

STATE OF VERMONT AGENCY OF TRANSPORTATION



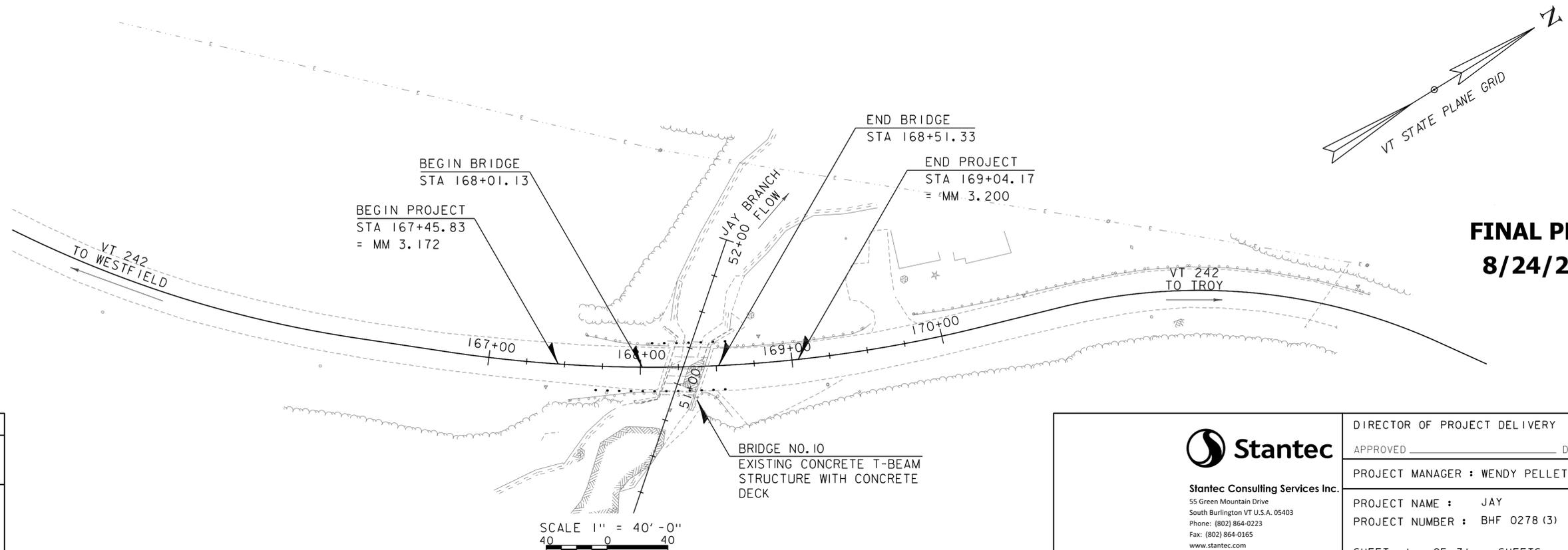
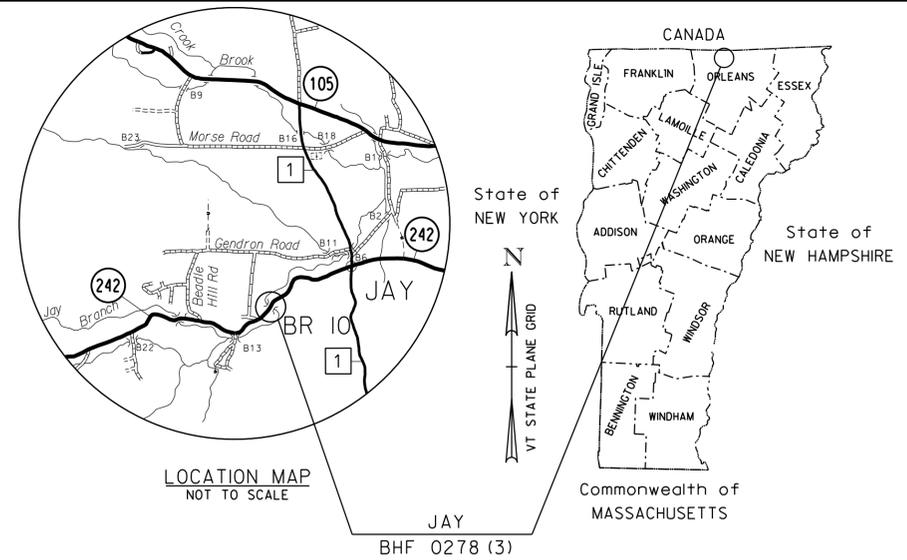
PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF JAY
COUNTY OF ORLEANS
ROUTE NO: VT RTE 242, RURAL MAJOR COLLECTOR BRIDGE NO.10

PROJECT LOCATION: 2.3 MILES WEST OF JUNCTION WITH VT ROUTE 101

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING BRIDGE WITH A GALVANIZED STEEL BEAM AND CAST-IN-PLACE CONCRETE DECK SUPERSTRUCTURE AND A CONCRETE SUBSTRUCTURE, WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE: 50.20 FEET
 LENGTH OF ROADWAY: 108.14 FEET
 LENGTH OF PROJECT: 158.34 FEET



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	06-07-2012
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83 (2007)

Stantec
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DIRECTOR OF PROJECT DELIVERY	
APPROVED _____	DATE _____
PROJECT MANAGER : WENDY PELLETIER, P. E.	
PROJECT NAME :	JAY
PROJECT NUMBER :	BHF 0278 (3)
SHEET 1	OF 71 SHEETS

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
E-120	STANDARD SIGN PLACEMENT - EXPRESSWAY & FREEWAY	08-08-1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
G-1B	BOX BEAM GUARDRAIL	08-09-1995
J-3	MAIL BOX SUPPORT DETAILS	08-09-1995
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	06-01-1994
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	08-07-1995
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	04-23-2012
T-10	CONVENTIONAL ROADS AND CONSTRUCTION APPROACH SIGNING	04-23-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	08-06-2012
T-45	SQUARE TUBE SIGN POST AND ANCHOR	08-06-2012
		04-09-1014
		01-02-2013

HYDROLOGIC DATA

Date: July 2015

DRAINAGE AREA : 9.2 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested with some development
 STREAM CHARACTERISTICS : Sinuous, semi-alluvial. Grade transition from steep to flatter.
 NATURE OF STREAMBED : Sand, gravel, cobbles, boulders and ledge

PEAK FLOW DATA

Q 2.33 =	550 cfs	Q 50 =	1800 cfs
Q 10 =	1100 cfs	Q 100 =	2100 cfs
Q 25 =	1500 cfs	Q 500 =	3000 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 14.7 fps
 ICE CONDITIONS : Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:

WATERSHED STORAGE: < 1% HEADWATERS:
 UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete T-beam bridge
 YEAR BUILT: Built 1927, reconstructed 1964
 CLEAR SPAN(NORMAL TO STREAM): 22'
 VERTICAL CLEARANCE ABOVE STREAMBED: 8'
 WATERWAY OF FULL OPENING: 175 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace with new bridge.
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1030.3'	VELOCITY =	9.8 fps
Q10 =	1032.5'	"	12.4 fps
Q25 =	1033.9'	"	13.8 fps
Q50 =	1035.0'	"	14.6 fps
Q100 =	1036.0'	"	15.1 fps

LONG TERM STREAMBED CHANGES: Scour hole through bridge and at outlet.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1036.2'
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Jay DISTANCE: 2,100'
 HIGHWAY #: TH 23 STRUCTURE #: 13
 CLEAR SPAN: 36' CLEAR HEIGHT: 10'
 YEAR BUILT: 1955, reconstructed 2008 FULL WATERWAY:
 STRUCTURE TYPE: I-beam bridge

DOWNSTREAM STRUCTURE

TOWN: Jay DISTANCE: 5,800'
 HIGHWAY #: TH 1 STRUCTURE #: 6
 CLEAR SPAN: 41' CLEAR HEIGHT: 8'
 YEAR BUILT: 1971 FULL WATERWAY:
 STRUCTURE TYPE: I-beam bridge

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	36.6	40					
POSTING							
OPERATING	28.2	51.8	69.8	62.3	40.5	42.8	60.4
COMMENTS:							

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	02-09-2012
SD-502.00	CONCRETE DETAILS AND NOTES	10-10-2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	08-29-2011
SD-601.00	STRUCTURAL STEEL DETAILS & NOTES	06-04-2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER AND NOTES	05-02-2011

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2015	1400	290	62	11.6	170	20 year ESAL for flexible pavement from 2015 to 2035 : 478500
2035	1500	300	62	15.6	240	40 year ESAL for flexible pavement from 2015 to 2055 : 0
						Design Speed : 40 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck
 CLEAR SPAN(NORMAL TO STREAM): 40'
 VERTICAL CLEARANCE ABOVE STREAMBED: 9'
 WATERWAY OF FULL OPENING: 328 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1029.9'	VELOCITY =	9.8 fps
Q10 =	1031.0'	"	12.4 fps
Q25 =	1031.8'	"	13.8 fps
Q50 =	1032.5'	"	14.6 fps
Q100 =	1033.1'	"	15.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1036.2'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1035.9' upstr., 1033.9' dnstr.
 VERTICAL CLEARANCE: @ Q50 = 3.4' upstr. & 1.4' dnstr. above approach W.S.E.

SCOUR: 0' of contraction scour up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: - DEPTH OR ELEVATION:
 ORDINARY LOW WATER: -
 ORDINARY HIGH WATER: -

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Use phased construction.
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. INSTALL AND MAINTAIN TRAFFIC SIGNALS.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

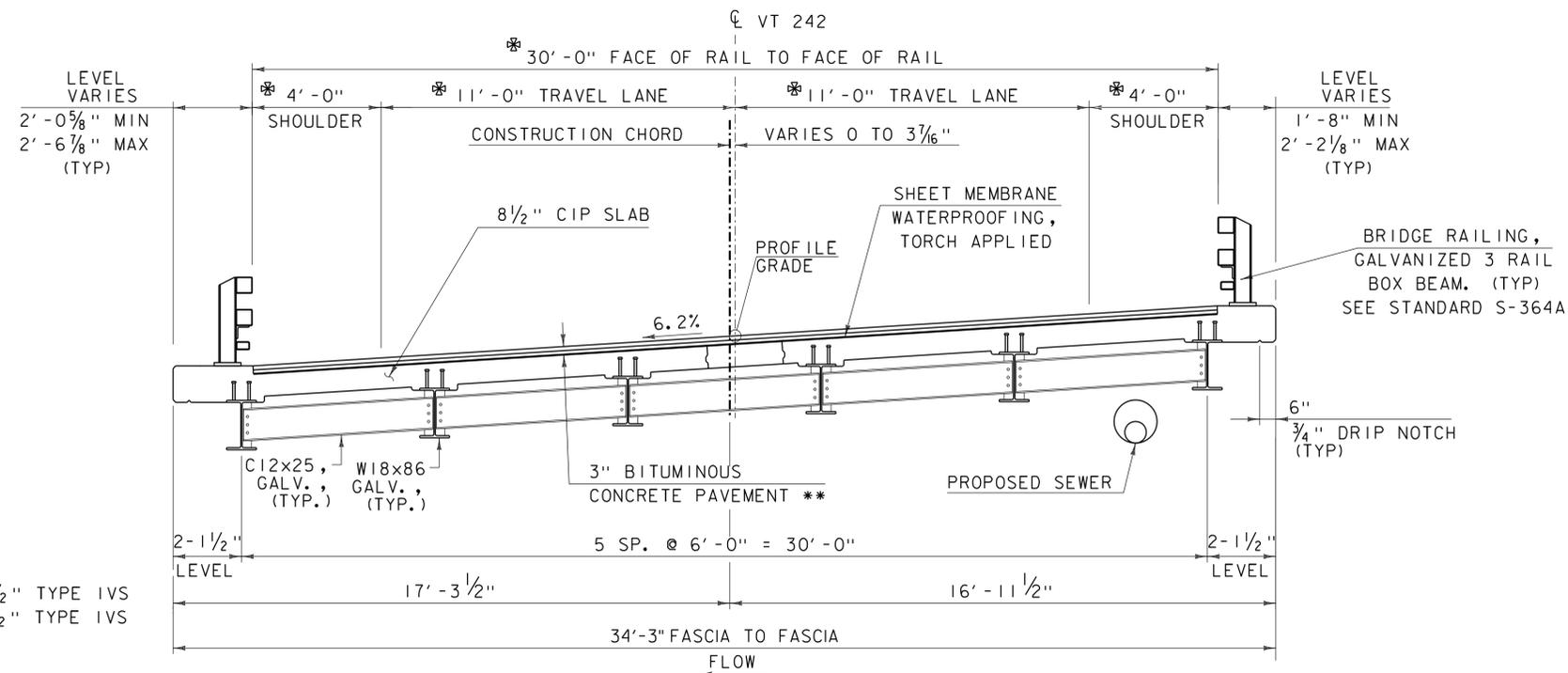
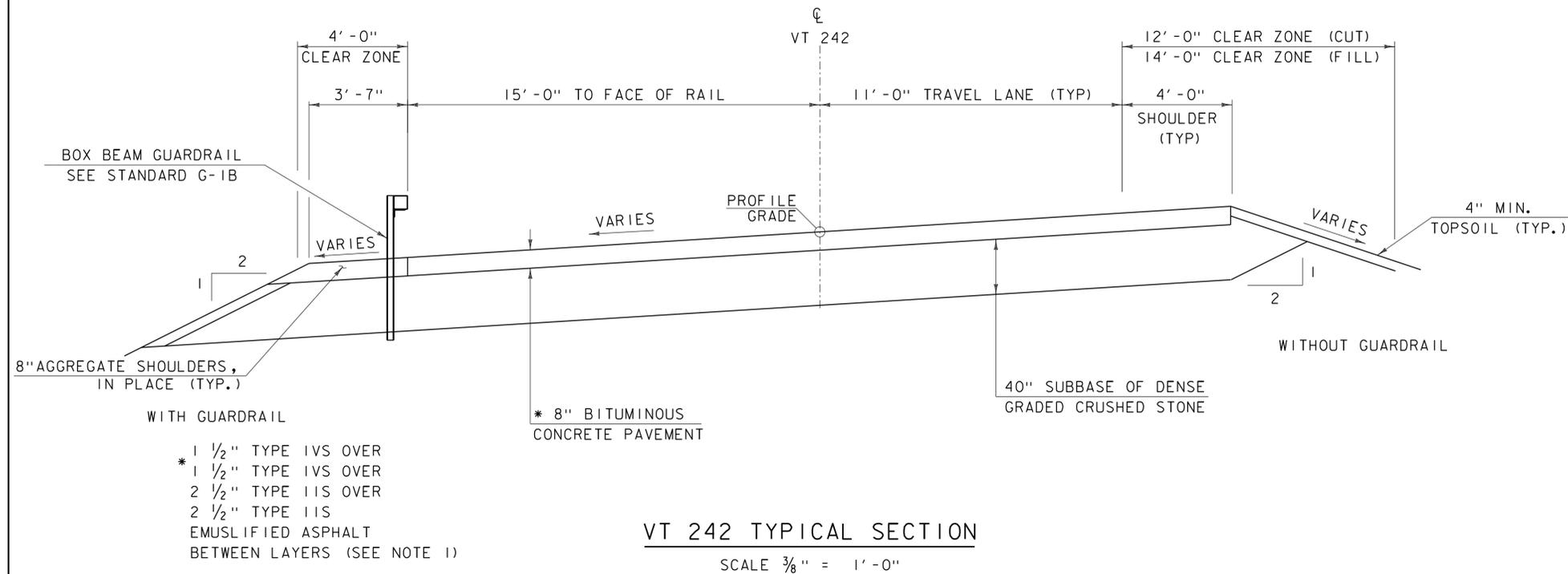
1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	---
3. DESIGN SPAN	L: 45.41 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f _y : ---
6. PRESTRESSED CONCRETE STRENGTH	f' _c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _c : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _c : 3.5 KSI
11. CONCRETE, CLASS C	f' _c : 3.0 KSI
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : ---
14. NOMINAL BEARING RESISTANCE OF SOIL	q _n : ---
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	q _n : 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
18. PILE RESISTANCE FACTOR	φ: ---
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V _{3s} : ---
21. MINIMUM GROUND SNOW LOAD	p _g : ---
22. SEISMIC DATA	PGA: 0 S _s : --- S _f : ---
23.	---
24.	---
25.	---
26.	---

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: Jay PI sheet.xls PLOT DATE: 3/24/2015
 PROJECT LEADER: M. Chenette DRAWN BY: L. Buxton
 DESIGNED BY: G. Bogue CHECKED BY: M. Chenette
 PRELIMINARY INFORMATION SHEET 1 SHEET 2 OF 71

MATERIAL TOLERANCES

(IF USED ON PROJECT)

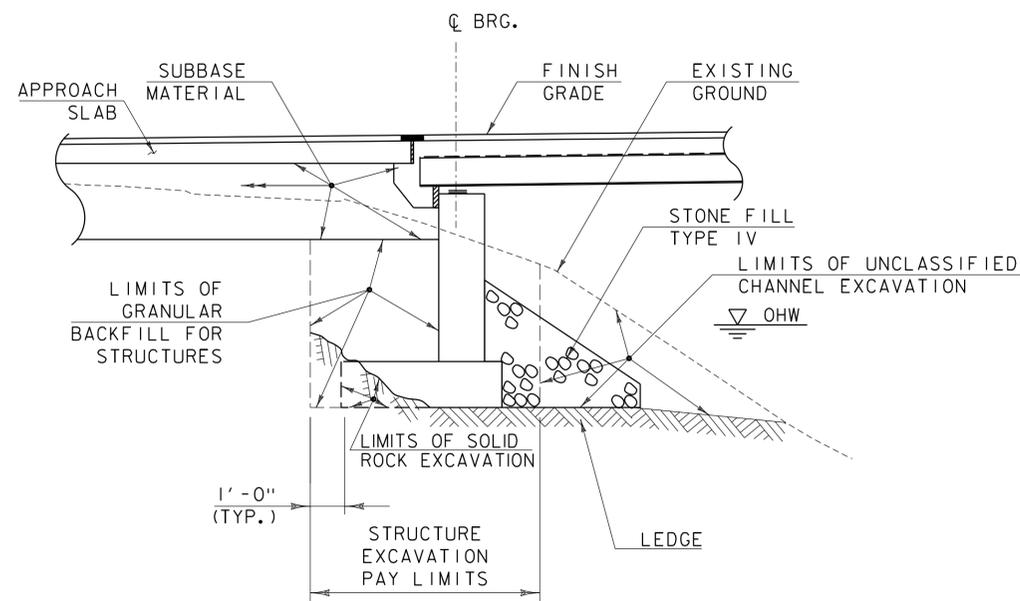
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



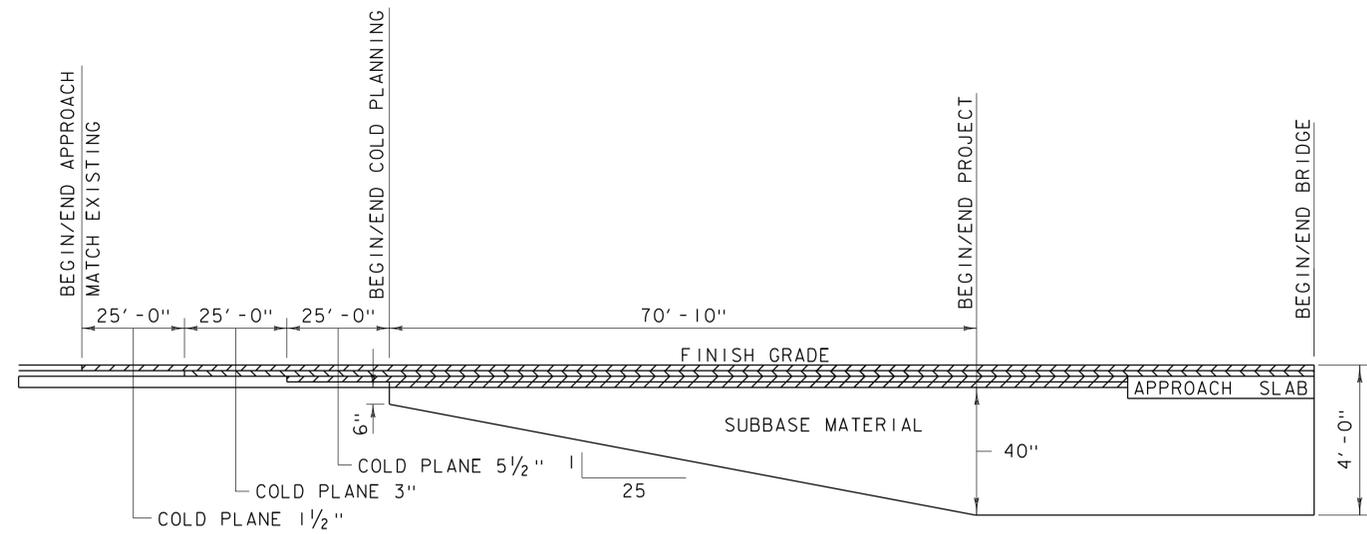
NOTES:
1. EMULSIFIED ASPHALT SHALL BE APPLIED ON COLD PLANED SURFACES AT THE RATE OF 0.08 GAL/SY AND BETWEEN PAVED LAYERS AT THE RATE OF 0.04 GAL/SY. EMULSIFIED ASPHALT TO BE PAID UNDER ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154+yp.dgn	CHECKED BY: M. CHENETTE
PROJECT LEADER: M. CHENETTE	SHEET 3 OF 71
DESIGNED BY: N. TIRK	
TYPICAL SECTIONS - TYP 1	

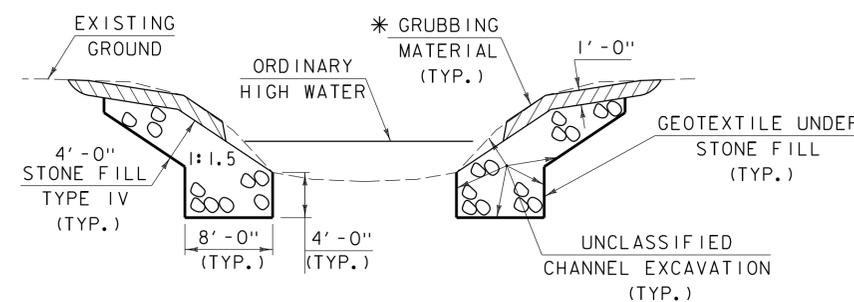




TYPICAL EARTHWORK SECTION
(NOT TO SCALE)

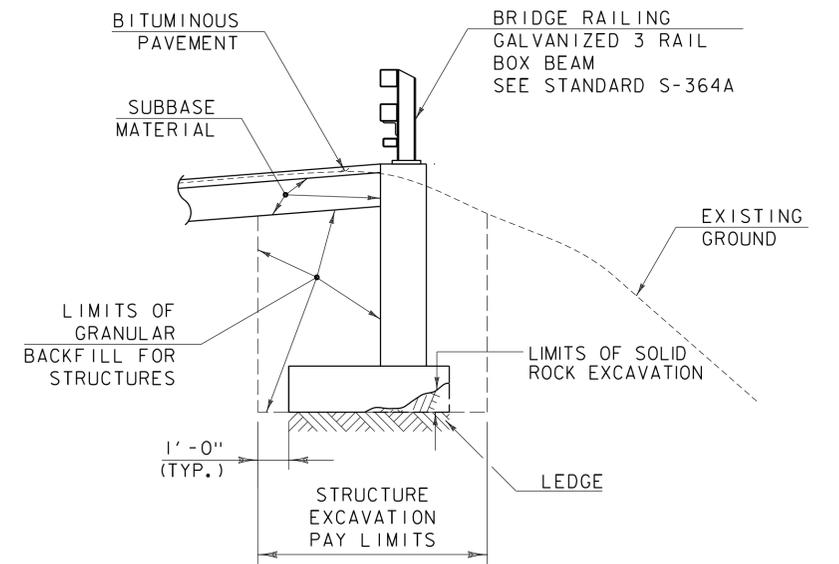


TYPICAL APPROACH SECTION
(ELEVATION IN CUT AND FILL)
(NOT TO SCALE)

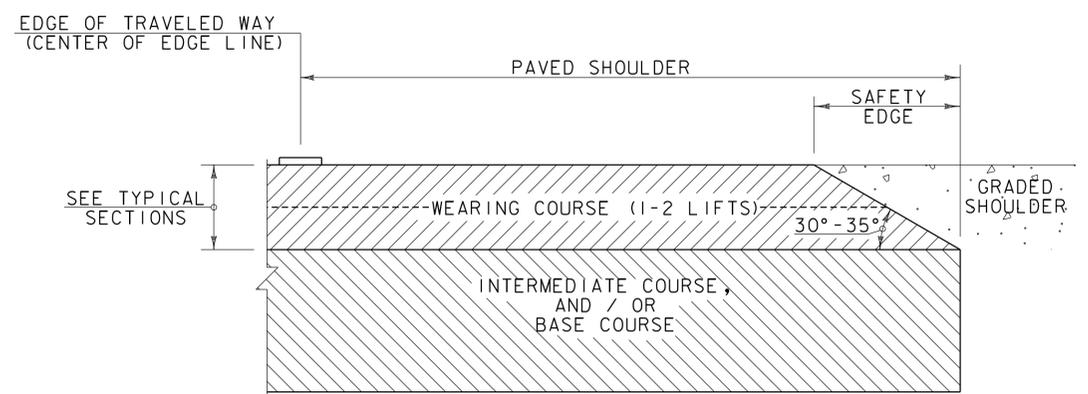


CHANNEL TYPICAL SECTION
NOT TO SCALE

* GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

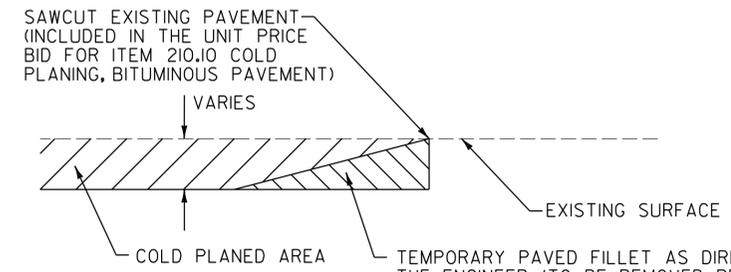


TYPICAL WINGWALL SECTION - UPSTREAM
(NOT TO SCALE)



SAFETY EDGE DETAIL
NOT TO SCALE

- NOTES:
1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
 2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



DETAIL AT VERTICAL COLD PLANE JOINTS

NOTE: THIS DETAIL SHALL BE USED AT THE LOCATIONS SHOWN ABOVE AS DIRECTED BY THE ENGINEER.



PROJECT NAME:	JAY	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	DRAWN BY:	L. BUXTON
FILE NAME:	z12c154typ.dgn	DESIGNED BY:	N. TIRK
PROJECT LEADER:	M. CHENETTE	CHECKED BY:	M. CHENETTE
TYPICAL SECTIONS - TYP 2			SHEET 4 OF 71

GENERAL PROJECT NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SEVENTH EDITION DATED 2014, AND ITS LATEST REVISIONS.
2. THE BRIDGE IS DESIGNED FOR AN HL-93 LIVE LOAD.
3. ITEM 529.15 "REMOVAL OF STRUCTURE" IS FOR THE REMOVAL OF THE EXISTING STRUCTURE INCLUDING THE SUPERSTRUCTURE, ABANDONED UTILITIES AND APPURTENANCES AND ABUTMENTS INCLUDING THE FOOTING AND ANY PORTION OF THE SUBSTRUCTURE OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.
4. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
5. ALL CONSTRUCTION AND ACCESS SHALL BE WITHIN THE RIGHT OF WAY UNLESS SHOWN ON THE ROW PLANS OR APPROVED IN WRITING BY THE PROPERTY OWNER AND VTRANS ENVIRONMENTAL PERMITTING. THE CONTRACTOR SHALL COORDINATE DIRECTLY WITH THE PROPERTY OWNER(S) TO OBTAIN WRITTEN APPROVAL OF LAND USE OUTSIDE THE RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT COPIES OF THE WRITTEN PROPERTY AGREEMENTS TO THE RESIDENT ENGINEER.

CONCRETE AND REINFORCING STEEL

6. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH UNLESS NOTED OTHERWISE.
7. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
8. REINFORCING PLACEMENT TOLERANCES SHALL BE:
SPACING 1 INCH
CLEARANCE +/- 1/4 INCH
9. ITEM 514.10 WATER REPELLANT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF DECK BETWEEN DRIP BEADS.
10. ALL REINFORCEMENT IN THE SUPERSTRUCTURE (INCLUDING CURTAIN WALLS) SHALL PROVIDE LEVEL II CORROSION RESISTANCE. LEVEL I CORROSION RESISTANCE IS ACCEPTABLE FOR THE SUBSTRUCTURE.
11. CONCRETE FOR THE DECK AND CURTAIN WALL SHALL BE ITEM 501.33, CONCRETE, HIGH PERFORMANCE CLASS A. CONCRETE FOR THE SUBSTRUCTURE SHALL BE HIGH PERFORMANCE CLASS B AND WILL BE PAID FOR UNDER ITEM 501.34, CONCRETE, HIGH PERFORMANCE CLASS B.
12. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. OTHER BRIDGE SEAT AREAS SHALL BE SLOPED 1/4 INCH PER FOOT. THE ABUTMENT SEATS SHALL BE SLOPED FULL WIDTH TOWARD MIDSPAN. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE GIVEN A MAGNESIUM FLOAT FINISH.
13. NO CONCRETE SHALL BE PLACED IN THE ABUTMENTS OR WINGWALLS ABOVE THE ADJACENT BEAM SEAT ELEVATIONS UNTIL THE BEAMS HAVE BEEN SET.
14. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE.
15. CLEAR COVER ON REINFORCING STEEL SHALL BE PER THE FOLLOWING LIST UNLESS NOTED OTHERWISE:

<u>LOCATION</u>	<u>CLEAR COVER</u>
(INCHES)	
UNDERSIDE OF BRIDGE DECK _____	1.5
EXPOSED TO EARTH OR WEATHER _____	2
TOP OF PAVED BRIDGE DECK _____	2.5
DIRECT EXPOSURE TO DEICING SALTS (CURBS, DECK FASCIA AND EXPOSED FACES OF WALLS) _____	3
CAST AGAINST EARTH _____	3
16. STAY-IN-PLACE CORRUGATED METAL FORMS WILL BE ALLOWED FOR FORMING THE DECK. DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH SUBSECTION 501.09. IF THE CONTRACTOR DESIRES TO USE PRECAST DECK FORMS, OR FULL DEPTH PRECAST CONCRETE DECK PANELS, THEY SHALL SUBMIT A DESIGN TO VTRANS FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 510.
17. WATER REPELLENT, SILANE IS TO BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.

STRUCTURAL STEEL

18. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 50. STRUCTURAL STEEL IS TO BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 506.15(A) AND SHALL BE PAID FOR UNDER ITEM 506.50, "STRUCTURAL STEEL, ROLLED BEAM".
19. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF EACH GIRDER UNDER THE DIRECTION OF THE ENGINEER. THESE ELEVATIONS SHALL BE USED IN DETERMINING FINAL GRADE.
20. ALL CONNECTIONS USING 7/8 INCH DIAMETER BOLTS CONFORMING TO AASHTO M 164 TYPE I GALVANIZED. HOLES SHALL BE 15/16 INCH DIAMETER, UNLESS OTHERWISE NOTED. BOLTS THAT HAVE BEEN FULLY TIGHTENED SHALL NOT BE REUSED.
21. ANY HOLES IN THE FASCIA BEAMS NOT OTHERWISE FILLED SHALL BE FITTED WITH BUTTON HEAD OR HEX HEAD BOLTS CONFORMING TO TYPE 1 GALVANIZED. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.
22. BEAMS ARE TO BE CHARPY-V NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.
23. BEAM WEBS SHALL BE PLUMB IN THEIR FINAL POSITION.
24. WHERE GALVANIZING HAS BEEN REMOVED BY ANY MEANS FROM BRIDGE COMPONENTS INCLUDING ASSOCIATED HARDWARE, IT SHALL BE REPAIRED IN ACCORDANCE WITH SUBSECTION 726.08 OF THE SPECIFICATIONS. COSTS FOR THIS WORK SHALL BE INCIDENTAL TO THE ITEM UNDER WHICH THE GALVANIZED COMPONENT IS PROVIDED.
25. CONNECTIONS NOT DETAILED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL.

GEOTECHNICAL

26. THE TOP OF THE FOOTING ELEVATION WAS SET BASED ON THE LOWEST ANTICIPATED LEDGE ELEVATION DETERMINED FROM THE BORINGS. LEDGE ELEVATIONS MAY VARY AND ADJUSTMENTS IN BOTTOM OF FOOTING ELEVATION AND GEOMETRY ARE EXPECTED.
27. IN AREAS WHERE THE FOOTINGS WILL BEAR ON BEDROCK ALL SOIL, WEATHERED ROCK AND FRACTURED ROCK SHALL BE REMOVED FROM THE BEDROCK SURFACE PRIOR TO PLACING CONCRETE FOR THE FOOTING.
28. UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER AND THE VTRANS STATE GEOLOGIST. THE GEOLOGIST WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE GEOLOGIST 72 HOURS IN ADVANCE WHEN THE ANALYSIS WILL BE NEEDED.
29. A MAXIMUM OF 6" OVER BREAKAGE WILL BE REPLACED WITH "HIGH PERFORMANCE CLASS B CONCRETE. OVER BREAKAGE BEYOND 6" SHALL BE REPLACED WITH "HIGH PERFORMANCE CLASS B CONCRETE" AT THE EXPENSE OF THE CONTRACTOR.
30. THE ABUTMENTS HAVE BEEN DESIGNED FOR THE TOP OF THE FOOTING ELEVATIONS AS SHOWN ON PLANS. FOR ALL SUBSTRUCTURES, WHERE LEDGE IS WITHIN ONE FOOT BELOW THE BOTTOM OF THE AS DESIGNED FOOTING, THE FOOTING MAY BE POURED TO THE TOP OF THE LEDGE USING "CONCRETE, HIGH PERFORMANCE CLASS B". IF THE LEDGE ELEVATION IS GREATER THAN 1'-0" BELOW THE DESIGN BOTTOM OF FOOTING, A SUB-FOOTING SHALL BE POURED SO THAT THE DESIGN TOP OF FOOTING IS AT THE REQUIRED ELEVATION, USING "CONCRETE, CLASS C". THE LIMITS OF THE SUBFOOTING SHALL BE 1'-0" OUTSIDE THE LIMITS OF THE FOOTING.
31. A QUANTITY FOR ITEM 507.16 "DRILLING AND GROUTING DOWELS" HAS BEEN INCLUDED FOR THE DRILLING AND GROUTING OF #8 DOWELS AT THE INTERFACE BETWEEN THE FOOTING (OR SUB-FOOTING) AND THE LEDGE. THE ROCK DOWEL TO FOOTING CONNECTION MAY BE OMITTED AS DIRECTED BY THE ENGINEER IF THE SLOPE OF THE LEDGE SURFACE IS FLATTER THAN 1 VERTICAL TO 4 HORIZONTAL. ALTERNATELY, THE CONTRACTOR SHALL EXCAVATE THE SLOPE TO BE COMPLETELY LEVEL OR BENCHED IN LEVEL STEPS AS DIRECTED BY THE ENGINEER.
32. IN THE EVENT THAT A SUB-FOOTING IS REQUIRED, #8 DOWELS SHALL BE USED AT THE INTERFACE BETWEEN THE SUB-FOOTING AND FOOTING. THESE DOWELS SHALL BE EMBEDDED A MINIMUM OF 1'-6" INTO THE SUB-FOOTING AND SHALL EXTEND A MINIMUM OF 1'-6" INTO THE FOOTING AND SPACED AT 4'-0" ON CENTER AROUND THE PERIMETER OF THE FOOTING.

33. IF LEDGE IS ABOVE THE DESIGN BOTTOM OF FOOTING, THE FOOTING MAY BE RAISED. BEFORE ANY UPWARD ADJUSTMENT IS MADE IN FOOTING ELEVATION, THE PROJECT MANAGER SHALL BE CONTACTED AND PROVIDED WITH A LEDGE PROFILE. NO FURTHER WORK SHALL BE DONE UNTIL APPROVAL OF THE CONFIGURATION IS RECEIVED.
34. ABUTMENT AND WINGWALL FOOTINGS SHALL BEAR ON LEDGE.

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z120154gen.nts.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: T. KNIGHT
GENERAL NOTES

PLOT DATE: 8/24/2015
DRAWN BY: L. BUXTON
CHECKED BY: G. BOGUE
SHEET 5 OF 71



QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						ROADWAY	EROSION CONTROL	UTILITIES (NO FEDERAL PARTICIPATIO	BRIDGE NO. 10	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
						900					900		CY	COMMON EXCAVATION	203.15				
									21		21		CY	SOLID ROCK EXCAVATION	203.16		900	CY	FILL AVAILABLE COMMON EXCAVATION
									570		570		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		21	CY	SOLID ROCK EXCAVATION
						1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		570	CY	UNCLASSIFIED CHANNEL EXCAVATION
									640		640		CY	STRUCTURE EXCAVATION	204.25		640	CY	STRUCTURE EXCAVATION
									190		190		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		2131	CY	TOTAL AVAILABLE FILL
									1		1		LS	COFFERDAM (COFFERDAM, ABUT. 1)	208.40				FILL REQUIRED PLANIMETERED FILL
									1		1		LS	COFFERDAM (COFFERDAM, ABUT. 2)	208.40		20	CY	TOTAL FILL REQUIRED
						270					270		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
						830					830		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		2111	CY	TOTAL WASTE
									70		70		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
									210		210		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
									29400		29400		LB	STRUCTURAL STEEL, ROLLED BEAM (GALVINIZED)	506.50				
									20050		20050		LB	REINFORCING STEEL, LEVEL I	507.11				
									16800		16800		LB	REINFORCING STEEL, LEVEL II	507.12				
									110		110		LF	DRILLING AND GROUTING DOWELS	507.16				
									214		214		EACH	MECHANICAL BAR CONNECTOR	507.19				
									1		1		LS	SHEAR CONNECTORS (732- 7/8" DIAM. x 7")	508.15				
									10		10		GAL	WATER REPELLENT, SILANE	514.10				
									64		64		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									170		170		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
									64		64		LF	JOINT SEALER, HOT POURED	524.11				
									142		142		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335				
									1		1		EACH	REMOVAL OF STRUCTURE (REMOVAL OF BRIDGE #10 - 952 SF)	529.15				
									12		12		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD W/ EXT. LOAD PLATES	531.18				
									1		1		LS	PRECAST CONCRETE STRUCTURE (PRECAST STRUCTURE, APP SLAB 1)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (PRECAST STRUCTURE, APP SLAB 2)	540.10				
									60		60		CY	CONCRETE, CLASS C	541.30				
						10					10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
						10					10		HR	TRUCK RENTAL	608.37				
									500		500		CY	STONE FILL, TYPE IV	613.13				
						1					1		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10				
						100					100		LF	BOX BEAM GUARDRAIL	621.30				
						2					2		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
						4					4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	621.725				
						250					250		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
						20					20		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
						600					600		HR	FLAGGERS	630.15				
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
QUANTITY SHEET 1 - QTY 1

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: G. SANTY
SHEET 6 OF 71



QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						ROADWAY	EROSION CONTROL	UTILITIES (NO FEDERAL PARTICIPATIO	BRIDGE NO. 10	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										1	1		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
						1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
						2					2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
						900					900		LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402				
						900					900		LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412				
									360		360		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							150				150		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							12				12		LB	SEED	651.15				
							70				70		LB	FERTILIZER	651.18				
							1				1		TON	AGRICULTURAL LIMESTONE	651.20				
							1				1		TON	HAY MULCH	651.25				
							40				40		CY	TOPSOIL	651.35				
							360				360		SY	GRUBBING MATERIAL	651.40				
							1				1		LS	EPSC PLAN	652.10				
							20				20		HR	MONITORING EPSC PLAN	652.20				
							1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							360				360		SY	TEMPORARY EROSION MATTING	653.20				
							2				2		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
							40				40		CY	VEHICLE TRACKING PAD	653.35				
							2				2		EACH	FILTER BAG	653.45				
							310				310		LF	BARRIER FENCE	653.50				
							320				320		LF	PROJECT DEMARCATION FENCE	653.55				
						6					6		SF	TRAFFIC SIGNS, TYPE A	675.20				
						35					35		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						1					1		EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40				
									8		8		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
								1			1		LS	SPECIAL PROVISION (SANITARY SEWER)	900.645				
						1					1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1					1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						1					1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						25					25		SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675				
						430					430		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
QUANTITY SHEET 2 - QTY 2

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: G. SANTY
SHEET 7 OF 71



BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
						APP SLAB 1	ABUTMENT 1	SUPER-STRUCTURE	ABUTMENT 2	APP SLAB 2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
							15		6		21	CY	SOLID ROCK EXCAVATION	203.16			
							390		180		570	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
							410		230		640	CY	STRUCTURE EXCAVATION	204.25			
							135		55		190	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
							1				1	LS	COFFERDAM (COFFERDAM, ABUT. 1)	208.40			
									1		1	LS	COFFERDAM (COFFERDAM, ABUT. 2)	208.40			
								70			70	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33			
							130		80		210	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
								29400			29400	LB	STRUCTURAL STEEL, ROLLED BEAM (GALVINIZED)	506.50			
							12775		7275		20050	LB	REINFORCING STEEL, LEVEL I	507.11			
								16800			16800	LB	REINFORCING STEEL, LEVEL II	507.12			
							62.5		47.5		110	LF	DRILLING AND GROUTING DOWELS	507.16			
							12	190	12		214	EACH	MECHANICAL BAR CONNECTOR	507.19			
								1			1	LS	SHEAR CONNECTORS (732- 7/8" DIAM. x 7")	508.15			
							4	3	3		10	GAL	WATER REPELLENT, SILANE	514.10			
								64			64	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10			
								170			170	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20			
								64			64	LF	JOINT SEALER, HOT POURED	524.11			
								142			142	LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335			
								1			1	EACH	REMOVAL OF STRUCTURE (REMOVAL OF BRIDGE #10 - 952 SF)	529.15			
							6		6		12	EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD W/ EXT. LOAD PLATES	531.18			
						1					1	LS	PRECAST CONCRETE STRUCTURE (PRECAST STRUCTURE, APP SLAB 1)	540.10			
										1	1	LS	PRECAST CONCRETE STRUCTURE (PRECAST STRUCTURE, APP SLAB 2)	540.10			
							35		25		60	CY	CONCRETE, CLASS C	541.30			
							340		160		500	CY	STONE FILL, TYPE IV	613.13			
							245		115		360	SY	GEOTEXTILE UNDER STONE FILL	649.31			
						2.5	2		1	2.5	8	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608			

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: T. KNIGHT
BRIDGE QUANTITY SHEET 1

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: X. XXXX
SHEET 8 OF 71



GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R. O. W. ABBREVIATIONS (CODES) & SYMBOLS

POINT CODE	DESCRIPTION
CH	CHANNEL EASEMENT
CONST	CONSTRUCTION EASEMENT
CUL	CULVERT EASEMENT
D&C	DISCONNECT & CONNECT
DIT	DITCH EASEMENT
DR	DRAINAGE EASEMENT
DRIVE	DRIVEWAY EASEMENT
EC	EROSION CONTROL
HWY	HIGHWAY EASEMENT
I&M	INSTALL & MAINTAIN EASEMENT
LAND	LANDSCAPE EASEMENT
R&RES	REMOVE & RESET
R&REP	REMOVE & REPLACE
SR	SLOPE RIGHT
UE	UTILITY EASEMENT
(P)	PERMANENT EASEMENT
(T)	TEMPORARY EASEMENT
■	BNDNS BOUND SET
□	BNDNS BOUND TO BE SET
●	IPNS IRON PIN SET
⊙	IPNS IRON PIN TO BE SET
⊠	CALC EXISTING ROW POINT
○	PROW PROPOSED ROW POINT
[LENGTH]	LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT CODE	DESCRIPTION
⊕	APL BOUND APPARENT LOCATION
□	BM BENCHMARK
□	BND BOUND
⊠	CB CATCH BASIN
⊕	COMB COMBINATION POLE
⊠	DITHR DROP INLET THROATED DNC
⊕	EL ELECTRIC POWER POLE
○	FPOLE FLAGPOLE
○	GASFIL GAS FILLER
○	GP GUIDE POST
×	GSO GAS SHUT OFF
○	GUY GUY POLE
○	GUYW GUY WIRE
×	GV GATE VALUE
⊗	H TREE HARDWOOD
△	HCTRL CONTROL HORIZONTAL
△	HVCTRL CONTROL HORIZ. & VERTICAL
◇	HYD HYDRANT
●	IP IRON PIN
●	IPIPE IRON PIPE
⊠	LI LIGHT - STREET OR YARD
⊠	MB MAILBOX
○	MH MANHOLE (MH)
□	MM MILE MARKER
●	PM PARKING METER
□	PMK PROJECT MARKER
POST	POST POST STONE/WOOD
RRSIG	RAILROAD SIGNAL
RRSL	RAILROAD SWITCH LEVER
S	TREE SOFTWOOD
SAT	SATELLITE DISH
⊗	SHRUB SHRUB
⊠	SIGN SIGN
⊠	STUMP STUMP
⊠	TEL TELEPHONE POLE
○	TIE TIE
⊠	TSIGN SIGN W/DOUBLE POST
∧	VCTRL CONTROL VERTICAL
○	WELL WELL
×	WSO WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

— UGU —	UTILITY (GENERIC-UNKNOWN)
— UT —	TELEPHONE
— UE —	ELECTRIC
— UC —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEP.
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

— AGU —	UTILITY (GENERIC-UNKNOWN)
— T —	TELEPHONE
— E —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
—	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

— CZ —	CLEAR ZONE
—	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

—	TOP OF CUT SLOPE
—	TOE OF FILL SLOPE
—	STONE FILL
—	BOTTOM OF DITCH
—	CULVERT PROPOSED
—	STRUCTURE SUBSURFACE
PDF	PROJECT DEMARCATION FENCE
BF	BARRIER FENCE
—	TREE PROTECTION ZONE (TPZ)
—	STRIPING LINE REMOVAL
—	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

— TOWN LINE —	TOWN BOUNDARY LINE
— COUNTY LINE —	COUNTY BOUNDARY LINE
— STATE LINE —	STATE BOUNDARY LINE
—	PROPOSED STATE R.O.W. (LIMITED ACCESS)
—	PROPOSED STATE R.O.W.
—	STATE ROW (LIMITED ACCESS)
—	STATE ROW
—	TOWN ROW
—	PERMANENT EASEMENT LINE (P)
—	TEMPORARY EASEMENT LINE (T)
—	SURVEY LINE
P	PROPERTY LINE (P/L)
SR	SLOPE RIGHTS
6f	6F PROPERTY BOUNDARY
4f	4F PROPERTY BOUNDARY
HAZ	HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

—	FILTER CURTAIN
—	SILT FENCE
—	SILT FENCE WOVEN WIRE
—	CHECK DAM
—	DISTURBED AREAS REQUIRING RE-VEGETATION
—	EROSION MATTING

ENVIRONMENTAL RESOURCES

—	WETLAND BOUNDARY
—	RIPARIAN BUFFER ZONE
—	WETLAND BUFFER ZONE
—	SOIL TYPE BOUNDARY
T&E	THREATENED & ENDANGERED SPECIES
HAZ	HAZARDOUS WASTE AREA
AG	AGRICULTURAL LAND
HABITAT	FISH & WILDLIFE HABITAT
FLOOD PLAIN	FLOOD PLAIN
OHW	ORDINARY HIGH WATER (OHW)
—	STORM WATER
—	USDA FOREST SERVICE LANDS
—	WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

— ARCH —	ARCHEOLOGICAL BOUNDARY
— HISTORIC DIST —	HISTORIC DISTRICT BOUNDARY
— HISTORIC —	HISTORIC AREA
Ⓜ	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

—	ROAD EDGE PAVEMENT
—	ROAD EDGE GRAVEL
—	DRIVEWAY EDGE
—	DITCH
—	FOUNDATION
—	FENCE (EXISTING)
—	FENCE WOOD POST
—	FENCE STEEL POST
—	GARDEN
—	ROAD GUARDRAIL
—	RAILROAD TRACKS
—	CULVERT (EXISTING)
—	STONE WALL
—	WALL
—	WOOD LINE
—	BRUSH LINE
—	HEDGE
—	BODY OF WATER EDGE
—	LEDGE EXPOSED

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154legend.dgn PLOT DATE: 8/24/2015
PROJECT LEADER: M. CHENETTE DRAWN BY: VTRANS
DESIGNED BY: VTRANS CHECKED BY: VTRANS
CONVENTIONAL SYMBOLGY LEGEND SHEET 9 OF 71



BOX BEAM GUARDRAIL
 STA. 167+19.1 TO 167+37.1, RT
 STA. 167+68.8 TO 167+73.3, LT
 STA. 168+88.9 TO 168+93.7, RT
 STA. 168+90.4 TO 169+26.4, LT

APPROACH SECTION, GALVANIZED 3 RAIL BOXBEAM
 STA. 167+37.1 TO 167+69.1, RT
 STA. 167+73.6 TO 168+05.6, LT
 STA. 168+54.9 TO 168+88.9, RT
 STA. 168+56.4 TO 168+90.4, LT

MANUFACTURED TERMINAL END SECTION, TANGENT
 STA. 167+02.1 TO 167+19.1, RT
 STA. 169+26.4 TO 169+43.4, LT

DURABLE 4 INCH YELLOW LINE
 STA. 166+00.0 TO STA. 170+50.0, CL (DOUBLE)

DURABLE 4 INCH WHITE LINE
 STA. 166+00.0 TO STA. 170+50.0, LT
 STA. 166+00.0 TO STA. 170+50.0, RT

REMOVAL AND DISPOSAL OF GUARDRAIL
 STA. 167+53.7 TO 168+10.5, RT
 STA. 167+62.3 TO 168+18.6, LT
 STA. 168+39.4 TO 168+59.0, RT
 STA. 168+50.7 TO 169+54.9, LT

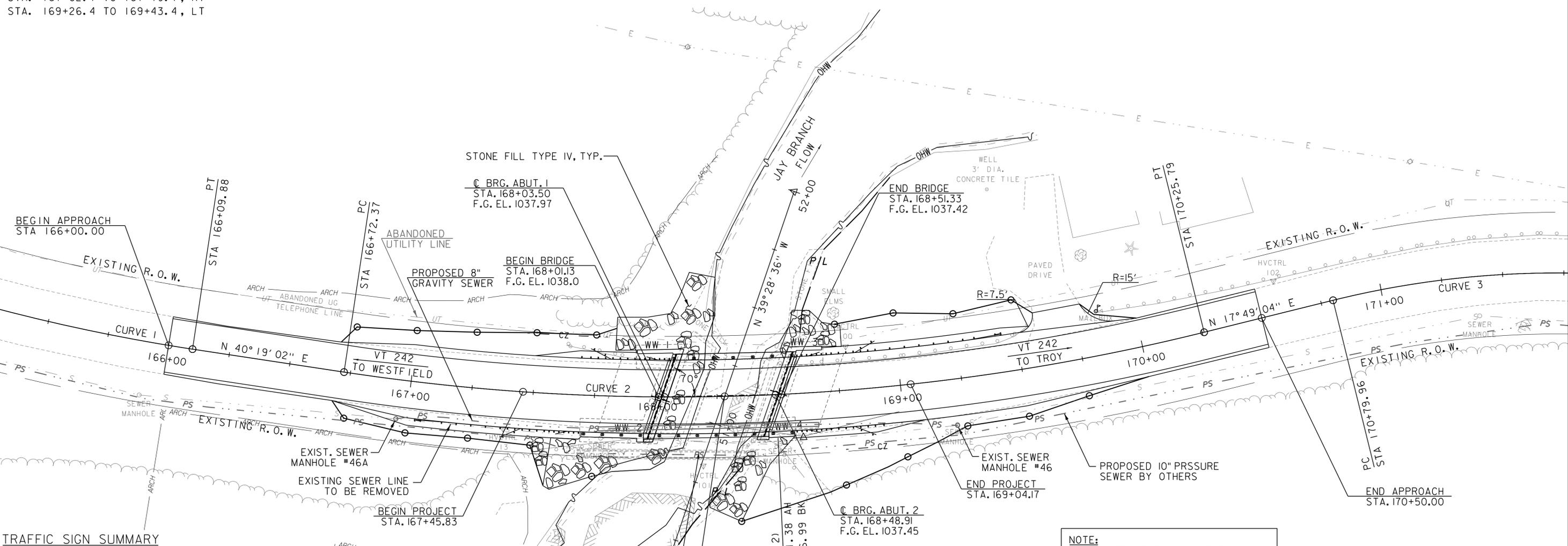
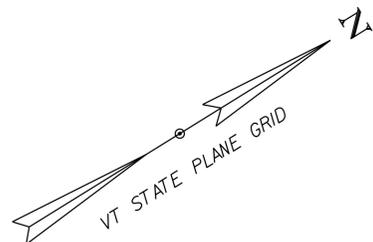
RELOCATE MAILBOX SINGLE SUPPORT
 STA. 169+83.9, LT

CONSTRUCT DRIVE
 STA. 169+67, LT (PAVED)

CURVE 1 DATA
 PC = 162+40.92
 DELTA = 27°48'56"
 D = 7°32'20"
 R = 760.00'
 T = 188.19'
 L = 368.96'
 E = 22.95'

CURVE 2 DATA
 DELTA = 22°29'57"
 D = 6°21'58"
 R = 900.00'
 T = 179.02'
 L = 353.42'
 E = 17.63'

CURVE 3 DATA
 PT = 173+33.55
 DELTA = 38°14'08"
 D = 15°04'40"
 R = 380.00'
 T = 131.72'
 L = 253.59'
 E = 22.18'



TRAFFIC SIGN SUMMARY

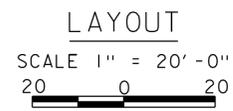
STATION	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGNS		NO. OF POSTS	NEW SIGN POSTS			REMARKS	DETAIL IN SHSM BOOK	STD. SHEET NUMBER	
		E	WIDTH (in)	HEIGHT (in)	"A"		"B"	SQUARE STEEL (in)					
								1.75	2.0				2.5
167+95, RT	BRIDGE 10 VT-242	I	6	10	0.42	I	X			X		VR-701	T-42
168+62, LT	BRIDGE 47 VT-242	I	6	10	0.42	I	X			X		VR-701	T-42
168+30, LT	SPEED LIMIT 40	I	24	30	5.00	I		X		X		R2-1	X
TOTALS				SF	SF				FT				
				5.84					31				

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

NOTE:
 THE CONTRACTOR SHALL FURNISH AND INSTALL PROPOSED 8" GRAVITY SEWER LINE BETWEEN EXISTING MANHOLES 46 AND 46A. PAYMENT WILL BE UNDER ITEM 900.645, SPECIAL PROVISION (SANITARY SEWER). SEE SHEET 62 FOR DETAILS.

EXISTING BRIDGE INFO
 CONCRETE T-BEAM BRIDGE
 28' SPAN, 34'-6" WIDE
 BUILT 1927,
 RECONSTRUCTED 1964

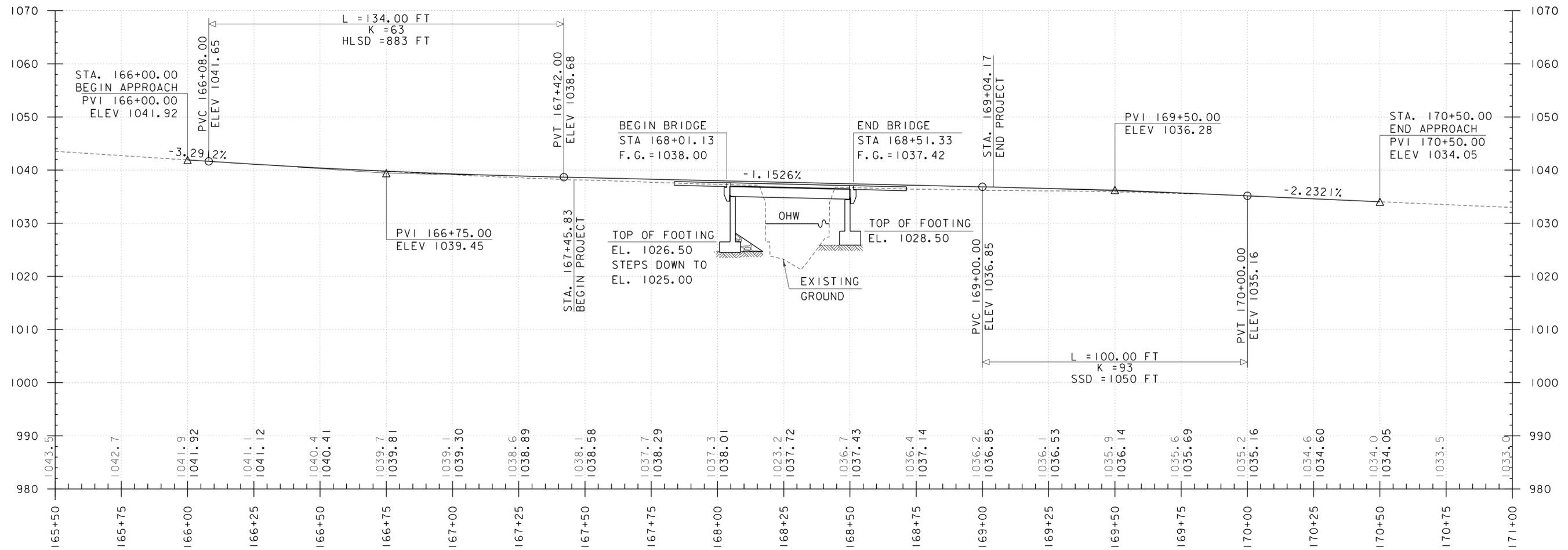
PROPOSED 10" PRESSURE SEWER AND PIPE BRIDGE BY OTHERS (TO BE CONSTRUCTED PRIOR TO THIS CONTRACT)



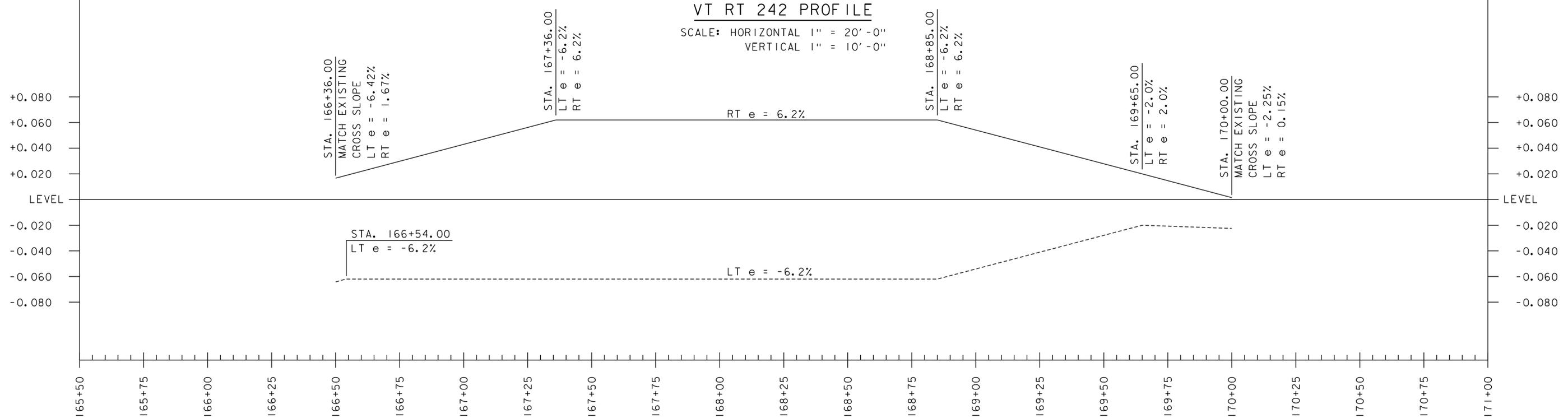
PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: z12cl54bdr.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: I. MAYNARD
 LAYOUT SHEET

PLOT DATE: 8/24/2015
 DRAWN BY: I. MAYNARD
 CHECKED BY: M. CHENETTE
 SHEET 11 OF 71





VT RT 242 PROFILE
 SCALE: HORIZONTAL 1" = 20' -0"
 VERTICAL 1" = 10' -0"



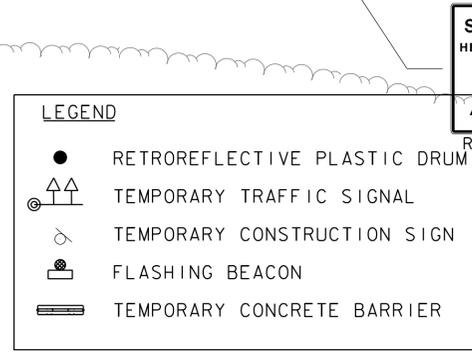
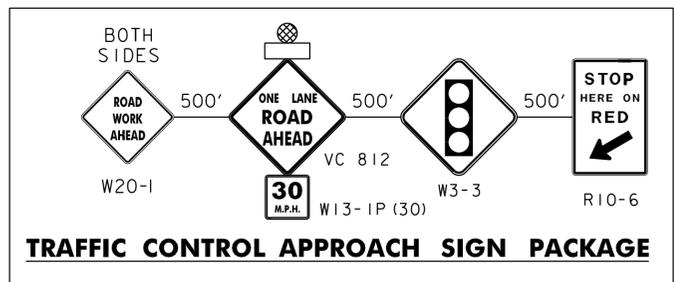
VT RT 242 BANKING DIAGRAM

SCALE: HORIZONTAL 1" = 20' -0"
 VERTICAL 1" = 4% SLOPE

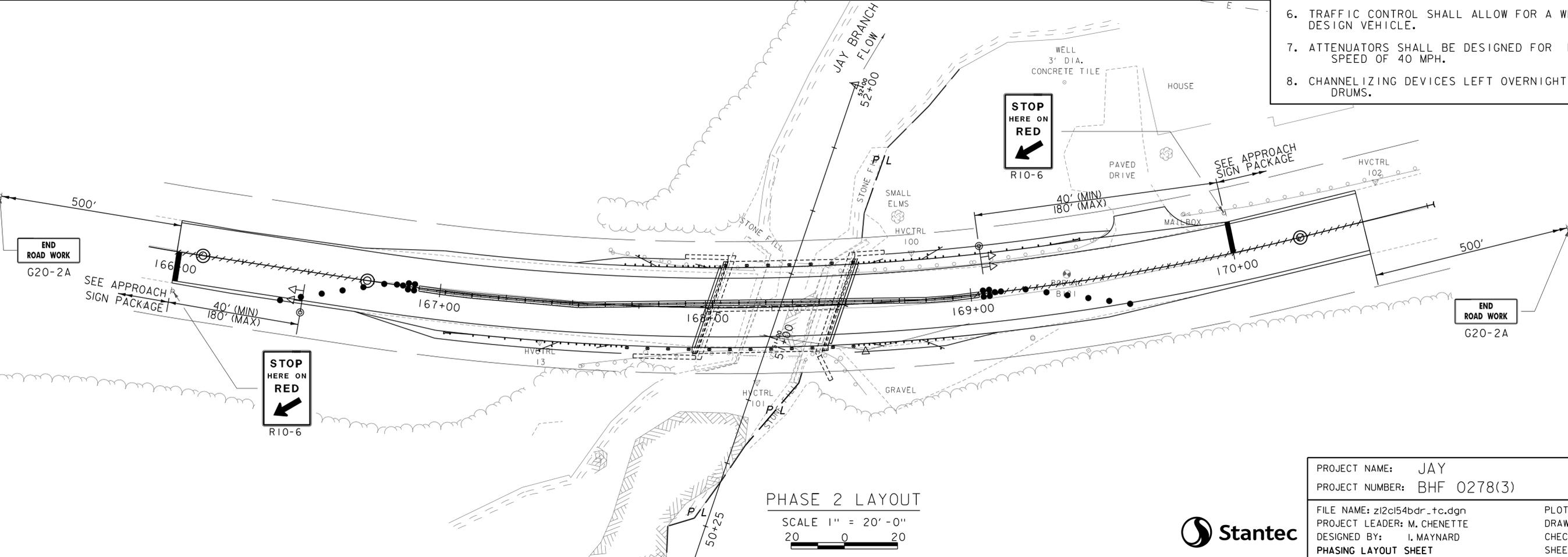
NOTE:
 GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ϕ
 GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ϕ

PROJECT NAME:	JAY	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	DRAWN BY:	I. MAYNARD
FILE NAME:	z12c154profile.dgn	CHECKED BY:	M. CHENETTE
PROJECT LEADER:	M. CHENETTE	SHEET	12 OF 71
DESIGNED BY:	I. MAYNARD		
PROFILE SHEET			



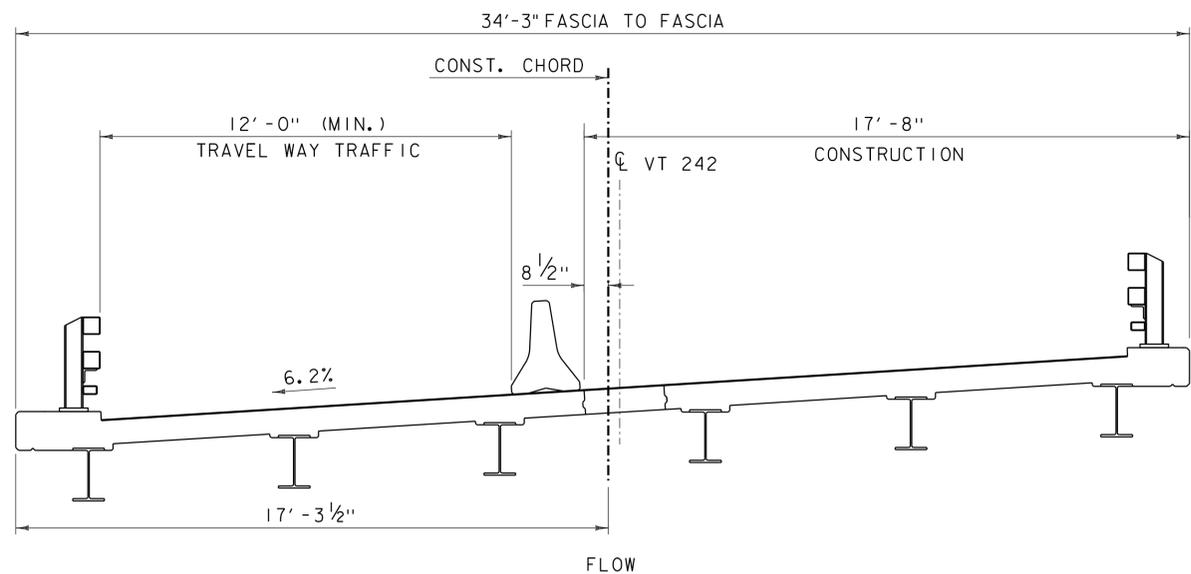


- NOTES:**
1. SEE PHASING TYPICAL AND NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND TEMPORARY SIGNAL NOTES.
 2. REFER TO STANDARD T-10 FOR CONSTRUCTION APPROACH SIGNS CRITERIA.
 4. CHANNELIZING DEVICE SPACING
TANGENT SECTIONS: 60 FT. (2X DESIGN SPEED LIMIT)
TAPER SECTIONS: 30 FT. (1X DESIGN SPEED LIMIT)
DESIGN SPEED THROUGH CONSTRUCTION ZONE = 30MPH
 5. ACCESS TO ALL EXISTING SIDE ROADS, DRIVES, AND PARKING AREAS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
 6. TRAFFIC CONTROL SHALL ALLOW FOR A WB-67 DESIGN VEHICLE.
 7. ATTENUATORS SHALL BE DESIGNED FOR POSTED SPEED OF 40 MPH.
 8. CHANNELIZING DEVICES LEFT OVERNIGHT SHALL BE DRUMS.



PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: I. MAYNARD
FILE NAME: z12c154bdr_tc.dgn	CHECKED BY: G. SANTY
PROJECT LEADER: M. CHENETTE	SHEET 13 OF 71
DESIGNED BY: I. MAYNARD	
PHASING LAYOUT SHEET	

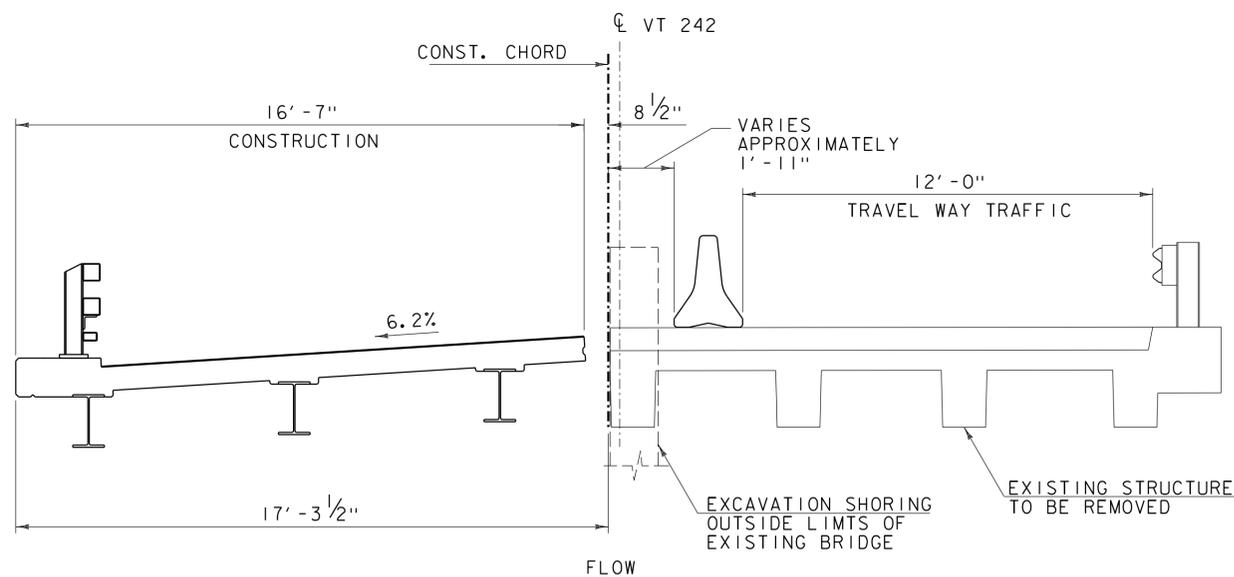




PHASE 2 BRIDGE TYPICAL SECTION

SCALE $\frac{3}{8}$ " = 1'-0"

DIMENSIONS ARE RADIAL UNLESS NOTED



PHASE 1 BRIDGE TYPICAL SECTION

SCALE $\frac{3}{8}$ " = 1'-0"

DIMENSIONS ARE RADIAL UNLESS NOTED

TRAFFIC CONTROL

1. THE TRAFFIC CONTROL PLANS ARE SCHEMATIC ONLY AND SHOULD BE USED AS A REFERENCE. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ONE LANE CLOSURES PER THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL ALLOW THE ENGINEER 14 CALENDAR DAYS TO REVIEW AND ACCEPT THE PROPOSED PLANS BEFORE THEY ARE TO BE IMPLEMENTED. NO WORK SHALL COMMENCE UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. DEVELOPMENT AND IMPLEMENTATION OF TRAFFIC CONTROL PLAN SHALL BE IN ACCORDANCE WITH ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL ALL INCLUSIVE).
2. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS OR CORNER SIGHT DISTANCE FROM HIGHWAYS OR DRIVES.
3. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
4. ORANGE SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
5. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.
6. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
7. FIXED SIGNS SHALL BE IN COMPLIANCE WITH VAOT CONSTRUCTION STANDARD E-121.
8. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED, STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
9. THE NUMBER OF CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY, THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.).
10. THE CONTRACTOR SHALL SHIFT TRAFFIC IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. ALL EQUIPMENT SHALL BE MOVED TO A LOCATION OUTSIDE OF THE CONSTRUCTION CLEAR ZONE (15') DURING NON-WORK PERIODS IF POSSIBLE. IF NOT POSSIBLE, EQUIPMENT SHALL BE OFF ROADWAY AND MARKED WITH CHANNELIZING DEVICES.
11. A 250 WATT MER/150 WATT HSP LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30 FEET ABOVE THE ROADWAY CENTERLINE. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT. LIGHTING SHALL BE PAID INCIDENTAL TO ITEM 678.40, TEMPORARY TRAFFIC SIGNAL SYSTEM.

TEMPORARY TRAFFIC SIGNALS:

1. TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL BE IN ACCORDANCE WITH ITEM 678.40, "TEMPORARY TRAFFIC SIGNAL SYSTEM".
2. DESIGN OF THE SIGNAL SUPPORTS AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. SIGNAL PHASING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED WITHIN A 48 HOUR PERIOD.
4. SIGNAL FACES SHALL BE LED AND CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
5. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16.5 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO INSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
6. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER FACES.
7. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM HOWEVER, THE USE OF PORTABLE SIGNALS IS ENCOURAGED. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE OF NO GREATER THAN 14.5 FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE CURRENT EDITION OF THE MUTCD FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
8. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
9. THE SIGNAL SYSTEM SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, FLASHING BEACONS, ASSOCIATED PAVEMENT MARKINGS, AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. IT ALSO INCLUDES PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
10. INSTALL WIRING BETWEEN SIGNAL POLES TO PROVIDE FOR A SAFE INSTALLATION. ATTACHMENT TO UTILITY POLES TO BE COORDINATED BY THE CONTRACTOR WITH THE UTILITY COMPANY.
11. PLACE TEMPORARY POLES BEHIND GUARDRAIL OR OUTSIDE OF THE CLEAR ZONE.
12. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELING PUBLIC.
13. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.



PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: z12c154+yp.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: N. TIRK
 PHASING TYPICAL SECTIONS AND NOTES

PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 14 OF 71

SOIL CLASSIFICATION

AASHTO

- A1 Gravel and Sand
- A3 Fine Sand
- A2 Silty or Clayey Gravel and Sand
- A4 Silty Soil - Low Compressibility
- A5 Silty Soil - Highly Compressible
- A6 Clayey Soil - Low Compressibility
- A7 Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊗ Auger Boring
- ⊙ Rod Sounding
- S Sample
- N Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 3/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- Si Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB Top of Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- %Rec. Percent Recovery
- ROD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)
- VTSPG NAD83 - See Note 7

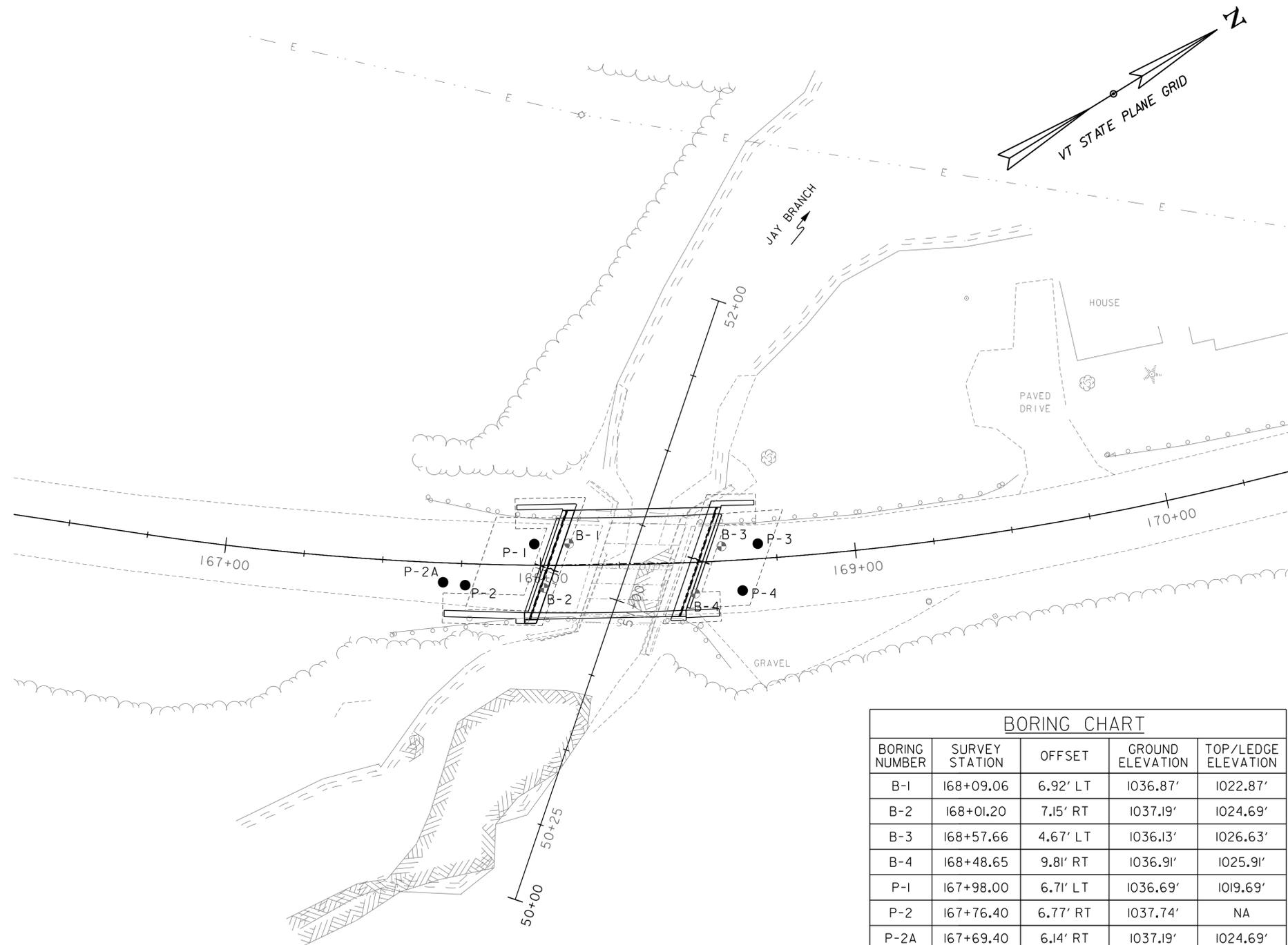
COLOR

- blk Black
- bl Blue
- brn Brown
- dk Dark
- gr'y Gray
- gn Green
- lt Light
- or Orange
- pnk Pink
- pu Purple
- rd Red
- tn Tan
- wh White
- yel Yellow
- mltc Multicolored

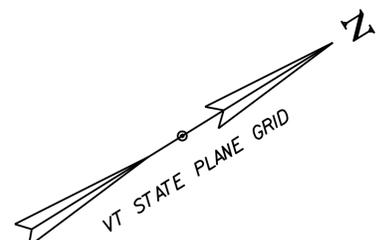
DEFINITIONS (AASHTO)

- BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.
- BOULDER - A rock fragment with an average dimension > 12 inches.
- COBBLE - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).
- SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).
- SLT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED - Alternate layers of silt and clay.
- HARDPAN - Extremely dense soil, cemented layer, not softened when wet.
- MUCK - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT - Weight of water divided by dry weight of soil.
- FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP - Inclination of bed with a horizontal plane.

- GENERAL NOTES**
- The subsurface explorations shown herein were made in April 2014 by NH Boring and Stantec Consulting Services, INC.
 - Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
 - Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
 - Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
 - Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
 - Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
 - Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.



BORING PLAN



BORING CHART				
BORING NUMBER	SURVEY STATION	OFFSET	GROUND ELEVATION	TOP/LEDGE ELEVATION
B-1	168+09.06	6.92' LT	1036.87'	1022.87'
B-2	168+01.20	7.15' RT	1037.19'	1024.69'
B-3	168+57.66	4.67' LT	1036.13'	1026.63'
B-4	168+48.65	9.81' RT	1036.91'	1025.91'
P-1	167+98.00	6.71' LT	1036.69'	1019.69'
P-2	167+76.40	6.77' RT	1037.74'	NA
P-2A	167+69.40	6.14' RT	1037.19'	1024.69'
P-3	168+69.24	4.77' LT	1035.96'	1026.46'
P-4	168+63.52	9.69' RT	1036.75'	1027.25'

LEGEND:

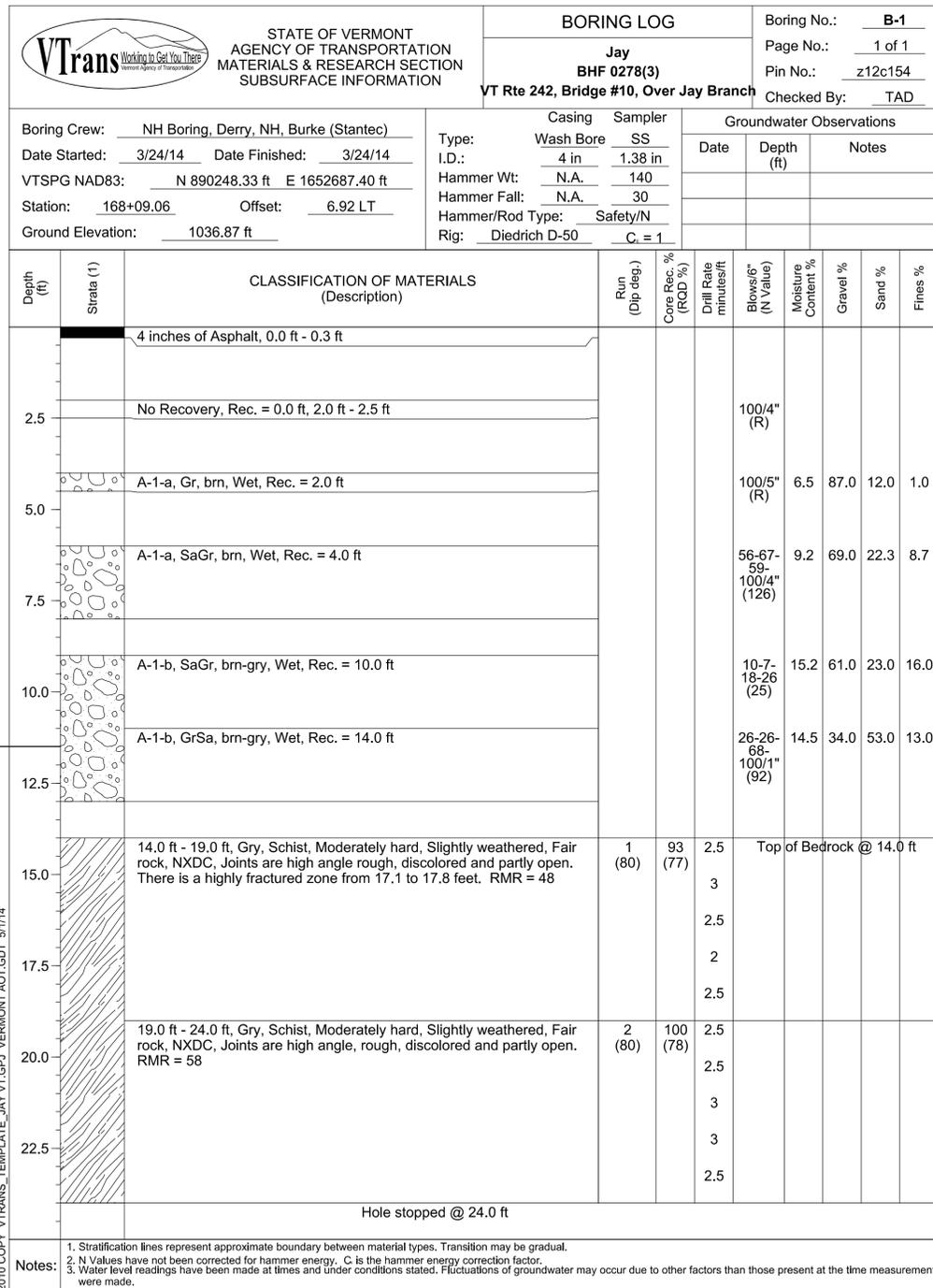
- ⊕ BRIDGE BORING
- PROBE

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

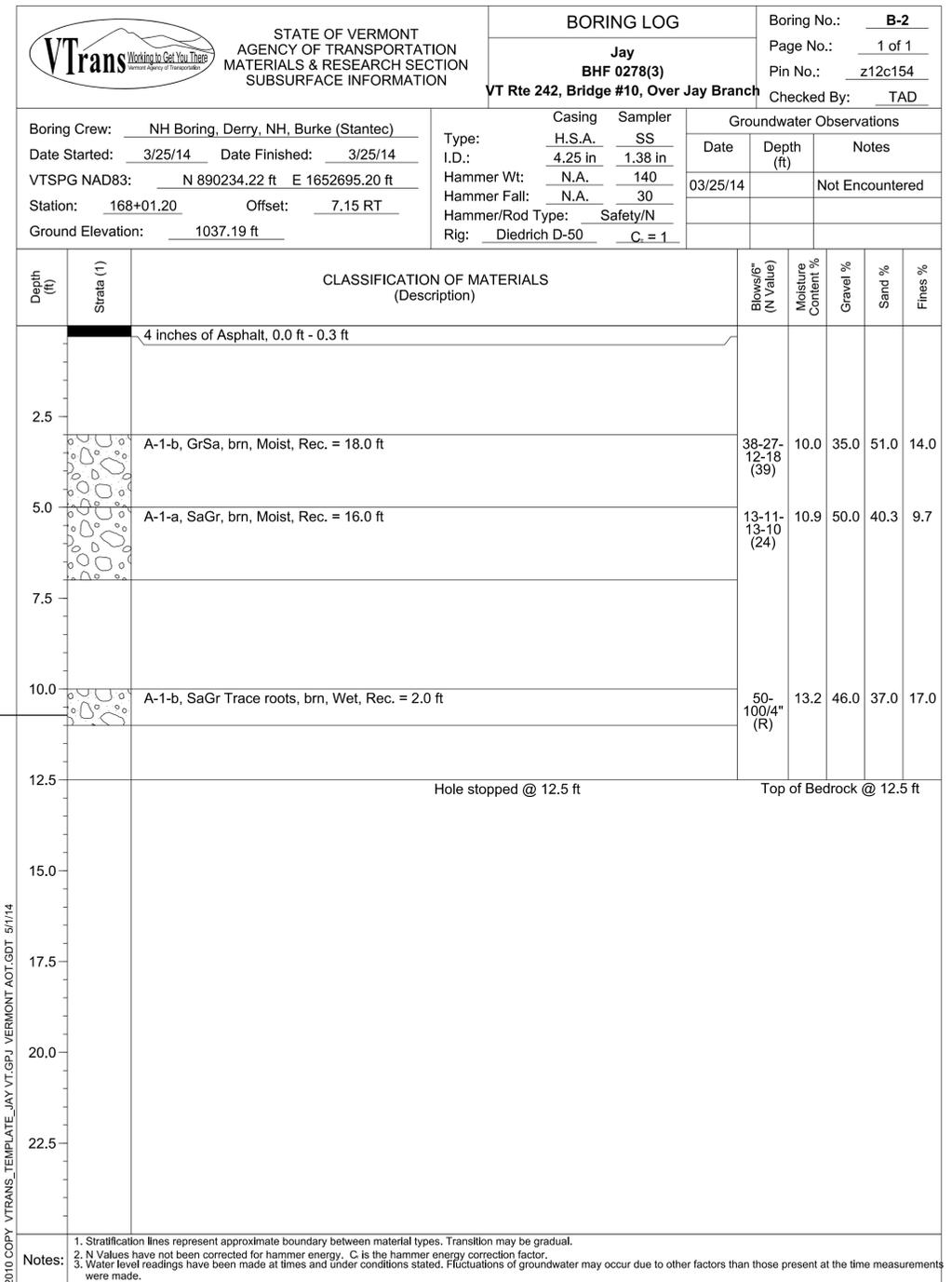
FILE NAME: z12cl54bdr_bor_pl.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BORING PLAN

PLOT DATE: 8/24/2015
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 15 OF 71





TOP OF FOOTING
EL. 1025.0



TOP OF FOOTING
EL. 1026.5

PROJECT NAME: **JAY**
 PROJECT NUMBER: **BHF 0278(3)**
 FILE NAME: z12c154bor_log.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: T. DYKSTRA
 BORING LOG I



PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: J. HUNGERFORD
 SHEET 16 OF 71

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG			Boring No.: B-3		
				Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch			Page No.: 1 of 1		
				Checked By: TAD			Pin No.: z12c154		
Boring Crew: NH Boring, Derry, NH, Burke (Stantec)				Casing		Sampler		Groundwater Observations	
Date Started: 3/25/14 Date Finished: 3/25/14				Type: H.S.A.		SS		Date	
VTSPG NAD83: N 890288.98 ft E 1652713.53 ft				I.D.: 4.25 in		1.38 in		Depth (ft)	
Station: 168+57.66 Offset: 4.67 LT				Hammer Wt: N.A.		140		Notes	
Ground Elevation: 1036.13 ft				Hammer Fall: N.A.		30		03/25/14	
				Hammer/Rod Type: Safety/N					
				Rig: Diedrich D-50		C = 1			
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		4 inches of Asphalt, 0.0 ft - 0.2 ft							
2.5		A-2-4, SiSa, brn, Moist, Rec. = 18.0 ft			56-50-54-38 (104)	17.6	2.0	72.0	26.0
5.0		A-2-4, SiSa, brn, Moist, Rec. = 20.0 ft			16-13-5-4 (18)	17.1	7.0	63.0	30.0
		A-2-4, SiSa, brn, Moist				12.1	2.0	75.0	23.0
7.5		Hole stopped @ 9.5 ft			Top of Bedrock @ 9.5 ft				
10.0									
12.5									
15.0									
17.5									
20.0									
22.5									

TOP OF FOOTING
EL. 1028.5

2010 COPY VTRANS_TEMPLATE_JAY_VT.GPJ VERMONT AOT.GDT 5/1/14

Notes:
 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

TOP OF FOOTING
EL. 1028.5

2010 COPY VTRANS_TEMPLATE_JAY_VT.GPJ VERMONT AOT.GDT 5/1/14

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG			Boring No.: B-4					
				Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch			Page No.: 1 of 1					
				Checked By: TAD			Pin No.: z12c154					
Boring Crew: NH Boring, Derry, NH, Burke (Stantec)				Casing		Sampler		Groundwater Observations				
Date Started: 3/24/14 Date Finished: 3/26/14				Type: Wash Bore		SS		Date				
VTSPG NAD83: N 890274.08 ft E 1652721.87 ft				I.D.: 4 in		1.38 in		Depth (ft)				
Station: 168+48.65 Offset: 9.81 RT				Hammer Wt: N.A.		140		Notes				
Ground Elevation: 1036.91 ft				Hammer Fall: N.A.		30						
				Hammer/Rod Type: Safety/N								
				Rig: Diedrich D-50		C = 1						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		4 inches of Asphalt, 0.0 ft - 0.3 ft										
2.5												
5.0		A-1-b, SaGr, gray, Wet, Rec. = 2.0 ft						78-100/3" (R)	95.8	57.0	29.0	14.0
7.5		No Recovery, Rec. = 0.0 ft, 7.0 ft - 7.5 ft						100/0" (R)				
10.0		A-1-a, SaGr, brn, Wet, Rec. = 6.0 ft						30-51-97-100/0" (148)	8.5	70.0	22.4	7.6
12.5		11.0 ft - 14.7 ft, Gry, Schist, Moderately hard, Fresh, Fair rock, NXDC, There are no joints from 11 to 114.7 feet. RMR = 51 (for entire core run)			1	90 (75)	3	Top of Bedrock @ 11.0 ft				
15.0		14.7 ft - 16.0 ft, Dk/bn, Schist, Severely weathered, Highly fractured					5.5					
17.5		Hole stopped @ 16.0 ft										
20.0												
22.5												
Remarks: Excess water from drilling process resulted in the high m.c. in the sample from 4 to 5 feet.												
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.												

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154bor_log.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: T. DYKSTRA
 BORING LOG 2

PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: J. HUNGERFORD
 SHEET 17 OF 71



 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: P-1				
		Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch		Page No.: 1 of 1 Pin No.: z12c154 Checked By: TAD				
Boring Crew: NH Boring, Derry, NH, Burke (Stantec) Date Started: 3/25/14 Date Finished: 3/25/14 VTSPG NAD83: N 890238.55 ft E 1652682.72 ft Station: 167+98.00 Offset: 6.71 LT Ground Elevation: 1036.69 ft		Casing Sampler Type: H.S.A. I.D.: 4.25 in Hammer Wt: N.A. N.A. Hammer Fall: N.A. N.A. Hammer/Rod Type: Rig: Diedrich D-50 C. =	Groundwater Observations Date Depth (ft) Notes					
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5								
5.0								
7.5								
10.0								
12.5								
15.0								
17.5								
20.0								
22.5								
		Remarks: Advanced auger probe to refusal on probable bedrock at 17.0 feet below ground surface.		Top of Bedrock @ 17.0 ft				
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.								

TOP OF FOOTING
EL. 1025.0

2010 COPY VTRANS_TEMPLATE_JAY.VT.GPJ VERMONT AOT.GDT 5/1/14

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: P-2				
		Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch		Page No.: 1 of 1 Pin No.: z12c154 Checked By: TAD				
Boring Crew: NH Boring, Derry, NH, Burke (Stantec) Date Started: 3/25/14 Date Finished: 3/25/14 VTSPG NAD83: N 890213.42 ft E 1652681.30 ft Station: 167+76.40 Offset: 6.77 RT Ground Elevation: 1037.74 ft		Casing Sampler Type: H.S.A. I.D.: 4.25 in Hammer Wt: N.A. N.A. Hammer Fall: N.A. N.A. Hammer/Rod Type: Rig: Diedrich D-50 C. =	Groundwater Observations Date Depth (ft) Notes					
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
2.5								
5.0								
7.5								
10.0								
12.5								
15.0								
17.5								
20.0								
22.5								
		Remarks: Auger probe encountered refusal 4.0 feet below ground surface on probable cobble or boulder. Relocated 7 feet south to P-2A.						
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.								

TOP OF FOOTING
EL. 1026.5

2010 COPY VTRANS_TEMPLATE_JAY.VT.GPJ VERMONT AOT.GDT 5/1/14

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: z12c154bor_log.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: T. DYKSTRA
 BORING LOG 3



PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: J. HUNGERFORD
 SHEET 18 OF 71

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: P-2A					
		Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch		Page No.: 1 of 1					
Boring Crew: NH Boring, Derry, NH, Burke (Stantec) Date Started: 3/25/14 Date Finished: 3/25/14 VTSPG NAD83: N 890207.95 ft E 1652676.84 ft Station: 167+69.40 Offset: 6.14 RT Ground Elevation: 1037.19 ft		Casing Sampler Type: H.S.A. I.D.: 4.25 in Hammer Wt: N.A. N.A. Hammer Fall: N.A. N.A. Hammer/Rod Type: Rig: Diedrich D-50 C. =		Groundwater Observations Date Depth (ft) Notes					
Depth (ft) 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	
									TOP OF FOOTING EL. 1026.5
		Top of Bedrock @ 12.5 ft							
		Remarks: Advanced auger probe to refusal on probable bedrock at 12.5 feet below ground surface.							
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.									

 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: P-3					
		Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch		Page No.: 1 of 1					
Boring Crew: NH Boring, Derry, NH, Burke (Stantec) Date Started: 3/25/14 Date Finished: 3/25/14 VTSPG NAD83: N 890299.19 ft E 1652718.89 ft Station: 168+69.24 Offset: 4.77 LT Ground Elevation: 1035.96 ft		Casing Sampler Type: H.S.A. I.D.: 4.25 in Hammer Wt: N.A. N.A. Hammer Fall: N.A. N.A. Hammer/Rod Type: Rig: Diedrich D-50 C. =		Groundwater Observations Date Depth (ft) Notes					
Depth (ft) 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	
									TOP OF FOOTING EL. 1028.5
		Top of Bedrock @ 9.5 ft							
		Remarks: Advanced auger probe to refusal on probable bedrock at 9.5 feet below ground surface.							
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.									

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: z12c154bor_log.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: T. DYKSTRA
 BORING LOG 4

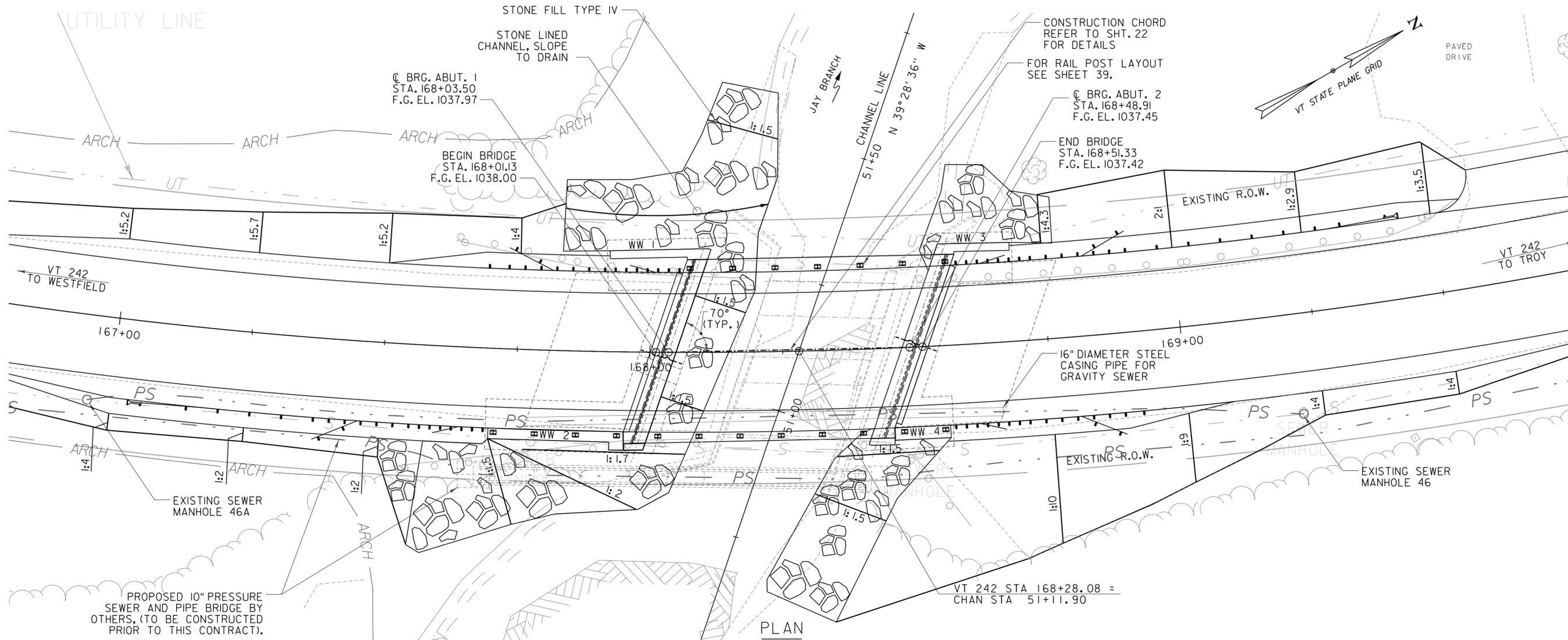


PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: J. HUNGERFORD
 SHEET 19 OF 71

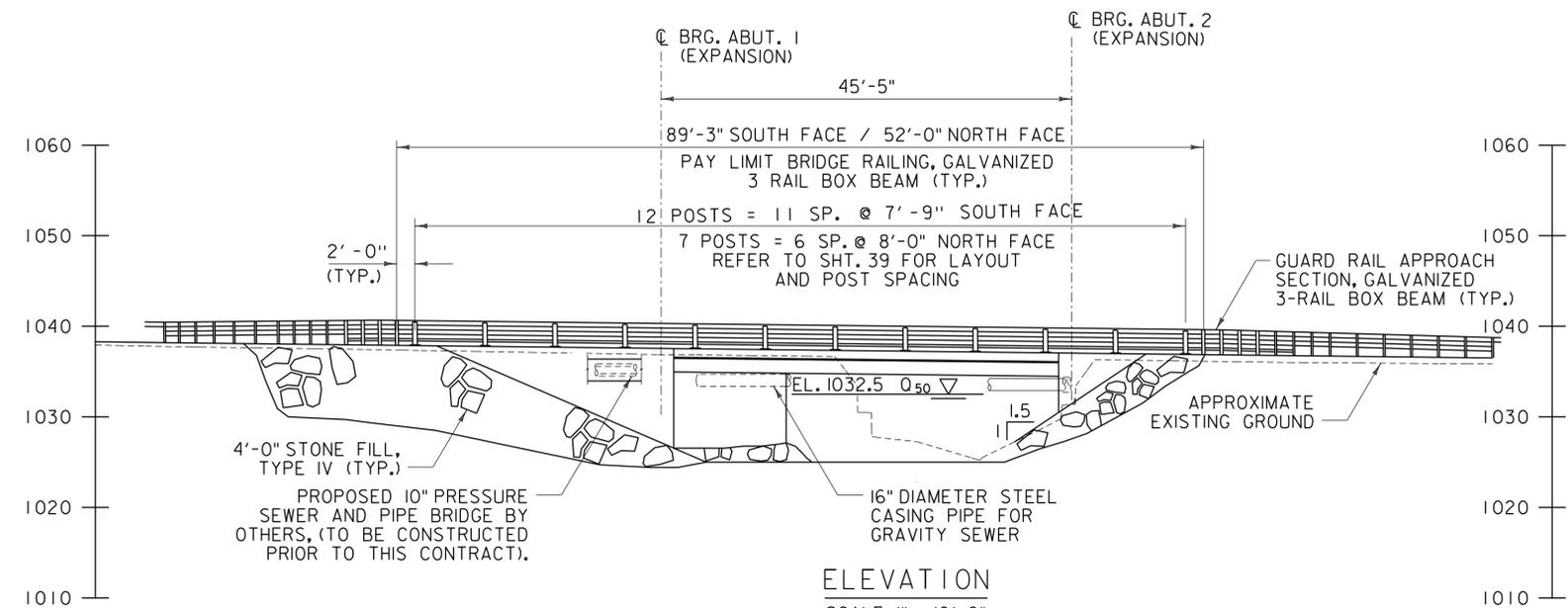
 STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: P-4	
		Jay BHF 0278(3) VT Rte 242, Bridge #10, Over Jay Branch		Page No.: 1 of 1	
Boring Crew: <u>NH Boring, Derry, NH, Burke (Stantec)</u> Date Started: <u>3/25/14</u> Date Finished: <u>3/25/14</u> VTSPG NAD83: <u>N 890287.33 ft E 1652728.97 ft</u> Station: <u>168+63.52</u> Offset: <u>9.69 RT</u> Ground Elevation: <u>1036.75 ft</u>		Casing Sampler Type: <u>H.S.A.</u> I.D.: <u>4.25 in</u> Hammer Wt: <u>N.A.</u> <u>N.A.</u> Hammer Fall: <u>N.A.</u> <u>N.A.</u> Hammer/Rod Type: Rig: <u>Diedrich D-50</u> <u>C. =</u>		Groundwater Observations Date Depth (ft) Notes	
Depth (ft) 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Blows/6" (N Value)
					Moisture Content %
					Sand %
					Fines %
TOP OF FOOTING EL. 1028.5		Top of Bedrock @ 9.5 ft			
		Remarks: Advanced auger probe to refusal on probable bedrock at 9.5 feet below ground surface.			
2010 COPY VTRANS_TEMPLATE_JAY_VT.GPJ VERMONT AOT.GDT 5/1/14		Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.			



PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154bor_log.dgn	CHECKED BY: J. HUNGERFORD
PROJECT LEADER: M. CHENETTE	SHEET 20 OF 71
DESIGNED BY: T. DYKSTRA	
BORING LOG 5	

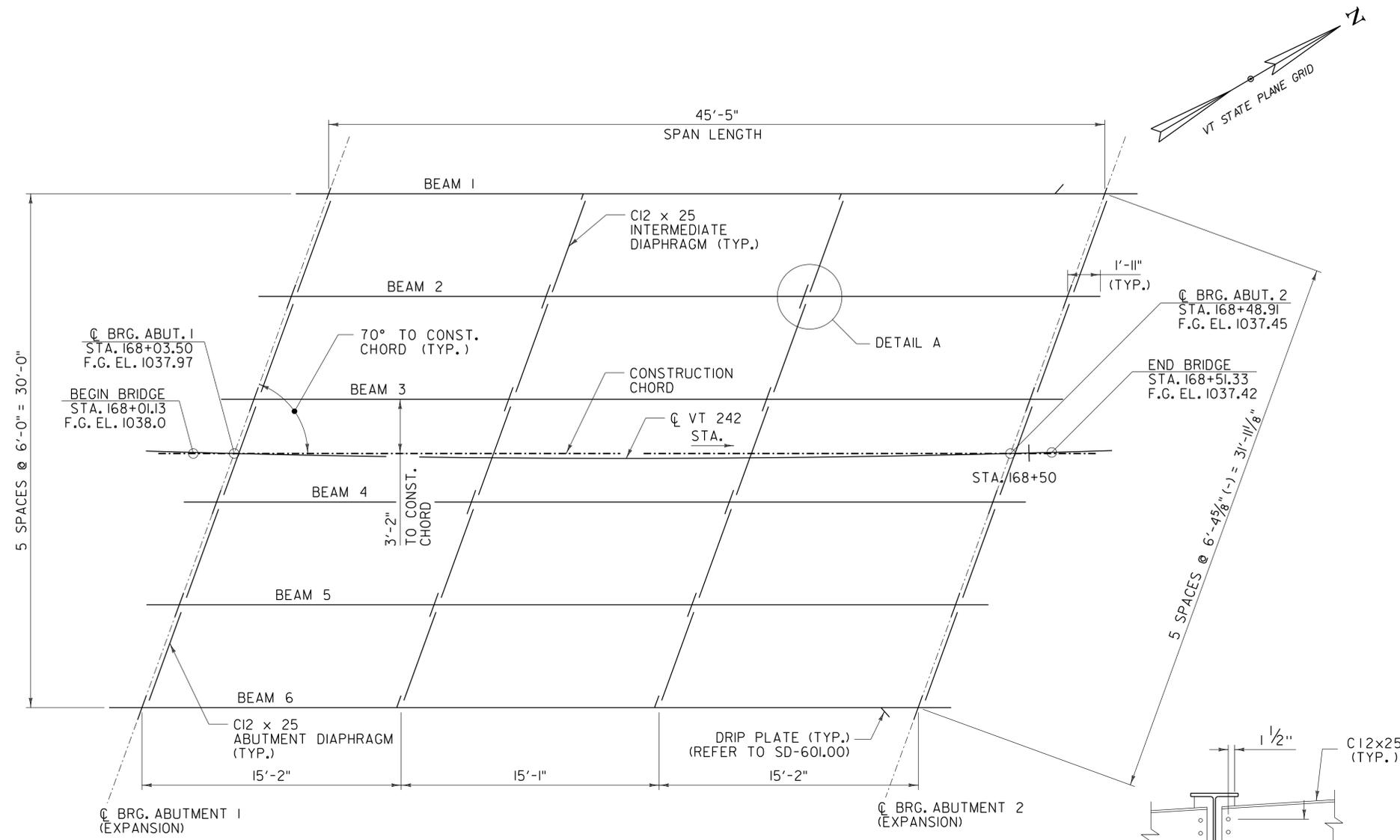


SCALE: 1" = 10'-0"

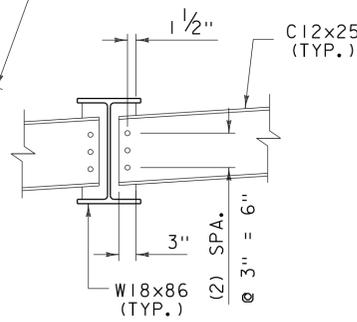


PROJECT NAME:	JAY	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	DRAWN BY:	L. BUXTON
FILE NAME:	z12cl54bdr_pe.dgn	DESIGNED BY:	J. HUNGERFORD
PROJECT LEADER:	M. CHENETTE	CHECKED BY:	T. KNIGHT
PLAN AND ELEVATION		SHEET	21 OF 71

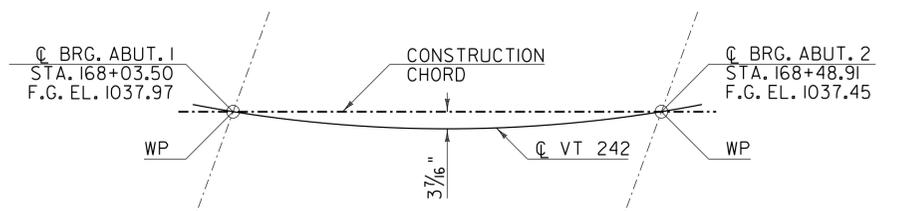




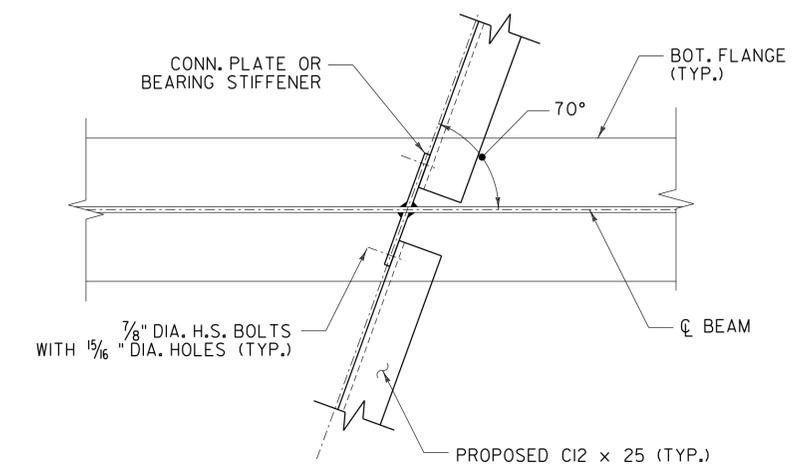
FRAMING PLAN
SCALE: 1/4" = 1'-0"



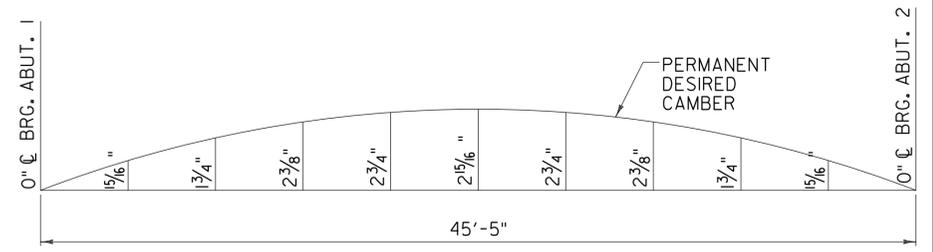
DIAPHRAGM DETAIL
SCALE 3/4" = 1'-0"



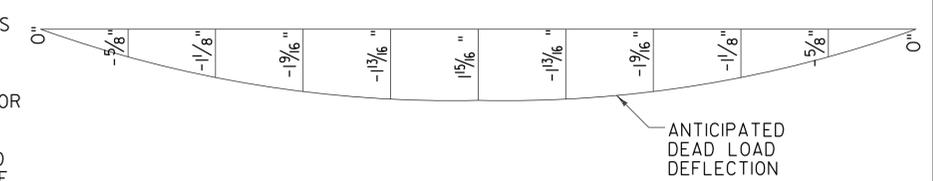
CONSTRUCTION CHORD LAYOUT
NOT TO SCALE



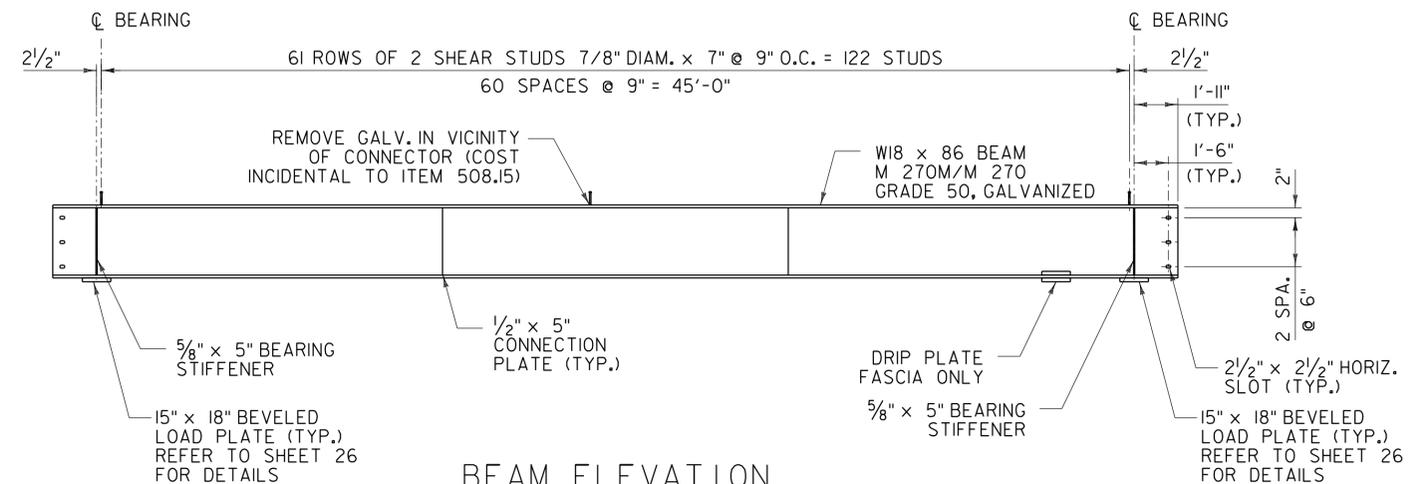
DETAIL A
NOT TO SCALE



CAMBER DIAGRAM
SCALE 1" = 1'-0"



DEAD LOAD DEFLECTION
SCALE 1" = 1'-0"

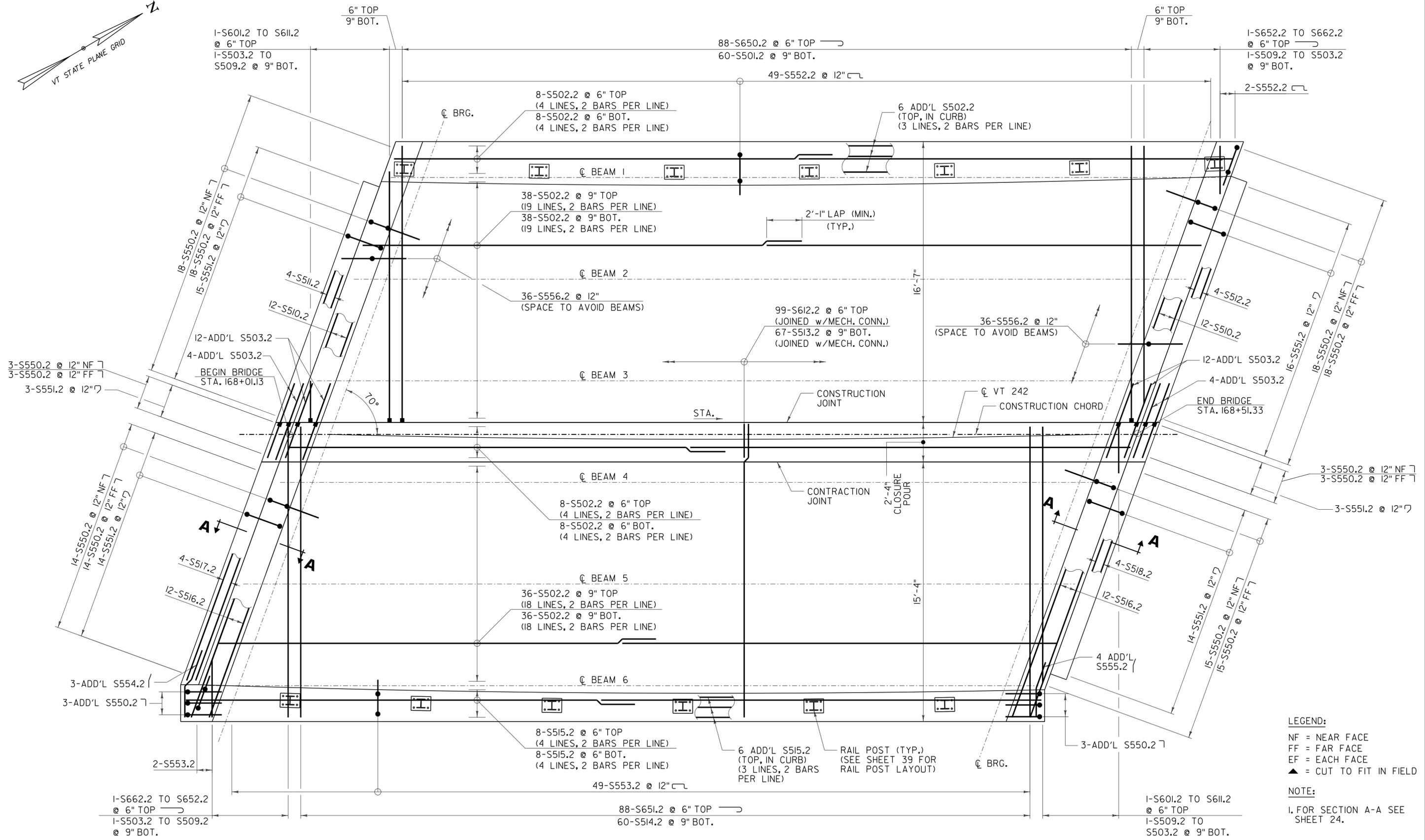
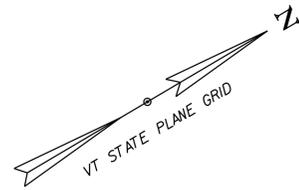


BEAM ELEVATION
NOT TO SCALE

- NOTES:**
- CAMBER AND DEAD LOAD MEASUREMENTS ARE GIVEN IN INCHES AT SPAN TENTH POINTS.
 - DEAD LOAD DEFLECTIONS SHOWN ARE FOR ALL DEAD LOADS AND SUPERIMPOSED DEAD LOADS INCLUDING GIRDER AND DIAPHRAGM WEIGHTS. DESIGN DEAD LOAD DEFLECTIONS SHOWN ARE BASED ON THE AVERAGE OF BEAMS 1 THRU 6.
 - FOR DIAPHRAGM DETAILS REFER TO SD 602.00.
 - END OF BEAMS & BEARING STIFFENERS SHALL BE VERTICAL UNDER DEAD LOAD.

PROJECT NAME:	JAY	FILE NAME:	z12c154fra.dgn	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	PROJECT LEADER:	M. CHENETTE	DRAWN BY:	J. SOTER
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		FRAMING PLAN & TYPICAL SECTION			SHEET 22 OF 71





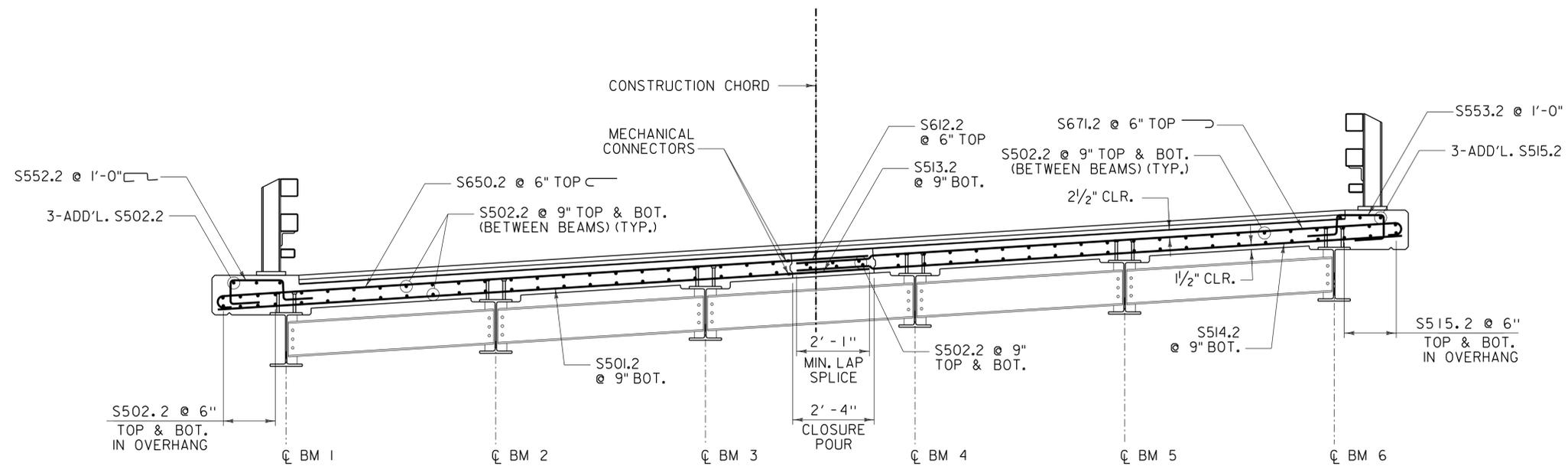
LEGEND:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD

NOTE:
 1. FOR SECTION A-A SEE SHEET 24.

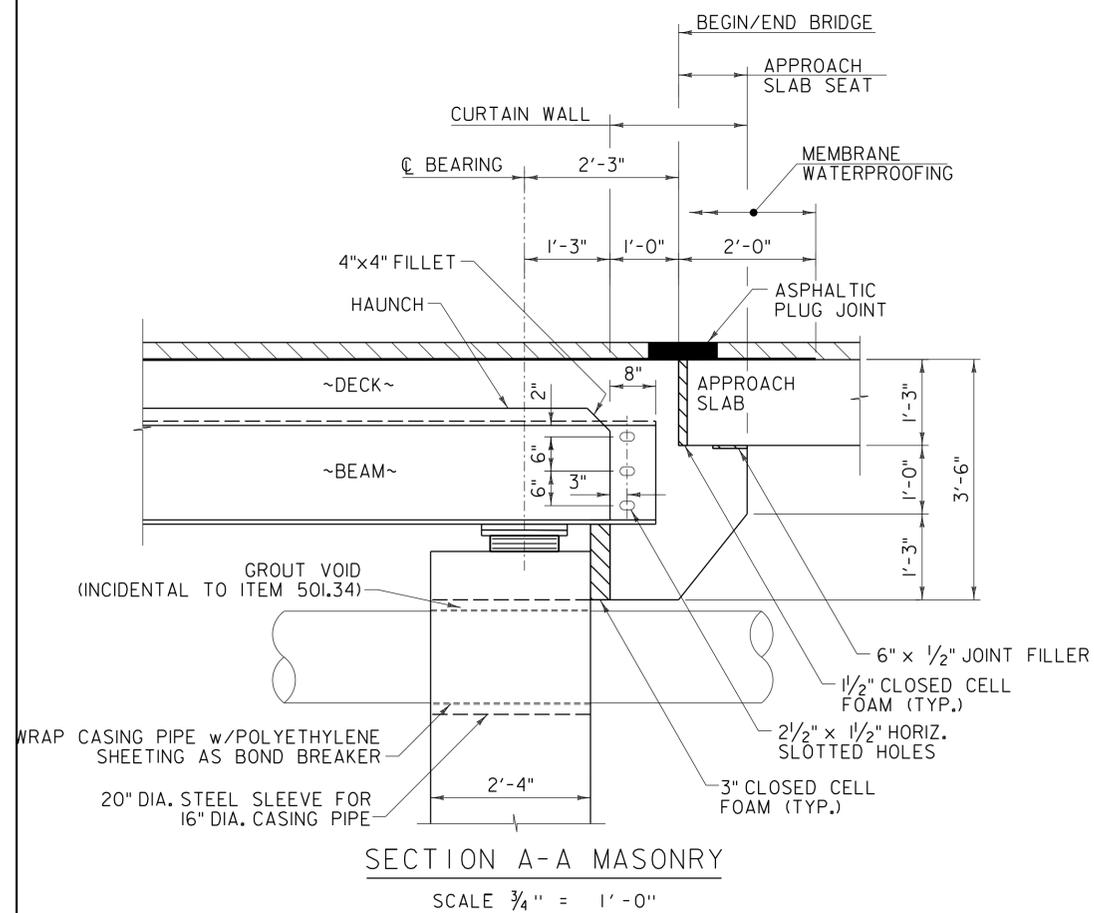
DECK REINFORCEMENT PLAN
 SCALE: 3/8" = 1'-0"

PROJECT NAME:	JAY	FILE NAME:	z12c154deck.p1dgn	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	PROJECT LEADER:	M. CHENETTE	DRAWN BY:	J. SOTER
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		DECK REINFORCEMENT			SHEET 23 OF 71

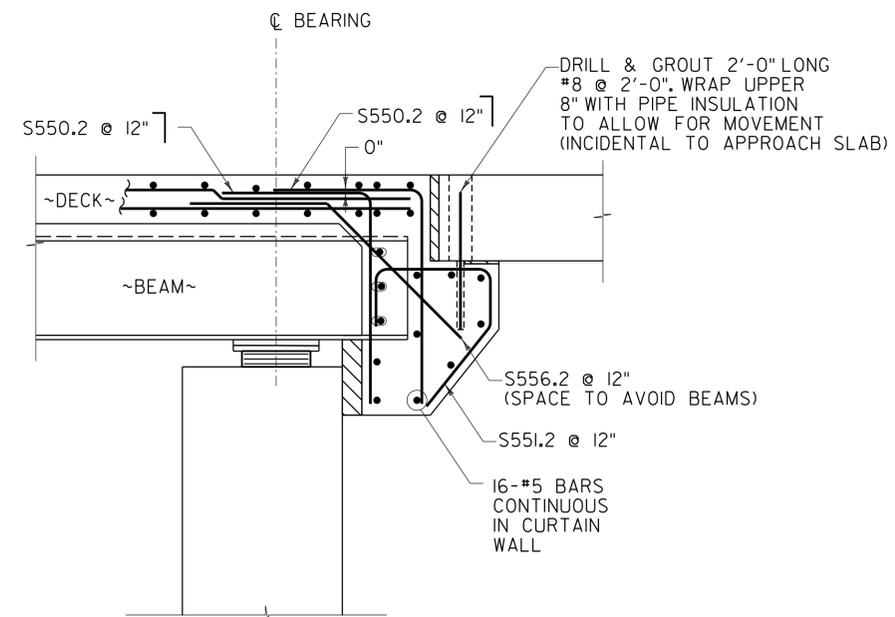




TYPICAL DECK REINFORCEMENT SECTION
SCALE: 1/2" = 1'-0"



SECTION A-A MASONRY
SCALE 3/4" = 1'-0"



SECTION A-A REINFORCEMENT
SCALE 3/4" = 1'-0"

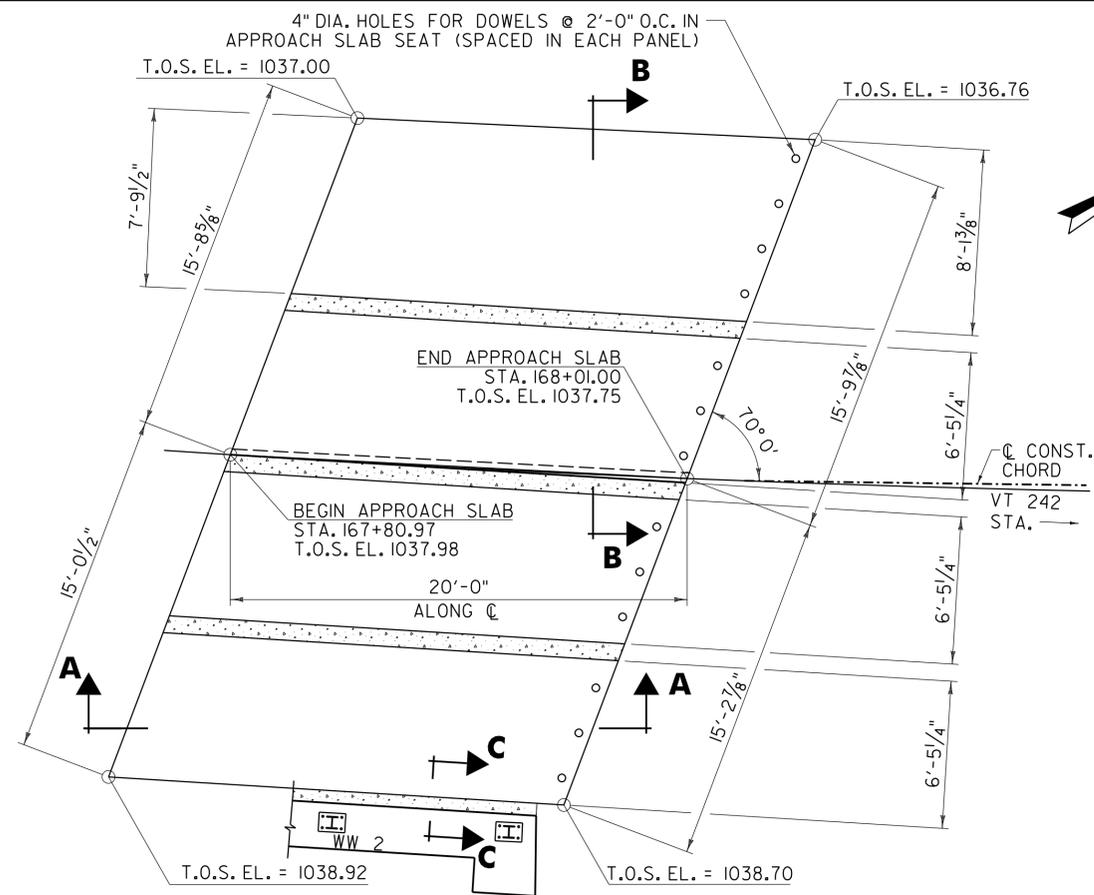
LEGEND:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

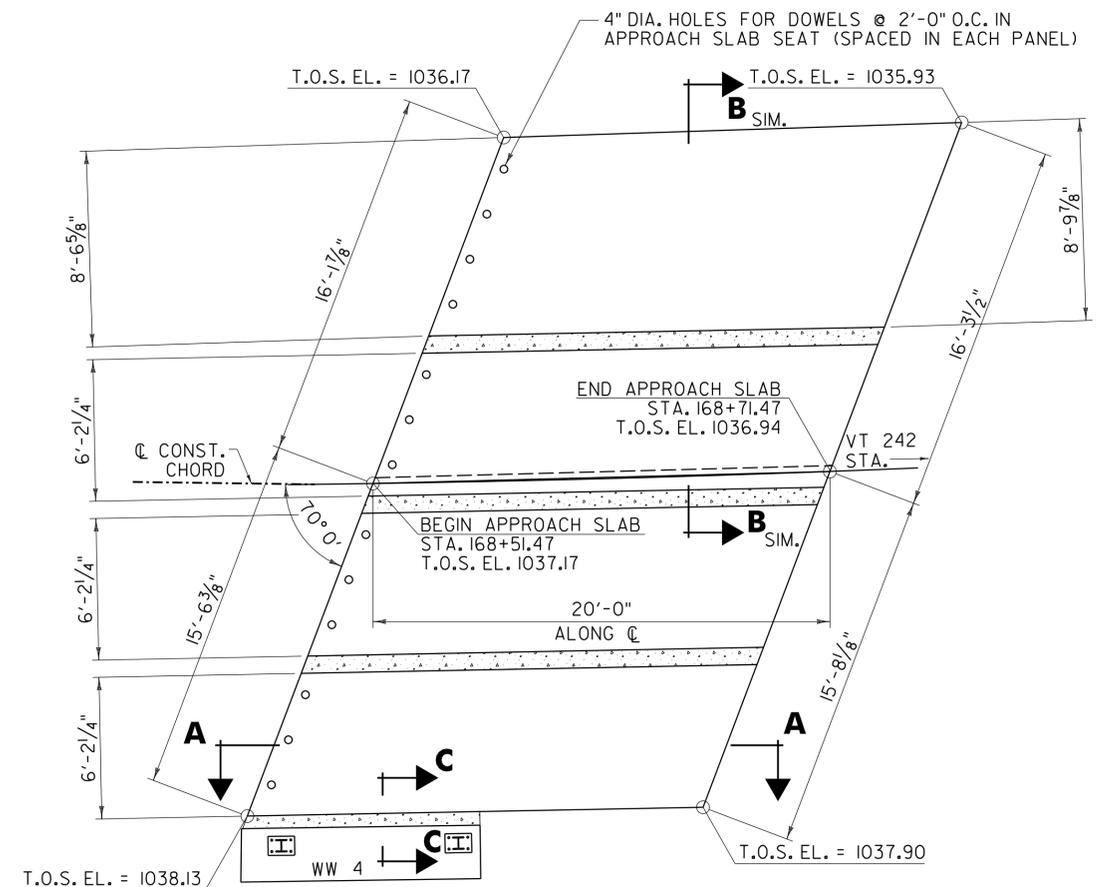
FILE NAME: z12cl54deck.pldgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: N. TIRK
TYPICAL REINFORCEMENT SECTIONS

PLOT DATE: 8/24/2015
DRAWN BY: J. SOTER
CHECKED BY: G. BOGUE
SHEET 24 OF 71

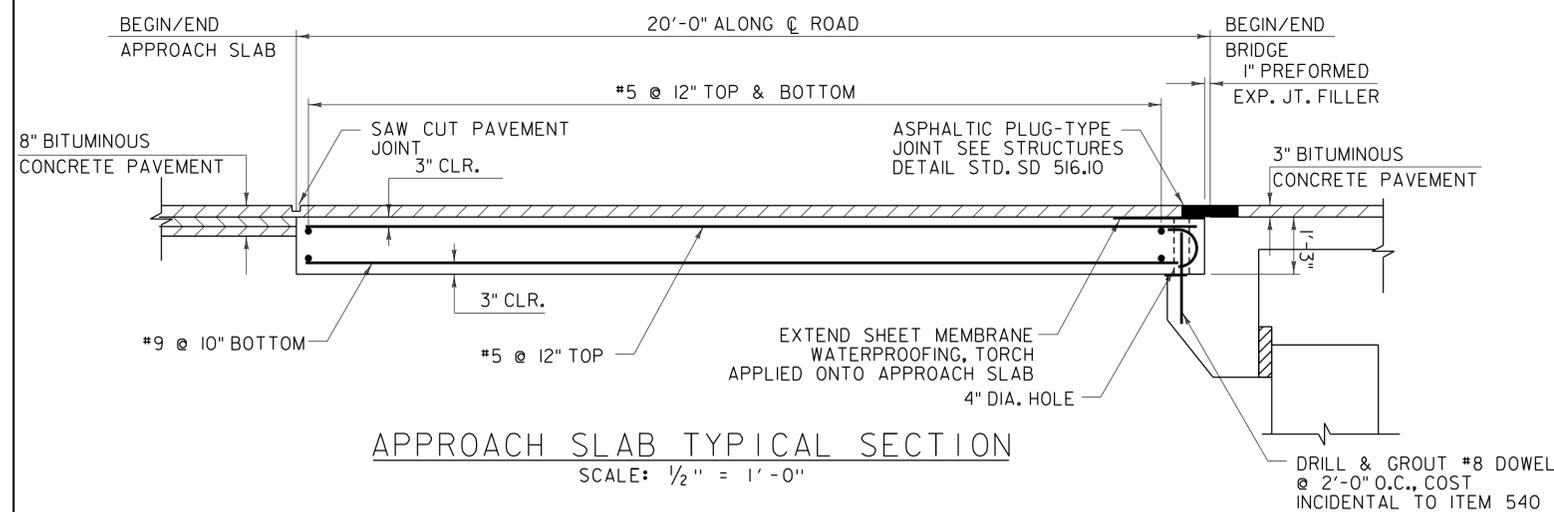




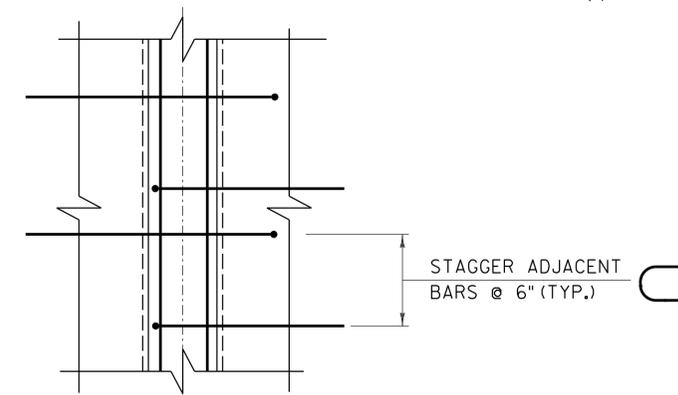
APPROACH SLAB NO. 1 PLAN
SCALE: 1/4" = 1'-0"



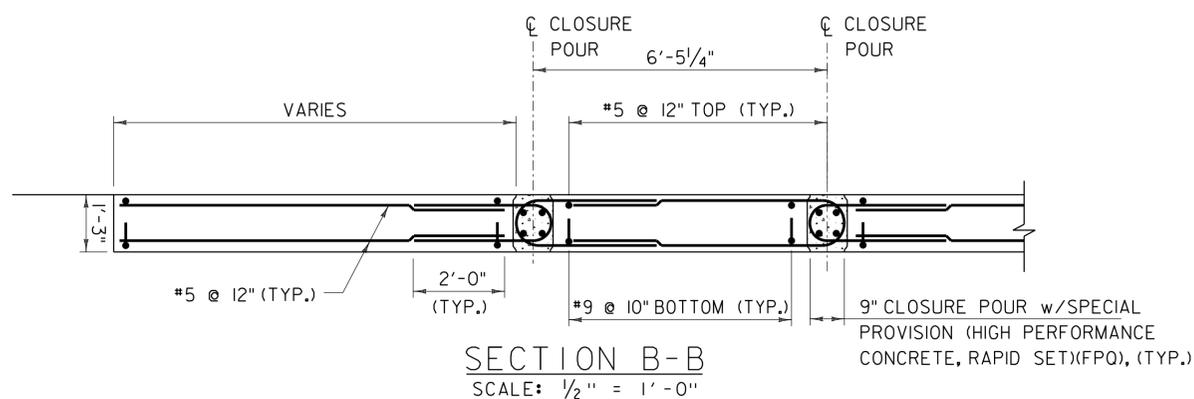
APPROACH SLAB NO. 2 PLAN
SCALE: 1/4" = 1'-0"



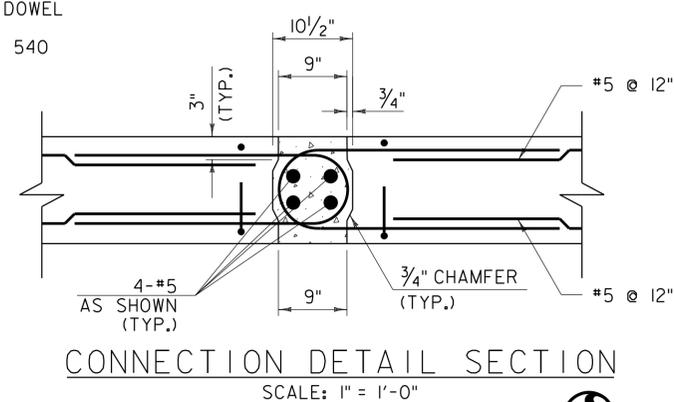
APPROACH SLAB TYPICAL SECTION
SCALE: 1/2" = 1'-0"



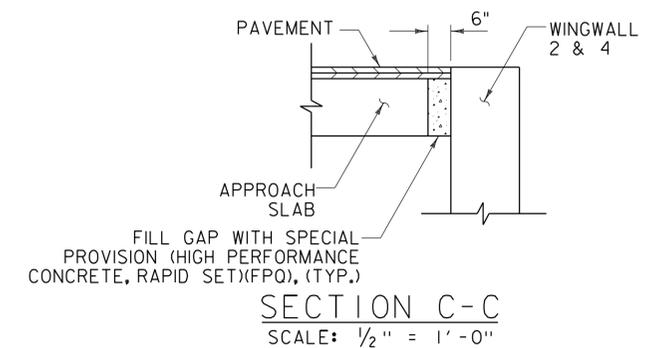
CONNECTION DETAIL PLAN
SCALE: 1" = 1'-0"



SECTION B-B
SCALE: 1/2" = 1'-0"



CONNECTION DETAIL SECTION
SCALE: 1" = 1'-0"

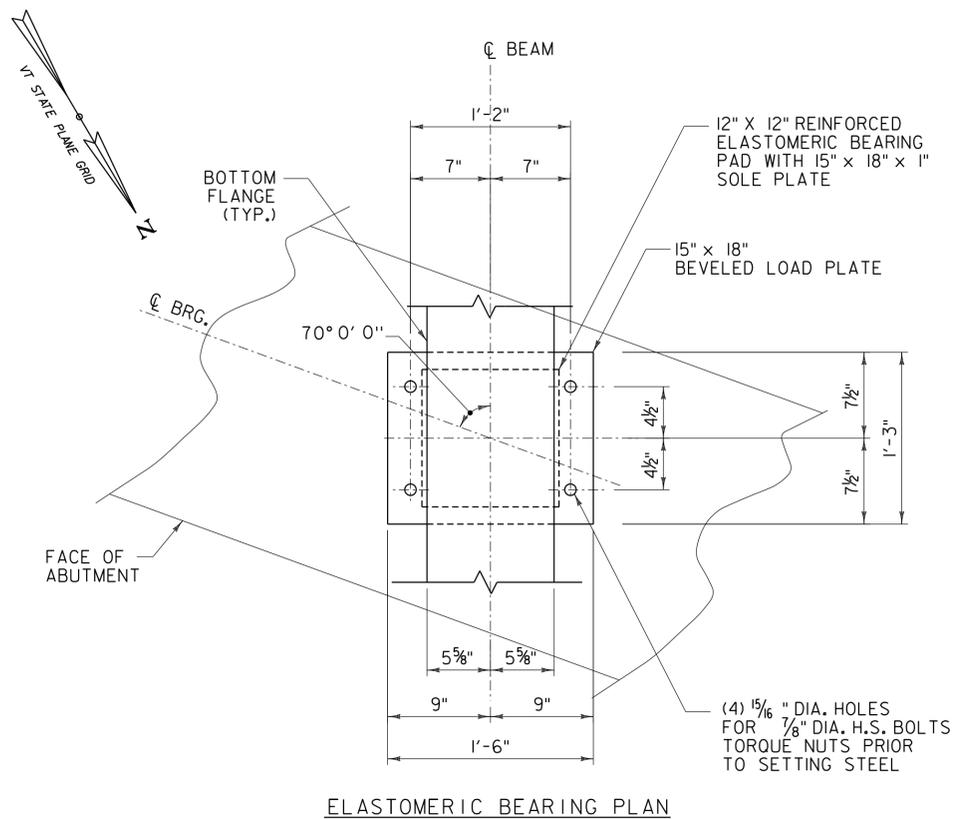


SECTION C-C
SCALE: 1/2" = 1'-0"

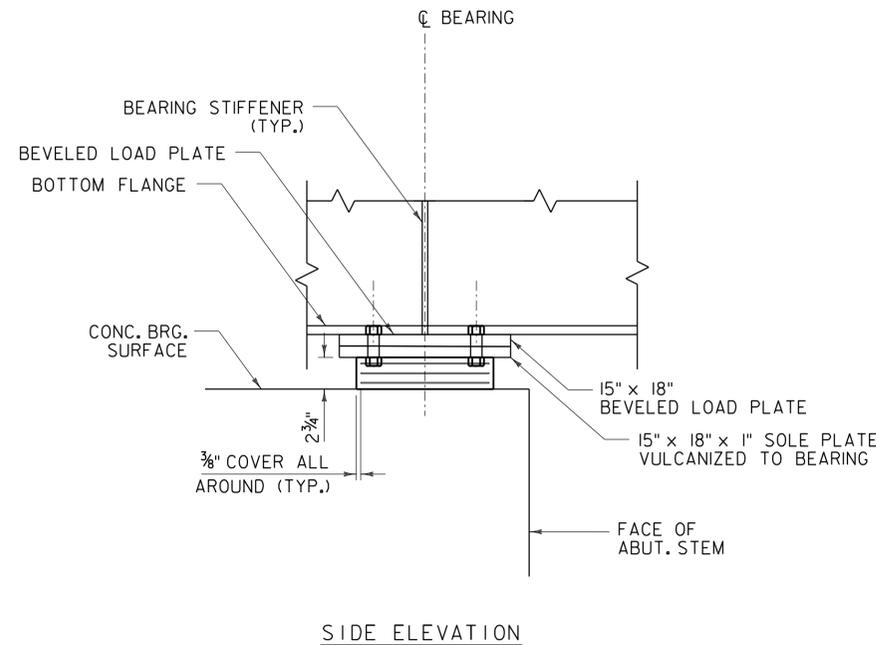
PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)
FILE NAME: z12c154apps1ab.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: N. TIRK
APPROACH SLAB DETAILS

PLOT DATE: 8/24/2015
DRAWN BY: L. BUXTON
CHECKED BY: T. KNIGHT
SHEET 25 OF 71

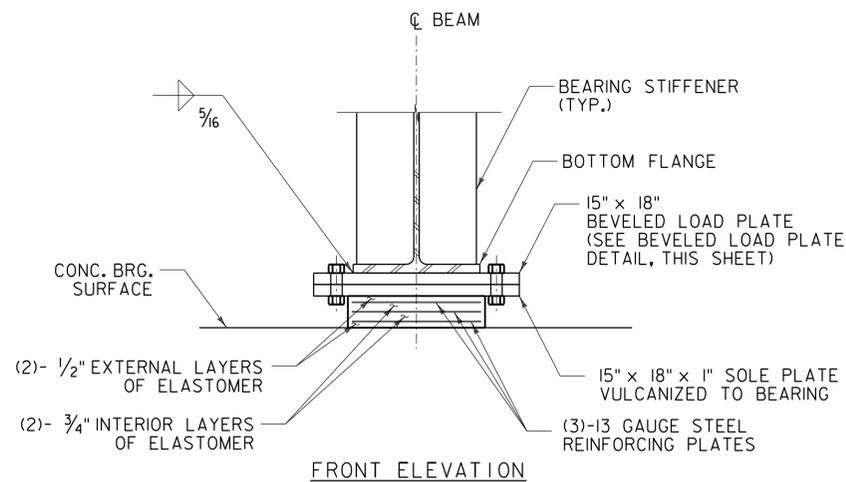




ELASTOMERIC BEARING PLAN



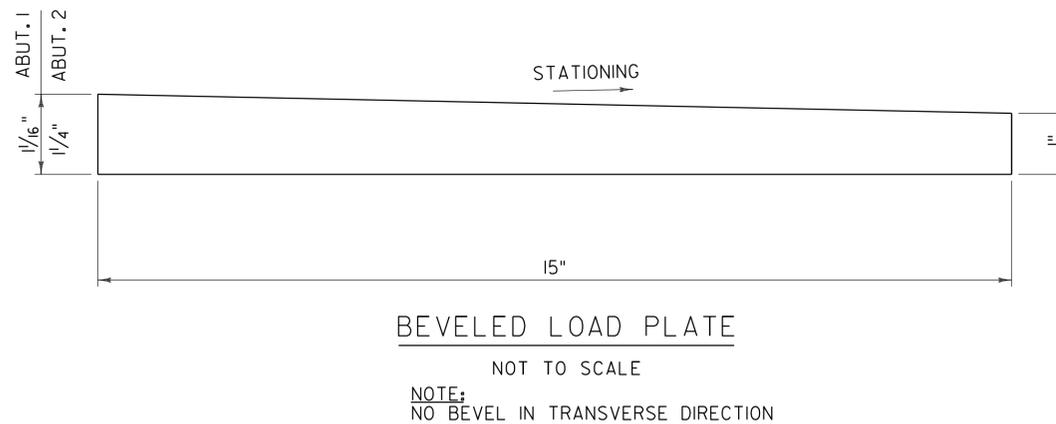
SIDE ELEVATION



FRONT ELEVATION

ELASTOMERIC BEARING ASSEMBLY

SCALE 1/2" = 1'-0"



BEVELED LOAD PLATE

NOT TO SCALE

NOTE:
NO BEVEL IN TRANSVERSE DIRECTION

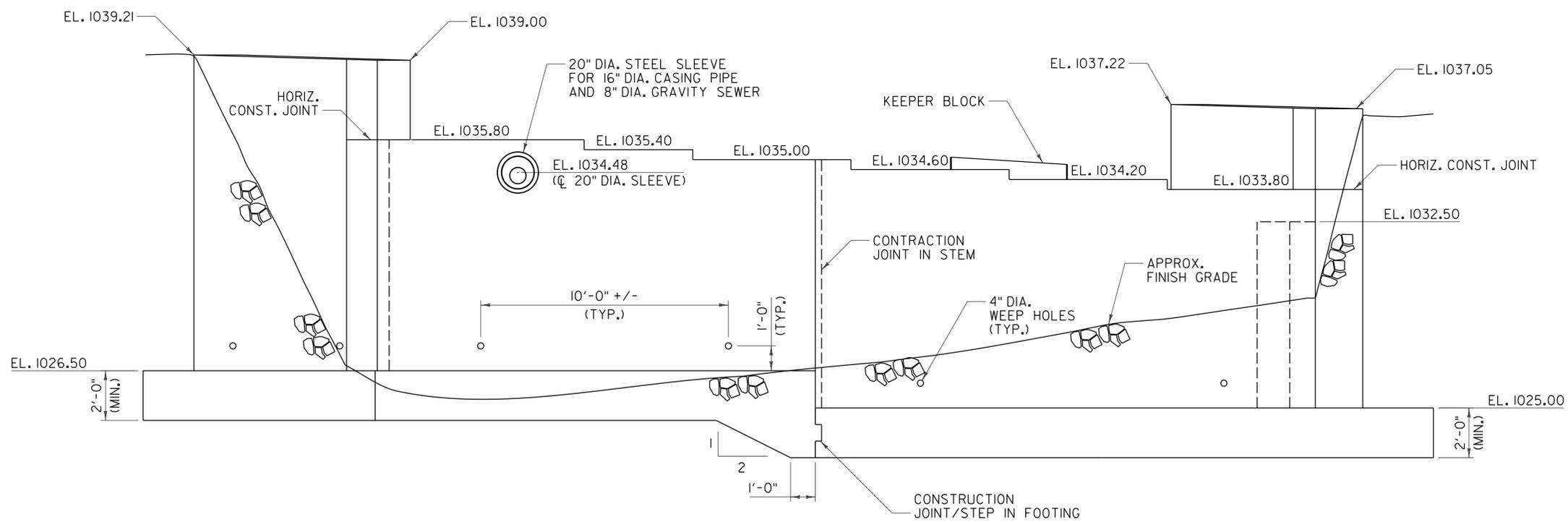
BEARING NOTES:

1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF THE STANDARD SPECIFICATION SECTIONS 531 AND 731.
 2. ELASOTMERIC BEARINGS AND SOLE PLATE SHALL BE PAID FOR UNDER ITEM 531.8. LOAD PLATE AND CONNECTION HARDWARE ARE TO BE PAID FOR AS STRUCTURAL STEEL.
 3. FABRICATION DRAWINGS INCLUDING BONDING AND VULCANIZING PROCEDURES SHALL BE SUBMITTED IN ACCORDANCE WITH SUBSECTION 531.03.
 4. THE CONCRETE SURFACE UNDER THE BEARING DEVICE SHALL BE LEVEL.
 5. DECK POUR ADJUSTMENT: THE BOTTOM FLANGE IS ANTICIPATED TO ELONGATE LESS THAN 1/4" DUE TO PLACEMENT OF THE CONCRETE DECK AND THE BEARINGS ARE DESIGNED TO ACCOMMODATE THIS MOVEMENT. THE TEMPERATURE SETTING RANGE FOR INSTALLATION OF THE ELASTOMERIC BEARINGS WITHOUT THE NEED FOR ADJUSTMENT IS 20 TO 70 DEGREES F.
 6. THE SHEAR MODULUS OF THE ELASTOMER SHALL BE BETWEEN 130 AND 175 psi.
 7. VULCANIZING ELASTOMER TO STEEL PLATES SHALL BE DONE DURING PRIMARY MOLD PROCESS.
 8. AN 1/8" GAP SHALL BE LEFT BELOW THE NUT. THE ANCHOR BOLT THREADS SHALL BE BURRED TO PREVENT REMOVAL OF THE NUTS (TYP.)
 9. STEEL REINFORCED ELASTOMERIC BEARINGS WERE DESIGNED PER METHOD = A.
- ELASTOMERIC BEARING DESIGN CRITERIA:
- ABUTMENT 1 AND 2 BEARINGS - SERVICE LOADS
- A. DESIGN DEAD LOAD REACTION = 22.9 KIPS/BEARING
 - B. DESIGN LIVE LOAD REACTION = 38.0 KIPS/BEARING
 - C. ROTATION CAPACITY = 0.015 RADIANS
10. ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M 270M/M 270, (ASTM A-709) GRADE 36 (MIN.).
 11. ANCHOR BOLTS SHALL CONFORM TO STANDARD SPECIFICATION SUBSECTION 714.08 AND BE SWEDGED ON THE EMBEDDED PORTION OF THE BOLT.
 12. ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. ALL WASHERS SHALL BE 3/8" PLATE (MINIMUM). PAYMENT FOR ANCHOR BOLTS, NUTS AND WASHERS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE BEARINGS



PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: z12c154brg_det.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: N. TIRK
 BEARING DETAILS

PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: T. KNIGHT
 SHEET 26 OF 71

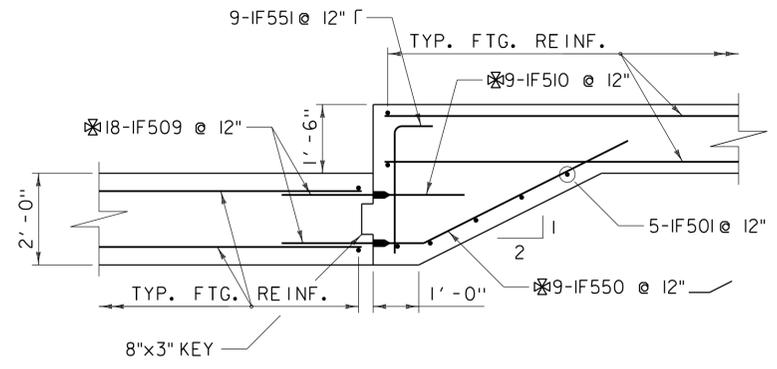
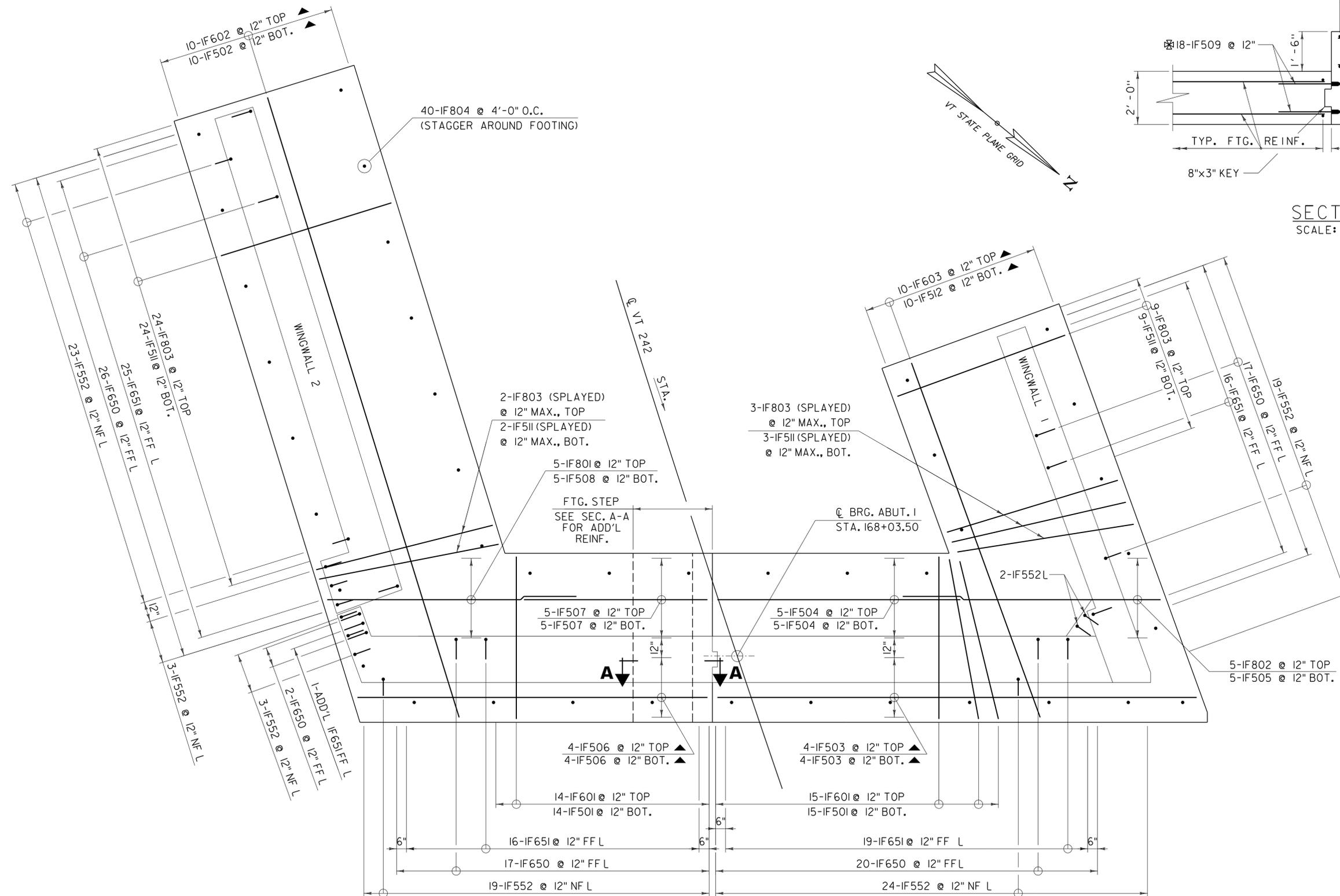


ABUTMENT NO. 1 ELEVATION
 SCALE: 3/8" = 1'-0"

NOTE: FOR KEEPER BLOCK
 DETAIL REFER TO
 SHEET 30.

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: J. SOTER
FILE NAME: z12c154abuts.dgn	DESIGNED BY: N. TIRK
PROJECT LEADER: M. CHENETTE	CHECKED BY: T. KNIGHT
ABUTMENT NO. 1 ELEVATION	SHEET 28 OF 71





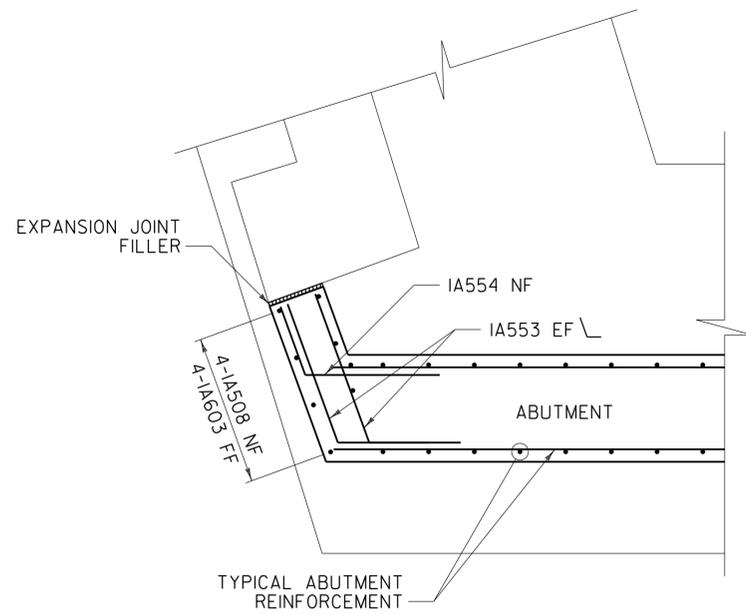
SECTION A-A
SCALE: 1/2" = 1'-0"

ABUTMENT NO. 1 FOOTING REINFORCEMENT
SCALE: 3/8" = 1'-0"

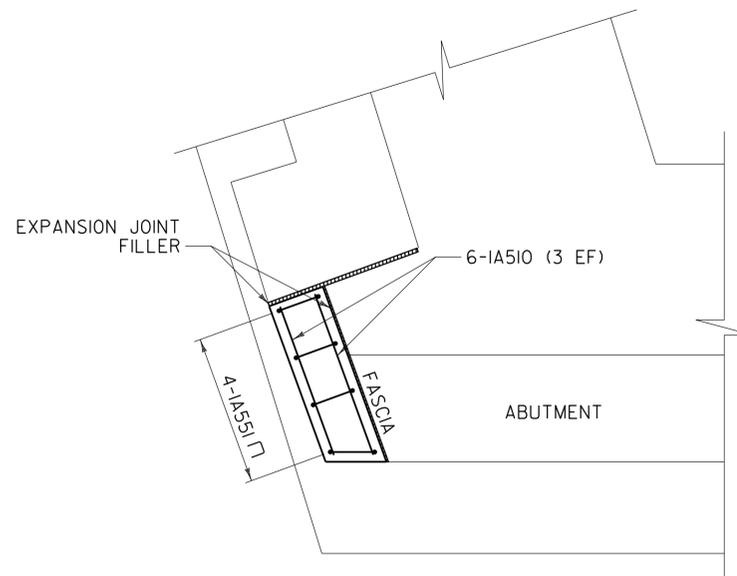
LEGEND:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 ⊗ = INDICATES BAR JOINED WITH MECHANICAL CONNECTOR
 ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

PROJECT NAME:	JAY	FILE NAME:	z12c154abuts.dgn	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	PROJECT LEADER:	M. CHENETTE	DRAWN BY:	J. SOTER
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		ABUTMENT NO. 1 FOOTING REINFORCEMENT		SHEET	29 OF 71

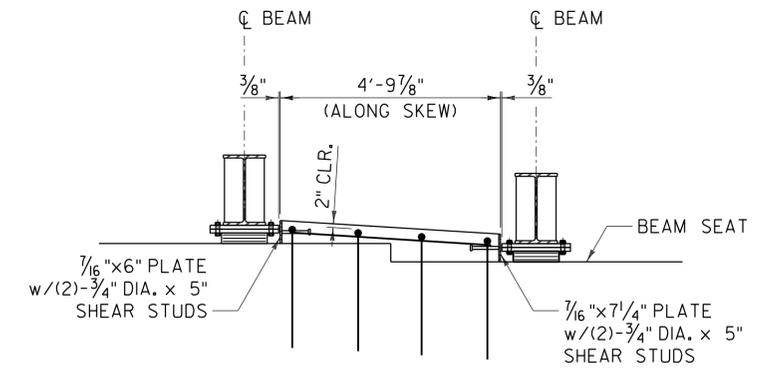




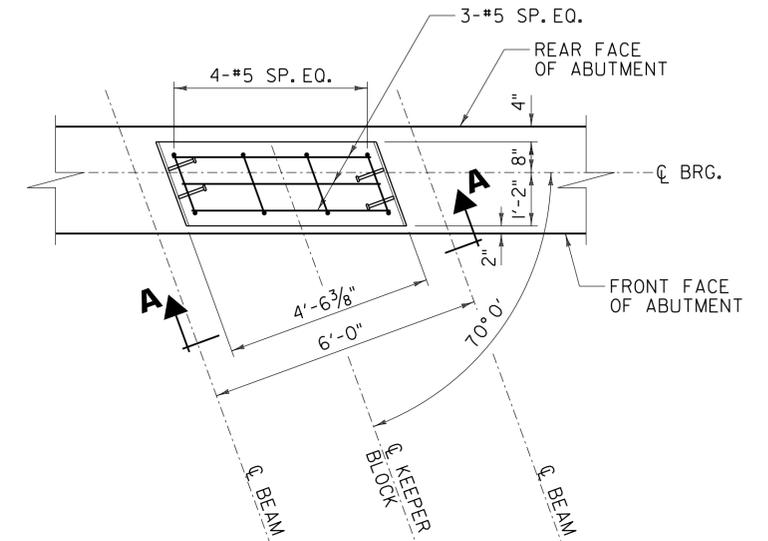
**SOUTHEAST CORNER REINFORCEMENT
(BELOW BEAM SEAT)**
SCALE: 1/2" = 1'-0"



**SOUTHEAST CORNER REINFORCEMENT
(ABOVE BEAM SEAT)**
SCALE: 1/2" = 1'-0"

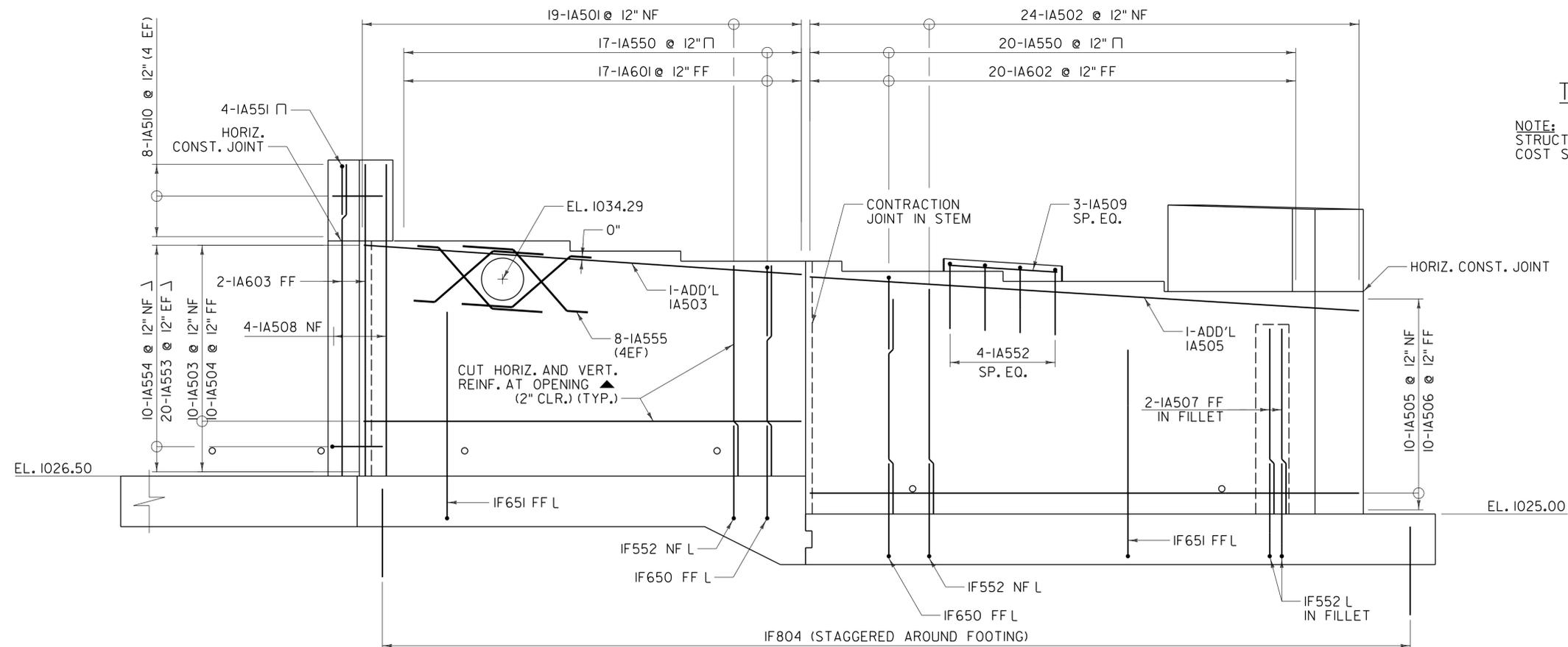


SECTION A-A



TYPICAL KEEPER BLOCK DETAIL
SCALE: 1/2" = 1'-0"

NOTE:
STRUCTURAL STEEL PLATES ARE TO BE GRADE 36 AND GALVANIZED.
COST SHALL BE CONSIDERED INCIDENTAL TO THE CONCRETE.



ABUTMENT NO. 1 REINFORCEMENT ELEVATION
SCALE: 3/8" = 1'-0"

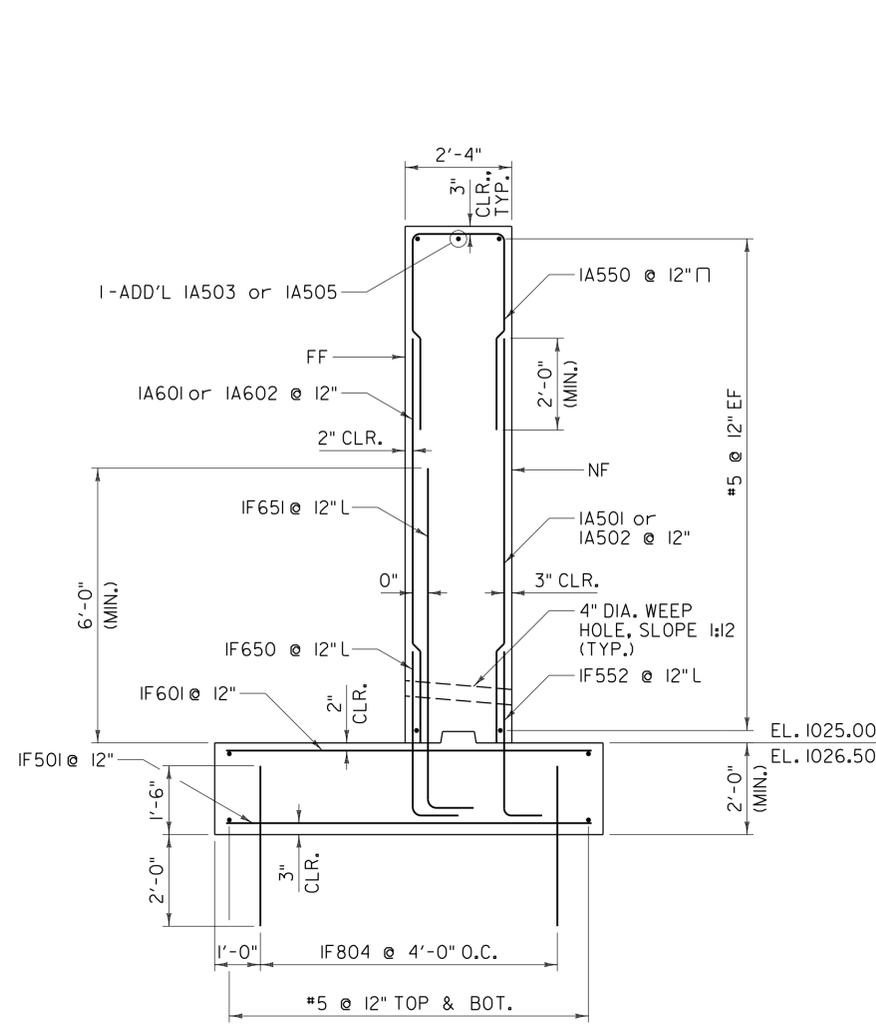
LEGEND:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

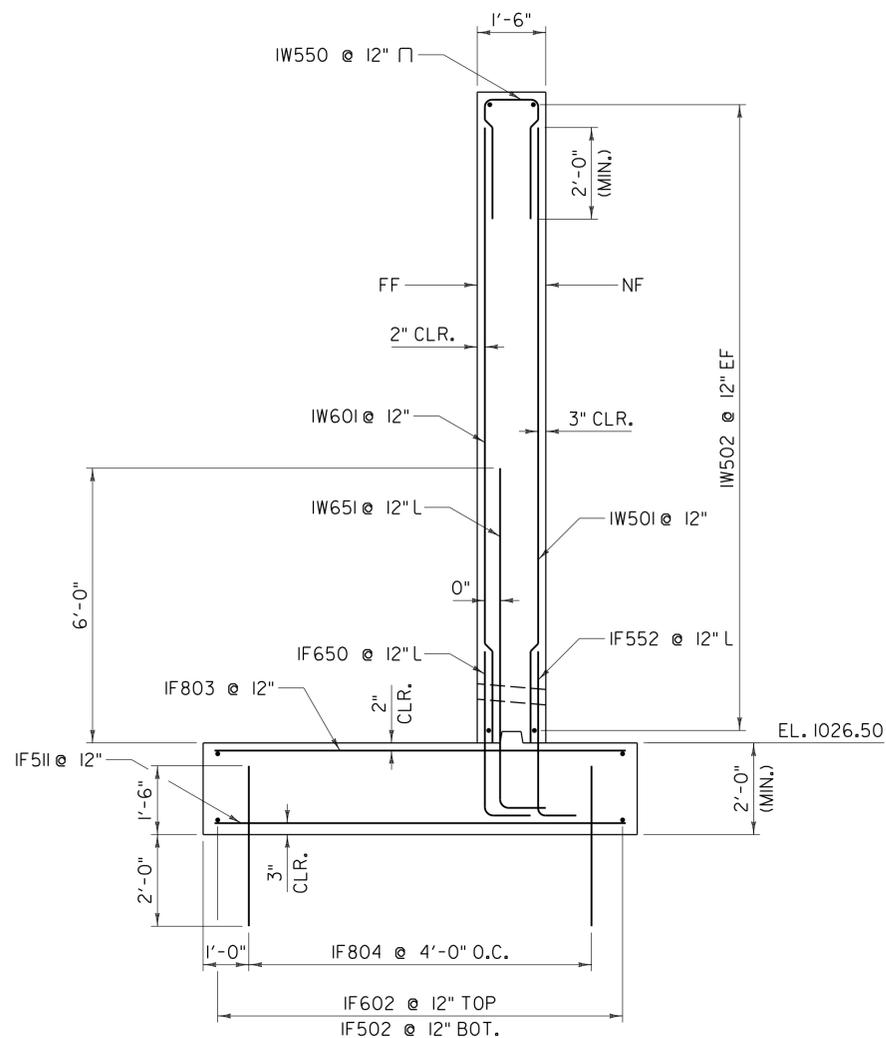
FILE NAME: z12c154abuts.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: N. TIRK
ABUTMENT NO. 1 REINFORCEMENT ELEVATION

PLOT DATE: 8/24/2015
DRAWN BY: J. SOTER
CHECKED BY: T. KNIGHT
SHEET 30 OF 71

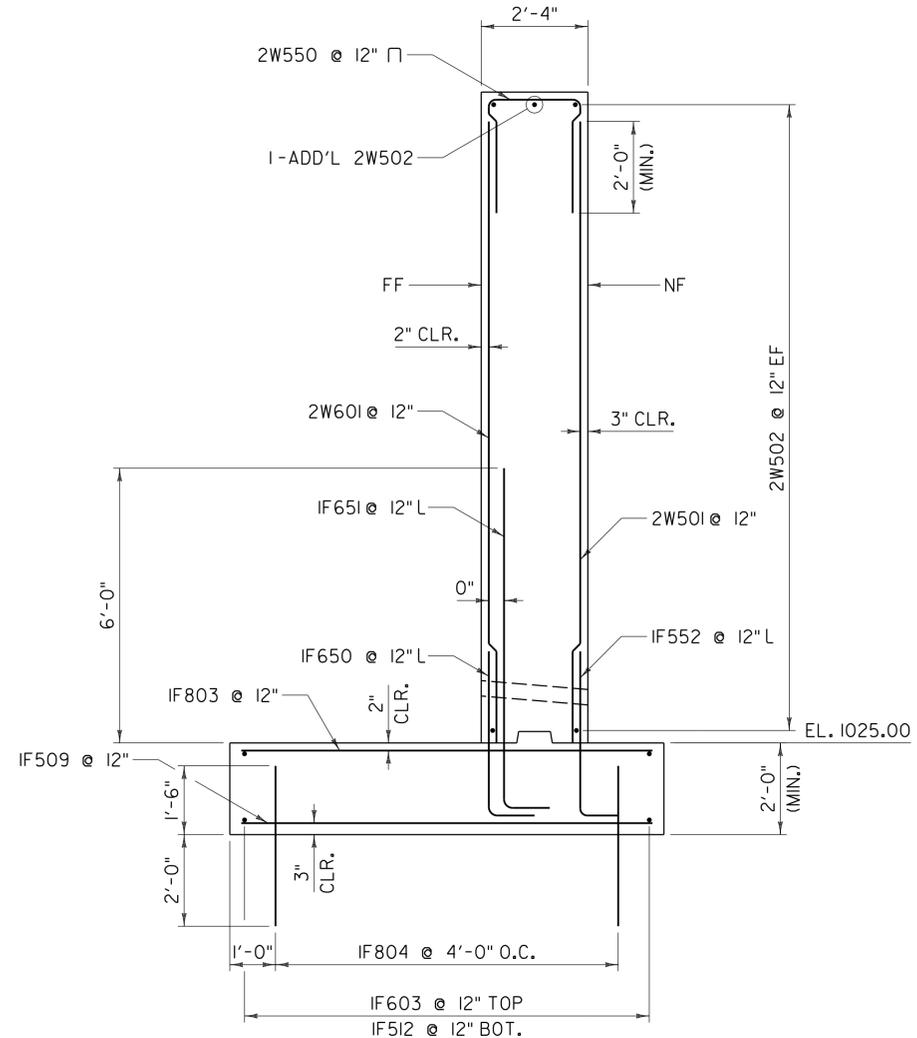




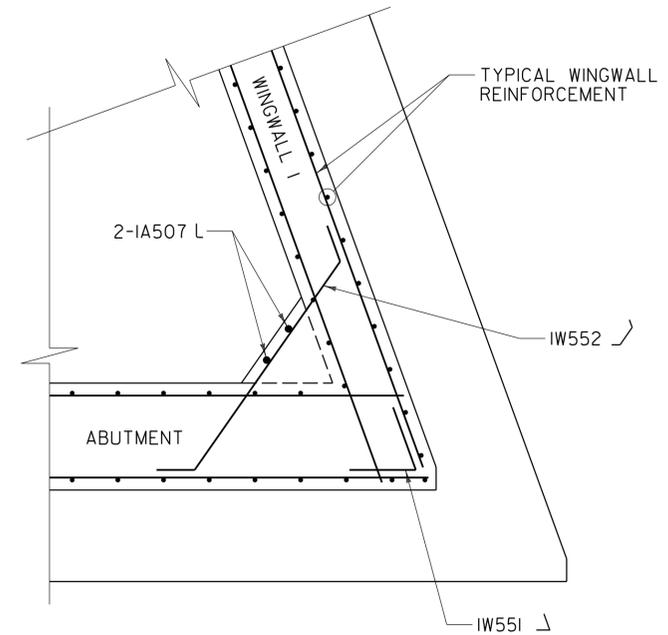
ABUTMENT NO. 1 REINFORCEMENT
SCALE: 1/2" = 1'-0"



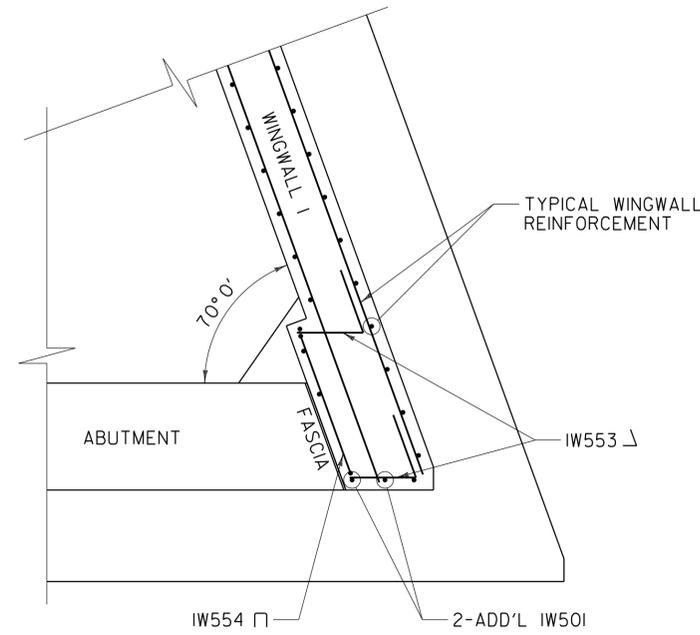
WINGWALL 1 REINFORCEMENT
SCALE: 1/2" = 1'-0"



WINGWALL 2 REINFORCEMENT
SCALE: 1/2" = 1'-0"



WINGWALL 1 CORNER REINFORCEMENT (BELOW FILLET)
SCALE: 1/2" = 1'-0"



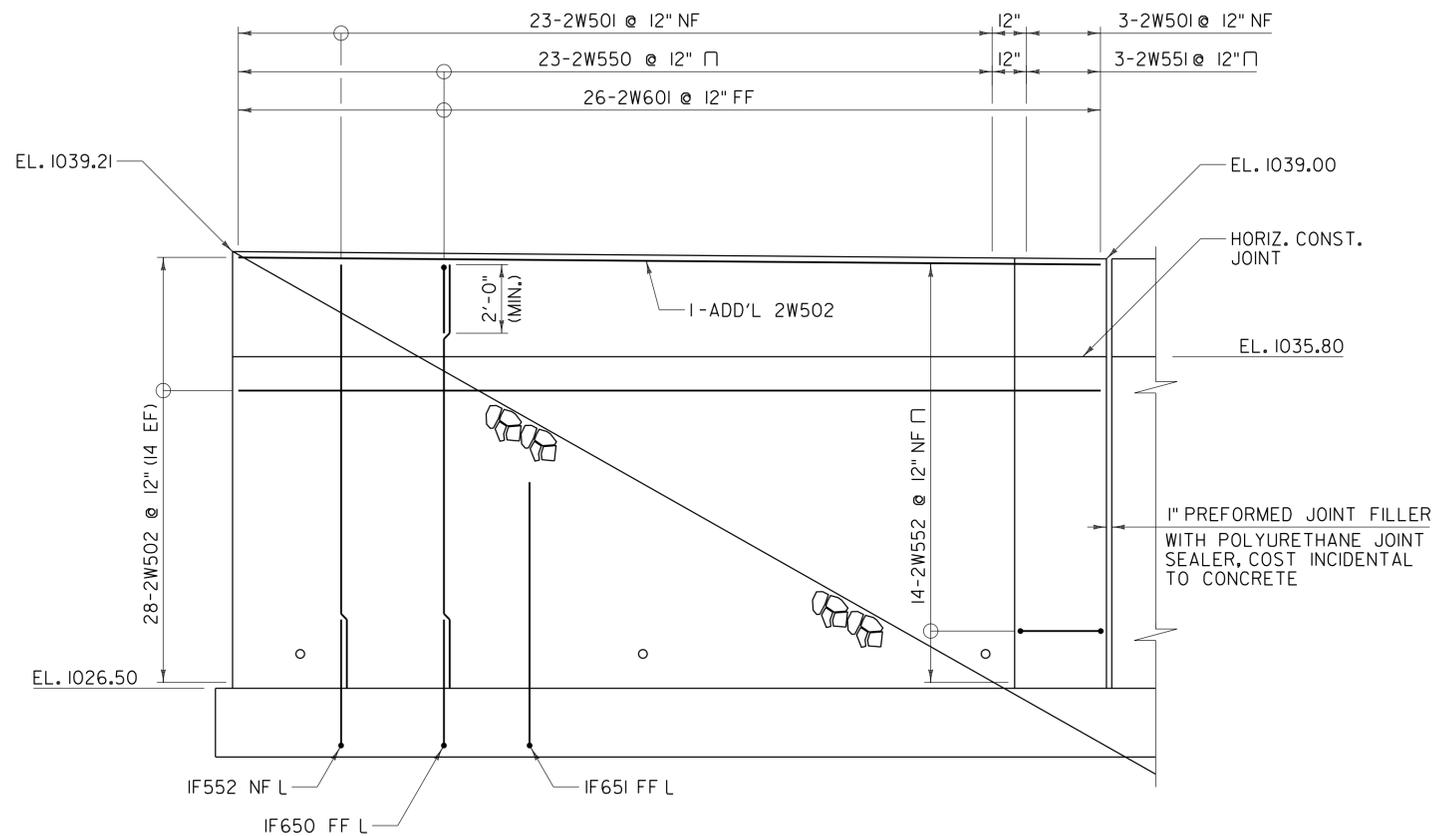
WINGWALL 1 CORNER REINFORCEMENT (ABOVE FILLET)
SCALE: 1/2" = 1'-0"

LEGEND:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD

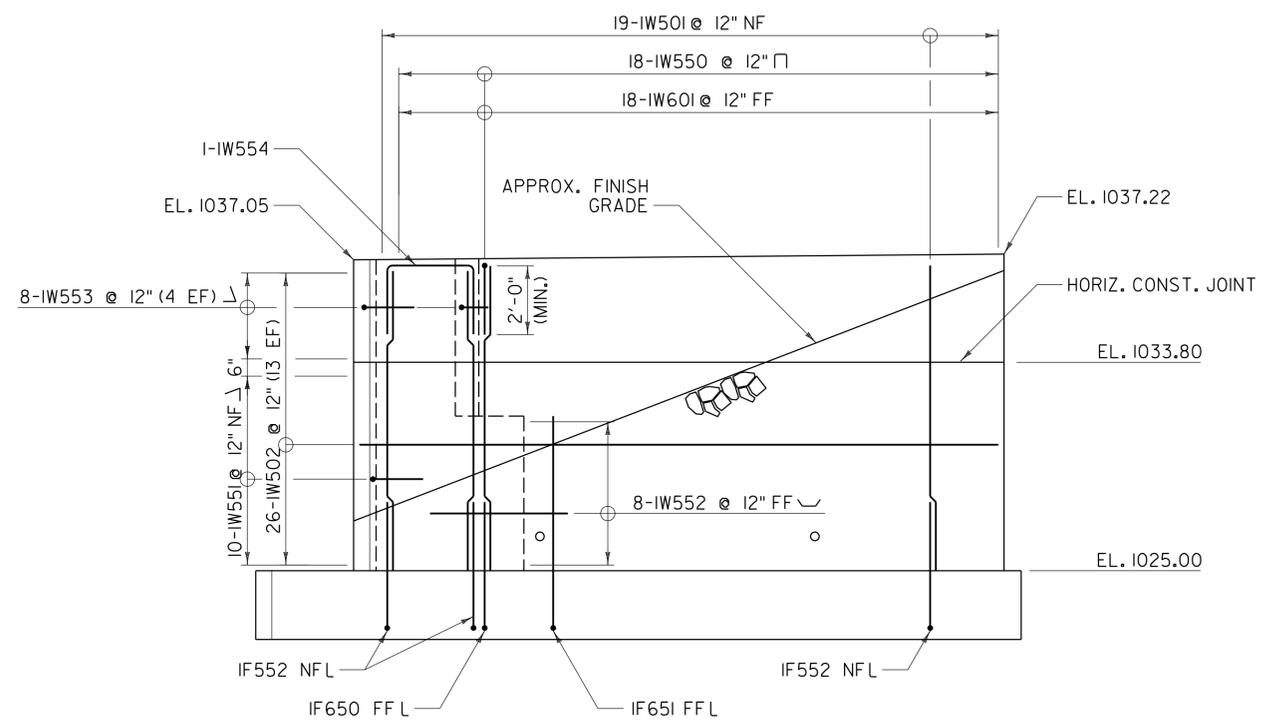
ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

PROJECT NAME:	JAY	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	DRAWN BY:	J. SOTER
FILE NAME:	z12c154abuts.dgn	DESIGNED BY:	N. TIRK
PROJECT LEADER:	M. CHENETTE	CHECKED BY:	T. KNIGHT
ABUTMENT NO. 1 REINFORCEMENT SECTIONS		SHEET 31 OF 71	





WINGWALL 2 REINFORCEMENT
SCALE: 3/8" = 1'-0"



WINGWALL 1 REINFORCEMENT
SCALE: 3/8" = 1'-0"

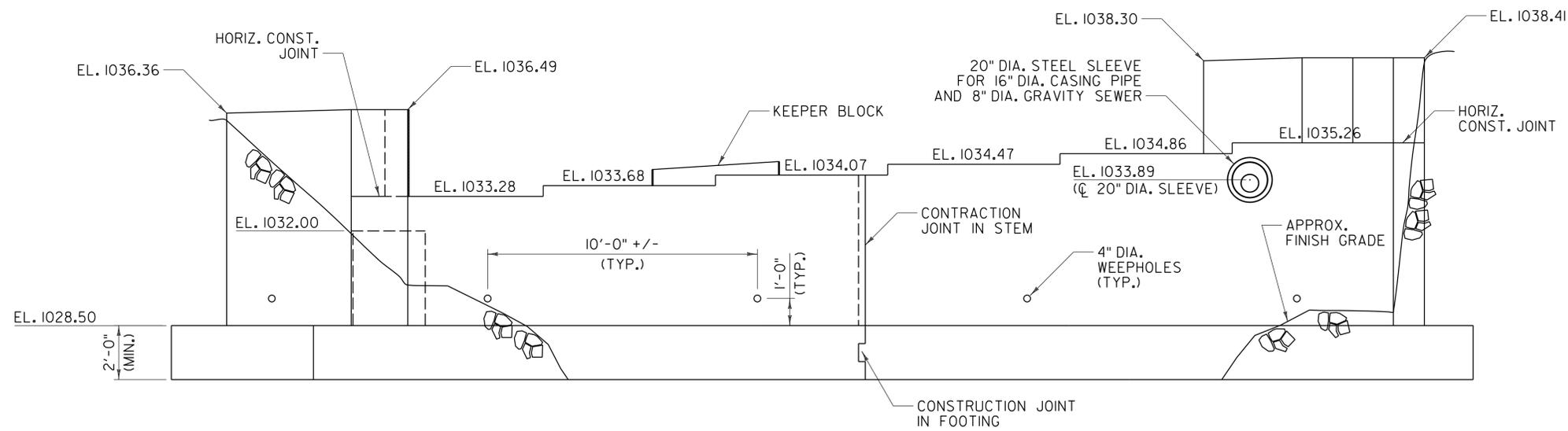
LEGEND:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154abuts.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: N. TIRK
 ABUTMENT NO. 1 WINGWALL DETAILS

PLOT DATE: 8/24/2015
 DRAWN BY: J. SOTER
 CHECKED BY: T. KNIGHT
 SHEET 32 OF 71





ABUTMENT NO. 2 ELEVATION
 SCALE: $\frac{3}{8}$ " = 1'-0"

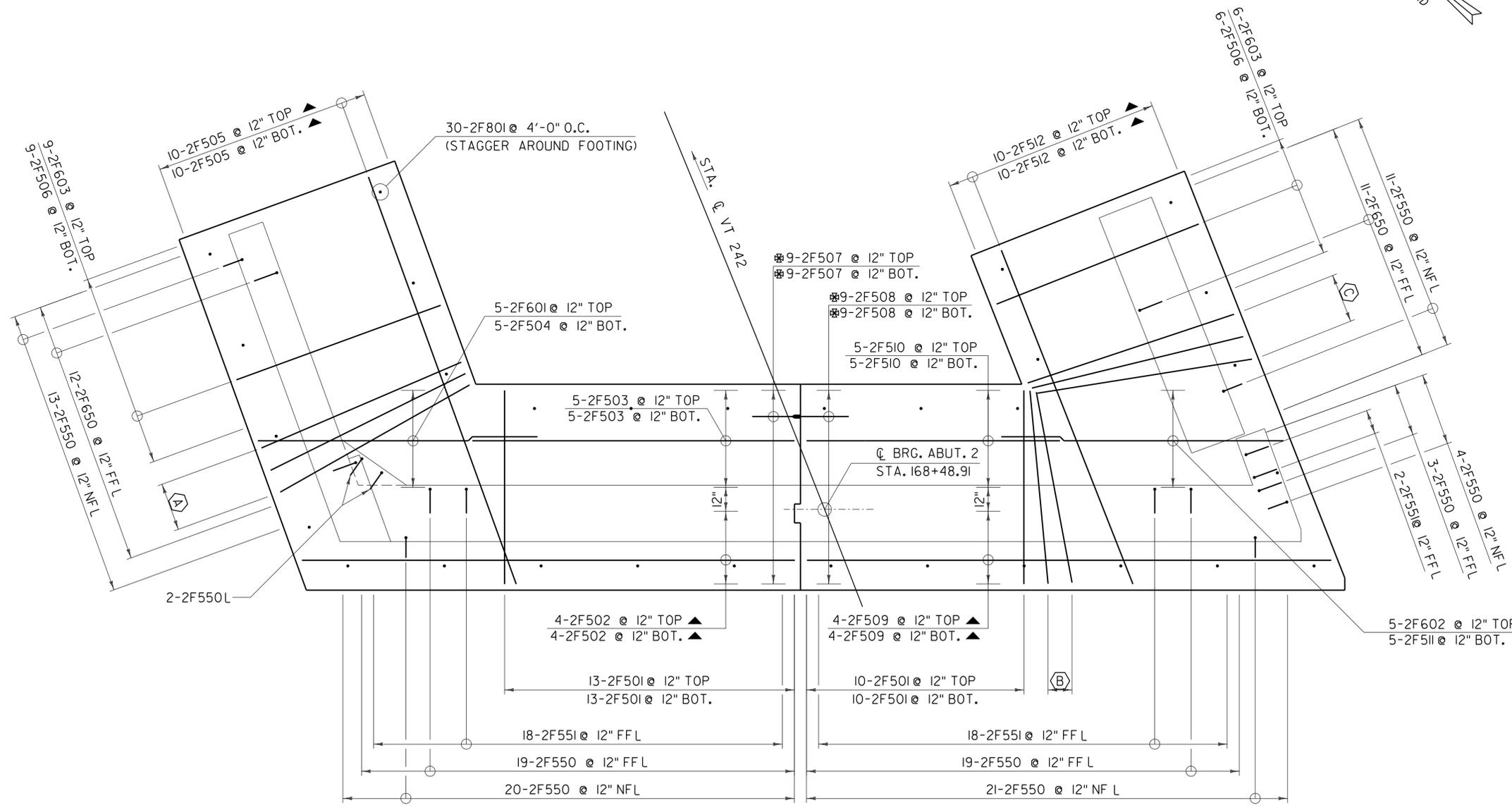
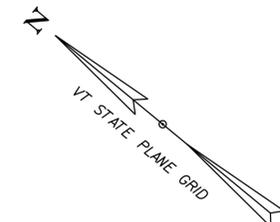
NOTE: FOR KEEPER BLOCK
 DETAIL REFER TO
 SHEET 30.

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154abuts.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: N. TIRK
 ABUTMENT NO. 2 ELEVATION

PLOT DATE: 8/24/2015
 DRAWN BY: J. SOTER
 CHECKED BY: T. KNIGHT
 SHEET 34 OF 71





LEGEND

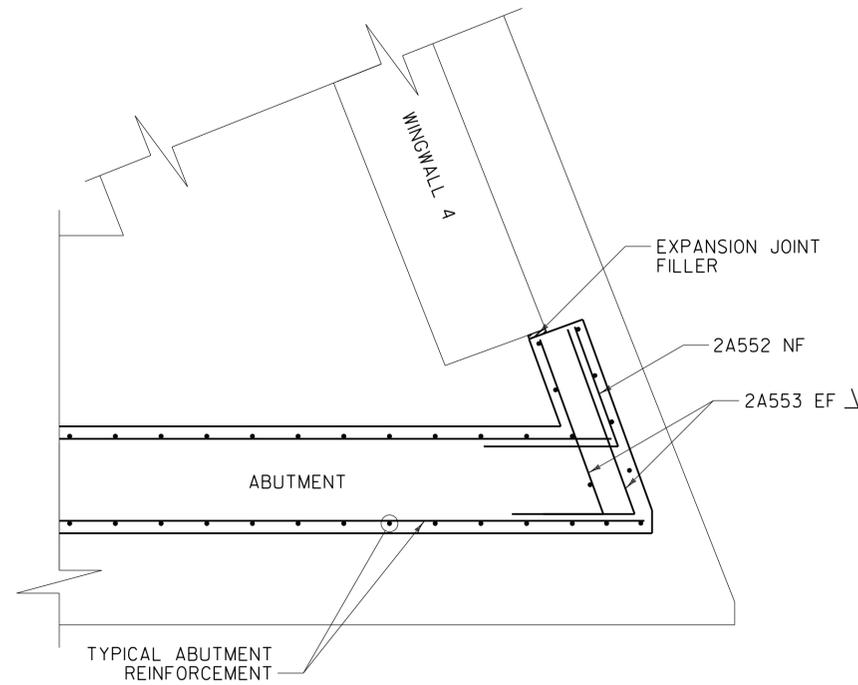
(A)	3-2F603 (SPLAYED) @ 12" MAX. BEHIND STEM, TOP 3-2F506 (SPLAYED) @ 12" MAX. BEHIND STEM, BOT.
(B)	2-2F501 (SPLAYED) @ 12" MAX. BEHIND STEM, TOP 2-2F501 (SPLAYED) @ 12" MAX. BEHIND STEM, BOT.
(C)	3-2F603 (SPLAYED) @ 12" MAX. BEHIND STEM, TOP 3-2F506 (SPLAYED) @ 12" MAX. BEHIND STEM, BOT.

LEGEND:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 ⊠ = INDICATES BAR JOINED WITH MECHANICAL CONNECTOR
 ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

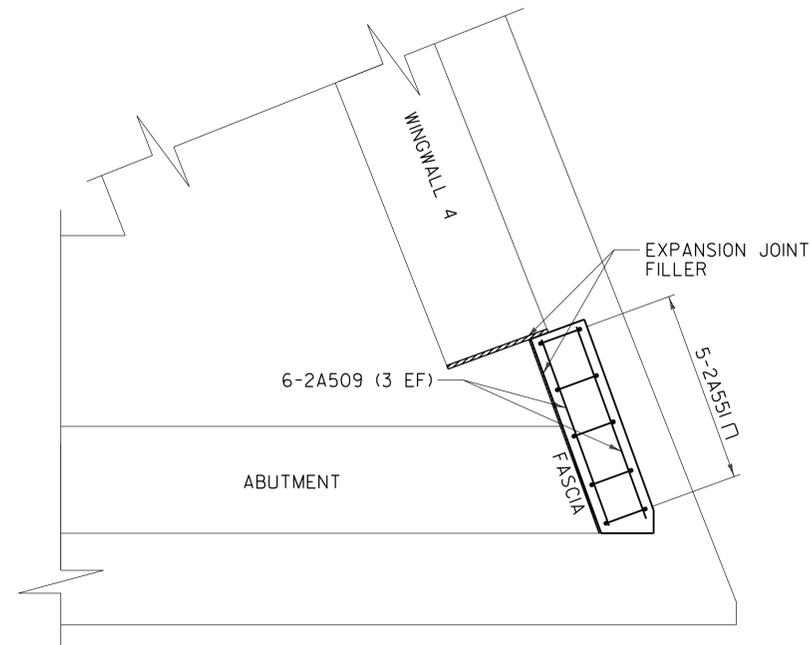
ABUTMENT NO. 2 FOOTING REINFORCEMENT
 SCALE: 3/8" = 1'-0"

PROJECT NAME:	JAY	FILE NAME:	z12c154abuts.dgn	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	PROJECT LEADER:	M. CHENETTE	DRAWN BY:	J. SOTER
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		ABUTMENT NO. 2 FOOTING REINFORCEMENT		SHEET	35 OF 71

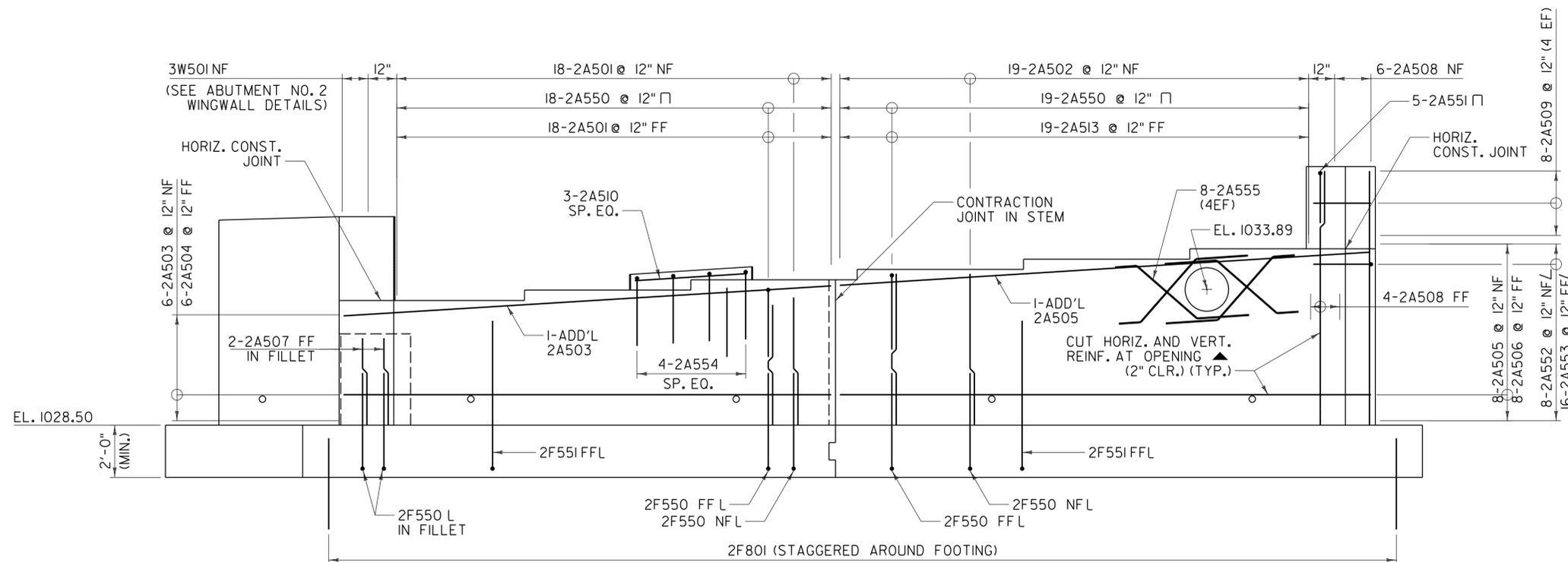




NORTHWEST CORNER REINFORCEMENT
(BELOW BEAM SEAT)
SCALE: 1/2" = 1'-0"



NORTHWEST CORNER REINFORCEMENT
(ABOVE BEAM SEAT)
SCALE: 1/2" = 1'-0"



ABUTMENT NO. 2 REINFORCEMENT ELEVATION
SCALE: 3/8" = 1'-0"

LEGEND:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD

NOTES:
 1. FOR TYPICAL KEEPER BLOCK
 DETAIL SEE SHEET 30.

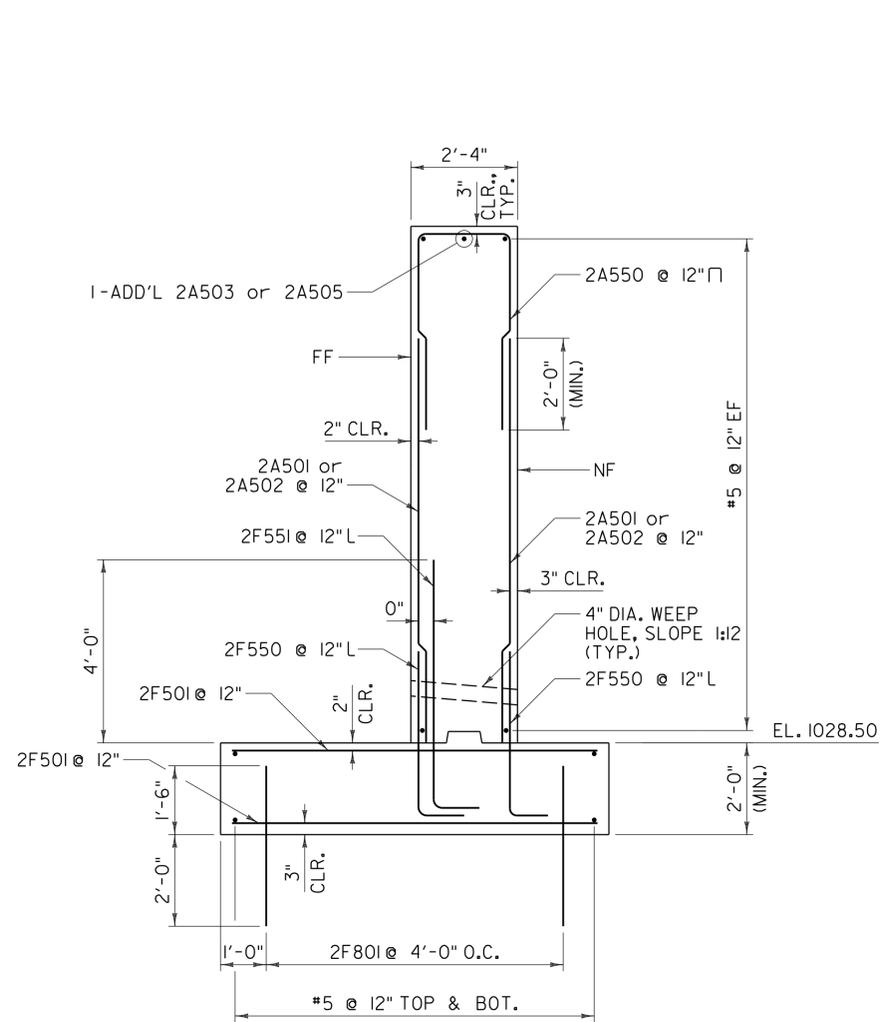
ALL SPLICES 2'-0" UNLESS
 NOTED OTHERWISE.

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)

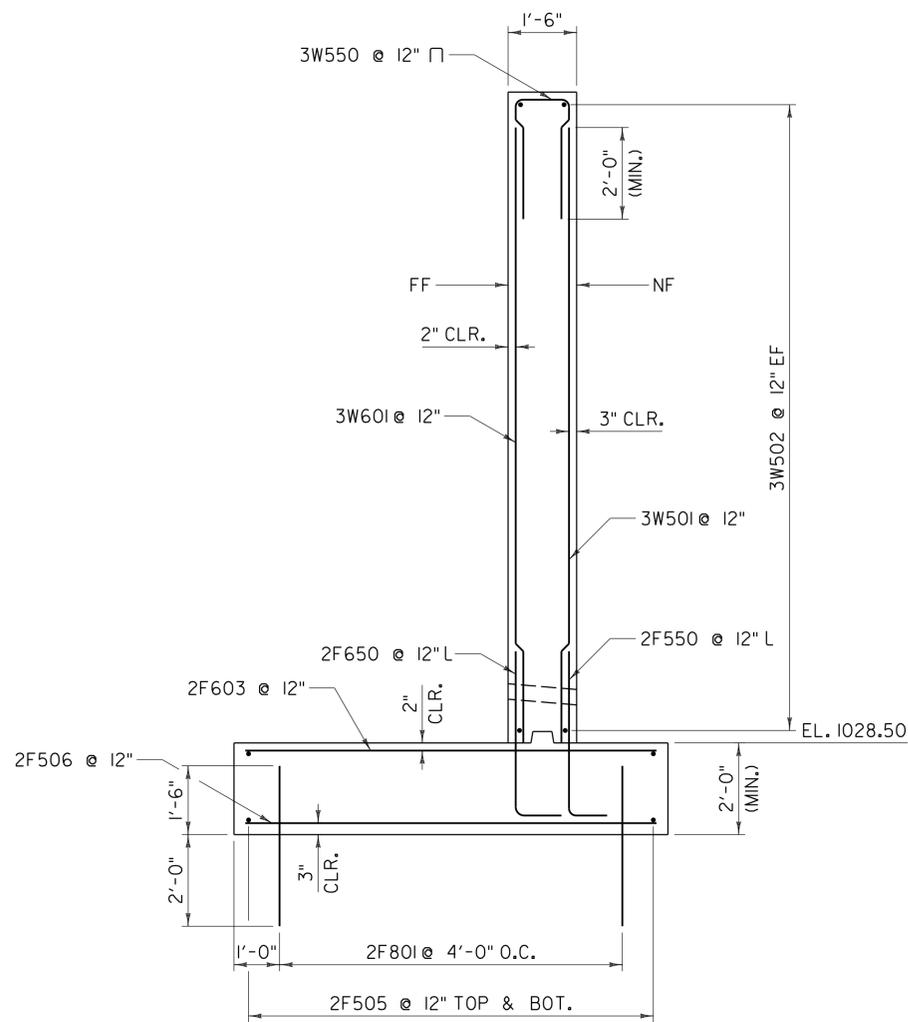
FILE NAME: z12c154abuts.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: N. TIRK
 ABUTMENT NO. 2 REINFORCEMENT ELEVATION SHEET 36 OF 71

PLOT DATE: 8/24/2015
 DRAWN BY: J. SOTER
 CHECKED BY: T. KNIGHT

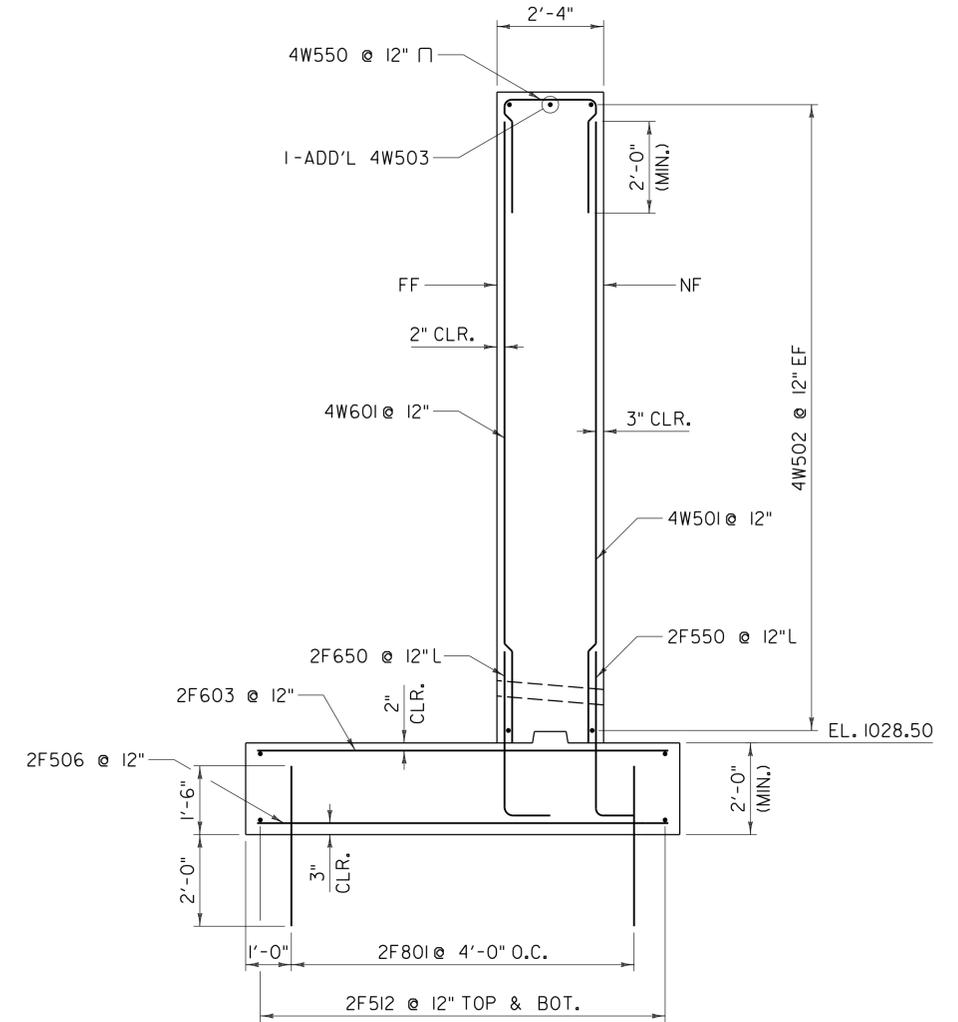




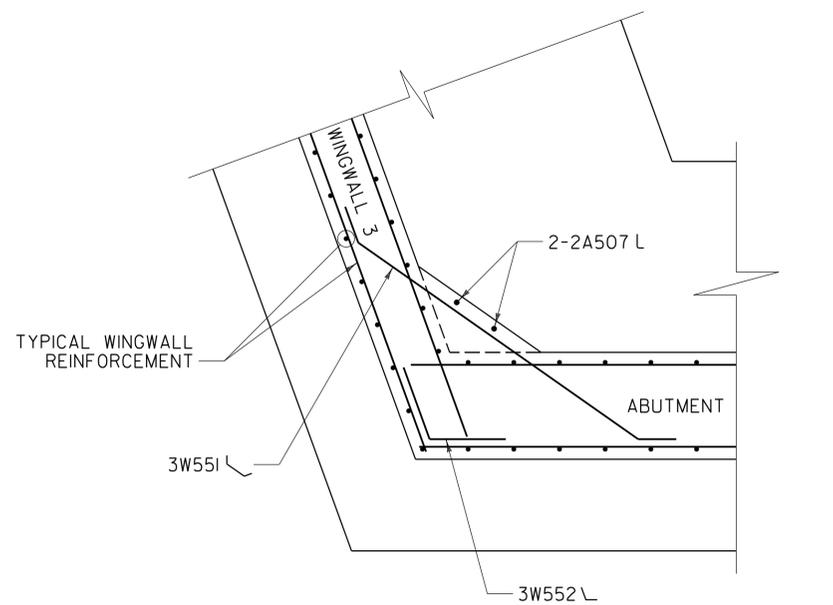
ABUTMENT NO. 2 REINFORCEMENT
SCALE: 1/2" = 1'-0"



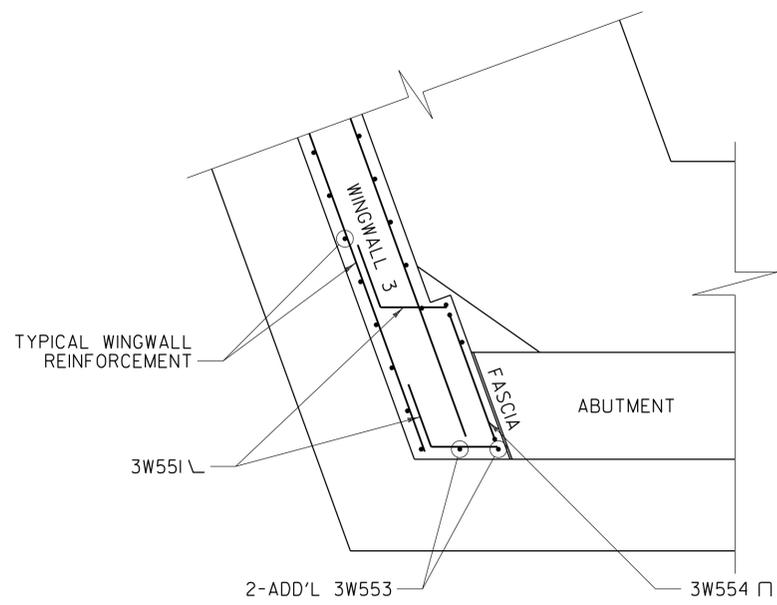
WINGWALL 3 REINFORCEMENT
SCALE: 1/2" = 1'-0"



WINGWALL 4 REINFORCEMENT
SCALE: 1/2" = 1'-0"



WINGWALL 3 CORNER REINFORCEMENT (BELOW FILLET)
SCALE: 1/2" = 1'-0"



WINGWALL 3 CORNER REINFORCEMENT (BELOW FILLET)
SCALE: 1/2" = 1'-0"

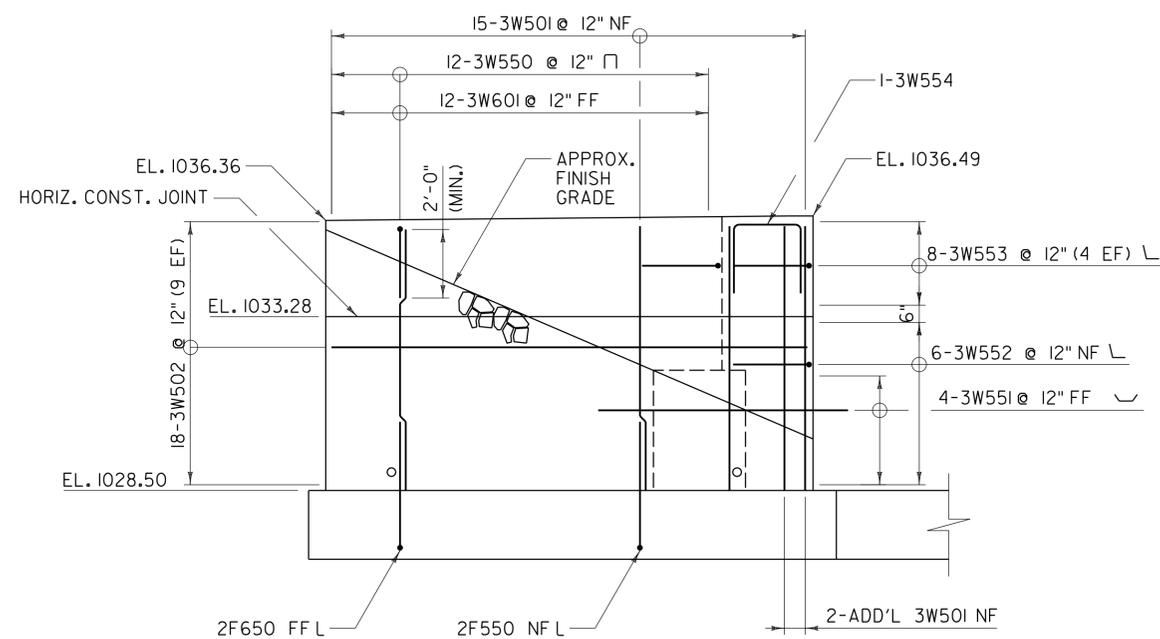
LEGEND:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

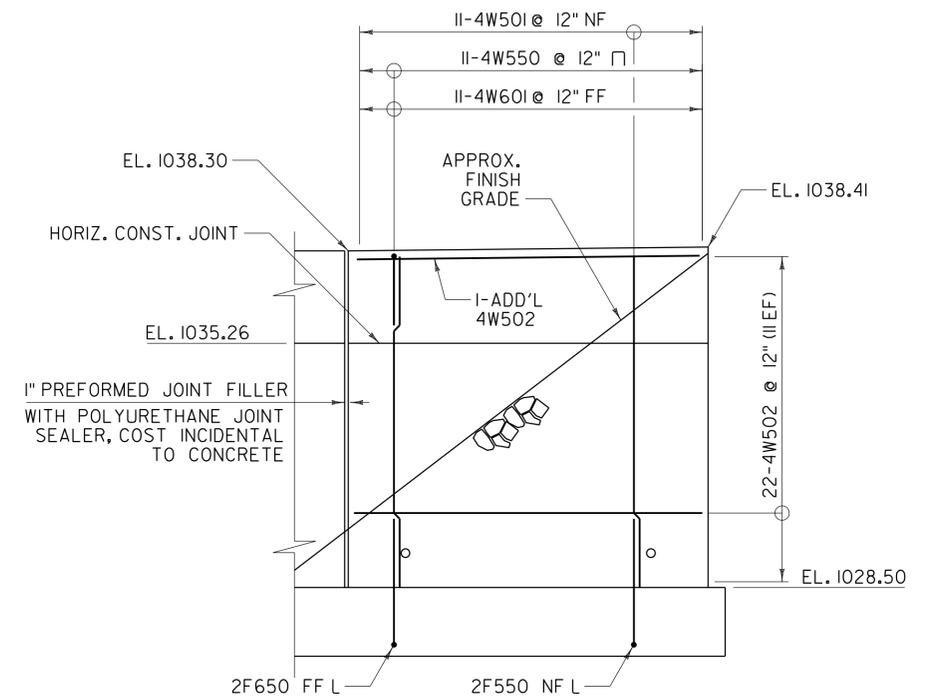
FILE NAME: z12c154abuts.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: N. TIRK
ABUTMENT NO. 2 REINFORCEMENT SECTIONS

PLOT DATE: 8/24/2015
DRAWN BY: J. SOTER
CHECKED BY: T. KNIGHT
SHEET 37 OF 71





WINGWALL 3 REINFORCEMENT
SCALE: $\frac{3}{8}$ " = 1'-0"



WINGWALL 4 REINFORCEMENT
SCALE: $\frac{3}{8}$ " = 1'-0"

NOTE:

1. FOR WINGWALL 3 CORNER REINFORCEMENT DETAILS REFER TO SHEET 37.

LEGEND:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD

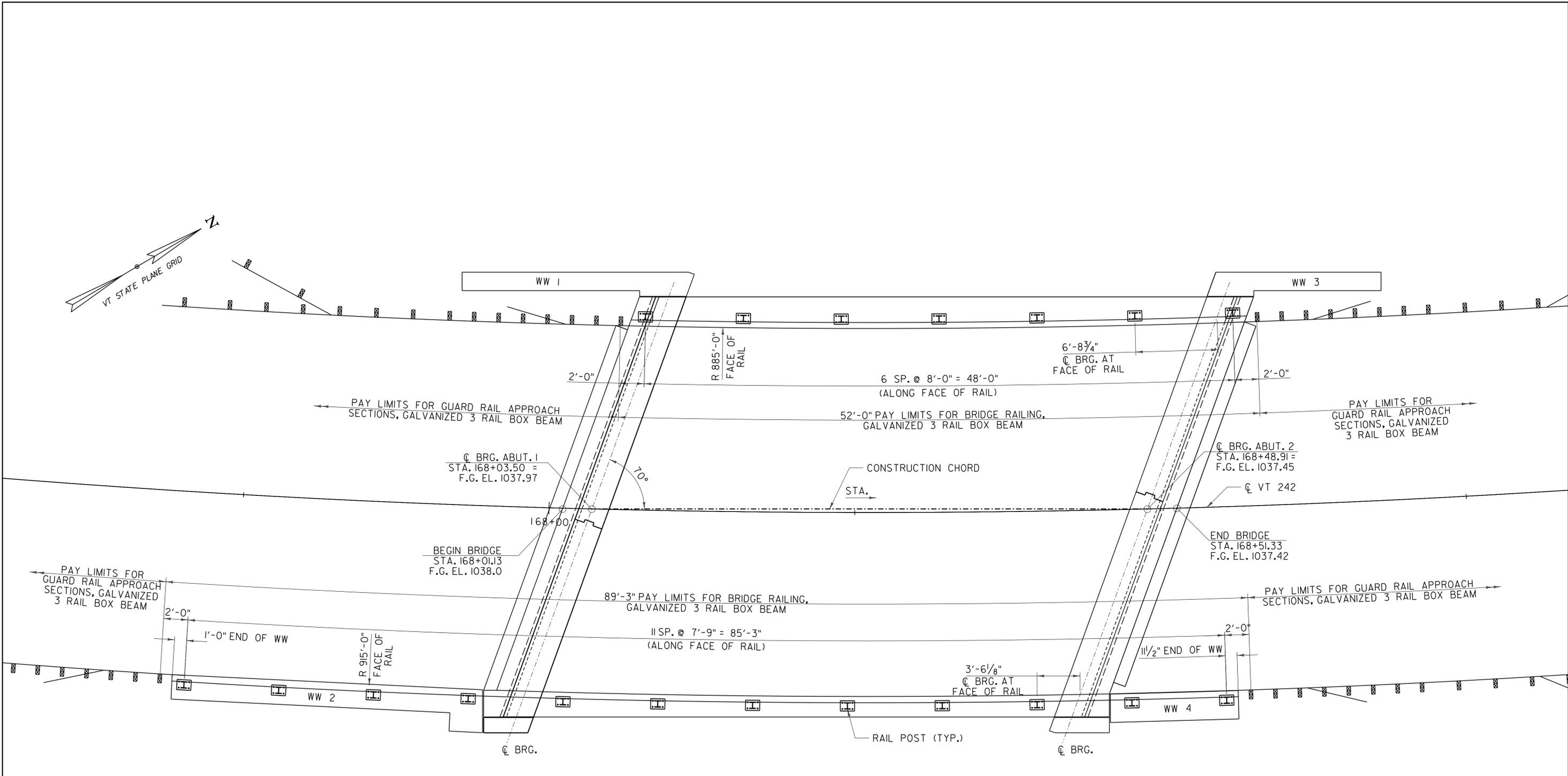
ALL SPLICES 2'-0" UNLESS NOTED OTHERWISE.

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154abuts.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: N. TIRK
ABUTMENT NO. 2 WINGWALL DETAILS

PLOT DATE: 8/24/2015
DRAWN BY: J. SOTER
CHECKED BY: T. KNIGHT
SHEET 38 OF 71





BRIDGE RAIL LAYOUT
SCALE: 1/4" = 1'-0"

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: J. SOTER
FILE NAME: z12c154bdr_brail.dgn	DESIGNED BY: N. TIRK
PROJECT LEADER: M. CHENETTE	CHECKED BY: T. KNIGHT
BRIDGE RAIL LAYOUT	SHEET 39 OF 71

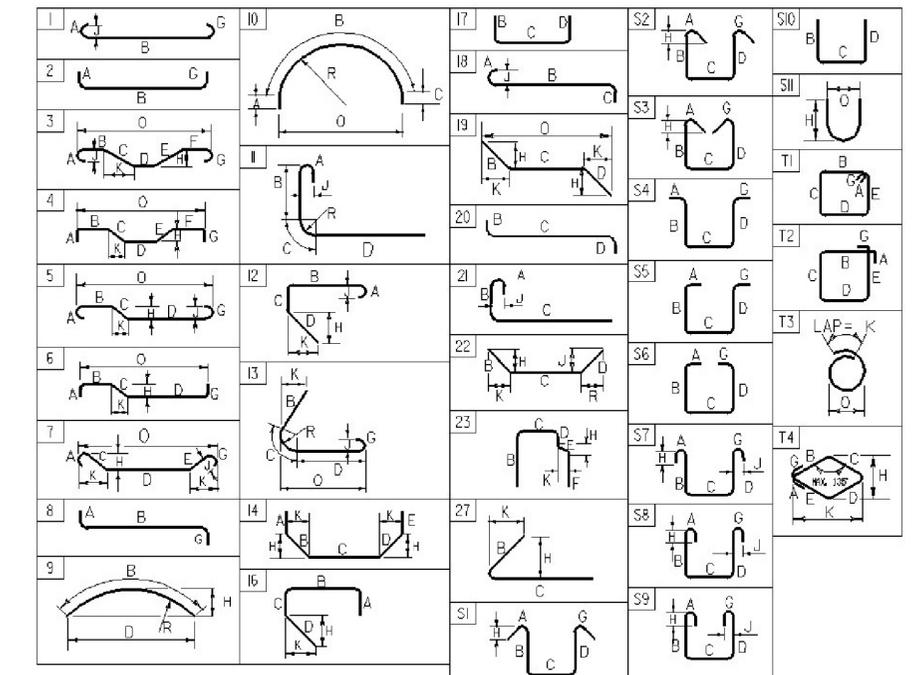


REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O				
DECK (continued)																																							
88	6	17'-0"	S650.2	18	0'-8"	16'-4"	----							0'-5"																									
88	6	18'-0"	S651.2	18	0'-8"	17'-4"	----							0'-5"																									
2	6	15'-6"	S652.2	18	0'-8"	14'-10"	----							0'-5"																									
2	6	14'-1"	S653.2	18	0'-8"	13'-5"	----							0'-5"																									
2	6	12'-10"	S654.2	18	0'-8"	12'-2"	----							0'-5"																									
2	6	11'-5"	S655.2	18	0'-8"	10'-9"	----							0'-5"																									
2	6	10'-0"	S656.2	18	0'-8"	9'-4"	----							0'-5"																									
2	6	8'-8"	S657.2	18	0'-8"	8'-0"	----							0'-5"																									
2	6	7'-4"	S658.2	18	0'-8"	6'-8"	----							0'-5"																									
2	6	5'-11"	S659.2	18	0'-8"	5'-3"	----							0'-5"																									
2	6	4'-6"	S660.2	18	0'-8"	3'-10"	----							0'-5"																									
2	6	3'-2"	S661.2	18	0'-8"	2'-6"	----							0'-5"																									
2	6	1'-9"	S662.2	18	0'-8"	1'-1"	----							0'-5"																									

~ NOTES ~

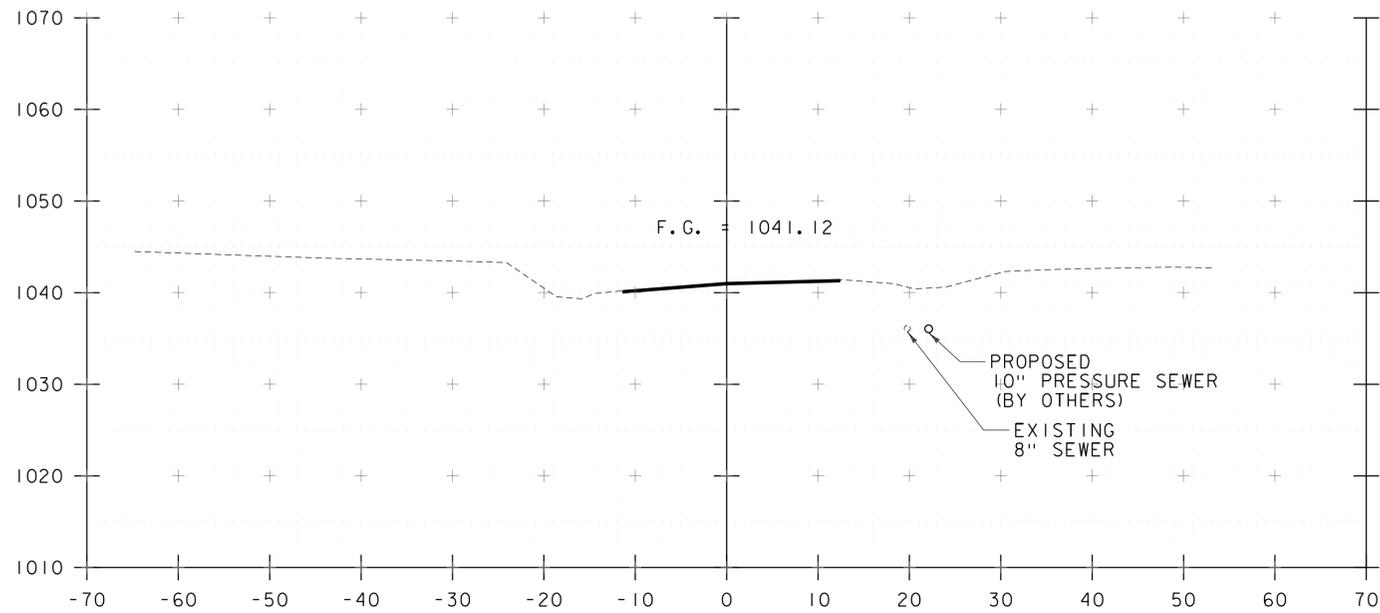
- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E DENOTES EPOXY COATED REINFORCING STEEL.



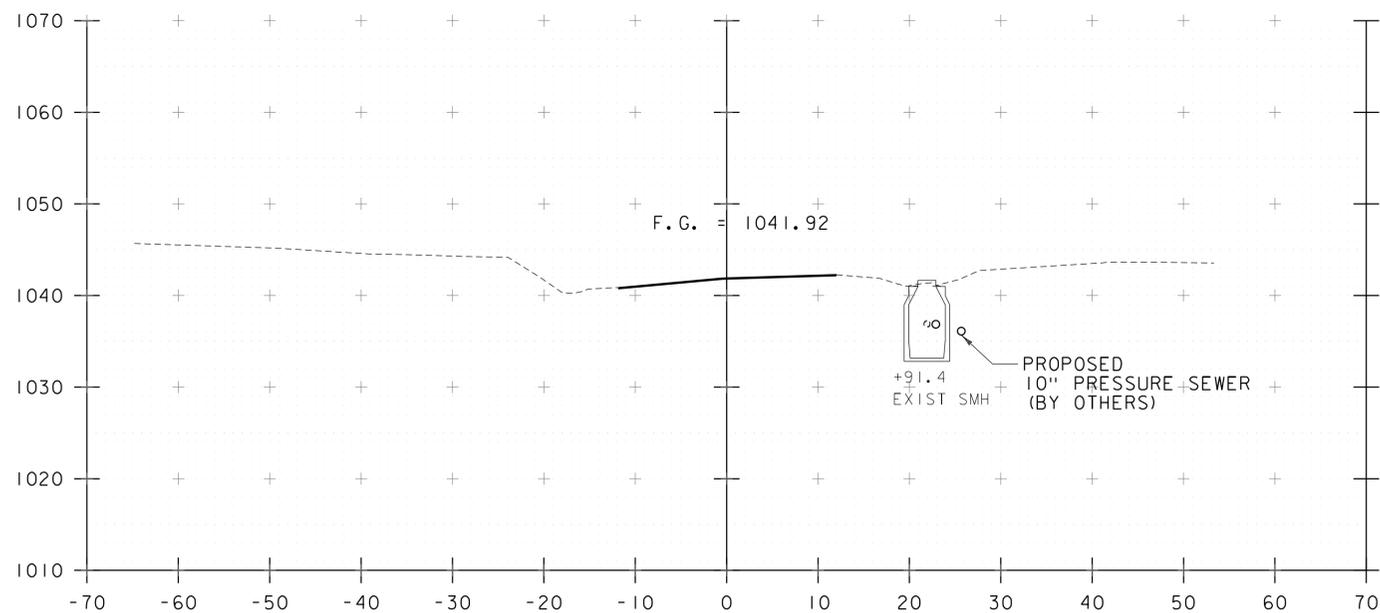
ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

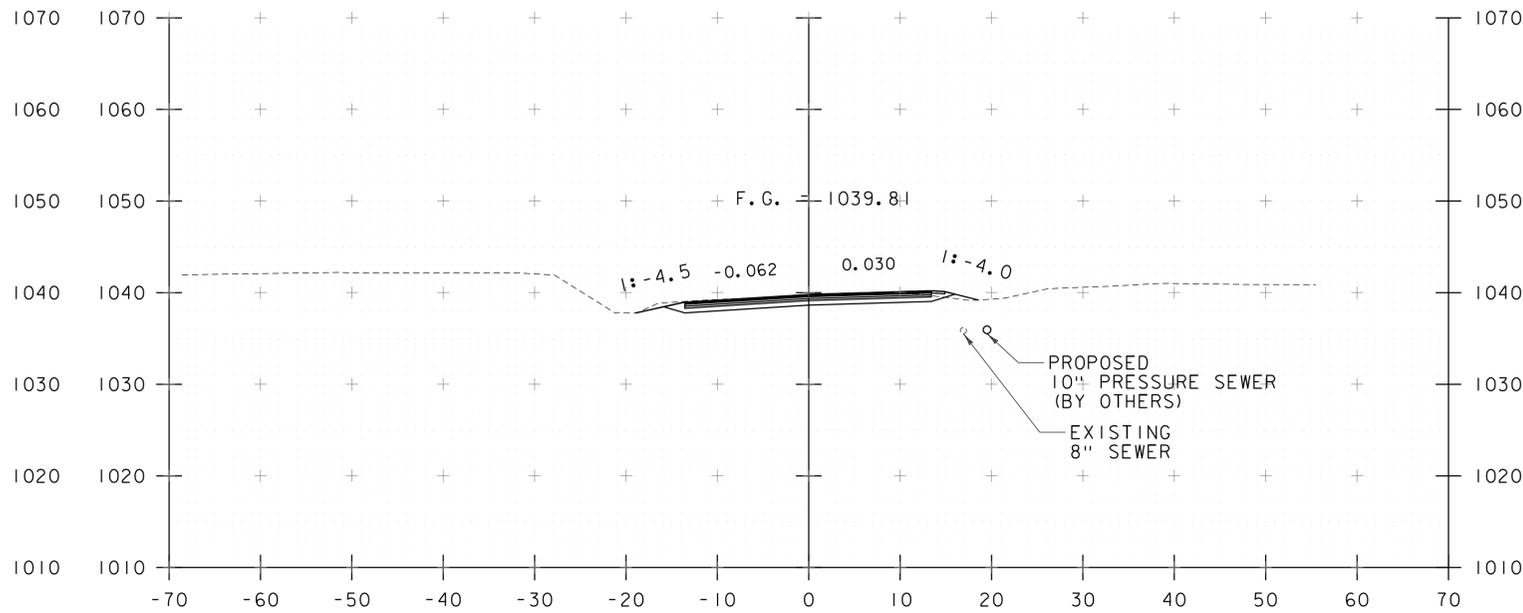
PROJECT NAME: **JAY**
 PROJECT NUMBER: **BHF 0278(3)**
 FILE NAME: _____ PLOT DATE: **6/26/2015**
 PROJECT MANAGER: **M. CHENETTE** DRAWN BY: **J. SOTER**
 DESIGNED BY: **N. TIRK** CHECKED BY: **T. KNIGHT**
 REINFORCING STEEL SCHEDULE SHEET #2 SHEET 41 OF 71



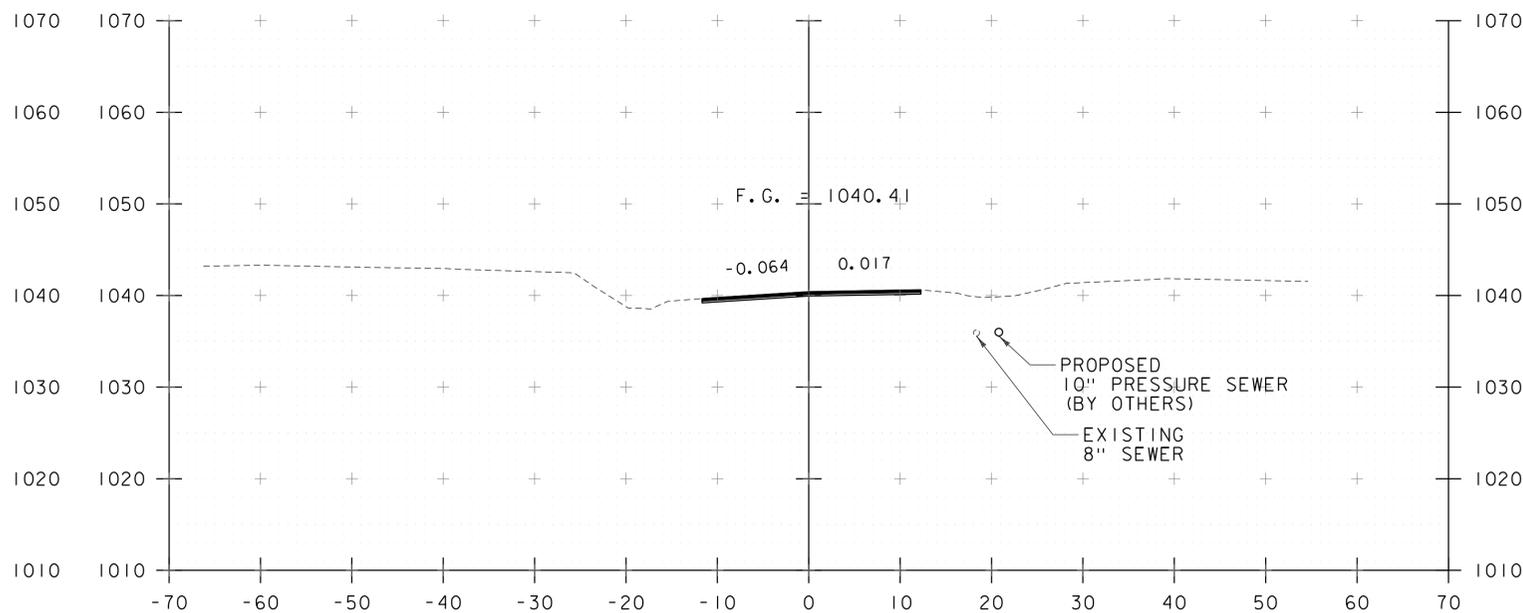
166+25



166+00
BEGIN APPROACH



166+75



166+50

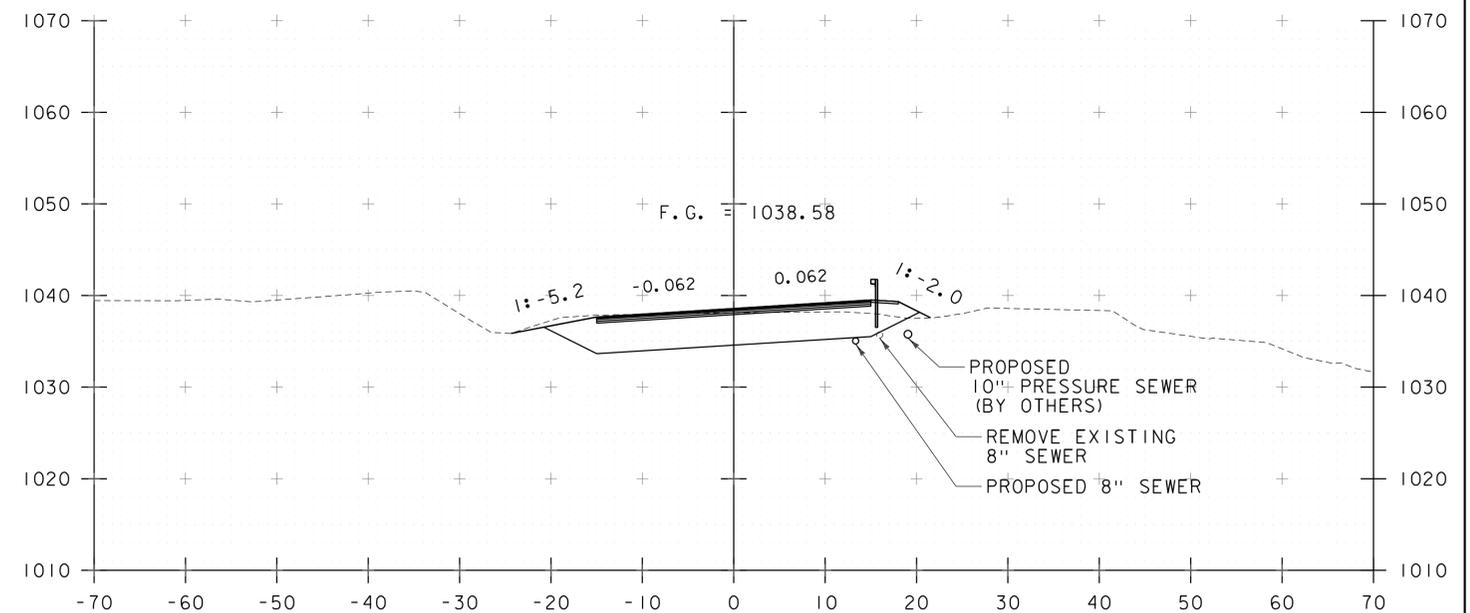
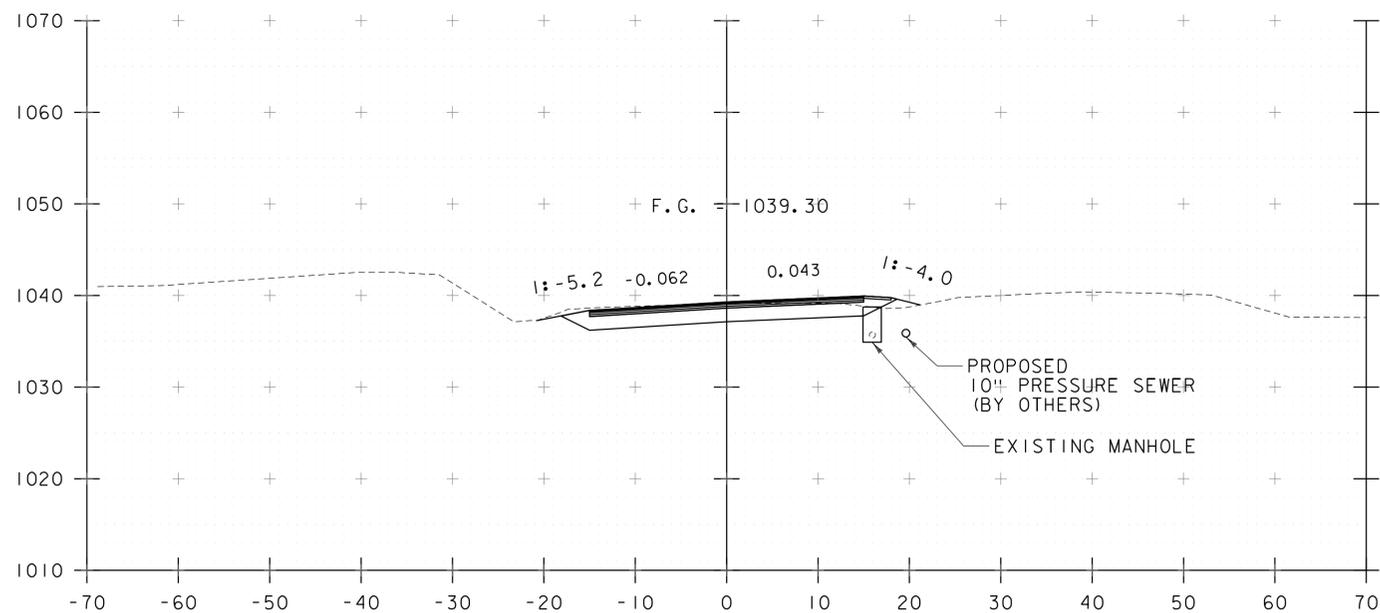
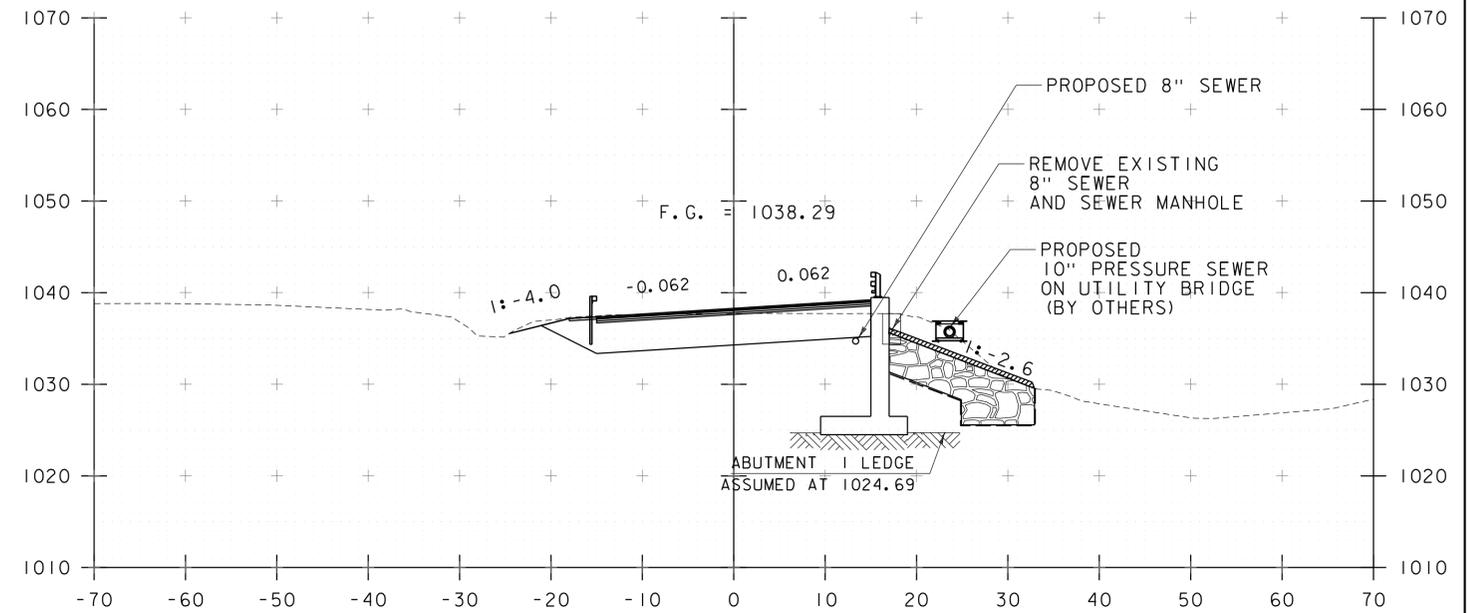
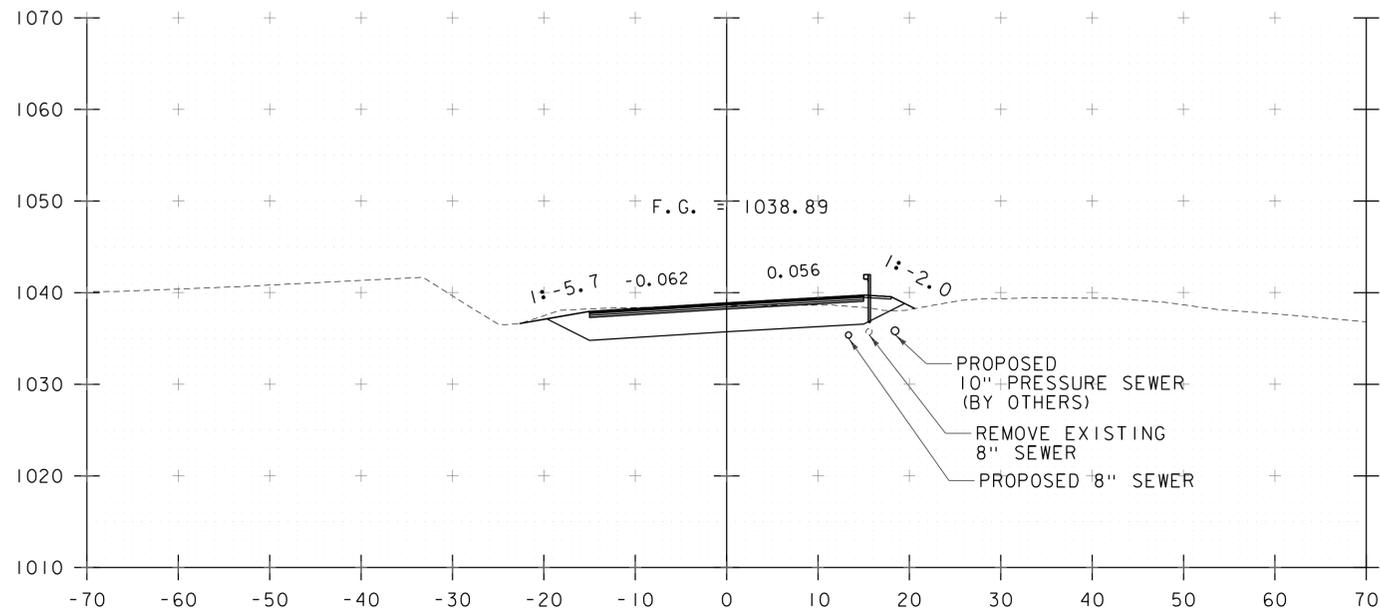
STA. 166+00 TO STA. 166+75

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154xsl.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
ROADWAY CROSS SECTIONS - RXS 1

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: G. SANTY
SHEET 42 OF 71





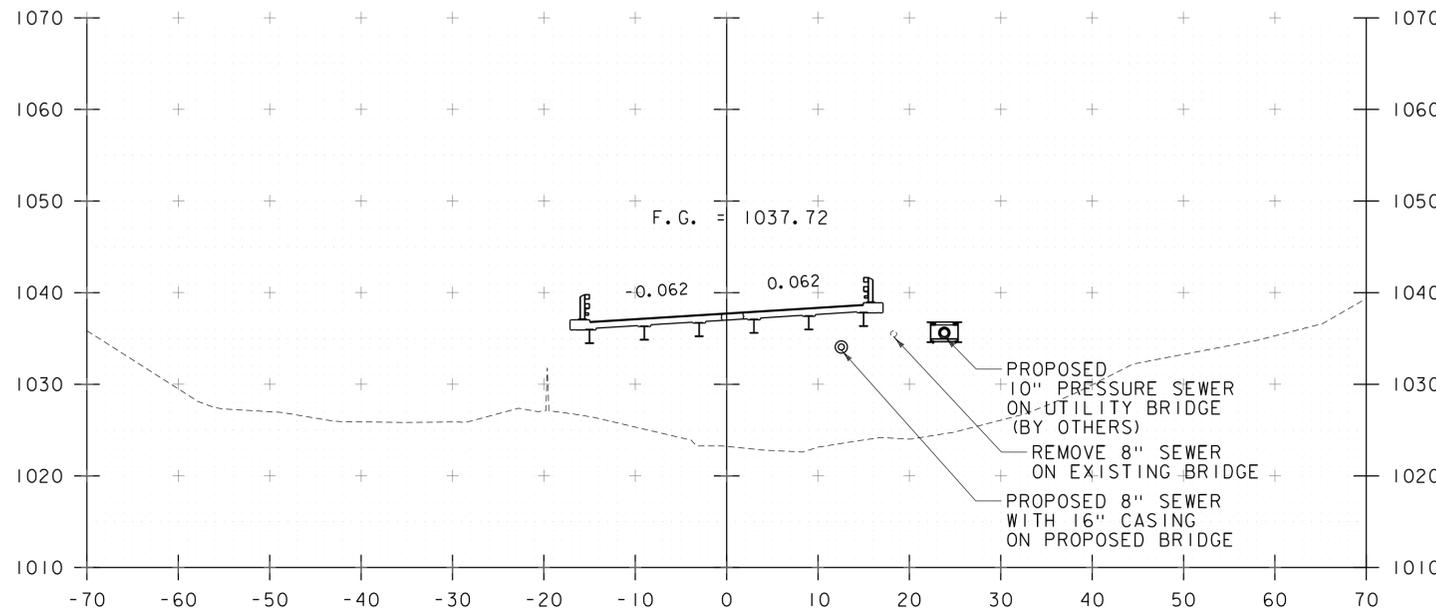
STA. 167+00 TO STA. 167+75

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

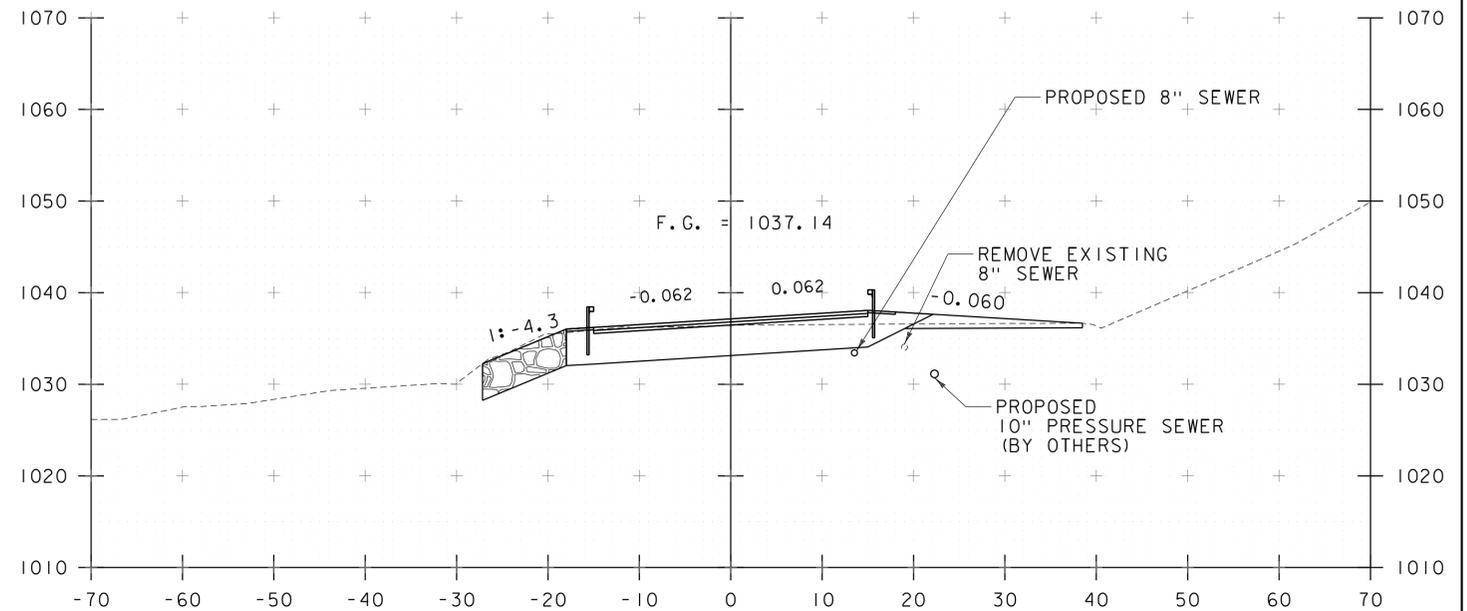
FILE NAME: z12c154xsl.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
ROADWAY CROSS SECTIONS - RXS 2

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: G. SANTY
SHEET 43 OF 71

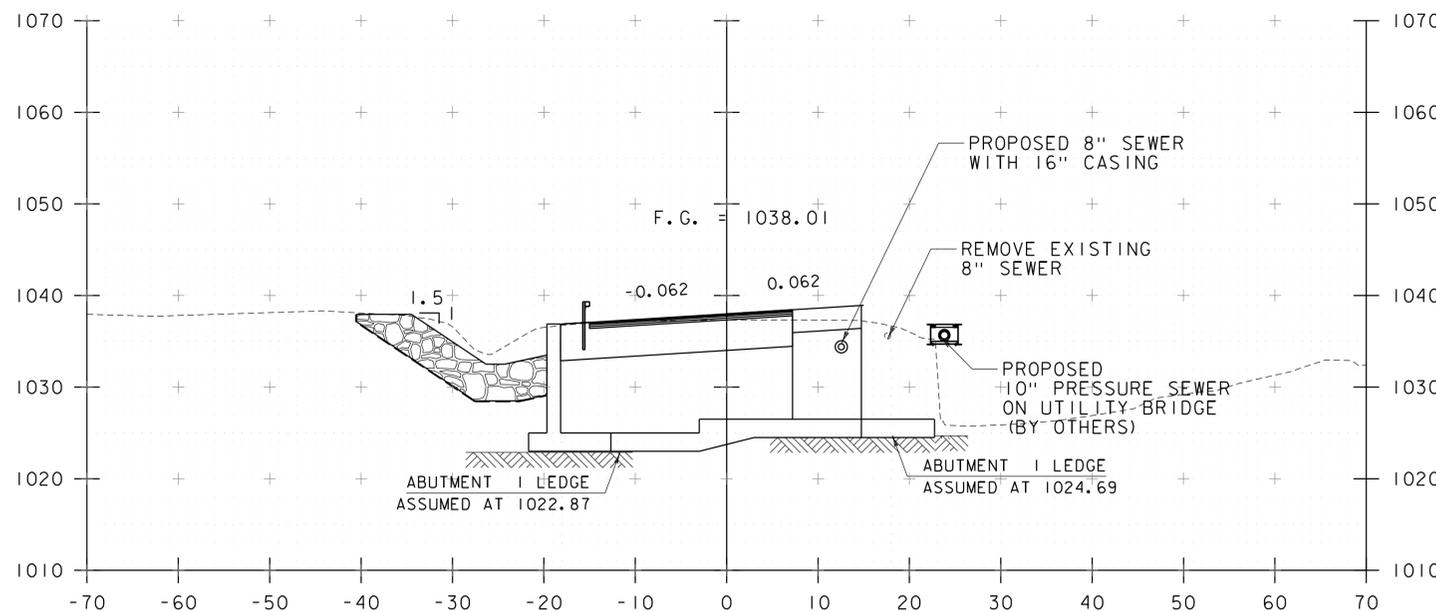




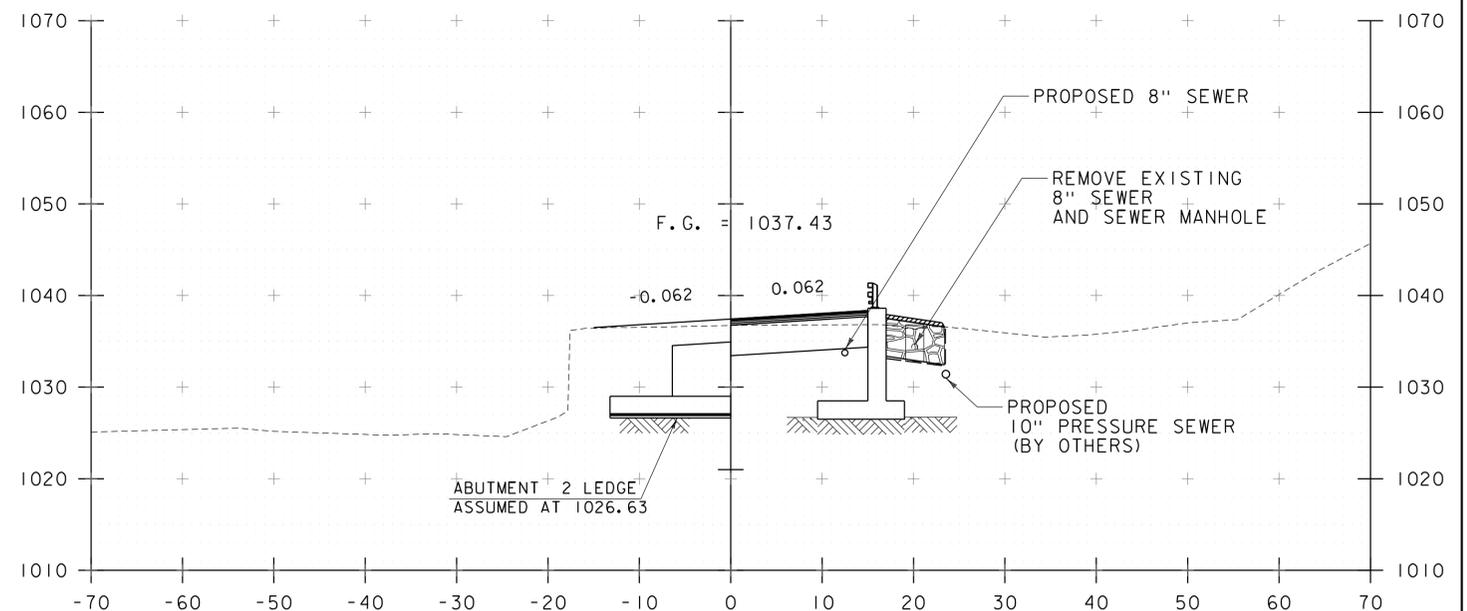
168+25
168+01.13
BEGIN BRIDGE



168+75
168+51.33
END BRIDGE



168+00

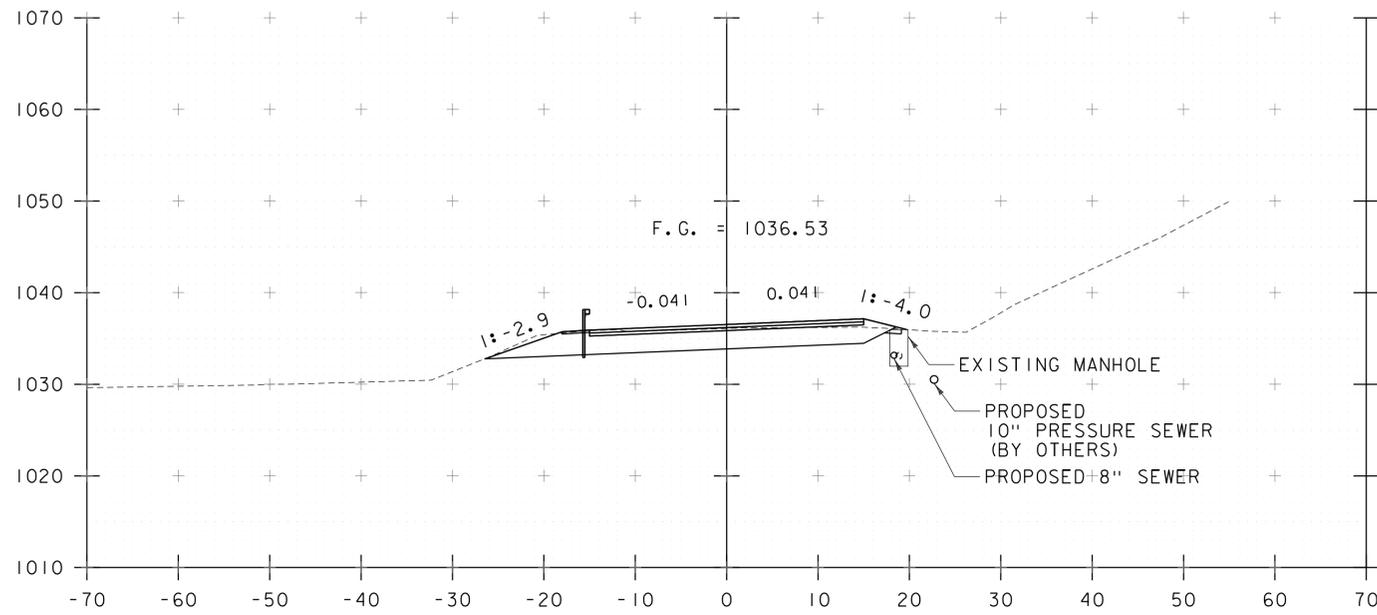


168+50

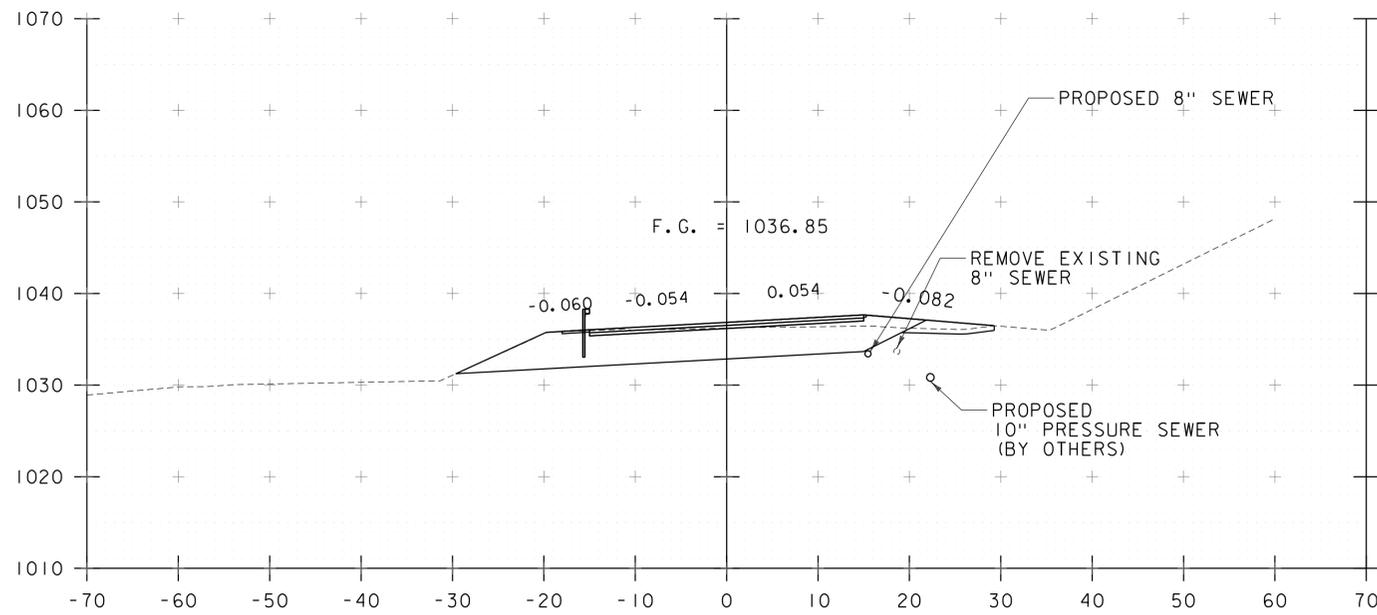
STA. 168+00 TO STA. 168+75

PROJECT NAME:	JAY	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	DRAWN BY:	I. MAYNARD
FILE NAME:	z12c154xsl.dgn	DESIGNED BY:	I. MAYNARD
PROJECT LEADER:	M. CHENETTE	CHECKED BY:	G. SANTY
ROADWAY CROSS SECTIONS - RXS 3		SHEET	44 OF 71

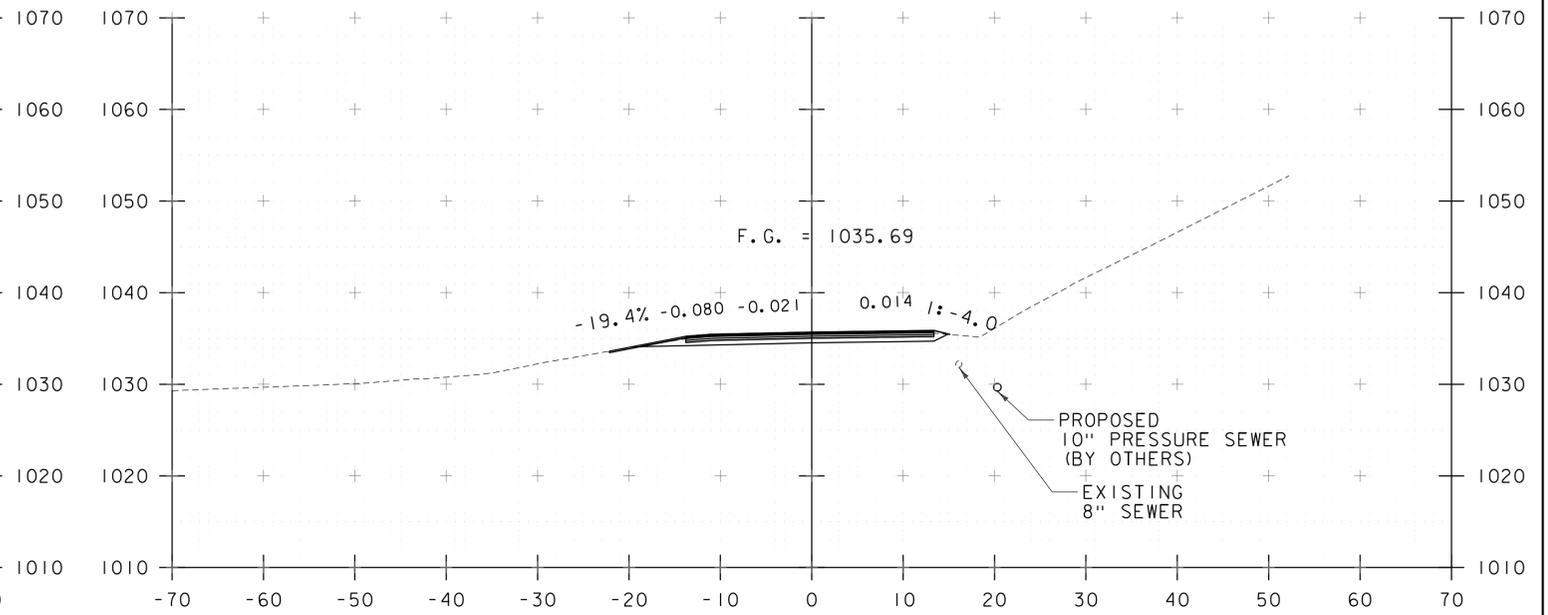




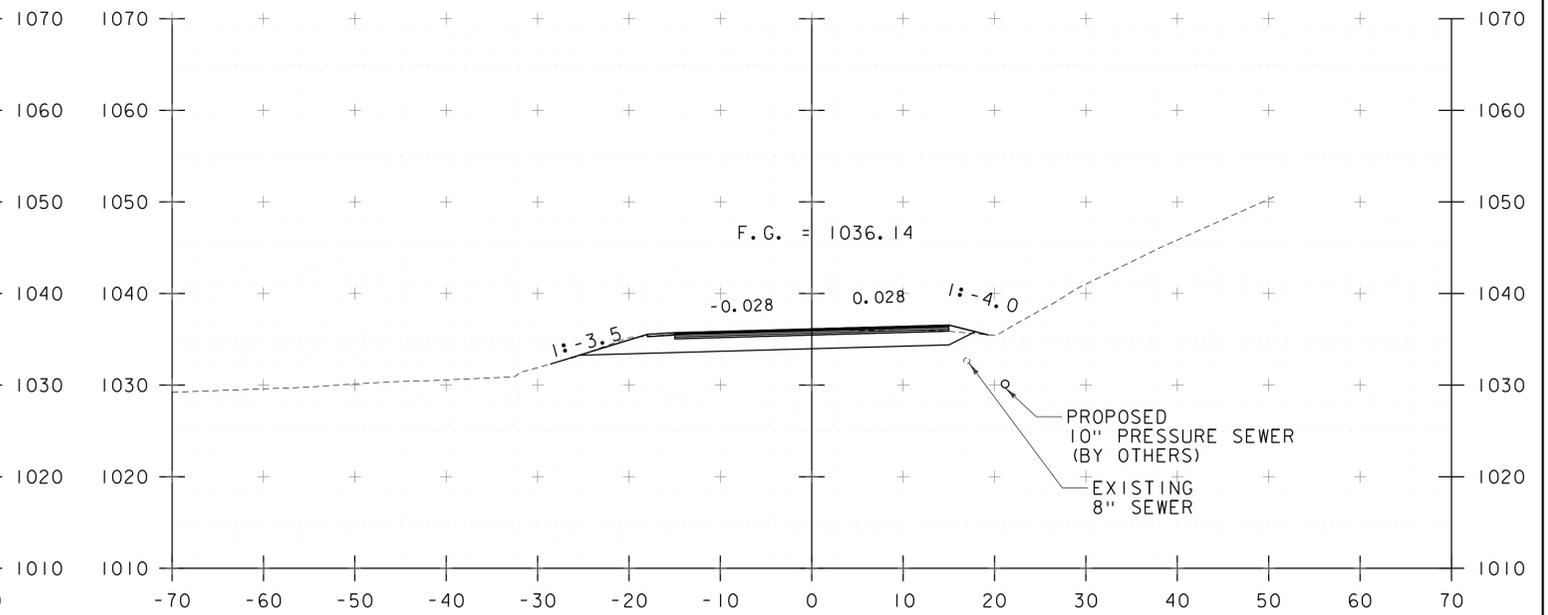
169+25



169+00



169+75



169+50

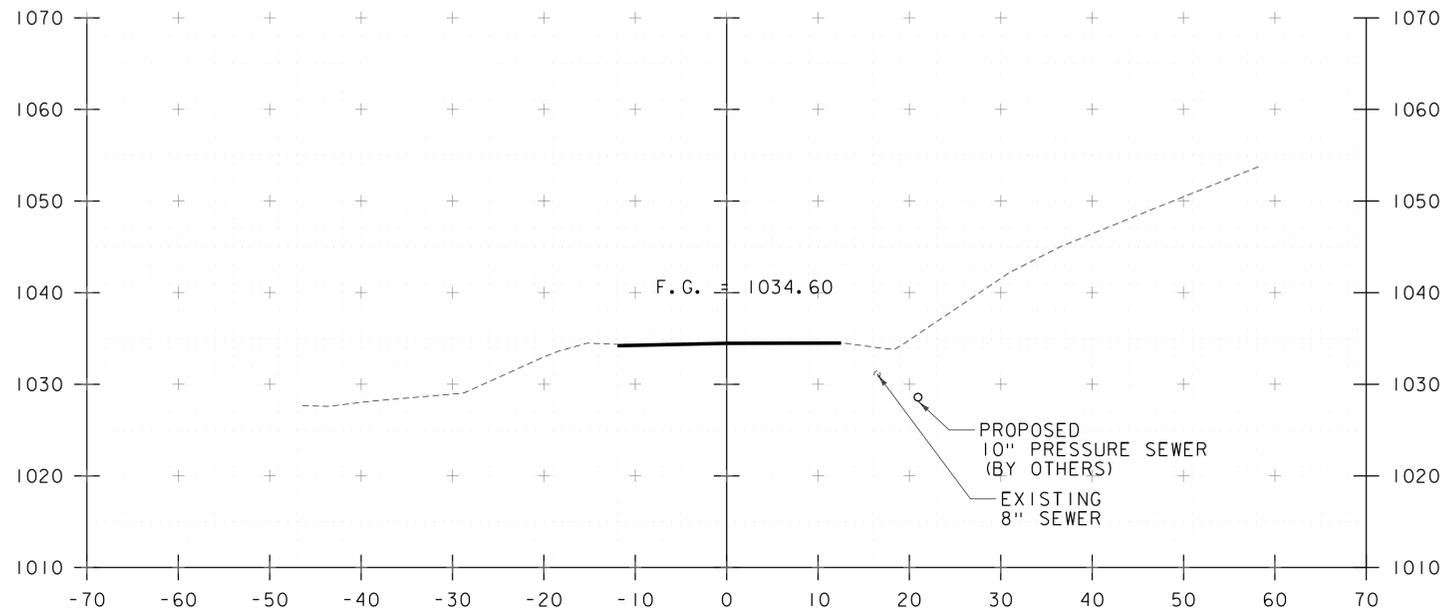
STA. 169+00 TO STA. 169+75

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

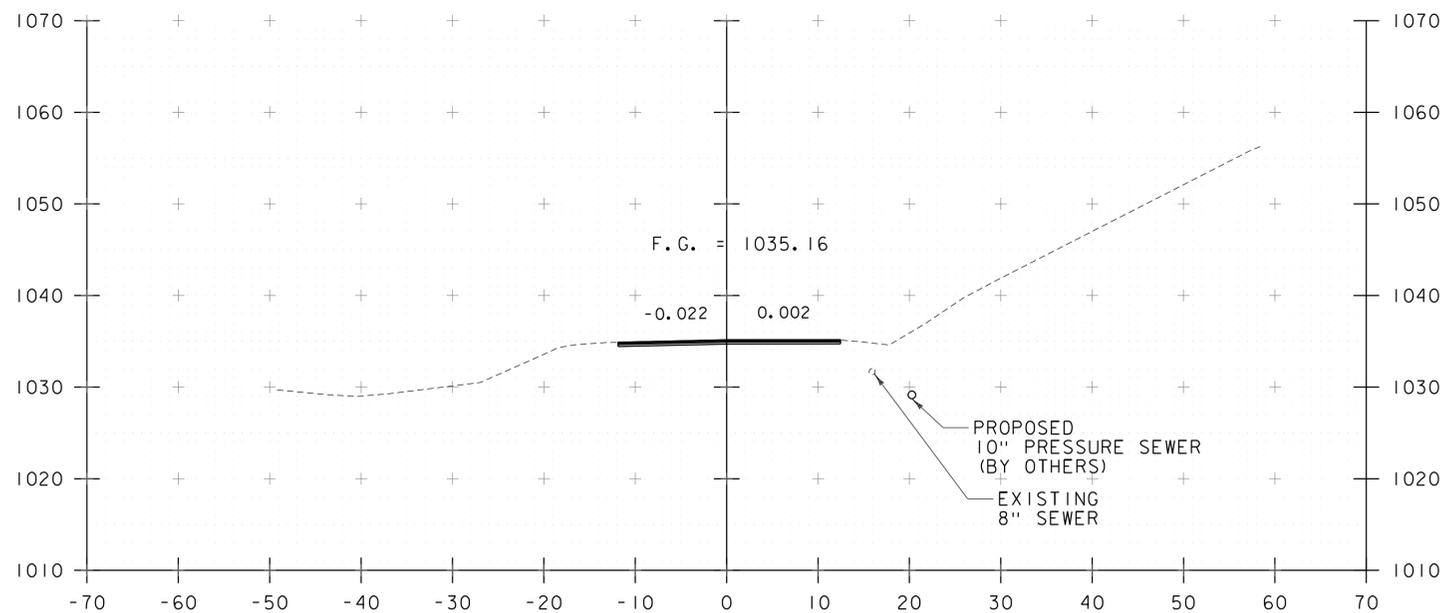
FILE NAME: z12c154xsl.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
ROADWAY CROSS SECTIONS - RXS 4

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: G. SANTY
SHEET 45 OF 71

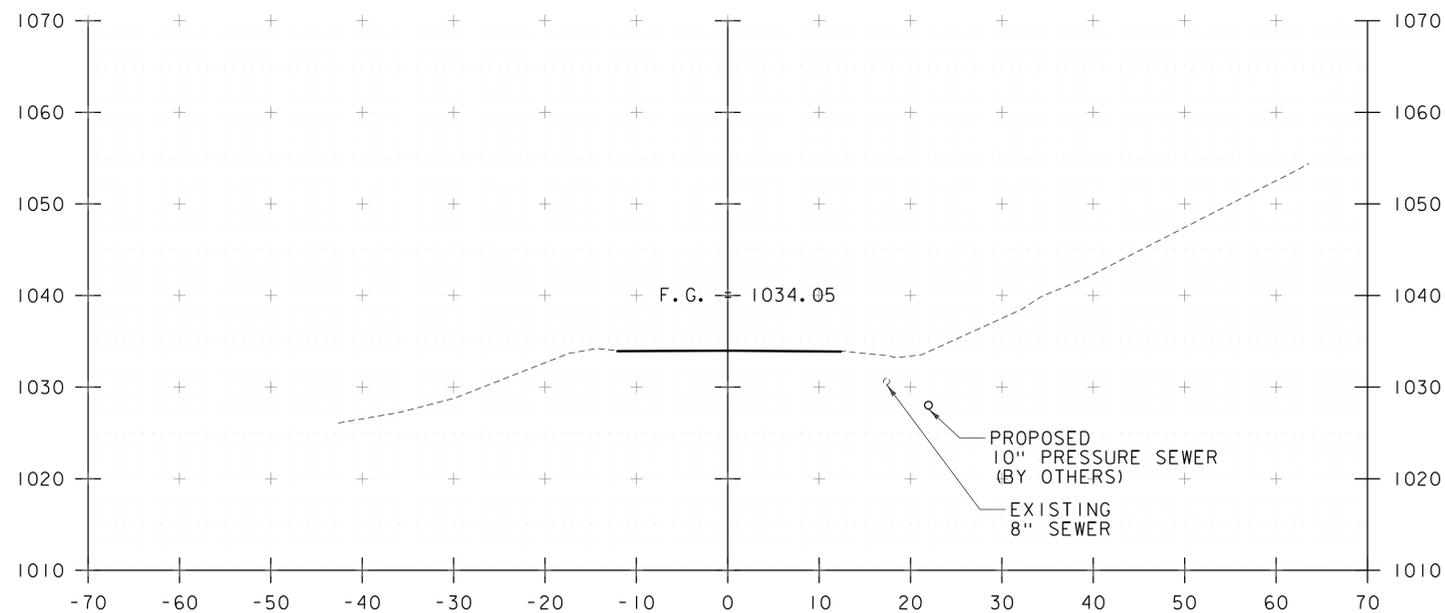




170+25



170+00



170+50
END APPROACH

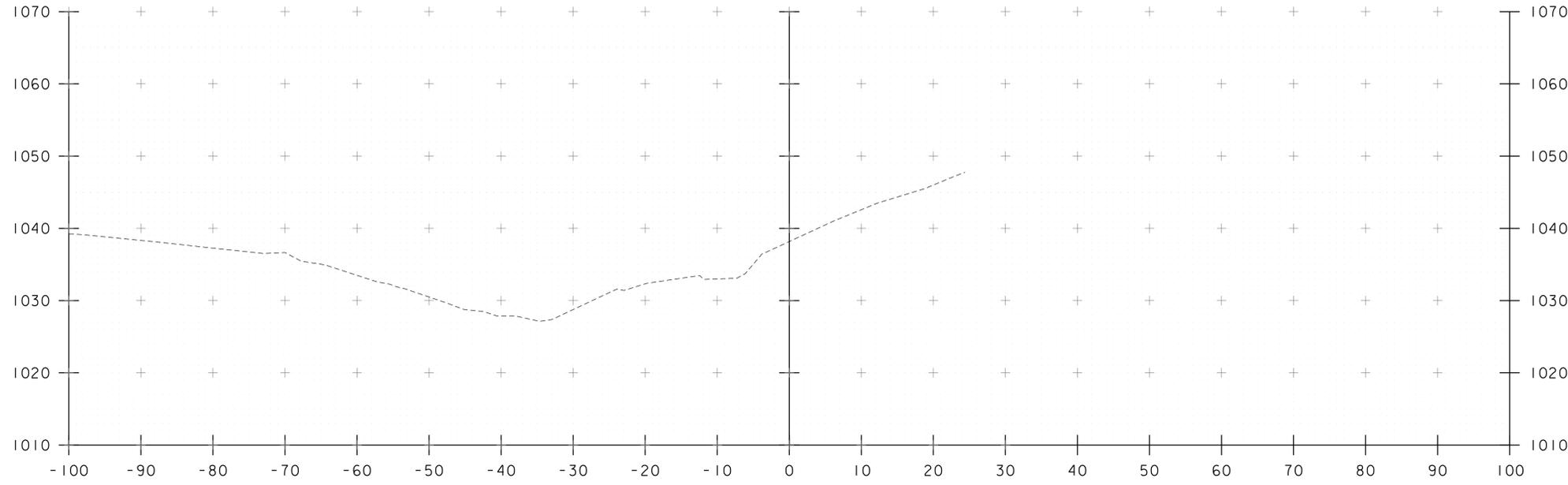
STA. 170+00 TO STA. 170+50

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

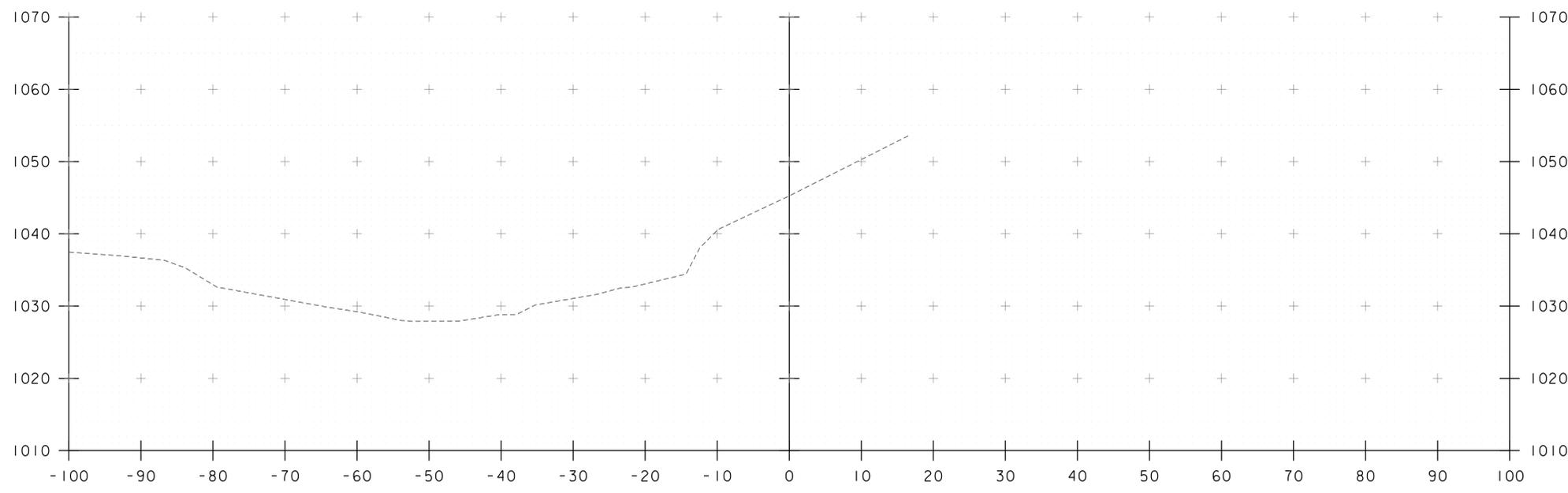
FILE NAME: z12c154xsl.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
ROADWAY CROSS SECTIONS - RXS 5

PLOT DATE: 8/24/2015
DRAWN BY: I. MAYNARD
CHECKED BY: G. SANTY
SHEET 46 OF 71





50+25

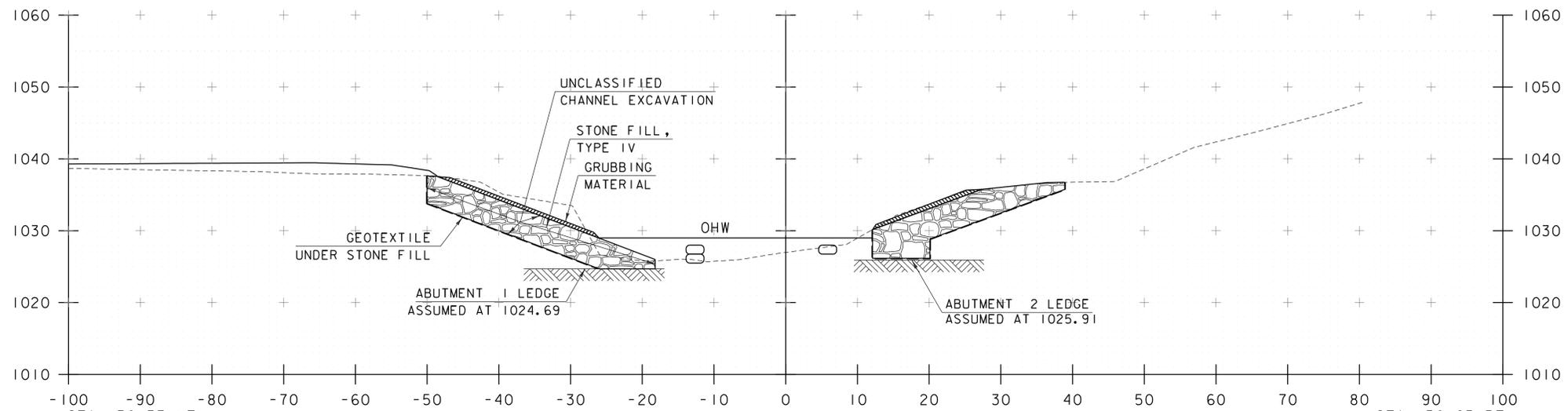


50+00

STA. 50+00 TO STA. 50+25

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154xsl.dgn	CHECKED BY: M. CHENETTE
PROJECT LEADER: M. CHENETTE	SHEET 47 OF 71
DESIGNED BY: J. HUNGERFORD	
CHANNEL CROSS SECTIONS - CXS 1	

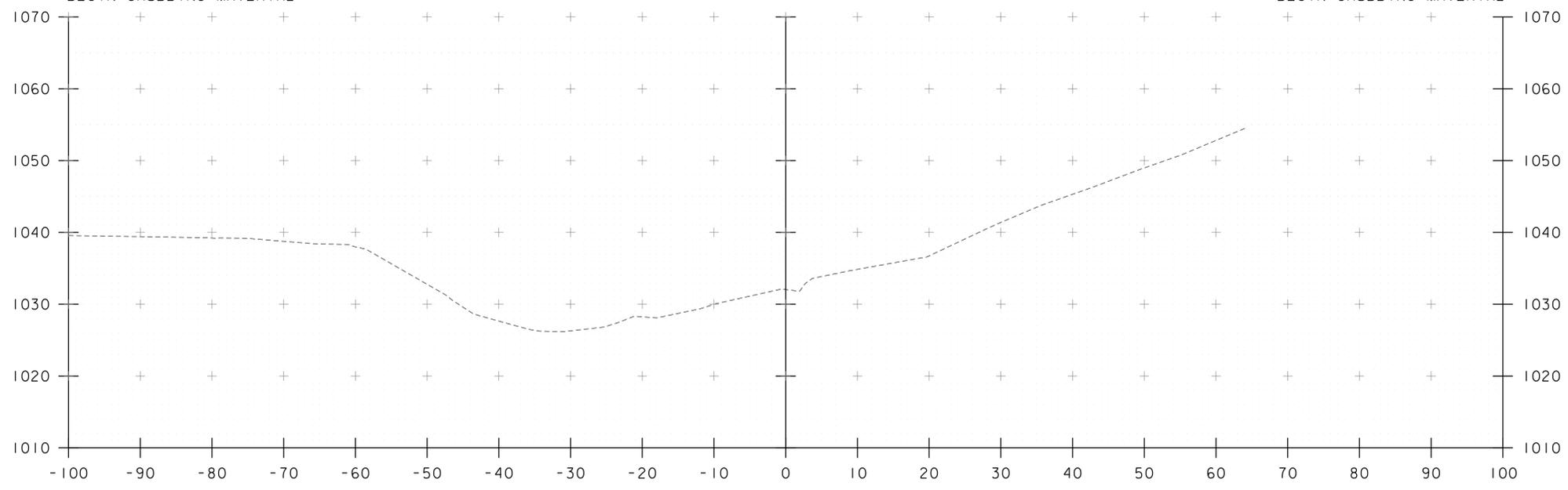




STA. 50+53 LT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN STONE FILL, TYPE IV
 BEGIN GEOTEXTILE UNDER STONE FILL
 BEGIN GRUBBING MATERIAL

STA. 50+65 RT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN STONE FILL, TYPE IV
 BEGIN GEOTEXTILE UNDER STONE FILL
 BEGIN GRUBBING MATERIAL

50+75

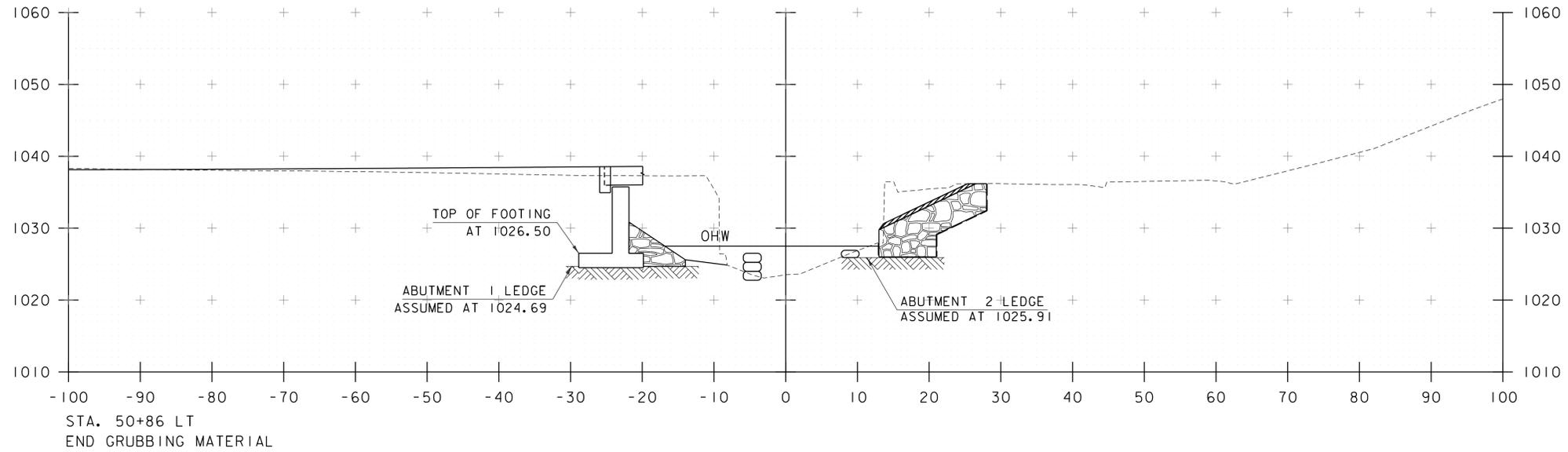


50+50

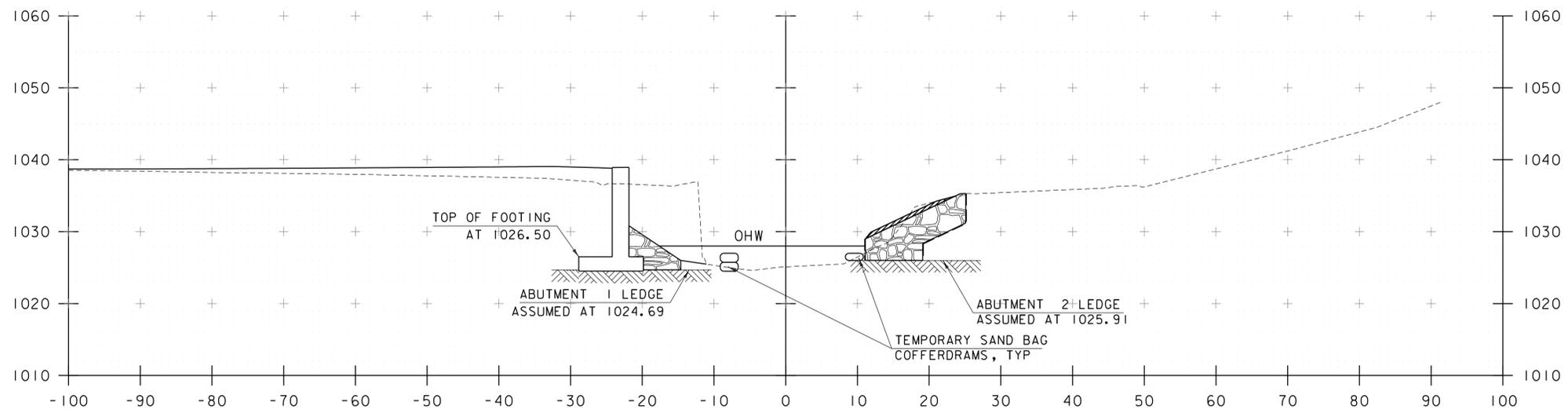
STA. 50+50 TO STA. 50+75

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154xsl.dgn	CHECKED BY: M. CHENETTE
PROJECT LEADER: M. CHENETTE	SHEET 48 OF 71
DESIGNED BY: J. HUNGERFORD	
CHANNEL CROSS SECTIONS - CXS 2	





50+94



50+85

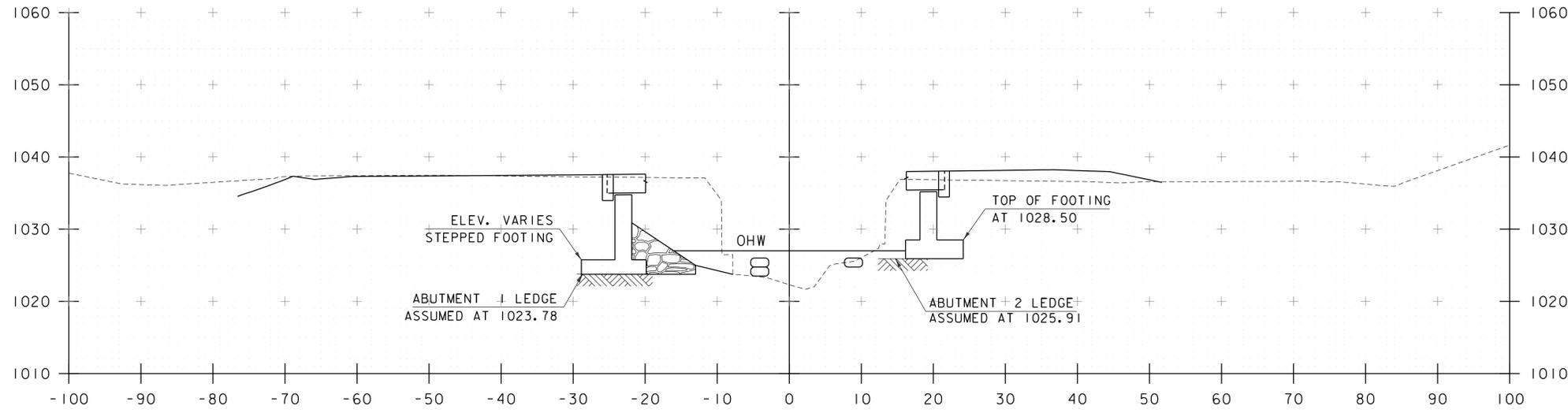
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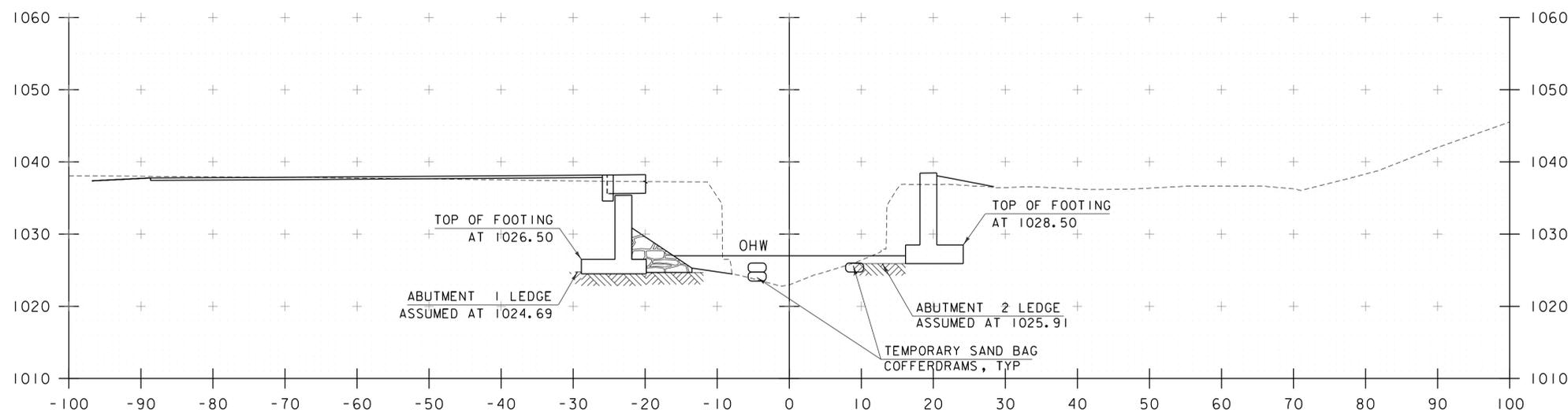
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 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: J. HUNGERFORD
 CHANNEL CROSS SECTIONS - CXS 3

PLOT DATE: 8/24/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 49 OF 71





51+10



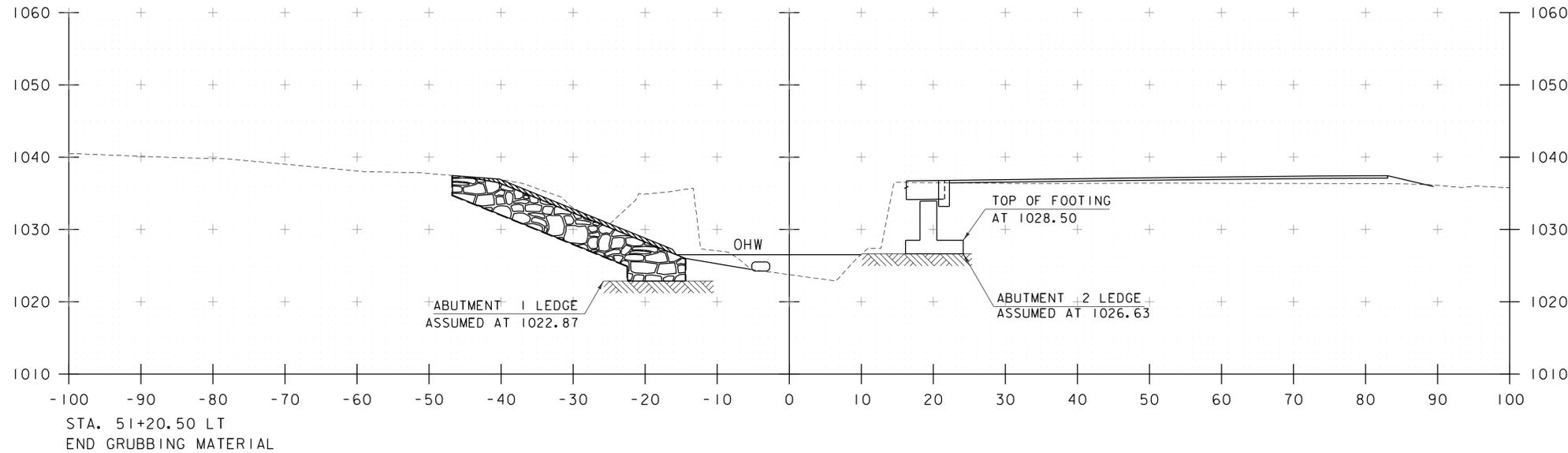
51+00

STA. 51+00 RT
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 END STONE FILL, TYPE IV
 END GEOTEXTILE UNDER STONE FILL
 END GRUBBING MATERIAL

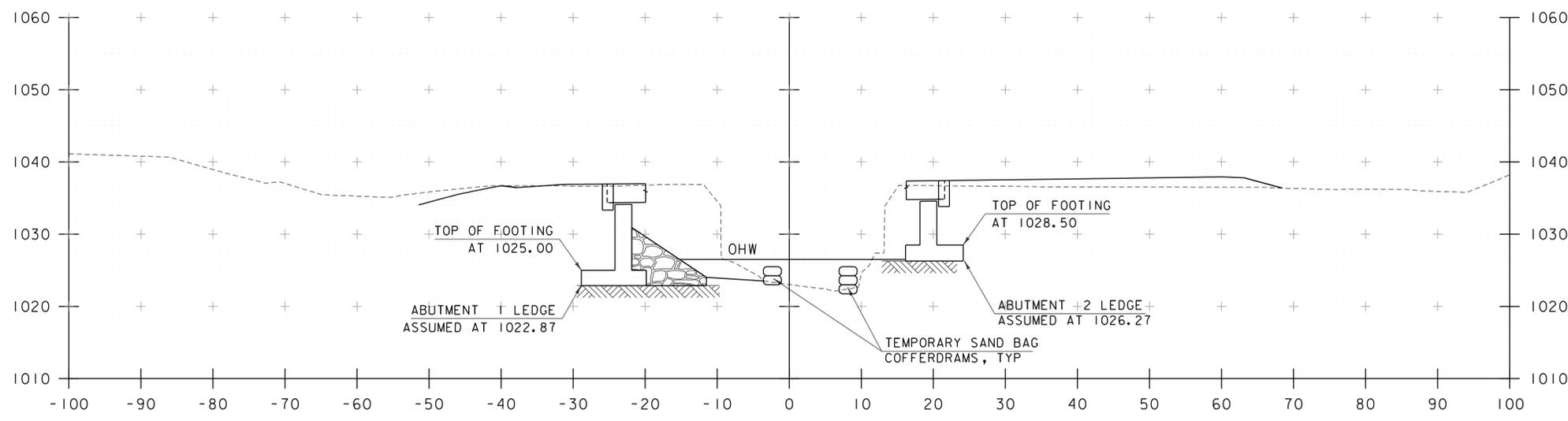
STA. 51+00 TO STA. 51+10

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154xsl.dgn	CHECKED BY: M. CHENETTE
PROJECT LEADER: M. CHENETTE	SHEET 50 OF 71
DESIGNED BY: J. HUNGERFORD	
CHANNEL CROSS SECTIONS - CXS 4	





51+30

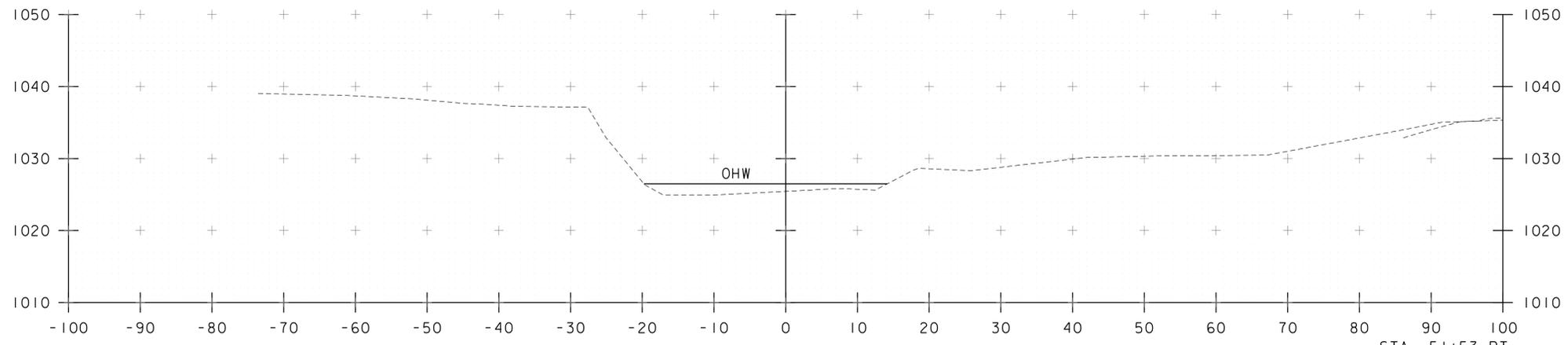


51+20

STA. 51+20 TO STA. 51+30

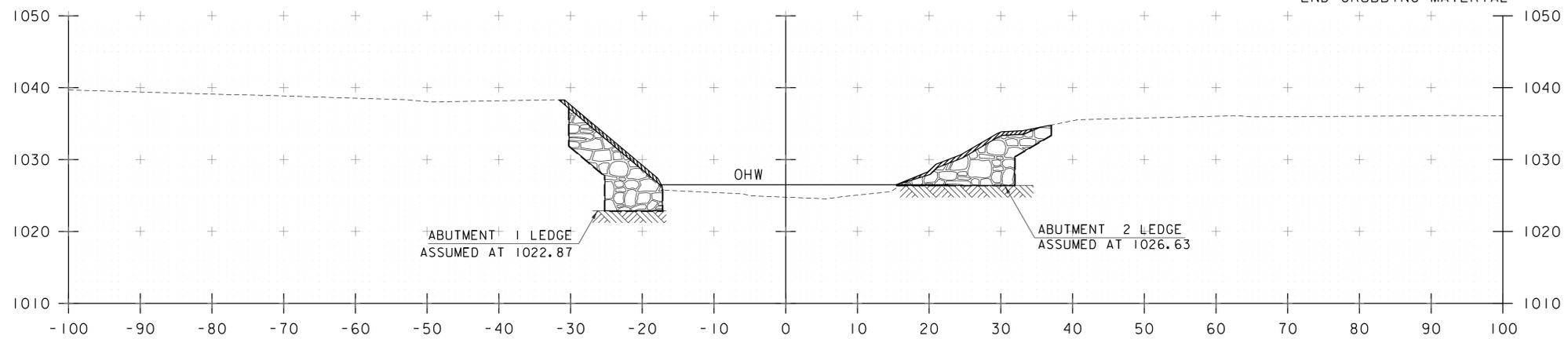
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PROJECT LEADER: M. CHENETTE	CHECKED BY: M. CHENETTE
CHANNEL CROSS SECTIONS - CXS 5	SHEET 51 OF 71





51+75

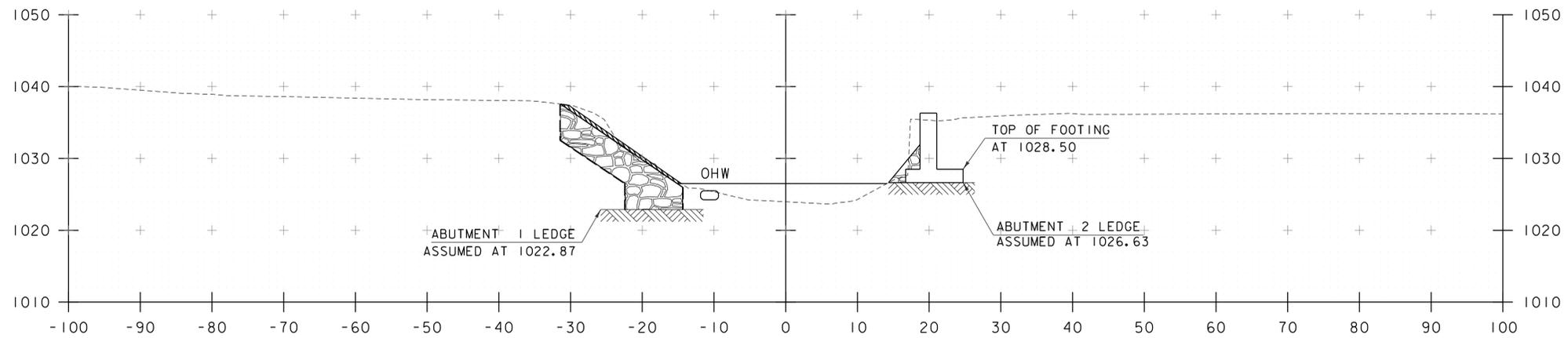
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 END STONE FILL, TYPE IV
 END GEOTEXTILE UNDER STONE FILL
 END GRUBBING MATERIAL



51+50

ABUTMENT 1 LEDGE
 ASSUMED AT 1022.87

ABUTMENT 2 LEDGE
 ASSUMED AT 1026.63



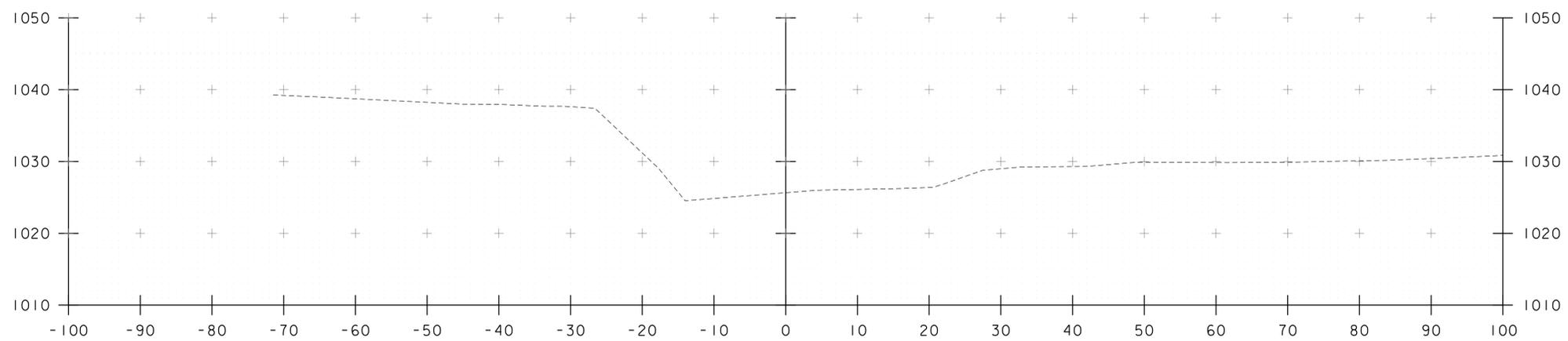
51+40

STA. 51+35 RT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN STONE FILL, TYPE IV
 BEGIN GEOTEXTILE UNDER STONE FILL
 BEGIN GRUBBING MATERIAL

STA. 51+40 TO STA. 51+75

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154xsl.dgn	CHECKED BY: M. CHENETTE
PROJECT LEADER: M. CHENETTE	SHEET 52 OF 71
DESIGNED BY: J. HUNGERFORD	
CHANNEL CROSS SECTIONS - CXS 6	





51+99

STA. 51+99 TO STA. 51+99

PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: L. BUXTON
FILE NAME: z12c154xsl.dgn	DESIGNED BY: J. HUNGERFORD
PROJECT LEADER: M. CHENETTE	CHECKED BY: M. CHENETTE
CHANNEL CROSS SECTIONS - CXS 7	SHEET 53 OF 71



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #10, RELATED CHANNEL WORK AND INCIDENTALS.. BRIDGE #10 IS LOCATED IN THE TOWN OF JAY, VT ROUTE 242, 2.3 MILES WEST OF THE JUNCTION WITH VT ROUTE 101. THE LENGTH OF THE BRIDGE WILL BE INCREASED TO 50.20 FEET.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.48 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE IMMEDIATE PROJECT AREA IS HILLY TO MOUNTAINOUS AND FEATURES A MIXTURE OF FORESTED AND OPEN LAND COVER. THERE IS ONE HOUSE ADJACENT TO THE SITE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

JAY BRANCH IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE JAY BRANCH IS CLASSIFIED AS STRAIGHT, WITH SOME ARMORED BANKS. THE STREAM BED CONSISTS OF BOULDERS, BED ROCK AND SOME STONES. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF OPEN GRASSED AREAS, HARDWOOD TREES AND UNDERGROWTH. THERE WILL BE MINOR CLEARING ASSOCIATED WITH ABUTMENT EXCAVATION.. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ORLEANS, VERMONT. SOILS ON THE PROJECT SITE ARE AS FOLLOWS:

SHEEPSCOT GRAVELLY FINE SANDY LOAM, 3 TO 8% SLOPES, "K FACTOR" = 0.17. THE SOIL IS CONSIDERED TO HAVE LOW EROSION POTENTIAL.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: COLD WATER STREAM
HISTORICAL OR ARCHEOLOGICAL AREAS: YES, SOUTH OF BRIDGE BOTH SIDES
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: JAY BRANCH
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MNIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDESEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT WITH MINIMAL OFF-SITE RUNOFF FLOWING THROUGH THE SITE. THERFORE DIVERSION MEASURES WILL NOT BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

CHECK DAMS TO BE INSTALLED AT THE LOCATIONS SHOWN ON THE EPSC PLAN.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE ARE NO PERMANENT STORMWATER TREATMENT DEVICES TO BE INSTALLED WITH THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

SEDIMENT CONTAINMENT BAGS (FILTER BAGS) WILL BE USED AS NECESSARY AND AS DIRECTED BY THE ENGINEER. SEE SHEET 59 FOR DETAIL.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

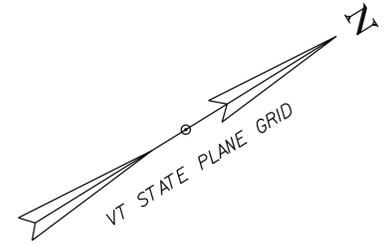
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PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12cl54frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
EPSC NARRATIVE

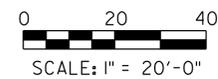
PLOT DATE: 8/24/2015
DRAWN BY: D. BARNES
CHECKED BY: G. SANTY
SHEET 54 OF 71



SOIL CONDITIONS
 SHEEPSKOT GRAVELLY FINE SANDY LOAM
 3%-8% SLOPES
 LOW EROSION POTENTIAL
 K = 0.17



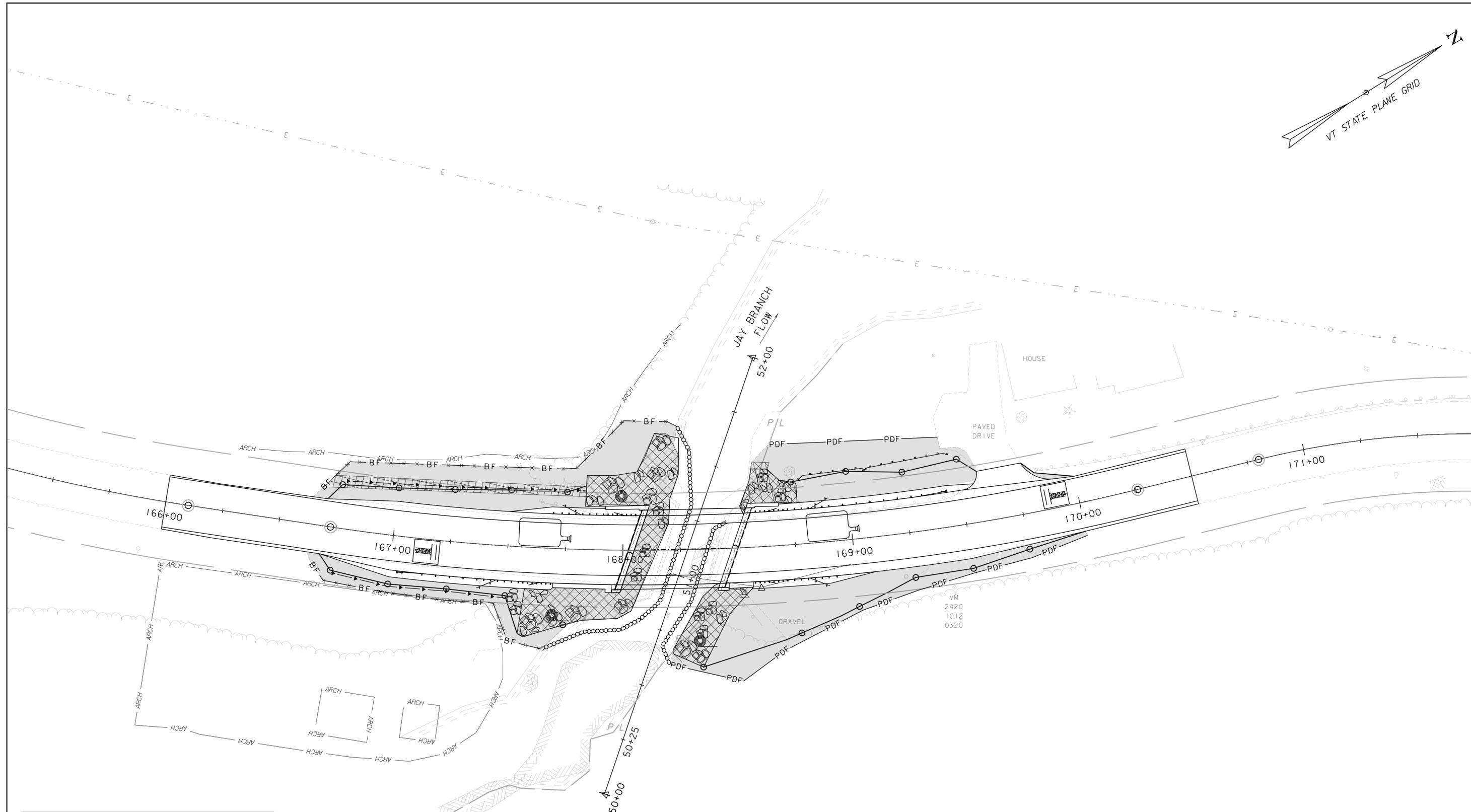
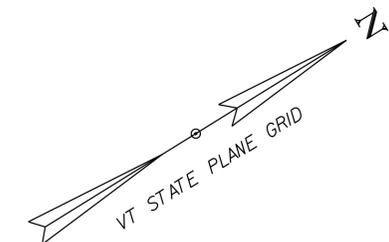
SOIL CONDITIONS
 DIXFIELD SANDY LOAM
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 35%-60% SLOPES
 MODERATE EROSION POTENTIAL
 K = 0.28



PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)

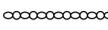
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 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: I. MAYNARD
 EPSC EXISTING CONDITIONS SITE PLAN

PLOT DATE: 8/24/2015
 DRAWN BY: D. BARNES
 CHECKED BY: G. SANTY
 SHEET 55 OF 71



MM
2420
1012
0320

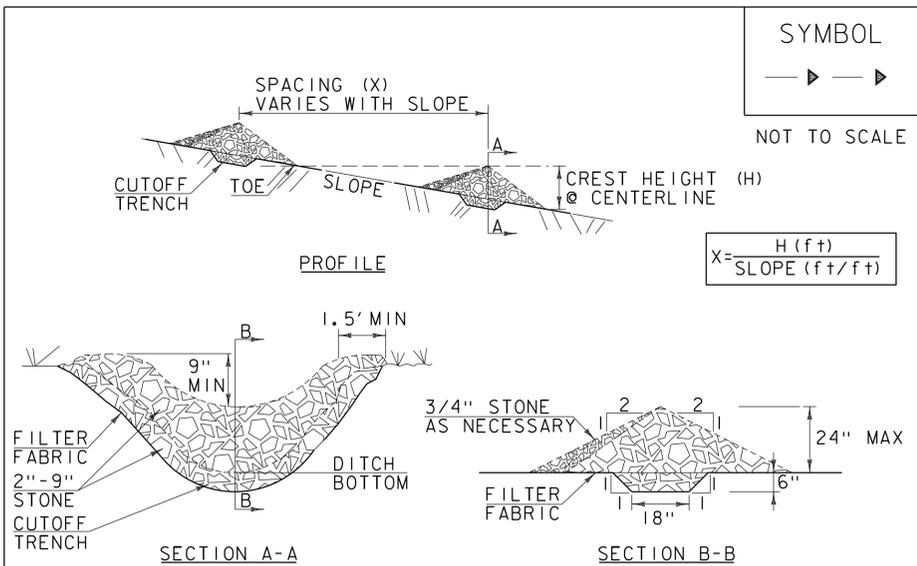
LEGEND

-  VEHICLE TRACKING PAD
-  FILTER BAG
-  COFFERDAM

FOR ADDITIONAL INFORMATION, SEE
CONVENTIONAL SYMBOLY LEGEND SHEET



PROJECT NAME: JAY	PLOT DATE: 8/24/2015
PROJECT NUMBER: BHF 0278(3)	DRAWN BY: D. BARNES
FILE NAME: z12c154bdr_ero.dgn	CHECKED BY: G. SANTY
PROJECT LEADER: M. CHENETTE	SHEET 56 OF 71
DESIGNED BY: I. MAYNARD	
EPSC CONSTRUCTION SITE PLAN	



SYMBOL

 NOT TO SCALE

$X = \frac{H(f+t)}{\text{SLOPE}(f+t/f+t)}$

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

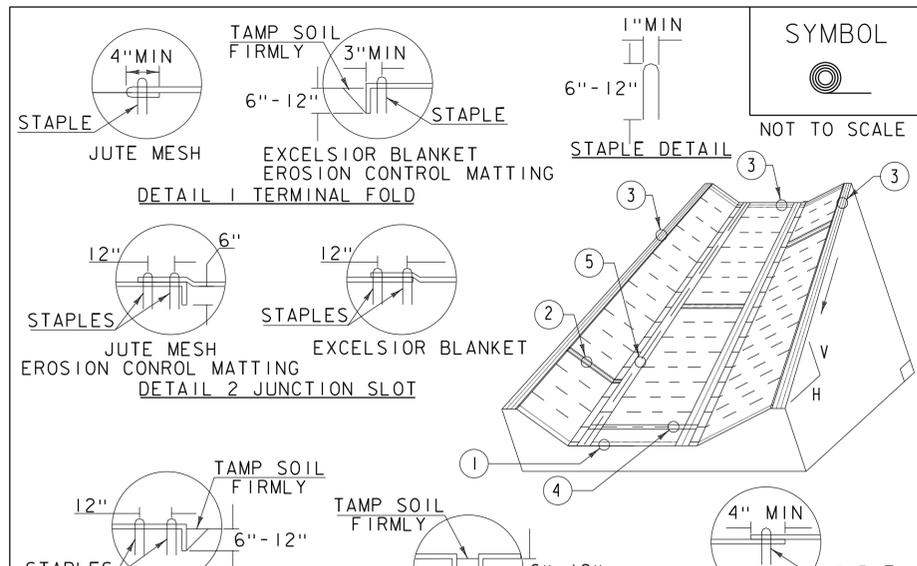
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF



SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

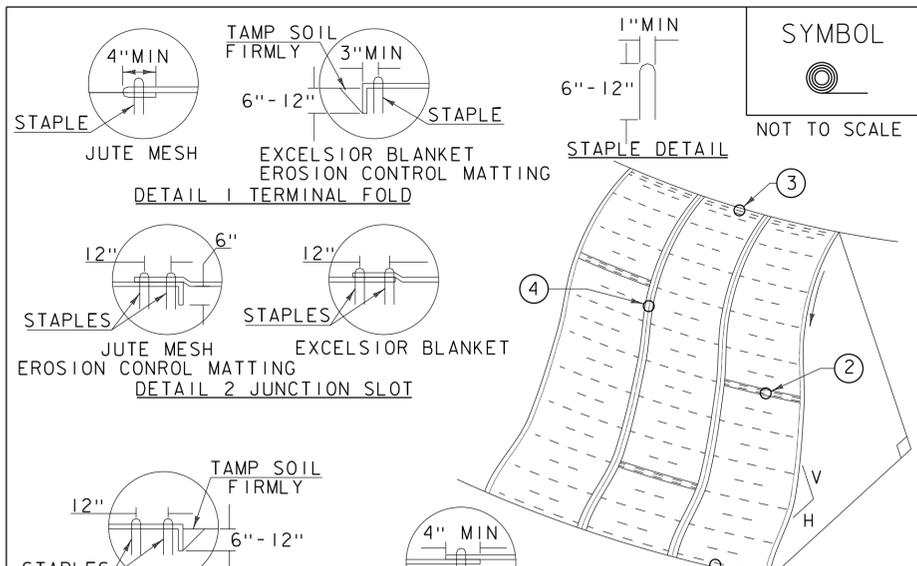
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) DITCH

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
MARCH 8, 2007	JMF
APRIL 16, 2007	WHF
JANUARY 13, 2009	WHF



SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

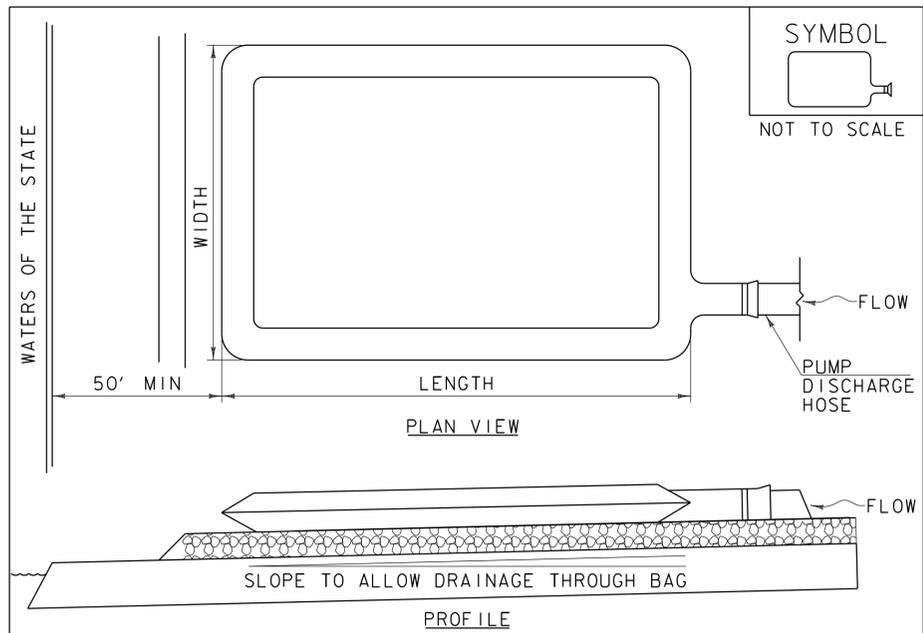
ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)
 FILE NAME: z12c154ero.dets.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: VAOT
 EPSC DETAILS I
 PLOT DATE: 8/24/2015
 DRAWN BY: VAOT
 CHECKED BY: VAOT
 SHEET 58 OF 71



CONSTRUCTION SPECIFICATIONS

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

VAOT LOW GROW/FINE FESCUE MIX						
WEIGHT	LBS/AC		NAME	LATIN NAME	GERM	PURITY
	BROADCAST	HYDROSEED				
38%	57	95	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

VAOT RURAL AREA MIX						
WEIGHT	LBS/AC		NAME	LATIN NAME	GERM	PURITY
	BROADCAST	HYDROSEED				
37.5%	22.5	45	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE

FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

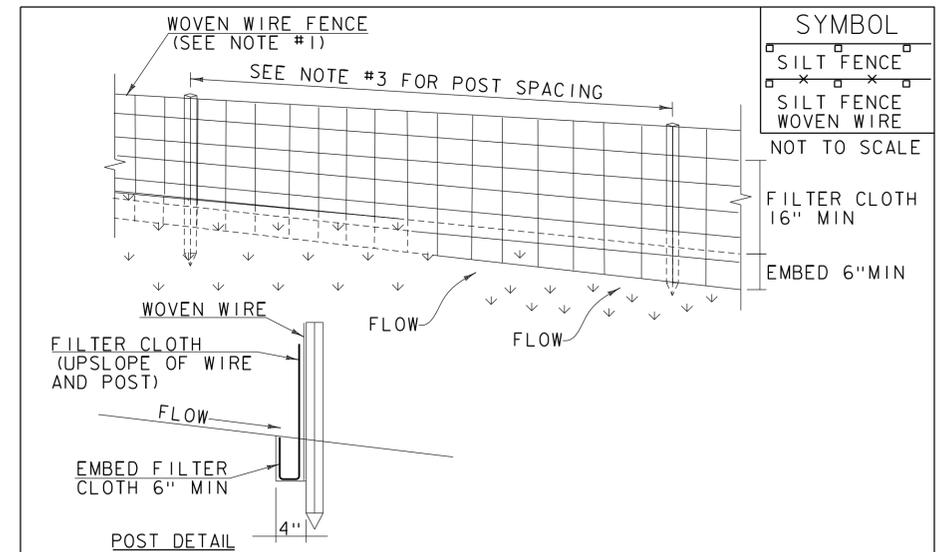
1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651J5)

REVISIONS	
JANUARY 12, 2015	WHF



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

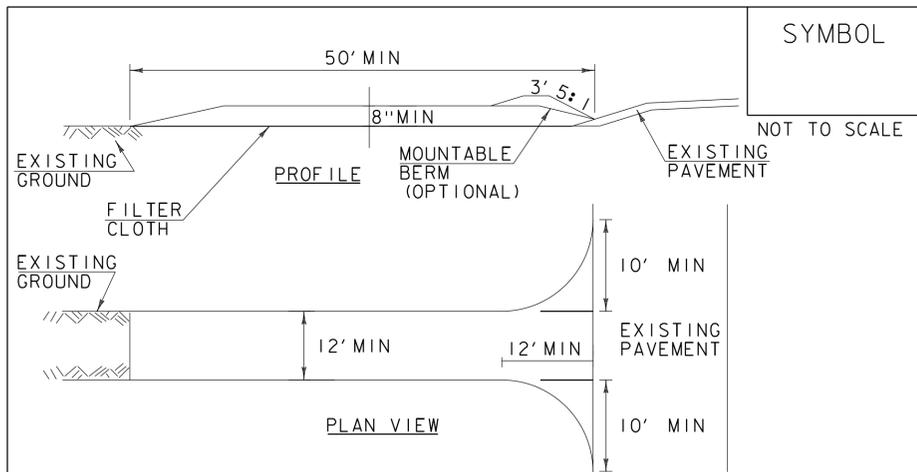
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: JAY
PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12c154ero.dets.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: VAOT
EPSC DETAILS 2

PLOT DATE: 8/24/2015
DRAWN BY: VAOT
CHECKED BY: VAOT
SHEET 59 OF 71



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

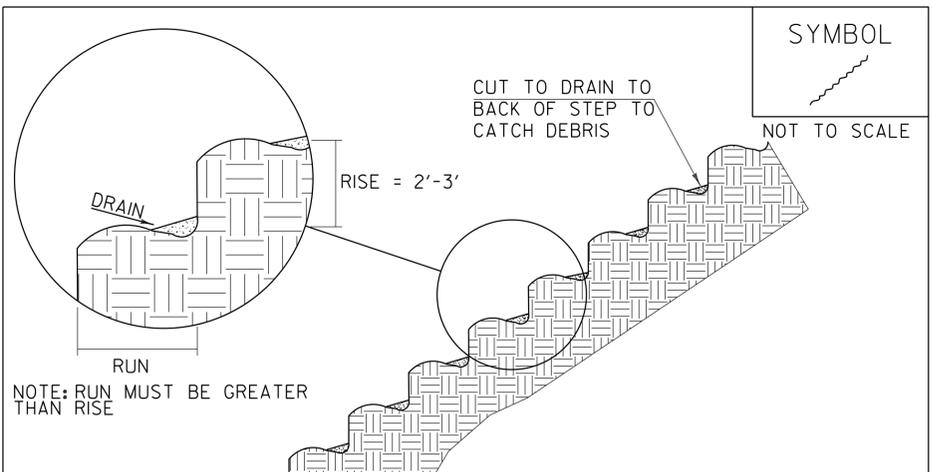
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**STABILIZED
CONSTRUCTION
ENTRANCE**

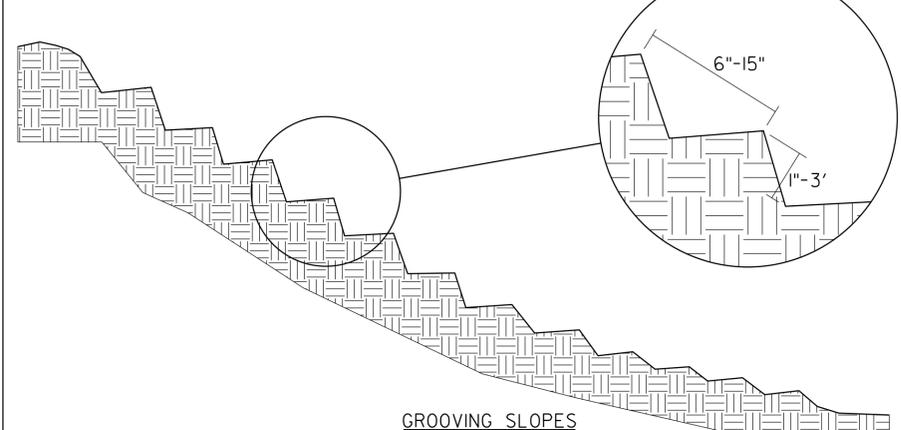
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL
GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH
SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35)
OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



STAIR STEPPING CUT SLOPES



GROOVING SLOPES

NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL
GUIDANCE.

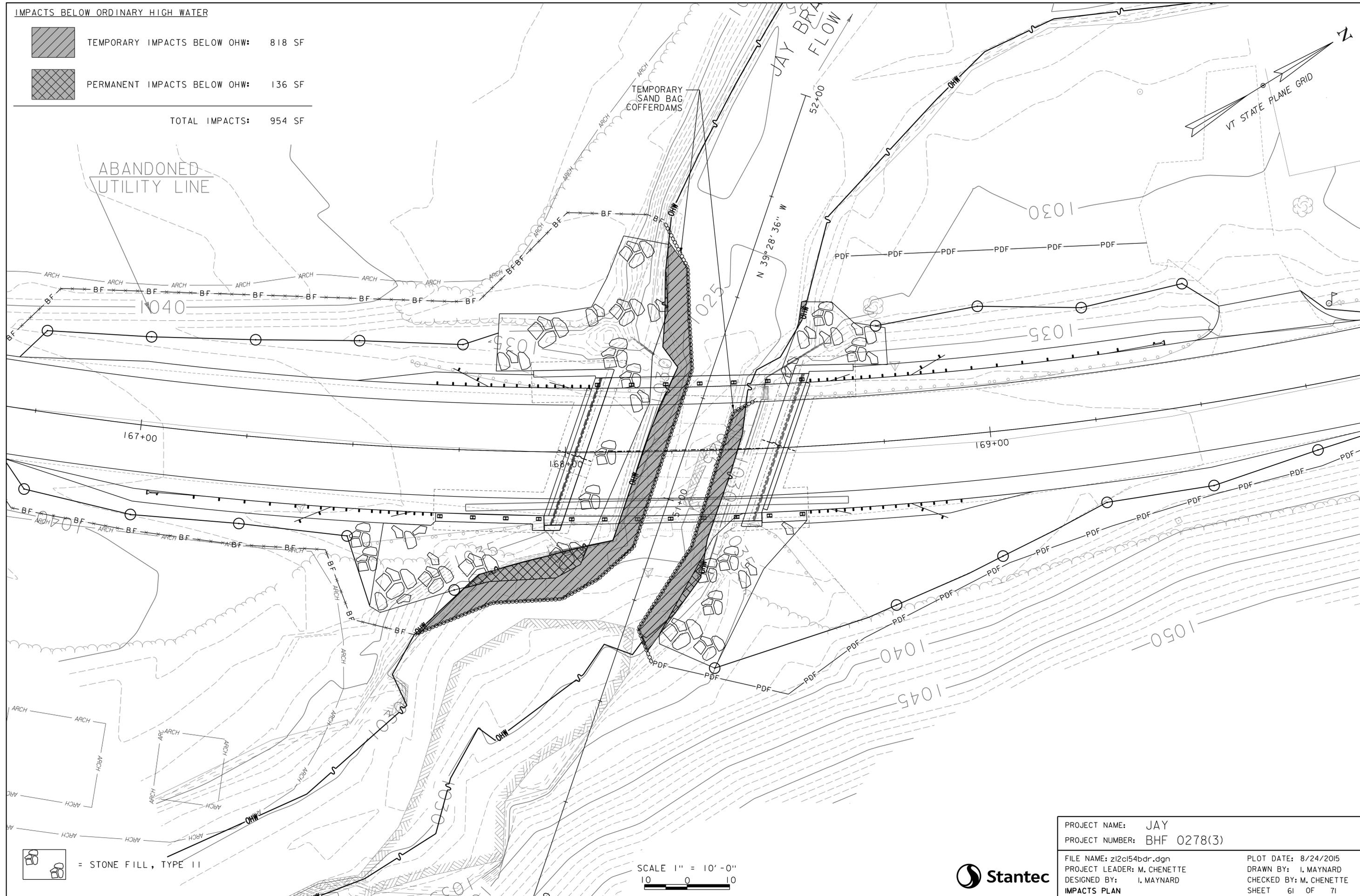
THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE
CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

IMPACTS BELOW ORDINARY HIGH WATER

	TEMPORARY IMPACTS BELOW OHW:	818 SF
	PERMANENT IMPACTS BELOW OHW:	136 SF

TOTAL IMPACTS: 954 SF

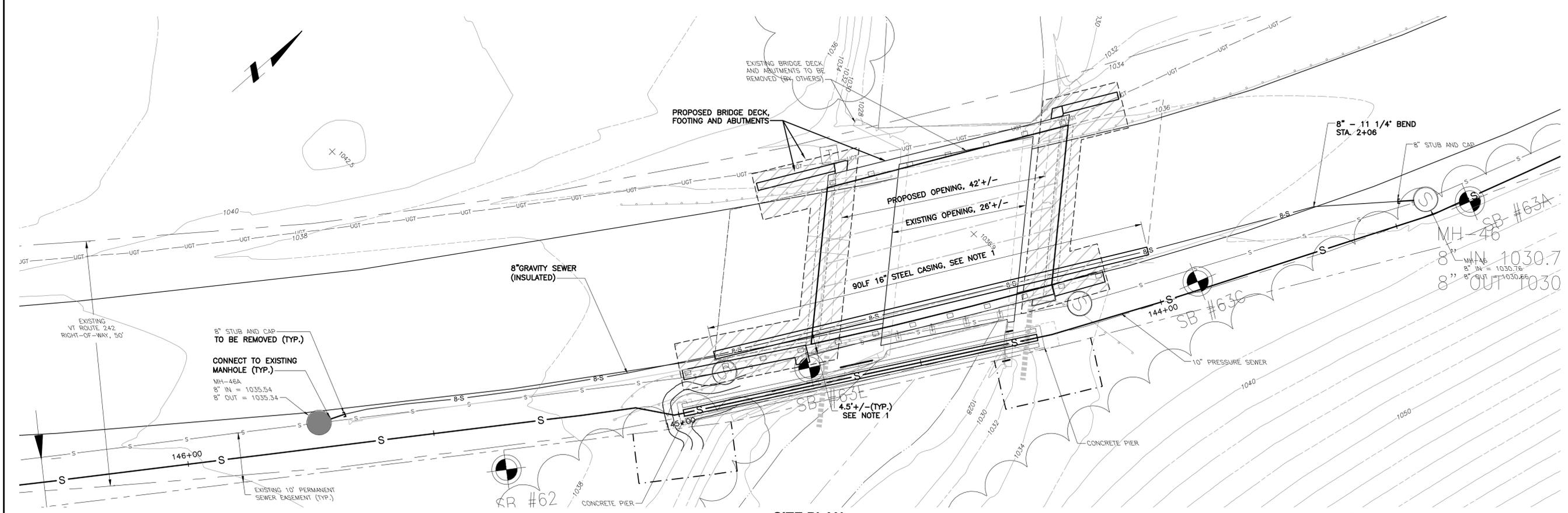


 = STONE FILL, TYPE II

SCALE 1" = 10'-0"
10 0 10

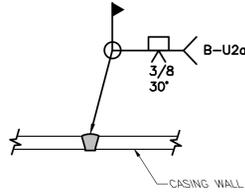


PROJECT NAME:	JAY	PLOT DATE:	8/24/2015
PROJECT NUMBER:	BHF 0278(3)	DRAWN BY:	I. MAYNARD
FILE NAME:	z12c154bdr.dgn	CHECKED BY:	M. CHENETTE
PROJECT LEADER:	M. CHENETTE	IMPACTS PLAN	SHEET 61 OF 71
DESIGNED BY:	I. MAYNARD		

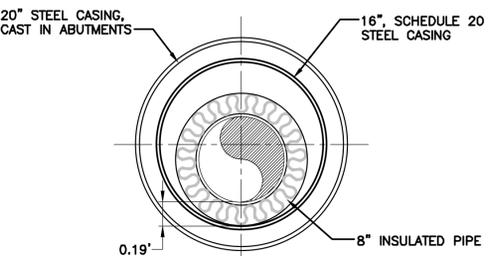


SITE PLAN
SCALE: 1" = 10'

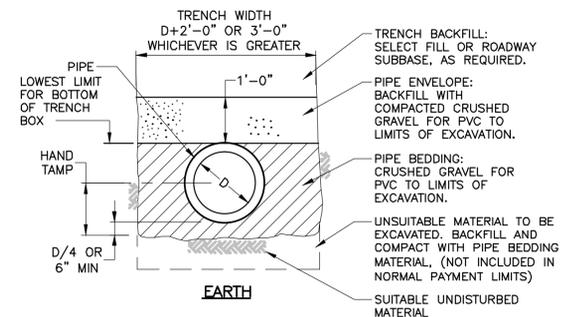
- NOTES**
1. WELDING SHALL COMPLY WITH AWWA STANDARD C206 AND AWS D1.1. ALL WELDING SHALL BE PERFORMED BY A WELDER CERTIFIED FOR POSITION AND PROCESS UTILIZED.
 2. NO WELDS PERMITTED IN THE MIDDLE THIRD OF THE SPAN BETWEEN ABUTMENTS, STA. 0+69 TO 0+84.



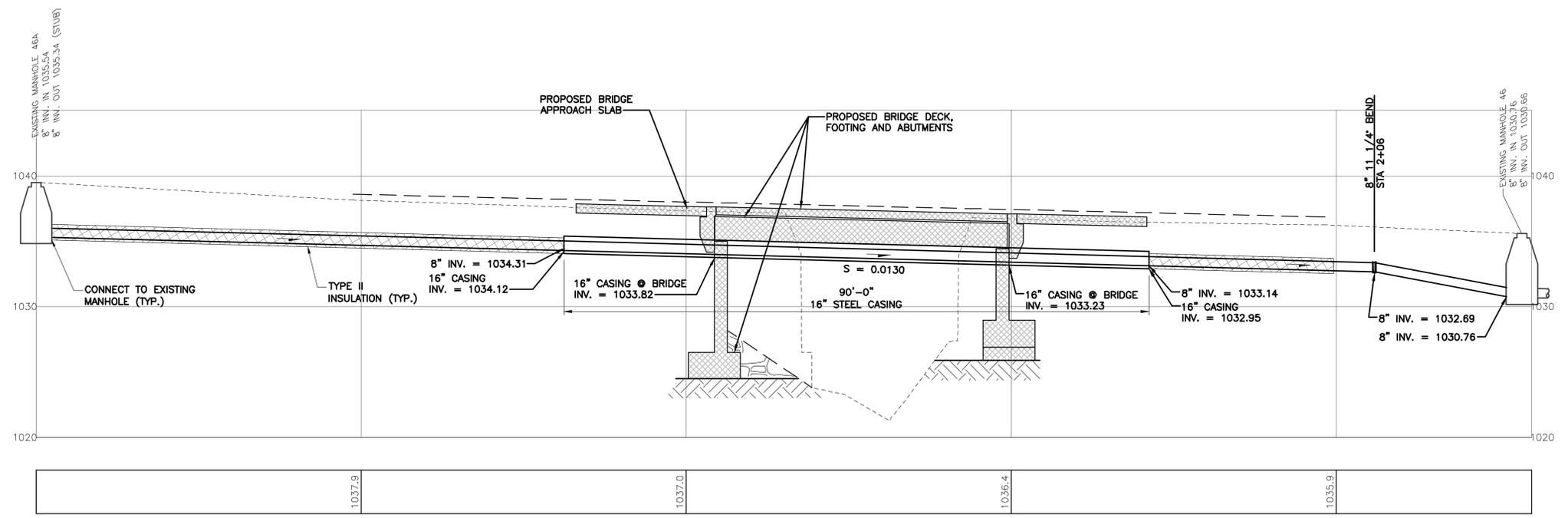
TYPICAL CASING SPLICE WELD
NOT TO SCALE



TYPICAL CASING SECTION
NOT TO SCALE



TRENCH SECTIONS
NOT TO SCALE



PROFILE
SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

- NOTES**
1. A 20-INCH STEEL CASING WILL BE CAST IN TO THE ABUTMENTS TO ACCOMMODATE INSTALLATION OF THE 16-INCH STEEL CASING.
 2. PLUG EXISTING SEWER INSIDE MH-46A AND MH-46B WITH NON-SHRINK GROUT AFTER NEW SEWER INSTALLED AND PLACED INTO SERVICE.

TOWNS OF TROY AND JAY VERMONT
WASTEWATER COLLECTION SYSTEM (CONTRACT #4)

GRAVITY SEWER PLAN, PROFILE AND DETAILS

Rev.	Date	Description
D	5/15/14	FOR BID
C	7/3/13	FOR REVIEW
B	7/8/13	FOR APPROVAL
A	5/11/13	90% PERMIT REVIEW SET

REVIEW SUBMITTAL NOT FOR CONSTRUCTION

TATA & HOWARD

T&H NO.: 3452
DATE: 03/2015
SCALE: AS NOTED

C29.1

BOX BEAM GUARDRAIL
 STA. 167+19.4 TO 167+40.4, RT
 STA. 167+69.1 TO 167+73.3, LT
 STA. 168+85.6 TO 168+89.8, RT
 STA. 168+90.1 TO 169+35.1, LT

DURABLE 4 INCH YELLOW LINE
 STA. 166+00.0 TO STA. 170+50.0, CL (DOUBLE)

DURABLE 4 INCH WHITE LINE
 STA. 166+00.0 TO STA. 170+50.0, LT
 STA. 166+00.0 TO STA. 170+50.0, RT

RELOCATE MAILBOX SINGLE SUPPORT
 STA. 169+83.9, LT

CONSTRUCT DRIVE
 STA. 169+67, LT (PAVED)

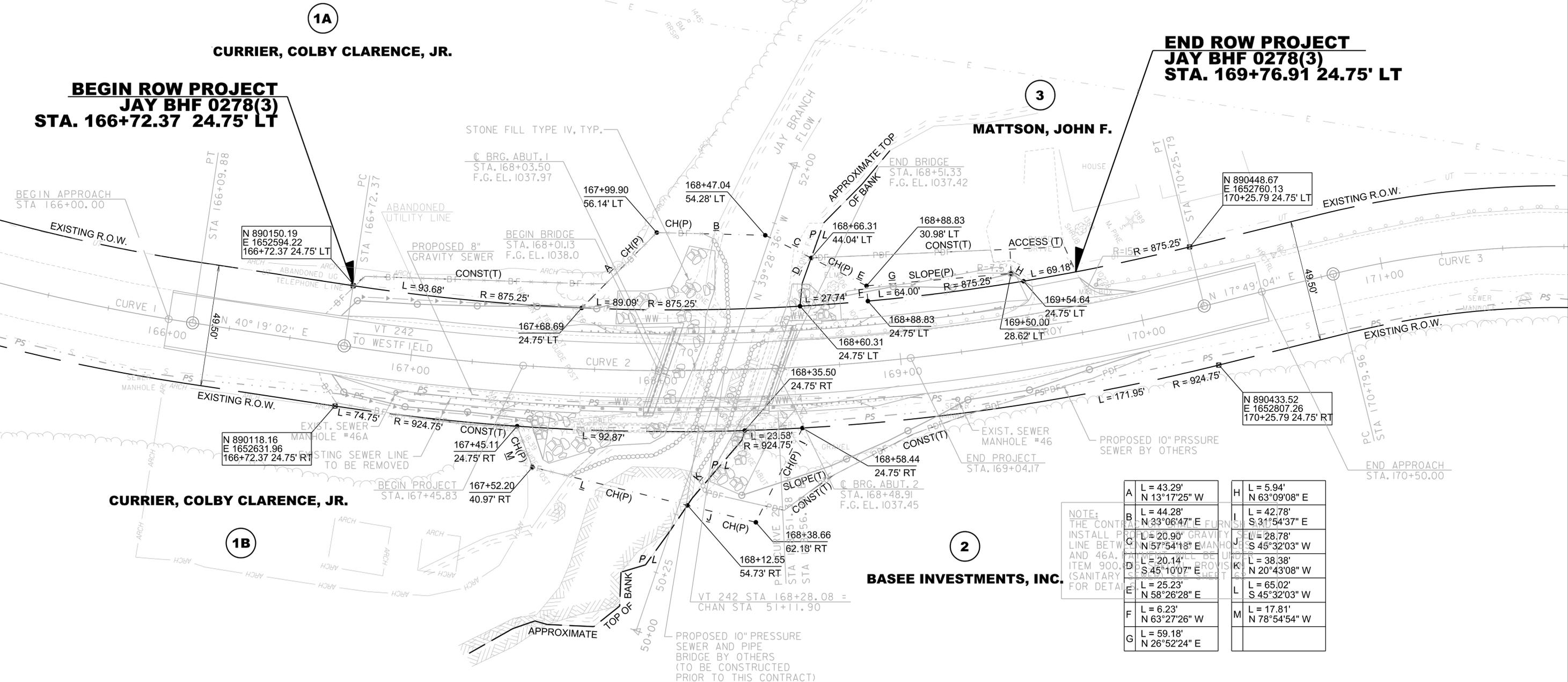
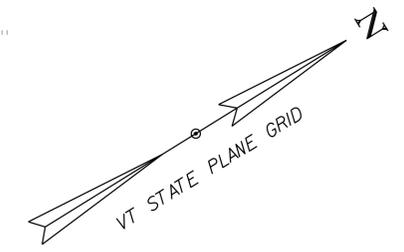
CURVE 1 DATA
 PC = 162+40.92
 DELTA = 27°48'56"
 D = 7°32'20"
 R = 760.00'
 T = 188.19'
 L = 368.96'
 E = 22.95'

CURVE 2 DATA
 DELTA = 22°29'57"
 D = 6°21'58"
 R = 900.00'
 T = 179.02'
 L = 353.42'
 E = 17.63'

CURVE 3 DATA
 PT = 173+33.55
 DELTA = 38°14'08"
 D = 15°04'40"
 R = 380.00'
 T = 131.72'
 L = 253.59'
 E = 22.18'

MANUFACTURED TERMINAL END SECTION, TANGENT
 STA. 167+05.4 TO 167+19.4, RT
 STA. 169+35.1 TO 169+49.1, LT

PLAN REFERENCES
 - HIGHWAY PROJECT JAY SK4 (1959)
 - SURVEY FOR BASEE INVESTMENTS, INC.,
 BY GEORGE W. RUMERY, DATED 6/2008.



**BEGIN ROW PROJECT
 JAY BHF 0278(3)
 STA. 166+72.37 24.75' LT**

**END ROW PROJECT
 JAY BHF 0278(3)
 STA. 169+76.91 24.75' LT**

CURRIER, COLBY CLARENCE, JR.

MATTSON, JOHN F.

CURRIER, COLBY CLARENCE, JR.

BASEE INVESTMENTS, INC.

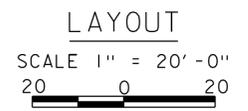
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES (P/L) ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

EXISTING BRIDGE INFO
 CONCRETE T-BEAM BRIDGE
 28' SPAN, 34'-6" WIDE
 BUILT 1927,
 RECONSTRUCTED 1964

FOR R.O.W. USE ONLY

NOTE:
 THE CONTRACTOR SHALL INSTALL PROPOSED GRAVITY SEWER LINE BETWEEN MANHOLE #46 AND MANHOLE #46A. ALL ITEMS LISTED WILL BE UNDER THE PROVISIONS OF THE SANITARY SEWER SHEET 60 FOR DETAILS.

A	L = 43.29' N 13°17'25" W	H	L = 5.94' N 63°09'08" E
B	L = 44.28' N 33°06'47" E	I	L = 42.78' S 31°54'37" E
C	L = 20.90' N 57°54'18" E	J	L = 28.78' S 45°32'03" W
D	L = 20.14' S 45°10'07" E	K	L = 38.38' N 20°43'08" W
E	L = 25.23' N 58°26'28" E	L	L = 65.02' S 45°32'03" W
F	L = 6.23' N 63°27'26" W	M	L = 17.81' N 78°54'54" W
G	L = 59.18' N 26°52'24" E		



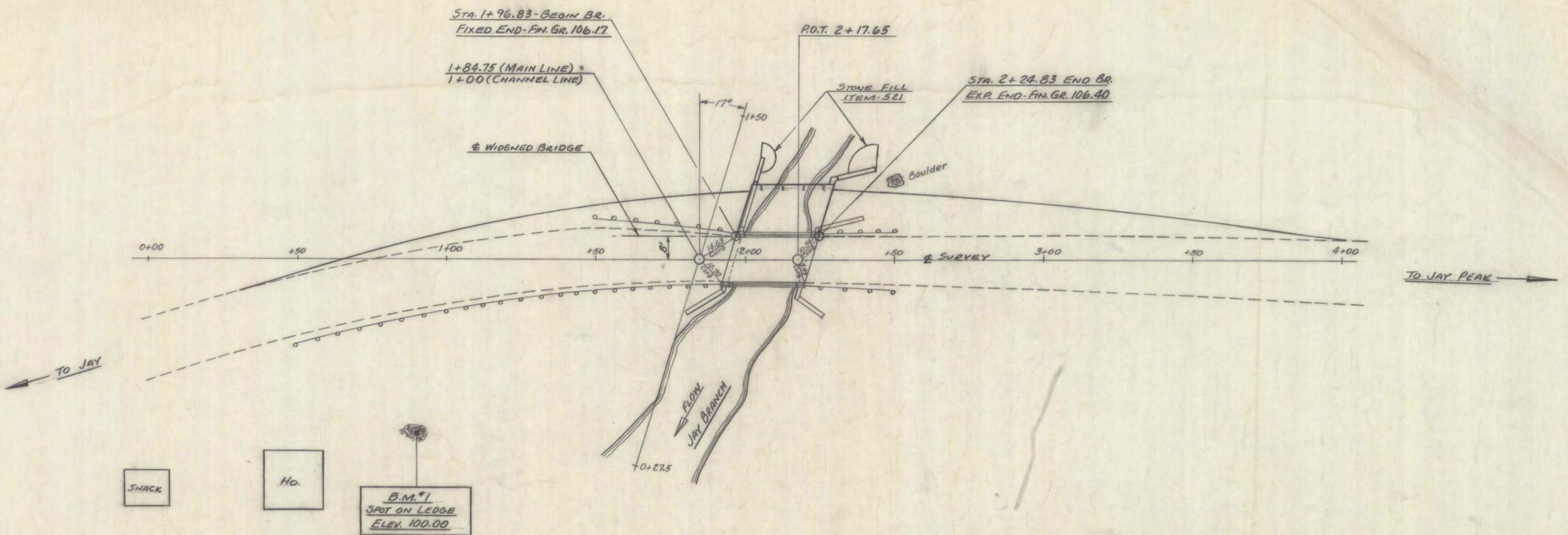
PROJECT NAME: JAY
 PROJECT NUMBER: BHF 0278(3)

FILE NAME: z12cl54bdr_ROW.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: H. PETROVS
 LAYOUT SHEET - R.O.W.

PLOT DATE: 7/1/2015
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 64 OF 71



PLAN
 DATE: 11/16/63
 DRAWN BY: BUCKLEY
 CHECKED BY: [Signature]
 NO. OF WAY CHECKED: [Blank]



TWO CABLE GUARD RAIL

STA. TO STA.	LIN. FT.	ANCHORS
1+50 Lt. 1+98 Lt.	48	1
2+29 Lt. 2+69 Lt.	40	1
TOTALS	88	2

~SUMMARY OF QUANTITIES~

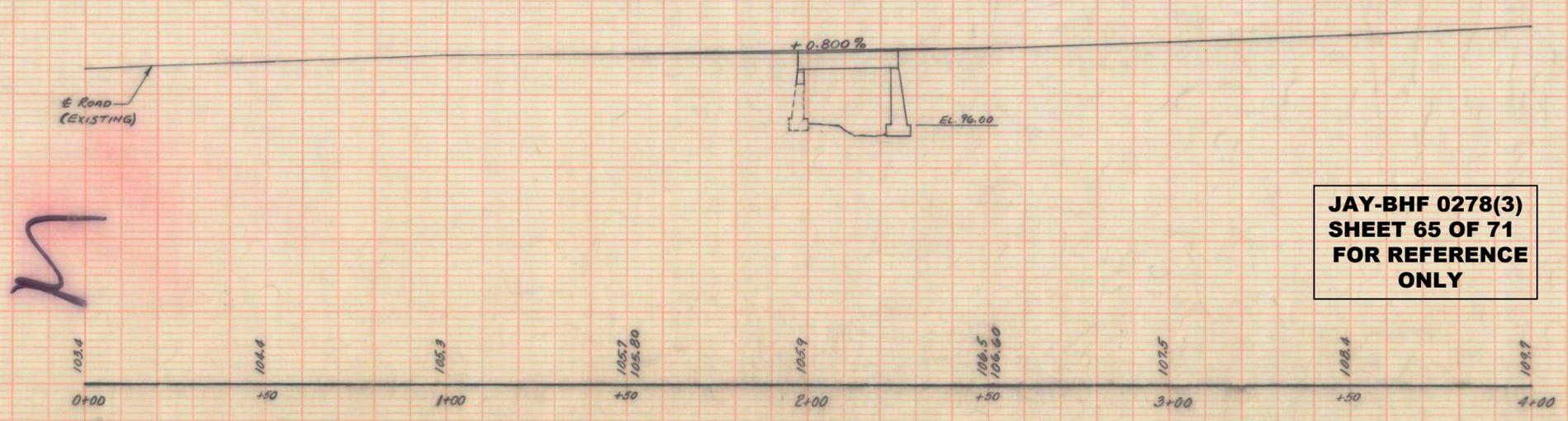
ITEM NO.	ITEM	UNIT	TOTAL	FINAL
101-B	SOLID ROCK EXCAVATION	C.Y.	10	
107	STRUCTURE EXCAVATION	C.Y.	48	
20HA	SUB-BASE OF GRAVEL (MOD.)	C.Y.	18	
317	SINGLE TACK COAT OF REFINED TAR & SLADE MIX PEA STONE SEAL WITH CURBACK ASPHALT	GAL.	1258	
401-AB	CONCRETE CLASS AA (MOD.)	C.Y.	26	
401-B	CONCRETE CLASS B (MOD.)	C.Y.	51	
402	REINFORCING STEEL	LB.	7996	
521	STONE FILL (HEAVY TYPE)	C.Y.	9	
542	TWO CABLE GUARD RAIL	L.F.	88	
543	THREE CABLE GUARD RAIL WITH STEEL POSTS (MOD.)	L.F.	56	
545	ANCHORS FOR TWO CABLE GUARD RAIL	EA.	2	
574	PREPARING SUPERSTRUCTURE FOR WIDENING	L.S.	1	
102	BORROW	C.Y.	213	

RECOMMENDED FOR APPROVAL: [Signature] DISTRICT ENGINEER DATE: APR. 3, 1963
 RECOMMENDED FOR APPROVAL: [Signature] BRIDGE ENGINEER DATE: 7/30/63
 RECOMMENDED FOR APPROVAL: [Signature] ASSISTANT CHIEF ENGINEER DATE: 7/31/63
 APPROVED BY: [Signature] CHIEF ENGINEER DATE: 7/31/63

~LIST OF SHEETS~

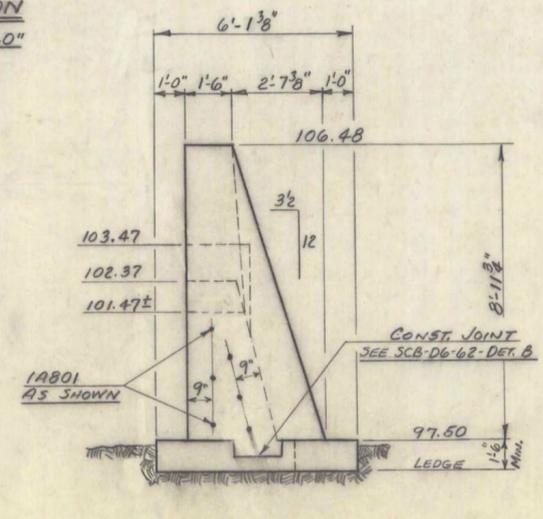
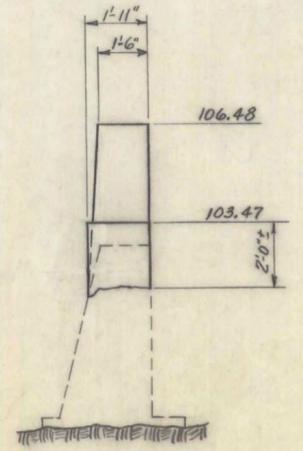
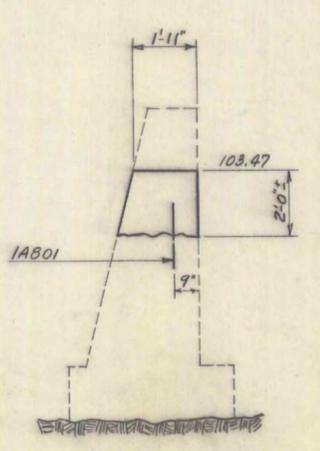
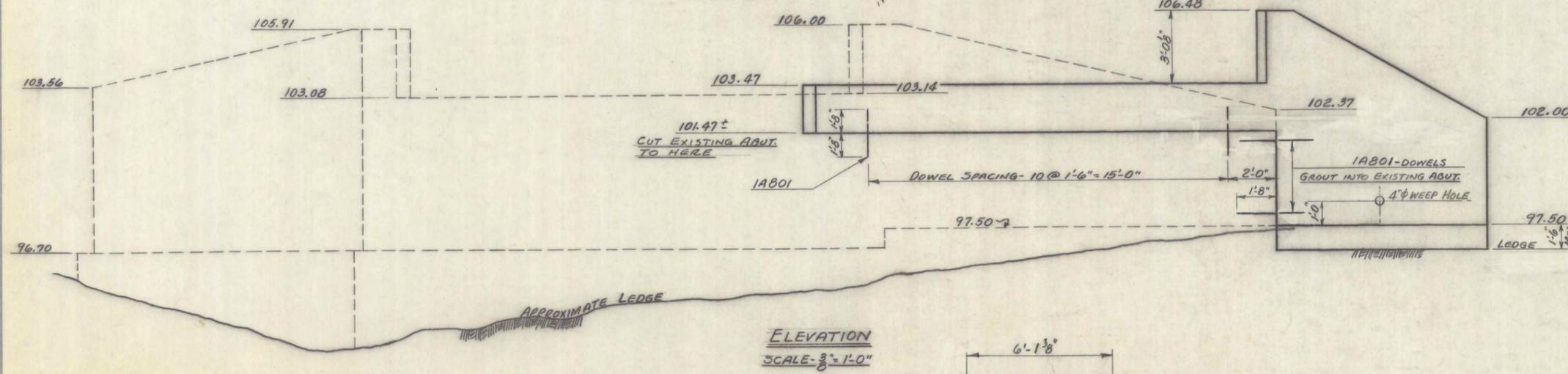
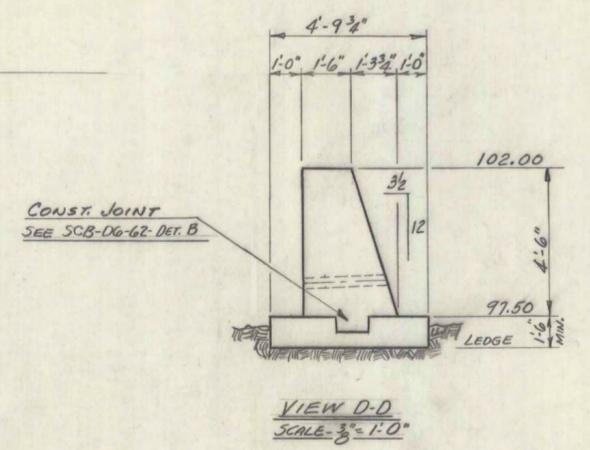
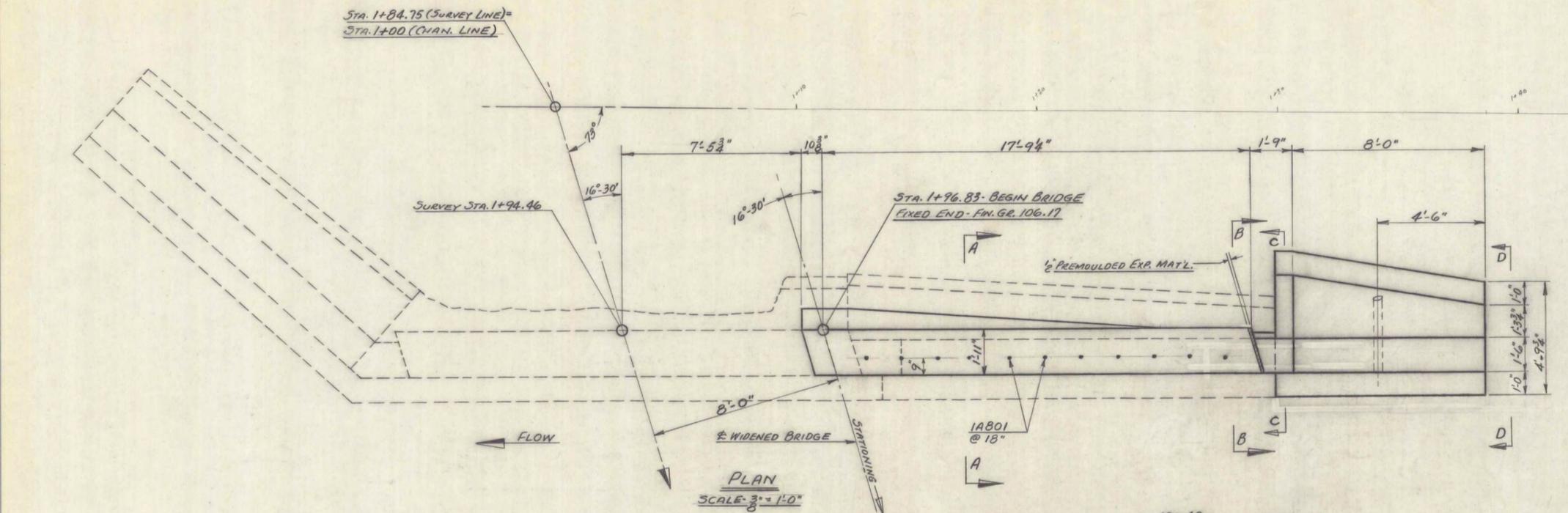
1	PLAN & PROFILE	
2	DETAILS OF ABUTMENT NO. 1	
3	" " " NO. 2	
4	SUPERSTRUCTURE DETAILS	
5	REINFORCING STEEL DETAILS	
6-7	CHANNEL SECTIONS	
8	ROADWAY SECTIONS	
9	STANDARD DWG. G-3	
10	" " " SCB-06-62	
11	" " " E-2	
12	" " " G-2a	

PROJECT: Jay
 NUMBER: ST-1222-494
 TYPE: Conc. T-Bar Widening
 CONTRACTOR: [Blank]
 LOCATION: Jay - Tracy Highway - Log Sta. 95+98
 YEAR: 1963



JAY-BHF 0278(3)
 SHEET 65 OF 71
 FOR REFERENCE ONLY

JAY
 JAY PEAK BRIDGE
 STATE MAINTENANCE
 1222-494



**JAY-BHF 0278(3)
SHEET 66 OF 71
FOR REFERENCE ONLY**

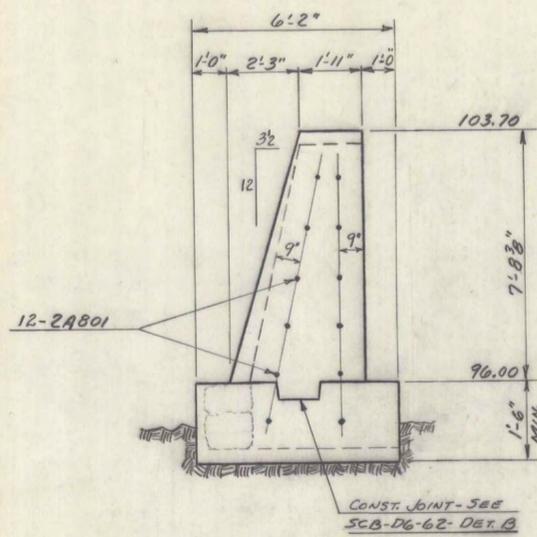
ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
106-A	CHAN. EXCAV. OF EARTH	C.Y.				
106-B	CHAN. EXCAV. OF ROCK	C.Y.				
106-C	UNCLASS. CHAN. EXCAV.	C.Y.				
107	STRUCT. EXCAV.	C.Y.			9	
401-B	CONC. CLASS B (MOD.)	C.Y.			12	
402	REINF. STEEL (SEE REINF. STEEL DETS.)	LBS.				
407	ASPHALTIC-ASB. COATING	S.Y.				
502-B	TREATED TIMBER PILING	L.F.				
503	SPLICES FOR STEEL PILING	EA.				
504	STEEL PILING	L.F.				
502-A	UNTREATED TIMBER PILING	L.F.				
101-B	SOLID ROCK EXCAVATION	C.Y.			4	
521	STONE FILL (HEAVY TYPE)	C.Y.			3	

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

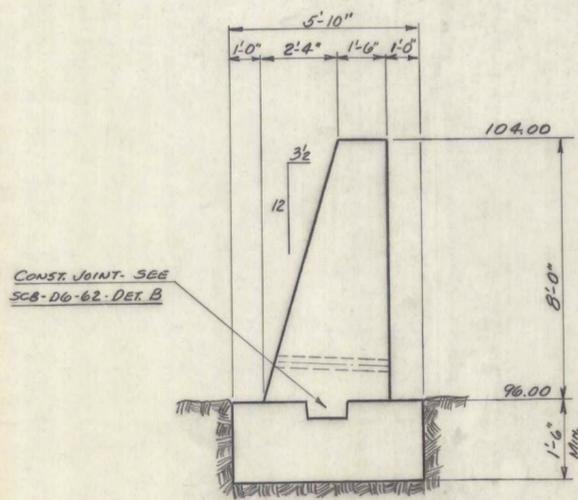
TOWN OF JAY
JAY-TROY
ROUTE NO. LOG STA. 98+98

DETAILS OF ABUTMENT NO. 1
JAY PEAK BRIDGE
SCALE - 3/8" = 1'-0"

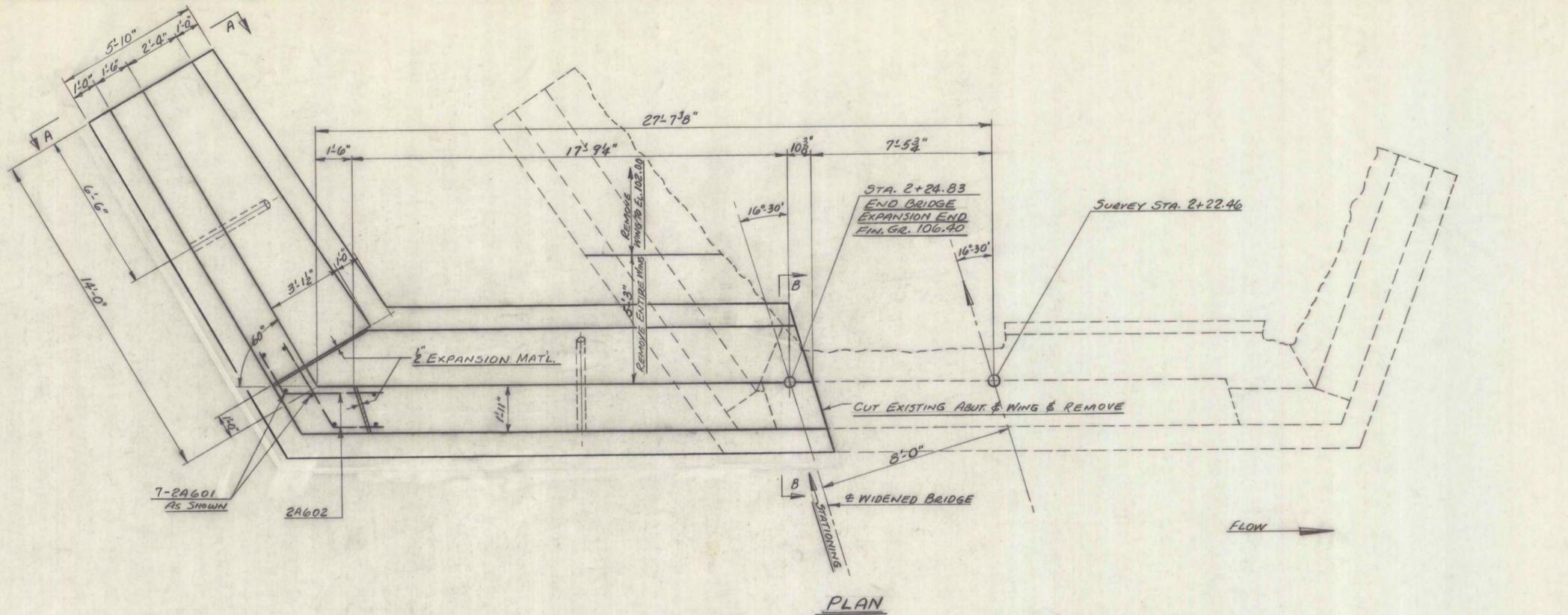
SURVEYED BY BUBLEY
DRAWN BY RTB CHECKED BY RND
STATE MAINT.
PROJECT NO. 1222-494
SHEET 2 OF 12



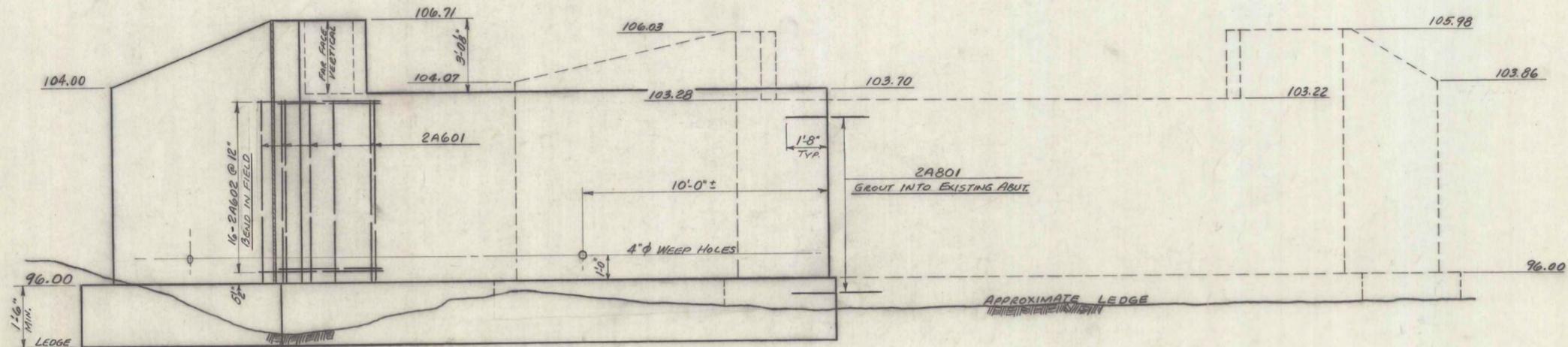
SECTION B-B



VIEW A-A



PLAN



ELEVATION



**JAY-BHF 0278(3)
SHEET 67 OF 71
FOR REFERENCE ONLY**

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
106-A	CHAN. EXCAV. OF EARTH	C. Y.				
106-B	CHAN. EXCAV. OF ROCK	C. Y.				
106-C	UNCLASS. CHAN. EXCAV.	C. Y.				
107	STRUCT. EXCAV.	C. Y.			39	
401-B	CONC. CLASS B (MOD.)	C. Y.			39	
402	REINF. STEEL (SEE REINF. STEEL DETS.)	LBS.				
407	ASPHALTIC-ASB. COATING	S. Y.				
502-B	TREATED TIMBER PILING	L. F.				
503	SPLICES FOR STEEL PILING	EA.				
504	STEEL PILING	L. F.				
502-A	UNTREATED TIMBER PILING	L. F.				
101-B	SOLID ROCK EXCAVATION	C. Y.			6	
521	STONE FILL (HEAVY TYPE)	C. Y.			6	

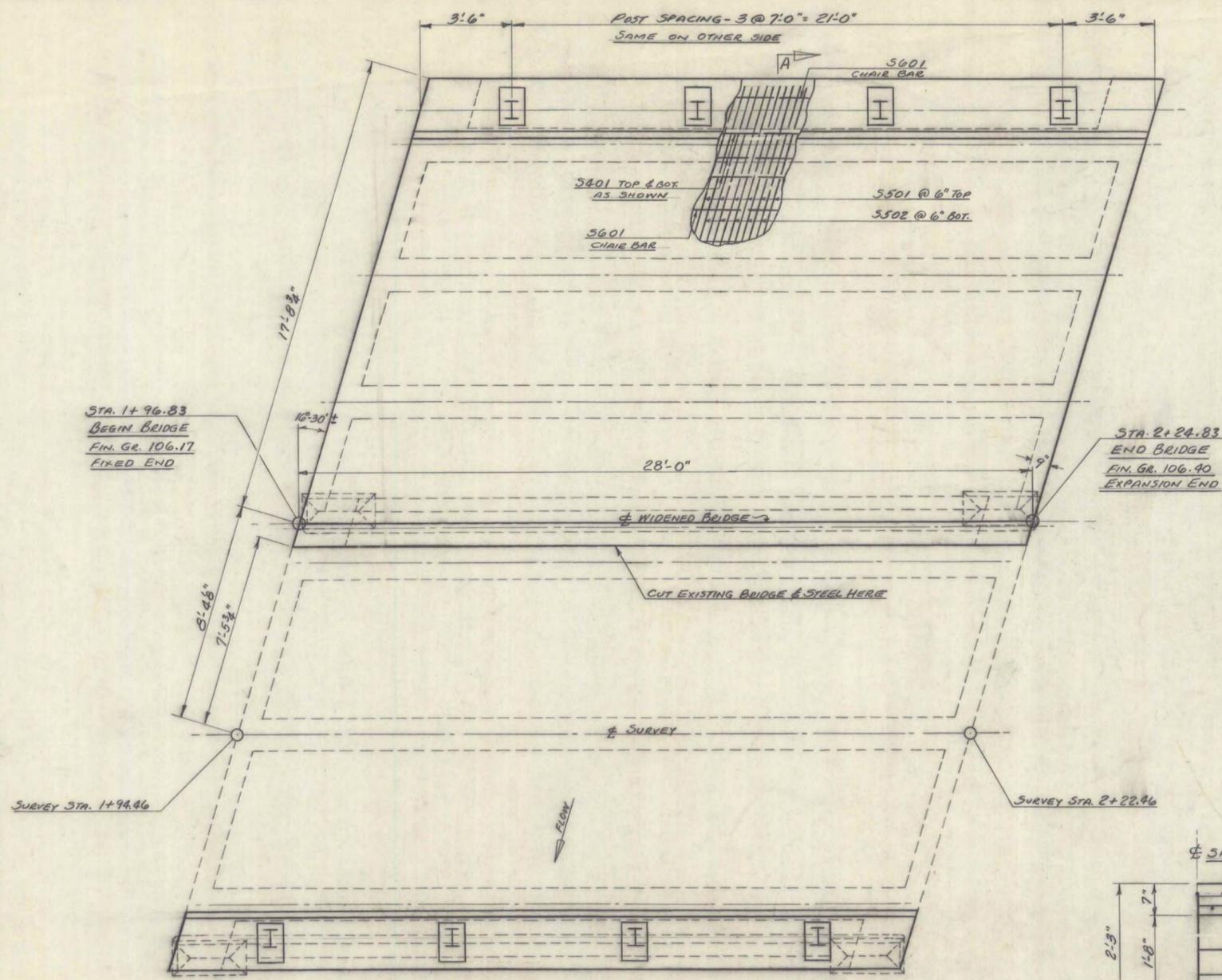
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF JAY
ROUTE NO. JAY-TRDY LOG STA. 98+98

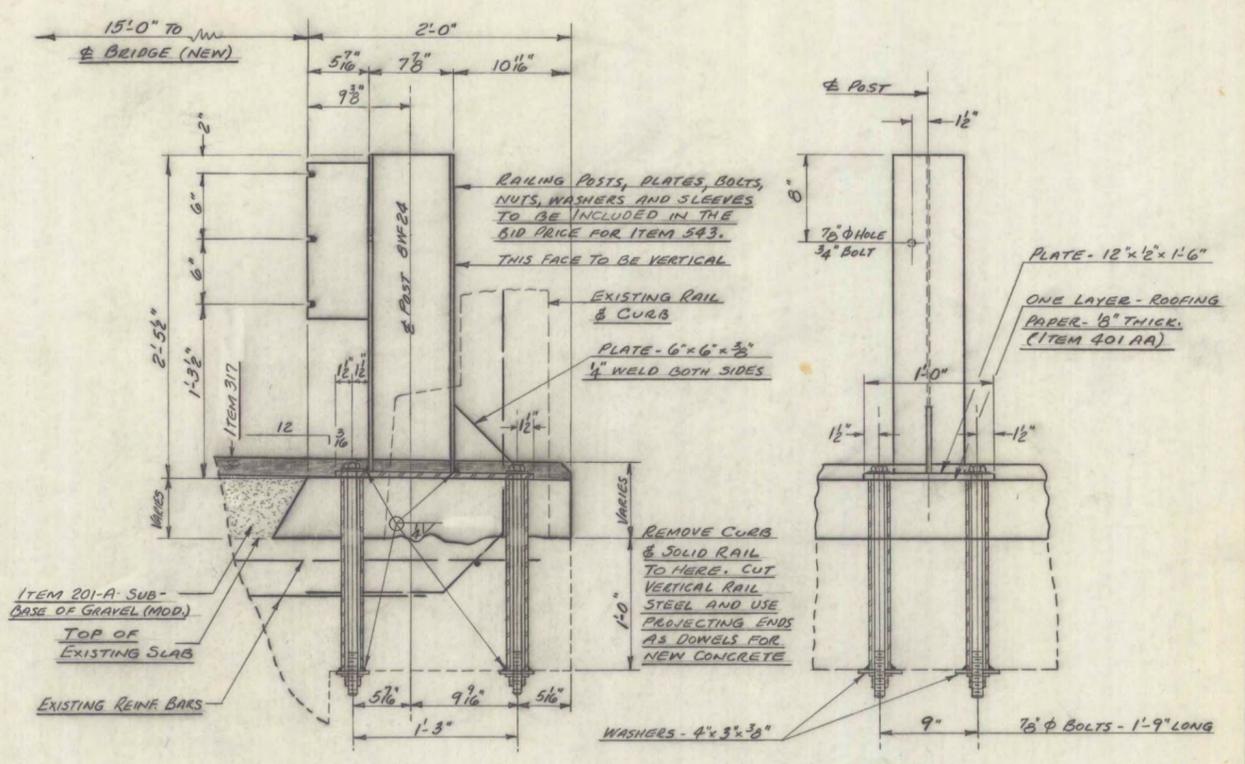
DETAILS OF ABUTMENT NO. 2
JAY PEAK BRIDGE

SCALE $\frac{3}{8}'' = 1'-0''$

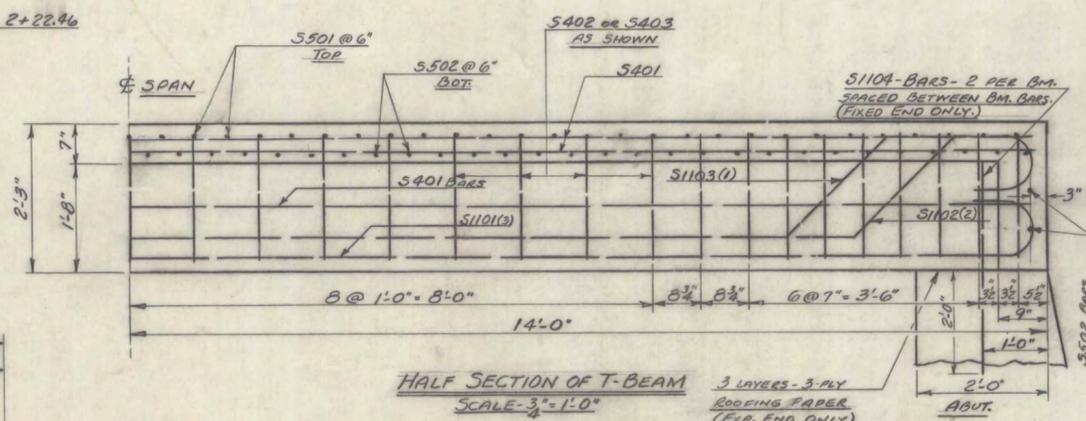
SURVEYED BY BUGLEY
DRAWN BY RTB*/63 CHECKED BY RND
PROJECT NO. STATE MAINT 1222-494
SHEET 3 OF 12



PLAN
SCALE: 3/8" = 1'-0"



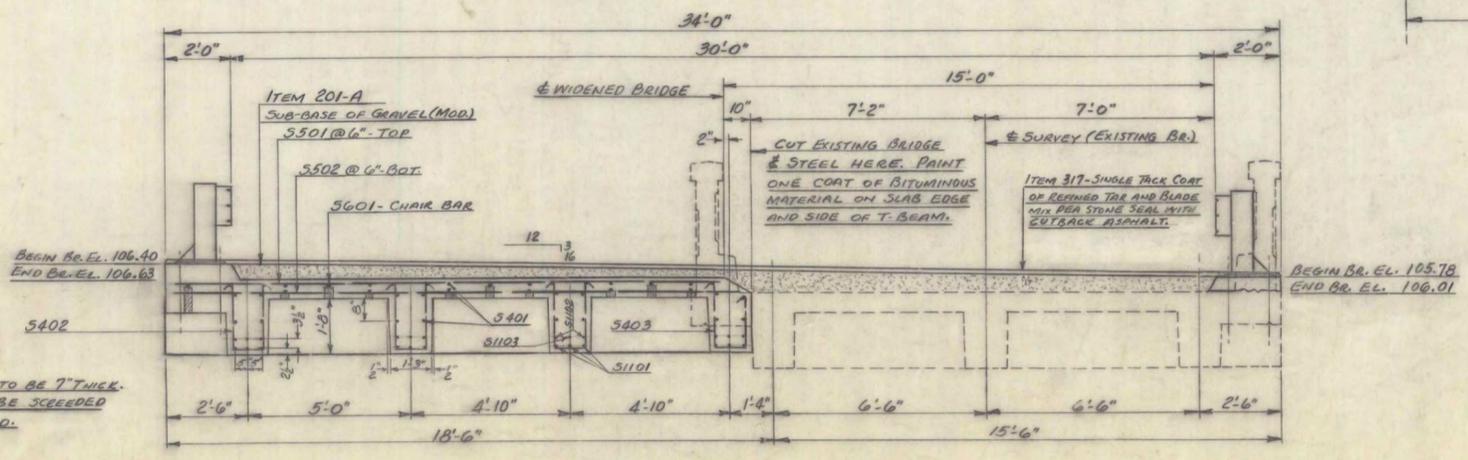
DETAIL OF GUARD RAIL POST (DOWNSTREAM)
SCALE: 1 1/2" = 1'-0"
(UPSTREAM POSTS SIMILAR)



HALF SECTION OF T-BEAM
SCALE: 3/4" = 1'-0"

- NOTES-**
- FOR ADDITIONAL RAILING DETAILS SEE STD. DNG. G-3. RAILING POSTS TO BE NORMAL TO GRADE.
 - RAIL POSTS, AND ALL RELATED HARDWARE, TO BE GALVANIZED.

**JAY-BHF 0278(3)
SHEET 68 OF 71
FOR REFERENCE ONLY**



SECTION A-A
SCALE: 3/8" = 1'-0"

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
106-A	CHAN. EXCAV. OF EARTH	C. Y.				
106-B	CHAN. EXCAV. OF ROCK	C. Y.				
106-C	UNCLASS. CHAN. EXCAV.	C. Y.				
107	STRUCT. EXCAV.	C. Y.				
401-AA	CONC. CLASS AA (MOD.)	C. Y.			26	
402	REINF. STEEL (SEE REINF. STEEL DETS)	LBS.				
407	ASPHALTIC-ASB. COATING	S. Y.				
502-B	TREATED TIMBER PILING	L. F.				
503	SPLICES FOR STEEL PILING	EA.				
504	STEEL PILING	L. F.				
502-A	UNTREATED TIMBER PILING	L. F.				
201-A	SUB-BASE OF GRAVEL (MOD.)	C. Y.			18	
317	SINGLE TACK COAT OF REF. TAR & BLADE MIX PER STONE SEAL WITH CUTBACK ASPHALT	GAU.	BRIDGE-127 ROADWAY-1131		1258	
543	THREE CHAIR GUARD RAIL WITH STEEL POSTS (MOD)	L. F.			56	
574	PREPARING SUPERSTRUCTURE FOR WIDENING	L. S.			1	

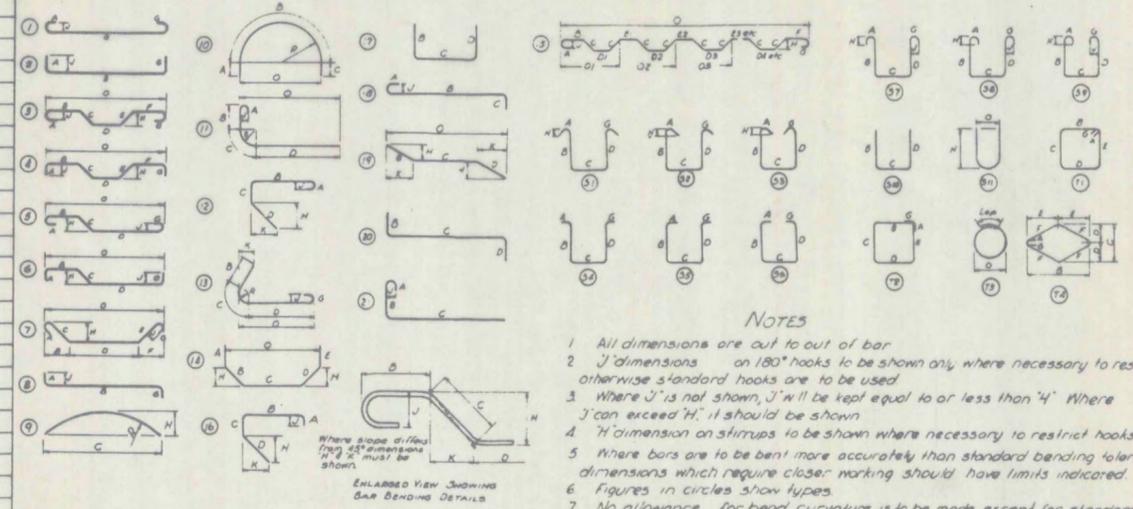
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF JAY
ROUTE NO. JAY-TRAY HIGHWAY LOG STA. 98+98
SUPERSTRUCTURE DETAILS
JAY PEAK BRIDGE

SCALE AS NOTED
SURVEYED BY BURLEY
DRAWN BY RTB CHECKED BY RND
PROJECT NO. STATE MAINT. 1222-474
SHEET 4 OF 12

Item	No. Pieces	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	R	O
1																	
2																	
3																	
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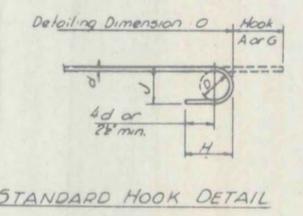
TYPICAL BAR BENDS



NOTES

- All dimensions are out to out of bar.
- J dimensions on 180° hooks to be shown only where necessary to restrict hook size otherwise standard hooks are to be used.
- Where J is not shown, J will be kept equal to or less than 4". Where J can exceed H, it should be shown.
- H dimension on stirrups to be shown where necessary to restrict hooks.
- Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer marking should have limits indicated.
- Figures in circles show types.
- No allowance for bend curvature is to be made except for standard hook & radii in excess of same.

Item	No. Pieces	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	R	O
163					ABUTMENT NO. 1												
164	17	8	3-4	1A801	STR.												
165																	
166					ABUTMENT NO. 2												
167																	
168	16	6	6-0	2A602	STR.												
169	7	6	7-6	2A601	STR.												
170	12	8	3-4	2A801	STR.												
171																	
172																	
173					SUPERSTRUCTURE												
174																	
175	35	4	27-6	5401	STR.												
176	55	5	17-3	5501	STR.												
177	60	5	18-0	5502	STR.												
178	4	6	27-6	5601	STR.												
179	8	11	4-0	51104	STR.												
180																	
181	35	4	5-5	5403	SI	0-5	2-0	1-0	1-7				0-5				
182	105	4	5-10	5402	SI	0-5	2-0	1-0	2-0				0-5				
183	12	11	29-10	51101	1	1-2	27-6						1-2	0-10			
184	8	11	31-1	51102	3	1-2	1-3	2-1 1/2	22-0	2-1 1/2	1-3	1-2	1-6	0-10			27-6
185	4	11	31-1	51103	3	1-2	2-3	2-1 1/2	20-0	2-1 1/2	2-3	1-2	1-6	0-10			27-6
186																	
187																	
188																	
189																	
190																	



BAR SIZES

Equivalent Size	Present (Numbers)
1/4"	#2
3/8"	#3
1/2"	#4
5/8"	#5
3/4"	#6
7/8"	#7
1"	#8
1 1/8"	#9
1 1/4"	#10
1 3/8"	#11

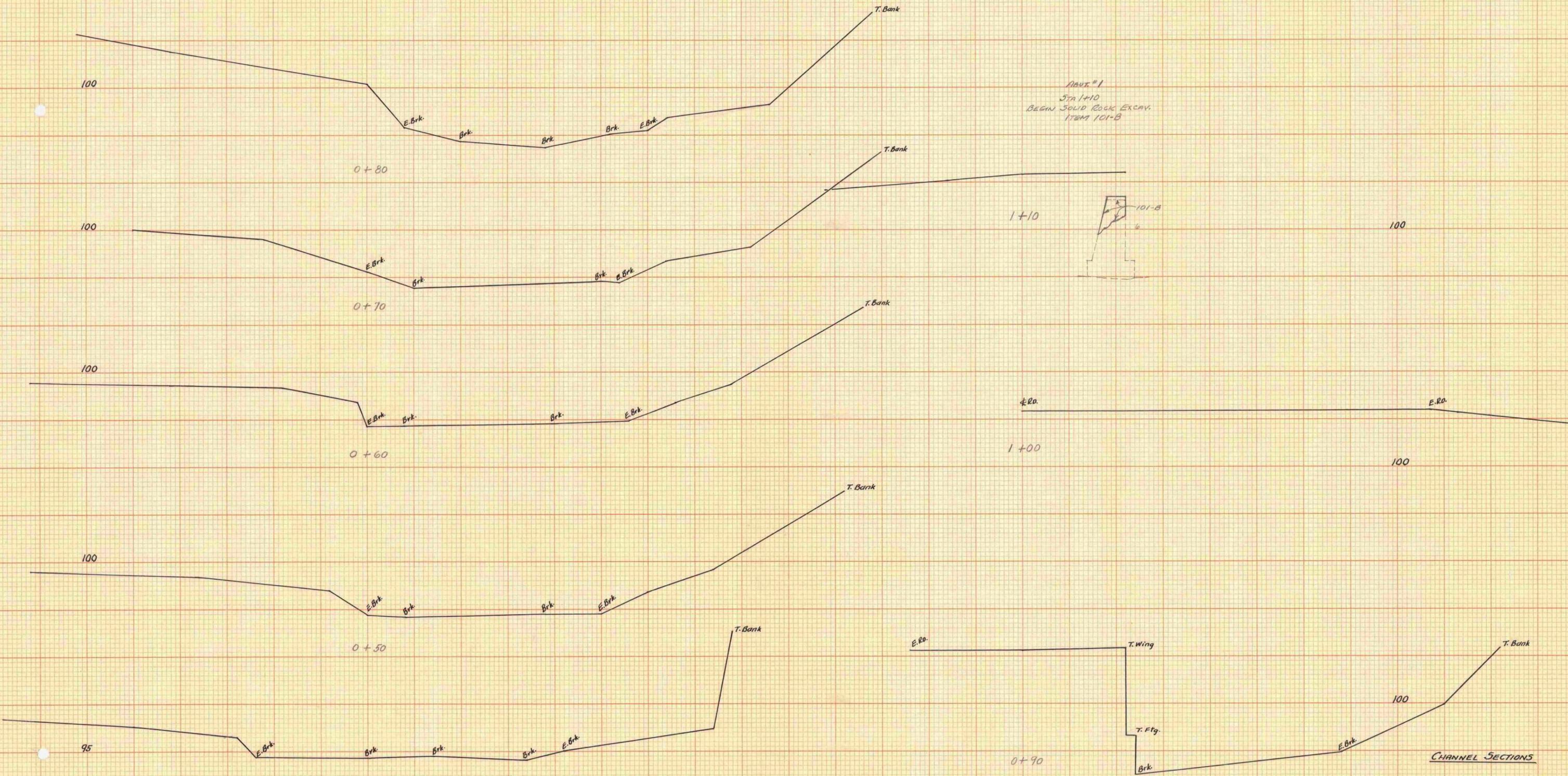
NOTE-
 MINIMUM BENDS TO BE AS FOLLOWS:
 STIRRUPS AND TIE BARS SHALL BE BENT AROUND A PIN HAVING A DIAMETER NOT LESS THAN TWO TIMES THE MINIMUM THICKNESS OF THE BAR. BENDS FOR OTHER BARS SHALL BE MADE AROUND A PIN HAVING A DIAMETER NOT LESS THAN SIX TIMES THE MINIMUM THICKNESS EXCEPT FOR BARS LARGER THAN 1 INCH, IN WHICH CASE THE BENDS SHALL BE MADE AROUND A PIN OF EIGHT BAR DIAMETERS.

ESTIMATED QUANTITIES

Location	Pounds
ABUTMENT NO. 1	152
ABUTMENT NO. 2	330
SUPERSTRUCTURE	7514
TOTAL	7996

JAY
 JAY-TROY HIGHWAY
 JAY PEAK BRIDGE
 STATE MAINTENANCE-1222-494
 REINFORCING STEEL DETAILS
 DRAWN BY- RTB.
 CHECKED BY- BND. SHEET 5 OF 12

JAY-BHF 0278(3)
 SHEET 69 OF 71
 FOR REFERENCE ONLY



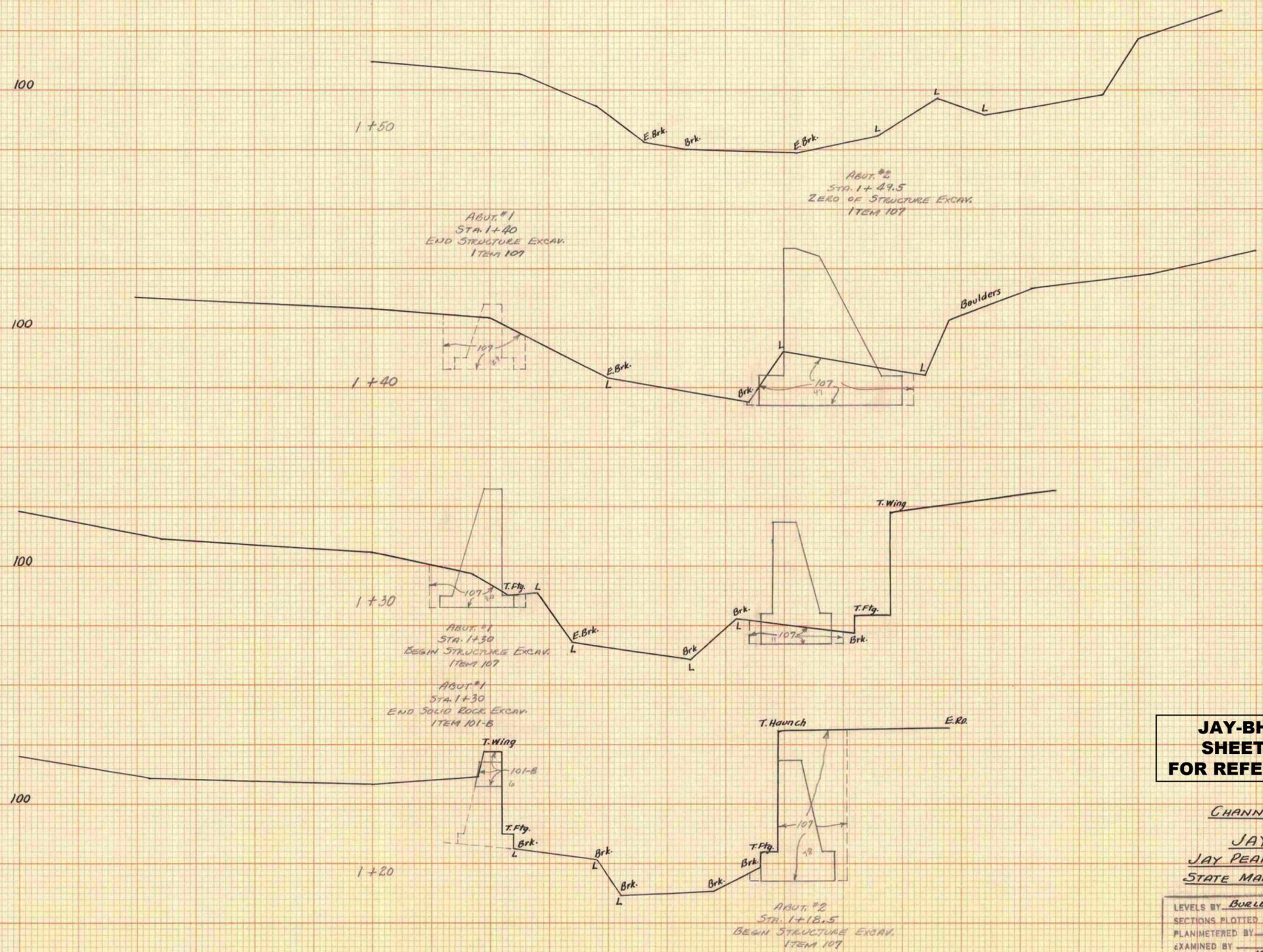
**JAY-BHF 0278(3)
SHEET 70 OF 71
FOR REFERENCE ONLY**

**JAY
JAY PEAK BRIDGE
STATE MAINTENANCE**

LEVELS BY BURLEY CKD. BY R.B.
 SECTIONS PLOTTED BY R.T.B. CKD. BY R.T.B.
 PLANIMETERED BY R.T.B. CKD. BY _____
 EXAMINED BY _____

1222 NO. - 494 FILED
 SHEET 6 OF 12

1 INCH = 5 FEET



**JAY-BHF 0278(3)
SHEET 71 OF 71
FOR REFERENCE ONLY**

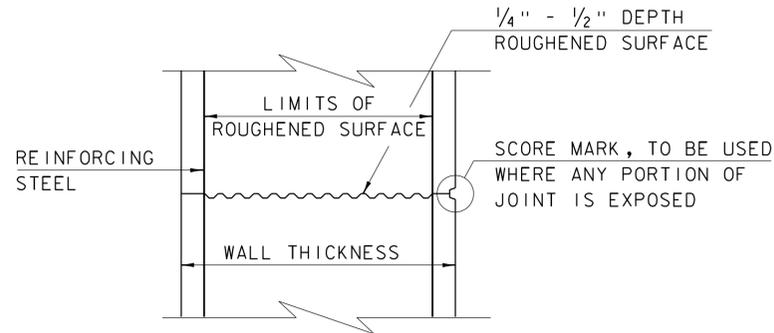
CHANNEL SECTIONS
**JAY
JAY PEAK BRIDGE
STATE MAINTENANCE**

LEVELS BY <u>BURLEY</u>	CKD. BY <u>RTB</u>
SECTIONS PLOTTED BY <u>RTB</u>	CKD. BY <u>RTB</u>
PLANIMETERED BY <u>RTB</u>	CKD. BY <u>RTB</u>
EXAMINED BY <u>1222 NO. 494</u>	FILED
SHEET <u>7</u> OF <u>12</u>	

1 INCH = 5 FEET

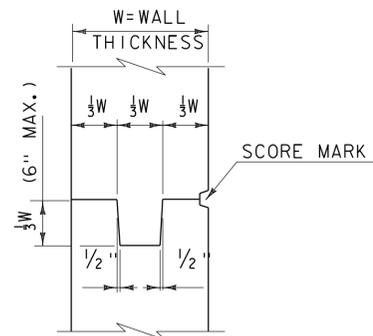
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

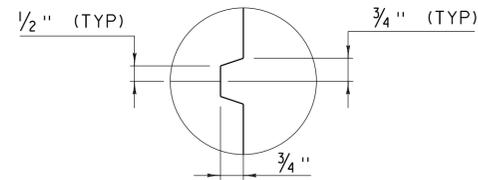


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

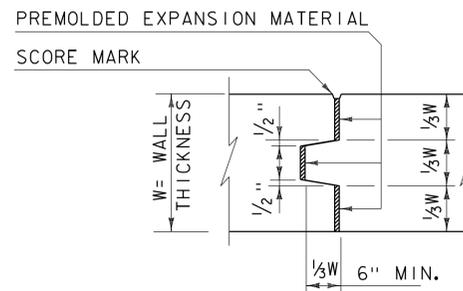
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



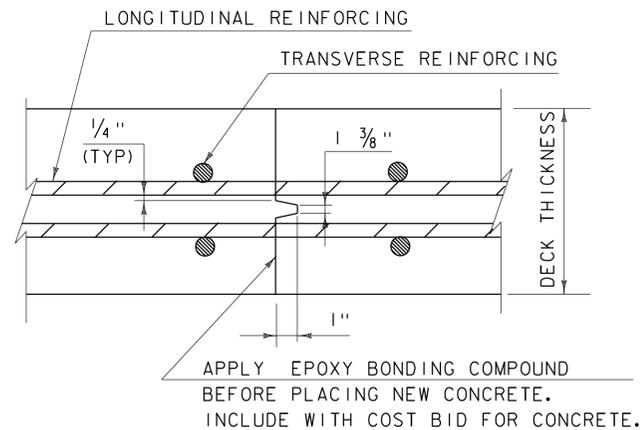
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



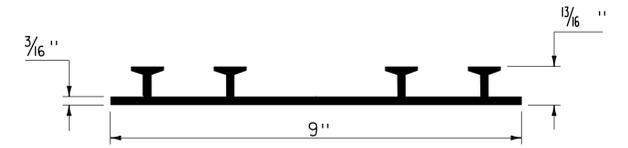
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



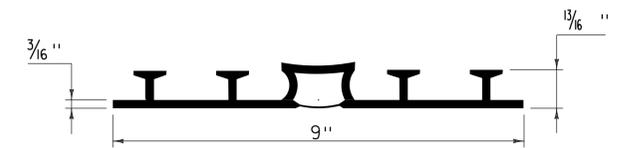
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

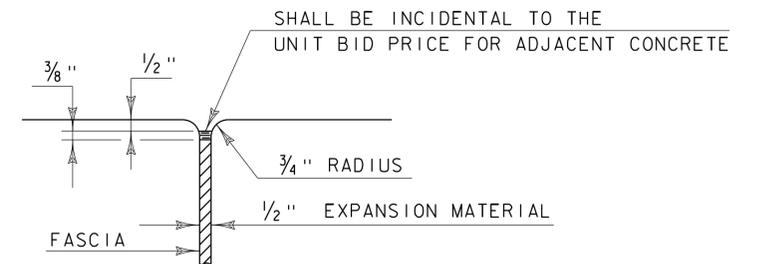
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



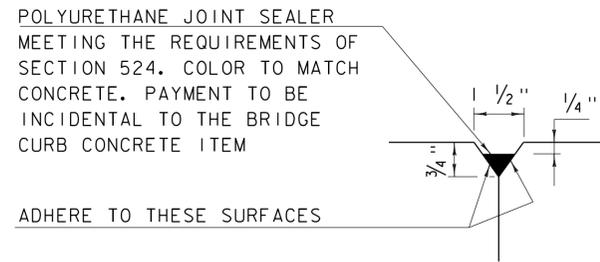
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

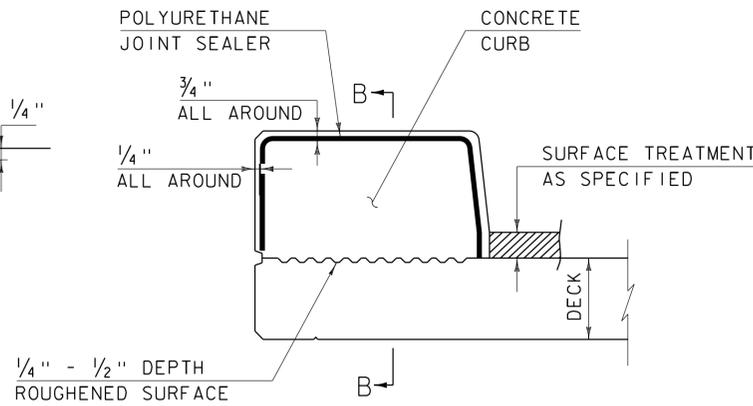
**CONCRETE
DETAILS AND NOTES**



**STRUCTURES
DETAIL
SD-501.00**

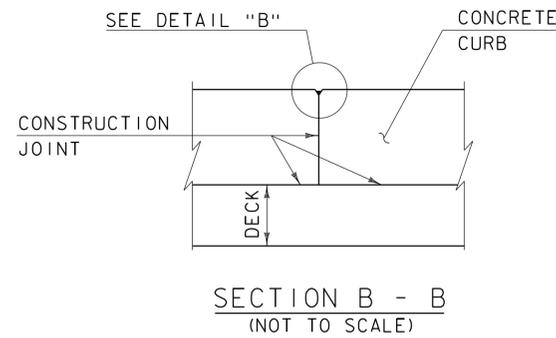


DETAIL "B"
(NOT TO SCALE)

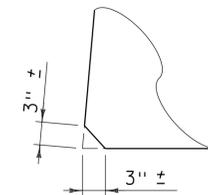


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



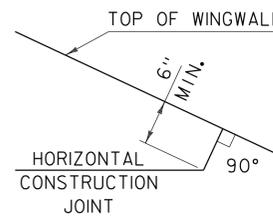
SECTION B - B
(NOT TO SCALE)



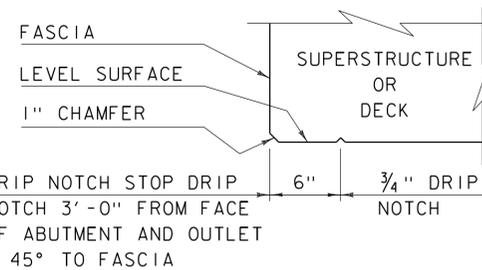
ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

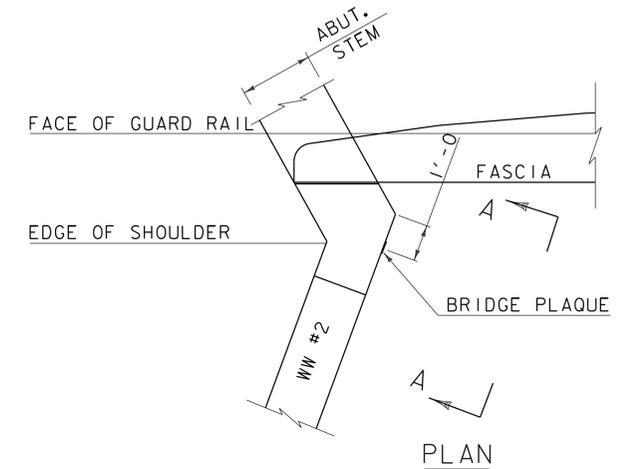
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



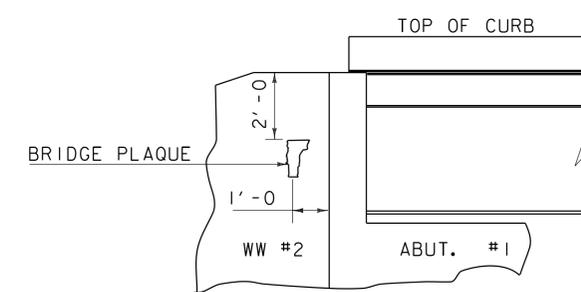
HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS

MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE
DETAILS AND NOTES



STRUCTURES
DETAIL
SD-502.00

ASPHALTIC PLUG JOINT NOTES

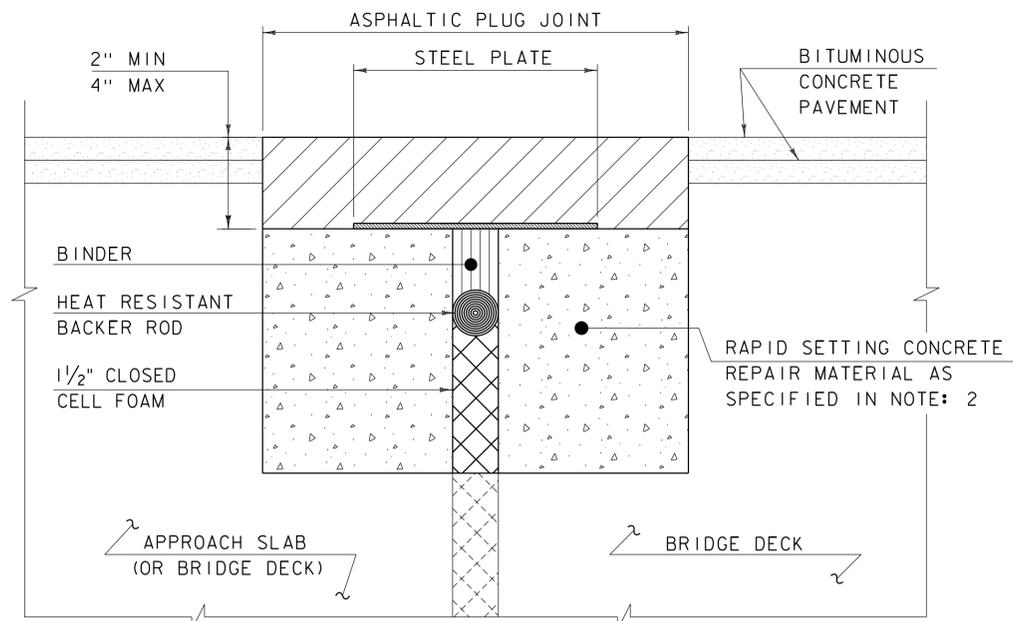
INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

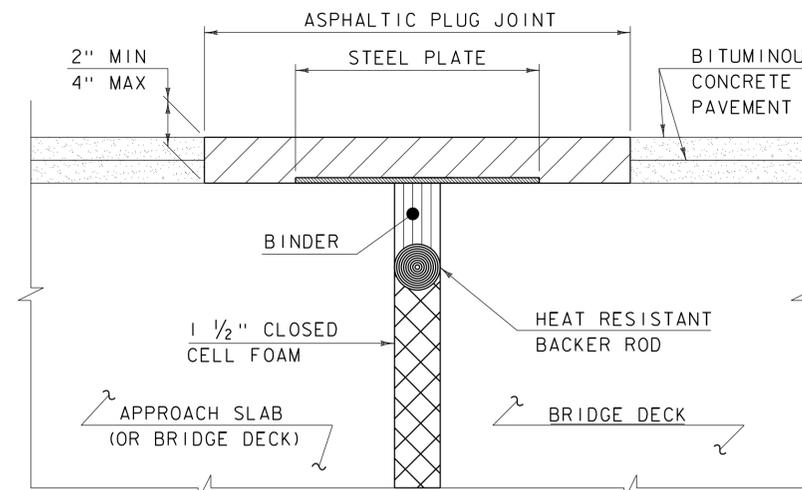
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

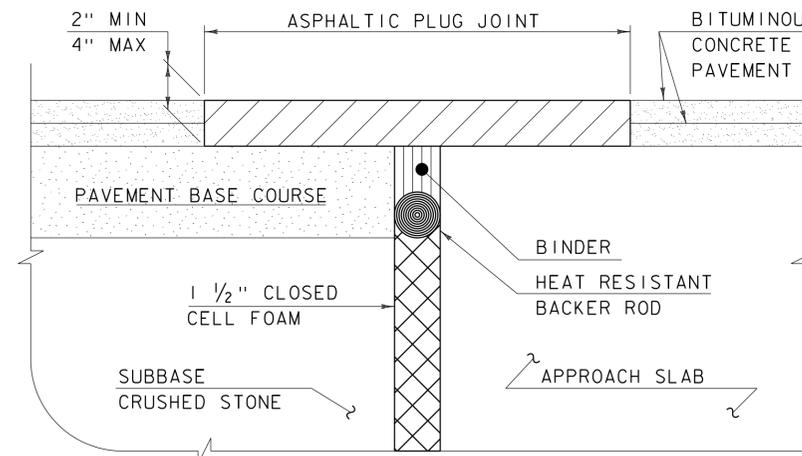
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.
4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:

PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.

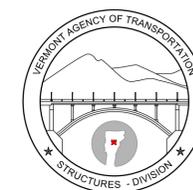


ASPHALTIC PLUG JOINT DETAIL "B" - NEW

DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

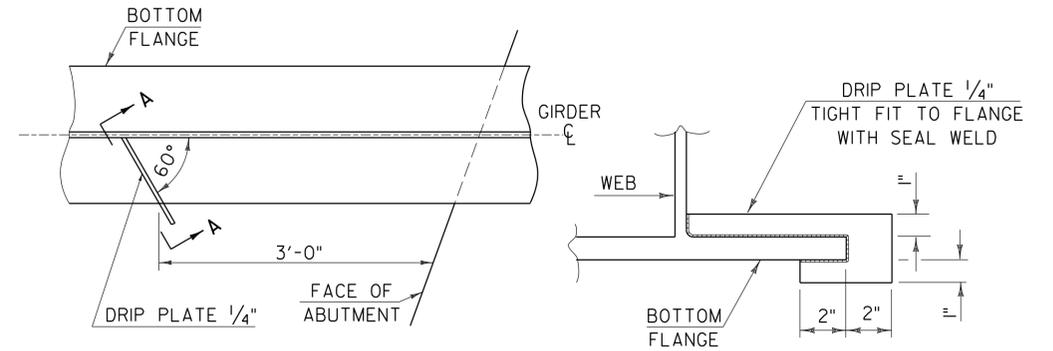
BRIDGE JOINT
ASPHALTIC PLUG



STRUCTURES
DETAIL
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

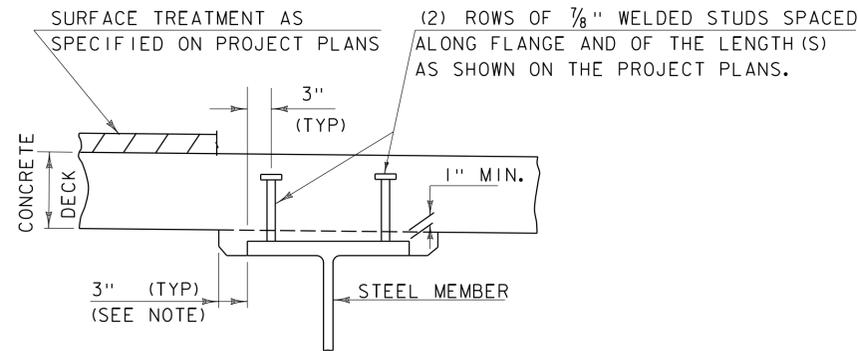
1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.I9, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.I9.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.I0.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.



PLAN DRIP PLATE

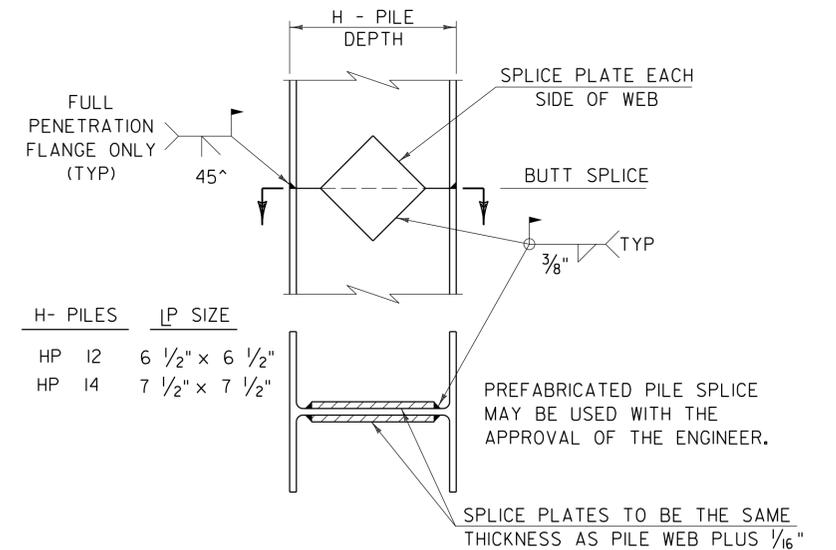
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

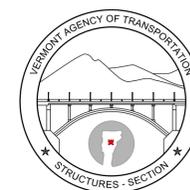
HAUNCH AND SHEAR CONNECTOR DETAIL



DETAIL OF PILE SPLICE

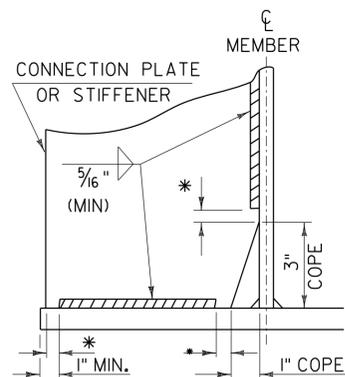
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL DETAILS & NOTES



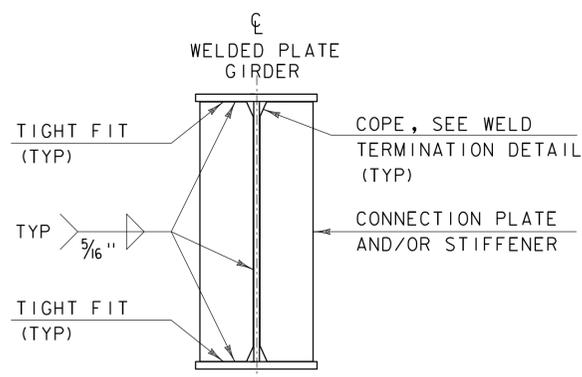
STRUCTURES DETAIL SD-601.00

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES



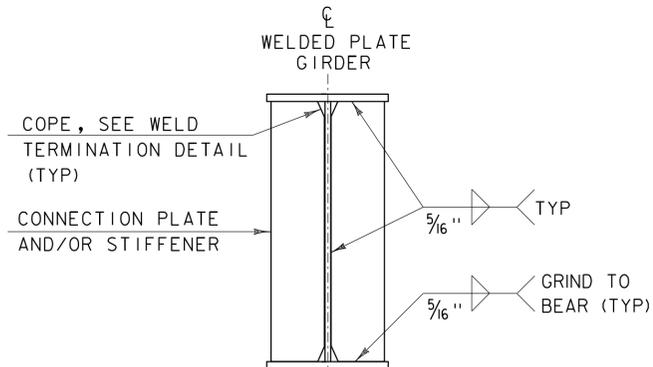
WELD TERMINATION AND COPING
DETAILS FOR STEEL MEMBERS

*NO WELD FOR 3/8" MIN. 7/8" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

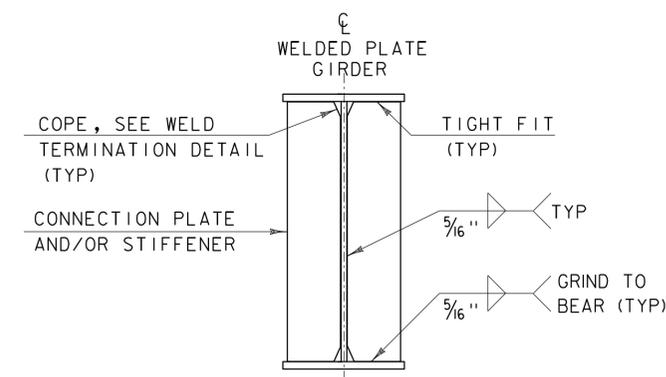


INTERMEDIATE CONNECTION PLATES
AND/OR STIFFENERS FOR WELDED
PLATE GIRDERS

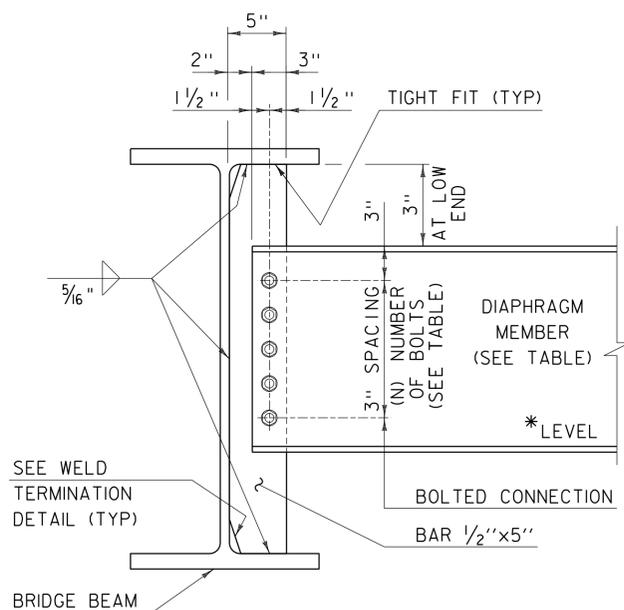
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES NOT OCCUR AT AN ABUTMENT OR PIER.



ABUTMENT BEARING STIFFENERS
AND/OR CONNECTION PLATES
FOR WELDED PLATE GIRDERS



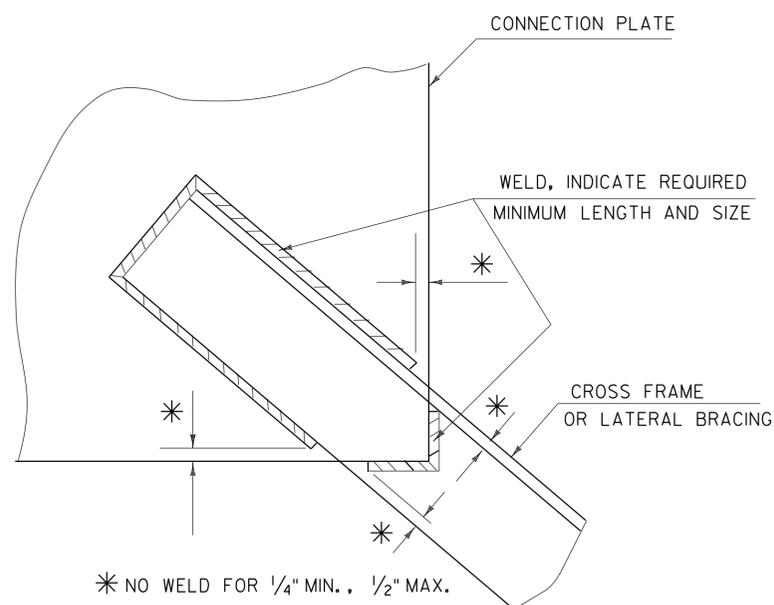
PIER BEARING STIFFENERS
AND/OR CONNECTION PLATES
FOR WELDED PLATE GIRDERS



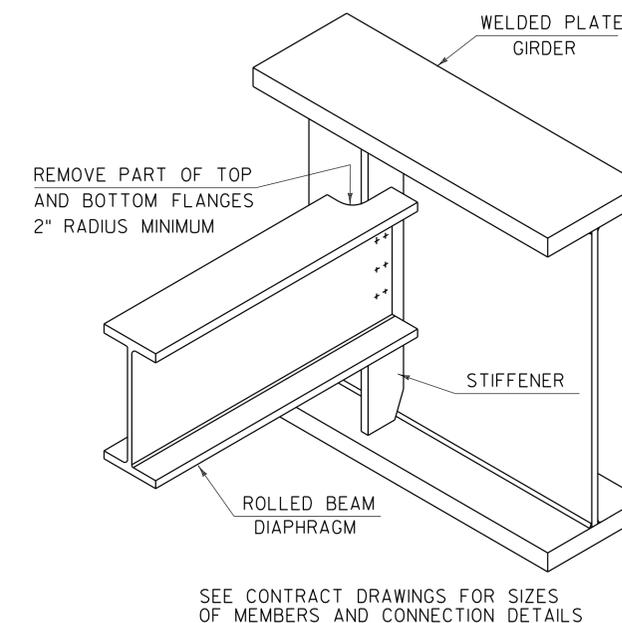
INTERMEDIATE DIAPHRAGMS
FOR 24\"/>

* IF CLEARANCE CANNOT BE MET, DIAPHRAGM MAY BE SLOPED.

	DEPTH	DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM	24"	C15x33.9	4
	30"		
	31"	MC18x42.7	5
	36"		
PLATE GIRDER WEB	37"	W21x44	6
	42"		
	31"	W27x84	7
	36"		
37"	W33x118	9	
42"			
	43"	W36x135	10
	48"		



WELD LOCATION DETAIL AT CROSS
FRAMES AND LATERAL BRACING

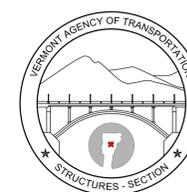


ROLLED BEAM USED AS DIAPHRAGM

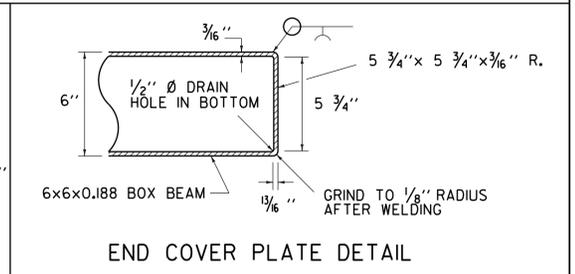
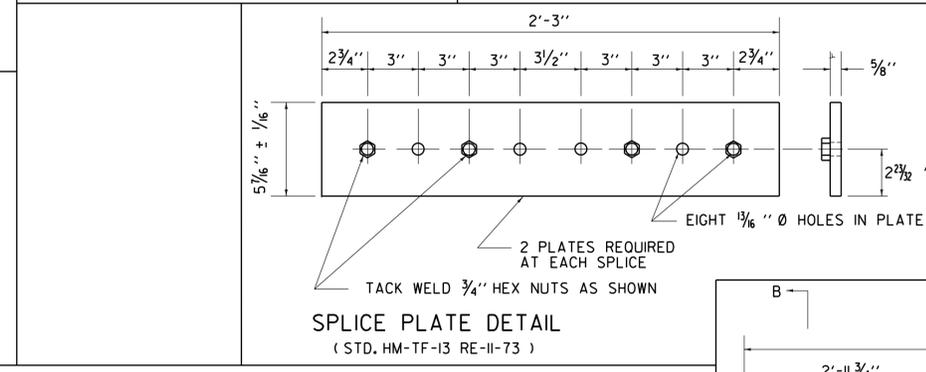
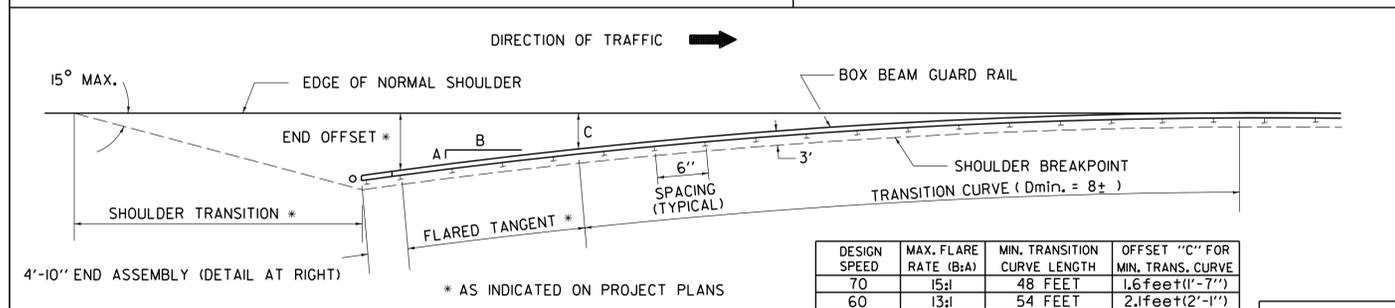
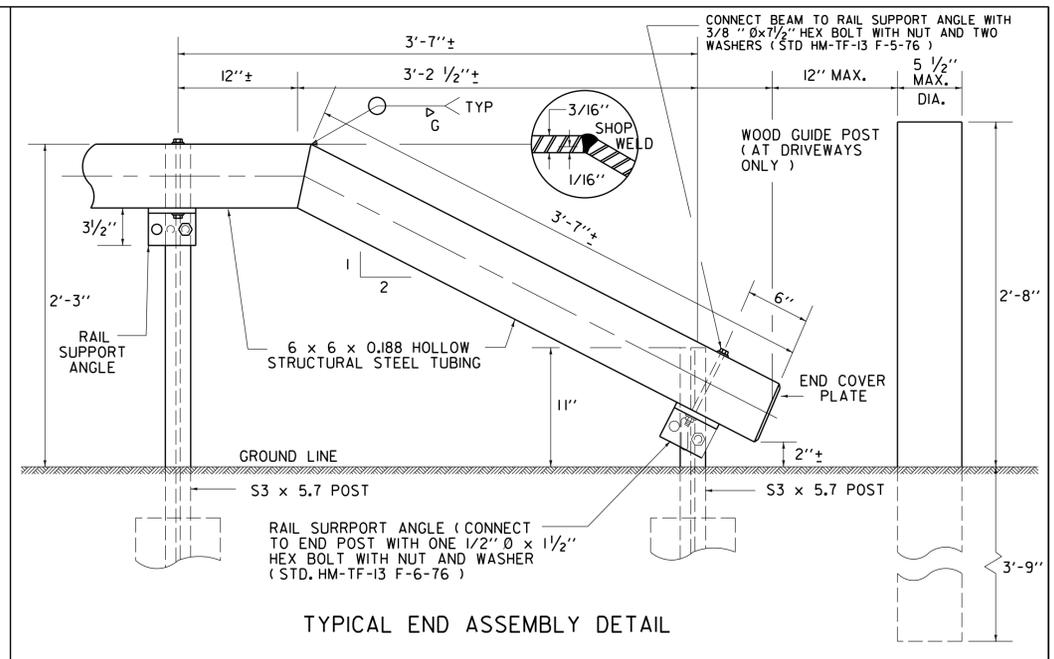
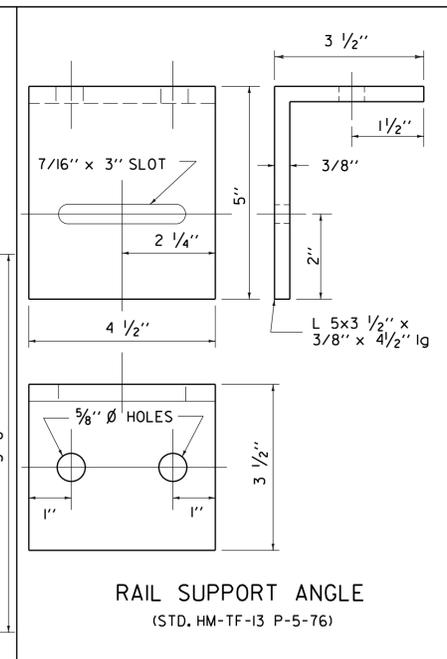
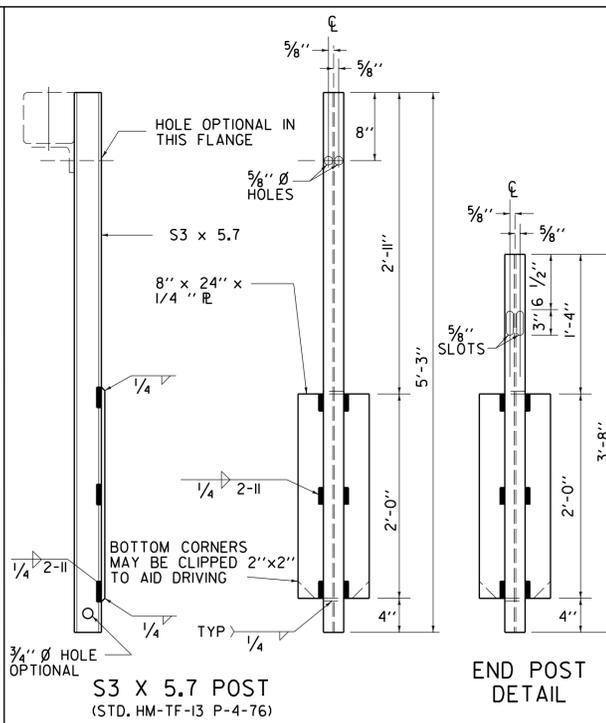
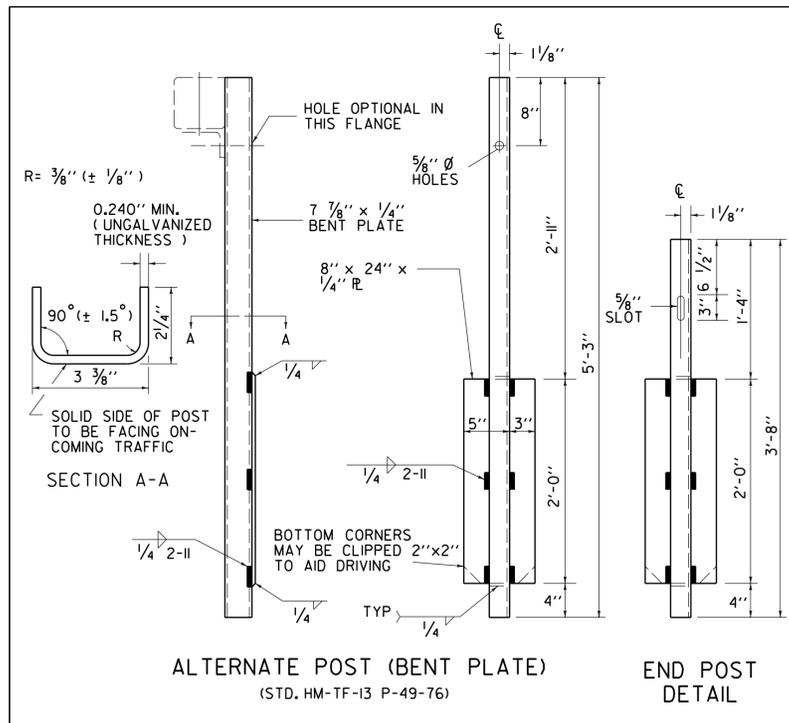
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
MAY 2, 2011	ADD INTERMEDIATE DIAPHRAGMS DETAIL & ADD NOT TO SCALE NOTE

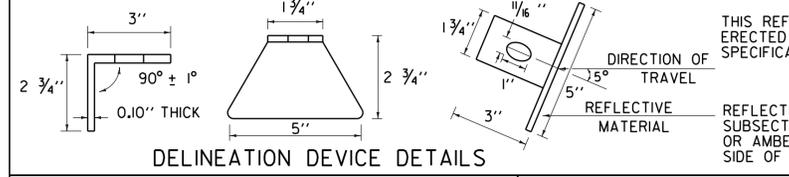
STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES



STRUCTURES
DETAIL
SD-602.00

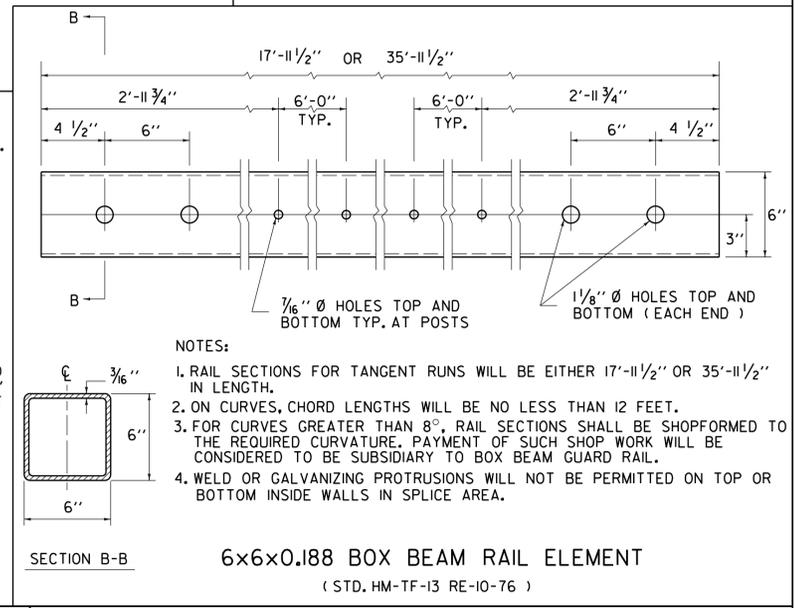
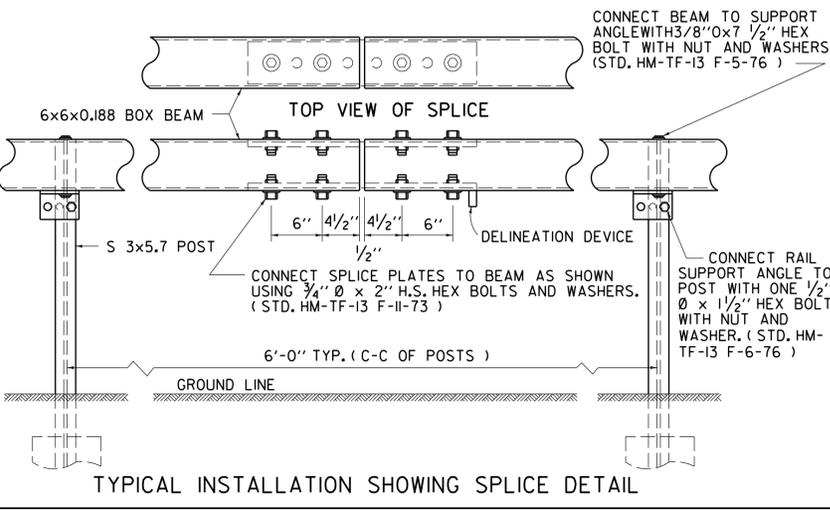


- GENERAL NOTES**
1. THE DESIRED APPROACH END OFFSET SHOULD BE AT LEAST 8' FROM THE EDGE OF NORMAL SHOULDER WHERE SPACE PERMITS; IN SPECIAL CASES, THE END OFFSET MAY BE REDUCED. IN NO CASE, HOWEVER, WILL THE END OFFSET BE LESS THAN 4'.
 2. POST SPACING WILL BE 6'-0" C-C, EXCEPT IN THE VICINITY OF THE JUNCTION OF BOX BEAM GUARD RAIL AND BRIDGE RAILING, AND AT OTHER LOCATIONS INDICATED ON THE PLANS. AT BRIDGE APPROACHES, THE 50' SECTION ADJACENT TO THE BRIDGE RAILING WILL HAVE A POST SPACING OF 4'-0" C-C.
 3. FOR MATERIAL REQUIREMENTS AND CONSTRUCTION DETAILS SEE SPECIFICATIONS FOR BOX BEAM GUARD RAIL.
 4. RAIL ALIGNMENT TO BE STRAIGHT AT SPLICES. NO LATERAL BENDS PERMITTED WITHIN THE SPLICE. THIS DOES NOT PRECLUDE THE SHOP FABRICATION OF BENT SPLICES.
 5. THE LINE OF BOX BEAM GUARD RAIL WHEN COMPLETED SHALL PRESENT A SMOOTH AND PLEASING GRADE LINE IN BOTH HORIZONTAL AND VERTICAL PLANES.
 6. ALL POSTS IN A GIVEN RUN TO BE OF THE SAME TYPE.



THIS REFLECTORIZED ALUMINUM DELINEATION DEVICE IS TO BE ERECTED EVERY 36 FEET. AT SPLICES, DELINEATOR SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.

REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE LEFT OR MEDIAN SIDE OF INTERSTATE ROADWAYS OR RAMPS.



REVISIONS AND CORRECTIONS

OCT. 17, 1979- ORIGINAL APPROVAL DATE
 JULY 23, 1980- CHANGED DIAMETER OF GUIDE POST
 DEC. 16, 1980- INCREASED SHOULDER WIDENING FOR GUARD RAIL
 JUNE 17, 1984- DELINEATOR DEVICE ADDED
 DEC. 21, 1984- HEIGHT OF RAIL LOWERED FROM 2'-6" TO 2'-3"
 OCT. 31, 1985- REVISED TO CONFORM TO 1986 SPECIFICATIONS
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

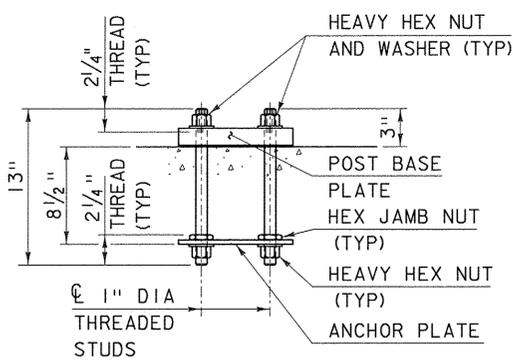
APPROVED

 DIRECTOR OF ENGINEERING

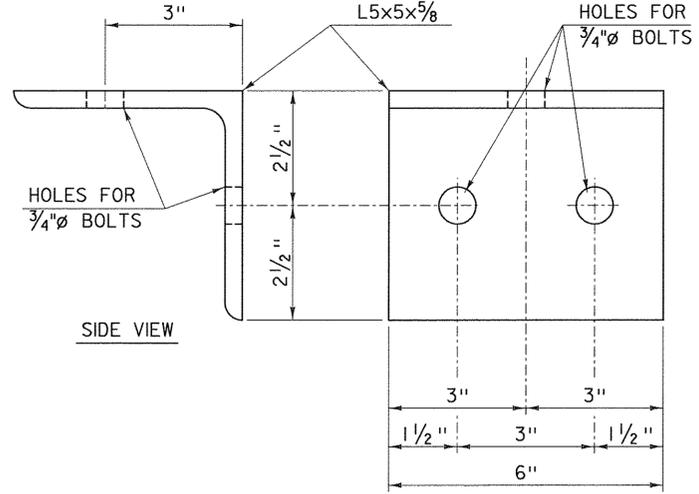
 DESIGN ENGINEER

BOX BEAM GUARD RAIL

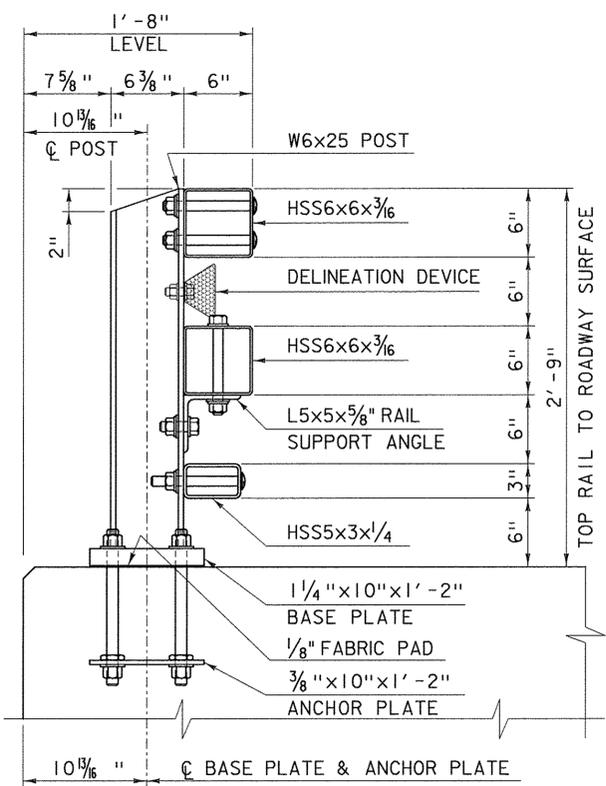
STANDARD G-1b



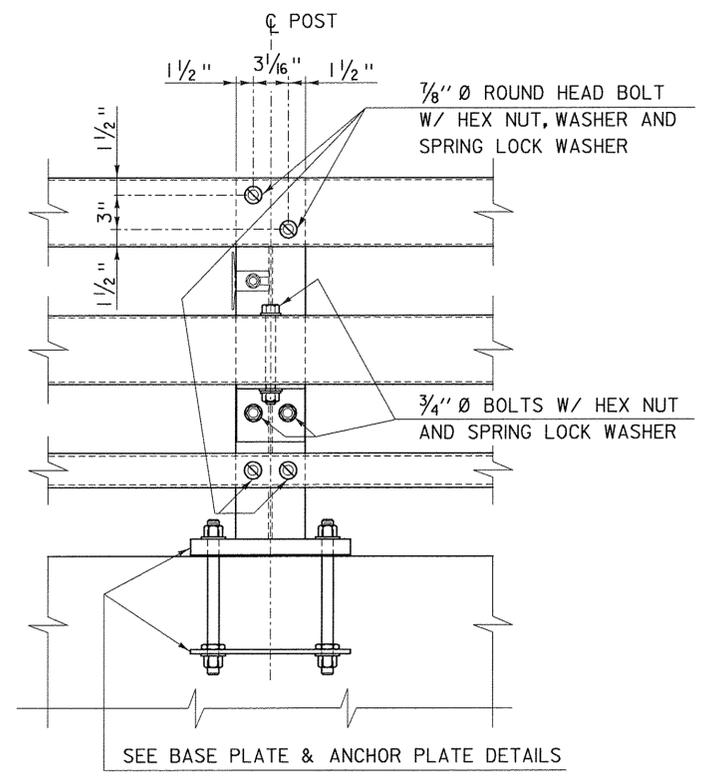
RAILING POST ANCHORAGE



RAILING ANGLE DETAILS

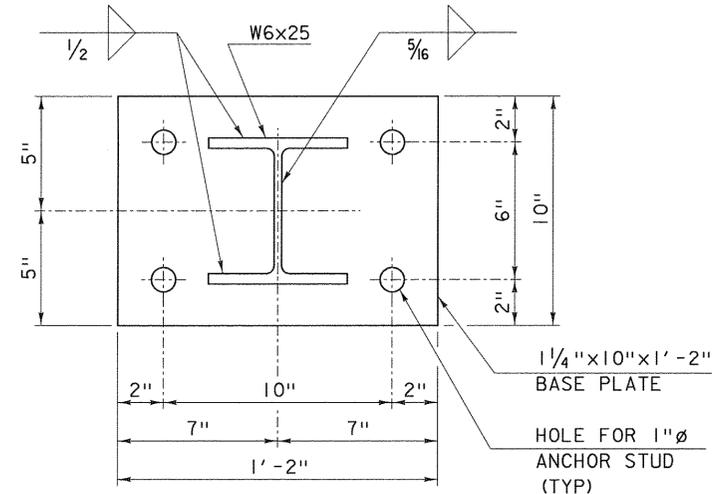


RAILING SECTION

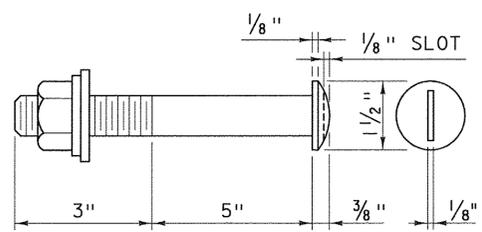


RAILING ELEVATION

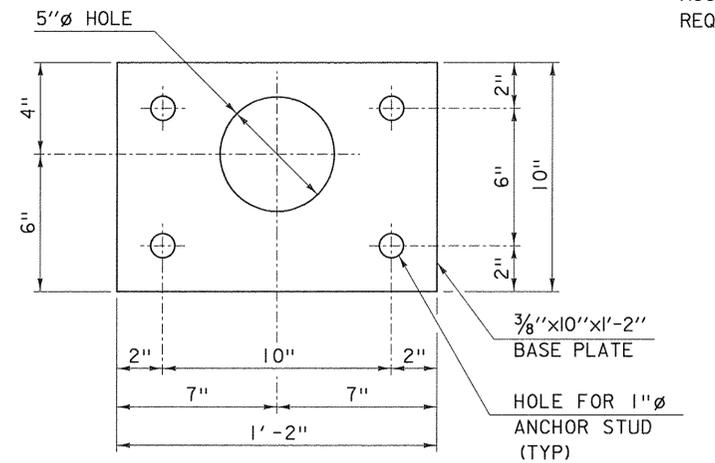
- NOTES:
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
 2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
 3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
 4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
 5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
 7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
 8. SEE STANDARD DRAWING G-1B FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
 9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
 10. THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
 11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.



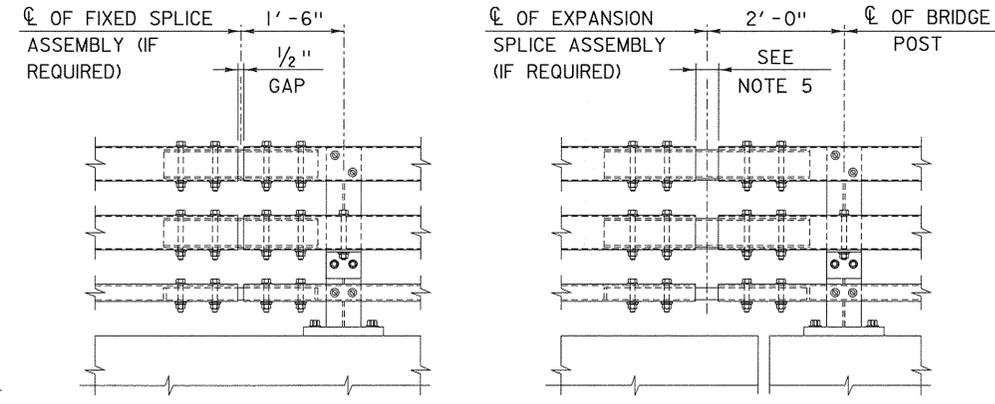
BASE PLATE DETAIL



ROUND HEAD BOLT DETAIL
A449 (TYPE 1)



ANCHOR PLATE DETAIL



RAILING SPLICE DETAIL ELEVATION

A RAILING EXPANSION SPLICE IS REQUIRED IN ANY POST SPACING THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT

REVISIONS AND CORRECTIONS
AUGUST 9, 2010 - ORIGINAL APPROVAL
APRIL 23, 2012 - GENERAL UPDATE 2012

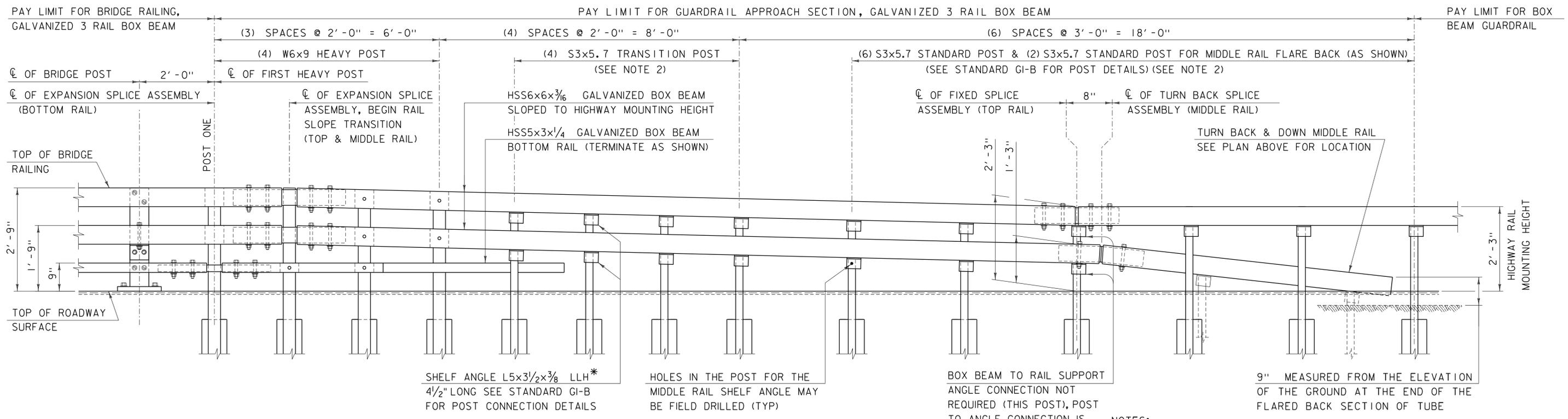
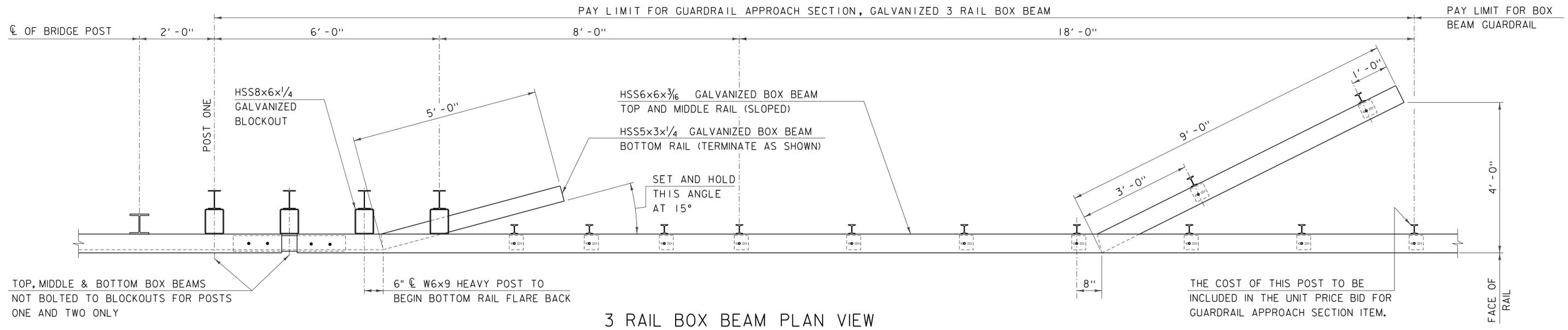
APPROVED
Wm. Michael Hedger
STRUCTURES PROGRAM MANAGER
Richard F. Schaub
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM

OTHER STDS. REQUIRED: **G-1B, S-364C**



STANDARD S-364A



- NOTES:**
1. BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
 2. S3x5.7 POSTS SHALL MEET THE REQUIREMENTS OF 728.01 (c).

OTHER STDS. REQUIRED: G-1B, S-364A

REVISIONS AND CORRECTIONS
 AUGUST 9, 2010 - ORIGINAL APPROVAL
 APRIL 23, 2012 - GENERAL UPDATE 2012
 FEBRUARY 10, 2014 - CLARIFY TRANSITION POST REQUIREMENTS

APPROVED
W.P.S.
 STRUCTURES PROGRAM MANAGER
Rickard Thwait
 DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter
 FEDERAL HIGHWAY ADMINISTRATION

GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM

STANDARD

S-364B