

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

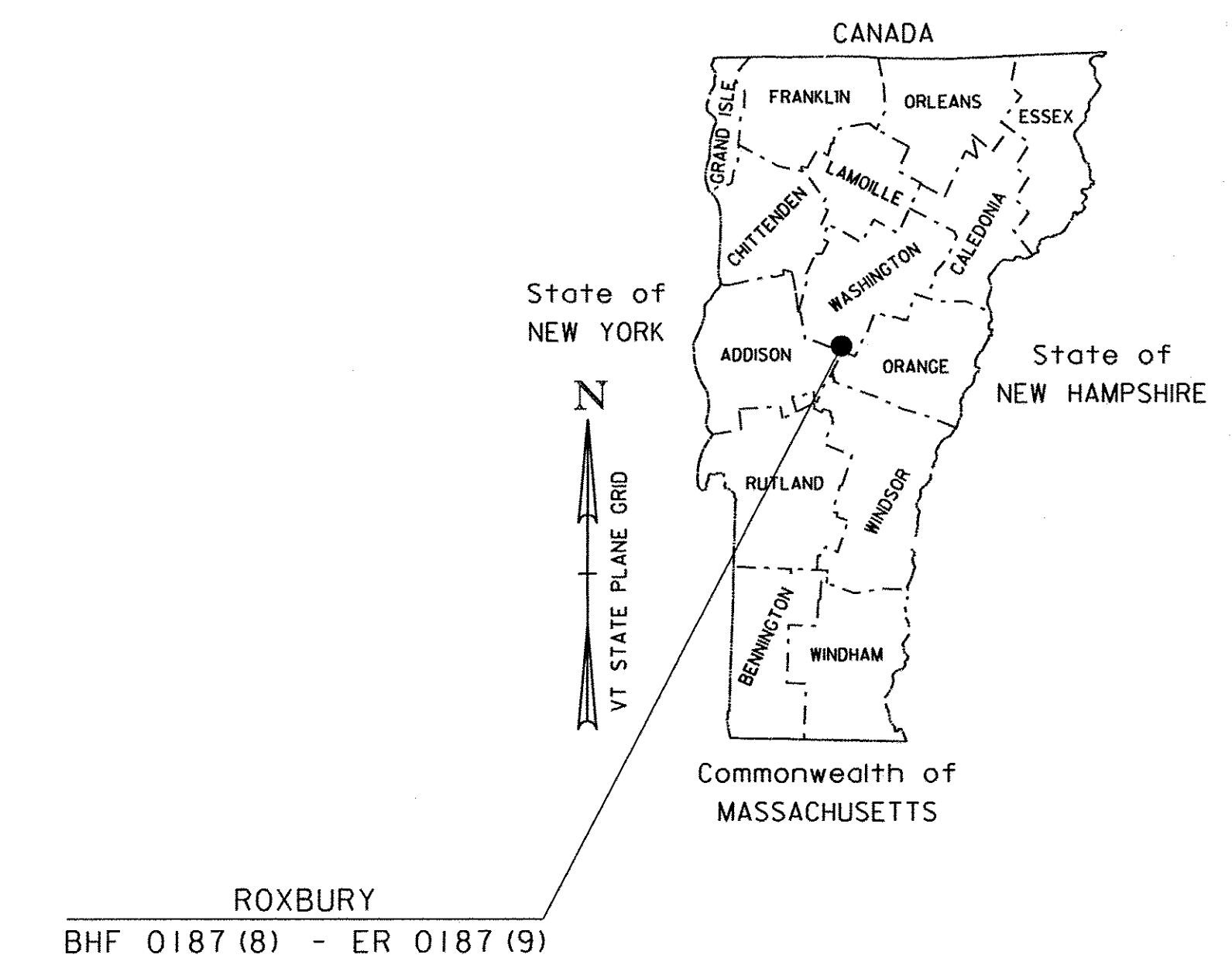
TOWN OF ROXBURY
COUNTY OF WASHINGTON

PROJECT LOCATION: ROUTE VT 12A BR 15 : .65 MILES NORTHEAST OF GRANVILLE/ROXBURY TOWN LINE
ROUTE VT 12A BR 22 : 3.27 MILES NORTHEAST OF GRANVILLE/ROXBURY TOWN LINE

PROJECT DESCRIPTION: ROUTE VT 12A BR 15 : REPLACEMENT OF EXISTING BRIDGE SUPERSTRUCTURE,
ROADWAY WORK, AND RETAINING WALL REPLACEMENT.
ROUTE VT 12A BR 22 : REPLACEMENT OF CULVERT WITH RELATED ROADWAY AND
CHANNEL WORK.

LENGTH OF STRUCTURE : ROUTE VT 12A BR 15 : 56.66' ROUTE VT 12A BR 22 : 33.30'

TOTAL LENGTH OF STRUCTURES : 90'



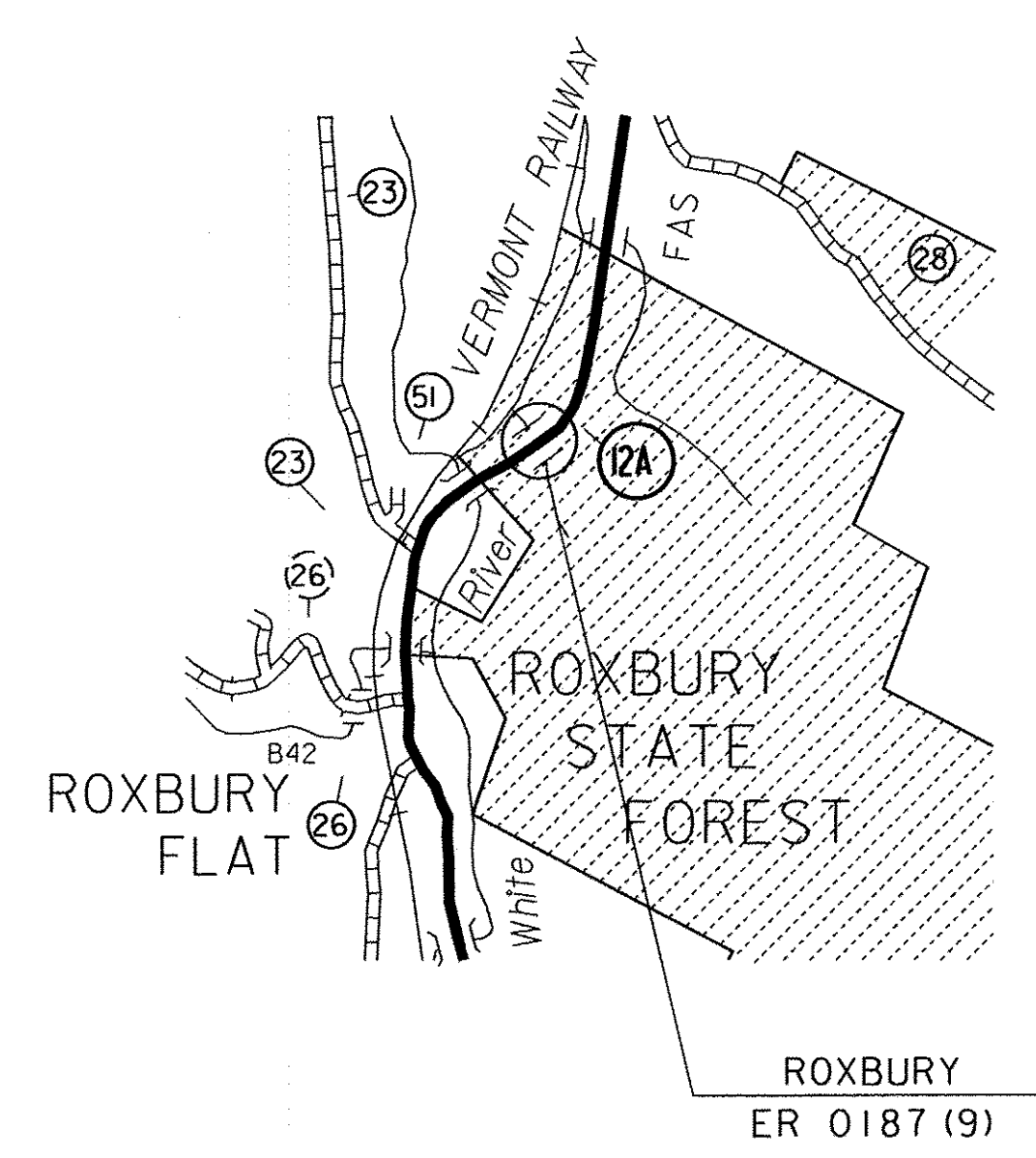
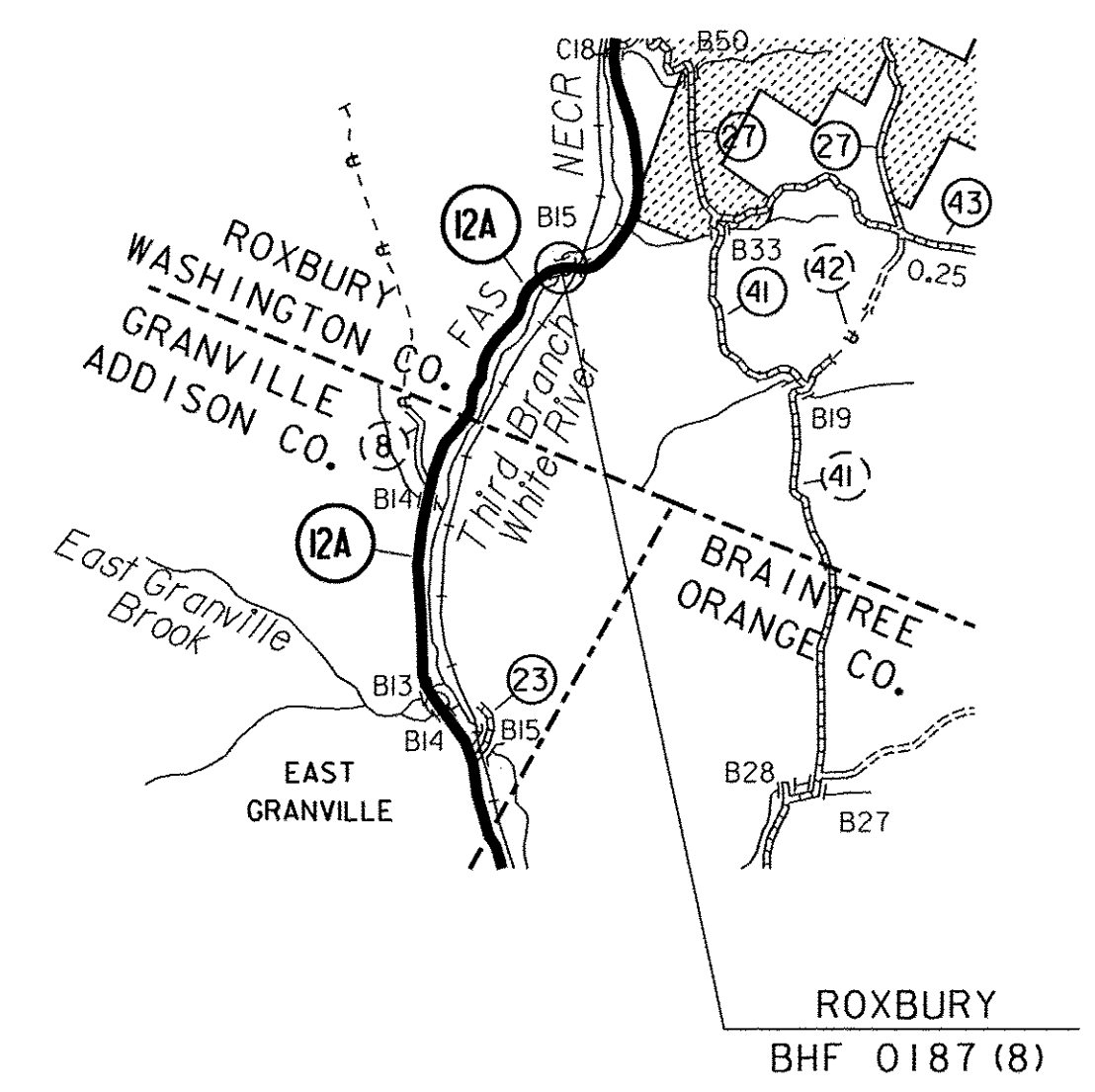
RECORD PLANS	
CONTRACTOR:	LUCK BROTHERS, INC. - PLATTSBURGH, NY
RESIDENT ENGINEER:	TOM MANCINI
CONSTRUCTION BEGAN:	OCTOBER 17, 2011
CONSTRUCTION COMPLETE:	AUGUST 6, 2012
RECORD PLANS BY:	TOM MANCINI & JENNA HYDE
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	<i>Tom Mancini</i> RESIDENT ENGINEER
DATE	4/1/13
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	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : N/A
SURVEYED DATE : N/A

DATUM
VERTICAL SEE SHEET 6 AND 41
HORIZONTAL



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.

PLOTTED 19-SEP-2011

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED <i>[Signature]</i>	DATE 9/9/11
PROJECT MANAGER : C.P. WILLIAMS	
PROJECT NAME : ROXBURY	
PROJECT NUMBER : BHF 0187 (8) / ER 0187 (9)	
SHEET 1 OF 54 SHEETS	

COMPOSITE SHEETS

1. COMPOSITE TITLE SHEET
2. COMPOSITE INDEX SHEET
- 3.-4. COMPOSITE QUANTITY SHEETS

BRIDGE 22 QUANTITY SHEET

5. BRIDGE 22 QUANTITY SHEET

BHF 0187 (8) - BRIDGE 15

6. BRIDGE 15 TITLE SHEET
7. BRIDGE 15 PRELIMINARY INFORMATION SHEET
8. BRIDGE 15 GENERAL NOTES
- 9.-11. BRIDGE 15 QUANTITY SHEETS
12. BRIDGE 15 TIE SHEET
13. BRIDGE 15 PROJECT TYPICAL SECTIONS
14. BRIDGE 15 LAYOUT SHEET
15. BRIDGE 15 VT 12A PROFILE
16. BRIDGE 15 PLAN AND ELEVATION
17. BRIDGE 15 RAIL LAYOUT SHEET
18. BRIDGE 15 FRAMING DETAILS
19. BRIDGE 15 DECK STRUCTURAL DETAILS
20. BRIDGE 15 CURTAIN WALL DETAILS
21. BRIDGE 15 BEARING DETAILS
22. BRIDGE 15 APPROACH SLAB DETAILS
23. BRIDGE 15 ABUTMENT #1 PLAN & ELEVATION
24. BRIDGE 15 ABUTMENT #2 PLAN & ELEVATION
25. BRIDGE 15 WINGWALL #3 SECTIONS
26. BRIDGE 15 BASE SLAB LAYOUT & DETAILS
27. BRIDGE 15 REINFORCING STEEL SCHEDULE
28. BRIDGE 15 TRAFFIC SIGNS AND PAVEMENT MARKINGS
29. BRIDGE 15 TRAFFIC SIGN SUMMARY SHEET
30. BRIDGE 15 LOCAL TRAFFIC CONTROL LAYOUT
31. BRIDGE 15 BANKING DIAGRAM AND MATERIAL TRANSITION
- 32.-37. BRIDGE 15 VT 12A CROSS SECTIONS
- 38.-40. BRIDGE 15 CHANNEL LINE CROSS SECTIONS

ER 0187 (9) - BRIDGE 22

41. BRIDGE 22 TITLE SHEET
42. BRIDGE 22 PROJECT NOTES
43. BRIDGE 22 TIE SHEET
44. BRIDGE 22 TYPICAL SECTIONS
45. BRIDGE 22 LAYOUT PLAN
46. BRIDGE 22 PLAN AND PROFILE
47. BRIDGE 22 PROFILE
48. BRIDGE 22 PRECAST CONCRETE STRUCTURE PLAN
49. BRIDGE 22 WINGWALL ELEVATIONS
50. BRIDGE 22 MISCELLANEOUS DETAILS
- 51.-52. BRIDGE 22 VT 12A CROSS SECTIONS
- 53.-54. BRIDGE 22 REFERENCE PLANS

STRUCTURES DETAILS LIST

SD-501.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-502.00	CONCRETE DETAILS AND NOTES	6/4/2010
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	5/7/2010
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011

STANDARDS LIST

E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-106	TRAFFIC CONTROL-MISCELLANEOUS DETAILS	03-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS OR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-121	STANDARD SIGN PLACEMENT- CONVENTIONAL ROAD	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-1B	BOX BEAM GUARD RAIL	06-01-1994
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIUM)	01-03-2000
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	08-09-2010
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	08-09-2010
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	08-09-2010
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	08-09-2010

PROJECT NAME: ROXBURY COMPOSITE
PROJECT NUMBER: BHF 0187(8) / ER 0187(9)

FILE NAME: I0c420//CompositeIndex.dgn PLOT DATE: 21-SEP-2011
PROJECT LEADER: R.S.YOUNG DRAWN BY: D.D.BEARD
DESIGNED BY: R.S.YOUNG CHECKED BY: -----
COMPOSITE INDEX SHEET SHEET 2 OF 54

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					ROADWAY BR15	BRIDGE BR15	FULL C.E. ITEMS	ROADWAY BR22	BRIDGE BR22	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1			1		2		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				PAVEMENT SUMMARY
					780			370		1150		CY	COMMON EXCAVATION	203.15				BRIDGE 15
					50					50		CY	SOLID ROCK EXCAVATION	203.16		307 TON		PERMANENT PAVEMENT
									281	281		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		44 TON		TEMPORARY PAVEMENT
					40					40		CY	TRENCH EXCAVATION OF EARTH	204.20		351 TON		TOTAL
					1				1	2		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				BRIDGE 22
					530	40			1246	1816		CY	STRUCTURE EXCAVATION	204.25		29 TON		TEMPORARY PAVEMENT
					160	40			535	735		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		29 TON		TOTAL
								100		100		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
					470			596		1066		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
					90					90		CY	AGGREGATE SURFACE COURSE	401.10				
					2.8	0.7				3.5		CWT	EMULSIFIED ASPHALT	404.65				
					1			1		2		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
					119	14				133		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
					1100					1100		SF	PERMANENT STEEL SHEET PILING (MIN. SECTION MODULUS = 40 IN ³)	505.35				
					1380	1580				2960		LB	REINFORCING STEEL	507.15				
					140	80				220		LF	DRILLING AND GROUTING DOWELS	507.16				
					5470	5560				11030		LB	EPOXY COATED REINFORCING STEEL	507.17				
					10	3				13		GAL	WATER REPELLENT, SILANE	514.10				
						31				31		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
						140				140		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
						31				31		LF	JOINT SEALER, HOT POURED	524.11				
						1				1		EACH	REMOVAL OF STRUCTURE (1030 SF - EST.)	529.15				
									1	1		EACH	REMOVAL OF STRUCTURE (13' X 8' X 94' CGMPPA)	529.15				
						12				12		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
									1	1		LS	PRECAST CONCRETE STRUCTURE (24' X 8' X 85' FRAME OR ARCH TYPE)	540.10				
					1					1		LS	PRECAST CONCRETE STRUCTURE (WINGWALL NO. 3)	540.10				
													BEGIN OPTION AA					
					54					54		LF	24" CAAP .060 (2-2/3 X 1/2)	601.0225				
					54					54		LF	24" PCCSP .064 (2-2/3 X 1/2)	601.0425				
					54					54		LF	24" RCP CLASS III	601.0825				
					54					54		LF	24" CPEP(SL)	601.2620				
													END OPTION AA					
					1					1		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
					1					1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
									52	52		CY	STONE FILL, TYPE II	613.11				
									87	87		CY	STONE FILL, TYPE IV	613.13				
					54			250		304		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
					96					96		LF	BOX BEAM GUARDRAIL	621.30				
								1		1		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				

PROJECT NAME: ROXBURY COMPOSITE
 PROJECT NUMBER: BHF 0187(8)/ER0187(9)
 FILE NAME: s10c420excel.dgn PLOT DATE: 09/21/2011
 PROJECT LEADER: C.P.WILLIAMS DRAWN BY: D.D.BEARD
 DESIGNED BY: R.S.YOUNG CHECKED BY: E.R.CHARBONNE
 QUANTITY SHEET #1 SHEET 3 OF 54

QUANTITY SHEET 2

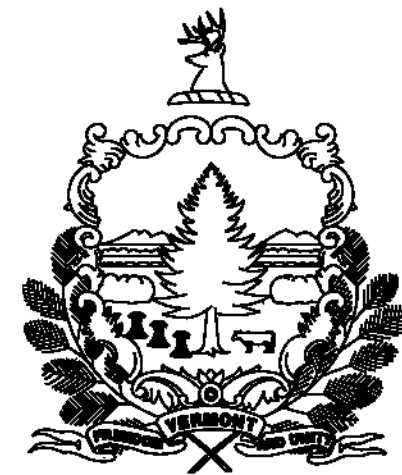
SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					ROADWAY BR15	BRIDGE BR15	FULL C.E. ITEMS	ROADWAY BR22	BRIDGE BR22	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					291			39		330		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
					100					100		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
								320		320		HR	FLAGGERS	630.15				
							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				
					1					1		LS	MOBILIZATION/DEMobilIZATION	635.11				
					800			310		1110		LF	4 INCH WHITE LINE	646.20				
					800			310		1110		LF	4 INCH YELLOW LINE	646.21				
									570	570		SY	GEOTEXTILE UNDER STONE FILL	649.31				
									91	91		SY	GRUBBING MATERIAL	651.40				
					20					20		CY	VEHICLE TRACKING PAD	653.35				
					18					18		SF	TRAFFIC SIGNS, TYPE A	675.20				
					70					70		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
					7					7		EACH	REMOVING SIGNS	675.50				
					1					1		EACH	ERECTING SALVAGED SIGNS	675.60				
					1			1		2		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
					52	42				94		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608				
									553	553		CY	SPECIAL PROVISION (STONE FILL, CHANNEL FLOW LINE)	900.608				
					4					4		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM)	900.620				
						270				270		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM)	900.640				
									1	1		LS	SPECIAL PROVISION (PEDESTAL WALL)(ABUTMENT NO.1)	900.645				
									1	1		LS	SPECIAL PROVISION (PEDESTAL WALL)(ABUTMENT NO.2)	900.645				
									1	1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645				
								1		1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)(ER 0187(9))	900.645				
					1					1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)(BHF 0187(8))	900.645				
					1					1		LU	SPECIAL PROVISION (INCENTIVE)(N.A.B.I.)(BRIDGE 15)	900.650				
								1		1		LU	SPECIAL PROVISION (INCENTIVE)(N.A.B.I.)(BRIDGE 22)	900.650				
					1			1		2		LU	SPECIAL PROVISION (MAINTENANCE OF RAILROAD TRAFFIC)(N.A.B.I.)	900.650				
					1			1		2		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
					1			1		2		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						135				135		SY	SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)	900.675				
					351	41		29		421		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: ROXBURY COMPOSITE
 PROJECT NUMBER: BHF 0187(8)/ER0187(9)
 FILE NAME: s10c420excel.dgn PLOT DATE: 09/21/2011
 PROJECT LEADER: C.P.WILLIAMS DRAWN BY: D.D.BEARD
 DESIGNED BY: R.S.YOUNG CHECKED BY: E.R.CHARBONNE
 QUANTITY SHEET #2 SHEET 4 OF 54

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
								ROADWAY	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								1		1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
								370		370		CY	COMMON EXCAVATION	203.15				
									281	281		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
									1	1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
									1246	1246		CY	STRUCTURE EXCAVATION	204.25				
									535	535		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
								100		100		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
								596		596		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
								1		1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									1	1		EACH	REMOVAL OF STRUCTURE (13' x 8' x 94' CGMPPA)	529.15				
									1	1		LS	PRECAST CONCRETE STRUCTURE (24' x 8' x 85' FRAME OR ARCH TYPE)	540.10				
									52	52		CY	STONE FILL, TYPE II	613.11				
									87	87		CY	STONE FILL, TYPE IV	613.13				
								250		250		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
								1		1		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
								39		39		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
								320		320		HR	FLAGGERS	630.15				
								310		310		LF	4 INCH WHITE LINE	646.20				
								310		310		LF	4 INCH YELLOW LINE	646.21				
									570	570		SY	GEOTEXTILE UNDER STONE FILL	649.31				
									91	91		SY	GRUBBING MATERIAL	651.40				
								1		1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
									553	553		CY	SPECIAL PROVISION (STONE FILL, CHANNEL FLOW LINE)	900.608				
									1	1		LS	SPECIAL PROVISION (PEDESTAL WALL)(ABUTMENT NO. 1)	900.645				
									1	1		LS	SPECIAL PROVISION (PEDESTAL WALL)(ABUTMENT NO. 2)	900.645				
									1	1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645				
								1		1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)(ER 0187(9))	900.645				
								1		1		LU	SPECIAL PROVISION (INCENTIVE)(N.A.B.I.)(BRIDGE 22)	900.650				
								1		1		LU	SPECIAL PROVISION (MAINTENANCE OF RAILROAD TRAFFIC)(N.A.B.I.)	900.650				
								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				
								29		29		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

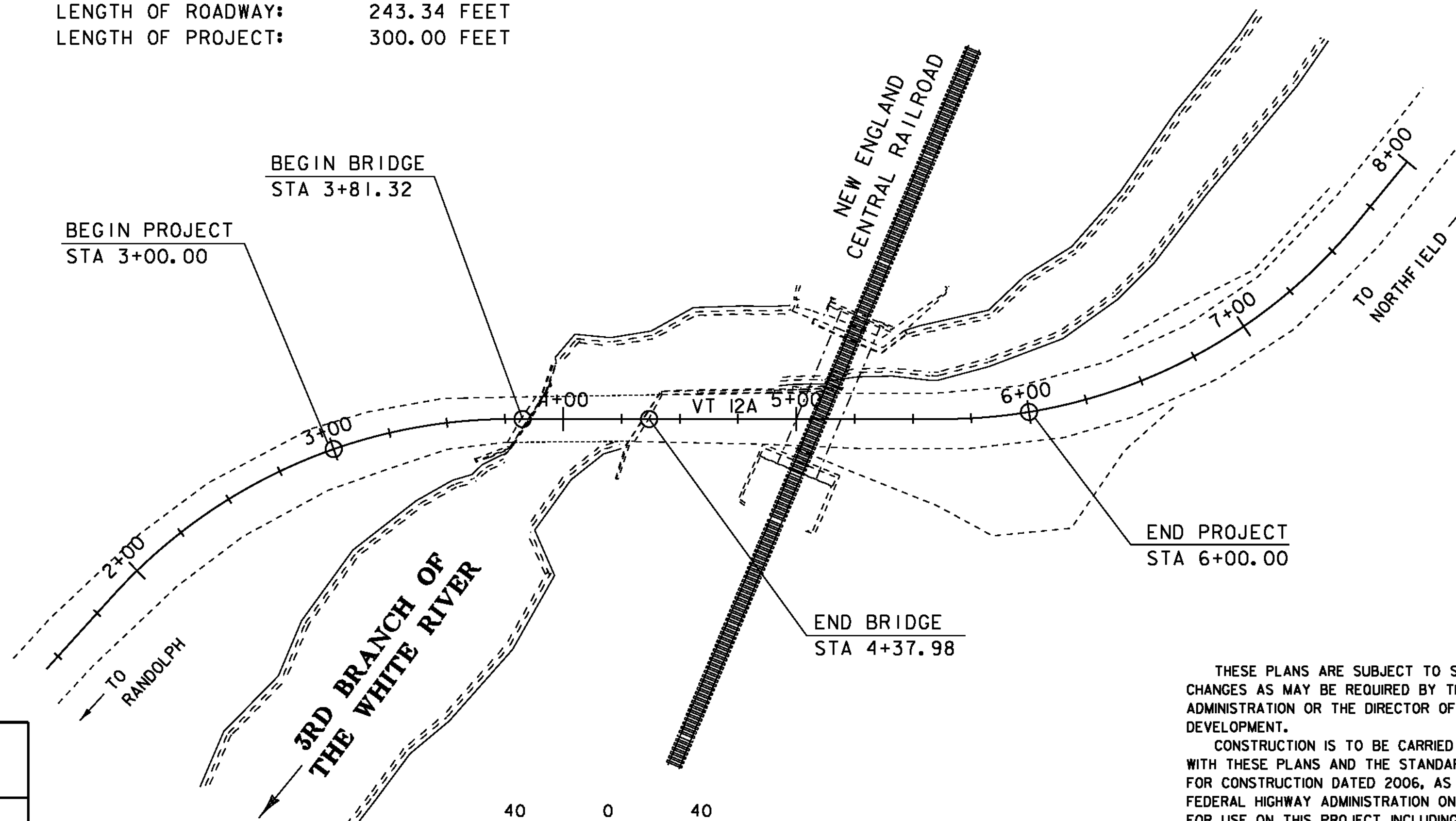
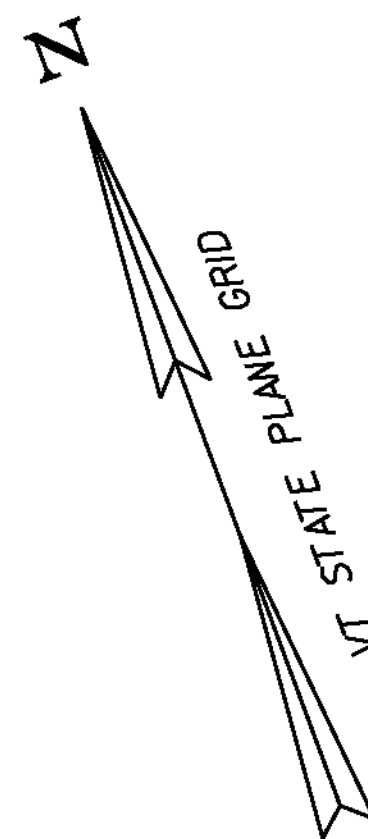
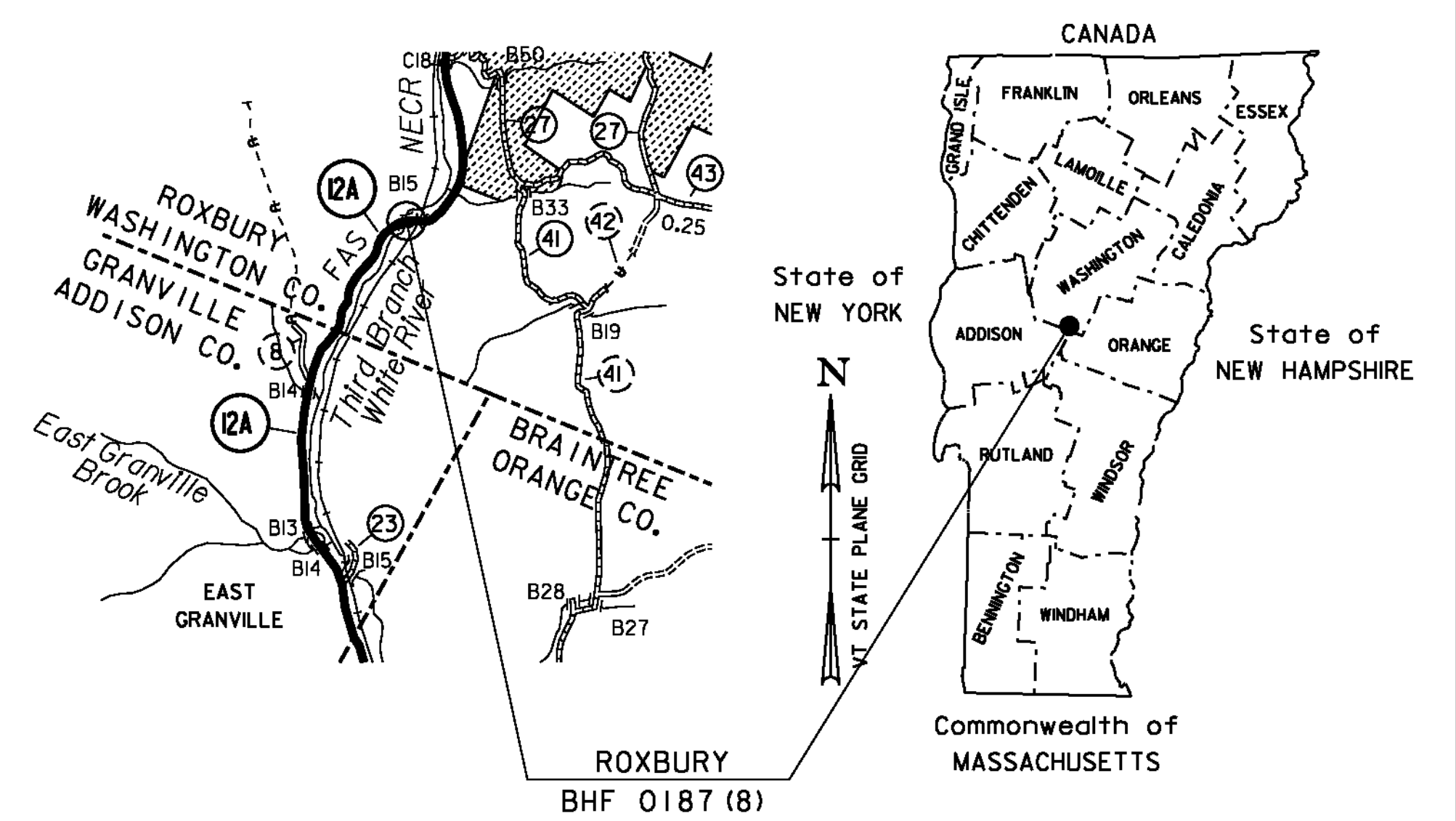
TOWN OF ROXBURY
COUNTY OF WASHINGTON

ROUTE NO : VT 12A, MAJOR COLLECTOR BRIDGE NO : 15

PROJECT LOCATION: BEGINNING AT A POINT ON VT 12A APPROXIMATELY 0.65 MILE NORTHERLY FROM THE GRANVILLE/ROXBURY TOWN LINE AND EXTENDING EASTERLY ALONG VT 12A FOR 300 FEET.

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING BRIDGE SUPERSTRUCTURE ALONG WITH RELATED ROADWAY WORK, AND REPLACEMENT OF EXISTING RETAINING WALL.

LENGTH OF STRUCTURE: 56.66 FEET
LENGTH OF ROADWAY: 243.34 FEET
LENGTH OF PROJECT: 300.00 FEET



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	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : L. ORVIS
SURVEYED DATE : 08/24/1998

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83 (96)

SCALE: 1" = 40'-0"

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.

PROJECT MANAGER : C.P. WILLIAMS
PROJECT NAME : ROXBURY
PROJECT NUMBER : BHF 0187 (8)
SHEET 6 OF 54 SHEETS

PLOTTED 21-SEP-2011

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

SEE SHEET 2 FOR INDEX OF SHEETS AND LIST OF STANDARDS.

HYDROLOGIC DATA Date: June 2011

DRAINAGE AREA: 13.1 sq. mi.
 CHARACTER OF TERRAIN: Hilly, mostly forested, rural
 STREAM CHARACTERISTICS: Perennial, meandering, locally braided
 NATURE OF STREAMBED: Sand to small cobbles with some exposed ledge

PEAK FLOW DATA

Q 2.33 = 700 cfs	Q 50 = 2400 cfs
Q 10 = 1400 cfs	Q 100 = 2900 cfs
Q 25 = 1900 cfs	Q 500 = 4080 cfs

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 7.9 fps
 ICE CONDITIONS: Mild
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE: Upstream RR bridge abutment and roadway constrict the channel approximately 100 feet above this bridge

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete T-beam bridge
 YEAR BUILT: 1928
 CLEAR SPAN(NORMAL TO STREAM): 37'
 VERTICAL CLEARANCE ABOVE STREAMBED: 7.9'
 WATERWAY OF FULL OPENING: 257 sq. ft.
 DISPOSITION OF STRUCTURE: Replace superstructure
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Abut #1 on ledge, abut #2 unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = 872.4'	VELOCITY = 6.2 fps
Q10 = 873.4'	" 10.5 fps
Q25 = 876.0'	" 11.8 fps
Q50 = 877.0'	" 13.1 fps
Q100 = 878.3'	" 11.2 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below the Q50
 RELIEF ELEVATION: 877.0'
 DISCHARGE OVER ROAD @Q100: 1440 cfs

PROPOSED STRUCTURE

STRUCTURE TYPE: Replace bridge deck and beams - no abutment or in stream work

CLEAR SPAN(NORMAL TO STREAM): 37'
 VERTICAL CLEARANCE ABOVE STREAMBED: 7.9'
 WATERWAY OF FULL OPENING: 257 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 872.4'	VELOCITY = 6.2 fps
Q10 = 873.4'	" 10.5 fps
Q25 = 876.0'	" 11.8 fps
Q50 = 877.0'	" 13.1 fps
Q100 = 878.3'	" 11.2 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Below the Q50
 RELIEF ELEVATION: 877.0'
 DISCHARGE OVER ROAD @Q100: 1440 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 874.4'
 VERTICAL CLEARANCE: @ Q10 = 1.0'; Water into the beams at Q25

SCOUR: Scour not calculated as project is only replacing superstructure

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 35 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: <35 cfs 0.5'
 ORDINARY HIGH WATER: 320 cfs 2.0'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

1. BRIDGE CLOSED TO TRAFFIC

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _p : 0.0 INCH
3. DESIGN SPAN	L: 51.90 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f _y : ---
6. PRESTRESSED CONCRETE STRENGTH	f' _c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _c : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _c : 3.5 KSI
11. CONCRETE, CLASS C	f' _c : ---
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f _y : 50 KSI
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q _p : ---
20. PILE YIELD STRENGTH ASTM A572	f _y : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L _p : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V _{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	PGA: --- S: --- S ₁ : ---

UPSTREAM STRUCTURE

TOWN: Roxbury DISTANCE: 100'
 HIGHWAY #: NECR Bridge STRUCTURE #: 39
 CLEAR SPAN: 65' CLEAR HEIGHT: 26'
 YEAR BUILT: unknown FULL WATERWAY: 316.6 sq. ft.
 STRUCTURE TYPE: Single span side girder bridge

DOWNSTREAM STRUCTURE

TOWN: Granville DISTANCE: 10,990'
 HIGHWAY #: NECR Bridge STRUCTURE #: 38
 CLEAR SPAN: 70' CLEAR HEIGHT: 11.2'
 YEAR BUILT: unknown FULL WATERWAY: 764 sq. ft.
 STRUCTURE TYPE: Single span side girder 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	N/A	1.24					
POSTING							
OPERATING	N/A	1.62	2.8	1.59	2.07	1.88	

COMMENTS:

PROJECT NAME: **ROXBURY**
 PROJECT NUMBER: **BHF 0187(8)**

FILE NAME: s10c420pi.dgn PLOT DATE: 9/21/2011
 PROJECT LEADER: C. P. WILLIAMS DRAWN BY: G. ROY
 DESIGNED BY: T. FILLBACH CHECKED BY: T. FILLBACH
PRELIMINARY INFORMATION SHEET SHEET 7 OF 54

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2012	470	55	57	4.5	35	20 year ESAL for flexible pavement from 2012 to 2032 : 109000
2032	500	55	57	7.2	55	40 year ESAL for flexible pavement from 2012 to 2052 : 258000
						Design Speed : 50 mph

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2010, AND ITS LATEST REVISIONS, AND THE VTRANS STRUCTURES DESIGN MANUAL.
2. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
3. ITEM 529.15 "REMOVAL OF STRUCTURE (1030 SF-EST)" SHALL BE USED FOR REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE AND PORTIONS OF THE ABUTMENTS AND WINGWALLS, INCLUDING THE EXISTING RETAINING WALL AS DETAILED IN THE PLANS.
4. 1 ½" OF TEMPORARY PAVEMENT SHALL BE PLACED ON TOP OF SUBBASE AND THE BRIDGE DECK PRIOR TO WINTER SHUT DOWN. THE PAVEMENT NEED NOT MEET THE MIX DESIGN SUBMITTAL AND PLANT INSPECTION REQUIREMENTS SET FORTH IN SECTION 406 OR 490. THE TEMPORARY PAVEMENT ON THE BRIDGE DECK SHALL BE REMOVED IN THE SPRING TO ALLOW FOR MEMBRANE AND FINAL PAVEMENT.
5. PERMANENT STEEL SHEET PILING SHALL BE INSTALLED IN FRONT OF THE SUBFOOTING AT THE LOCATION SHOWN ON THE PLANS. PILING SHALL BE DRIVEN TO BEDROCK BUT NEED NOT EXCEED TEN FEET IN LENGTH. THE SHEET PILING SHALL HAVE A MINIMUM SECTION MODULUS OF 40 IN³. SHEAR STUDS SHALL BE INSTALLED AS SHOWN IN THE PLANS. STUDS SHALL BE CONSIDERED INCIDENTAL TO THE STEEL SHEETING ITEM.
6. DEWATERING SHALL BE INCLUDED IN ITEM 204.25, "STRUCTURE EXCAVATION".

CONCRETE

7. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE BRIDGE.
8. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
SPACING: +/- 1 INCH
CLEARANCE: +/- 1/4 INCH
9. PRECAST TOLERANCES:
HEIGHT/WIDTH: +/- 1/4 INCH
LENGTH: +/- 1/2 INCH
10. THE SURFACE OF THE BRIDGE SEATS UNDER THE BEARING DEVICES SHALL BE LEVEL. OTHER AREAS OF THE BRIDGE SEAT SHALL BE SLOPED 0.02%. THE ABUTMENT SEATS SHALL BE SLOPED FULL WIDTH TOWARD MIDSPAN AND THE ENTIRE BRIDGE SEAT SHALL BE GIVEN A MAGNESIUM FLOAT FINISH. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
11. CONCRETE FOR THE SUBFOOTING SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.

PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE

12. REINFORCING STEEL SHALL BE EPOXY COATED PER SUBSECTION 713.07.
13. HOLES ON ONE END OF THE DIAPHRAGMS LOCATED BETWEEN UNITS MAY BE FIELD DRILLED.
14. EDGES OF THE PRECAST CONCRETE DECK SHALL BE FORMED STRAIGHT SO THAT A CONSISTENT GAP EXISTS BETWEEN ADJACENT UNITS.

SUBSTRUCTURE ON BEDROCK

15. FOOTINGS OR SUBFOOTINGS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.
16. ANY BEDROCK THAT NEEDS TO BE REMOVED SHALL BE PAID FOR WITH THE CORRESPONDING EXCAVATION ITEM INCLUDED IN THE CONTRACT. OVERBREAKAGE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTION 204.09(B)(1) WILL BE AT THE CONTRACTOR'S EXPENSE.
17. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK WHEN SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE DOWELS SHALL HAVE A TWO FOOT MINIMUM EMBEDMENT IN THE BEDROCK AND SHALL EXTEND INTO THE FOOTING OR SUBFOOTING A MINIMUM OF EIGHTEEN INCHES, UNLESS NOTED OTHERWISE.

TRAFFIC CONTROL

18. AS PART OF THE 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) ITEM, THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL. SEE SPECIAL PROVISIONS.
19. THE BRIDGE SHALL BE CLOSED TO TRAFFIC DURING CONSTRUCTION.

PROJECT NAME: ROXBURY	
PROJECT NUMBER: BHF 0187(8)	
FILE NAME: sl0c420note.dgn	PLOT DATE: 21-SEP-2011
PROJECT LEADER: C. P. WILLIAMS	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: R. YOUNG
GENERAL NOTES	SHEET 8 OF 54

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	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				
								780			780		CY	COMMON EXCAVATION	203.15				
								50			50		CY	SOLID ROCK EXCAVATION	203.16				
								40			40		CY	TRENCH EXCAVATION OF EARTH	204.20				
								1			1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
								530	40		570		CY	STRUCTURE EXCAVATION	204.25				
								160	40		200		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
								470			470		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
								90			90		CY	AGGREGATE SURFACE COURSE	401.10				
								2.8	0.7		3.5		CWT	EMULSIFIED ASPHALT	404.65				
								1			1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
								119	14		133		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
								1100			1100		SF	PERMANENT STEEL SHEET PILING (MIN. SECTION MODULUS = 40 IN ³)	505.35				
								1380	1580		2960		LB	REINFORCING STEEL	507.15				
								140	80		220		LF	DRILLING AND GROUTING DOWELS	507.16				
								5470	5560		11030		LB	EPOXY COATED REINFORCING STEEL	507.17				
								10	3		13		GAL	WATER REPELLENT, SILANE	514.10				
									31		31		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									140		140		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
									31		31		LF	JOINT SEALER, HOT POURED	524.11				
									1		1		EACH	REMOVAL OF STRUCTURE (1030 SF - EST.)	529.15				
									12		12		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
								1			1		LS	PRECAST CONCRETE STRUCTURE (WINGWALL NO. 3)	540.10				
														BEGIN OPTION AA					
								54			54		LF	24" CAAP .060 (2-2/3 X 1/2)	601.0225				
								54			54		LF	24" PCCSP .064 (2-2/3 X 1/2)	601.0425				
								54			54		LF	24" RCP CLASS III	601.0825				
								54			54		LF	24" CPEP(SL)	601.2620				
														END OPTION AA					
								1			1		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
								1			1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
								54			54		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
								96			96		LF	BOX BEAM GUARDRAIL	621.30				
								291			291		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
								100			100		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
											1		LS	FIELD OFFICE, ENGINEERS	631.10				
											1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
											1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
								1			1		LS	MOBILIZATION/DEMobilIZATION	635.11				

PROJECT NAME: **ROXBURY**
PROJECT NUMBER: **BHF 0187(8)**
FILE NAME: s10c420excol.dgn PLOT DATE: 09/21/2011
PROJECT LEADER: C.P.WILLIAMS DRAWN BY: D.D.BEARD
DESIGNED BY: R.S.YOUNG CHECKED BY: E.R.CHARBONNE
QUANTITY SHEET #1 SHEET 9 OF 54

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								800			800		LF	4 INCH WHITE LINE	646.20				
								800			800		LF	4 INCH YELLOW LINE	646.21				
								20			20		CY	VEHICLE TRACKING PAD	653.35				
								18			18		SF	TRAFFIC SIGNS, TYPE A	675.20				
								70			70		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
								7			7		EACH	REMOVING SIGNS	675.50				
								1			1		EACH	ERECTING SALVAGED SIGNS	675.60				
								1			1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
								52	42		94		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608				
								4			4		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM)	900.620				
									270		270		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM)	900.640				
								1			1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)(BHF 0187(8))	900.645				
								1			1		LU	SPECIAL PROVISION (INCENTIVE)(N.A.B.I.)(BRIDGE NO. 15)	900.650				
								1			1		LU	SPECIAL PROVISION (MAINTENANCE OF RAILROAD TRAFFIC)(N.A.B.I.)	900.650				
								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				
									135		135		SY	SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)	900.675				
								351	41		392		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: **ROXBURY**
 PROJECT NUMBER: **BHF 0187(8)**
 FILE NAME: s10c420excol.dgn PLOT DATE: 09/21/2011
 PROJECT LEADER: C.P.WILLIAMS DRAWN BY: D.D.BEARD
 DESIGNED BY: R.S.YOUNG CHECKED BY: E.R.CHARBONNE
 QUANTITY SHEET #2 SHEET 10 OF 54

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES			
					SUPER STRUCTURE	APPROACH SLAB NO.1	APPROACH SLAB NO.2	ABUTMENT NO.1	ABUTMENT NO.2	BRIDGE TOTAL		UNIT	ITEMS	ITEM NUMBER		QUANTITIES	UNIT	ITEMS
								20	20	40		CY	STRUCTURE EXCAVATION	204.25				
								20	20	40		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
					0.3	0.2	0.2			0.7		CWT	EMULSIFIED ASPHALT	404.65				
								8	6	14		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
								870	710	1580		LB	REINFORCING STEEL	507.15				
								40	40	80		LF	DRILLING AND GROUTING DOWELS	507.16				
						2650	2910			5560		LB	EPOXY COATED REINFORCING STEEL	507.17				
					1			1	1	3		GAL	WATER REPELLENT, SILANE	514.10				
					31					31		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
					140					140		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
					31					31		LF	JOINT SEALER, HOT Poured	524.11				
					1					1		EACH	REMOVAL OF STRUCTURE (1030 SF - EST.)	529.15				
								6	6	12		EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
						21	21			42		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608				
					270					270		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM)	900.640				
					135					135		SY	SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)	900.675				
					23	9	9			41		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: **ROXBURY**
 PROJECT NUMBER: **BHF 0187(8)**
 FILE NAME: s10c420excel.dgn PLOT DATE: 09/21/2011
 PROJECT LEADER: C.P.WILLIAMS DRAWN BY: D.D.BEARD
 DESIGNED BY: R.S.YOUNG CHECKED BY: E.R.CHARBONNE
 BRIDGE QUANTITY SHEET #1 SHEET 11 OF 54

GPS CONTROL POINTS

HVCTRL #1

ROXRIM
 NORTH = 559539.567
 EAST = 1573126.562
 ELEV. = 890.320

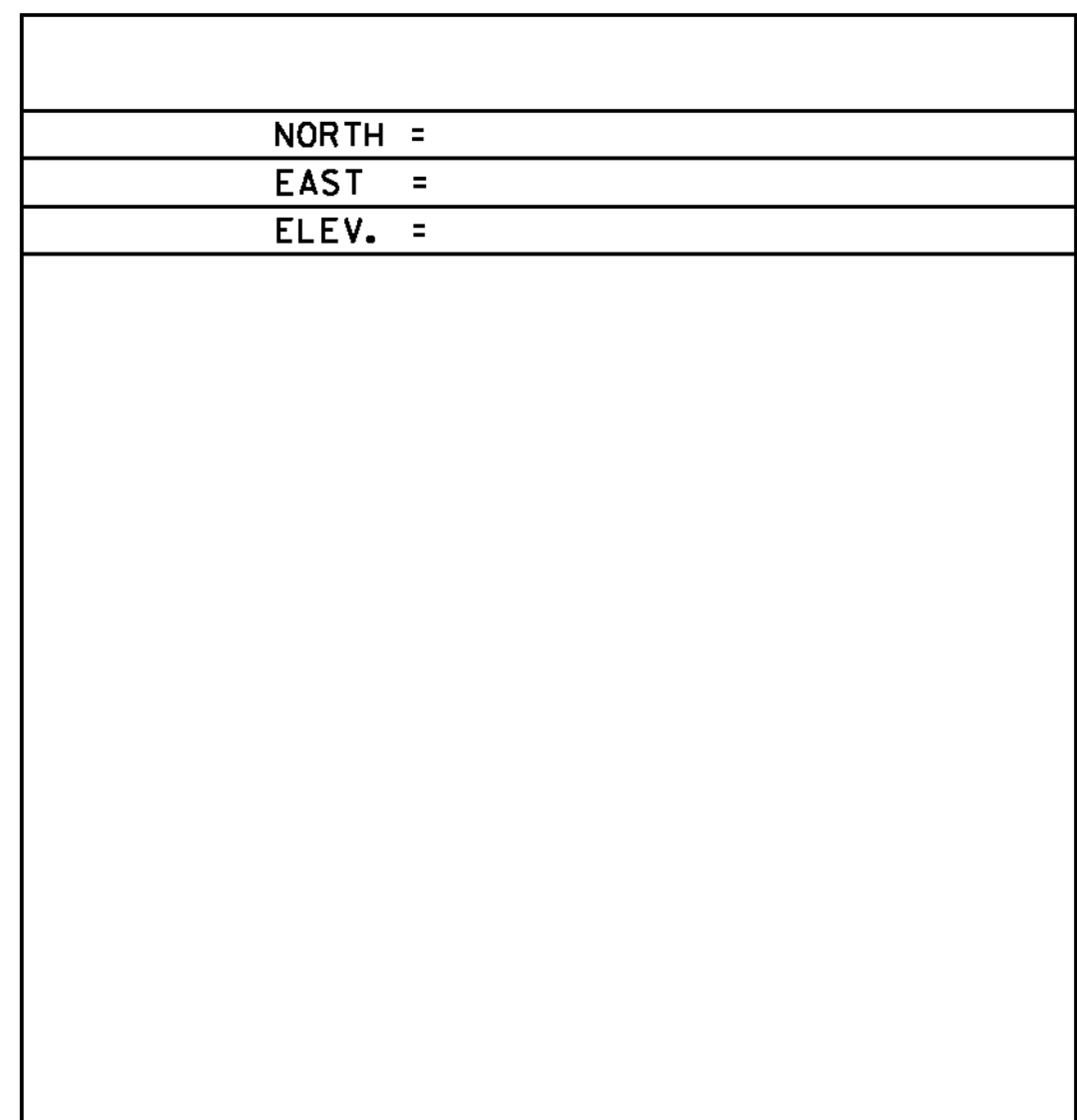
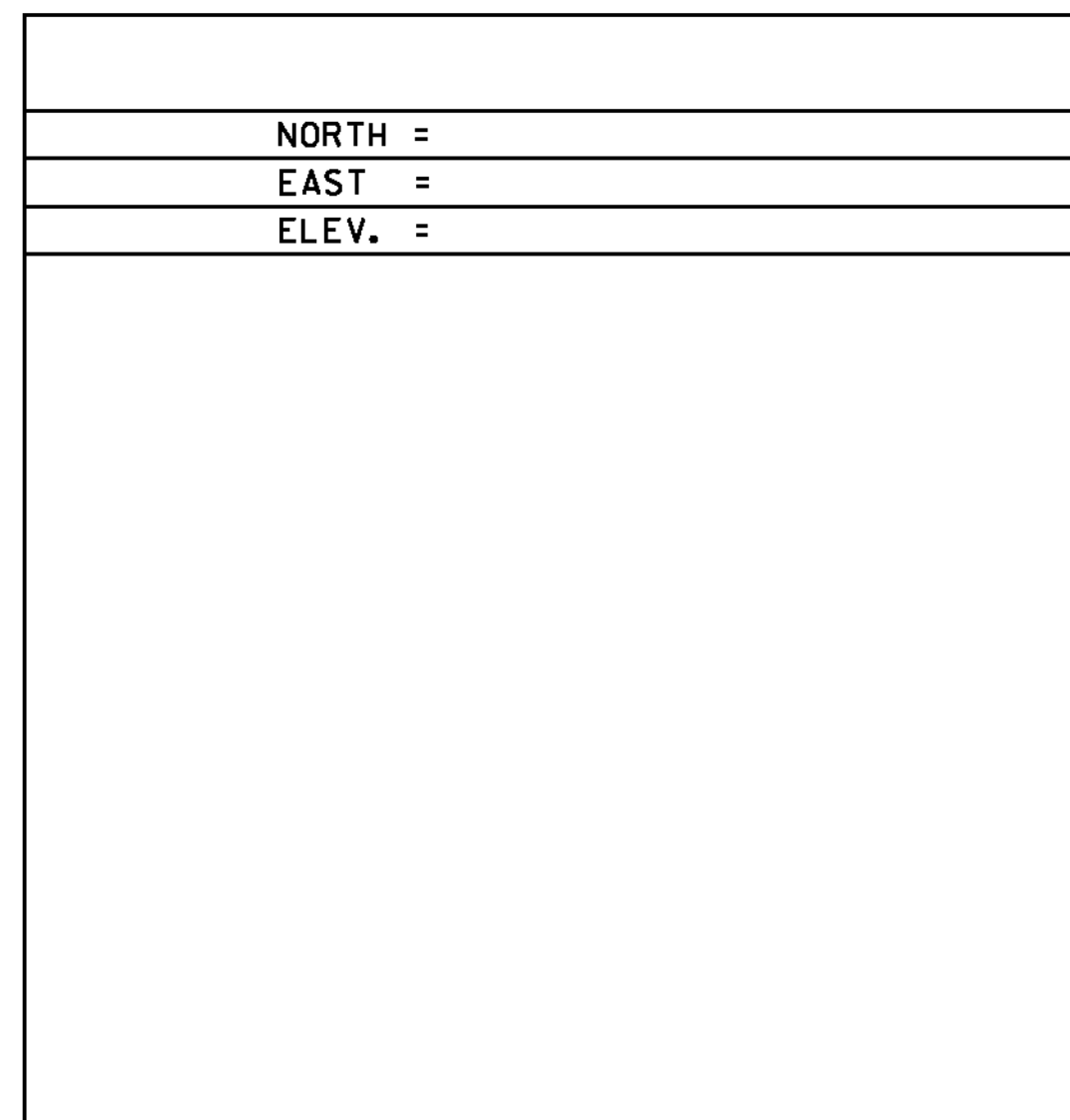
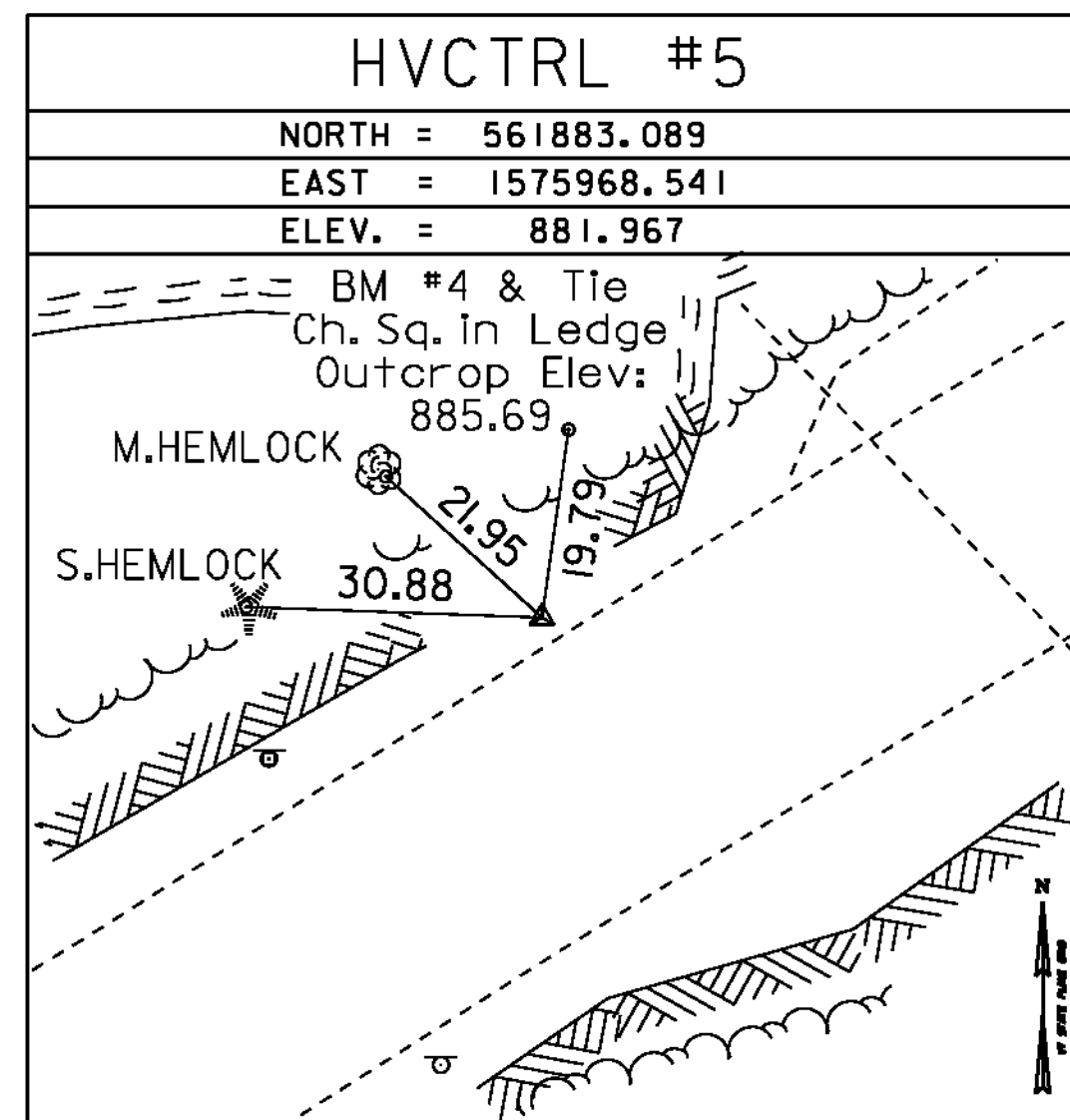
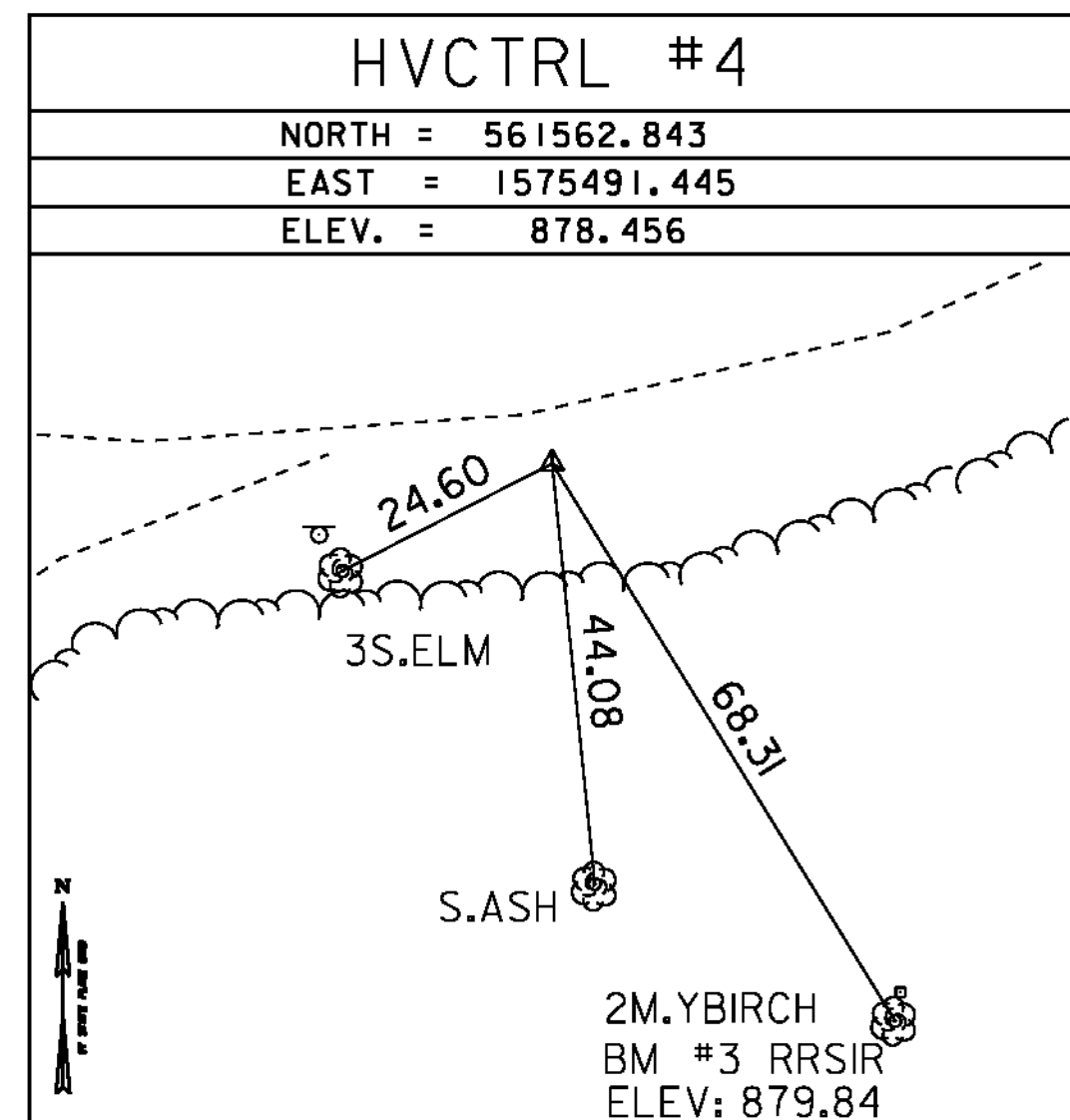
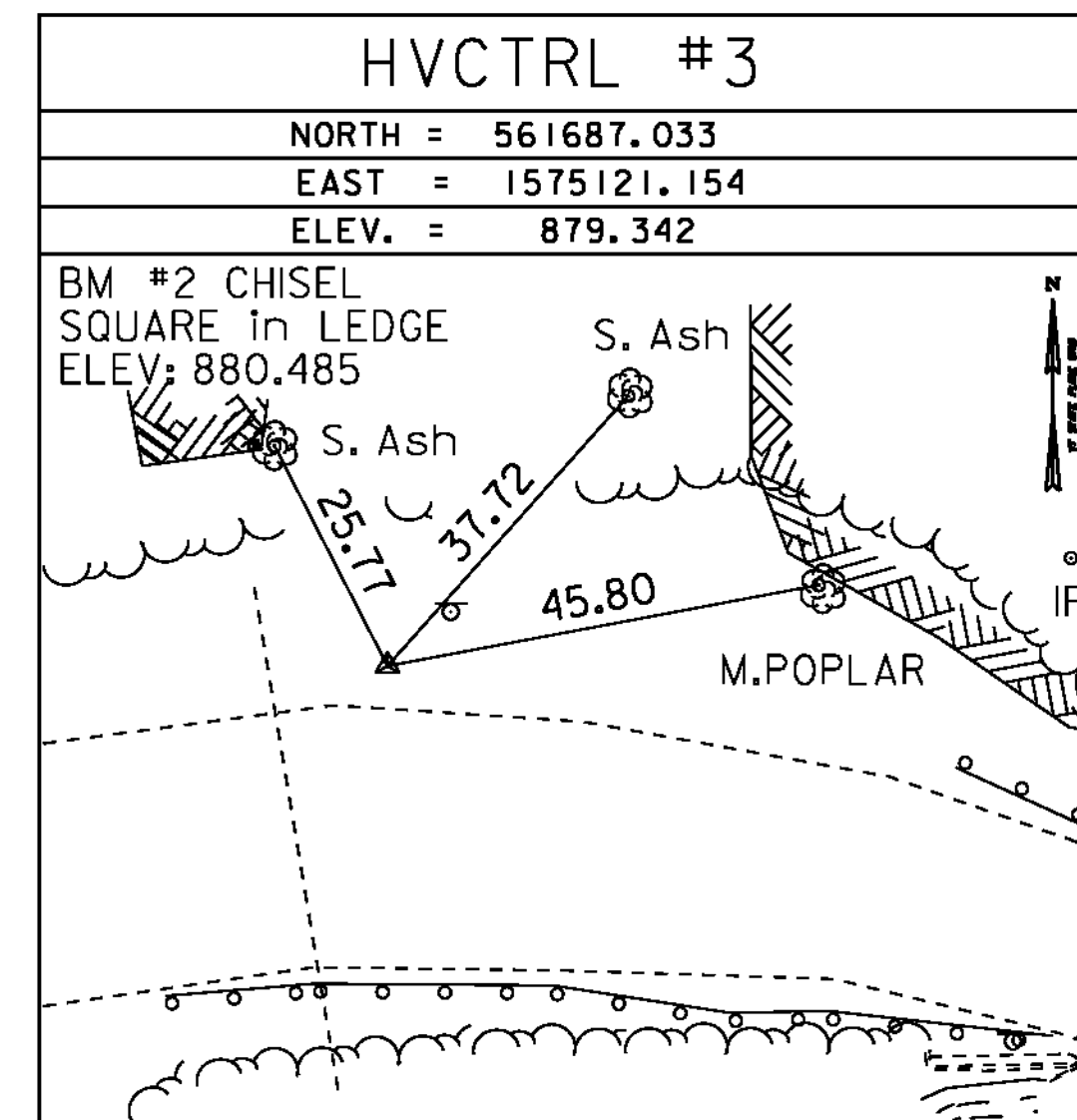
DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1996 (DJM)
 GENERAL LOCATION, ROXBURY, VT. ABOUT 9.5 MI (15.3 KM) SOUTHWEST OF 'NORTHFIELD, ABOUT 8.5 MI (13.7 KM) NORTH OF RANDOLPH, AND ABOUT 21 MI (33.8 KM) EAST OF MIDDLEBURY. TO REACH FROM THE INTERSECTION OF VT ROUTES 12 AND 12A IN RANDOLPH VILLAGE GO NORTH ALONG VT ROUTE 12A FOR 10.4 MI (16.7 KM) TO THE MARK ON THE LEFT IN THE TOP OF THE NORTH END OF A MASSIVE LEDGE OUTCROP, JUST SOUTH OF AN OLD ROAD GRADE. IT IS 0.6 MI (1.0 KM) SOUTH ALONG VT ROUTE 12A FROM THE CENTRAL VERMONT RAILROAD BRIDGE OVER VT ROUTE 12A AND THE THIRD BRANCH OF THE WHITE RIVER. TO REACH FROM THE INTERSECTION OF VT ROUTES 12 AND 12A IN NORTHFIELD GO SOUTH ALONG VT ROUTE 12A FOR 10.8 MI (17.4 KM) TO THE MARK ON THE RIGHT. THE MARK IS 16.5 M (54.1 FT) WEST OF AND ABOUT 5 M, (16.4 FT) HIGHER THAN THE CENTERLINE OF VT ROUTE 12A. TH MARK IS 13.3 M (43.6-FT) NORTH OF POLE NO. 6/282, 10.7 M (35.1-FT) EAST OF THE EAST EDGE OF A QUARRY HOLE. 7.8 M (25.6 FT) EAST OF A 30-CM TRIPLE-TRUNK SPRUCE, AND 1.2 M (3.9 FT) EAST OF A FIBERGLASS WITNESS POST.

HVCTRL #2

ROXRIM AZ MK
 NORTH = 561370.541
 EAST = 1574485.923
 ELEV. = 875.294

DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1996 (DJM)
 GENERAL LOCATION, ROXBURY, VT. ABOUT 9 MI (14.5 KM) SOUTHWEST OF 'NORTHFIELD, ABOUT 9 MI (14.5 KM) NORTH OF RANDOLPH, AND ABOUT 21 MI (33.8 KM) EAST OF MIDDLEBURY. TO REACH FROM THE INTERSECTION OF VT, ROUTES 12 AND 12A IN RANDOLPH VILLAGE GO NORTH ALONG VT ROUTE 12A FOR 10.8 MI (17.4 KM) TO THE MARK ON THE LEFT. IT IS 0.15 MI (0.24 KM) SOUTH ALONG VT ROUTE 12A FROM THE CENTRAL VERMONT RAILROAD BRIDGE OVER VT ROUTE 12A AND THE THIRD BRANCH OF THE WHITE RIVER. TO REACH FROM THE INTERSECTION OF VT ROUTES 12 AND 12A IN NORTHFIELD GO SOUTH ALONG VT ROUTE 12A FOR 10.3 MI (16.6 KM) TO THE MARK ON THE RIGHT. THE MARK IS 7.2 M (23.6 FT) NORTHWEST OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 12. 15.6 M (51.2 FT) SOUTH OF POLE NO. 291, 24.7 M (81.0 FT) SOUTHWEST OF A YELLOW IRON PROPERTY PIPE WHICH PROJECTS ABOUT 0.8 M (2.6 FT) ABOVE GROUND SURFACE. THE MARK IS 57.0 M (187.0-FT) SOUTHWEST OF THE CENTERLINE OF GRAVEL DRIVE, AND 0.35-M (1.15-FT) SOUTHEAST OF A FIBERGLASS WITNESS POST. IT IS A CAST ALUMINUM DISK IN THE TOP OF A CAST ALUMINUM MONUMENT SET FLUSH WITH GROUND SURFACE.

TRAVERSE TIES



• MAIN TRAVERSE COMPLETED Aug. 24, 1998 by L. Orvis P.C. & R. Bullock

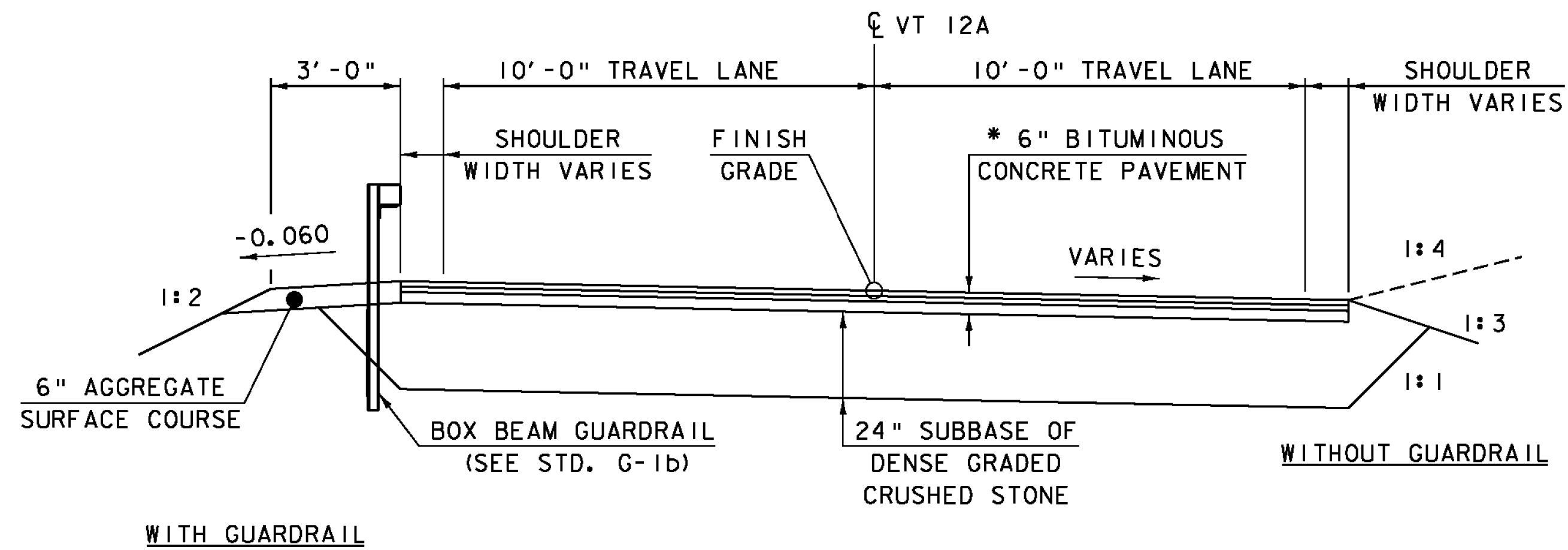
ALIGNMENT COORD

	STATION	NORTHING	EASTING
POB	1+00.00	561605.9485	1574935.8958
PC	1+85.46	561645.4116	1575011.6966
	Tangent Direction:	N 62°29'52.17" E	
	Tangent Length:	85.46	
PI	2+87.44	561692.5071	1575102.1577
PT	3+77.45	561657.0833	1575197.7943
	Radius:	230.00	
	Delta:	47°49'36.42" Right	
	Degree of Curvature (Arc):	24°54'40.35"	
	Length:	191.99	
	Tangent:	101.99	
	Chord:	186.46	
	Middle Ordinate:	19.74	
	External:	21.60	
PT	3+77.45	561657.0833	1575197.7943
PC	5+62.68	561592.7464	1575371.4903
	Tangent Direction:	S 69°40'31.41" E	
	Tangent Length:	185.23	
PI	6+71.44	561554.9684	1575473.4828

	STATION	NORTHING	EASTING
PT	7+65.87	561609.8318	1575567.3959
	Radius:	230.00	
	Delta:	50°37'04.04" Left	
	Degree of Curvature (Arc):	24°54'40.35"	
	Length:	203.19	
	Tangent:	108.76	
	Chord:	196.65	
	Middle Ordinate:	22.08	
	External:	24.42	
PT	7+65.87	561609.8318	1575567.3959
POE	8+00.00	561627.0486	1575596.8671
	Tangent Direction:	N 59°42'24.55" E	
	Tangent Length:	34.13	

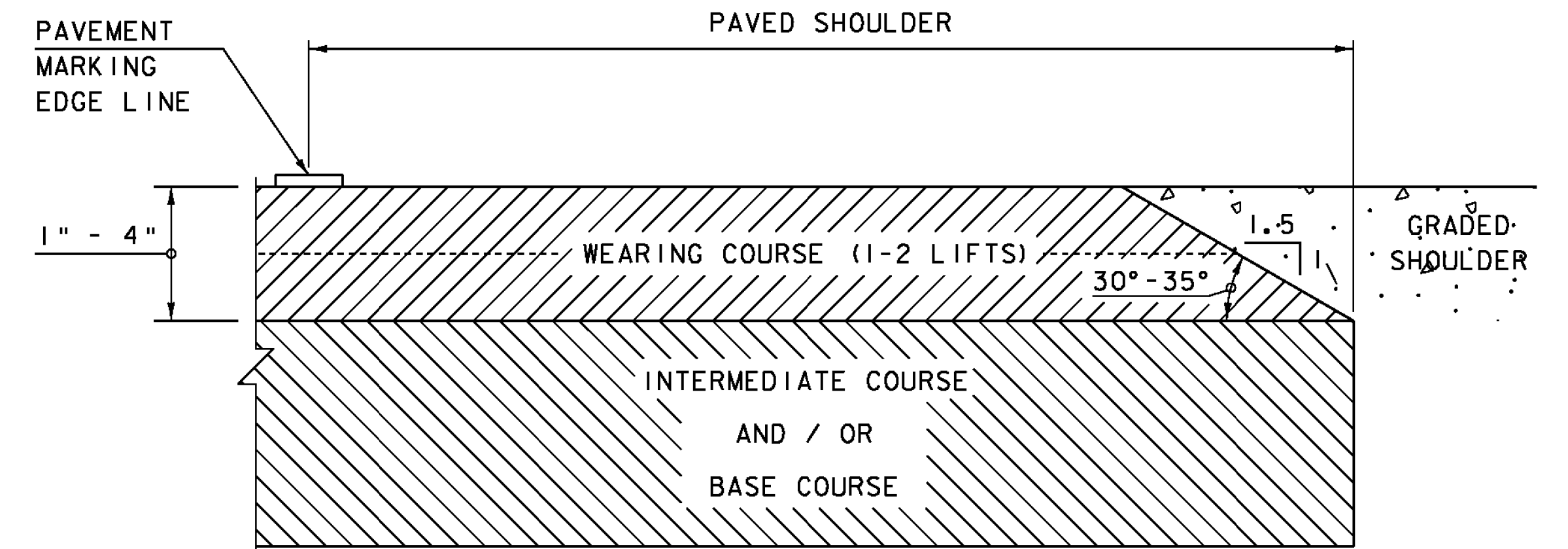
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)
ADJUSTMENT	Least Sq.

PROJECT NAME:	ROXBURY
PROJECT NUMBER:	BHF 0187(8)
FILE NAME:	survey\10c4201.dgn
PROJECT LEADER:	WILLIAMS
DESIGNED BY:	
TIE SHEET	
PLOT DATE:	21-SEP-2011
DRAWN BY:	R. BULLOCK
CHECKED BY:	
SHEET	12 OF 54



ROADWAY TYPICAL SECTION

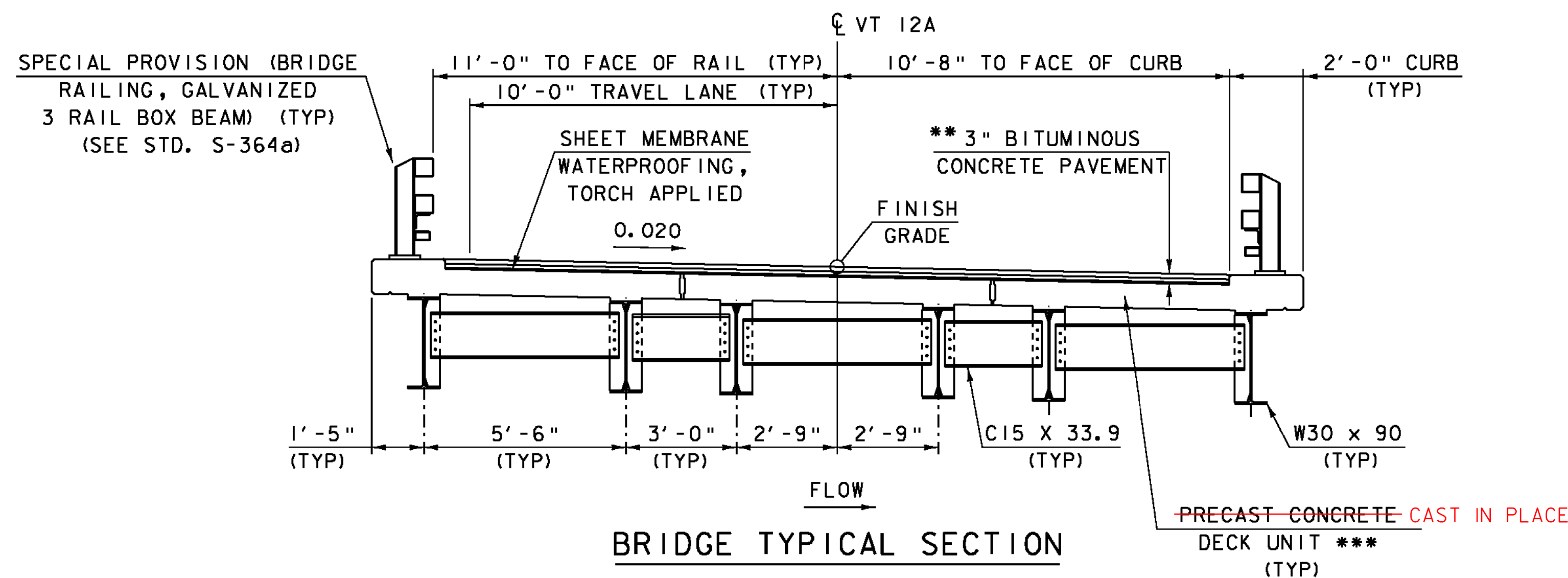
*2 LIFTS OF 1½" BITUM. CONC. PAVEMENT TYPE IIIS OVER 1 LIFT OF 3" BITUM. CONC. PAVEMENT TYPE IS OR IIS PAID UNDER SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY).



SAFETY EDGE DETAIL

NOT TO SCALE

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



BRIDGE TYPICAL SECTION

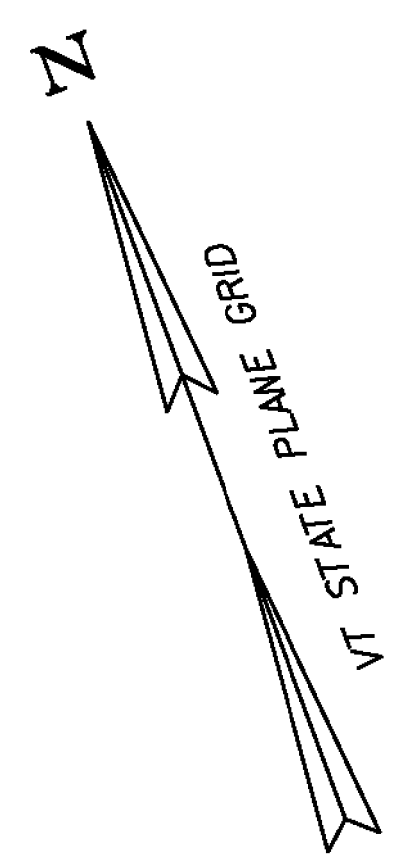
** 2 LIFTS OF 1½" BITUM. CONC. PAVEMENT TYPE IIIS PAID UNDER SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY).
 *** SEE PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE OF SECTION 900 OF THE SPECIAL PROVISIONS.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

PROJECT NAME:	ROXBURY
PROJECT NUMBER:	BHF 0187(8)
FILE NAME:	sl0c420typ.dgn
PROJECT LEADER:	C. P. WILLIAMS
DESIGNED BY:	G. ROY
PROJECT TYPICAL SECTIONS	
PLOT DATE:	21-SEP-2011
DRAWN BY:	G. ROY
CHECKED BY:	T. FILLBACH
SHEET	13 OF 54



STEEL BEAM GUARDRAIL, GALVANIZED

VT 12A STA 4+96.0 - 5+41.4 RT

BOX BEAM GUARDRAIL

VT 12A STA 2+69.5 - 3+37.9 RT
 VT 12A STA 3+53.3 - 3+57.3 LT
 VT 12A STA 4+63.3 - 4+85.6 RT
 VT 12A STA 6+33.8 - 6+38.3 LT

REMOVAL AND DISPOSAL OF GUARDRAIL

VT 12A STA 2+74.2 - 3+73.4 RT
 VT 12A STA 3+55.7 - 3+88.4 LT
 VT 12A STA 4+30.1 - 4+68.9 RT
 VT 12A STA 5+19.9 - 6+46.2 LT

SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM)

VT 12A STA 3+71.5 - 4+31.3 RT
 VT 12A STA 3+88.0 - 6+00.4 LT

SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM)

VT 12A STA 3+37.9 - 3+71.5 RT
 VT 12A STA 3+57.3 - 3+88.0 LT
 VT 12A STA 4+31.3 - 4+63.3 RT
 VT 12A STA 6+00.4 - 6+33.8 LT

PERMANENT STEEL SHEET PILING

VT 12A STA 4+90.0 - 6+00.0 LT

PRECAST CONCRETE STRUCTURE (WINGWALL NO.3)

VT 12A STA 4+64.91 - 5+99.30 LT

CONSTRUCT GRAVEL PULLOFF

VT 12A STA 5+07.9 - 6+41.7 RT

CONSTRUCT 5' PAVED APRON

VT 12A STA 4+99.2 - 6+50.0 RT

VT 12A STA 4+50.00 =
 CHANNEL LINE STA 51+00.00
 $\Delta = 57^\circ$ LT

BM NO. 2
 CHISELED SQUARE
 IN LEDGE
 EL. 880.485

PI NO. 1
 STA 2+87.44 BK =
 STA 2+75.46 AHD

BEGIN APPROACH
 MATCH EXISTING
 STA 2+50.00

PC
 STA 1+85.46

POB
 STA 1+00.00

BEGIN BRIDGE
 STA 3+81.32

END BRIDGE
 STA 4+37.98

END APPROACH
 BEGIN PROJECT
 STA 3+00.00

CHANNEL LINE POE
 STA 51+75.00

POE
 STA 8+00.00

PT
 STA 7+65.87

TYPE II STONE FILL
 STA 3+82 LT - STA 3+88 LT

TYPE II STONE FILL
 STA 5+66 LT - STA 6+06 LT

REMOVED
 STEEL
 GRIBBING

24" CPEP
 STA 6+86 RT-LT

BM NO. 3
 RR SPIKE IN ROOT
 M. YELLOW BIRCH
 EL. 879.84

PI NO. 2
 STA 6+71.44 BK =
 STA 6+57.11 AHD

CONSTRUCTION
 LIMITS

CHANNEL LINE POB
 STA 50+00.00

END PROJECT
 BEGIN APPROACH
 STA 6+00.00

END APPROACH
 MATCH EXISTING
 STA ~~6+50.00~~
 7+00.00

CURVE DATA NO. 1

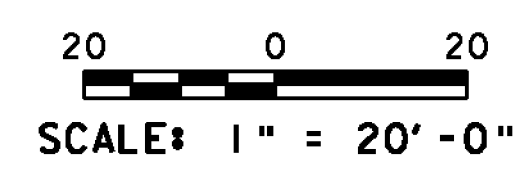
$\Delta = 47^\circ 49' 36''$
 $D = 24^\circ 54' 40''$
 $R = 230.00'$
 $T = 101.99'$
 $L = 191.99'$
 $E = 21.60'$

CURVE DATA NO. 2

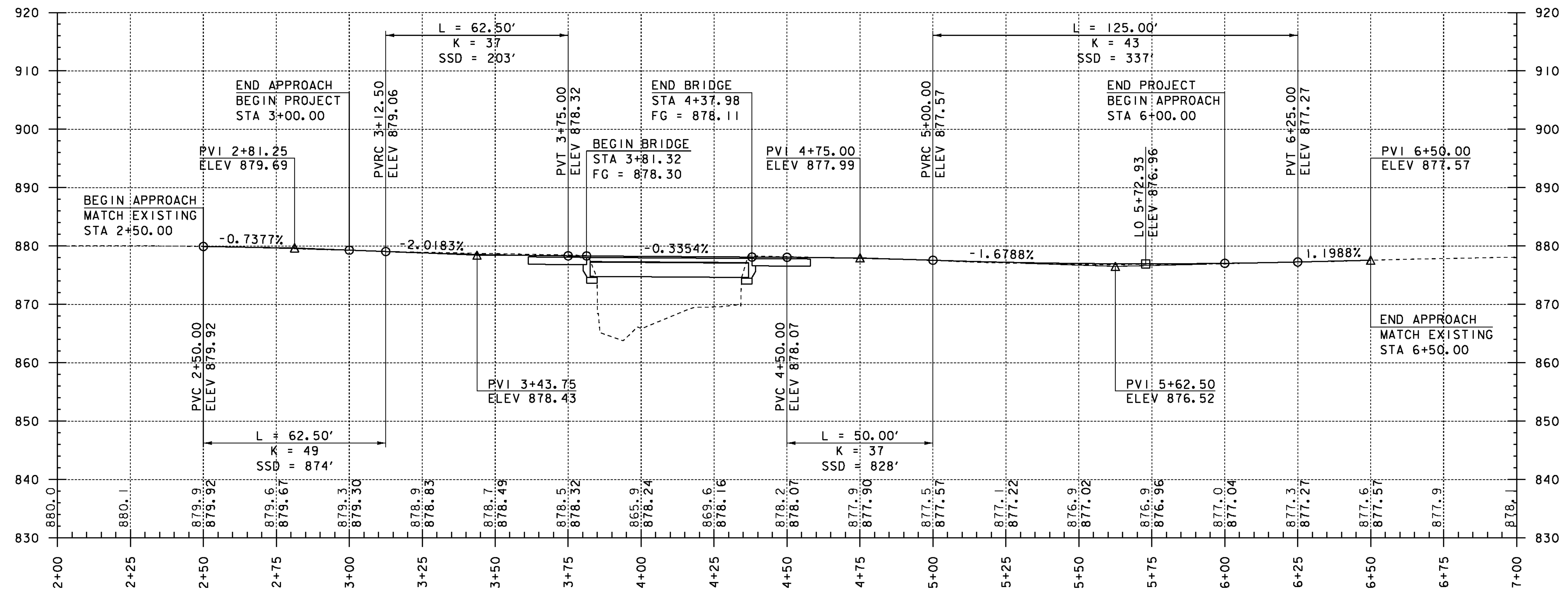
$\Delta = 50^\circ 37' 04''$
 $D = 24^\circ 54' 40''$
 $R = 230.00'$
 $T = 108.76'$
 $L = 203.19'$
 $E = 24.42'$

EXISTING BRIDGE DATA

CONCRETE T-BEAMS
 CONCRETE ABUTMENTS
 OVERALL LENGTH = 54'
 OVERALL WIDTH = 23.1'



PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420bdr.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	SHEET 14 OF 54
DESIGNED BY: T. FILLBACH	
LAYOUT SHEET	



NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

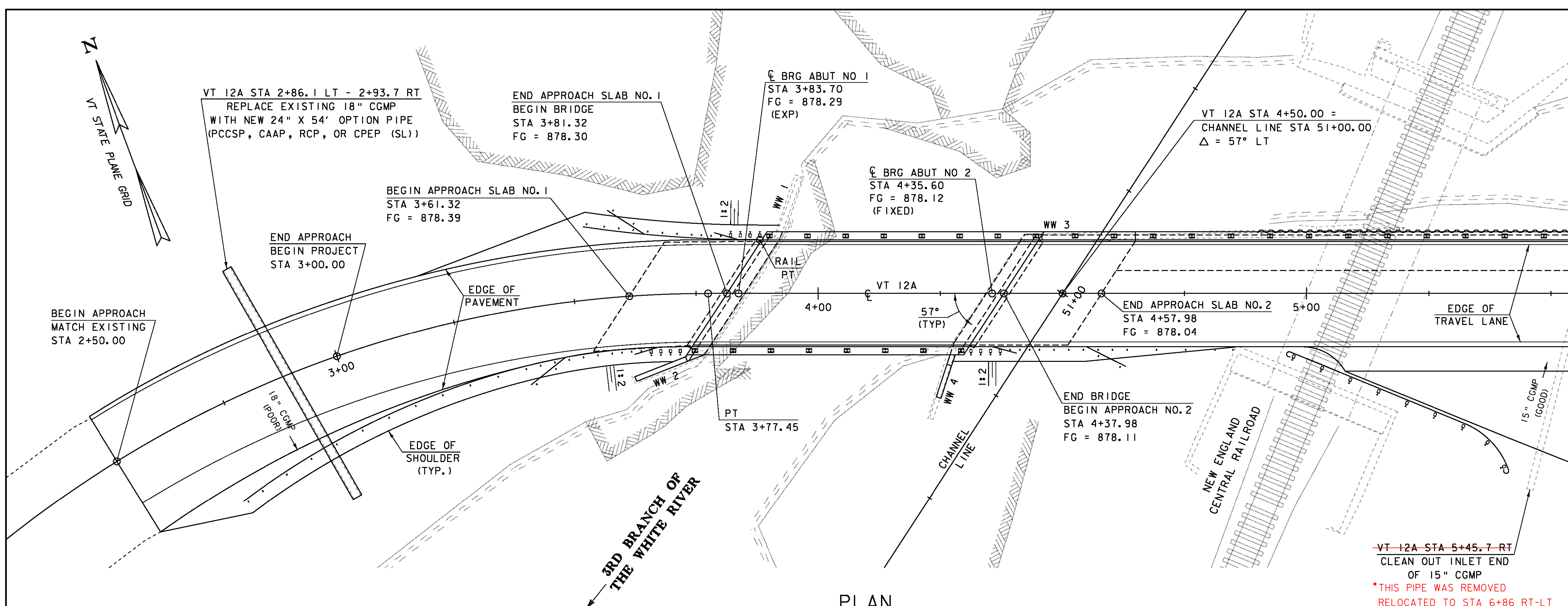
PROFILE ALONG VT 12A

HORIZONTAL SCALE: 1" = 20'-0"
 VERTICAL SCALE: 1" = 10'-0"

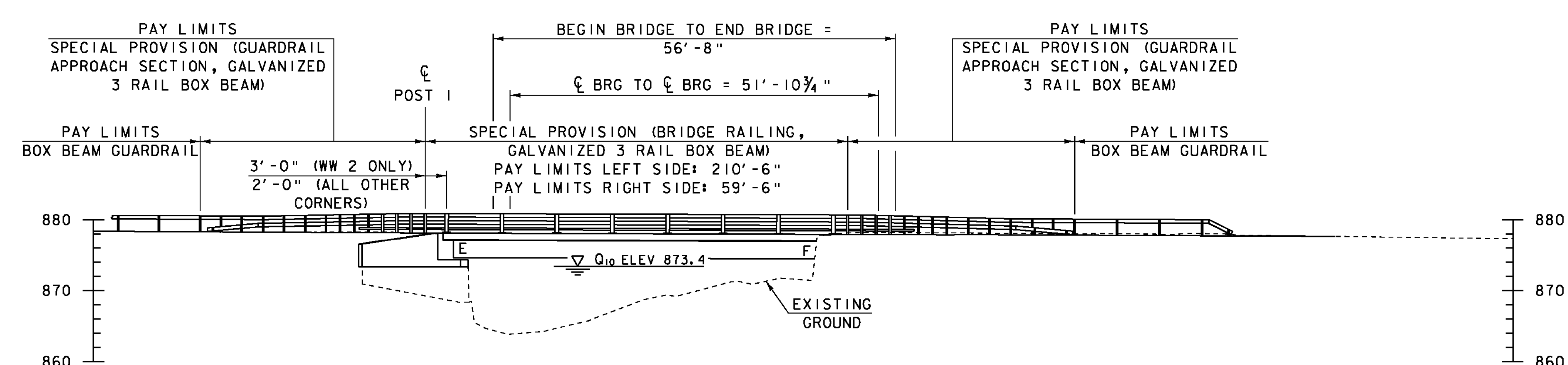
PROJECT NAME: ROXBURY
 PROJECT NUMBER: BHF 0187(8)

FILE NAME: sl0c420pro.dgn
 PROJECT LEADER: C. P. WILLIAMS
 DESIGNED BY: G. ROY
 VT 12A PROFILE

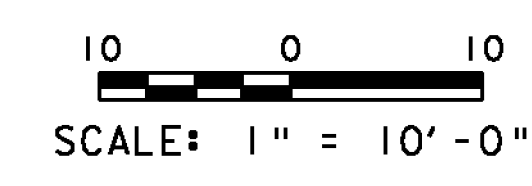
PLOT DATE: 21-SEP-2011
 DRAWN BY: G. ROY
 CHECKED BY: T. FILLBACH
 SHEET 15 OF 54



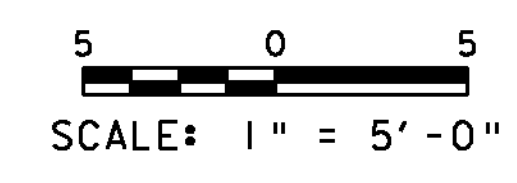
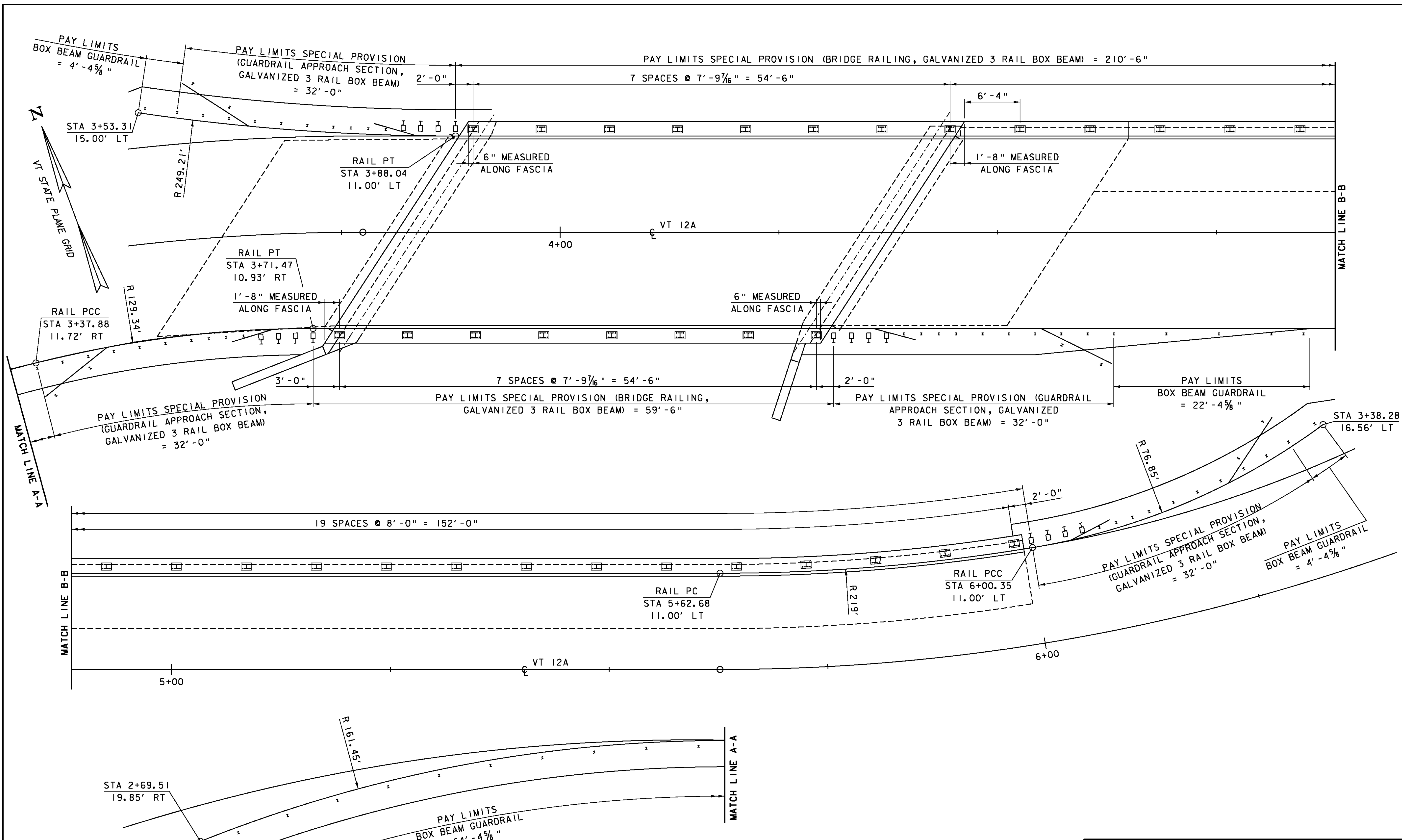
PLAN
SCALE: 1" = 10'-0"



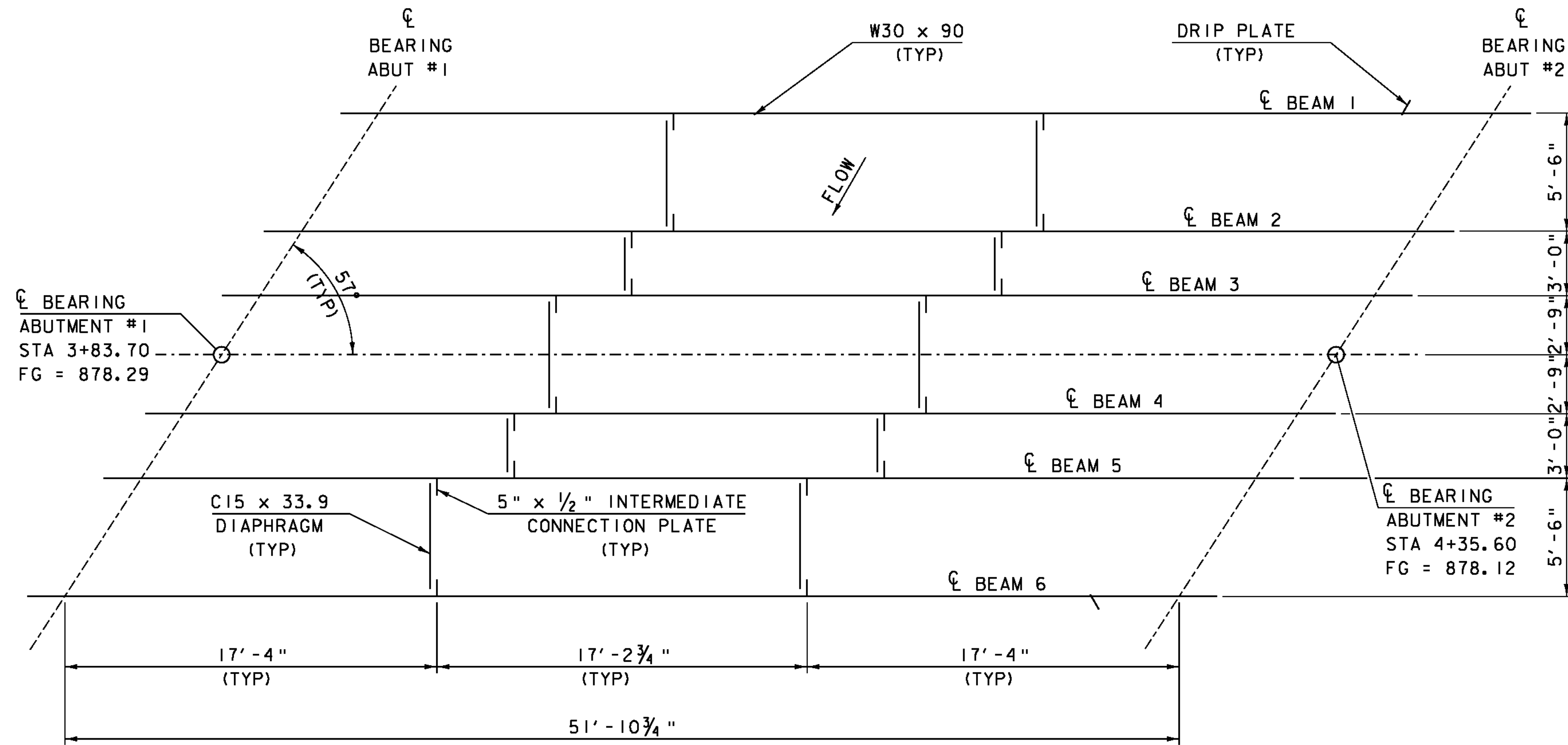
ELEVATION
SCALE: 1" = 10'-0"



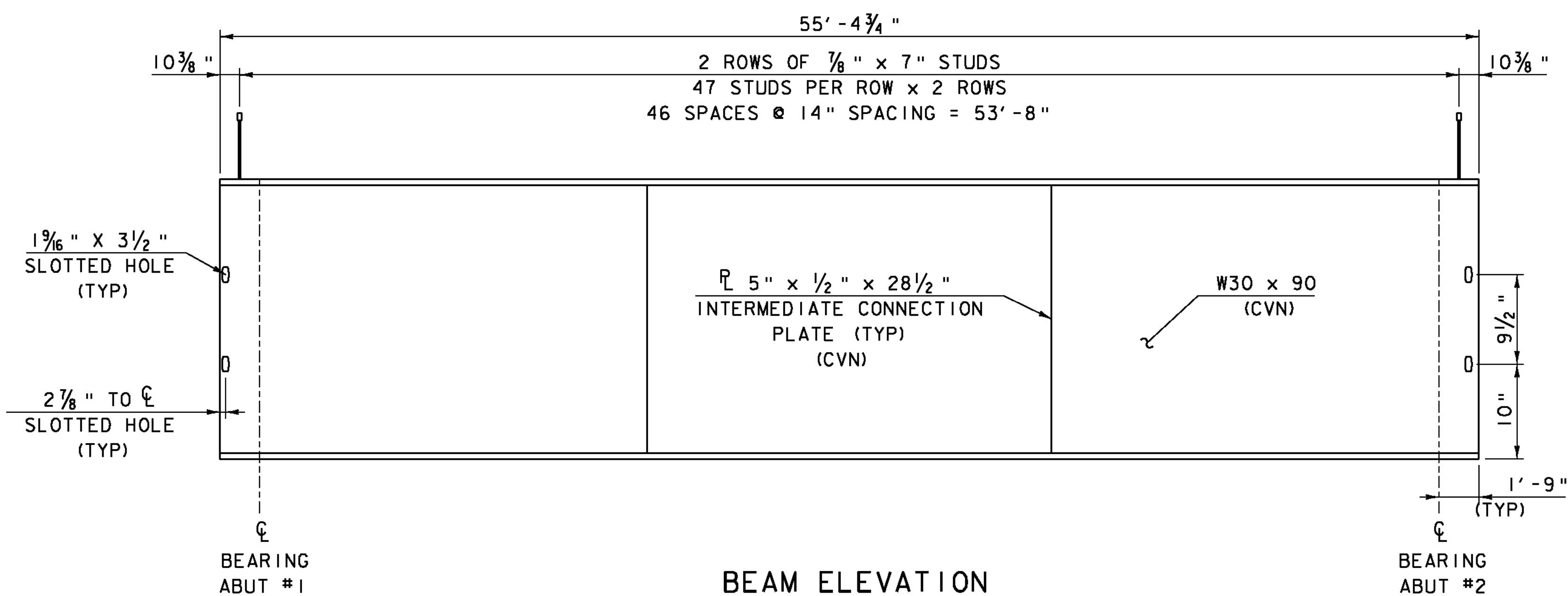
PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: s10c420pe.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	SHEET 16 OF 54
DESIGNED BY: G. ROY	
PLAN AND ELEVATION	



PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420rall.dgn	CHECKED BY: R. YOUNG
PROJECT LEADER: C. P. WILLIAMS	SHEET 17 OF 54
DESIGNED BY: G. ROY	

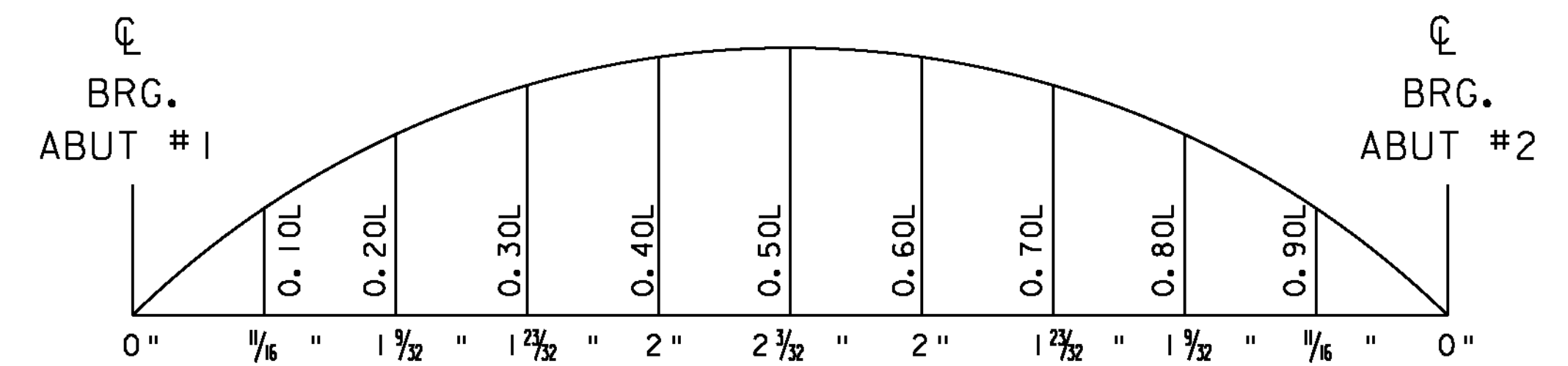


DECK FRAMING PLAN

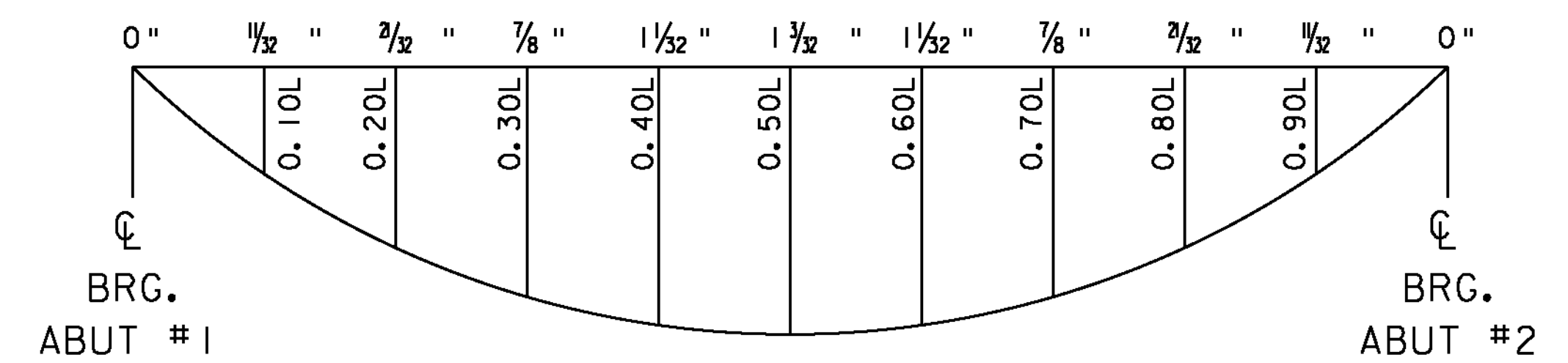


BEAM ELEVATION

(VERTICAL EXAGGERATED 5X)
 NOTE: ALL STEEL MARKED "CVN" SHALL
 BE CHARPY V-NOTCH TESTED



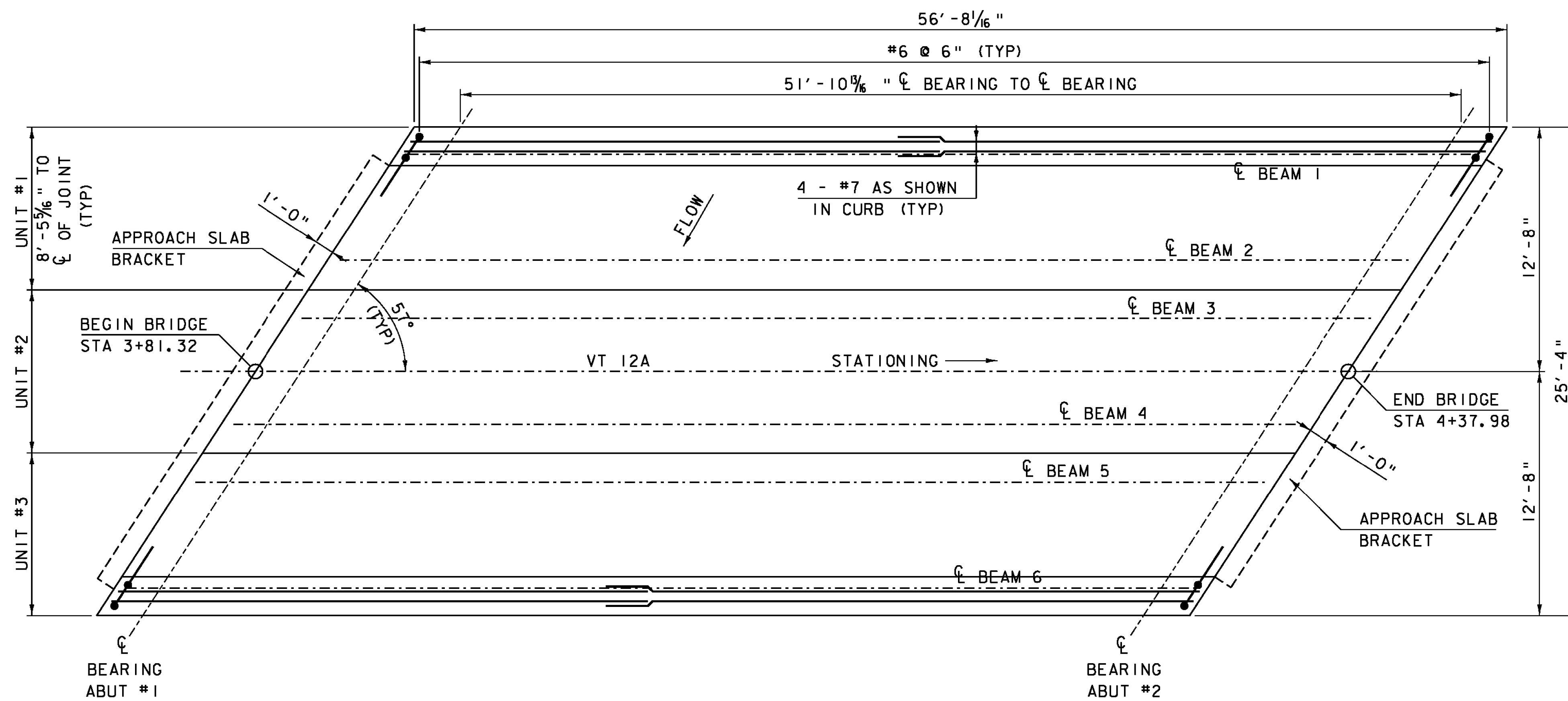
CAMBER DIAGRAM



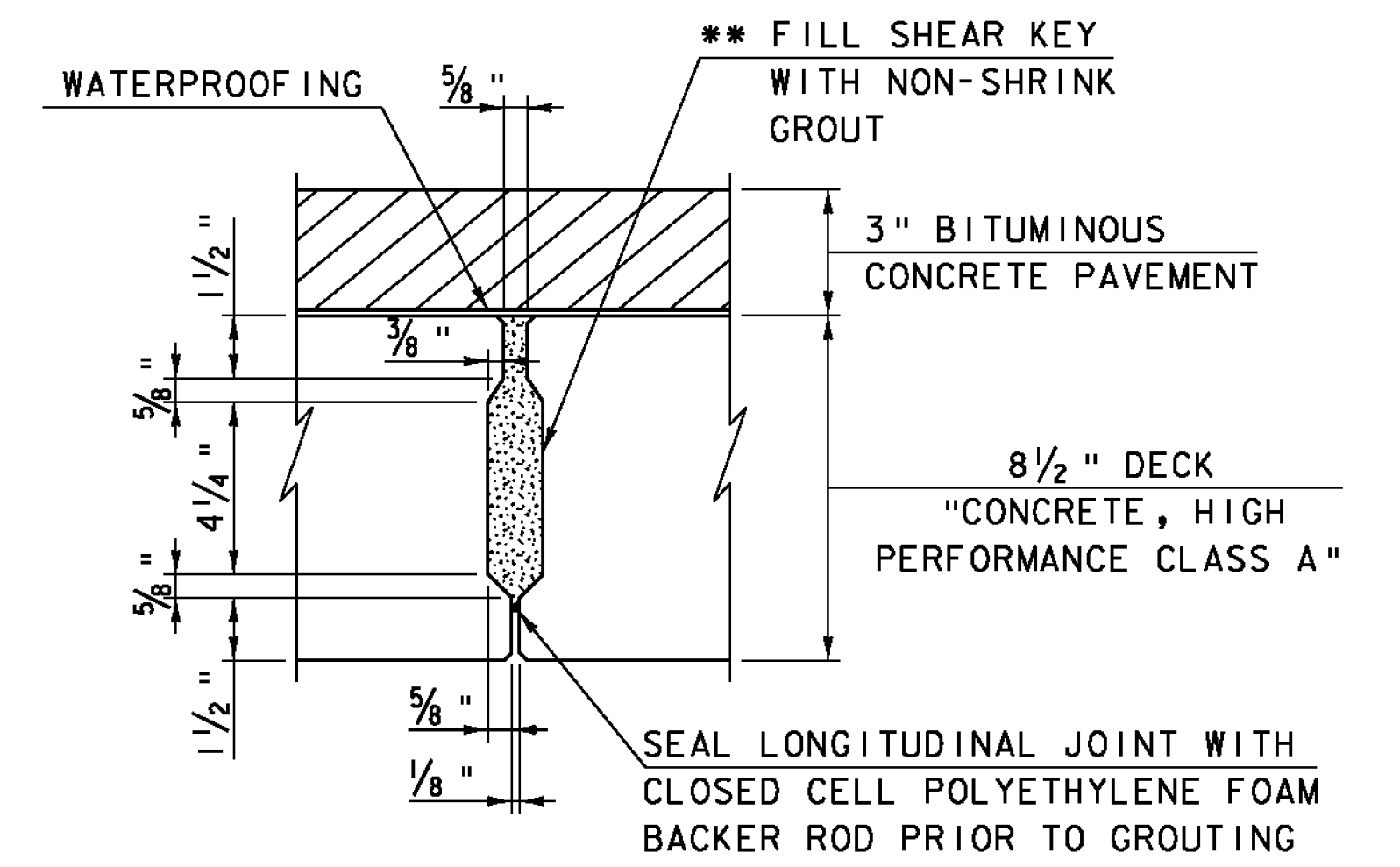
DEAD LOAD DEFLECTION DIAGRAM

DEFLECTION IS AFTER DEAD
 LOADS HAVE BEEN APPLIED

PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: D.D.BEARD
FILE NAME: sl0c420sup.dgn	CHECKED BY: E.R.Charbonneau
PROJECT LEADER: C.P.WILLIAMS	SHEET 18 OF 54
DESIGNED BY: R.S.YOUNG	
FRAMING DETAILS	



DECK STRUCTURAL PLAN



** NON-SHRINK GROUT AND BACKER ROD SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM 900.675 "SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)".

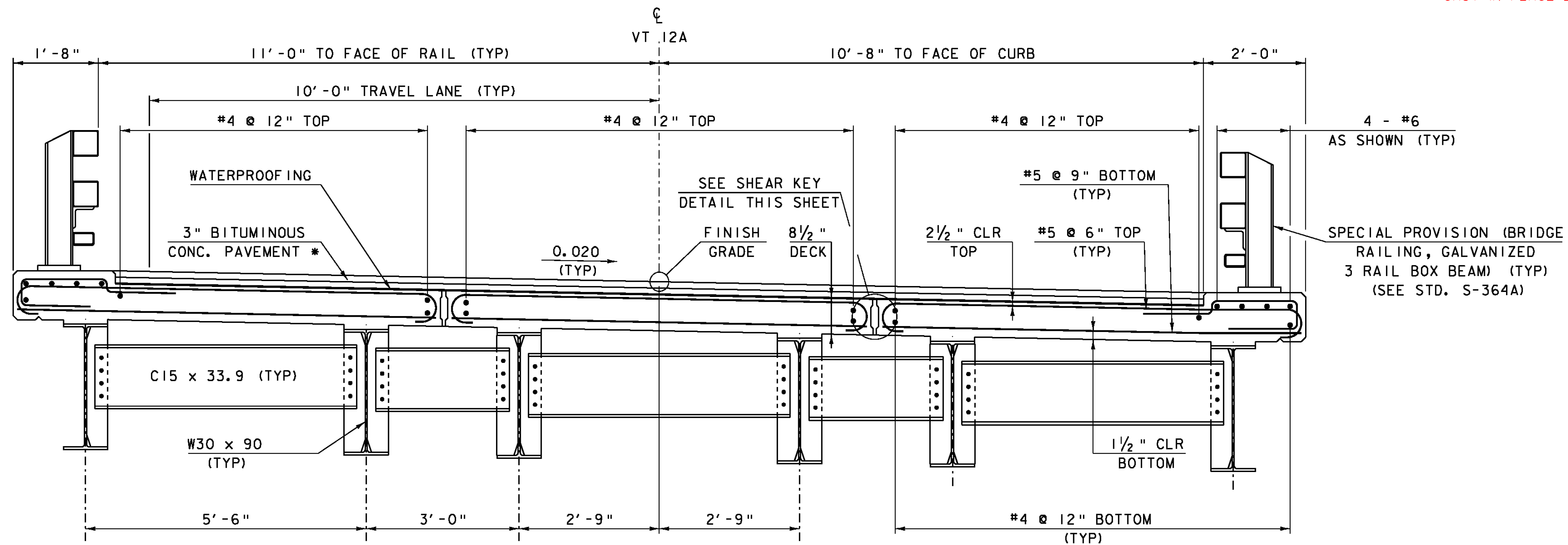
SHEAR KEY

NTS

NOTE

1. THE SLABS SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE PLANS WITH A 1/4" WIDE GAP BETWEEN THE SLABS. THE WIDTH OF THE GAP CAN VARY DUE TO TOLERANCES OF THE SLABS.
2. GROUT FOR THE SHEAR KEYS SHALL BE RODDED OR VIBRATED TO ENSURE THAT ALL VOIDS IN THE SHEAR KEYS ARE FILLED.

• CAST IN PLACE DECK



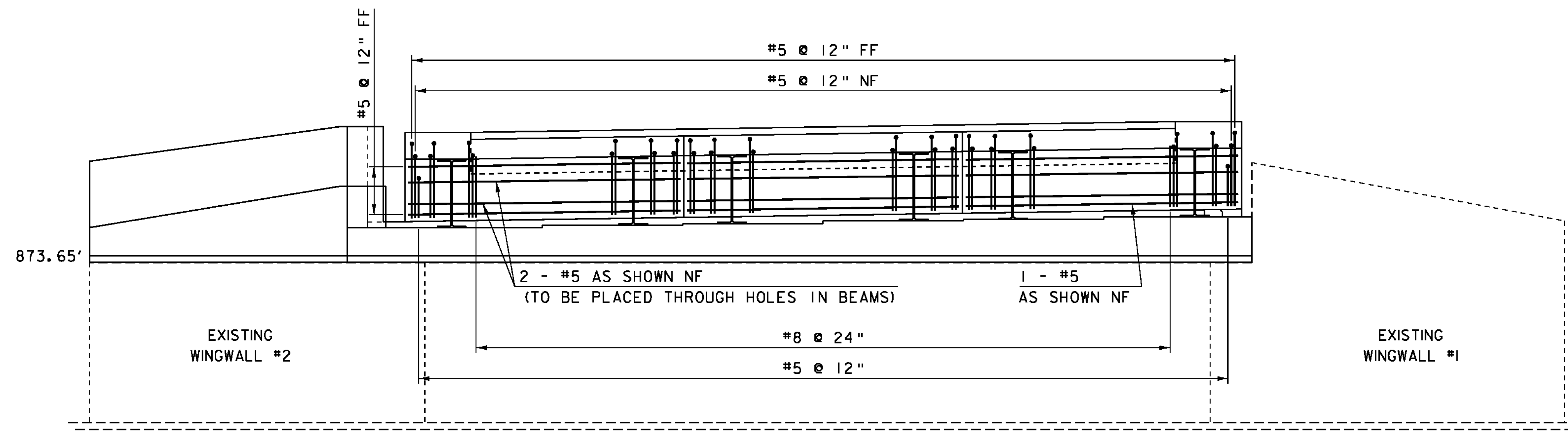
TYPICAL BRIDGE SECTION

NOTE:

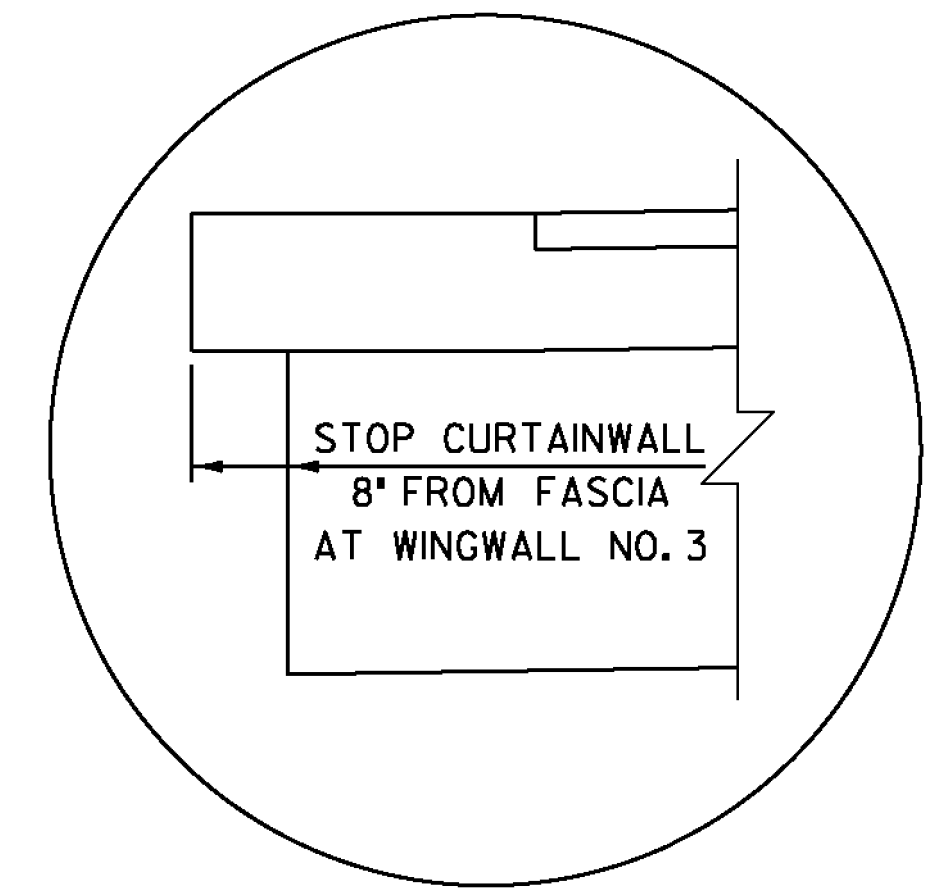
- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- ALL REBAR IN PRECAST SUPERSTRUCTURE SHALL BE EPOXY COATED

* 1 1/2" TYPE IIIS OVER
1 1/2" TYPE IIIS

PROJECT NAME:	ROXBURY	PLOT DATE:	21-SEP-2011
PROJECT NUMBER:	BHF 0187(8)	DRAWN BY:	D.D.BEARD
FILE NAME:	sl0c420sup.dgn	CHECKED BY:	E.Charbonneau
PROJECT LEADER:	C.P.WILLIAMS	DESIGNED BY:	R.S.YOUNG
DECK STRUCTURAL DETAILS			SHEET 19 OF 54



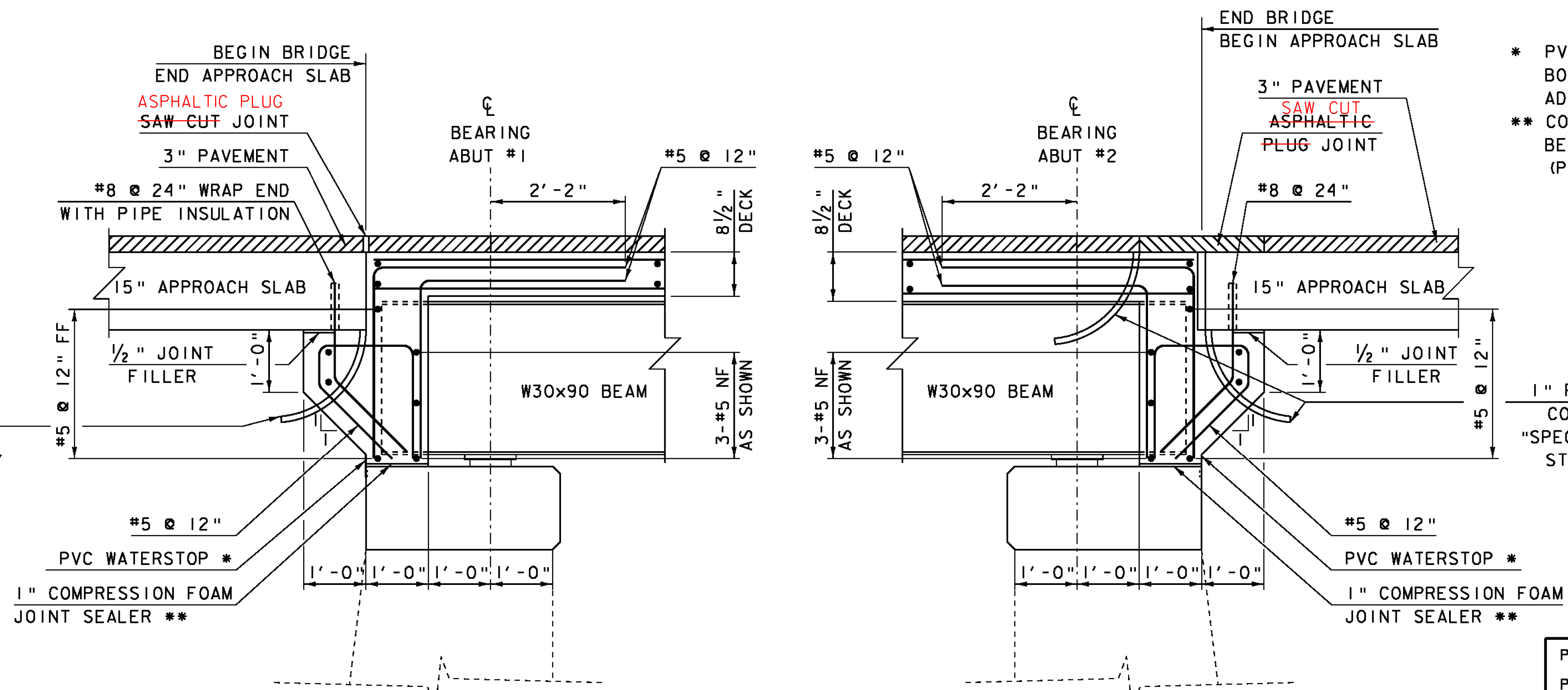
CURTAINWALL TYPICAL SECTION



UNIT NO. 1 @ ABUTMENT NO. 2

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 #1 BRIDGE END SECTION

ABUTMENT #2 BRIDGE END SECTION

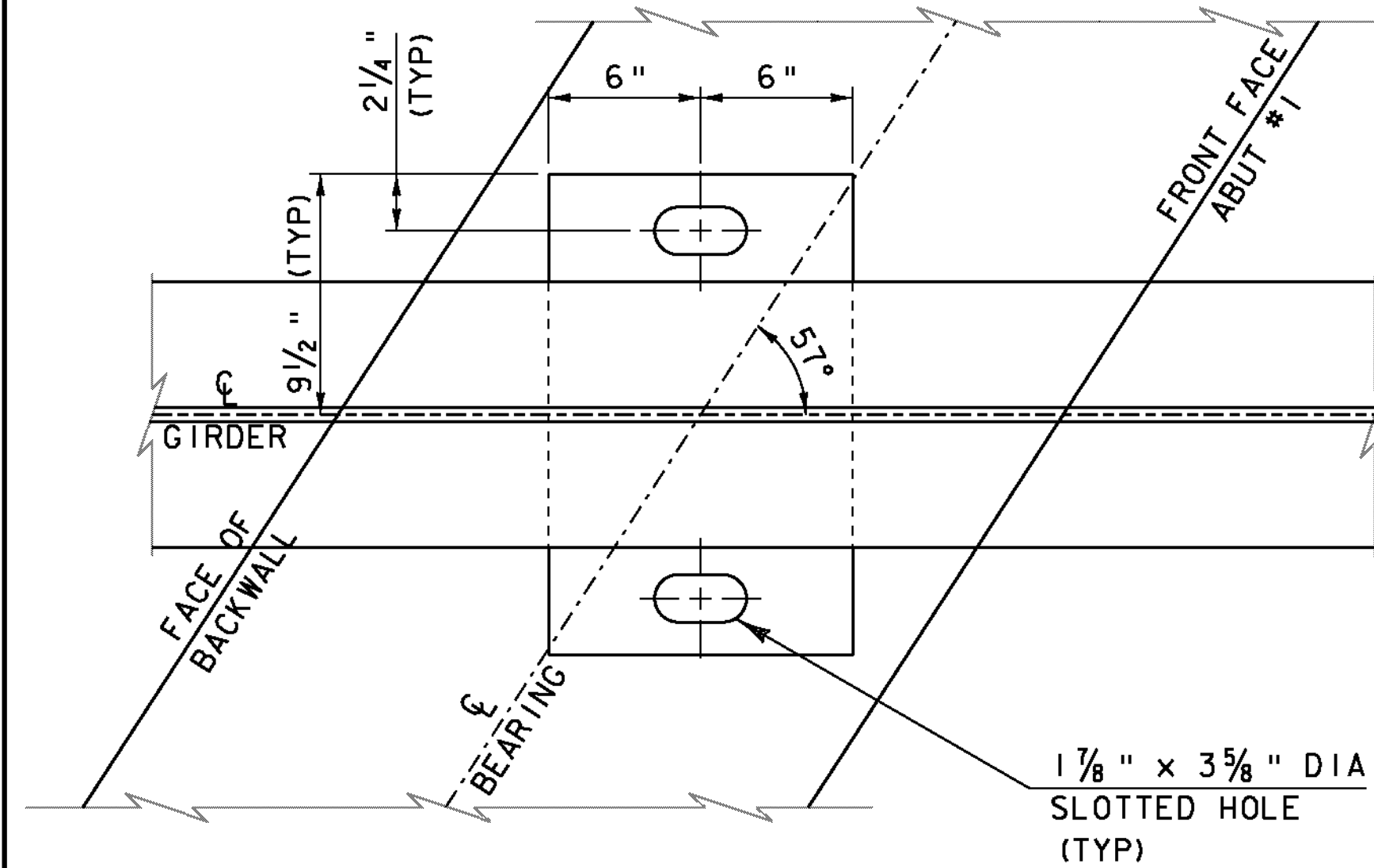
- * PVC WATERSTOP SHALL HAVE TOP LEGS CLIPPED. BOND TO END OF PRESTRESSED UNITS WITH APPROVED ADHESIVE. WATERSTOP TO EXTEND ACROSS ALL UNITS.
- ** COST OF 1" COMPRESSION FOAM JOINT SEALER SHALL BE INCLUDED IN ITEM 900.675 "SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)"

1" PLASTIC DRAINAGE TUBE ON THE LOW CORNER, INCLUDED IN ITEM 900.675 "SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)"

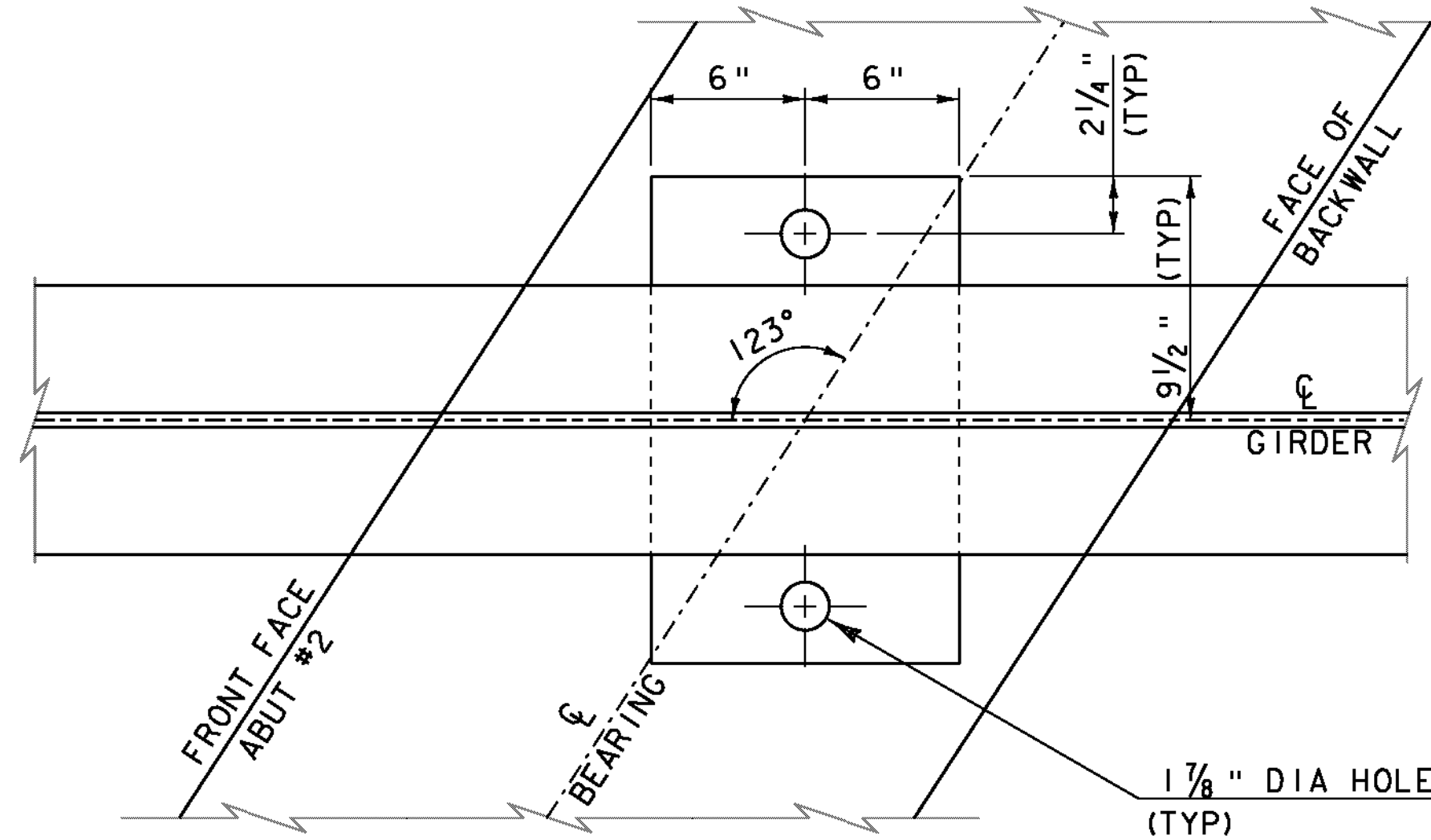
PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)

FILE NAME: sl0c420sup.dgn PLOT DATE: 21-SEP-2011
PROJECT LEADER: C.P.WILLIAMS DRAWN BY: D.D.BEARD
DESIGNED BY: E.R.Charbonneau CHECKED BY: E.R.Charbonneau
CURTAINWALL DETAILS SHEET 20 OF 54

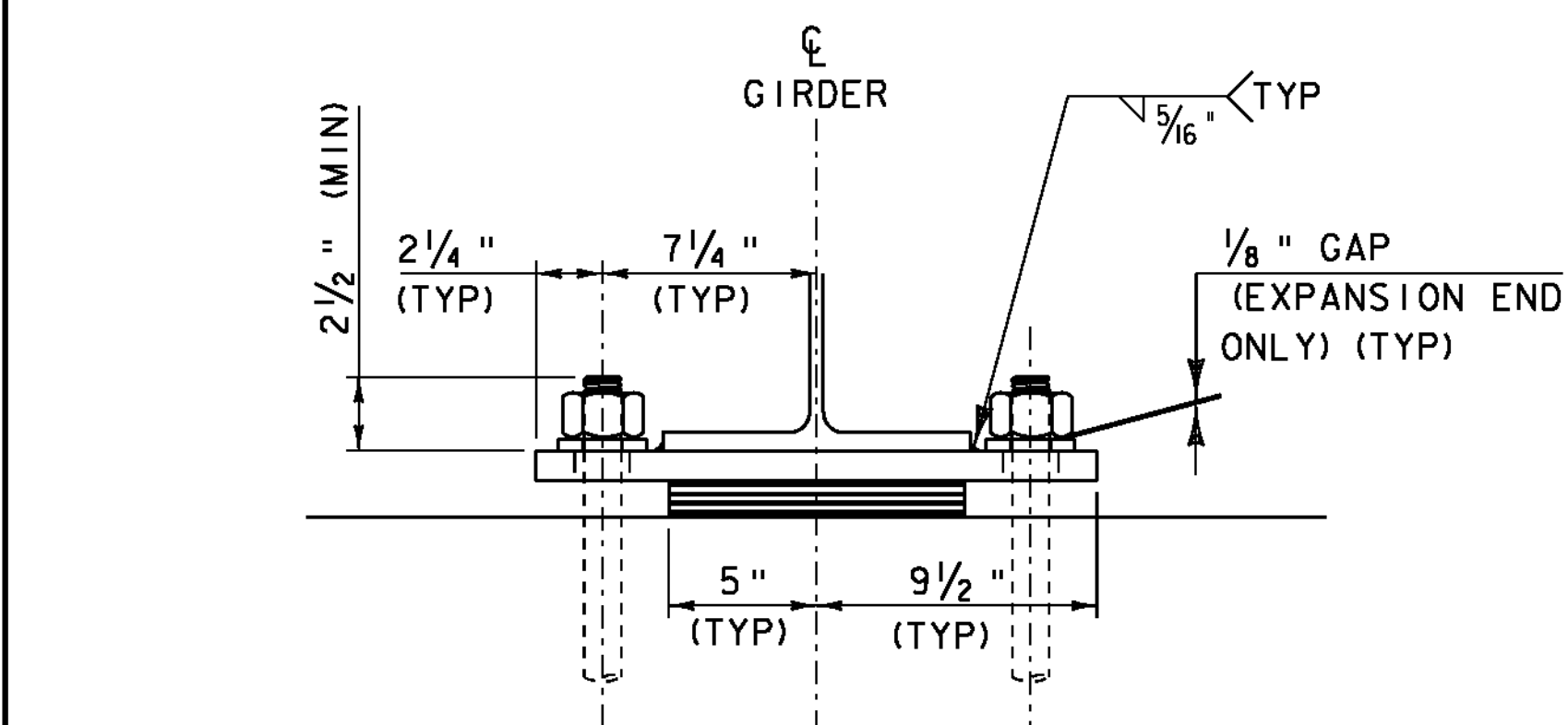
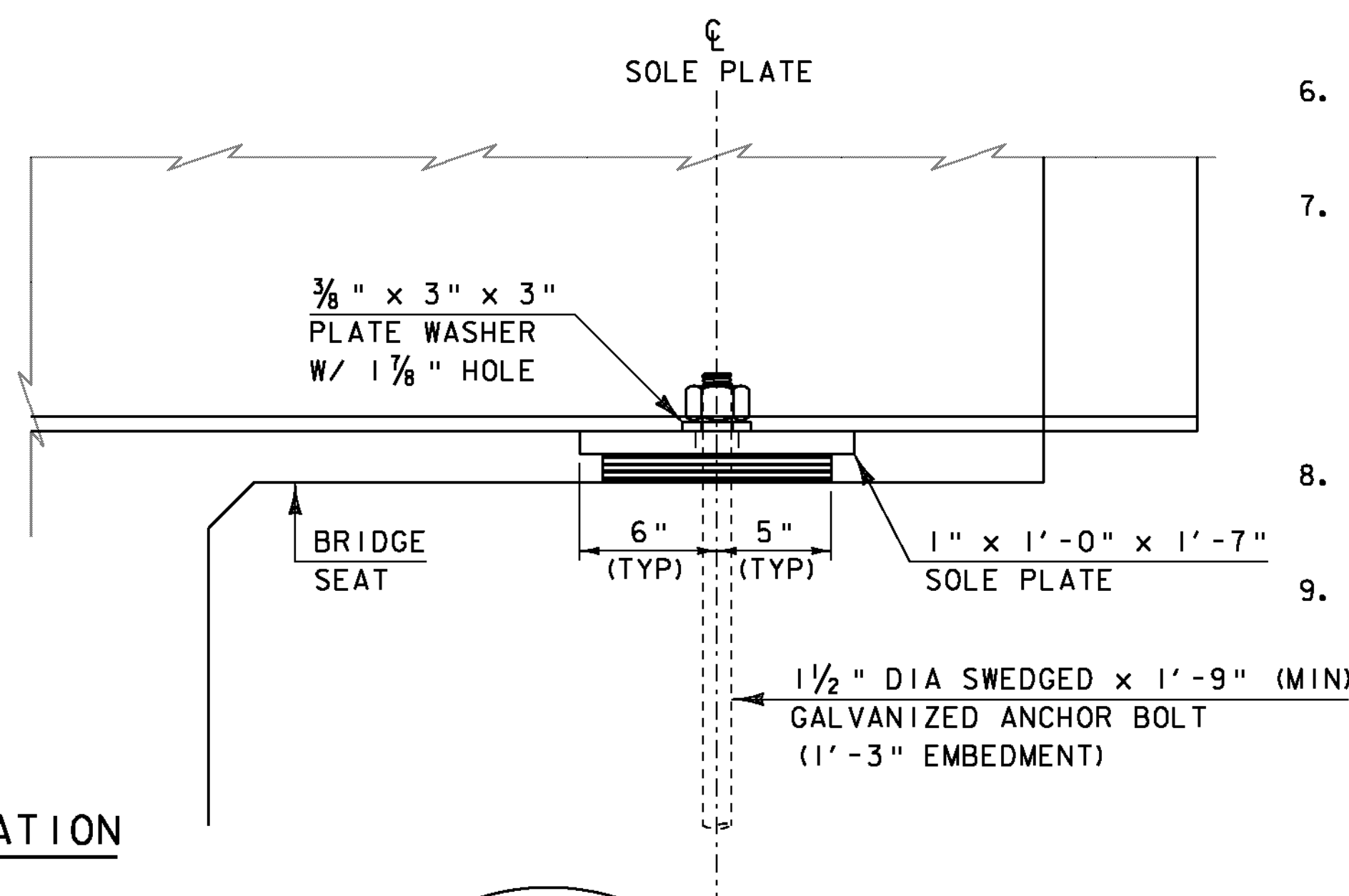
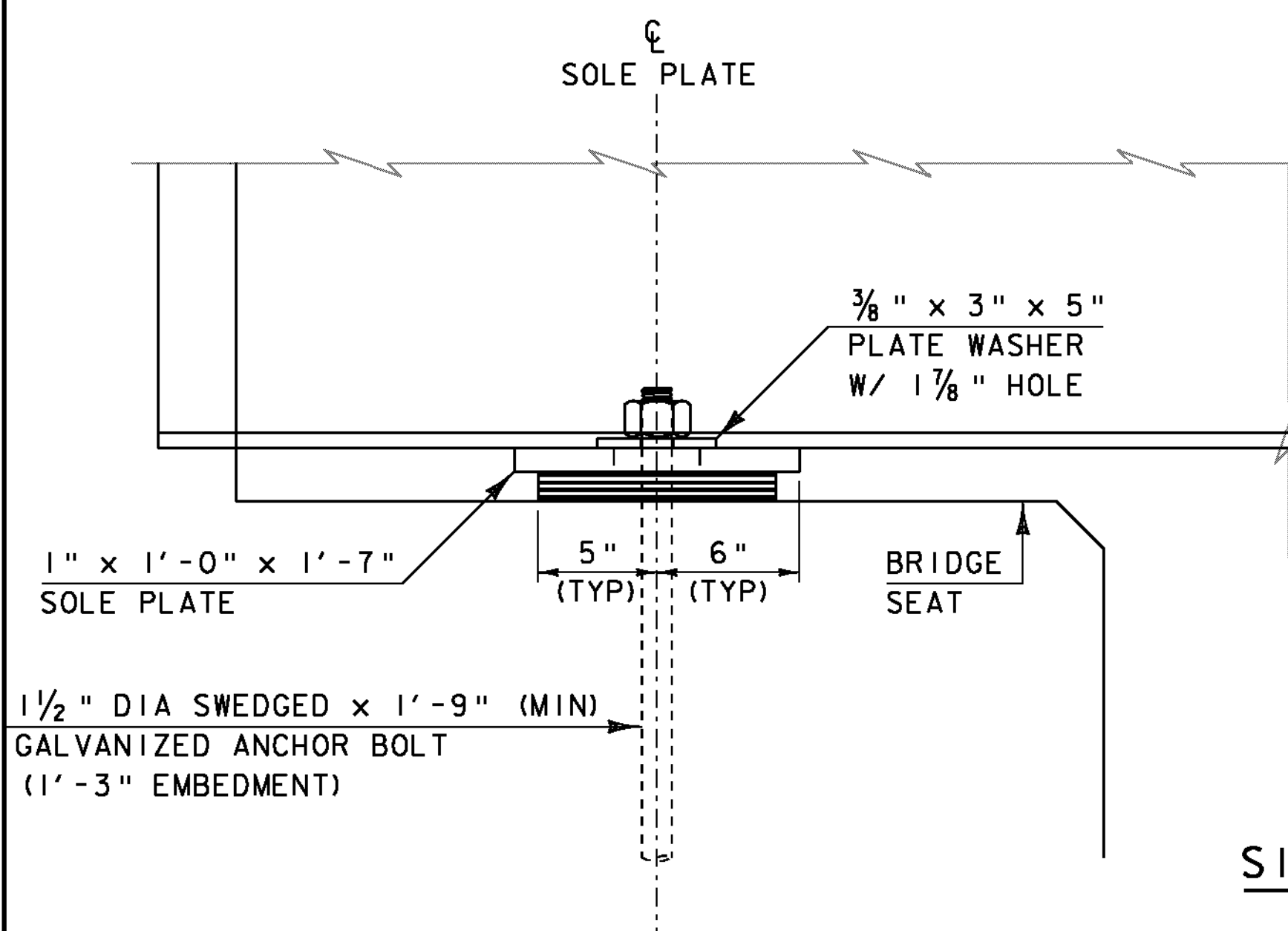
1" PLASTIC DRAINAGE TUBE ON THE LOW CORNER, INCLUDED IN ITEM 900.675 "SPECIAL PROVISION (PRECAST CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)"



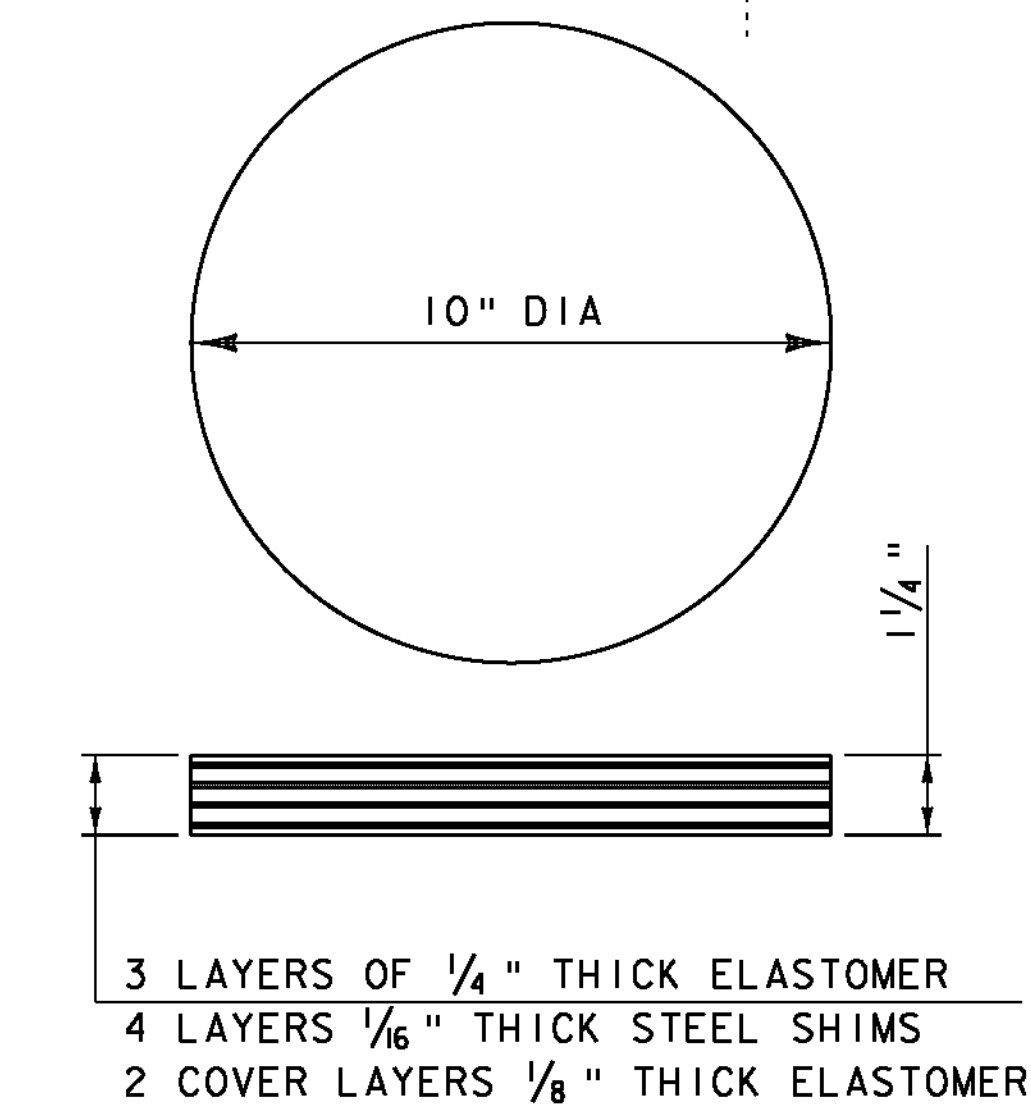
PLAN VIEW



SIDE ELEVATION



FRONT VIEW



ELASTOMERIC BEARING DETAIL
NOT TO SCALE

BEARING NOTES

- BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.11 "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF STANDARD SPECIFICATIONS SECTIONS 531 AND 731.
- ALL BEARING DEVICES 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 506.15 (B) OF THE STANDARD SPECIFICATIONS. AREAS OF GALVANIZING OR METALIZING DAMAGED BY FIELD WELDING OR HANDLING SHALL BE REPAIRED IN CONFORMANCE WITH SECTION 513.
- PAYMENT FOR ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 531.11 "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD." ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED PER AASHTO M232M/M232.
- ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M270M/M270 GRADE 50, UNLESS NOTED OTHERWISE.
- ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL AASHTO M270M/M270 GRADE 36. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
- STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM OF 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
- 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 THIS SHEET. THE ALTERNATE SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN AND SHALL BE DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION AND ITS LATEST REVISIONS AND SHALL BE FABRICATED PER AASHTO LRFD CONSTRUCTION SPECIFICATIONS 2ND EDITION AND ITS LATEST REVISIONS.
- BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATIVE CONFIGURATION.
- DESIGN CRITERIA:
 ROTATION = 0.014 RADIUS
 RDL = 20 K
 RLL = 60 K
 TRANSLATION = S = 1"
 TEMPERATURE RANGE = -30°F TO 120° F

 BEARINGS ARE DESIGNED AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5TH EDITION, SECTION 14, METHOD A.

 ELASTOMER SHALL HAVE A SHEAR MODULUS BETWEEN 0.095 AND 0.130 KSI

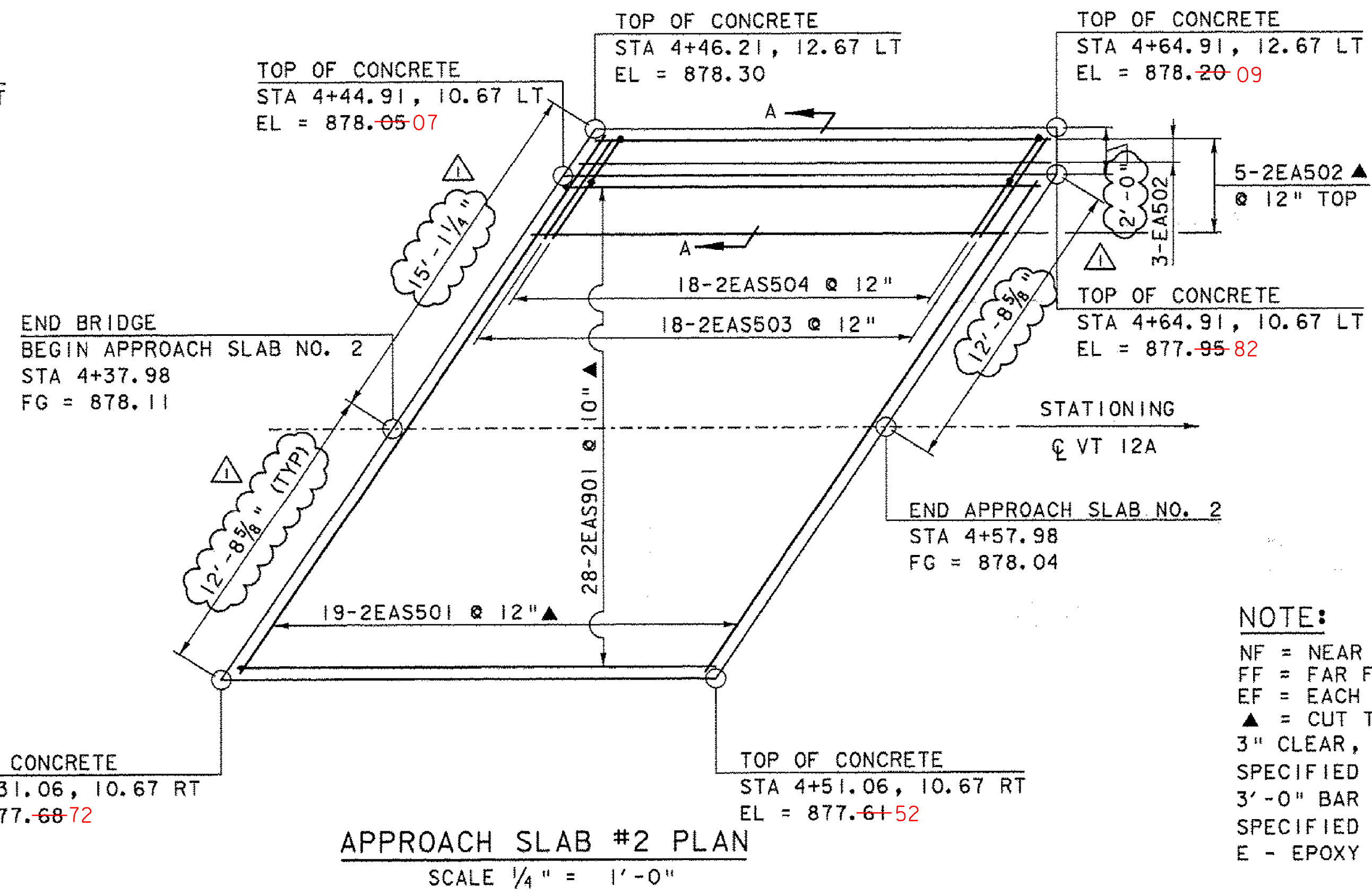
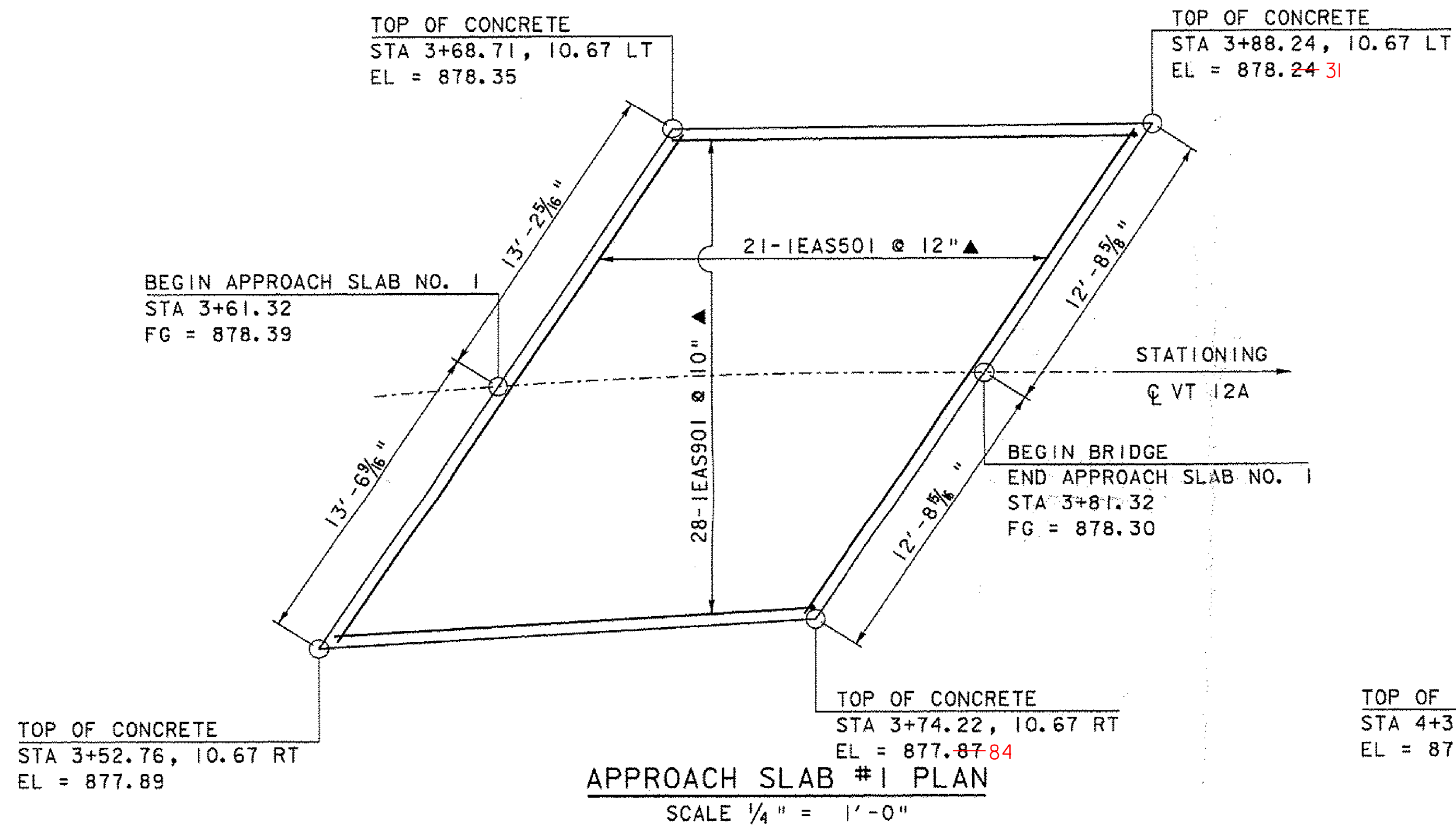
 THE ELASTOMER SHALL MEET THE REQUIREMENTS OF LOW TEMPERATURE ZONE D, GRADE 4.

 NO FABRIC REINFORCEMENT WILL BE ALLOWED IN ELASTOMERIC PADS.
- THE STEEL SOLE PLATES SHALL BE HOT BONDED TO THE REINFORCED ELASTOMERIC PAD DURING THE VULCANIZATION PROCESS. THE STEEL SURFACES TO BE BONDED TO THE PAD SHALL NOT BE METALIZED.
- THE CONCRETE SURFACE UNDER THE BEARING DEVICE SHALL BE LEVEL.
- ALL REQUIRED FABRICATION OF BEARINGS WILL OCCUR BEFORE VULCANIZATION PROCESS.

PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)

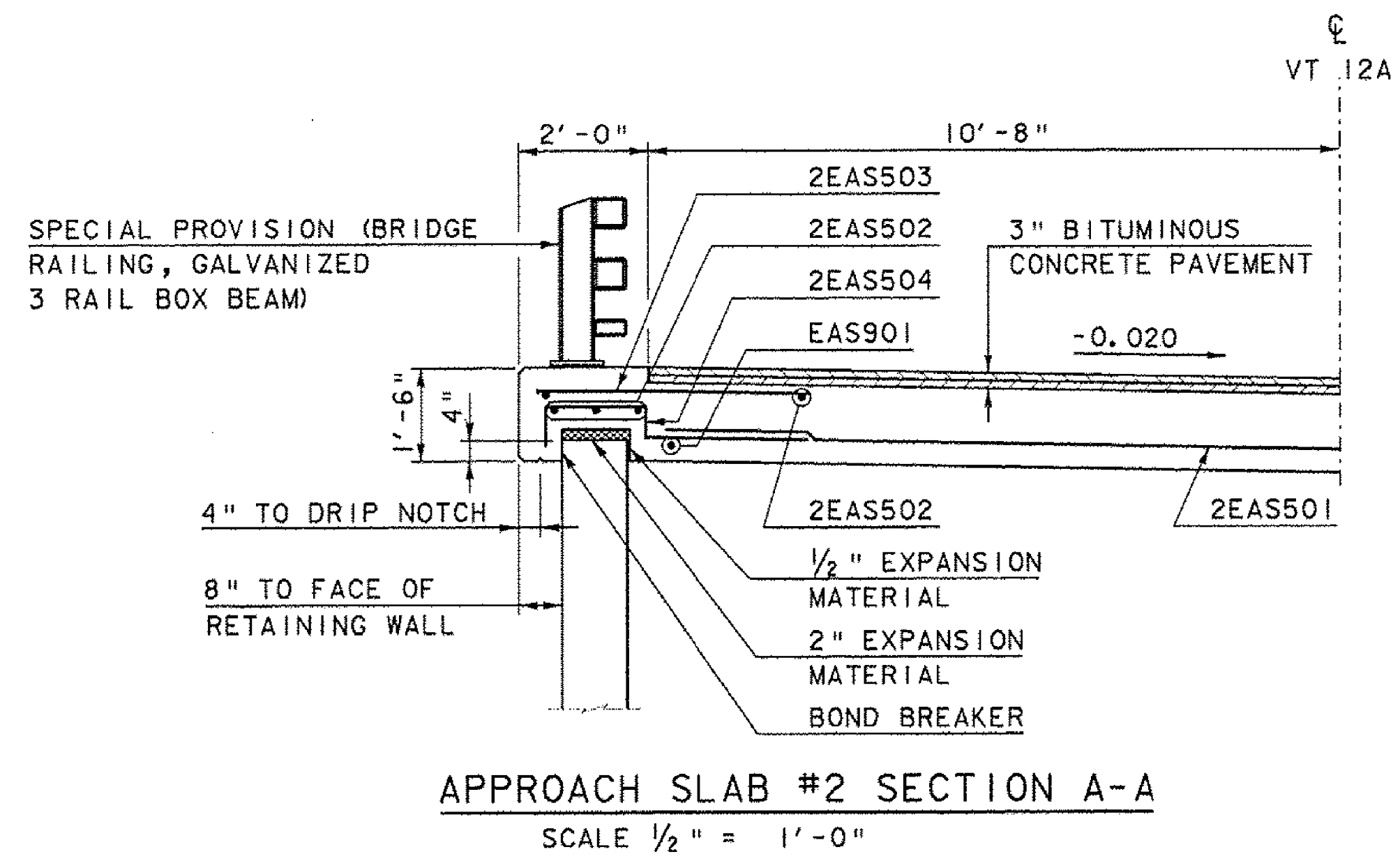
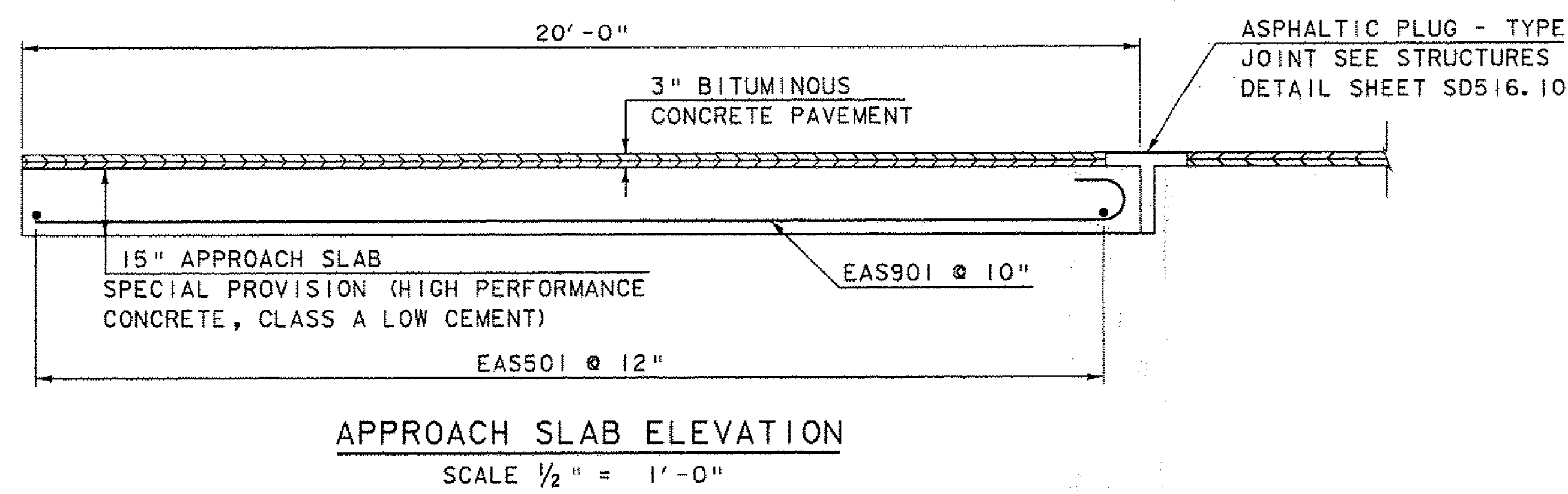
FILE NAME: sl0c420brg.dgn
PROJECT LEADER: C. WILLIAMS
DESIGNED BY: L. STONE
BEARING DETAILS

PLOT DATE: 21-SEP-2011
DRAWN BY: J. SALVATORI
CHECKED BY: E. CHARBONNEAU
SHEET 21 OF 54



NOTE:

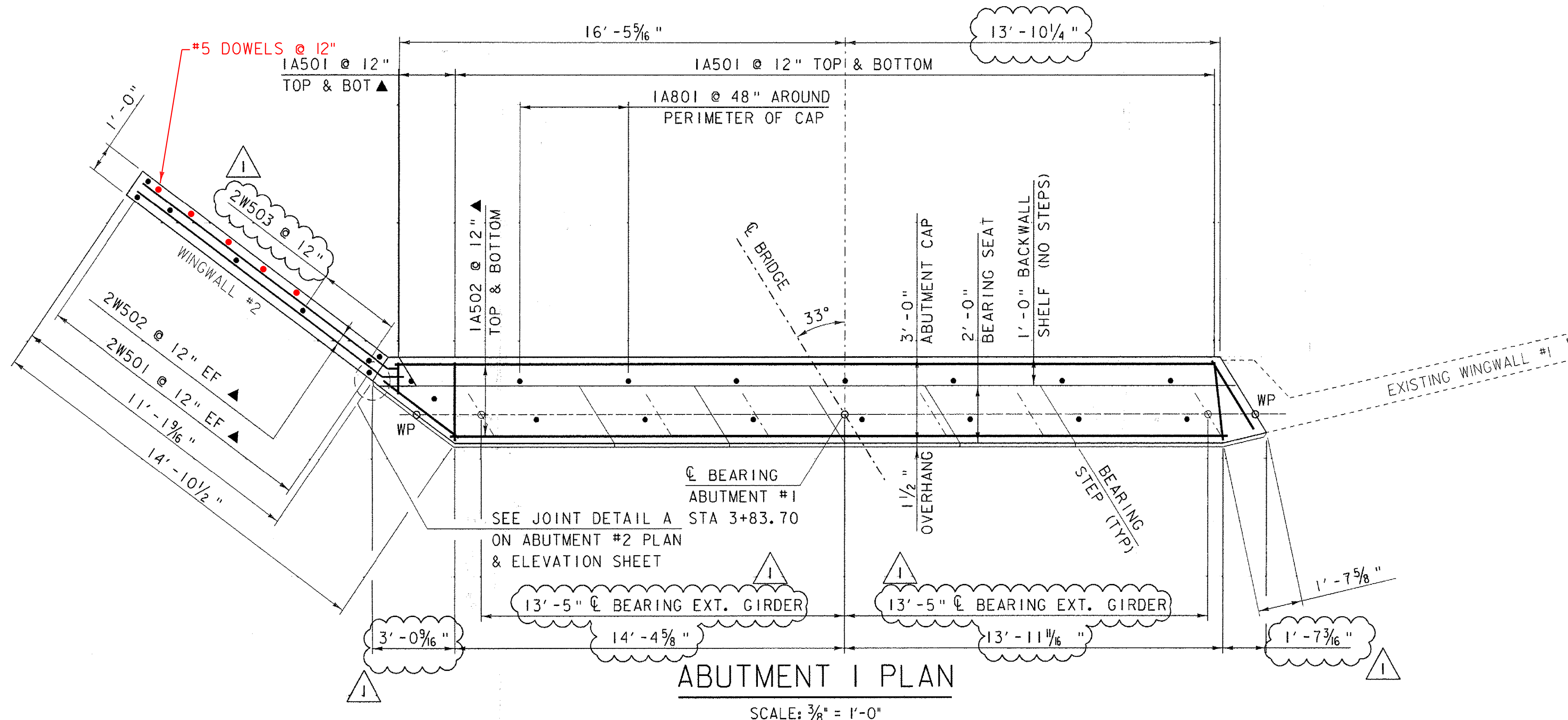
- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- E - EPOXY



PROJECT NAME: ROXBURY
 PROJECT NUMBER: BHF 0187(8)
 FILE NAME: s10c420slab.dgn
 PROJECT LEADER: C. WILLIAMS
 DESIGNED BY: R. YOUNG
 APPROACH SLAB DETAILS

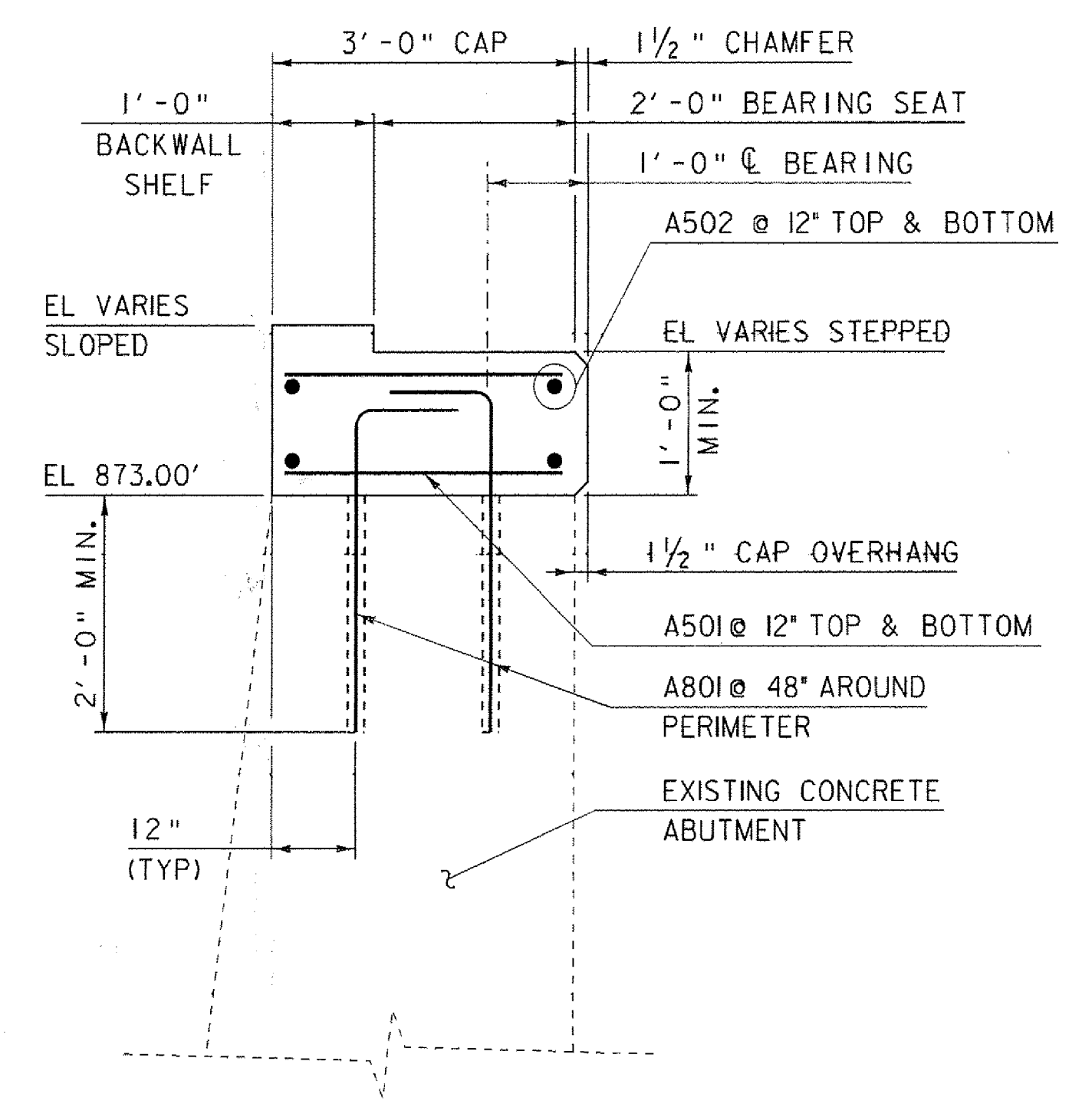
PLOT DATE: 07-NOV-2011
 DRAWN BY: J. SALVATORI
 CHECKED BY: E. CHARBONNEAU
 SHEET 17 OF 38 54

REVISION	DATE	DESCRIPTION	BY
△	11-7-2011	DIMENSION APPROACH SLAB WIDTH	MCL



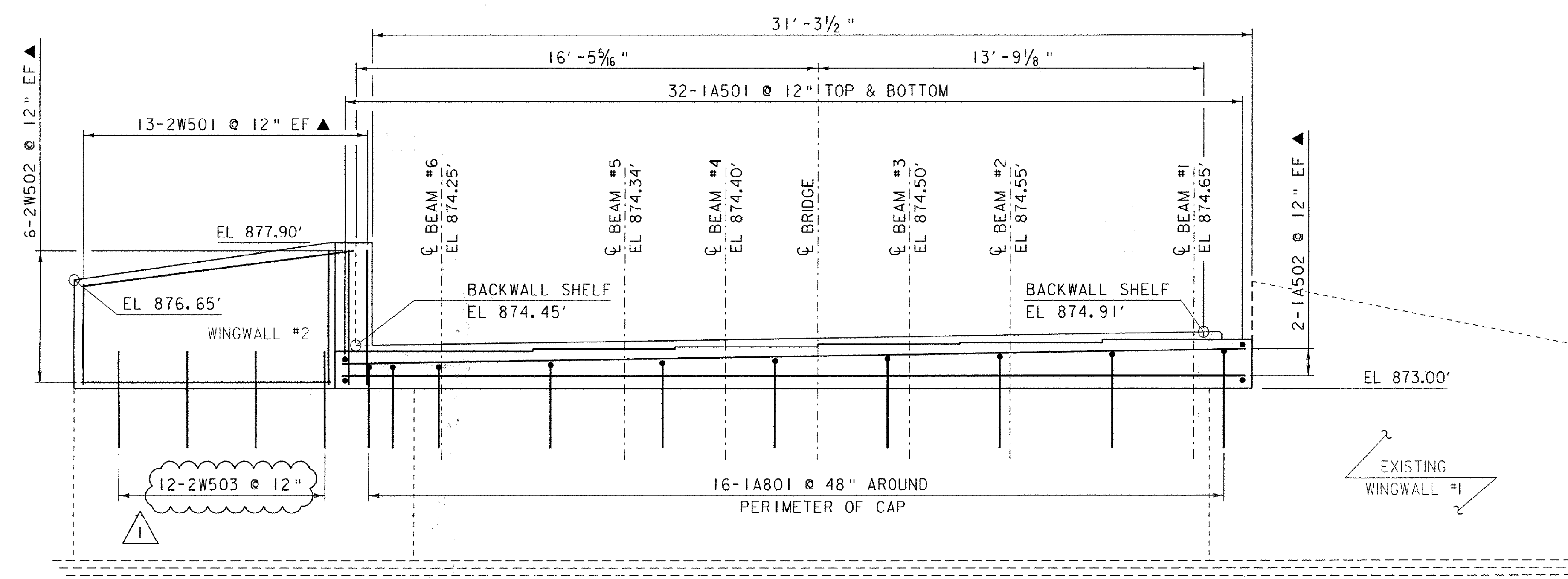
ABUTMENT I PLAN

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



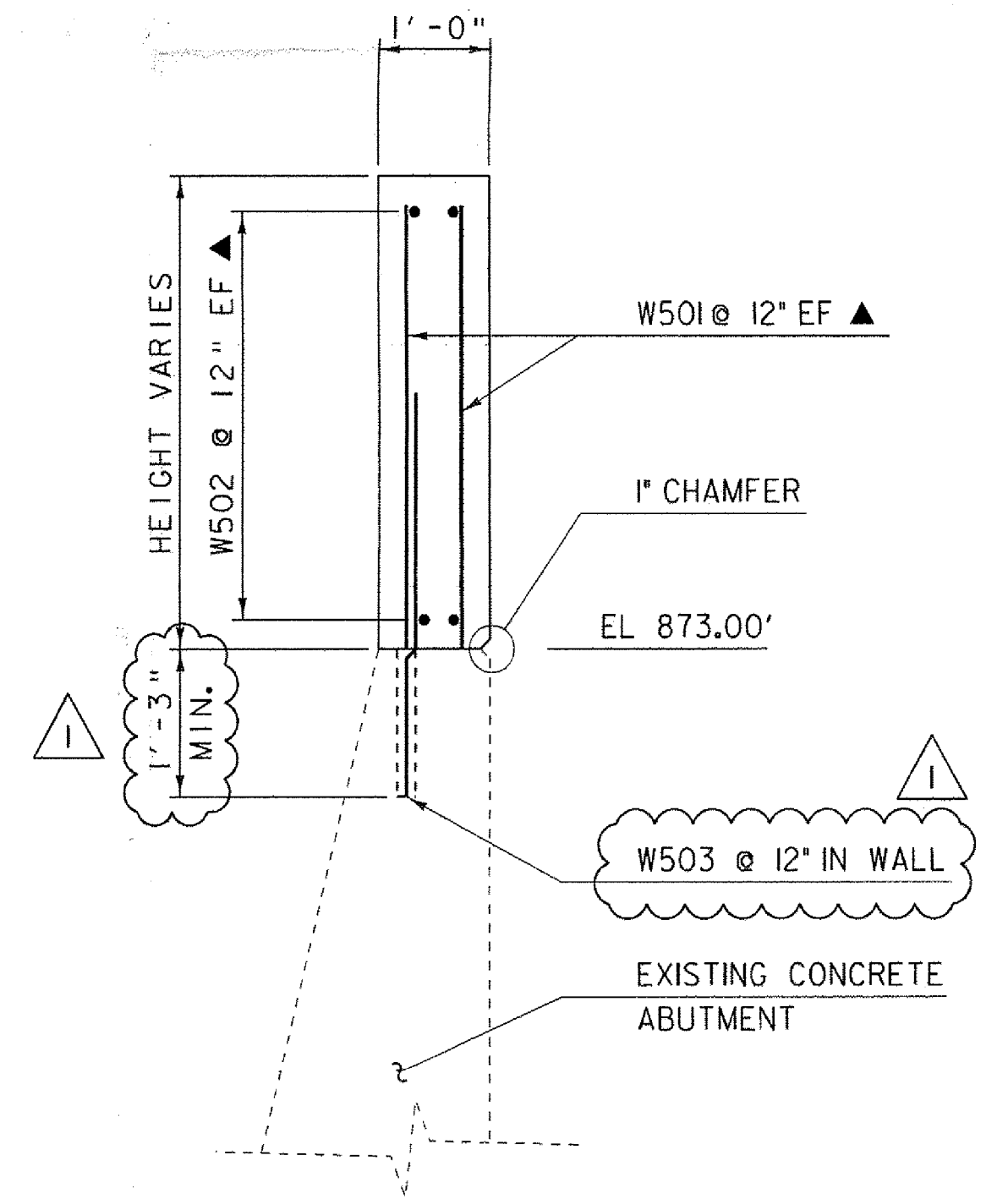
ABUTMENT TYPICAL SECTION

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



ABUTMENT I ELEVATION

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



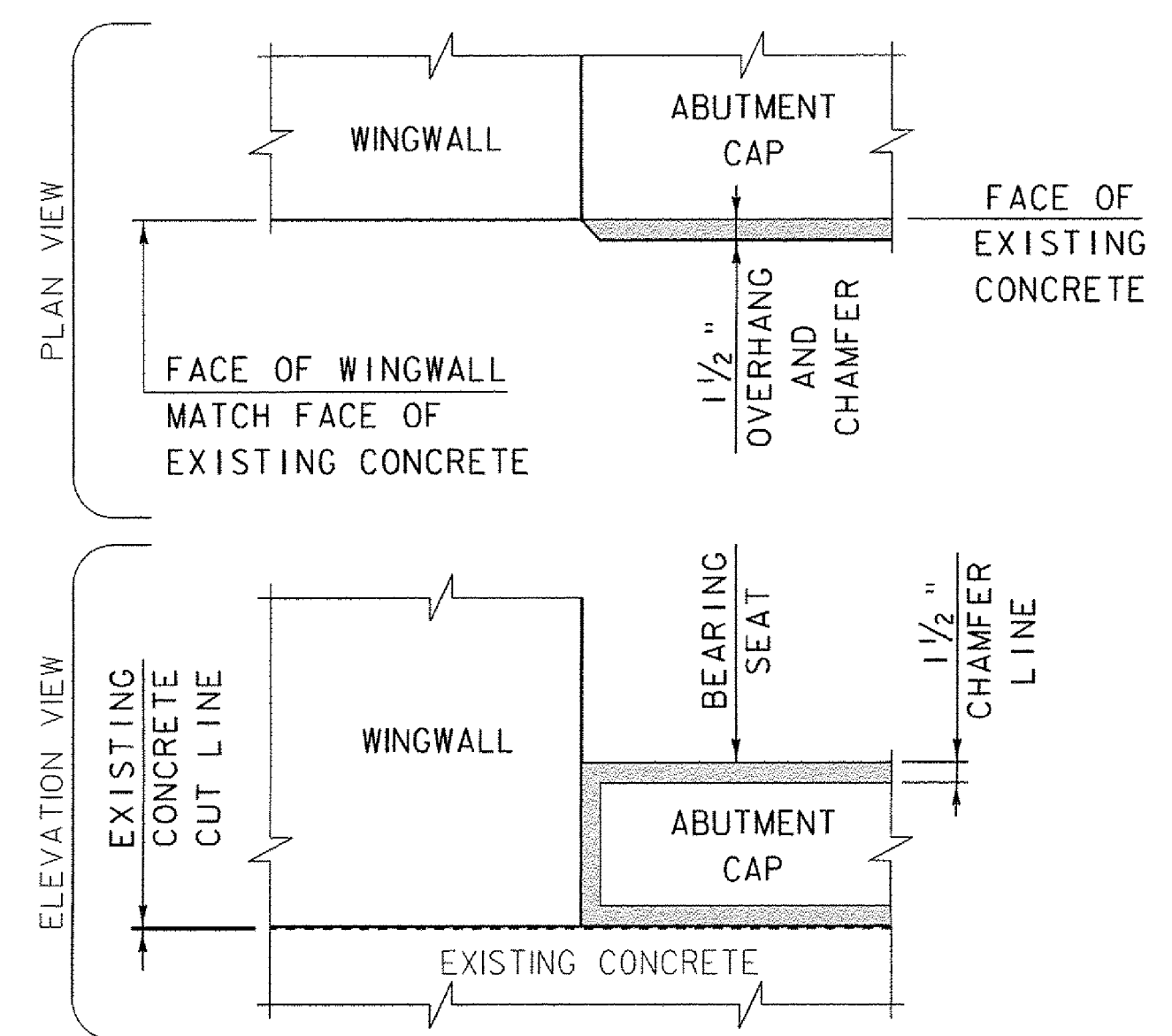
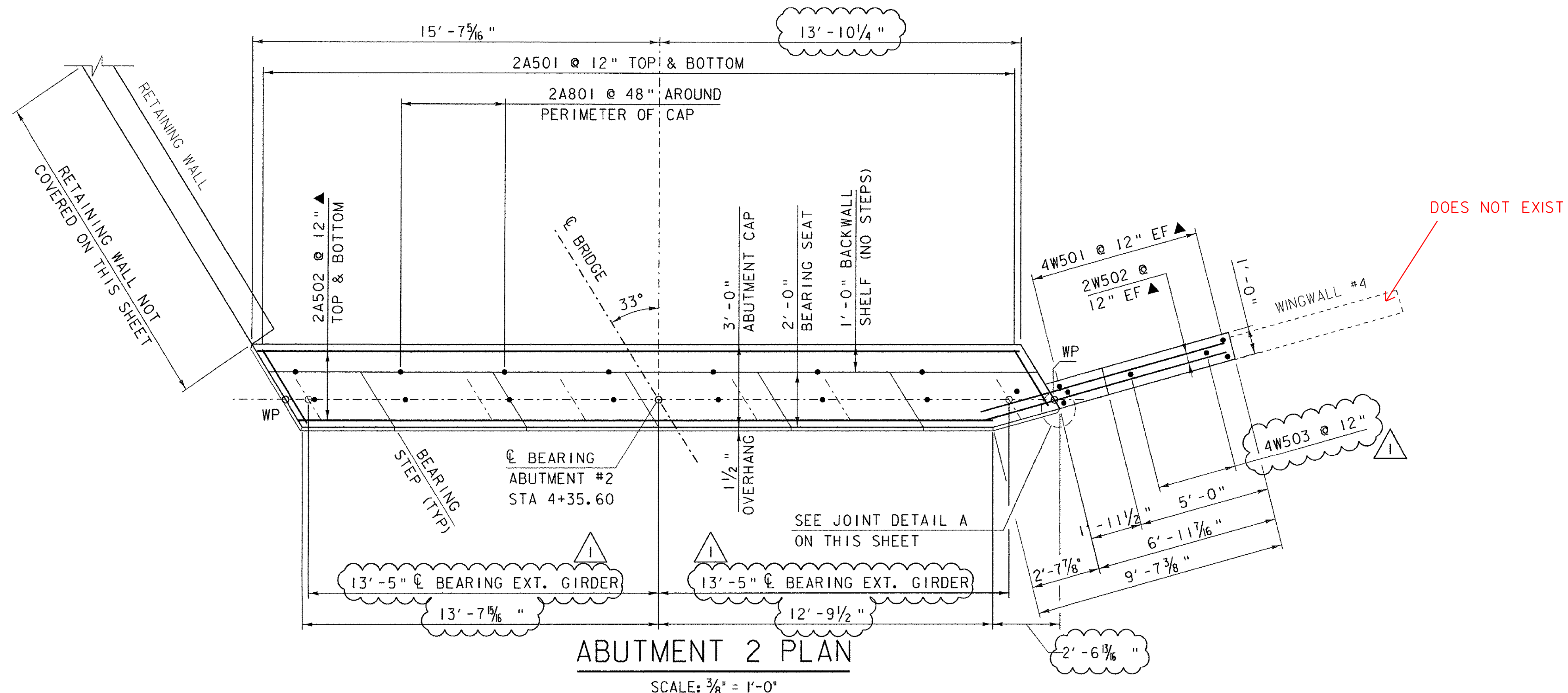
WINGWALL NOS. 2 & 4 TYPICAL SECTION

SCALE: 3/4" = 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.

REVISION	DATE	DESCRIPTION	BY
1	11-7-2011	WW REBAR REV. AND DIMENSION CL EXTERIOR BEAM BEARING LOCATION	MCL

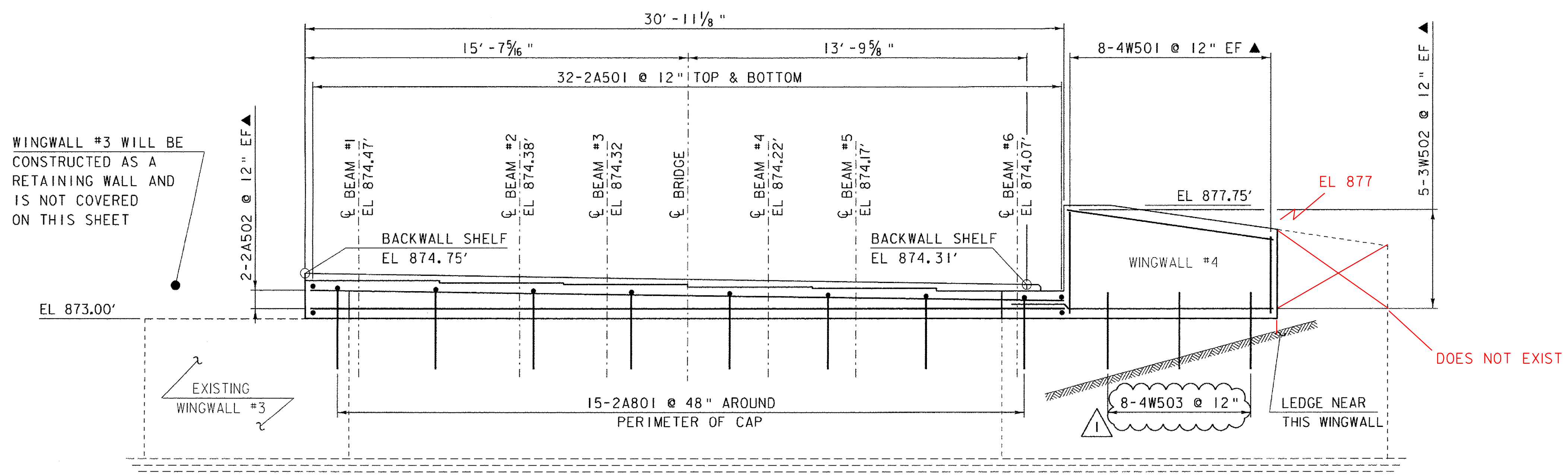
PROJECT NAME: ROXBURY	PLOT DATE: 07-NOV-2011
PROJECT NUMBER: BHF 0187 (8)	DRAWN BY: M. LONGSTREET
FILE NAME: st0c420sub.dgn	CHECKED BY: E.R.CHARBONNEAU
PROJECT LEADER: C.P. WILLIAMS	SHEET 23A OF 35
DESIGNED BY: R.S. YOUNG	
ABUTMENT #1 PLAN & ELEVATION	



JOINT DETAIL A

SCALE: 1" = 1'-0"

TYPICAL WINGWALL TO ABUTMENT CAP JOINT DETAIL AT ABUTMENT FACE.



NOTE:

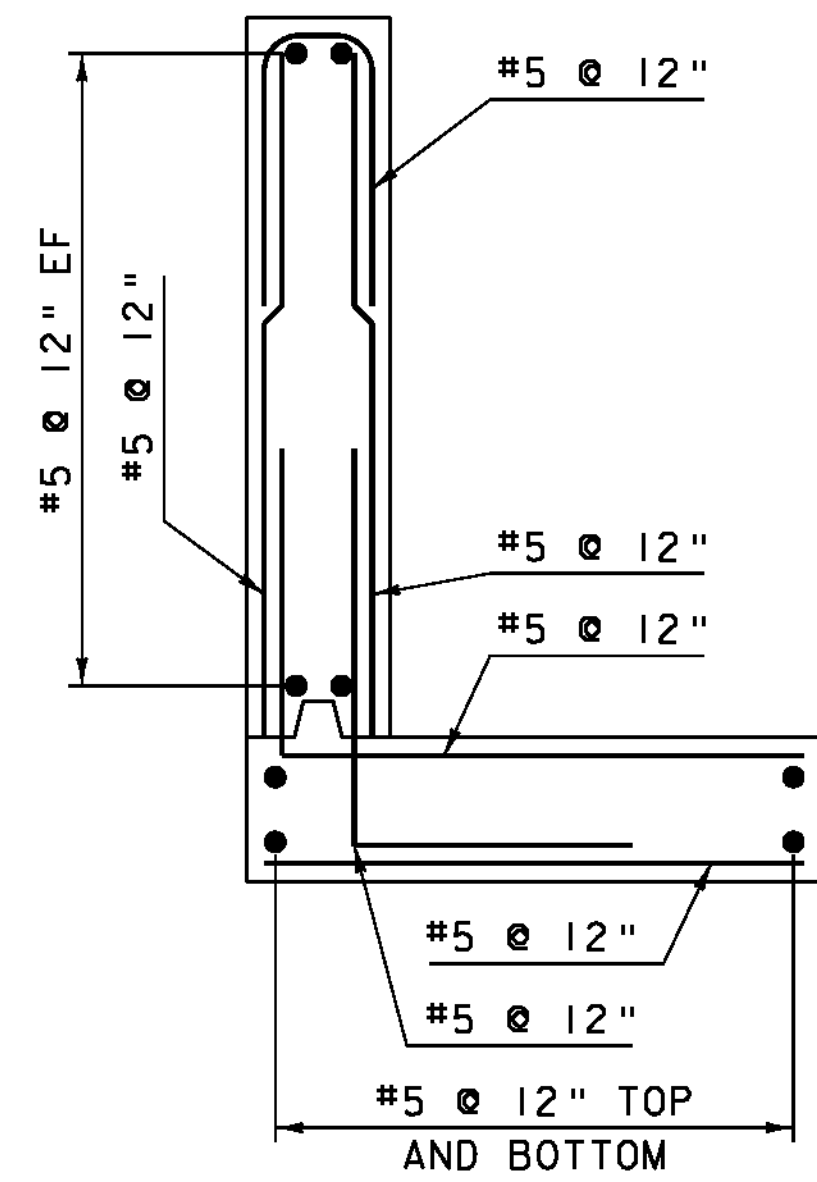
NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

ABUTMENT 2 ELEVATION

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

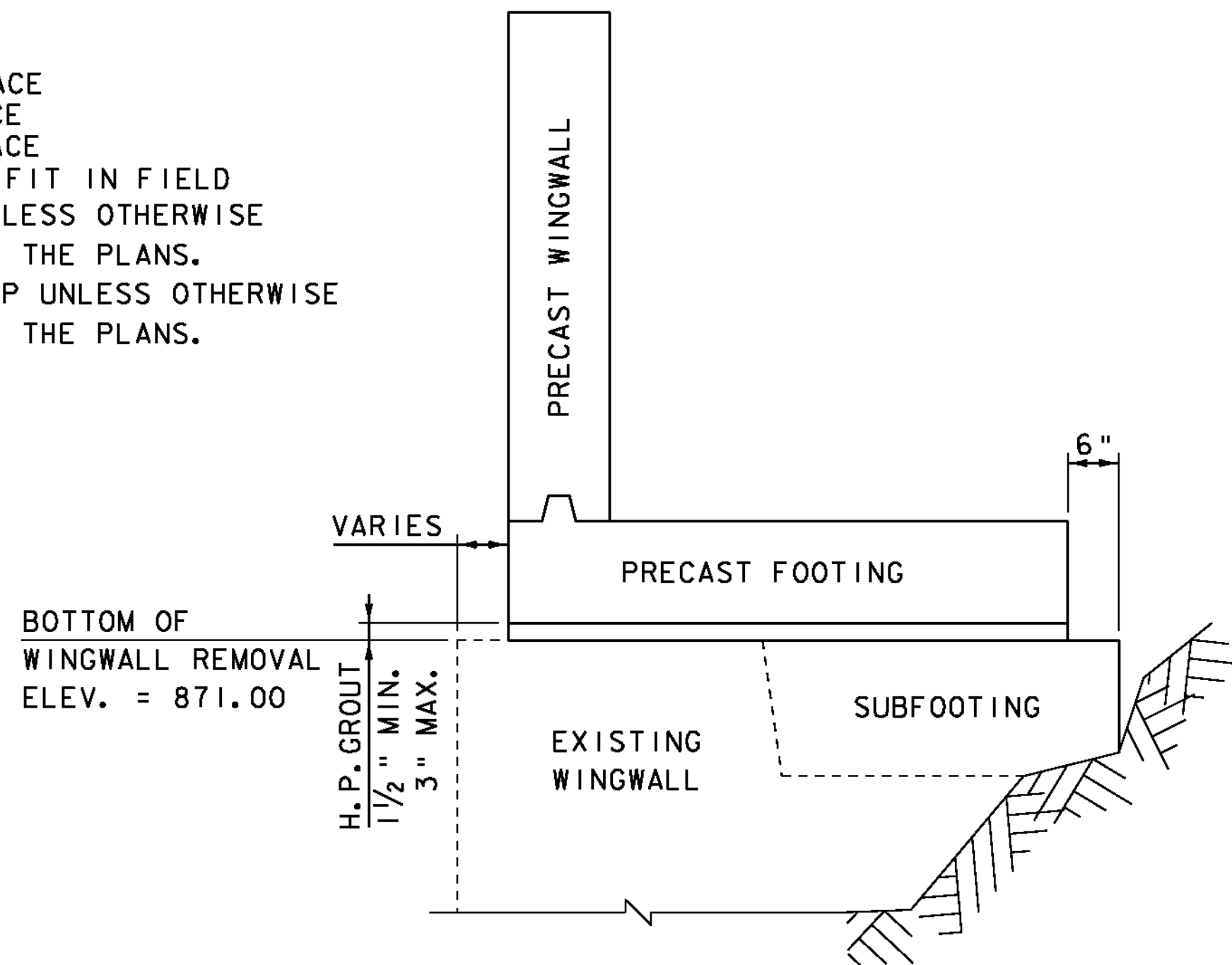
REVISION	DATE	DESCRIPTION	BY
1	11-7-2011	WW REBAR REV. AND DIMENSION CL EXTERIOR BEAM BEARING LOCATION	MCL

PROJECT NAME: ROXBURY	PLOT DATE: 07-NOV-2011
PROJECT NUMBER: BHF 0187 (8)	DRAWN BY: M. LONGSTREET
FILE NAME: sl0c420sub.dgn	CHECKED BY: E.R. CHARBONNEAU
PROJECT LEADER: C.P. WILLIAMS	SHEET 18 OF 35
DESIGNED BY: R.S. YOUNG	
ABUTMENT #2 PLAN & ELEVATION	

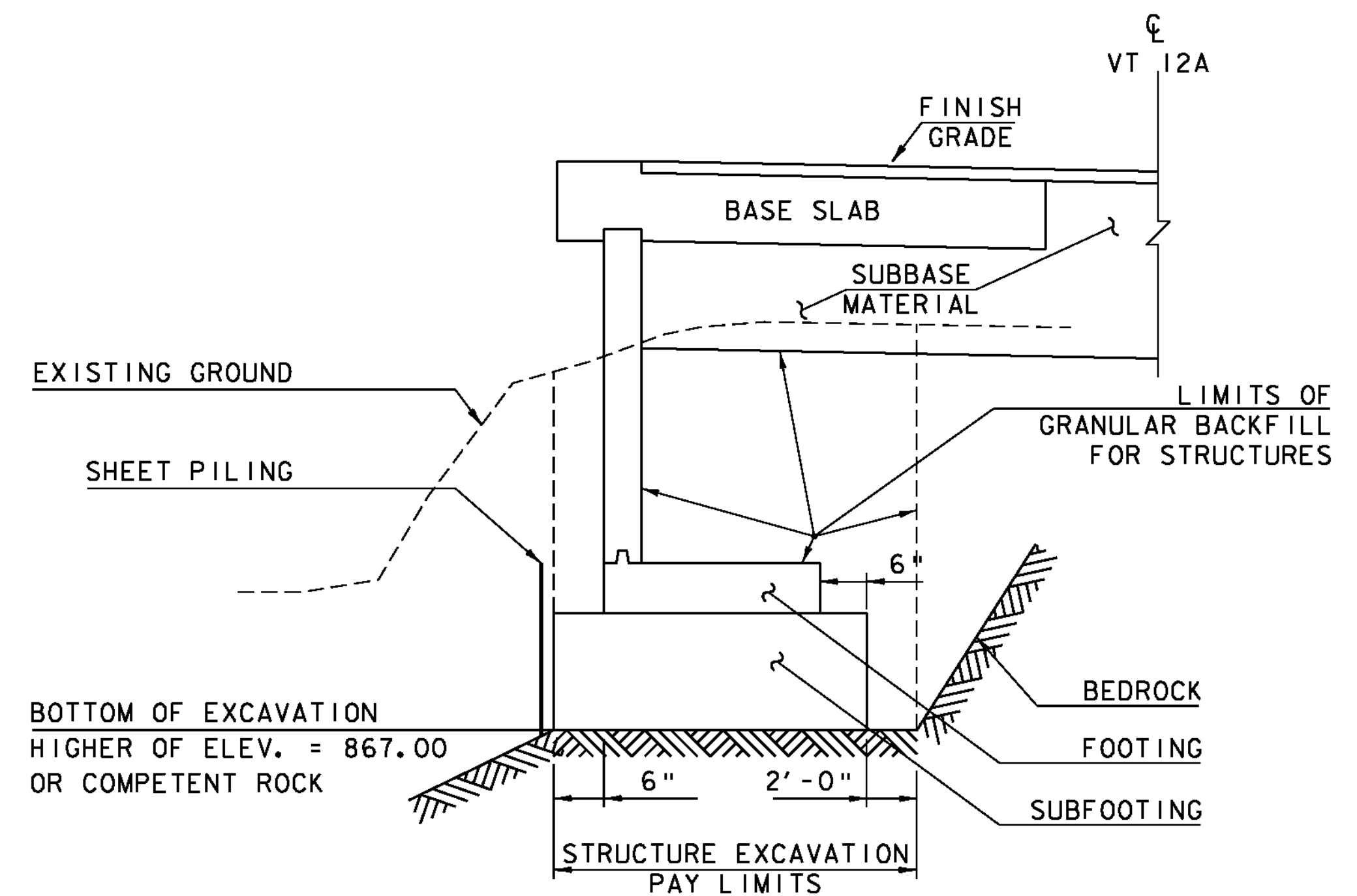


NOTE:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

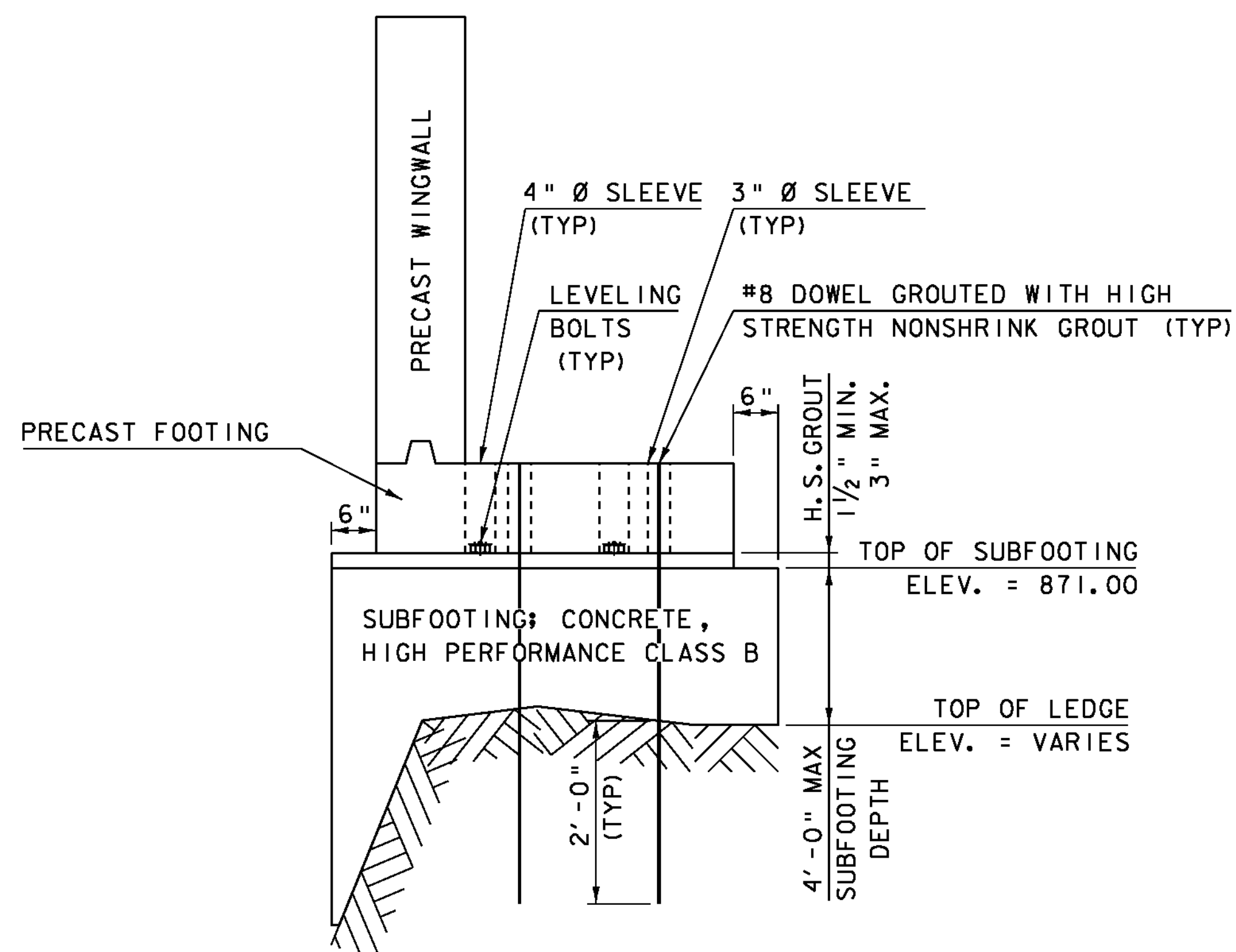
WINGWALL #3 TYPICAL REBAR



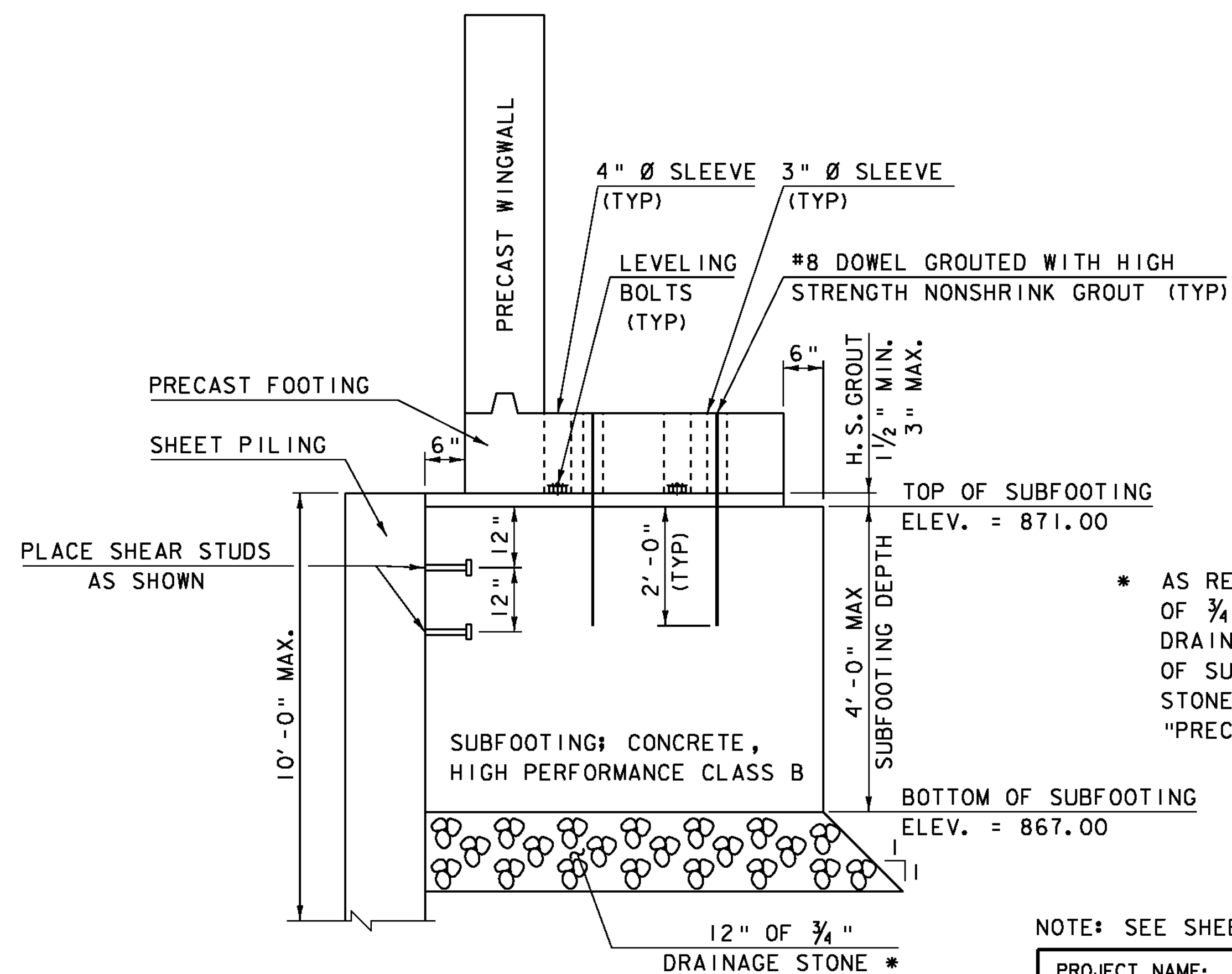
WINGWALL #3 TYPICAL SECTION OVER EXISTING WINGWALL



WINGWALL #3 EXCAVATION SECTION



WINGWALL #3 TYPICAL SECTION PLACED OVER BEDROCK

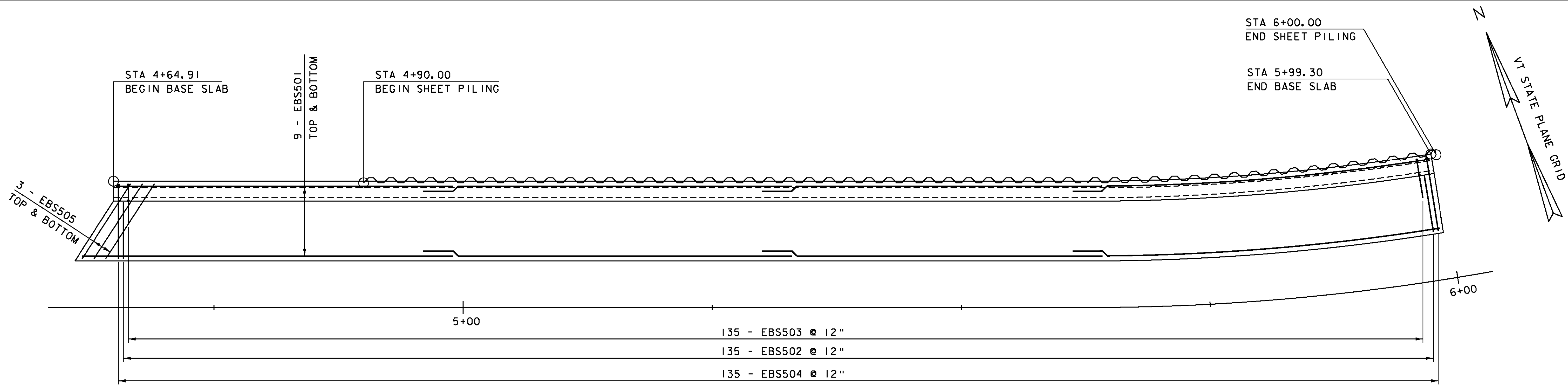


WINGWALL #3 TYPICAL SECTION OVER NEW SUBFOOTING

* AS REQUIRED BY THE ENGINEER, PLACE 12" OF 3/4" DRAINAGE STONE UNDER THE SUBFOOTING. DRAINAGE STONE SHALL MEET THE REQUIREMENTS OF SUBSECTION 704.16. PAYMENT FOR DRAINAGE STONE SHALL BE INCLUDED UNDER ITEM 540.10 "PRECAST CONCRETE STRUCTURE (WINGWALL NO. 3)".

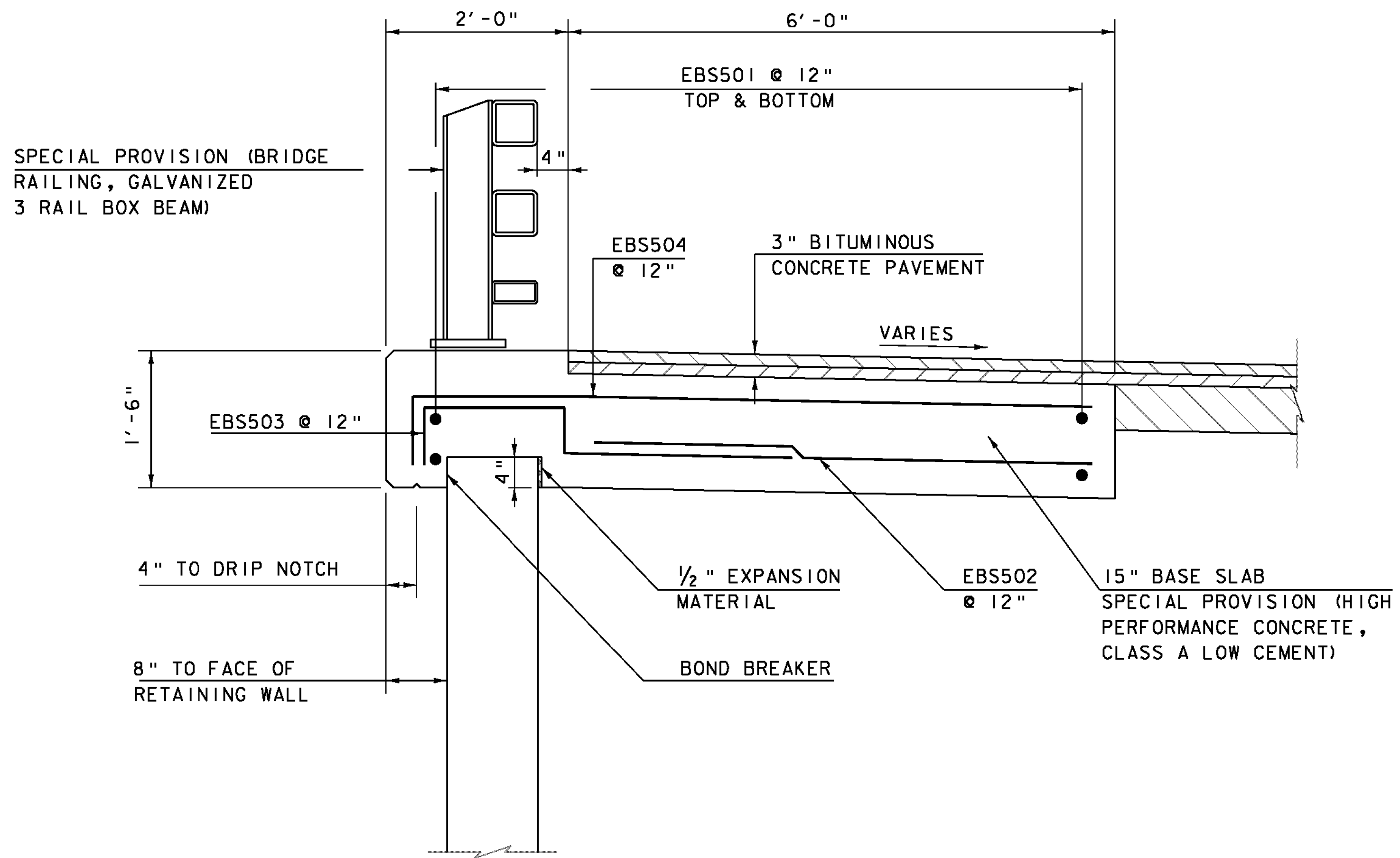
NOTE: SEE SHEET 26 FOR TOP OF WINGWALL ELEVATIONS.

PROJECT NAME:	ROXBURY	PLOT DATE:	21-SEP-2011
PROJECT NUMBER:	BHF 0187(8)	DRAWN BY:	D.D.BEARD
FILE NAME:	sl0c420sup.dgn	DESIGNED BY:	R.S.YOUNG
PROJECT LEADER:	C.P.WILLIAMS	CHECKED BY:	E.R.Charbonneau
WINGWALL #3 SECTIONS		SHEET 25 OF 54	



BASE SLAB LAYOUT

SCALE 1" = 5'-0"



BASE SLAB TYPICAL

SCALE 1" = 1'-0"

STATION	RETAINING WALL		BASE SLAB	
	ELEVATION	OFFSET	ELEVATION	OFFSET
4+64.91	877.04	12.00 LT	878.20-09	12.67 LT
4+75.00	876.89	12.00 LT	877.09-878.06	12.67 LT
5+00.00	876.43	12.00 LT	877.59	12.67 LT
5+25.00	875.94	12.00 LT	877.10	12.67 LT
5+50.00	875.60	12.00 LT	876.76-78	12.67 LT
5+75.00	875.41	12.00 LT	876.58-61	12.67 LT
5+99.30	875.35	12.00 LT	876.52-55	12.67 LT

PROJECT NAME: ROXBURY
 PROJECT NUMBER: BHF 0187(8)
 FILE NAME: s10c420ret.dgn
 PROJECT LEADER: C. WILLIAMS
 DESIGNED BY: R. YOUNG
 BASE SLAB LAYOUT & DETAILS
 PLOT DATE: 21-SEP-2011
 DRAWN BY: J. SALVATORI
 CHECKED BY: E. CHARBONNEAU
 SHEET 26 OF 54

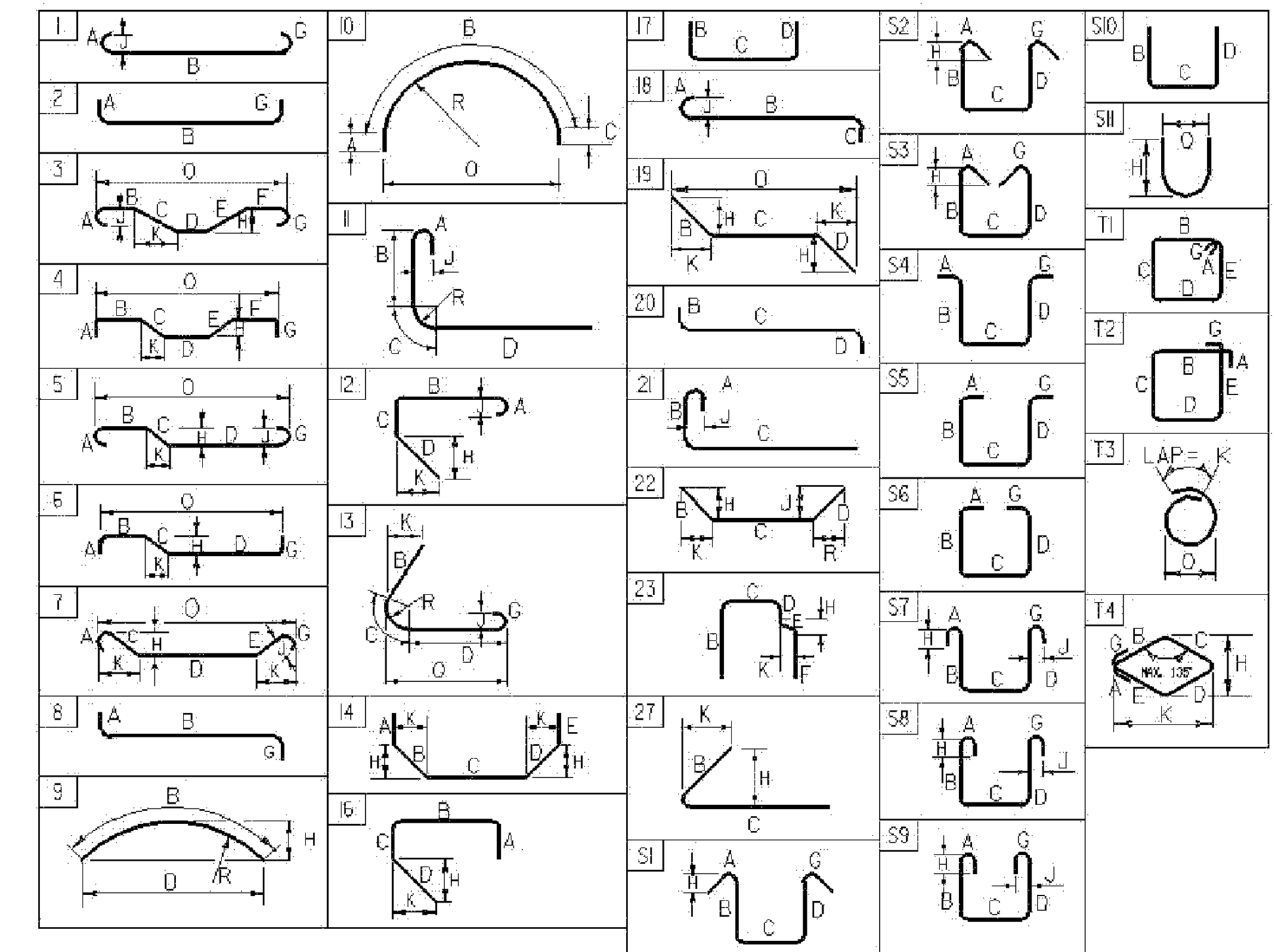
STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
ABUTMENT #1																																			
▲	64	5	2'-6"	1A501	STR																														
*▲	7	5	30'-0"	1A502	STR																														
	16	8	3'-9"	1A801	17			1'-0"	2'-9"																										
WINGWALL #1																																			
NO BARS																																			
WINGWALL #2																																			
▲	26	5	4'-8"	2W501	STR																														
	12	5	12'-3"	2W502	22			1'-0"	11'-3"				0'-7"	---	0'-10"	---																			
*▲	5	8	3'-0"	2W801	STR																														
ABUTMENT #2																																			
▲	64	5	2'-6"	2A501	STR																														
▲	6	5	28'-11"	2A502	STR																														
	15	8	3'-9"	2A801	17			1'-0"	2'-9"																										
WINGWALL #3																																			
NO BARS																																			
WINGWALL #4																																			
▲	16	5	4'-6"	4W501	STR																														
*▲	11	5	9'-7"	4W502	STR																														
	3	8	3'-0"	4W801	STR																														
APPROACH SLAB #1																																			
*▲	22	5	26'-3"	1EAS01	STR																														
*▲	29	9	20'-9"	1EAS901	1			1'-3"	19'-6"				---		1'-0"																				
APPROACH SLAB #2																																			
	19	5	24'-11"	2EAS501	STR																														
▲	8	5	19'-6"	2EAS502	STR																														
*▲	19	5	5'-0"	2EAS503	STR																														
	18	5	5'-5"	2EAS504	S5			---	0'-5"	1'-7"	0'-5"		3'-0"																						
*▲	29	9	20'-9"	2EAS901	1			1'-3"	19'-6"				---		1'-0"																				
BASE SLAB																																			
	72	5	36'-0"	EBS501	STR																														
*▲	136	5	5'-6"	EBS502	STR																														
	6	5	9'-0"	EBS504	STR																														
	135	5	5'-5"	EBS503	S5			---	0'-9"	1'-9"	0'-9"		2'-2"																						
	135	5	8'-3"	EBS504	2			---	0'-9"	7'-6"																									
*▲	71	8	7'-3"	BS801	STR																														

~ NOTES ~

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

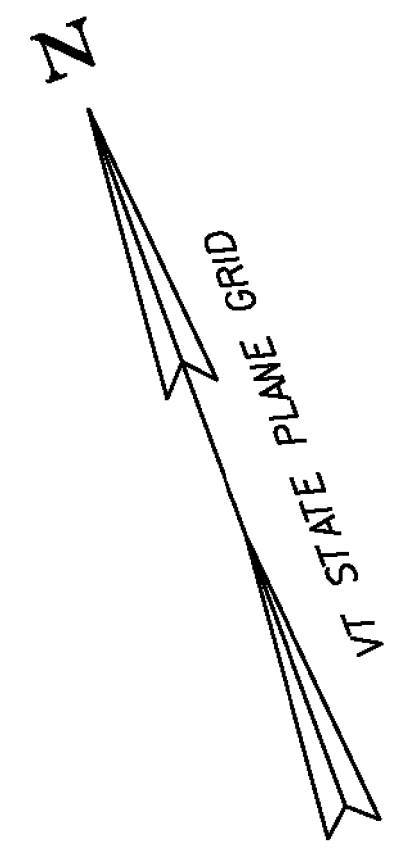


ASTM STANDARD
REINFORCING BARS

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: ROXBURY
PROJECT NUMBER: BHF 0187 (8)

FILE NAME: s10c420forms.dgn PLOT DATE: 9/19/2011
PROJECT MANAGER: C.P. WILLIAMS DRAWN BY: M. LONGSTREET
DESIGNED BY: R. YOUNG CHECKED BY: R. YOUNG
REINFORCING STEEL SCHEDULE SHEET #1 SHEET 27 OF 54



4 INCH WHITE LINE
 STA 2+50.0 - 6+50.0 LT
 STA 2+50.0 - 6+50.0 RT

4 INCH YELLOW LINE
 STA 2+50.0 - 6+50.0 CL (DOUBLE)

TRAFFIC SIGNS, TYPE A
 STA 3+69.6 RT
 STA 3+79.9 LT
 STA 4+32.9 RT
 STA 5+34.6 LT

REMOVING SIGNS
 STA 3+14.7 RT (2)
 STA 3+69.9 RT (1)
 STA 3+79.9 LT (1)
 STA 4+57.2 RT (1)
 STA 7+03.9 LT (2)

ERECTING SALVAGED SIGNS
 STA 4+98.2 RT (1)

6+92 LT
 STA 5+34.6 LT

6+20 LT
 STA 6+34.0 LT

7+03.9 LT
 STA 7+03.9 LT

STA 3+79.9 LT

3+87 LT
 STA 3+79.9 LT

STA 3+04.9 LT

STA 3+14.7 RT

STA 6+58.6 RT

STA 0+72.8 RT

STA 3+69.6 RT

STA 3+69.6 RT
 3+72 RT

STA 4+32.9 RT
 4+32 RT

MOUNTED ON
 BACK OF 13'-0"
 SIGN

STA 4+57.2 RT

STA 4+98.2 RT
 4+32 RT

LEGEND

EXISTING SIGNS

NEW OR SALVAGED SIGNS

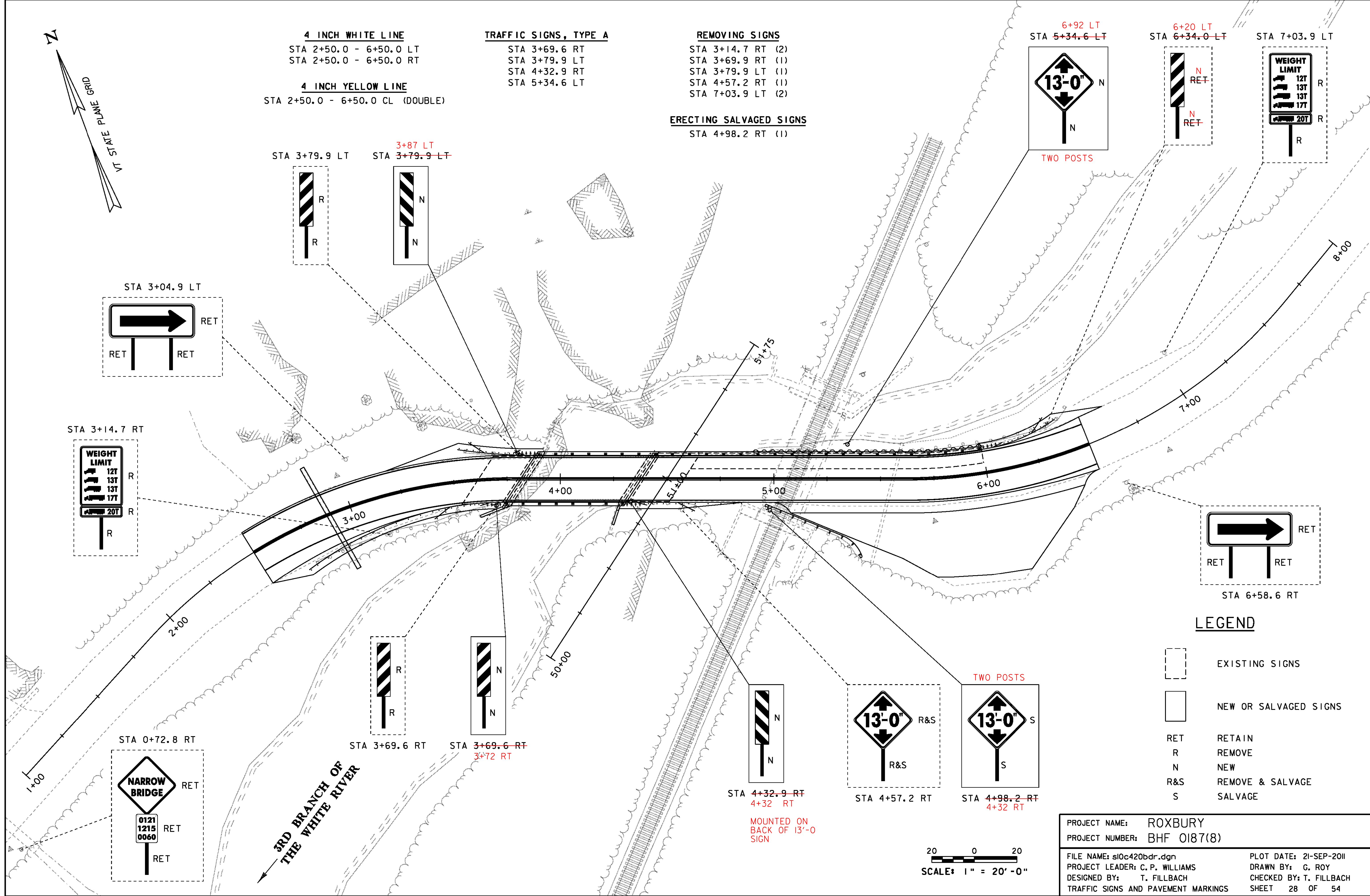
RET RETAIN
 R REMOVE
 N NEW
 R&S REMOVE & SALVAGE
 S SALVAGE

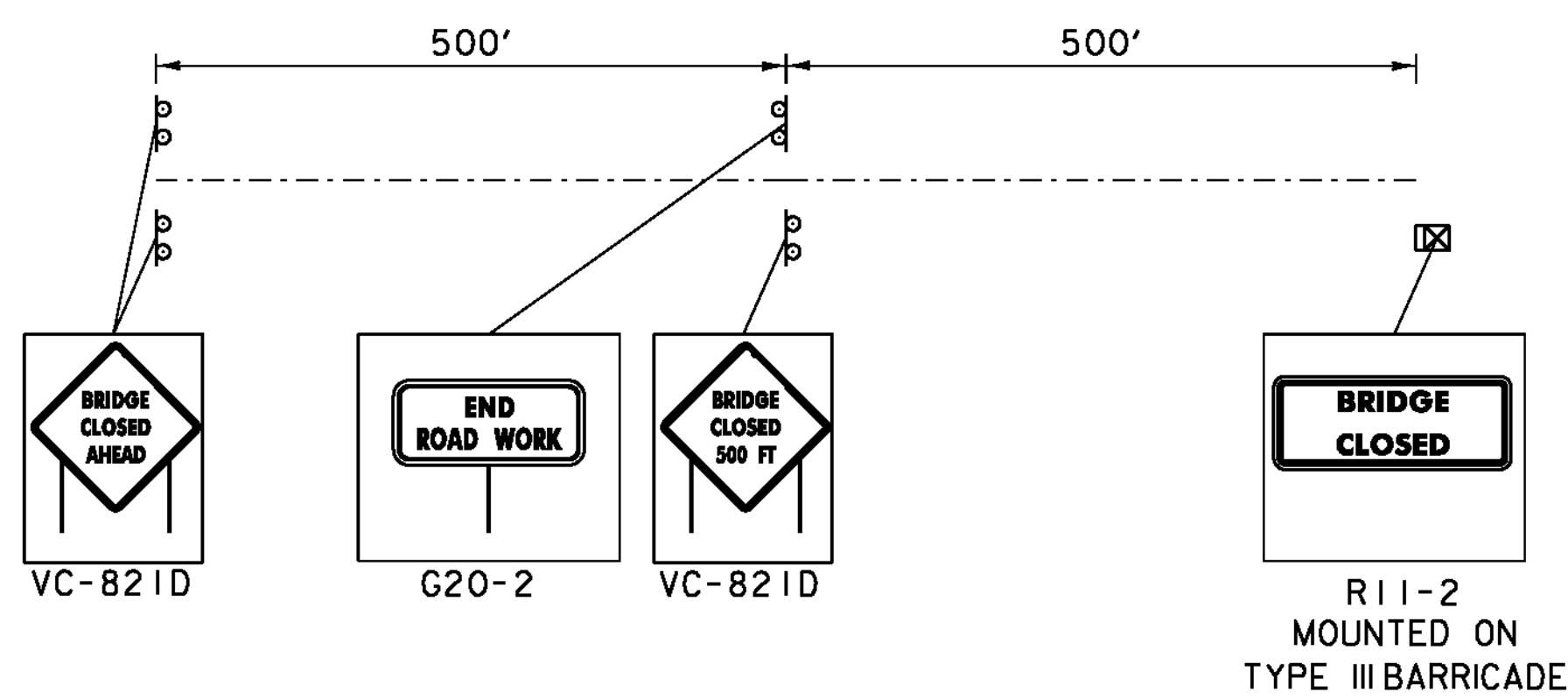
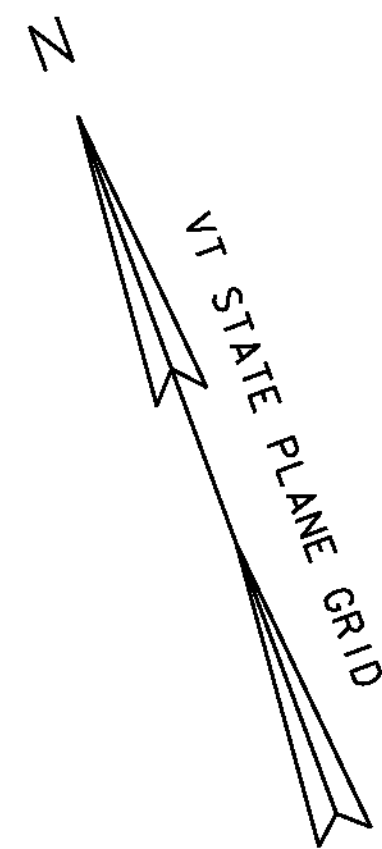
20 0 20
 SCALE: 1" = 20'-0"

PROJECT NAME: ROXBURY
 PROJECT NUMBER: BHF 0187(8)

FILE NAME: sl0c420bdr.dgn
 PROJECT LEADER: C. P. WILLIAMS
 DESIGNED BY: T. FILLBACH
 TRAFFIC SIGNS AND PAVEMENT MARKINGS

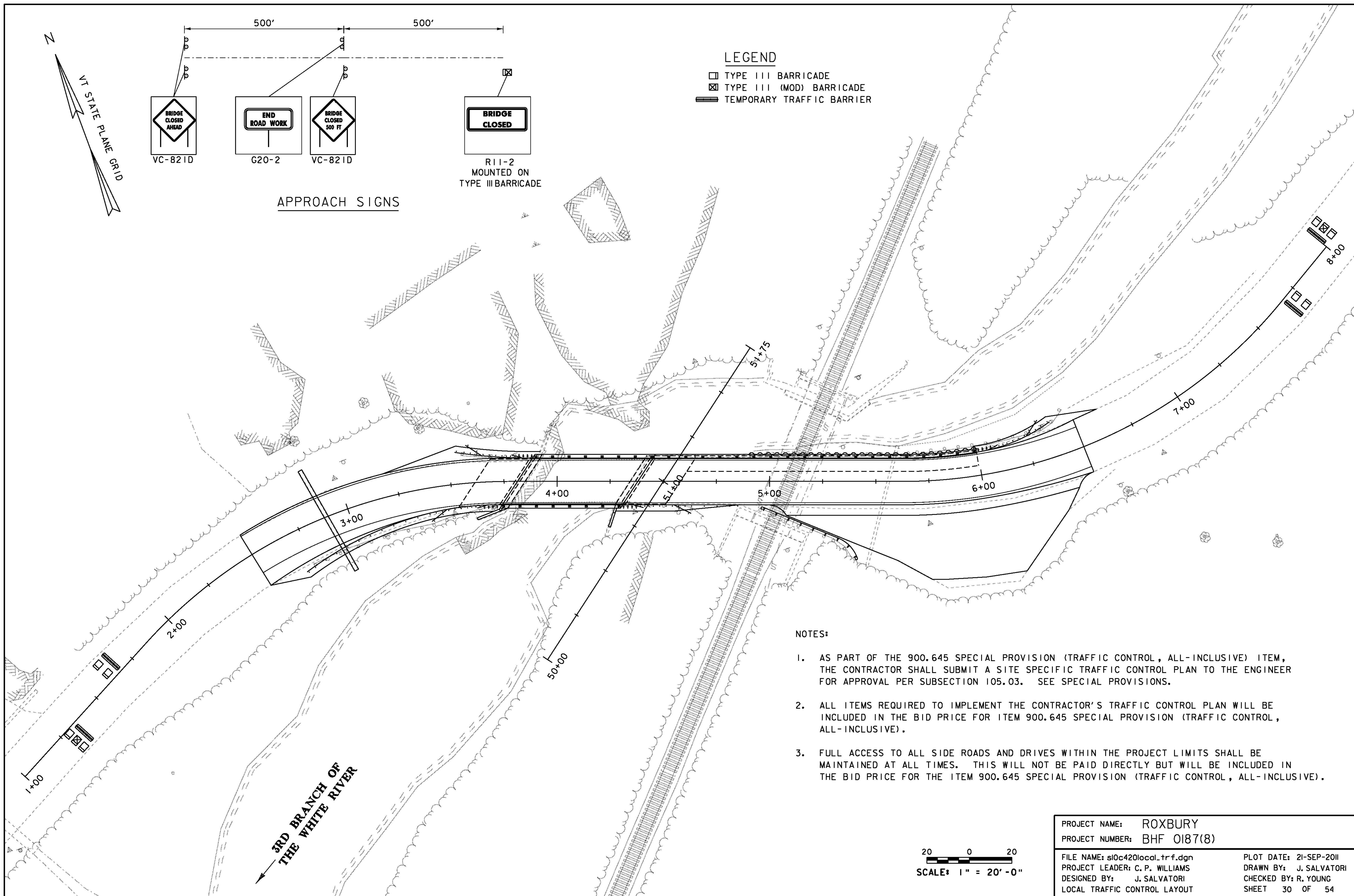
PLOT DATE: 21-SEP-2011
 DRAWN BY: G. ROY
 CHECKED BY: T. FILLBACH
 SHEET 28 OF 54





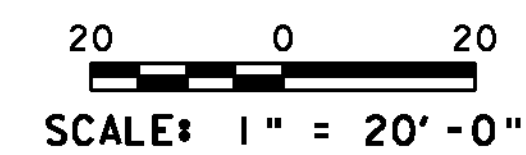
APPROACH SIGNS

- LEGEND**
- TYPE III BARRICADE
 - ⊠ TYPE III (MOD) BARRICADE
 - ▬ TEMPORARY TRAFFIC BARRIER

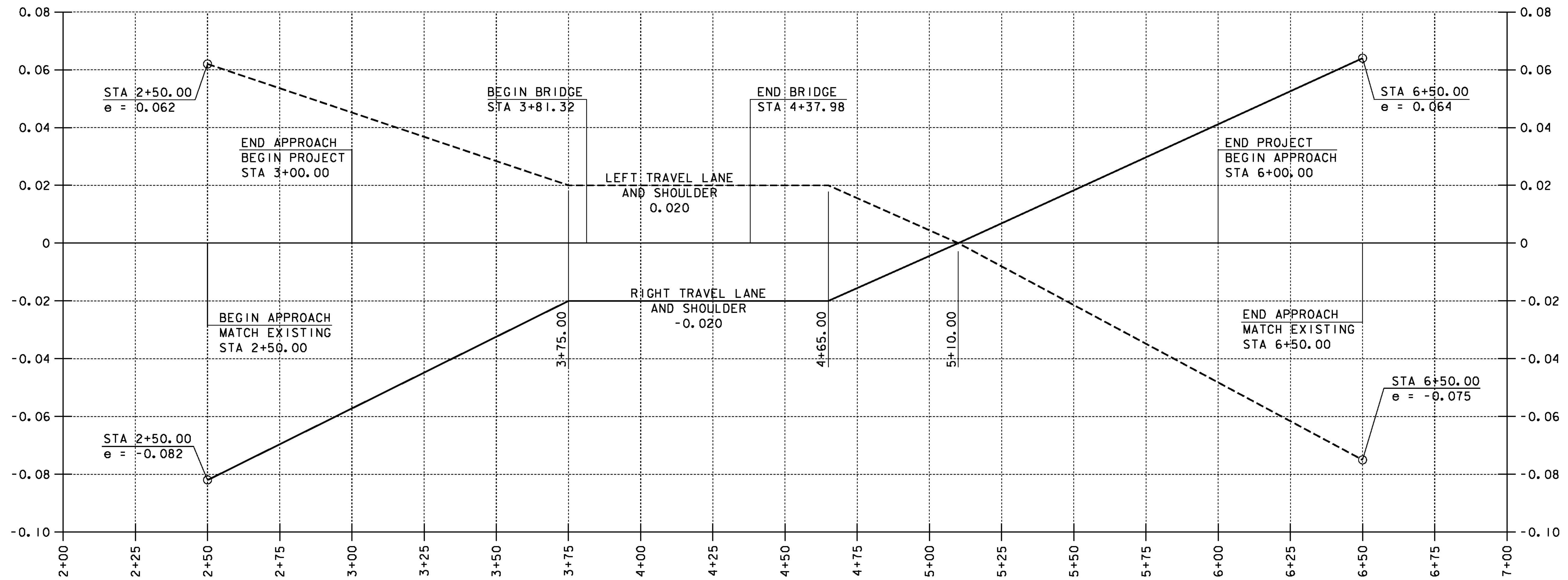


NOTES:

1. AS PART OF THE 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) ITEM, THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL PER SUBSECTION 105.03. SEE SPECIAL PROVISIONS.
2. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN WILL BE INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
3. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WILL NOT BE PAID DIRECTLY BUT WILL BE INCLUDED IN THE BID PRICE FOR THE ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

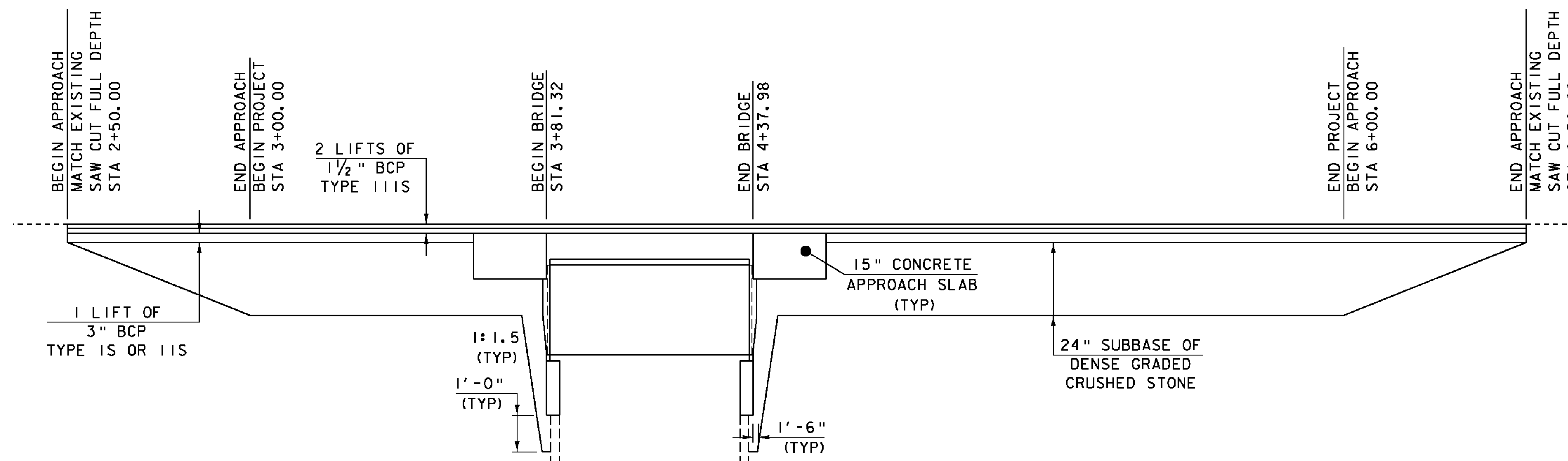


PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: J. SALVATORI
FILE NAME: sl0c420local.tr f.dgn	CHECKED BY: R. YOUNG
PROJECT LEADER: C. P. WILLIAMS	SHEET 30 OF 54
DESIGNED BY: J. SALVATORI	
LOCAL TRAFFIC CONTROL LAYOUT	



VT 12A BANKING DIAGRAM

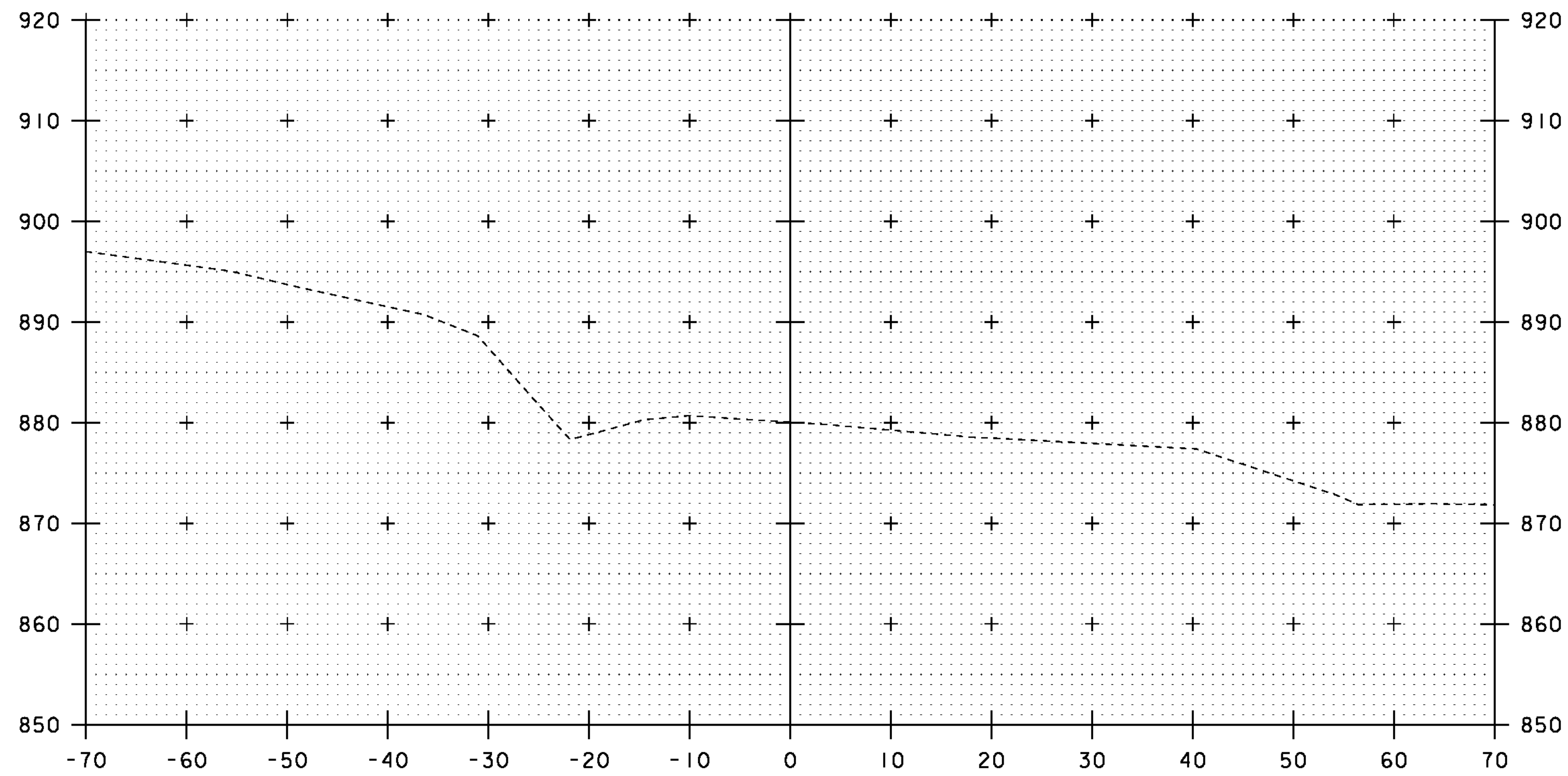
HORIZONTAL SCALE: 1" = 20'-0"
 VERTICAL SCALE: 1" = 0.02'/'



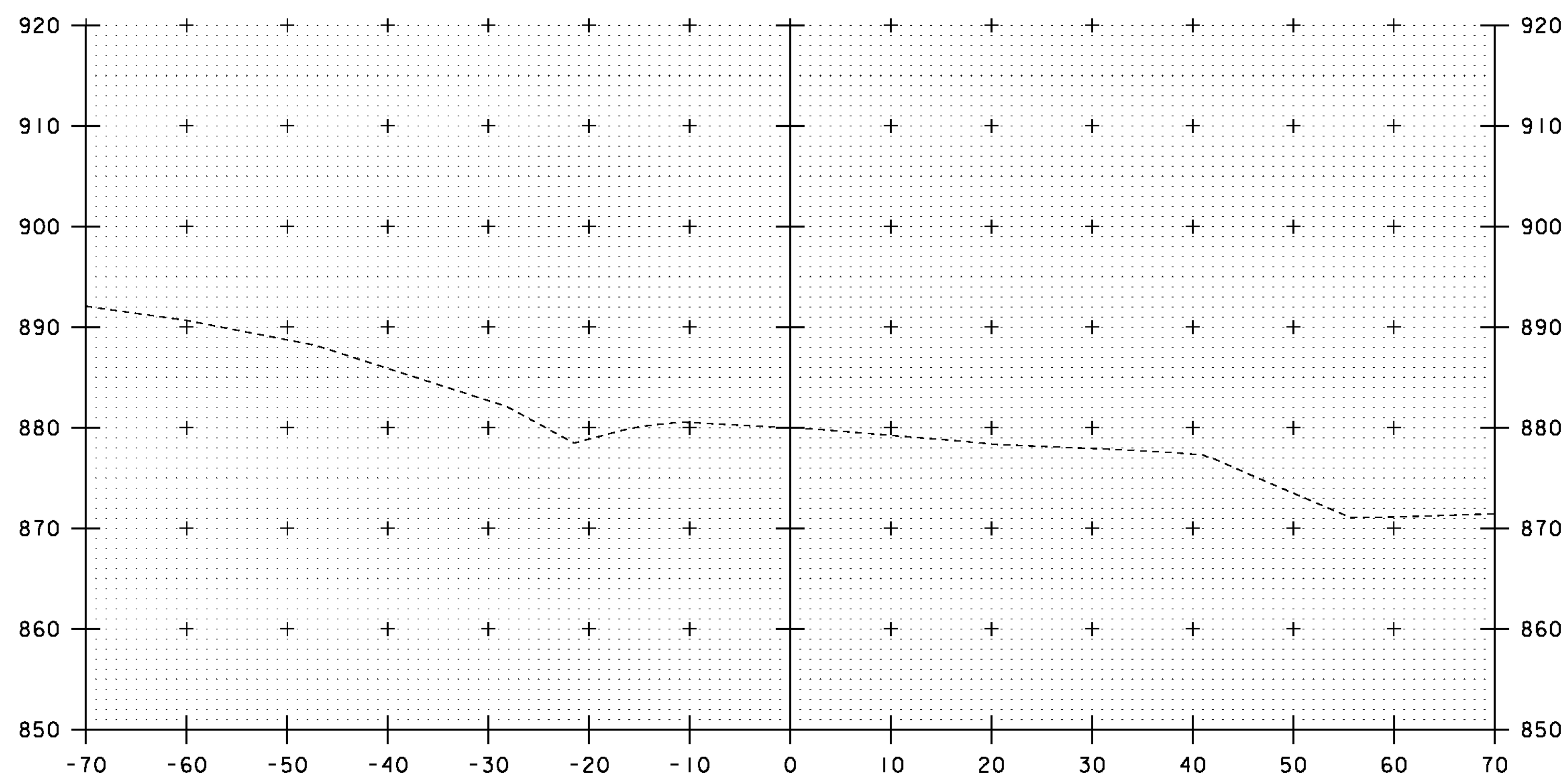
VT 12A MATERIAL TRANSITION DETAIL

HORIZONTAL SCALE: 1" = 20'-0"
 VERTICAL SCALE: 1" = 2'-0"

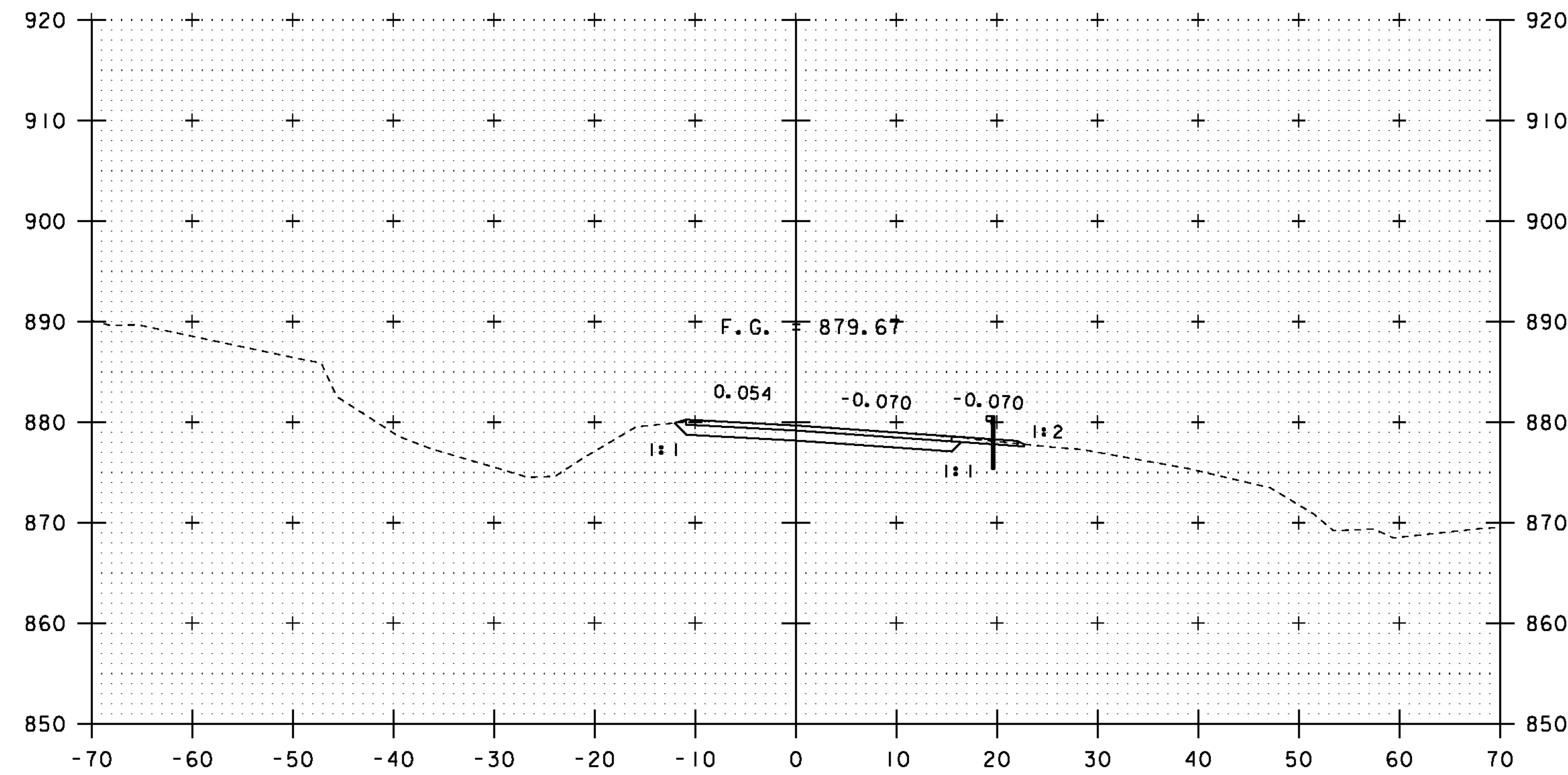
PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420pro.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	BANKING DIAGRAM AND MATERIAL TRANSITION SHEET 31 OF 54
DESIGNED BY: G. ROY	



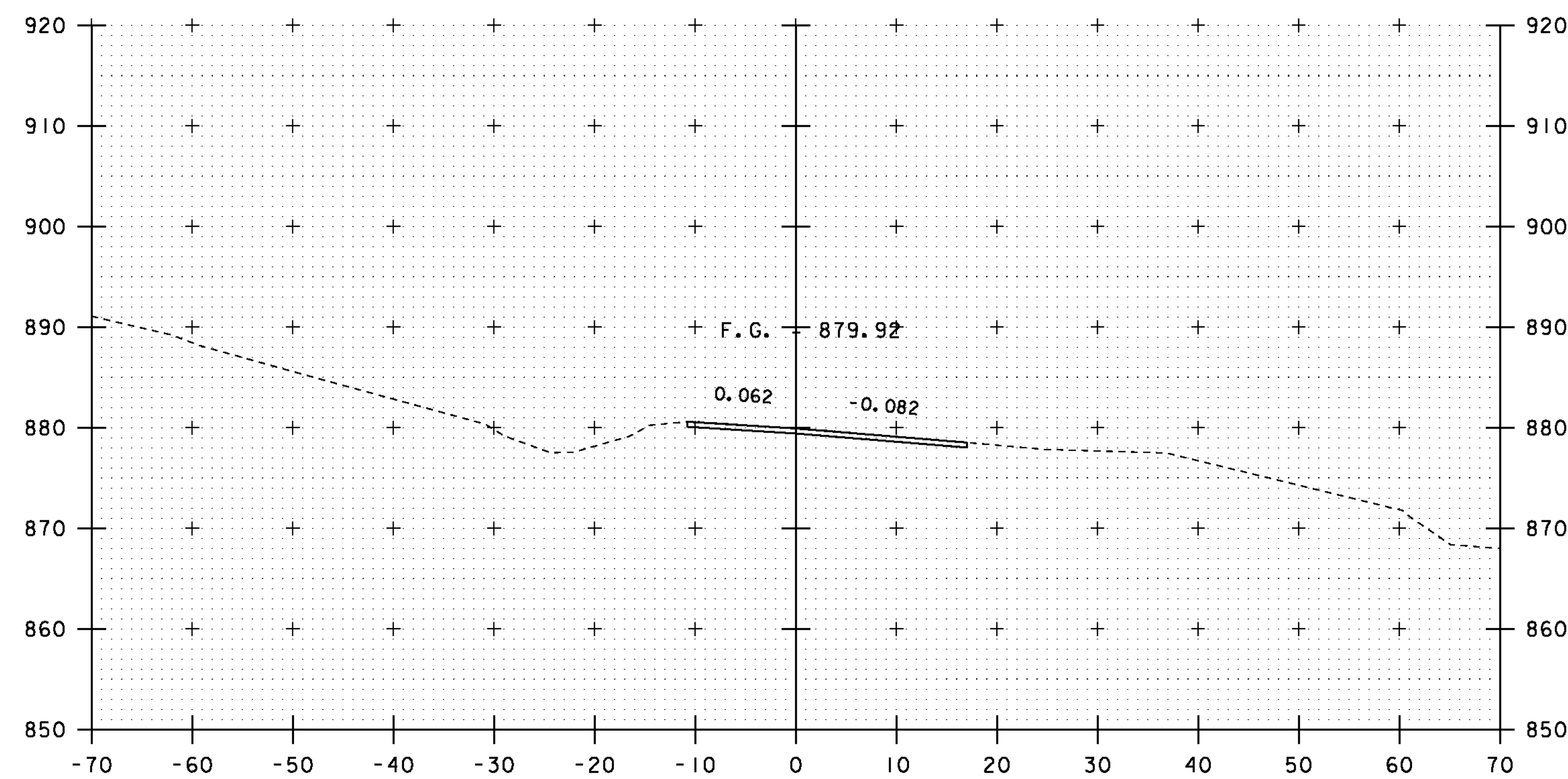
2+25



2+00



2+75



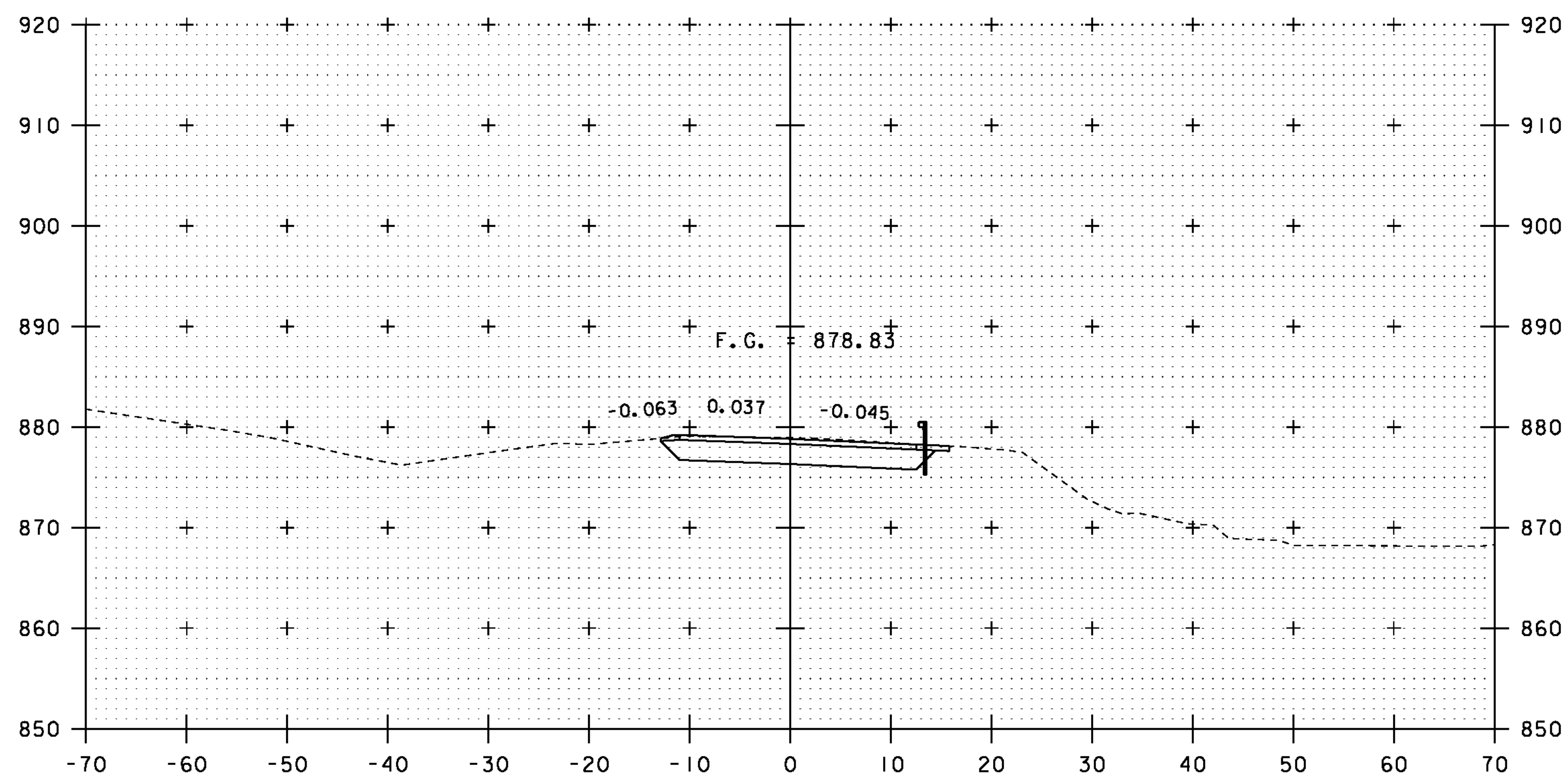
2+50

BEGIN APPROACH
MATCH EXISTING
STA 2+50.00

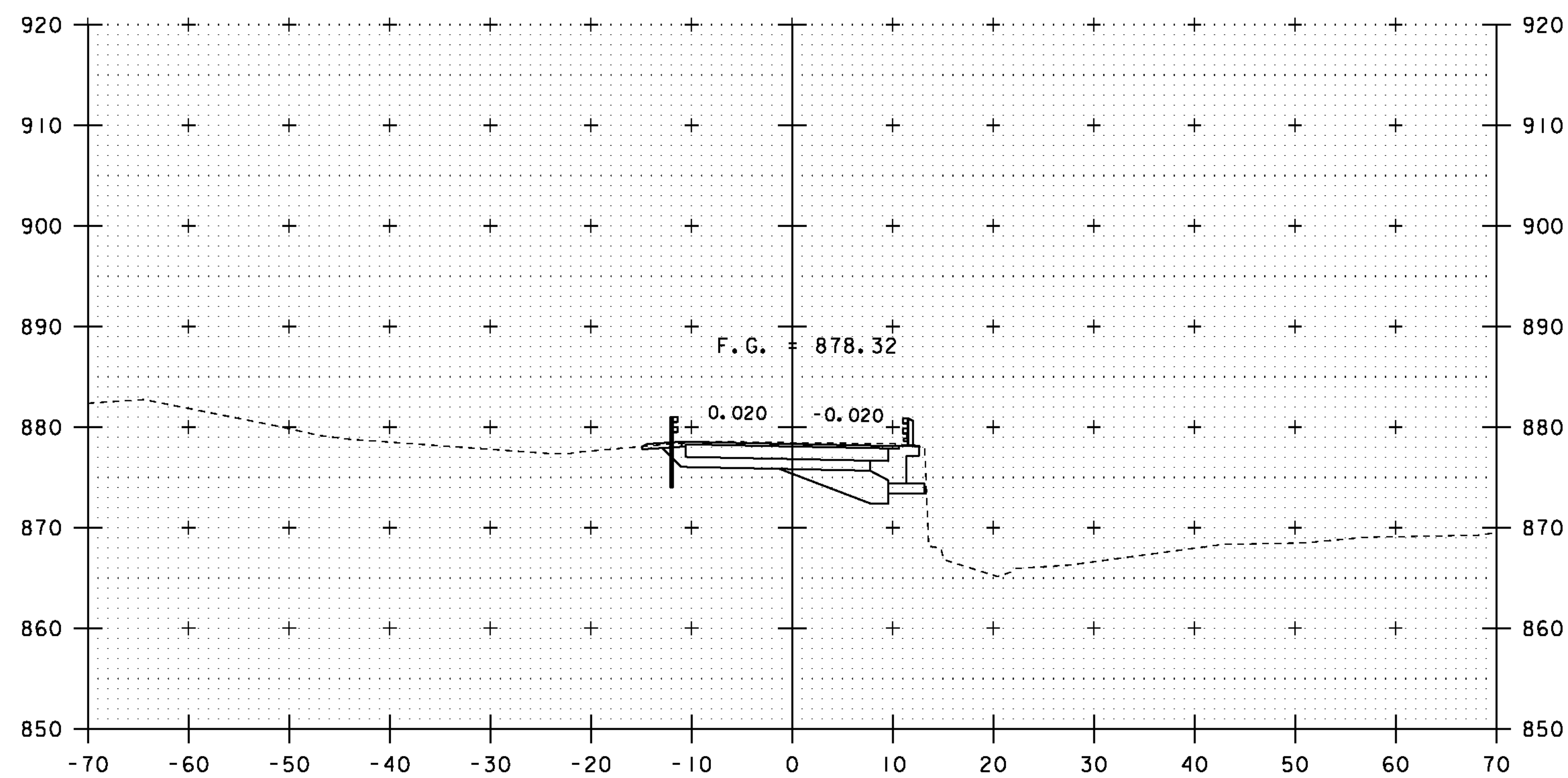


STA. 2+00 TO STA. 2+75

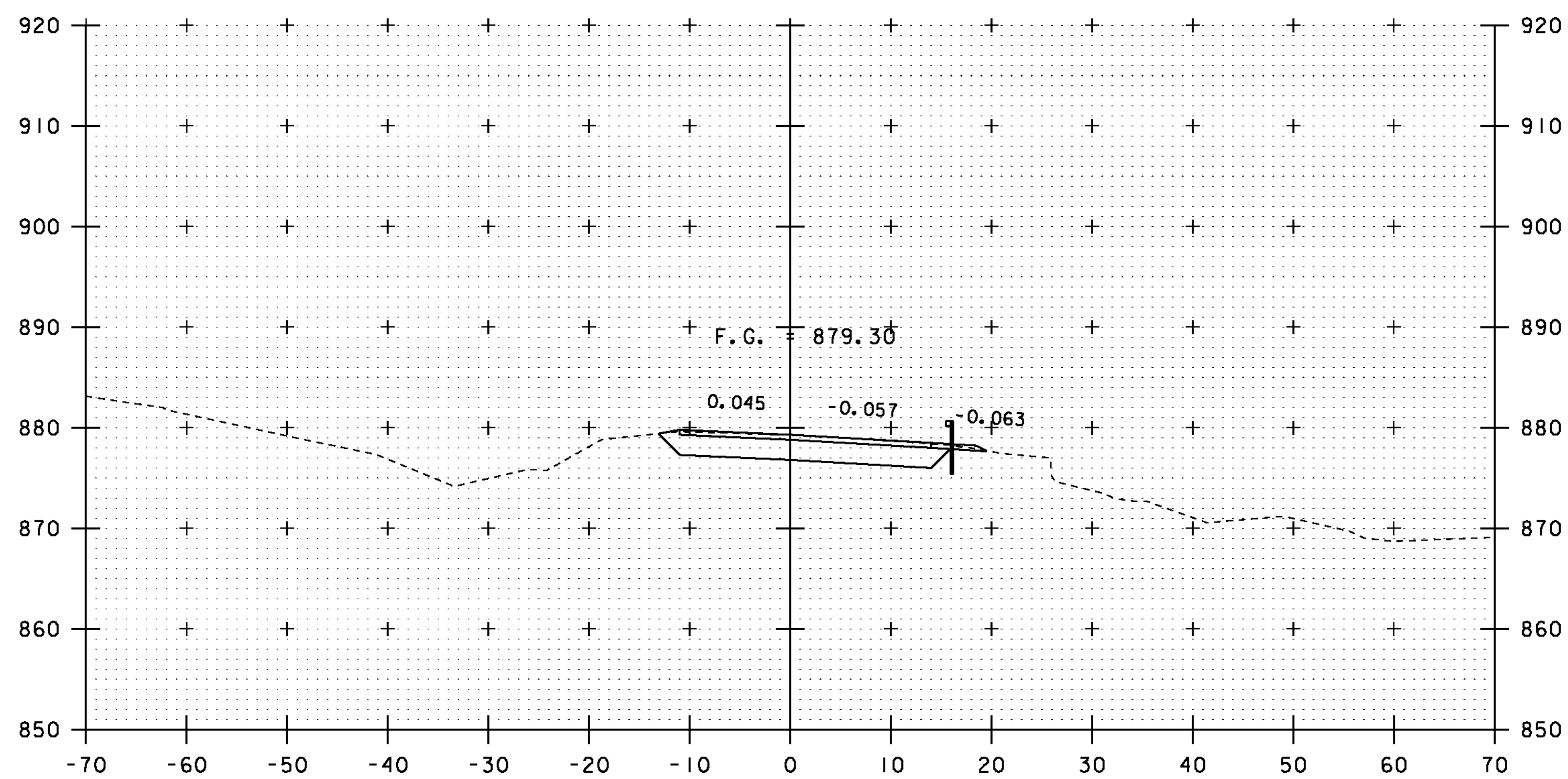
PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420xsl.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	SHEET 32 OF 54
DESIGNED BY: G. ROY	
VT I2A CROSS SECTIONS (1)	



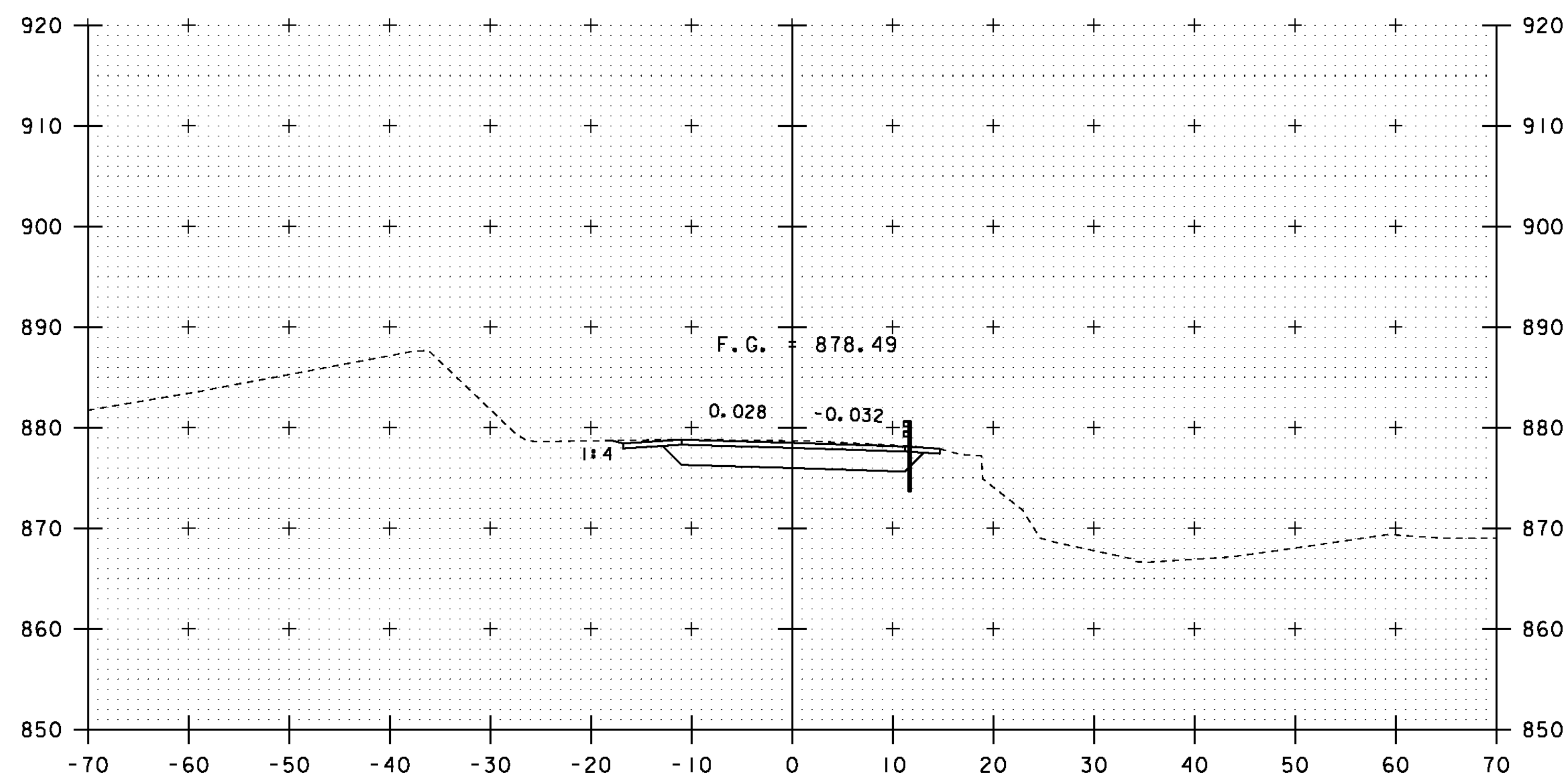
3+25



3+75



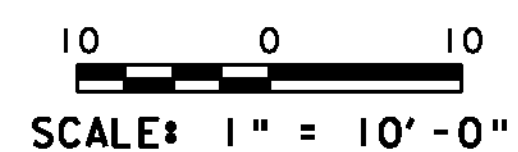
3+00



3+50

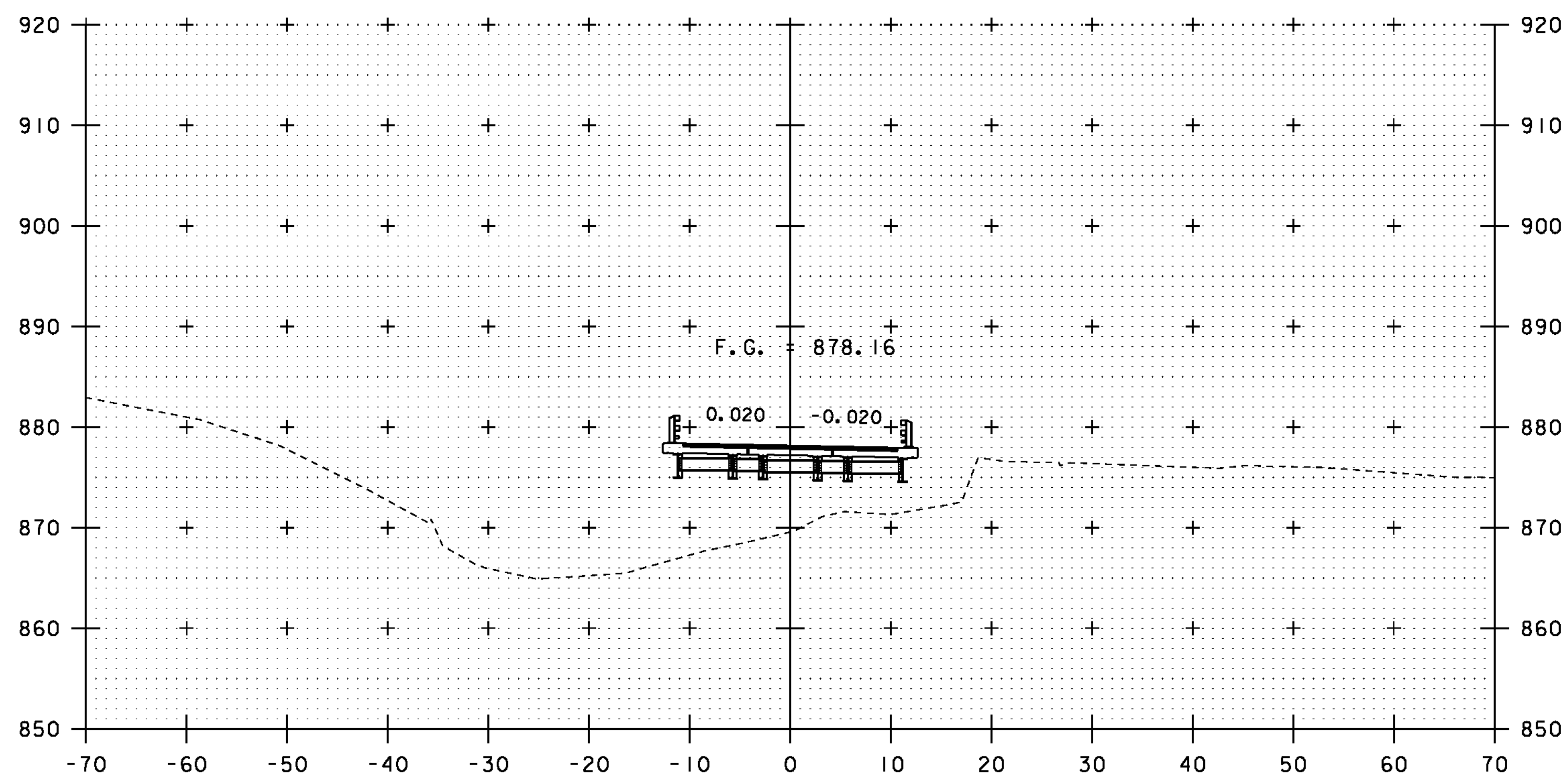
SEE SHEET 37 FOR NEW OPTION PIPE SECTION AT STA 2+89.2.

END APPROACH
BEGIN PROJECT
STA 3+00.00

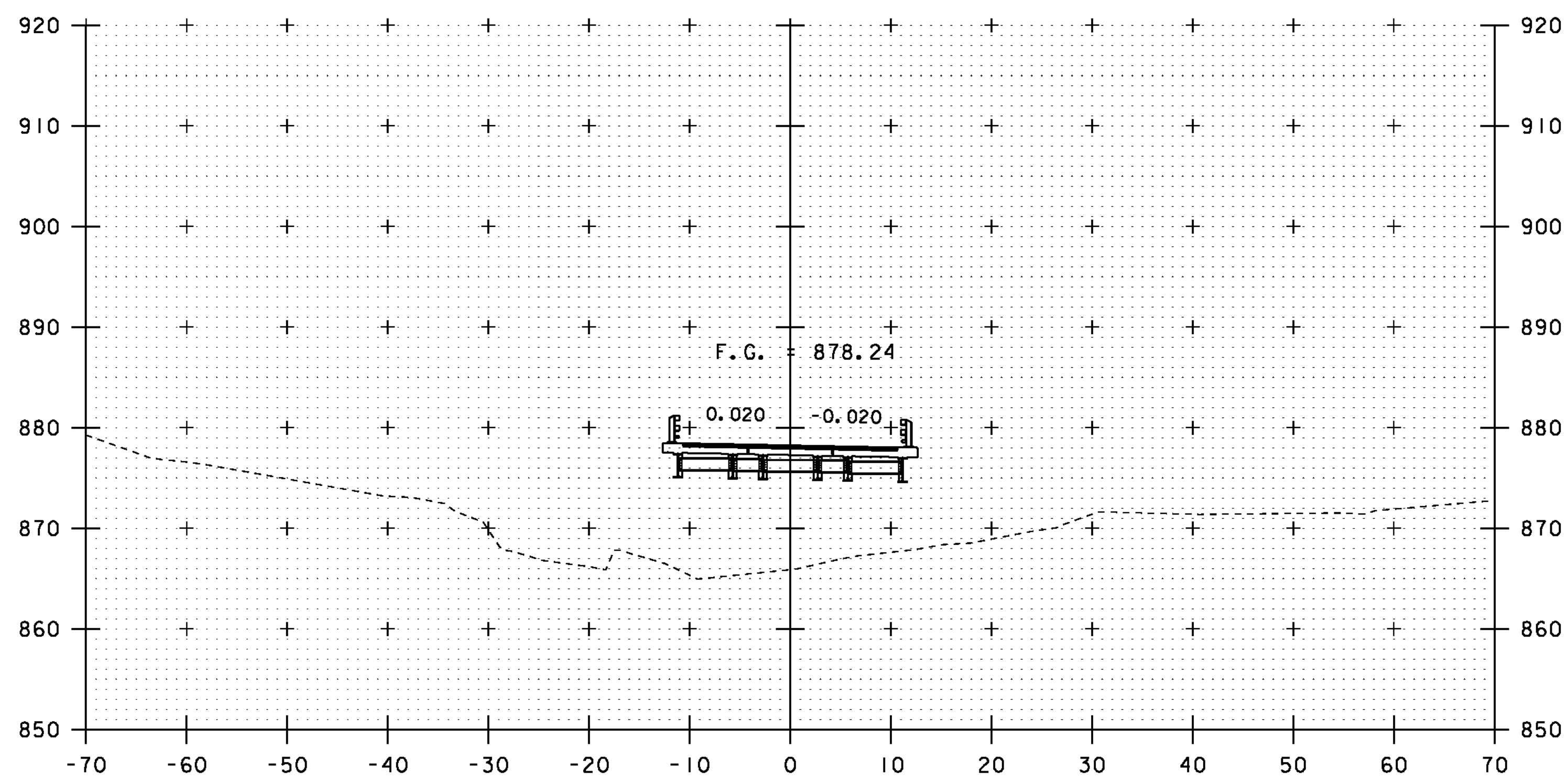


STA. 3+00 TO STA. 3+75

PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420xsl.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	SHEET 33 OF 54
DESIGNED BY: G. ROY	
VT I2A CROSS SECTIONS (2)	

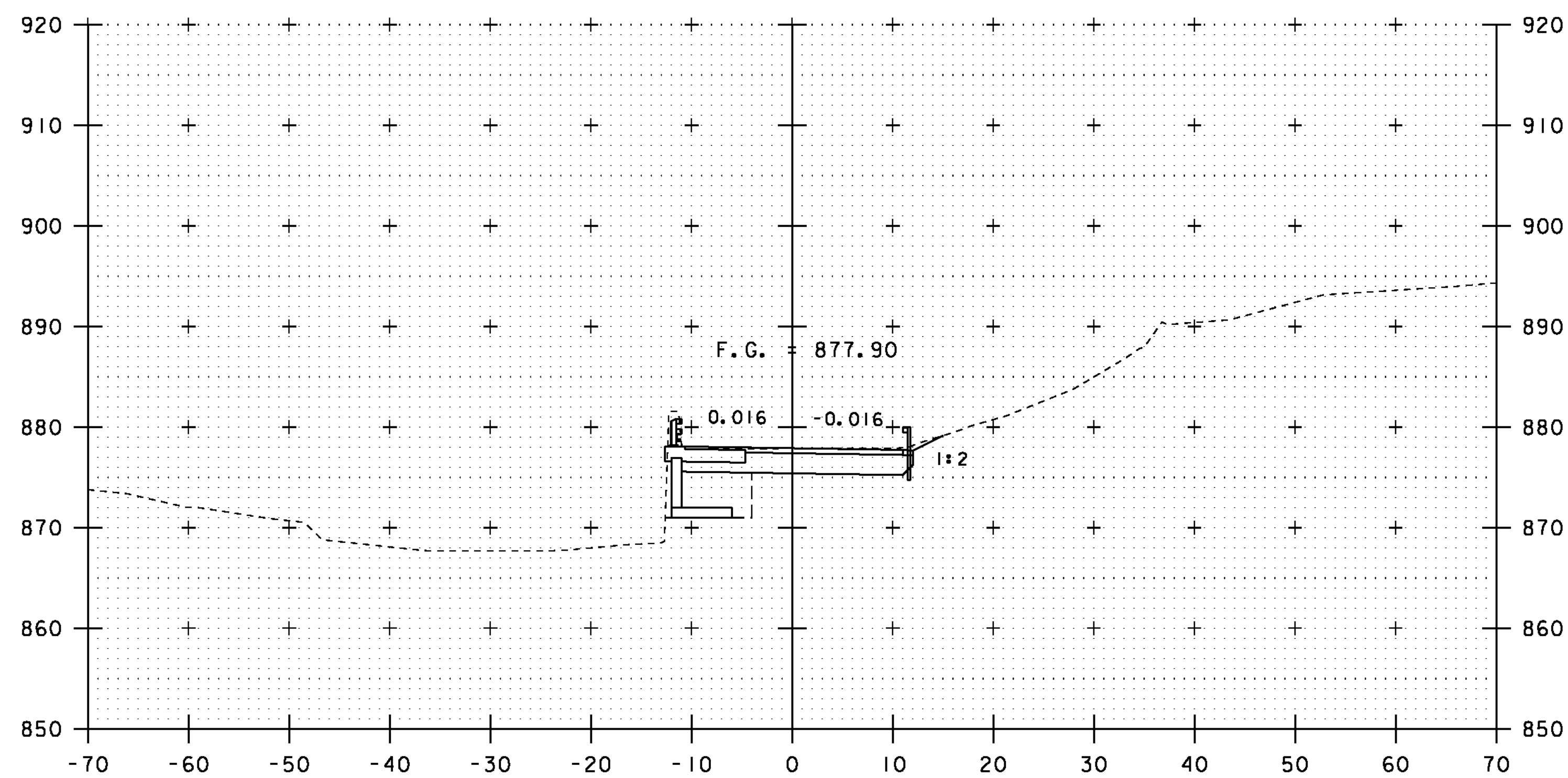


4+25



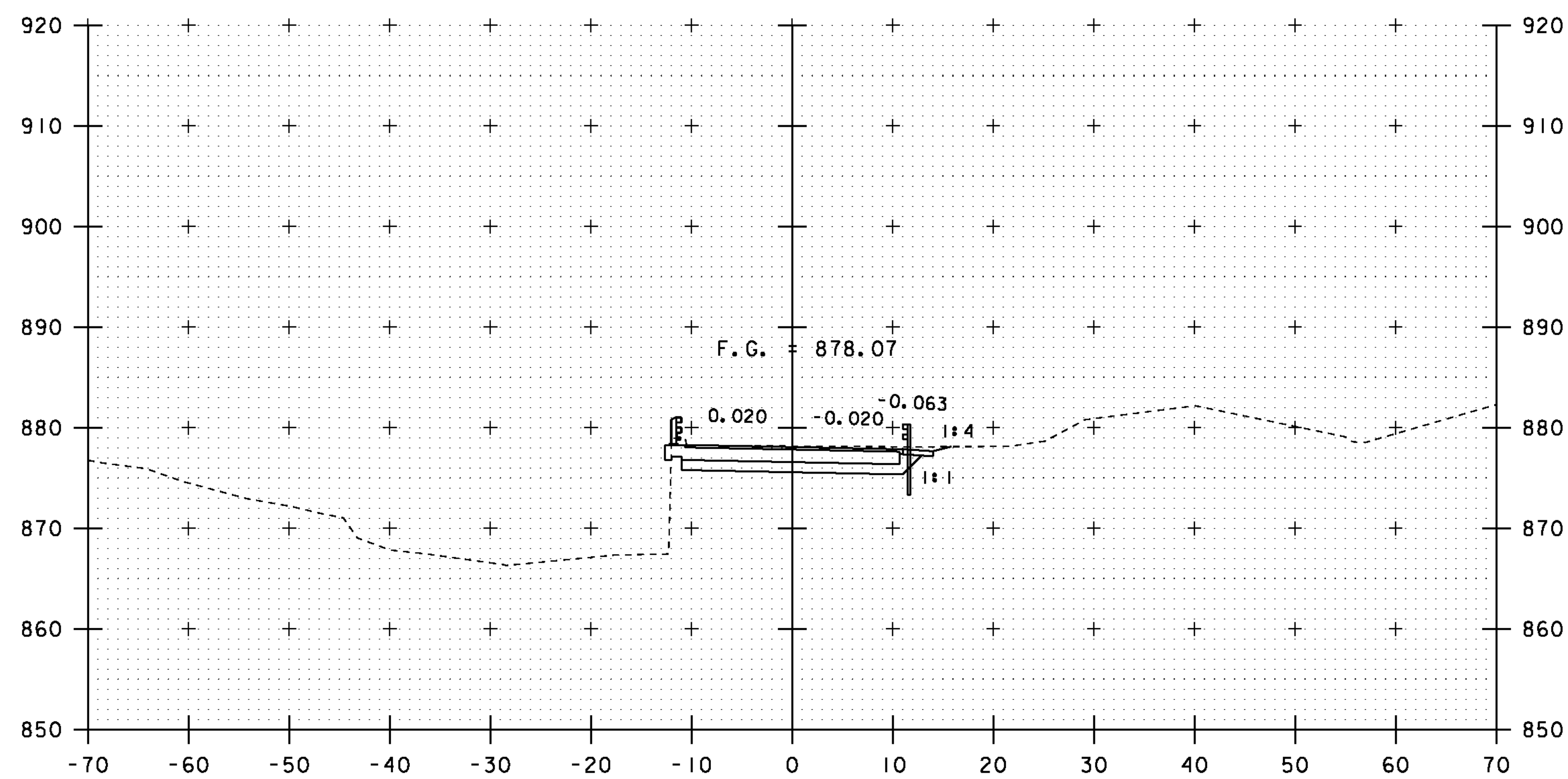
4+00

BEGIN BRIDGE
STA 3+81.32



4+75

BEGIN PRECAST CONCRETE STRUCTURE (WINGWALL NO. 3)
STA 4+64.91 LT



4+50

END BRIDGE
STA 4+37.98



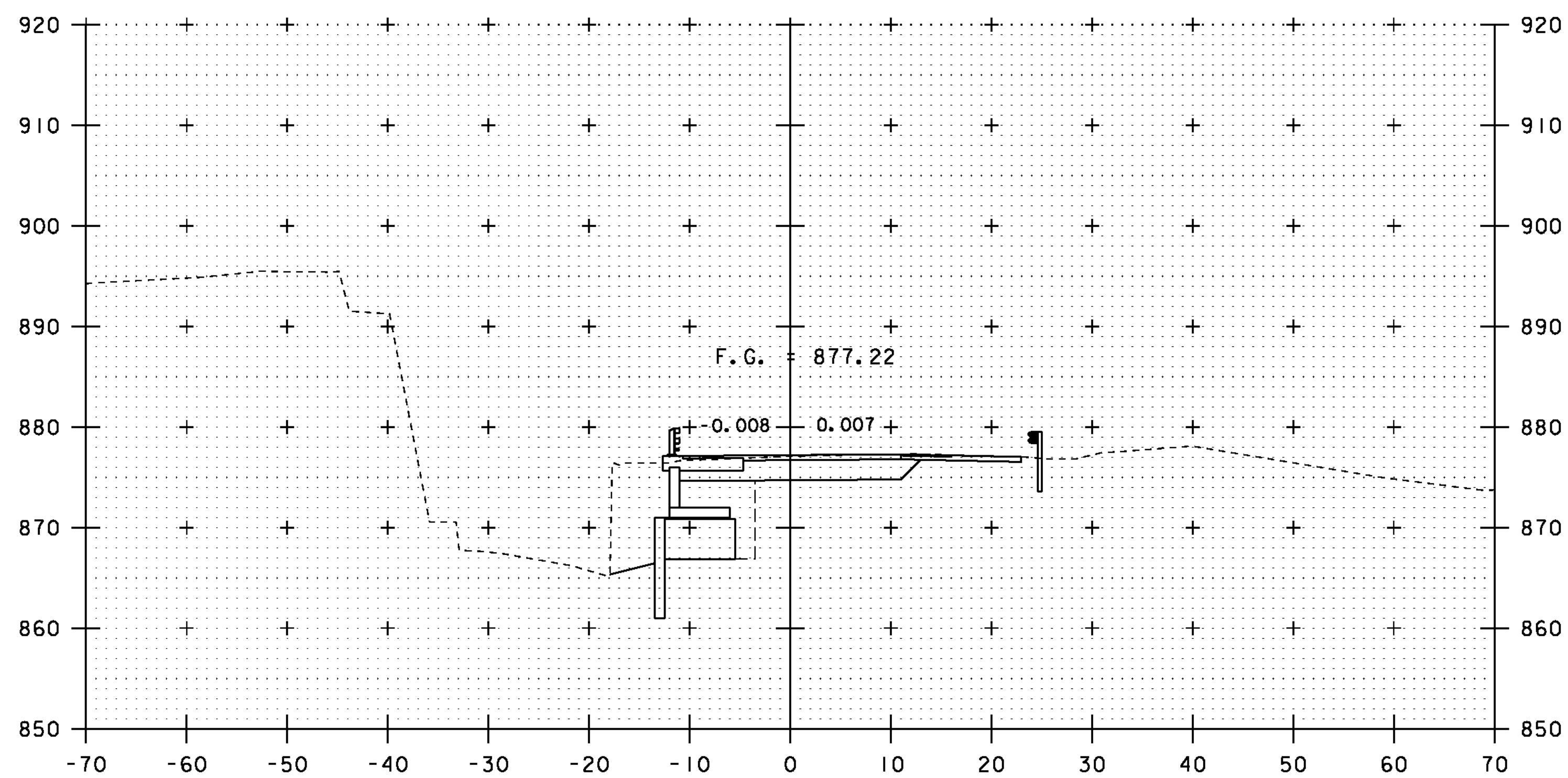
SCALE: 1" = 10'-0"

STA. 4+00 TO STA. 4+75

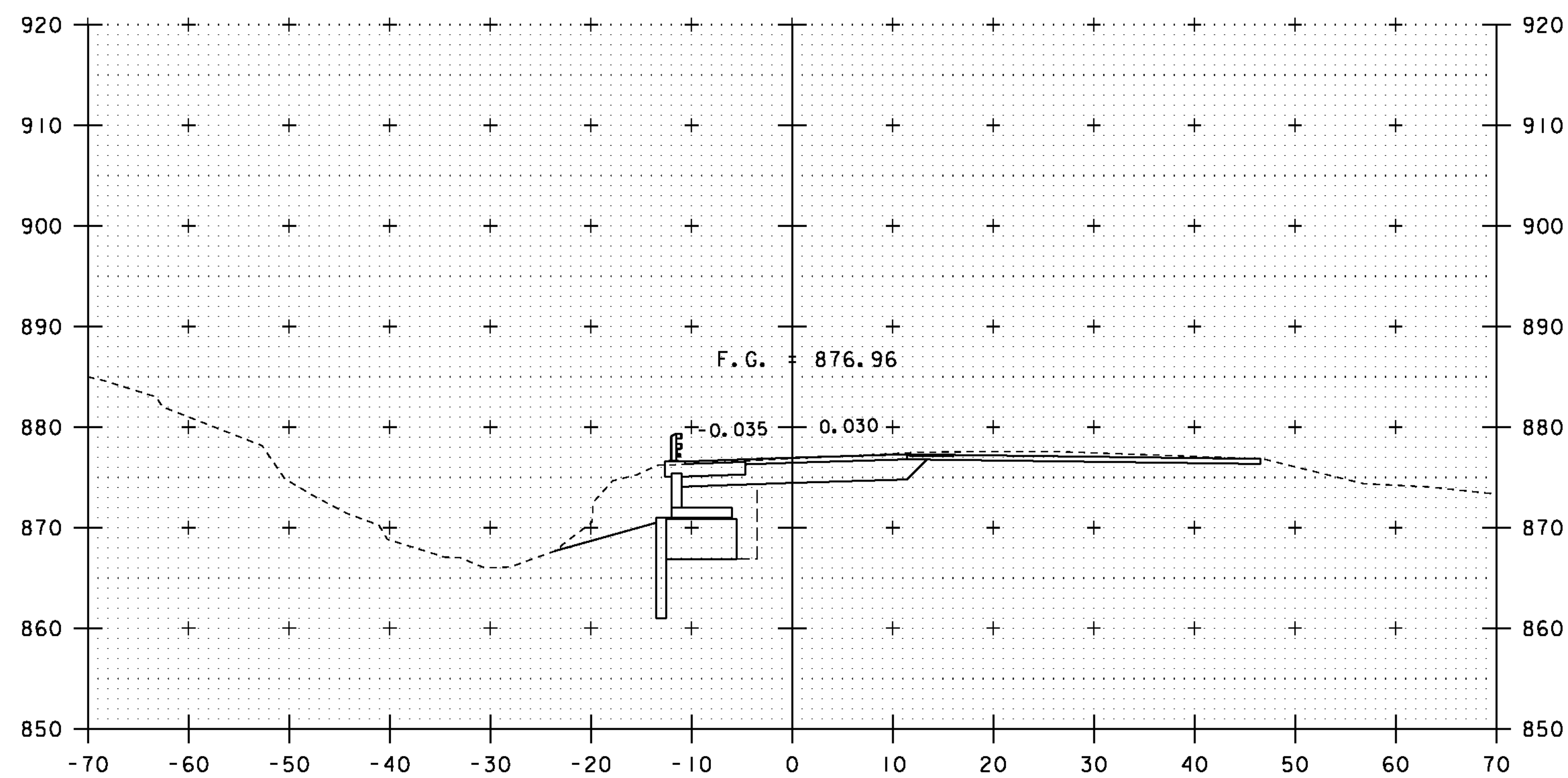
PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)

FILE NAME: sl0c420xsl.dgn
PROJECT LEADER: C. P. WILLIAMS
DESIGNED BY: G. ROY
VT 12A CROSS SECTIONS (3)

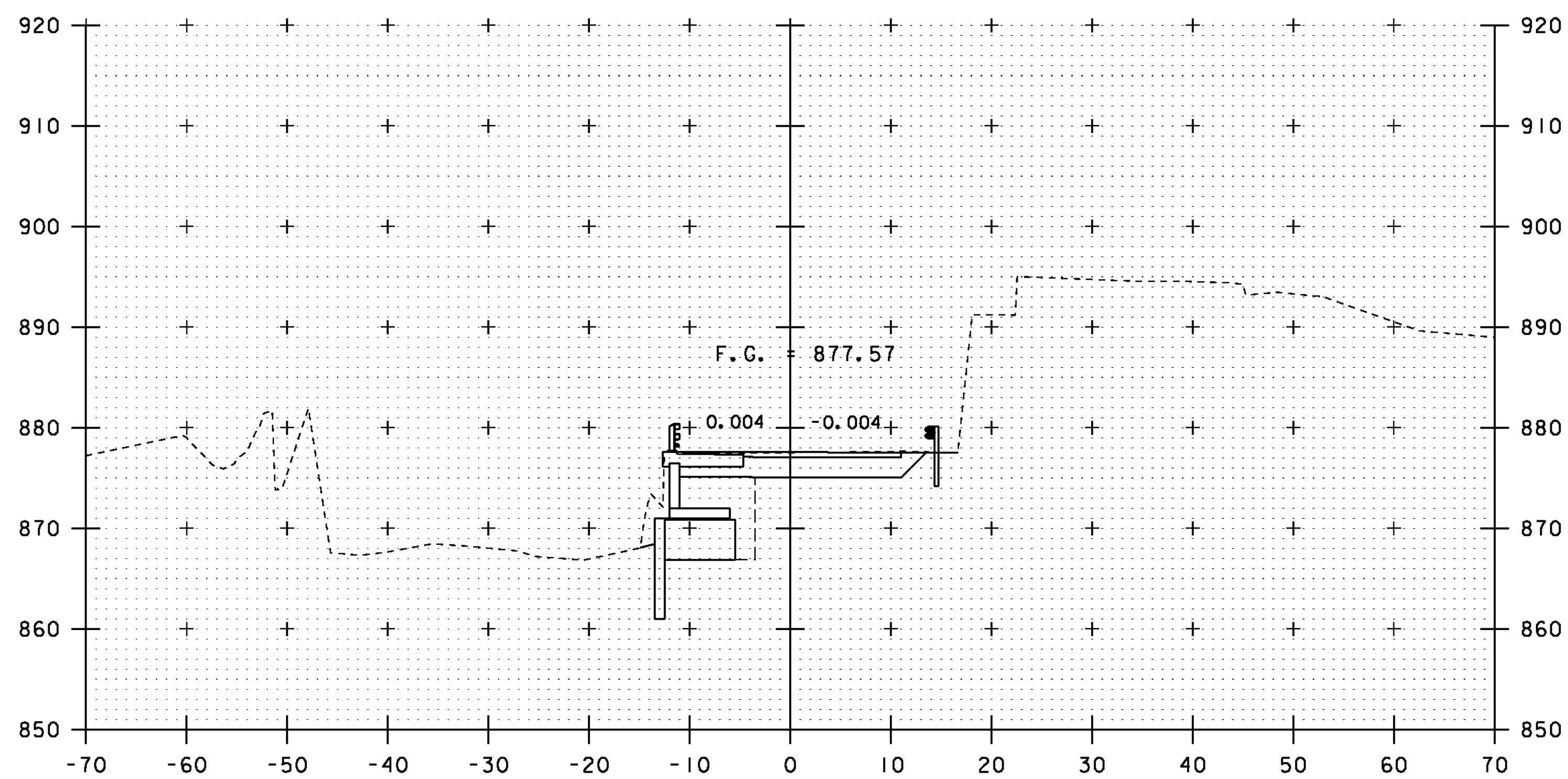
PLOT DATE: 21-SEP-2011
DRAWN BY: G. ROY
CHECKED BY: T. FILLBACH
SHEET 34 OF 54



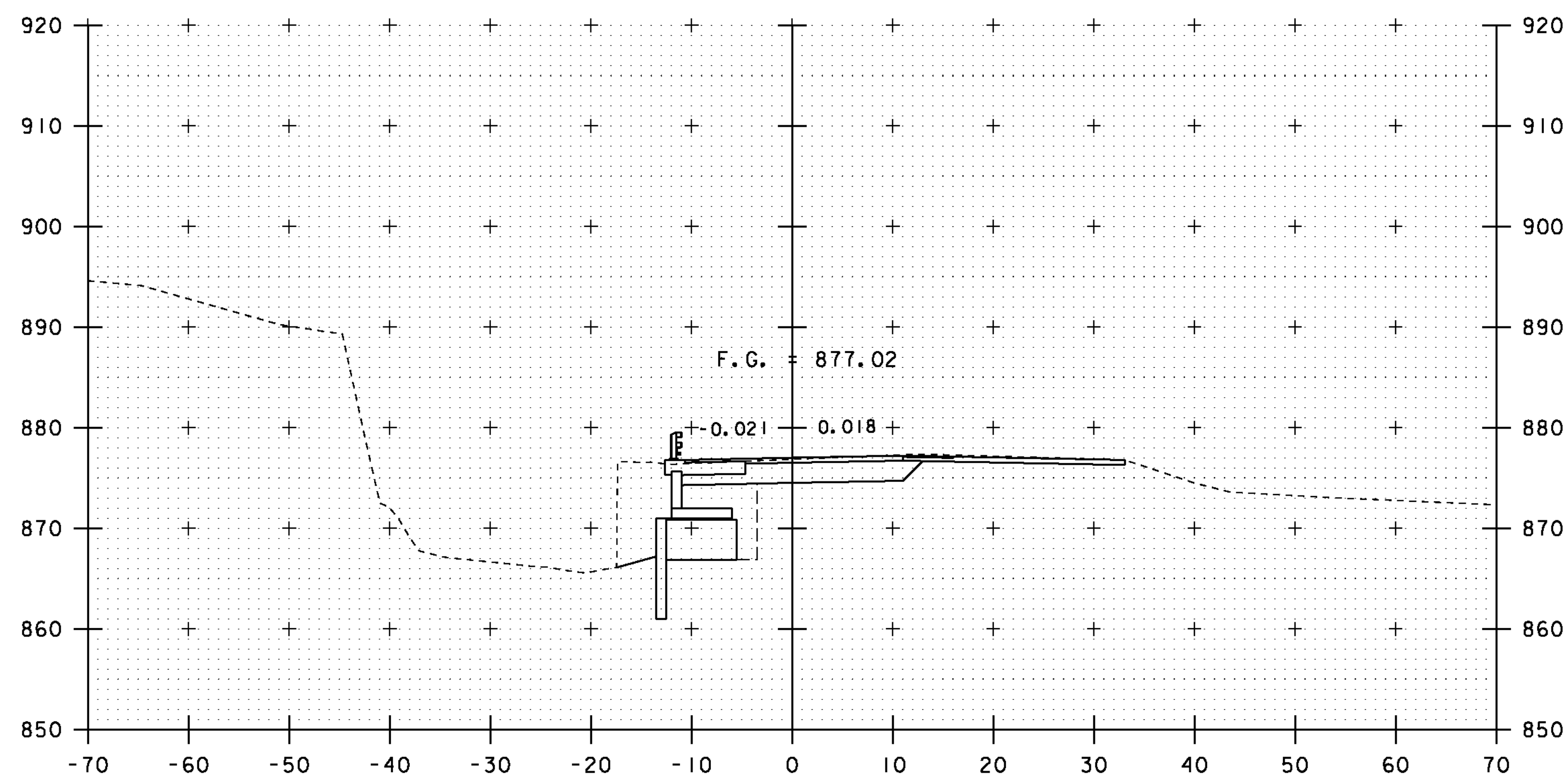
5+25



5+75



5+00

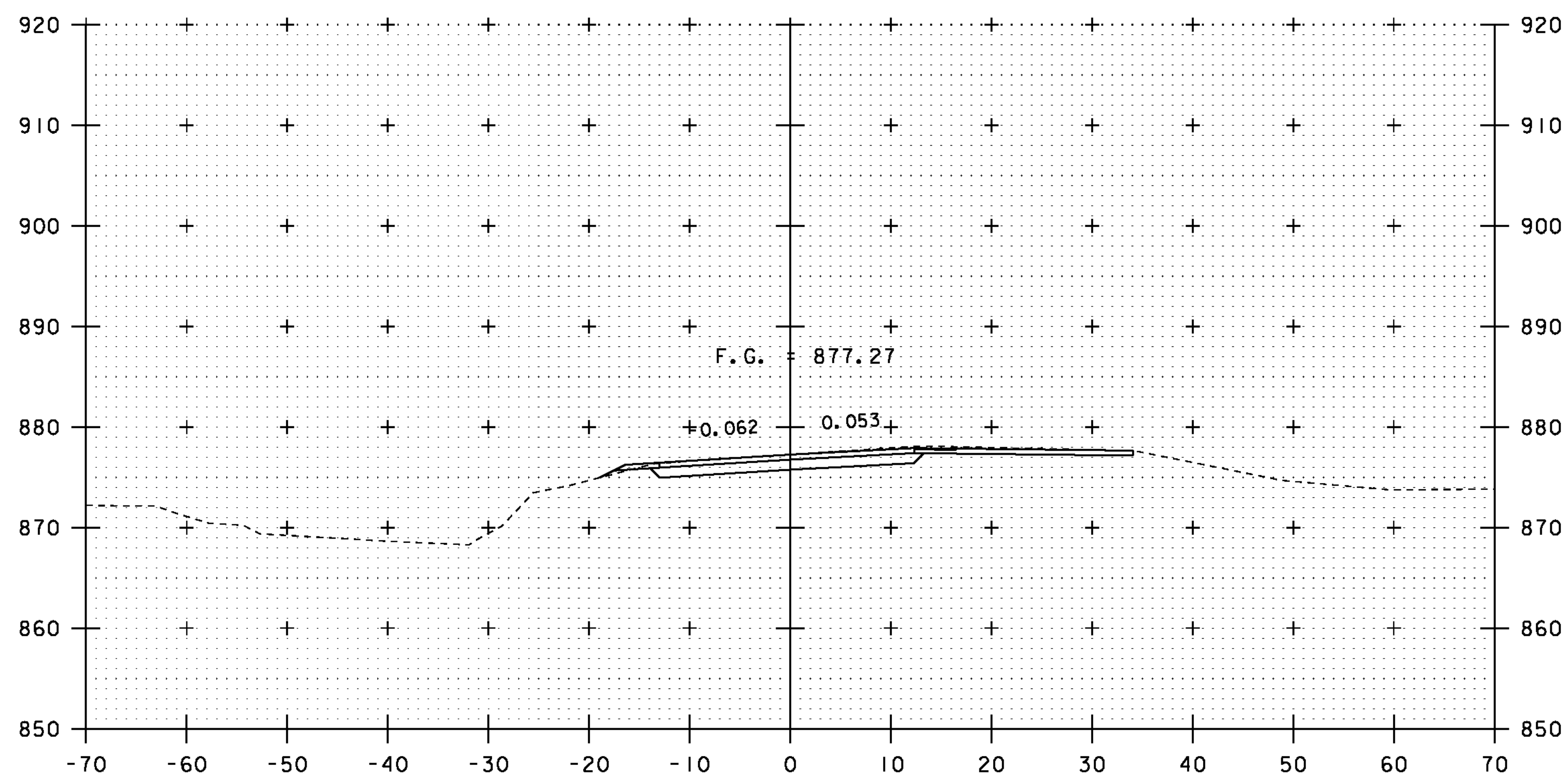


5+50

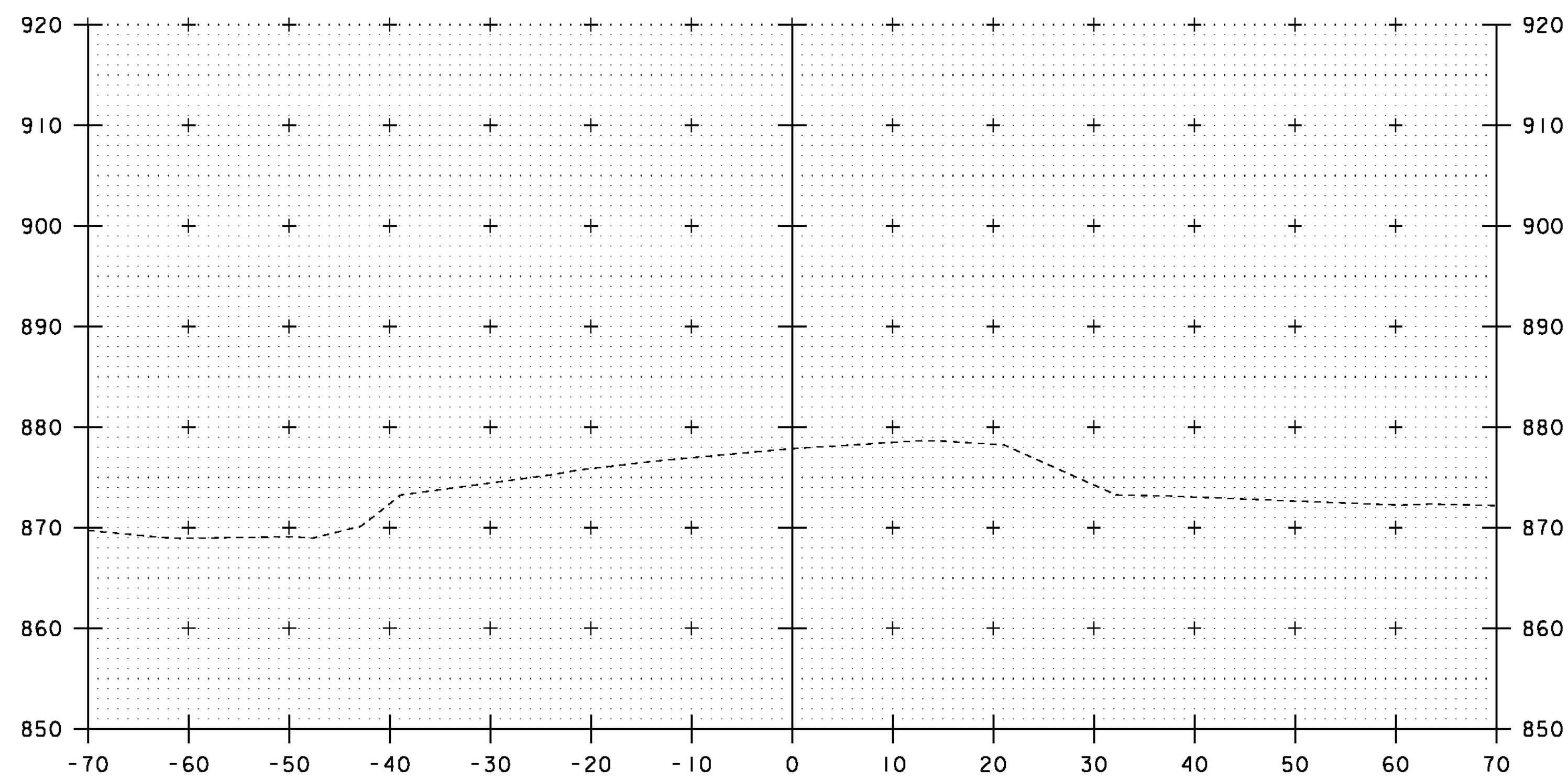
BEGIN PERMANENT STEEL SHEET PILING
STA 4+90.0 LT

PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420xsl.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	SHEET 35 OF 54
DESIGNED BY: G. ROY	
VT 12A CROSS SECTIONS (4)	

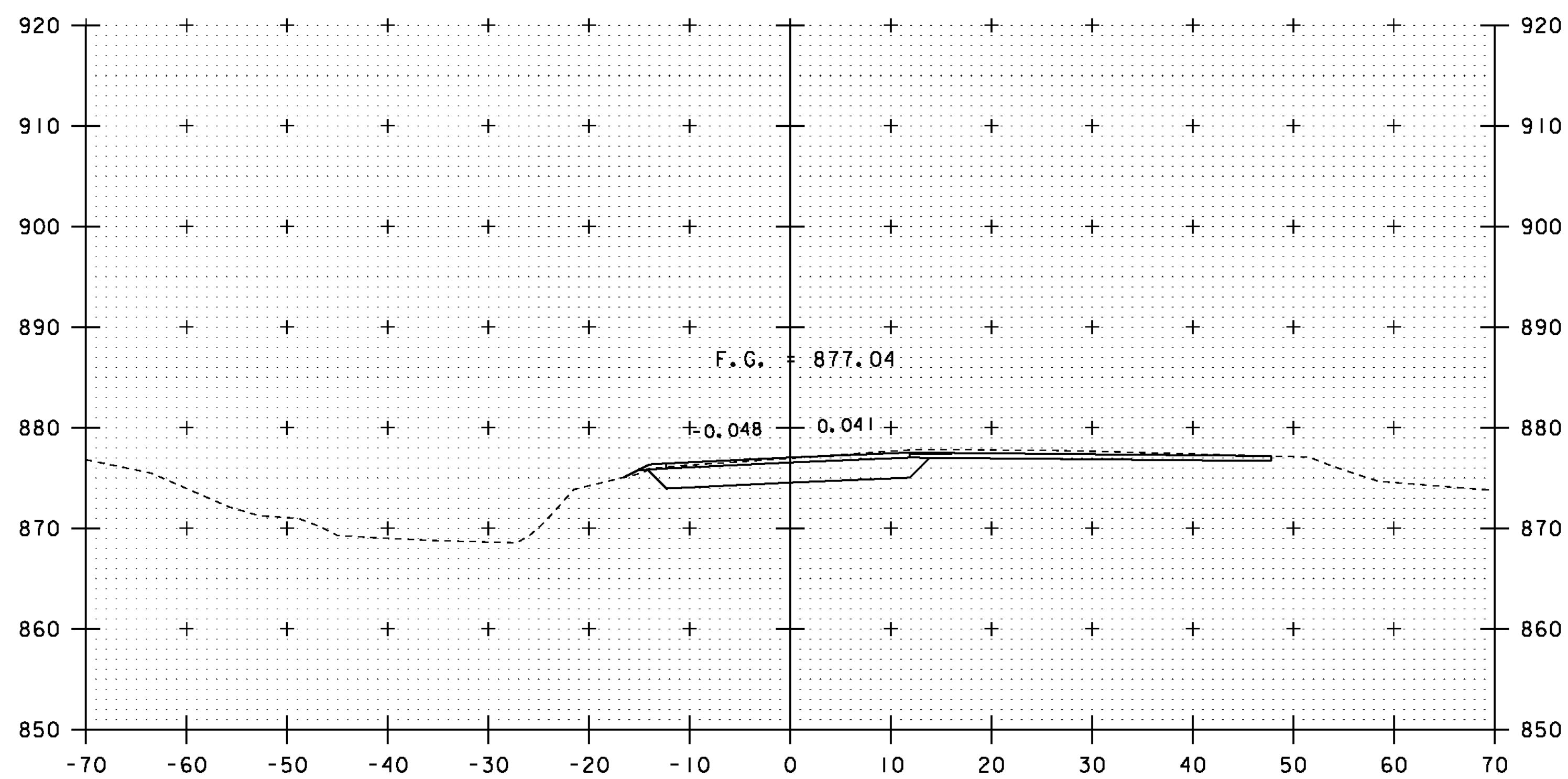
STA. 5+00 TO STA. 5+75



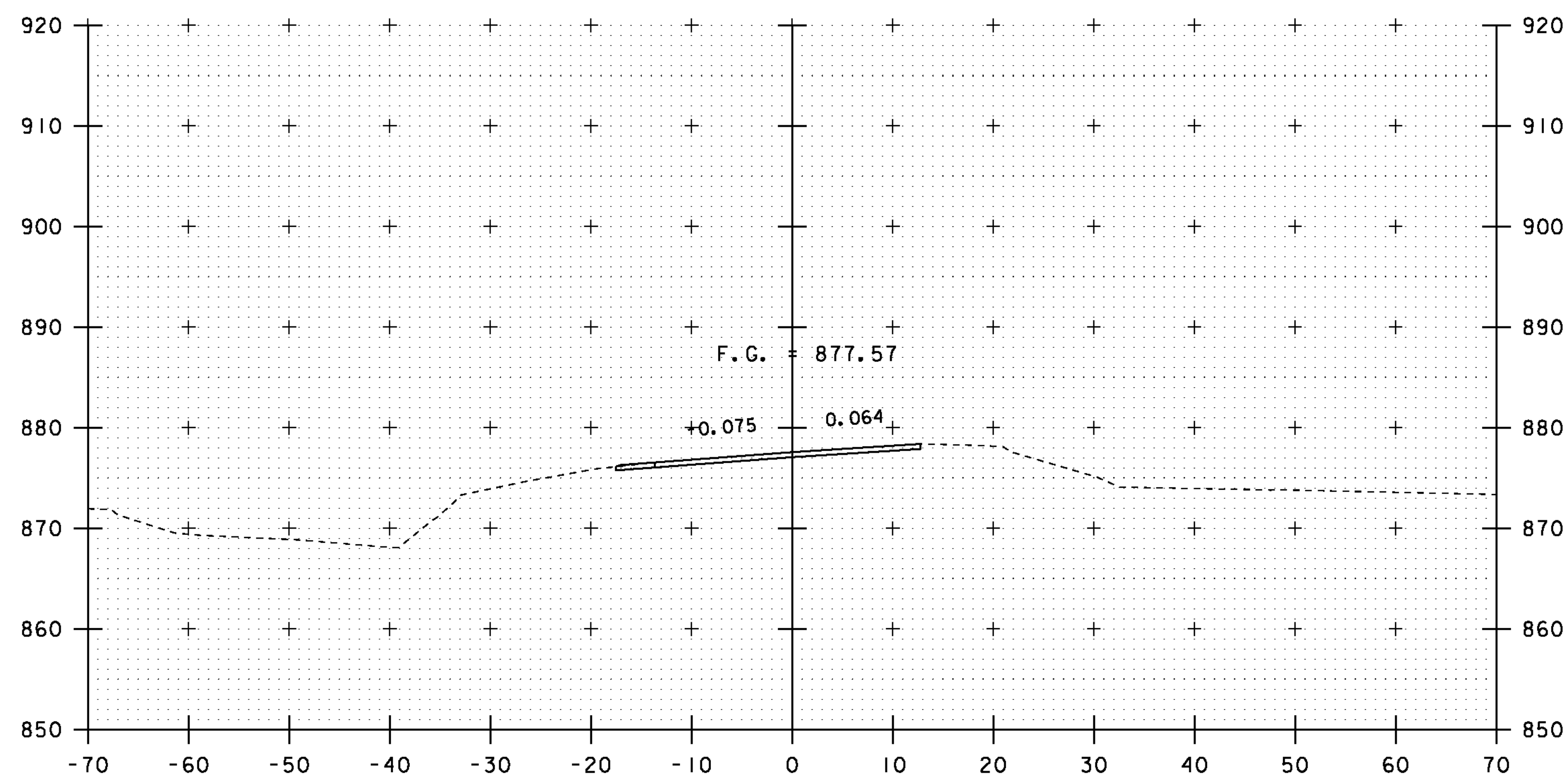
6+25



6+75



6+00



6+50

END PRECAST CONCRETE STRUCTURE (WINGWALL NO. 3)
STA 5+99.30 LT
END PERMANENT STEEL SHEET PILING
STA 6+00.0 LT

END PROJECT
BEGIN APPROACH
STA 6+00.00

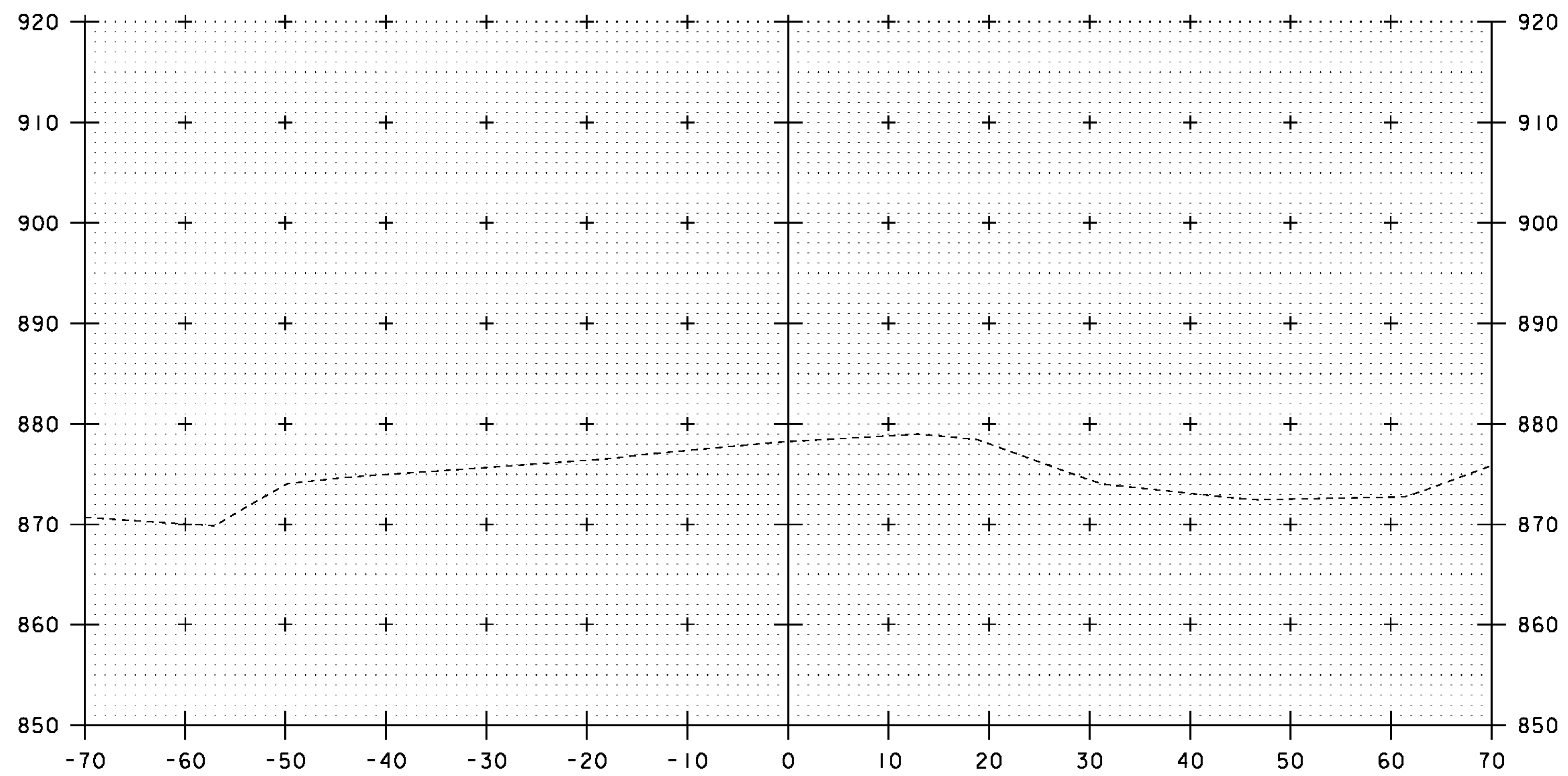
END APPROACH
MATCH EXISTING
STA 6+50.00

PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)

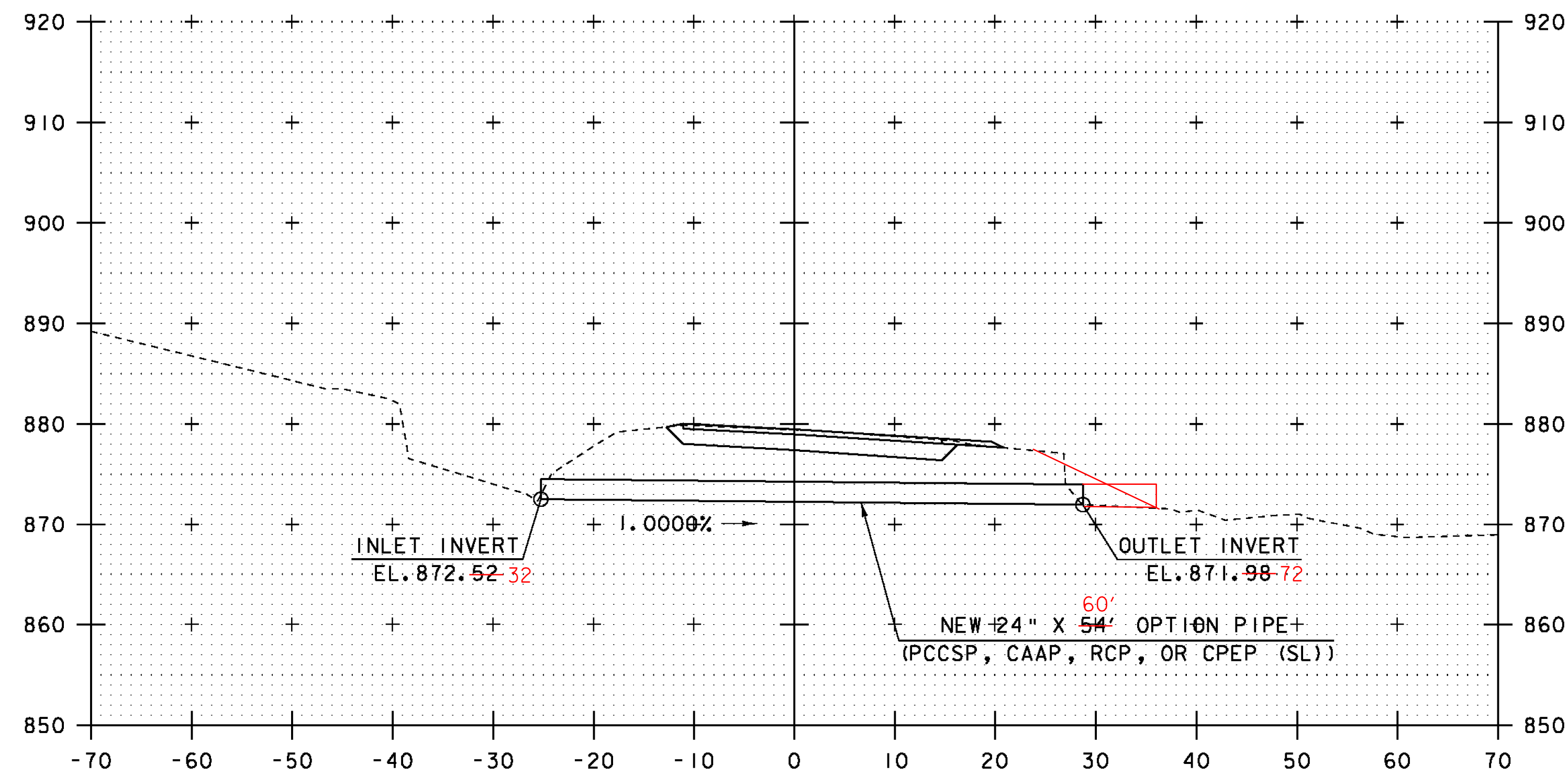
FILE NAME: sl0c420xsl.dgn
PROJECT LEADER: C. P. WILLIAMS
DESIGNED BY: G. ROY

PLOT DATE: 21-SEP-2011
DRAWN BY: G. ROY
CHECKED BY: T. FILLBACH
SHEET 36 OF 54

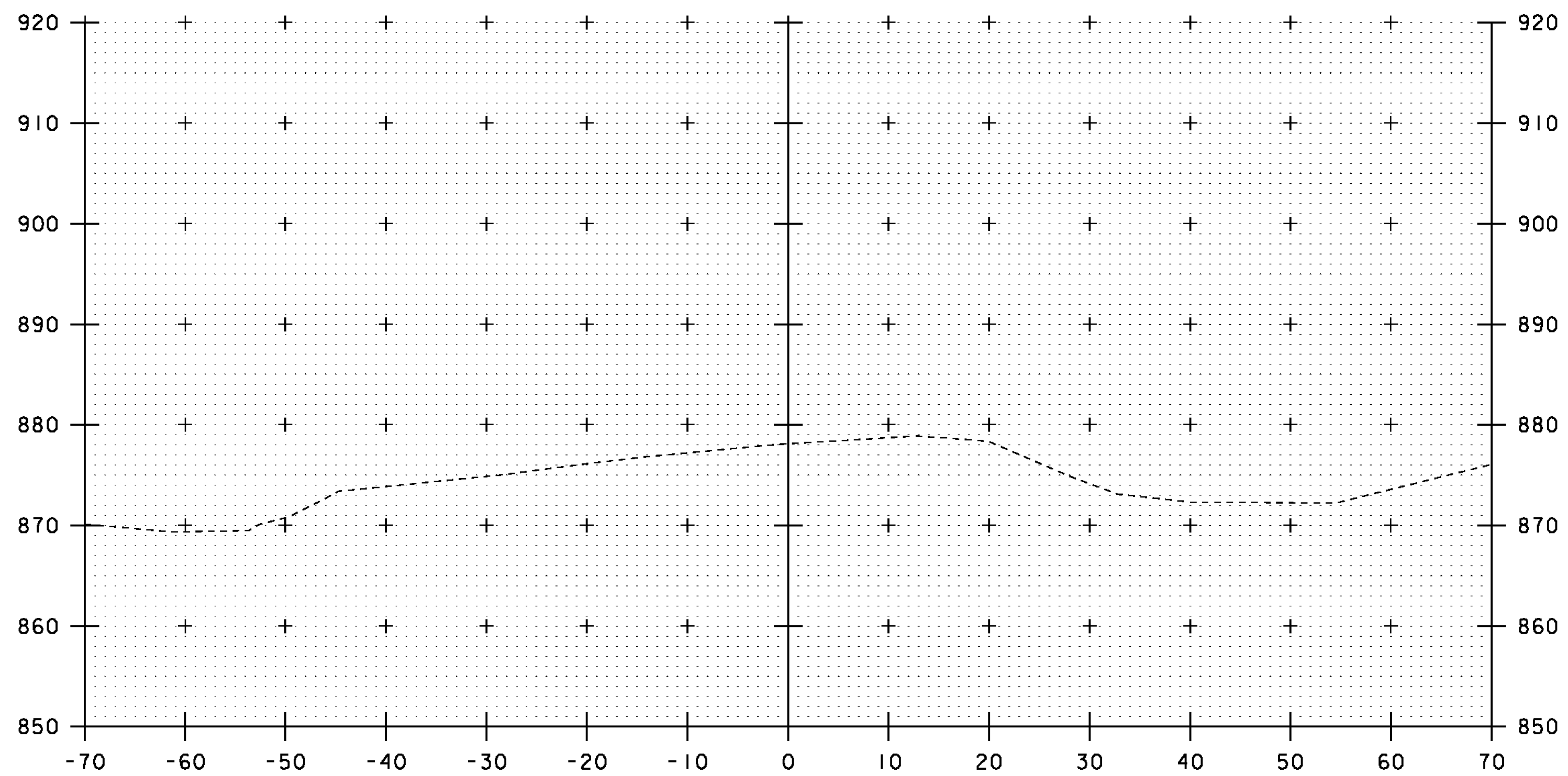
STA. 6+00 TO STA. 6+75



7+25



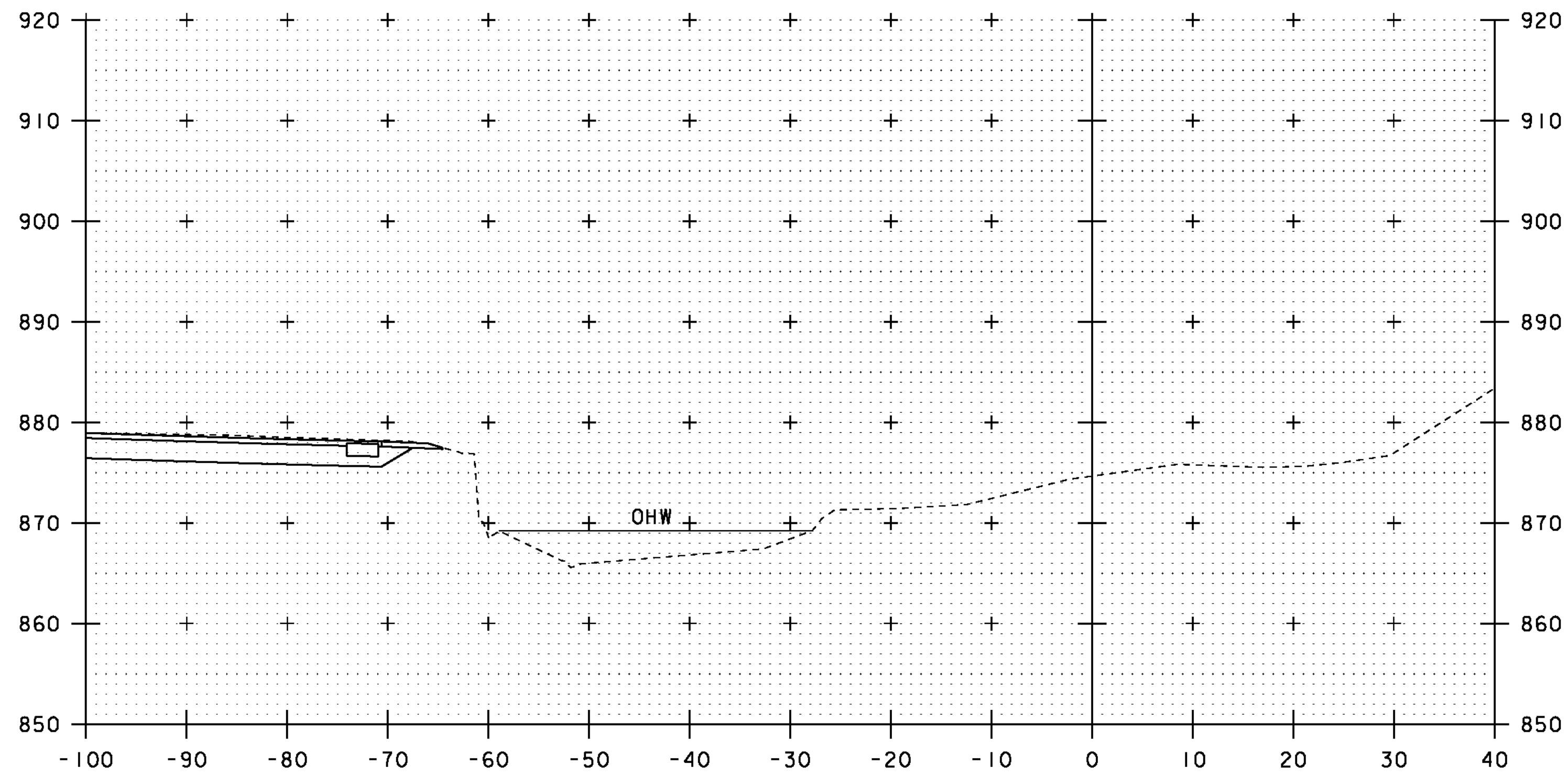
2+89.2, SKEW 7° 48' LT



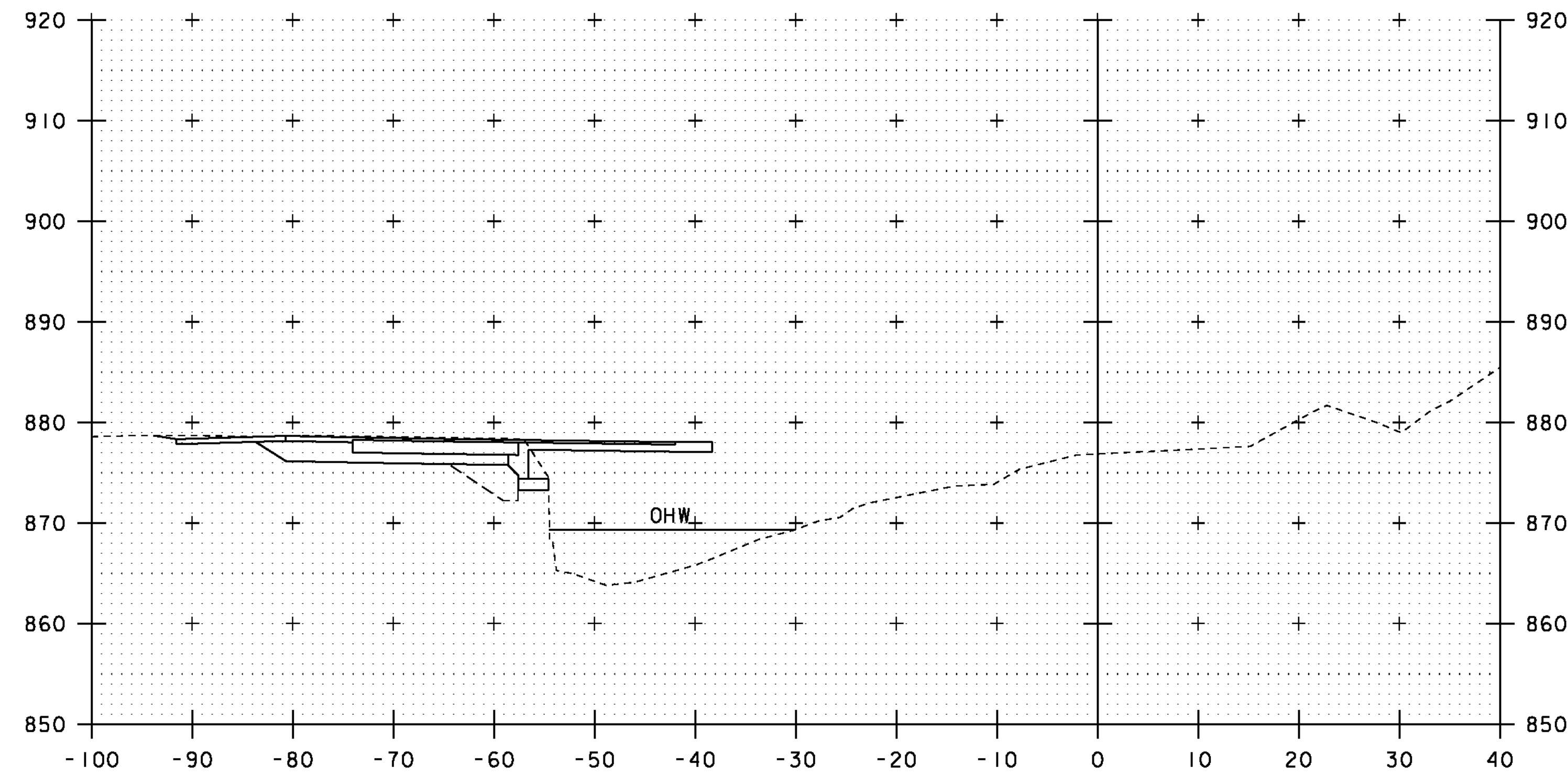
7+00

STA. 7+00 TO STA. 7+25

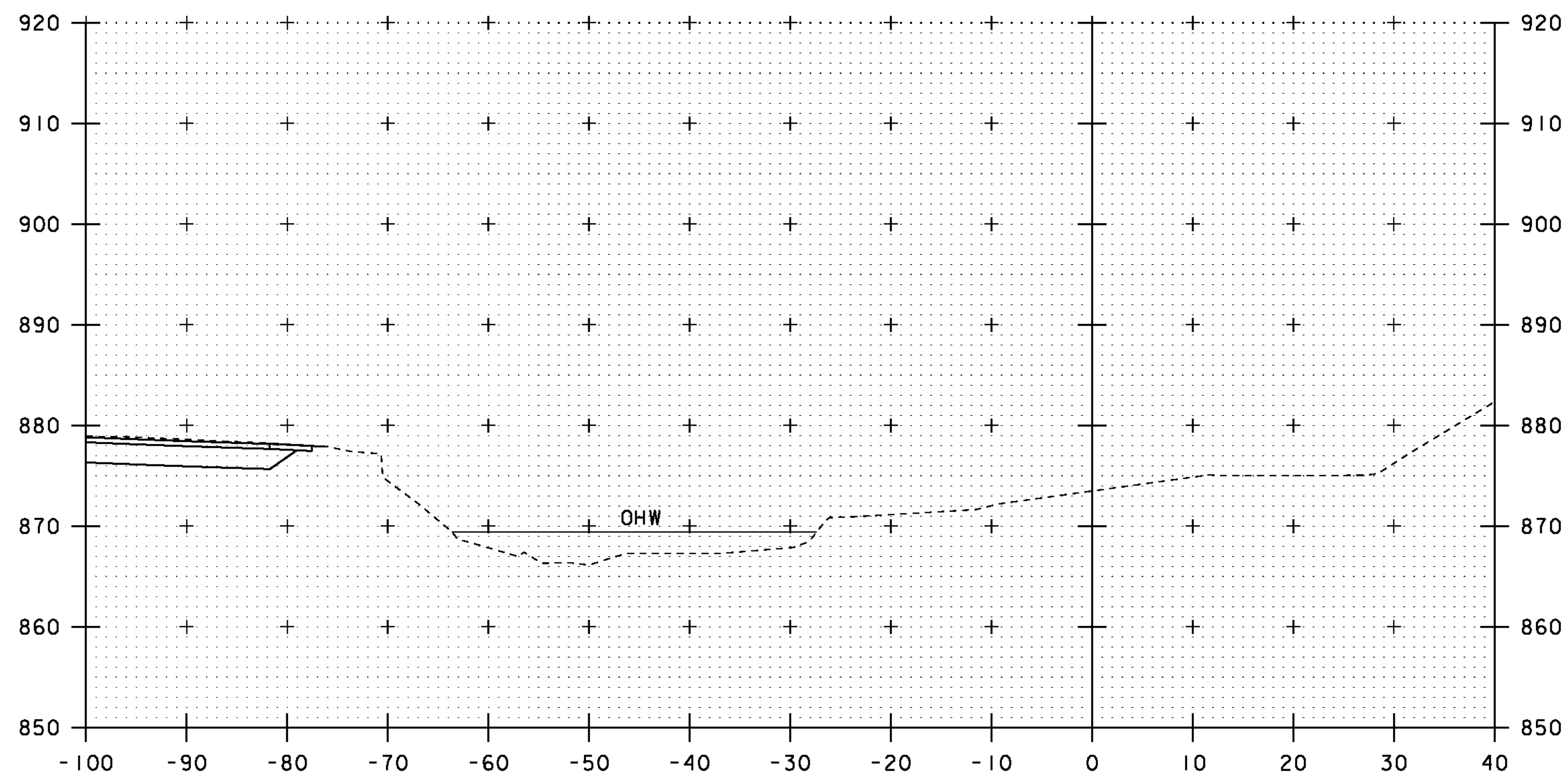
PROJECT NAME: ROXBURY	
PROJECT NUMBER: BHF 0187(8)	
FILE NAME: sl0c420xsl.dgn	PLOT DATE: 21-SEP-2011
PROJECT LEADER: C. P. WILLIAMS	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: T. FILLBACH
VT 12A CROSS SECTIONS (6)	SHEET 37 OF 54



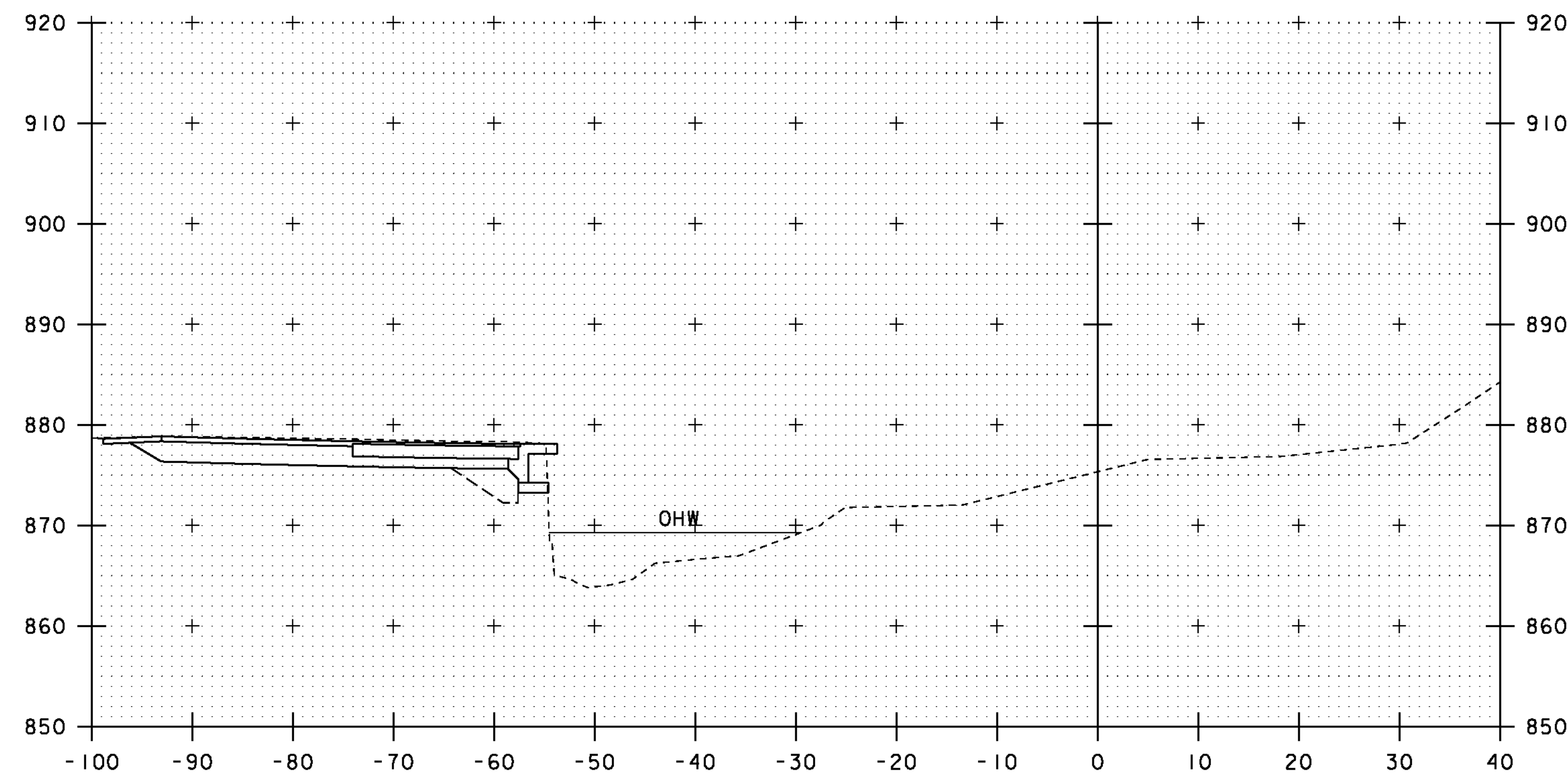
50+40



50+60



50+30



50+50



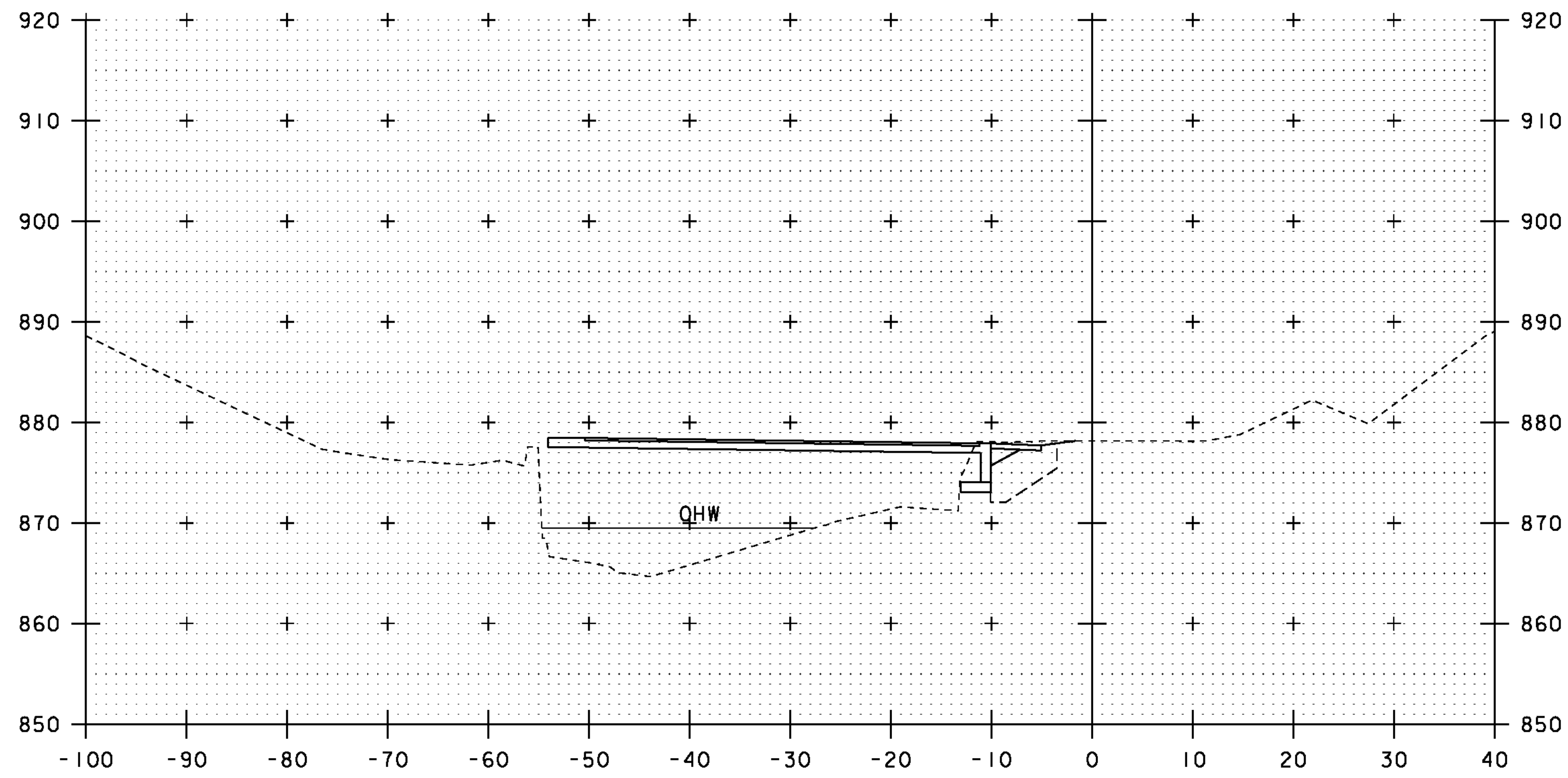
SCALE: 1" = 10'-0"

STA. 50+30 TO STA. 50+60

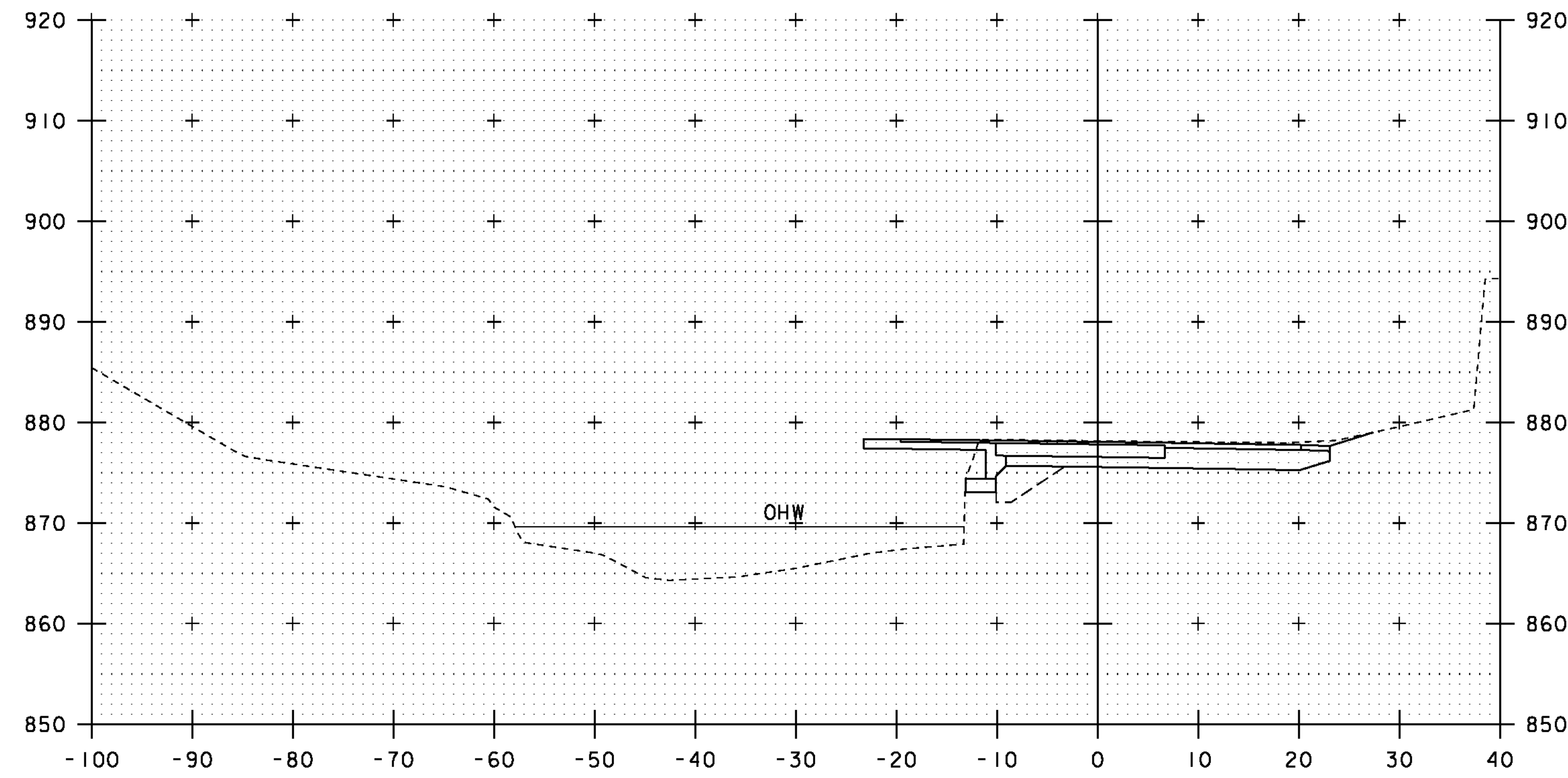
PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)

FILE NAME: sl0c420xsl.dgn
PROJECT LEADER: C. P. WILLIAMS
DESIGNED BY: G. ROY
CHANNEL LINE CROSS SECTIONS (1)

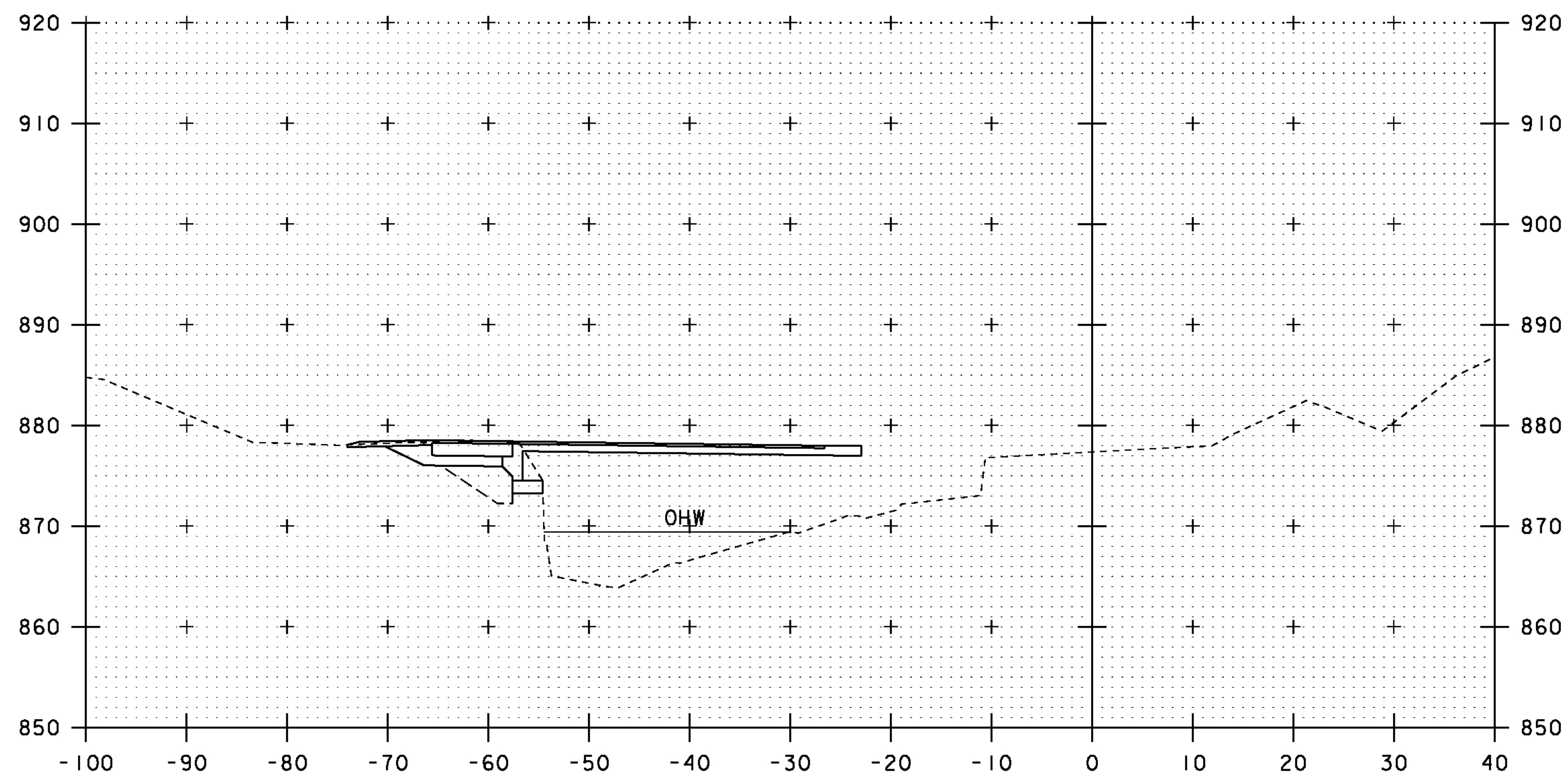
PLOT DATE: 21-SEP-2011
DRAWN BY: G. ROY
CHECKED BY: T. FILLBACH
SHEET 38 OF 54



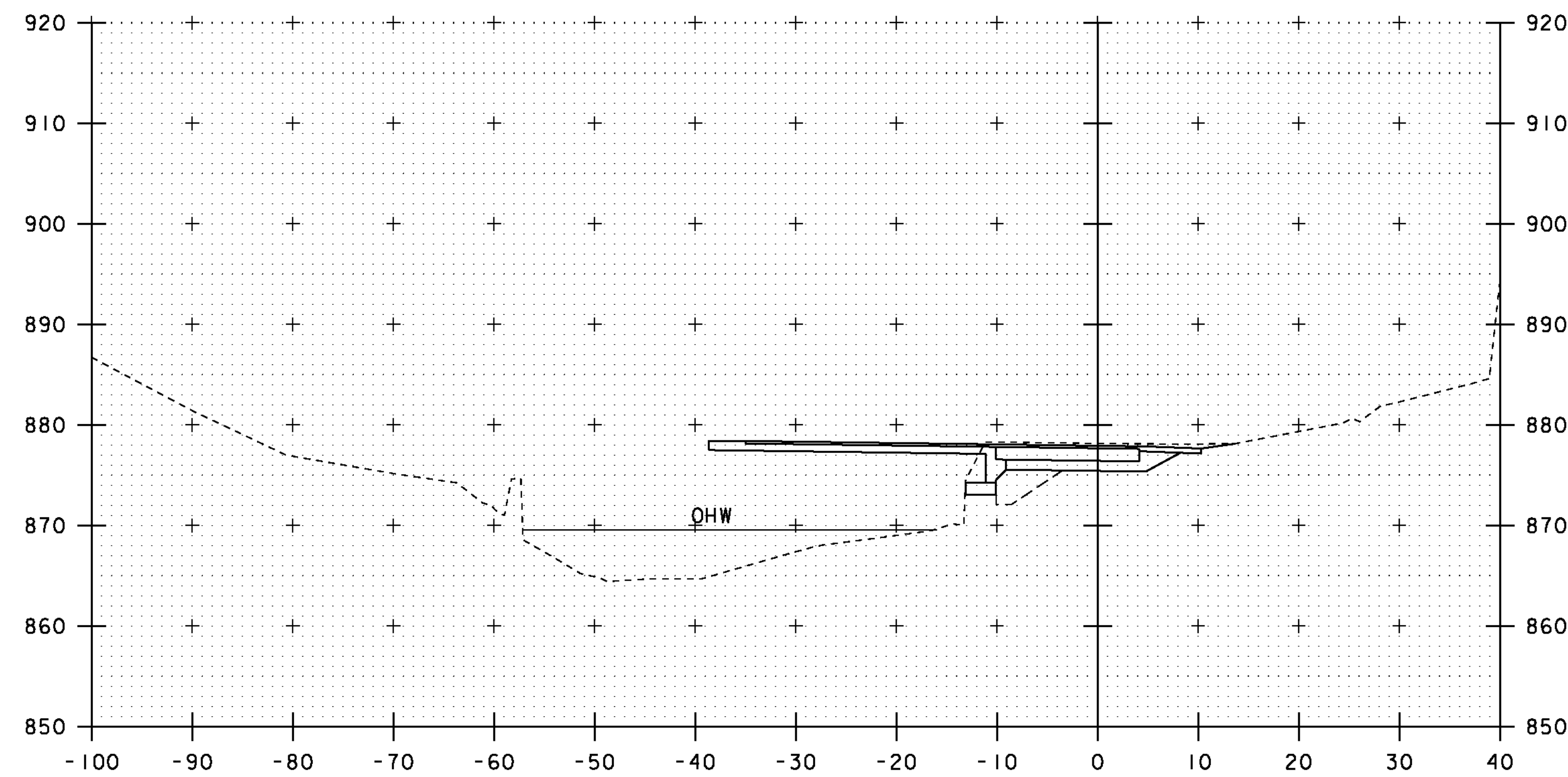
50+80



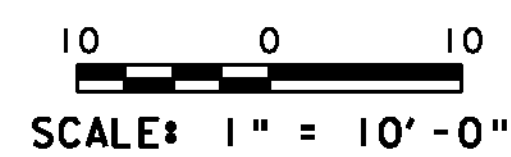
51+00



50+70

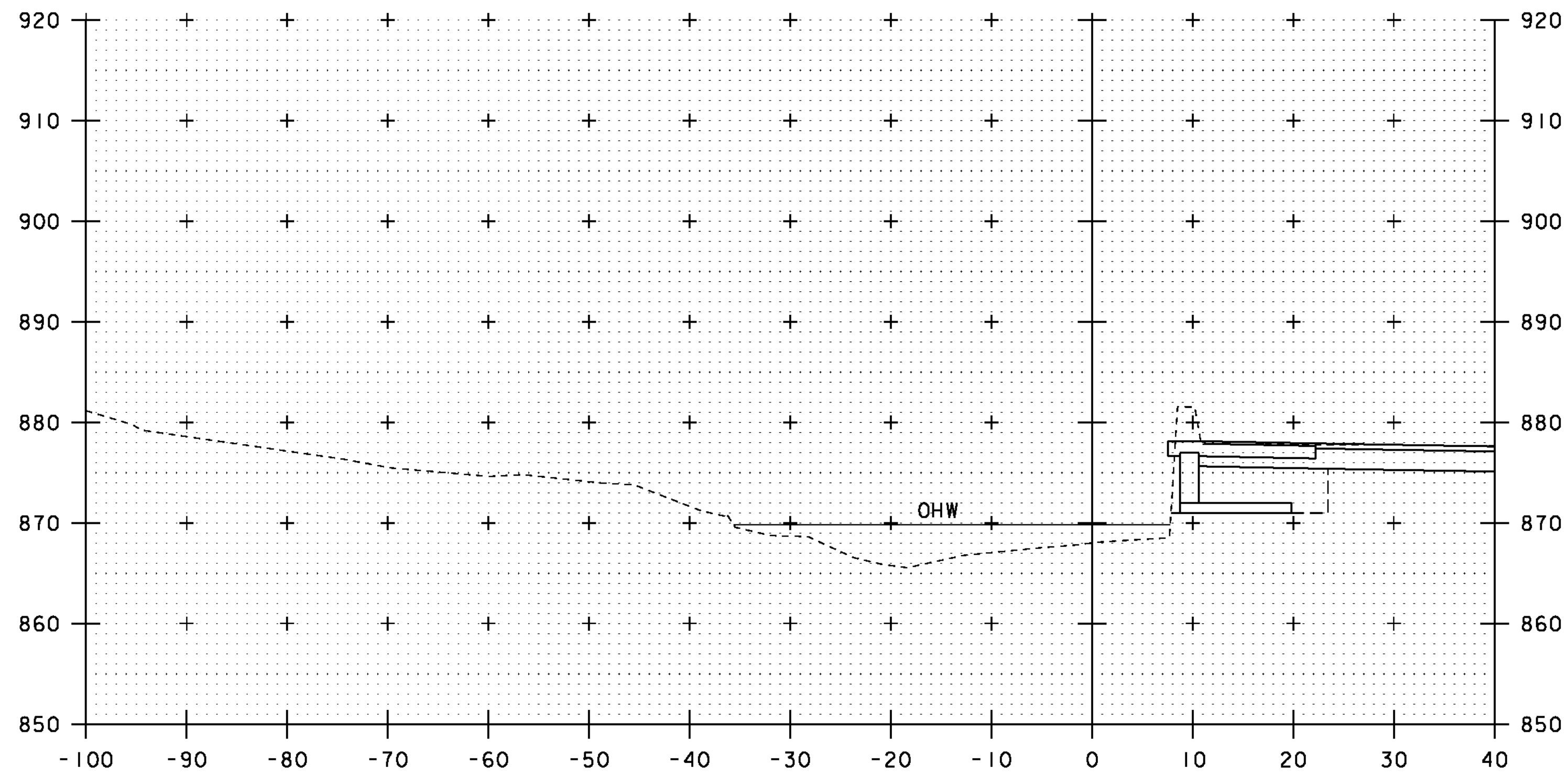


50+90

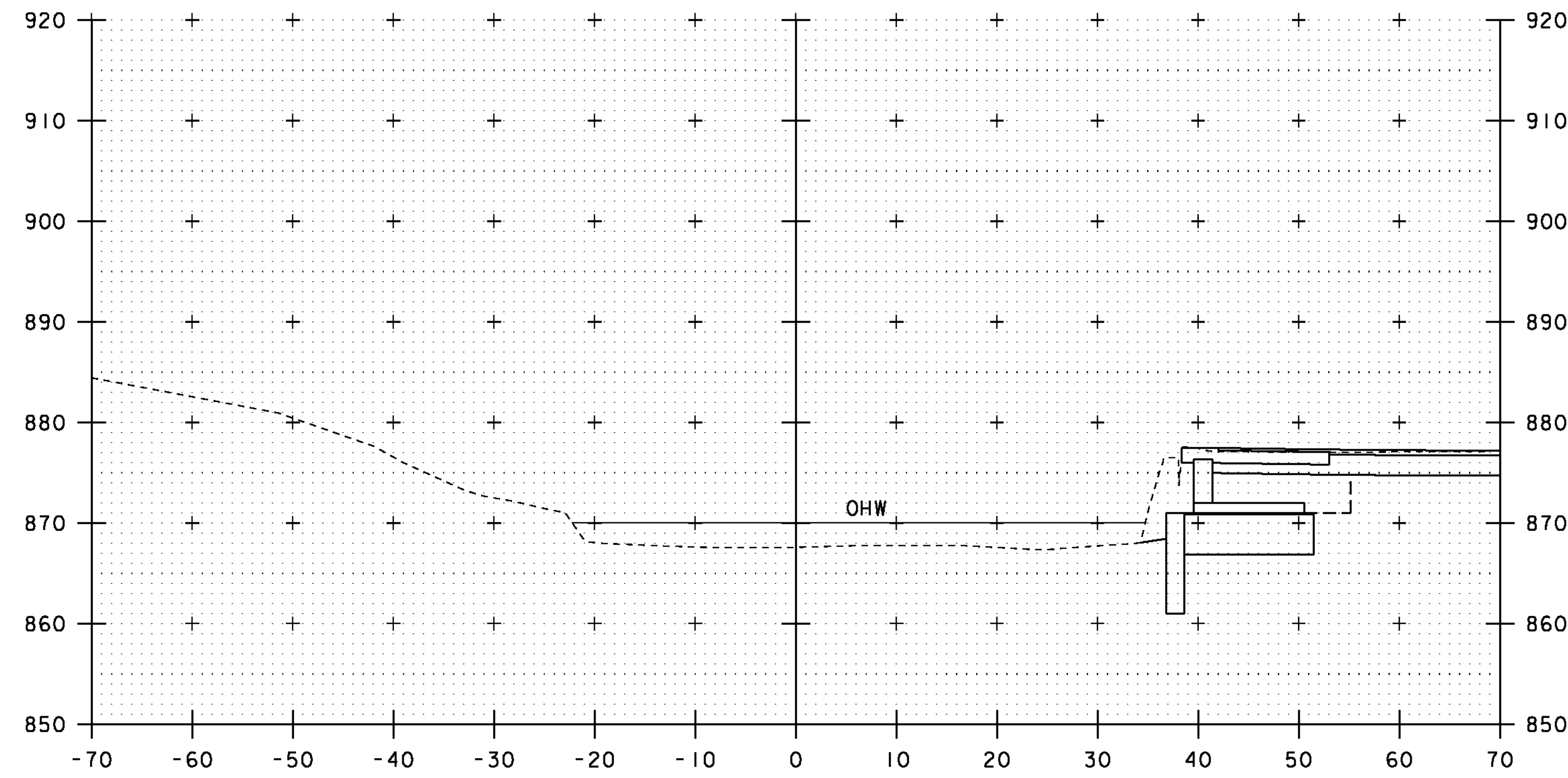


STA. 50+70 TO STA. 51+00

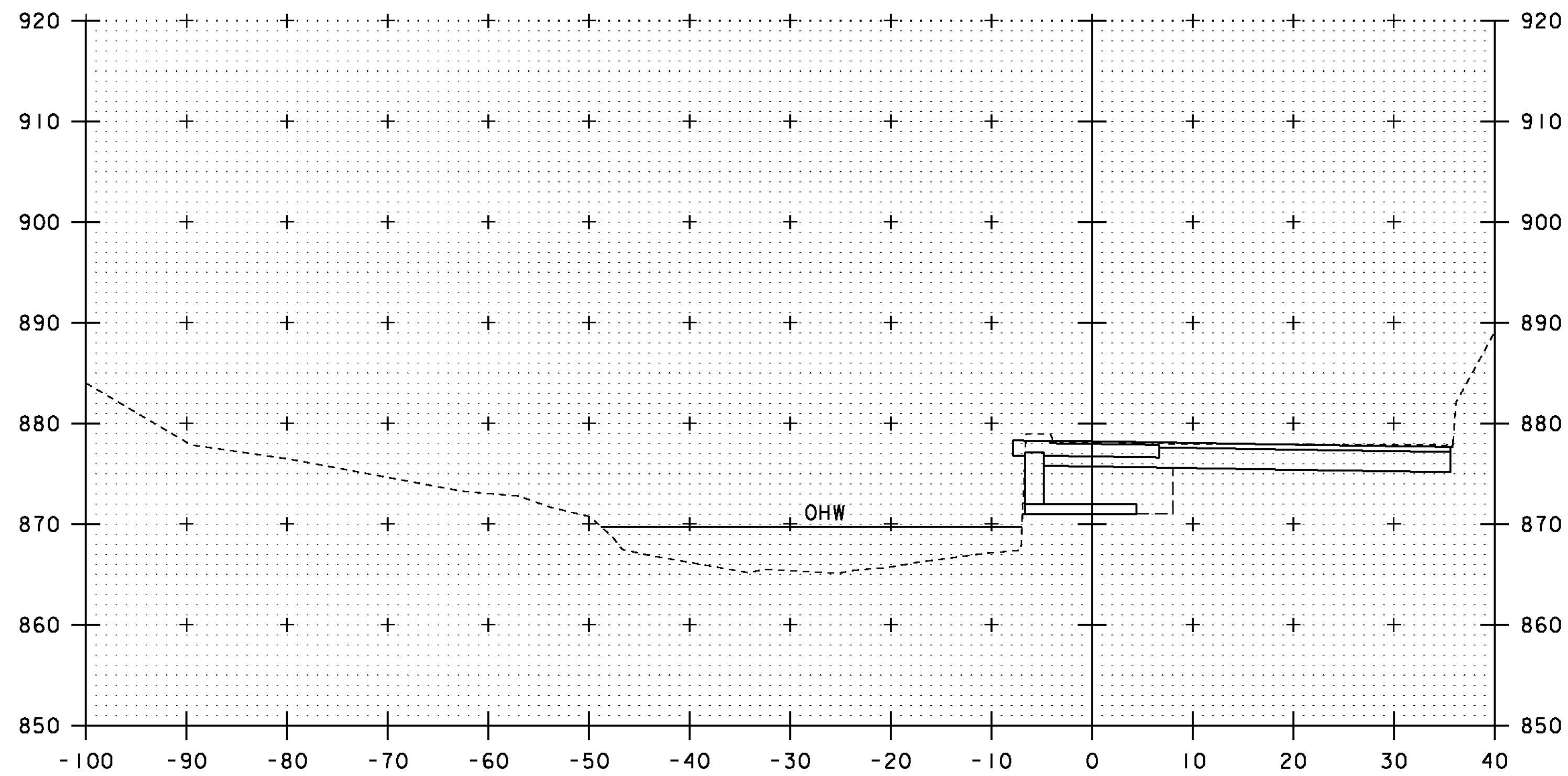
PROJECT NAME: ROXBURY	PLOT DATE: 21-SEP-2011
PROJECT NUMBER: BHF 0187(8)	DRAWN BY: G. ROY
FILE NAME: sl0c420xsl.dgn	CHECKED BY: T. FILLBACH
PROJECT LEADER: C. P. WILLIAMS	SHEET 39 OF 54
DESIGNED BY: G. ROY	
CHANNEL LINE CROSS SECTIONS (2)	



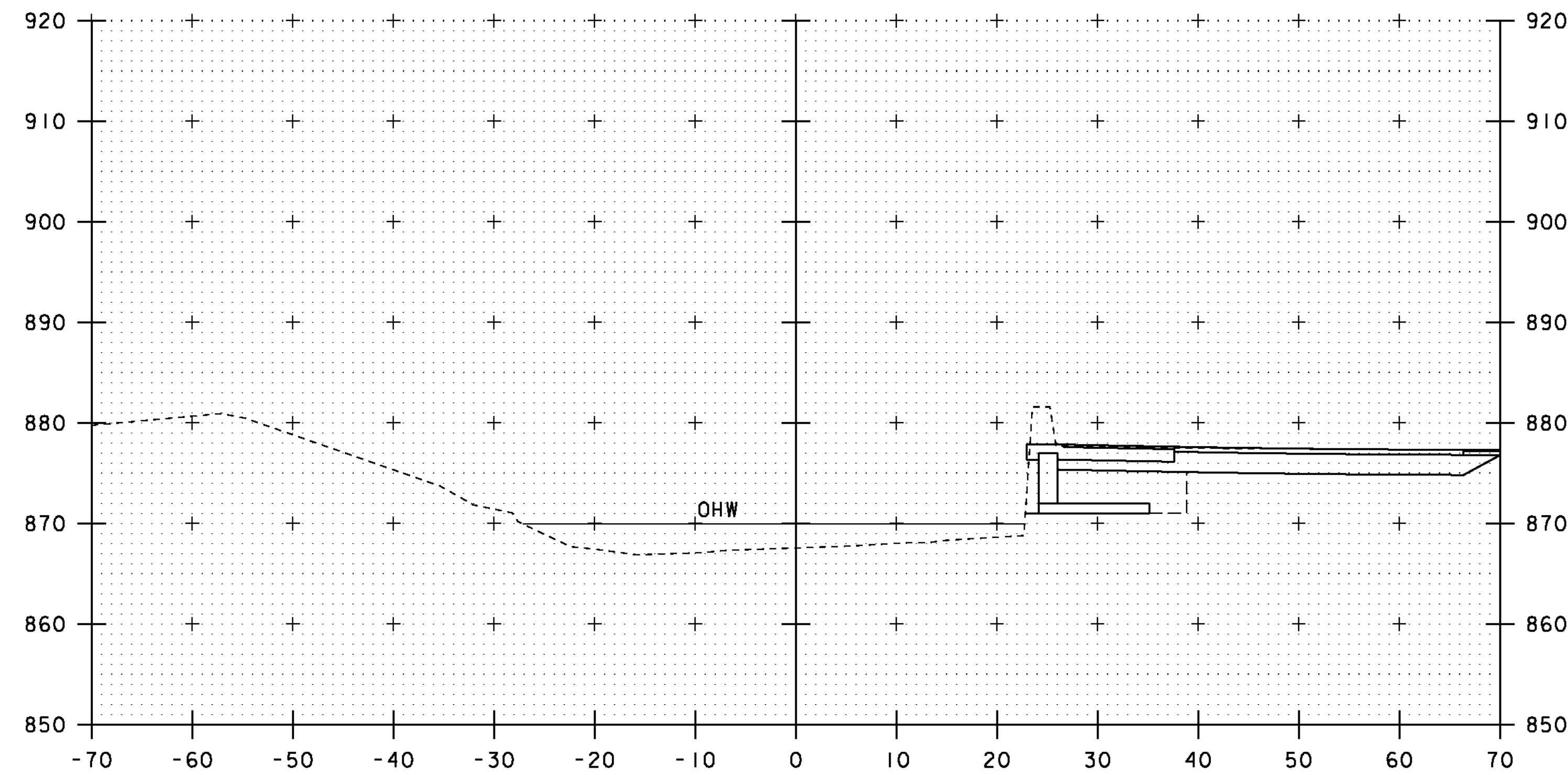
51+20



51+40



51+10



51+30



SCALE: 1" = 10'-0"

STA. 51+10 TO STA. 51+40

PROJECT NAME: ROXBURY
PROJECT NUMBER: BHF 0187(8)

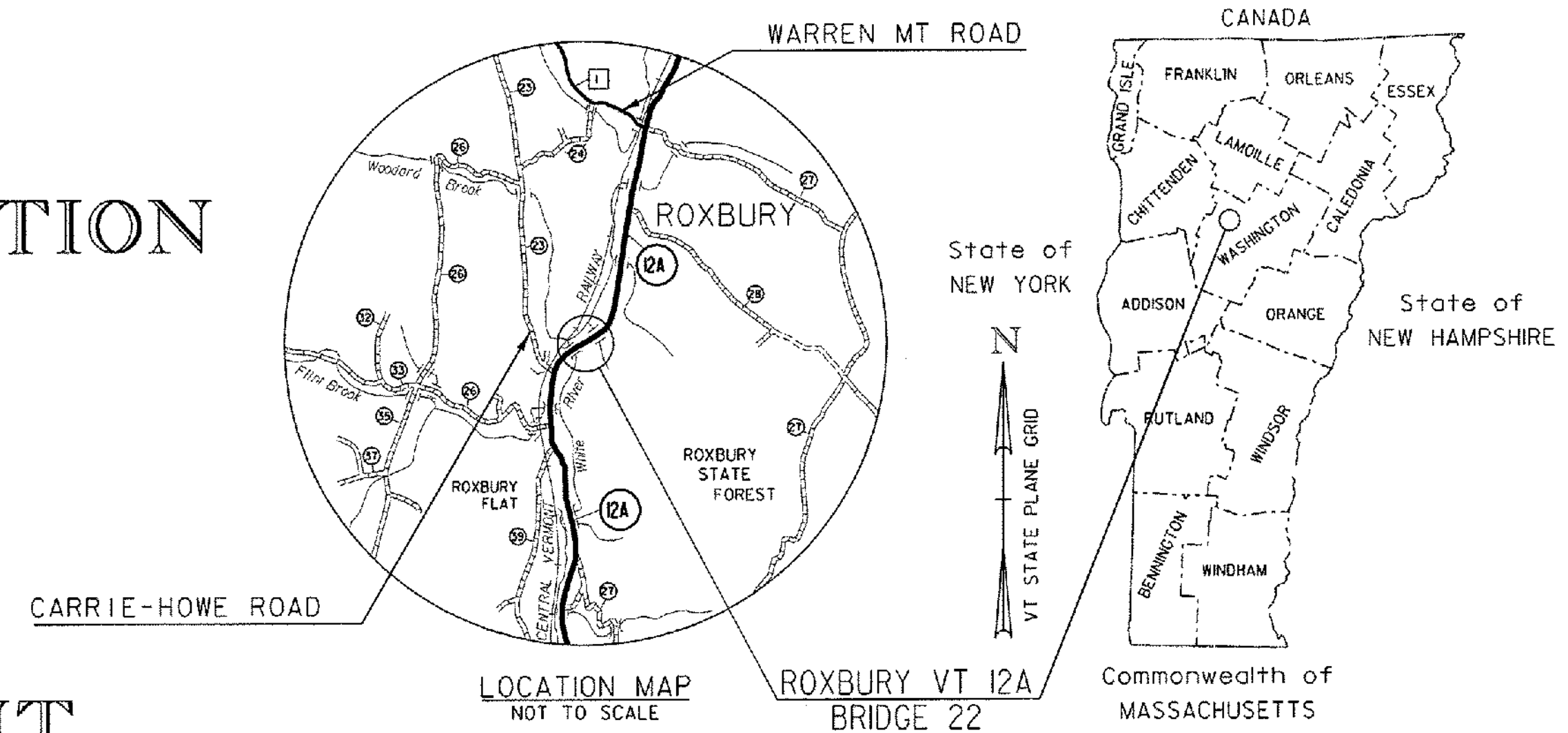
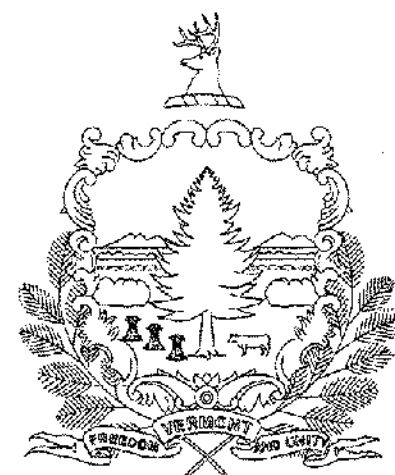
FILE NAME: sl0c420xsl.dgn
PROJECT LEADER: C. P. WILLIAMS
DESIGNED BY: G. ROY
CHANNEL LINE CROSS SECTIONS (3)

PLOT DATE: 21-SEP-2011
DRAWN BY: G. ROY
CHECKED BY: T. FILLBACH
SHEET 40 OF 54

INDEX OF SHEETS:
SEE SHEET 2

VAOT STANDARD SHEETS
SEE SHEET 2

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF ROXBURY COUNTY OF WASHINGTON BRIDGE NO. 22 ON VERMONT 12A

PROJECT LOCATION: BEGINNING AT A POINT ON VT RTE. 12A APPROXIMATELY 3.27 MILES NORTHERLY FROM THE GRANVILLE/ROXBURY TOWN LINE AND EXTENDING NORTHERLY ALONG VT RTE. 12A FOR 95.00 FEET.

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING CORRUGATED STEEL CULVERT WITH A PRECAST CONCRETE STRUCTURE ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE: 33.30 FEET

LENGTH OF ROADWAY: 61.70 FEET
LENGTH OF PROJECT: 95.00 FEET

BEGIN BRIDGE
STA 2+69.20
FG = 997.36

END APPROACH
BEGIN PROJECT
STA 2+40.00

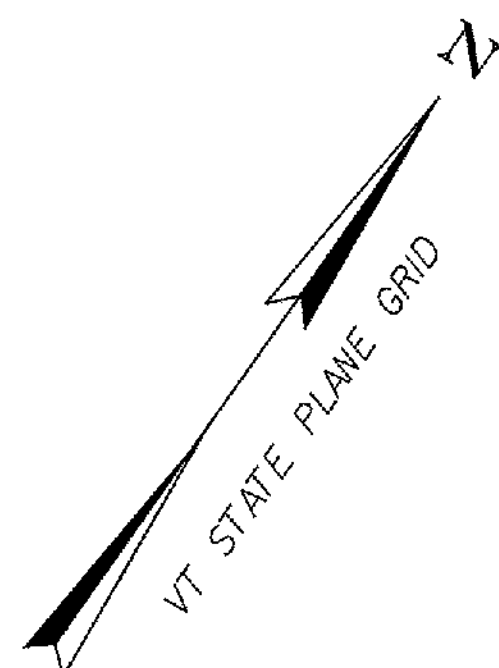
BEGIN APPROACH
MATCH EXISTING
STA 2+10.00

END APPROACH
MATCH EXISTING
STA 3+65.00

END PROJECT
BEGIN APPROACH
STA 3+35.00

END BRIDGE
STA 3+02.50
FG = 997.83

VT 12A STA 2+85.97 =
CHANNEL LINE STA 11+05.45
 $\Delta = 51^\circ \text{ RT}$



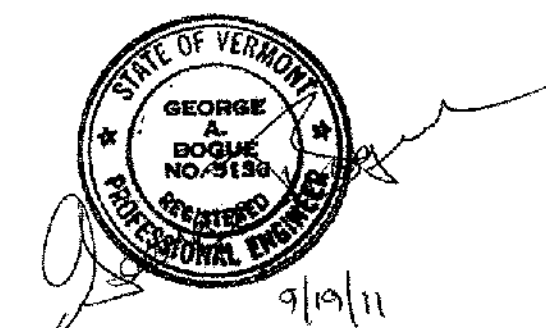
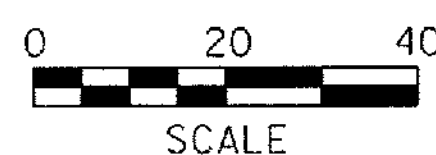
QUALITY ASSURANCE PROGRAM: LEVEL 2

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	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : VERMONT SURVEY & ENGINEERING (VSE)
SURVEYED DATE : 09/2011

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)



Stantec Consulting Services Inc.
55 Green Mountain Drive
South Burlington VT U.S.A. 05403
Tel. 802.864.0223
Fax. 802.864.0165
www.stantec.com

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 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

PROJECT MANAGER : ROB YOUNG

PROJECT NAME : ROXBURY
PROJECT NUMBER : ER 0187 (9)

SHEET 41 OF 54 SHEETS

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ITS LATEST REVISIONS AND THE 2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND ITS LATEST REVISIONS.
2. ALL PRECAUTIONS SHALL BE TAKEN TO PREVENT SILTATION OR POLLUTION INTO THE STREAM. REFER TO STANDARD SPECIFICATIONS, SECTION 105. ALL WATER PUMPED FROM EXCAVATION AREA SHALL BE CLARIFIED PRIOR TO BEING ALLOWED TO MIX WITH THE STREAM FLOW. STATE WATER QUALITY STANDARDS SHALL BE MAINTAINED AT ALL TIMES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STAGING SCHEME. ALL WORK MUST BE DONE IN THE DRY AND ALL NEW STRUCTURE SECTIONS AND BED MATERIAL SHALL BE COMPLETELY INSTALLED BEFORE THE STREAM IS ALLOWED TO FLOW THROUGH THEM. A TEMPORARY STREAM DIVERSION SYSTEM IS NECESSARY TO CARRY THE STREAM DURING CONSTRUCTION. THE CONTRACTOR SHALL PREPARE AND SUBMIT A TEMPORARY STREAM DIVERSION PLAN TO CARRY THE STREAM DURING CONSTRUCTION. THE PLAN SHALL DEPICT MEASURES PROPOSED TO PREVENT EROSION AND SEDIMENTATION AND MAINTAIN STREAM WATER QUALITY. THE COST OF STREAM DIVERSION, INCLUDING ANY TEMPORARY PIPING OR DE WATERING, SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).
4. THE FOLLOWING SHALL BE PAID FOR UNDER ITEM 529.15, REMOVAL OF STRUCTURE: REMOVAL AND DISPOSAL OF THE EXISTING METAL CULVERT INCLUDING UPSTREAM AND DOWNSTREAM CONCRETE HEADWALLS.
5. CONTRACTOR SHALL STOCKPILE THE EXISTING PLATES AND CONCRETE BARRIER ON SITE, IN A CONVENIENT LOCATION FOR PICK UP BY OTHERS.

PRECAST CONCRETE STRUCTURE

1. DESIGN OF THE PRECAST CONCRETE STRUCTURE COMPONENTS SHALL CONFORM TO ALL APPLICABLE SECTIONS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) AND ITS LATEST INTERIM'S, THE VTRANS STRUCTURES DESIGN MANUAL, AND THE DESIGN CRITERIA INDICATED ON THE PLANS. PAYMENT WILL BE MADE UNDER THE LUMP SUM PRICE BID FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE".
2. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR THE PRECAST STRUCTURE AND ALL ASSOCIATED DETAILS FOR THE APPROVAL OF THE STRUCTURES ENGINEER IN ACCORDANCE WITH SUBSECTION 105.03 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, WITH THE EXCEPTION OF REVIEW TIME. SEE SPECIAL PROVISIONS.
3. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT FOR THE INTERIOR OF THE NEW STRUCTURE.
4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1".

TRAFFIC CONTROL

1. AS PART OF THE 900.645, SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE) ITEM, THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL. SEE SPECIAL PROVISIONS.
2. THE BRIDGE SHALL BE CLOSED TO TRAFFIC DURING CONSTRUCTION.

PAVEMENT NOTES

1. 1½" OF TEMPORARY PAVEMENT SHALL BE PLACED ON TOP OF SUBBASE PRIOR TO WINTER SHUT DOWN. THE PAVEMENT NEED NOT MEET THE MIX DESIGN SUBMITTAL AND PLANT INSPECTION REQUIREMENTS SET FORTH IN SECTIONS 406 OR 490.
2. FINAL PAVEMENT SHALL BE PLACED BY OTHERS UNDER SEPARATE CONTRACT.



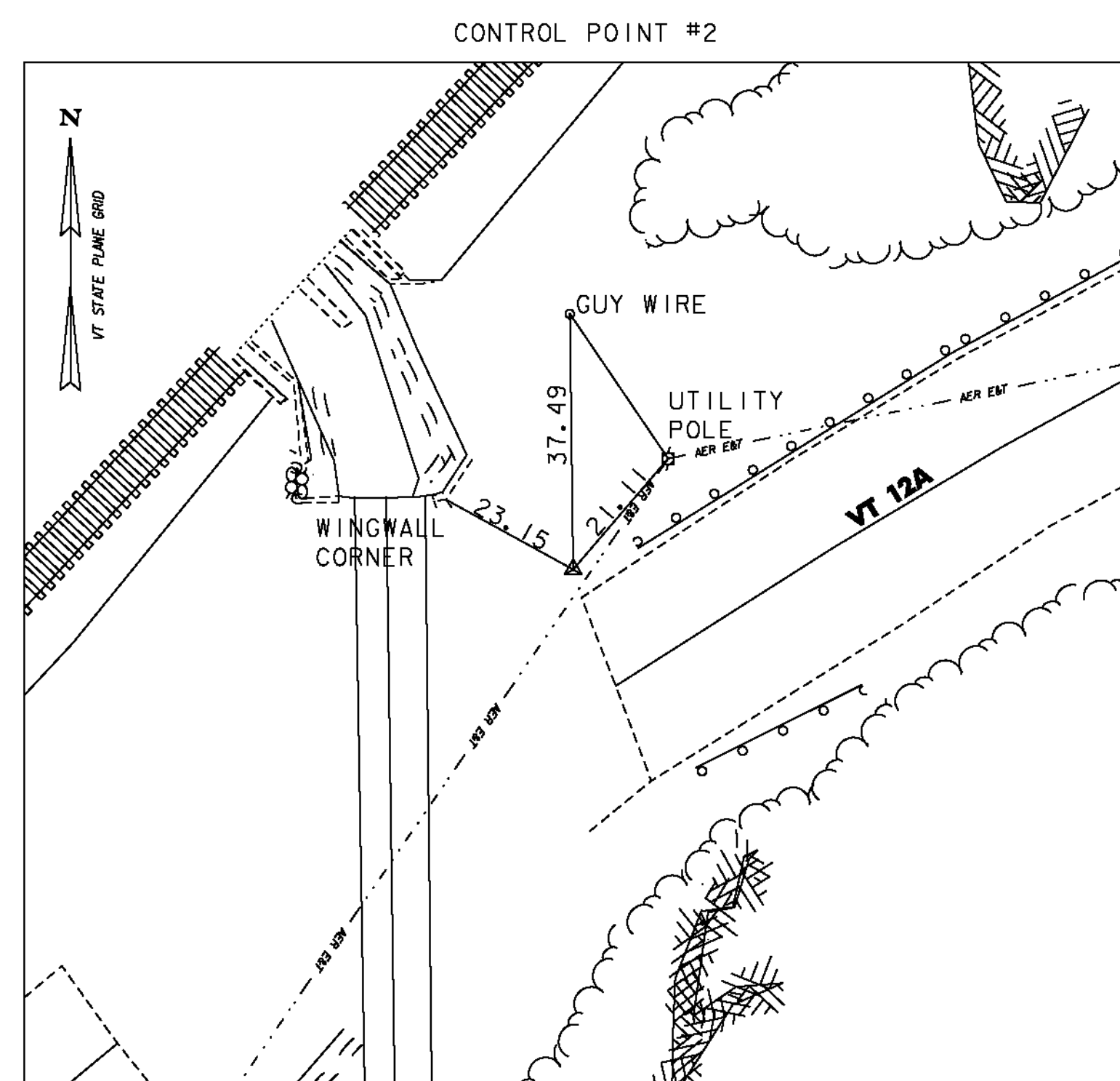
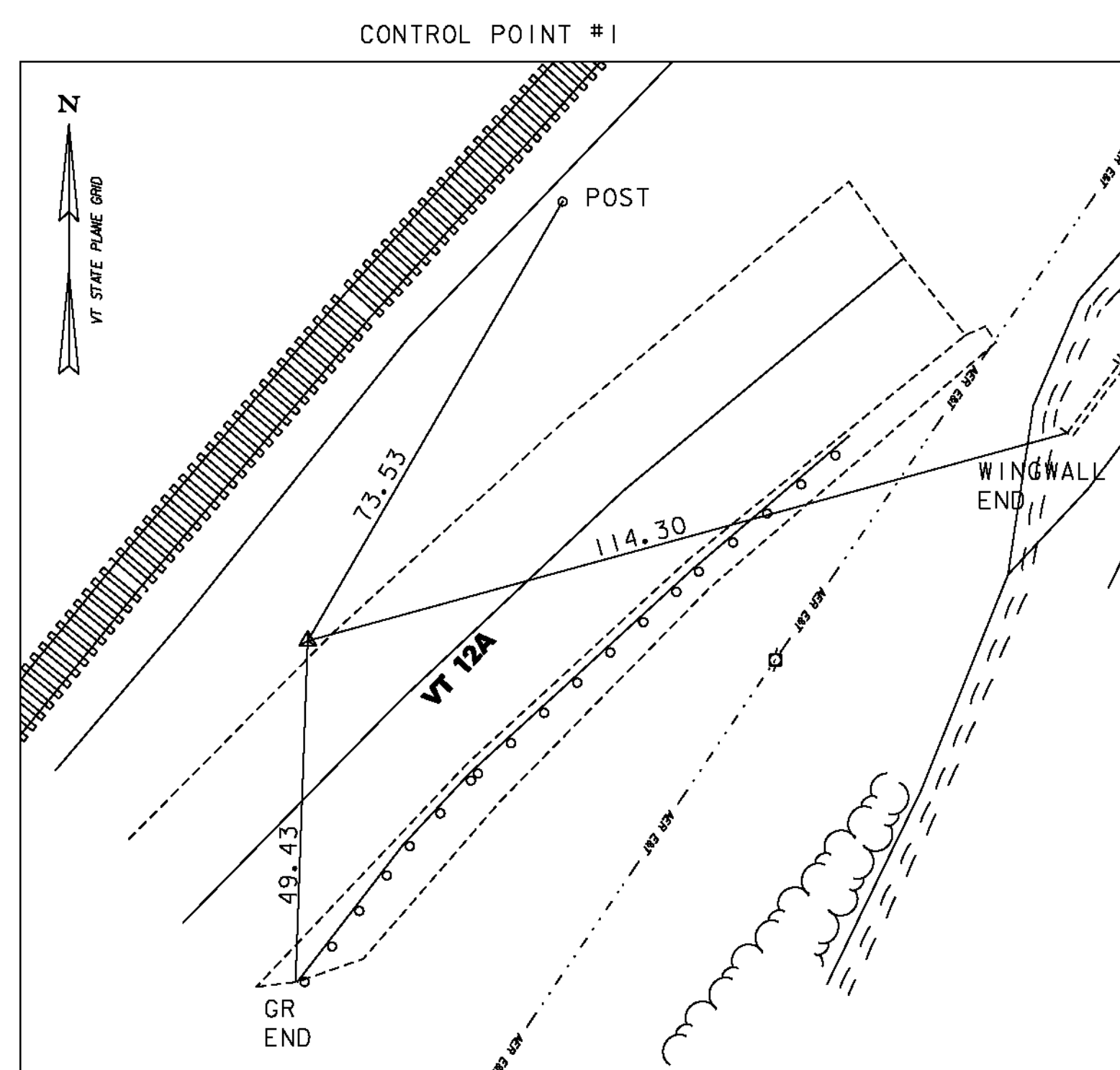
PROJECT NAME: ROXBURY
PROJECT NUMBER: ER 0187(9)

FILE NAME: ...\\plotfiles\notes_index.dgn PLOT DATE: 9/22/2011
PROJECT LEADER: G. BOGUE DRAWN BY: J. SOTER
DESIGNED BY: M. CHENETTE CHECKED BY: G. BOGUE
INDEX OF SHEETS, VAOT STDS. & PROJ. NOTES SHEET 42 OF 54

GPS CONTROL POINTS

TRAVERSE TIES

ALIGNMENT DATA



CONTROL POINTS					
POINT	NORTHING	EASTING	STATION	OFFSET	ELEVATION
1	574071.21'	1576271.32'	1+41.42	15.93' LT	996.54'
2	574194.48'	1576422.89'	3+33.89	17.27' LT	998.98'

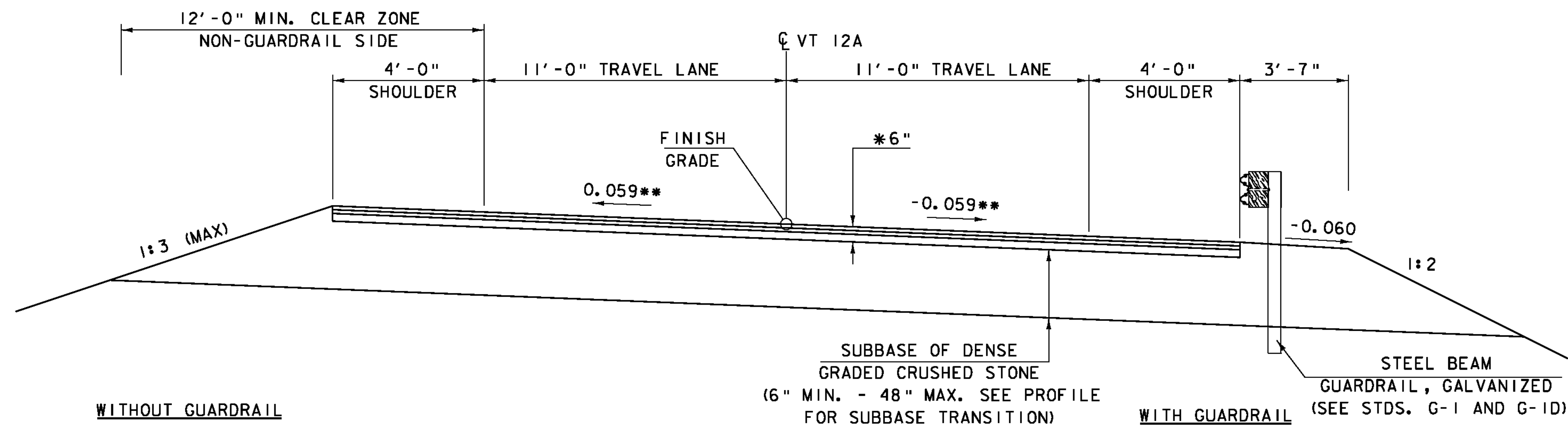
VERMONT 12A			
	STATION	NORTHING	EASTING
POB	1+00.00	574030.3883	1576253.2640
PC	1+16.68	574042.3200	1576264.9240
Tangent Direction: N 44°20'24.10" E			
Tangent Length: 16.68			
PC	1+16.68	574042.3200	1576264.9240
PI	2+65.50	574148.7520	1576368.9318
CC	573343.4049	1576980.1286	
PT	4+12.14	574220.2873	1576499.4236
Radius: 1000.00			
Delta: 16°55'42.65" Right			
Degree of Curvature (Arc): 5°43'46.48"			
Length: 295.46			
Tangent: 148.81			
Chord: 294.38			
Middle Ordinate: 10.89			
External: 11.01			
PT	4+12.14	574220.2873	1576499.4236
POE	4+36.76	574232.1209	1576521.0099
Tangent Direction: N 61°16'06.75" E			
Tangent Length: 24.62			

CHANNEL FLOW LINE			
	STATION	NORTHING	EASTING
POB	10+00.00	574245.9278	1576368.7157
PI	10+36.83	574221.3756	1576396.1654
Tangent Direction: S 48°11'21.34" E			
Tangent Length: 36.83			
PI	10+36.83	574221.3756	1576396.1654
PI	11+70.79	574087.5645	1576389.7923
Tangent Direction: S 2°43'36.44" W			
Tangent Length: 133.96			
PI	11+70.79	574087.5645	1576389.7923
PO	12+46.80	574017.4729	1576360.3920
Tangent Direction: S 22°45'21.15" W			
Tangent Length: 76.01			

DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (1996)
 ADJUSTMENT none

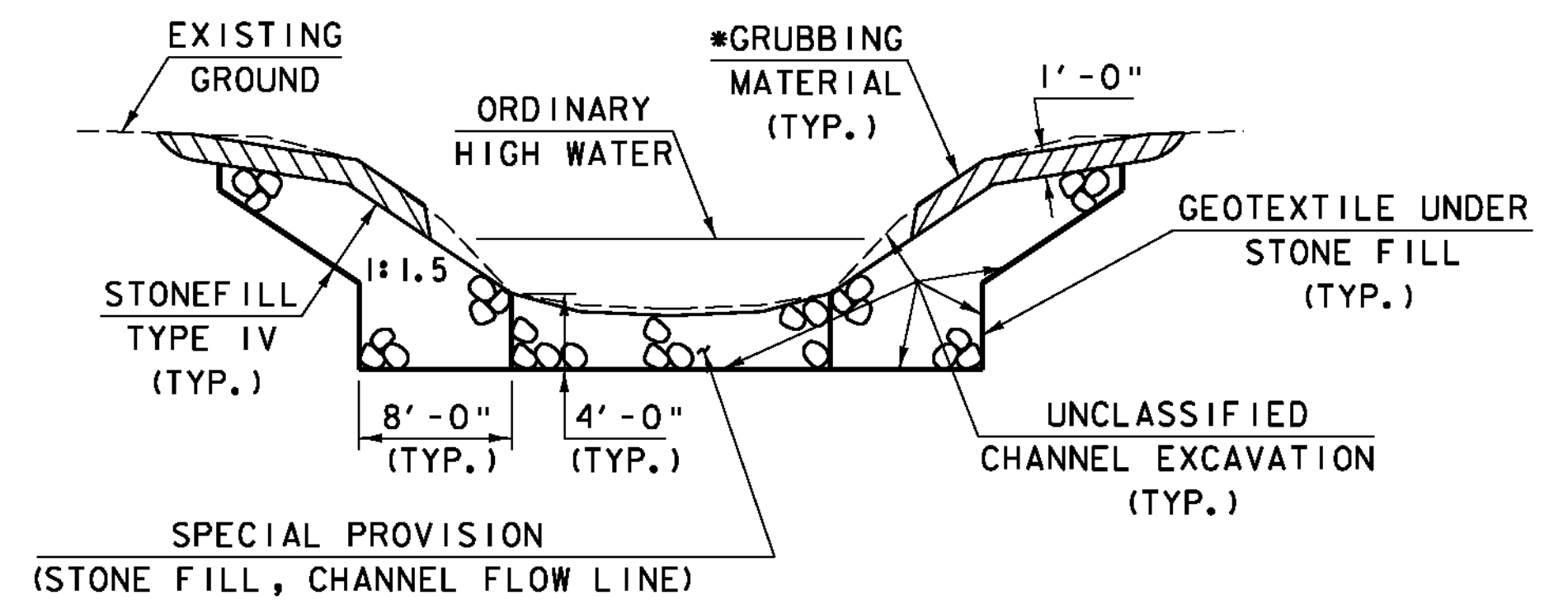


PROJECT NAME: ROXBURY
 PROJECT NUMBER: ER 0187(9)
 FILE NAME: ...drawing\plotfiles\tie.dgn PLOT DATE: 9/21/2011
 PROJECT LEADER: G. BOGUE DRAWN BY: JTS/ISM
 DESIGNED BY: M. CHENETTE CHECKED BY: G. BOGUE
TIE SHEET SHEET 43 OF 54



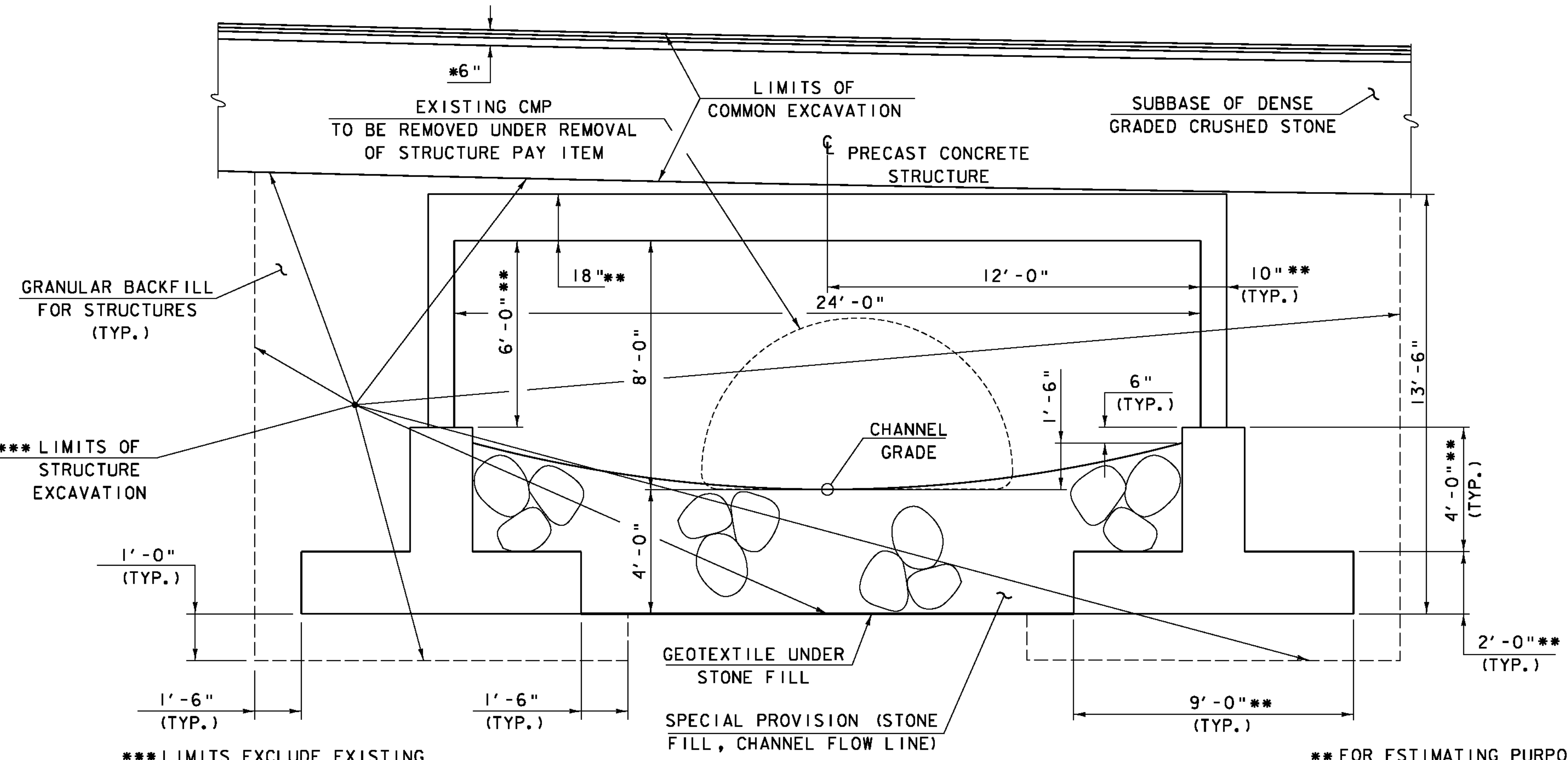
* SEE PAVEMENT NOTE ON SHEET 42.
 ** MATCH EXISTING CROSS SLOPE ON APPROACHES

VT 12A ROADWAY TYPICAL SECTION
 SCALE: 3/8" = 1'-0"



CHANNEL TYPICAL SECTION
 NOT TO SCALE

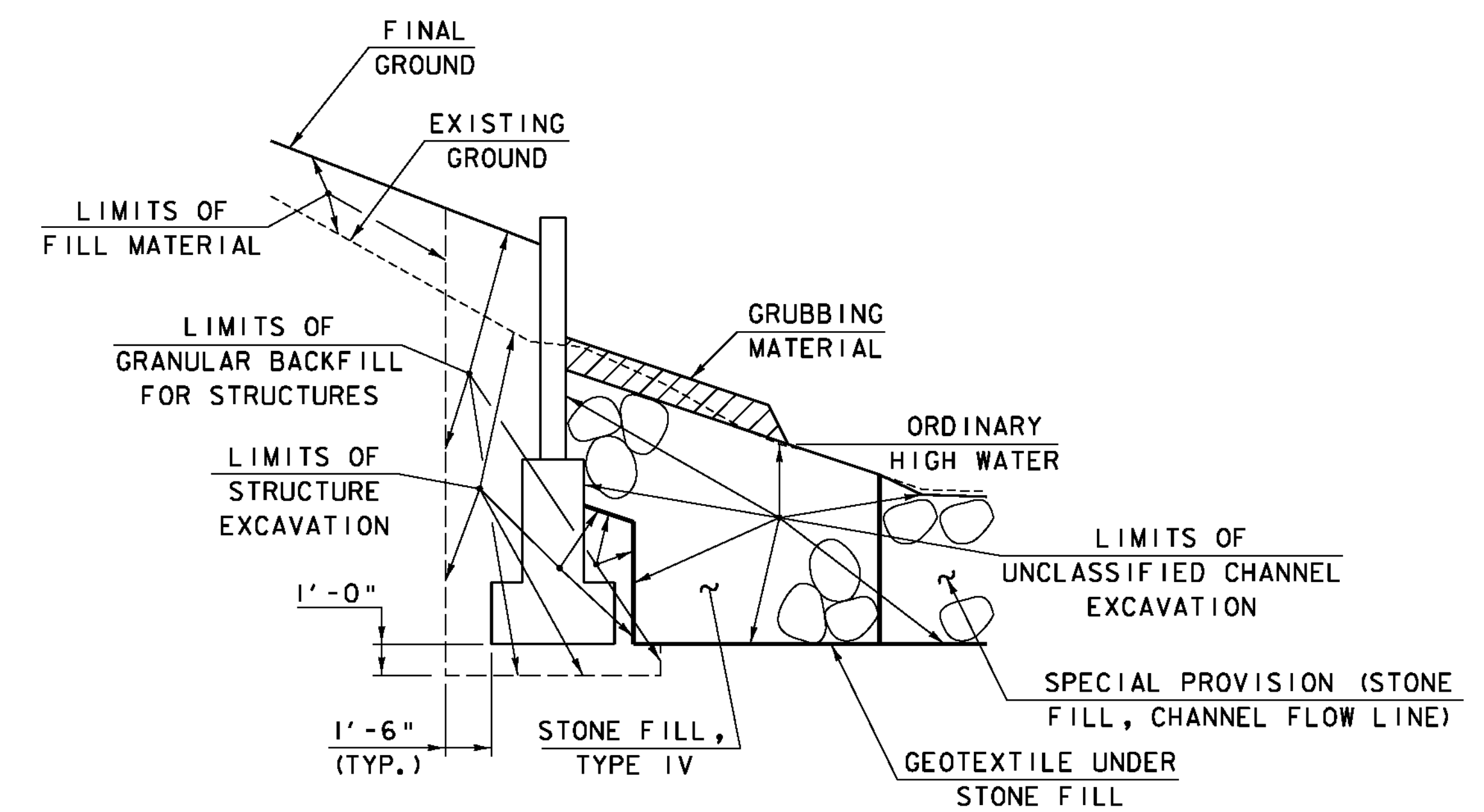
* GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



*** LIMITS EXCLUDE EXISTING CMP AND AREA INSIDE EXISTING CMP.

** FOR ESTIMATING PURPOSES ONLY. ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR.

PRECAST CONCRETE STRUCTURE TYPICAL SECTION
 SCALE: 3/8" = 1'-0"



WINGWALL EXCAVATION AND FILL DETAIL
 NOT TO SCALE

MATERIAL TOLERANCES
 (IF USED ON PROJECT)

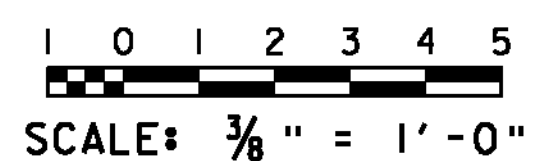
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"
GRANULAR BORROW	+/- 1"

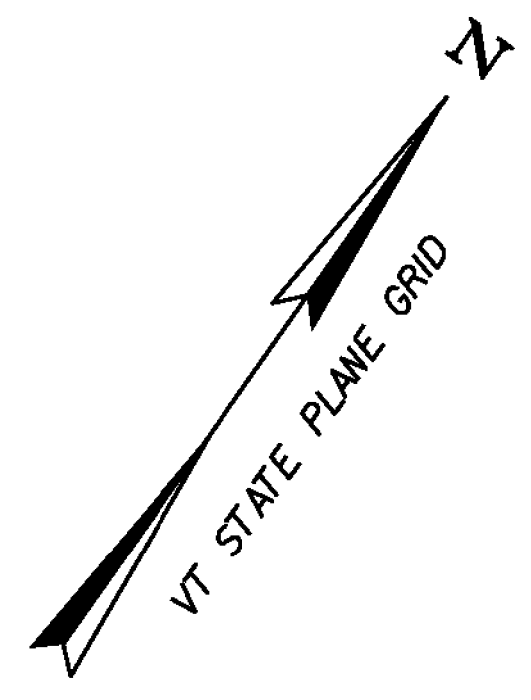
PROJECT NAME: ROXBURY
 PROJECT NUMBER: ER 0187(9)

FILE NAME: ...drawing\plotfiles\typ.dgn
 PROJECT LEADER: G. BOGUE
 DESIGNED BY: M. CHENETTE

PLOT DATE: 9/21/2011
 DRAWN BY: J. SOTER
 CHECKED BY: G. BOGUE

TYPICAL SECTIONS
 SHEET 44 OF 54





STEEL BEAM GUARDRAIL, GALVANIZED
 VT 12A STA 2+40.0 - 3+65.0 LT (CONNECT TO EXISTING GR @ 3+65 LT)
 VT 12A STA 2+10.0 - 3+35.0 RT (CONNECT TO EXISTING GR @ 2+10 & 3+33 RT)

ANCHOR FOR STEEL BEAM RAIL
 VT 12A STA 2+40.0 LT

REMOVAL AND DISPOSAL OF GUARDRAIL
 VT 12A STA 2+10.0 - 2+19.0 RT
 VT 12A STA 3+35.0 - 3+65.0 LT

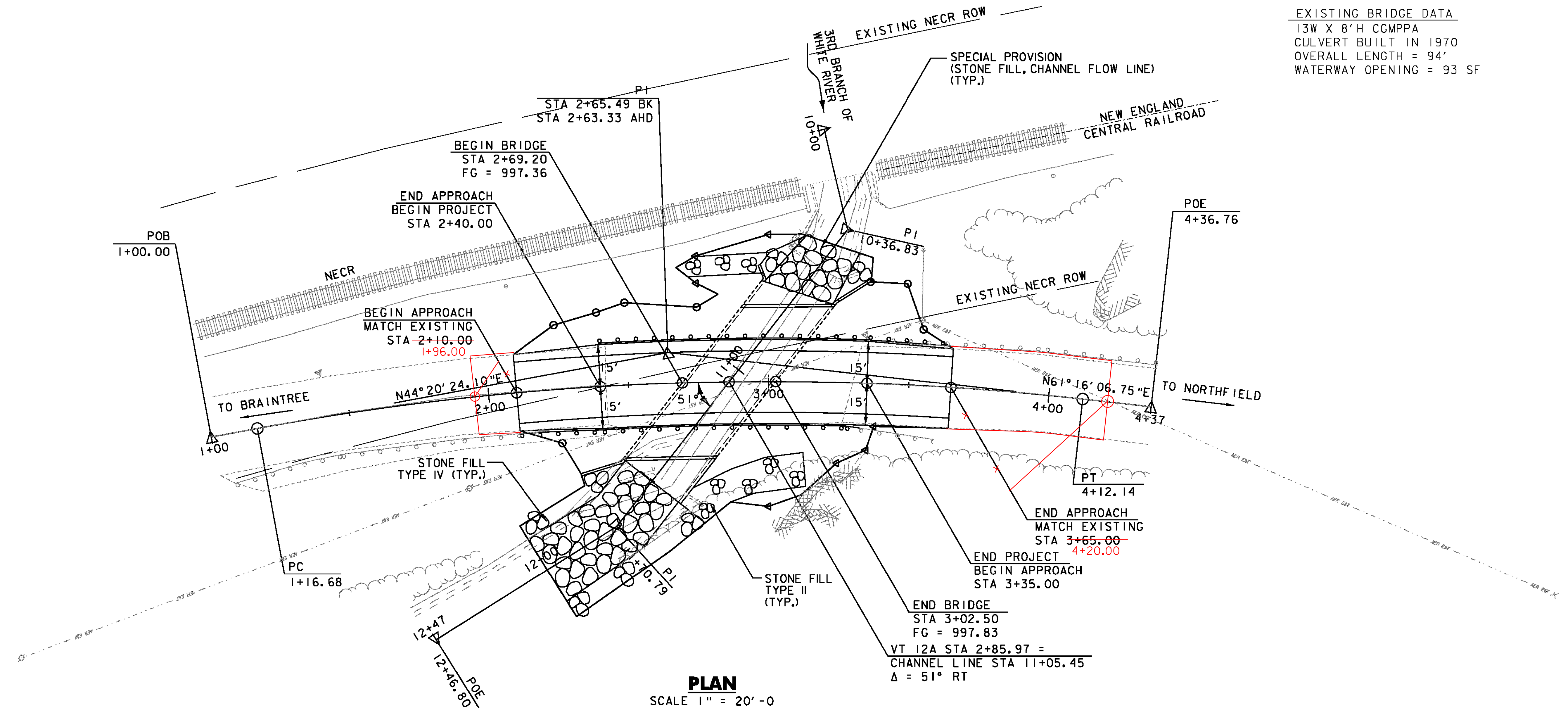
4 INCH WHITE LINE
 VT 12A STA 2+10.0 - 3+65.0, 11' LT
 VT 12A STA 2+10.0 - 3+65.0, 11' RT

4 INCH YELLOW LINE
 VT 12A STA 2+10.0 - 3+65.0 C

CURVE DATA VT 12A
 $\Delta = 16^\circ 55' 42.65''$ RT.
 $D = 5^\circ 43' 46.48''$
 $R = 1000.00'$
 $T = 148.81'$
 $L = 295.46'$
 $E = 11.01'$
 MAX. BANK = 0.059

SPECIAL PROVISION (STONE FILL, CHANNEL FLOW LINE)
 CHANNEL LINE STA ~~10+65.29~~ - ~~11+50.44~~
 10+60.25 11+50.00

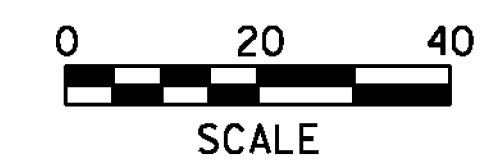
EXISTING BRIDGE DATA
 13W X 8'H CMPPA
 CULVERT BUILT IN 1970
 OVERALL LENGTH = 94'
 WATERWAY OPENING = 93 SF

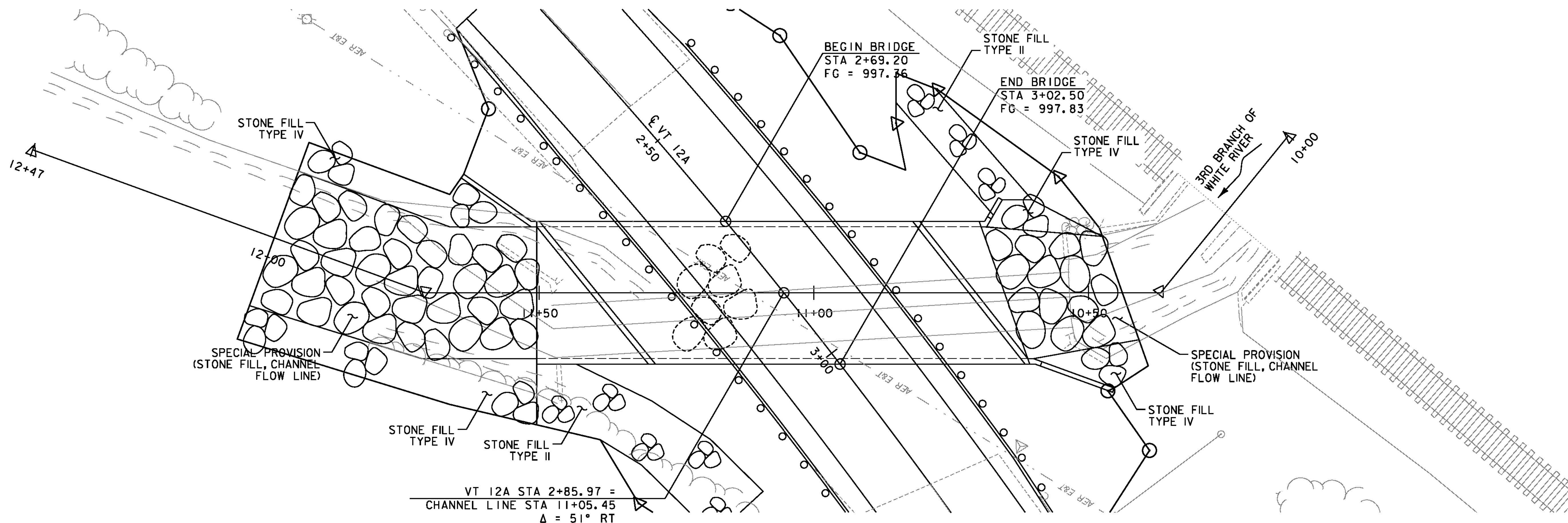


PLAN
 SCALE 1" = 20' - 0

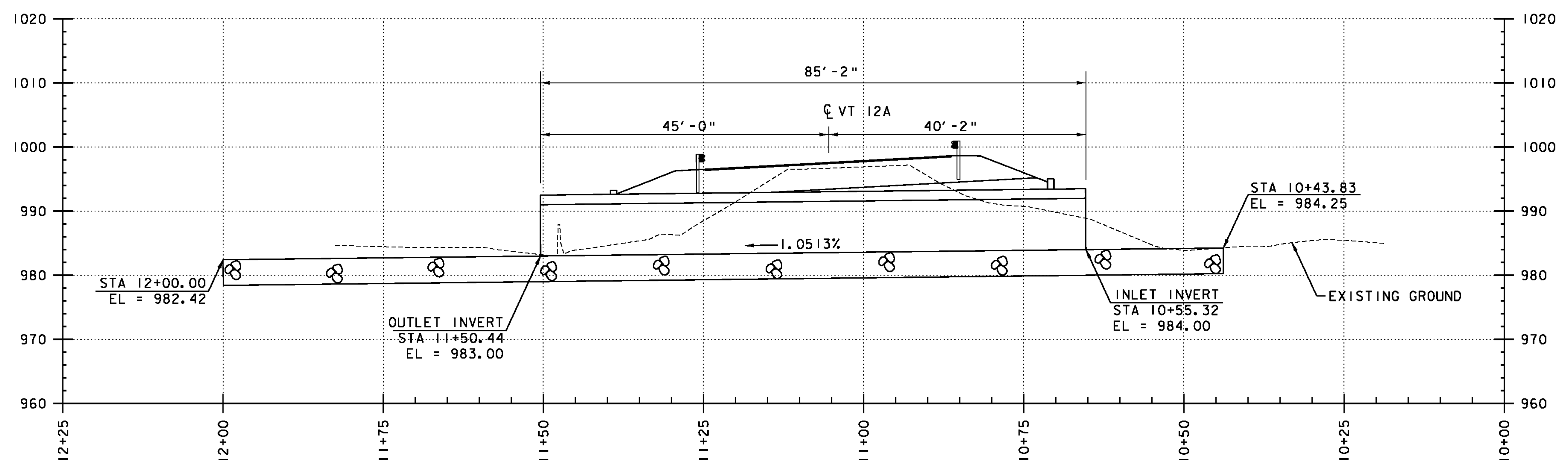
NOTE: AERIAL UTILITY LINES HAVE BEEN RELOCATED, CONTRACTOR SHALL CONFIRM IN FILED

PROJECT NAME:	ROXBURY
PROJECT NUMBER:	ER 0187(9)
FILE NAME:	...drawing\plot files\Layout.dgn
PLOT DATE:	9/21/2011
PROJECT LEADER:	G. BOGUE
DRAWN BY:	JTS/ISM
DESIGNED BY:	M. CHENETTE
CHECKED BY:	G. BOGUE
LAYOUT PLAN	SHEET 45 OF 54

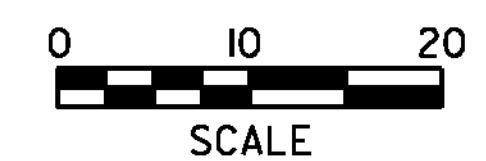




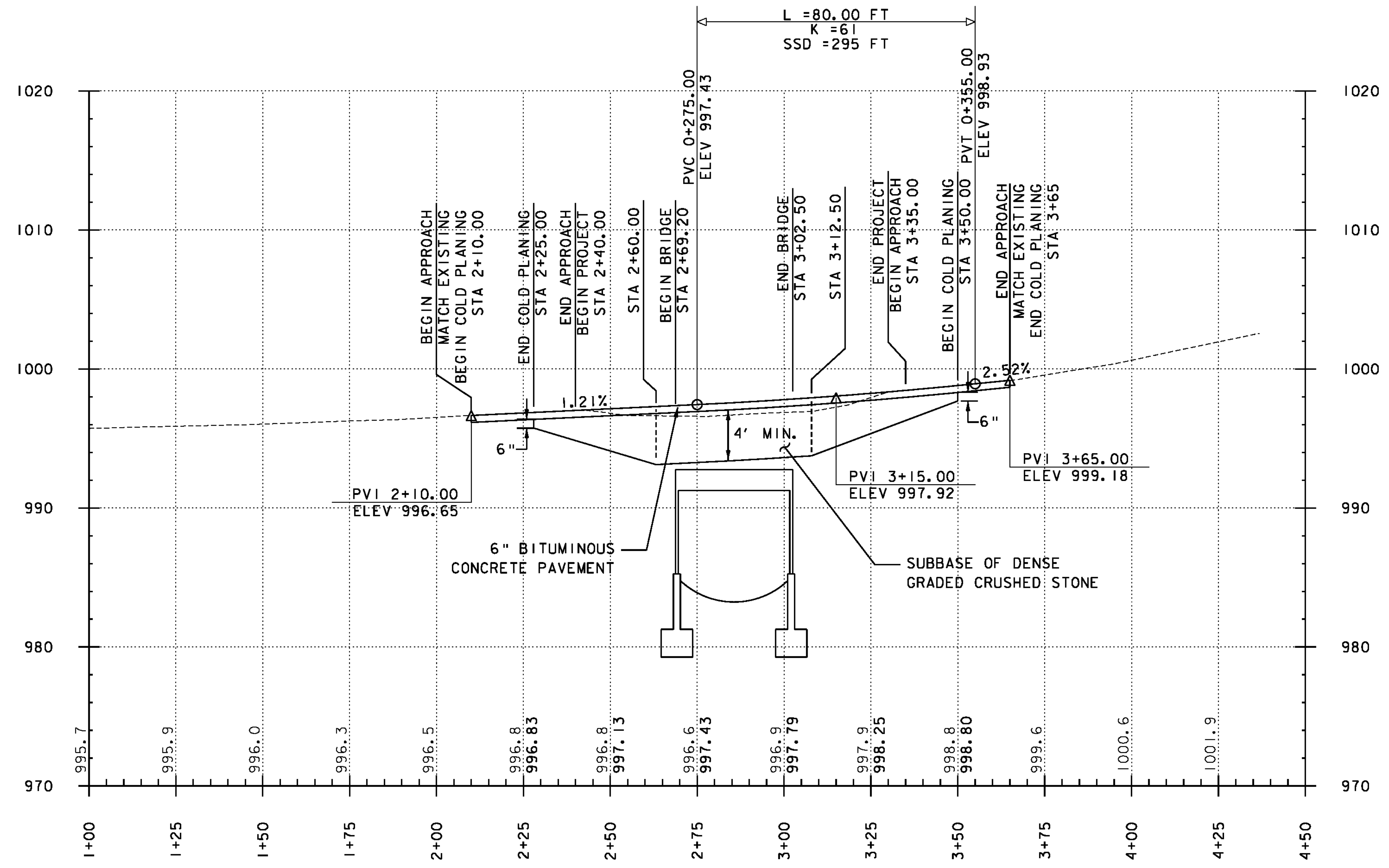
PLAN
SCALE 1" = 10'-0"



PROFILE ALONG CHANNEL LINE
SCALE 1" = 10'-0"

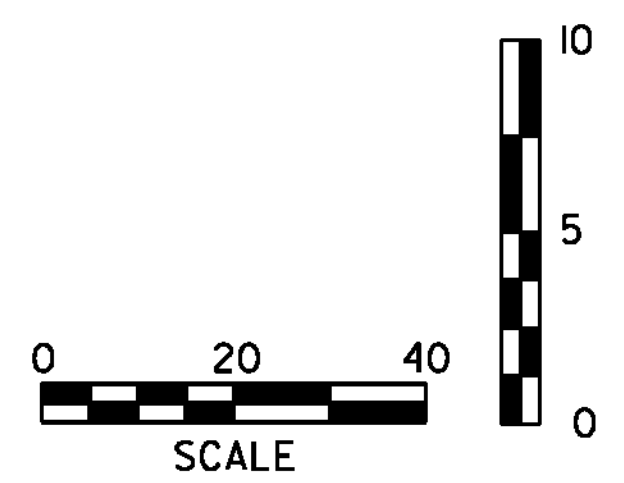


PROJECT NAME:	ROXBURY	PLOT DATE:	9/21/2011
PROJECT NUMBER:	ER 0187(9)	DRAWN BY:	JTS/ISM
FILE NAME:	...plotfiles\Plan-Profile.dgn	CHECKED BY:	G. BOGUE
PROJECT LEADER:	G. BOGUE	SHEET	46 OF 54
DESIGNED BY:	M. CHENETTE	PLAN AND PROFILE	

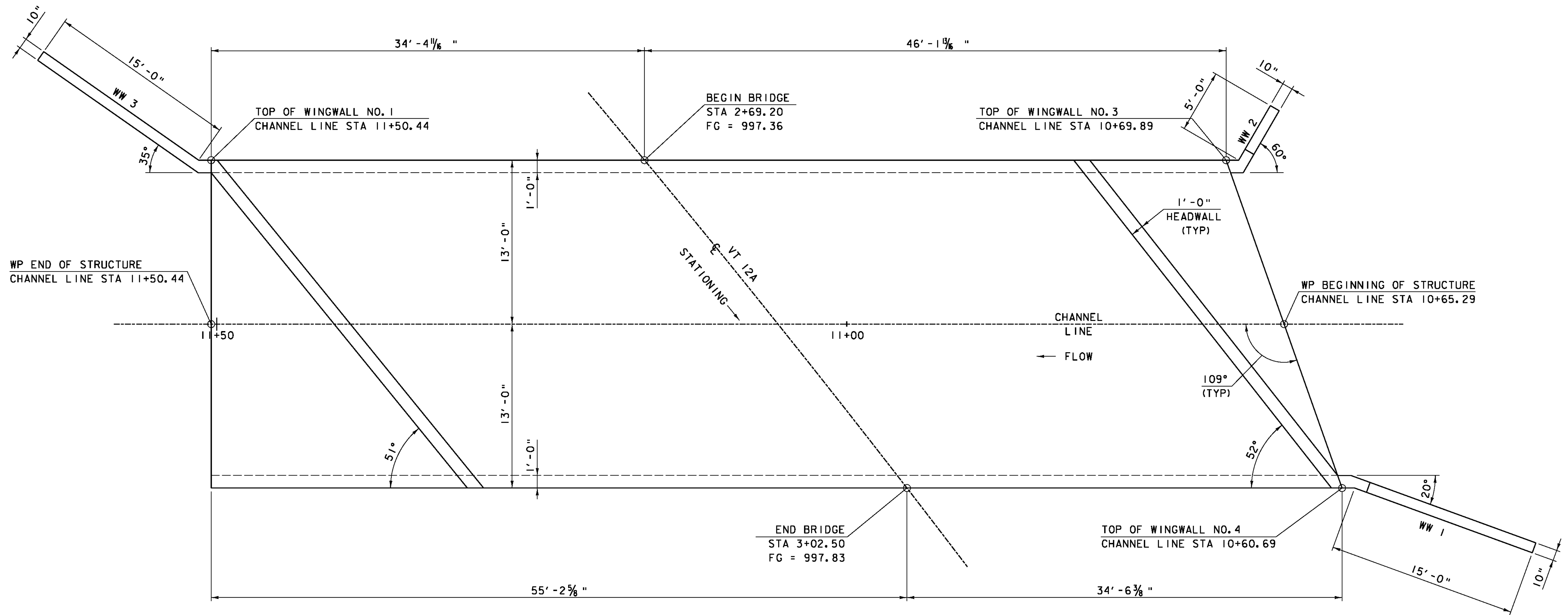


NOTE:
 ELEVATION SHOWN TO THE NEAREST TENTHS ARE
 EXISTING GROUND ALONG PROPOSED CENTERLINE.
 ELEVATIONS SHOWN TO THE NEAREST HUNDREDTHS ARE
 FINISH GRADE ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 12A



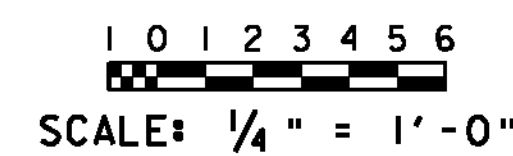
PROJECT NAME:	ROXBURY	PLOT DATE:	9/21/2011
PROJECT NUMBER:	ER 0187(9)	DRAWN BY:	JTS/ISM
FILE NAME:	...drawing\plotfiles\pro.dgn	DESIGNED BY:	M. CHENETTE
PROJECT LEADER:	G. BOGUE	CHECKED BY:	G. BOGUE
PROFILE		SHEET	47 OF 54



PRECAST CONCRETE STRUCTURE PLAN

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

WP OF STRUCTURE	NORTHING	EASTING
CHANNEL LINE STA 11+50.44	574107.89	1576390.76
CHANNEL LINE STA 10+65.29	574192.95	1576394.81

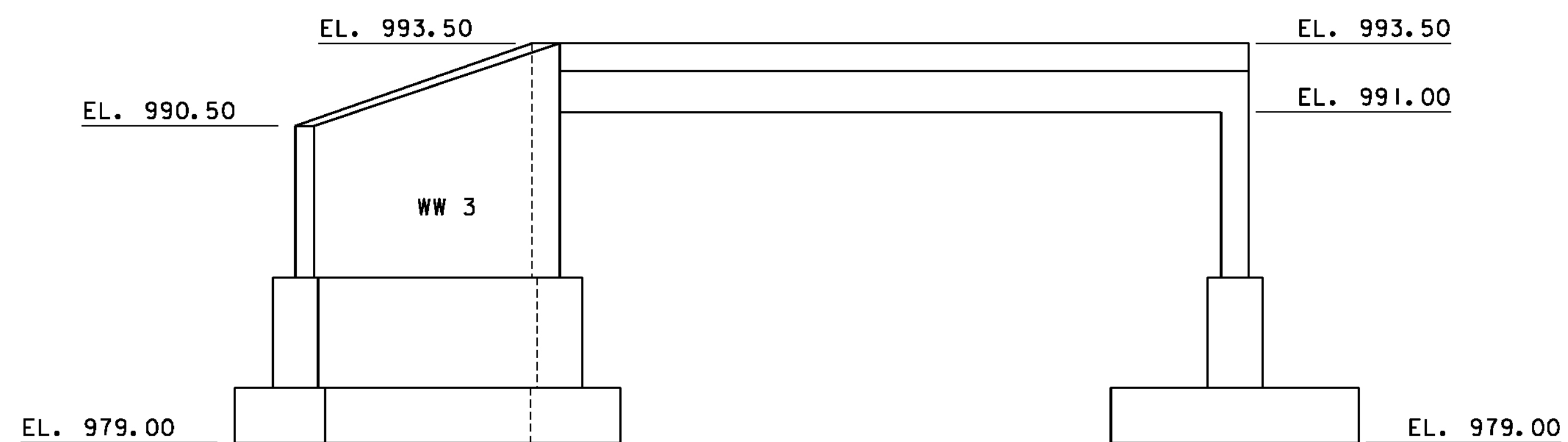


PROJECT NAME: ROXBURY	PLOT DATE: 9/21/2011
PROJECT NUMBER: ER 0187(9)	DRAWN BY: J. SOTER
FILE NAME: ...drawing\struct_plan_dets.dgn	CHECKED BY: G. BOGUE
PROJECT LEADER: G. BOGUE	SHEET 48 OF 54
DESIGNED BY: M. CHENETTE	
PRECAST CONCRETE STRUCTURE PLAN	



INLET ELEVATION

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



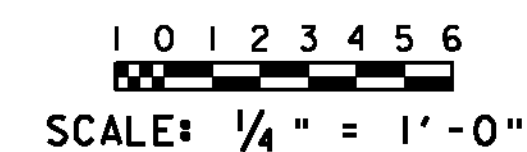
OUTLET ELEVATION

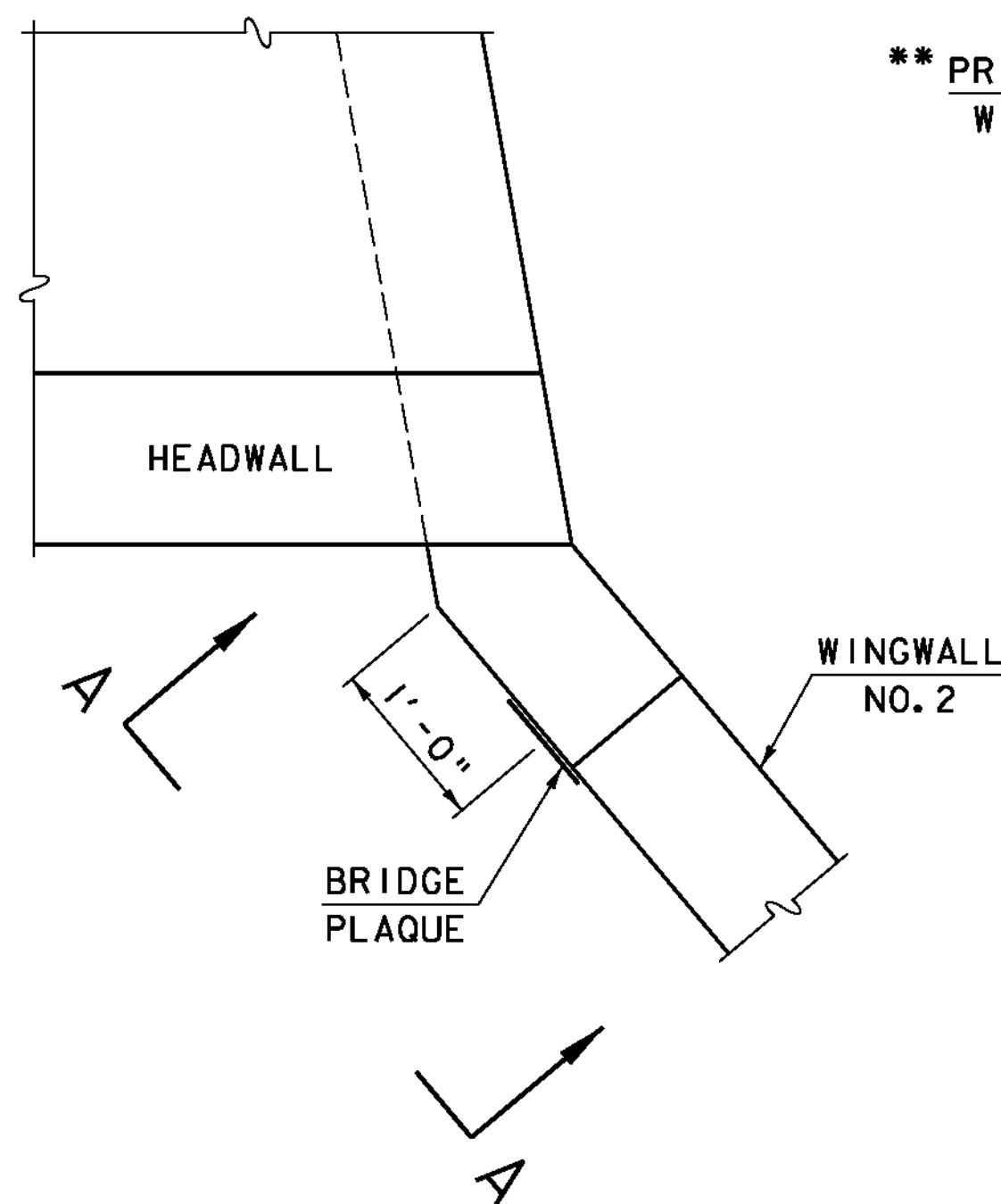
SCALE: 1/4" = 1'-0"

FOUNDATION NOTES:

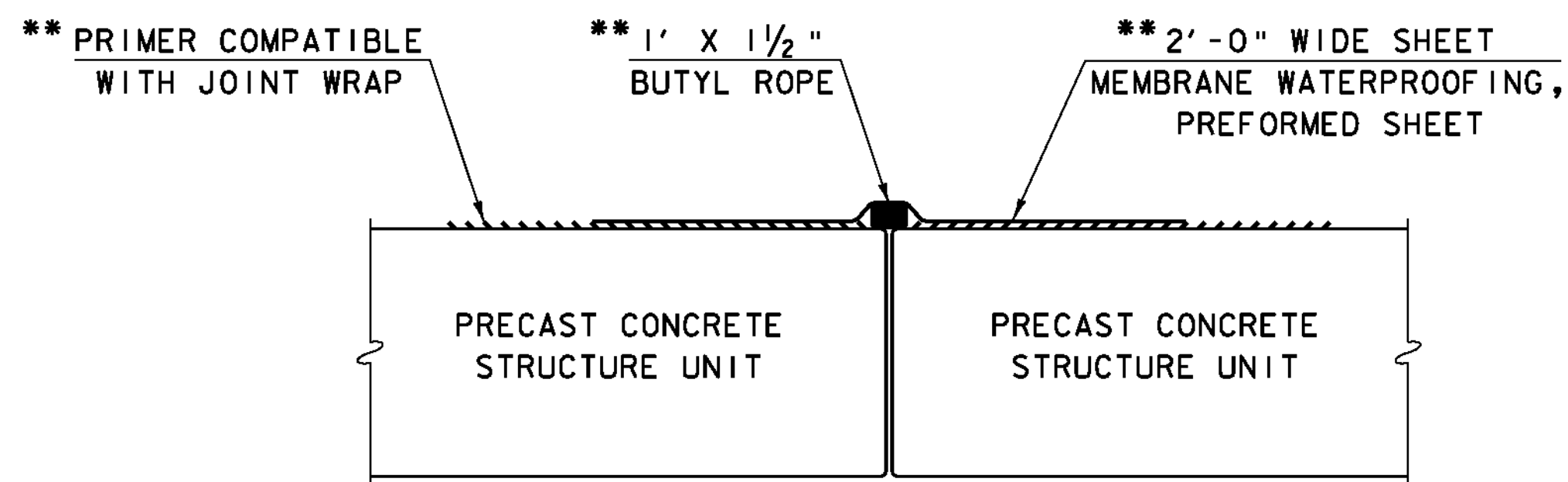
1. FOUNDATIONS SHALL BE DESIGNED USING A NOMINAL BEARING RESISTANCE OF 11 ksf AND A FACTORED BEARING RESISTANCE OF 5 ksf WITH A 34 DEGREE FRICTION ANGLE.
2. THE COEFFICIENT OF FRICTION FOR SLIDING SHALL BE:
 PRECAST FOOTINGS.....0.35
 CAST-IN-PLACE FOOTINGS....0.40
3. IF LOOSE OR SOFT SOILS ARE ENCOUNTERED, THE EXISTING MATERIALS SHALL BE UNDERCUT 12" AND A GEOTEXTILE MEETING THE REQUIREMENTS OF SECTION 649 FOR GEOTEXTILE FOR ROAD BED SEPARATOR, SHALL BE PLACED ON THE EXCAVATED SURFACE AND BACKFILLED WITH ITEM 204.3, GRANULAR BACKFILL FOR STRUCTURES.

PROJECT NAME:	ROXBURY
PROJECT NUMBER:	ER 0187(9)
FILE NAME:...	drawing\struct_plan_dets.dgn
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	M. CHENETTE
WINGWALL ELEVATIONS	
PLOT DATE:	9/21/2011
DRAWN BY:	J. SOTER
CHECKED BY:	G. BOGUE
SHEET	49 OF 54





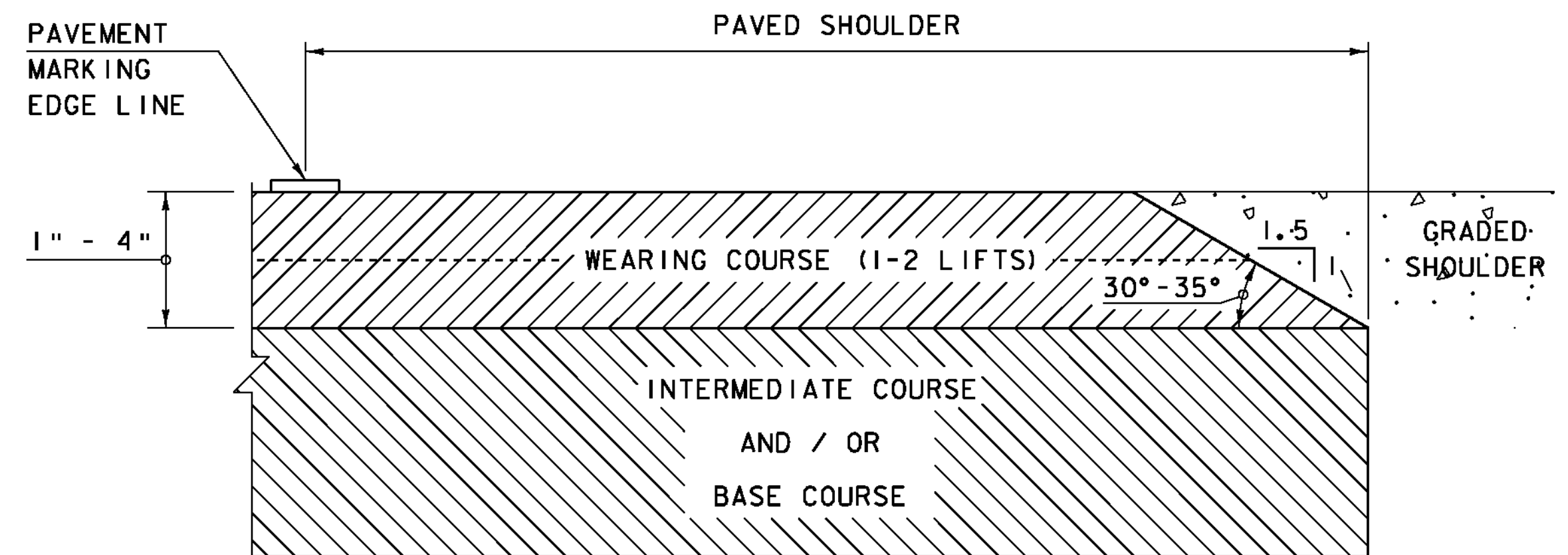
PLAN



BUTT JOINT SEALING DETAIL

NOT TO SCALE

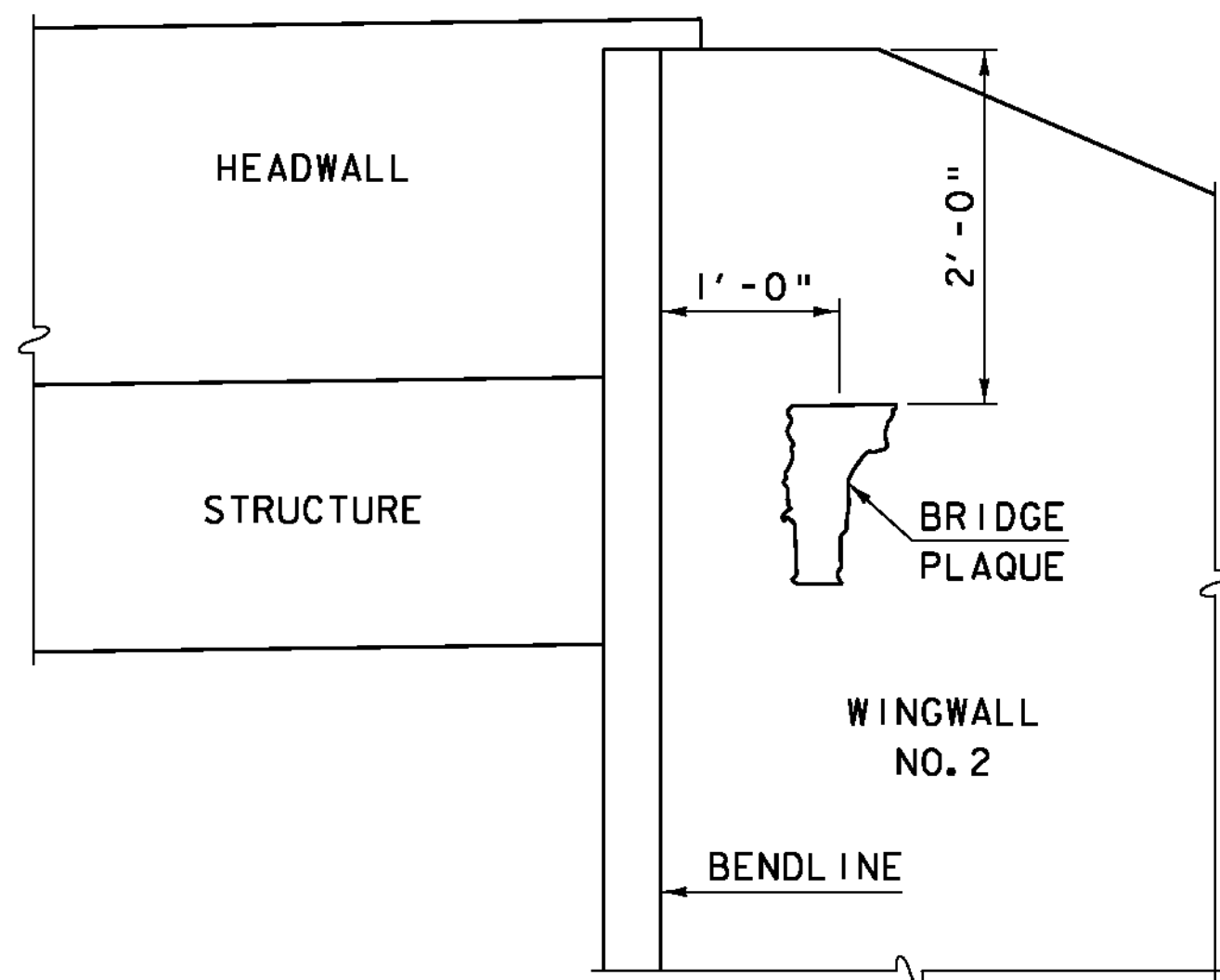
** MEMBRANE WATERPROOFING SHALL BE APPLIED AT EACH ARCH JOINT (TOP AND SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL WIDTH OF THE TOP AND FULL HEIGHT OF THE SIDES. THE SIDES SHALL BE COVERED FIRST AND THE TOP WILL FOLLOW. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE WATERPROOFING SHALL BE INCIDENTAL TO ITEM 540.10 "PRECAST CONCRETE STRUCTURE".



SAFETY EDGE DETAIL

NOT TO SCALE

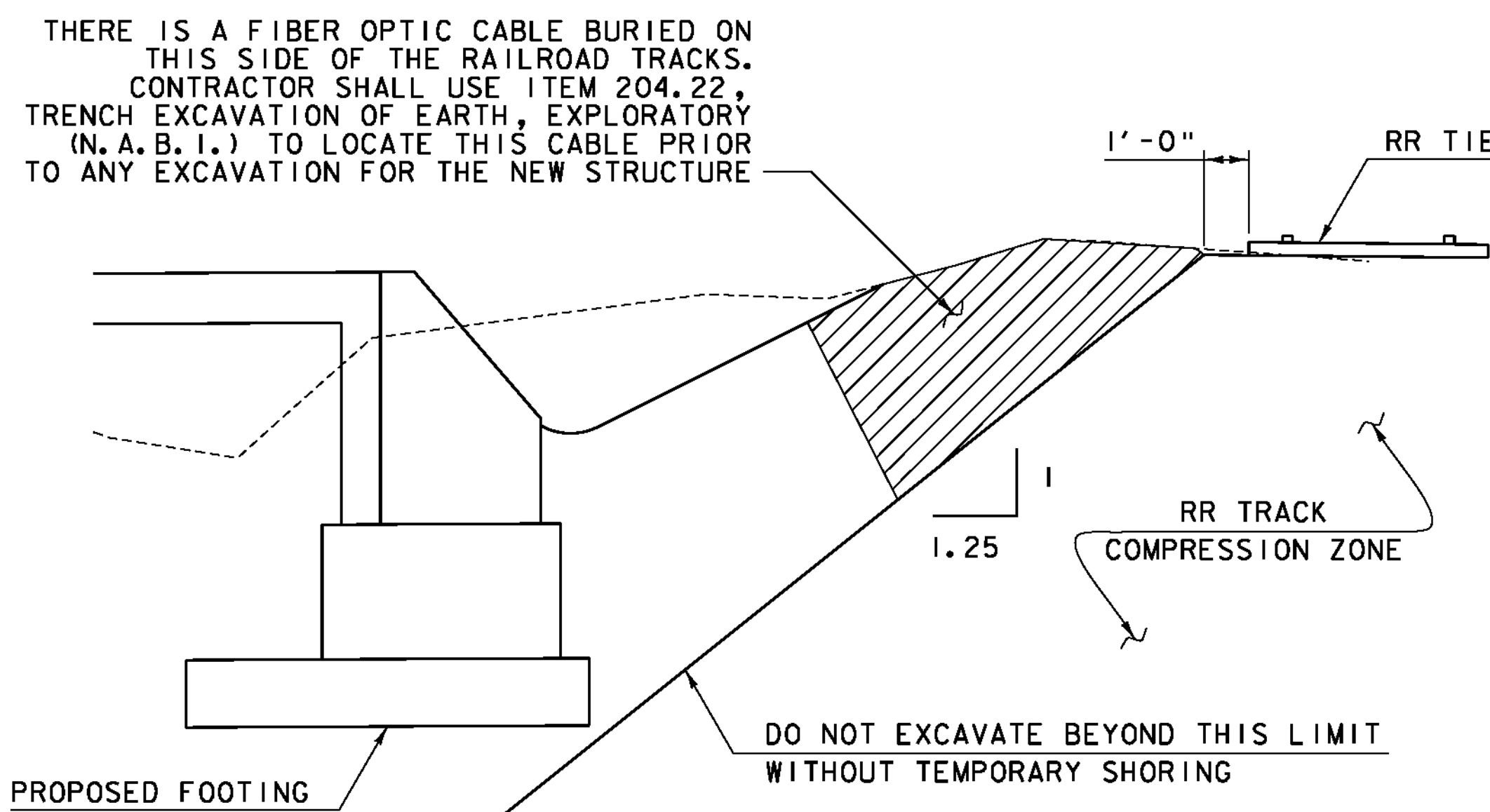
NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



VIEW "A-A"

LOCATE BRIDGE PLAQUE

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR ON WINGWALL NO.2 AS SHOWN OR AS DIRECTED BY THE ENGINEER.



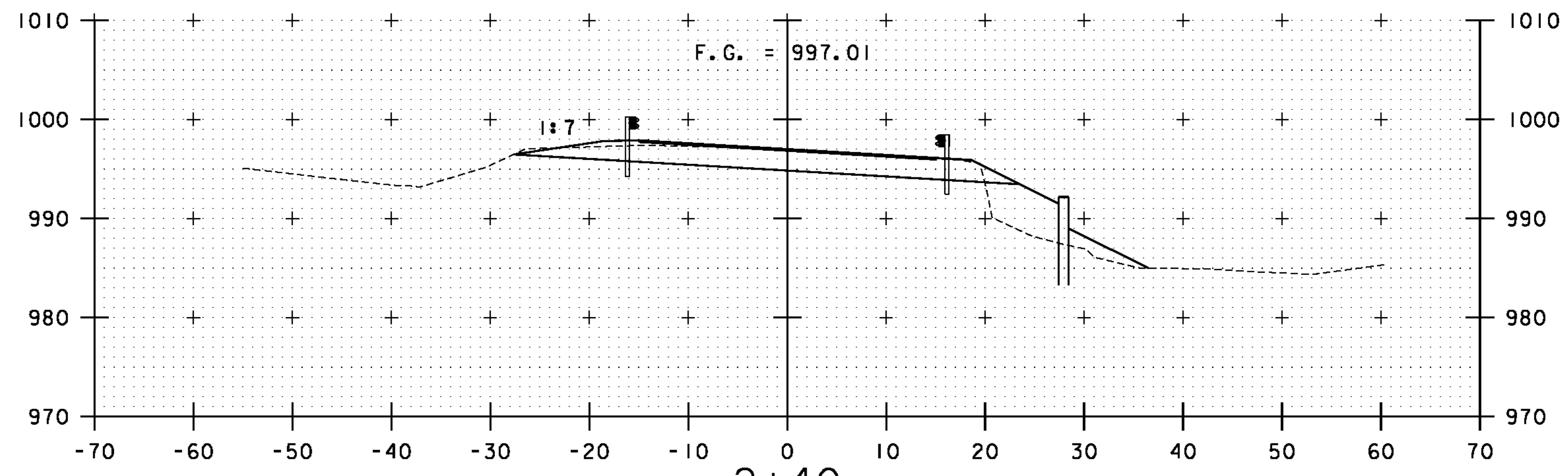
RAILROAD TRACK EXCAVATION LIMIT DETAIL

NOT TO SCALE

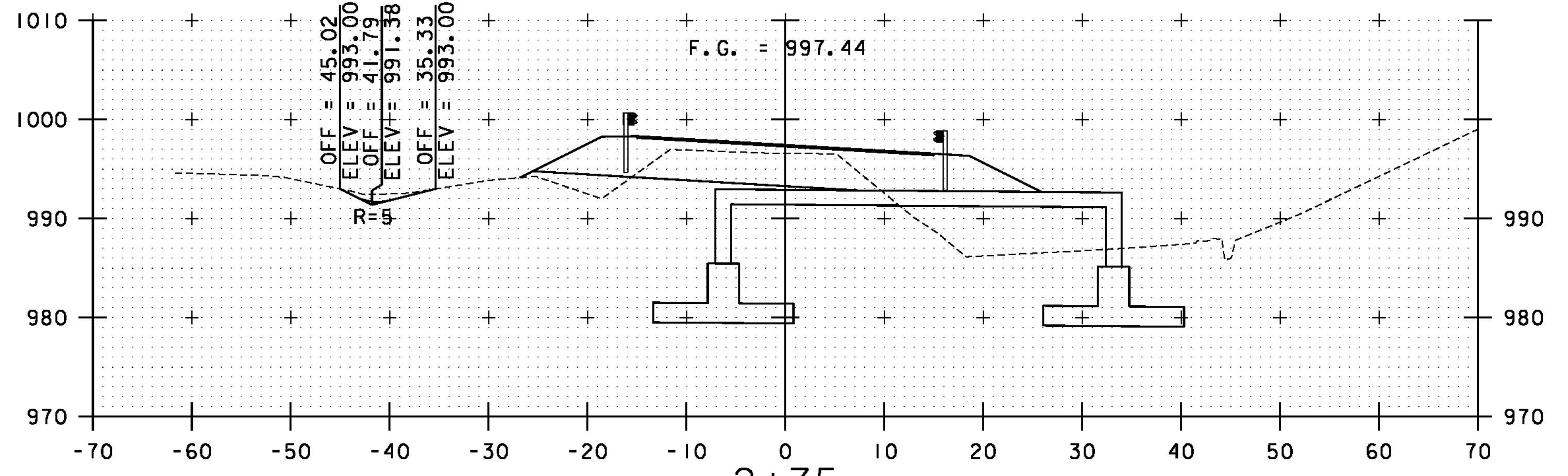


PROJECT NAME: ROXBURY
PROJECT NUMBER: ER 0187(9)

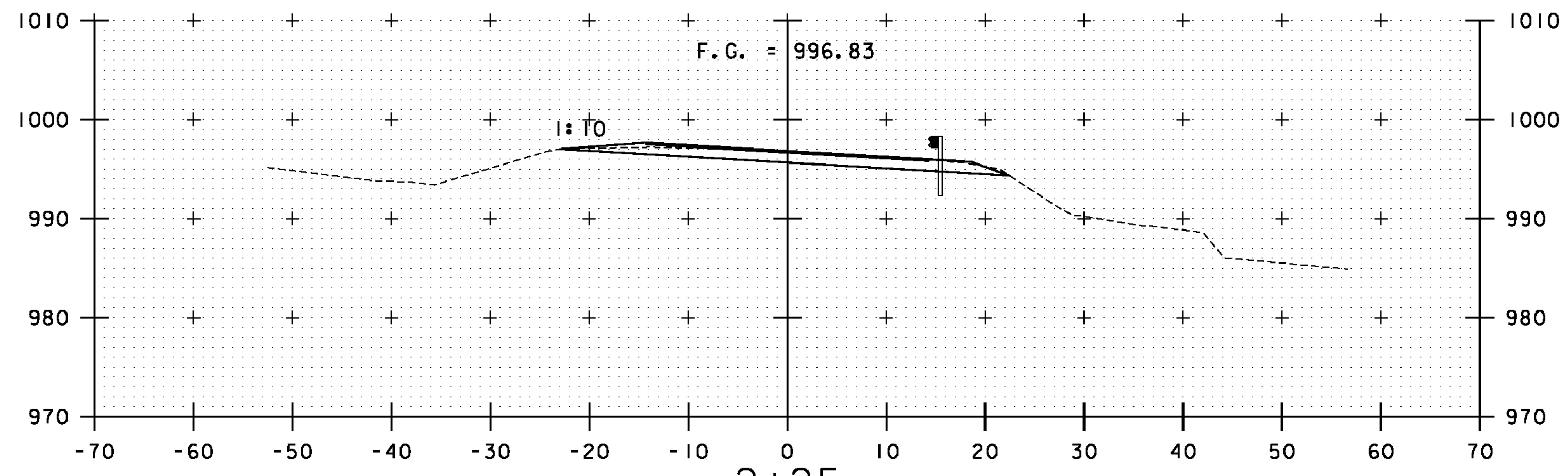
FILE NAME: ...drawing\struct_plan_dets.dgn PLOT DATE: 9/21/2011
PROJECT LEADER: G. BOGUE DRAWN BY: J. SOTER
DESIGNED BY: M. CHENETTE CHECKED BY: G. BOGUE
MISCELLANEOUS DETAILS SHEET 50 OF 54



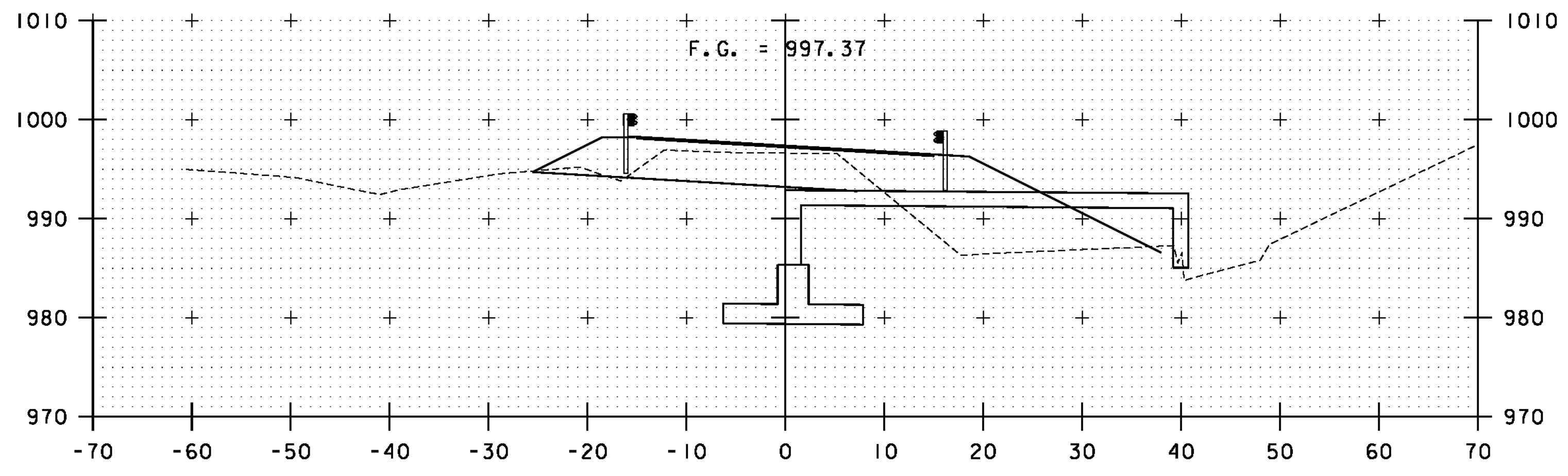
2+40
END APPROACH
BEGIN PROJECT



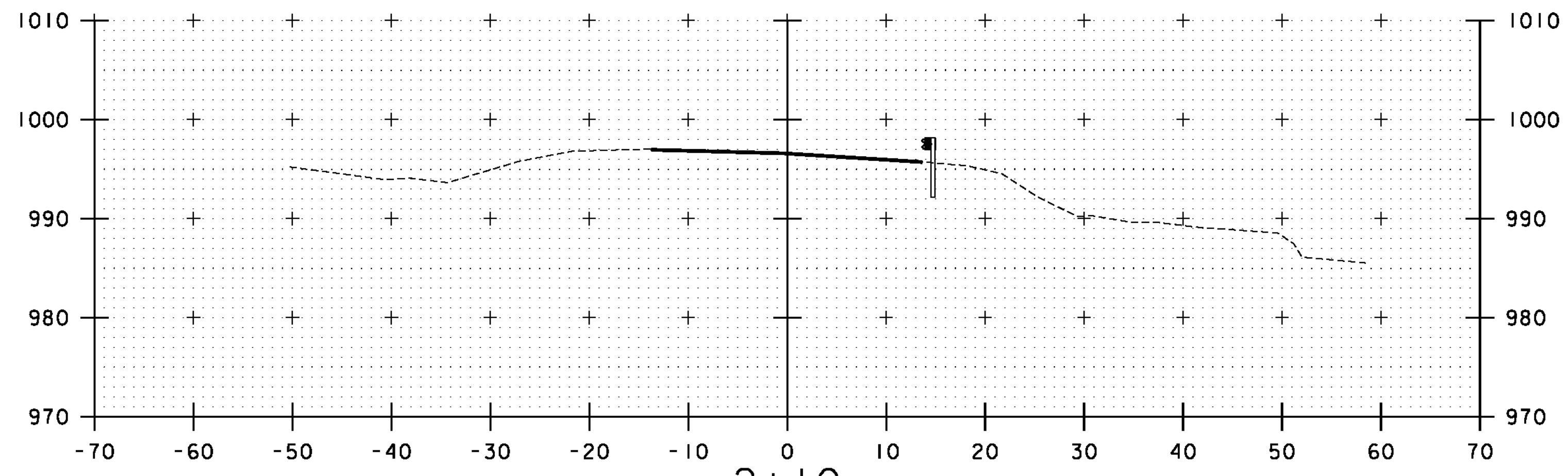
2+75



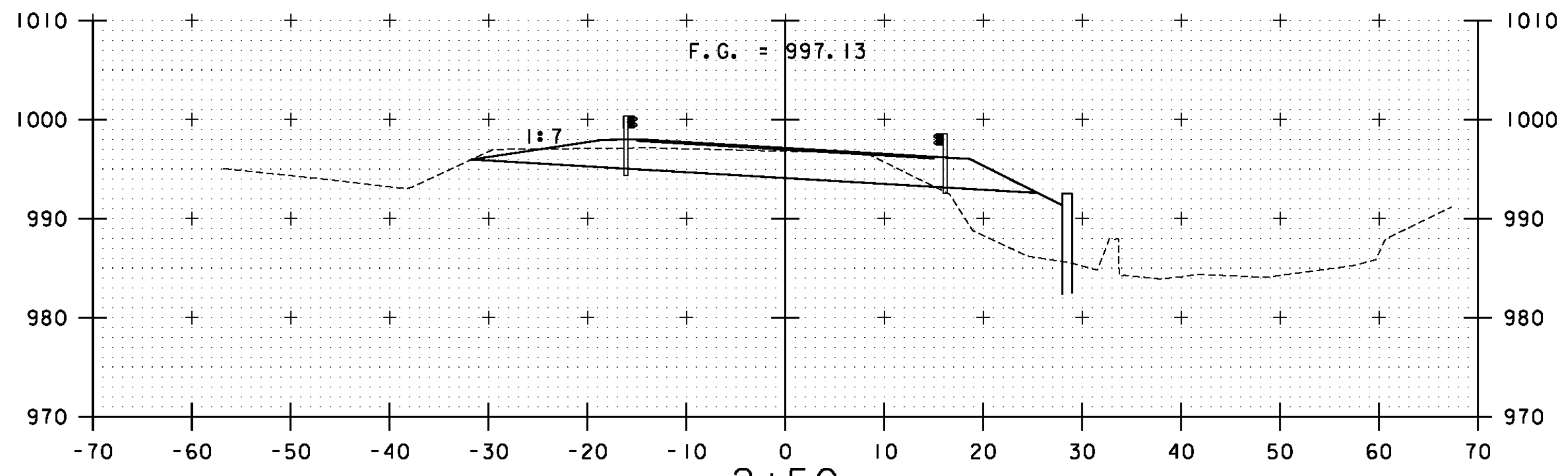
2+25
END COLD PLANE



2+69.20



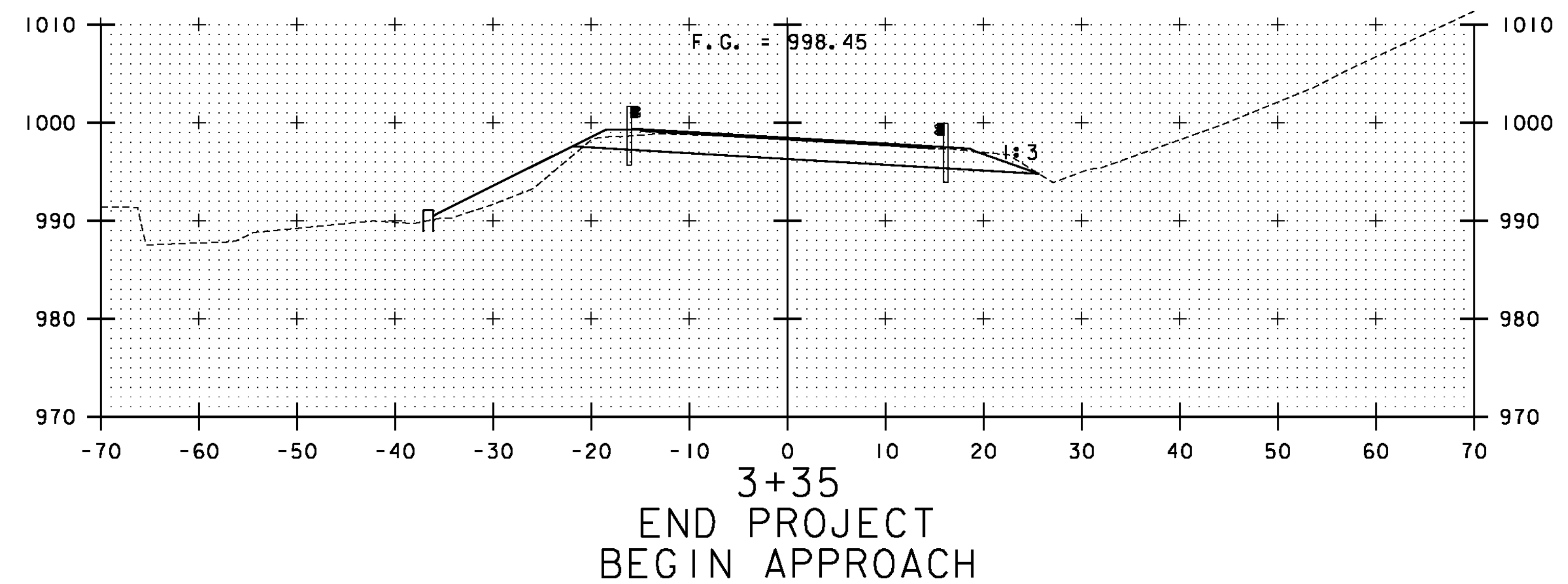
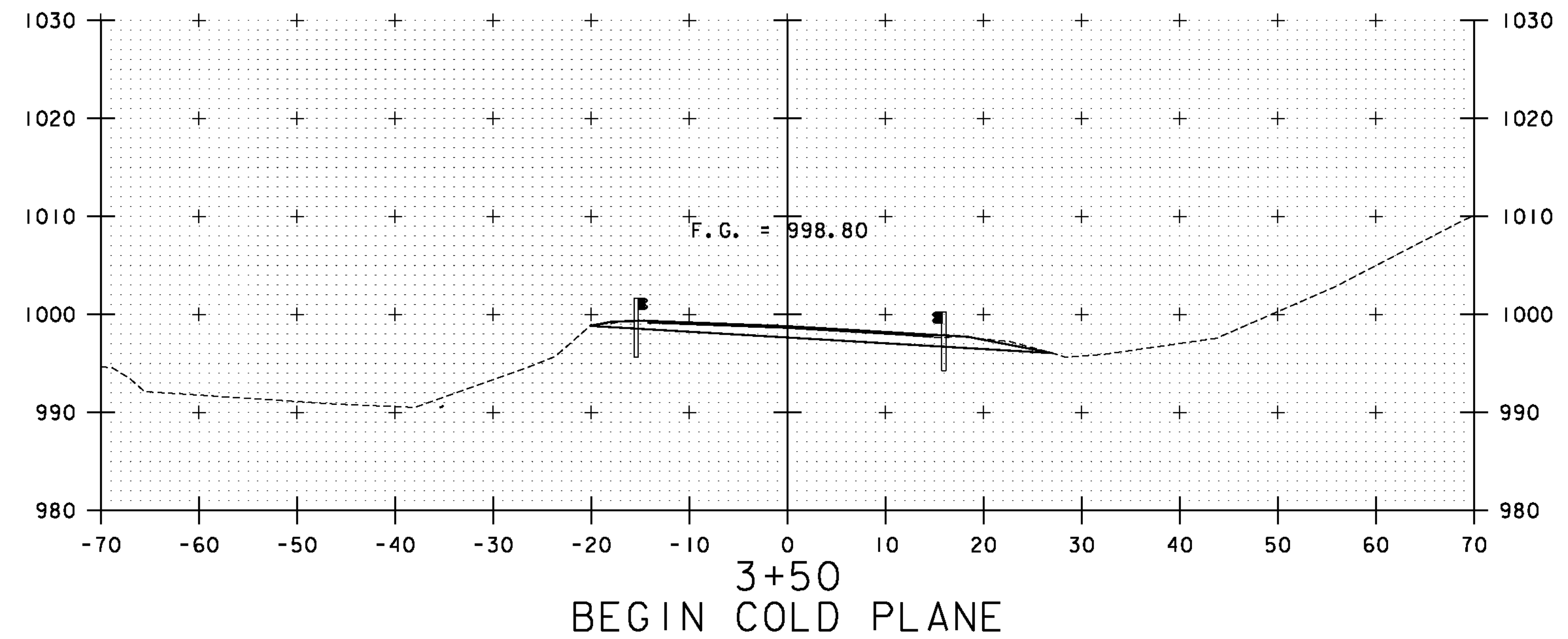
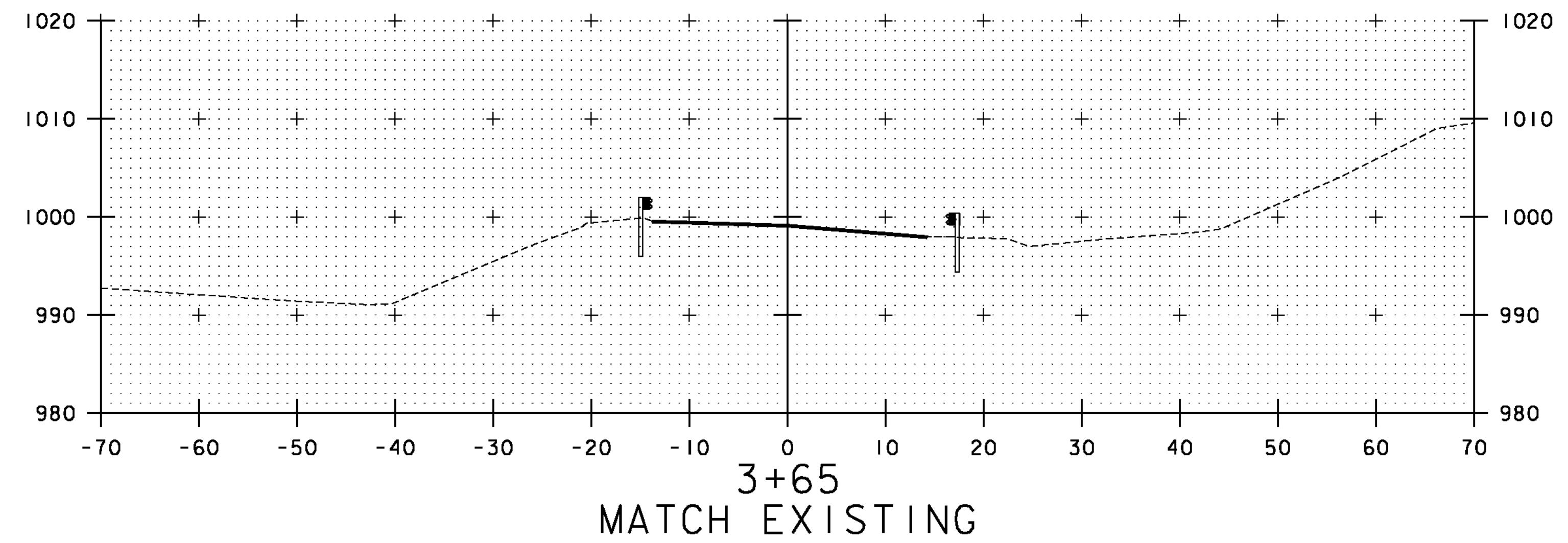
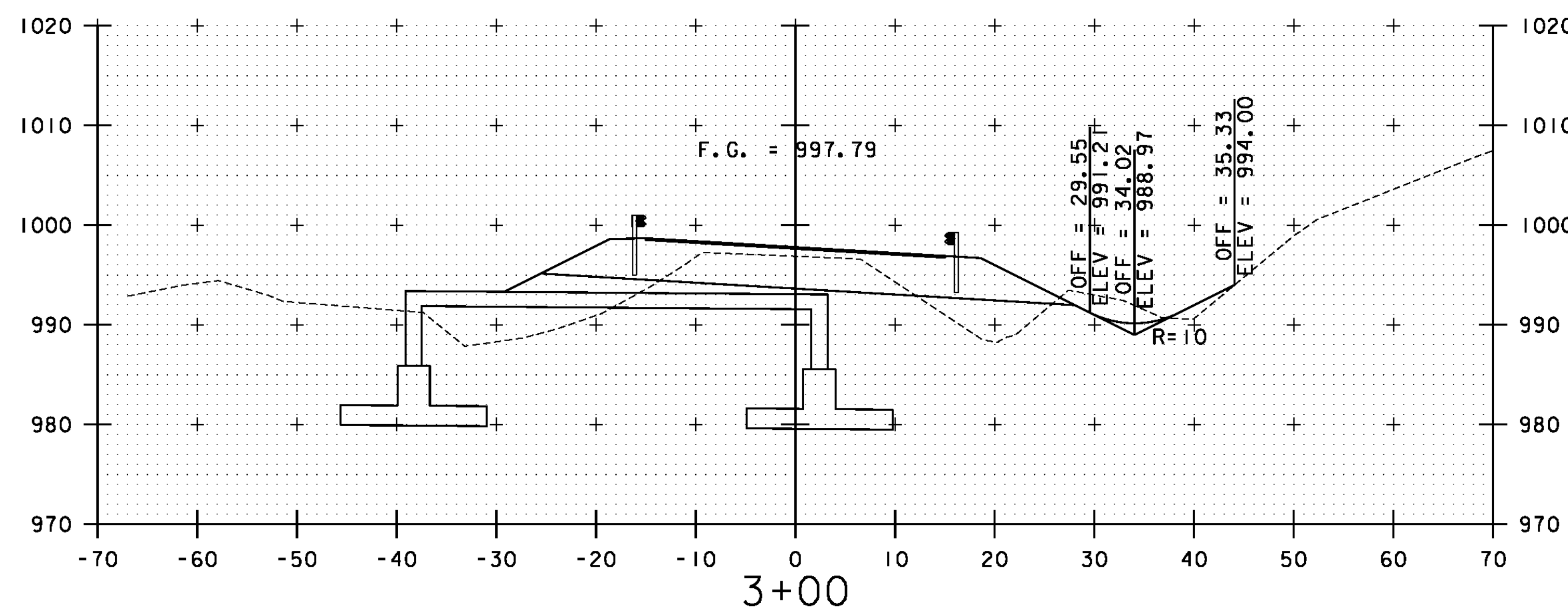
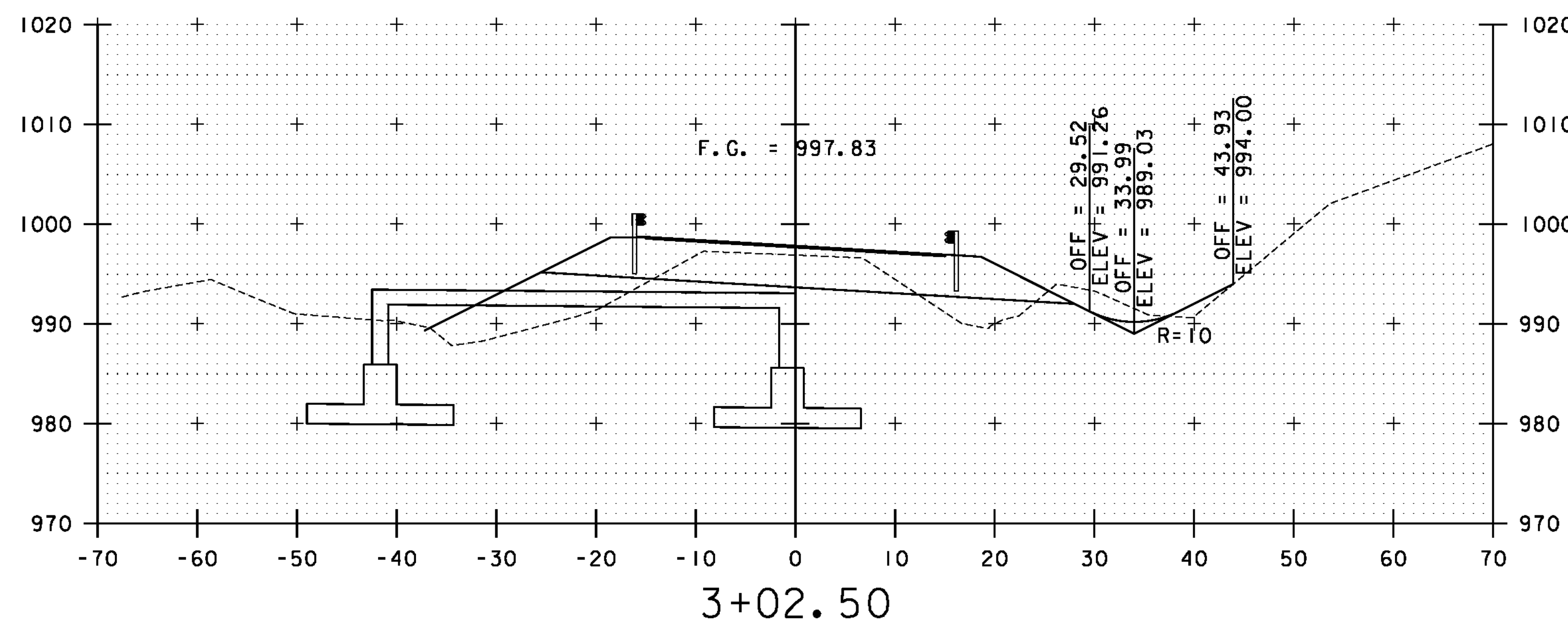
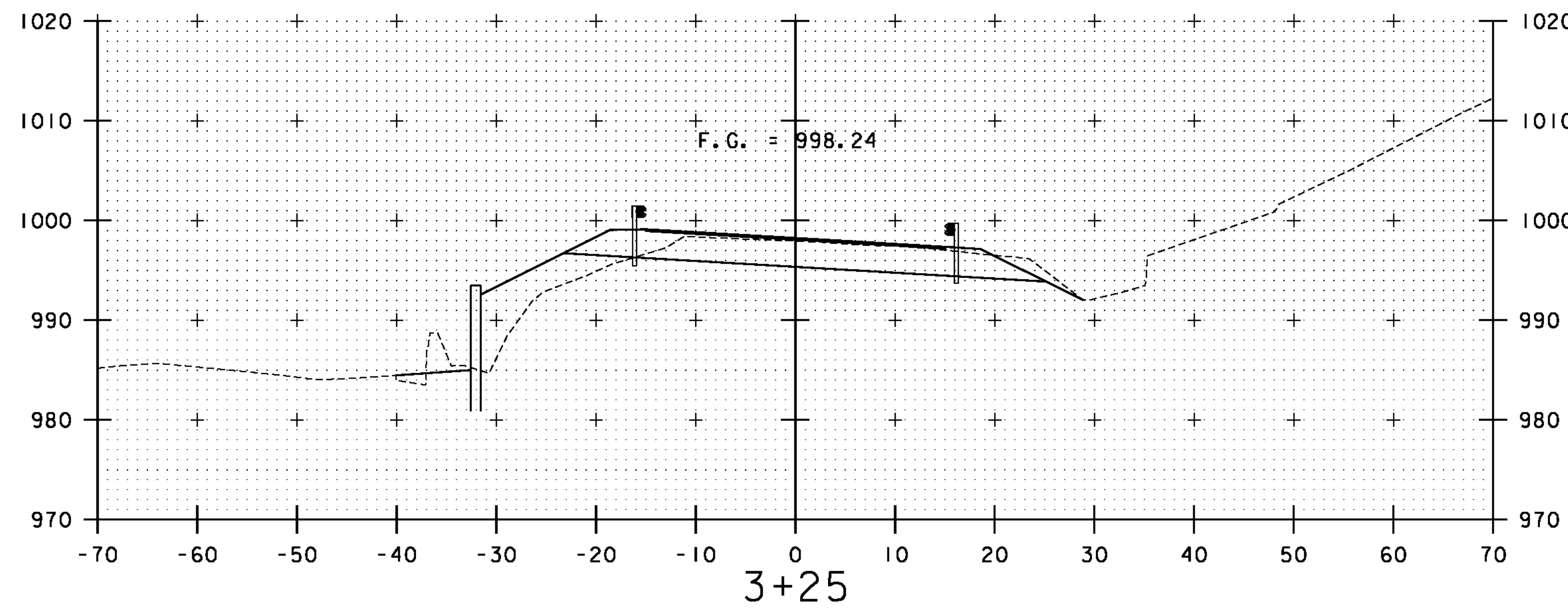
2+10
BEGIN APPROACH
MATCH EXISTING



2+50

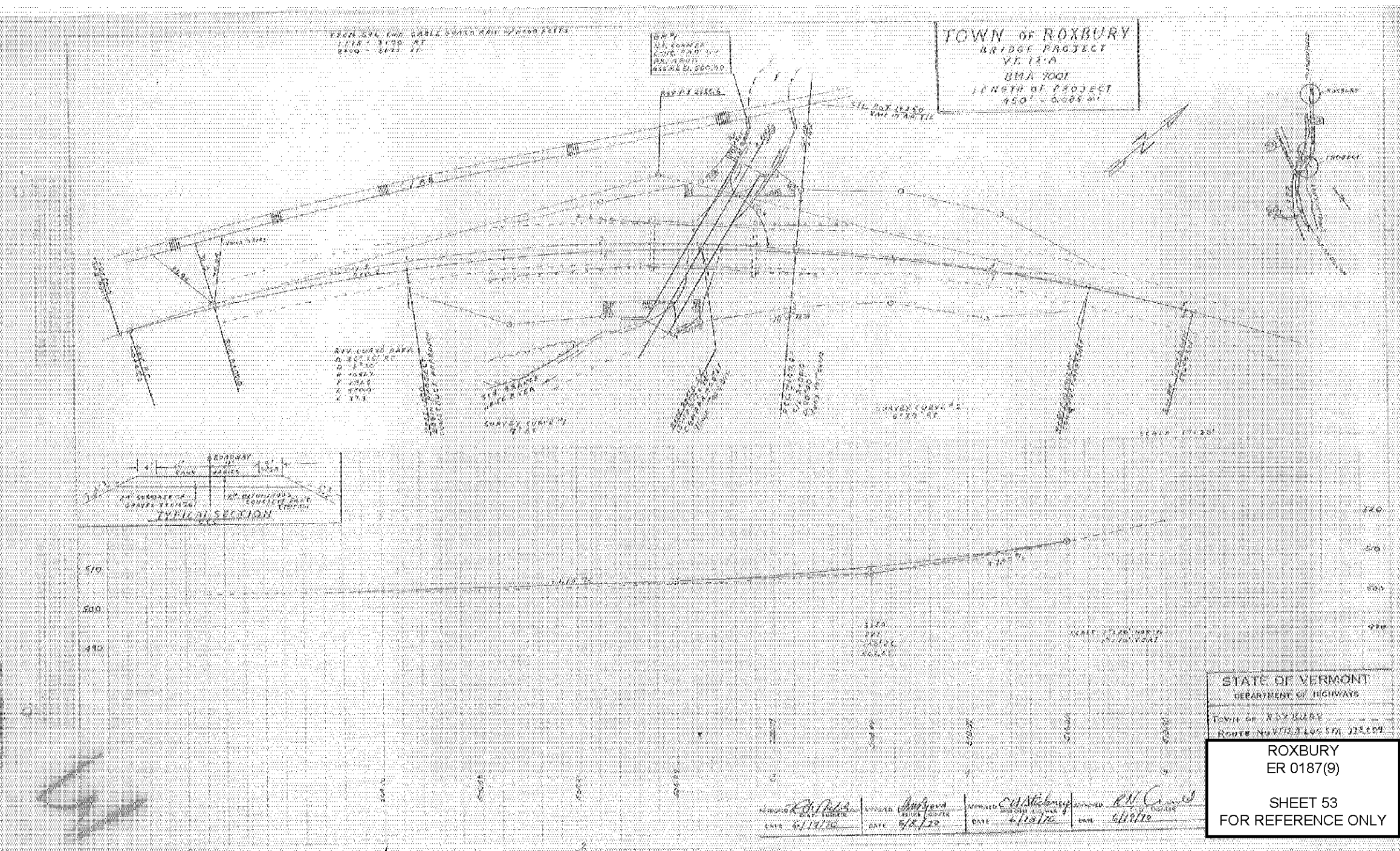
PROJECT NAME:	ROXBURY
PROJECT NUMBER:	ER 0187(9)
FILE NAME: ...	plotfiles\Cross Sections.dgn
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	M. CHENETTE
VT 12A CROSS SECTIONS 1	
DRAWN BY:	JTS/ISM
CHECKED BY:	G. BOGUE
SHEET	51 OF 54

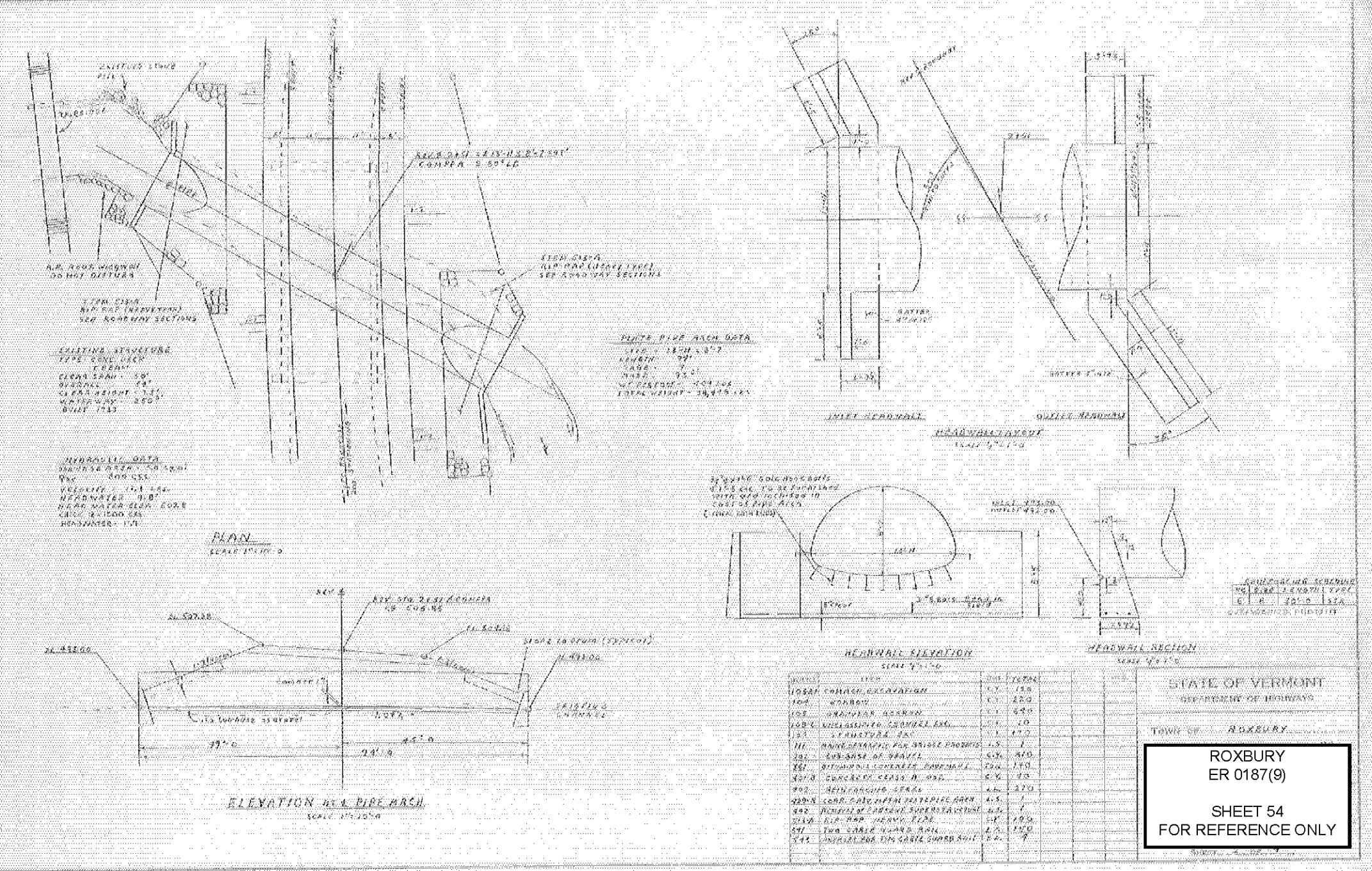




PROJECT NAME:	ROXBURY
PROJECT NUMBER:	ER 0187(9)
FILE NAME: ... \plotfiles\Cross Sections.dgn	PLOT DATE: 9/21/2011
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	M. CHENETTE
DRAWN BY:	JTS/ISM
CHECKED BY:	G. BOGUE
VT 12A CROSS SECTIONS 2	SHEET 52 OF 54







NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1	CONCRETE	100	CU YD	1.20	120.00
2	STEEL	50	TON	2.50	125.00
3	BRICK	1000	1000	0.10	100.00
4	CEMENT	200	TON	0.50	100.00
5	LABOR	1000	HOUR	0.10	100.00
6	PAINT	100	TON	1.00	100.00
7	GLASS	100	TON	1.00	100.00
8	ROOFING	100	TON	1.00	100.00
9	MECHANICAL	100	TON	1.00	100.00
10	ELECTRICAL	100	TON	1.00	100.00
11	PLUMBING	100	TON	1.00	100.00
12	INSULATION	100	TON	1.00	100.00
13	FOUNDATION	100	TON	1.00	100.00
14	ROOFING	100	TON	1.00	100.00
15	MECHANICAL	100	TON	1.00	100.00
16	ELECTRICAL	100	TON	1.00	100.00
17	PLUMBING	100	TON	1.00	100.00
18	INSULATION	100	TON	1.00	100.00
19	FOUNDATION	100	TON	1.00	100.00
20	ROOFING	100	TON	1.00	100.00

STATE OF VERMONT
 DEPARTMENT OF HIGHWAYS
 ROAD NO. 100
 SHEET 54
 FOR REFERENCE ONLY

L.B.Foster Co.
Foster Precise

Letter Of Transmittal

3 Farm Lane • Georgetown • MA • 01833 • Ph:(978) 352-2591 • Fax:(978) 352-2182

Project Number: 3590 LOT No.: 1
Project Name: VT AOT BHF 0187(8) & 0187(9) Date: 10/13/11 11:25 AM

To: **Jeff Luck**
Luck Brothers, Inc.
73 Trade Road
Plattsburgh, NY 12901
Ph: (518) 561-4321
Fax: (518) 561-8462

CC: None

Subject: Full Set For Approval

We are sending you the following 10 page(s) via e-Mail
Please return the following by: 10/27/2011

Shop Drawings Contract Drawings Miscellaneous Other:

Purpose of Transmittal: For Approval

Items	Copies	Date	Rev #	Description
	1	10/13/2011	0	GENERAL NOTES
Sheets: GN1				
	1	10/13/2011	0	ERECTION DRAWING
Sheets: E1				
	1	10/13/2011	0	SHOP DRAWINGS
Sheets: 1, 2, 3, 4, 5, 6, 7				
	1	10/13/2011	0	PARTS DRAWINGS
Sheets: X1				

Remarks:
Please submit for approval

Respectfully,
Robert E. Small Ext.21
FOSTER PRECISE



Attention: Ted Luck _____ Date: 10-13-11 _____
 Company: Luck Brothers Inc _____ Job Name: Roxbury _____
 Address: 73 Trade Road _____ Job Location: Roxbury, VT _____
 City, ST Zip: Plattsburgh, NY _____ Job Number: 12269 _____
 Phone: (518) 561-4321 Fax: (518) 561-8462 Regarding: Precast Submission _____

We are sending: Quote Specifications Plans Calculations Copy of Letter Change Order Shop drawings Prints Copy of Letter Change Order Calculations

Copies	Date	No.	Description
1	10/13/11		PDF of Drawing Submittals for Rigid Frame Sheets# 1-3
1	10/13/11		PDF of Design Calculations, Cover page and Pages# 1-27

These items are submitted as checked below:
 For approval Approved as submitted Resubmit _____ copies for approval
 For your use Approved as noted Submit _____ copies for distribution
 As requested Returned for corrections Return _____ corrected prints
 For review and comment Prints returned after loan to Griswold
 For bids due: _____ _____

Remarks
 Drawing and calculations for lifting and handling will be separate

 Thank you,

Customer Approval:
 The undersigned has reviewed the above referenced item(s) and is returning it/them to SD Ireland with the following approval.
 Approved
 Approved as noted
 Approved as noted (resubmit for record)
 Revise and resubmit

By: Travis Brousseau _____ 10/13/11 _____
(SD Ireland representative) (Date) (Please print)
 SD Ireland Concrete

By: _____ (Signature) _____ (Date)
 Company: _____
 Please note that revisions may affect price and lead time

Kindly notify us at once if enclosures are not as noted. Thank you.

WELDING PROCEDURE SPECIFICATION

Material Specification A709 TO A500 GR B
 Welding Process FCAW
 Manual or Machine SEMI-AUTOMATIC
 Position of Welding FLAT
 Filler Metal Specification A5.20 - 95
 Filler Metal Classification E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
 Flux N/A
 Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50CFH
 Single or Multiple Pass SINGLE
 Single or Multiple Arc SINGLE
 Welding Current DC
 Polarity REVERSE ELECTRODE POSITIVE
 Welding Progression STRINGER
 Root Treatment CLEAN AS PER SECTION 603 OF THE NYSSCM
 Preheat and Interpass Temperature PREHEAT AS PER TABLE 708 OF THE NYSSCM
 Postheat Temperature NONE
 Heat Input Min Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	300	26	14	
Variable	LIMITS	270	24	12.6	
		330	28	15.4	
V Trans Received by <u>JWC</u> OCT 8 2011 Approved by <u>[Signature]</u> DATE <u>10/18/11</u>					

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

Procedure No. 3009 Contractor Elderlee, Inc.
 Revision No. _____ Authorized By RANDY SCOTT
 Date 10/18/2011

WELDING PROCEDURE SPECIFICATION

Material Specification A572 GRD. 50 /A992-06a
 Welding Process FCAW
 Manual or Machine SEMI-AUTOMATIC
 Position of Welding FLAT
 Filler Metal Specification A5.20
 Filler Metal Classification E70 LINCOLN OUTERSHEILD
 Flux N/A
 Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50 CFM
 Single or Multiple Pass SINGLE (45 TO 63 CFM)
 Single or Multiple Arc N/A
 Welding Current DC
 Polarity DCEP
 Welding Progression STRINGER
 Root Treatment CLEAN AS PER SECTION 603 OF THE NYSSCM
 Preheat and Interpass Temperature PREHEAT AS PER TABLE 708 OF THE NYSSCM
 Postheat Temperature NONE
 Heat Input Min Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	3/32	350	27	12	
Variable	LIMITS	351 TO 429	25 TO 29	11 TO 13	

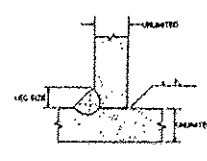
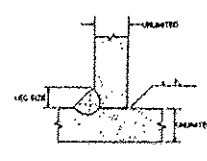
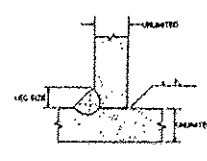
Transmitted by JRC
 OCT 18 2011
 Approved by [Signature]

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

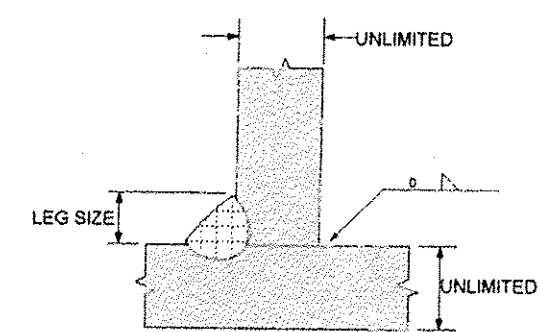
Procedure No. 3008 Contractor Elderlee, Inc.
 Revision No. _____ Authorized By RANDY SCOTT
 Date 10/18/2011

LB FOSTER CO Precise Structural Products
Welding Procedure Specification

Page 1 of 2
 3590-01

Material Spec. <u>ASTM A709 G35, G50 & G50W</u>																																	
Welding Process(es) <u>SMAW</u>																																	
Position of Welding <u>1F, 2F, 3F, 4F</u>																																	
Manual <input checked="" type="checkbox"/> Machine <input type="checkbox"/> Semi-Automatic <input type="checkbox"/> Automatic <input type="checkbox"/>																																	
Filler Metal Specification <u>AWS A5.1</u>																																	
Filler Metal Classification <u>E7018</u>																																	
Flux <u>N/A</u>																																	
Shielding Gas <u>N/A</u> Gas Flow Rate <u>N/A</u>																																	
Single or Multiple Pass <u>Single</u>																																	
Single or Multiple Arc <u>SINGLE</u>																																	
Welding Current <u>REVERSE</u>																																	
Polarity: AC <input type="checkbox"/> DCEP <input checked="" type="checkbox"/> DCEN <input type="checkbox"/> Pulsed <input type="checkbox"/>																																	
Welding Progression Up <input type="checkbox"/> Down <input type="checkbox"/>																																	
Root Treatment <u>CLEAN AS TO REMOVE CONTAMINANTS</u>																																	
Preheat Temperature <u>N/A</u> Interpass Temperature <u>N/A</u>																																	
Postheat Treatment <u>N/A</u>																																	
Heat Input Min <u>N/A</u> Max <u>N/A</u>																																	
WELDING PROCEDURE																																	
<table border="1"> <thead> <tr> <th>Pass No.</th> <th>Electrode Size</th> <th>Amperes</th> <th>Volts</th> <th>Travel Speed</th> <th>Other</th> <th>Joint Detail</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td>3/32</td> <td>120-150</td> <td></td> <td></td> <td></td> <td rowspan="4" style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td>ALL</td> <td>1/8</td> <td>140-180</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ALL</td> <td>5/32</td> <td>160-210</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ALL</td> <td>3/16</td> <td>190-250</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail	ALL	3/32	120-150					ALL	1/8	140-180				ALL	5/32	160-210				ALL	3/16	190-250				
Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail																											
ALL	3/32	120-150																															
ALL	1/8	140-180																															
ALL	5/32	160-210																															
ALL	3/16	190-250																															
CK'D BY _____ OK'D BY <u>JWC</u> OCT 13 2011 RESUBMIT _____ APPROVED <input checked="" type="checkbox"/> BY _____ DATE <u>10/14/11</u>																																	
This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.																																	
Procedure No. <u>1 TACK WELD</u> Contractor _____ Revision No. _____ Authorized By <u>WALTER J. BORKOWSKI</u> Date <u>10/13/1911</u>																																	

Joint Detail

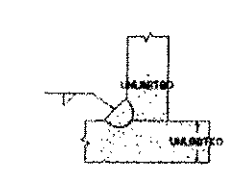
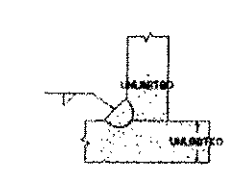
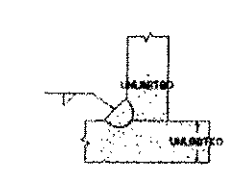


MEMO

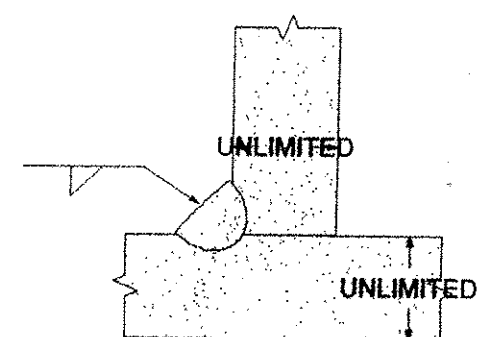
THIS PROCEDURE APPLIES TO TACK WELDING ONLY.
TACK LEG SIZE SHALL BE 1/8" OR 3/16".

LB FOSTER CO Precise Structural Products
Welding Procedure Specification

Page 1 of 2
 3560-02

Material Spec: <u>ASTM A709 G36, G50 & G60W</u> <u>AASHTO M270 G36, G50 & G60W</u>																					
Welding Process(es) <u>SAW</u>																					
Position of Welding <u>1F & 2F</u>																					
Manual <input type="checkbox"/> Machine <input type="checkbox"/> Semi-Automatic <input checked="" type="checkbox"/> Automatic <input type="checkbox"/>																					
Filler Metal Specification <u>AWS A5.23</u>																					
Filler Metal Classification <u>F7A2-EN1K-NI1-H8</u>																					
Flux <u>LINCOLN 860</u>																					
Shielding Gas <u>N/A</u> Gas Flow Rate <u>N/A</u>																					
Single or Multiple Pass <u>BOTH</u>																					
Single or Multiple Arc <u>SINGLE</u>																					
Welding Current <u>REVERSE</u>																					
Polarity: AC <input type="checkbox"/> DCEP <input checked="" type="checkbox"/> DCEN <input type="checkbox"/> Pulsed <input type="checkbox"/>																					
Welding Progression Up <input type="checkbox"/> Down <input type="checkbox"/>																					
Root Treatment <u>CLEAN AS TO REMOVE CONTAMINANTS</u>																					
Preheat Temperature <u>*** SEE PAGE 2</u> Interpass Temperature <u>*** SEE PAGE 2</u>																					
Postheat Treatment <u>N/A</u>																					
Heat Input Min <u>48.65 KILOJouLES/IN</u> Max <u>76.29 KILOJouLES/IN</u>																					
WELDING PROCEDURE																					
<table border="1"> <thead> <tr> <th>Pass No.</th> <th>Electrode Size</th> <th>Amperes</th> <th>Volts</th> <th>Travel Speed</th> <th>Other</th> <th>Joint Detail</th> </tr> </thead> <tbody> <tr> <td>All</td> <td>5/64</td> <td>330-350</td> <td>33-35</td> <td>10-11</td> <td></td> <td rowspan="2" style="text-align: center;">  </td> </tr> <tr> <td colspan="6"> <p style="text-align: center;">TRANS RECEIVED</p> <p>OK'D BY <u>JWC</u> DATE <u>OCT 13 2011</u></p> <p>RESUBMIT <input type="checkbox"/> APPROVED <input checked="" type="checkbox"/></p> <p>BY <u>[Signature]</u> DATE <u>10/13/11</u></p> </td> </tr> </tbody> </table>	Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail	All	5/64	330-350	33-35	10-11			<p style="text-align: center;">TRANS RECEIVED</p> <p>OK'D BY <u>JWC</u> DATE <u>OCT 13 2011</u></p> <p>RESUBMIT <input type="checkbox"/> APPROVED <input checked="" type="checkbox"/></p> <p>BY <u>[Signature]</u> DATE <u>10/13/11</u></p>						
Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other	Joint Detail															
All	5/64	330-350	33-35	10-11																	
<p style="text-align: center;">TRANS RECEIVED</p> <p>OK'D BY <u>JWC</u> DATE <u>OCT 13 2011</u></p> <p>RESUBMIT <input type="checkbox"/> APPROVED <input checked="" type="checkbox"/></p> <p>BY <u>[Signature]</u> DATE <u>10/13/11</u></p>																					
<p>This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.</p>																					
<p>Procedure No. <u>001 - FILLET WELD</u> Contractor _____</p> <p>Revision No. _____ Authorized By <u>WALTER J. BORKOWSKI</u> Date <u>10/13/2011</u></p>																					

Joint Detail

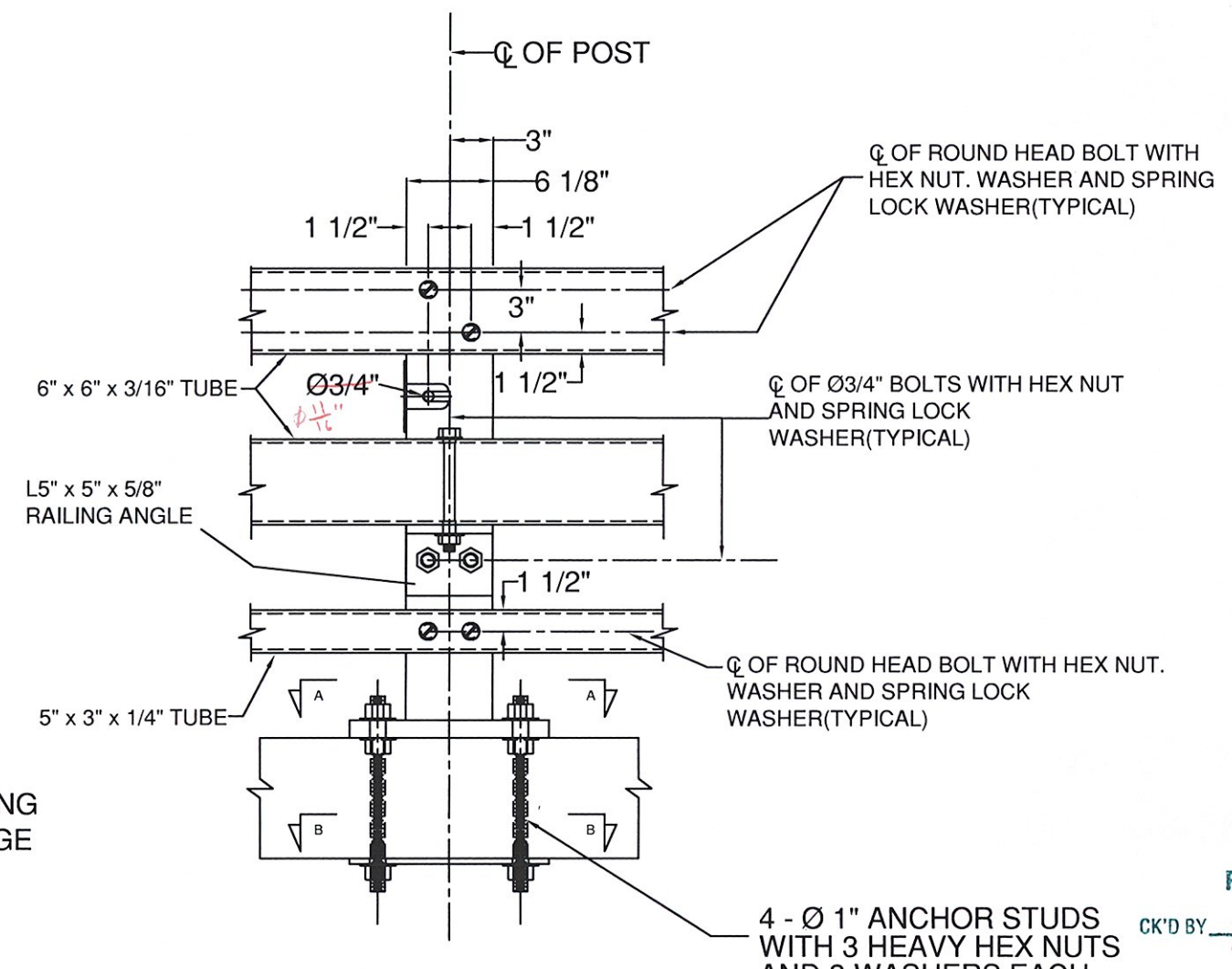
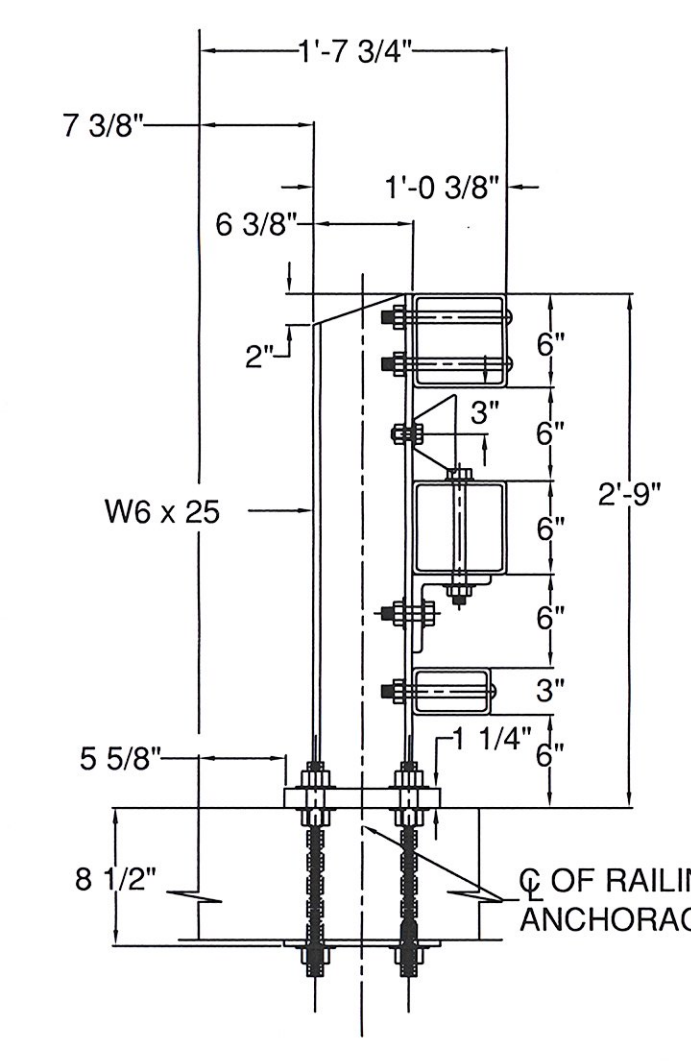
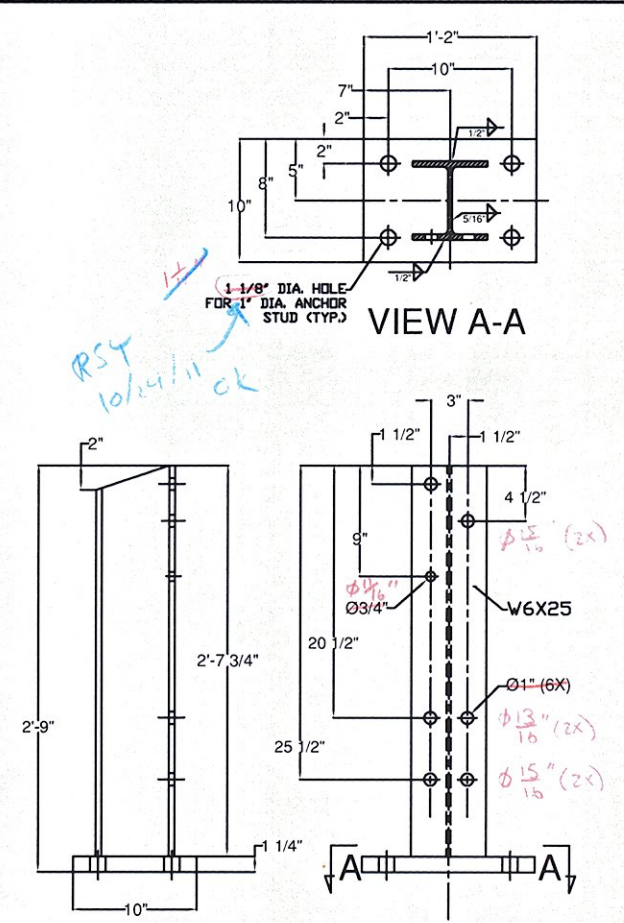
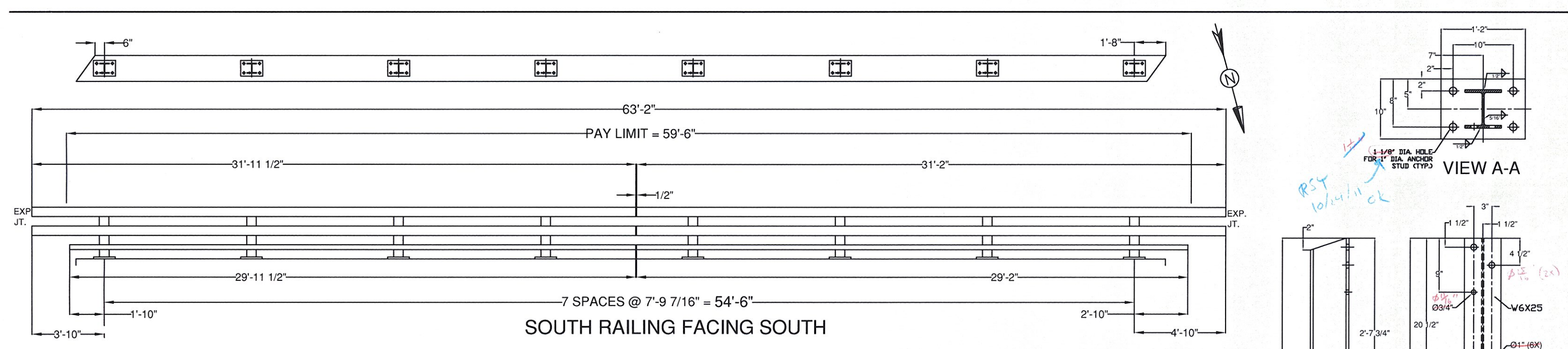


MEMO

*** MINIMUM PREHEAT AND INTERPASS TEMPERATURE SHALL BE AS FOLLOWS: TO 3/4" INCL 50 DEG F, OVER 3/4" TO 1-1/2" INCL 70 DEG F, OVER 1-1/2" TO 2-1/2" INCL 150 DEG F, OVER 2-1/2" 225 DEG F.

LEG DIMENSION SHALL BE 1/4", 5/16", 3/8.

PROCEDURE QUALIFICATION RECORD NUMBER SAW-01-2007



NO REDUCTION IN COUNTRY DIMENSIONS. NOT DIMENSIONS SHOULD INCLUDE DIM.

QTY	DESCRIPTION	ASTM DESIGNATION
8	THREE RAIL POST @ 2'-9" DA	A572 Gr. 50
1	3" X 5" X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
1	3" X 5" X 1/4" RAIL @ 29'-2"	A500 Gr. B
2	6" X 6" X 3/16" RAIL @ 31'-11 1/2"	A500 Gr. B
2	6" X 6" X 3/16" RAIL @ 31'-2"	A500 Gr. B
1	2-1/8" X 4-1/4" FIX. SPL. BAR @ 2'-3"	A572 Gr. 50
2	5" X 5" X 5/16" FIX. TUBE SPLICE @ 2'-3"	A500 Gr. B, A36
8	3/4" X 10" X 1/4" ANCHOR PLATES	A36
32	1" X 15" ANCHOR STUDS	A449 Gr. 1
96	1" HEAVY HEX NUTS & FLAT WASHERS	A563 & F436
32	7/8" X 8" ROUND HEAD BOLT, NUT, SPR. WASHER, L.W.	A449, A563, ASME B1B.211
8	3/4" X 8" HEX BOLT, NUT, & L.W.	A325, A563, F436, & ASME B1B.211
16	3/4" X 2-3/4" HEX BOLT, NUT, & L.W.	A325, A563, F436, & ASME B1B.211
8	3/4" X 7-1/2" HEX BOLT, NUT, & L.W.	A325, A563, & F436
4	3/4" X 4-1/2" HEX BOLT, NUT, & L.W.	A325, A563, & F436
8	5/8" X 1-1/2" HEX BOLT, NUT, & L.W.	A325, A563, & F436
8	L5" X 5" X 5/8" RAILING ANGLE @ 2'-9"	A36
8	DELINEATORS	ALUMINUM, B-209 ALLOY

ITEM # 900.640 GEN CONTR: F.R. Lafayette SHEET 1 OF 3

RECEIVED BY: *[Signature]* OK'D BY: *[Signature]*

OCT 13 2011

APPROVED: *[Signature]*

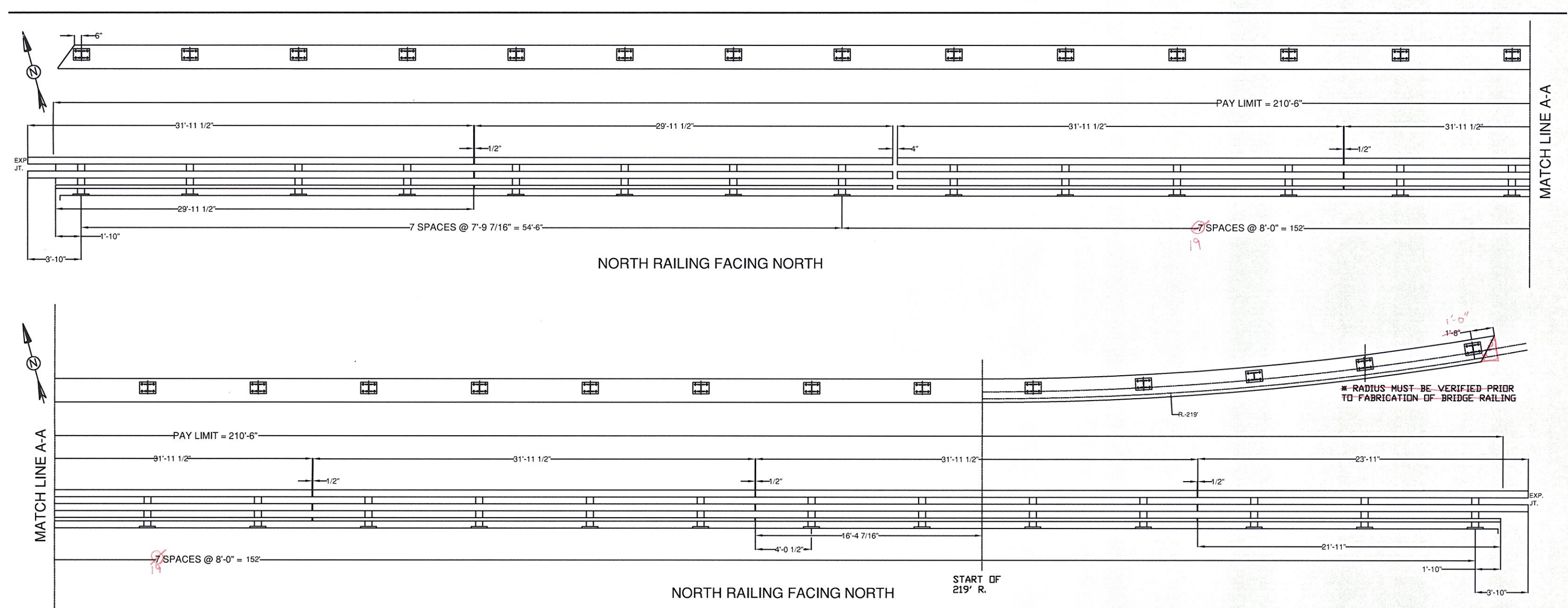
DATE: 10/19/2011

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14618
P: 607-353-6666
TEL: 315-789-8870 FAX: 315-789-8815

BRIDGE RAIL DETAILS SHEET
ROUTE 12A, BR 18 & BR 22
TOWN OF ROXBURY, WASHINGTON COUNTY, VT

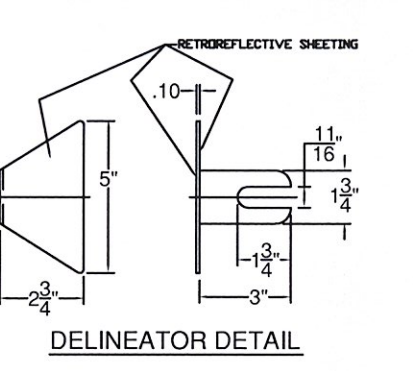
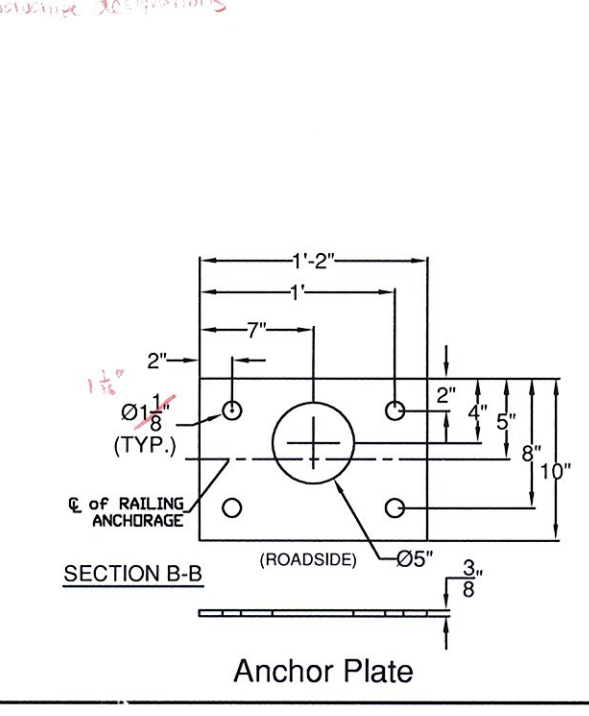
R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY
1				1			

DRAWN: [] E.P. 101111
CHECKED: [] D.L. 101111
APPROVED: []
SCALE: []
SCHEMATIC
DRAWING NO. FT Lafayette EM11220



BILL OF MATERIAL-NORTH RAIL

QTY	DESCRIPTION	ASTM DESIGNATION
27	THREE RAIL POST @ 29' DA	A572 Gr. 50
2	2" X 5" X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
3	2" X 5" X 1/4" RAIL @ 31'-11 1/2"	A500 Gr. B
1	2" X 5" X 1/4" RAIL @ 31'-11 1/2" W/ PARTIAL 219' R.	A500 Gr. B
1	2" X 5" X 1/4" RAIL @ 23'-11 1/2" W/ 219' R.	A500 Gr. B
2	6" X 6" X 3/16" RAIL @ 29'-11 1/2"	A500 Gr. B
8	6" X 6" X 3/16" RAIL @ 31'-11 1/2"	A500 Gr. B
2	6" X 6" X 3/16" RAIL @ 31'-11 1/2" W/ PARTIAL 219' R.	A500 Gr. B
1	6" X 6" X 3/16" RAIL @ 23'-11 1/2" W/ 219' R.	A500 Gr. B
3	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3"	A572 Gr. 50
1	2-1/8" X 4-1/4" EXP. SPLICE BAR @ 3"	A572 Gr. 50
10	2" X 5" X 5/16" FIX. SPLICE TUBE @ 2'-3"	A572 Gr. 50
2	2" X 5" X 5/16" EXP. SPLICE TUBE @ 3"	A500 Gr. B, A36
27	2 1/2" X 10" X 1/4" ANCHOR PLATES	A36
108	1" X 15" ANCHOR STUDS	A449 Gr. 1
324	1" HEAVY HEX NUTS & FLAT WASHERS	A563 & F436
108	7/8" X 8" ROUND HEAD BOLT, NUT, SO. WASHER, L.W.	A449, A563, ASME B1B2.11
27	3/4" X 8" HEX BOLT, NUT, (D) F.W. & L.W.	A325, A563, F436, & ASME B1B2.11
54	3/4" X 2-3/4" HEX BOLT, NUT, (D) F.W. & L.W.	A325, A563, F436, & ASME B1B2.11
48	3/4" X 1-1/2" HEX BOLT, NUT, & (D) F.W.	A325, A563, & F436
24	3/4" X 4-1/2" HEX BOLT, NUT, & (D) F.W.	A325, A563, & F436
24	3/4" X 4-1/2" HEX BOLT, NUT, & (D) F.W.	A325, A563, & F436
27	1 1/2" X 5" X 5/8" RAILING ANGLE @ 6x	A36
27	1 1/2" X 5" X 5/8" RAILING ANGLE @ 6x	ALUMINUM, B-209 ALLOY



GENERAL NOTES:

- 1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
- 2) PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
- 3) BOLTS SHALL BE TORQUED ENOUGH TIGHT (APPROXIMATELY 100 FT-LB).
- 4) RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUBSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 60°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
- 5) SUPERREFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 702.08 AND SHALL BE A .007 ALUMINUM BACKING WHITE OR YELLOW REFLECTOR. WHITE IS TO BE INSTALLED ON THE DRIVERS RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVERS LEFT.
- 6) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
- 7) THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5' FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR THE EXPANSION JOINT RECESS FOR, IF ONE IS USED.

ITEM #: 900.640 GEN CONTR: F.R. Lafayette SHEET 2 OF 3

RECEIVED BY: [Signature] OCT 3 2011

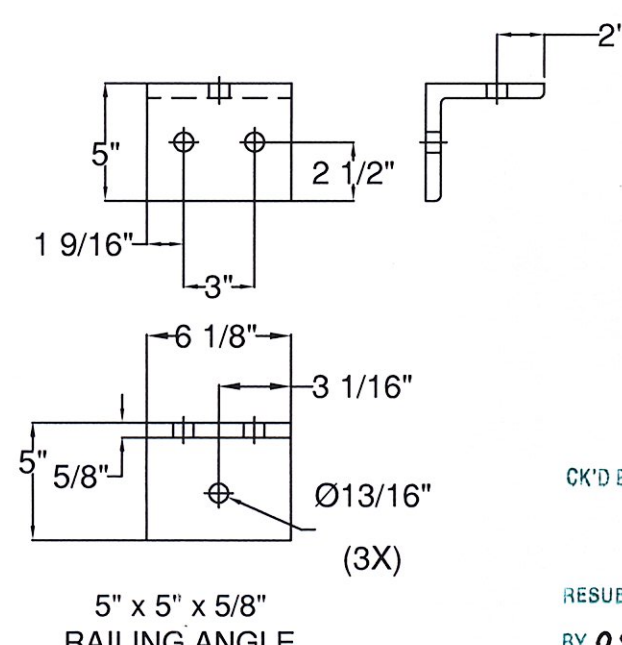
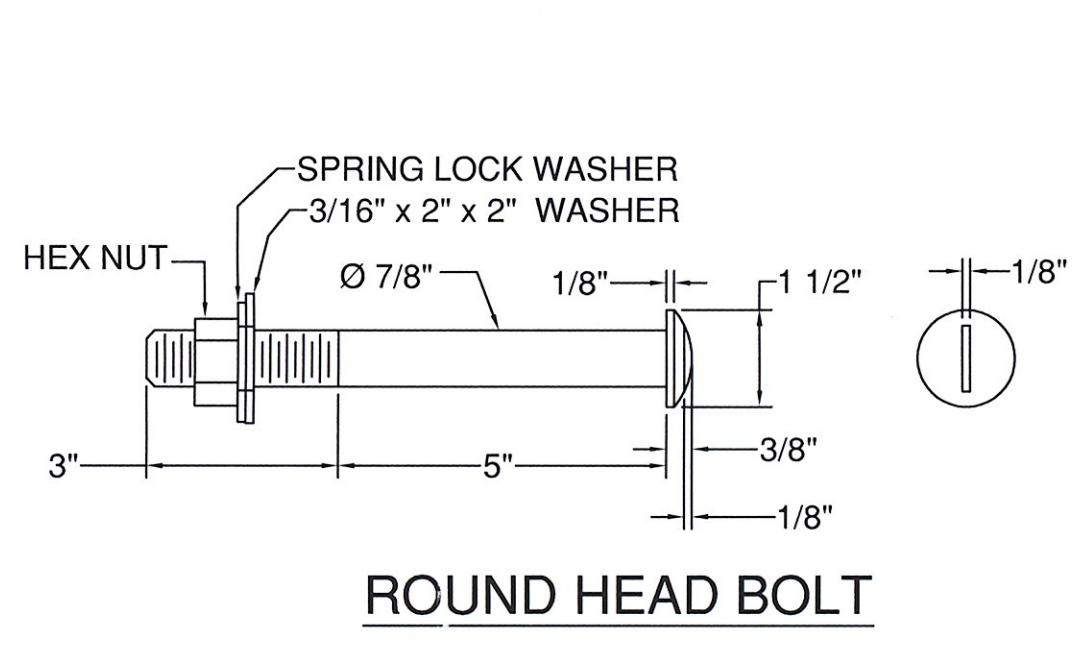
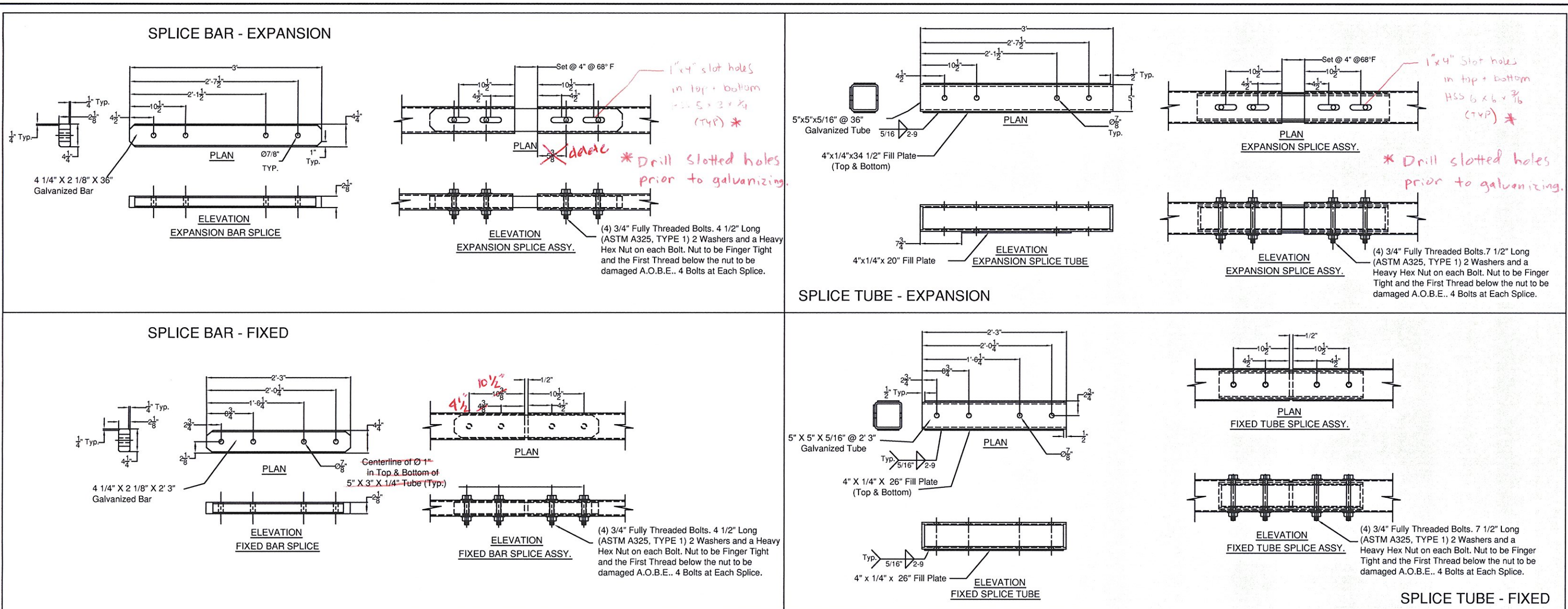
APPROVED BY: [Signature] DATE: 10/18/2011

BRIDGE RAIL DETAILS SHEET
 ROUTE 12A, BR 15 & BR 22
 TOWN OF FOXBURY, WASHINGTON COUNTY, VT

R NO.	DATE	DESCRIPTION	BY	R INCL.	DATE	DESCRIPTION	BY
E							
V							

ELDERLEE, INC.
 OAKS CORNERS, NEW YORK 14618
 8-800-450-9464
 TEL: 315-788-8870 FAX: 315-788-8816

DRAWN: [Signature] E.P. 10/11/11
 CHECKED: [Signature] D.L. 10/11/11
 APPROVED: [Signature] SCALE
 SCHEMATIC DRAWING NO. FR Lafayette EM1 222



ITEM #: 900.640 GEN CONTR: F.R. Lafayette SHEET 3 OF 3

RECEIVED BY: [Signature]

OK'D BY: [Signature]

DATE: 10/19/2011

APPROVED: [Signature]

ELDERLEE, INC.

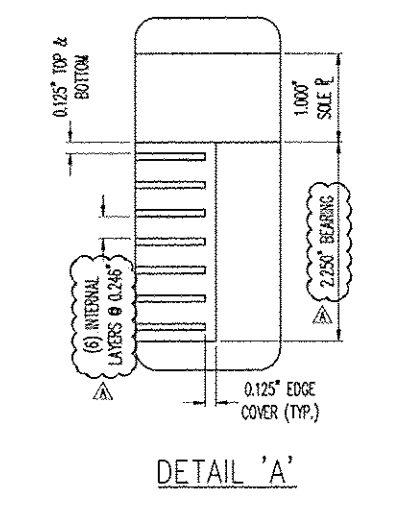
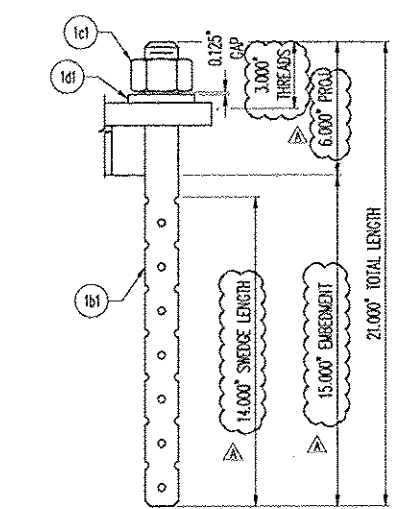
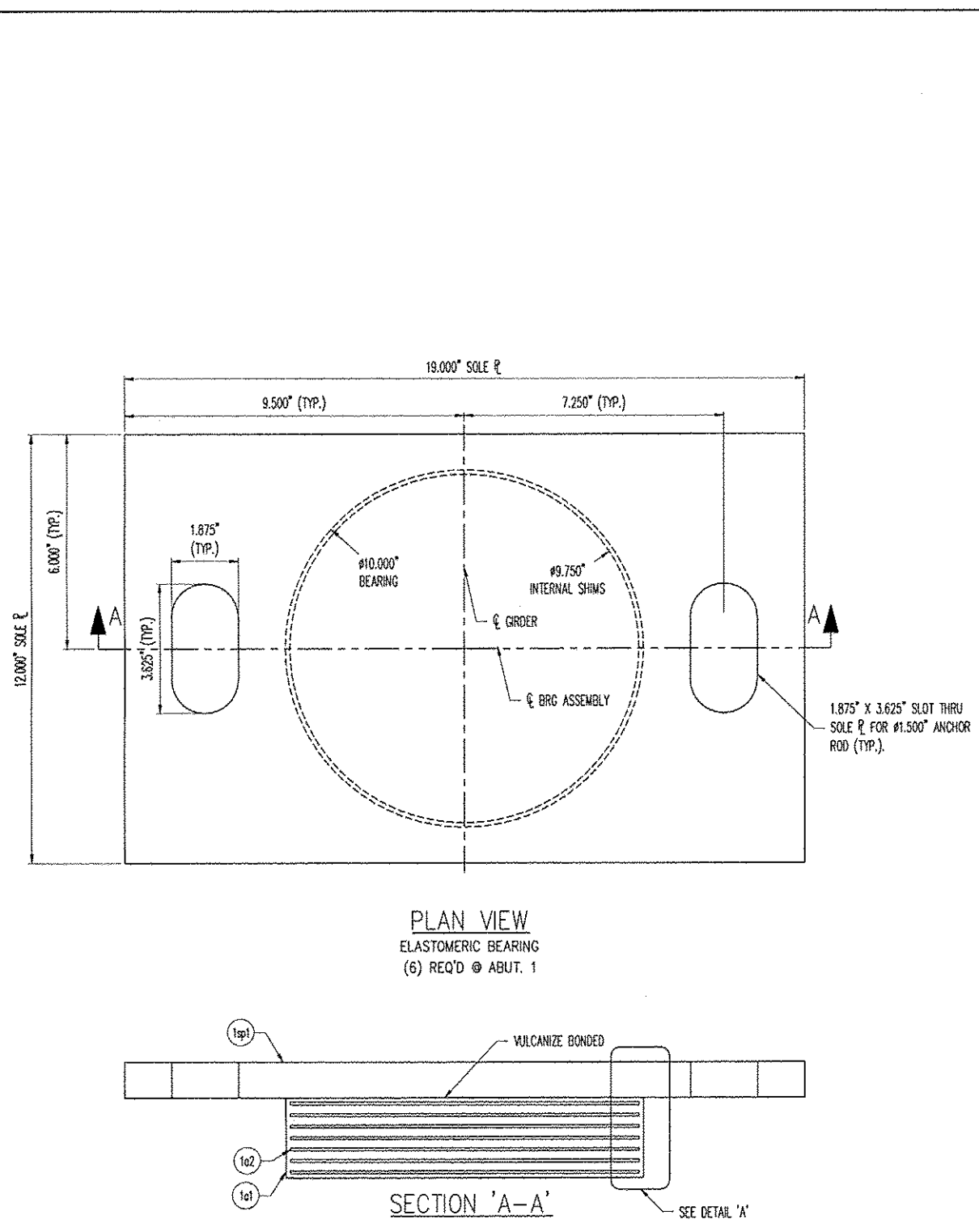
OAKS CORNERS, NEW YORK 14519

3-Mid-Range@elderlee.com

TEL: 315-789-6870 Fax: 315-789-6816

R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY
1	10/13/2011						

DRAWN	E.P.	10/11/11
CHECKED	D.L.	10/11/11
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R. Lafayette EM11222	

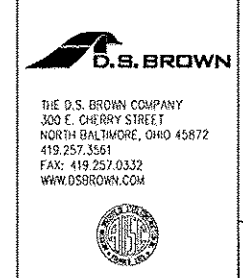


LOAD TABLE	
LIVE LOAD (KIPS)	60.0
DEAD LOAD (KIPS)	20.0

NO	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS
1A	6	ELASTOMERIC BEARING			
1d	6	2.50\"/>			
1e	2	1/4\"/>			
1f	6	1.00\"/>			
1B	12	SHIELD ROD			
1H	12	#1/2\"/>			
1C	12	HEX HEAD NUT			
1d	12	#1/2\"/>			
1D	12	WASHER PLATE			
1d	12	0.375\"/>			

SEE SH. 001 FOR GENERAL NOTES.

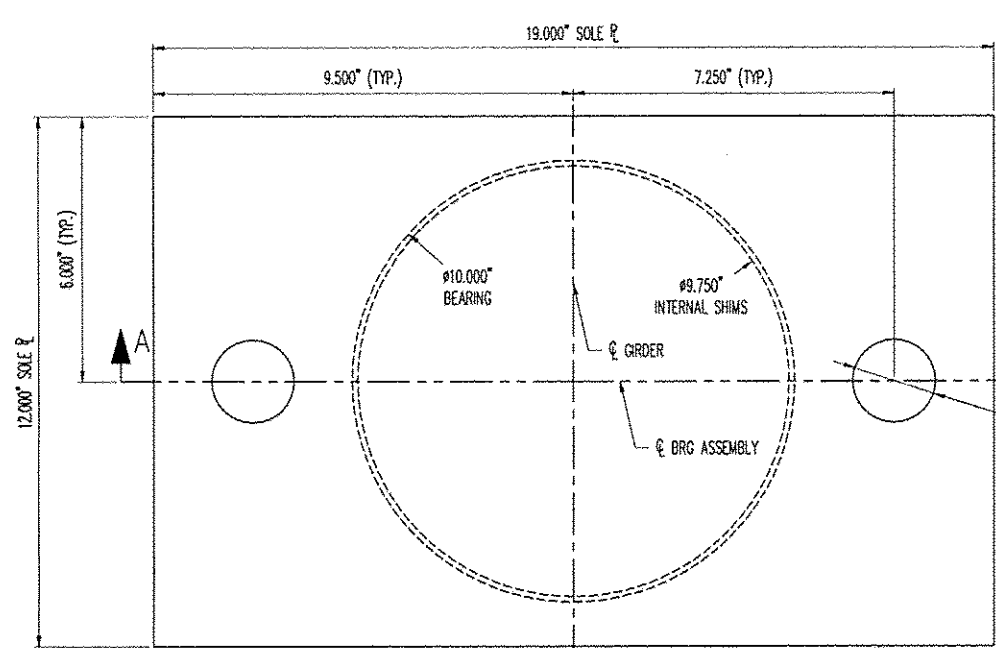
RECEIVED
OCT 12 2011
RESUBMIT BY RSY DATE 10/13/2011
APPROVED [Signature]



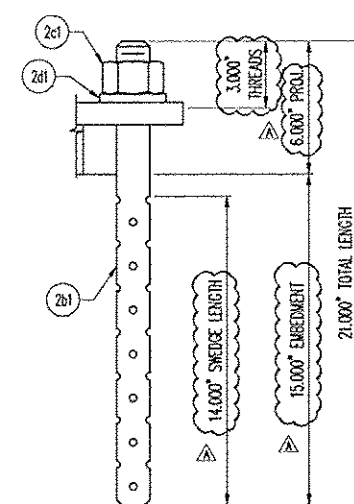
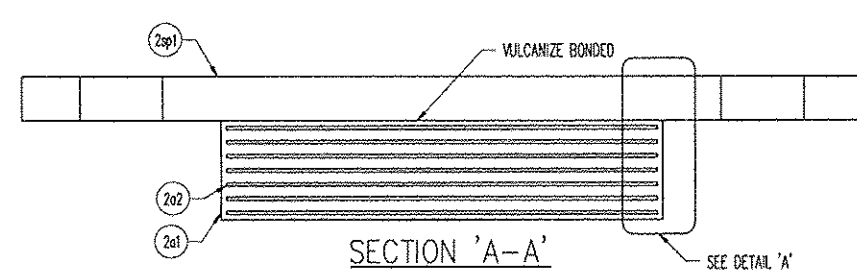
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1	1	REV. BIDD. HEIGHT FROM 1.25 TO 2.25, BRC MATERIAL, & ANCHOR ROD	10/7/11	BA	ANK

LOCATION	ITEM	QUANTITY
BRIDGE - 15		
PROJECT NO. - SHF 0827(8)		
PROJECT NAME - ROADWAY		
DESIGNER - VT DOT		
CUSTOMER - LUCK BROS. INC.		

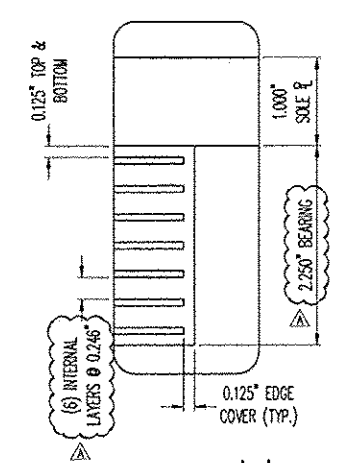
NO.	REV.	DESCRIPTION	DATE	BY	CHK'D BY
1	1	VERSIFLEX ELASTOMERIC BEARING	10/9/11		
1	1	WASHINGTON CO., VT	1104	1	01



PLAN VIEW
ELASTOMERIC BEARING
(6) REQ'D @ ABUT. 2



ANCHOR ROD DETAIL



DETAIL 'A'

LOAD TABLE	
LIVE LOAD (KIPS)	60.0
DEAD LOAD (KIPS)	20.0

NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS
2A	6	ELASTOMERIC BEARING			
2a1	6	1.5\"/>			
2a2	6	1/4\"/>			
2a3	6	1.00\"/>			
2B	12	ANCHOR ROD			
2b1	12	Ø1.315\"/>			
2C	12	HEAVY HEX NUT			
2c1	12	Ø1.315\"/>			
2D	12	WASHER PLATE			
2d1	12	Ø1.315\"/>			

SEE SH. 041 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	BY	CHK'D BY
1	REV. BRG. HEIGHT FROM 1.25 TO 2.25, BRG. MATERIAL, & ANCHOR ROD	10/10/19	DA	ANK

ITEM	QUANTITY
34574-1104-2	6 OF 6

LOCATION	BRIDGE	PROJECT NO.	DESIGNER	CUSTOMER
Part of Ch. Bridge at West of Orwell, Rte 100 W.	15	017 (017A)	VT DOT	LUCK BROS. INC.

VERSIFLEX LEASTOMERIC BEARING	N.T.S.	DA	ANK	10/16/19
WASHINGTON, CO., VT	34574	1104	1	02

RECEIVED
OCT 12 2019
APPROVED
DATE 10/13/2019



Mancini, Tom

From: Ted Luck [tluck@luckbros.com]
Sent: Thursday, October 13, 2011 2:01 PM
To: Young, Rob
Cc: Jeff; Mike Collin; Mancini, Tom
Subject: ROXBURY RIGID FRAME STRUCTURE
Attachments: Transmittal - Rigid Frame #1.pdf; #11269 Rigid Frame_EV Stamp Dwgs.pdf; 2011-10-12 Roxbury Submittal-Calculations.pdf

Rob,

Attached are shop drawings for the rigid frame structure and calculations. Handling, shipping, and erection drawings to follow.

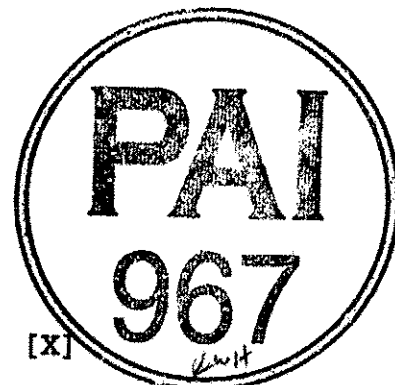
Ted Luck, President
Luck Brothers Inc
73 Trade Road
Plattsburgh, NY 12901
518-561-4321

LB Foster
 3 Farm Lane
 Georgetown, MA 01833
 Phone: 978-352-2591
 Fax: 978-352-2182

BOLT NUTS
 ATTACHED

***** SHIPPING TICKET *****

SHIPPING DATE: 11/18/2011 - 7 AM PAGE 1
 PROJECT: VT AOT - BHF 0187(8) JOB: 3590 - Rel #1
 CONTRACT # 3590 CUST. PO # Signed Proposal
 SHIP VIA: Our Truck TRACKING # 1
 SHIP TO: Luck Brothers, Inc. BILL TO:
 VT 12A
 Roxbury, VT
 ATTN: Ted Luck
 JOB PHONE: 518.561.4321
 COMPLETE SHIPMENT: [] PARTIAL SHIPMENT: [X]



REMARKS: INSPECTION BY VT AOT

PIECE #	MARK	QTY.	TYPE	DESCRIPTION	LENGTH	WT. ONE MEMBER	WT. ALL SHIPPED
1)	E1FB1	97	BOLT	7/8" Dia.	0'- 2	0.93	90.31
2)	1B1	1	W	30 x 90	55'- 5	5029.08	5029.08
3)	2B1	1	W	30 x 90	55'- 5	5067.78	5067.78
4)	3B1	1	W	30 x 90	55'- 5	5067.78	5067.78
5)	4B1	1	W	30 x 90	55'- 5	5067.78	5067.78
6)	5B1	1	W	30 x 90	55'- 5	5067.78	5067.78
7)	6B1	1	W	30 x 90	55'- 5	5029.08	5029.08
8)	7D1	10	C	15 x 33.9	4'- 1 1/2	139.84	1398.38

LB Foster SHIPPING TICKET PAGE 2

JOB: 3590 - Rel #1 CONTRACT: 3590

PROJECT: VT AOT - BHF 0187 (8) DATE: 11/18/2011

REMARKS: INSPECTION BY VT AOT

NUMBER OF MAIN MEMBERS SHIPPED: 113 TOTAL WEIGHT SHIPPED: 31817.97 LBS.

TOTAL SURFACE AREA OF ALL ITEMS SHIPPED: 2915.58 SQ. FT.

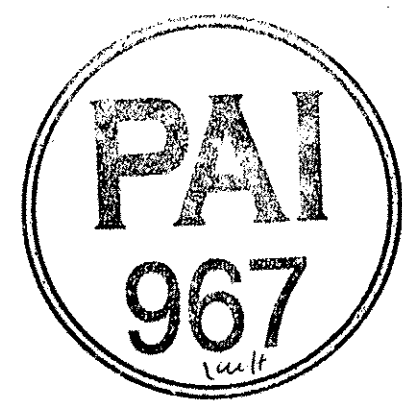
YOUR SIGNATURE BELOW INDICATES THAT YOU HAVE CHECKED THAT ALL MATERIALS LISTED
ON ALL PAGES OF THIS SHIPPING TICKET HAVE BEEN RECEIVED IN THE PROPER
QUANTITIES AND ARE IN GOOD CONDITION.

SHORTAGES OR DAMAGES MUST BE FULLY DOCUMENTED. TO BE CONSIDERED AS VALID PROOF
FOR A CLAIM, ANY SUCH NOTATIONS MUST BE SIGNED BY BOTH THE RECEIVER AND DRIVER.

RECEIVED BY (SIGNATURE): _____ DATE: _____

PRINT NAME NEATLY: _____ COMPANY: _____

DRIVER TIME IN: _____ DRIVER TIME OUT: _____



Shipper [Signature] Date _____
Shipping Insp. [Signature] Date _____
Final Q.C. [Signature] Date _____

HAYDON BOLTS, INC.
 1181 UNITY ST.
 PHILADELPHIA, PA 19124-3104

Phone: 215-537-8700
 Fax: 215-537-5569
 E-Mail: sales@haydonbolts.com

Page 1

ROTATIONAL CAPACITY TEST RESULTS

FOSTER PRECISE
 % ACCOUNTS PAYABLE DEPT
 3 FARM LANE
 GEORGETOWN, MA 01833

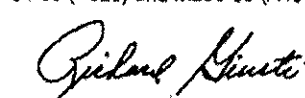
PO 197786
 Project
 SO No K80214
 Invoice No

Test No	RC0000720	Test Date	10/31/11	Manufacturer	Lot No
Bolt	7/8(9)X 2" A325-3 BOLT			SLSB LLC.	517904
Nut	7/8(9) HVY HEX NUT A563-DH3			UNYTITE INC.	TB841
Washer	7/8 F436 TYPE 3 WASHER			PRESTIGE STAMPING INC.	C3732
Washer 2					

	Actual Installation Tension	Torque FT/LB At Installation Tension	Max. Torque		Tension At Final Rotation LBS.	Final Status	HD Galv. Avg. Thick. Or Mech. Galv. Avg. Thick.
			FT/LB At Installation Tension <= .25	Final Rotation Degrees			
Test 1	39,876	497	712	242	53,174	Passed	
Test 2	39,717	513	712	241	50,289	Passed	

We certify that these tests were conducted in accordance with AASHTO-M164-05 (A325) and M253-05 (A490) and the latest revision of supplementary requirements of FHA standards.

SIGN



This certificate is advisory only and is not a warranty. This material is warranted as set forth in the Manufacturer's Standard Warranty.

Cert Summary Page HAYDON BOLTS, INC.

FOSTER PRECISE **Customer PO** 197786
Invoice No. D1101350 **Invoice Date** 10/31/11 **Sales Order** K80214
Cert No Inv Line No Item No Quantity Lot No Heat Assembly No PO
53788 10000 CERTS 1 K80214 Z03064
Description: MATERIAL CERTIFICATIONS RO CAP Supplier: HAYDON BOLTS INC.
51128 120000 AQA087200 97 517904 CR 405900 Z05140
Description: 7/8(9)X 2" A325-3 BOLT Supplier: SLSB LLC.
52803 130000 VDH3087 97 TB841 M666329 Z07283
Description: 7/8(9) HVY HEX NUT A563-DH3 Supplier: UNITYTE INC.
51210 140000 WRW087 97 C3732 A25698 Z07086
Description: 7/8 F436 TYPE 3 WASHER Supplier: PRESTIGE STAMPING INC.

HAYDON BOLTS, INC.

FOSTER PRECISE

Invoice No. D1101350

Customer PO 197786

Invoice Date 10/31/11

Quantity 1

Lot No K80214

Heat RO CAP

Assembly No

Haydon PO Z03064

Customer PO 197786

Sales Order K80214

Heat

RO CAP

Lot No

K80214

Quantity

1

Item No

10000 CERTS

HAYDON BOLTS, INC.

FOSTER PRECISE

Invoice No. D1101350
Cert No Inv Line No Item No

51128 120000 AQA087200

Invoice Date 10/31/11

Quantity Lot No
97 517904

Customer PO 197786

Sales Order K80214

Heat
CR 405900

Assembly No

Haydon PO
Z05140



TEST REPORT

13001 ATHENS AVENUE
CLEVELAND, OHIO 44107
T. 216.521.1800
F. 216.228.4220

3281 WEST COUNTY ROAD ONE
764-NORTH INDIANA 46041-0766
T. 765.654.0477
F. 765.654.0857

DATE: 05-02-06
CERTIFICATION: 148556*1*1

Cust PO: SL11497
Lot Nbr: 517904
Quantity: 7587 Pieces
Mfg Date: 05-02-06

St. Louis Screw & Bolt
PO Box 470037
6900 North Broadway
ST. LOUIS, MO 63147

Part Number: AQA087200
Description: 7/8-9 X 2 A325-3
Finish: PLAIN
THREAD TO HEAD

RAW MATERIAL ANALYSIS

Steel Heat Nbr: CR405900	Steel Grade: A325 TYPE 3 CLASS								
Steel Supplier: Charter Steel									
C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Sn
0.3600	0.9800	0.0160	0.0120	0.2400	0.3300	0.5100	0.0100	0.3200	0.0090
V	Al	N	B						
0.0010	0.0240	0.0080	0.0001						

MECHANICAL PROPERTIES

Wedge Angle: 0	High	Low	Average	Samples
Test Performed	52.0	48.0	49.4	8
Superficial R30N				
Core Hardness, HRC	31.0	28.0	29.4	8

Certification test results include those reported by the following laboratories:
Charter Steel, A2LA, 10-31-07
Lake Erie Products - Pkft Lab, A2LA 0122.02, 05-31-06

Applicable Standards, Specifications, and Sampling Schemes:
THE FOLLOWING STATEMENTS APPLY TO:
ASTM A-325-04b, TYPE 1 and TYPE 3 BOLTS
ASTM A-490-04a, TYPE 1 and TYPE 3 BOLTS
Test Methods are in accordance with ASTM F606-05.
Thread Fit and Dimensional Properties are compliant to ASTM B18.2.6.
These bolts passed inspection for surface discontinuities, per ASTM F788.
These bolts were not produced from heats in which Bismuth, Selenium, Tellurium, or Lead was intentionally added.
These bolts were not exposed to Mercury or any other metal alloy that is liquid at ambient temp during processing or while in our possession.
Material is of U.S. origin, and was melted and manufactured in the U.S.A.

THE FOLLOWING STATEMENTS APPLY TO:
Page: 1 of 2

MECHANICAL FIELD OF TESTING

Lake Erie Products
Gerald E. Simone
Quality Manager



TEST REPORT

13001 ATHENS AVENUE
CLEVELAND, OHIO 44107
T. 216.521.1800
F. 216.528.4550

3281 WEST COUNTY ROAD ONE
FRANKFORT INDIANA 46041-6966
T. 765.654.0477
F. 765.654.0857

Date: 05-02-06
Certification: 148556*1*1

Cust PO: SL11497
Lot Nbr: 517904
Quantity: 7587 Pieces
Mfg Date: 05-02-06

ASTM A-490-04a, TYPE 1 and TYPE 3 BOLTS
THE FOLLOWING STATEMENTS DO NOT APPLY TO:
ASTM A-325-04b, TYPE 1 and TYPE 3 BOLTS
These bolts passed magnetic particle inspection for longitudinal
discontinuities and transverse cracks, per ASTM A490-04a, E709, and
E1444 Test Methods.
These bolts passed carburization and decarburization tests, per SAE J121.
=====

The listed standards, specifications, and sampling schemes are of the revision
in effect on the date of manufacture unless noted otherwise. Only those
standards specifically noted under "test methods" or "additional test methods"
are included on LB's scope of laboratory accreditation.

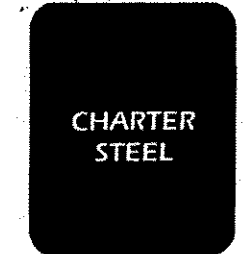
DEVIATIONS FROM THE TEST METHODS
None

This lot has been found to conform to the requirements of the above standards
and specifications

Original Mill Certification Attached
Certification Mailed to this address:
6900 NORTH BROADWAY, PO BOX 470037
ST. LOUIS, MO 63147, Attn: Katie Yost

We certify the product furnished by Lake Erie Products was manufactured, sampled, tested, and inspected in accordance with the standards and specifications
listed above and with Lake Erie Products Quality Manual in effect as of the date of manufacture. The above data accurately represents values provided by Lake Erie
Products and neither Lake Erie Products nor Lake Erie Products QMS accredited laboratory. The above data does not constitute a warranty.

Lake Erie Products
Gerald E. Simpson
Quality Manager



CHARTER STEEL

A Division of Charter Manufacturing Company, Inc.

1 .AD

1658 Cold Springs Road
Saukville, Wisconsin 53080
(262) 268-2400
1-800-437-8789
FAX (262) 268-2570

CHARTER STEEL TEST REPORT

Reverse Has Text And Codes

Lake Erie Products
3595 West State Road 28
Frankfort, IN 46041-6708
Attn: John Shambora

Cust. P.O.	44826
Cust Part#	G336082/A325CORTEN
Charter Sales Order	207268
Heat #	405900
Ship Lot #	333677
Grade#	A325 M SK FG RHQ
Process	HR
Finish Size	1-9/32

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed below and on the reverse side, and that it satisfies those requirements.

Test Results of Heat Lot# 405900

LAB CODE: 7388	C	MN	P	S	SI	NI	CR	MO	CU	SN	V	
Chemistry	0.36	0.98	0.016	0.012	0.240	0.33	0.51	0.01	0.32	0.009	0.001	
Wt%	AL	N	B	TI	NB							
	0.024	0.0080	0.0001	0.001	0.002							
Jominy (HRC)	JOM01	JOM02	JOM03	JOM04	JOM05	JOM06	JOM07	JOM08	JOM09	JOM10	JOM11	JOM12
	56	53	51	49	44	41	37	35	33	31	29	29
	JOM13	JOM14	JOM15	JOM16	JOM18	JOM20	JOM22	JOM24	JOM26	JOM28	JOM30	JOM32
	29	27	27	28	28	26	25	24	24	23	21	21

JOMINY SAMPLE TYPE ENGLISH = B JOMINY LAB = 0358-01 DI = 2.67
CHEM. DEVIATION EXT.-GREEN = N/R

Test Results of Rolling Lot # 333677

	# of Tests	Min Value	Max Value	Mean Value	
ROCKWELL B (HRBW)	1	33	33	33	RB LAB = 0358-02
ROCKWELL C (HRC)	0	0	0	0	RC LAB = N/R
ROD SIZE (Inches)	4	1.277	1.285	1.281	ASTA29 = Y
ROD OUT OF ROUND (Inches)	1	0.008	0.008	0.008	

NUM DECARB = 1 FREE FERRITE DECARB = 0.000 AVE DECARB = 0.004
QC DEVIATION EXT.-GREEN = N/R

Test Results of Processing Lot #

Specifications: Meets customer specifications with any applicable Charter Steel exceptions for the following customer documents:
Customer Document = LE 1.1 Revision = 7 Dated = 12-FEB-2004

Additional Comments: FINE GRAIN; TEST NOT REQUIRED IF ALUMINUM .020% OR GREATER.
MEETS REQUIREMENTS OF A325 TYPE 3, CLASS A.

- The following statements are applicable to the material described on the front of this Test Report:
1. Except as noted, the steel supplied for this order was melted, rolled and processed in the United States.
 2. Mercury was not used during the manufacture of this product; nor was the steel contaminated with mercury during processing.
 3. Unless directed by the customer, there are no welds in any of the coils produced for this order.
 4. The laboratory that generated the analytical or test results can be identified by the following key:

Certificate Number	Lab Code	Laboratory	Address
0358-01	7388	CSMD Charter Steel Melting Division	1658 Cold Springs Road, Saukville, WI 53080
0358-02	8171	CSR/CSPD Charter Steel Rolling/Processing Division	1658 Cold Springs Road, Saukville, WI 53080
0358-03	123633	P4 Charter Steel Ohio Processing Division	6255 US Highway 23, Risingsun, OH 43457
0358-04	125544	CSC Charter Steel Cleveland	4300 E. 49 th St., Cuyahoga Heights, OH 44125-1004
*	*	--	Subcontracted test performed by laboratory not in Charter Steel system

5. When run by a Charter Steel laboratory, the following tests were performed according to the latest revisions of the specifications listed below, as noted in the Charter Steel Laboratory Quality Manual:

Test	Possible Laboratory	Specification
Chemistry Analysis	CSMD	ASTM E415; ASTM E1019
Macroetch	CSMD	ASTM E381
Hardenability (Jominy)	CSMD	ASTM A255; JIS G0561
Grain Size	CSMD	ASTM E112
Tensile Test	CSR/CSPD, P4, CSC	ASTM E8; ASTM A370
Rockwell Hardness	CSR/CSPD, P4, CSC	ASTM E18; ASTM A370
Microstructure (spheroidization)	CSR/CSPD, P4	ASTM A892
Cleanliness	CSR/CSPD, CSC	ASTM E45

Charter Steel has been accredited to perform all of the above tests by the American Association for Laboratory Accreditation (A2LA). These accreditations expire 01/31/07.

All other test results associated with a Charter Steel laboratory that appear on the front of this report, if any, were performed according to documented procedures developed by Charter Steel and are not accredited by A2LA.

6. The test results on the front of this report are the true values measured on the samples taken from the production lot. They do not apply to any other sample.
7. This test report cannot be reproduced or distributed except in full without the written permission of Charter Steel. The primary customer whose name and address appear on the front of this form may reproduce this test report, subject to the following restrictions:
 - It may be distributed only to their customers
 - Both sides of all pages must be reproduced in full
8. This certification is given subject to the terms and conditions of sale provided in Charter Steel's acknowledgment (designated by our Purchase Order number) to the customer's purchase order. Both Purchase Order numbers appear on the front page of this Report.
9. Where the customer has provided a specification, the results on the front of this test report conform to that specification unless otherwise noted on this test report.



HAYDON BOLTS, INC.

FOSTER PRECISE

Invoice No. D1101350
Cert No 52803

Inv Line No 130000
Item No VDH3087

Customer PO 197786

Invoice Date 10/31/11
Quantity 97
Lot No TB841

Sales Order K80214
Heat M666329

Assembly No

Haydon PO
Z07283

INSPECTION CERTIFICATE

UNYITE, INC.
One Unyite Drive
Peru, Illinois 61354
815-224-2221 — FAX# 815-224-3434

Customer	Specification	Size	Lot No.	Date
ASTM A-563 GRADE D13 HEAVY HEX NUT	7/8" - 9 UNC	7B841	AUG. 27, '11	

Mechanical properties listed in accordance to ASTM F606/F606M, ASTM A370, ASTM E18

Chemical Composition (%)											
Mill Make	Material Size	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Shape & Dimension Inspection
BERDUT NMBR COPPER		0.24	0.24	0.40	0.014	0.014	0.23	0.35	0.54	0.04	ANSI B18.2.2 GOOD
ISTREZ (NO)	H666329	0.22	0.22	1.03	0.014	0.02	0.23	0.35	0.54	0.04	Thread Precision Inspection ANSI B1.1 CLASS "B" GOOD
Mechanical Property Inspection											
Item	Proof Load	Core Stripping	Hardness	Hardness After Heat Treatment	Hardness After 24 H2O, 1°C	Absorbed Energy	Heat Treatment	Remarks			
Spec	80,000 lb		24-38 HRC	H8-H9 5 Pieces Average After Heat Treatment	H8-H9 5 Pieces Average After Heat Treatment	1-1/2 in-lb	T: MIN. 800 F	* DR3 U *			
Results	n	n	27.3 27.1 27.2 27.3 27.3					Production Quantity 76,050 pcs.			
Results	GOOD							Q: Quenching T: Tempering ST: Solution Treatment			

OFFICIAL SEAL
NOTARY PUBLIC - STATE OF ILLINOIS
JEAN MARC HERIOT
6/8/24/11

Material used for the nut was melted and manufactured in the USA. The nut was manufactured in the USA to the above specification.

We hereby certify that the material described has been manufactured and inspected satisfactorily with the requirement of the above specification.

Chief of Quality Assurance Section

[Signature]

HAYDON BOLTS, INC.

FOSTER, PRECISE

Invoice No. D1101350
Cert No Inv Line No Item No
51210 140000 WPRV087

Customer PO 197786

Invoice Date 10/31/11
Quantity Lot No
97 C3732

Sales Order K80214
Heat
A25898
Assembly No
Haydon PO
Z07086

Prestige
Stamping
Inc.

23513 Crossbuck Highway
Warren, Michigan 48087
(586)773-2700 • Fax (586) 773-2298
www.prestigestamping.com

PRODUCT CERTIFICATION

CERTIFICATION NUMBER

86216

THIS IS TO CERTIFY THE PRODUCT STATED BELOW WAS FABRICATED AND PROCESSED TO THE ORDER AS INDICATED AND CONFORMS TO THE APPLICABLE SPECIFICATIONS AND STANDARDS.

Customer: HAYDON BOLTS INC ACCTS PAYABLE DEPT 1181 UNTTY ST PHILADELPHIA, PA 19124-3196	
Customer Part: 7/8"X436 TYPE 3 Prestige Part: E1700CH00 Part Name: 7/8"X436 TYPE 3 Purchase Order: 207086-1 Shipment BOI: E145947 Shipment ID: A0155441 Quantity: 35000 Manufacturers Marking: "P"	Steel Supplier: MID STATE INDUSTRIES Grade: SAE CF436 TYPE3 STEEL Lot: C3732 Heat: A25898 Carbon: .40 (.33 - .46) Manganese: .71 (.6 - 1.2) Phosphorous: .012 (.04 Max.) Sulfur: .001 (.05 Max.) Silicon: .18 (.15 - .35)

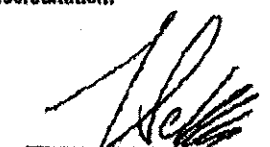
SPECIFICATIONS

HARDNESS: TEST METHOD: ASTM E18
HRC 38 - 45
ASTMF-606

TEST RESULTS

HARDNESS:
HRC 40 - 42

Chemistry is as reported from raw material certification and does not fall under Prestige Stamping's accreditation.
This product was produced under an ISO/TS 16949 Quality Assurance System.
ISO/TS 16949 Certification No: 0082933.
Material was melted and manufactured in the U.S.A.
This product was manufactured in Warren, Michigan U.S.A.
This product conforms to all requirements for washers as produced according to A.S.T.M. F-436.
Sampling Plan per P.S.I. W.I. # S-4-10.016.
The test results only apply to the items tested.
This test report must not be reproduced except in full without prior written approval.
Materials used to manufacture these products are mercury, asbestos and radio activity free.


FRANK SCHUBERT
Quality Assurance Manager

C3732

Mid-State Industries, LLC

908 Bob King Drive P.O. Box 68 Office: 217-268-3900
Arcola, IL 61910 Fax: 217-268-3906

Material Certification of Analysis

Customer: Prestige Stamping Inc Date: Feb 15, 2011
23212 Grossbeck Highway
Warren, Michigan 48090

Description: .136 x 5.035 x coil

Part#: P1700CH00 Mid-State Coil #: R22555 Master Coil#: 828590

Material chemical weight percent composition:

The chemical analysis hereby reported was supplied by the producing mill and provided certification is maintained in the records of the corporation.

Heat #: A25898 Grade: F436 PO: 18274

Carbon: 0.40 Manganese: .71

Phosphorus: 0.012 Sulfur: 0.001

Silicon: 0.180 Aluminum: 0.039

Rockwell: 82

Melted & MFG in USA

RECEIVED

FEB 16 2011

Time 6:00am

C3732

ADVANCE SHIP NOTICE
1504840

ArcelorMittal Riverdale Inc.

ArcelorMittal

REV. 0 DATE SHIPPED 11/16/2010

BILL OF LADING 01504840	CARRIER MITTAL RIVERDALE	CAR/TRAILER NBR CSP-32	ARRIVAL DATE
FREIGHT PAYMENT Prepaid	NET WEIGHT 183390 LBS	TARE WEIGHT	

SHIP TO (000870-001)
MID-STATE INDUSTRIES, LLC
C/O NACME STEEL PROCESSING
429 WEST 127TH ST.
CHICAGO, IL 60628

ATTENTION: Rod S

OUR ORDER: 488987 YOUR P.O.: M21000-046/2 FOB: FOB Mill
ALC P.O.: 1

001 HB1365120-01 183390 LBS / 4 Coils
YOUR PART NBR: B698640
9.1350 Min -0.0000/ +0.0100 X 51.2000 + 1.5000 WH(IN)
ID 30.0/30.0 OD 67.7/70.7 (IN)
Hot Band Prime Alloy MID-STATE 8640 MOD
C R/A

END USE: WEATHERING UEXP MELTED/MFG. IN U.S.A.
MNS 110A 8640 R-DALB
8640A RIVERDALE GRADE-WEATHERING
ALL SHIPMENTS MUST BE MARKED EXTERNALLY WITH POS WITH
PACKING LIST ENCLOSED SHOWING PTH AND POW OTHERWISE MATERIAL
WILL BE RETURNED AT SHIPPERS EXPENSE
1 OD AND 3 ID EQUALLY SPACED 1-1/4" BANDS
ALL LOADS MUST TARP COMPLETELY

LOT NBR W.O. # QUANTITY UM
A25898 183390 LBS / 4 Coils

TEST CLASS	LOT NBR	C	Mn	P	S	SI	Cu	NI
Chemical:	A25898	0.4000	0.7100	0.0150	0.0010	0.1800	0.3400	0.2900
		Cr	Mo	Su	Al			
		0.4900	0.0100	0.0020	0.0390	0.0050	0.0000	0.0046
		N	Se	TI	Sn	Ca	O	
		0.0003	0.0010	0.0030	0.0000	0.0020		

LOT NBR	W.O. #	QUANTITY UM	WEIGHT LBS
A25898		183390 LBS / 4 Coils	

GENERAL NOTES

SPECIFICATIONS

ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS AND STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, DATED 2008 AND ITS LATEST REVISIONS.

ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT STRUCTURAL WELDING CODE ANSI/AASHTO/AWS D1.5 AND THE PROVISIONS OF SUBSECTION 506.10

MATERIAL SPECIFICATIONS

ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GR 50W (A36).

ALL BOLTS FOR THIS PROJECT SHALL BE HIGH STRENGTH HEX HEAD BOLTS AND CONFORM TO ASTM A325 TYPE 3
NUTS ARE A563-D43 AND WASHERS F436-3

The complete bolt, washer and nut configuration needs to be tested and certified as a unit per subsection 714.05 of the Standard Specifications for Construction.

FABRICATION

CVN- INDICATES CHARBY V-NOTCH TESTED FOR ZINC 2, IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.

MAIN LOAD CARRYING MEMBERS ARE ALL STRINGER BEAMS.

THE BOTTOM FLANGE OF STEEL BEAMS AT BEARING AREAS SHALL BE SHD² STRAIGHTENED AS NECESSARY TO PROVIDE UNIFORM CONTACT BETWEEN THE BEAM FLANGE & THE BEARING AT THE BRIDGE SEAT.

ERECTION NOTES

ALL CONNECTION ARE BEING MADE WITH HIGH STRENGTH BOLTS NOTED ABOVE WITH ONE (1) HARDENED WASHER (ASTM F436 TYPE 3) TO BE PLACED UNDER THE TURNED ELEMENT.

SHIPPING MARK NUMBER WILL BE LOCATED AS SHOWN ON ERECTION PLANS.


CLEANING

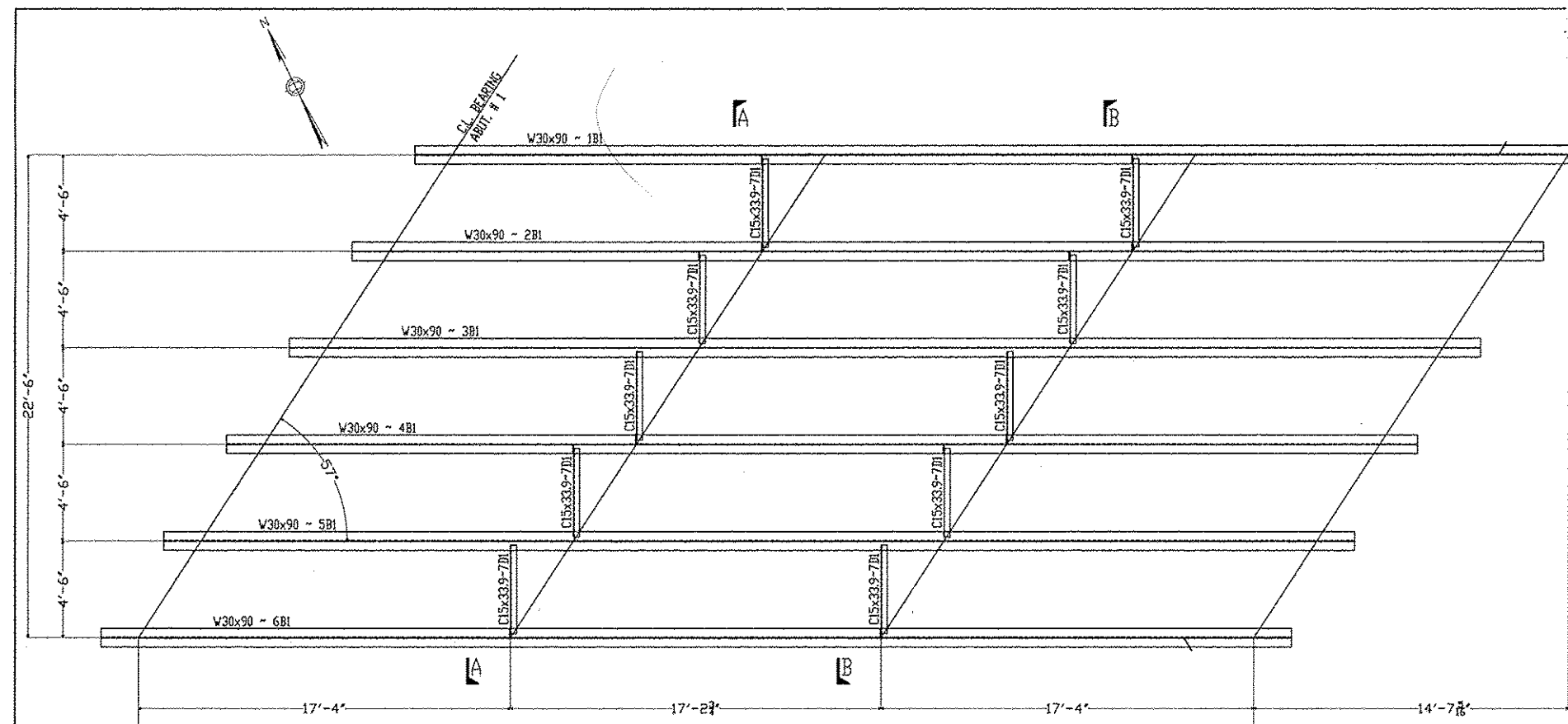
ALL STEEL SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP10 BLAST CLEANING

PAINT

NO PAINT

RECEIVED
OK'D BY RSY
OCT 17 2011
RESUBMIT _____ APPROVED
BY _____ DATE 10/18/2011

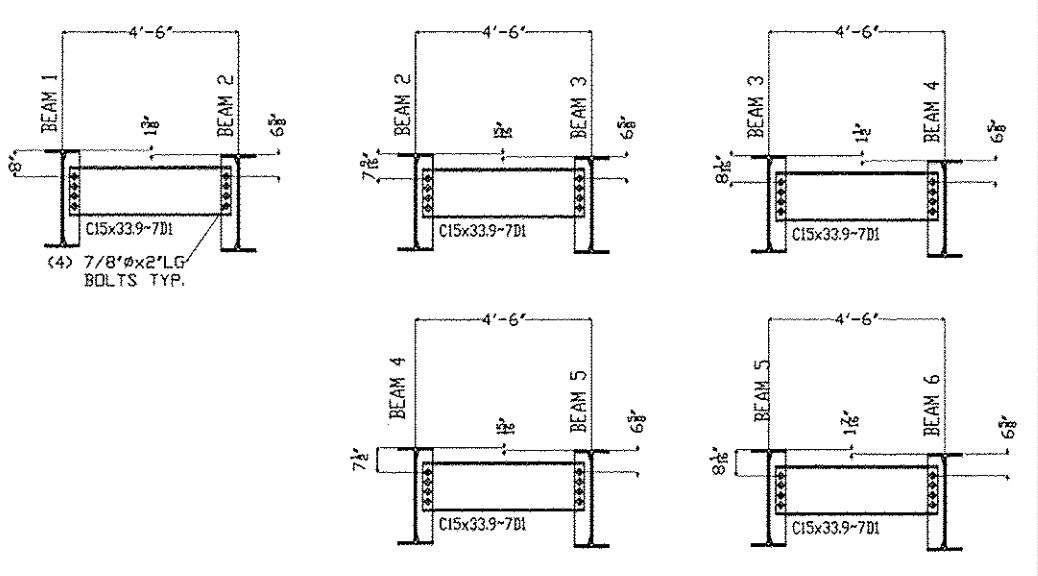
DATE	10/18/11	APPROVER COMMENTS	
REVISION			
GENERAL NOTES			
TOWN OF ROXBURY, WASHINGTON COUNTY, VT PROJECT NUMBER: BHP 018710 VT 12A MAJOR COLLECTOR - BRIDGE 15			
			
OWNER: VT AGENCY OF TRANSPORTATION CONTRACTOR: LUCK BROTHERS INC			
DATE	10/18/11	APP. / DES.	3550
NO.	000001	CONTRACT NO.	GN1



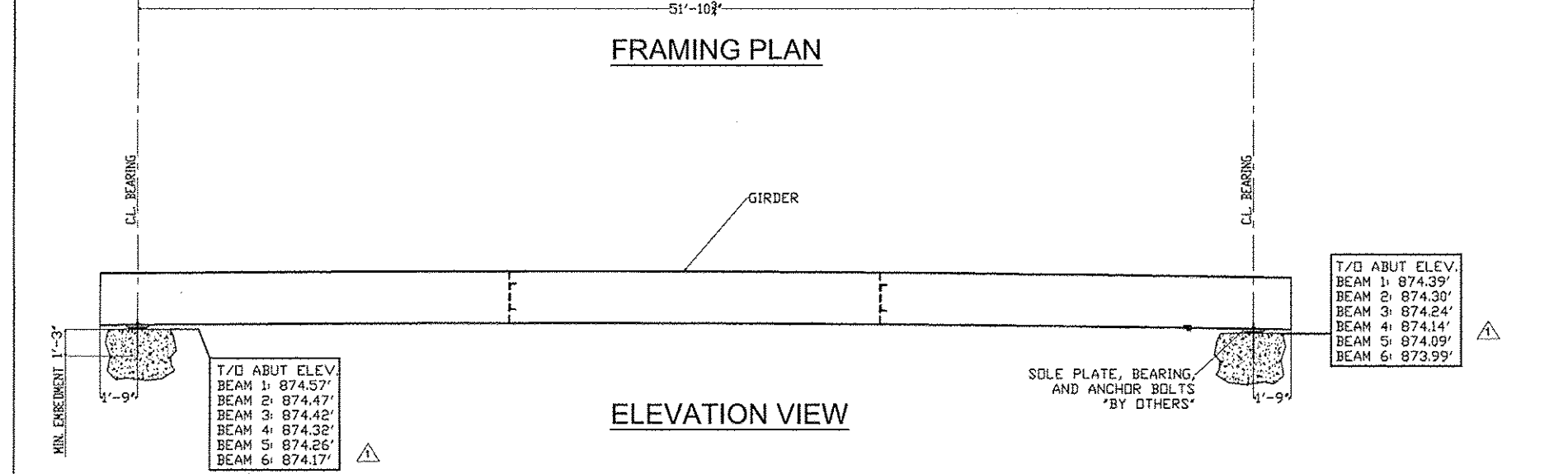
FRAMING PLAN

LINE NO.	QTY	TYPE	BOLT LENGTH	ACTUAL COUNT	REMARKS
1	87	A325 TYPE 3	2"	80	* / 1 FLAT WASHER
2	1				
3	1				
4	1				

NOTE: 4% ADDITIONAL BOLTS ADDED + 3 FOR TESTING

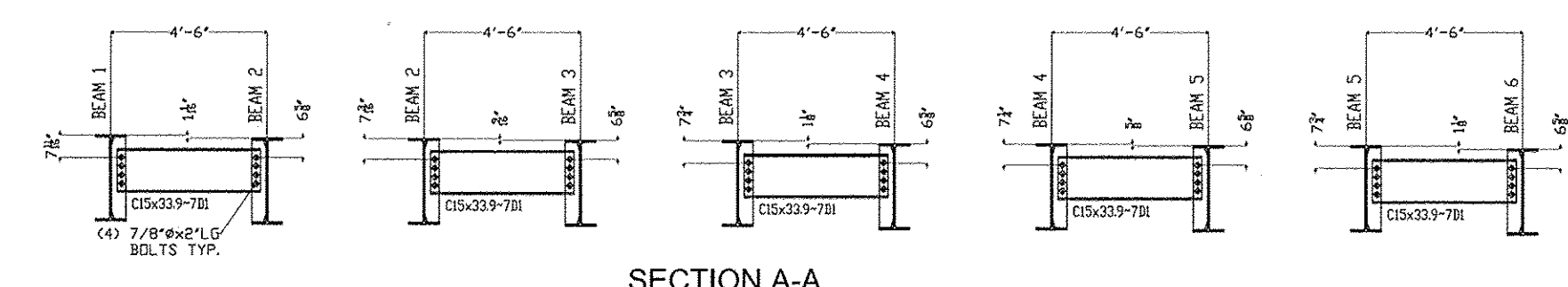


SECTION B-B



ELEVATION VIEW

RECEIVED
 OK'D BY: RCY
 OCT 17 2011
 RESUBMIT: APPROVED:
 BY: _____ DATE: 10/18/2011



SECTION A-A

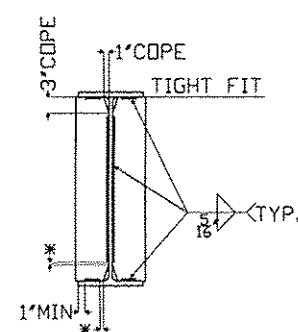
SHOP NOTES

- HOLE: 15/16" UNF
- BOLTS: PER GRI
- PAINT: HD PAINT
- WELDS: N/A
- MATERIAL: A572 GR.50V

PRECISE STRUCTURAL PRODUCTS
 3 FARM LANE
 GEORGETOWN, MA 01833
 (978) 862-2991

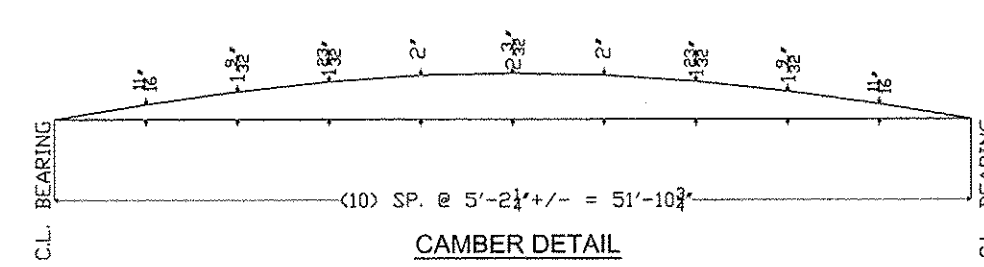
OWNER: VT AGENCY OF TRANSPORTATION
 CONTRACTOR: LOCK BROTHERS INC.
 DRAWN BY: _____ CHECKED BY: _____ DATE: 10/18/11

NO. 3550 E1



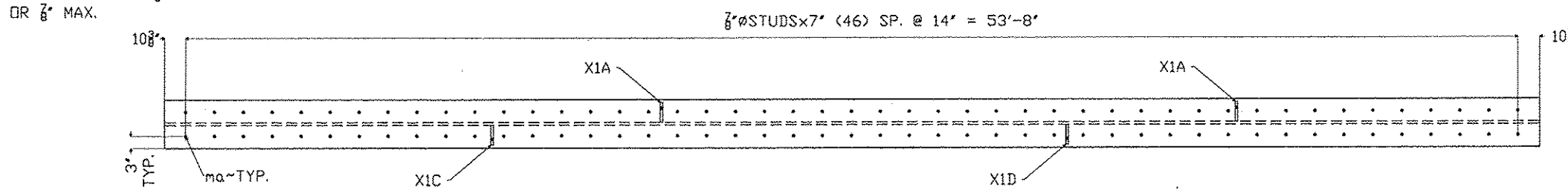
TYP. DIAPHRAGM STIFFENER WELD DETAIL

* NO WELD FOR 1/4" MIN. OR 1/2" MAX.

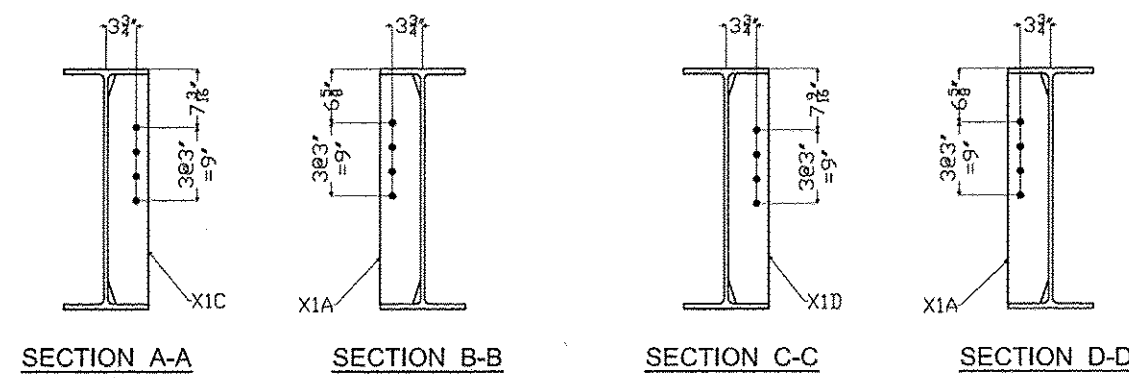
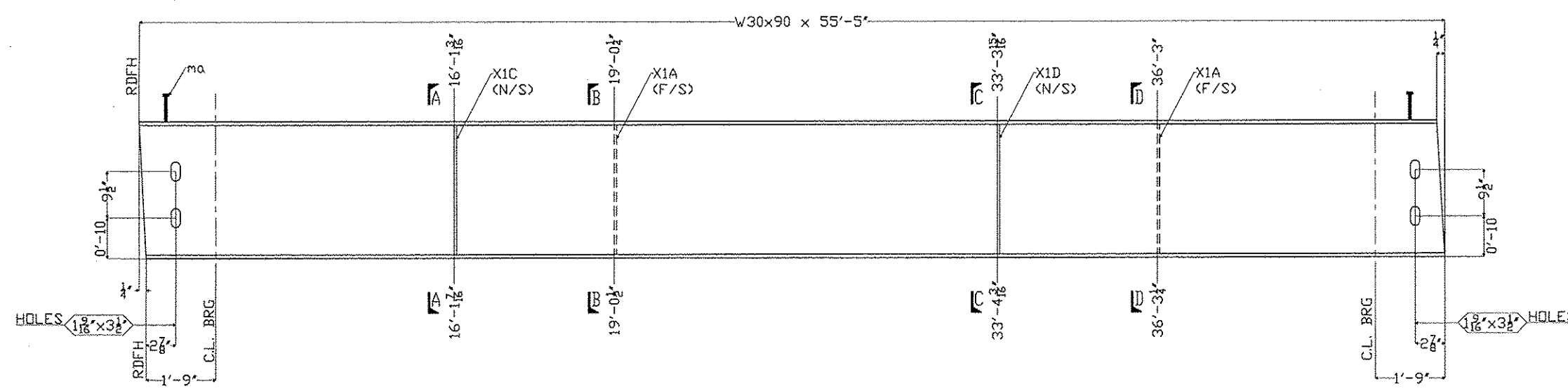


CAMBER DETAIL

SHIPPER		BILL OF MATERIAL						
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	ITEM	WEIGHT
1	2B1			W30x90	55'-5"	CVN		
		2	X1A	PL 1/2x5	2'-4 1/2"	CVN		
		1	X1C	PL 1/2x5	2'-4 1/2"	CVN		
		1	X1D	PL 1/2x5	2'-4 1/2"	CVN		
		94	no	5/8" STUD	0'-7"			



ONE ~ GIRDER DETAIL ~ 2B1



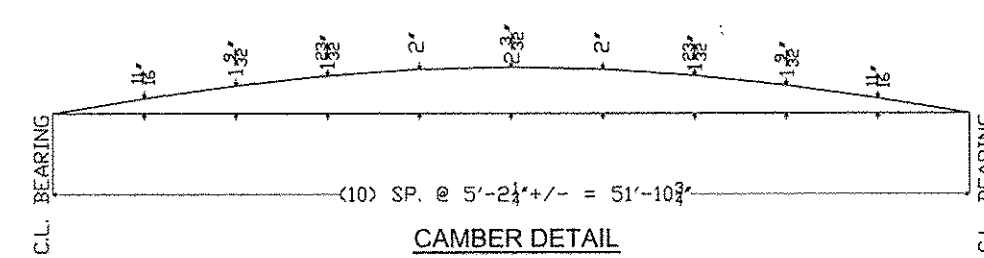
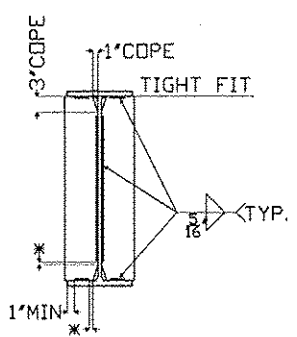
RECEIVED
 OK'D BY _____ OK'D BY RESY
 OCT 17 2011
 RESUBMIT _____ APPROVED ✓
 BY _____ DATE 10/19/2011

NO.	DATE	REVISION

PRECISE STRUCTURAL PRODUCTS
 3 FARM LANE
 GEORGETOWN, MA 01833
 (978) 362-2201

DRAWN BY: ENGINEER: DATE: 10/19/11 3590 2

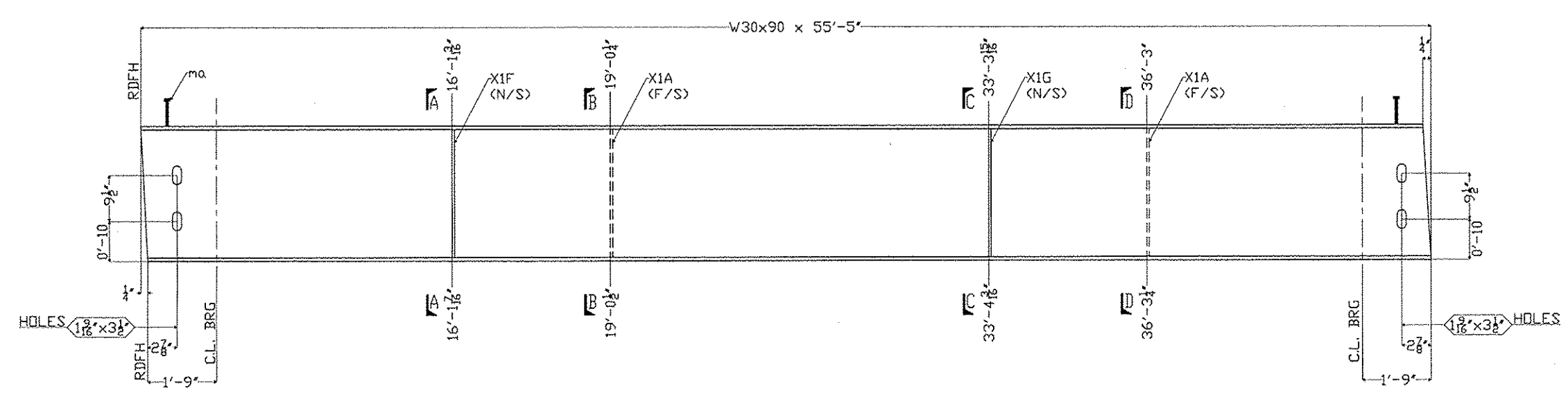
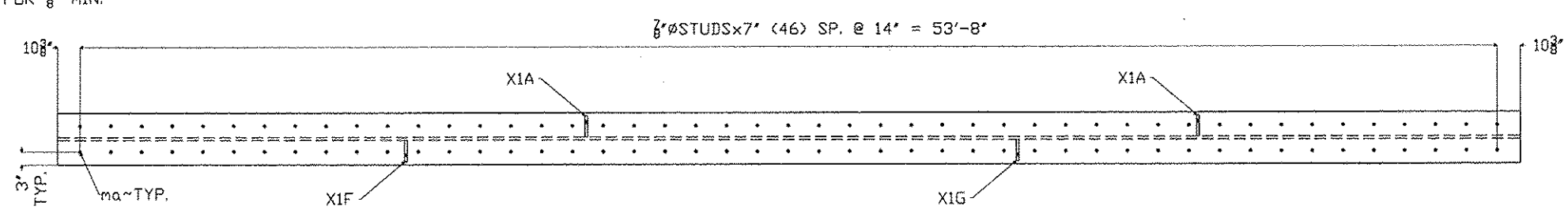
SHOP NOTES
 HOLES: 13/16" UNF
 BOLTS: PCR (NH)
 PAINT: NO PAINT
 WELDS: NA
 MATERIAL: A572 GR50W



SHIPPER		BILL OF MATERIAL							
NO.	MARK	NO.	MARK	SIZE	LENGTH	QTY	REMARKS	ITEM	WEIGHT
1	3B1			W30x90	55'-5"		CVN		
		2	XIA	PL 1/2x5	2'-4 1/2"		CVN		
		1	XIF	PL 1/2x5	2'-4 1/2"		CVN		
		1	XIG	PL 1/2x5	2'-4 1/2"		CVN		
		94	no	7/8\"/>					

TYP. DIAPHRAGM STIFFENER WELD DETAIL

* NO WELD FOR 3/8\"/>

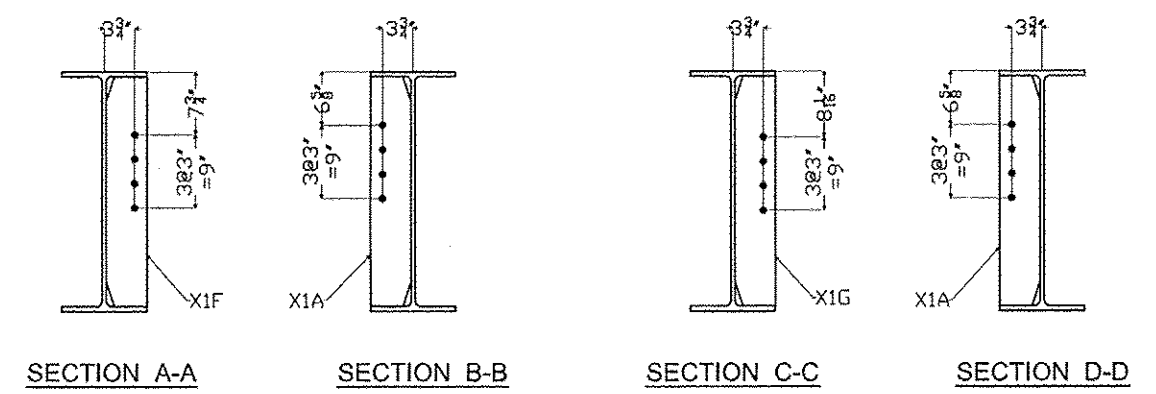


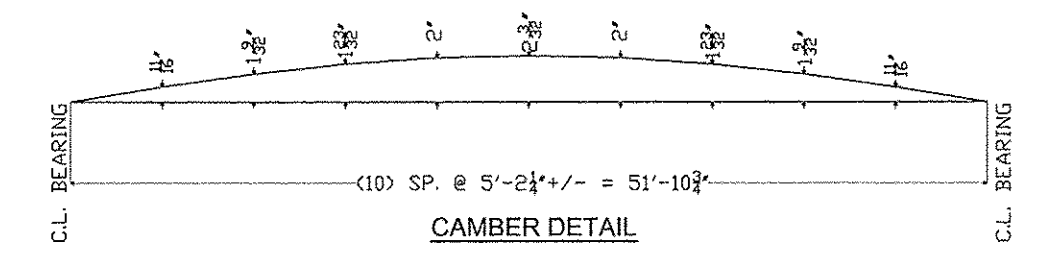
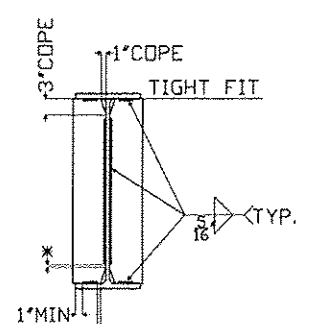
RECEIVED
 OK'D BY _____ OK'D BY RSY
 OCT 17 2011
 RESUBMIT _____ APPROVED ✓
 BY _____ DATE 10/18/2011

NO.	REVISION	DATE

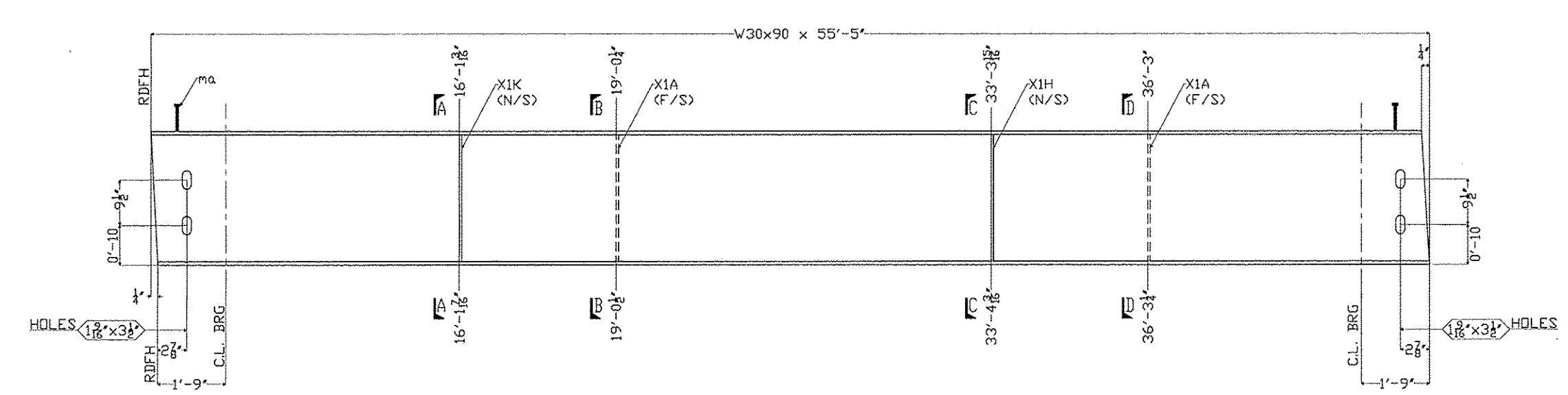
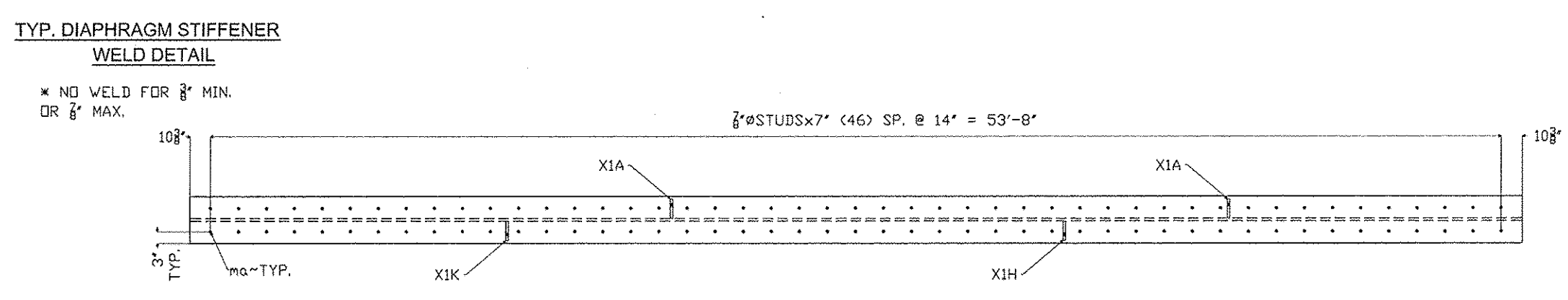
PRECISE STRUCTURAL PRODUCTS
 3 PARK LANE
 GEORGETOWN, MA 01833
 PHONE: 978-851-1100
 OWNER: VT AGENCY OF TRANSPORTATION
 CONTRACTOR: LUCK BROTHERS INC
 DRAWN BY: [signature] REV. NO.: [signature] SHEET: [signature] CONTRACT NO.: [signature] SHEET NO.: [signature]

SHOP NOTES
 HOLES: 15/16\"/>

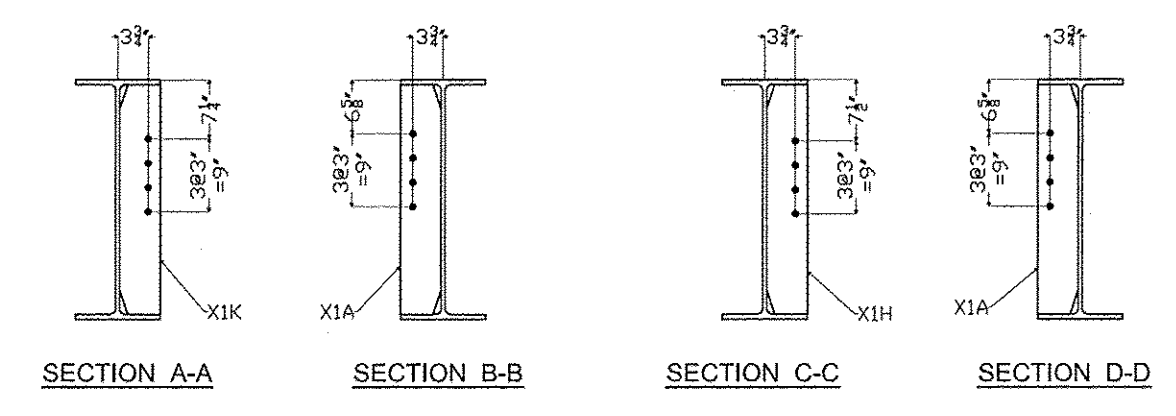




SHIPPER		BILL OF MATERIAL						
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	REV	WEIGHT
1	4B1	2	XIA	1/2\"/>				

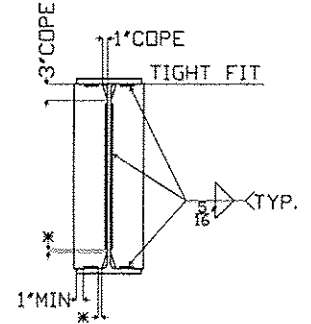


RECEIVED
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 RESUBMIT _____ APPROVED _____
 BY _____ DATE 10/18/2011



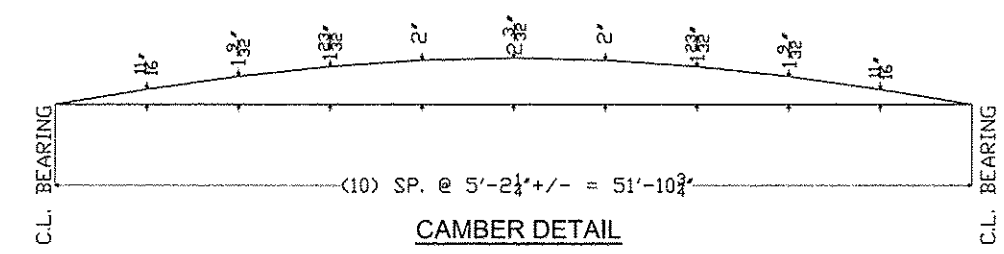
SHOP NOTES
 HOLES: 15/16\"/>

PRECISE STRUCTURAL PRODUCTS
 3 FARM LANE
 GEORGETOWN, MA 01833
 (978) 382-3292
 OWNER: VT AGENCY OF TRANSPORTATION
 CONTRACTOR: LUCK BROTHERS INC
 DRAWN BY: ENGINEER: SET. REV. DATE: 10/18/11
 NO. 3590 SHEET NO. 4



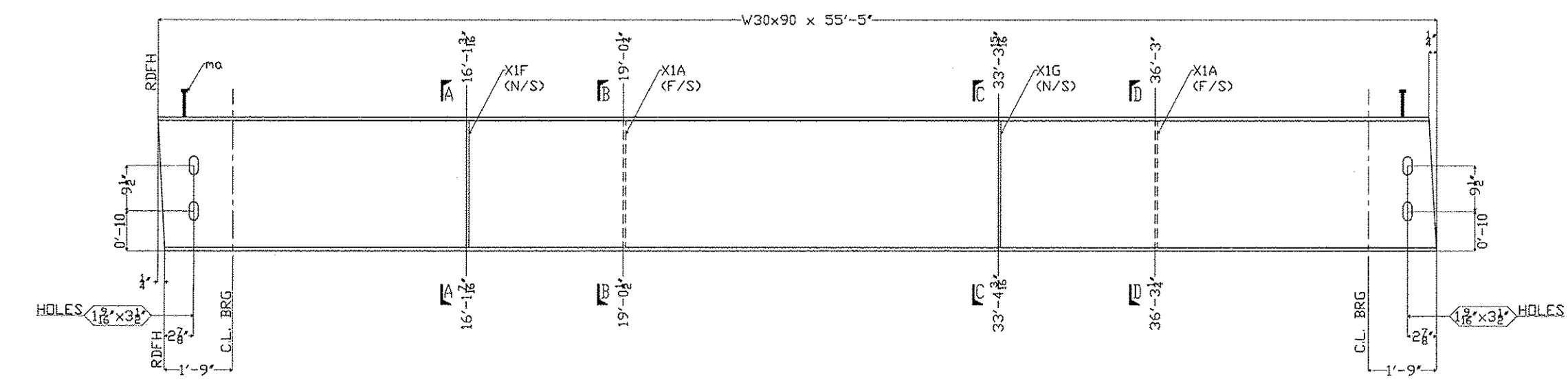
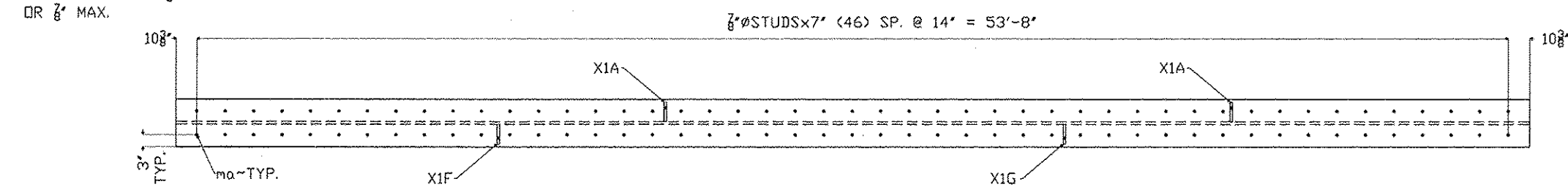
TYP. DIAPHRAGM STIFFENER
WELD DETAIL

x NO WELD FOR 1/2" MIN.
OR 3/4" MAX.

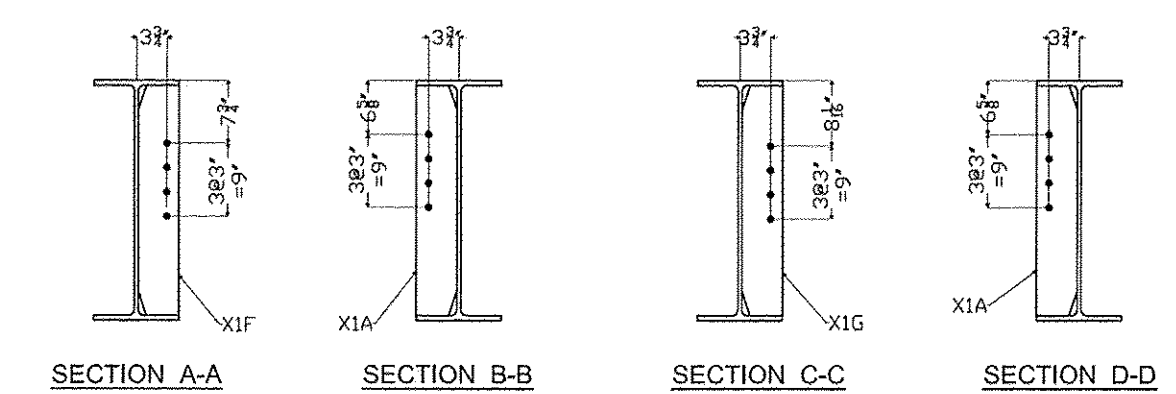


CAMBER DETAIL

SHIPPER		BILL OF MATERIAL						
NO.	MARK	NO.	MARK	SIZE	LENGTH	REMARKS	ITEM	WEIGHT
1	5B1			V30x90	55'-5"	CVN		
		2	X1A	PL 1/2"x5	2'-4 1/2"	CVN		
		1	X1F	PL 1/2"x5	2'-4 1/2"	CVN		
		1	X1G	PL 1/2"x5	2'-4 1/2"	CVN		
		94	no	3/8" STUD	0'-7"			



ONE - GIRDER DETAIL - 5B1



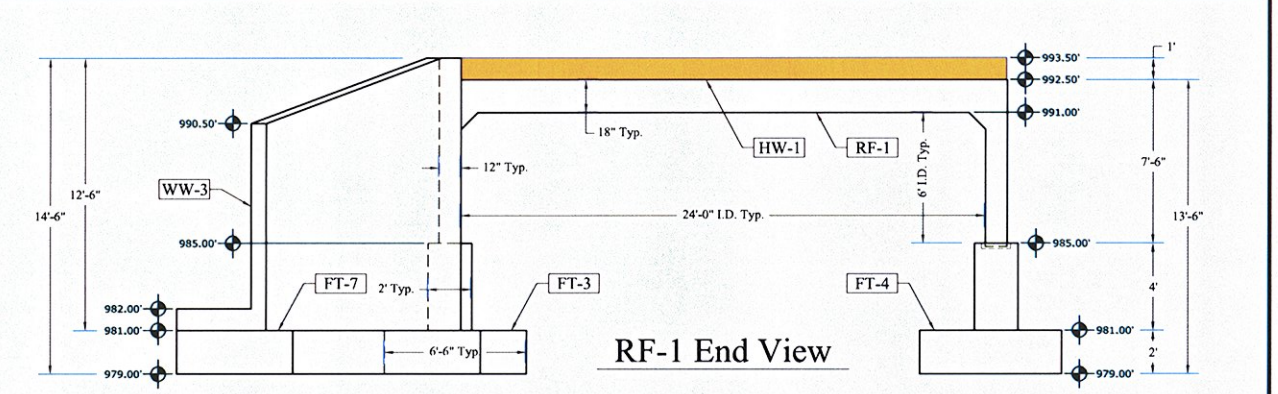
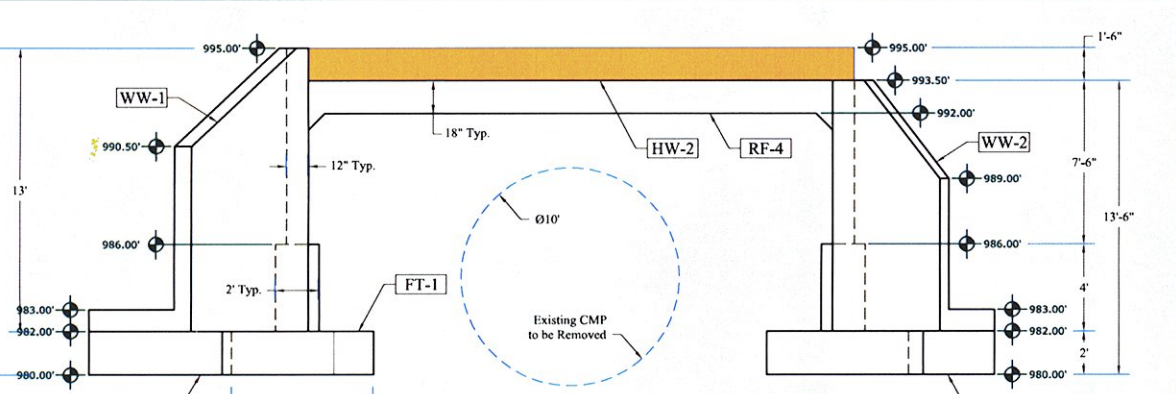
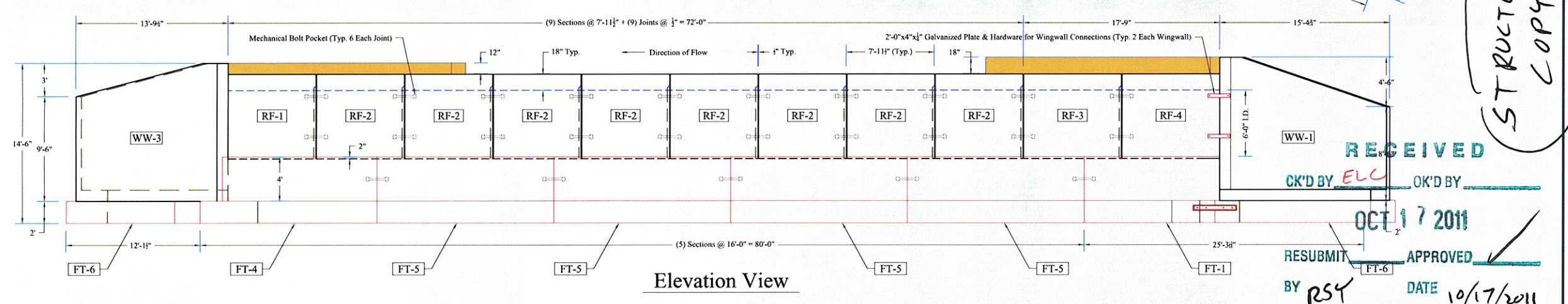
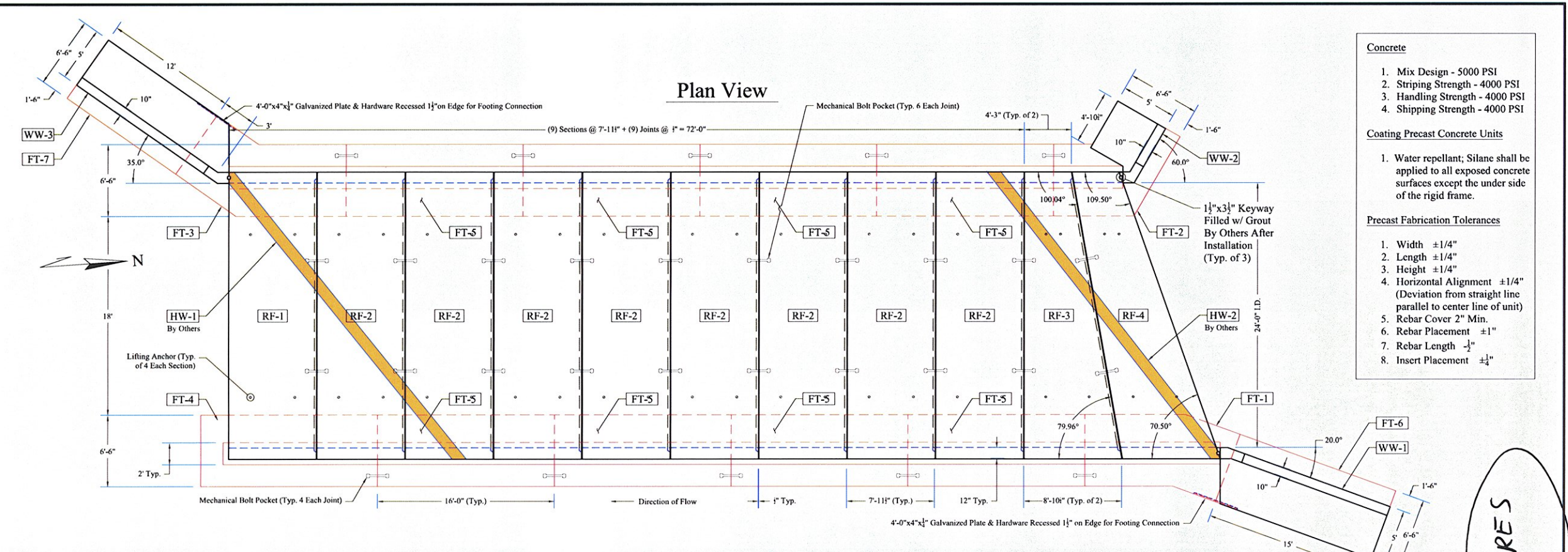
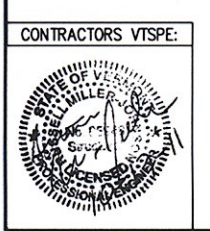
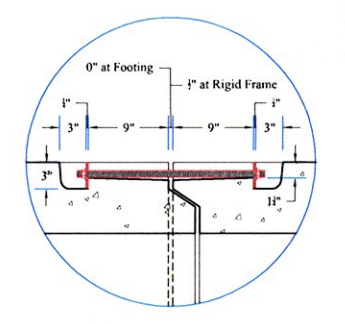
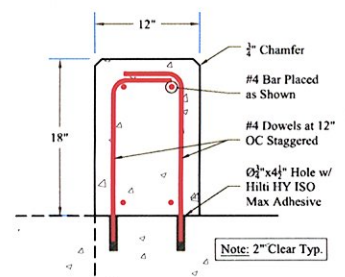
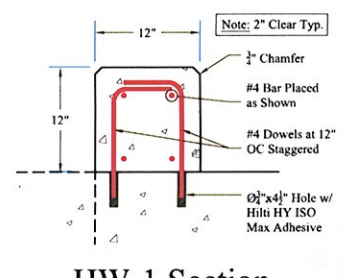
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OK'D BY _____ OK'D BY RSY
OCT 17 2011
RESUBMIT _____ APPROVED
BY _____ DATE 10/18/2011

SHOP NOTES
HOLES: 15/16" DIA
BOLTS: PER GRI
PAINT: NO PAINT
WELDS: N/A
MATERIAL: A572 GR 50

PRECISE STRUCTURAL PRODUCTS	
3 FARM LANE GEORGETOWN, MA 01833 TEL: 978-852-2911	
OWNER: VT AGENCY OF TRANSPORTATION CONTRACTOR: LUCK BROTHERS INC	
DATE: 10/11/11	BY: [Signature]
NO: 10/11/11	REV: 1
DATE: 10/18/2011	BY: [Signature]
NO: 3500	SHEET NO: 5

Name	Qty	Length	Vol (CY)	Wt (lbs)**
RF-1	1	7'-11 1/2"	15.63	61,710
RF-2	8	7'-11 1/2"	15.20	60,790
RF-3	1	7'-11 1/2"	12.51	50,050
RF-4	1	7'-11 1/2"	12.59	50,370
WW-1	1	16'-2 1/2"	7.98	31,900
WW-2	1	6'-2 1/2"	2.77	11,085
WW-3	1	16'-2 1/2"	7.98	31,915
FT-1	1	18'-0"	9.84	39,380
FT-2	1	11'-5 1/2"	7.47	29,890
FT-3	1	19'-5 1/2"	10.04	40,150
FT-4	1	16'-0"	11.68	46,725
FT-5	8	16'-0"	12.25	48,990
FT-6	1	15'-0"	7.22	28,890
FT-7	1	12'-0"	5.78	23,111

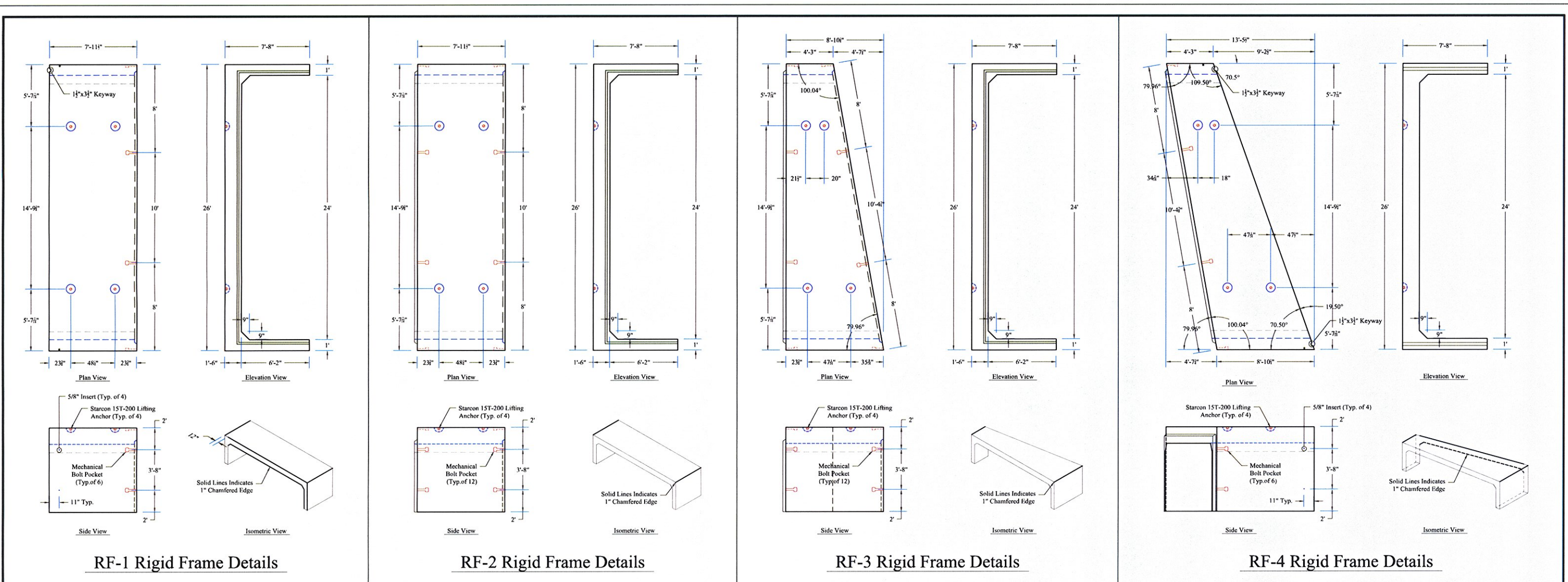
** Headwalls Not Included (By Others) ** See Vets



- Concrete
- Mix Design - 5000 PSI
 - Shipping Strength - 4000 PSI
 - Handling Strength - 4000 PSI
 - Slipping Strength - 4000 PSI
- Coating Precast Concrete Units
- Water repellent. Silanes shall be applied to all exposed concrete surfaces except the under side of the rigid frame.
- Precast Fabrication Tolerances
- Width $\pm 1/4"$
 - Length $\pm 1/4"$
 - Height $\pm 1/4"$
 - Horizontal Alignment $\pm 1/4"$
 - Deviation from straight line (parallel to center line of unit)
 - Rebar Cover ± 2 Min.
 - Rebar Length $\pm 1"$
 - Insert Placement $\pm 1"$

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APPROVED DATE 10/17/2011

STRUCTURES COPY

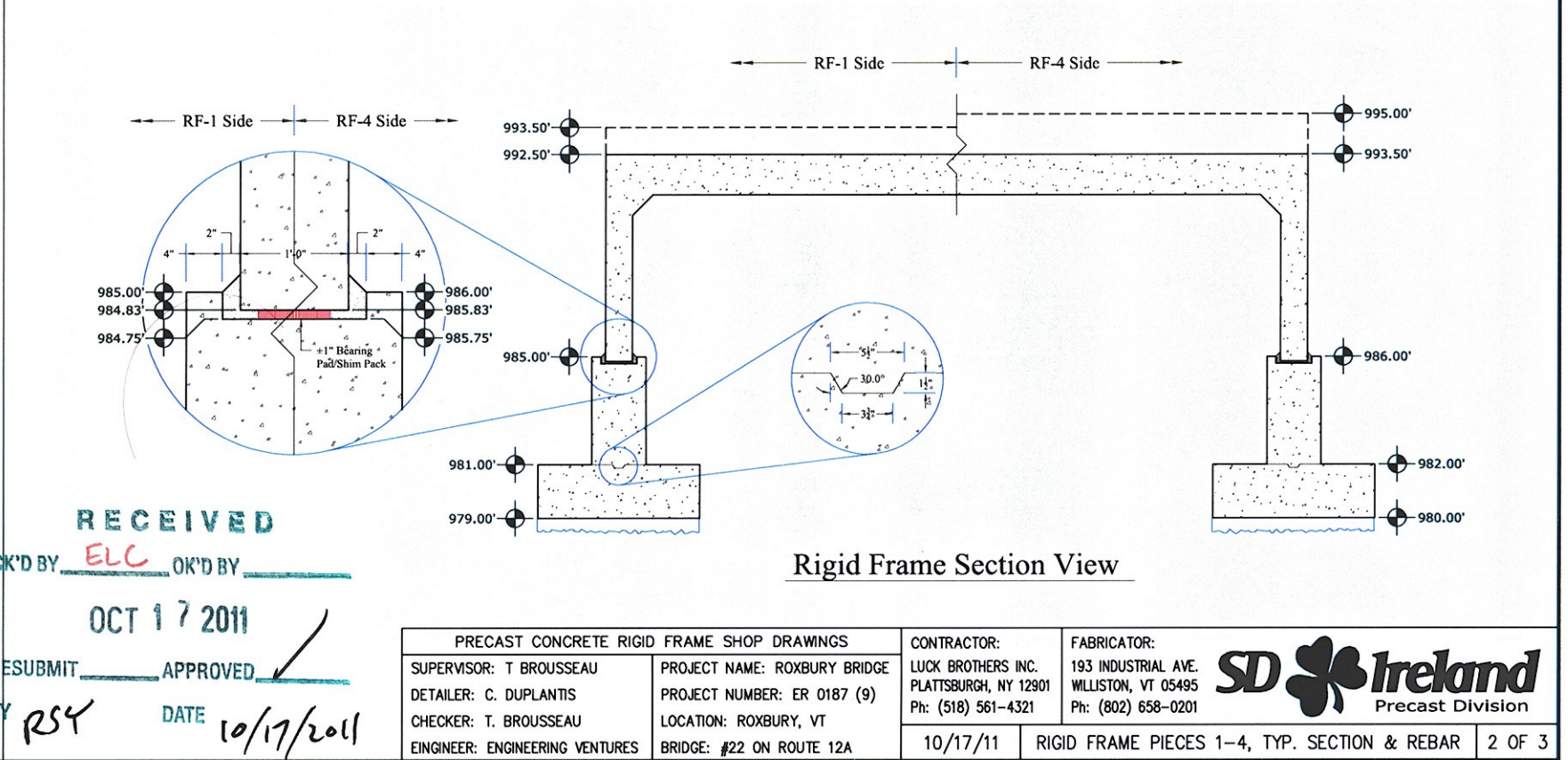
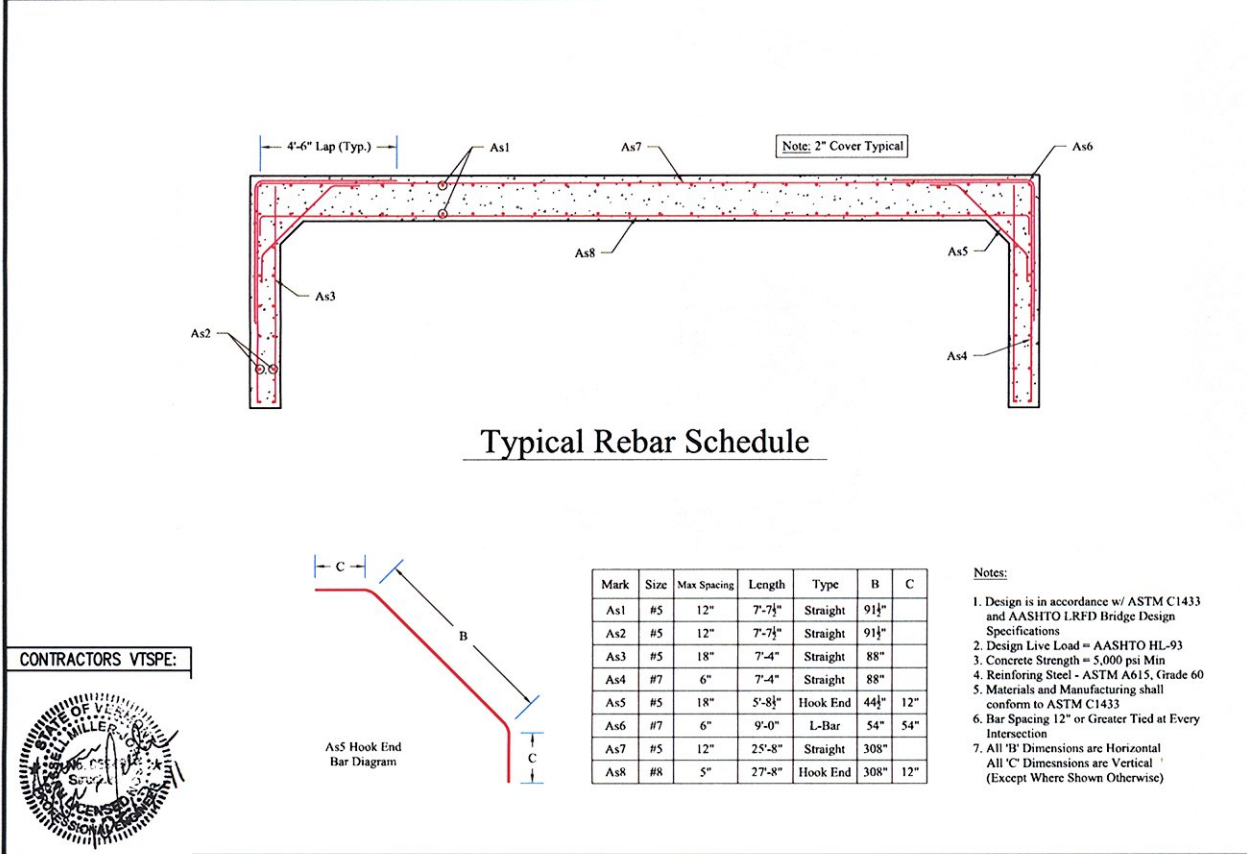


RF-1 Rigid Frame Details

RF-2 Rigid Frame Details

RF-3 Rigid Frame Details

RF-4 Rigid Frame Details



WW-1 Wing Wall Details

WW-2 Wing Wall Details

WW-3 Wing Wall Details

Typical Wing Wall Rebar

Mark	Size	Qty	Length	Type	B	C
B#1	#4	18"	Vertical	Straight		
B#2	#4	18"	Vertical	Straight		
B#3	#7	10"	Vertical	Straight		
B#4	#7	10"	Vertical	Straight		
B#5	#7	10"	Vertical	Down	20"	30"
B#6	#5	12"	Vertical	Straight		
C#1	#5	12"	Horizontal	30"	30"	
C#2	#5	12"	Horizontal	20"	30"	
C#3	#5	12"	Horizontal	Down	44"	30"
C#4	#5	12"	Vertical	Straight		
C#5	#5	18"	Vertical	Straight		
C#6	#5	18"	Vertical	Straight		
C#7	#5	18"	Vertical	Straight		

Wing Wall - Rigid Frame Key Way

FT-1 Footing Details

FT-2 Footing Details

FT-3 Footing Details

Typical Footing (1-5) Rebar

Notes:
1. Design is in accordance with ASTM C1413 and 6401010-1 (R17) Bridge Design Specifications
2. Design Load = AASHTO HS-20
3. Concrete Strength = 3,000 psi Min.
4. Reinforcing Steel - ASTM A615, Grade 60
5. Formwork and Methodology shall conform to ASTM C1413
6. All "W" Dimensions are Horizontal
All "C" Dimensions are Vertical

FT-4 Footing Details

FT-5 Footing Details

FT-6/7 Footing Details

Typical Footing (6/7) Rebar

CONTRACTORS: VSP&E

PRECAST CONCRETE RIGID FRAME SHOP DRAWINGS

SUPERVISOR: T. BROUSSEAU
DETAILER: C. DUPRANTIS
CHECKER: T. BROUSSEAU
ENGINEER: ENGINEERING VENTURES

PROJECT NAME: ROXBURY BRIDGE
PROJECT NUMBER: CR 0187 (S)
LOCATION: ROXBURY, VT
BRIDGE: #22 ON ROUTE 12A

CONTRACTOR: LUKK BROTHERS INC.
163 INDUSTRIAL AVE.
PLATTSBURG, NY 12901
Ph: (518) 561-4321

FABRICATOR: SD Ireland
163 INDUSTRIAL AVE.
WILSTON, VT 05495
Ph: (802) 658-0201
Precast Division

10/17/11 WING WALLS 1-3, FOOTINGS 1-6 & REBAR DETAILS 3 OF 3

Concrete

1. Min Design - 4000 PSI
2. Sliding Strength - 4000 PSI
3. Handling Strength - 4000 PSI
4. Shipping Strength - 4000 PSI

Coating Precast Concrete Units

1. Water repellent. Silane shall be applied to all outside face of Wing Walls only.

Precast Fabrication Tolerances

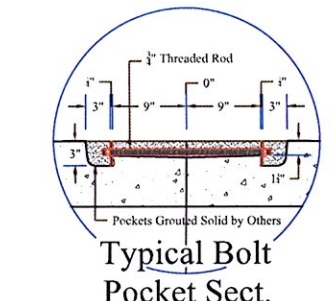
1. Width ±1/4"
2. Length ±1/4"
3. Height ±1/4"
4. Horizontal Alignment ±1/4" (Deviation from straight line parallel to center line of unit)

*Wing Wall Dimensions are from Contract Drawing Sheet 23 of 54 & of Conversation w/ R. Young
 5. Rebar Placement ± 1/2"
 6. Rebar Length -1/4"

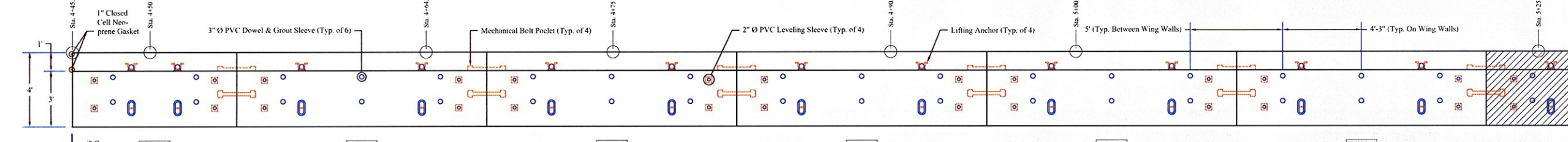
Table of Units

Name	Qty	Length	Vol (CY)	Wt (lbs)*
WW-1	1	8'-10 1/2"	2.94	11,760
WW-2	1	13'-0"	4.44	17,750
WW-3	1	13'-0"	4.36	17,425
WW-4	1	13'-0"	4.24	16,950
WW-5	1	13'-0"	4.11	16,445
WW-6	1	13'-0"	3.98	15,920
WW-7	1	13'-0"	3.86	15,460
WW-8	1	13'-0"	3.77	15,075
WW-9	1	13'-0"	3.60	14,770
WW-10	1	7'-0 1/2"	1.89	7,510
WW-11	1	7'-0 1/2"	1.88	7,500
WW-12	1	7'-0 1/2"	1.87	7,470
WW-13	1	7'-0 1/2"	1.86	7,450
WW-14	1	7'-0 1/2"	1.86	7,430

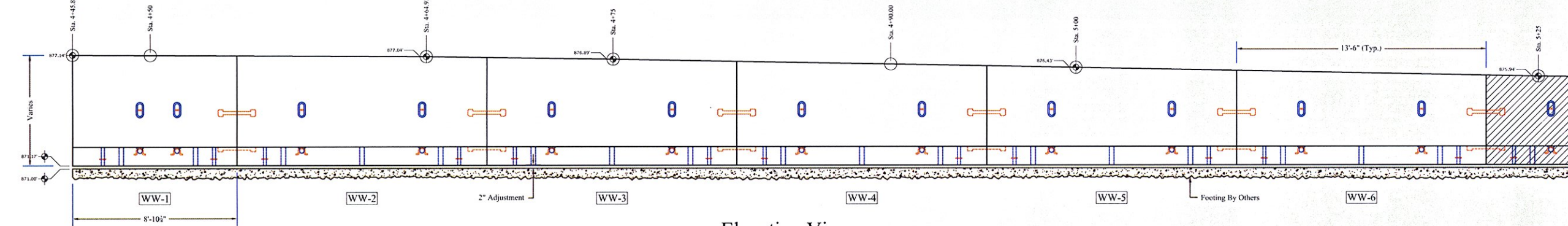
* May Vary



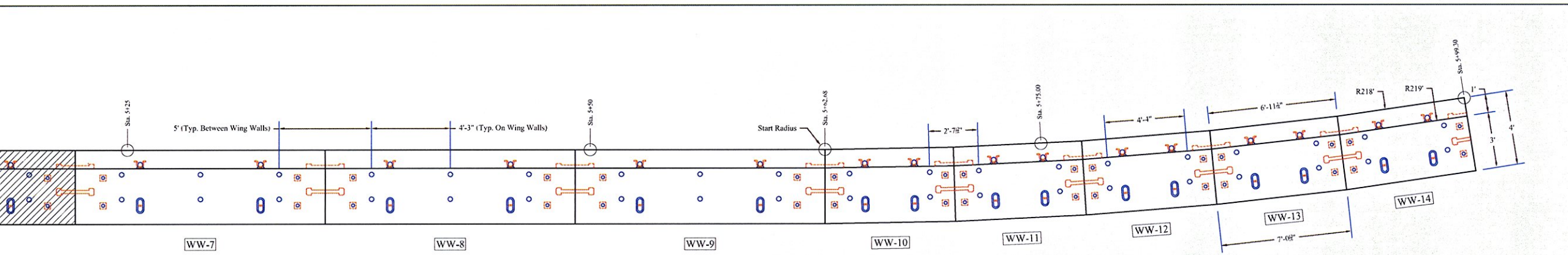
CONTRACTORS VISPE.



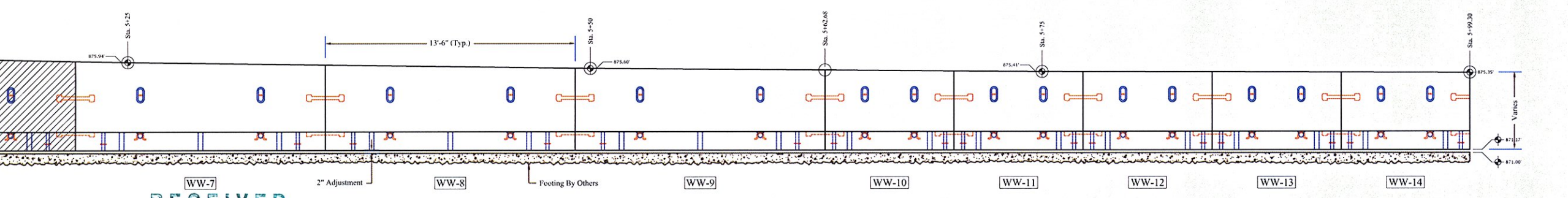
Plan View



Elevation View



Plan View



Elevation View

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OCT 24 2011
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 BY *RSY* DATE 10/25/2011

PRECAST CONCRETE WING WALL SHOP DRAWINGS	CONTRACTOR: LUK BROTHERS INC.	FABRICATOR: SD Ireland
SUPERVISOR: T BROUSSEAU	PROJECT NAME: ROXBURY BRIDGE	183 INDUSTRIAL AVE. WILSTON, VT 05495
DETAILER: C. DUPLANTIS	PROJECT NUMBER: BHF 0187 (8)	PLATTSBURG, NY 12901
CHECKER: T. BROUSSEAU	LOCATION: ROXBURY, VT	Ph: (802) 558-4321
ENGINEER: ENGINEERING VENTURES	BRIDGE: #15 ON ROUTE 12A	Ph: (802) 558-9201
		PRECAS Division

