

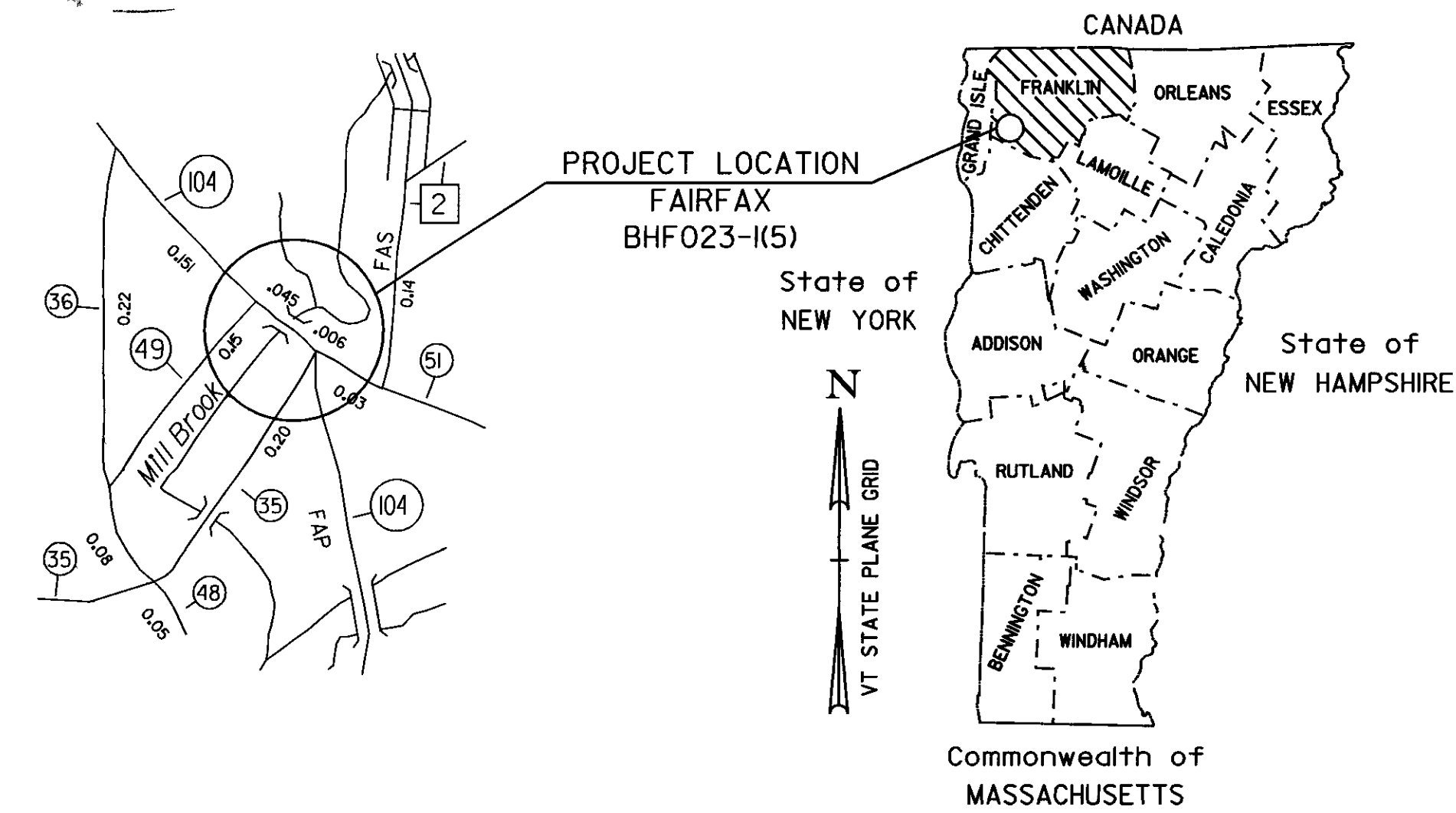
# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT

### TOWN OF FAIRFAX COUNTY OF FRANKLIN VT. RTE. 104 MINOR ARTERIAL BRIDGE NO. 10

SEE SHEET 2 FOR INDEX OF SHEETS



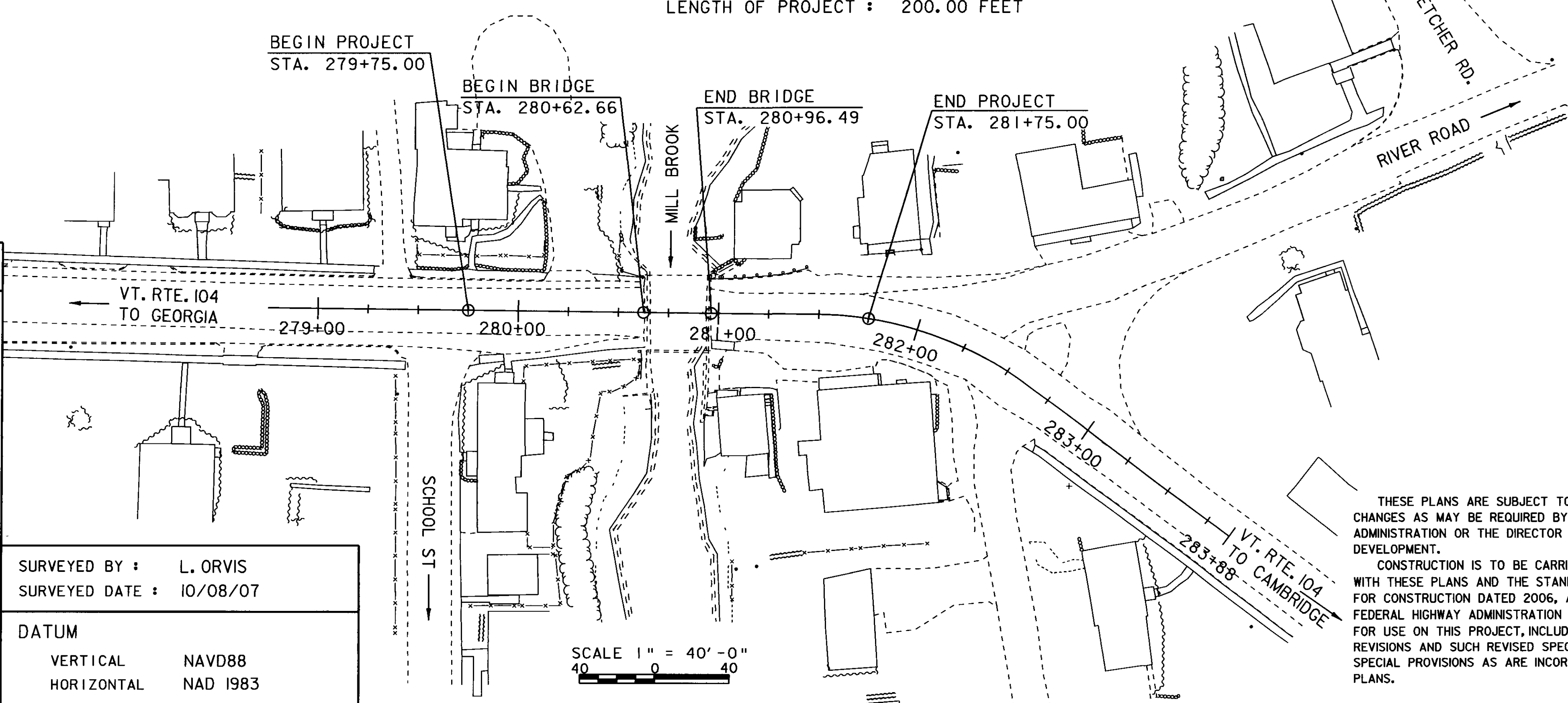
PROJECT LOCATION : BEGINNING ON VT. 104 APPROXIMATELY 0.80 MILES NORTHWESTERLY OF THE INTERSECTION OF VT 104 AND VT 128 AND EXTENDING SOUTH EASTERLY 0.038 MILES.

PROJECT DESCRIPTION : THE REHABILITATION OF EXISTING BRIDGE #10 OVER THE MILL BROOK TO INCLUDE THE SUPERSTRUCTURE ALONG WITH RELATED SUBSTRUCTURE REPAIR AND APPROACH ROADWAY WORK.

LENGTH OF STRUCTURE : 33.83 FEET  
LENGTH OF ROADWAY : 166.17 FEET  
LENGTH OF PROJECT : 200.00 FEET

BEGIN PROJECT STA. 279+75.00  
BEGIN BRIDGE STA. 280+62.66  
END BRIDGE STA. 280+96.49  
END PROJECT STA. 281+75.00

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 : 10/08/07

DATUM  
VERTICAL NAVD88  
HORIZONTAL NAD 1983

RECORD PLANS	
CONTRACTOR	BLOW & COTE INC - MORRISVILLE, VT
RESIDENT ENGINEER	GREG WILCOX
CONSTRUCTION BEGAN	OCTOBER 5, 2009
CONSTRUCTION COMPLETE	SEPTEMBER 10, 2010
RECORD PLANS BY	GREG WILCOX & M. BIRCHARD
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN	
BY	RESIDENT ENGINEER
DATE	3/3/2011
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	

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

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

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED	DATE 7-13-09
PROJECT MANAGER :	C. CARLSON
PROJECT NAME :	FAIRFAX
PROJECT NUMBER :	BHF 023-1(5)
SHEET 1 OF 61	SHEETS

# PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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C-10	CURBING	11-Feb-08
D-8	REINFORCED CONCRETE DROP INLET WITH PRECAST COVER ::	3-Jan-00
D-9	REINFORCED CONCRETE DROP INLET WITH :: VERTICAL CURB ::	1-Jun-04
D-15	PRECAST REINFORCED CONCRETE CATCH BASIN W/CAST IRON GRATE ::	1-Jun-04
E-100	CONSTRUCTION APPROACH SIGNS	2-Jan-04
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FINAL HYDRAULIC REPORT

**HYDROLOGIC DATA** Date: July 2008  
 DRAINAGE AREA : 21.6 sq. mi.  
 CHARACTER OF TERRAIN : Hilly, mixture of forest and meadows, small urban areas  
 STREAM CHARACTERISTICS : Sinuous, semi-alluvial, low relief valley  
 NATURE OF STREAMBED : Ledge, cobbles, boulders, gravel

**PEAK FLOW DATA**  
 Q 2.33 = 650 cfs Q 50 = 2100 cfs  
 Q 10 = 1300 cfs Q 100 = 2450 cfs  
 Q 25 = 1700 cfs Q 500 = 3400 cfs

DATE OF FLOOD OF RECORD 1927  
 ESTIMATED DISCHARGE: Unknown  
 WATER SURFACE ELEV.: Unknown  
 NATURAL STREAM VELOCITY: @ Q50 = 14.1 fps  
 ICE CONDITIONS: Moderate  
 DEBRIS: Light to moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No  
 IS ORDINARY RISE RAPID? No  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
 IF YES, DESCRIBE:

WATERSHED STORAGE: 3% HEADWATERS:  
 UNIFORM: X  
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Concrete T-Beam w/CIP Concrete Deck  
 YEAR BUILT: 1932  
 CLEAR SPAN(NORMAL TO STREAM): 30'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 14' +/-  
 WATERWAY OF FULL OPENING: 400 sq. ft.  
 DISPOSITION OF STRUCTURE: Rehabilitate  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Ledge

**WATER SURFACE ELEVATIONS AT:**  
 Q2.33 = 359.2' VELOCITY = 10.3 fps  
 Q10 = 361.7' " 14.2 fps  
 Q25 = 362.9' " 15.0 fps  
 Q50 = 364.0' " 15.8 fps  
 Q100 = 364.8' " 16.3 fps

LONG TERM STREAMBED CHANGES: None

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 371.0'  
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Fairfax DISTANCE: 1350'  
 HIGHWAY#: TH 24 STRUCTURE #: BR 23  
 CLEAR SPAN: 20' CLEAR HEIGHT: 12'  
 YEAR BUILT: 1978 FULL WATERWAY:  
 STRUCTURE TYPE: Concrete Slab

DOWNSTREAM STRUCTURE

TOWN: Fairfax DISTANCE: 1050'  
 HIGHWAY#: TH 35 STRUCTURE #: BR 25  
 CLEAR SPAN: 42' CLEAR HEIGHT: 11'  
 YEAR BUILT: 1865, Reconstructed in 1990 FULL WATERWAY:  
 STRUCTURE TYPE: Town Lattice Covered Bridge

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR	4A STR	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.05	1.82					
POSTING							
OPERATING	2.96	2.84	3.23	3.26	4.57	5.3	
COMMENTS:	0						

PROPOSED STRUCTURE

STRUCTURE TYPE: Concrete Prestressed Voids Slab  
 CLEAR SPAN(NORMAL TO STREAM): 30'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 14' +/-  
 WATERWAY OF FULL OPENING: 400 sq. ft.

**WATER SURFACE ELEVATIONS AT:**  
 Q2.33 = 359.2' VELOCITY = 10.3 fps  
 Q10 = 361.7' " 14.2 fps  
 Q25 = 362.9' " 15.0 fps  
 Q50 = 364.0' " 15.8 fps  
 Q100 = 364.8' " 16.3 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: N/A  
 RELIEF ELEVATION: 371.0'  
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 369.8'  
 VERTICAL CLEARANCE: @ Q50 = 5.8'

SCOUR: Abutments founded on ledge

REQUIRED CHANNEL PROTECTION: N/A

PERMIT INFORMATION

AVERAGE DAILY FLOW: 45 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 20 cfs 1.0'  
 ORDINARY HIGH WATER: 280 cfs 3.0'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. TRAFFIC WILL BE DETOURED.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d <sub>p</sub> : 0.0 INCH
3. DESIGN SPAN	L: 31.00 FT
4. MN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f <sub>y</sub> : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : 6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : 5.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : ---
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f <sub>y</sub> : ---
14. SOIL UNIT WEIGHT	γ: ---
15. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q <sub>p</sub> : ---
20. PILE YIELD STRENGTH ASTM A572	f <sub>y</sub> : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L <sub>p</sub> : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V <sub>3s</sub> : ---
26. MINIMUM GROUND SNOW LOAD	P <sub>g</sub> : ---
27. SEISMIC DATA	PGA: --- S <sub>s</sub> : --- S <sub>f</sub> : ---

PROJECT NAME: FAIRFAX

PROJECT NUMBER: BHF 023-1(5)

FILE NAME: 86e064pi\_v3.xls PLOT DATE: 7/21/2009  
 PROJECT LEADER: C. CARLSON DRAWN BY: C. MOONEY  
 DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON  
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 61

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2013 to 2033 : 7665000
2013	8300	930	57	4.3	880	40 year ESAL for flexible pavement from 2013 to 2053 : 20813000
2033	11500	1300	57	6.3	1800	Design Speed: 35 mph

**GENERAL**

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2006 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.
- DURING THIS PROJECT, THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE TO THROUGH TRAFFIC FOR FOUR (4) WEEKS ONLY. TRAFFIC WILL BE DETOURED AS DETAILED ON TRAFFIC DETOUR SHEETS 15-24.

SEE SPECIAL PROVISIONS FOR INCENTIVE/DISINCENTIVE PAY ITEM IN EFFECT DURING THIS CLOSURE PERIOD.

- EXISTING DIMENSIONS:** THESE PLANS WERE PREPARED BASED ON INFORMATION OBTAINED FROM REFERENCE PLAN SHEETS. DIMENSIONS AND ANGLES OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ENSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN WORKING DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER. NO EXTRA PAYMENT WILL BE MADE FOR OBTAINING THE NECESSARY MEASUREMENTS.
- ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- THE PIPE THAT IS LOCATED AT STA. 241+42.25 LT TO STA. 280+96.5 MAY BE IN CONFLICT WITH THE NEW RETAINING WALL THAT IS BEING BUILT BETWEEN THESE SAME STATIONS. THE CONTRACTOR SHALL USE EXTREME CARE WHILE EXCAVATING FOR THE NEW WALL. IF THERE IS A CONFLICT THE RESIDENT ENGINEER SHALL CONTACT THE STRUCTURES PROJECT MANAGER AND A NEW PIPE RELOCATION WILL BE DESIGNED AND CONSTRUCTED. ANY ADDITIONAL COST INCURRED WILL BE PAID FOR AS ITEM 204.30, "TRENCH EXCAVATION" AND THE RESPECTIVE PIPE ITEM.

**EARTHWORK AND RELATED ITEMS**

- ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" SHALL INCLUDE: CONCRETE DECK, SIDEWALKS, T-BEAMS, AND BRIDGE RAILING REMOVED TO BRIDGE SEAT ELEVATIONS
  - PAYMENT FOR REMOVAL OF EXISTING BITUMINOUS PAVEMENT ON THE BRIDGE SHALL BE MADE UNDER THE ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT". THE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY AT AN OFFSITE LOCATION.
- THE CONTRACTOR MAY SUBSTITUTE SUBBASE MATERIAL FOR THE SAND BORROW SHOWN ON THE PLANS. THE SUBBASE MATERIAL SHALL BE THE TYPE SPECIFIED IN THE CONTRACT AND SHALL BE PLACED TO MEET THE SUBBASE SPECIFICATIONS. IF SUBBASE IS PLACED IN LIEU OF SAND BORROW, A GEOTEXTILE MEETING THE REQUIREMENTS OF ITEM 649.11 "GEOTEXTILE FOR ROAD BED SEPARATOR" SHALL BE PLACED BETWEEN THE SUBGRADE AND THE SUBBASE MATERIAL. ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING THE GEOTEXTILE SHALL BE INCIDENTAL TO ITEM 203.31 "SAND BORROW".

**CONCRETE**

- SIDEWALK CONCRETE ON THE BRIDGE SHALL BE HIGH PERFORMANCE CLASS, A LOW CEMENT CONCRETE AND SHALL BE PAID FOR UNDER ITEM 900.608, SPECIAL PROVISION "HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT."
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.
- WATER REPELLENT, SILANE (ITEM 514.10) SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE PRESTRESS UNITS BETWEEN DRIP NOTCHES. SEE SUPPLEMENTAL SPECIFICATION 514.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
- ALL SUPERSTRUCTURE REINFORCING STEEL SHALL BE EPOXY COATED AND PAID FOR UNDER ITEM 507.17, "EPOXY COATED REINFORCING STEEL." CUTTING AND REPAIRING DAMAGED AREAS OF COATED REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 507.04.
- MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS INDICATED IN THE PLANS.

**TRAFFIC CONTROL**

- THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING, INSTALLING AND MAINTAINING ALL ON AND OFF PROJECT DETOUR SIGNS. SEE TRAFFIC CONTROL SHEETS: 15-24. PAYMENT FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.10, "TRAFFIC CONTROL."
- ANY REMOVAL, COVERING AND/OR RESETTING OF EXISTING TRAFFIC SIGNS, AS DEEMED NECESSARY BY THE RESIDENT ENGINEER, WILL BE INCIDENTAL TO THE ITEM 641.10, "TRAFFIC CONTROL."

- FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. IF THE CONTRACTOR MUST RESTRICT ACCESS, THEY MUST NOTIFY THE PROPERTY OWNERS AND THE TOWN IN ADVANCE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL."
- TWO PORTABLE CHANGEABLE MESSAGE SIGNS ARE INCLUDED IN THE CONTRACT AND ARE TO BE LOCATED AND DISPLAY MESSAGES AS DIRECTED BY THE ENGINEER.
- PRIOR TO AND AFTER THE MAXIMUM FOUR (4) WEEK BRIDGE CLOSURE, THE CONTRACTOR MUST MAINTAIN TWO WAY TRAFFIC WHEN THE CONTRACTOR IS NOT WORKING. DURING THE CONTRACTOR'S WORKING HOURS, THEY MAY REDUCE TRAFFIC TO ONE-LANE WITH THE USE OF FLAGGERS, DRUMS, BARRICADES, CONCRETE BARRIER AND/OR OTHER TRAFFIC CONTROL DEVICES. THIS WORK WILL BE PAID FOR UNDER THE "TRAFFIC CONTROL" ITEM EXCEPT THAT FLAGGERS HOURS WILL BE PAID FOR AS ITEM 630.15, "FLAGGERS".

**PRESTRESSED CONCRETE**

- ITEM 510.22 "PRESTRESSED CONCRETE VOIDED SLABS" PRESTRESSED PRECAST MEMBERS SHALL:
  - CONFORM TO SECTION 510 "PRESTRESSED CONCRETE."
  - BE 4 FOOT WIDE VOIDED SLABS (DEPTH VARIES).
  - USE CONCRETE WITH  $f_c = 6000$  PSI AND  $f_t = 4000$  PSI.
  - BE DESIGNED FOR AN AASHTO HL 93 LIVE LOAD.
  - CONTAIN CONTINUOUS VOIDS EXCEPT AS SHOWN IN THE PLAN DETAIL.
  - HAVE VOID DRAINS AT THE ENDS OF EACH VOID. THE VOID DRAINS SHALL BE  $\frac{3}{4}$ " DIAMETER, NON-FERROUS, AND CLEANED AFTER ERECTION.
  - CONTAIN PRESTRESSING STRANDS WHICH ARE 0.6 IN. DIAMETER, 270 KSI, LOW-RELAXATION STRANDS PULLED TO 75% OF THEIR YIELD.
  - HAVE THE ENDS OF THE STRANDS RECESSED AND GROUTED ACCORDING TO STANDARD PRACTICE.
  - INCLUDE COLD Poured JOINT FILLER, AND TRANSVERSE TENDONS.
  - ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED  $\frac{3}{4}$ " X  $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.
- THE FABRICATOR MAY, WITH THE APPROVAL OF THE STRUCTURES ENGINEER, ALTER THE DESIGN AS DETAILED TO MEET THE PLANT'S PRESTRESSING OPERATION AND MATERIAL REQUIREMENTS. AN ALTERNATE STRAND CONFIGURATION MAY BE SUBMITTED FOR APPROVAL, PROVIDED THE DESIGN IS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT, AND THAT THE DESIGN MEETS ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES.
- THE CONTRACTOR SHALL NOTIFY THE VTTRANS MATERIALS & RESEARCH STRUCTURAL CONCRETE ENGINEER TWO WEEKS BEFORE THE PRESTRESS FABRICATOR CONSTRUCTS THE UNITS.
- ITEM 510.22 "PRESTRESSED CONCRETE VOIDED SLABS" TRANSVERSE TENDONS:
  - THE  $\frac{1}{2}$ " DIAMETER TRANSVERSE TENDONS SHALL BE POLYSTRAND OR EQUIVALENT.
  - COVER TENDONS WITH A SEAMLESS POLYPROPYLENE SHEATH WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND TENDON.
  - THE  $\frac{3}{4}$ " TENDON PLATES SHALL CONFORM TO AASHTO M270M/M270 GR50.
  - GALVANIZE PLATES AND CHUCKS AFTER FABRICATION ACCORDING TO AASHTO M232M/M232.
  - INSTALL TRANSVERSE TENDONS BEFORE PLACING MORTAR AND CASTING THE CONCRETE SIDEWALK.
- ITEM 510.24 "GROUTING SHEAR KEYS": FILL THE JOINTS BETWEEN THE VOIDED SLABS WITH MORTAR, TYPE IV, AS DESCRIBED IN SUBSECTION 510.13.

SERVICE LOADS	18"	18"-19"	19"-20"	20"-21"	21"
MEMBER MOMENT	84 k-ft.	88 k-ft.	94 k-ft.	101 k-ft.	95 k-ft.
SUPERIMPOSED DEAD LOAD MOMENT	28 k-ft.	28 k-ft.	28 k-ft.	28 k-ft.	28 k-ft.
LIVE LOAD & IMPACT MOMENT	193 k-ft.	193 k-ft.	192 k-ft.	191 k-ft.	196 k-ft.
DEAD LOAD REACTION	14 kips	14 kips	15 kips	16 kips	15 kips
LIVE LOAD REACTION	0 kips	14 kips	14 kips	14 kips	14 kips
TOTAL REACTION	14 kips	28 kips	29 kips	30 kips	29 kips
FINAL CAMBER	7/16 in.	7/16 in.	7/16 in.	7/16 in.	7/16 in.

**23. CONSTRUCTION SEQUENCE FOR PRESTRESSED VOIDED SLABS**

- LAY OUT WORKING LINES:**
  - LAY OUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE BEAM SEAT.
  - MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
  - BASE THE WORKING LINES ON THE NOMINAL BEAM WIDTHS.
- VERIFY BEAM SEAT ELEVATIONS:**
  - MEASURE ELEVATIONS AT BEAM SEATS.
  - IF SEATS ARE HIGH, GRIND TO CORRECT ELEVATIONS.
  - IF SEATS ARE LOW, SHIM TO CORRECT ELEVATIONS.
  - INSTALL BEARINGS.
- ERECT BEAMS:**
  - PLACE BEAMS TO FIT WITHIN THE WORKING LINES.
  - AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH TRANSVERSE TENDON).
  - DRILL ANCHOR BOLT HOLES.
  - PLACE ANCHOR BOLTS.
  - GROUT ANCHOR BOLTS IN ABUTMENT.
- INSTALL BACKER ROD:**
  - PLACE FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.
- INSTALL TRANSVERSE TENDONS:**
  - FEED TENDONS THROUGH DUCTS.
  - VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
  - POST-TENSION TENDONS USING A CALIBRATED JACK TO APPROXIMATELY 3.0 KIPS TO REMOVE SAG IN THE TENDON AND TO SEAT THE CHUCK.
- GROUT SHEAR KEYS:**
  - CLEAN JOINTS WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
  - FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
  - CAREFULLY ROD JOINTS TO ELIMINATE ANY POSSIBILITY OF VOIDS.
- POST-TENSION TRANSVERSE TENDONS:**
  - GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1.5 KSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
  - PROVIDE APPROPRIATE CUBE MOLDS AS DESCRIBED IN AASHTO T106M/T106 FOR 3 SETS OF 3 DAY CUBES, 3 SETS OF 28 DAY CUBES AND AT A MINIMUM OF 3 MORE CUBES TO TEST FOR THE 1.4 KSI MINIMUM COMPRESSIVE STRENGTH.

**MISCELLANEOUS**

- THE CONTRACTOR SHALL REMOVE THE CHAIN LINK FENCE ON WINGWALL 3. THE CONTRACTOR SHALL INSTALL A NEW CHAIN LINK FENCE AT A LOCATION TO BE DETERMINED BY THE RESIDENT ENGINEER BETWEEN EXISTING WINGWALL 3 AND THE NEW RETAINING WALL. THIS WORK WILL BE PAID FOR UNDER ITEM 620.12, "CHAIN LINK FENCE, 6 FEET". THE CHAIN LINK FENCE SHALL BE BLACK VINYL COATED.
- THE EXISTING FENCE LOCATED BETWEEN APPROXIMATELY STATIONS 280+25 RT AND 280+63 RT SHALL BE REMOVED AND STOCKPILED. WHEN WORK IS COMPLETED IN THE VICINITY OF THE FENCE, THE CONTRACTOR SHALL REINSTALL THE FENCE IN A LOCATION DETERMINED BY THE RESIDENT ENGINEER. THIS WORK SHALL BE PAID FOR UNDER ITEM 620.50, "REMOVING AND RESETTING FENCE."
- THE EXISTING SIGNS, POSTS, CHAIN LINK FENCING, GUARD RAIL AND "CONCRETE BLOCKS AT WINGWALL 4" SHALL REMAIN THE PROPERTY OF DISTRICT 8. THE AFOREMENTIONED ITEMS SHALL BE STOCKPILED FOR THE DISTRICT 8 FORCES TO REMOVE. PLEASE CONTACT THE DISTRICT 8 GENERAL FOREMAN AT (802) 524-5926 TO MAKE ARRANGEMENTS FOR THE REMOVAL OF THE ITEMS.
- EMULSIFIED ASPHALT SHALL BE APPLIED AT A RATE OF 0.02 GAL/SY OR AS DIRECTED BY THE ENGINEER ON ALL EXISTING PAVEMENT SURFACES, ON COLD PLANED SURFACES AND BETWEEN ALL COURSES OF PAVEMENT.
- ALL WORK TO PLACE THE CONCRETE IN THE FRONT OF THE ABUTMENTS IN THE DRY SHALL BE INCIDENTAL TO THE ITEM 501.34, "HIGH PERFORMANCE CONCRETE, and CLASS B". (THE CONCRETE SHALL NOT BE DEPOSITED DIRECTLY INTO THE WATER.)

GENERAL NOTES

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-I(5)
FILE NAME:	s86e064gen.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	C. CARLSON
GENERAL NOTES	
PLOT DATE:	27-JUL-2009
DRAWN BY:	C. CARLSON
CHECKED BY:	D. PETERSON
SHEET	3 OF 61

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL E&C	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1	1	LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
							1290				1290	1376.4	CY	COMMON EXCAVATION	203.15				
							220				220	0	CY	SAND BORROW	203.31				
							80	10			90	73.6	CY	TRENCH EXCAVATION OF EARTH	204.20				
							10				10	6.81	CY	TRENCH EXCAVATION OF ROCK	204.21				
							1				1	35.2	CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
									50		50		CY	STRUCTURE EXCAVATION	204.25				
							30		50		80	58.5	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
							22.4		36.1	CY	500	825.2	SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
							500				500	825.2	SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
							770				770	1005.9	CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
							2				2	11.8	CWT	EMULSIFIED ASPHALT	404.65				
							1				1	+3461	LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
							8		29		37	46.61	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
							3.73		42.88		2900	2880	LB	REINFORCING STEEL	507.15				
							690		2210		2900	2880	LB	REINFORCING STEEL	507.15				
							398		1982		132	226	LF	DRILLING AND GROUTING DOWELS	507.16				
									226		132	226	LF	DRILLING AND GROUTING DOWELS	507.16				
									1050		1050	1890	LB	EPOXY COATED REINFORCING STEEL	507.17				
									68		68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (18" x 48")	510.22				
									68		68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (18"-19" x 48")	510.22				
									68		68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (19"-20" x 48")	510.22				
									68		68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (20"-21" x 48")	510.22				
									34		34	33.83	LF	PRESTRESSED CONCRETE VOIDED SLABS (21" x 48")	510.22				
									271		271	270.60	LF	GROUTING SHEAR KEYS	510.24				
									6		6	5	GAL	WATER REPELLENT, SILANE	514.10				
									36		36	25.5	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									100		100	95.9	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
									100		100	145.7	SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
									1		1	1	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
									13		13	10.31	CY	REMOVAL OF CONCRETE OR MASONRY	529.25				
									36		36	36	EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
														BEGIN OPTION AA					
							154				154		LF	18" CAAP .075 (2-2/3 X 1/2)	601.0216				
							154				154		LF	18" PCCSP .079 (2-2/3 X 1/2)	601.0416				
							154				154	178.0	LF	18" CPEP(SL)	601.2615				
														END OPTION AA					
							3				3	5	EACH	CAST IRON GRATE WITH FRAME, TYPE D	604.47				
								10			10	0	HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
								10			10	0	CY	STONE FILL, TYPE I	613.10				
							300				300	356.8	LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28				
							1				1	1	EACH	RELOCATE MAILBOX, MULTIPLE SUPPORT	617.12				
							160				160	164.8	SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10				

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-1(15)
FILE NAME:	s86e064_qs.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	C. CARLSON
QUANTITY SHEET #1	
PLOT DATE:	07/20/2009
DRAWN BY:	L. BULLOCK
CHECKED BY:	C. MOONEY
SHEET 4	OF 61

# QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL E&C	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							18				18	16	SF	DETECTABLE WARNING SURFACE	618.30				
							10				10	0	LF	CHAIN-LINK FENCE, 6 FEET	620.12				
							45				45	0	LF	REMOVING AND RESETTING FENCE	620.50				
							25				25	48	LF	REMOVAL OF EXISTING FENCE	620.55				
							64				64	65	LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
							100				100	1059	HR	FLAGGERS	630.15				
										1	1	1	LS	FIELD OFFICE, ENGINEERS	631.10				
										1	1	1	LS	TESTING EQUIPMENT, CONCRETE	631.16				
										1	1	1	LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										1	1	1	LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25				
							1				1	1	LS	MOBILIZATION/DEMOBILIZATION	635.11				
							1				1	1	LS	TRAFFIC CONTROL	641.10				
							2				2	3	EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
							750				750	910	LF	4 INCH WHITE LINE	646.20				
							550				550	760	LF	4 INCH YELLOW LINE	646.21				
							30				30	30	LF	CROSSWALK MARKING	646.31				
								50			50	7.3	SY	GEOTEXTILE FOR SILT FENCE	649.51				
								10			10	8.6	LB	SEED	651.15				
								10			10	0	LB	SEED, WINTER RYE	651.17				
								20			20	14.2	LB	FERTILIZER	651.18				
								1			1	0.06	TON	AGRICULTURAL LIMESTONE	651.20				
								1			1	0.11	TON	HAYMULCH	651.25				
								20			20	19.2	CY	TOPSOIL	651.35				
								50			50	26.7	SY	TEMPORARY EROSION MATTING	653.20				
								10			10	0	CY	VEHICLE TRACKING PAD	653.35				
								6			6	0	EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
								370			370	0	LF	PROJECT DEMARCATION FENCE	653.55				
							6				6	6	SF	TRAFFIC SIGNS, TYPE A	675.20				
							20				20	0	LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							1				1	1	EACH	REMOVING SIGNS	675.50				
							1				1	880	LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
									12		12	17.74	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608				
							57				57	56.26	LF	SPECIAL PROVISION (ALUMINUM APPROACH RAILING, ANODIZED)	900.640				
									116		116	116.76	LF	SPECIAL PROVISION (BRIDGE RAILING, ANODIZED ALUMINUM/PEDESTRIAN)	900.640				
							1				1	50000	LU	SPECIAL PROVISION (NCENTIVE/DISINCENTIVE) (N.A.B.I.)	900.650				
							1				1	-9238	LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
							1				1	-2538	LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
							60				60	134	SY	SPECIAL PROVISION (HAND PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675				
							550		16		566	593.13	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

N.A.B.I. = NOT A BID ITEM

PROJECT NAME: FAIRFAX  
 PROJECT NUMBER: BHF 023-1(15)  
 FILE NAME: s86e064\_qs.dgn PLOT DATE: 07/20/2009  
 PROJECT LEADER: C. CARLSON DRAWN BY: L. BULLOCK  
 DESIGNED BY: C. CARLSON CHECKED BY: C. MOONEY  
 QUANTITY SHEET #2 SHEET 5 OF 61

# BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						RETAINING WALL	DECK	ABUTMENT NO. 1	ABUTMENT NO. 2	BRIDGE TOTAL		UNIT	ITEMS	ITEM NUMBER		QUANTITIES	UNIT	ITEMS
						40		5	5	50	50	CY	STRUCTURE EXCAVATION	204.25				
						40		5	5	50	36.1	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
						15		7	7	29	42.88	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
						1590		355	265	2210	1982	LB	REINFORCING STEEL	507.15				
								72	60	132	226	LF	DRILLING AND GROUTING DOWELS	507.16				
							1050			1050	1890	LB	EPOXY COATED REINFORCING STEEL	507.17				
							68			68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (18" x 48")	510.22				
							68			68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (18"-19" x 48")	510.22				
							68			68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (19"-20" x 48")	510.22				
							68			68	67.67	LF	PRESTRESSED CONCRETE VOIDED SLABS (20"-21" x 48")	510.22				
							34			34	33.83	LF	PRESTRESSED CONCRETE VOIDED SLABS (21" x 48")	510.22				
							271			271	270.60	LF	GROUTING SHEAR KEYS	510.24				
						2	4			6	5	GAL	WATER REPELLENT, SILANE	514.10				
							36			36	25.5	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
							100			100	95.9	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
							100			100	145.7	SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
							1			1	1	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
								5	8	13	10.31	CY	REMOVAL OF CONCRETE OR MASONRY	529.25				
								18	18	36	36	EACH	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	531.11				
							12			12	17.74	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608				
							116			116	116.76	LF	SPECIAL PROVISION (BRIDGE RAILING, ANODIZED ALUMINUM/PEDESTRIAN)	900.640				
							16			16	15.98	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: FAIRFAX  
 PROJECT NUMBER: BHF 023-1(15)  
 FILE NAME: s86e064\_qs.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: C. CARLSON  
 BRIDGE QUANTITY SHEET #1  
 PLOT DATE: 07/20/2009  
 DRAWN BY: L. BULLOCK  
 CHECKED BY: C. MOONEY  
 SHEET 6 OF 61

# DRAINAGE DETAIL SHEET

18" PVC 628.35

STATION	STATION	POS.	ASKEW NO. DEG.	INLET/OUTLET TYPE		DITCH		PIPE ARCH			PIPE		ALLOWABLE OPTIONS						PIPE ELBOW NO. DEG.	ES EA	CB EA	P C C O D I	DEPTH DI FT	CONC CLASS B CY	REIN STEEL LBS	DI GRATE TYPE	CHAN ELEV EA	CRM CY	TRENCH EXCAVATION		COMM EXC CY	UNC CHAN EXC CY	STRUCT EXCAV CY	GRAN BK FILL STRUCT CY	GRAN BORR CY	EROS MATT SY	STONE FILL		MARKER POSTS		DRAINAGE KEY	REMARKS		
				INLET	OUTLET	IN	OUT	SPAN IN	RISE IN	L FT	D IN	L FT	PCCSP TH	CAAP TH	RCP CL	CSP TH	CPEP SL	PCCSP PI TH											EARTH CY	ROCK CY							CY	CY	CY	CY			CY	CY
280+48.58		RT																																					5	NEW 4' x 4' RCDI				
280+48.58	280+48.58	RT/LT	X	RCDI	RCDI							18	22		X	X																							5	NEW 18" OPTION PIPE				
280+48.58		LT																																					6	NEW 4' x 4' RCDI				
280+48.8	280+58.97	LT	X	RCDI								18	18		X	X																							6	NEW 18" OPTION PIPE - OUTLET INTO MILL BROOK				
281+41.92		LT																																					7	NEW 4' x 4' RCDI				
281+41.92	281+42.25	LT	X	RCDI	RCDI							18	4		X	X																							7	NEW 18" OPTION PIPE				
281+42.5		LT																																					7	TIE INTO EXISTING DRAINAGE DI				
279+36	280+48.58	RT	X	RCDI	RCDI							18	110		X	X																							2	NEW 18" OPTION PIPE (TIE INTO EXISTING DI AT 279+80)				
279+36	280+48	RT																																					1	REMOVE EXISTING PIPE (REMOVE UNDER COMMON EXCAVATION)				
280+48.58		RT																																					4	REMOVE EXISTING DRAINAGE STRUCTURE				
280+48	280+66	RT																																					4	REMOVE EXISTING PIPE				
280+44		LT																																						3	REMOVE EXISTING DRAINAGE STRUCTURE (REMOVE UNDER COMMON EXCAVATION)			
280+44	280+58	LT																																						3	REMOVE EXISTING PIPE (REMOVE UNDER COMMON EXCAVATION)			
281+53.74	281+41.92	LT																																						8				
				SUB-TOTALS				86.03			178.02																																	
				ROUNDING				0			154																																	
				TOTALS				86.03			154 FT																																	

PROJECT NAME: FAIRFAX  
 PROJECT NUMBER: BHF 023-1(5)  
 FILE NAME: s86e064dds.dgn PLOT DATE: 7/13/2009  
 PROJECT LEADER: C. CARLSON DRAWN BY: C. MOONEY  
 DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON  
 DRAINAGE DETAIL SHEET SHEET 7 OF 61

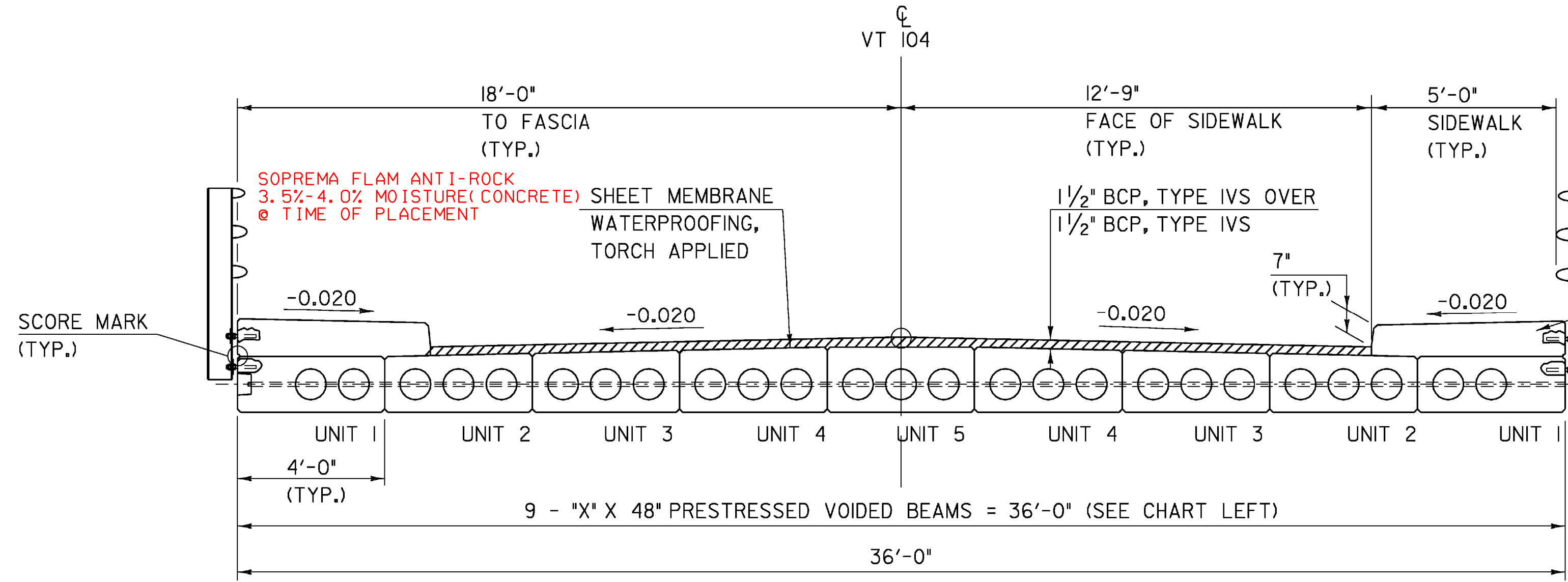
# TRAFFIC SIGN SUMMARY SHEET

MILE MARKER, STATION OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NO. OF POST	NEW SIGN POSTS																REMARKS	SIGN DETAIL											
		EACH	WIDTH (in)	HEIGHT (in)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE		FLANGED CHANNEL (LB / FT)			SQUARE STEEL (in) (LB / FT)			TUBULAR ALUMINUM Ø (IN) (LB / FT)			TUBULAR STEEL Ø (IN) (LB / FT)				W-SHAPE STEEL FTG. SIZE 24" 30" WEIGHT POST SIZE SIGN FRAME REQUIRED					DETAIL ON SHEET NUMBER	STANDARD SHEET NUMBER									
												1.12	2.00	3.00	1.75	2.00	2.50	3.00	4.00	4.0 MOD	FOUNDATION	3.00	3.50	4.00	5.00	WEIGHT	POST SIZE		SIGN FRAME REQUIRED											
280+52.5 LT.		1	72.0	12.0	6.0						2-0					*													D1_1AL		E-123									
												FT	FT	FT	FT	FT	FT	XXXXX	EA	LB	LB	LB	LB	LB	EA	EA	LB													
												20.			20.			XXXXX			XXXXX			XXXXX																
												20.0			20.0			20.0			20.0																			
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."		TOTALS	SF	SF	EA.	SF	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	FT			FT			EA.			LB			EA.			EA.			LB												
		6.0							20.0			0																												
												OPTION ITEMS																												

PROJECT NAME: **FAIRFAX**  
 PROJECT NUMBER: **BHF 023-1(5)**  
 FILE NAME: 86e064trf.dgn  
 PROJECT MANAGER: C. CARLSON  
 DESIGNED BY: L. Bullock  
 TRAFFIC SIGN SUMMARY SHEET

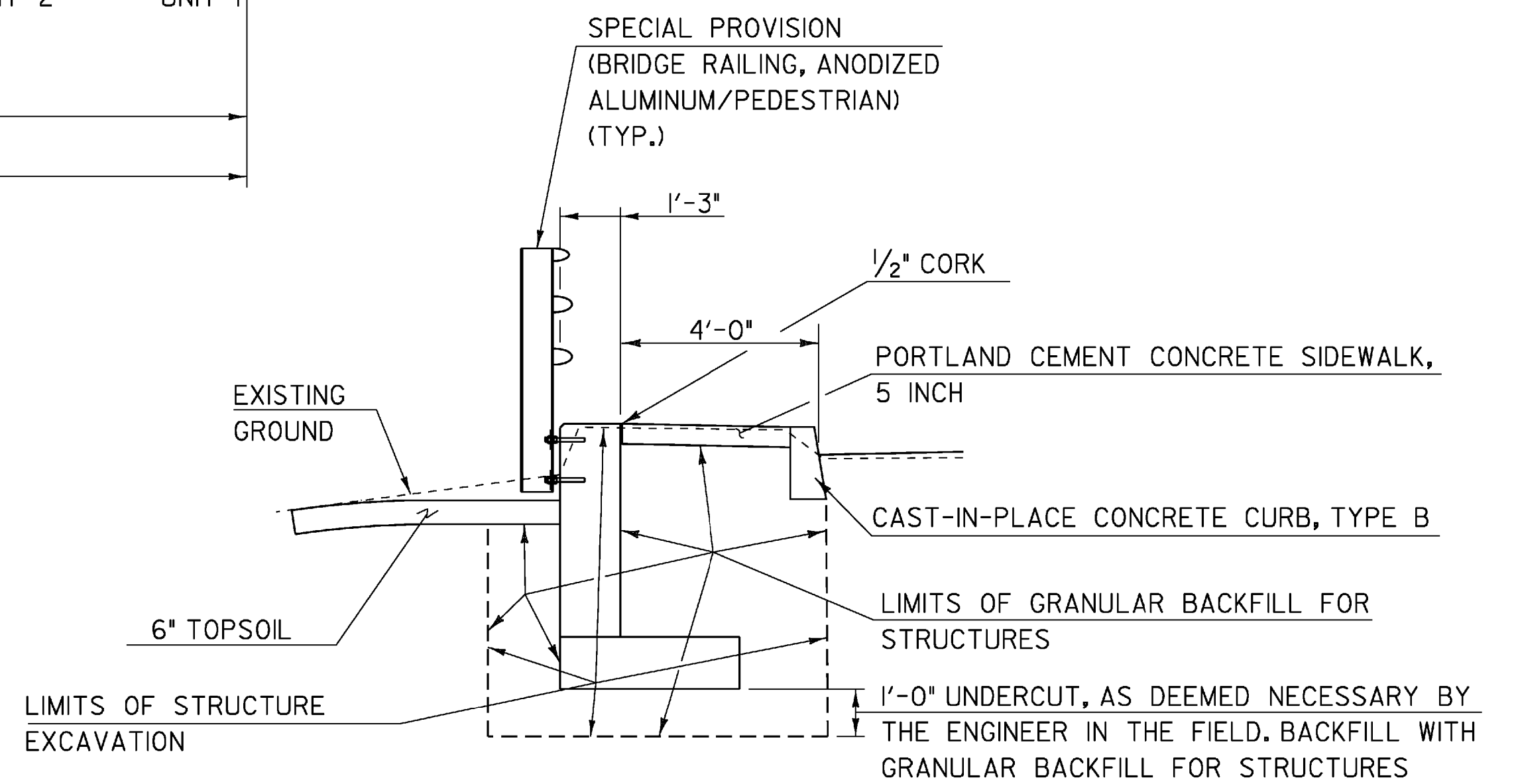
PLOT DATE: 5/12/2006  
 DRAWN BY: L. Bullock  
 CHECKED BY: C. Carlson  
 SHEET 8 OF 61

VOIDED SLAB NO.	QUANTITY	(*X) DEPTH
UNIT 1	2	18"
UNIT 2	2	18"-19"
UNIT 3	2	19"-20"
UNIT 4	2	20"-21"
UNIT 5	1	21"



SPECIAL PROVISION (BRIDGE RAILING, ANODIZED ALUMINUM/PEDESTRIAN) (TYP.)

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT) (TYP.)

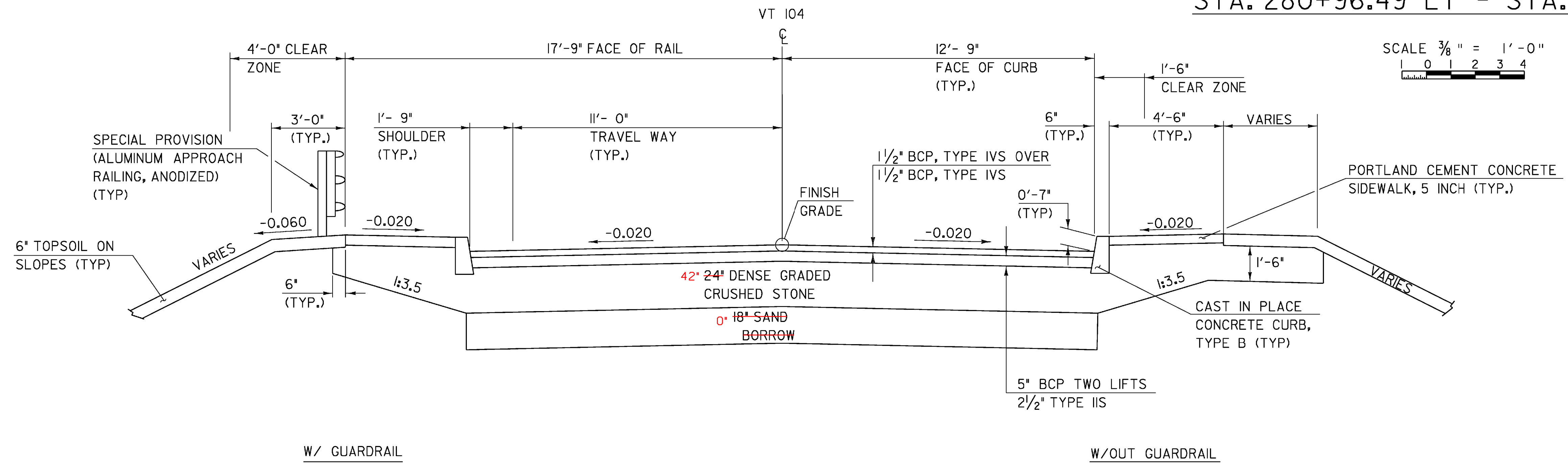


**BRIDGE TYPICAL**  
SCALE 3/8" = 1'-0"

\*BCP SHALL BE READ AS BITUMINOUS CONCRETE PAVEMENT AND SHALL BE PAID FOR UNDER PAY ITEM 900.680 "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

MATERIAL ITEM	TOLERANCE
PAVEMENT	+/- 1/4" TOTAL THICKNESS
BASE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

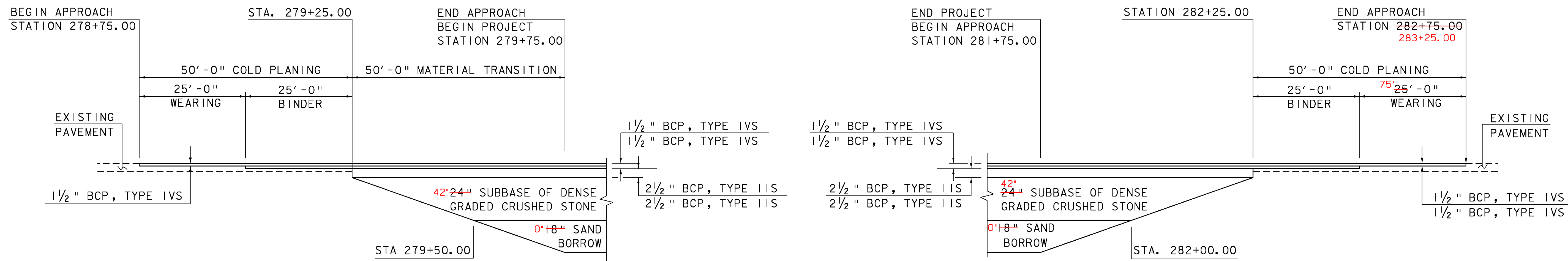
**WALL TYPICAL**  
STA. 280+96.49 LT - STA. 281+31.5 LT



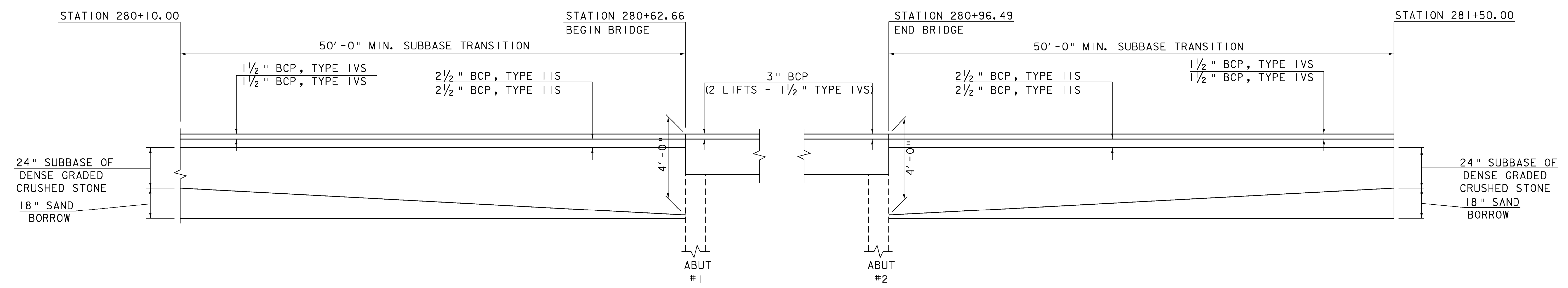
SCALE 3/8" = 1'-0"

**ROADWAY TYPICAL**  
SCALE 3/8" = 1'-0"

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: STR3
FILE NAME: 86e064/str/se064+typ.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 9 OF 61
DESIGNED BY: C. CARLSON	
TYPICAL SHEET	



MAINLINE SUBBASE DETAIL  
N. T. S.



BEGIN BRIDGE APPROACH DETAIL  
N. T. S.

END BRIDGE APPROACH DETAIL  
N. T. S.



**MATERIAL TRANSITION DIAGRAMS**

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064mtd.dgn	CHECKED BY: C. CARLSON
DESIGNED BY: C. CARLSON	SHEET 10 OF 61
se064mtd.I	

GPS CONTROL POINTS

HVCTRL #1

HILLCREST

NORTH = 793859.291  
 EAST = 1508107.459  
 ELEV. = 540.627

To reach from the intersection of VT route 104A (Highbridge Road) and VT Route 104 (Main St) go southeast along route 104 for 1.0 mi to the intersection of Huntville Road left. Turn left and go northeast along Huntville for 0.5 mi to the intersection of Huntville Road left and Boissonalt Road right. Turn left and go northeast along Huntville Road for 265' to the site of the mark on the right. It is about 65.6' northwest of the intersection of Ferguson Road. The mark is set in the top of a massive rock outcrop. It is 19' east of and about 1.6' higher than the centerline of Huntville Road, 60.4' north of the centerline of Ferguson Road, 53.5' west of an 18" butternut, 114.5' north of pole #602/11 with transformer and meter, and 101.4' northeast of the southeast corner of the Hillcrest Foods Inc. building.

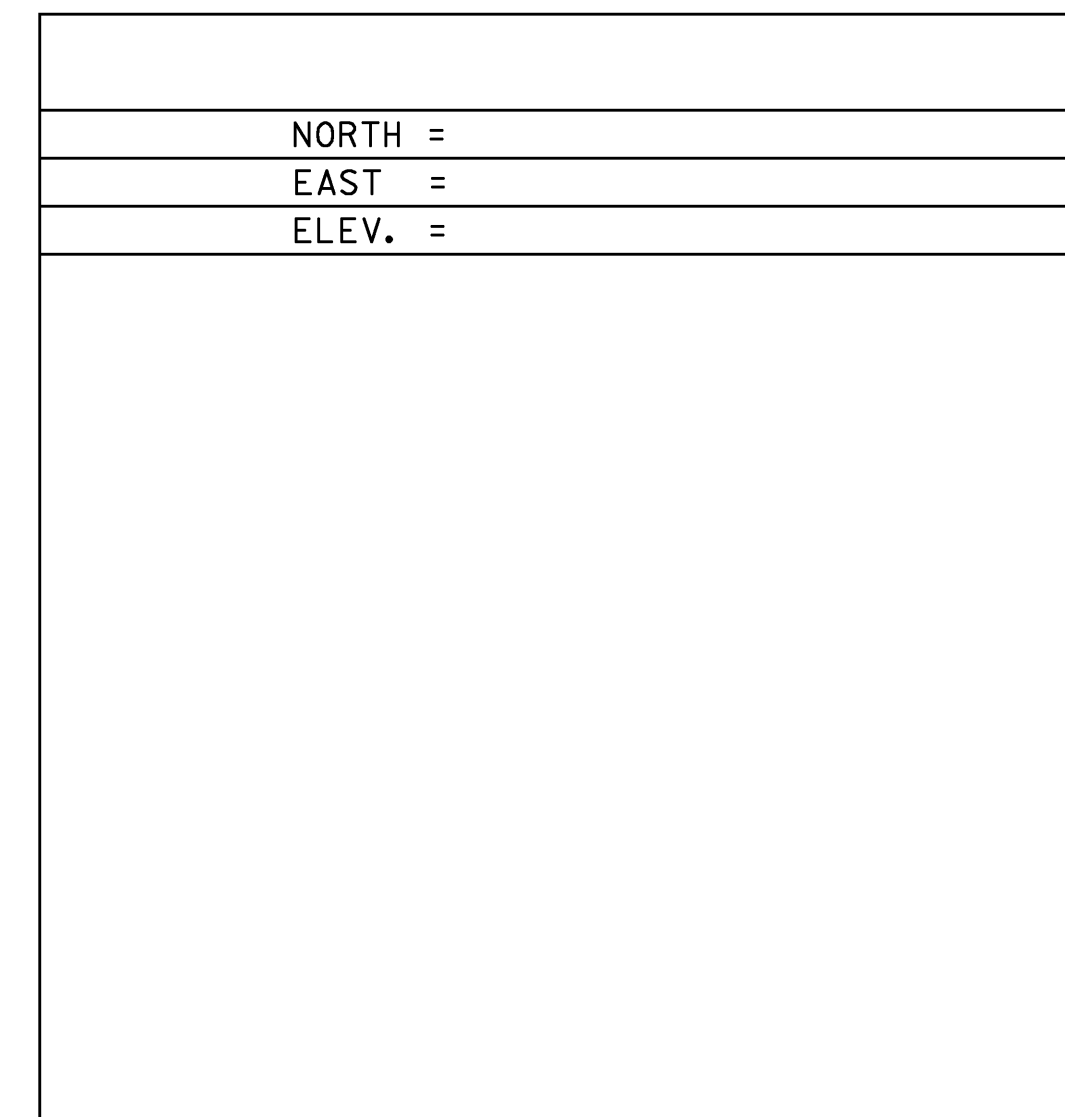
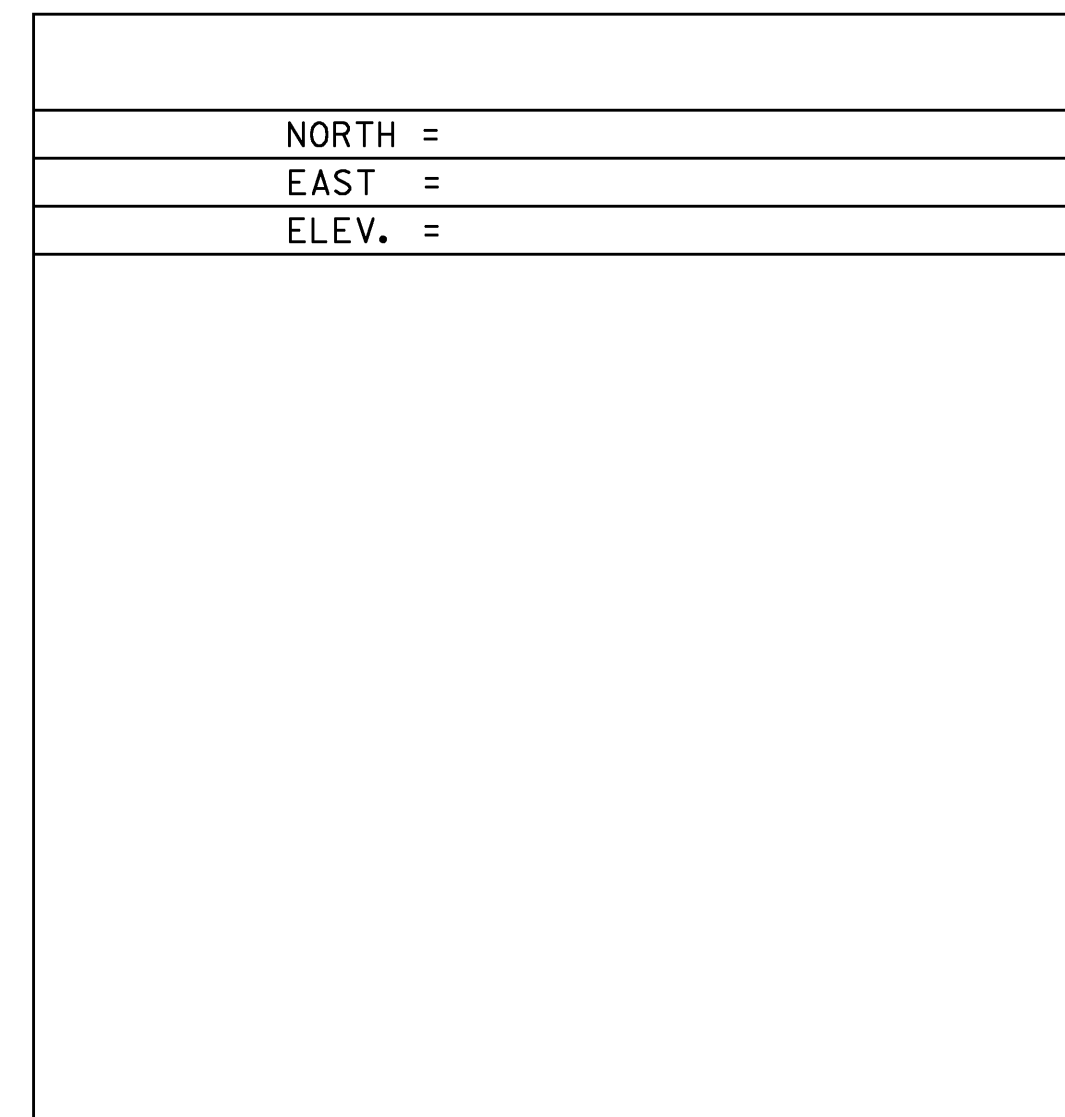
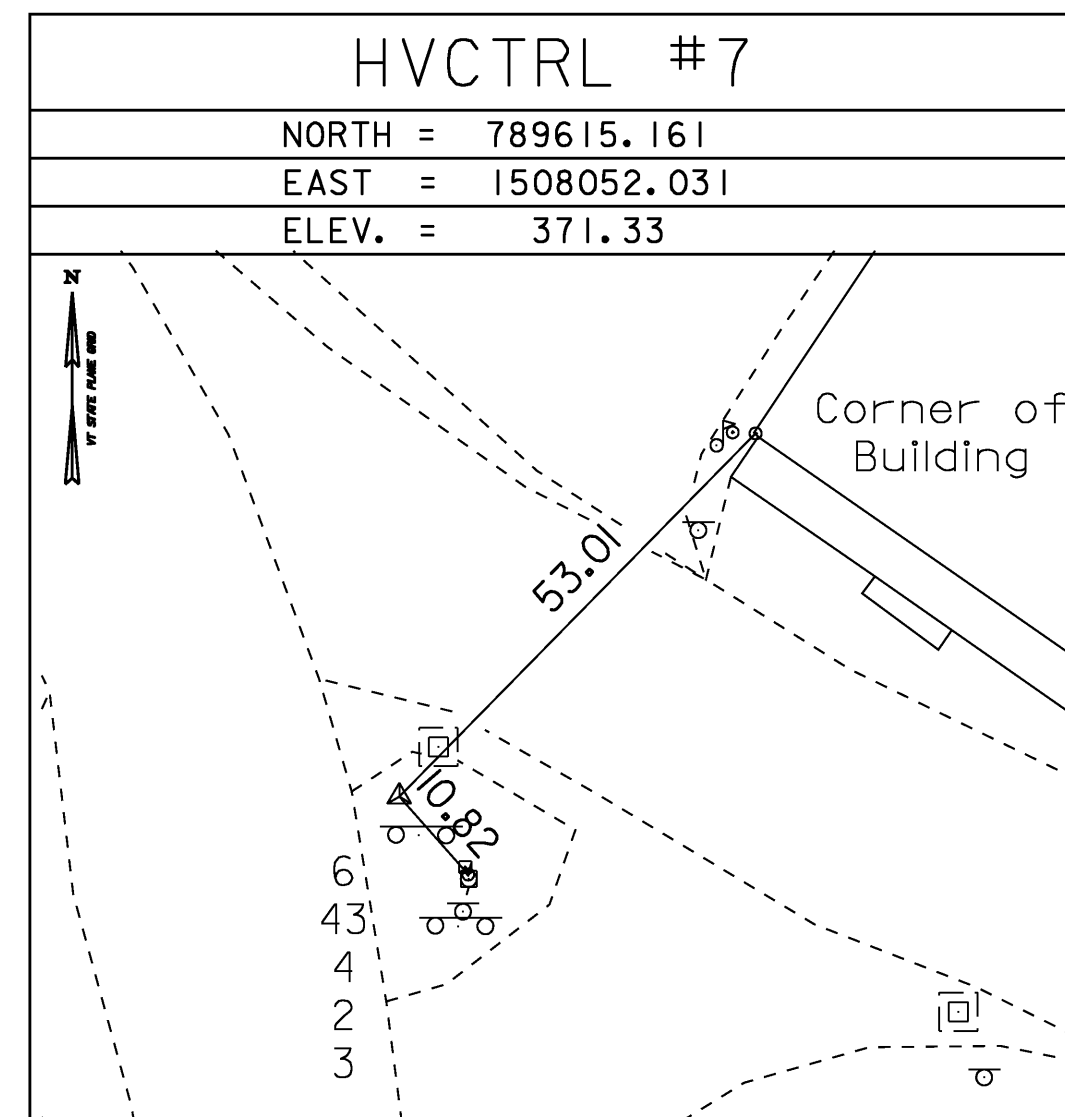
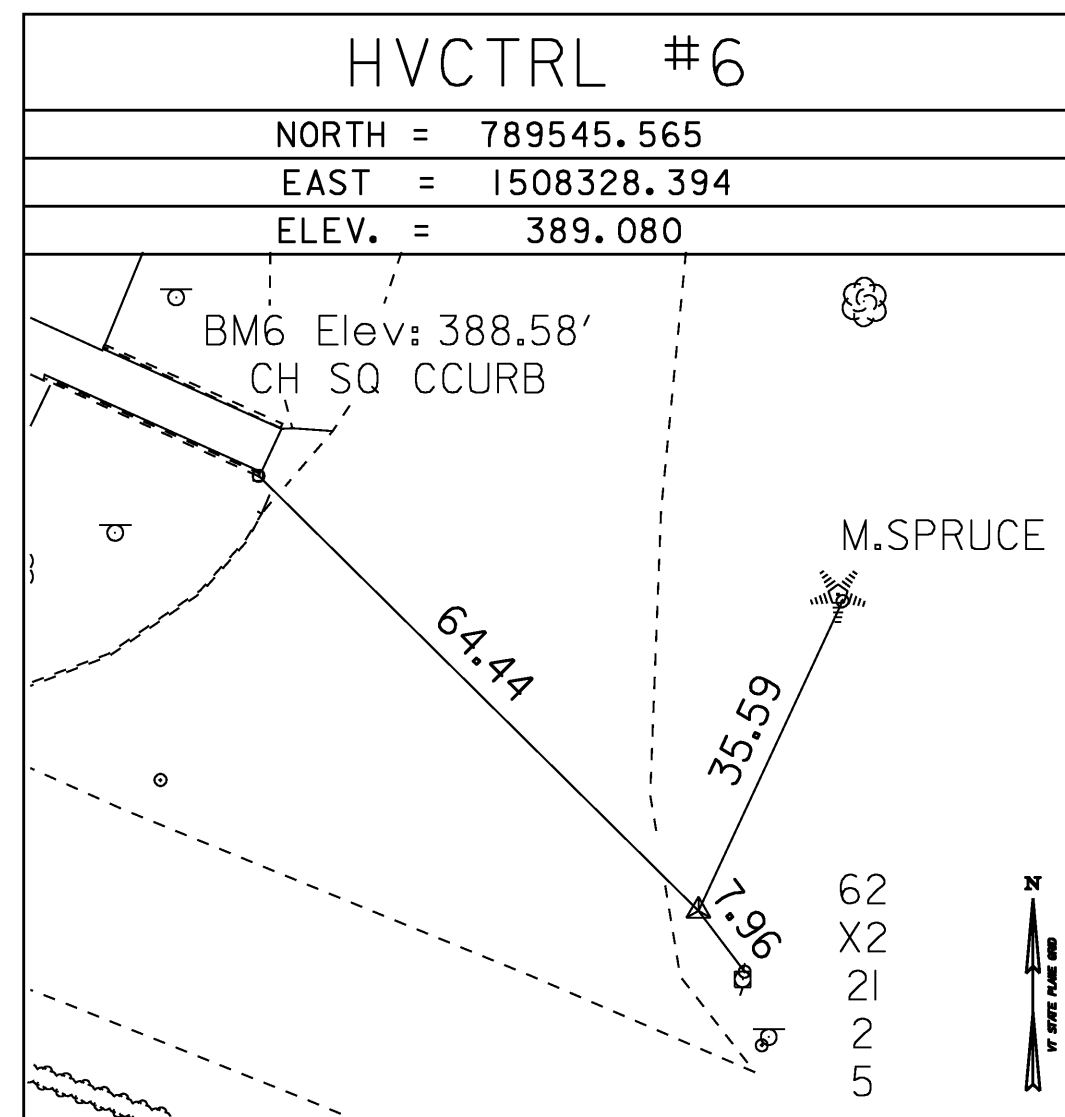
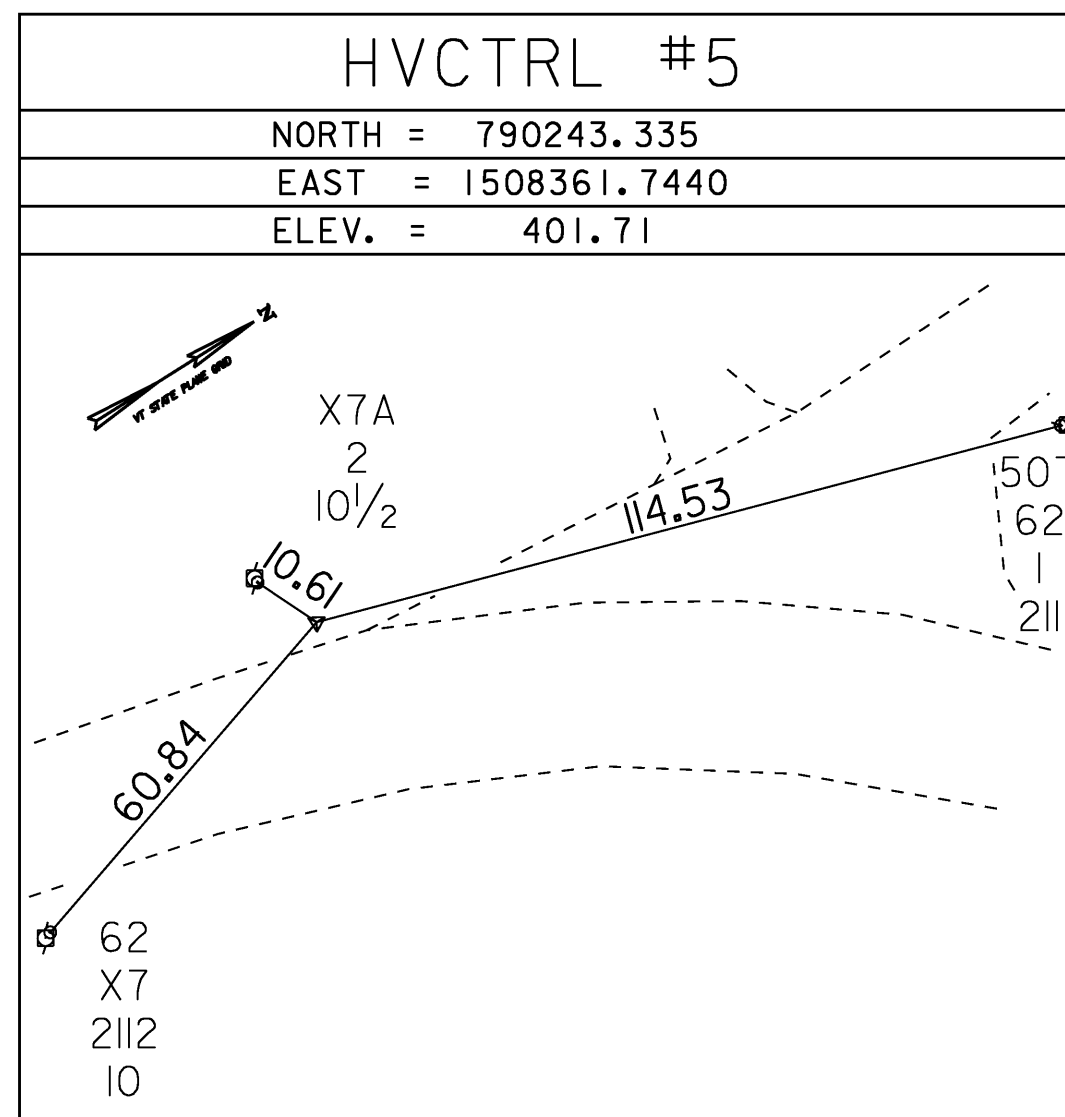
HVCTRL #2

HILLCREST AZ MK

NORTH = 792293.557  
 EAST = 1508349.102  
 ELEV. = 480.372

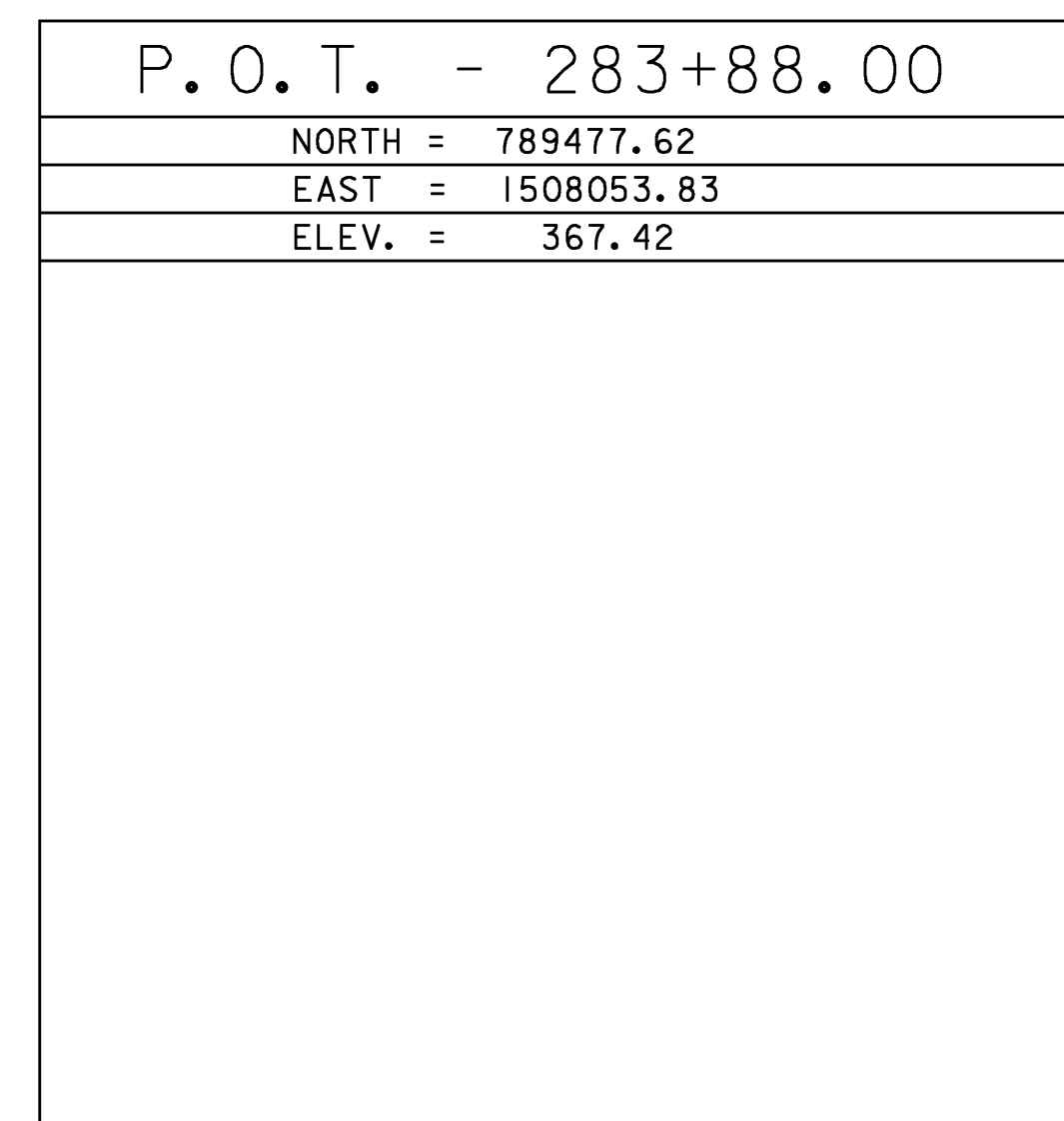
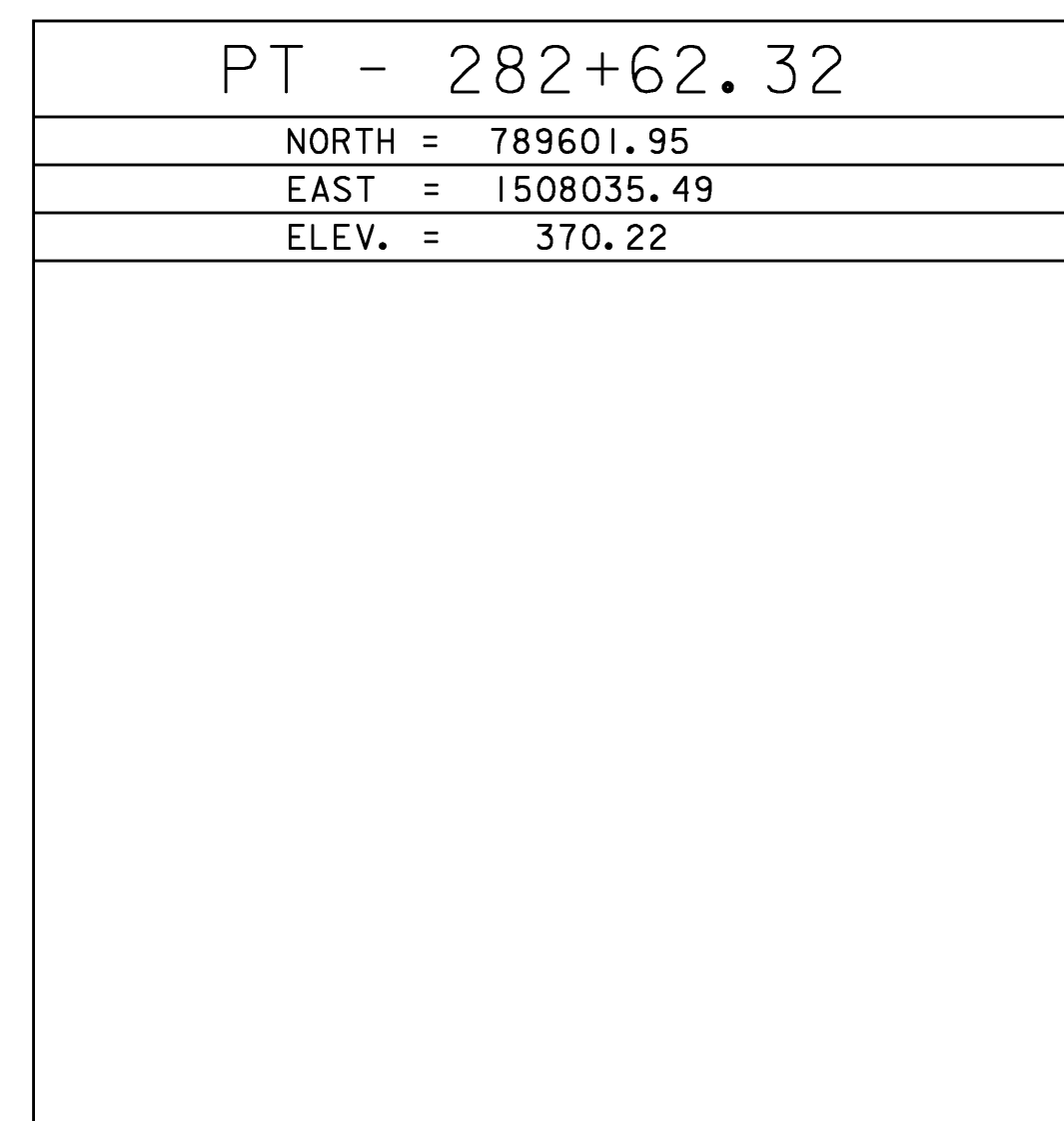
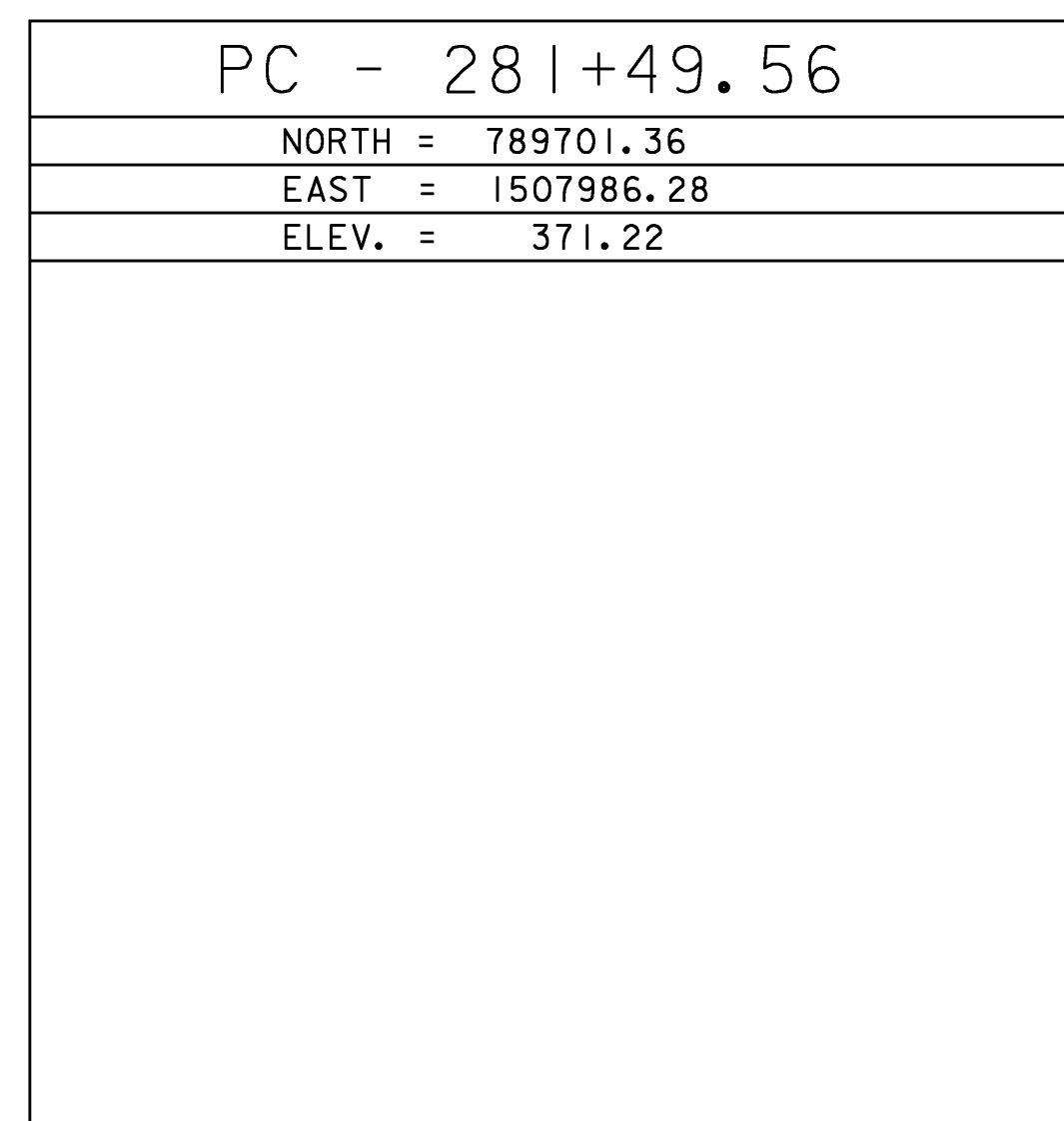
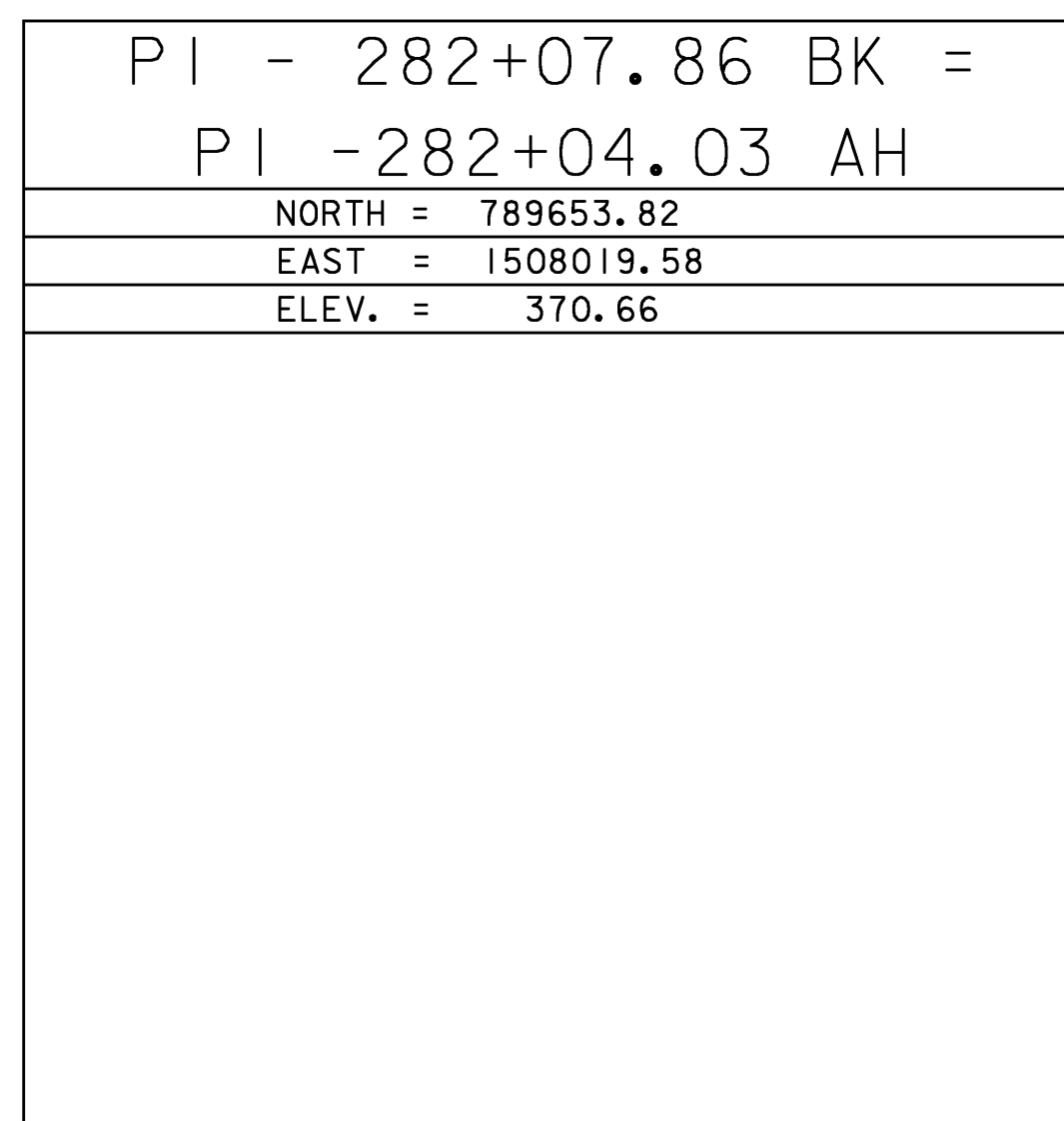
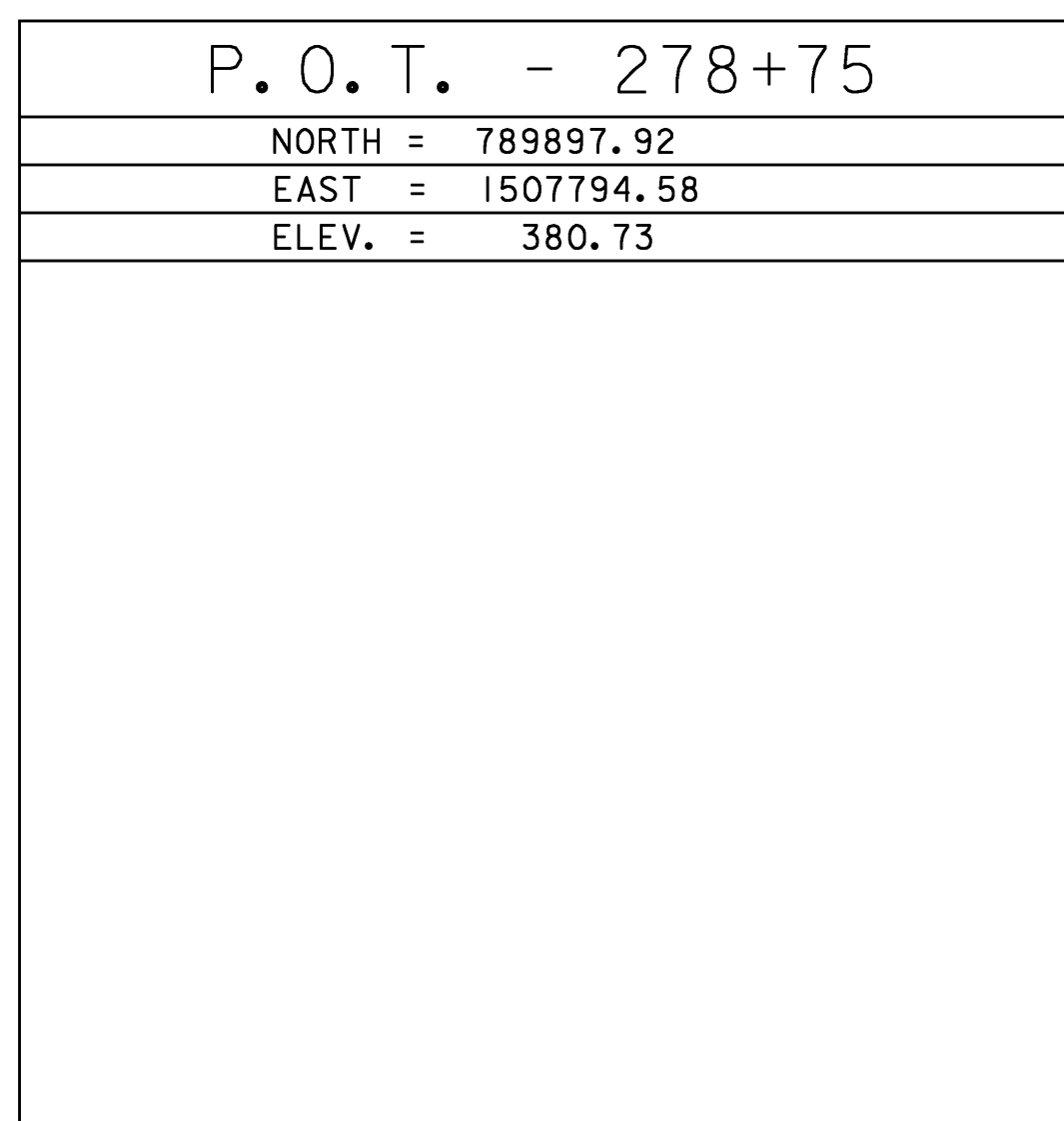
To reach from the intersection of VT route 104A (Highbridge Road) and VT Route 104 (Main St) go southeast along route 104 for 1.0 mi to the intersection of Huntville Road left. Turn left and go northeast along Huntville for 0.5 mi to the intersection of Huntville Road left and Boissonalt Road right. Turn right and go south along Boissonalt Road for 0.3 mi to the site of the mark on the right. The mark is set 2' below ground surface in the top of a Feno-style monument. It is 19' west of and about .7' lower than the centerline of Boissonalt Road, 87.6' northwest of pole #9, 205.7' south of a guy pole, 222' southwest of pole #602/7, 178.8' southwest of the centerline of the gravel drive leading to house #87, and .7' north of a fiberglass witness post.

TRAVERSE TIES



\* Main Traverse Completed 10/8/07 by L.Orvis P.C. & G.Hitchcock

ALIGNMENT TIES



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83
ADJUSTMENT	Compass

PROJECT NAME:	Fairfax
PROJECT NUMBER:	BHF 023-1(5)
FILE NAME:	86e064\survey\86e0641.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	
TIE SHEET	
PLOT DATE:	13-JUL-2009
DRAWN BY:	R. Bullock
CHECKED BY:	C. CARLSON
SHEET	11 OF 61

**PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH**

STA. 279+27.6 LT. - 280+62.7 LT.  
STA. 279+33.5 RT. - 279+43.5 RT.  
STA. 279+74.7 RT. - 280+62.7 RT.  
STA. 280+96.5 LT. - 281+49.8 LT.  
STA. 280+96.5 RT. - 281+29.5 RT.

**SPECIAL PROVISION (BRIDGE RAILING ANODIZED ALUMINUM/PEDESTRIAN)**

STA. 280+62.7 LT. - 281+31.2 LT.  
STA. 280+62.7 RT. - 280+96.3 RT.

**SPECIAL PROVISION (ALUMINUM APPROACH RAILING, ANODIZED)**

STA. 280+41.7 LT. - 280+62.7 LT.  
STA. 280+42.1 RT. - 280+62.7 RT.  
STA. 281+31.2 LT. - 281+42.0 LT.

**REMOVAL AND DISPOSAL OF GUARDRAIL**

STA. 280+61.5 RT. - 280+61.8 RT.  
STA. 280+95.9 LT. - 281+44.4 LT.

**CAST-IN-PLACE CONCRETE CURB, TYPE B**

STA. 279+44.4 LT. - 280+16.8 LT.  
STA. 280+32.8 LT. - 280+62.7 LT.  
STA. 279+74.7 RT. - 280+62.7 RT.  
STA. 280+96.5 LT. - 281+49.8 LT.  
STA. 280+96.5 RT. - 281+29.5 RT.  
STA. 280+96.5 RT. - 281+29.5 RT. (CURB FOR ISLAND)

**RELOCATE MAILBOX, MULTIPLE SUPPORT**

STA. 280+38.7 LT.

**CONSTRUCT RETAINING WALL**

STA. 280+96.5 LT. - 281+31.5 LT.

**CONSTRUCT DRIVE**

STA. 279+37.7 LT. (11' WIDE)  
STA. 280+24.8 LT. (16' WIDE)  
STA. 281+39.5 RT. (20' WIDE)  
STA. 281+61.0 LT. (20' WIDE)

**DETECTABLE WARNING SURFACE (YELLOW)**

STA. 279+41 RT.  
STA. 279+82 RT.

**DRAINAGE**

SEE DRAINAGE LAYOUT SHEET

**REMOVING AND RESETTING FENCE**

STA. 280+25.0 - STA. 280+63 RT

**REMOVAL OF EXISTING FENCE**

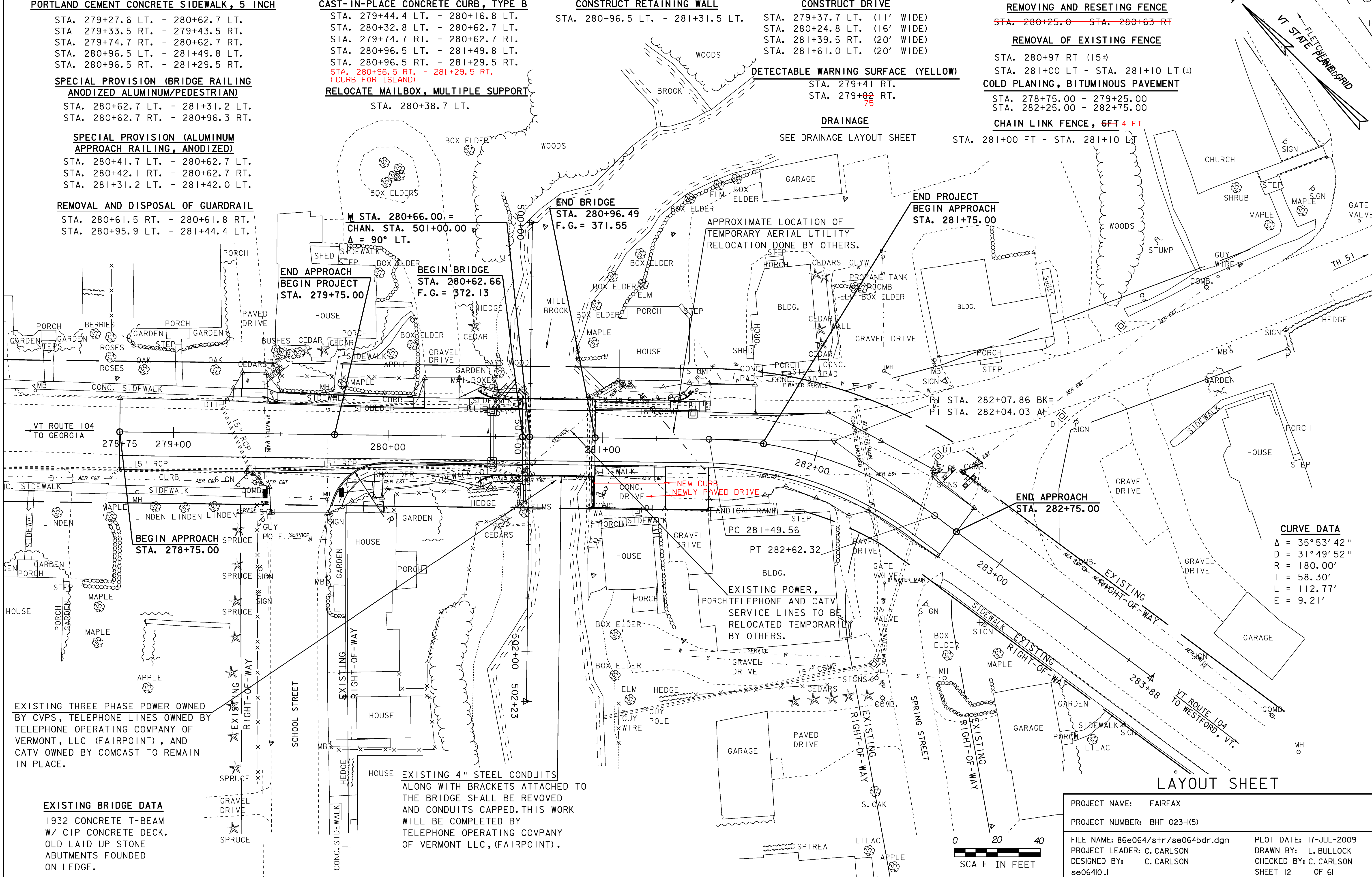
STA. 280+97 RT (15#)  
STA. 281+00 LT - STA. 281+10 LT (#)

**COLD PLANING, BITUMINOUS PAVEMENT**

STA. 278+75.00 - 279+25.00  
STA. 282+25.00 - 282+75.00

**CHAIN LINK FENCE, 6FT 4 FT**

STA. 281+00 FT - STA. 281+10 LT



**CURVE DATA**

$\Delta = 35^{\circ}53'42''$   
 $D = 31^{\circ}49'52''$   
 $R = 180.00'$   
 $T = 58.30'$   
 $L = 112.77'$   
 $E = 9.21'$

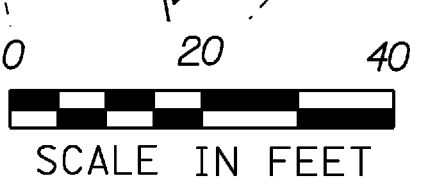
EXISTING THREE PHASE POWER OWNED BY CVPS, TELEPHONE LINES OWNED BY TELEPHONE OPERATING COMPANY OF VERMONT, LLC (FAIRPOINT), AND CATV OWNED BY COMCAST TO REMAIN IN PLACE.

**EXISTING BRIDGE DATA**

1932 CONCRETE T-BEAM W/ CIP CONCRETE DECK. OLD LAID UP STONE ABUTMENTS FOUNDED ON LEDGE.

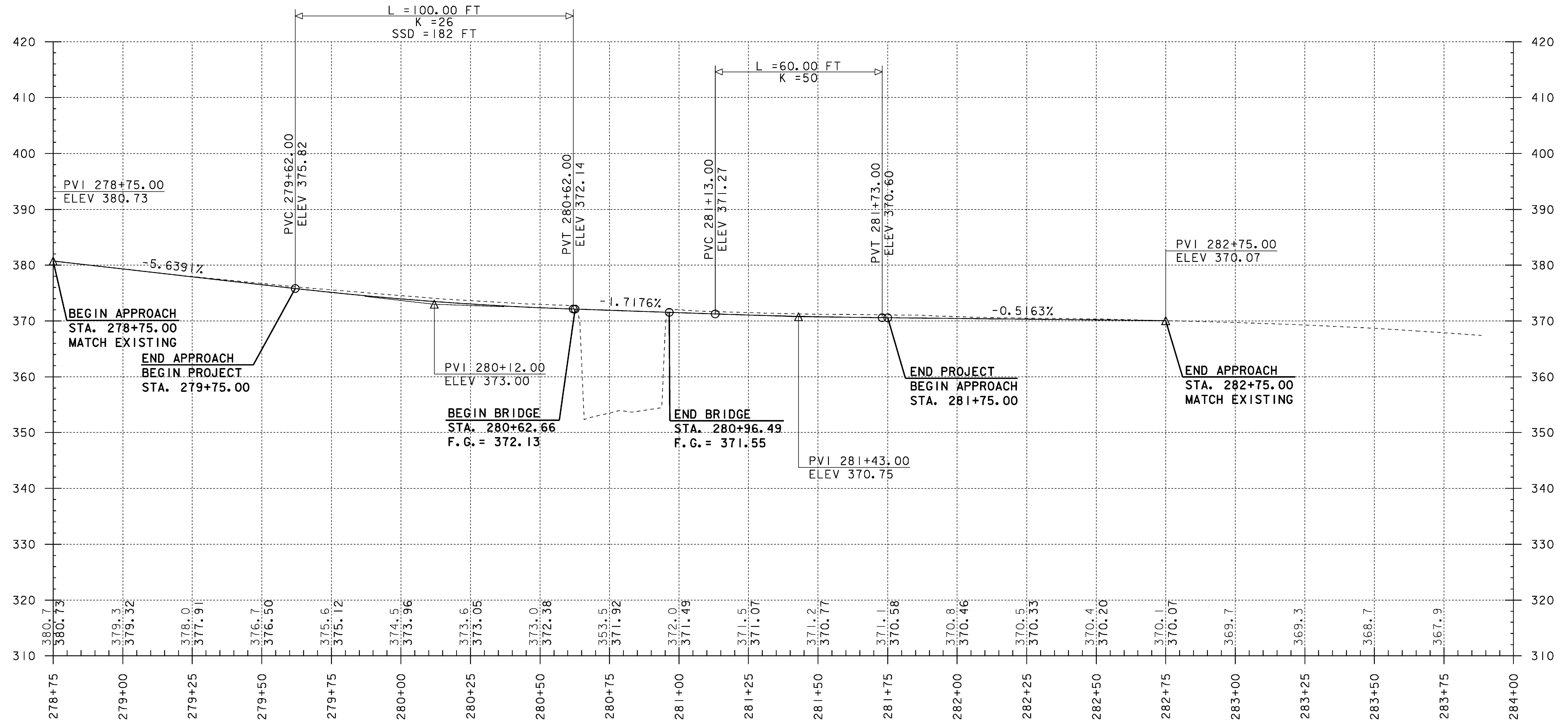
EXISTING 4" STEEL CONDUITS ALONG WITH BRACKETS ATTACHED TO THE BRIDGE SHALL BE REMOVED AND CONDUITS CAPPED. THIS WORK WILL BE COMPLETED BY TELEPHONE OPERATING COMPANY OF VERMONT LLC, (FAIRPOINT).

PROJECT NAME: FAIRFAX	FILE NAME: 86e064/str/se064bdr.dgn	PLOT DATE: 17-JUL-2009
PROJECT NUMBER: BHF 023-1(5)	PROJECT LEADER: C. CARLSON	DRAWN BY: L. BULLOCK
	DESIGNED BY: C. CARLSON	CHECKED BY: C. CARLSON
	se064101	SHEET 12 OF 61



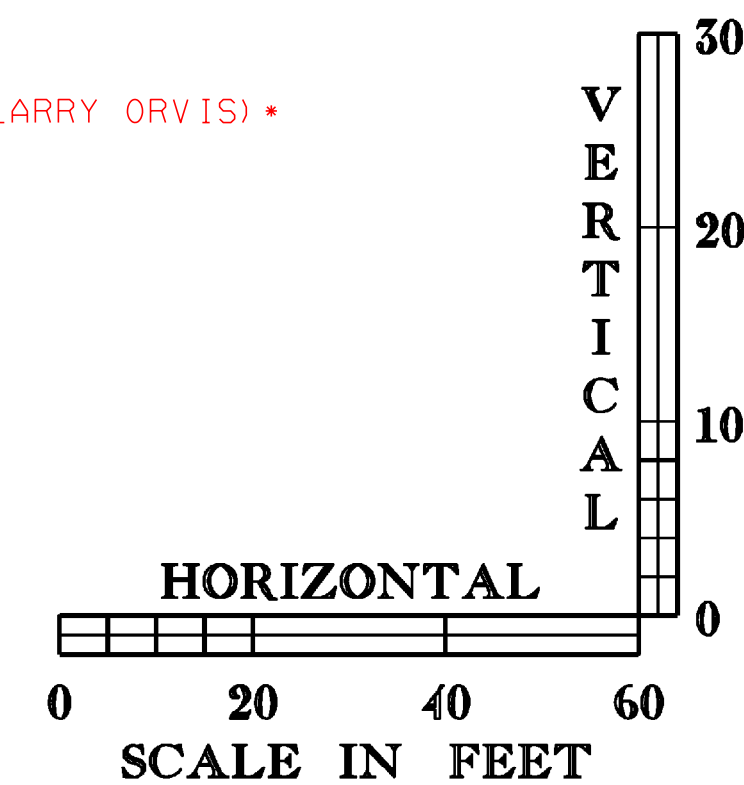
LAYOUT SHEET

# VT104



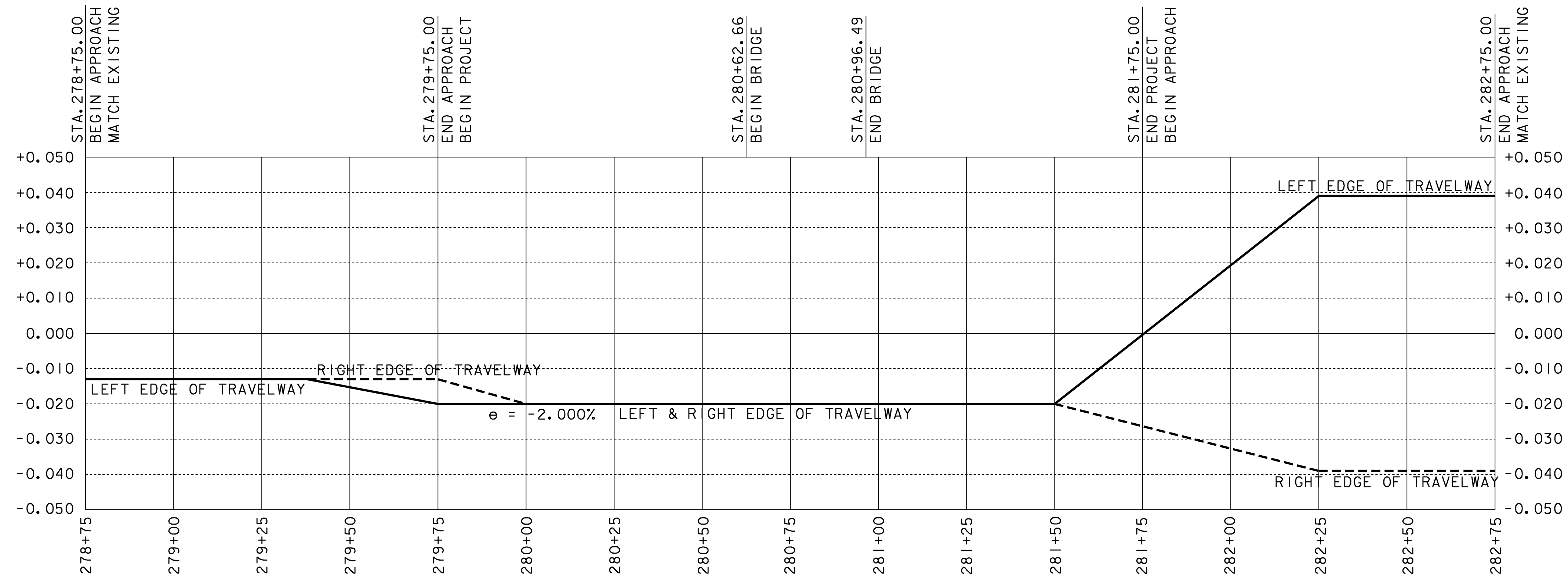
• FINAL ELEVATIONS OBTAINED WITH 3D SURVEY (LARRY ORVIS) •  
ON FILE ON VTRANS SERVER

GRADES SHOWN TO THE NEAREST TENTH ARE  
OLD GROUND ALONG THE PROPOSED ALIGNMENT.  
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE  
FINISHED GRADES ALONG THE PROPOSED ALIGNMENT.



## PROFILE SHEET

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: L. BULLOCK
FILE NAME: /86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 13 OF 61
DESIGNED BY: C. CARLSON	
se064pr1.l	

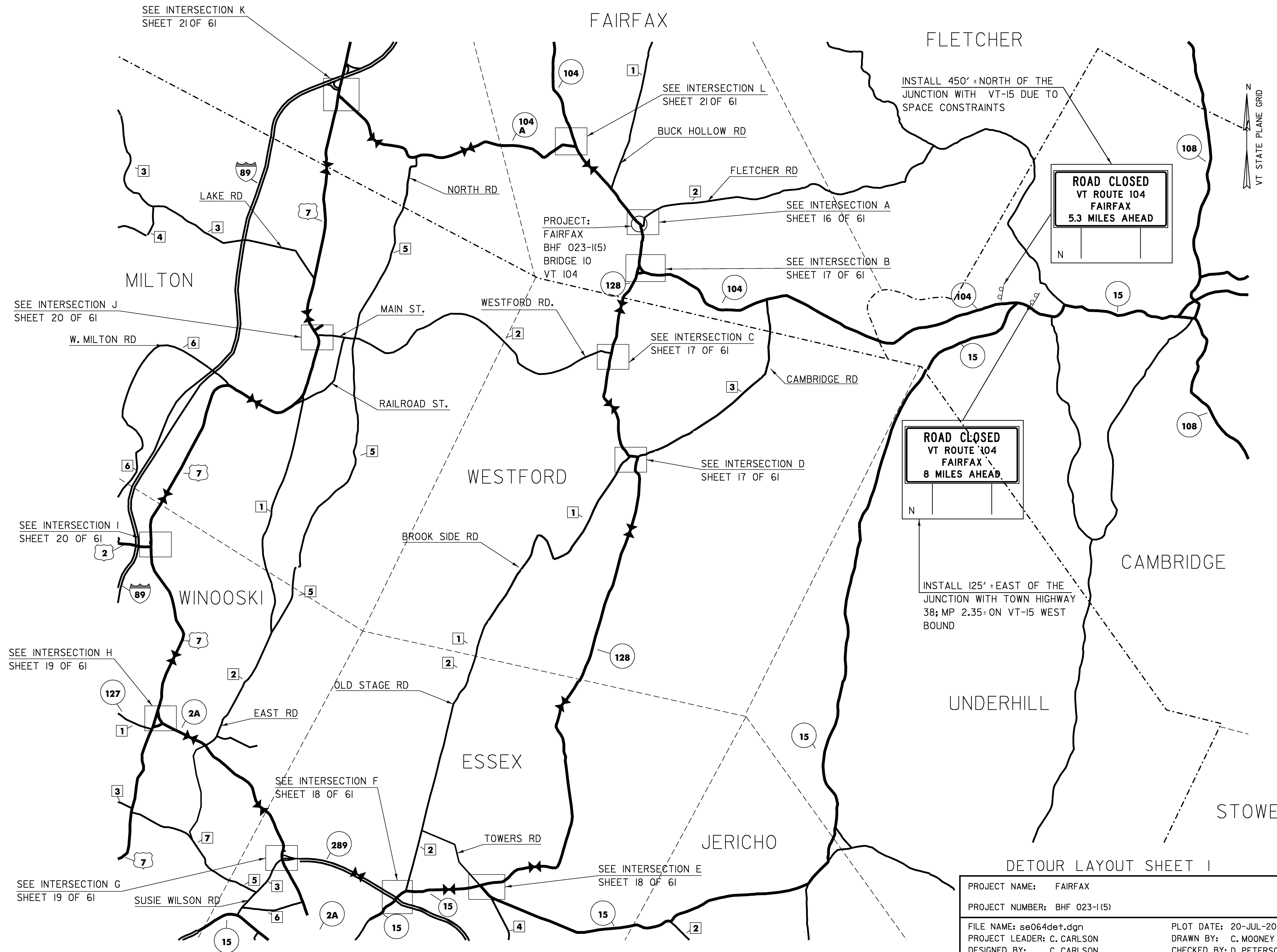


# BANKING DIAGRAM

1" = 20' - 0" HORIZONTALLY  
 1" = .025 VERTICALLY

## BANKING DIAGRAM

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
DESIGNED BY: C. CARLSON	SHEET 14 OF 61
se064bnk.1	

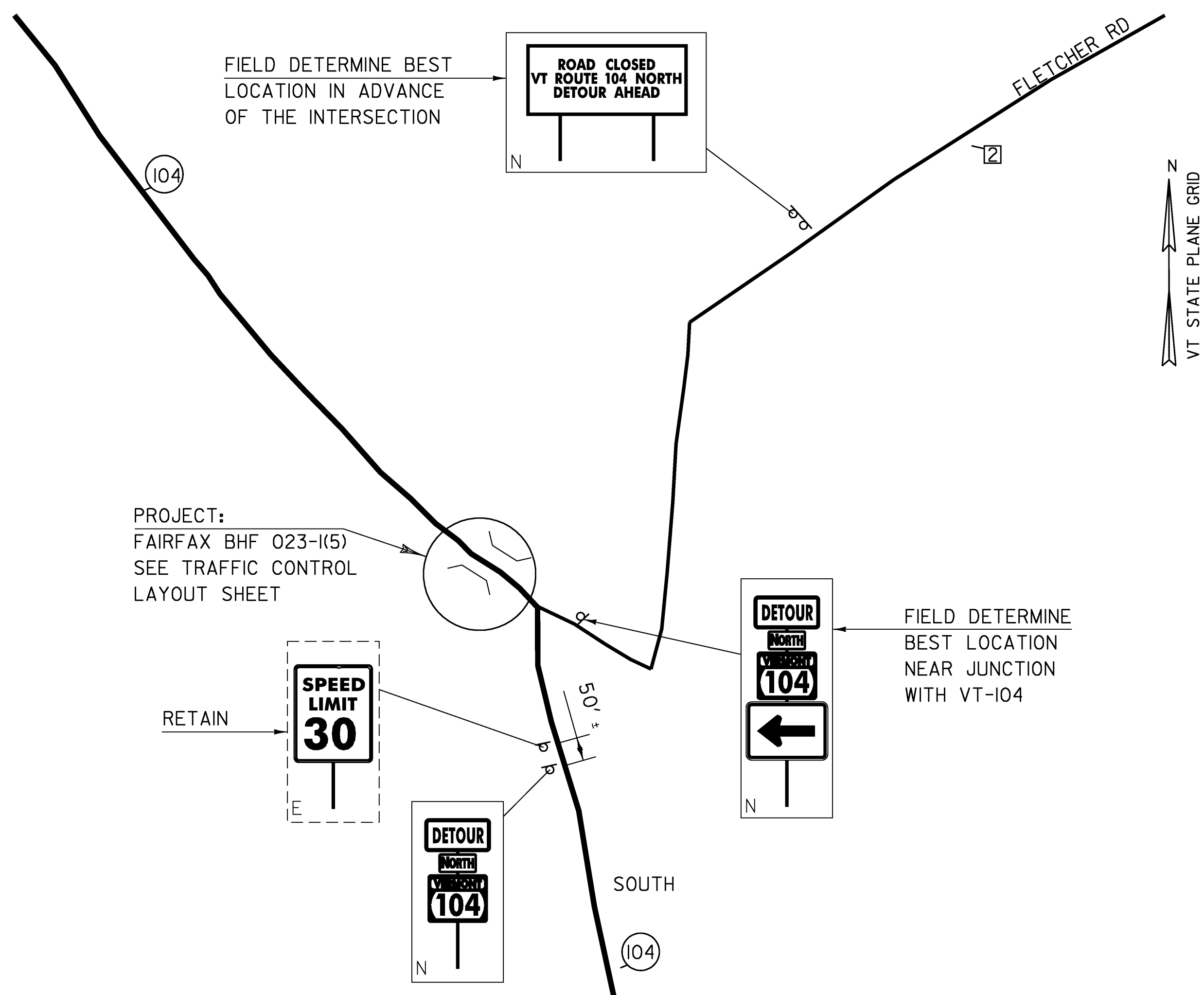


**LEGEND**

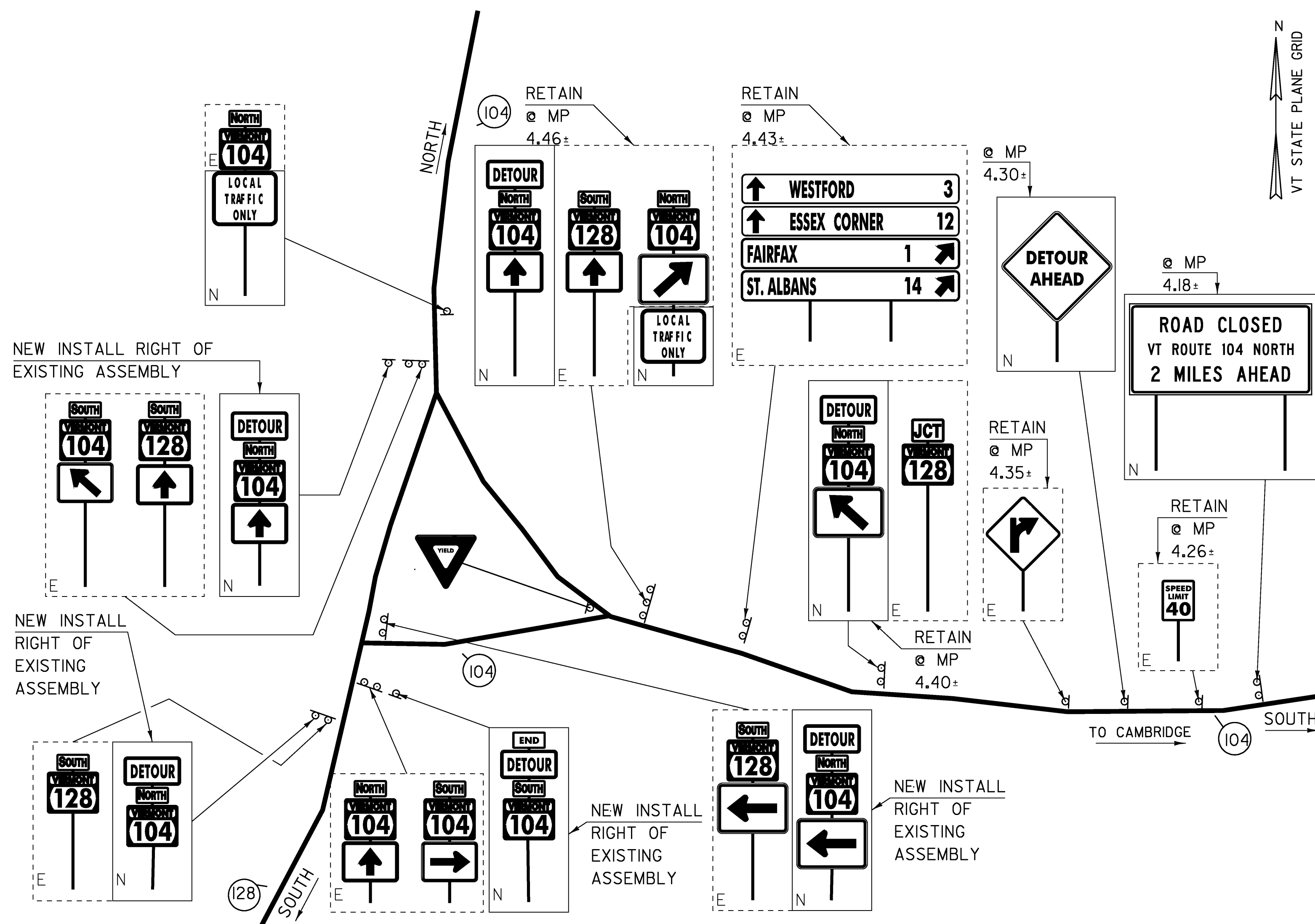
	DETOUR ARROW
	INTERSTATE
	US ROUTE
	VT ROUTE
	TOWN HIGHWAY
	EXISTING SIGN
	NEW SIGN

**DETOUR LAYOUT SHEET 1**

PROJECT NAME:	FAIRFAX	FILE NAME:	se064det.dgn	PLOT DATE:	20-JUL-2009
PROJECT NUMBER:	BHF 023-1(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	C. MOONEY
		DESIGNED BY:	C. CARLSON	CHECKED BY:	D. PETERSON
				SHEET	15 OF 61



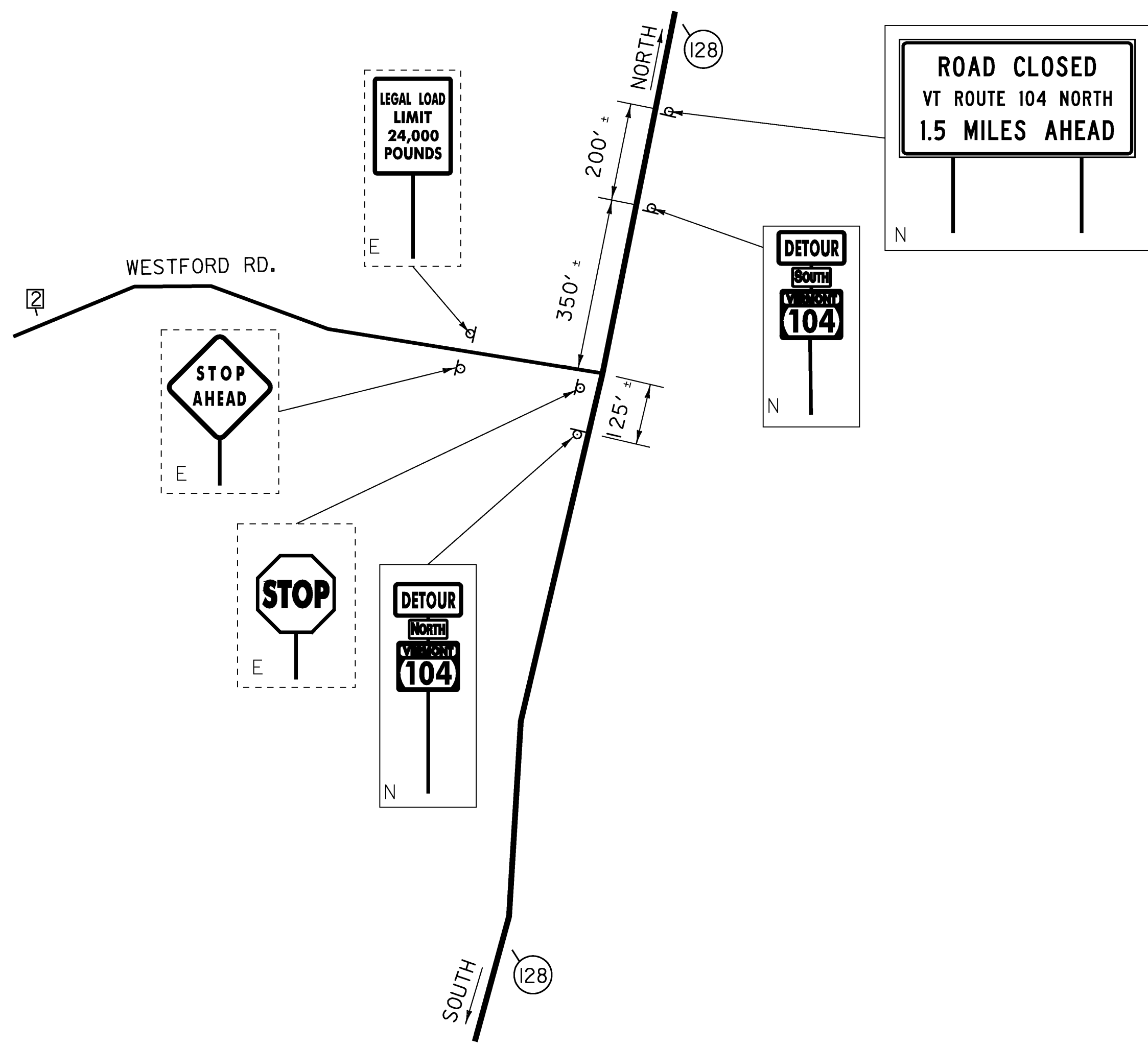
DETOUR INTERSECTION A  
VERMONT 104 AND FAIRFAX TH 2 (FLETCHER RD)  
(NOT TO SCALE)



DETOUR INTERSECTION B  
VERMONT 128 AND VERMONT 104  
(NOT TO SCALE)

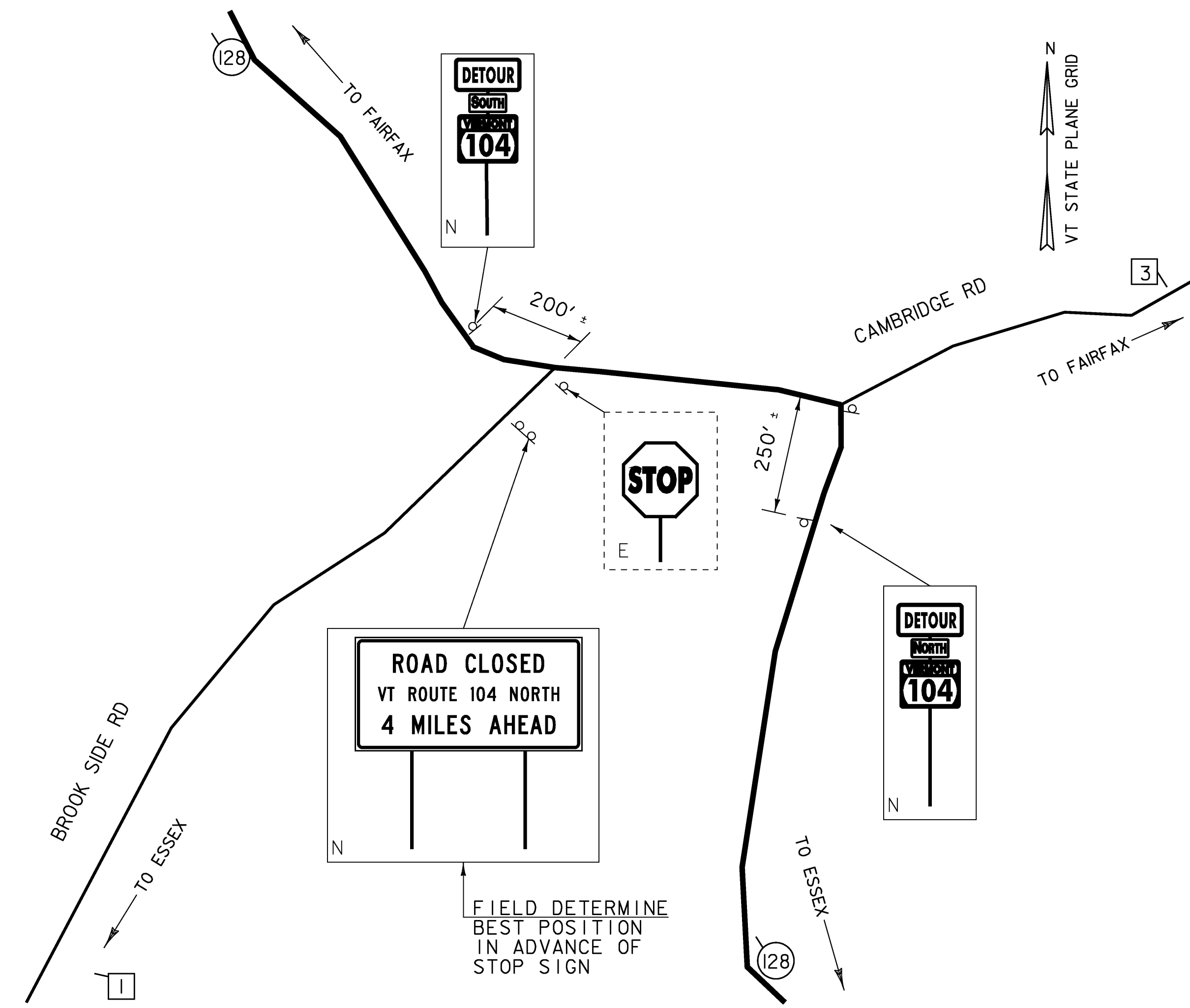
DETOUR LAYOUT SHEET 2

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-1(5)
FILE NAME:	se064det.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	C. CARLSON
PLOT DATE:	13-JUL-2009
DRAWN BY:	C. MOONEY
CHECKED BY:	D. PETERSON
SHEET 16 OF 61	



**DETOUR INTERSECTION C**

VERMONT 128 AND WESTFORD TH 2 (WESTFORD RD.)  
(NOT TO SCALE)

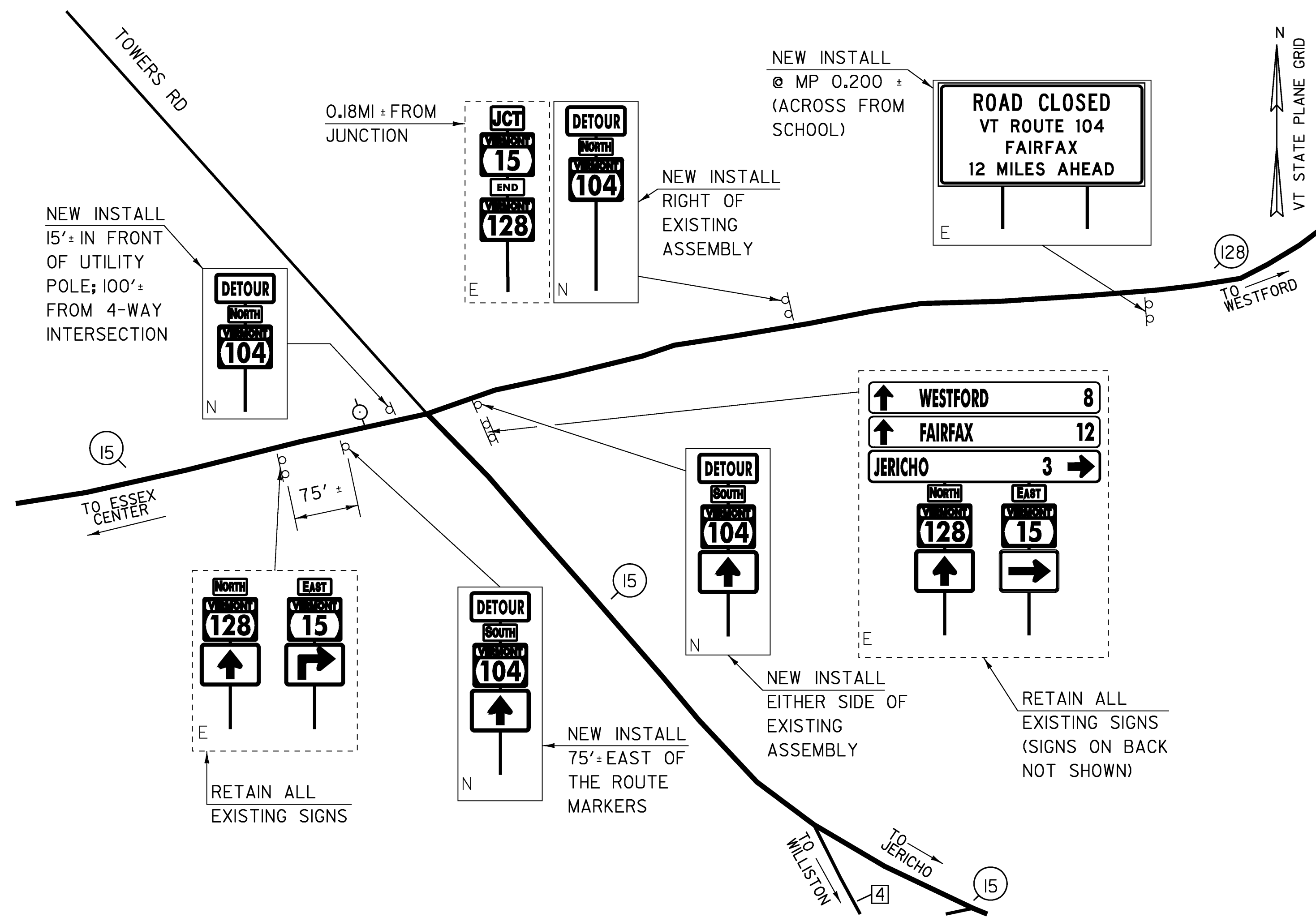


**DETOUR INTERSECTION D**

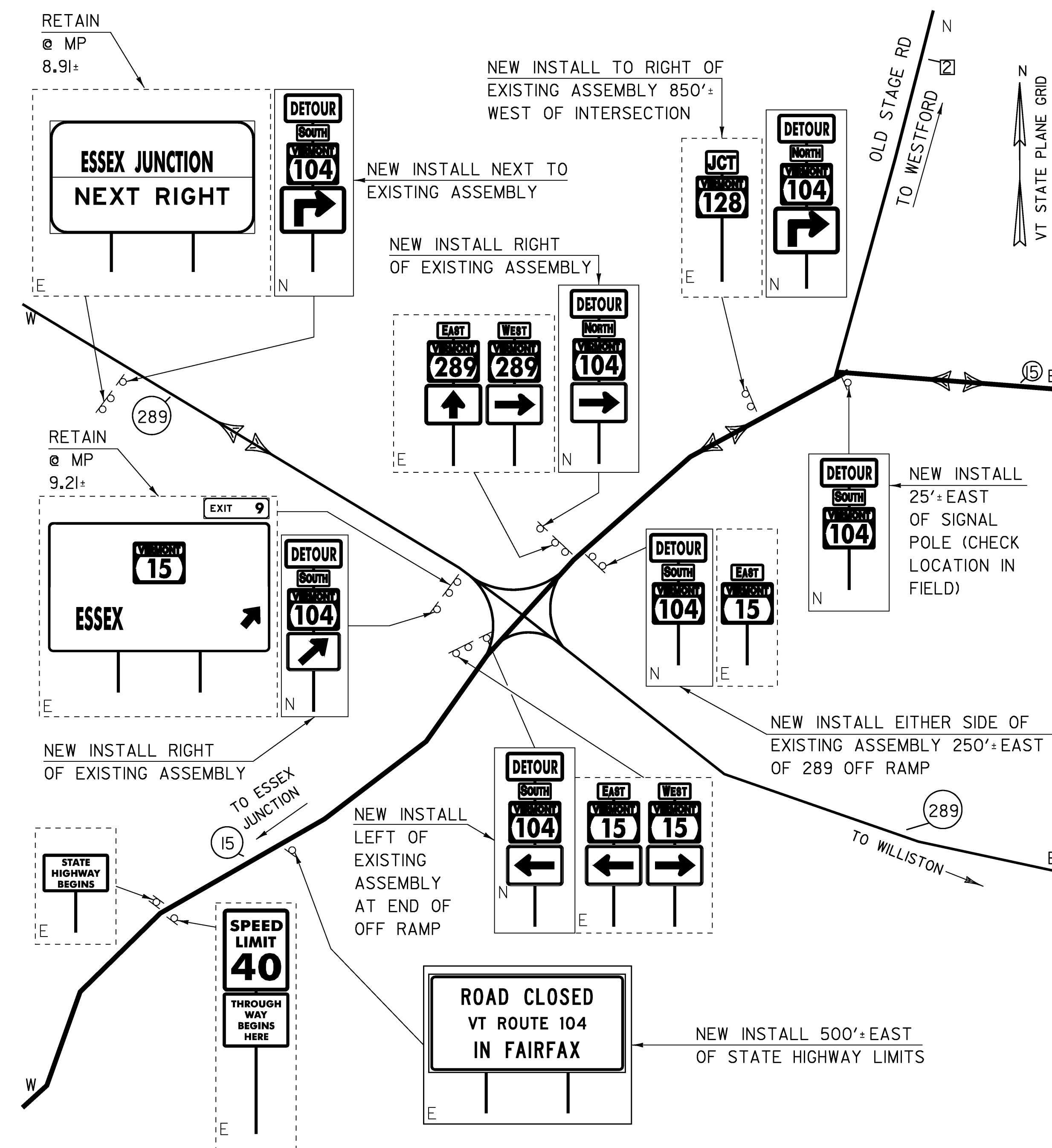
VERMONT 128 AND WESTFORD TH 3 (CAMBRIDGE RD.)  
(NOT TO SCALE)

**DETOUR LAYOUT SHEET 3**

PROJECT NAME: FAIRFAX	
PROJECT NUMBER: BHF 023-1(5)	
FILE NAME: se064det.dgn	PLOT DATE: 13-JUL-2009
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: C. CARLSON	CHECKED BY: D. PETERSON
	SHEET 17 OF 61



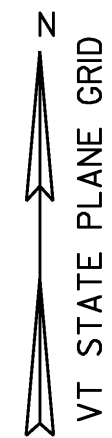
DETOUR INTERSECTION E  
VERMONT 15 AND VERMONT 128 AND ESSEX TH (RIVERS RD.)  
(NOT TO SCALE)



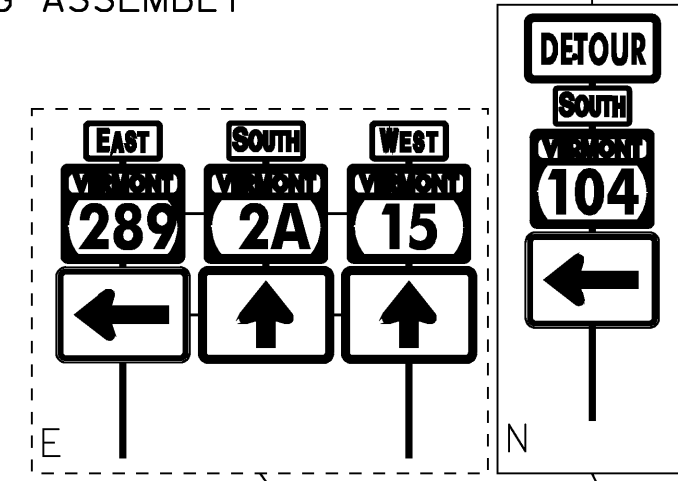
DETOUR INTERSECTION F  
VERMONT 15 AND ESSEX TH 2 (OLD STAGE RD.)  
AND  
VERMONT 15 AND VERMONT 289  
(NOT TO SCALE)

DETOUR LAYOUT SHEET 4

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-1(5)
FILE NAME:	se064det.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	C. CARLSON
PLOT DATE:	13-JUL-2009
DRAWN BY:	C. MOONEY
CHECKED BY:	D. PETERSON
SHEET	18 OF 61



NEW INSTALL AT 600'± IN ADVANCE  
OF VT 289 ON-RAMP, TO LEFT OF  
EXISTING ASSEMBLY



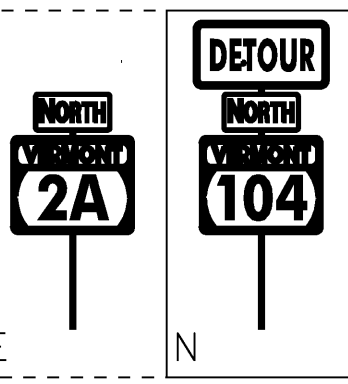
TO COLCHESTER

N

(2A)

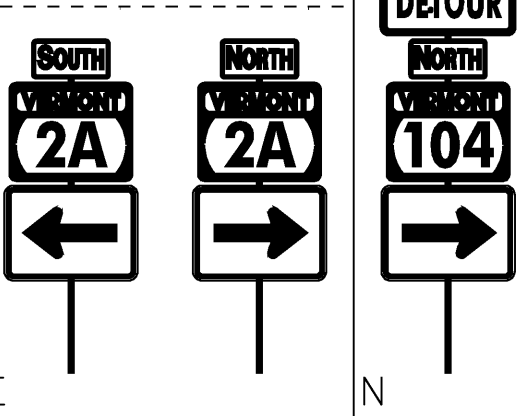
TOWN  
HIGHWAY

E



NEW INSTALL RIGHT  
OF EXISTING ASSEMBLY

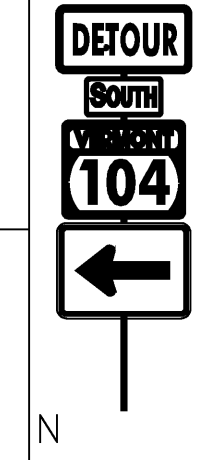
NEW INSTALL RIGHT  
OF EXISTING ASSEMBLY  
AT END OF RAMP



OFF RAMP

ON RAMP

(289)



NEW INSTALL FACING  
SOUTHBOUND 2A, AT  
CORNER OF ON-RAMP

SUSIE WILSON RD  
TO BURLINGTON

(3)

TO ESSEX  
JUNCTION

(2A)

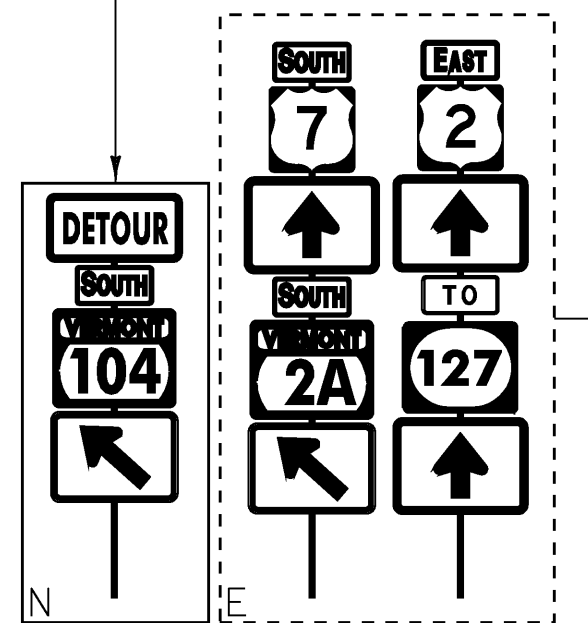
S

### DETOUR INTERSECTION G

VERMONT 2A AND VERMONT 289  
(NOT TO SCALE)



INSTALL TO LEFT OF EXISTING  
SIGN ASSEMBLY, 425'± IN  
ADVANCE OF INTERSECTION



TO MILTON

N

(7)

TO COLCHESTER

E

(2)

(127)

N

(7)

(2)

E

(2A)

N

(104)

E

(104)

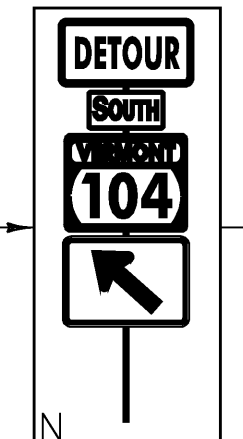
N

(2A)

S

NEW INSTALL 200'±  
BEYOND THE INTERSECTION

NEW INSTALL  
250'± IN  
ADVANCE OF  
INTERSECTION



TO COLCHESTER

(7)

TO 89

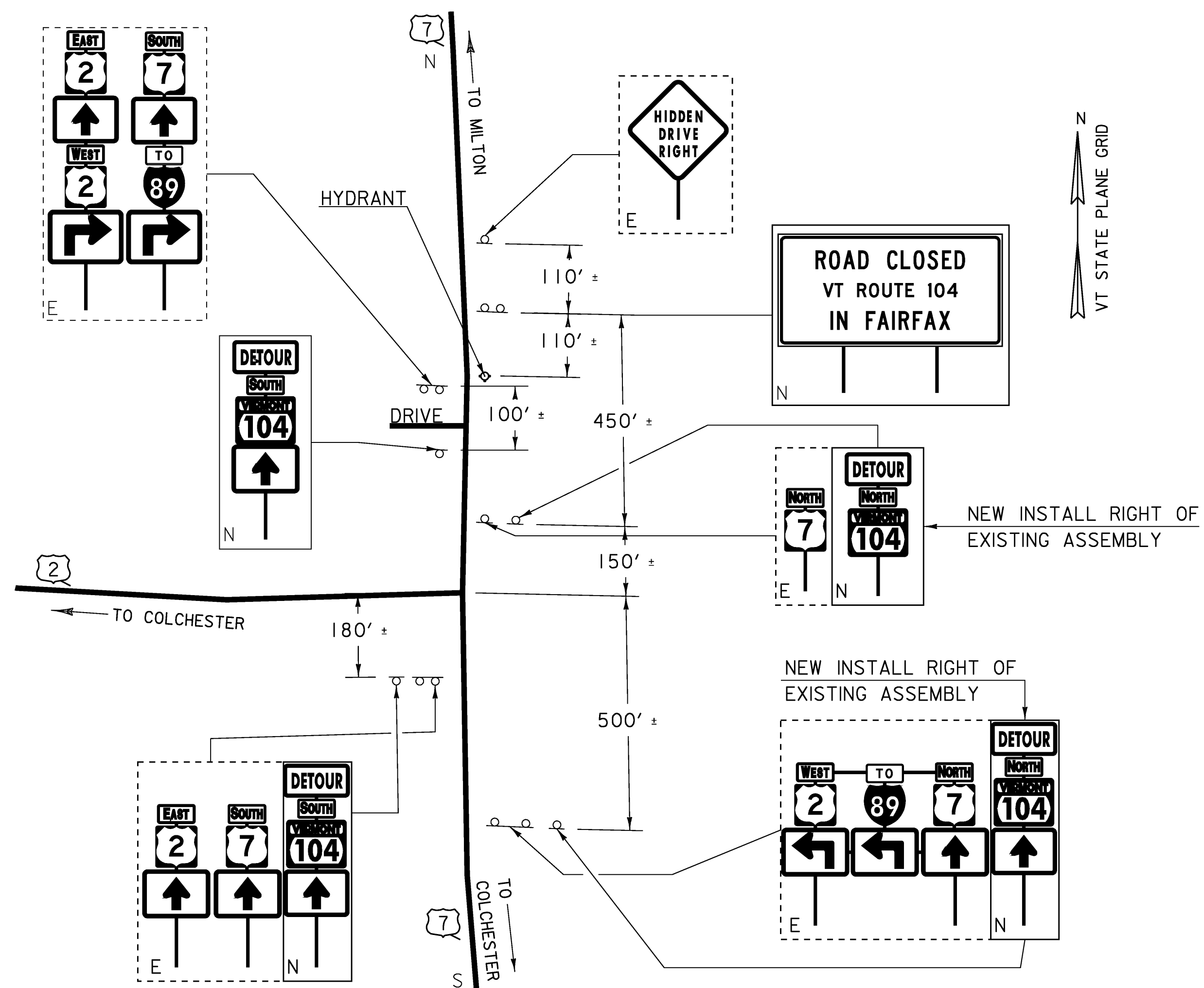
S

### DETOUR INTERSECTION H

US 7 AND VERMONT 2A  
(NOT TO SCALE)

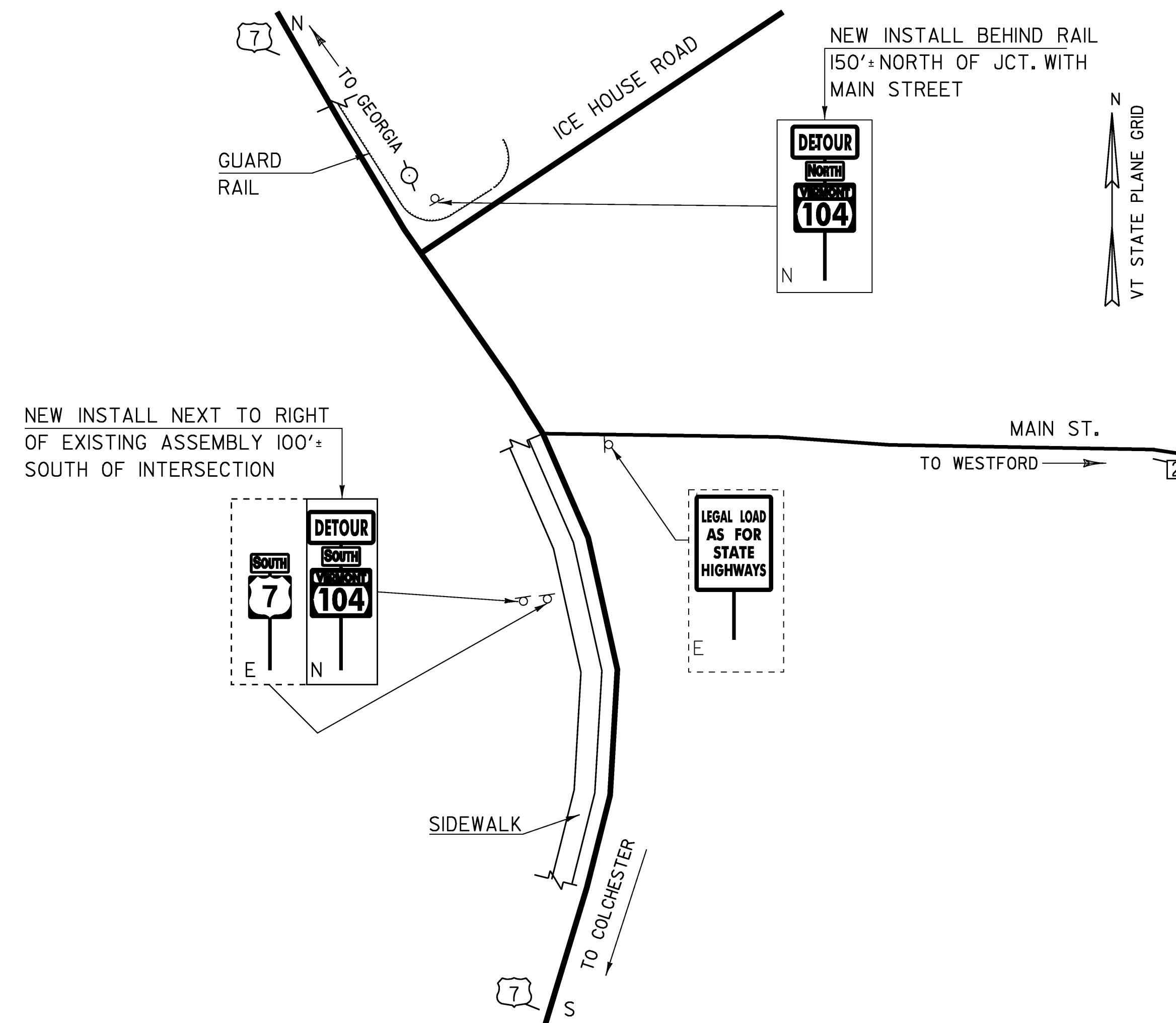
## DETOUR LAYOUT SHEET 5

PROJECT NAME:	FAIRFAX	FILE NAME:	se064det.dgn	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-1(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	C. MOONEY
		DESIGNED BY:	C. CARLSON	CHECKED BY:	D. PETERSON
				SHEET	19 OF 61



DETOUR INTERSECTION I

US 7 AND US 2  
(NOT TO SCALE)

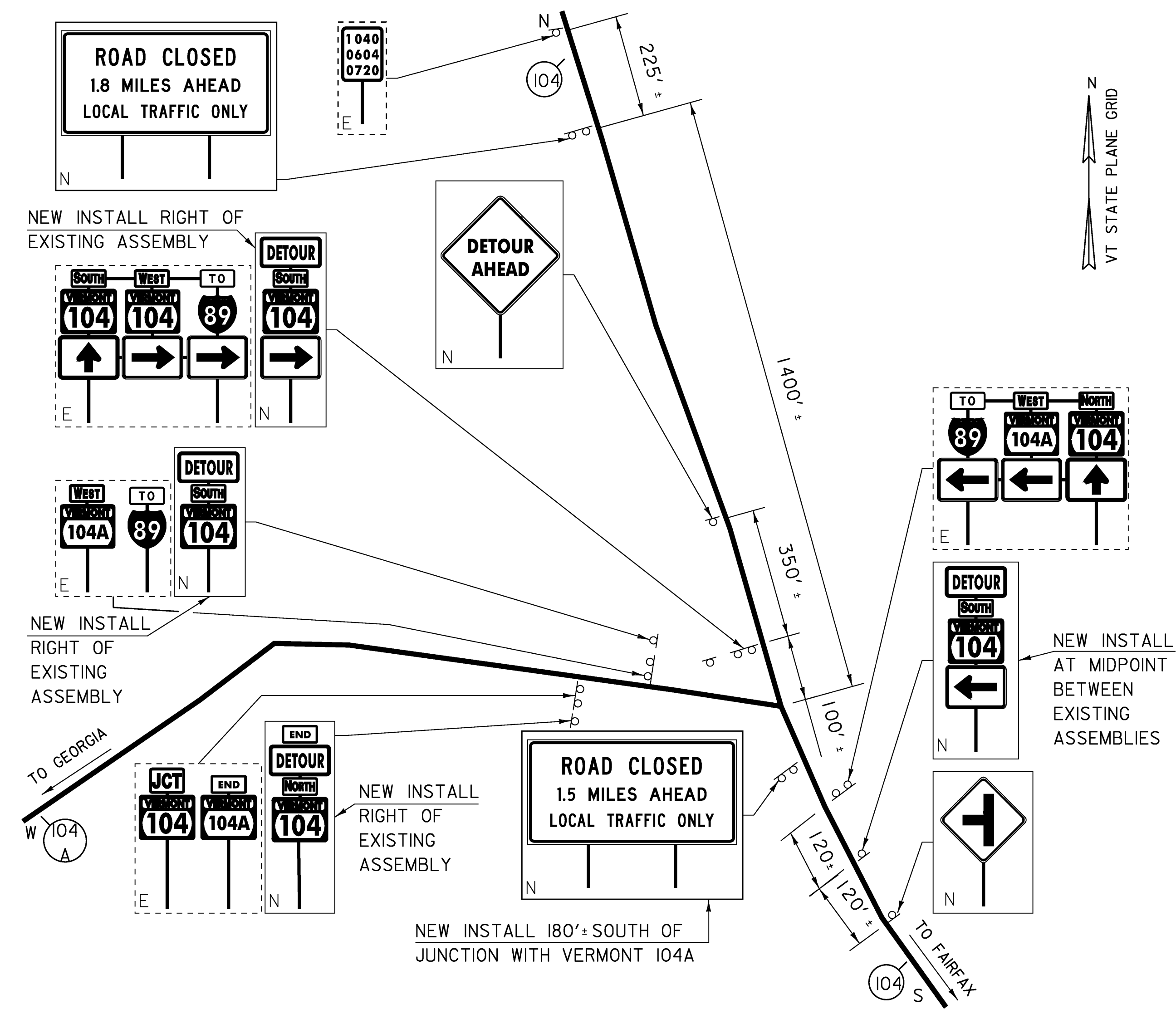
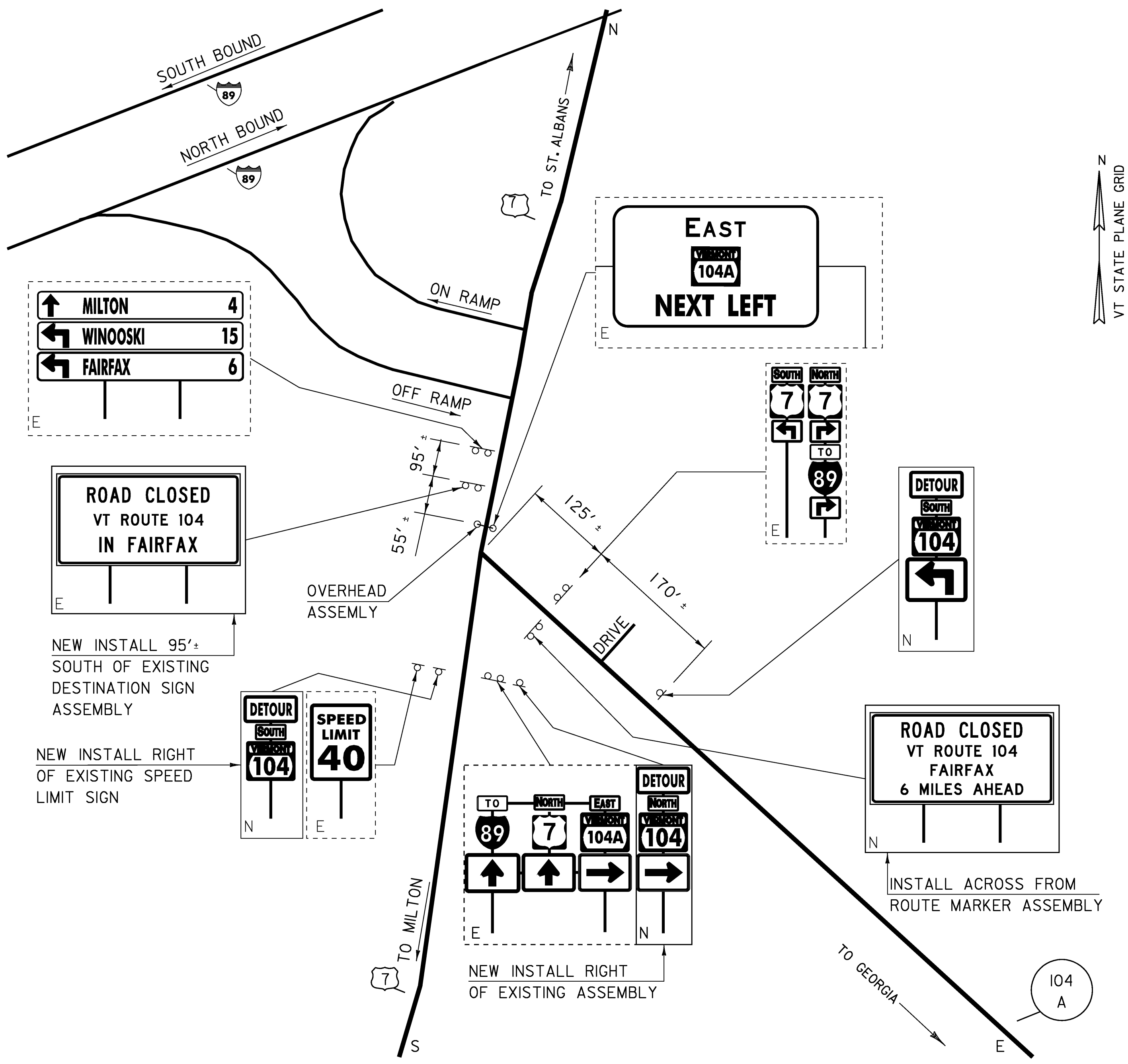


DETOUR INTERSECTION J

US 7 AND MILTON TH 2  
(NOT TO SCALE)

DETOUR LAYOUT SHEET 6

PROJECT NAME:	FAIRFAX	FILE NAME:	se064det.dgn	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-1(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	C. MOONEY
		DESIGNED BY:	C. CARLSON	CHECKED BY:	D. PETERSON
				SHEET	20 OF 61



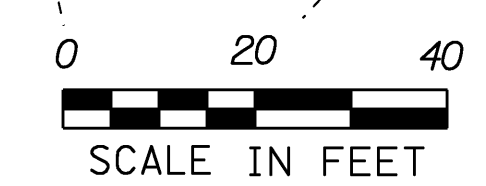
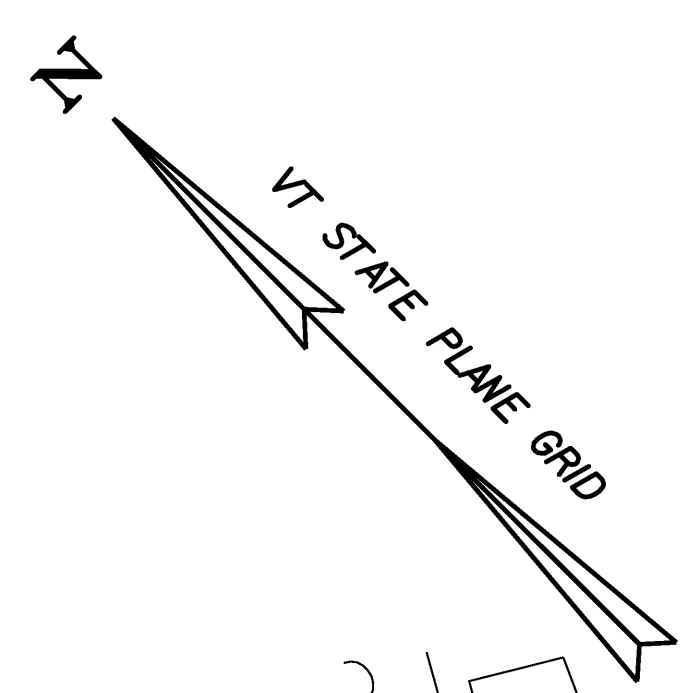
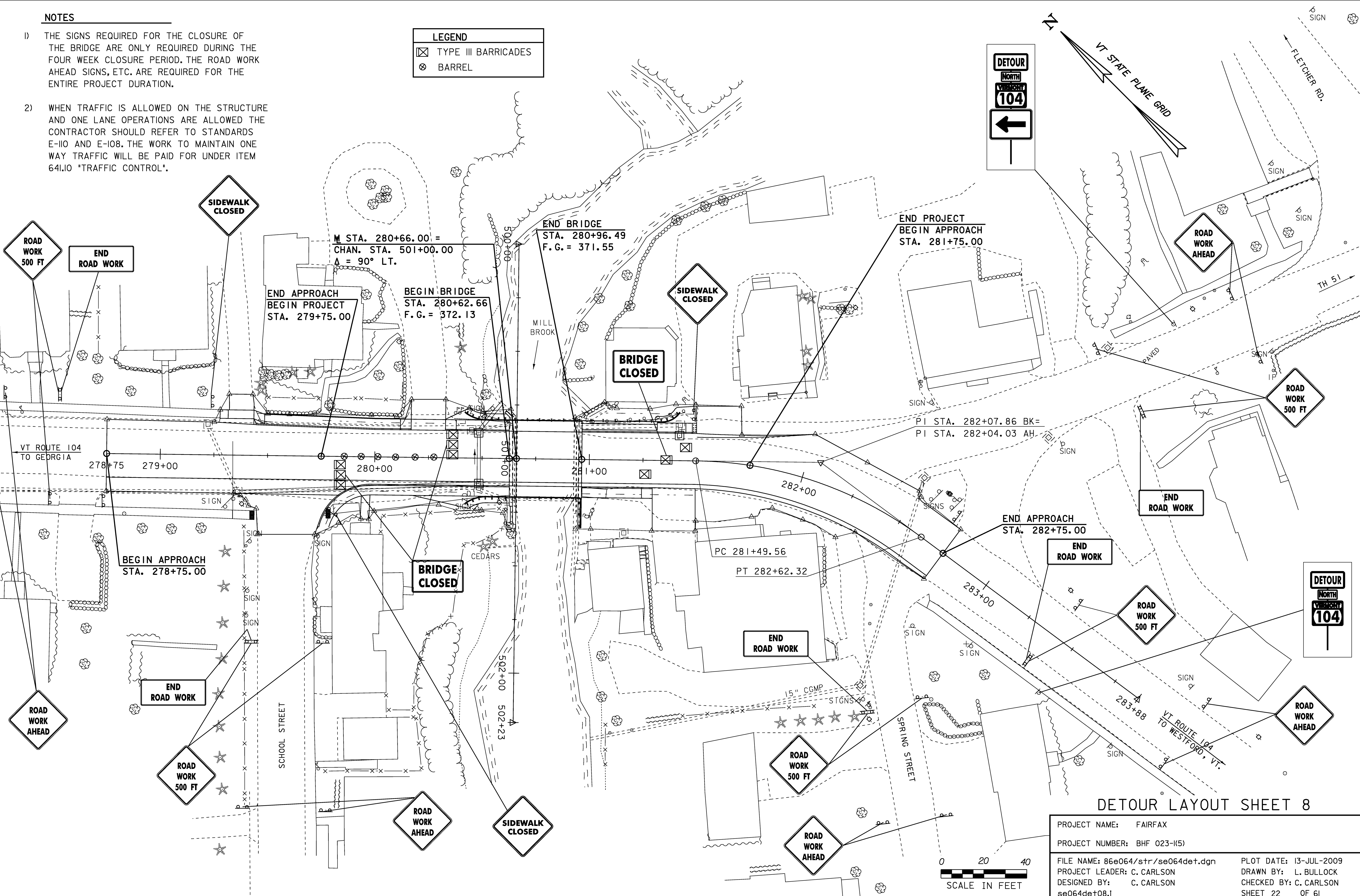
DETOUR LAYOUT SHEET 7

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-1(5)
FILE NAME:	se064det.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	C. CARLSON
PLOT DATE:	13-JUL-2009
DRAWN BY:	C. MOONEY
CHECKED BY:	D. PETERSON
SHEET	21 OF 61

**NOTES**

- 1) THE SIGNS REQUIRED FOR THE CLOSURE OF THE BRIDGE ARE ONLY REQUIRED DURING THE FOUR WEEK CLOSURE PERIOD. THE ROAD AHEAD SIGNS, ETC. ARE REQUIRED FOR THE ENTIRE PROJECT DURATION.
- 2) WHEN TRAFFIC IS ALLOWED ON THE STRUCTURE AND ONE LANE OPERATIONS ARE ALLOWED THE CONTRACTOR SHOULD REFER TO STANDARDS E-110 AND E-108. THE WORK TO MAINTAIN ONE WAY TRAFFIC WILL BE PAID FOR UNDER ITEM 641.10 "TRAFFIC CONTROL".

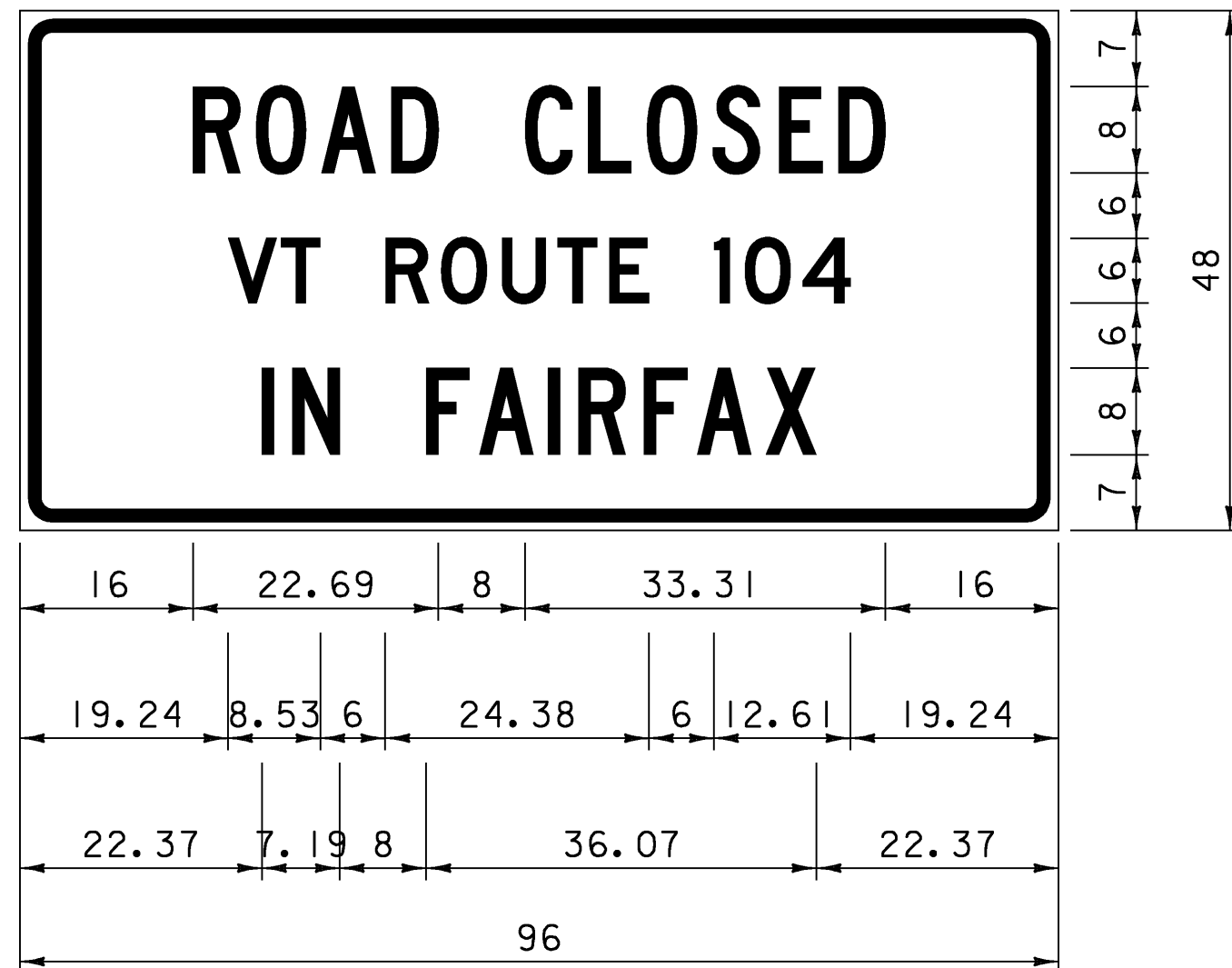
LEGEND	
	TYPE III BARRICADES
	BARREL



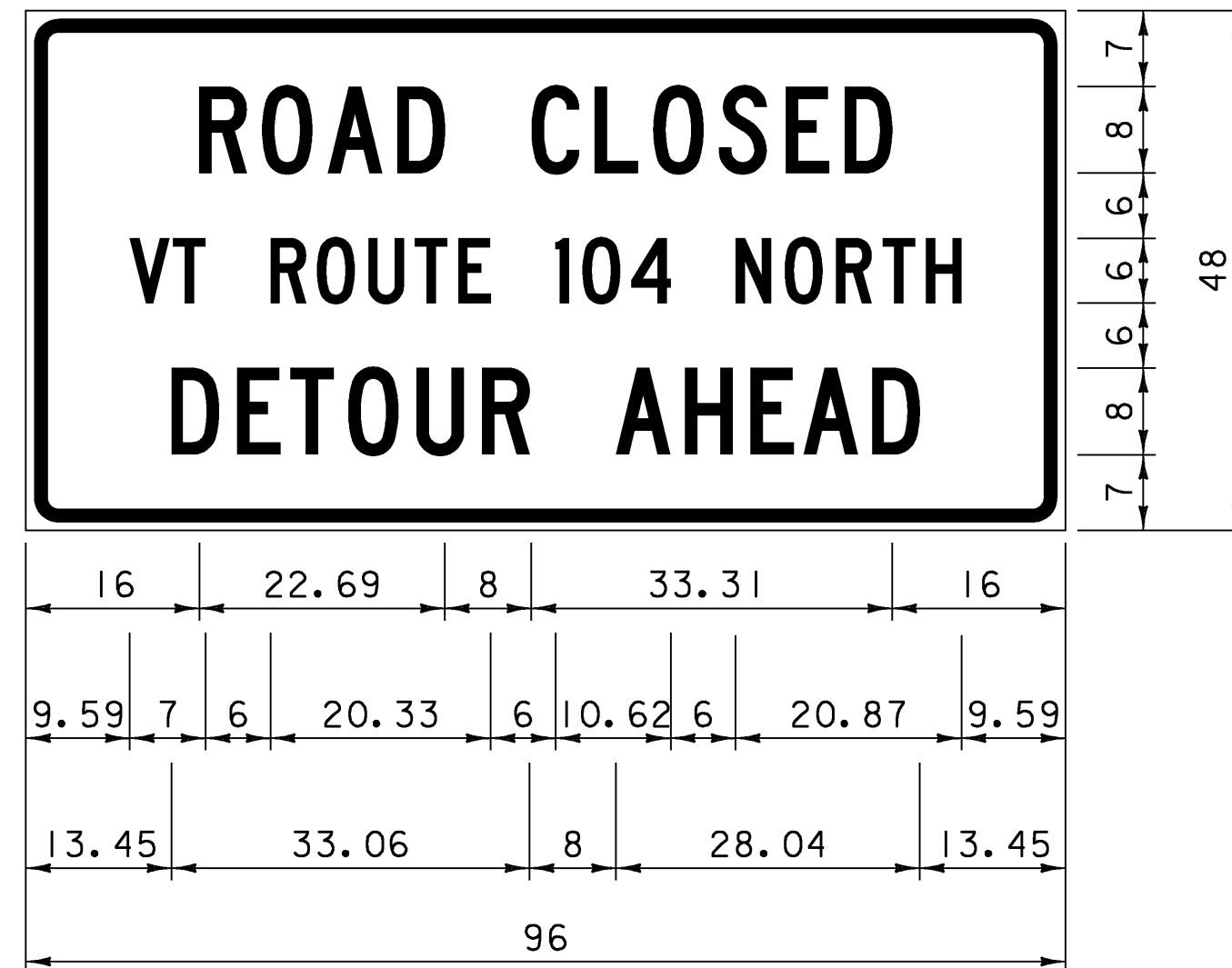
**DETOUR LAYOUT SHEET 8**

PROJECT NAME:	FAIRFAX	FILE NAME:	86e064/str/se064det.dgn	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-I(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	L. BULLOCK
		DESIGNED BY:	C. CARLSON	CHECKED BY:	C. CARLSON
			se064de+08.1	SHEET 22	OF 61

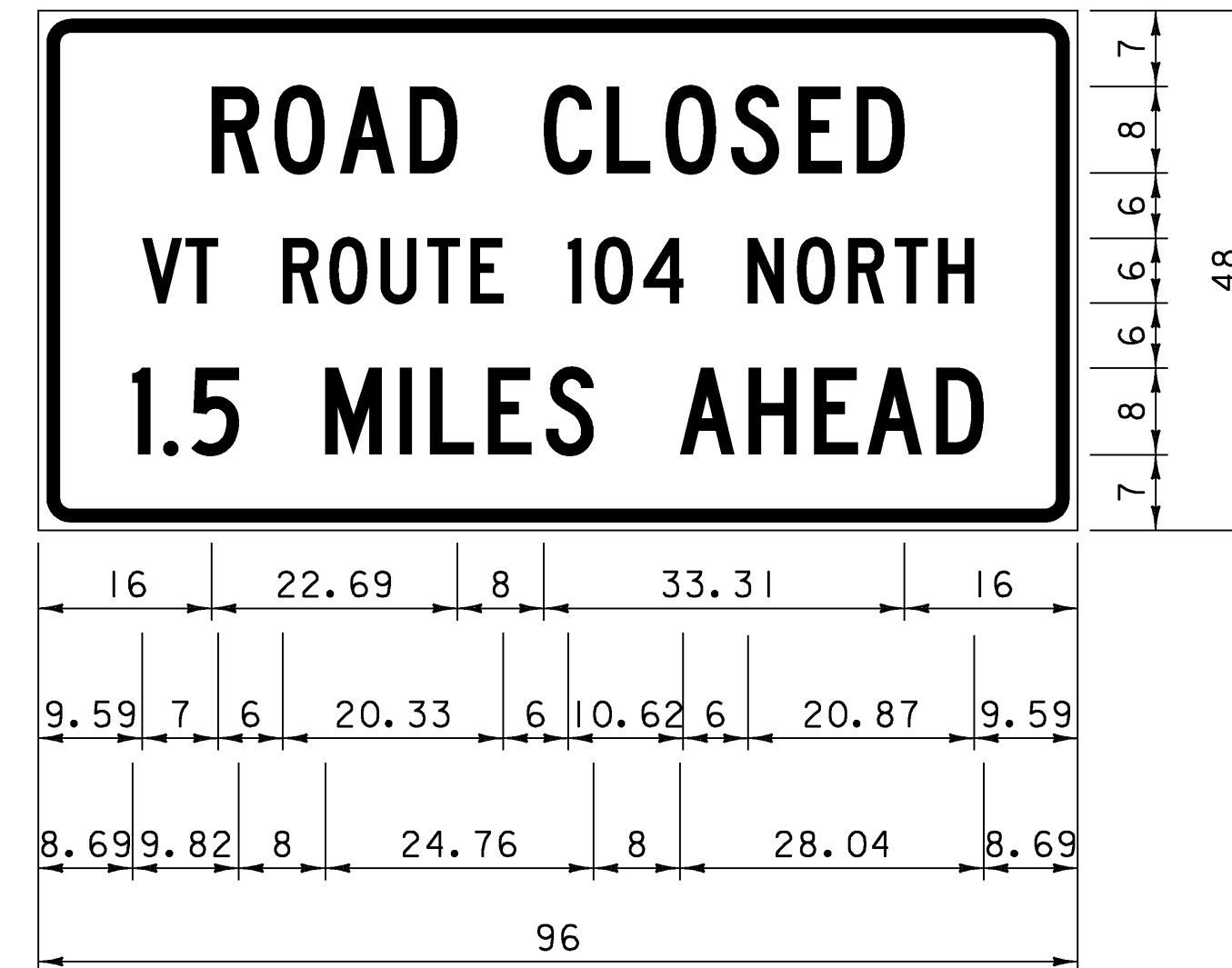
QUANTITY OF SIGNS	SIGN LEGEND	SIGN DIMENSIONS	
		WIDTH (mm)	HEIGHT (mm)
2	W20-2	48	48
46	M4-8	24	12
2	M4-6	24	12
23	M3-1	24	12
23	M3-3	24	12
46	MI-5	30	24
1	M5-IL	21	15
2	M5-IR	21	15
8	M6-3	21	15
10	M6-1	21	15
3	M6-2L	21	15
2	M6-2R	21	15
1	VD 701	6	8
3	96	48	
1	96	48	
1	96	48	
1	96	48	
1	96	48	



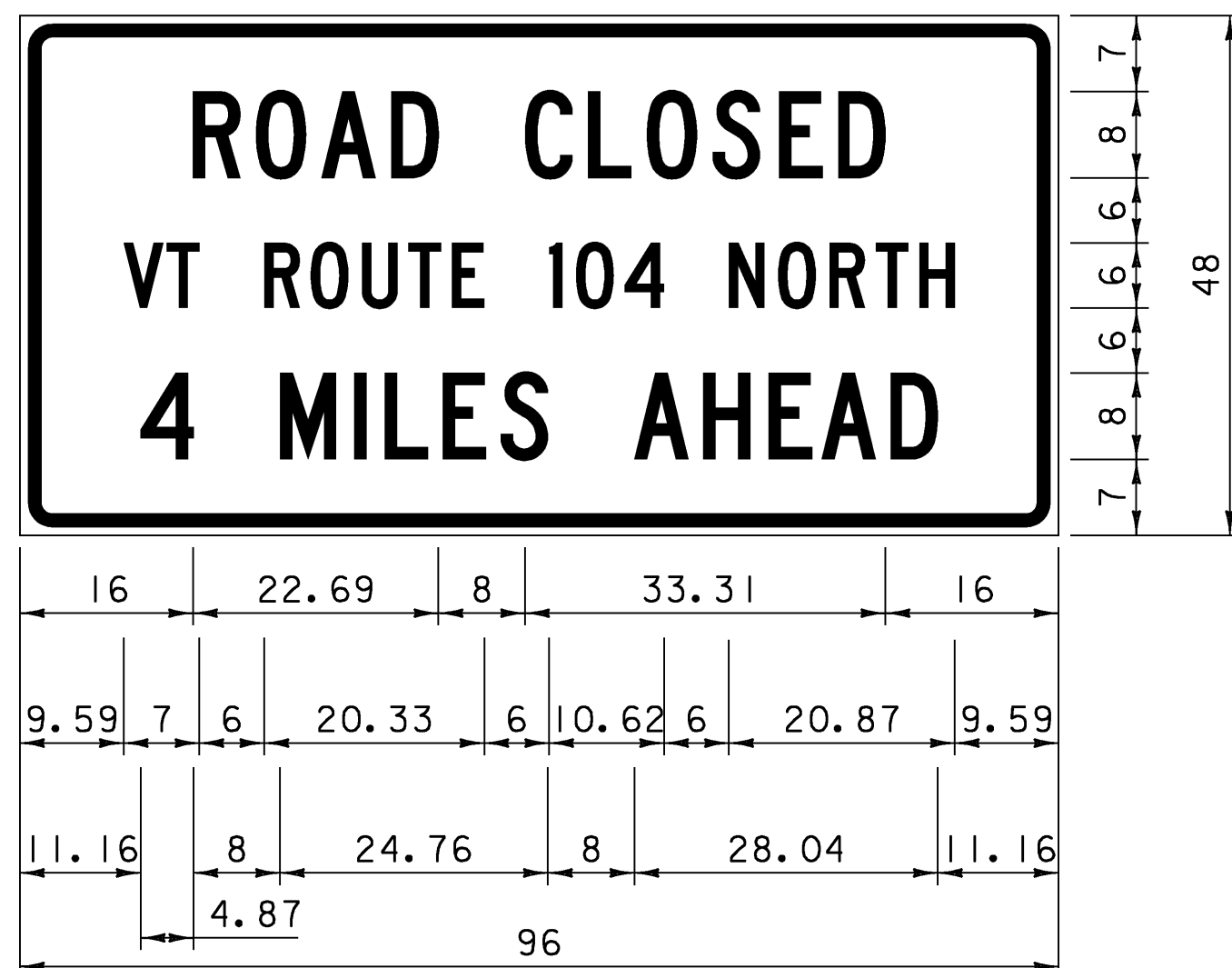
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "VT ROUTE 104" D; "IN FAIRFAX" C;



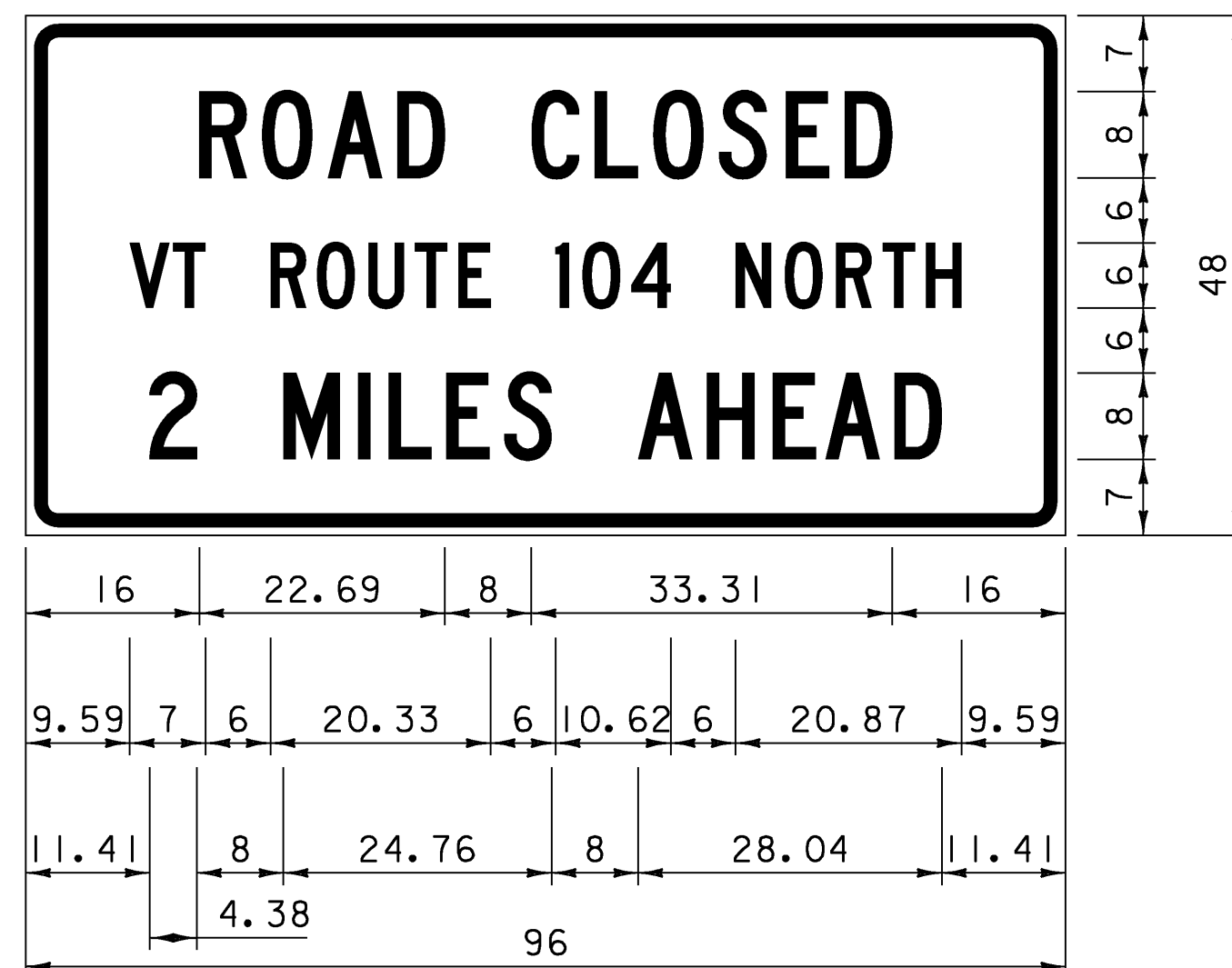
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "VT ROUTE 104 NORTH" C; "DETOUR AHEAD" C;



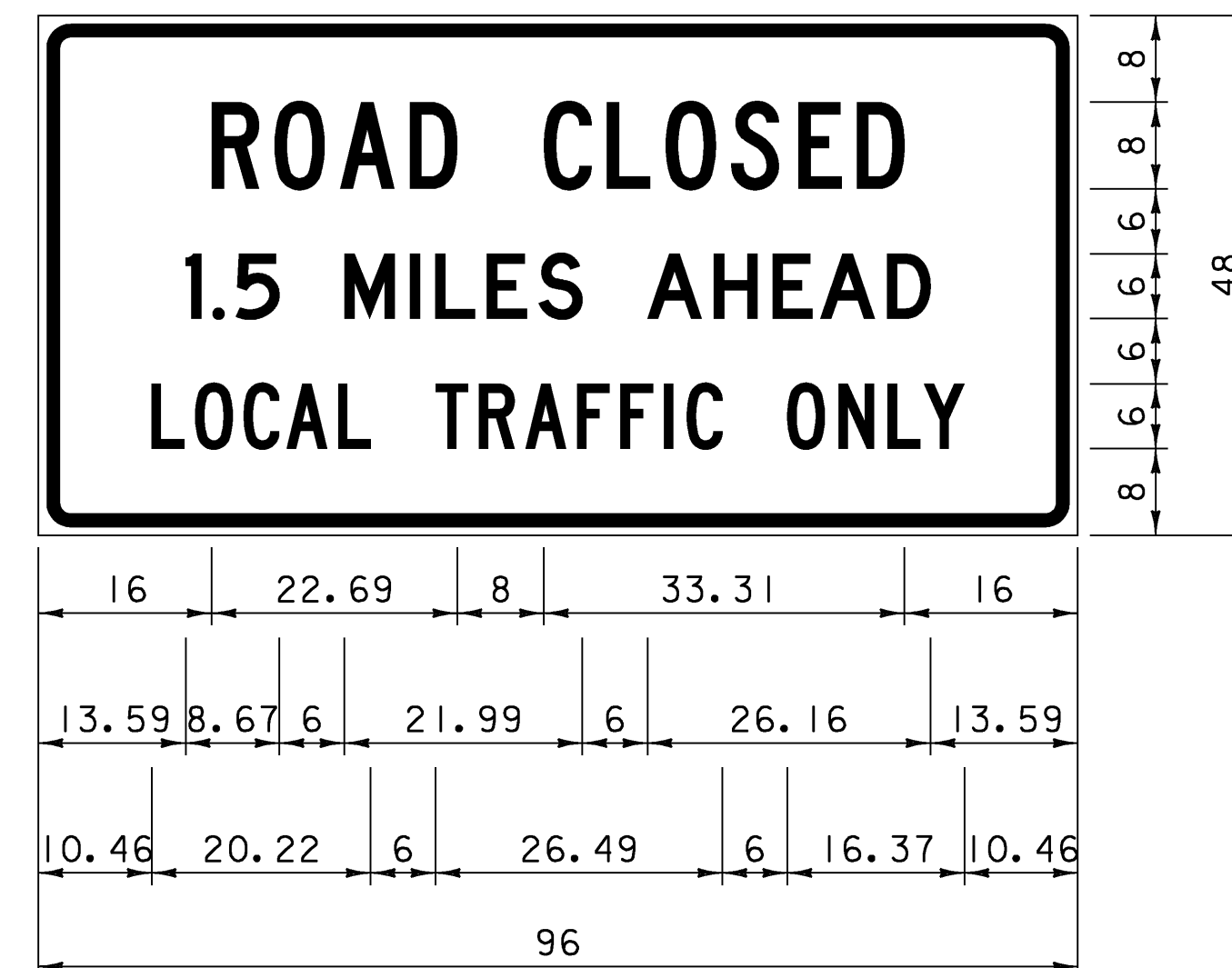
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "VT ROUTE 104 NORTH" D; "1.5 MILES AHEAD" C;



3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "VT ROUTE 104 NORTH" D; "4 MILES AHEAD" C;



3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "VT ROUTE 104 NORTH" D; "2 MILES AHEAD" C;



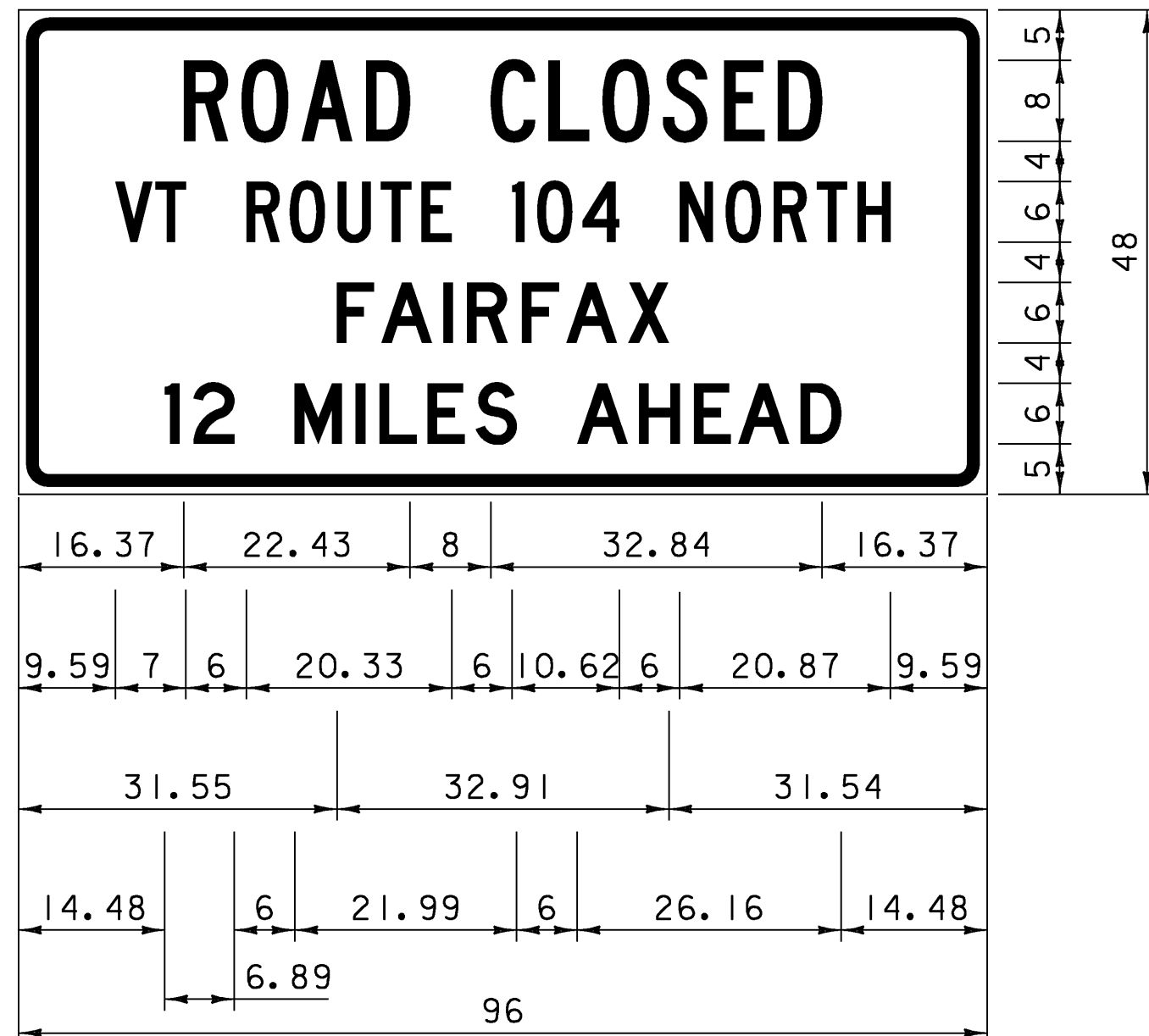
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "1.5 MILES AHEAD" D; "LOCAL TRAFFIC ONLY" C;

NOTES:

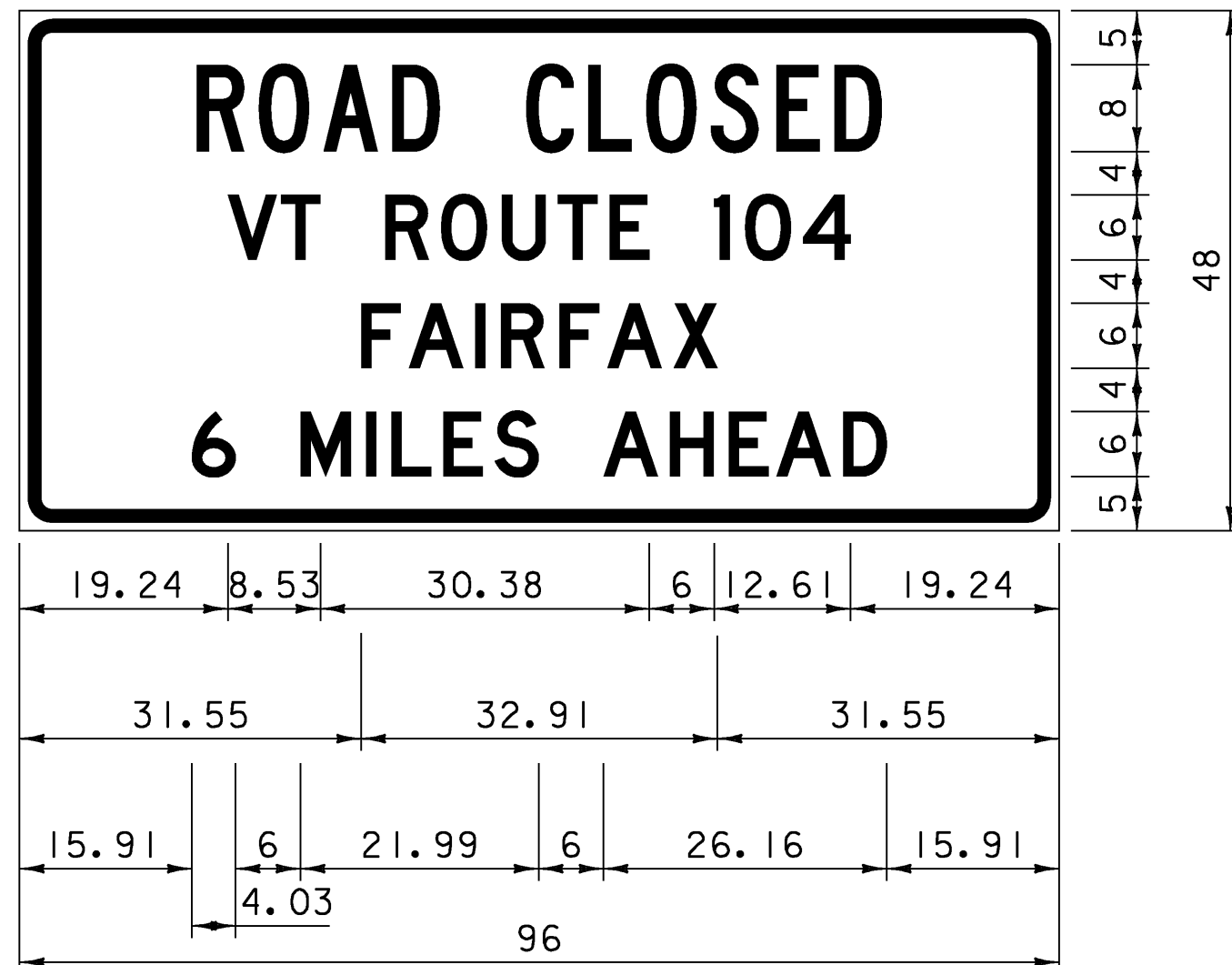
THE SIGNS SHOWN ON THIS SHEET AND SHEET 24 ARE THE SIGNS NECESSARY TO SIGN THE DETOUR ROUTES. THE ROAD WORK AHEAD, END ROAD WORK, SIDEWALK CLOSED, AND BRIDGE CLOSED, ETC SIGNS ARE NOT INCLUDED IN THE SIGN SUMMARY BUT ARE REQUIRED.

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-1(5)	DRAWN BY: C. MOONEY
FILE NAME: 86e064\str\s86e064+ss.dgn	CHECKED BY: C. CARLSON
DESIGNED BY: C. CARLSON	SHEET 23 OF 61
DETOUR SIGN SUMMARY SHEET 1	

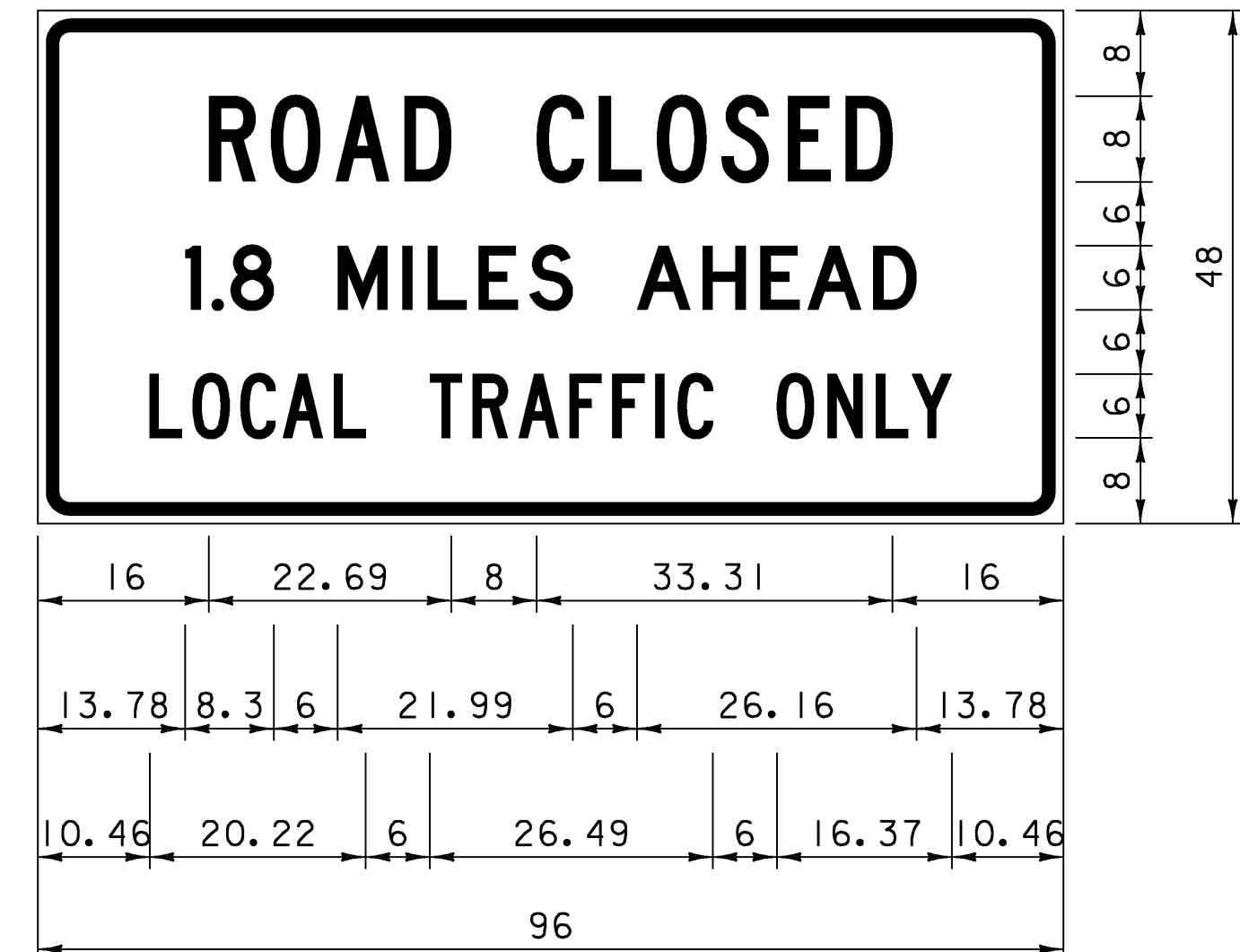
QUANTITY OF SIGNS	SIGN LEGEND	SIGN DIMENSIONS	
		WIDTH (mm)	HEIGHT (mm)
1		96	48
1		96	48
1		96	48
1		96	48
1		96	48
1		24	24



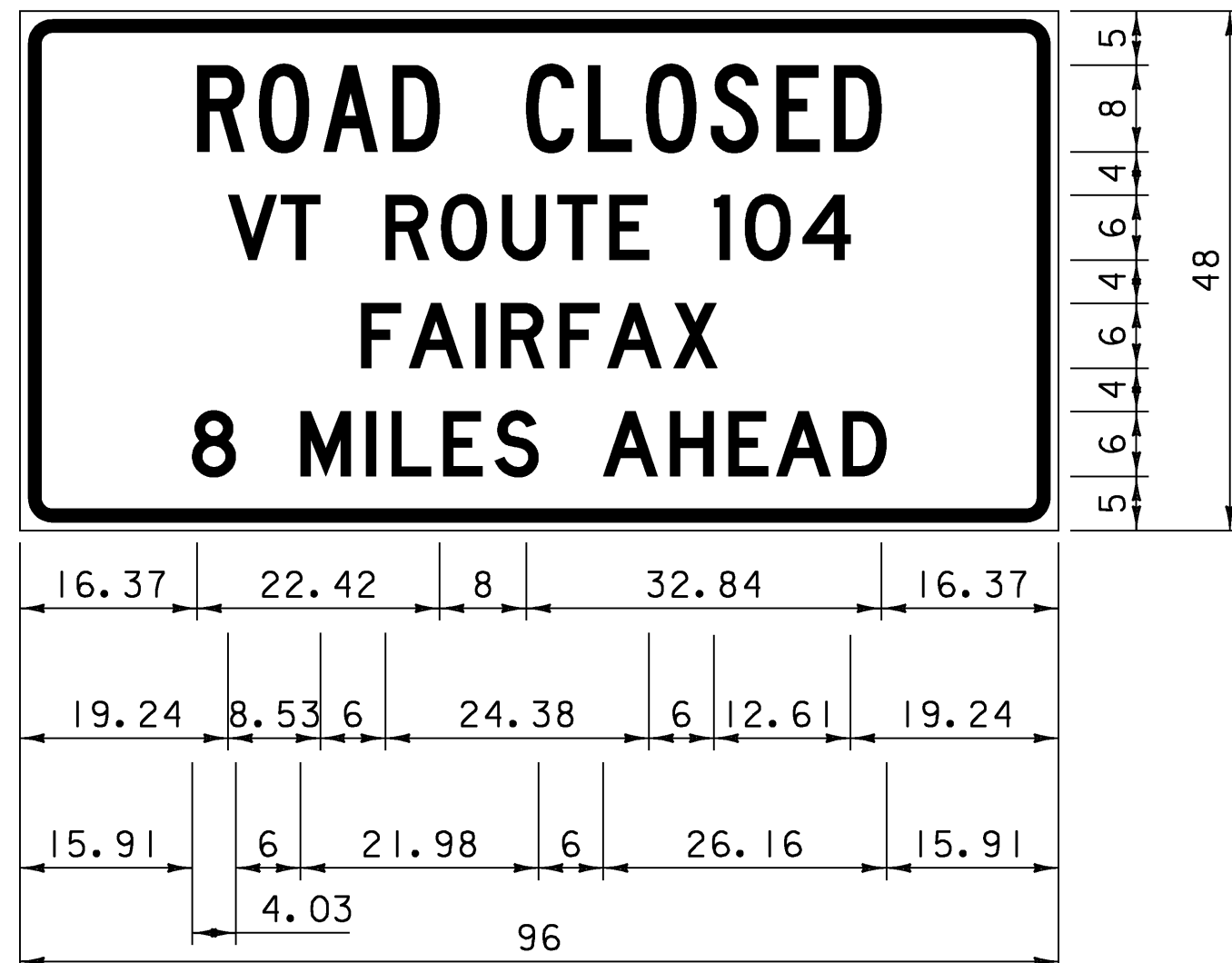
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C; "VT ROUTE 104 NORTH FAIRFAX" D; "12 MILES AHEAD" D;



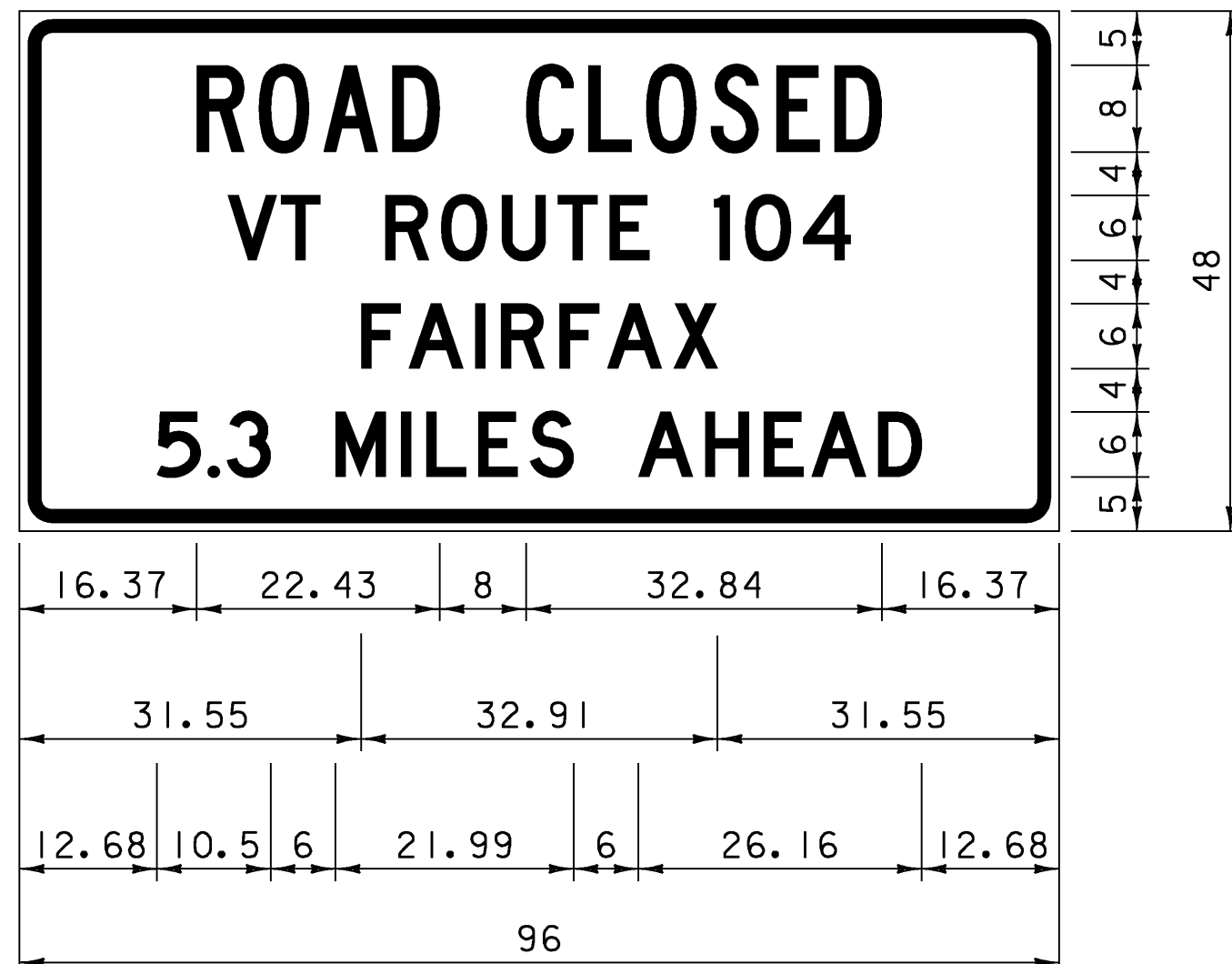
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C; "VT ROUTE 104" C; "6 MILES AHEAD" D;



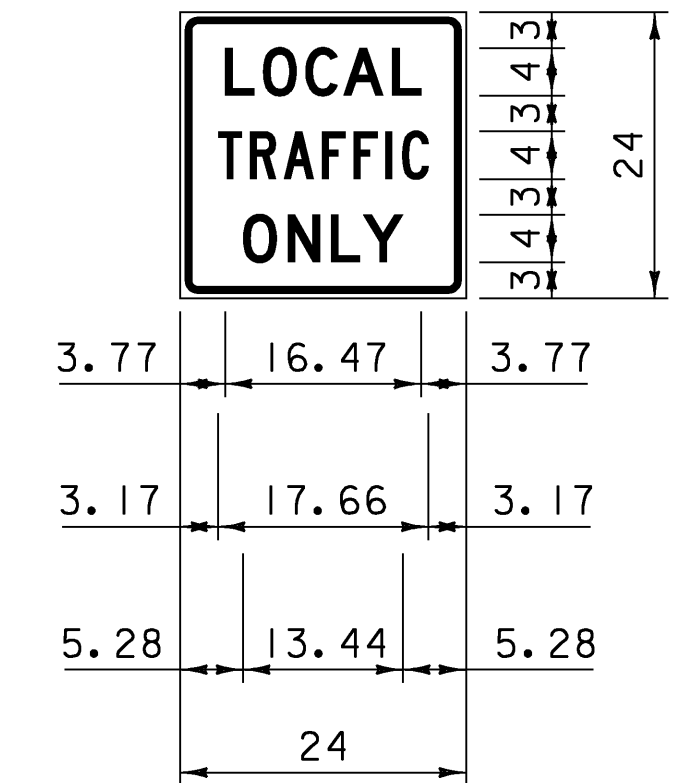
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C 107% SPACING; "1.8 MILES AHEAD" D; "LOCAL TRAFFIC ONLY" C;



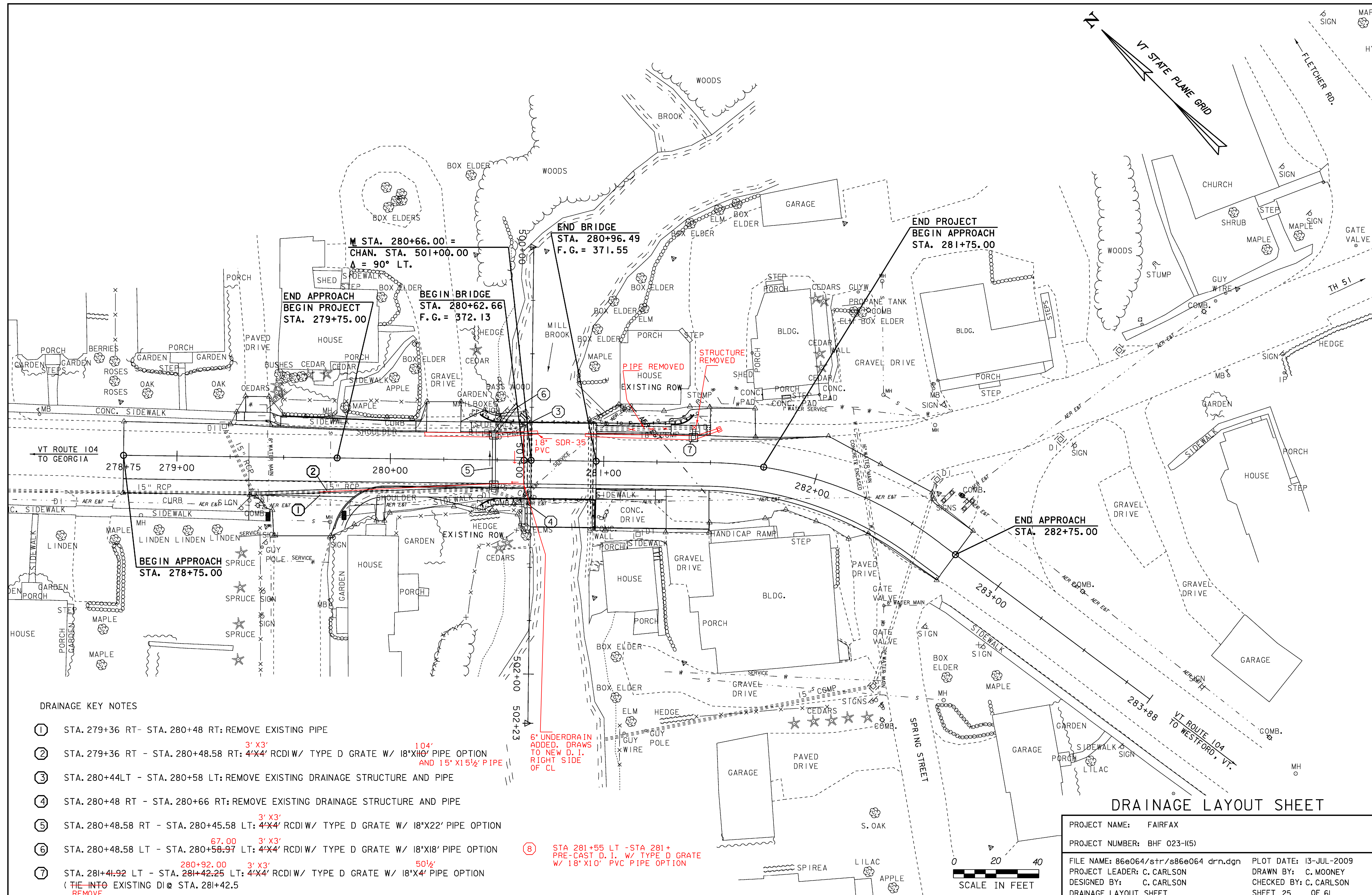
3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C; "VT ROUTE 104" D; "FAIRFAX" D; "8 MILES AHEAD" D;



3.00" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; "ROAD CLOSED" C; "VT ROUTE 104" D; "FAIRFAX" C; "5.3 MILES AHEAD" D;



1.50" RADIUS, 0.63" BORDER, 0.38" INDENT, BLACK ON WHITE; "LOCAL" D ; "TRAFFIC" C; "ONLY" D;



**DRAINAGE KEY NOTES**

- ① STA. 279+36 RT- STA. 280+48 RT: REMOVE EXISTING PIPE
- ② STA. 279+36 RT - STA. 280+48.58 RT: 4'x4' RCDI W/ TYPE D GRATE W/ 18"x18" PIPE OPTION AND 15" x 15 1/2" PIPE
- ③ STA. 280+44LT - STA. 280+58 LT: REMOVE EXISTING DRAINAGE STRUCTURE AND PIPE
- ④ STA. 280+48 RT - STA. 280+66 RT: REMOVE EXISTING DRAINAGE STRUCTURE AND PIPE
- ⑤ STA. 280+48.58 RT - STA. 280+45.58 LT: 4'x4' RCDI W/ TYPE D GRATE W/ 18"x22' PIPE OPTION
- ⑥ STA. 280+48.58 LT - STA. 280+58.97 LT: 4'x4' RCDI W/ TYPE D GRATE W/ 18"x18' PIPE OPTION
- ⑦ STA. 281+41.92 LT - STA. 281+42.25 LT: 4'x4' RCDI W/ TYPE D GRATE W/ 18"x4' PIPE OPTION (THE INTO EXISTING DI @ STA. 281+42.5 REMOVE)

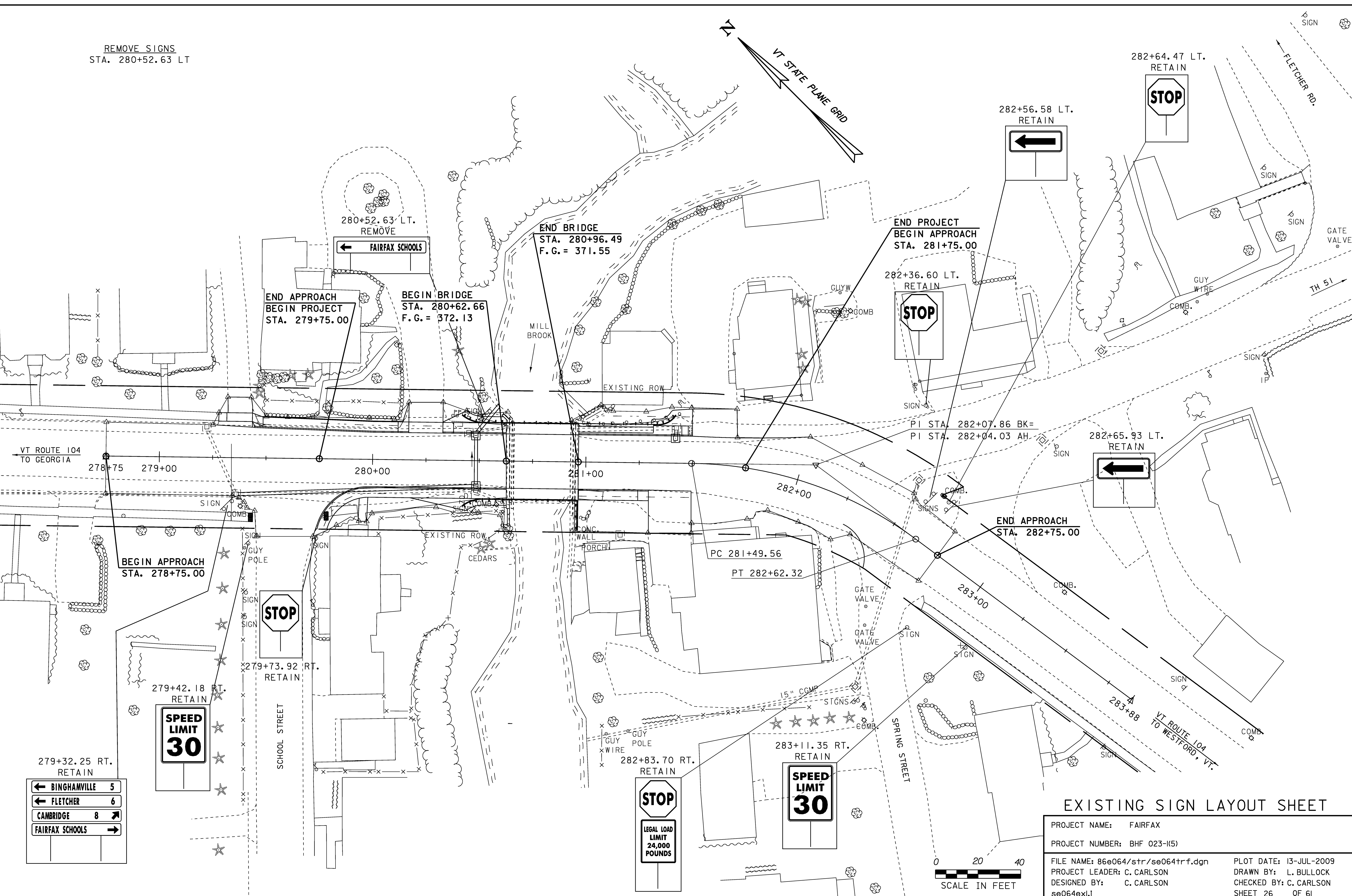
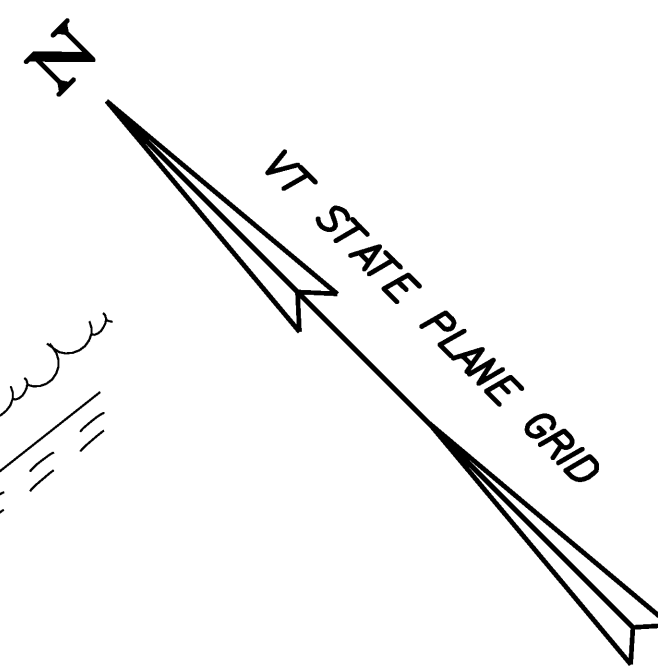
- ⑧ STA 281+55 LT - STA 281+ PRE-CAST D. I. W/ TYPE D GRATE W/ 18" X 10" PVC PIPE OPTION

**DRAINAGE LAYOUT SHEET**

PROJECT NAME: FAIRFAX	
PROJECT NUMBER: BHF 023-1(5)	
FILE NAME: 86e064/str/s86e064 drn.dgn	PLOT DATE: 13-JUL-2009
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: C. CARLSON	CHECKED BY: C. CARLSON
DRAINAGE LAYOUT SHEET	
SHEET 25 OF 61	



REMOVE SIGNS  
STA. 280+52.63 LT



280+52.63 LT. REMOVE  
FAIRFAX SCHOOLS

END APPROACH  
BEGIN PROJECT  
STA. 279+75.00

BEGIN BRIDGE  
STA. 280+62.66  
F.G. = 372.13

END BRIDGE  
STA. 280+96.49  
F.G. = 371.55

END PROJECT  
BEGIN APPROACH  
STA. 281+75.00

282+64.47 LT. RETAIN  
STOP

282+56.58 LT. RETAIN  
←

282+36.60 LT. RETAIN  
STOP

282+65.93 LT. RETAIN  
←

PI STA. 282+07.86 BK=  
PI STA. 282+04.03 AH=

END APPROACH  
STA. 282+75.00

STOP

279+42.18 RT. RETAIN  
SPEED LIMIT 30

STOP  
LEGAL LOAD LIMIT 24,000 POUNDS

283+11.35 RT. RETAIN  
SPEED LIMIT 30

279+32.25 RT. RETAIN  
← BINGHAMVILLE 5  
← FLETCHER 6  
CAMBRIDGE 8 →  
FAIRFAX SCHOOLS →

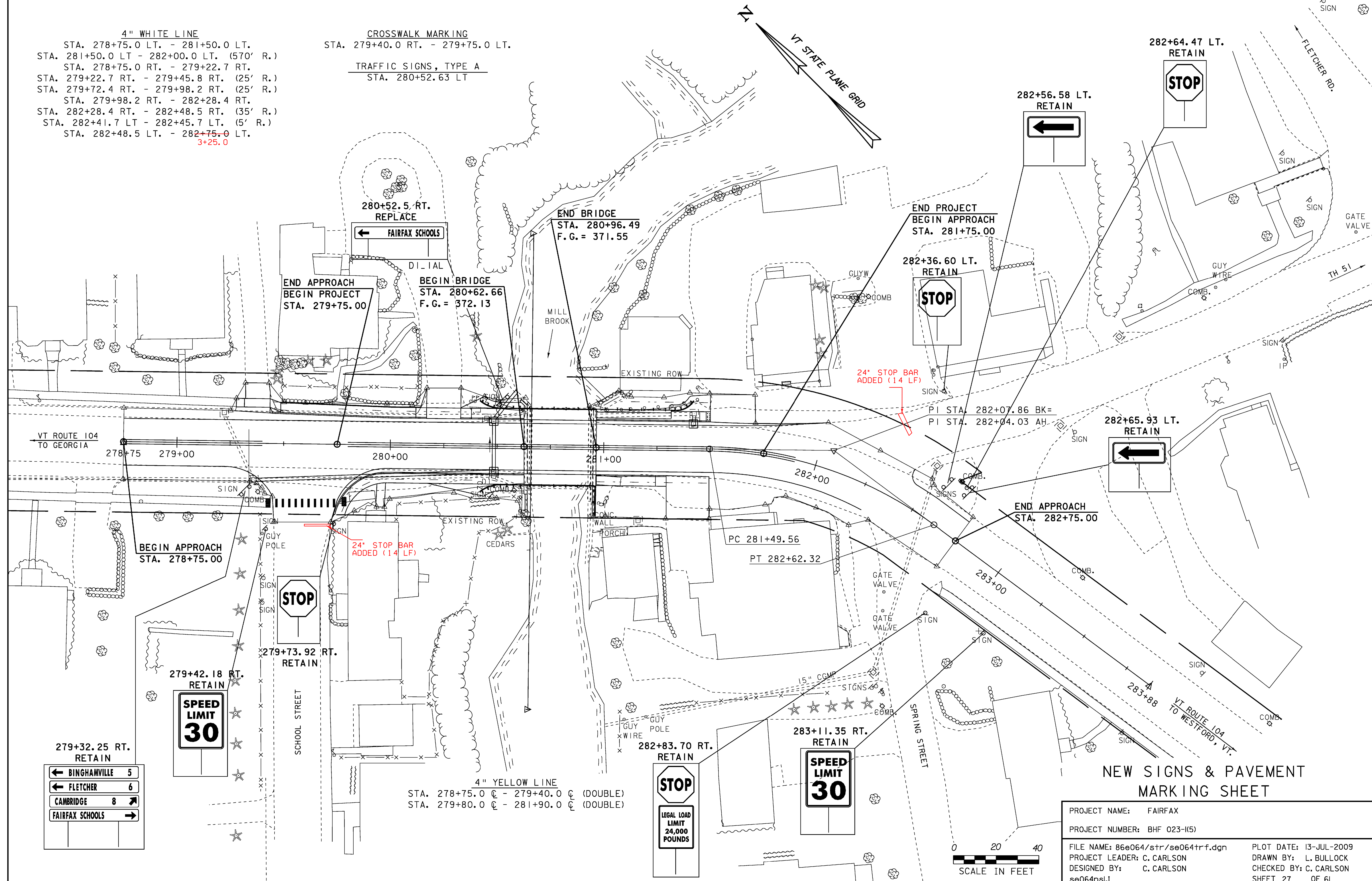
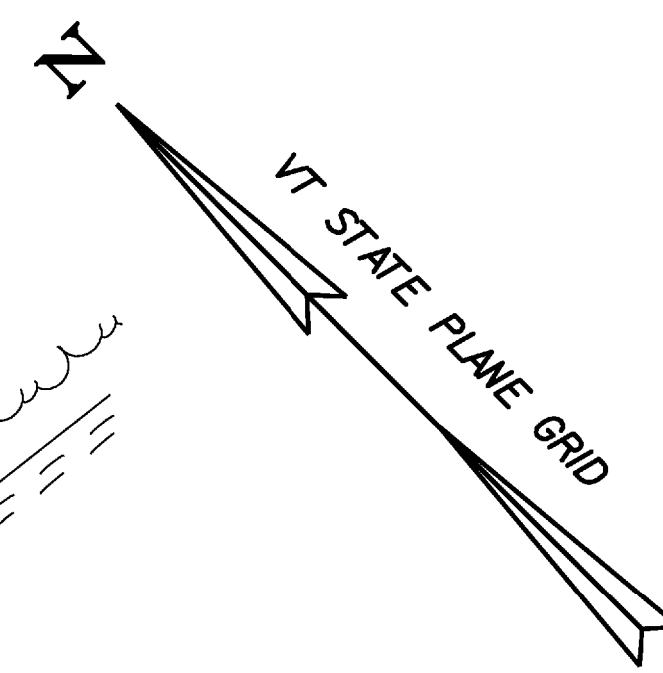
### EXISTING SIGN LAYOUT SHEET

PROJECT NAME:	FAIRFAX	FILE NAME:	86e064/str/se064trf.dgn	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-I(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	L. BULLOCK
		DESIGNED BY:	C. CARLSON	CHECKED BY:	C. CARLSON
			se064ex1.l	SHEET	26 OF 61



4" WHITE LINE  
 STA. 278+75.0 LT. - 281+50.0 LT.  
 STA. 281+50.0 LT. - 282+00.0 LT. (570' R.)  
 STA. 278+75.0 RT. - 279+22.7 RT.  
 STA. 279+22.7 RT. - 279+45.8 RT. (25' R.)  
 STA. 279+72.4 RT. - 279+98.2 RT. (25' R.)  
 STA. 279+98.2 RT. - 282+28.4 RT.  
 STA. 282+28.4 RT. - 282+48.5 RT. (35' R.)  
 STA. 282+41.7 LT. - 282+45.7 LT. (5' R.)  
 STA. 282+48.5 LT. - 282+75.0 LT.  
 3+25.0

CROSSWALK MARKING  
 STA. 279+40.0 RT. - 279+75.0 LT.  
 TRAFFIC SIGNS, TYPE A  
 STA. 280+52.63 LT



←	BINGHAMVILLE	5
←	FLETCHER	6
←	CAMBRIDGE	8
→	FAIRFAX SCHOOLS	

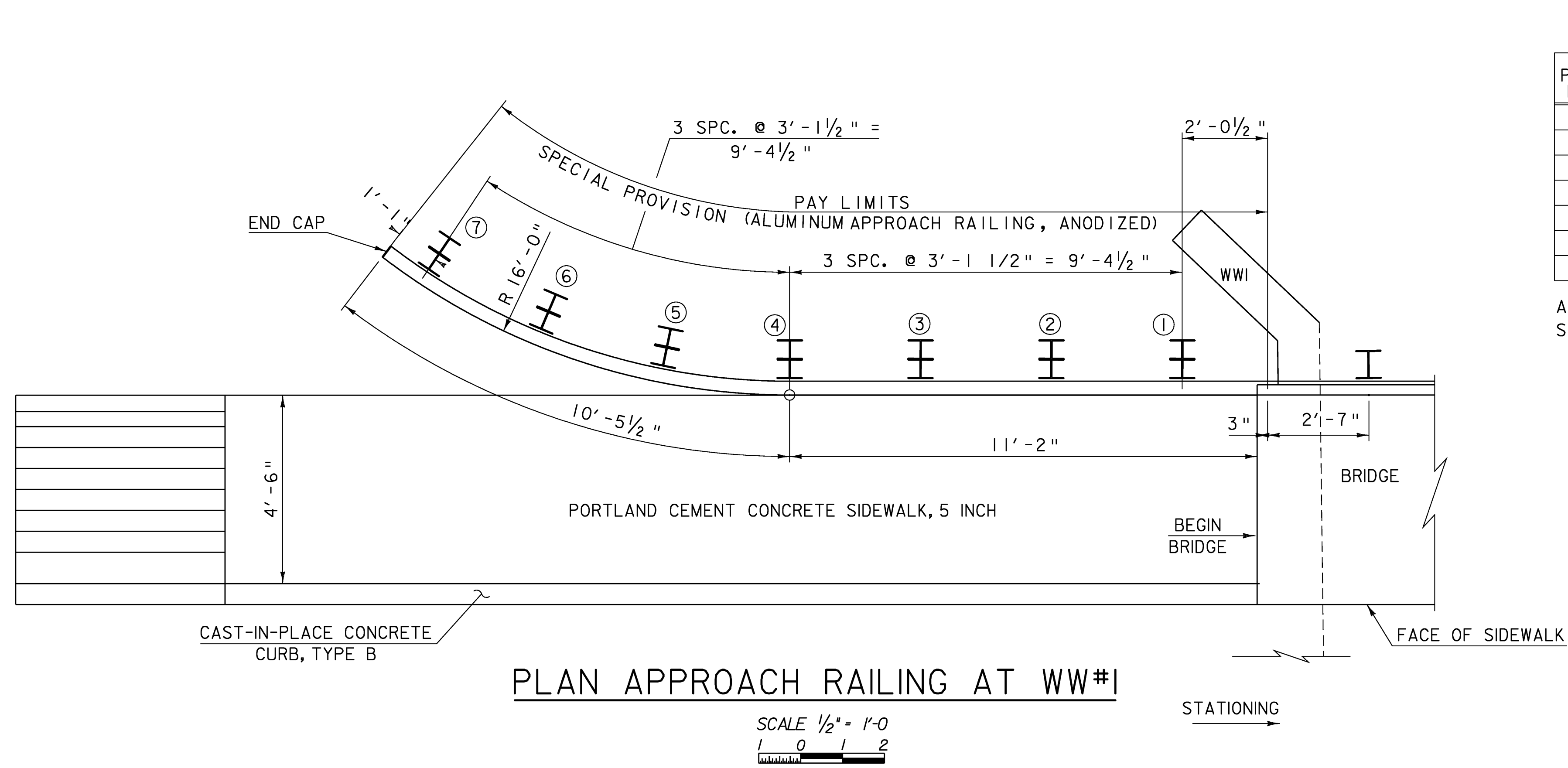


4" YELLOW LINE  
 STA. 278+75.0 @ - 279+40.0 @ (DOUBLE)  
 STA. 279+80.0 @ - 281+90.0 @ (DOUBLE)



NEW SIGNS & PAVEMENT MARKING SHEET

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-1(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064trf.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 27 OF 61
DESIGNED BY: C. CARLSON	
se064nsl	



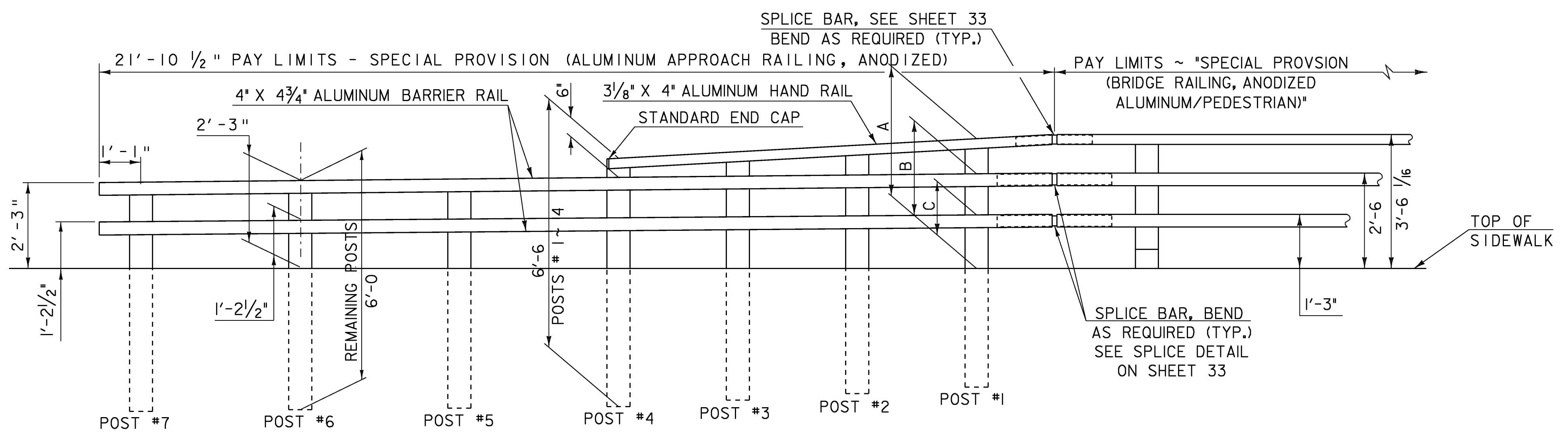
ALUMINUM APPROACH RAIL  
RAIL DIMENSIONS FOR A SIDEWALK CONDITION

POST NO.	RAIL HEIGHT DIMENSIONS			OFFSET BLOCK DIMENSIONS			
	A	B	C	D	E	F	G
1	3'-4 <sup>11</sup> / <sub>16</sub> "	2'-5 <sup>3</sup> / <sub>4</sub> "	1'-4 <sup>3</sup> / <sub>4</sub> "	0'-11 <sup>7</sup> / <sub>16</sub> "	1'-0 <sup>15</sup> / <sub>16</sub> "	2'-4 <sup>15</sup> / <sub>16</sub> "	
2	3'-2 <sup>5</sup> / <sub>8</sub> "	2'-5 <sup>5</sup> / <sub>16</sub> "	1'-4 <sup>7</sup> / <sub>16</sub> "	0'-9 <sup>3</sup> / <sub>4</sub> "	1'-0 <sup>7</sup> / <sub>8</sub> "	2'-3 <sup>3</sup> / <sub>16</sub> "	
3	3'-0 <sup>1</sup> / <sub>2</sub> "	2'-4 <sup>7</sup> / <sub>8</sub> "	1'-4 <sup>1</sup> / <sub>16</sub> "	0'-8 <sup>1</sup> / <sub>8</sub> "	1'-0 <sup>1</sup> / <sub>16</sub> "	2'-1 <sup>1</sup> / <sub>2</sub> "	
4	2'-10 <sup>7</sup> / <sub>16</sub> "	2'-4 <sup>7</sup> / <sub>16</sub> "	1'-3 <sup>11</sup> / <sub>16</sub> "	0'-6 <sup>7</sup> / <sub>16</sub> "	1'-0 <sup>3</sup> / <sub>4</sub> "	1'-11 <sup>3</sup> / <sub>4</sub> "	
5		2'-4"	1'-3 <sup>5</sup> / <sub>16</sub> "		1'-0 <sup>11</sup> / <sub>16</sub> "		1'-5 <sup>11</sup> / <sub>16</sub> "
6		2'-3 <sup>9</sup> / <sub>16</sub> "	1'-3"		1'-0 <sup>9</sup> / <sub>16</sub> "		1'-5 <sup>5</sup> / <sub>8</sub> "
7		2'-3 <sup>1</sup> / <sub>8</sub> "	1'-2 <sup>5</sup> / <sub>8</sub> "		1'-0 <sup>1</sup> / <sub>2</sub> "		1'-5 <sup>1</sup> / <sub>2</sub> "

ALL REMAINING POSTS TO HAVE THE SAME DIMENSIONS AS POST NO. 7  
SEE SHEET 36 FOR OFFSET BLOCK INFORMATION.

PLAN APPROACH RAILING AT WW#1

SCALE 1/2" = 1'-0"  
0 1 2

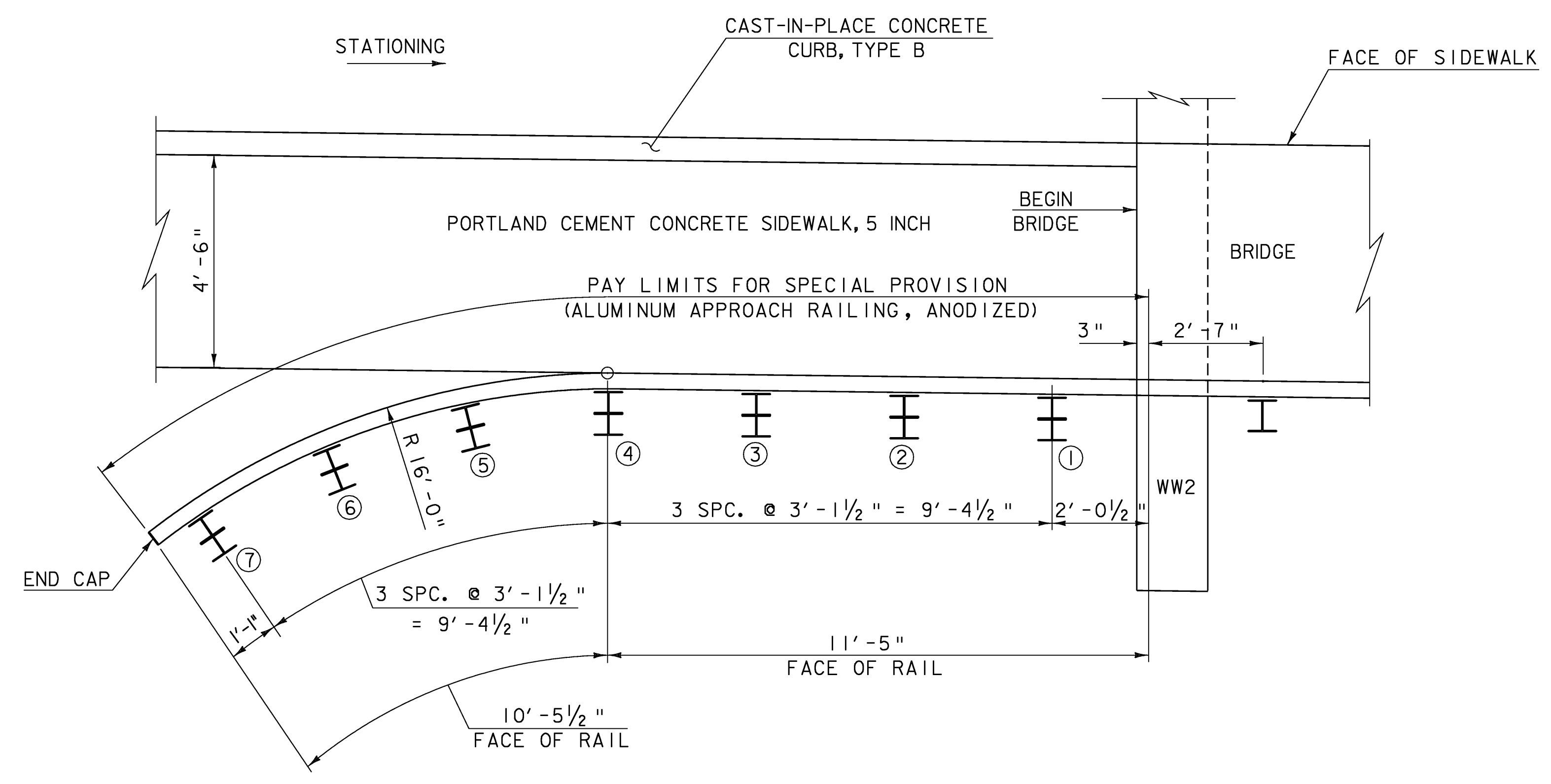


ELEVATION APPROACH RAILING AT WW #1

SCALE 1/2" = 1'-0"  
0 1 2

ALUMINUM RAILING DETAILS  
(SHEET 1)

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: C. MOONEY
FILE NAME: /86e064/str/se064rail.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 28 OF 61
DESIGNED BY: C. CARLSON	
se064rail.i	



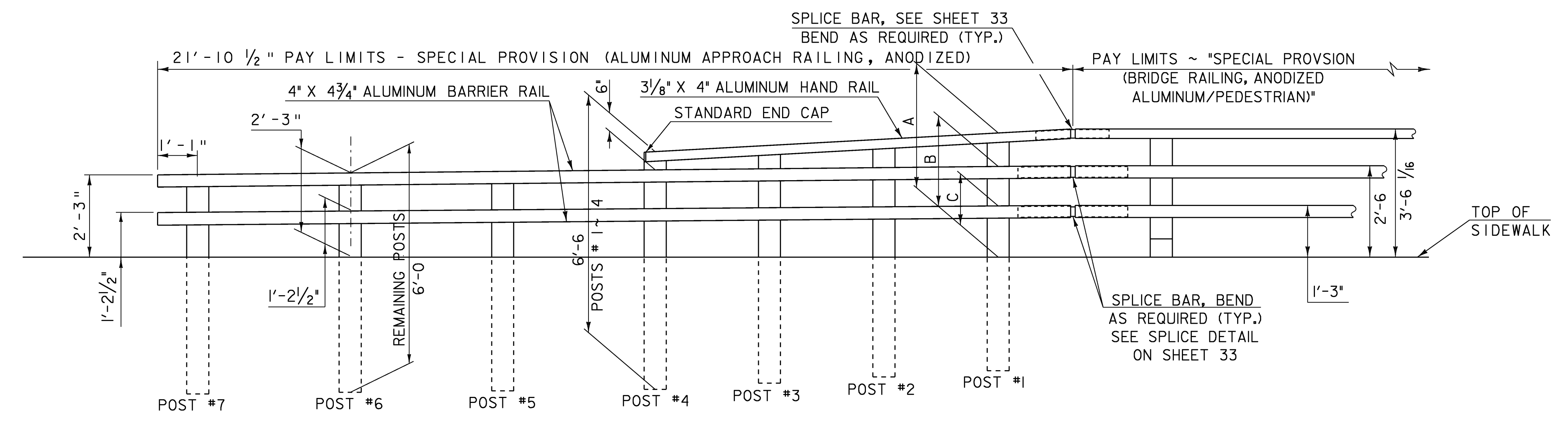
PLAN APPROACH RAILING AT WW #2

SCALE 1/2" = 1'-0"  
 1 0 2

ALUMINUM APPROACH RAIL  
RAIL DIMENSIONS FOR A SIDEWALK CONDITION

POST NO.	RAIL HEIGHT DIMENSIONS			OFFSET BLOCK DIMENSIONS			
	A	B	C	D	E	F	G
1	3-4 1/2	2-5 1/2	1-4 5/16	0-11 1/16	1-0 5/16	2-4 5/16	
2	3-2 1/16	2-4 3/4	1-3 5/16	0-9 3/4	1-0 7/8	2-3 3/16	
3	3-0 1/16	2-4	1-3 5/16	0-8 1/8	1-0 13/16	2-1 1/2	
4	2-9 1/4	2-3 1/4	1-2 1/16	0-6 7/16	1-0 3/4	1-11 3/4	
5		2-3	1-2 1/2		1-0 1/16		1-5 1/16
6		2-3	1-2 1/2		1-0 3/16		1-5 5/8
7		2-3	1-2 1/2		1-0 1/2		1-5 1/2

ALL REMAINING POSTS TO HAVE THE SAME DIMENSIONS AS POST NO. 7  
SEE SHEET 36 FOR OFFSET BLOCK INFORMATION.

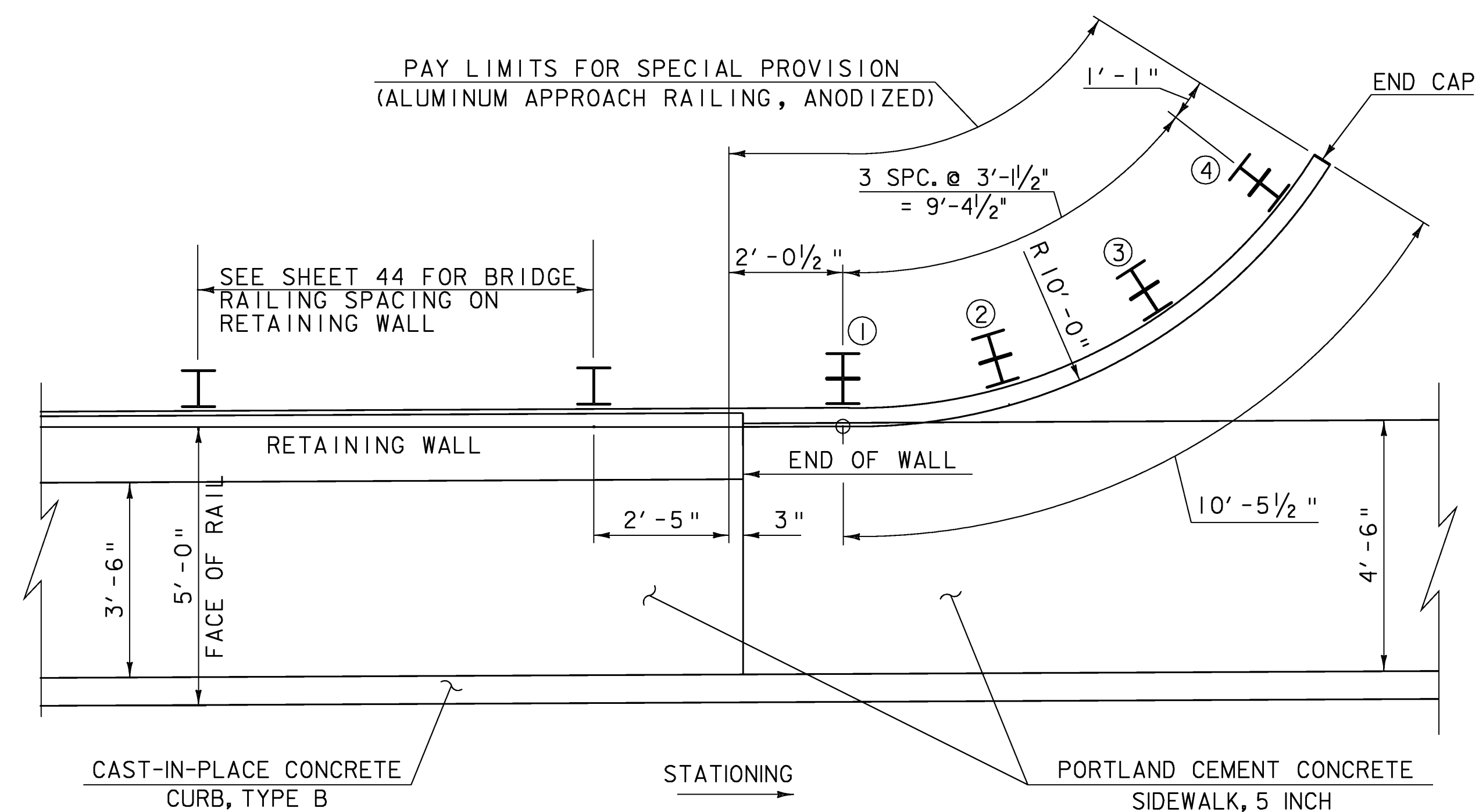


ELEVATION APPROACH RAILING AT WW #2

SCALE 1/2" = 1'-0"  
 1 0 2

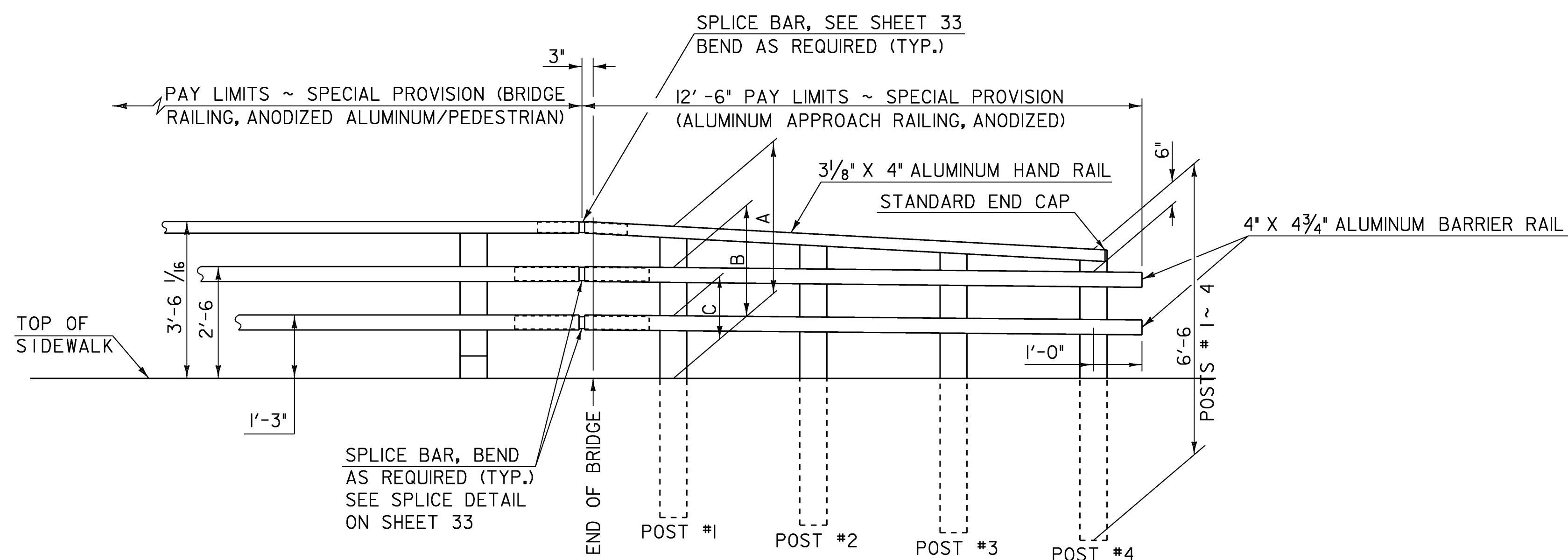
ALUMINUM RAILING DETAILS  
(SHEET 2)

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: C. MOONEY
FILE NAME: /86e064/str/se064rail.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 29 OF 61
DESIGNED BY: C. CARLSON	
se064rail2.1	



PLAN APPROACH RAILING AT RETAINING WALL

SCALE 1/2" = 1'-0"  
 1 0 1 2



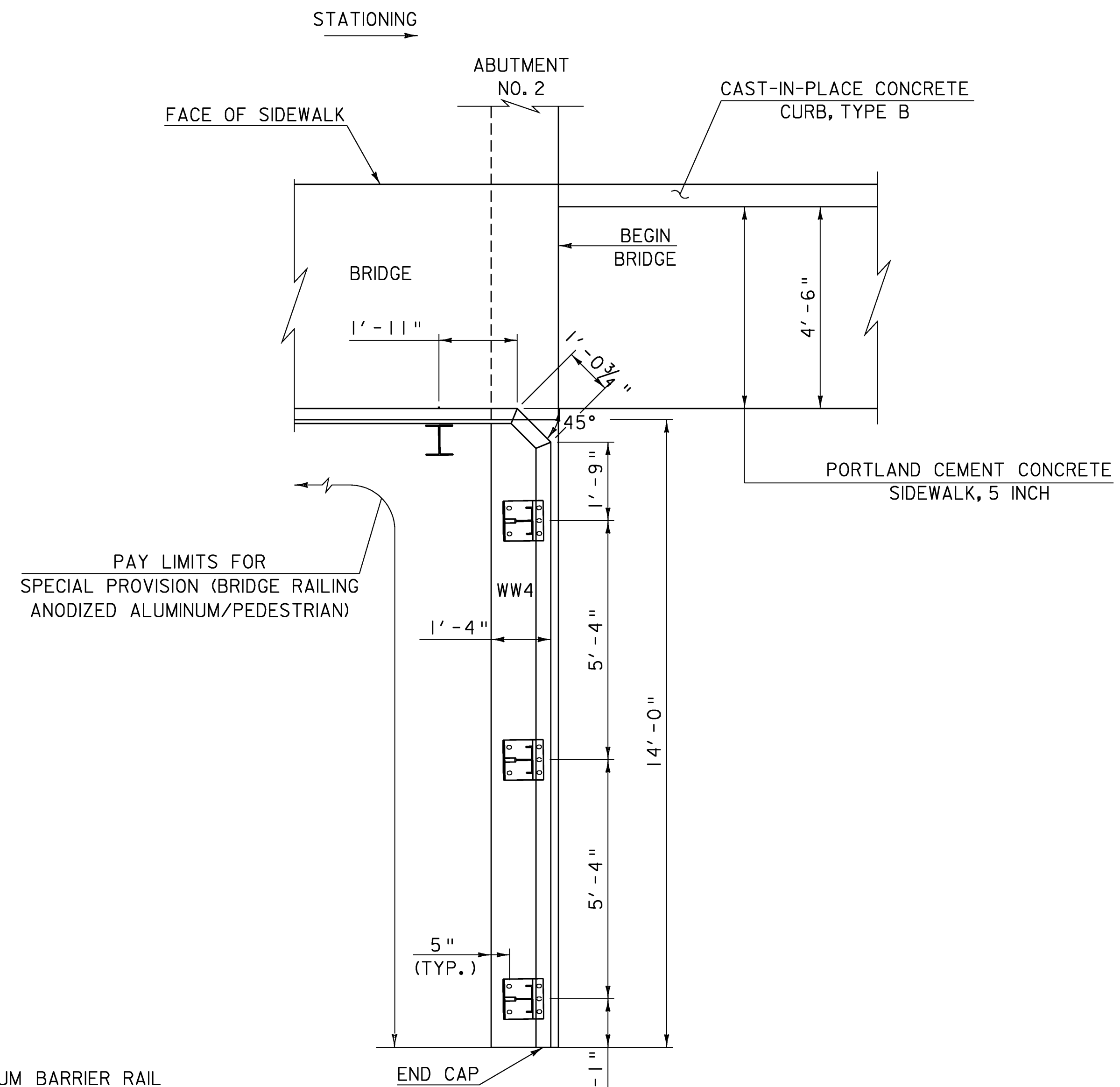
ELEVATION APPROACH RAILING AT WW #3

SCALE 1/2" = 1'-0"  
 1 0 1 2

ALUMINUM APPROACH RAIL  
 RAIL DIMENSIONS FOR A SIDEWALK CONDITION

POST NO.	RAIL HEIGHT DIMENSIONS			OFFSET BLOCK DIMENSIONS		
	A	B	C	D	E	F
1	3-4 1/2	2-5 1/2	1-4 3/16	0-11 1/16	1-0 5/16	2-4 7/8
2	3-2 1/16	2-4 3/4	1-3 5/16	0-9 3/4	1-0 3/4	2-3 1/8
3	2-11 1/16	2-4	1-3 5/16	0-8 1/8	1-0 1/16	2-1 1/2
4	2-9 1/4	2-3 1/4	1-2 1/16	0-6 1/16	1-0 9/16	1-11 1/16

SEE SHEET 36 FOR OFFSET BLOCK INFORMATION.

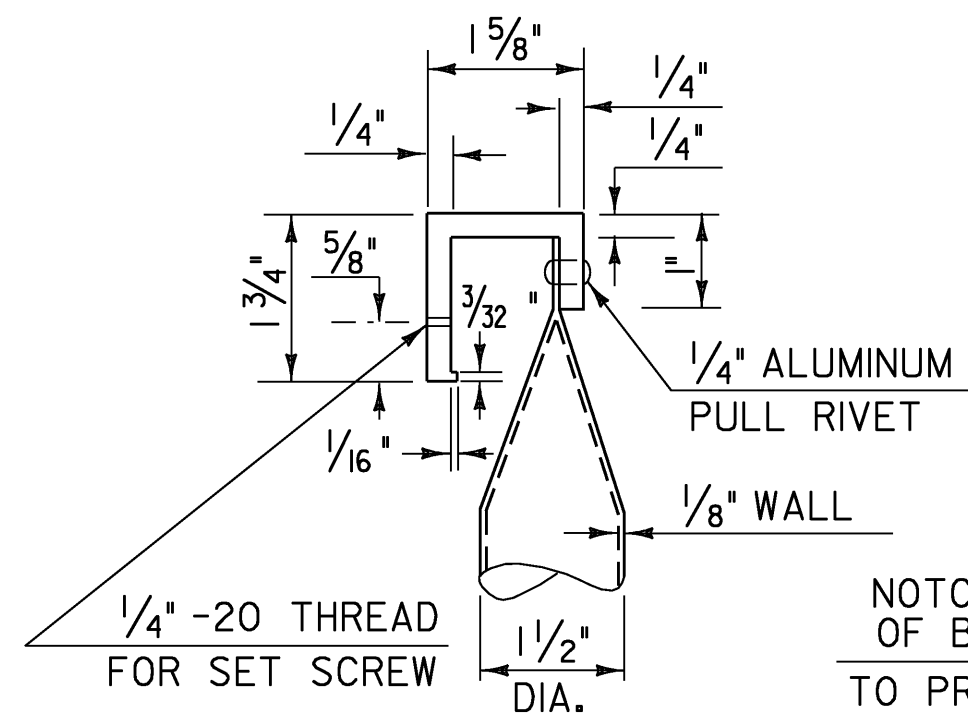


PLAN BRIDGE RAILING AT WW #4

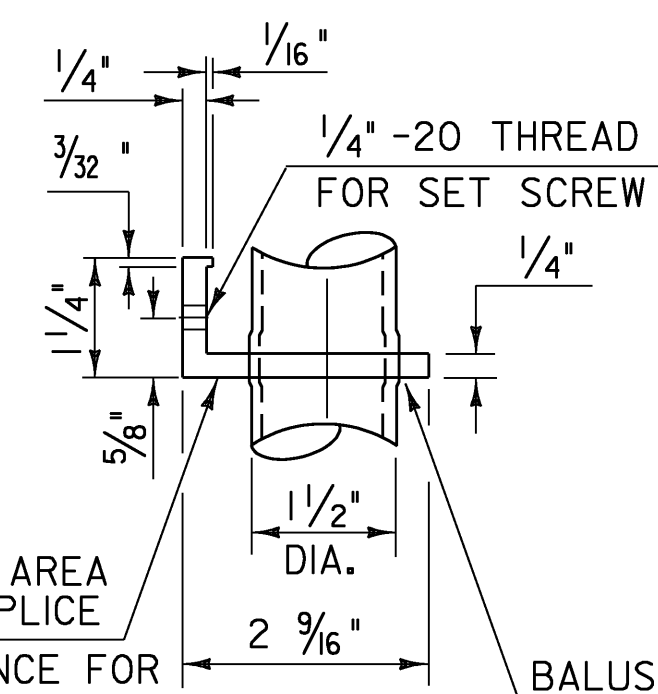
SCALE 1/2" = 1'-0"  
 1 0 1 2

ALUMINUM RAILING DETAILS  
 (SHEET 3)

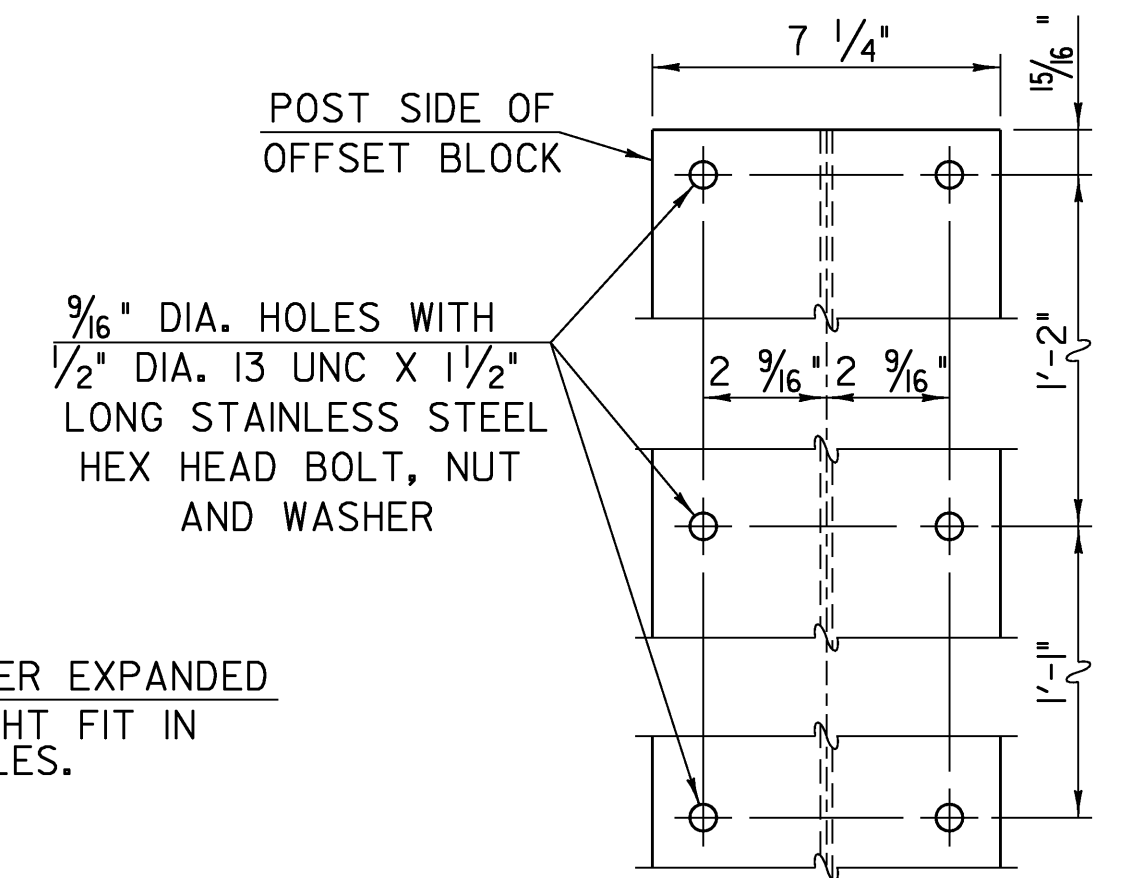
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: C. MOONEY
FILE NAME: /86e064/stt/se064rail.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 30 OF 61
DESIGNED BY: C. CARLSON	
se064rail3.i	



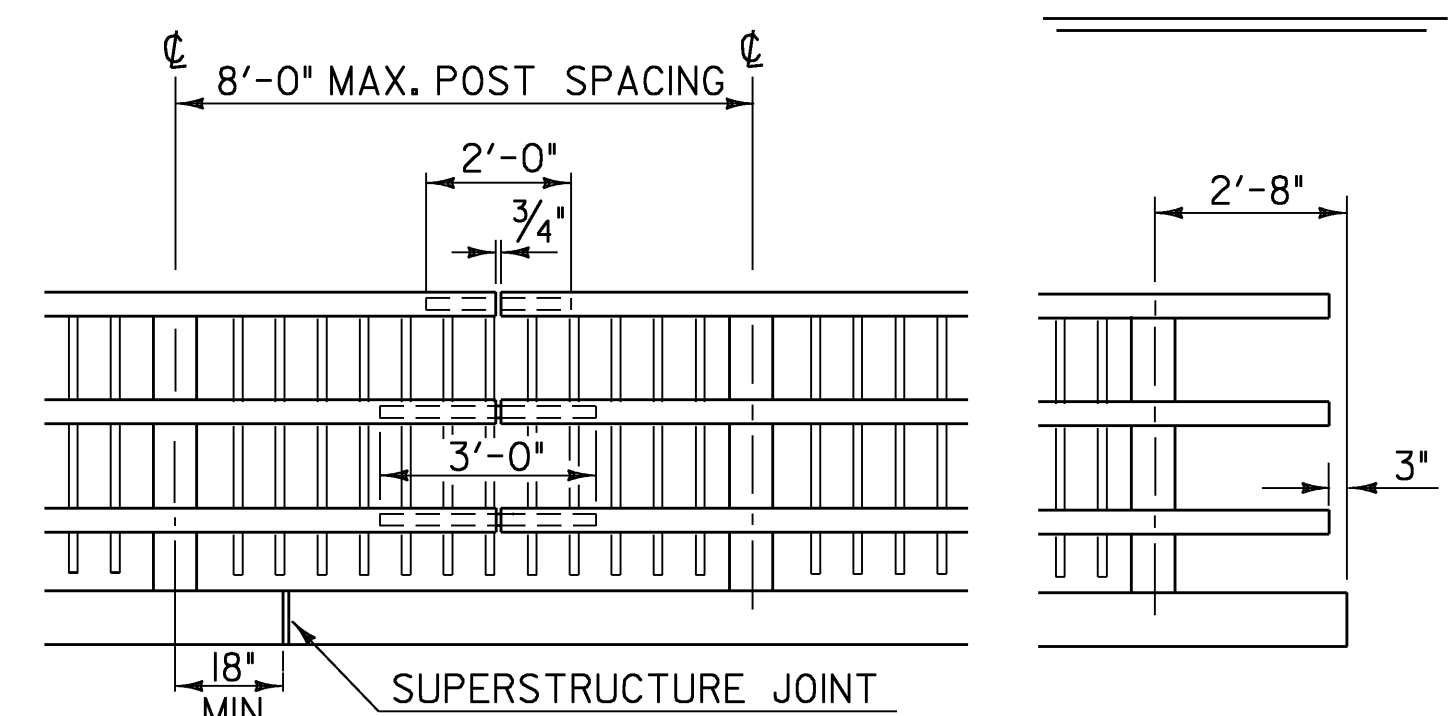
DETAIL A



DETAIL B

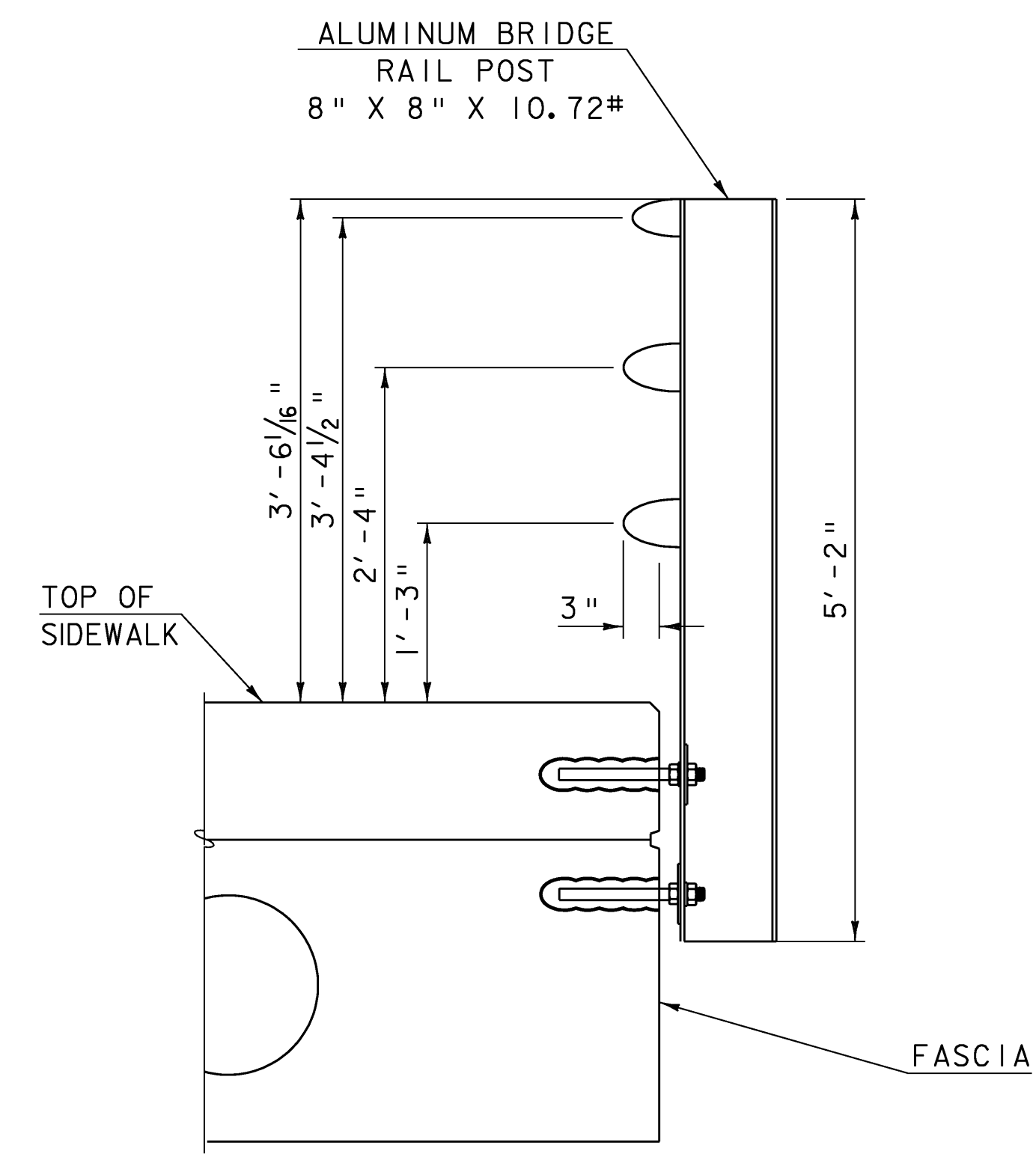


OFFSET BLOCK CONNECTION

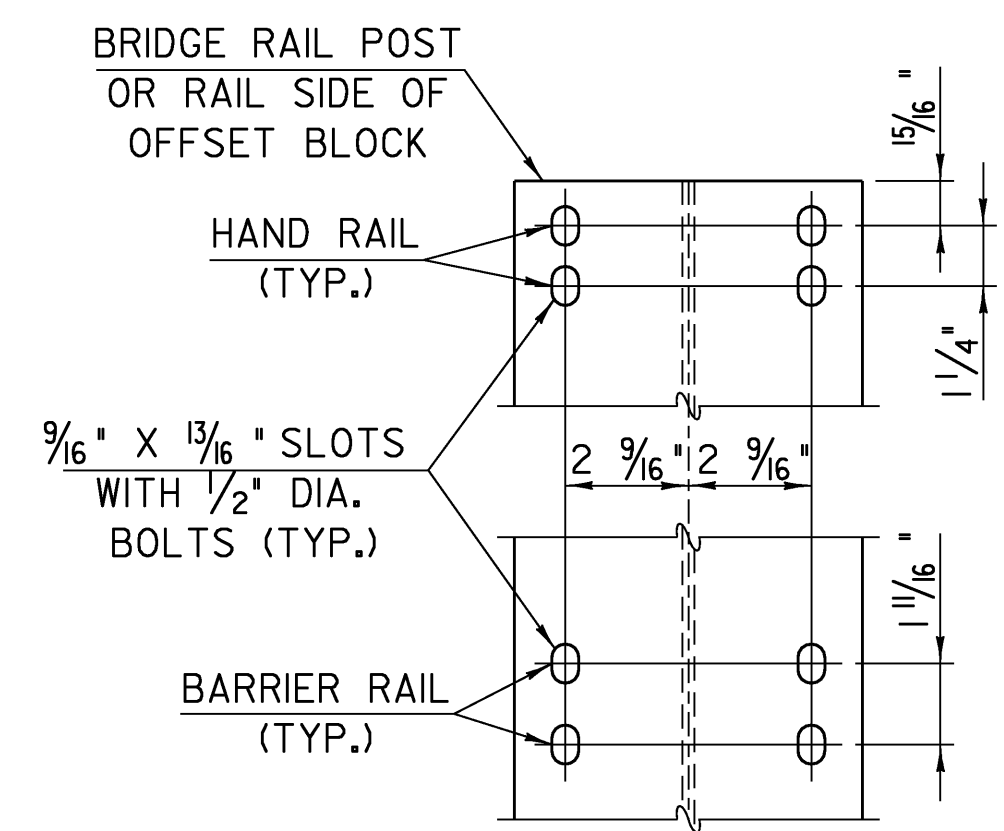


FRONT ELEVATION OF THREE RAIL WITH SPINDLES

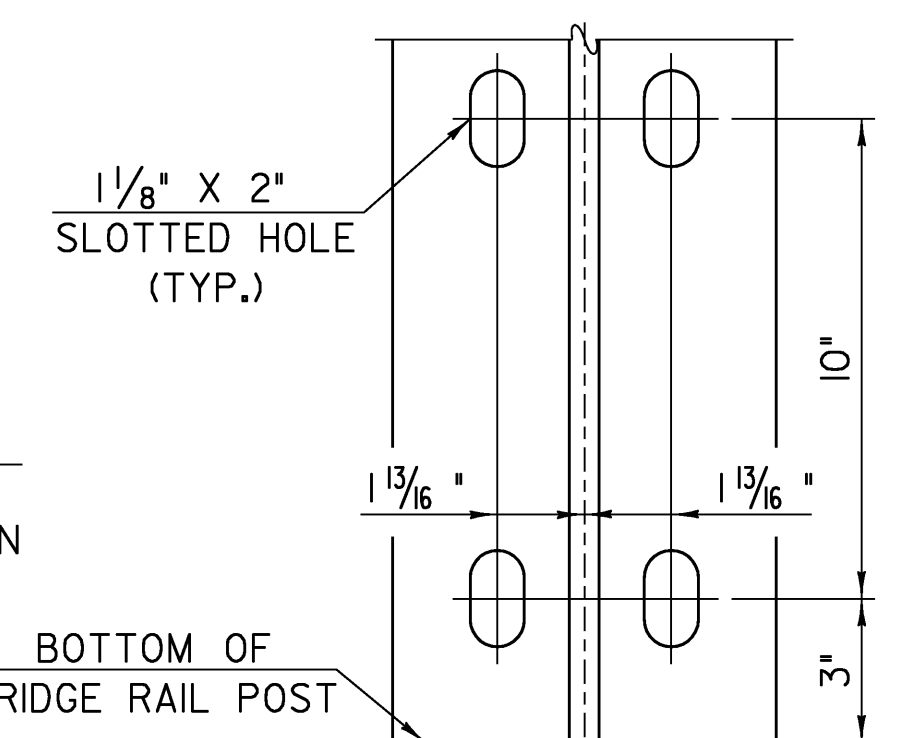
NOTES: RAIL POSTS ARE TO BE SET NORMAL TO GRADE UNLESS OTHERWISE DESIGNATED ON BRIDGE PLANS. ALL DIMENSIONS ARE TYPICAL UNLESS OTHERWISE DESIGNATED ON BRIDGE PLANS.



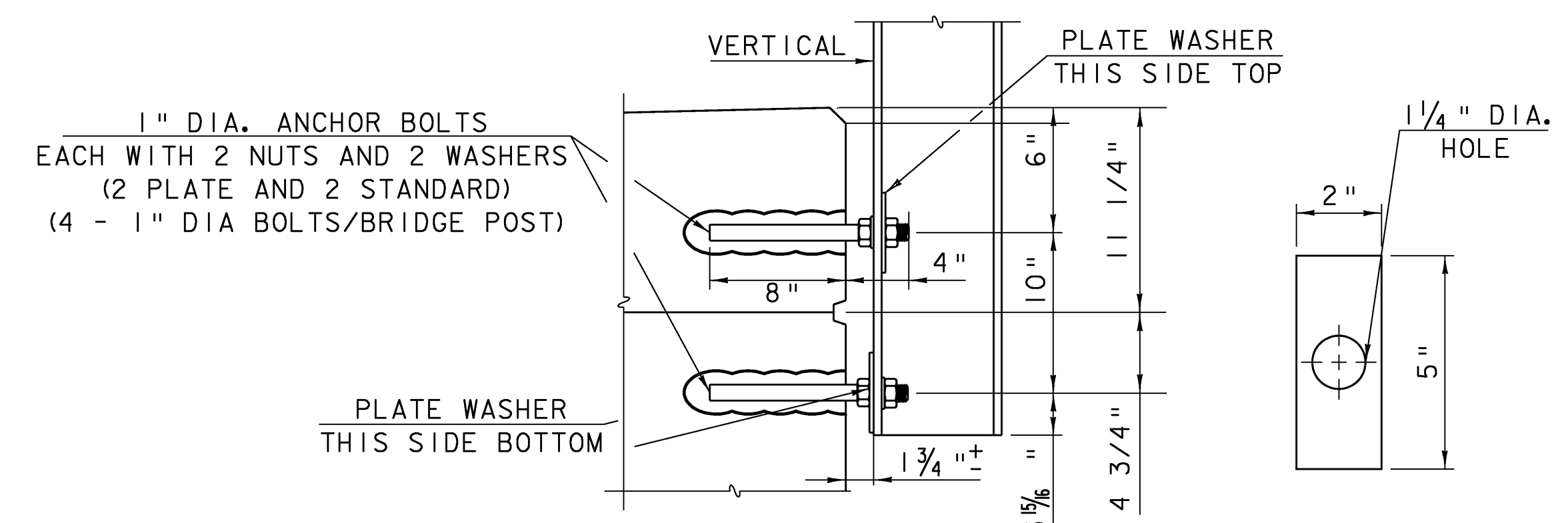
RAIL POST DETAILS ON SUPERSTRUCTURE



RAIL CONNECTION



POST ANCHORAGE BOLT HOLE DETAILS



ANCHORAGE DETAIL

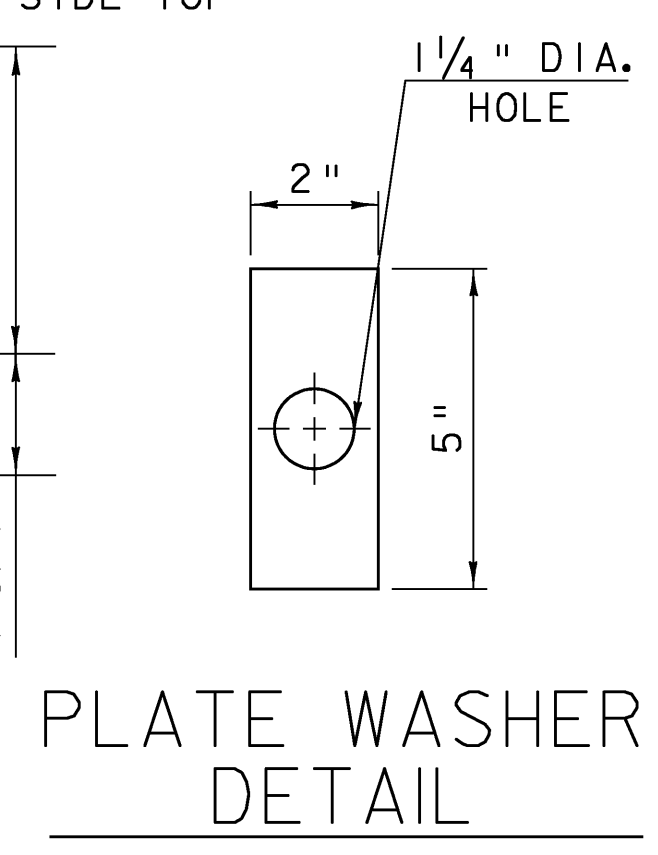
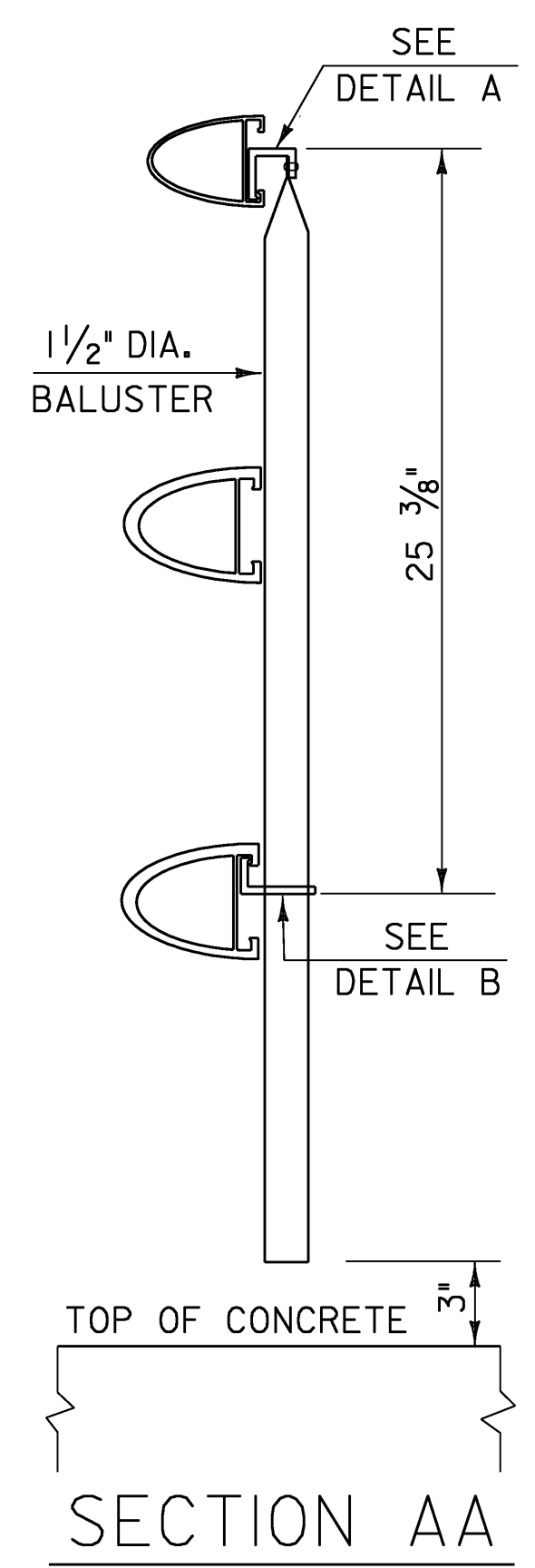
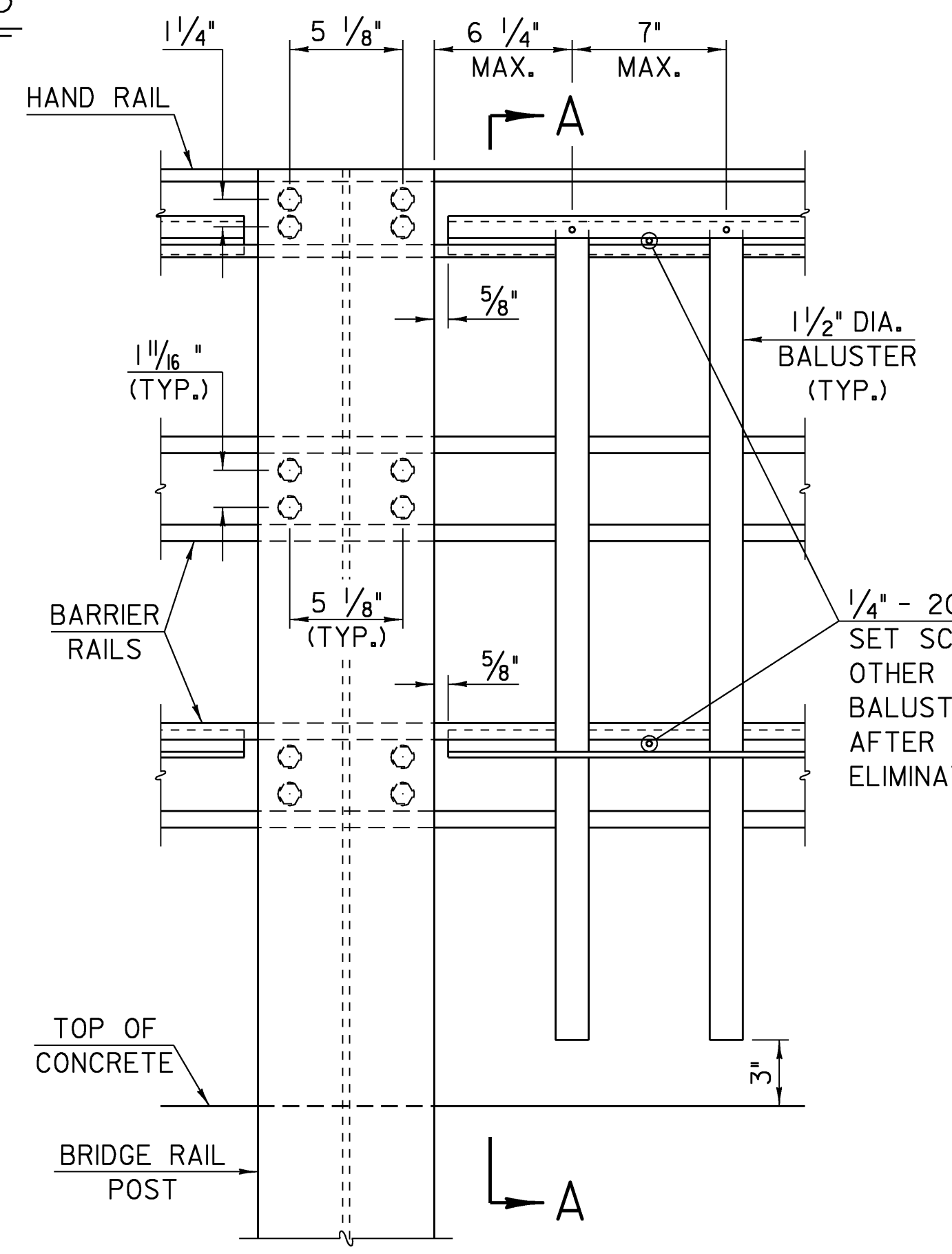


PLATE WASHER DETAIL



DETAILS OF SPINDLES FOR ALUMINUM RAILING

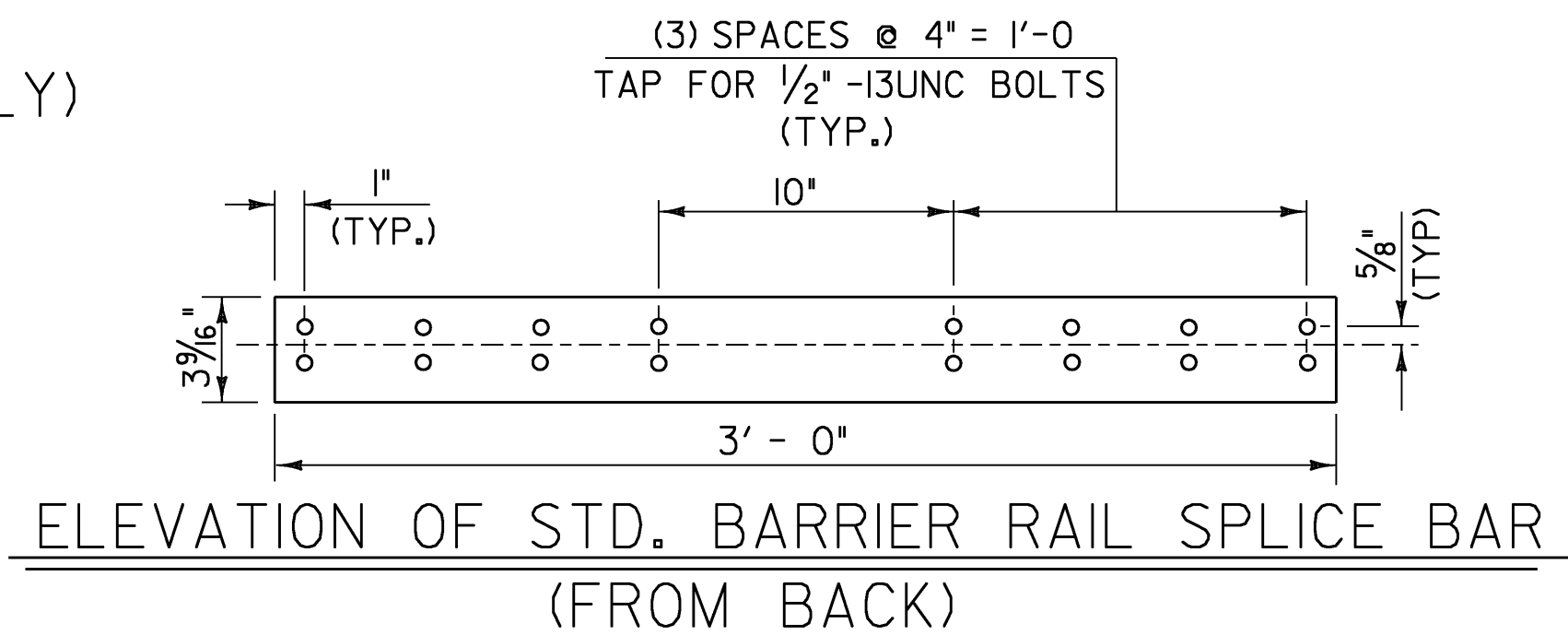
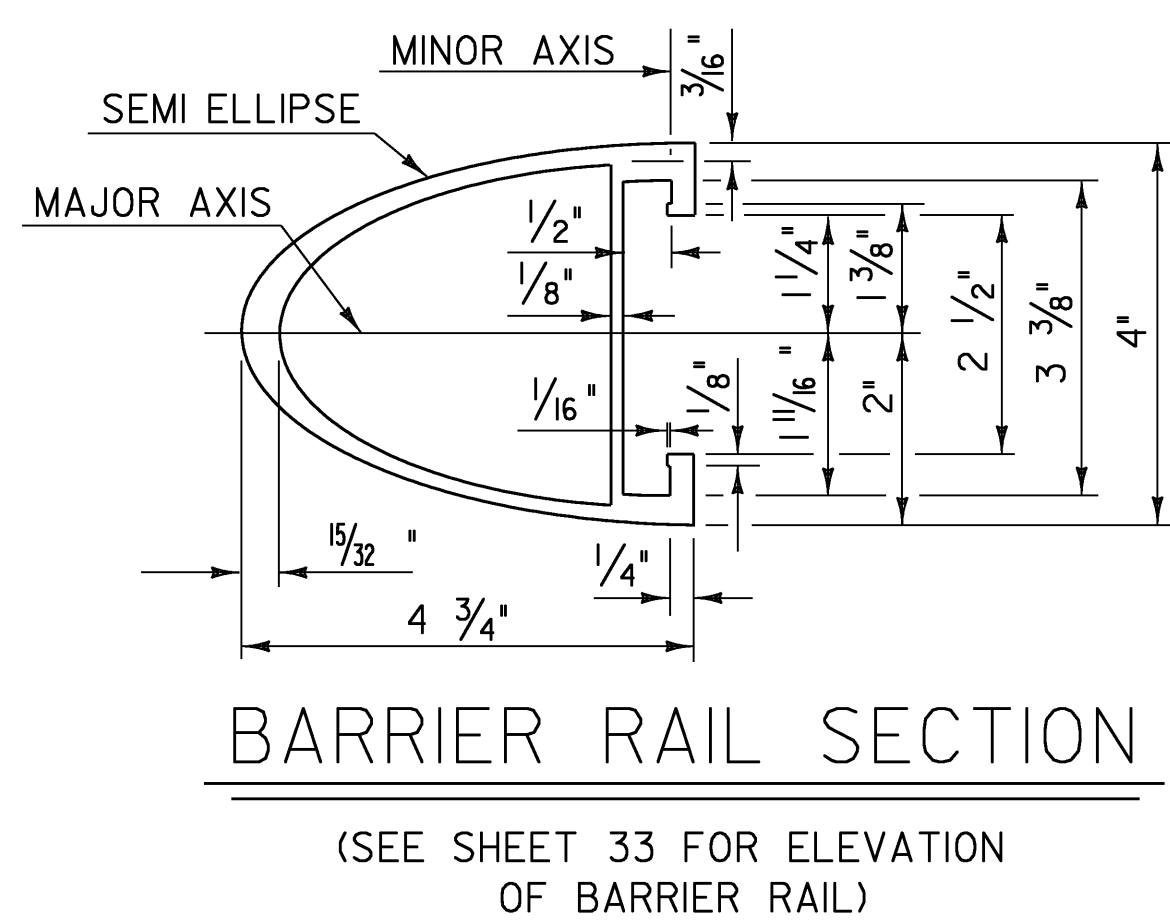
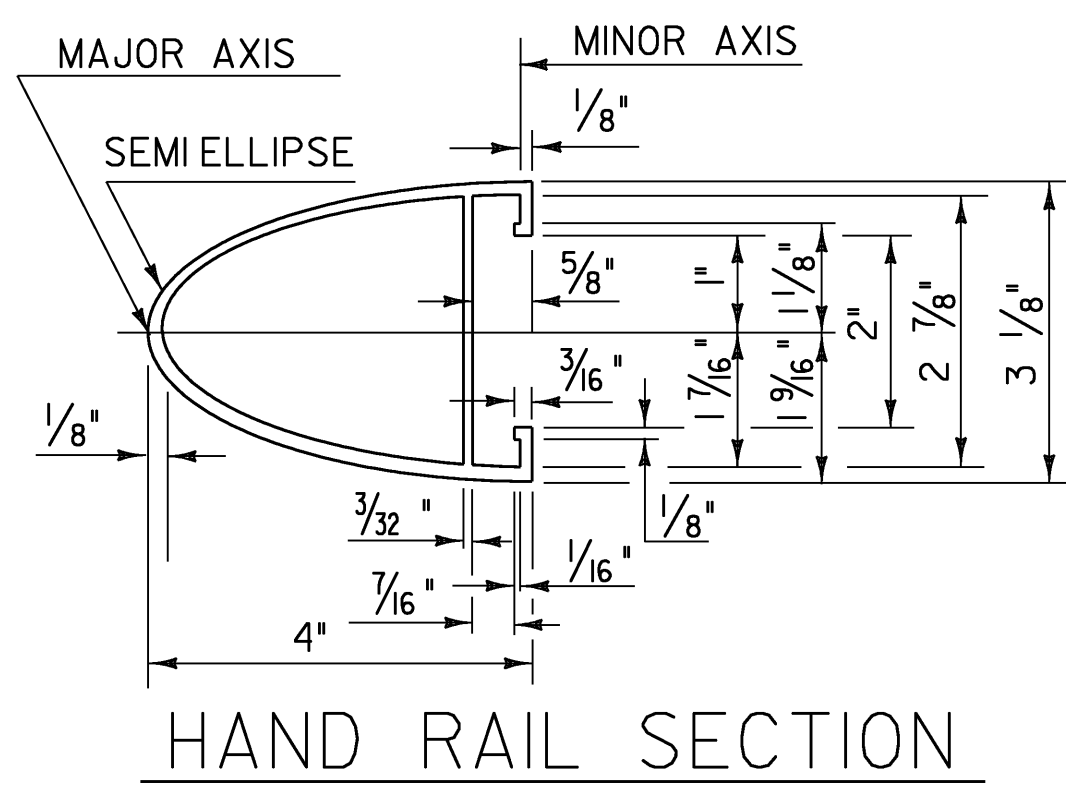
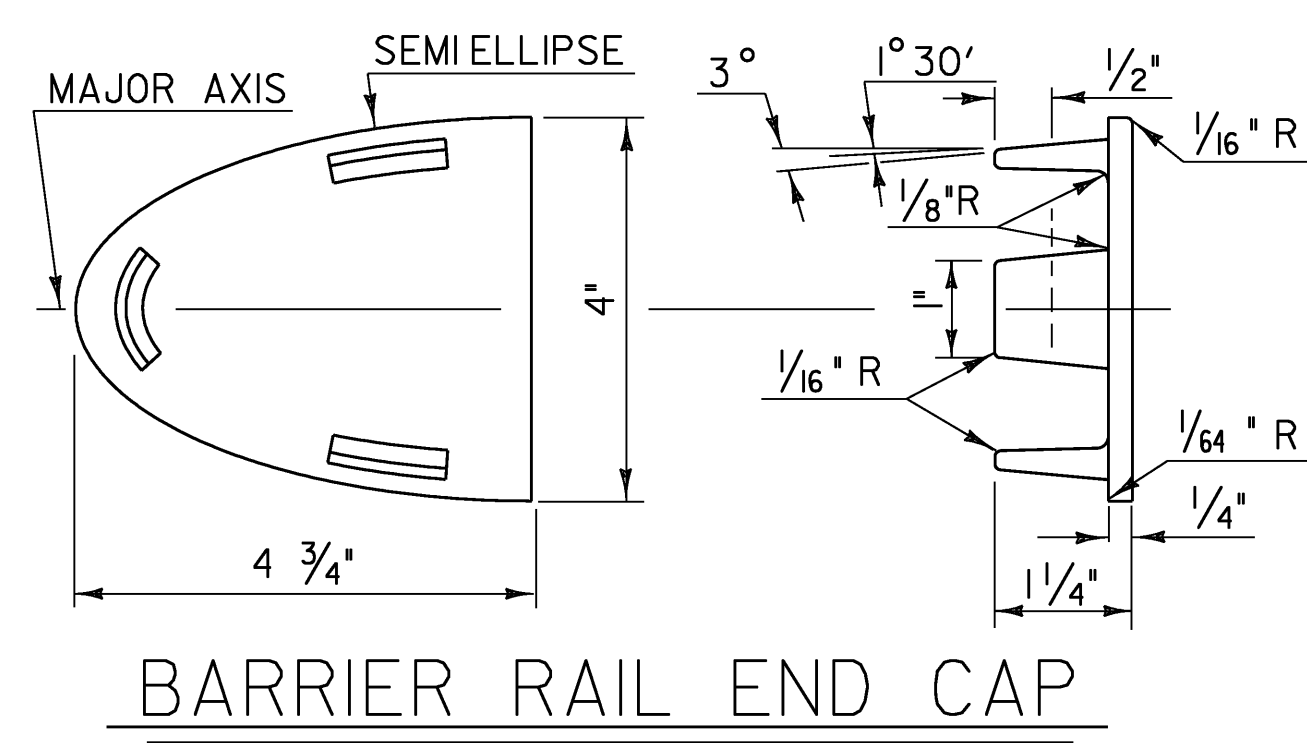
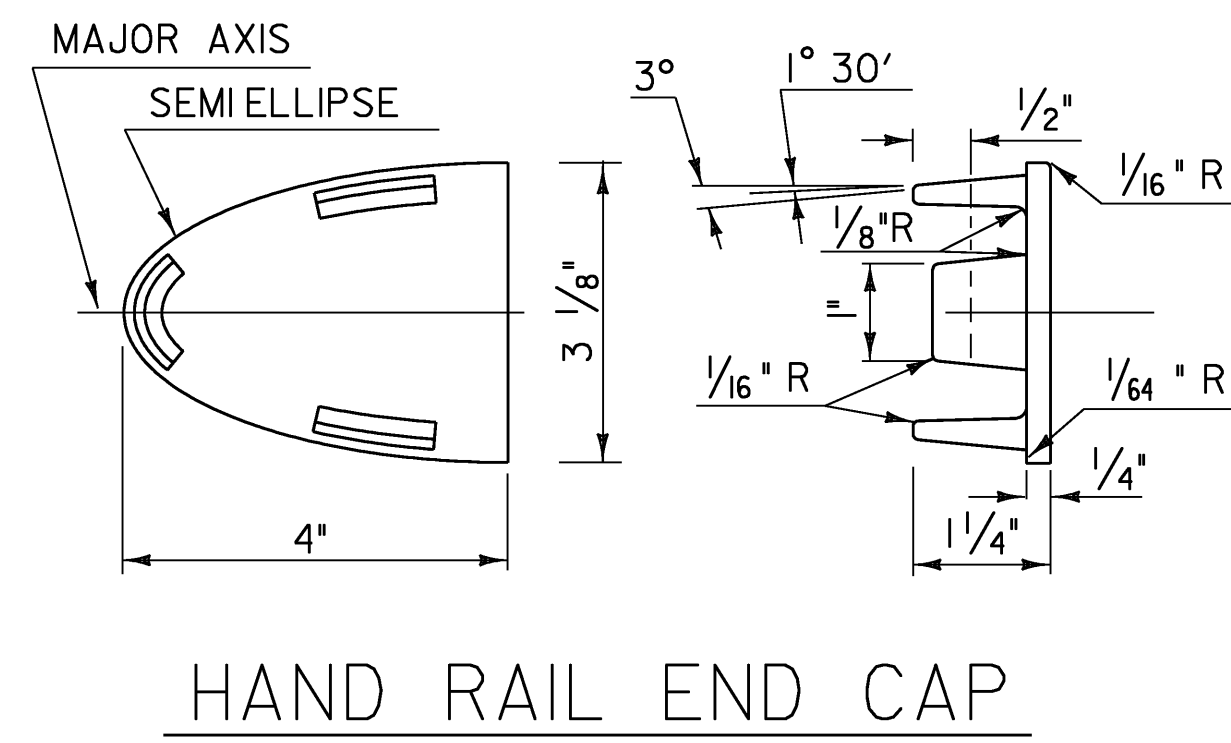
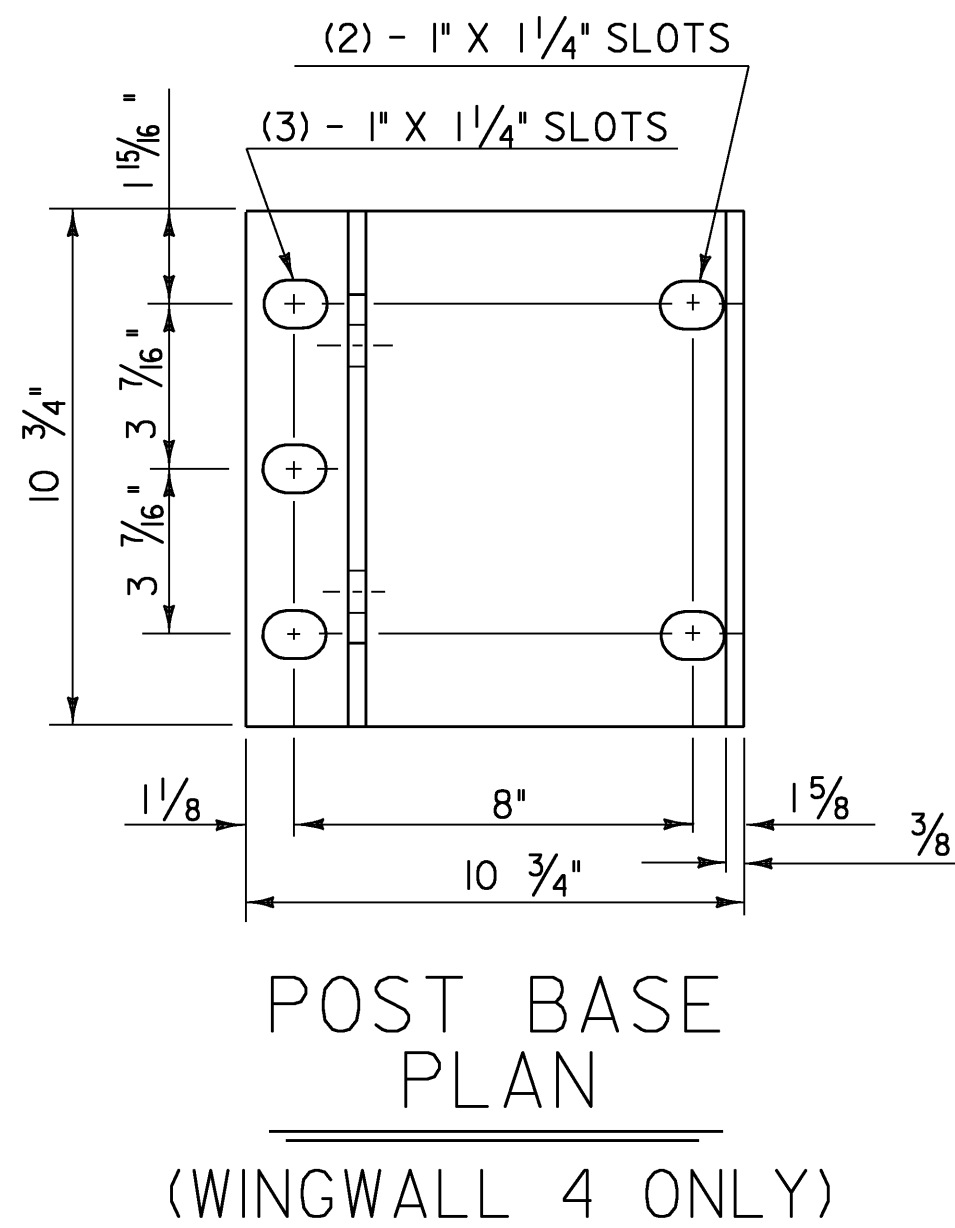
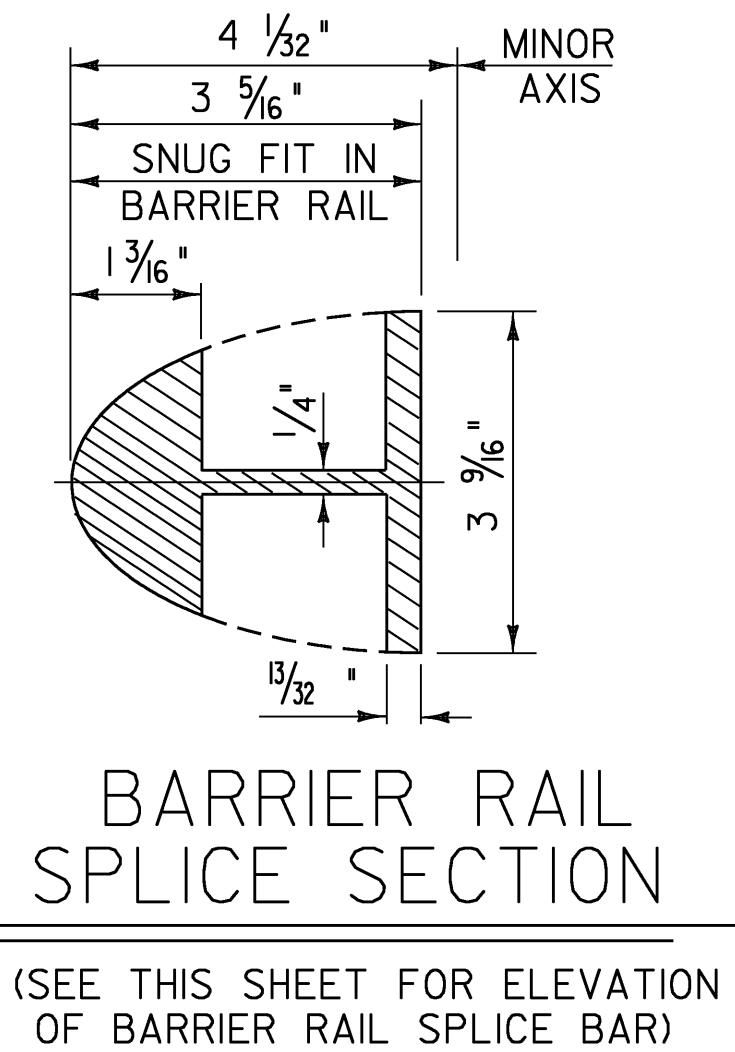
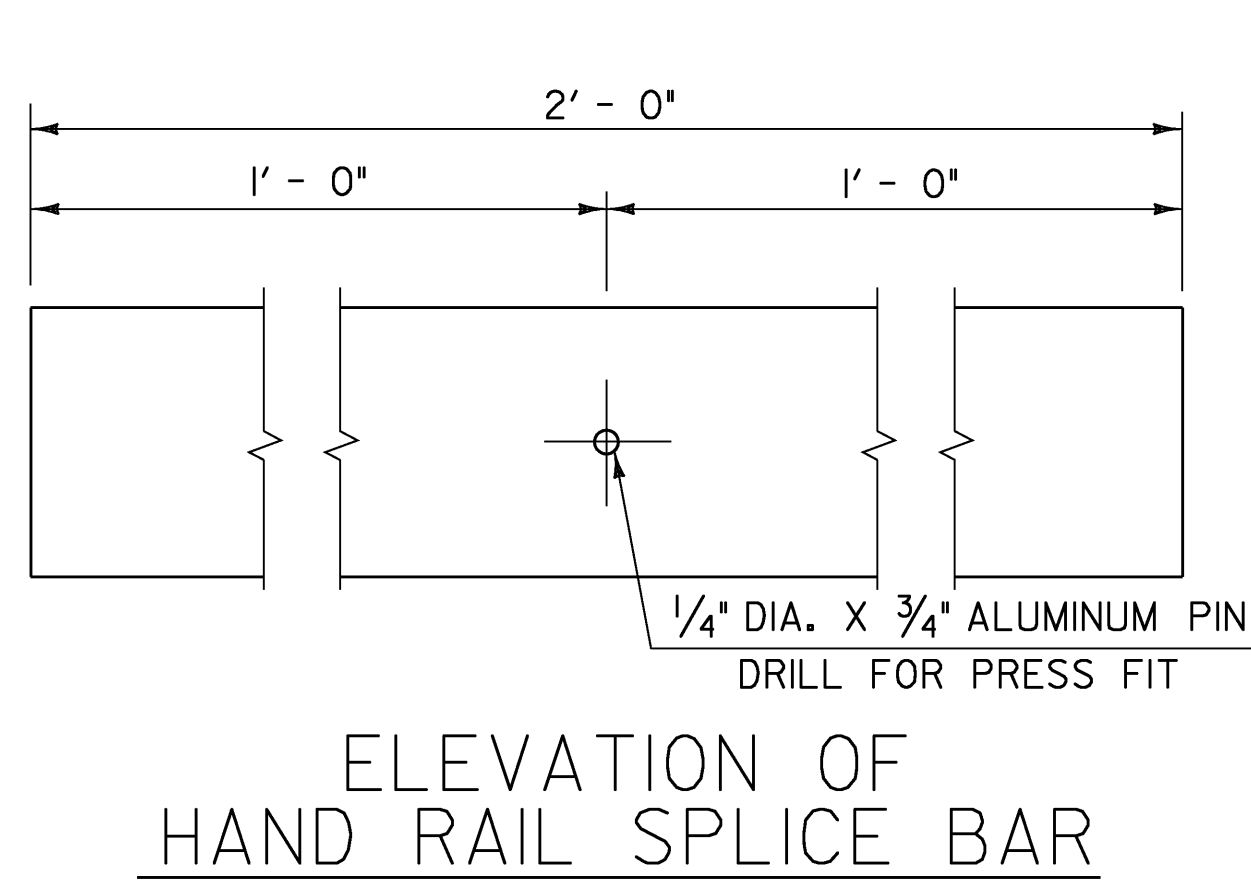
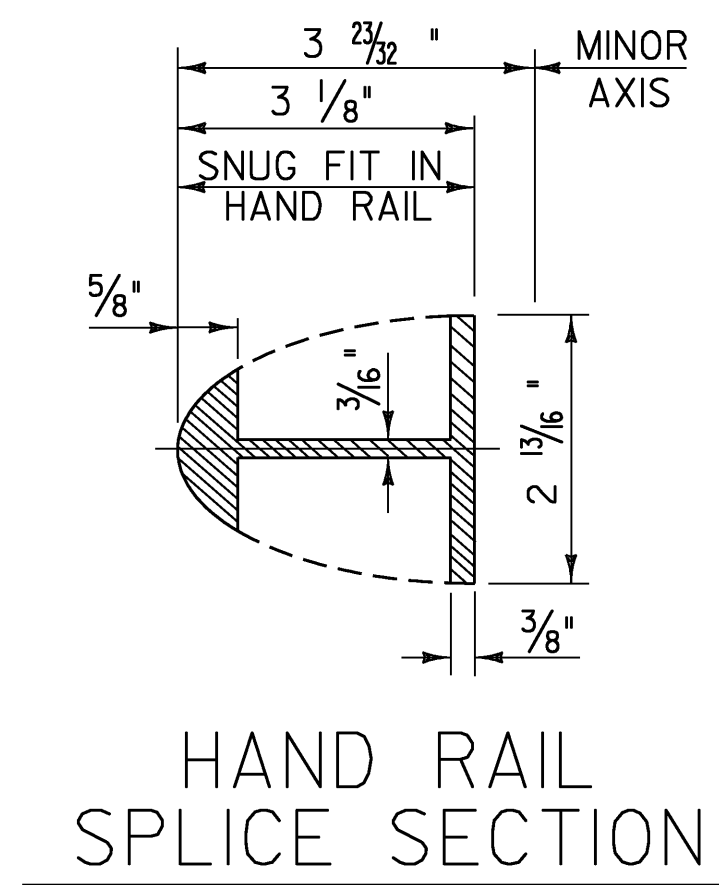
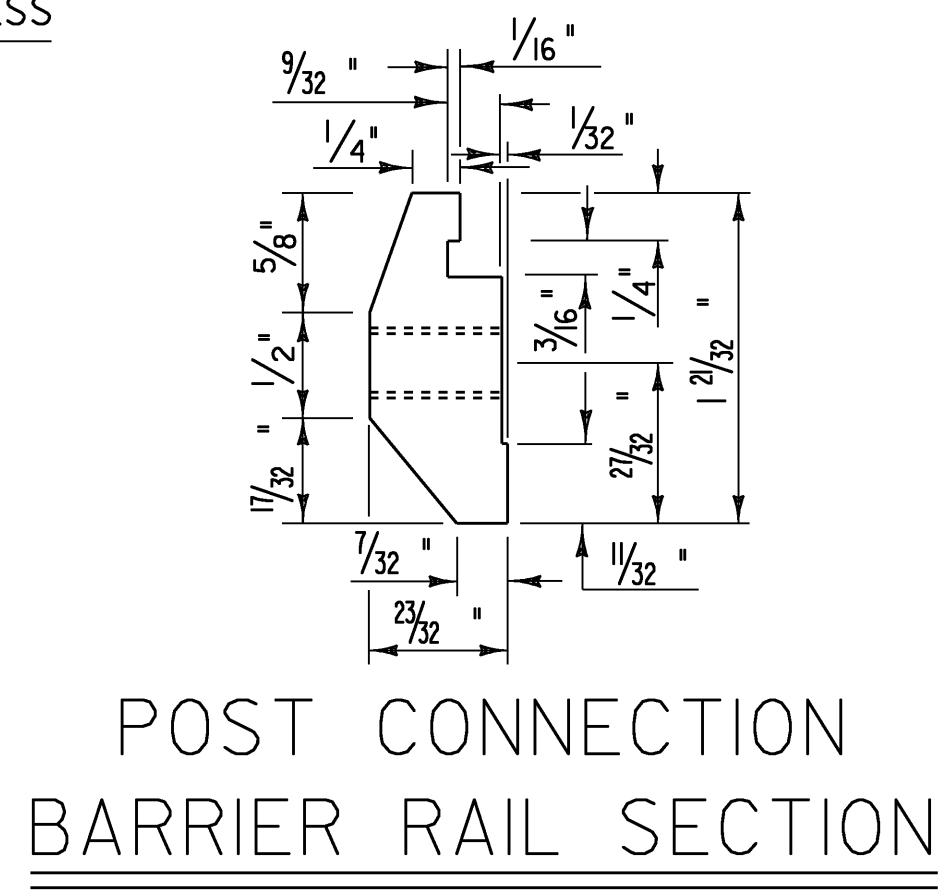
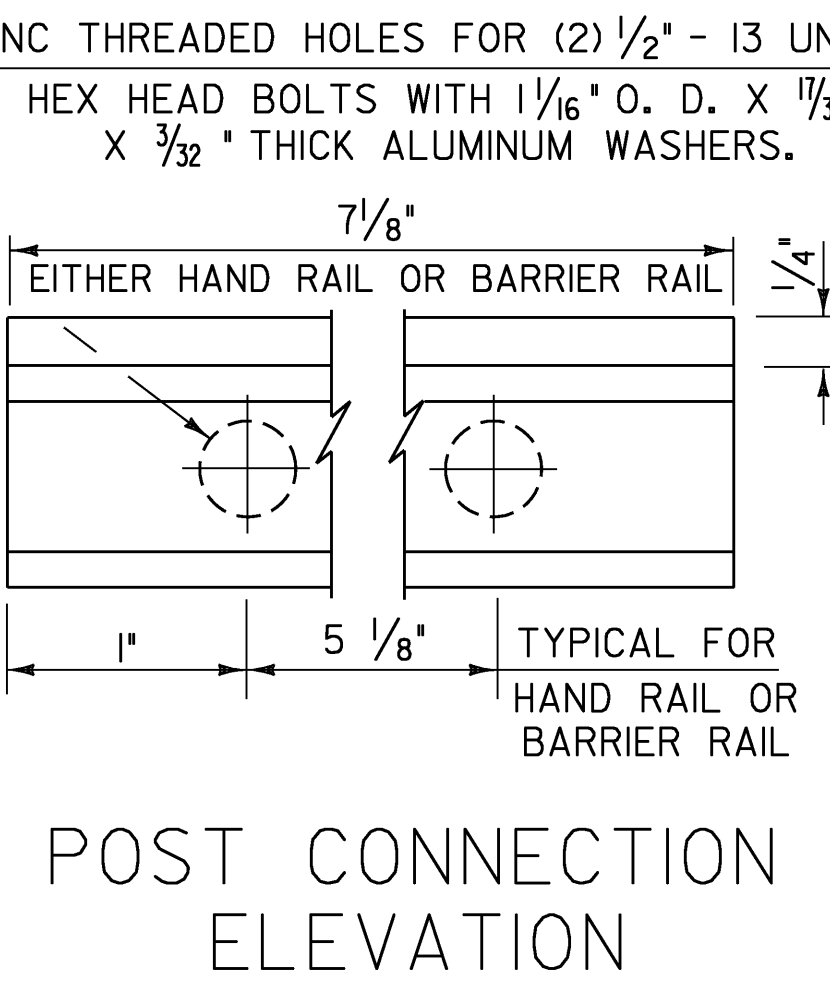
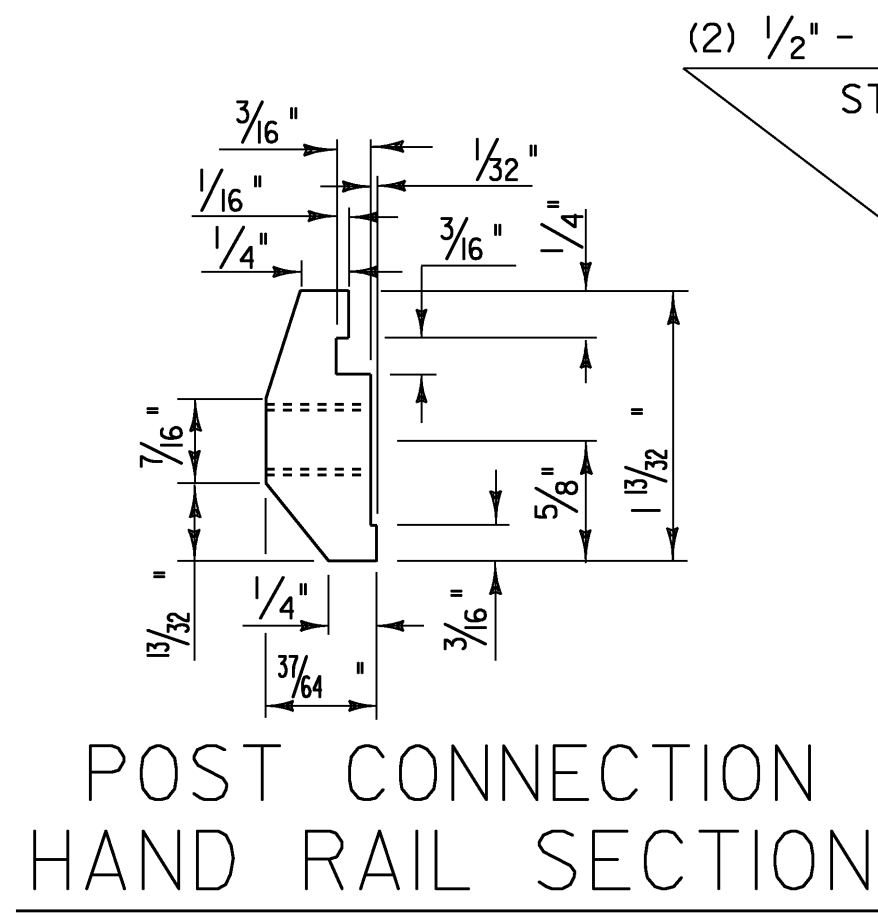


OUTSIDE ELEVATION OF THREE RAIL POST & SPINDLES

1/4\"/>

ALUMINUM RAILING DETAILS (SHEET 4)

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: str3
FILE NAME: /86e064/str/se064rail.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 31 OF 61
DESIGNED BY: C. CARLSON	
se064rail4.1	

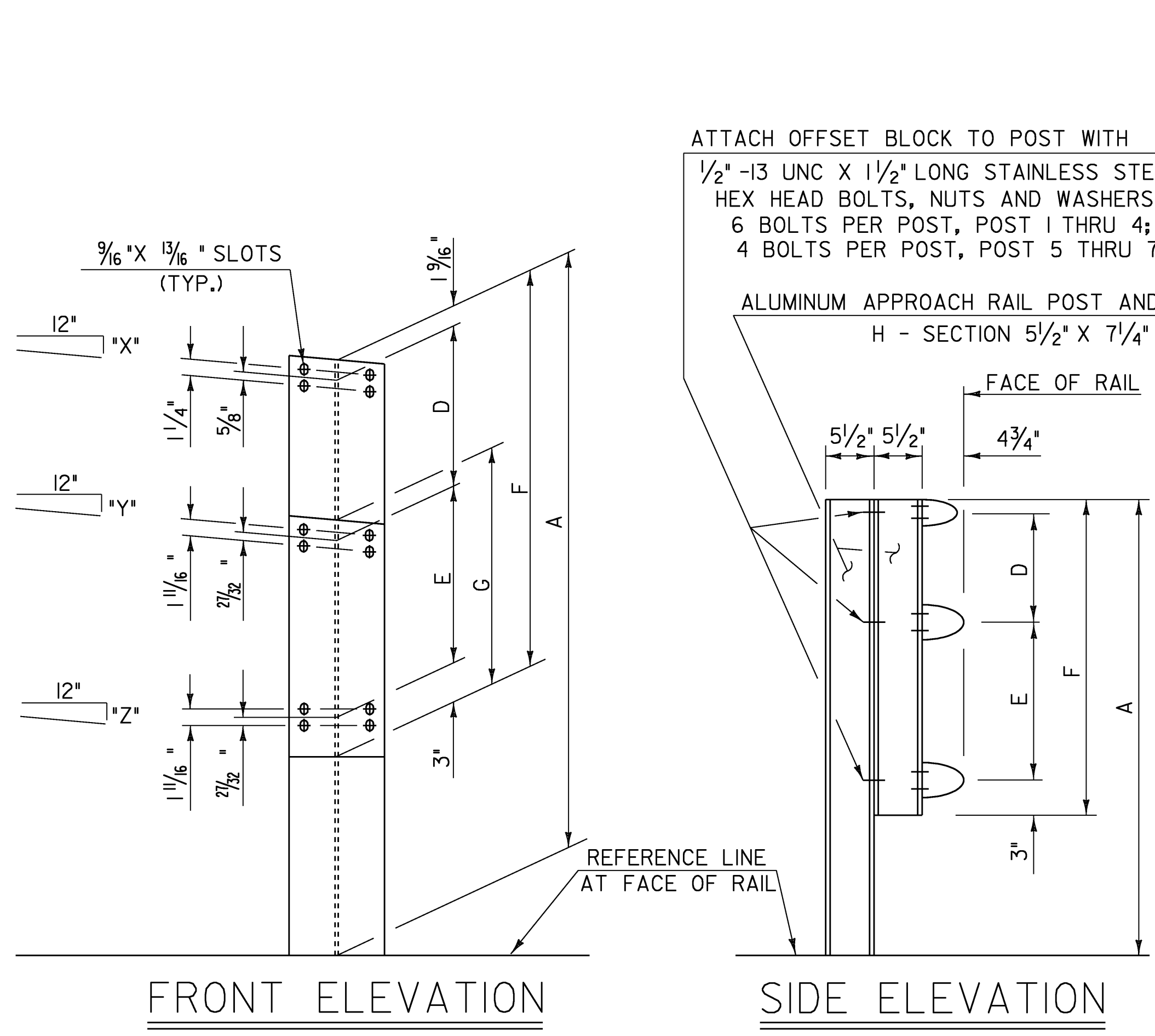


NOTES

1. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO SUBSECTION 714.07.
2. ALUMINUM SPLICE BARS, CONNECTION BARS, RAILS AND BALLUSTER FRAMES SHALL CONFORM TO ASTM B221, ALLOY 6061-T6 OR ALLOY 6351-T5. MINIMUM ALLOWABLE STRESS F<sub>y</sub> = 35,000 psi. RAIL POSTS SHALL CONFORM TO ASTM B 308/ B 308M.
3. ALUMINUM BALUSTER TUBES SHALL CONFORM TO ASTM B221 ALLOY 6061-T4 OR 6063-T4.
4. ALUMINUM RAIL END CAPS SHALL CONFORM TO ASTM B26 ALLOY 356-T6.
5. THE POST, RAIL, AND OFFSET BLOCK CONNECTION BOLTS AND SET SCREWS SHALL CONFORM TO SUBSECTION 732.02 (b).
6. WELDING SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 506.10.
7. UNLESS OTHERWISE SPECIFIED, ANCHOR BOLTS SHALL BE CAST INTO THE CONCRETE AS DETAILED.
8. WHENEVER FEASIBLE, BARRIER RAIL AND HAND RAIL SECTIONS SHALL BE FULL LENGTH SECTIONS (40'±) AND WHEN POSSIBLE SHALL BE ATTACHED TO THREE POSTS. RAILS SHALL BE SPLICED AT EACH DECK JOINT AND INTERMITTENTLY AS REQUIRED. SPLICES SHALL OCCUR WITHIN THE SAME PANEL.
9. ENDS OF RAILS SHALL BE CUT SQUARE AND GROUND FREE OF BURRS OR RAGGED EDGES. EXPOSED ENDS SHALL BE CAPPED.
10. EXTRUDED SECTIONS ARE DETAILED TO COMPLY WITH CURRENT AASHTO-AGC-ARTBA STANDARDS. MINOR VARIATIONS OF THE DETAILS SHOWN MAY BE CONSIDERED PROVIDING THEY DO NOT REDUCE THE STRENGTH CAPACITY OF THE RAIL SYSTEM.
11. ALUMINUM PLATE WASHERS SHALL BE ASTM B209 ALLOY ACLAD 2024-T4.
12. THE RAILING SYSTEM AND ASSOCIATED HARDWARE SHALL BE ANODIZED TO A BLACK SATIN FINISH EXCEPT AS NOTED, SEE SPECIAL PROVISIONS.

ALUMINUM RAILING DETAILS  
(SHEET 5)

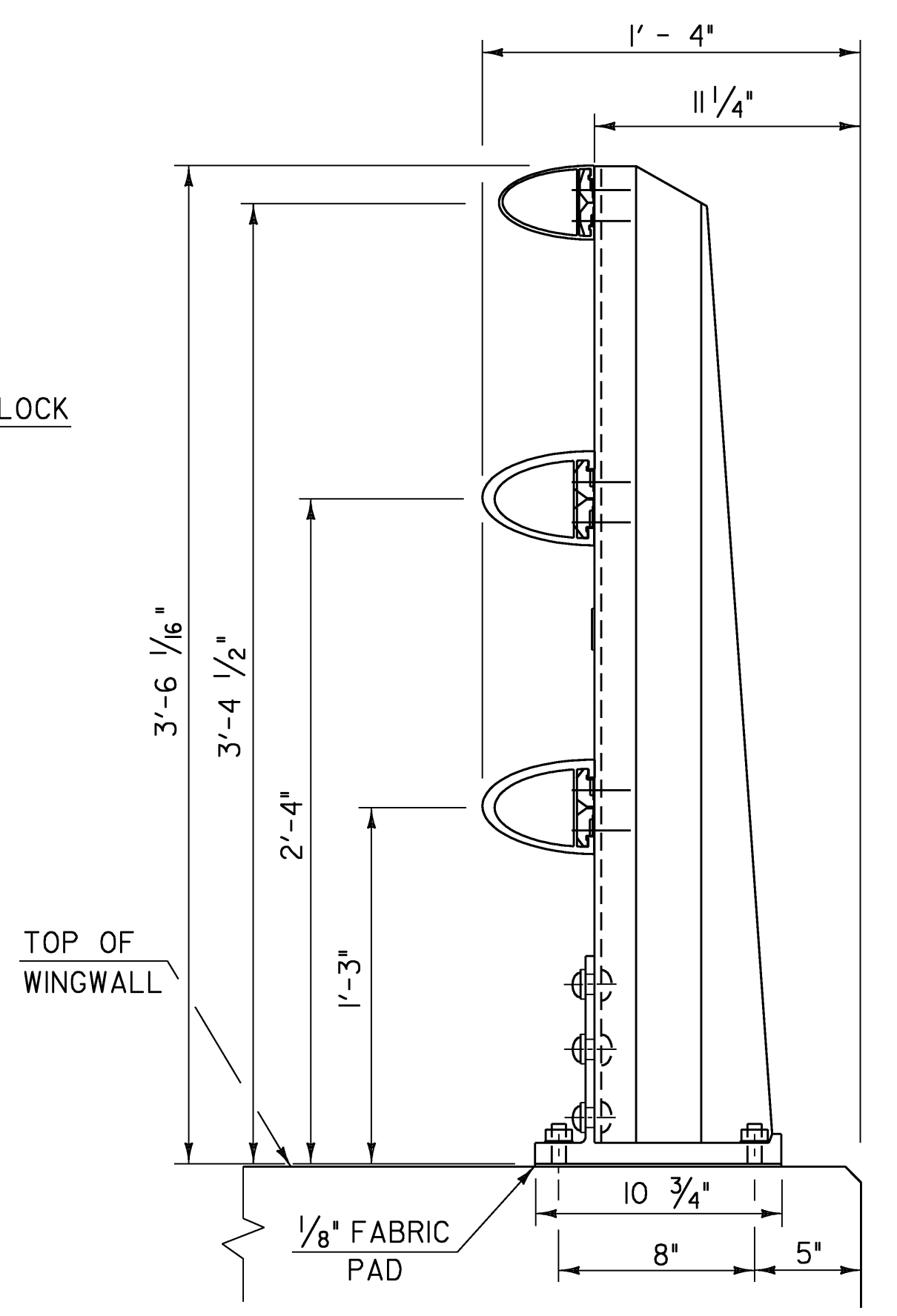
PROJECT NAME: FAIRFAX	PLOT DATE: 17-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: str-3
FILE NAME: /86e064/str/se064rail.dgn	DESIGNED BY: C. CARLSON
DESIGNED BY: C. CARLSON	CHECKED BY: C. CARLSON
se064rail5.i	SHEET 32 OF 61



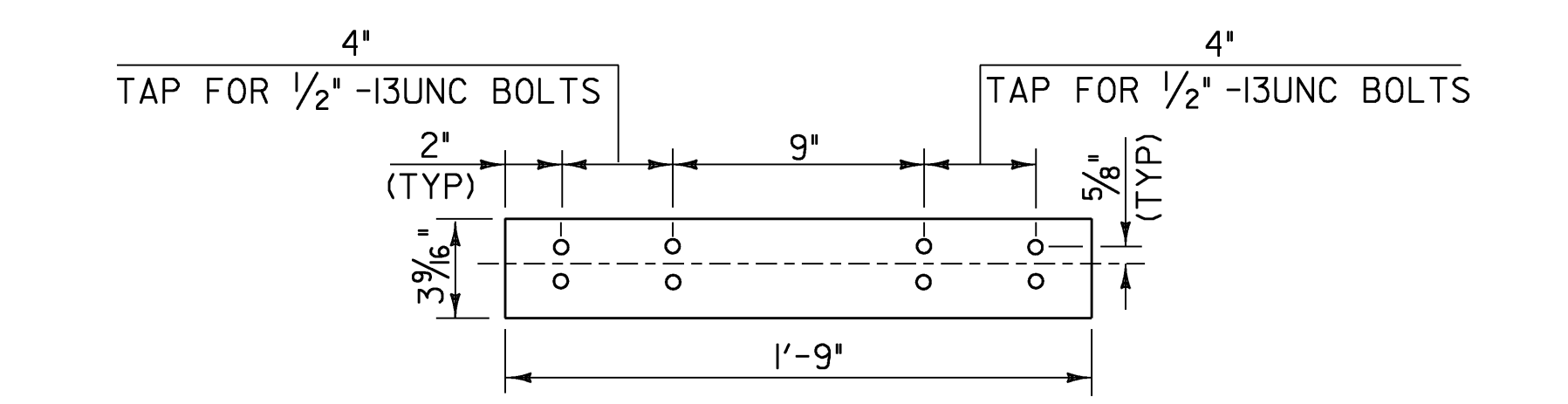
FRONT ELEVATION SIDE ELEVATION

APPROACH RAIL DETAILS

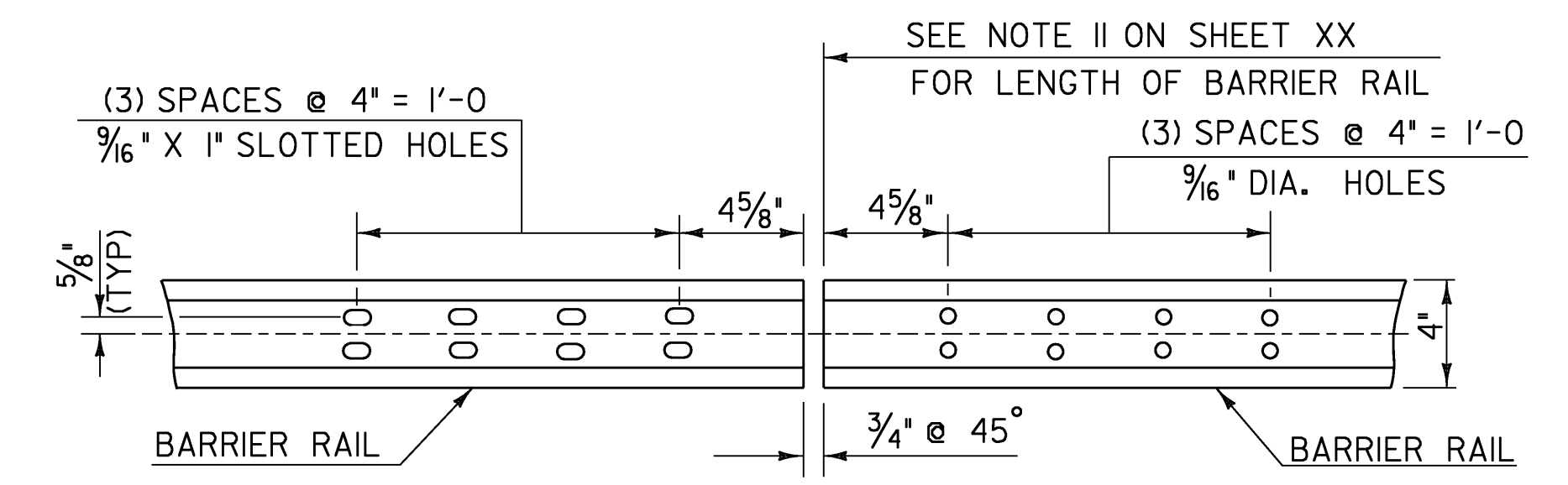
	WW1	WW2	RETAINING WALL
"X"	$\frac{11}{16}$ "	$\frac{11}{16}$ "	$\frac{3}{4}$ "
"Y"	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{4}$ "
"Z"	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{3}{16}$ "



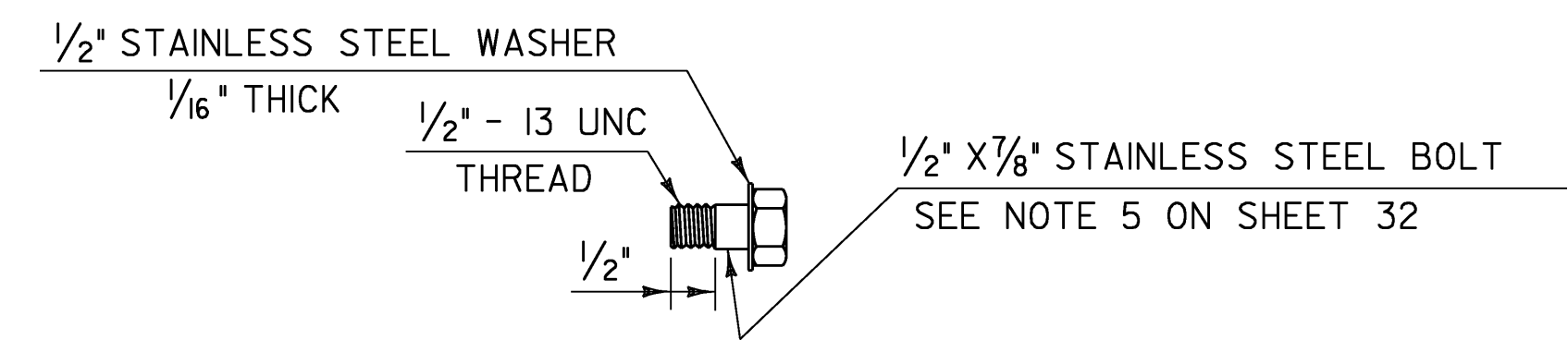
SIDE ELEVATION OF THREE RAIL TO BE USED ON WINGWALL NO. 4



ELEVATION OF BARRIER RAIL SPLICE BAR TO BE USED AT TRANSITION BETWEEN APPROACH RAIL & GUARD RAIL (FROM BACK)



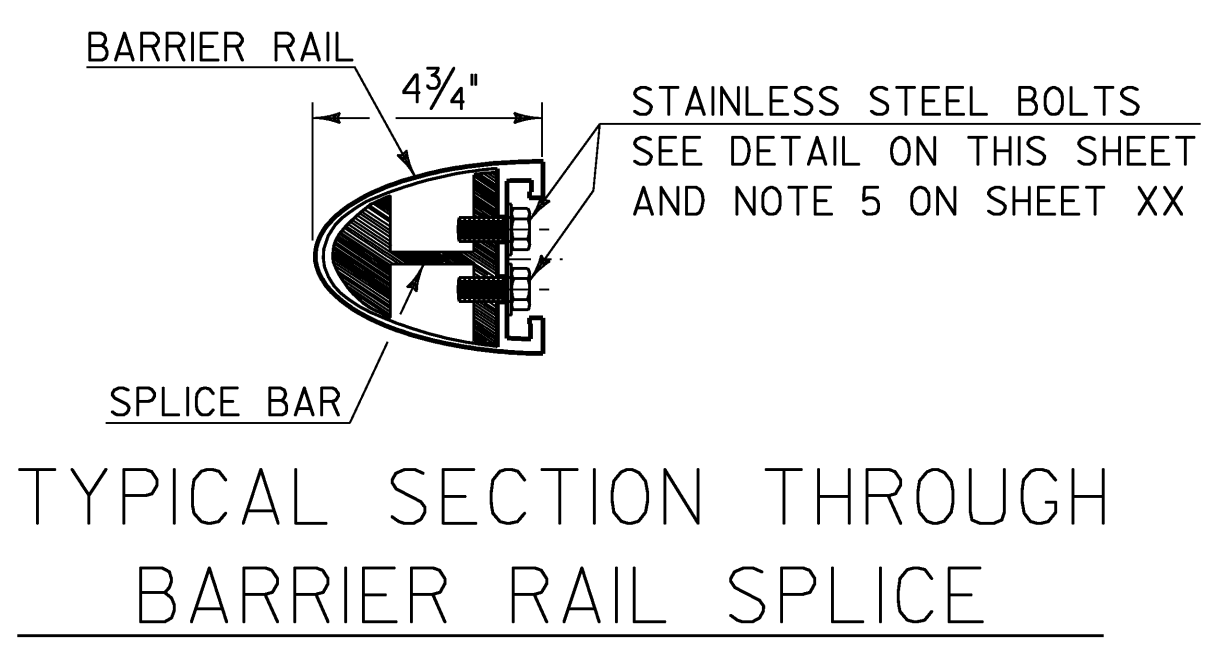
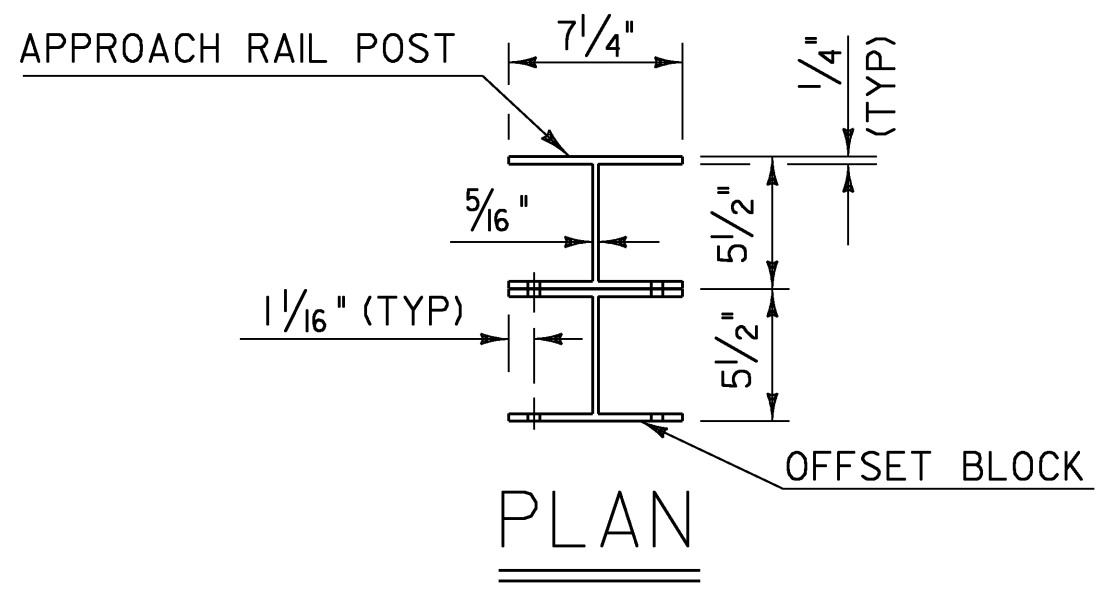
ELEVATION OF BARRIER RAIL (FROM BACK) AT ALL INTERMEDIATE RAIL SPLICES



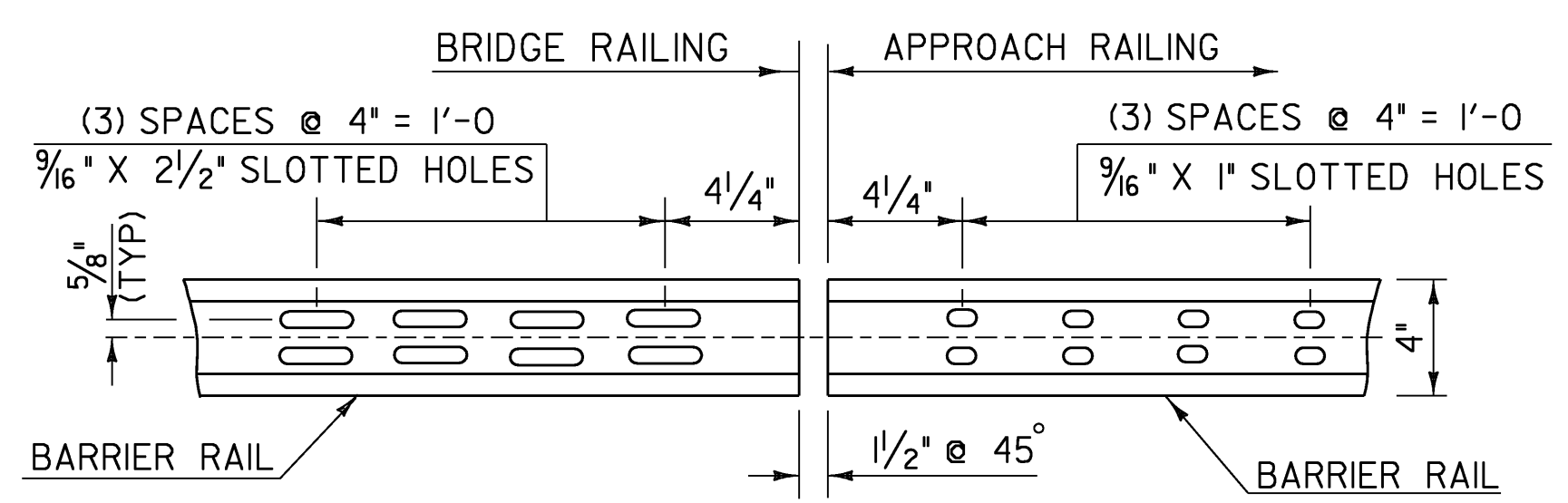
STAINLESS STEEL BOLT DETAILS

APPROACH RAILING NOTES

- ALL APPROACH RAILING POSTS SHALL BE EXTRUDED ALUMINUM.
- ANY STRUCTURAL STEEL SHALL BE GRADE 36 GALVANIZED AFTER FABRICATION.
- ALL ITEMS NOT OTHERWISE INDICATED SHALL MEET THE SPECIFICATION REQUIREMENTS OF THE STANDARD SHEETS ON WHICH THEY ARE DETAILED.
- DETAILS ARE SHOWN FOR TRANSITION TO A 3 RAIL ALUMINUM BRIDGE RAILING.
- DIMENSIONS SHOWN ARE FROM A REFERENCE LINE AT THE FACE OF POST FOR A NORMAL CROWNED SECTION. APPROPRIATE CORRECTIONS SHALL BE MADE FOR CROSS SLOPES OTHER THAN A NORMAL SECTION.
- THE APPROACH RAILING SYSTEM AND RELATED HARDWARE SHALL BE ANODIZED TO A BLACK SATIN FINISH. (SEE SPECIAL PROVISIONS.)



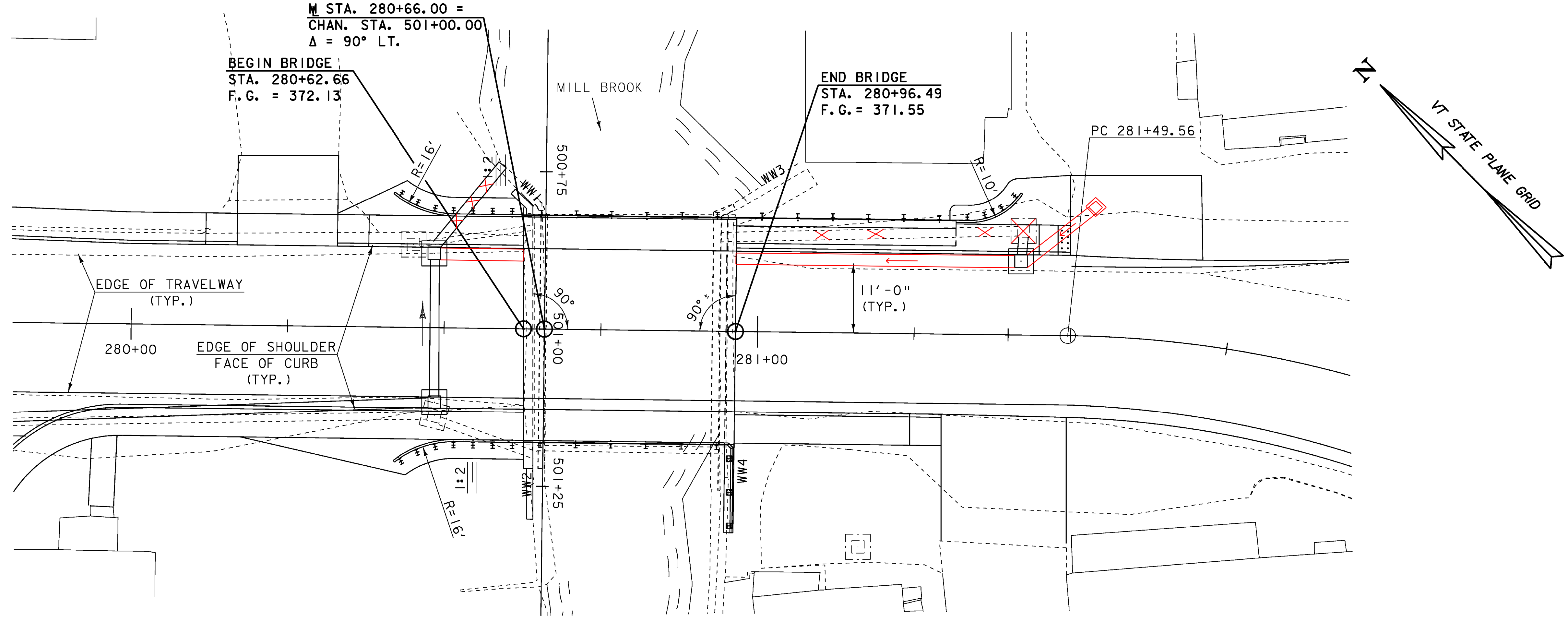
TYPICAL SECTION THROUGH BARRIER RAIL SPLICE



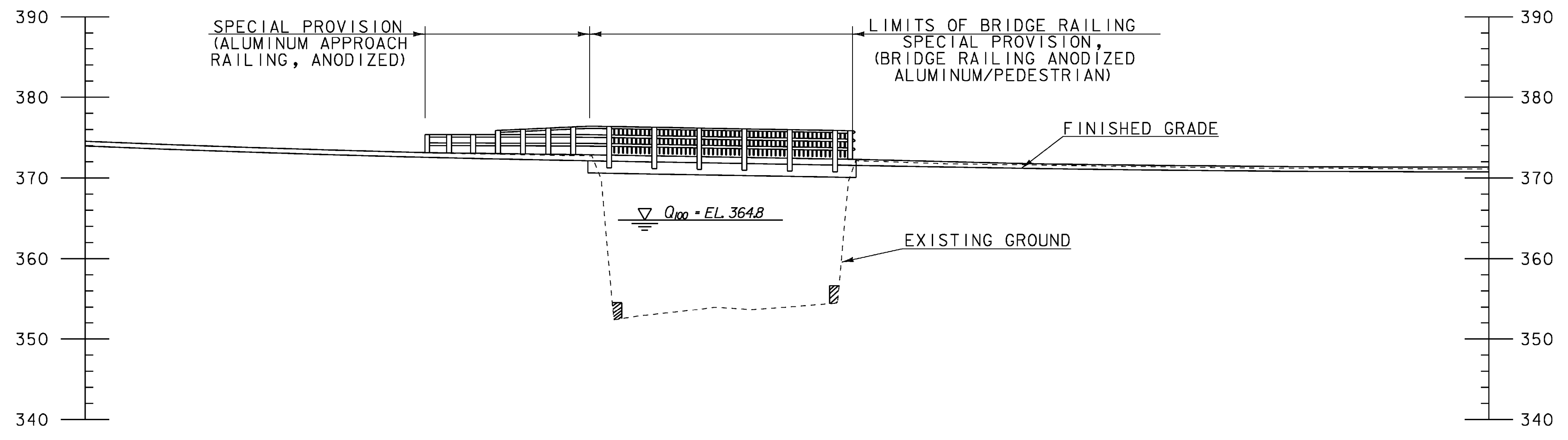
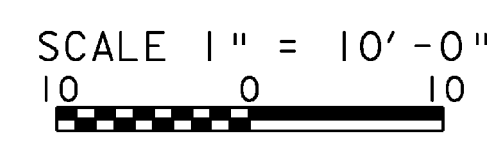
ELEVATION OF BARRIER RAIL (FROM BACK)

ALUMINUM RAILING DETAILS (SHEET 6)

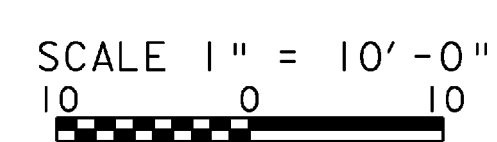
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: str3
FILE NAME: /86e064/str/se064rail.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 33 OF 61
DESIGNED BY: C. CARLSON	
se064rail6.1	



**PLAN**



**ELEVATION**

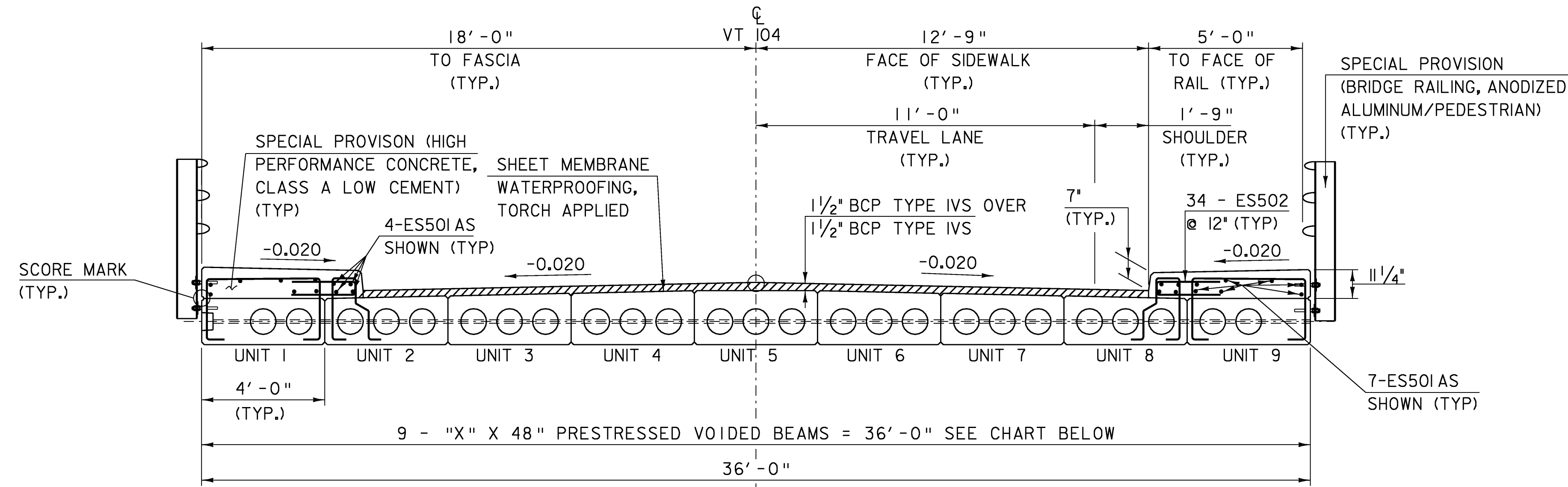


**PLAN AND ELEVATION**

PROJECT NAME: FAIRFAX	PLOT DATE: 20-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064pe.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 34 OF 61
DESIGNED BY: C. CARLSON	
se064pe.l	

**SIDEWALK NOTES:**

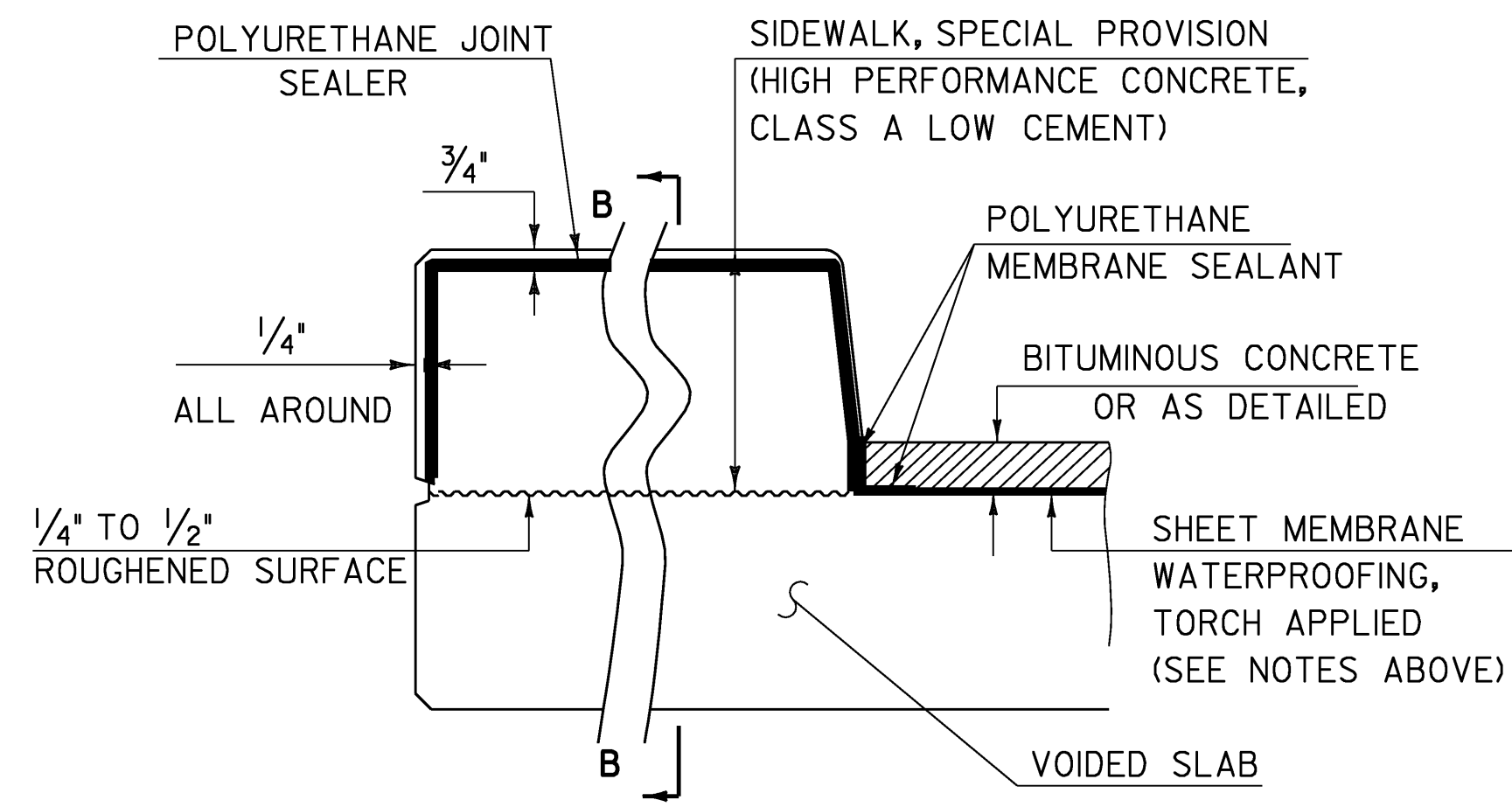
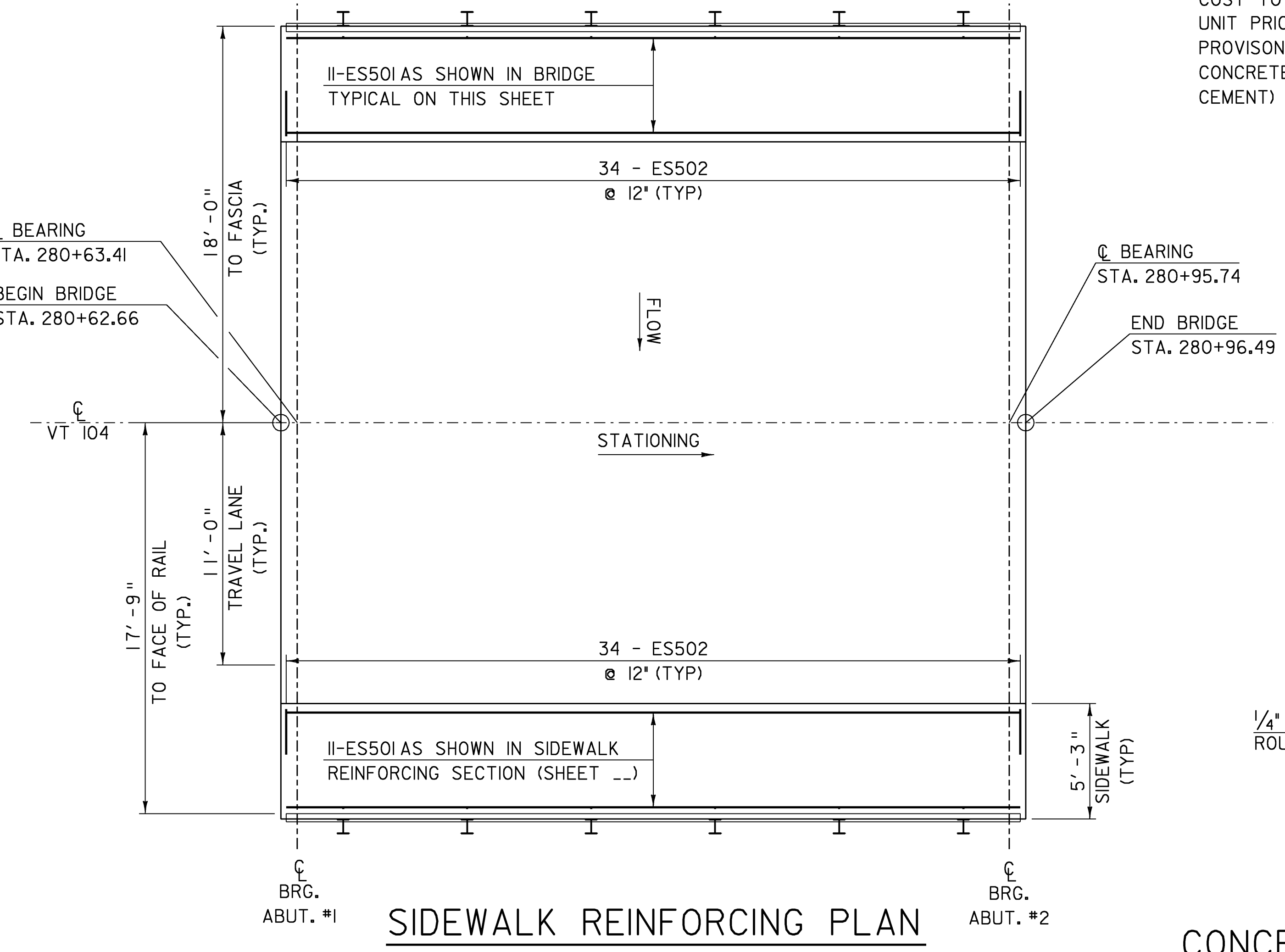
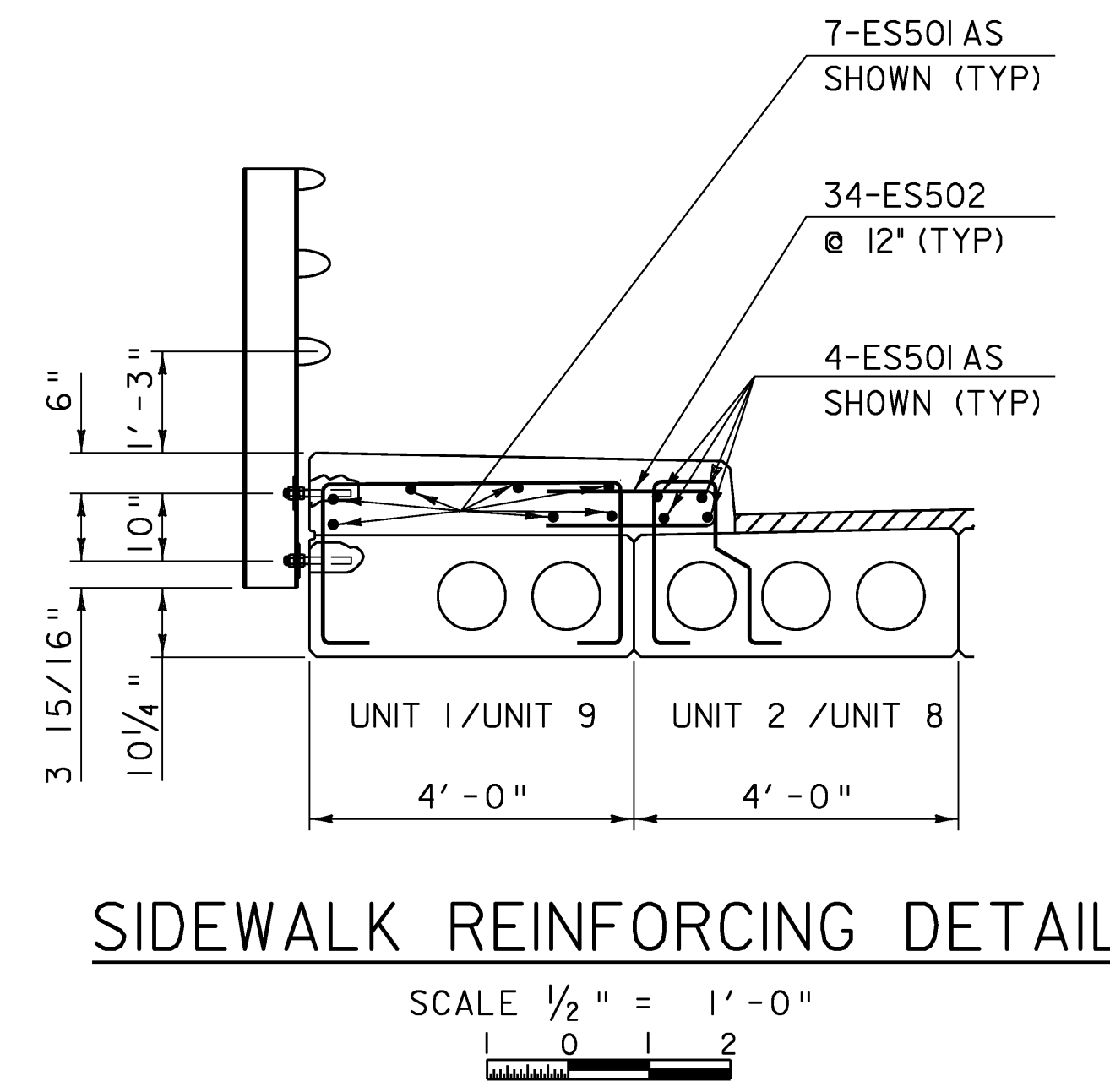
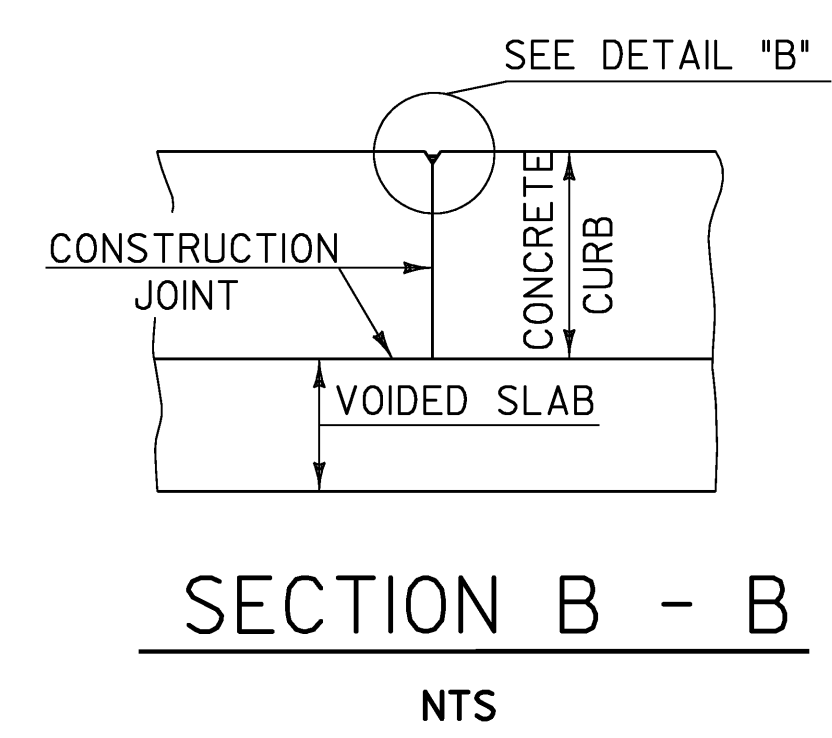
1. THE SIDEWALKS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAILING POST. CONCRETE SIDEWALKS MAY BE PLACED IN ONE CONTINUOUS OPERATION, IF APPROVED BY THE STRUCTURES ENGINEER.
2. WHEN CURB JOINTS ARE USED THE SIDEWALKS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
3. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH SIDEWALK CONSTRUCTION JOINTS.



NOTE: 3" (MIN.) CLEAR COVER FOR REINFORCING STEEL IN SIDEWALKS

POLYURETHANE JOINT SEALER PER SUBSECTION 524.06C COLOR TO MATCH CONCRETE. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)

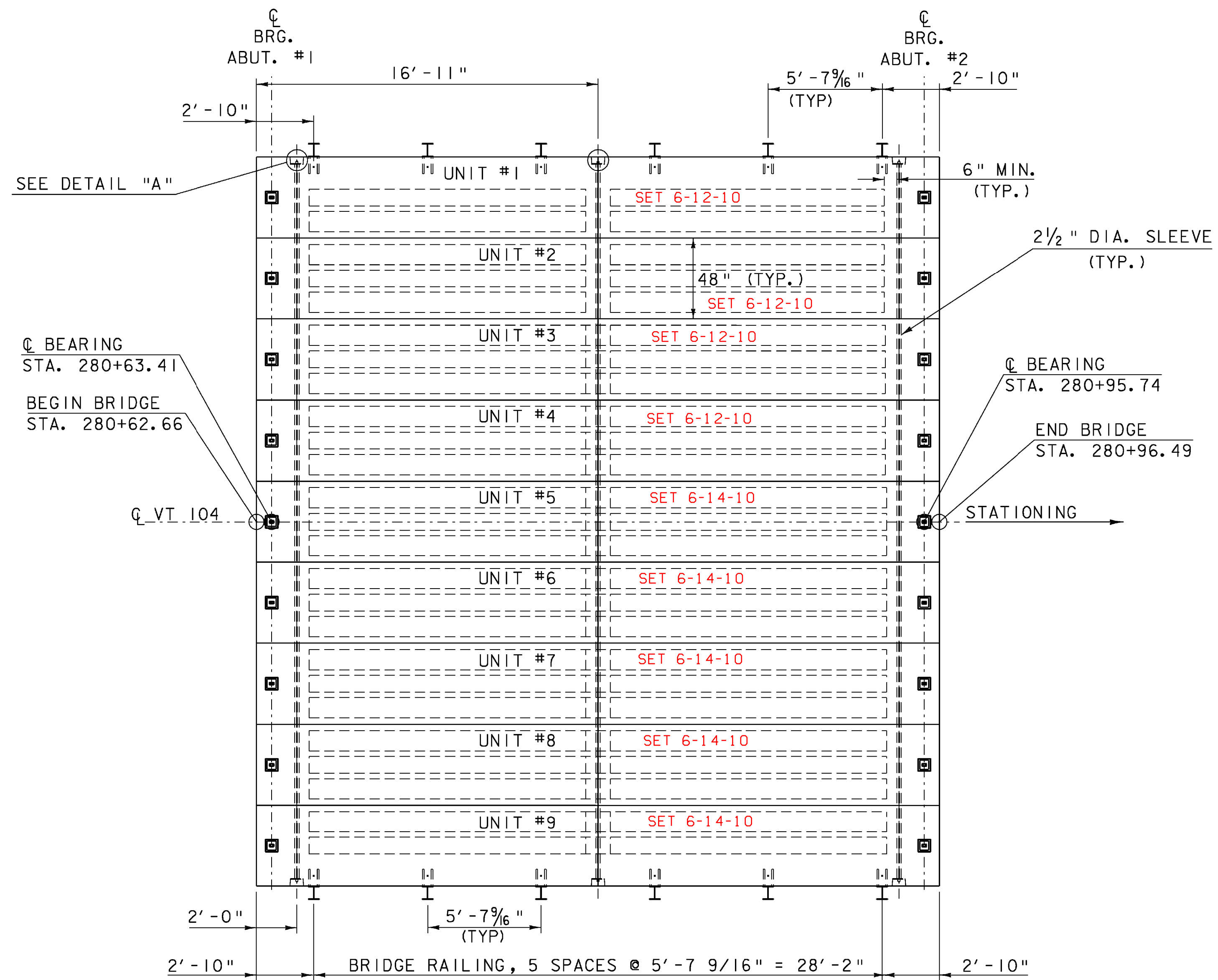
DETAIL "B" NTS



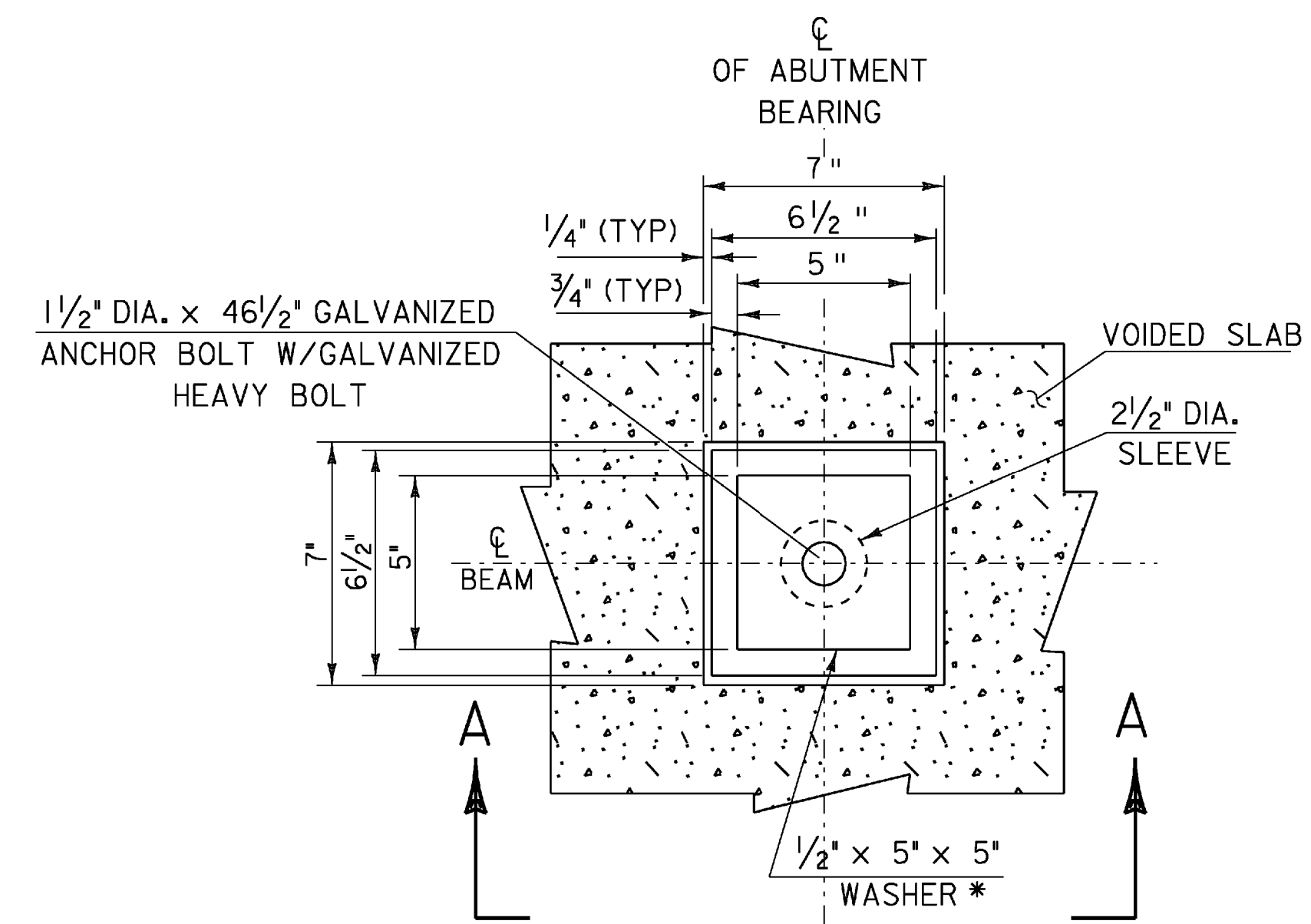
VOIDED SLAB NO.	QUANTITY	("X") DEPTH
UNIT 1	2	18"
UNIT 2	2	18"-19"
UNIT 3	2	19"-20"
UNIT 4	2	20"-21"
UNIT 5	1	21"

**BRIDGE TYPICAL & SIDEWALK REINFORCING**

PROJECT NAME: FAIRFAX  
 PROJECT NUMBER: BHF 023-I(5)  
 FILE NAME: 86e064\str\se064sup.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: C. CARLSON  
 PLOT DATE: 13-JUL-2009  
 DRAWN BY: C. MOONEY  
 CHECKED BY: C. CARLSON  
 SHEET 35 OF 61



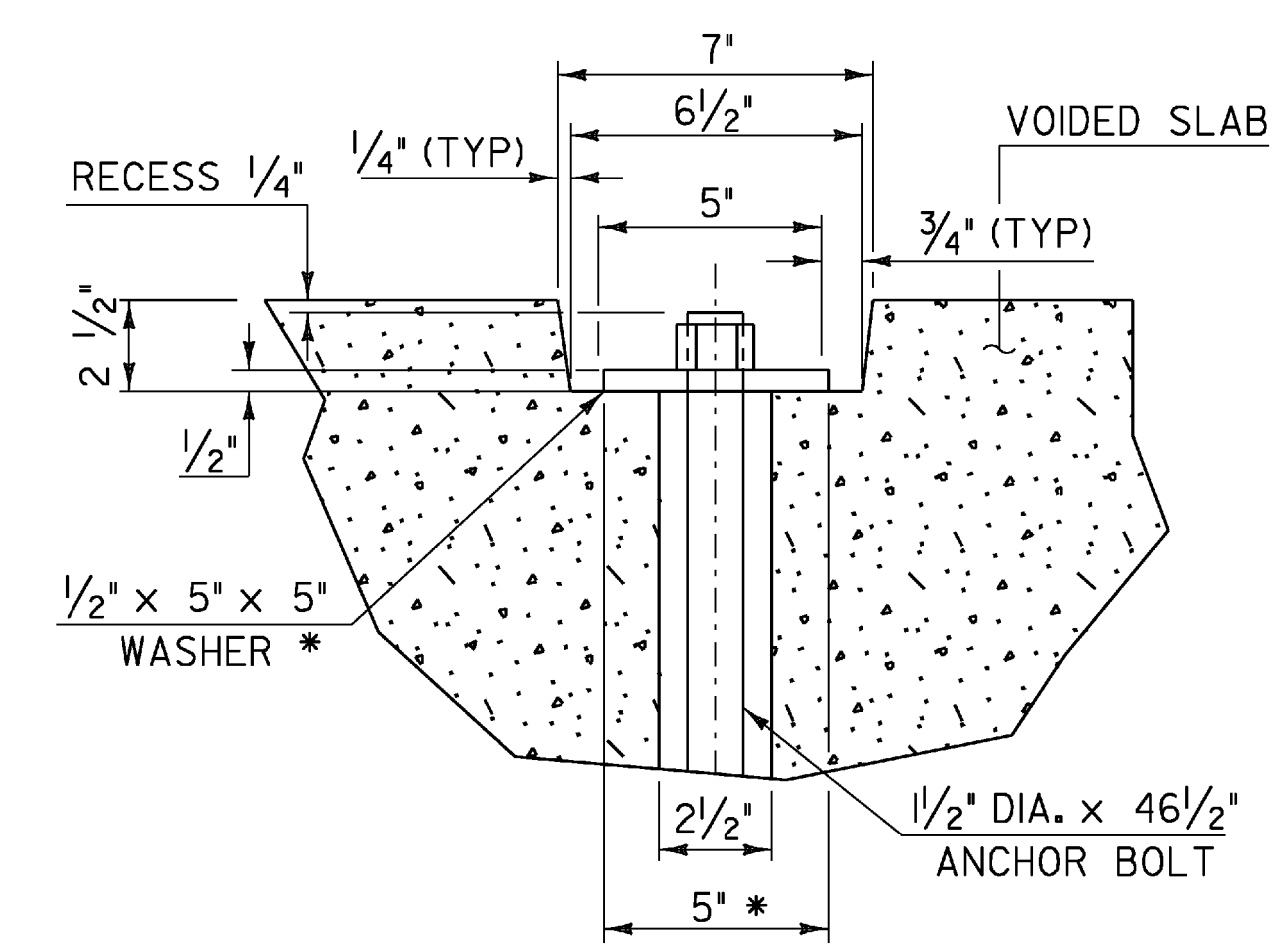
**PLAN PRESTRESSED VOIDED SLAB UNITS**  
NTS



**END BRIDGE ANCHOR BOLT DETAIL**  
NTS

NOTE:  
SEE VAOT SPECIFICATION 714.08 FOR ANCHOR BOLTS & NUTS

\* 1/2" x 5" x 5" WASHER WITH 1 1/2" DIA. HOLE (GALVANIZED)

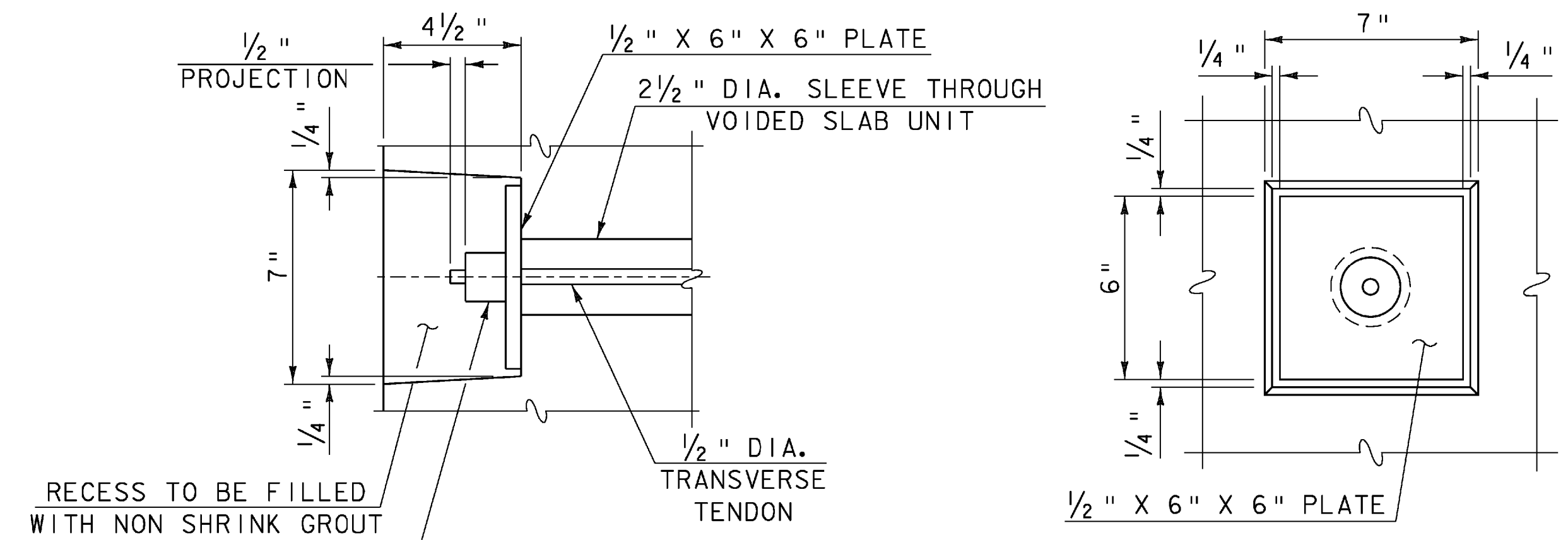


**SECTION A-A**

**NOTES**

1. TRANSVERSE TENDONS SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND TENDON) FOR THE LENGTH OF TENDON, EXCEPT AT ANCHORAGE LOCATIONS. TENDONS SHALL BE TENSIONED TO 30 KIPS.
2. THE 1/2" PLATE SHALL CONFORM TO AASHTO M 270M/ M 270 GRADE 50. THE PLATE AND CHUCK SHALL BE GALVANIZED ACCORDING TO AASHTO M111M/ M111.

**VOIDED SLAB LAYOUT & DETAILS**

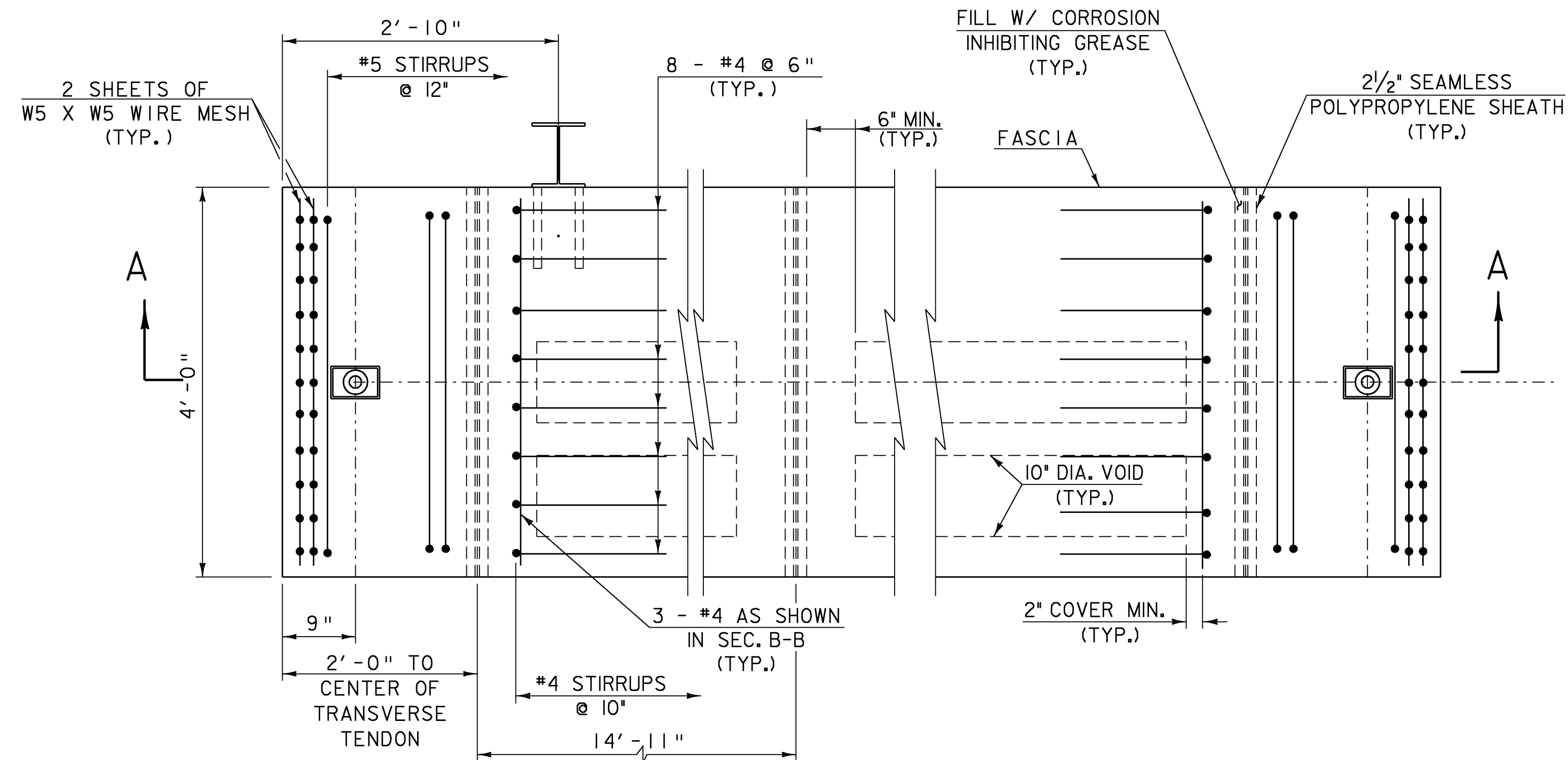


**DETAIL "A"**

SCALE 1/4" = 1'-0"

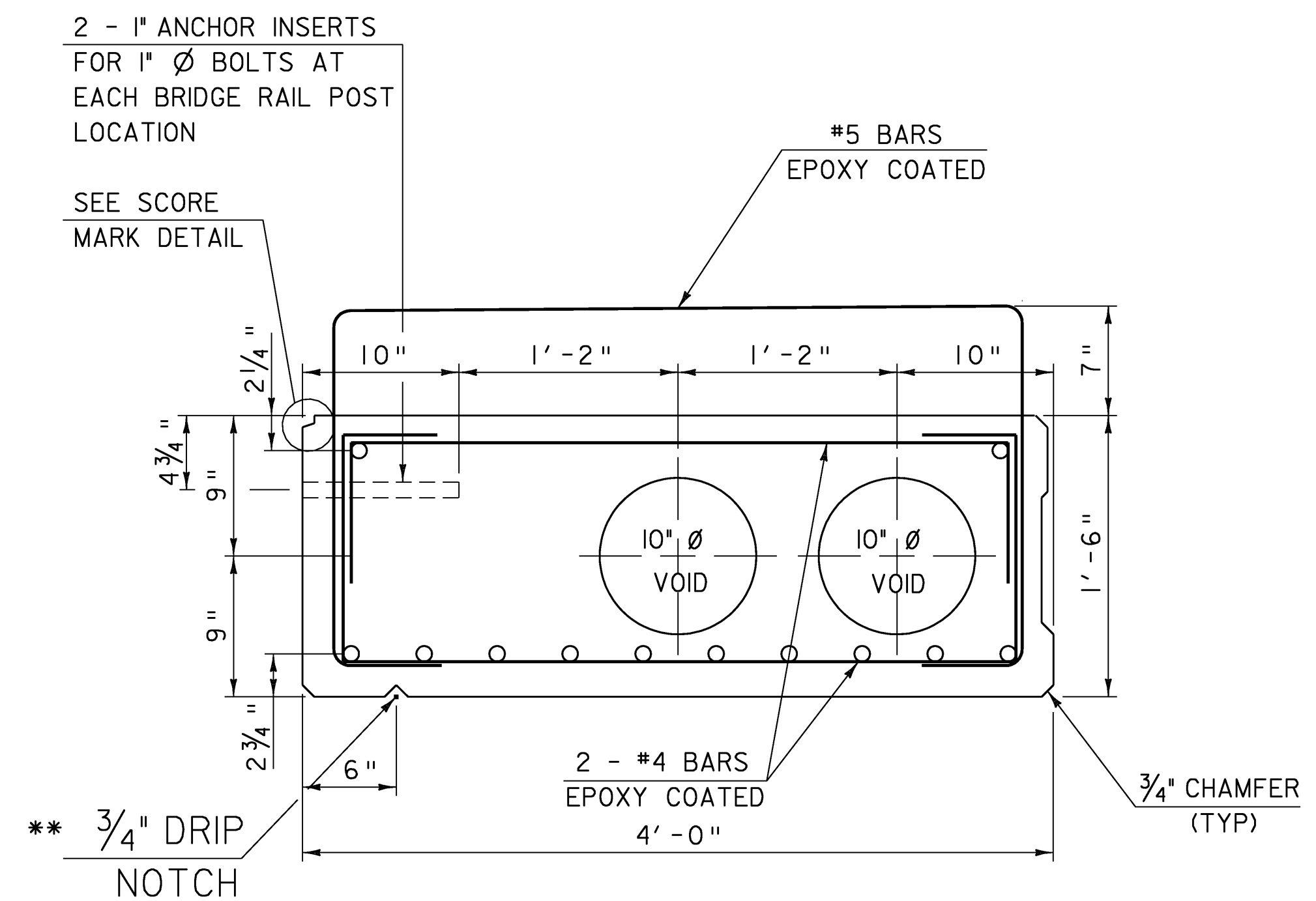
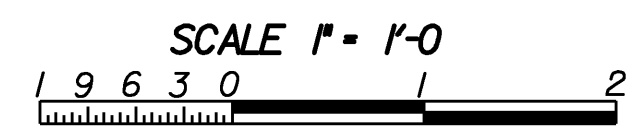
1 0 2 4 6

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: str3
FILE NAME: 86e064\str\se064sup.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 36 OF 61
DESIGNED BY: C. CARLSON	
se064dd.l	



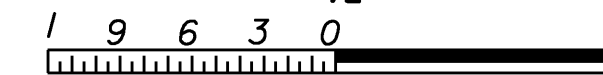
**PLAN OF END BLOCK DETAIL  
(UNIT 1)**

NOTE: UNIT 9 IS MIRROR IMAGE TO UNIT 1.



**18" X 48" VOIDED SLAB  
UNITS 1 AND 9**

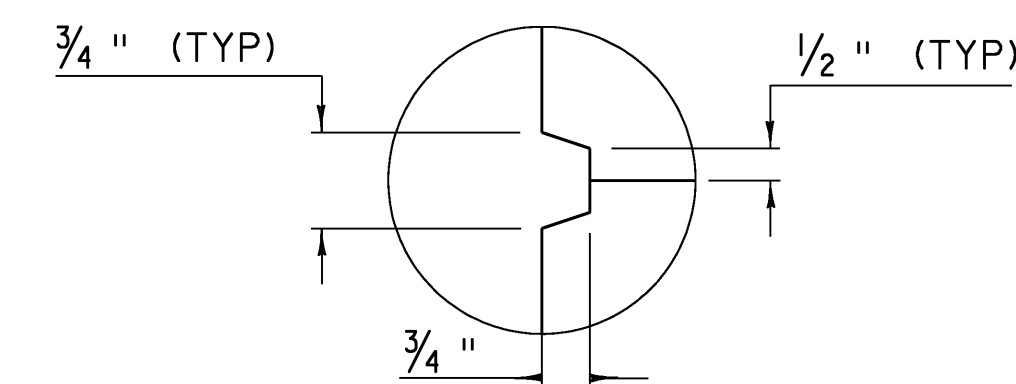
SCALE 1 1/2" = 1'-0"



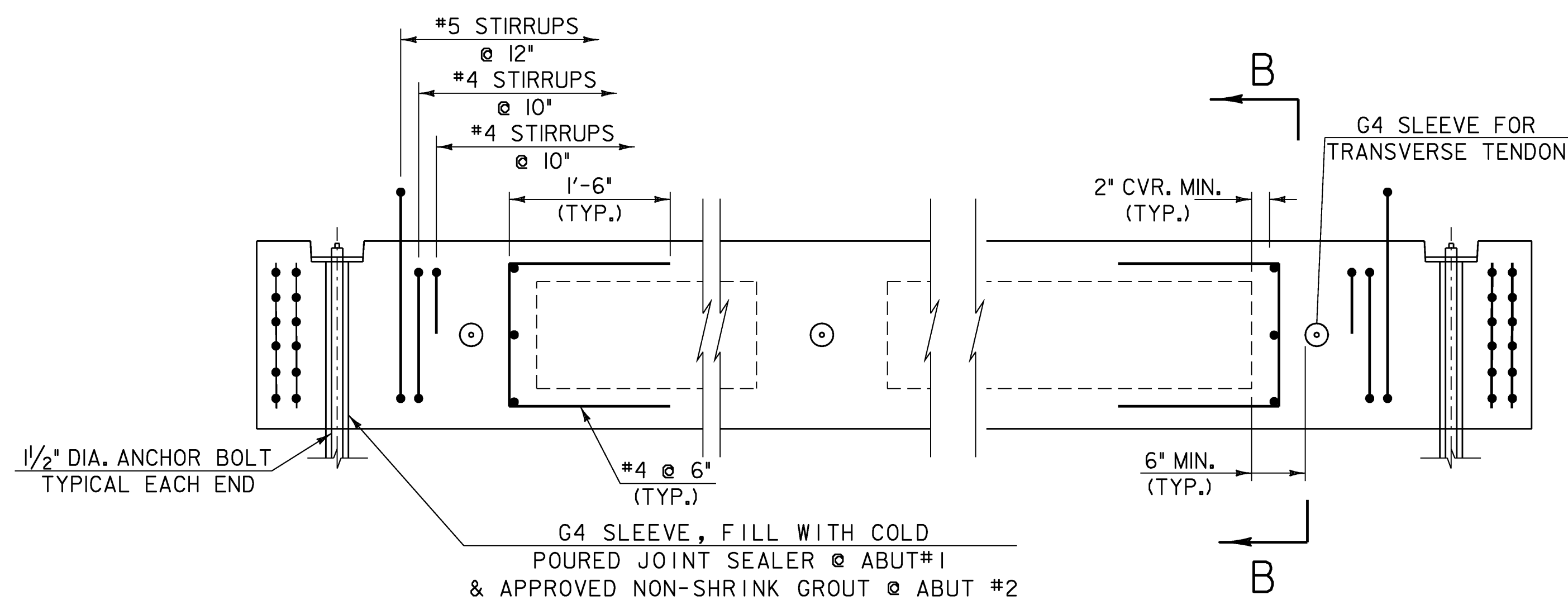
\*\* = STOP DRIP NOTCH 5'-0" FROM ENDS OF UNIT AND OUTLET AT 45° TO FASCIA.

ROW #	# STRANDS
1 @ 2 3/4"	10
2 @ 15 3/4"	2

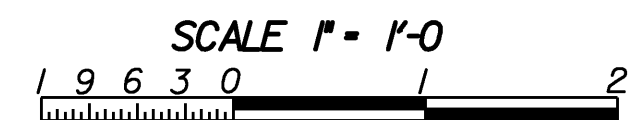
- NOTES:
- UNIT 9 IS MIRROR IMAGE TO UNIT 1. SEE SHEET 39 FOR SHEAR KEY DETAIL
  - ROUGHEN SURFACE 1/4" TO 1/2" UNDER SIDEWALK



**SCORE MARK DETAIL  
NOT TO SCALE**

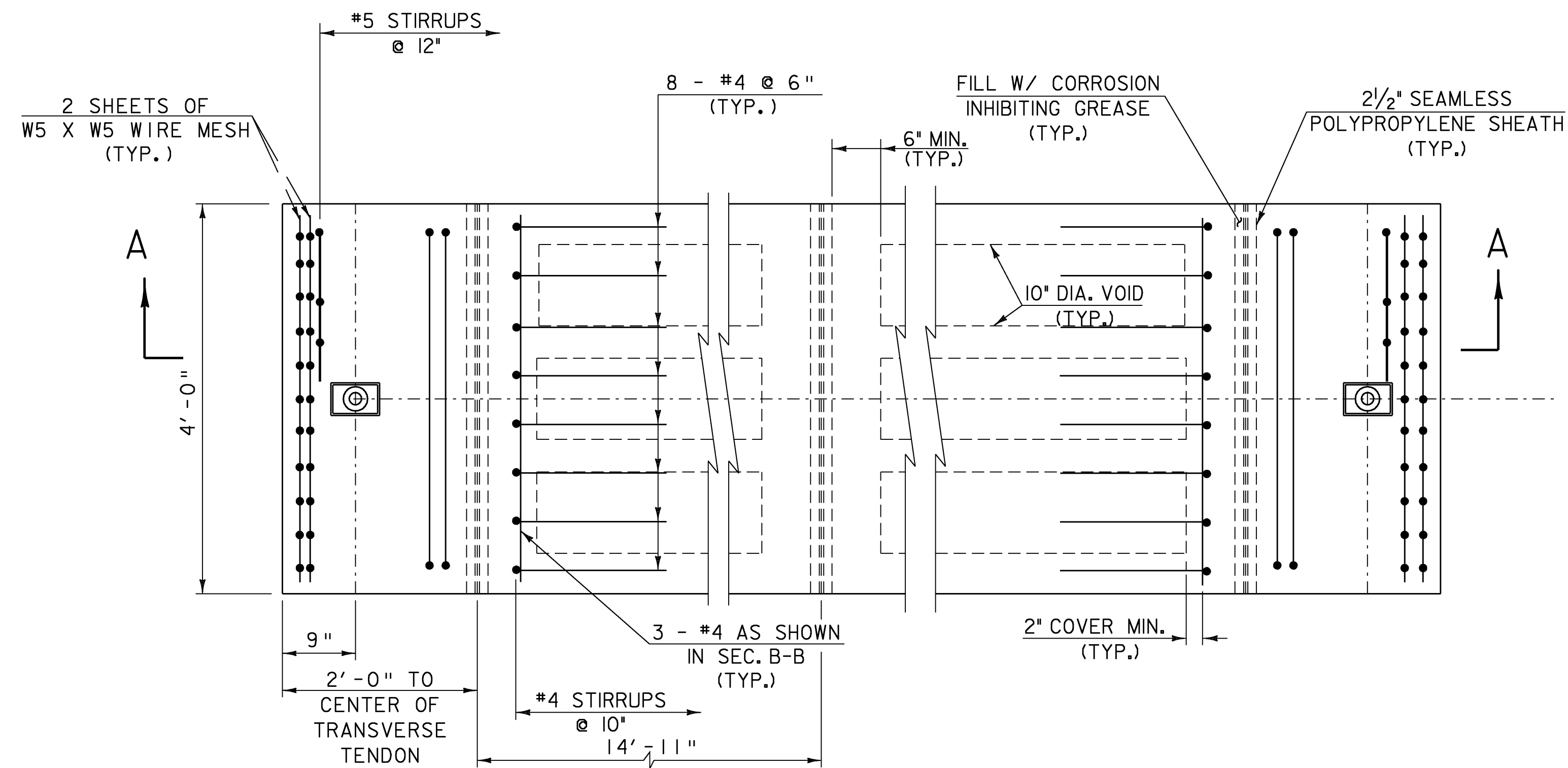


**VOIDED SLAB SECTION A-A**



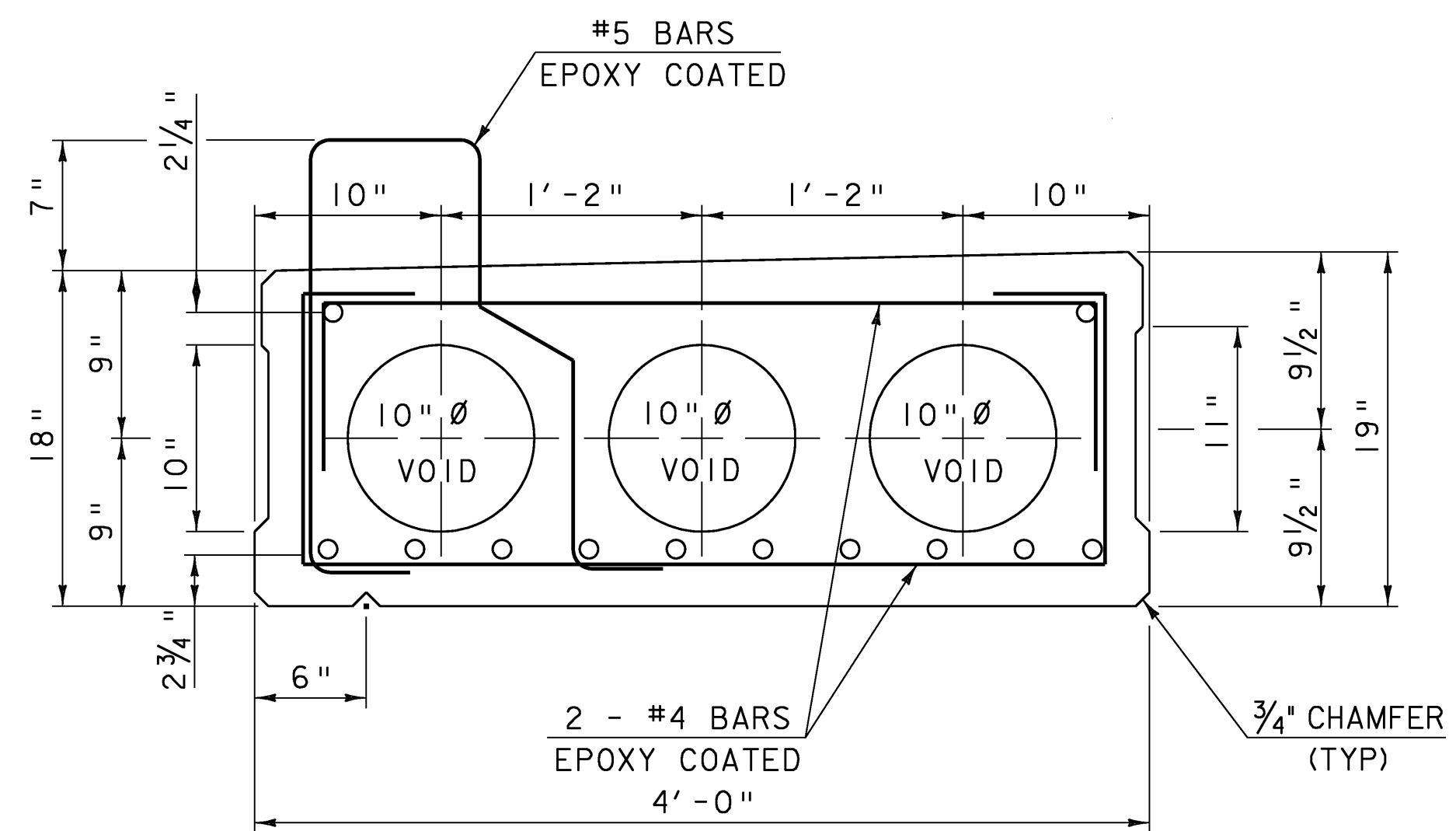
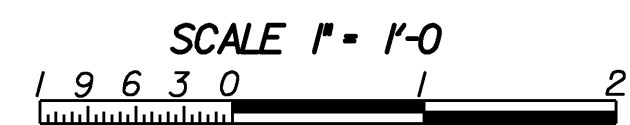
**VOIDED SLAB UNITS 1 & 9**

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: str3
FILE NAME: 86e064\str\se064sup.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 37 OF 61
DESIGNED BY: C. CARLSON	
se064ssdl	



**PLAN OF END BLOCK DETAIL**  
**UNITS 2 and 8**

NOTE: UNIT 8 IS MIRROR IMAGE TO UNIT 2.

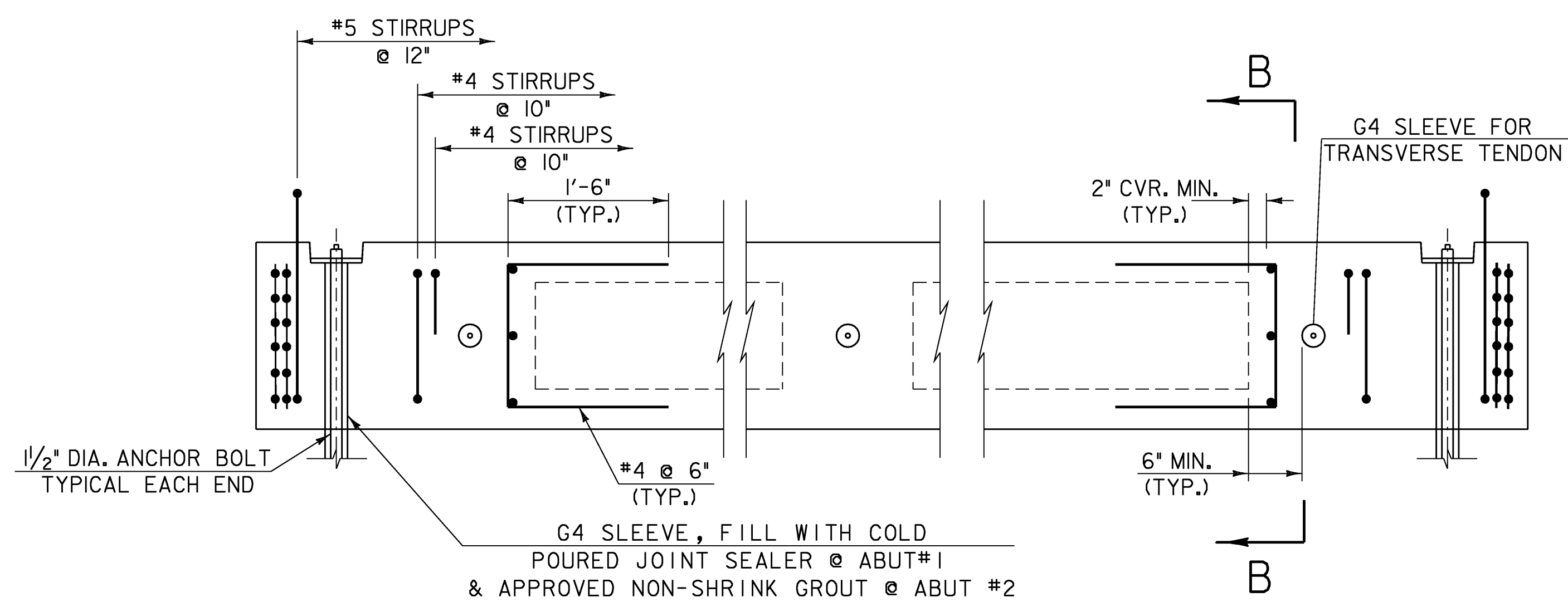


**18" X 48" VOIDED SLAB**  
**UNITS 2 and 8**

SCALE 1/2" = 1'-0"

ROW #	# STRANDS
1 @ 2 3/4"	10
2 @ 15 3/4"	2

- NOTES:
- UNIT 8 IS MIRROR IMAGE TO UNIT 2. SEE SHEET 39 FOR SHEAR KEY DETAIL
  - ROUGHEN SURFACE 1/4" TO 1/2" FOR 12" UNDER SIDEWALK.

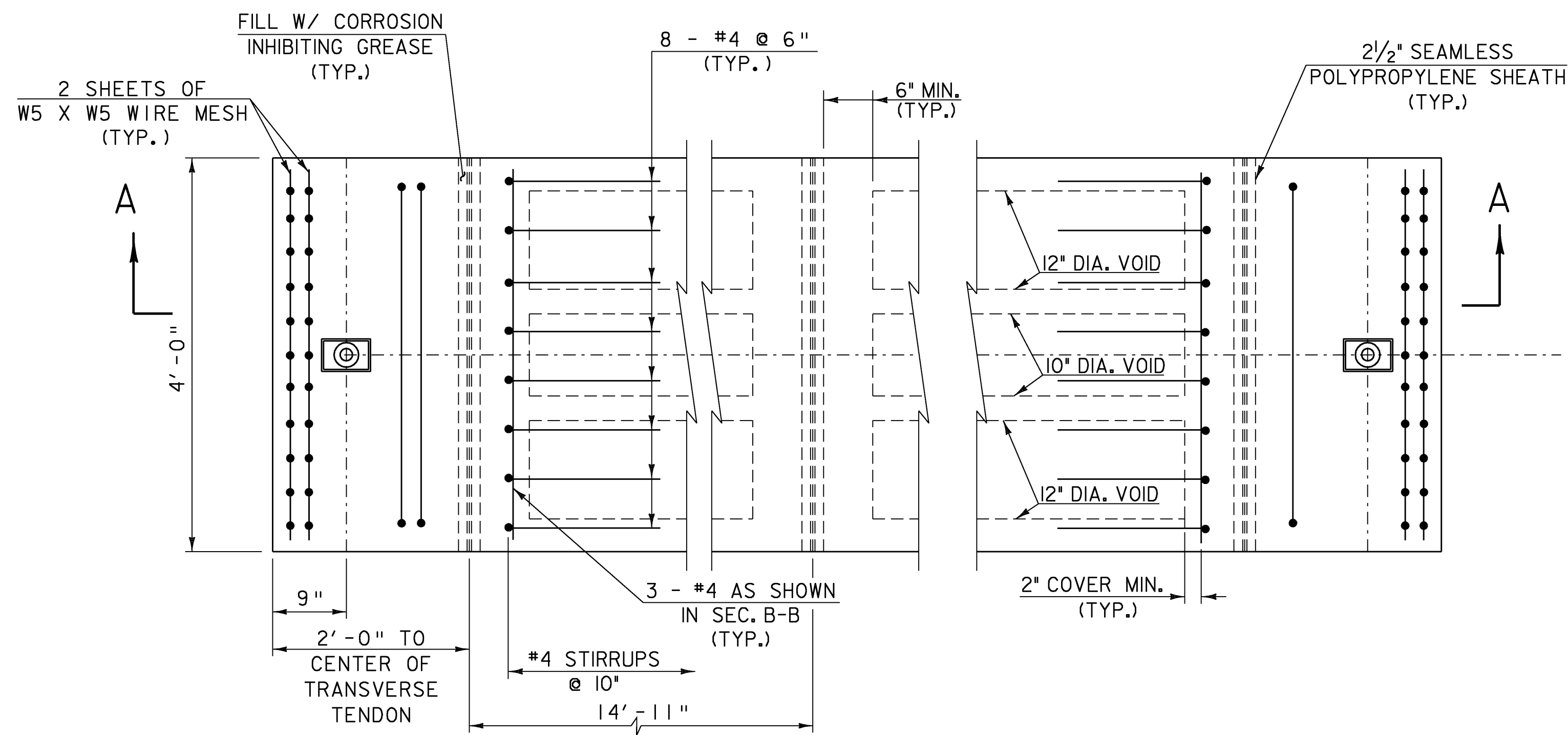


**VOIDED SLAB SECTION A-A**



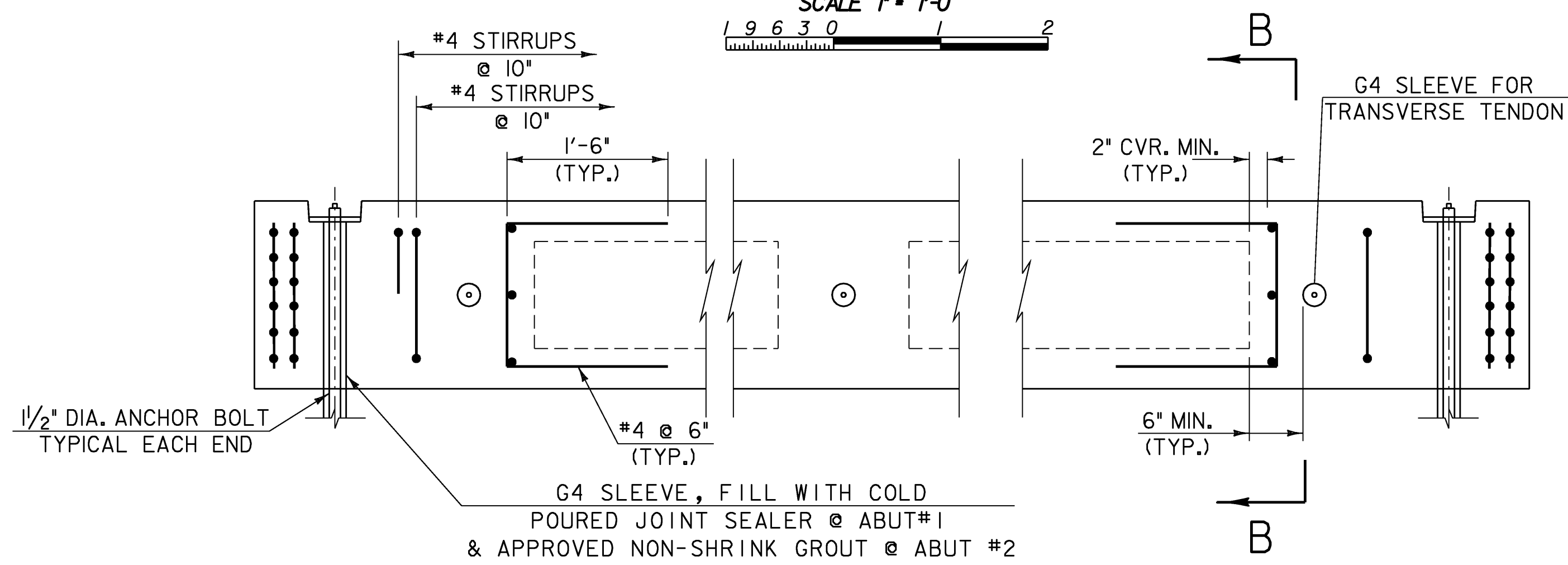
**VOIDED SLAB UNITS 2 & 8**

PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: str3
FILE NAME: 86e064\str\se064sup.dgn	CHECKED BY: C. CARLSON
DESIGNED BY: C. CARLSON	SHEET 38 OF 61
se064ssd.l	



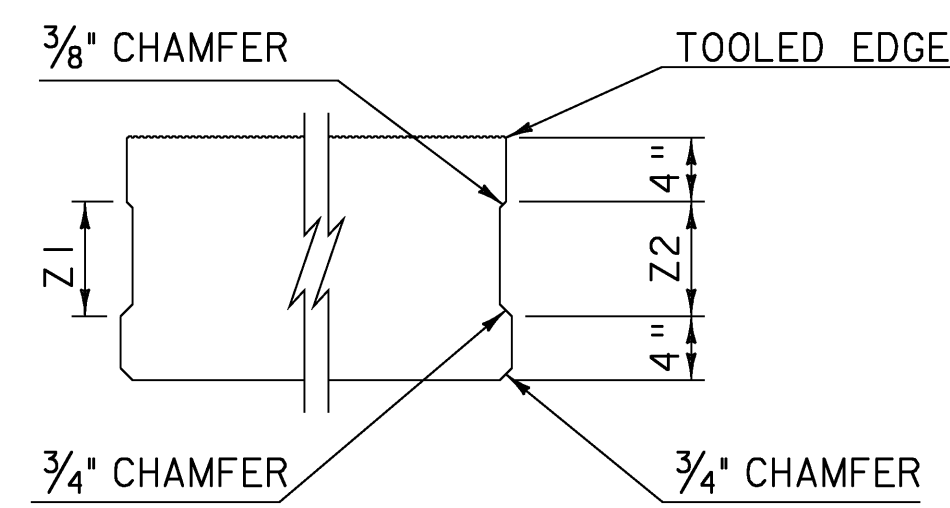
PLAN OF END BLOCK DETAIL  
(UNITS 3-7)

SCALE 1" = 1'-0"  
1 9 6 3 0 1 2



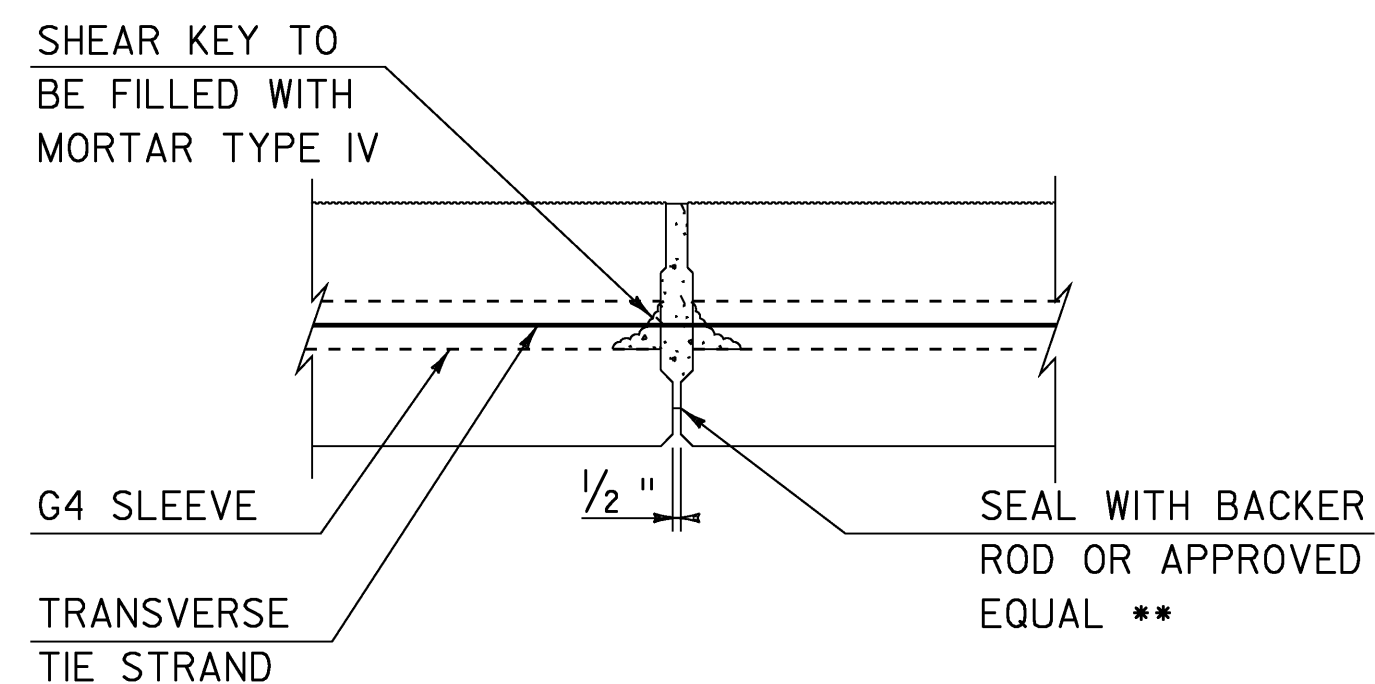
VOIDED SLAB SECTION A-A

SCALE 1" = 1'-0"  
1 9 6 3 0 1 2



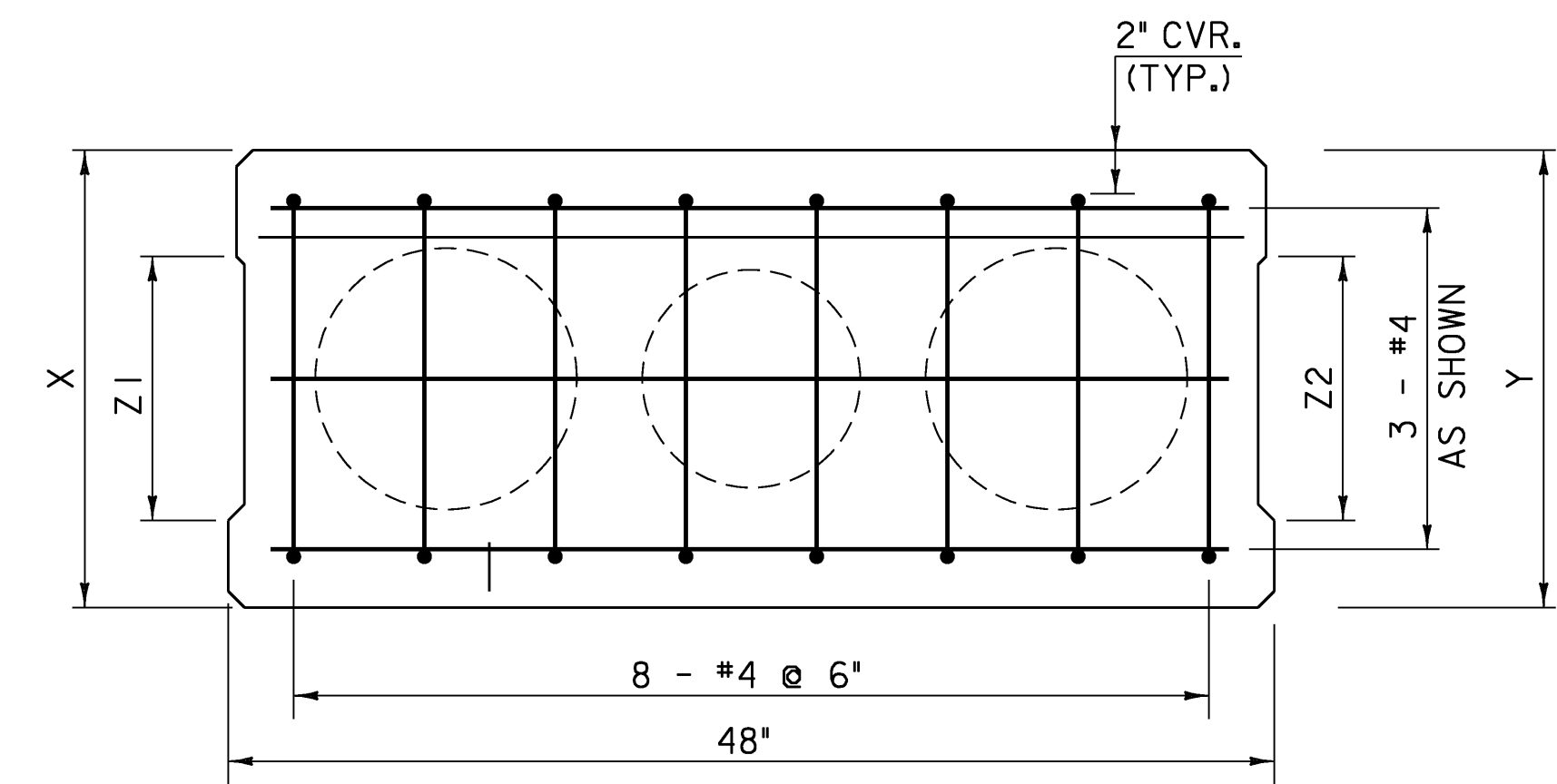
SHEAR KEY DETAIL  
FOR VOIDED SLAB

SCALE 1" = 1'-0"  
1 9 6 3 0 1 2



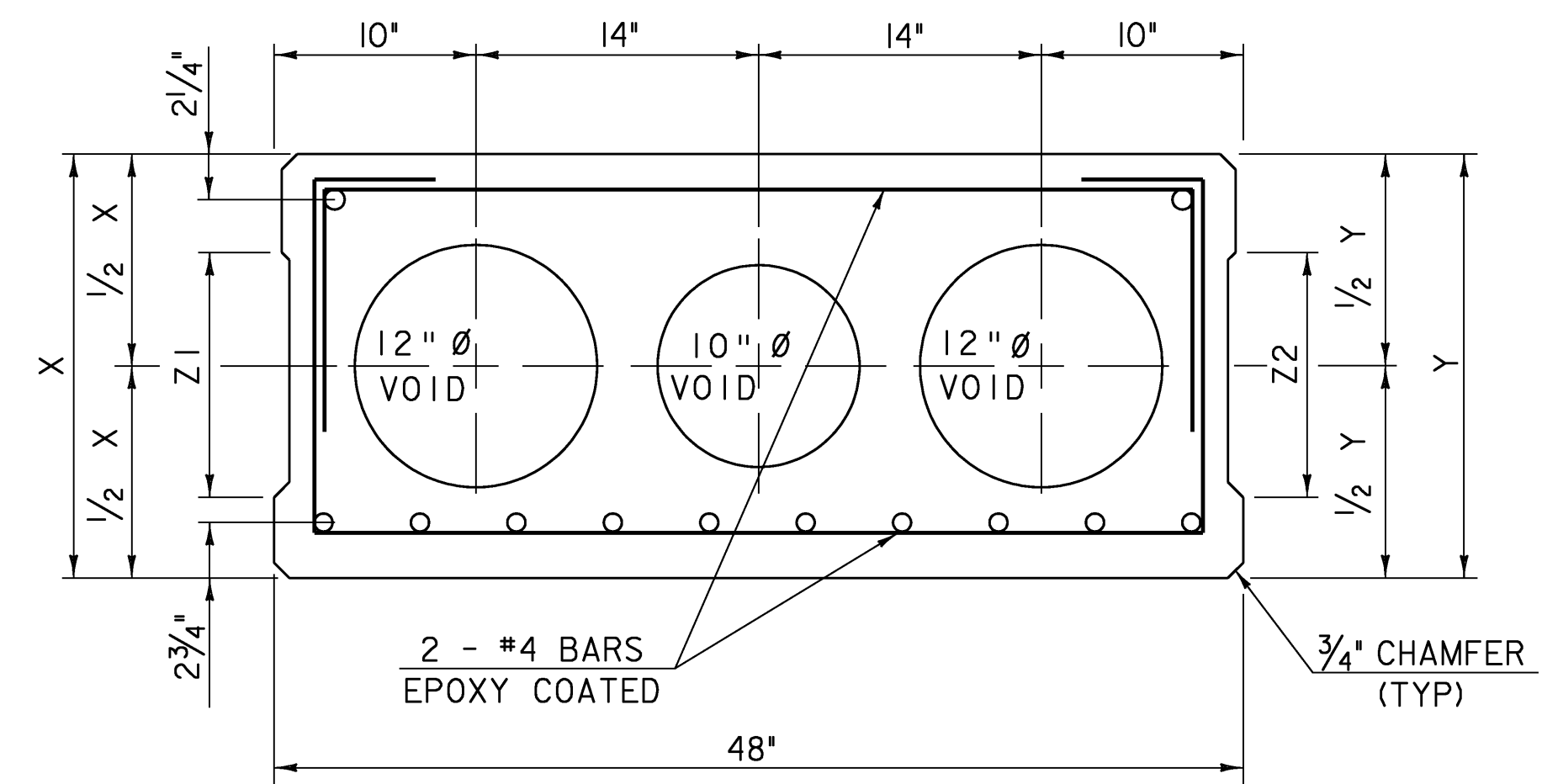
SHEAR KEY SECTION  
FOR VOIDED SLAB

SCALE 1" = 1'-0"  
1 9 6 3 0 1 2



SECTION B-B

SCALE 1 1/2" = 1'-0"  
1 9 6 3 0 1



VARIED DEPTH X 48" VOIDED SLAB

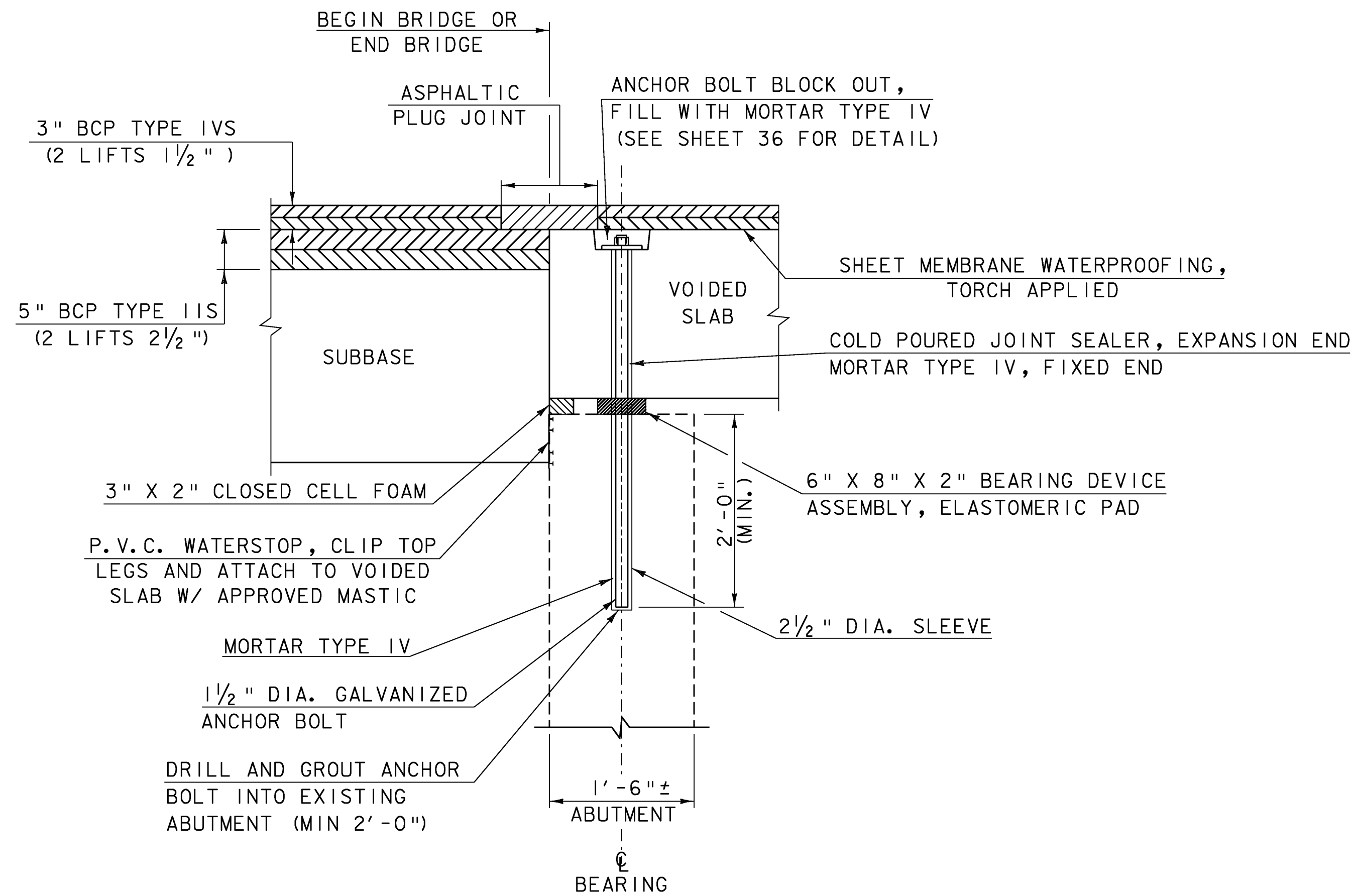
SCALE 1 1/2" = 1'-0"  
1 9 6 3 0 1

VOIDED SLAB NO.	QUANTITY	(X") DEPTH	(Y") DEPTH	(Z1") DEPTH	(Z2") DEPTH	# STRANDS BOTTOM @ 2 3/4"	# STRANDS TOP
UNIT 3 & 7	2	19"	20"	11"	12"	10	2 @ 16 3/4"
UNIT 4 & 6	2	20"	21"	12"	13"	10	2 @ 17 3/4"
UNIT 5	1	21"	21"	13"	13"	10	2 @ 18 3/4"

VOIDED SLAB UNITS 3 - 7

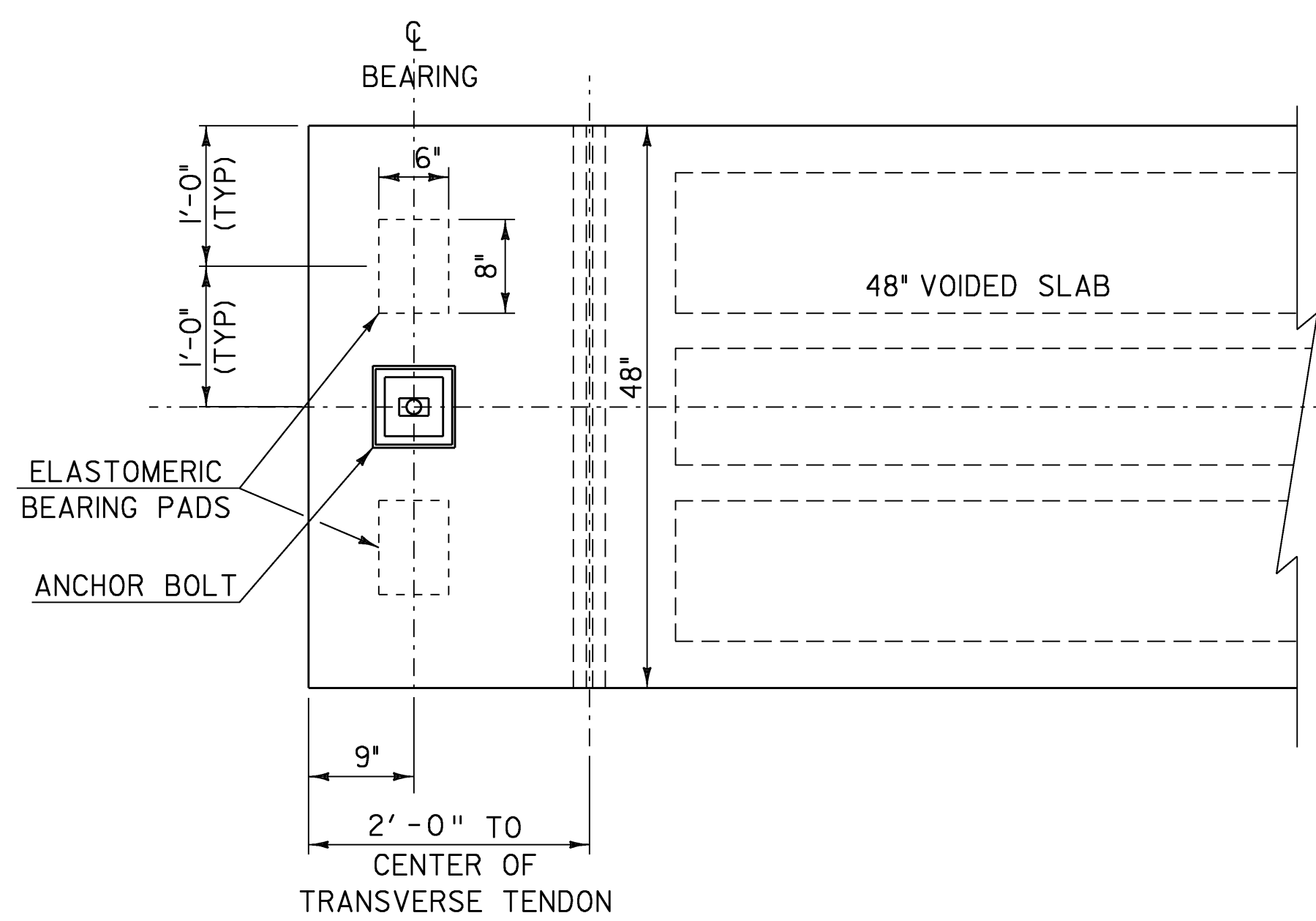
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: str3
FILE NAME: 86e064\str\se064sup.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 39 OF 61
DESIGNED BY: C. CARLSON	
se064ssd2.1	

\*\*NOTE:  
INSTALL BACKER ROD  
AFTER UNITS HAVE  
BEEN PLACED



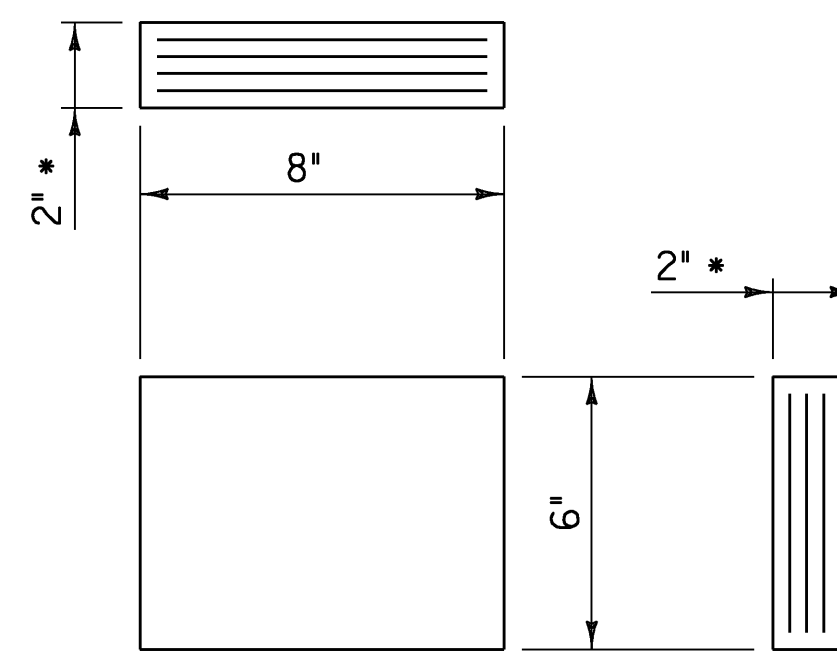
**BRIDGE END DETAIL @ ABUTMENTS  
(NORMAL TO C BEARING)**

SCALE 1" = 1'-0"  
1 9 6 3 0 1 2



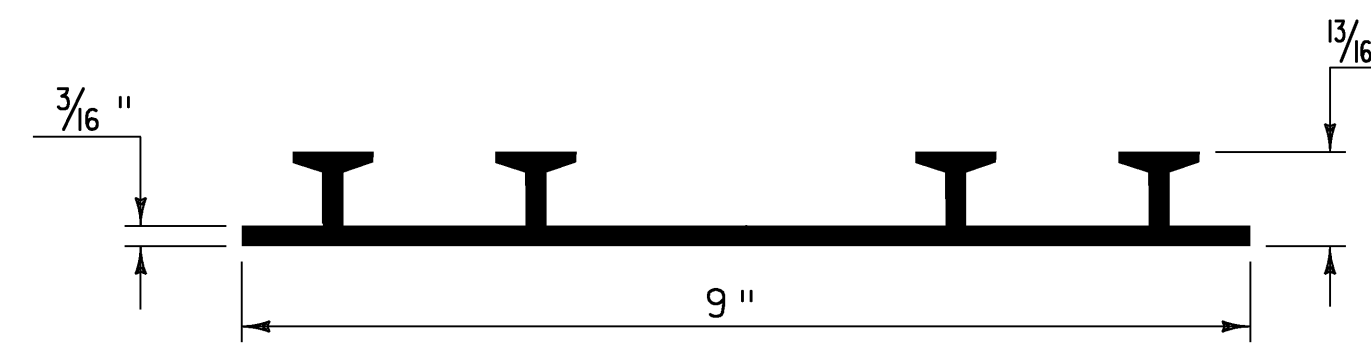
**BEARING PAD PLACEMENT DETAIL  
(TYPICAL EACH END)**

SCALE 1" = 1'-0"  
1 9 6 3 0 1 2



**ELASTOMERIC BEARING DETAIL**

\* 3 - 3/8" LAYERS OF ELASTOMERIC ALTERNATING WITH  
4 - 14 GAGE STEEL REINFORCING PLATES



**P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS**

NTS

INCLUDE THE COSTS FOR P.V.C. WATERSTOP IN THE UNIT PRICE BID FOR CONCRETE, HIGH PERFORMANCE CLASS B. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE STRUCTURES ENGINEER.

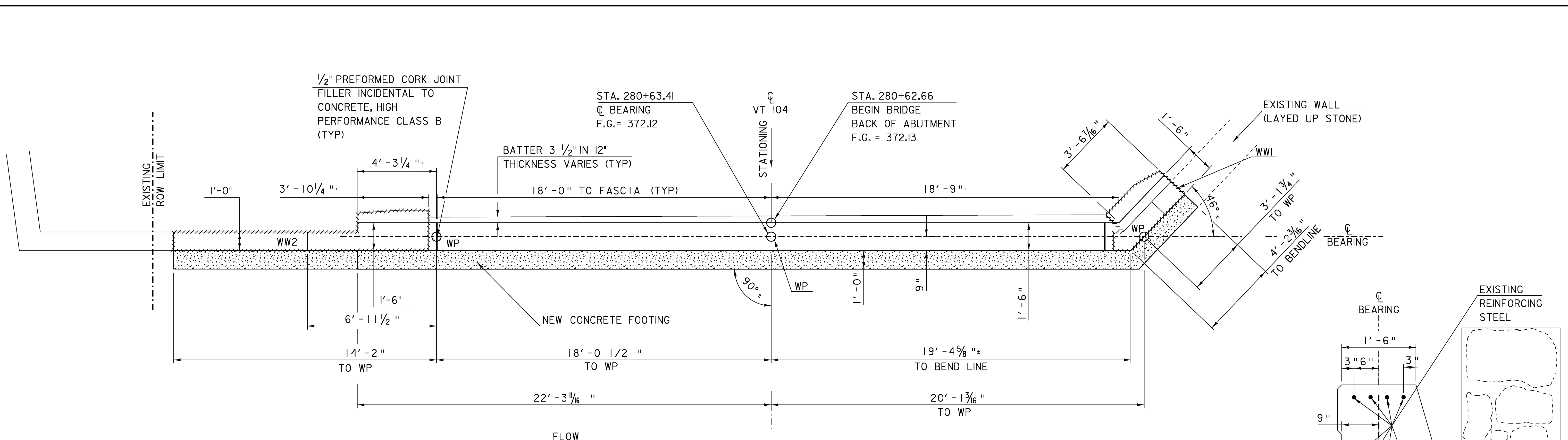
**NOTES**

- ITEM 531.11, "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD" IS THE PAY ITEM FOR THE BEARINGS.
- ALTERNATE CONFIGURATIONS FOR ELASTOMERIC BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE BEARING SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE LOADS AND CRITERIA SHOWN ON THIS SHEET AND MAINTAIN THE ANCHORAGE SYSTEM SHOWN. THE BEARINGS SHALL BE DESIGNED ACCORDING TO AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS" 2006 EDITION AND ITS LATEST REVISIONS.
- THE BEARING SHAPE FACTOR SHALL BE BETWEEN 5.0 AND 12.0.
- ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL GRADE 60. NO FABRIC REINFORCEMENT WILL BE PERMITTED.
- ELASTOMERIC BEARINGS REINFORCED WITH STEEL SHALL HAVE A 1/8" EDGE SEAL OF ELASTOMERIC INTEGRAL WITH THE BEARING OVER ALL PLATES.
- DESIGN CRITERIA:
 

A.	TEMPERATURE RANGE:	80 F
B.	60 DUROMETER ELASTOMERIC	
C.	MAXIMUM BEARING STRESS:	1000 psi
D.	DESIGN ROTATION:	0.016 rad
E.	REACTION/BEAM:	
		48"
	RDL:	35 kips
	RLL+I:	33 kips
- COMPRESSIBLE SEALER. THE FABRICATOR SHALL SUPPLY A SELF ADHESIVE COMPRESSIBLE SEALER BETWEEN THE BOTTOM OF THE UNITS AND THE BRIDGE SEAT. THIS COMPRESSIBLE SEALER SHALL SURROUND THE 2 1/2" DIA SLEEVE IN THE UNIT. THE PURPOSE OF THE SEALER IS TO FACILITATE PLACEMENT OF THE "MORTAR OR JOINT SEALER" AROUND THE ANCHOR BOLTS, PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 535.11, "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD"

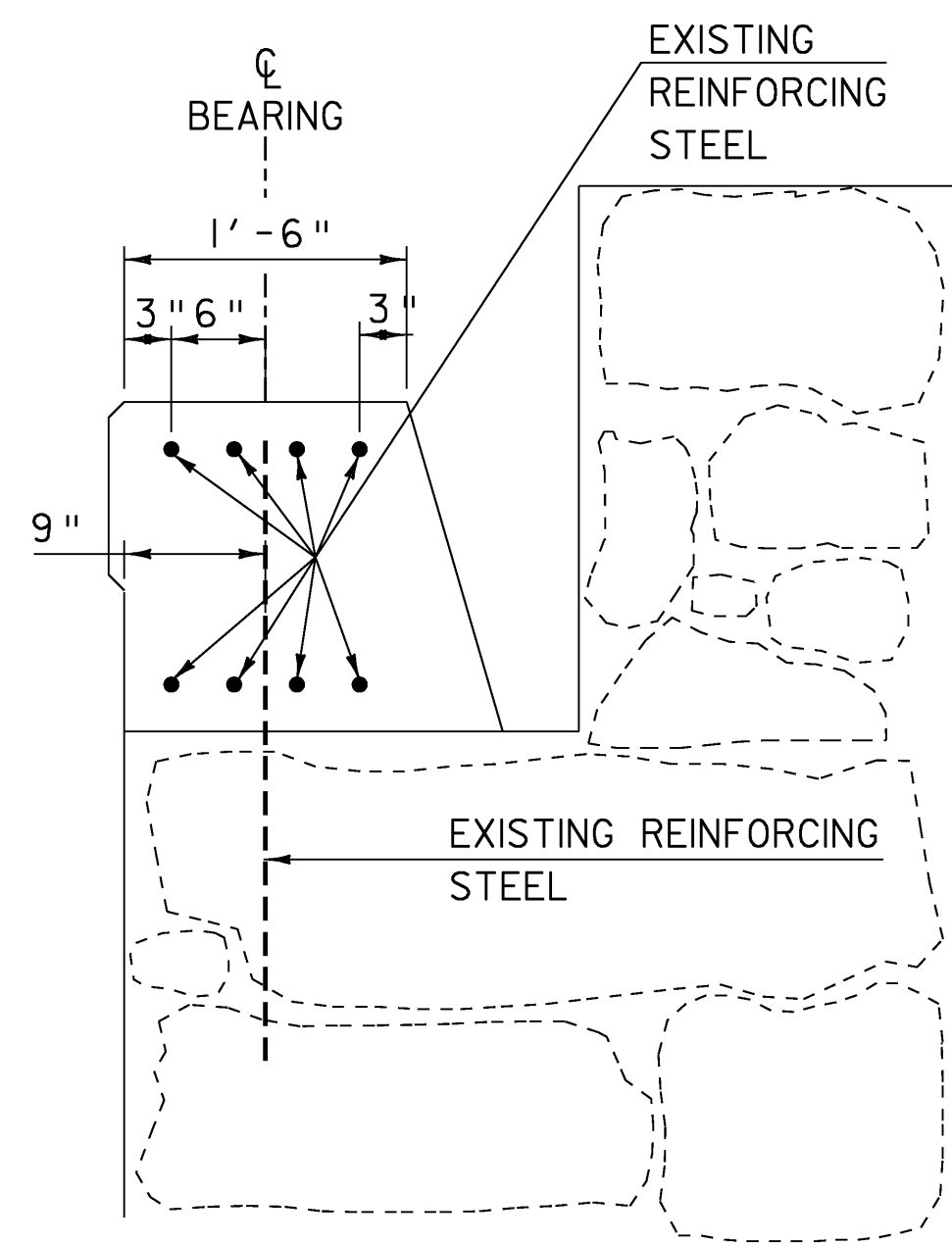
**BRIDGE END AND  
BEARING DETAILS**

PROJECT NAME:	FAIRFAX	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-I(5)	DRAWN BY:	str3
FILE NAME:	86e064\str\se064sup.dgn	CHECKED BY:	C. CARLSON
PROJECT LEADER:	C. CARLSON	SHEET	40 OF 61
DESIGNED BY:	C. CARLSON		
se064beb.i			



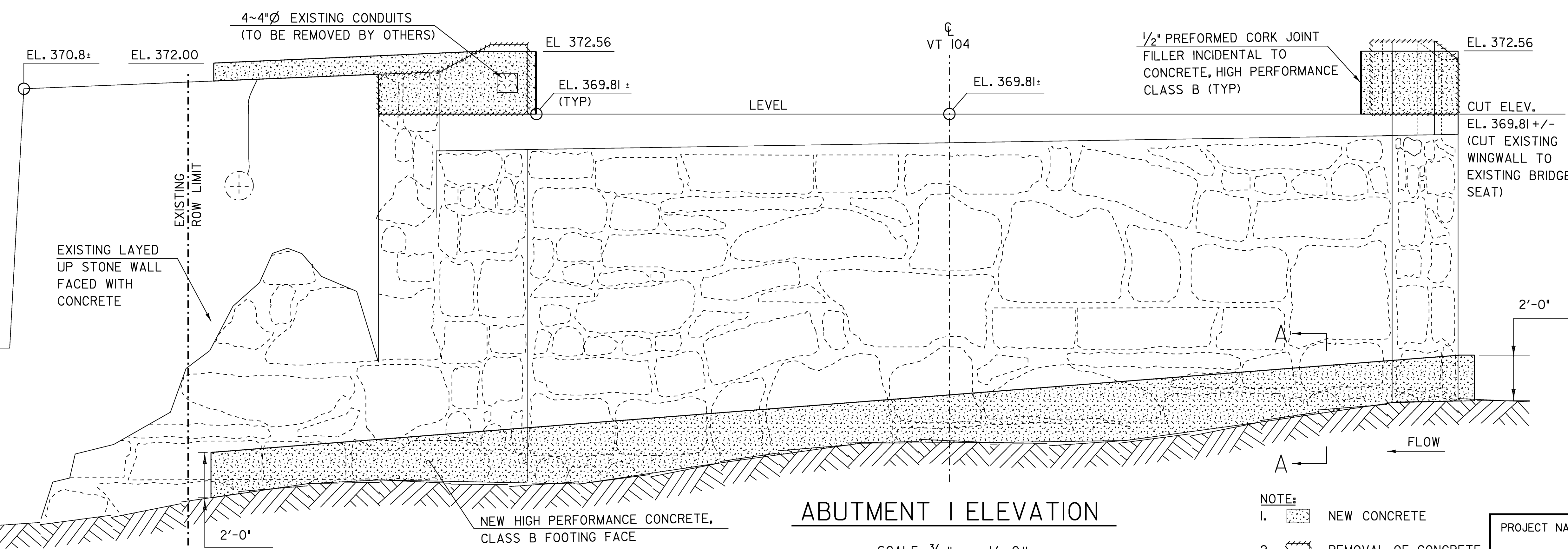
**ABUTMENT I PLAN**

SCALE 3/8" = 1'-0"  
 1 0 1 2 3 4



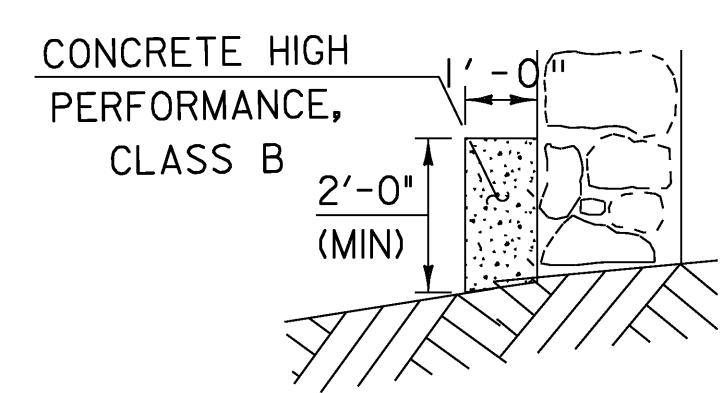
**EXISTING ABUTMENT I TYPICAL**

SCALE 1" = 1'-0"  
 1 9 6 3 0 2



**ABUTMENT I ELEVATION**

SCALE 3/8" = 1'-0"  
 1 0 1 2 3 4



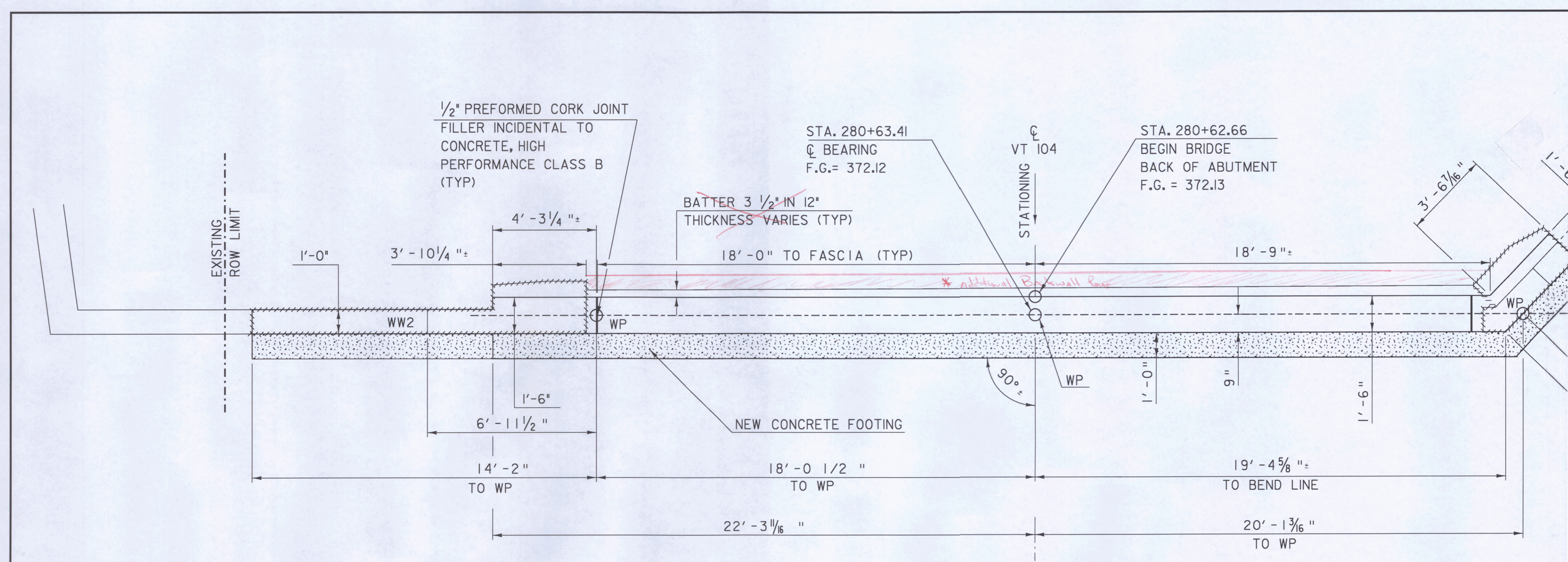
**SECTION A-A**

SCALE 3/8" = 1'-0"  
 1 0 1 2 3 4

- NOTE:**
- NEW CONCRETE
  - REMOVAL OF CONCRETE OR MASONRY
  - SEE SHEET 43 FOR WINGWALL DETAILS

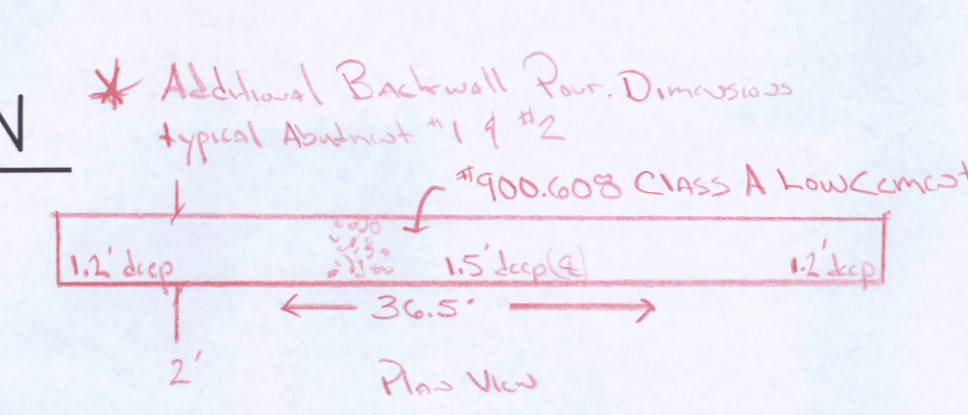
**ABUTMENT I DETAILS**

PROJECT NAME:	FAIRFAX	FILE NAME:	s86e064sub.dgn	PLOT DATE:	20-JUL-2009
PROJECT NUMBER:	BHF 023-I(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	C. MOONEY
		DESIGNED BY:	C. CARLSON	CHECKED BY:	C. CARLSON
				SHEET 41	OF 61



**ABUTMENT I PLAN**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



**MULTIPLIER 1**  
BHF 023-1(5) Reporting Scale 9/11/2010

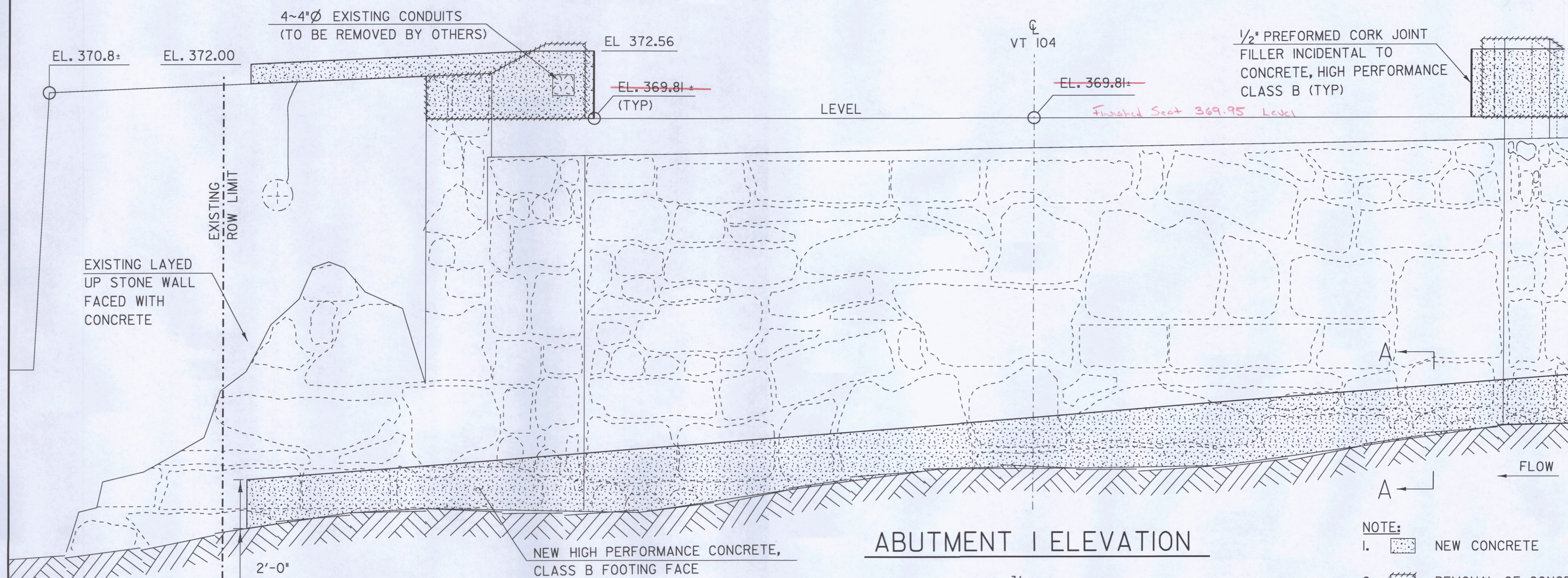
Item 602.30 Repairing Masonry (CY) #900.675 (Repairing Masonry Class B)  
Field Measurements and Calculations of same as Item # 602.30

(A) (10' x 45') = 450 sq'	(A) 12' x 1' = 12 sq'
(A) (24' x 18') = 432 sq'	(A) 12' x 5' x 1/4 = 15 sq'
(A) (5' x 16') = 80 sq'	(A) 16' x 8' x 1/2 = 40 sq'
(A) (6' x 16') = 96 sq'	(A) 22.5' x 8' = 180 sq'
(A) (10' x 30') = 300 sq'	121 sq' 2
(A) (8' x 15') = 120 sq'	121 sq' 10
(A) (33' x 9') = 297 sq'	(A) & (A) Values show agreement with equation
(A) (8' x 5') = 40 sq'	This reports the % of Area from Above
	Scale that was carried out #900.675
	9/11/11

TOTAL = 444.55

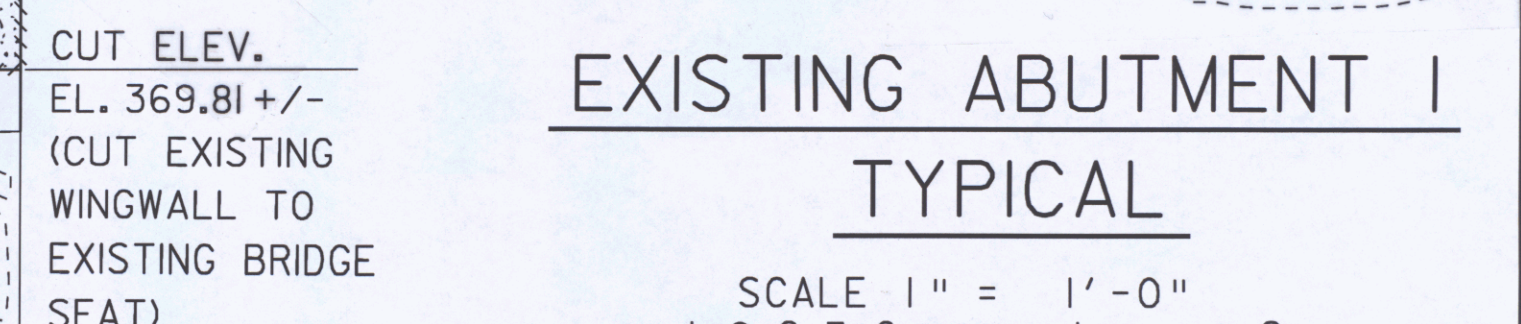
444.55 (CY) = 54,889 yd<sup>3</sup>

To Bk #3, p. 64  
STW 12-16-10



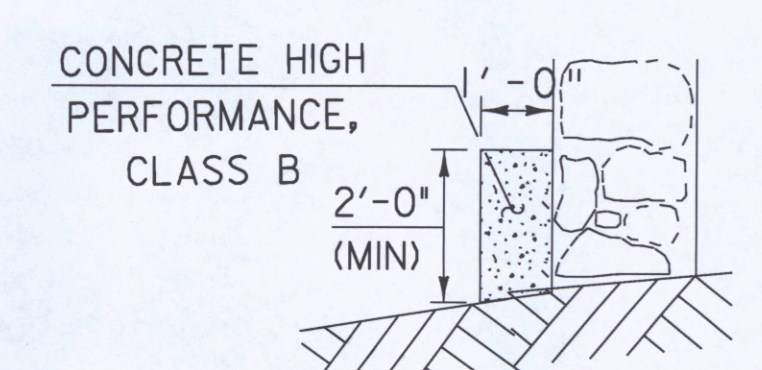
**ABUTMENT I ELEVATION**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



**EXISTING ABUTMENT I TYPICAL**

SCALE 1" = 1'-0"  
0 1 2



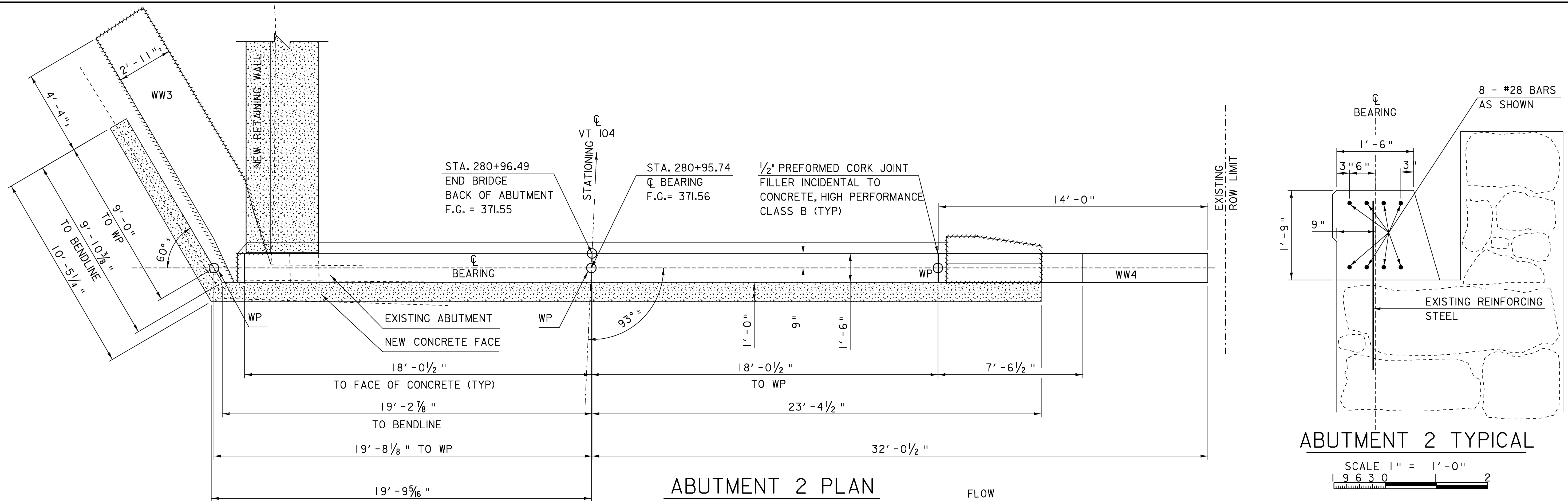
**SECTION A-A**

SCALE 3/8" = 1'-0"  
0 1 2 3 4

- NOTE:**
- NEW CONCRETE
  - REMOVAL OF CONCRETE OR MASONRY
  - SEE SHEET 43 FOR WINGWALL DETAILS

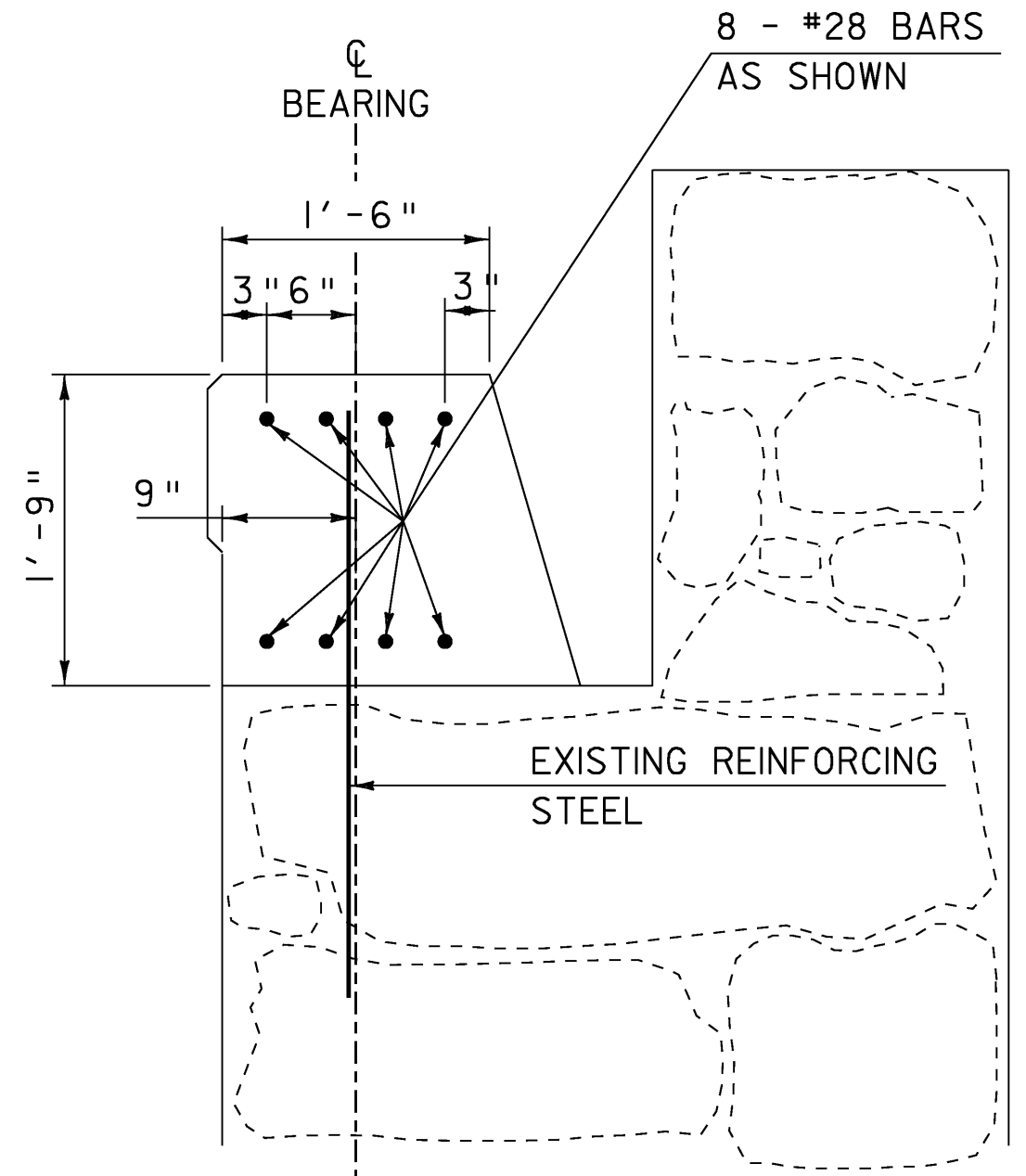
**ABUTMENT I DETAILS**

PROJECT NAME: FAIRFAX	PLOT DATE: 20-JUL-2009
PROJECT NUMBER: BHF 023-1(5)	DRAWN BY: C. MOONEY
FILE NAME: s86e064sub.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 41 OF 61
DESIGNED BY: C. CARLSON	



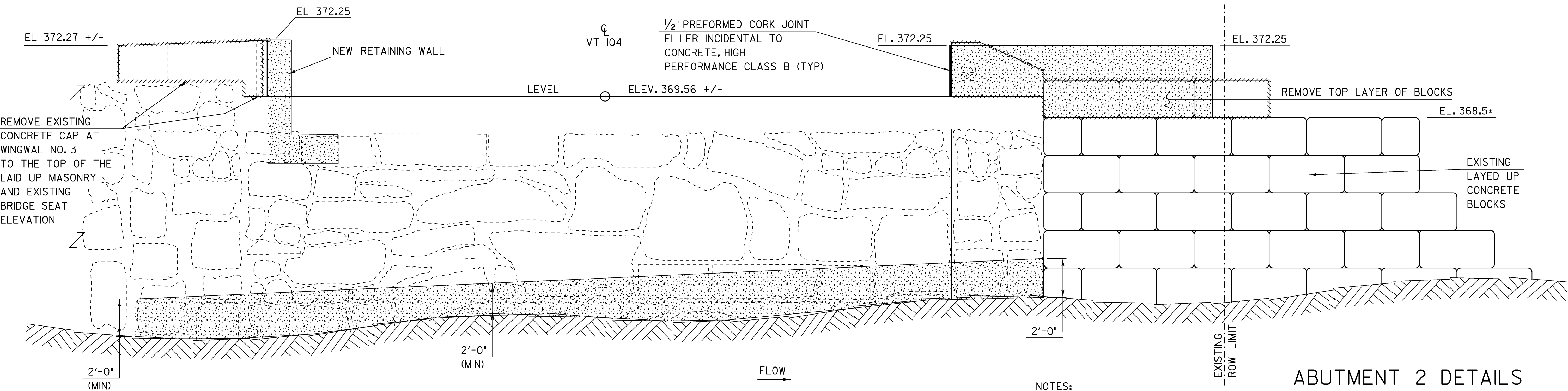
**ABUTMENT 2 PLAN**

SCALE  $\frac{3}{8}$ " = 1'-0"  
 1 0 1 2 3 4



**ABUTMENT 2 TYPICAL**

SCALE 1" = 1'-0"  
 1 9 6 3 0 2



**ABUTMENT 2 ELEVATION**

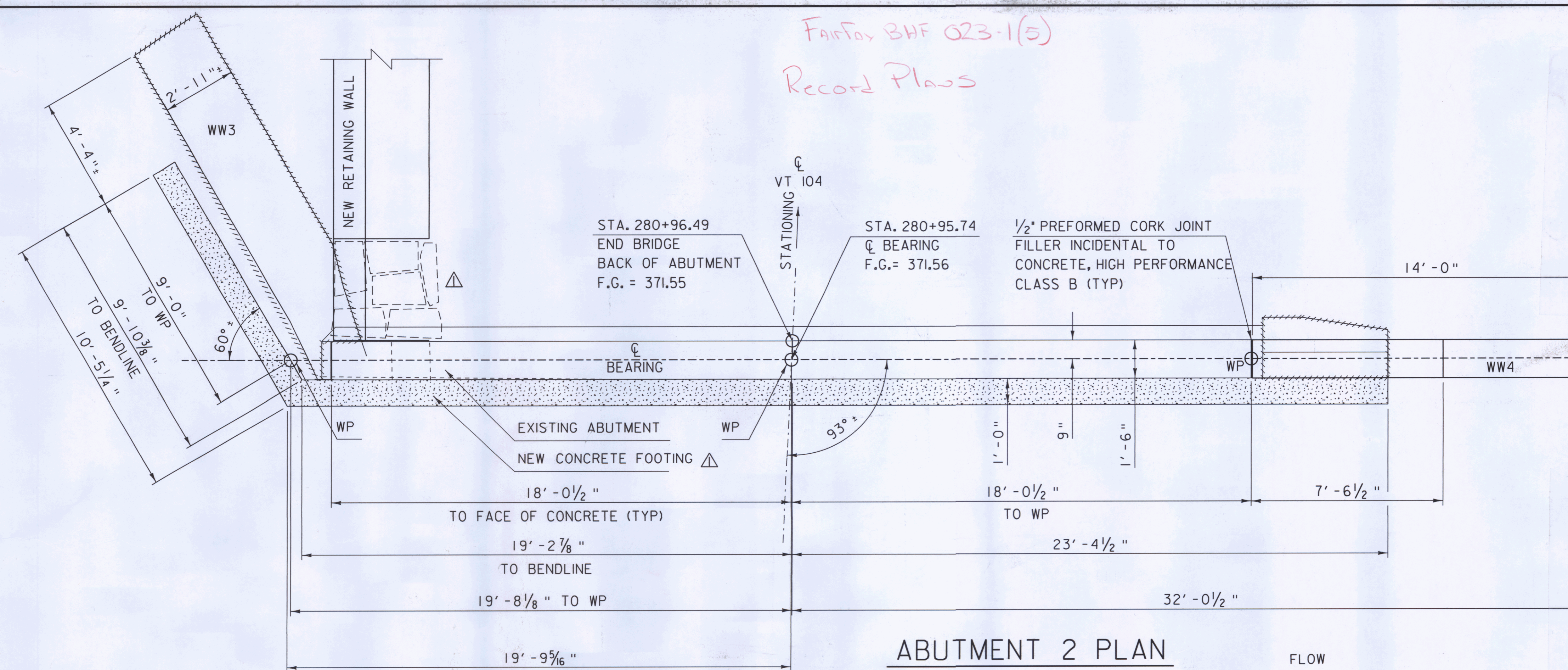
SCALE  $\frac{3}{8}$ " = 1'-0"  
 1 0 1 2 3 4

**NOTES:**

1. NEW CONCRETE
2. REMOVAL OF CONCRETE OR MASONRY
3. SEE SHEET 43 FOR WINGWALL DETAILS

PROJECT NAME:	FAIRFAX	FILE NAME:	s86e064sub.dgn	PLOT DATE:	20-JUL-2009
PROJECT NUMBER:	BHF 023-I(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	C. MOONEY
		DESIGNED BY:	C. CARLSON	CHECKED BY:	C. CARLSON
				SHEET	42 OF 61

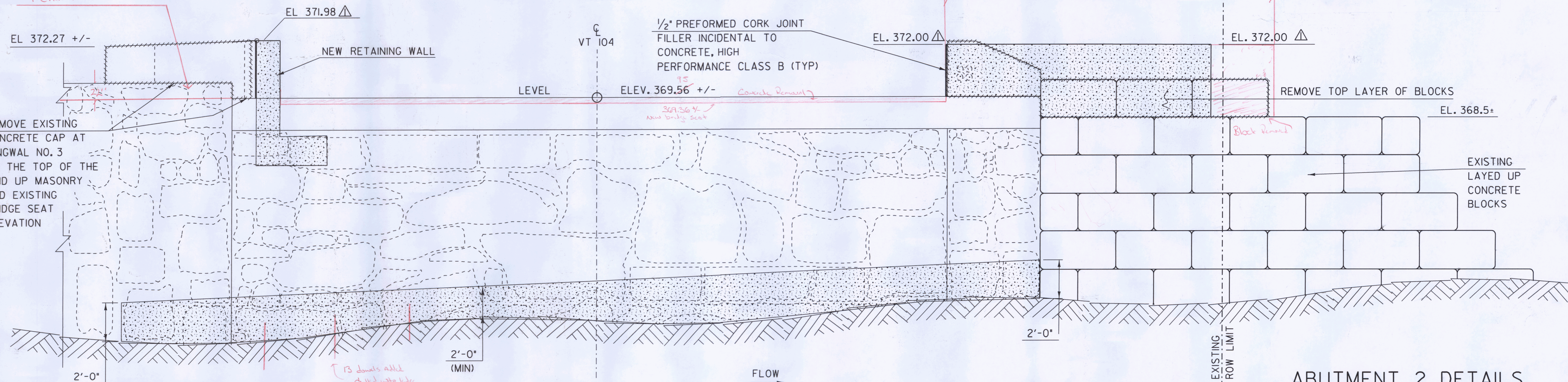
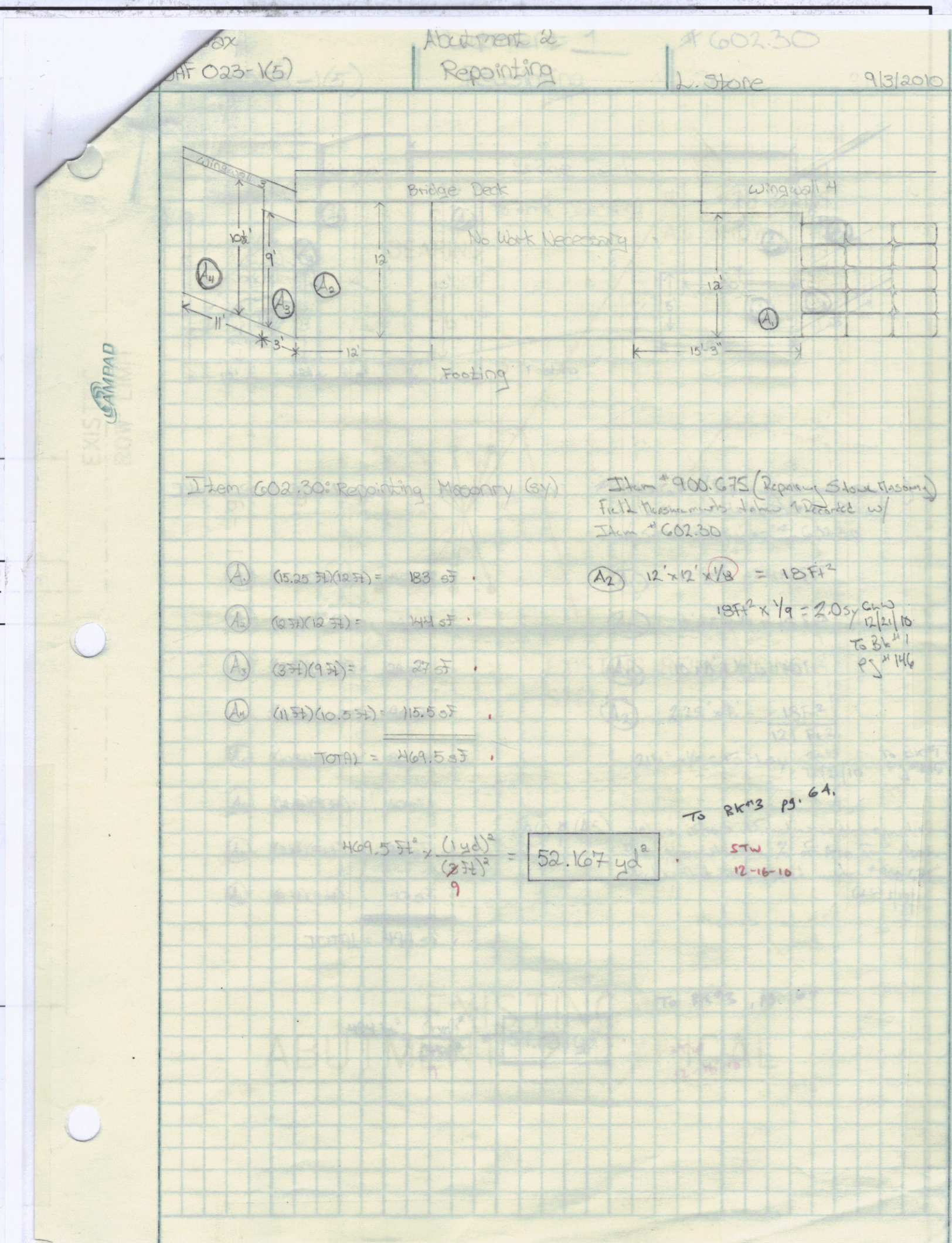
Fairfax BHF 023-1(5)  
Record Plans



ABUTMENT 2 PLAN

SCALE 3/8" = 1'-0"  
0 1 2 3 4

Additional Masonry Removal. HRC-B cap poured back as a full part of base for 4' Chaw hole Face



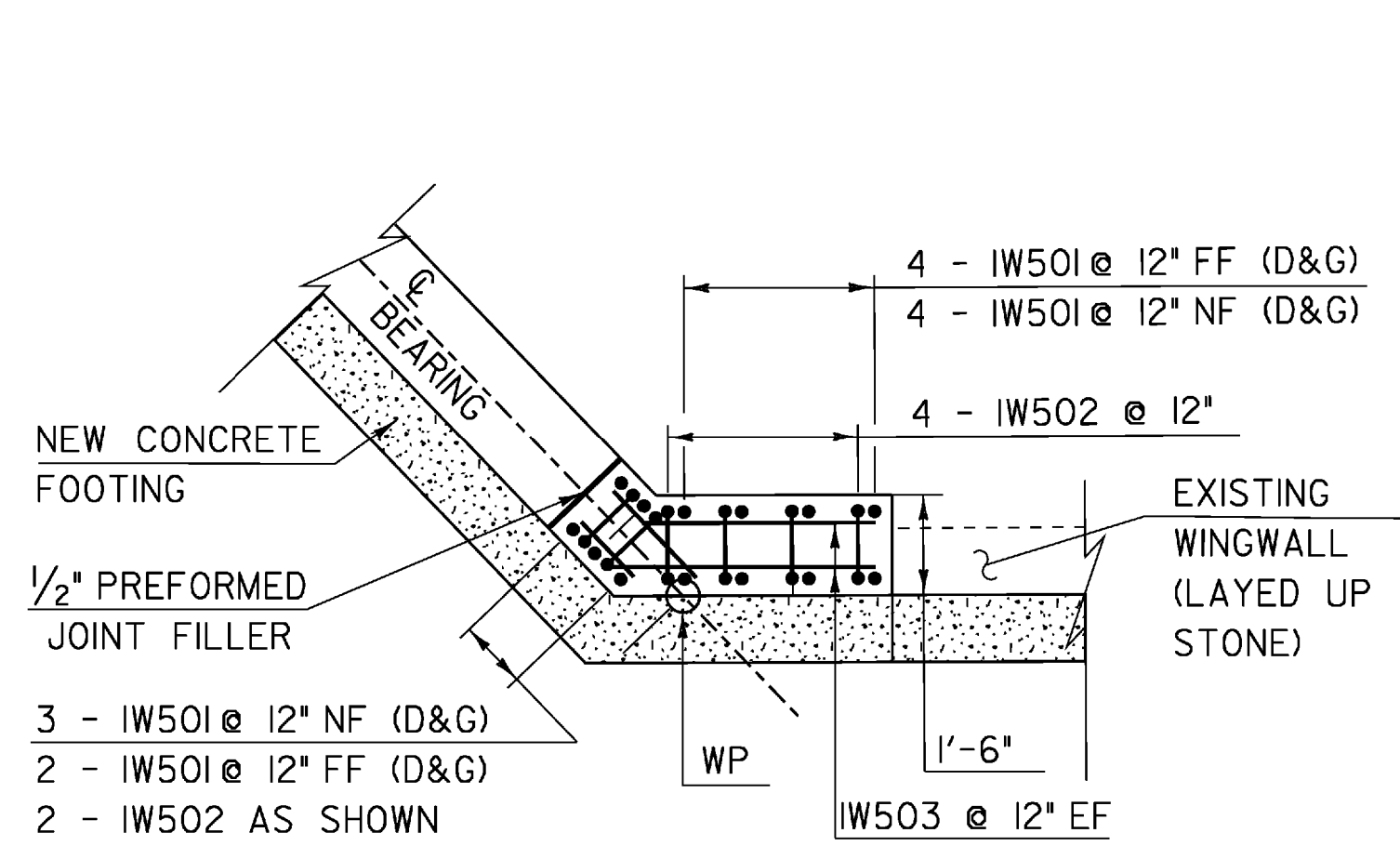
ABUTMENT 2 ELEVATION

SCALE 3/8" = 1'-0"  
0 1 2 3 4

- NOTES:
- NEW CONCRETE
  - REMOVAL OF CONCRETE OR MASONRY
  - SEE SHEET 43 FOR WINGWALL DETAILS

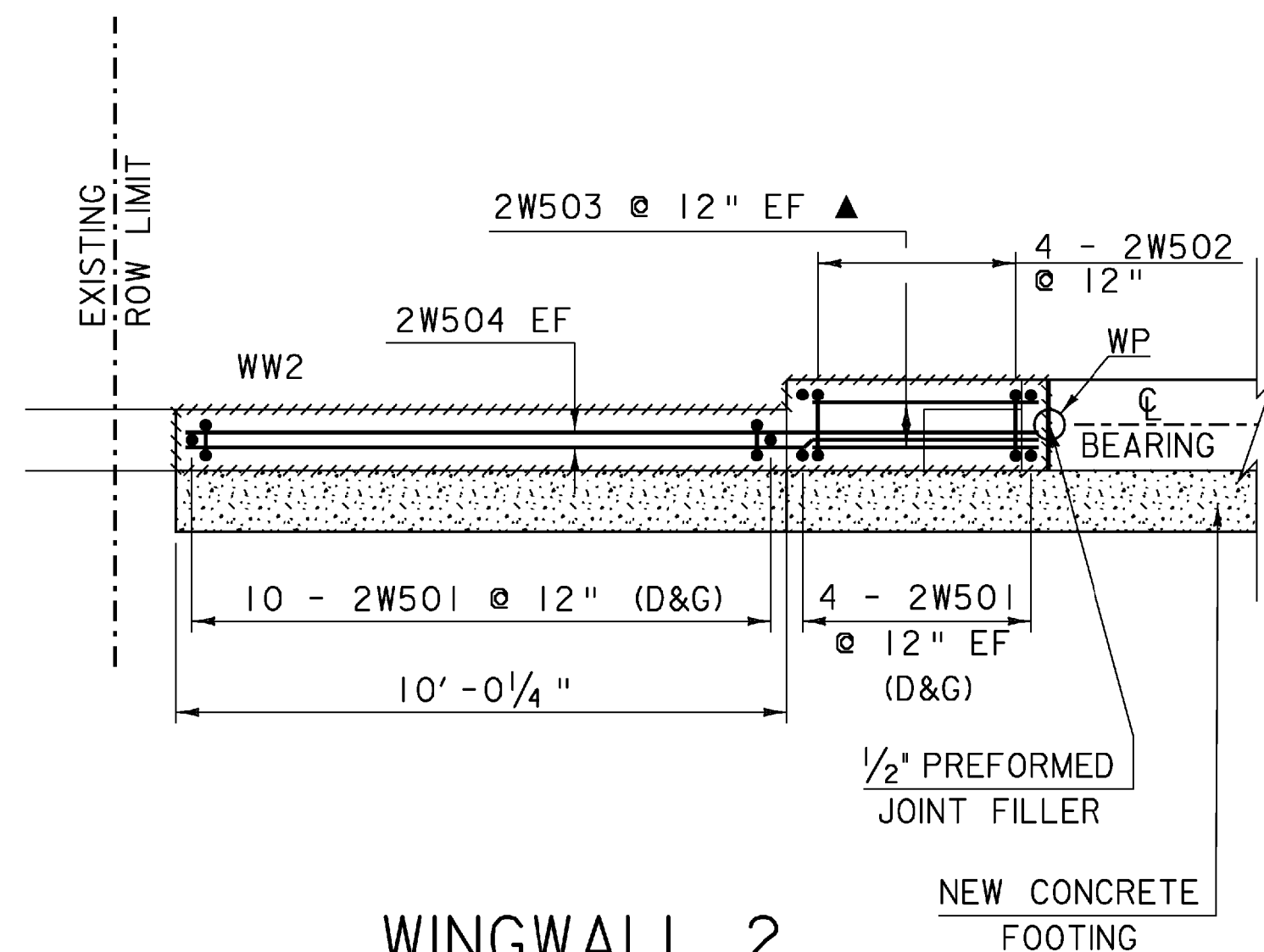
REVISION NUMBER	DESCRIPTION	DATE
1	CHANGE DUE TO FIELD CONDITIONS	10/30/09

PROJECT NAME: FAIRFAX	PLOT DATE: 05-NOV-2009
PROJECT NUMBER: BHF 023-1(5)	DRAWN BY: C. MOONEY
FILE NAME: s86e064sub.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 42 OF 61
DESIGNED BY: C. CARLSON	



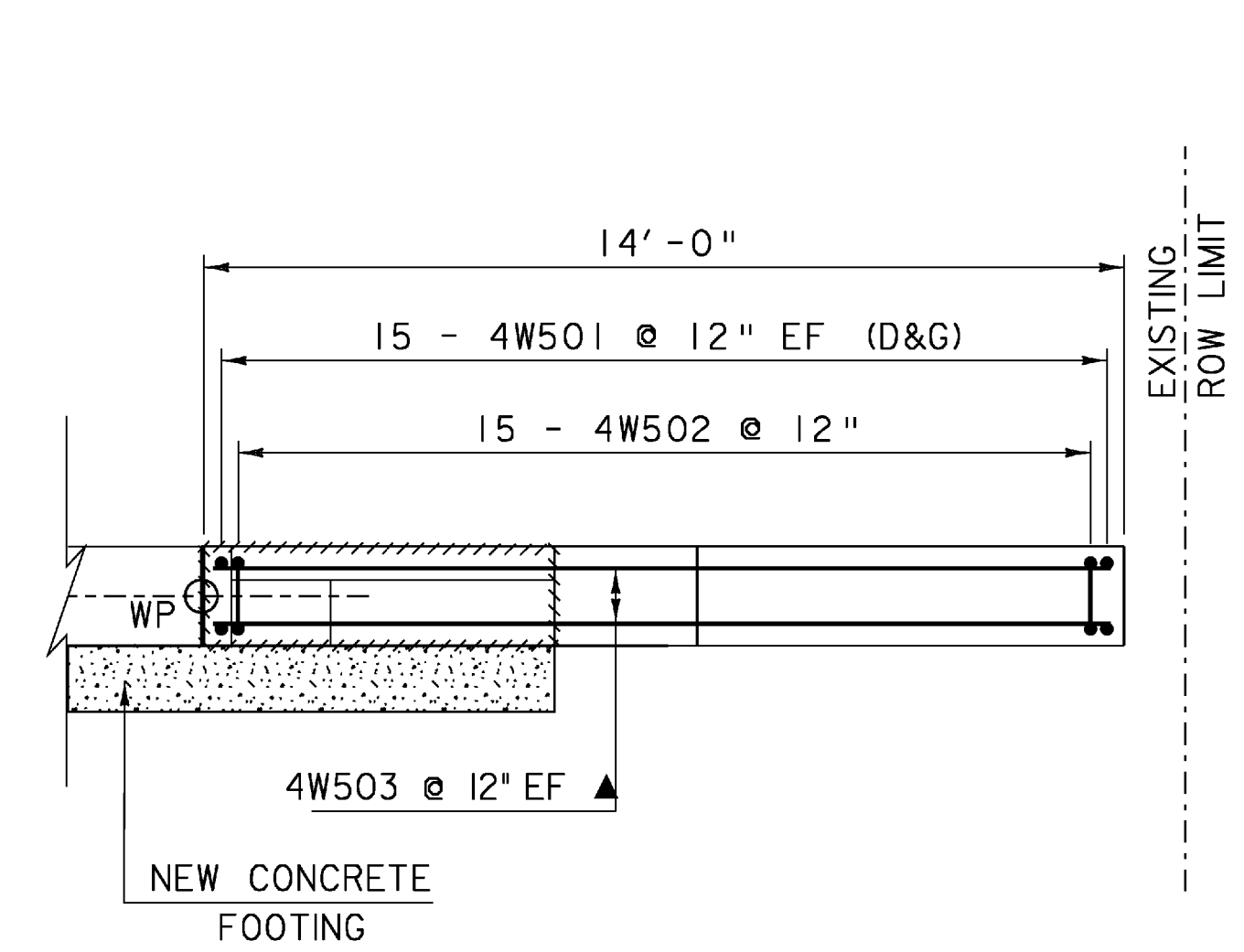
**WINGWALL 1  
REINFORCING PLAN**

SCALE  $\frac{3}{8}$ " = 1'-0"  
0 1 2 3 4



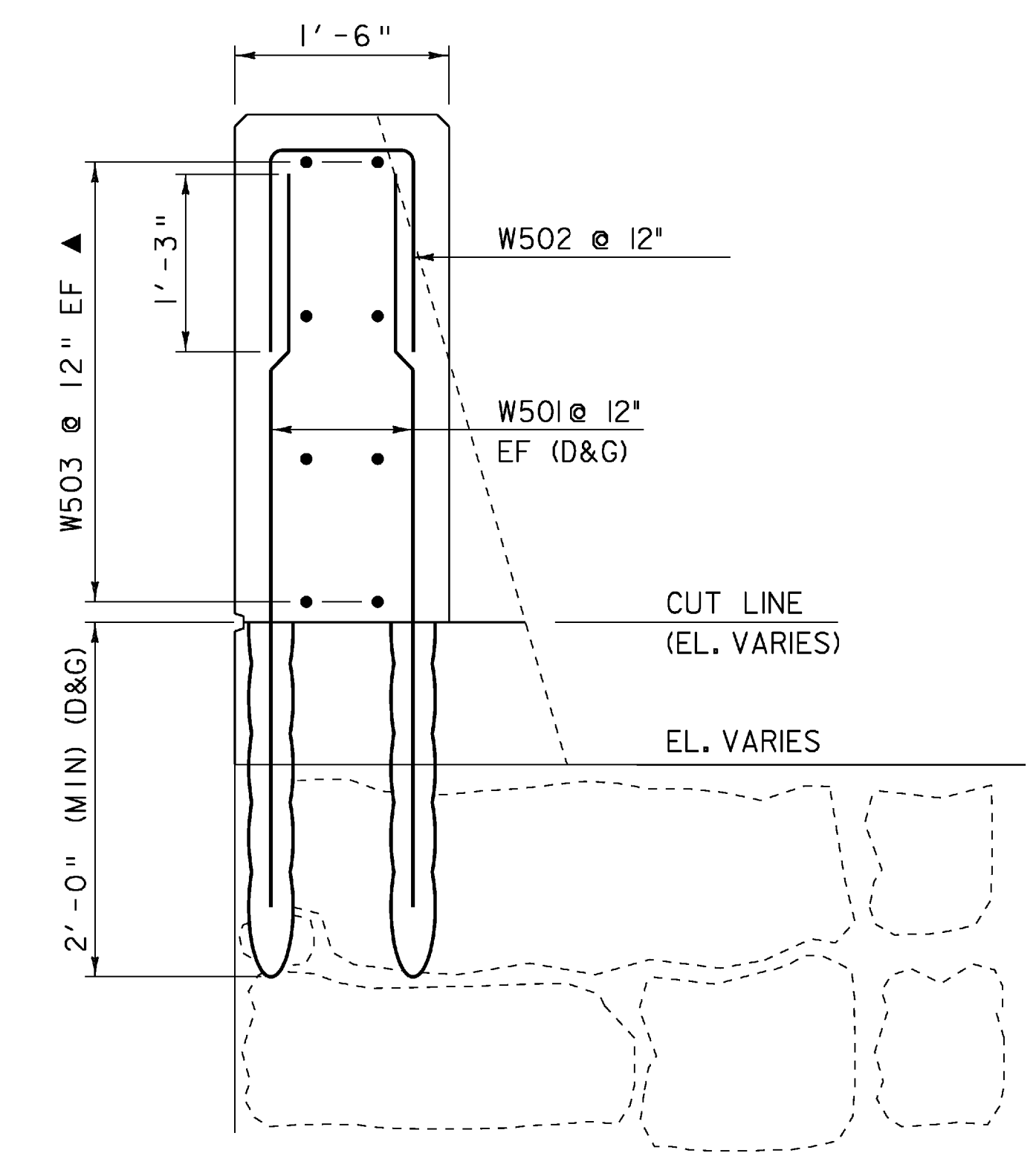
**WINGWALL 2  
REINFORCING PLAN**

SCALE  $\frac{3}{8}$ " = 1'-0"  
0 1 2 3 4



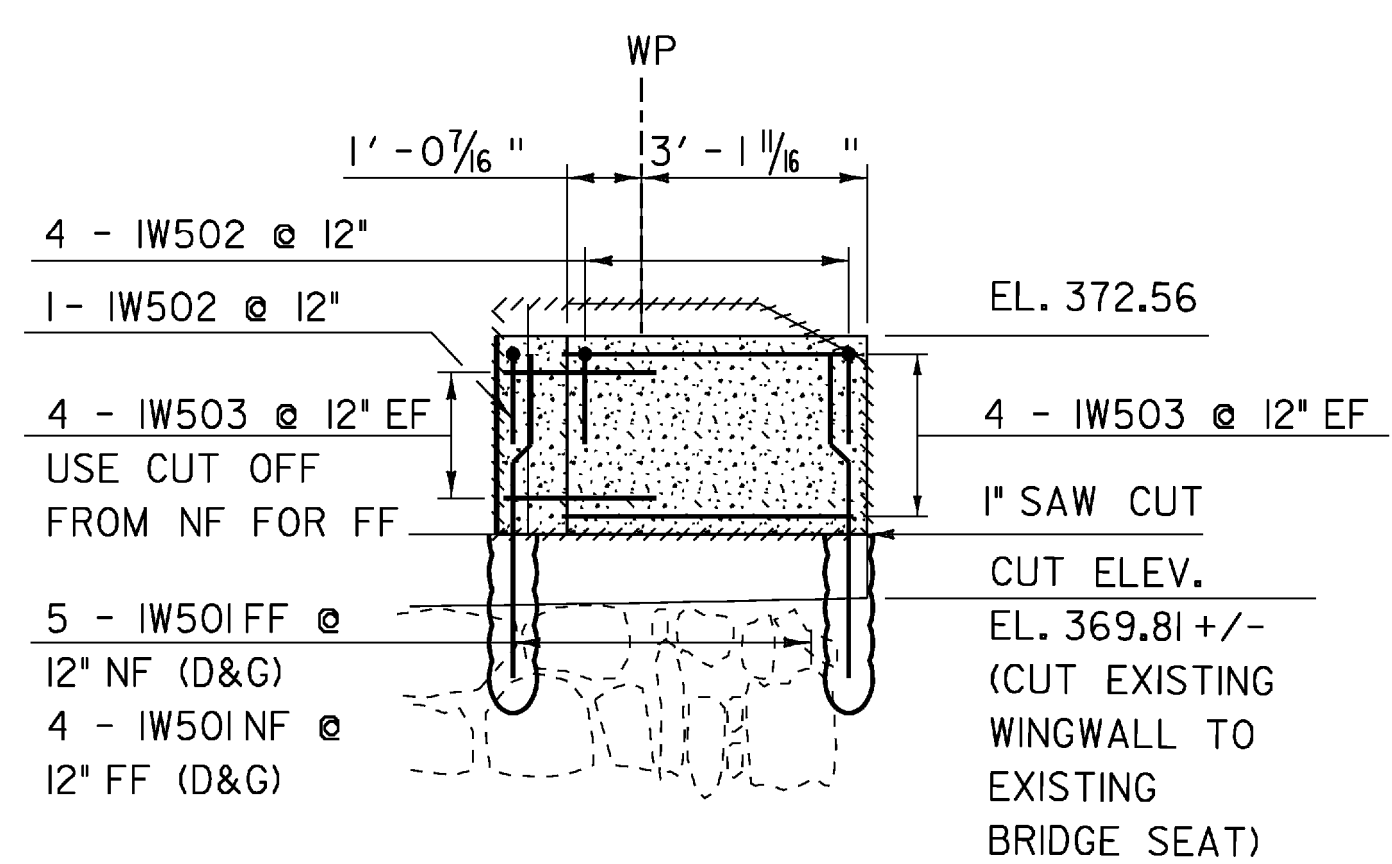
**WINGWALL 4  
REINFORCING PLAN**

SCALE  $\frac{3}{8}$ " = 1'-0"  
0 1 2 3 4



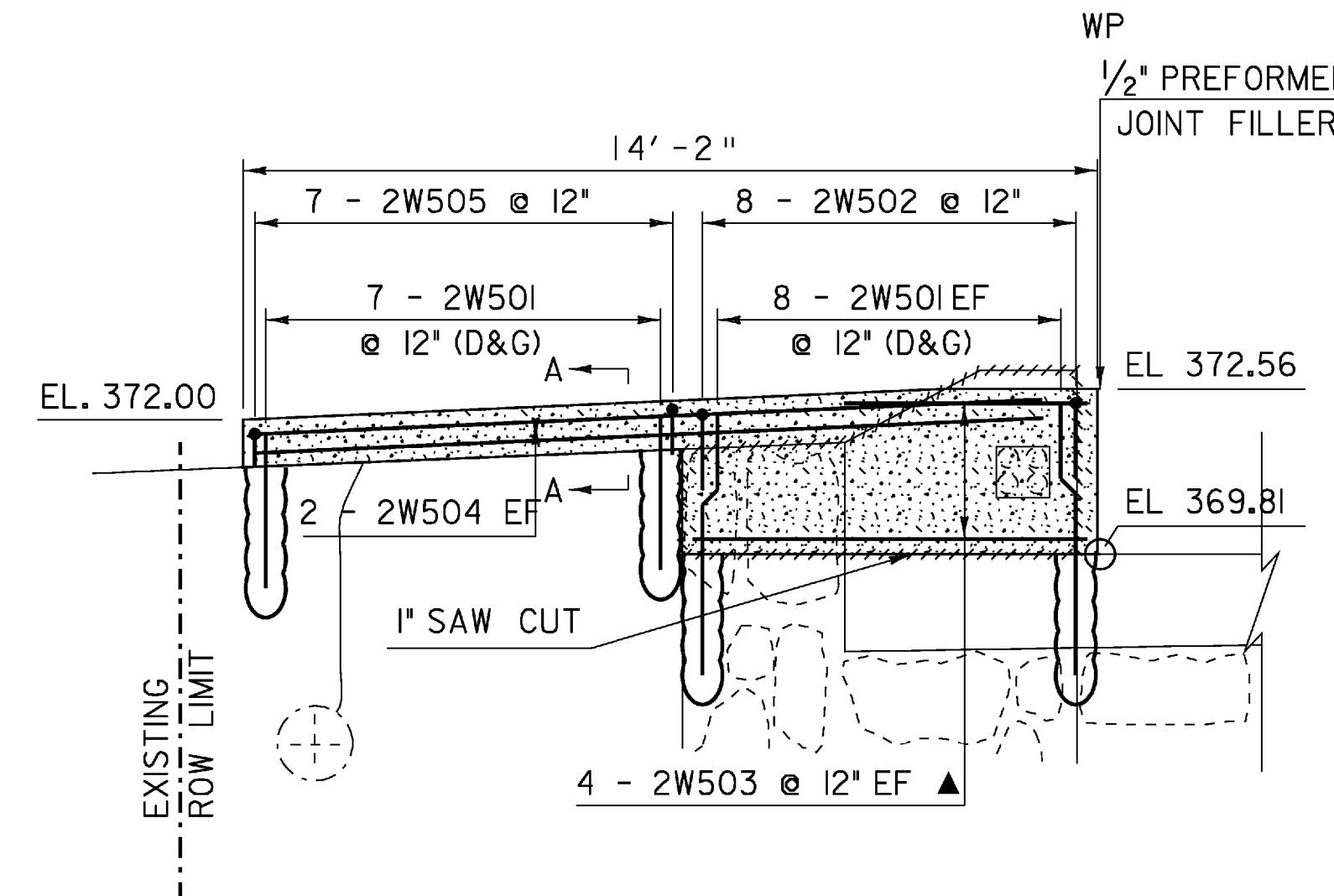
**WINGWALLS 1, 2 & 4 TYPICAL**

SCALE 1" = 1'-0"  
0 9 6 3 0 2



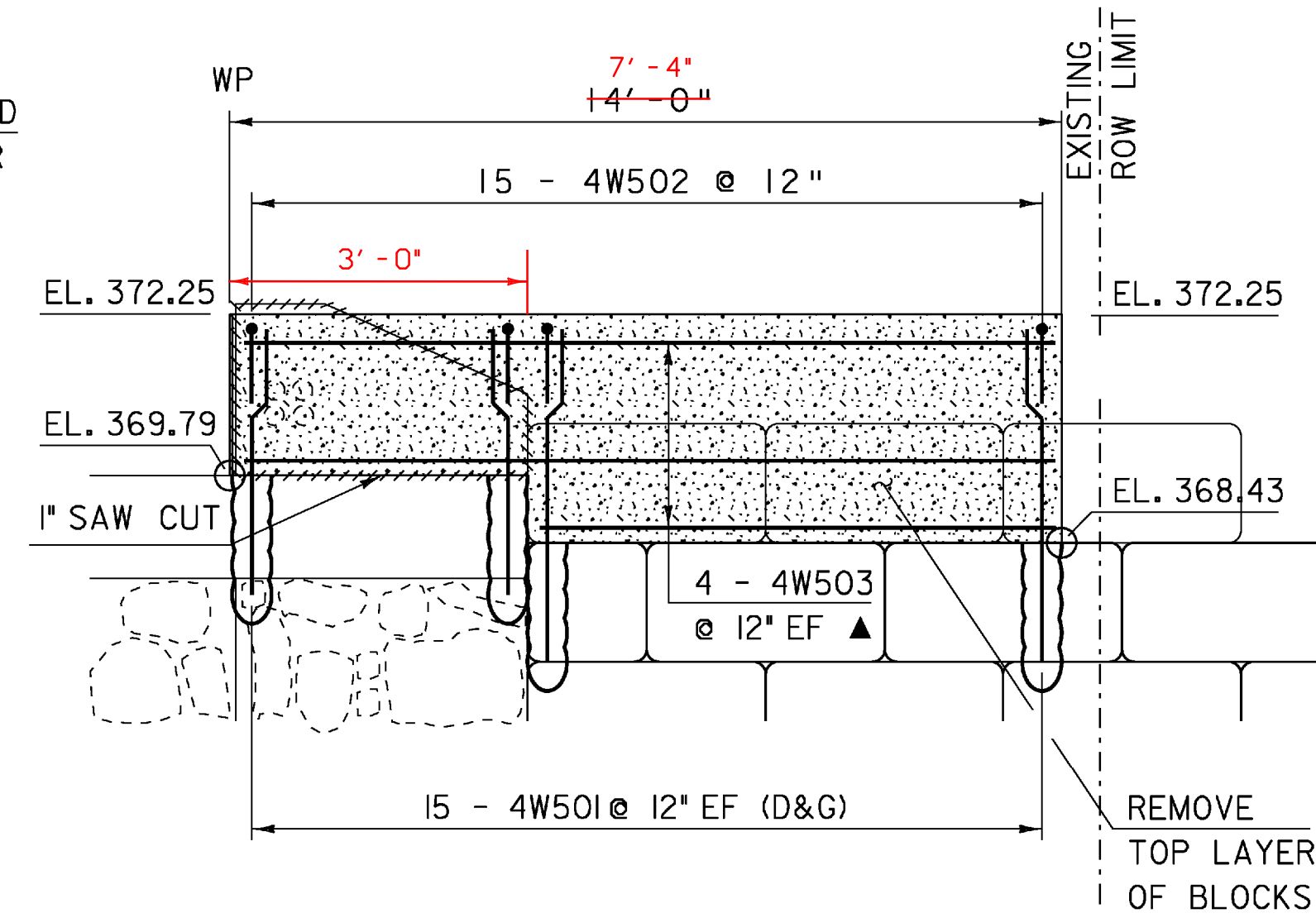
**WINGWALL 1  
REINFORCING DETAIL**

SCALE  $\frac{3}{8}$ " = 1'-0"  
0 1 2 3 4



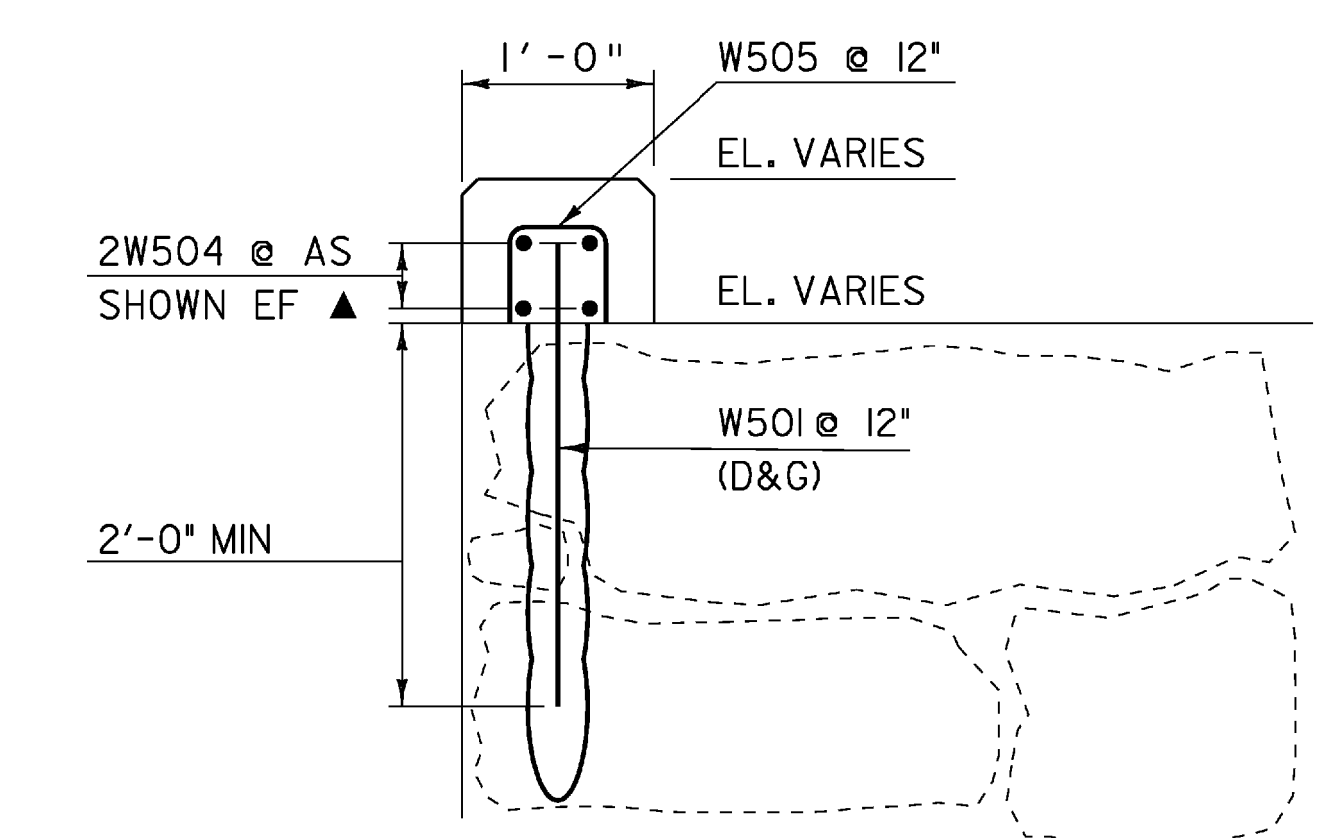
**WINGWALL 2  
REINFORCING DETAIL**

SCALE  $\frac{3}{8}$ " = 1'-0"  
0 1 2 3 4



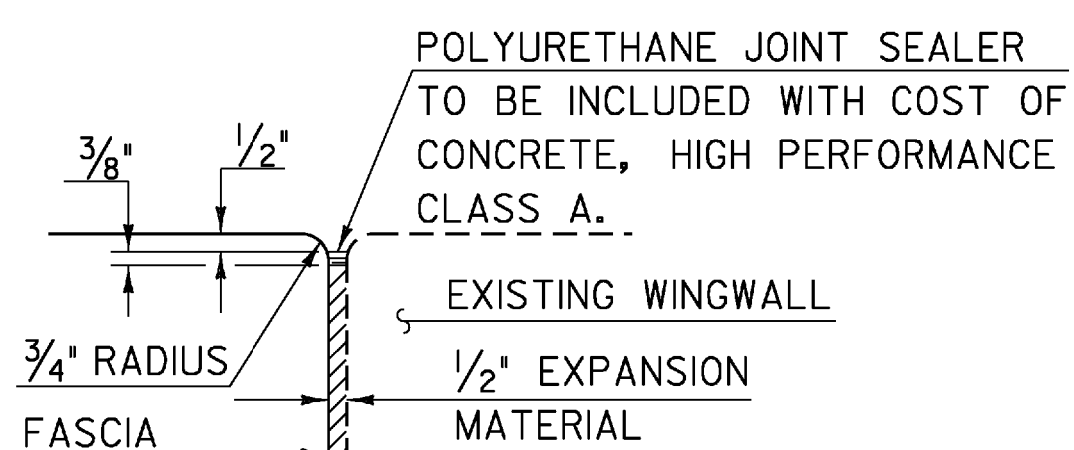
**WINGWALL 4  
REINFORCING DETAIL**

SCALE  $\frac{3}{8}$ " = 1'-0"  
0 1 2 3 4

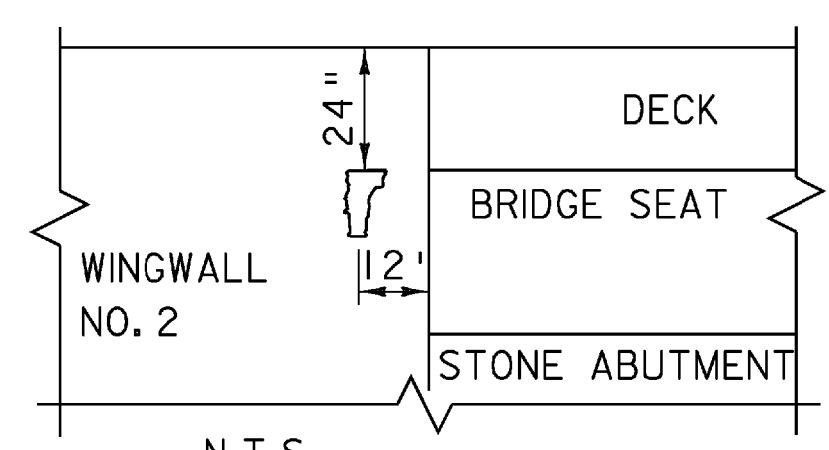


**WINGWALLS 2 SECTION A-A**

SCALE 1" = 1'-0"  
0 9 6 3 0 2



**JOINT BETWEEN FASCIA  
AND WINGWALL**



**LOCATE BRIDGE PLAQUE  
VIEW "A - A"**

NOTE:

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER. THIS WORK IS INCIDENTAL TO THE ITEM "CONCRETE, HIGH PERFORMANCE CLASS B".

NOTE:

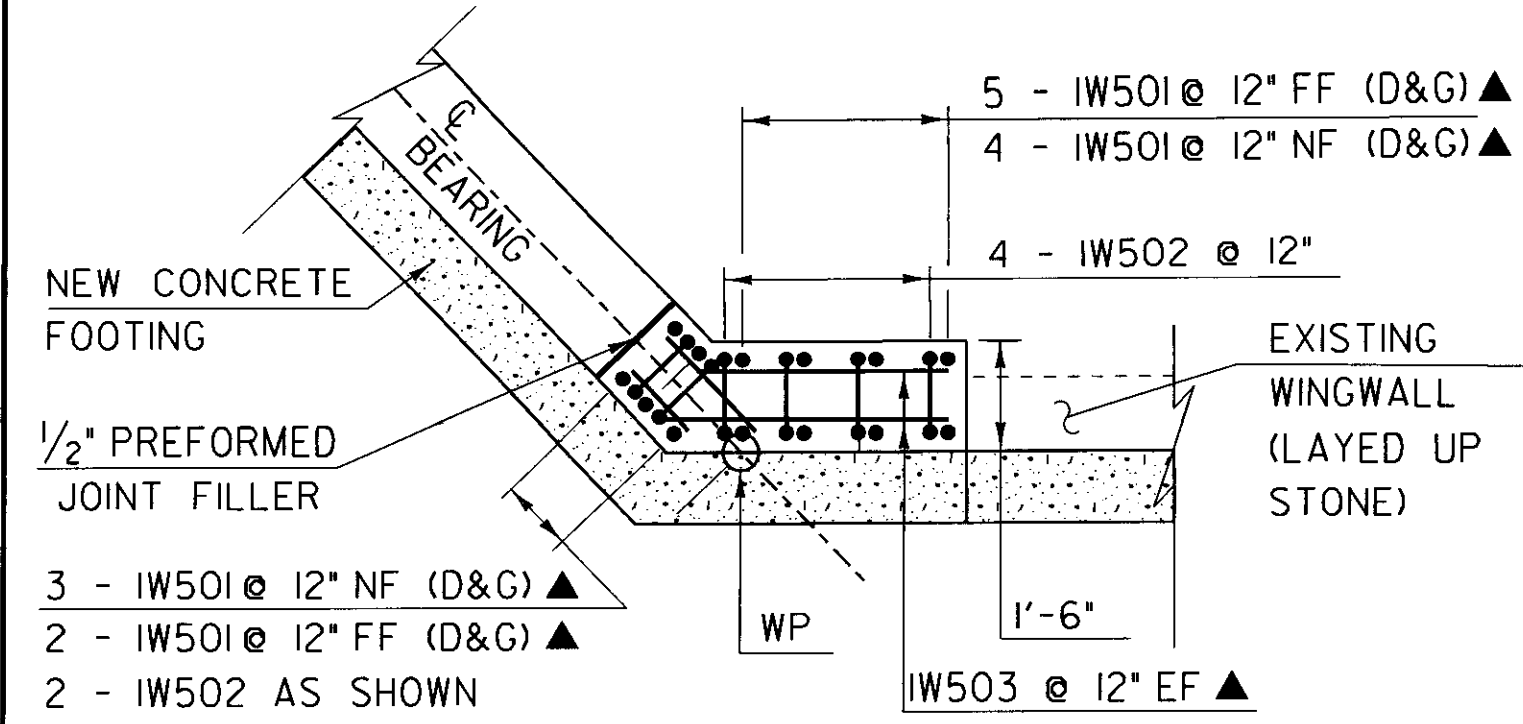
1. NF = NEAR FACE
2. FF = FAR FACE
3. EF = EACH FACE
4. (D&G) = DRILL AND GROUT DOWELS
5. ▲ = CUT TO FIT IN FIELD
6. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
7. 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: FAIRFAX

PROJECT NUMBER: BHf 023-1(5)

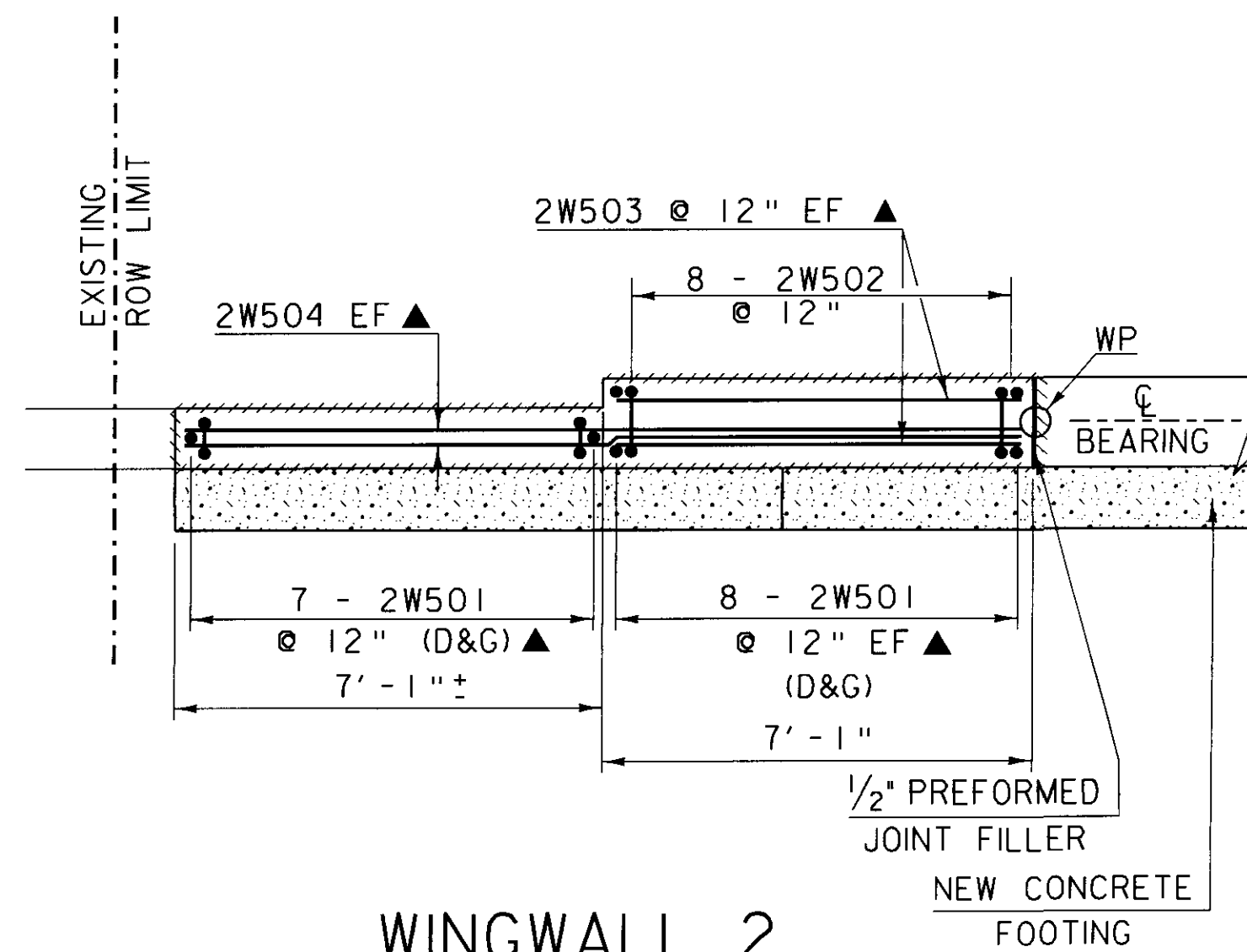
FILE NAME: s86e064sub.dgn  
PROJECT LEADER: C. CARLSON  
DESIGNED BY: C. CARLSON

PLOT DATE: 13-JUL-2009  
DRAWN BY: C. MOONEY  
CHECKED BY: C. CARLSON  
SHEET 43 OF 61



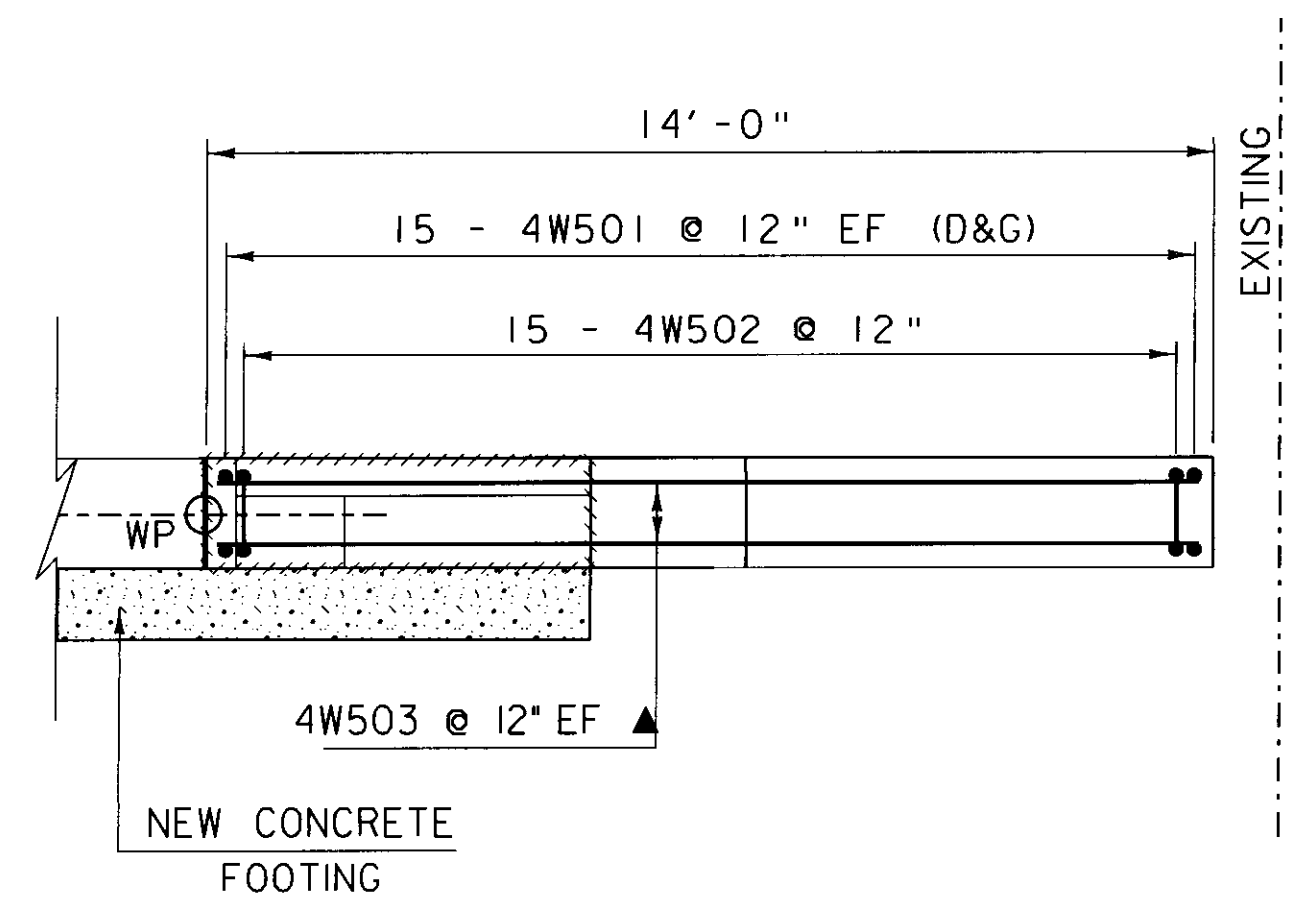
**WINGWALL 1  
REINFORCING PLAN**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



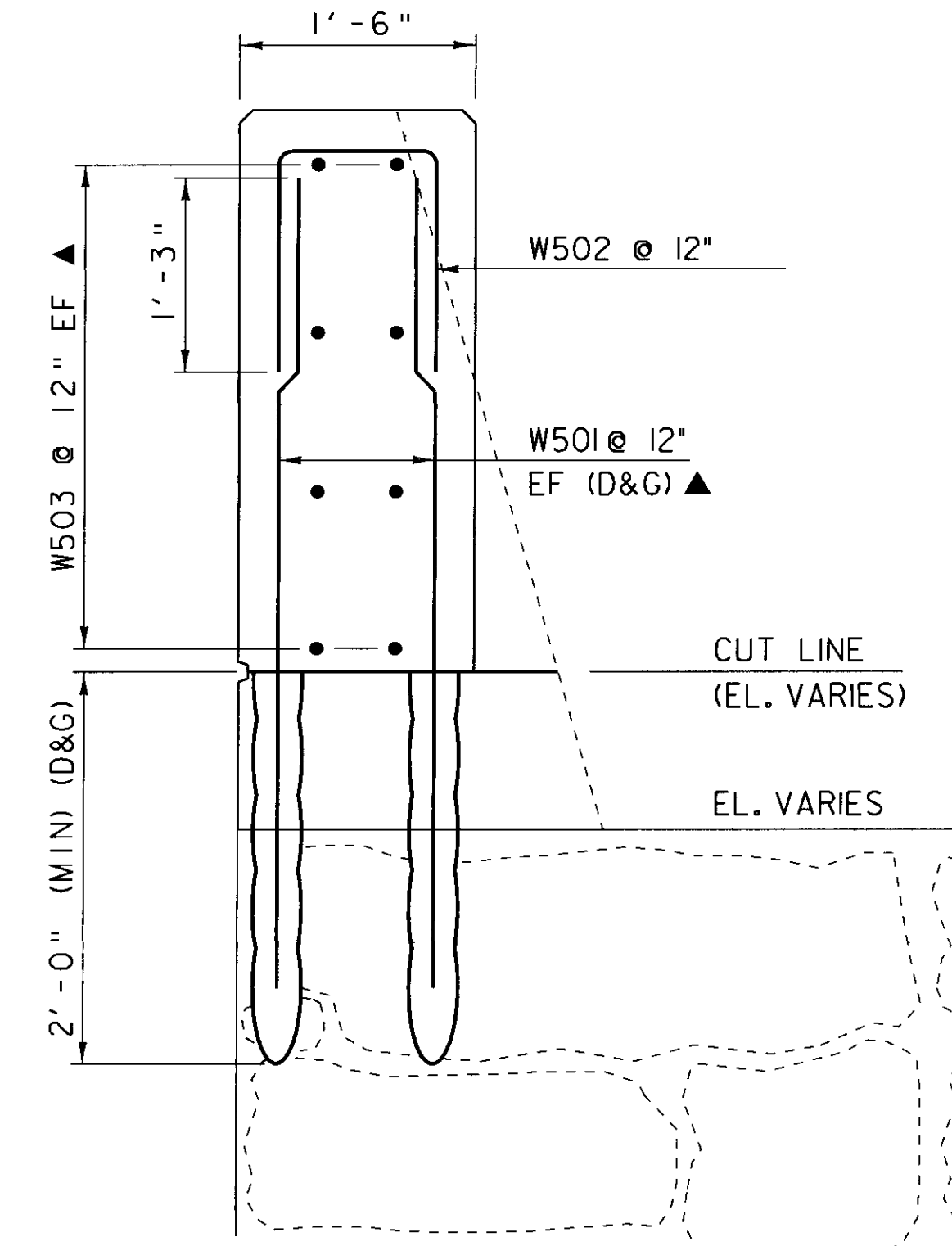
**WINGWALL 2  
REINFORCING PLAN**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



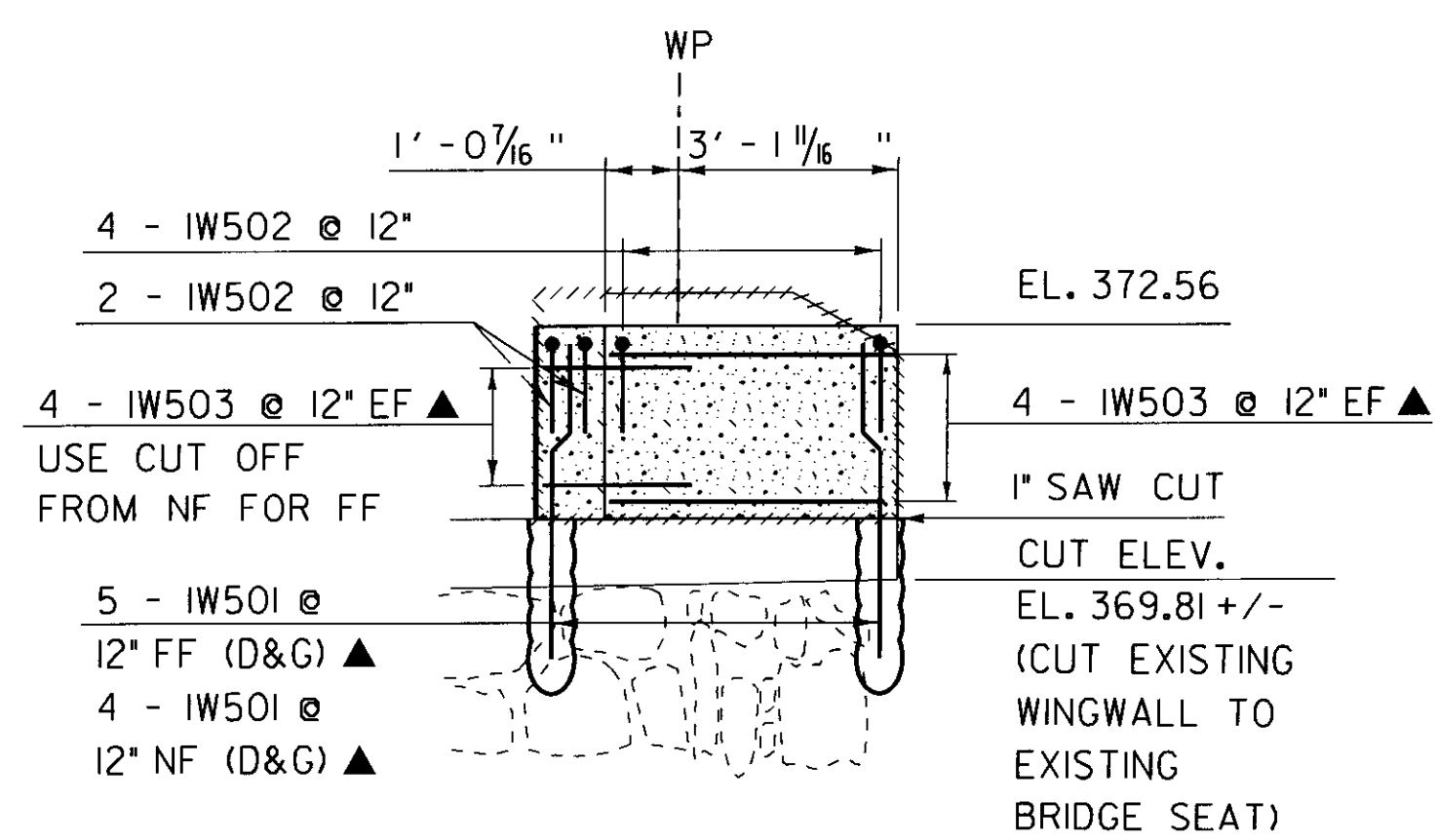
**WINGWALL 4  
REINFORCING PLAN**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



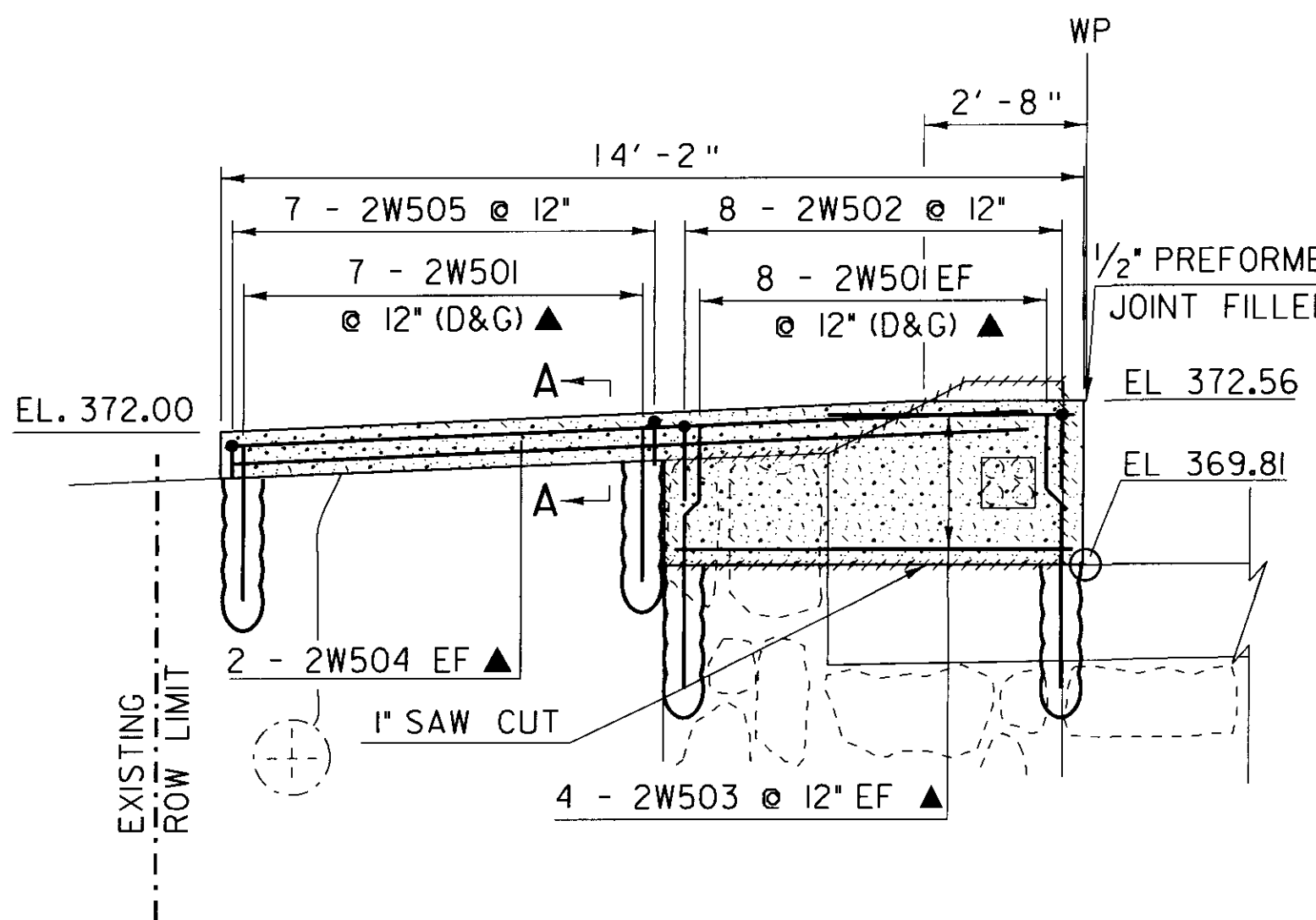
**WINGWALLS 1, 2 & 4 TYPICAL**

SCALE 1" = 1'-0"  
0 1 2 3 4



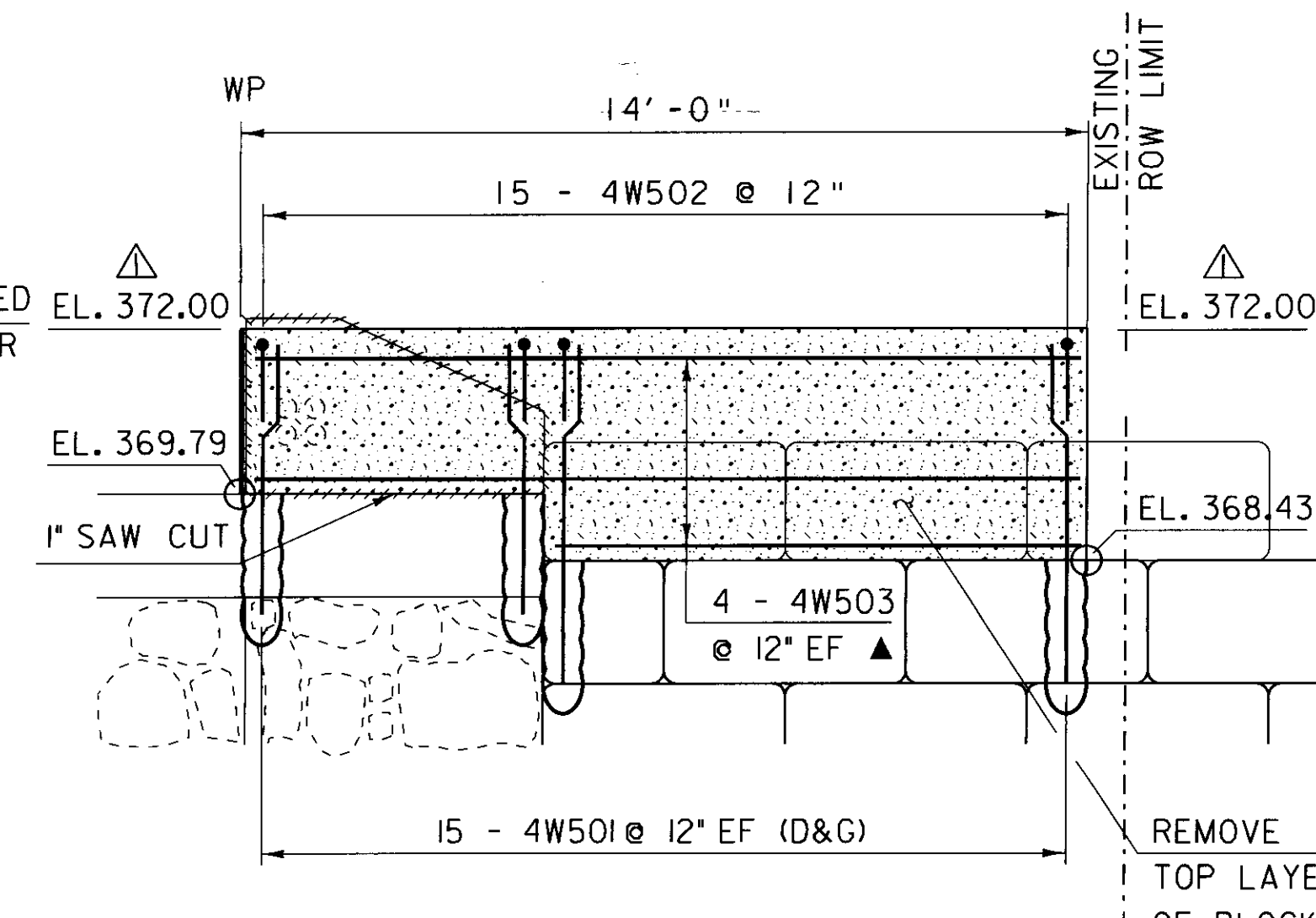
**WINGWALL 1  
REINFORCING DETAIL**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



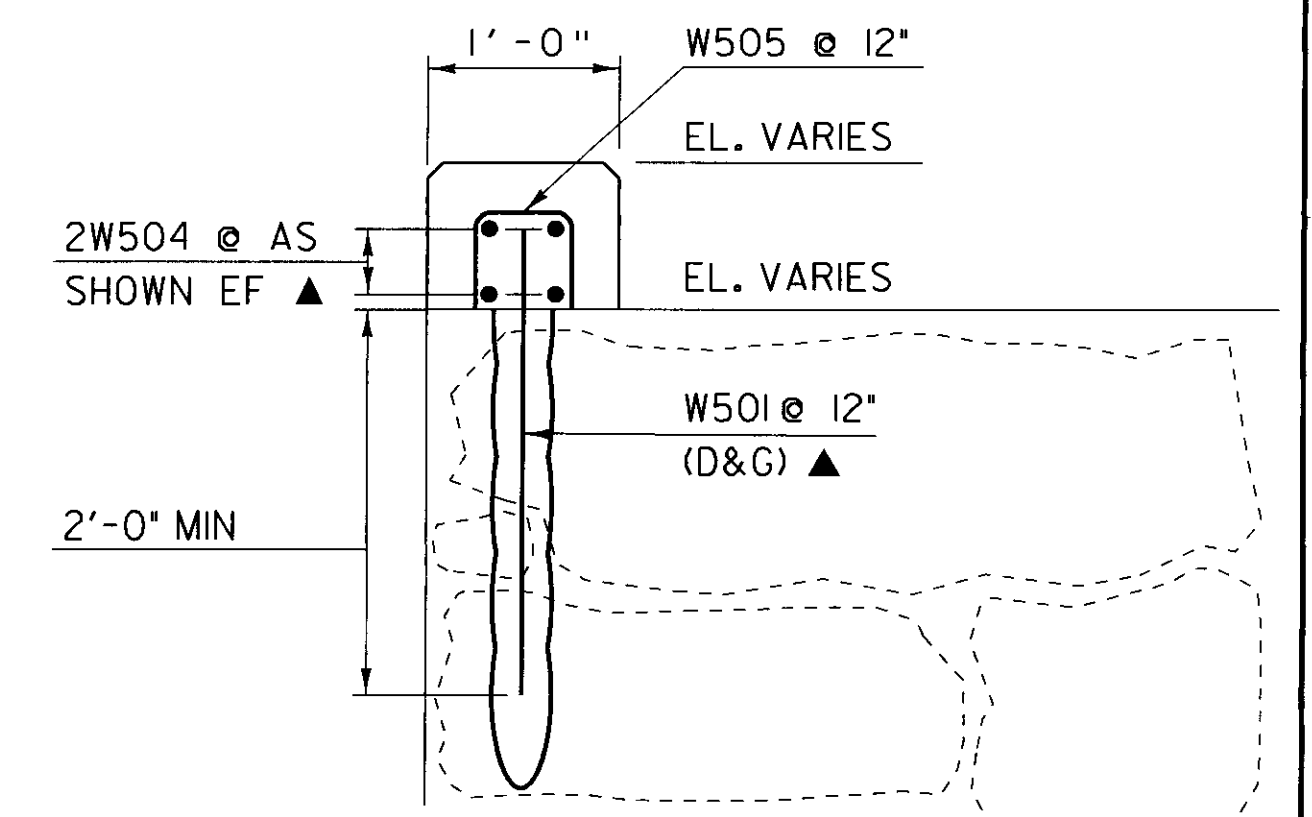
**WINGWALL 2  
REINFORCING DETAIL**

SCALE 3/8" = 1'-0"  
0 1 2 3 4



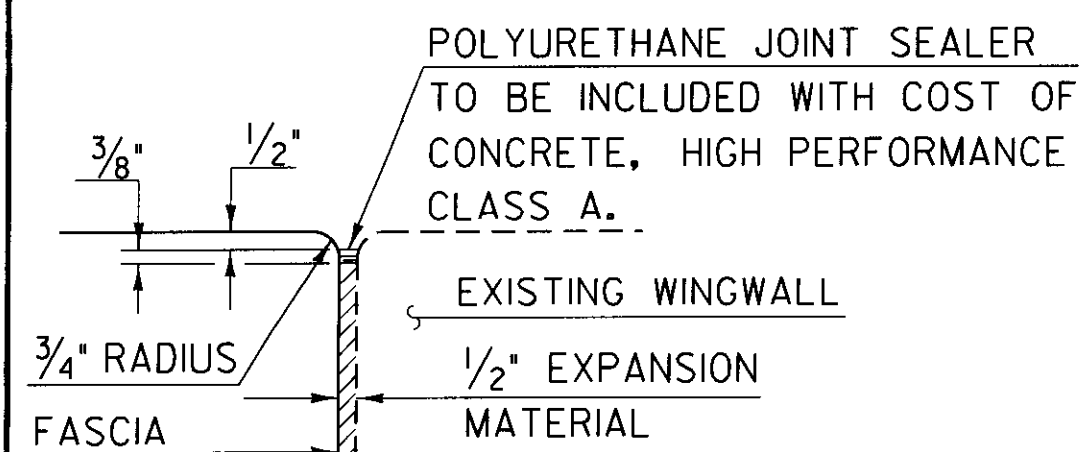
**WINGWALL 4  
REINFORCING DETAIL**

SCALE 3/8" = 1'-0"  
0 1 2 3 4

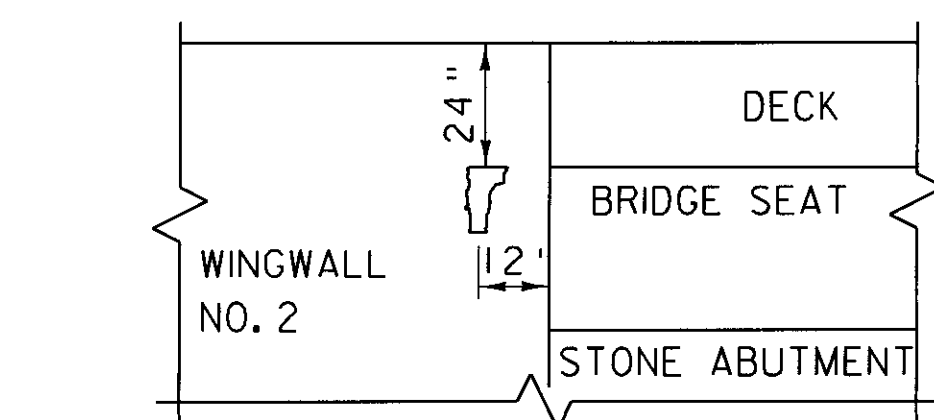


**WINGWALLS 2 SECTION A-A**

SCALE 1" = 1'-0"  
0 1 2 3 4



**JOINT BETWEEN FASCIA  
AND WINGWALL**



**LOCATE BRIDGE PLAQUE  
VIEW "A - A"**

**NOTE:**

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER. THIS WORK IS INCIDENTAL TO THE ITEM "CONCRETE, HIGH PERFORMANCE CLASS B".

REVISION NUMBER	DESCRIPTION	DATE
1	CHANGE DUE TO FIELD CONDITIONS	10/30/09

**NOTE:**

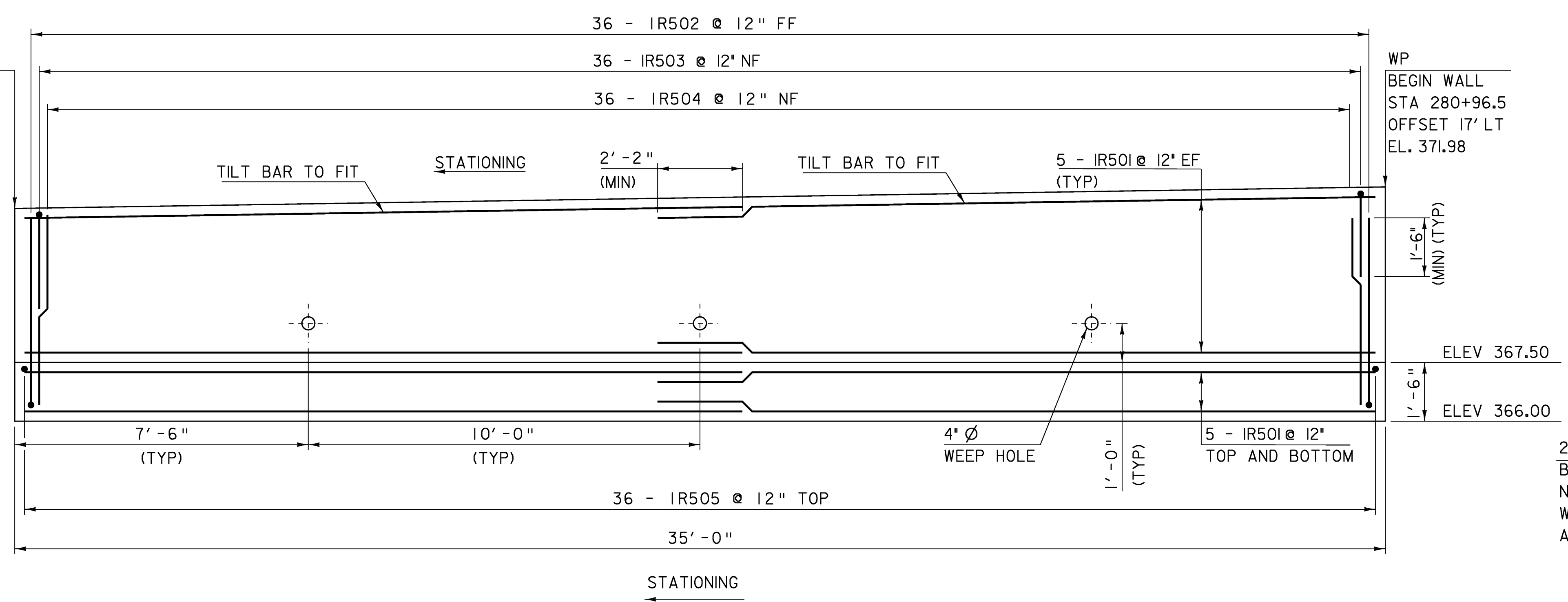
1. NF = NEAR FACE
2. FF = FAR FACE
3. EF = EACH FACE
4. (D&G) = DRILL AND GROUT DOWELS
5. ▲ = CUT TO FIT IN FIELD
6. 3' CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
7. 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

**WINGWALL DETAILS**

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-(15)
FILE NAME:	s86e064sub.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	C. CARLSON
PLOT DATE:	05-NOV-2009
DRAWN BY:	C. MOONEY
CHECKED BY:	C. CARLSON
SHEET	43 OF 61

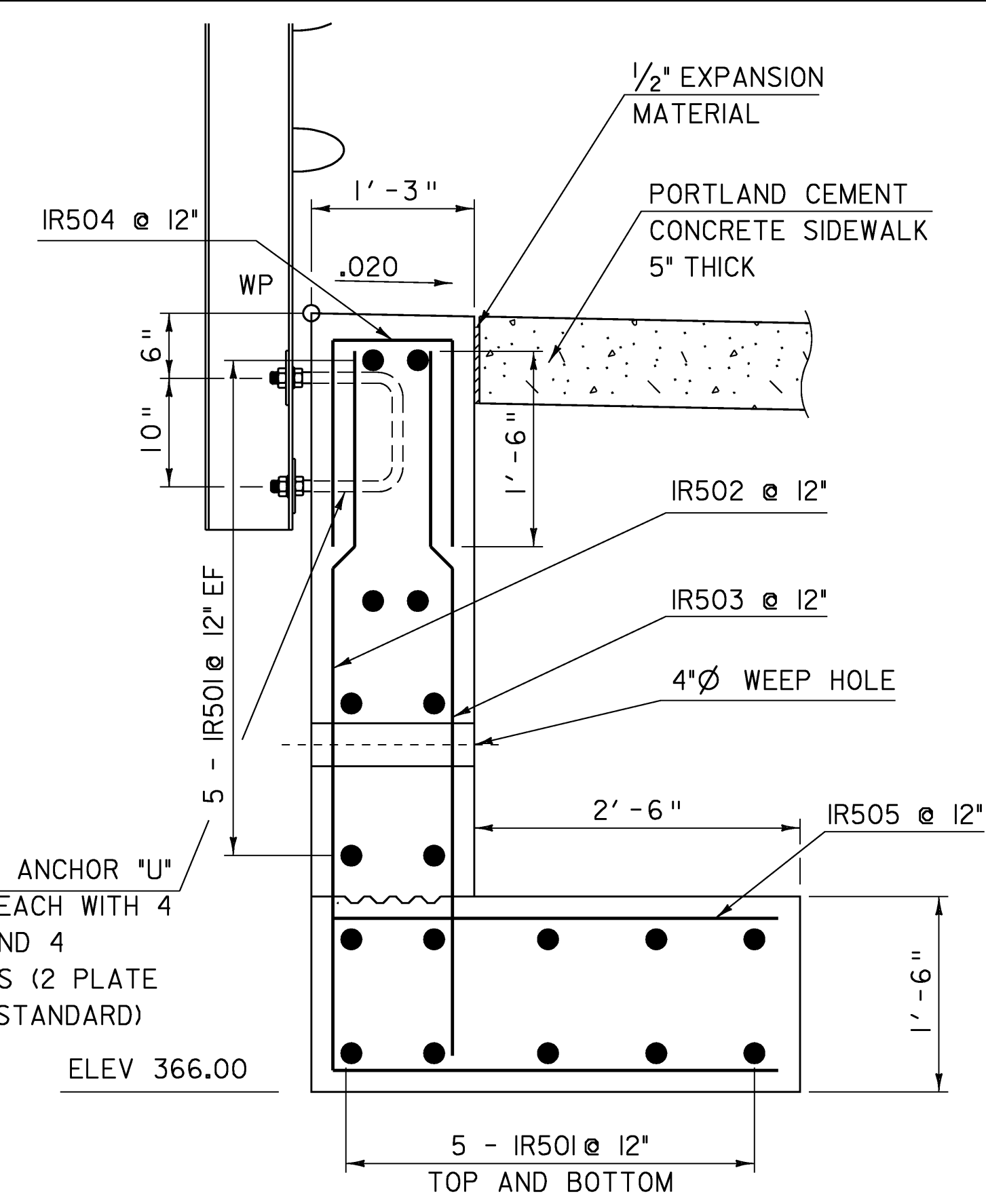
WP  
END WALL  
STA 281+31.50  
OFFSET 17' LT  
EL. 371.43

WP  
BEGIN WALL  
STA 280+96.5  
OFFSET 17' LT  
EL. 371.98



RETAINING WALL ELEVATION

SCALE 1/2" = 1'-0"  
0 1 2

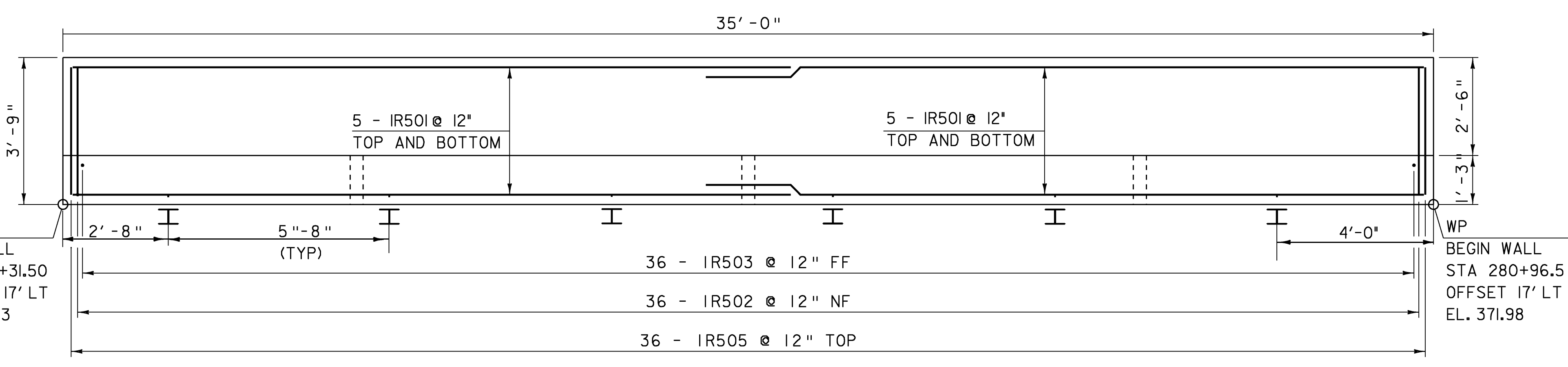


RETAINING WALL TYPICAL

SCALE 1" = 1'-0"  
0 3 6 9

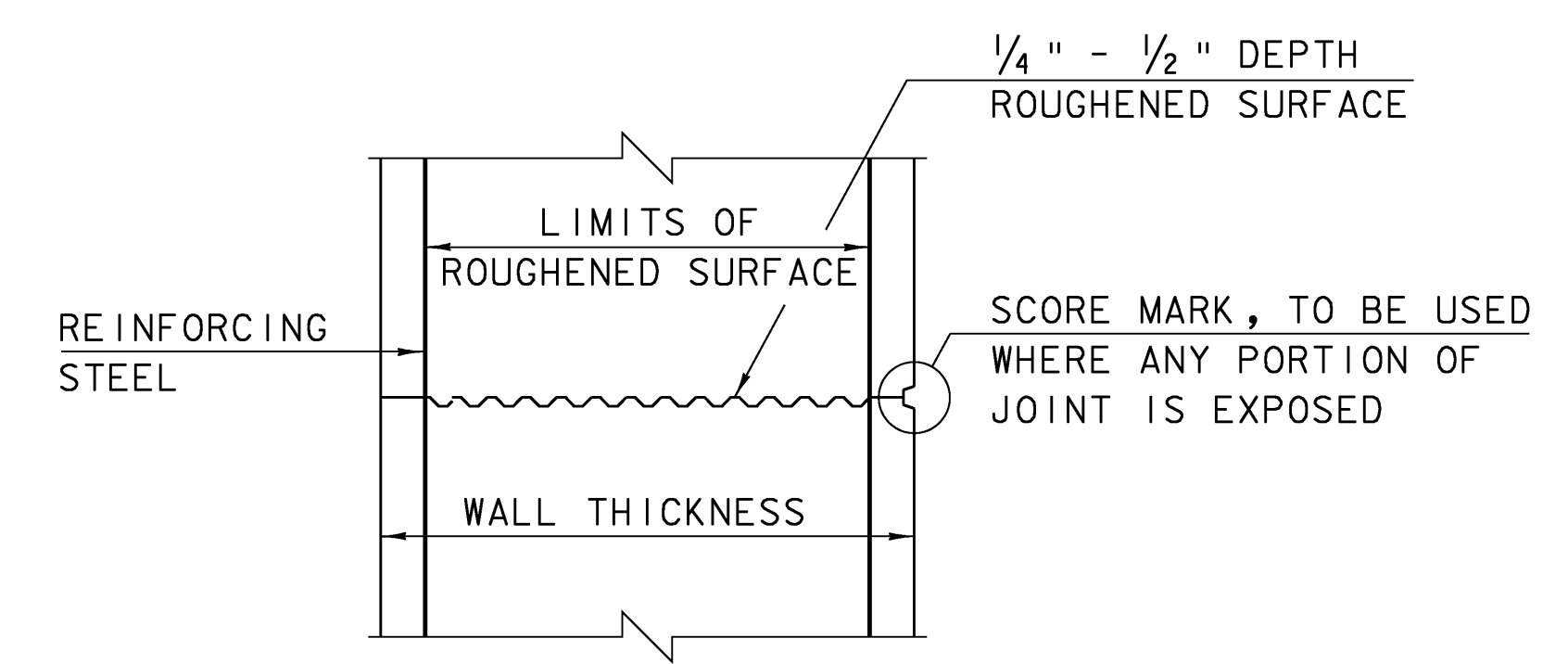
WP  
END WALL  
STA 281+31.50  
OFFSET 17' LT  
EL. 371.43

WP  
BEGIN WALL  
STA 280+96.5  
OFFSET 17' LT  
EL. 371.98



RETAINING WALL FOOTING PLAN

SCALE 1/2" = 1'-0"  
0 1 2



TYPICAL HORIZONTAL CONSTRUCTION JOINT  
(NOT TO SCALE)

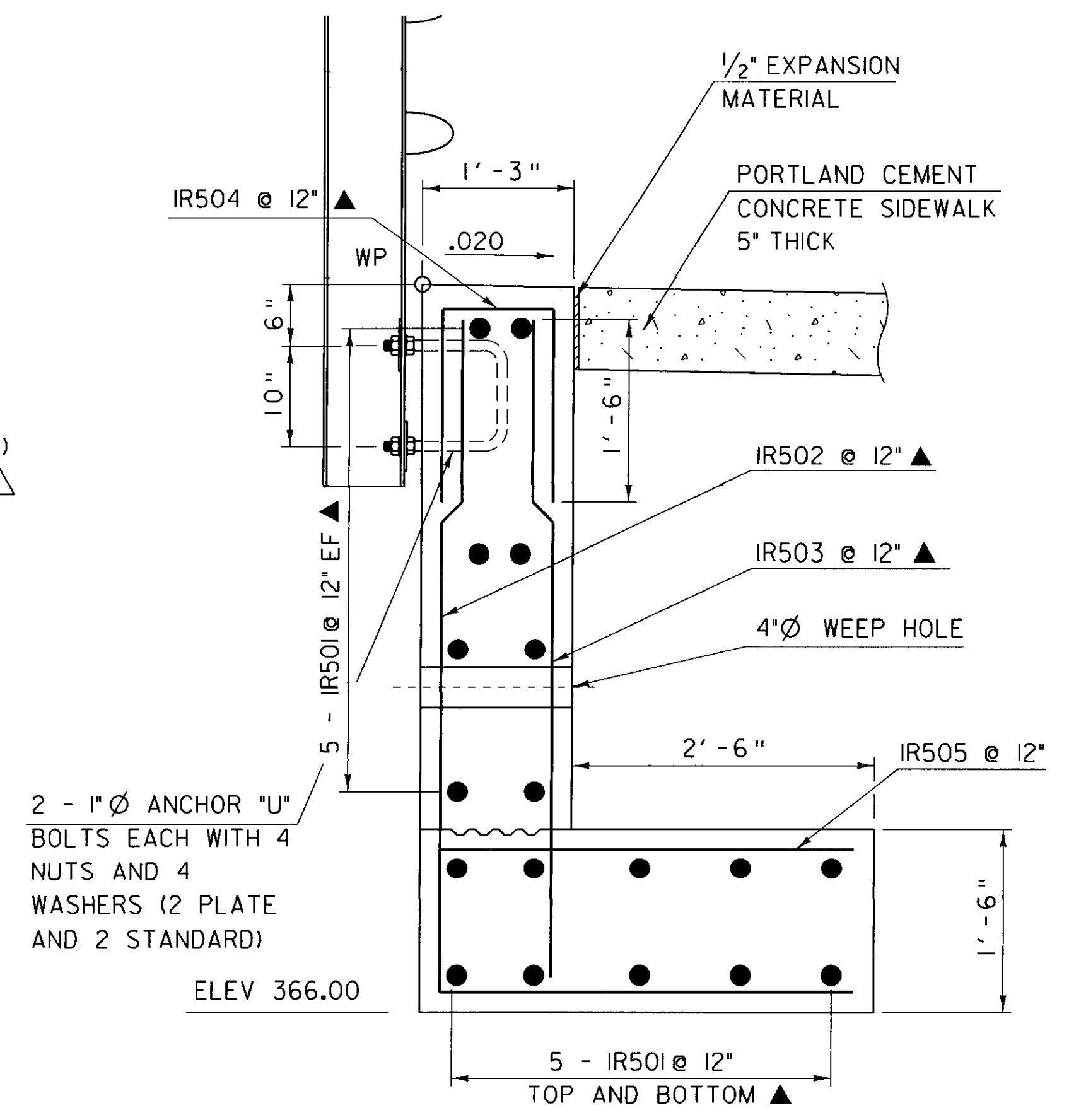
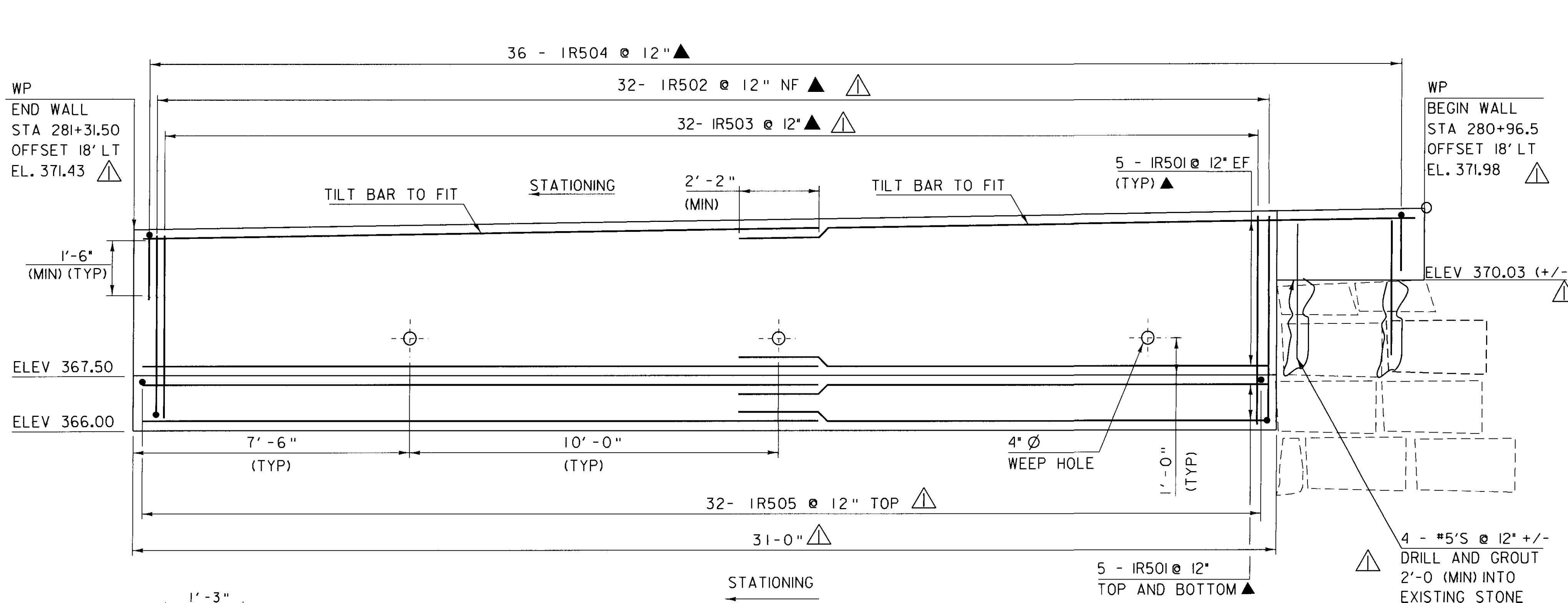
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.

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.

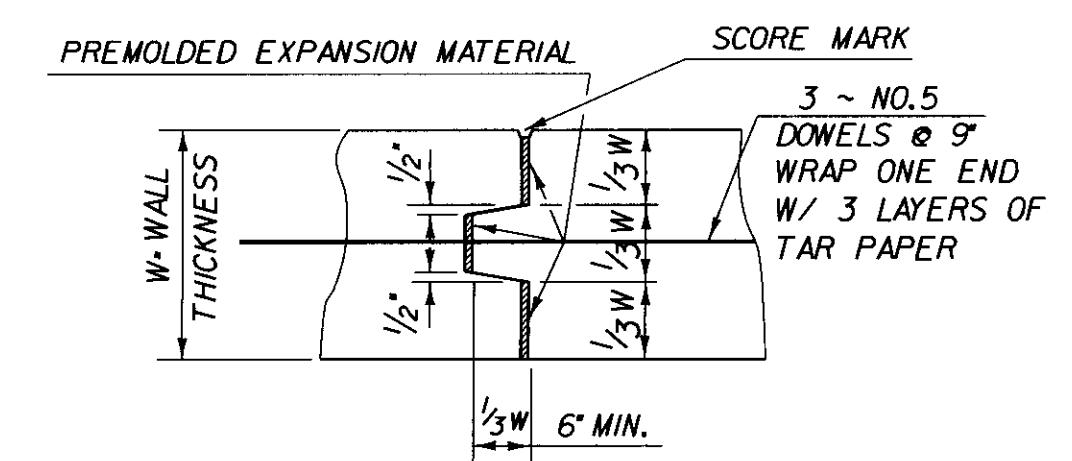
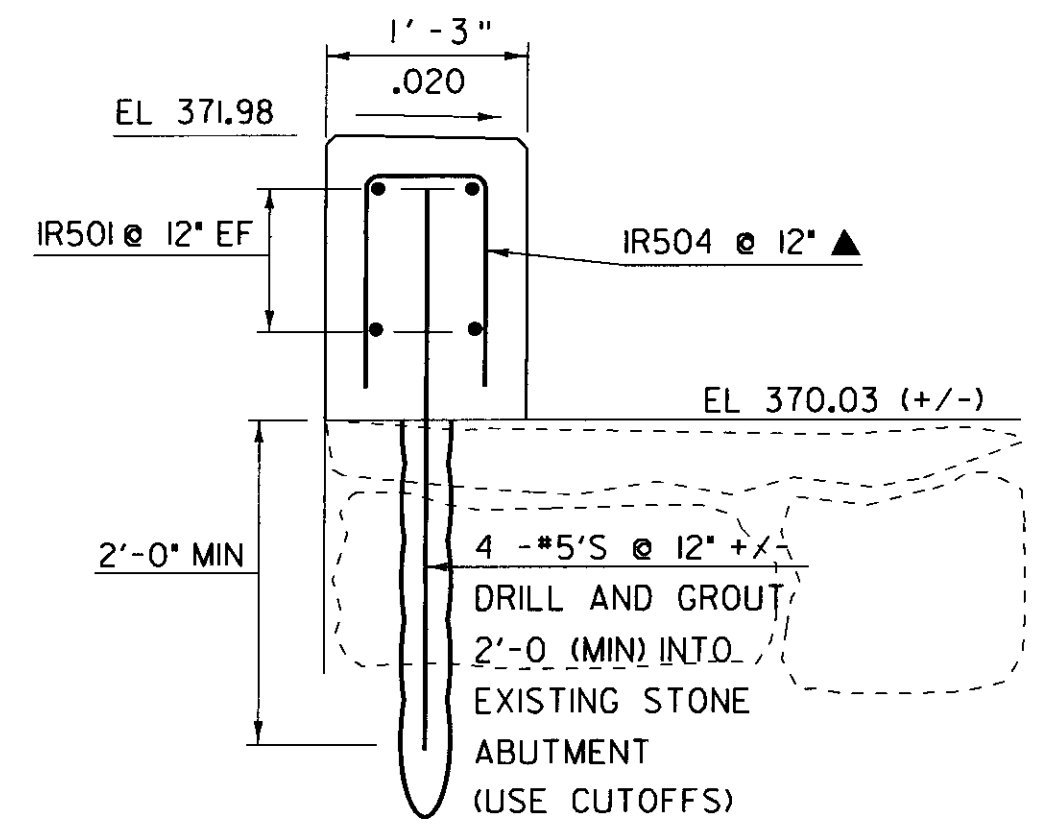
RETAINING WALL DETAILS

PROJECT NAME:	FAIRFAX	FILE NAME:	s86e064sub.dgn	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-I(5)	PROJECT LEADER:	C. CARLSON	DRAWN BY:	C. MOONEY
		DESIGNED BY:	C. CARLSON	CHECKED BY:	C. CARLSON
				SHEET	44 OF 61



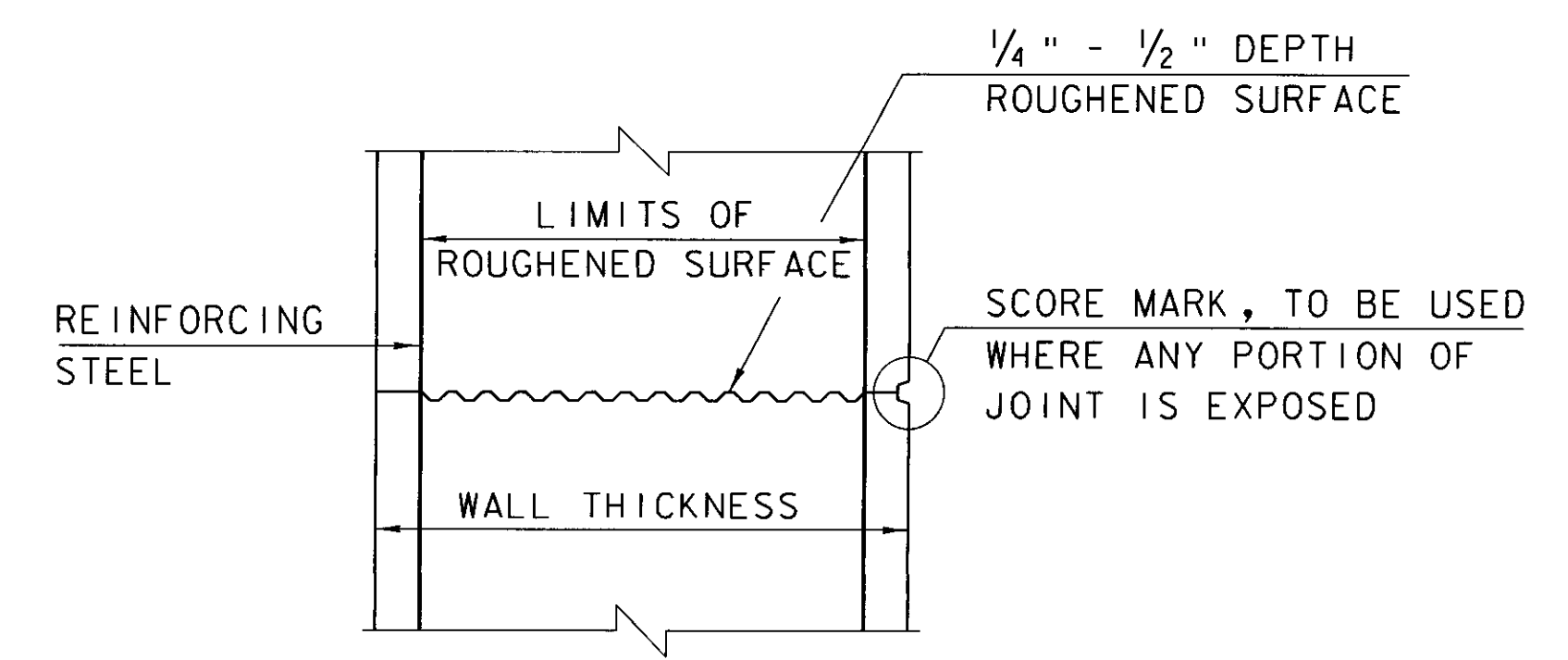
RETAINING WALL ELEVATION

RETAINING WALL TYPICAL

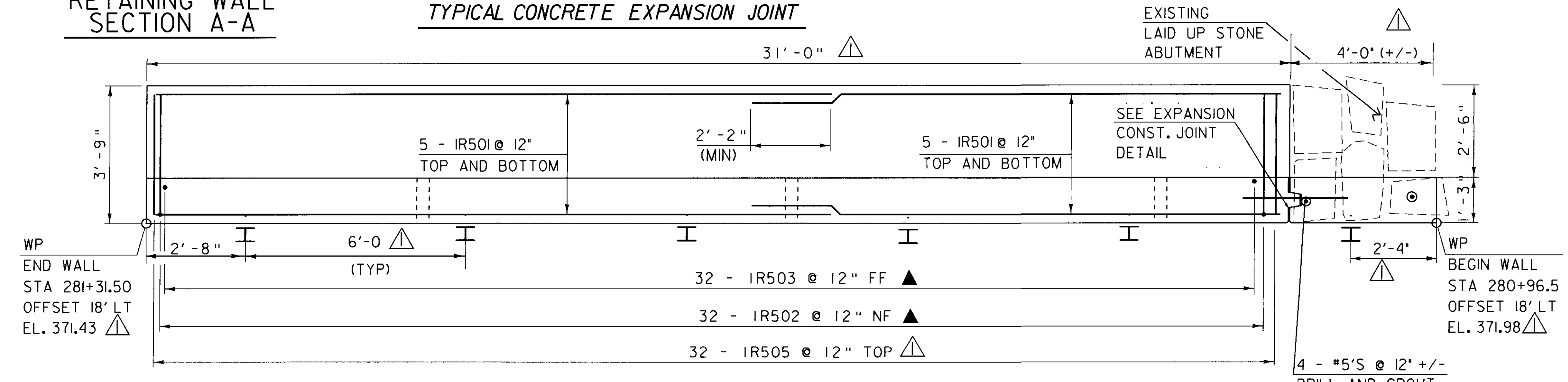


RETAINING WALL SECTION A-A

TYPICAL CONCRETE EXPANSION JOINT



TYPICAL HORIZONTAL CONSTRUCTION JOINT (NOT TO SCALE)



RETAINING WALL FOOTING PLAN

RETAINING WALL DETAILS

SCALE 1/2" = 1'-0"  
 0 1 2

SCALE 1" = 1'-0"  
 0 1 2

REVISION NUMBER	DESCRIPTION	DATE
▲	CHANGE DUE TO FIELD CONDITIONS	10/30/09

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

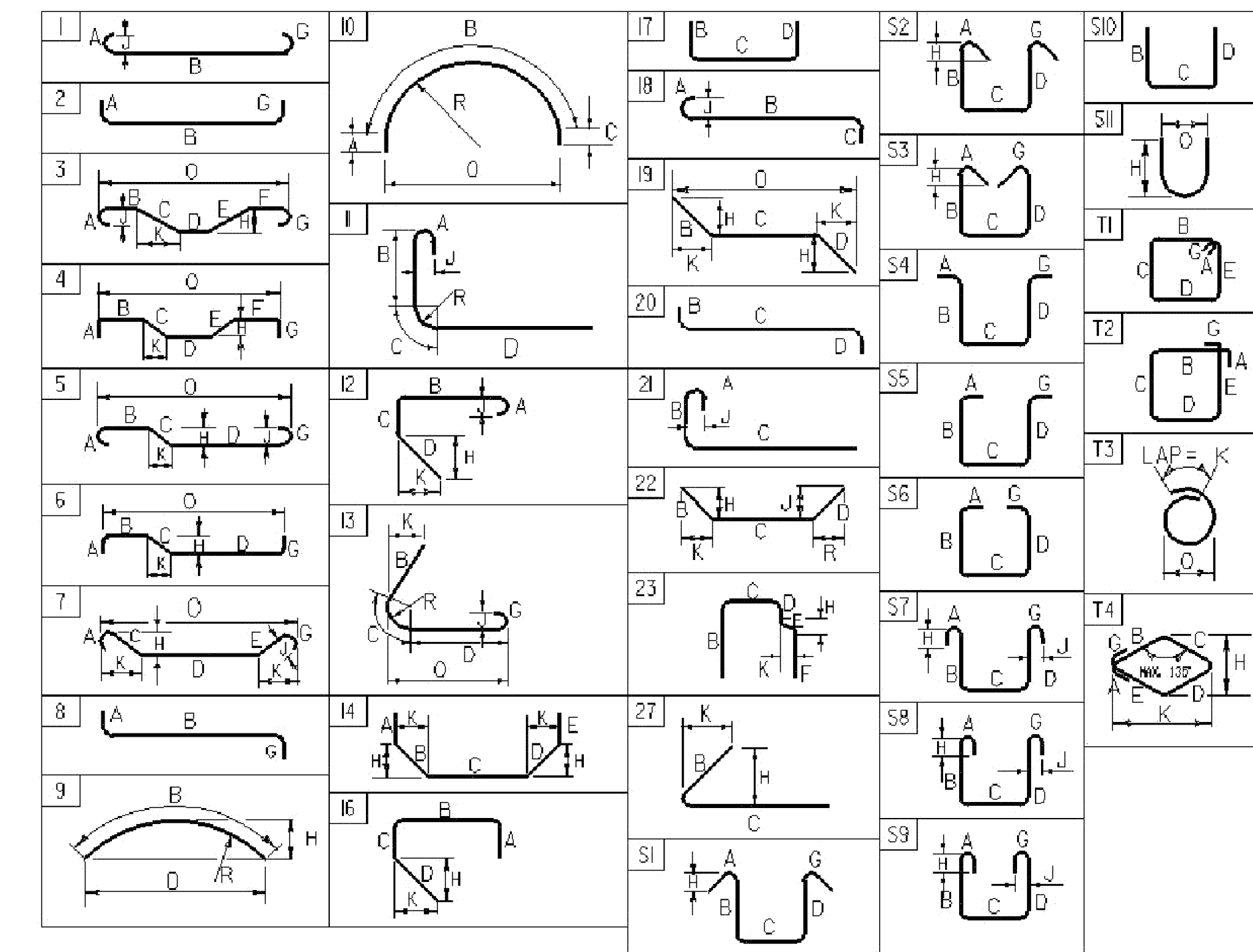
PROJECT NAME: FAIRFAX  
 PROJECT NUMBER: BHF 023-1(5)  
 FILE NAME: s86e064sub.dgn  
 PROJECT LEADER: C. CARLSON  
 DESIGNED BY: C. CARLSON  
 PLOT DATE: 05-NOV-2009  
 DRAWN BY: C. MOONEY  
 CHECKED BY: C. CARLSON  
 SHEET 44 OF 61

# 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			
<b>DECK- SIDEWALK</b>																																						
*	23	5	33'- 4"	ES501	STR	33'- 4"																																
	68	5	3'- 5"	ES502	S10		1'- 6"	0'- 5"	1'- 6"																													
<b>ABUTMENT 1</b>																																						
<b>WINGWALL NO. 1</b>																																						
* ▲	14	5	5'- 0"	1W501	STR	5'- 0"																																
* ▲	13	5	4'- 0"	1W503	STR	4'- 0"																																
	5	5	3'- 6"	1W502	S10		1'- 3"	1'- 0"	1'- 3"																													
<b>WINGWALL NO. 2</b>																																						
+ ▲	24	5	5'- 0"	2W501	STR	5'- 0"																																
▲	6	5	4'- 0"	2W503	STR	4'- 0"																																
#	5	5	6'- 4"	2W504	STR	6'- 4"																																
	4	5	3'- 6"	2W502	S10		1'- 3"	1'- 0"	1'- 3"																													
	7	5	1'- 6"	2W505	S10		0'- 6"	0'- 6"	0'- 6"																													
<b>ABUTMENT 2</b>																																						
<b>WINGWALL NO. 4.</b>																																						
+ ▲	31	5	5'- 0"	4W501	STR	5'- 0"																																
# ▲	16	5	4'- 0"	4W503	STR	4'- 0"																																
	10	5	3'- 6"	4W502	S10		1'- 3"	1'- 0"	1'- 3"																													
<b>RETAINING WALL</b>																																						
*	41	5	18'- 4"	1R501	STR	18'- 4"																																
	36	5	4'- 11"	1R503	STR	4'- 11"																																
	36	5	3'- 3"	1R505	STR	3'- 3"																																
	36	5	4'- 11"	1R502	17		2'- 1"	0'- 9"	2'- 1"																													
	36	5	8'- 2"	1R504	17		4'- 11"	3'- 3"																														

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- ⊕ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E 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 <sup>2</sup>	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: FAIRFAX

PROJECT NUMBER: BHF 023-1(5)

FILE NAME: s86e064rss.dgn

PROJECT MANAGER: C. CARLSON

DESIGNED BY: C. CARLSON

REINFORCING STEEL SCHEDULE

PLOT DATE: 7/10/2009

DRAWN BY: C. MOONEY

CHECKED BY: C. CARLSON

SHEET 45 OF 61

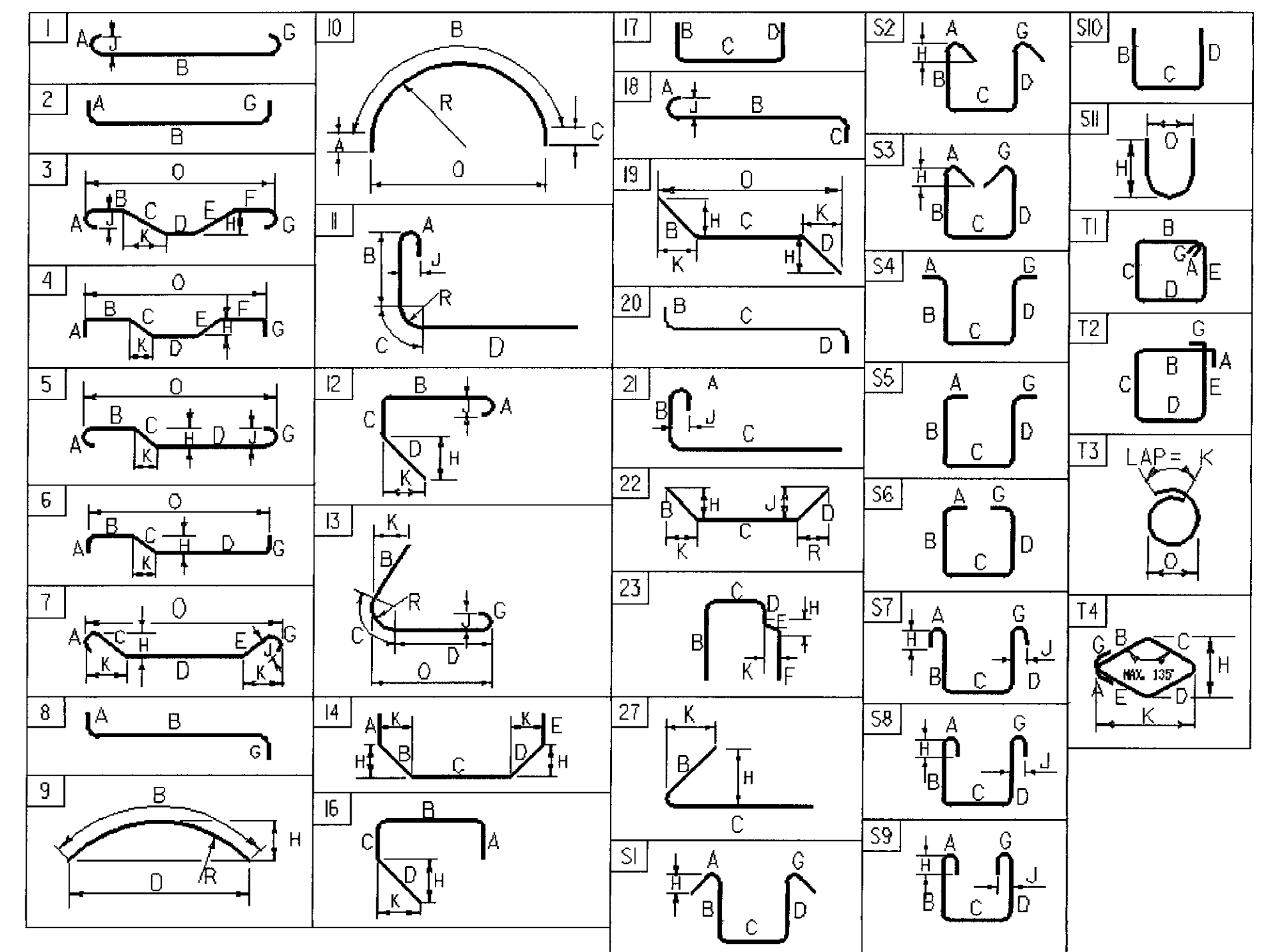
STATE OF VERMONT  
AGENCY OF TRANSPORTATION

# 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		
<b>DECK- SIDEWALK</b>																																					
*	23	5	33'- 4"	ES501	STR	33'- 4"																															
	68	5	3'- 5"	ES502	S10		1'- 6"	0'- 5"	1'- 6"																												
<b>ABUTMENT 1</b>																																					
<b>WINGWALL NO. 1</b>																																					
* ▲	15	5	4'- 6"	1W501	STR	4'- 6"																															
* ▲	13	5	3'- 11"	1W503	STR	3'- 11"																															
	6	5	3'- 6"	1W502	S10		1'- 3"	1'- 0"	1'- 3"																												
<b>WINGWALL NO. 2</b>																																					
* ▲	24	5	4'- 6"	2W501	STR	4'- 6"																															
▲	8	5	6'- 7"	2W503	STR	6'- 7"																															
* ▲	5	5	13'- 8"	2W504	STR	13'- 8"																															
	8	5	3'- 6"	2W502	S10		1'- 3"	1'- 0"	1'- 3"																												
	7	5	1'- 6"	2W505	S10		0'- 6"	0'- 6"	0'- 6"																												
<b>ABUTMENT 2</b>																																					
<b>WINGWALL NO. 4.</b>																																					
* ▲	31	5	5'- 4"	4W501	STR	5'- 4"																															
* ▲	9	5	13'- 6"	4W503	STR	13'- 6"																															
	15	5	3'- 6"	4W502	S10		1'- 3"	1'- 0"	1'- 3"																												
<b>RETAINING WALL</b>																																					
* ▲	41	5	18'- 4"	1R501	STR	18'- 4"																															
▲	32	5	4'- 11"	1R503	STR	4'- 11"																															
	32	5	3'- 3"	1R505	STR	3'- 3"																															
▲	36	5	4'- 11"	1R504	17		2'- 1"	0'- 9"	2'- 1"																												
▲	36	5	8'- 2"	1R502	17		4'- 11"	3'- 3"																													

~ NOTES ~

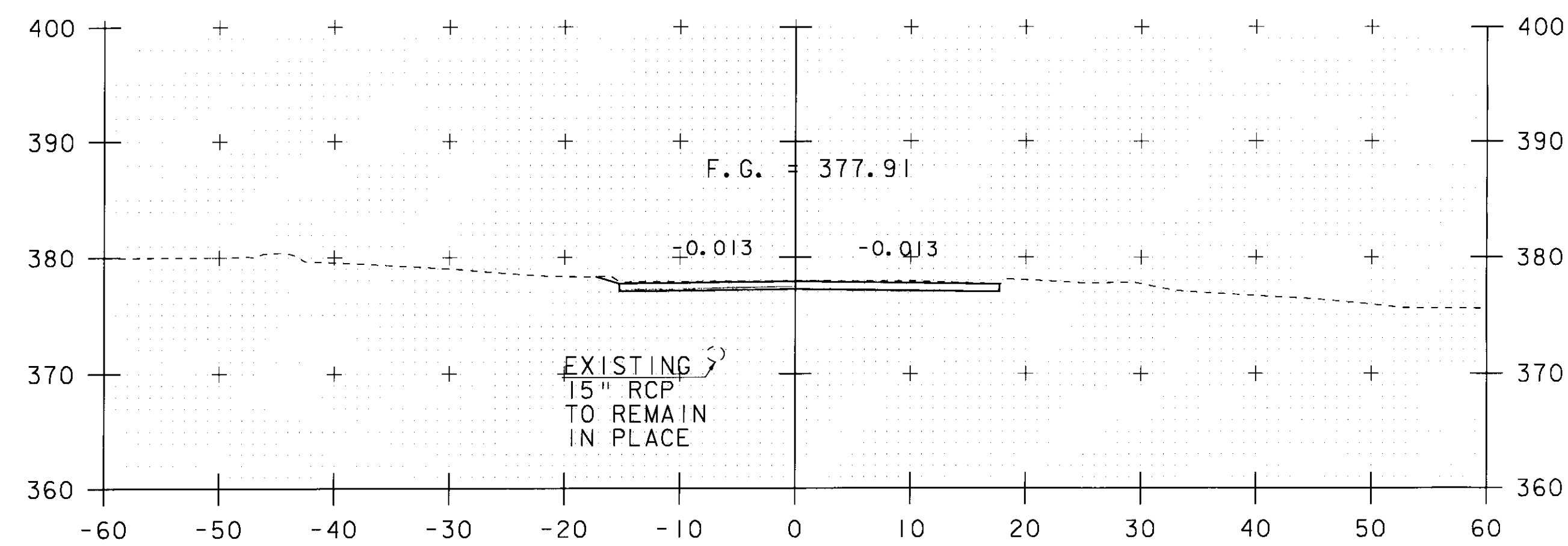
- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
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- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



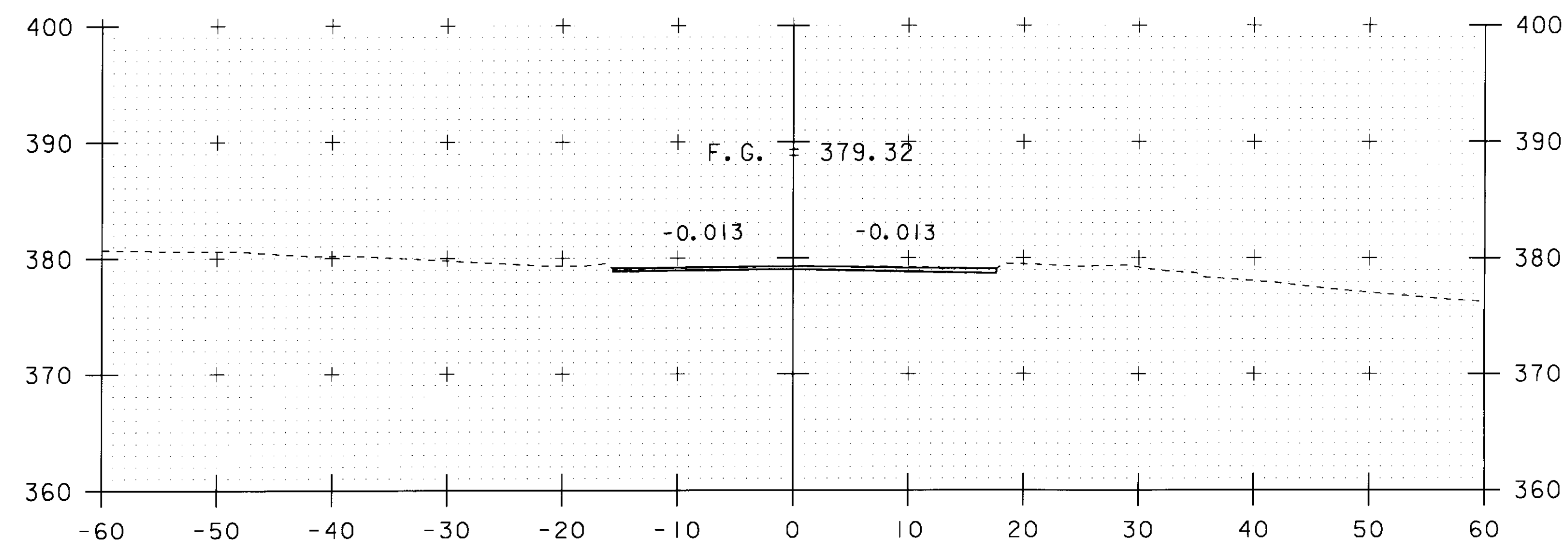
ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES <sup>2</sup>	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
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#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

REVISION NUMBER	DESCRIPTION	DATE
△	CHANGES DUE TO FIELD CONDITIONS	10/30/09

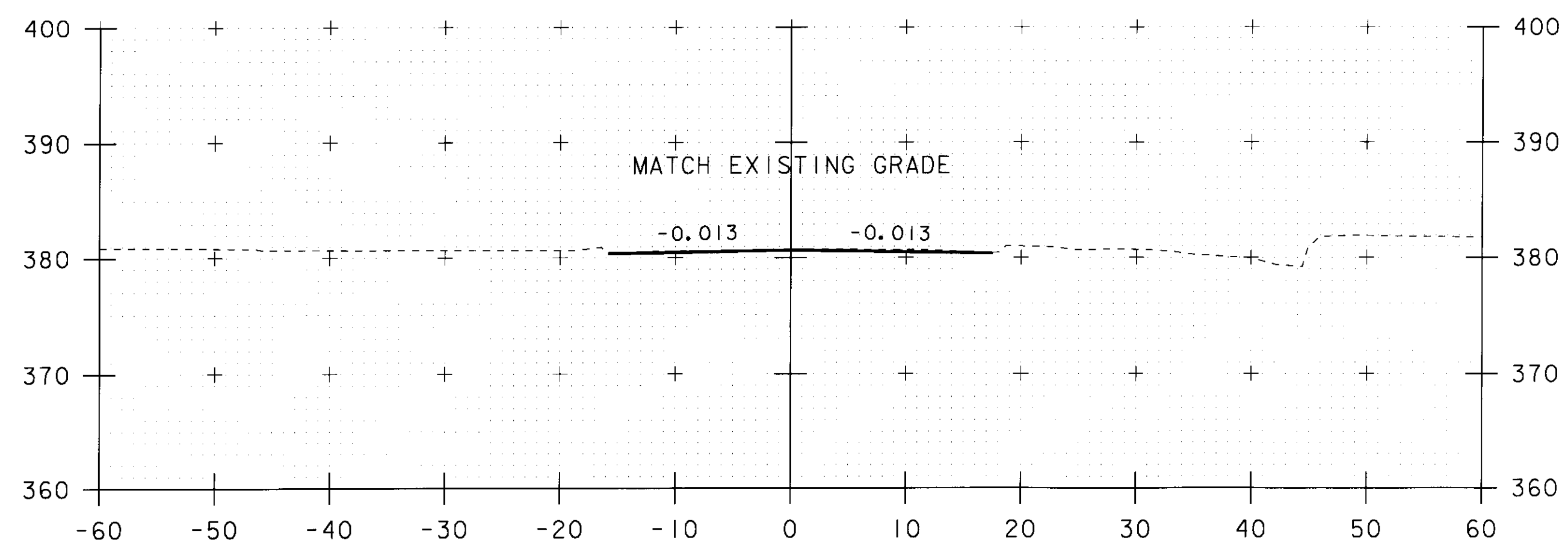
PROJECT NAME:	<b>FAIRFAX</b>
PROJECT NUMBER:	<b>BHF 023-1(5)</b>
FILE NAME: s86e064rss.dgn	PLOT DATE: 11/4/2009
PROJECT MANAGER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: C. CARLSON	CHECKED BY: C. CARLSON
<b>REINFORCING STEEL SCHEDULE</b>	SHEET 45 OF 61



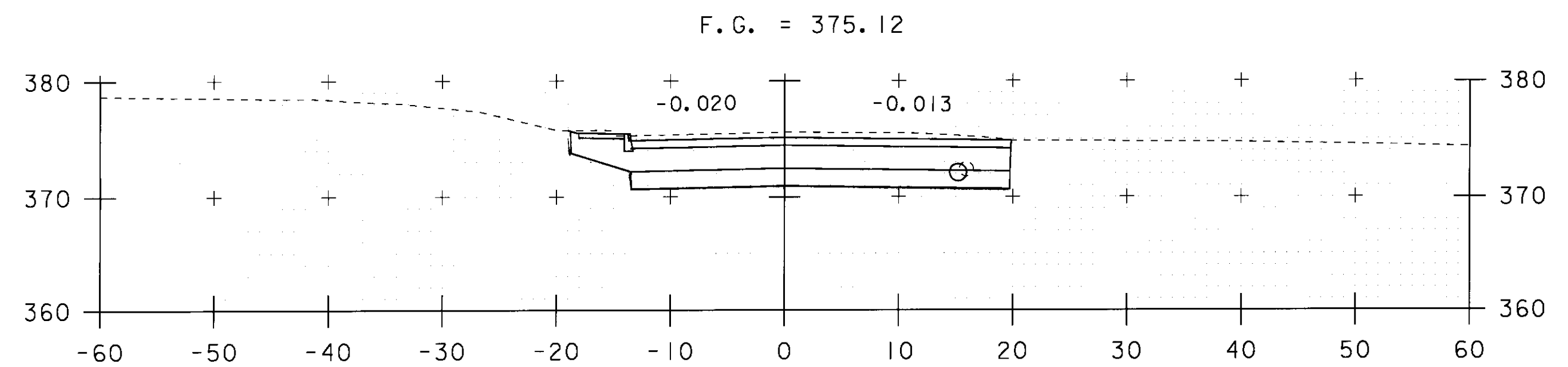
279+25



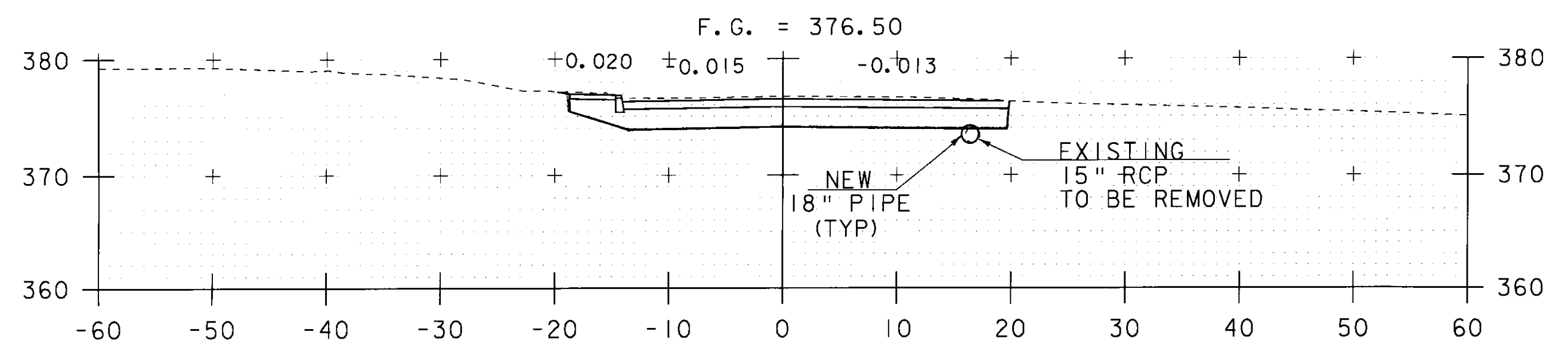
279+00



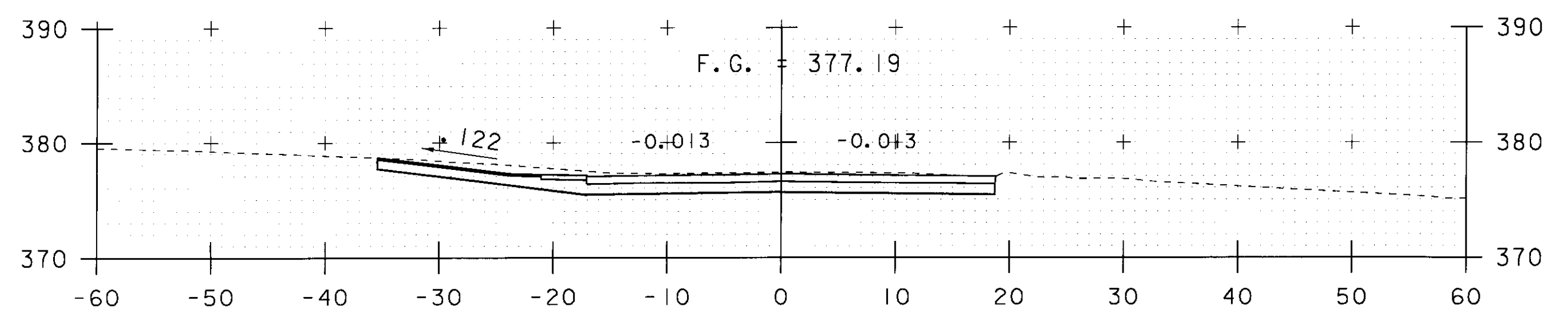
278+75  
BEGIN APPROACH



279+75  
END APPROACH  
BEGIN PROJECT

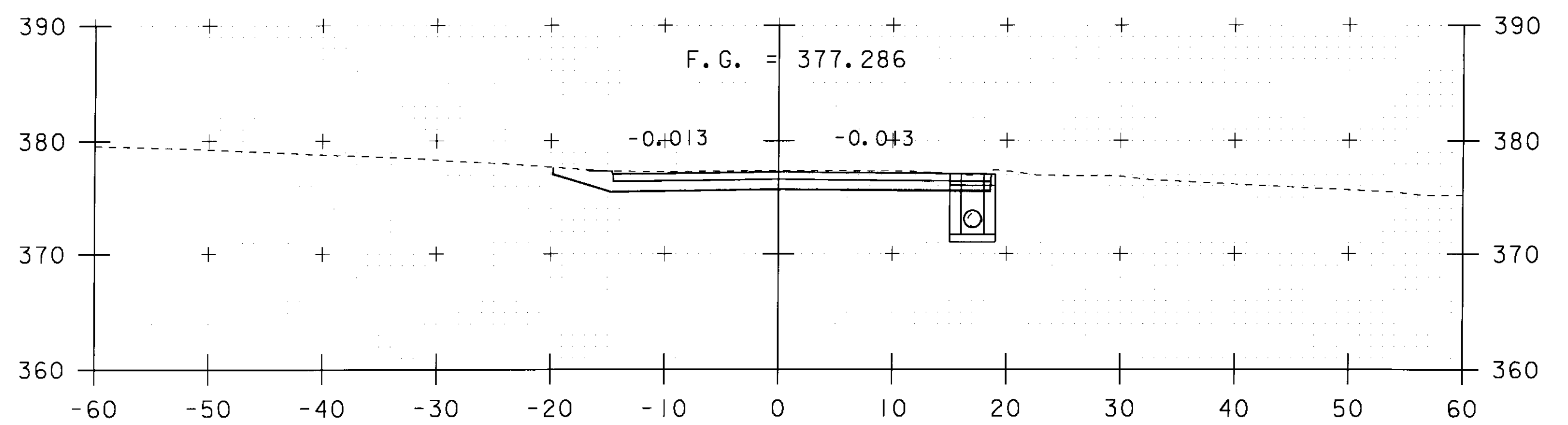


279+50

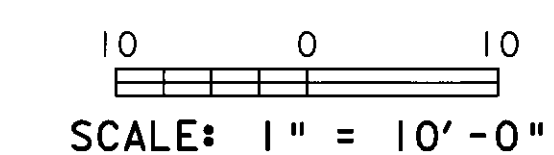


STA. 279+37.7 LT.  
CONSTRUCT DRIVE

279+38



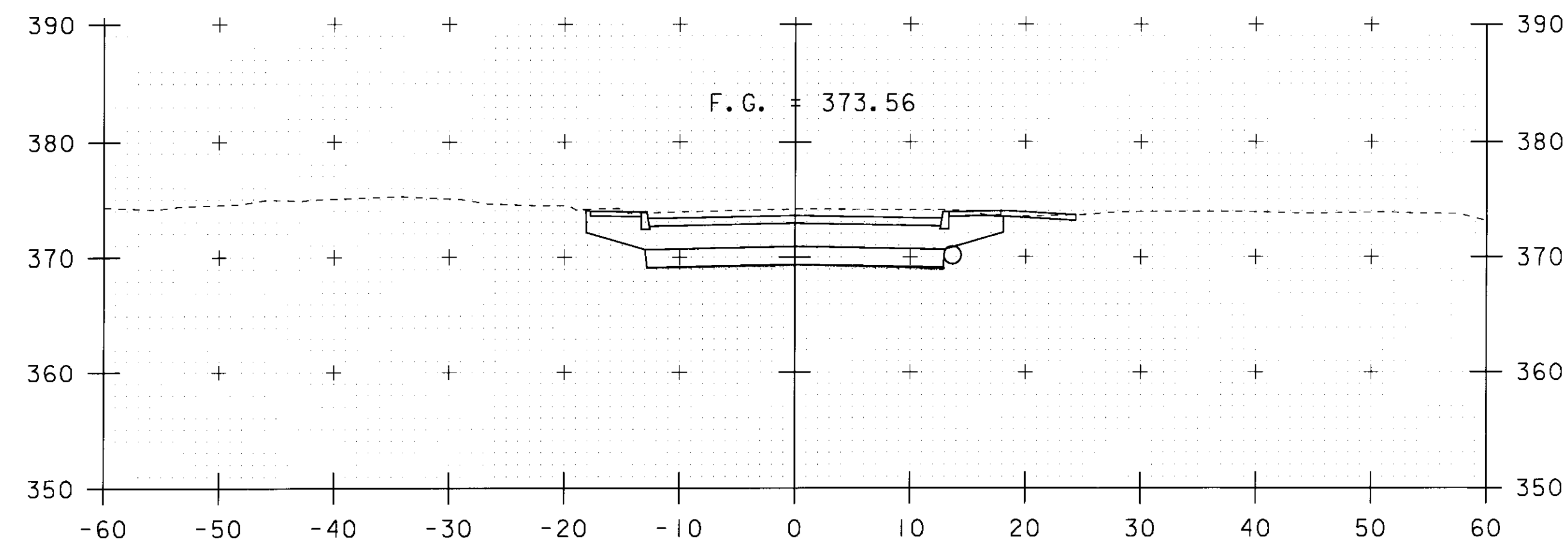
279+36



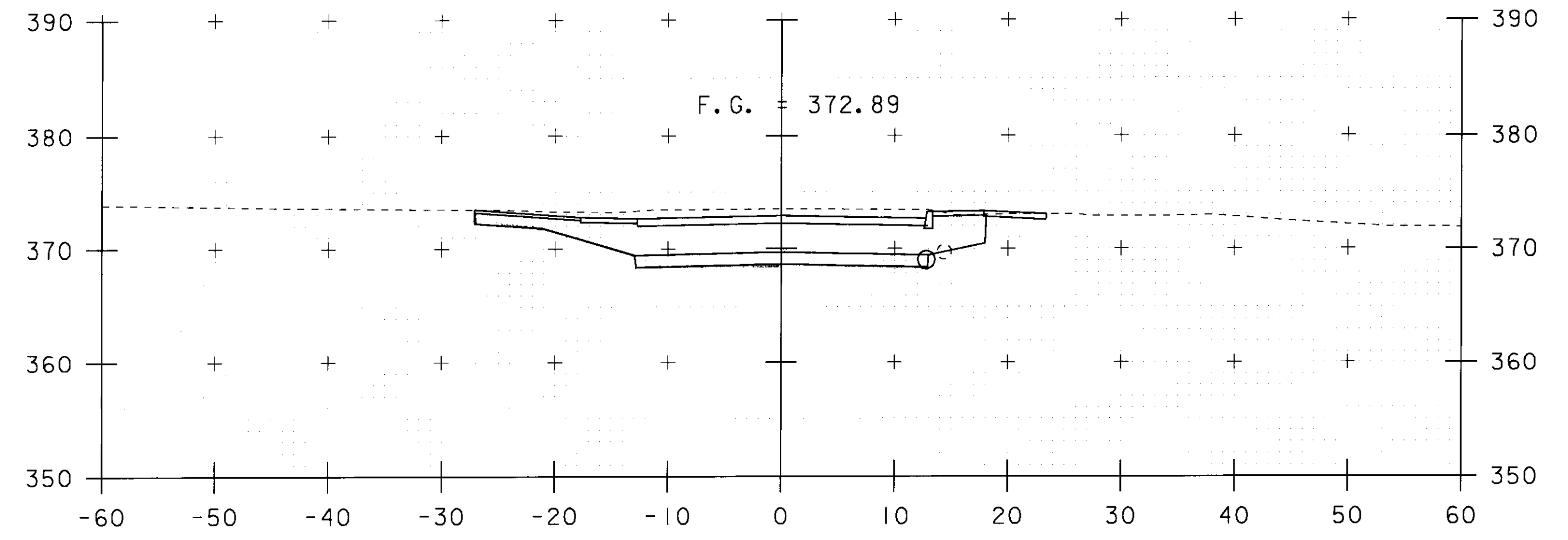
STA. 278+75 TO STA. 279+75

VT 104 SECTIONS - SHEET 1

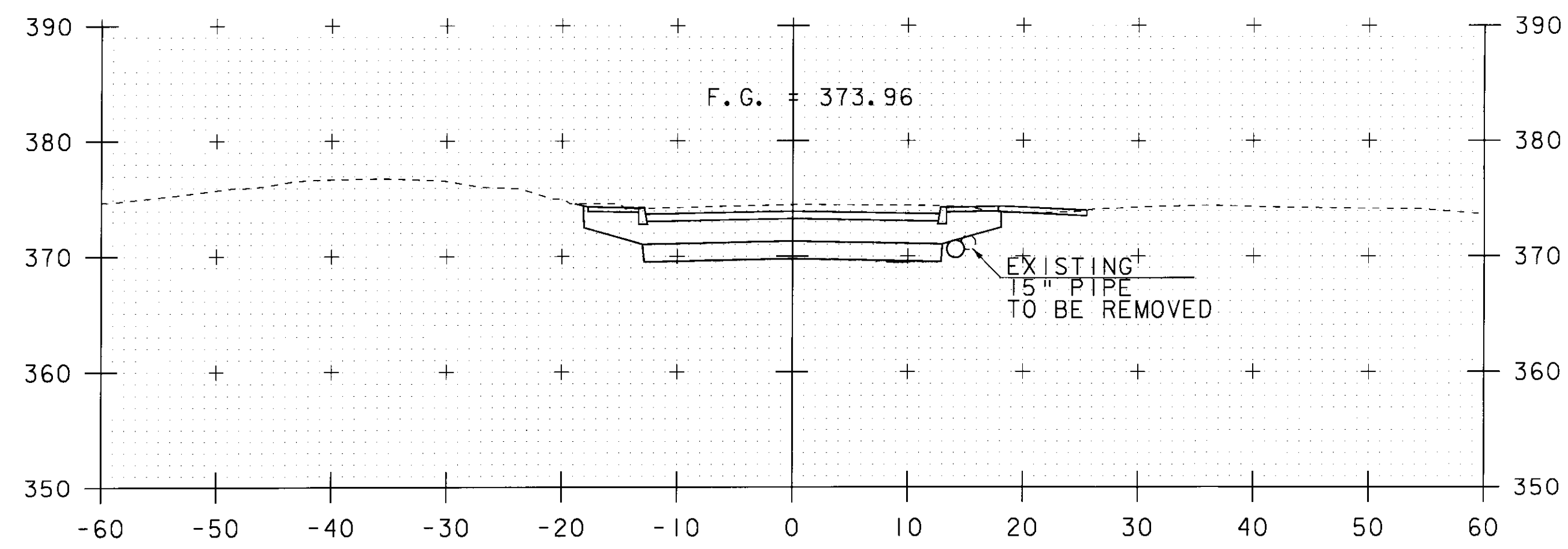
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 46 OF 61
DESIGNED BY: C. CARLSON	
se064xsl1	



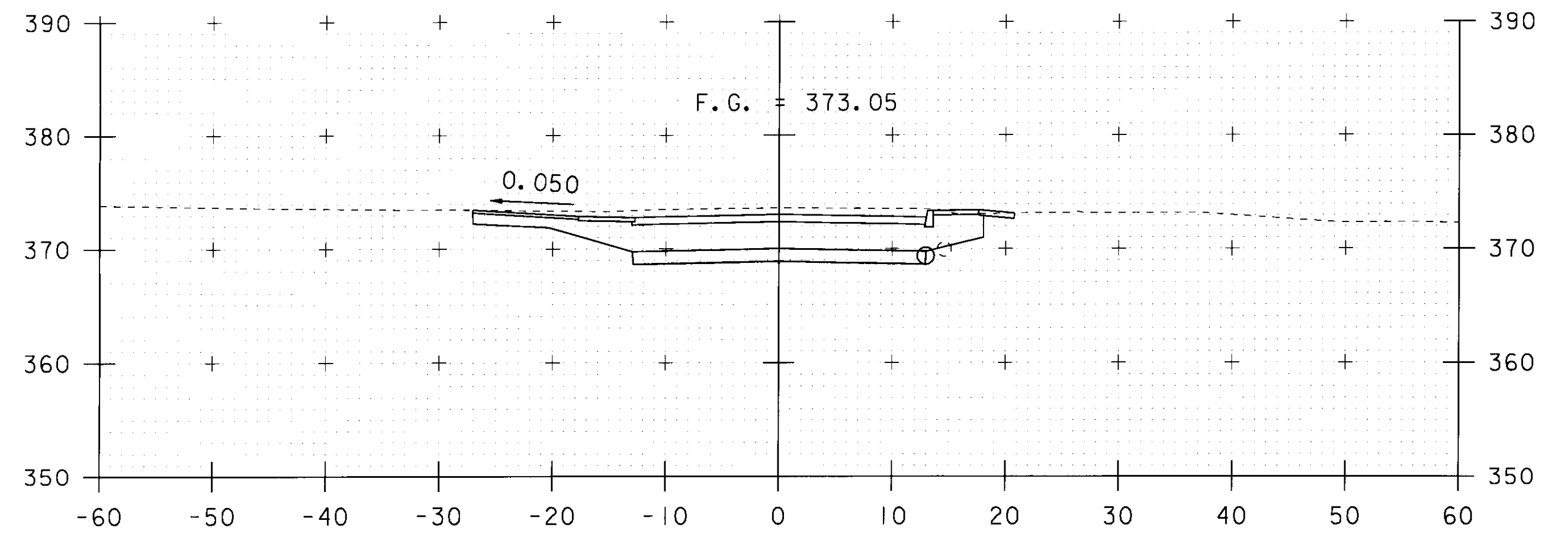
280+10



280+30

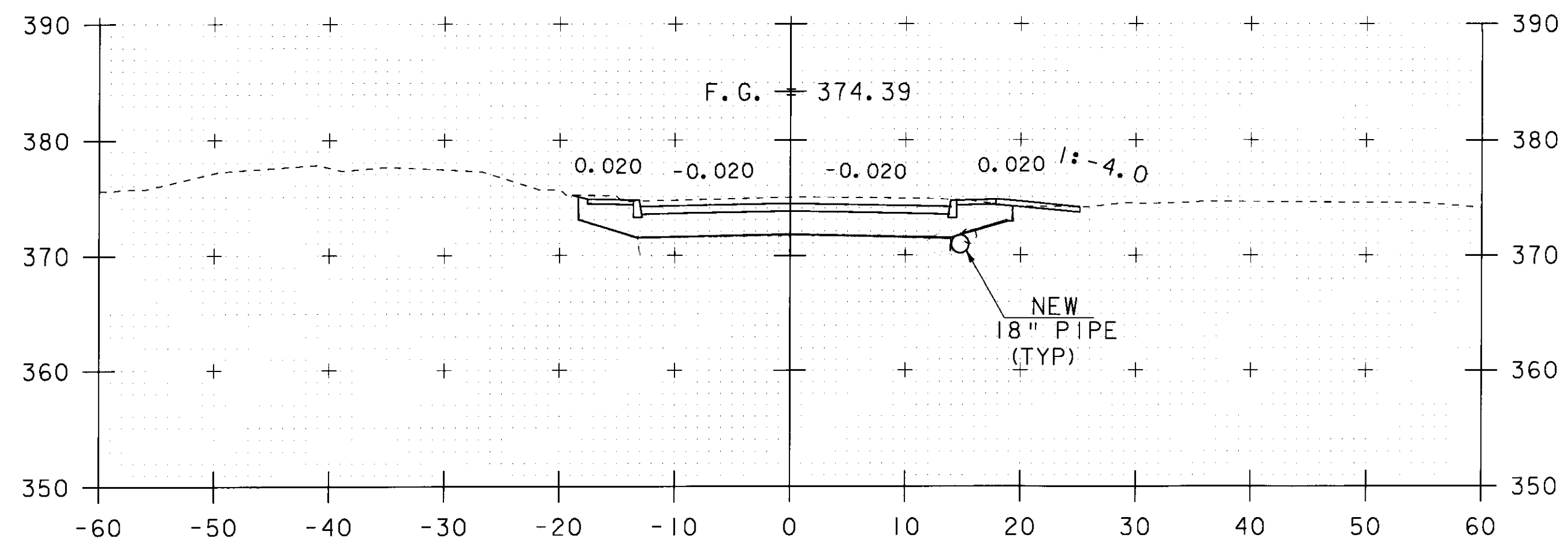


280+00

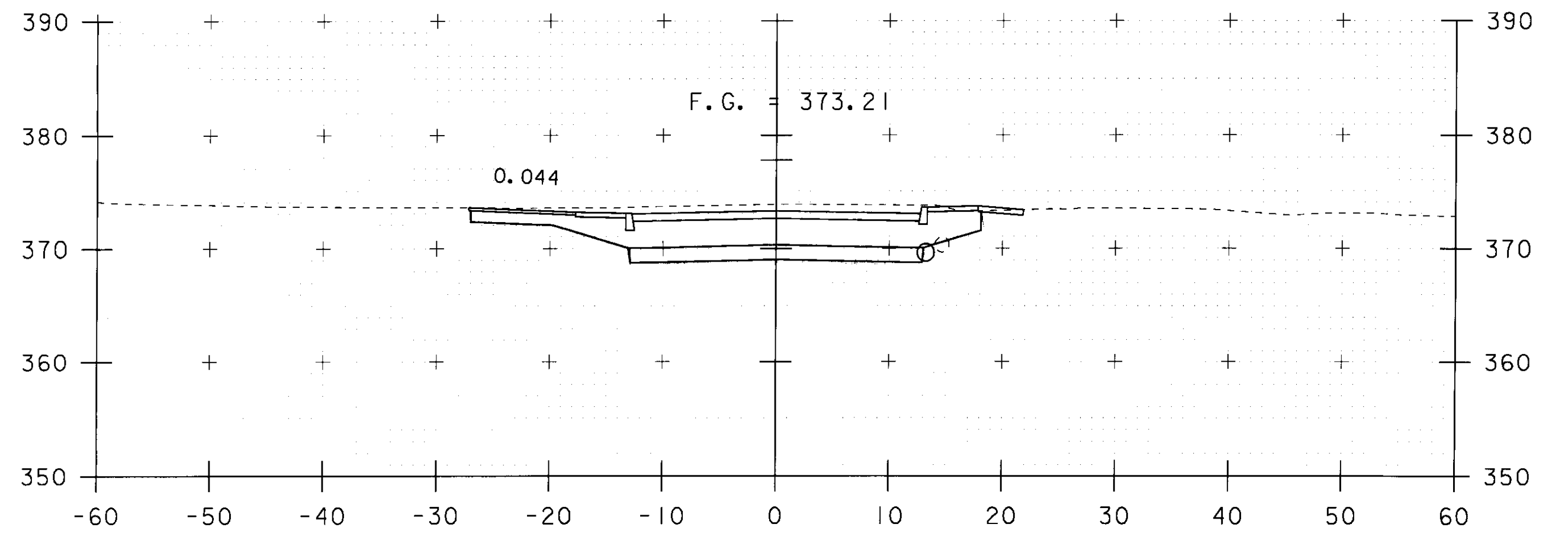


STA. 280+24.8 LT.  
CONSTRUCT DRIVE

280+25



279+90



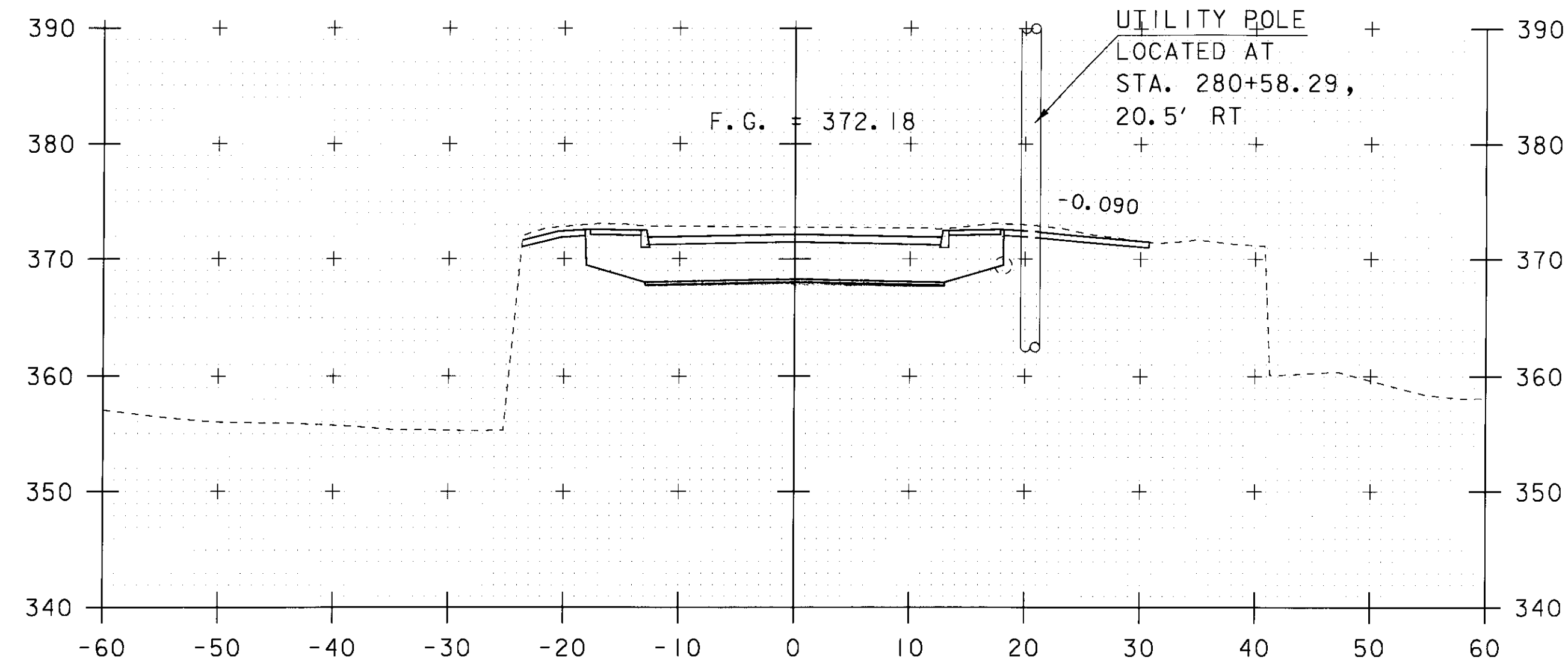
280+20

VT 104 SECTIONS - SHEET 2

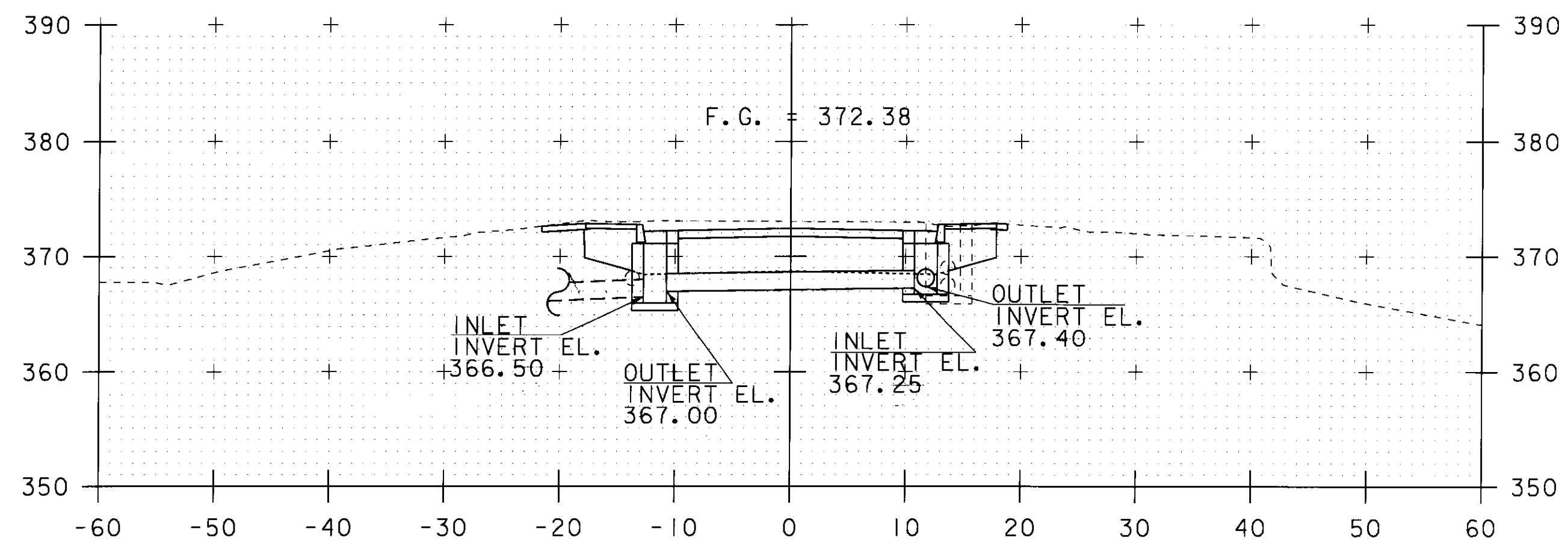
PROJECT NAME:	FAIRFAX	PLOT DATE:	13-JUL-2009
PROJECT NUMBER:	BHF 023-(15)	DRAWN BY:	L. BULLOCK
FILE NAME:	86e064/str/se064xs2.dgn	CHECKED BY:	C. CARLSON
PROJECT LEADER:	C. CARLSON	SHEET	47 OF 61
DESIGNED BY:	C. CARLSON		
	se064xs2.1		

SCALE: 1" = 10'-0"

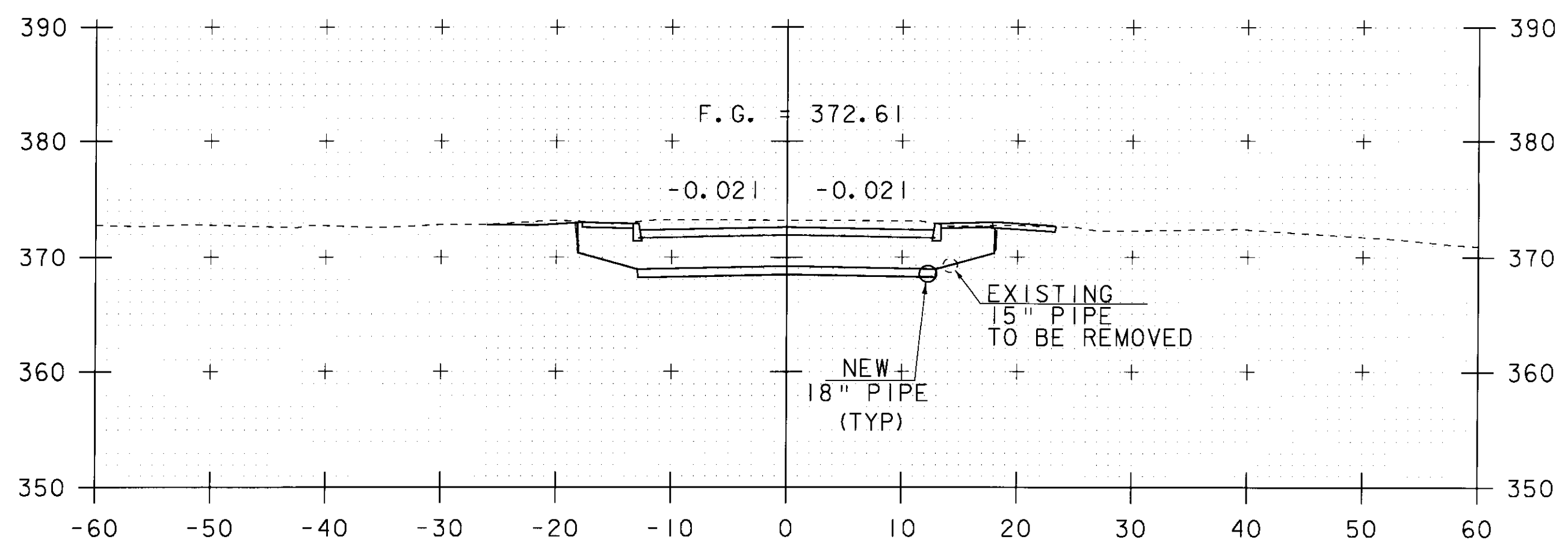
STA. 279+90 TO STA. 280+30



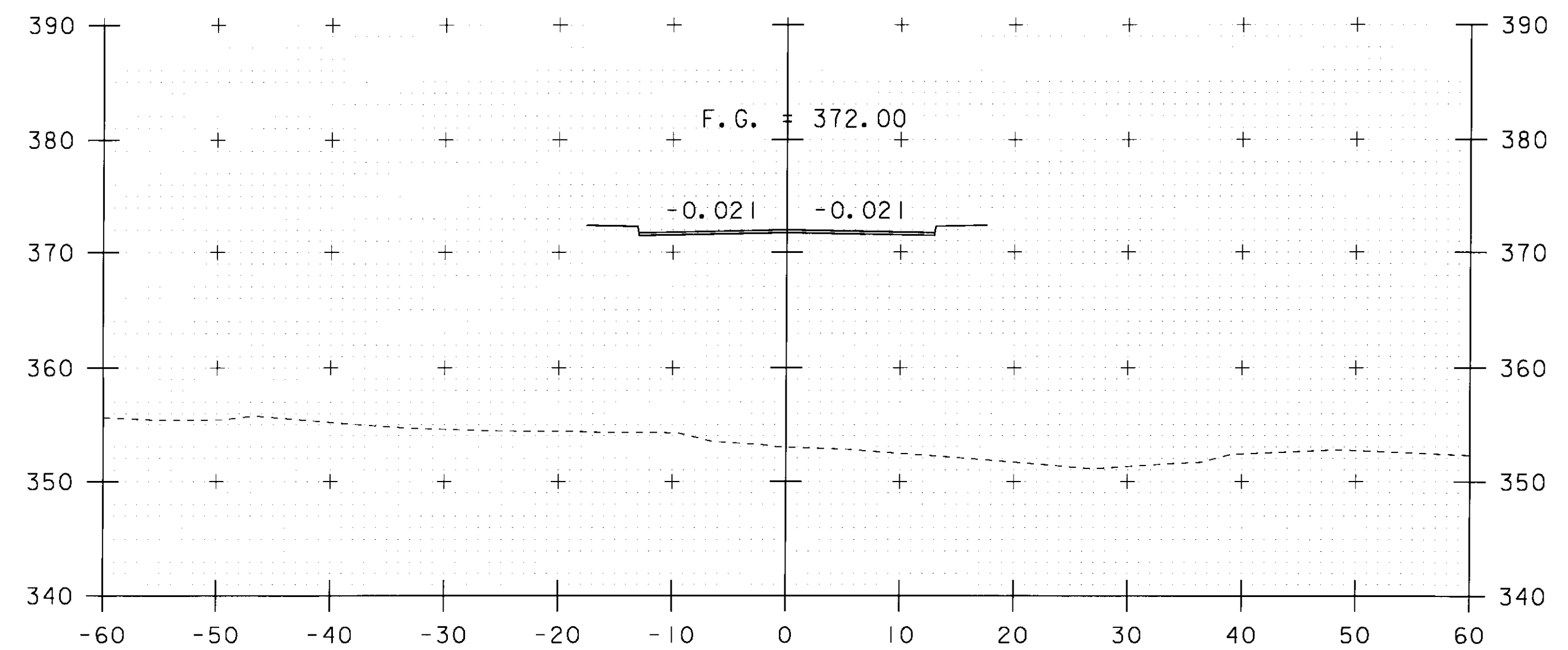
280+60



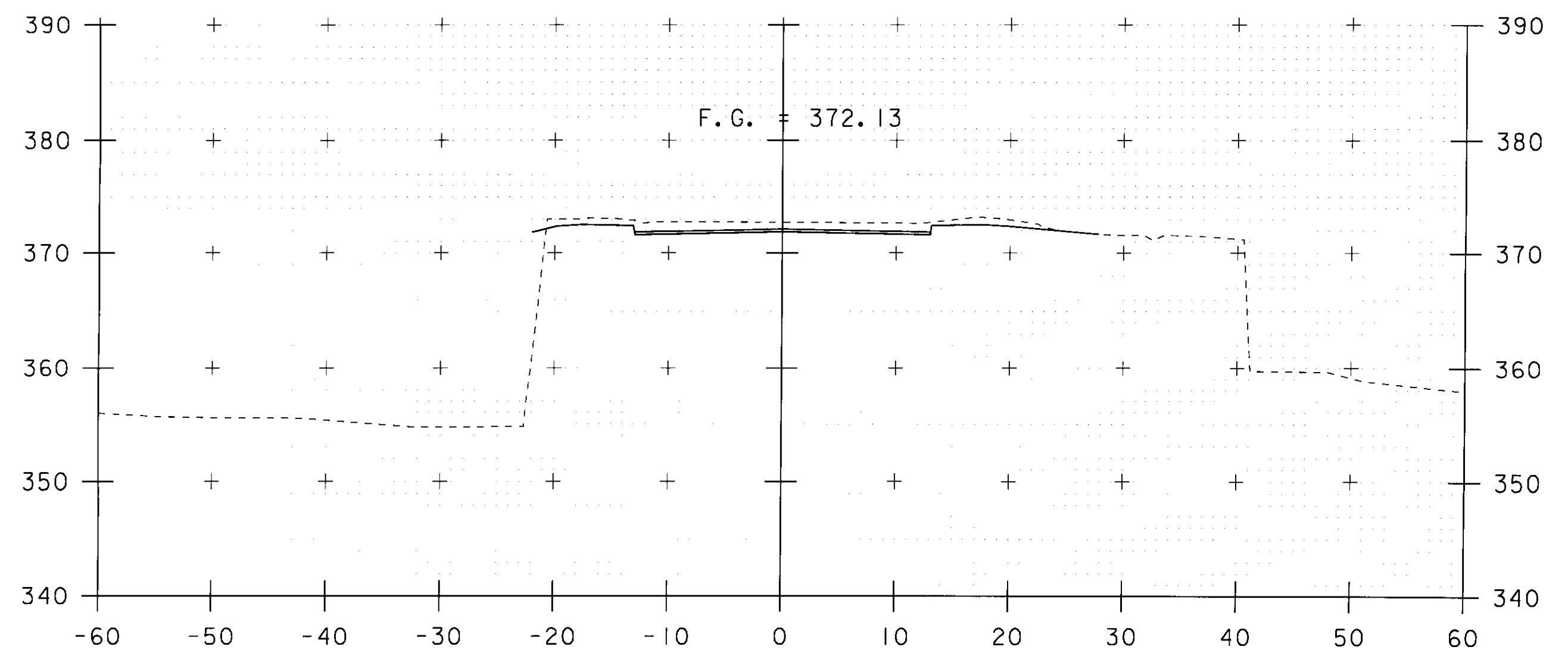
280+50



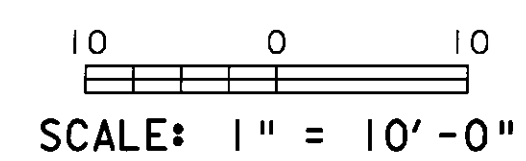
280+40



280+70



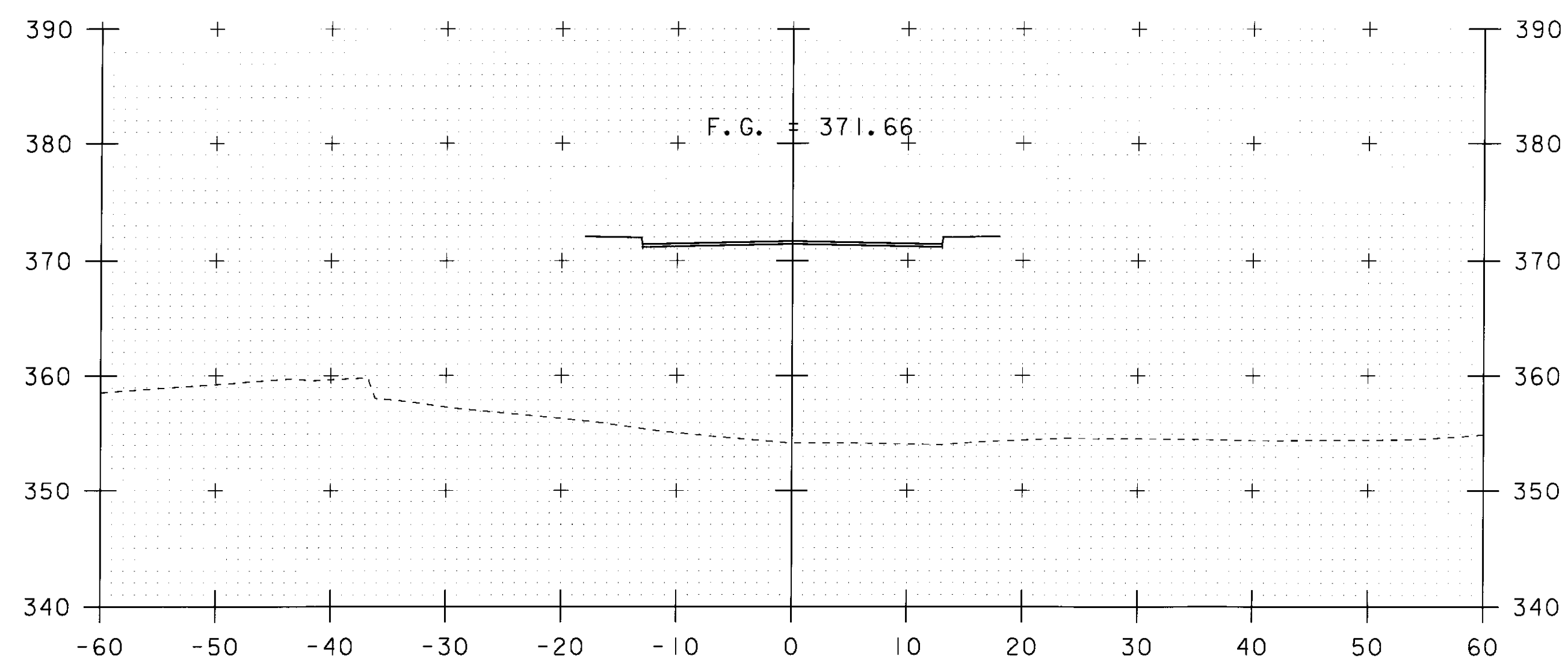
280+62.66  
BEGIN BRIDGE



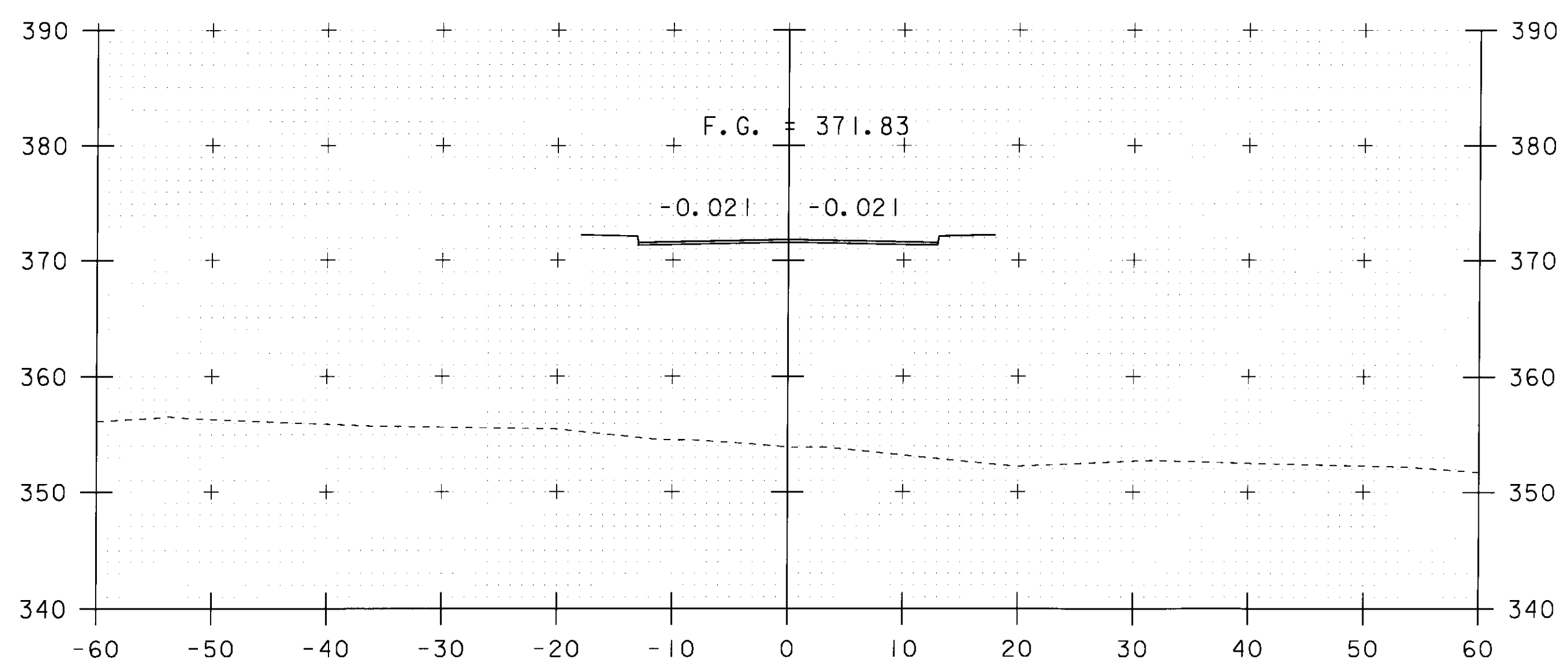
STA. 280+40 TO STA. 280+70

VT 104 SECTIONS - SHEET 3

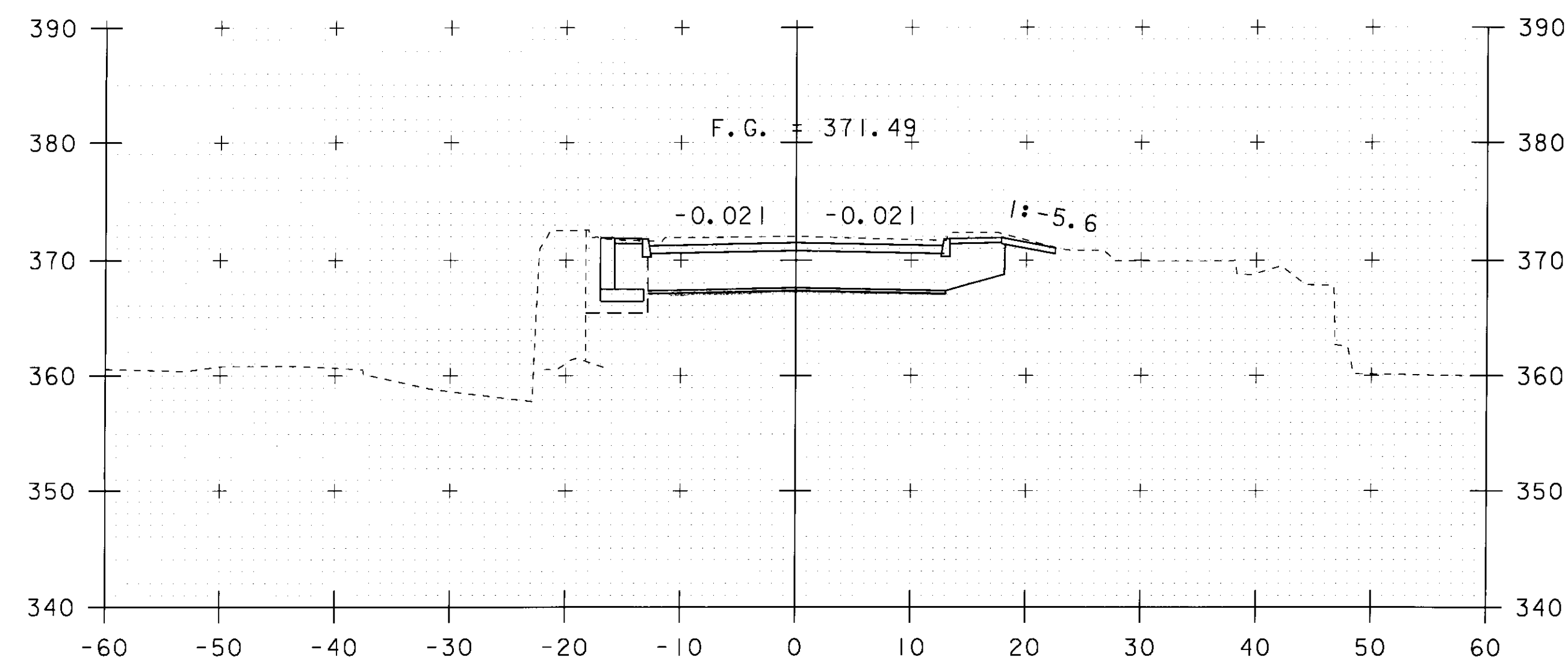
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-11(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 48 OF 61
DESIGNED BY: C. CARLSON	



280+90

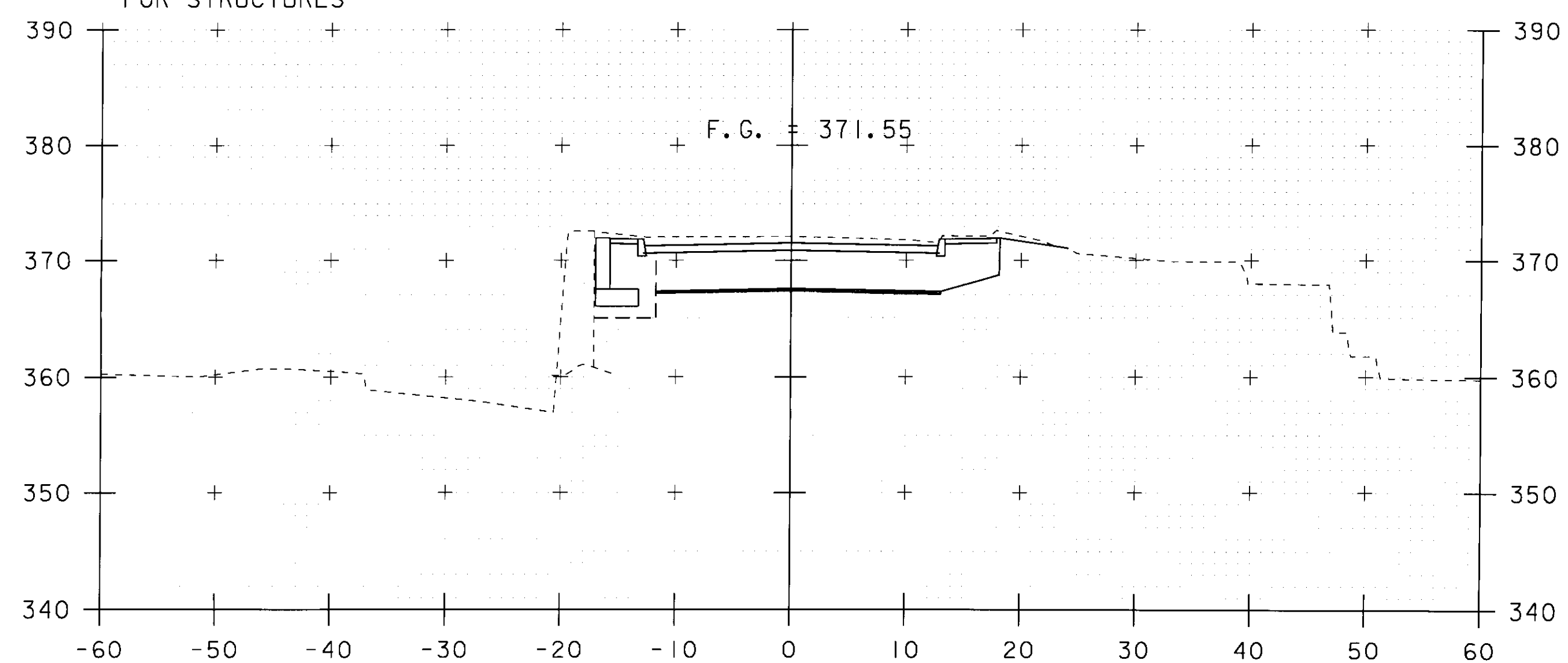


280+80



281+00

STA. 280+96.5 LT.  
BEGIN RETAINING WALL  
BEGIN STRUCTURE EXCAVATION  
AND GRANULAR BACKFILL  
FOR STRUCTURES



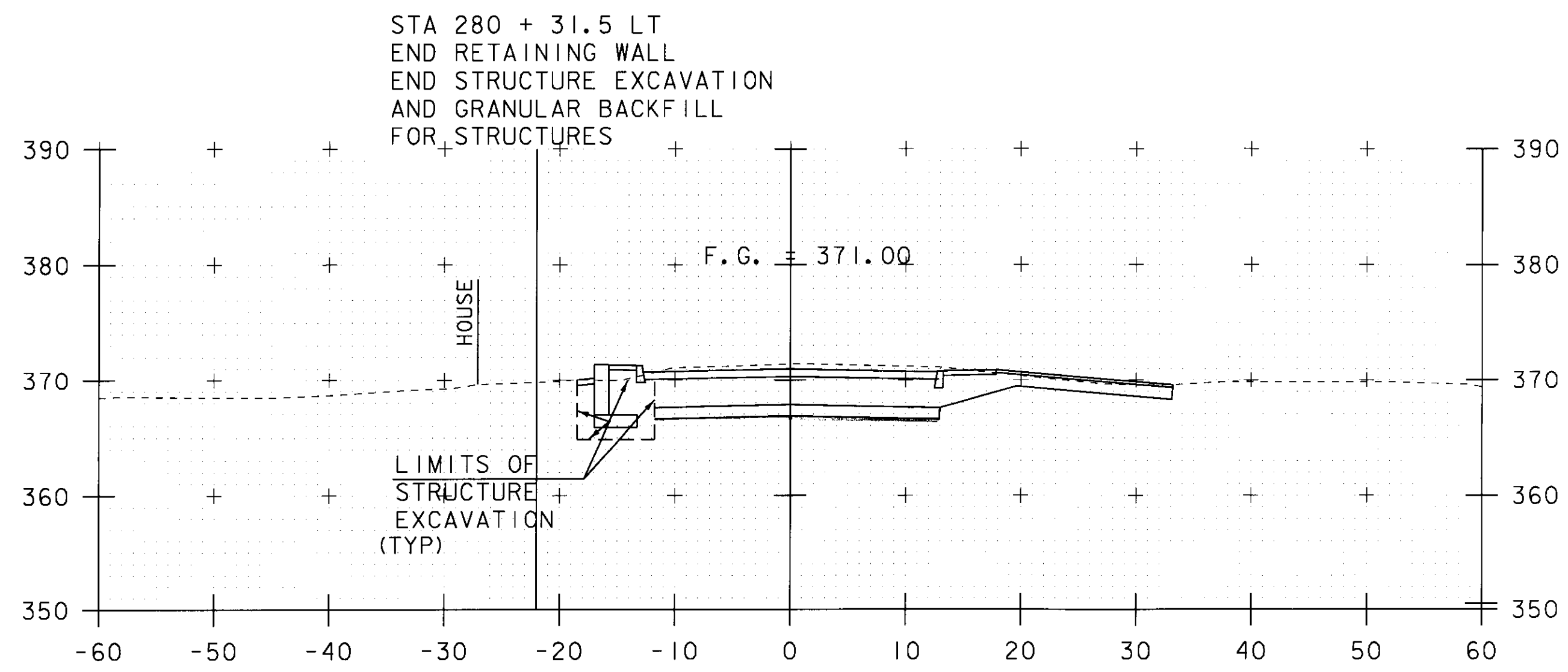
280+96.49  
END BRIDGE

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

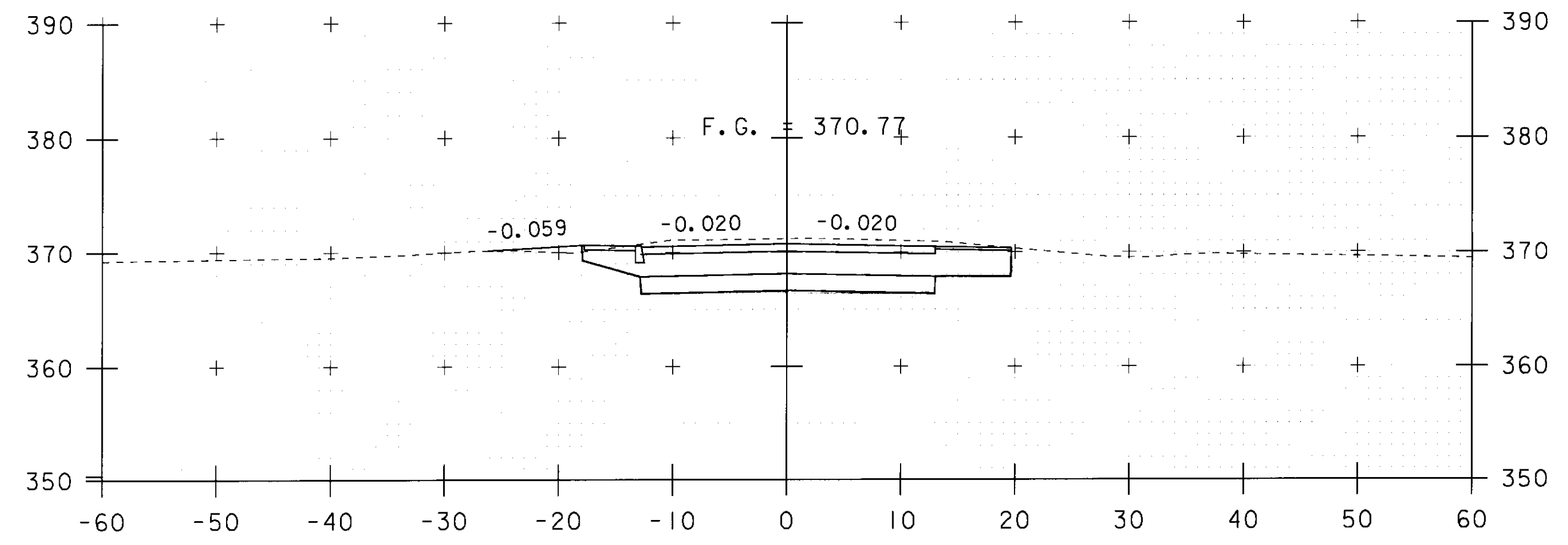
STA. 280+80 TO STA. 281+00

VT 104 SECTIONS - SHEET 4

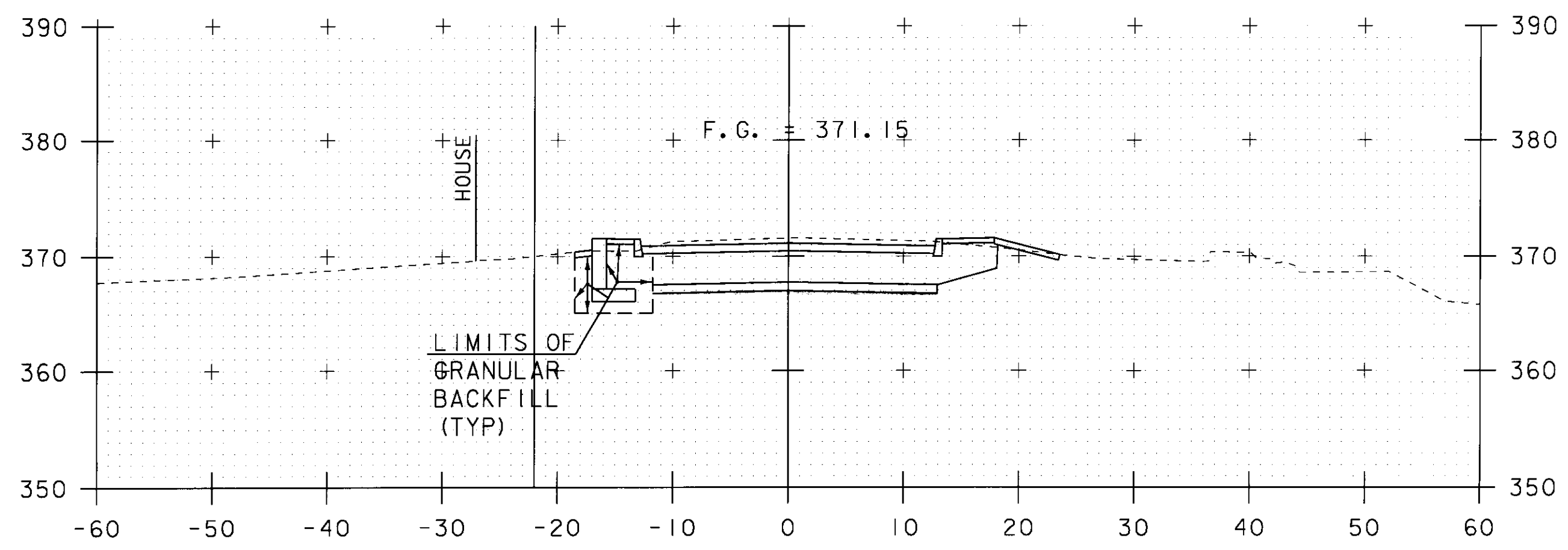
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 49 OF 61
DESIGNED BY: C. CARLSON	
se064xs4.l	



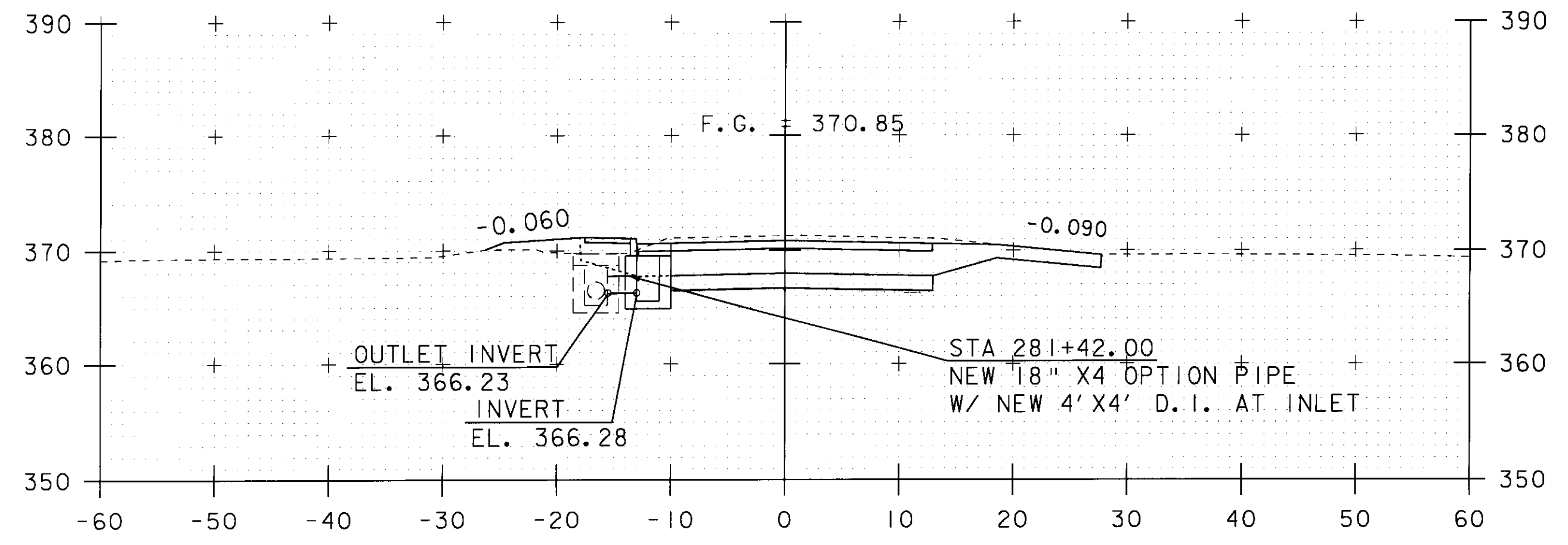
281+30



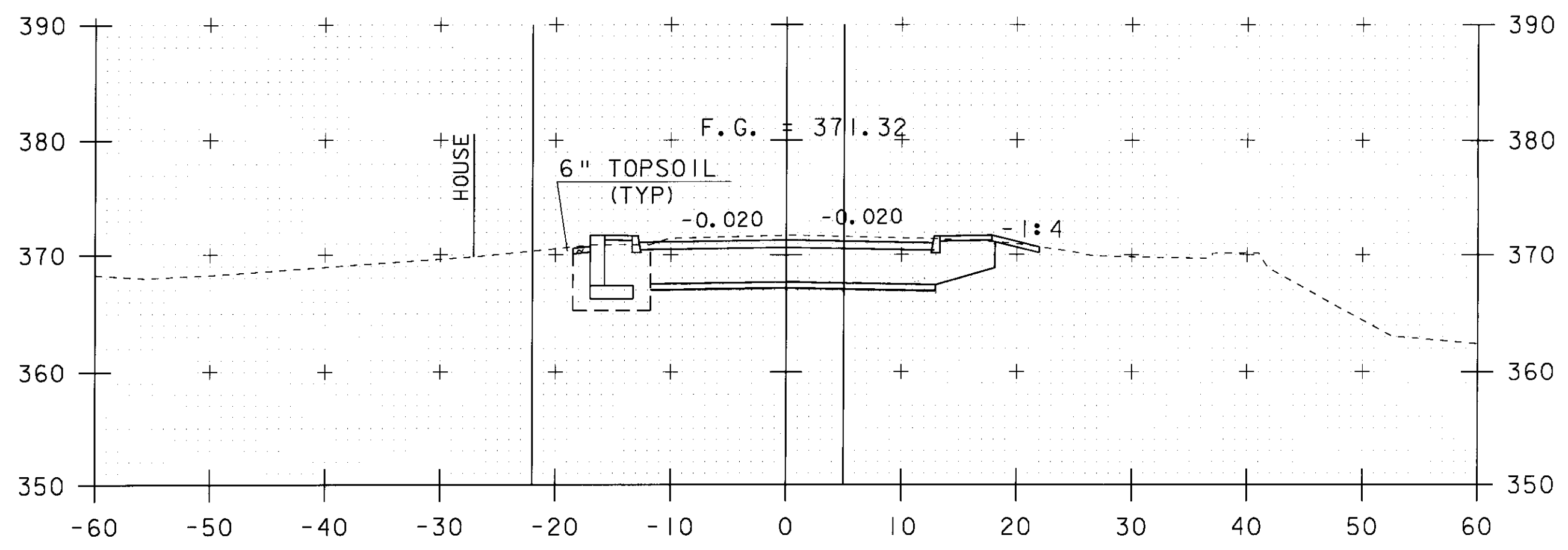
281+50



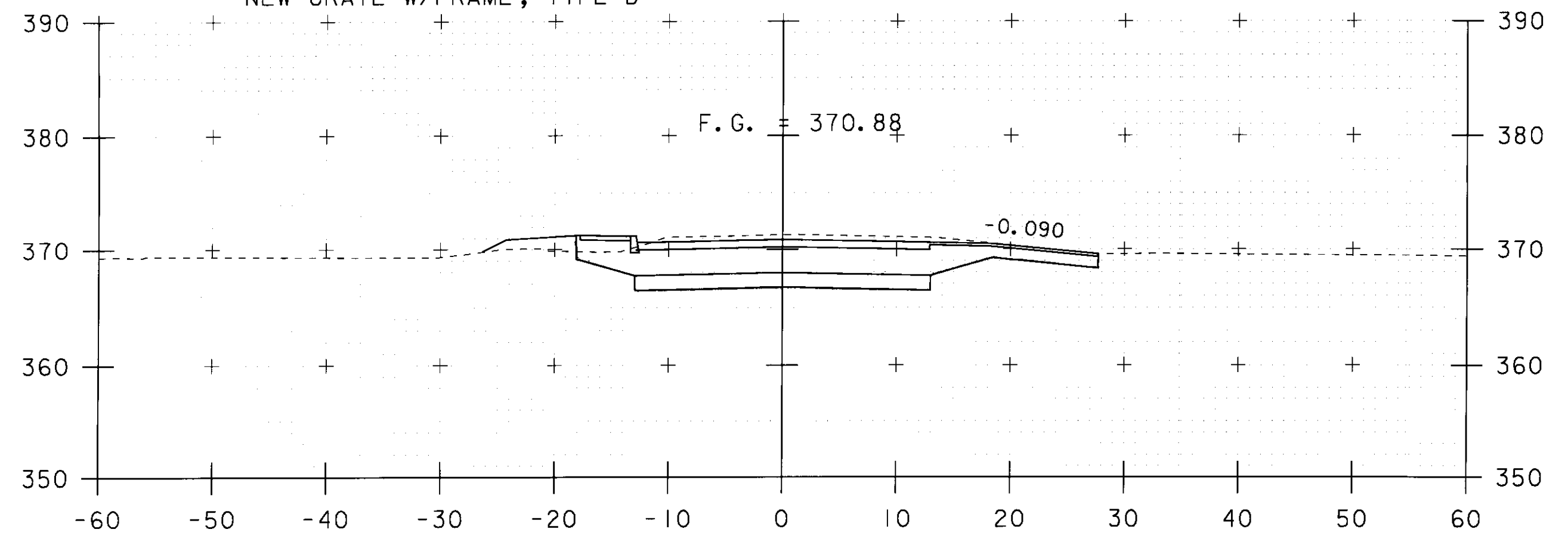
281+20



281+42

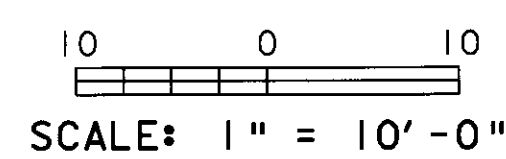


281+10



281+40

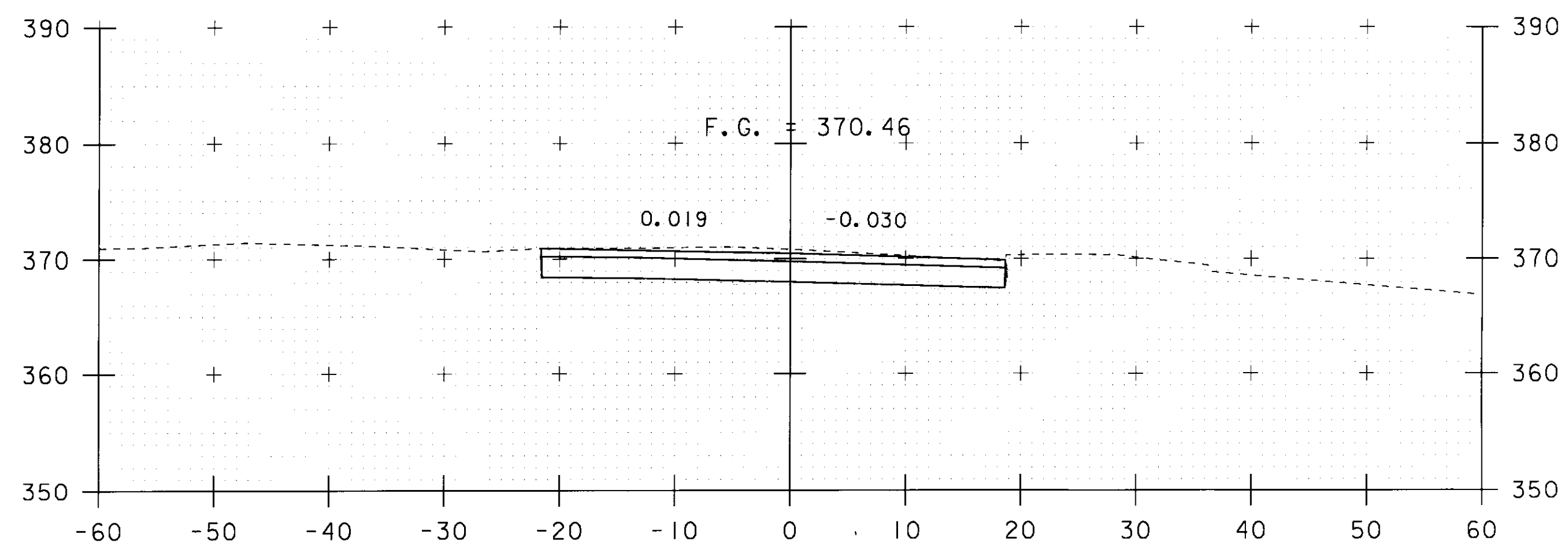
STA. 281+39.5 RT.  
CONSTRUCT DRIVE



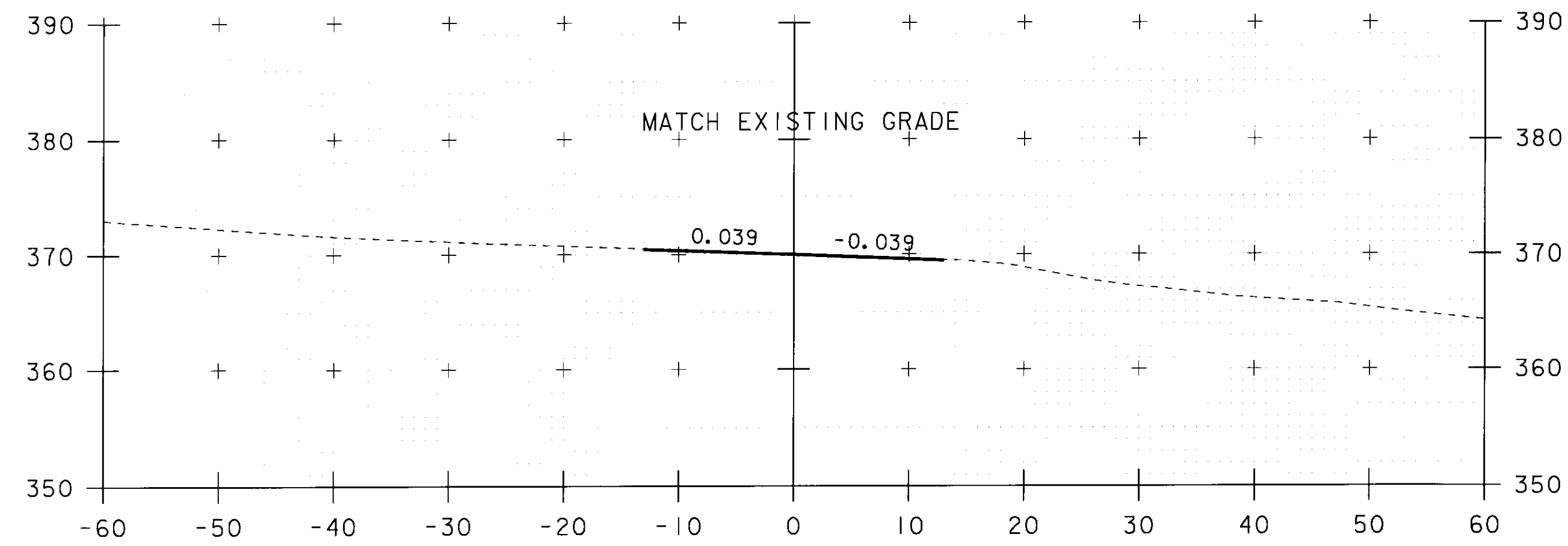
STA. 281+10 TO STA. 281+50

VT 104 SECTIONS - SHEET 5

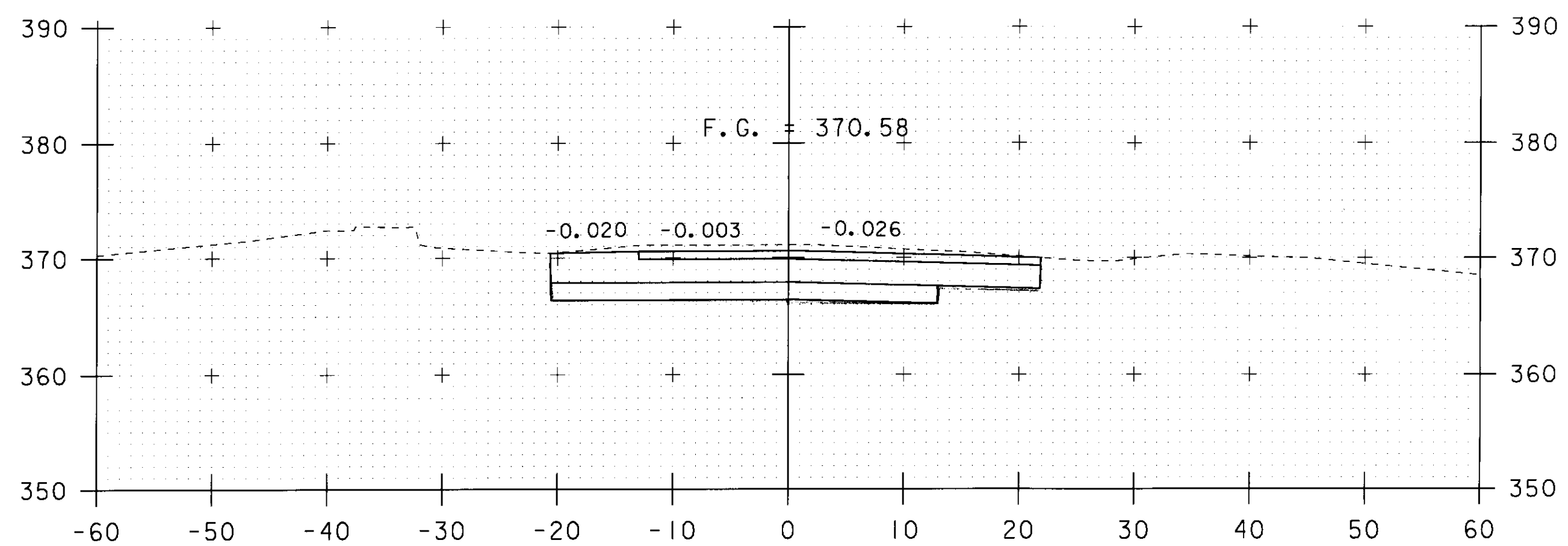
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 50 OF 61
DESIGNED BY: C. CARLSON	
se064xs5.1	



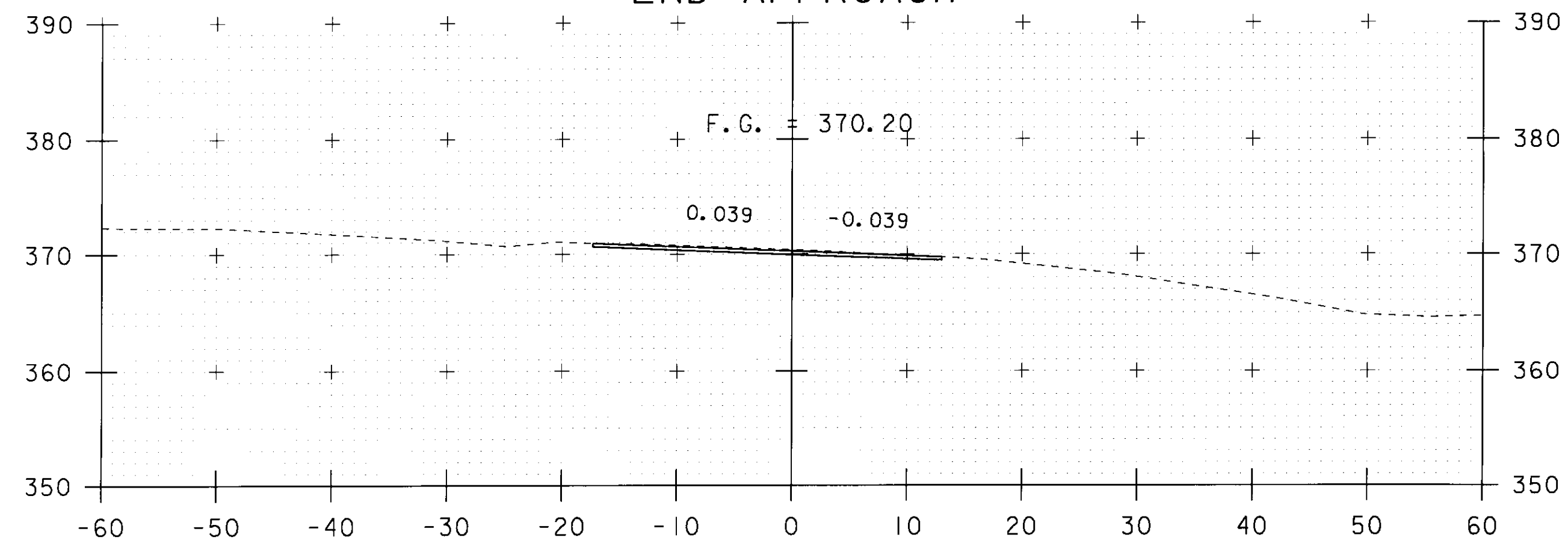
282+00



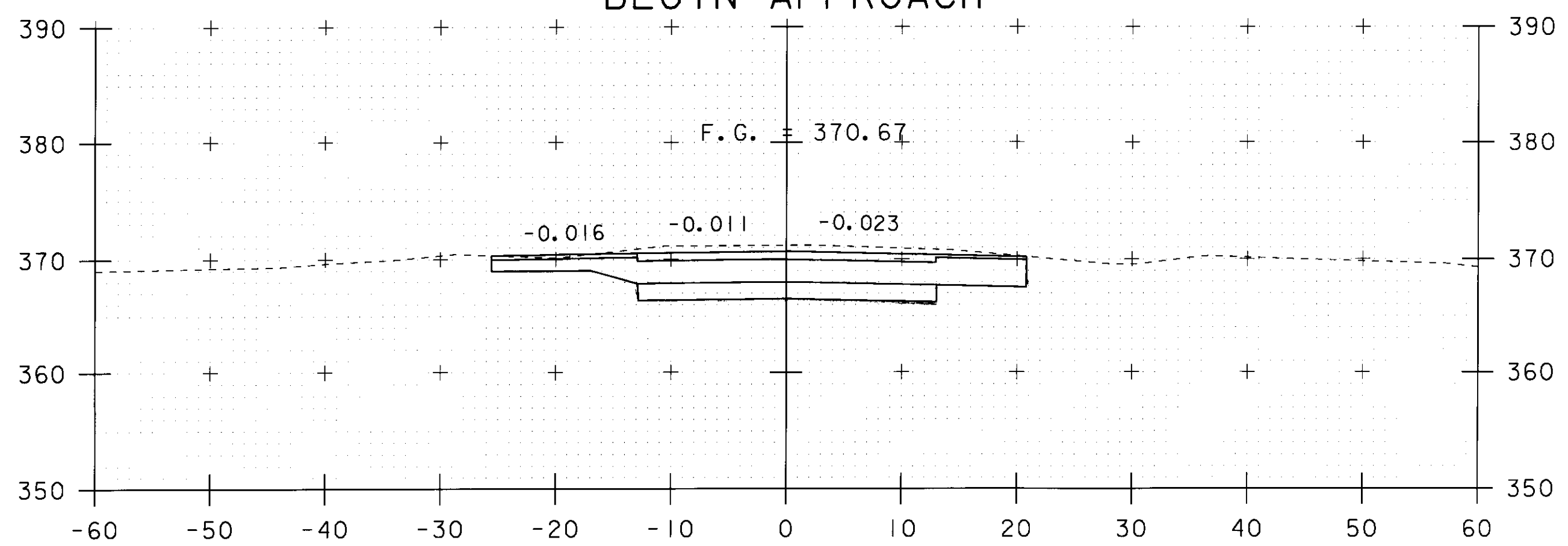
282+75  
END APPROACH



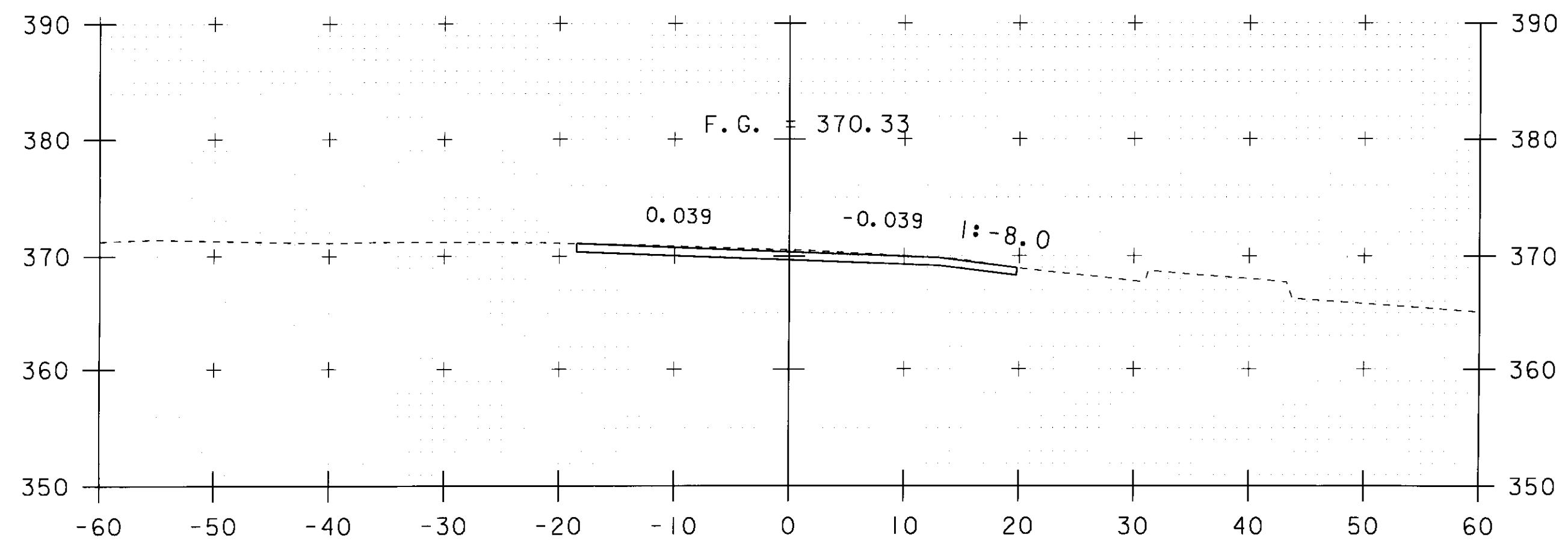
281+75  
END PROJECT  
BEGIN APPROACH



282+50

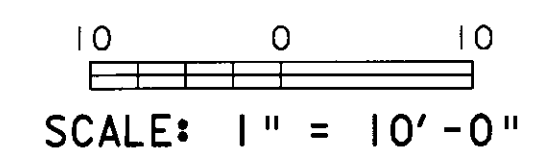


281+61



282+25

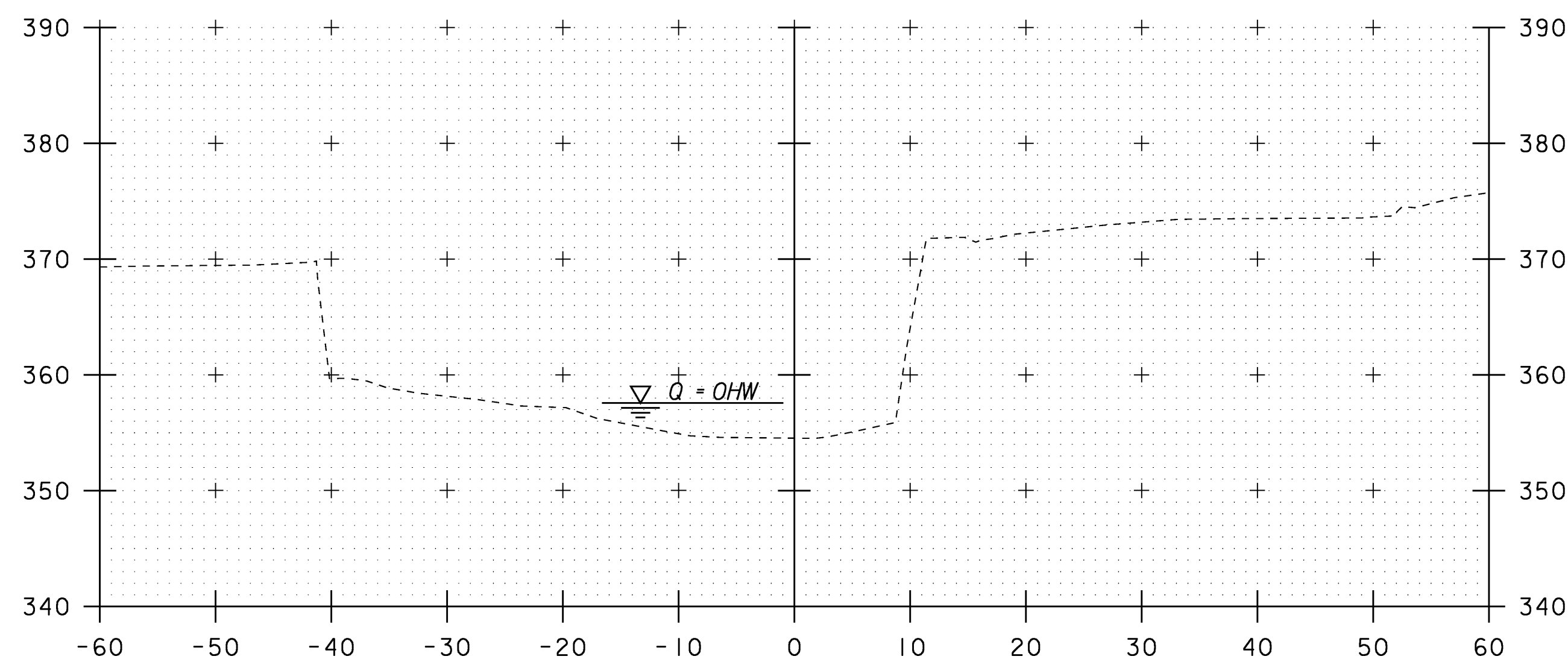
STA. 281+61.0 LT.  
CONSTRUCT DRIVE



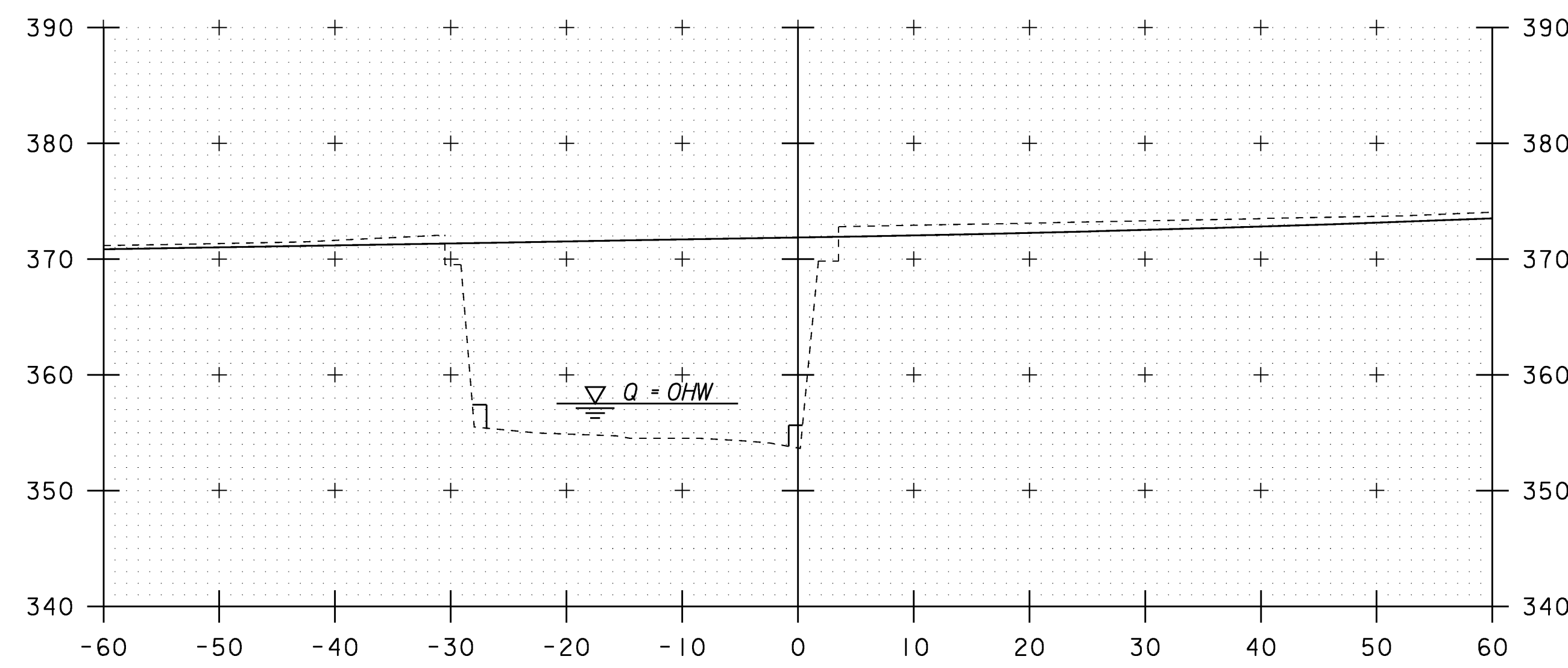
STA. 281+61 TO STA. 282+75

VT 104 SECTIONS - SHEET 6

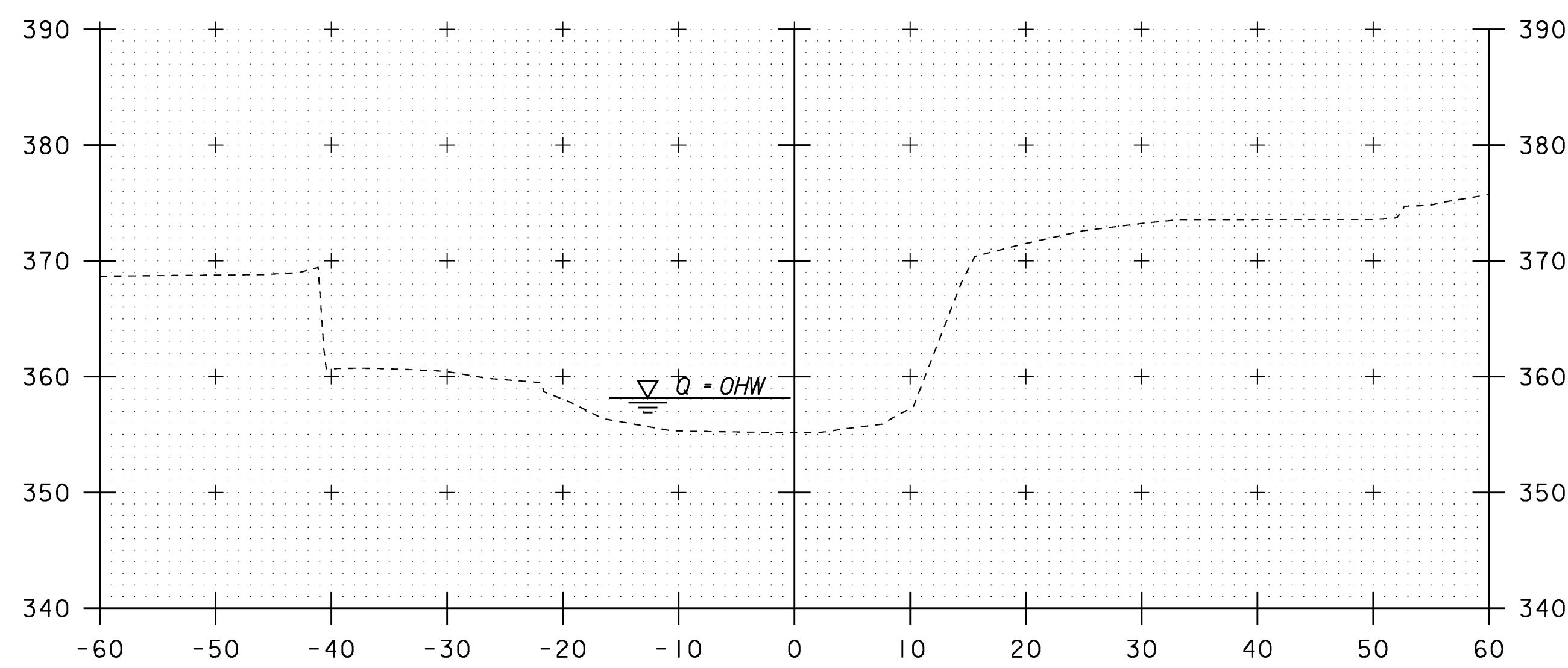
PROJECT NAME: FAIRFAX	PLOT DATE: 13-JUL-2009
PROJECT NUMBER: BHF 023-(15)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 51 OF 61
DESIGNED BY: C. CARLSON	
se064xs6.1	



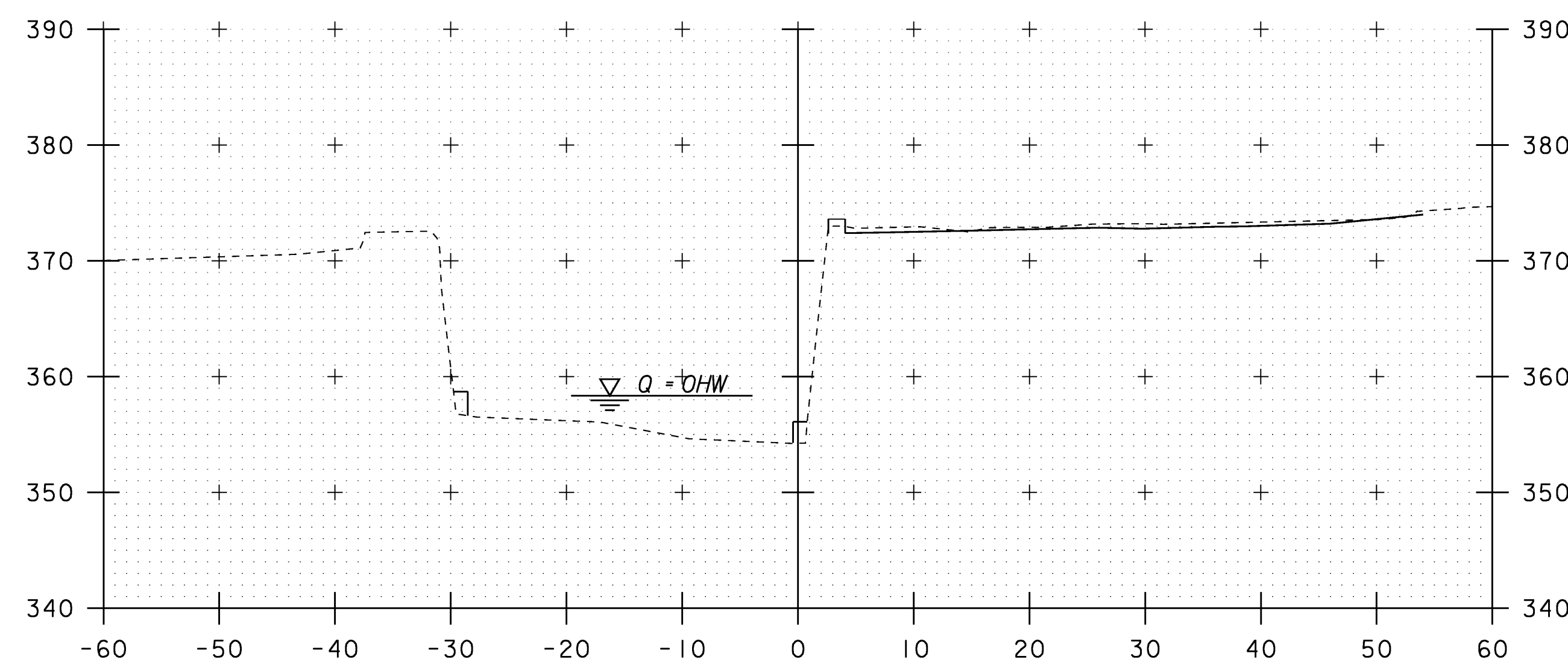
500+70



500+90



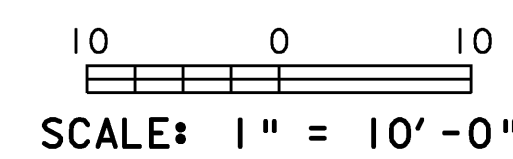
500+60



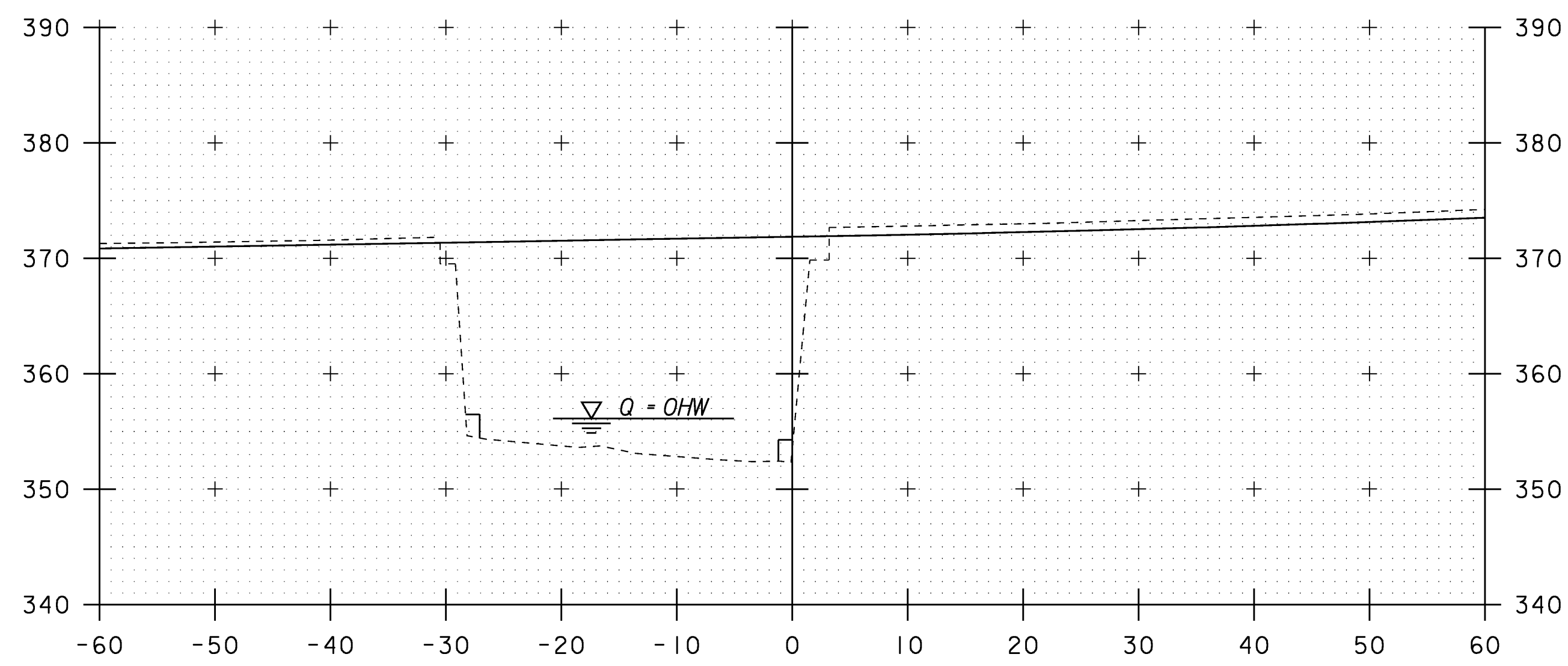
500+80

CHANNEL SECTIONS - SHEET 1

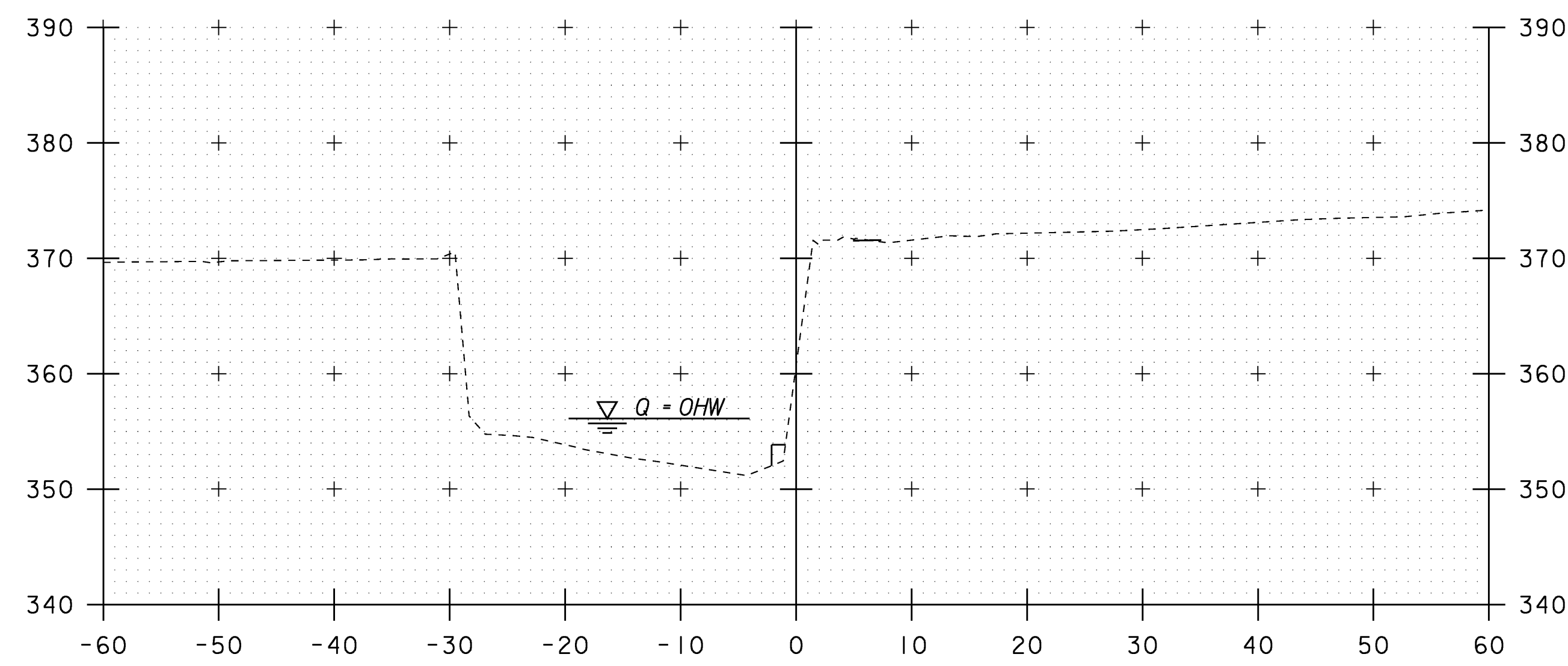
STA. 500+60 TO STA. 500+90



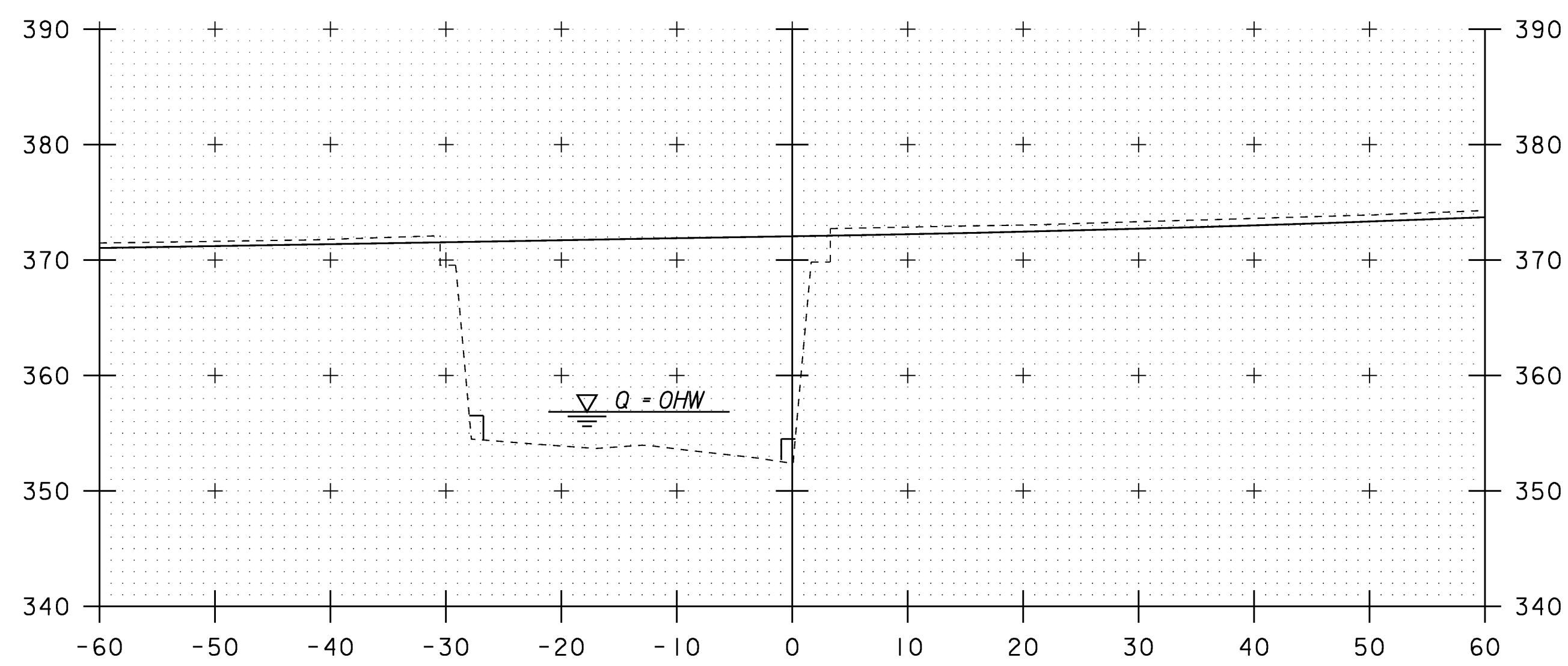
PROJECT NAME: FAIRFAX	PLOT DATE: 17-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 52 OF 61
DESIGNED BY: C. CARLSON	
se064chl.l	



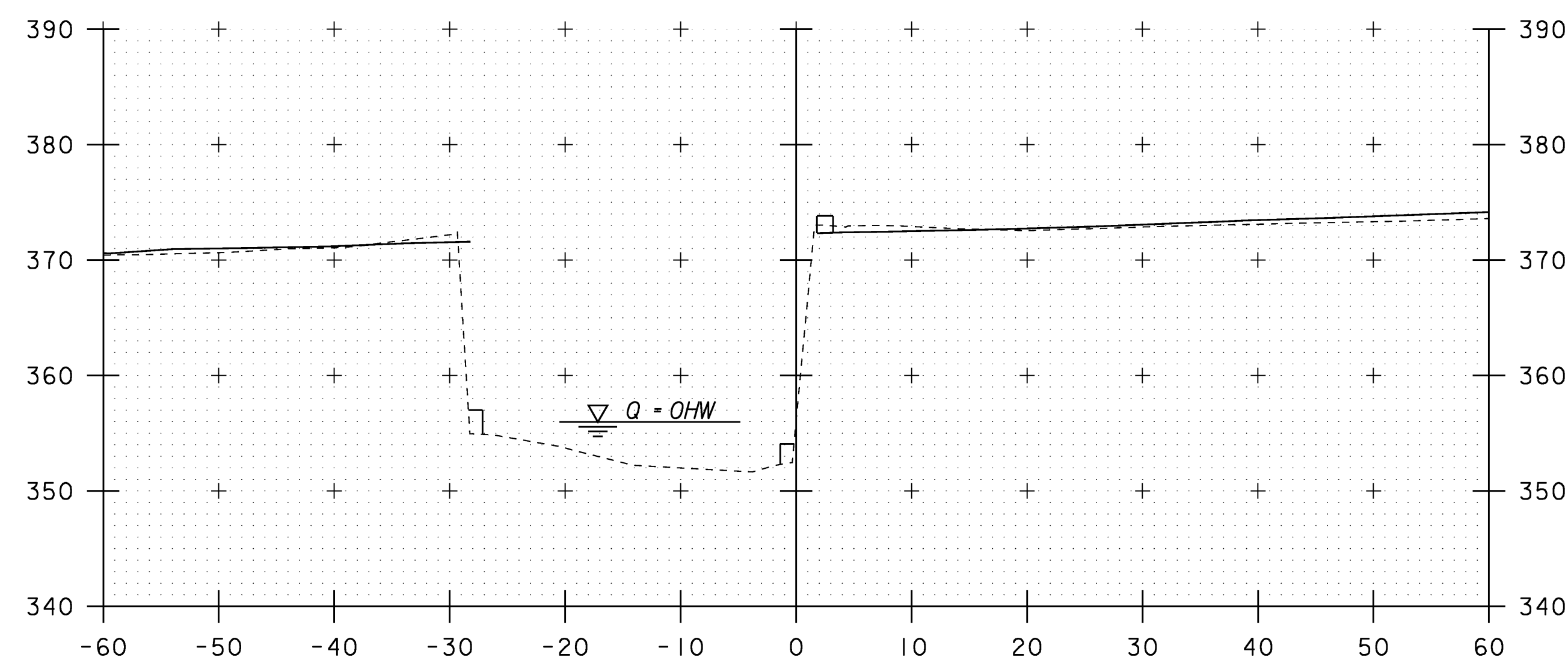
501+10



501+30



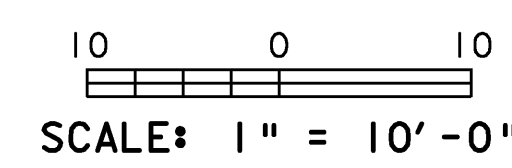
501+00



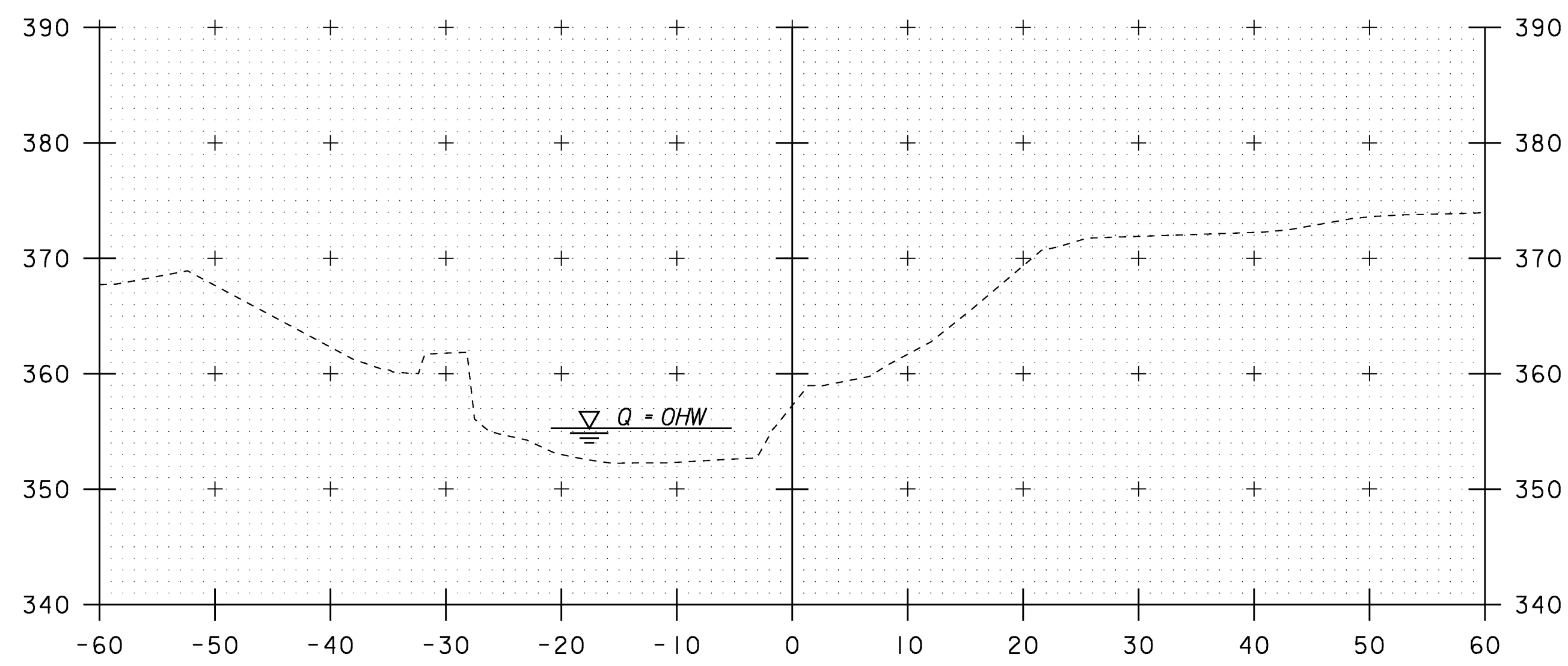
501+20

CHANNEL SECTIONS - SHEET 2

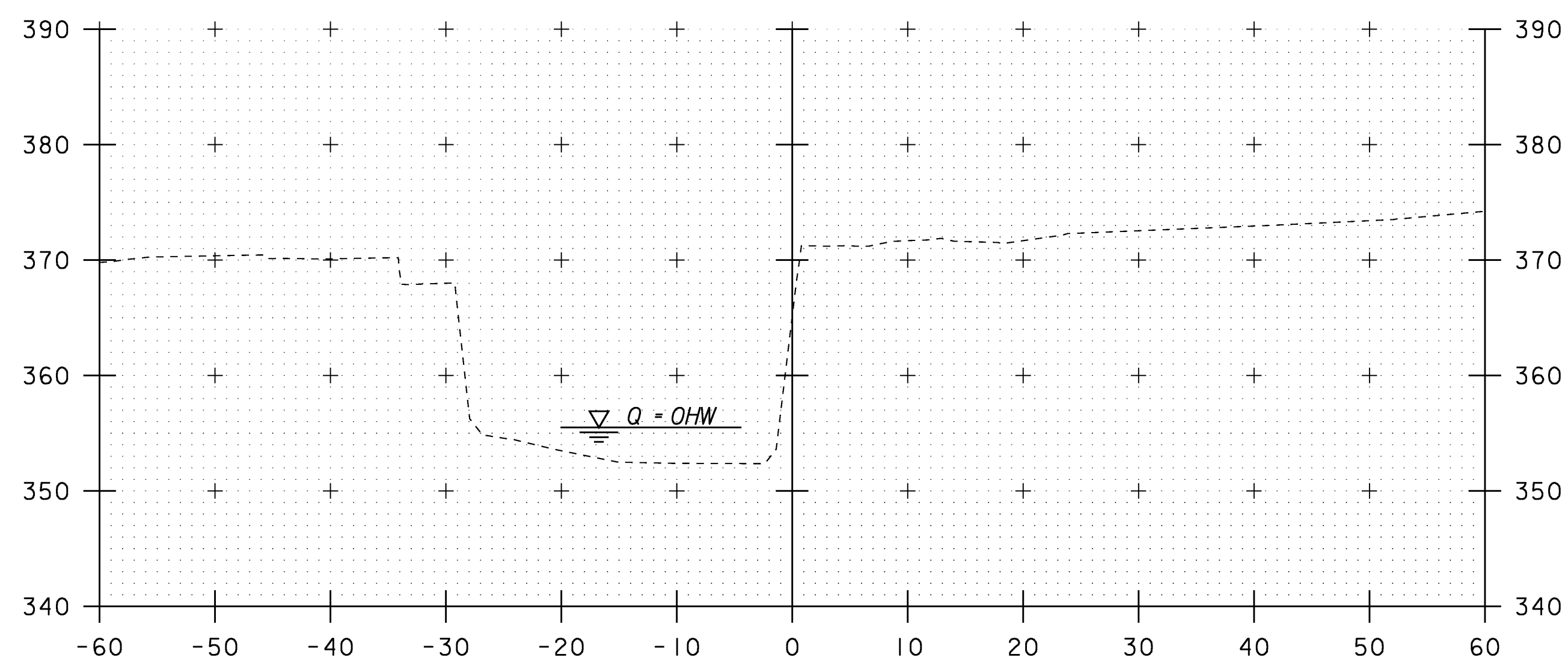
STA. 501+00 TO STA. 501+30



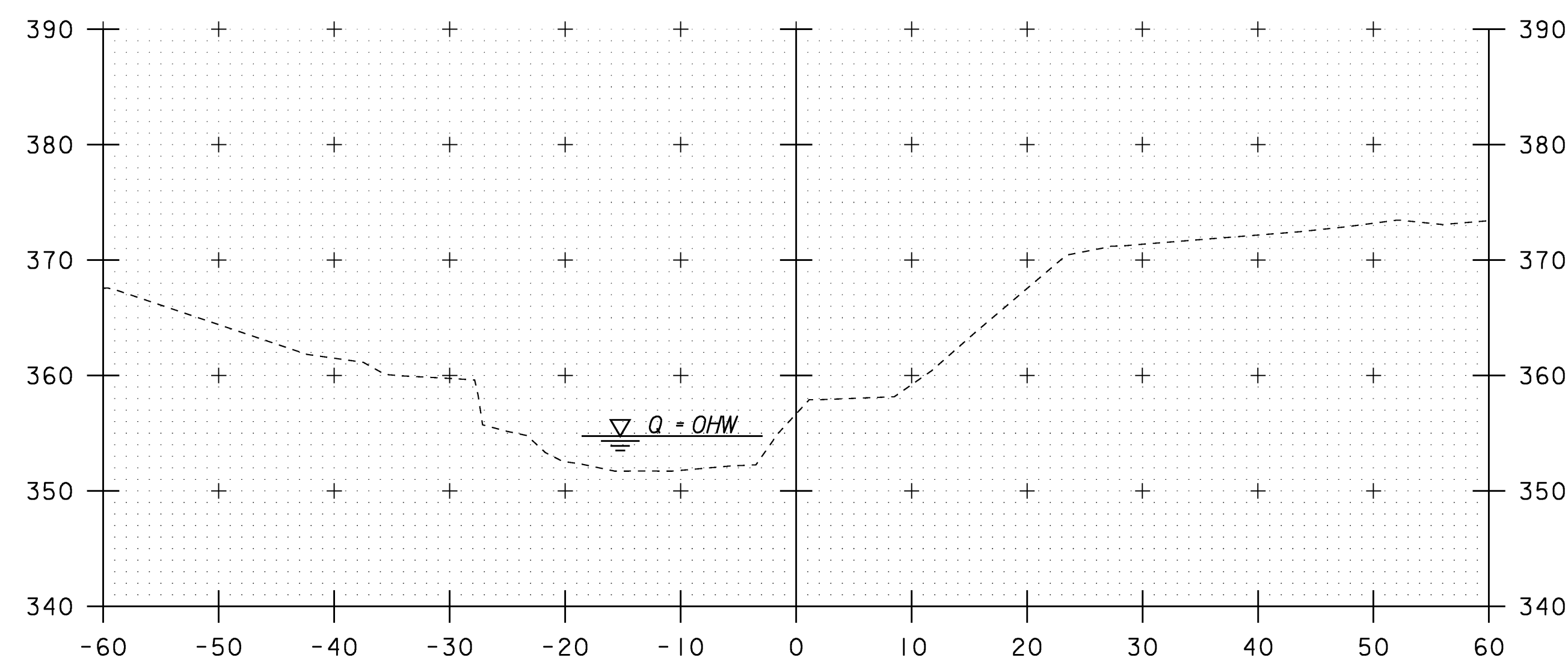
PROJECT NAME: FAIRFAX	PLOT DATE: 17-JUL-2009
PROJECT NUMBER: BHF 023-I(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064xs2.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 53 OF 61
DESIGNED BY: C. CARLSON	
se064ch2.1	



501+50



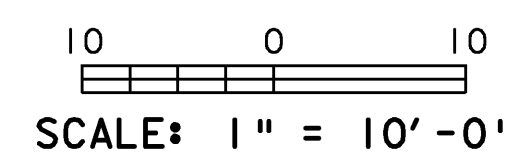
501+40



501+60

CHANNEL SECTIONS - SHEET 3

STA. 501+40 TO STA. 501+60



PROJECT NAME: FAIRFAX	
PROJECT NUMBER: BHF 023-I(5)	
FILE NAME: 86e064/str/se064xs2.dgn	PLOT DATE: 17-JUL-2009
PROJECT LEADER: C. CARLSON	DRAWN BY: L. BULLOCK
DESIGNED BY: C. CARLSON	CHECKED BY: C. CARLSON
se064ch3.1	SHEET 54 OF 61

# **EROSION CONTROL NARRATIVE**

## **1.1 PROJECT DESCRIPTION**

THIS PROJECT INVOLVES THE REPLACEMENT OF THE EXISTING CONCRETE T-BEAMS, DECK, RAILING, AND ASSOCIATED APPROACH WORK FOR BRIDGE 10 LOCATED IN THE VILLAGE OF FAIRFAX. AN ADJACENT RETAINING WALL LOCATED AT STATION 280+96.5LT TO 281+31.5LT WILL BE CONSTRUCTED. DRAINAGE WORK, AS DESCRIBED IN SECTION 1.2.2 BELOW, WILL BE COMPLETED. EXISTING SIDEWALK WITHIN THE PROJECT AREA WILL BE REPLACED. NO CHANNEL WORK WILL BE COMPLETED AS PART OF THIS PROJECT. ALL WORK WILL BE COMPLETED WITHIN THE RIGHT OF WAY.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.41 ACRES EXCLUDING ANY WASTE, BORROW, OR STAGING AREA TO BE IDENTIFIED BY THE CONTRACTOR.

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

## **1.2 SITE INVENTORY**

### **1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)**

THE PROJECT IS LOCATED IN THE VILLAGE OF FAIRFAX IN AN AREA OF DENSE RESIDENTIAL AND COMMERCIAL DEVELOPMENT. THE PROJECT WILL INVOLVE MINIMAL DISTURBANCE TO VEGETATION AND PREVIOUS SURFACES IN THE PROJECT AREA. THE PROJECT INCLUDES THE AREA OF THE EXISTING BRIDGE, ADJACENT SIDEWALKS AND APPROACH ROADWAY. DRAINAGE FROM THE ROADWAY AND BRIDGE SURFACE IS COLLECTED BY DROP INLETS ON THE EAST AND WEST SIDE OF THE BRIDGE, AND DISCHARGES INTO THE MILL BROOK.

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

THE MILL BROOK RUNS THROUGH THE PROJECT SITE. THE BROOK IS SINUOUS, SEMI-ALLUVIAL, IN A LOW RELIEF VALLEY AND A STREAMBED CONSISTING OF LEDGE, COBBLES, BOULDERS, AND GRAVEL.

THERE ARE THREE (3) EXISTING DROP INLETS ON SITE DRAINING FROM BOTH SIDES OF THE BRIDGE TO THE MILL BROOK. THESE DROP INLETS WILL BE RECONFIGURED AS SHOWN ON THE PROJECT PLANS.

### **1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES**

THE PROJECT IS LOCATED IN A DENSE RESIDENTIAL AND COMMERCIAL AREA IN THE VILLAGE OF FAIRFAX. THE BRIDGE CARRIES VT 104 OVER THE MILL BROOK. TOPOGRAPHY OF THE AREA SLOPED GENTLY FROM THE EAST AND WEST TOWARDS THE BROOK, WHICH FLOWS TO THE SOUTH. THE WESTERN APPROACH TO THE PROJECT IS PRIMARILY RESIDENTIAL WITH SIDEWALKS, DRIVES, LAWNS AND VEGETATED AREAS. THE AREA TO THE EAST OF THE BRIDGE HAS NUMEROUS DRIVES AND PARKING LOTS. A WOODED BUFFER EXISTS ON THE SLOPES OF THE EAST AND WEST SIDES OF THE MILL BROOK.

### **1.2.4 VEGETATION**

VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED, AS WORK WILL NOT BE COMPLETED MUCH BEYOND CURRENTLY DISTURBED AREAS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

### **1.2.5 SOILS**

SOIL DATA FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT. SOILS ON THE PROJECT SITE ARE BELGRADE SILT LOAM, 8 TO 15 PERCENT SLOPES, K FACTOR = 0.49; ELDRIDGE LOAMY FINE SAND, 3 TO 8 PERCENT SLOPES, K FACTOR = 0.24.

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

### **1.2.6 SENSITIVE RESOURCE AREAS**

CRITICAL HABITATS: NO  
HISTORICAL OR ARCHEOLOGICAL AREAS: YES, SEE EPSC LAYOUT SHEET 56  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: MILL BROOK  
WETLANDS: NO

## **1.3 RISK EVALUATION**

RISK DETERMINATION  
THIS PROJECT HAS BEEN DETERMINED TO BE NON-JURISDICTIONAL, AS THE AREA OF DISTURBANCE IS LESS THAN 1 ACRE. THE FOLLOWING REQUIREMENTS SHALL BE MET:

1. IMPLEMENT THE EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) FIELD GUIDE.
2. ALL AREAS MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE AND STABILIZED THEREAFTER ON A DAILY BASIS. THE FOLLOWING EXCEPTIONS APPLY:
  - A. STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN 24 HOURS AND NO PRECIPITATION IS FORECASTED FOR THE NEXT 24 HOURS.
  - B. STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.

### **RISK RE-EVALUATION**

SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULTING IN A POTENTIAL CHANGE IN THE RISK, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH THE DEC VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION PERMIT PROCESS.

## **1.4 EROSION PREVENTION AND SEDIMENT CONTROL**

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORMWATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE REMOVED FROM THE UPHILL SIDE OF SILT FENCE PRIOR TO REACHING 50% OF THE HEIGHT OF THE SILT FENCE. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING.)

### **1.4.1 MARK SITE BOUNDARIES**

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

### **1.4.2 LIMIT DISTURBANCE AREA**

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT OR AS DIRECTED BY THE RESIDENT ENGINEER. LIMIT DISTURBANCE TO EXISTING VEGETATION, SHRUBS AND TREES WHEREVER POSSIBLE.

### **1.4.3 INSTALL SILT FENCE**

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP-SLOPE WORK AS DIRECTED BY THE RESIDENT ENGINEER.

### **1.4.4 DIVERT UPLAND RUNOFF**

CLEAN RUNOFF FROM OUTSIDE THE PROJECT SITE SHALL BE ROUTED AROUND THE PROJECT SITE USING UPSLOPE DIVERSION BERMS, DIVERSION CHANNELS AND TEMPORARY OR PERMANENT CULVERTS WHERE PRACTICAL.

### **1.4.5 CONSTRUCT INLET PROTECTION DEVICES**

SEE ATTACHED PLANS. INLET PROTECTION DEVICES SHALL BE CONSTRUCTED AROUND DRAINAGE INLETS UNTIL THE AREA DRAINING TO THAT INLET HAS BEEN STABILIZED.

### **1.4.6 CONSTRUCT PERMANENT CONTROLS**

SEED AND MULCH – UTILIZE URBAN SEEDING FORMULA  
DRAINAGE INLETS AND PIPING – SEE ATTACHED PLANS.

### **1.4.7 STABILIZE EXPOSED SOILS**

TEMPORARY MULCHING WILL BE UTILIZED ON A REGULAR BASIS. SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF FORECASTED RAIN. SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1V:3H. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING INTERMITTENT PHASES OF CONSTRUCTION.

### **1.4.8 WINTER STABILIZATION**

THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR REVIEW A WINTER EPSC PLAN IF SOILS ARE NOT TO BE STABILIZED PRIOR TO OCTOBER 15<sup>TH</sup> AND BEFORE APRIL 15<sup>TH</sup>.

### **1.4.9 STABILIZE SOIL AT FINAL GRADE**

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1V:3H. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE. UTILIZE URBAN SEEDING FORMULA.

### **1.4.10 INSPECT YOUR SITE**

INSPECT SITE TO ENSURE PROPER FUNCTION OF EPSC MEASURES.


## **ADDITIONAL NOTES**

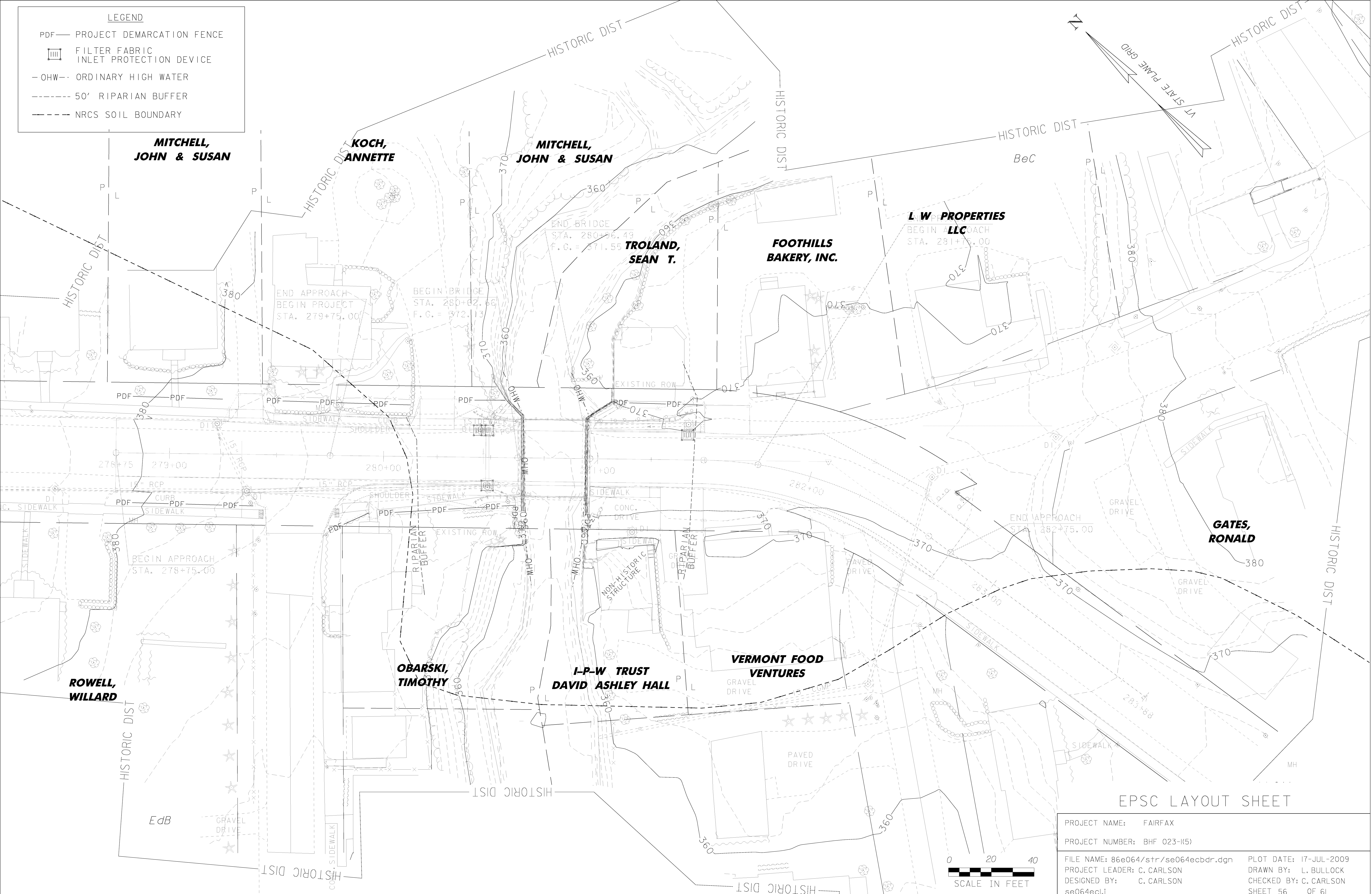
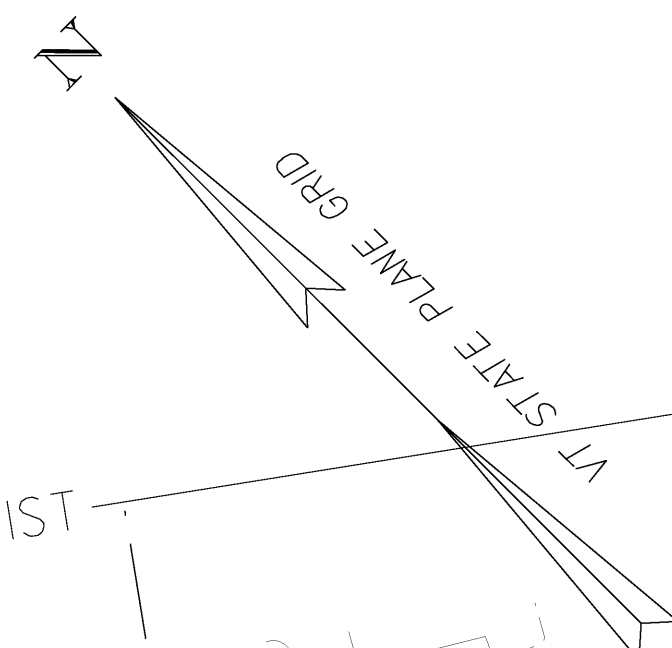
A TEMPORARY EROSION CONTROL PLAN MUST BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE RESIDENT ENGINEER.

THE CONTRACTOR WILL USE OTHER TEMPORARY OR PERMANENT EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE RESIDENT ENGINEER. SEE SUBSECTION 105.23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROJECT NAME:	FAIRFAX
PROJECT NUMBER:	BHF 023-(15)
FILE NAME:	s86e064ern.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	W. LAMMER
PLOT DATE:	20-JUL-2009
	DRAWN BY: W. LAMMER
	CHECKED BY: C. CARLSON
	SHEET 55 OF 61

**LEGEND**

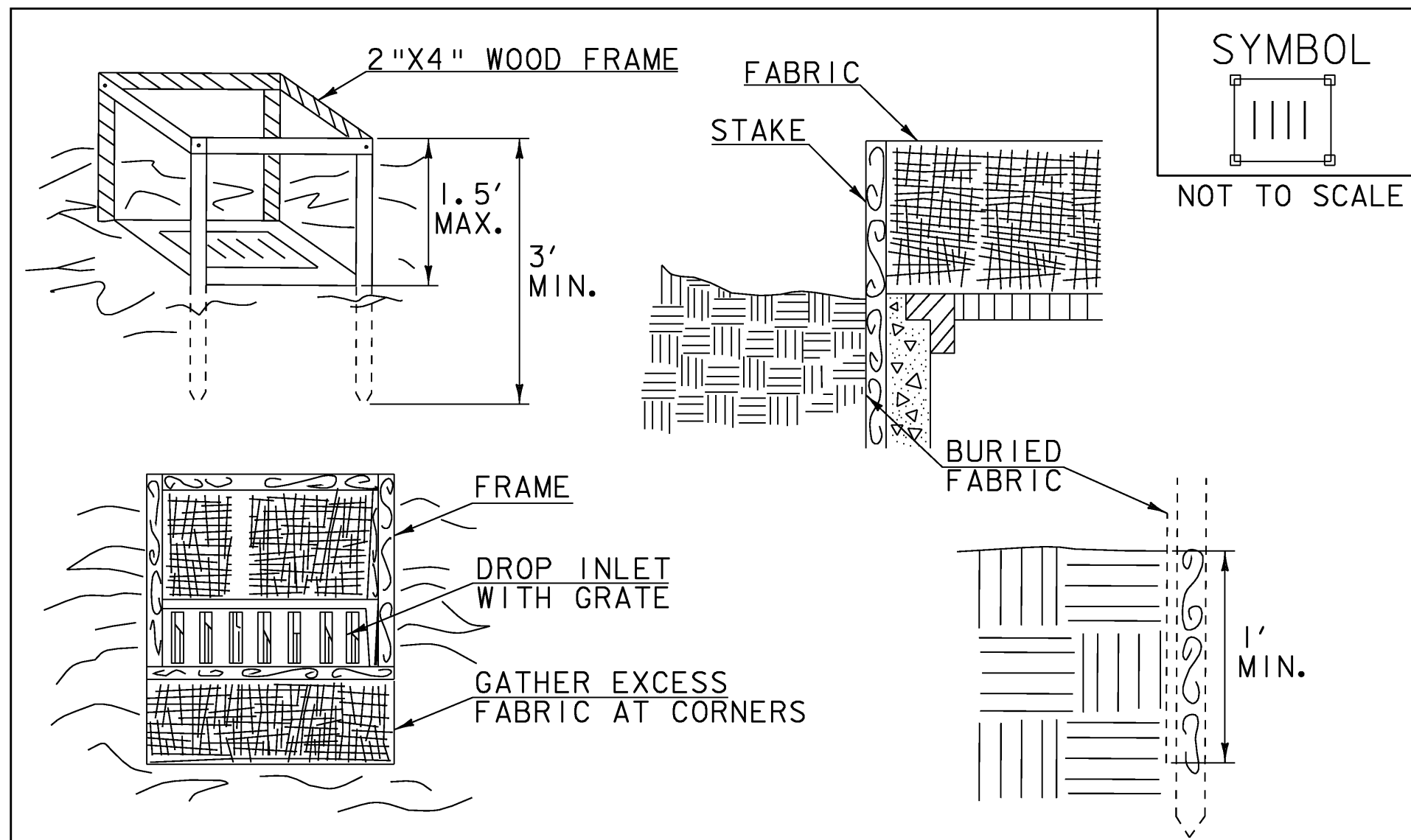
- PDF — PROJECT DEMARCATION FENCE
-  FILTER FABRIC INLET PROTECTION DEVICE
- OHW - ORDINARY HIGH WATER
- 50' RIPARIAN BUFFER
- NRCS SOIL BOUNDARY



EPSC LAYOUT SHEET

PROJECT NAME: FAIRFAX	PLOT DATE: 17-JUL-2009
PROJECT NUMBER: BHF 023-1(5)	DRAWN BY: L. BULLOCK
FILE NAME: 86e064/str/se064ecbdr.dgn	CHECKED BY: C. CARLSON
PROJECT LEADER: C. CARLSON	SHEET 56 OF 61
DESIGNED BY: C. CARLSON	
se064ecl.i	





**CONSTRUCTION SPECIFICATIONS**

1. FILTER FABRIC SHALL HAVE AN APPARENT OPENING SIZE OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2"x 4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3'.
4. SPACE STAKES EVENLY AROUND INLET 3' APART AND DRIVE A MINIMUM 18" DEEP. SPANS GREATER THAN 3' MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1' MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE

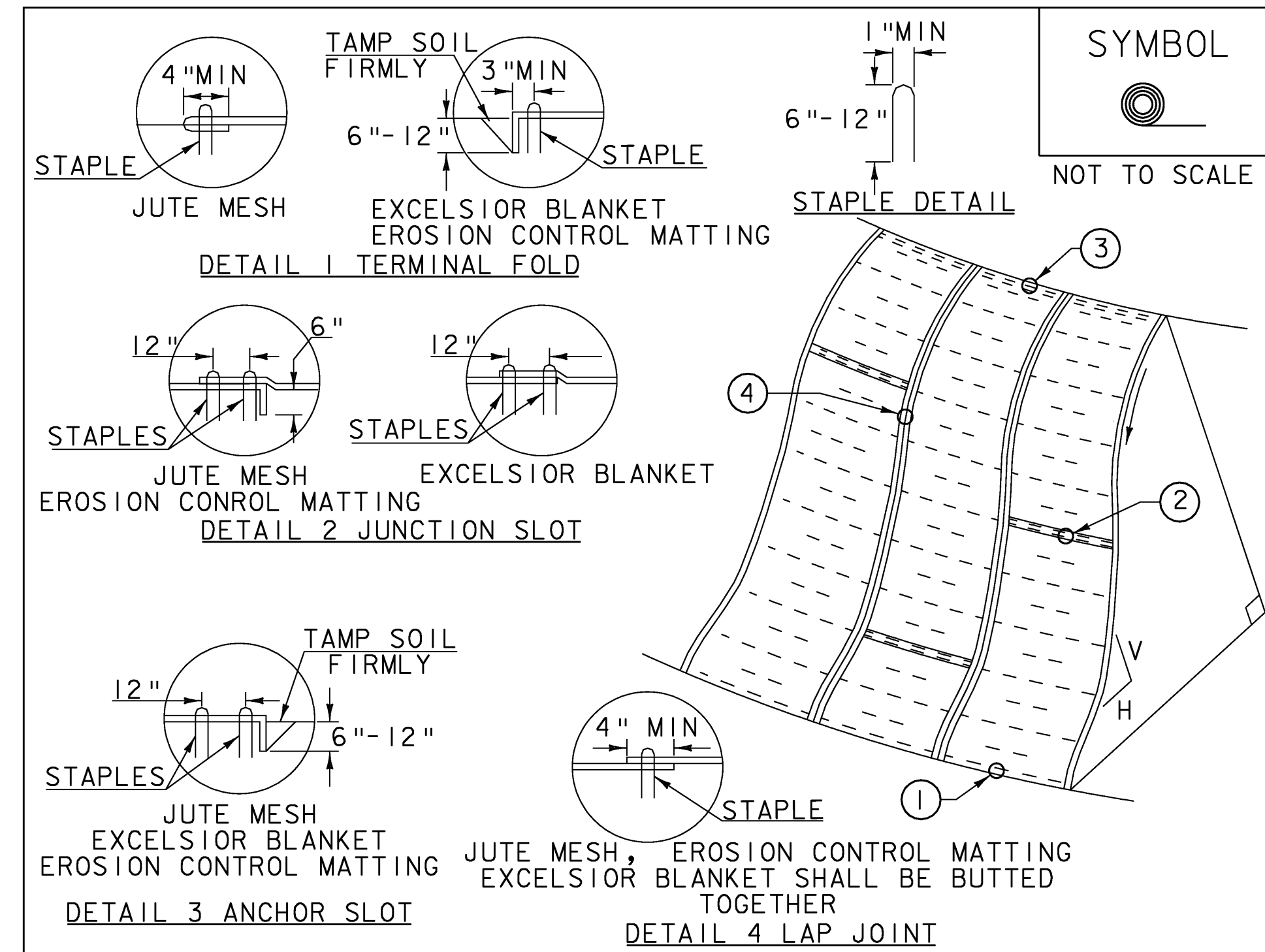
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**FILTER FABRIC  
DROP INLET  
PROTECTION**

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH  
SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I(PAY  
ITEM 653.40).

REVISIONS	
MARCH 7, 2008	WHF
JANUARY 13, 2009	WHF



**CONSTRUCTION SPECIFICATIONS**

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

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

**ROLLED EROSION  
CONTROL PRODUCT  
(RECP) SIDE SLOPE**

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

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

**SEEDING FORMULA  
URBAN AREAS**

% WT.	LBS./A.	NAME	PUR %	GERM %
42.5	34.0	CREeping RED FESCUE	98	85
10.0	8.0	PERENNIAL RYE GRASS	95	90
42.5	34.0	KENTUCKY BLUE GRASS	85	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.00	80.0			

**GENERAL NOTES**

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

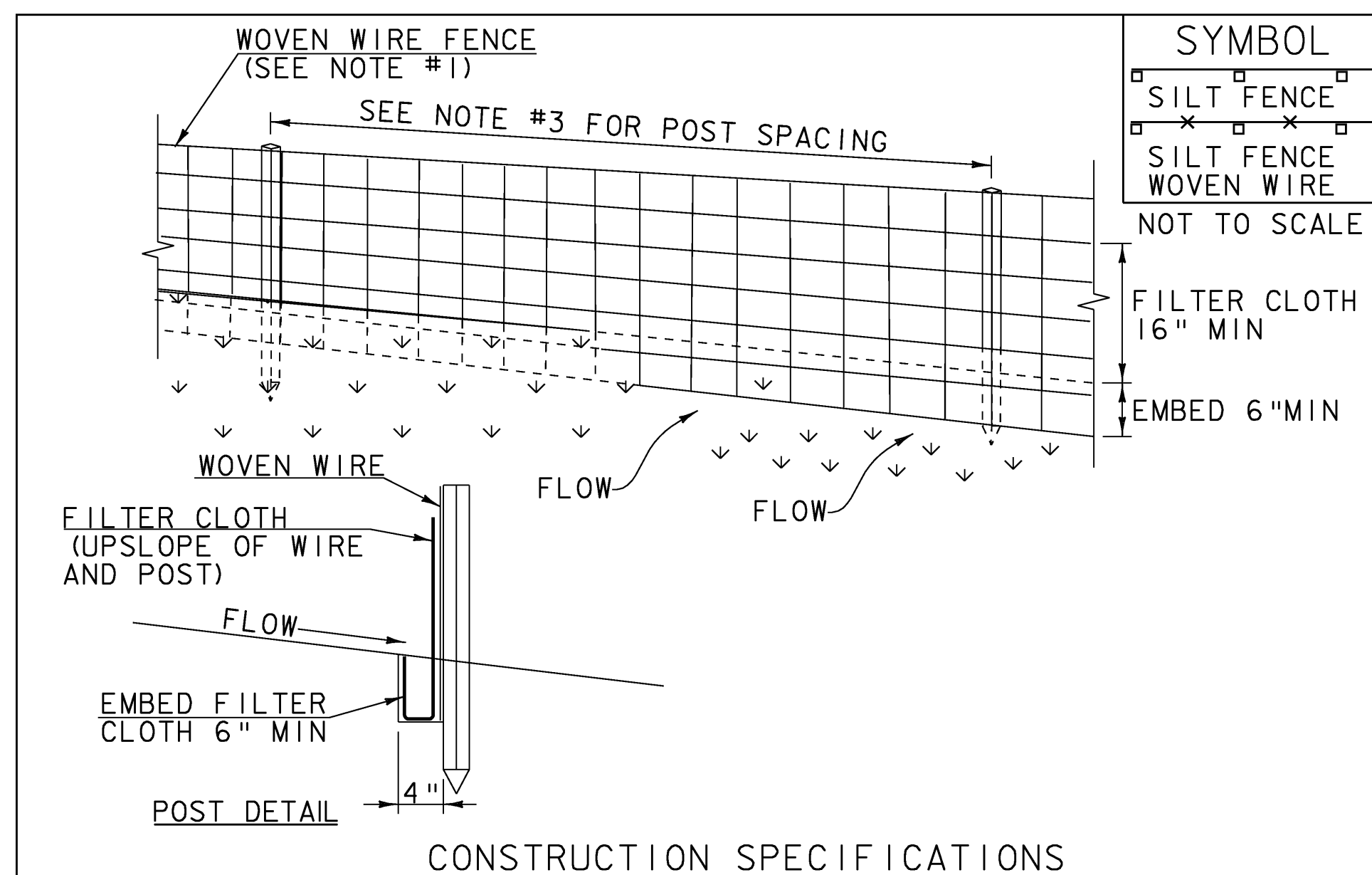
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

NTS

**EPSC DETAIL SHEET 1**

PROJECT NAME: FAIRFAX	
PROJECT NUMBER: BHF 023-I(5)	
FILE NAME: /86e064/str/se064ecd.dgn	PLOT DATE: 17-JUL-2009
PROJECT LEADER: C. CARLSON	DRAWN BY: L. BULLOCK
DESIGNED BY: C. CARLSON	CHECKED BY: C. CARLSON
se064ecd.i	SHEET 57 OF 61



CONSTRUCTION SPECIFICATIONS

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

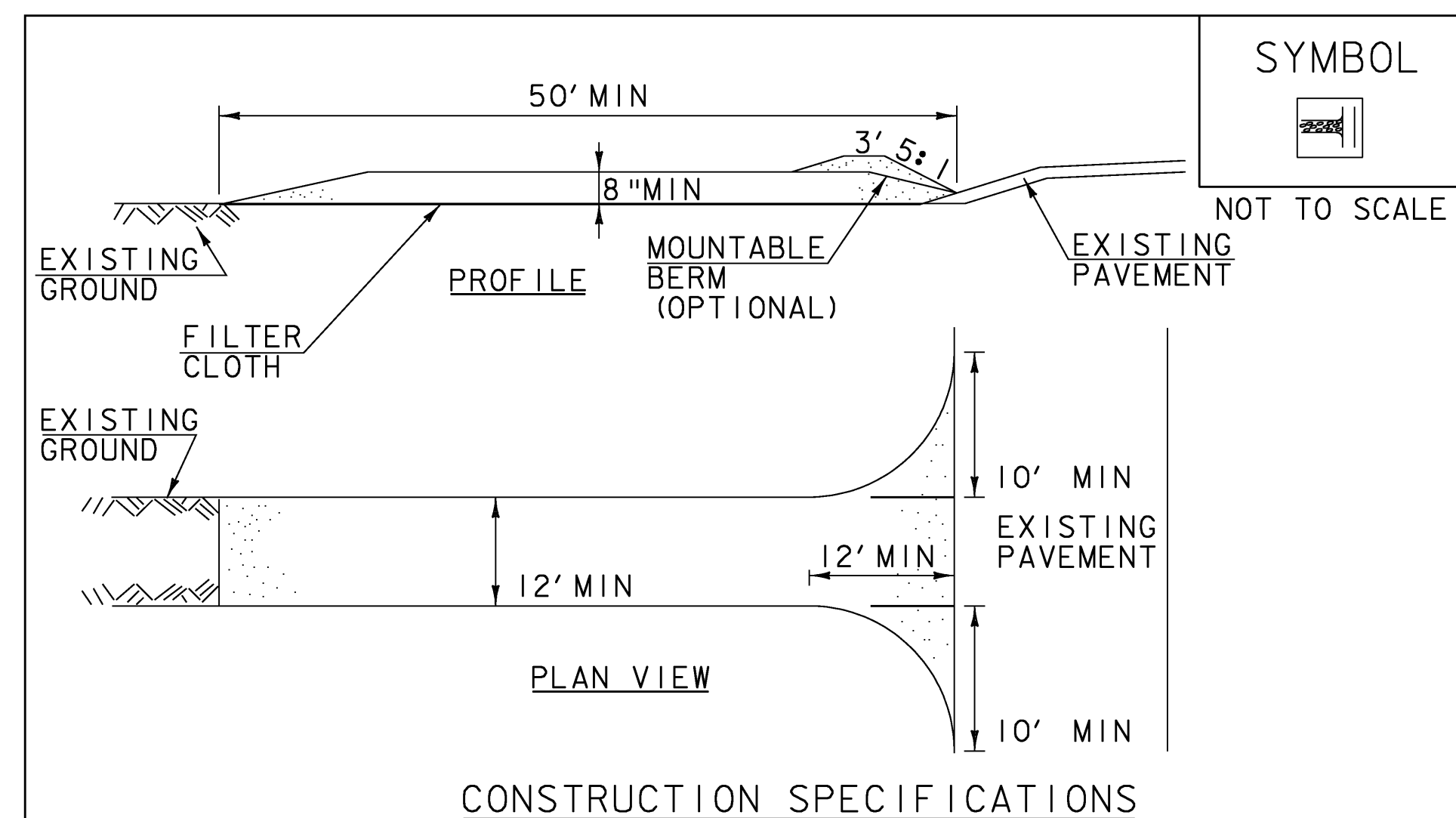
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.5) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

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



CONSTRUCTION SPECIFICATIONS

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

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

STABILIZED  
CONSTRUCTION  
ENTRANCE

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

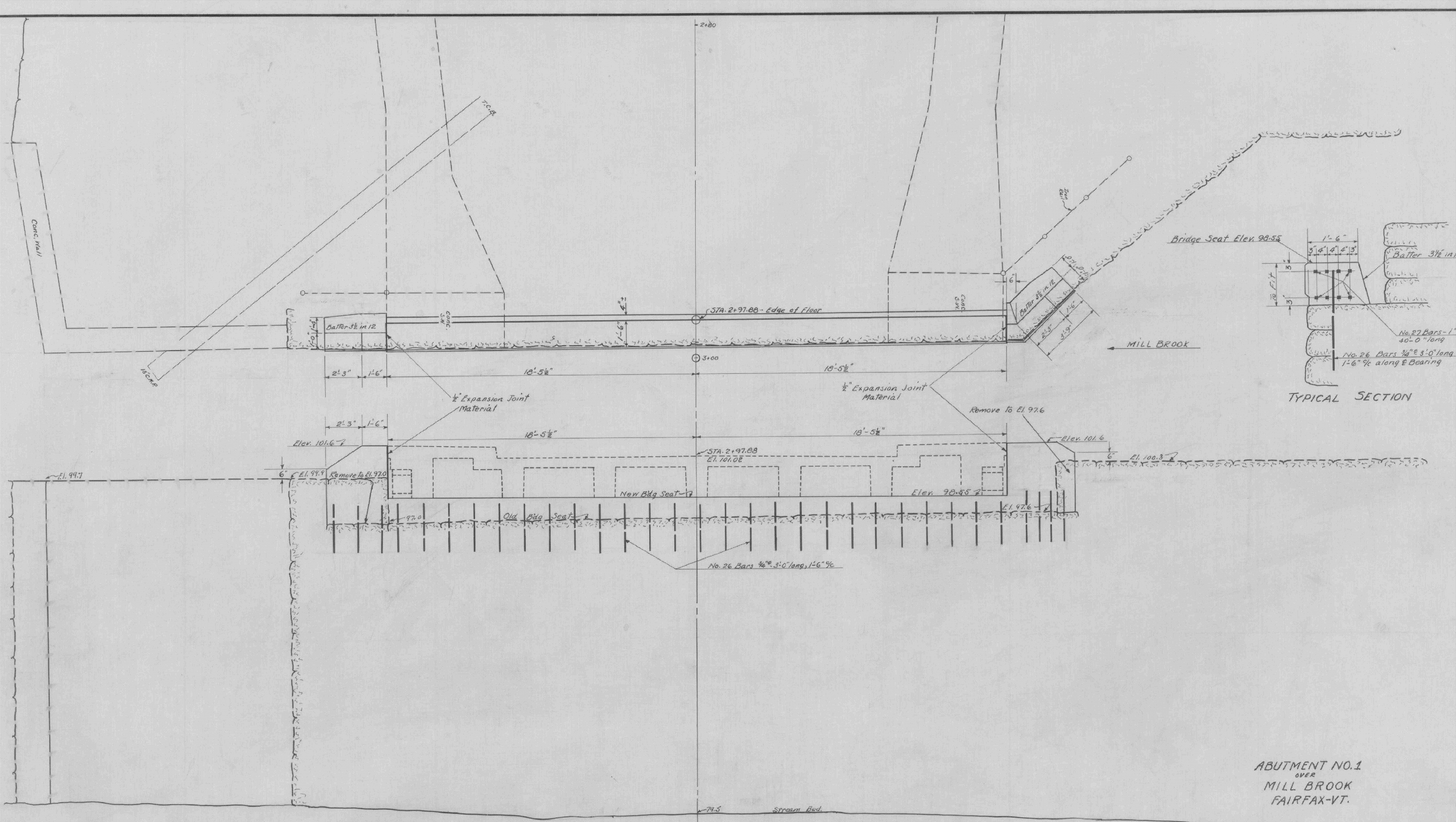
EPSC DETAIL SHEET 2

PROJECT NAME: FAIRFAX

PROJECT NUMBER: BHF 023-1(5)

FILE NAME: /86e064/str/se064ecd2.dgn PLOT DATE: 13-JUL-2009  
PROJECT LEADER: C. CARLSON DRAWN BY: L. BULLOCK  
DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON  
se064ecd2.1 SHEET 58 OF 61

NTS

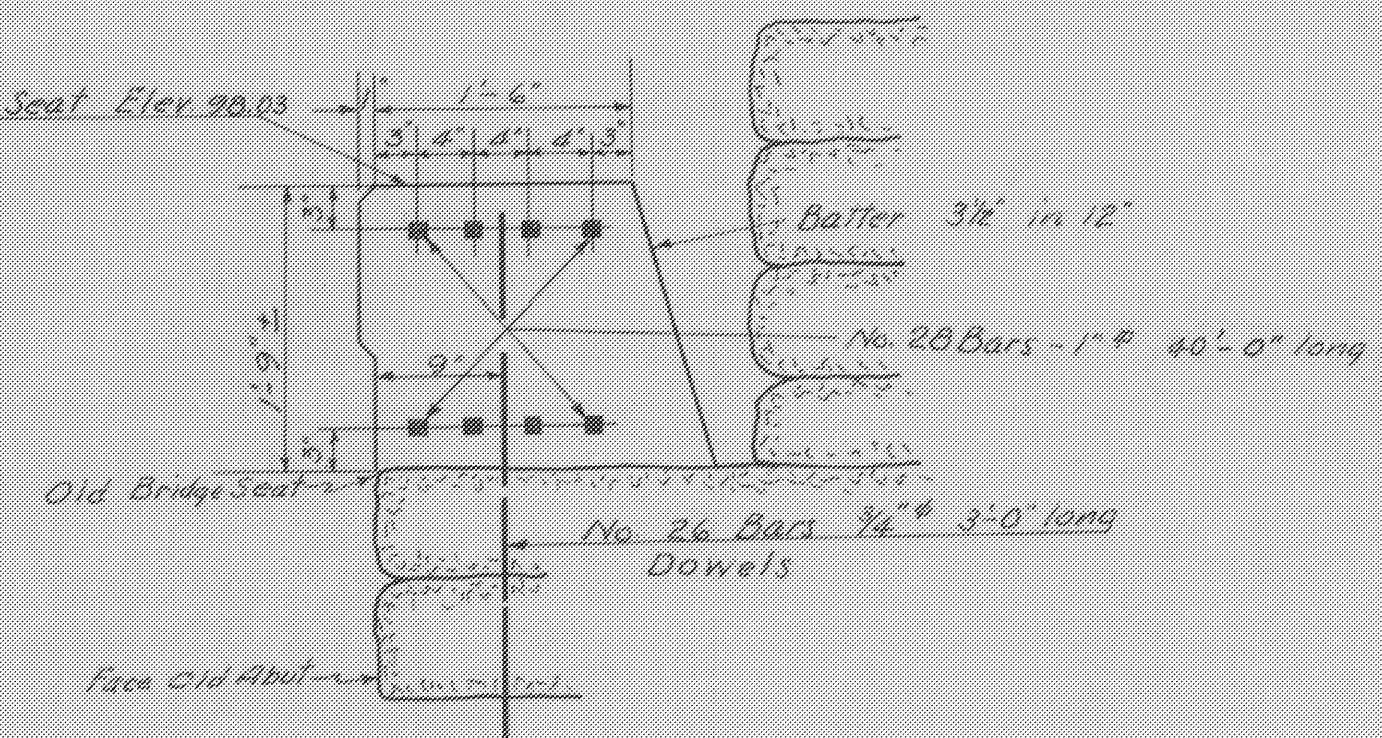
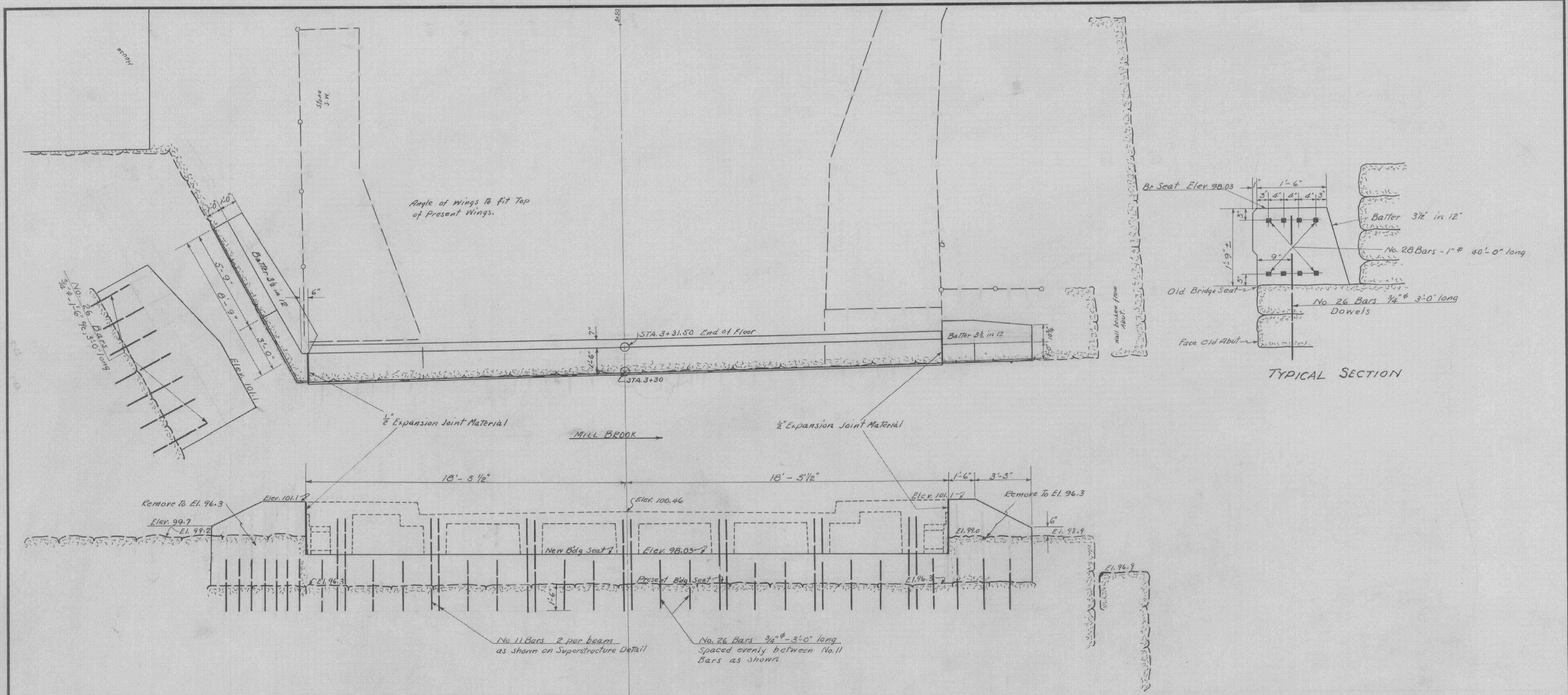


ABUTMENT NO. 1  
OVER  
MILL BROOK  
FAIRFAX-VT.

FAIRFAX  
BHF 023-1 (5)  
REFERENCE SHEET 1 OF 3  
SHEET 59 OF 61

ESTIMATED QUANTITIES	
Concrete Class "B"	6 Cu.Yds.
Reinforcing Steel	12.55 Lbs.
Structure Excar.	10 Cu.Yds.
Repainting Masonry	25 Sq.Yds.

Surveyed by  
Designed by  
Drawn by  
Traced by  
Checked by *msd.*  
Series No. Filed  
Sheet 3 of 10 Sheets



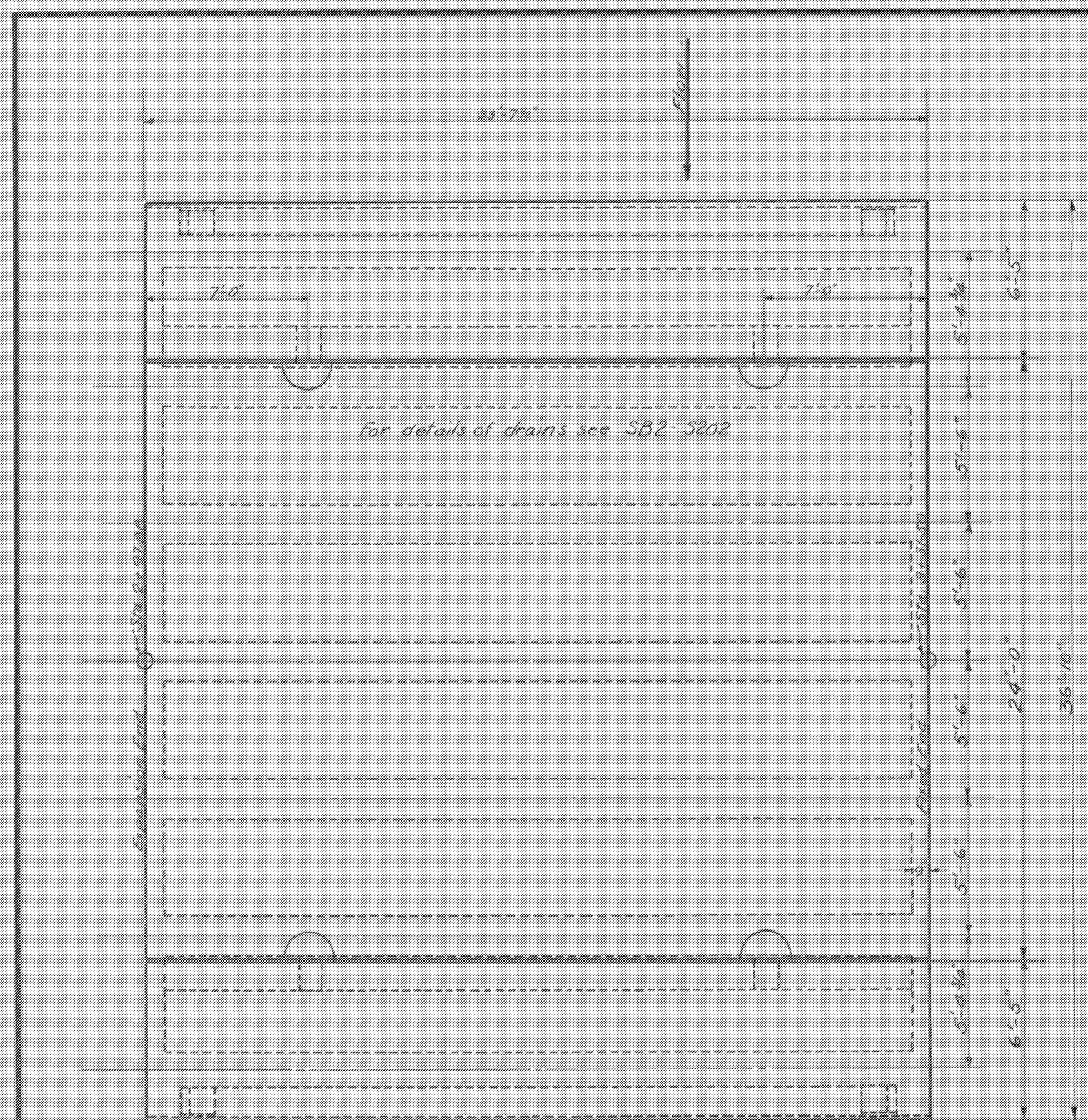
TYPICAL SECTION

ABUTMENT NO. 2  
 MILL BROOK  
 FAIRFAX-VT.

FAIRFAX  
 BHF 023-1 (5)  
 REFERENCE SHEET 2 OF 3  
 SHEET 60 OF 61

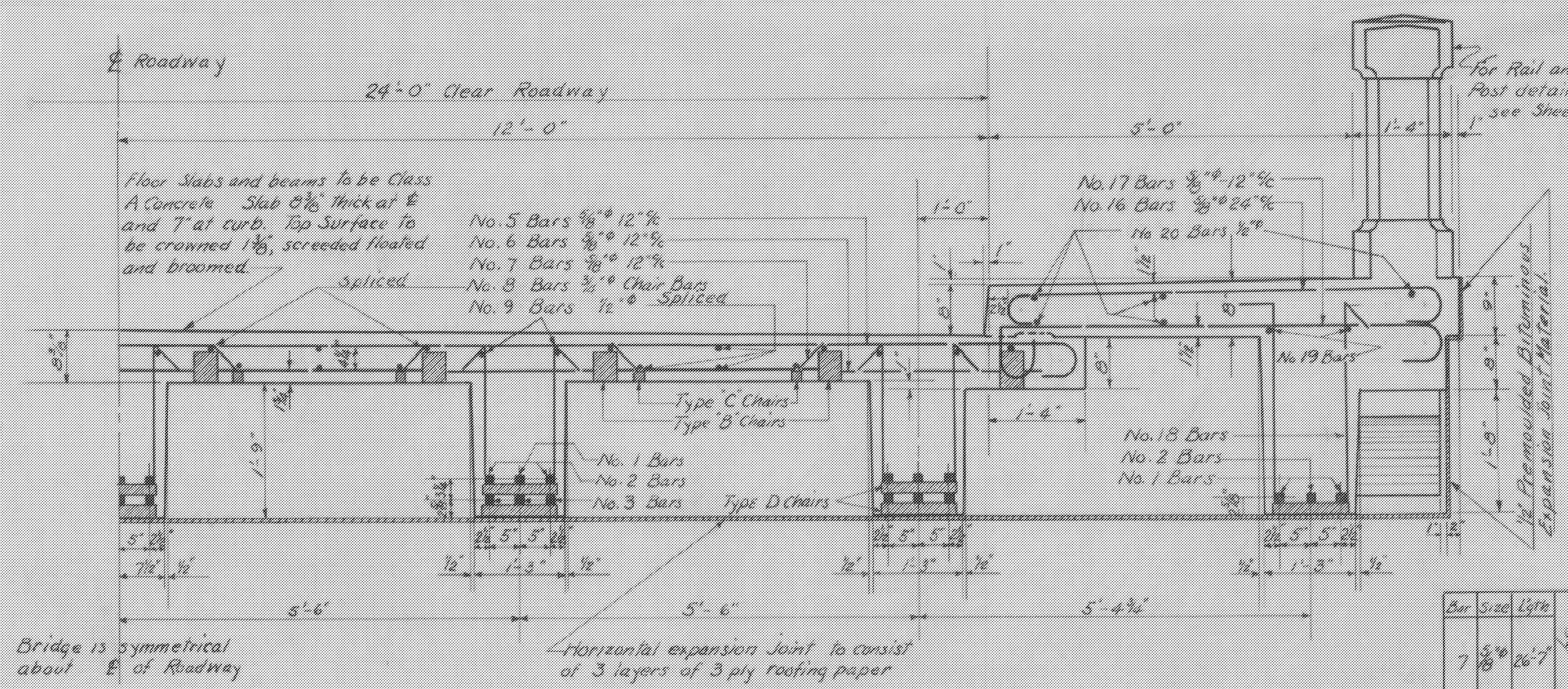
ESTIMATED QUANTITIES	
Concrete Class "B"	7 Cu. Yds.
Reinforcing Steel	1210 Lbs.
Structure Excar.	15 Cu. Yds.
Repainting Masonry	25 Sp. Yds.

Surveyed by	
Designed by	
Drawn by	
Traced by	
Checked by	MUD.
Series	No. Filed
	Sheet 4 of 10 Sheets

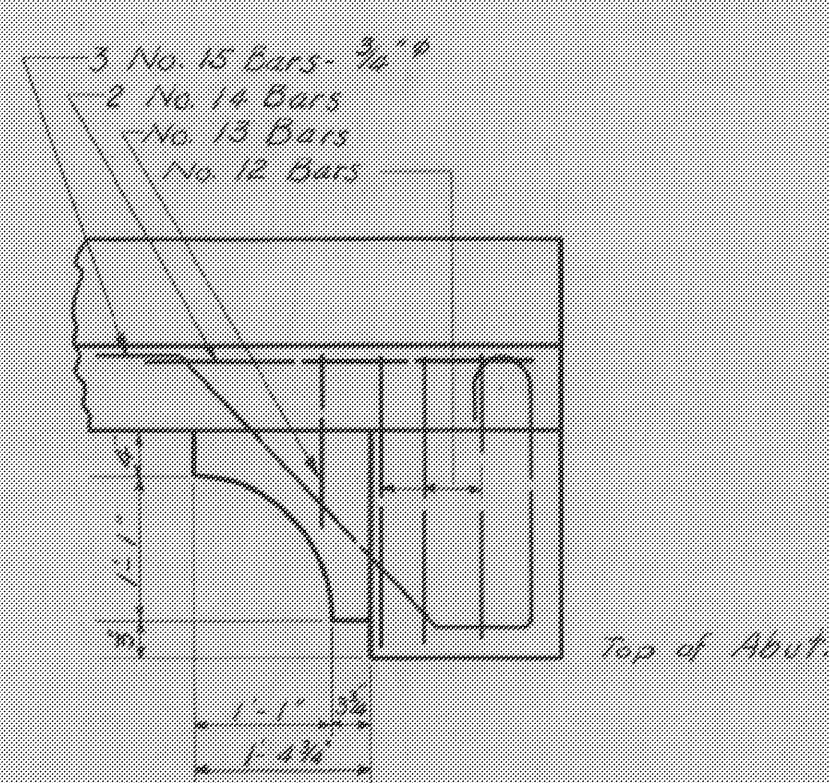


PLAN  
Scale 1/4" = 1'-0"

If necessary Superstructure to be skewed as directed by the Engineer to fit present Abutments.



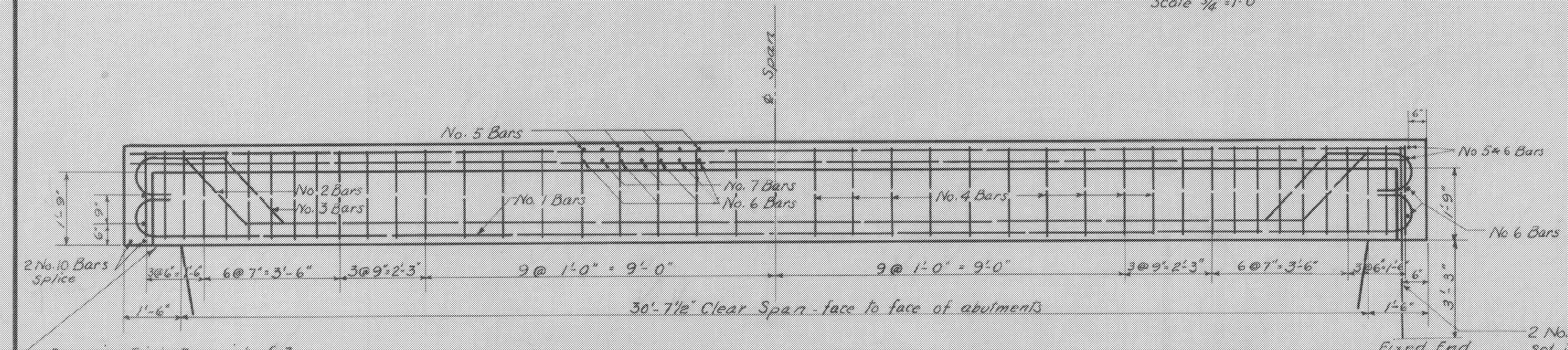
HALF SECTION THROUGH ROADWAY  
Scale 3/8" = 1'-0"



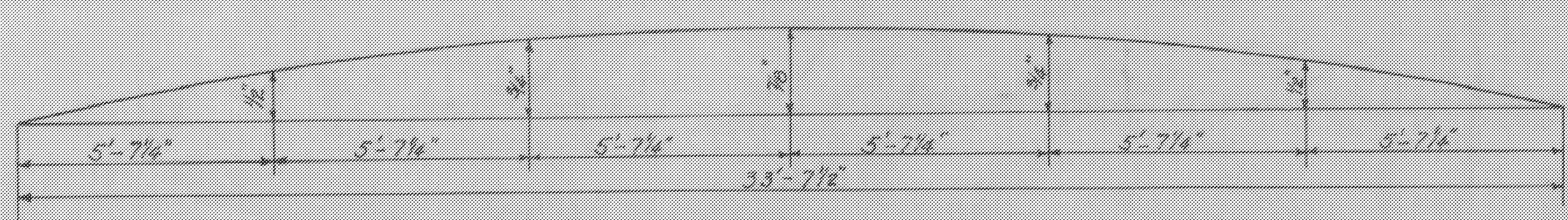
BRACKET DETAIL  
Scale 3/8" = 1'-0"

Note:  
The correctness of this steel schedule is not guaranteed and no claim will be allowed on account of any inaccuracy therein.  
All steel to be deformed bars. Reinforcing steel shall conform to the Standard Specifications for New Billet Steel Concrete Reinforcing Bars, Intermediate or Structural Grade, of the American Society for Testing Materials, Serial Designation A14-15.  
All bar detail dimensions refer to  $\phi$  of steel.  
All work and materials shall conform to the Standard Road and Bridge Specifications of the Vermont State Highway Department 1930.  
For Typical details see sheet SB2. Use details S202, S204.

STEEL SCHEDULE	
Bar Size	Length
1	1/4" 35'-6"
2	1/2" 36'-9"
3	1/4" 36'-3"
4	1/2" 6'-3"
5	3/8" 28'-0"
6	5/8" 26'-6"
7	5/8" 26'-7"
8	3/4" 17'-6"
9	1/2" 17'-6"
10	3/4" 20'-0" (splice)
11	1/4" 5'-5"
14	3/8" 2'-6"
15	1/4" 6'-9"
16	3/8" 7'-6"
17	5/8" 8'-0"
18	1/2" 7'-0"
19	3/4" 33'-0"
20	1/2" 33'-0"



ELEVATION OF BEAM  
Scale 1/2" = 1'-0"



CAMBER DIAGRAM  
Slab, curb and rail shall be cambered as shown.

SUPERSTRUCTURE DETAILS  
FAIRFAX BRIDGE OVER MILL BROOK  
FAIRFAX-VT.  
PROJECT-136-L

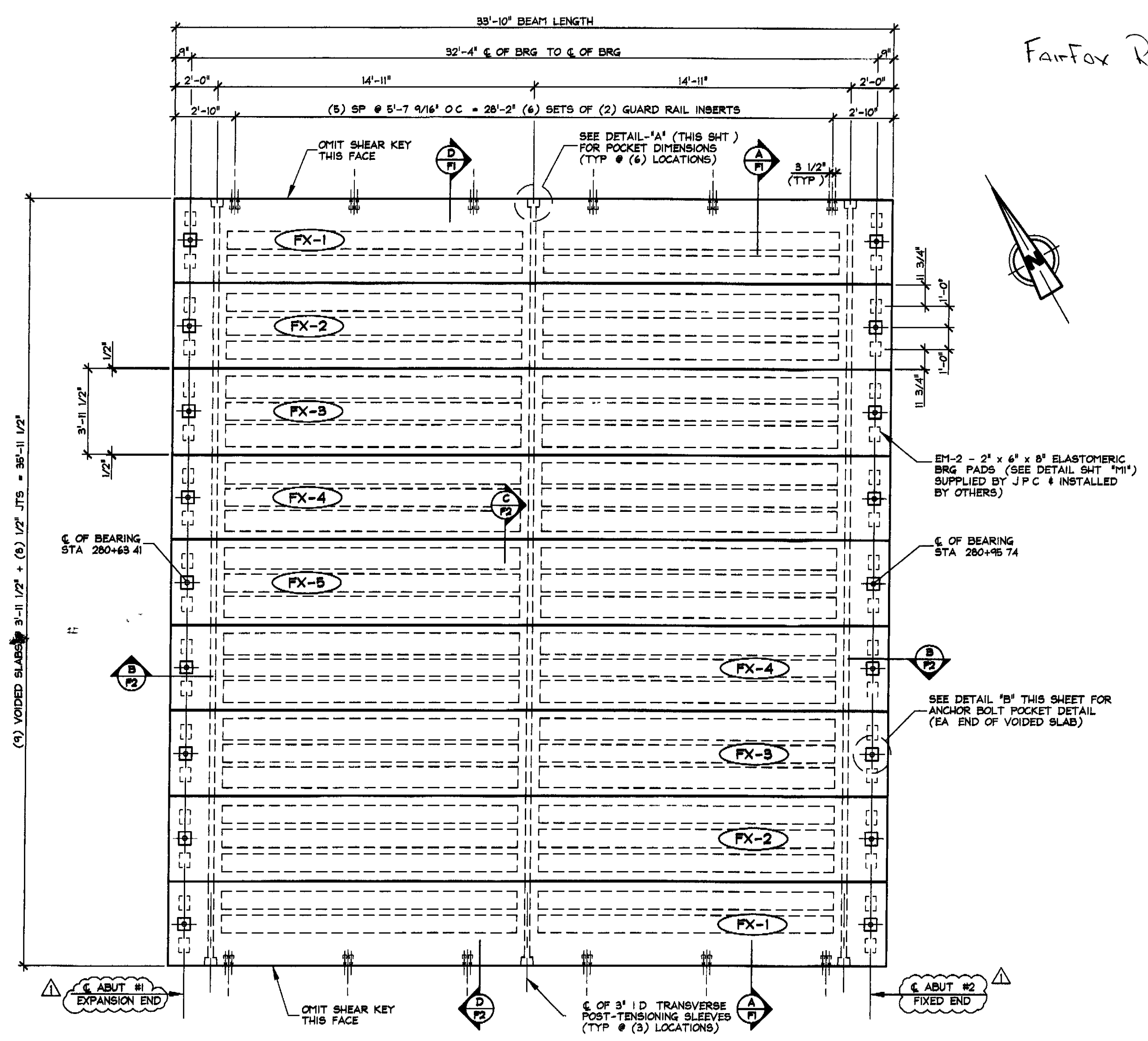
FAIRFAX  
BHF 023-1 (5)  
REFERENCE SHEET 3 OF 3  
SHEET 61 OF 61

ESTIMATED QUANTITIES	
Concrete Class A	59 Cu. Yds.
Reinf. Steel	14,300 lbs

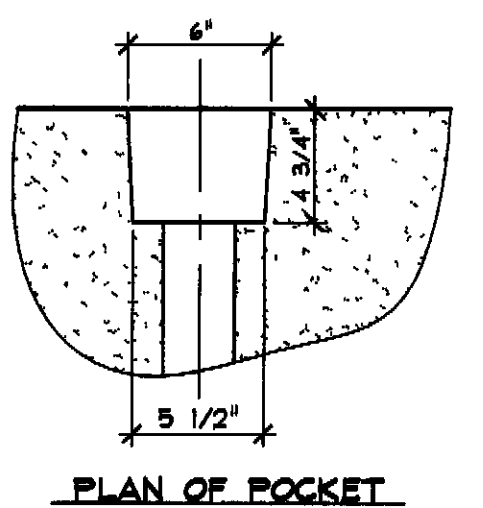
Surveyed by  
Designed by R.F.T.  
Drawn by R.F.T.  
Traced by D.W.R.  
Checked by M.L.D.  
Series Proj: No. 136L  
Sheet 57 of 10 Sheets

(W) [unclear]

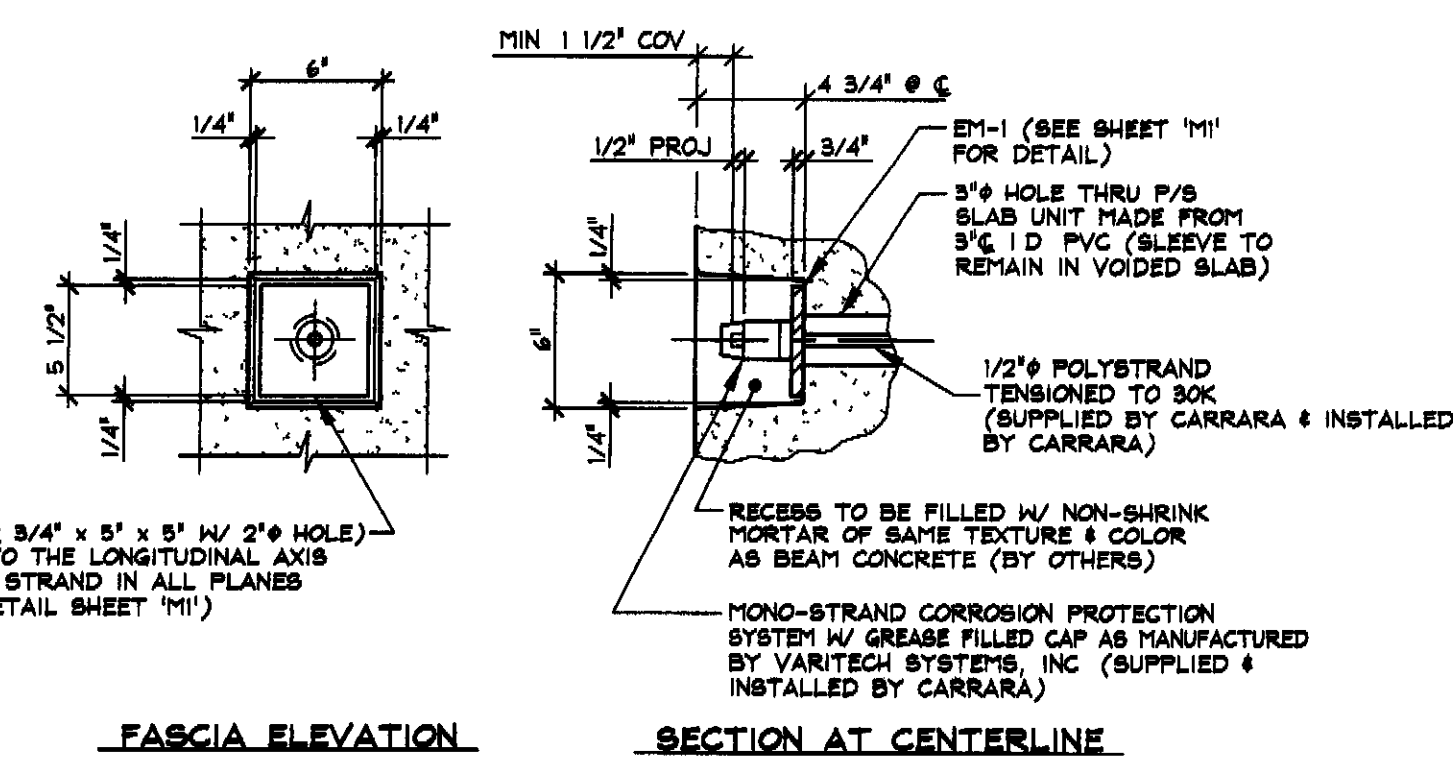
Fairfax Record Plans



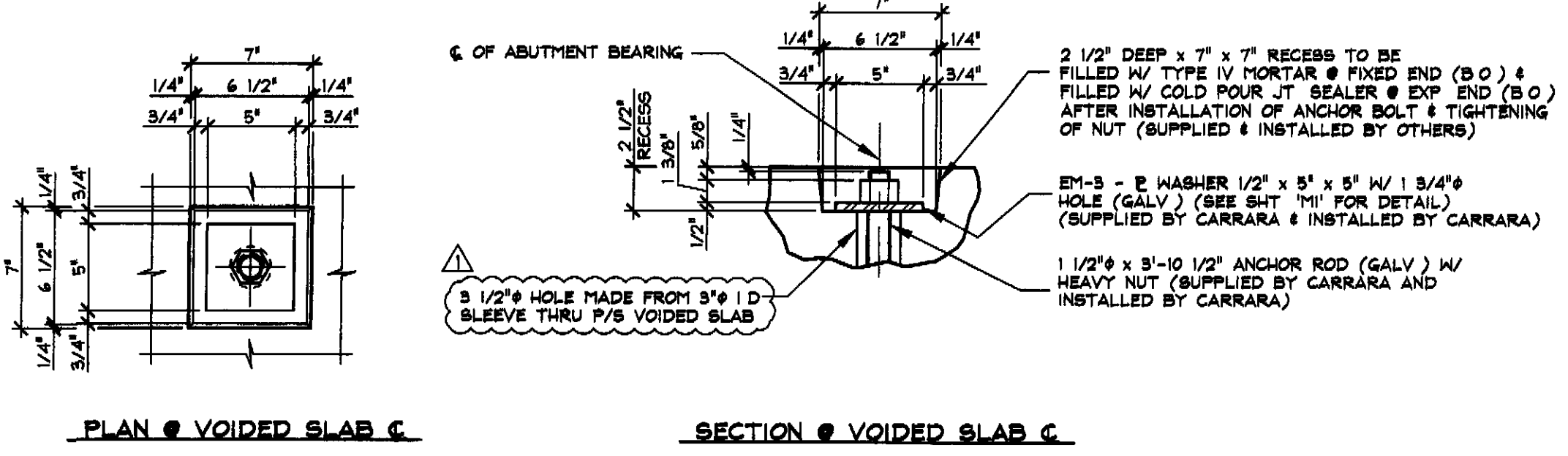
1 PRESTRESSED VOIDED SLAB LAYOUT  
 F1  
 1/4" = 1'-0" DESIGN LIVE LOAD: HL-9B



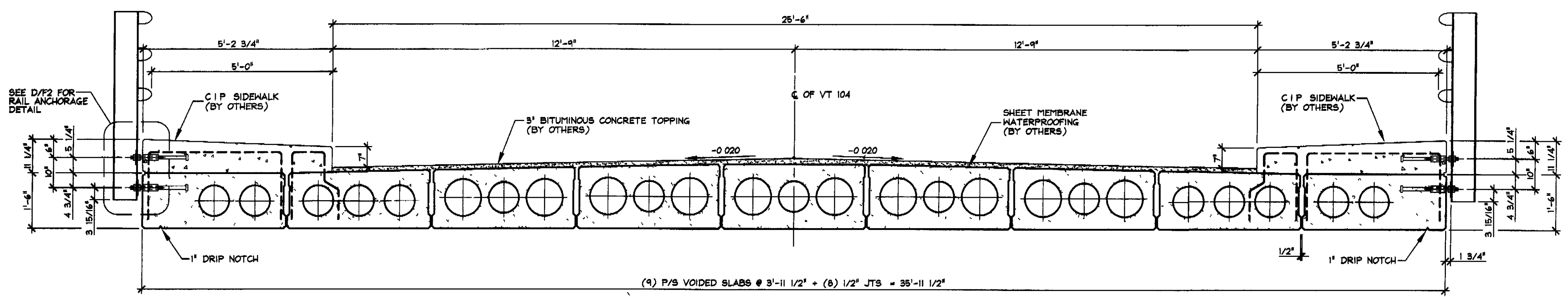
PLAN OF POCKET



DETAIL - "A"  
 1 1/2" = 1'-0"



DETAIL - "B"  
 1 1/2" = 1'-0"



A TRANSVERSE SECTION  
 F1  
 1/2" = 1'-0"

- ### GENERAL NOTES
- MIN CONCRETE STRENGTH AT 28 DAYS SHALL BE 6,000 PSI
  - MIN CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 4,000 PSI
  - REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) AND SHALL BE EPOXY COATED
  - PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M208) AND SHALL CONSIST OF 0.60" x 270 KSI 7-WIRE LOW RELAXATION STRANDS
  - PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0 K AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET)
  - ENDS OF PRESTRESSING STRANDS SHALL BE CUT, RECESSED & GROUTED FLUSH WITH END OF BOX BEAMS
  - EXPOSED CORNERS SHALL BE CHAMFERED 3/4" AS NOTED
  - THE TOP OF BEAMS SHALL RECEIVE A FLOAT FINISH UNLESS NOTED OTHERWISE
  - SHEAR KEY SURFACES SHALL BE BLASTED CLEAN WITH OIL FREE AIR
  - BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIE-BAR SUPPORTS WITHIN 2'-0" OF THE BEAM ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
  - MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC PS10 02 AND PS10 05 RESPECTIVELY. DESIGN MIX J.P.C. BRIDGE MIX 430
  - QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS J.P. CARRARA & SONS, INC IS A PCI CERTIFIED PLANT
  - THE VOIDS MUST BE VENTED DURING CURING PERIOD
  - CURING METHOD AS SOON AS THE TOP OF BEAM IS FINISHED, A COVER OF POLY AND A LAYER OF HOPISOTE (OR BLUE BOARD) WILL BE PLACED OVER THE BEAM. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 70°F. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED. (NATURAL CURE WITH NO EXTERNAL HEAT APPLIED). EACH CHART SHALL BE MARKED
  - TRANSVERSE POST-TENSIONING SEQUENCE:
    - ONCE VOIDED SLABS ARE ERECTED, POST-TENSION TENDONS TO APPROXIMATELY 5,000 LBS
    - GROUT SHEAR KEYS
    - ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI, POST TENSION TENDONS TO 30,000 LBS

### EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60" x 270 KSI  
 AREA: 0.217 IN<sup>2</sup>  
 TENSION: 44,000 LB EACH STRANDS  
 GRIP-TO-GRIP: 192'-9 3/4" = 192.813'  
 E<sub>s</sub> = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS, VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE

$$\Delta = \frac{PL}{AE} = \frac{(44,000 - 5,000) \times 192.813 \times 12}{0.217 \times 28,600,000} = 15.29"$$

THEREFORE: (TOLERANCES ± 5%)  
 Δ UPPER LIMIT = 1.05 x 15.29" = 16.05" = 16 1/16"  
 Δ LOWER LIMIT = 0.95 x 15.29" = 14.53" = 14 1/2"

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:  
 $\Delta P = \frac{0.5 \times 41,000}{15.29} = 1,341 \text{ LBS}$

TOTAL TENSIONING FORCE = 44,000 + 1,341 = 45,341 LBS

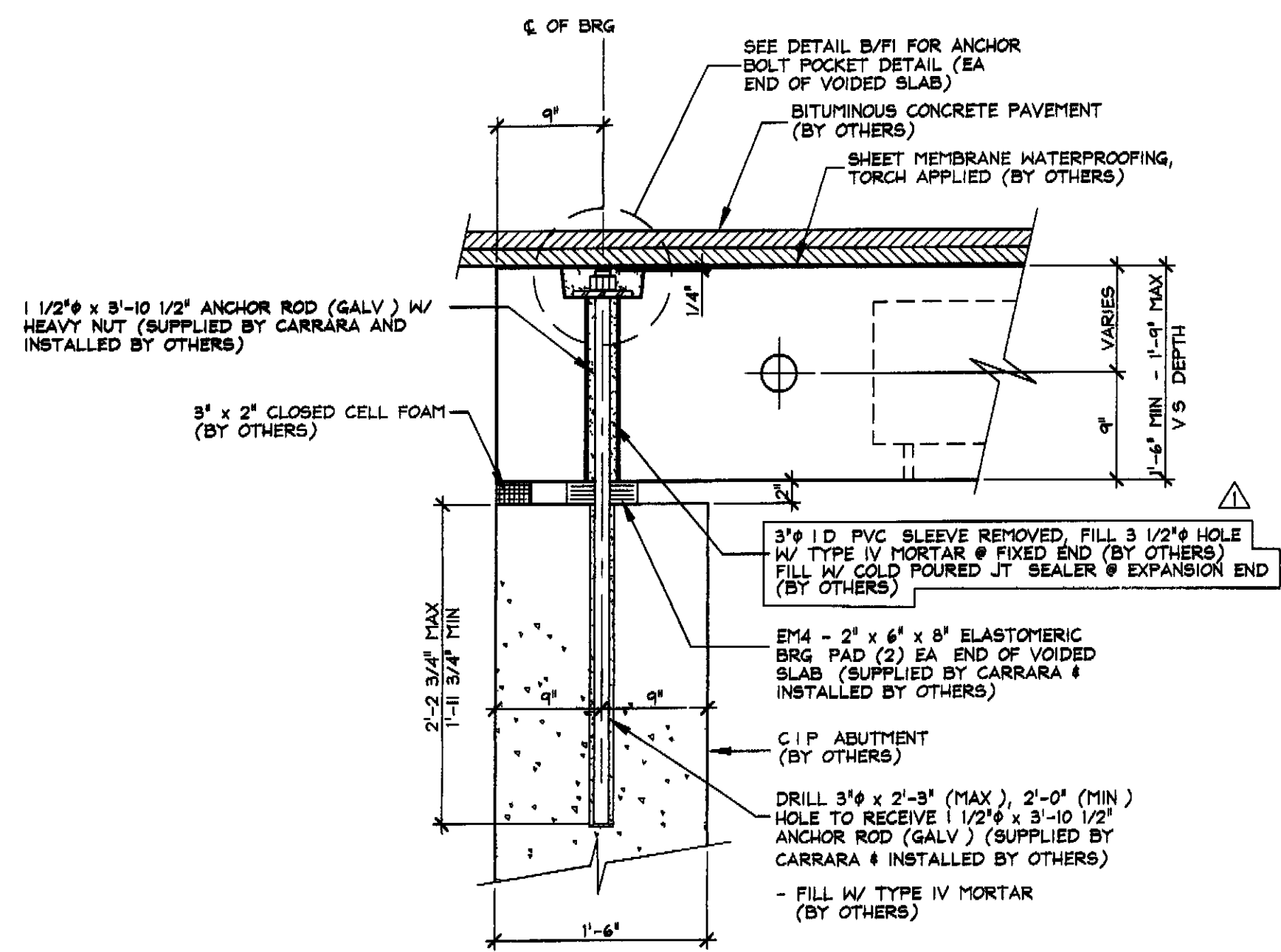
- ### STRAND TENSIONING PROCEDURE:
- PULL EACH STRAND INITIALLY TO 3,000# LBS AND MARK STRAND
  - THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,341# LBS AND MEASURE ELONGATION AFTER SEATING IT MUST BE BETWEEN 14 1/2" & 16 1/16"
- \* NOTE FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED

1-18-10 REVISED AS PER ENGINEER COMMENTS 12/24/2009 T.D.

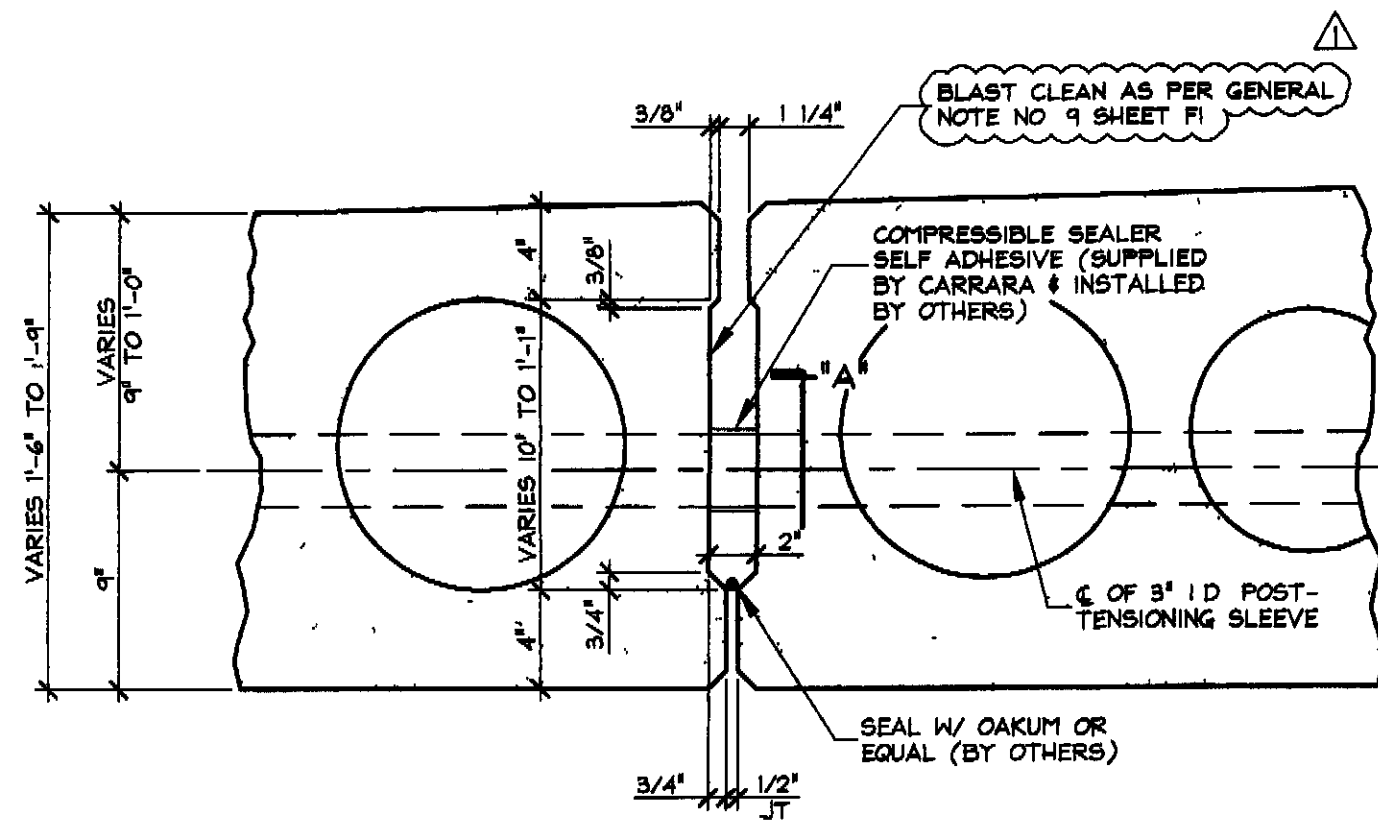
APPROVAL STAMP:

STATE OF VERMONT  
 AGENCY OF TRANSPORTATION  
 RECEIVED 01/27/2010  
 CARY WDL TWP GS  
 ACTION APPROVED  
 BY CWC DATE 01/27/2010

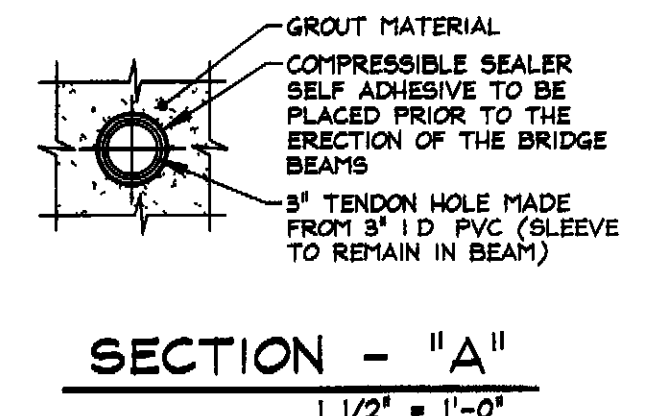
<b>J.P. CARRARA &amp; SONS INC.</b> Precast & Prestress Manufacturer 2444 ONE STR. MIDDLEBURY, VERMONT 05753 Phone (802)388-6361 Fax (802)388-9010		<b>BLOW &amp; COTE, INC.</b> CONTRACTOR MORRISVILLE, VERMONT	
STATE OF VERMONT A.O.T. COUNTY OF FRANKLIN		DATE: NOV 12, 2009 SCALE: NOTED	
TOWN OF FAIRFAX VERMONT ROUTE 104 BRIDGE NO.: 10 PROJECT NO.: BHF 023-1(5)		CHKD: DFTM. T.D. JOB NO: 23304-09	
<b>SUPERSTRUCTURE PLAN &amp; DETAILS</b>		DWG NO: <b>F1</b>	



**B** BEARING SECTION  
F2 1" = 1'-0"



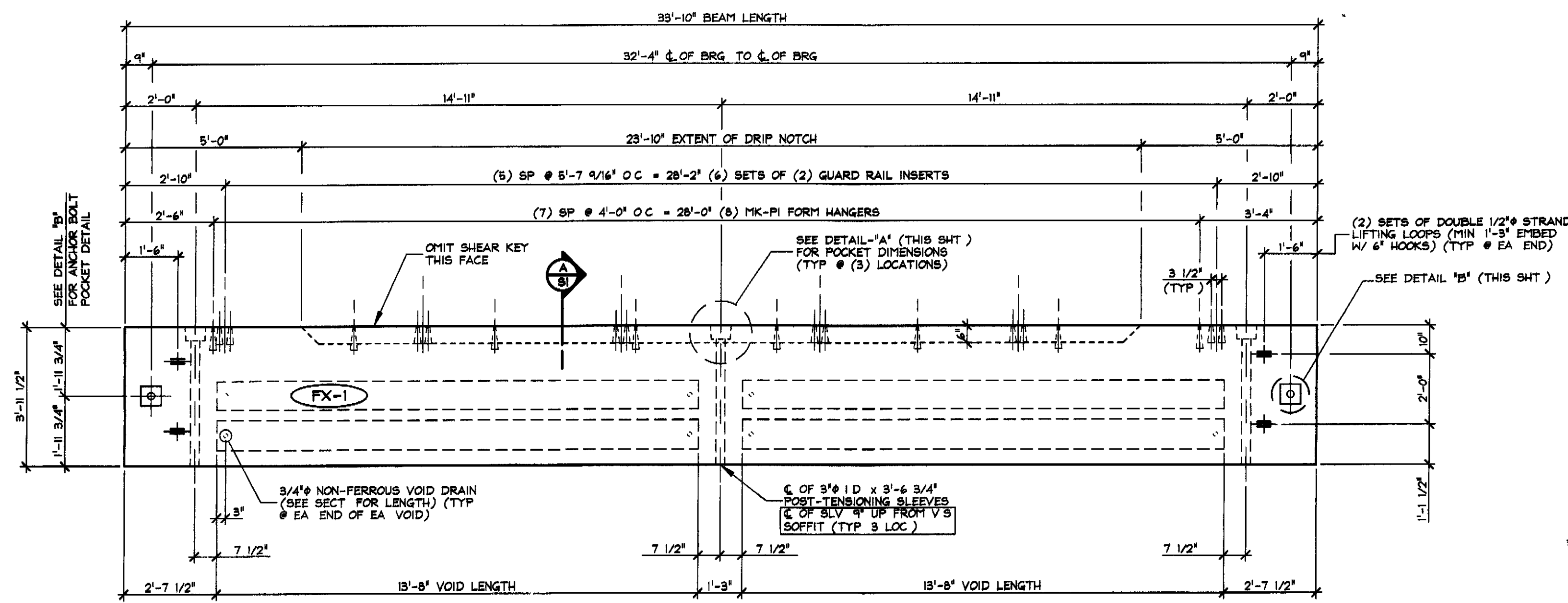
**C** SHEAR KEY SECTION @  
F2 P.T. SLEEVE 1 1/2" = 1'-0"



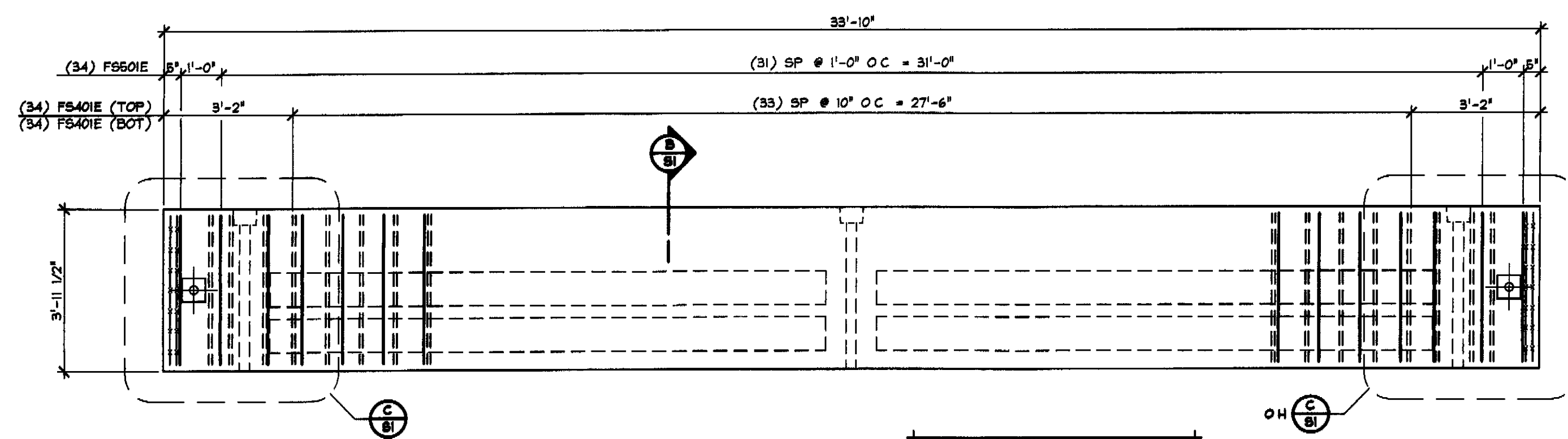
**D** GUARDRAIL ANCHORAGE DETAIL  
F2 1" = 1'-0"

1-18-10 REVISED AS PER ENGINEER COMMENTS 12/29/2009 T D

APPROVAL STAMP.  STATE OF VERMONT AGENCY OF TRANSPORTATION RECEIVED 01/27/2010 CARRY WDL IN BY GS ACTION APPROVED BY CWC DATE 01/27/2010	<b>J.P. CARRARA &amp; SONS INC.</b> Precast & Prestress Manufacturer <small>2464 CASE ST. MIDDLEBURY, VERMONT 05753 Phone (802)388-6361 Fax (802)388-8010</small>	<b>BLOW &amp; COTE, INC.</b> CONTRACTOR MORRISVILLE, VERMONT
	COUNTY OF VERMONT A.O.T. COUNTY OF FRANKLIN	DATE: NOV 12, 2009 SCALE: NOTED
	TOWN OF FAIRFAX VERMONT ROUTE 104 BRIDGE NO. 10 PROJECT NO.: BHF 023-1(5)	CHKD: DFTM: T D JOB NO: 23304-09
	<b>SUPERSTRUCTURE SECTIONS &amp; DETAILS</b>	DWG NO: <b>F2</b>
	STATE OF VERMONT AGENCY OF TRANSPORTATION RECEIVED 01/27/2010 CARRY WDL IN BY GS ACTION APPROVED BY CWC DATE 01/27/2010	

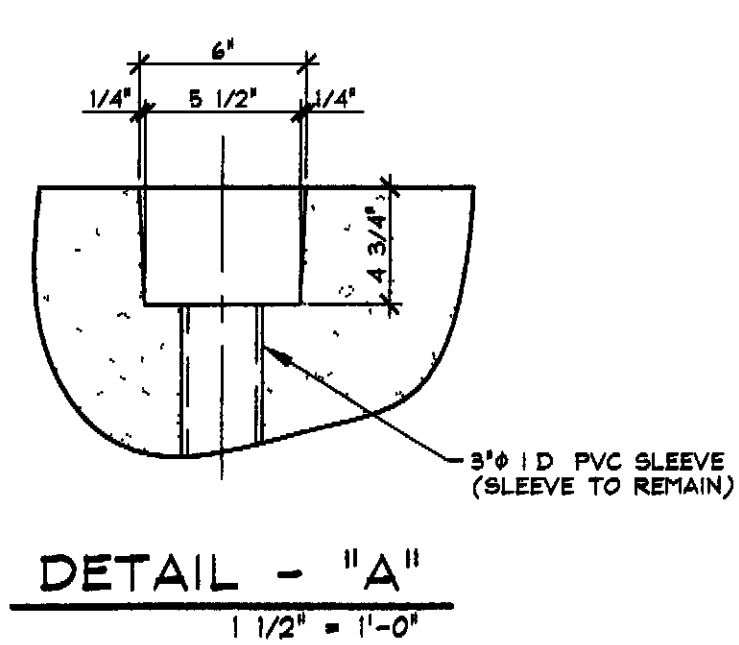


1 DIMENSIONAL PLAN VIEW IN FORM  
S1 3/8" = 1'-0"

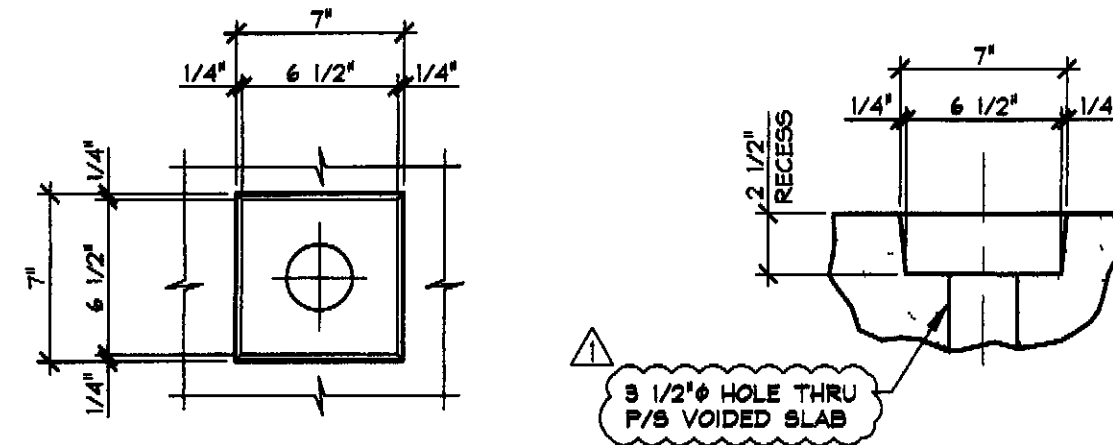


2 REINFORCING PLAN VIEW IN FORM  
S1 3/8" = 1'-0"

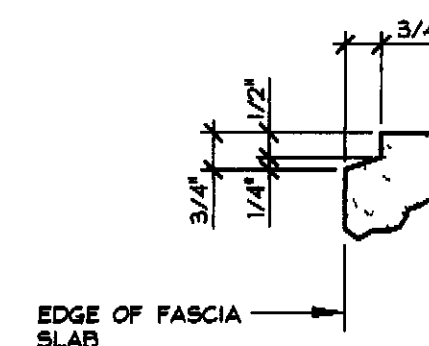
SHOP NOTE:  
ADJUST REINFORCING SPACING AS REQUIRED TO CLEAR P T SLEEVES, INSERTS, ETC



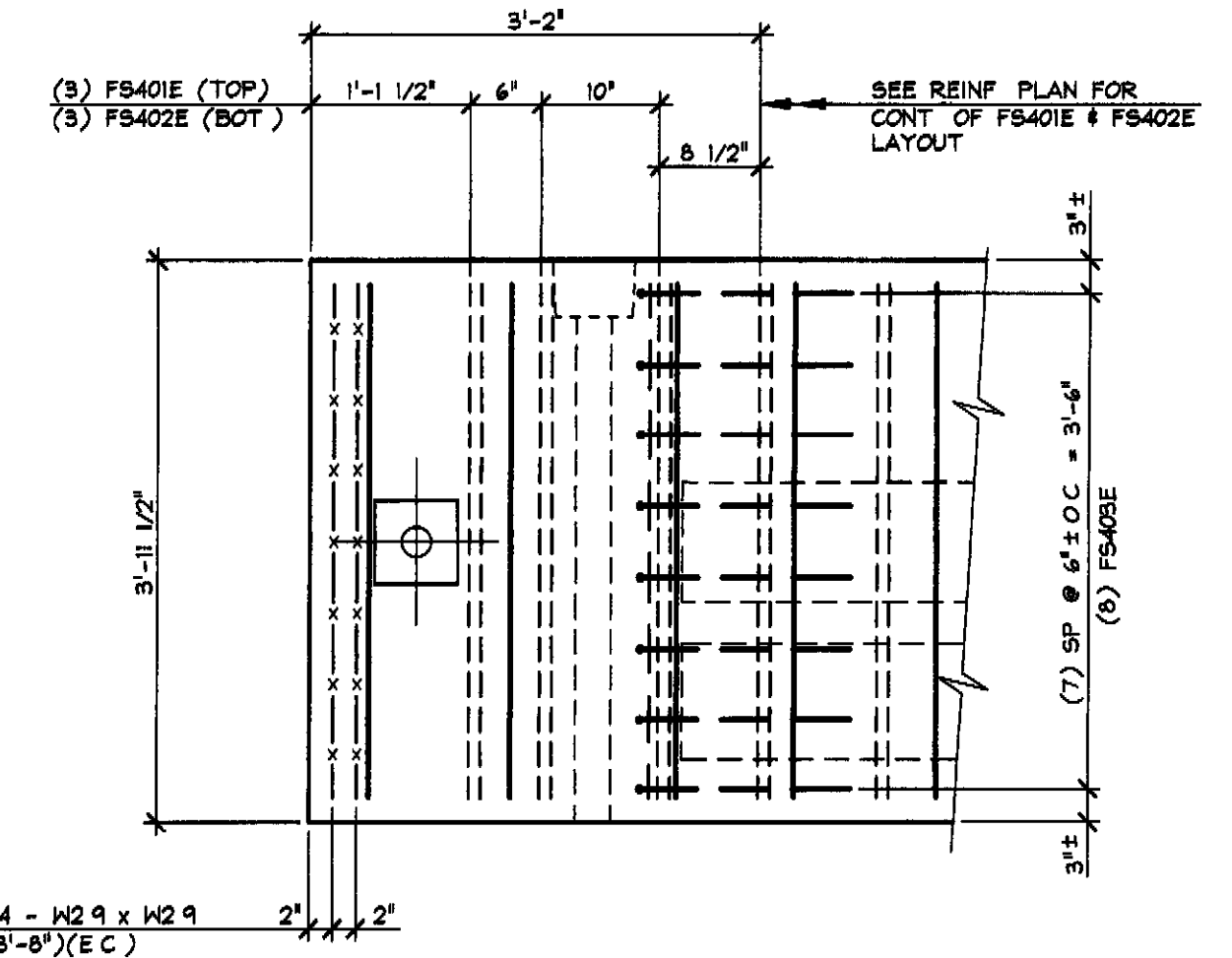
DETAIL - "A"  
1 1/2" = 1'-0"



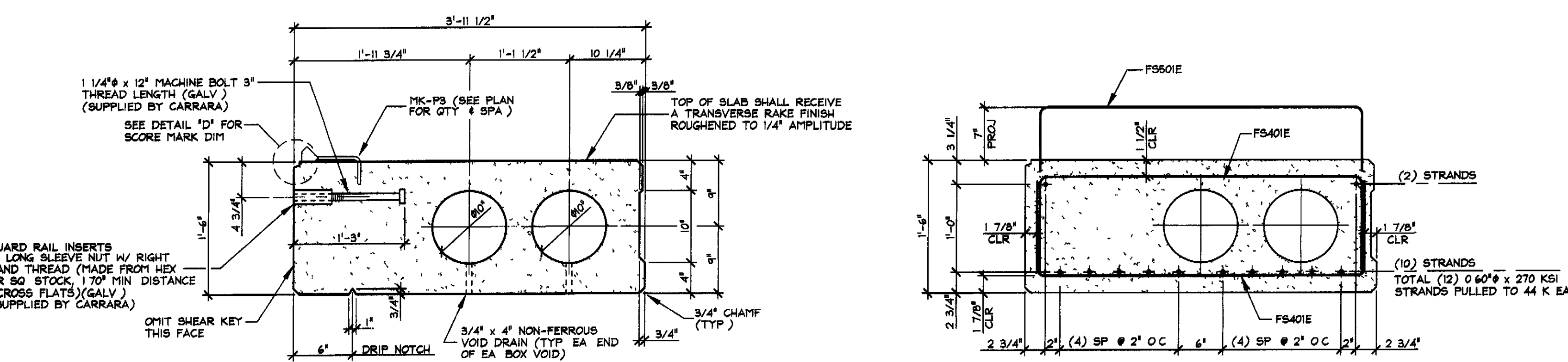
DETAIL - "B"  
1 1/2" = 1'-0"



D SCORE MARK DETAIL  
S1 3" = 1'-0"



C END BLOCK REINFORCING DETAIL  
S1 3/4" = 1'-0"



A DIMENSIONAL SECTION  
S1 1" = 1'-0"

B REINFORCING SECTION  
S1 1" = 1'-0"

1 2 3 5 7 9 11 12 10 8 6 4

DETENSING SCHEDULE

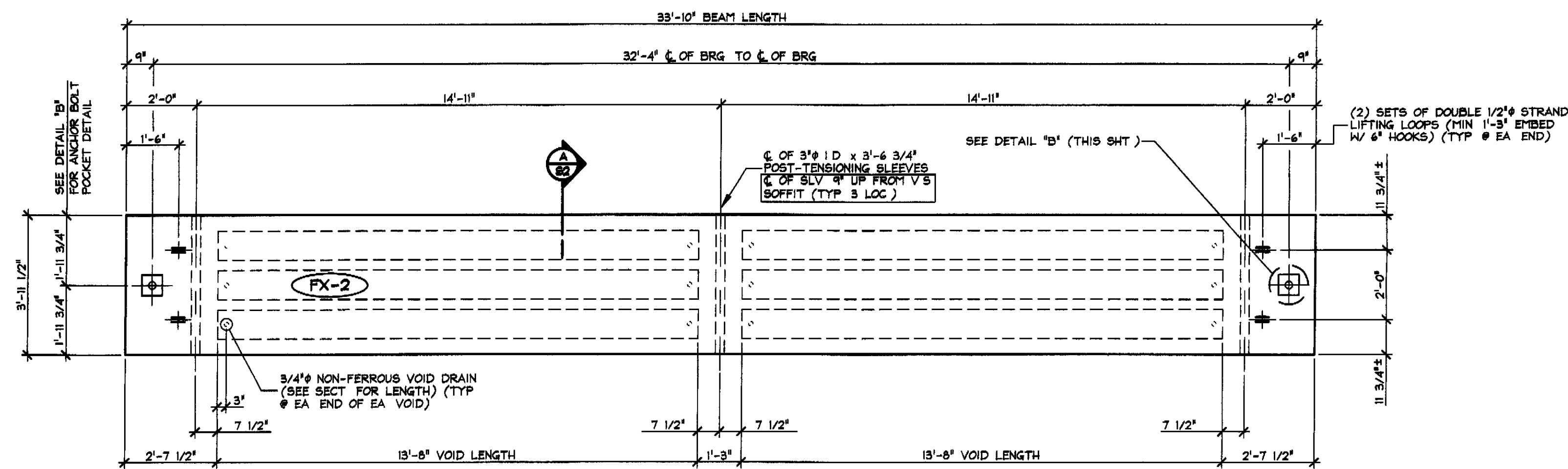
NTS

1-18-10 REVISED AS PER ENGINEER COMMENTS 12/29/2009 T D

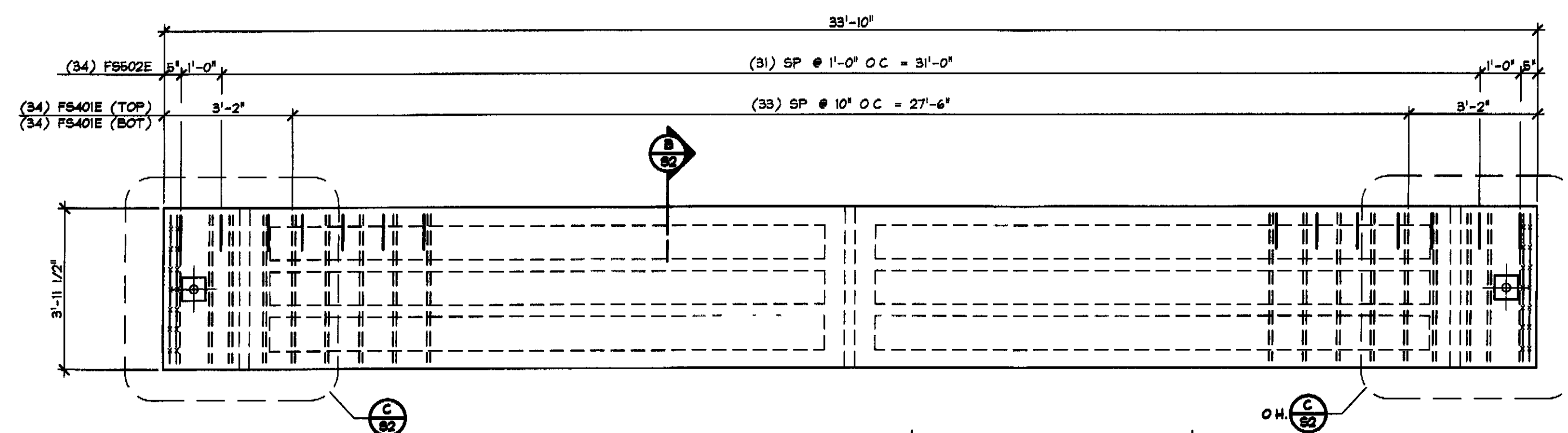
APPROVAL STAMP:  
STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
RECEIVED 01/27/2010  
CHK BY WDL JCS GS  
ACTION APPROVED  
BY CWC DATE 01/27/2010

<b>J.P. CARRARA &amp; SONS INC.</b> Precast & Prestress Manufacturer 2444 CASE ST. MORRISVILLE, VERMONT 05653 Phone (802)388-8361 Fax (802)388-9010		<b>BLOW &amp; COTE, INC.</b> CONTRACTOR MORRISVILLE, VERMONT	
COUNTY OF FRANKLIN STATE OF VERMONT A.O.T. PROJECT NO.: BHF 023-1(5)		DATE: NOV 12, 2009 SCALE: NOTED CHKD: DFTM T D JOB NO. 23804-09	
<b>P/S VOIDED SLAB DETAILS</b>		DWG NO <b>S1</b>	

MARK	FX-1	QTY	WT	12.78 T	VOL	6.31 cy
MATERIAL LIST / VOIDED SLAB						
ITEM	MARK	DESCRIPTION				QTY
1	FS401E	#4 BENT BAR (EPOXY COATED)				80
2	FS403E	#4 BENT BAR (EPOXY COATED)				16
3						
4						
5	FS601E	#5 BENT BAR (EPOXY COATED)				34
6		#4 x 3'-8" (EPOXY COATED)				16
7						
8		1 1/4" x 5" SLEEVE NUT W/ RIGHT HAND THRD (GALV)				12
9		1 1/4" x 12" MACHINE BOLT 3" THRD (GALV)				12
10						
11						
12						
13		WIRE MESH MWF-4 x 4 - W2.9 x W2.9 (1'-3" x 3'-8") (EPOXY COATED)				4
14	MK-PI	DAYTON C-24 TYPE 4-APR PRESS-STEEL PRECAST HALF HANGER (GALV)				8
15		10" x 13'-8" VOID				4
16		3/4" x 4" NON-FERROUS VOID DRAINS				8
17		DOUBLE 1/2" STRANDS LIFTING LOOPS				4
18						

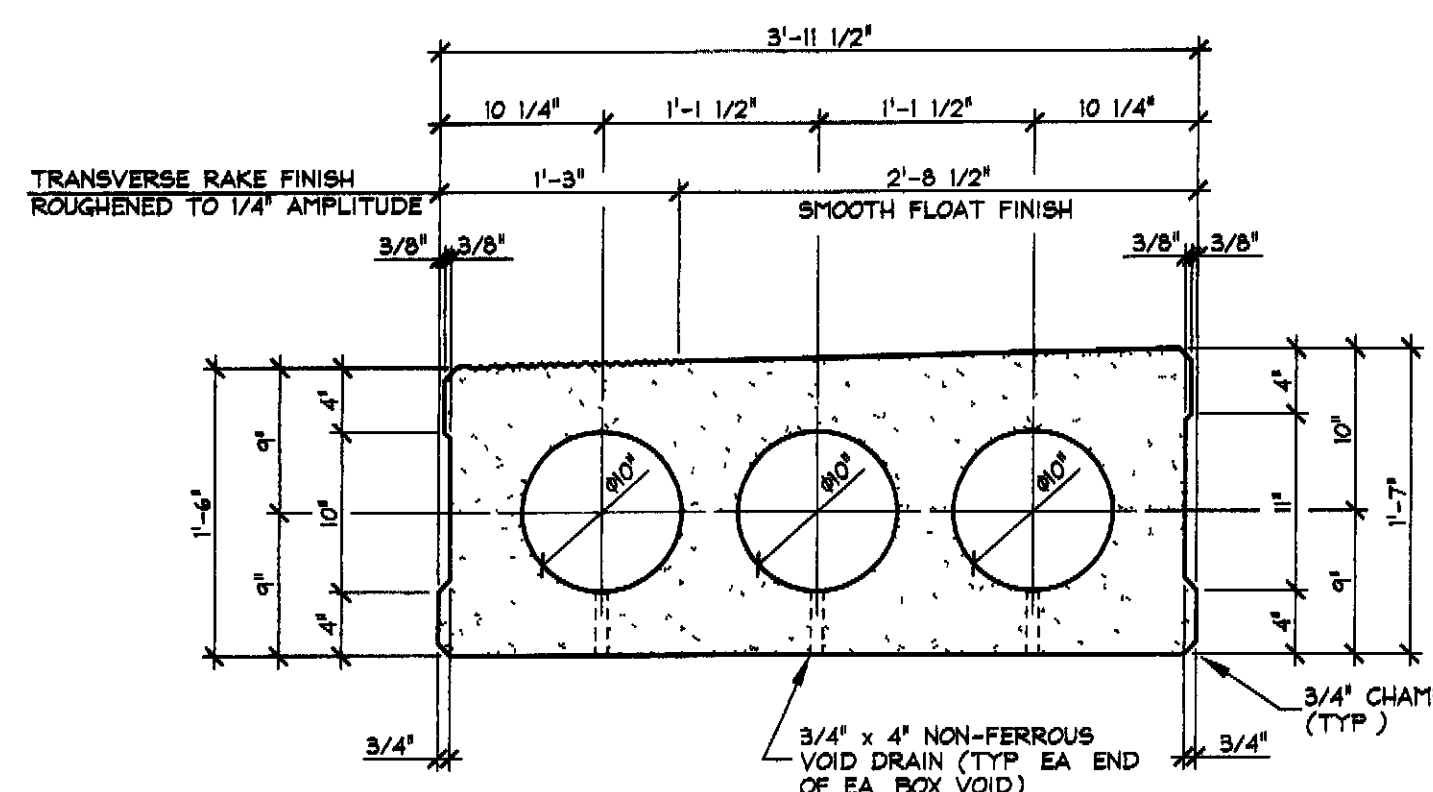


**1** DIMENSIONAL PLAN VIEW IN FORM  
S2 3/8" = 1'-0"

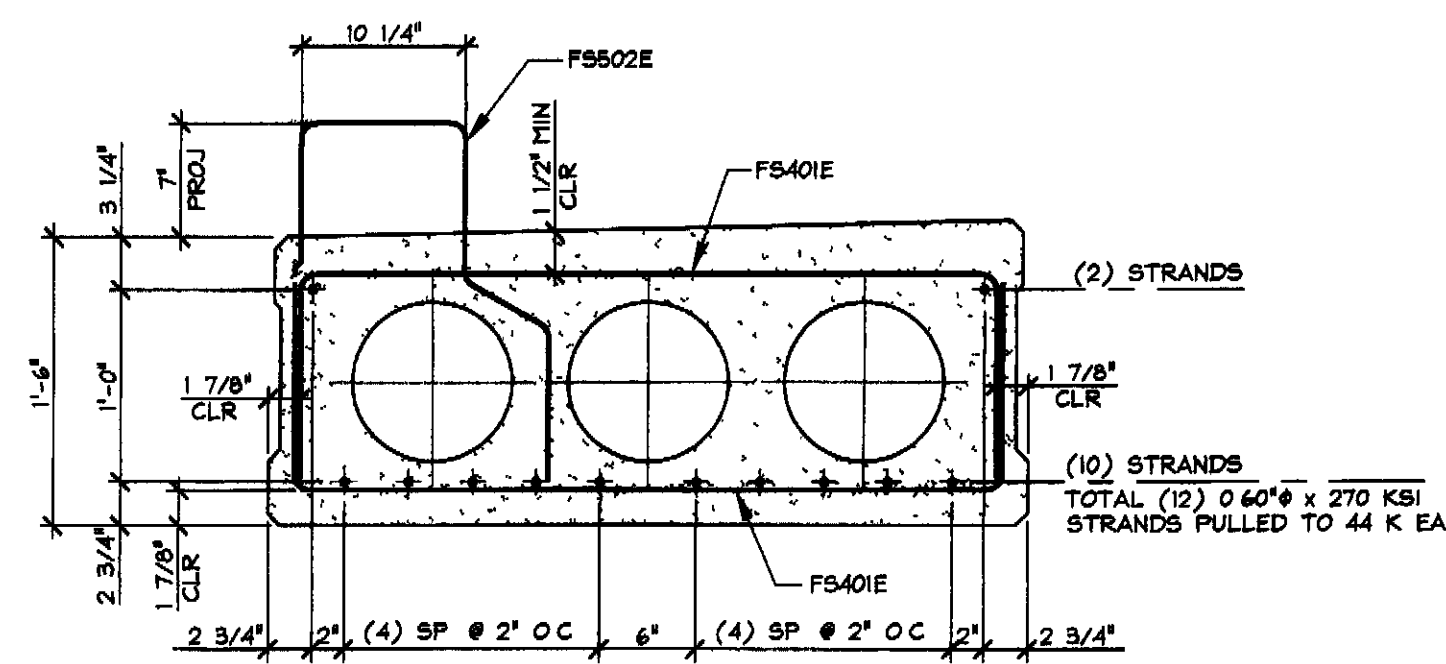


**2** REINFORCING PLAN VIEW IN FORM  
S2 3/8" = 1'-0"

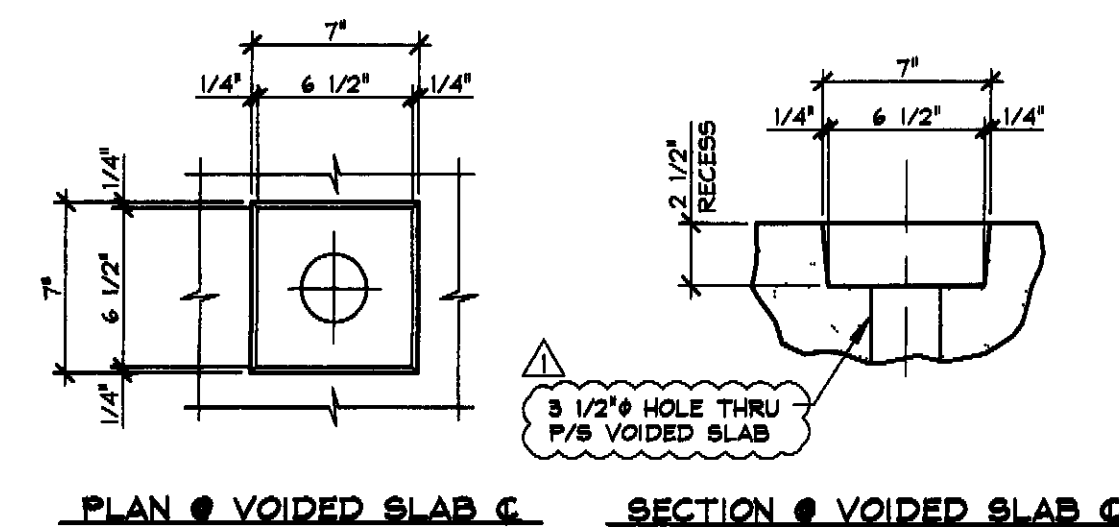
**SHOP NOTE.**  
ADJUST REINFORCING SPACING AS REQUIRED TO CLEAR P-T SLEEVES, INSERTS, ETC



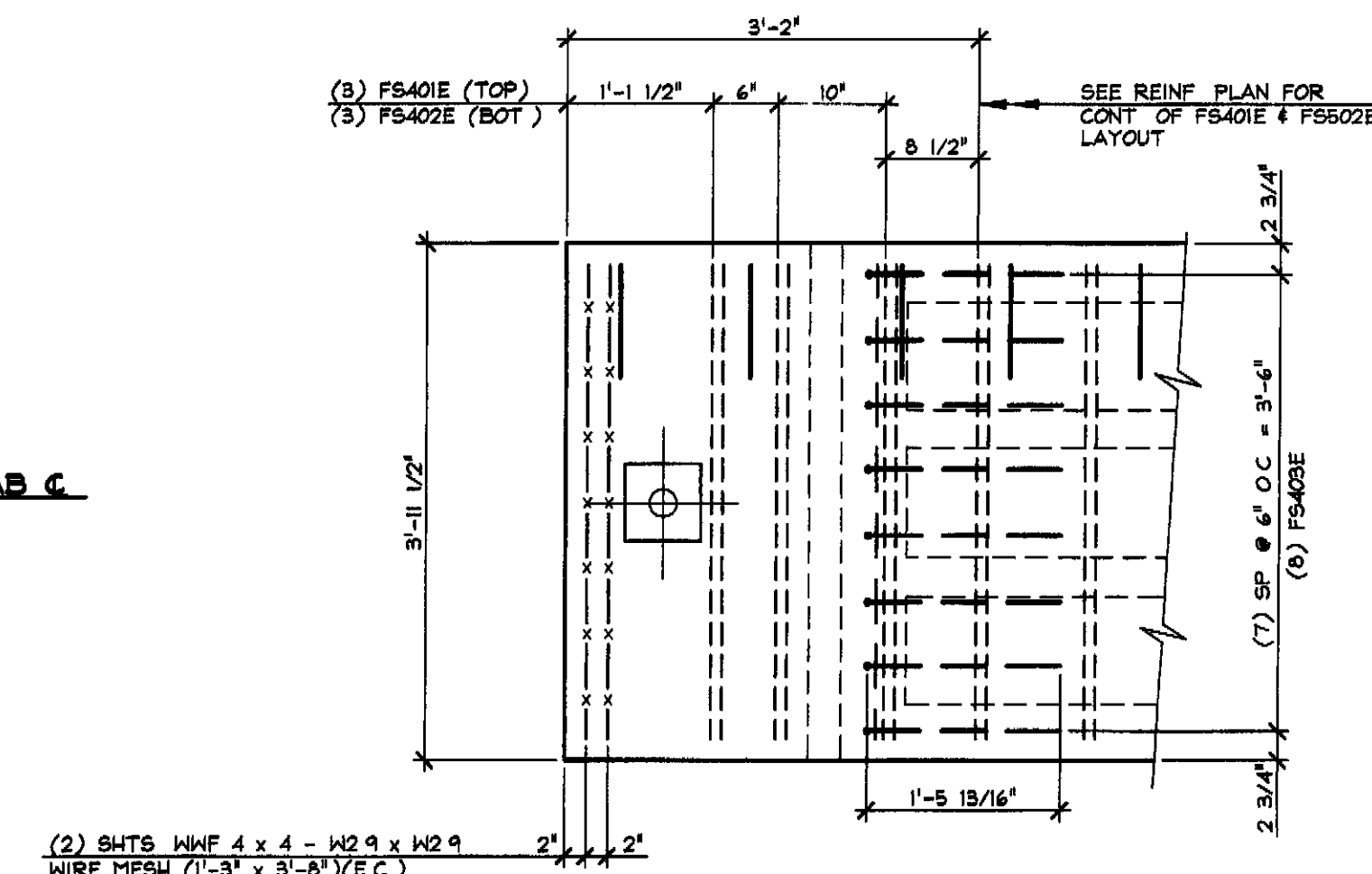
**A** DIMENSIONAL SECTION  
S2 1" = 1'-0"



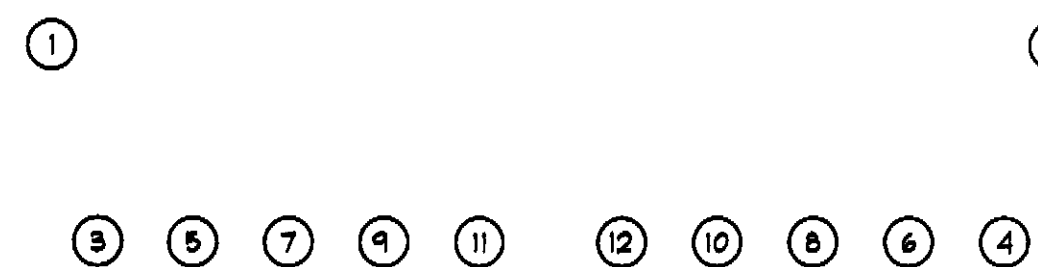
**B** REINFORCING SECTION  
S2 1" = 1'-0"



**DETAIL - "B"**  
1 1/2" = 1'-0"



**C** END BLOCK REINFORCING DETAIL  
S2 3/4" = 1'-0"



**DETENSONING SCHEDULE**  
NTS

MARK	FX-2	QTY. 2	WT 11.71 T	VOL 5.78 cy
<b>MATERIAL LIST / VOIDED SLAB</b>				
ITEM	MARK	DESCRIPTION	QTY	
1	FS401E	#4 BENT BAR (EPOXY COATED)	80	
2	FS403E	#4 BENT BAR (EPOXY COATED)	16	
3				
4				
5	FS502E	#5 BENT BAR (EPOXY COATED)	34	
6		#4 x 3'-8" (EPOXY COATED)	6	
7				
8				
9				
10				
11				
12				
13		WIRE MESH W1F-4 x 4 - W2 9 x W2 9 (1'-3" x 3'-8") (EPOXY COATED)	4	
14				
15		10"φ x 13'-8" VOID	6	
16		3/4"φ x 4" NON-FERROUS VOID DRAINS	12	
17		DOUBLE 1/2"φ STRANDS LIFTING LOOPS	4	
18				

1-18-10 REVISED AS PER ENGINEER COMMENTS 12/24/2009 T D

**APPROVAL STAMP.**  
STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
PR: E.W.F. 01/27/2010  
TR: B. WDL  
ACTION APPROVED  
BY: CWC DATE: 01/27/2010

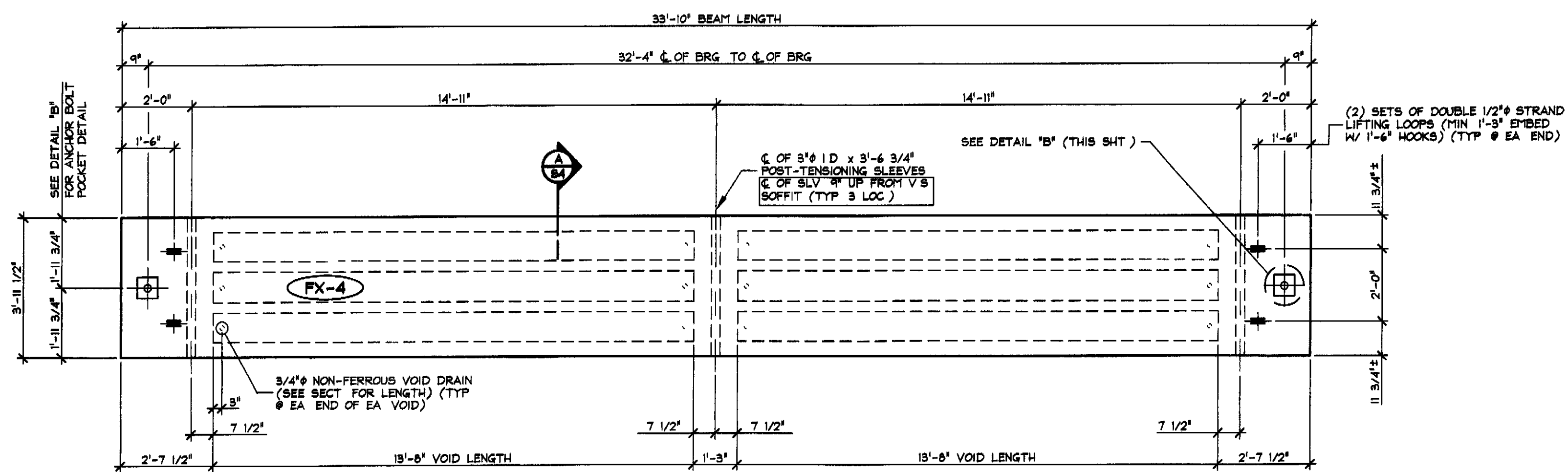
**J.P. CARRARA & SONS INC.**  
Precast & Prestress Manufacturer  
2444 CDE STR. MIDDLEBURY, VERMONT 05753 Phone: (802)388-5361 Fax: (802)388-9010

**BLOW & COTE, INC.**  
CONTRACTOR  
MORRISVILLE, VERMONT

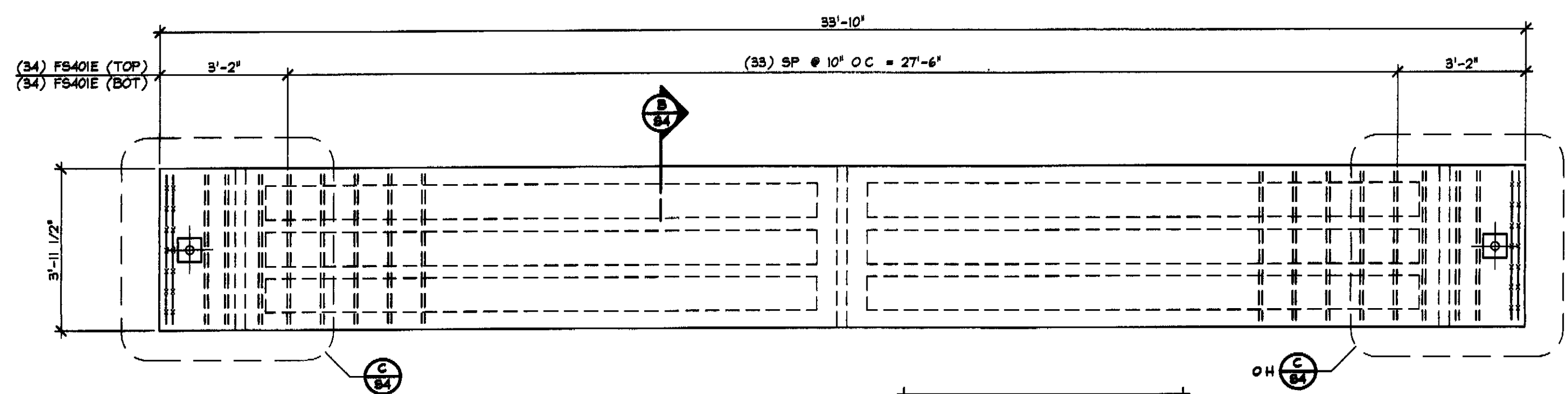
STATE OF VERMONT A.O.T.  
COUNTY OF FRANKLIN  
TOWN OF FAIRFAX  
VERMONT ROUTE 104  
BRIDGE NO. 10 PROJECT NO.: BHF 023-1(5)

DATE: NOV 12, 2009  
SCALE: NOTED  
CHKD: DFTM: T D  
JOB NO. 23304-09  
DWG NO. **S2**



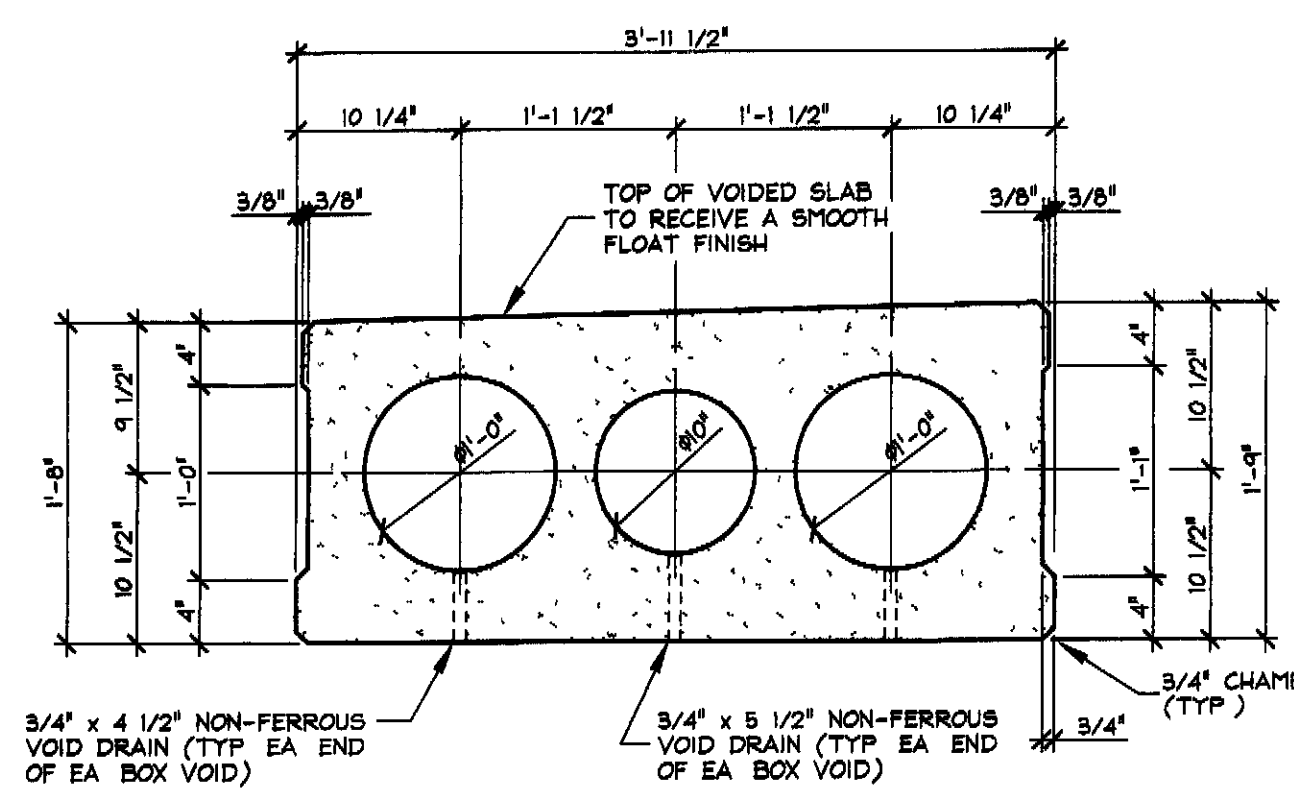


**1** DIMENSIONAL PLAN VIEW IN FORM  
S4  
3/8" = 1'-0"

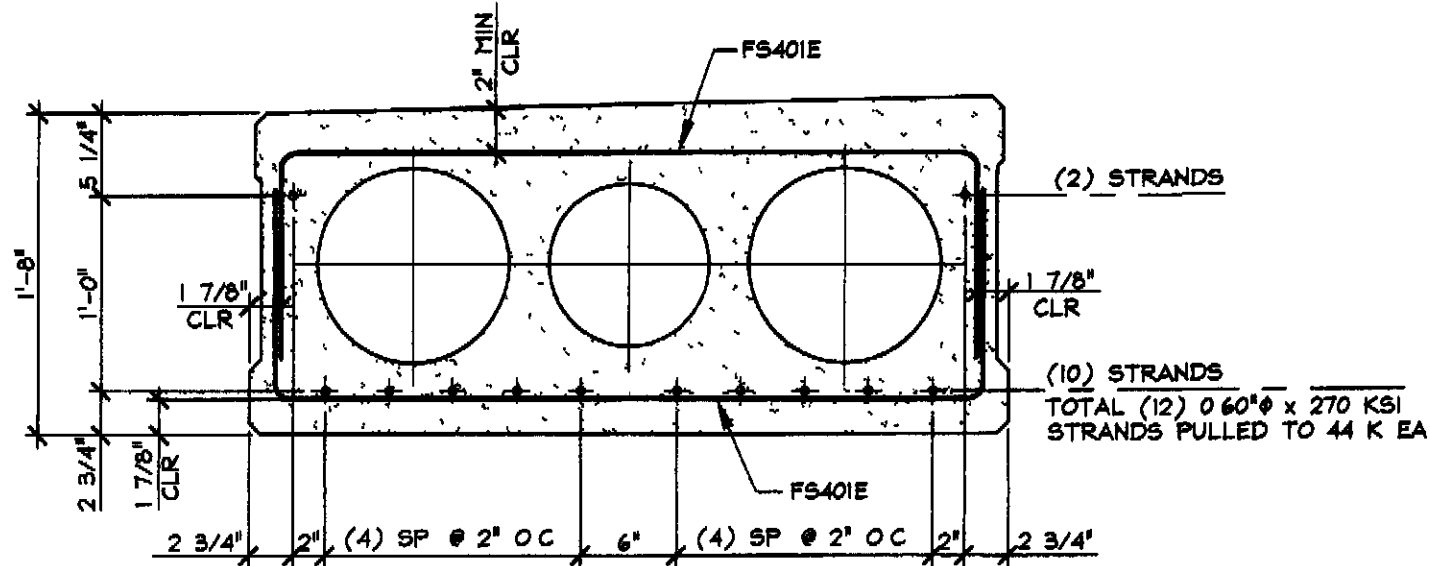


**2** REINFORCING PLAN VIEW IN FORM  
S4  
3/8" = 1'-0"

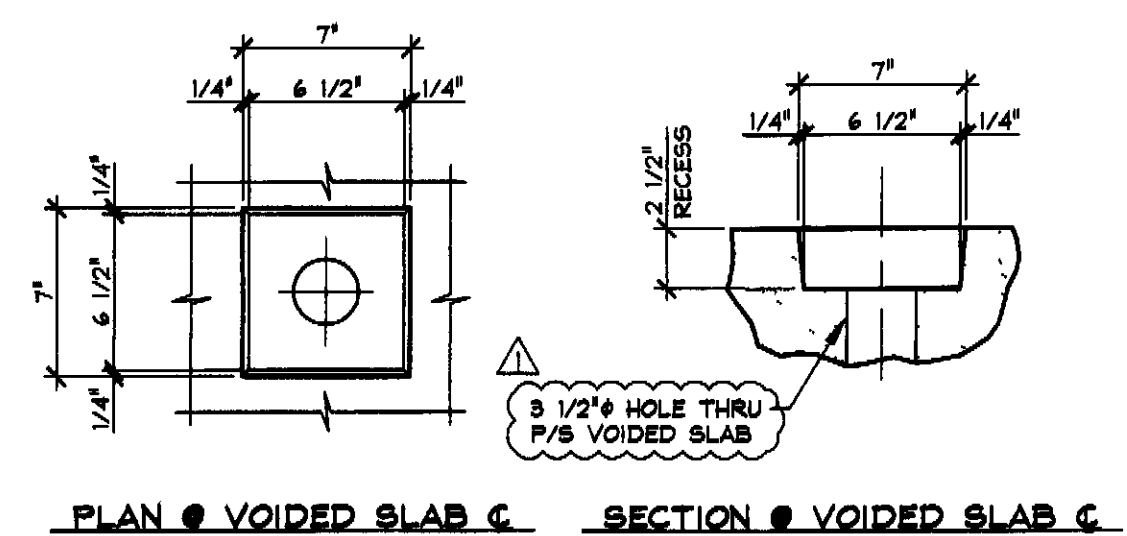
**SHOP NOTE.**  
ADJUST REINFORCING SPACING AS REQUIRED TO CLEAR P T SLEEVES, INSERTS, ETC



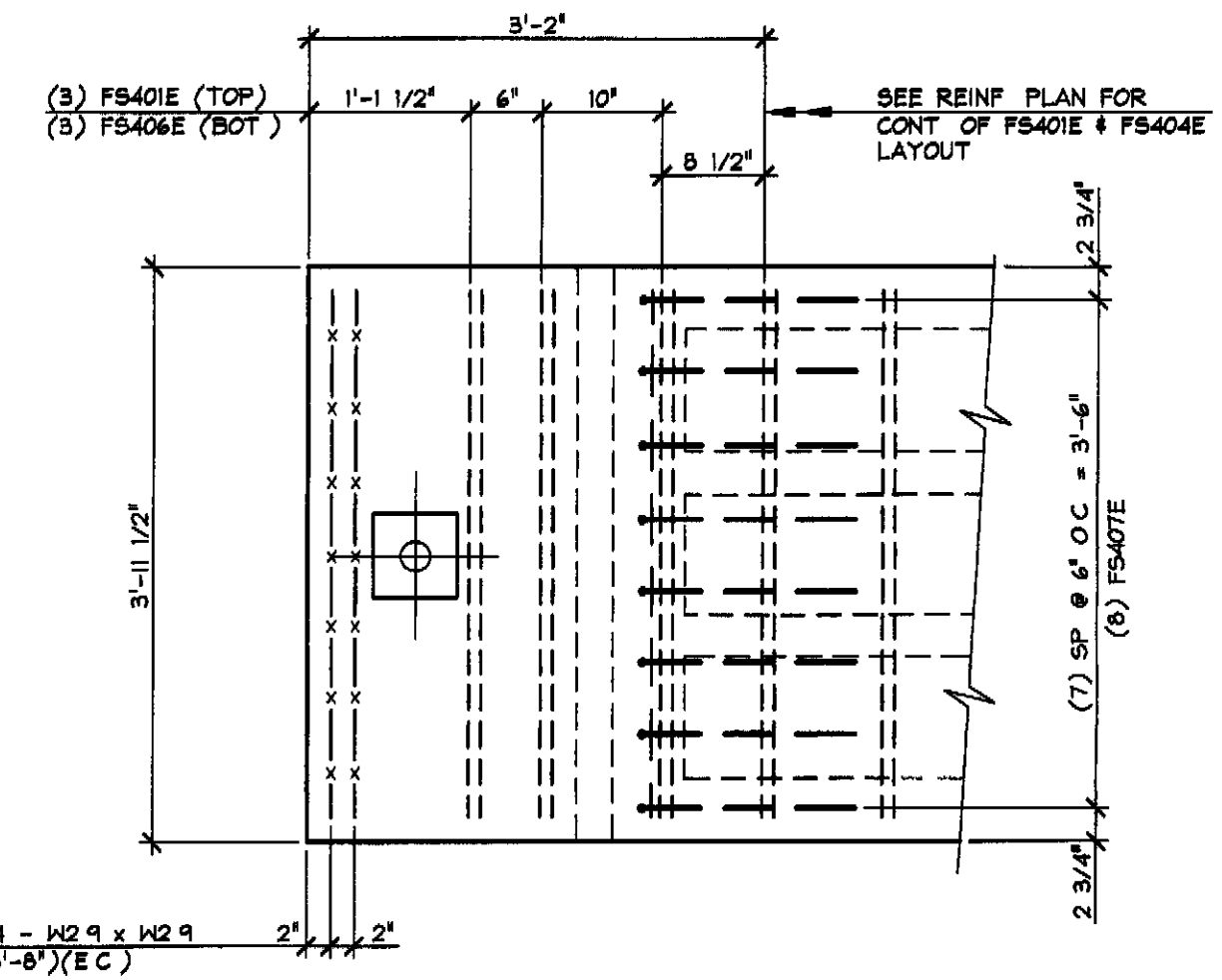
**A** DIMENSIONAL SECTION  
S4  
1" = 1'-0"



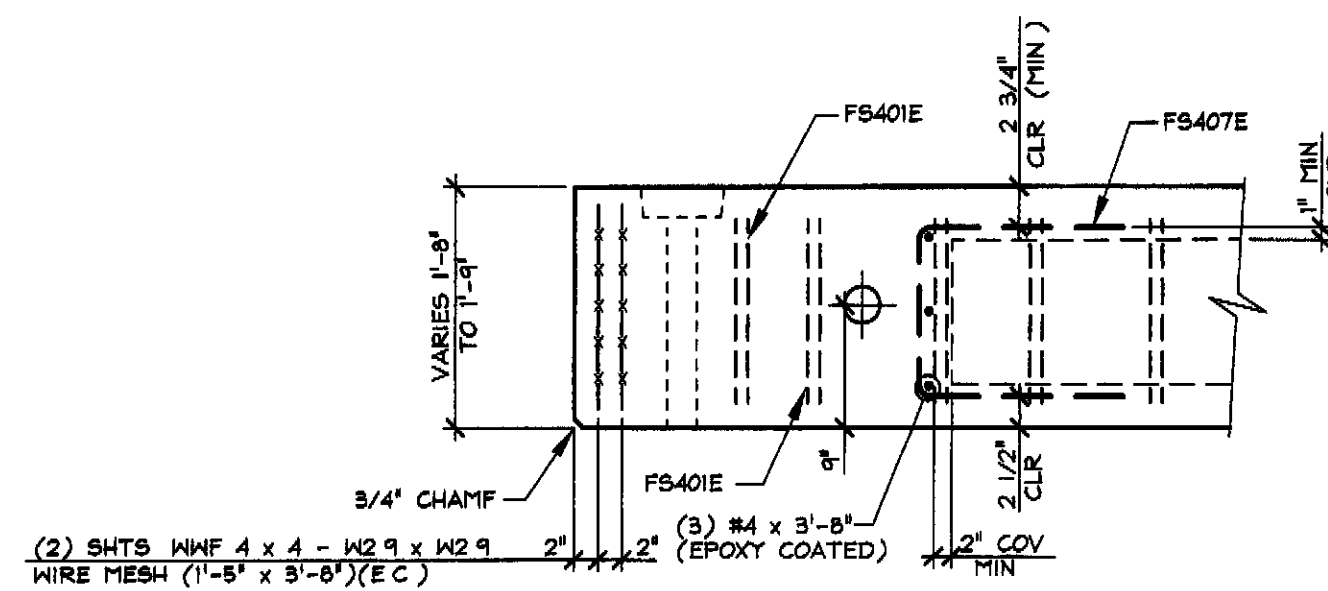
**B** REINFORCING SECTION  
S4  
1" = 1'-0"



**DETAIL - "B"**  
1 1/2" = 1'-0"



**C** END BLOCK REINFORCING DETAIL  
S4  
3/4" = 1'-0"



- ①  
②  
③ ⑤ ⑦ ⑨ ⑪ ⑫ ⑩ ⑧ ⑥ ④

**DETENSIONING SCHEDULE**  
N T S

1-18-10 REVISED AS PER ENGINEER COMMENTS 12/29/2009 T D

APPROVAL STAMP:  
STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
RECEIVED 01/27/2010  
CK BY WDL CK BY GS  
ACTION APPROVED  
BY CWC DATE 01/27/2010

**J.P. CARRARA & SONS INC.**  
Precast & Prestress Manufacturer  
284 GISE STR., MORRISVILLE, VERMONT 05753 Phone (802)398-6361 Fax (802)398-8010

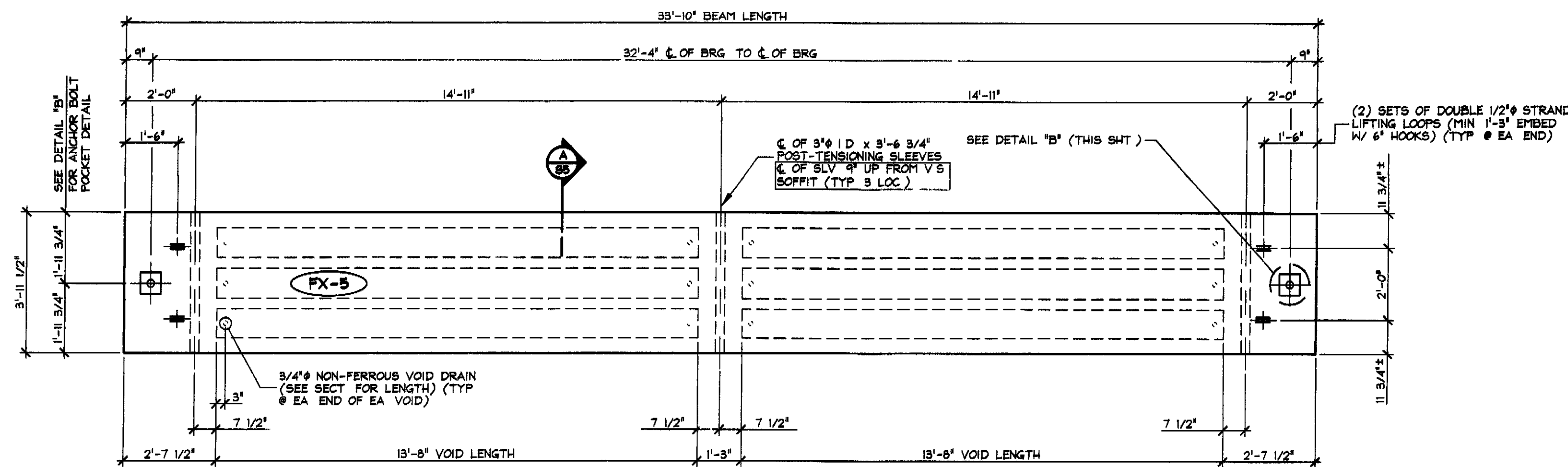
**BLOW & COTE, INC.**  
CONTRACTOR  
MORRISVILLE, VERMONT

STATE OF VERMONT A.O.T.  
COUNTY OF FRANKLIN  
TOWN OF FAIRFAX  
VERMONT ROUTE 104  
BRIDGE NO.: 10 PROJECT NO.: BHF 023-1(5)

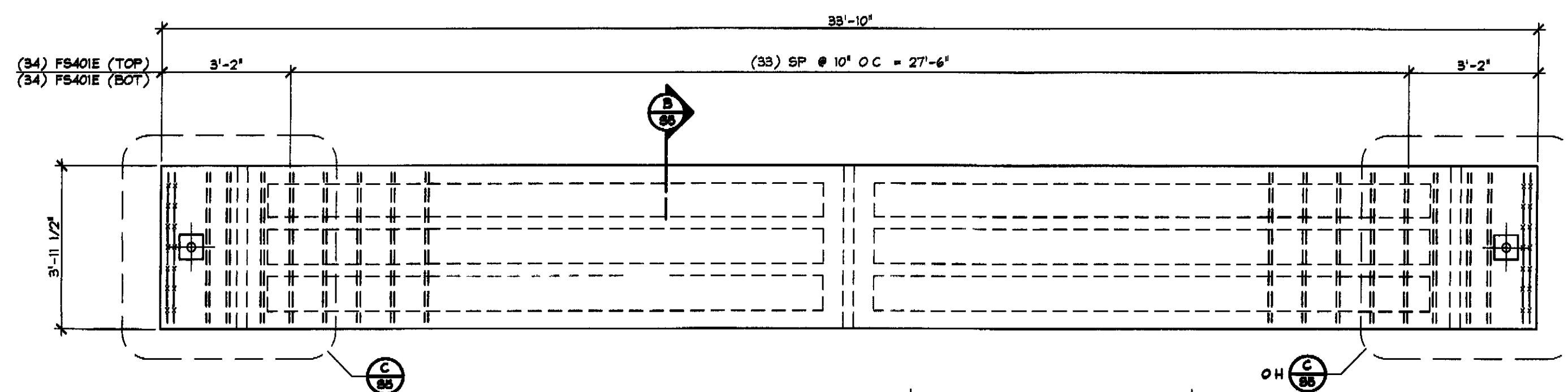
DATE: NOV 12, 2009  
SCALE: NOTED  
CHKD.: DFTM. T D  
JOB NO.: 23304-09

P/S VOIDED SLAB DETAILS  
DWG. NO. **S4**

MARK	FX-4	QTY	2	WT	12.82 T	VOL	6.33 cy
MATERIAL LIST / VOIDED SLAB							
ITEM	MARK	DESCRIPTION					QTY
1	FS401E	#4 BENT BAR (EPOXY COATED)					80
2	FS407E	#4 BENT BAR (EPOXY COATED)					16
3							
4		#4 x 3'-8" (EPOXY COATED)					6
5							
6							
7							
8							
9							
10							
11							
12							
13		WIRE MESH W4F-4 x 4 - W2 9 x W2 9 (1'-5" x 3'-8") (EPOXY COATED)					4
14							
15		12"φ x 13'-8" VOID					4
16		10"φ x 13'-8" VOID					2
17		3/4"φ x 4 1/2" NON-FERROUS VOID DRAINS					8
18		3/4"φ x 5 1/2" NON-FERROUS VOID DRAINS					4
19		DOUBLE 1/2"φ STRANDS LIFTING LOOPS					4

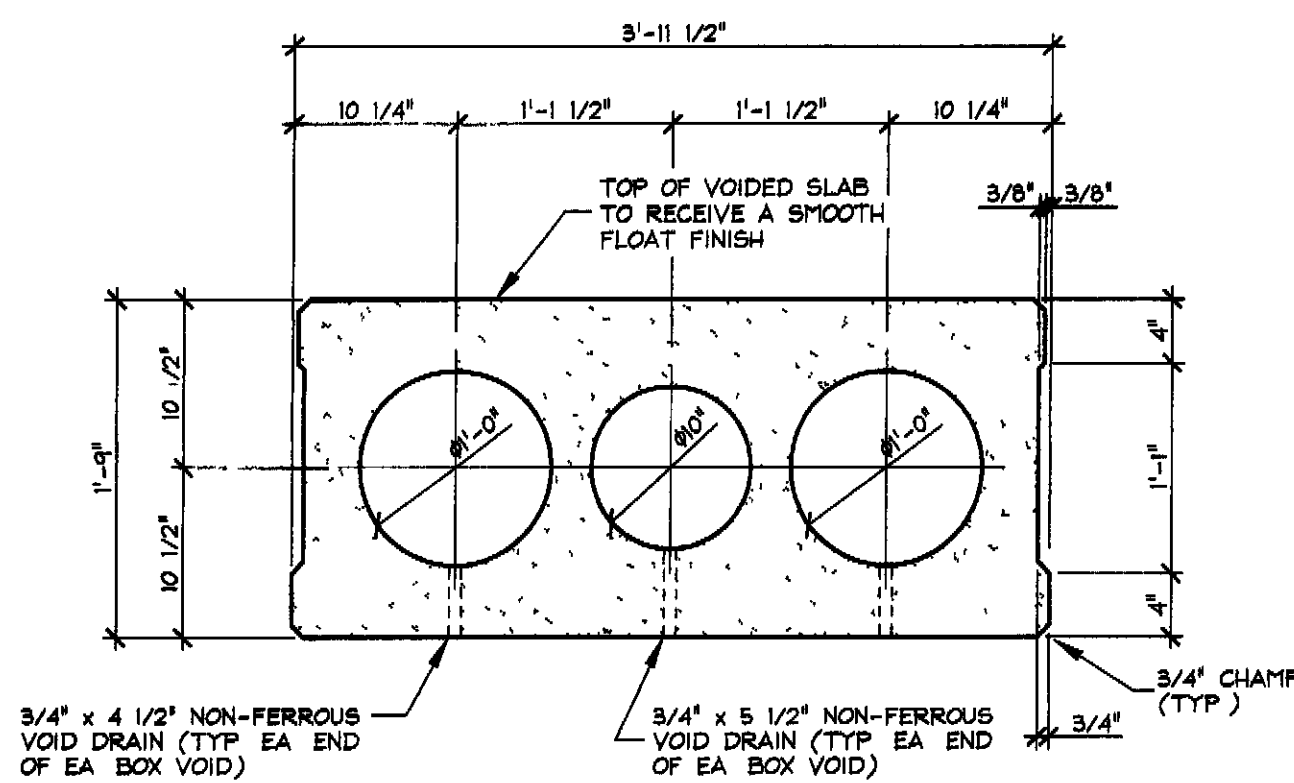


1 DIMENSIONAL PLAN VIEW IN FORM  
 S5 3/8" = 1'-0"

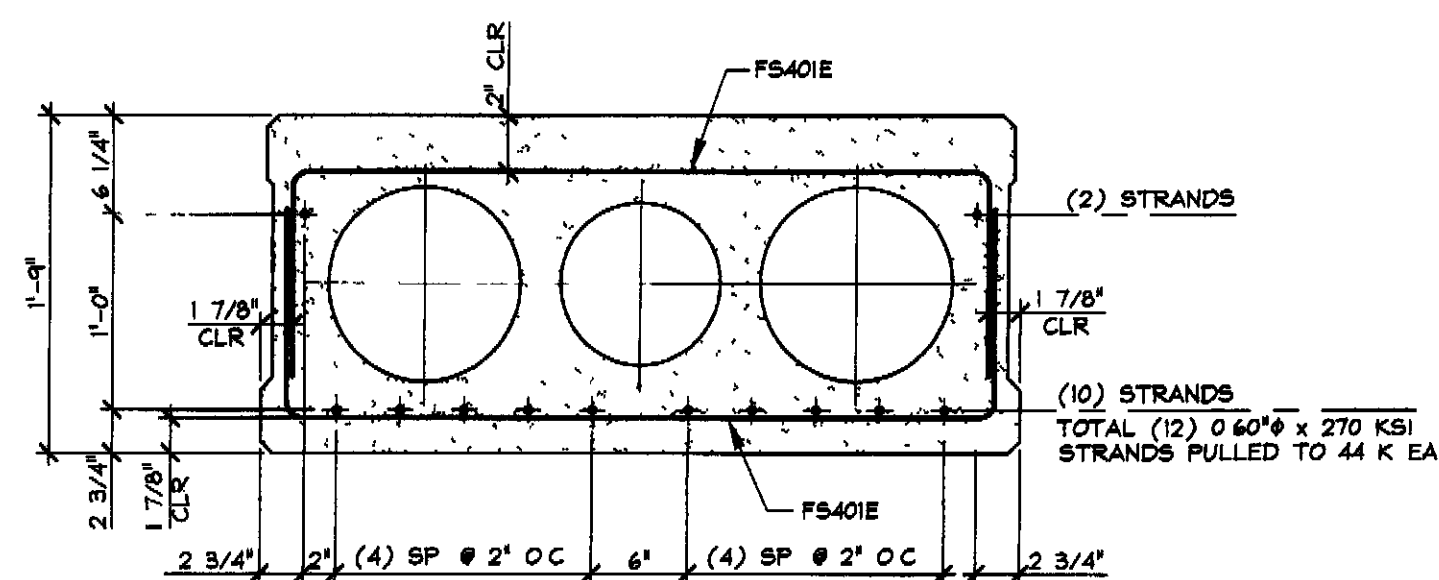


2 REINFORCING PLAN VIEW IN FORM  
 S5 3/8" = 1'-0"

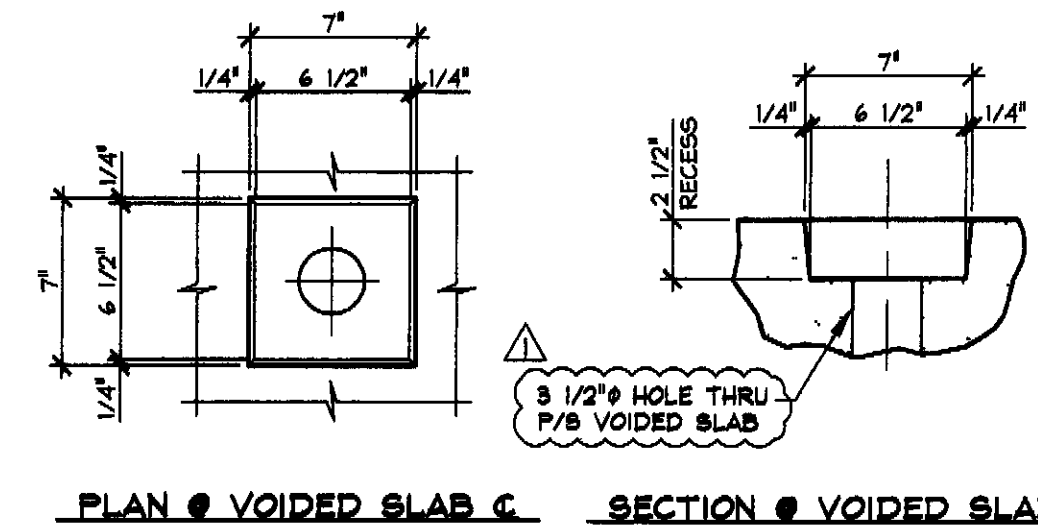
SHOP NOTE:  
 ADJUST REINFORCING SPACING AS REQUIRED TO CLEAR P T SLEEVES, INSERTS, ETC



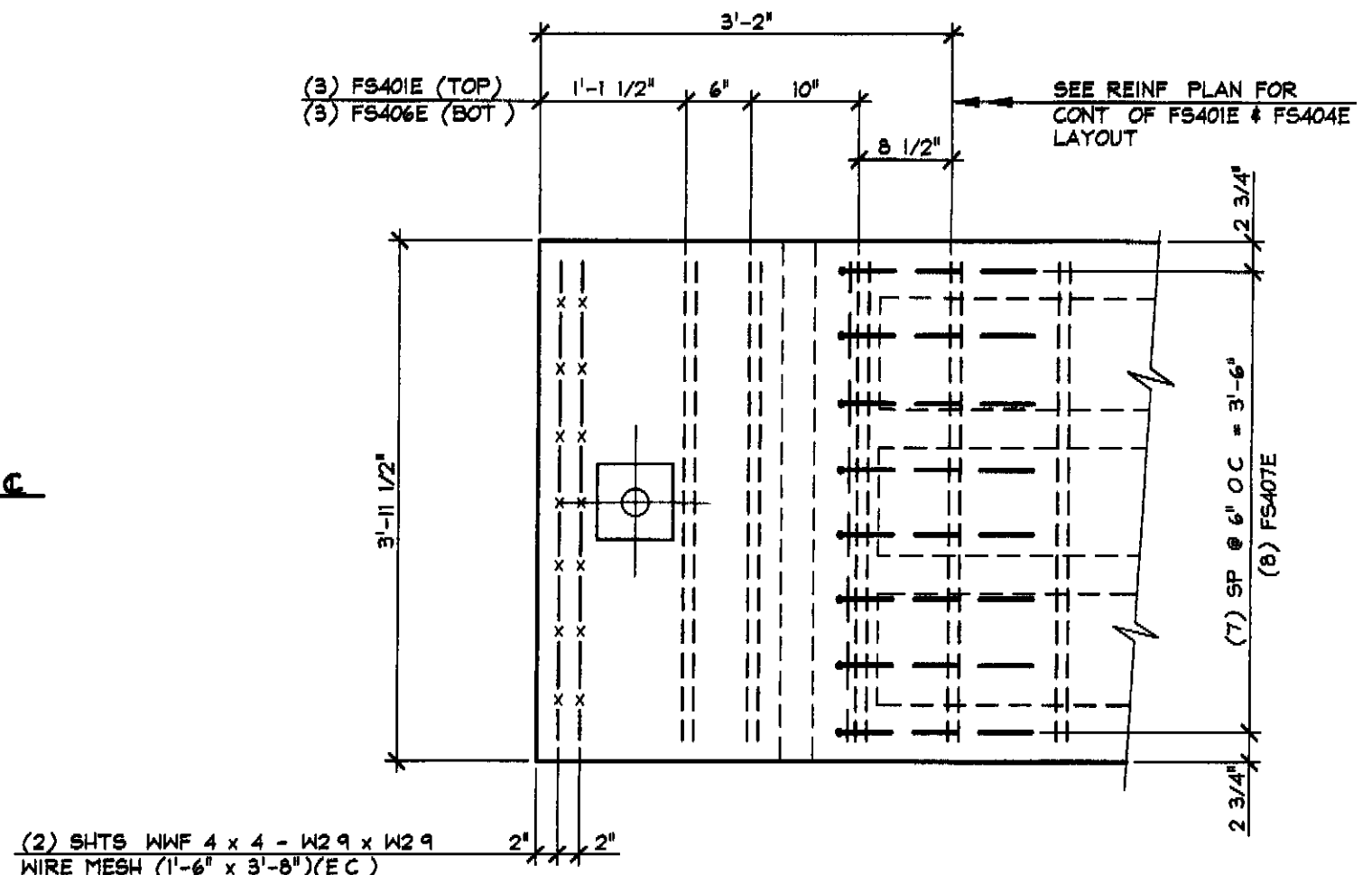
A DIMENSIONAL SECTION  
 S5 1" = 1'-0"



B REINFORCING SECTION  
 S5 1" = 1'-0"

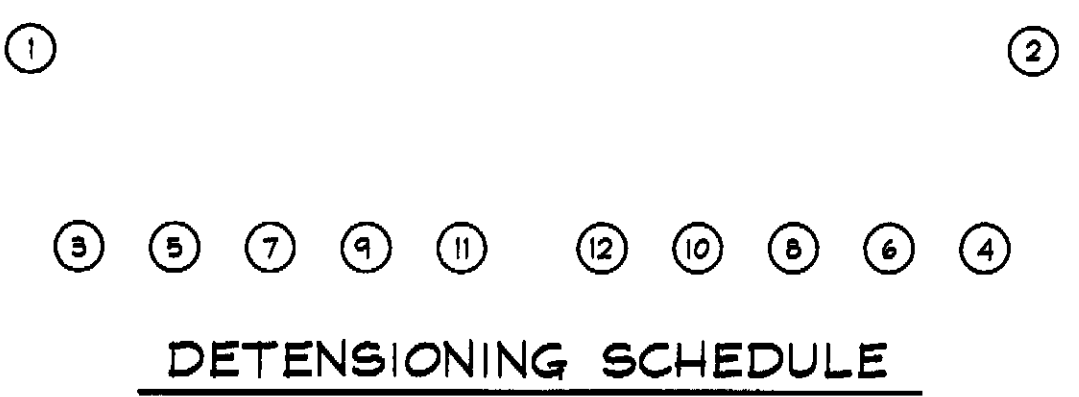


DETAIL - "B"  
 1 1/2" = 1'-0"



C END BLOCK REINFORCING DETAIL  
 S5 3/4" = 1'-0"

MARK	FX-5	QTY	1	WT	13.23 T	VOL	6.53 cy
MATERIAL LIST / VOIDED SLAB							
ITEM	MARK	DESCRIPTION	QTY				
1	FS401E	#4 BENT BAR (EPOXY COATED)	80				
2	FS408E	#4 BENT BAR (EPOXY COATED)	16				
3		#4 x 3'-8" (EPOXY COATED)	6				
4							
5							
6							
7							
8							
9							
10							
11							
12							
13		WIRE MESH HWF-4 x 4 - W2 9 x W2 9 (1'-6" x 3'-8") (EPOXY COATED)	4				
14							
15		12" x 13'-8" VOID	4				
16		10" x 13'-8" VOID	2				
17		3/4" x 4 1/2" NON-FERROUS VOID DRAINS	8				
18		3/4" x 5 1/2" NON-FERROUS VOID DRAINS	4				
19		DOUBLE 1/2" STRANDS LIFTING LOOPS	4				



1-18-10 REVISED AS PER ENGINEER COMMENTS 12/24/2009 T D  
 APPROVAL STAMP:  
 STATE OF VERMONT  
 AGENCY OF TRANSPORTATION  
 RECEIVED 01/27/2010  
 FOR WDL LFB GS  
 ACTION APPROVED  
 BY CWC DATE 01/27/2010

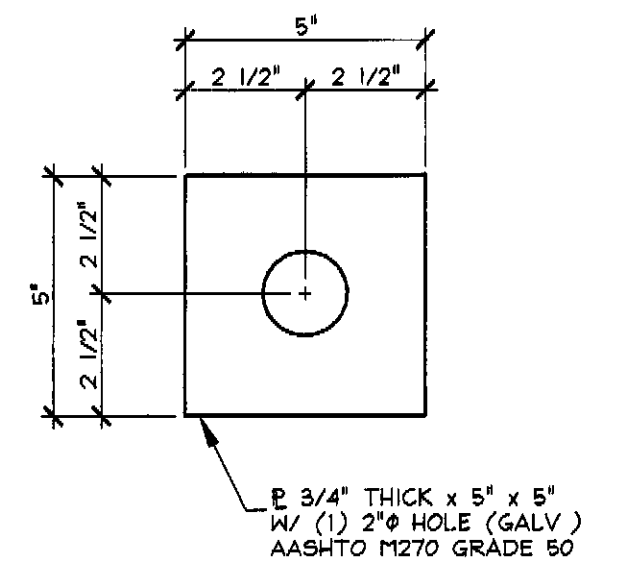
J.P. CARRARA & SONS INC.  
 Precast & Prestress Manufacturer  
 244 CASE STR. MIDDLEBURY, VERMONT 05753 Phone (802)388-8581 Fax (802)388-9010  
 BLOW & COTE, INC.  
 CONTRACTOR  
 MORRISVILLE, VERMONT  
 STATE OF VERMONT A.O.T.  
 COUNTY OF FRANKLIN  
 TOWN OF FAIRFAX  
 VERMONT ROUTE 104  
 BRIDGE NO. 10 PROJECT NO BHF 023-1(5)  
 DATE NOV 12, 2009  
 SCALE NOTED  
 CHKD. DFTM T D  
 JOB NO: 23304-09  
 DWG NO S5

**BENT BARS, TIES, & STIRRUPS**

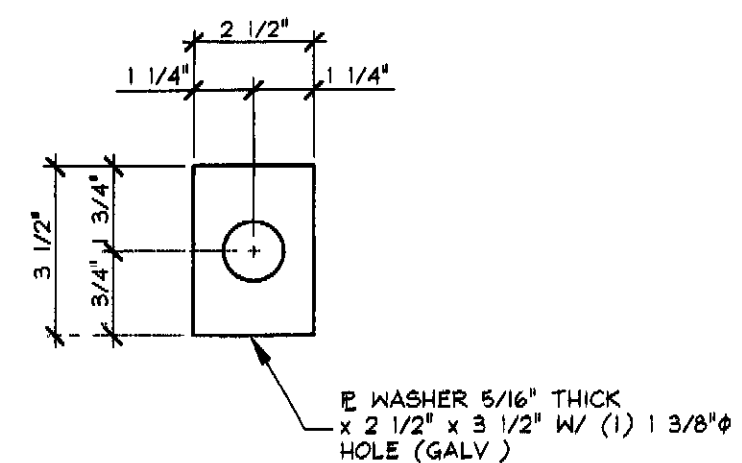
ITEM	MARK	QTY	SIZE	LENGTH	TYPE	A	B	C	D	E	F/R	G	H	J	K	O	GRADE	REMARKS
1	FS401E	720	#4	5'-10 3/4"	S10		1'-2 1/2"	3'-7 3/4"	1'-2 1/2"								60	EPOXY COATED
2	FS403E	64	#4	3'-11 1/4"	S10		1'-6"	1'-1 1/4"	1'-6"								60	EPOXY COATED
3	FS405E	32	#4	4'-0 1/4"	S10		1'-6"	1'-2 1/4"	1'-6"								60	EPOXY COATED
4	FS407E	32	#4	4'-0 1/2"	S10		1'-6"	1'-2 1/2"	1'-6"								60	EPOXY COATED
5	FS408E	16	#4	4'-1 1/2"	S10		1'-6"	1'-3 1/2"	1'-6"								60	EPOXY COATED
6																		
7																		
8																		
9	FS501E	64	#5	7'-3 1/2"	S10		1'-11"	3'-7 3/4"	1'-11"								60	EPOXY COATED
10	FS502E	64	#5	4'-8 1/4"	T15		1'-11"	10 1/4"	9 3/4"	6"	10 1/4"		3"		5"		60	EPOXY COATED
11																		
12																		
13																		
14		54	#4	3'-8"	STR												60	EPOXY COATED
15																		
16																		
17																		
18																		
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**MISCELLANEOUS MATERIALS**

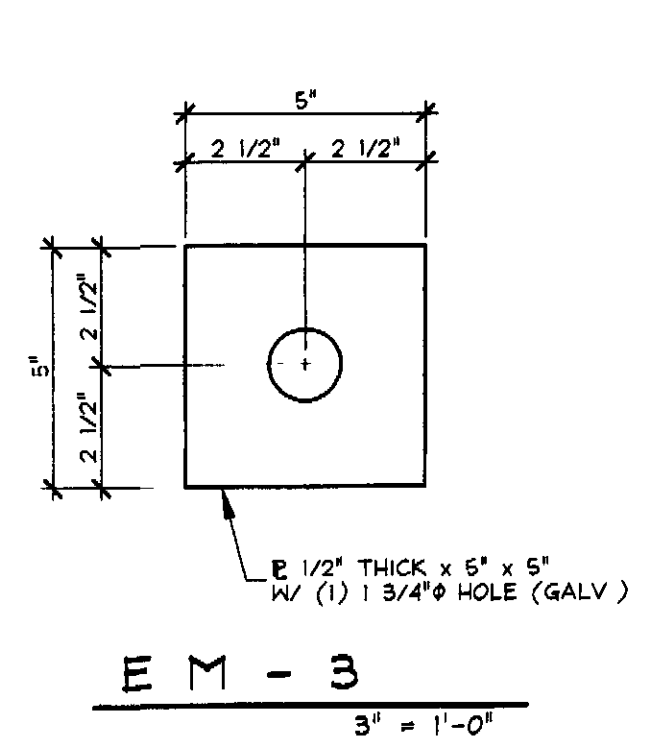
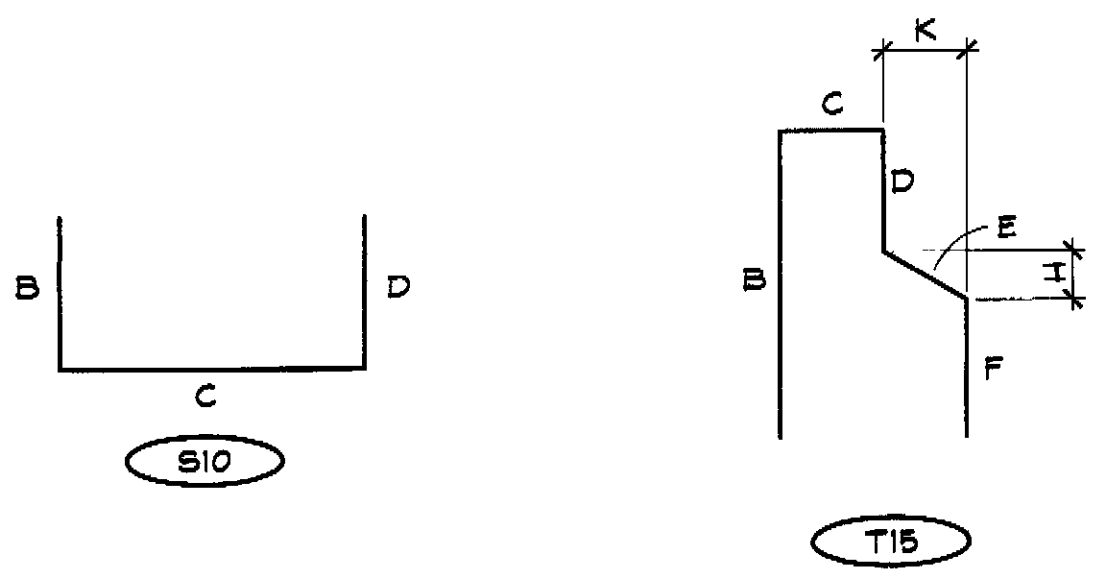
ITEM	MARK	QTY	DESCRIPTION	REMARKS
1	EM-1	6	E 3/4" x 5" x 5" W/ (1) 2" HOLE (GALV)	FOR ERECTION, SEE DETAIL THIS SHEET
2	EM-3	18	E 1/2" x 5" x 5" W/ (1) 1 3/4" HOLE (GALV)	FOR ERECTION, SEE DETAIL THIS SHEET
3		18	1 1/2" x 3'-10 1/2" ANCHOR BOLT (GALV) W/ HEAVY NUT (GALV)	FOR ERECTION, SEE DETAIL THIS SHEET
4		6	SINGLE USE STRESSING CHUCK	FOR ERECTION
5		3	1/2" x 38'-9" POLYSTRAND	FOR ERECTION
6	EM-2	36	2" THICK x 6" x 8" ELASTOMERIC BRG PAD (60D)	FOR ERECTION, SEE DETAIL THIS SHEET
7		48	E 5/16" x 2 1/2" x 3 1/2" W/ (1) 1 3/8" HOLE (GALV)	FOR ERECTION, SEE DETAIL THIS SHEET
8		48	1 1/4" x 12" MACHINE BOLT W/ 3" THRD (GALV)	24 FOR C I P SIDEWALK
9		48	1 1/4" x 5" SLEEVE NUT W/ RIGHT HAND THRD (GALV)	24 FOR C I P SIDEWALK
10		16	DAYTON C-24 TYPE 4-APR PRESS STEEL P/C HALF HANGER (GALV)	
11				
12		56	3/4" x 4" NON-FERROUS VD DRAINS	
13		8	3/4" x 5" NON-FERROUS VD DRAINS	
14		24	3/4" x 4 1/2" NON-FERROUS VD DRAINS	
15		12	3/4" x 5 1/2" NON-FERROUS VD DRAINS	
16				
17		16	WIRE MESH WWF-W4 x W4 -W2 9 x W2 9 (1'-3" x 3'-8") (E C)	
18		8	WIRE MESH WWF-W4 x W4 -W2 9 x W2 9 (1'-4" x 3'-8") (E C)	
19		8	WIRE MESH WWF-W4 x W4 -W2 9 x W2 9 (1'-5" x 3'-8") (E C)	
20		4	WIRE MESH WWF-W4 x W4 -W2 9 x W2 9 (1'-6" x 3'-8") (E C)	
21				
22				
23				
24		36	DOUBLE 1/2" STRAND LIFTING LOOPS	
25				
26				
27				
28				
29				
30				



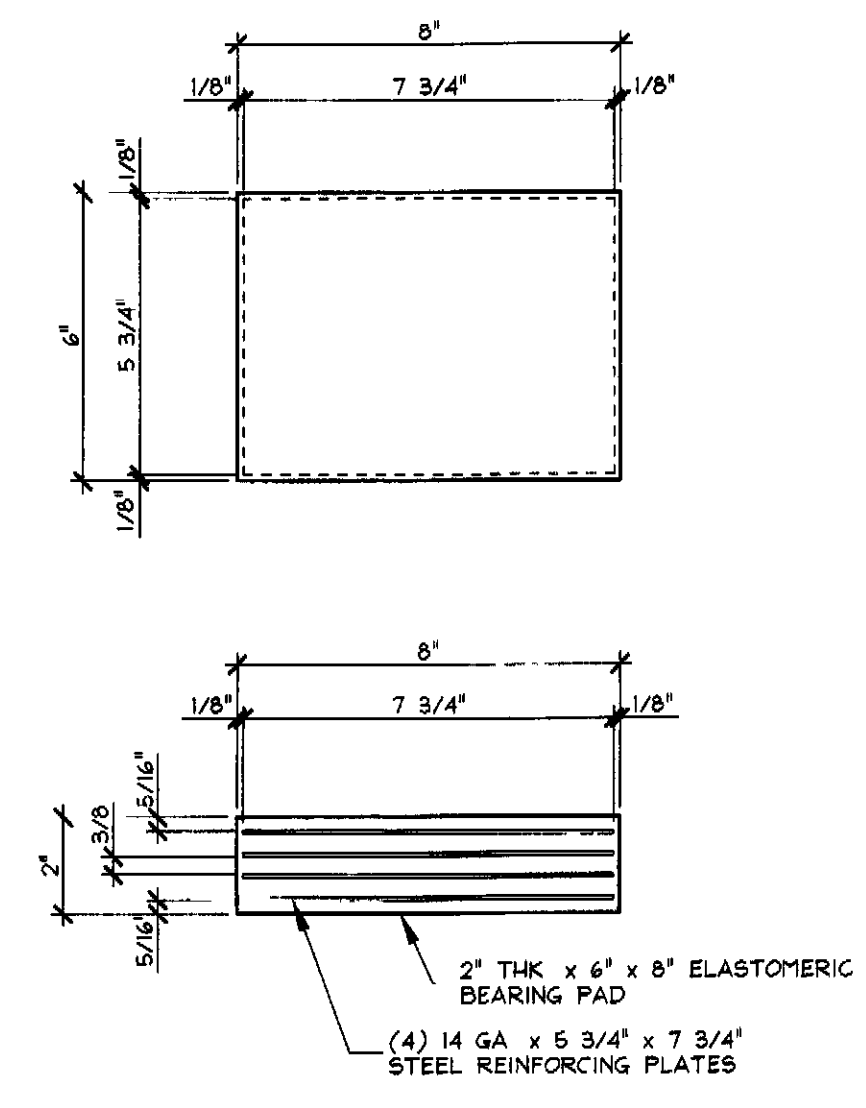
**EM - 1**  
3" = 1'-0"



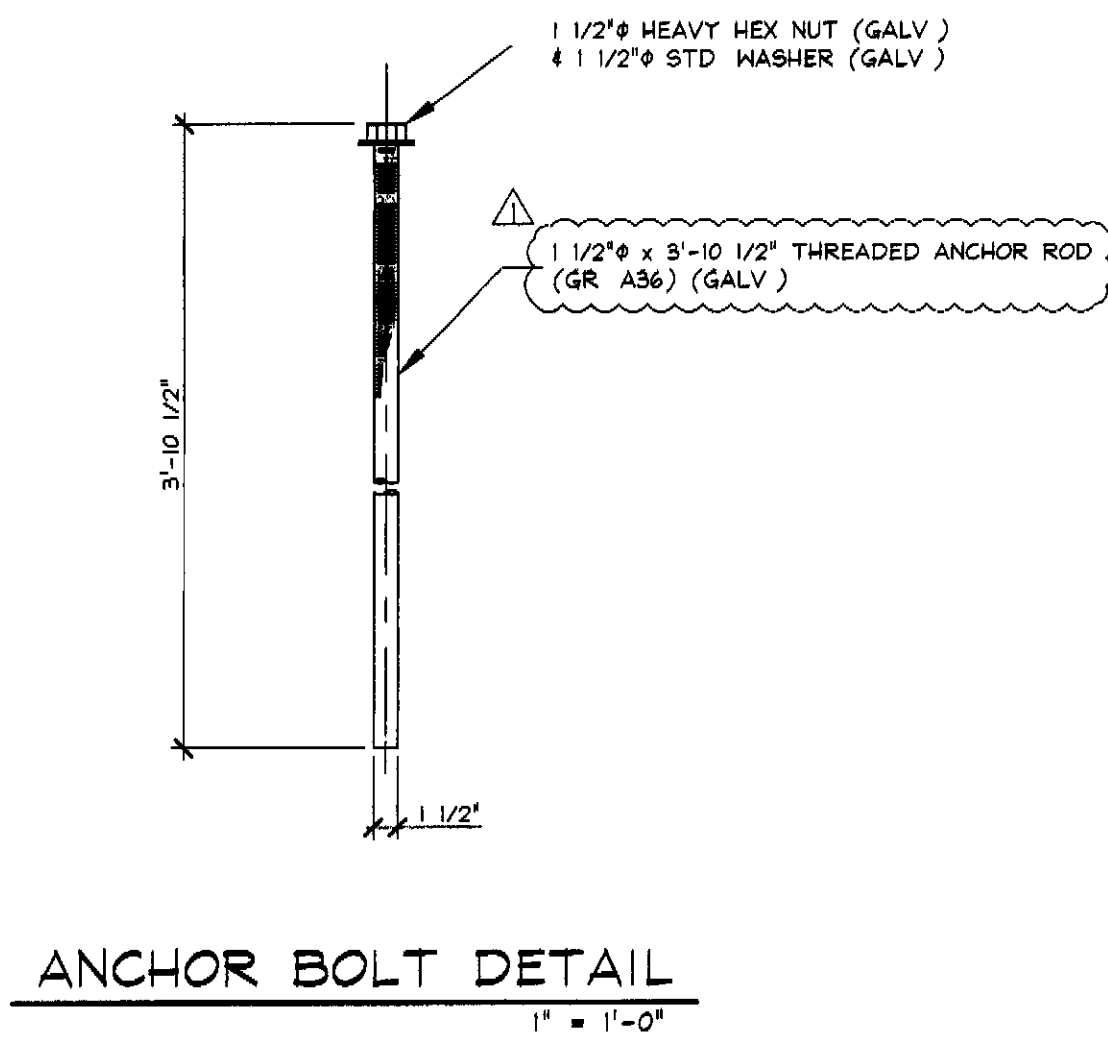
**E WASHER**  
3" = 1'-0"



**EM - 3**  
3" = 1'-0"



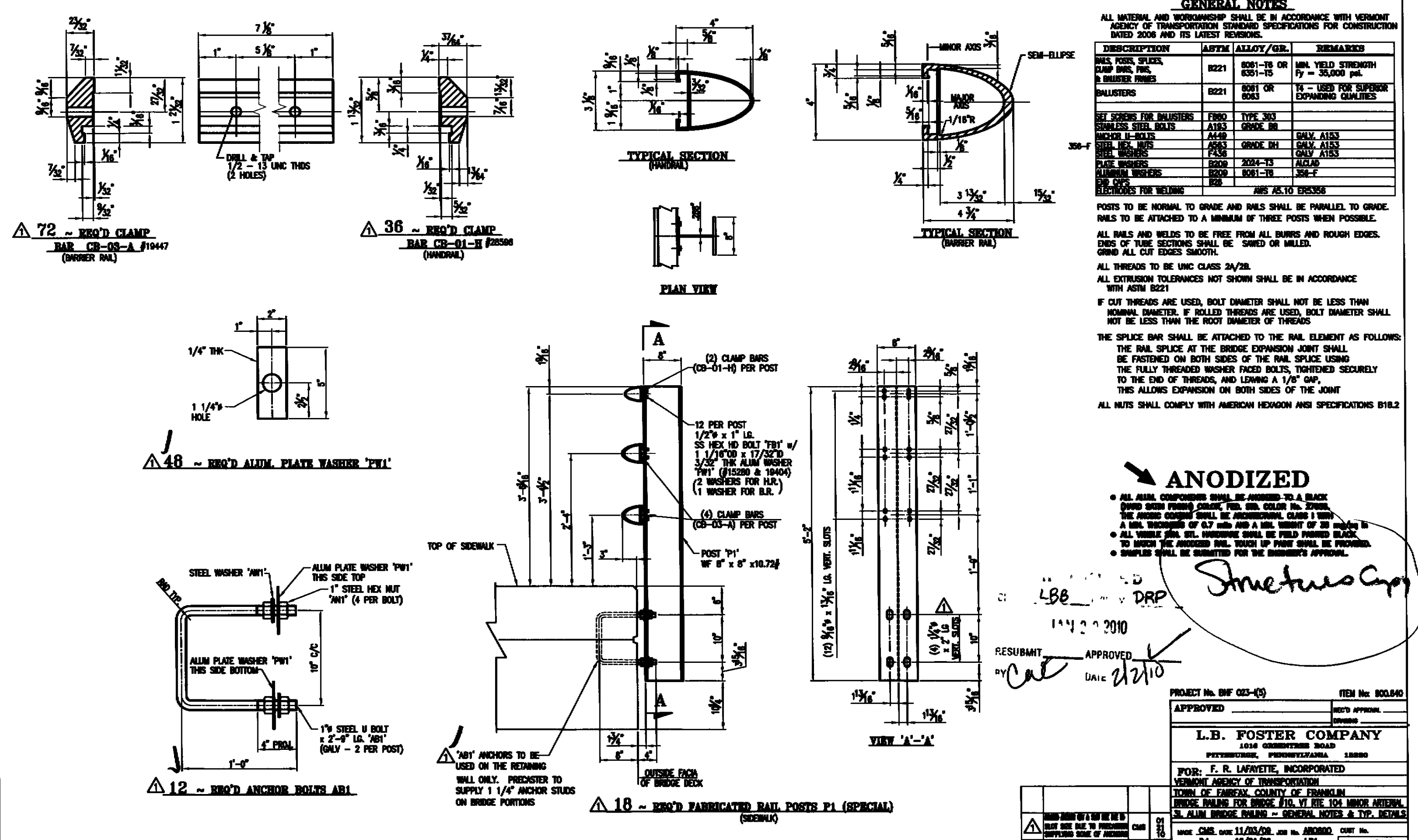
**EM-2 - BEARING PAD DETAIL**  
3" = 1'-0"



**ANCHOR BOLT DETAIL**  
1" = 1'-0"

1-18-10 REVISED AS PER ENGINEER COMMENTS 12/29/2009 T D

<p>APPROVAL STAMP</p> <p>STATE OF VERMONT AGENCY OF TRANSPORTATION</p> <p>RECEIVED 01/27/2010</p> <p>CK BY WDL UN D GS</p> <p>AC (H) APPROVED</p> <p>BY CWC DATE 01/27/2010</p>	<p>J.P. CARRARA &amp; SONS INC. Precast &amp; Prestress Manufacturer 2464 GISE STR. WOODSBURY, VERMONT 05753 Phone (802)388-6361 Fax (802)388-0010</p>	<p>BLOW &amp; COTE, INC. CONTRACTOR MORRISVILLE, VERMONT</p>
	<p>STATE OF VERMONT A.O.T. COUNTY OF FRANKLIN</p>	<p>DATE NOV 12, 2009</p> <p>SCALE NOTED</p>
	<p>TOWN OF FAIRFAX VERMONT ROUTE 104</p>	<p>CHKD DFTM T D</p>
	<p>BRIDGE NO 10 PROJECT NO BHF 023-1(5)</p>	<p>JOB NO 23304-09</p>
<p><b>MATERIALS LIST</b></p>		<p>DWG NO M1</p>



**GENERAL NOTES**

ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2008 AND ITS LATEST REVISIONS.

DESCRIPTION	ASTM ALLOY/GR.	REMARKS
RAIL POSTS STEEL	A572	50-60
CLAMP BARS	A572	50-60
BALLASTERS	A572	50-60
WASHERS FOR BALLASTERS	A193	TYPE 304
STAINLESS STEEL BOLTS	A193	GRADE B8
WASHERS FOR BOLTS	A193	GRADE B8
STEEL BOLTS	A307	GRADE B8
STEEL WASHERS	A307	GRADE B8
ALUMINUM WASHERS	A307	GRADE B8
ALUMINUM BOLTS	A307	GRADE B8
WELDS	A572	50-60

POSTS TO BE NORMAL TO GRADE AND RAILS SHALL BE PARALLEL TO GRADE. RAILS TO BE ATTACHED TO A MINIMUM OF THREE POSTS WHEN POSSIBLE.

ALL WELDS AND WELDS TO BE FREE FROM ALL BURRS AND ROUGH EDGES. ENDS OF TUBES SHALL BE CHISEL OR MILLER.

CHISEL ALL CUT EDGES SMOOTH.

ALL DIMENSIONS TO BE UNLESS OTHERWISE SPECIFIED.

ALL EXTENSION TOLERANCES NOT SHOWN SHALL BE IN ACCORDANCE WITH ASTM B221.

IF CUT THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN NOMINAL DIAMETER. IF BOLTED THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN THE ROOT DIAMETER OF THREADS.

THE SPURSE BAR SHALL BE ATTACHED TO THE RAIL ELEMENT AS FOLLOWS:

THE RAIL SPURSE AT THE BRIDGE EXPANSION JOINT SHALL BE FASTENED ON BOTH SIDES OF THE RAIL SPURSE USING THE FULLY THREADED WASHER FACED BOLTS, TIGHTENED SECURELY TO THE END OF TUBES, AND LEAVING A 1/8" GAP.

THIS ALLOWS EXPANSION ON BOTH SIDES OF THE JOINT.

ALL NUTS SHALL COMPLY WITH AMERICAN HEDGON AND SPECIFICATIONS B18.2.

**ANODIZED**

- ALL STEEL COMPONENTS SHALL BE ANODIZED TO A BLACK FINISH (SEE FINISH SPECIFICATION FOR STEEL). ALL STEEL SHALL BE ANODIZED TO A BLACK FINISH (SEE FINISH SPECIFICATION FOR STEEL).
- A MIN. THICKNESS OF 0.1 MILS AND A MIN. WEIGHT OF 25 MG/IN<sup>2</sup> SHALL BE MAINTAINED.
- ALL WELDS AND CUT EDGES SHALL BE FIELD FINISHED BLACK.
- TO AVOID THE ANODIZED SURFACE FROM BEING DAMAGED BY HANDLING, SURFACES SHALL BE PROTECTED BY THE CONTRACTOR'S APPROVAL.

*Structural Corp*

PROJECT NO. 023-03 ITEM NO. 00040

APPROVED: [Signature] DATE: 11/10/09

RESUBMIT BY: [Signature] DATE: 11/10/09

PROJECT NO. 023-03 ITEM NO. 00040

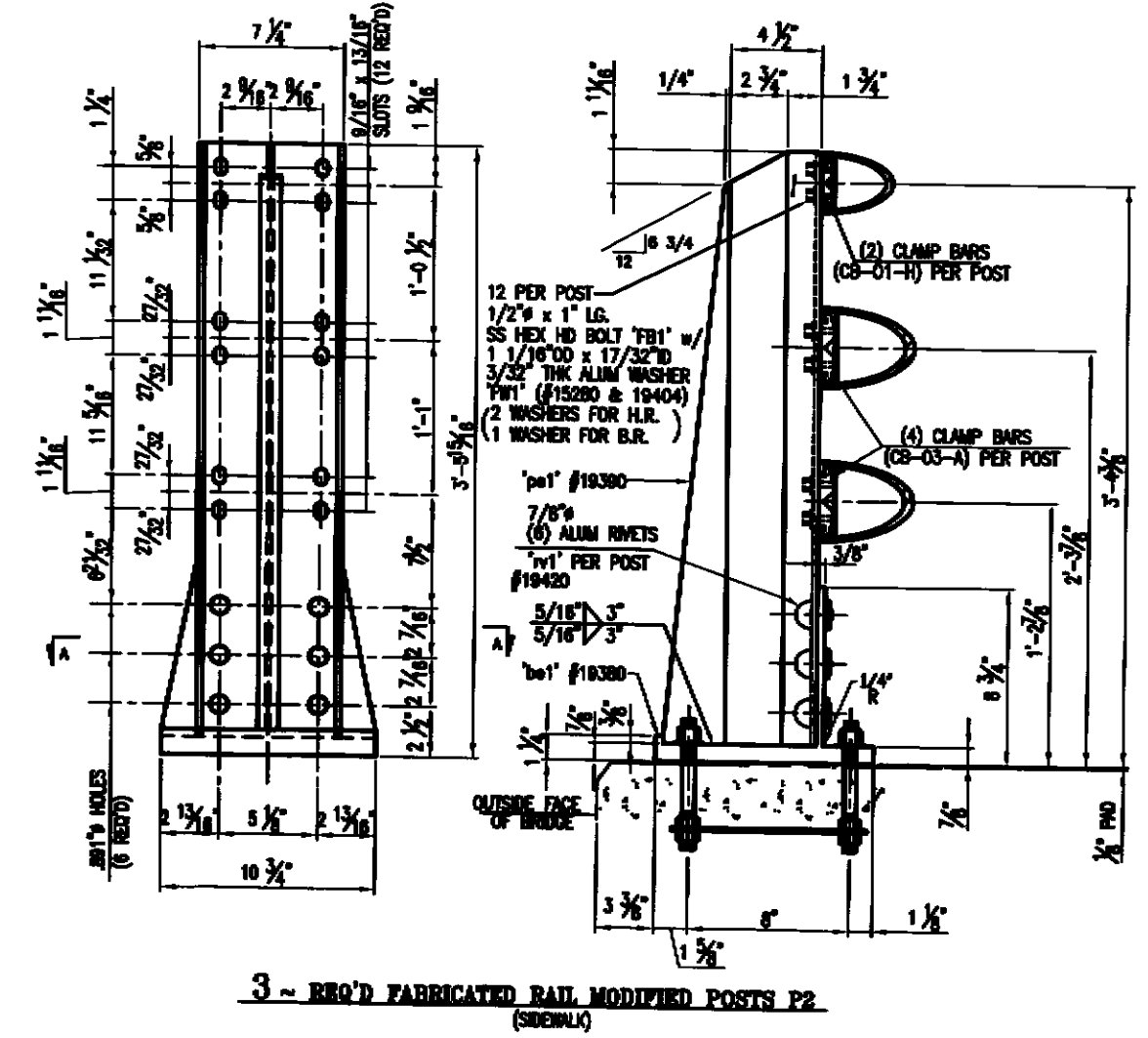
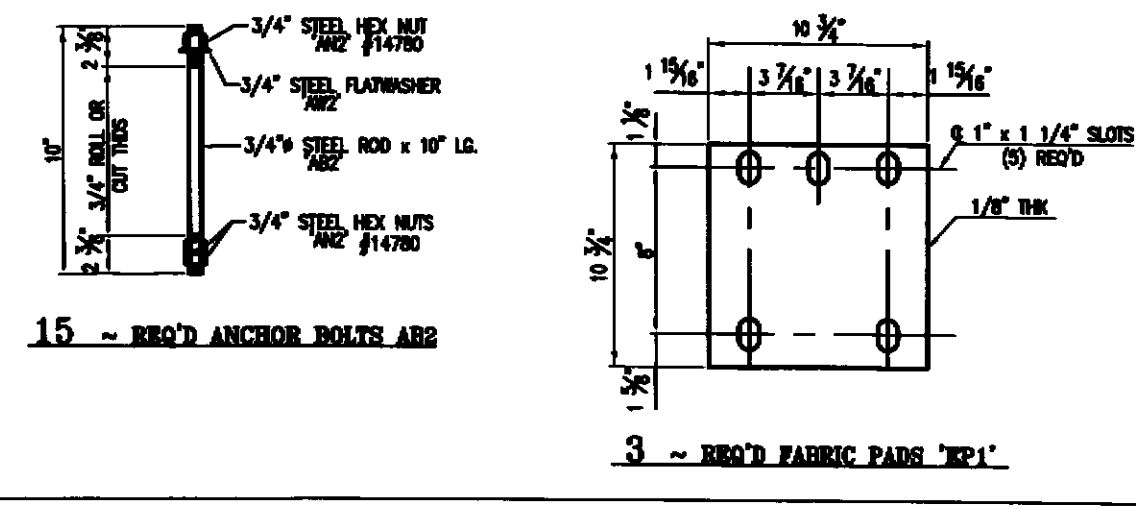
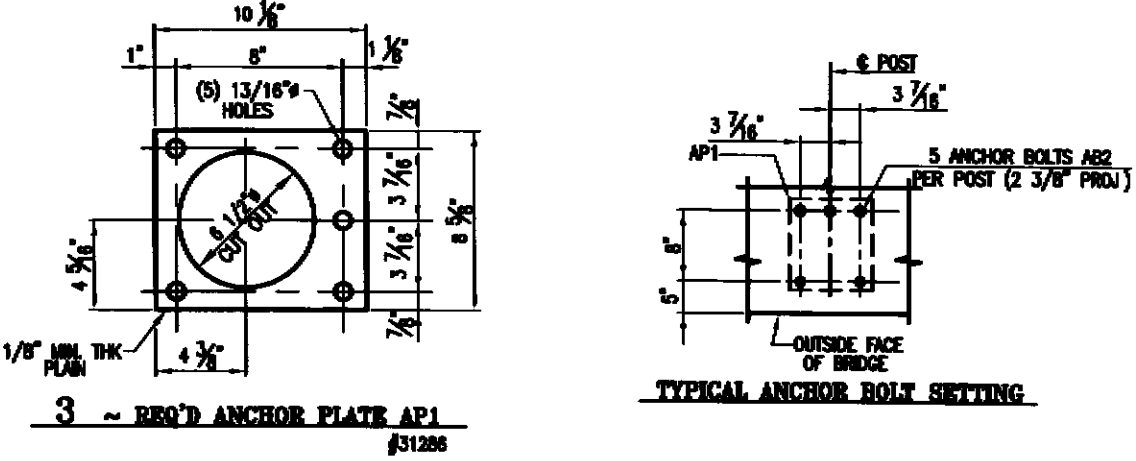
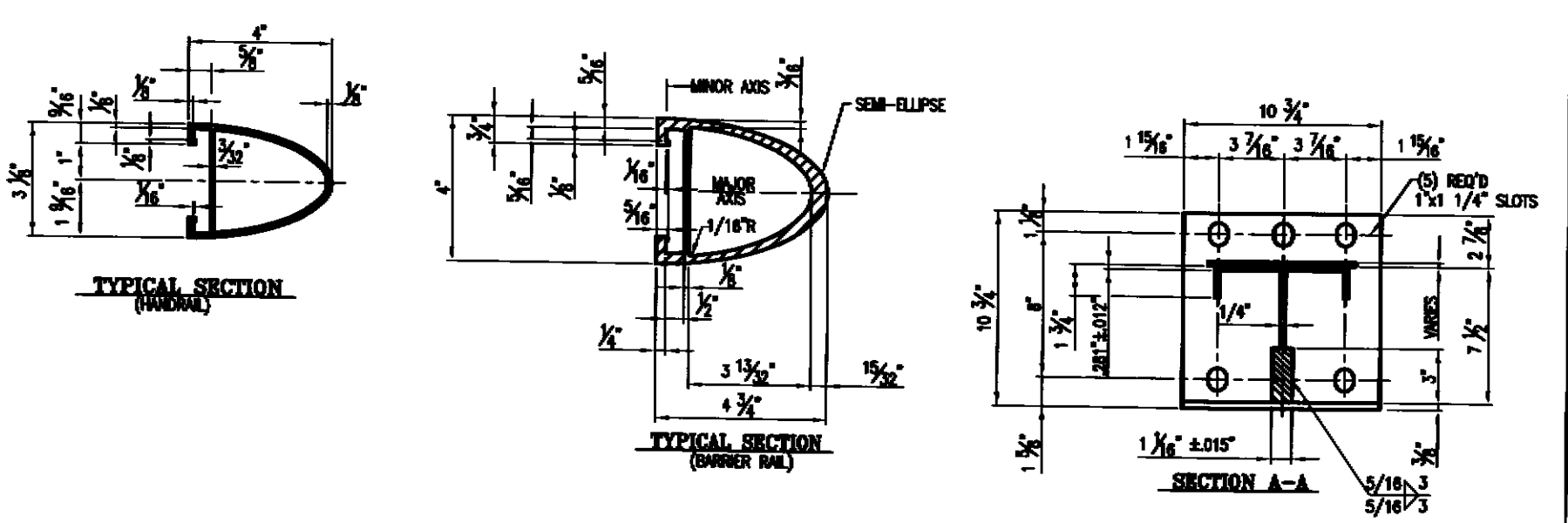
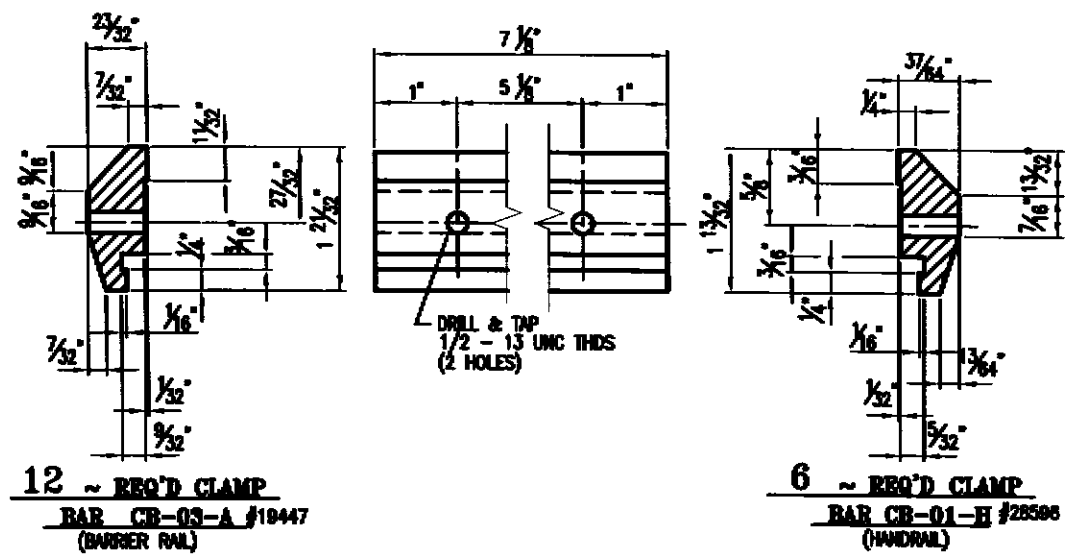
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RESUBMIT BY: [Signature] DATE: 11/10/09

PROJECT NO. 023-03 ITEM NO. 00040

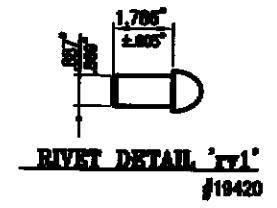
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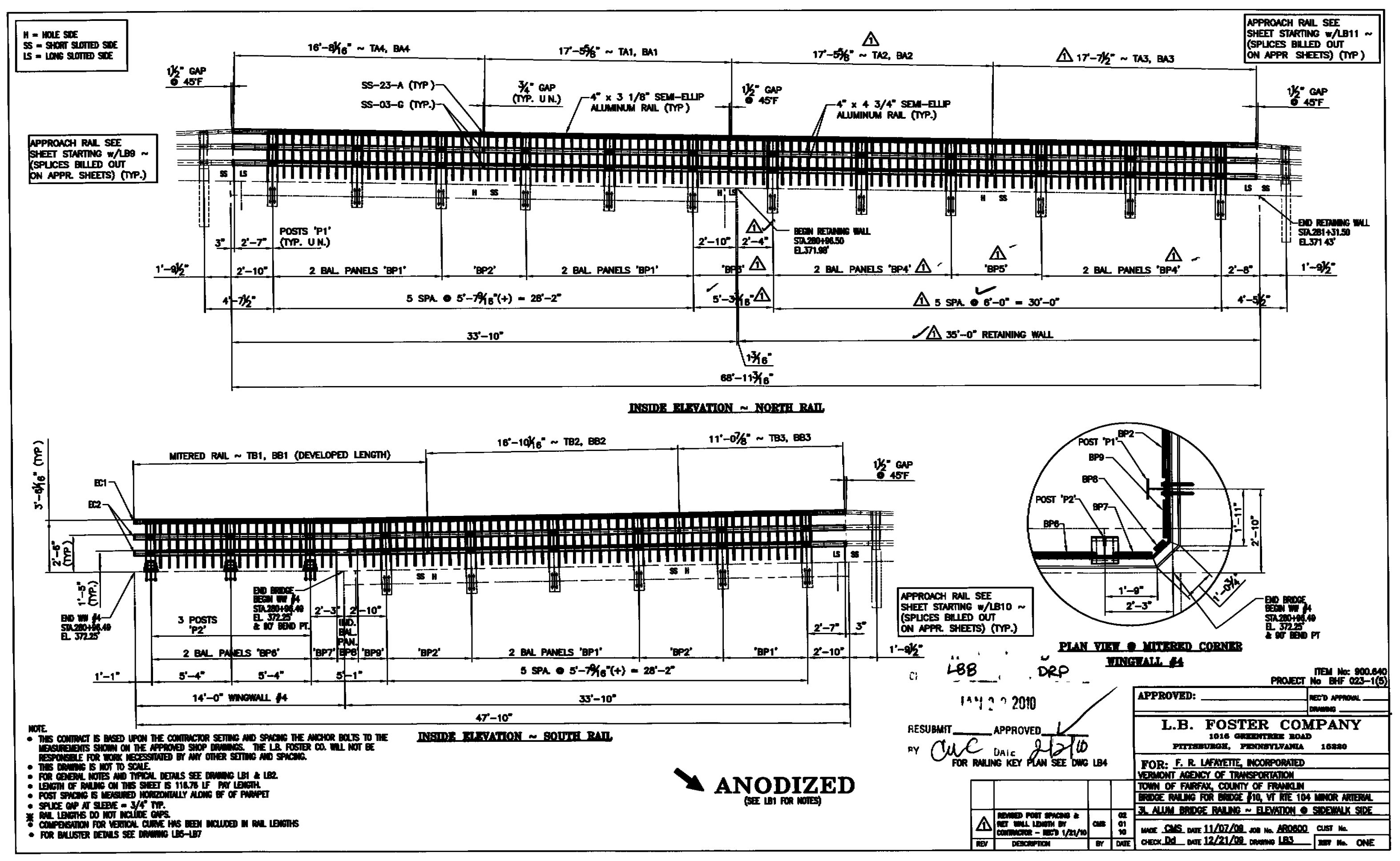


BY LBG  
DATE 2/2/2010  
RESUBMIT APPROVED  
BY CUL DATE 2/11/10

**ANODIZED**  
SEE LIST FOR SPEC.



PROJECT No. BY 023-1 (3)	ITEM No. 002040
APPROVED:	DATE APPROVED:
<b>L.B. POSTER COMPANY</b>	
1918 CONVENT ROAD PETERSBURGH, VIRGINIA 23104	
FOR: F. B. LAFAYETTE, INCORPORATED	
VERMONT AGENCY OF TRANSPORTATION	
TOWN OF FERRIS, COUNTY OF FERRIS	
BRIDGE BIDDING FOR BRIDGE #33 V. 17.014 UNDER ARTERIAL	
33 ALLEN BRIDGE RAILROAD - POST # 10447	
DATE CANCELLED: 11/23/09	JOB No. 000000
DATE: 12/29/09	ISSUE No. 104



H = HOLE SIDE  
 SS = SHORT SLOTTED SIDE  
 LS = LONG SLOTTED SIDE

APPROACH RAIL SEE SHEET STARTING w/LB10 ~ (SPICES BILLED OUT ON APPR. SHEETS) (TYP.)

APPROACH RAIL SEE SHEET STARTING w/LB11 ~ (SPICES BILLED OUT ON APPR. SHEETS) (TYP.)

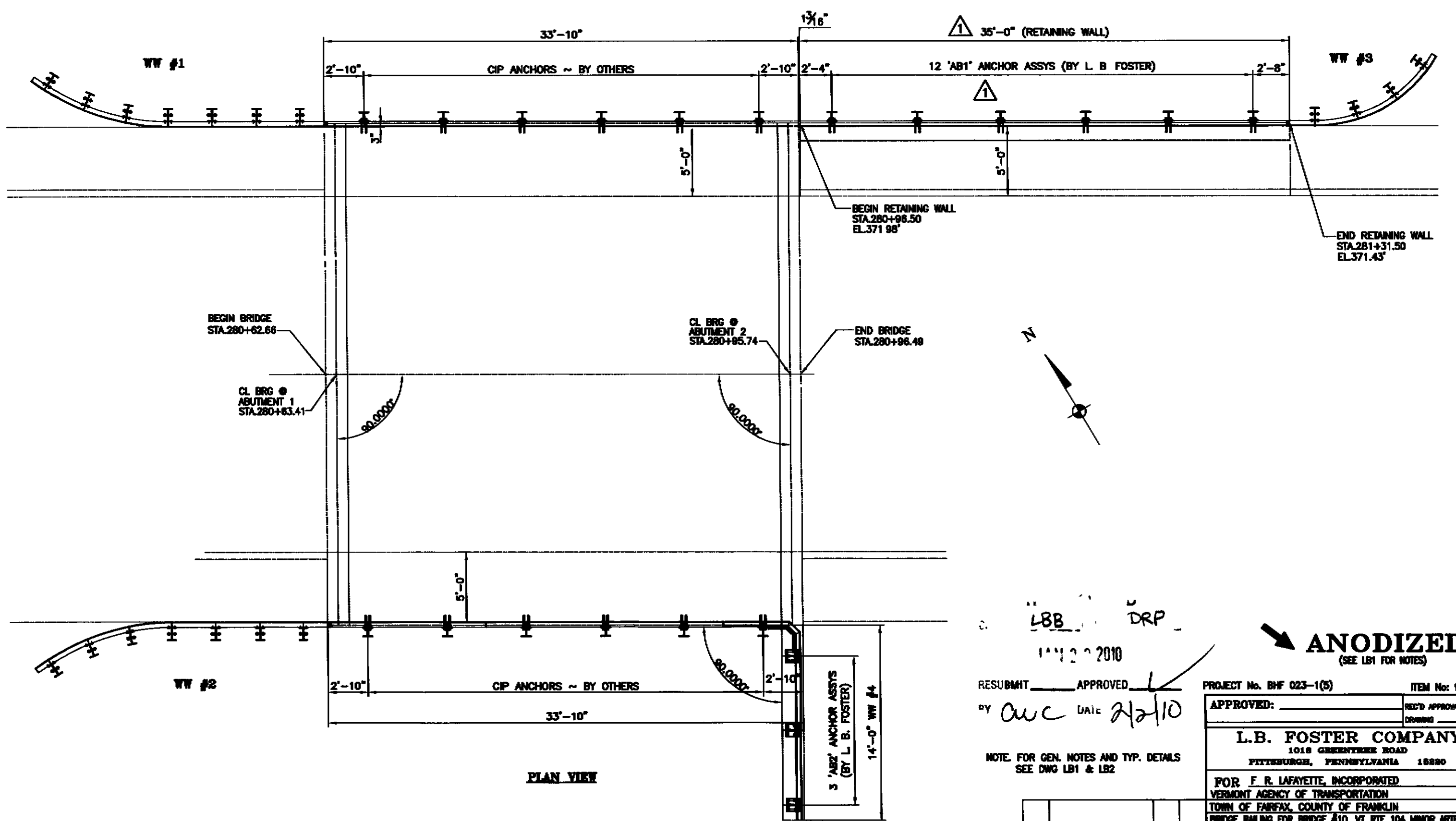
APPROACH RAIL SEE SHEET STARTING w/LB10 ~ (SPICES BILLED OUT ON APPR. SHEETS) (TYP.)

APPROACH RAIL SEE SHEET STARTING w/LB11 ~ (SPICES BILLED OUT ON APPR. SHEETS) (TYP.)

- NOTE:**
- THIS CONTRACT IS BASED UPON THE CONTRACT SETTING AND SPACING THE ANCHOR BOLTS TO THE MEASUREMENTS SHOWN ON THE APPROVED SHOP DRAWINGS. THE L.B. FOSTER CO. WILL NOT BE RESPONSIBLE FOR WORK MISCONDUCTED BY ANY OTHER SETTING AND SPACING.
  - THIS DRAWING IS NOT TO SCALE.
  - FOR GENERAL NOTES AND TYPICAL DETAILS SEE DRAWING L14 & L15.
  - LENGTH OF RAILING ON THIS SHEET IS 114.76 LF FROM LEMMA.
  - POST SPACING IS MEASURED NON-DIRECTIONALLY ALONG OF OF PANNET.
  - SLOPE GAP AT SLOPE = 3/4" TYP.
  - RAIL LENGTHS DO NOT INCLUDE GAPS.
  - COMPENSATION FOR MATERIAL GAIN HAS BEEN INCLUDED IN RAIL LENGTHS.
  - FOR BALLAST DETAILS SEE DRAWING L16-L17.

**ANODIZED**  
 (SEE LIST FOR NOTES)

APPROVED: \_\_\_\_\_  
 DATE: 11/21/08  
 FOR: F. H. LAFRETTE, INCORPORATED  
 PENNSYLVANIA 15000  
 TOWN OF FARRAN, COUNTY OF FRANKLIN  
 BRIDGE RAILING FOR BRIDGE #10, VI THE 104 MINOR ARTERIAL



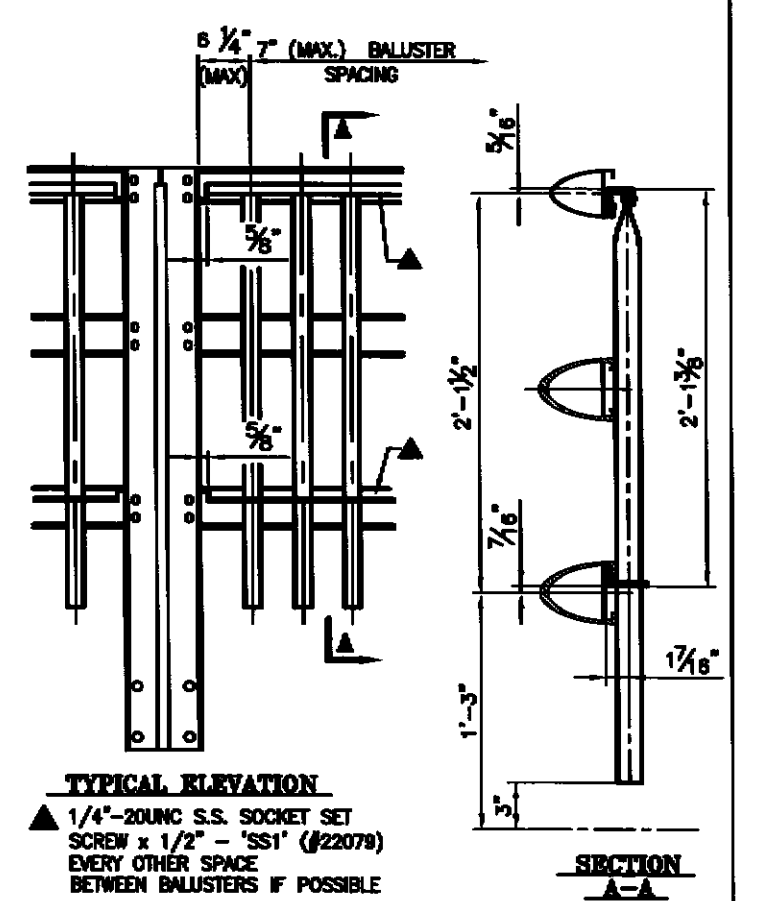
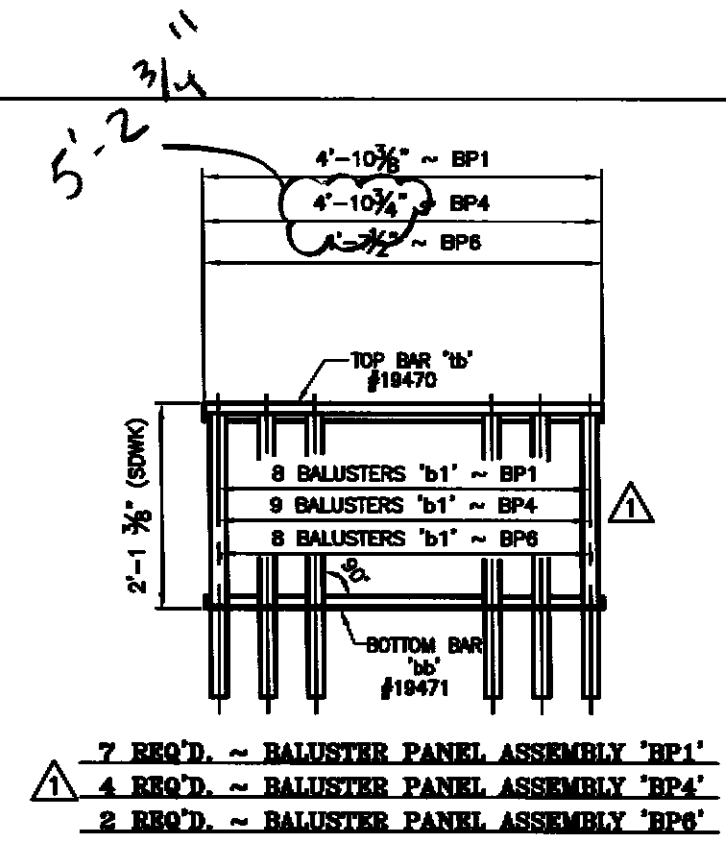
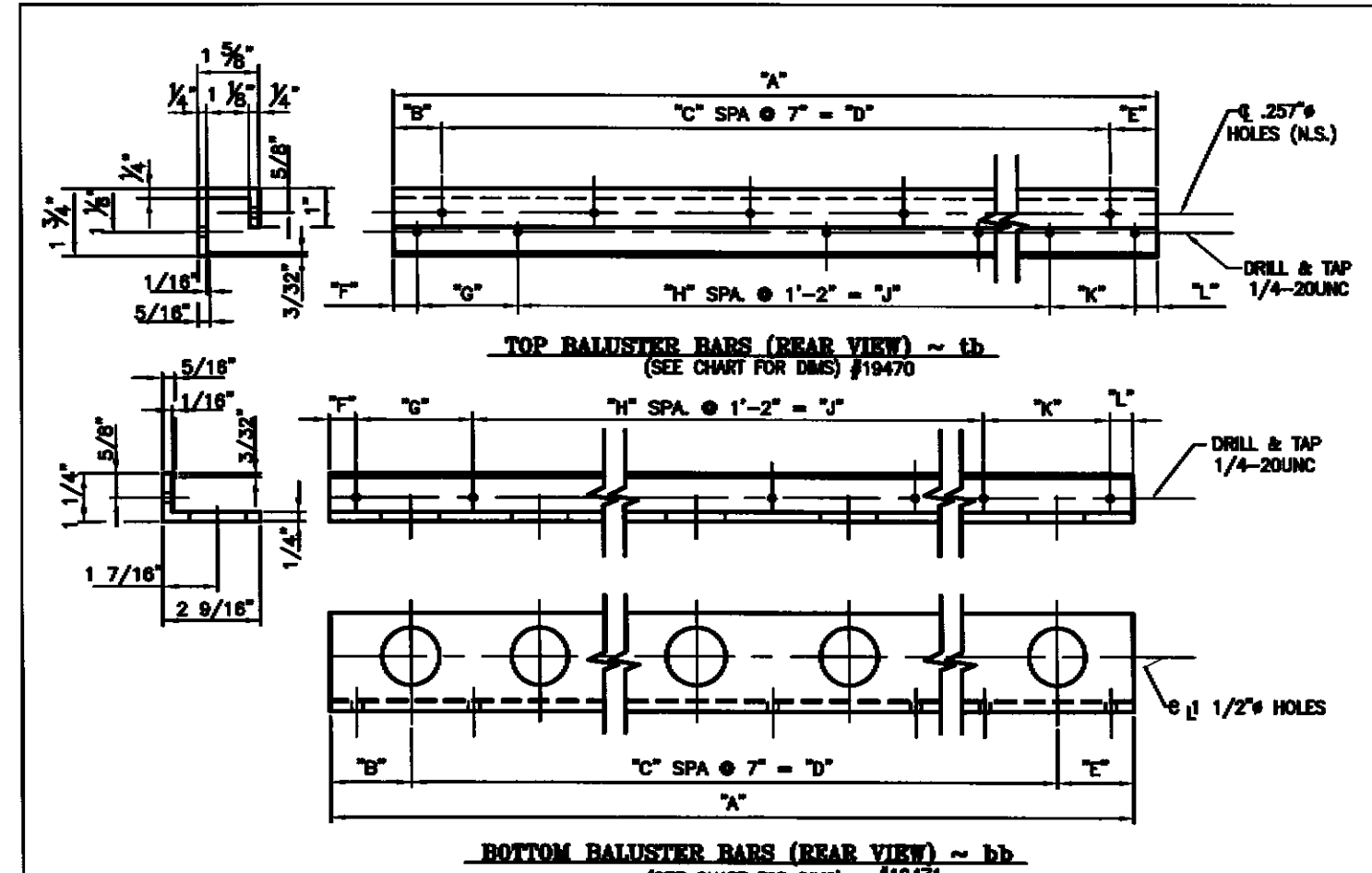
LBB  
DRP  
11/20/10  
APPROVED  
DATE 11/20/10  
BY *ouc*

**ANODIZED**  
(SEE LIST FOR NOTES)

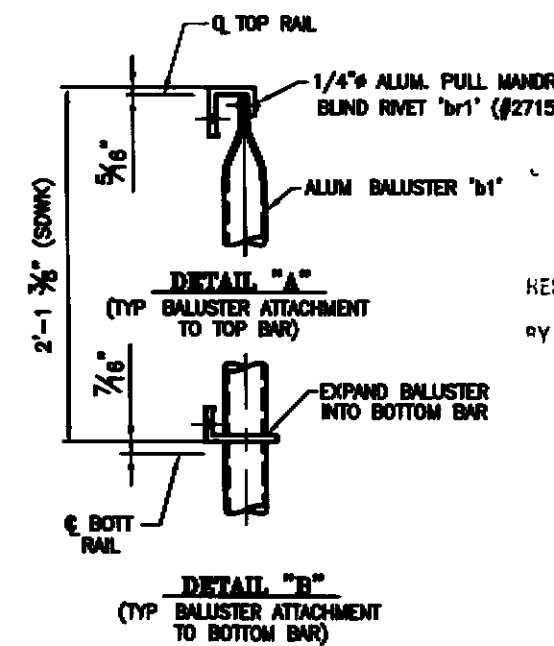
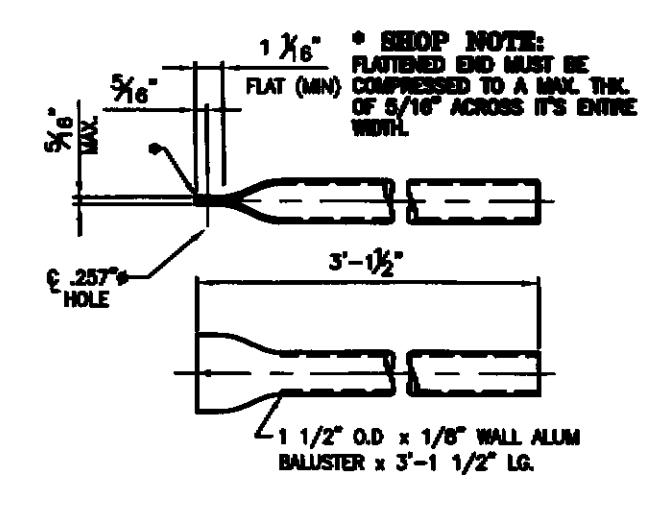
NOTE: FOR GEN. NOTES AND TYP. DETAILS SEE DWG L81 & L82

PROJECT No. BWF 023-1(0)	ITEM No. 000.040
APPROVED:	DATE:
<b>L.B. FOSTER COMPANY</b>	
5018 GREENWICH ROAD PITTSBURGH, PENNSYLVANIA 15280	
FOR: F. R. LAFAYETTE, INCORPORATED VERMONT AGENCY OF TRANSPORTATION TOWN OF FARRIS, COUNTY OF FRANKLIN BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL	
36 ALUM BRIDGE RAILING -- KEY PLAN	
DATE: 01/11/02	CURT IN.
CHECK: 01/11/02	DATE: 12/21/09
REV: 01	BY: ONE

REV	DESCRIPTION	BY	DATE
1	REVISION POST SPACING & RAIL WALL LENGTH BY CHS	DRP	11/20/10
2	CHANGES - REV 1/21/10	DRP	1/21/10



MARK	QTY	A"	B"	C"	D"	E"	F"	G"	H"	I"	J"	K"	L"	PANEL ASSY
BP1	7	4'-10 3/8"	4 11/16"	7	4'-1"	4 11/16"	2"	1'-1 3/16"	2	2'-4"	1'-1 3/16"	2"		BP1
BP4	4	5'-2 3/4"	3 3/8"	8	4'-8"	3 3/8"	1"	5 7/8"	3	3'-6"	1'-0 7/8"	1"		BP4
BP6	2	4'-7 1/2"	3 1/4"	7	4'-1"	3 1/4"	1"	1'-0 3/4"	2	2'-4"	1'-0 3/4"	1"		BP6



**ANODIZED**  
(SEE L&I FOR NOTES)

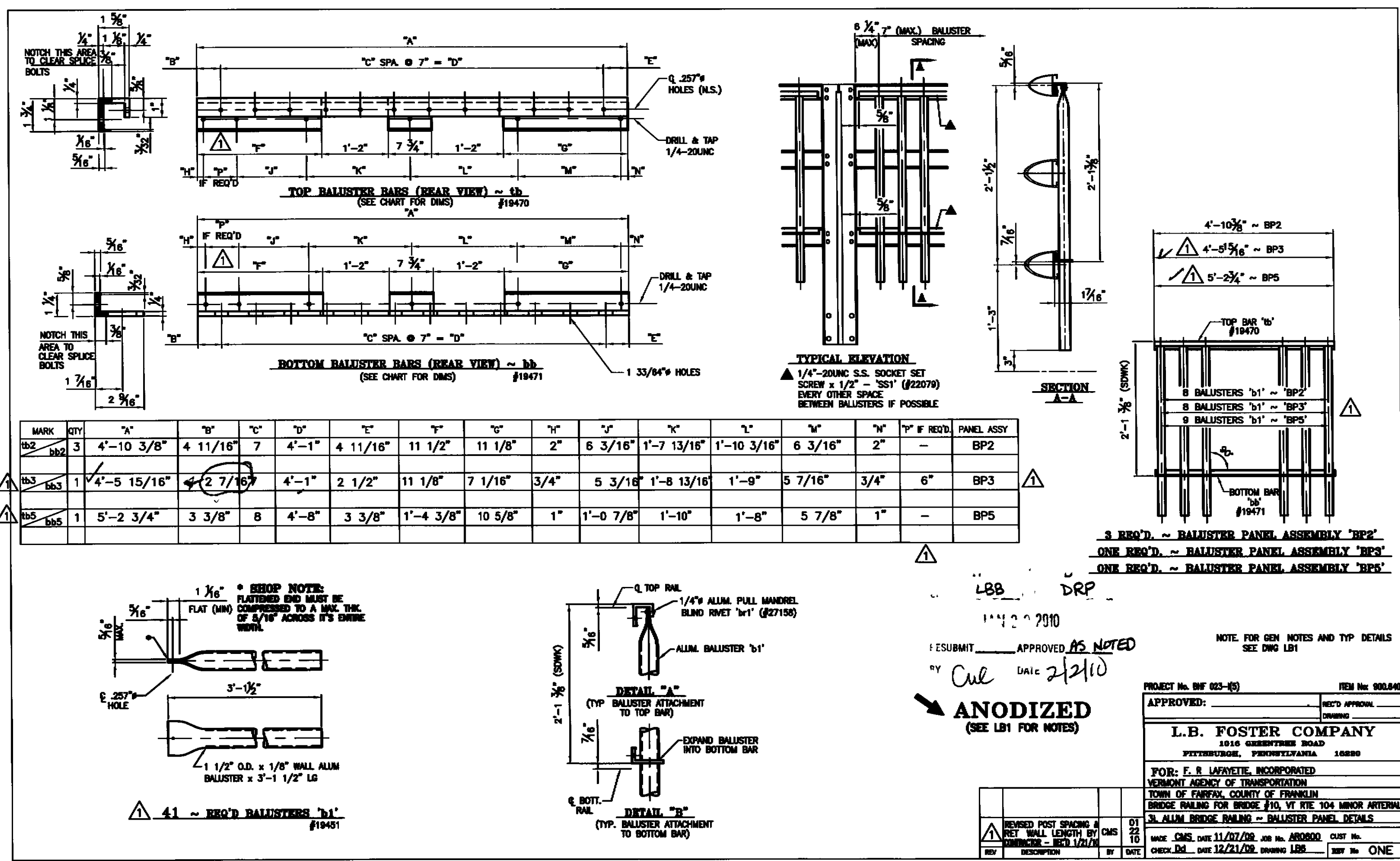
PROJECT No. BHF 023-(5) ITEM No. 900.640

APPROVED: [Signature] DATE: 12/10

FOR: F. R. LAFAYETTE, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FERRIS, COUNTY OF FRANKLIN  
BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL

DATE: 11/08/09 JOB No. A08000 CURT No. [Blank]  
CHECKED: 12/21/09 DRAWING L&I SHEET No. ONE

108 - REQ'D BALUSTERS 'b1' #19451



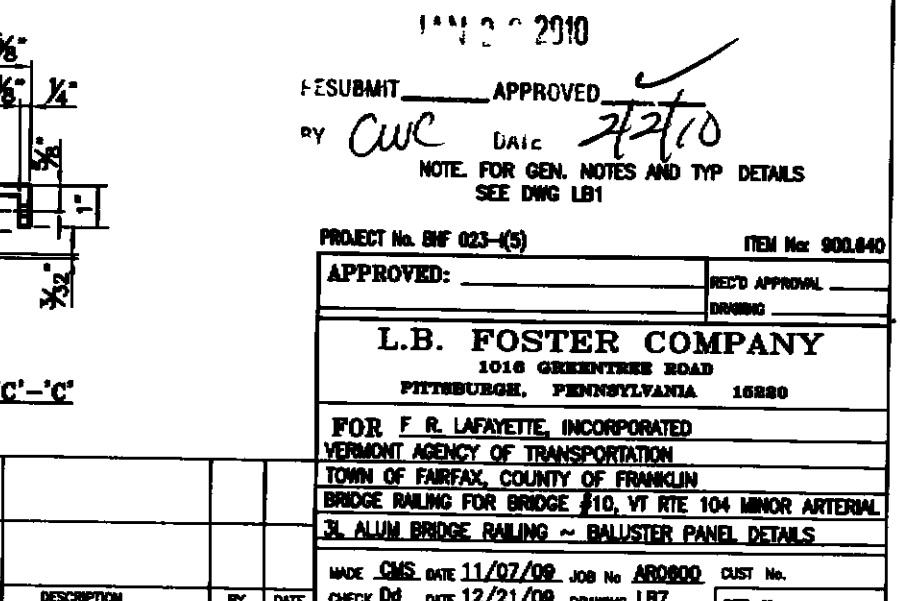
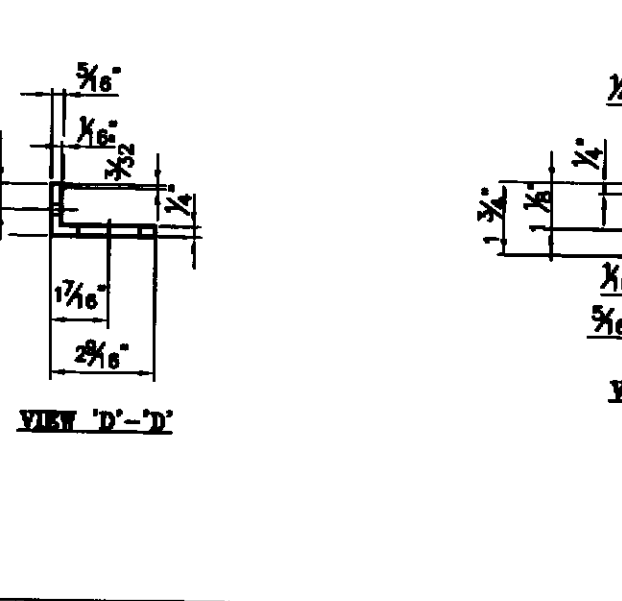
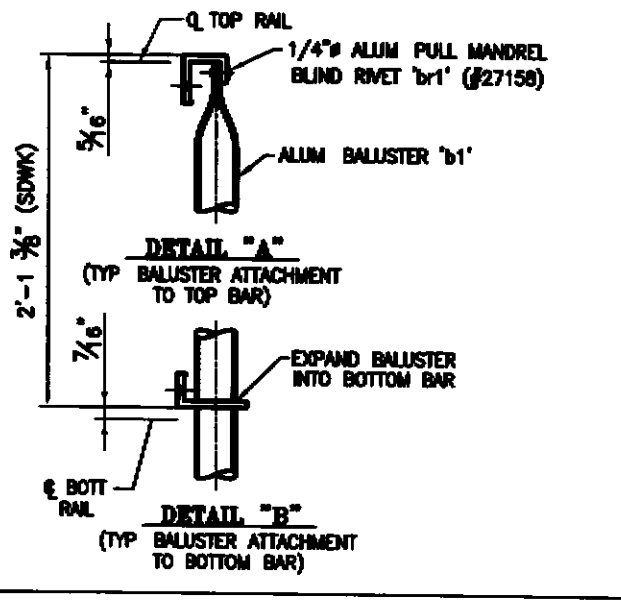
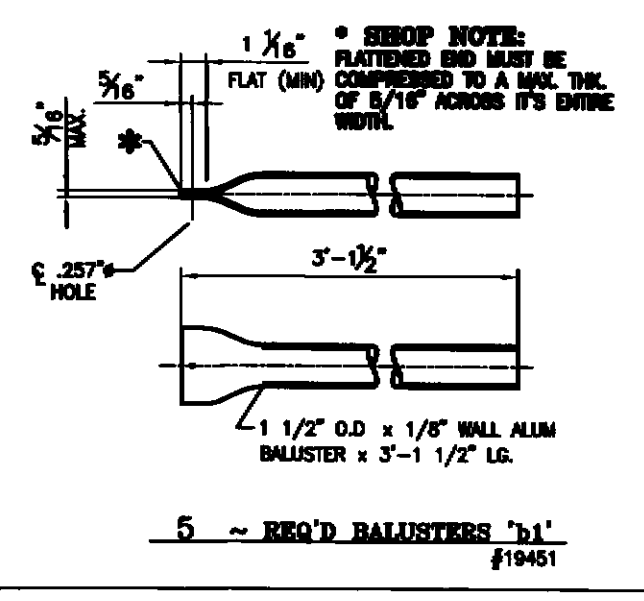
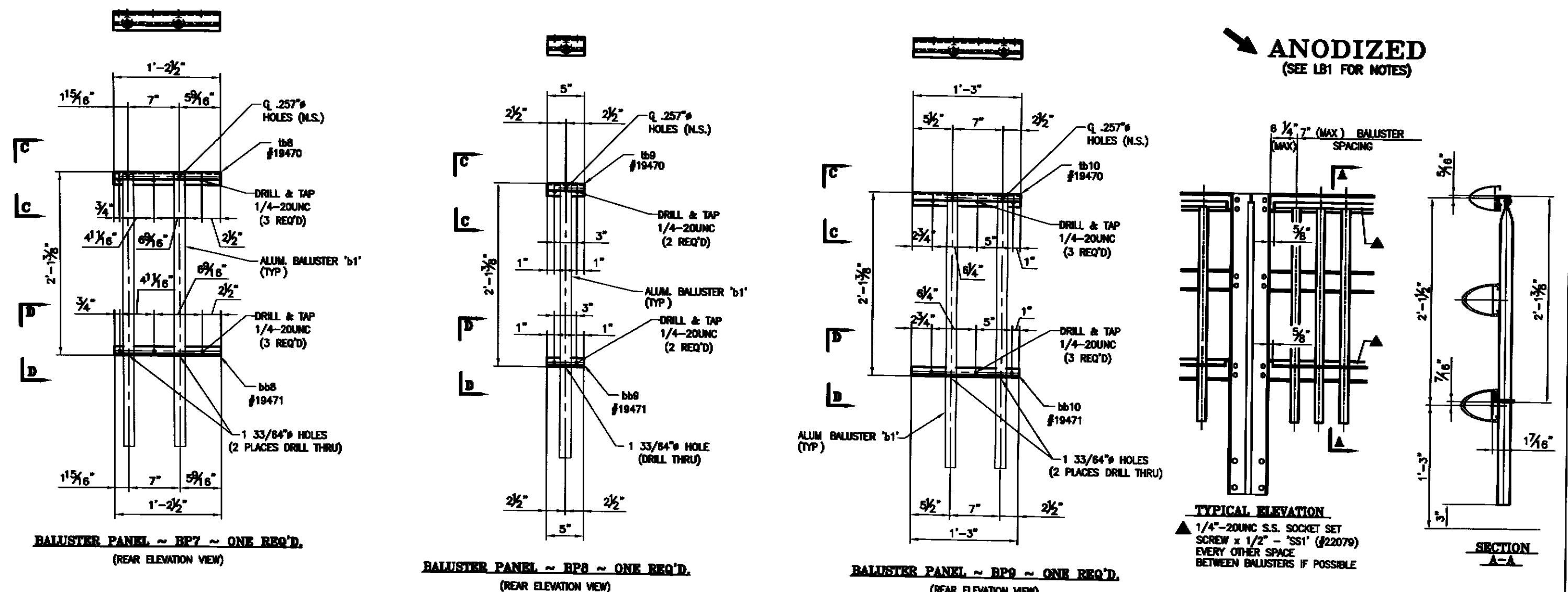
LBB DRP  
11/20/2010  
RESUBMIT APPROVED AS NOTED  
BY CUL DATE 2/2/10

**ANODIZED**  
(SEE L81 FOR NOTES)

NOTE FOR GEN NOTES AND TYP DETAILS  
SEE DWG L81

PROJECT No. 042-10      ITEM No. 00140  
APPROVED:      DESIGNED:  
L.B. FOSTER COMPANY  
2016 GREENHURST ROAD  
PITTSBURGH, PENNSYLVANIA 15229  
FOR: F. S. LAURETTO, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FERRIS, COUNTY OF FRANKLIN  
BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL  
BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL  
BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL

REV	DESCRIPTION	DATE
01	ISSUED FOR PERMITS	08/11/09
02	REVISED POST SPACING & NET WALL LENGTH BY CUL	08/11/09
03	REVISED BY CUL	08/11/09
04	REVISED BY CUL	08/11/09
05	REVISED BY CUL	08/11/09
06	REVISED BY CUL	08/11/09
07	REVISED BY CUL	08/11/09
08	REVISED BY CUL	08/11/09
09	REVISED BY CUL	08/11/09
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48	REVISED BY CUL	08/11/09
49	REVISED BY CUL	08/11/09
50	REVISED BY CUL	08/11/09



LBB DRP

11/13/2010

RESUBMIT APPROVED

BY *CWC* DATE 11/13/10

NOTE: FOR GEN. NOTES AND TYP. DETAILS SEE DWG LBI

PROJECT NO. 023-03 ITEM NO. 00240

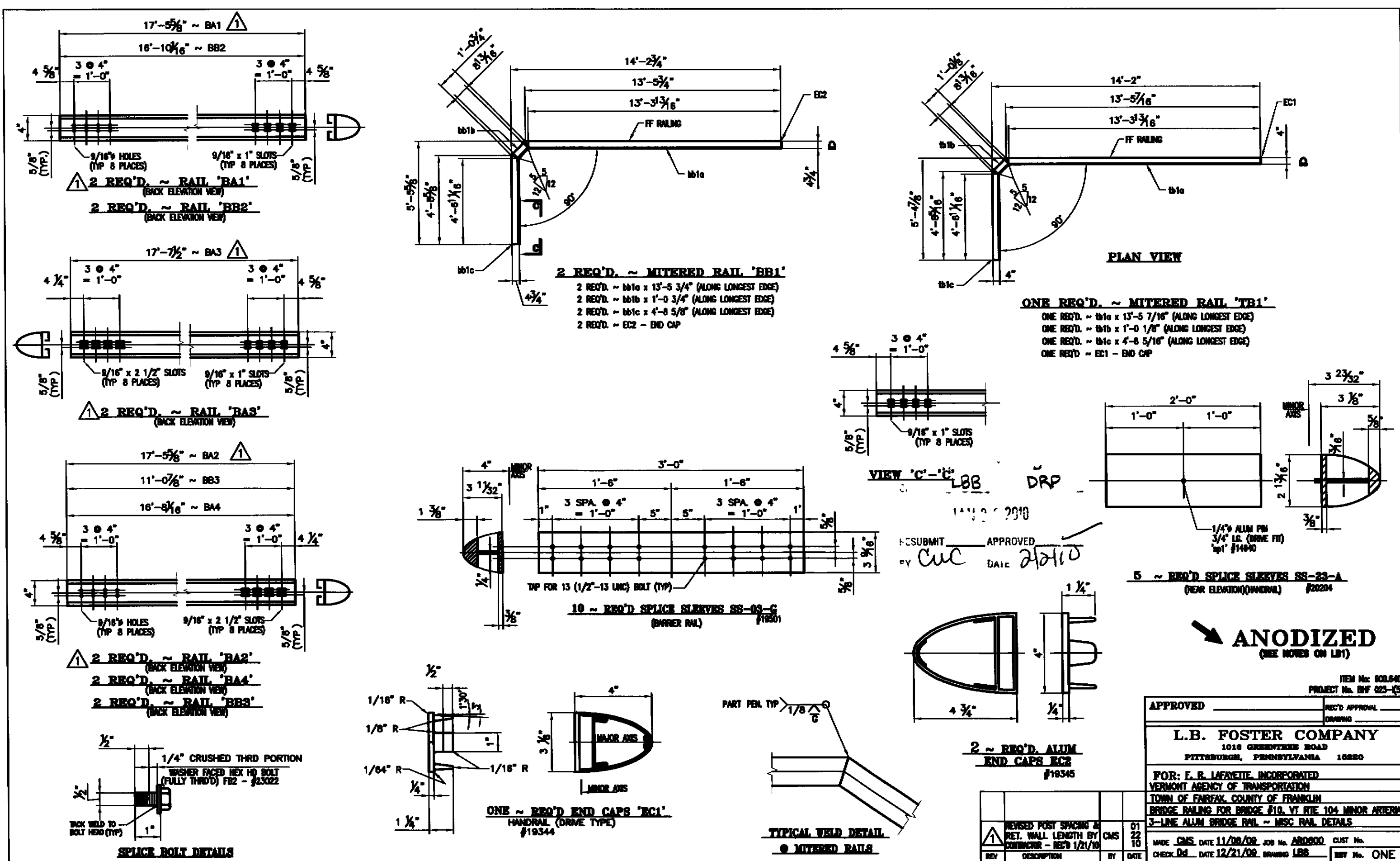
APPROVED: \_\_\_\_\_ FIELD APPROVAL: \_\_\_\_\_

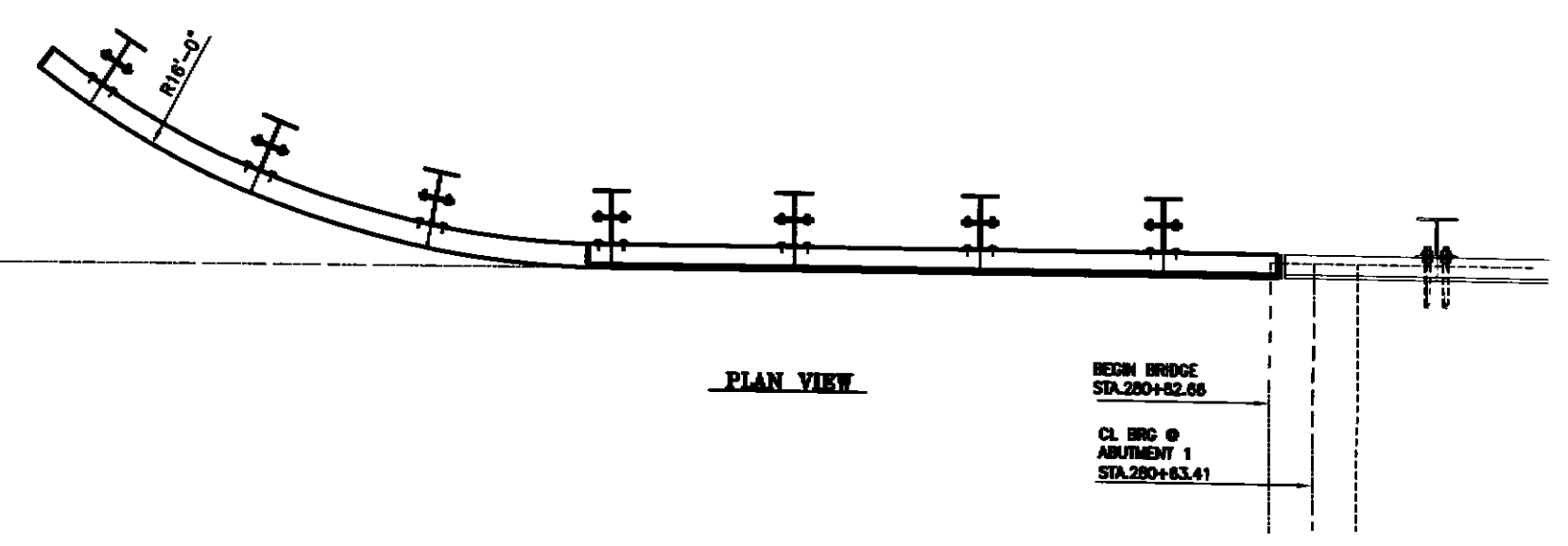
**L.B. FOSTER COMPANY**  
1016 GREENBERRY ROAD  
PITTSBURGH, PENNSYLVANIA 15260

FOR: F. B. LAFAYETTE, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FARRIS, COUNTY OF FRANKLIN  
BRIDGE BUILDING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL  
3. ALUM BRIDGE RAILING -- BALUSTER PANEL DETAILS

WORK SHEET 11/27/09 JOB NO. A80000 DWT No. \_\_\_\_\_  
CHECKED BY 12/21/09 DRAWING LBT DWT No. \_\_\_\_\_

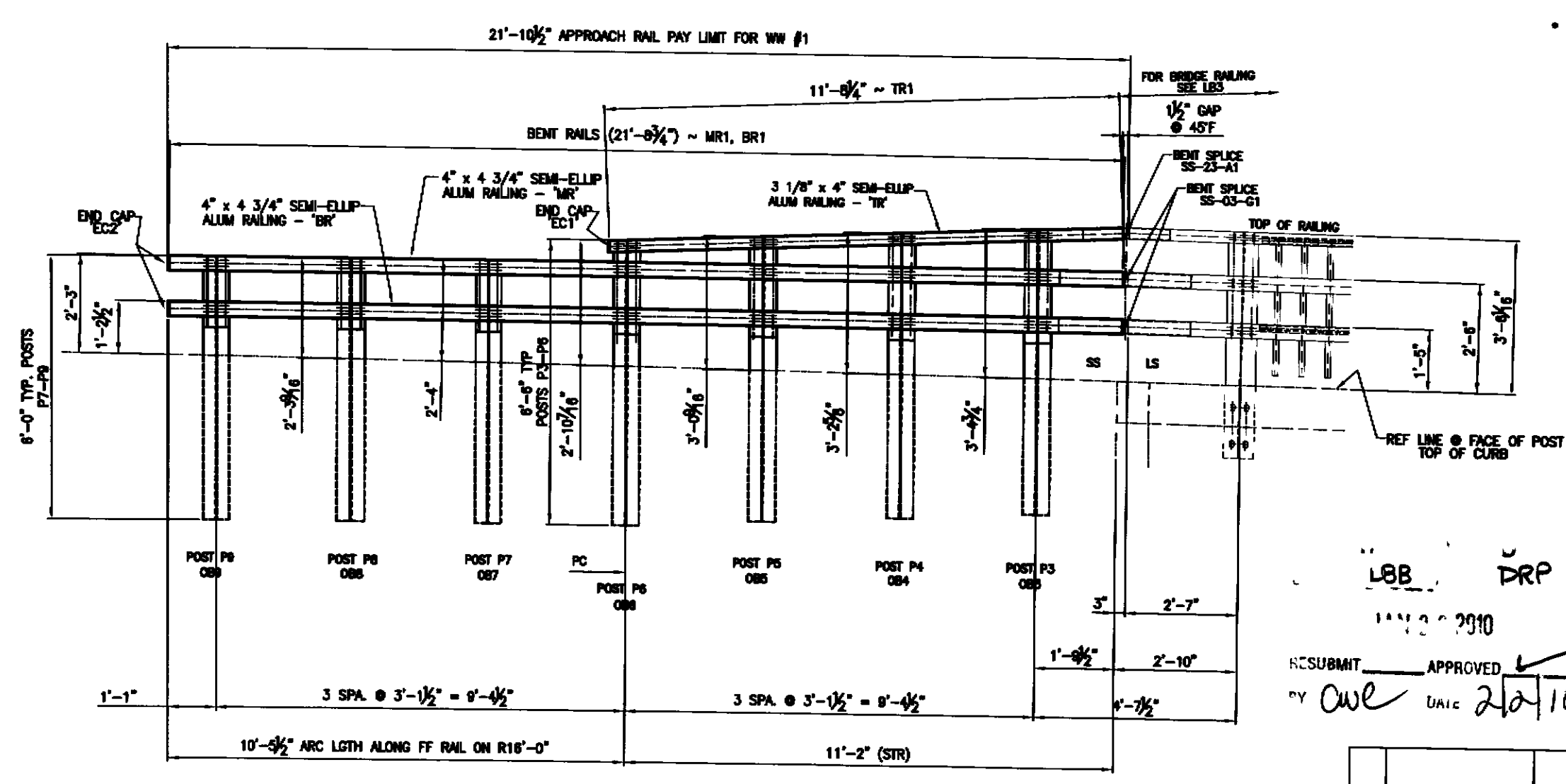
REV	DESCRIPTION	BY	DATE





NOTE:

- RAIL LENGTHS DO NOT INCLUDE END CAPS AND/OR GAPS
- LENGTH OF APPROACH RAILING ON THIS SHEET IS 21.675 L' FRY LENGTH
- LENGTHS SHOWN THUS ( ) ARE ACTUAL LENGTHS ALONG FRY FACE OF RAILING



**ANODIZED**  
(SEE LBS FOR NOTES)

PROJECT No. BMF 023-10 ITEM No. 900 840

APPROVED: \_\_\_\_\_ DATE: 11/10/10

BY: *One*

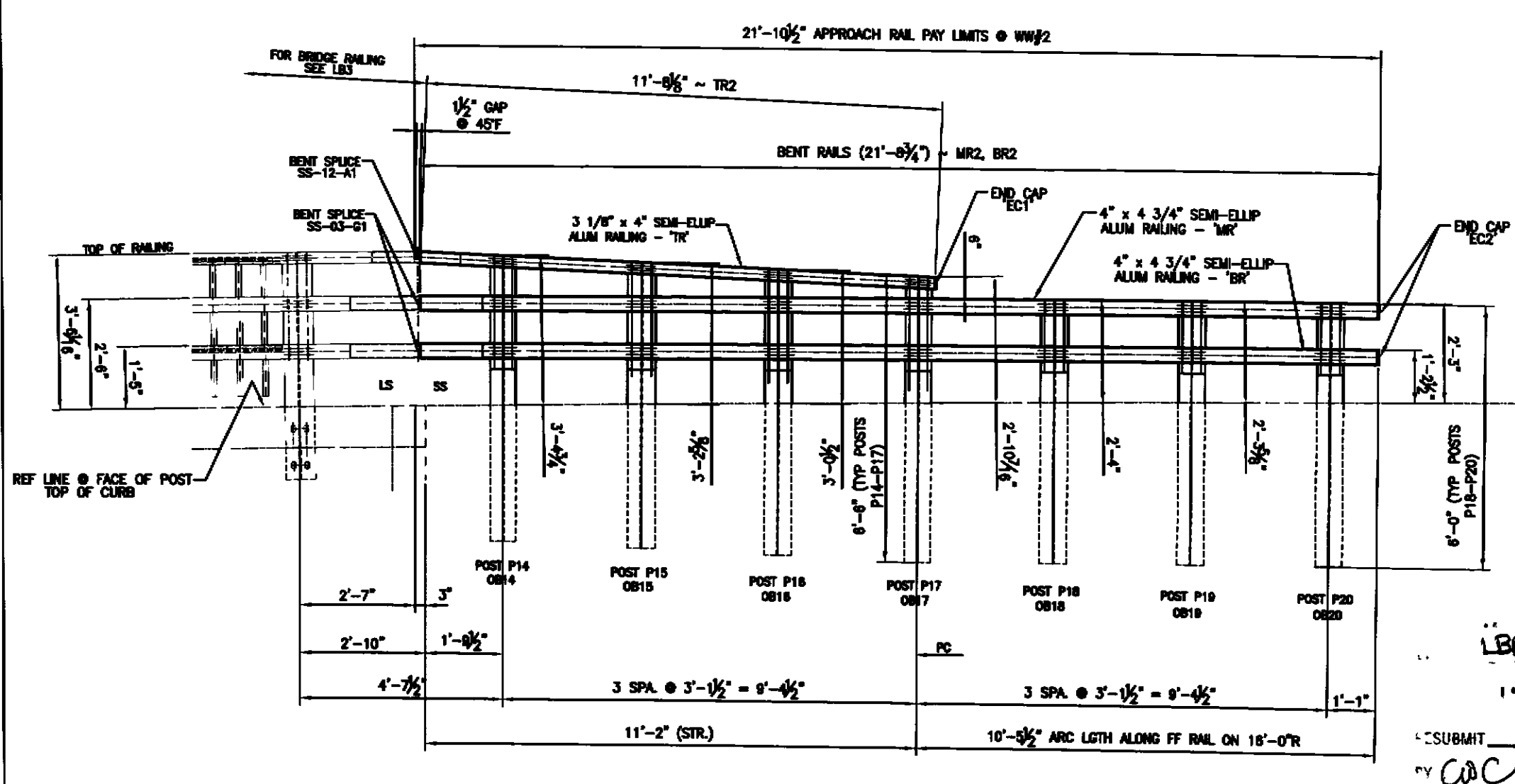
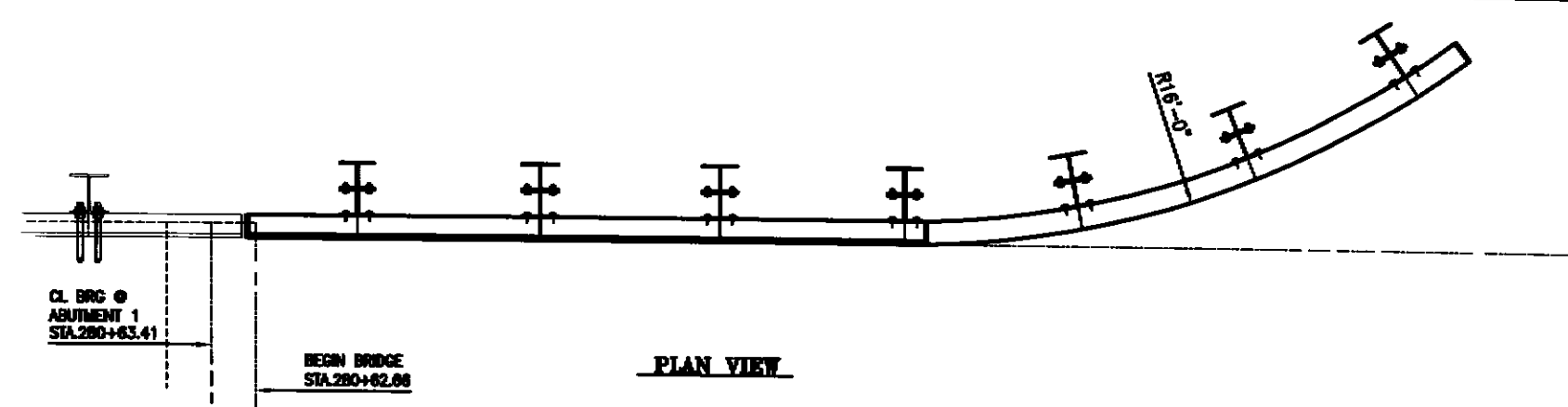
DATE: 2/10/10

**L.B. FOSTER COMPANY**  
1016 GREENVIEW ROAD  
PITTSBURGH, PENNSYLVANIA 15229

FOR L.B. LAFAYETTE, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FAIRFAX, COUNTY OF FRANKLIN  
BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL  
3L ALUMINUM APPROACH RAIL ELEVATIONS @ W #1

WORK DATE 11/08/09 JOB No. 090500 DWT No. \_\_\_\_\_  
CHECKED DATE 12/23/09 DRAWING LBY \_\_\_\_\_

REV	DESCRIPTION	BY	DATE



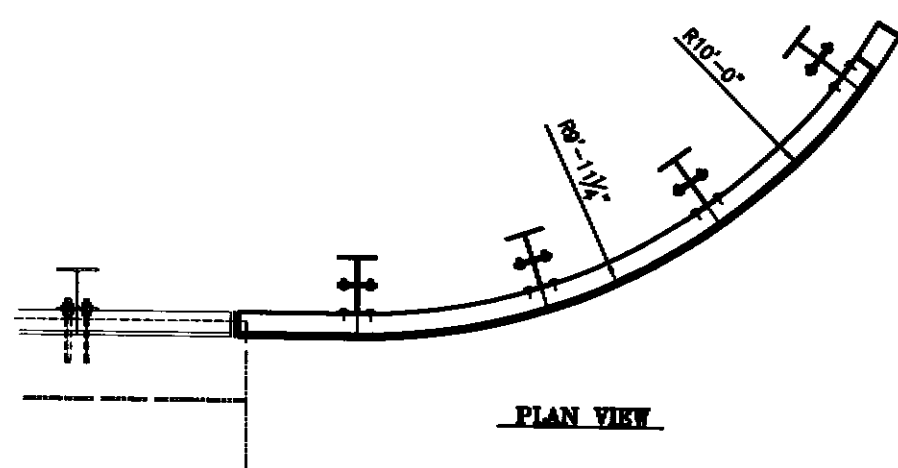
NOTE:  
 \* RAIL LENGTHS DO NOT INCLUDE  
 END CAPS AND/OR GAPS.  
 \* LENGTH OF APPROACH RAILING ON THIS SHEET IS  
 21.875 LF RAIL LENGTH.  
 \* LENGTHS SHOWN THUS ( ) ARE ACTUAL LENGTHS ALONG  
 FRT FACE OF RAILING

**ANODIZED**  
 (SEE LIST FOR NOTES)

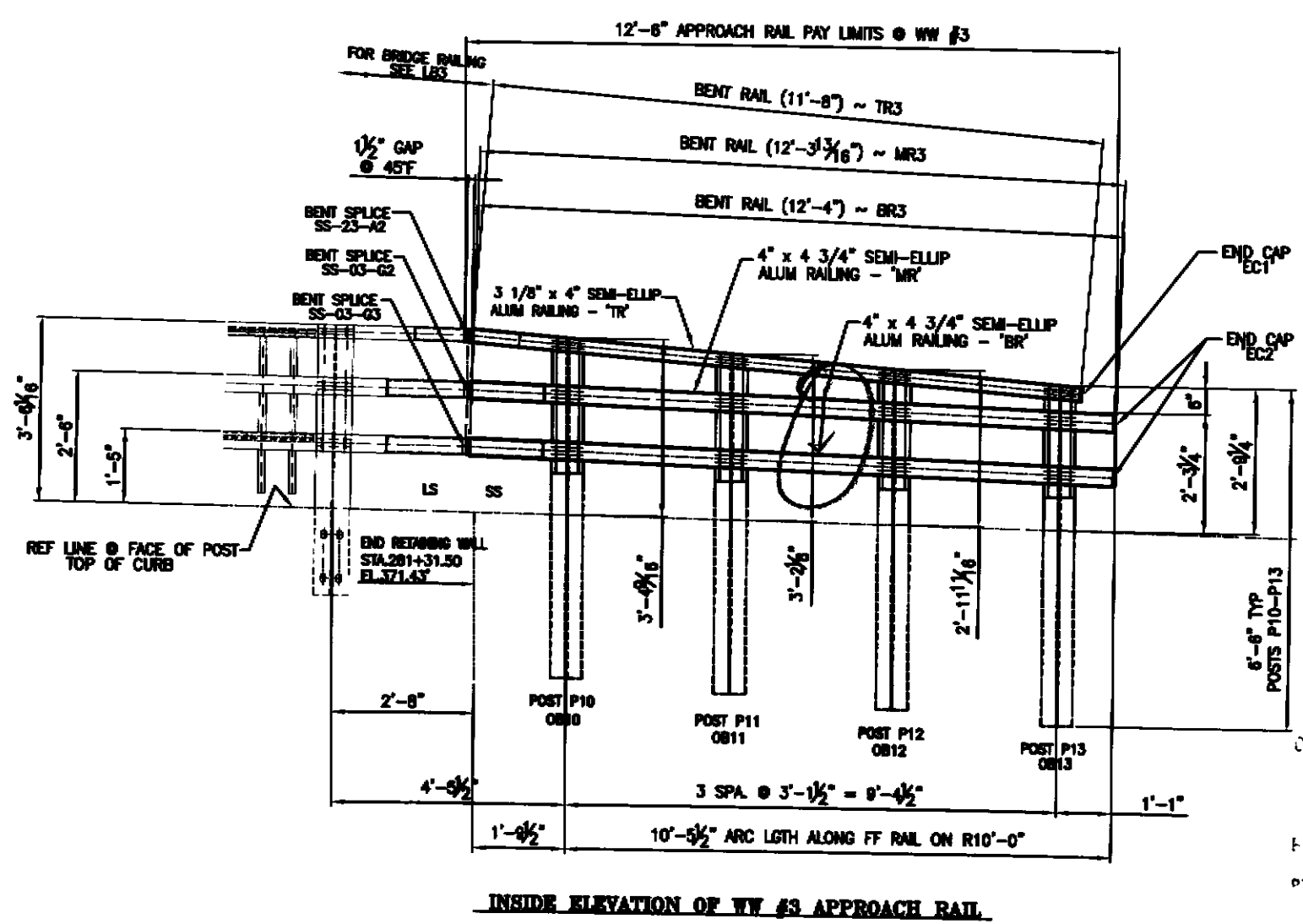
11/11/2010  
 SUBMIT APPROVED  
 CAC Date 2/2/10

PROJECT No. BNF 023-10	ITEM No. 800.640
APPROVED	FIELD APPROVAL
<b>L.B. FOSTER COMPANY</b>	
1016 GREENWICH ROAD PITTSBURGH, PENNSYLVANIA 15220	
FOR: F. B. LAFAYETTE, INCORPORATED	
VERMONT AGENCY OF TRANSPORTATION	
TOWN OF FAIRFAX, COUNTY OF FRANKLIN	
BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL	
ALUMINUM APPROACH RAIL ELEVATIONS @ RW #2	
DATE DES: 11/09/09	JOB No. AR0800
CHECKED: DATE 12/29/09	DESIGNED: LB10
REV	DESCRIPTION
BY	DATE

INSIDE ELEVATION OF RW #2 APPROACH RAIL



PLAN VIEW



INSIDE ELEVATION OF WY #5 APPROACH RAIL

NOTE:  
 • RAIL LENGTHS DO NOT INCLUDE END CAPS AND/OR GAPS.  
 • LENGTH OF APPROACH RAILING ON THIS SHEET IS 12.5 LF RAIL LENGTH.  
 • LENGTHS SHOWN THUS ( ) ARE ACTUAL LENGTHS ALONG FRY FACE OF RAILING.

ANODIZED  
 (SEE L&I FOR NOTES)

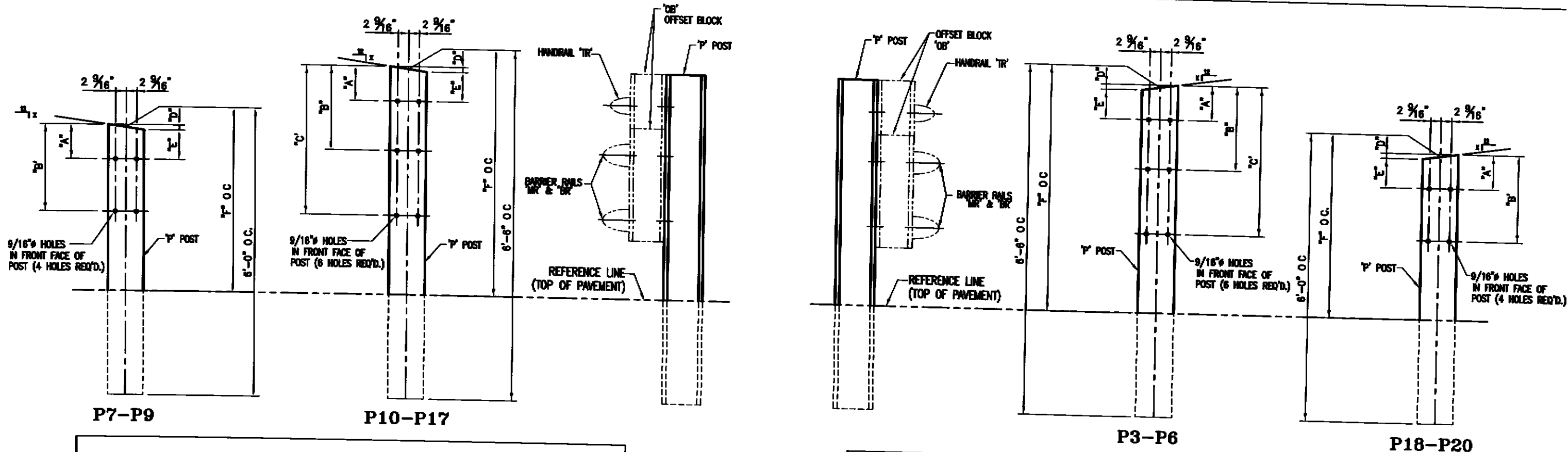
PROJECT No. DW 023-10      ITEM No. 900.040

APPROVED: \_\_\_\_\_      DATE: 11/11/09

FOR: F. R. LAFAYETTE, INCORPORATED  
 VERMONT AGENCY OF TRANSPORTATION  
 TOWN OF FARRIS, COUNTY OF FRANKLIN  
 BRIDGE RAILING FOR BRIDGE #10, VT RTE 104 MINOR ARTERIAL  
 3L ALUMINUM APPROACH RAIL ELEVATIONS @ WY #3

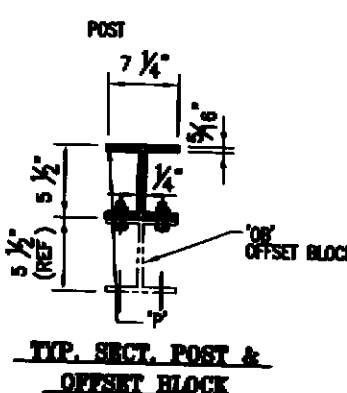
DATE: 11/08/09      JOB No. AR0600      CUST No. \_\_\_\_\_  
 CHECKED: DATE 12/23/09      DRAWING: L&I      SHEET No. \_\_\_\_\_

REV	DESCRIPTION	BY	DATE



POST DETAIL CHART FOR WW #1, WW #2 & WW #3 APPROACHES

POST No.	QTY	OFFSET BLOCK MTG. DIMENSIONS							BEV
		A	B	C	D	E	F (O.C.)	X	
P10	1	1 7/8"	1'-1 5/16"	2'-2 1/4"	9/16"	1 1/4"	3'-4 9/16"	1	
P11	1	1 7/8"	11 5/8"	2'-0 7/16"	9/16"	1 1/4"	3'-2 1/8"	1	
P12	1	1 7/8"	10"	1'-10 11/16"	9/16"	1 1/4"	2'-11 11/16"	1	
P13	1	1 7/8"	8 5/16"	1'-8 7/8"	9/16"	1 1/4"	2'-9 1/4"	1	
P14	1	1 11/16"	1'-1 1/8"	2'-2 1/8"	5/16"	1 7/16"	3'-4 3/4"	1/2	
P15	1	1 11/16"	11 1/2"	2'-0 3/8"	5/16"	1 7/16"	3'-2 5/8"	1/2	
P16	1	1 11/16"	9 13/16"	1'-10 5/8"	5/16"	1 7/16"	3'-0 1/2"	1/2	
P17	1	1 11/16"	8 1/8"	1'-8 7/8"	5/16"	1 7/16"	2'-10 7/16"	1/2	
P7	1	2"	1'-2 11/16"		0	2"	2'-4"	SQ	
P8	1	2"	1'-2 5/8"		0	2"	2'-3 9/16"	SQ	
P9	1	2"	1'-2 9/16"		0	2"	2'-3"	SQ	



NOTE:  
 2 CLAMPING BARS CB-01-H (#22288) PER POSTS P2-P4, P12  
 4 CLAMPING BARS CB-03-A (#19447) PER POSTS P2-P8  
 W/ 1/2" x 13 UNC S.S. BOLT x 1" LG. 'FB1',  
 1 1/16" O.D. x 17/32" WASHER 'FW1' (#15280 & # 19404) (8 PER POST)

POST DETAIL CHART FOR WW #1 & WW #2 APPROACHES

POST No.	QTY	OFFSET BLOCK MTG. DIMENSIONS							BEV
		A	B	C	D	E	F (O.C.)	X	
P3	1	1 11/16"	1'-1 1/8"	2'-2 1/8"	5/16"	1 7/16"	3'-4 3/4"	1/2	
P4	1	1 11/16"	11 1/2"	2'-0 3/8"	5/16"	1 7/16"	3'-2 5/8"	1/2	
P5	1	1 11/16"	9 13/16"	1'-10 5/8"	5/16"	1 7/16"	3'-0 9/16"	1/2	
P6	1	1 11/16"	8 1/8"	1'-8 7/8"	5/16"	1 7/16"	2'-10 7/16"	1/2	
P18	1	2"	1'-2 11/16"		0	2"	2'-4"	SQ	
P19	1	2"	1'-2 5/8"		0	2"	2'-3 9/16"	SQ	
P20	1	2"	1'-2 9/16"		0	2"	2'-3"	SQ	

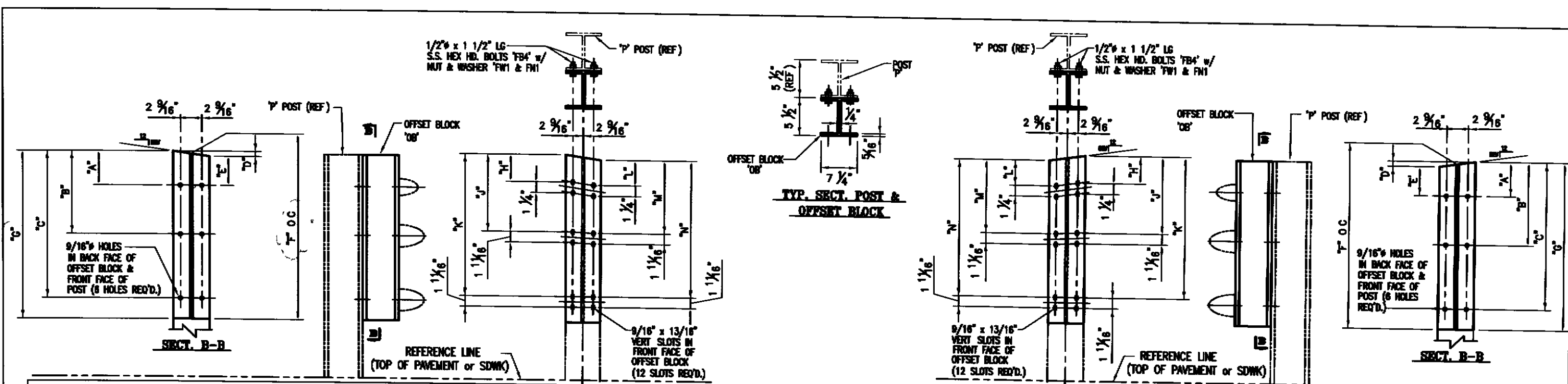
NOTE:  
 4 CLAMPING BARS CB-03-A (#19447) PER POSTS P2-P4, P12  
 W/ 1/2" x 13 UNC S.S. BOLT x 1" LG. 'FB1',  
 1 1/16" O.D. x 17/32" WASHER 'FW1' (#15280 & # 19404) (8 PER POST)

APPROVED  
 L.B. FOSTER COMPANY  
 1818 GREENHURST ROAD  
 PITTSBOROUGH, VERMONT 05470  
 FOR: F. R. LAFFETTE, INCORPORATED  
 VERMONT AGENCY OF TRANSPORTATION  
 TOWN OF FRANKLIN COUNTY OF FRANKLIN  
 BRIDGE OVERLOOK FOR BRIDGE #101 BY THE 104 MAIN AVENUE  
 IN ALUMINUM APPROACH RAIL POST DETAILS  
 DATE: 11/08/02  
 CHECKED: 12/28/02

ANODIZED  
 (SEE NOTES ON LIST)

NOTE:  
 FOR POST TOPS THAT HAVE MITERS  
 LESS THAN OR EQUAL TO 1/8"  
 - THE POSTS WILL BE TREATED  
 SQUARE.

REV	DESCRIPTION	BY	DATE



OFFSET BLOCK CHART FOR WW #2 & WW #3 APPROACHES  
POSTS P10 - P17

POST No.	OFFSET BLOCK	QTY	A	B	C	D	E	F (O.C.)	G	X	REV
P10	OB10	1	1 7/8"	1'-1 5/16"	2'-2 1/4"	9/16"	1 1/4"	2'-7"	2'-7 5/16"	1	
P11	OB11	1	1 7/8"	11 5/8"	2'-0 7/16"	9/16"	1 1/4"	2'-5 1/4"	2'-5 9/16"	1	
P12	OB12	1	1 7/8"	10"	1'-10 11/16"	9/16"	1 1/4"	2'-3 1/2"	2'-3 3/4"	1	
P13	OB13	1	1 7/8"	8 5/16"	1'-8 7/8"	9/16"	1 1/4"	2'-1 11/16"	2'-2"	1	
P14	OB14	1	1 11/16"	1'-1 1/8"	2'-2 1/8"	5/16"	1 7/16"	2'-7"	2'-7 1/8"	1/2	
P15	OB15	1	1 11/16"	11 1/2"	2'-0 3/8"	5/16"	1 7/16"	2'-5 1/4"	2'-5 3/8"	1/2	
P16	OB16	1	1 11/16"	9 13/16"	1'-10 5/8"	5/16"	1 7/16"	2'-3 1/2"	2'-3 5/8"	1/2	
P17	OB17	1	1 11/16"	8 1/8"	1'-8 7/8"	5/16"	1 7/16"	2'-1 3/4"	2'-1 15/16"	1/2	

OFFSET BLOCK ~ RAIL MTG. DIMENSIONS

POST No.	OFFSET BLOCK	H	J	K	L	M	N
P10	OB10	1"	1'-0 3/8"	2'-1 5/16"	7/8"	1'-0"	2'-0 15/16"
P11	OB11	1"	10 11/16"	1'-11 1/2"	7/8"	10 5/16"	1'-11 1/8"
P12	OB12	1"	9 1/8"	1'-9 3/4"	7/8"	8 5/8"	1'-9 5/16"
P13	OB13	1"	7 3/8"	1'-7 15/16"	7/8"	8 15/16"	1'-7 1/2"
P14	OB14	1"	1'-0 5/16"	2'-1 5/16"	7/8"	1'-0"	2'-0 15/16"
P15	OB15	1"	10 5/8"	1'-11 9/16"	7/8"	10 5/16"	1'-11 3/16"
P16	OB16	1"	9"	1'-9 13/16"	7/8"	8 11/16"	1'-9 1/2"
P17	OB17	1"	7 5/16"	1'-8 1/16"	7/8"	7"	1'-7 3/4"

NOTE:  
FOR POST TOPS THAT HAVE MITERS  
LESS THAN OR EQUAL TO 1/8"  
- THE POSTS WILL BE TREATED  
SQUARE.

NOTE:  
2 CLAMPING BARS CB-01-H  
(#28000) PER POSTS P2 - P5, P12  
4 CLAMPING BARS CB-03-A  
(#18447) PER POSTS P2 - P8  
W/ 1/2"-13 UNC  
S.S. BOLT x 1" LG. 'FB1',  
1 1/16" O.D. x 17/32"  
L.D. x 3/32" THK. ALUM  
WASHER 'FW1'  
(#15280 & #18404)  
(16 PER POST)

NOTE:  
4 CLAMPING BARS CB-03-A  
(#18447) PER POST P12  
W/ 1/2"-13 UNC  
S.S. BOLT x 1" LG. 'FB1',  
1 1/16" O.D. x 17/32"  
L.D. x 3/32" THK. ALUM  
WASHER 'FW1'  
(#15280 & #18404)  
(8 PER POST)

APPROVED: *LEB* DRP  
DATE: 2/10/10

PROJECT No. ENF 023-(5) ITEM No. 900.640  
APPROVED: \_\_\_\_\_  
L.B. FOSTER COMPANY  
1818 GREENWICH ROAD  
PITTSBURGH, PENNSYLVANIA 15220  
FOR: F. R. LAFAYETTE, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FAIRFAX, COUNTY OF FRANKLIN  
BRIDGE RAILING FOR BRIDGE #10, VT. RTE. 104 MINOR ARTERIAL  
OFFSET BOX DETAILS  
MADE: DMS DATE 11/08/09 JOB No. A00600 CIST No.  
CHECKED: DATE 12/28/09 DRAWING 1813 REV No.

REV	DESCRIPTION	BY	DATE

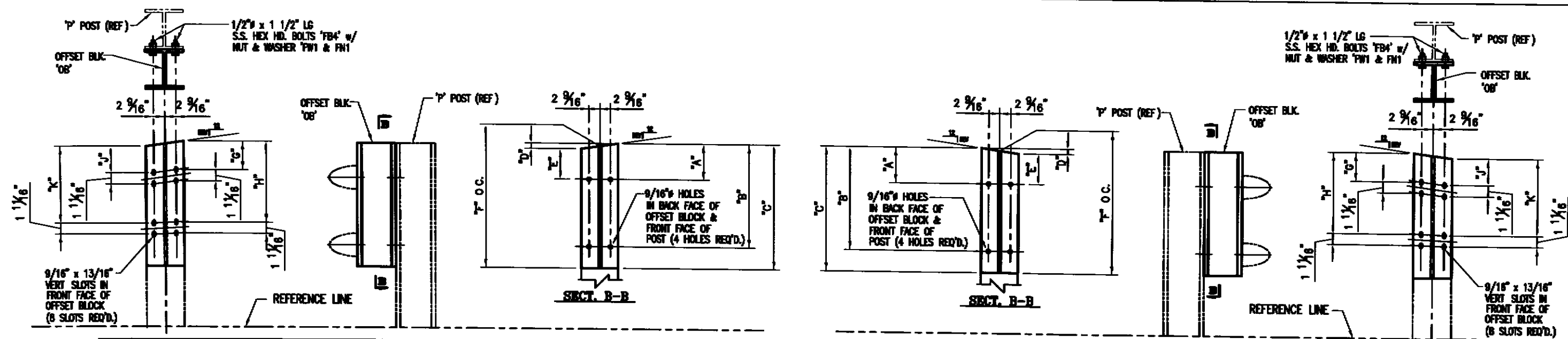
OFFSET BLOCK CHART FOR WW #1 APPROACH  
POSTS P3 - P6

POST No.	OFFSET BLOCK	QTY	A	B	C	D	E	F (O.C.)	G	X	REV
P3	OB3	1	1 11/16"	1'-1 1/8"	2'-2 1/8"	5/16"	1 7/16"	2'-7"	2'-7 1/8"	1/2	
P4	OB4	1	1 11/16"	11 1/2"	2'-0 3/8"	5/16"	1 7/16"	2'-5 1/4"	2'-5 3/8"	1/2	
P5	OB5	1	1 11/16"	9 13/16"	1'-10 5/8"	5/16"	1 7/16"	2'-3 1/2"	2'-3 5/8"	1/2	
P6	OB6	1	1 11/16"	8 1/8"	1'-8 7/8"	5/16"	1 7/16"	2'-1 3/4"	2'-1 15/16"	1/2	

OFFSET BLOCK ~ RAIL MTG. DIMENSIONS

POST No.	OFFSET BLOCK	H	J	K	L	M	N
P3	OB3	1"	1'-0 5/16"	2'-1 5/16"	7/8"	1'-0"	2'-0 15/16"
P4	OB4	1"	10 11/16"	1'-11 9/16"	7/8"	10 5/16"	1'-11 1/4"
P5	OB5	1"	9"	1'-9 13/16"	7/8"	8 11/16"	1'-9 1/2"
P6	OB6	1"	7 5/16"	1'-8 1/16"	7/8"	7"	1'-7 3/4"

ANODIZED  
(SEE NOTES ON LIST)



**OFFSET BLOCK CHART FOR WW #2 APPROACH  
POSTS P18 - P20**

POST NO.	OFFSET BLOCK	QTY	OFFSET BLOCK ~ POST MFG. DIMENSIONS					REV	
			A	B	C	D	E		F (O.C.)
P18	OB18	1	2"	1'-2 11/16"	1'-7 11/16"	0	2"	1'-7 5/8"	SO
P19	OB19	1	2"	1'-2 5/8"	1'-7 5/8"	0	2"	1'-7 5/8"	SO
P20	OB20	1	2"	1'-2 9/16"	1'-7 9/16"	0	2"	1'-7 9/16"	SO

**OFFSET BLOCK CHART FOR WW #1 APPROACH  
POSTS P7 - P9**

POST NO.	OFFSET BLOCK	QTY	OFFSET BLOCK ~ POST MFG. DIMENSIONS					REV	
			A	B	C	D	E		F (O.C.)
P7	OB7	1	2"	1'-2 11/16"	1'-7 11/16"	0	2"	1'-7 5/8"	SO
P8	OB8	1	2"	1'-2 5/8"	1'-7 5/8"	0	2"	1'-7 5/8"	SO
P9	OB9	1	2"	1'-2 9/16"	1'-7 9/16"	0	2"	1'-7 9/16"	SO

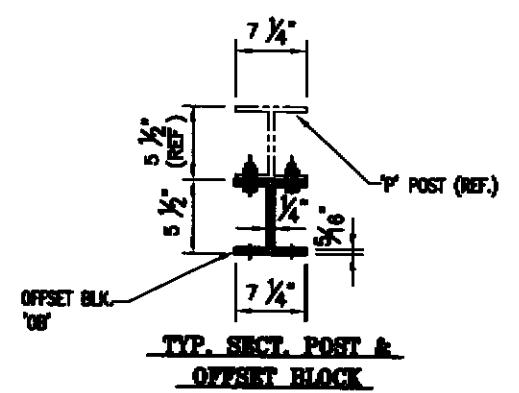
**OFFSET BLOCK ~ RAIL MFG. DIMENSIONS**

POST NO.	OFFSET BLOCK	G	H	J	K
P18	OB18	1 3/16"	1'-1 7/8"	1 1/8"	1'-1 7/8"
P19	OB19	1 3/16"	1'-1 13/16"	1 1/8"	1'-1 13/16"
P20	OB20	1 3/16"	1'-1 11/16"	1 1/8"	1'-1 11/16"

**OFFSET BLOCK ~ RAIL MFG. DIMENSIONS**

POST NO.	OFFSET BLOCK	G	H	J	K
P7	OB7	1 3/16"	1'-1 13/16"	1 1/8"	1'-1 13/16"
P8	OB8	1 3/16"	1'-1 3/4"	1 1/8"	1'-1 3/4"
P9	OB9	1 3/16"	1'-1 11/16"	1 1/8"	1'-1 11/16"

**NOTE:**  
FOR POST TOPS THAT HAVE MITERS  
LESS THAN OR EQUAL TO 1/8"  
- THE POSTS WILL BE TREATED  
SQUARE.



**NOTE:**  
4 CLAMPING BARS CB-03-A  
(1/4" x 1/2" x 13" UNF)  
S.S. BOLT x 1" LG. "F81"  
1 1/16" O.D. x 17/32"  
L.D. x 3/32" THK. ALUM.  
WASHER "F81"  
(8 PER POST)

**ANODIZED**  
(SEE NOTES ON LBS)

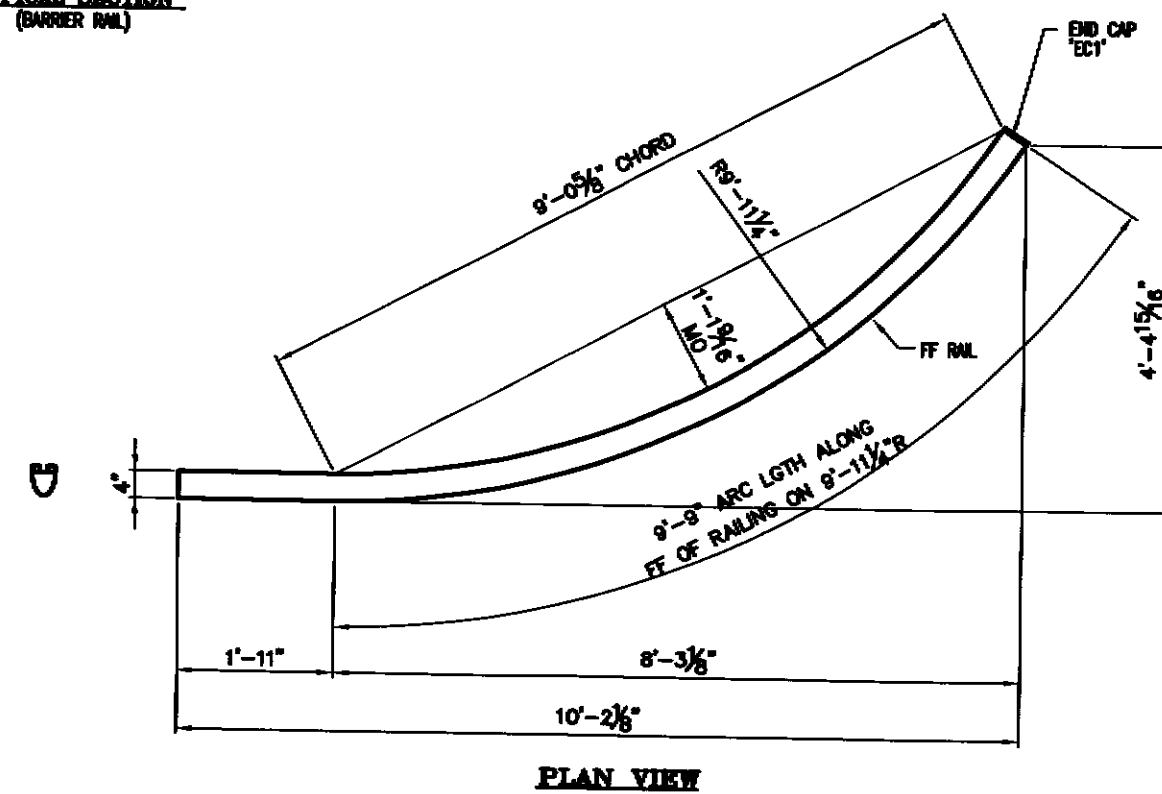
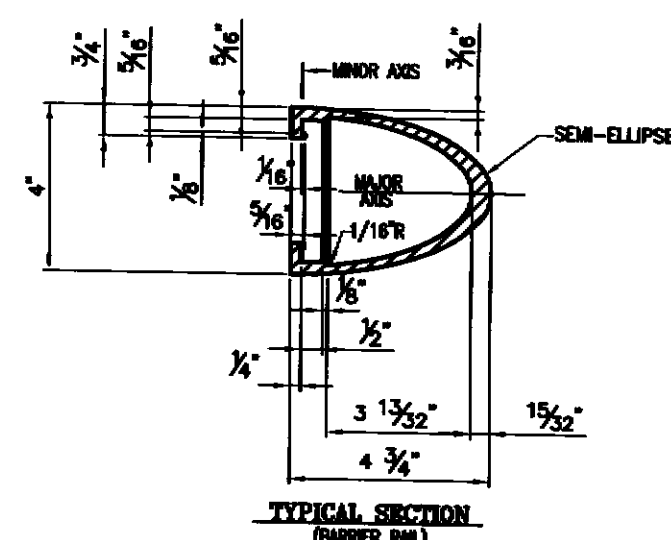
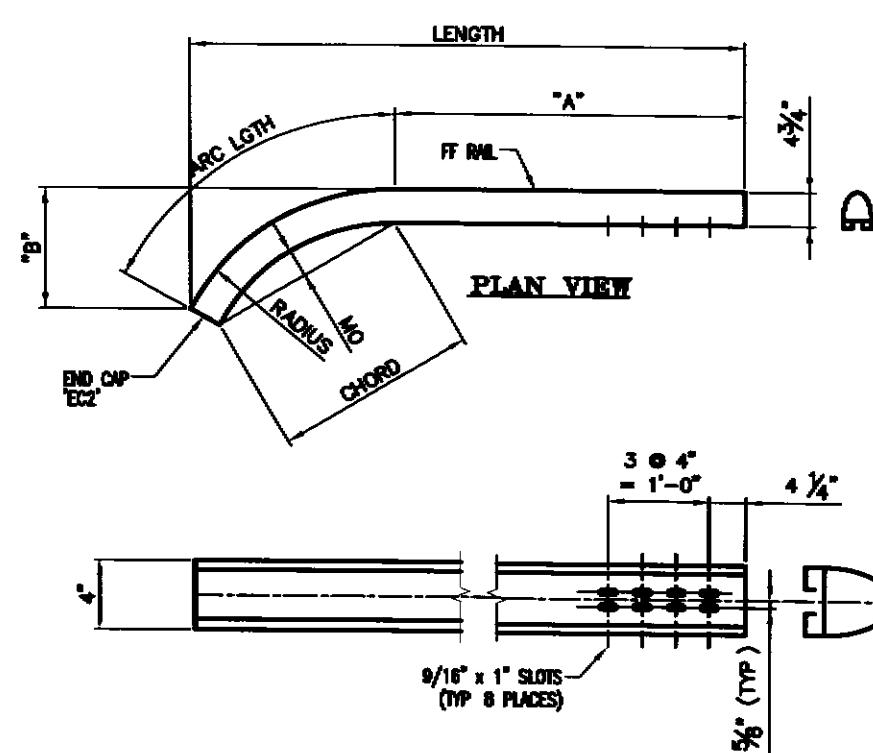
PROJECT No: BHF 023-(5) ITEM No: 900 640

APPROVED: *LBG* DRP

DATE: 2/2/10

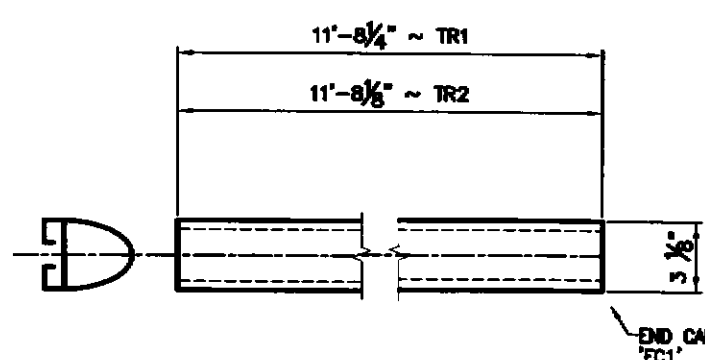
FOR: F. R. LAFAYETTE INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FARMINGTON COUNTY OF FRANKLIN  
BRIDGE BIDDING FOR BRIDGE #10, VT. RTE. 104 MINOR ARTERIAL  
OFFSET BLOCK DETAILS

WORK: CMS DATE 11/08/09 JOB No: AR0600 COST No:  
CHECK: DL DATE 12/28/09 DRAWING: LB14 REV No:



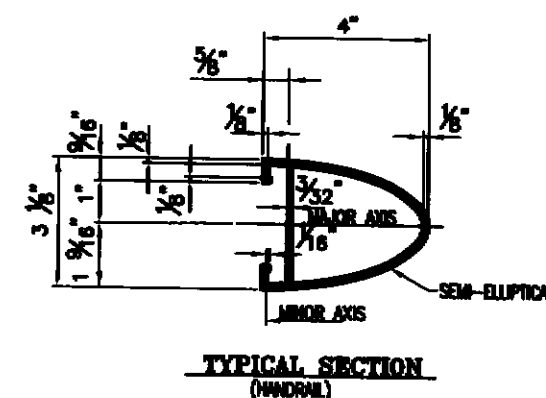
ONE REQ'D - HANDRAIL "TR3"  
11'-6\"/>

MK.	QTY	CALL (ALONG FF RAIL)	LENGTH	ARC LGTH	"A"	"B"	MO	CHORD	RADIUS	MATL FOR BENDING
MR1	1	21'-8 3/4"	21'-0 1/16"	10'-5 1/4"	11'-3 1/2"	5'-3 7/16"	8 7/8"	10'-0"	16'-0"	+2'-6"
BR1	1	21'-8 3/4"	21'-0 1/16"	10'-5 1/4"	11'-3 1/2"	5'-3 7/16"	8 7/8"	10'-0"	16'-0"	+2'-6"
MR3	1	12'-3 13/16"	10'-8 1/2"	10'-4 13/16"	1'-11"	4'-11 1/4"	1'-3 1/4"	9'-8 11/16"	10'-0"	+2'-6"
BR3	1	12'-4"	10'-8 5/16"	10'-5"	1'-11"	4'-11 7/16"	1'-3 1/4"	9'-8 11/16"	10'-0"	+2'-6"
MR2	1	21'-8 3/4"	21'-0 1/16"	10'-5 1/4"	11'-3 1/2"	5'-3 7/16"	8 7/8"	10'-0"	16'-0"	+2'-6"
BR2	1	21'-8 3/4"	21'-0 1/16"	10'-5 1/4"	11'-3 1/2"	5'-3 7/16"	8 7/8"	10'-0"	16'-0"	+2'-6"



ONE REQ'D - HANDRAIL "TR1"  
(FRONT ELEVATION VIEW)

ONE REQ'D - HANDRAIL "TR2"  
(FRONT ELEVATION VIEW)



TYPICAL SECTION (HANDRAIL)

PROJECT No. 02F 023-05 ITEM No. 001646

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

FOR: F. R. LAFAYETTE, INCORPORATED  
1518 OBSERVATION ROAD  
PITTSBURGH, PENNSYLVANIA 15203

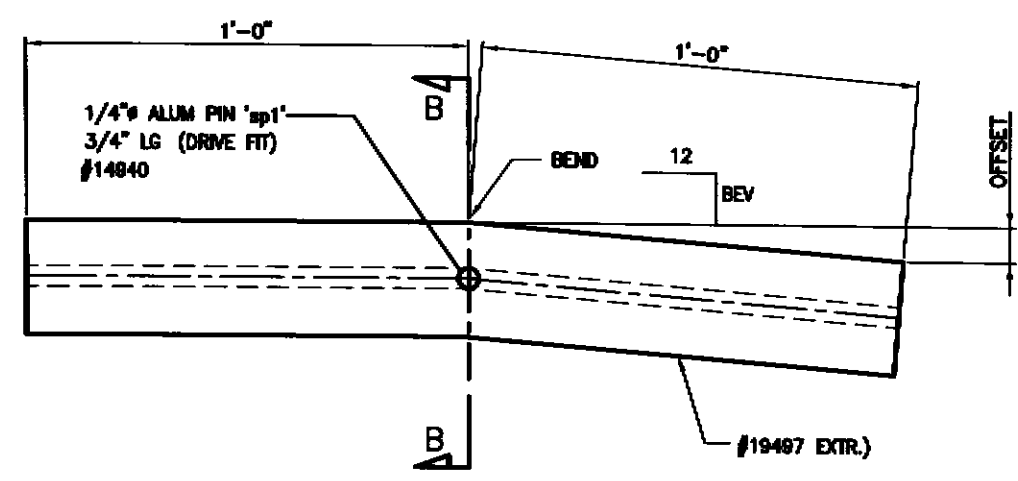
FOR: F. R. LAFAYETTE, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION  
TOWN OF FERRIS, COUNTY OF FERRIS  
BRIDGE BALKS FOR BRIDGE #10, W. RR. 104 LINCOLN AVENUE  
3. ALUMINUM APPROACH RAIL - RAIL DETAILS

DATE: 04/11/09 BY: ARS/SD DATE: 11/28/09  
CHECKED: 11/28/09 BY: ARS/SD DATE: 12/28/09

ANODIZED  
(SEE NOTES ON LIST)

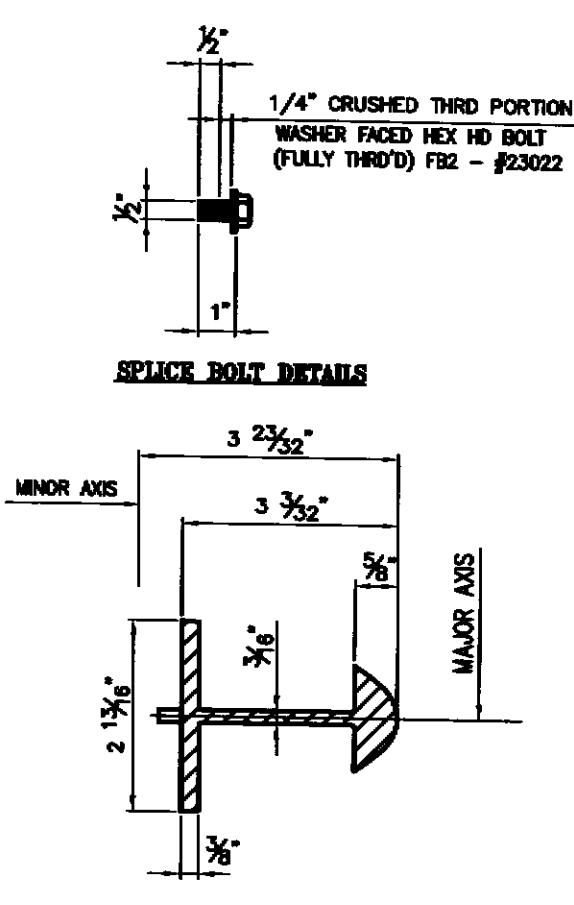
1. SUBMIT APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

by: *ARC* DATE: *2/2/10*

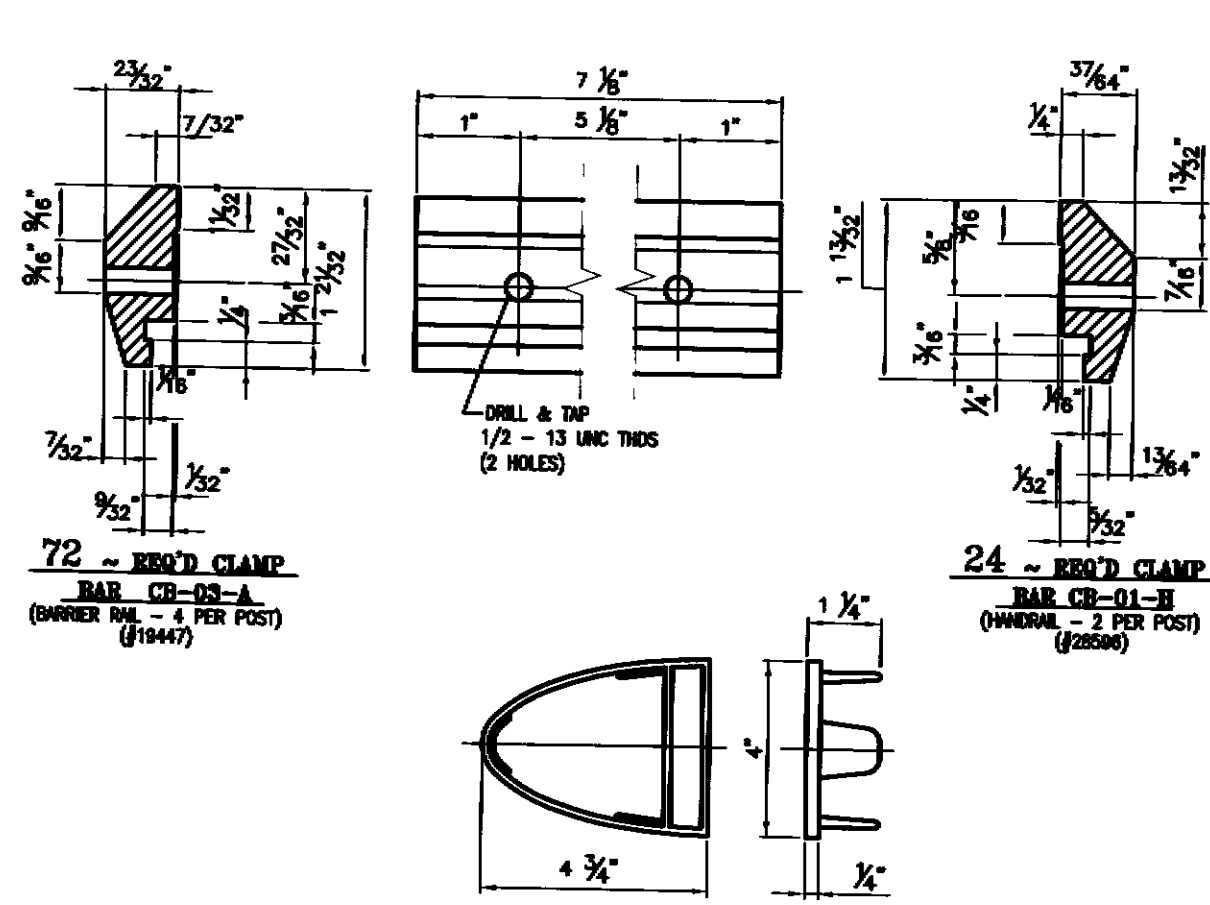


REAR ELEVATION VIEW

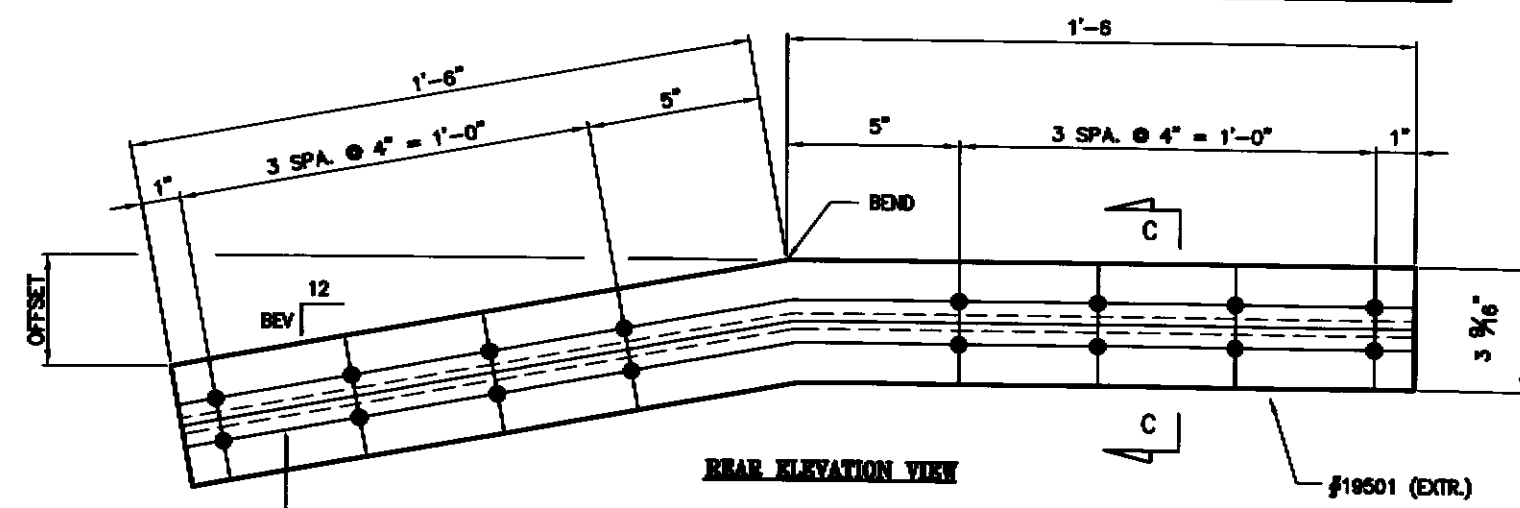
HANDRAIL SPLICES				
MK.	QTY.	OFFSET	BEV	
SS-23-A1	2	11/16"	11/16	
SS-23-A2	1	3/4"	3/4	



SECTION B-B

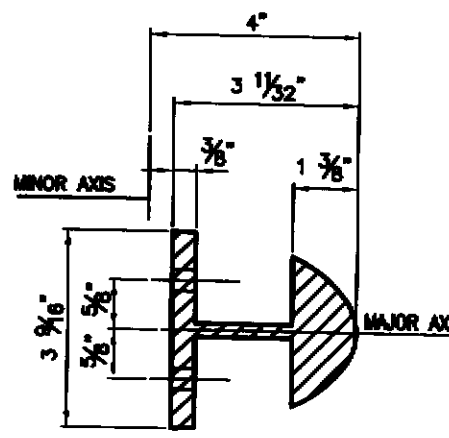


TYPICAL WELD DETAIL  
MIG WELDED SPLICES (OPTIONAL IF REQ'D.)



REAR ELEVATION VIEW

BARRIER RAIL SPLICES				
MK.	QTY.	OFFSET	BEV	
SS-03-G1	4	3/16"	1/8	
SS-03-G2	1	3/8"	1/4	
SS-03-G3	1	5/16"	3/16	



SECTION C-C

1: SUBMIT APPROVED BY *one* *one* *stett*

**ANODIZED**  
(SEE NOTES ON LIST)

PROJECT No. BWF 023-(5) ITEM No. 800340

APPROVED BY *one* *one* *stett*

**L.B. FOSTER COMPANY**  
1018 GREENWICH ROAD  
PETTUSBOROUGH, VERMONT 05490

FOR: F. R. LAFAYETTE, INCORPORATED  
VERMONT AGENCY OF TRANSPORTATION

STATE OF VERMONT, COUNTY OF FRANKLIN  
BRIDGE, PALING FOR BRIDGE #10, 11, 12, 13A UNDER INTERCH.  
ST. ALBANS APPROACH RAIL - MISC. DETAILS

DATE ONE: 11/08/08 JOB NO. 800002 DATE 11/08/08  
DATE TWO: 12/28/08 CHANGE #184000 REV NO. ONE