

# STATE OF MAINE DEPARTMENT OF TRANSPORTATION



## CHAIN OF PONDS FRANKLIN COUNTY HATHAN BOG BRIDGE OVER HATHAN BOG STREAM ROUTE 27 FEDERAL AID PROJECT NO. STP-1787(100)X PROJECT LENGTH 0.000 mi. CULVERT REHABILITATION BRIDGE NO. 3271

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### SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Fifth Edition 2010.

### TRAFFIC DATA

Current (2011) AADT .....	590
Future (2031) AADT .....	710
DHV - % of AADT .....	17
Design Hour Volume .....	121
Heavy Trucks (% of AADT) .....	39
Heavy Trucks (% of DHV) .....	26
Directional Distribution (% of DHV) .....	56
18 kip Equivalent P 2.0 .....	506
18 kip Equivalent P 2.5 .....	482
Design Speed (mph) .....	N/A

### HYDROLOGIC DATA

Drainage Area .....	8.96 sq mi
Design Discharge (Q50) .....	487 cfs
Check Discharge (Q100) .....	910.8 cfs
Headwater Elevation (Q50) .....	1308.37 ft
Headwater Elevation (Q100) .....	1309.37 ft
Discharge Velocity (Q50) .....	17.33 fps
Discharge Velocity (Q100) .....	17.93 fps
Headwater Elevation (Q1.1) .....	1302.08 ft
Discharge Velocity (Q1.1) .....	11.19 fps
Headwater Elevation (Q25) .....	1307.20 ft

### MATERIALS

For Culvert Invert Liner & Fish Weirs  
Concrete (Unless noted otherwise) ..... Class "A"  
Reinforcing Steel ..... ASTM A 615/A 615M, Grade 60

### BASIC DESIGN STRESSES

For Culvert Invert Liner & Fish Weirs  
Concrete ..... f 'c = 4,350 psi  
Reinforcing Steel ..... f y = 60,000 psi

### UTILITIES

Somerset Telephone Company

### MAINTENANCE OF TRAFFIC

Maintain two 11'-0" wide lane allowing occasional alternating two - way traffic when necessary.

<b>PROJECT LOCATION:</b>	2.6± Miles North of The Intersection of Route 27 & Natanis Point Road 45°-22'-34.50" N 70°-44'-22.09" W
<b>PROGRAM AREA:</b>	Minor Spans
<b>OUTLINE OF WORK:</b>	Construct Concrete Invert Liner At Bottom Of Existing Steel Pipe And Install Concrete Fish Wiers.

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
APPROVED: *[Signature]*  
COMMISSIONER: *[Signature]*  
DATE: 11/15/11  
CHIEF ENGINEER: *[Signature]*

Michael Wright  
SIGNATURE  
8089  
P.E. NUMBER  
11/15/2011  
DATE  
PROFESSIONAL ENGINEER

PROGRAM	BRIDGE
PROJECT MANAGER	S. BOGGE
DESIGNER	M. WRIGHT
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

CHAIN OF PONDS  
HATHAN BOG BRIDGE  
TITLE SHEET

SHEET NUMBER  
**1**  
OF 9

Date: 11/14/2011

Username: mark.poulin

Division: BRIDGE

Filename: \\00\bridge\msto\001\_Title.dgn

WIN 17871.00

STP-1787(100)X

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.25	GRANULAR BORROW	34	CY
206.061	STRUCTURAL EARTH EXCAVATION BELOW GRADE	20	CY
206.07	STRUCTURAL ROCK EXCAVATION	10	CY
502.325	STRUCTURAL CONCRETE CULVERT INVERT LINING (36 CY)	1	LS
502.326	STRUCTURAL CONCRETE - FISH WEIRS (33 CY)	1	LS
502.56	CONCRETE FILL	10	CY
503.12	REINFORCING STEEL, FABRICATED AND DELIVERED	8,000	LB
503.13	REINFORCING STEEL, PLACING	8,000	LB
511.07	COFFERDAM: UPSTREAM	1	LS
511.07	COFFERDAM: DOWNSTREAM	1	LS
610.08	PLAIN RIPRAP	10	CY
610.16	HEAVY RIPRAP	255	CY
613.319	EROSION CONTROL BLANKET	20	SY
615.07	LOAM	20	CY
618.1411	SEEDING NO. 3	3	UN
619.1401	EROSION CONTROL MIX	5	CY
620.58	EROSION CONTROL GEOTEXTILE	440	SY
629.05	HAND LABOR, STRAIGHT TIME	10	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	10	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	10	HR
639.19	FIELD OFFICE TYPE B	1	EA
652.31	TYPE I BARRICADE	10	EA
652.33	DRUM	10	EA
652.34	CONE	20	EA
652.35	CONSTRUCTION SIGNS	220	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES (75 CD)	1	LS
652.38	FLAGGER	100	HR
659.10	MOBILIZATION	1	LS

**GENERAL CONSTRUCTION NOTES**

- For easements, construction limits and right of way lines, refer to Right of Way Map.
- The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.
- Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php>.
- The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.
- The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.
- Bedrock may be encountered during construction of external fish weirs. A maintenance report dated November 1971 says they had to drill and blast ledge and excavate the streambed to place a gravel cushion under the existing pipe. Possible bedrock outcrops are visible immediately downstream from the pipe. If bedrock is encountered, the design engineer shall be contacted for possible modifications or redesign of the external fish weirs.
- Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:
  - If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.
  - If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.
  - If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

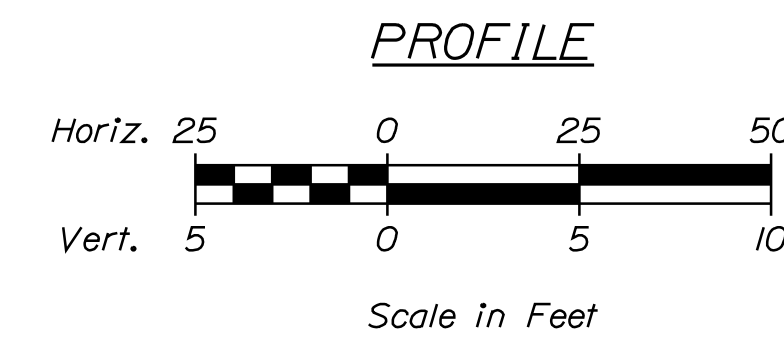
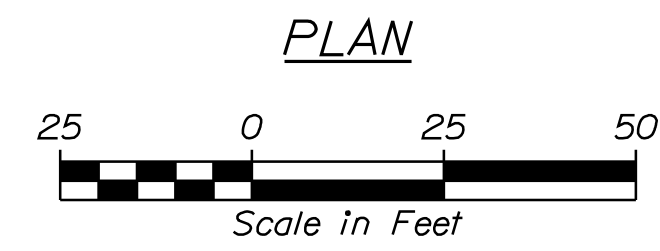
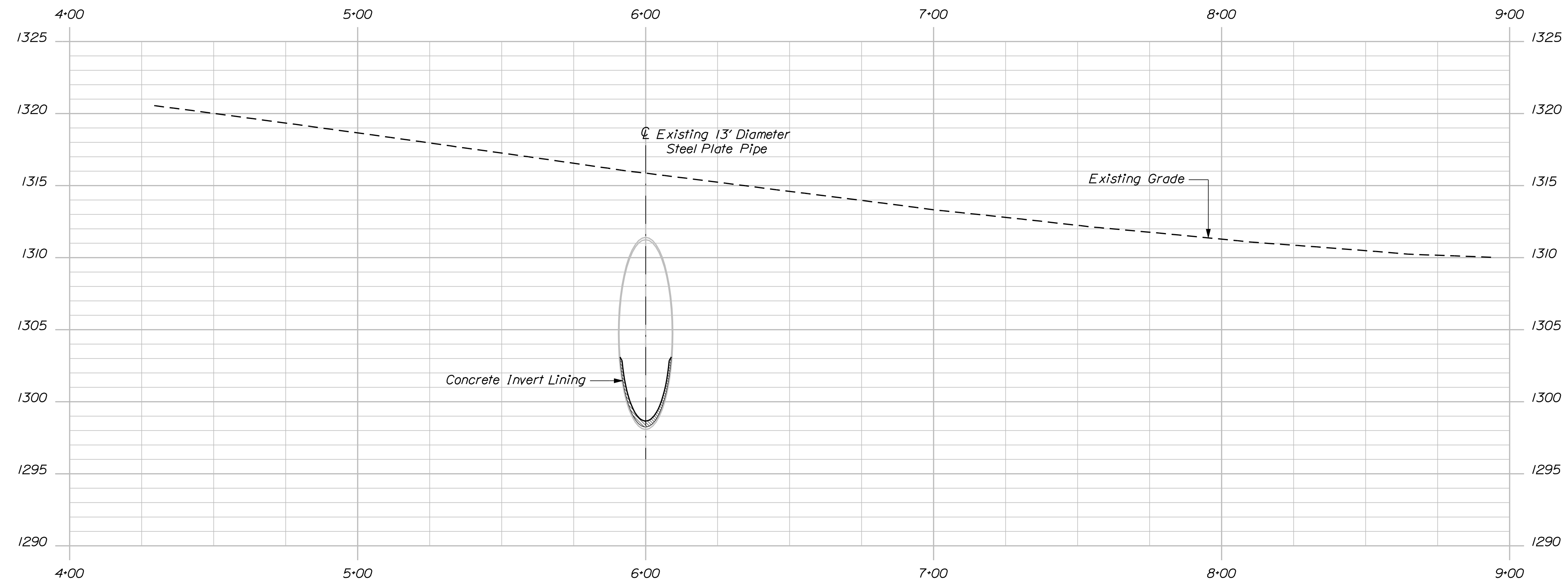
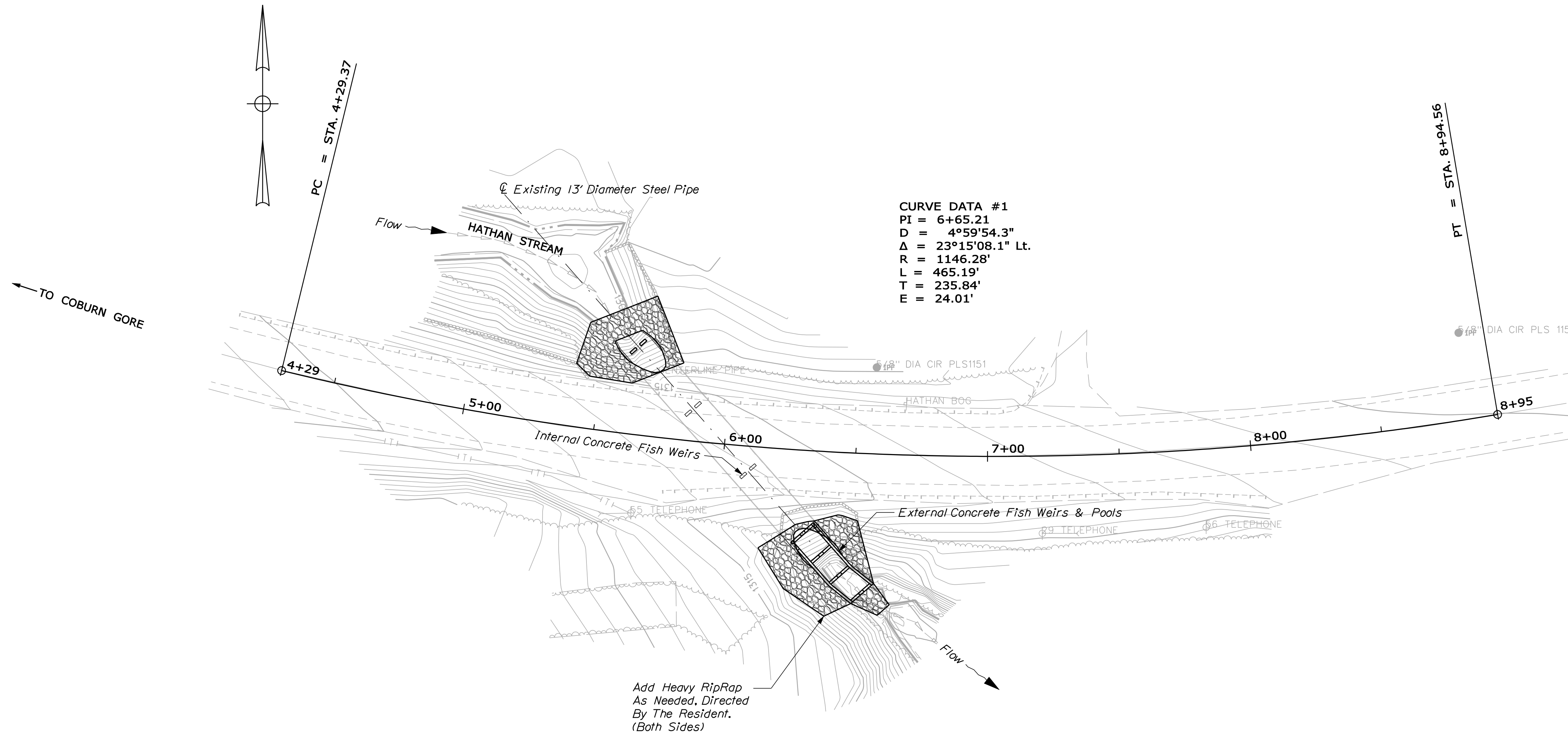
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-1787(100)X		BRIDGE NO. 3271		WIN		17871.00		BRIDGE PLANS	
HATHAN BOG BRIDGE		HATHAN BOG STREAM		FRANKLIN COUNTY		S. BOOGE		BY		DATE		SIGNATURE	
CHAIN OF PONDS		ESTIMATED QUANTITIES AND		GENERAL CONSTRUCTION NOTES		M. WIGHT		MRP				P.E. NUMBER	
SHEET NUMBER		2		OF		9		REVISIONS 1		REVISIONS 2		REVISIONS 3	
SHEET NUMBER		2		OF		9		REVISIONS 4		FIELD CHANGES		DATE	

Date: 12/15/2011

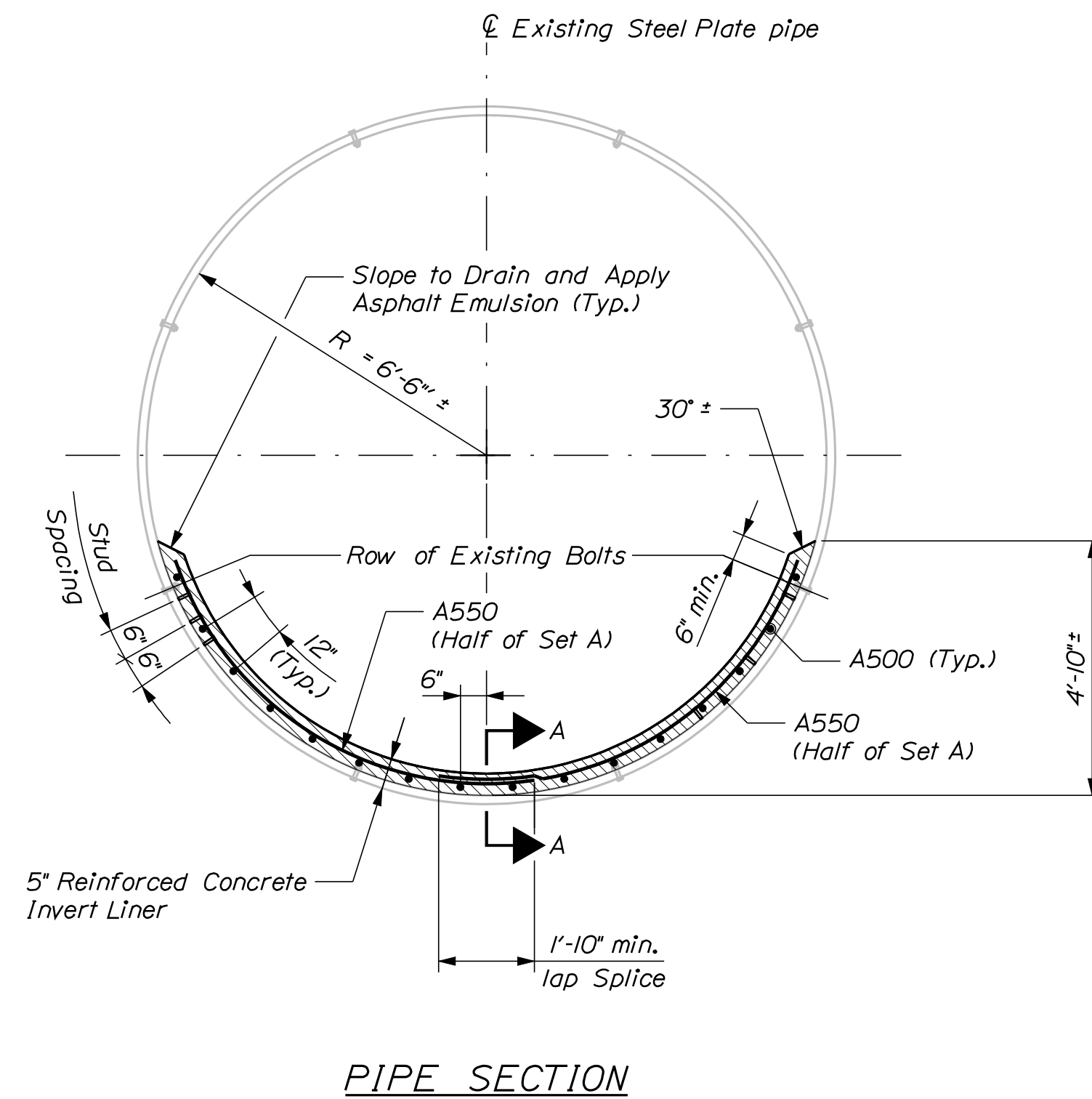
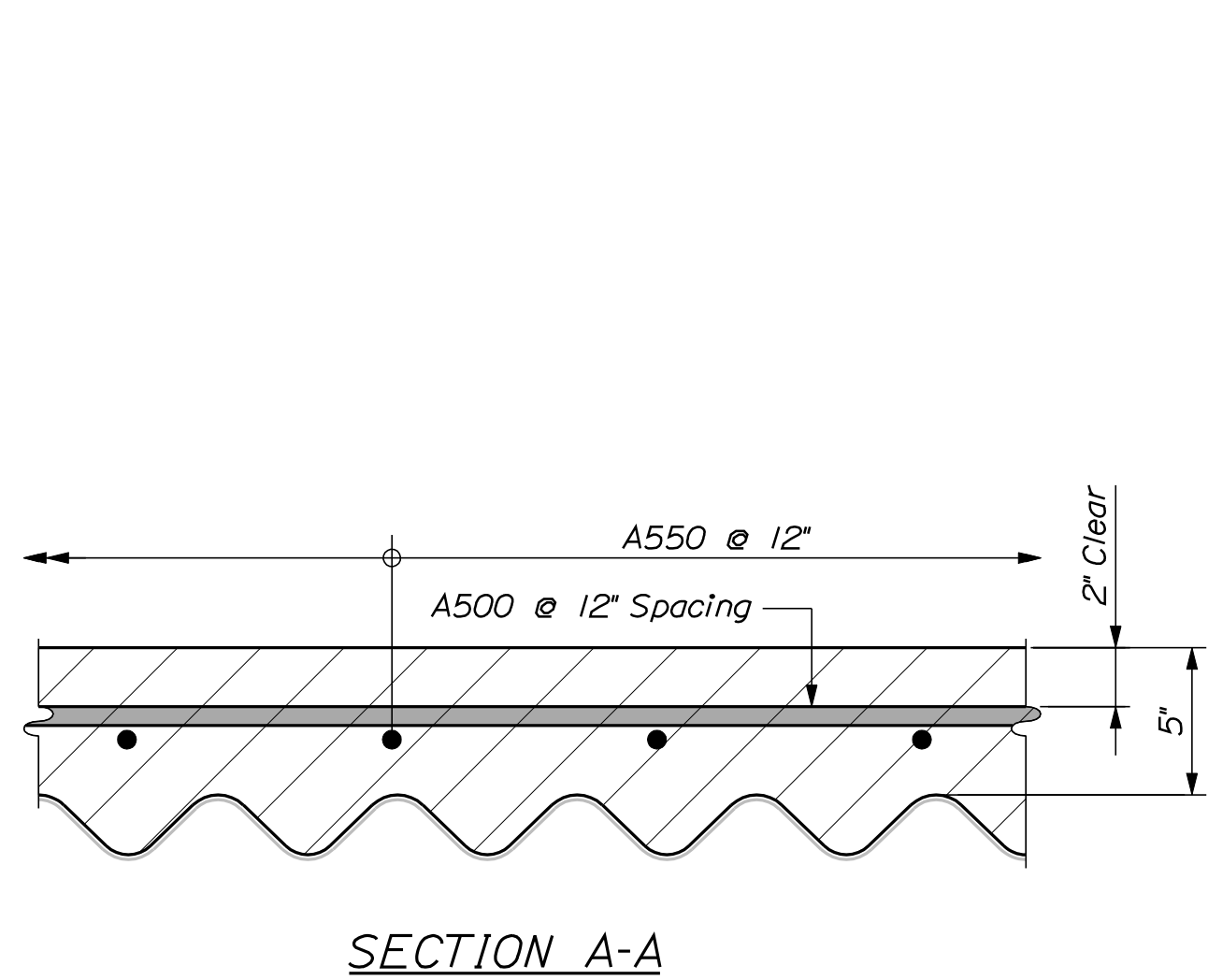
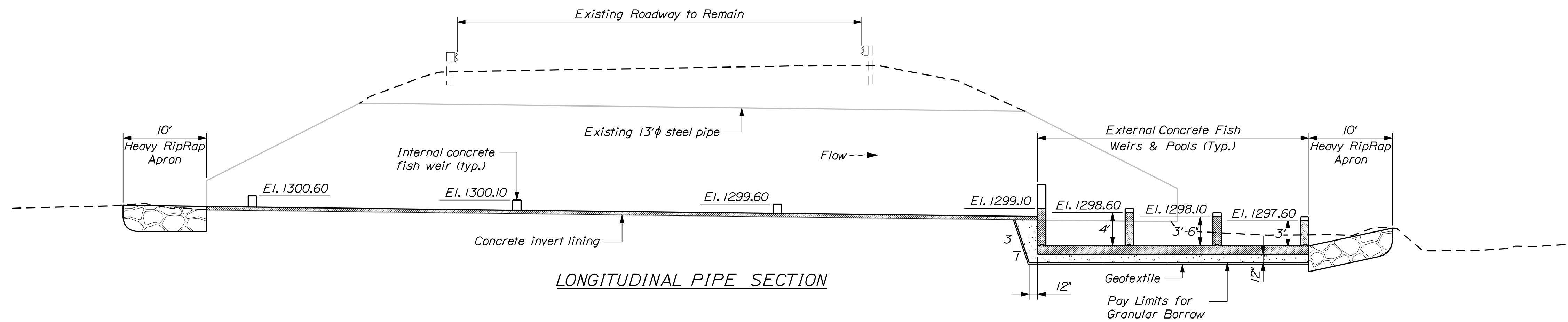
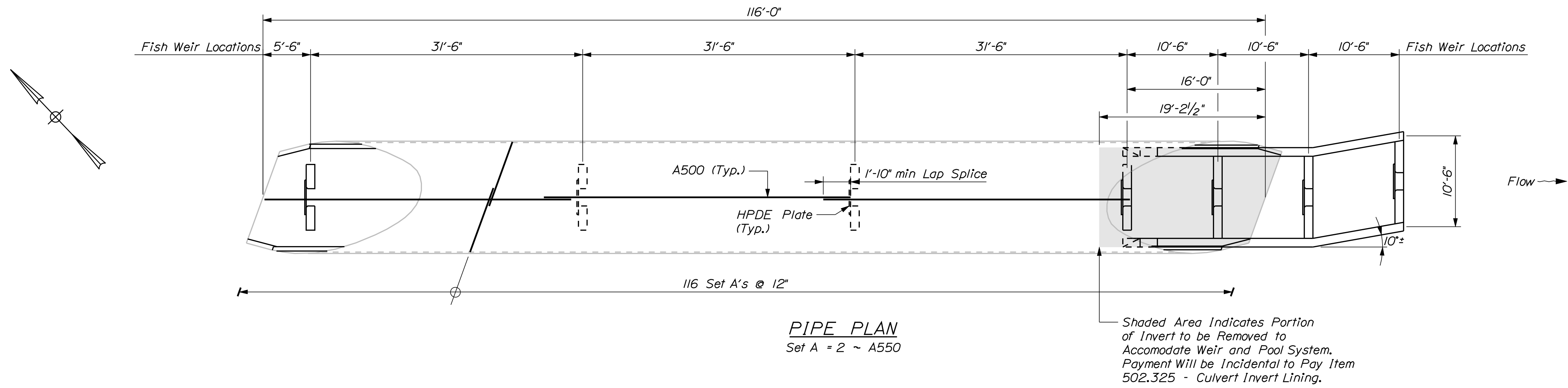
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Division: BRIDGE

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STATE OF MAINE DEPARTMENT OF TRANSPORTATION		STP-1787(100)X	
BRIDGE NO. 3271		WIN 17871.00	
BRIDGE PLANS			
PROJ. MANAGER	S. BOGGE	BY	DATE
DESIGN-DETAILED	M. WIGHT	MRP	
CHECKED-REVIEWED	B. NICHOLS		
DESIGNS-DETAILED		SIGNATURE	
REVISIONS 1		P.E. NUMBER	
REVISIONS 2		DATE	
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			
HATHAN BOG BRIDGE HATHAN BOG STREAM CHAIN OF PONDS FRANKLIN COUNTY			
GENERAL PLAN & PROFILE			
SHEET NUMBER			
3			
OF 9			



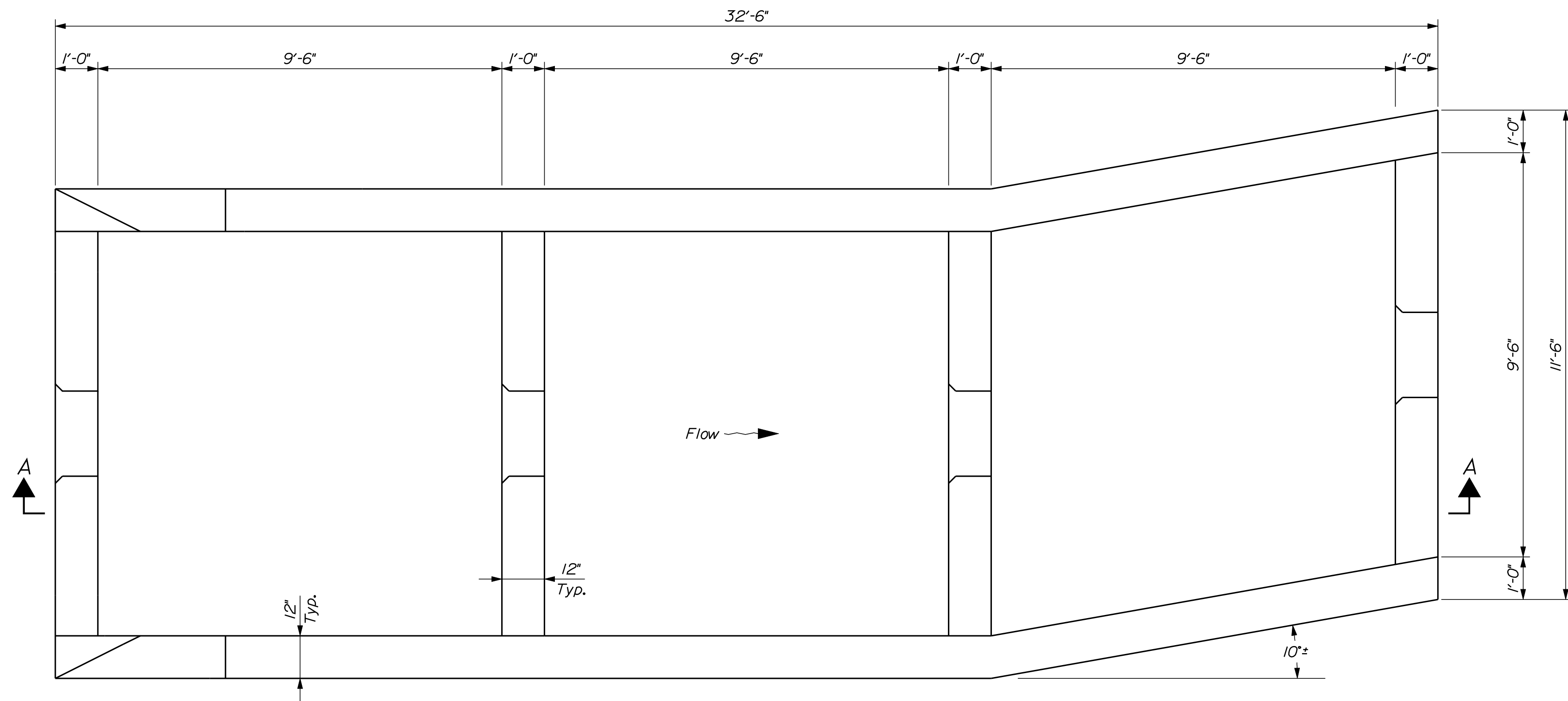
**PIPE NOTES**

1. Surfaces of the pipe against which concrete is to be placed shall be thoroughly cleaned so as to remove all loose corrosion. In areas where the metal is non-existent, a preliminary concrete placement shall be made, using forms where required, to fill voids and to establish the original lines of the pipe. The final placement shall then be made as shown. Payment for this work will be considered incidental to Item No. 502.325, Structural Concrete Invert Lining.
2. Three rows of shear connectors shall be staggered longitudinally at 12" spacing along each side of the pipe barrel. Shear connectors shall be 1/2" x 3" studs or machine bolts welded to the crests of the corrugations. Approximately 600 shear connectors are required. Payment will be considered incidental to contract items.
3. Reinforcing steel shall have a minimum concrete cover of 2" unless otherwise shown.
4. The existing structural plate pipe may have a slight deformation requiring field bending and/or cutting of the reinforcing steel. Any cutting and bending to field fit reinforcing steel shall be considered incidental to Item No. 503.13, Reinforcing Steel-Placing
5. The concrete shall have a rough broom or gun finish along the entire length of the pipe invert.
6. Asphalt Emulsion will be considered incidental to item No. 502.325 Structural Concrete Invert Lining.

PROJ. MANAGER	S. BOODE	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN DETAILED	M. WIGHT	MRP				
CHECKED-REVIEWED	B. NICHOLS					
DESIGN DETAILED						
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

HATHAN BOG BRIDGE  
HATHAN BOG STREAM  
CHAIN OF PONDS FRANKLIN COUNTY  
INVERT LINING DETAILS

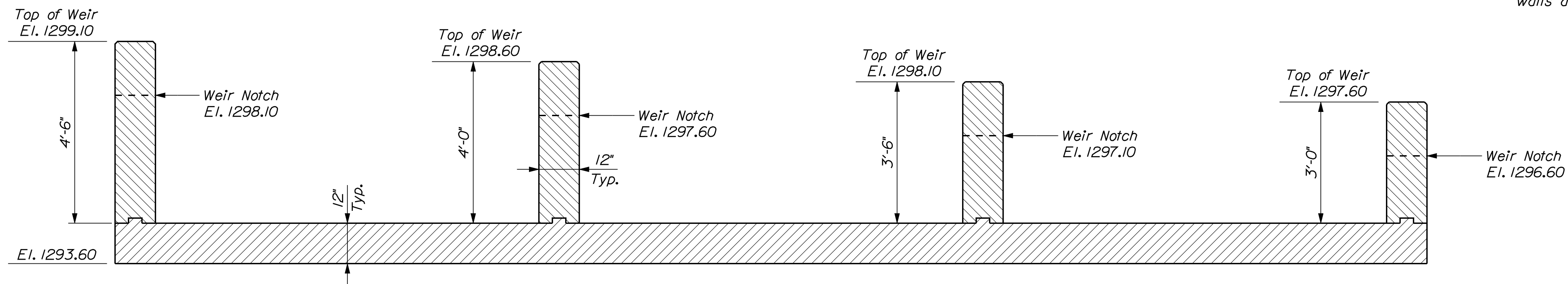




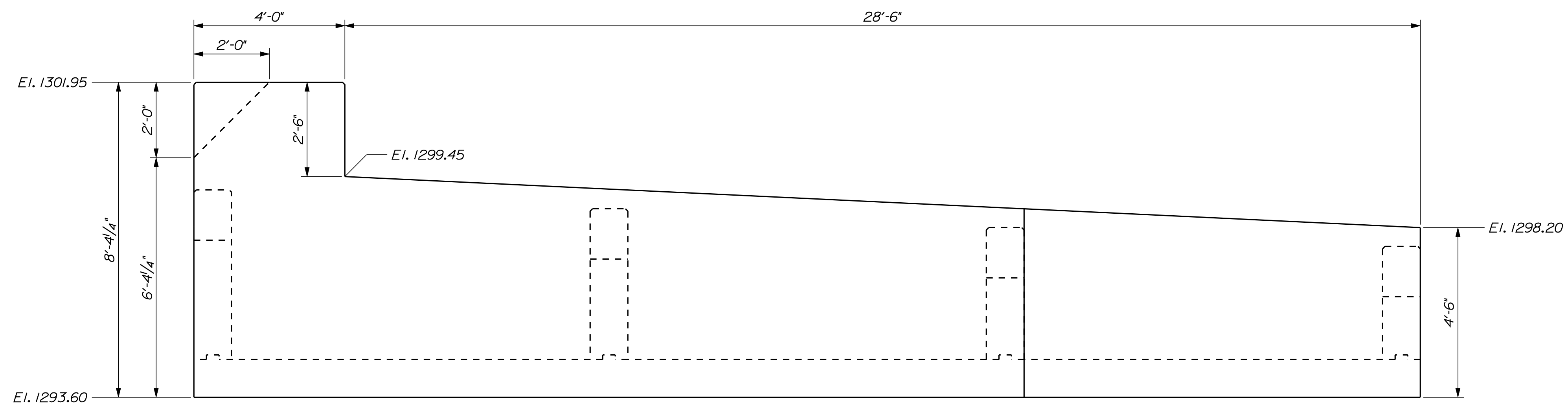
EXTERNAL FISH WEIRS PLAN

NOTES

1. Reinforcing steel shall have a minimum concrete cover of 2 inches in the walls and 3 inches cover in the footings unless otherwise noted.



SECTION A-A



EXTERNAL FISH WEIR ELEVATION

PROJ. MANAGER	DATE
CHECKED/REVIEWED	BY
DESIGN/REVIEWED	MRP
DESIGN/REVIEWED	B. NICHOLS
DESIGN/REVIEWED	
REVISIONS 1	SIGNATURE
REVISIONS 2	P.E. NUMBER
REVISIONS 3	DATE
REVISIONS 4	
FIELD CHANGES	

HATHAN BOG BRIDGE  
HATHAN BOG STREAM  
CHAIN OF PONDS FRANKLIN COUNTY  
EXTERNAL FISH WEIR & POOL DETAILS

SHEET NUMBER

6

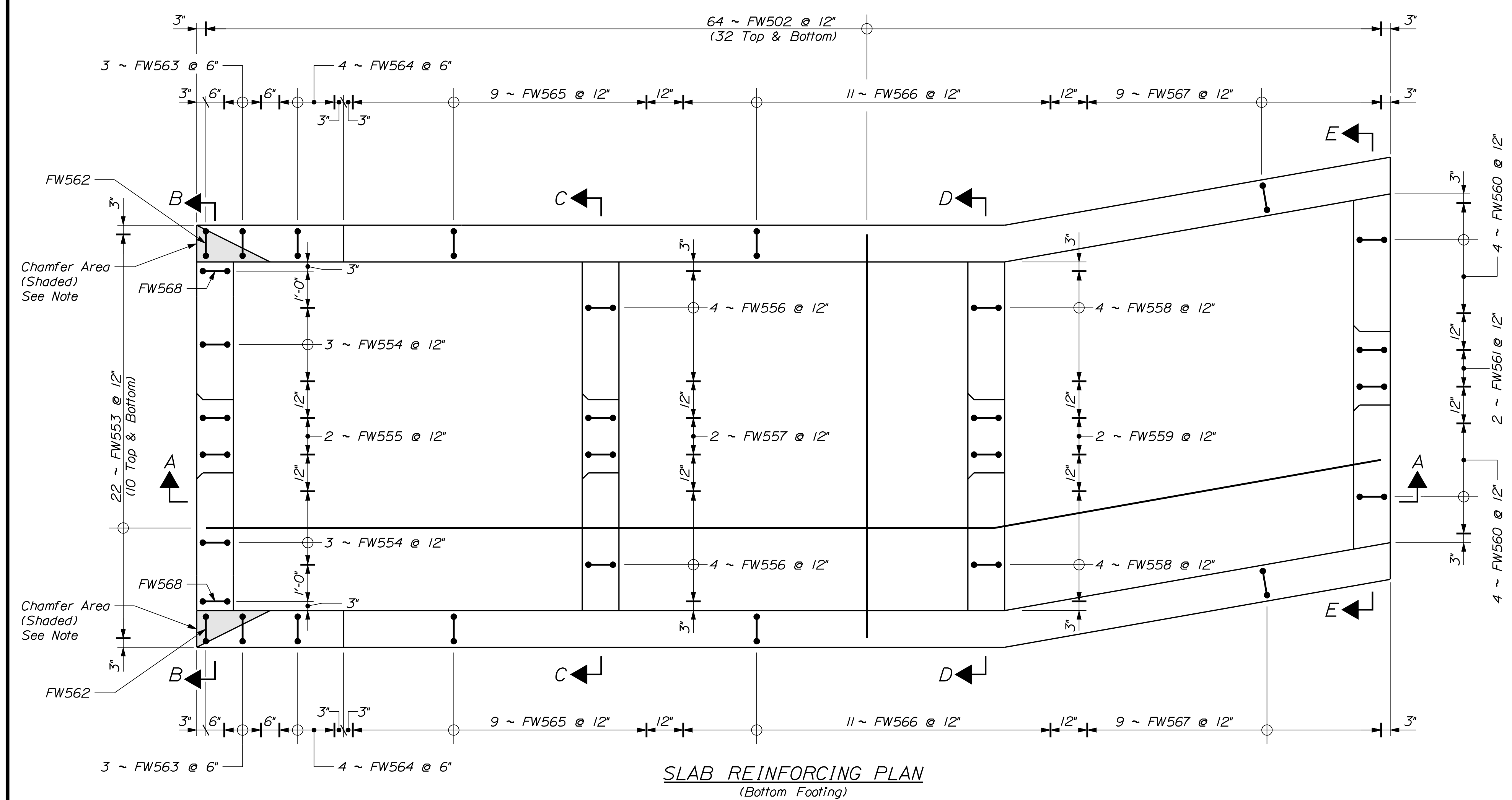
OF 9

Date: 12/15/2011

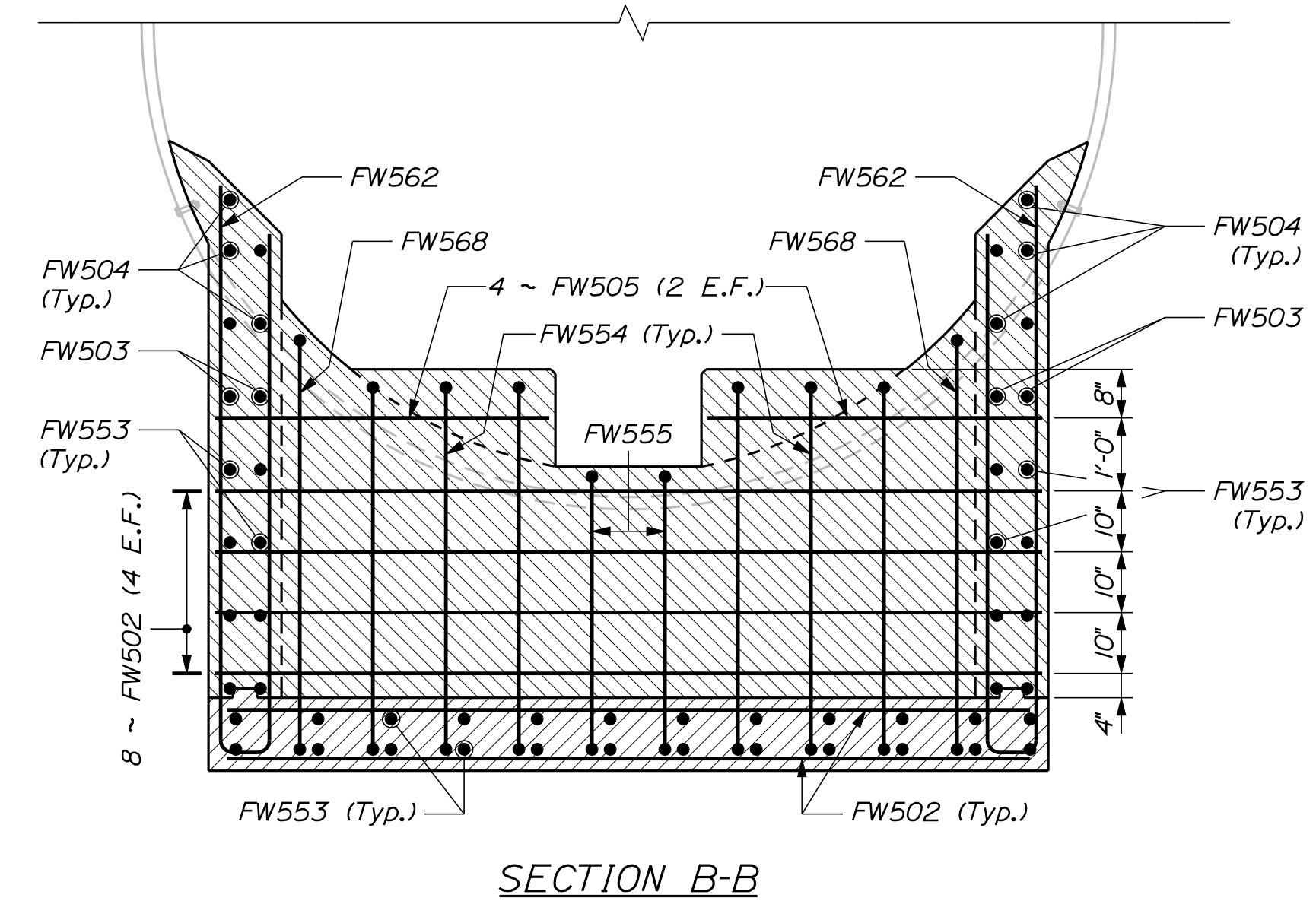
Username: Coy, Williams

Division: BRIDGE

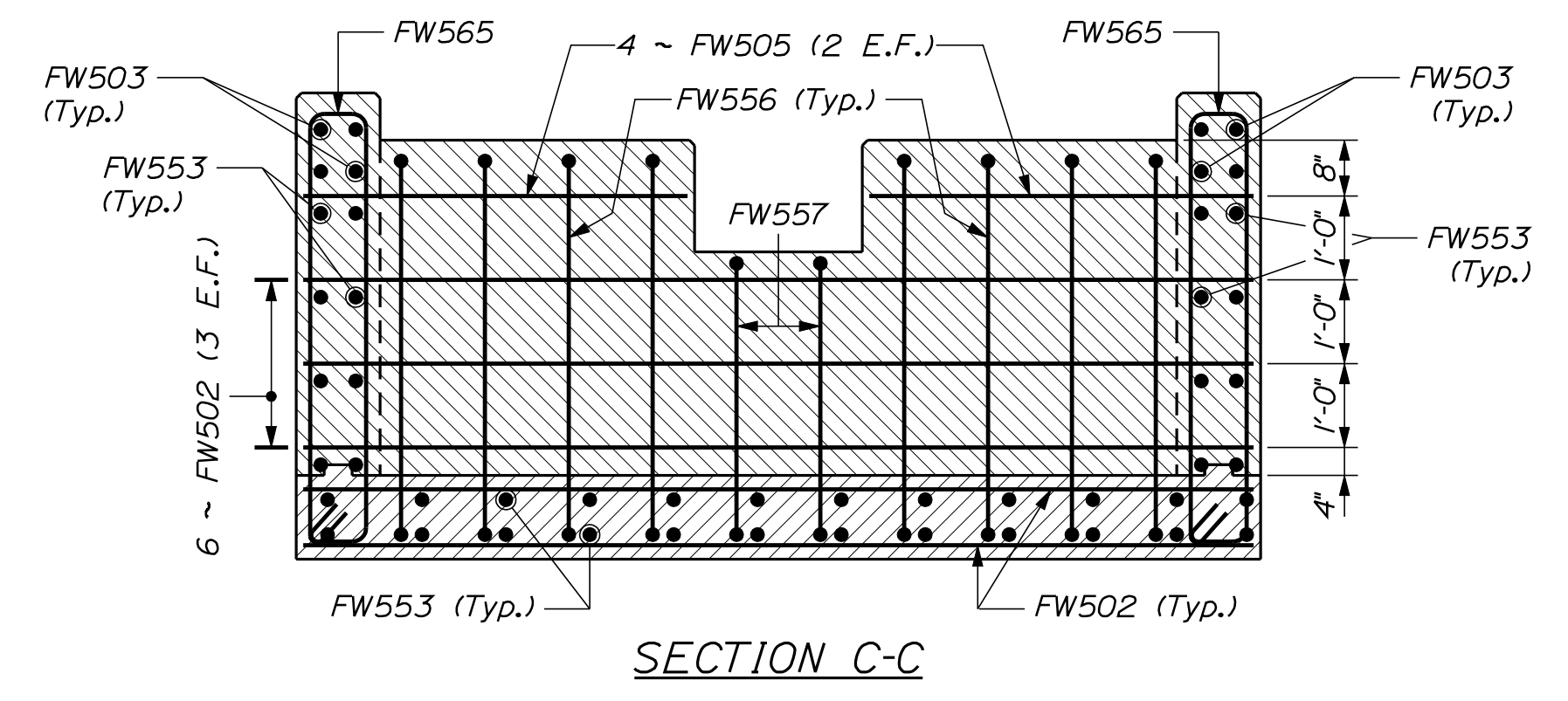
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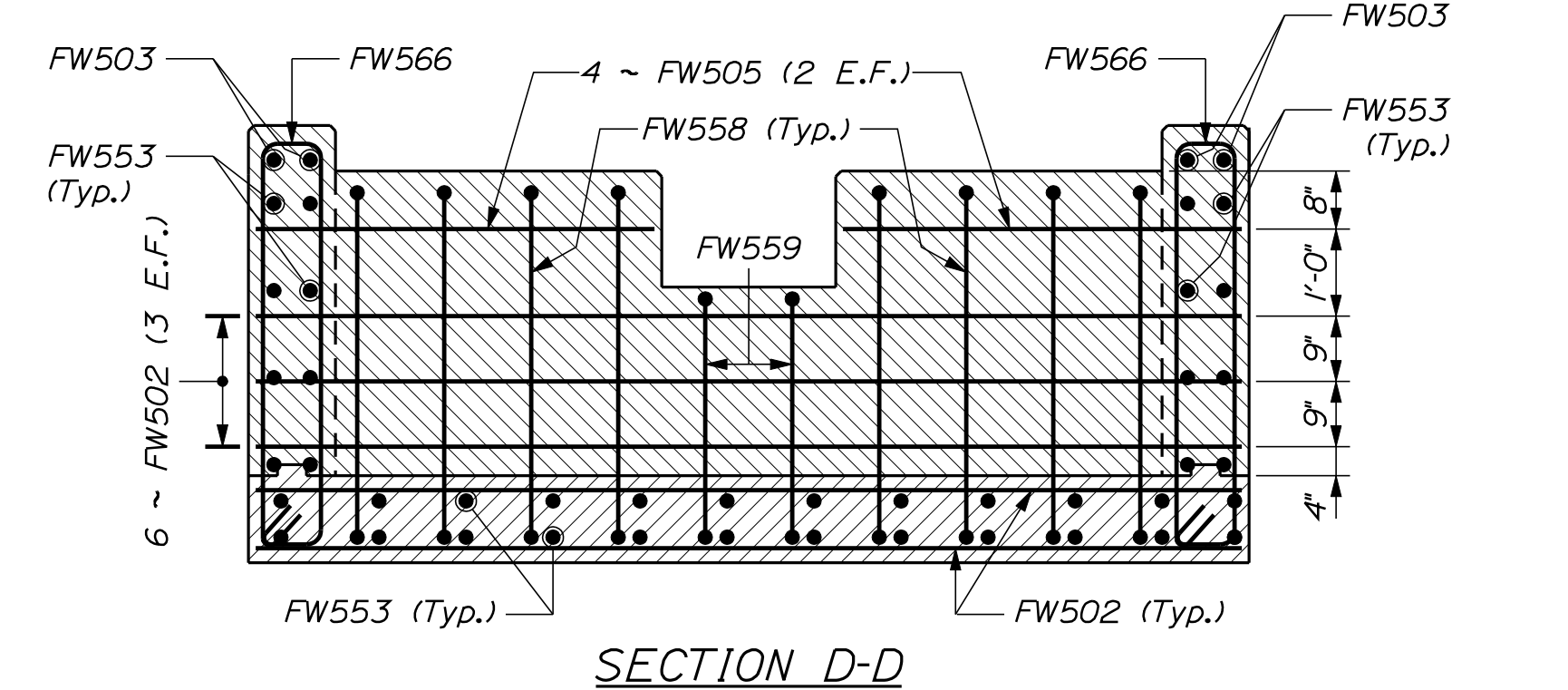
SLAB REINFORCING PLAN  
(Bottom Footing)



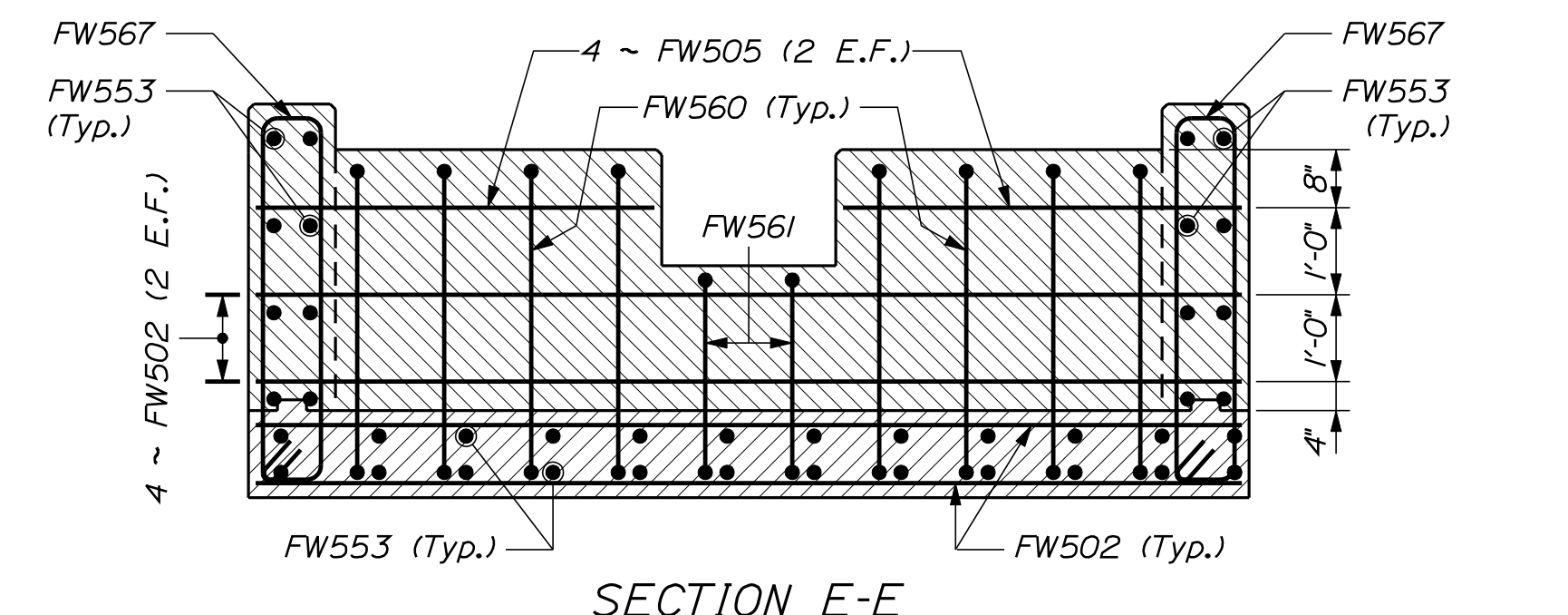
SECTION B-B



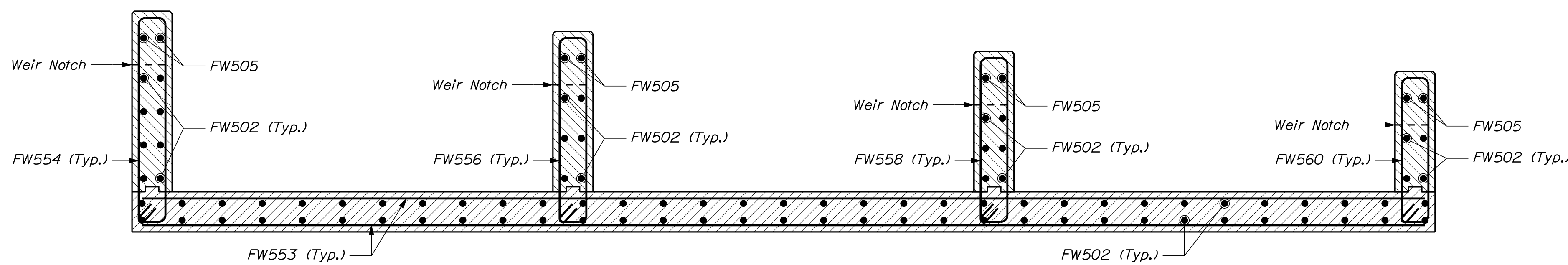
SECTION C-C



SECTION D-D

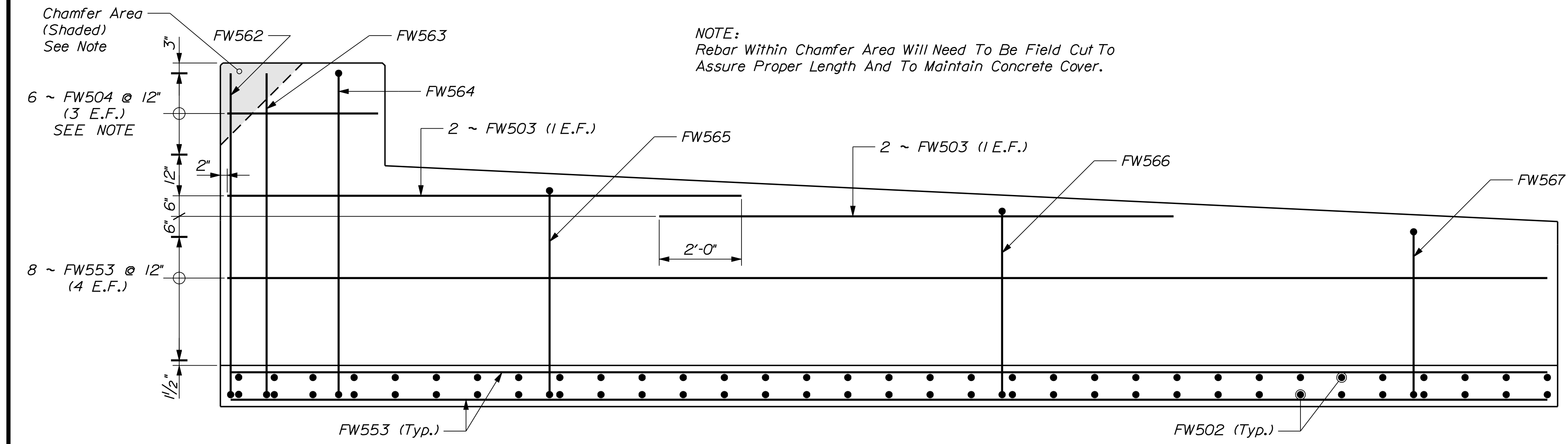


SECTION E-E



SECTION A-A

NOTE:  
Rebar Within Chamfer Area Will Need To Be Field Cut To Assure Proper Length And To Maintain Concrete Cover.

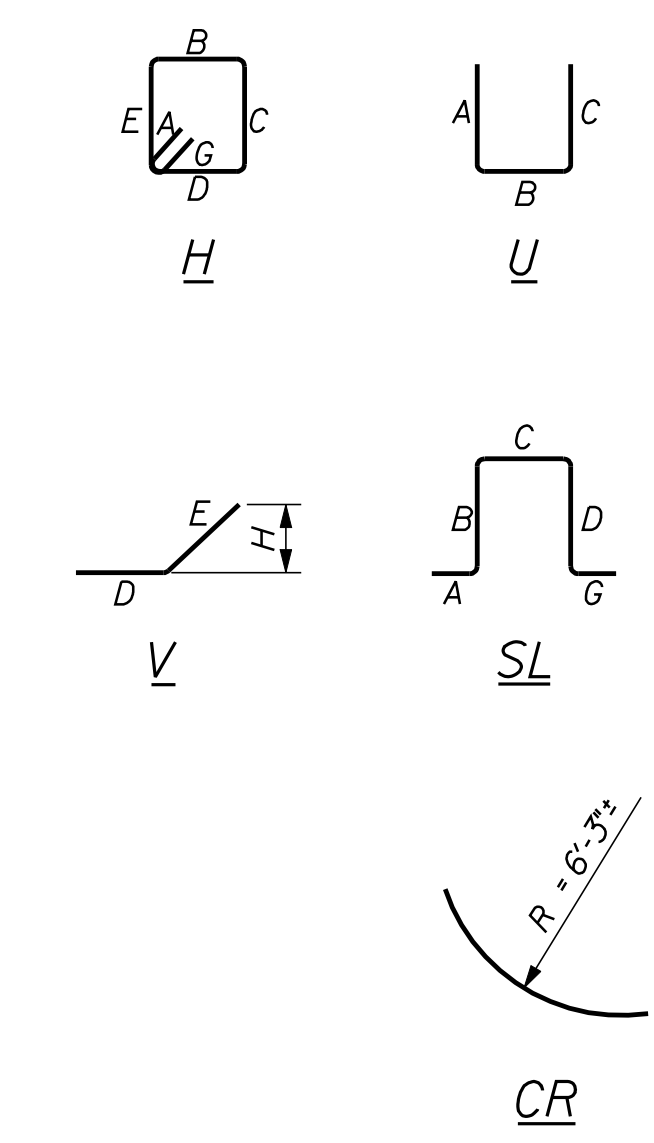


EXTERNAL FISH WEIR ELEVATION

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-1787(100)X		BRIDGE NO. 3271		PIN 17871.00	
HATHAN BOG BRIDGE		HATHAN BOG STREAM		FRANKLIN COUNTY		REINFORCING STEEL FOR		EXTERNAL FISH WEIR & POOL	
PROJ. MANAGER	CHECKED-DETAILED	BY	DATE	SIGNATURE	P.E. NUMBER	DATE	REVISIONS 1	REVISIONS 2	REVISIONS 3
S. BOODE	M. WIGHT	MWP					REVISIONS 4	FIELD CHANGES	
DESIGN-DETAILED	CHECKED-REVIEWED	BY	DATE	SIGNATURE	P.E. NUMBER	DATE	REVISIONS 1	REVISIONS 2	REVISIONS 3
B. NICHOLS	B. NICHOLS						REVISIONS 4	FIELD CHANGES	
DESIGN-DETAILED	DESIGN-DETAILED						REVISIONS 1	REVISIONS 2	REVISIONS 3
							REVISIONS 4	FIELD CHANGES	
SHEET NUMBER		7		OF 9					

STRAIGHT BARS				BENT BARS																		
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
A500	48	35'-6"	Invert Lining	A550	232	8'-9"	CR															Invert Lining
FW500	12	2'-2"	Internal Fish Weir	FW550	6	4'-10"	SL	10"	1'-3"	8"	1'-3"							10"				Internal Fish Weir
FW501	12	2'-4"	Internal Fish Weir	FW551	6	4'-4"	SL	10"	1'-0"	8"	1'-0"							10"				Internal Fish Weir
FW506	6	4'-0"	Internal Fish Weir	FW552	6	3'-4"	SL	10"	6"	8"	6"							10"				Internal Fish Weir
FW502	88	11'-0"	External Fish Weir	FW569	6	2'-8"	SL	6"	6"	8"	6"							6"				Internal Fish Weir
FW503	8	12'-6"	External Fish Weir	FW553	38	32'-2"	V					21'-5"	10'-8"						1'-10"			External Fish Weir
FW504	12	3'-8"	External Fish Weir	FW554	6	12'-7"	H	5/2"	8"	5'-2"	8"	5'-2"						5/2"				External Fish Weir
FW505	16	4'-7"	External Fish Weir	FW555	2	9'-11"	H	5/2"	8"	3'-10"	8"	3'-10"						5/2"				External Fish Weir
				FW556	8	11'-7"	H	5/2"	8"	4'-8"	8"	4'-8"						5/2"				External Fish Weir
				FW557	2	8'-11"	H	5/2"	8"	3'-4"	8"	3'-4"						5/2"				External Fish Weir
				FW558	8	10'-7"	H	5/2"	8"	4'-2"	8"	4'-2"						5/2"				External Fish Weir
				FW559	2	7'-11"	H	5/2"	8"	2'-10"	8"	2'-10"						5/2"				External Fish Weir
				FW560	8	9'-7"	H	5/2"	8"	3'-8"	8"	3'-8"						5/2"				External Fish Weir
				FW561	2	6'-11"	H	5/2"	8"	2'-4"	8"	2'-4"						5/2"				External Fish Weir
				FW562	2	15'-8"	U	8'-0"	8"	6'-3"												External Fish Weir
				FW563	6	14'-11"	U	8'-0"	8"	7'-0"												External Fish Weir
				FW564	8	18'-3"	H	5/2"	8"	8'-0"	8"	8'-0"						5/2"				External Fish Weir
				FW565	18	12'-5"	H	5/2"	8"	5'-1"	8"	5'-1"						5/2"				External Fish Weir
				FW566	22	11'-2"	H	5/2"	8"	4'-5"	8"	4'-5"						5/2"				External Fish Weir
				FW567	18	10'-5"	H	5/2"	8"	4'-1"	8"	4'-1"						5/2"				External Fish Weir
				FW568	2	13'-7"	H	5/2"	8"	5'-8"	8"	5'-8"						5/2"				External Fish Weir

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.  
 Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.  
 Reinforcing Bar: ASTM A615/A615M, Grade 60

GENERAL NOTES

- The first two digits following the letter(s) of the mark indicate the size of the bar:  
 Mark 'A502' = bar size #5  
 Mark 'P805' = bar size #8  
 Mark 'S650' = bar size #6
- Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

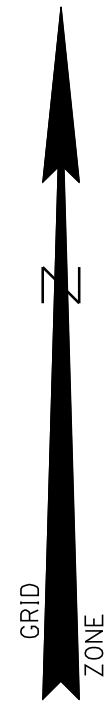
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		STP-1787(100)X		PIN 17871.00		BRIDGE NO. 3271		BRIDGE PLANS	
HATHAN BOG BRIDGE		HATHAN BOG STREAM		FRANKLIN COUNTY		REINFORCING		STEEL SCHEDULE		SHEET NUMBER	
CHAIN OF PONDS		FRANKLIN COUNTY		REINFORCING		STEEL SCHEDULE		SHEET NUMBER		8	
PROJ. MANAGER		S. BOOGE		BY		DATE		SIGNATURE		P.E. NUMBER	
DESIGN-DETAILED		M. WIGHT		MRP							
CHECKED-REVIEWED		B. NICHOLS									
DESIGNS-DETAILED											
REVISIONS 1											
REVISIONS 2											
REVISIONS 3											
REVISIONS 4											
FIELD CHANGES											

Date: 12/15/2011

Username: Coy.Williams

Division: BRIDGE

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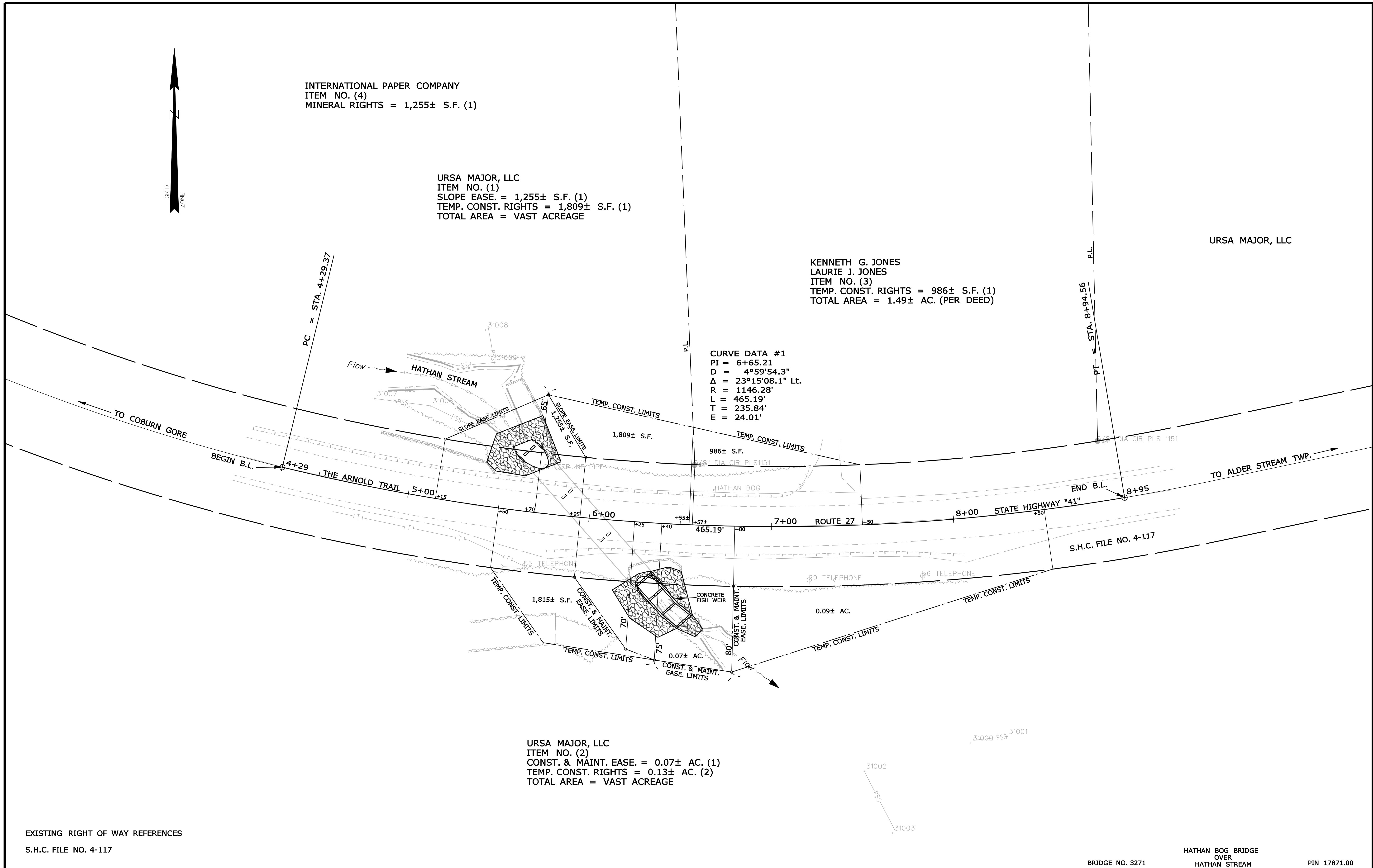
INTERNATIONAL PAPER COMPANY  
ITEM NO. (4)  
MINERAL RIGHTS = 1,255± S.F. (1)

URSA MAJOR, LLC  
ITEM NO. (1)  
SLOPE EASE = 1,255± S.F. (1)  
TEMP. CONST. RIGHTS = 1,809± S.F. (1)  
TOTAL AREA = VAST ACREAGE

KENNETH G. JONES  
LAURIE J. JONES  
ITEM NO. (3)  
TEMP. CONST. RIGHTS = 986± S.F. (1)  
TOTAL AREA = 1.49± AC. (PER DEED)

URSA MAJOR, LLC

CURVE DATA #1  
PI = 6+65.21  
D = 4°59'54.3"  
Δ = 23°15'08.1" Lt.  
R = 1146.28'  
L = 465.19'  
T = 235.84'  
E = 24.01'



URSA MAJOR, LLC  
ITEM NO. (2)  
CONST. & MAINT. EASE. = 0.07± AC. (1)  
TEMP. CONST. RIGHTS = 0.13± AC. (2)  
TOTAL AREA = VAST ACREAGE

EXISTING RIGHT OF WAY REFERENCES  
S.H.C. FILE NO. 4-117

BRIDGE NO. 3271 HATHAN BOG BRIDGE OVER HATHAN STREAM PIN 17871.00

**SYMBOLS**

●	IP or PIP (IRON PIPE or PIN FOUND)
□	S.T. (SEPTIC TANK)
△	ABM (TRANSVERSE POINT)
—	GRADING LIMIT LINE
- - -	CONSTRUCTION LIMIT LINE
—	PROPERTY LINE
—	LIMITS OF WROUGHT PORTION (L.O.W.P.)
—	EXISTING RIGHT OF WAY
—	NEW RIGHT OF WAY
—	NEW ROW WITHIN EXIST. ROW
—	CONTROL OF ACCESS
○	WELL
—	WATER LINE
—	GAS LINE
—	ELECTRIC LINE
—	TELEPHONE LINE
—	SEWER LINE

ITEM	TECH	CHECKED
BASE MAP		
EXIST. R/W	PNS	
PROP. LINES	PNS	
AREAS		

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
16 STATE HOUSE STATION - AUGUSTA, ME. 04333-0016  
CHAIN OF PONDS TWP.  
RIGHT OF WAY MAP

REVISIONS			PLAN FILED IN PLAN BOOK				COUNTY RECORD				DAVID BERNHARDT COMMISSIONER	
NO.	DATE	DESCRIPTION	NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE	COND.	11/7/11		3390

KENNETH L. SWEENEY  
CHIEF ENGINEER

DATE

To the best of my knowledge and belief, this map constitutes an accurate graphical representation of the Highway Right of Way lines shown hereon. Other boundary lines, including lines between abutters, are approximate and for general reference only. See sheet X of this plan set for reference coordinates.

STATE HIGHWAY "41"  
ROUTE 27 ARNOLD TRAIL  
T2 R6 WBKP - CHAIN OF PONDS FRANKLIN COUNTY  
FEDERAL AID PROJECT NO. STP-1787(100)X  
AUGUST 2011 RIGHT-OF-WAY MAP  
SCALE 1" = 25' SHEET 1 OF 1  
D.O.T. FILE NO. 4-247

SHEET NUMBER  
**9**  
OF 9