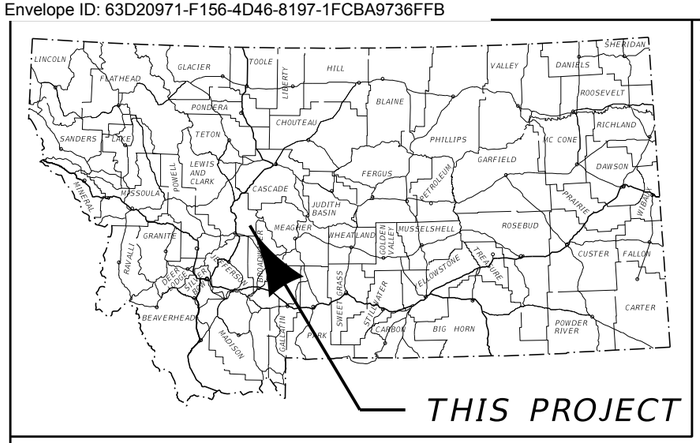
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MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT STPB 280-1(33)12
BRIDGE REHAB, GUARDRAIL
YORK BRIDGE REHAB
LEWIS AND CLARK COUNTY

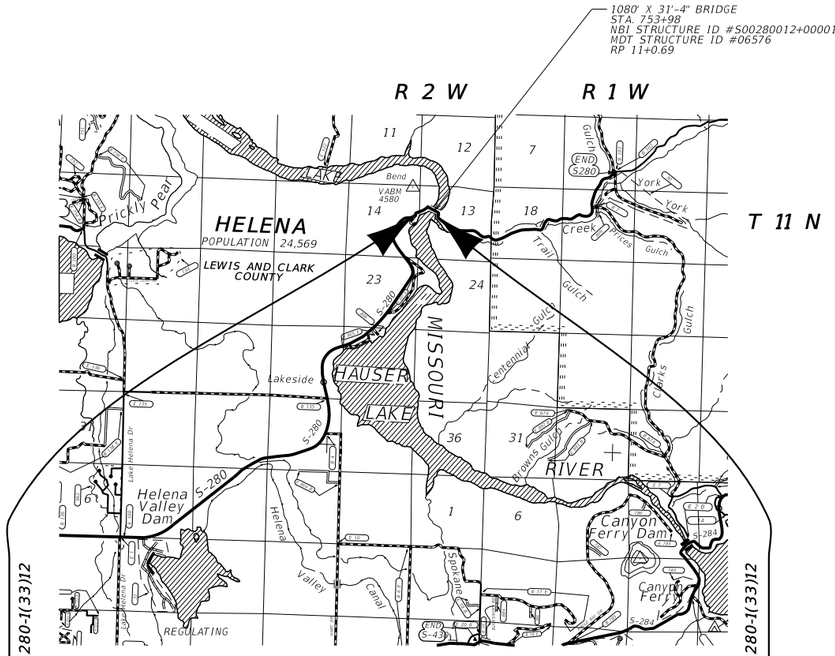
PROJECT DESIGN DATA

PRESENT	2019	A.D.T. = 490
LETTING	2021	A.D.T. = 500
DESIGN	2041	A.D.T. = 610
		D.H.V. = 80
		TRUCKS = 19.4%
		18 KIP ESAL'S = 46
		GROWTH RATE = 1.0%

LETTING DATE - _____

LENGTH 0.3 MILES

SURFACING SOURCES -
CONTRACTOR FURNISHED



MONTANA
DEPARTMENT OF TRANSPORTATION

MALCOLM "MACK" LONG
DIRECTOR OF TRANSPORTATION

APPROVED BY:

BRIDGE
ENGINEER

MONTANA
STEPHANIE L F BRANDENBERGER
13094PE
LICENSED
PROFESSIONAL ENGINEER

DocuSigned by:
Stephanie Brandenberger
D351A85EB36C411...
9/13/2021
DATE

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W	
I.C.	
P. E.	STPB 280-1(32)12

3	MDT	MONTANA DEPARTMENT OF TRANSPORTATION	C:\DGN\9550000rdttl001.dgn	DESIGNED BY K. LABONDE	ROAD PLANS
2			6/4/2021	REVIEWED BY R. SNYDER	
			2:10:34 PM CPS - U6675	CHECKED BY J. FLEMING	UPN 9550000

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BRIDGE PLANS	
BRIDGE PLANS	B1-B9
AS-BUILT DRAWINGS	1 SHEET

NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT	= 3700 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
ASPHALT CEMENT - GRADE S - 1/2" AGG.	= 5.8% OF PL.MIX BIT.SURF.
ASPHALT CEMENT - GRADE S - 3/4" AGG.	= 5.4% OF PL.MIX BIT.SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)
SEAL	= 0.42 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD

UTILITIES

CALL THE UTILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICES BEFORE EXCAVATING. ALL CLEARANCES OR DEPTHS PROVIDED FOR UTILITIES ARE FROM EXISTING GROUND LINE.

WETLANDS

WETLANDS MAY EXIST ADJACENT TO THE ROADWAY AND BEYOND THE PROJECT LIMITS. A WETLAND DELINEATION HAS NOT BEEN COMPLETED FOR THIS PROJECT. IMPACTS TO WETLAND AREAS ARE NOT ANTICIPATED IN ASSOCIATION WITH THE PROPOSED WORK. NO PERMITS HAVE BEEN OBTAINED. ANY ACTION IMPACTING WETLAND AREAS WITHOUT THE APPROPRIATE PERMITTING IS THE RESPONSIBILITY OF THE CONTRACTOR.

PUBLIC LAND SURVEY MONUMENTS

ALL MONUMENTS TO BE REMOVED AND RELOCATED OR RESET BY STATE FORCES.

LINEAR AND LEVEL DATA

LENGTH OF ROADWAY IN LEWIS & CLARK COUNTY	2 LANE RURAL	400.00 ft
LENGTH OF BRIDGE IN LEWIS & CLARK COUNTY	2 LANE RURAL	1080.00 ft
TOTAL LENGTH OF STPB 280-1(33)12	2 LANE RURAL	1480.00 ft

LEVEL DATUM SOURCE

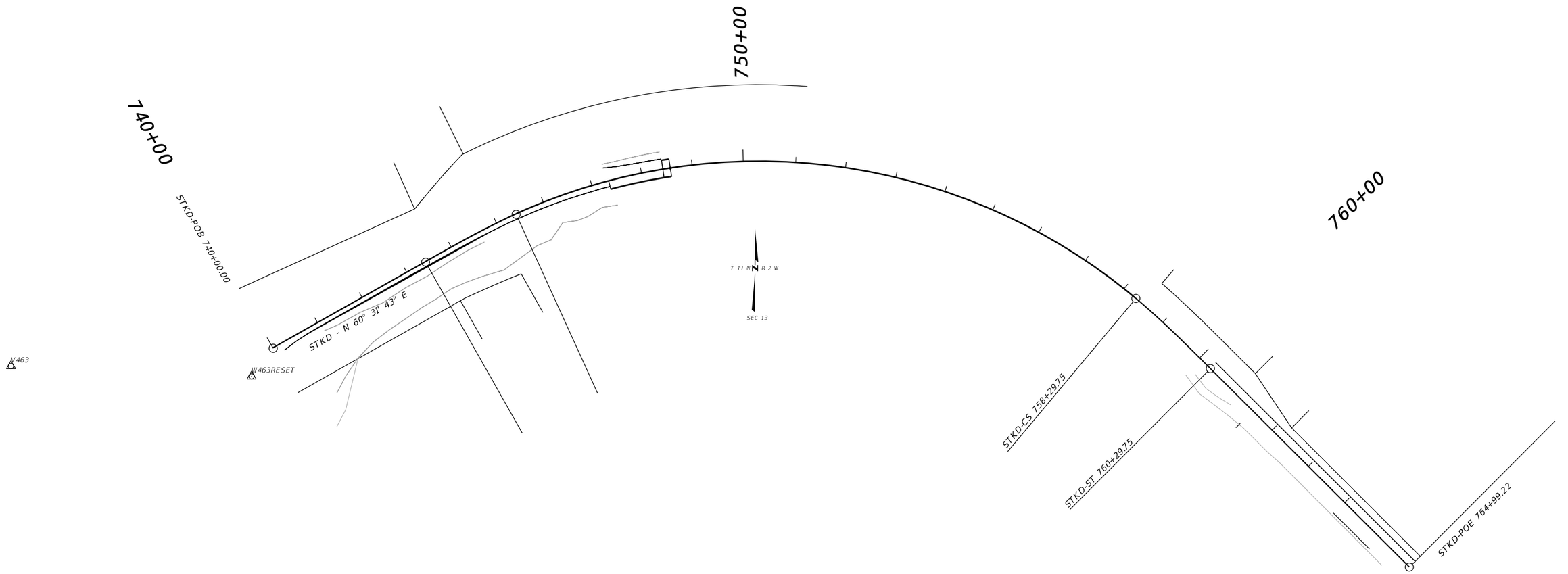
NAVD 88

BEARING SOURCE

GRID -- MONTANA COORDINATE SYSTEM NAD 83- 2011

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CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
V463	906,206.076	1,388,599.482	3744.40	SEE "NGS DATA SHEET" THE MONUMENT IS 1' NE OF R/W FENCE AND 1' SW OF "T" POST.
W463 RESET	906,186.096	1,389,069.285	3708.63	SEE "NGS DATA SHEET" THE MONUMENT IS 30' SW OF ACCESS ROAD TO BOAT LAUNCH AND 35' SE OF PTW.

Point File: 9550000SUCON001.IFT
Description File: 9550000SUCON001.DES

Project Number: STPB-280-1-32-12
Project Name: YORK BRIDGE REHAB
UPN: 9550000

DATE: 10-14-2019

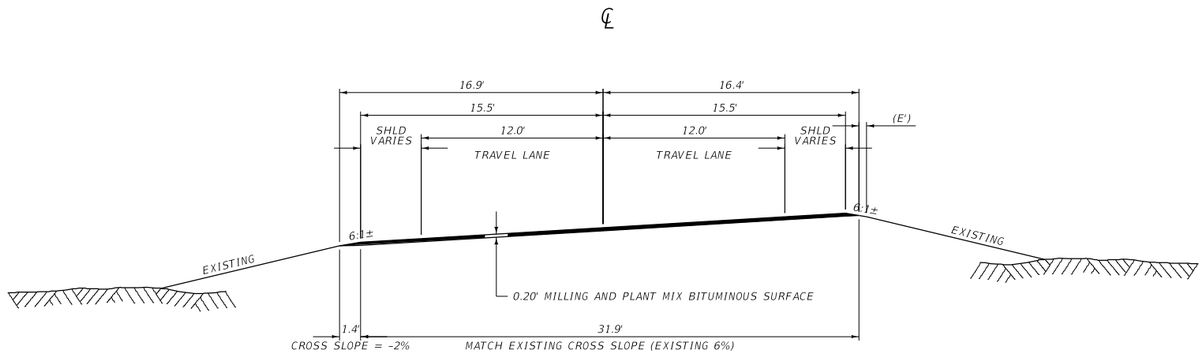
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TYPICAL SECTION NO. 1

MAINLINE

746+58.00 TO 748+58.00 BE



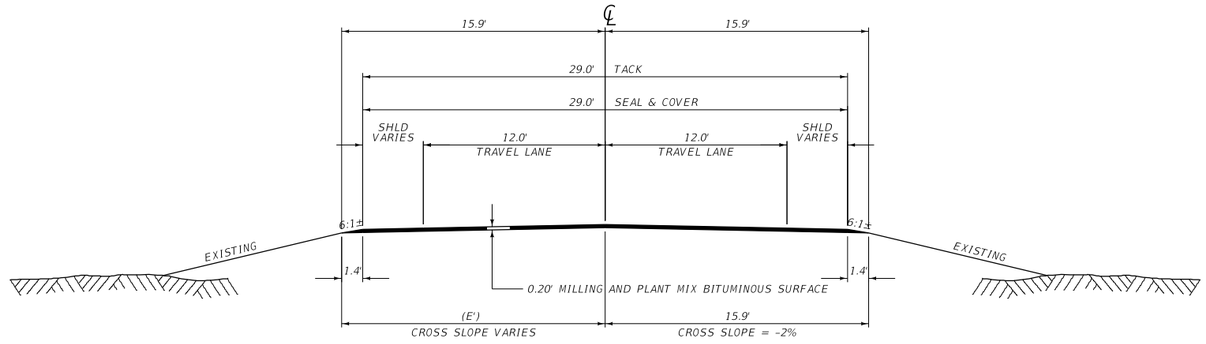
QUANTITIES *					
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL	
	COVER	PLANT MIX		SEAL	TACK
AREA square feet		6.43	square yards PER STATION	344	370
cubic yards PER STATION		23.8	tons PER STATION	0.61	
tons PER STATION		45.9	gallons PER STATION		18.5
square yards PER STATION	344				

* QUANTITIES WERE CALCULATED USING A 3.5' SHOULDER.

TYPICAL SECTION NO. 2

MAINLINE

759+38.00 BE TO 761+38.00



QUANTITIES *					
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL	
	COVER	PLANT MIX		SEAL	TACK
AREA square feet		6.08	square yards PER STATION	322	353
cubic yards PER STATION		22.5	tons PER STATION	0.57	
tons PER STATION		43.4	gallons PER STATION		17.7
square yards PER STATION	322				

* QUANTITIES WERE CALCULATED USING A 2.5' SHOULDER.

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SUMMARY

SURFACING *

STATION		linear feet				FOR	AGGREGATE		BITUMINOUS MATERIAL		REMARKS
		GROSS	NET	+	-		sq. yards	tons	tons	gals.	
FROM	TO						COVER TYPE I	PLANT MIX BIT. SURF. GR. S - COMM. 64-28	SEAL CHFRS-2	EMULSIFIED ASPHALT TACK	
746+58.00	748+58.00 BE	200.00	200.00	200.00			688	92	1.2	37	TYPICAL NO. 1
748+58.00 BE	759+38.00 BE	1,080.00			1,080.00						BRIDGE
759+38.00 BE	761+38.00	200.00	200.00	200.00			644	87	1.1	35	TYPICAL NO. 2
TOTAL		1,480.00	400.00	400.00	1,080.00		1,288	179	2.3	72	

* QUANTITIES WERE CALCULATED USING A 3.5' SHOULDER FOR TYP. NO. 1 AND 2.5' SHOULDERS FOR TYP. NO. 2

GUARDRAIL

STATION		linear feet				each				REMARKS
		REMOVE GUARDRAIL		MGS GUARDRAIL - LONG POSTS		MASH W-BEAM TERMINAL SECTION		MASH THRIE-BEAM BRIDGE APPROACH SECTION		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	
NEW RAIL										
740+23.69	747+36.19				625.0		1		1	
747+56.05	748+43.55			25.0		1		1		
759+38.00	760+25.50					1		1		
760+14.48	765+01.98				462.0		1		1	
REMOVE RAIL										
740+24.34	747+36.19		713.9							
747+24.34	748+43.55	114.1								
759+38.00	760+26.38	127.8								
760+14.48	764+99.20		484.7							
SUBTOTAL		241.9	1,198.6	25.0	1,087.0	2	2	2	2	
TOTAL		1,440.5		1,112.0		4		4		

PAVEMENT MARKINGS

ITEM	UNIT	INTERIM APPLICATION #	TOTAL
STRIPING - WHITE PAINT	gallon	8	8
STRIPING - YELLOW PAINT	gallon	8	8
STRIPING - WHITE EPOXY	gallon	11	11
STRIPING - YELLOW EPOXY	gallon	11	11
TEMPORARY STRIPING	linear feet		1,480
FINAL SWEEP AND BROOM	course mile		0.5

BASED ON 2 APPLICATIONS.

COLD MILLING *

STATION		sq. yards	REMARKS
		COLD MILLING	
FROM	TO	0.20 ft	
746+58.00	748+58.00 BE	740	TYPICAL NO. 1
759+38.00 BE	761+38.00	707	TYPICAL NO. 2
TOTAL		1,447	

* QUANTITIES WERE CALCULATED USING 3.5' SHOULDERS FOR TYP. NO. 1 AND 2.5' SHOULDERS FOR TYP. NO. 2
* SEE DETAILS

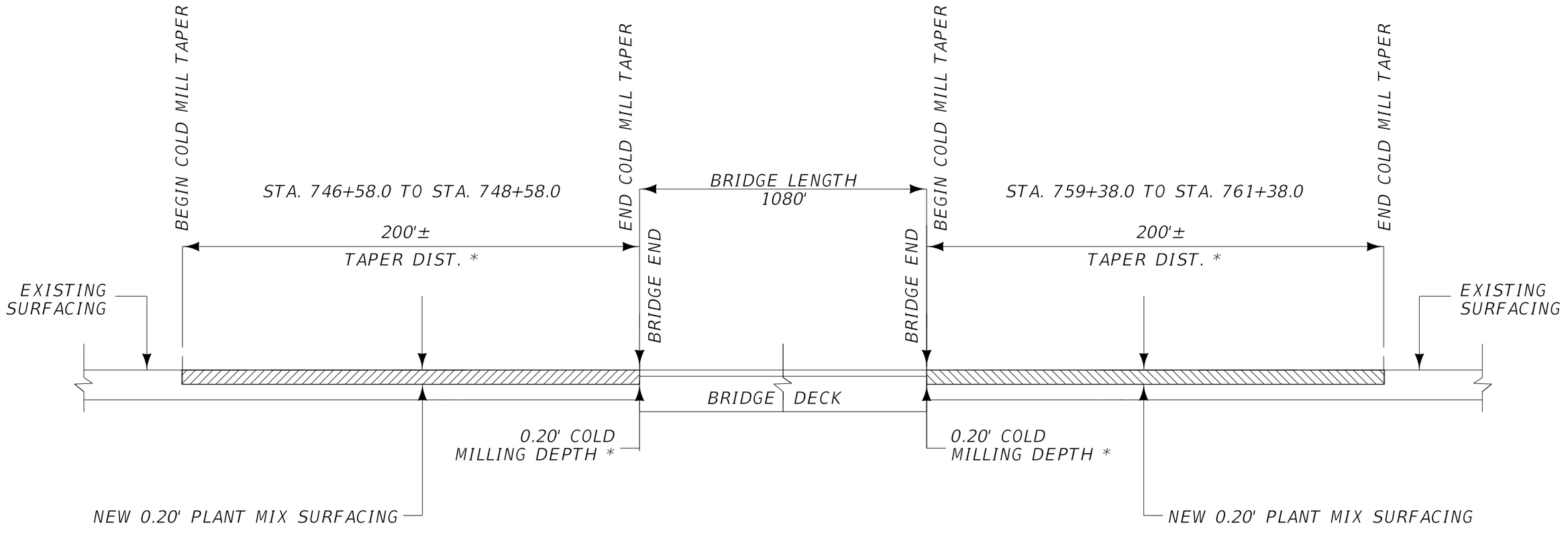
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DETAIL

COLD MILLING DETAILS

* ACTUAL TAPER DISTANCES AND DEPTHS TO BE DETERMINED DURING CONSTRUCTION BY THE PROJECT MANAGER.

CONNECTION TO PTW

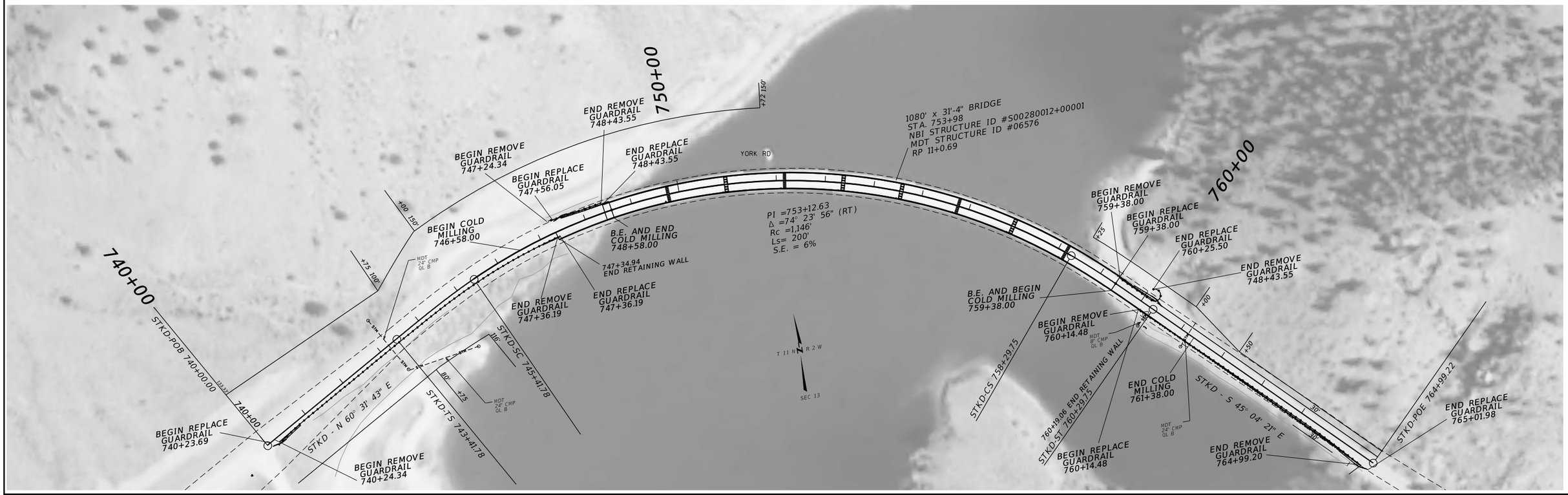


COLD MILLING DETAILS
(NO SCALE)

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	C:\DGN\9550000rddet001.dgn	DESIGNED BY K. LABONDE		ROAD PLANS	YORK BRIDGE REHAB	STPB 280-1(33)12
2		6/4/2021	REVIEWED BY R. SNYDER				
		2:11:20 PM CPS - U6675	CHECKED BY		LEWIS AND CLARK COUNTY	UPN 9550000	6

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	C:\DGN\9550000rdpln001.dgn	DESIGNED BY	K. LABONDE	ROAD PLANS		YORK BRIDGE REHAB	STPB 280-1(33)12
2		6/4/2021	REVIEWED BY	R. SNYDER				
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ASSOCIATED PROJECT AGREEMENT NUMBERS	
P.E.	STPB 280-1(32)12

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS AND QUANTITIES

FEDERAL AID PROJECT STPB 280-1(33)12

YORK BRIDGE REHAB

LEWIS & CLARK COUNTY

BRIDGE IDENTIFICATION	
MDT STR ID	NBI NUMBER
06576	S00280012+00001

SCALES SHOWN ON BRIDGE PLANS SHEETS ARE FOR HALF SIZE (11X17) PRINTS FULL SIZE PRINTS ARE APPROXIMATELY TWICE ORIGINAL SCALE

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
B1	24482	TITLE & QUANTITES
B2	24483	GL NOTES, G.A. REMOVAL, OVERLAY TREATMENT, BARRIER JOINT REPAIR & MISCELLANEOUS ITEMS
B3	24484	ABUTMENT NO. 10 FIRE REPAIR
B4	24485	EXISTING JOINT SECTION & PHASE 1 CONSTRUCTION
B5	24486	PHASE 2 & COMPLETED JOINT CONSTRUCTION
B6	24487	JOINT SECTION VIEWS
B7	24488	EDGE MEMBER AND BARRIER END DETAILS & BILL OF REINFORCING STEEL
B8	24489	EXISTING AND NEW BARRIER ENDS
B9	24490	BARRIER END CONNECTION

AS-BUILT DRAWINGS

12785	GENERAL LAYOUT

ESTIMATED BRIDGE PLAN QUANTITIES

LOCATION: YORK BRIDGE MDT ID.: 06576 S00280012+00001	STRUCTURAL STEEL - MISC. (LS)	CLASS A BRIDGE DECK REPAIR (YD^2)	CLASS B BRIDGE DECK REPAIR (YD^2)	EXPANSION JOINT STRIP SEAL (LN.FT.)	PREPARE DECK (YD^2)	POLYMER OVERLAY PRIMER (YD^2)	POLYMER OVERLAY (YD^2)	REVISE CONCRETE BARRIER RAIL END - BR (EACH)	CONCRETE CLASS STRUCTURE (YD^3)	REINFORCING STEEL (LB)	MISCELLANEOUS ITEMS REPAIR (LS)	MISCELLANEOUS ITEMS (Sq.Ft.)	JOINT SEAL POLYURETHANE (LN.FT.)
PHASE 1													
BENT NO. 1			2.50					1					
BENT NO. 2			7.25	16.0					2.0	948.0	0.1		
BENT NO. 4			7.25	16.0					2.0	948.0	0.1		
BENT NO. 6			7.25	16.0					2.0	948.0	0.1		
BENT NO. 7			7.25	16.0					2.0	948.0	0.1		
BENT NO. 9			7.25	16.0					2.0	948.0	0.1		
BENT NO. 10			2.50					1					
SUPERSTRUCTURE		25.0			1801.7	1801.7	1801.7						
PHASE 1 - TOTAL	########	25.0	41.25	80.0	1801.7	1801.7	1801.7	2	10.0	4740.0	0.5	######	######
PHASE 2													
BENT NO. 1			2.75					1					3.5
BENT NO. 2			8.00	17.5					2.0	948.0	0.1		
BENT NO. 4			8.00	17.5					2.0	948.0	0.1		
BENT NO. 6			8.00	17.5					2.0	948.0	0.1		
BENT NO. 7			8.00	17.5					2.0	948.0	0.1		
BENT NO. 9			8.00	17.5					2.0	948.0	0.1		
BENT NO. 10			2.75					1					3.5
SUPERSTRUCTURE		25.0			1981.8	1981.8	1981.8						
PHASE 2 - TOTAL	######	25.0	45.50	87.5	1981.8	1981.8	1981.8	2	10.0	4740.0	0.5	######	7.0
SUBSTRUCTURE	1.0											56.0	
TOTAL	1.0	50.0	86.75	167.5	3783.5	3783.5	3783.5	4	20.0	9480.0	1.0	56.0	7.0

SHEET NO. B1

TITLE & QUANTITES

REVISED				J.E.P.	5-10-21
REVISED				P.H.JR.	5-11-21
REVISED				J.E.P.	12-09-20
REVISED					

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6/8/2021 8:11:21 AM

UPN NUMBER 9550000

DRAWING NO. 24482

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GENERAL NOTES

SPECIFICATIONS:
Plans were prepared from original drawings and as-built drawings. No additional survey information was procured for this project. Existing structure dimensions may vary from those shown on the drawings. Verify all dimensions necessary to complete the work.

The current version of the Standard and Supplemental Specifications for Road and Bridge Construction, adopted by the Montana Department of Transportation, applies.

The design was prepared in accordance with AASHTO Standard Specifications for Highway Bridges, 17th editions – 2002, with standard HS20-44 loading.

See Standard Specifications and Special Provisions for Traffic Control and Sequence of Operations.

All dimensions are in feet and inches except as noted. Verify all necessary dimensions of the existing structures in the field before ordering materials. Obtain approval of shop plans from the Montana Department of Transportation before beginning fabrication. If the dimensions and details of the existing structure are not as shown on the plans, vary construction as necessary to best suit existing conditions and the nature of the intended work.

REINFORCING STEEL:
Unless specified otherwise on the drawings, provide 2" minimum concrete cover measured from the face of the concrete to the face of any reinforcing steel, except as noted below:

Bottom of Slab	1"
Top of Slab	2 ½"
Bottom of Abutment Caps	3"
Concrete Barriers and Curbs	1 ½"

Concrete cover to any tie bar is ½" less than what is listed above.

Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for Reinforcing Steel.

Replace existing reinforcing steel damaged during construction that is called out to remain in place at no additional cost to the State.

Include cleaning exposed existing reinforcing steel in other items of work.

If any longitudinal slab reinforcing does not extend to within 2" of the new slab end at the joint, lap splice new S204~#4 reinforcing steel long enough to meet the 18" for #4, 26" for #6 bars minimum lap indicated on this sheet, and provide 1" clear to the new slab end. Include all costs associated with furnishing and installing the required additional reinforcing in the unit price bid for Reinforcing Steel.

BRIDGE DECK REPAIR:
See the bridge deck repair section of the Standard Specifications for allowable repair concrete options.

Quantities shown for Class A and B Bridge Deck Repair may vary from actual field quantities.

Do not allow traffic onto the repaired deck until the repair concrete has reached 3500-psi compressive strength minimum.

Right and Left side of the structure are referenced to increasing stationing.

Include all costs associated with removing existing joints, reinforcing steel and concrete in the deck down to the construction joint in the unit price bid for Class B Bridge Deck Repair. Include all costs associated with furnishing and placing new Concrete Class Structure above the construction joint in the unit price bid for Class B Bridge Deck Repair.

Include all costs associated with the removing existing diaphragms below the construction joint, in the unit price bid for Concrete Class Structure. Include all costs associated with furnishing and placing new diaphragm concrete below the construction joint in the unit price bid for Concrete Class Structure.

Submit for approval any substitution of rapid setting Portland cement concrete for Concrete Class Structure. Traffic will not be permitted on concrete repairs until the specified strength is attained.

See Special Provisions for Polymer Overlay.

Thoroughly coat all existing concrete in contact with new concrete with an epoxy bonding agent (AASHTO M 235 Type V) immediately prior to placing new concrete. Include all costs associated with providing and applying the epoxy bonding agent in the unit price bid for Concrete-Class Structure or Class B Deck Repair.

SUBSTRUCTURE REPAIR:
All structural steel will be measured and paid for on the lump sum basis set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270 Grade 36. Estimated amount = 800 lbs.

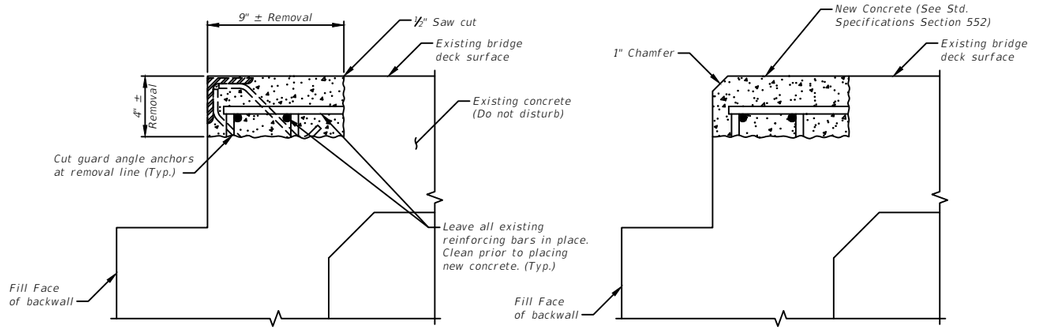
Include all costs for resources necessary to repair the substructure wall, including concrete class structure at the location shown in the plans and as directed by the Project Manager in the unit price bid for Miscellaneous Items – Sq.Ft. Include costs to furnish and install additional reinforcing in the unit price bid for Reinforcing Steel.

Miscellaneous Items (Lump Sum)
Include all costs including furnishing materials and completing the work for items: Beam End Spall Area, Missing Anchor Nuts, Barrier Spall Area and Clean Bent Cap in the unit price bid for Miscellaneous Items-Lump Sum.

WORK SUMMARY - MISCELLANEOUS ITEMS (LS)

Location of Work	Beam End Spall Area (Each)	Missing Anchor Nuts (#)	Barrier Spall Area (Ft^2)	Clean Bent Cap (Each)
Bent 2	10	0	0	1
Bent 4	10	17	0	1
Bent 6	10	2	0	1
Bent 7	10	12	0	1
Bent 9	10	19	0	1
Span 4	0	0	1	0
Total	50	50	1	5

Include all costs associated with furnishing materials and completing the work in the unit price bid for Miscellaneous Items-LS.



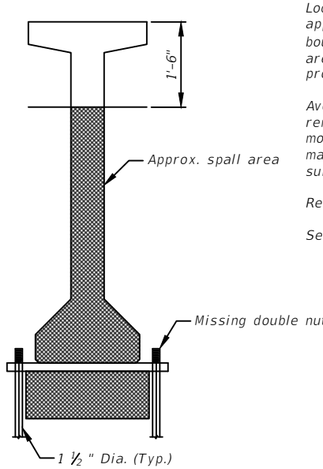
EXISTING GUARD ANGLE REMOVAL

NEW BRIDGE END

NOTE: Include all costs associated with removing the existing guard angle, placing new reinforcing steel and concrete, Class Structure that is required to complete the work in the unit price bid for CLASS B BRIDGE DECK REPAIR.

NOTE: If two transverse reinforcing bars are not present within 3" of the top of the slab, place new #5 transverse bars as necessary so there are two bars within the repair area. Ensure new bars have a minimum 1 ½" clear cover.

GUARD ANGLE REMOVAL DETAIL
No Scale



BEAM END SPALL & ANCHOR NUTS
Scale ~ ⅜ " = 1'-0"

BARRIER SPALL REPAIR NOTE:
Location of spall in concrete barrier is left barrier of bridge, AOL approx. 50' in span 4. Remove all spalled and loose concrete withhin the boundary of the spall. Saw cut within ½ " of the outer limits of the spall area/surface to a depth of ½ ". Remove concrete along the saw cut to provide a smooth, defined edge.

Avoid damaging any exposed or uncovered reinforcing steel. Clean and remove all rust from exposed rebar. Contractor can use concrete repair mortar approved by the Project Manager for other work. Follow manufacturers recommendations. Place concrete mortar even with the surface of the concrete barrier.

Remove debris and clean loose material off the bent cap.

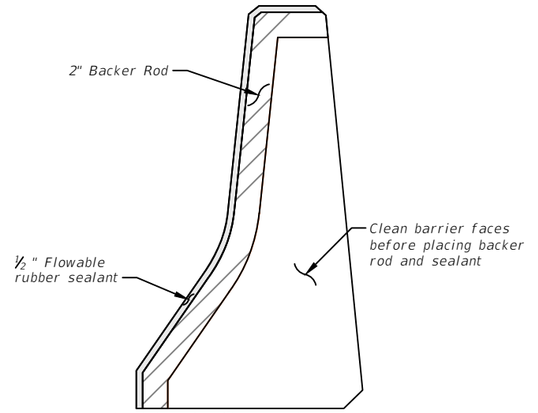
See work summary table for Miscellaneous Items-LS.

Replace all deteriorated, spalled and loose concrete within the limits shown on the plans and as directed by the Project Manager. Clean and remove all rust from exposed rebar. Remove a maximum depth of 2" of concrete to the first exterior most reinforcing if sound concrete is not reached.

Use an approved vertical concrete repair mortar for the repair areas. Follow manufacturers recommendations. Obtain Project Manager's approval for the repair material prior to performing the work.

Supply and Install new anchor nuts meeting ASTM A307 Grade A where anchor bolts are missing the double nuts as shown in the plans. Maintain 1/8" clearance between the anchor nuts and the sole plate. Snug tight and double nut any anchor bolts that are not snug tight and bound together. Ruin the top threads once double nuts are installed to prevent loosening.

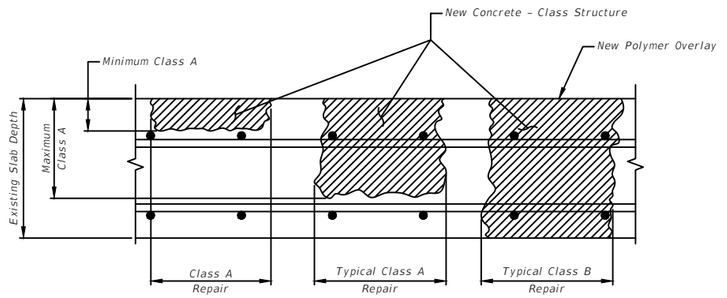
See work summary table for Miscellaneous Items-LS



BARRIER JOINT REPAIR
SE CORNER ABUT. 10
SW CORNER ABUT 1 - LOW SIDE

Scale ~ 1" = 1'-0"

NOTE: Refer to special provision Joint Seal – Polyurethane for guidelines to complete the work Barrier Joint Repair.



BRIDGE DECK REPAIR AND THIN OVERLAY DEFINITION
No Scale

SHEET NO.
B2

GL NOTES, G.A. REMOVAL, OVERLAY TREATMENT, BARRIER JOINT REPAIR & MISCELLANOUS ITEMS

SCALE: NO SCALE

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED				CHECKED	J.E.P.	5-10-21
REVISED				DRAWN	P.H.R.	5-11-21
REVISED				DESIGNED	J.E.P.	12-09-20
REVISED						

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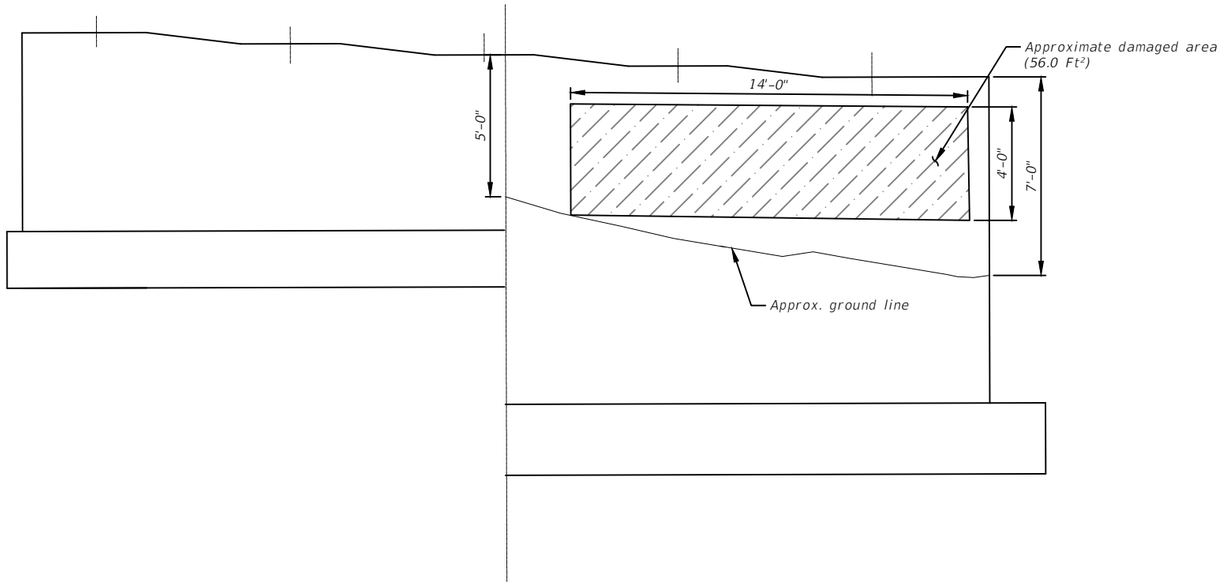
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DRAWING NO.
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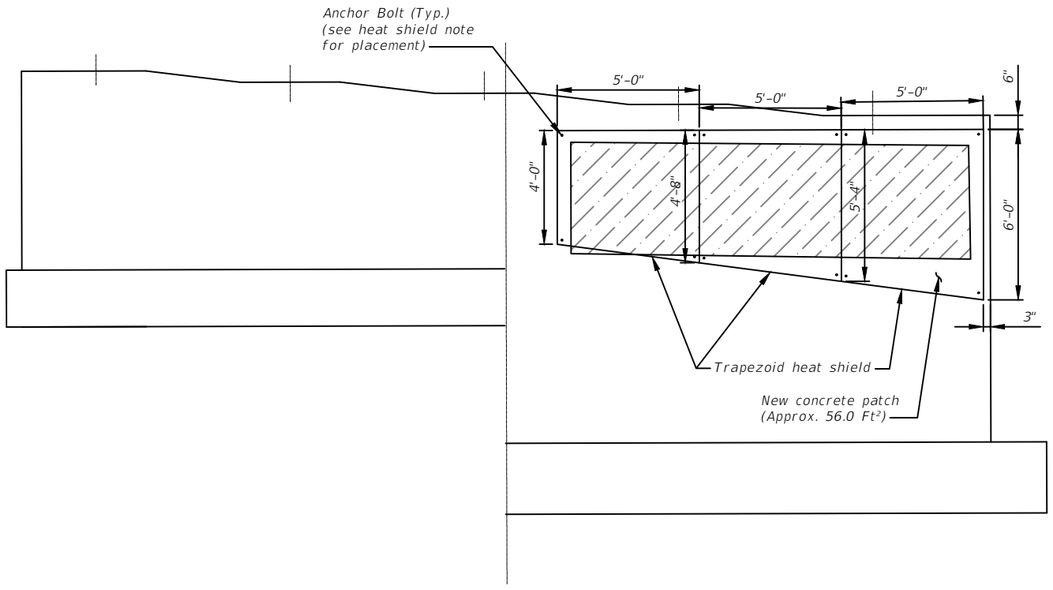
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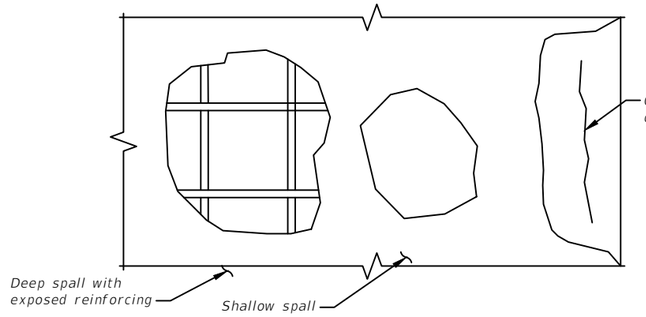
BENT NO.10 - FIRE DAMAGE AREA

SCALE ~ 3/16" = 1'-0"
(LOOKING AHEAD ON LINE)



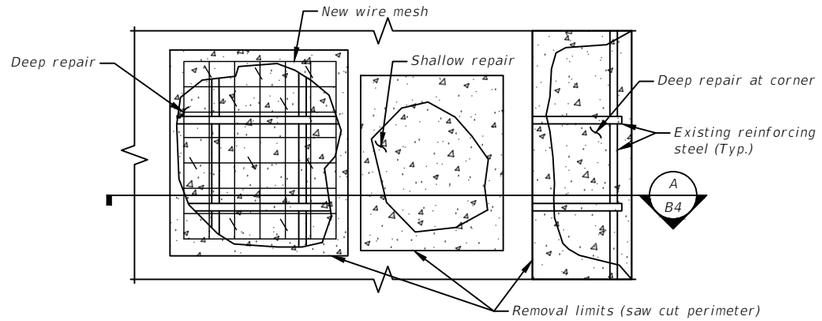
BENT NO.10 - FIRE DAMAGE REPAIR

SCALE ~ 3/16" = 1'-0"
(LOOKING AHEAD ON LINE)



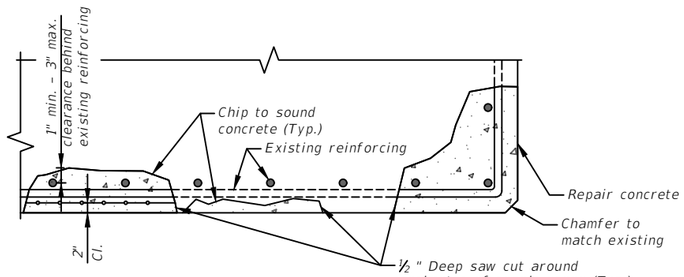
EXISTING DETERIORATED SUBSTRUCTURE CONCRETE

No Scale



ELEVATION - TYPICAL SUBSTRUCTURE REPAIR AREA

No Scale



A / B4 **SECTION - SUBSTRUCTURE REPAIR**

No Scale

HEAT SHIELD:

Install a structural steel sheet thickness of ¼". See plans for approximate heat shield width and length. Drill and grout support anchors a minimum of 6" into existing concrete as needed to support the heat shield.

Place anchor bolts at the corners a minimum of 2" from each edge for each steel sheet as shown on the plans. Use an epoxy adhesive meeting the requirements of AASHTO M235 Type IV. Use ¾" diameter anchor bolts or threaded rod and nuts per ASTM A307 Grade A. Ruin threads after installation of heat shield.

Submit the the Project Manager for approval any substitute anchoring method to install the heat shield.

Include all costs associated with supplying all materials and installing the heat shield as set forth in the standard specifications for structural steel and paid for on a lump sum basis.

Allow for 1" air gap between the concrete wall and the heat shield.

SUBSTRUCTURE REPAIR NOTES:

Replace all deteriorated, spalled, loose, hollow and honeycombed concrete within the limits shown on the plans and as directed by the Project Manager. Clean and remove all rust from exposed rebar.

Saw cut the periphery of repair areas to a depth of ½ ". Remove deteriorated concrete with in the periphery of the repair areas to sound concrete.

Remove a maximum depth of 3" of concrete past the exterior most reinforcing if sound concrete is not reached. Remove the remaining loose concrete and clean the area to the Project Manager's satisfaction.

Avoid damaging any exposed or uncovered reinforcing steel. Repair any reinforcing bars that have lost more than 50% of the cross-section area, are broken or as directed by the Project Manager, by splicing a new section of bar having the same cross-section area.

Use solid forms and Concrete – Class Structural. Submit to Project Manager for approval any substitution for concrete Class Structural.

Include costs for all resources necessary to repair substructure, including concrete, at the locations shown in the plans and as directed by the Project Manager in the unit price bid for Miscellaneous Items-Sq.Ft. Include costs to furnish and install additional reinforcing in the unit price for Reinforcing Steel.

SHEET NO.
B3

ABUTMENT NO. 10 FIRE REPAIR

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED	C'HECKED	J.E.P. 5-10-21
REVISED	DRAWN	P.H.J.R. 5-11-21
REVISED	DESIGNED	J.E.P. 12-09-20
REVISED		

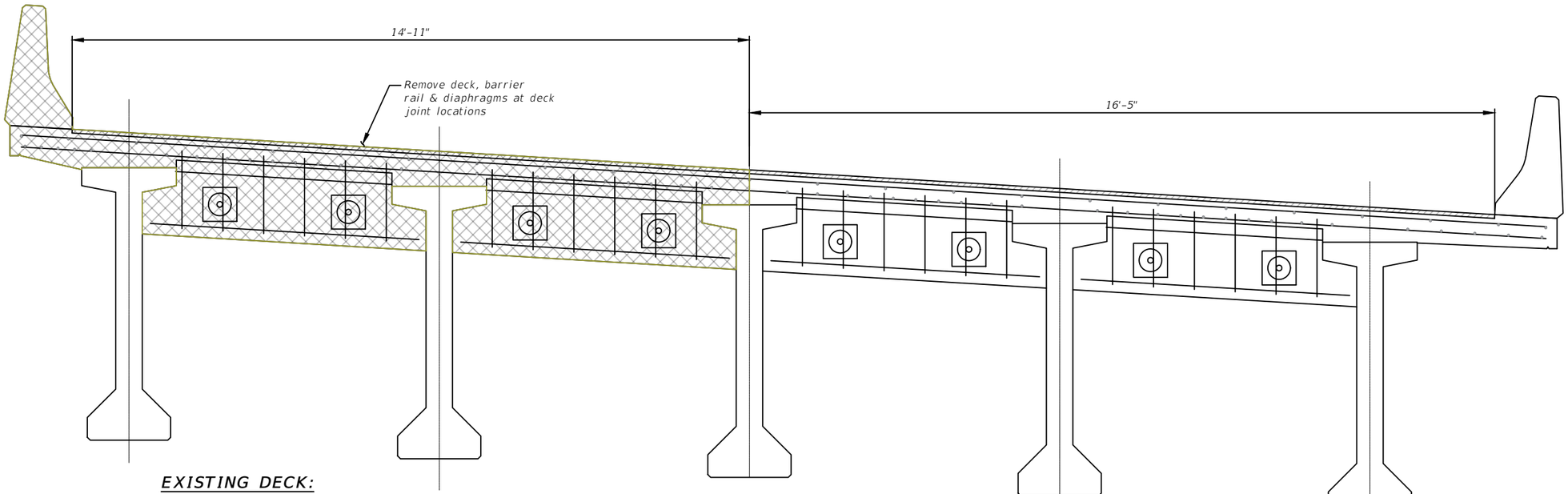
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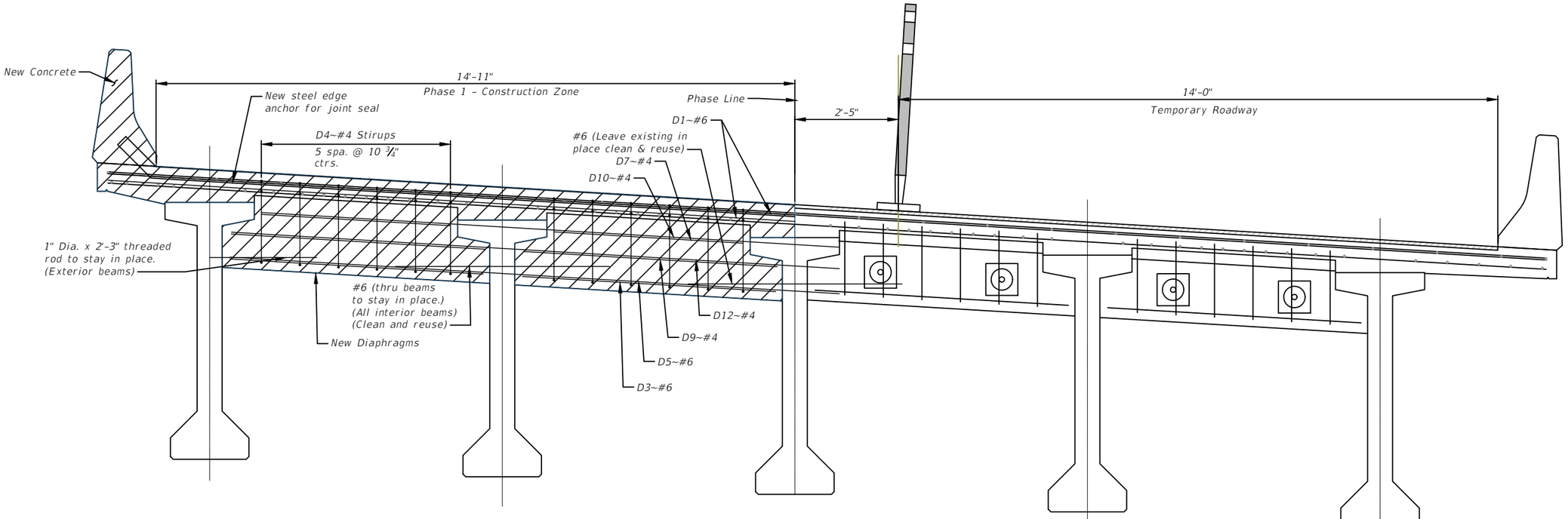


EXISTING DECK:

Reference the diaphragm detail, Sheet No. B7 for more clarification.

EXISTING DECK JOINT

SCALE ~ 3/8" = 1'-0"
LOOKING AHEAD ON LINE



PHASE 1 - DECK JOINT REMOVAL & REPLACEMENT

SCALE ~ 3/8" = 1'-0"
LOOKING AHEAD ON LINE

SHEET NO. B4

EXISTING JOINT SECTION & PHASE 1 CONSTRUCTION

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED	CHECKED	J.E.P. 5-10-21
REVISED	DRAWN	P.H.R. 5-11-21
REVISED	DESIGNED	J.E.P. 12-09-20
REVISED		

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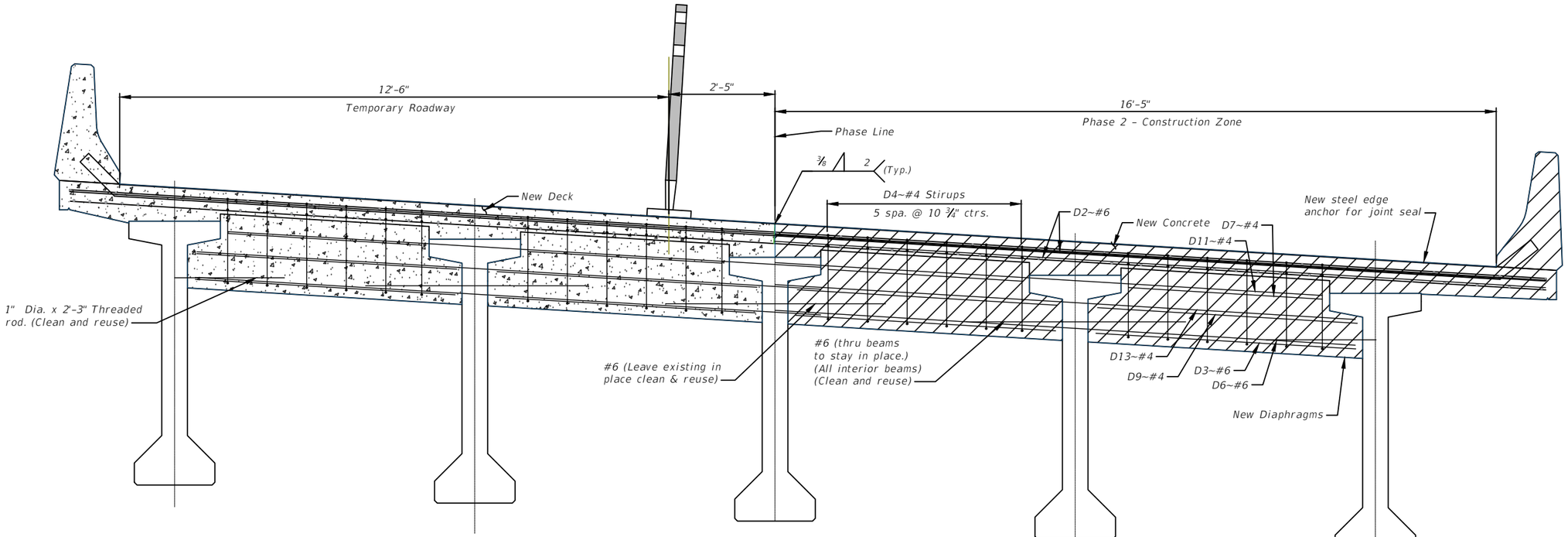
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER
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DRAWING NO.
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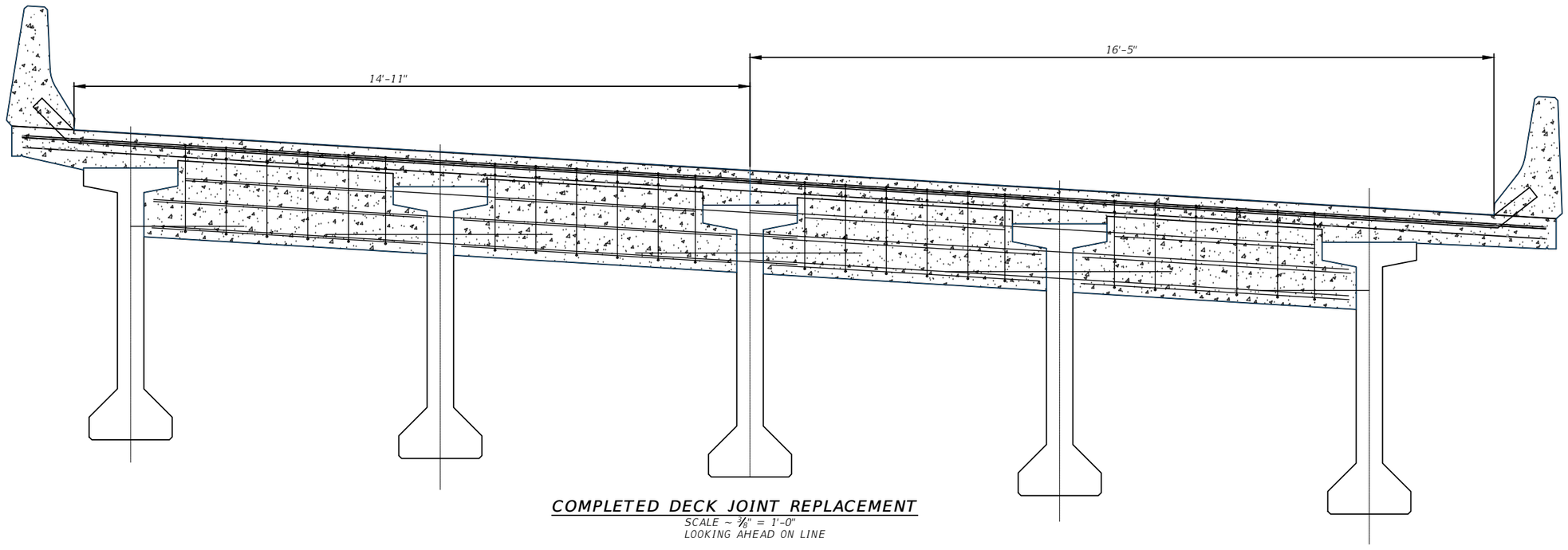
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PHASE 2 - DECK JOINT REMOVAL & REPLACEMENT

SCALE ~ 3/8" = 1'-0"
LOOKING AHEAD ON LINE



COMPLETED DECK JOINT REPLACEMENT

SCALE ~ 3/8" = 1'-0"
LOOKING AHEAD ON LINE

SHEET NO.
B5

PHASE 2 & COMPLETED JOINT CONSTRUCTION

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED				CHECKED	J.E.P.	5-10-21
REVISED				DRAWN	P.H./R.	5-11-21
REVISED				DESIGNED	J.E.P.	12-09-20
REVISED						

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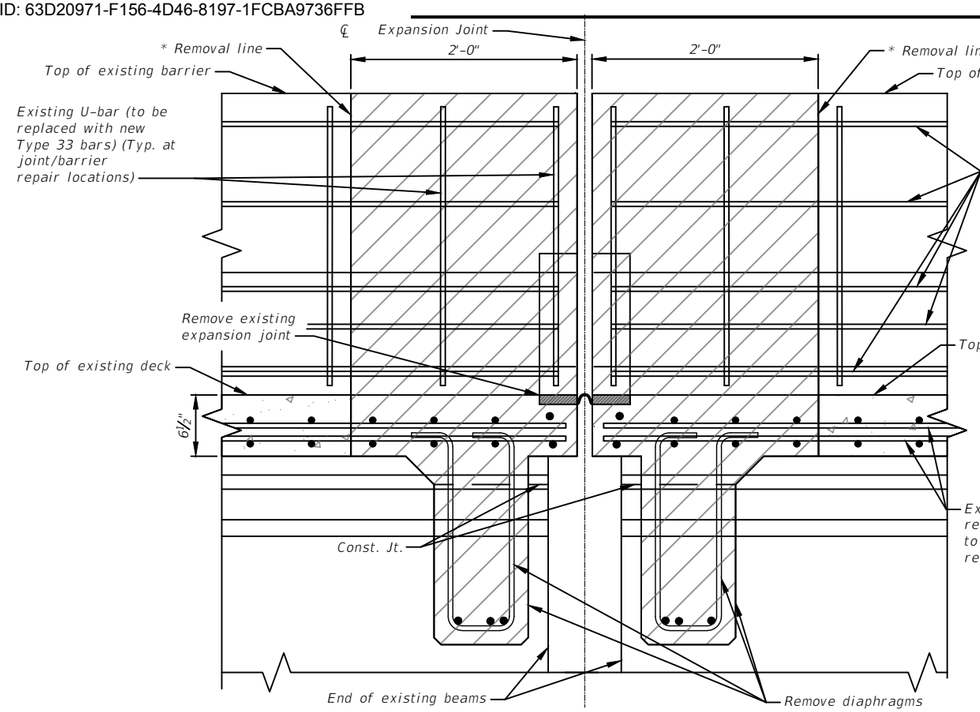
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER
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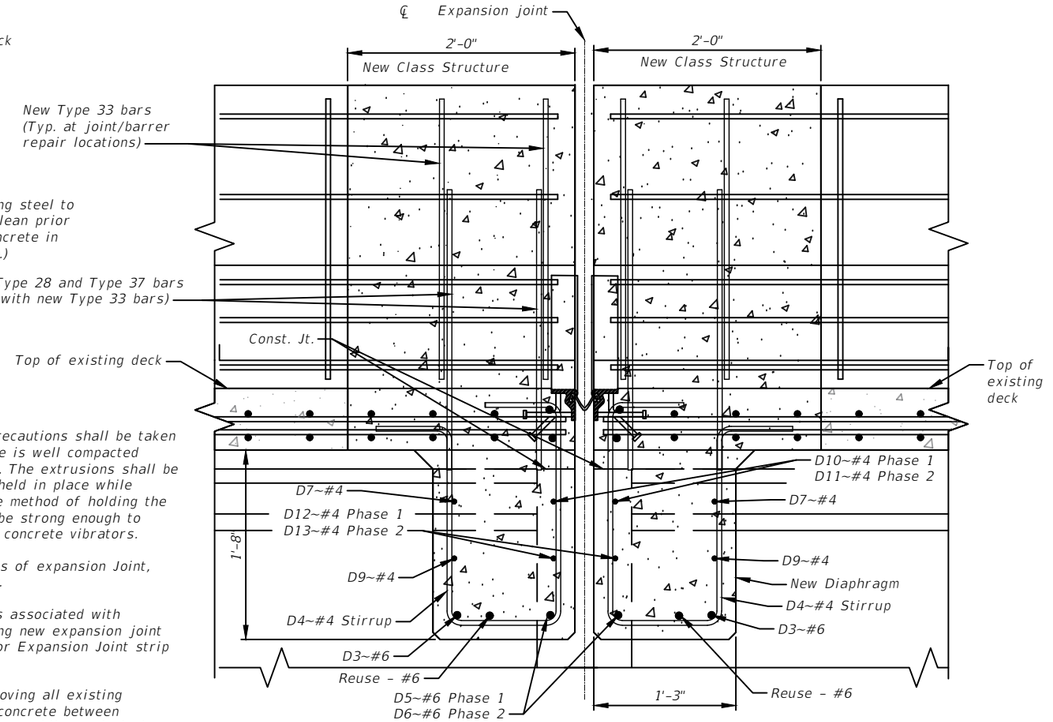
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EXISTING JOINT

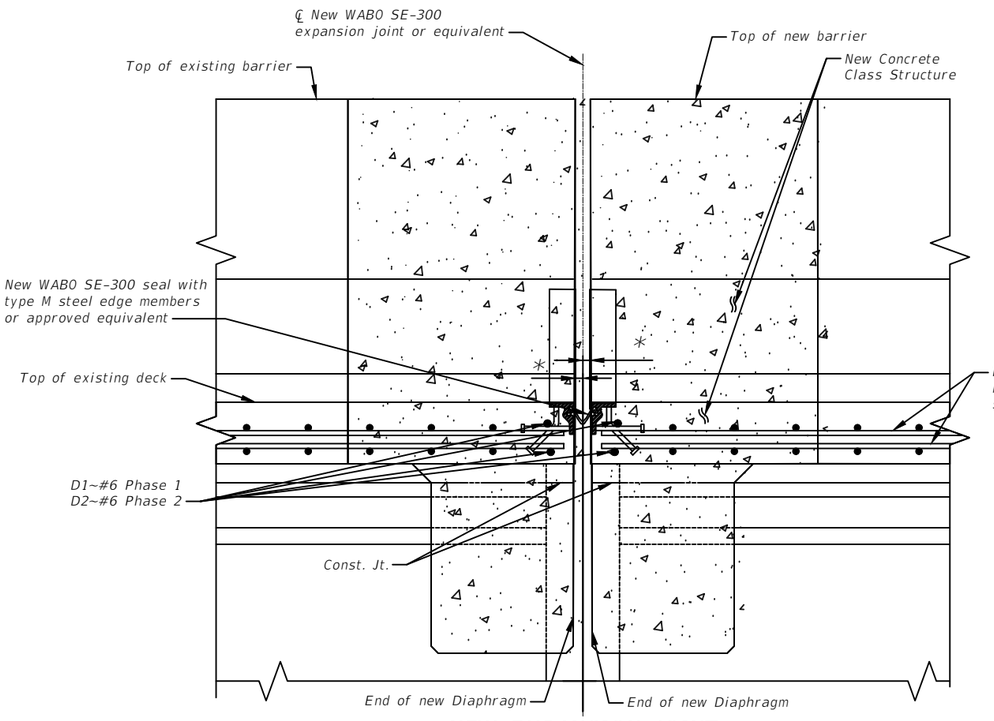
Scale ~ ½" = 1'-0"
BENTS NO. 2, 4, 6, 7 & 9

* NOTE: Place ½" deep saw cut at the removal line around the perimeter.



RECONSTRUCTED JOINT

Scale ~ ½" = 1'-0"
BENTS NO. 2, 4, 6, 7 & 9



NEW EXPANSION JOINT

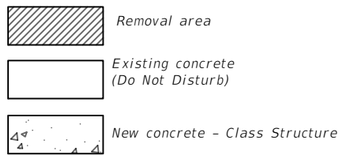
Scale ~ ½" = 1'-0"
BENTS NO. 2, 4, 6, 7 & 9

NOTE: All necessary precautions shall be taken to assure that concrete is well compacted under joint extrusions. The extrusions shall be accurately and firmly held in place while concrete is placed. The method of holding the joint assembles shall be strong enough to withstand contact with concrete vibrators.

NOTE: For requirements of expansion Joint, see Special Provisions.

NOTE: Include all costs associated with furnishing and installing new expansion joint in the unit price bid for Expansion Joint strip seal.

NOTE: The cost of removing all existing expansion joints, and concrete between concrete removal lines, providing and placing new Class Structure is to be included in the unit price bid for Class B Bridge Deck Repair.



NOTE: Provide a new strip seal expansion joint capable of accommodating the Total Movement as shown in the Table of Expansion Joint Gaps. The minimum installation width is assumed to be 1 ½". If the minimum installation width varies, adjust the opening dimensions as necessary to maintain the minimum installation width at no less than 60° F.

NEW WABO SE-300 OR APPROVED EQUIVALENT

Expansion Gap Opening (in) Piers 2, 4, 7 & 9

Temperature (°F)						Adjustment for 1°F Temperature	Total Movement (in)
-40	0	37.5	60	90	115		
3 1/4	2 9/16	1 7/8	1 1/2	1	1 1/16	0.0173	2.678

Expansion Gap Opening (in) Pier 6

Temperature (°F)						Adjustment for 1°F Temperature	Total Movement (in)
-40	0	37.5	60	90	115		
2 7/16	2 1/8	1 3/4	1 1/2	1 5/16	1 1/8	0.0086	1.339

SHEET NO. B6

JOINT SECTION VIEWS

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				J.E.P.	P.H.R.	J.E.P.
				5-10-21	5-11-21	12-09-20

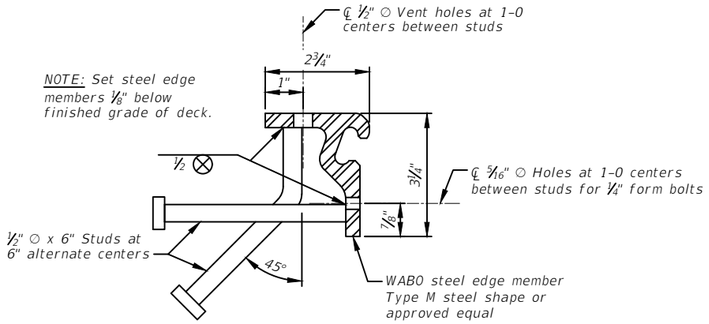
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UPN NUMBER
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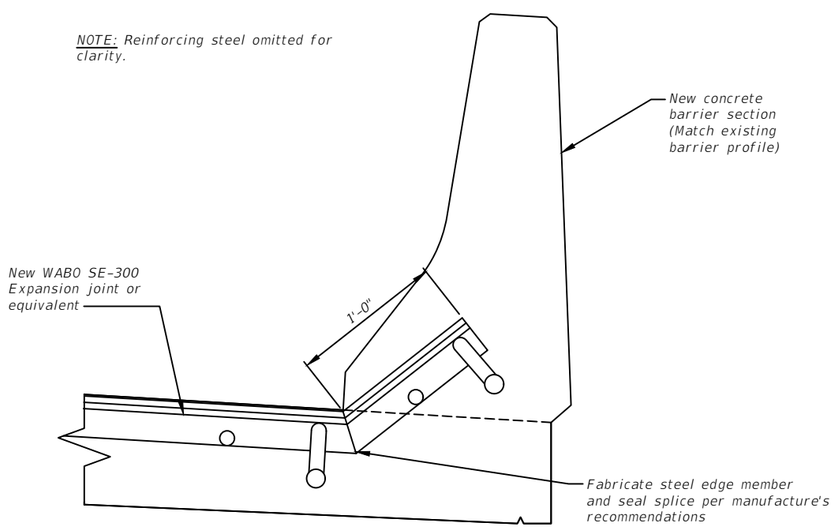
DRAWING NO.
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STEEL EDGE MEMBER AND ANCHORAGE SYSTEM

Scale ~ 3" = 1'-0"



BARRIER & EDGE OF SLAB

Scale ~ 1" = 1'-0"

NOTE:

Verify all dimensions in the field before ordering materials and fabrication.

Place a ½" deep neat saw cut at the removal line around the perimeter.

Include all costs associated with removing existing joints and concrete in the unit price bid for Class B Bridge Deck Repair. Include all costs associated with furnishing and placing new Concrete – Class Structure concrete in the unit price bid for Class B Bridge Deck Repair.

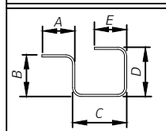
Include all costs associated with furnishing and installing new expansion joint and in the unit price bid for Expansion Joint – Strip Seal.

Replace existing reinforcing steel damaged during construction that is called out to remain in place at no additional cost to the State.

Include cleaning exposed existing reinforcing steel in other items of work.

BILL OF REINFORCING STEEL

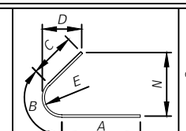
(FOR ONE JOINT ONLY)
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE 749



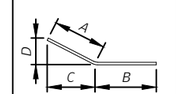
TYPE STR



TYPE 33



TYPE 37



TYPE 28

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PHASE 1											
D1	#6	4	STR.	18-7							
D3	#6	4	STR.	5-11							
D4	#4	24	749	6-0 ½	8"	1-9	1-0	1-11 ½	8"		
D5	#6	2	STR.	15-7							
D7	#4	4	STR.	4-5							
D9	#4	4	STR.	5-11							
D10	#4	2	STR.	14-3							
D12	#4	2	STR.	15-0							
B3	#4	4	37	3-0		2-0	1-0				
B4	#4	4	33	5-1	2-4	5"	2-4	2-6	1 ¾"		9"
B5	#4	4	28	4-8	2-4	2-4	1-2	1-2			
S204	#4	74	STR.	1-10							
PHASE 2											
D2	#6	4	STR.	17-9							
D3	#6	4	STR.	5-11							
D4	#4	24	749	6-0 ½	8"	1-9	1-0	1-11 ½	8"		
D6	#6	2	STR.	13-3							
D7	#4	4	STR.	4-5							
D9	#4	4	STR.	5-11							
D11	#4	2	STR.	12-7							
D13	#4	2	STR.	13-4							
B3	#4	4	37	3-0		2-0	1-0				
B4	#4	4	33	5-1	2-4	5"	2-4	2-6	1 ¾"		9"
B5	#4	4	28	4-8	2-4	2-4	1-2	1-2			
S204	#4	74	STR.	1-10							

SHEET NO.
B7

EDGE MEMBER AND BARRIER END DETAILS & BILL OF REINFORCING STEEL

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED				
REVISED				
REVISED				
REVISED				
CHECKED	J.E.P.	5-10-21		
DRAWN	P.H.R.	5-11-21		
DESIGNED	J.E.P.	12-09-20		

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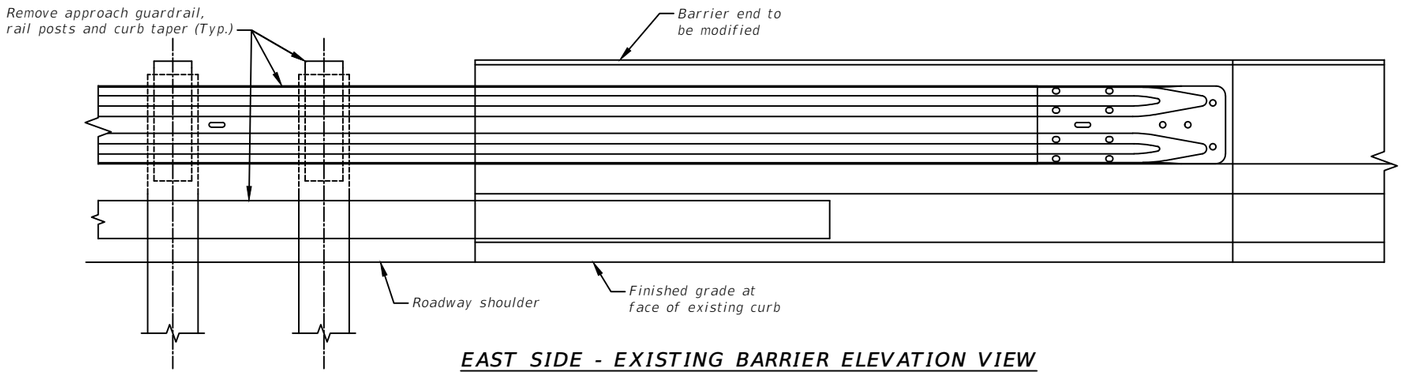
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MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

UPN NUMBER
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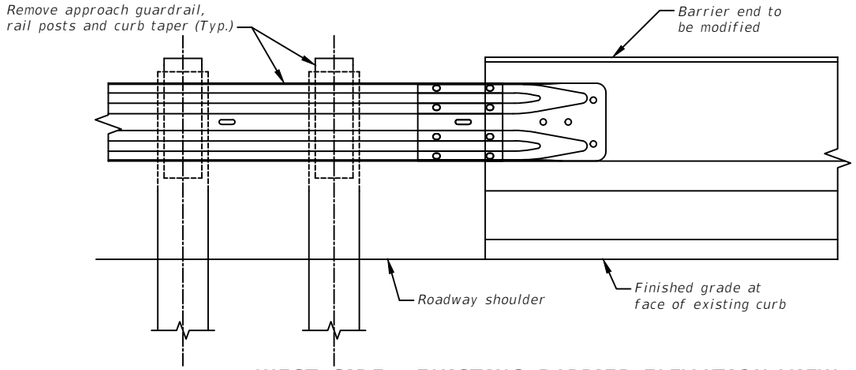
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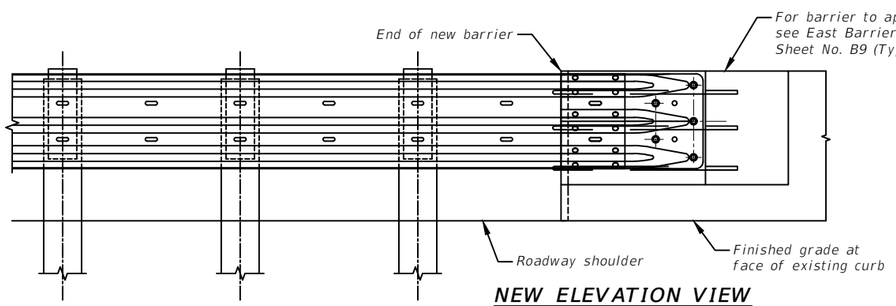
EAST SIDE - EXISTING BARRIER ELEVATION VIEW

Scale ~ ½ " = 1'-0"



WEST SIDE - EXISTING BARRIER ELEVATION VIEW

Scale ~ ½ " = 1'-0"



NEW ELEVATION VIEW

SCALE ~ ⅜" = 1'-0"

SHEET NO.
B8

EXISTING AND NEW BARRIER ENDS

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

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REVISED		
REVISED		
REVISED		
CHECKED	J.E.P.	5-10-21
DRAWN	P.H.J.R.	5-11-21
DESIGNED	J.E.P.	12-09-20

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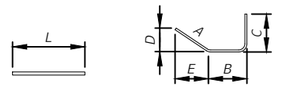
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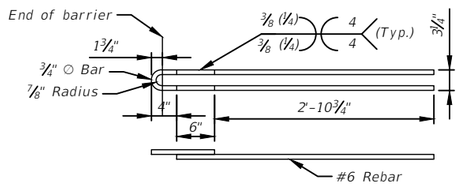
BILL OF REINFORCING STEEL

FOR ONE BARRIER END ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE STR TYPE VL

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
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B2	#4	3	STR.	2-6							



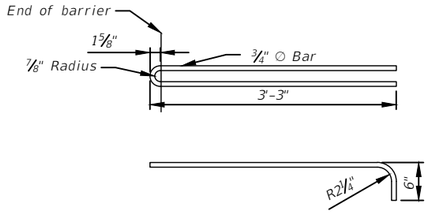
LOOP DETAIL

NOT TO SCALE

NOTE: Use reinforcing steel conforming to ASTM A 706, Grade 60 for rebar being welded to loops.

NOTE: Loop ends and the optional loop detail consist of Smooth round bars conforming to AASHTO M 270, Grade 36.

NOTE: Cold bend the loops by using a jig that will produce an accurate radius without marring the bar. Do not heat the bar to facilitate bending.

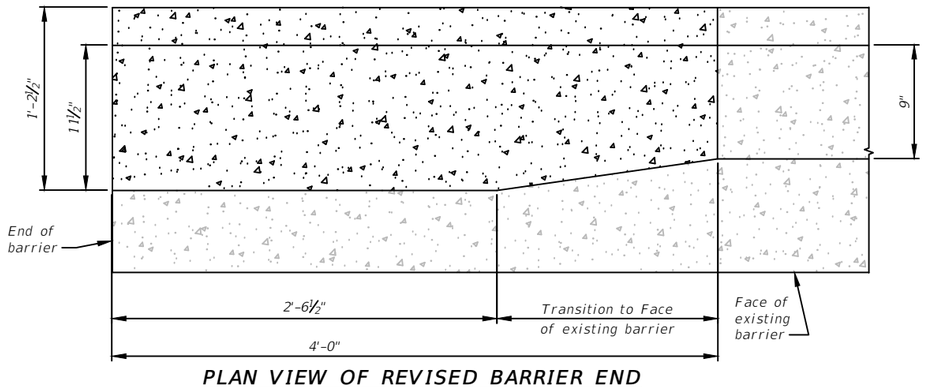


OPTIONAL LOOP DETAIL

NOT TO SCALE

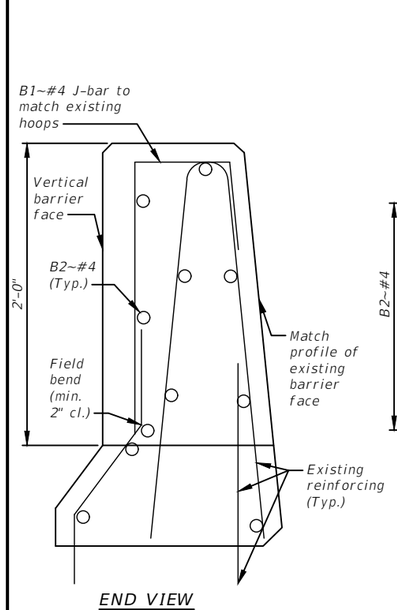
NOTE: Weld rebar to loops using ⅛" Ø E8018 rod. Do not tack weld the pieces together prior to welding. Use a certified welder in accordance with the current edition of AWS D1.4. Do not place the welded assembly in the form until it has been inspected.

NOTE: No additional welding is permitted on the smooth round bars or reinforcing steel.

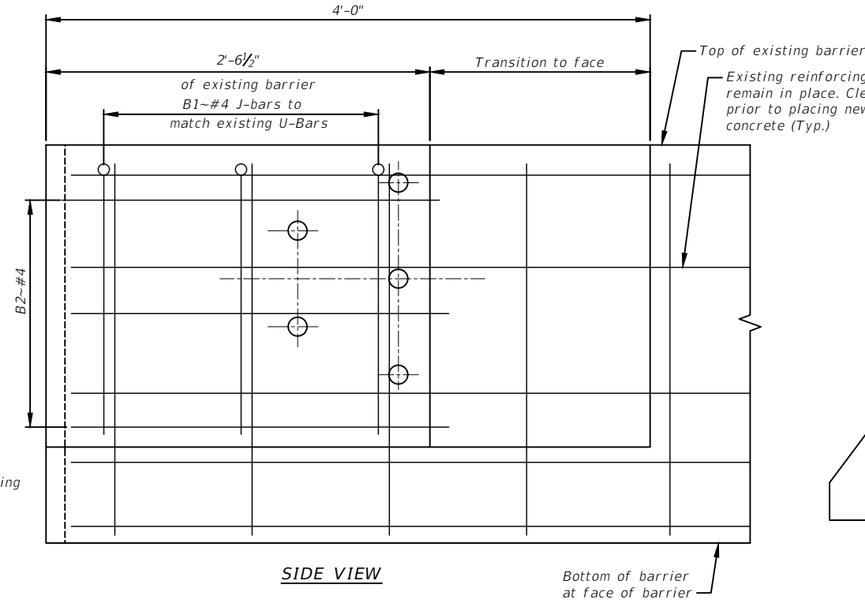


PLAN VIEW OF REVISED BARRIER END

Scale ~ 1" = 1'-0"



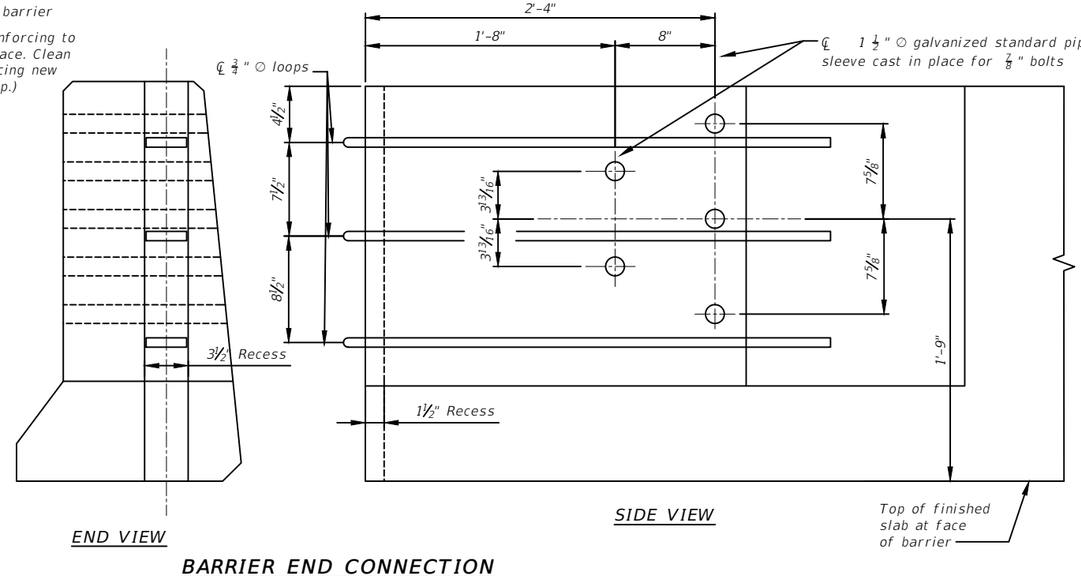
END VIEW



SIDE VIEW

ELEVATION VIEW OF REVISED BARRIER END

Scale ~ 1" = 1'-0"



END VIEW

SIDE VIEW

Top of finished slab at face of barrier

BARRIER END CONNECTION

Scale ~ 1" = 1'-0"

SHEET NO.
B9

BARRIER END CONNECTION

SCALE: AS NOTED

PROJECT NAME
YORK BRIDGE REHAB

MDT STRUCTURE ID
06576

FEDERAL AID PROJECT
STPB 280-1(33)12

COUNTY
LEWIS & CLARK

REVISED				
REVISED				
REVISED				
REVISED				
CHECKED	J.E.P.	5-10-21		
DRAWN	P.H.R.	5-11-21		
DESIGNED	J.E.P.	12-09-20		

9550000BRREH001.dwg \ REH001

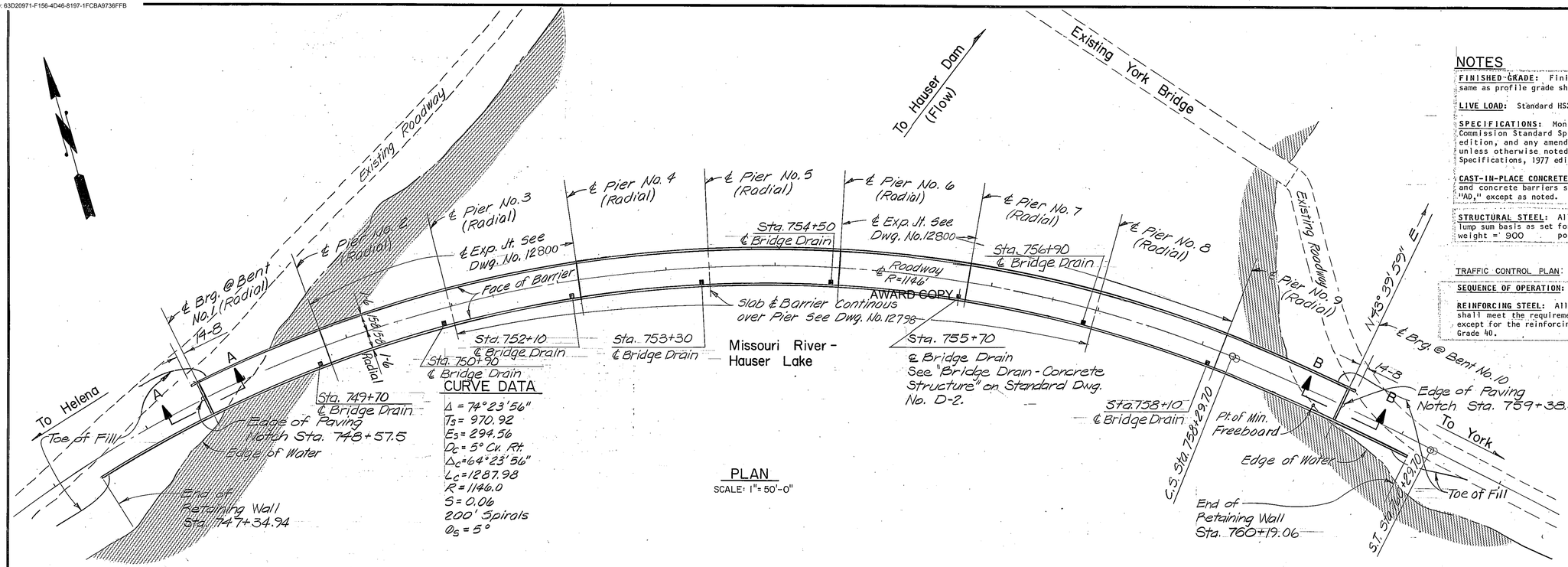
6/8/2021 8:12:02 AM

UPN NUMBER
9550000

DRAWING NO.
24490

DocuSign Envelope ID: 63D20971-F156-4D46-8197-1FCBA9736FFB

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	RS-BRS-DP 280-(5)II	1	20



CURVE DATA

Δ = 74°23'56"
T_S = 970.92
E_S = 294.56
D_C = 5° Cv. Rt.
Δ_C = 64°23'56"
L_C = 1287.98
R = 1146.0
S = 0.06
200' Spirals
θ_S = 5°

PLAN
SCALE: 1"= 50'-0"

NOTES

FINISHED GRADE: Finished grade of bridge at centerline of roadway is the same as profile grade shown on road plans.

LIVE LOAD: Standard HS20-44 loading.

SPECIFICATIONS: Montana Department of Highways and the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1976 edition, and any amendments thereto, and special provisions, shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1977 edition, and any amendments thereto.

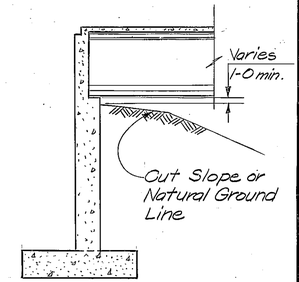
CAST-IN-PLACE CONCRETE: Unless otherwise approved, all concrete in the slab and concrete barriers shall be Class "BD" and all other concrete shall be Class "AD," except as noted.

STRUCTURAL STEEL: All structural steel shall be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Estimated total weight = 900 pounds.

TRAFFIC CONTROL PLAN: See "Special Provisions."

SEQUENCE OF OPERATION: See "Special Provisions."

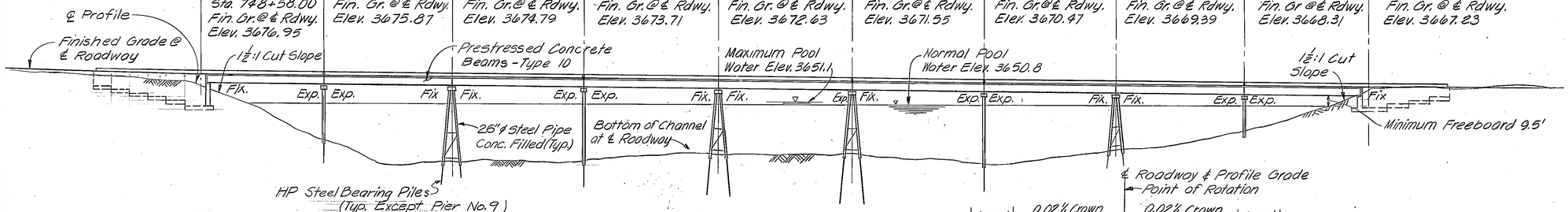
REINFORCING STEEL: All reinforcing steel shall be of the deformed type and shall meet the requirements of ASTM Specifications A615, Grade 60 (AASHTO M-31) except for the reinforcing bars in the prestressed concrete beams which may be Grade 40.



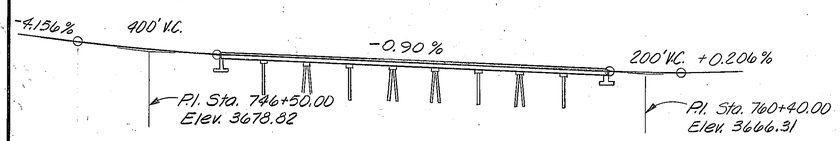
SECTION A-A
NO SCALE

1079-11 5/16 ℄ Brg. Bent No.1 to ℄ Brg Bent No.10 (Horizontal Distance along ℄ Roadway)

120-0	120-0	120-0	120-0	120-0	120-0	120-0	120-0	120-0	119-11 5/16
℄ Brg. @ Bent No.1 Sta. 748+58.00 Fin. Gr. @ ℄ Rdwy. Elev. 3676.95	℄ Pier No. 2 Sta. 749+78.00 Fin. Gr. @ ℄ Rdwy. Elev. 3675.87	℄ Pier No. 3 Sta. 750+98.00 Fin. Gr. @ ℄ Rdwy. Elev. 3674.79	℄ Pier No. 4 Sta. 752+18.00 Fin. Gr. @ ℄ Rdwy. Elev. 3673.71	℄ Pier No. 5 Sta. 753+38.00 Fin. Gr. @ ℄ Rdwy. Elev. 3672.63	℄ Pier. No. 6 Sta. 754+58.00 Fin. Gr. @ ℄ Rdwy. Elev. 3671.55	℄ Pier No. 7 Sta. 755+78.00 Fin. Gr. @ ℄ Rdwy. Elev. 3670.47	℄ Pier No. 8 Sta. 756+98.00 Fin. Gr. @ ℄ Rdwy. Elev. 3669.39	℄ Pier No. 9 Sta. 758+18.00 Fin. Gr. @ ℄ Rdwy. Elev. 3668.31	℄ Brg. @ Bent No. 10 Sta. 759+37.97 Fin. Gr. @ ℄ Rdwy. Elev. 3667.23



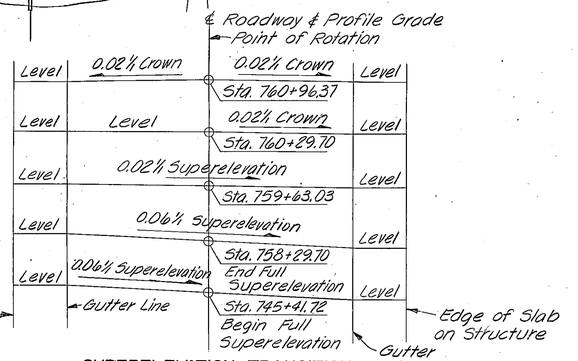
ELEVATION
SCALE: 1"= 50'-0"



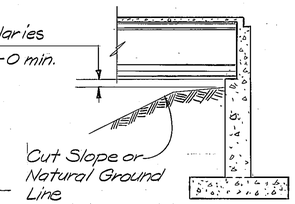
PROFILE GRADE
NO SCALE

STREAM DATA

Ice: Moderate
Design Flood Frequency 100 years
Design Flow: 30,000 c.f.s.
Drainage Area: 15,925 sq. miles
Average Design Velocity: 4.4 ft/sec.
Water Not Navigable



SUPERELEVATION TRANSITION



SECTION B-B
NO SCALE

PREPARED BY
HENNINGSON, DURHAM & RICHARDSON, INC.
HELENA, MONTANA
FOR

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

YORK BRIDGE
AT STA. 753+98.00
FEDERAL AID PROJECT RS-BRS-DP280-I(5)II
LEWIS & CLARK COUNTY

DESIGNED	RKM	3/80
DRAWN	LDK	3/80
CHECKED	MAL	7/80
APPROVED		
REVISED		
REVISED		

GENERAL LAYOUT
SCALE AS SHOWN
DRAWING NO. 12785