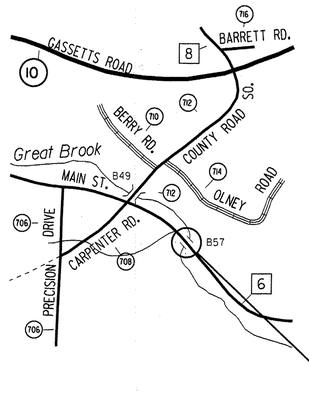
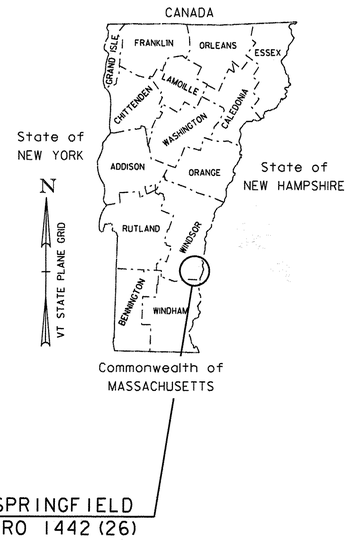
SEE SHEET 2 FOR INDEX OF SHEETS AND LIST OF STANDARDS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF SPRINGFIELD
COUNTY OF WINDSOR



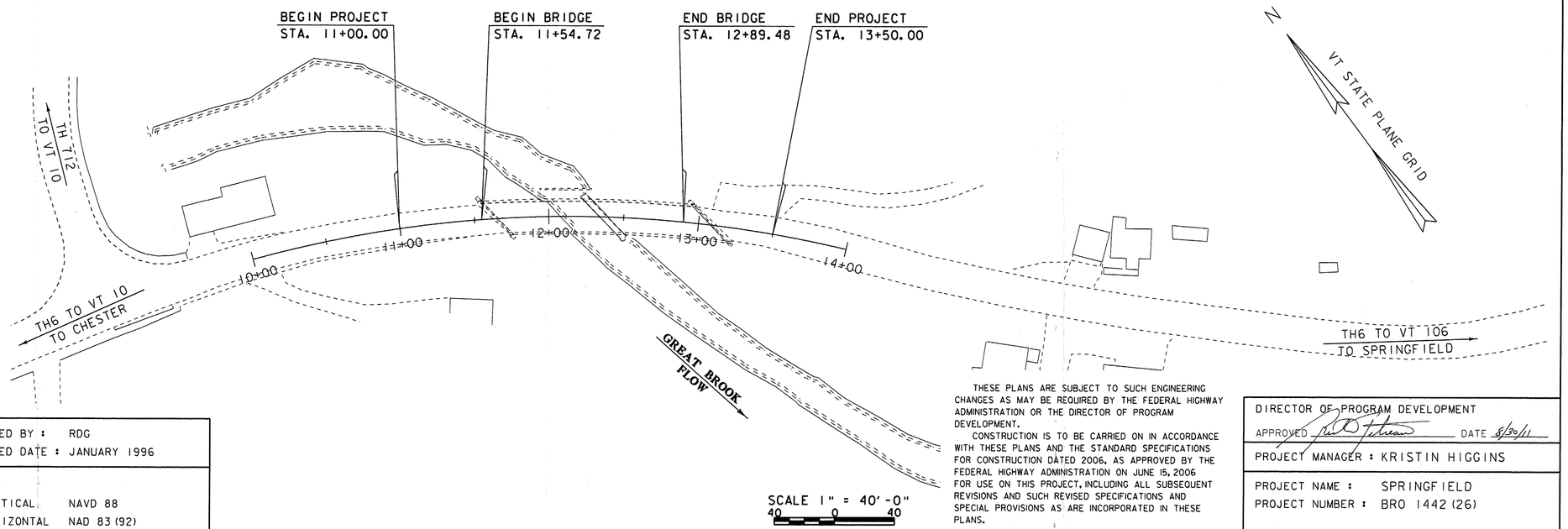


ROUTE NO : TH 6 CLASS III, LOCAL ROAD BRIDGE NO : 57

PROJECT LOCATION : BRIDGE #57 IS LOCATED ON TOWN HIGHWAY 6 APPROXIMATELY 0.63 MILES EAST OF THE INTERSECTION WITH VT 10

PROJECT DESCRIPTION : REPLACEMENT OF EXISTING BRIDGE WITH A NEW CURVED GIRDER BRIDGE ON NEW ABUTMENTS AND NECESSARY APPROACH WORK.

LENGTH OF STRUCTURE :	134.76 FEET.
LENGTH OF ROADWAY :	115.24 FEET.
LENGTH OF PROJECT :	250.00 FEET.



SCALE 1" = 40'-0"
40 0 40

RECORD PLANS

CONTRACTOR: T. BUCK – AUBURN, ME.
RESIDENT ENGINEER: CHAD GREENWOOD
CONSTRUCTION BEGAN: APRIL 23, 2012
CONSTRUCTION COMPLETE: JUNE 14, 2013
RECORD PLANS BY: CHAD GREENWOOD & N. GARBACIK

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE 11/4/13

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS (SR SR SR)
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : RDG
SURVEYED DATE : JANUARY 1996

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD 83 (92)

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 8/30/11

PROJECT MANAGER : KRISTIN HIGGINS

PROJECT NAME : SPRINGFIELD
PROJECT NUMBER : BRO 1442(26)

SHEET 1 OF 52 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

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STANDARDS LIST

E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-164	SQUARE STEEL SIGN POST	06-08-2009
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES
SD-502.00	CONCRETE DETAILS AND NOTES
SD-516.11a	BRIDGE EXPANSION JOINT, VERMONT
SD-516.11b	BRIDGE EXPANSION JOINT, VERMONT
SD-601.00	STRUCTURAL STEEL DETAILS & NOTES
SD-602.00	STRUCTURAL STEEL PLATE GIRDER AND NOTES

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2008	1100	170	59	4	60
2028	1400	200	59	5	90

20 year ESAL for flexible pavement from 2008 to 2028 : 231000

40 year ESAL for flexible pavement from 2008 to 2048 : 521000

Design Speed : 35 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: June 2010

DRAINAGE AREA : 11.2 sq. mi.
CHARACTER OF TERRAIN : Moutainous, mostly forested, rural
STREAM CHARACTERISTICS : Sinuous, somewhat incised
NATURE OF STREAMBED : Cobbles, boulders and some ledge

PEAK FLOW DATA

Q 2.33 =	600 cfs	Q 50 =	2600 cfs
Q 10 =	1320 cfs	Q 100 =	3100 cfs
Q 25 =	2000 cfs	Q 500 =	4600 cfs

DATE OF FLOOD OF RECORD: 1927
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY : @ Q25 = 14.8 fps
ICE CONDITIONS : moderate
DEBRIS: little to moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
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: 2 span steel beam
YEAR BUILT: 1934
CLEAR SPAN(NORMAL TO STREAM): 97'
VERTICAL CLEARANCE ABOVE STREAMBED: 17'
WATERWAY OF FULL OPENING: 940 sq. ft.
DISPOSITION OF STRUCTURE: Replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	545.3'	VELOCITY =	8.7 fps
Q10 =	547.3'	"	10.9 fps
Q25 =	548.7'	"	12.2 fps
Q50 =	549.7'	"	13.2 fps
Q100 =	550.5'	"	13.9 fps

LONG TERM STREAMBED CHANGES: The FIS shows a 2' - 3' deep scour hole through the bridge and downstream

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 554.8'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Springfield — DISTANCE: 600'
HIGHWAY # : TH 712 — STRUCTURE #: 82
CLEAR SPAN: 20.5' — CLEAR HEIGHT: 13.5'
YEAR BUILT: 1937 — FULL WATERWAY: 211 sq. ft.
STRUCTURE TYPE: CGMPPA

DOWNSTREAM STRUCTURE

TOWN: Springfield — DISTANCE: 2500'
HIGHWAY # : TH 726 — STRUCTURE #: 48
CLEAR SPAN: 29.5' — CLEAR HEIGHT: 8'
YEAR BUILT: 1950 — FULL WATERWAY: 236 sq. ft.
STRUCTURE TYPE: Bridge

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	3.23	1.38					
POSTING							
OPERATING	4.19	1.29	2.75	1.62	2.88	2.55	2.81
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY ..... R_{ndr}: 270.00 KIP
2. PILE TEST RESISTANCE FACTOR ..... ϕ: 0.65
3. MAXIMUM PILE TIP ELEVATION ..... 525.00 FT
4. 0

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span curved plate girder bridge

CLEAR SPAN(NORMAL TO STREAM): 89'
VERTICAL CLEARANCE ABOVE STREAMBED: 17'
WATERWAY OF FULL OPENING: 740 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	545.0'	VELOCITY=	8.8 fps
Q10 =	547.0'	"	10.9 fps
Q25 =	548.3'	"	12.2 fps
Q50 =	549.2'	"	13.2 fps
Q100 =	549.9'	"	13.9 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 554.8'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 553.8'
VERTICAL CLEARANCE: @ Q25 = 5.5'

SCOUR: 3.0' at Q500

REQUIRED CHANNEL PROTECTION: Stone Fill Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	24 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	10 cfs	1.0'
ORDINARY HIGH WATER:	260 cfs	3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	3.0 INCH
3. DESIGN SPAN	L:	128.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	N/A
5. PRESTRESSING STRAND	f_y:	N/A
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	N/A
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	N/A
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	N/A
9. CONCRETE, HIGH PERFORMANCE CLASS A LOW CEMENT	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 (WEATHERING)	f_y:	170 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	N/A
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	22 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	270.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 14X 89
22. EST. PILE LENGTH	L_p:	29 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	1.00 INCH
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

PROJECT NAME: **SPRINGFIELD**
PROJECT NUMBER: **BRO 1442(26)**

FILE NAME: **s95j282qs.xls**
PROJECT LEADER: **K. HIGGINS**
DESIGNED BY: **J. LACROIX**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 8/29/2011
DRAWN BY: **R. PELLETT**
CHECKED BY: **J. LACROIX**

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION, AND ITS LATEST REVISIONS.

2. THE BRIDGE IS DESIGNED FOR HL 93 LIVE LOAD WITH 3" OF FUTURE PAVEMENT.

3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS OTHERWISE NOTED.

4. ITEM 529.15 REMOVAL OF STRUCTURE IS FOR THE COMPLETE REMOVAL OF THE EXISTING BRIDGE, INCLUDING COMPLETE REMOVAL OF THE EXISTING SUPERSTRUCTURE, ALL PORTIONS OF THE EXISTING ABUTMENTS NOT REMOVED UNDER STRUCTURE EXCAVATION OR COFFERDAM EXCAVATION, AND REMOVAL OF THE EXISTING PIER DOWN TO ELEVATION 540.00 FT. THE COST OF A TEMPORARY CAUSEWAY TO REMOVE THIS PIER (IF REQUIRED) WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 529.15 REMOVAL OF STRUCTURE.

5. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.

6. THERE ARE WATER AND SEWER LINES IN THE PROJECT AREA. THE CONTRACTOR SHALL WORK AROUND AND PROTECT THESE LINES. THESE LINES SHALL BE EXPOSED AND IDENTIFIED PRIOR TO ANY OTHER EXCAVATION OCCURING. ANY EXCAVATION REQUIRED TO LOCATE AND EXPOSE THE EXISTING UTILITIES, OUTSIDE THE LIMITS OF EXCAVATION PAID UNDER OTHER CONTRACT ITEMS, AND ALL WORK REQUIRED TO ENSURE THAT THESE LINES ARE PROTECTED DURING CONSTRUCTION OF THIS PROJECT WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 204.22. ANY DAMAGE DONE TO EXISTING UTILITIES AS A RESULT OF THE CONTRACTOR'S OPERATIONS, AS DETERMINED BY THE ENGINEER, WILL BE REPAIRED AT THE SOLE EXPENSE OF THE CONTRACTOR.

TRAFFIC CONTROL

7. DURING CONSTRUCTION, TH 6 WILL BE CLOSED TO THROUGH TRAFFIC. THE TOWN OF SPRINGFIELD WILL SIGN THE DETOUR. THE CONTRACTOR WILL BE RESPONSIBLE FOR SIGNING REQUIRED FOR THE ROAD CLOSURE.

8. ACCESS TO ALL DRIVES MUST BE MAINTAINED DURING CONSTRUCTION. AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE RESIDENT ENGINEER FOR APPROVAL.

9. FOR ADDITIONAL CONSTRUCTION SIGNING INSTRUCTIONS SEE INCLUDED E-SERIES STANDARDS AND THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

EARTHWORK

10. THE HEIGHT OF BACKFILL BEHIND ABUTMENT #1 SHALL BE LIMITED TO THE BRIDGE SEAT ELEVATION UNTIL THE DECK HAS BEEN POURED AND THE CURING PERIOD IS UP.

11. THE HEIGHT OF BACKFILL BEHIND ABUTMENT #2 SHALL BE LIMITED TO TWO FEET BELOW THE BRIDGE SEAT ELEVATION UNTIL THE DECK HAS BEEN POURED AND THE CURING PERIOD IS UP.

12. THE STONE FILL, TYPE IV SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE STRUCTURAL STEEL HAS BEEN SET.

CONCRETE

13. NO TRAFFIC SHALL BE ALLOWED ON THE NEW DECK UNTIL THE CURE PERIOD IS UP AND THE 28 DAY DESIGN STRENGTH IS ATTAINED, AS EVIDENCED BY TEST CYLINDERS CURED UNDER FIELD CONDITIONS.

14. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL, OTHER BRIDGE SEAT AREAS SHALL BE SLOPED 4.0% TOWARDS MID-SPAN. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTHED WITH A MAGNESIUM FLOAT.

15. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP BEADS.

16. NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT ELEVATIONS UNTIL THE BEAMS/GIRDERS HAVE BEEN PROFILED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED.

17. ALL APPROACH SLAB AND SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B UNLESS OTHERWISE NOTED.

18. THE DECK SHALL BE SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT).

19. SCREED RAIL SUPPORTS SHALL NOT BE LOCATED WITHIN THE DECK CONCRETE FOR BARE CONCRETE BRIDGE DECKS.

STRUCTURAL STEEL

20. THE BOTTOM FLANGE OF THE GIRDERS SHALL CONFORM TO ASTM A709 GRADE HPS 70W AND SHALL BE PAID UNDER SPECIAL PROVISION (HIGH PERFORMANCE STEEL, CURVED PLATE GIRDER, GRADE 70W)

21. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.

22. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

23. ANY HOLES IN THE WEBS OF THE FASCIA BEAMS/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 506.19.

24. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SECTION 506.

25. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB.

26. AFTER THE SUPERSTRUCTURE HAS BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE BEAMS/GIRDERS, AS DIRECTED BY THE RESIDENT ENGINEER, FOR USE IN DETERMINING THE FINISHED GRADE.

27. THE PORTION OF THE GIRDERS WITHIN 10 FEET OF THE EXPANSION JOINT AND ANY DIAPHRAGMS LOCATED WITHIN 10 FEET OF THE EXPANSION JOINT ALONG ANY GIRDER LINE SHALL BE PAINTED.

PILES

28. THE PILES SHALL BE HP 14 x 89.

29. A MINIMUM OF THREE DYNAMIC PILE TESTS SHALL BE CONDUCTED.

30. THE PILES SHALL BE DRIVEN TO A NOMINAL RESISTANCE OF 270 KIPS. TO PREVENT DAMAGE TO THE PILES, PILE SHOES SHALL BE REQUIRED AND SHALL CONFORM TO SECTION 505.

31. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. ACTUAL IN PLACE LENGTHS MAY VARY.

SUBSTRUCTURES ON BEDROCK

32. IT IS ANTICIPATED THAT THE BEDROCK WILL BE SEVERELY SLOPED AND VARIABLE AT ABUTMENT #2.

33. FOOTINGS OR SUBFOOTINGS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.

34. UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON BEDROCK AND PRIOR TO PLACING FORMWORK, THE RESIDENT ENGINEER SHALL NOTIFY THE PROJECT MANAGER AND THE VTRANS SOILS AND FOUNDATION ENGINEER. THE SOILS AND FOUNDATION ENGINEER WILL DETERMINE IF THE BEDROCK IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE AS SHOWN ON THE PLANS. FIVE (5) WORKING DAYS FROM NOTIFICATION SHALL BE ALLOWED TO MAKE THE INSPECTION AND THE DETERMINATION FOR THE COMPETENCY OF THE BEDROCK.

35. ONCE THE ELEVATION OF COMPETENT BEDROCK HAS BEEN DETERMINED, THE CONTRACTOR SHALL PROVIDE A BEDROCK PROFILE TO THE PROJECT MANAGER TO DETERMINE WHETHER THE DESIGN BOTTOM OF FOOTING ELEVATION SHALL BE RAISED OR LOWERED AND WHETHER A SUBFOOTING SHALL BE REQUIRED. FOOTING ELEVATIONS SHALL NOT BE ADJUSTED WITHOUT APPROVAL OF THE PROJECT MANAGER. THREE (3) WORKING DAYS FROM RECEIPT OF THE BEDROCK PROFILE SHALL BE ALLOWED TO MAKE THIS DETERMINATION. NO WORK SHALL BE DONE ON THE FOOTINGS UNTIL A REPLY IS RECEIVED.

36. THE LIMITS OF SUBFOOTINGS SHALL BE 1'-0" OUTSIDE OF THE HORIZONTAL LIMITS OF THE FOOTING. THE TOP SURFACE OF ALL SUBFOOTINGS SHALL BE INTENTIONALLY ROUGHENED TO 1/4" AMPLITUDE.

37. ANY CONCRETE REQUIRED FOR SUBFOOTINGS SHALL BE PAID FOR WITH ITEM 541.30 CONCRETE, CLASS C. AN ESTIMATED QUANTITY OF ITEM 541.30 HAS BEEN INCLUDED IN THE CONTRACT.

38. ANY BEDROCK THAT NEEDS TO BE REMOVED SHALL BE PAID FOR WITH THE CORRESPONDING EXCAVATION ITEM INCLUDED IN THE CONTRACT.

39. OVERBREAKAGE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTIONS 204.09(B)(1) AND 208.11(C) WILL BE AT THE CONTRACTOR'S EXPENSE.

40. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK WHEN SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE DOWELS SHALL HAVE A 2'-0" MINIMUM EMBEDMENT IN THE BEDROCK AND SHALL EXTEND IN THE FOOTING OR SUBFOOTING A MINIMUM OF 1'-6", UNLESS NOTED OTHERWISE.

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282gennotes.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
GENERAL NOTES

PLOT DATE: 14-SEP-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 3 OF 52

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES						TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	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				**EARTHWORKS SUMMARY**
365						365		CY	COMMON EXCAVATION	203.15		365	CY	COMMON EXCAVATION (365 x 1.0)
50						50		CY	SOLID ROCK EXCAVATION	203.16		37.5	CY	SOLID ROCK EXCAVATION (50 x 0.75)
300						300		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		225	CY	UNCLASSIFIED CHANNEL EXCAVATION (300 x 0.75)
10						10		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		225	CY	STRUCTURE EXCAVATION (300 x 0.75)
			300			300		CY	STRUCTURE EXCAVATION	204.25		450	CY	COFFERDAM EXCAVATION, EARTH (450 x 1.0)
			220			220		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		112.5	CY	COFFERDAM EXCAVATION, ROCK (150 x 0.75)
			450			450		CY	COFFERDAM EXCAVATION, EARTH	208.30		1415	CY	SUBTOTAL
			150			150		CY	COFFERDAM EXCAVATION, ROCK	208.35		25	CY	ROUND
			1			1		LS	COFFERDAM (STA. 12+86)	208.40		1440	CY	TOTAL FILL AVAILABLE
105						105		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10		240	CY	FILL REQUIRED (200 x 1.2)
320						320		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		1200	CY	TOTAL WASTE
1						1		CWT	EMULSIFIED ASPHALT	404.65				
1						1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
			500			500		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
			1			1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
			670			670		LF	STEEL PILING, HP 14 X 89	505.18				
			3			3		EACH	DYNAMIC PILE LOADING TEST	505.45				
			113000			113000		LB	STRUCTURAL STEEL, CURVED PLATE GIRDER (FPQ)	506.56				
			36900			36900		LB	REINFORCING STEEL	507.15				
			200			200		LF	DRILLING AND GROUTING DOWELS	507.16				
			37200			37200		LB	EPOXY COATED REINFORCING STEEL	507.17				
			1			1		LS	SHEAR CONNECTORS (1032 - 7/8" X 7")	508.15				
			1			1		LS	STRUCTURAL PAINTING, SHOP APPLIED	513.25				
			1			1		LS	SURFACE PREPARATION, SHOP	513.40				
			70			70		GAL	WATER REPELLENT, SILANE	514.10				
			41			41		LF	BRIDGE EXPANSION JOINT, VERMONT (FPQ)	516.11				
1						1		EACH	REMOVAL OF STRUCTURE (3300 SF - EST.)	529.15				
			8			8		EACH	BEARING DEVICE ASSEMBLY, POT	531.12				
			100			100		CY	CONCRETE, CLASS C	541.30				
400						400		CY	STONE FILL, TYPE IV	613.13				
214						214		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS (FPQ)	621.215				
1						1		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
3						3		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
50						50		LF	REMOVAL AND DISPOSAL OF GUARDRAIL (FPQ)	621.80				
				1		1		LS	FIELD OFFICE, ENGINEERS	631.10				
				1		1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
				1		1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
				3000		3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
	520					520		HR	EMPLOYEE TRAINEESHIP	634.10				

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282qs.xls
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
QUANTITY SHEET - 1

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 4 OF 52

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

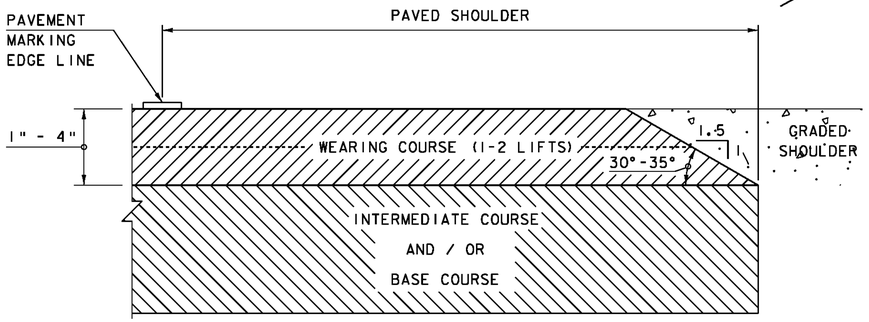
SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11	
700					700		LF	4 INCH WHITE LINE (FPQ)	646.20	
		260			260		SY	GEOTEXTILE UNDER STONE FILL	649.31	
		135			135		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	
		50			50		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61	
		5			5		LB	SEED	651.15	
		5			5		LB	SEED, WINTER RYE	651.17	
		15			15		LB	FERTILIZER	651.18	
		0.5			0.5		TON	AGRICULTURAL LIMESTONE	651.20	
		0.5			0.5		TON	HAY MULCH	651.25	
		70			70		CY	TOPSOIL	651.35	
		230			230		SY	GRUBBING MATERIAL	651.40	
		1			1		LS	EPSC PLAN	652.10	
		50			50		HR	MONITORING EPSC PLAN	652.20	
		1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	
		90			90		SY	TEMPORARY EROSION MATTING	653.20	
		10			10		CY	TEMPORARY STONE CHECK DAM, TYPE II	653.26	
		30			30		CY	VEHICLE TRACKING PAD	653.35	
		10			10		EACH	FILTER BAG	653.45	
		500			500		LF	PROJECT DEMARCATION FENCE	653.55	
0.66					0.66		SF	TRAFFIC SIGNS, TYPE A	675.20	
20					20		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	
6					6		EACH	REMOVING SIGNS	675.50	
			110		110		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)(FPQ)	900.608	
			36600		36600		LB	SPECIAL PROVISION (STRUCTURAL STEEL, CURVED PLATE GIRDER, GRADE HPS 70W)(FPQ)	900.635	
			10		10		LF	SPECIAL PROVISION (BRIDGE FIBERGLASS DRAIN SYSTEM)	900.640	
			280		280		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING)(FPQ)	900.640	
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	
145					145		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282qs.xls
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
QUANTITY SHEET - 2

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 5 OF 52



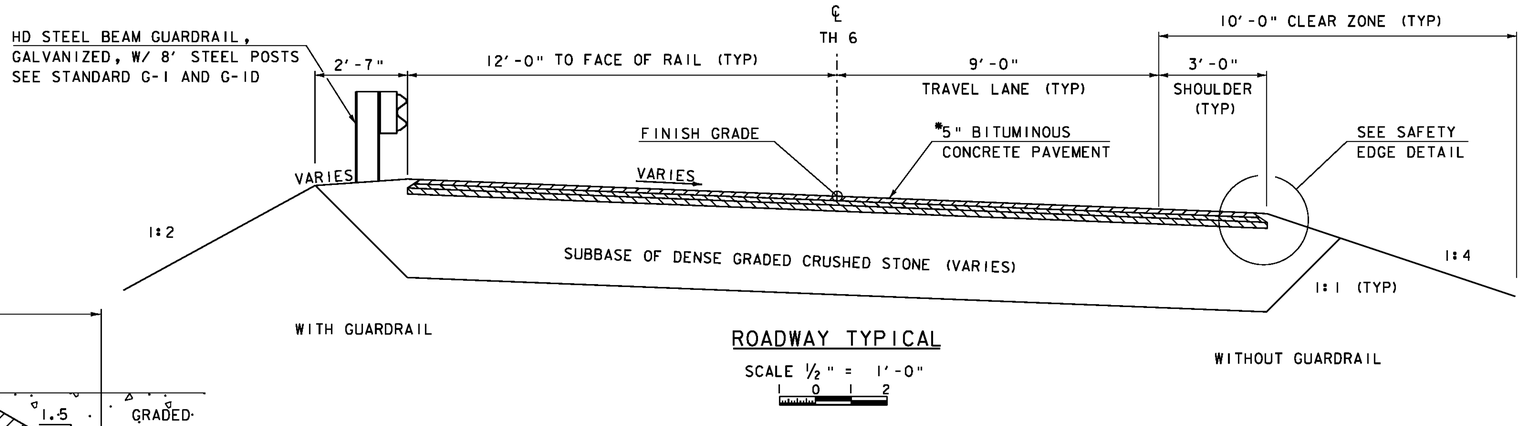
SAFETY EDGE DETAIL

NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.

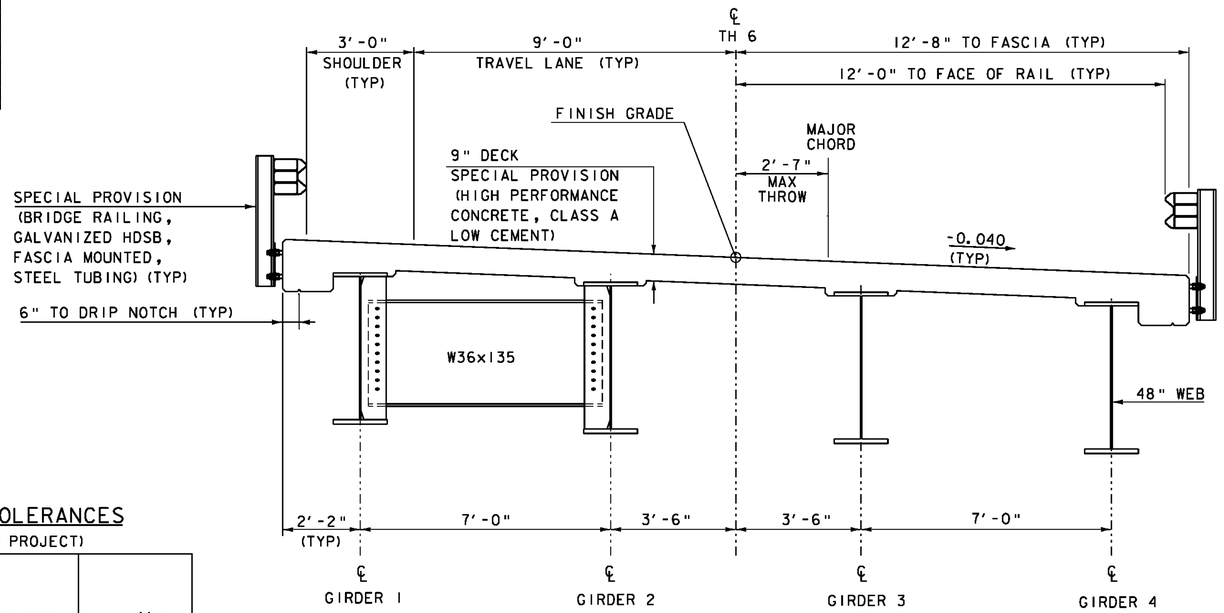
*3" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT
(1 ½" TYPE IVS OVER 1 ½" TYPE IVS)
2" BASE COURSE OF SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (TYPE IIIS)

24" DENSE GRADED CRUSHED STONE SUBBASE (VARIES)



ROADWAY TYPICAL

SCALE ½" = 1'-0"



BRIDGE TYPICAL

SCALE ½" = 1'-0"

MATERIAL TOLERANCES

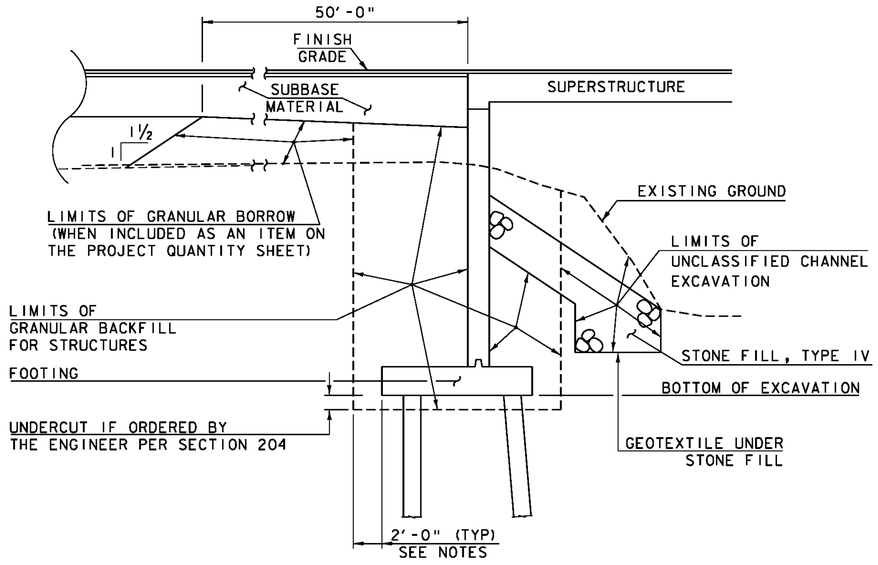
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

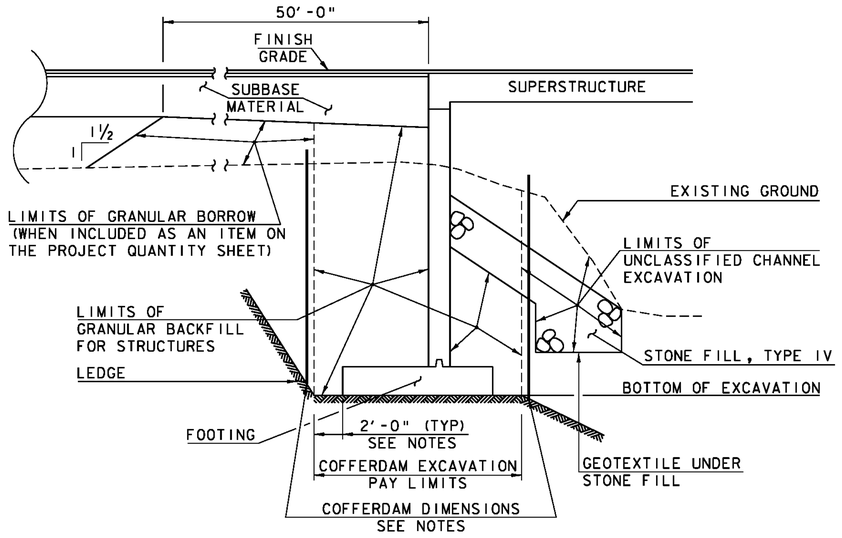
PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282typical.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
TYPICAL SECTION SHEET - 1

PLOT DATE: 30-AUG-2011
DRAWN BY: J. SALVATORI
CHECKED BY: J. LACROIX



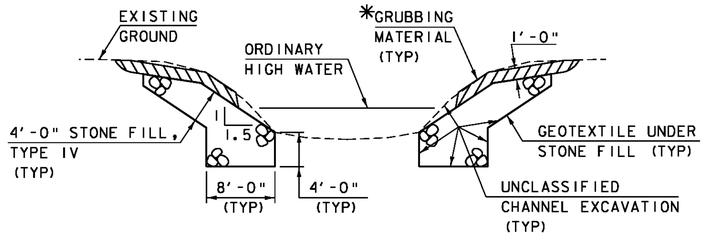
EARTHWORK SECTION (ABUTMENT #1)
(NOT TO SCALE)



COFFERDAM AND EARTHWORK SECTION (ABUTMENT #2)
(NOT TO SCALE)

STRUCTURE EXCAVATION NOTES

1. ACTUAL LIMITS OF STRUCTURE EXCAVATION TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "STRUCTURE EXCAVATION" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF EXCAVATION IS LARGER THAN THE INDICATED STRUCTURE EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE EXCAVATION BUT OUTSIDE THE STRUCTURE EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR STRUCTURE EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.



TYPICAL CHANNEL 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.

COFFERDAM NOTES

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF EITHER "COFFERDAM EXCAVATION, EARTH" OR "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s951282typical.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
TYPICAL SECTION SHEET - 2	SHEET 7 OF 52

GPS CONTROL POINTS

HVCTRL #1

VSF A

N = 304481.791
E = 1635455.953
Z = 510.225

GENERAL LOCATION WESTHERFIELD, AT THE SPRINGFIELD (HARTNESS) STATE AIRPORT, NORTHEAST OF RUNWAY END 23. OWNERSHIP, STATE OF VERMONT. CONTACT AIRPORT MANAGER PRIOR TO VISITING THE MARK. TO REACH FROM THE NORTHEAST END OF RUNWAY 23 GO NORTHEAST ON A DIRT TRACK ROAD ALONG A ROW OF OBSTRUCTION LIGHT POLES FOR ABOUT 350 FEET (106.7 M) TO THE STATION SITE ON A FLAT SANDY BLUFF ON THE SOUTHEAST SIDE OF THE ROAD. STATION MARK IS SET IN THE TOP OF AN 8-INCH X 8-INCH CONCRETE MONUEMNT FLUSH WITH GROUND SURFACE, 331.9 FT (101.2 M) NORTHEAST OF THE CENTERLINE END RUNWAY 23, 175 FT (53.3 M) SOUTHEAST OF THE FOURTH O.L. POLE SOUTH OF THE NORTH END OF POLE LINE, 100.9 FT (30.8 M) SOUTHEAST OF THE CENTERLINE OF THE DIRT TRACK ROAD, 9 FT (2.7 M) NORTHEAST OF THE TOP EDGE OF THE BLUFF, AND 4 FT (1.2 M) SOUTHWEST OF A WITNESS POST. THE STATION IS A STANDARD NOS DISK SET IN THE TOP OF AN 8 INCH CONCRETE POST THAT IS FLUSH WITH THE GROUND, AND IS STAMPED VSF A 1980.

HCTRL #2

VSF B

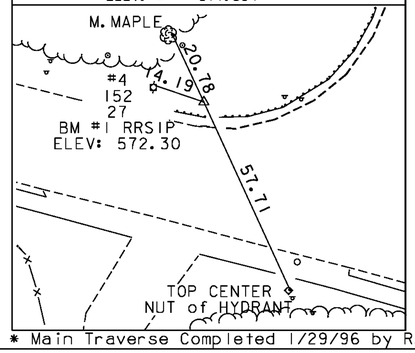
N = 304893.898
E = 1634926.348

TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAY 11, STATE HIGHWAY 143 AND STATE HIGHWAY 106 NORTH IN SPRINGFIELD, PROCEED NORTHWEST 4.8 KM (3.00 MI) ALONG STATE HIGHWAY 106 NORTH TO THE JUNCTION OF STATE HIGHWAY 106 NORTH AND STATE HIGHWAY 10. TURN RIGHT AND PROCEED NORTHEAST ON STATE HIGHWAY 106 FOR 1.3 KM (0.80 MI) TO AIRPORT ROAD ON THE RIGHT. TURN RIGHT AND PROCEED EAST 0.69 KM (0.40 MI) ON AIRPORT ROAD TO THE INTERSECTION OF AIRPORT ROAD AND KENDRICKS CORNERS ROAD. TURN RIGHT AND PROCEED SOUTH 0.24 KM (0.15 MI) ALONG KENDRICKS CORNERS ROAD TO THE AIRPORT ENTRANCE ON THE LEFT. TURN LEFT AND PROCEED SOUTHEAST 0.2 KM (0.10 MI) TO THE TERMINAL AND A GATE ON THE WEST SIDE OF THE TERMINAL. PROCEED SOUTHEAST 0.13 KM (0.10 MI) THROUGH THE GATE, ACROSS THE APRON AND TAXIWAY TO THE JUNCTION OF THE TAXIWAY AND RUNWAY 5-23. TURN LEFT AND PROCEED EAST 0.2 KM (0.10 MI) TO THE INTERSECTION OF RUNWAY 11-29 AND THE STATION IS LOCATED IN THE NORTHEAST QUADRANT OF THE RUNWAY INTERSECTION, SET IN A ROCK OUTCROP TO THE LEFT. THE STATION IS A STANDARD NOS DISK STAMPED--VSF B 1980--SET IN A ROCK OUTCROP. THE STATION IS LOCATED 75.04 M (246.19 FT) ON A MAGNETIC COMPASS BEARING OF NORTH 29 DEGREES EAST FROM THE SECOND RUNWAY EDGE LIGHT EAST ALONG RUNWAY 11-29 FROM THE INTERSECTION OF RUNWAY 11-29 AND RUNWAY 5-23, 33.10 M (108.60 FT) ON A MAGNETIC COMPASS BEARING OF SOUTH 04 DEGREES EAST FROM THE SECOND RUNWAY EDGE LIGHT NORTH ALONG RUNWAY 5-23 FROM THE INTERSECTION OF RUNWAY 5-23 AND RUNWAY 11-29, AND 29.50 M (96.78 FT) ON A MAGNETIC COMPASS BEARING OF SOUTH 41 DEGREES EAST FROM THE EAST EDGE OF RUNWAY 5-23. THIS STATION IS DESIGNATED AS THE PRIMARY AIRPORT CONTROL STATION. THE MARK IS 1.1 M NORTH OF A WOODEN WITNESS POST.

TRAVERSE TIES

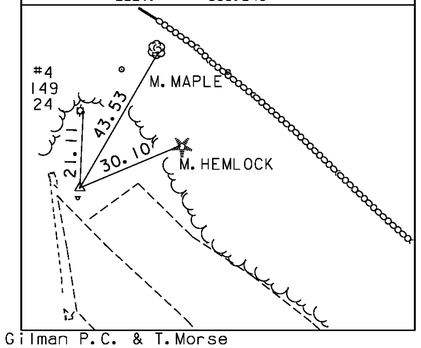
HVCTRL #7

NORTH =	304053.200
EAST =	1630741.691
ELEV. =	571.334



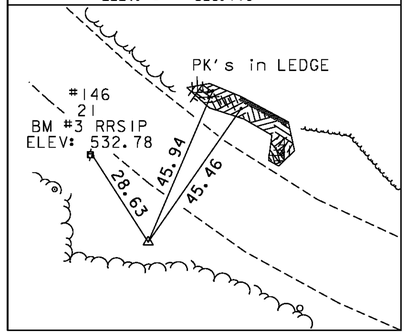
HVCTRL #8

NORTH =	303841.029
EAST =	1631148.595
ELEV. =	555.248



HVCTRL #9

NORTH =	303457.179
EAST =	1631461.827
ELEV. =	529.710



NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

* Main Traverse Completed 1/29/96 by R.Gilman P.C. & T.Morse

ALIGNMENT COORDINATES

Alignment Current as of April 7, 2010
Horizontal Alignment Name: Mainline
Description: TH 6

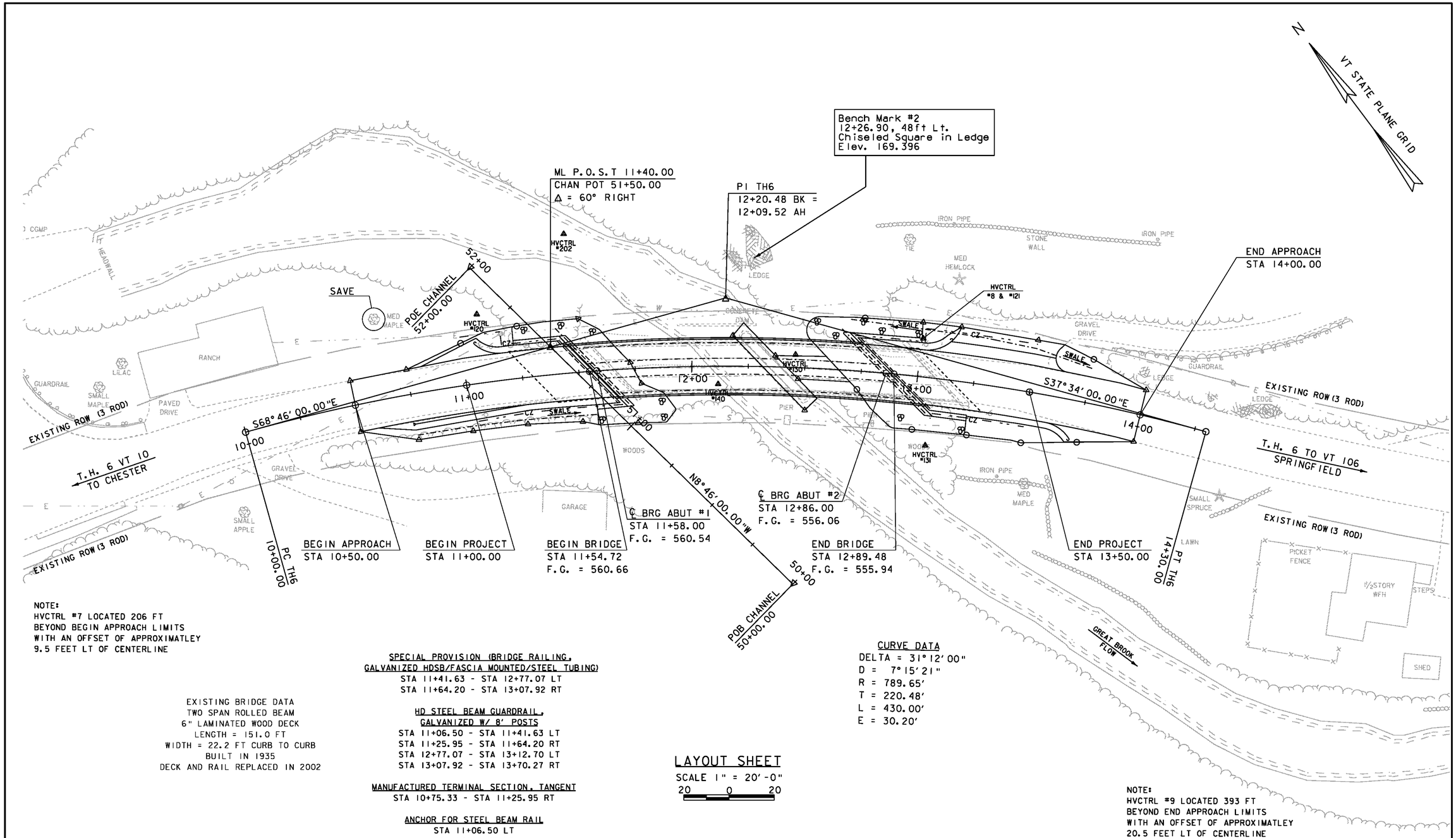
	STATION	NORTHING	EASTING
POB	9+75.00	303996.6963	1630860.6405
PC	10+00.00	303987.6404	1630883.9478
PI	12+20.48	303907.7916	1631089.4556
Radius:		789.65	
Delta:		31°12'00.000"	Right
Degree of Curvature(Arc):		7°15'20.930"	
Length:		430.00	
Tangent:		220.48	
Chord:		424.71	
Middle Ordinate:		29.09	
External:		30.20	
PT	14+30.00	303733.0332	1631223.8758
POE	14+40.00	303725.1067	1631229.9727

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (92)
ADJUSTMENT Compass

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: x95j282ti.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
TIE SHEET

PLOT DATE: 30-AUG-2011
DRAWN BY: R. BULLOCK
CHECKED BY: J. SALVATORI
SHEET 8 OF 52



NOTE:
HVCTRL #7 LOCATED 206 FT
BEYOND BEGIN APPROACH LIMITS
WITH AN OFFSET OF APPROXIMATLEY
9.5 FEET LT OF CENTERLINE

EXISTING BRIDGE DATA
TWO SPAN ROLLED BEAM
6" LAMINATED WOOD DECK
LENGTH = 151.0 FT
WIDTH = 22.2 FT CURB TO CURB
BUILT IN 1935
DECK AND RAIL REPLACED IN 2002

SPECIAL PROVISION (BRIDGE RAILING,
GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING)
STA 11+41.63 - STA 12+77.07 LT
STA 11+64.20 - STA 13+07.92 RT

HD STEEL BEAM GUARDRAIL,
GALVANIZED W/ 8' POSTS
STA 11+06.50 - STA 11+41.63 LT
STA 11+25.95 - STA 11+64.20 RT
STA 12+77.07 - STA 13+12.70 LT
STA 13+07.92 - STA 13+70.27 RT

MANUFACTURED TERMINAL SECTION, TANGENT
STA 10+75.33 - STA 11+25.95 RT

ANCHOR FOR STEEL BEAM RAIL
STA 11+06.50 LT
STA 13+12.70 LT
STA 13+70.27 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 11+16.29 - STA 11+52.84 LT
STA 11+67.55 - STA 11+72.28 RT
STA 13+23.88 - STA 13+29.17 RT

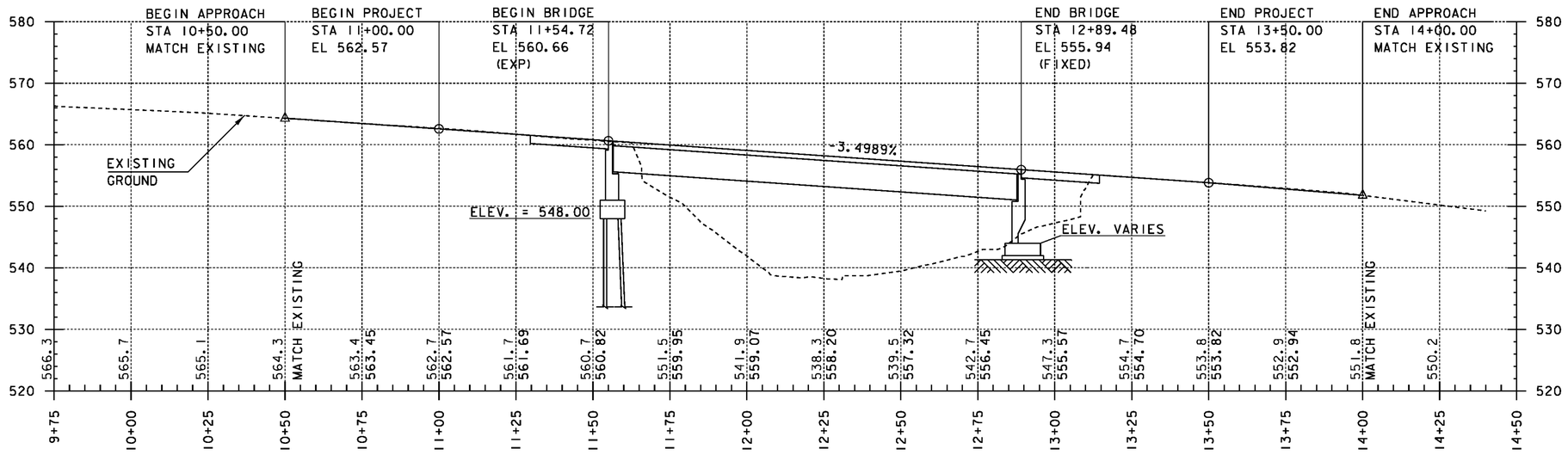
CONSTRUCTION 5'-0" PAVED APRON
STA 13+05.50 - STA 13+58.40 LT

LAYOUT SHEET
SCALE 1" = 20'-0"
20 0 20

CURVE DATA
DELTA = 31° 12' 00"
D = 7° 15' 21"
R = 789.65'
T = 220.48'
L = 430.00'
E = 30.20'

NOTE:
HVCTRL #9 LOCATED 393 FT
BEYOND END APPROACH LIMITS
WITH AN OFFSET OF APPROXIMATLEY
20.5 FEET LT OF CENTERLINE

PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s9512 82bdr.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
LAYOUT SHEET	SHEET 9 OF 52

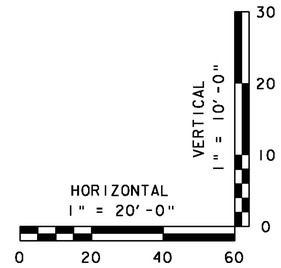


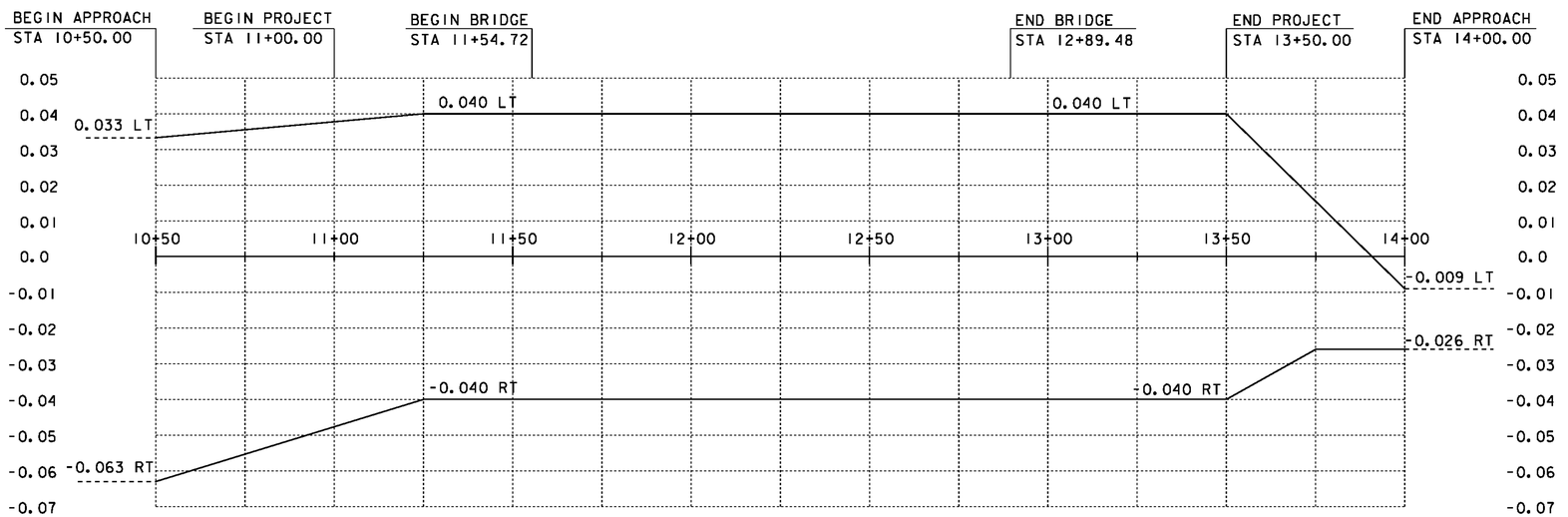
MAINLINE PROFILE

HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 10'-0"

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

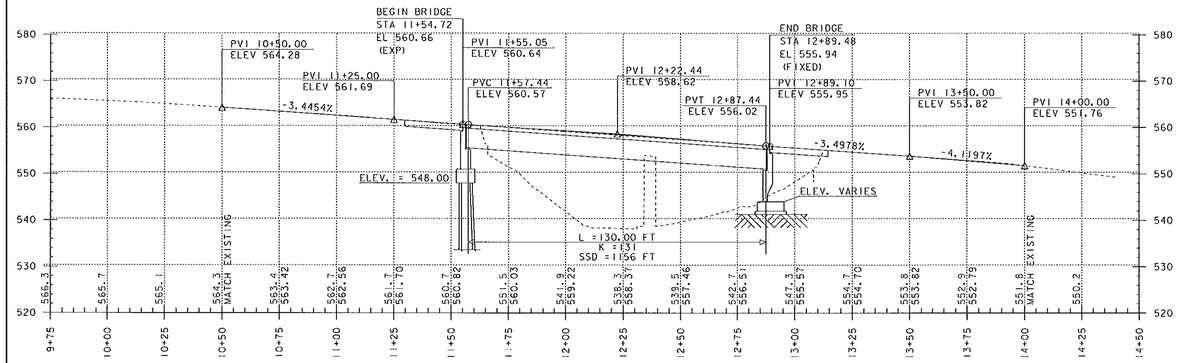




BANKING DIAGRAM

HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s951282pro.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
MAINLINE PROFILE	SHEET 10 OF 52

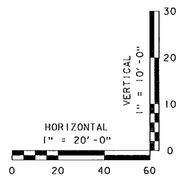


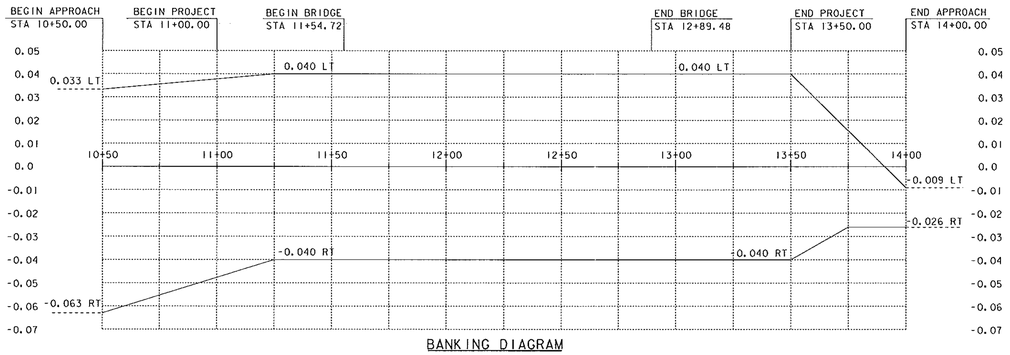
MAINLINE PROFILE ⚠

HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 10'-0"

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.





BANKING DIAGRAM

HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

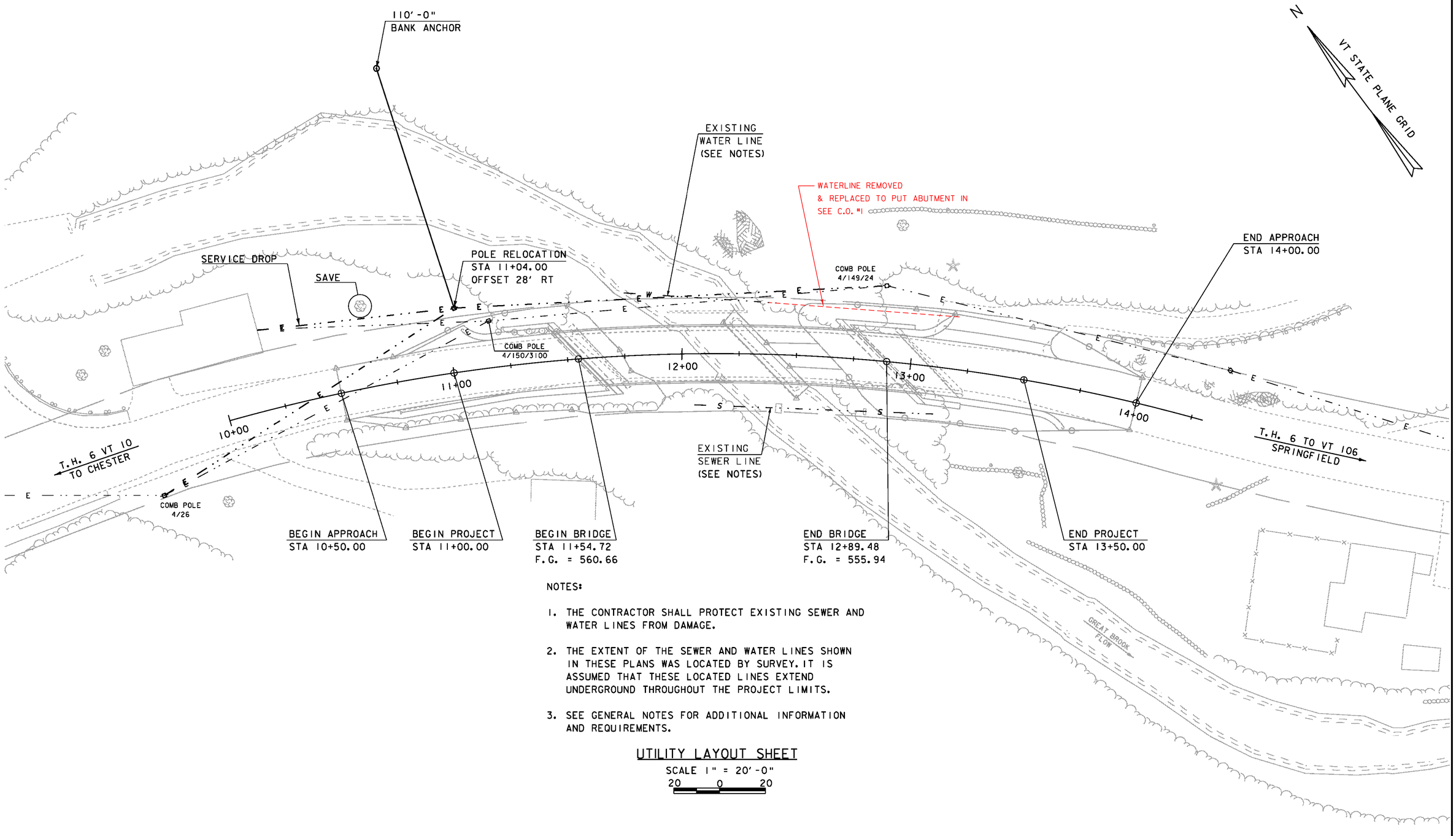
⚠ REVISED 9-18-2012

- INCREASE ELEVATION 2" AT MID SPAN WITH A VERTICAL CURVE MATCHING THE EXISTING TANGENTS BETWEEN BEGIN / END BRIDGE.

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282pro.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE PROFILE

PLOT DATE: 18-SEP-2012
DRAWN BY: J. SALVATORI
CHECKED BY: J. LACROIX
SHEET 1 OF 1



NOTES:

1. THE CONTRACTOR SHALL PROTECT EXISTING SEWER AND WATER LINES FROM DAMAGE.

2. THE EXTENT OF THE SEWER AND WATER LINES SHOWN IN THESE PLANS WAS LOCATED BY SURVEY. IT IS ASSUMED THAT THESE LOCATED LINES EXTEND UNDERGROUND THROUGHOUT THE PROJECT LIMITS.

3. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

UTILITY LAYOUT SHEET

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282util.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
UTILITY LAYOUT SHEET	SHEET 11 OF 52

NOTE:
ADJUST NEW EDGE LINE TO MATCH EXISTING EDGE LINE AT BEGIN/END APPROACH

SIGN LEGEND

N = NEW
R = REMOVE

REMOVING SIGNS
STA. 11+06.66 RT (2)
STA. 11+12.83 LT
STA. 13+02.25 LT (2)
STA. 13+34.22 RT

4" WHITE LINE
STA. 10+50.00 - STA. 14+00.00 RT
STA. 10+50.00 - STA. 14+00.00 LT

TRAFFIC SIGNS, TYPE A
STA 11+40.00 RT (VD-701)
STA 13+02.25 LT (VD-701)

11+12.83 LT
WEIGHT LIMIT 5 TONS R
R

13+02.25 LT
R
WEIGHT LIMIT 5 TONS R
R

STA 13+02.25 LT
BRIDGE 57 TH 6 N
N

N

VT STATE PLANE GRID

END APPROACH
STA 14+00.00

SAVE

COMB POLE 4/150/3100

COMB POLE 4/149/24

COMB POLE 148/23

10+00
11+00
12+00
13+00
14+00

T.H. 6 VT 10 TO CHESTER

T.H. 6 TO VT 106 SPRINGFIELD

COMB POLE 4/26

BRIDGE 57 TH 6 N
N
STA 11+40.00 RT

BEGIN APPROACH
STA 10+50.00

BEGIN PROJECT
STA 11+00.00

BEGIN BRIDGE
STA 11+54.72
F.G. = 560.66

R
WEIGHT LIMIT 5 TONS R
R
11+06.66 RT

END BRIDGE
STA 12+89.48
F.G. = 555.94

END PROJECT
STA 13+50.00

GREAT BROOK FLOW

WEIGHT LIMIT 5 TONS R
R
13+34.22 RT

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	NEW SIGN "A"	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	NEW SIGN POSTS SQUARE STEEL (in) 2.0 lb/ft 2.16	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
11+40.00 RT.	BRIDGE 57 TH 6	6	8	0.33			1	10			X		VD-701		E-134
13+02.25 LT.	BRIDGE 57 TH 6	6	8	0.33			1	10			X		VD-701		E-134
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."								FT 20	FT	FT		EA			
	TOTALS			SF 0.66				FT 20					SHS = STANDARD HIGHWAY SIGNS (MUTCD)		

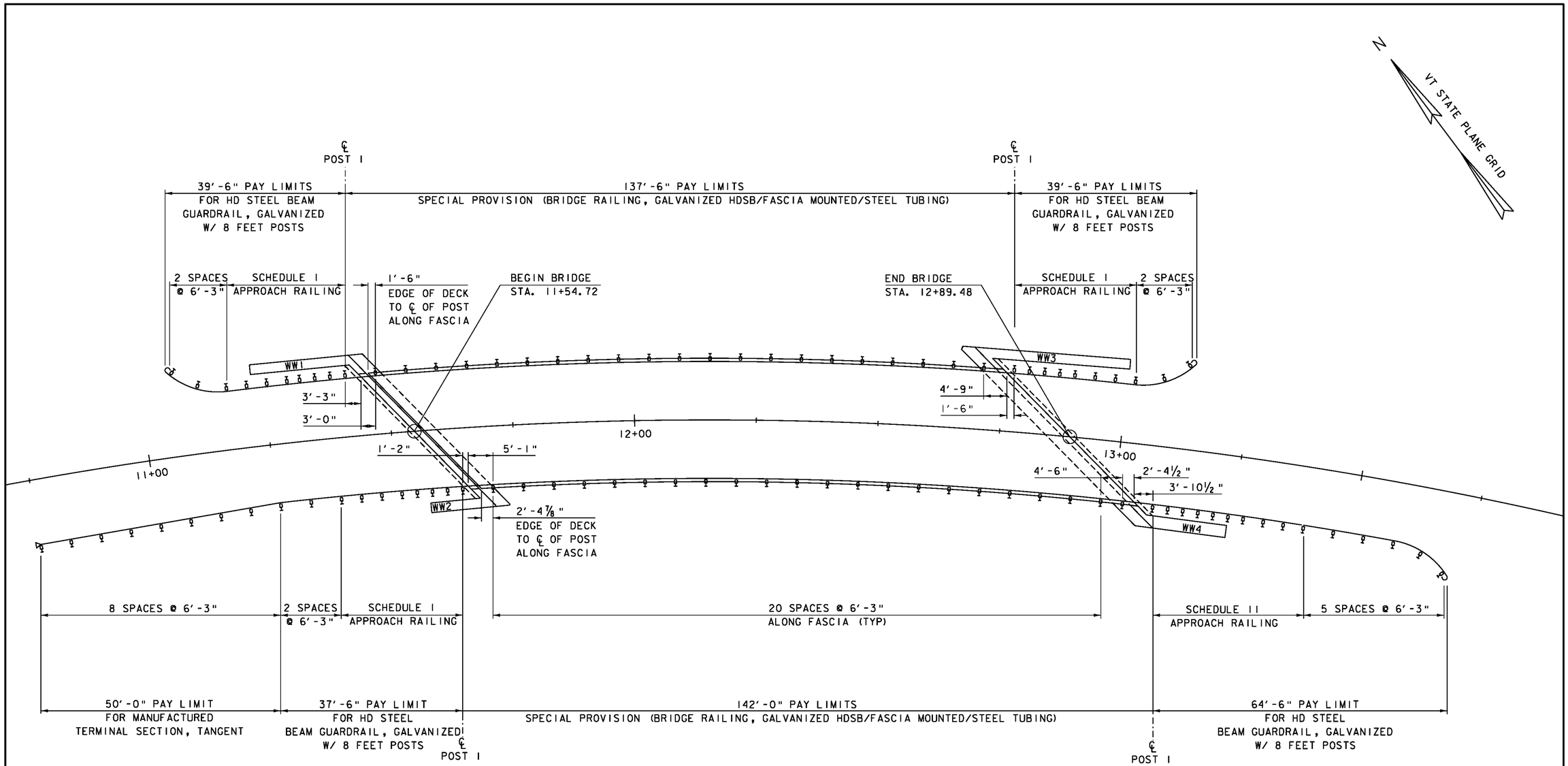
SIGN LAYOUT SHEET
SCALE 1" = 20'-0"
20 0 20

NOTE:
SIGNS SHALL CONFORM TO STANDARD E-134 EXCEPT POSTS SHALL BE SQUARE STEEL WEIGHING 1.88 LBS/FT

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282sign.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
SIGNING AND MARKINGS SHEET

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 12 OF 52



RAIL LAYOUT

SCALE 1" = 10'-0"

10 0 10

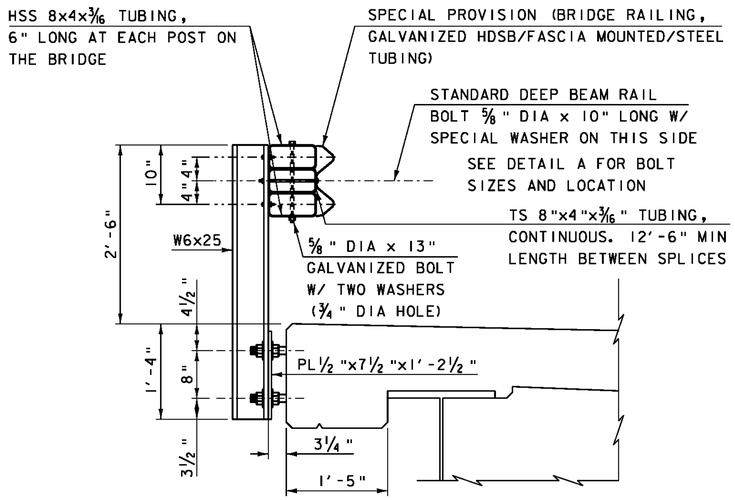
SCHEDULE I		
POST NO.	SPACING	PAYMENT FACTOR
1	3'-1½"	1.4 X 12'-6"
2	3'-1½"	
3	3'-1½"	
4	3'-1½"	
5	4'-2"	1.2 X 12'-6"
6	4'-2"	
7	4'-2"	
8	6'-3" (TYP.)	1.0 (TYP.)
9		

SCHEDULE II		
POST NO.	SPACING	PAYMENT FACTOR
1	3'-1½"	1.4 X 18'-9"
2	3'-1½"	
3	3'-1½"	
4	3'-1½"	
5	3'-1½"	
6	3'-1½"	
7	4'-2"	1.2 X 12'-6"
8	4'-2"	
9	4'-2"	
10	6'-3" (TYP)	1.0 (TYP.)
11		

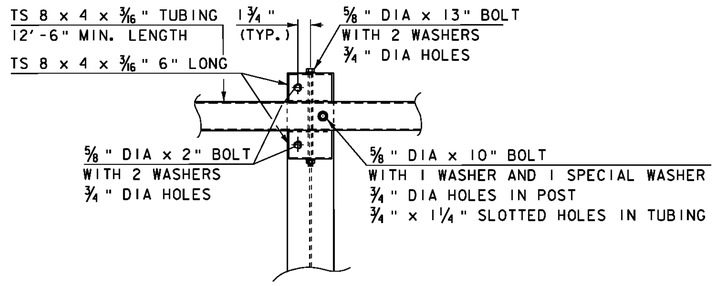
NOTES:

1. ALL DIMENSIONS ARE ALONG FACE OF RAIL UNLESS OTHERWISE NOTED.

PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s95j282rail.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
BRIDGE AND APPROACH RAILING SHEET	SHEET 13 OF 52



POST DETAIL
(NOT TO SCALE)



DETAIL A
STEEL BEAM GUARD RAIL NOT SHOWN
(NOT TO SCALE)

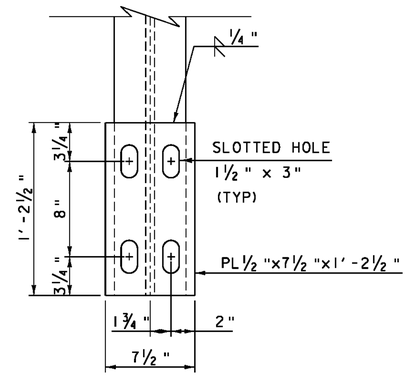
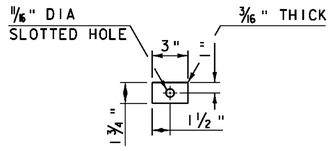
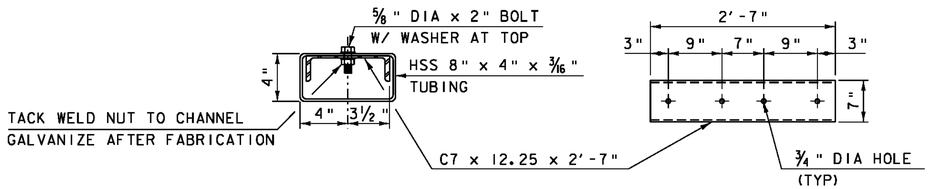


PLATE DETAIL - FRONT VIEW
(NOT TO SCALE)



SPECIAL WASHER DETAIL
NOT TO SCALE

ANCHOR DETAIL
(NOT TO SCALE)



SPLICE BAR DETAILS
NOT TO SCALE

NOTES:

1. SEE STANDARD DRAWING G-1 AND G1-d FOR ADDITIONAL DETAILS CONCERNING GUARDRAIL.
2. ALL APPROACH RAIL SHALL BE HAEVY DUTY STEEL BEAM GUARDRAIL.
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. A RAILING JOINT SPLICE SHALL BE PROVIDED AT EACH SUPERSTRUCTURE EXPANSION JOINT.
5. SPLICES FOR HEAVY DUTY STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
6. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE LOCATED AT EVERY FIFTH POST. PAYMENT SHALL BE INCIDENTAL TO THE APPLICABLE GUARDRAIL ITEM.
7. ALL FIELD CUT OR DRILLED AREAS SHALL BE COATED WITH ZINC RICH PAINT.
8. THE STEEL TUBING SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
9. THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING ON THIS STANDARD.

PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s95j282rail.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
BRIDGE RAILING DETAIL SHEET	SHEET 14 OF 52

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.Q.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 5/8"
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
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR

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

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).

SILT - 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.

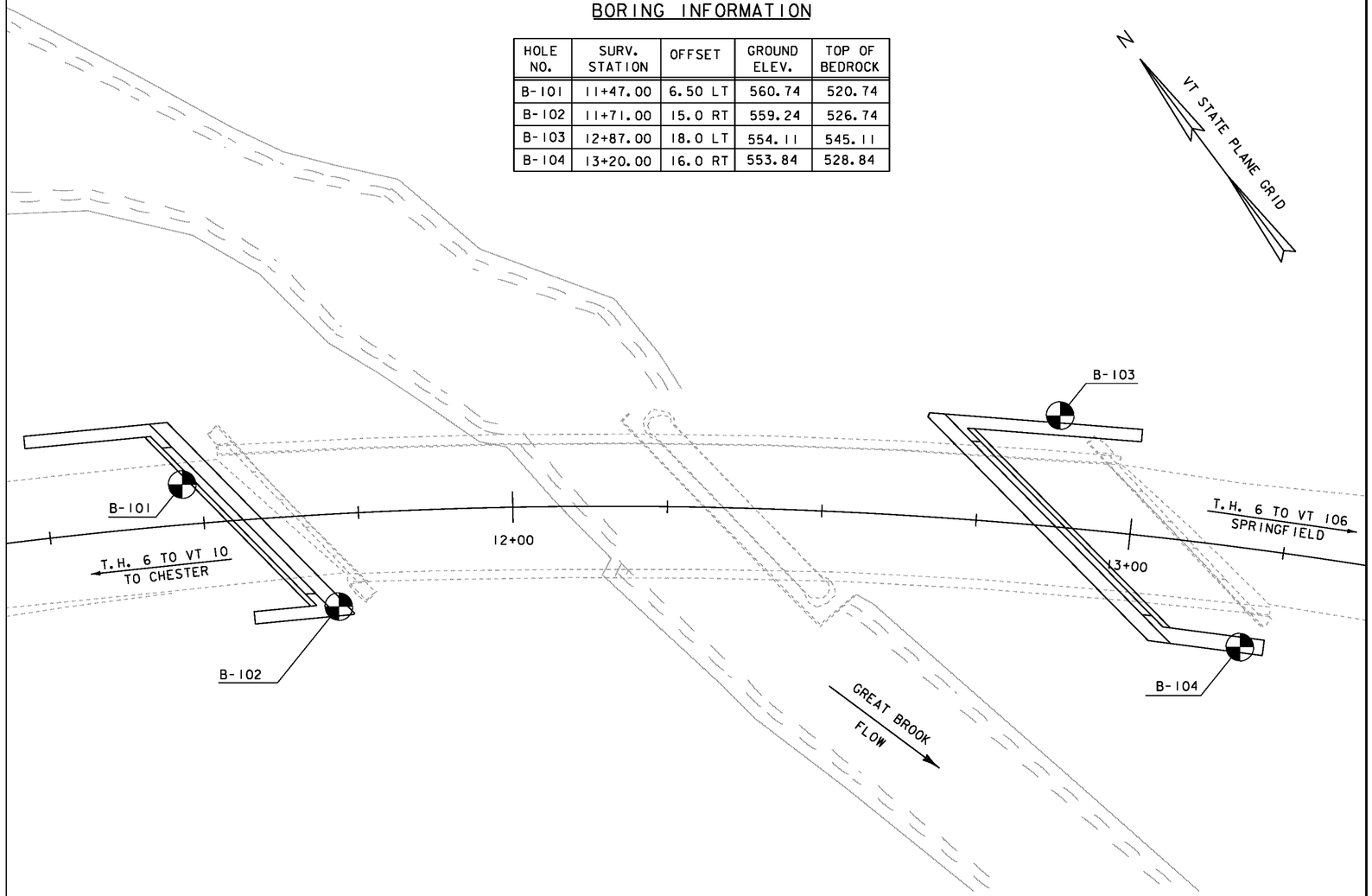
FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

BORING INFORMATION

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	TOP OF BEDROCK
B-101	11+47.00	6.50 LT	560.74	520.74
B-102	11+71.00	15.0 RT	559.24	526.74
B-103	12+87.00	18.0 LT	554.11	545.11
B-104	13+20.00	16.0 RT	553.84	528.84



BORING LAYOUT

SCALE 1" = 10'-0"

10 0 10

GENERAL NOTES

1. The subsurface explorations shown herein were made between 01/02/10 and 02/23/10 by the Agency.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
BORING INFORMATION SHEET

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 15 OF 52

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-101
SHEET 1 of 1
DATE STARTED: 2/02/10
DATE COMPLETED: 2/23/10

PROJECT NAME: SPRINGFIELD
SITE NAME: TH-6
STATION: 11+47
OFFSET: -6.50
VTSPG NAD83: N 303927.40 ft E 1631019.28 ft

PROJECT NUMBER: BRO 1442(26)
SITE NUMBER: BR-57
GROUND ELEVATION: 560.74 ft
GROUNDWATER DEPTH: 16.7 ft 2/04/10
PROJECT PIN NUMBER: 95J282

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		Asphalt Pavement, 0.0 ft – 0.2 ft					
		Concrete, 0.2 ft – 1.5 ft					
		Field Note:, BXDC, Cobbles, Cleaned out casing.					
		A-1-b, SaGr, brn, MTW, Rec. = 0.6 ft	8	11.1	54.0	34.3	11.7
10		Field Note:, BXDC, Cobbles					
BOTTOM OF FOOTING ELEV. 548.00							
		Field Note:, No Recovery	11				
20		A-3, Sa, brn, Wet, Rec. = 1.2 ft	13	25.9	0.2	89.7	10.1
		A-1-b, GrSa, brn, Wet, Rec. = 0.8 ft	49	12.3	41.5	45.2	13.3
30		Field Note:, BXDC, Cobbles, Cleaned out casing.					
		Visual Classification, Broken Rock, Rec. = 0.2 ft, Advanced casing to 40.0 ft.	43				
ESTIMATED PILE TIP ELEV. 520.00					Top of Bedrock @ 40.0 ft		
40		Gray, Fine- to medium- grained biotitic schistose Gneiss, with closely spaced stained jointing. Fair to Good Rock, Very hard, Fresh Weathering, BXMDC, 40.0 ft – 41.0 ft, Rec. = 1.0 ft	1 / 2	100 / 98	0 / 82	30 / 30	12 / 6 7 7 7 7
		Gray, Fine- to medium- grained biotitic Gneiss, with closely spaced stained jointing. Good Rock, Very hard, Fresh Weathering, BXMDC, 41.0 ft – 46.0 ft, Rec. = 4.9 ft	3	83	63	30	7 7 7 7 7
50		Gray, Fine- to medium- grained biotitic Gneiss, with 0.6 ft quartz vein at bottom of run. Closely spaced stained jointing. Good Rock, Very hard, Fresh Weathering, BXMDC, 46.0 ft – 50.0 ft, Rec. = 3.3 ft					
		Hole stopped @ 50.0 ft					

LOG OF BORING SPRINGFIELD BRO 1442(26)SPJ VT AOT.GDT 4/5/10

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-102
SHEET 1 of 1
DATE STARTED: 1/27/10
DATE COMPLETED: 2/16/10

PROJECT NAME: SPRINGFIELD
SITE NAME: TH-6
STATION: 11+71
OFFSET: 15.00
VTSPG NAD83: N 303897.04 ft E 1631026.52 ft

PROJECT NUMBER: BRO 1442(26)
SITE NUMBER: BR-57
GROUND ELEVATION: 559.24 ft
GROUNDWATER DEPTH: 15.1 ft 1/28/10
PROJECT PIN NUMBER: 95J282

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #10 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / ROD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-2-4, GrSa, brn, Moist, Rec. = 1.0 ft	4	15.4	21.0	65.7	13.3
5		A-1-a, Gr, brn, Wet, Rec. = 1.0 ft, Broken Rock was within sample.	33	9.8	75.2	19.6	5.2
10		Field Note:, NXDC, Cobbles, Cleaned out casing.					
BOTTOM OF FOOTING ELEV. 548.00							
15		A-1-b, SaGr, brn, Wet, Rec. = 0.4 ft, Broken Rock was within sample.	21	15.7	44.4	44.1	11.5
20		Field Note:, NXDC, Cobbles					
25		Visual Classification, Broken Rock with sand, brn, Wet, Rec. = 0.4 ft	R				
		Possible Boulders, BXMDC, 27.5 ft – 32.5 ft, Rec. = 3.8 ft	1	76			5 7 7 8 7
ESTIMATED PILE TIP ELEV. 526.00					Top of Bedrock @ 32.5 ft		
30		Gray, Fine- to medium- grained biotitic schistose Gneiss, Good Rock, Very hard, Fresh Weathering, BXMDC, 32.5 ft – 37.5 ft, Rec. = 2.2 ft	2	44	30	80	6 7 7 8 7
35		Gray, Fine- to medium- grained biotitic schistose Gneiss, with close to very closely spaced stained jointing. Good Rock, Very hard, Fresh Weathering, BXMDC, 37.5 ft – 40.0 ft, Rec. = 2.1 ft	3	84	56	20	7 7 6
40		Hole stopped @ 40.0 ft					
		DRILLER'S NOTES: 1. Broke the core bit at 40.0 ft.					
45							

LOG OF BORING SPRINGFIELD BRO 1442(26)SPJ VT AOT.GDT 4/5/10

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
BORING LOG SHEET - 1

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-103
SHEET 1 of 1
DATE STARTED: 1/02/10
DATE COMPLETED: 1/22/10

PROJECT NAME: SPRINGFIELD
SITE NAME: TH-6
STATION: 12+87
OFFSET: -18.00
VTSPG NAD83: N 303851.06 ft E 1631139.07 ft

PROJECT NUMBER: BRO 1442(26)
SITE NUMBER: BR-57
GROUND ELEVATION: 554.11 ft
GROUNDWATER DEPTH: 12.4 ft 1/22/10
PROJECT PIN NUMBER: 95J282

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

TOP OF FOOTING
ELEV. 546.00

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
0		A-1-b, GrSa, brn, Moist, Rec. = 0.5 ft	7	14.8	32.8	54.5	12.7
5		A-2-4, SiSa, brn, MTW, Rec. = 0.7 ft	10	24.9	5.4	73.0	21.6
		Top of Bedrock @ 9.0 ft					
10		Gray, Fine- to medium- grained biotitic schistose Gneiss, with close to very closely spaced stained jointing. Fair to Good Rock, Very hard, Fresh Weathering, BXDC, 9.0 ft - 10.0 ft, Rec. = 0.7 ft	1	70	0	20	6
			2	60	0	40	6 7 5
		Gray, Fine- to medium- grained biotitic schistose Gneiss, with close to very closely spaced stained jointing. Fair to Good Rock, Very hard, Fresh Weathering, BXWDC, 10.0 ft - 13.0 ft, Rec. = 1.8 ft	3	52	18	60	6 6 6 7 6
15		Gray, Fine- to medium- grained biotitic schistose Gneiss, with close to very closely spaced stained jointing. Fair to Good Rock, Very hard, Fresh Weathering, BXWDC, 13.0 ft - 18.0 ft, Rec. = 2.6 ft					
20		Gray, Fine- to medium- grained biotitic schistose Gneiss, with close to very closely spaced stained jointing. Good Rock, Very hard, Fresh Weathering, BXMDC, 18.0 ft - 23.0 ft, Rec. = 4.3 ft	4	86	40	20	9 5 10 7 10
		Hole stopped @ 23.0 ft					
25							
30							
35							
40							
45							

LOG OF BORING SPRINGFIELD BRO 1442(26)SJ282 VT ADT.GDT 4/5/10

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-104
SHEET 1 of 1
DATE STARTED: 2/17/10
DATE COMPLETED: 2/19/10

PROJECT NAME: SPRINGFIELD
SITE NAME: TH-6
STATION: 13+20
OFFSET: 16.00
VTSPG NAD83: N 303803.49 ft E 1631140.29 ft

PROJECT NUMBER: BRO 1442(26)
SITE NUMBER: BR-57
GROUND ELEVATION: 553.84 ft
GROUNDWATER DEPTH: 15.5 ft 2/19/10
PROJECT PIN NUMBER: 95J282

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #10 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

TOP OF FOOTING
ELEV. 535.00

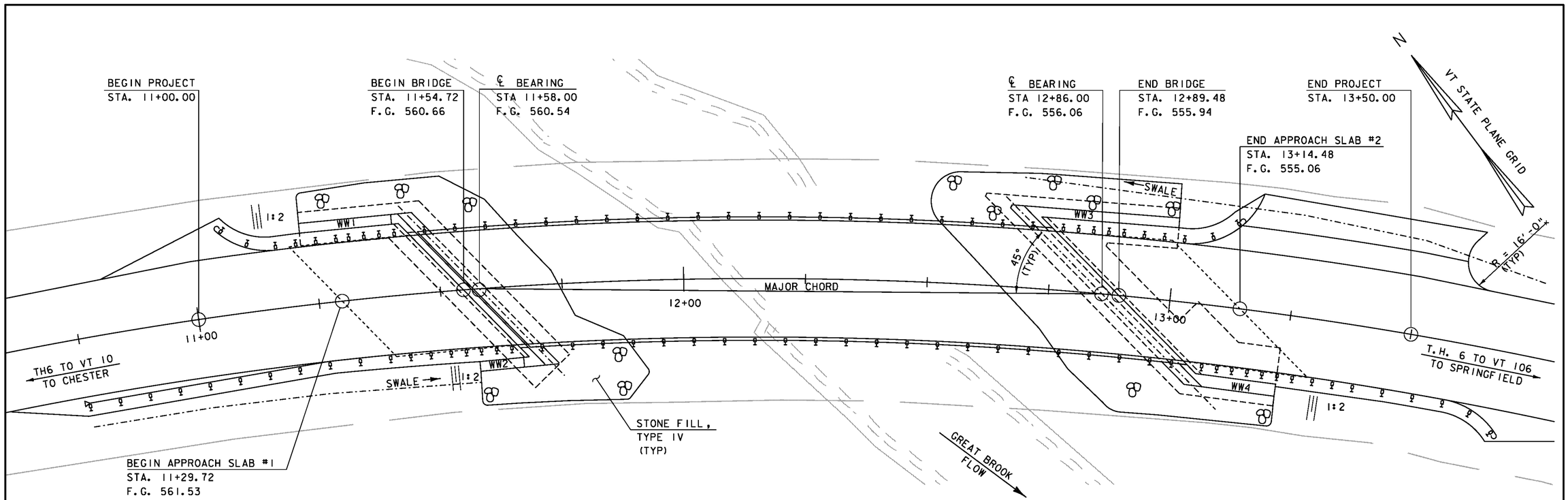
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
0		A-2-4, GrSa, brn, Moist, Rec. = 1.4 ft	22	18.9	23.0	59.3	17.7
5		Field Note:, NXDC, Boulders					
10		Field Note:, NXDC, Boulders					
15		A-2-4, GrSiSa, brn, MTW, Rec. = 1.1 ft	25	17.9	20.3	55.4	24.3
		Field Note:, NXDC, Cobbles					
20							
		Top of Bedrock @ 25.0 ft					
25		Gray, Fine- to medium- grained biotitic schistose Gneiss, and Biotitic Gneiss with close to very closely spaced stained jointing. Good Rock, Very hard, Fresh Weathering, BXMDC, 25.0 ft - 30.0 ft, Rec. = 4.2 ft	1	84	38	30	5 5 6 5 5
30		Gray, Fine- to medium- grained biotitic Gneiss, with closely spaced stained jointing. Good Rock, Very hard, Fresh Weathering, BXWDC, 30.0 ft - 35.0 ft, Rec. = 5.0 ft	2	100	68	30	6 4 4 5 5
35		Hole stopped @ 35.0 ft					
40							
45							

LOG OF BORING SPRINGFIELD BRO 1442(26)SJ282 VT ADT.GDT 4/5/10

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

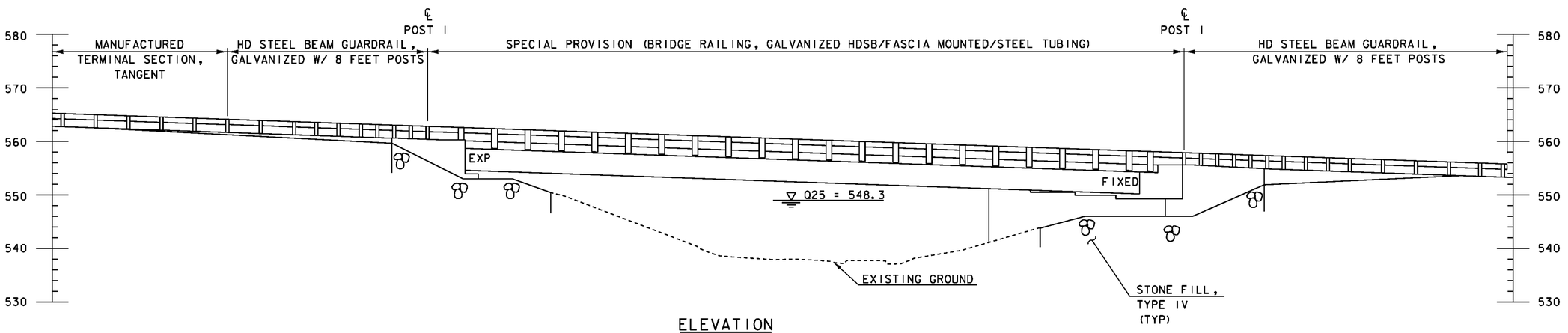
FILE NAME: s95j282bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
BORING LOG SHEET - 2

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 17 OF 52



PLAN

SCALE 1" = 10'-0"

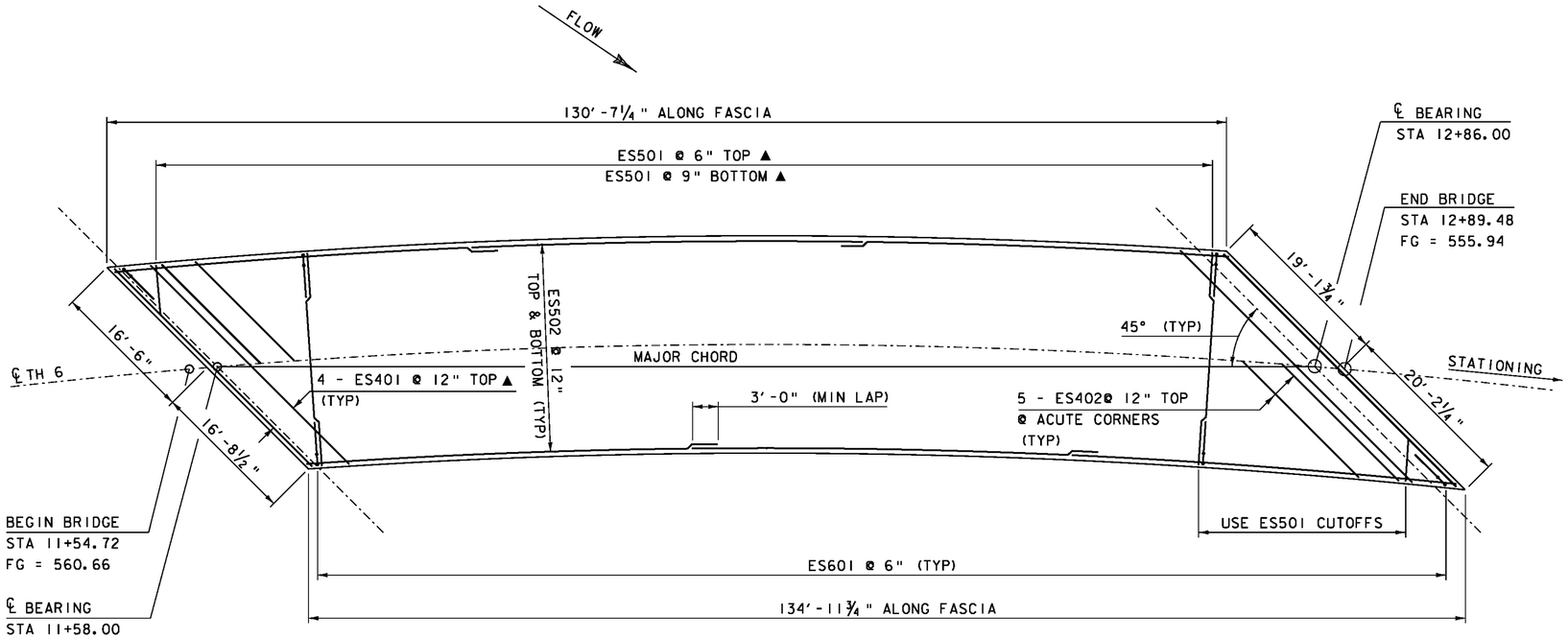


ELEVATION

SCALE 1" = 10'-0"

NOTE:
SEE BRIDGE AND APPROACH RAILING LAYOUT FOR RAIL DETAILS

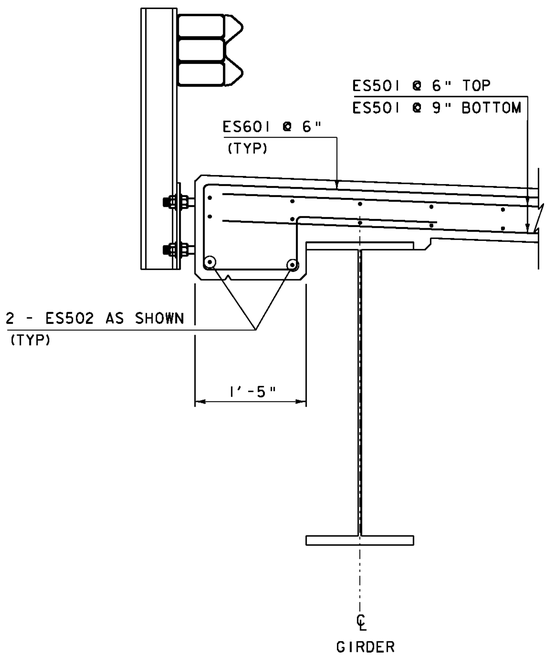
PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282pe.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. LACROIX	CHECKED BY: J. SALVATORI
PLAN AND ELEVATION SHEET	SHEET 18 OF 52



DECK REINFORCING

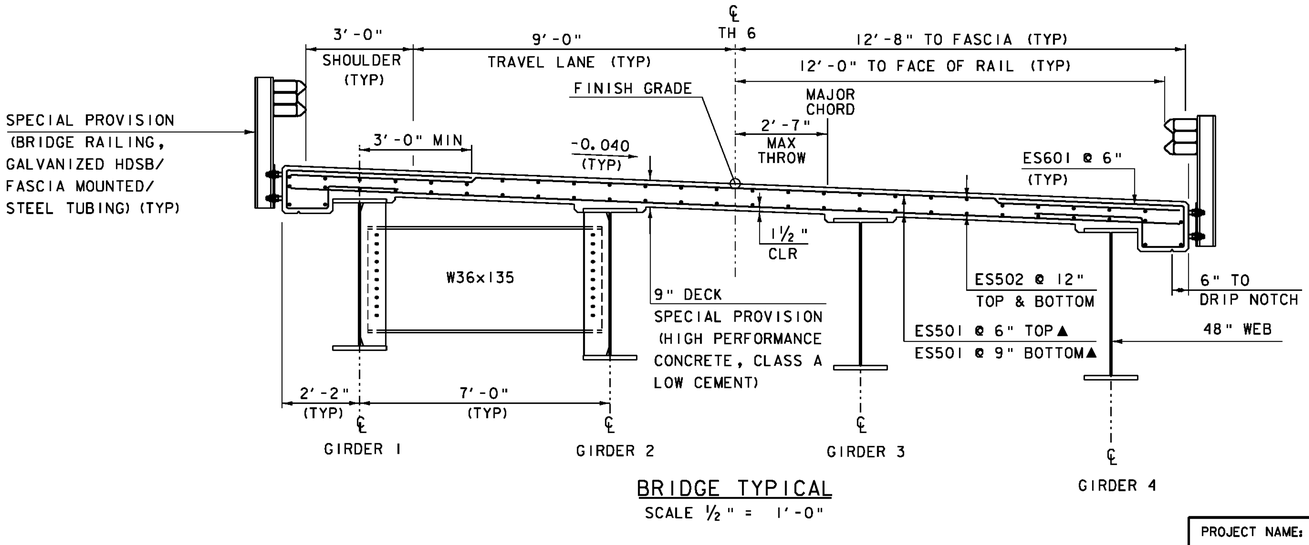
SCALE ⅛" = 1'-0"

NOTE:
BARS LOCATED IN ACUTE CORNERS SHALL BE THE TOP MOST MAT OF STEEL WITH A MINIMUM OF 2½" CLEAR.



OVER HANG DETAIL

SCALE 1" = 1'-0"

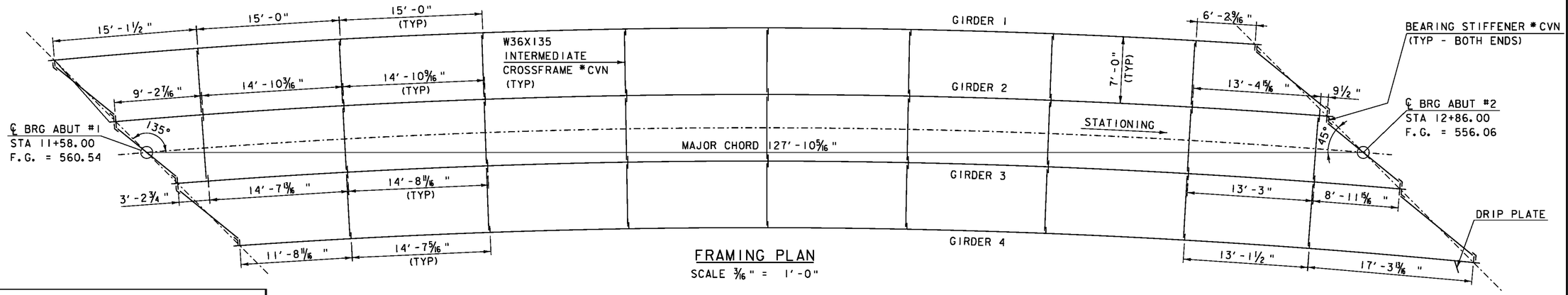


BRIDGE TYPICAL

SCALE ½" = 1'-0"

NOTE:
E = EPOXY COATED REINFORCING
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

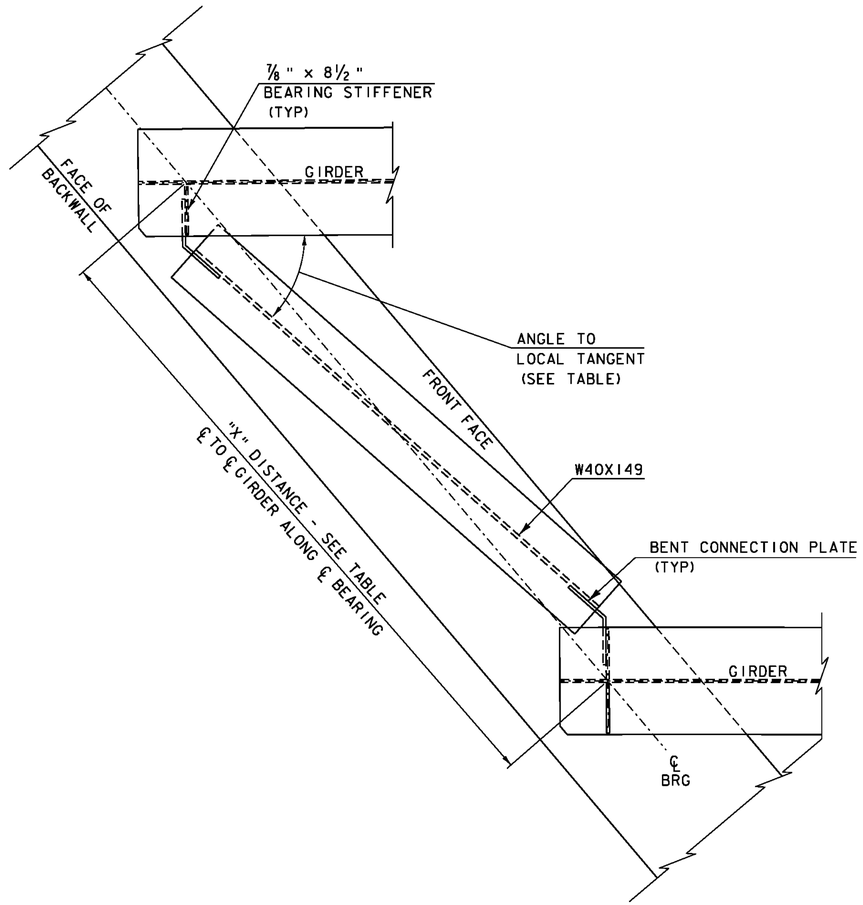
PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s951282sup.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. LACROIX	CHECKED BY: J. SALVATORI
DECK PLAN	SHEET 19 OF 52



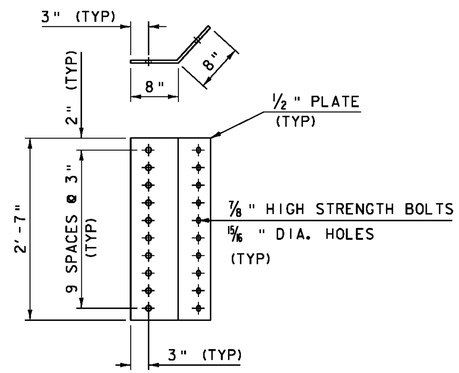
FRAMING PLAN
SCALE 3/16 " = 1' - 0"

CROSSFRAME INFORMATION TABLE	
"X"	LOCATION
9' - 1 9/16"	GIRDER 1 TO GIRDER 2 @ ABUT. 1
9' - 2 1/4"	GIRDER 2 TO GIRDER 3 @ ABUT. 1
9' - 2 15/16"	GIRDER 3 TO GIRDER 4 @ ABUT. 1
10' - 8 3/16"	GIRDER 1 TO GIRDER 2 @ ABUT. 2
10' - 9 3/4"	GIRDER 2 TO GIRDER 3 @ ABUT. 2
10' - 11 3/8"	GIRDER 3 TO GIRDER 4 @ ABUT. 2

ANGLE TO LOCAL TANGENT TABLE	
ANGLE	LOCATION
49° - 44' - 17"	GIRDER 1 TO GIRDER 2 @ ABUT. 1
49° - 31' - 34"	GIRDER 2 TO GIRDER 3 @ ABUT. 1
48° - 46' - 28"	GIRDER 3 TO GIRDER 4 @ ABUT. 1
40° - 42' - 14"	GIRDER 1 TO GIRDER 2 @ ABUT. 2
40° - 23' - 7"	GIRDER 2 TO GIRDER 3 @ ABUT. 2
40° - 4' - 23"	GIRDER 3 TO GIRDER 4 @ ABUT. 2



PLAN VIEW OF CROSSFRAME @ ABUT. NO. 1 (ABUT. NO. 2 SIMILAR)
SCALE 1 " = 1' - 0"



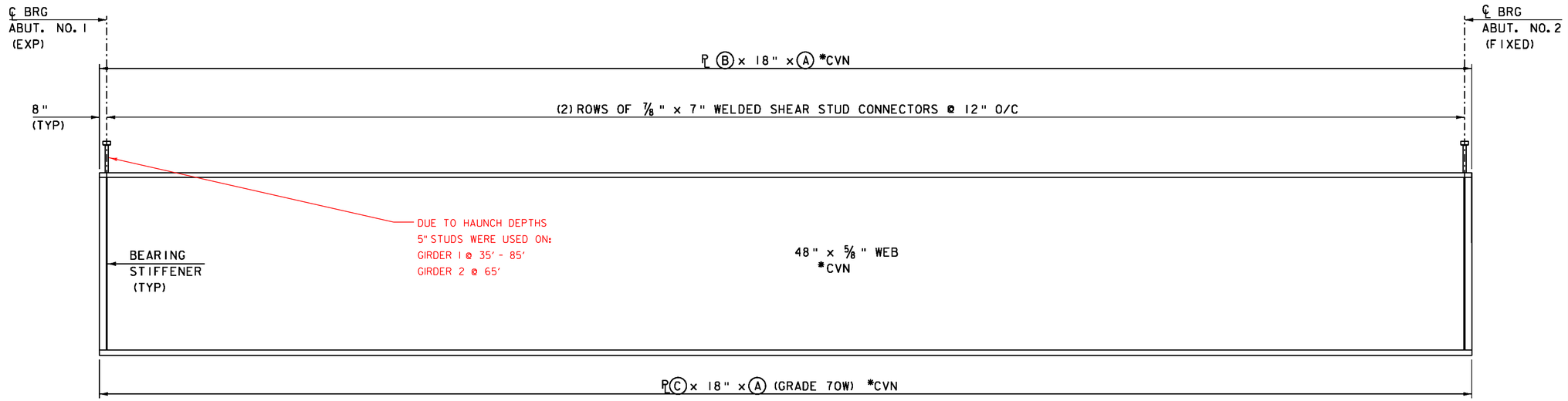
BENT CONNECTION PLATE
SCALE 1 " = 1' - 0"

NOTE:
*CVN DENOTES THAT CHARPY V-NOTCH TEST IS REQUIRED

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

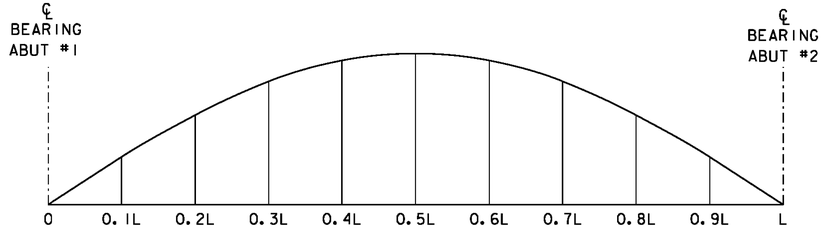
FILE NAME: s95j282sup.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
FRAMING & CROSS FRAME DETAILS

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 20 OF 52



TYPICAL GIRDER ELEVATION

HORIZONTAL SCALE 3/16" = 1'-0"
VERTICAL SCALE 3/4" = 1'-0"



CAMBER DIAGRAM

NOT TO SCALE

NOTES:

1. DIMENSIONS SHOWN ARE ALONG THE ARC OF THE ℄ OF THE GIRDER.
2. GIRDERS AND CROSSFRAMES SHALL BE WEB-PLUMB AT STEEL DEAD LOAD CONDITION.

* CVN DENOTES THAT CHARPY V-NOTCH TEST IS REQUIRED

CAMBER (INCHES)									
GIRDER	0.1 L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L
#1	4	7 9/16	10 5/16	12	12 10/16	12	10 4/16	7 8/16	4
#2	3 14/16	7 2/16	9 10/16	11 2/16	11 8/16	10 13/16	9 2/16	6 9/16	3 6/16
#3	3 10/16	6 11/16	8 15/16	10 4/16	10 10/16	10	8 8/16	6 2/16	3 4/16
#4	3 4/16	6 2/16	8 5/16	9 10/16	10 2/16	9 11/16	8 6/16	6 3/16	3 5/16

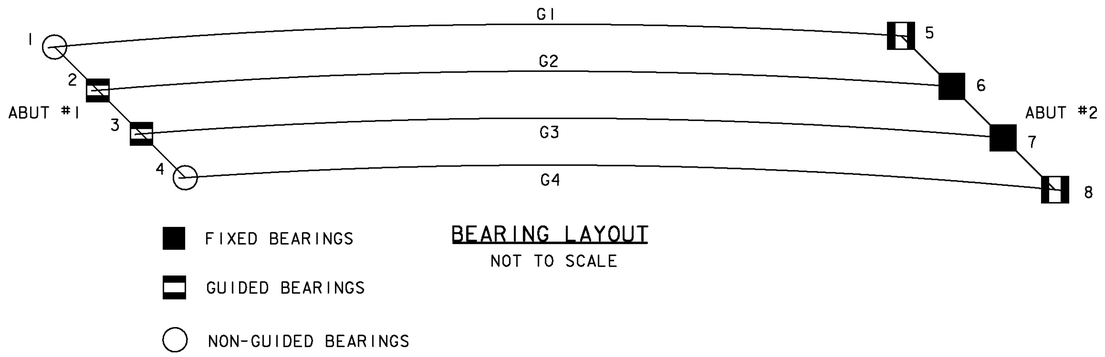
DEAD LOAD DEFLECTION (INCHES)									
GIRDER	0.1 L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L
#1	-3 7/16	-6 8/16	-8 15/16	-10 8/16	-11	-10 7/16	-8 14/16	-6 7/16	-3 7/16
#2	-3 5/16	-6 2/16	-8 4/16	-9 9/16	-9 15/16	-9 5/16	-7 12/16	-5 8/16	-2 13/16
#3	-3 1/16	-5 10/16	-7 9/16	-8 12/16	-9 1/16	-8 8/16	-7 2/16	-5 2/16	-2 11/16
#4	2 11/16	-5 1/16	-6 15/16	-8 2/16	-8 9/16	-8 3/16	-7 1/16	-5 3/16	-2 12/16

GIRDER DIMENSION TABLE				
BEARING	RADIUS	A (LENGTH)	B TOP FLANGE PLATE THICKNESS	C BOTTOM FLANGE PLATE THICKNESS
#1	800.153'	127'-8"	1 1/4"	1 5/8"
#2	793.153'	128'-9 1/8"	7/8"	1"
#3	786.153'	129'-11"	7/8"	1"
#4	779.153'	131'-1 5/8"	7/8"	1"

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282sup.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
GIRDER DETAILS

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX



BEARING LAYOUT
NOT TO SCALE

BEARING AT ABUTMENT #1	
BEARING NO.	VERTICAL LOAD (UNFACTORED)
1	120 kips
2	130 kips
3	175 kips
4	135 kips

BEARING AT ABUTMENT #2	
BEARING NO.	VERTICAL LOAD (UNFACTORED)
1	130 kips
2	85 kips
3	105 kips
4	270 kips

BEARING NOTES

1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 & 731.

2. BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.12 "BEARING DEVICE ASSEMBLY, POT".

3. FABRICATION DRAWINGS CONFORMING TO SUBSECTION 531.03 SHALL BE SUBMITTED.

4. THE CONCRETE SURFACE UNDER THE BEARING DEVICES SHALL BE LEVEL.

5. DESIGN CRITERIA:
   A. BASE PLATE TO CONCRETE DESIGN PRESSURE = 1.20 ksi MAXIMUM.
   B. MINIMUM DESIGN ROTATION = 0.030 radians
   C. MINIMUM DESIGN TRANSLATION: TRANSVERSE = 1"
      LONGITUDINAL = 2"
   D. HORIZONTAL CAPACITY SHALL BE A MINIMUM OF 25% OF THE VERTICAL LOAD.
   E. VERTICAL DESIGN LOAD PER TABLE ON THIS SHEET.

6. ALL POTS, PLATES, NUTS, WASHERS AND ANCHOR BOLTS, UNLESS OTHERWISE NOTED, SHALL BE GALVANIZED OR METALIZED AS PER SUBSECTIONS 531.04(B) AND 506.15 OF THE STANDARD SPECIFICATIONS. IF THE BEARINGS ARE METALIZED, THEY SHALL BE SEALED WITH AN APPROVED SEALER AS SPECIFIED IN SUBSECTION 531.04(B) OF THE STANDARD SPECIFICATIONS. AREAS OF GALVANIZING OR METALIZING DAMAGED BY FIELD WELDING OR HANDLING SHALL BE REPAIRED IN CONFORMANCE WITH STANDARD SPECIFICATION 513. THE INSIDE OF THE POTS SHALL NOT BE GALVANIZED OR METALIZED.

7. ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M270M/M270 GRADE 345, UNLESS NOTED OTHERWISE.

8. ANCHOR BOLTS SHALL HAVE A MINIMUM OF 15" EMBEDMENT INTO THE CONCRETE AND SHALL CONFORM TO SUBSECTION 714.08.

9. THE CONNECTION BETWEEN THE POT BEARING AND SOLE PLATE AND POT BEARING AND THE MASONRY PLATE SHALL BE DESIGNED AND DETAILED BY THE SUPPLIER.

10. ALL DESIGNS DONE FOR THE BEARINGS SHALL BE PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION AND ITS LATEST REVISIONS.

11. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THE PLANS.

12. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.

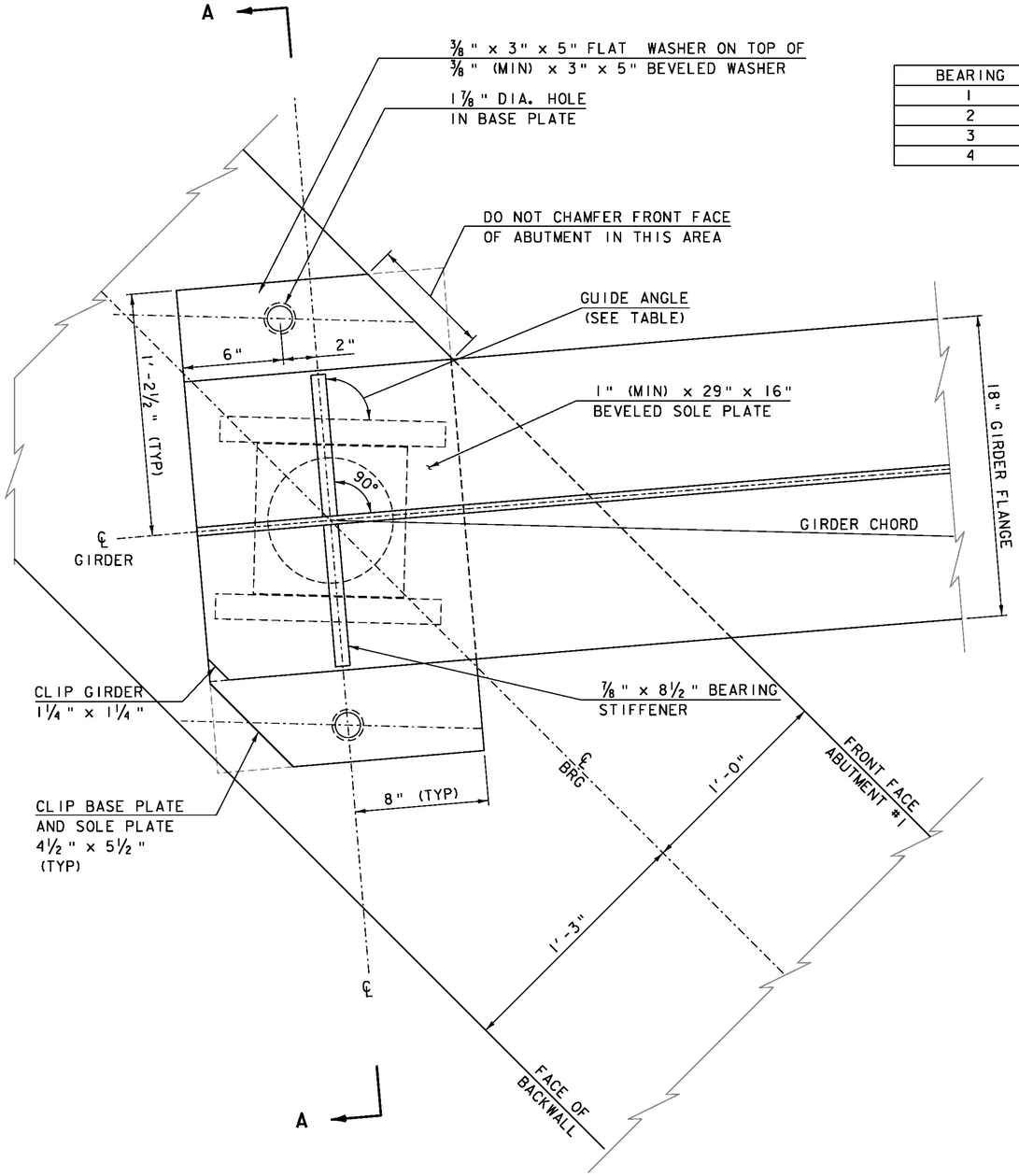
PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s951282sup.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
BEARING DETAILS - 1

PLOT DATE: 14-SEP-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 22 OF 52

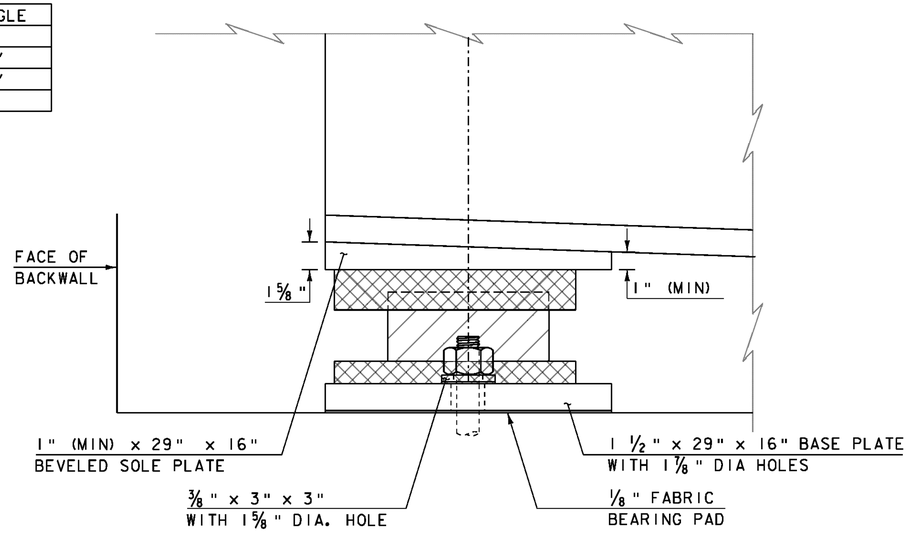
ABUTMENT 1 BEARINGS

BEARING	GUIDE ANGLE
1	NONE
2	96°-19′
3	92°-59′
4	NONE



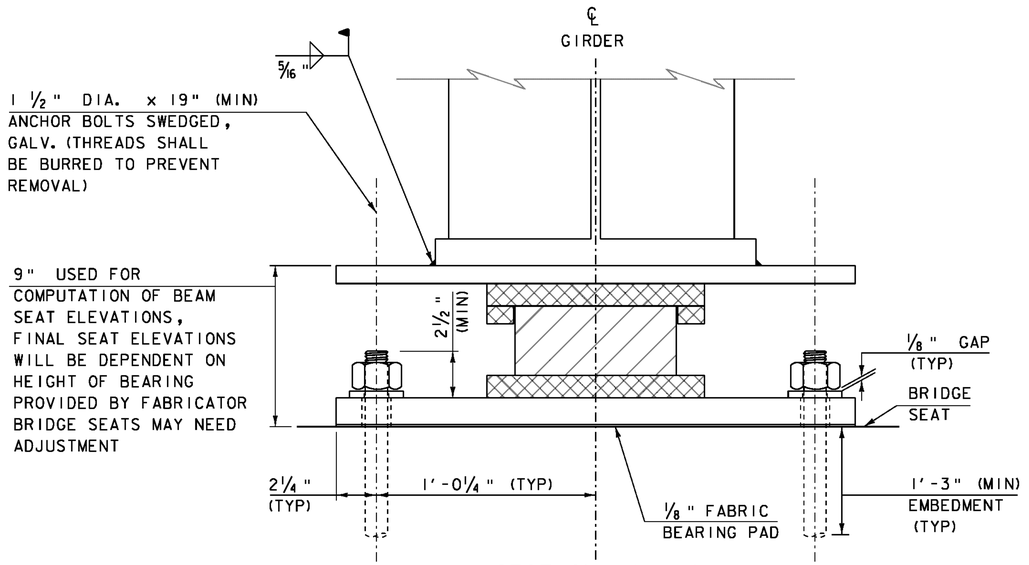
PLAN VIEW

SCALE 3" = 1'-0"



SIDE ELEVATION

SCALE 3" = 1'-0"



SECTION A - A

SCALE 3" = 1'-0"

NOTES:

1. THE HATCHED COMPONENTS OF THE POT BEARINGS ARE SHOWN FOR REPRESENTATIVE PURPOSES ONLY. THE ACTUAL CONFIGURATION OF THE COMPONENTS WILL BE DEPENDENT UPON THE BEARING FABRICATOR.

2. SEE BEARING DETAILS-1 SHEET FOR ADDITIONAL BEARING NOTES.

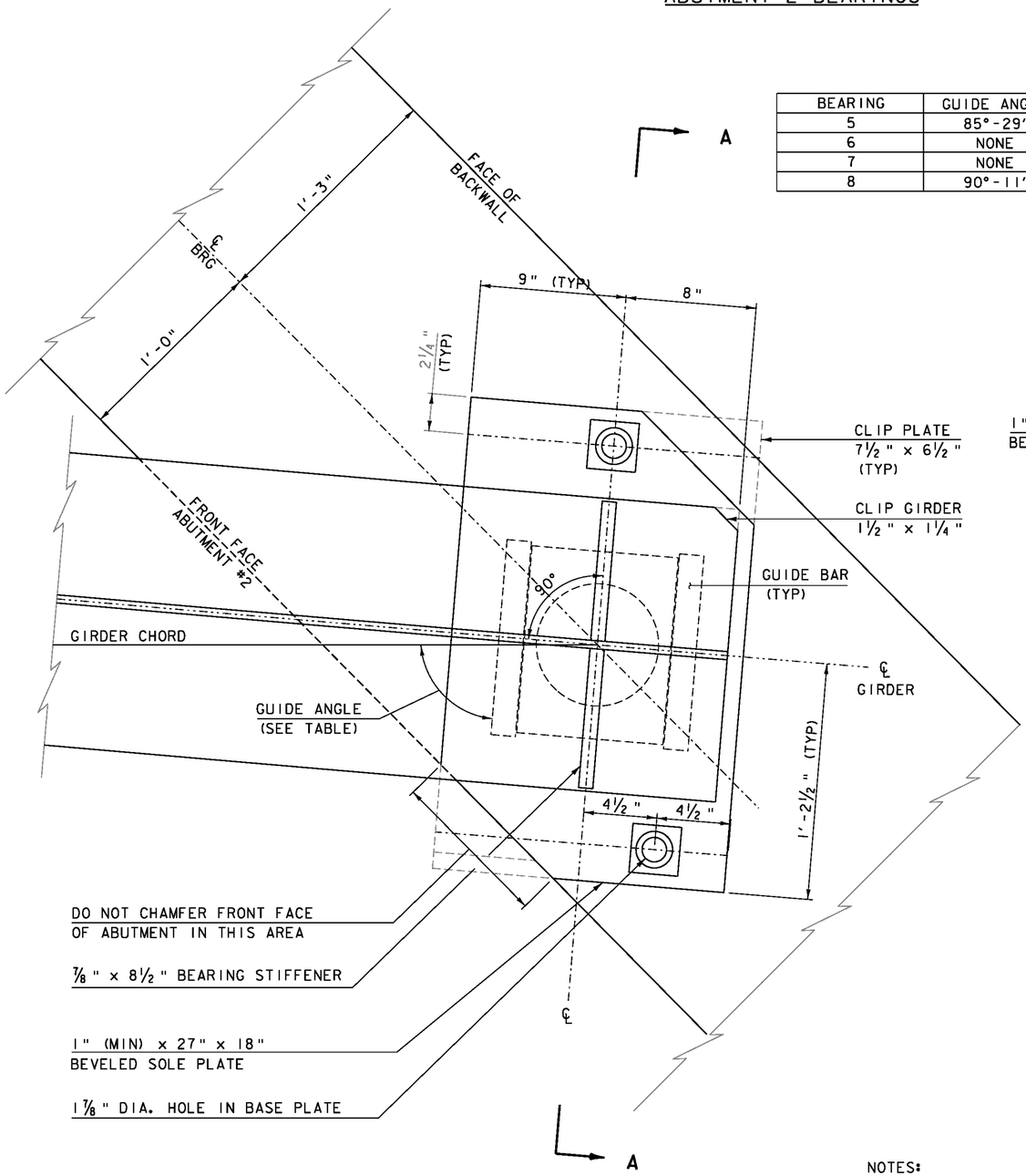
PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282sup.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
BEARING DETAILS - 2

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 23 OF 52

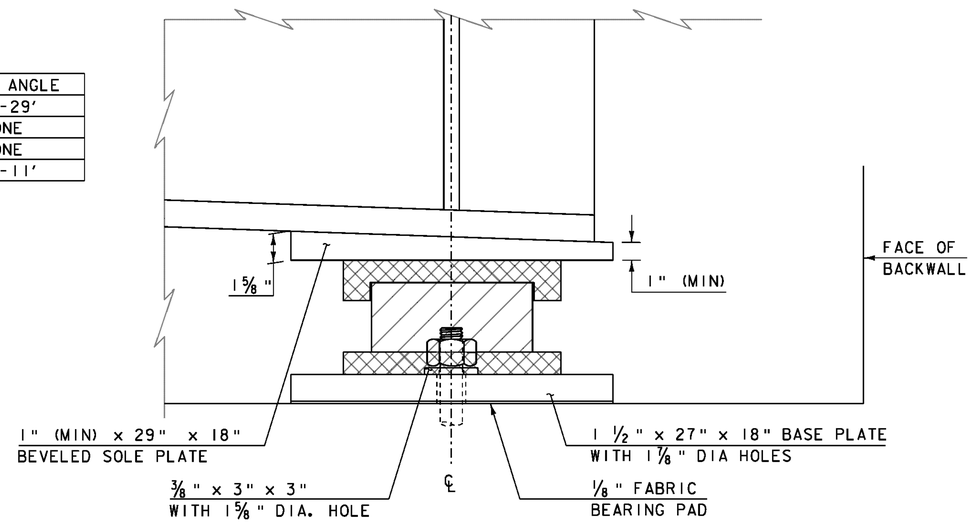
ABUTMENT 2 BEARINGS

BEARING	GUIDE ANGLE
5	85°-29'
6	NONE
7	NONE
8	90°-11'



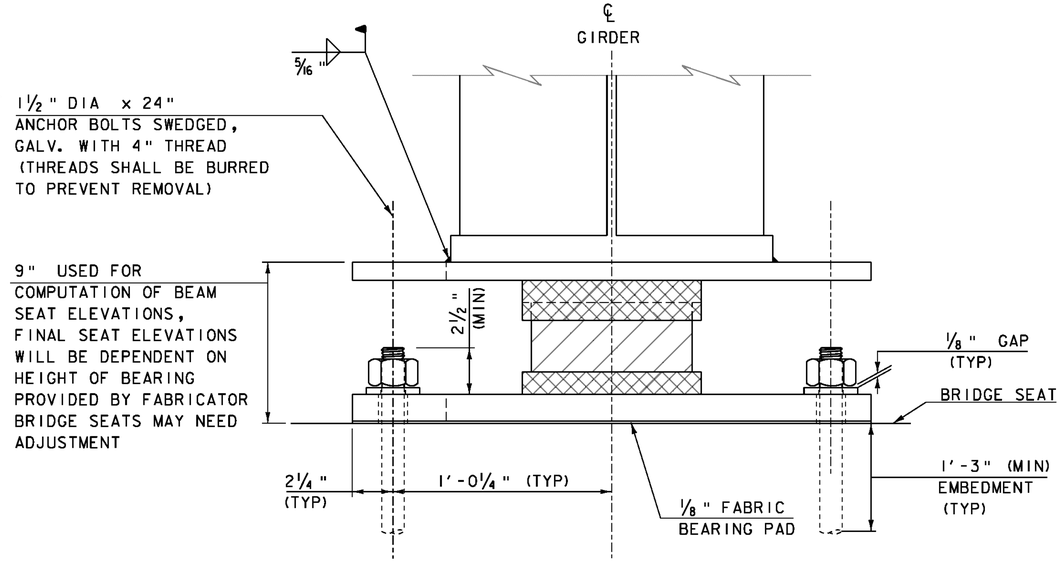
PLAN VIEW

SCALE 3" = 1'-0"



SIDE ELEVATION

SCALE 3" = 1'-0"



SECTION A - A

SCALE 3" = 1'-0"

NOTES:

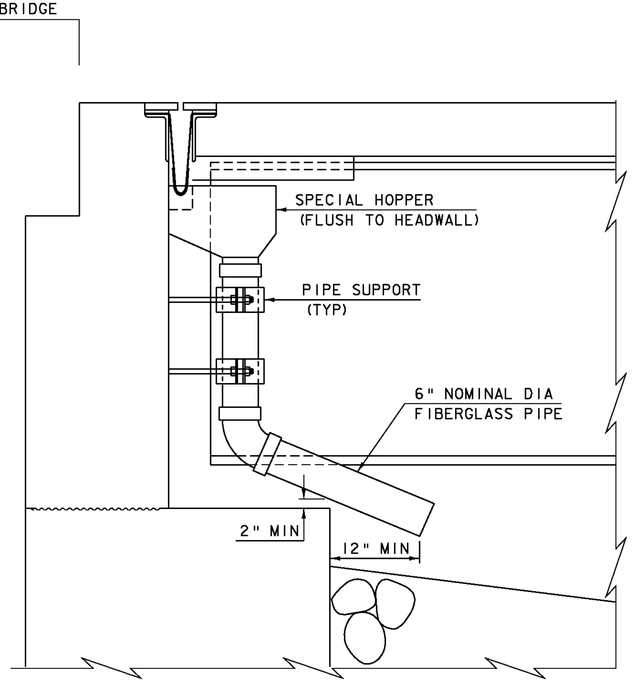
1. THE HATCHED COMPONENTS OF THE POT BEARINGS ARE SHOWN FOR REPRESENTATIVE PURPOSES ONLY. THE ACTUAL CONFIGURATION OF THE COMPONENTS WILL BE DEPENDENT UPON THE BEARING FABRICATOR.

2. SEE BEARING DETAILS-1 SHEET FOR ADDITIONAL BEARING NOTES.

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

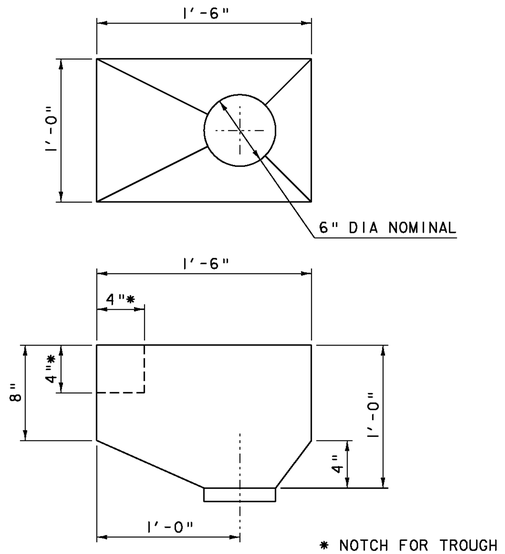
FILE NAME: s95j282sup.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
BEARING DETAILS - 3

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 24 OF 52



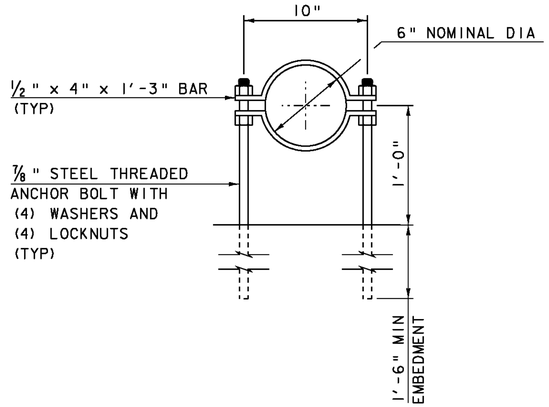
DOWNSPOUT ELEVATION

SCALE 1" = 1'-0"



SPECIAL HOPPER DETAIL

SCALE 2" = 1'-0"



PIPE SUPPORT DETAIL

SCALE 2" = 1'-0"

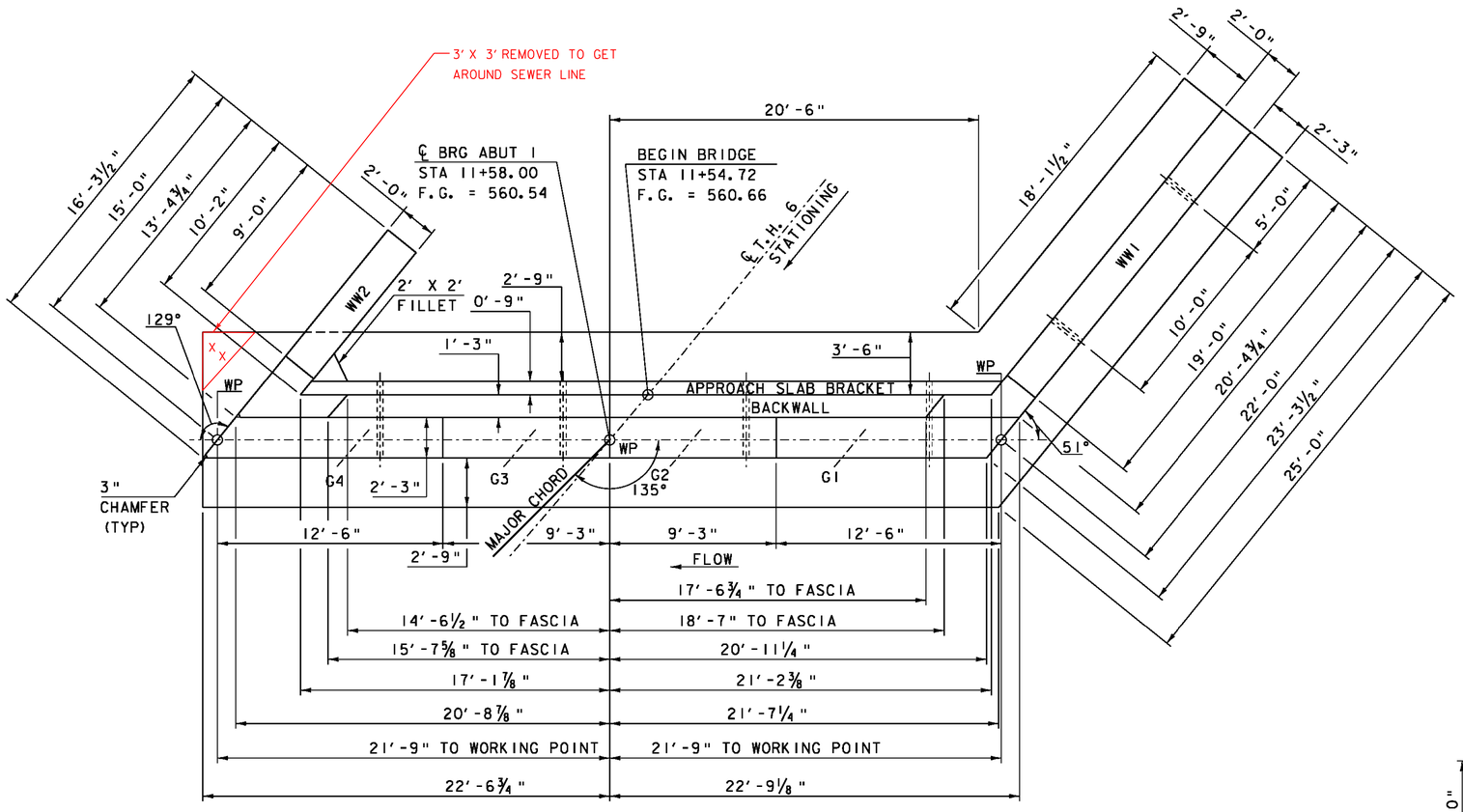
NOTES:

1. ALL PLATES, BARS AND ANGLES SHALL CONFORM TO SUBSECTION 714.02 AND SHALL BE GALVANIZED PER AASHTO M 111M/M 111.

2. ALL BOLTS AND RELATED HARDWARE SHALL CONFORM TO SUBSECTION 714.05 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232M/M 232"

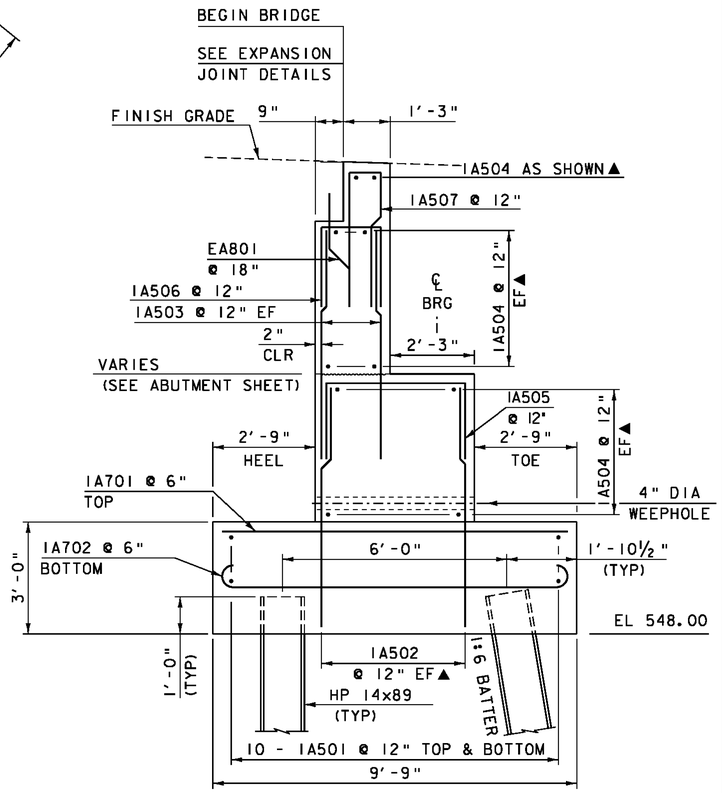
3. SPECIAL HOPPER, PIPE, BARS, ANCHOR BOLTS AND PIPE JOINTS SHALL BE PAID FOR UNDER ITEM 900.640 SPECIAL PROVISION (BRIDGE FIBERGLASS DRAIN SYSTEM).

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s951282sub.dgn	PLOT DATE: 14-SEP-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J.SALVATORI	CHECKED BY: J. SALVATORI
DOWNSPOUT DETAILS	SHEET 25 OF 52



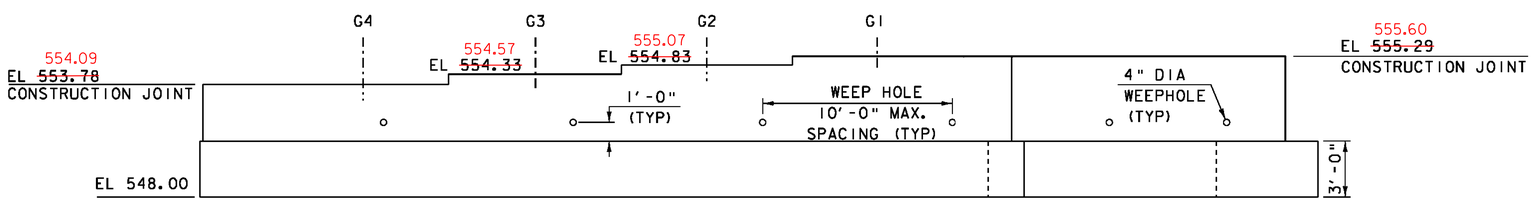
ABUTMENT 1 PLAN

SCALE ¼" = 1'-0"



ABUTMENT 1 TYPICAL SECTION

SCALE ½" = 1'-0"



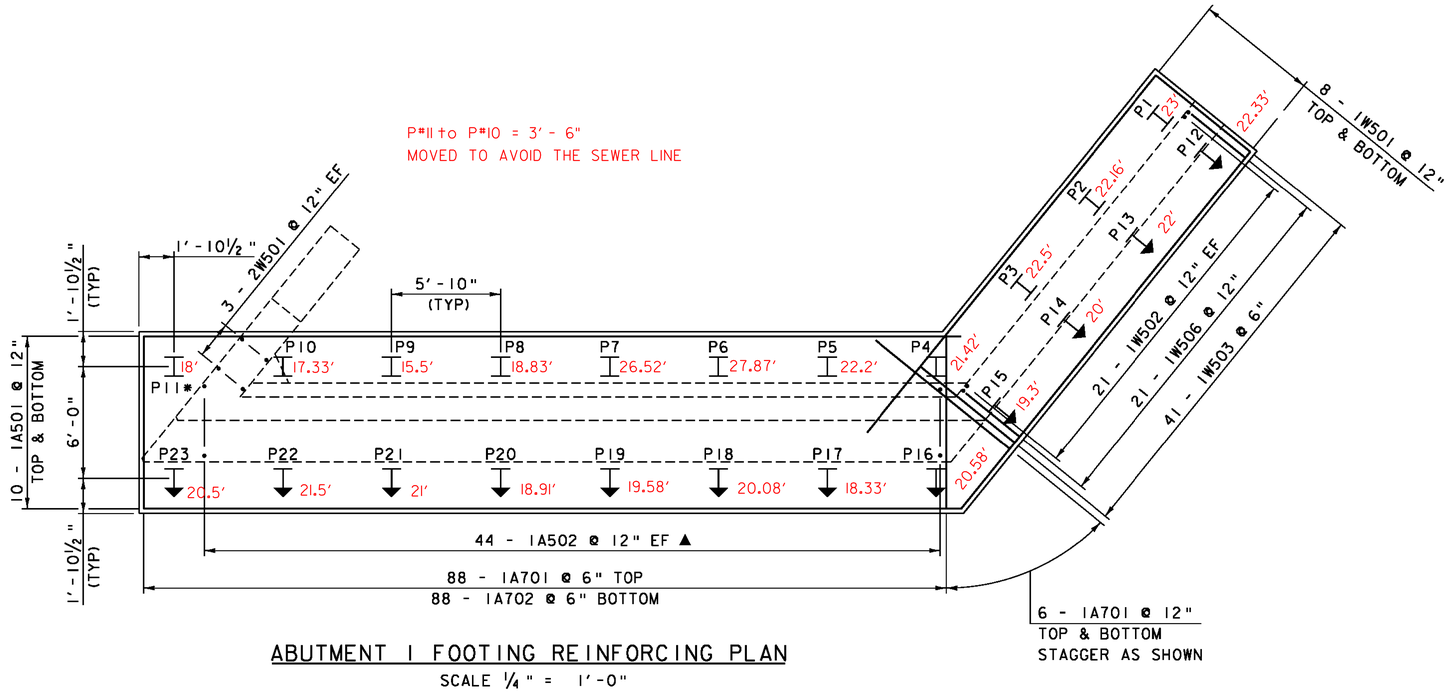
ABUTMENT 1 ELEVATION

SCALE ¼" = 1'-0"

NOTE:

BACKWALL AND WINGWALLS NOT SHOWN

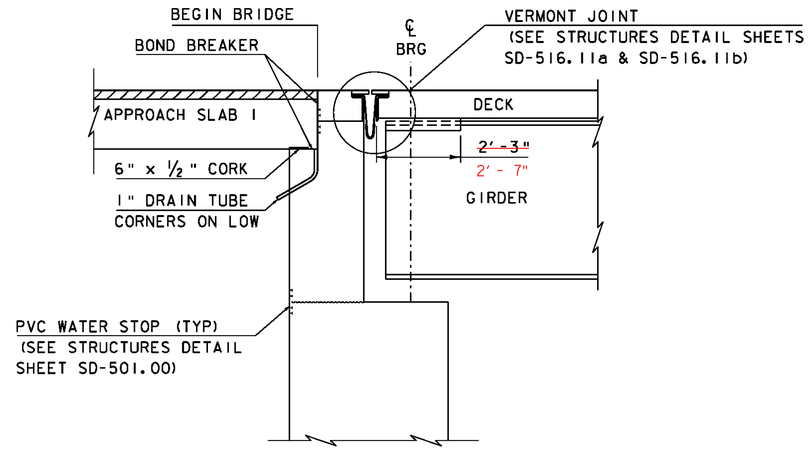
PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
ABUTMENT 1	SHEET 26 OF 52



ABUTMENT 1 FOOTING REINFORCING PLAN

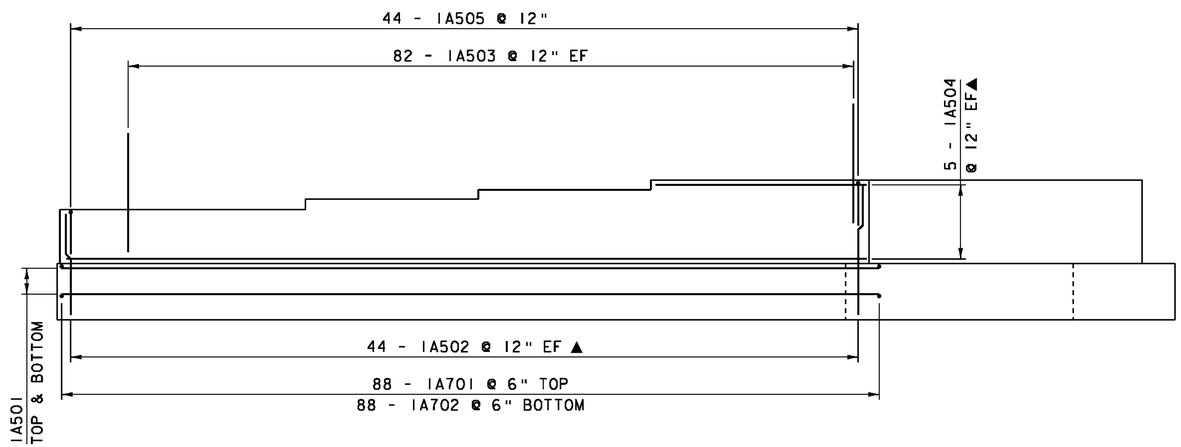
SCALE ¼" = 1'-0"

* THIS PILE MAY NEED TO BE RELOCATED IN THE FIELD ONCE THE LOCATION OF THE EXISTING SEWER LINE IS DETERMINED. THE PILE RELOCATION(S) SHALL BE APPROVED BY THE PROJECT MANAGER PRIOR TO DRIVING PILE.



ABUTMENT 1 BRIDGE END

SCALE ½" = 1'-0"
(EXPANSION)

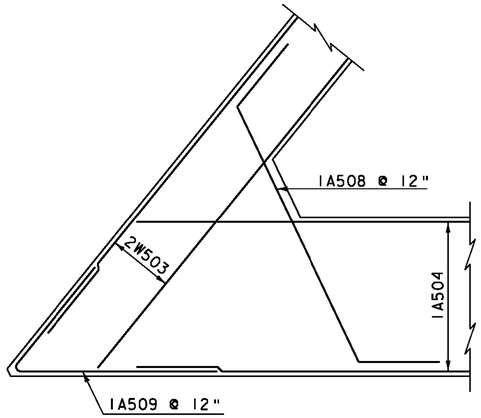


ABUTMENT 1 REINFORCING ELEVATION

SCALE ¼" = 1'-0"

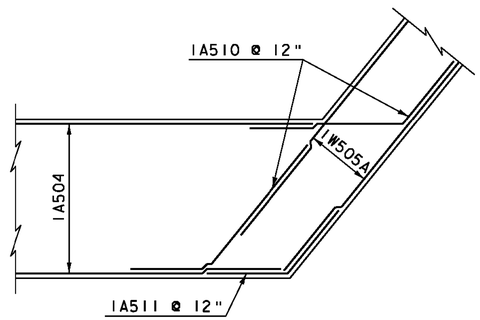
NOTE:

BACKWALL AND WINGWALLS NOT SHOWN



CORNER DETAIL @ WW2
BELOW BRIDGE SEAT

SCALE ½" = 1'-0"



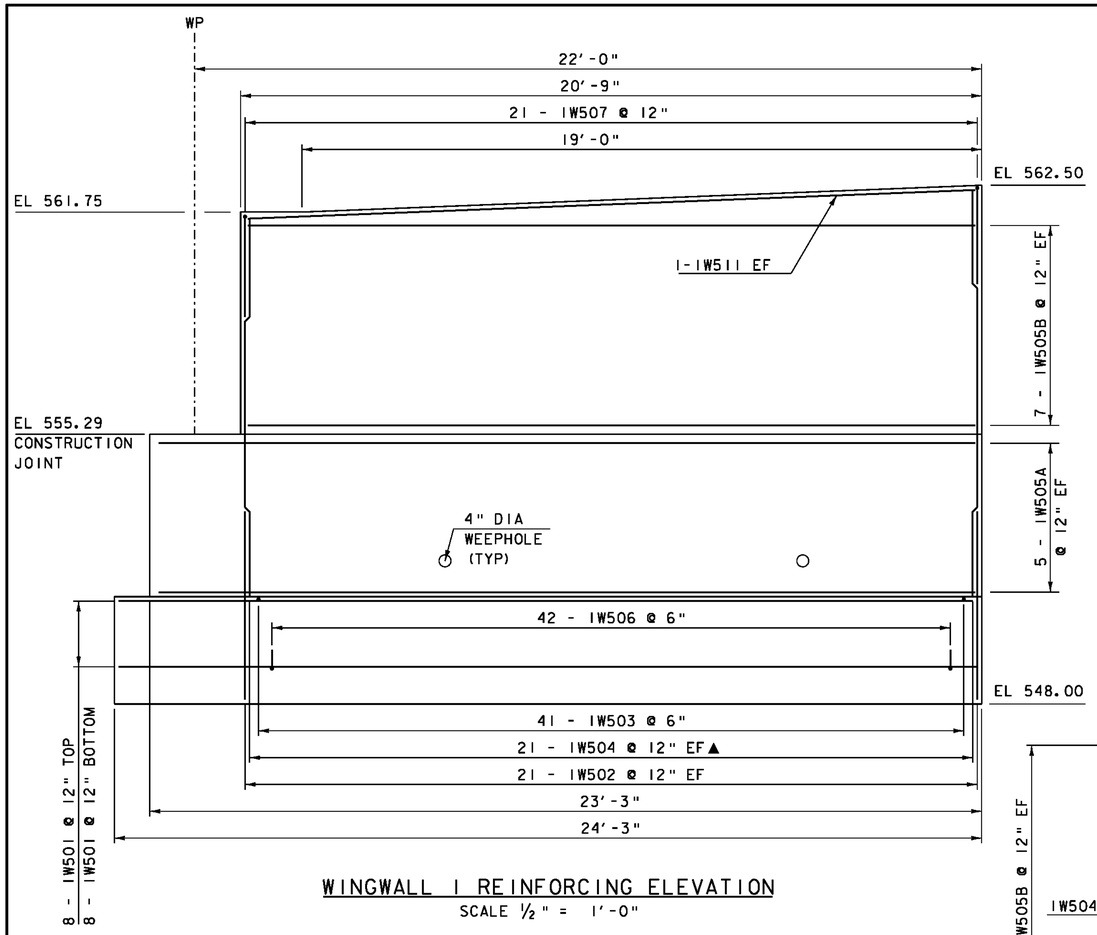
CORNER DETAIL @ WW1
BELOW BRIDGE SEAT

SCALE ½" = 1'-0"

NOTE:

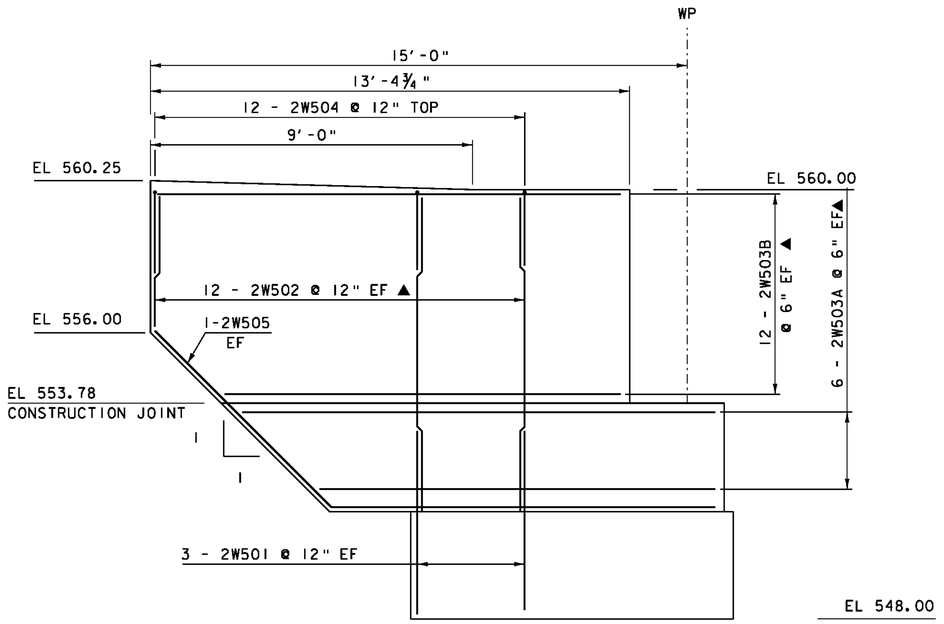
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
ABUTMENT 1 REINFORCING PLAN	SHEET 27 OF 52



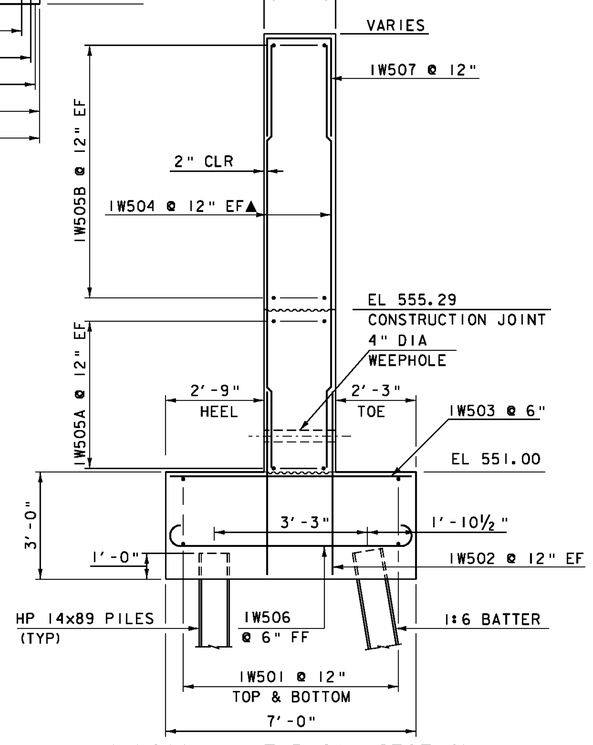
WINGWALL 1 REINFORCING ELEVATION

SCALE ½" = 1'-0"



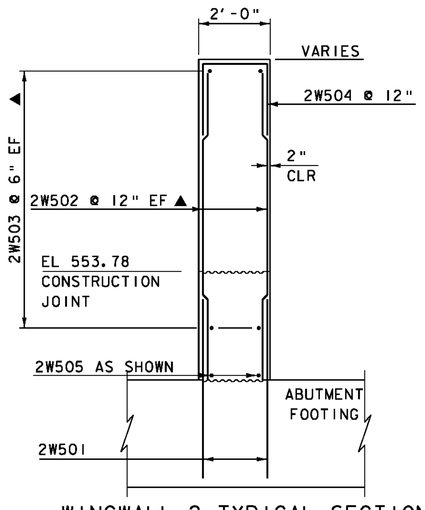
WINGWALL 2 REINFORCING ELEVATION

SCALE ½" = 1'-0"



WINGWALL 1 TYPICAL SECTION

SCALE ½" = 1'-0"



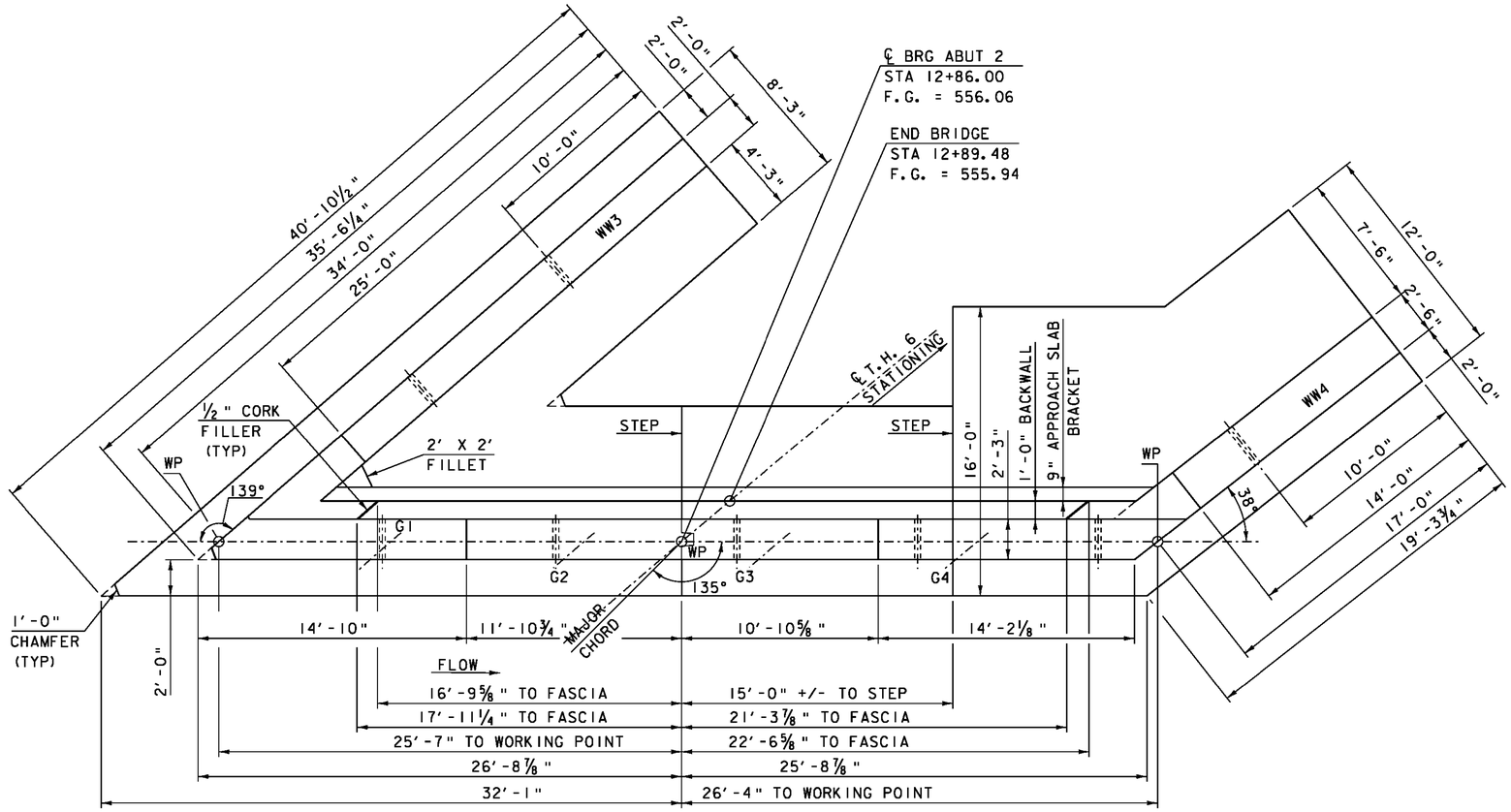
WINGWALL 2 TYPICAL SECTION

SCALE ½" = 1'-0"

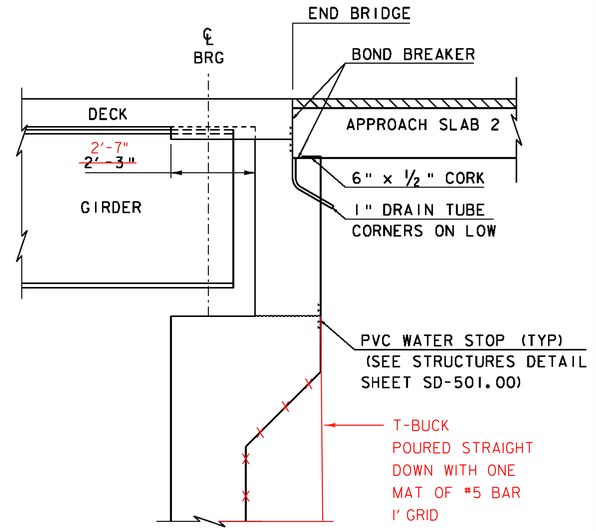
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
WINGWALL 1& 2 DETAILS	SHEET 28 OF 52

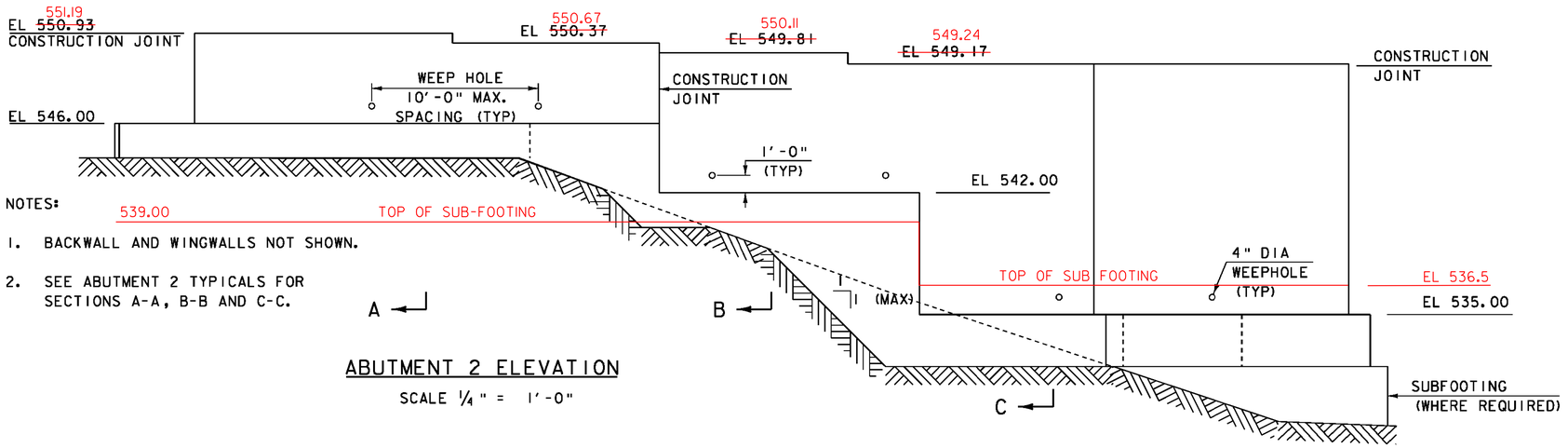


ABUTMENT 2 PLAN
SCALE ¼" = 1'-0"



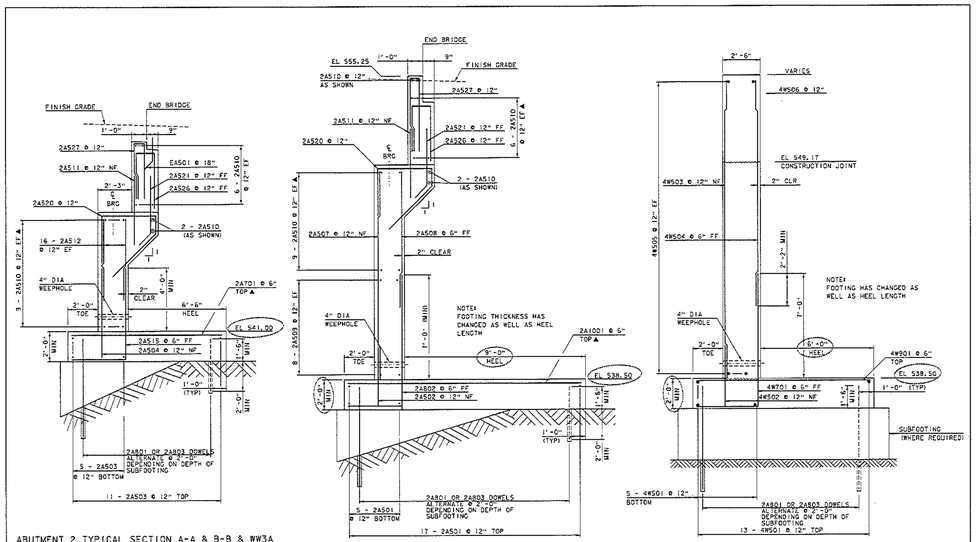
ABUTMENT 2 BRIDGE END
SCALE ½" = 1'-0"
(FIXED)

A ← B ← C ←



ABUTMENT 2 ELEVATION
SCALE ¼" = 1'-0"

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
ABUTMENT 2	SHEET 29 OF 52



ABUTMENT 2 TYPICAL SECTION A-A & B-B & WW3A

NTS

NOTE: THE 24512 WILL NOT BE LONG ENOUGH TO GET THE REQUIRED LAP LENGTH WITH THE 24504 AND THE 24515

ABUTMENT 2 TYPICAL SECTION C-C

NTS

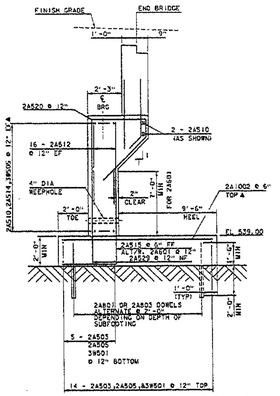
WINGWALL 4 TYPICAL

NTS

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
A = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

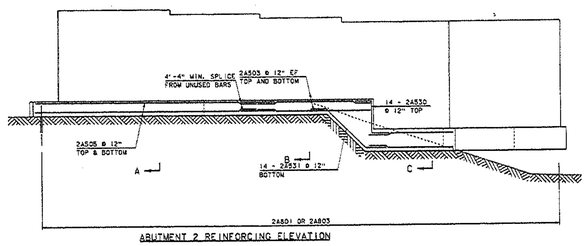
PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(126)	
FILE NAME: s:\PS\250\bro\sht\s01	PLOT DATE: 19-JUL-2002
PROJECT LEADER: K. HOGAN	DRAWN BY:
DESIGNED BY: J. CARTER	CHECKED BY: A. LACROIX
REVISED TYPICALS	SHEET 1 OF 1

029a



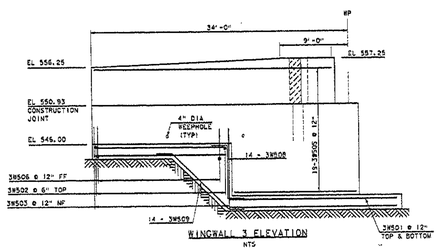
ABUTMENT 2 TYPICAL SECTION A-A,B-B,&WW3A

NTS



ABUTMENT 2 REINFORCING ELEVATION

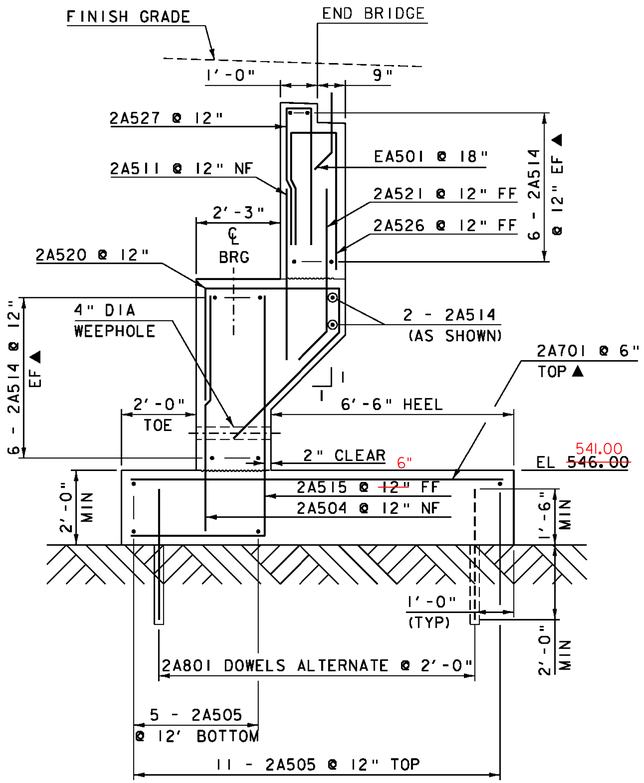
NTS



WINGWALL 3 ELEVATION

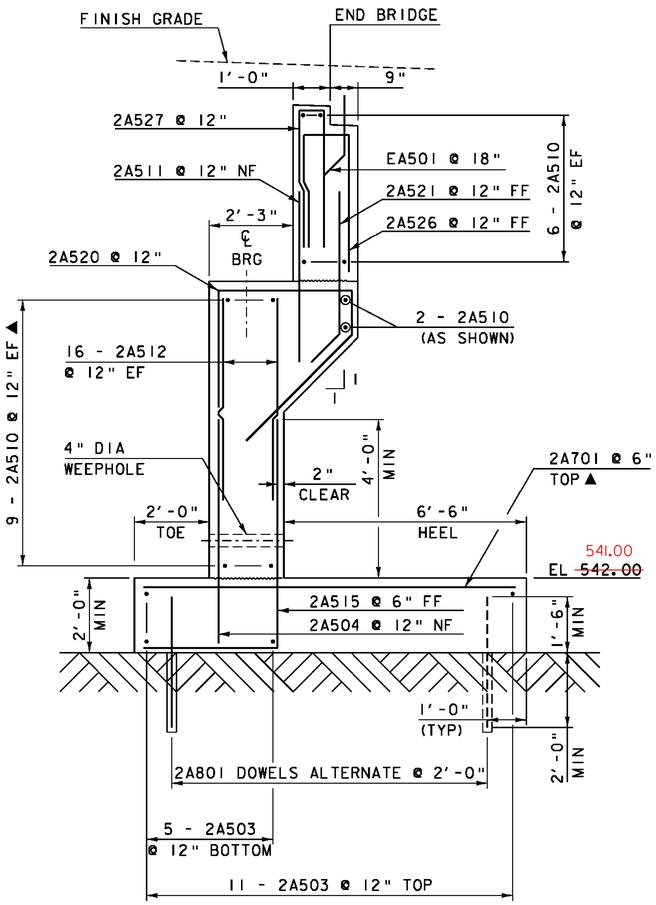
NTS

PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: e:\952802\e_b_001	PLOT DATE: 13-JUL-2002
PROJECT LEADER: K.WIGGINS	DRAWN BY: R.POLLETT
DESIGNED BY: J.GRIFFIN	CHECKED BY: J.LAGNEY
ABUTMENT 2 TYPICALS	SHEET 1 OF 1



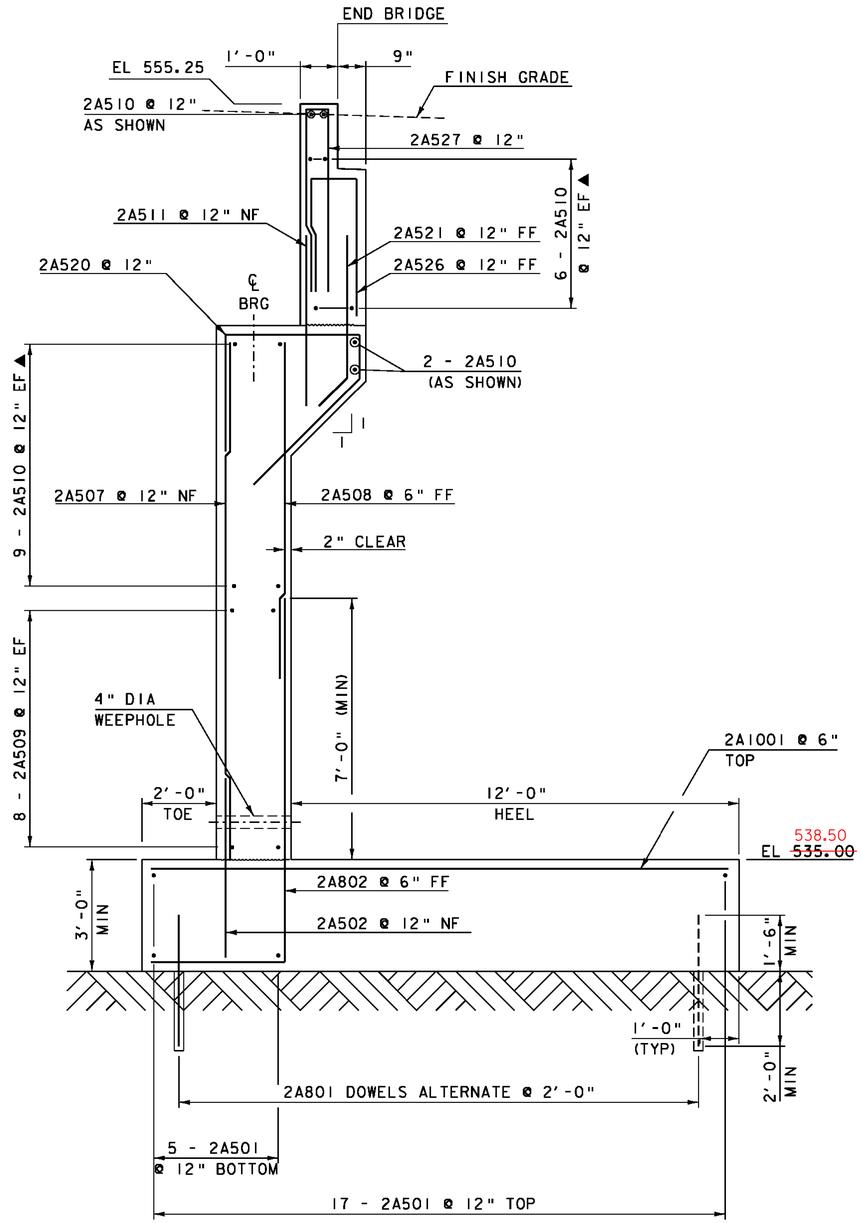
ABUTMENT 2 TYPICAL SECTION A-A

SCALE ½" = 1'-0"



ABUTMENT 2 TYPICAL SECTION B-B

SCALE ½" = 1'-0"



ABUTMENT 2 TYPICAL SECTION C-C

SCALE ½" = 1'-0"

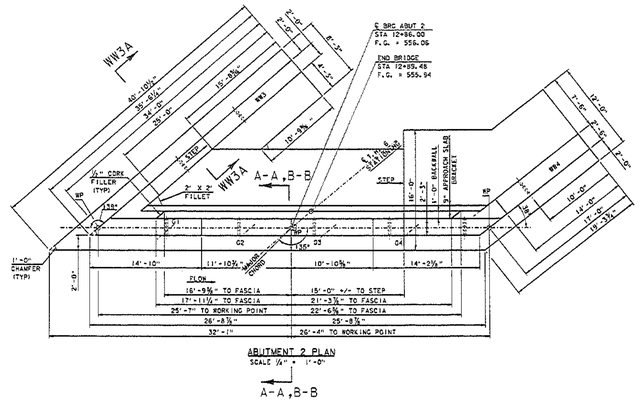
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282sub.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. GRIFFIN
ABUTMENT 2 TYPICALS

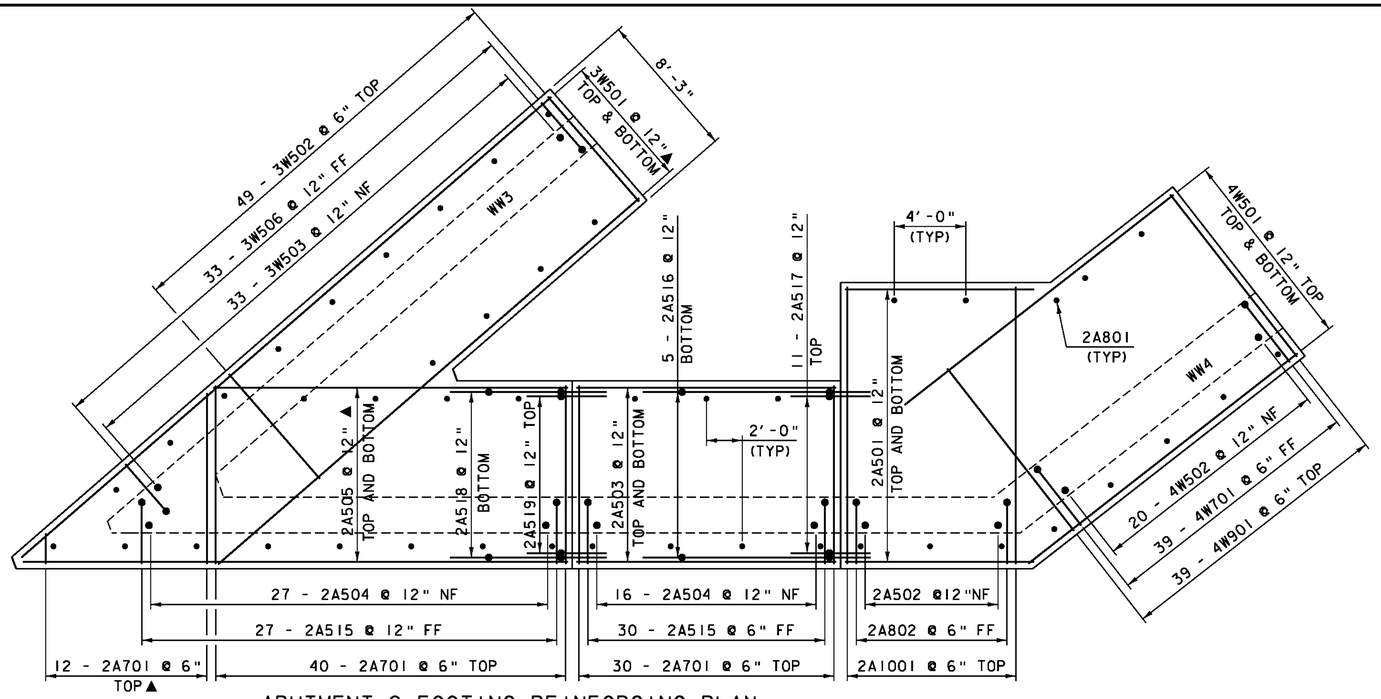
PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 30 OF 52



ABUTMENT 2 PLAN
SCALE ¼" = 1'-0"

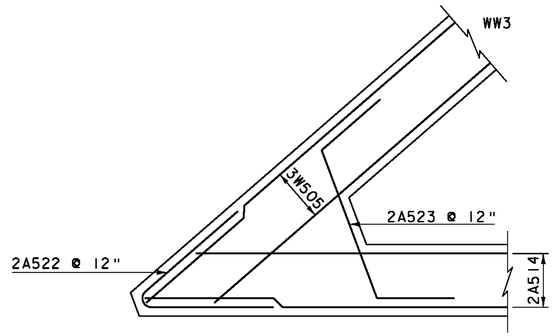
A-A, B-B

PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s99_0262abu1.dgn	PLOT DATE: 13-JUL-2006
PROJECT LEADER: K. HEDAKS	DRAWN BY: R. PELLETT
DESIGNED BY: J.L. GRIFFIN	CHECKED BY: J.L. LACROIX
WINGWALL 3 & 4 DETAILS	SHEET 1 OF 1



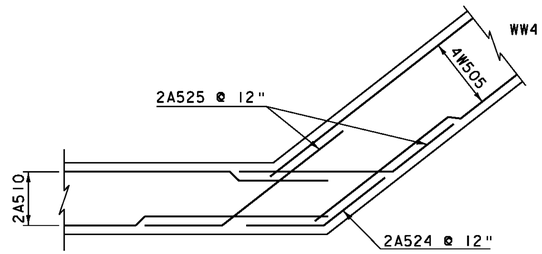
ABUTMENT 2 FOOTING REINFORCING PLAN

SCALE 1/4" = 1'-0"



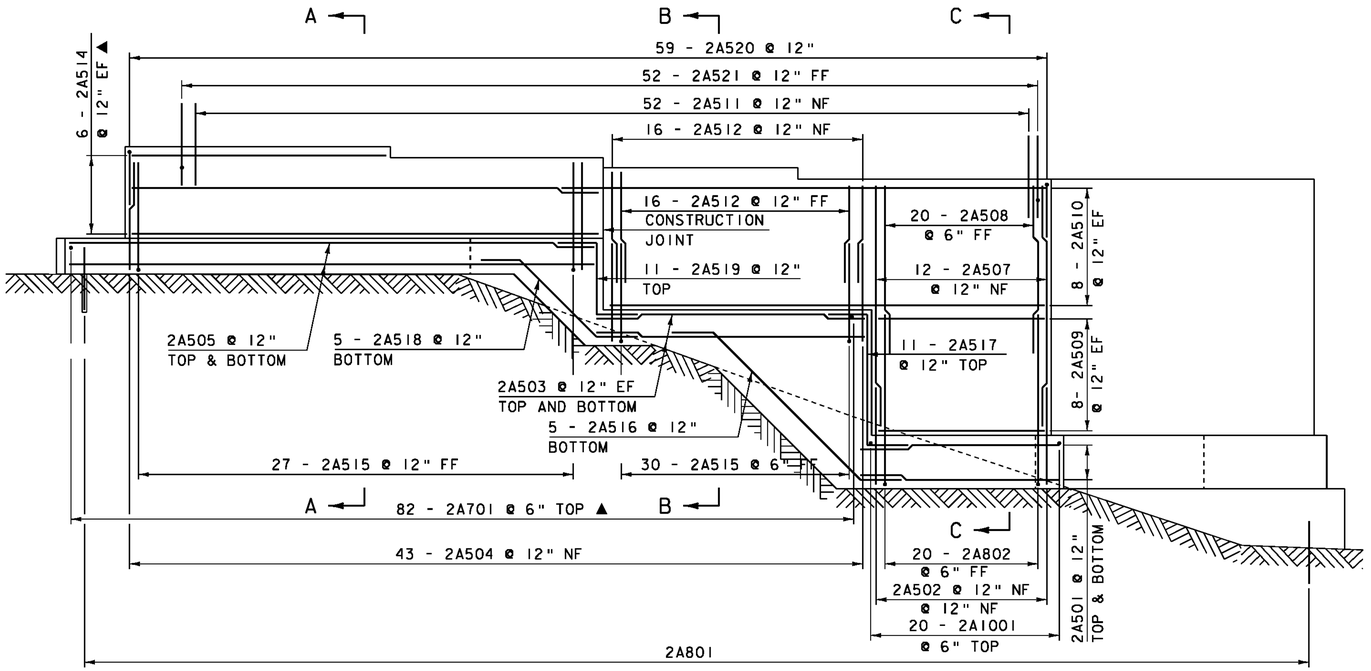
CORNER DETAIL @ WW3 BELOW BRIDGE SEAT

SCALE 1/2" = 1'-0"



CORNER DETAIL @ WW4 BELOW BRIDGE SEAT

SCALE 1/2" = 1'-0"



ABUTMENT 2 REINFORCING ELEVATION

SCALE 1/4" = 1'-0"

NOTE:

BACKWALL AND WINGWALLS NOT SHOWN

NOTE:

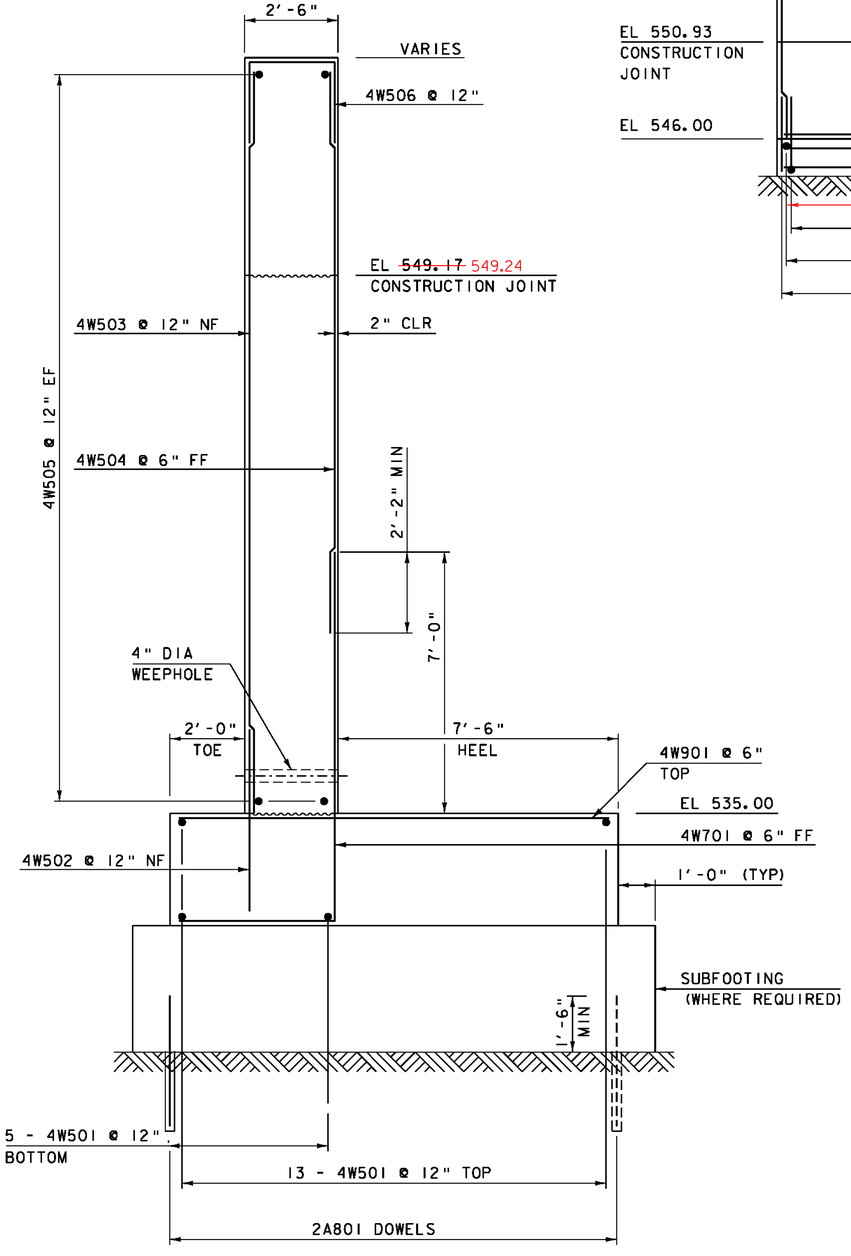
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

- REINFORCING STEEL
- #8 DOWELS

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

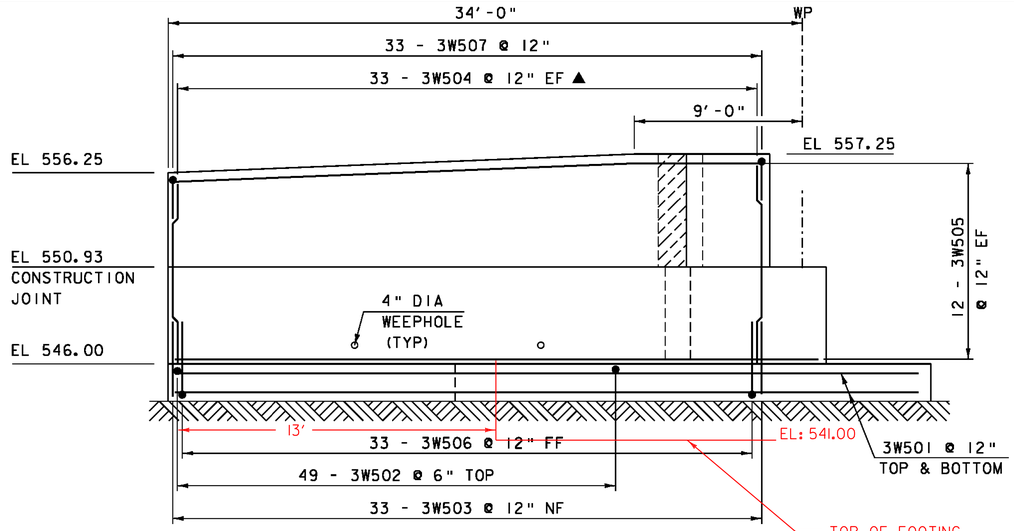
FILE NAME: s95j282sub.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. GRIFFIN
ABUTMENT 2 REINFORCING PLAN

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX
SHEET 31 OF 52



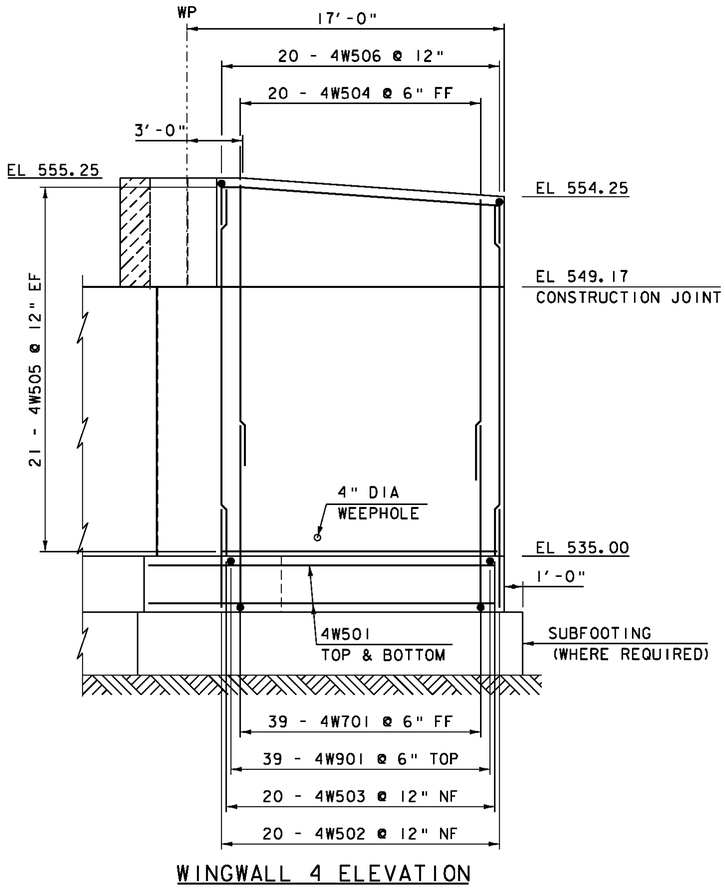
WINGWALL 4 TYPICAL

SCALE ½" = 1'-0"



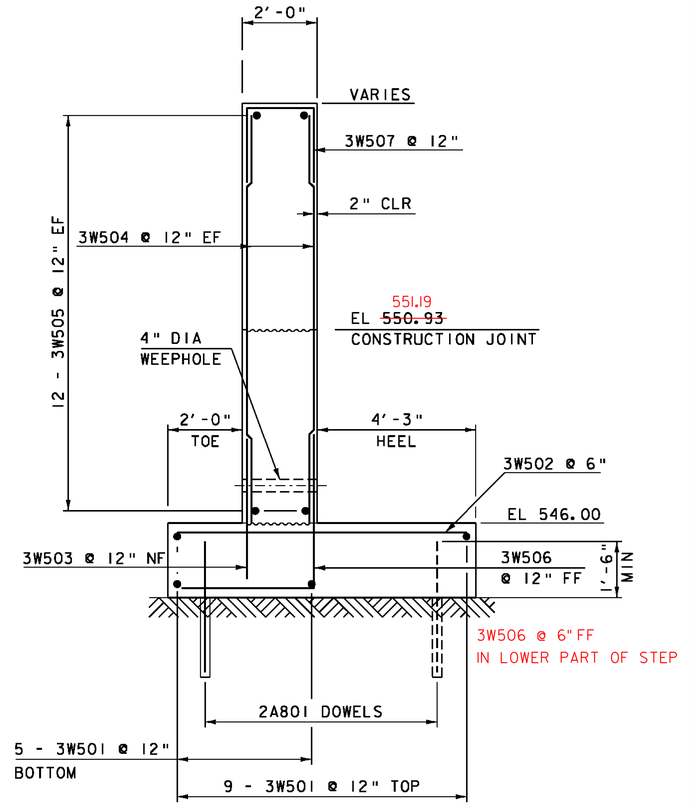
WINGWALL 3 ELEVATION

SCALE ¼" = 1'-0"



WINGWALL 4 ELEVATION

SCALE ¼" = 1'-0"



WINGWALL 3 TYPICAL

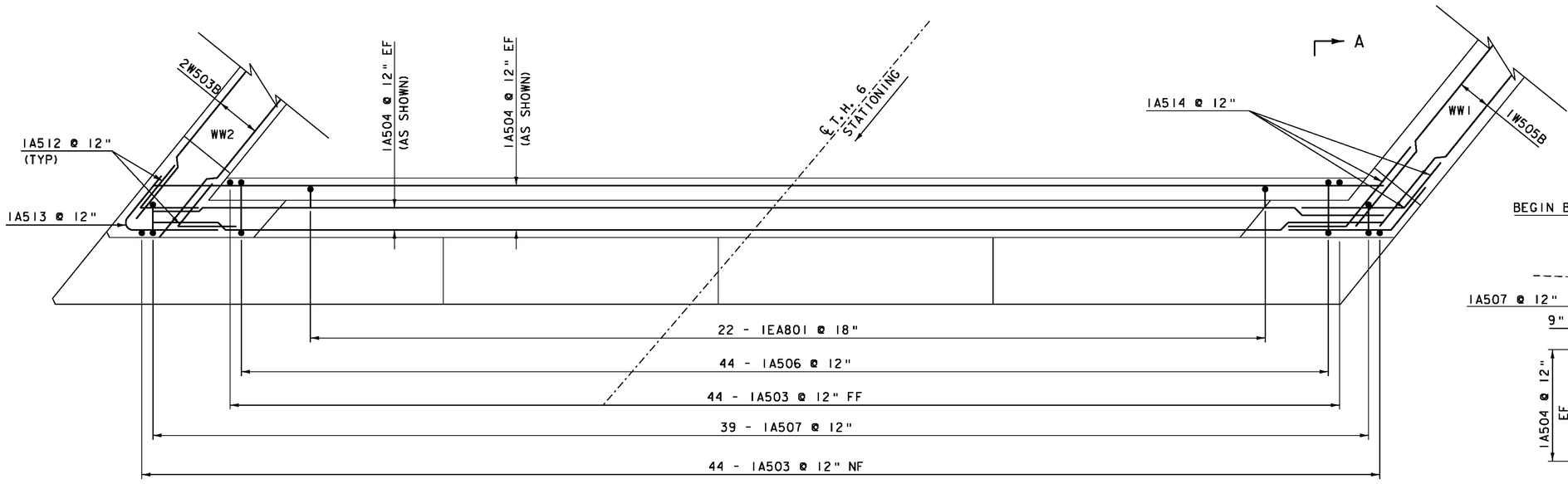
SCALE ½" = 1'-0"

NOTE:

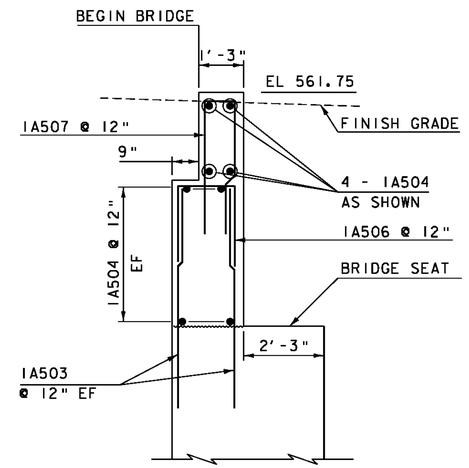
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)

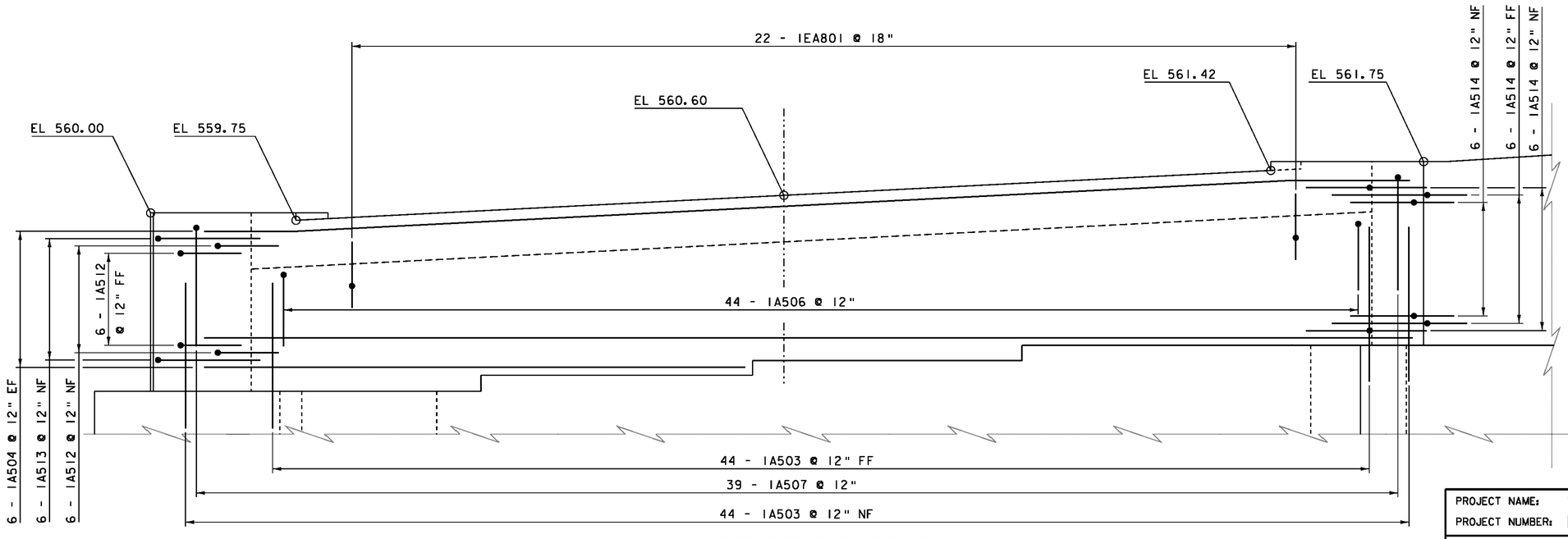
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
WINGWALL 3 & 4 DETAILS	SHEET 32 OF 52



ABUTMENT 1 BACKWALL
PLAN VIEW
SCALE ½" = 1'-0"



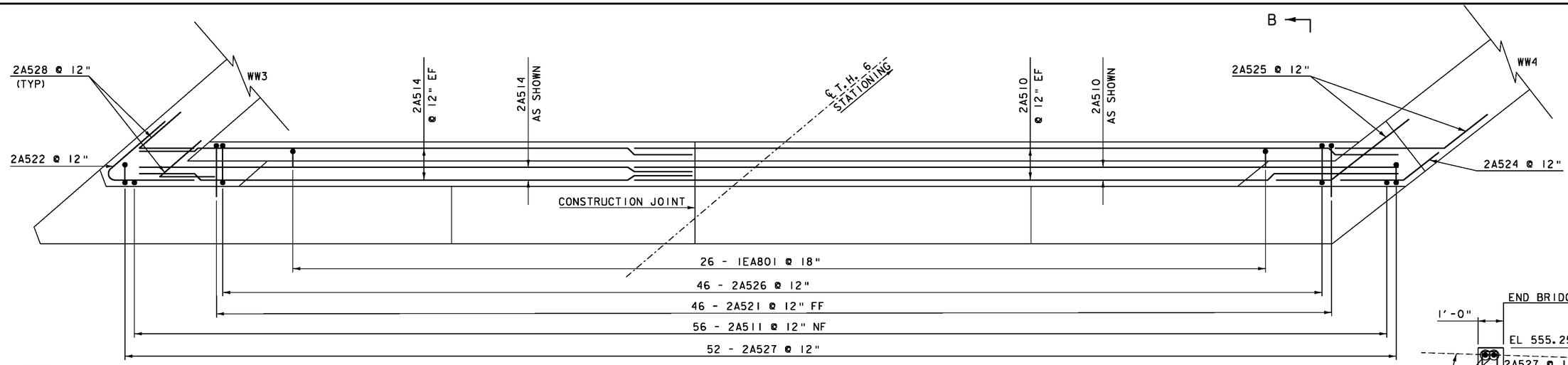
ABUTMENT 1 BACKWALL
SECTION A-A
SCALE ½" = 1'-0"



ABUTMENT 1 BACKWALL
ELEVATION VIEW
SCALE ½" = 1'-0"

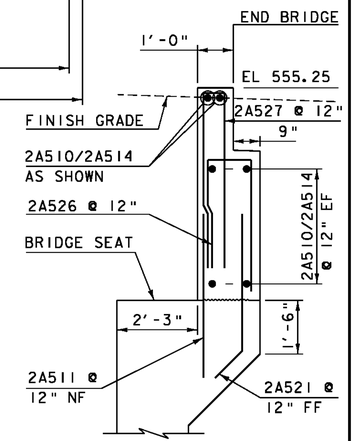
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
ABUTMENT 1BACKWALL DETAILS	SHEET 33 OF 52

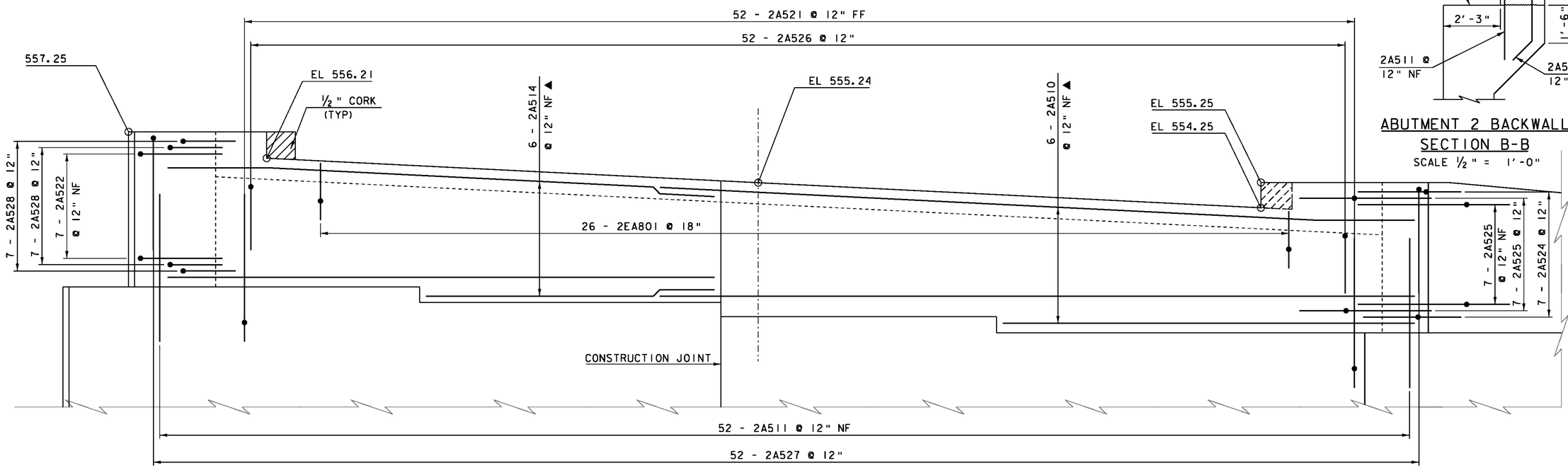


ABUTMENT 2 BACKWALL
PLAN VIEW
SCALE ½" = 1'-0"

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

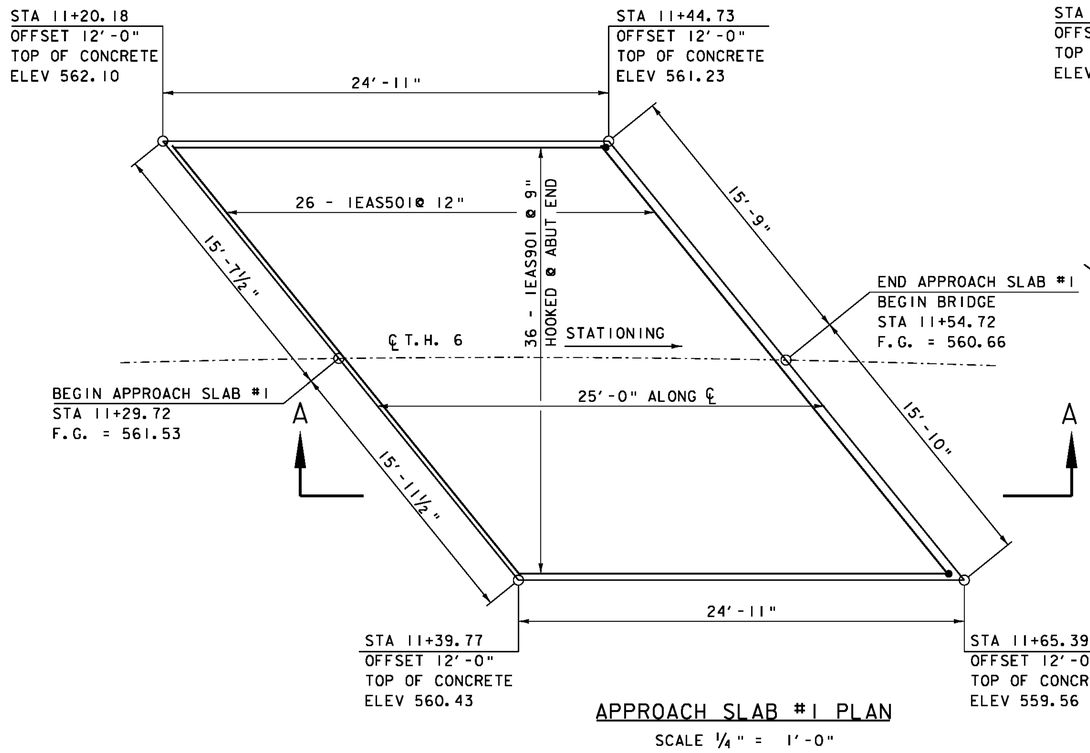


ABUTMENT 2 BACKWALL
SECTION B-B
SCALE ½" = 1'-0"



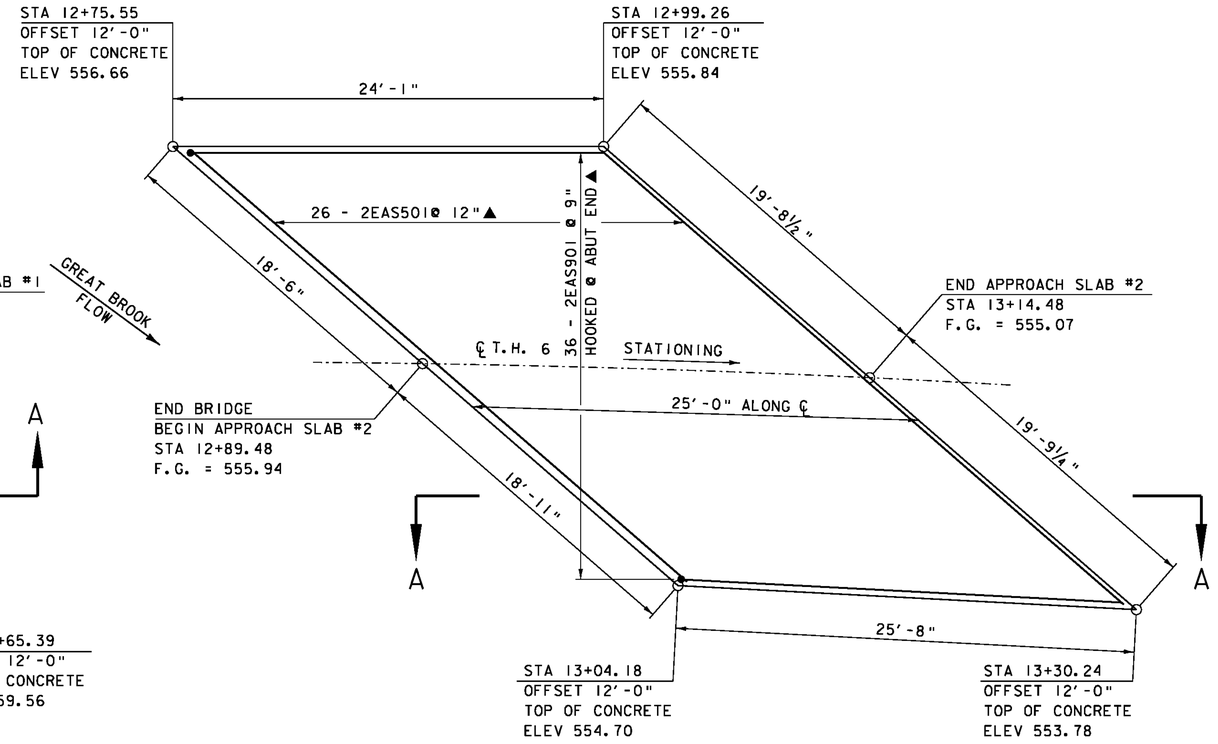
ABUTMENT 2 BACKWALL
ELEVATION VIEW
SCALE ½" = 1'-0"

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282sub.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. GRIFFIN	CHECKED BY: J. LACROIX
ABUTMENT 2 BACKWALL DETAILS	SHEET 34 OF 52



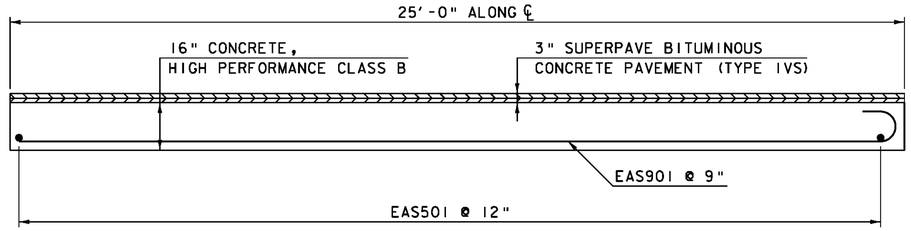
APPROACH SLAB #1 PLAN

SCALE ¼" = 1'-0"



APPROACH SLAB #2 PLAN

SCALE ¼" = 1'-0"



SECTION A-A
APPROACH SLAB ELEVATION (TYP)

SCALE ½" = 1'-0"

NOTE:

E = EPOXY COATED REINFORCING
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282sup.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: R. PELLETT	CHECKED BY: J. SALVATORI
APPROACH SLAB DETAILS	SHEET 35 OF 52

STATE OF VERMONT
AGENCY OF TRANSPORTATION

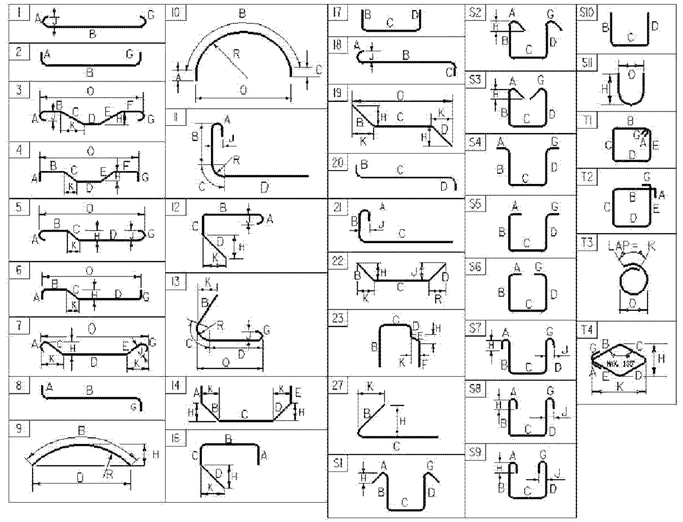
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
▲	8	5	38'- 10"	ES401	STR	38'- 10"											
△	10	5	20'- 0"	ES402	STR	20'- 0"											
	450	5	24'- 10"	ES501	STR	24'- 10"											
△	170	5	46'- 10"	ES502	STR	46'- 10"											
△	532	6	10'- 4"	ES601	S5	5'- 0"	0'- 10"	0'- 11"	0'- 7"			3'- 0"					
	APPROACH SLAB #1																
	26	5	31'- 1"	1EAS501	STR	31'- 1"											
△	36	9	25'- 8"	1EAS901	1	1'- 3"	24'- 5"					---		1'- 0"			
	APPROACH SLAB #2																
▲	26	5	39'- 0"	2EAS501	STR	39'- 0"											
▲	34	9	26'- 5"	2EAS901	1	1'- 3"	25'- 2"					---		1'- 0"			
	ABUTMENT #1																
	20	5	43'- 8"	1A501	STR	43'- 8"											
▲	88	5	7'- 0"	1A502	STR	7'- 0"											
△	90	5	6'- 3"	1A503	STR	6'- 3"											
▲	16	5	43'- 0"	1A504	STR	43'- 0"											
	44	5	8'- 2"	1A505	S10		2'- 2"	3'- 10"	2'- 2"								
	45	5	5'- 11"	1A506	S10		2'- 2"	1'- 7"	2'- 2"								
	39	5	8'- 3"	1A507	S10		3'- 9"	0'- 9"	3'- 9"								
	5	5	12'- 4"	1A508	22		2'- 2"	8'- 0"	2'- 2"				2'- 0"	2'- 0"	0'- 11"	0'- 11"	
	5	5	10'- 8"	1A509	27		5'- 4"	5'- 4"					4'- 2"		3'- 4"		
	10	5	7'- 7"	1A510	22		2'- 2"	5'- 5"	---				1'- 8"	---	1'- 4"	---	
	6	5	4'- 4"	1A511	22		2'- 2"	2'- 2"	---				1'- 8"	---	1'- 4"	---	
	12	5	4'- 4"	1A512	27		2'- 2"	2'- 2"					1'- 8"		1'- 4"		
	6	5	7'- 0"	1A513	27		3'- 6"	3'- 6"					2'- 9"		2'- 2"		
	18	5	5'- 6"	1A514	22		2'- 2"	3'- 4"	---				1'- 8"	---	1'- 4"	---	
△	102	7	9'- 3"	1A701	STR	9'- 3"											
	88	7	10'- 11"	1A702	1	0'- 10"	9'- 3"					0'- 10"		0'- 7"			
	26	8	2'- 6"	1EA801	22		1'- 0"	1'- 6"	---				0'- 9"	---	0'- 9"	---	
	WINGWALL #1																
	16	5	24'- 6"	1W501	STR	24'- 6"											
	42	5	4'- 11"	1W502	STR	4'- 11"											
	41	5	6'- 6"	1W503	STR	6'- 6"											
▲	42	5	11'- 3"	1W504	STR	11'- 3"											
	10	5	22'- 9"	1W505A	STR	22'- 9"											
	14	5	20'- 3"	1W505B	STR	20'- 3"											
	41	5	7'- 8"	1W506	1	0'- 7"	6'- 6"					0'- 7"		0'- 5"			
	21	5	5'- 11"	1W507	S10		2'- 2"	1'- 7"	2'- 2"								
	2	5	20'- 3"	1W511	STR	20'- 3"											
	WINGWALL #2																
	10	5	4'- 11"	2W501	STR	4'- 11"											
▲	28	5	8'- 9"	2W502	STR	8'- 9"											
▲	12	5	13'- 7"	2W503A	STR	13'- 7"											
▲	24	5	12'- 11"	2W503B	STR	12'- 11"											
	14	5	5'- 11"	2W504	S10		2'- 2"	1'- 7"	2'- 2"								
	2	5	17'- 4"	2W505	22		6'- 10"	10'- 6"	---				4'- 10"	---	4'- 10"	---	

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	ABUTMENT #2																
	22	5	11'- 0"	2A501	STR	11'- 0"											
	12	5	4'- 11"	2A502	STR	4'- 11"											
	16	5	15'- 0"	2A503	STR	15'- 0"											
△	45	5	5'- 9"	2A504	STR	5'- 9"											
	16	5	29'- 7"	2A505	STR	29'- 7"											
				2A506		THIS BAR NOT USED											
	12	5	14'- 2"	2A507	STR	14'- 2"											
	20	5	9'- 4"	2A508	STR	9'- 4"											
	16	5	9'- 6"	2A509	STR	9'- 6"											
	16	5	24'- 6"	2A510	STR	24'- 6"											
	52	5	4'- 11"	2A511	STR	4'- 11"											
	32	5	6'- 0"	2A512	STR	6'- 0"											
				2A513		THIS BAR NOT USED											
▲	12	5	28'- 6"	2A514	STR	28'- 6"											
	57	5	9'- 7"	2A515	17		3'- 10"	5'- 9"	---								
	5	5	15'- 8"	2A516	19		2'- 2"	11'- 4"	2'- 2"				1'- 7"		1'- 7"		14'- 6"
	11	5	11'- 4"	2A517	20		2'- 2"	7'- 0"	2'- 2"								
	5	5	10'- 0"	2A518	19		2'- 2"	5'- 8"	2'- 2"				1'- 7"		1'- 7"		8'- 10"
	11	5	8'- 4"	2A519	20		2'- 2"	4'- 0"	2'- 2"								
	52	5	10'- 11"	2A520	16		2'- 2"	3'- 6"	1'- 3"	4'- 0"			2'- 10"		2'- 10"		
	52	5	5'- 3"	2A521	22		1'- 0"	4'- 3"	---				0'- 9"	---	0'- 9"		---
	6	5	8'- 6"	2A522	27		4'- 3"	4'- 3"					2'- 9"		3'- 2"		
	6	5	9'- 4"	2A523	22		2'- 2"	5'- 0"	2'- 2"				2'- 0"	2'- 0"	0'- 9"	0'- 9"	
	23	5	4'- 4"	2A524	22		2'- 2"	2'- 2"	---				1'- 4"	---	1'- 8"		
	46	5	7'- 0"	2A525	22		2'- 2"	4'- 10"	---				1'- 4"	---	1'- 8"		---
	46	5	10'- 10"	2A526	S10		4'- 9"	1'- 4"	4'- 9"								
	52	5	8'- 1"	2A527	S10		3'- 9"	0'- 7"	3'- 9"								
	12	5	4'- 4"	2A528	27		2'- 2"	2'- 2"					1'- 5"		1'- 8"		
	28	5	2'- 6"	2EA501	22		1'- 0"	1'- 6"	---				0'- 9"	---	0'- 9"		---
△ ▲	84	7	10'- 0"	2A701	STR	10'- 0"											
	50	8	3'- 6"	2A801	STR	3'- 6"											
△	20	8	13'- 4"	2A802	17		3'- 7"	9'- 9"	---								
△	22	10	15'- 6"	2A1001	STR	15'- 6"											
	WINGWALL #3																
▲	14	5	39'- 4"	3W501	STR	39'- 4"											
	49	5	7'- 9"	3W502	STR	7'- 9"											
	33	5	3'- 11"	3W503	STR	3'- 11"											
▲	66	5	11'- 0"	3W504	STR	11'- 0"											
▲	24	5	33'- 0"	3W505	STR	33'- 0"											
	33	5	7'- 7"	3W506	17		3'- 7"	4'- 0"	---								
	33	5	5'- 11"	3W507	S10		2'- 2"	1'- 7"	2'- 2"								
	WINGWALL #4																
▲	18	5	18'- 9"	4W501	STR	18'- 9"											
	18	5	4'- 11"	4W502	STR	4'- 11"											
▲	18	5	20'- 0"	4W503	STR	20'- 0"											
	18	5	15'- 2"	4W504	STR	15'- 2"											
▲	42	5	18'- 9"	4W505	STR	18'- 9"											
	18	5	6'- 5"	4W506	S10		2'- 2"	2'- 1"	2'- 2"								
	36	7	13'- 10"	4W701	17		4'- 1"	9'- 9"	---								
△	38	9	11'- 6"	4W901	STR	11'- 6"											

~ NOTES ~

1. 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-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. 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".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ‡ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX 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: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282rss.xls
PROJECT MANAGER: K. HIGGINS
DESIGNED BY: J. GRIFFIN
REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: 8/15/11
DRAWN BY: R. PELLETT
CHECKED BY: J. LACROIX

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 57 ON TH 6 (MAIN ST.) IN SPRINGFIELD, VT. THE NEW STRUCTURE WILL BE APPROXIMATELY 134 FEET IN LENGTH. ABUTMENT #1 WILL BE A SPREAD FOOTING ON PILES AND ABUTMENT #2 WILL BE A SPREAD FOOTING ON BEDROCK.

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 0.27 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

TOWN HIGHWAY 6 IS AN EXISTING PAVED ROAD.

THE MAJORITY OF THE PROJECT IS MATCHED TO EXISTING GRADE WITH FILL IN A FEW LOCATIONS. THERE IS ONE EXISTING GRAVEL DRIVE THAT WILL BE REDEVELOPED AS PART OF THE PROJECT. THERE ARE RESIDENCES ON BOTH EAST AND WEST SIDES OF THE PROJECT THAT WILL NOT BE AFFECTED BY THE DISTURBED AREA OF THE PROJECT. THERE IS AN EXISTING UTILITY POLE THAT WILL NEED TO BE RELOCATED. THE EXISTING WATER AND SEWER LINES WILL NEED TO BE PROTECTED DURING CONSTRUCTION. FOR FINAL CONTOURS AND SLOPES SEE THE CROSS SECTIONS AND/OR EPSC FINAL CONDITIONS.

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

THE GREAT BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS INCISED WITH UNSTABLE STREAM BANKS. THE STREAM BED IS ROCK, SAND AND COBBLES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH TO THE WEST AND EAST WITH RESIDENCES ON ALL SIDES. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE RE-ESTABLISHED 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 WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE:

ADAMS LOAMY FINE SAND	15% TO 25% SLOPES	"K FACTOR" = 0.17
URBAN LAND-COLTON-CROGHAN	0% TO 8% SLOPES	"K FACTOR" = 0.17

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: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES, ARCHEOLOGICAL
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: GREAT BROOK
WETLANDS: NO

THERE IS AN ARCHEOLOGICAL SIGNIFICANT AREA ON THE SOUTH EAST AREA OF THE PROJECT. ANY DISTURBANCE SHALL BE LIMITED TO FILL.

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. 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 MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED 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 SUSPENDED SEDIMENT TO SETTLE OUT.

FILTER CURTAINS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN PRIOR TO ANY CHANNEL WORK.

WOVEN WIRE REINFORCED SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN PRIOR TO ANY UP SLOPE WORK.

1.4.5 DIVERT UPLAND RUNOFF

THE PROJECT AREA IS RELATIVELY FLAT. THERFORE IT IS NOT ANTICPIATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS.

INSTALL STONE FILL AS SHOWN ON THE PLANS.

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.

TREATMENT (FILTER BAG) OF DEWATERING COFFERDAM FOR ABUTMENT #2 IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

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

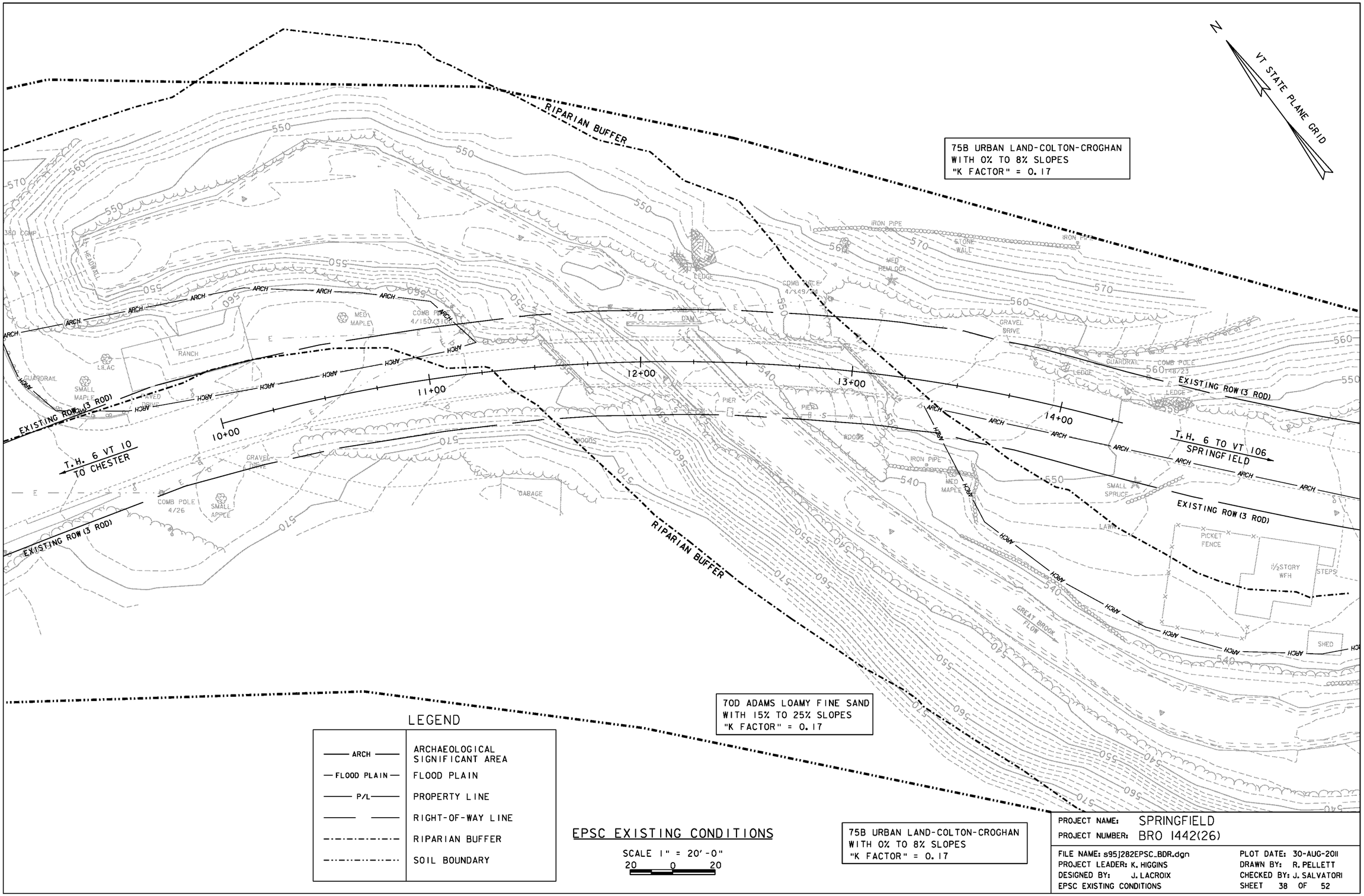
1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)

FILE NAME: s95J282EPSC_narrative.dgn	PLOT DATE: 14-SEP-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. LACROIX	CHECKED BY: J. SALVATORI
EPSC NARRATIVE	SHEET 37 OF 52



PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282EPSC_BDR.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
EPSC EXISTING CONDITIONS

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 38 OF 52

N

VT STATE PLANE GRID

75B URBAN LAND-COLTON-CROGHAN
WITH 0% TO 8% SLOPES
"K FACTOR" = 0.17

RIPARIAN BUFFER

END APPROACH
STA 14+00.00

SAVE

52+00

10+00

11+00

12+00

13+00

14+00

50+00

EXISTING ROW (3 ROD)

T.H. 6 VT 10
TO CHESTER

T.H. 6 TO VT 106
SPRINGFIELD

BEGIN APPROACH
STA 10+50.00

BEGIN PROJECT
STA 11+00.00

BEGIN BRIDGE
STA 11+54.72
F.G. = 560.66

END BRIDGE
STA 12+89.48
F.G. = 555.94

END PROJECT
STA 13+50.00

70D ADAMS LOAMY FINE SAND
WITH 15% TO 25% SLOPES
"K FACTOR" = 0.17

75B URBAN LAND-COLTON-CROGHAN
WITH 0% TO 8% SLOPES
"K FACTOR" = 0.17

EXISTING CONTOURS SHOWN
SEE CROSS SECTIONS FOR FINAL CONTOURS

LEGEND

	FILTER CURTAIN
	FILTER BAG
	CHECK DAM
	CUT/FILL LIMITS
PDF	PROJECT DEMARCATION FENCE
	ROLLED EROSION CONTROL PRODUCT (RECP)
	STONE FILL
	SILT FENCE WOVEN WIRE
	STABILIZED CONSTRUCTION ENTRANCE

EPSC DURING CONSTRUCTION

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282EPSC_BDR.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: J. LACROIX	CHECKED BY: J. SALVATORI
EPSC DURING CONSTRUCTION	SHEET 39 OF 52

N

VT STATE PLANE GRID

75B URBAN LAND-COLTON-CROGHAN
WITH 0% TO 8% SLOPES
"K FACTOR" = 0.17

RIPARIAN BUFFER

380 COMP

HEADWALL

SAVE

MED MAPLE

COMB POLE 4/150/3100

ARCH

RANCH

LILAC

GUARDRAIL

SMALL MAPLE

GRAVEL DRIVE

HOBY

ROW

EXISTING ROW (3 ROD)

T.H. 6 VT 10
TO CHESTER

COMB POLE 4/26

SMALL APPLE

GRAVEL DRIVE

52+00

12+00

11+00

10+00

BEGIN APPROACH
STA 10+50.00

BEGIN PROJECT
STA 11+00.00

BEGIN BRIDGE
STA 11+54.72
F.G. = 560.66

WOODS

GARAGE

50+00

RIPARIAN BUFFER

END BRIDGE
STA 12+89.48
F.G. = 555.94

LEDGE

COMB POLE 4/149/34

IRON PIPE

STONE WALL

MED HEMLOCK

PIER

13+00

14+00

END APPROACH
STA 14+00.00

END PROJECT
STA 13+50.00

GRAVEL DRIVE

GUARDRAIL

COMB POLE 148/23

LEDGE

T.H. 6 TO VT 106
SPRINGFIELD

SMALL SPRUCE

MED MAPLE

LAWN

PICKET FENCE

1½STORY WFH

STEPS

SHED

GREAT BROOK FLOW

AREAS OF EARTH DISTURBANCE
THAT WILL REQUIRE REVEGETATION.

70D ADAMS LOAMY FINE SAND
WITH 15% TO 25% SLOPES
"K FACTOR" = 0.17

75B URBAN LAND-COLTON-CROGHAN
WITH 0% TO 8% SLOPES
"K FACTOR" = 0.17

EPSC FINAL CONDITIONS

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282EPSC_BDR.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
EPSC FINAL CONDITIONS

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 40 OF 52

VAOT RURAL AREA MIX

LBS/AC					
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX

LBS/AC					
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	*FOLLOW*	PELLETIZED	*FOLLOW*
500 LBS/AC	*MANUFACTURER*	2 TONS/AC	*MANUFACTURER*

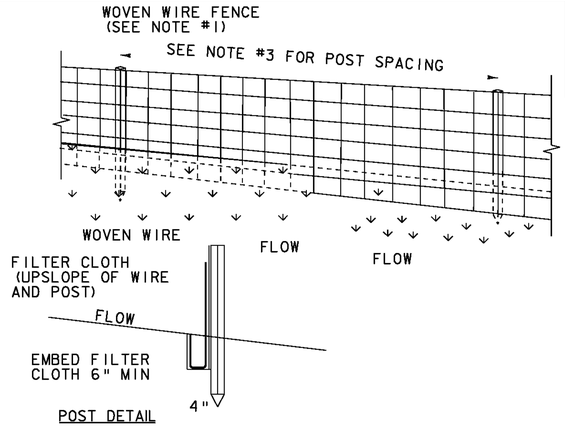
CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN 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. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. 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

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	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, MIRAFI100X, 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.

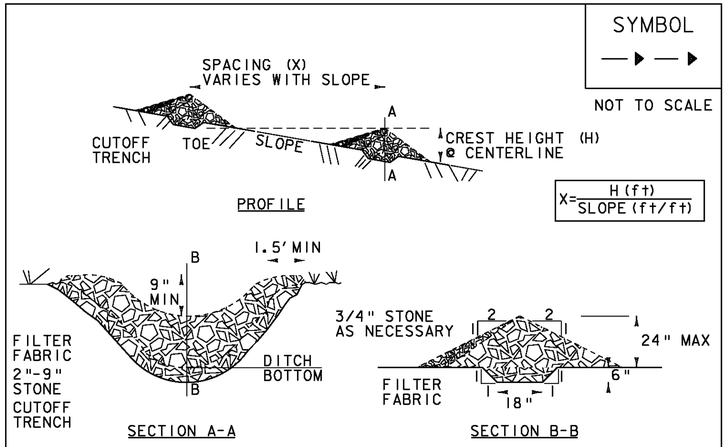
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



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 OFTHE 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.

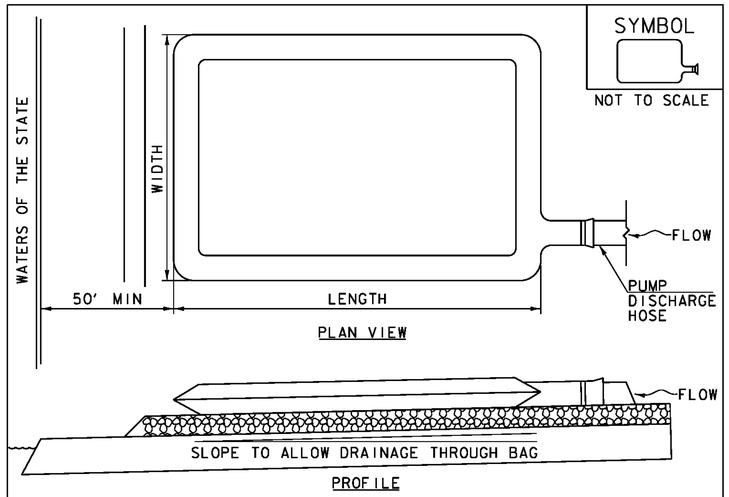
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282EPSC_details.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
EPSC DETAILS - 1

PLOT DATE: 14-SEP-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI



CONSTRUCTION SPECIFICATIONS

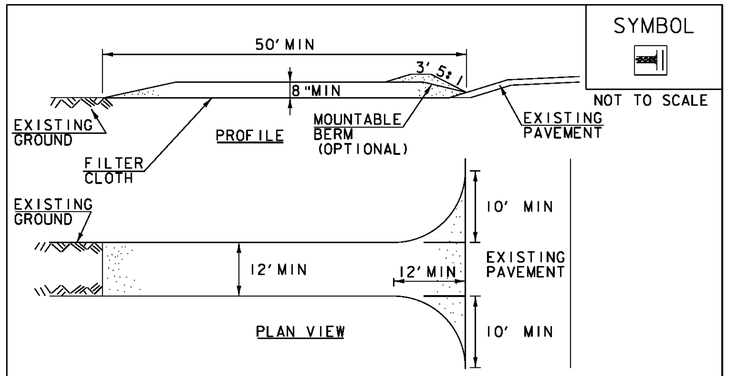
1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION 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



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.

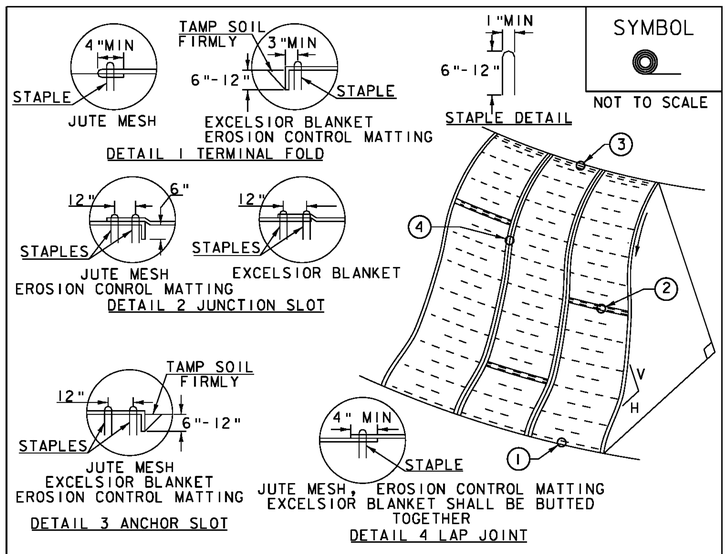
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



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'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' 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

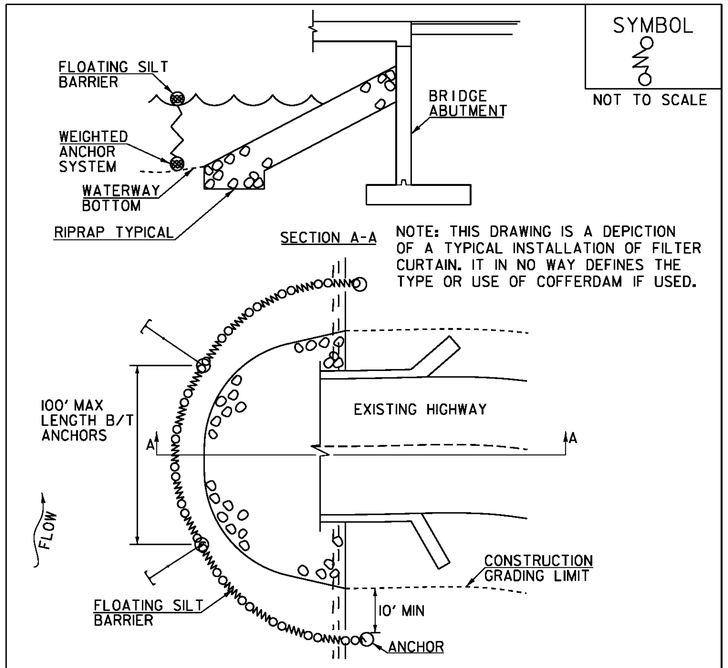
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282EPSC_details.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
EPSC DETAILS - 2

PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 42 OF 52



SYMBOL

NOT TO SCALE

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN. IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.

CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

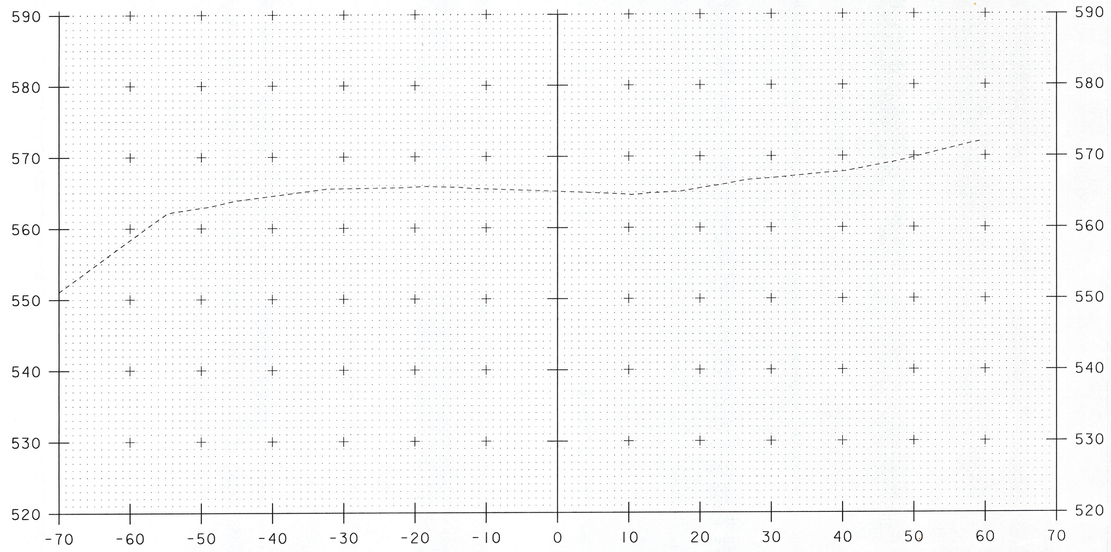
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF

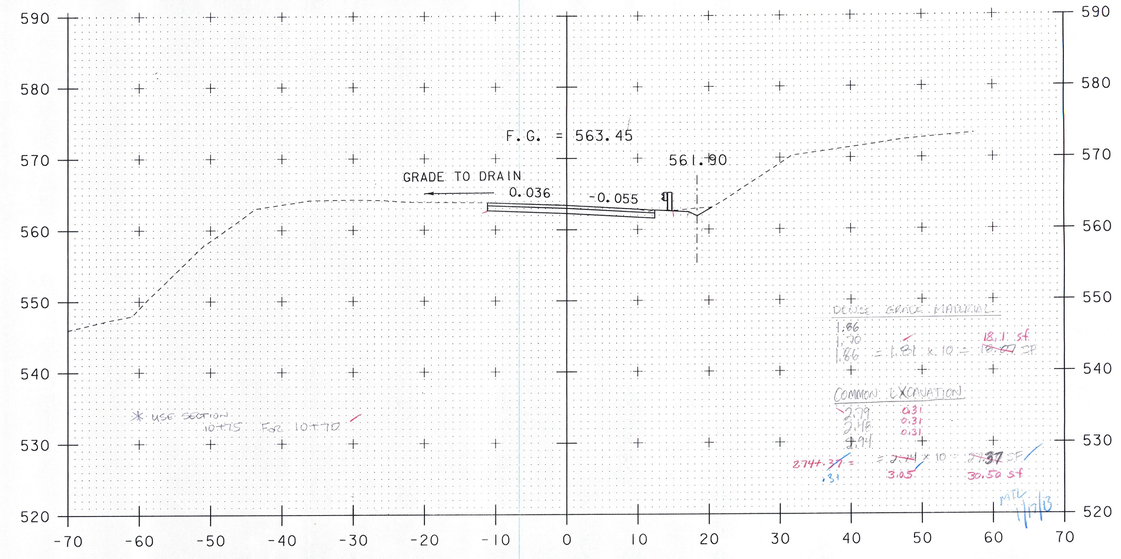
PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282EPSC_details.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. LACROIX
EPSC DETAILS - 3

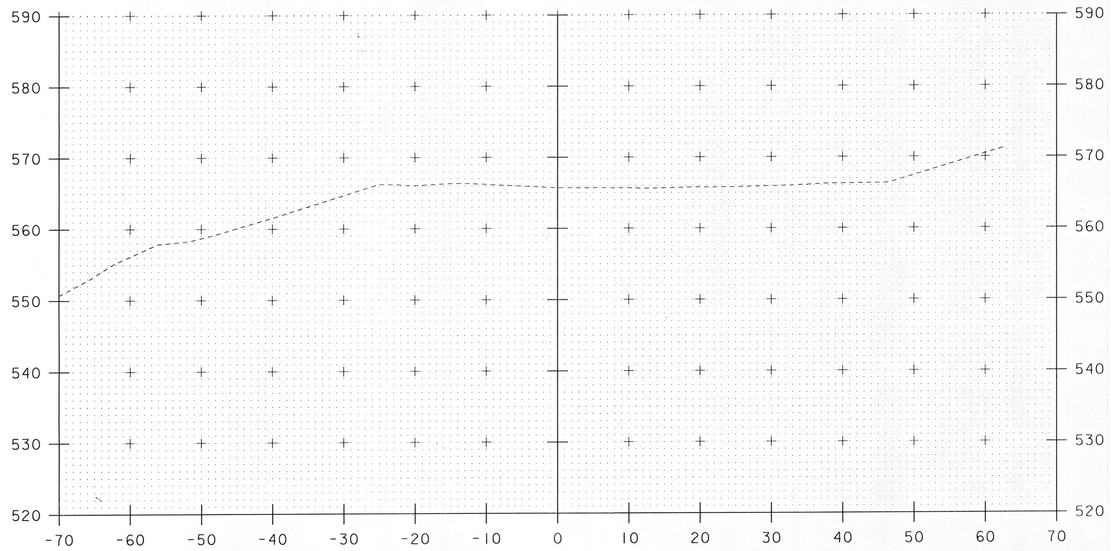
PLOT DATE: 30-AUG-2011
DRAWN BY: R. PELLETT
CHECKED BY: J. SALVATORI
SHEET 43 OF 52



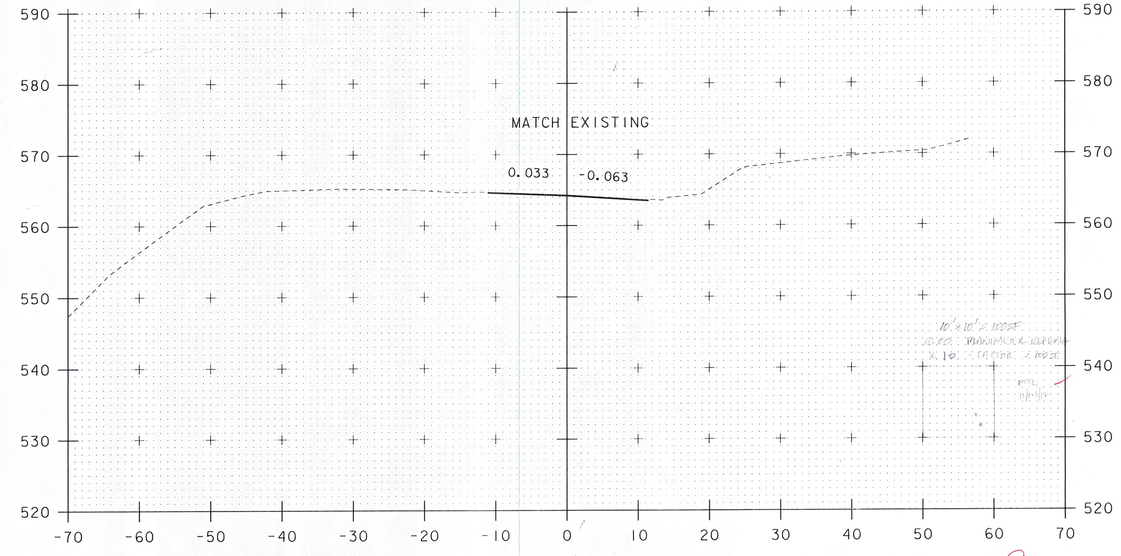
10+25



10+75



10+00

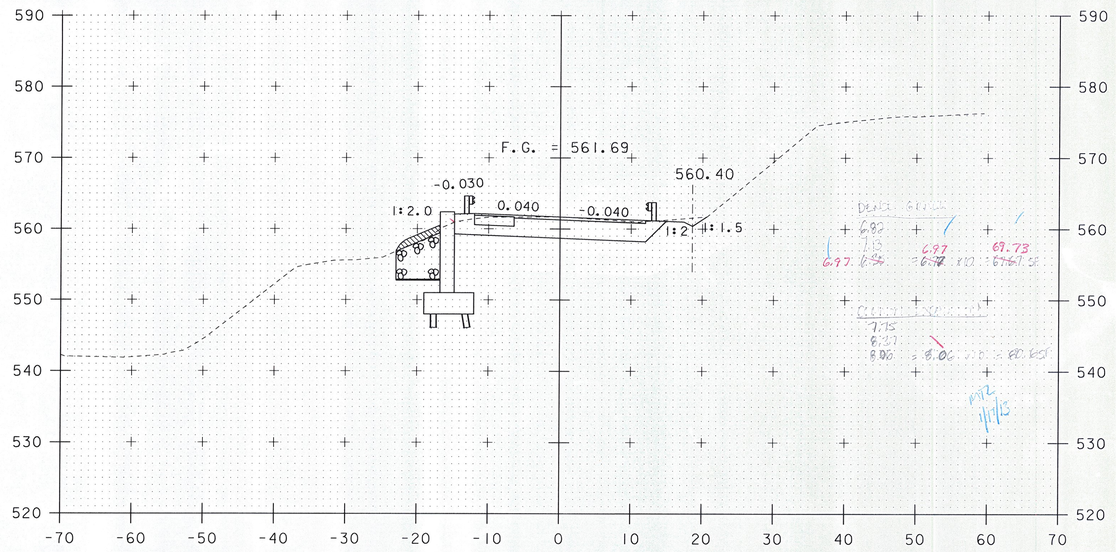


BEGIN APPROACH
10+50

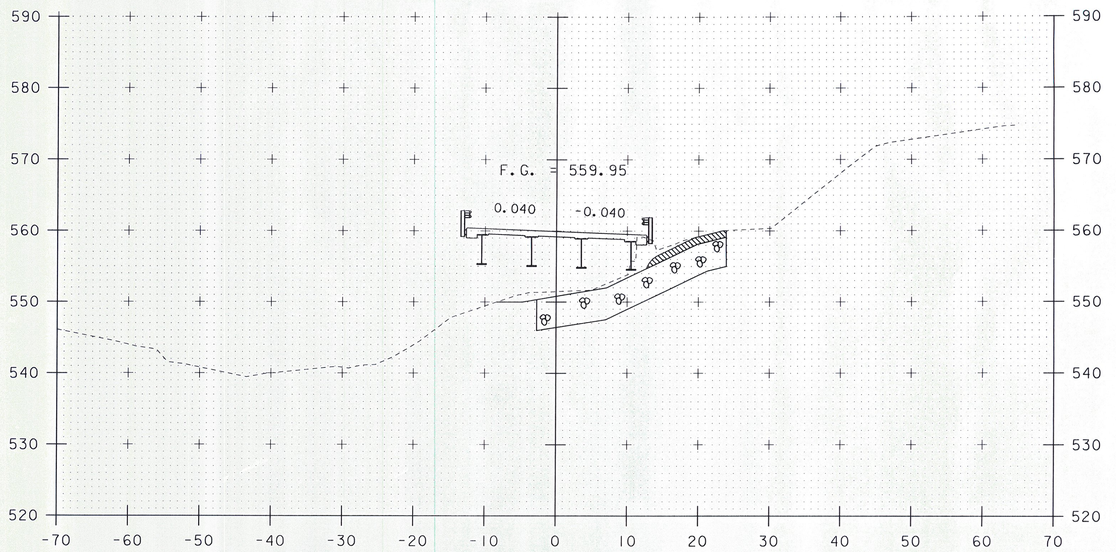
SCALE 1" = 10'-0"
10 0 10

STA. 10+00 TO STA. 10+75

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
ROADWAY CROSS SECTIONS - 1	SHEET 44 OF 52

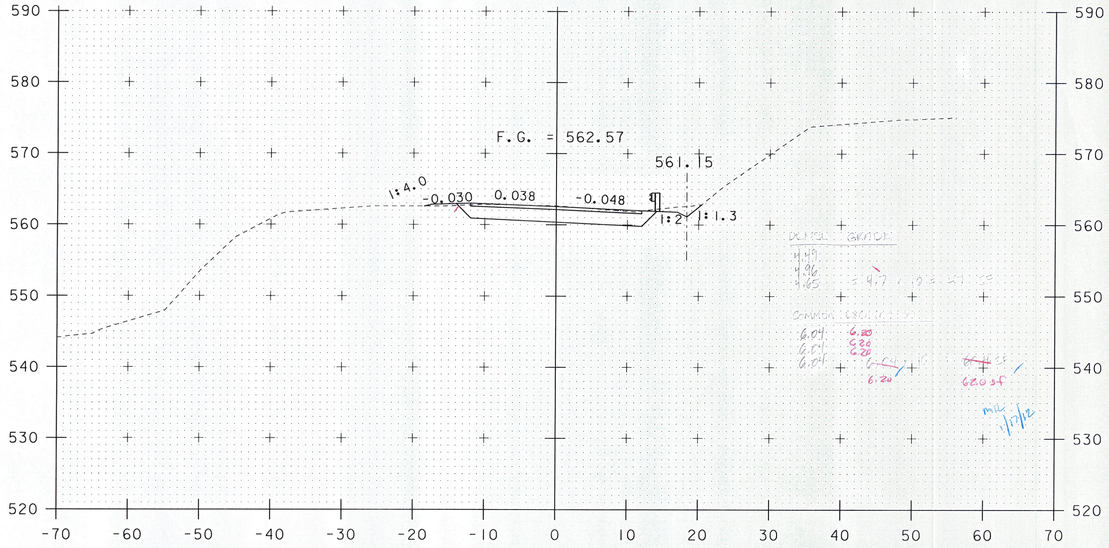


11+25

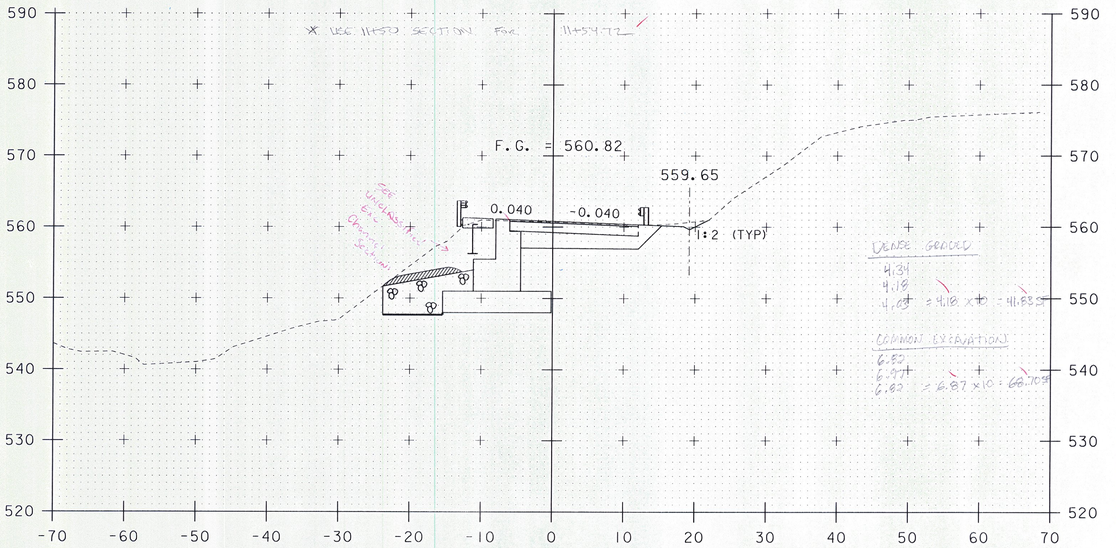


11+75

BEGIN BRIDGE @ 11+54.72



BEGIN PROJECT
11+00

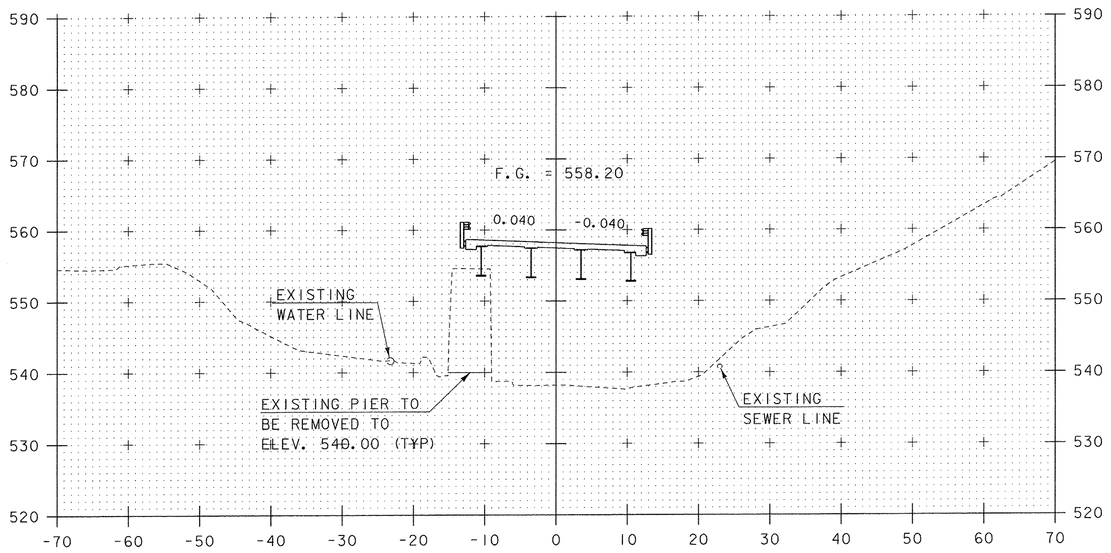


11+50

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

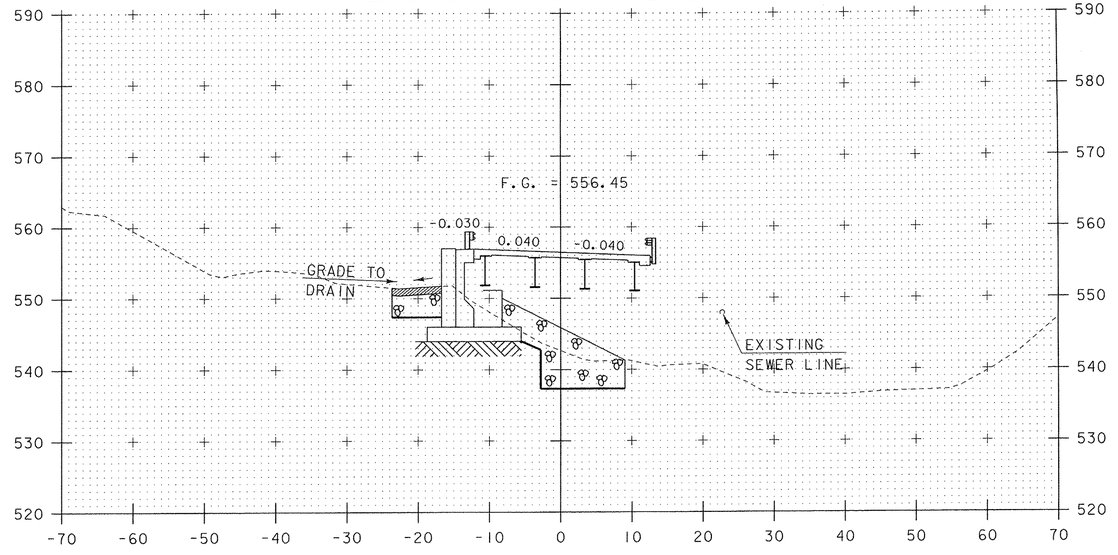
STA. 11+00 TO STA. 11+75

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
ROADWAY CROSS SECTIONS - 2	SHEET 45 OF 52

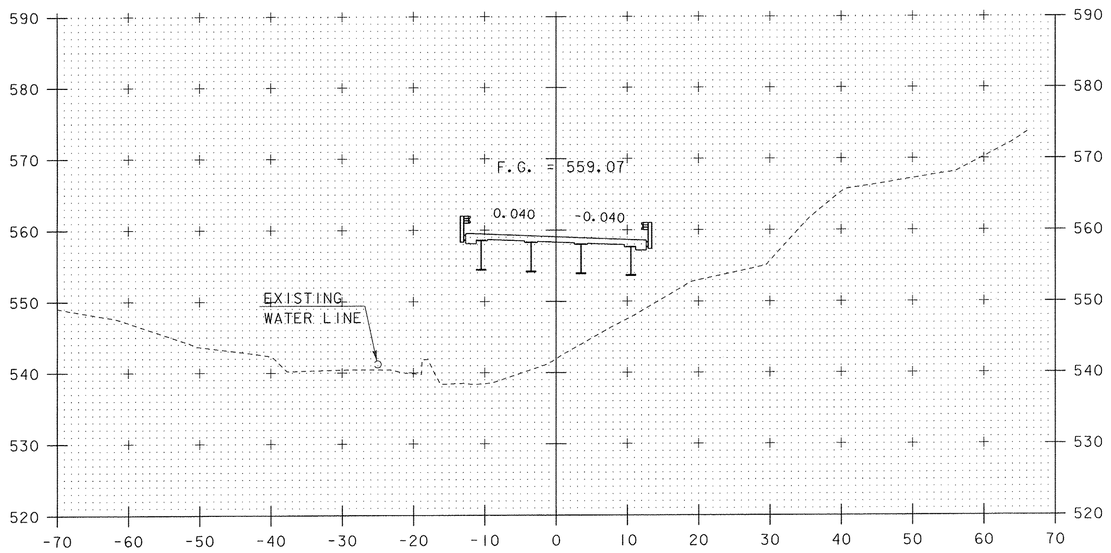


12+25

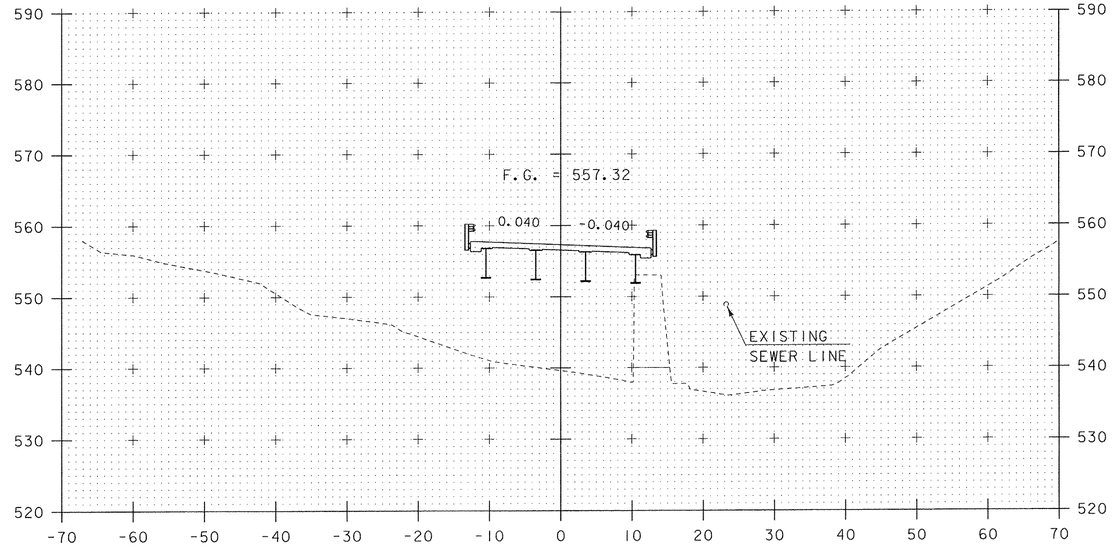
END BRIDGE @ 12+89.48



12+75



12+00



12+50

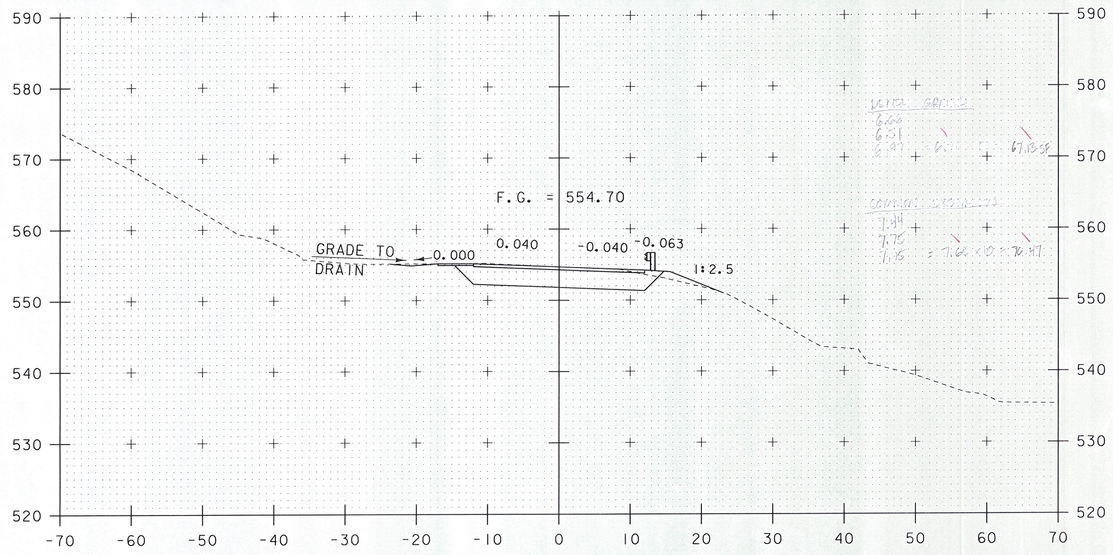
SCALE 1" = 10'-0"
10 0 10

STA. 12+00 TO STA. 12+75

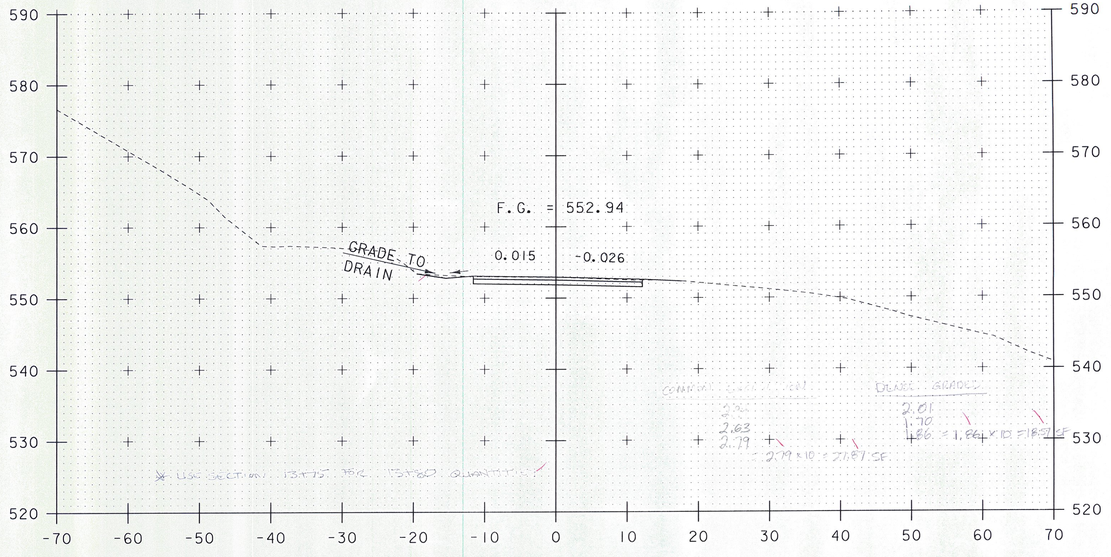
PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282xsl.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
ROADWAY CROSS SECTIONS - 3

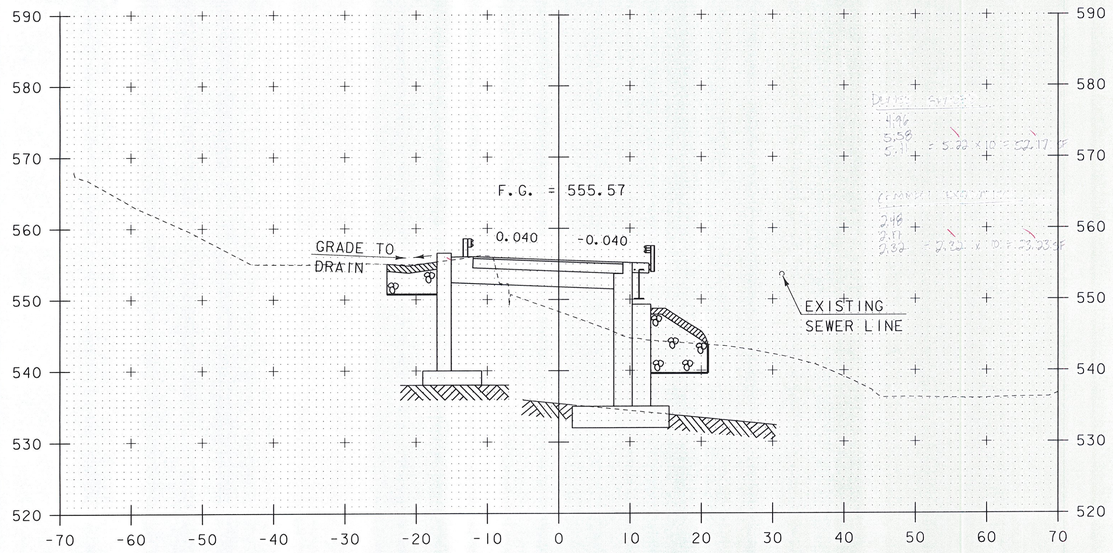
PLOT DATE: 30-AUG-2011
DRAWN BY: J. SALVATORI
CHECKED BY: J. LACROIX
SHEET 46 OF 52



13+25



13+75



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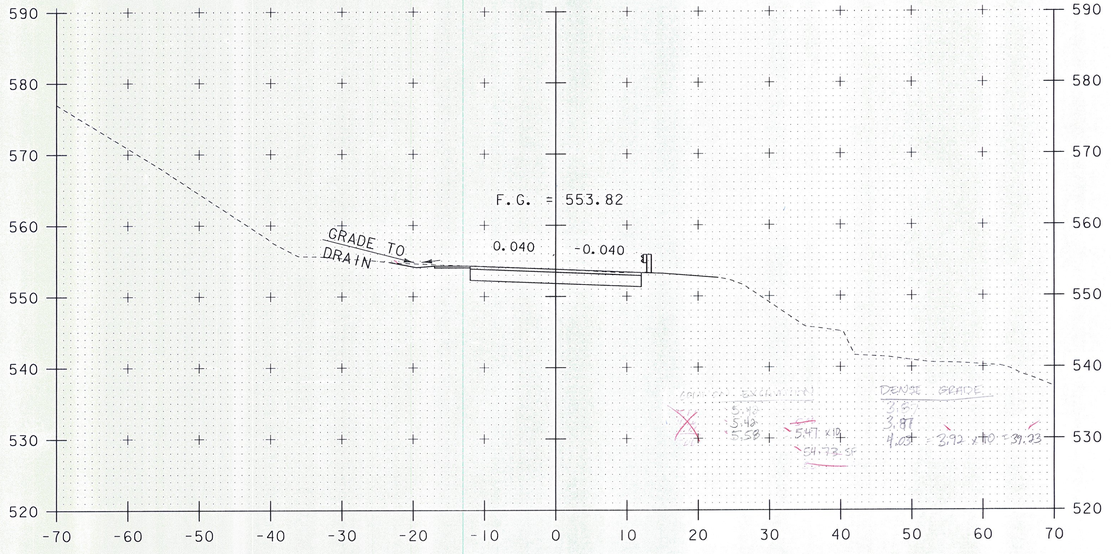
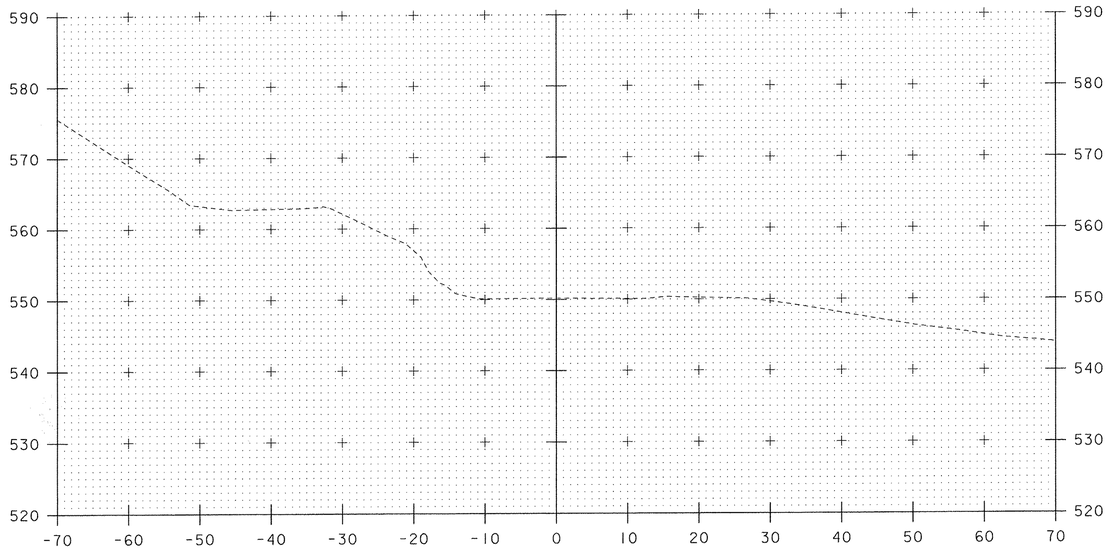


END PROJECT
13+50

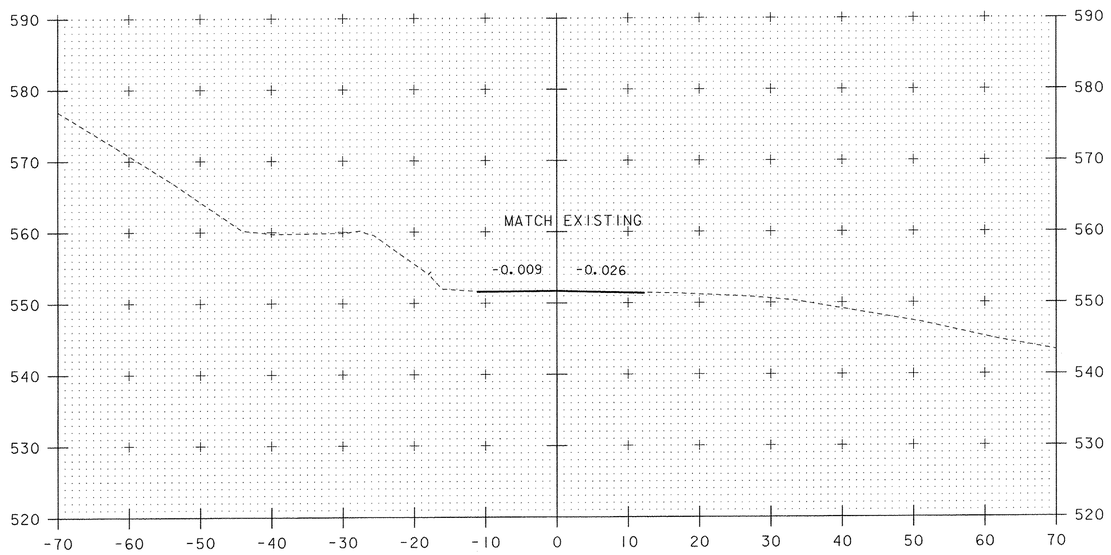
SCALE 1" = 10'-0"
10 0 10

STA. 13+00 TO STA. 13+75

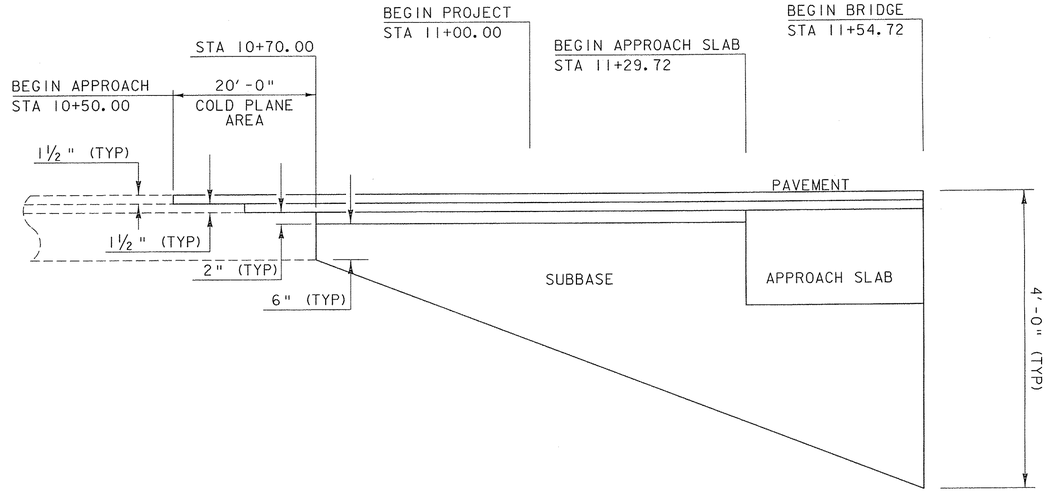
PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s95j282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
ROADWAY CROSS SECTIONS - 4	SHEET 47 OF 52

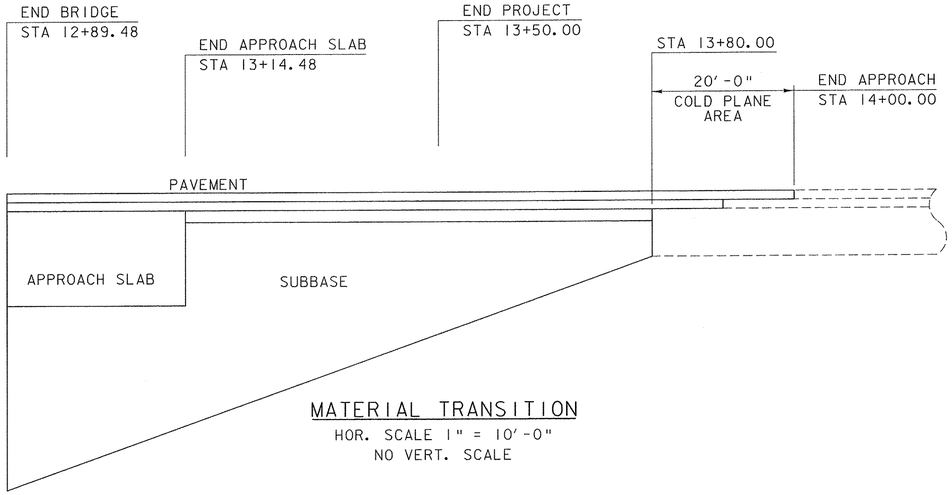


14+25



END APPROACH
14+00





MATERIAL TRANSITION
HOR. SCALE 1" = 10'-0"
NO VERT. SCALE

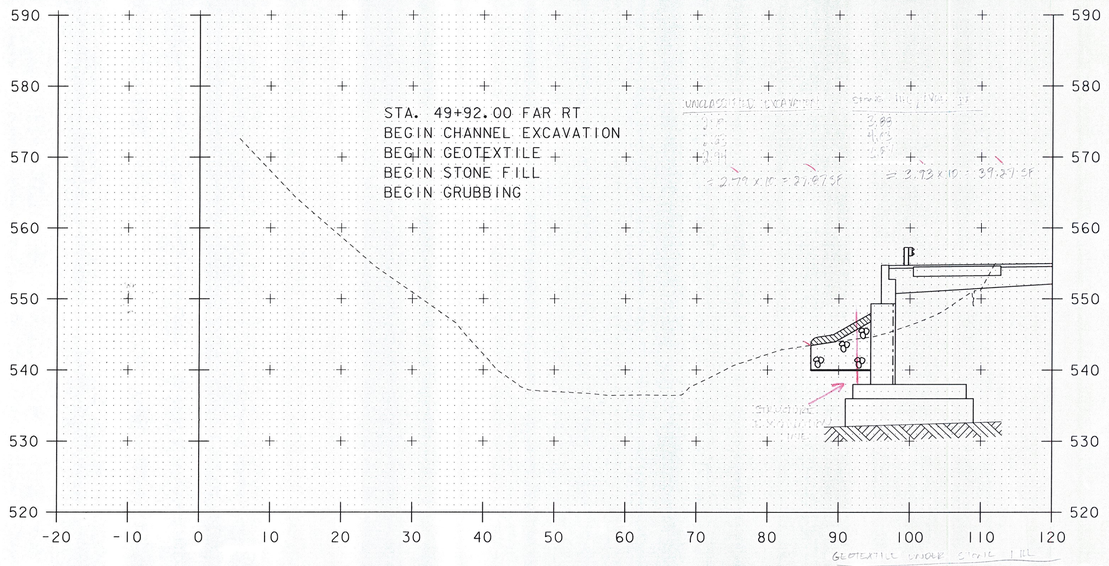
SCALE 1" = 10'-0"
10 0 10

STA. 14+00 TO STA. 14+25

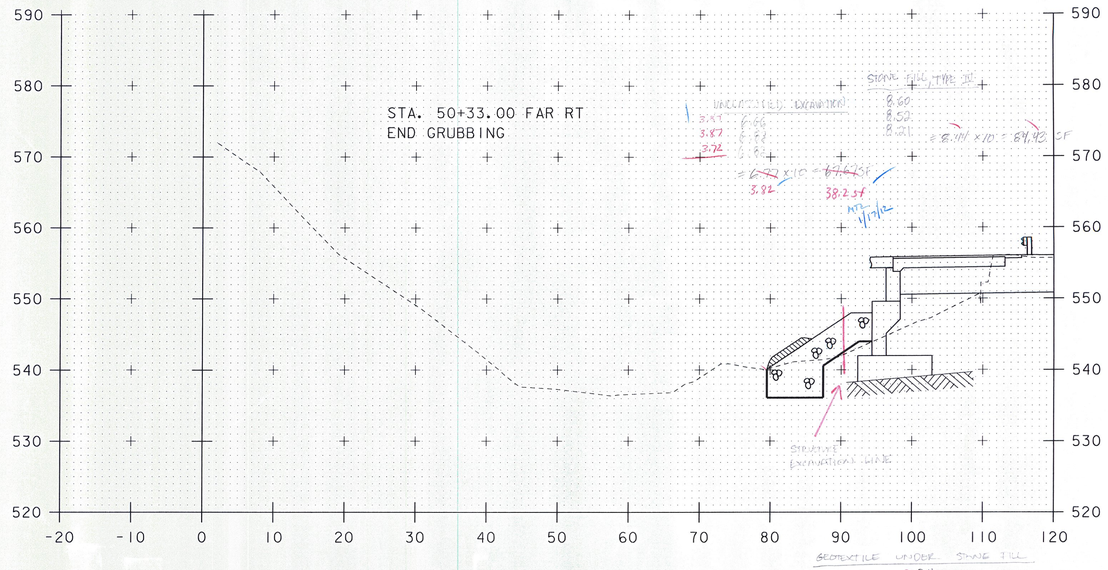
PROJECT NAME: SPRINGFIELD
PROJECT NUMBER: BRO 1442(26)

FILE NAME: s95j282xsl.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
ROADWAY CROSS SECTIONS - 5

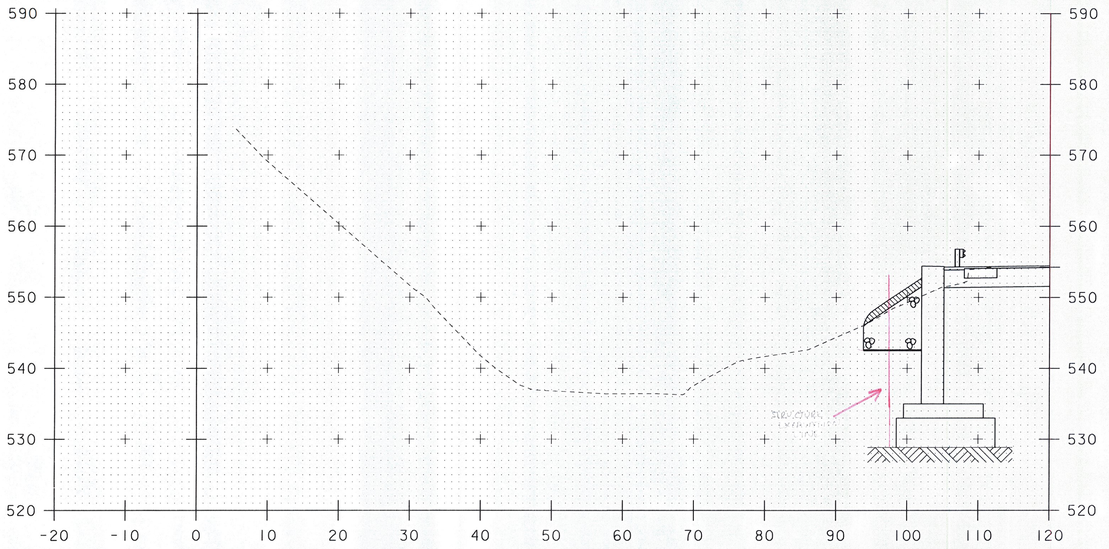
PLOT DATE: 30-AUG-2011
DRAWN BY: J. SALVATORI
CHECKED BY: J. LACROIX
SHEET 48 OF 52



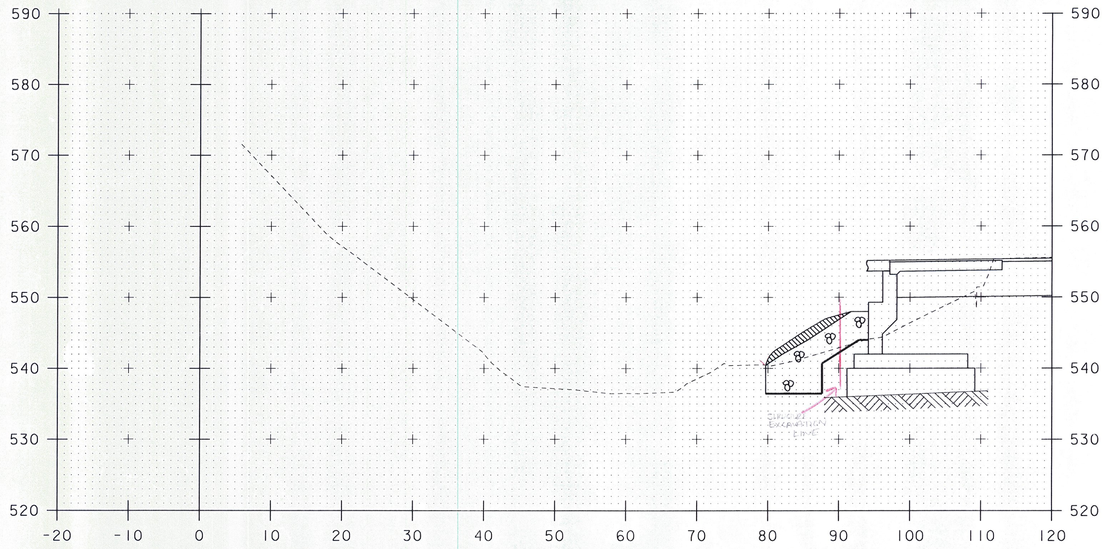
50+10



50+30



50+00

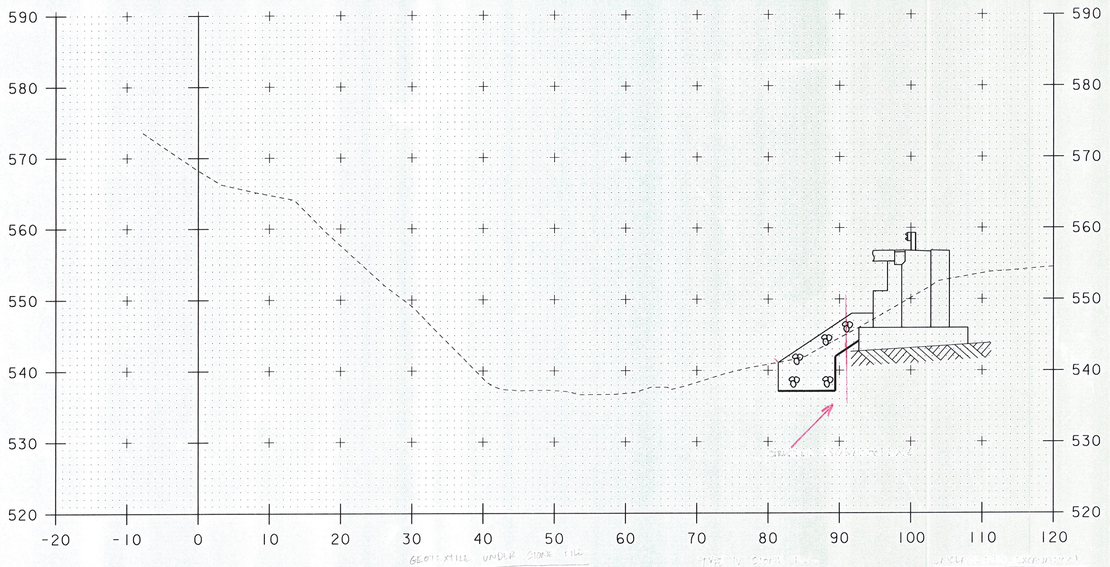


50+20

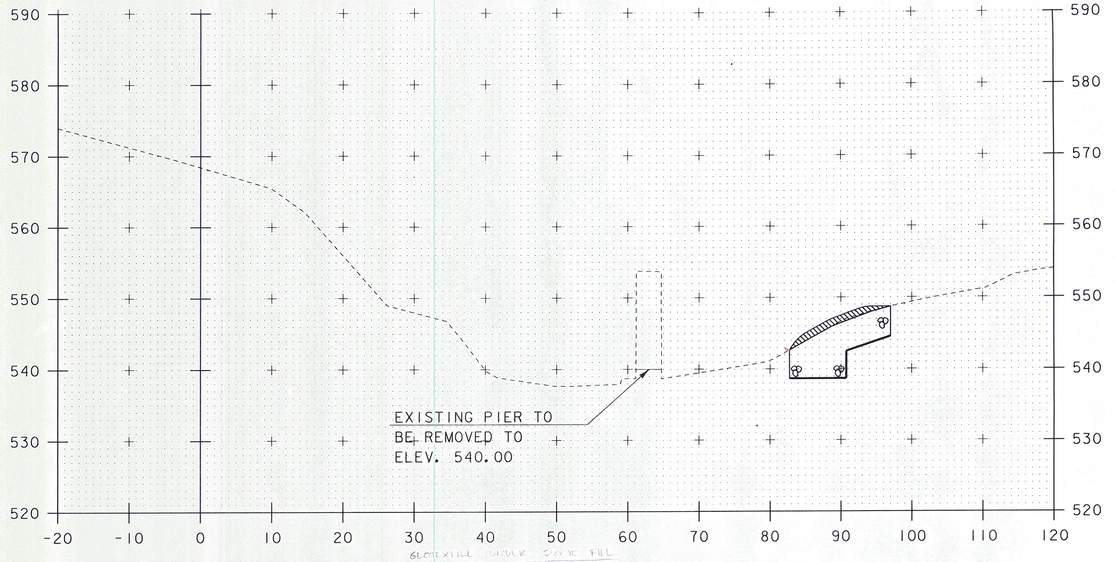
SCALE 1" = 10'-0"
10 0 10

STA. 50+00 TO STA. 50+30

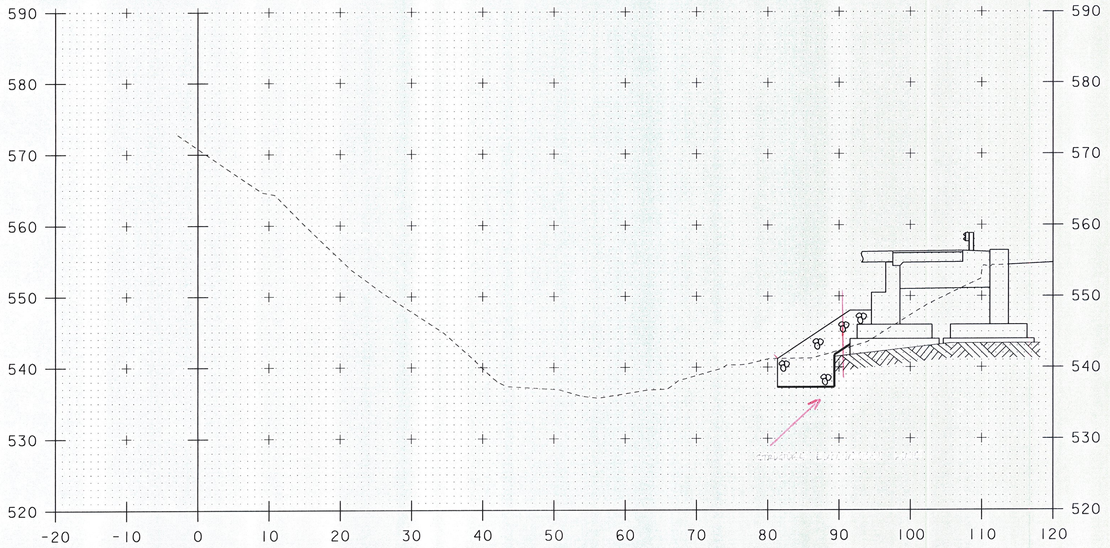
PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s95j282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS - 1	SHEET 49 OF 52



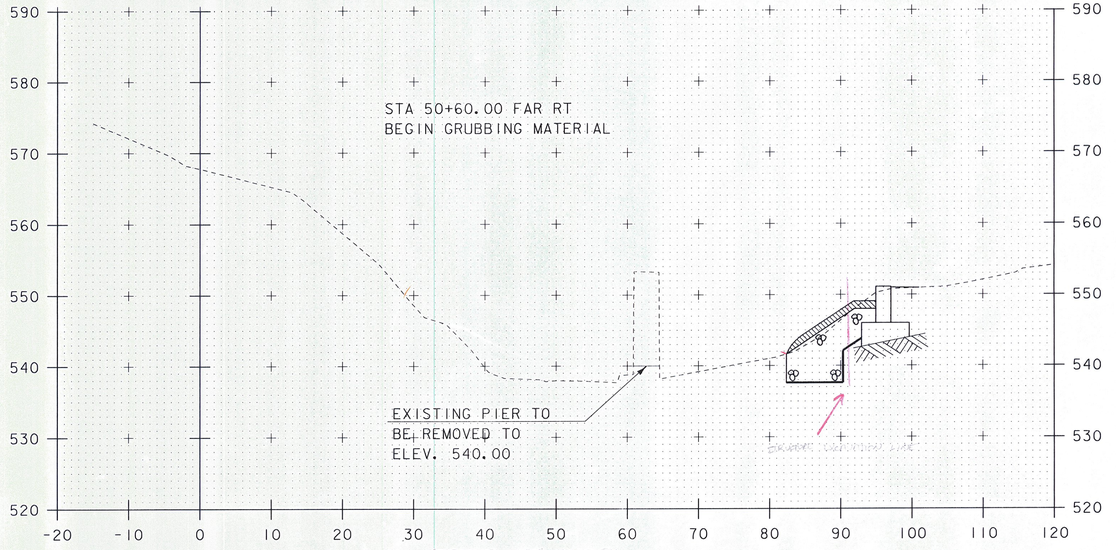
50+50



50+70



50+40

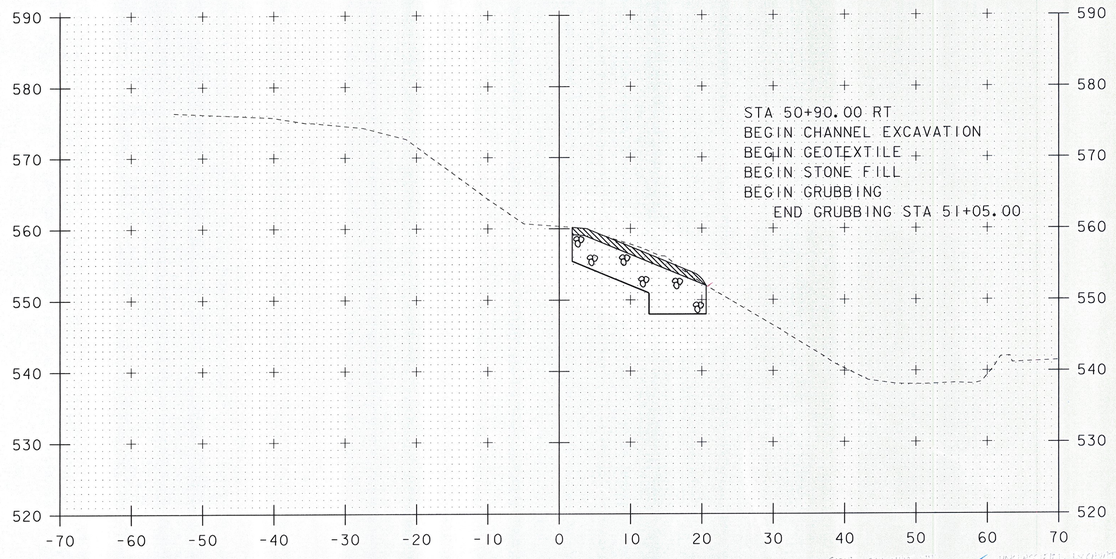


50+60

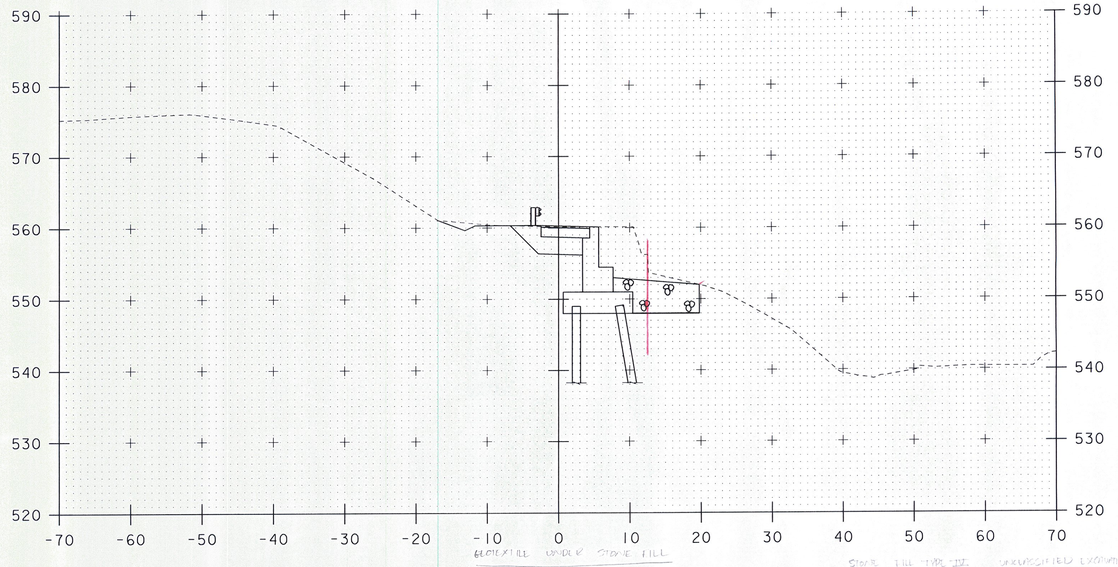
SCALE 1" = 10'-0"
10 0 10

STA. 50+40 TO STA. 50+70

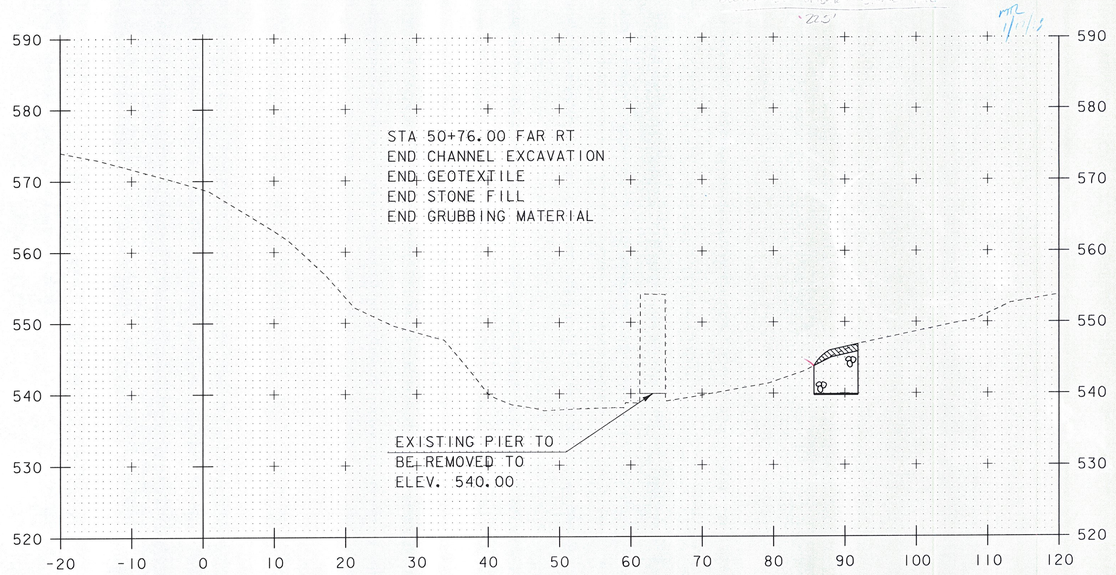
PROJECT NAME: SPRINGFIELD	
PROJECT NUMBER: BRO 1442(26)	
FILE NAME: s95j282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS - 2	SHEET 50 OF 52



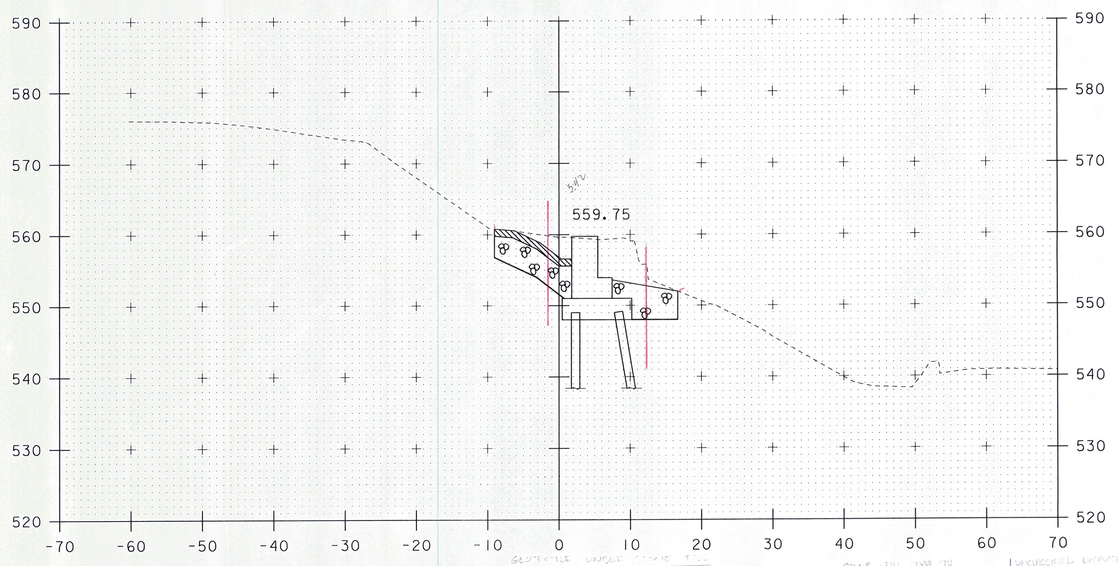
51+00



51+20



50+75

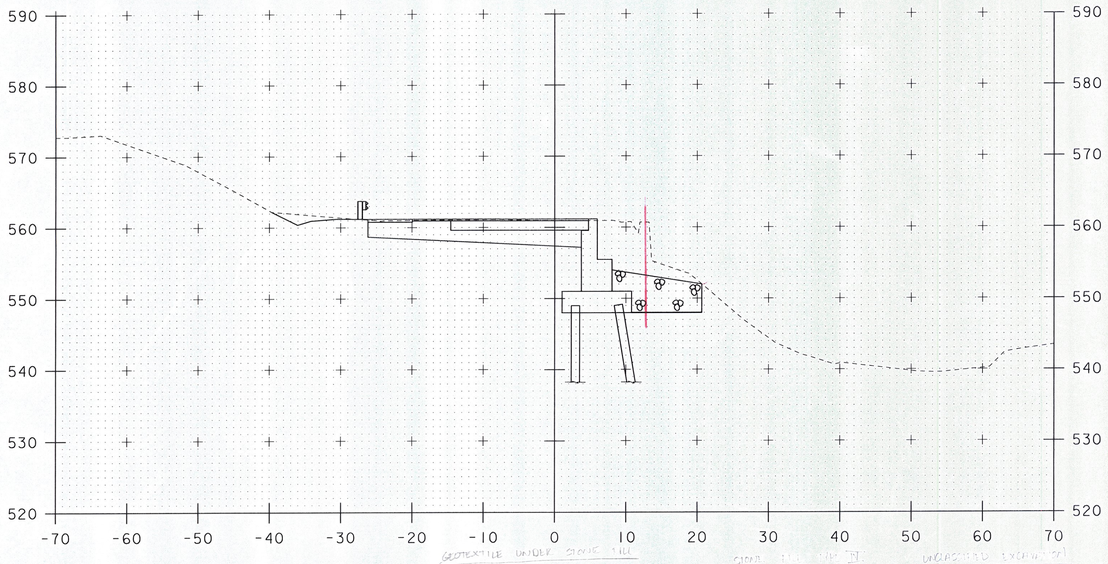


51+10

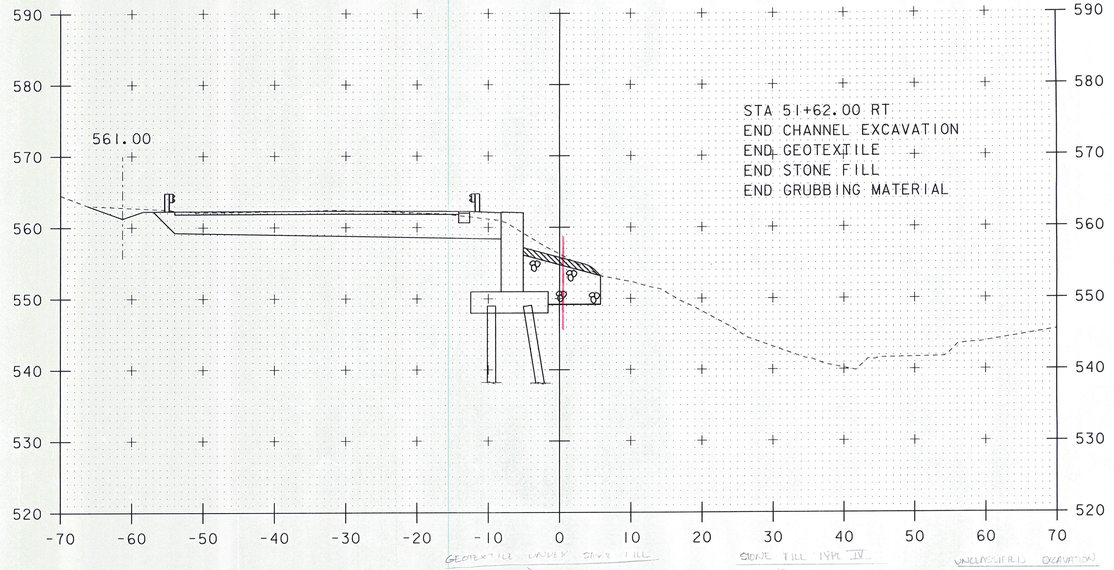
SCALE 1" = 10'-0"
10 0 10

STA. 50+75 TO STA. 51+20

PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95J282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS - 3	SHEET 51 OF 52

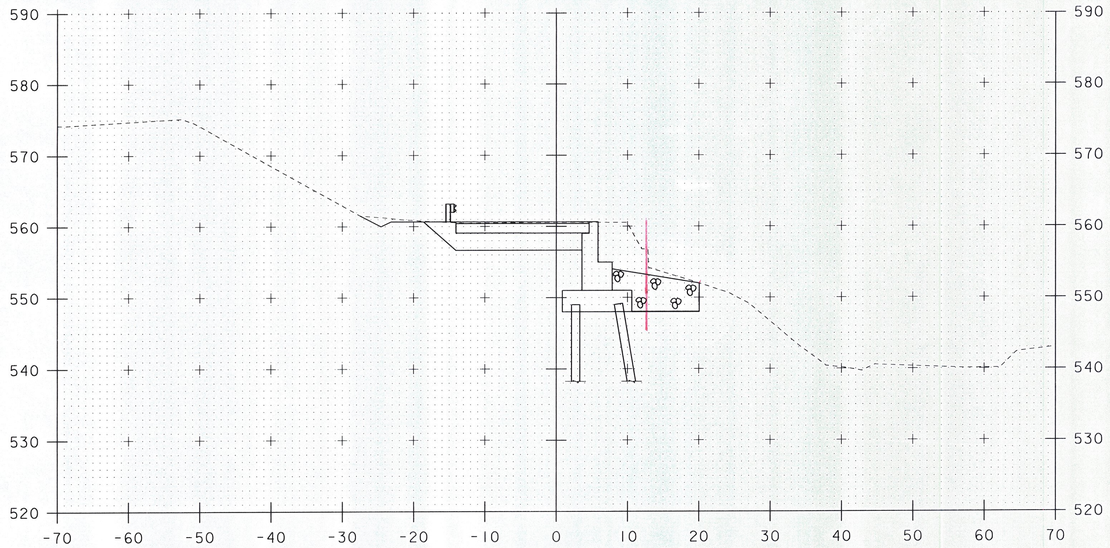


51+40

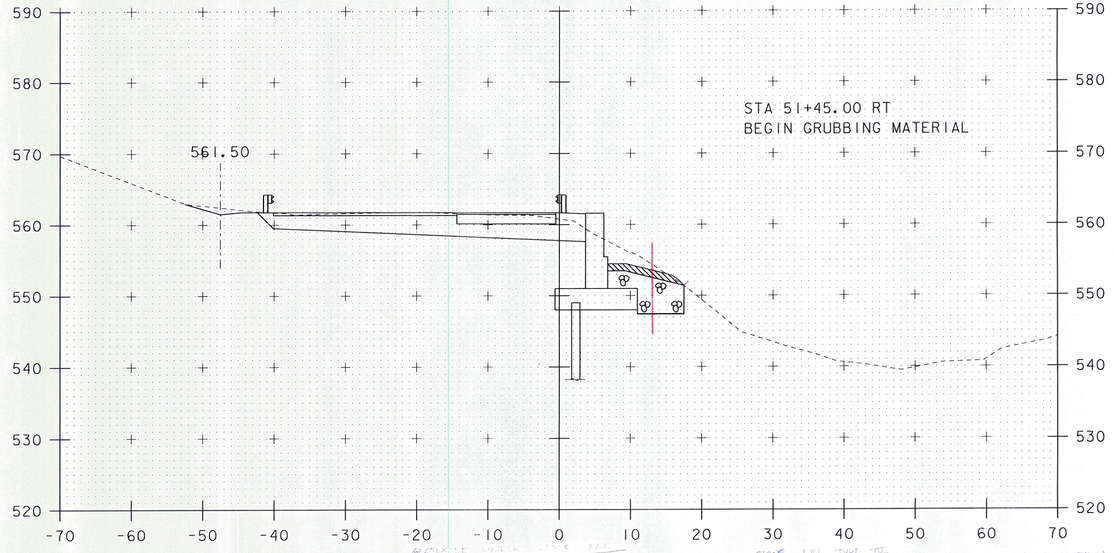


STA 51+62.00 RT
END CHANNEL EXCAVATION
END GEOTEXTILE
END STONE FILL
END GRUBBING MATERIAL

51+60



51+30



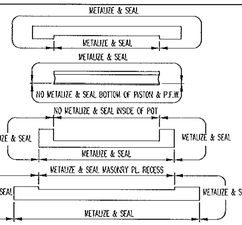
STA 51+45.00 RT
BEGIN GRUBBING MATERIAL

51+50

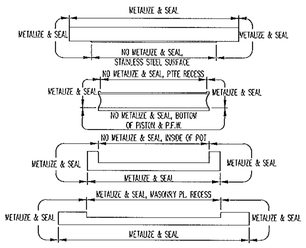
SCALE 1" = 10'-0"
10 0 10

STA. 51+30 TO STA. 51+60

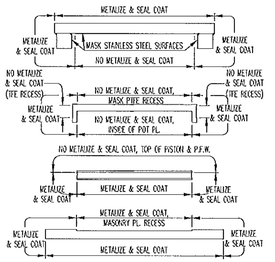
PROJECT NAME:	SPRINGFIELD
PROJECT NUMBER:	BRO 1442(26)
FILE NAME: s95j282xsl.dgn	PLOT DATE: 30-AUG-2011
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
CHANNEL CROSS SECTIONS - 4	SHEET 52 OF 52



FIXED BEARING COATING LIMITS



MULTI-DIRECTIONAL BEARING COATING LIMITS



UNI-DIRECTIONAL BEARING COATING LIMITS

GENERAL NOTES

⚠ 1. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN & CONSTRUCTION SPECIFICATIONS 5TH EDITION & ITS LATEST REVISIONS, THE VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006 AS AMENDED BY THE SPECIAL PROVISIONS, AND THE CONTRACT PLANS.

2. PTFE SHALL BE VIRGIN, UNFILLED POLYTETRAFLUOROETHYLENE. GUIDE BAR PTFE SHALL 15% CLASS FILLED & PIGMENTED.

3. PTFE IS TO BE PURCHASED ETCHED ON ONE SIDE FOR BONDING AND MACHINED RECESS. SHELL MATING SURFACES OF PTFE AND STEEL SHALL BE GRIT BLASTED AND DEGREASED PRIOR TO APPLICATION OF ADHESIVE. ADHESIVE SHALL BE APPLIED USING DIRECTIONS SUPPLIED BY THE ADHESIVE MANUFACTURER. THE PTFE RESIN SHALL CONFORM TO THE REQUIREMENTS OF ASTM D4894.

4. STAINLESS STEEL SHALL CONFORM TO ASTM A240 – TYPE 304 AND SHALL BE 11 GA. (0.120"). STAINLESS STEEL SLIDING SURFACES IN CONTACT WITH PTFE SHALL HAVE A NO. 8 MIRROR FINISH AND ALL OTHERS SHALL HAVE A 2B FINISH.

5. WELDING SHALL CONFORM TO AWS-D1.5 BRIDGE WELDING CODE, AS WELL AS ANY STATE STANDARD.

6. THE TOP AND BOTTOM OF THE NEOPRENE DISC SHALL BE LUBRICATED WITH DOW CORNING #4 SILICONE COMPOUND.

7. ALL SHARP CORNERS OF STEEL MATERIALS SHALL BE REMOVED BY GRINDING OR SANDING.

8. THE BRASS SEALING RING ENDS SHALL BE CUT AT AN ANGLE OF 45° WITH A MAXIMUM GAP OF 0.05". THE RINGS SHALL BE STAGGERED 120° USING A QUANTITY OF THREE (3) RINGS.

9. EACH BEARING SHALL BE MARKED WITH THE MANUFACTURER'S NAME, THE BEARING TYPE OR MODEL NUMBER, THE BEARING NUMBER AND LOT NUMBER, UPSTATION, AND THE INSTALLED LOCATION. THE MARKING SHALL BE PERMANENT AND IN A LOCATION THAT WILL BE VISIBLE AFTER ERECTION OF STRUCTURE.

10. EACH BEARING SHALL HAVE MARKS PLACED ON THE SIDE OF THE MASONRY & SOLE PLATES TO INDICATE THE LOCATION OF THE CENTERLINE. IN ADDITION, EACH UNI-DIRECTIONAL BEARING SHALL HAVE THE SOLE PL. & MASONRY PL. MARKED TO INDICATE THE LOCATION OF THE TRANSVERSE CL OF THE STAINLESS STEEL. THE MARK ON THE MASONRY PL. SHALL EXTEND THE ENTIRE LENGTH ON THE TOP SURFACE FROM TO ASSEMBLY. THIS MARK CAN BE USED IN THE FIELD TO DETERMINE THE AXIAL OFFSET LOCATION OF THE SOLE PLATE (IF APPLICABLE). THE MARKS SHALL BE MADE IN INDELIBLE INK AND SHALL BE VISIBLE AFTER BEARING INSTALLATION.

11. BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL BANDED, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE. BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION WHILE AT JOBSITE. BEARINGS SHALL BE LIFTED FROM THEIR UNDERSIDES ONLY.

12. AT NO TIME MAY THE BEARINGS BE DISASSEMBLED WITHOUT AUTHORIZATION FROM D.S. BROWN OR WITHOUT THE PRESENCE OF A D.S. BROWN REPRESENTATIVE.

13. POT/PISTON INTERFACE SHALL BE CAULKED WITH SIKAFLEX 1A OR APPROVED EQUAL PRIOR TO SHIPMENT.

14. DS BROWN MAY SUBSTITUTE A709 OR 50W FOR A709 GR 50 DUE TO AVAILABILITY AT NO ADDITIONAL COST TO THE OWNER OR CONTRACTOR.

15. IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY PHILIP CASE P.E.

16. VERSIFLEX MUNOR "POT" STYLE BEARING MANUFACTURING FACILITY AND REPRESENTATIVE FOR COORDINATING PRODUCTION:
THE D.S. BROWN COMPANY
300 EAST CHERRY STREET
NORTH BALTIMORE, OHIO 45872
CSR – BRYAN KRIDER

PROTECTIVE COATING NOTES

1. ALL MILL SCALE SHALL BE REMOVED FROM BEARINGS BY BLASTING (SSPC-SP5) PRIOR TO APPLYING PROTECTIVE COATING.

2. METALIZATION SHALL BE IN ACCORDANCE WITH ANSI/AWS C2.18-93 EXTERNAL STEEL SURFACES SHALL BE METALIZED TO A MINIMUM THICKNESS OF 5 MILS. PROVIDE WIRE MATERIAL FOR THE METALIZED PRIMER CONSISTING OF PURE ZINC (99.9% PURITY).

3. WITHIN 8 HOURS AFTER METALIZATION, THE EXTERNAL STEEL SURFACES SHALL RECEIVE A SEAL COAT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
SEAL COAT = CARBOLINE RUSTBOND, D.F.T. = 2 MILS MIN.

4. SEE COATING LIMIT DETAILS FOR COATING LOCATIONS.

5. PRIOR TO METALIZING ALL CORNERS AND EDGES OF THE STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO 0.063" RADIUS.

CONTRACTOR NOTES

1. THE LOCATIONS OF THE ANCHOR BOLTS SHALL BE CROSS-REFERENCED WITH SHOP DRAWINGS TO VERIFY THE LOCATIONS.

2. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE STAINLESS STEEL AND PTFE SLIDING SURFACES FROM DAMAGE AT ALL TIMES.

3. DUE TO DESIGN DIFFERENCES, THE OVERALL HEIGHTS OF THE BEARING BEING SUPPLIED MAY DIFFER FROM THE HEIGHTS SHOWN IN THE CONTRACT PLANS. THE ACTUAL BEARING HEIGHTS ARE GIVEN IN THE DATA TABLE ON THE INDIVIDUAL BEARING DETAIL SHEET. CONTRACTOR TO RECALCULATE AND MODIFY PEDESTAL ELEVATIONS ACCORDINGLY.

4. THE BEARINGS WILL BE SHIPPED CENTERED, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OFFSET THE SOLE PLATE IN THE FIELD DURING INSTALLATION, IF APPLICABLE. OFFSET VALUES WERE NOT PROVIDED ON THE CONTRACT PLANS, SO IF REQUIRED, OFFSETS SHALL BE PROVIDED BY THE BRIDGE DESIGNER.

5. THE CONTRACTOR SHALL ENSURE THAT THE MAXIMUM TEMPERATURE REACHED BY SURFACES IN CONTACT WITH THE PTFE IS LIMITED TO 300°F (149°C), AND LIMITED TO 200°F (94°C) FOR SURFACES IN CONTACT WITH THE ELASTOMER. TEMPERATURES SHALL BE DETERMINED BY TEMPERATURE INDICATING WAX PENCILS OR OTHER SUITABLE MEANS. DURING FIELD WELDING, NO WELDING CURRENT SHALL BE PERMITTED TO PASS BETWEEN THE POT AND PISTON COMPONENTS.

SAMPLING AND TESTING NOTES

ELASTOMERIC DISCS SHALL BE SUBJECTED TO RANDOM IN-HOUSE TESTING OF THE APPLICABLE PHYSICAL PROPERTIES PER AASHTO LRFD CONSTRUCTION SPECIFICATIONS, SECTION 18.

BEARINGS SHALL BE SUBJECTED TO THE TESTS DESCRIBED BELOW AND IN ACCORDANCE WITH THE APPLICABLE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS.

1. SAMPLE TEST – ONE (1) BEARING PER "LOT" SHALL BE TESTED AND SHALL BE CHOSEN AT RANDOM. A "LOT" SHALL CONSIST OF ONE OF THE FOLLOWING:
(1) NO MORE THAN 10 EXPANSION BEARINGS OF ONE "LOAD CATEGORY"
ONE LOAD CATEGORY MAY CONSIST OF BEARINGS OF A DIFFERING VERTICAL LOAD CAPACITY BUT THE BEARINGS MAY NOT EXCEED A RANGE OF CAPACITY DIFFERING BY MORE THAN 500KIPS.

2. PROCEDURE FOR TESTING EXPANSION BEARINGS–
a.) LOAD THE BEARING WITH ITS DESIGN LOADING FOR AT LEAST 12 HOURS. MEASURE THE FORCE REQUIRED FOR THE FIRST MOVEMENT AND CALCULATE THE COEFFICIENT OF FRICTION. MEASURE THE FORCE REQUIRED FOR MOVEMENT UNDER DYNAMIC LOADING AND CALCULATE THE COEFFICIENT OF FRICTION.
b.) LOAD THE BEARING AT 70% OF THE DESIGN LOAD BUT NOT LESS THAN 200KIPS. MEASURE THE STATIC AND DYNAMIC COEFFICIENTS OF FRICTION.
c.) LOAD THE BEARING AT 150% OF THE DESIGN LOAD FOR 30 MINUTES, AT A 2% ROTATION, AND SUBJECT THE BEARING TO 100 CYCLES OF MOVEMENT. MEASURE THE STATIC AND DYNAMIC COEFFICIENTS OF FRICTION.
d.) COEFFICIENTS OF FRICTION SHALL BE LESS THAN 4%

3. PROCEDURE FOR TESTING FIXED BEARINGS–
a.) LOAD BEARING AT 150% OF ITS DESIGN LOAD FOR 30 MINUTES, AT A 2% ROTATION.

4. AFTER PERFORMING EACH TEST DESCRIBED IN (2) & (3) ABOVE, DISASSEMBLE THE BEARING AND INSPECT FOR:
a.) ANY SIGN OF SEALING FAILURE.
b.) ANY SIGN OF MATERIAL FAILURE.
c.) ANY OTHER DEFECTS.

TOLERANCE TABLE LRFD 18.1.4.2-1

DESCRIPTION	THICKNESS TOLERANCE	DIMENSION TOLERANCE	FLATNESS TOLERANCE	SURFACE FINISH (μ-in)
POT BEARING				
OVERALL DIMENSIONS	+1/4", -0"	+1/8", -0"	--	--
POT DEPTH (INSIDE)	--	+0.025", -0"	--	--
POT WALL: THICKNESS & AVE. I.D.	+1/8", -0"	+0.003", -0.003"	+0.001", -0.001"	32
POT BASE: TOP & BOTTOM SURFACES	+0.025", -0"	--	CLASS C	63
PISTON: RIM	+1/16", -0"	+0.003", -0.003"	+0.001", -0.001"	32
PISTON: TOP AND BOTTOM SURFACES	+0.025", -0"	--	CLASS C	63
ELASTOMERIC DISK (UNSTRESSED)	+1/8", -0"	+1/16", -0"	--	--
FLAT PTFE SLIDING SURFACES				
PTFE	+1/16", -0"	+0.030", -0"	CLASS A	--
STAINLESS STEEL	+1/16", -0"	+1/8", -0"	CLASS A	# 8 MIRROR
GUIDES				
CONTACT SURFACE	--	+1/8", -0"	CLASS A	32
DISTANCE BETWEEN GUIDES	--	+0.030", -0"	--	--
PARALLELISM OF GUIDES	--	+/- 0.005 RAD	--	--
LOAD PLATES				
OVERALL DIMENSIONS	+1/16", -1/16"	+1/4", -1/4"	*CLASS A	125
BEVEL SLOPE	+/- 0.002 RAD	--	--	--

* ONLY FOR SURFACES IN CONTACT WITH THE BEARING. TOP SURFACE OF SOLE PLATE AND BOTTOM SURFACE OF MASONRY PLATE SHALL BE CLASS B.

FLATNESS TOLERANCE

CLASS	X NOM. DIM.
A	0.001
B	0.002
C	0.005

TOLERANCES

EXCEPT AS NOTED BELOW, THE DIMENSIONAL TOLERANCES AND SURFACE FINISHES OF THE BEARING SHALL SATISFY THE REQUIREMENTS OF AASHTO LRFD TABLE 18.1.4.2-1.

1. DIMENSIONS (LENGTH, WIDTH, THICKNESS, HOLE LOCATIONS AND POSITION OF WELDED COMPONENTS). THE TOLERANCE SHALL BE ± 0.005".

2. FLATNESS
a.) SOLE PLATE – BEARING SURFACES SHALL BE FLAT WITH MAXIMUM PERMISSIBLE VARIATION OF 0.01" FROM A PLANE DETERMINED BY ANY THREE CORNERS OF THE PLATES.
b.) MASONRY PLATE – BEARING SURFACES SHALL BE FLAT WITH MAXIMUM PERMISSIBLE VARIATION OF 0.04" FROM A PLANE DETERMINED BY ANY THREE CORNERS OF THE PLATE.
c.) SLIDING SURFACES – FOR STAINLESS STEEL MATING WITH PTFE BONDED TO STEEL, THE TOLERANCE SHALL BE THE "NOMINAL DIMENSION" IN INCHES TIMES 0.0005. THE "NOMINAL DIMENSION" SHALL BE THE DISTANCE BETWEEN ANY DIAGONAL CORNERS OR OPPOSITE EDGES OF THE BEARING SURFACE. THE TOLERANCE IS APPLICABLE TO BOTH SURFACES.

Vermont Agency of Transportation
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CK'D BY GML OK'D BY JEL
8:53 am, Mar 29, 2012
RESUBMIT ____ APPROVED X
BY KMH DATE 3/29/2012

REV.	DESCRIPTION	DATE	DR'T.	CK'D.
⚠ 1	COVERSING SPECIFICATIONS NOTE	3/28/12	KTG	KTG

ITEM	QUANTITY
LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57	--
BRIDGE — 57	--
PROJECT NO. — BRO 1442(28)	--
PROJECT NAME — SPRINGFIELD	--
—	--
DESIGNER — VTDOT	--
CUSTOMER — T BUCK CONSTRUCTION, INC.	--
	--
	--

D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.2561
FAX: 419.257.0332
WWW.DSBROWN.COM

DESCRIPTION	SCALE	DRAWN	DESIGNED	DATE
GENERAL NOTES & COATING LIMITS	N.T.S.	DA	KTG	1/28/12
WINDSOR CO., VT	PROJECT NUMBER 35029	PUBLICATION 1112	TITLE 1	SHEET GN1

MK	QTY	DESCRIPTION
1A	2	PF-115
1sp1	2	SOLE PLATE
1pt1	2	PISTON
1pl1	2	POT PLATE
1ed1	2	ELASTOMERIC DISC
1br1	6	BRASS RING
1mp1	2	MASONRY PLATE
NFA	2	UNDERLAYMENT (*SL)
1B	4	SWEDGE ROD (*SL)
1C	4	HEAVY HEX NUT (*SL)
1D	4	WASHER PLATE (*SL)

HLMR BEARING ASSEMBLY LOCATION & USED DESIGN INFORMATION (PF)

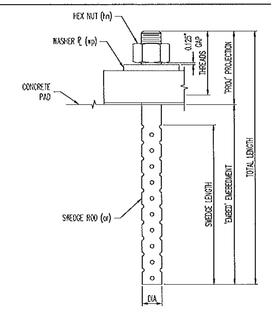
MK	QTY	STRUCTURE	BEARING TYPE	LOCATION	MAX VERT. SERVICE	MAX VERT. STRENGTH	MAX HORIZ. SERVICE	MAX HORIZ. STRENGTH	LONG MVMNT	TRANS MVMNT	ROTATION (RAD)	HEIGHT TO FABRICATE	HEIGHT IN PLANS	DIFFERENCE IN PLANS	UNDERLAYMENT IN HEIGHT (Y/N)
1A	2	Bridge No. 57	PF-115	ABUTMENT 2: G2, G3	115.0 kips	173.0 kips	29.0 kips	45.0 kips	0	0	0.03	5.382	9.000	-3.618	YES

ELASTOMERIC DISC SCHEDULE (PF)

ASSEM MK	PIECE MK	QTY	ELASTOMERIC DISC DIMENSIONS	ELASTOMER MATERIAL
1A	1ed1	2	0.750 X 6.500#	Neoprene, 50H/-5 Dure Gr.3

BRASS RING SCHEDULE (PF)

ASSEM MK	PIECE MK	QTY	BRASS RING DIMENSIONS	BRASS MATERIAL
1A	1br1	6	0.094 X 0.375 X 6.500#	B36 Half-Hard



ANCHOR ASSEMBLY DETAIL

ANCHOR ROD SCHEDULE (PF)

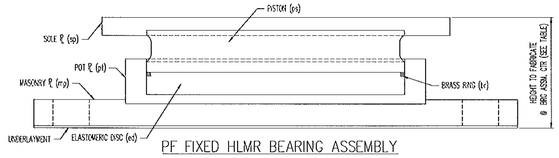
ASSEM MK	FOR BRG	PIECE MK	QTY	DIA	LENGTH	PROJ	EMBED	REMARKS	LOCATION	MATERIAL	COATING
1B	1A	1sr1	2	1.500	20.000	5.000	15.000	4" threads, 14° swedge	ABUTMENT 2: G2	F1554 GR 36	A153-HDG
1B	1A	1sr1	2	1.500	20.000	5.000	15.000	4" threads, 14° swedge	ABUTMENT 2: G3	F1554 GR 36	A153-HDG

NUT SCHEDULE (PF)

ASSEM MK	FOR BRG	PIECE MK	QTY	DIA	MATERIAL	COATING
1C	1A	1hn1	4	1.500	A563-DH or A194-2H	A153-HDG, Dry Lube & Dye

WASHER SCHEDULE (PF)

ASSEM MK	FOR BRG	PIECE MK	QTY	THICKNESS	WIDTH	LENGTH	REMARKS	MATERIAL	COATING
1D	1A	1wp1	4	0.375	3.000	3.000	ø1.625" HOLE @ CTR	A36	A123-HDG



PF FIXED HLMR BEARING ASSEMBLY

Vermont Agency of Transportation

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CK'D BY GML OK'D BY JEL

8:53 am, Mar 29, 2012

RESUBMIT ..... APPROVED X

BY KMH DATE 3/29/2012

* SL = SHIPPED LOOSE
SEE SHT. 02 FOR SUB-ASSEMBLY DETAILS.
SEE SHT. 01 FOR GENERAL NOTES & COATING UNITS.
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3351
FAX: 419.257.0322
WWW.DSBROWN.COM

LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57
BRIDGE — 57
PROJECT NO. — BRO 1442(26)
PROJECT NAME — SPRINGFIELD
—
DESIGNER — VTRDOT
CUSTOMER — T. BUCK CONSTRUCTION, INC.

ITEM	QUANTITY
35029-1112-3	2 OF 2
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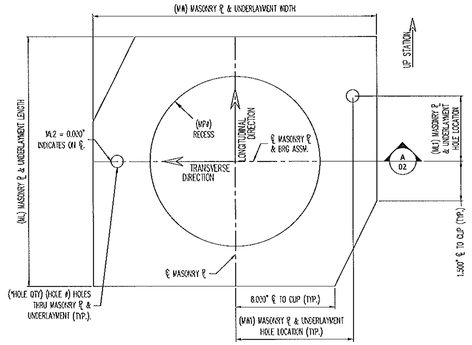
DESCRIPTION: PF FIXED HLMR ASSEMBLY & DESIGN INFORMATION
WINDSOR CO., VT

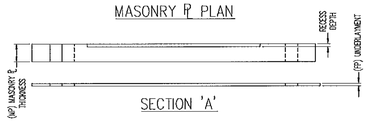
SCALE	REVISED	DRAWN	CHECKED	DATE
N.T.S.	DA	ICTG	KTG	1/26/12

PROJECT NUMBER	PROJECT CODE	RELEASE	SHEET
35029	1112	1	01

ASSEMBLY 01

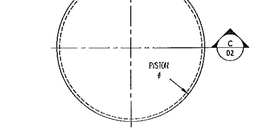


MASONRY ℄ PLAN

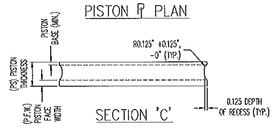


SECTION 'A'

MASONRY PLATE SCHEDULE (PF)																
ASSEM MK	PIECE MK	QTY	WP	WW	WL	WW1	WL1	WL2	RECESS WP#	RECESS DEPTH	*HOLE QTY	HOLE #	UL MK	UL FP	UL MATERIAL	MASONRY PL MATERIAL
1A	1mp1	2	1.500	29.000	18.000	12.250	4.500	0.000	8.313	0.250	2	1.875	1EA (1)p1	0.125	AASHTO (LRFD) 18.10.2	A709 GR 50 or 50W

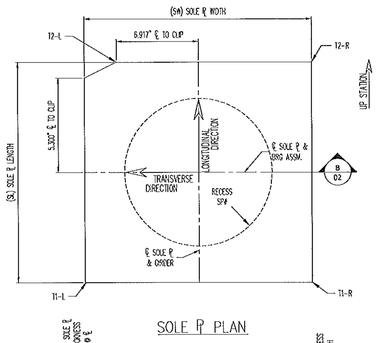


PISTON ℄ PLAN

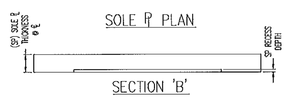


SECTION 'C'

PISTON SCHEDULE (PF)							
ASSEM MK	PIECE MK	QTY	PS	PISTON #	PFW	PISTON BASE	PISTON MATERIAL
1A	1ps1	2	1.100	6.460	0.208	0.250	A709 GR 50 or 50W

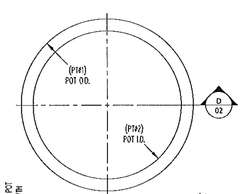


SOLE ℄ PLAN



SECTION 'B'

SOLE PLATE SCHEDULE (PF)													
ASSEM MK	PIECE MK	QTY	BEVEL T1-L	BEVEL T1-R	BEVEL T2-L	BEVEL T2-R	SP	SW	SL	RECESS SP#	SP RECESS DEPTH	SOLE PLATE MATERIAL
1A	1sp1	2	1.625	1.625	1.000	1.000	1.313	20.033	18.033	6.523	0.250	A709 GR 50 or 50W



POT ℄ PLAN

SECTION 'D'

POT PLATE SCHEDULE (PF)									
ASSEM MK	PIECE MK	QTY	PT	PT #1	PT #2	PB	PD	POT PL MATERIAL
1A	1pt1	2	2.150	8.250	6.500	1.035	1.035	A709 GR 50 or 50W

* PER PLATE.
SEE SHT. 01 FOR ASSEMBLY INFORMATION & DETAILS.
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.

Vermont Agency of Transportation
RECEIVED
CK'D BY GML OK'D BY JEL
8:53 am, Mar 29, 2012
RESUBMIT _____ APPROVED X
BY KMH DATE 3/29/2012

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0353
WWW.DSBROWN.COM

ITEM	QUANTITY
LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57	--
BRIDGE — 57	--
PROJECT NO. — BRO 1442(26)	--
PROJECT NAME — SPRINGFIELD	--
--	--
DESIGNER — VTDOT	--
CUSTOMER — T. BUCK CONSTRUCTION, INC.	--
--	--
--	--

DESCRIPTION: FIXED HLMR SUB-ASSEMBLY DETAILS
WINDSOR CO., VT

SCALE	DRAWN BY	DESIGNED	CHECKED	DATE	--
N.T.S.	DA	KTG		1/26/12	--
PROJECT NUMBER		PROJECT CODE	REVISE	SHT	
35029		1112	1	02	

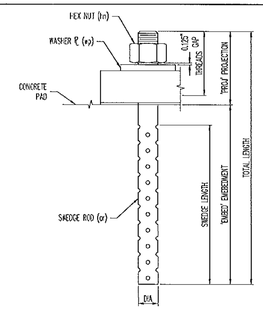
MK	QTY	DESCRIPTION
3A	2	PM-150
3sp1	2	SOLE PLATE
3sf1	2	STAINLESS STEEL
3pf1	2	PTFE DISC
3ps1	2	PISTON
3pt1	2	POT PLATE
3se1	2	ELASTOMERIC DISC
3br1	6	BRASS RING
3mp1	2	MASONRY PLATE
3FA	2	UNDERLAYMENT (*2)
3B	4	SWEDGE ROD (*2)
3C	4	HEAVY HEX NUT (*2)
3D	4	WASHER PLATE (*2)

HLMR BEARING ASSEMBLY LOCATION & USFD DESIGN INFORMATION (PM)															
MK	QTY	STRUCTURE	BEARING TYPE	LOCATION	MAX VERT. SERVICE	MAX VERT. STRENGTH	MAX HORIZ. SERVICE	MAX HORIZ. STRENGTH	LONG MVMNT	TRANS MVMNT	ROTATION (RAD)	HEIGHT TO FABRICATE	HEIGHT IN PLANS	DIFFERENCE IN PLANS	UNDERLAYMENT IN HEIGHT (Y/N)
3A	2	Bridge No. 57	PM-150	ABUTMENT 1: G1, G4	150.0 Kips	225.0 Kips	15.0 Kips	15.0 Kips	2.000	1.000	0.03	5.239	9.000	-3.761	YES

ELASTOMERIC DISC SCHEDULE (PM)				
ASSEM MK	PIECE MK	QTY	ELASTOMERIC DISC DIMENSIONS	ELASTOMER MATERIAL
3A	3se1	2	0.750 X 7.5059	Neoprene, 50H +/-5 Duro Cr.3

BRASS RING SCHEDULE (PM)				
ASSEM MK	PIECE MK	QTY	BRASS RING DIMENSIONS	BRASS MATERIAL
3A	3br1	6	0.094 X 0.375 X 7.5059	B36 Half-Hard

PTFE DISC SCHEDULE (PM)				
ASSEM MK	PIECE MK	QTY	PTFE DIMENSIONS	PTFE DISC MATERIAL
3A	3pf1	2	0.188 X 7.2559	Pure Virgin Unfilled

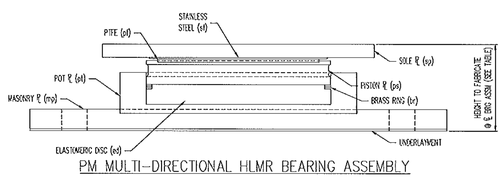


ANCHOR ASSEMBLY DETAIL

ANCHOR ROD SCHEDULE (PM)											
ASSEM MK	FOR BRG	PIECE MK	QTY	DIA	LENGTH	PROJ	EMBED	REMARKS	LOCATION	MATERIAL	COATING
3B	3A	3ar1	2	1.500	20.000	5.000	15.000	4" threads, 16" swedge	ABUTMENT 1: G1	F1554 GR 36	A153-HDG
3B	3A	3ar1	2	1.500	20.000	5.000	15.000	4" threads, 16" swedge	ABUTMENT 1: G4	F1554 GR 36	A153-HDG

NUT SCHEDULE (PM)						
ASSEM MK	FOR BRG	PIECE MK	QTY	DIA	MATERIAL	COATING
3C	3A	3nt1	4	1.500	A563-DH or A194-2H	A153-HDG, Dry Lube & Dye

WASHER SCHEDULE (PM)									
ASSEM MK	FOR BRG	PIECE MK	QTY	THICKNESS	WIDTH	LENGTH	REMARKS	MATERIAL	COATING
3D	3A	3wp1	4	0.375	3.000	3.000	ø1.625" HOLE @ CTR	A36	A123-HDG



PM MULTI-DIRECTIONAL HLMR BEARING ASSEMBLY

* P = SHIPPED LOOSE
SEE SHT. 04 & 05 FOR SUB-ASSEMBLY DETAILS.
SEE SHT. 01 FOR GENERAL NOTES & COATING LIMITS.
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

Vermont Agency of Transportation
RECEIVED
CK'D BY GML OK'D BY JEL
8:53 am, Mar 29, 2012
RESUBMIT ____ APPROVED X
BY KMH DATE 3/29/2012

REV.	DESCRIPTION	DATE	DE.	CKD.

D.B. BROWN
THE D.B. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.3332
WWW.DBBROWN.COM

LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57
BRIDGE — 57
PROJECT NO. — BRO 1442(26)
PROJECT NAME — SPRINGFIELD
—
DESIGNER — VTDOT
CUSTOMER — T. BUCK CONSTRUCTION, INC.

ITEM	QUANTITY
35029-1112-1	2 OF 2
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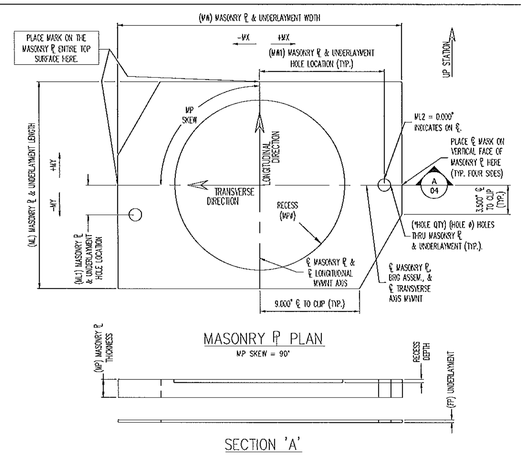
DESCRIPTION: PM MULTI-DIRECTIONAL HLMR ASSEMBLY & DESIGN INFORMATION
WINDSOR CO., VT

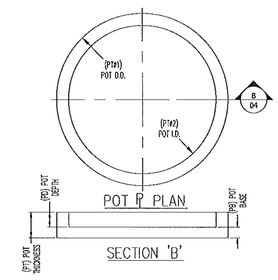
SCALE	DRAWN	DESIGNED	DATE
N.T.S.	DA	KTG	1/26/12

PROJECT NUMBER	PROJECT SEQUENCE	PLANS	SHEET
35029	1112	1	03



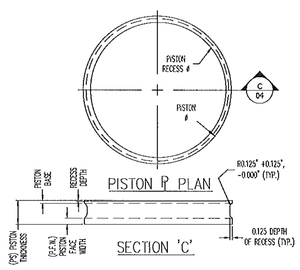
MASONRY PLATE SCHEDULE (PM)

ASSEM MK	PIECE MK	QTY	MP	MW	WL	WWI	WLI	WL2	RECESS RPX	RECESS DEPTH	*HOLE QTY	HOLE #	MP SKEW	WY	WX	UL MK	UL FP	UL MATERIAL	MASONRY PL MATERIAL
3A	3mp1	2	1.500	28.000	18.000	12.250	2.000	0.000	9.053	0.250	2	1.875	+90.0°	+0.000	+0.000	3FA (3fp1)	0.125	AASHTO (LRFD) 18.10.2	A709 GR 50 or 50W



POT PLATE SCHEDULE (PM)

ASSEM MK	PIECE MK	QTY	PT	PT #1	PT #2	PB	PD	POT PL MATERIAL
3A	3p1	2	1.775	9.000	7.500	0.658	1.088	A709 GR 50 or 50W



PISTON SCHEDULE (PM)

ASSEM MK	PIECE MK	QTY	PS	PISTON #	PFW	PISTON BASE	RECESS DEPTH	PISTON RECESS #	PISTON MATERIAL
3A	3p1	2	0.900	7.400	0.235	0.658	0.094	7.250	A709 GR 50 or 50W

ASSEMBLY

03

* PER PLATE
SEE SHT. 03 FOR ASSEMBLY INFORMATION & DETAILS.
SEE SHT. 05 FOR SUB-ASSEMBLY DETAILS.
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.

REV.	DESCRIPTION	DATE	DET.	CKD.

Vermont Agency of Transportation

RECEIVED

CK'D BY GML OK'D BY JEL

8:53 am, Mar 29, 2012

RESUBMIT _____ APPROVED X

BY KMH DATE 3/29/2012

B.S. BROWN

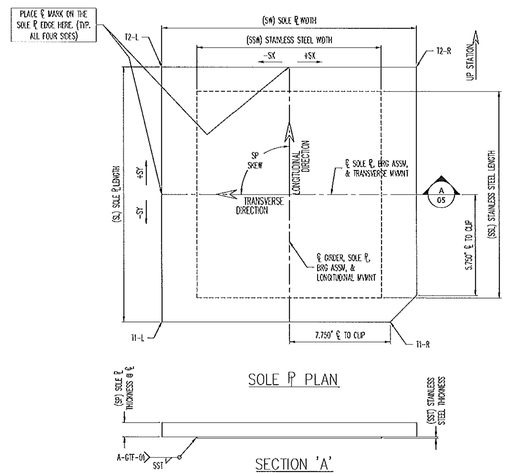
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.3570
BAM@DSBROWN.COM

ITEM	QUANTITY
LOCATION --- TOWN HIGHWAY 6 BRIDGE NO. 57	--
BRIDGE --- 57	--
PROJECT NO. --- BRO 1442(26)	--
PROJECT NAME --- SPRINGFIELD	--
---	--
DESIGNER --- VTDOT	--
CUSTOMER --- T BUCK CONSTRUCTION, INC.	--
	--

DESCRIPTION	SCALE	SURVEY	DESIGN	DATE	
PM MULTI-DIRECTIONAL RMR SUB-ASSEMBLY DETAIL	N.T.S.	DA	KTC	1/26/12	--
WINDSOR CO., VT	PROJECT NUMBER 35029	PROJECT CODE 1112	PIECE 1	SHEET 04	

ASSEMBLY

03



SOLE ℄ PLAN

SECTION 'A'

SOLE PLATE & STAINLESS STEEL SCHEDULE (SW)

ASSEM MK	PIECE MK	QTY	BEVEL 11-L	BEVEL 11-R	BEVEL 12-L	BEVEL 12-R	SP	SW	SL	SOLE PLATE MATERIAL	SP SST MK	SST	SSW	SSL	SP SKEW	SY	SX	SP SS MATERIAL
SA	3@1	2	1.625	1.625	1.000	1.000	1.313	20.000	15.000	A709 GR 50 or 50W	3@1	0.120	18.250	11.250	⌀90.0°	±0.000	±0.000	A240 T304, #3 & 2B

SEE SHT. 03 FOR ASSEMBLY INFORMATION & DETAILS.
SEE SHT. 04 FOR SUB-ASSEMBLY DETAILS.
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.

REV.	DESCRIPTION	DATE	DET.	CKD.

Vermont Agency of Transportation

RECEIVED

CK'D BY GML OK'D BY JEL

8:53 am, Mar 29, 2012

RESUBMIT ____ APPROVED X

BY KMH DATE 3/29/2012

D.B. BROWN

THE D.B. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.3332
WWW.DBBROWN.COM

LOCATION — TOWN HIGHWAY 8 BRIDGE NO. 57
BRIDGE — 57
PROJECT NO. — BRO 1442(26)
PROJECT NAME — SPRINGFIELD
—
DESIGNER — VTDOT
CUSTOMER — T BUCK CONSTRUCTION, INC.

ITEM	QUANTITY
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DESCRIPTION: PM MULTI-DIRECTIONAL HLMR SUB-ASSEMBLY DETAIL
WINDSOR CO., VT

SCALE	DRAWN	DESIGNED	DATE
N.T.S.	DA	KTG	1/26/12

PROJECT NUMBER	PROJECT NO.	REVISION	SHEET
35029	1112	1	05

MK	QTY	DESCRIPTION
6A	1	PMG-165
6sp1	1	SOLE PLATE
6st1	1	STAINLESS STEEL
6pt1	1	PTFE DISC
6ps1	1	PISTON
6pt1	1	POT PLATE
6es1	1	ELASTOMERIC DISC
6sr1	3	BRASS RING
6gb1	2	GUIDE BAR
6sg1	2	G.B. STAINLESS STEEL
6gg1	2	G.B. LOW-FRICTION MAT'L
6mp1	1	MASONRY PLATE
6FA	1	UNDERLAYMENT (*2L)
6F	2	SWEDGE ROD (*2L)
6H	2	HEAVY HEX NUT (*2L)
6M	2	WASHER PLATE (*2L)

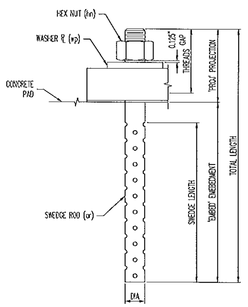
MK	QTY	DESCRIPTION
6B	1	PMG-165
6sp2	1	SOLE PLATE
6st1	1	STAINLESS STEEL
6pt1	1	PTFE DISC
6ps1	1	PISTON
6pt1	1	POT PLATE
6es1	1	ELASTOMERIC DISC
6sr1	3	BRASS RING
6gb1	2	GUIDE BAR
6sg1	2	G.B. STAINLESS STEEL
6gg1	2	G.B. LOW-FRICTION MAT'L
6mp1	1	MASONRY PLATE
6FA	1	UNDERLAYMENT (*2L)
6F	2	SWEDGE ROD (*2L)
6H	2	HEAVY HEX NUT (*2L)
6M	2	WASHER PLATE (*2L)

MK	QTY	DESCRIPTION
6C	1	PMGT-140
6sp3	1	SOLE PLATE
6sr2	1	STAINLESS STEEL
6pt2	1	PTFE DISC
6ps2	1	PISTON
6pt2	1	POT PLATE
6es2	1	ELASTOMERIC DISC
6sr2	3	BRASS RING
6gb2	2	GUIDE BAR
6sg2	2	G.B. STAINLESS STEEL
6gg2	2	G.B. LOW-FRICTION MAT'L
6mp2	1	MASONRY PLATE
6FB	1	UNDERLAYMENT (*2L)
6F	1	SWEDGE ROD (*2L)
6H	2	HEAVY HEX NUT (*2L)
6M	2	WASHER PLATE (*2L)

MK	QTY	DESCRIPTION
6D	1	PMGT-300
6sp4	1	SOLE PLATE
6st3	1	STAINLESS STEEL
6pt3	1	PTFE DISC
6ps3	1	PISTON
6pt3	1	POT PLATE
6es3	1	ELASTOMERIC DISC
6sr3	3	BRASS RING
6gb3	2	GUIDE BAR
6sg3	2	G.B. STAINLESS STEEL
6gg3	2	G.B. LOW-FRICTION MAT'L
6mp3	1	MASONRY PLATE
6FC	1	UNDERLAYMENT (*2L)
6G	2	SWEDGE ROD (*2L)
6K	2	HEAVY HEX NUT (*2L)
6N	2	WASHER PLATE (*2L)

MAJOR BEARING ASSEMBLY LOCATION & LRFD DESIGN INFORMATION (PMG)

MK	QTY	STRUCTURE	BEARING TYPE	LOCATION	MAX. VERT. SERVICE	MAX. VERT. STRENGTH	MAX. HORIZ. SERVICE	MAX. HORIZ. STRENGTH	LONG MVMNT	TRANS MVMNT	ROTATION (RAD)	HEIGHT TO FABRICATE	HEIGHT IN PLANS	DIFFERENCE IN PLANS	UNDERLAYMENT IN HEIGHT (Y/N)
6A	1	Bridge No. 57	PMG-165	ABUTMENT 1: G2	165.0 Kips	214.0 Kips	42.0 Kips	61.0 Kips	2.000	0	0.03	6.174	9.000	-2.826	YES
6B	1	Bridge No. 57	PMG-165	ABUTMENT 1: G3	165.0 Kips	214.0 Kips	42.0 Kips	61.0 Kips	2.000	0	0.03	6.174	9.000	-2.826	YES
6C	1	Bridge No. 57	PMGT-140	ABUTMENT 2: G1	140.0 Kips	205.0 Kips	35.0 Kips	52.0 Kips	1.000	0	0.03	5.932	9.000	-3.061	YES
6D	1	Bridge No. 57	PMGT-300	ABUTMENT 2: G4	300.0 Kips	450.0 Kips	75.0 Kips	115.0 Kips	1.000	0	0.03	8.165	9.000	-0.835	YES



ANCHOR ASSEMBLY DETAIL

ELASTOMERIC DISC SCHEDULE (PMG)

ASSEM MK	PIECE MK	QTY	ELASTOMERIC DISC DIMENSIONS	ELASTOMER MATERIAL
6A	6es1	1	0.875 X 7.750ø	Neoprene, 50H+/-5 Duro Gr.3
6B	6es1	1	0.875 X 7.750ø	Neoprene, 50H+/-5 Duro Gr.3
6C	6es2	1	0.750 X 7.500ø	Neoprene, 50H+/-5 Duro Gr.3
6D	6es3	1	1.125 X 10.500ø	Neoprene, 50H+/-5 Duro Gr.3

BRASS RING SCHEDULE (PMG)

ASSEM MK	PIECE MK	QTY	BRASS RING DIMENSIONS	BRASS MATERIAL
6A	6sr1	3	0.024 X 0.375 X 7.750ø	B36 Half-Hard
6B	6sr1	3	0.024 X 0.375 X 7.750ø	B36 Half-Hard
6C	6sr2	3	0.024 X 0.375 X 7.500ø	B36 Half-Hard
6D	6sr3	3	0.024 X 0.375 X 10.500ø	B36 Half-Hard

PTFE DISC SCHEDULE (PMG)

ASSEM MK	PIECE MK	QTY	PTFE DIMENSIONS	PTFE DISC MATERIAL
6A	6pt1	1	0.188 X 7.750ø	Pure Virgin Unfilled
6B	6pt1	1	0.188 X 7.750ø	Pure Virgin Unfilled
6C	6pt2	1	0.188 X 7.250ø	Pure Virgin Unfilled
6D	6pt3	1	0.188 X 10.500ø	Pure Virgin Unfilled

GUIDE BAR LOW-FRICTION MAT'L SCHEDULE (PMG)

ASSEM MK	PIECE MK	QTY	LOW-FRICTION MAT'L DIMENSIONS	LOW-FRICTION MATERIAL
6A	6gg1	2	0.188 X 1.000 X 7.750	Filled and Pigmented
6B	6gg1	2	0.188 X 1.000 X 7.750	Filled and Pigmented
6C	6gg2	2	0.188 X 0.875 X 7.250	Filled and Pigmented
6D	6gg3	2	0.188 X 1.375 X 10.500	Filled and Pigmented

ANCHOR ROD SCHEDULE (PMG)

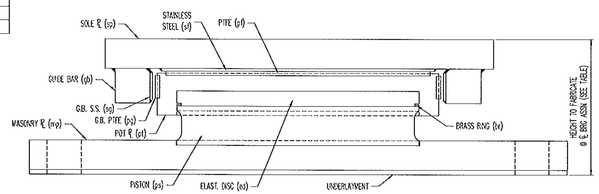
ASSEM MK	FOR BRG	PIECE MK	QTY	DIA	LENGTH	PROJ	EMBED	REMARKS	LOCATION	MATERIAL	COATING
6F	6A	6ar1	2	1.500	20.000	5.000	15.000	4" threads, 14" swedge	ABUTMENT 1: G2	F1554 GR 36	A153-HDG
6F	6B	6ar1	2	1.500	20.000	5.000	15.000	4" threads, 14" swedge	ABUTMENT 1: G3	F1554 GR 36	A153-HDG
6F	6C	6ar1	1	1.500	20.000	5.000	15.000	4" threads, 14" swedge	ABUTMENT 2: G1	F1554 GR 36	A153-HDG
6G	6D	6ar2	2	2.000	21.000	6.000	15.000	4" threads, 14" swedge	ABUTMENT 2: G4	F1554 GR 36	A153-HDG

NUT SCHEDULE (PMG)

ASSEM MK	FOR BRG	PIECE MK	QTY	DIA	MATERIAL	COATING
6H	6A	6hn1	2	1.500	A563-DH or A194-2H	A153-HDG, Dry Lube & Dye
6H	6B	6hn1	2	1.500	A563-DH or A194-2H	A153-HDG, Dry Lube & Dye
6H	6C	6hn1	2	1.500	A563-DH or A194-2H	A153-HDG, Dry Lube & Dye
6K	6D	6hn2	2	2.000	A563-DH or A194-2H	A153-HDG, Dry Lube & Dye

WASHER SCHEDULE (PMG)

ASSEM MK	FOR BRG	PIECE MK	QTY	THICKNESS	WIDTH	LENGTH	REMARKS	MATERIAL	COATING
6M	6A	6wp1	2	0.375	3.000	3.000	ø1.625" HOLE @ CTR	A36	A123-HDG
6M	6B	6wp1	2	0.375	3.000	3.000	ø1.625" HOLE @ CTR	A36	A123-HDG
6M	6C	6wp1	2	0.375	3.000	3.000	ø1.625" HOLE @ CTR	A36	A123-HDG
6N	6D	6wp2	2	0.375	4.000	4.000	ø2.125" HOLE @ CTR	A36	A123-HDG



PMG UNI-DIRECTIONAL HLMR BEARING ASSEMBLY

Vermont Agency of Transportation

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8:53 am, Mar 29, 2012

RESUBMIT ____ APPROVED X

BY KMH DATE 3/29/2012

SEE SHT. 07 & 08 FOR SUB-ASSEMBLY DETAILS.
SEE SHT. 01 FOR GENERAL NOTES & COATING LIMITS.
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.3332
WWW.DSBROWN.COM

LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57
BRIDGE — 57
PROJECT NO. — BRO 1442(26)
PROJECT NAME — SPRINGFIELD
—
DESIGNER — VTDOT
CUSTOMER — T BUCK CONSTRUCTION, INC.

ITEM	QUANTITY
35029-1112-2	2 OF 2
35029-1112-4	1 OF 1
35029-1112-5	1 OF 1
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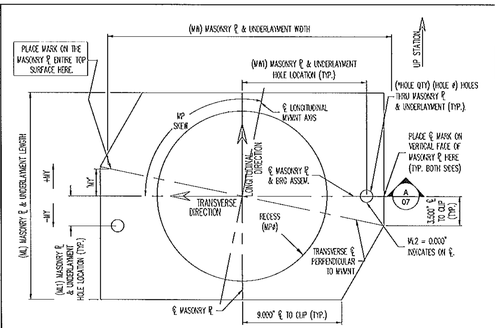
DESCRIPTION: PMG UNI-DIRECTIONAL HLMR ASSEMBLY & DESIGN INFORMATION
WINDSOR CO., VT

SCALE: N.T.S. | DRAWN BY: DA | DESIGNED BY: KTC | DATE: 1/26/12 | SHEET: --

PROJECT NUMBER: 35029 | PROJECT CODE: 1112 | REVISE: 1 | SHEET: 06

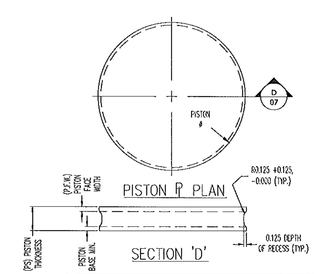


POT PLATE SCHEDULE (PMG)

ASSEM MK	PIECE MK	QTY	PT	PW	PL	PB	PD	PT #	PR #	TFE L	TFE W	PTFE RECESS	POT PL MATERIAL
6A	6p1	1	2.400	8.750	8.750	1.173	1.227	7.750	7.250	7.750	1.000	0.031	A709 GR 50 or 50W
6B	6p1	1	2.400	8.750	8.750	1.173	1.227	7.750	7.250	7.750	1.000	0.031	A709 GR 50 or 50W
6C	6p2	1	2.150	8.500	8.500	1.053	1.068	7.500	7.250	7.250	0.875	0.031	A709 GR 50 or 50W
6D	6p3	1	3.150	12.000	12.000	1.539	1.611	10.500	10.500	10.500	1.375	0.031	A709 GR 50 or 50W

MASONRY PLATE SCHEDULE (PMG)

LOCATION	ASSEM MK	PIECE MK	QTY	MP	WA	WL	WA1	WL1	WL2	RECESS WPH	RECESS DEPTH	*HOLE QTY	HOLE #	MP SKEW	WY	WX1	UL MK	UL TP	UL MATERIAL	MASONRY PL MATERIAL
ABUTMENT 1: G2	6A	6p1	1	1.500	29.000	16.000	12.250	2.000	0.000	7.773	0.250	2	1.875	+90.0°	+1.505		6FA (6p1)	0.125	AASHTO (LRFD) 18.10.2	A709 GR 50 or 50W
ABUTMENT 1: G3	6B	6p1	1	1.500	29.000	16.000	12.250	2.000	0.000	7.773	0.250	2	1.875	+90.0°	+0.755		6FA (6p1)	0.125	AASHTO (LRFD) 18.10.2	A709 GR 50 or 50W
ABUTMENT 2: G1	6C	6p2	1	1.500	29.000	18.000	12.250	4.500	0.000	7.523	0.250	2	1.875	+0.0°		+0.000	6FB (6p2)	0.125	AASHTO (LRFD) 18.10.2	A709 GR 50 or 50W
ABUTMENT 2: G4	6D	6p3	1	2.500	29.000	18.000	11.500	4.500	0.000	10.523	0.250	2	2.375	+0.0°		+0.000	6FC (6p3)	0.125	AASHTO (LRFD) 18.10.2	A709 GR 50 or 50W



PISTON SCHEDULE (PMG)

ASSEM MK	PIECE MK	QTY	PS	PISTON #	PSW	PISTON BASE	PISTON MATERIAL
6A	6p1	1	1.225	7.710	0.236	0.250	A709 GR 50 or 50W
6B	6p1	1	1.225	7.710	0.236	0.250	A709 GR 50 or 50W
6C	6p2	1	1.225	7.460	0.225	0.250	A709 GR 50 or 50W
6D	6p3	1	1.600	10.460	0.329	0.250	A709 GR 50 or 50W

Vermont Agency of Transportation

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8:53 am, Mar 29, 2012

RESUBMIT ____ APPROVED X

BY KMH DATE 3/29/2012

* PER PLATE
SEE SHT. 05 FOR ASSEMBLY DETAILS & LOCATIONS.
SEE SHT. 08 FOR ADDITIONAL SUB-ASSEMBLY DETAILS.
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

REV	DESCRIPTION	DATE	DET.	CKD.
⚠	ADDED LOCATIONS TO MASONRY PLATE SCHEDULE	5/28/12	KTG	KTG

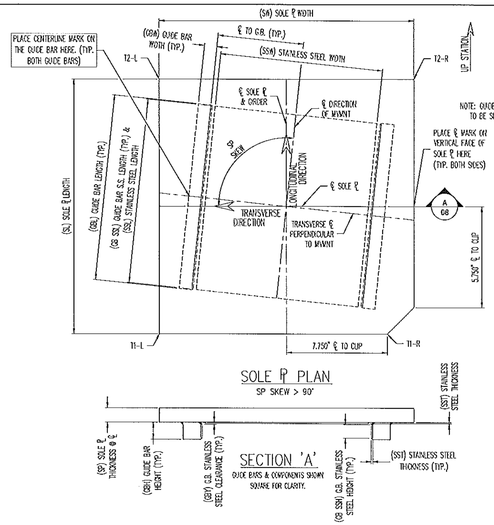
B.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0322
WWW.DSBROWN.COM

ITEM	QUANTITY
LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57	--
BRIDGE — 57	--
PROJECT NO. — BRO 1442(26)	--
PROJECT NAME — SPRINGFIELD	--
—	--
DESIGNER — VTDOT	--
CUSTOMER — T. BUCK CONSTRUCTION, INC.	--
	--
	--

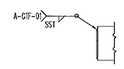
DESCRIPTION: PMG UNI-DIRECTIONAL HLMR SUB-ASSEMBLY DETAIL
WINDSOR CO., VT

SCALE: N.T.S. | DRAWN BY: DA | CHECKED BY: KTG | DATE: 1/26/12
PROJECT NO.: 35029 | PROJECTION: 1112 | SHEET NO.: 1 | SHEET: 07

ASSEMBLY 06

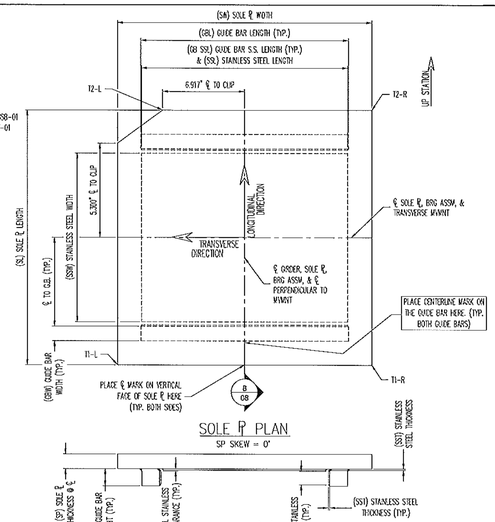


GUIDE BAR WELD DETAIL



STAINLESS STEEL WELD DETAIL

NOTE: DS BROWN RESERVES THE RIGHT TO MACHINE THE GUIDE BARS AND SOLE ℄ OUT OF ONE PIECE OF STEEL IN LIEU OF WELDING THE GUIDE BARS TO THE SOLE ℄. IF THE GUIDE BARS ARE MADE INTEGRAL, THE GUIDE BAR DIMENSIONS WILL EITHER REMAIN THE SAME OR WILL BE EXTENDED TO THE OUTSIDE EDGE OF THE PLATE FOR PWG BEARINGS. THE GUIDE BAR LENGTH SHALL BE HELD FOR ALL PWOT BEARINGS. ALL EXTERNAL DIMENSIONS WILL BE HELD.



SOLE PLATE, STAINLESS STEEL, & GUIDE BAR SCHEDULE (PWS)

LOCATION	ASSEM MK	PIECE MK	QTY	BEVEL T1-L	BEVEL T1-R	BEVEL T2-L	BEVEL T2-R	SP	SW	SL	SOLE PLATE MATERIAL	SP SS MK	SST	SSW	SSL	SP SS MATERIAL	GB SS MK	GB SSH	GB SSL	GB SS MATERIAL	GB MK	GBW	GBH	GBL	CL to GB	GBY	FW	BW	GB MATERIAL	SP SKEW
ABUTMENT 1: 62	6A	6sp1	1	1.625	1.625	1.033	1.033	1.315	20.000	16.000	AASHTO GR 50 or 50W	6ss1	0.120	8.750	11.750	A240 T304, §3 & 28	6sg1	1.250	11.750	A240 T304, §3 & 28	6gb1	1.750	1.750	12.000	4.651	0.344	0.313	0.438 (0.313)	AASHTO GR 50 or 50W	66.3°
ABUTMENT 1: 63	6B	6sp2	1	1.625	1.625	1.033	1.033	1.315	20.000	16.000	AASHTO GR 50 or 50W	6ss1	0.120	8.750	11.750	A240 T304, §3 & 28	6sg1	1.250	11.750	A240 T304, §3 & 28	6gb1	1.750	1.750	12.000	4.651	0.344	0.313	0.438 (0.313)	AASHTO GR 50 or 50W	113.0°
ABUTMENT 2: 61	6C	6sp3	1	1.625	1.625	1.033	1.033	1.315	20.000	18.000	AASHTO GR 50 or 50W	6ss2	0.120	8.250	10.250	A240 T304, §3 & 28	6sg2	1.125	10.250	A240 T304, §3 & 28	6gb2	1.625	1.625	10.500	4.526	0.344	0.313	0.438 (0.313)	AASHTO GR 50 or 50W	+0.0°
ABUTMENT 2: 64	6D	6sp4	1	1.625	1.625	1.033	1.033	1.315	20.000	18.125	AASHTO GR 50 or 50W	6ss3	0.120	11.500	13.500	A240 T304, §3 & 28	6sg3	1.625	13.500	A240 T304, §3 & 28	6gb3	2.125	2.125	13.750	6.276	0.344	0.313	0.438 (0.313)	AASHTO GR 50 or 50W	+0.0°

SEE SHT. 05 FOR ASSEMBLY DETAILS & LOCATIONS.
SEE SHT. 07 FOR ADDITIONAL SUB-ASSEMBLY DETAILS.
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

Vermont Agency of Transportation

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8:53 am, Mar 29, 2012

RESUBMIT ____ APPROVED X

BY KMH DATE 3/29/2012

D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.6332
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REV.	DESCRIPTION	DATE	DET.	CK'D.
⚠	ADDED LOCATIONS TO SOLE PLATE SCHEDULE	3/28/12	KTG	KTG

	ITEM	QUANTITY
LOCATION — TOWN HIGHWAY 6 BRIDGE NO. 57	--	--
BRIDGE — 57	--	--
PROJECT NO. — BRO 1442(26)	--	--
PROJECT NAME — SPRINGFIELD	--	--
—	--	--
DESIGNER — VTDOT	--	--
CUSTOMER — T BUCK CONSTRUCTION, INC.	--	--
	--	--

DRAWING	SCALE	DRAWN BY	CHK'D BY	DATE	
PWG UNI-DIRECTIONAL RUBR SUB-ASSEMBLY DETAIL WINDSOR CO., VT	N.T.S.	DA	KTG	1/26/12	-
	PROJECT NO. 35029		PROJECTION 1112	HEADS 1	SHEET 08

ASSEMBLY 06

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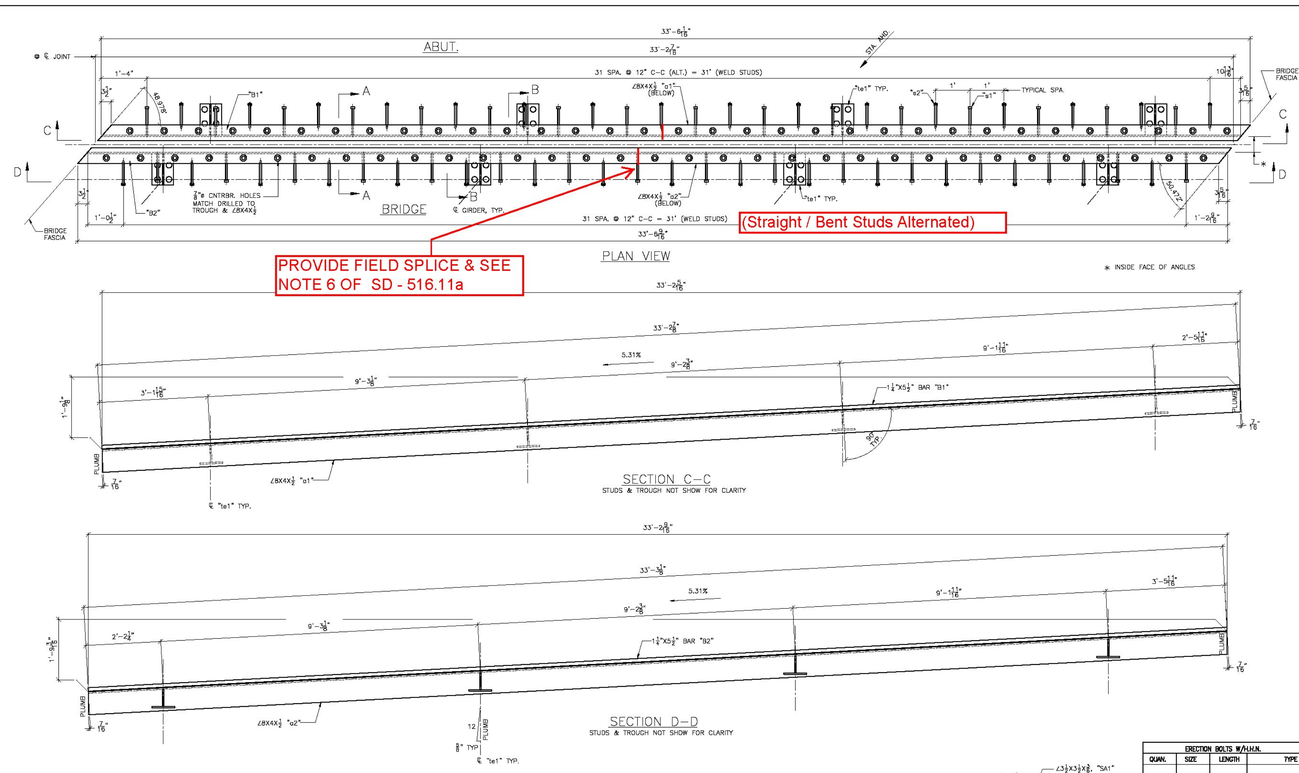


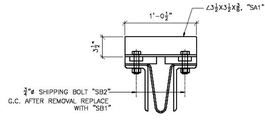
NOTES:

1. THE EXPANSION JOINT SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT. SHOP TO LOCATE AND ATTACH TEMPORARY SHIPPING DEVICES AS REQ'D.
2. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS PRIOR TO GALVANIZING.
3. SEAL WELD ALL CONNECTIONS, WHERE POSSIBLE, PRIOR TO GALVANIZING.

ONE REQ'D EXPANSION JOINT @ ABUT. #1, MARK "EJ1"

DIMENSIONS SHOWN ARE ALONG INSIDE FACE OF ANGLE U.O.N.

Vermont Agency of Transportation
RECEIVED
CK'D BY GML OK'D BY JTS
2:13 pm, Feb 22, 2012
RESUBMIT ____ APPROVED AS NOTED
BY KMH DATE 2-28-12



TYPICAL SHIPPING DEVICE
(SPA. @ 6'-0" C-C MIN. 5 TOTAL REQUIRED)

SEE DWG. 2 FOR SECTIONS NOT SHOWN
SEE DWG. 3 FOR TROUGH

ERECTION BOLTS W/H.H.N.				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

FINISH	HOT DIPPED GALVANIZED				
MATERIAL	AASHTO M270 GR. 36				
HOLES	AS NOTED				
ELECTRODES	PER W.P.S.				
WELDS	AS NOTED				
SURFACE PREP	SSPC-SP6				

NO	DATE	DESCRIPTION	BY
		REVISIONS	

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2546 – FAX: (207) 265-4054

DRAFTER	JAC	EXPANSION JOINT DETAILS	PROJECT NO.
DATE	2/8/12	VERMONT AGENCY OF TRANSPORTATION, TOWN OF SPRINGFIELD, TH 6 CLASS 2L LOCAL ROAD	BRD 1442(28)
CHECKED	MTD	G.C. T. BUCK CONSTRUCTION, INC.	DWG. NO. 1
JOB	11-175		

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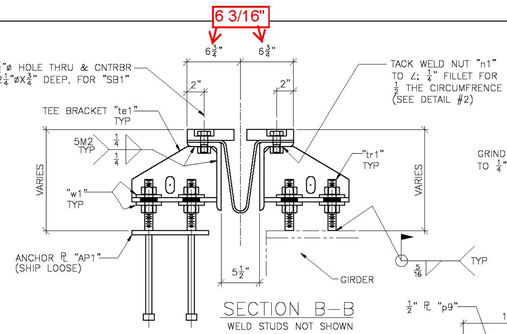
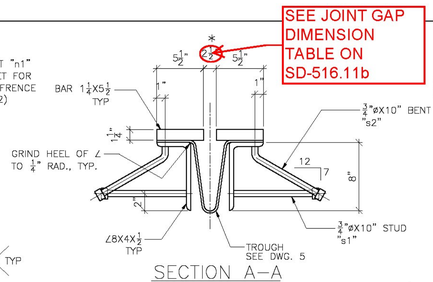
6 3/16"

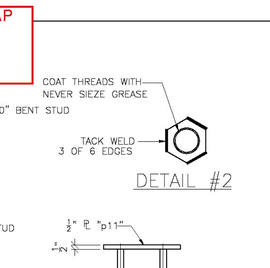
SEE JOINT GAP DIMENSION TABLE ON SD-516.11b



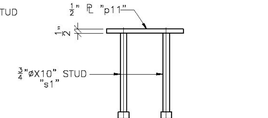
SECTION B–B
WELD STUDS NOT SHOWN

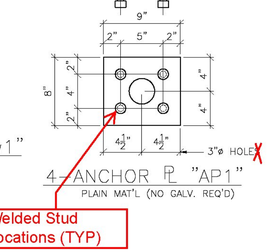


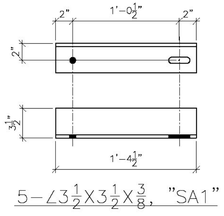
SECTION A–A
CNTRBR HOLES & BOLTS NOT SHOWN
~~* SHIPPING DIMENSION @ 45° F.~~

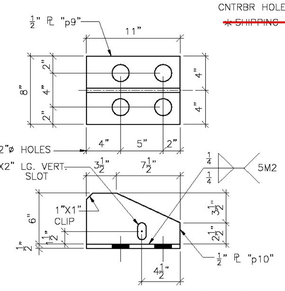


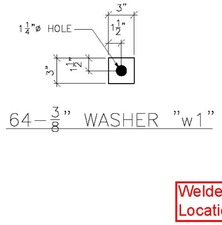
DETAIL #2

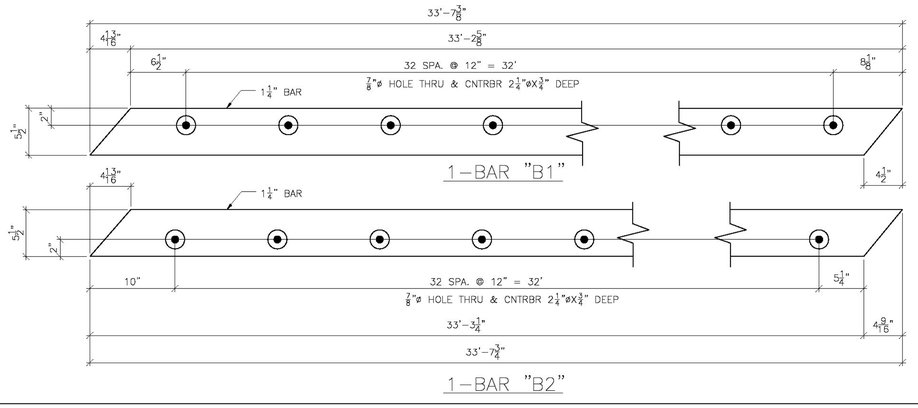












BILL OF MATERIAL

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L
1	EJT			EXPANSION JOINT			
		1	a1	∠8X4X½	33'-6⅛"		
		1	a2	∠8X4X½	33'-6⅛"		
		1	B1	PL 1¼X5½	33'-7⅛"		
		1	B2	PL 1¼X5½	33'-7⅛"		
		32	s1	¾"ø CONC. STUD	0'-10		
		32	s2	¾"ø CONC. STUD	0'-10		
		66	SB1	⅞"ø BOLT	0'-2½"		A325
		66	n1	⅞"ø NUT			A563
		8	p9	PL ½X8	0'-11		ASS'Y te1
		8	p10	PL ½X6	0'-11		ASS'Y te1
		64	w1	PL ⅜X3	0'-3		
		32	tr1	1"ø ALL THREAD W/(2) NUTS EA.	0'-7		A307
							A563
4	AP1			ANCHOR PLATE			PLAIN MAT'L
		4	p11	PL ½X8	0'-9		
		16	s1	¾"ø CONC. STUD	0'-10		
	NP1	1		5/32"X36" PREFORMED FABRIC	34'-3		3-PLY
				⅛"X3" BUTYL RUBBER TAPE			
		1	db1	5/32"X½" PREFORMED FABRIC	0'-7"		3-PLY
		2	SB3	½"ø GALV. BOLT	0'-1		W/N&(2)W
				SHIPPING MATERIAL			
		5	SA1	∠3½X3½X⅜	1'-2		
		10	SB2	½"ø BOLT	0'-3½		A325

Vermont Agency of Transportation
RECEIVED
CK'D BY GML OK'D BY JTS
2:13 pm, Feb 22, 2012
RESUBMIT APPROVED AS NOTED
BY KMH DATE 2-28-12

ERECTION BOLTS W/HJ.N.				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

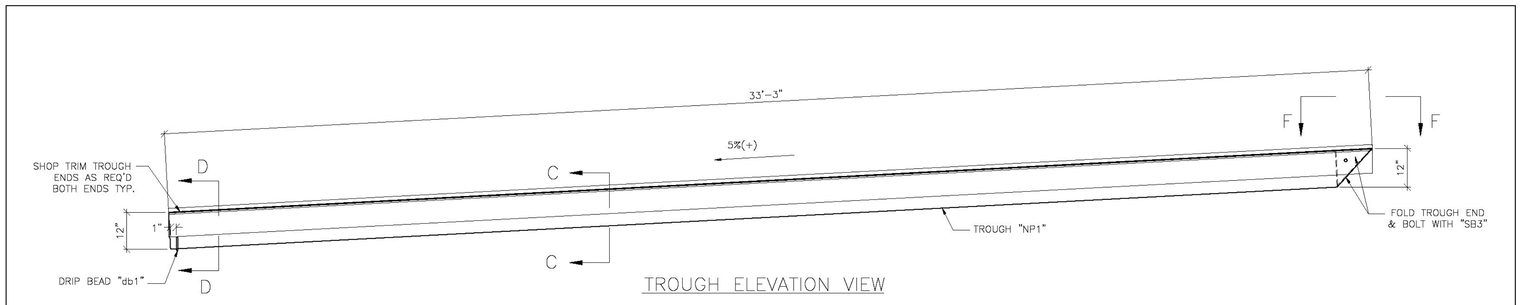
FINISH	HOT DIPPED GALVANIZED
MATERIAL	AASHTO M270 GR. 36
HOLES	AS NOTED
ELECTRODES	PER W.P.S.
WELDS	AS NOTED
SURFACE PREP	SSPC-SP6

NO	DATE	DESCRIPTION	BY
		REVISIONS	

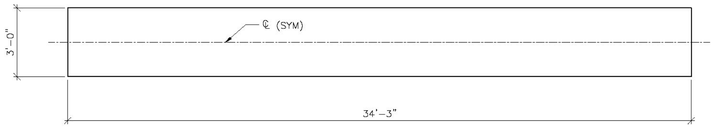
ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2545 – FAX: (207) 265-4054

DRAFTER JAC	EXPANSION JOINT DETAILS	PROJECT NO. BRO 1442(26)
DATE 2/8/12	VERMONT AGENCY OF TRANSPORTATION TOWN OF SPRINGFIELD, TH 6 CLASS III, LOCAL ROAD	DWG. NO. 2
CHECKED MTD	G.C. T. BUCK CONSTRUCTION, INC.	
JOB 11-175		

PDF created with FinePrint pdfFactory trial version http://www.pdffactory.com

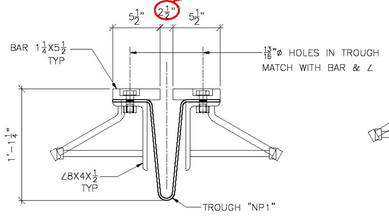


TROUGH ELEVATION VIEW

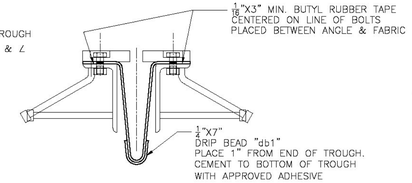


1 REQ'D, TROUGH MARK "NP1"
5/32" THK. PREFORMED FABRIC TROUGH (3 PLY)

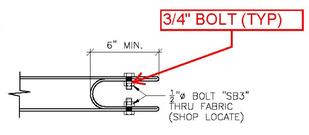
SEE JOINT GAP DIMENSION TABLE ON SD-516.11b



SECTION C–C



SECTION D–D



SECTION F–F

Vermont Agency of Transportation

RECEIVED

CK'D BY GML OK'D BY JTS

2:13 pm, Feb 22, 2012

RESUBMIT _____ APPROVED AS NOTED

BY KMH DATE 2-28-12

SEE DWG. 2 FOR B.O.M.

ERECTION BOLTS W/N.H.N.				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

FINISH	HOT DIPPED GALVANIZED
MATERIAL	AASHTO M270 GR. 36
HOLES	AS NOTED
ELECTRODES	PER W.P.S.
WELDS	AS NOTED
SURFACE PREP	SSPC-SP6

NO	DATE	DESCRIPTION	BY
		REVISIONS	

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER	JAC	TROUGH DETAILS	PROJECT NO.
DATE	2/9/12	VERMONT AGENCY OF TRANSPORTATION, TOWN OF SPRINGFIELD, TH 6 CLASS III, LOCAL ROAD	BRO 1442(28)
CHECKED	MTD	G.C. T. BUCK CONSTRUCTION, INC.	DWG. NO. 3
JOB	11-175		

WELDING PROCEDURE SPECIFICATION (WPS) YES (X)
PREQUALIFIED __x___ QUALIFIED BY TESTING _____
or PROCEDURE QUALIFICATION RECORD (PQR) YES ( )

Identification # ARC WPS 5M2b
Company Name ARC Enterprises, Inc.
Welding Process(es) GMAW
Supporting PQR No.(s) _____
Revision 5 **Date** 2-14-12 **By** SVH
Autherized by STEVE HOWARD **Date** 12-5-05
Type - Manual ( ) Semi - Automatic (X)
Machine ( ) Automatic ( )

JOINT DESIGN USED
Type Fillet
Single X Double Weld ( )
Backing ( ) NO (X)
Backing Material _____
Root Opening 0 **Root Face Dimension** N/A
Groove Angle N/A **Radius (J-U)** N/A
Back Gouging YES( ) NO ( ) **Method** N/A

BASE METALS
Material Spec A709
Type or Grade 50
Thickness **Groove** _____ **Fillet** UNLIMITED
Diameter (Pipe) _____

FILLER METALS
AWS Specification A5.18
AWS Classification ER70S-6 Lincoln SuperArc L-56

SHIELDING
Flux _____ **Gas** 98%ARGON 2%O2
Composition _____
Electrode - Flux (Class) **Flow Rate** 25-35 cfh
Gas Cup Size 5/8

preheat;up to 3/4" - 50 degreesF.3/4" - 1 1/2"-70 degrees F
1 1/2" - 2 1/ 2" - 150 degrees F
over 2 1/2" - 225 degrees F

POSITION
Position of Groove _____ **Fillet** 1F 2F
Vertical Progression ( )

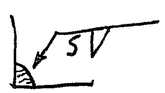
ELECTRICAL CHARACTERISTICS
Transfer Mode (FCAW) **Short Circuiting** ( )
Globular ( ) **Spray** (X)
Current : **AC** ( ) **DCEP** (X) **DCEN** ( )
Pulsed ( )
OTHER : _____

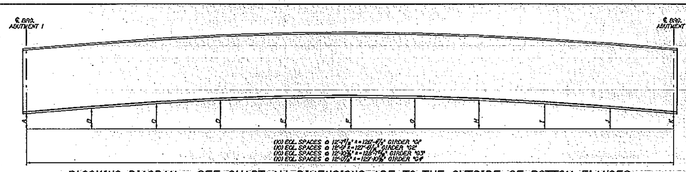
TECHNIQUE
Stringer or Weave Bead STRINGER
Multi-pass or Single Pass (per side) SINGLE/MULTI
Number of Electrodes _____
Electrode Spacing **Longitudinal** NA
Lateral NA
Angle NA
Contact Tube to Work Distance 5/8" - 3/4"
Peening NA
Interpass Cleaning : HAND/POWER TOOLS

POSTWELD HEAT TREATMENT
Temp NA
Time NA

WELDING PROCEDURE

Pass or Weld Layer(s)	S	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diameter	Type & Polartiy	Amps or Wire Feed Speed			
1 1	3/16"	ER70S-6	.035"	DCEP	180-220	25-27	7-9	
1 1	1/4"	"	.035"	"	180-220	25-27	5-6	
1 1	5/16"	"	.035"	"	180-220	25-27	4-5	
1 1	3/8"	"	.035"	"	180-220	25-27	3-4	
1 2+	7/16"	"	.035"	"	180-220	25-27	2-3	
1 2+	1/2"	"	.045"	"	270-330	28-30	2-3	

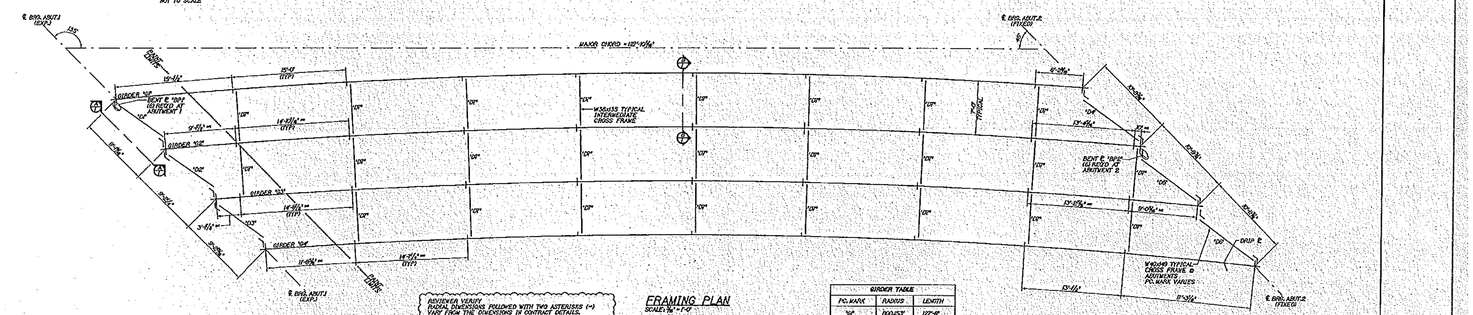




GIRDER LINE	HEIGHT @ ABUT. 1 ℄ BRG.	"1"	"2"	"3"	"4"	"5"	"6"	"7"	"8"	"9"	"10"	HEIGHT @ ABUT. 2 ℄ BRG.
GIRDER "A3"	6'-0"	5'-8"	F.H.=5'-7"	F.H.=5'-6"	F.H.=5'-6"	F.H.=5'-5"	F.H.=5'-5"	F.H.=5'-4"	F.H.=5'-4"	F.H.=5'-3"	F.H.=5'-3"	6'-0"
GIRDER "A4"	6'-0"	5'-8"	F.H.=5'-7"	F.H.=5'-6"	F.H.=5'-6"	F.H.=5'-5"	F.H.=5'-5"	F.H.=5'-4"	F.H.=5'-4"	F.H.=5'-3"	F.H.=5'-3"	6'-0"
GIRDER "A5"	6'-0"	5'-8"	F.H.=5'-7"	F.H.=5'-6"	F.H.=5'-6"	F.H.=5'-5"	F.H.=5'-5"	F.H.=5'-4"	F.H.=5'-4"	F.H.=5'-3"	F.H.=5'-3"	6'-0"
GIRDER "A6"	6'-0"	5'-8"	F.H.=5'-7"	F.H.=5'-6"	F.H.=5'-6"	F.H.=5'-5"	F.H.=5'-5"	F.H.=5'-4"	F.H.=5'-4"	F.H.=5'-3"	F.H.=5'-3"	6'-0"

BLOCKING DIAGRAM ~ SEE CHART ALL DIMENSIONS ARE TO THE OUTSIDE OF BOTTOM FLANGES

BLOCKING DIAGRAM IS DEVELOPED
NOT TO SCALE

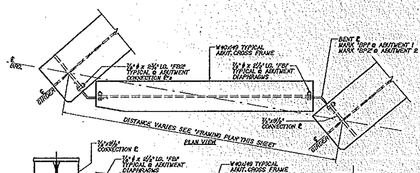


FRAMING PLAN

SCALE: 3/32"=1'-0"

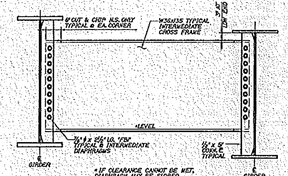
GIRDER TABLE		
PC. MARK	RADIUS	LENGTH
"A3"	800.05'R	100'-0"
"A4"	793.05'R	100'-10⅝"
"A5"	786.05'R	100'-9"
"A6"	778.95'R	100'-7⅛"

RECHECK VERIFY
RADIAL DIMENSIONS FOLLOWED WITH TWO ASTERISKS (**)
VARY FROM THE DIAGRAM. ALL DIMENSIONS ALONG THE
GIRDER LINES EQUAL WHICH MARK "ALL THE INTERNAL
DIAPHRAGMS THE SAME.



(A1) ABUTMENT CROSS FRAMES

ELEVATION VIEW IS DEVELOPED
SCALED: 3/4"=1'-0"



(B1) INTERMEDIATE CROSS FRAMES

SCALED: 3/4"=1'-0"

Vermont Agency of Transportation
RECEIVED
CK'D BY GML OK'D BY JEL
11:20 am, Mar 19, 2012
RESUBMIT _____ APPROVED X
BY KMH DATE 3/19/2012

GENERAL FABRICATION NOTES

⚠ MATERIAL SPECIFICATIONS

1.) GIRDERS SHALL BE WEB PLATE AT STEEL LEAD LOAD CONDITION.

2.) ALL MATERIAL EXCEPT THE WEBS, STIFFENERS SHALL BE ASTM A709 GRADE 50W (50) WITH CHARPY V-NOTCH IMPACT REQUIREMENTS IN ACCORDANCE WITH ZONE 2 AND TEMPERATURE ZONE 1 AS SPECIFIED IN ASTM A709. PERFORMANCE SHEET GIRDER PLATE SHALL BE FULL PENETRATION GROOVE WELDED.

⚠ 3.) ALL A709 GRADE 50W & 70W MATERIAL IMPORTED WHICH SHALL MEET THE SUPPLEMENTARY REQUIREMENTS OF S6C.8.4 PROVIDED.

4.) BOLTS, NUTS & WASHERS:
HIGH STRENGTH BOLTS ASTM A325, TYPE 3
NUTS ASTM A563 GRADE DH
WASHERS SHALL BE ASTM F436, TYPE 3

BOLTS, NUTS & WASHERS:
HIGH STRENGTH BOLTS ASTM A325, TYPE 1 (GALV.)
NUTS SHALL BE ASTM A563 GRADE DH
WASHERS SHALL BE ASTM F436, TYPE 1 (GALV.)

5.) BOLTS AND NUTS SHALL BE PROTECTED FROM MOISTURE AND DIRT AND SHALL BE SUFFICIENTLY OILED TO INSURE NUTS AND BOLTS TURN THE SAME WAY WHEN

FABRICATION

1.) CUT STAMPED IS ALLOWED IN SPECIFIED LOCATIONS WITH THE APPROVAL OF THE ENGINEER.

2.) ALL EDGES OF FLAME CUT MATERIAL SUBJECTED TO CALCULATED STRESSES SHALL BE PLANED TO A MINIMUM RADIUS OF 1/16" OR AN EQUIVALENT FLAT BEVELED AT A SUITABLE ANGLE.

3.) ALL PLATES FLAME CUT FROM ROLLED PLATES SHALL BE CUT, SO THAT THE PRIMARY DIRECTION OF ROLLING IS PARALLEL TO THE MAIN TENSILE OR COMPRESSIVE STRESS.

4.) EXPOSED CORNERS IN AREAS TO BE PAINTED SHALL BE ROUNDED TO APPROXIMATELY 1/4" RADIUS.

WELDING

1.) ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF AWS D1.5 BRIDGE WELDING CODE.

⚠ 2.) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH SECTION 1.7 OF AWS D1.5 BRIDGE WELDING CODE. ALL WELDS IN THE MAIN TOP OR BOTTOM AS BUILT IN COMPRESSION.

FLANGE SPLICES SHALL BE TESTED AS FOLLOWS:
FLANGE SPLICES IN TENSION - TESTED 100%
FLANGE SPLICES IN COMPRESSION - TESTED 25%

WEB SPLICES SHALL BE TESTED AS FOLLOWS:
FOR 50 FEET BOTH OF THE FIELD SPLICE (EACH) - TESTED 100%
FOR THE REMAINING DEPTH OF WEB COMPRESSION AREA - TESTED 25%

3.) TERMINATE STIFFENER WELDS AS SHOWN IN TYPICAL WELD TERMINATION DETAILS SHEET 11.

GENERAL FABRICATION NOTES

FIELD CONNECTIONS

1.) FIELD BOLTS SHALL HAVE A HEAVY HEX NUT, HEX HEAD, AND ONE HARD WASHER EACH.

2.) FIELD MARKS WILL BE INCISED AS QUENCH ON ERECTION TECHNIQUES. ALL ERECTION MARKS WITH PAINT OR WELDED MARKS MUST NOT BE EXPOSED IN THE FINISHED STRUCTURE.

3.) BEVELED WASHERS ARE REQUIRED OVER OVERSIZED HOLES.

CLEANING AND PAINTING

1.) THE PORTION OF THE GIRDERS WITHIN 10 FEET OF THE EXPANSION JOINT AND ON GIRDER LINE ADJACENT TO THE EXPANSION JOINT ALONG AN ENTIRE GIRDER LINE SHALL BE PAINTED.

2.) UNPAINTED STEEL SHALL BE BLAST CLEANED TO SSPC SP-6 TO ACHIEVE A UNIFORM ROUGHENED APPEARANCE.

3.) ALL PAINTED AREAS OF GIRDERS SHALL BE PAINTED WITH TWO THREE (3) COATS, ONE PRIME COAT, ONE INTERMEDIATE AND ONE FINISH. ALL MATERIAL TO RECEIVE PAINT SHALL BE BLAST CLEANED TO SSPC SP-10.

4.) PAINTING SYSTEMS SHALL BE: NORTHEAST PROTECTIVE COATING COMMITTEE (NEPCOAT) SPECIFICATIONS AS FOLLOWS:
INORGANIC ZINC PRIMER NEPCOAT 20-89 OR STEEL STRUCTURES PAINTING COUNCIL SYSTEM NO. 20
MIDDLE COAT: CARBOMASTIC 15 OR 15T
TOP COAT: CARBOTHANE 134 OR 134HG

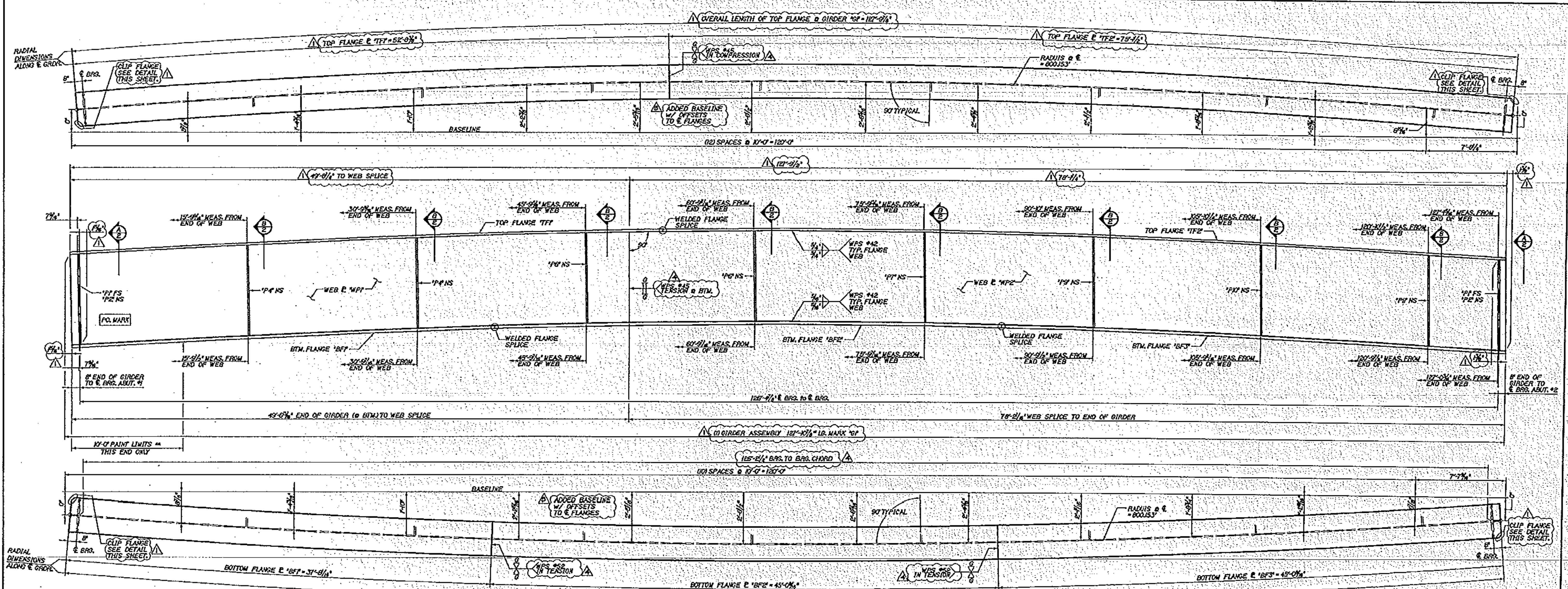
⚠ 5.) THE APPLICATION OF ANY COATING SHALL BE A MANUFACTURER (OR'M CONFORMING AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.

6.) PAINTED SURFACES WITHIN 3" OF ANY SHOP OR FIELD HOLE SHALL BE PRIMED ONLY UNTIL AFTER A REAMED OR DRILLED TO SIZE ASSEMBLY.

FINISH					
MATERIAL	SEE DETAIL SHEETS				
HOLES		4	9/30/11	ARMORED	JJH
ELECTRODES		3			
WELDS	PER WELD PROCEDURE	2			
SURFACE PREP		1	3/20/12	ARMORED	JJH
		NO	DATE	DESCRIPTION	BY
		REVISIONS			

ARC
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 118 EAST BERLIN, PA. 17316
PHONE: (717) 259-2165 - FAX: (717) 259-4264

DRAFTER	JJH	FRAMING DETAILS	PROJECT NO. 510 14(39)
DATE	DEC. 2011	BRIDGE # 4 "EVENS MILLS" OVER BOULDIN CREEK	
CHECKED	ERS		DWG NO.
DATE	JAN. 2012	"T" BUCK CONSTRUCTION	1

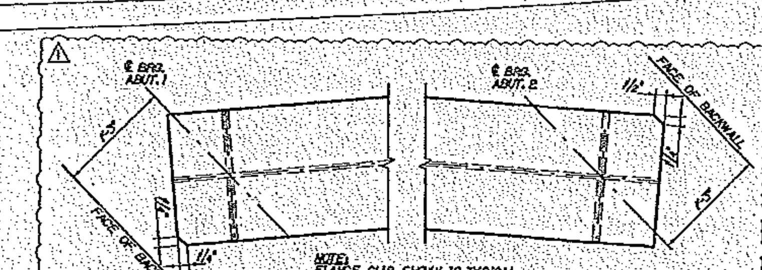


~STIFFENERS AND ENDS OF BEAM CHANGED TO BE VERTICAL AT STEEL DEAD LOAD CONDITION.
~RUNNING DIMENSIONS ADDED TO THE BOTTOM OF THE STIFFENERS.
~RUNNING DIMENSIONS ARE NOW GIVEN ALONG THE CURVE AND ALONG THE CAMBER OF THE BEAMS (I.e. WHERE THE FILLET WELD BETWEEN WEB AND FLANGE WILL BE). TOP RUNNING DIMENSIONS HAVE BEEN UPDATE ACCORDINGLY.

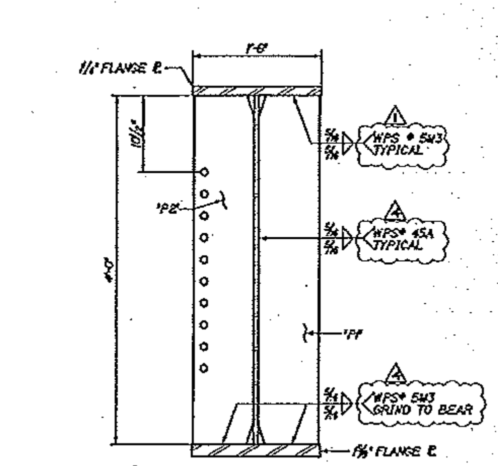
1/2 DIMENSIONAL PLANS & ELEVATIONS ~ GIRDER "G1"

DIMENSIONAL DETAILS ARE DEVELOPED (DIMENSIONS ARE ALONG ARC U.N.O.)
SCALE: 1/2" = 1'-0"
VERTICAL SCALE EXAGERATED 2:1

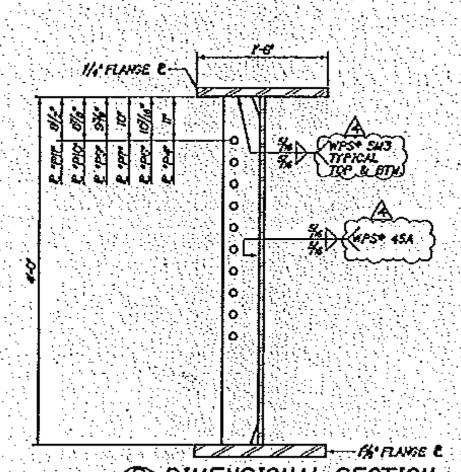
** PRIME WITH CARBOZINC 11HS, INTERMEDIATE COAT WITH CARBOGUARD 893, TOP COAT WITH CARBOTHANE 133 LH APPLIED IN SHOP TOUCH UP REQUIRED IN THE FIELD DUE TO DAMAGE FROM HANDLING AND ERECTION BY OTHERS



FLANGE CLIP DETAIL
SCALE: 1" = 1'-0"



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



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

Vermont Agency of Transportation
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11:20 am, Mar 19, 2012
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BY KMH DATE 3/19/2012

NOTE:
FOR CAMBER DIAGRAMS SEE SHEET "M3"

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MATERIAL
1	G1			BRIDGE GIRDER	127'-10 7/8"	36,255#	
		1	WP1	℄ 5/8" x 48"	49'-8 3/4"	5075#	Gr. 50W (CVN)
		1	WP2	℄ 5/8" x 48"	78'-3 3/4"	7985#	Gr. 50W (CVN)
		1	TF1	℄ 1 1/4" x 18"	52'-8 3/4"	4040#	Gr. 50W (CVN)
		1	TF2	℄ 1 1/4" x 18"	75'-1/2"	5760#	Gr. 50W (CVN)
		1	BF1	℄ 1 3/8" x 18"	37'-8 1/16"	3750#	Gr. 70W (CVN)
		1	BF2	℄ 1 3/8" x 18"	45'-0 5/16"	4485#	Gr. 70W (CVN)
		1	BF3	℄ 1 3/8" x 18"	45'-0 5/16"	4485#	Gr. 70W (CVN)
		2	P1	SEE SHEET M1		100# EA.	
		2	P2	SEE SHEET M1		100# EA.	
		2	P4	SEE SHEET M1		34# EA.	
		2	P6	SEE SHEET M1		34# EA.	
		1	P7	SEE SHEET M1		34# EA.	
		1	P9	SEE SHEET M2		34# EA.	
		1	P10	SEE SHEET M2		34# EA.	
		1	P11	SEE SHEET M2		34# EA.	

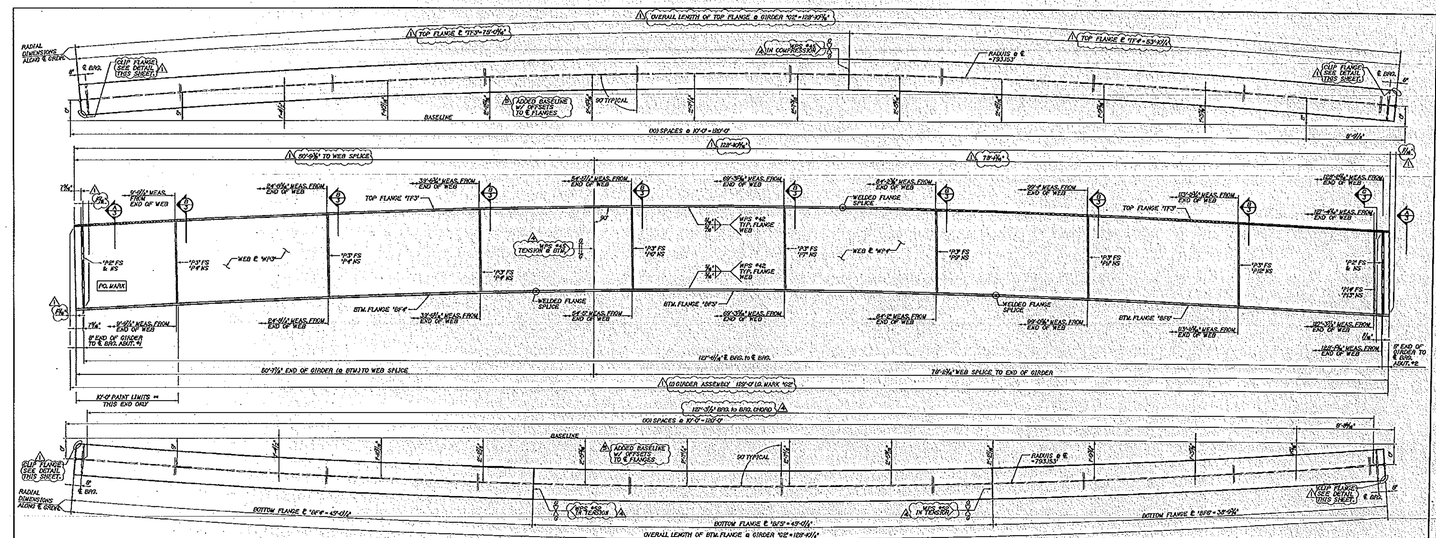
FINISH	SSPC SP6 EVERYWHERE - OUTSIDE PAINT LIMITS ONLY
MATERIAL	AASHTO M270 (ASTM A709) GRADE 50W (TYP.) (ASTM A709) GRADE HPS 70W (BTM. FLANGE)
HOLES	15/16" Ø U.N.O.
ELECTRODES	
WELDS	PER WELD PROCEDURE
SURFACE PREP	SSPC SP10 w/in PAINTING LIMITS, SSPC SP6 ELSEWHERE

NO	DATE	DESCRIPTION	BY
4	3/13/2012	AS NOTED	JJH
3	2/21/2012	BASELINE w/ OFFSETS & AS NOTED	JJH
1	2/15/2012	AS NOTED	JJH

REVISIONS

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME 04947
PHONE: (207) 265-2646 - FAX: (207) 265-4264

DRAFTER	JJH	GIRDER 1	PROJECT NO. BRO 1442(39)
DATE	DEC. 2011	BRIDGE #57, TOWN HIGHWAY 6 SPRINGFIELD, VERMONT	
CHECKED	ETC	T BUCK CONSTRUCTION	DWG. NO. 2
DATE	JAN. 2012		



1 DIMENSIONAL PLANS & ELEVATIONS ~ GIRDER "G2"
3 GENERAL DETAILS ARE DEVELOPED TO DIMENSIONS ARE ALONG ARC (UNO.)
SCALE: 1"=1'-0"
VERTICAL SCALE EXAGERATED 8X

STIFFENERS AND ENDS OF BEAM CHANGED TO BE VERTICAL AT STEEL DEAD LOAD CONDITION.
RUNNING DIMENSIONS ADDED TO TOP & BOTTOM FLANGE PLATES.
RUNNING DIMENSIONS ADDED TO WEB PLATES TO DESCRIBE WHERE THE CAMBER OF THE STRAIGHT WEB PLATES WILL BE, TOP RUNNING DIMENSIONS HAVE BEEN UPDATE ACCORDINGLY.

PRIME WITH CARBOZINC 11 HS, INTERMEDIATE COAT WITH CARBOZINC 893 TCP COAT WITH CARBOTHANE 133 LH AP#3
TOUCH UP REQUIRED IN THE FIELD DUE TO DAMAGE FROM HANDLING AND ERECTION BY OTHERS

Vermont Agency of Transportation
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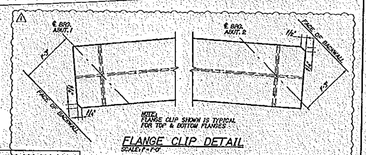
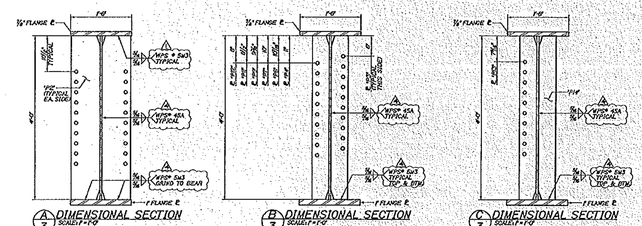
BY KMH DATE 3/19/2012



FLANGE CLIP DETAIL
SCALE: 1"=1'-0"



A DIMENSIONAL SECTION
3 SCALE: 1"=1'-0"

B DIMENSIONAL SECTION
3 SCALE: 1"=1'-0"

C DIMENSIONAL SECTION
3 SCALE: 1"=1'-0"

NOTE: FOR GIRDER DIAGRAMS SEE SHEET "G3"

BILL OF MATERIALS

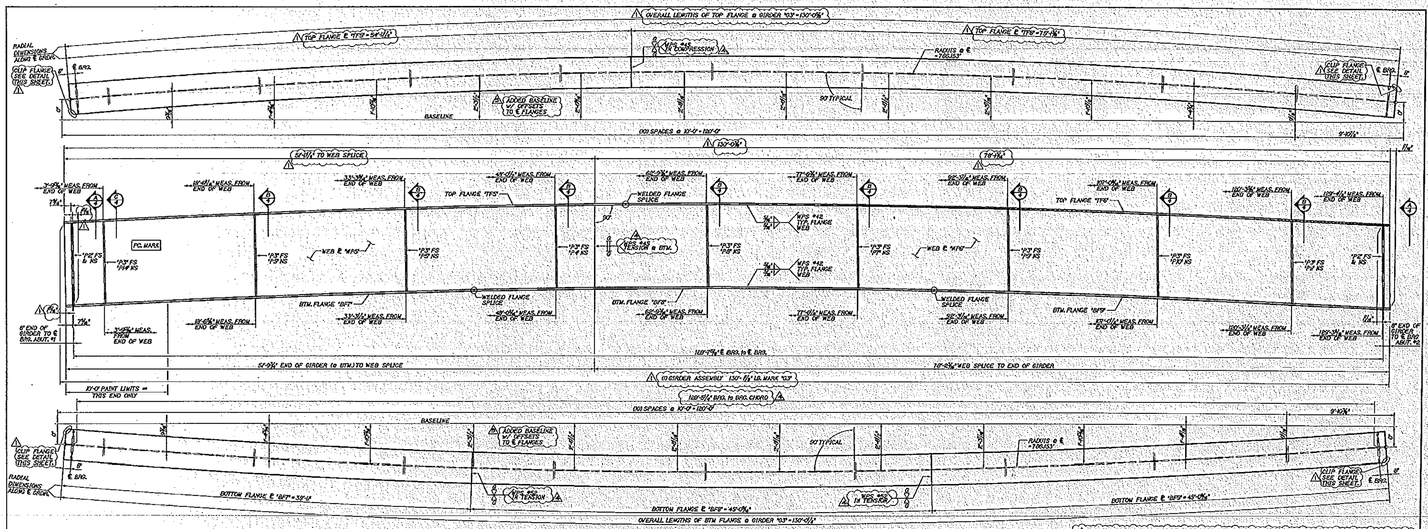
SHOP	SHOP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MATERIAL
1	G2			BRIDGE GIRDER	109'-0"	20,000#	
		1	W1	℄ ⅜" x 49"	120'-6½"	5359#	Gr. 50W (50)
		1	W2	℄ ⅜" x 49"	78'-3½"	7060#	Gr. 50W (50)
		1	W3	℄ ⅜" x 49"	119'-10⅞"	9020#	Gr. 50W (50)
		1	TF2	℄ ½" x 19"	109'-10⅛"	8800#	Gr. 50W (50)
		1	BF2	℄ 1" x 18"	109'-10⅛"	16160#	Gr. 70W (70)
		1	BF3	℄ 1" x 18"	83'-0⅛"	12160#	Gr. 70W (70)
		1	BF3	℄ 1" x 18"	39'-0⅜"	5360#	Gr. 70W (70)
		6	P2	SEE SHEET M1		300# EA.	
		6	P3	SEE SHEET M1		3# EA.	
		3	P4	SEE SHEET M1		3# EA.	
		1	P5	SEE SHEET M1		3# EA.	
		1	P7	SEE SHEET M2		3# EA.	
		1	P9	SEE SHEET M2		3# EA.	
		1	P8	SEE SHEET M2		3# EA.	
		1	P12	SEE SHEET M2		3# EA.	
		1	P13	SEE SHEET M2		3# EA.	
		1	P14	SEE SHEET M2		3# EA.	

FINISH	SSPC SP6 OVER PRIMER - OUTSIDE PLATE UNITS ONLY			
MATERIAL	AASHTO M270 (ASTM A709) GRADE 50W (50) UNLESS OTHERWISE NOTED			
HOLES	15/16" Ø U.N.O.	4	3/19/2012	LB 56/10
ELEC PROCESS		3	3/19/2012	SUBMIT AS AS-BUILT & REVISED
WELDS	PER AWS D1 PROCEDURES			
SURFACE PREP	SSPC SP10 +1½ PAINTING LIMITS	1	3/1/2012	AS NOTED
	SSPC SP6 IS FOR SHOP WORK	NO.	DATE	DESCRIPTION

REVISIONS

ARC
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 1313 SPRINGFIELD, VT. 05156
PHONE (802) 885-3614 - FAX (802) 885-4004

DRAWN BY	JAH	GIRDER 2	PROJECT NO. BRO 1400(6)
DATE	DEC. 2011	BRIDGE # 34, TOWN HIGHWAY 6 SPRINGFIELD, VERMONT	
CHECKED	ETC	FOR: T. BUCK CONSTRUCTION	DWG. NO. 3
DATE	JAN. 2012		

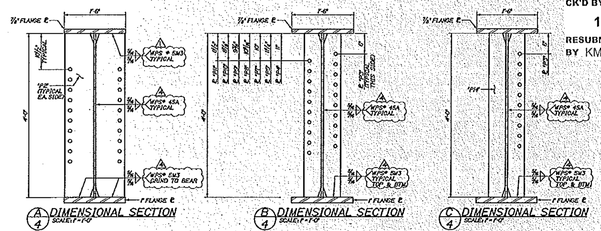


⚠ STIFFENERS AND ENDS OF WEAR CHANGED TO BE VERTICAL AT STEEL DEAD LOAD CONDITION.
⚠ RUNNING DIMENSIONS ADDED TO THE BOTTOM OF THE STIFFENERS.
⚠ RUNNING DIMENSIONS ARE NOW GIVEN ALONG THE GIRDER AND ALONG THE CAMBER OF THE WEAR ON WHERE THE FILLET WELD BETWEEN WEB AND FLANGE WILL BE. TOP FLANGE DIMENSIONS HAVE BEEN UPDATE ACCORDINGLY.

1 DIMENSIONAL PLANS & ELEVATIONS ~ GIRDER 'G3'

DIMENSIONAL DETAILS ARE DEVELOPED DIMENSIONS ARE ALONG AND U.N.O.
SCALE: 1/8"=1'-0"
VERTICAL SCALE: EXAGERATED 8X

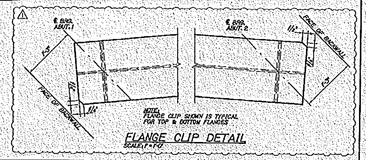
~ FABR. WITH CAMBER AS INDICATED. INSTALL WITH CAMBER UP. COAT WITH CARBOTHANE 133 UR APPLIED IN SHOP. TOUCH UP REQUIRED IN THE FIELD DUE TO DAMAGE FROM HANDLING AND ERECTION BY OTHERS



A 4 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

B 4 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

C 4 DIMENSIONAL SECTION
SCALE: 1"=1'-0"



FLANGE CLIP DETAIL
SCALE: 1"=1'-0"

Vermont Agency of Transportation
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11:20 am, Mar 19, 2012
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BY KMH DATE 3/19/2012

WELD FOR CAMBER DIAGRAMS SEE SHEET M3

BILL OF MATERIALS

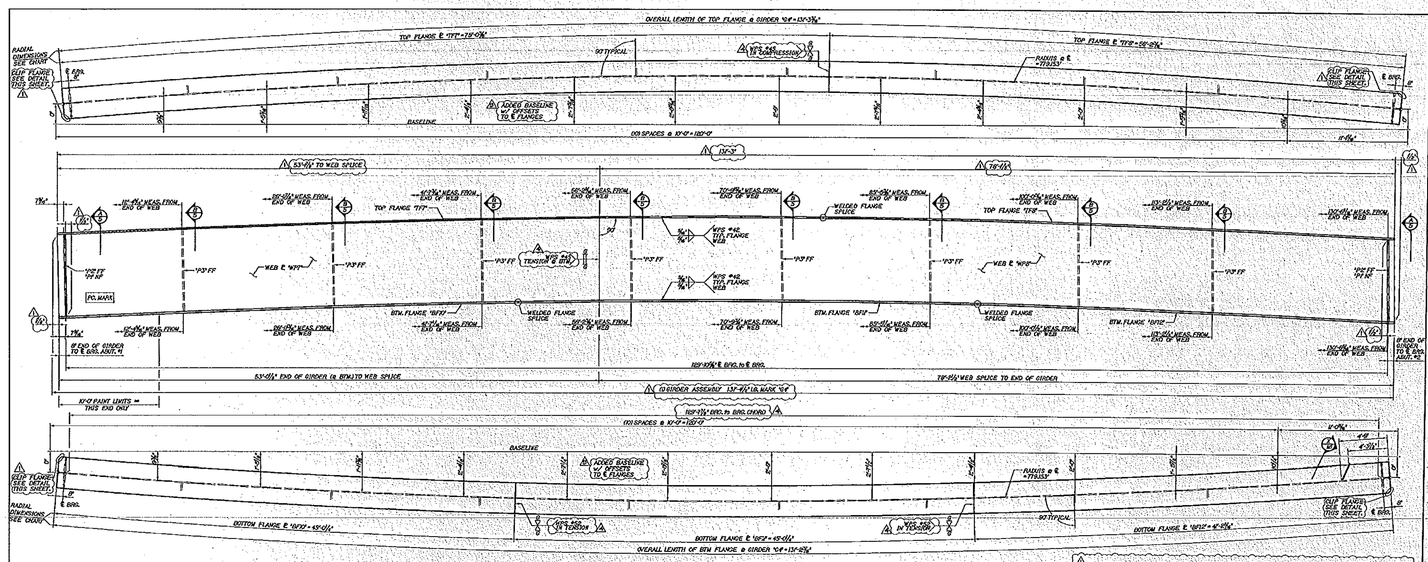
SHOP	SHOP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MATERIAL
1	03			BRIDGE GIRDER	150'-03⅛"	SOLEAS*	⚠
		1	WP5	℄ ¾" x 48"	51'-05⅜"	6300#	GR. 50W (QW2)
		1	WP6	℄ ¾" x 48"	78'-03⅛"	7960#	GR. 50W (QW2)
		1	TP5	℄ 1½" x 18"	54'-05½"	2820#	GR. 50W (QW2)
		1	TP6	℄ 1½" x 18"	79'-08"	4030#	GR. 50W (QW2)
		1	BF7	℄ 1" x 18"	39'-4"	2445#	GR. 70W (QW2)
		1	BF8	℄ 1" x 18"	43'-08⅜"	2720#	GR. 70W (QW2)
		1	BF9	℄ 1" x 18"	43'-08⅜"	2720#	GR. 70W (QW2)
		4	P12	SEE SHEET M		100# EA.	
		9	P3	SEE SHEET M		34# EA.	
		1	P4	SEE SHEET M		34# EA.	
		2	P5	SEE SHEET M		34# EA.	
		1	P7	SEE SHEET M2		34# EA.	
		1	P8	SEE SHEET M2		34# EA.	
		1	P9	SEE SHEET M2		34# EA.	
		1	P10	SEE SHEET M2		34# EA.	
		1	P11	SEE SHEET M2		34# EA.	
		1	P14	SEE SHEET M2		34# EA.	

FINISH	SSPC SP10 OR WHITE BLAST			
MATERIAL	AASHTO M270 (ASTM A709) GR.(OR DUR 345) (FY=)			
	(ASTM A709 GR.(OR DUR 345) (STM. FLANGES)			
BOLTS	7/8" Ø H.S.B.G. -	1	3/1/2012	LG MOORE
ELECTRODES		1	3/21/12	ADDED NOTE 10 OFFSETS & ADDED
WELDS	PER WELD PROCEDURE			
SURFACE PREP	SSPC SP10 w/ NO PAINT TO SLOTS	1	3/19/12	ADDED NOTE
	SSPC SP6 ELSEWHERE	NO	DATE	DESCRIPTION

REVISIONS

ARC ENGINEERING, INC.
ADVANCED RESEARCH & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 1213 RICHFORD, VT. 05476
PHONE: (802) 793-2768 • FAX: (802) 793-1268

DRAFTER	JJH	GIRDER 3	PROJECT NO. 819 (1609)
DATE	DEC 2011	BRIDGE #57, TOWN HIGHWAY 6	
DESIGNER	ERK	BRANDON, VERMONT	DWG. NO.
DATE	JAN 2012	T. BUCK CONSTRUCTION	4

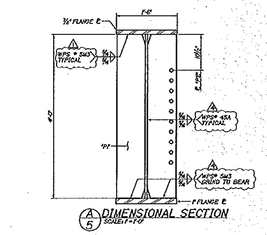


1 DIMENSIONAL PLANS & ELEVATIONS ~ GIRDER "G4"
5 SCALE: 1"=10'

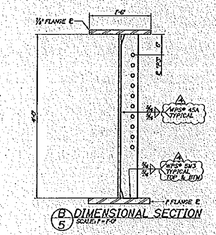
⚠ STIFFENERS AND ENDS OF BEAM CHANGED TO BE VERTICAL AT STEEL DEAD LOAD CONDITION. -RUNNING DIMENSIONS ADDED TO THE BOTTOM OF THE STIFFENERS. -RUNNING DIMENSIONS ARE NOW GIVEN ALONG THE CURVE AND FROM THE CENTER OF THE ROUND OUT HOLES. THE FILLET WELD BETWEEN WEB AND FLANGE WILL BEGIN/END APPROX. 1½" FROM WHERE RUNNING DIMENSIONS HAVE BEEN GIVEN TO ACCOMMODATE THE ROUND OUT HOLES.

⚠ DIMENSIONAL DETAILS ARE DEVELOPED (DIMENSIONS ARE ALONG AND U.N.O.) VERTICAL SCALE EXAGERATED 24

⚠ PRIME WITH CARBOZINC 859, INTERMEDIATE COAT WITH CARBOGUARD 893 TOP COAT WITH CARBOTHANE 133 UN APPLIED IN SHOP TOUCH UP REQUIRED IN THE FIELD DUE TO DAMAGE FROM HANDLING AND ERECTION BY OTHERS



A 5 DIMENSIONAL SECTION
SCALE: 1"=1'-0"



B 5 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

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BY KMH DATE 3/19/2012

NOTE: SEE CAMBER DIAGRAMS SEE SHEET "A3"

BILL OF MATERIALS

SIZE	STOCK MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L
1	64			GIRDER GIRDER	132'-3⅝"	69,720#	
		1	W7	E ⅝"x 49"	53'-7⅛"	5425#	01.50M (D/W)
		1	W8	E ⅝"x 49"	78'-3⅝"	7885#	01.50M (D/W)
		1	7T2	E ⅞"x 31"	79'-0⅜"	4025#	01.50M (D/W)
		1	7T8	E ⅞"x 31"	100'-2⅜"	3030#	01.50M (D/W)
		1	BP10	E 1"x 31"	45'-0½"	2705#	01.70M (D/W)
		1	BP4	E 1"x 19"	40'-8⅝"	2150#	01.70M (D/W)
		1	BP12	E 1"x 19"	4'-2⅝"	2525#	01.70M (D/W)
	2	P1		SEE SHEET M		100# EA.	
	2	P2		SEE SHEET M		100# EA.	
	8	P3		SEE SHEET M		3## EA.	

FINISH — SSPC SP6 EVERYWHERE - OUTSIDE PAINT LIMITS ONLY

MATERIAL — AASHTO M270 (ASTM A709 GRADE 50W)(HPS) — AASHTO M270 GRADE 50W (HPS) FOR W-STM. FLANGES

HOLES — 10'-10" Ø BEAMS — 4 — 3/1/2012 — AS NOTED — JJH

ELECTRODES — 3 — 3/1/2012 — ADJACENT w/ OFFSETS & AS NOTED — JJH

WELDS — PER AWS D1.5 PROCEDURE — 1 — 3/1/2012

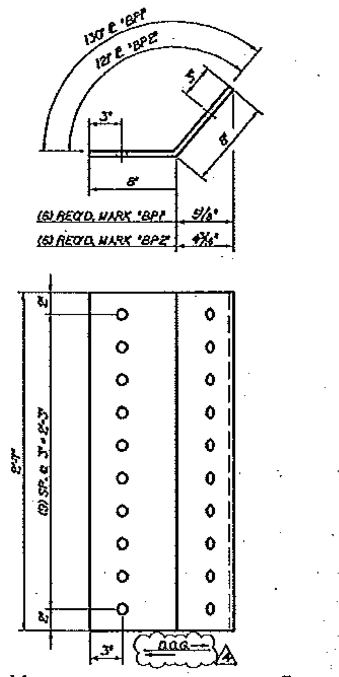
SURFACE PREP — SSPC SP10 (2 INCH) AT WELD LIMITS — 1 — 3/19/2012 — AS NOTED — JJH

SSPC SP6 ELSEWHERE — NO. — DATE — DESCRIPTION — BY

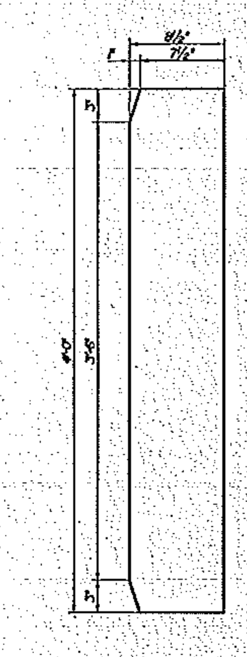
REVISIONS

ARC
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 681 MONTPELIER, VT. 05601
PHONE: (802) 223-2100 - FAX: (802) 223-4104

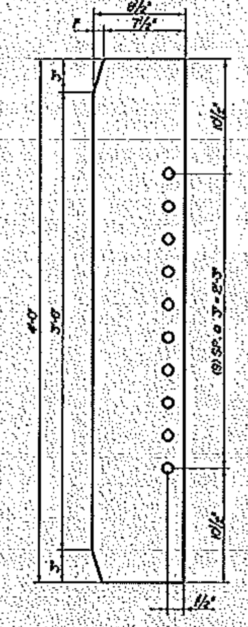
DRAFTER — JJH	GIRDER 4	PROJECT NO.	
DATE — DEC. 2011	BRIDGE #26, TOWN HIGHWAY 8	BRO 5402(5)	
CHECKED — ERS	GRANGER RD., VERMONT	DWG. NO.	
DATE — JAN. 2012	T. BUCK CONSTRUCTION	6	



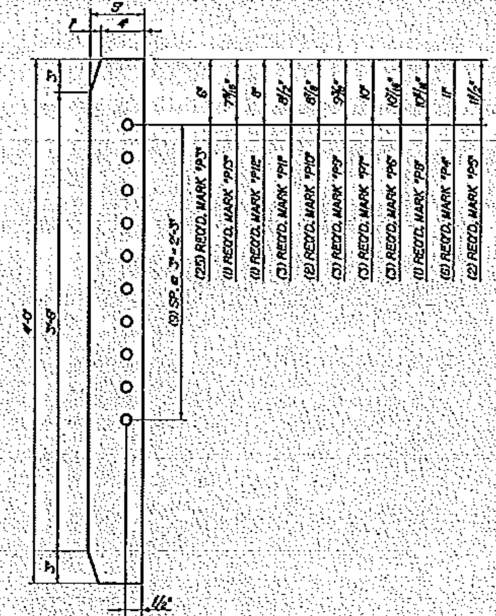
1/2" BENT CONNECTION ℄'s
(12) REQ'D
SCALE: 1/2" = 1'-0"
USE "BP1" @ ABUTMENT #1
USE "BP2" @ ABUTMENT #2



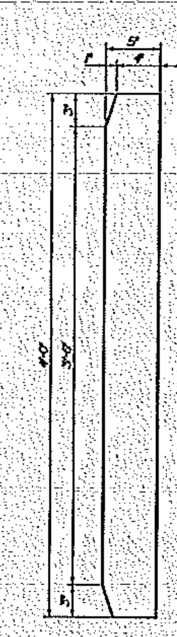
7/8" CONN. ℄, MARK "P1"
(4) REQ'D
SCALE: 1/2" = 1'-0"



7/8" CONN. ℄, MARK "P2"
(12) REQ'D
SCALE: 1/2" = 1'-0"



1/2" CONNECTION ℄'s
(50) REQ'D
SCALE: 1/2" = 1'-0"



1/2" CONN. ℄, MARK "P14"
(2) REQ'D
SCALE: 1/2" = 1'-0"

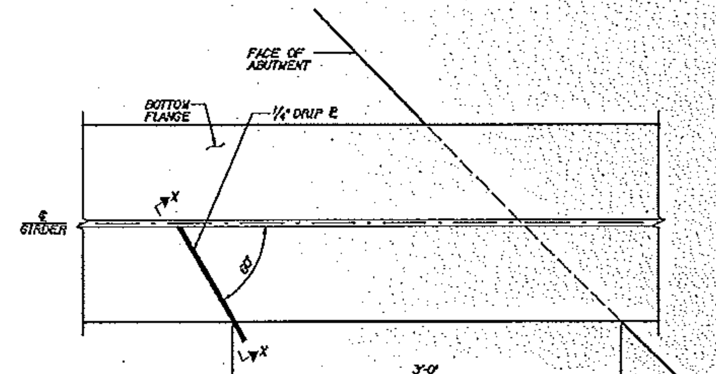
BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L
		6	BP1	℄ 1/2" x 1'-4"	2'-7"	70# EACH	CVN
		6	BP2	℄ 1/2" x 1'-4"	2'-7"	70# EACH	CVN
		4	P1	℄ 7/8" x 8 1/2"	4'-0"	100# EACH	CVN
		12	P2	℄ 7/8" x 8 1/2"	4'-0"	100# EACH	CVN
		25	P3	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		6	P4	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		2	P5	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		3	P6	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		3	P7	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		1	P8	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		3	P9	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		2	P10	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		3	P11	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		1	P12	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		1	P13	℄ 1/2" x 5"	4'-0"	34# EACH	CVN
		2	P14	℄ 1/2" x 5"	4'-0"	34# EACH	CVN

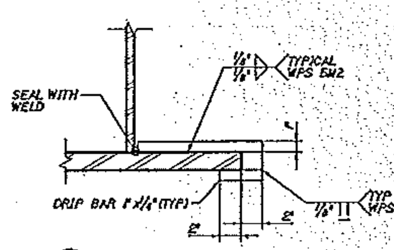
FIELD BOLTS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS
	△	560	FB1	7/8" ϕ BOLT W/ N&W	2 1/2"	ASTM A325, TYPE 3
		60	FB2	7/8" ϕ BOLT W/ N&W	2 3/4"	ASTM A325, TYPE 1 (GALV.)
		60	FB3	7/8" ϕ BOLT W/ N&W	2 1/2"	ASTM A325, TYPE 1 (GALV.)
		60	FB4	7/8" ϕ BOLT W/ N&W	2 3/4"	ASTM A325, TYPE 3

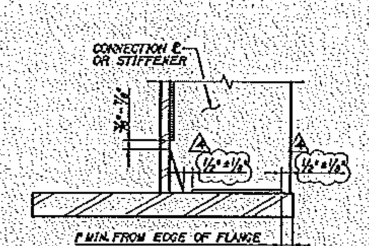
△ NOTE:
ALL A325 (TYPE 3) BOLTS ARE TO BE USED OUTSIDE THE PAINT LIMITS
ALL A325 (TYPE 1) GALVANIZED BOLTS ARE TO BE USED W/IN PAINT LIMITS
SEE SHEET #1 PAINT LIMITS



DRIP BAR PLAN



X/M1 DRIP BAR SECTION
1 1/2" = 1'-0"



—/M1 TYPICAL WELD TERMINATION DETAIL
2" = 1'-0"

Vermont Agency of Transportation
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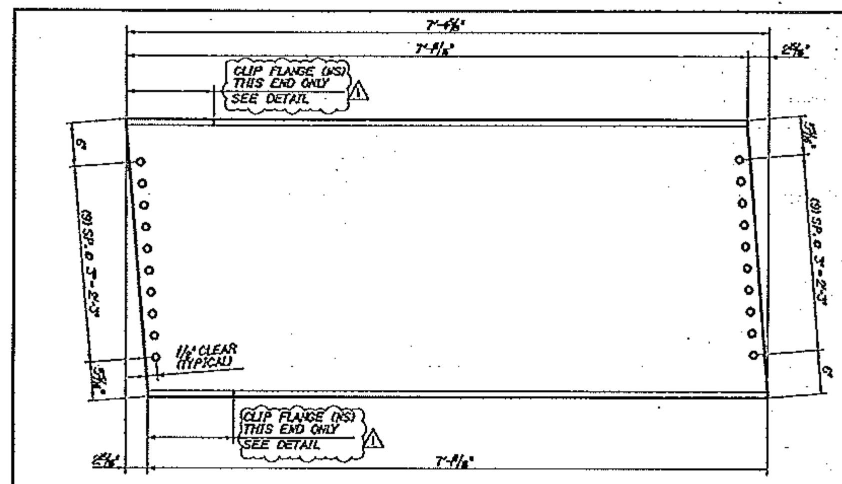
11:20 am, Mar 19, 2012
RESUBMIT ______ APPROVED X
BY KMH DATE 3/19/2012

		NO	DATE	DESCRIPTION	BY
FINISH	SSPC SP6 EVERYWHERE - OUTSIDE PAINT LIMITS ONLY				
MATERIAL	AASHTO M270 (ASTM A709) GRADE 50W				
HOLES	15/16" Ø U.N.O.	4	3/13/2012	WELD TERM. & D.O.G ON BENT PLs	JJH
ELECTRODES					
WELDS	PER WELD PROCEDURE	2	2/17/2012	CVN TESTING IN BILL	JJH
SURFACE PREP	SSPC SP10 w/in PAINTING LIMITS	1	2/15/2012	GALVANIZED BOLTS	JJH
	SSPC SP6 ELSEWHERE				

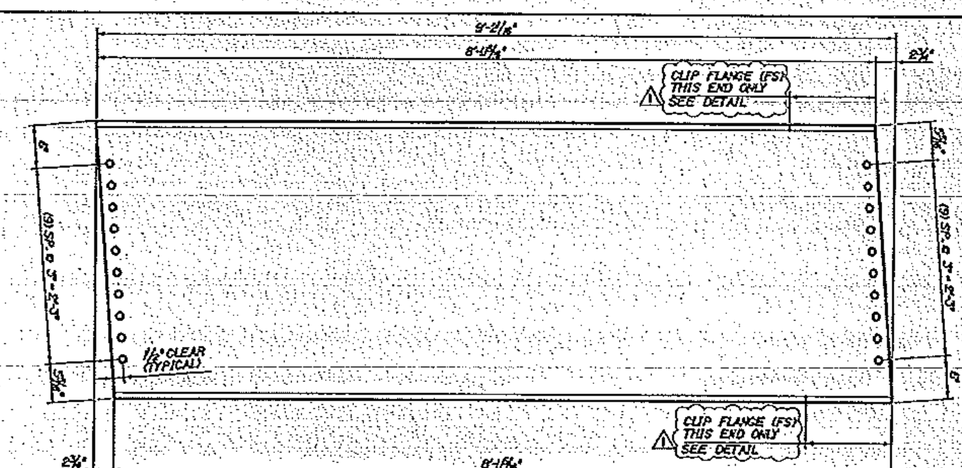
REVISIONS

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 12 KINGFIELD, ME 04947
PHONE: (207) 265-2645 - FAX: (207) 265-4054

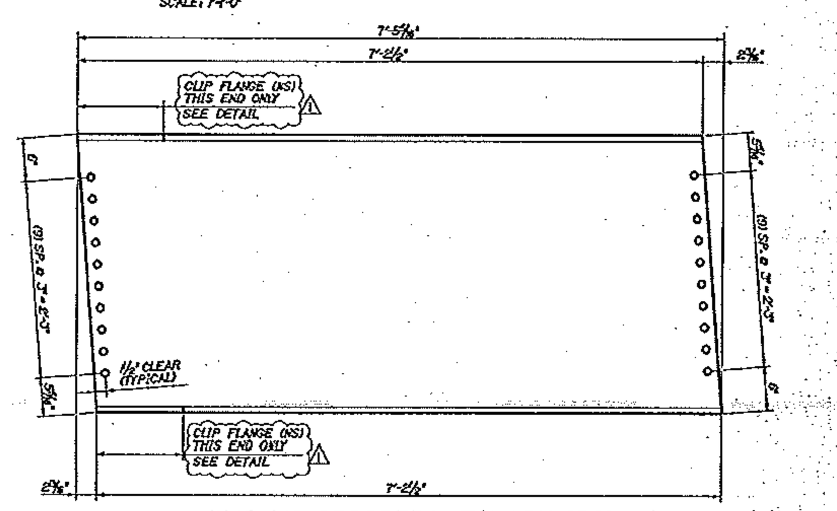
DRAFTER	JJH		PROJECT NO.
DATE	DEC. 2011	BRIDGE #57, TOWN HIGHWAY 6 SPRINGFIELD, VERMONT	830 11029
CHECKED	ETC		DWG. NO.
DATE	JAN. 2012	T BUCK CONSTRUCTION	M1



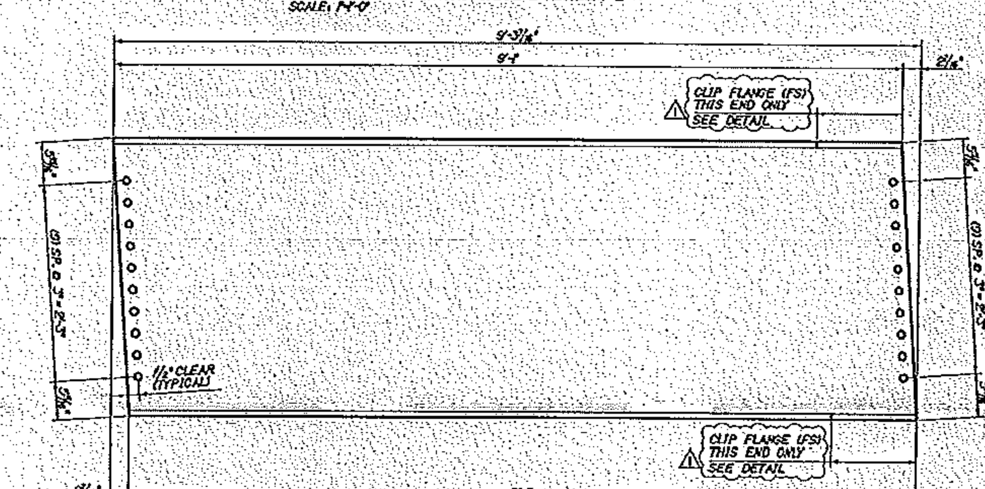
W40x149 CROSSFRAME, MARK "D1"
(1) REQ'D. W/IN PAINT LIMITS
FOR USE BETWEEN GIRDERS "G1&G2" @ ABUTMENT 1
SCALE: 1"=1'-0"



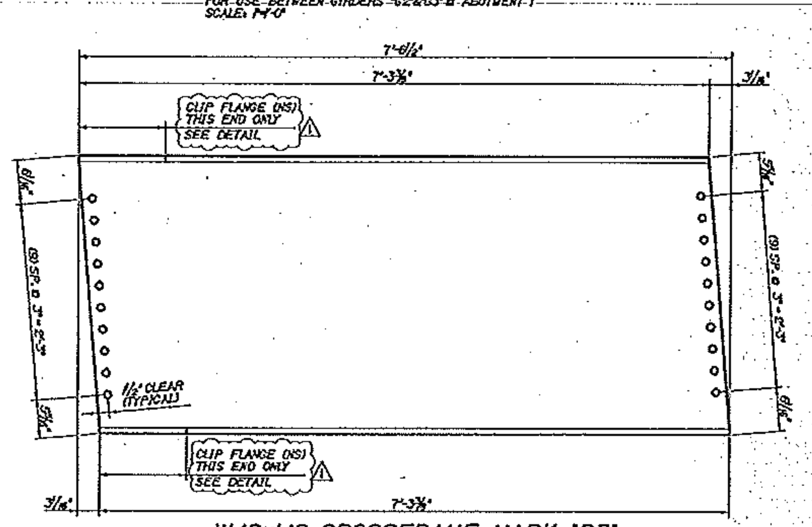
W40x149 CROSSFRAME, MARK "D4"
(1) REQ'D
FOR USE BETWEEN GIRDERS "G1&G2" @ ABUTMENT 2
SCALE: 1"=1'-0"



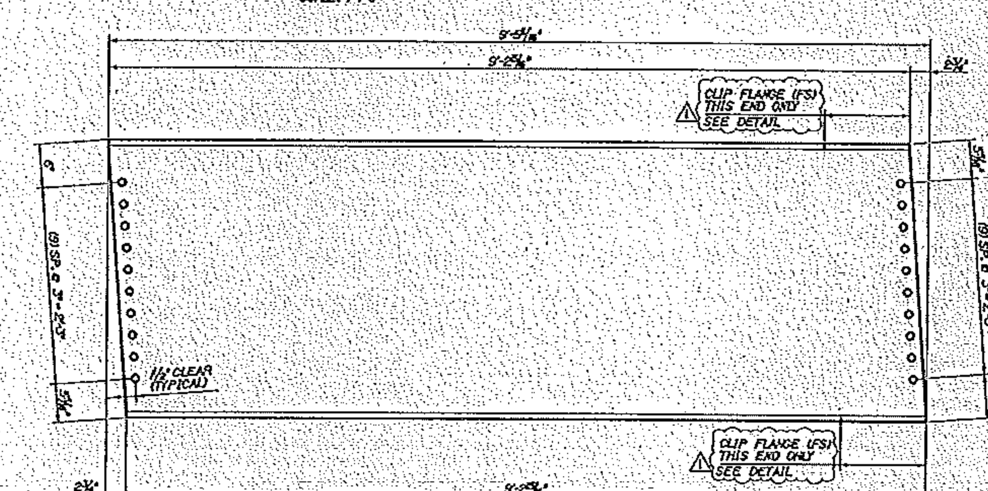
W40x149 CROSSFRAME, MARK "D2"
(1) REQ'D W/IN PAINT LIMITS
FOR USE BETWEEN GIRDERS "G2&G3" @ ABUTMENT 1
SCALE: 1"=1'-0"



W40x149 CROSSFRAME, MARK "D5"
(1) REQ'D
FOR USE BETWEEN GIRDERS "G2&G3" @ ABUTMENT 2
SCALE: 1"=1'-0"



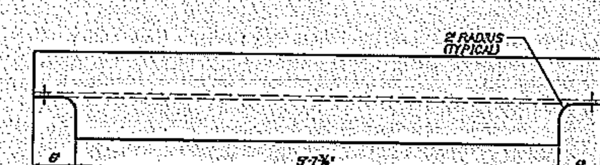
W40x149 CROSSFRAME, MARK "D3"
(1) REQ'D W/IN PAINT LIMITS
FOR USE BETWEEN GIRDERS "G3&G4" @ ABUTMENT 1
SCALE: 1"=1'-0"

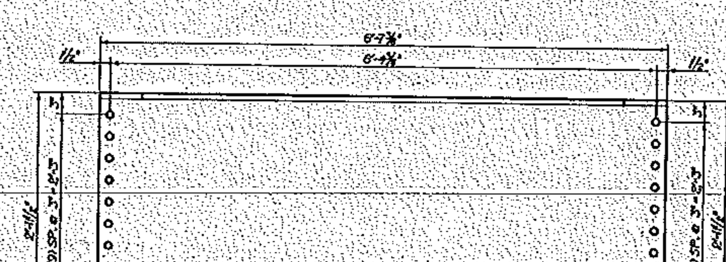


W40x149 CROSSFRAME, MARK "D6"
(1) REQ'D
FOR USE BETWEEN GIRDERS "G3&G4" @ ABUTMENT 2
SCALE: 1"=1'-0"

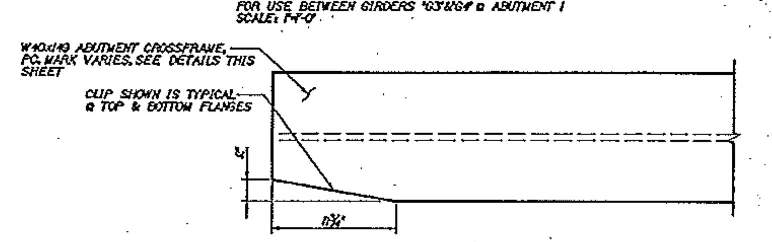
BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L
		1	D1	W40x149	7'-4⅝"	1065# EACH	CVN
		1	D2	W40x149	7'-5⅜"	1075# EACH	CVN
		1	D3	W40x149	7'-6½"	1055# EACH	CVN
		1	D4	W40x149	9'-2⅛"	1335# EACH	CVN
		1	D5	W40x149	9'-3⅛"	1355# EACH	CVN
		1	D6	W40x149	9'-5⅛"	1375# EACH	CVN
		25	D7	W36x135	6'-7⅜"	895# EACH	CVN

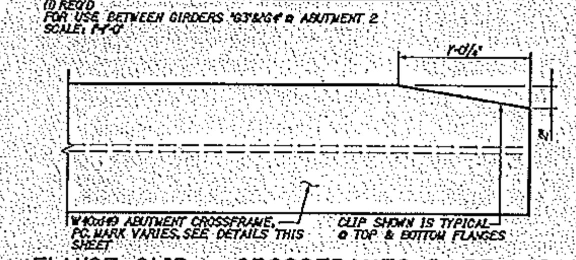




W36x135 CROSSFRAME, MARK "D7"
(25) REQ'D TOTAL (1) W/IN PAINT LIMITS
FOR USE @ INTERMEDIATE CROSS FRAMES
SCALE: 1"=1'-0"



FLANGE CLIP @ CROSSFRAMES D1, D2, & D3
SCALE: 1½" = 1'-0"



FLANGE CLIP @ CROSSFRAMES D4, D5, & D6
SCALE: 1½" = 1'-0"

Vermont Agency of Transportation
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11:20 am, Mar 19, 2012
RESUBMIT ______ APPROVED X
BY KMH DATE 3/19/2012

FINISH	SSPC SP6 EVERYWHERE - OUTSIDE PAINT LIMITS ONLY				
MATERIAL	AASHTO M270 (ASTM A709) GRADE 50W				
HOLES	15/16" Ø U.N.O.				
ELECTRODES					
WELDS	PER WELD PROCEDURE	2	2/17/2012	CVN TESTING IN BILL	JJH
SURFACE PREP	SSPC SP10 w/in PAINTING LIMITS	1	2/15/2012	FLANGE CLIPS	JJH
	SSPC SP6 ELSEWHERE	NO	DATE	DESCRIPTION	BY
		REVISIONS			

ARC ENTERPRISES INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 123 KINGFIELD, ME 04947
PHONE: (207) 265-2646 - FAX: (207) 265-4064

DRAFTER JJH	CROSS FRAMES	PROJECT NO.	
DATE DEC. 2011	BRIDGE #57, TOWN HIGHWAY 8 SPRINGFIELD, VERMONT	BRO 1442(29)	
CHECKED ETC	GC:	DWG. NO.	
DATE JAN. 2012	T BUCK CONSTRUCTION	M2	

GIRDER "G1" CAMBER

CAMBER DIAGRAM IS DEVELOPED

N.T.S.

GIRDER "G2" CAMBER

CAMBER DIAGRAM IS DEVELOPED

N.T.S.

GIRDER "G3" CAMBER

CAMBER DIAGRAM IS DEVELOPED

N.T.S.

GIRDER "G4" CAMBER

CAMBER DIAGRAM IS DEVELOPED

N.T.S.

Vermont Agency of Transportation

RECEIVED

CK'D BY GML OK'D BY JEL

11:20 am, Mar 19, 2012

RESUBMIT _____ APPROVED X

BY KMH DATE 3/19/2012

FINISH	312C SPS EVERYWHERE - OUTSIDE FAINTS ONLY				
MATERIAL	AASHTO M270 GRADE 50W				
WELDS	AWS D1.5 W/ CVN				
ELEC PROCS					
WELDS	PER WELD PROCEDURE				
SURFACE PREP	SSPC SP10 w/ 3 MILS ANCHOR PROFILE				
	SSPC SP6 ELSEWHERE	NO	DATE	DESCRIPTION REVISIONS	BY

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED

P.O. BOX 1213 KINGSFIELD, ME 04047

PHONE: (207) 265-2145 - FAX: (207) 265-4264

DRAFTER	JJH	CAMBER DIAGRAMS	PROJECT NO. BRO 1600(29)
DATE	DEC 2011	BRIDGE # 57, TOWN HIGHWAY 6	
CHECKED	EEC	BROWNSVILLE, VERMONT	DWG. NO. A3
DATE	JAN 2012	T. BUCK CONSTRUCTION	

DSBROWN

Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: A-(MC)GF-01 Date Issued: 9-28-04 Revision No: 02 Rev. Date: 9-15-09

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical [X] Fracture Critical [ ] WPS Expiration Date: 8-11-14
2. Qualified in accordance with: AWS D1.5- 2008 (5.13)
   Referenced PQR No(s). PQR-(MC)GMAW-03(09) __ , __ , ____
   Referenced FWST No(s). PQR-(MC)GMAW-FWST-01A(09) , PQR-(MC)GMAW-FWST-01B(09) , __ , __
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W
4. Material Thickness (es) Unlimited
5. Welding process GMAW
6. Manual [ ] , machine [X] , or semiautomatic [X]
7. Position(s) of welding 1F, 2F
8. Filler metal specification AWS A5.18
9. Filler metal class and brand name E70C-6M Corex Metal-Core Maxim
10. Flux class & brand N/A , Type N/A
11. Shielding gas 75% Ar / 25% CO2 Flow rate 45 CFH
12. Single pass [X] Or multiple pass [X]
13. Single arc [X] Or multiple arc [ ]
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 34.77 Kj/in Max 49.65 Kj/in
20. Electrode extension (electrical stickout) 3/4"

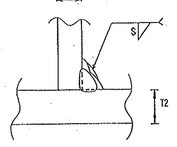
For DOT Approval

FEB 28 2012

Weld size (In)	Pass No(s).	Electrode Size (In)	Welding Process Variables AMPS/WFS*	VOLTS	Travel Speed (IPM)
**1/4"	1	.052"	270-307	27.9-31	11.5-13
5/16"	1	.052"	270-307	27.9-31	11.5-13
3/8"	1-3	.052"	270-307	27.9-31	11.5-13
7/16"	2-4	.052"	270-307	27.9-31	11.5-13
1/2"	4-6	.052"	270-307	27.9-31	11.5-13
5/8"	5-7	.052"	270-307	27.9-31	11.5-13
3/4"	6-8	.052"	270-307	27.9-31	11.5-13

Joint Detail (Fillet)

Show all dimensions, weld sizes, passes, and AWS symbols



T1 = Varies
T2 = Varies
S = Weld Size

**** T1 & T2 equal to or less than 3/4" for 1/4" welds.**

* Wire feed speed may be used along with amperage (include chart)

Prepared By: DSB QA Manager

Project:

DSB Job: 35029-1112

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450°F
>3/4" to ≤1.5"	70°F	450°F
>1.5" to ≤2.5"	150°F	450°F
>2.5"	225°F	450°F

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

DSBROWN

Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: A-(MC)GSB-01 Date Issued: 9-28-04 Revision No: 01 Rev. Date: 9-15-09

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

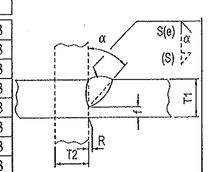
1. Non-Fracture Critical [X] Fracture Critical [ ] WPS Expiration Date: 8-11-14
2. Qualified in accordance with: AWS D1.5- 2008 (5.13)
   Referenced PQR No(s). PQR-(MC)GMAW-03(09) __ , __ , __
   Referenced FWST No(s). PQR-(MC)GMAW-FWST-01A(09) , PQR-(MC)GMAW-FWST-01B(09) , __ , __
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W
4. Material Thickness (es) Unlimited
5. Welding process GMAW
6. Manual [ ] , machine [X] , or semiautomatic [X]
7. Position(s) of welding 1G, 2G, 1F, 2F
8. Filler metal specification AWS A5.18
9. Filler metal class and brand name E70C-6M Corex Metal-Core Maxim
10. Flux class & brand N/A , Type N/A
11. Shielding gas 75% Ar / 25% CO2 Flow rate 45 CFH
12. Single pass [X] Or multiple pass [X]
13. Single arc [X] Or multiple arc [ ]
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 34.77 Kj/in Max 49.65 Kj/in
20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

FEB 28 2012

Weld size (in) (E)/S	Pass No(s)	Electrode Size (in)	Welding Process Variables AMPS/WFS*	VOLTS	Travel Speed (IPM)
1/4"	1	.052"	270-307	27.9-31	11.5-13
5/16"	1	.052"	270-307	27.9-31	11.5-13
3/8"	1-2	.052"	270-307	27.9-31	11.5-13
1/2"	3-4	.052"	270-307	27.9-31	11.5-13
5/8"	4-6	.052"	270-307	27.9-31	11.5-13
3/4"	5-7	.052"	270-307	27.9-31	11.5-13
7/8"	6-9	.052"	270-307	27.9-31	11.5-13
1"	7-10	.052"	270-307	27.9-31	11.5-13

Joint Detail (TC-P4-GF)
Show all dimensions, weld sizes, passes, and AWS symbols



For Butt Joints see AWS 2.14

T1 = ¼" min.
T2 = Varies
(E) = S-1/8"
f = 1/8" min.
R = 0
α = 45°
S = size groove
(S) = size of reinforcing fillet(if required) not to exceed ¼" in corner & T jts.

* Wire feed speed may be used along with amperage (include chart)

Prepared By: DSB QA Manager

Project:

DSB Job: 35029-1112

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450°F
>3/4" to ≤1.5"	70°F	450°F
>1.5" to ≤2.5"	150°F	450°F
>2.5"	225°F	450°F

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

DSBROWN

Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: B-FF-01 Date Issued: 3-28-08 Revision No: 01 Rev. Date: 11-11-09

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical [X] Fracture Critical [ ] WPS Expiration Date: 3-6-13
2. Qualified in accordance with: AWS D1.5- 2008 (5.13)
   Referenced PQR No(s). PQR-FCAW-01-(08) __ , __ , ____
   Referenced FWST No(s). PQR-FCAW-FWST-01A(08) , PQR-FCAW-FWST-01B(08) , __ , ____
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W
4. Material Thickness (es) Unlimited
5. Welding process FCAW
6. Manual [ ] , machine [ ] , or semiautomatic [X]
7. Position(s) of welding 1F, 2F
8. Filler metal specification AWS A5.20
9. Filler metal class and brand name E71T-1CH8 (UltraCore71C)
10. Flux class & brand N/A , Type N/A
11. Shielding gas 100% CO2 Flow rate 45 CFH
12. Single pass [X] Or multiple pass [X]
13. Single arc [X] Or multiple arc [ ]
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 32.2 Kj/in Max 45.8 Kj/in
20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

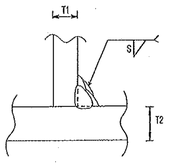
Williams Acceptable Date 2/28/2012

FEB 28 2012

Assistant State Construction Engineer APPROVED DATE 2/28/2012

Weld size (In)	Pass No(s).	Electrode Size (In)	Welding Process Variables AMPS/WFS*	VOLTS	Travel Speed (IPM)
**1/4"	1	1/16"	257-295	26.1-29.5	11.4-12.5
5/16"	1	1/16"	257-295	26.1-29.5	11.4-12.5
3/8"	2-3	1/16"	257-295	26.1-29.5	11.4-12.5
7/16"	3-5	1/16"	257-295	26.1-29.5	11.4-12.5
1/2"	4-6	1/16"	257-295	26.1-29.5	11.4-12.5
5/8"	5-7	1/16"	257-295	26.1-29.5	11.4-12.5
3/4"	6-8	1/16"	257-295	26.1-29.5	11.4-12.5

Joint Detail (Fillet)
Show all dimensions, weld sizes, passes, and AWS symbols



T1 = Varies
T2 = Varies
S = Weld Size

**** T1 & T2 equal to or less than 3/4" for 1/4" welds.**

* Wire feed speed may be used along with amperage (include chart)

Prepared By: DSB QA Manager

Project: ____

DSB Job: 35029-1112

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450°F
>3/4" to ≤1.5"	70°F	450°F
>1.5" to ≤2.5"	150°F	450°F
>2.5"	225°F	450°F

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

DSBROWN

Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: B-FSB-01 Date Issued: 3-28-08 Revision No: 01 Rev. Date: 11-11-09

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical [X] Fracture Critical [ ] WPS Expiration Date: 3-6-13
2. Qualified in accordance with: AWS D1.5- 2008 (5.13)
   Referenced PQR No(s). PQR-FCAW-01-(08) __ , __ , ____
   Referenced FWST No(s). N/A , N/A , __ , __
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W
4. Material Thickness (es) Unlimited
5. Welding process FCAW
6. Manual [ ] , machine [ ] , or semiautomatic [X]
7. Position(s) of welding 1G, 2G,(1F,2F)
8. Filler metal specification AWS A5.20
9. Filler metal class and brand name E71T-1CH8 (UltraCore71C)
10. Flux class & brand N/A , Type N/A
11. Shielding gas 100% CO2 Flow rate 45 CFH
12. Single pass [X] Or multiple pass [X]
13. Single arc [X] Or multiple arc [ ]
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression Stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 32.2 Kj/in Max 45.8 Kj/in
20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

Returns Received Date By: FEB 28 2012

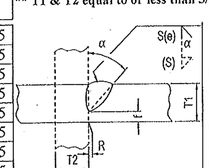
Reviewed By: APPROVED Date: 3/6/12

Weld size (in) (E)&(S)	Pass No(s).	Electrode Size (In)	Welding Process Variables AMPS/WFS*	VOLTS	Travel Speed (IPM)
**1/4"	1	1/16"	257-295	26.1-29.5	11.4-12.5
5/16"	1	1/16"	257-295	26.1-29.5	11.4-12.5
3/8"	2-3	1/16"	257-295	26.1-29.5	11.4-12.5
1/2"	3-4	1/16"	257-295	26.1-29.5	11.4-12.5
5/8"	4-6	1/16"	257-295	26.1-29.5	11.4-12.5
3/4"	5-7	1/16"	257-295	26.1-29.5	11.4-12.5
7/8"	6-8	1/16"	257-295	26.1-29.5	11.4-12.5
1"	7-9	1/16"	257-295	26.1-29.5	11.4-12.5

Joint Detail (TC-P4-GF)

Show all dimensions, weld sizes, passes, and AWS symbols

** T1 & T2 equal to or less than 3/4" for 1/4" welds



T1 = ¼" min.
T2 = Varies
(E) = S-1/8"
f = 1/8" min.
R = 0
α = 45°
S = size groove
(S) = size of reinforcing fillet(if required) not to exceed ¼" in corner & T jts.

For Butt Joints see AWS 2.14

* Wire feed speed may be used along with amperage (include chart)

Prepared By: DSB QA Manager

Project:

DSB Job: 35029-1112

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450°F
>3/4" to ≤1.5"	70°F	450°F
>1.5" to ≤2.5"	150°F	450°F
>2.5"	225°F	450°F

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

DSBROWN

Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: A-GTF-01 Date Issued: 1-9-04 Revision No: 01 Rev. Date: 5-15-09

Contractor (Fabricator) D.S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical [X] Fracture Critical [ ] WPS Expiration Date: _____
2. Qualified in accordance with: AWS D1.5- 2008 , AWS D1.6-07
   Referenced PQR No(s). PQR-GTAW-01-(07)NY __ , __ , ____
   Referenced FWST No(s). PQR-GTAW-01(03) , __ , __ , ____
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, 304SS, 316SS
4. Material Thickness (es) Unlimited
5. Welding process GTAW
6. Manual [X] , machine [ ] , or semiautomatic [ ]
7. Position(s) of welding 1F, 2F
8. Filler metal specification AWS A5.9
9. Filler metal class and brand name ER309L (Murrex)
10. Flux class & brand N/A , Type N/A
11. Shielding gas 100% Argon Flow rate 20 CFH
12. Single pass [X] Or multiple pass [ ]
13. Single arc [X] Or multiple arc [ ]
14. Welding Current DCEN
15. Polarity Straight
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 10.9 KJ Max 20.4 KJ
20. Electrode extension (electrical stickout) N/A

For DOT Approval

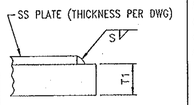
Returned for Changes
Checked by JW

FEB 28 2012

Returned APPROVED
By _____ Date 3/9/12

Weld size (In)	Pass No(s).	Electrode Size (In)	Welding Process Variables AMPS/WFS*	VOLTS	Travel Speed (IPM)
20 ga.	1	1/8"	170-200	15-17	12.6-15.4
16 ga.	1	1/8"	170-200	15-17	12.6-15.4
14 ga.	1	1/8"	170-200	15-17	12.6-15.4
12 ga.	1	1/8"	170-200	15-17	12.6-15.4
11 ga.	1	1/8"	170-200	15-17	12.6-15.4
10 ga.	1	1/8"	170-200	15-17	12.6-15.4
8 ga.	1	1/8"	170-200	15-17	12.6-15.4
3/16"	1	1/8"	170-200	15-17	12.6-15.4

Joint Detail (Fillet Weld)
Show all dimensions, weld sizes, passes, and AWS symbols



T_1 = Varies
S = Fillet Weld Size (Fillet weld must not exceed thickness of stainless steel)

* Wire feed speed may be used along with amperage (include chart)

Prepared By: _____ DSB QA Manager

Project: _____

DSB Job: 35029-1112

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450°F
>3/4" to ≤1.5"	70°F	450°F
>1.5" to ≤2.5"	150°F	450°F
>2.5"	225°F	450°F

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

Vermont Agency of Transportation

RECEIVED

GKS BY GMIL QKD BY JWC

6:29 am, Feb 28, 2012

REVISED BY KMH DATE 3/14/2012

WELDING PROCEDURE SPECIFICATION (WPS) YES (X)
PREQUALIFIED X QUALIFIED BY TESTING
PROCEDURE QUALIFICATION RECORD (PQR) YES ( )

Identification # ABSG WPS 5826
Revision 5 Date 2/14/12 By JDW
Authorized by STEVEN HOWARD Date 2/14/12 Date 03/14/20
Type: Manual ( ) Semi-Automatic ( ) Machine ( ) Automatic ( )

Company Name ABSG Consulting, Inc.
Welding Process(es) GMAW
Supporting PQR No.(s)

JOINT DESIGN USED

Type: Single X Double Weld ( ) Backing ( ) Backing Material ____
Root Opening 0 Root Face Dimension 1/8" Groove Angle 60°
Radius (J-U) N/A
Back Gouging YES ( ) NO (X)

BASE METALS

Material Spec. SA-516
Type or Grade 70
Thickness 3/8" Groove ____
Diameter (Pipe) ____ Fillet UNLIMITED

FILLER METALS

AWS Specification A5.18
AWS Classification ER70S-6 (Human Inspection Lot)

SHIELDING

Flux ____ Gas ____ Mix ____
Electrode - Flux (Class) ____ Composition ____ Flow Rate 25CFH
Gas Cup Size 3/8

PREHEAT

Preheat to 21-54°C - Do Not Exceed 212°F (100°C) Maintain Preheat Temp. 21-54°C - Do Not Exceed 212°F (100°C) Interpass T

POSITION

Position of Groove ____ Fillet 1F 2F
Welding Progression ( )

ELECTRICAL CHARACTERISTICS

Transfer Mode (GMAW) Short-Circuiting ( ) Globular ( ) Spray (X) Pulsed ( ) Other: ____
Current: AC ( ) DCEP (X) DCEN ( )

TECHNIQUE

Stringer or Weave Bead STRINGER
Multi-pass or Single Pass (per side) SINGLE/MULTI
Number of Electrodes ____
Electrode Spacing Longitudinal NA Lateral NA Angle NA
Contact Tube to Work Distance NA 3/8" - 3/4"
Peening NA
Interpass Cleaning: HANDPOWER TOOLS

POSTWELD HEAT TREATMENT

Temp NA
Time NA

WELDING PROCEDURE

Pass or Layer(s)	Process	Class	Filler Metals Diameter	Type & Polarity	Amps or Wire Feed	Volts	Travel Speed	Joint Details
1	GMAW	ER70S-6	.035"	DCEP	160-220	25-27	7-9	
1	GMAW	"	.035"	"	160-220	25-27	5-6	
1	GMAW	"	.035"	"	160-220	25-27	5-6	
1	GMAW	"	.035"	"	160-220	25-27	3-3	
1	GMAW	"	.035"	"	160-220	25-27	2-3	
2+	GMAW	"	.035"	"	275-320	28-30	2-3	

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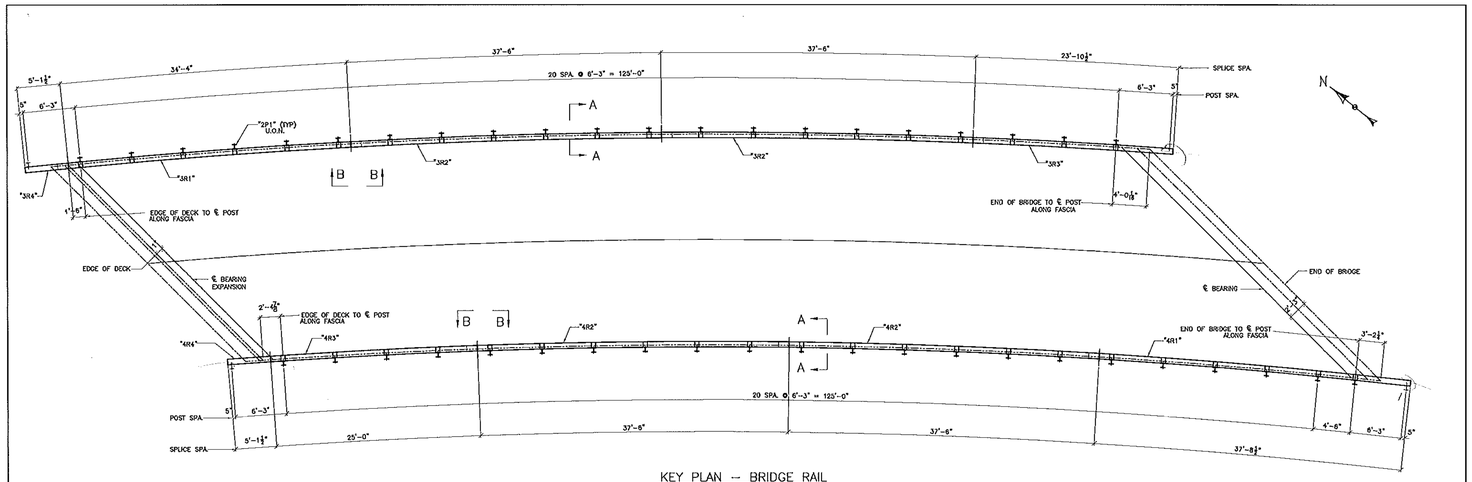
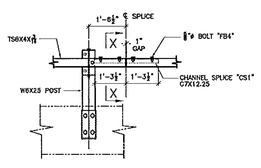


KEY PLAN -- BRIDGE RAIL

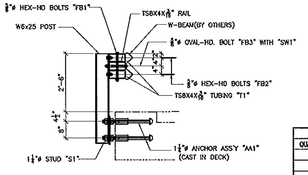
GENERAL NOTES:

1. HEAVY DUTY STEEL BEAM GUARD RAIL SHALL CONFORM TO VT. SPECIFICATION SECTION 732.
2. STRUCTURAL STEEL TUBING SHALL CONFORM TO VT. SPECIFICATION SECTION 732 GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH (AASHTO M111) ASTM A123.
3. BRIDGE RAIL POSTS, SPECIAL WASHERS, PLATE WASHERS AND SPLICE BARS SHALL CONFORM TO (AASHTO M223) A572 GR50 GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH (AASHTO M111 ASTM A123.
4. ALL BOLTS AND RELATED HARDWARE SHALL CONFORM TO (AASHTO M164) ASTM A325 TYPE 1 BOLTS, HOT DIPPED OR MECHANICALLY GALVANIZED PER SPECIFICATION.
5. ALL POSTS SHALL BE SET NORMAL TO GRADE.
6. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
7. ALL FIELD CUT OR DRILLED AREAS SHALL BE REPAIRED PER SECTION 513.
8. ALL FLAT WASHERS SHALL CONFORM TO ASTM F436.
9. ALL NUTS SHALL CONFORM TO ASTM A563, GRADE DH

FOLLOW THIS ON SHEET R2



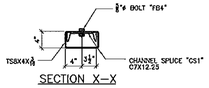
SECTION B-B (TYP. SPLICE)



SECTION A

NOTES:

1. ALL DIMENSIONS ARE ALONG FACE OF RAIL U.O.N.
2. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A $\frac{1}{16}$" RADIUS AND BE FREE OF BURRS PRIOR TO GALVANIZING.
3. SEAL WELD ALL CONNECTIONS, WHERE POSSIBLE, PRIOR TO GALVANIZING.



SECTION X-X

Vermont Agency of Transportation

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CK'D BY GML OK'D BY JTS

3:46 pm, Mar 26, 2012

RESUBMIT APPROVED AS NOTED

BY KMH DATE 3/28/2012

ERECTION BOLTS W/NUTS				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

FINISH	HOT DIPPED GALVANIZED				
MATERIAL	AASHTO M270 GR. 36				
HOLES	AS NOTED				
ELECTRODES	PER W.P.S.				
WELDS	AS NOTED				
SURFACE PREP	SSPC-SP8	1	3/23/12	PER APPROVAL	JAC
		NO	DATE	DESCRIPTION	BY

REVISIONS

ARC ENTERPRISES, INC.

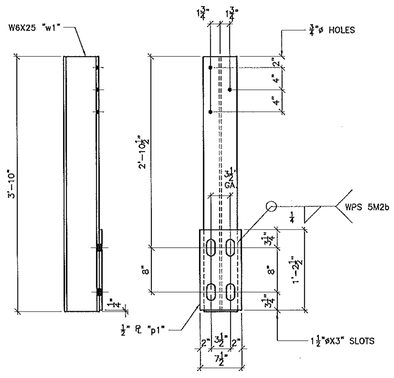
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 WINDSOR, ME. 04987
PHONE: (207) 265-2848 - FAX: (207) 265-4054

DRAFTER	JAC	BRIDGE RAIL KEY PLAN	PROJECT NO. BRO 1442(26)
DATE	2/8/12	VERMONT AGENCY OF TRANSPORTATION, TOWN OF SPRINGFIELD, TH 6 CLASS III, LOCAL ROAD	DWG. NO. R1
CHECKED	MTD	C.C. T. BUCK CONSTRUCTION, INC.	
JOB	11-175		

Follow Material Spec 732.04: Steel Beam Bridge Railing

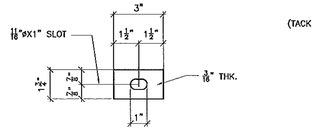
ASTM A572 GRADE 50

A563 GRADE DH

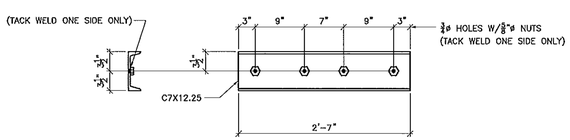


42 – POST ASS'Y – 2P1

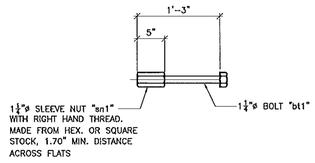
10 GAUGE CORRUGATED RAIL
AASHTO (M180) CLASS B, TYPE II



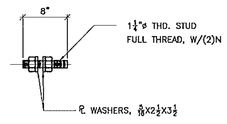
42 – SPECIAL WASHER – SW1



8 – CHANNEL SPLICE – CS1



168 – ANCHOR ASS'Y – AA1



168 – STUD ASS'Y – S1

BILL OF MATERIAL

SHIP	SHOP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L	WT.
24	2P1			POSTS				
		24	w1	W6X25	3'–10		A992	2300
		24	p1	PL ½X7½	1'–2½		A36	370
8	CS1			C7X12.25	2'–7		A36	253
		32		⅞ø NUTS			A563	
42	SW1			PL ⅜X1½	0'–3		A572 GR50	12
168	AA1			ANCHOR ASS'Y				
		168	bt1	1½ø MACH. BOLT	1'–0	3" MIN THD.	A325	
		168	sn1	1½ø SLEEVE NUT	0'–5	SEE DETAIL	A563	
168	S1			STUD ASS'Y				
		168		1½ø THD. STUD	1'–0	W/2N	A449	
		336		℄ WASH.		SEE DETAIL	F436	
				FIELD BOLTS				
46	FB1			⅞ø BOLT	1'–1	W/N&2W	A325	
92	FB2			⅞ø BOLT	0'–2	W/N&2W	A325	
46	FB3			⅞ø OVAL–HD. BOLT	0'–10	W/N&W	A325	
32	FB4			⅞ø BOLT	0'–2	W/W	A325	

GALVANIZE AFTER FABRICATION PER AASHTO M111

Vermont Agency of Transportation

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3:46 pm, Mar 26, 2012

RESUBMIT ____ APPROVED AS NOTED

BY KMH DATE 3/28/2012

ERECTION BOLTS W/A.H.N.				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

FINISH	HOT DIPPED GALVANIZED
MATERIAL	AASHTO M270 GR. 36
HOLES	AS NOTED
ELECTRODES	PER W.P.S.
WELDS	AS NOTED
SURFACE PREP	SSPC–SP6

NO	DATE	DESCRIPTION	BY
2	3/23/12	PER APPROVAL	JAC

REVISIONS

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265–2640 – FAX: (207) 265–4054

DRAFTER	JAC
DATE	2/8/12
CHECKED	MTD
JOB	11–175

BRIDGE RAIL POST DETAILS

VERMONT AGENCY OF TRANSPORTATION
TOWN OF SPRINGFIELD, TH 8 CLASS III, LOCAL ROAD

C.C. T. BUCK CONSTRUCTION, INC.

PROJECT NO. BRO 1442(28)

DWG. NO. R2

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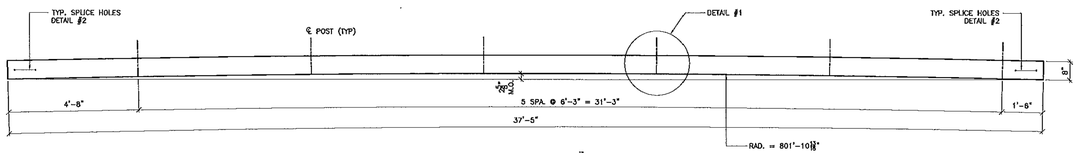
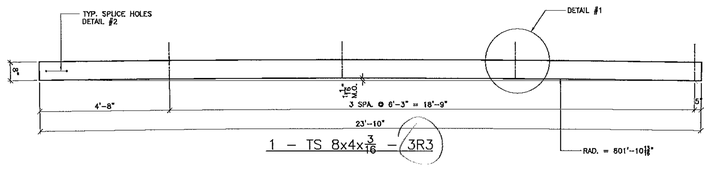
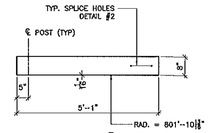


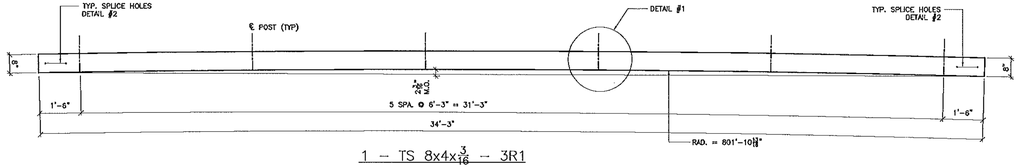
2 – TS 8x4x$\frac{3}{16}$ – 3R2



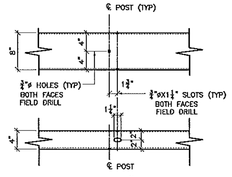
1 – TS 8x4x$\frac{3}{16}$ – 3R3



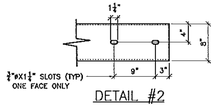
1 – TS 8x4x$\frac{3}{16}$ – 3R4



1 – TS 8x4x$\frac{3}{16}$ – 3R1

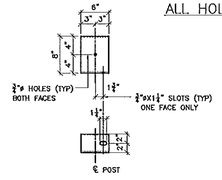


DETAIL #1



DETAIL #2

ALL HOLES FOR POSTS ARE FIELD DRILLED



92 REQ'D. TS8X4X$\frac{3}{16}$, MARK "T1"

BILL OF MATERIAL

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	WT
1	3R1			TS 8X4X$\frac{3}{16}$	34'-3	A500 GR.B	498
2	3R2			TS 8X4X$\frac{3}{16}$	37'-5	A500 GR.B	1089
1	3R3			TS 8X4X$\frac{3}{16}$	23'-10	A500 GR.B	345
1	3R4			TS 8X4X$\frac{3}{16}$	5'-1	A500 GR.B	73
1	4R1			TS 8X4X$\frac{3}{16}$	37'-8	A500 GR.B	544
2	4R2			TS 8X4X$\frac{3}{16}$	37'-5	A500 GR.B	1089
1	4R3			TS 8X4X$\frac{3}{16}$	24'-11	A500 GR.B	363
1	4R4			TS 8X4X$\frac{3}{16}$	5'-1	A500 GR.B	73
92	T1			TS 8X4X$\frac{3}{16}$	0'-8	A500 GR.B	668

TUBE: ASTM A500 GR. B
GALVANIZE AFTER FABRICATION PER AASHTO M111

Vermont Agency of Transportation
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3:46 pm, Mar 26, 2012
RESUBMIT ____ APPROVED X
BY KMH DATE 3/28/2012

ERECTION BOLTS W/NUTS				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

FINISH	HOT DIPPED GALVANIZED
MATERIAL	AASHTO M270 GR. 36
HOLES	AS NOTED
ELECTRODES	PER W.P.S.
WELDS	AS NOTED
SURFACE PREP	SSPC-SP6

NO	DATE	DESCRIPTION	BY
1	3/23/12	PER APPROVAL	JAC

REVISIONS

ARC ENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER JAC	BRIDGE RAIL DETAILS	PROJECT NO.
DATE 2/8/12	VERMONT AGENCY OF TRANSPORTATION TOWN OF SPRINGFIELD, TH 8 CLASS III, LOCAL ROAD	BRO 1442(28)
CHECKED MTD		DWG. NO.
JOB 11-175	T. BUCK CONSTRUCTION, INC.	R3

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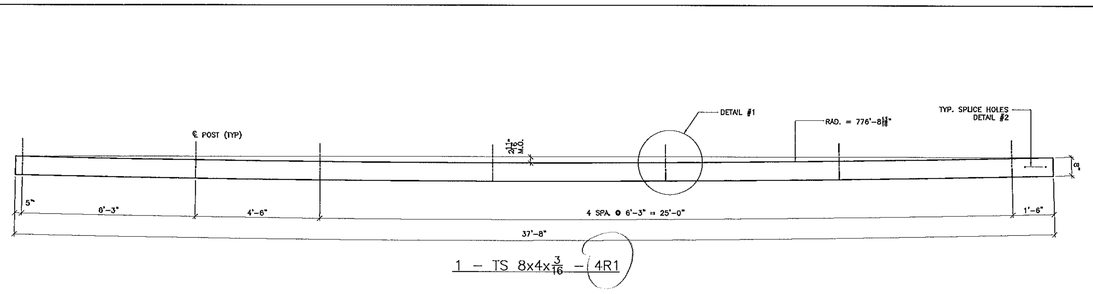
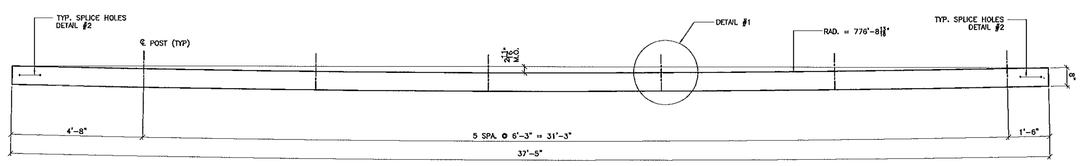
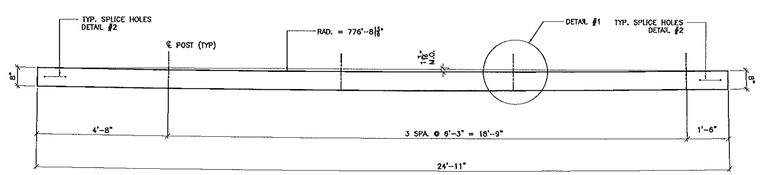


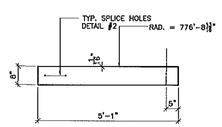
1 – TS 8x4x$\frac{3}{16}$ – 4R1



2 – TS 8x4x$\frac{3}{16}$ – 4R2



1 – TS 8x4x$\frac{3}{16}$ – 4R3



1 – TS 8x4x$\frac{3}{16}$ – 4R4

ALL HOLES FOR POSTS ARE FIELD DRILLED

SEE DWG R3 FOR B.O.M. & DETAILS NOT SHOWN

TUBE: ASTM A500 GR. B
GALVANIZE AFTER FABRICATION PER AASHTO M111

Vermont Agency of Transportation
RECEIVED
CK'D BY GML OK'D BY JTS
3:46 pm, Mar 26, 2012
RESUBMIT APPROVED X
BY KMH DATE 3/28/2012

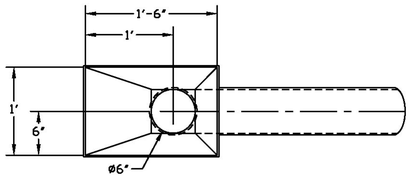
ERECTION BOLTS H/H.H.N.				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	GALV. AASHTO M232

FINISH	HOT DIPPED GALVANIZED				
MATERIAL	AASHTO M270 GR. 36				
HOLES	AS NOTED				
ELECTRODES	PER W.P.S.				
WELDS	AS NOTED				
SURFACE PREP	SSPC-SP6	1	3/23/12	PER APPROVAL	JAC
		NO	DATE	DESCRIPTION	BY

REVISIONS

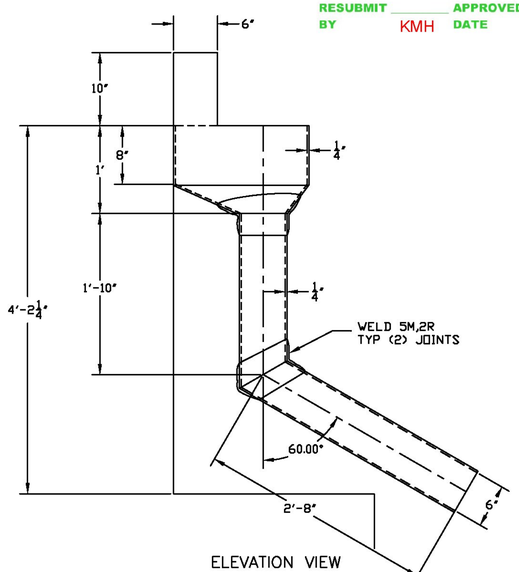
ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 130 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER JAC	BRIDGE RAIL DETAILS	PROJECT NO.
DATE 2/8/12	VERMONT AGENCY OF TRANSPORTATION, TOWN OF SPRINGFIELD, TH 6 CLASS III, LOCAL ROAD	BRO 1442(26)
CHECKED MTD	T. BUCK CONSTRUCTION, INC.	DWG. NO.
JOB 11-175		R4



PLAN VIEW

Vermont Agency of Transportation
RECEIVED
CK'D BY GMH OK'D BY JTS
September 12th, 2012
RESUBMIT ____ APPROVED x
BY KMH DATE 9-13-12



ELEVATION VIEW

BRIDGE DRAIN PIPING

		R= 100-18 HEXAS POLYESTER SURFACING VEIL
		R= DC 60T2A 1.5 oz/ft^2 CHOPPED STRAND MAT
		R= FG 2424 24 oz/yd^2 WOVEN ROVING

Custom Composites Fabricator For Industry

KENWAY CORPORATION
681 Riverside Drive
Augusta, Maine 04330
Voice (207) 622-8228
Fax (207) 622-6611

REV.	DATE	DESCRIPTION
B	9/7/12	CHANGED OVERALL DIMENSION TO 4'-2 1/4"
A	8/21/12	CHANGED OVERALL DIMENSIONS TO 3'-6 AND 3'-3

RESIN: DERAKANE 510C-350	DATE: 8/3/12
LAYUP SCHEDULE: N-MMMM-MRM,, TO THK	DRAWN: PAUL D
CORR BARRIER THK: .100	WORK ORDER: 7918
WALL THK: .25	SCALE: NONE
COLOR: GRAY THROUGHOUT	
CUSTOMER: T-BUCK CONSTRUCTION	DRAWING NO. 7918-1