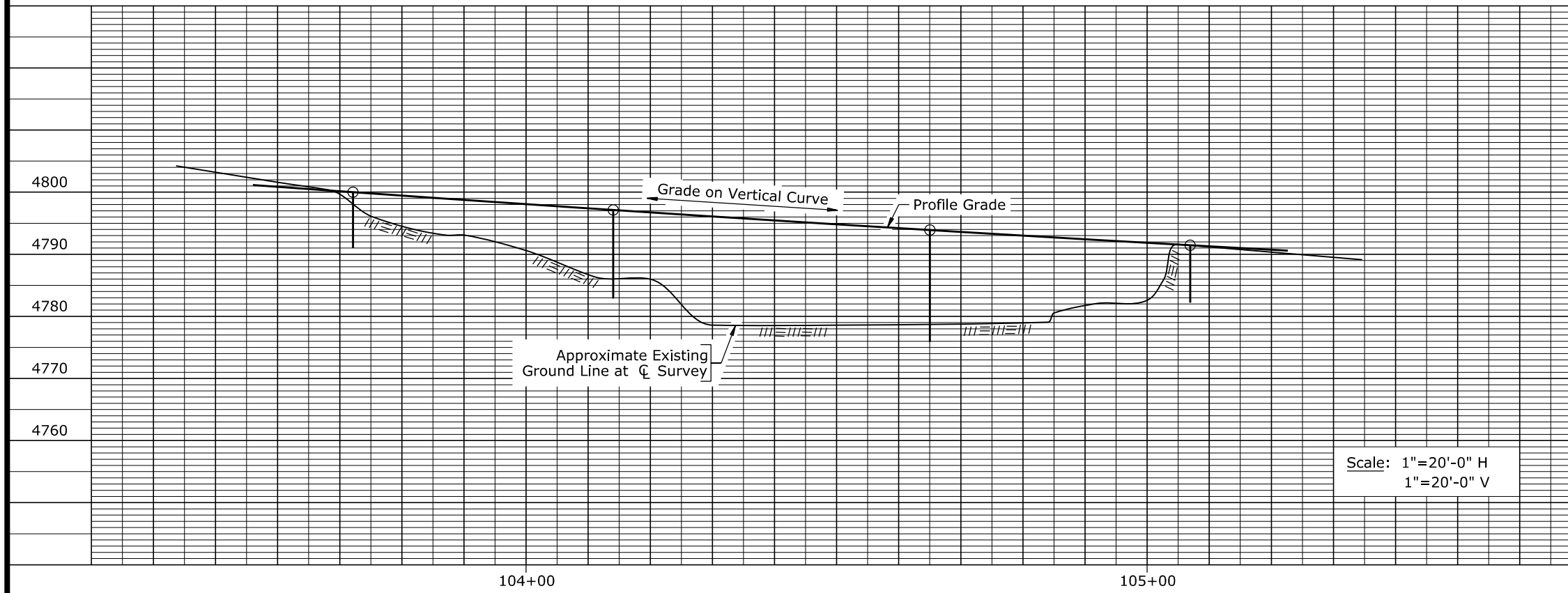
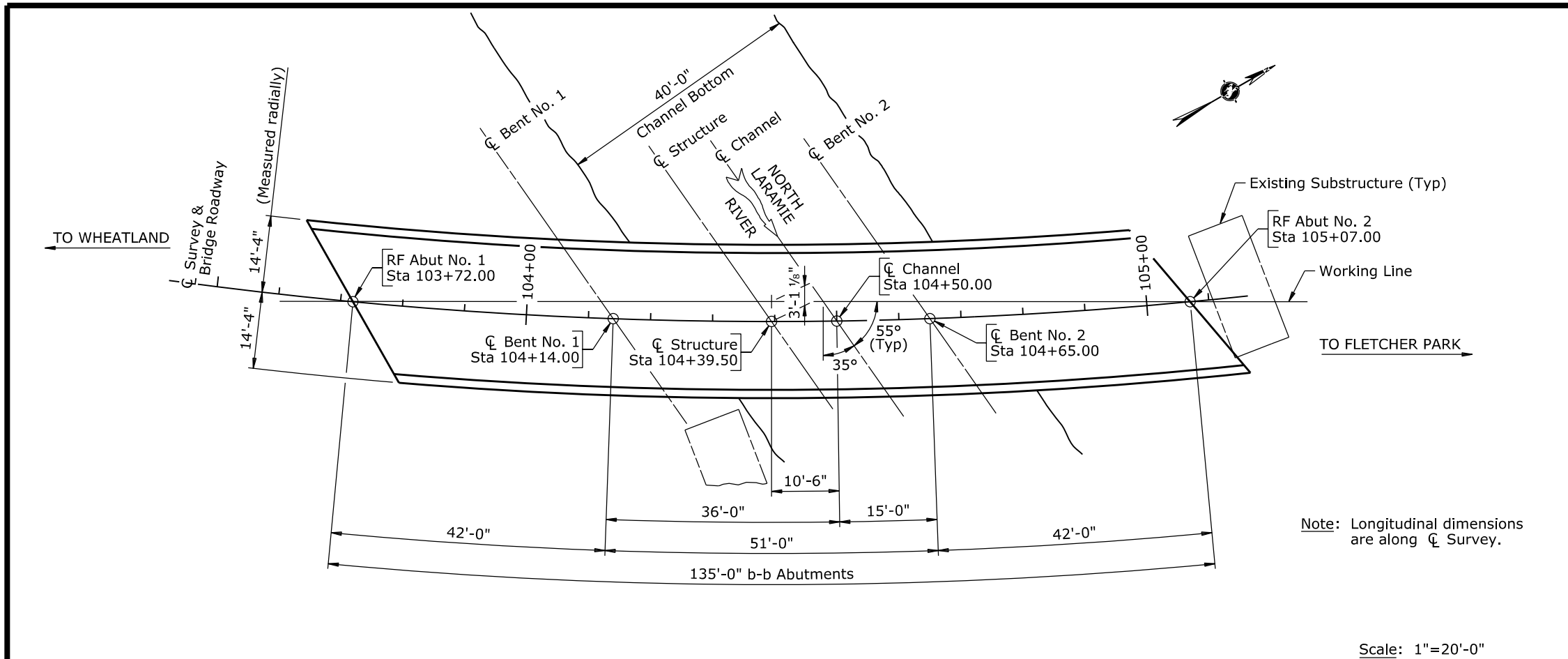


Nov 2018

4.01 - Example



GEOLOGY

Geologist: _____
 Rig: _____
 Project Geologist: _____
 Date Drilled: _____
 Driller: _____

Circulation Medium	
Air	
Water	
Auger	

Remarks: Obtain alkali sample.

 Obtain necessary foundation information to complete LRFD design.

LAYOUT APPROVAL

State Bridge Engineer _____ Date _____

WYOMING DEPARTMENT OF TRANSPORTATION
 BRIDGE PROGRAM
PRELIMINARY GEOLOGY LAYOUT
BRIDGE OVER NORTH LARAMIE RIVER
STA 104+44
Fletcher Park Road
 0800005 PI

DESIGN: _____
 DETAIL: BBB ✓ EEE ✓
 QTY'S: _____
 Design Section L M Nop
 Drwg No. _____ Sheet 1 of 1

Section 4.01 - Preliminary

BRIDGE OVER NORTH LARAMIE RIVER

STA 104+44

FLETCHER PARK ROAD

0800005

PLATTE COUNTY

PRELIMINARY

DESIGN DATA

SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 8th Edition. AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition.

ADT: 50 (Year 2013)

LOADING: HL93. Future wearing surface 25 psf. Stay-in-place forms 15 psf.

REINFORCED CONCRETE: Load and Resistance Factor Design - Class A Concrete $f'_c = 4000$ psi
Reinforcing Steel $f_y = 60,000$ psi (Grade 60)

STRUCTURAL STEEL: Load and Resistance Factor Design - $F_y = 50,000$ psi (Grade 50W)

APPROACH ROADWAY WIDTH: 25'-4"

FOOTING PRESSURES: Load and Resistance Factor Design - Abutment No. 1, X Tsf

PILE LOADS: Load and Resistance Factor Design - Abutment No. 2, X T per pile
Bents, X T per pile

ELASTOMERIC BEARING LOADS: Load and Resistance Factor Design - Bents: Service Dead Load = X kips
Service Live Load = X kips

SEISMIC CRITERIA: Seismic Design Category X
Effective Peak Ground Acceleration Coefficient, $A_s = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 1.0 Second Period, $S_{D1} = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 0.2 Second Period, $S_{D5} = X.XXX$
Site Class X
5% Damping

ESTIMATED QUANTITIES - CODE 11-DQQ				
ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ESTIMATE
202.03210	REMOVAL OF STEEL BRIDGES	EA	X	
212.02100	DRY EXCAVATION	CY	X	
212.03900	PERVIOUS BACKFILL MATERIAL	CY	X	
217.01010	GEOTEXTILE, EROSION CONROL	SY	X	
501.01000	STRUCTURAL STEEL	LS	LUMP SUM	X LB
503.01000	BRIDGE RAILING	FT	X	
504.04000	PREDRILLED HOLES	FT	X	
504.04010	PILE SPLICES	EA	X	
504.11042	STEEL PILING HP 10 X 42	FT	X	
504.11473	STEEL PILING HP 14 X 73	FT	X	
511.06000	MACHINE-PLACED RIPRAP	CY	X	
513.00005	CLASS A CONCRETE	LS	LUMP SUM	X CY
514.00015	REINFORCING STEEL	LS	LUMP SUM	X LB
514.00025	REINFORCING STEEL (COATED)	LS	LUMP SUM	X LB
900.60000	CONTRACTOR QUALITY CONTROL (CONCRETE)	LS	LUMP SUM	

INDEX OF DRAWINGS

Drawing:	Sheet No.
Title Sheet -----	1
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Riprap Details -----	5
Log Boring Sheet -----	6
Abutment No. 1 Details -----	7
Abutment No. 2 Details -----	8
Bent No. 1 Details -----	9
Bent No. 2 Details -----	10
Superstructure Details -----	11-13
Bridge Railing Details -----	14-15
Slab Details -----	16-17
Reference Sheets -----	BX-BX

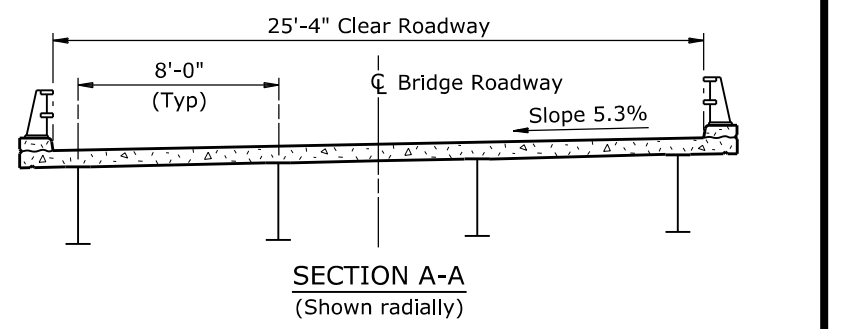
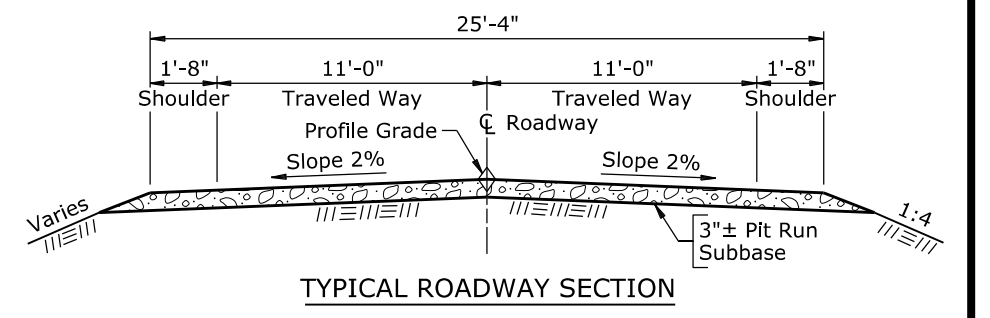
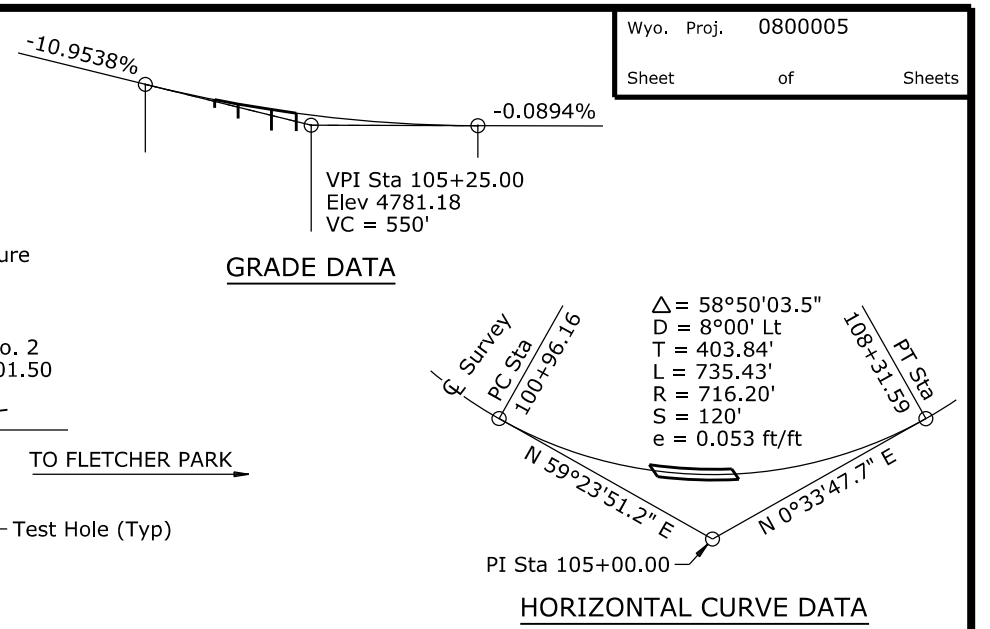
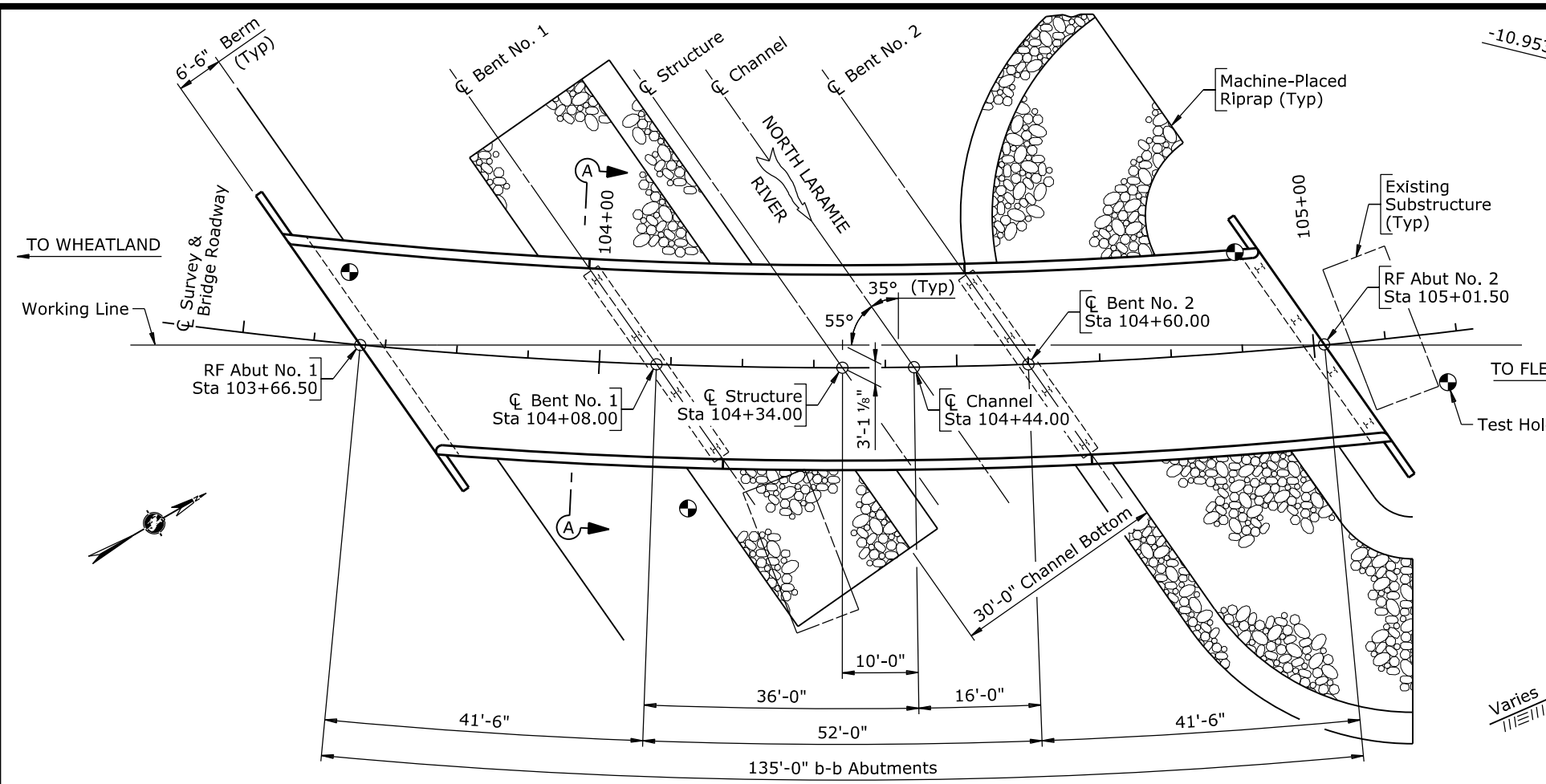
STRUCTURE NO. KEX
ML8079B, RM 1.43
SEC 69, T6N, R25W

WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
REVISIONS			
REVIEW _____	DESIGN _____	Design Section	L M Nop
APPROVAL _____	DETAIL <u>BBB</u> <u>EEE</u>	Drwg No. P-0003	Sheet 1 of 3
	QTY'S _____		

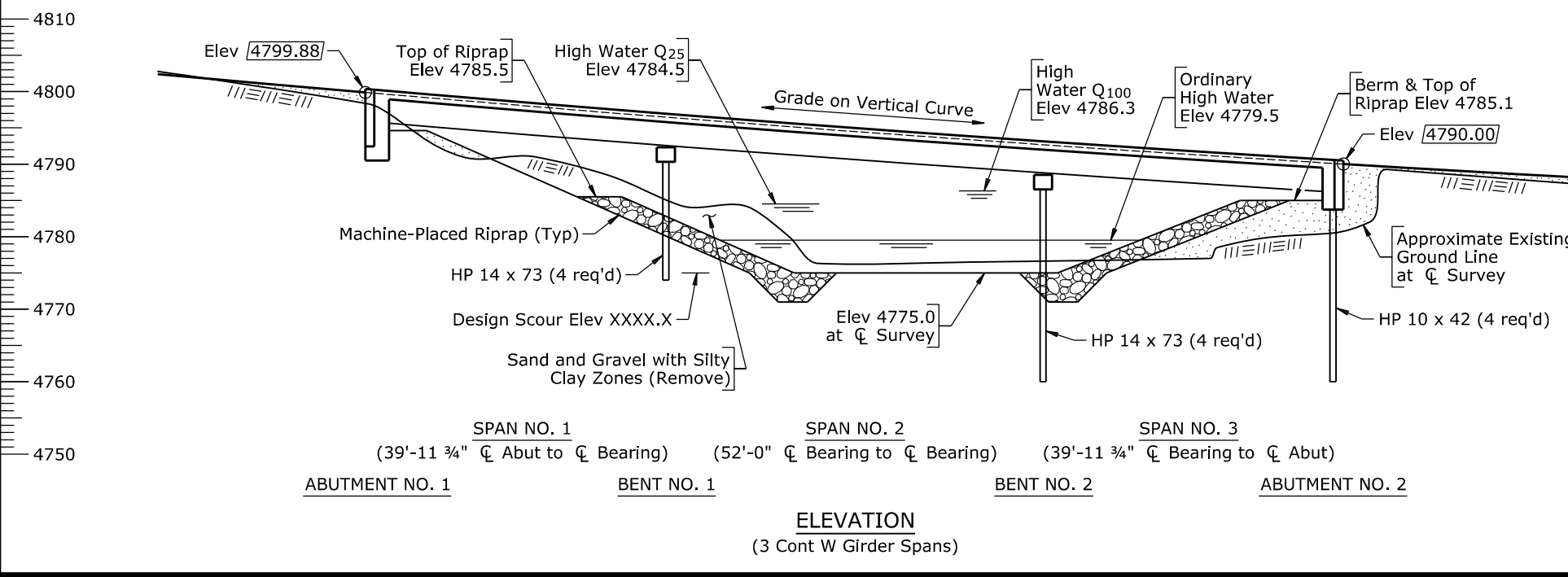
Nov 2018

4.01 - Example

Wyo. Proj. 0800005
 Sheet of Sheets



- Note: 1) Elevations shown as $\overline{4790.00}$ indicate finished grade at rear face abutment on ϕ Bridge Roadway.
 2) Berm slopes are 1:2±, measured perpendicular to ϕ Channel.
 3) Replace the existing bridge, Structure No. DQQ, with the new bridge, Structure No. KEX.



WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
PRELIMINARY LAYOUT			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	AAA	Design Section	L M Nop
DETAIL	G G G	Drwg No. P-0003	Sheet 3 of 3
REVIEW			
APPROVAL			

Section 4.01 - Preliminary

BRIDGE OVER NORTH LARAMIE RIVER

STA 104+44

FLETCHER PARK ROAD

0800005

PLATTE COUNTY

DESIGN DATA

SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 8th Edition. AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition.

ADT: 50 (Year 2013)

LOADING: HL93. Future wearing surface 25 psf. Stay-in-place forms 15 psf.

REINFORCED CONCRETE: Load and Resistance Factor Design -
Class A Concrete $f'_c = 4000$ psi
Reinforcing Steel $f_y = 60,000$ psi (Grade 60)

STRUCTURAL STEEL: Load and Resistance Factor Design -
 $F_y = 50,000$ psi (Grade 50W)

APPROACH ROADWAY WIDTH: 25'-4"

FOOTING PRESSURES: Load and Resistance Factor Design -
Abutment No. 1, 2.0 Tsf

PILE LOADS: Load and Resistance Factor Design -
Abutment No. 2, 52.4 T per pile
Bents, 49.3 T per pile

ELASTOMERIC BEARING LOADS: Load and Resistance Factor Design -
Bents: Service Dead Load = 102.4 kips
Service Live Load = 97.7 kips

SEISMIC CRITERIA: Seismic Design Category X
Effective Peak Ground Acceleration Coefficient, $A_s = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 1.0 Second Period, $S_{DI} = X.XXX$
Design Earthquake Response Spectral Acceleration Coefficient for 0.2 Second Period, $S_{DS} = X.XXX$
Site Class X
5% Damping

ESTIMATED QUANTITIES - CODE 11-DQQ

ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ESTIMATE
202.03210	REMOVAL OF STEEL BRIDGES	EA	1	85,600 LB
212.02100	DRY EXCAVATION	CY	80	
212.03900	PERVIOUS BACKFILL MATERIAL	CY	15	
217.01010	GEOTEXTILE, EROSION CONROL	SY	2310	
501.01000	STRUCTURAL STEEL	LS	LUMP SUM	
503.01000	BRIDGE RAILING	FT	271	
504.04000	PREDRILLED HOLES	FT	200	
504.04010	PILE SPLICES	EA	1	
504.11042	STEEL PILING HP 10 X 42	FT	96	
504.11473	STEEL PILING HP 14 X 73	FT	208	
511.06000	MACHINE-PLACED RIPRAP	CY	640	170.7 CY 5730 LB 28,350 LB
513.00005	CLASS A CONCRETE	LS	LUMP SUM	
514.00015	REINFORCING STEEL	LS	LUMP SUM	
514.00025	REINFORCING STEEL (COATED)	LS	LUMP SUM	
900.60000	CONTRACTOR QUALITY CONTROL (CONCRETE)	LS	LUMP SUM	

INDEX OF DRAWINGS

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Abutment No. 2 Details	9
Bent No. 1 Details	10
Bent No. 2 Details	11
Superstructure Details	12-14
Bridge Railing Details	15-16
Slab Details	17-19
Reference Sheets	B20-B21

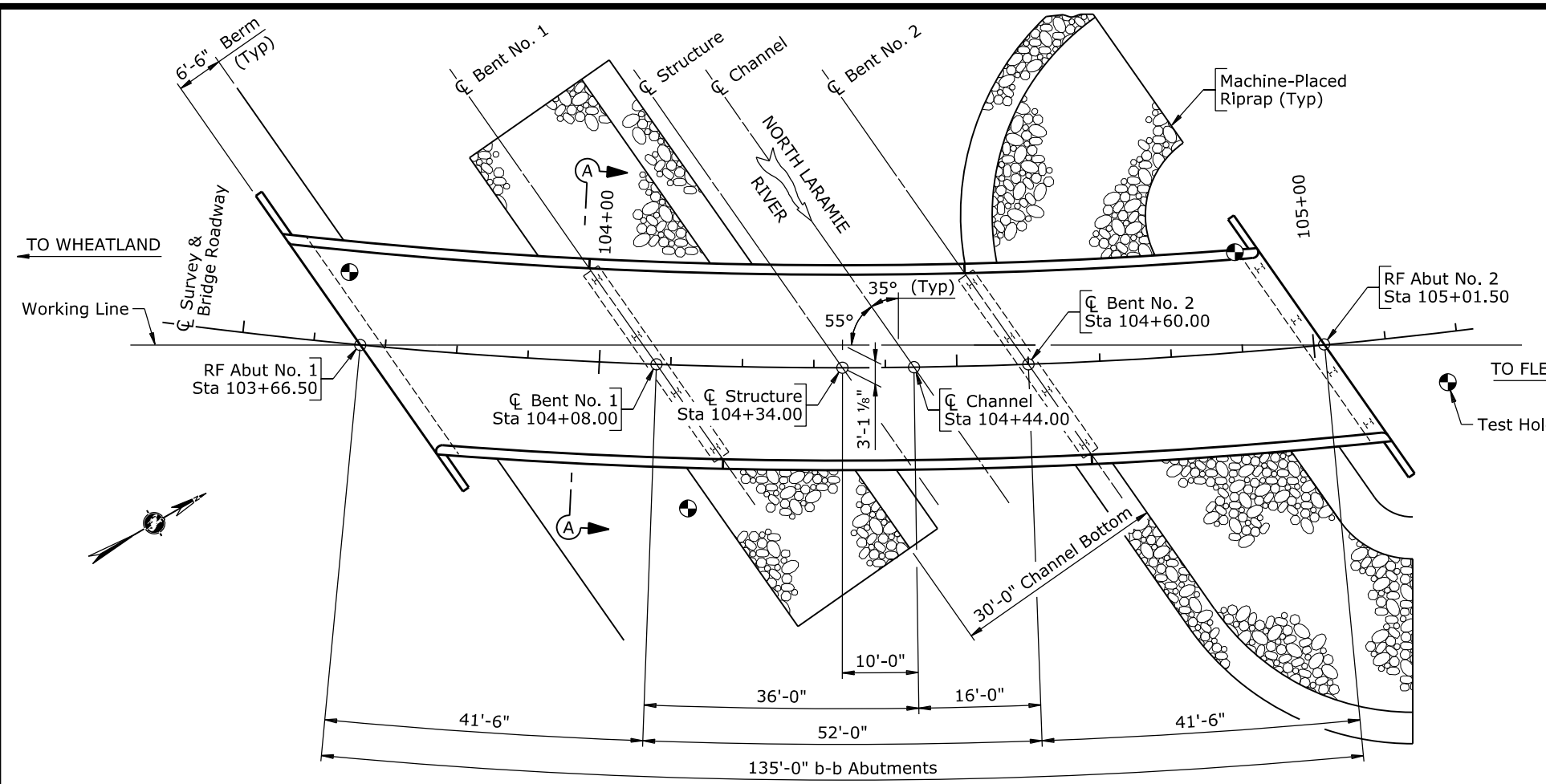
STRUCTURE NO. KEX
ML8079B, RM 1.43
SEC 69, T6N, R25W

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS			
DESIGN	_____	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No. 0003	Sheet 1 of 19
APPROVAL	_____	QTY'S	_____

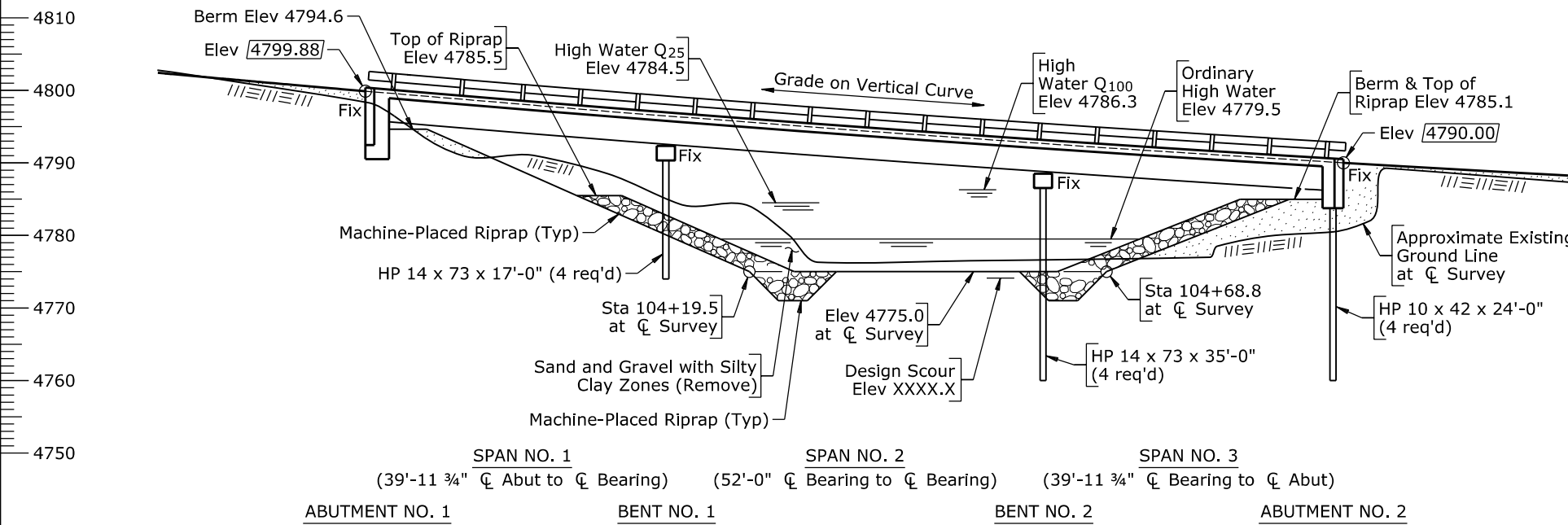
Nov 2018

4.03 - Example

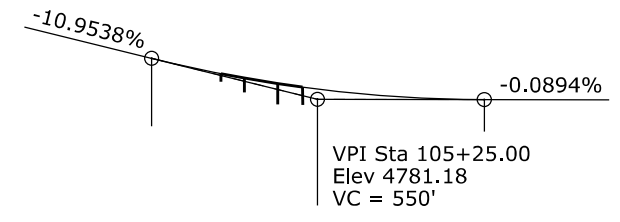
Wyo. Proj. 0800005
 Sheet B3 of B21 Sheets



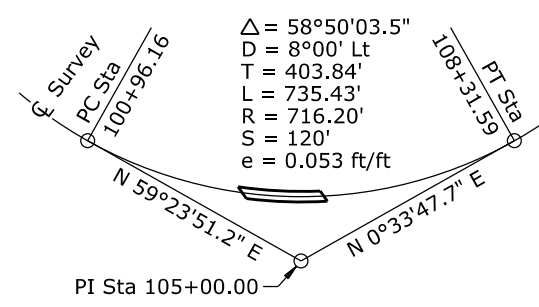
PLAN
 (Longitudinal dimensions are along ϕ Survey)



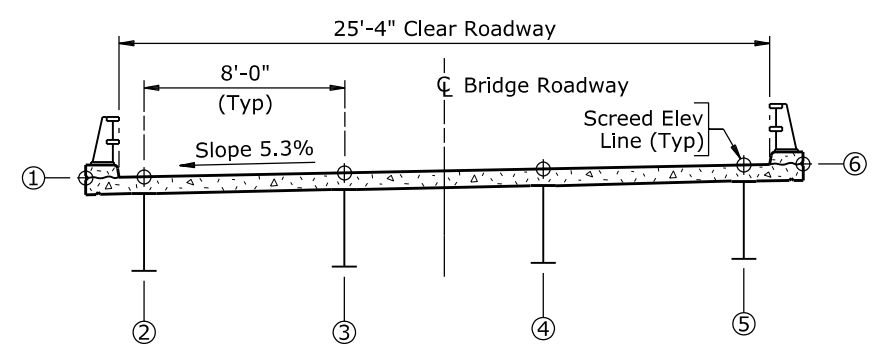
ELEVATION
 (3 Cont W Girder Spans)



GRADE DATA



HORIZONTAL CURVE DATA

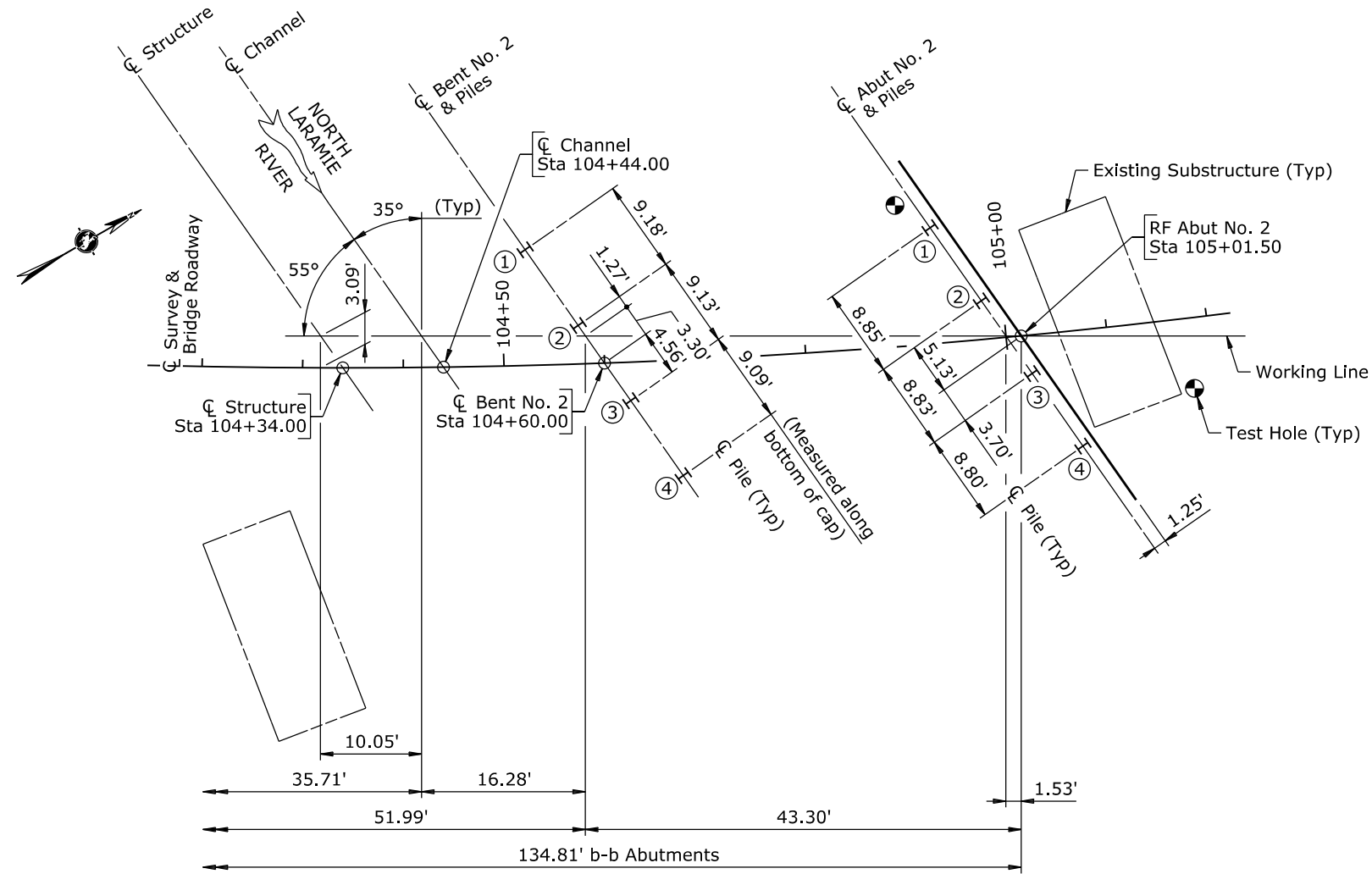


SECTION A-A
 (Shown radially)

Note: 1) Elevations shown as 4790.00 indicate finished grade at rear face abutment on ϕ Bridge Roadway.
 2) Berm slopes are 1:2±, measured perpendicular to ϕ Channel.

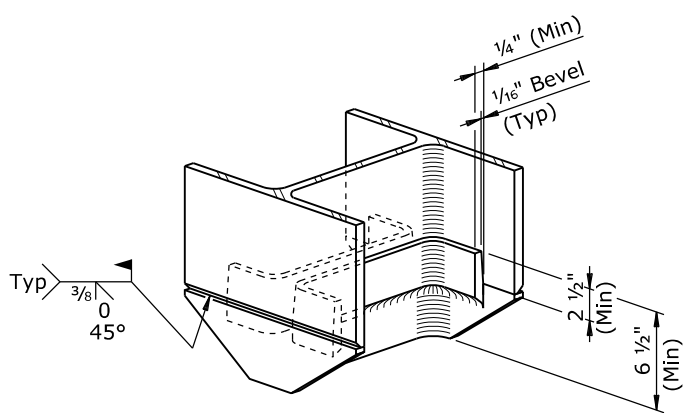
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		GENERAL PLAN AND ELEVATION	
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	AAA	Design Section	L M Nop
DETAIL	GGG	Drwg No. 0003	Sheet 3 of 19
APPROVAL	QTY'S		

Section 4.03 - General Plan and Elevation

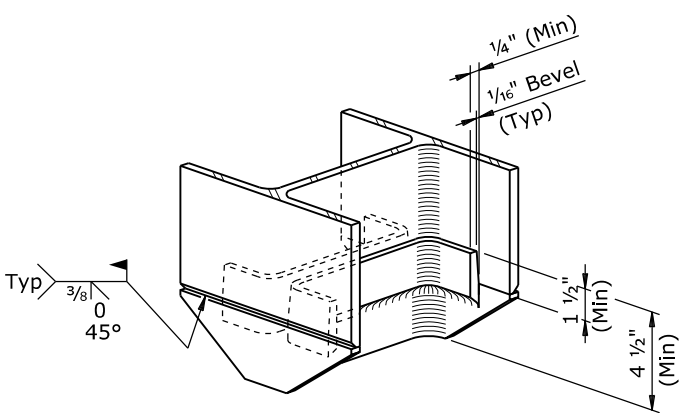


HALF SUBSTRUCTURE LAYOUT
 (Longitudinal dimensions are along working line)

SUBSTRUCTURE DATA		
Location	Pile Elevations	
	Piles No. ① - ④	
	Top	Bottom
Bent No. 2	4787.99	4752.99
Abut No. 2	4784.62	4760.62



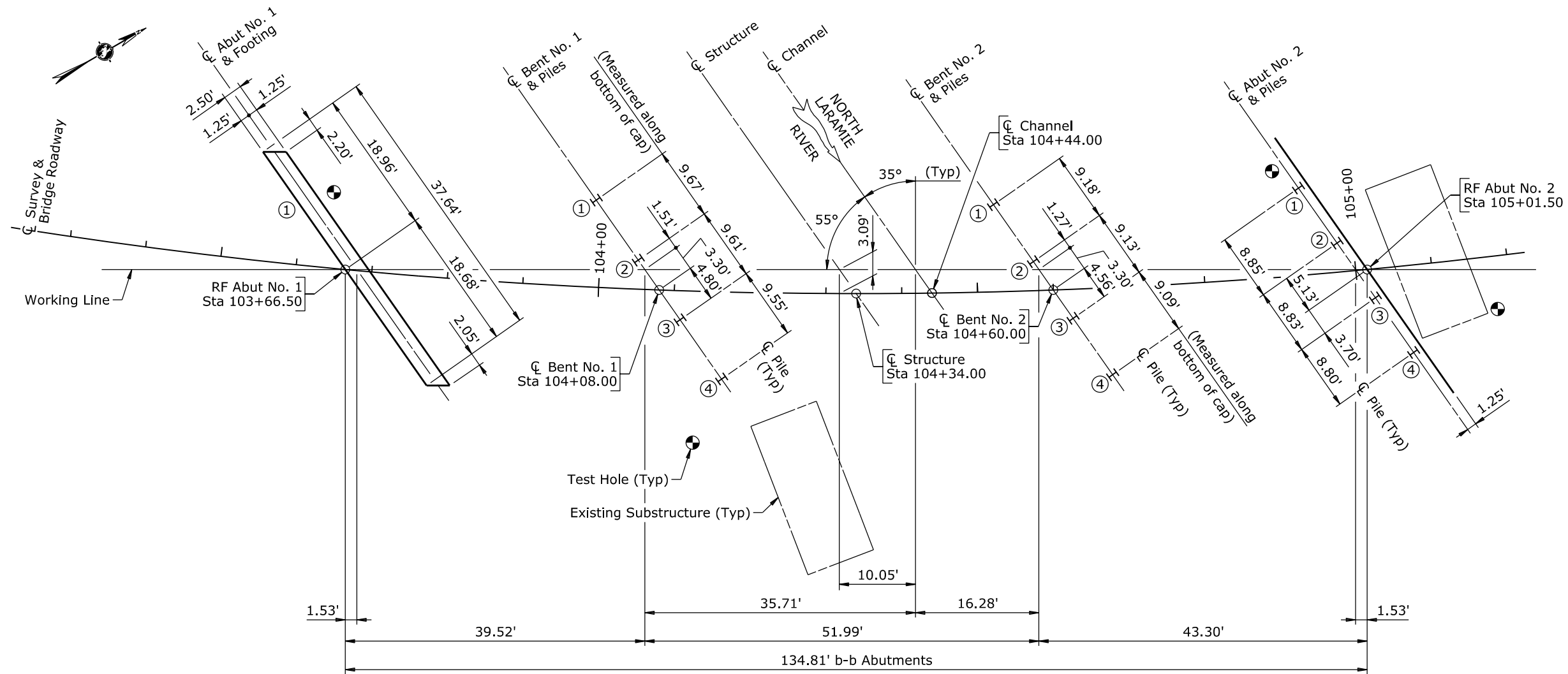
PILE POINT DETAIL
 (8 required for HP 14 x 73 at bents)



PILE POINT DETAIL
 (4 required for HP 10 x 42 at Abut No. 2)

- Note: 1) Piles at Bent No. 2 are HP 14 x 73.
 2) Piles at Abutment No. 2 are HP 10 x 42.
 3) Piles No. ① and ④ at Bent No. 2 are battered.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SUBSTRUCTURE LAYOUT			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	AAA	Design Section	L M Nop
DETAIL	GGG	Drwg No. 0003	Sheet 5 of 19
APPROVAL			

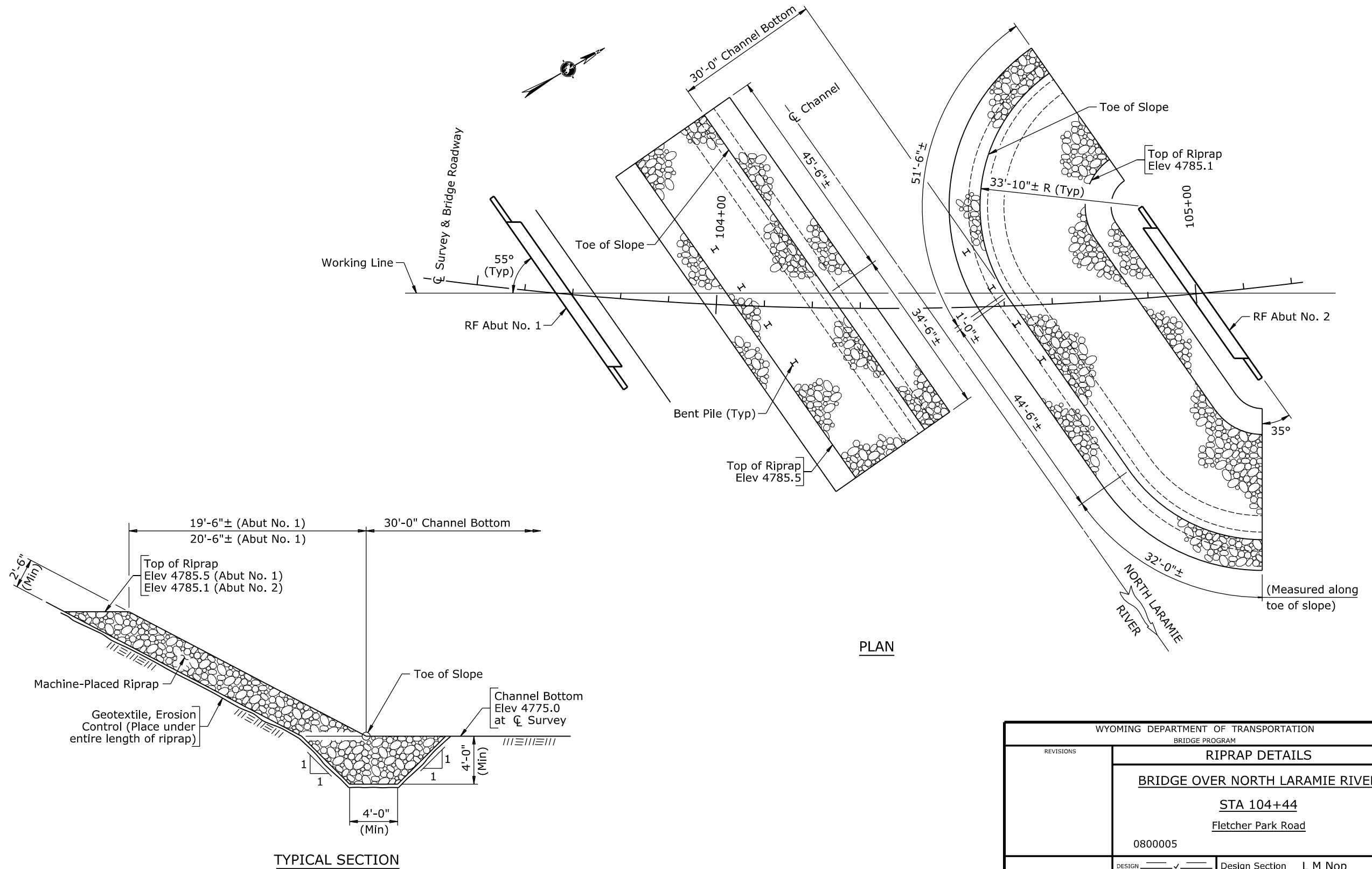


SUBSTRUCTURE LAYOUT
 (Longitudinal dimensions are along working line)

SUBSTRUCTURE DATA			
Location	Pile Elevations		Bottom of Footing Elevation
	Piles No. ① - ④		
	Top	Bottom	
Abut No. 1	—	—	4792.00
Bent No. 1	4791.83	4774.83	—
Bent No. 2	4787.99	4752.99	—
Abut No. 2	4784.62	4760.62	—

Note: 1) Piles at Abutment No. 2 are HP 10 x 42, piles at bents are HP 14 x 73.
 2) Piles No. ① and ④ at bents are battered.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
FINAL GEOLOGY LAYOUT			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005			PI
DESIGN	BBB	EEE	Design Section L M Nop
DETAIL	BBB	EEE	Drwg No.
APPROVAL	QTY'S		Sheet 1 of 1



Section 4.05 - Riprap and Gabions

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		RIPRAP DETAILS	
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
		0800005	PI
DESIGN	AAA ✓ GGG	Design Section L M Nop	
DETAIL	CCC ✓ AAA	Drwg No. 0003	Sheet 6 of 19
REVIEW			
APPROVAL			

SUMMARY OF LABORATORY TEST DATA

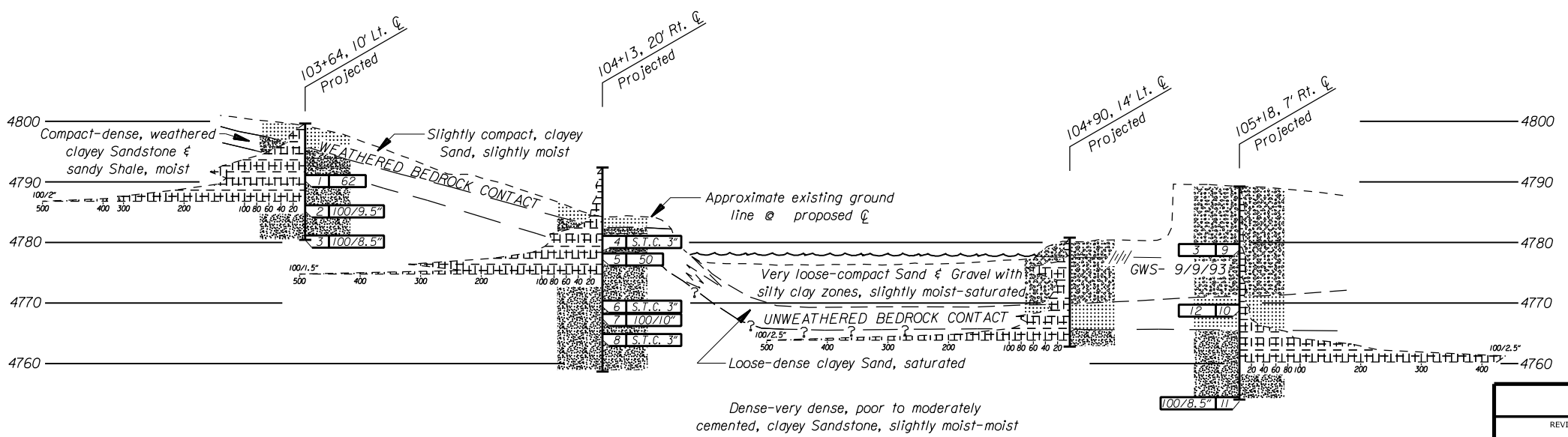
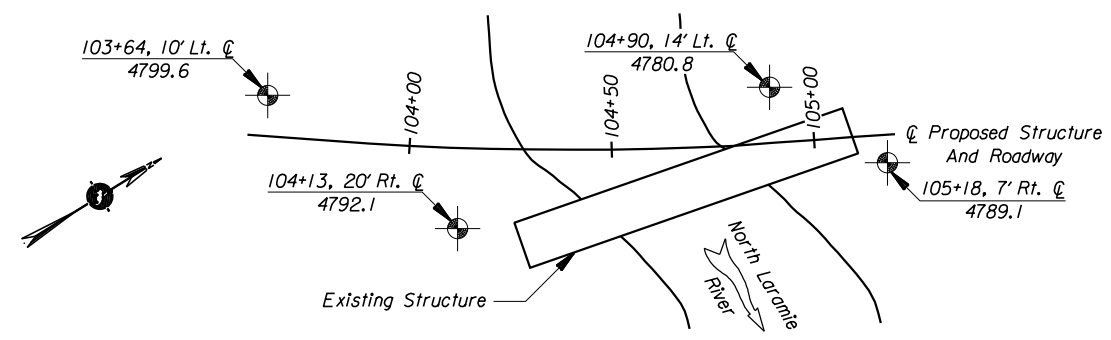
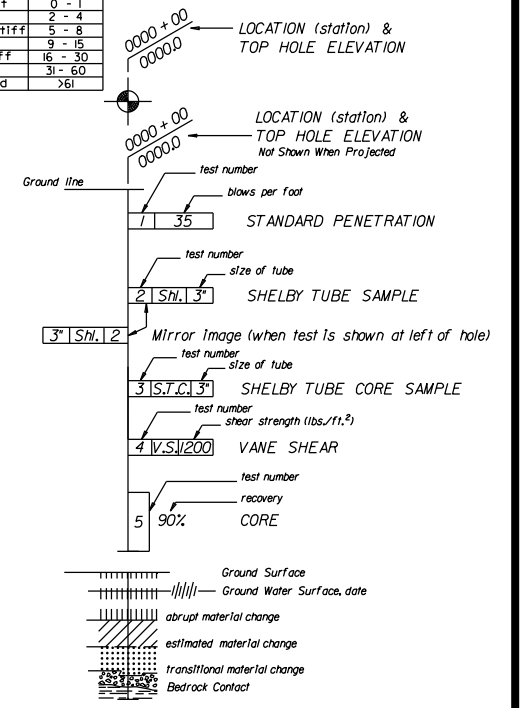
Table with 14 columns: TEST NO., LOCATION (station), ELEVATION, BLOWS Per Ft., SIEVE ANALYSIS - % PASSING (#10, #40, #200), LIQUID LIMIT, PLASTIC INDEX, DENSITY NET PCF, MOIST. % DRY WT., SPECIFIC GRAVITY, SHEAR STRENGTH - PEAK - lb./ft.², UNIFIED & AASHTO CLASSIFICATION, UNIT COHESION lb./ft.², φ MAXIMUM, % SATURATION, REMARKS. Rows 1-11 show test results for various soil samples.

UNIFIED SOIL CLASSIFICATION
GW - Well graded gravel
GP - Poorly graded gravel
GM - Silty sandy gravel
GC - Clayey gravel
SW - Well graded sand
SP - Poorly graded sand
SM - Silty sand
SC - Clayey sand
ML - Inorganic silt, slight plasticity
CL - Inorganic clay, medium plasticity
OL - Organic silt and silty clay, low plasticity
MH - Inorganic elastic silt
CH - Inorganic clay, high plasticity
L.L. greater than 50%
OH - Organic clay, medium to high plasticity
PT - Peat and other highly organic soils

STRENGTH CLASS DEFINITION - BASED ON BLOWS/FT. - STANDARD PENETRATION
Table with 4 columns: CONSISTENCY GRANULAR, BLOWS PER FT., CONSISTENCY COHESIVE, BLOWS PER FT.
Very Loose 0-4, Loose 5-10, Medium Dense 11-24, Dense 25-50, Very Dense >51
Very Soft 0-1, Soft 2-4, Medium Stiff 5-8, Stiff 9-15, Very Stiff 16-30, Hard 31-60, Very Hard >61

Wyo. Proj. 0800005
Sheet B7 of B21 Sheets

GROUND WATER SURFACE
Not Encountered
As Shown, measured - Date (s) 9/9/93
Borings shown made with: Auger Rig [X] 4001, Rotary Rig
Classification of earth material on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis unless otherwise noted.

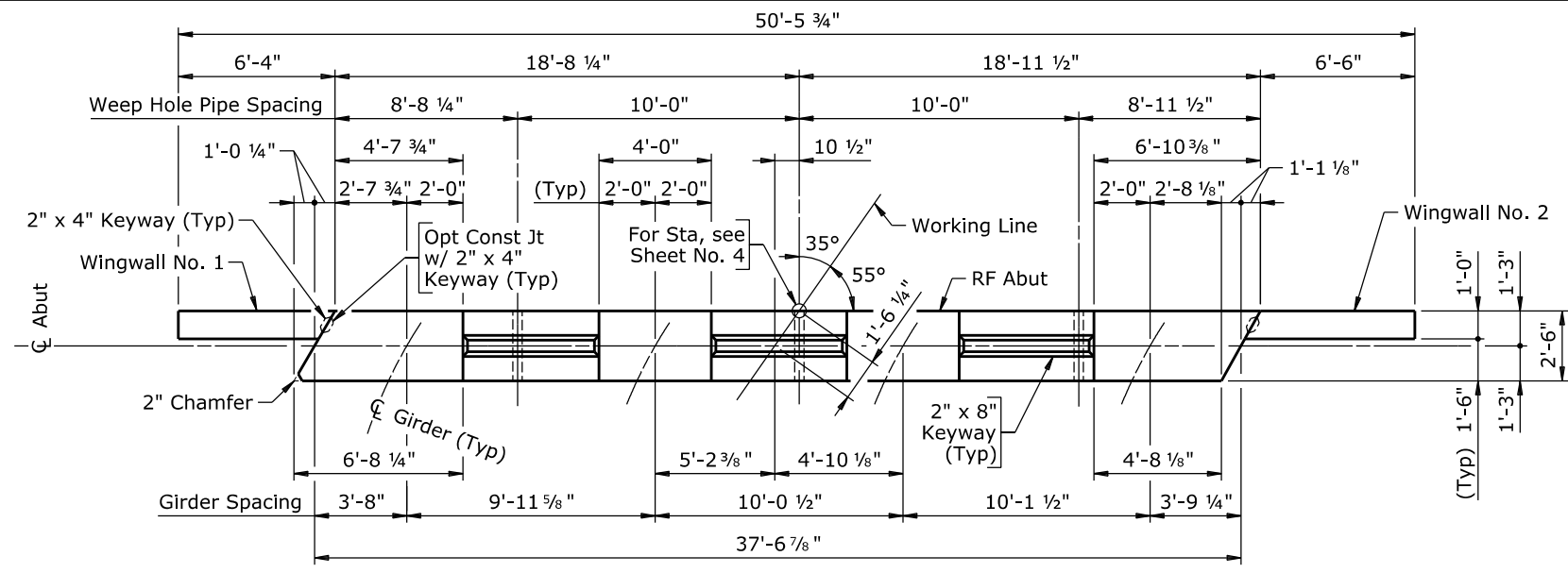


WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM
LOG BORING SHEET
BRIDGE OVER NORTH LARAMIE RIVER
STA 104+44
Fletcher Park Road
0800005 PI
Design Section L M Nop
Drwg No. 0003 Sheet 7 of 19

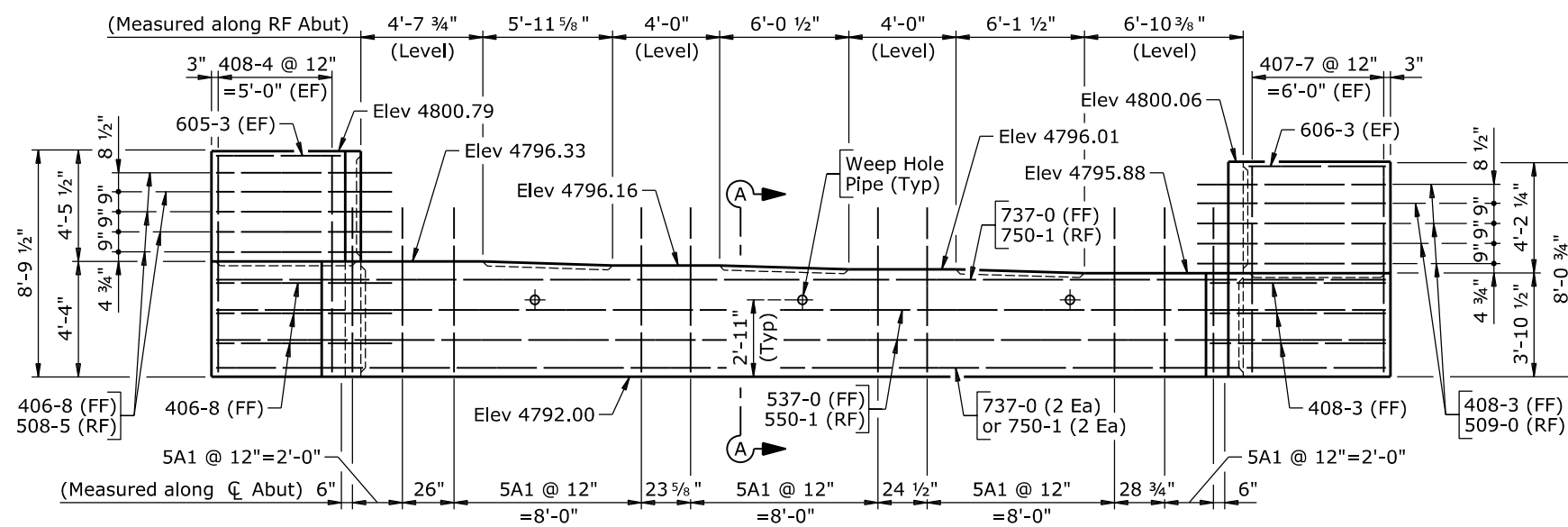
Nov 2019

4.07 - Example

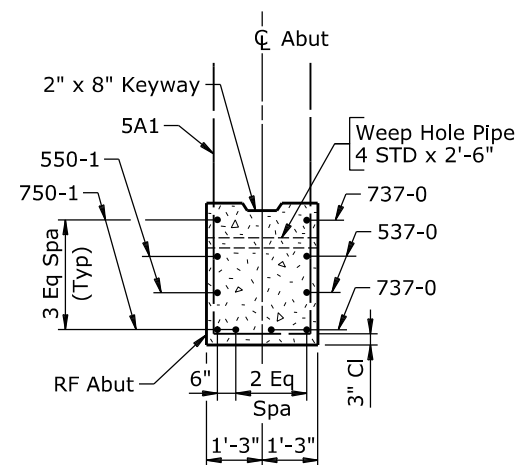
Wyo. Proj. 0800005
 Sheet B8 of B21 Sheets



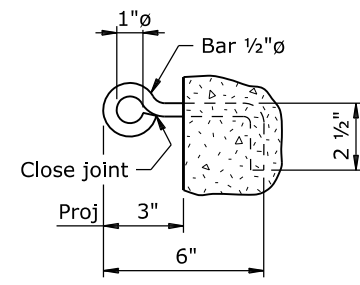
PLAN



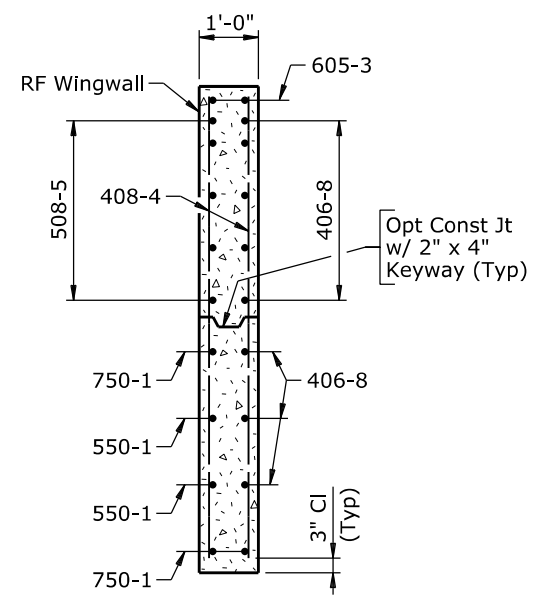
ELEVATION
(Looking back station)



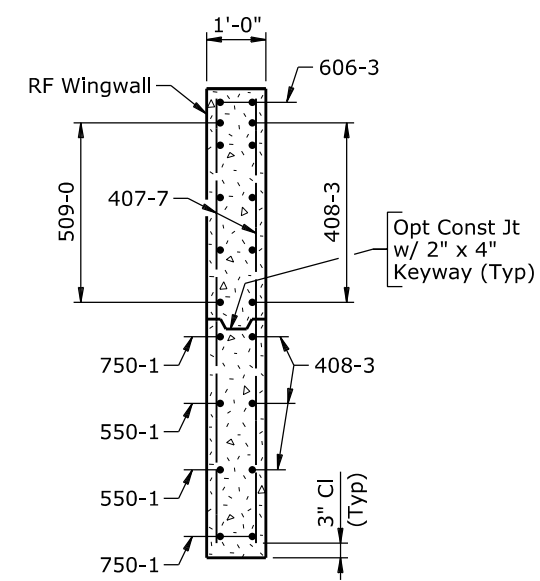
SECTION A-A



EYEBOLT DETAIL
(8 req'd for securing fence)

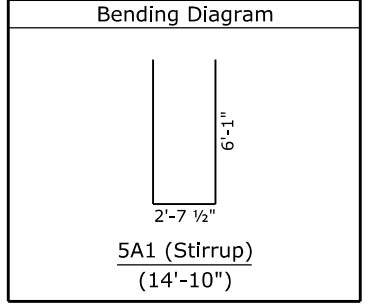


WINGWALL NO. 1 SECTION



WINGWALL NO. 2 SECTION

BILL OF REINFORCEMENT		
Location	Mark	Number Required
Cap	406-8	3
	408-3	3
	5A1	33
	537-0	2
	550-1	2
	737-0	3
	750-1	3
	Weight	1257 LB
Wingwalls	406-8	5
	407-7	14
	408-3	5
	408-4	12
	508-5	5
	509-0	5
	605-3	2
606-3	2	
	Weight	314 LB

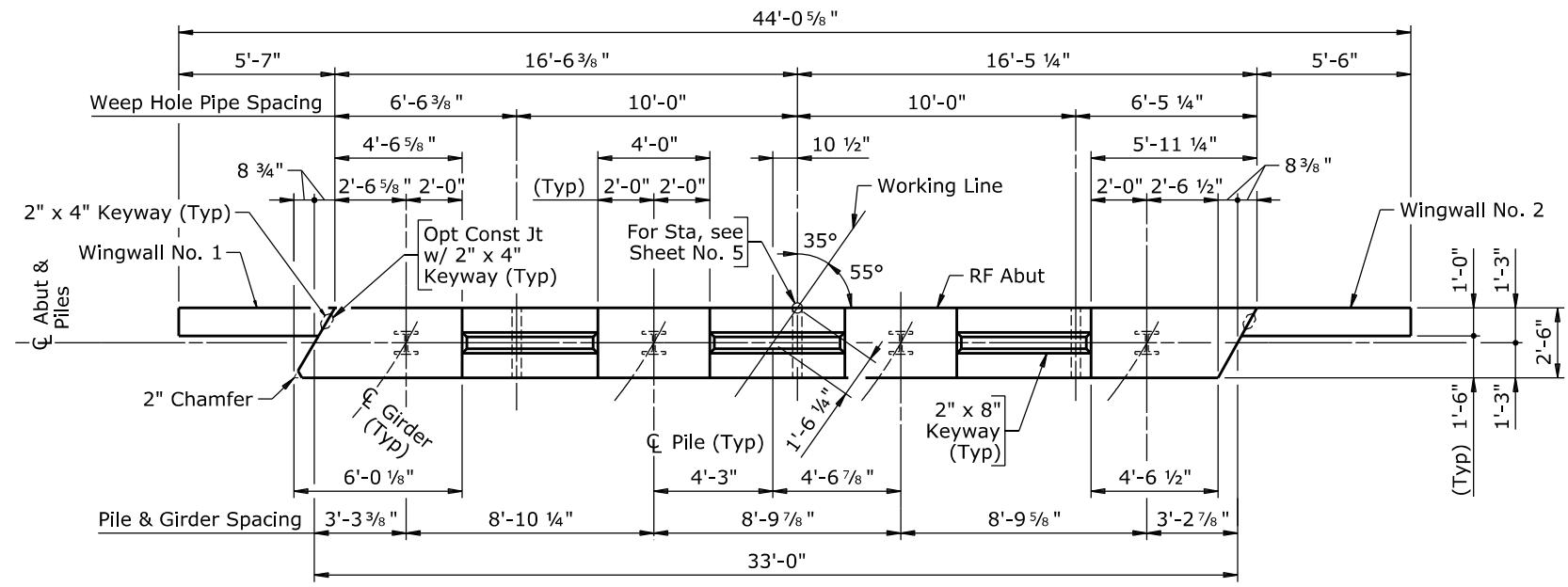


5A1 (Stirrup)
(14'-10")

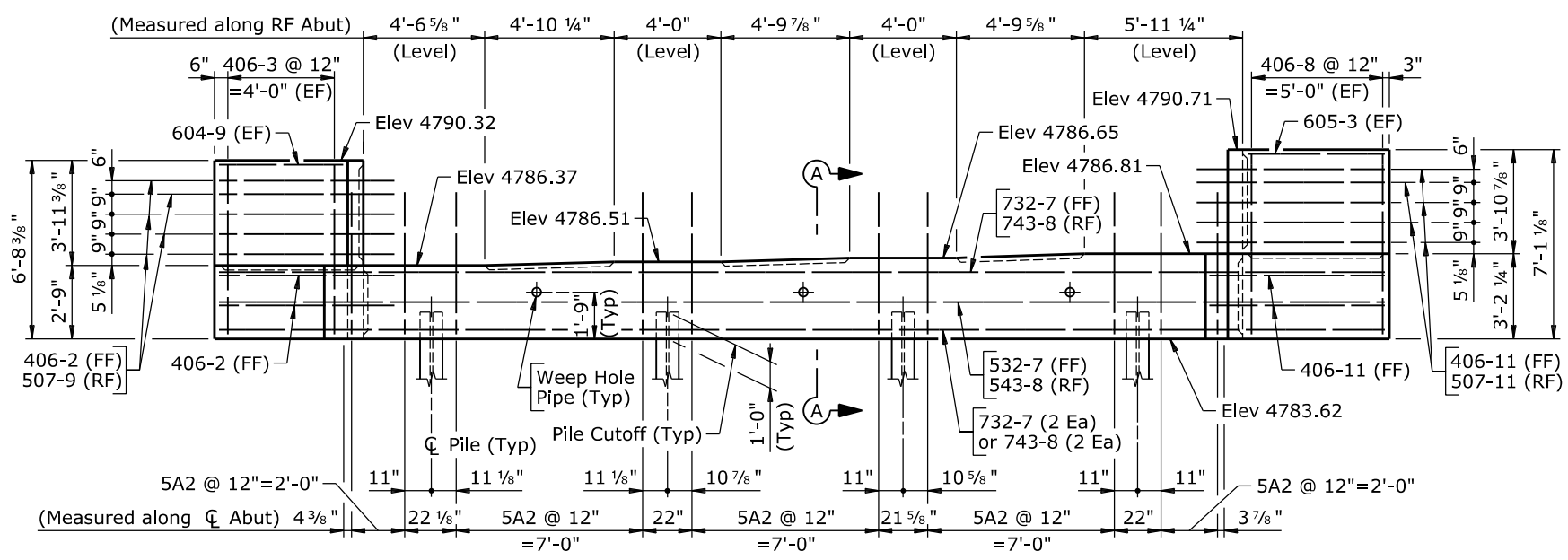
- Note: 1) Ensure the reinforcing steel fabricator prefixes Abutment No. 1 bar marks with numeral 1.
 2) Place 5A1 bars parallel with working line.
 3) The estimated quantity of class A concrete for Abutment No. 1 is 18.3 CY.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		ABUTMENT NO. 1 DETAILS	
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	GGG ✓ EEE	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No.	0003
APPROVAL	CCC ✓ AAA	Sheet	8 of 19

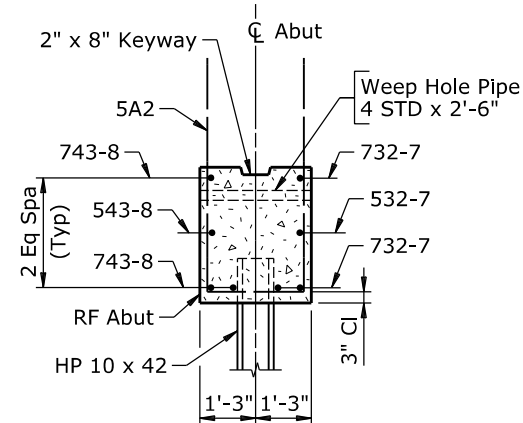
Section 4.07 - Abutments



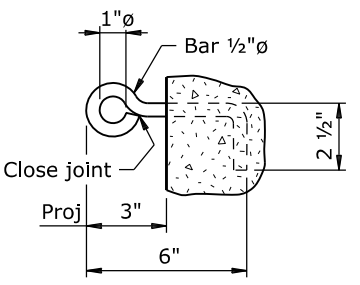
PLAN



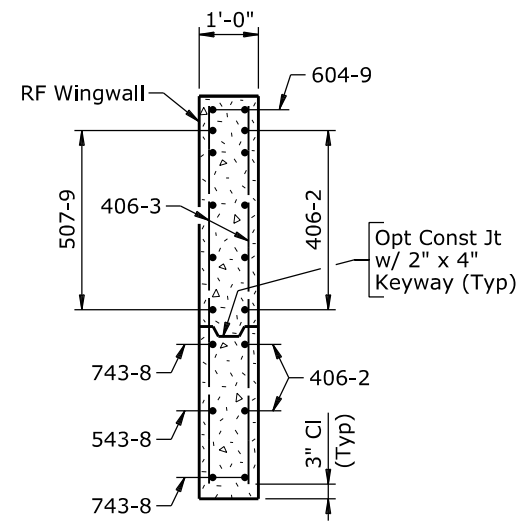
ELEVATION
(Looking ahead station)



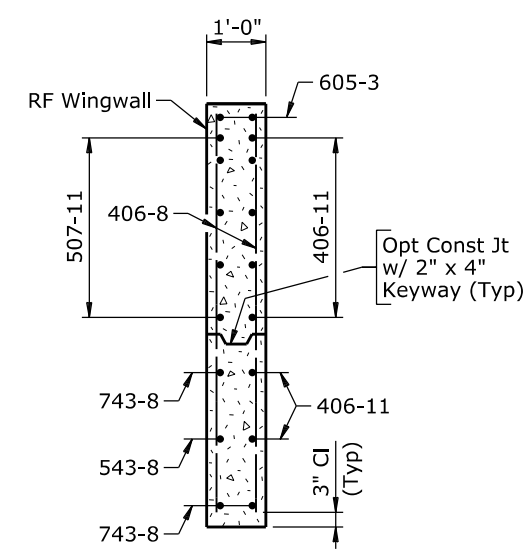
SECTION A-A



EYEBOLT DETAIL
(8 req'd for securing fence)

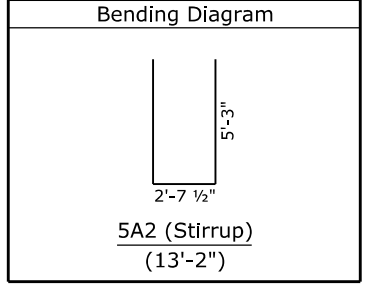


WINGWALL NO. 1 SECTION



WINGWALL NO. 2 SECTION

BILL OF REINFORCEMENT		
Location	Mark	Number Required
Cap	406-2	2
	406-11	2
	5A2	30
	532-7	1
	543-8	1
	732-7	3
Wingwalls	743-8	3
	Weight	977 LB
	406-2	5
	406-3	10
	406-8	12
	606-11	5
	507-9	5
	507-11	5
604-9	2	
605-3	2	
Weight	250 LB	



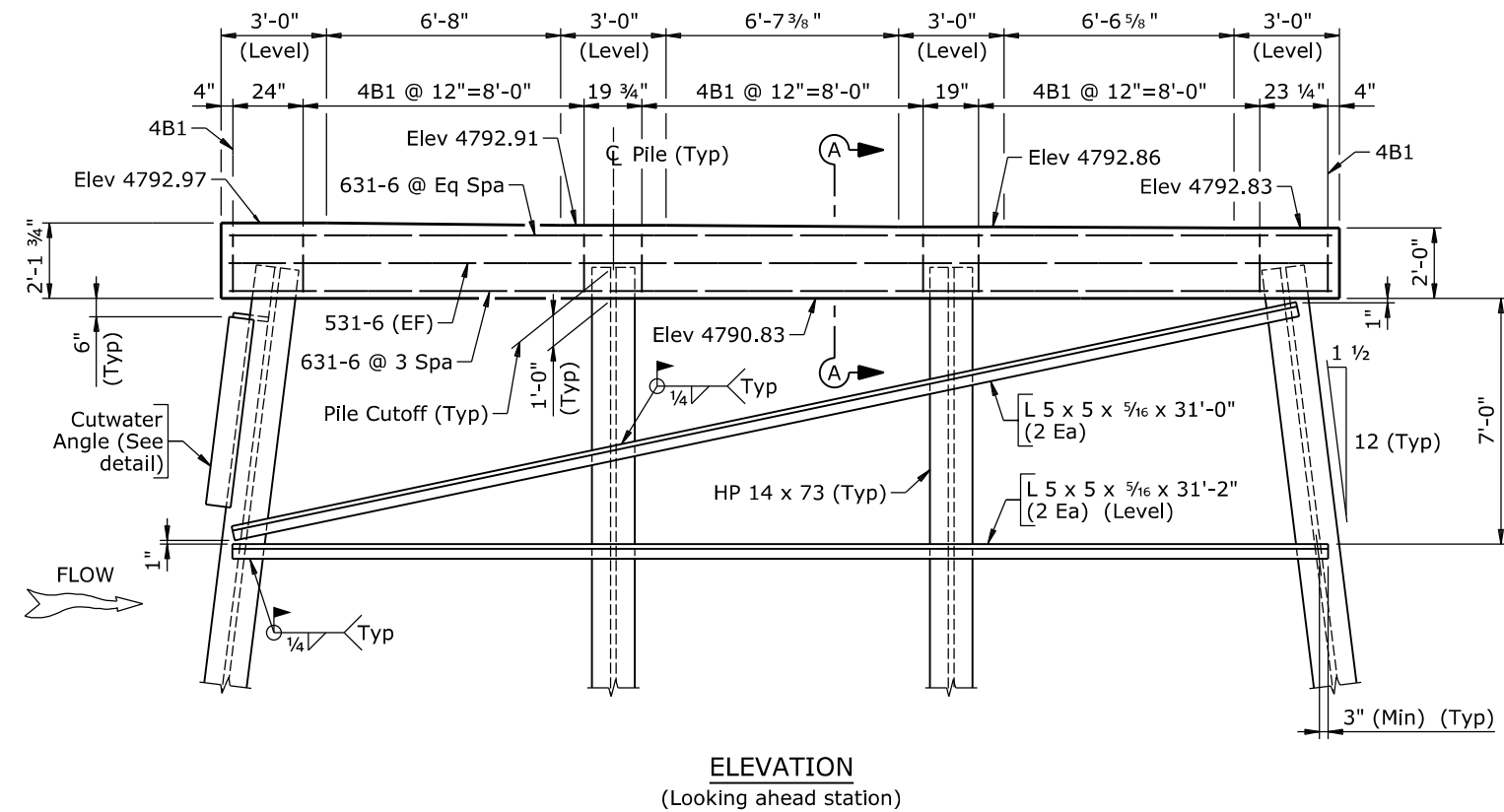
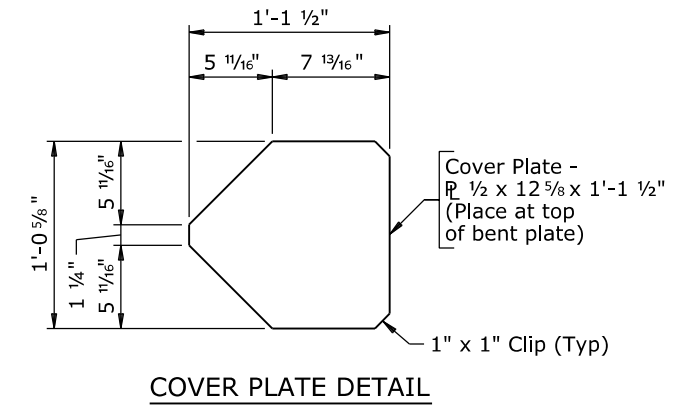
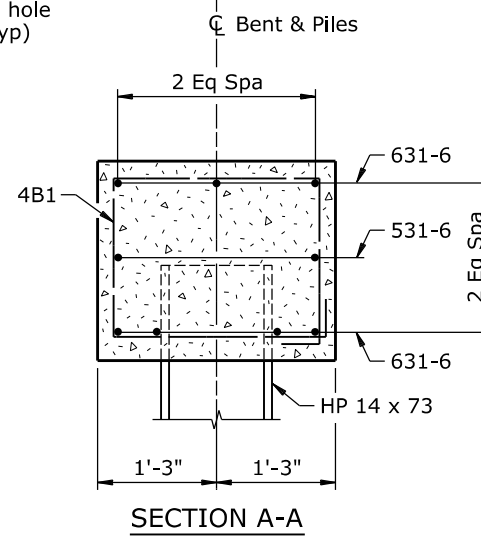
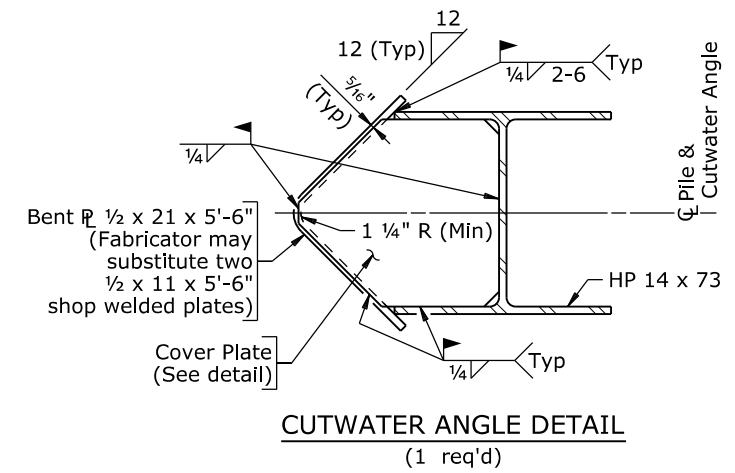
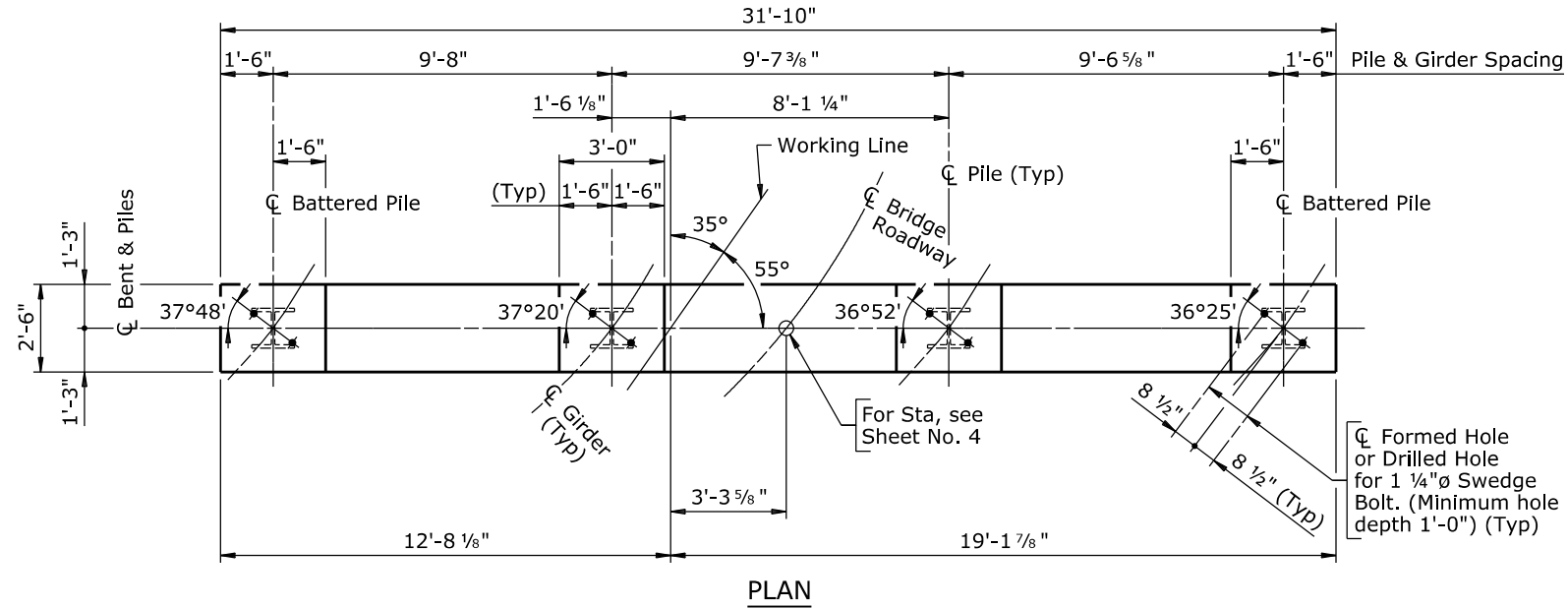
Bending Diagram

- Note:
- 1) Ensure the reinforcing steel fabricator prefixes Abutment No. 2 bar marks with numeral 2.
 - 2) Place 5A2 bars parallel with working line.
 - 3) The estimated quantity of class A concrete for Abutment No. 2 is 11.9 CY.
 - 4) For pile cutoff elevations, see Sheet No. 5.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		ABUTMENT NO. 2 DETAILS	
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	GGG ✓ EEE	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No.	0003
APPROVAL	CCC ✓ AAA	Sheet	9 of 19

Nov 2019

4.08 - Example

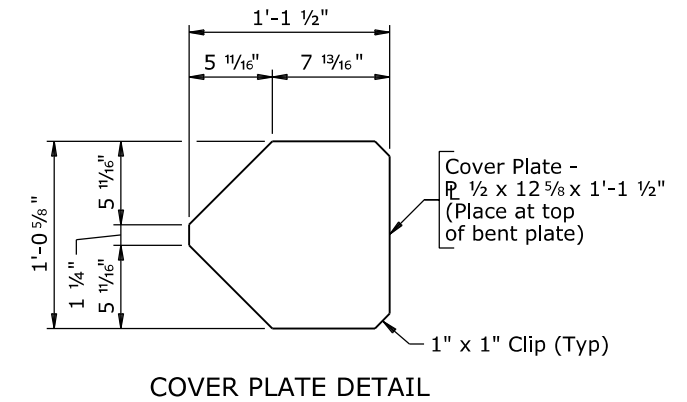
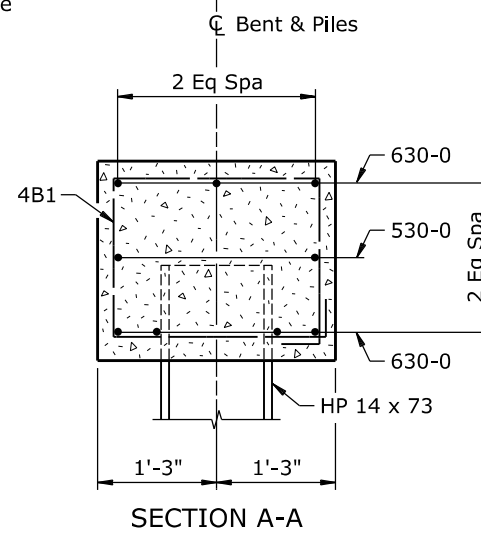
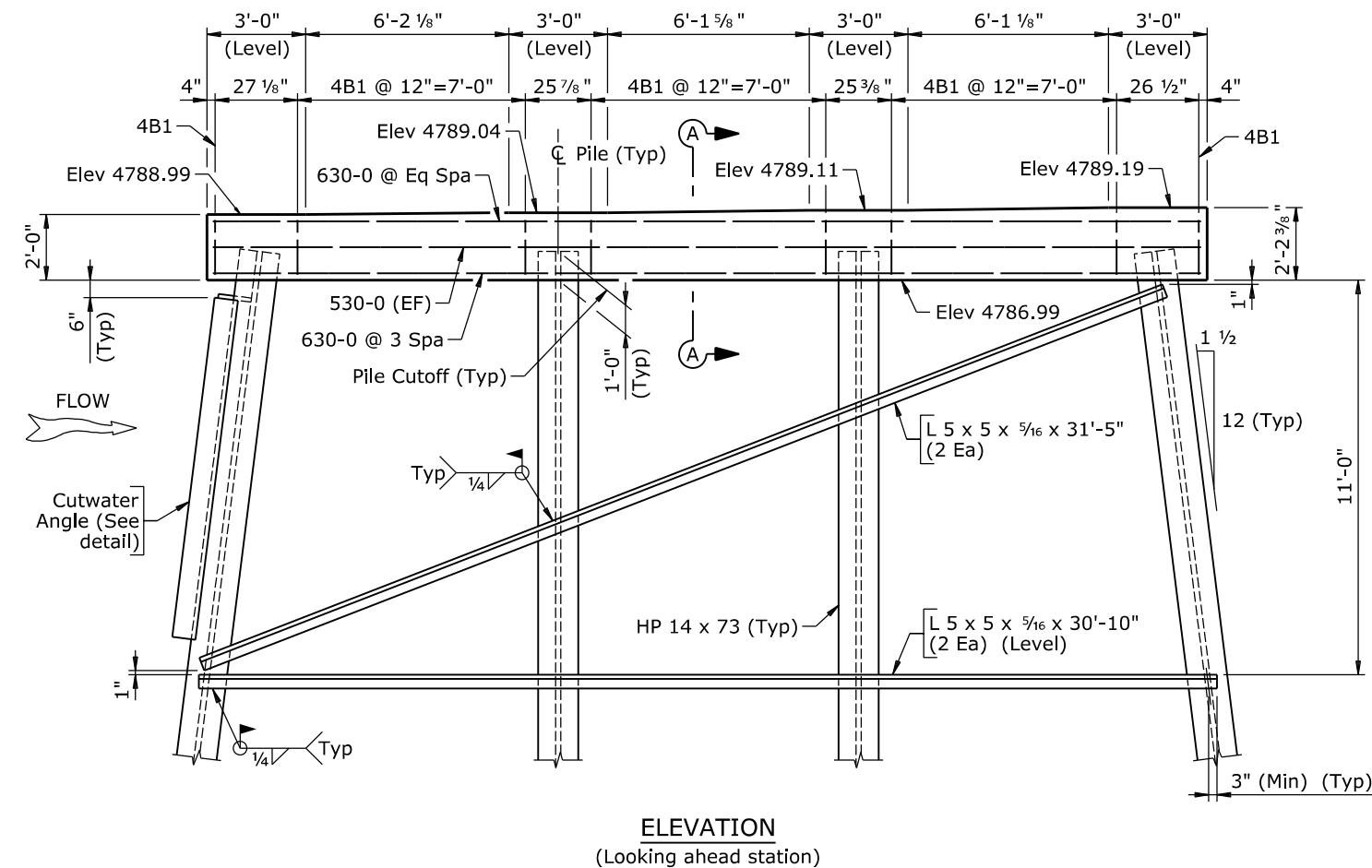
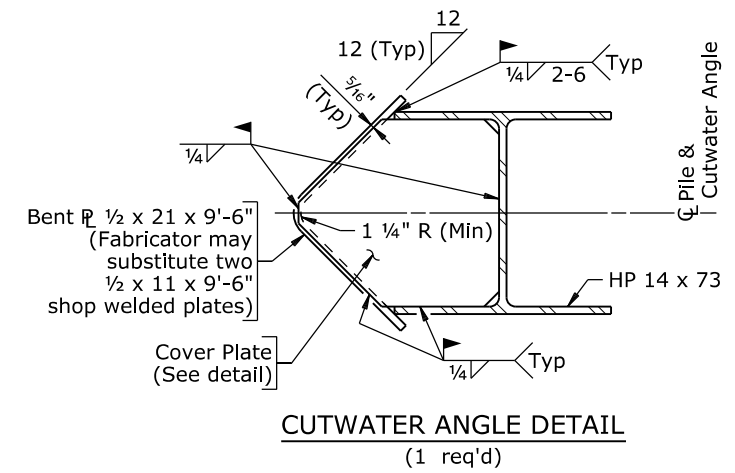
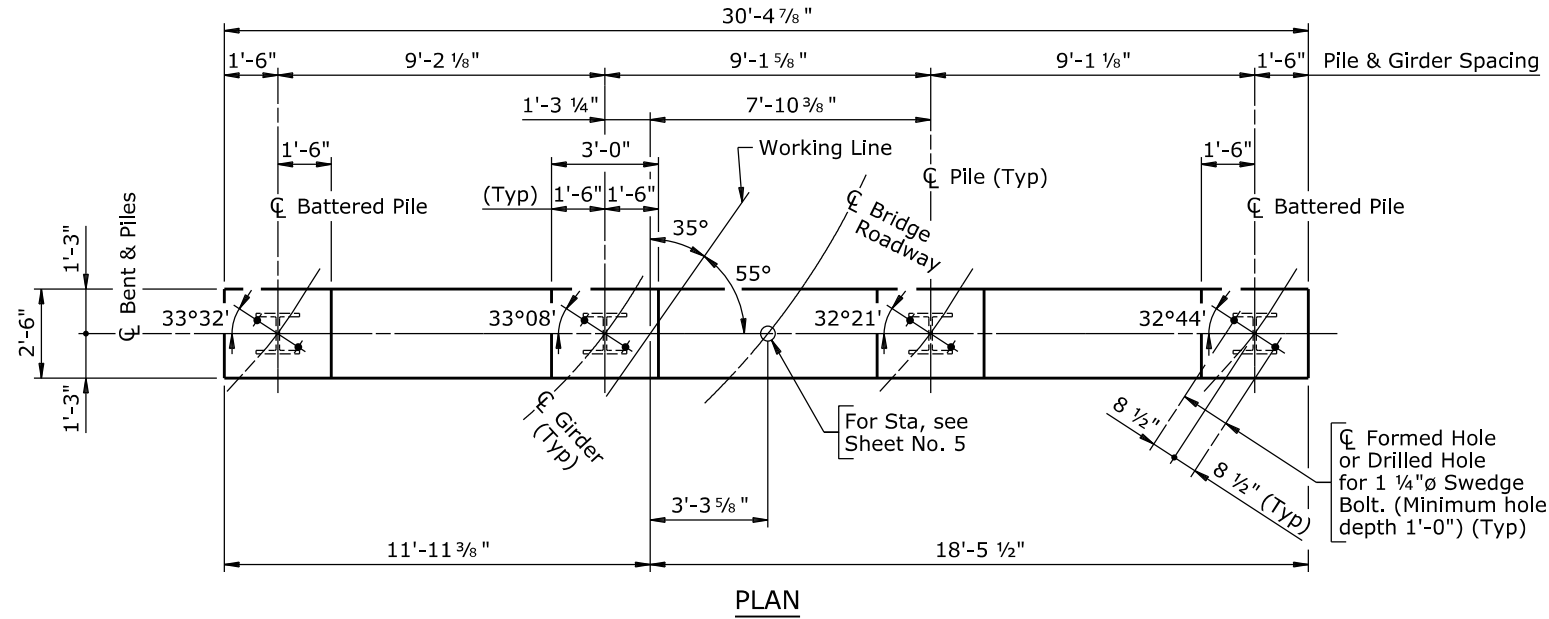


BILL OF REINFORCEMENT		
Location	Mark	Number Required
Cap	4B1	29
	531-6	2
	631-6	7
		Weight 560 LB
Bending Diagram		
		4B1 (Tie) (8'-5")

- Note:**
- 1) Ensure the reinforcing steel fabricator prefixes Bent No. 1 bar marks with numeral 3.
 - 2) Pile spacing is along bottom of cap.
 - 3) The estimated quantity of class A concrete for Bent No. 1 is 6.1 CY.
 - 4) For pile cutoff elevations, see Sheet No. 4.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
BENT NO. 1 DETAILS			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	GGG ✓ EEE	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No. 0003	Sheet 10 of 19
APPROVAL	CCC ✓ AAA		

Section 4.08 - Bent / Pier



BILL OF REINFORCEMENT		
Location	Mark	Number Required
Cap	4B1	26
	530-0	2
	630-0	7
Weight		525 LB
Bending Diagram		
4B1 (Tie)		(8'-5")

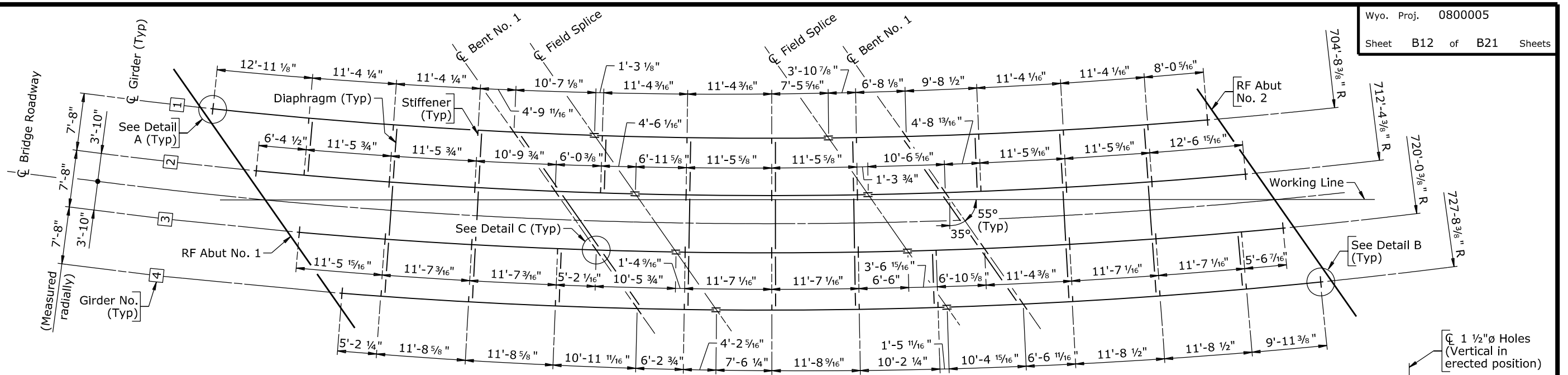
- Note: 1) Ensure the reinforcing steel fabricator prefixes Bent No. 2 bar marks with numeral 4.
2) Pile spacing is along bottom of cap.
3) The estimated quantity of class A concrete for Bent No. 2 is 5.9 CY.
4) For pile cutoff elevations, see Sheet No. 5.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
BENT NO. 2 DETAILS			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
DESIGN	GGG ✓ EEE	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No. 0003	Sheet 11 of 19
APPROVAL	CCC ✓ AAA		

Nov 2018

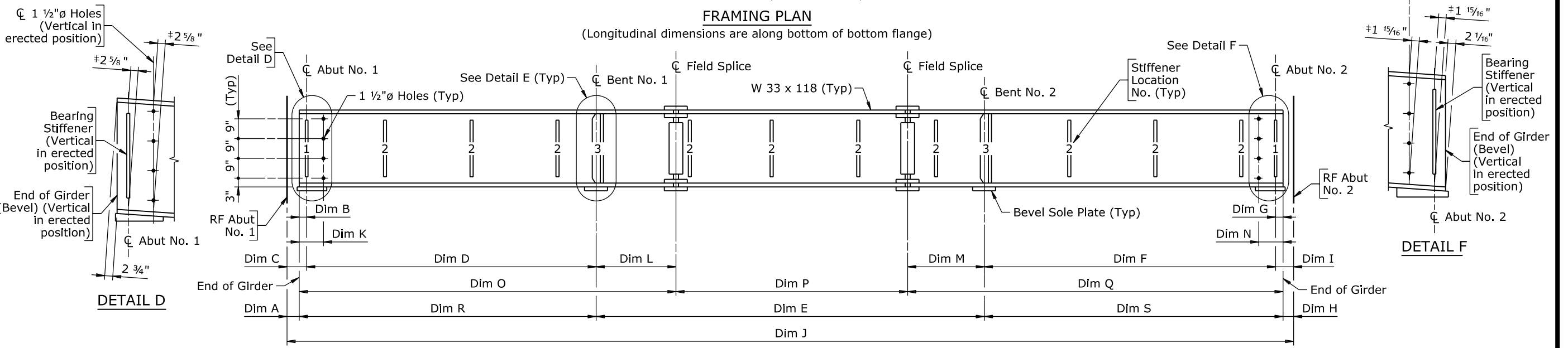
4.09 - Example

Wyo. Proj. 0800005
 Sheet B12 of B21 Sheets



FRAMING PLAN

(Longitudinal dimensions are along bottom of bottom flange)



GIRDER ELEVATION

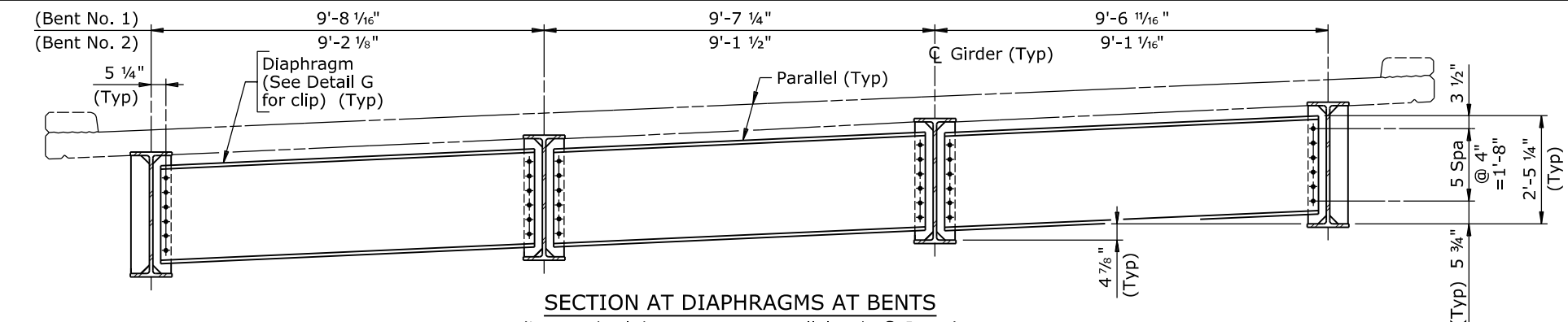
(Longitudinal dimensions are parallel with finished grade)

TABLE OF DIMENSIONS														
Girder No.	Dimension													
	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	1'-3"	4 7/8"	1'-7 7/8"	40'-5 5/16"	52'-6 15/16"	40'-4 15/16"	4"	1'-1 3/8"	1'-5 3/8"	136'-6 7/16"	1'-8 7/8"	10'-7 1/8"	10'-7"	
2	1'-2 15/16"	4 13/16"	1'-7 3/4"	40'-1 3/4"	52'-3 3/8"	40'-2 7/8"	4"	1'-1 1/16"	1'-5 5/16"	135'-9 1/16"	1'-8 1/16"	10'-6 7/16"	10'-6 5/16"	
3	1'-2 13/16"	4 3/4"	1'-7 9/16"	39'-10 3/8"	52'-0"	40'-0 15/16"	4"	1'-1 1/4"	1'-5 1/4"	135'-0 1/8"	1'-8 1/2"	10'-5 3/4"	10'-5 9/16"	
4	1'-2 3/4"	4 1/16"	1'-7 7/16"	39'-7 3/16"	51'-8 3/4"	39'-11 1/16"	4"	1'-1 3/16"	1'-5 3/16"	134'-3 5/8"	1'-8 5/16"	10'-5 1/16"	10'-4 15/16"	
Girder No.	Dimension													
	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
1	1'-5 15/16"	51'-5 5/16"	31'-4 13/16"	51'-3 15/16"	40'-10 3/16"	40'-8 15/16"	50'-10 5/16"	31'-3 1/16"	50'-10 1/2"	51'-0 7/16"	31'-4 13/16"	50'-11 15/16"	136'-1 3/4"	
2	1'-5 7/8"	51'-1"	31'-2 5/8"	51'-1 3/16"	40'-6 9/16"	40'-6 7/8"	50'-6 3/16"	31'-1 3/8"	50'-7 7/8"	50'-8 3/16"	31'-2 5/8"	50'-9 3/16"	135'-4 1/2"	
3	1'-5 13/16"	50'-8 7/8"	31'-0 1/16"	50'-10 1/2"	40'-3 1/8"	40'-4 15/16"	50'-2 3/16"	30'-11 1/16"	50'-5 1/4"	50'-4 1/8"	31'-0 1/16"	50'-6 1/2"	134'-7 15/16"	
4	1'-5 3/4"	50'-4 15/16"	30'-10 3/4"	50'-8"	39'-11 7/8"	40'-3 1/16"	49'-10 7/16"	30'-9 13/16"	50'-2 13/16"	50'-0 1/4"	30'-10 3/4"	50'-4"	133'-11 1/16"	

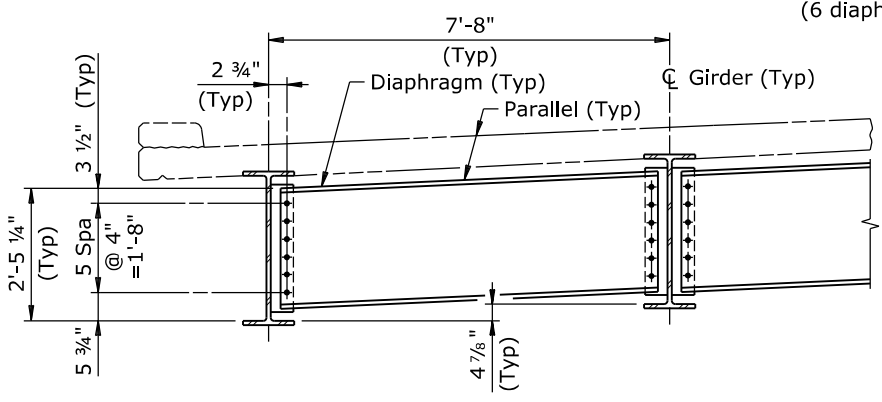
Note: 1) Dimensions are along C Girder unless noted.
 2) Indicated dimensions are between inside of flanges.
 3) For Details A, B, and C, see Sheet No. 14.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SUPERSTRUCTURE DETAILS			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44 Fletcher Park Road			
0800005		PI	
DESIGN	GGG ✓ EEE	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No.	0003
REVIEW	CCC ✓ AAA	Sheet	12 of 19
APPROVAL		0800005_1ss1.dgn	

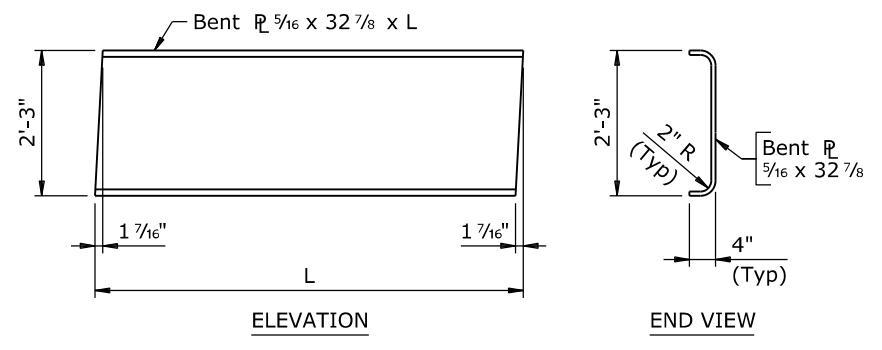
Section 4.09 - Superstructure



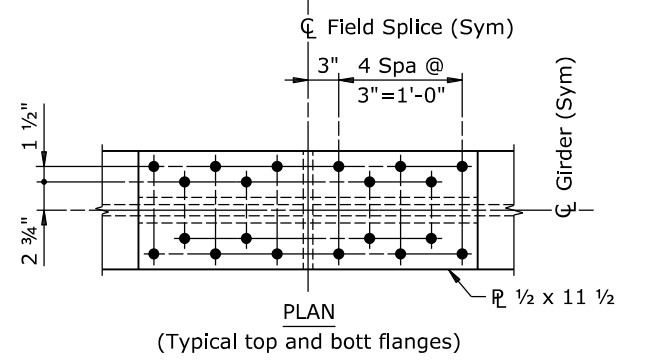
SECTION AT DIAPHRAGMS AT BENTS
(Longitudinal dimensions are parallel with \bar{C} Bents)
(6 diaphragms req'd)



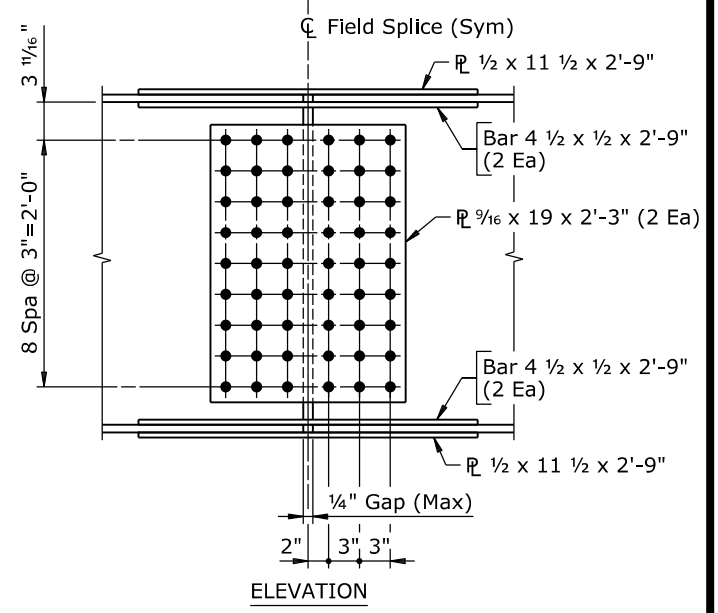
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
(Longitudinal dimensions are radial)
(27 diaphragms req'd)



DIAPHRAGM DETAILS



PLAN
(Typical top and bott flanges)

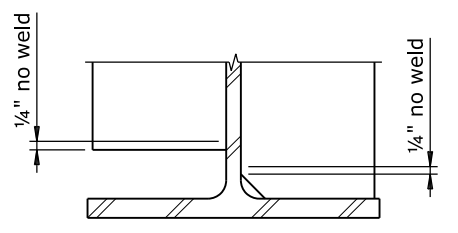


FIELD SPLICE DETAILS
(8 req'd)

- Note:**
- 1) No camber is required in girders.
 - 2) The distance from center of bolt holes to edges is 1 1/2" unless noted.
 - 3) The use of oversized holes in bent plate to stiffener connections will be permitted, at no additional cost to the department. Ensure oversized holes are in either bent plates or stiffeners. Ensure the fabricator details the proposed connection on the shop drawings.
 - 4) For location of girder numbers and Table of Dimensions, Sheet No. 12.

TABLE OF DIAPHRAGM LENGTHS (L)

Between Girders No.	Bent No. 1	Bent No. 2	Intermediate Locations
1 & 2	9'-0 15/16"	8'-7"	7'-6 15/16"
2 & 3	9'-0 1/4"	8'-6 7/16"	7'-6 15/16"
3 & 4	8'-11 9/16"	8'-6"	7'-6 15/16"



STIFFENER WELD DETAIL
(Typ top & bott)

TABLE OF BLOCKING ORDINATES

Girder No.	Ordinate		
	a	b	c
1	10'-1 3/8"	5'-10 1/16"	3'-5 1/2"
2	9'-9 5/8"	5'-7 7/8"	3'-4 3/16"
3	9'-6 1/8"	5'-5 15/16"	3'-3 1/16"
4	9'-2 11/16"	5'-4"	3'-1 15/16"

WYOMING DEPARTMENT OF TRANSPORTATION
BRIDGE PROGRAM

SUPERSTRUCTURE DETAILS

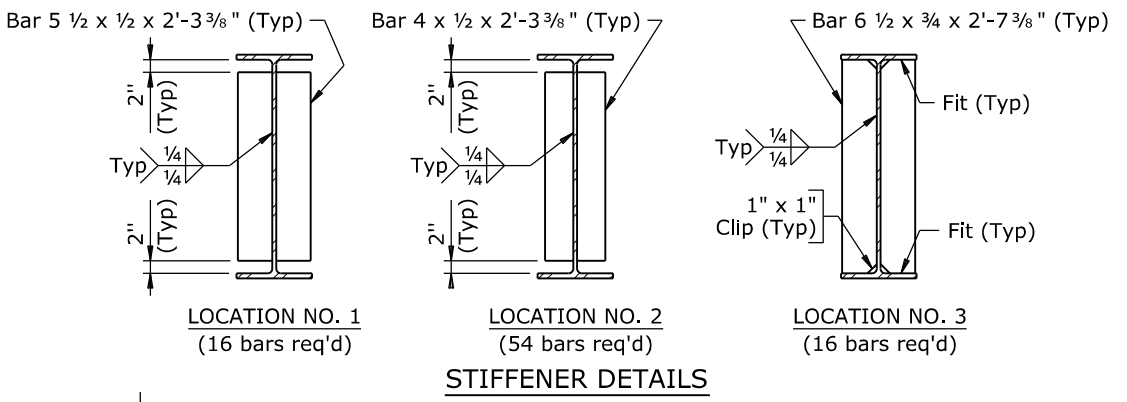
BRIDGE OVER NORTH LARAMIE RIVER

STA 104+44
Fletcher Park Road

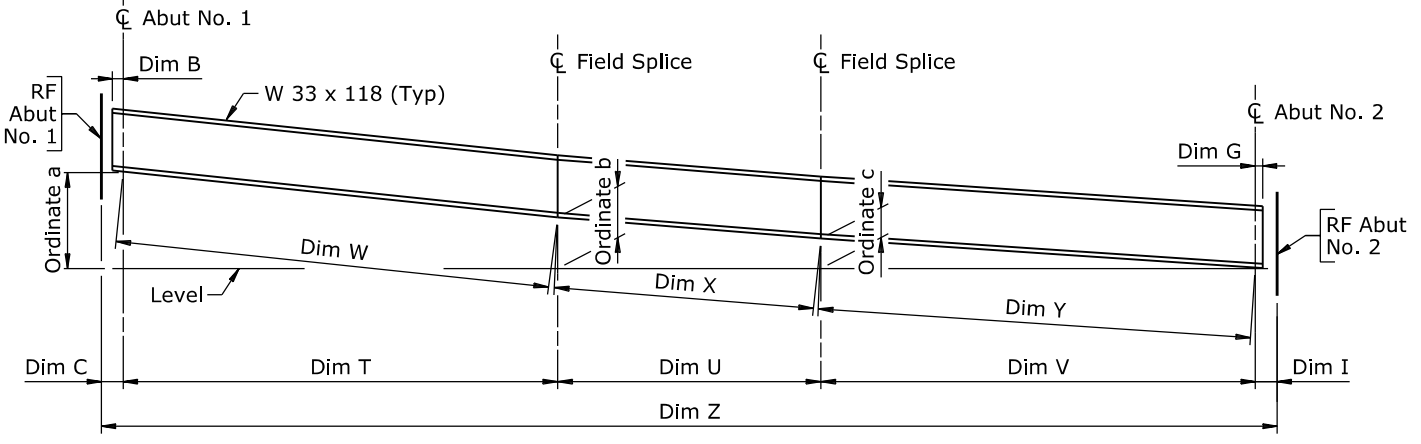
0800005 PI

DESIGN: GGG ✓ EEE
DETAIL: AAA ✓ GGG
QTY'S: CCC ✓ AAA

Design Section L M Nop
Drwg No. 0003 Sheet 13 of 19



STIFFENER DETAILS



BLOCKING DIAGRAM

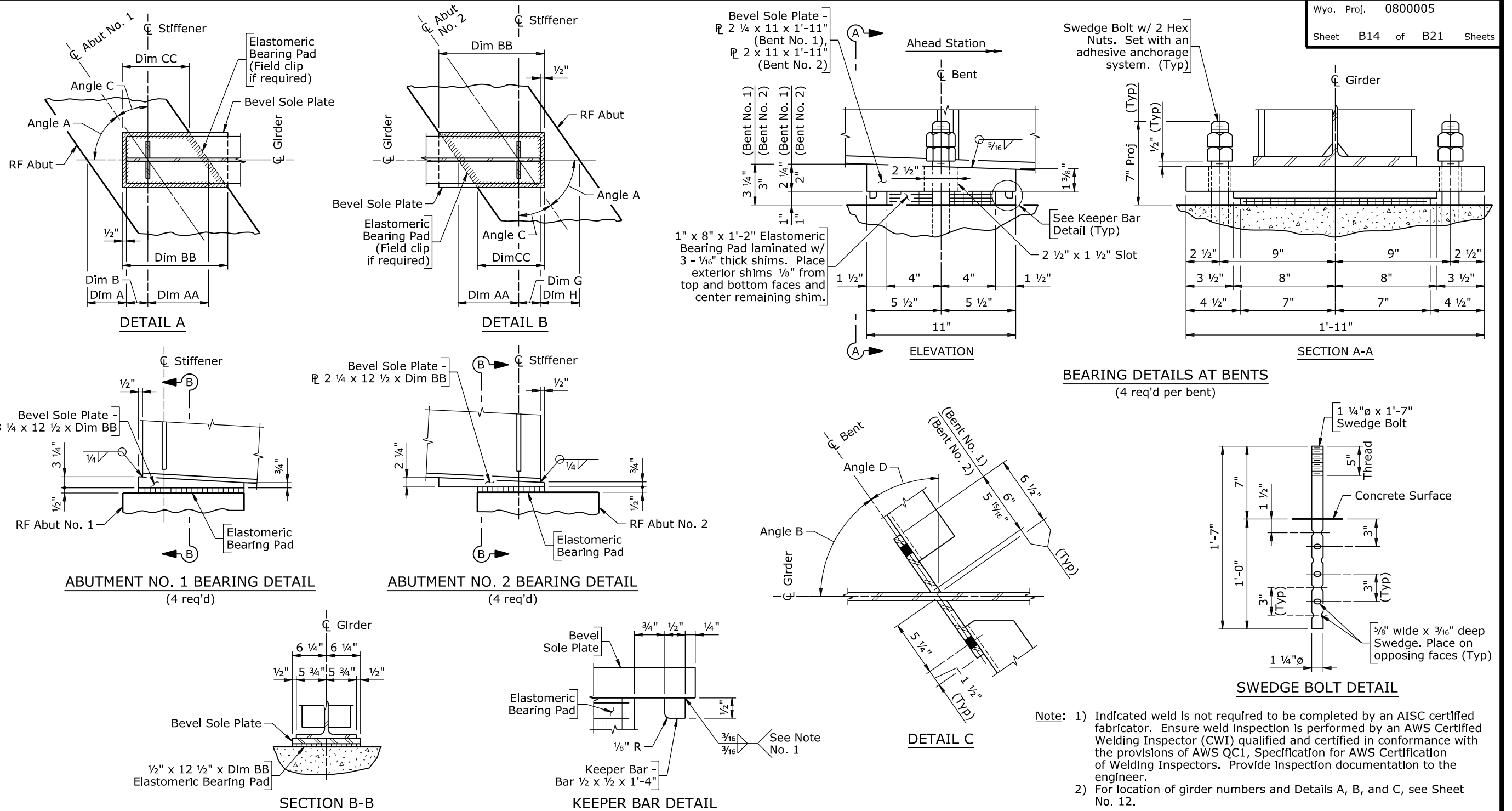


TABLE OF DIMENSIONS AND ANGLES

Girder No.	Dim A	Dim B	Dim G	Dim H	Dim AA		Dim BB		Dim CC		Angle A		Angle B		Angle C		Angle D	
					Abut No. 1	Abut No. 2	Abut No. 1	Abut No. 2	Abut No. 1	Abut No. 2	Abut No. 1	Abut No. 2	Bent No. 1	Bent No. 2	Abut No. 1	Abut No. 2	Bent No. 1	Bent No. 2
1	1'-3"	4 7/8"	4"	1'-1 3/8"	1'-7 7/8"	1'-5 3/8"	2'-6 3/4"	2'-1 13/16"	1'-7 7/8"	1'-6 1/4"	48°55'	59°44'	52°12'	56°28'	41°05'	30°16'	37°48'	33°32'
2	1'-2 15/16"	4 13/16"	4"	1'-1 5/16"	1'-7 3/4"	1'-5 5/16"	2'-6 7/16"	2'-1 7/16"	1'-7 3/4"	1'-6 3/16"	49°27'	60°06'	52°40'	56°52'	40°33'	29°54'	37°20'	33°08'
3	1'-2 13/16"	4 3/4"	4"	1'-1 1/4"	1'-7 9/16"	1'-5 1/4"	2'-6 1/8"	2'-1 5/16"	1'-7 5/8"	1'-6 3/16"	49°58'	60°27'	53°08'	57°16'	40°02'	29°33'	36°52'	32°44'
4	1'-2 3/4"	4 11/16"	4"	1'-1 3/16"	1'-7 7/16"	1'-5 3/16"	2'-5 13/16"	2'-1 3/16"	1'-7 1/2"	1'-6 1/8"	50°29'	60°47'	53°35'	57°39'	39°31'	29°13'	36°25'	32°21'

WYOMING DEPARTMENT OF TRANSPORTATION
BRIDGE PROGRAM

REVISIONS

SUPERSTRUCTURE DETAILS

BRIDGE OVER NORTH LARAMIE RIVER

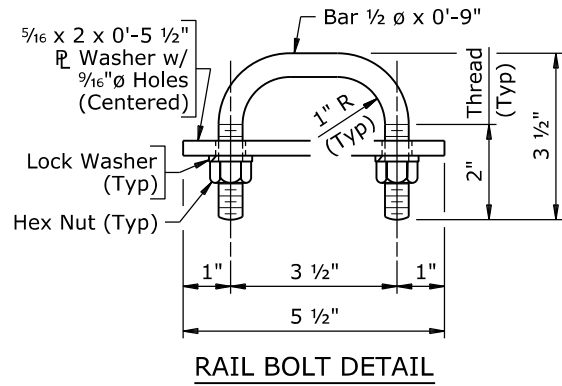
STA 104+44

Fletcher Park Road

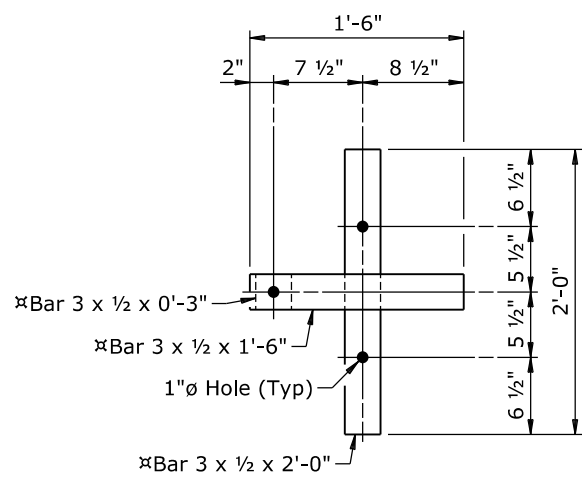
0800005 PI

DESIGN: GGG ✓ EEE
DETAIL: AAA ✓ GGG
QTY'S: CCC ✓ AAA

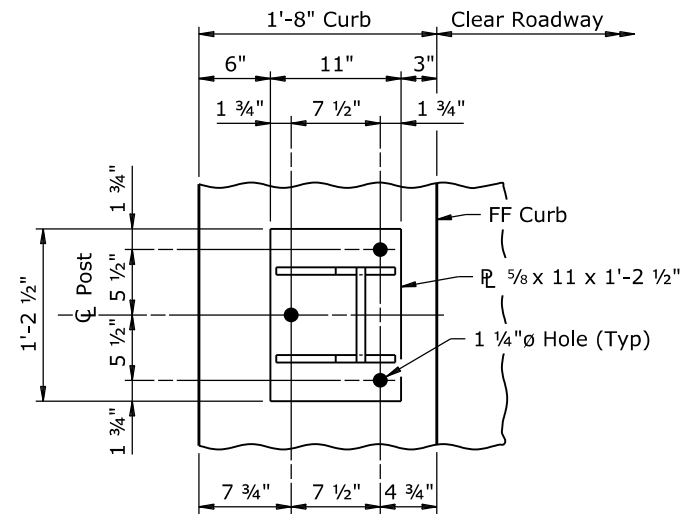
Design Section L M Nop
Drwg No. 0003 Sheet 14 of 19



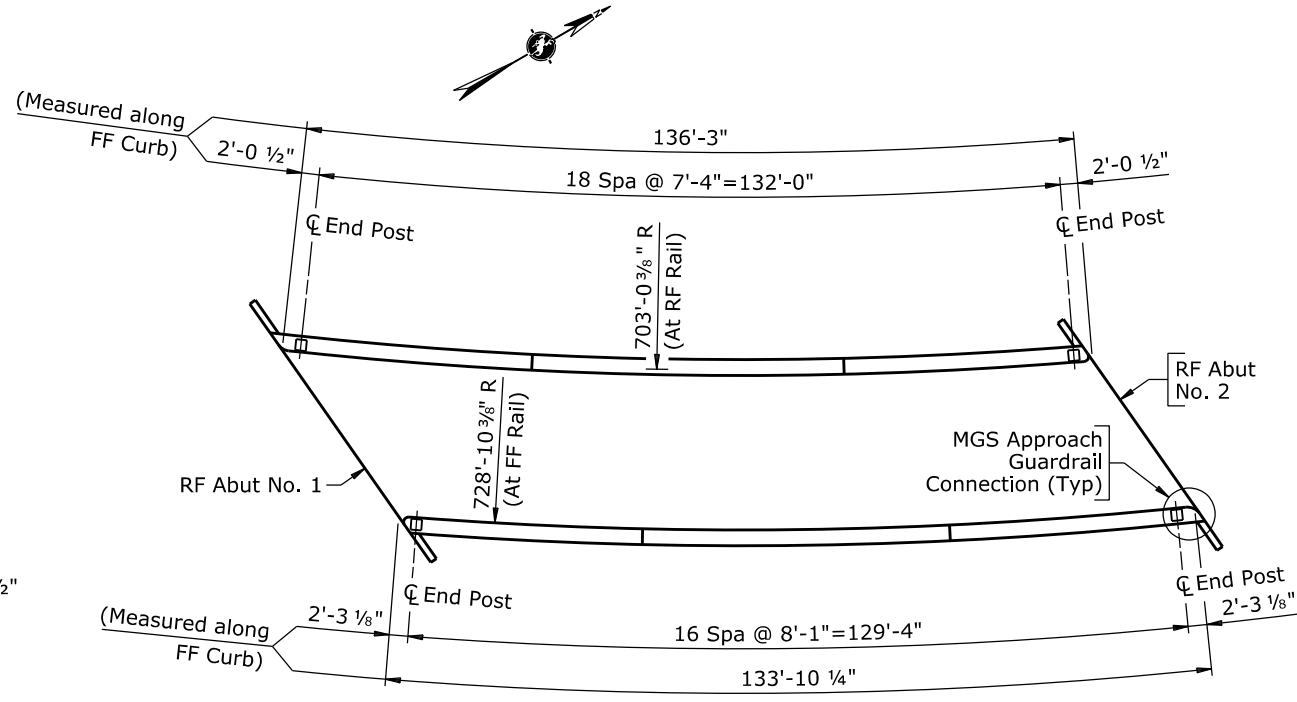
RAIL BOLT DETAIL



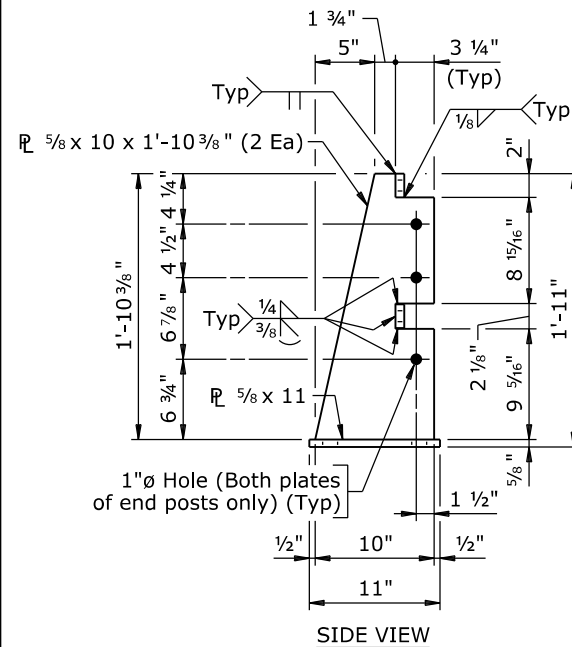
SECTION B-B
 (Not galvanized)
 (Anchor bolts and slab not shown)



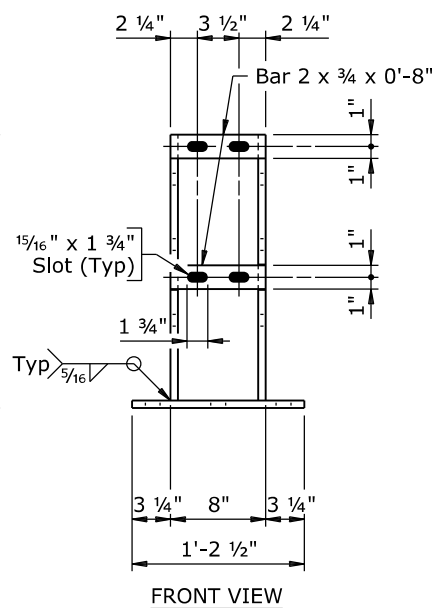
VIEW A-A
 (Anchor bolts, rails, and rail bolts not shown)



PLAN
 (36 posts req'd)
 (Longitudinal dimensions are along finished grade)

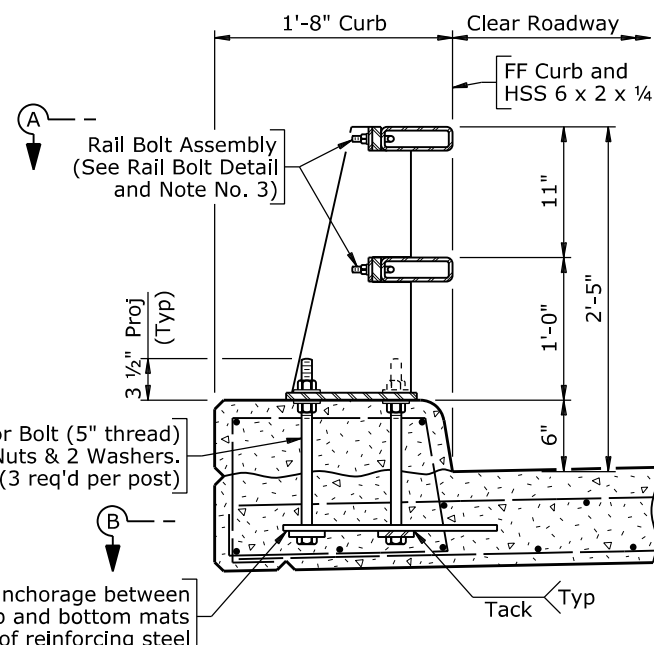


SIDE VIEW



FRONT VIEW

POST DETAILS
 (See View A-A for anchor bolt hole spacing)

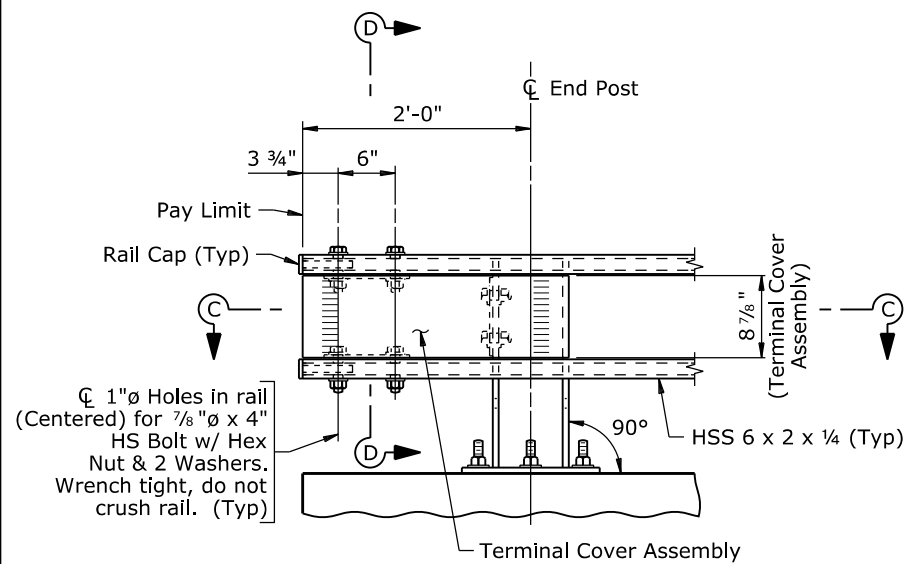


ASSEMBLY DETAIL
 (Shown near End Post)
 (Bridge slab shown, approach slab similar)

ANCHOR BOLT TABLE	
Location	Anchor Bolt
Bridge Slab	7/8"Ø x 1'-3"
Approach Slab	7/8"Ø x 1'-5"

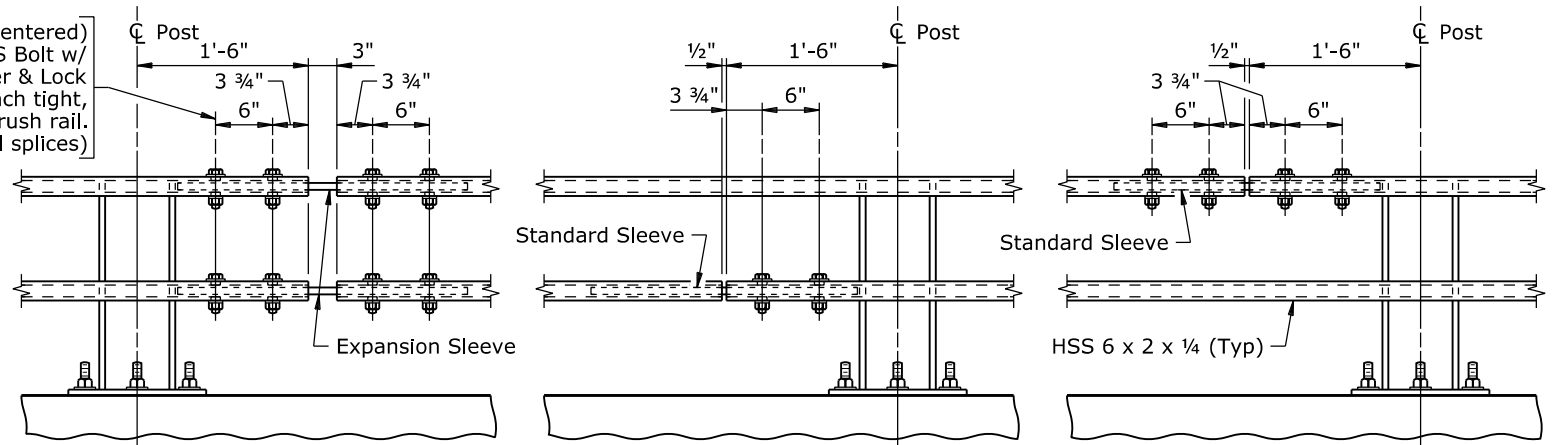
- Note:
- 1) Ensure the expansion splice is located in the railing panel which passes over the bridge expansion joint as indicated on the plan.
 - 2) Anchor bolts may be tack welded to anchorage (Shop or field).
 - 3) At post locations, drill two 1 1/16"Ø holes in each rail to receive rail bolts (Shop or field). See Post Details for hole spacing.
 - 4) Paint surfaces of the railing components that have been cut, drilled, or otherwise damaged with two coats of zinc-rich paint conforming to ASTM A 780.
 - 5) After installing rails, paint exposed bolt threads with two coats of zinc-rich paint conforming to ASTM A 780.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
BRIDGE RAILING DETAILS			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
REVISIONS	DESIGN	Design Section	L M Nop
	DETAIL	Drwg No. 0003	Sheet 15 of 19
	QTY'S		



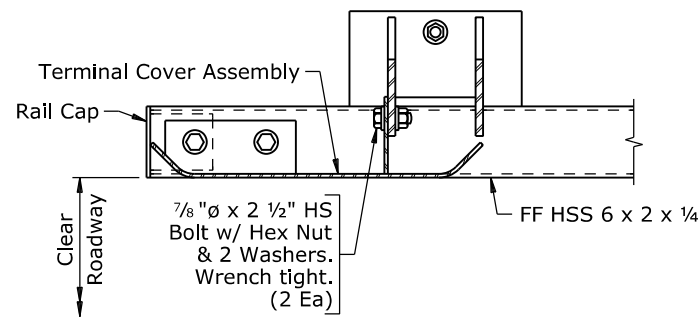
ELEVATION AT TERMINAL

1" ϕ Holes in rail (Centered) for 3/4" ϕ x 3 1/2" HS Bolt w/ Hex Nut, Washer & Lock Washer. Wrench tight, do not crush rail. (Typ) (All splices)

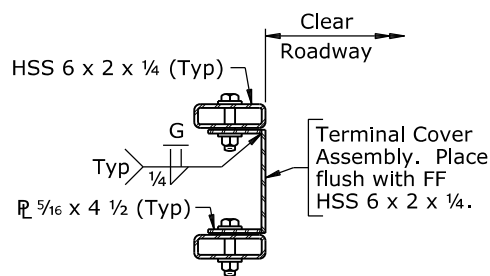


EXPANSION SPLICE (Top and bottom rail)
STANDARD SPLICE (Top or bottom rail)
DOUBLE-BOLTED SPLICE (Top or bottom rail)
SPLICE DETAILS

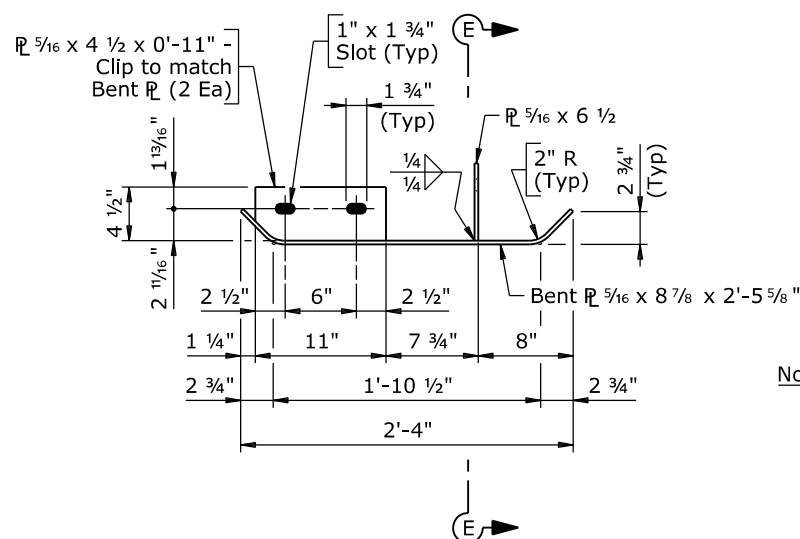
TERMINAL COMPONENT REQUIREMENTS		
Approach Guardrail Connection	Rail Caps Required	Terminal Cover Assembly Required
MGS Approach Guardrail	Yes (Without bolts)	± No
Box Beam w/ Rubrail Approach Guardrail	No	No
No Approach Guardrail	Yes (With bolts)	Yes



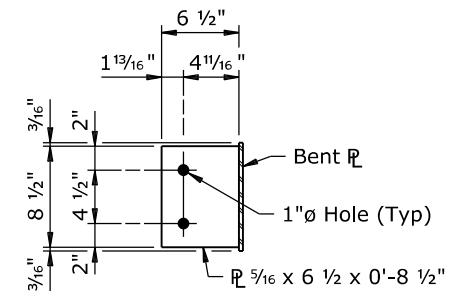
SECTION C-C



SECTION D-D

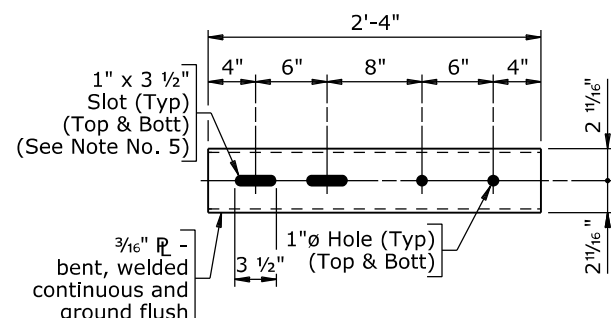


TERMINAL COVER ASSEMBLY DETAIL

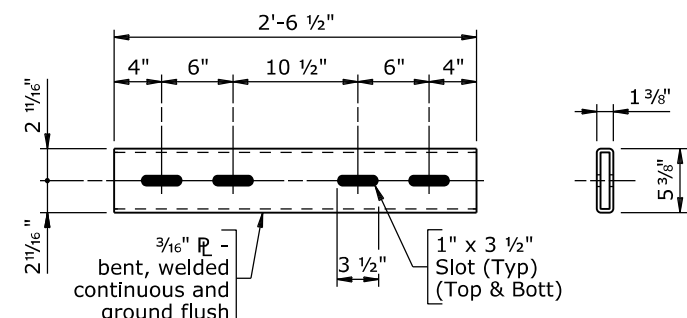


SECTION E-E

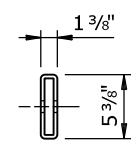
- Note:
- 1) Ensure each rail length is continuous over a minimum of two posts.
 - 2) In rehabilitation work, ensure railing that cannot feasibly be made continuous over a minimum of two posts has a double-bolted splice.
 - 3) Splices may be located on either side of post.
 - 4) Not more than one splice is permitted per side of post, except at expansion splices.
 - 5) Slots may be omitted in standard sleeves where bolts are required on one side of splice only.
 - 6) Do not shop splice rails.
 - 7) Terminal components removed during rehabilitation work will remain the property of the department.
 - ±8) Installation of MGS approach guardrail will require other fabricated assemblies to be connected to end post. See road plans for details and pay item.



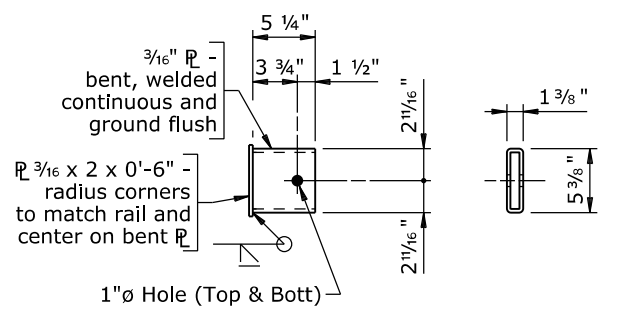
STANDARD SLEEVE



EXPANSION SLEEVE



END VIEW

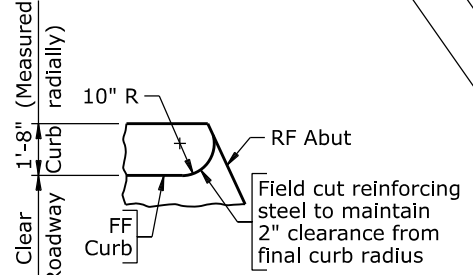
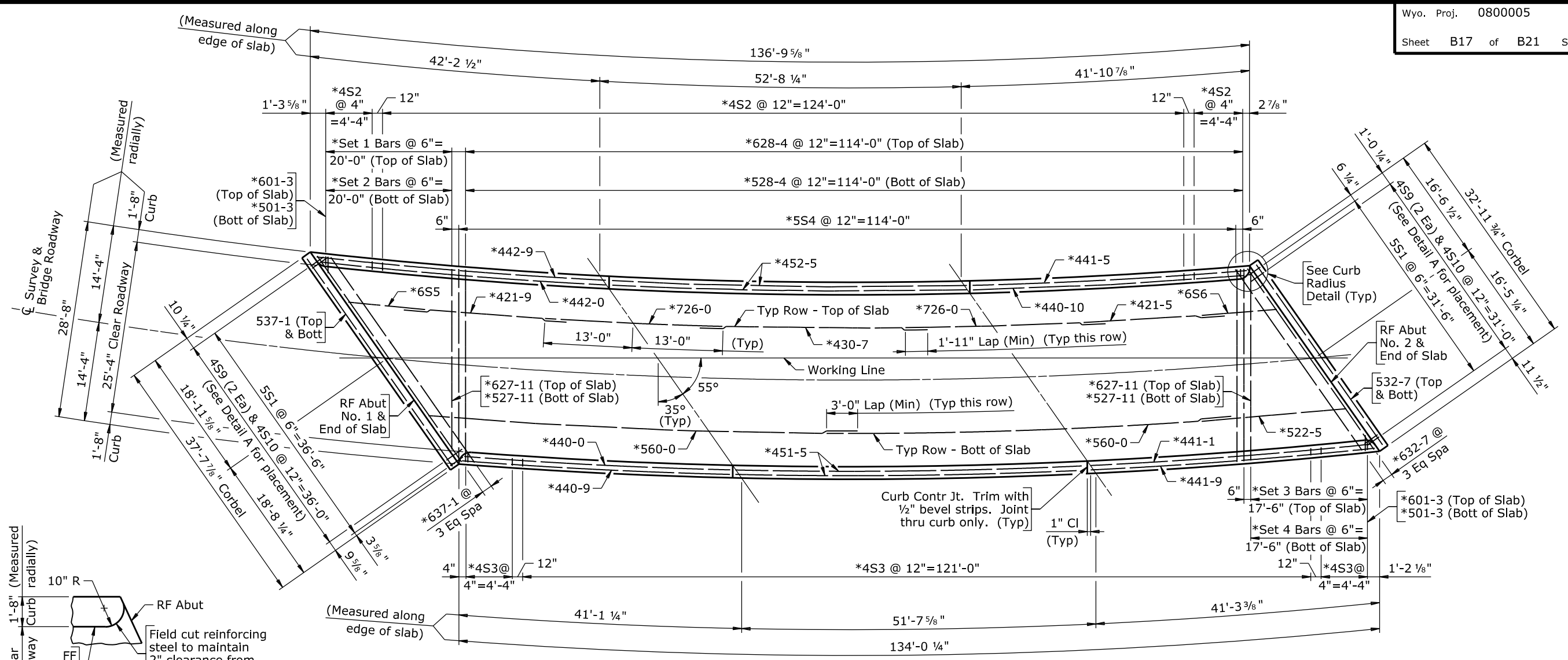


RAIL CAP DETAILS

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
BRIDGE RAILING DETAILS		BRIDGE OVER NORTH LARAMIE RIVER	
		STA 104+44	
		Fletcher Park Road	
0800005		PI	
DESIGN	CCC	Design Section	L M Nop
DETAIL	CCC	Drwg No.	0003
APPROVAL	CCC	Sheet	16 of 19

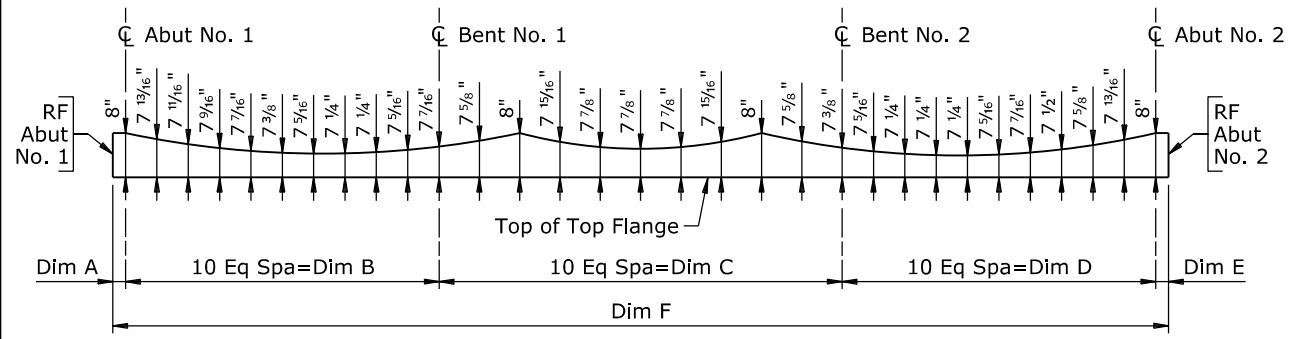
Standard Sheet Dated 9-3-13
Revised 6-16-14

0800005_1br2.dgn



PLAN
(Longitudinal dimensions are along finished grade and parallel with working line unless noted)
(Corbel dimensions include slope and grade)

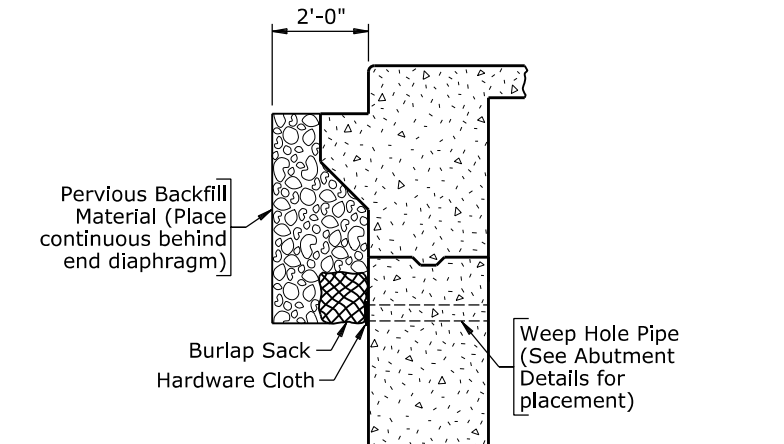
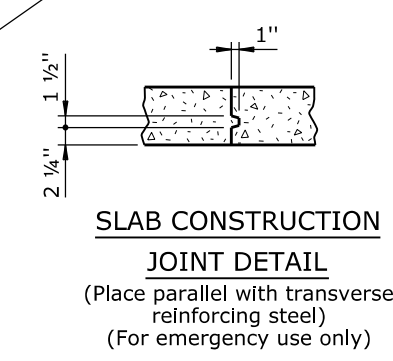
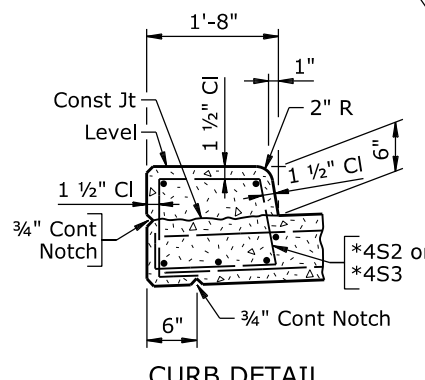
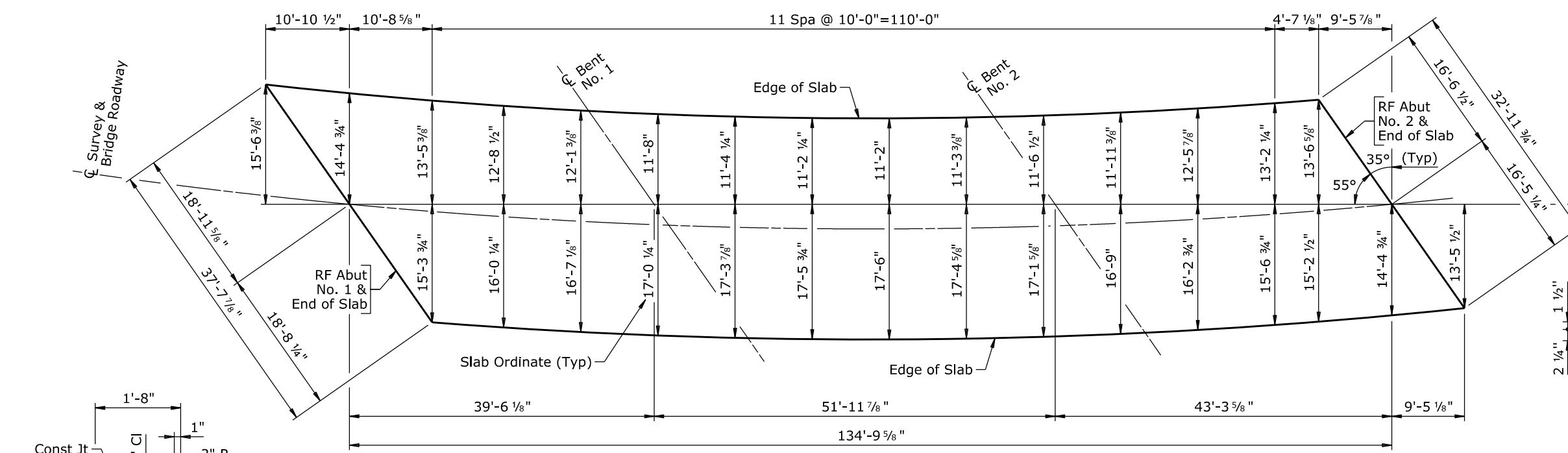
- Note: 1) Place transverse reinforcing steel perpendicular to working line unless otherwise shown.
2) Place concrete in slab in one continuous operation at the minimum rate of 17 feet per hour.
3) For Bridge Railing Details, see Sheets No. 15 and 16.
4) For location of girder numbers, see Sheet No. 18.
5) For Detail A, see Sheet No. 19.



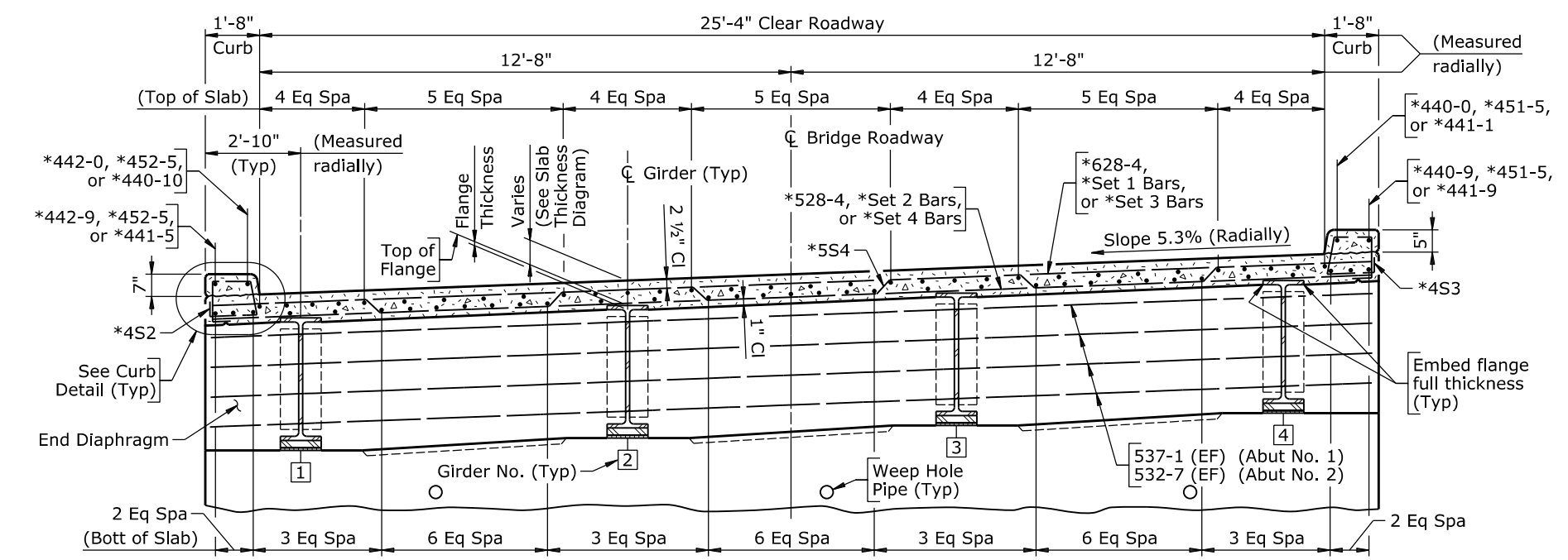
SLAB THICKNESS DIAGRAM
(Dimensions are along ϕ Girder)
(Longitudinal dimensions are along finished grade)
(Includes correction for dead load deflection)

Girder No.	Dimension					
	A	B	C	D	E	F
1	1'-7 7/8"	40'-5 3/8"	52'-7"	40'-5"	1'-5 3/8"	136'-6 5/8"
2	1'-7 3/4"	40'-1 3/4"	52'-3 3/8"	40'-2 7/8"	1'-5 1/4"	136'-9"
3	1'-7 5/8"	39'-10 5/8"	52'-0"	40'-0 7/8"	1'-5 1/4"	135'-0 3/8"
4	1'-7 1/2"	39'-7 1/8"	51'-8 3/4"	39'-11"	1'-5 1/8"	134'-3 1/2"

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SLAB DETAILS			
BRIDGE OVER NORTH LARAMIE RIVER			
STA 104+44			
Fletcher Park Road			
0800005		PI	
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Note: 1) Each weep hole assembly consists of a pipe 4 STD through abutment cap, one 6" x 6" piece of aluminum or galvanized steel wire 4 mesh hardware cloth (Minimum wire diameter 0.03") centered over pipe end and firmly anchored to rear face abutment, and one cubic foot of coarse aggregate in a securely tied burlap sack.
 2) For Abutment Details, see Sheets No. 8 & 9.
 3) For Slab Thickness Diagram, see Sheet No. 17.



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DESIGN	GGG ✓ EEE	Design Section	L M Nop
DETAIL	AAA ✓ GGG	Drwg No. 0003	Sheet 18 of 19
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TABLE OF SCREED ELEVATIONS

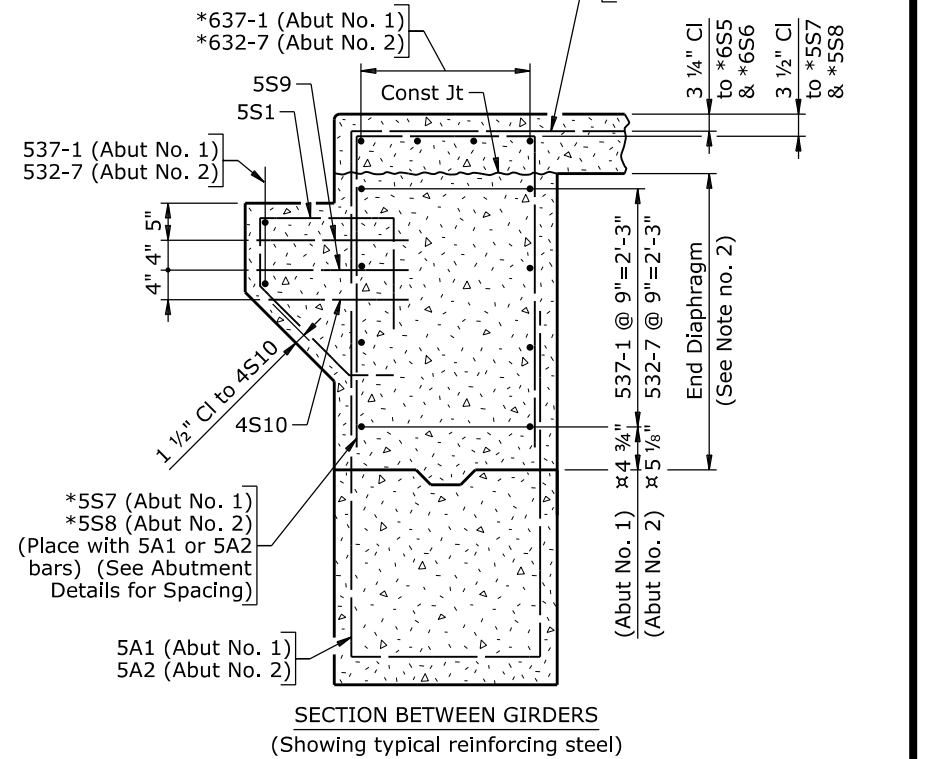
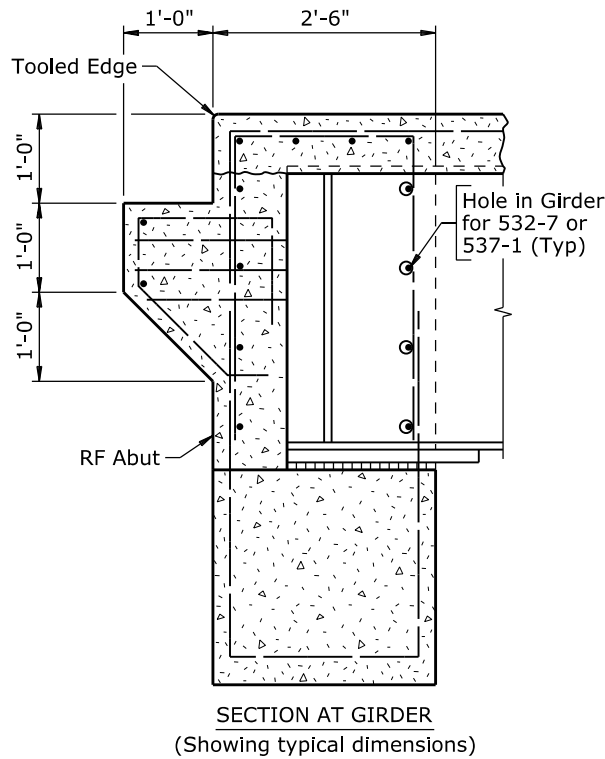
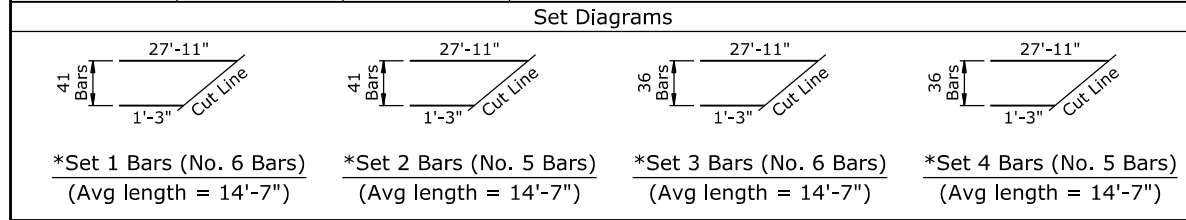
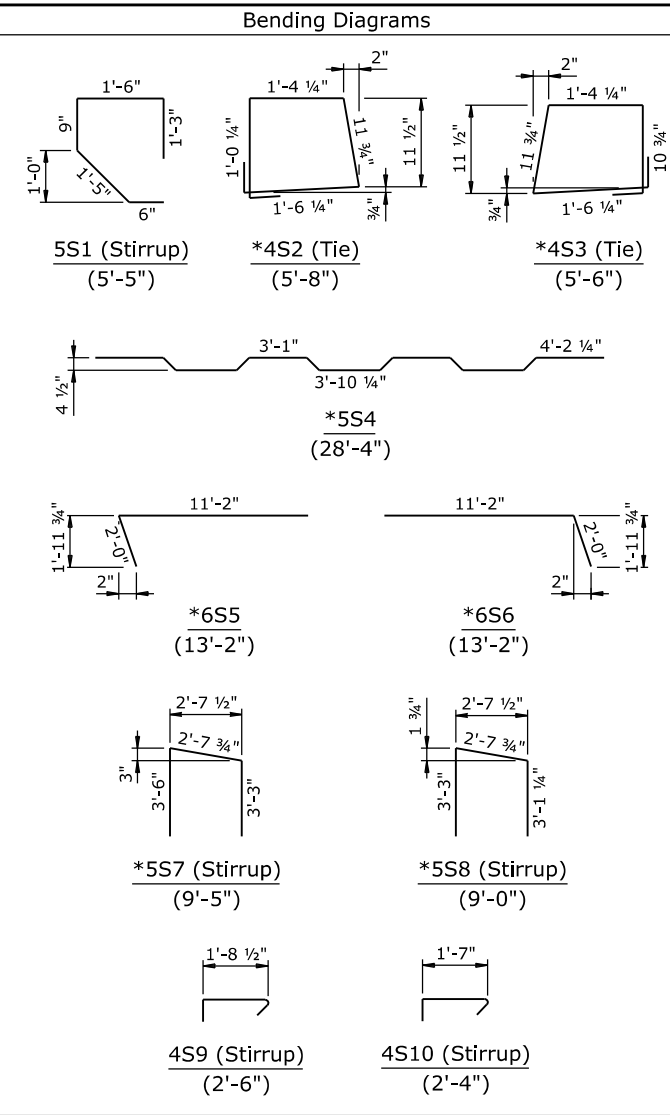
Add base elevation 4700.00 to all elevations listed in table. Elevations include grade, slope, and correction for dead load deflection. For screed line locations, see Sheet No. 3.

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Sheet B19 of B21 Sheets

Screed Line No.	Tenth Point of Spans																														
	1.0 C Abut No. 1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0 C Bent No. 1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0 C Bent No. 2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0 C Abut No. 2
①	100.07	99.71	99.36	99.00	98.65	98.30	97.95	97.60	97.26	96.92	96.59	96.16	95.74	95.33	94.92	94.52	94.12	93.72	93.32	92.93	92.55	92.27	91.99	91.71	91.44	91.16	90.89	90.63	90.36	90.10	89.84
②	100.00	99.65	99.29	98.94	98.59	98.25	97.90	97.56	97.22	96.89	96.56	96.13	95.72	95.31	94.91	94.51	94.11	93.72	93.33	92.95	92.57	92.29	92.01	91.73	91.46	91.20	90.93	90.67	90.40	90.14	89.88
③	99.82	99.48	99.14	98.80	98.46	98.13	97.79	97.46	97.13	96.81	96.49	96.08	95.68	95.29	94.89	94.51	94.12	93.74	93.36	92.99	92.62	92.35	92.08	91.81	91.55	91.29	91.03	90.78	90.52	90.27	90.02
④	99.67	99.34	99.01	98.68	98.35	98.03	97.70	97.38	97.06	96.75	96.44	96.04	95.66	95.27	94.90	94.52	94.15	93.78	93.41	93.05	92.69	92.43	92.16	91.91	91.65	91.40	91.15	90.90	90.65	90.40	90.16
⑤	99.54	99.22	98.90	98.58	98.26	97.95	97.63	97.32	97.02	96.71	96.41	96.03	95.65	95.28	94.91	94.55	94.19	93.83	93.47	93.12	92.77	92.51	92.26	92.01	91.76	91.52	91.27	91.03	90.79	90.55	90.31
⑥	99.50	99.18	98.86	98.55	98.24	97.92	97.61	97.31	97.00	96.70	96.41	96.03	95.65	95.29	94.92	94.56	94.20	93.85	93.49	93.15	92.81	92.55	92.30	92.05	91.81	91.56	91.32	91.08	90.84	90.61	90.37

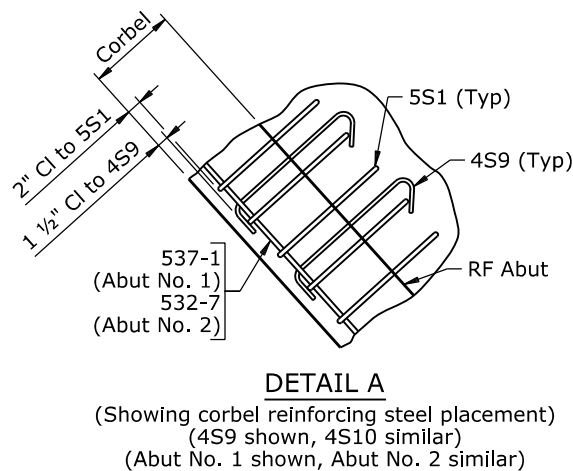
BILL OF REINFORCEMENT

Location	Mark	Number Required
End Diaphragms	4S9	138
	4S10	69
	5S1	138
	*5S7	33
	*5S8	30
	532-7	10
	537-1	10
	*6S5	32
	*6S6	32
	Weight	1845 LB
*Weight	*1872 LB	
Slab and Curbs	*4S2	154
	*4S3	152
	*421-5	32
	*421-9	32
	*430-7	32
	*440-0	1
	*440-9	1
	*440-10	1
	*441-1	1
	*441-5	1
	*441-9	1
	*442-0	1
	*442-9	1
	*451-5	2
	*452-5	2
	*5S4	114
	*522-5	35
	*528-4	116
	*560-0	70
	*Set 2 Bars	1
	*Set 4 Bars	1
	*628-4	116
	*632-7	4
	*637-1	4
*Set 1 Bars	1	
*Set 3 Bars	1	
*726-0	64	
*Weight	*26,679 LB	



TYPICAL SECTIONS THRU END DIAPHRAGM (Dimensions are perpendicular to RF Abut)

- Note:
- 1) Ensure the reinforcing steel fabricator prefixes superstructure bar marks with numeral 5.
 - 2) Ensure end diaphragms attain 80% of ultimate design strength (f'c) by cylinder tests before placing slab.
 - 3) Dimension is at edge of end diaphragm.
 - 4) The estimated quantity of class A concrete for slab is as follows:
End Diaphragms ----- 20.2 CY
Slab ----- 100.1 CY
Curbs ----- 8.2 CY
 - 5) For Abutment Details, see Sheets No. 8 & 9.
 - 6) For location of Detail A, see Sheet No. 17.



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APPROVAL	QTY'S		