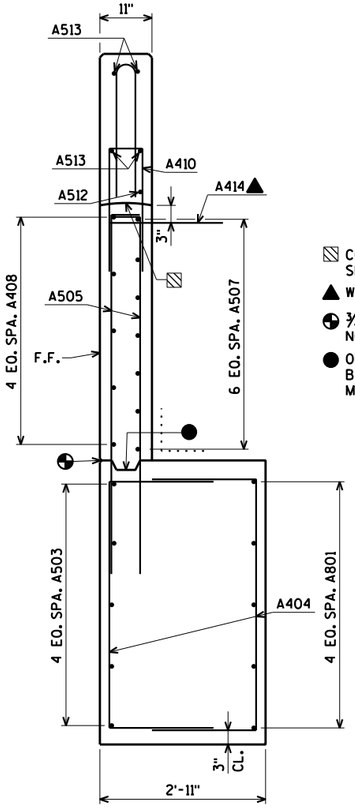


SECTION A



SECTION B



SECTION C

FOR LOCATIONS OF SECTIONS A, B & C, SEE SHEET 3.

▨ CONSTRUCTION JOINT - STRIKE OFF AS SHOWN AND FINISH WITH A WOODEN TROWEL.

▲ WINGS 3 & 4 ONLY

◔ ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH 18" RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

BILL OF BARS (FOR ALL 4 WINGS)

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	3,260# COATED LOCATION
	A801	X	20	11-3			⊗	B.F. LOWER WING BODIES HORIZ.
	A502	X	20	8-0			⊗	F.F. LOWER WING BODIES HORIZ.
	A503	X	20	6-2				F.F. LOWER WING BODIES HORIZ.
	A404	X	96	6-8	X			E.F. LOWER WING BODIES VERT.
	A505	X	96	7-1	X			E.F. UPPER WING BODIES VERT.
	A406	X	20	7-2				F.F. UPPER WING BODIES HORIZ.
	A507	X	28	11-8	X			B.F. UPPER WING BODIES HORIZ.
	A408	X	20	6-2				F.F. UPPER WING BODIES HORIZ.
	A409	X	28	4-7	X			PARAPETS VERT.
	A410	X	36	4-8	X			PARAPETS VERT.
	A411	X	20	2-5	X			PARAPETS VERT.
	A512	X	4	11-8	X			PARAPETS HORIZ.
	A513	X	16	11-8				PARAPETS HORIZ.
⊞	A414	X	24	2-0				CONCRETE SURFACE DRAIN ANCHOR
	A415	X	64	4-10	X			PARAPETS VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

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

⊞ SURFACE DRAIN DOWELS PLACED IN WINGS 3 & 4 ONLY.

B.F. DENOTES BACK FACE

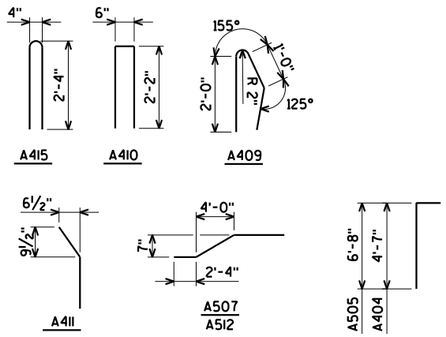
E.F. DENOTES EACH FACE

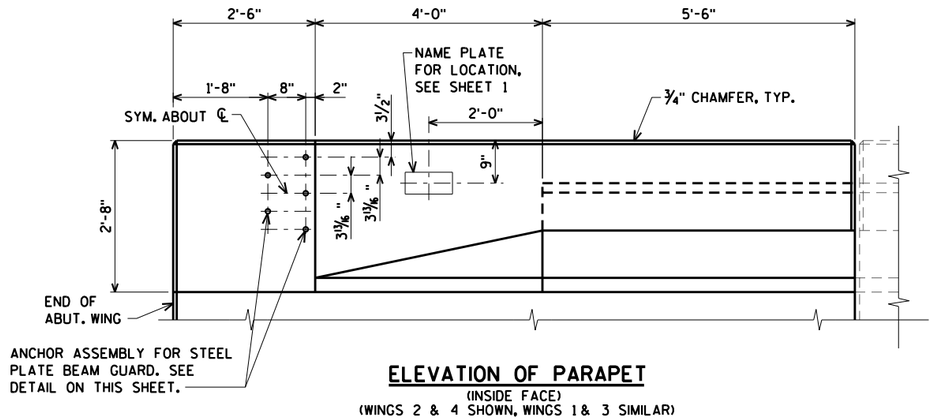
F.F. DENOTES FRONT FACE

BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A801	4 SERIES OF 5	10'-10" TO 11'-8"
A502	4 SERIES OF 5	7'-7" TO 8'-5"

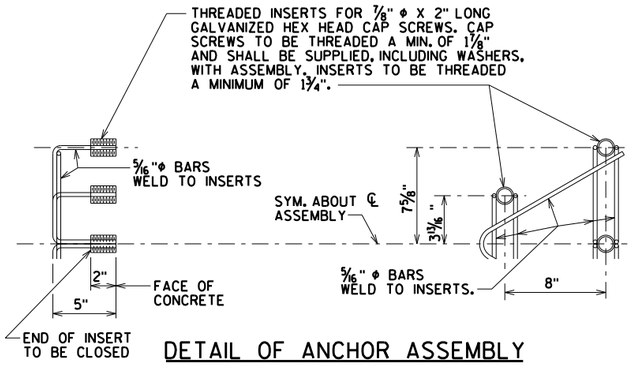
BUNDLE AND TAG EACH SERIES SEPARATELY.





ELEVATION OF PARAPET

(INSIDE FACE)
(WINGS 2 & 4 SHOWN, WINGS 1 & 3 SIMILAR)



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-3-73

DRAWN BY JCK | PLANS CK'D. JWZ

TYPICAL WING REPLACEMENT

SHEET 4 OF 4
75

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EARTHWORK SUMMARY (CATEGORY 0010)

		AREA			INCREMENTAL VOLUME			CUMULATIVE VOLUME		
DIVISION	STATION	CUT SF	SALVAGED/ UNUSEABLE PAVEMENT MATERIAL SF	FILL SF	CUT (1) CY	SALVAGED/ UNUSEABLE PAVEMENT MATERIAL (2) CY	FILL (3) CY	CUT (1) 1.00 CY	EXPANDED FILL (4) 1.30 CY	MASS ORDINATE ±(5) CY
1	160+99*	0	0	0						
USH 8	161+00*	3	0	0	0	0	0	0	0	0
Lightning Creek	161+10*	30	0	0	6	0	0	6	0	6
	161+50*	15	0	0	33	0	0	39	0	39
	161+59*	8	0	0	6	0	0	45	0	45
	161+79*	23	0	2	16	0	0	61	0	61
	161+80*	24	0	2	0	0	0	61	0	61
	161+80	1	0	2	0	0	1	61	1	60
	162+00	0	0	1	0	0	0	61	1	60
	162+04	0	0	0	0	0	0	61	1	60
	162+29	0	0	0	0	0	2	61	4	57
	162+50	0	0	4	0	0	9	61	16	45
	162+69	0	0	20	0	0	5	61	22	39
	162+81	0	0	0						
	STRUCTURE (B-3-72)									
	163+85	0	0	0	0	0	1	61	23	38
	164+00	1	0	3	1	0	2	62	26	36
	164+37	0	0	0	0	0	0	62	26	36
	164+50	0	0	0	0	0	0	62	26	36
	164+62	0	0	0	1	0	0	63	26	37
	164+85	2	0	0						
	164+85*	32	0	0	2	0	0	65	26	39
	164+87*	33	0	0	16	0	0	81	26	55
	165+00*	34	0	0	20	0	0	101	26	75
	165+09*	13	0	0	4	0	0	105	26	79
	165+25*	21	0	21	18	0	0	123	26	97
	165+50*	18	0	18	16	0	0	139	26	113
	165+75*	16	0	16	14	0	0	153	26	127
	166+00*	15	0	15	6	0	0	159	26	133
	166+11*	15	0	15						
TOTALS					159	0	20			

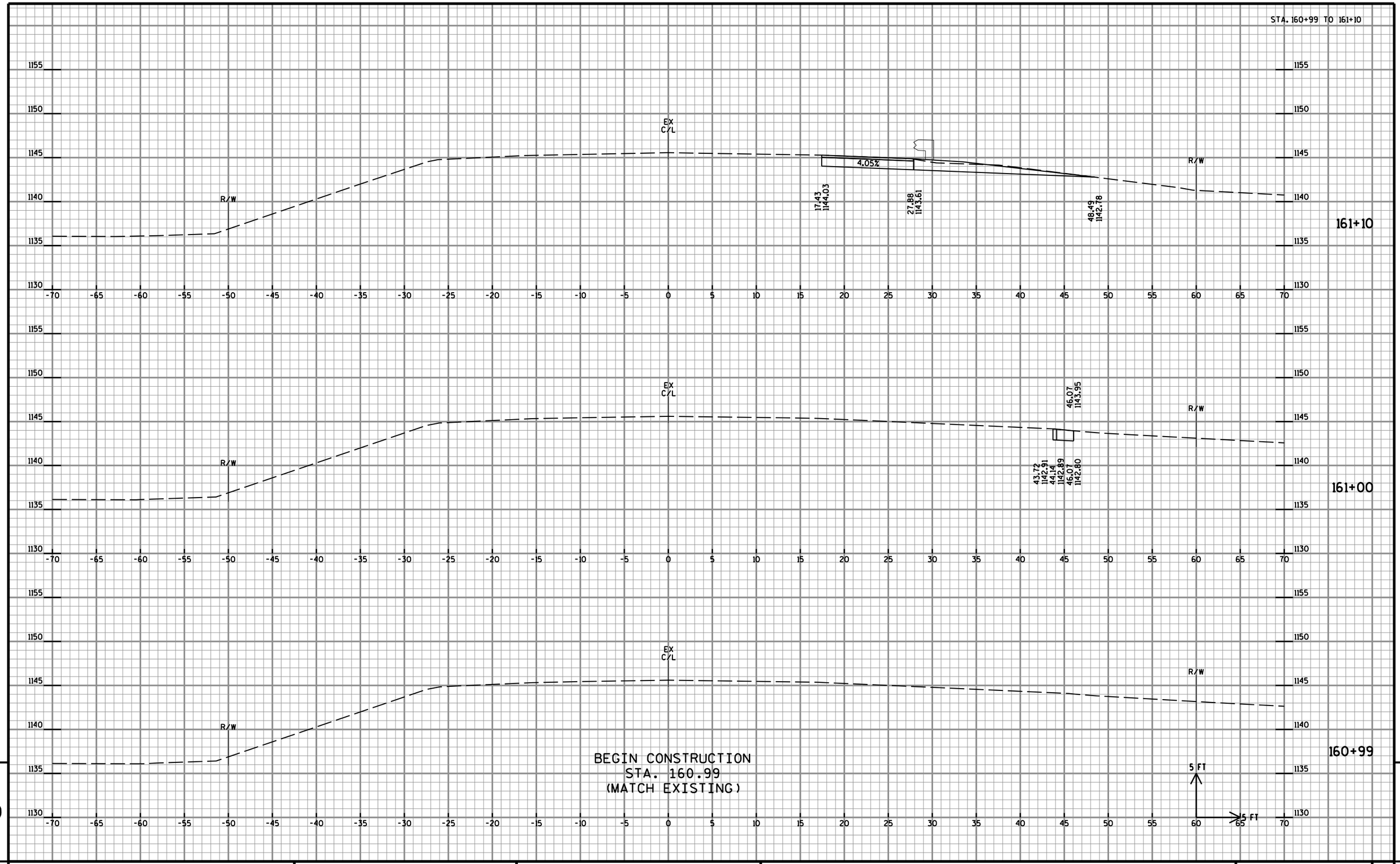
205.0100 EXCAVATION COMMON = 2

NOTES:
1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN (STATION 161+80 - STATION 164+85). ITEM NUMBER 205.0100
2) SALVAGED/UNUSEABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
4) EXPANDED FILL FACTOR = 1.30 EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
5) THE MASS ORDINATE ± QTY CALCULATED FOR THE DIVISION.

PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

* EXCAVATION COMMON IN THESE AREAS IS COVERED UNDER THE BID ITEM "BARRIER SYSTEM GRADING SHAPING FINISHING"

STA. 160+99 TO 161+10



9

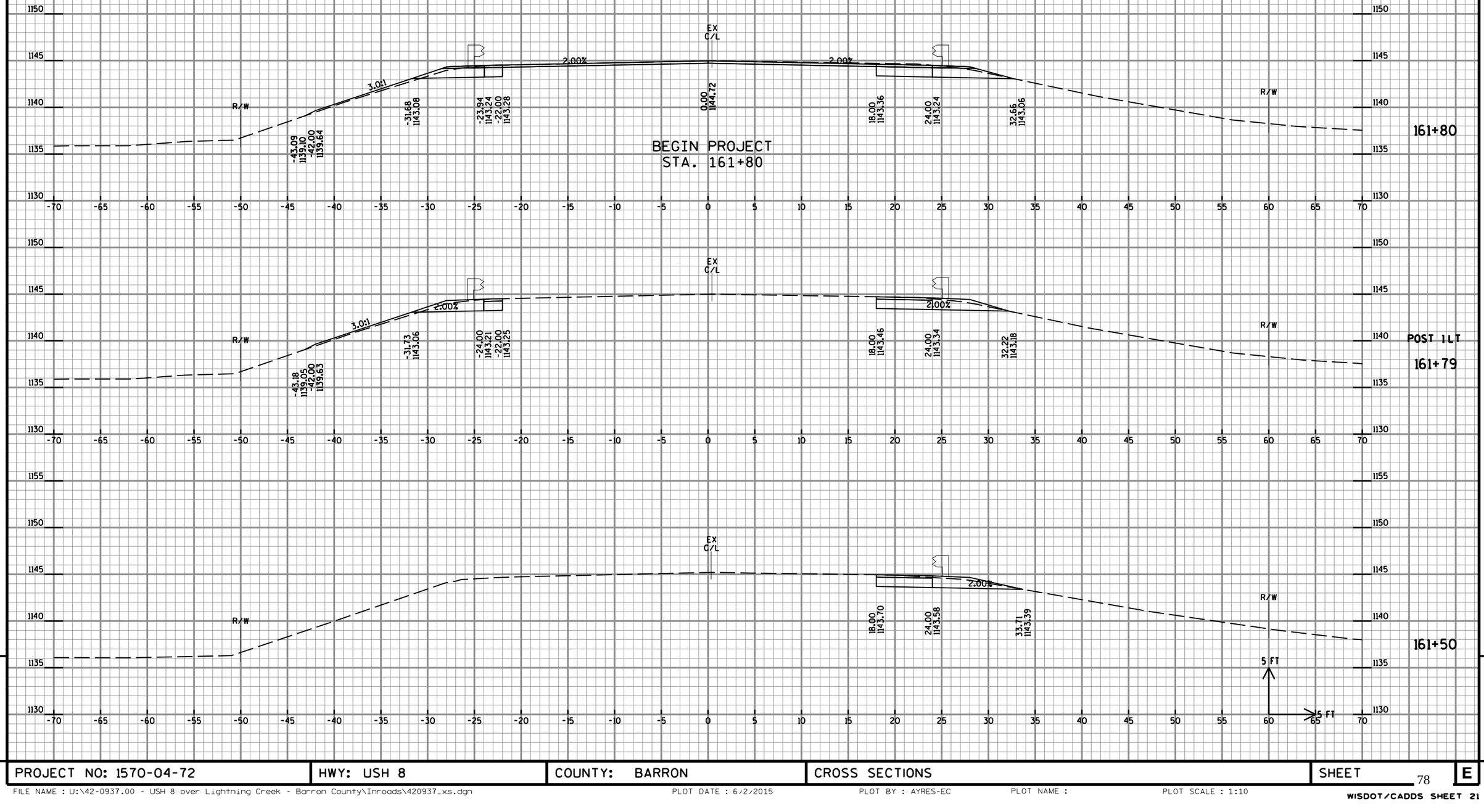
9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 77	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 161+50 TO 161+80



9

9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 78	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 162+00 TO 162+29

9

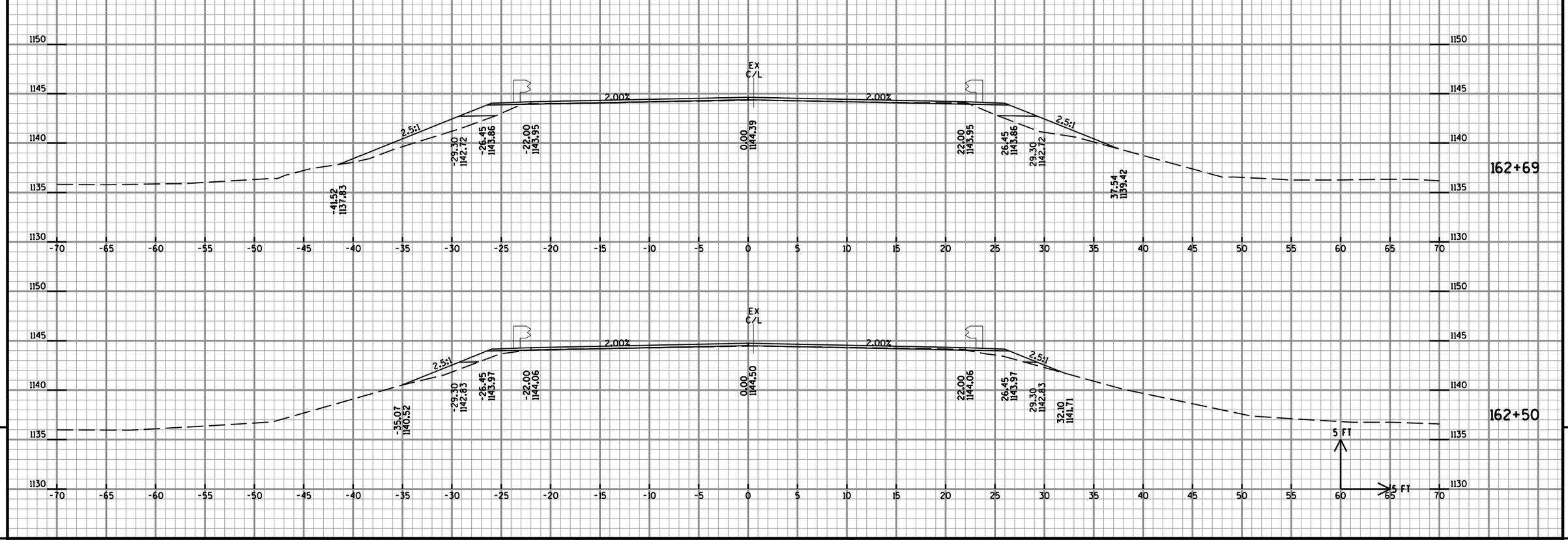
9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 162+50 TO 163+00



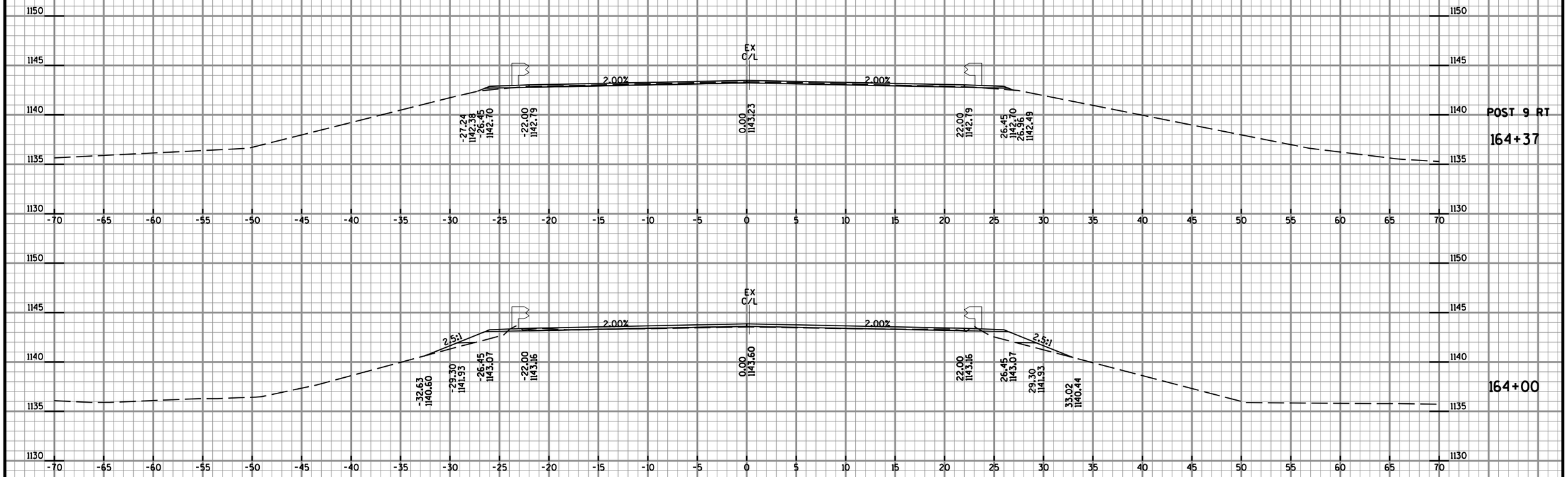
9 9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 80	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 163+50 TO 164+37



POST 9 RT

164+37

164+00

STRUCTURE B-03-0072

5 FT

5 FT

9

9

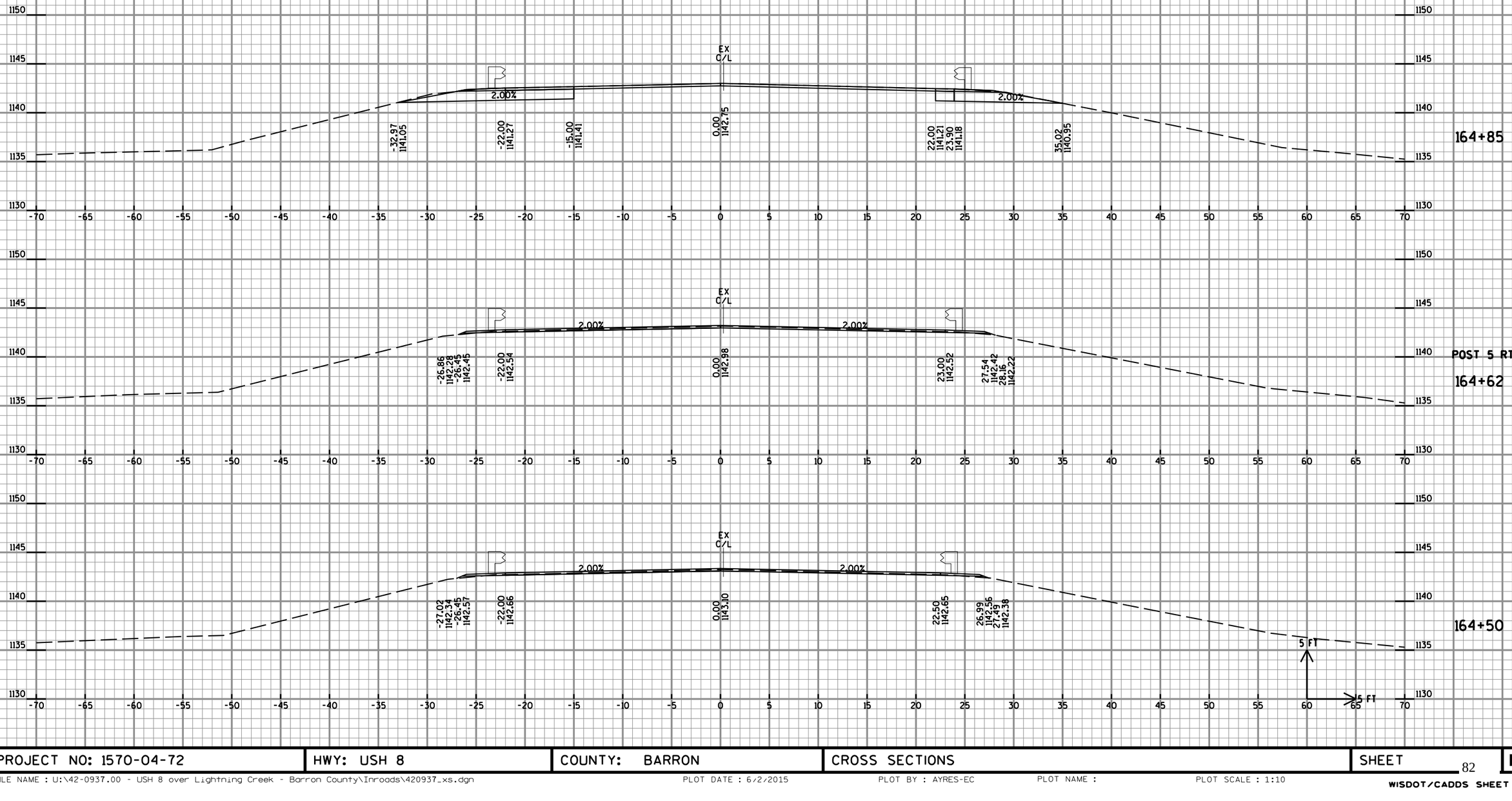
PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 164+50 TO 164+85

END PROJECT
STA. 164+85



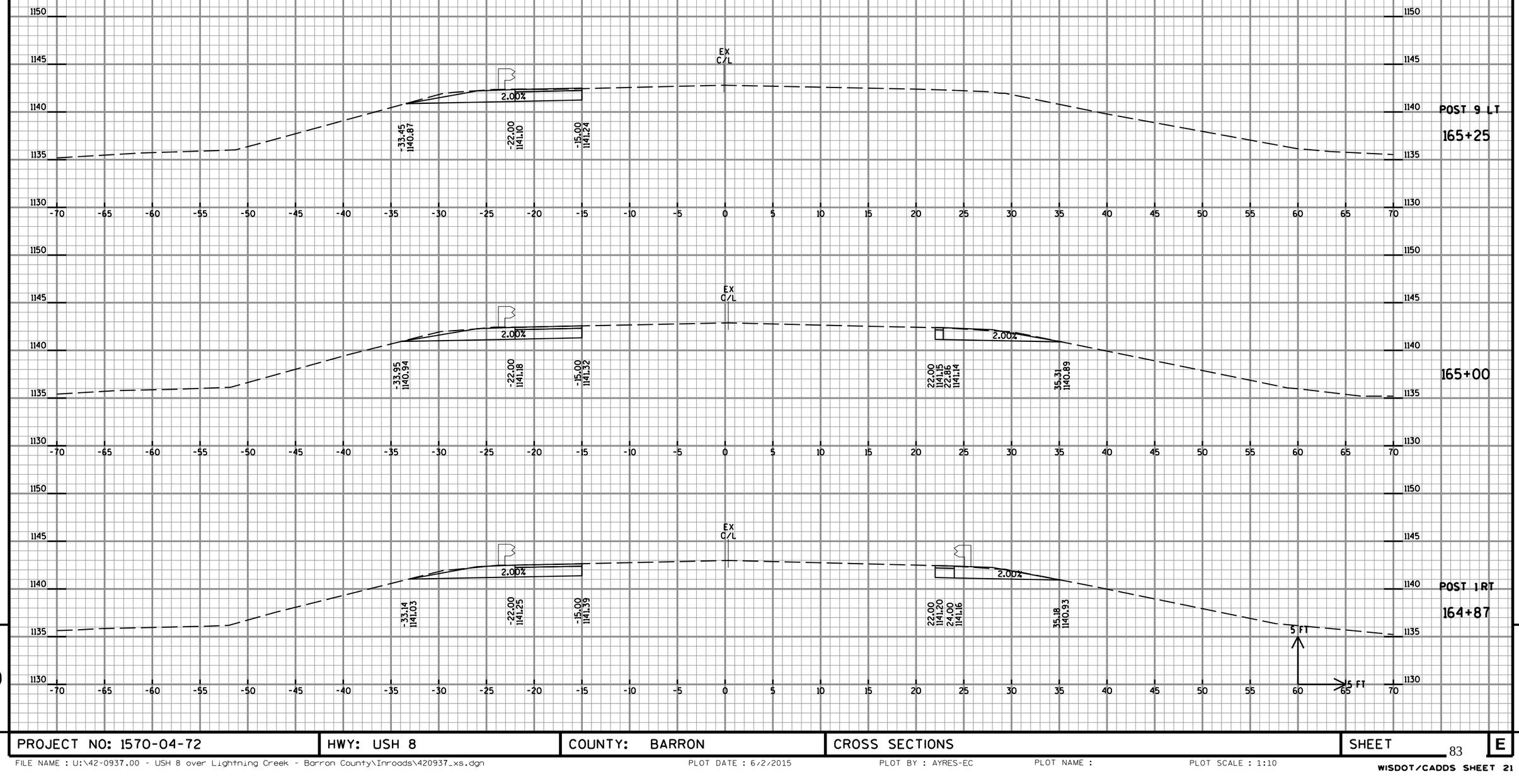
9 9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 82	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 164+87 TO 165+25

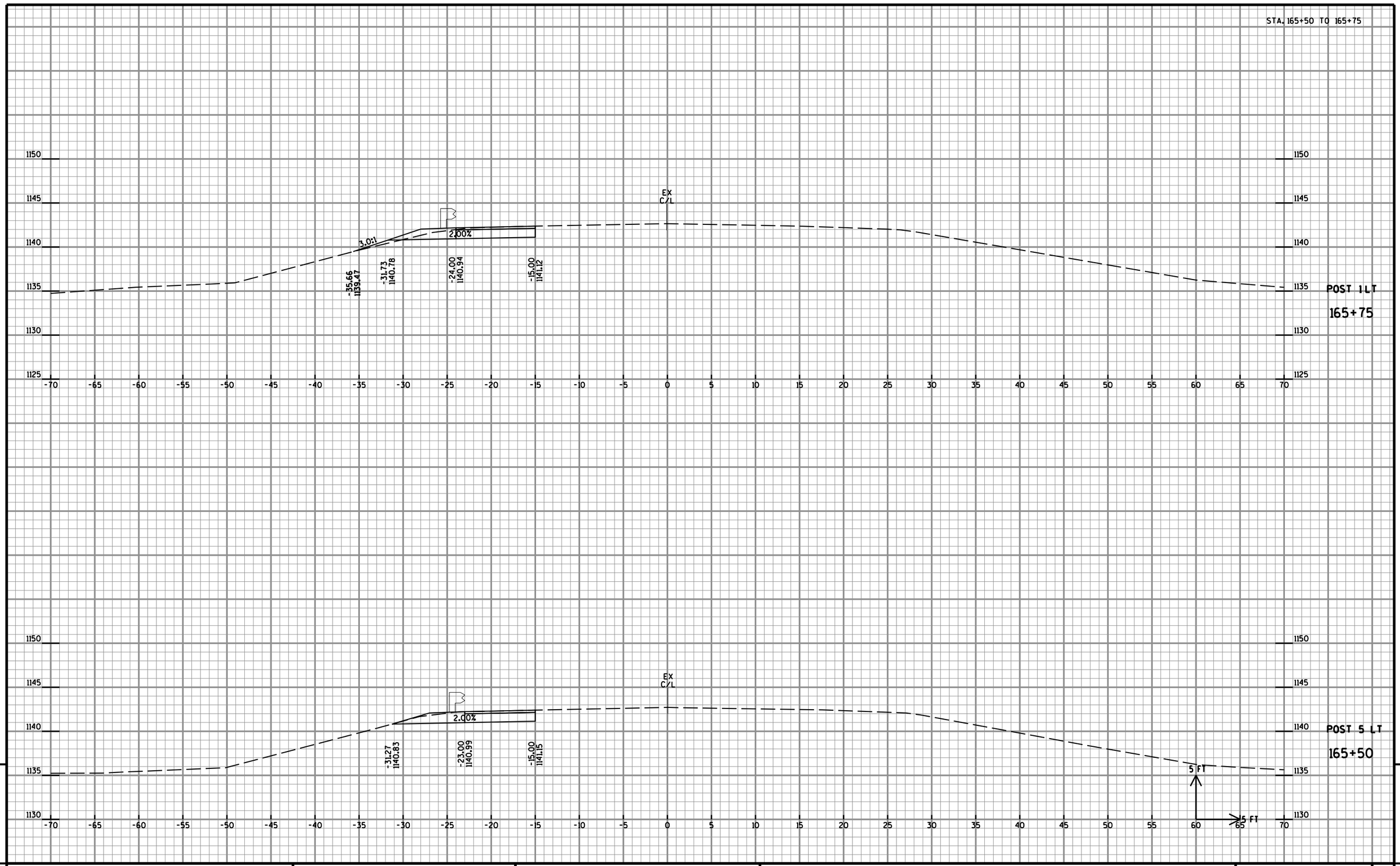


9

9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 83	E

STA. 165+50 TO 165+75



9 9

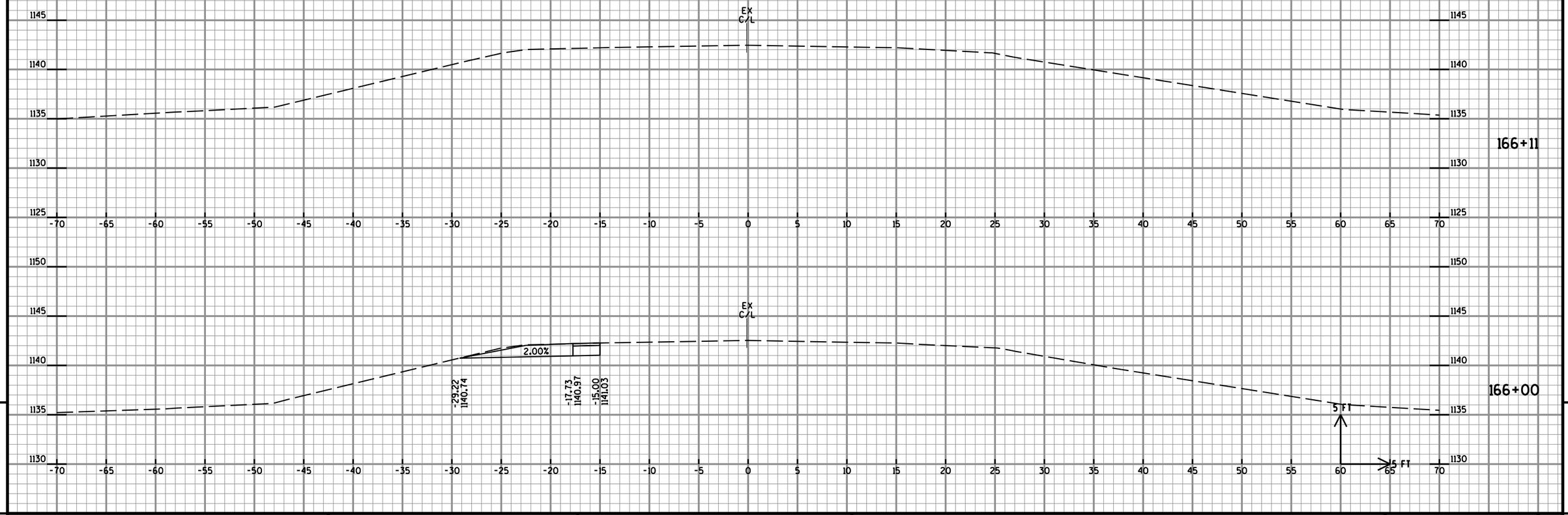
PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 166+00 TO 166+11

END CONSTRUCTION
STA. 166+11
(MATCH EXISTING)



9 9

PROJECT NO: 1570-04-72	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 85	E

FILE NAME : U:\42-0937.00 - USH 8 over Lightning Creek - Barron County\Inroads\420937_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

EARTHWORK SUMMARY (CATEGORY 0010)

		AREA			INCREMENTAL VOLUME			CUMULATIVE VOLUME		
DIVISION	STATION	CUT SF	SALVAGED/ UNUSEABLE PAVEMENT MATERIAL SF	FILL SF	CUT (1) CY	SALVAGED/ UNUSEABLE PAVEMENT MATERIAL (2) CY	FILL (3) CY	CUT (1) 1.00 CY	EXPANDED FILL (4) 1.30 CY	MASS ORDINATE ±(5) CY
1	193+49*	13	0	0						
USH 8	193+50*	17	0	0	1	0	0	1	0	1
Hay River	193+85*	22	0	0	25	0	0	26	0	26
	194+00*	22	0	0	12	0	0	38	0	38
	194+10*	23	0	0	8	0	0	46	0	46
	194+22*	24	0	0	34	0	0	80	0	80
	194+37*	10	0	0	5	0	0	85	0	85
	194+50*	31	0	0	25	0	0	110	0	110
	194+72*	30	0	0	3	0	0	113	0	113
	194+75*	27	0	0						
	194+75	0	0	0	0	0	0	85	0	85
	194+97	0	0	0	0	0	0	85	0	85
	195+00	0	0	0	0	0	0	85	0	85
	195+22	0	0	0	0	0	1	85	1	84
	195+50	0	0	2	0	0	1	85	3	82
	195+74	0	0	0						
	STRUCTURE (B-3-73)									
	196+63	0	0	0	0	0	2	0	3	-3
	197+00	0	0	2	0	0	1	0	4	-4
	197+15	0	0	1	0	0	1	0	5	-5
	197+40	0	0	0	0	0	0	0	5	-5
	197+50	1	0	0	0	0	0	0	5	-5
	197+65	1	0	0						
	197+65*	26	0	0	21	0	0	21	5	16
	197+95*	14	0	0	13	0	0	34	5	29
	198+00*	16	0	0	8	0	0	42	5	37
	198+15*	15	0	0	6	0	1	48	7	42
	198+27*	14	0	3	11	0	5	59	13	46
	198+50*	11	0	8	1	0	1	60	14	46
	198+52*	11	0	9	14	0	6	74	22	52
	198+88*	10	0	0						
TOTALS					187	0	19			

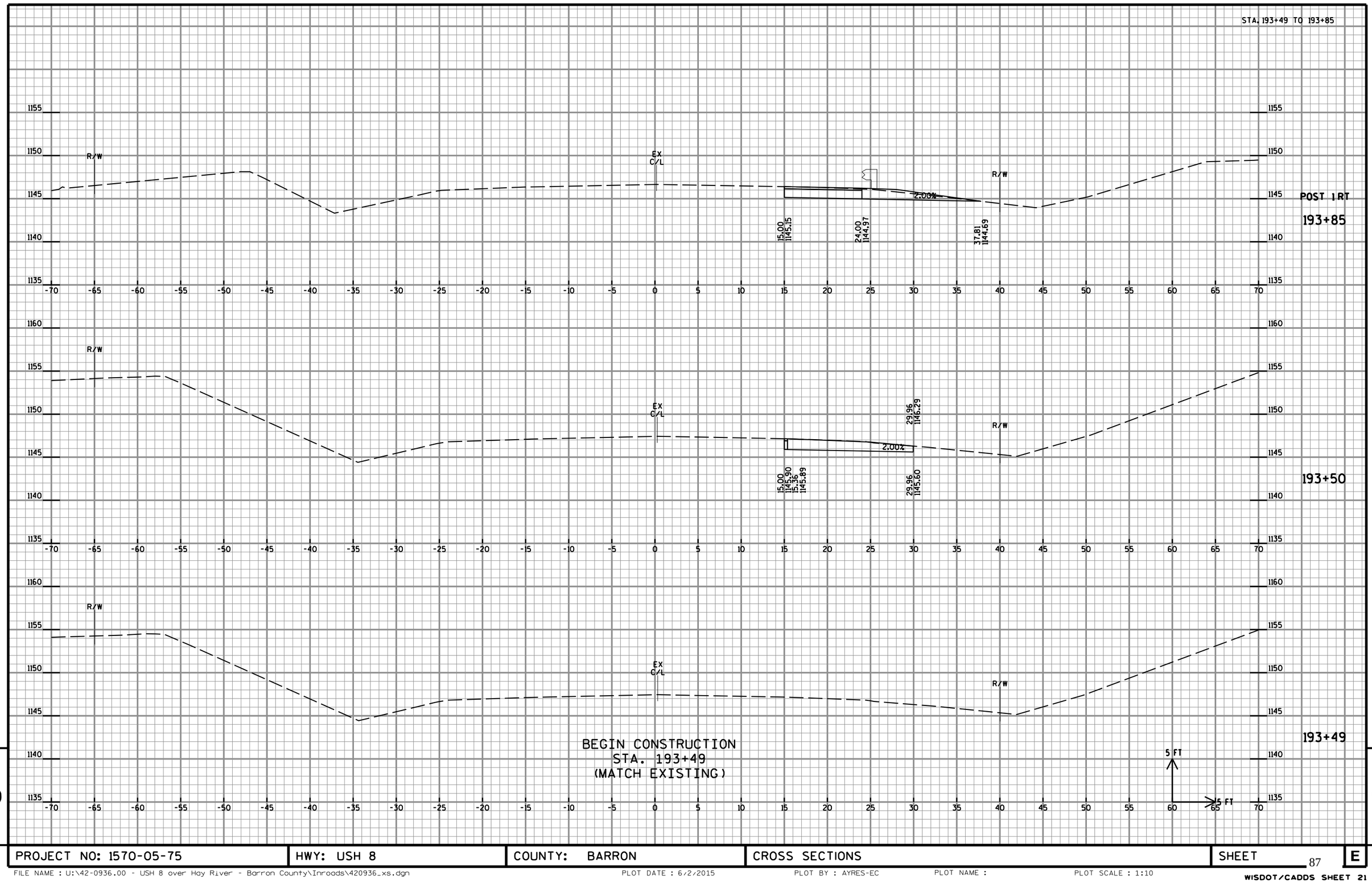
205.0100 EXCAVATION COMMON = 0

NOTES:
1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN (STATION 194+75 - STATION 197+65). ITEM NUMBER 205.0100
2) SALVAGED/UNUSEABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
4) EXPANDED FILL FACTOR = 1.30 EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
5) THE MASS ORDINATE ± QTY CALCULATED FOR THE DIVISION.

PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

* EXCAVATION COMMON IN THESE AREAS IS COVERED UNDER THE BID ITEM "BARRIER SYSTEM GRADING SHAPING FINISHING"

STA. 193+49 TO 193+85

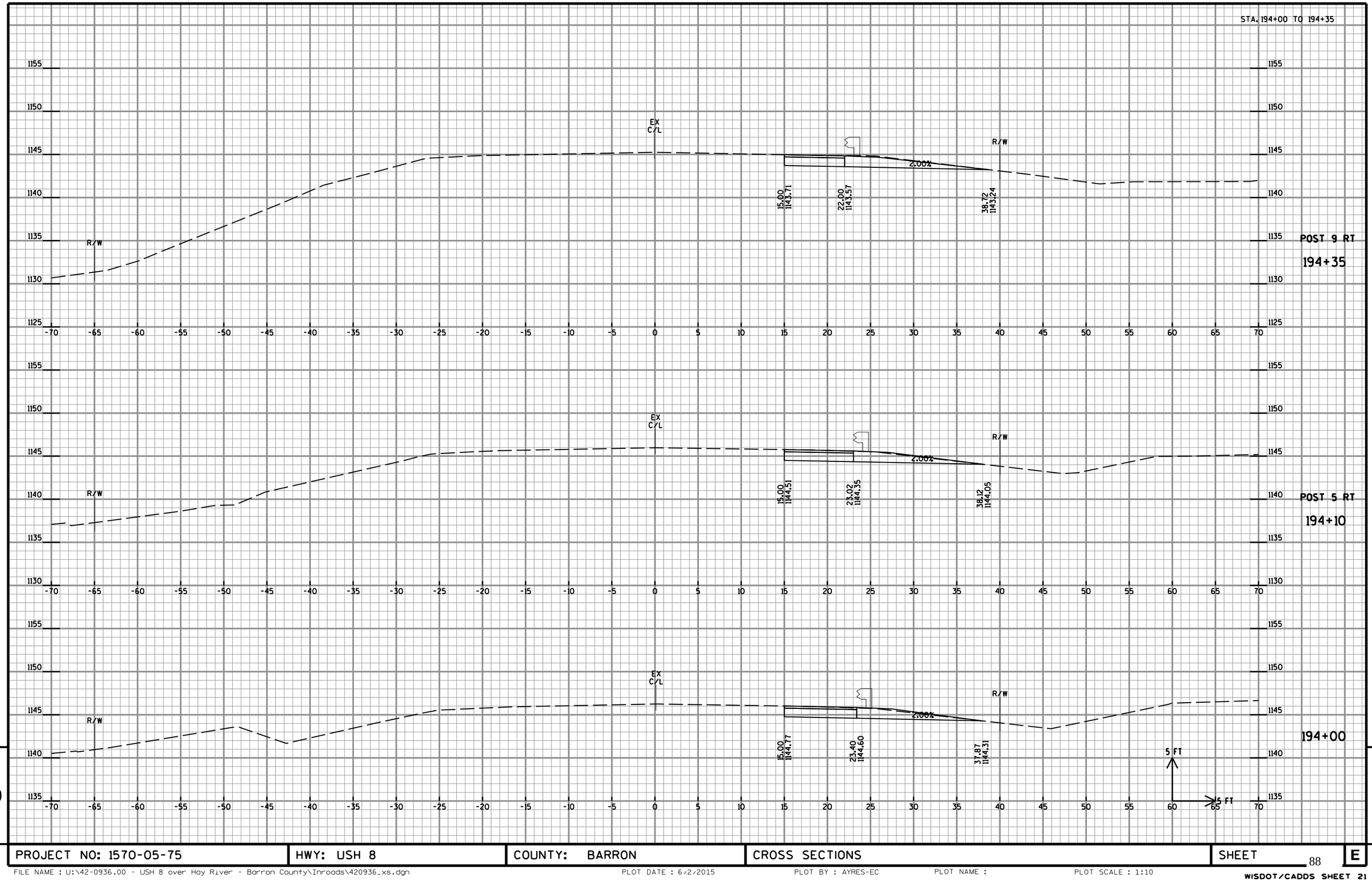


PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 194+00 TO 194+35



9

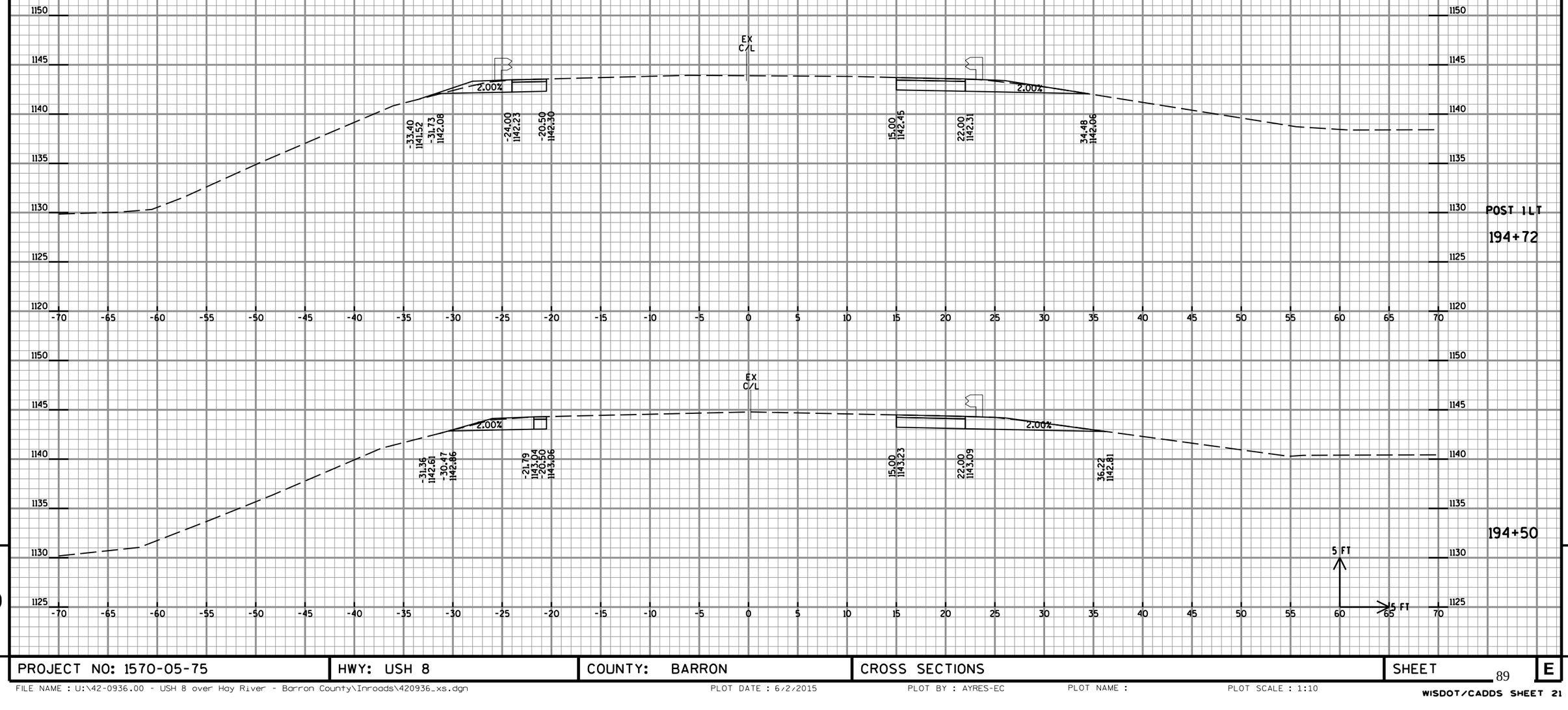
9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 88	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 194+50 TO 194+72



9

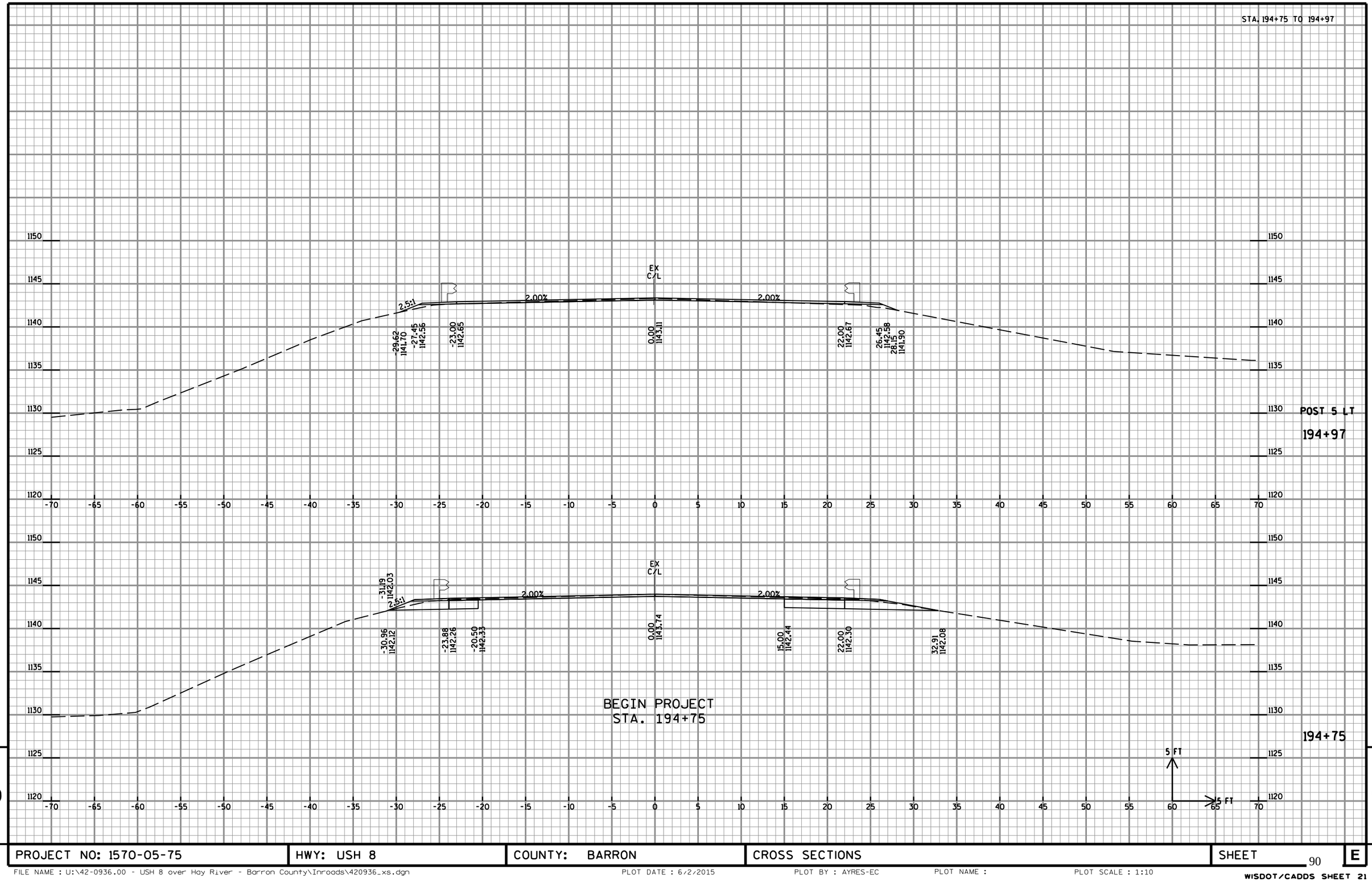
9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET 89	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 194+75 TO 194+97

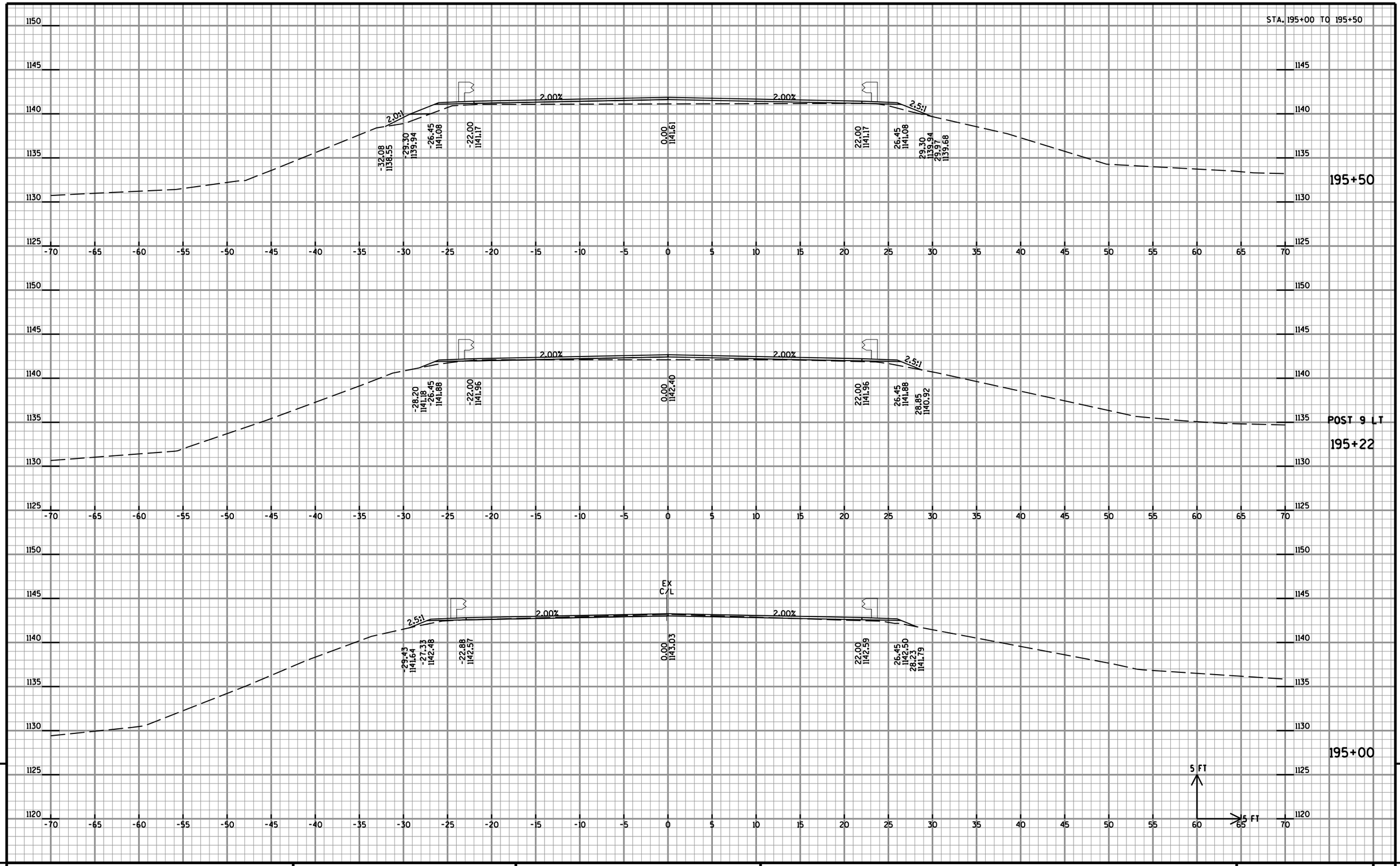


PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 195+00 TO 195+50



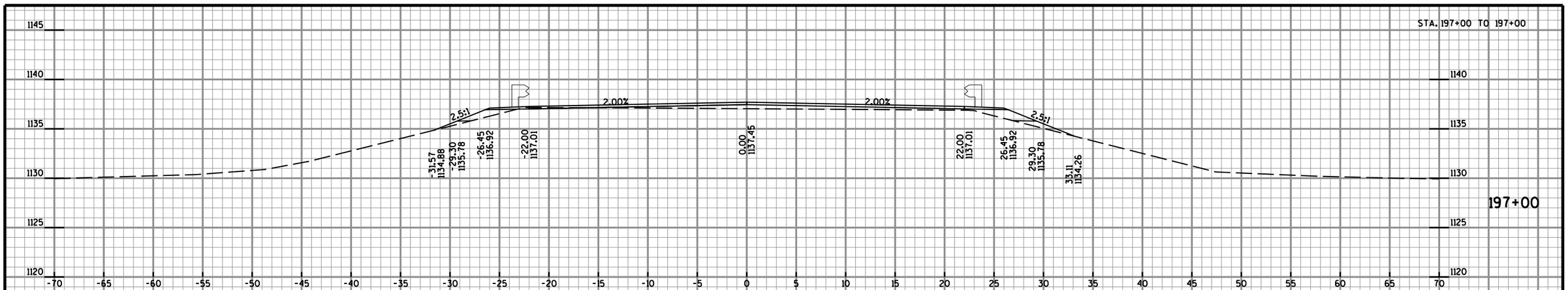
9 9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

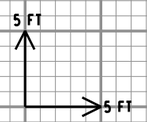
WISDOT/CADDS SHEET 21

STA. 197+00 TO 197+00



197+00

STRUCTURE B-03-0073



9

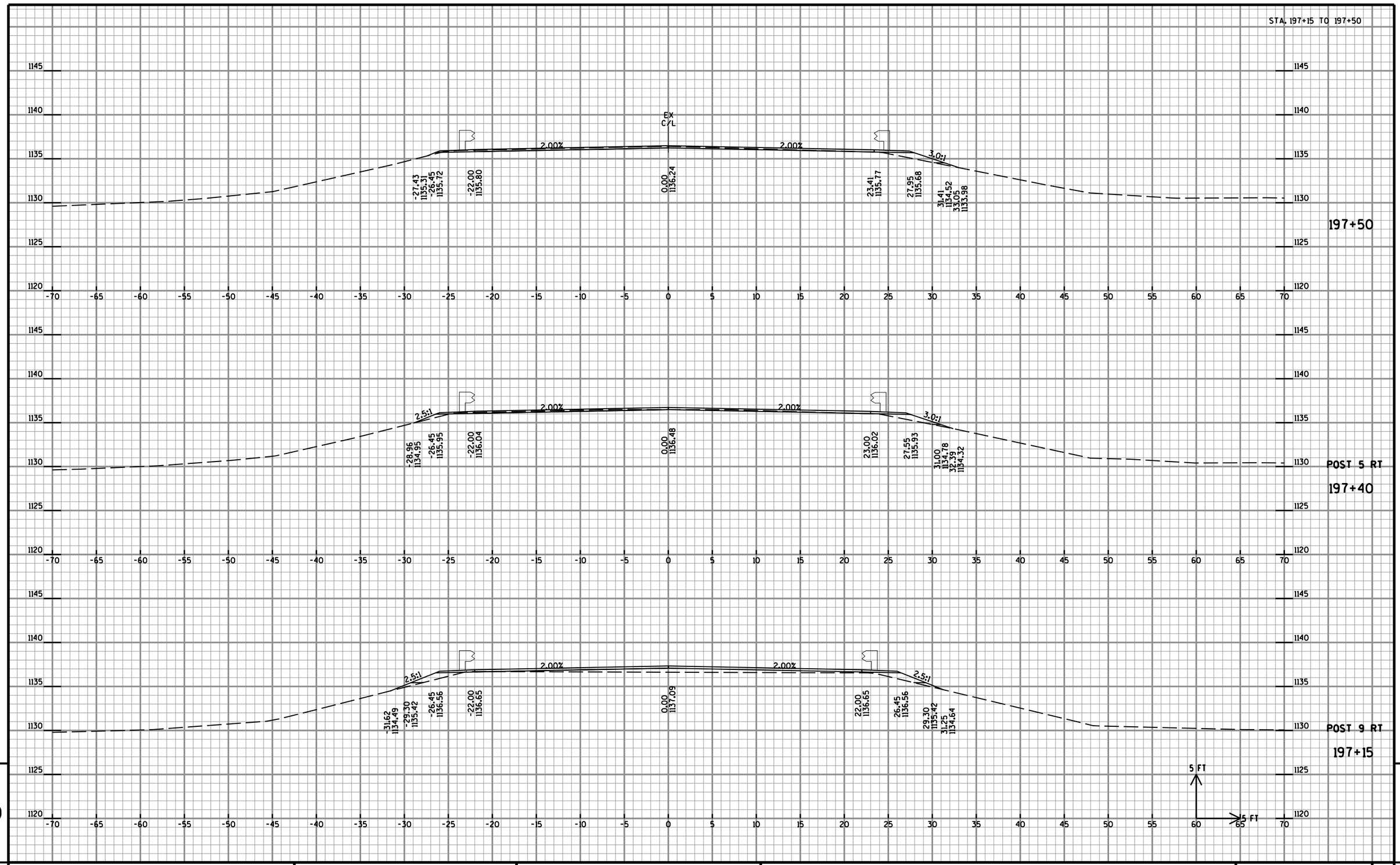
9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 197+15 TO 197+50



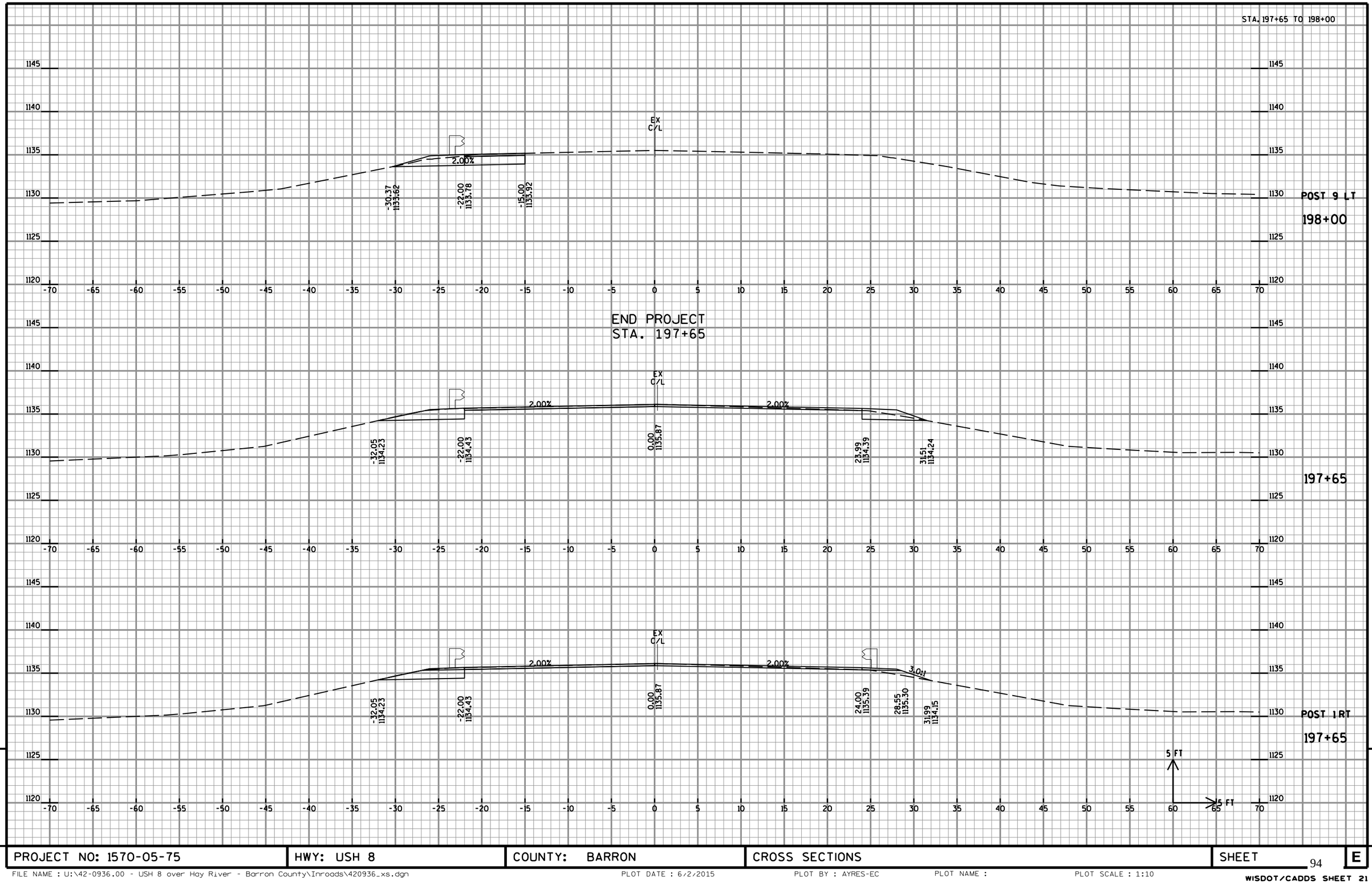
9 9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 197+65 TO 198+00



9

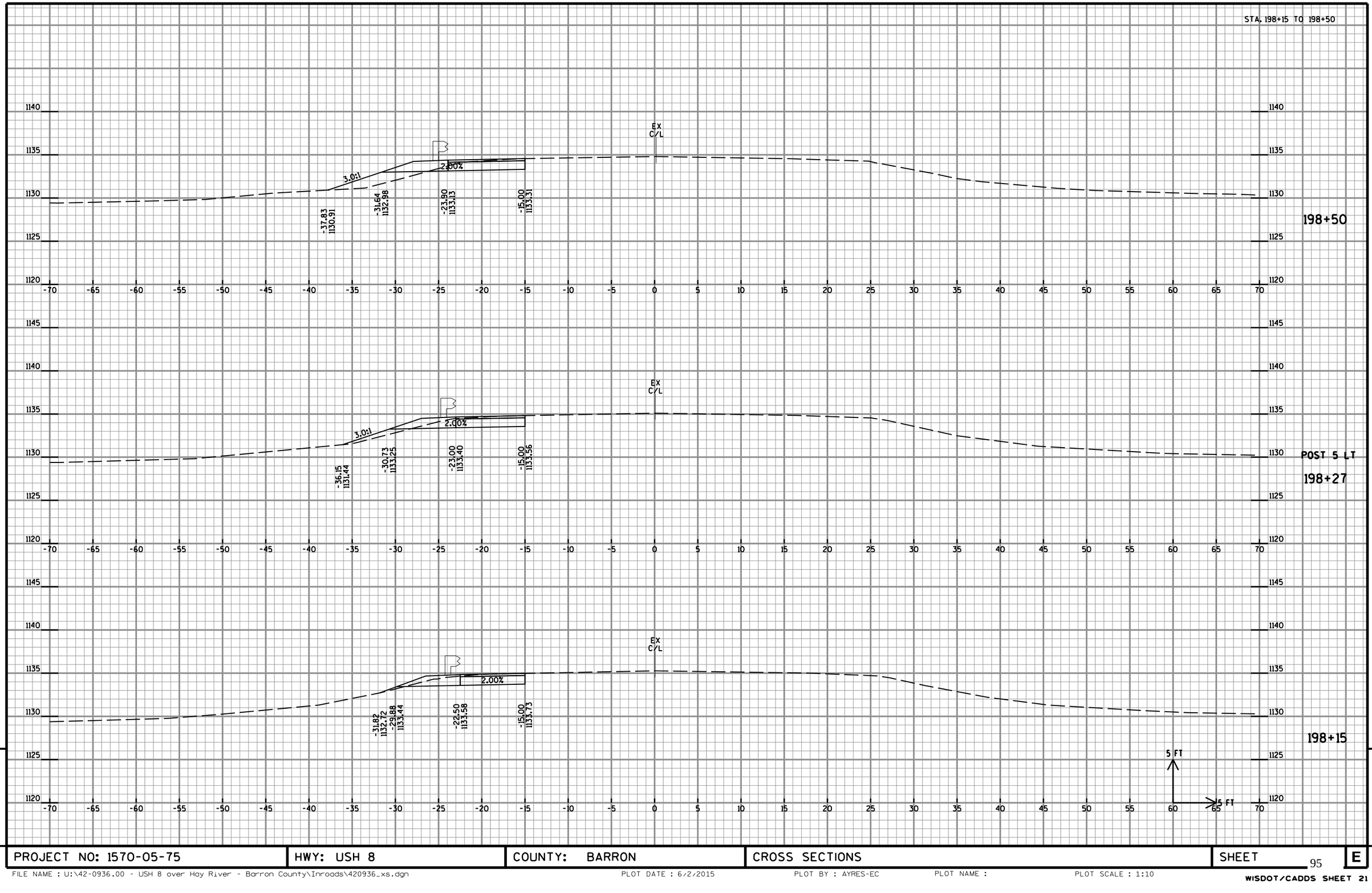
9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 198+15 TO 198+50



9

9

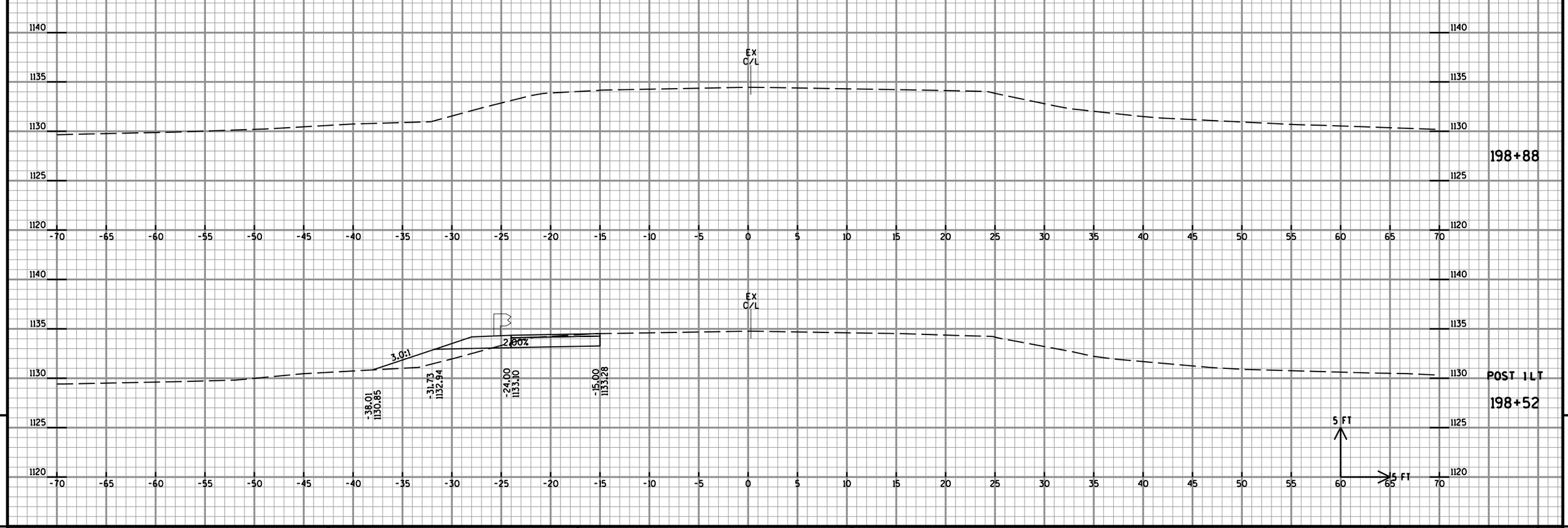
PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 198+52 TO 198+88

END CONSTRUCTION
STA. 198+88
(MATCH EXISTING)



9 9

PROJECT NO: 1570-05-75	HWY: USH 8	COUNTY: BARRON	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0936.00 - USH 8 over Hay River - Barron County\Inroads\420936_xs.dgn PLOT DATE : 6/2/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov