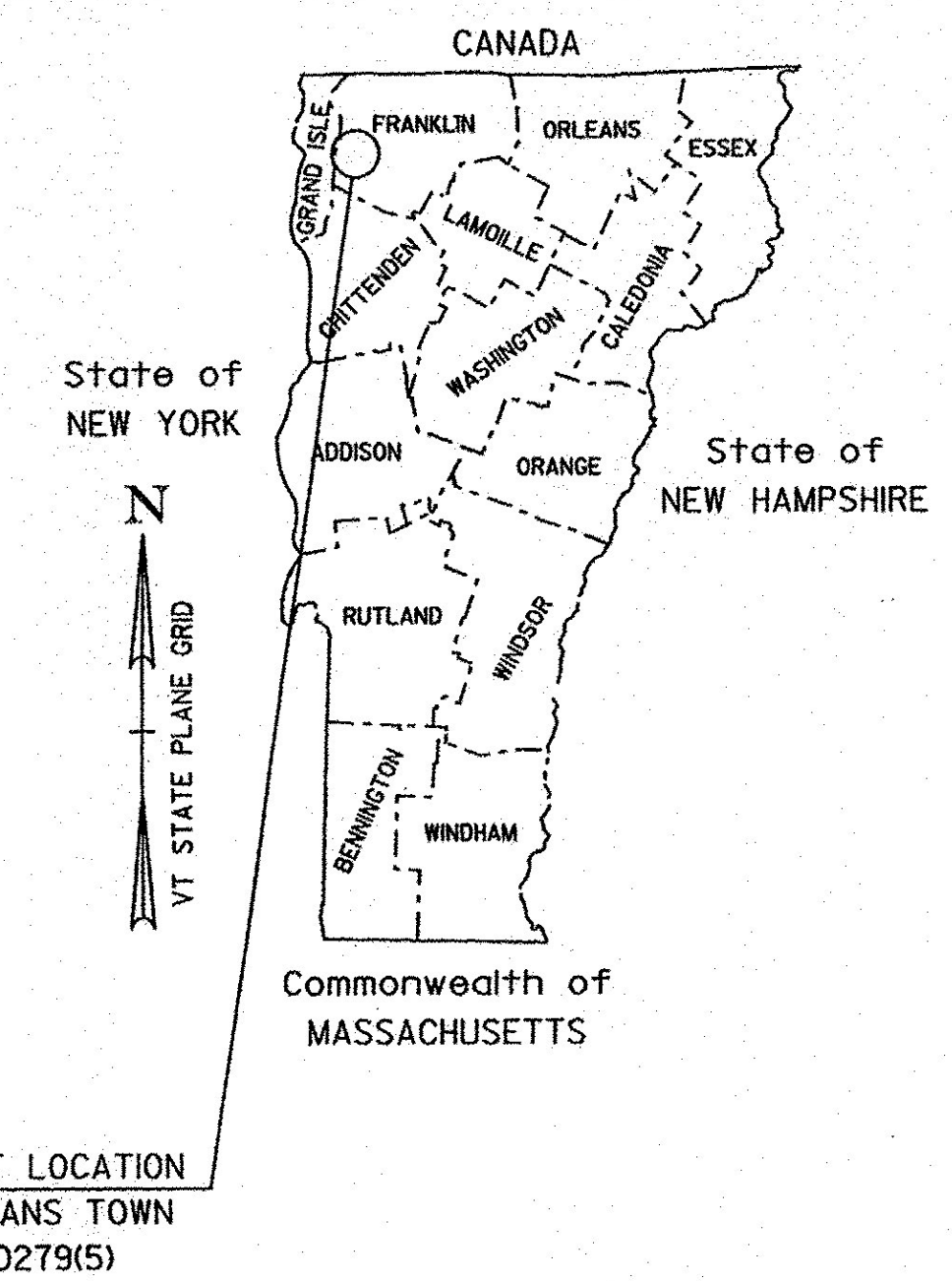
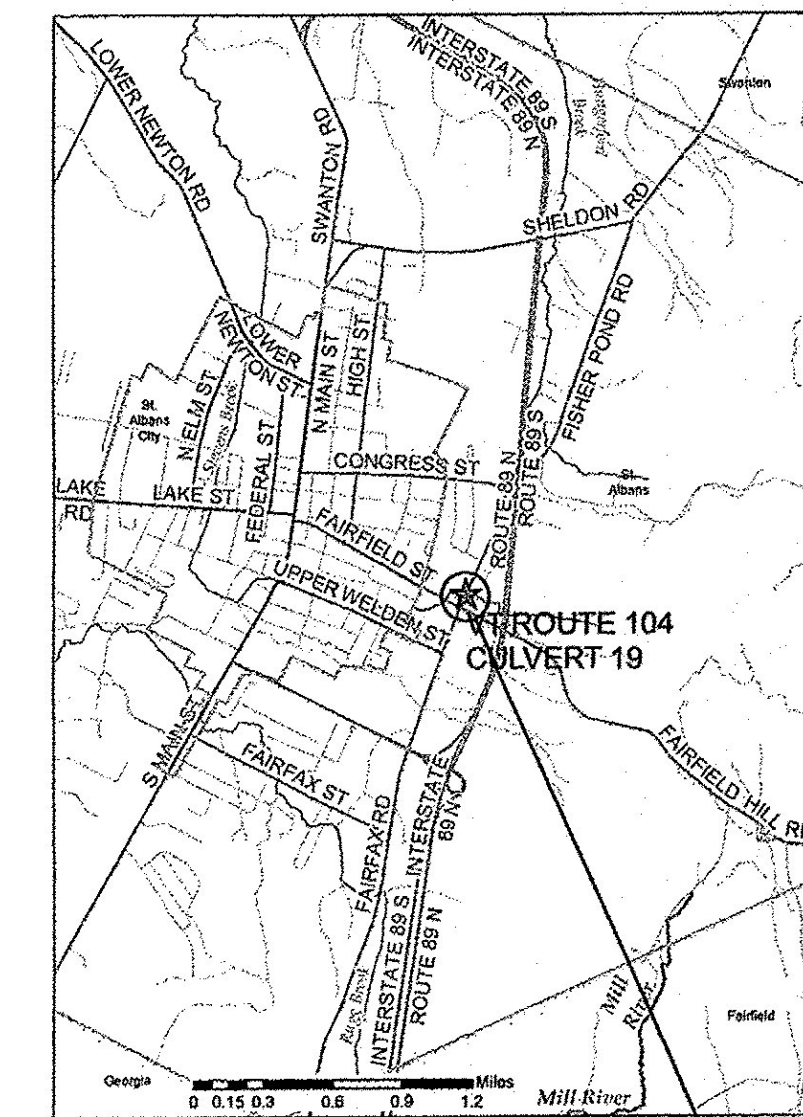


# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF ST. ALBANS  
COUNTY OF FRANKLIN



PROJECT LOCATION  
ST. ALBANS TOWN  
BF 0279(5)

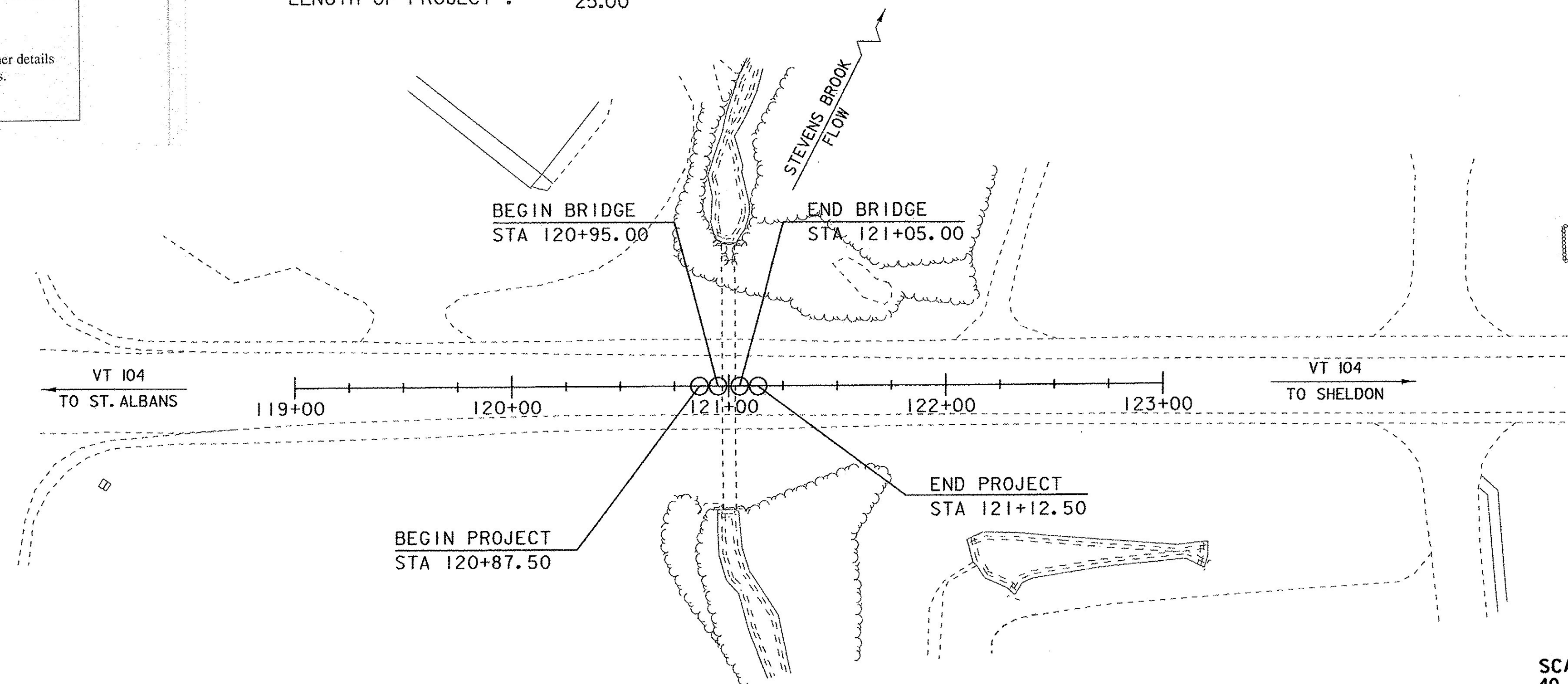
RECORD PLANS	
CONTRACTOR:	CCS CONSTRUCTORS LLC- MORRISVILLE, VT
RESIDENT ENGINEER:	SCOTT WHEATLEY
CONSTRUCTION BEGAN:	JULY 27, 2017
CONSTRUCTION COMPLETE:	AUGUST 05, 2017
RECORD PLANS BY:	SCOTT WHEATLEY & JESSE IVES
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	RESIDENT ENGINEER
DATE	JULY 24, 2018
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.	

ROUTE NO : VT 104 (RURAL MAJOR COLLECTOR), CULVERT #19

PROJECT LOCATION : APPROXIMATELY 350 FT NORTH OF THE INTERSECTIONS OF VT 36 AND VT 104.

PROJECT DESCRIPTION : REMOVAL OF EXISTING STRUCTURE AND REPLACEMENT WITH A NEW PRECAST STRUCTURE.

LENGTH OF STRUCTURE : 10.00  
 LENGTH OF ROADWAY : 15.00  
 LENGTH OF PROJECT : 25.00



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

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	L. ORVIS, PC
SURVEYED DATE :	1-7-2015
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1992)

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

DIRECTOR OF PROJECT DELIVERY	
APPROVED	DATE 1/5/2017
PROJECT MANAGER : J.B. MCCARTHY	
PROJECT NAME : ST. ALBANS TOWN	
PROJECT NUMBER : BF 0279(5)	
SHEET 1 OF 29 SHEETS	

# PRELIMINARY INFORMATION SHEET (CULVERT)

INDEX OF SHEETS						FINAL HYDRAULIC REPORT									
<b>PLAN SHEETS</b>						<b>HYDROLOGIC DATA</b> Date: October 2015									
<b>STRUCTURES DETAIL SHEETS</b>						<b>PROPOSED STRUCTURE</b>									
<b>STANDARDS LIST</b>						<b>PERMIT INFORMATION</b>									
<b>TRAFFIC DATA</b>						<b>TEMPORARY BRIDGE REQUIREMENTS</b>									
<b>AS BUILT "REBAR" DETAIL</b>						<b>ADDITIONAL INFORMATION</b>									
<b>CULVERT DESIGN CRITERIA</b>						<b>TRAFFIC MAINTENANCE NOTES</b>									
<b>LRFR LOAD RATING FACTORS</b>						<b>DESIGN VALUES</b>									
<b>UPSTREAM STRUCTURE</b>						<b>EXISTING STRUCTURE INFORMATION</b>									
<b>DOWNSTREAM STRUCTURE</b>						<b>LONG TERM STREAMBED CHANGES</b>									
<b>LOADING LEVELS</b>						<b>IS THE ROADWAY OVERTOPPED BELOW 1% AEP?</b>									
<b>TONNAGE</b>						<b>RELIEF ELEVATION</b>									
<b>INVENTORY</b>						<b>DISCHARGE OVER ROAD @ 1% AEP</b>									
<b>POSTING</b>						<b>WATERSHED STORAGE</b>									
<b>OPERATING</b>						<b>UNIFORM</b>									
<b>COMMENTS</b>						<b>IMMEDIATELY ABOVE SITE</b>									
<b>YEAR</b>						<b>EXISTS</b>									
<b>ADT</b>						<b>REMOVED</b>									
<b>DHV</b>						<b>ADDED</b>									
<b>% D</b>						<b>REPLACED</b>									
<b>% T</b>						<b>REMOVED</b>									
<b>ADTT</b>						<b>ADDED</b>									
<b>20 year ESAL for flexible pavement from 2014 to 2034</b>						<b>REMOVED</b>									
<b>40 year ESAL for flexible pavement from 2014 to 2054</b>						<b>ADDED</b>									
<b>Design Speed: 40 mph</b>						<b>REMOVED</b>									



**GENERAL**

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011 AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6<sup>TH</sup> EDITION, AND ITS LATEST REVISIONS.
2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES F UNLESS OTHERWISE NOTED.
3. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT, OR AS DIRECTED BY THE ENGINEER.
4. THE STEEL PLATES INSTALLED IN THE NORTH BOUND LANE SHALL REMAIN PROPERTY OF THE AGENCY. SEE SPECIAL PROVISION 20 FOR THE REMOVAL AND DISPOSAL OF THE STEEL PLATES.

**TRAFFIC CONTROL**

5. PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE FULLY OPERATIONAL A MINIMUM OF TWO WEEKS PRIOR TO THE BRIDGE CLOSURE PERIOD.
6. DURING THE ACTUAL CLOSURE. ELIMINATE PHASE 3 FOR S-1, AND REMOVE S-2 (SEE DETOUR PLAN).
7. A UNIFORMED TRAFFIC CONTROL OFFICER SHALL BE POSTED AT THE CLOSEST INTERSECTIONS TO THE CONSTRUCTION SITE DURING NIGHTTIME HOURS OF THE CLOSURE.
8. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES FOR IMPLEMENTING THE DETOUR WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
9. DETOUR SIGNS SHALL BE LOCATED ADJACENT TO EXISTING INTERSECTION ROUTE MARKER ASSEMBLIES WHERE APPLICABLE.
10. CONFIRMATION ROUTE MARKERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING EACH TURN AND AT ALL LOCATIONS ALONG DETOUR WHERE ROUTE MARKERS EXIST FOR THE PARENT ROUTE.
11. ANY EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN SHALL BE COVERED AS DIRECTED BY THE ENGINEER.
12. THE CONTRACTOR CANNOT BEGIN CONSTRUCTION UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED.

**EARTHWORK**

13. THE CONTRACTOR MAY SUBSTITUTE SUBBASE MATERIAL FOR THE SAND BORROW AS SHOWN IN THE MATERIAL TRANSITION DETAIL. THE SUBBASE MATERIAL SHALL BE THE TYPE SPECIFIED IN THE CONTRACT AND 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 ROADBED SEPARATOR" SHALL BE PLACED BETWEEN THE SUBGRADE AND SUBBASE MATERIAL. THIS GEOTEXTILE SHALL BE INCIDENTAL TO ITEM 301.35 "SUBBASE OF DENSE GRADED CRUSHED STONE".
14. THE AREA OF DISTURBANCE FOR THIS CULVERT HAS BEEN DEEMED BY THE VTRANS ARCHAEOLOGY OFFICER TO BE PREVIOUSLY DISTURBED.
15. CONCRETE BOUNDARY MARKERS ARE TO BE LOCATED AND RESET BY A LICENSED LAND SURVEYOR. PAYMENT SHALL BE MADE UNDER ITEM 619.20 "REMOVING AND RESETTING PROPERTY MARKERS".

**PRECAST CONCRETE**

16. ALL CONCRETE SHALL BE PRECAST. NO SUBSTITUTIONS WILL BE ALLOWED.
17. ITEM 540.10 "PRECAST CONCRETE STRUCTURE" INCLUDES ALL PRECAST CONCRETE COMPONENTS INCLUDING ALL BOX SEGMENTS, BAFFLES, CUT OFF WALLS, HEADWALLS, WINGWALLS AND ALL CONNECTIONS BETWEEN THESE COMPONENTS. SAID CONNECTIONS SHALL BE DESIGNED BY THE PRECAST FABRICATOR AND SUBMITTED TO THE VTRANS ENGINEER. THE SOIL PROPERTIES AND DESIGN PARAMETERS USED FOR THIS PROJECT ARE AS INDICATED BELOW:
  - A. SOIL UNIT WEIGHT = 140 PCF
  - B. DESIGN LIVE LOAD = HL-93
  - C. NOMINAL BEARING RESISTANCE (BEDROCK) = N/A
  - D. NOMINAL BEARING RESISTANCE (GRANULAR BACKFILL) = 3.69 KSF
  - E. BEARING RESISTANCE FACTOR = 0.45
  - F. DESIGN FILL OVER BOX = SEE PLAN DETAILS
  - G. AT-REST EARTH PRESSURE (K<sub>o</sub>) = 0.43
  - H. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05(e)FURTHER DATA CAN BE FOUND IN THE GEOTECHNICAL REPORT DATED SEPTEMBER 24<sup>TH</sup>, 2015
18. THE PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED FOR HYDROSTATIC PRESSURE UNLESS RAPID DRAINING MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 704.16 IS USED.
19. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. THE MINIMUM INSIDE DIMENSIONS SHALL BE 7'-0" IN HEIGHT AND 10'-0" IN WIDTH. THE OVERALL LENGTH OF THE BOX SHALL BE 90'-0" ALONG THE STREAMBED GRADE. THE EXPOSED ENDS OF THE FIRST AND LAST UNITS SHALL BE VERTICAL.

20. ALL LIFTING HOLES AND BOLT POCKETS SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. FILLING THE JOINTS BETWEEN SEGMENTS WITH GROUT IS NOT REQUIRED.
21. NO ADDITIONAL WORK (I.E. BACKFILLING OR MEMBRANE) IS ALLOWED UNTIL THE GROUT HAS REACHED A STRENGTH OF 2000 PSI OR 30% OF MAXIMUM.
22. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".
23. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE APPLIED TO ALL EXPOSED EXTERIOR SURFACES OF THE PRECAST CONCRETE STRUCTURE.
24. SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET, MEETING THE REQUIREMENTS OF SUBSECTION 519.02 SHALL BE APPLIED TO THE TOP AND THREE (3) FEET DOWN THE SIDES OF THE JOINTS BETWEEN ADJACENT PRECAST CONCRETE BOXES. PAYMENT FOR MEMBRANE WILL BE INCIDENTAL TO CONTRACT ITEM 540.10 "PRECAST CONCRETE STRUCTURE (10'-0" X 7'-0" X 90'-0" BOX)".
25. GEOTEXTILE FABRIC SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 649 AND SHALL BE APPLIED TO THE INTERFACE OF THE BOX SEGMENT AND WINGWALLS. PAYMENT FOR THIS GEOTEXTILE FABRIC WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10 "PRECAST CONCRETE STRUCTURE (10'-0" X 7'-0" X 90'-0" BOX)".
26. A BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO WINGWALL 2. SEE SD-502.00 FOR FURTHER DETAILS.
27. BAFFLES SHALL BE DESIGNED BY THE FABRICATOR AND SHALL BE SPACED A MAXIMUM OF EVERY 8'-0" AND AT THE INLET AND OUTLET.

**REINFORCING STEEL**

28. ALL REINFORCING STEEL SHALL BE LEVEL I (EPOXY) REINFORCING STEEL IN ACCORDANCE WITH SECTION 507.
29. ALL REINFORCING STEEL SHALL HAVE A MINIMUM CLEAR COVER OF 2"
30. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
  - A. SPACING +/- 1"
  - B. CLEARANCE +/- ¼"

**ENVIRONMENTAL**

31. EROSION CONTROL MEASURES SHALL BE UTILIZED AS REQUIRED AND SHALL BE PER SECTION 105 OF THE STANDARD SPECIFICATIONS AND THE LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL FROM THE AGENCY OF NATURAL RESOURCES. SEE SUBSECTION 105.23 FOR EROSION CONTROL PLAN REQUIREMENTS.
32. THE CONTRACTOR SHALL PREVENT ANY MATERIAL FROM ENTERING THE WATERWAY DURING EXCAVATION, OR THE INSTALLATION OF THE NEW STRUCTURE.
33. THE DESIGN INTENT IS TO ALLOW THE CONTRACTOR TO STAGE IN THE TRAVELED ROADWAY OF THE APPROACHES TO THE BRIDGE DURING THE CLOSURE PERIOD. ANY STAGING AREAS OUTSIDE OF THIS SHALL BE CLEARED FOR RESOURCES THROUGH THE VTRANS ENVIRONMENTAL UNIT.
34. AN EXISTING CONDITIONS SHEET HAS BEEN INCLUDED IN THE PLANS FOR USE OF THE CONTRACTOR IN SUBMITTALS.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	BF 0279(5)
FILE NAME: sl2c598notes.dgn	PLOT DATE: 10-JAN-2017
PROJECT LEADER: J.B. MCCARTHY	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J.B.MCCARTHY
PROJECT NOTES	SHEET 4 OF 29

# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL CE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				<b>EARTHWORK SUMMARY</b>
							360				360		CY	COMMON EXCAVATION	203.15		360.00	CY	COMMON EXCAVATION (360*1.0)
									520		520		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		390.00	CY	UNCLASSIFIED CHANNEL EXCAVATION (520*0.75)
																	480.00	CY	STRUCTURE EXCAVATION (640*0.75)
							80				80		CY	SAND BORROW	203.31				
							1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		1230.00	CY	SUB TOTAL
									640		640		CY	STRUCTURE EXCAVATION	204.25		0	CY	ROUNDING
									300		300		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1230.00	CY	TOTAL FILL AVAILABLE
							450				450		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10		10.00	CY	TOTAL FILL REQUIRED
							160				160		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		1220.00	CY	TOTAL WASTE
							7				7		CWT	EMULSIFIED ASPHALT	404.65				
							1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				<b>SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)</b>
									10		10		GAL	WATER REPELLENT, SILANE	514.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (10'-0" x 7'-0" x 90'-0" BOX)	540.10		150	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IIS
								1			1		MGAL	DUST CONTROL WITH WATER	609.10		130	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IVS
									360		360		CY	STONE FILL, TYPE IV	613.13		280	TON	TOTAL SUPERPAVE
							3				3		EACH	REMOVING AND RESETTING PROPERTY MARKERS	619.20				
							120				120		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
							200				200		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
							1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
							6				6		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
							412.5				412.5		LF	4 INCH WHITE LINE	646.20				
							400				400		LF	4 INCH YELLOW LINE	646.21				
									480		480		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								115			115		SY	GEOTEXTILE FOR SILT FENCE	649.51				
								13			13		LB	SEED	651.15				
								120			120		LB	FERTILIZER	651.18				
								1			1		TON	AGRICULTURAL LIMESTONE	651.20				
								1			1		TON	HAY MULCH	651.25				
							110				110		CY	TOPSOIL	651.35				
									150		150		SY	GRUBBING MATERIAL	651.40				
								1			1		LS	EPSC PLAN	652.10				
								40			40		HR	MONITORING EPSC PLAN	652.20				
								1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
								60			60		CY	VEHICLE TRACKING PAD	653.35				
								1			1		EACH	FILTER BAG	653.45				
								470			470		LF	PROJECT DEMARCATION FENCE	653.55				
							1.67				1.67		SF	TRAFFIC SIGNS, TYPE A	675.20				

PROJECT NAME: ST. ALBANS TOWN  
PROJECT NUMBER: BF 0279(5)  
FILE NAME: sl2c598qs.dgn PLOT DATE: 10-JAN-2017  
PROJECT LEADER: J.B. MCCARTHY DRAWN BY: J. SALVATORI  
DESIGNED BY: J. SALVATORI CHECKED BY: J.B. MCCARTHY  
QUANTITY SHEET 1 SHEET 5 OF 29

# QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL CE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							16				16		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
									135		135		CY	SPECIAL PROVISION (STONE FILL, STREAM BED MATERIAL)(TYPE II)	900.608				
							15000				15000		DL	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.615				
							3				3		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620				
							1				1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645				
							1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
							1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT)(N.A.B.I.)	900.650				
							1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
							280				280		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598qs.dgn	CHECKED BY:	J.B. MCCARTHY
PROJECT LEADER:	J.B. MCCARTHY	DESIGNED BY:	J. SALVATORI
QUANTITY SHEET 2		SHEET	6 OF 29

GPS CONTROL POINTS

FAFASTA 1  
 NORTH = 824454.5256  
 EAST = 1490671.2570  
 ELEV. = 603.3550

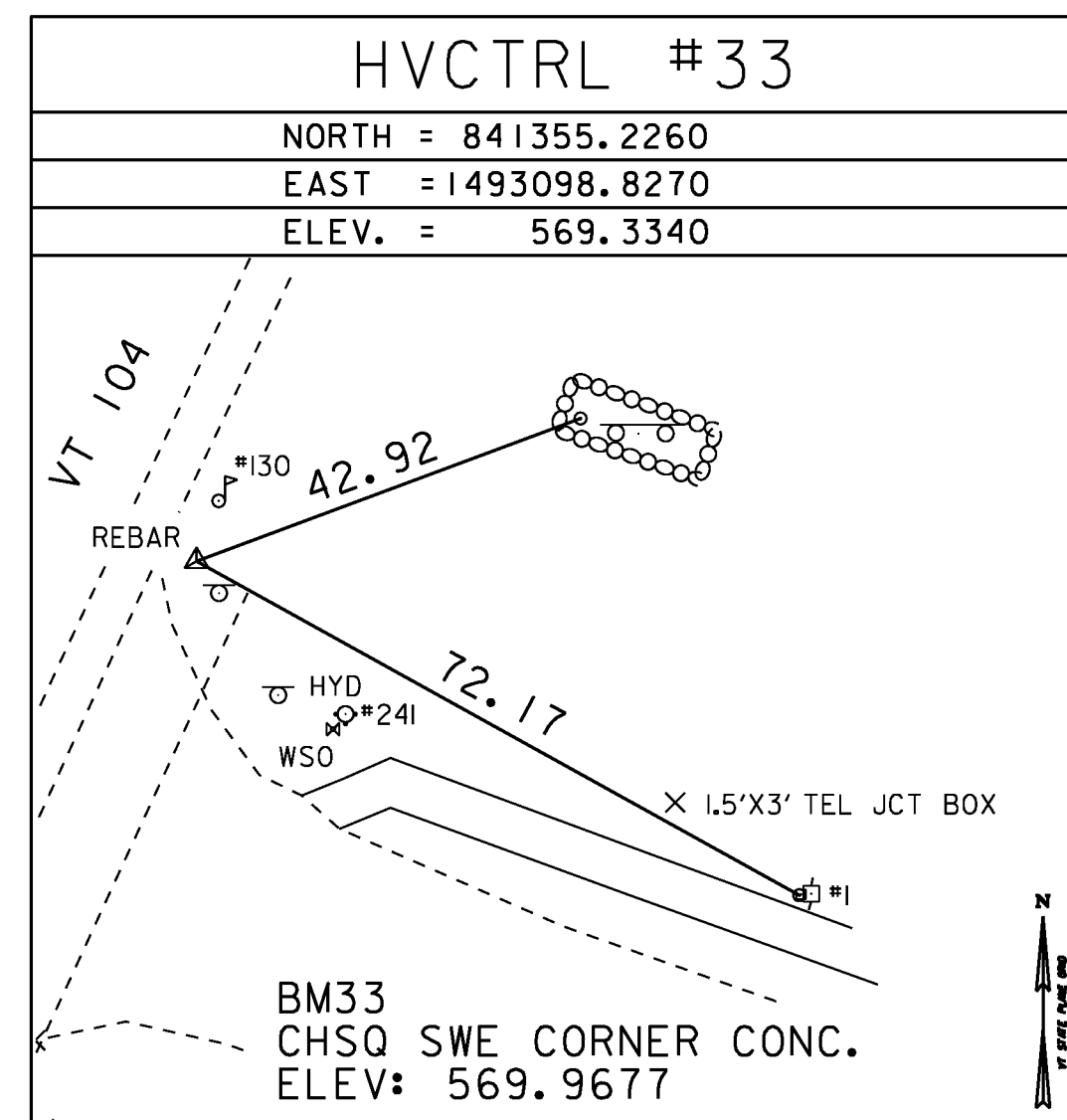
GENERAL LOCATION, FAIRFAX, VT. TO REACH FROM THE I-89 SOUTHBOUND BRIDGE OVER THE ACCESS ROAD AT EXIT 19 IN ST ALBANS GO SOUTH ALONG I-89 SOUTHBOUND FOR 2.4 MI (3.9 KM) TO THE SOUTH END OF THE I-89 SOUTHBOUND BRIDGE OVER VT ROUTE 104 AND THE SITE OF THE MARK ON THE LEFT IN THE MEDIAN. THE MARK IS A CENTERPUNCHED REBAR DRIVEN FLUSH WITH GROUND SURFACE. IT IS 8.1 M (26.6 FT) SOUTHEAST OF THE SOUTHWEST CORNER OF THE SOUTHBOUND BRIDGE ABUTMENT, 6.4 M (21.0 FT) WEST OF THE SOUTHWEST CORNER OF THE NORTHBOUND BRIDGE ABUTMENT, 1.7 M (5.6 FT) SOUTH OF THE SOUTH FACE OF THE GUARD RAIL, AND 0.3 M (1.0 FT) SOUTH OF A FIBERGLASS WITNESS POST.

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 EAST = 1490357.1370  
 ELEV. = 624.1130

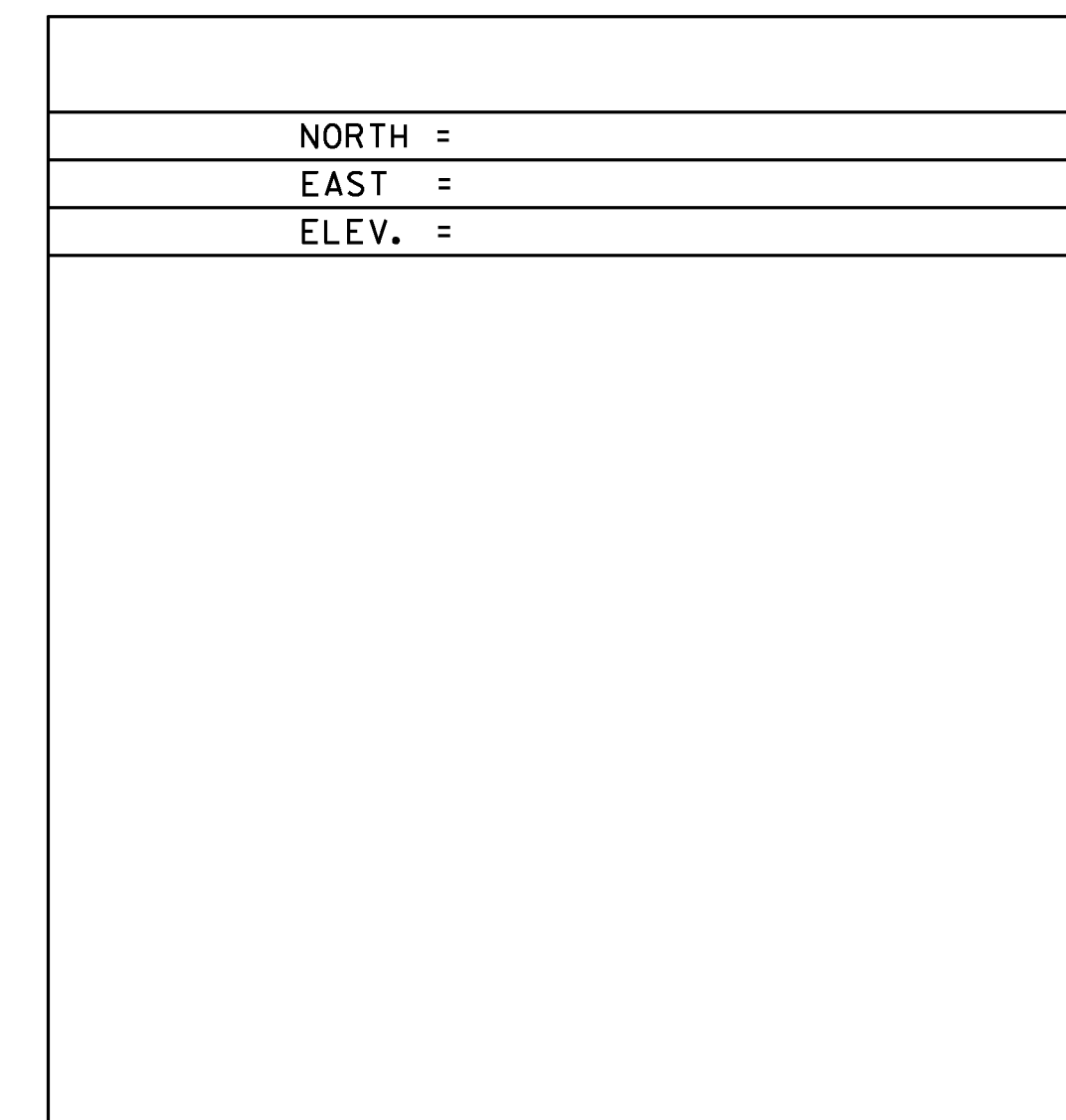
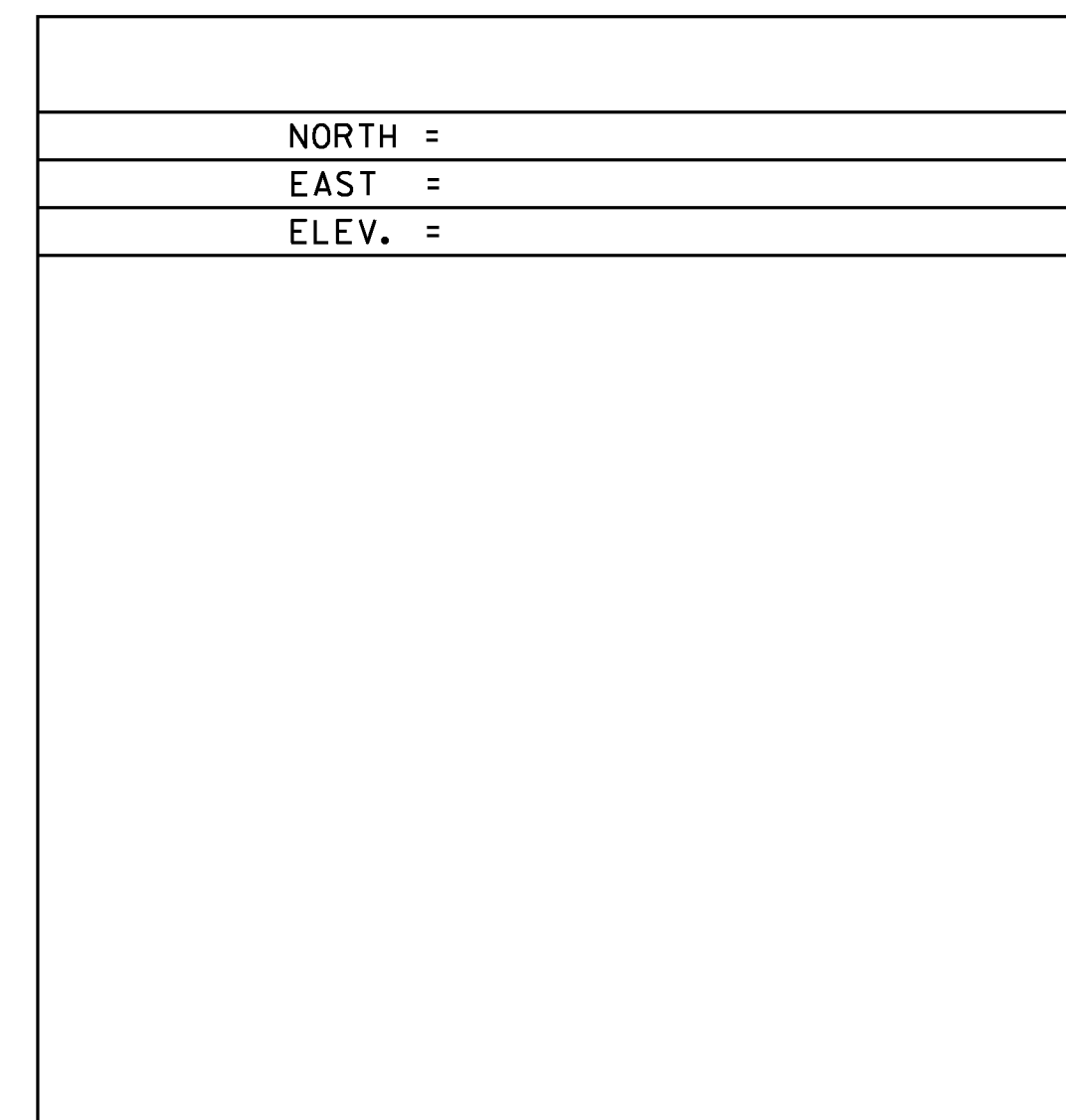
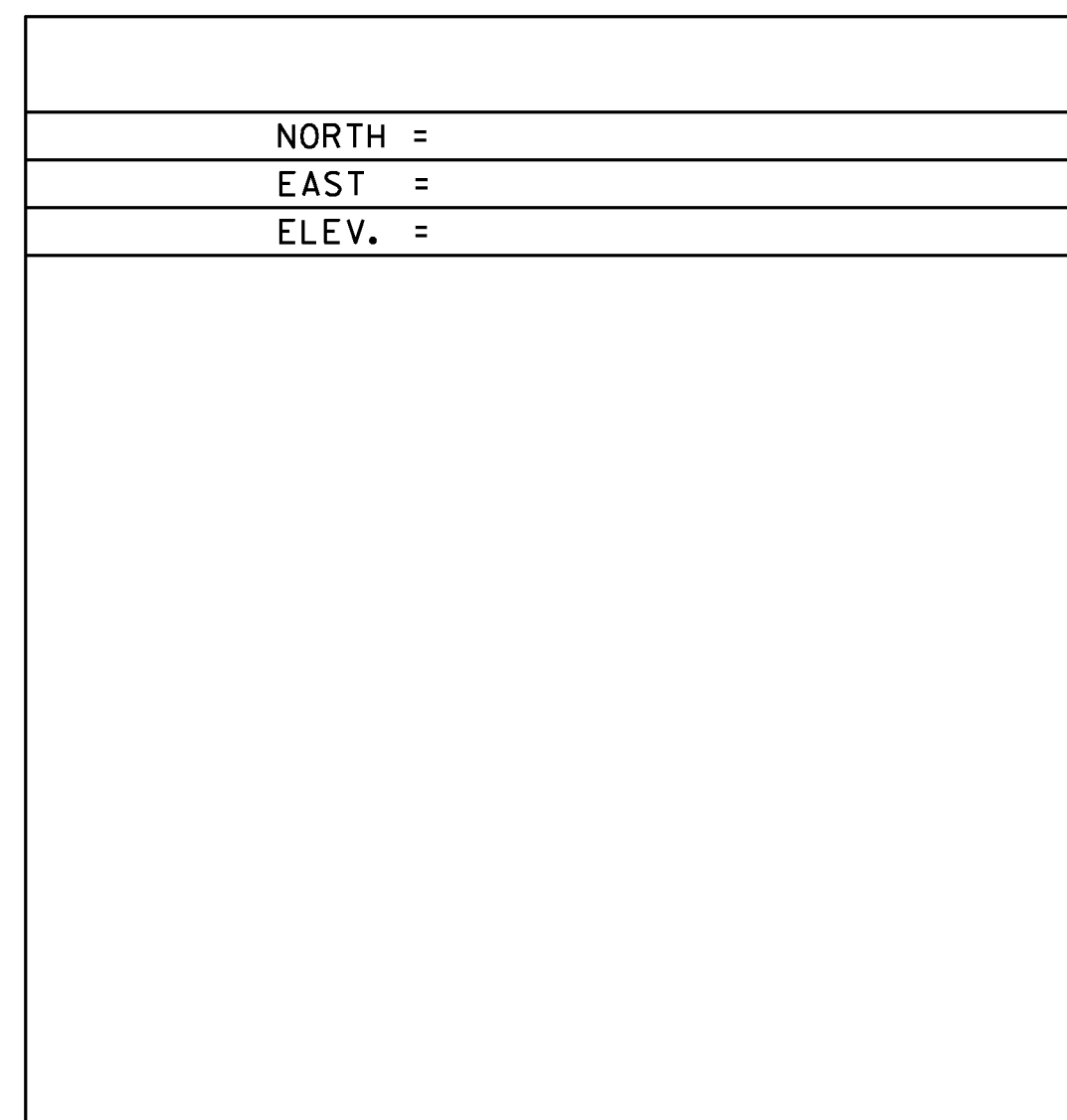
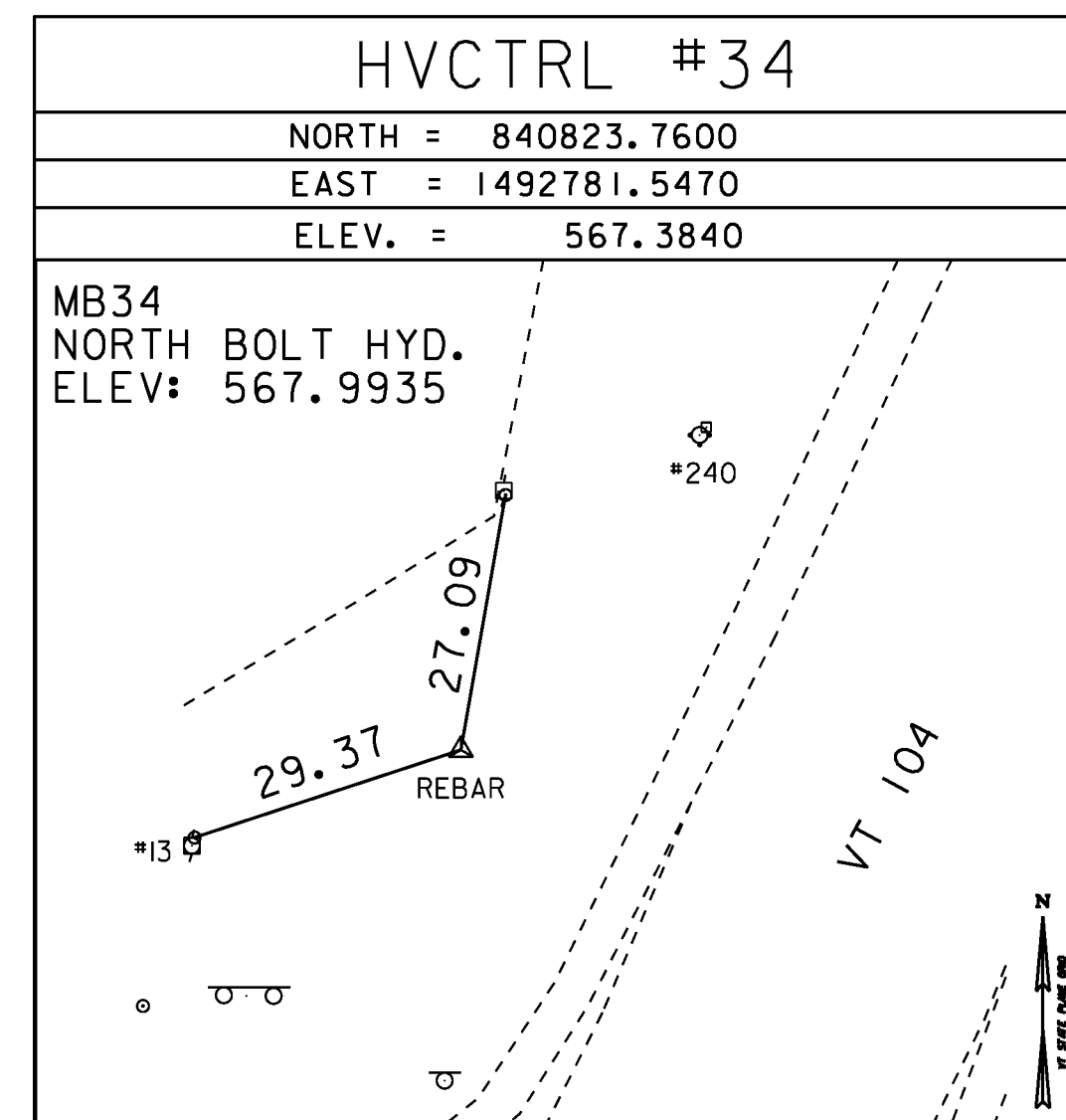
GENERAL LOCATION, FAIRFAX, VT. TO REACH FROM THE I-89 SOUTHBOUND BRIDGE OVER THE ACCESS ROAD AT EXIT 19 IN ST ALBANS GO SOUTH ALONG I-89 SOUTHBOUND FOR 2.8 MI (4.5 KM) TO THE SOUTHBOUND REST AREA ON THE RIGHT AND THE MARK ON THE RIGHT IN A GRASS AREA BETWEEN THE REST AREA AND THE SOUTHBOUND LANE. THE MARK IS A DRILL HOLE IN THE TOP OF THE NORTH END OF A CONCRETE DROP INLET TOP. IT IS 3.8 M (12.5 FT) WEST OF AND ABOUT 1 M (3.3 FT) LOWER THAN THE WEST EDGE OF PAVEMENT OF THE SOUTHBOUND LANE, 28.2 M (92.5 FT) NORTH OF MILE MARKER 110.95, 18.4 M (60.4 FT) EAST OF A 15 CM MAPLE, AND 0.4 M (1.3 FT) EAST OF A FIBERGLASS WITNESS POST.

\*GPS CONTROL PROVIDED BY VT GSU 2014

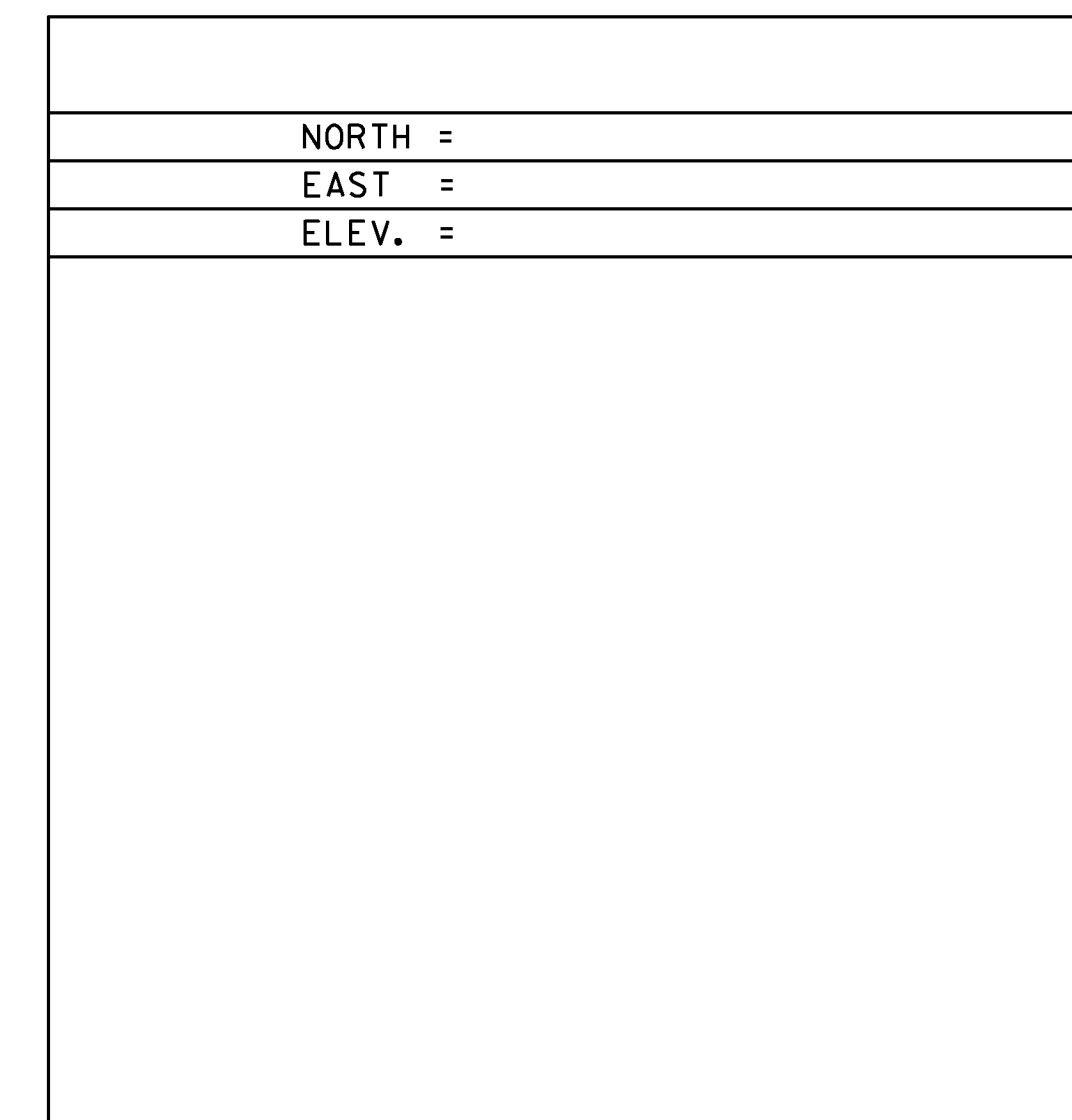
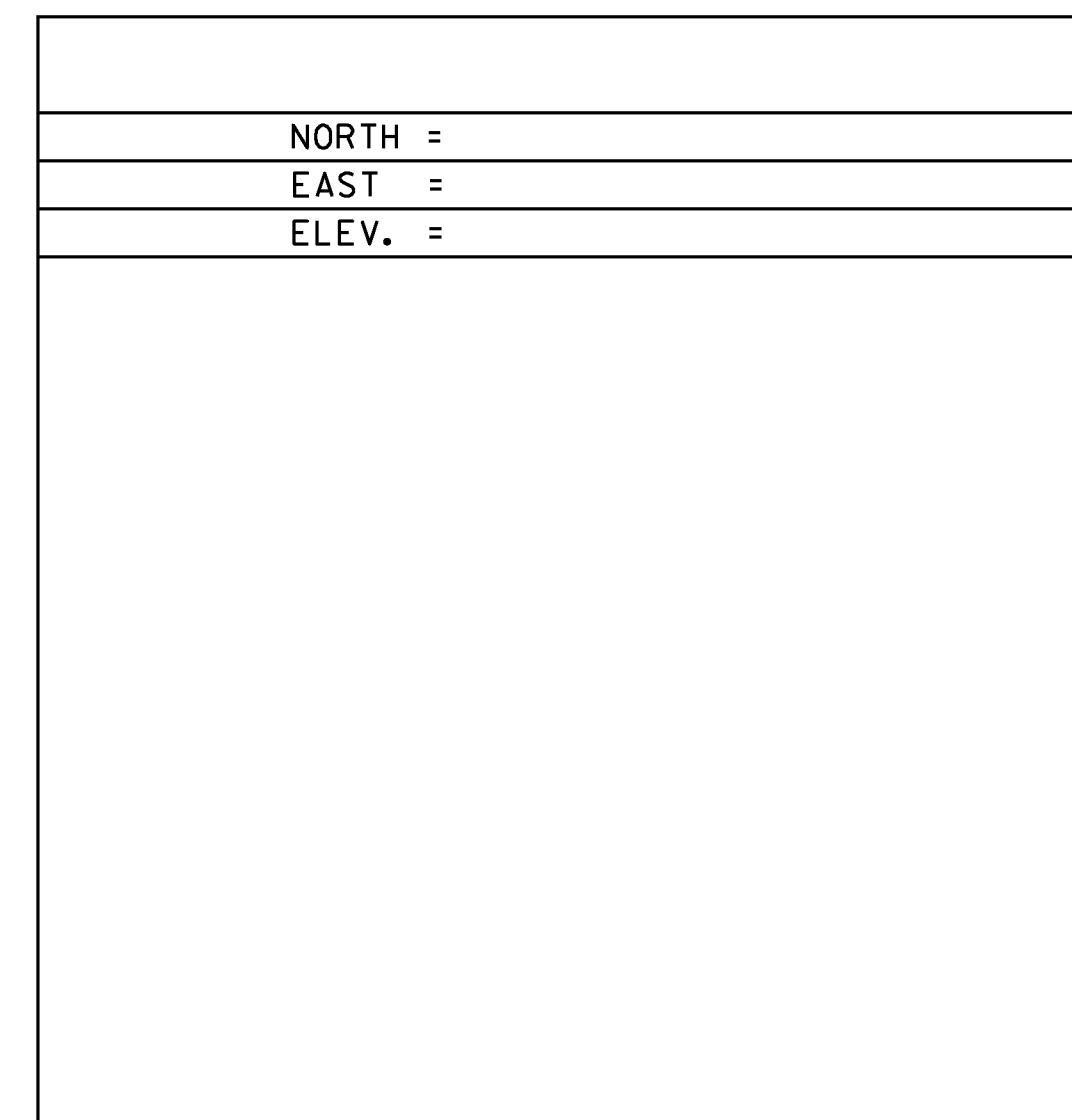
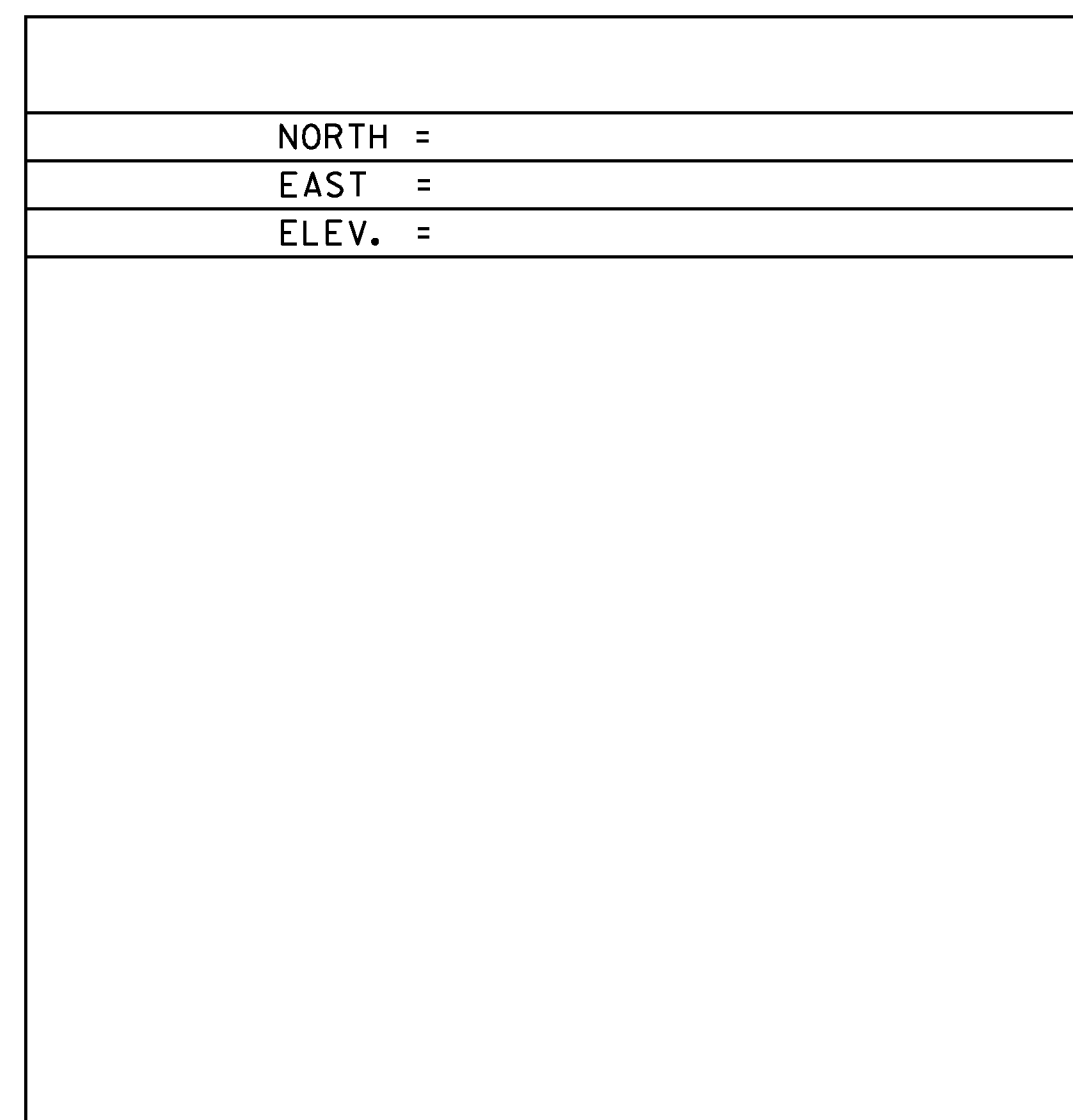
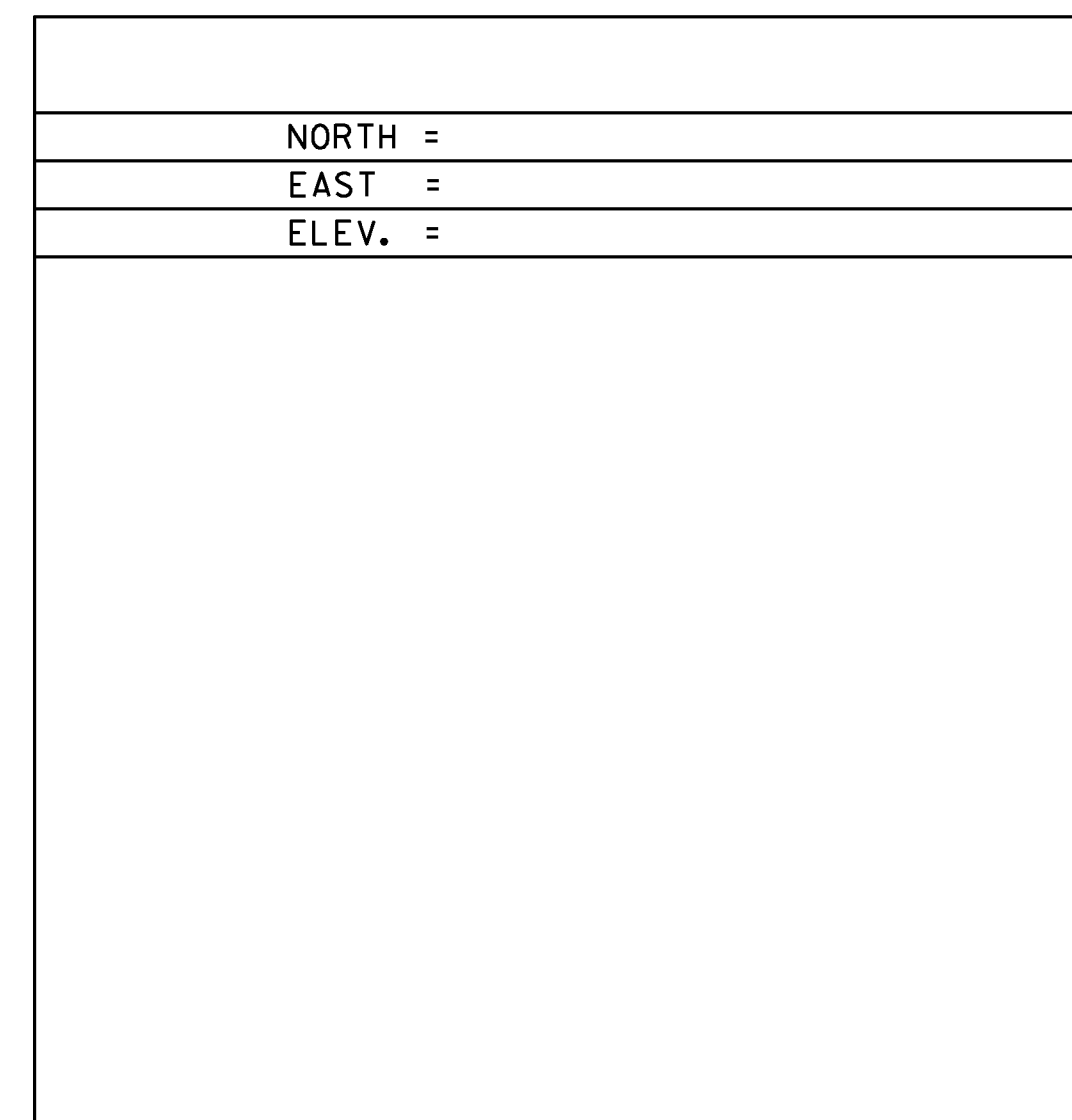
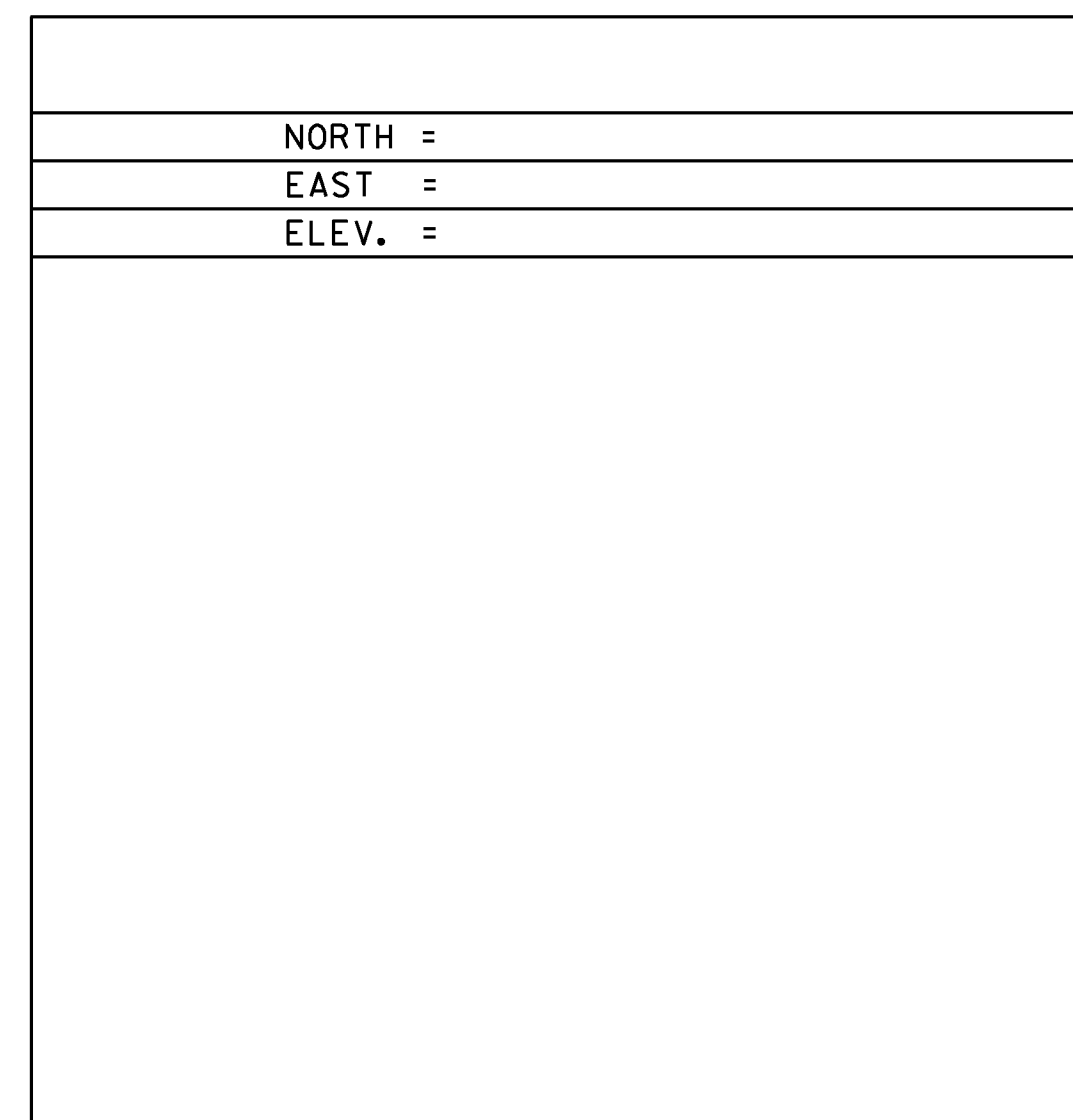
TRAVERSE TIES



\*TRAVERSE COMPLETED 12/02/2014 BY L. ORVIS P. C. & H. MCGOWAN



ALIGNMENT TIES

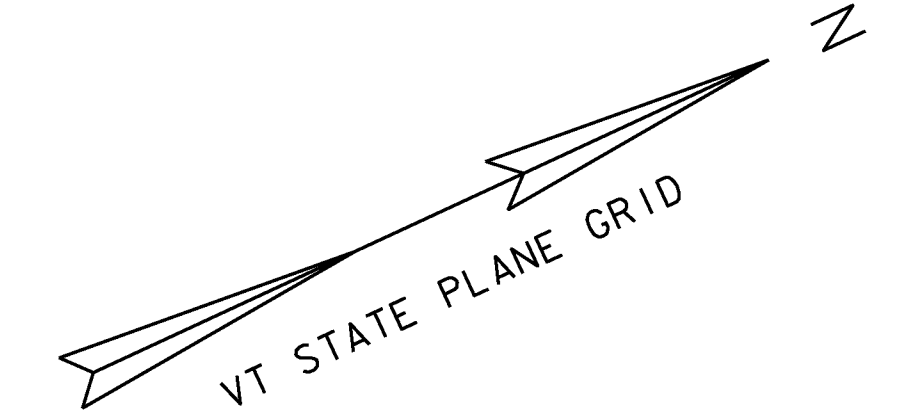


DATUM  
 VERTICAL NAVD 88  
 HORIZONTAL NAD 83 (1992)  
 ADJUSTMENT COMPASS

PROJECT NAME: ST. ALBANS TOWN  
 PROJECT NUMBER: BF 0279 (5)  
 FILE NAME: X12C598TI.DGN PLOT DATE: 10-JAN-2017  
 PROJECT LEADER: J.B. MCCARTHY DRAWN BY: G. HITCHCOCK  
 DESIGNED BY: VTRANS CHECKED BY: P. BEYOR  
 TIE SHEET 1 SHEET 7 OF 29

SOIL DATA:  
ST. ALBANS SLATY LOAM  
8% - 15% SLOPES  
"K" = 0.24  
POTENTIALLY HIGHLY ERODIBLE

SOIL DATA:  
GEORGIA STONY LOAM  
3% - 8% SLOPES  
"K" = 0.32  
POTENTIALLY HIGHLY ERODIBLE



SOIL DATA:  
GEORGIA STONY LOAM  
3% - 8% SLOPES  
"K" = 0.32  
POTENTIALLY HIGHLY ERODIBLE

BENCHMARK #34  
NORTH BOLT HYD  
ELEV. 567.99

POLE #13

AER E&T

EXISTING R.O.W.

HVCTRL #34

HYD

PAVED DRIVE

AER E&T

POLE #33-1/39B/13-1

HVCTRL #42

M. POP

CONC BND

CONC BND

CONC BND

AER E&T

AER E&T

AER E&T

AER E&T

POLE #33-2/13-2

18" CGMP

EXISTING R.O.W.

PAVED DRIVE

AER E&T

GSO

WSO

VT 104  
TO ST. ALBANS

119+00

120+00

121+00

122+00

123+00

VT 104  
TO SHELDON

GUY POLE

HVCTRL #41

3-20' STEEL PLATES

HVCTRL #40

EXISTING R.O.W.

HVCTRL #33

18" CGMP

WSO

HYD

EXISTING R.O.W.

PAVED DRIVE

WSO

GV

WSO

ELM

L. POP

L. POP

ARCH

ARCH

ARCH

ARCH

ARCH

ARCH

ARCH

ARCH

ARCH

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ARCH

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S. MAP

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S. MAP

S. MAP

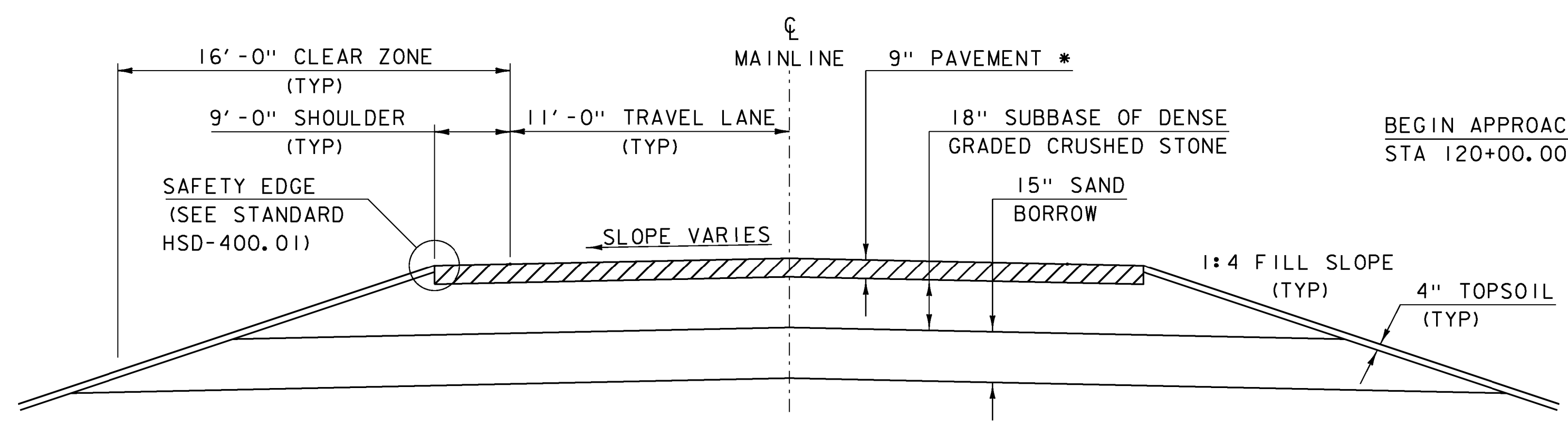
BENCHMARK #33  
CHSO, SWE CORNER  
ELEV. 569.97

EXISTING CONDITIONS

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

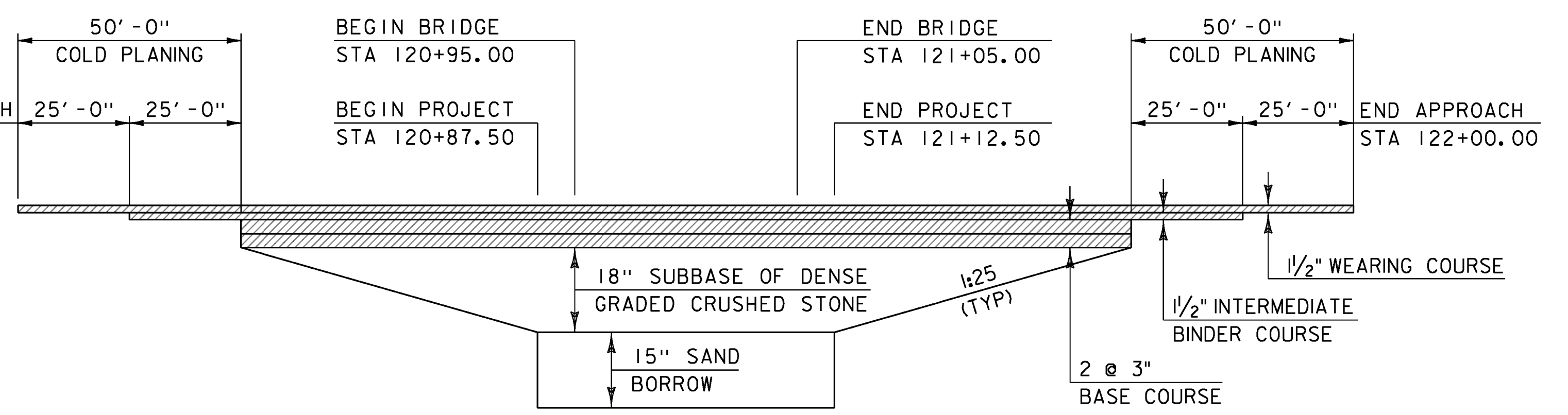
EXISTING BRIDGE DATA  
6' - 0" CGMP  
LENGTH = 121 FT  
BUILT IN 1989

PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598bdr_ex.dgn	DESIGNED BY:	J. SALVATORI
PROJECT LEADER:	J.B. MCCARTHY	CHECKED BY:	-----
EXISTING CONDITIONS		SHEET	8 OF 29



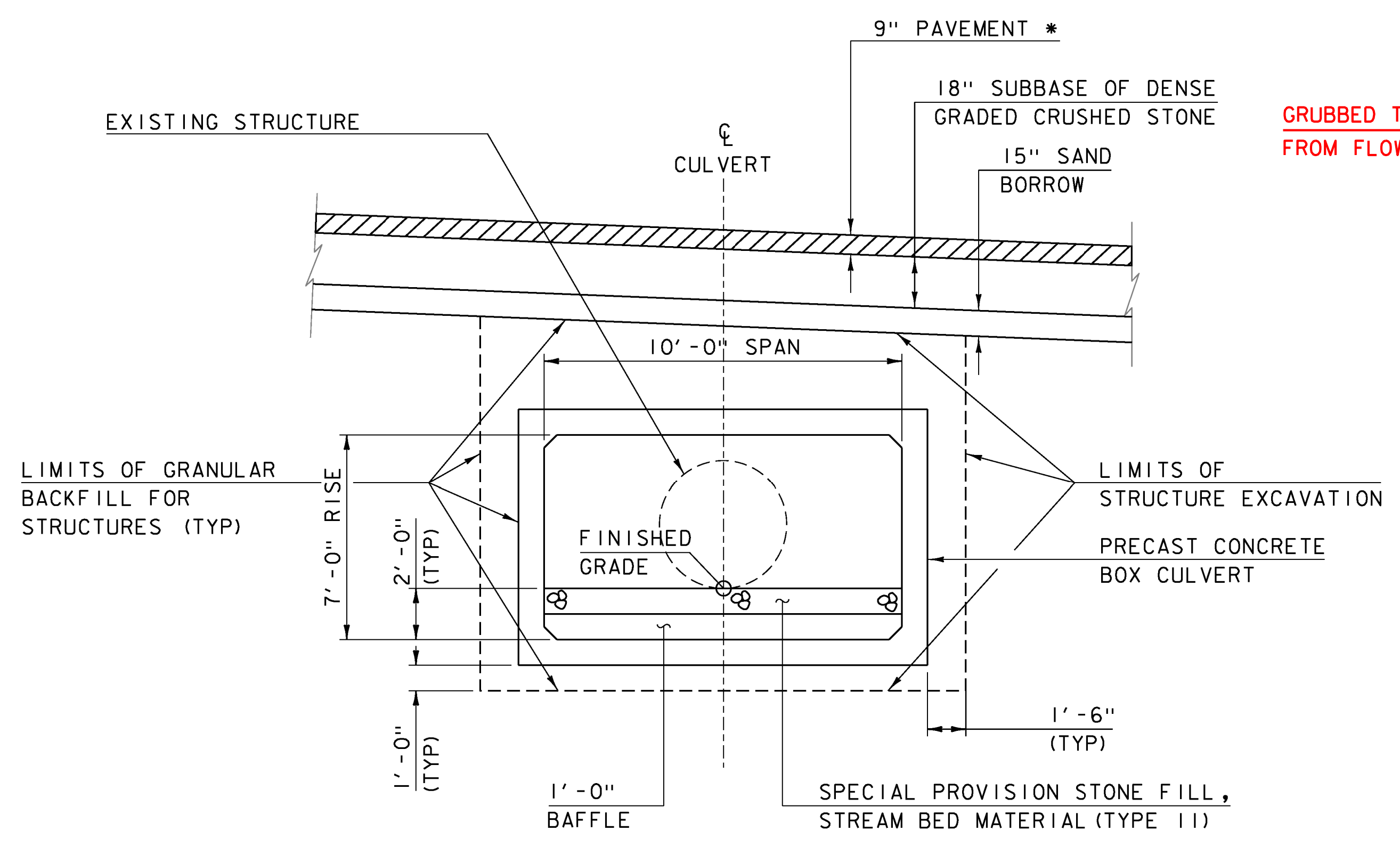
**ROADWAY TYPICAL SECTION**

NOT TO SCALE  
 \* 1 1/2" TYPE IVS OVER  
 1 1/2" TYPE IVS OVER  
 3" TYPE IIS OVER  
 3" TYPE IIS



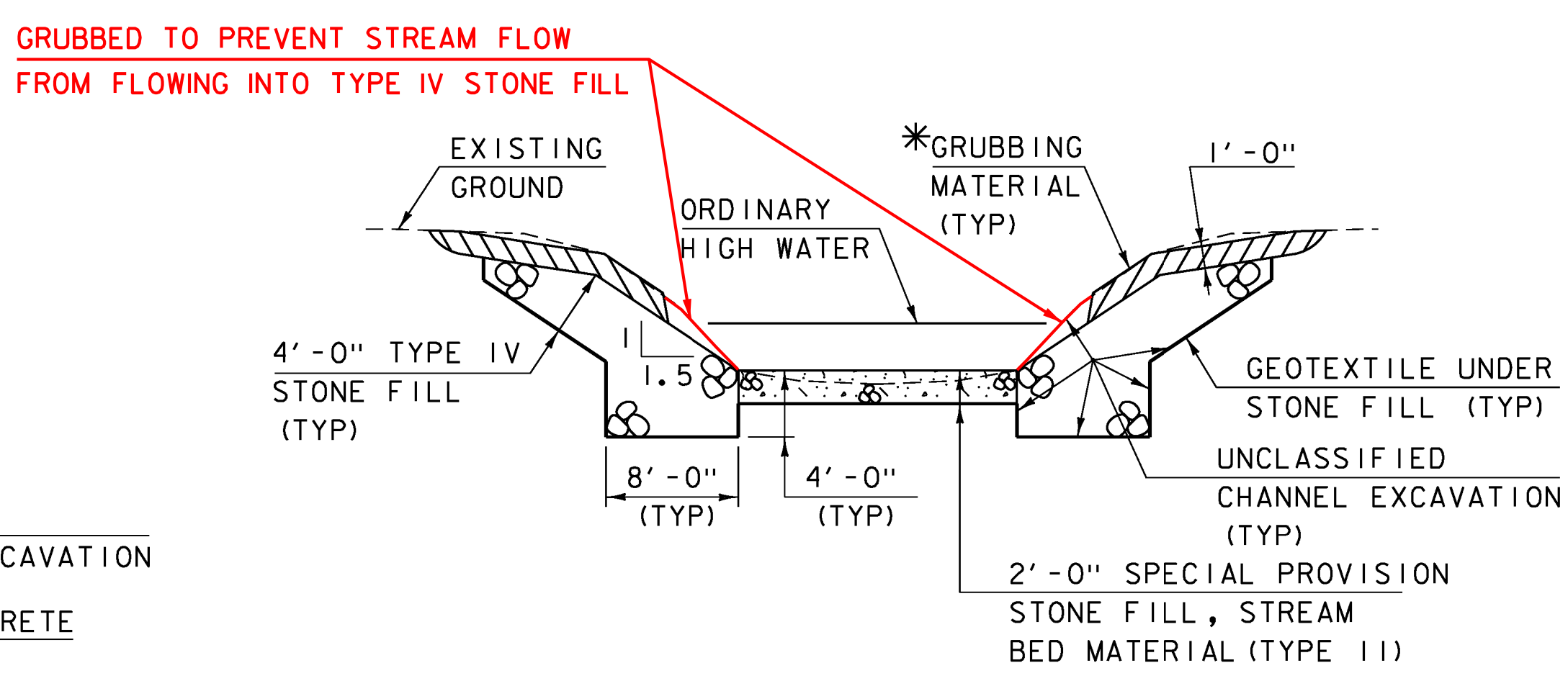
**MATERIAL TRANSITION**

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



**CULVERT TYPICAL SECTION**

NOT TO SCALE



**CHANNEL TYPICAL SECTION**

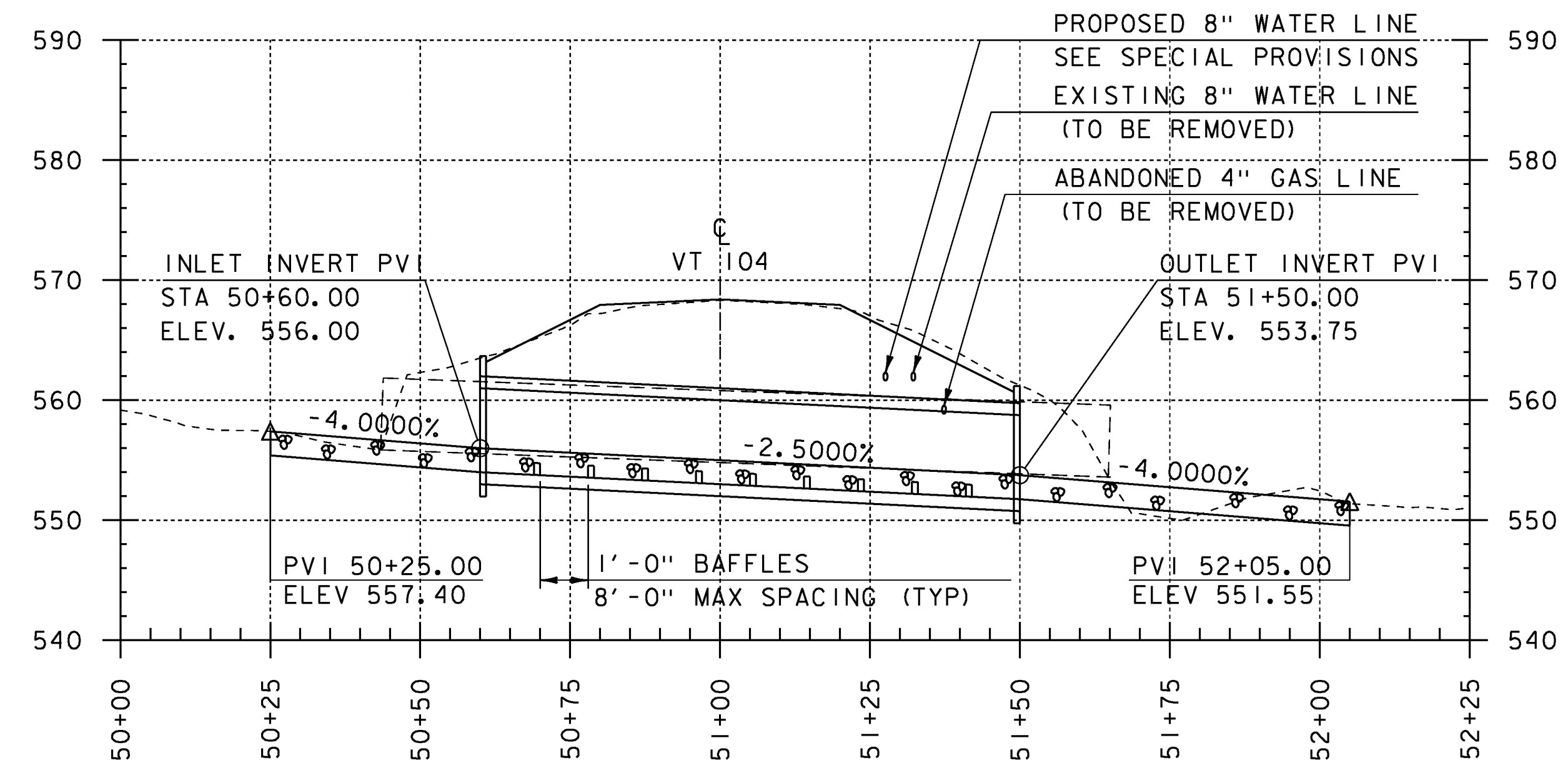
NOT TO SCALE

\* WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROWS	+/- 1"

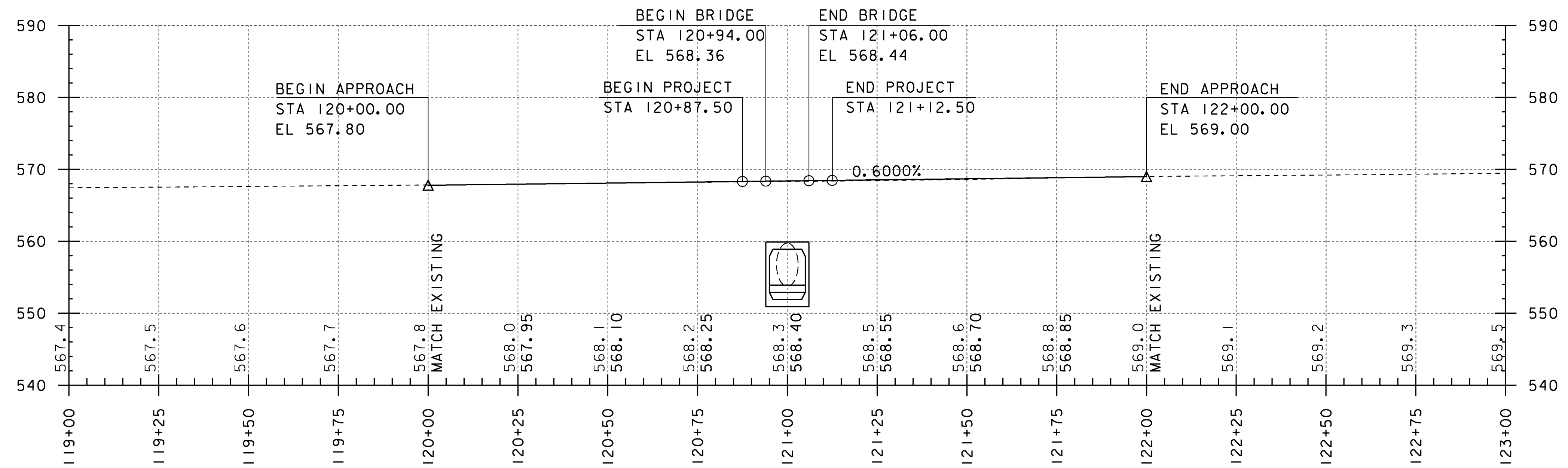
PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	D.D.BEARD
FILE NAME:	s12c598typ.dgn	DESIGNED BY:	J.SALVATORI
PROJECT LEADER:	J.B.MCCARTHY	CHECKED BY:	J.B.MCCARTHY
TYPICAL SECTIONS		SHEET	9 OF 29





**CHANNEL PROFILE**

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



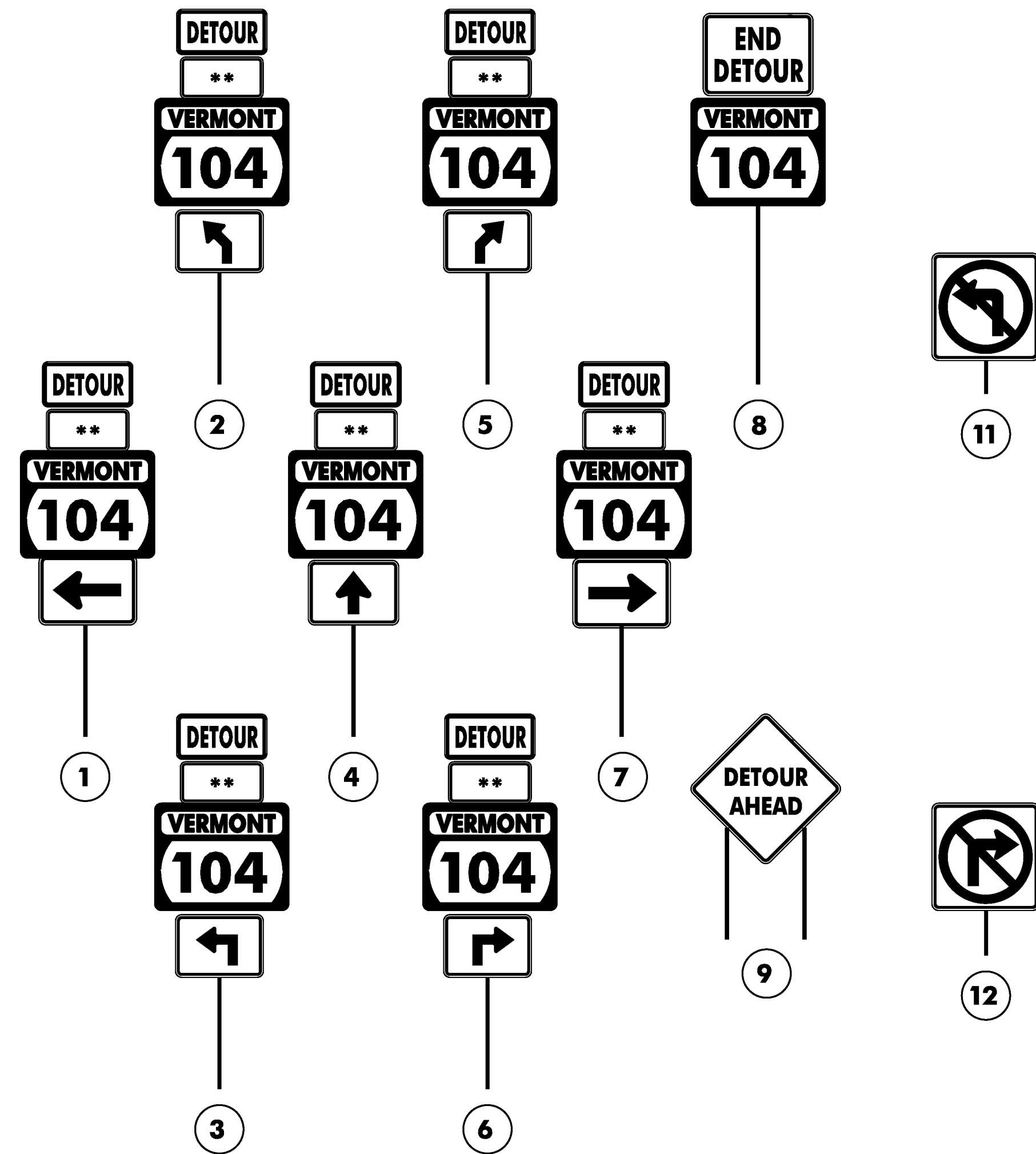
**MAINLINE PROFILE**

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

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

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

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	BF 0279(5)
FILE NAME: sl2c598pro.dgn	PLOT DATE: 10-JAN-2017
PROJECT LEADER: J.B. MCCARTHY	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J.B. MCCARTHY
PROFILE SHEET	SHEET II OF 29



\*\*N = NORTH  
OR  
S = SOUTH

**ROAD CLOSED**  
XX MILES AHEAD  
NO THRU TRAFFIC

VT	104		
C	C	L	O
S	E	D	

PHASE 1

B	E	T	W	E	E	N		
VT	36	-						
VT	105							

PHASE 2

*	F	R	I		M	/	D	D	
	6	P	M	-			M	O	N
*	M	/	D	D			6	A	M

\* M=MONTH  
D=DAY

(S-1)

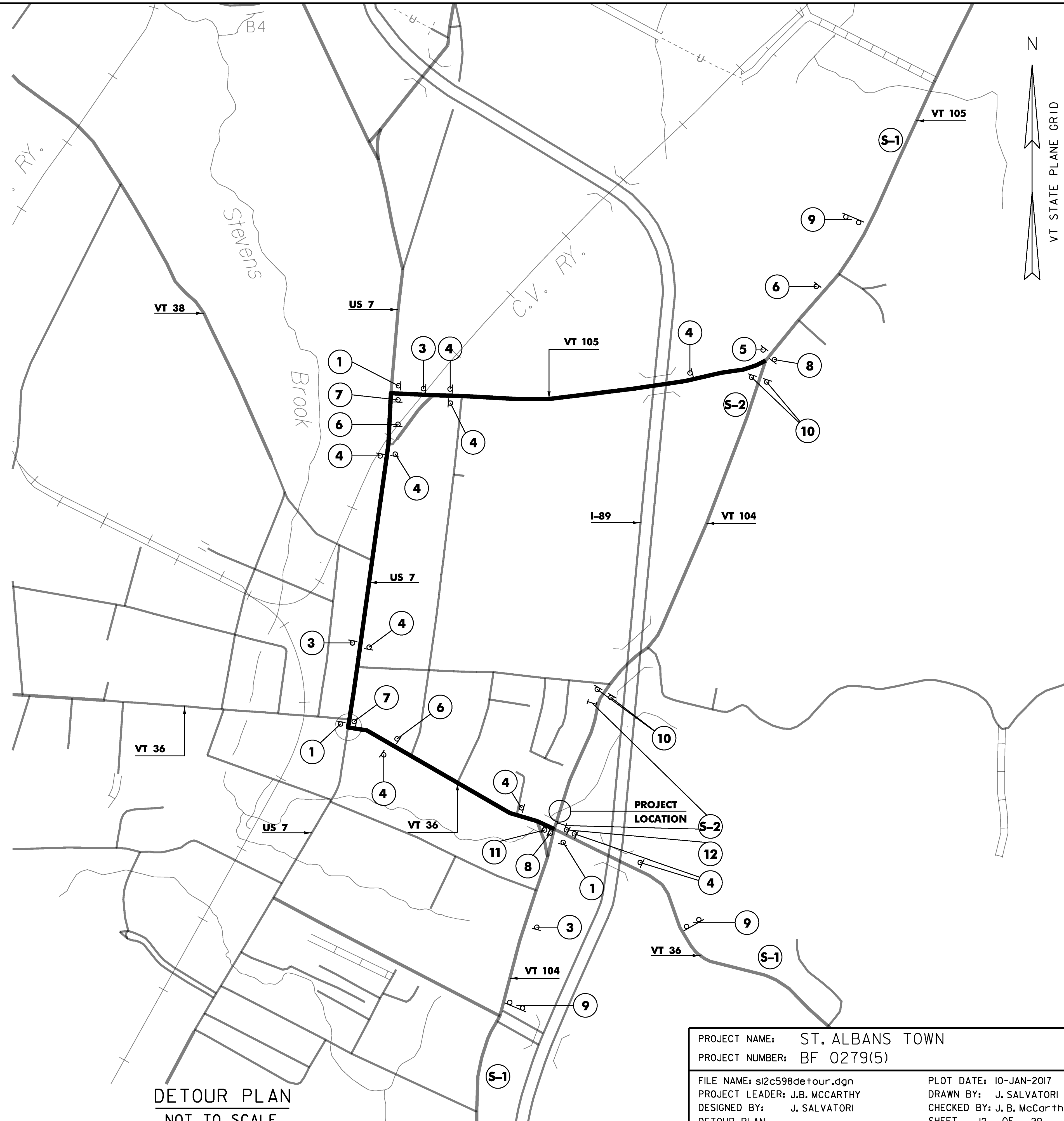
R	O	A	D				
C	L	O	S	E	D		

PHASE 1

*	F	R	I		M	/	D	D	
	6	P	M	-			M	O	N
*	M	/	D	D			6	A	M

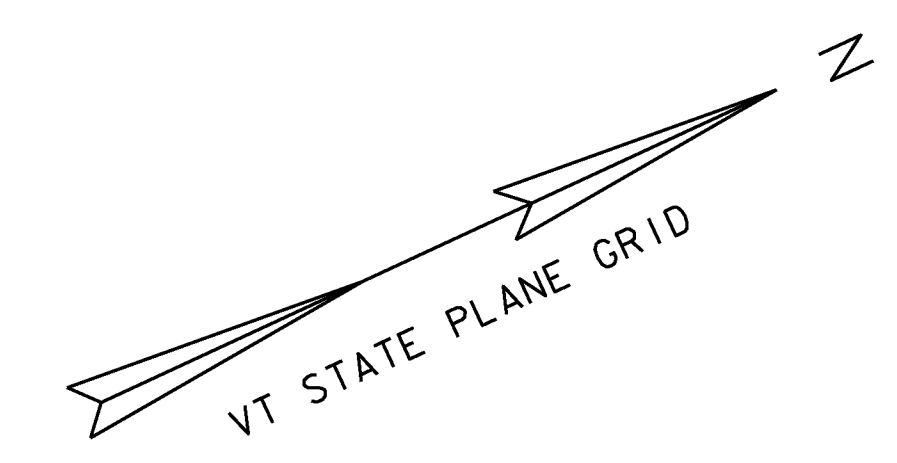
\* M=MONTH  
D=DAY

(S-2)



**DETOUR PLAN**  
NOT TO SCALE

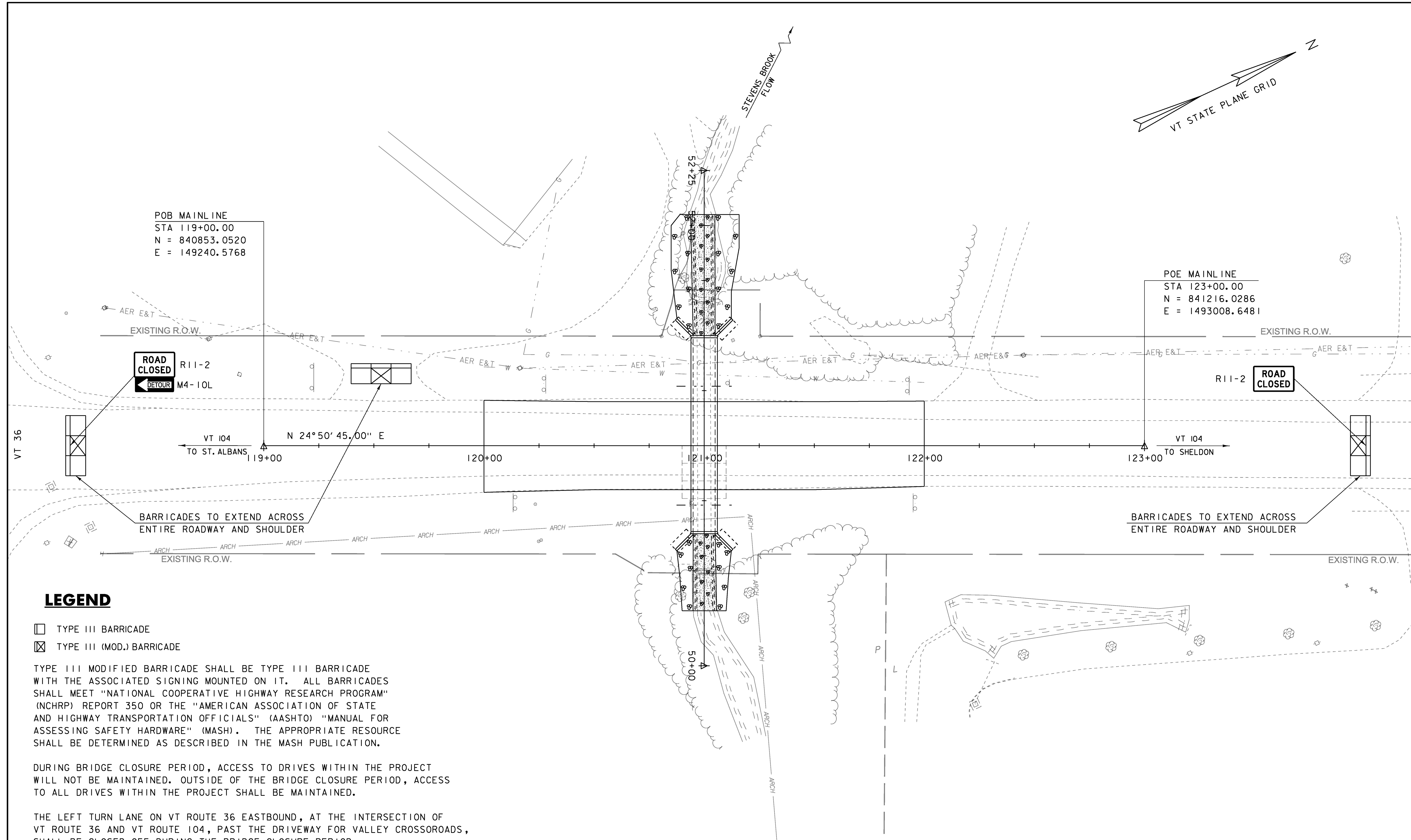
PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	s12c598detour.dgn	DESIGNED BY:	J. SALVATORI
DETOUR PLAN		CHECKED BY:	J. B. McCarthy
		SHEET	12 OF 29



STEVENS BROOK  
FLOW

POB MAINLINE  
STA 119+00.00  
N = 840853.0520  
E = 149240.5768

POE MAINLINE  
STA 123+00.00  
N = 841216.0286  
E = 1493008.6481



**ROAD CLOSED**  
DETOUR  
R11-2  
M4-10L

R11-2  
**ROAD CLOSED**

BARRICADES TO EXTEND ACROSS  
ENTIRE ROADWAY AND SHOULDER

BARRICADES TO EXTEND ACROSS  
ENTIRE ROADWAY AND SHOULDER

**LEGEND**

- TYPE III BARRICADE
- ⊠ TYPE III (MOD.) BARRICADE

TYPE III MODIFIED BARRICADE SHALL BE TYPE III BARRICADE WITH THE ASSOCIATED SIGNING MOUNTED ON IT. ALL BARRICADES SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE AND HIGHWAY TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.

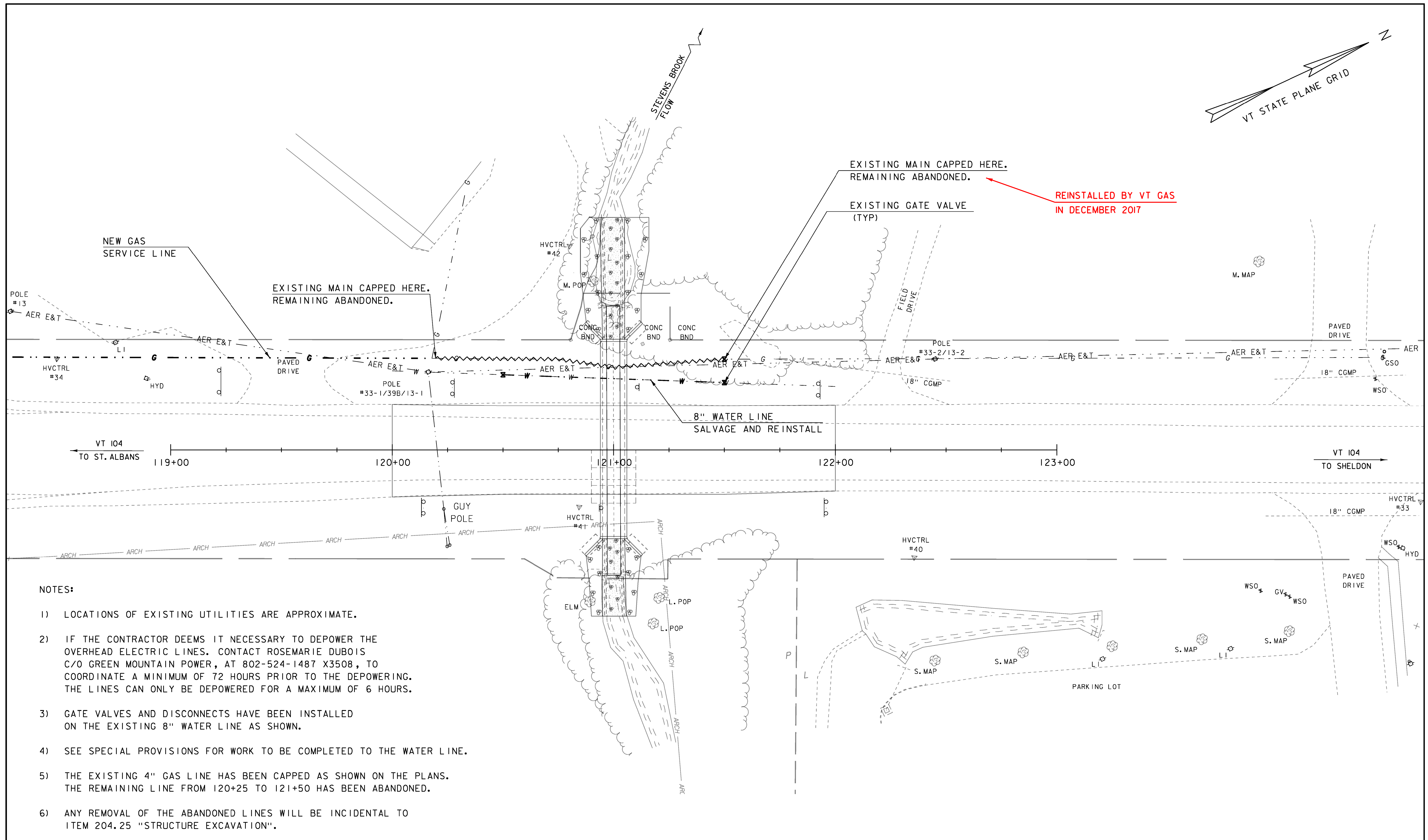
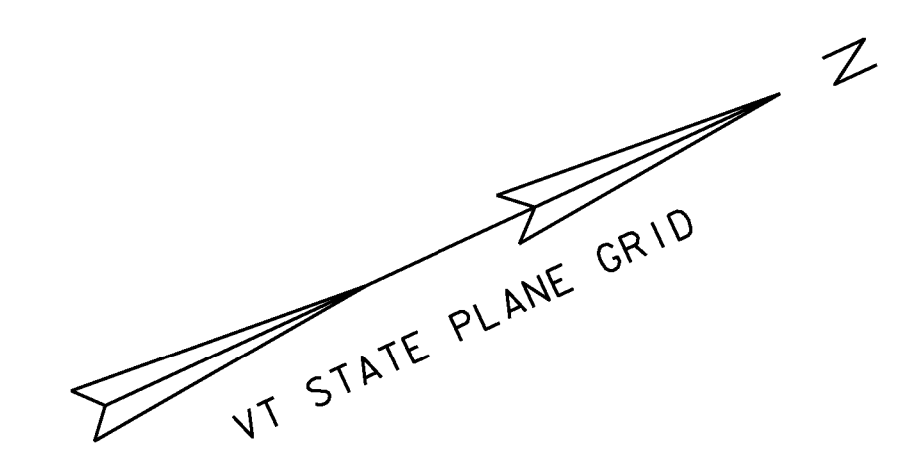
DURING BRIDGE CLOSURE PERIOD, ACCESS TO DRIVES WITHIN THE PROJECT WILL NOT BE MAINTAINED. OUTSIDE OF THE BRIDGE CLOSURE PERIOD, ACCESS TO ALL DRIVES WITHIN THE PROJECT SHALL BE MAINTAINED.

THE LEFT TURN LANE ON VT ROUTE 36 EASTBOUND, AT THE INTERSECTION OF VT ROUTE 36 AND VT ROUTE 104, PAST THE DRIVEWAY FOR VALLEY CROSSROADS, SHALL BE CLOSED OFF DURING THE BRIDGE CLOSURE PERIOD.

**TRAFFIC CONTROL SHEET**

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

PROJECT NAME: ST. ALBANS TOWN	PLOT DATE: 10-JAN-2017
PROJECT NUMBER: BF 0279(5)	DRAWN BY: J. SALVATORI
FILE NAME: sl2c598detour.dgn	CHECKED BY: J.B.MCCARTHY
PROJECT LEADER: J.B. MCCARTHY	SHEET 13 OF 29
DESIGNED BY: J. SALVATORI	
TRAFFIC CONTROL SHEET	



- NOTES:
- 1) LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE.
  - 2) IF THE CONTRACTOR DEEMS IT NECESSARY TO DEPOWER THE OVERHEAD ELECTRIC LINES. CONTACT ROSEMARIE DUBOIS C/O GREEN MOUNTAIN POWER, AT 802-524-1487 X3508, TO COORDINATE A MINIMUM OF 72 HOURS PRIOR TO THE DEPOWERING. THE LINES CAN ONLY BE DEPOWERED FOR A MAXIMUM OF 6 HOURS.
  - 3) GATE VALVES AND DISCONNECTS HAVE BEEN INSTALLED ON THE EXISTING 8" WATER LINE AS SHOWN.
  - 4) SEE SPECIAL PROVISIONS FOR WORK TO BE COMPLETED TO THE WATER LINE.
  - 5) THE EXISTING 4" GAS LINE HAS BEEN CAPPED AS SHOWN ON THE PLANS. THE REMAINING LINE FROM 120+25 TO 121+50 HAS BEEN ABANDONED.
  - 6) ANY REMOVAL OF THE ABANDONED LINES WILL BE INCIDENTAL TO ITEM 204.25 "STRUCTURE EXCAVATION".

**UTILITY RELOCATION PLAN**

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

PROJECT NAME: ST. ALBANS TOWN	
PROJECT NUMBER: BF 0279(5)	
FILE NAME: s12c598bdr_utl.dgn	PLOT DATE: 10-JAN-2017
PROJECT LEADER: J.B. MCCARTHY	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: L. WHEELER
UTILITY RELOCATION PLAN	SHEET 14 OF 29

**SOIL CLASSIFICATION**

**AASHTO**

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

**ROCK QUALITY DESIGNATION**

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

**SHEAR STRENGTH**

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

**CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY**

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

**COMMONLY USED SYMBOLS**

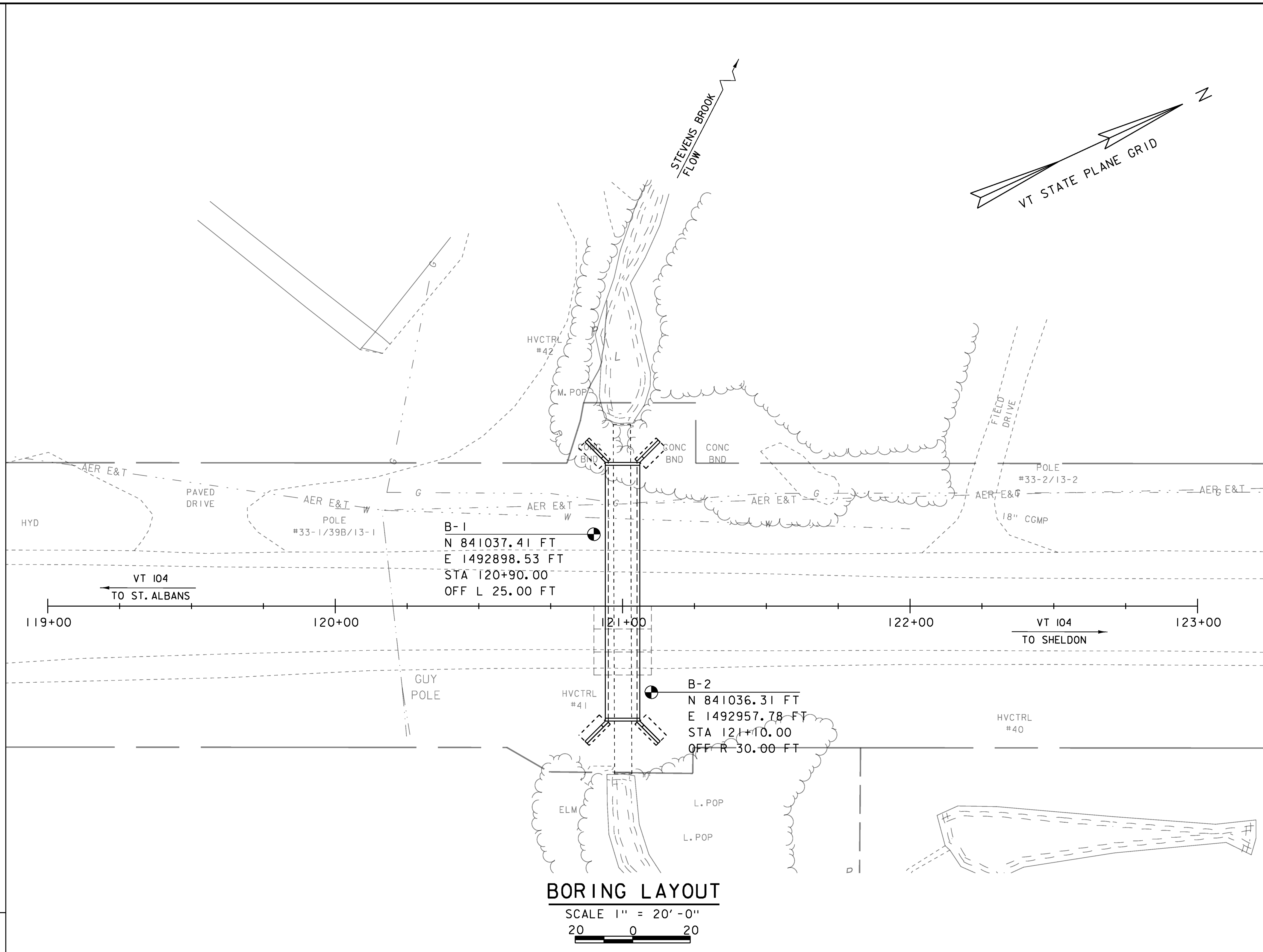
- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊗ Auger Boring
- ⊙ Rod Sounding
- S Sample
- N Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
-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

**COLOR**

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

**DEFINITIONS (AASHTO)**

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0029" (#200 sieve).
- SILT** - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.



**GENERAL NOTES**

- The subsurface explorations shown herein were made between 8/26/2015 and 8/27/2015 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	BF 0279(5)
FILE NAME:	SI2c598bor.dgn
PROJECT LEADER:	J.B. MCCARTHY
DESIGNED BY:	J. SALVATORI
BORING INFORMATION SHEET	
PLOT DATE:	10-JAN-2017
DRAWN BY:	J. SALVATORI
CHECKED BY:	J.B. MCCARTHY
SHEET	15 OF 29



STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
CONSTRUCTION AND  
MATERIALS BUREAU  
CENTRAL LABORATORY

**BORING LOG**

**ST ALBANS TOWN  
BF 0279(5)  
VT 104 BR #19**

Boring No.: **B-101**

Page No.: 1 of 1

Pin No.: 12c598

Checked By: END

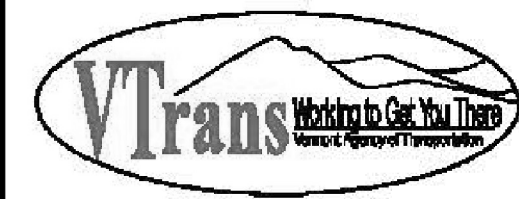
Boring Crew: GARROW, NIETO		Casing	Sampler	Groundwater Observations		
Date Started: 8/27/15	Date Finished: 8/27/15	Type: WB	SS	Date	Depth (ft)	Notes
VTSPG NAD83: N 841037.41 ft E 1492898.53 ft		I.D.: 4 in	1.5 in	08/27/15	10.1	After Drilling.
Station: 120+90.00	Offset: -25.00	Hammer Wt: N.A.	140 lb.			
Ground Elevation: 566.61 ft		Hammer Fall: N.A.	30 in.			
		Hammer/Rod Type: Auto/AWJ				
		Rig: CME 45C SKID AUTO	C <sub>E</sub> = 1.33			

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
5		A-1-b, GrSa, br-Lt/gry, Moist, Rec. = 1.4 ft, Lab Note: Broken Rock was within sample.	WH-6-6-5 (12)	6.4	36.6	49.9	13.5		
		A-2-4, Sa, Lt/brn-Lt/gry, Moist, Rec. = 1.6 ft	5-5-5-5 (10)	8.8	19.4	66.2	14.4		
		A-1-b, GrSa, Lt/brn, Moist, Rec. = 0.9 ft, Lab Note: Broken Rock was within sample.	10-12-10-8 (20)	8.6	37.6	43.8	18.6		
		A-2-4, SiGrSa, Lt/brn, Moist, Rec. = 0.2 ft	4-4-1-1 (5)	10.1	28.6	50.8	20.6		
		Field Note: No Recovery	(WR)						
10		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was within sample.	WH-WH-2-12 (2)	12.7	49.6	35.3	15.1		
		A-4, GrSaSi, gry, Moist, Rec. = 1.5 ft, Lab Note: Broken Rock was within sample.	3-20-37-27 (57)	11.0	25.3	27.2	47.5		
15		A-4, SaSi, gry, Moist, Rec. = 1.3 ft	27-48-R@2.5" (R)	10.3	16.9	22.4	60.7	19	4
		A-4, GrSaSi, gry, Moist, Rec. = 1.1 ft, Lab Note: Broken Rock was within sample.	35-R@5.0" (R)	11.6	22.0	23.3	54.7		
20		A-4, GrSaSi, gry, Moist, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample.	18-35-R@5.0" (R)	11.3	20.4	20.9	58.7	20	6
25		A-4, SaSi, gry, Moist, Rec. = 1.6 ft	25-33-R@6.0" (R)	9.2	16.8	25.2	58.0	19	5
30		A-4, SaSi, gry, Moist, Rec. = 1.1 ft	32-48-R@1.0" (R)	9.1	14.5	25.0	60.5		
35		A-4, SaSi, gry, Moist, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample. A Trace of clay was noticeable. Sample tested non-plastic	26-39-R@5.0" (R)	8.7	17.4	24.2	58.4		
		Hole stopped @ 36.5 ft							
40		Remarks: Hole collapsed at 24.0 feet.							

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

BOTTOM OF CULVERT  
13.84' BELOW GROUND

BORING LOG 2 ST. ALBANS TOWN BF 0279(5) GPJ VERMONT AOT.GDT 9/24/15



STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
CONSTRUCTION AND  
MATERIALS BUREAU  
CENTRAL LABORATORY

**BORING LOG**

**ST ALBANS TOWN  
BF 0279(5)  
VT 104 BR #19**

Boring No.: **B-102**

Page No.: 1 of 1

Pin No.: 12c598

Checked By: END

Boring Crew: GARROW, NIETO		Casing	Sampler	Groundwater Observations		
Date Started: 8/26/15	Date Finished: 8/26/15	Type: WB	SS	Date	Depth (ft)	Notes
VTSPG NAD83: N 841036.31 ft E 1492957.78 ft		I.D.: 4 in	1.5 in	08/26/15	5.7	After Drilling.
Station: 121+10.00	Offset: 30.00	Hammer Wt: N.A.	140 lb.			
Ground Elevation: 564.92 ft		Hammer Fall: N.A.	30 in.			
		Hammer/Rod Type: Auto/AWJ				
		Rig: CME 45C SKID AUTO	C <sub>E</sub> = 1.33			

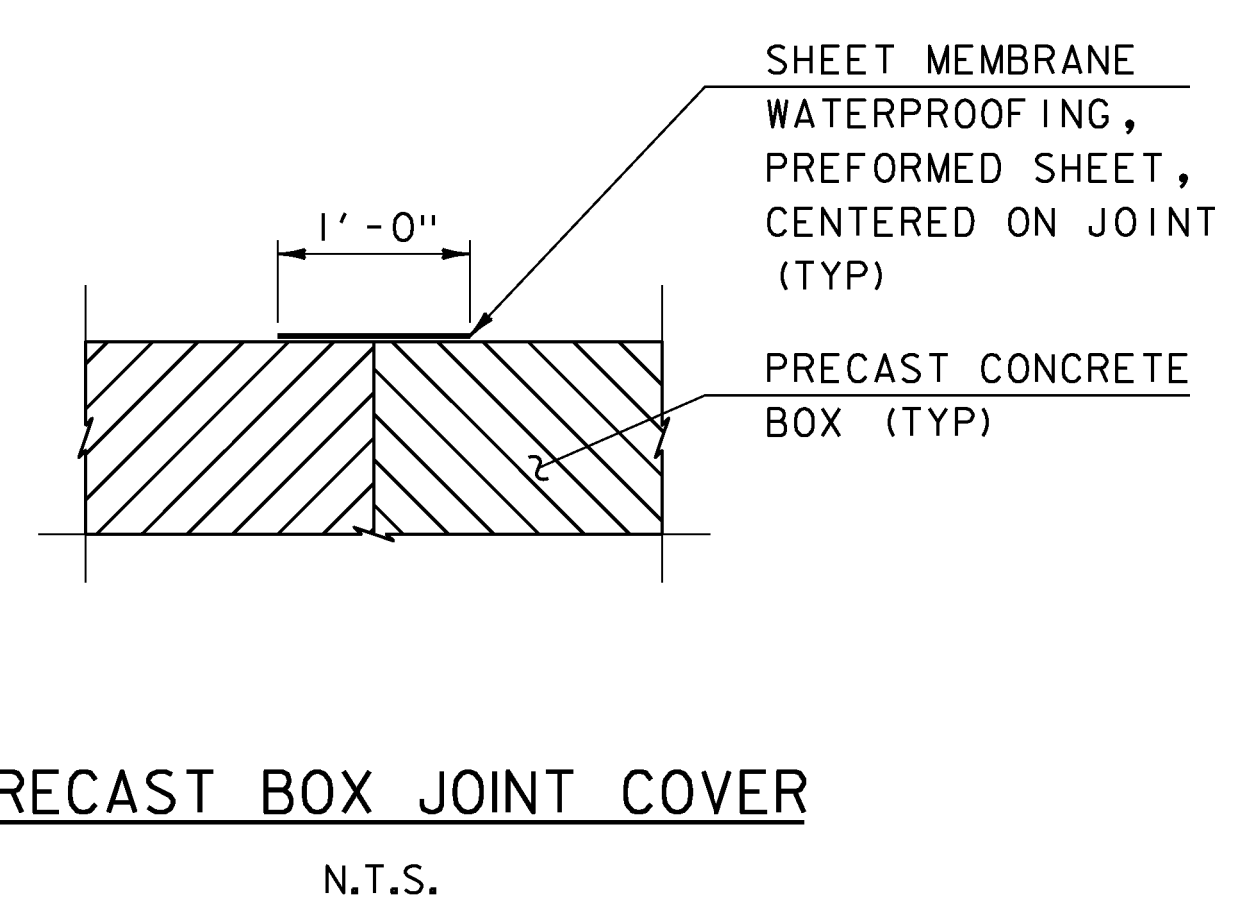
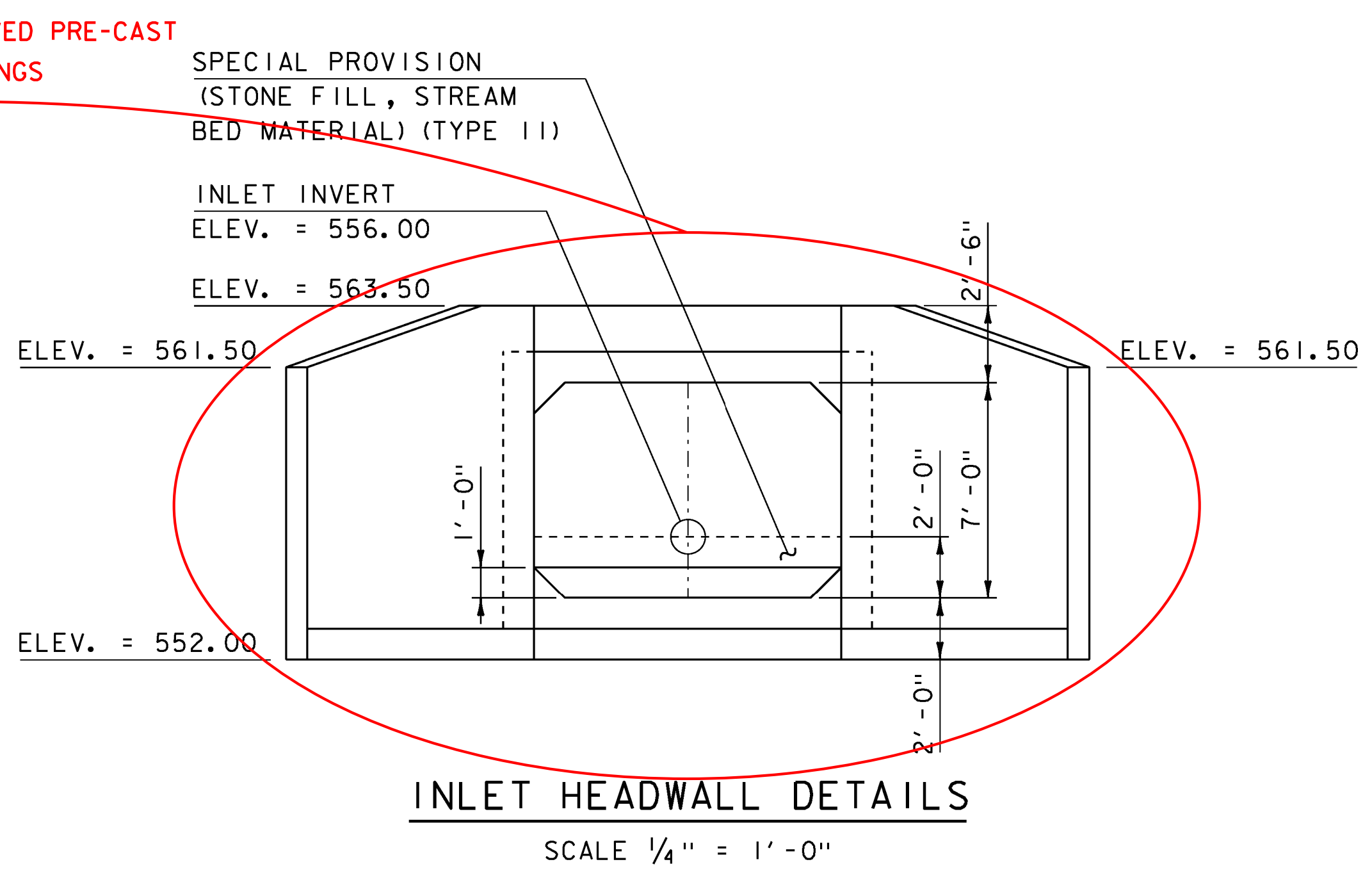
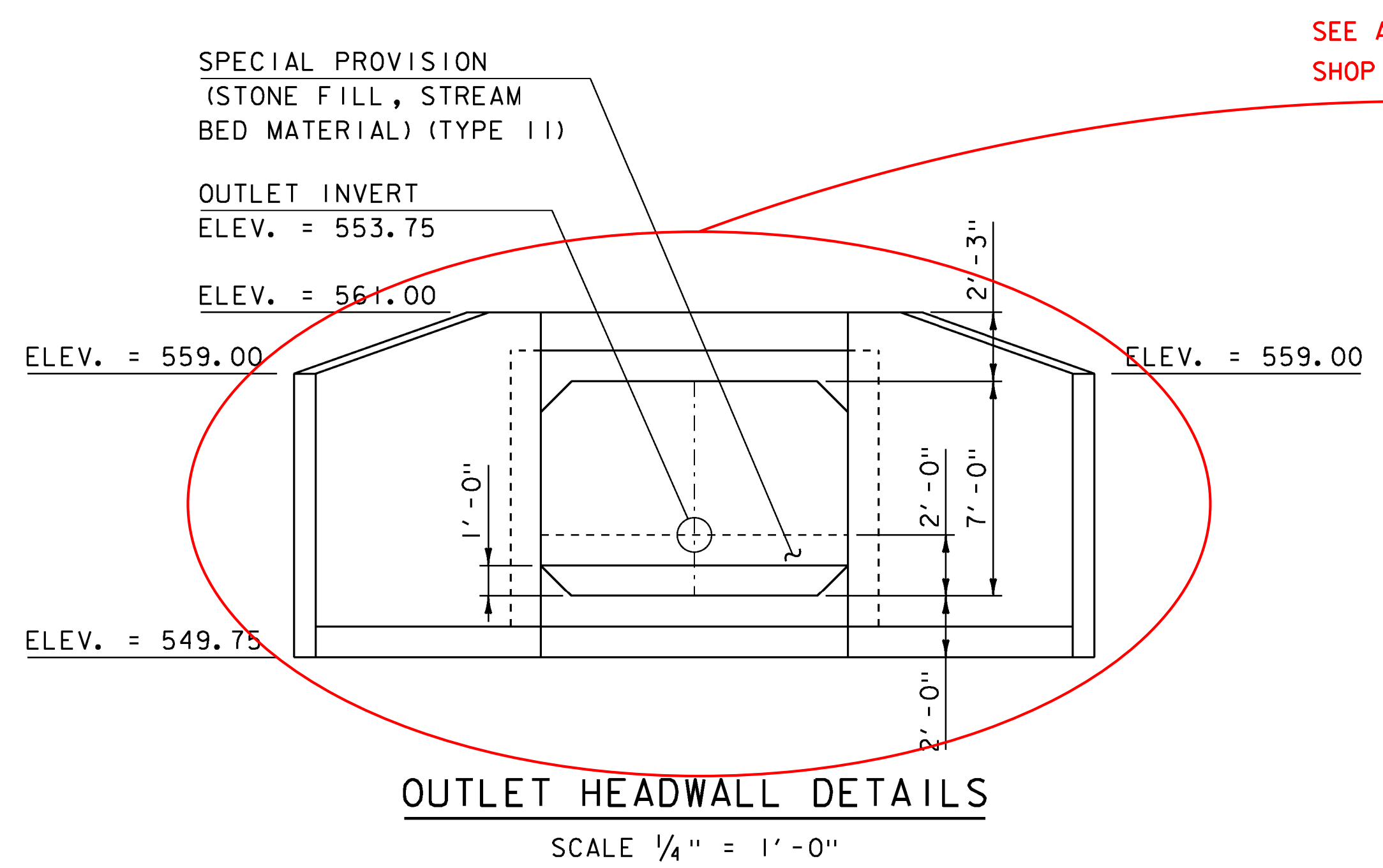
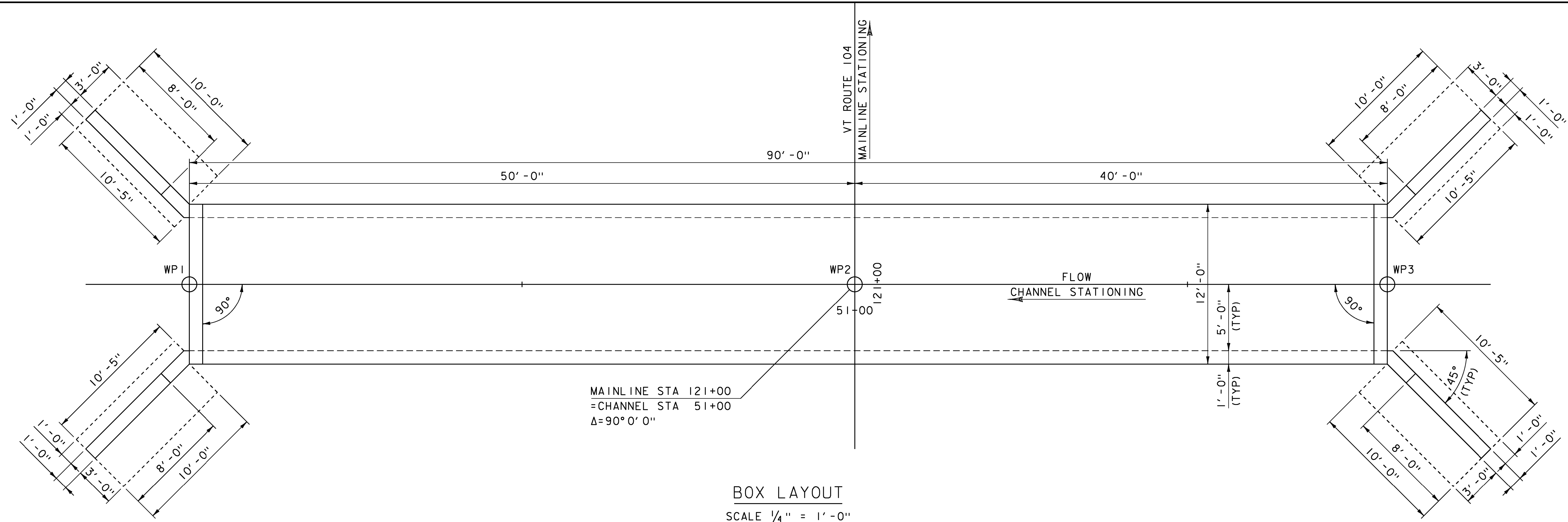
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiGrSa, brn, Moist, Rec. = 1.1 ft, Lab Note: Broken Rock, grass, and roots were within sample.	1-2-3-5 (5)	10.5	29.7	44.9	25.4
		Field Note: No Recovery	5-4-4-3 (8)				
5		Visual Description: SiSa, brn, Moist, Rec. = 0.1 ft, Lab Note: Insufficient sample size for testing.	5-4-4-4 (8)	11.1			
		A-1-B, SiSaGr, brn-Lt/brn, Moist, Rec. = 1.0 ft, Lab Note: Broken Rock was within sample.	6-9-5-4 (14)	10.8	48.0	31.6	20.4
		A-1-B, SiSaGr, brn-gry, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was within sample.	12-6-6-6 (12)	12.1	45.1	33.0	21.9
10		A-1-B, GrSa, Lt/brn-gry, Moist, Rec. = 0.8 ft, Lab Note: Broken Rock was within sample.		17.5	37.9	42.1	20.0
		A-4, GrSaSi, gry-Lt/brn, Moist, Rec. = 1.0 ft	3-2-6-R@5.0" (8)	12.7	24.2	32.5	43.3
		Visual Description: Broken Rock with SaSi, gry, Moist, Rec. = 0.3 ft, Lab Note: Insufficient sample size for testing.	R@3.5" (R)	7.9			
15		A-4, SaGrSi, gry, Moist, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample. A trace of clay was noticeable. Sample tested non-plastic.	R@6.0" (R)	7.9	35.4	23.7	40.9
		A-4, SaSi, gry, Moist, Rec. = 0.5 ft, Lab Note: Broken Rock was within sample. A trace of clay was noticeable. Sample tested non-plastic.	R@6.0" (R)	9.9	17.8	26.5	55.7
20		A-4, Si, gry, Moist, Rec. = 1.1 ft, Lab Note: A trace of clay was noticeable. Sample tested non-plastic.	37-R@5.0" (R)	13.2	11.6	19.1	69.3
25		Visual Description: Broken Rock with Si, gry, Moist, Rec. = 0.3 ft, Lab Note: Insufficient sample size for testing.	R@3.5" (R)	9.5			
30		A-4, SaGrSi, gry, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was within sample.	R@5.0" (R)	7.9	33.4	28.2	38.4
35		Field Note: No Recovery	26-35-R@5.0" (R)				
		Hole stopped @ 36.4 ft					
40		Remarks: Hole collapsed at 7.6 feet.					

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

BOTTOM OF CULVERT  
13.93' BELOW GROUND

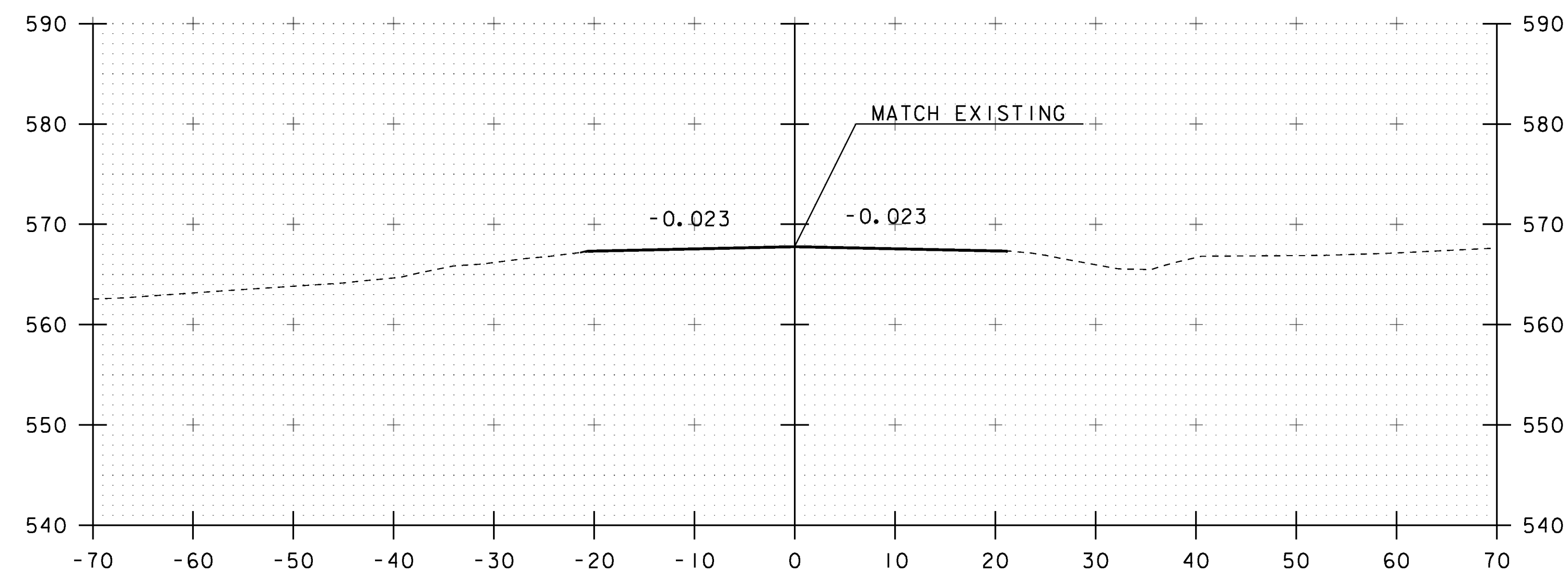
BORING LOG 2 ST. ALBANS TOWN BF 0279(5) GPJ VERMONT AOT.GDT 9/24/15

PROJECT NAME: ST. ALBANS TOWN  
PROJECT NUMBER: BF 0279(5)  
FILE NAME: SI2c598bor.dgn PLOT DATE: 10-JAN-2017  
PROJECT LEADER: J.B. MCCARTHY DRAWN BY: J. SALVATORI  
DESIGNED BY: J. SALVATORI CHECKED BY: J.B. MCCARTHY  
BORING LOGS SHEET 16 OF 29

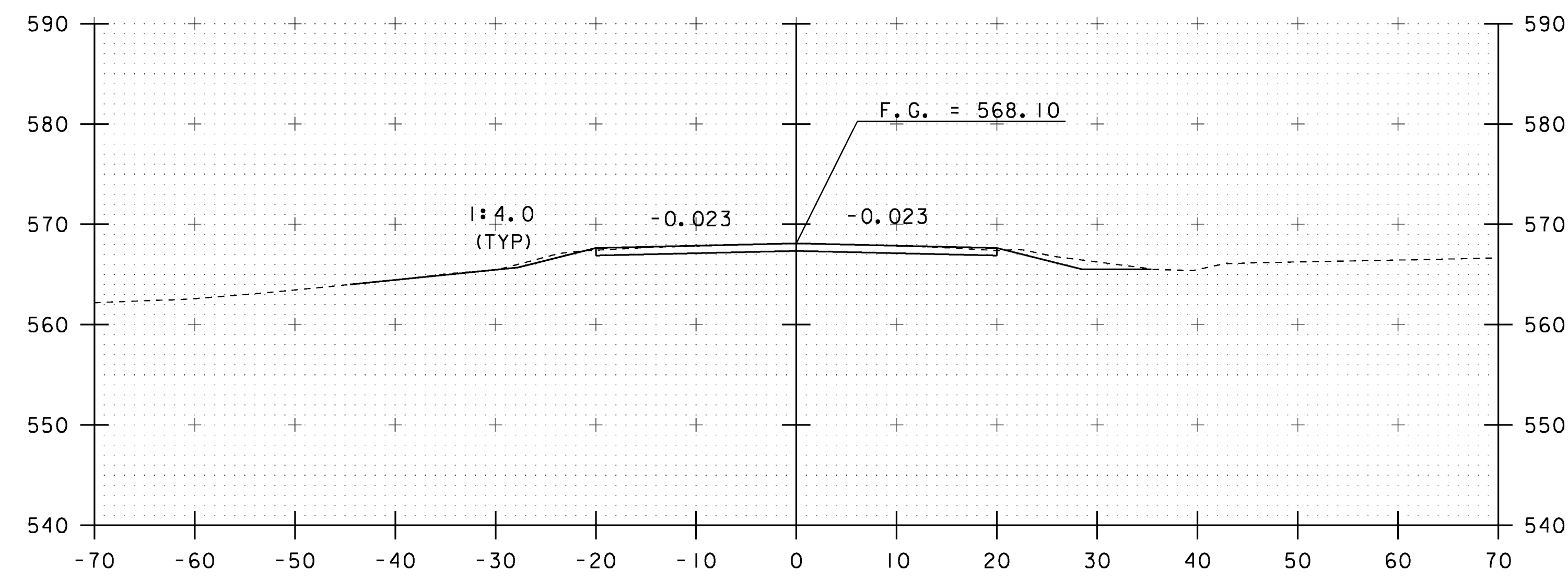


- NOTE:
- DIMENSIONS SHOWN ARE BASED ON AN ASSUMED WALL THICKNESS OF 1' - 0".
  - THE PRECAST BOX SECTIONS AND WINGWALLS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR.

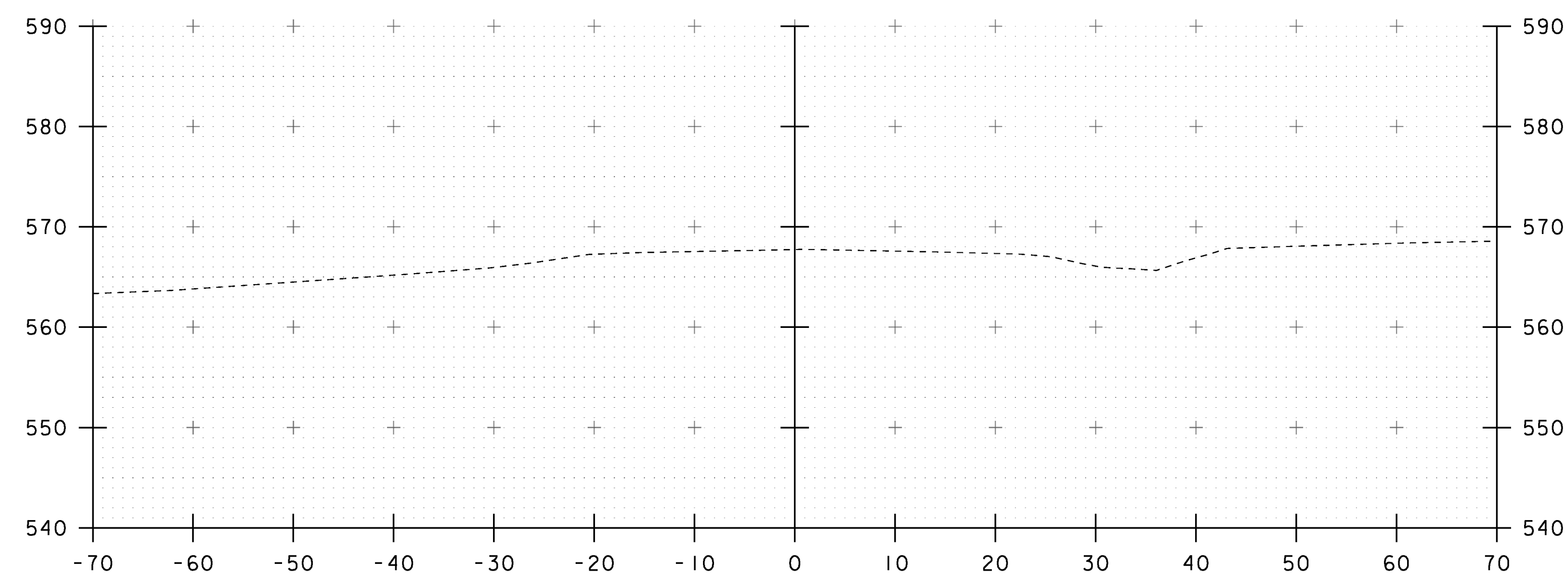
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PROJECT NUMBER: BF 0279(5)	DRAWN BY: D.D.BEARD
FILE NAME: I2c598/sI2c598details.dgn	CHECKED BY: J.B.MCCARTHY
PROJECT LEADER: J.B.MCCARTHY	SHEET 17 OF 29
DESIGNED BY: J.SALVATORI	
PRECAST CULVERT DETAIL SHEET	



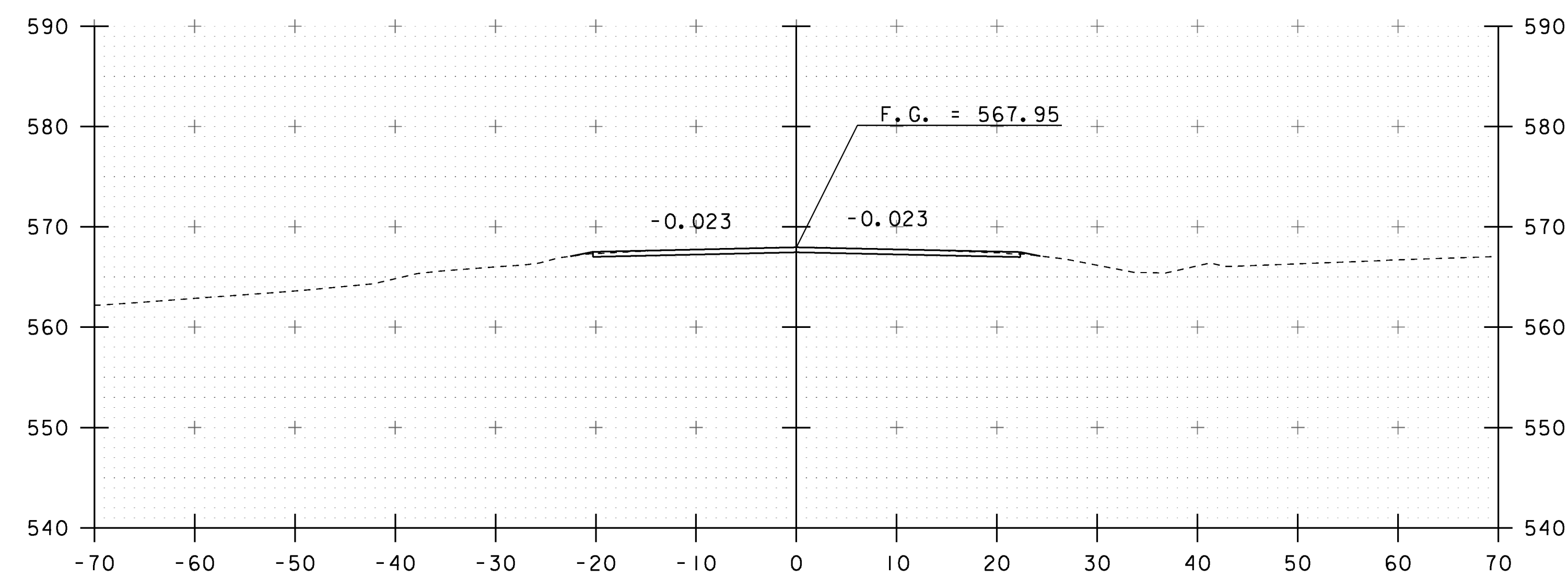
120+00  
BEGIN APPROACH



120+50

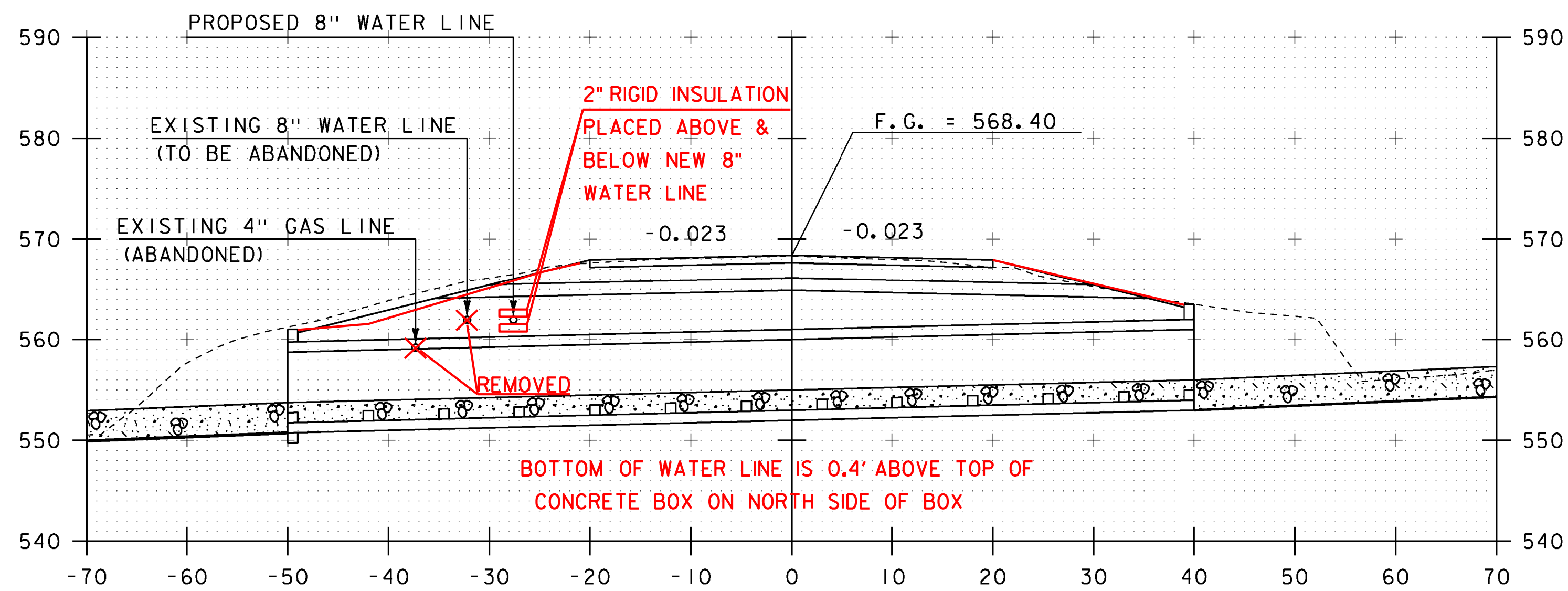


119+75

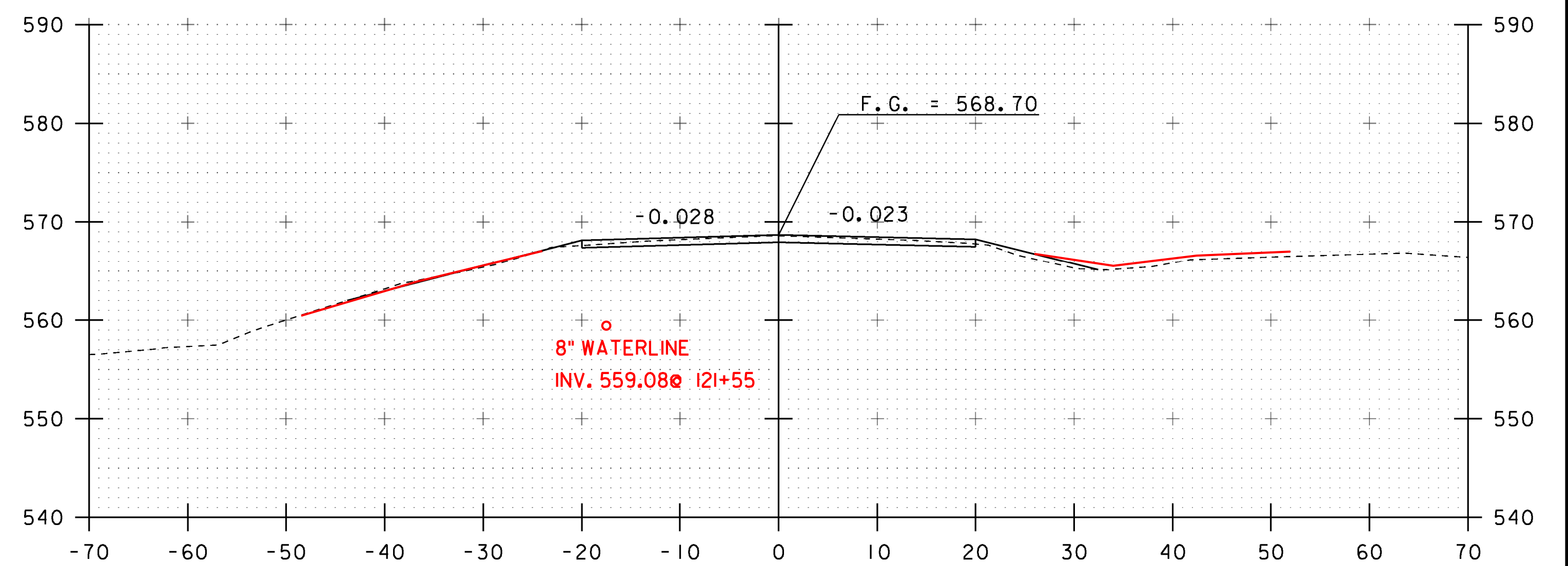


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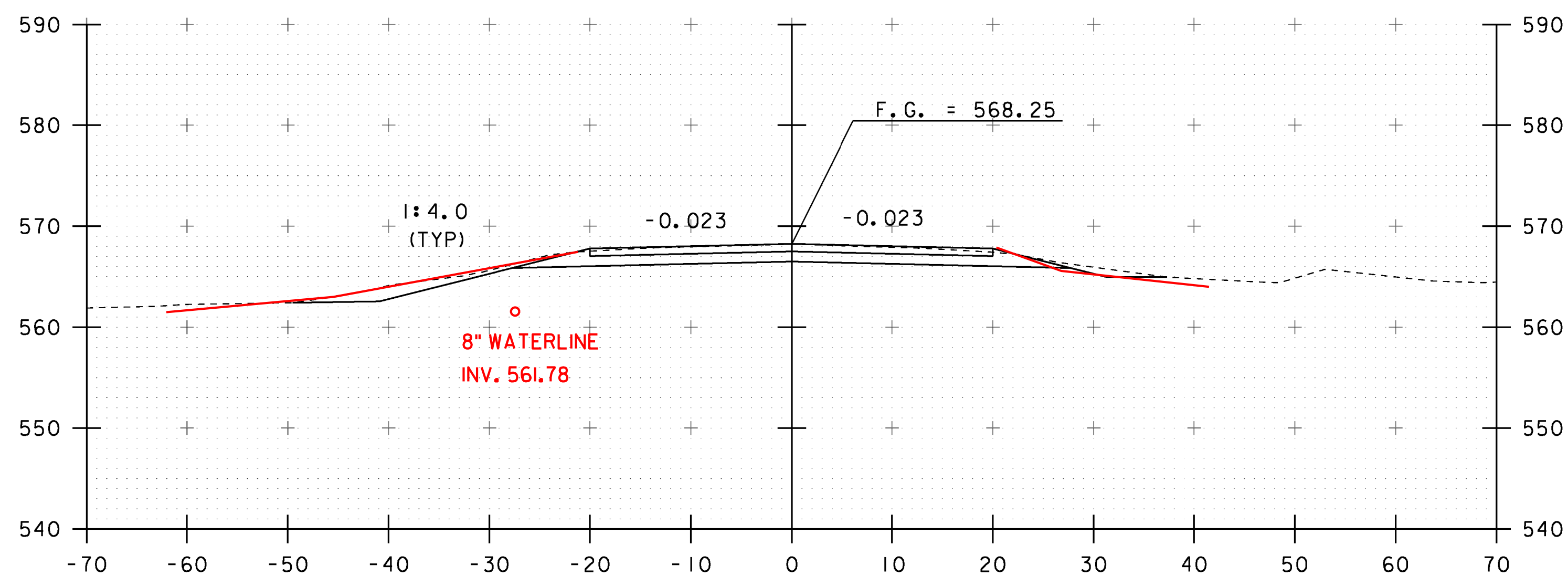
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PROJECT NUMBER:	BF 0279(5)
FILE NAME:	s12c598xs.dgn
PROJECT LEADER:	J.B. MCCARTHY
DESIGNED BY:	J. SALVATORI
MAINLINE CROSS SECTIONS	
PLOT DATE:	10-JAN-2017
DRAWN BY:	J. SALVATORI
CHECKED BY:	J.B. MCCARTHY
SHEET	18 OF 29



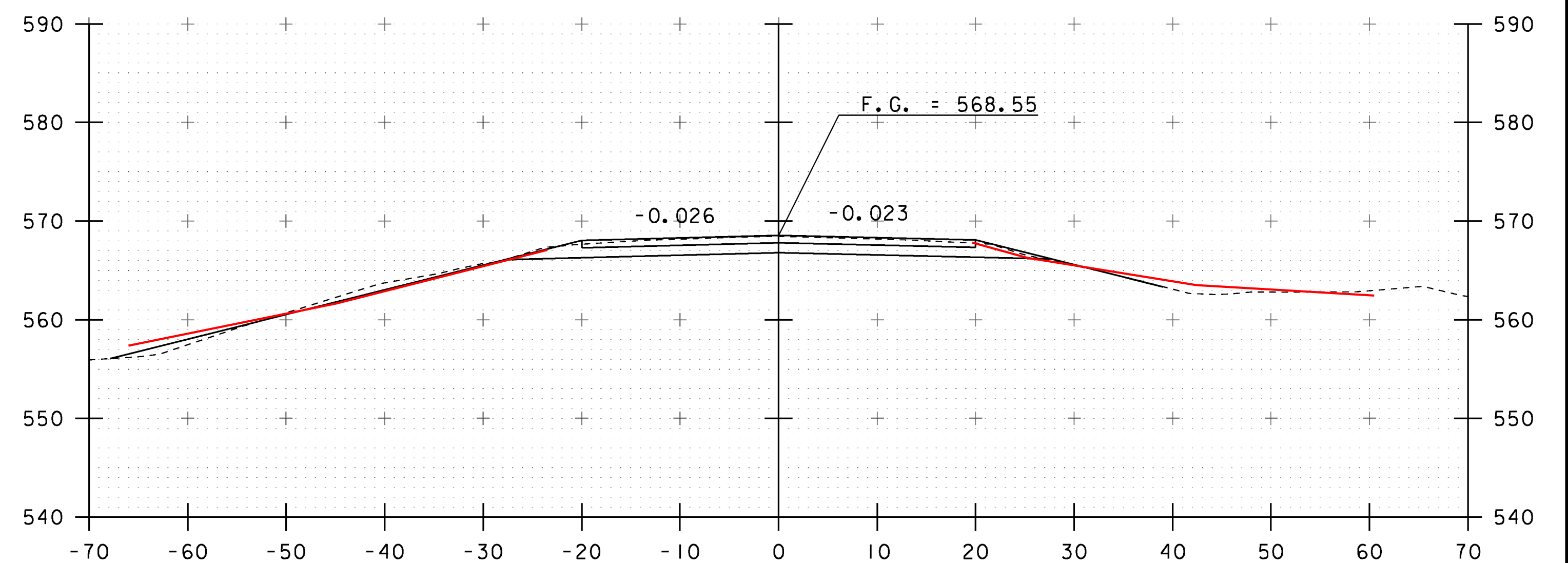
121+00  
STA 121+12.50 END PROJECT



121+50

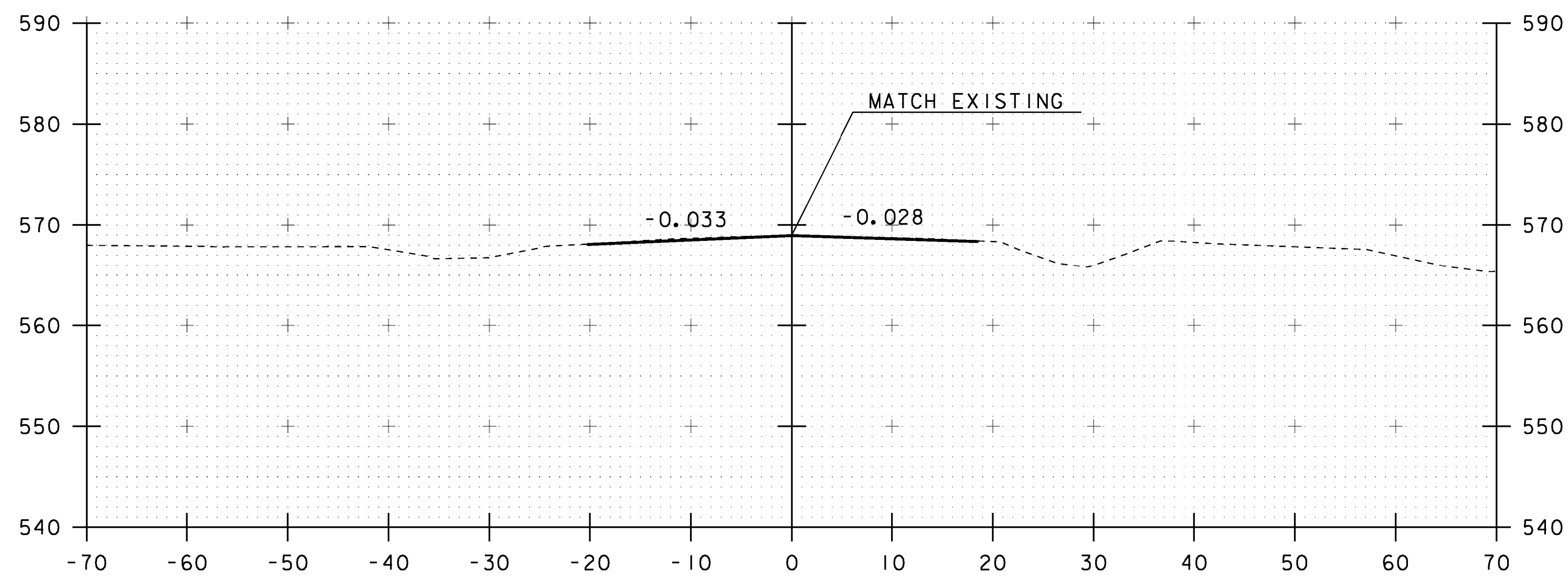


120+75  
STA 120+87.50 BEGIN PROJECT

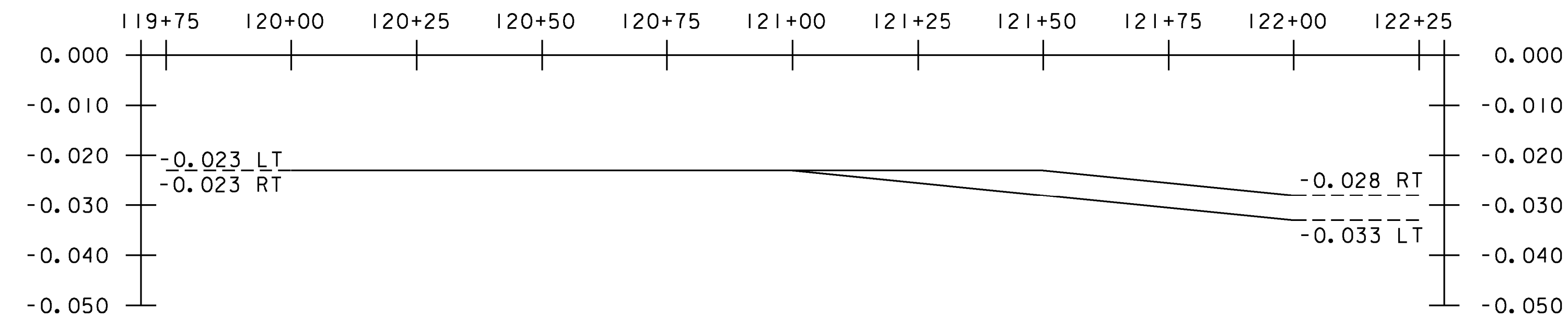


121+25

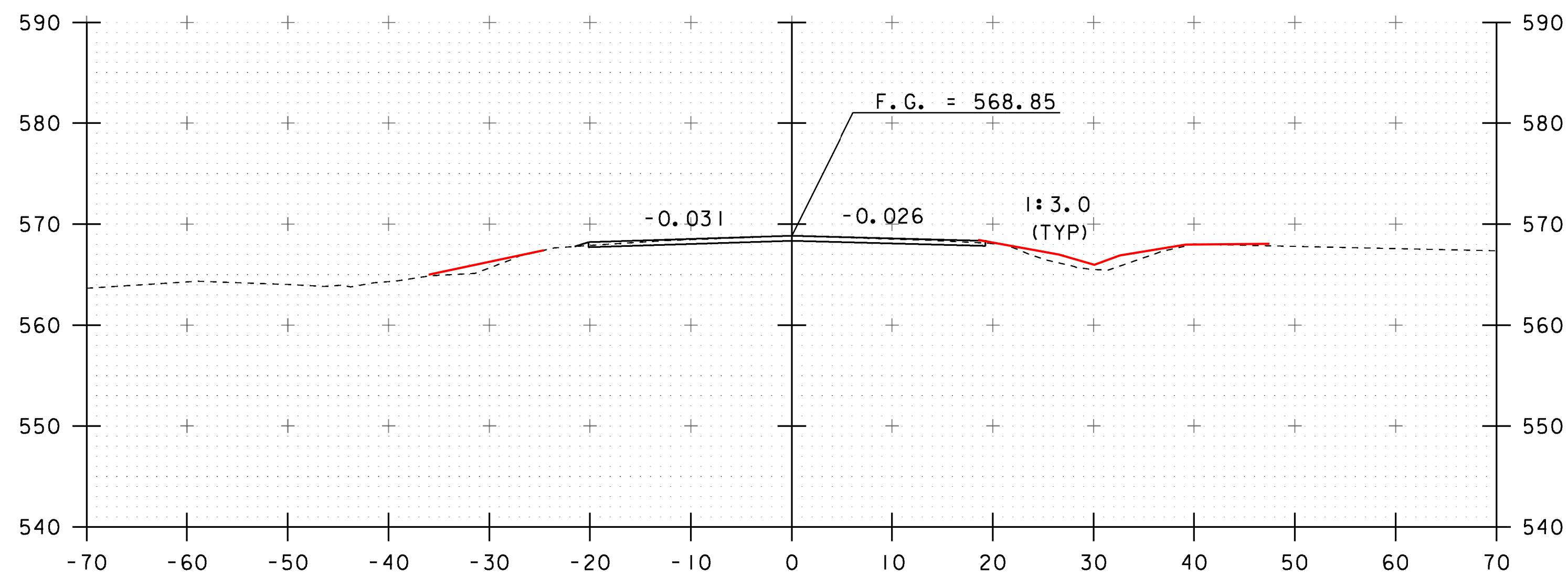
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PROJECT NUMBER: BF 0279(5)	
FILE NAME: s12c598xs.dgn	PLOT DATE: 10-JAN-2017
PROJECT LEADER: J.B. MCCARTHY	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J.B. MCCARTHY
MAINLINE CROSS SECTIONS	SHEET 19 OF 29



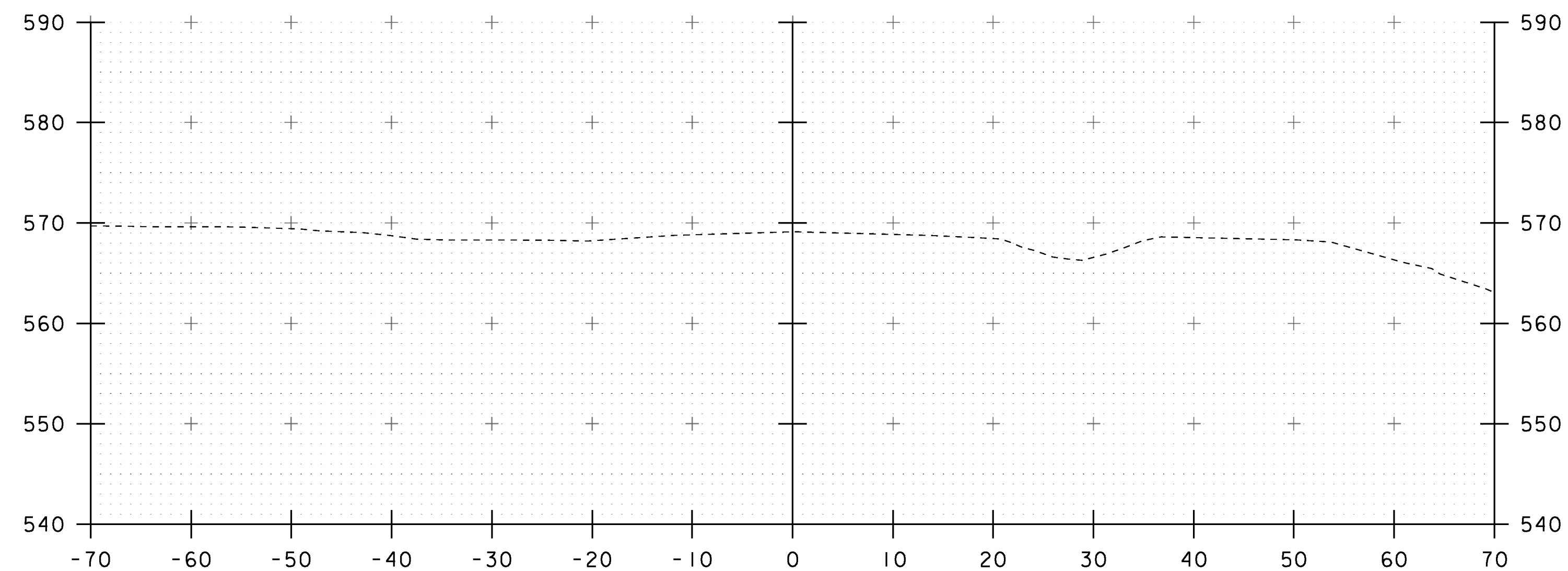
122+00  
END APPROACH



**BANKING DIAGRAM**  
HOR. SCALE 1" = 20'-0"  
NO VER. SCALE

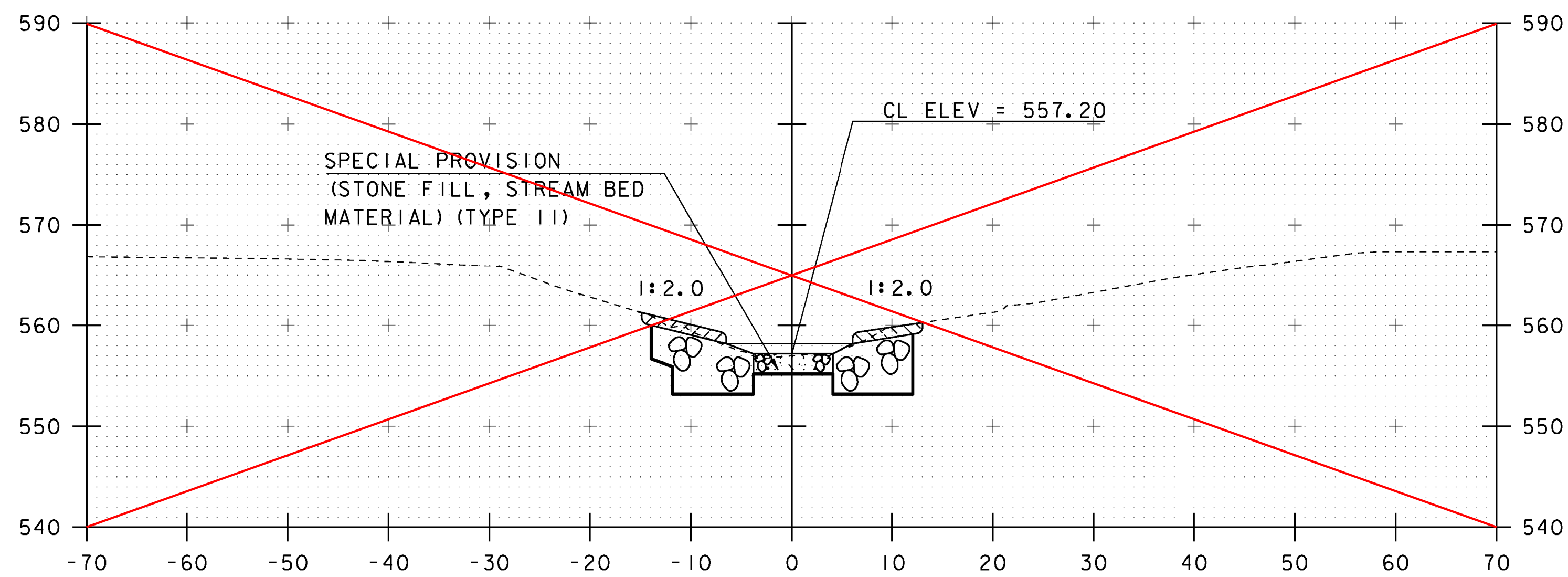


121+75



122+25

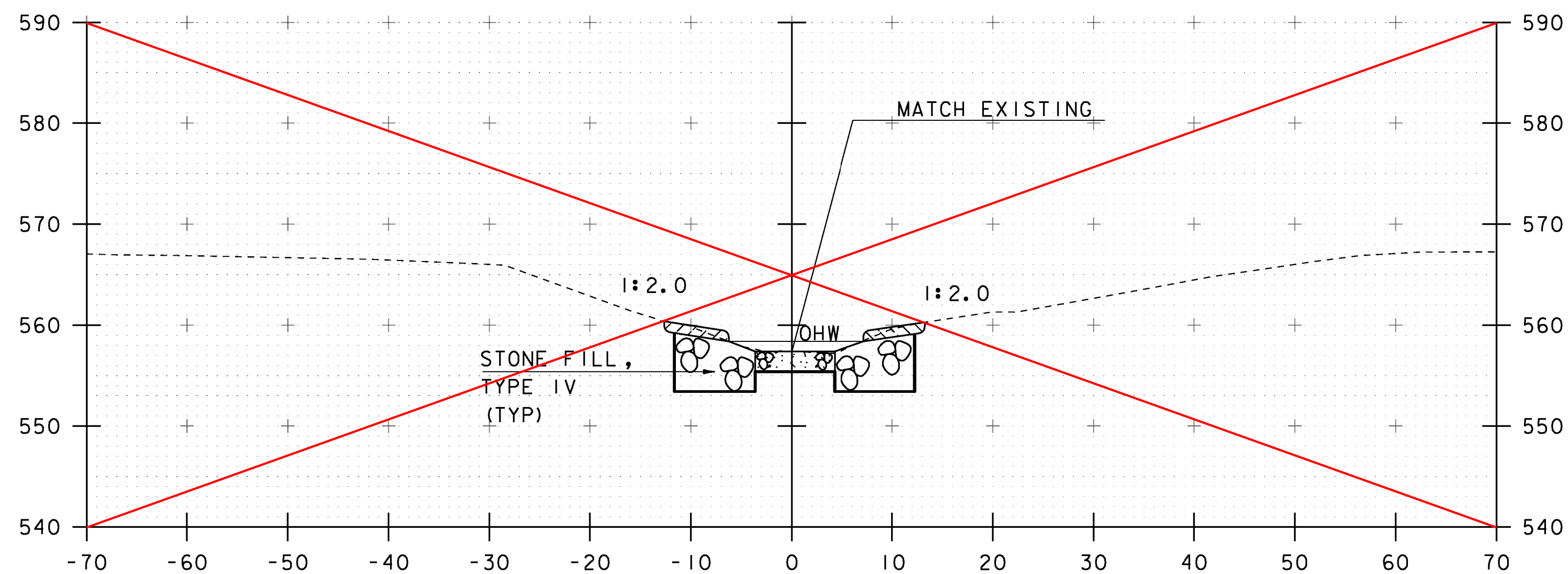
PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598xs.dgn	CHECKED BY:	J.B. MCCARTHY
PROJECT LEADER:	J.B. MCCARTHY	DESIGNED BY:	J. SALVATORI
DESIGNED BY:	J. SALVATORI	MAINLINE CROSS SECTIONS	SHEET 20 OF 29



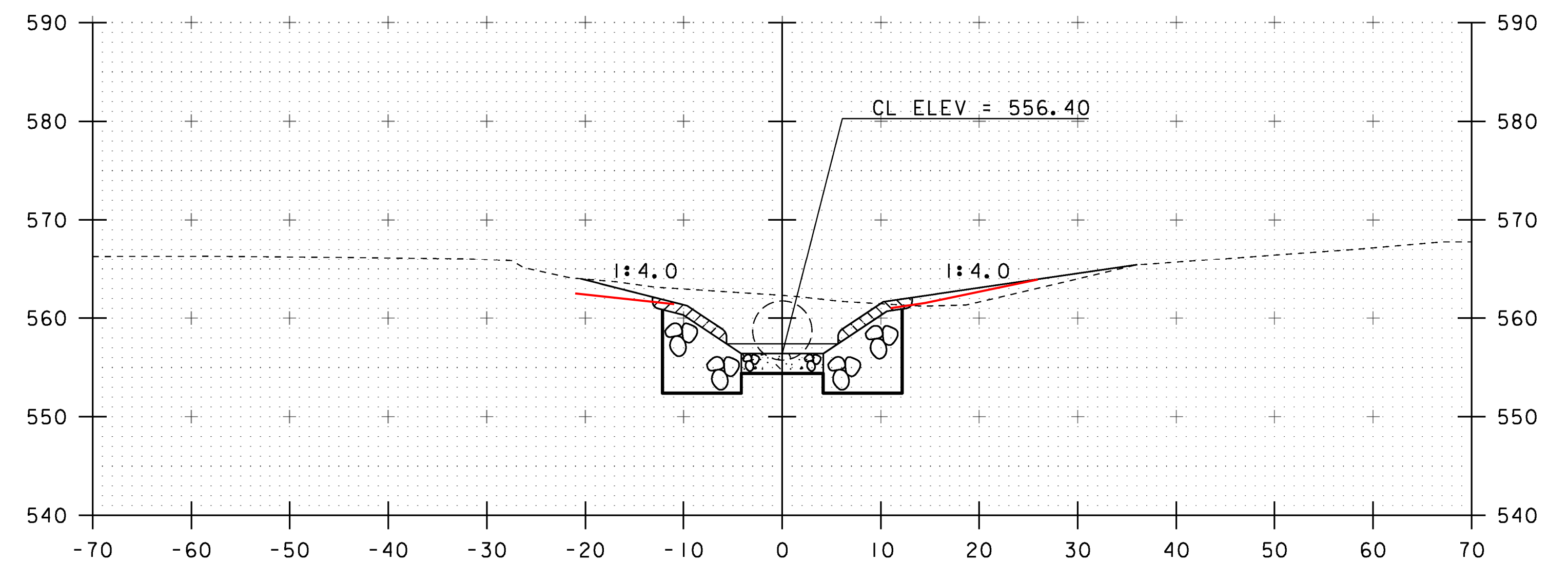
50+30

AS PER PROJECT MANAGER REQUEST  
TO SAVE LARGE ELM TREE

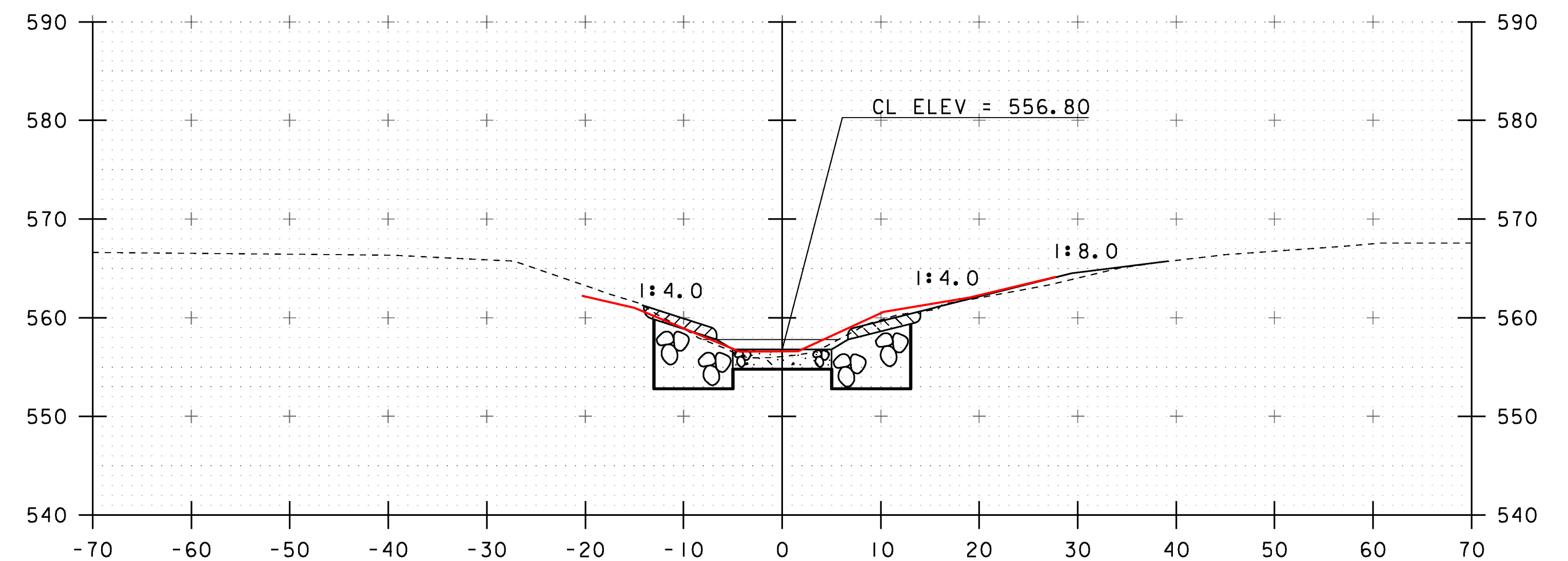
STA ~~50+25~~ 50+40  
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION  
 BEGIN GEOTEXTILE UNDER STONE FILL  
 BEGIN STONE FILL, TYPE IV  
 BEGIN SPECIAL PROVISION (STONE FILL, STREAM BED MATERIAL) (TYPE II)  
 BEGIN GRUBBING MATERIAL



50+25



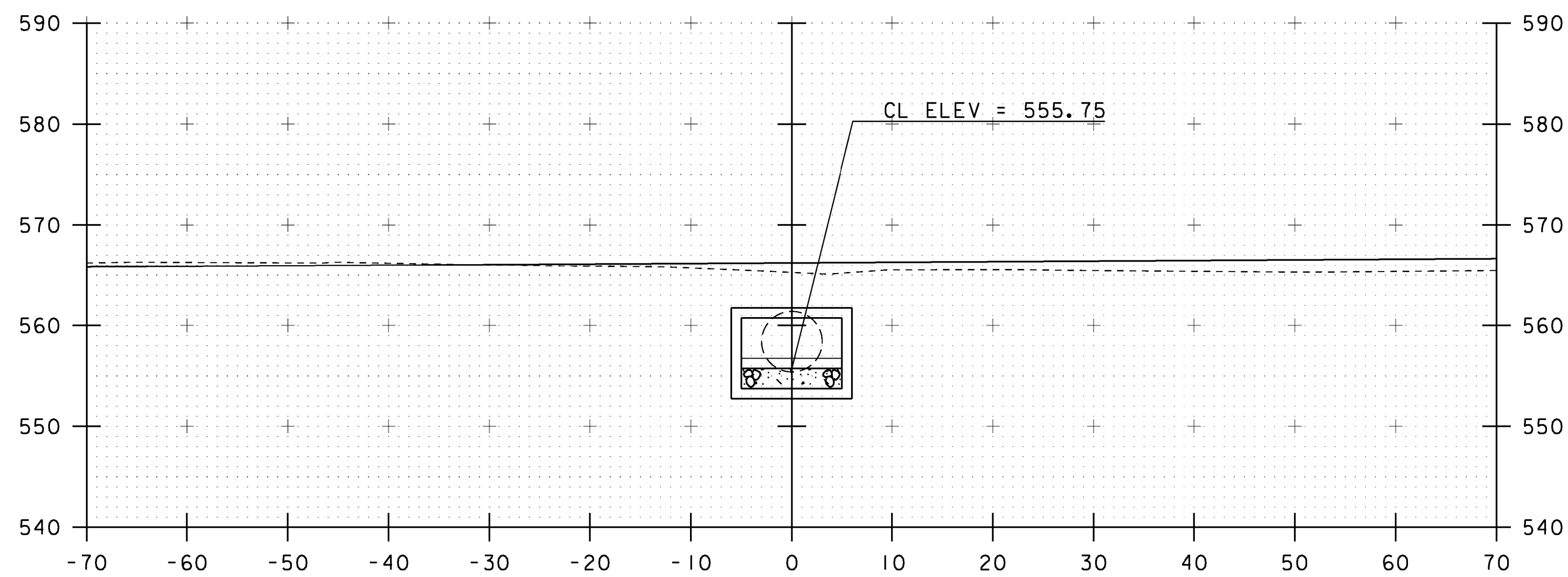
50+50



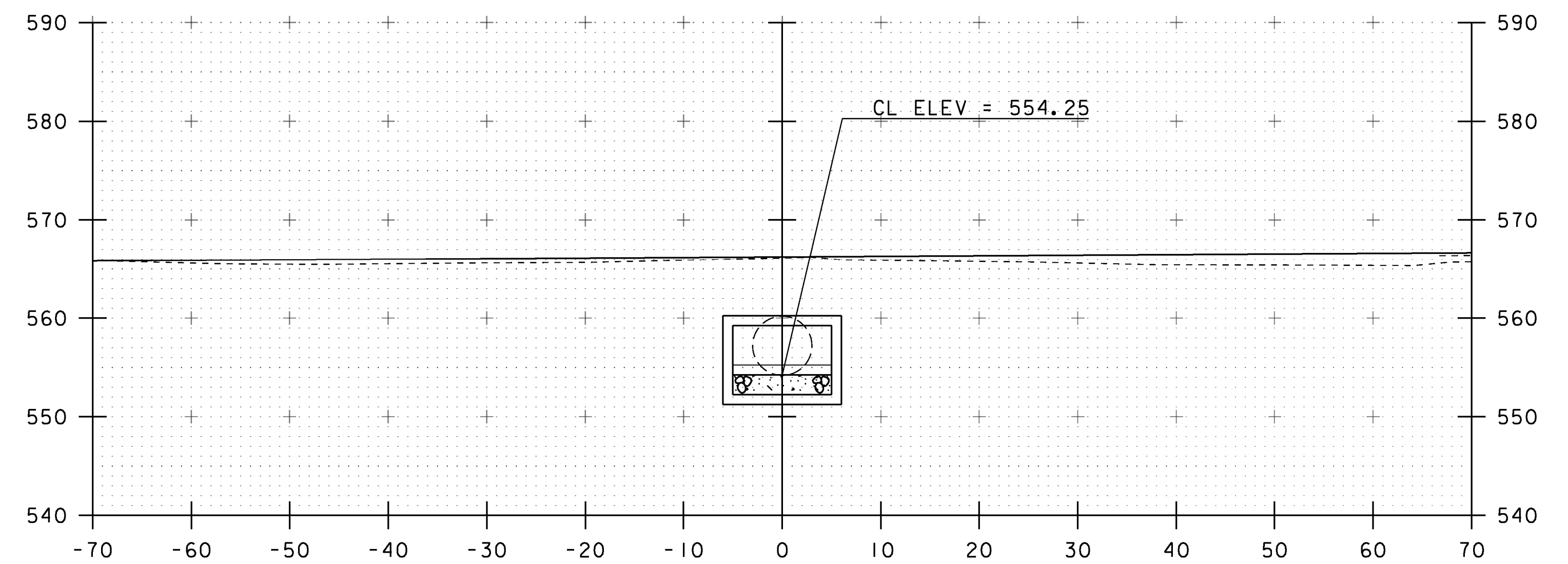
50+40

PROJECT NAME: ST. ALBANS TOWN	
PROJECT NUMBER: BF 0279(5)	
FILE NAME: s12c598xs.dgn	PLOT DATE: 10-JAN-2017
PROJECT LEADER: J.B. MCCARTHY	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J.B. MCCARTHY
CHANNEL CROSS SECTIONS	SHEET 21 OF 29

STA. 50+25 TO STA. 50+50

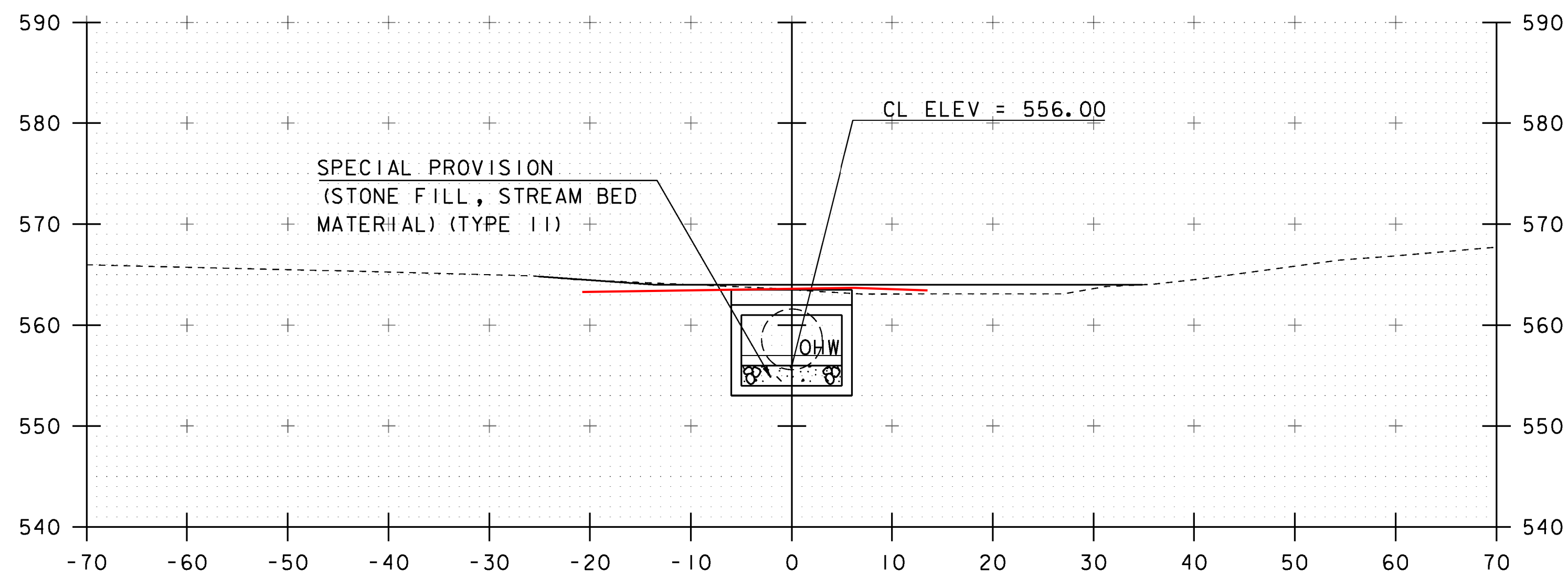


50+70

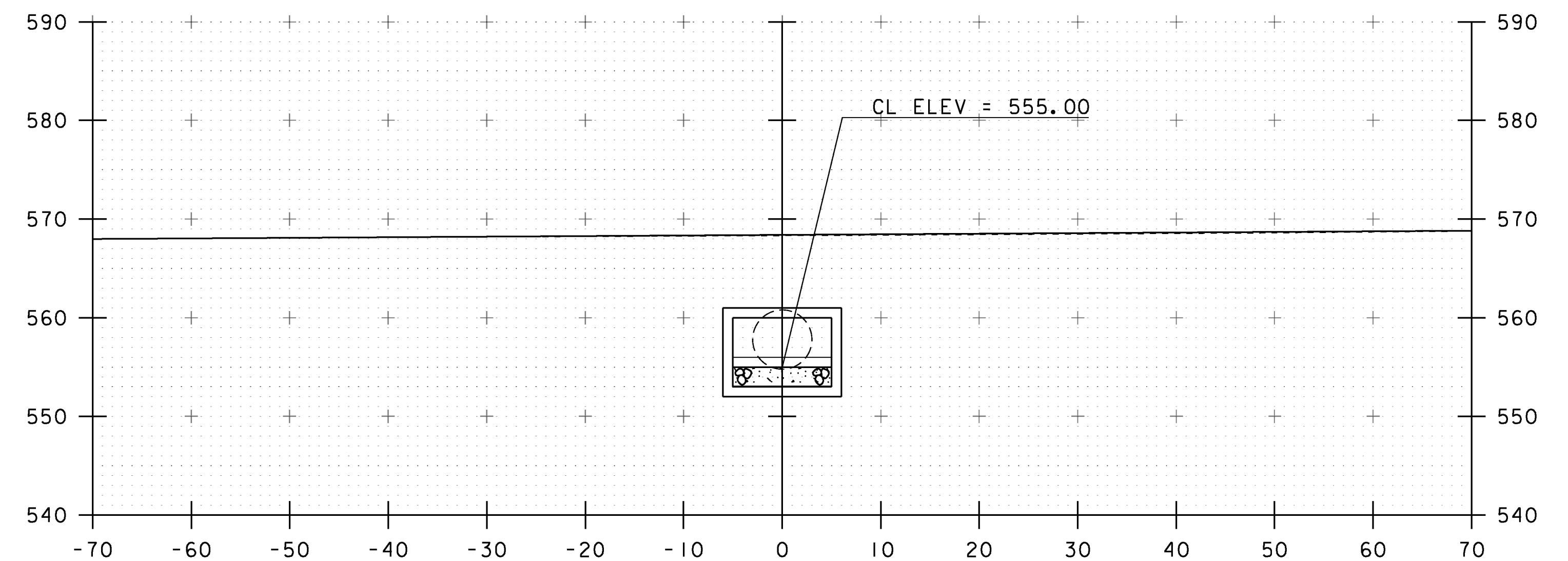


51+30

STA 50+60 BACK STATION  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 END GEOTEXTILE UNDER STONE FILL  
 END STONE FILL, TYPE IV  
 END GRUBBING MATERIAL



50+60

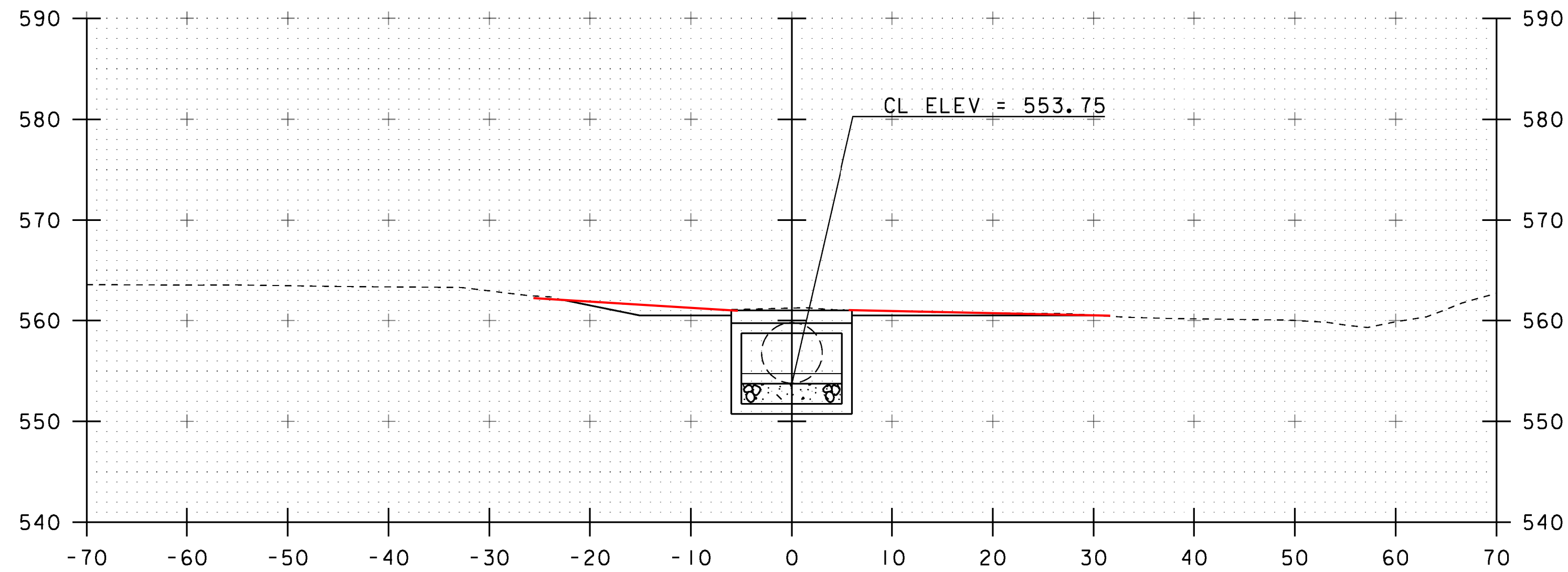


51+00

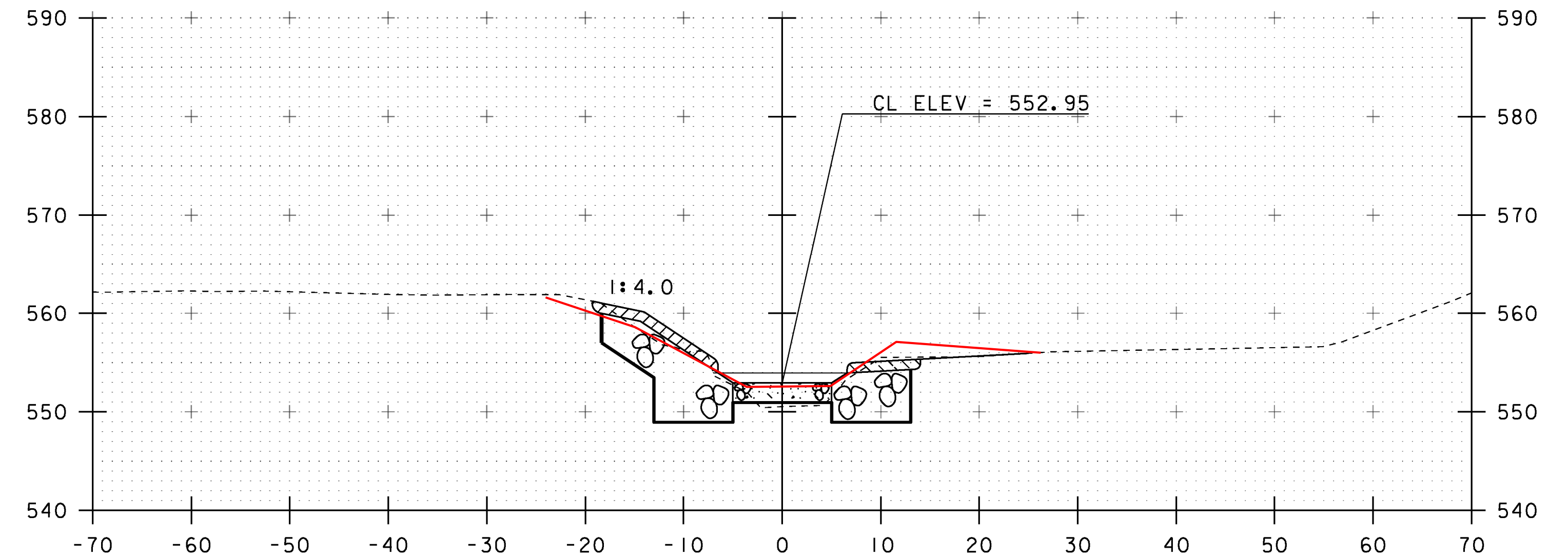
STA. 50+60 TO STA. 51+30

PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598xs.dgn	DESIGNED BY:	J. SALVATORI
PROJECT LEADER:	J.B. MCCARTHY	CHECKED BY:	J.B. MCCARTHY
CHANNEL CROSS SECTIONS		SHEET	22 OF 29

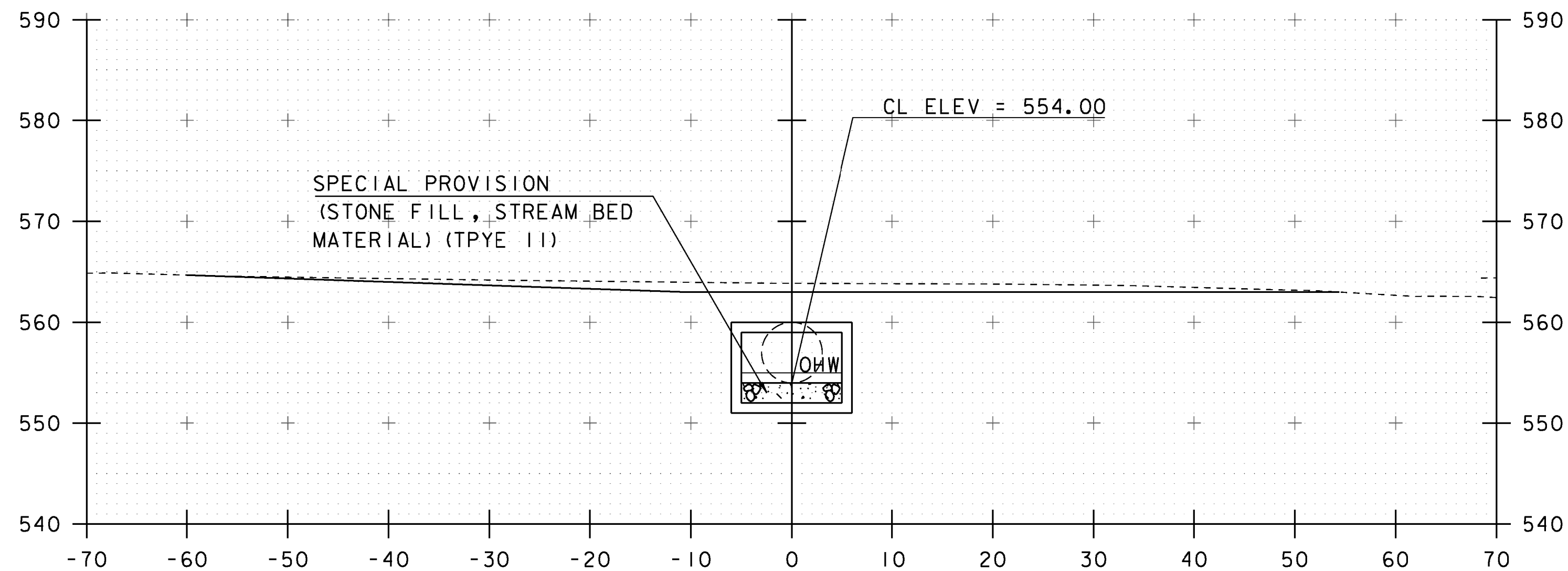
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 BEGIN GEOTEXTILE UNDER STONE FILL  
 BEGIN STONE FILL, TYPE IV  
 BEGIN GRUBBING MATERIAL



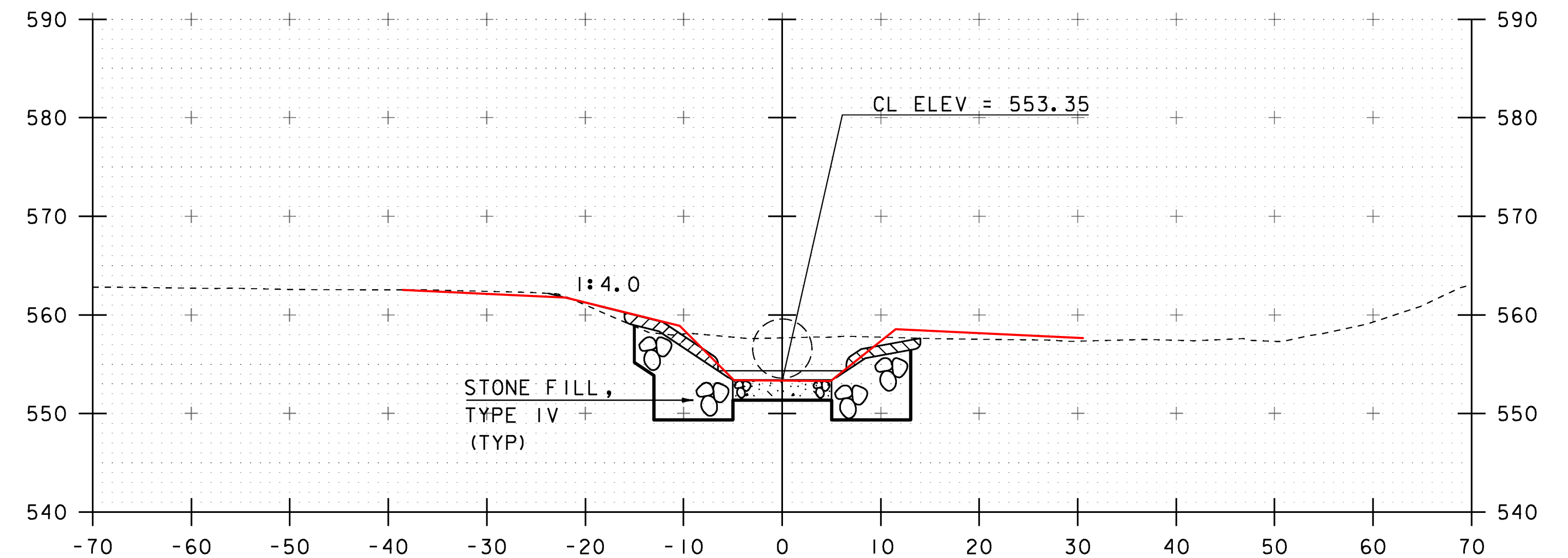
51+50



51+70



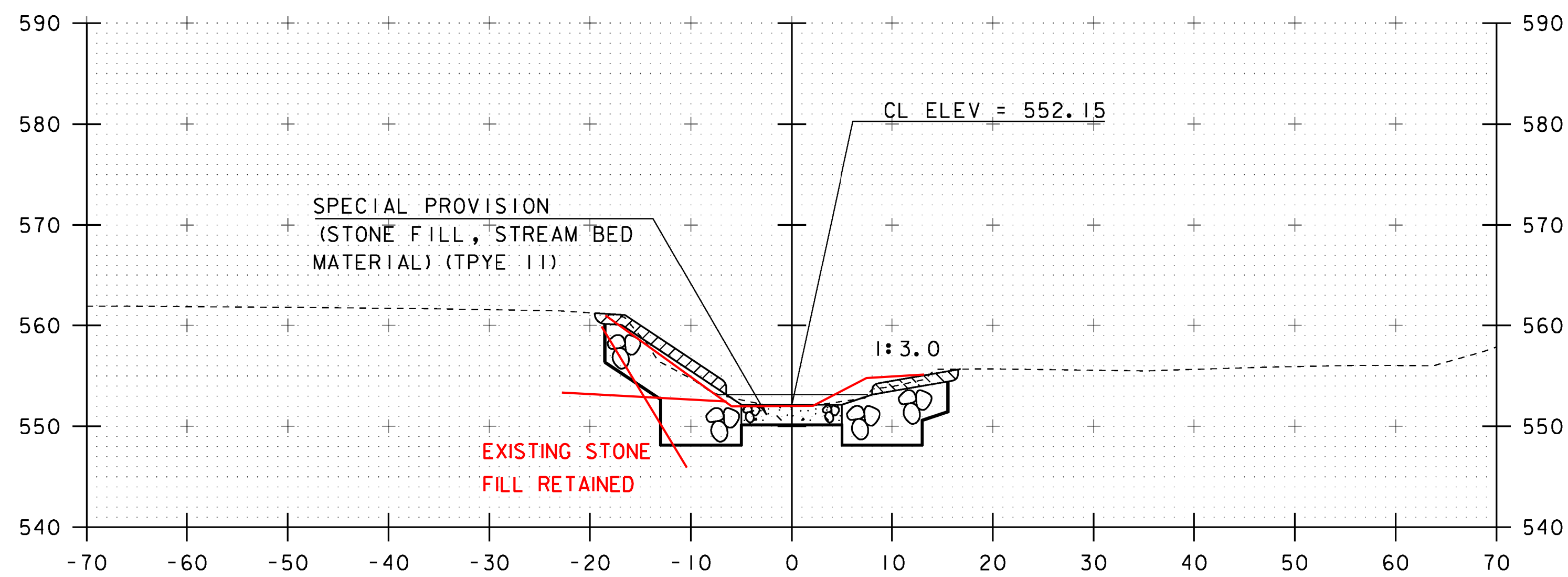
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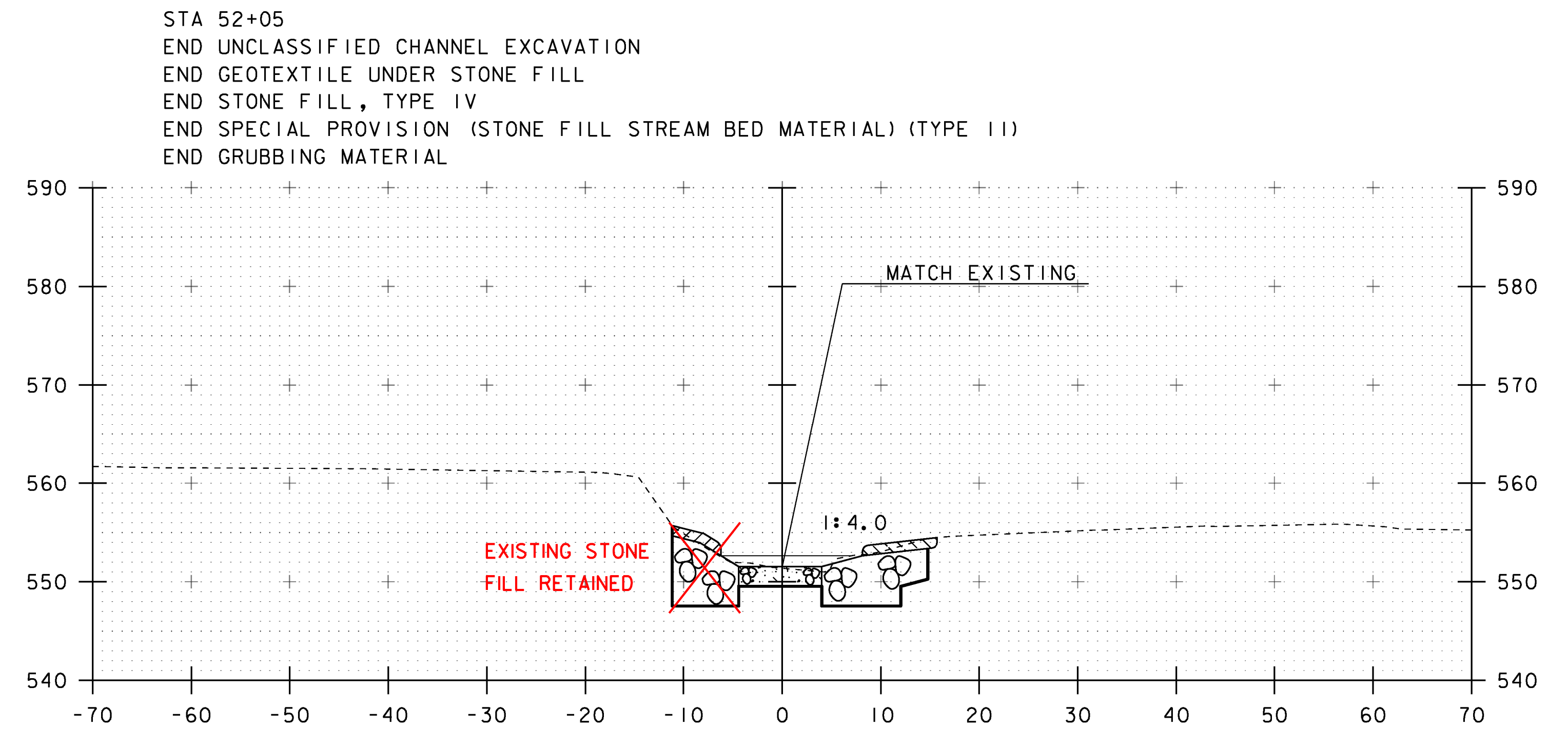
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STA. 51+40 TO STA. 51+70

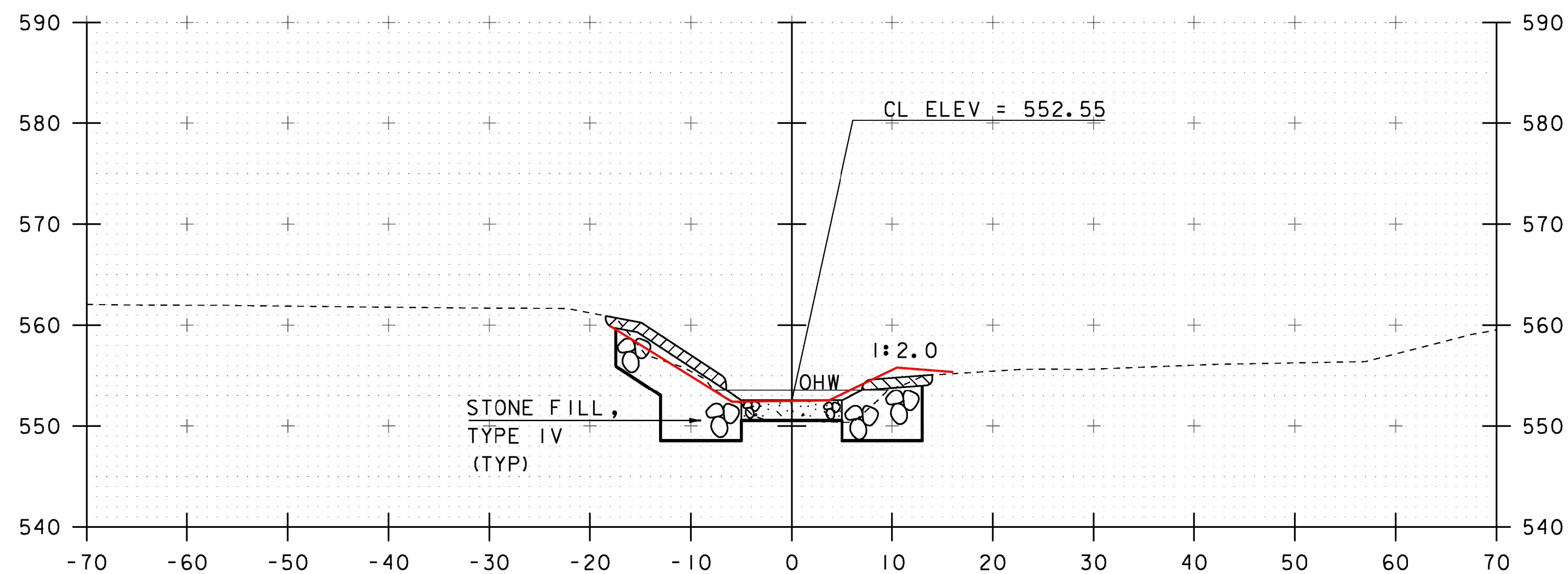
PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598xs.dgn	DESIGNED BY:	J. SALVATORI
PROJECT LEADER:	J.B. MCCARTHY	CHECKED BY:	J.B. MCCARTHY
CHANNEL CROSS SECTIONS		SHEET	23 OF 29



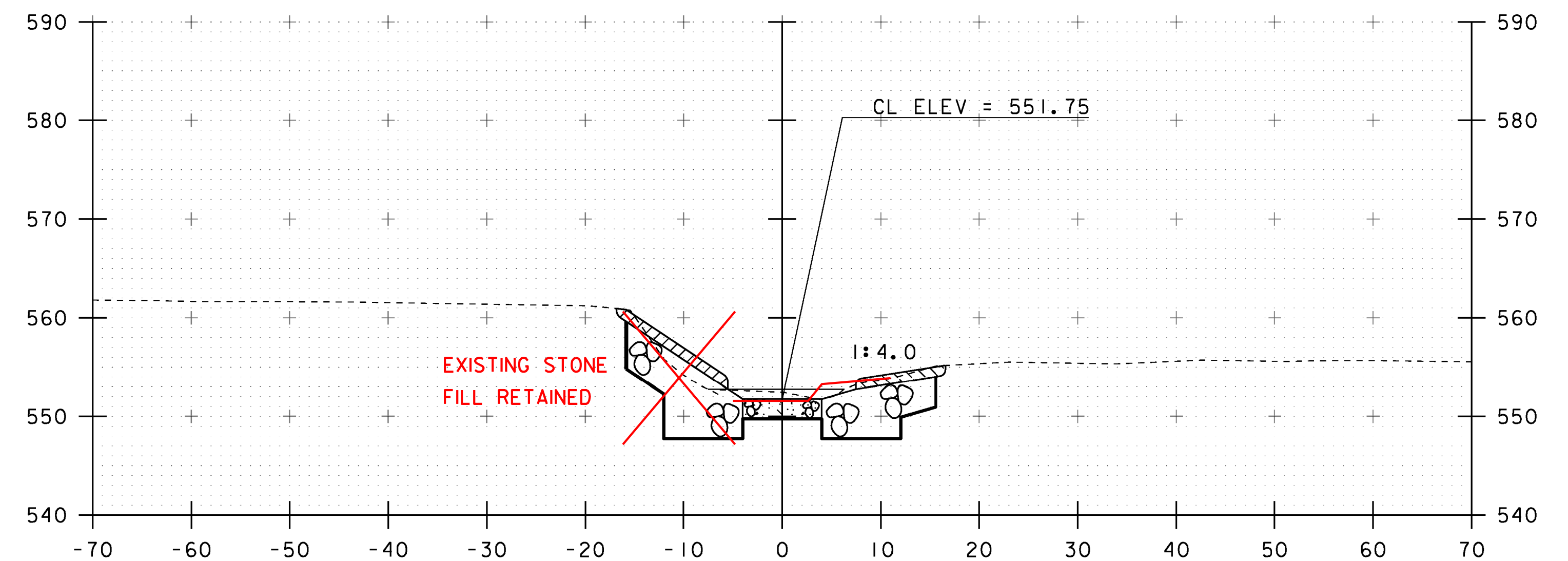
51+90



52+05



51+80



52+00

STA. 51+80 TO STA. 52+05

PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598xs.dgn	DESIGNED BY:	J. SALVATORI
PROJECT LEADER:	J.B. MCCARTHY	CHECKED BY:	J.B. MCCARTHY
CHANNEL CROSS SECTIONS		SHEET	24 OF 29

## EPSC PLAN NARRATIVE

### 1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF EXISTING STRUCTURE AND REPLACEMENT WITH A NEW PRECAST CONCRETE STRUCTURE.

THE PROJECT IS LOCATED APPROXIMATELY 350 FT NORTH OF THE INTERSECTION OF VT 36 AND VT 104.

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.60 ACRES.

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

### 1.2 SITE INVENTORY

#### 1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE PROJECT AREA IS RELATIVELY FLAT.

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

THE STEVEN BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS.

#### 1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING CULVERT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

#### 1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT.

SOILS ON THE PROJECT SITE ARE GEORGIA STONY LOAM, 3% TO 8% SLOPES, "K FACTOR" = 0.28 AND ST ALBANS SLATY LOAM, 8-15% SLOPES, "K FACTOR" = 0.10.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL  
0.24-0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

#### 1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO  
HISTORICAL OR ARCHEOLOGICAL AREAS: YES. ARCHEOLOGICAL AREA FOUND IN THE SOUTHEASTERN QUADRANT. FOUND TO HAVE NO KNOWN OR EXPECTED ARCHAEOLOGICAL SITES IN THE AREA OF POTENTIAL EFFECT.  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: STEVENS BROOK  
WETLANDS: NO

### 1.3 RISK EVALUATION

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

### 1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

#### 1.4.1 MARK SITE BOUNDARIES

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

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

#### 1.4.2 LIMIT DISTURBANCE AREA

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

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

#### 1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

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

#### 1.4.4 INSTALL SEDIMENT BARRIERS

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

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

#### 1.4.5 DIVERT UPLAND RUNOFF

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

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE, IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

#### 1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

IT IS NOT ANTICIPATED THAT CHECK STRUCTURES WILL BE NECESSARY.

#### 1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

IT IS NOT ANTICIPATED THAT PERMANENT CONTROLS WILL BE NECESSARY.

#### 1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

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

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

#### 1.4.9 WINTER STABILIZATION

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

#### 1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

#### 1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER, THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

#### 1.4.12 INSPECT YOUR SITE

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

### 1.5 SEQUENCE AND STAGING

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

#### 1.5.1 CONSTRUCTION SEQUENCE

#### 1.5.2 OFF-SITE ACTIVITIES

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

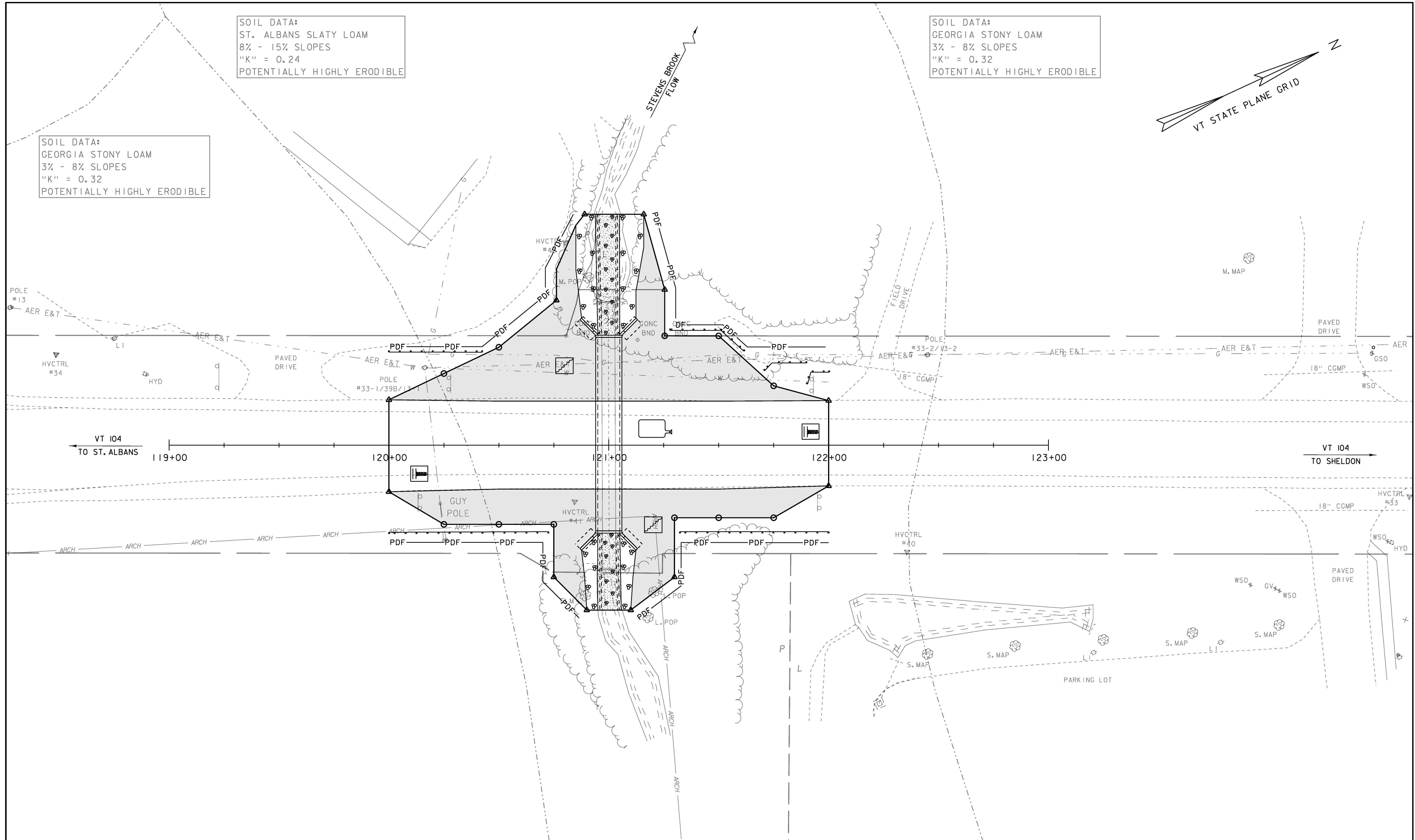
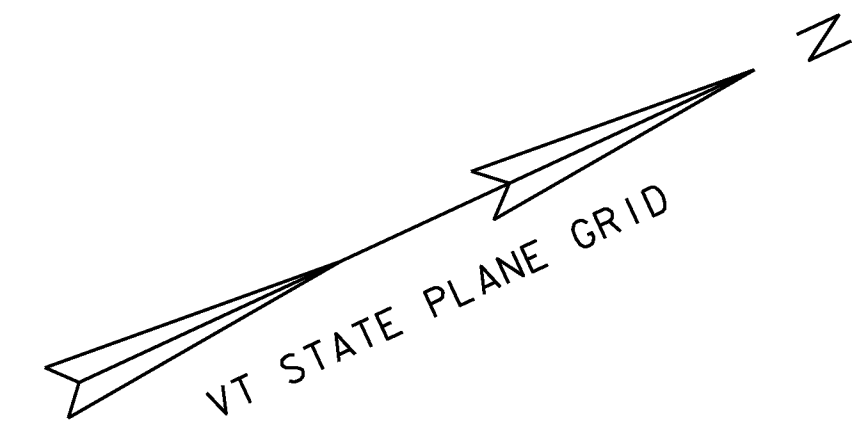
#### 1.5.3 UPDATES

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	BF 0279(5)
FILE NAME:	sl2c598epsc_nar.dgn
PROJECT LEADER:	J.B. MCCARTHY
DESIGNED BY:	J. SALVATORI
EPSC NARRATIVE	
PLOT DATE:	10-JAN-2017
DRAWN BY:	J. SALVATORI
CHECKED BY:	J.B. MCCARTHY
SHEET	25 OF 29

SOIL DATA:  
ST. ALBANS SLATY LOAM  
8% - 15% SLOPES  
"K" = 0.24  
POTENTIALLY HIGHLY ERODIBLE

SOIL DATA:  
GEORGIA STONY LOAM  
3% - 8% SLOPES  
"K" = 0.32  
POTENTIALLY HIGHLY ERODIBLE

SOIL DATA:  
GEORGIA STONY LOAM  
3% - 8% SLOPES  
"K" = 0.32  
POTENTIALLY HIGHLY ERODIBLE



DISTURBED AREAS  
REQUIRING RE-VEGETATION

**EPSC PLAN**  
SCALE 1" = 20'-0"

PROJECT NAME:	ST. ALBANS TOWN	PLOT DATE:	10-JAN-2017
PROJECT NUMBER:	BF 0279(5)	DRAWN BY:	J. SALVATORI
FILE NAME:	sl2c598bdr_epsc.dgn	CHECKED BY:	J.B. MCCARTHY
DESIGNED BY:	J. SALVATORI	EPSC PLAN	SHEET 26 OF 29

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

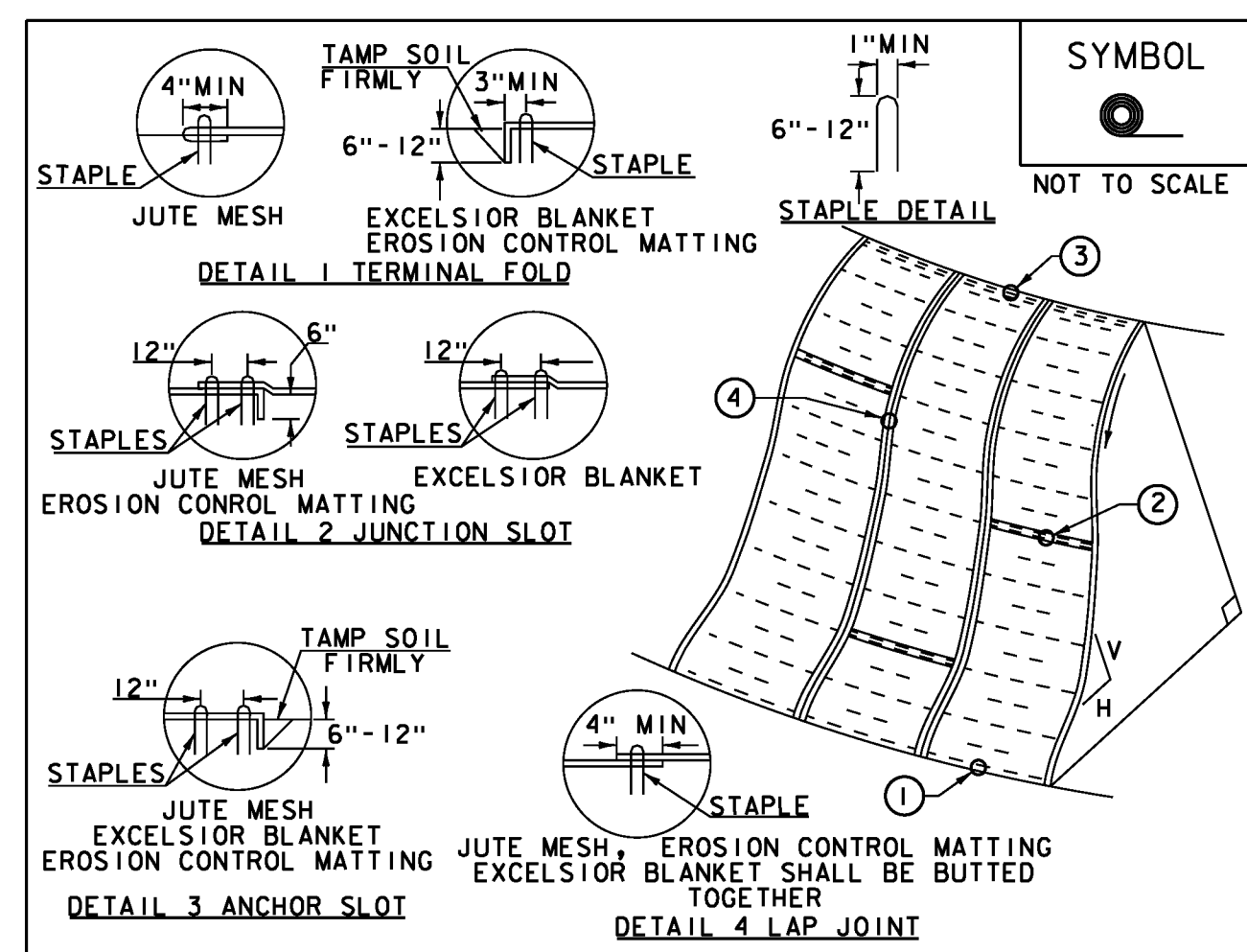
VAOT RURAL AREA MIX					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM PURITY
37.5%	22.5	45	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85% 98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90% 95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90% 95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85% 98%
5.0%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

GENERAL AMENDMENT GUIDANCE	
FERTILIZER	LIME
10/20/10	AG LIME
500 LBS/AC	2 TONS/AC
	1 TONS/AC

**CONSTRUCTION GUIDANCE**

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

ADAPTED FROM VTTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES		TURF ESTABLISHMENT	
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651J)		REVISIONS	
		MARCH 24, 2008	WHF
		JANUARY 13, 2009	WHF



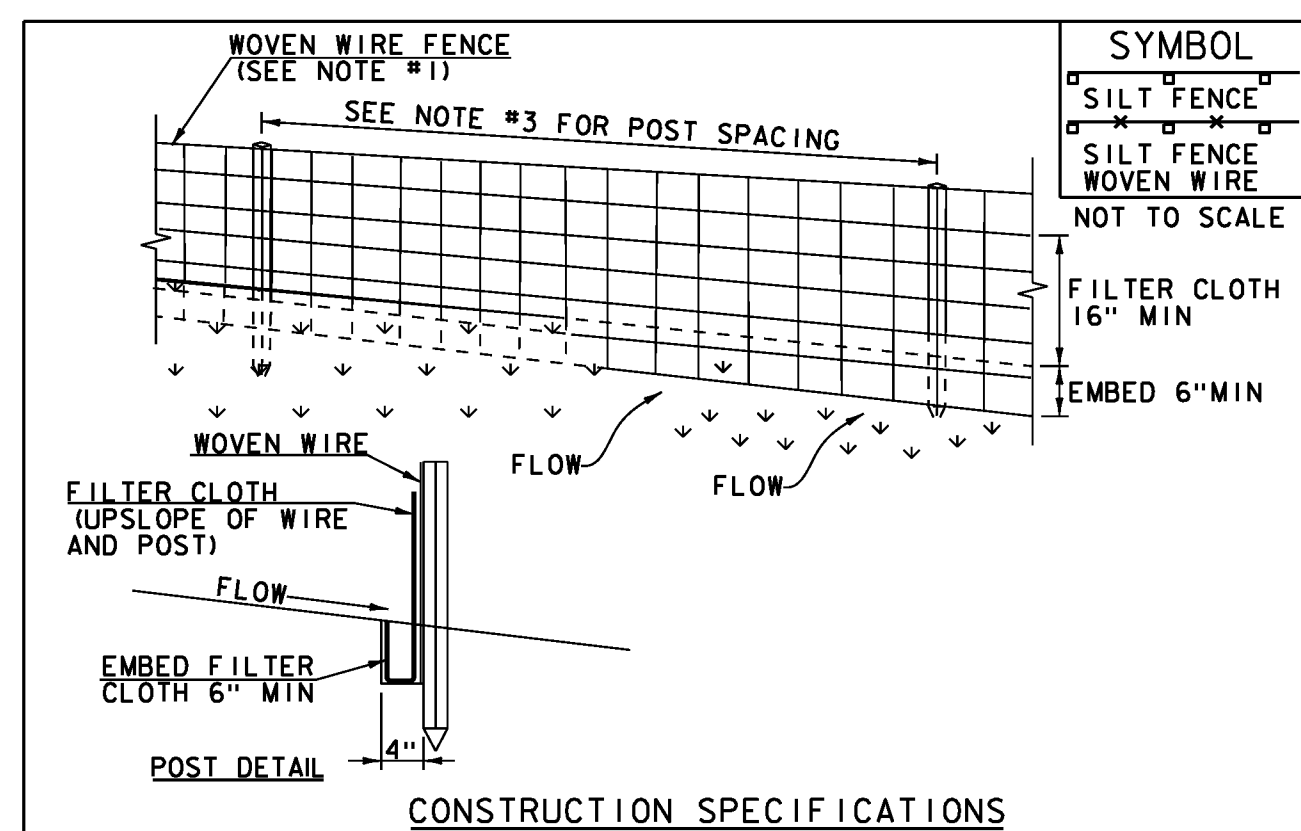
- CONSTRUCTION SPECIFICATIONS**
- APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
  - APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
  - STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY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

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

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

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



- CONSTRUCTION SPECIFICATIONS**
- 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.
  - FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF100X, STABILINKA T140N OR APPROVED EQUIVALENT.
  - 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'.
  - 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.
  - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

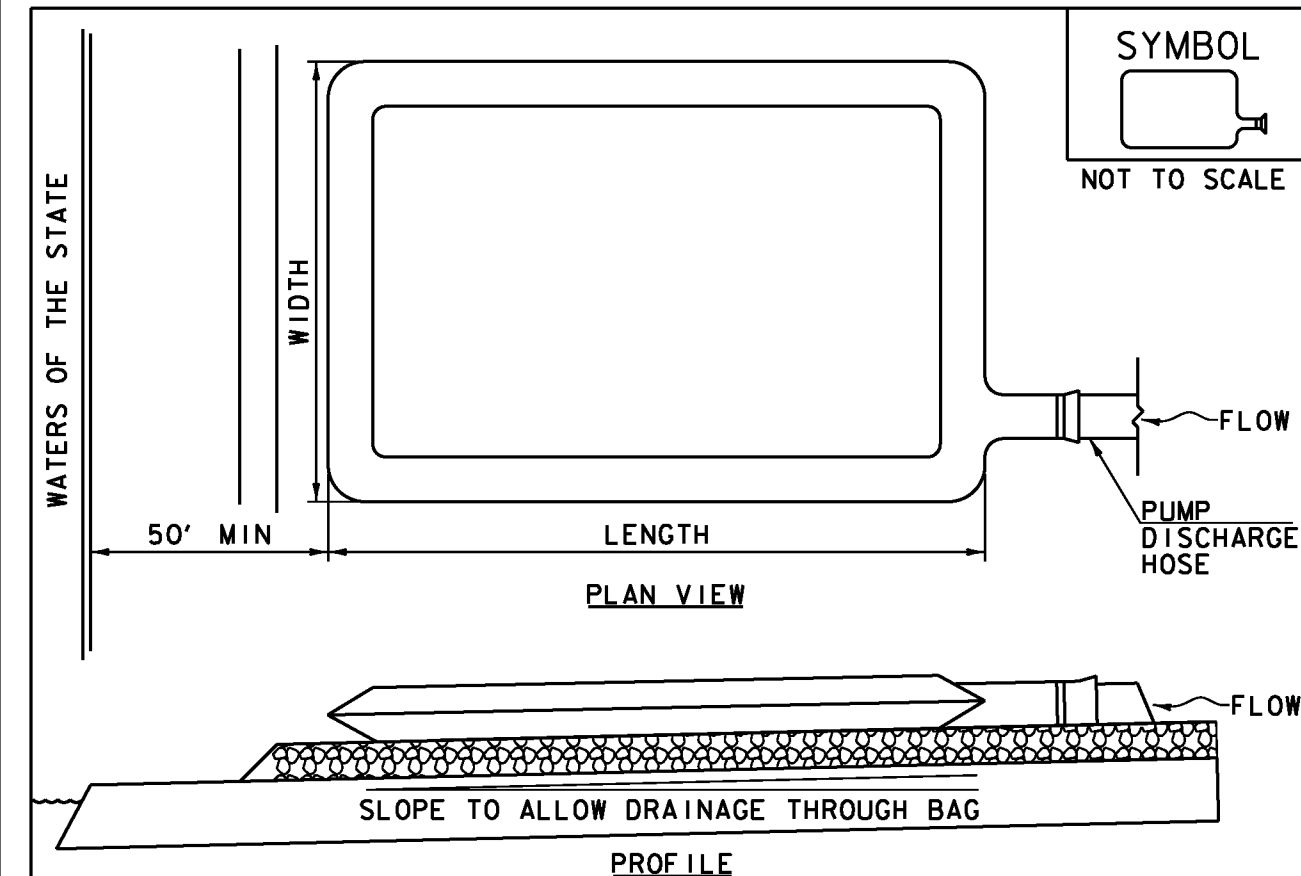
ADAPTED FROM DETAILS PROVIDED BY NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**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 649.50) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.51).

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



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

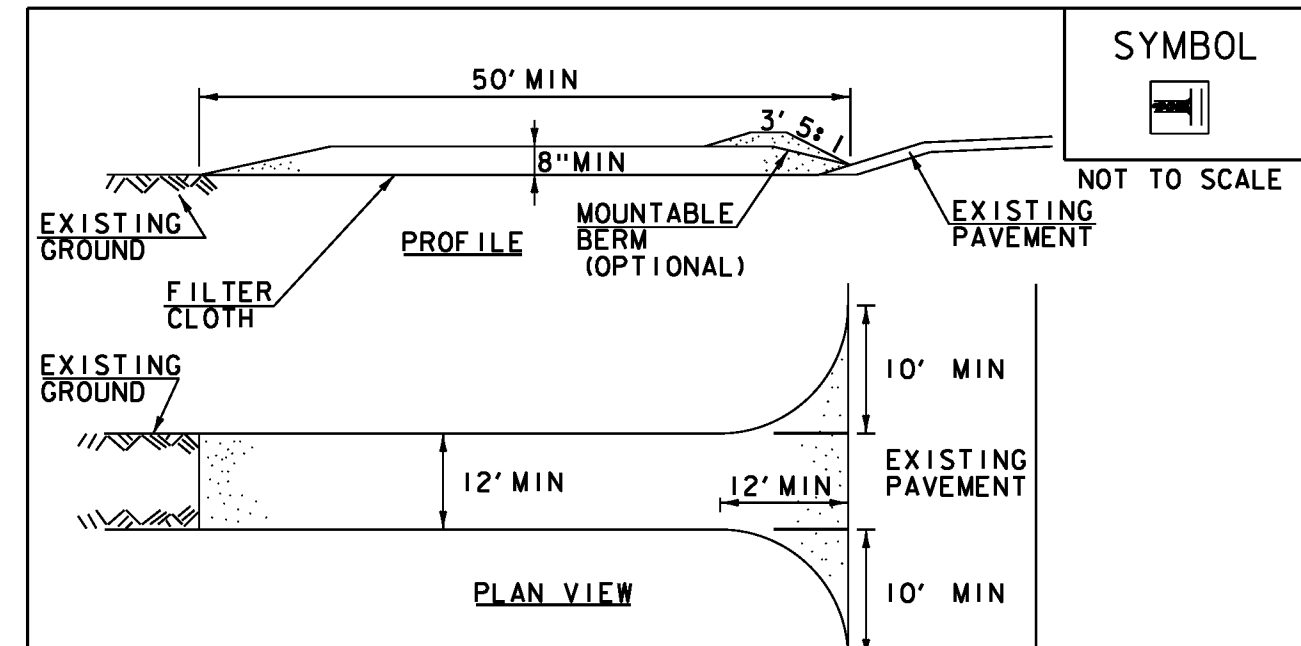
ADAPTED FROM DETAILS PROVIDED BY NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**FILTER BAG**

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



- CONSTRUCTION SPECIFICATIONS**
- STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
  - LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
  - THICKNESS- NOT LESS THAN 8".
  - WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
  - GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
  - 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.
  - 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.
  - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

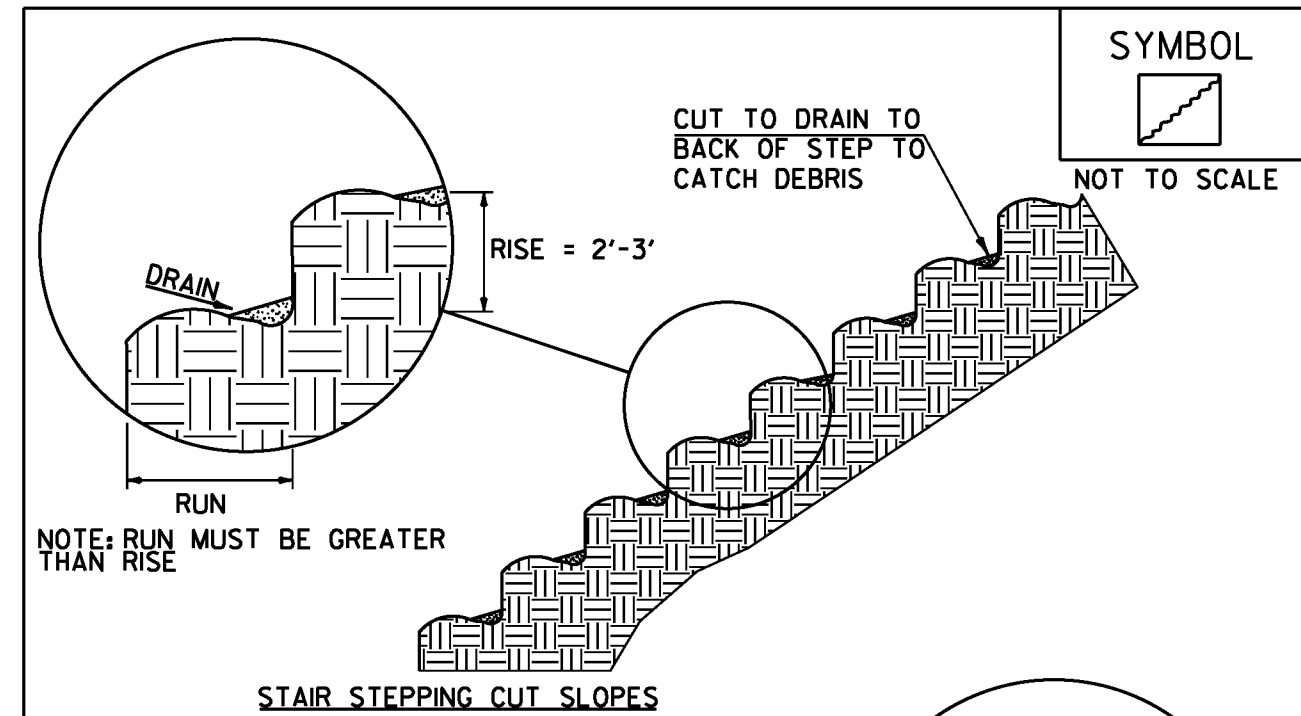
ADAPTED FROM DETAILS PROVIDED BY NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**STABILIZED CONSTRUCTION ENTRANCE**

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



- CONSTRUCTION SPECIFICATIONS**
- STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
  - LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
  - THICKNESS- NOT LESS THAN 8".
  - WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
  - GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
  - 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.
  - 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.
  - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - 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

**SURFACE ROUGHENING**

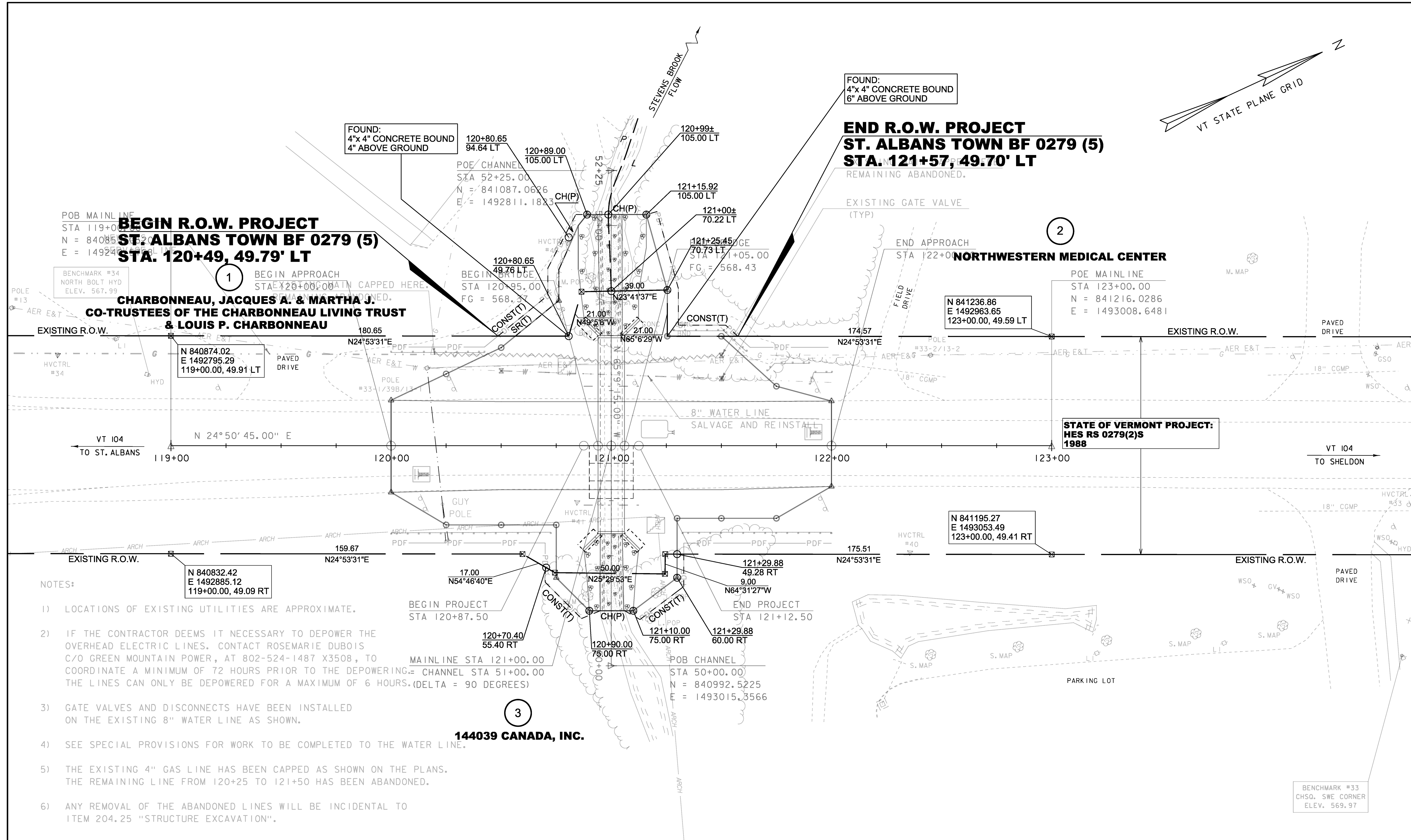
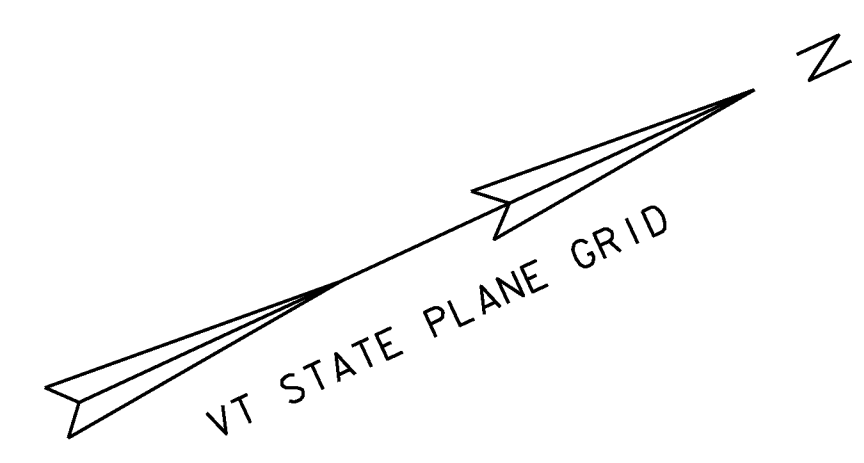
NOTES: REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	BF 0279(5)
FILE NAME:	sl2c598@psc.dof.dgn
PLOT DATE:	10-JAN-2017
PROJECT LEADER:	J.B. MCCARTHY
DRAWN BY:	J. SALVATORI
DESIGNED BY:	J. SALVATORI
CHECKED BY:	J.B. MCCARTHY
EPSC DETAILS	SHEET 27 OF 29





**BEGIN R.O.W. PROJECT  
ST. ALBANS TOWN BF 0279 (5)  
STA. 120+49, 49.79' LT**

**END R.O.W. PROJECT  
ST. ALBANS TOWN BF 0279 (5)  
STA. 121+57, 49.70' LT**

**CHARBONNEAU, JACQUES A. & MARTHA J.  
CO-TRUSTEES OF THE CHARBONNEAU LIVING TRUST  
& LOUIS P. CHARBONNEAU**

**NORTHWESTERN MEDICAL CENTER**

**STATE OF VERMONT PROJECT:  
HES RS 0279(2)S  
1988**

**144039 CANADA, INC.**

**NOTES:**

- 1) LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE.
- 2) IF THE CONTRACTOR DEEMS IT NECESSARY TO DEPOWER THE OVERHEAD ELECTRIC LINES, CONTACT ROSEMARIE DUBOIS C/O GREEN MOUNTAIN POWER, AT 802-524-1487 X3508, TO COORDINATE A MINIMUM OF 72 HOURS PRIOR TO THE DEPOWERING. THE LINES CAN ONLY BE DEPOWERED FOR A MAXIMUM OF 6 HOURS. (DELTA = 90 DEGREES)
- 3) GATE VALVES AND DISCONNECTS HAVE BEEN INSTALLED ON THE EXISTING 8" WATER LINE AS SHOWN.
- 4) SEE SPECIAL PROVISIONS FOR WORK TO BE COMPLETED TO THE WATER LINE.
- 5) THE EXISTING 4" GAS LINE HAS BEEN CAPPED AS SHOWN ON THE PLANS. THE REMAINING LINE FROM 120+25 TO 121+50 HAS BEEN ABANDONED.
- 6) ANY REMOVAL OF THE ABANDONED LINES WILL BE INCIDENTAL TO ITEM 204.25 "STRUCTURE EXCAVATION".

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

**FOR R.O.W.  
USE ONLY**

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

PROJECT NAME: ST. ALBANS TOWN	PLOT DATE: 10-JAN-2017
PROJECT NUMBER: BF 0279(5)	DRAWN BY: A. EGIZI
FILE NAME: r12c598lay.dgn	CHECKED BY: R. CLOUTIER
PROJECT LEADER: J.B. MCCARTHY	SHEET 29 OF 29
DESIGNED BY: J. SALVATORI	
R.O.W. LAYOUT SHEET 1 OF 1	

# TOWN OF ST. ALBANS VT ROUTE 104, CULVERT #19 ST. ALBANS, VT

## 10'-0" x 7'-0" BOX CULVERT

**PREPARED FOR:**  
**CAMP PRECAST CONCRETE PRODUCTS**  
**78 PRECAST ROAD**  
**MILTON, VT 05468**

**PREPARED BY:**  
**ENGINEERING VENTURES, PC**  
**208 FLYNN AVENUE SUITE 2A**  
**BURLINGTON, VT 05401**

- DESIGN IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014, WITH LATEST INTERIM REVISIONS.
- THE FOLLOWING CRITERIA WAS USED FOR DESIGN:
 

LIVE LOAD:  EARTH COVER: FUTURE WEARING SURFACE: SOIL WEIGHT: BACKFILL ANGLE OF INTERNAL FRICTION: MINIMUM LIFTING/HANDLING CONCRETE STRENGTH: 28 DAY CONCRETE STRENGTH (f <sub>c</sub> ): STEEL REINFORCEMENT YIELD STRENGTH:	HL-93 + LANE LOAD OR TANDEM + LANE LOAD VARIES 6 FT TO 7.5 FT 3 INCHES 140 LBS/CF 34° 3,500 PSI 5,000 PSI 60,0000 PSI
--	---
- ENGINEER OF RECORD TO VERIFY CULVERT AND WINGWALL SUITABILITY TO SITE CONDITIONS INCLUDING HYDRAULIC CAPACITY, EFFECTS OF FROST, SCOUR, SETTLEMENT, GLOBAL STABILITY OF WINGWALL, RETAINED SOIL, FOUNDATION SOIL AND SITE GRADING.
- PRECAST CULVERT AND WINGWALL NOT DESIGNED FOR HYDROSTATIC PRESSURE. CONTRACTOR TO USE RAPID DRAINING MATERIAL MEETING REQUIREMENTS OF VTRANS STANDARD SPECIFICATION SECTION 704.16. E.O.R. TO FIELD VERIFY RAPID DRAINING MATERIAL INSTALLED.
- ALL REINFORCING STEEL SHALL BE GRADE 60 DEFORMED BARS CONFORMING TO ASTM A-615 EPOXY COATED IN ACCORDANCE WITH ASTM A 934. REPAIR DAMAGED EPOXY COATING WITH EPOXY REPAIR COATING ACCORDING TO ASTM D 3963. USE EPOXY-COATED STEEL WIRE TIES TO FASTEN EPOXY-COATED REINFORCING
- CLEAR COVER TO REINFORCING STEEL SHALL BE 2", UNLESS NOTED OTHERWISE.
- ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4-INCH.
- APPLY WATER REPELLENT, SILANE IN ACCORDANCE WITH VTRANS STANDARD SPECIFICATION SECTION 514 TO ALL EXPOSED EXTERIOR SURFACES OF PRECAST CONCRETE.
- EACH SECTION SHALL BE DRAWN TOGETHER WITH DRAW CONNECTORS AS SHOWN IN DRAWINGS. FILL ALL RECESSES & LIFTING VOIDS WITH 5,000 PSI (28-DAY) NON-SHRINK GROUT MEETING REQUIREMENTS OF ITEM 707.03 MORTAR, TYPE IV IN THE LATEST EDITION OF THE VTRANS STANDARD SPECIFICATION FOR CONSTRUCTION AND LISTED ON VTRANS APPROVED PRODUCTS LIST.
- DESIGN BASED ON INFORMATION IN THE FOLLOWING RESOURCES:
 

DRAWINGS TITLED "ST. ALBANS TOWN, BF 0279(5)" PREPARED BY STATE OF VERMONT AGENCY OF TRANSPORTATION AND LAST DATED JANUARY 10, 2017.
- IF ANY OF THE WORK TO BE DONE AS SHOWN ON THE DRAWINGS DOES NOT CORRESPOND WITH THE EXISTING FIELD CONDITIONS, CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.
- LIFTING INSERTS ASSUME SLING ANGLE 60 DEGREES OR GREATER FROM HORIZONTAL. PROVIDE SPREADER BEAMS AND ROLLING BLOCKS AS REQUIRED TO LOAD INSERTS EQUALLY.

**CURING, HANDLING & STORAGE PRACTICES AND PROCEDURES:**

- THE CONCRETE UTILIZED WILL BE PRODUCED, INSPECTED, HANDLED, PLACED, FINISHED AND REPAIRED AS PER SECTIONS 540.05 THROUGH 540.07 OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION. THE SPECIFIC MIX DESIGN WAS APPROVED ON 4-12-17 BY VTAOT STRUCTURAL CONCRETE ENGINEER, JAMES WILD.
- AFTER REACHING A MINIMUM STRIPPING STRENGTH OF 3,500 PSI THE CULVERT SECTION MAY BE REMOVED FROM THE FORM. ALL STRUCTURAL PIECES SHALL BE CURED UNTIL ATTAINING DESIGN STRENGTH OF 5,000 PSI.
- IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETE, THE CULVERT SECTION WILL BE PLACED INTO A WOOD AND STEEL STRUCTURE TO BEGIN ITS CURING PERIOD.
- CURING PROCEDURES SHALL FOLLOW SECTIONS 501.17 AND 540.08 OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION EXCEPT AS FOLLOWS:
  - SECTION 501.17 (b) WATER CURING, SHALL BE MODIFIED TO INCLUDE CONTINUOUS MISTING AND OR FOGGING TO MAINTAIN, AS NEAR AS POSSIBLE, AN ATMOSPHERE OF 100% HUMIDITY.
- WHEN THE CULVERT SECTION ATTAINS DESIGN STRENGTH AS EVIDENCED BY TEST CYLINDER BREAKS CURED WITH THE PRECAST BOX SECTION, CURING PROCEDURES WILL END AND THE CONTAINMENT BUILDING WILL BE REMOVED.
- AT THIS POINT, SECONDARY POURS (FISH BAFFLES, HEADWALLS) CAN BE PERFORMED.
- STRUCTURAL SECONDARY POURS SHALL BE CURED IN ACCORDANCE WITH VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION SECTION 501.17 (5).
- AS PER SECTION 540.09 THE CULVERT SECTIONS "SHALL BE HANDLED, STORED, AND SHIPPED IN SUCH A MANNER AS TO MINIMIZE CHIPPING, CRACKS, FRACTURES, DISCOLORATION, AND EXCESSIVE BENDING STRESSES. UNITS DAMAGED BY HANDLING, STORAGE, OR SHIPPING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE."
- AS PER SECTION 540.09 "PRECAST CONCRETE WILL NOT BE CONSIDERED FOR SHIPMENT UNTIL IT HAS BEEN ACCEPTED." (BY VTAOT OR IT'S REPRESENTATIVE). "THIS ACCEPTANCE SHALL INCLUDE VERIFICATION THAT PIECES ARE FREE FROM DEFECTS AND ALL SPECIFICATION REQUIREMENTS INCLUDING THE COMPRESSIVE STRENGTH AND TOLERANCE REQUIREMENTS HAVE BEEN ACHIEVED. IN ADDITION, PRECAST CONCRETE WILL NOT BE CONSIDERED FOR SHIPMENT FOR A MINIMUM OF 72 HOURS FOLLOWING THE COMPLETION OF CASTING."

Vermont Agency of Transportation

**RECEIVED**

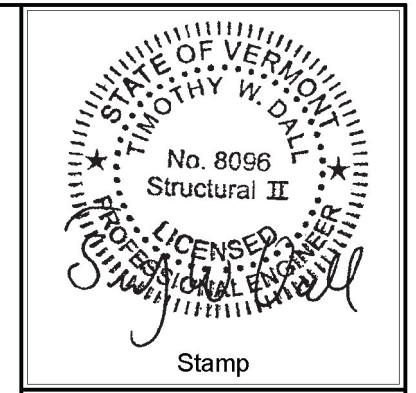
CK'D BY J. B. McCarthy OK'D BY J. B. McCarthy

May 17, 2017

RESUBMIT No Approved  
BY J. B. McCarthy DATE 05/18/17

**INDEX OF SHEETS:**

- TITLE SHEET
- CULVERT PLAN AND OUTLET ELEVATION
- CULVERT ELEVATION AND SECTION
- CULVERT REINFORCING SECTION
- OUTLET WINGWALL PLANS, ELEVATIONS AND SECTION
- INLET WINGWALL PLANS, ELEVATIONS AND SECTION
- CUTOFF WALL PLANS AND ELEVATIONS
- DETAILS
- CUTOFF WALL LAYOUT PLAN



No.	Description	Date
1	SUBMITTAL REVIEW COMMENTS	04/26/17
2	CURING, HANDLING & STORAGE PRACTICES AND PROCEDURES ADDED	05/09/17
3	SUBMITTAL REVIEW COMMENTS	05/15/17

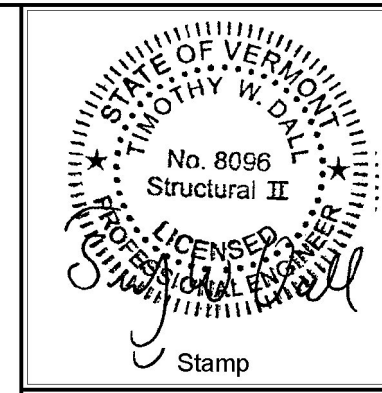
**ENGINEERING VENTURES PC**  
208 Flynn Avenue, Suite 2A, Burlington, VT 05401  
tel. 802-863-6225 fax. 802-863-6306  
85 Mechanic Street, Suite B2-2, Lebanon, NH 03766  
tel. 603-442-9333 fax. 603-442-9331  
www.engineeringventures.com



SHEET TITLE: **TITLE SHEET**  
PROJECT TITLE: **TOWN OF ST. ALBANS VT ROUTE 104, CULVERT #19**  
ST. ALBANS, VERMONT

Designed By:	CPA
Checked By:	TWD
Drawn:	JTM
Scale:	AS NOTED
Date:	04/04/2017

**1**  
EV Project #17022.02



Date	04/26/17
Description	SUBMITTAL REVIEW COMMENTS
No.	1

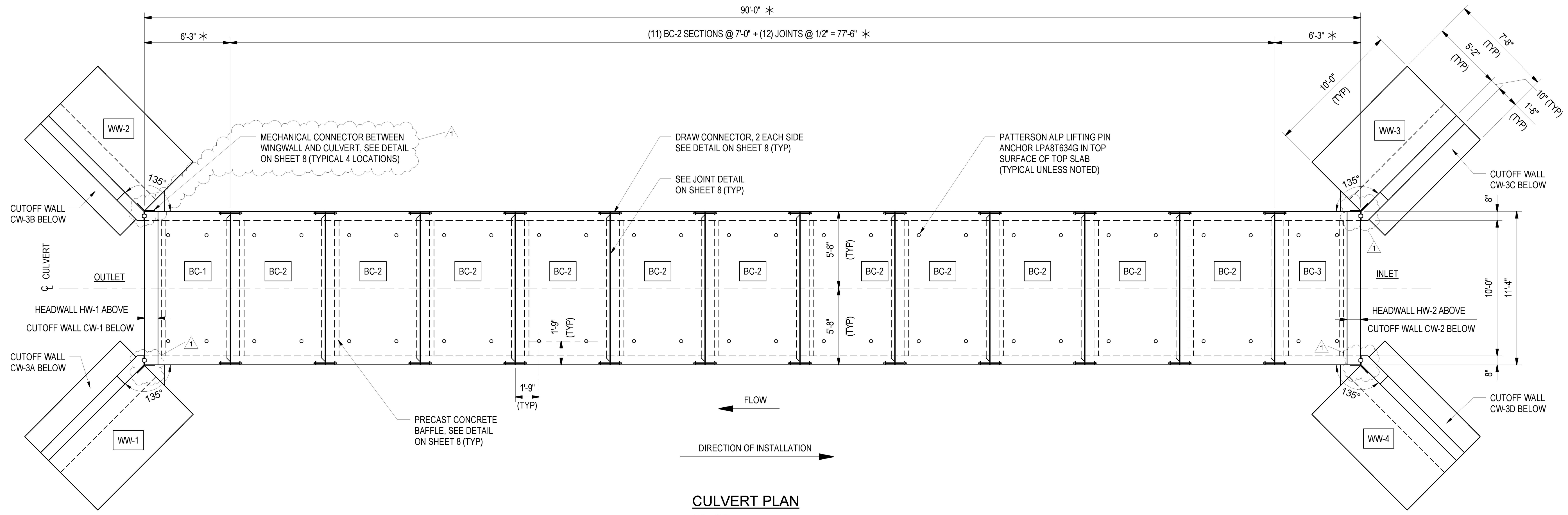
**ENGINEERING VENTURES PC**  
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 85 Mechanic Street, Suite B2-2, Lebanon, NH 03766  
 tel. 603-442-9333 fax. 603-442-9331  
 www.engineeringventures.com

**CAMP**  
 PRECAST CONCRETE  
 78 PRECAST ROAD  
 MILTON, VT 05469  
 PHONE: (802) 893-2401  
 FAX: (802) 893-1542

**CULVERT PLAN AND OUTLET ELEVATION**  
 TOWN OF ST. ALBANS  
 VT ROUTE 104, CULVERT #19  
 ST. ALBANS, VERMONT

Sheet Title:  
 Project Title:  
 Designed By: CPA  
 Checked By: TWD  
 Drawn: JTM  
 Scale: AS NOTED  
 Date: 04/04/2017

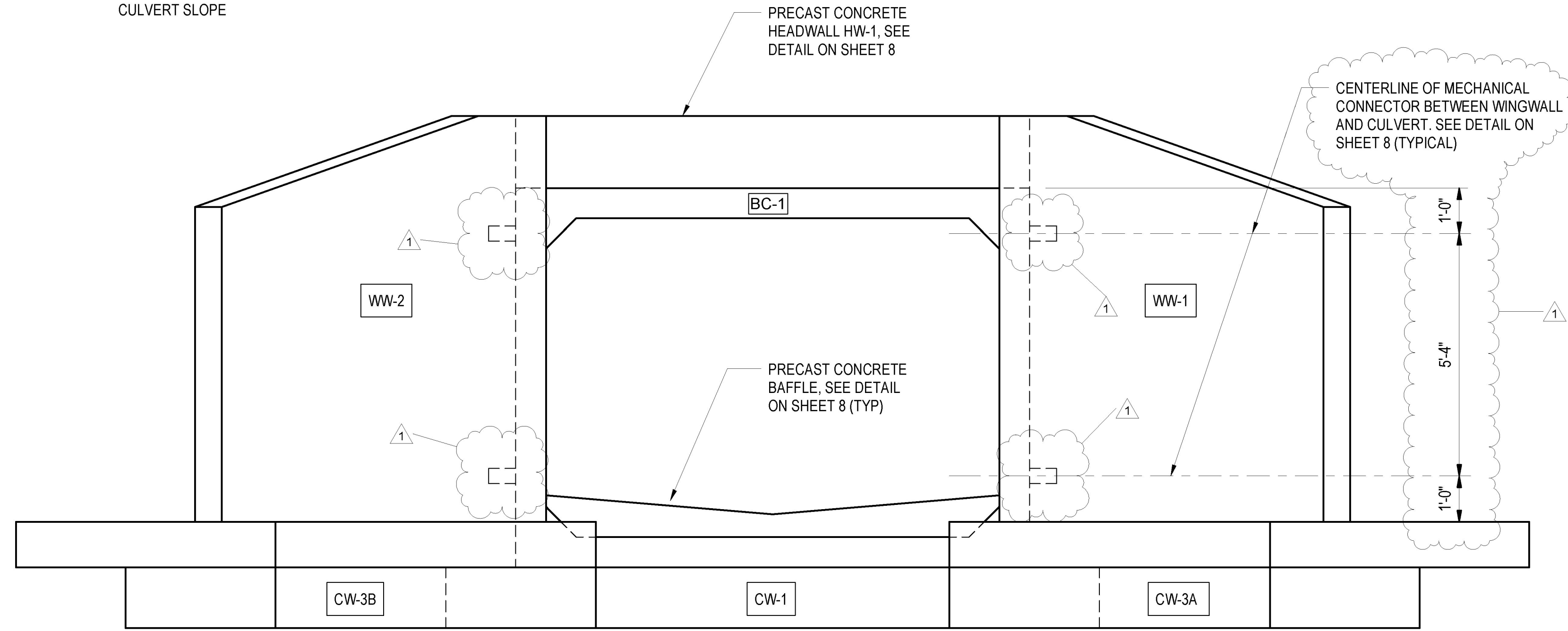
**2**  
 EV Project #17022.02



**CULVERT PLAN**  
 1/4" = 1'-0"  
 1. \* - DENOTES DIMENSION ALONG CULVERT SLOPE

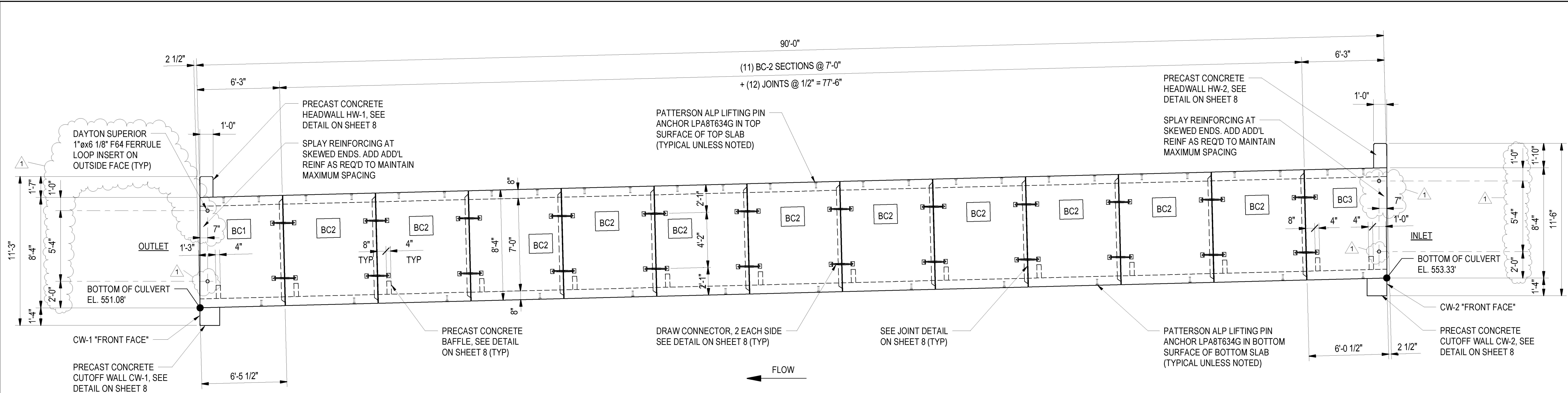
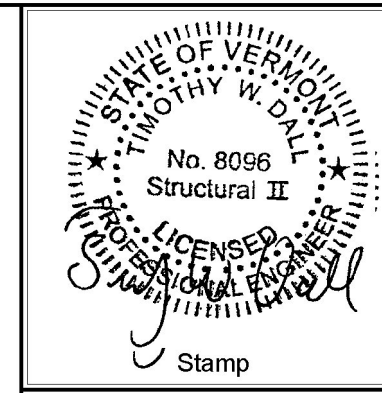
TABLE OF UNITS				
MARK	QTY	CL LENGTH	VOL (CY)	WEIGHT (TONS)
BC-1**	1	6'-4 1/4"	6.71	13.59
BC-2 *	11	7'-0"	6.66	13.49
BC-3***	1	6'-1 3/4"	6.71	13.59
WW-1	1	10'-0"	5.41	10.95
WW-2	1	10'-0"	5.41	10.95
WW-3	1	10'-0"	5.49	11.11
WW-4	1	10'-0"	5.49	11.11
CW-1	1	12'-11"	0.97	1.97
CW-2	1	12'-11"	0.94	1.91
CW-3A	1	10'-0"	2.26	4.58
CW-3B	1	10'-0"	2.26	4.58
CW-3C	1	10'-0"	2.26	4.58
CW-3D	1	10'-0"	2.26	4.58

1. \* INDICATES WEIGHT AND VOLUME OF ONE PRECAST BAFFLE ADDED.  
 2. \*\* INDICATES WEIGHT AND VOLUME OF ONE PRECAST BAFFLE AND ONE HEADWALL ADDED.  
 3. \*\*\* INDICATES WEIGHT AND VOLUME OF TWO PRECAST BAFFLES AND ONE HEADWALL ADDED.  
 4. ALL WEIGHTS AND VOLUMES ARE APPROXIMATE.

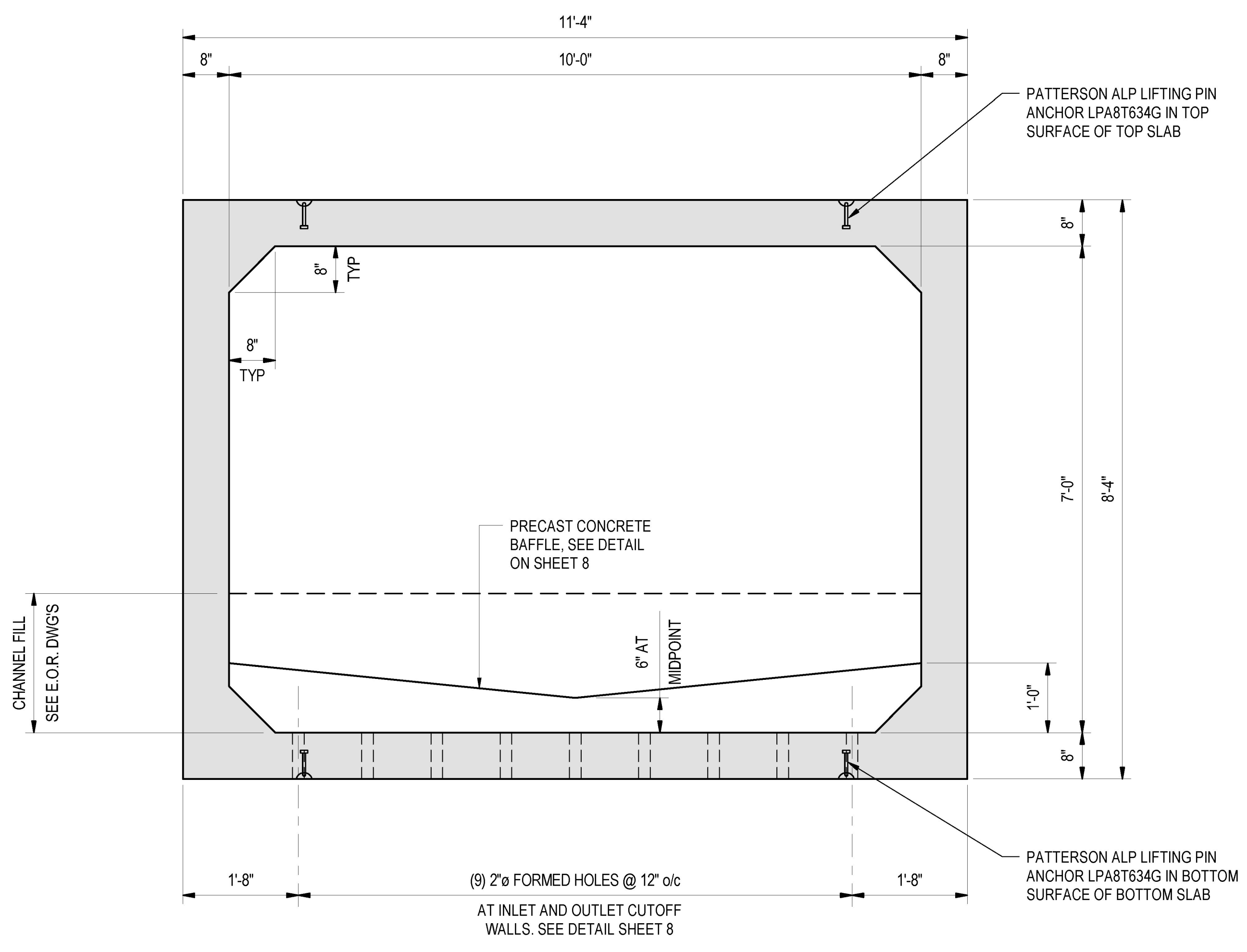


**CULVERT OUTLET ELEVATION**  
 1/2" = 1'-0"  
 1. INLET END VIEW SIMILAR.

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**CULVERT ELEVATION**  
1/4" = 1'-0"



**CULVERT SECTION**  
3/4" = 1'-0"

Date	04/26/17
Description	SUBMITTAL REVIEW COMMENTS
No.	1

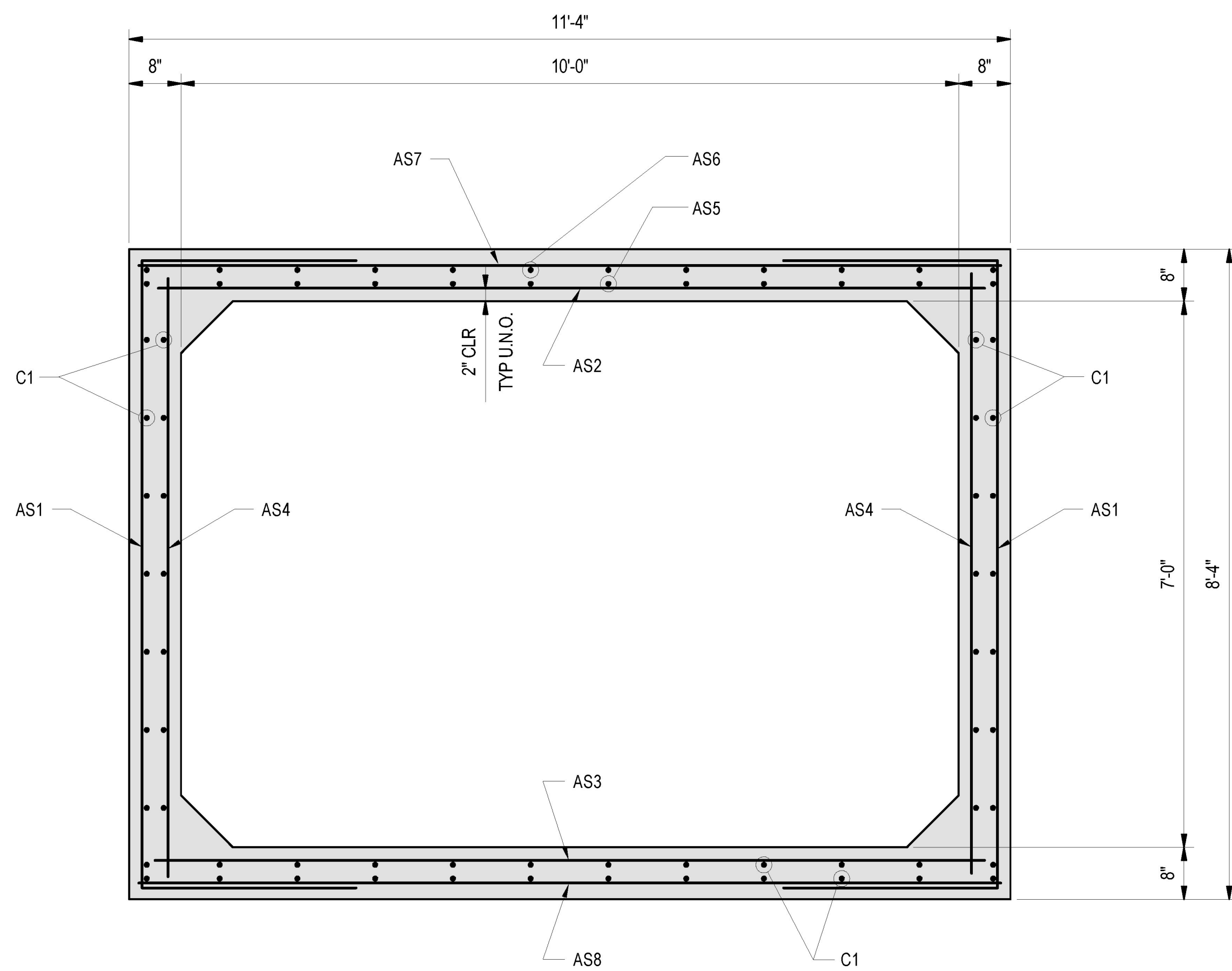
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Sheet Title: **CULVERT ELEVATION AND SECTION**  
Project Title: **TOWN OF ST. ALBANS VT ROUTE 104, CULVERT #19**  
ST. ALBANS, VERMONT

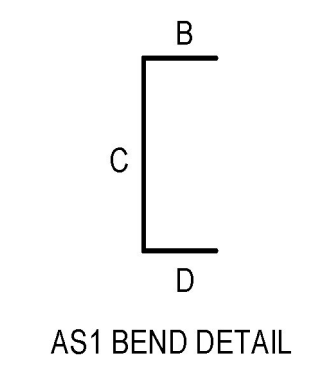
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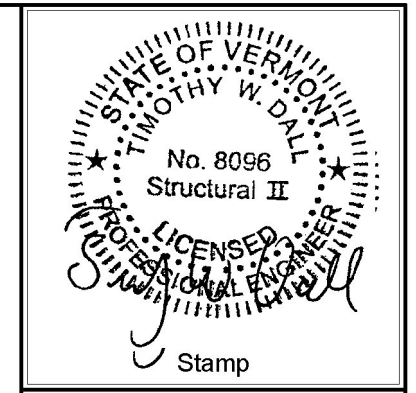
**CULVERT REINFORCING SECTION**  
3/4" = 1'-0"

BAR SCHEDULE							
MARK	BAR SIZE	MAX SPACING	LENGTH	TYPE	B	C	D
AS1	#5	6"	18'-0"	BENT	5'-0"	8'-0"	5'-0"
AS2	#6	4"	10'-8"	STR			
AS3	#6	4"	10'-8"	STR			
AS4	#4	12"	7'-8"	STR			
AS5	#4	18"	VARIES	STR			
AS6	#4	18"	VARIES	STR			
AS7	#4	18"	11'-0"	STR			
AS8	#4	18"	11'-0"	STR			
C1	#4	18"	VARIES	STR			



AS1 BEND DETAIL

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Date	
Description	
No.	

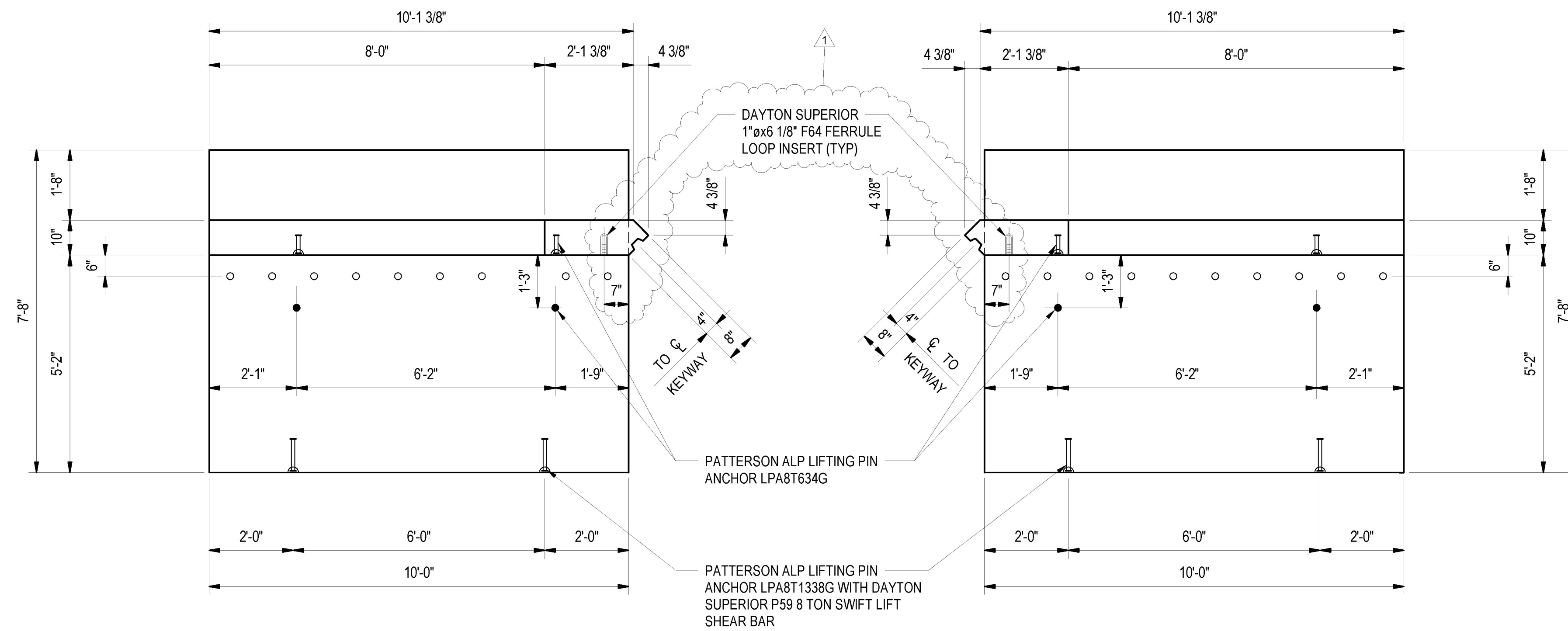
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Sheet Title: **CULVERT REINFORCING SECTION**  
 Project Title: **TOWN OF ST. ALBANS VT ROUTE 104, CULVERT #19**  
ST. ALBANS, VERMONT

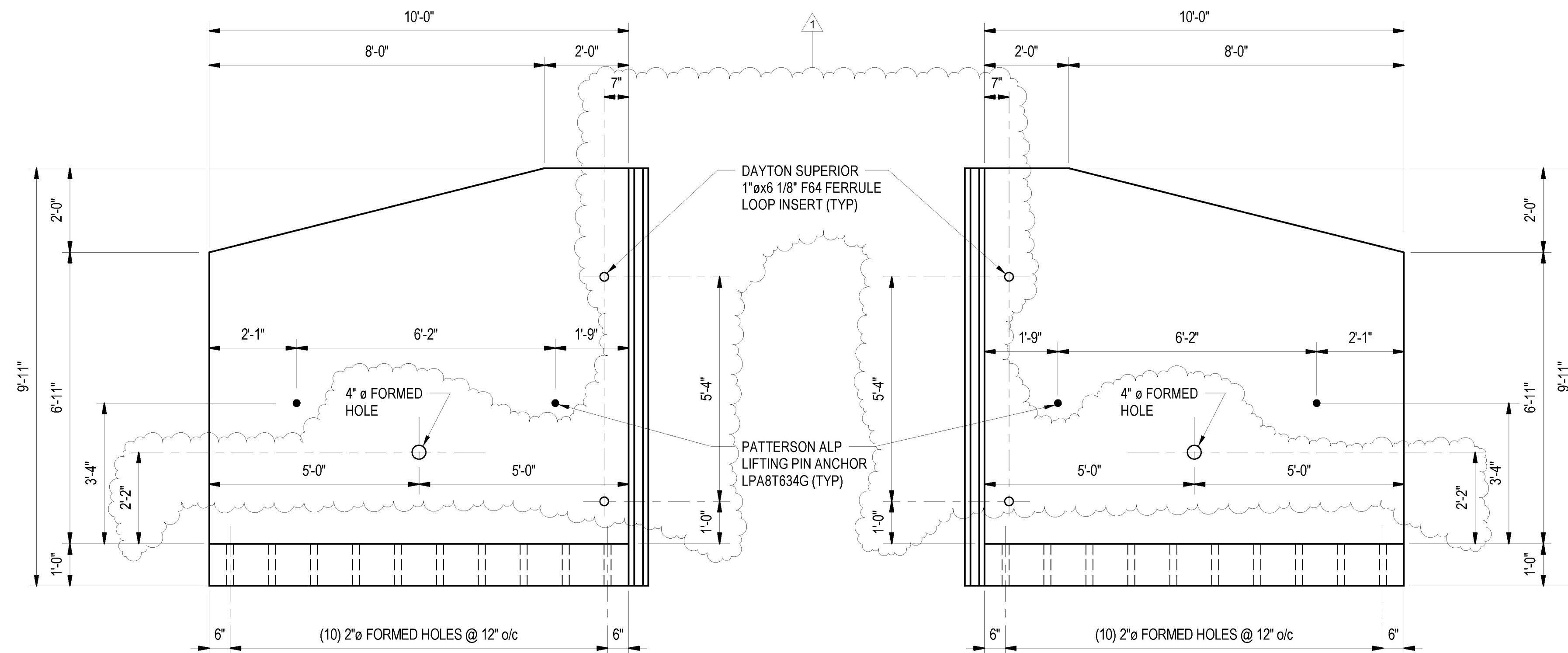
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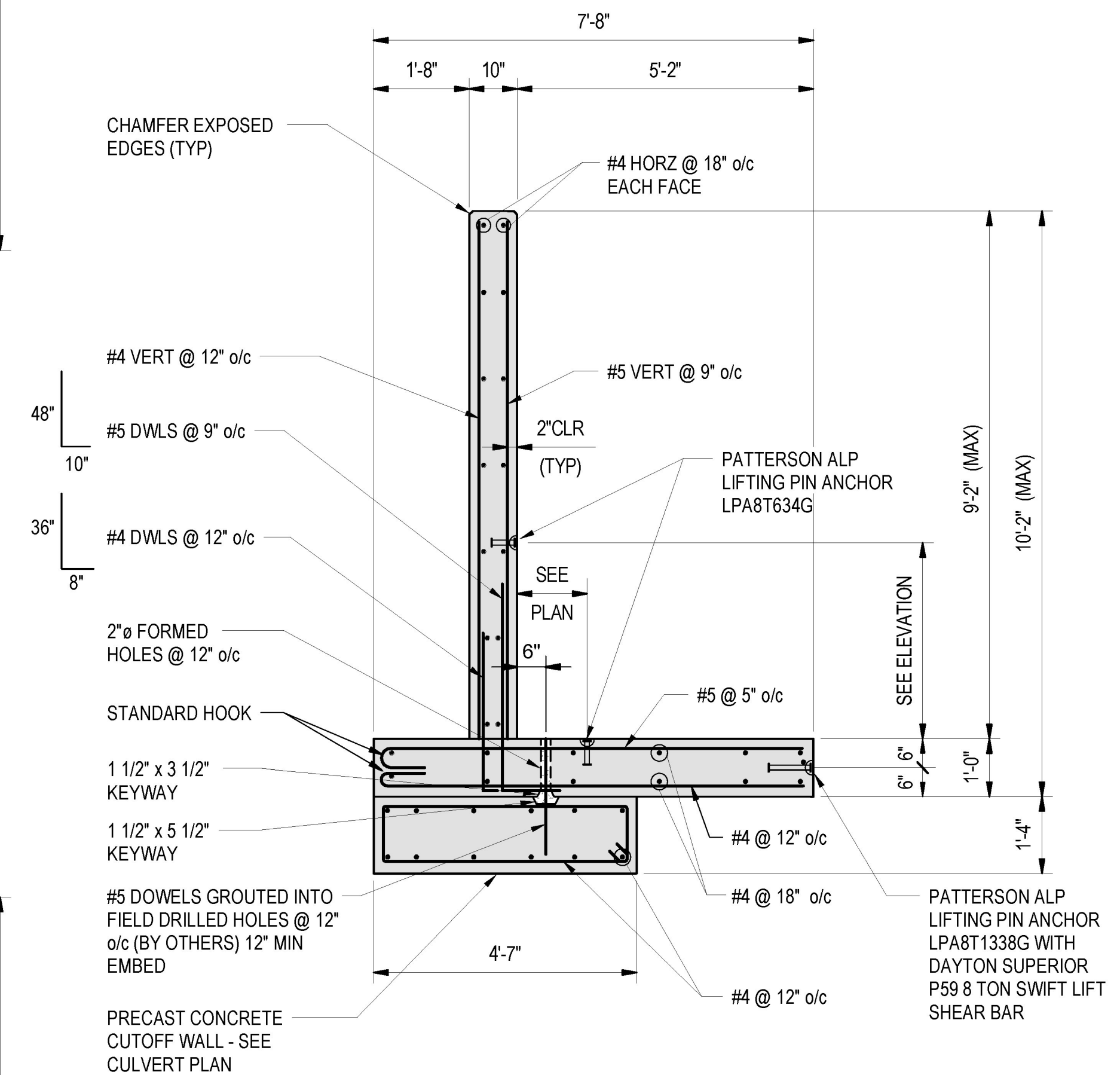
**WINGWALL WW-1 PLAN**  
1/2" = 1'-0"

**WINGWALL WW-2 PLAN**  
1/2" = 1'-0"



**WINGWALL WW-1 ELEVATION**  
1/2" = 1'-0"  
1. VIEW FROM BACK OF WALL.

**WINGWALL WW-2 ELEVATION**  
1/2" = 1'-0"  
1. VIEW FROM BACK OF WALL.

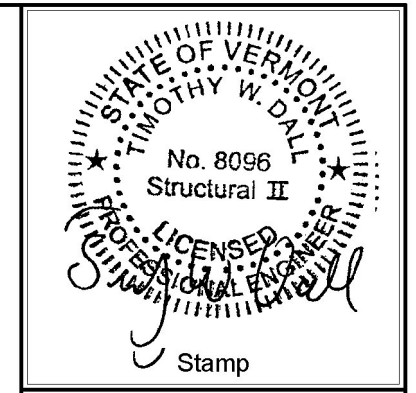


**TYPICAL WINGWALL SECTION**  
1/2" = 1'-0"

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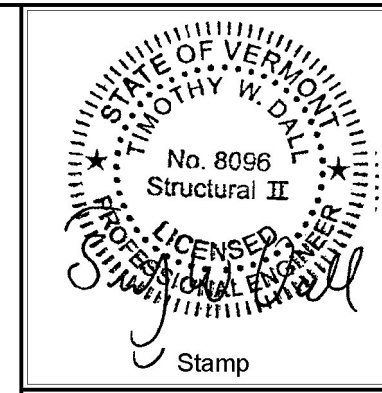
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Sheet Title: **OUTLET WINGWALL PLANS, ELEVATIONS AND SECTION**  
Project Title: **TOWN OF ST. ALBANS VT ROUTE 104, CULVERT #19**  
ST. ALBANS, VERMONT

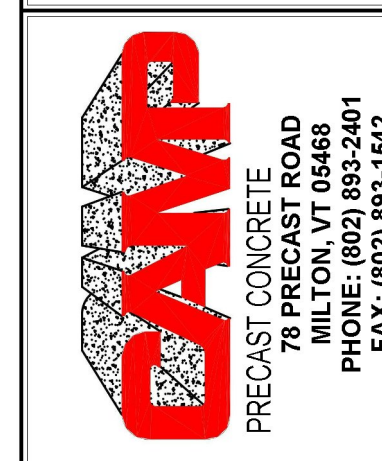
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EV Project #17022.02



Date	04/26/17
Description	SUBMITTAL REVIEW COMMENTS
No.	1

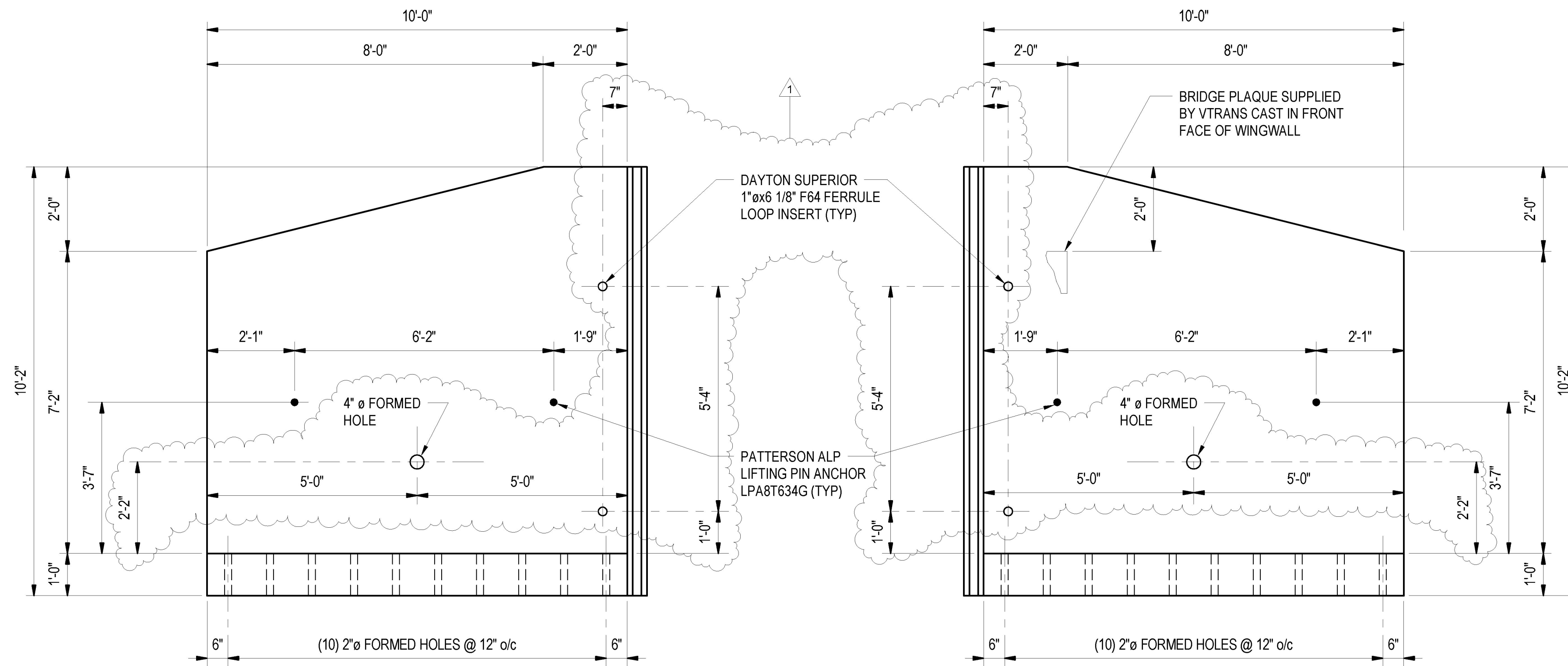
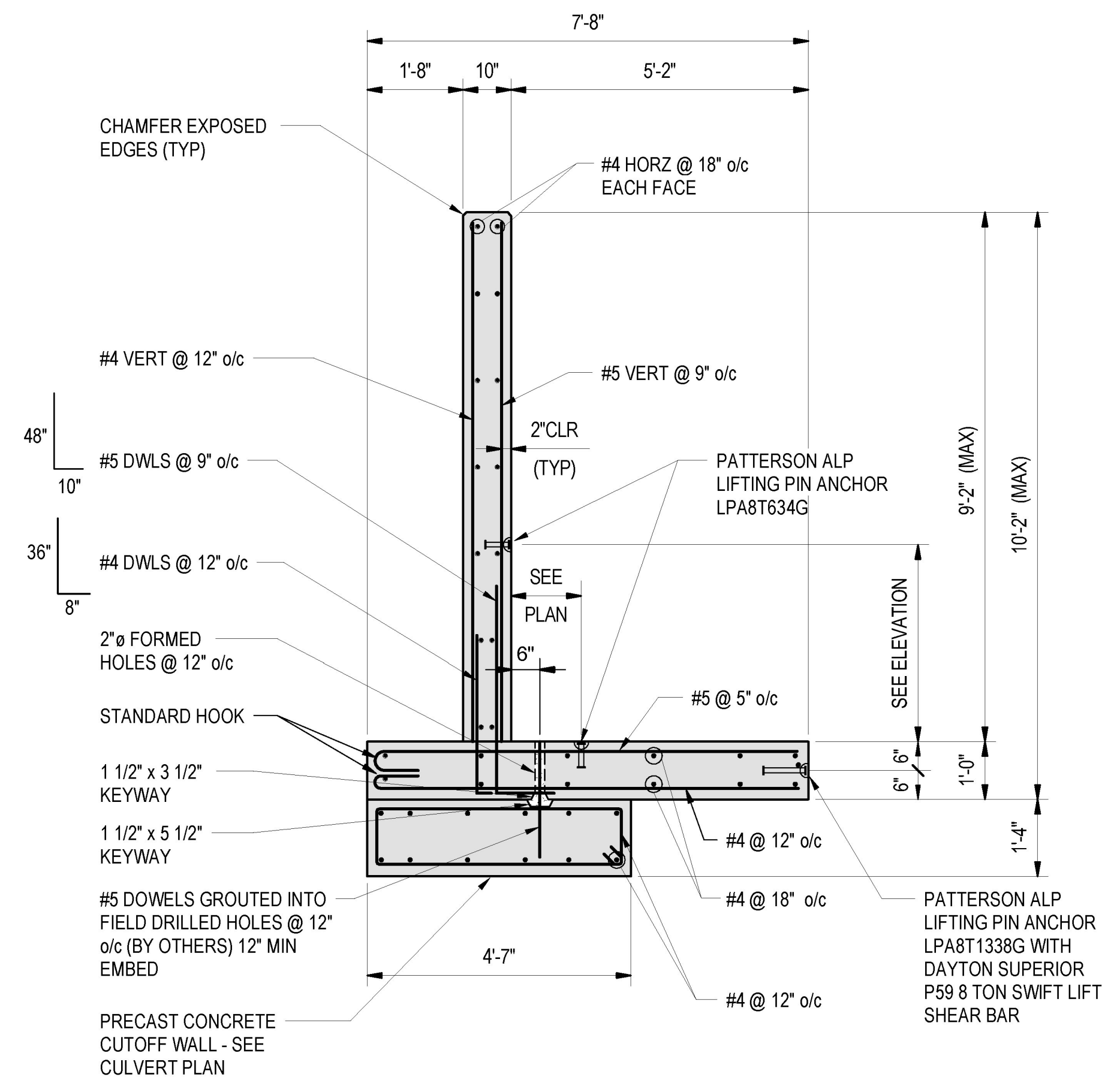
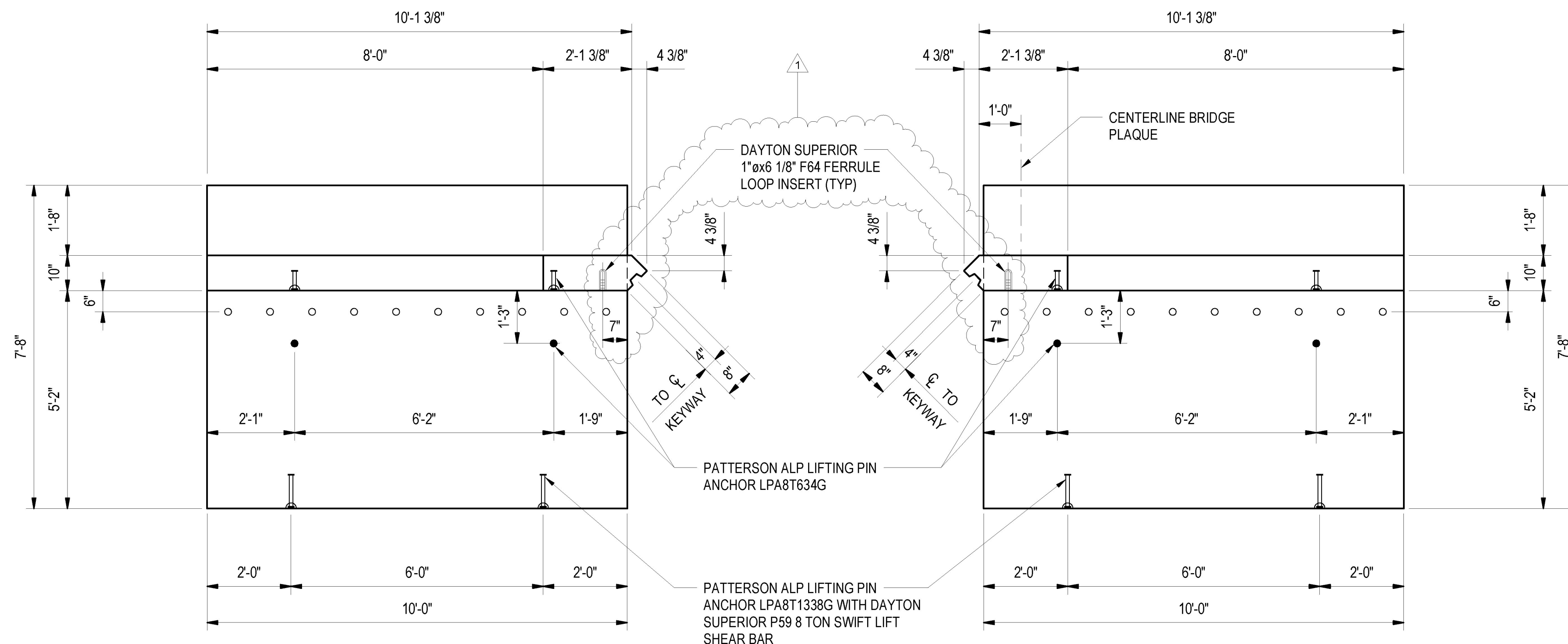
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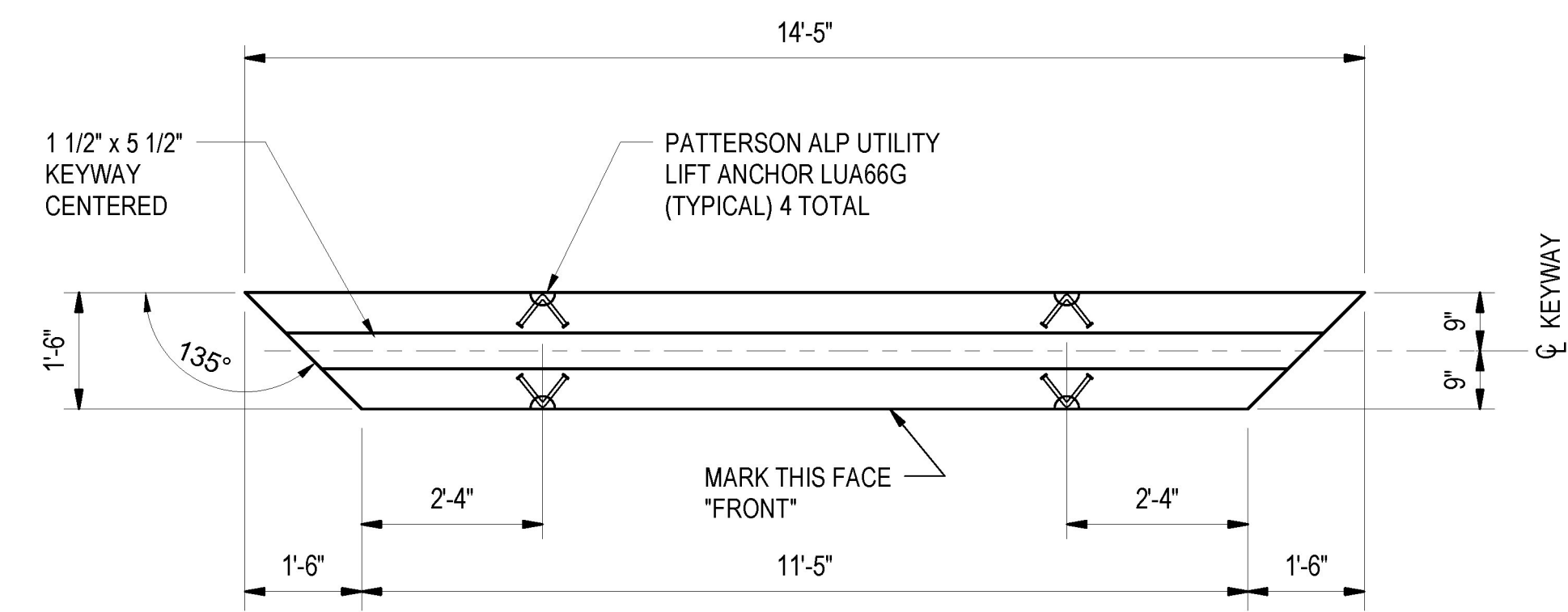
**INLET WINGWALL PLANS, ELEVATIONS AND SECTION**  
 TOWN OF ST. ALBANS  
 VT ROUTE 104, CULVERT #19  
 ST. ALBANS, VERMONT

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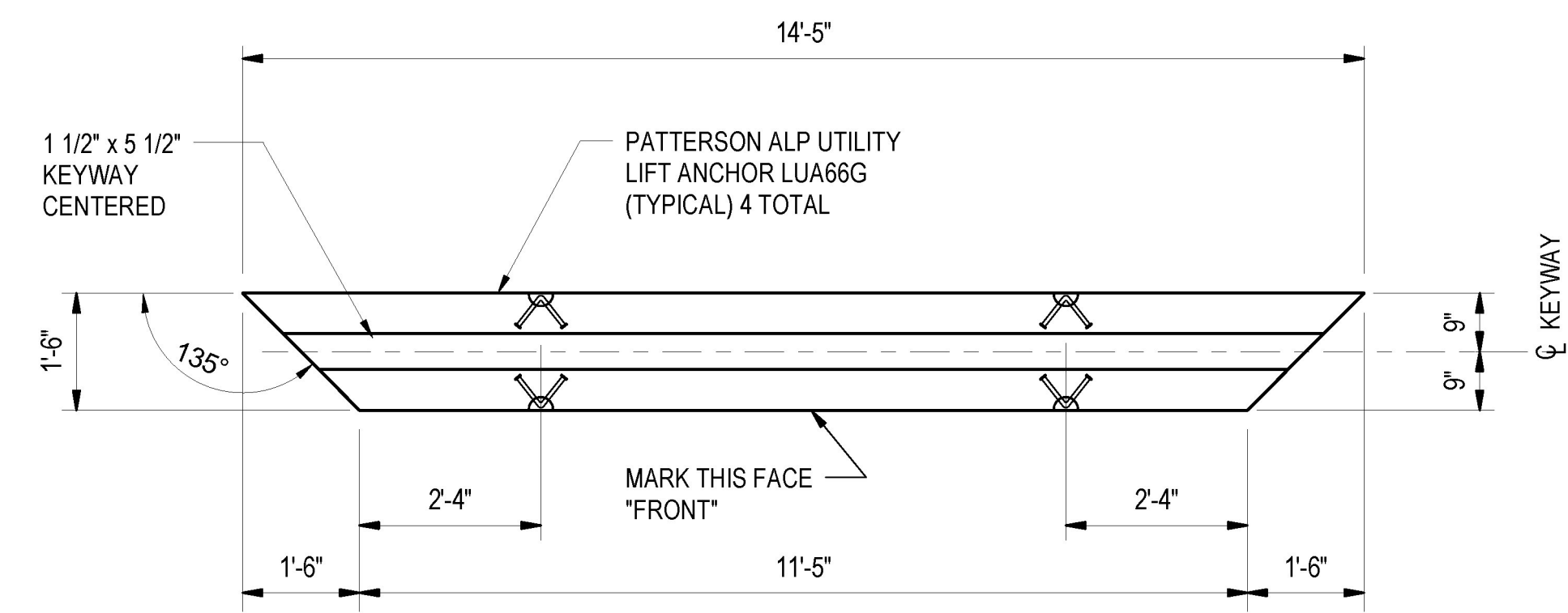
6  
 EV Project #17022.02



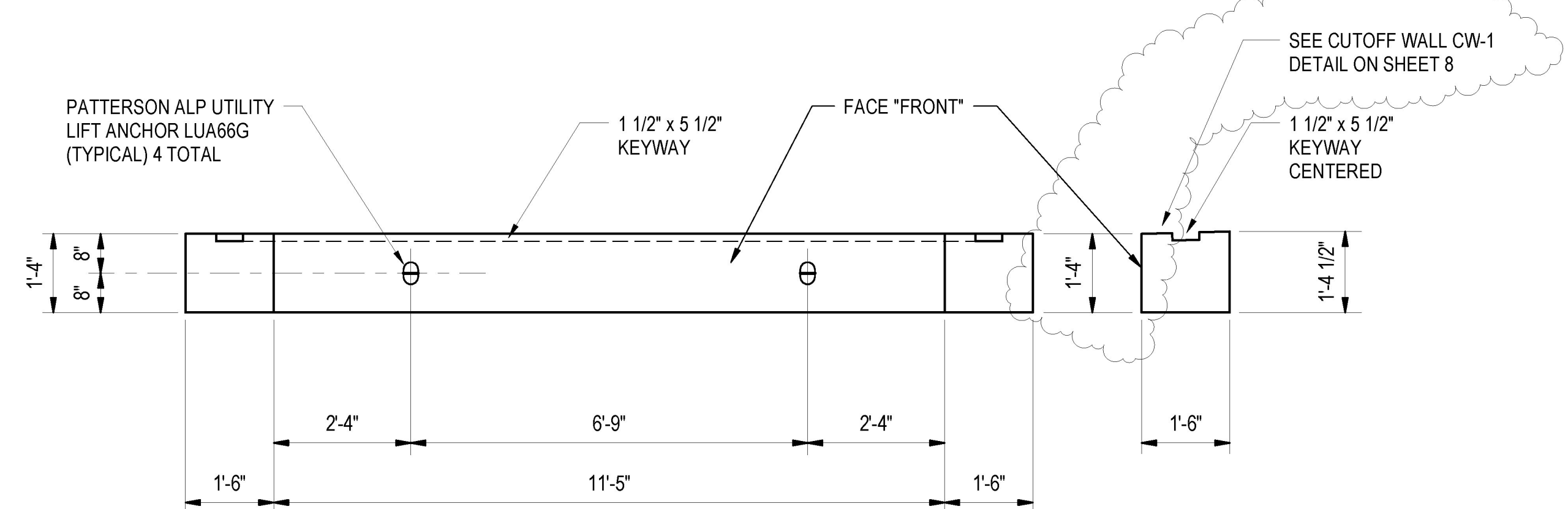
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**CUTOFF WALL CW-1 PLAN**  
1/2" = 1'-0"

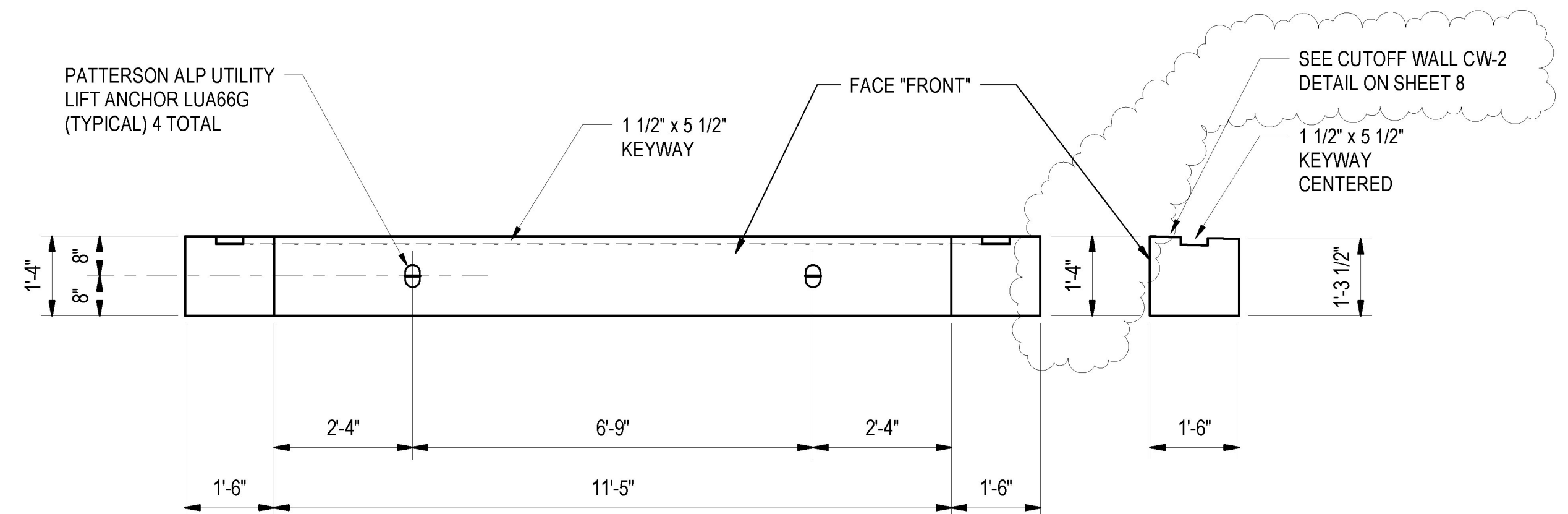


**CUTOFF WALL CW-2 PLAN**  
1/2" = 1'-0"



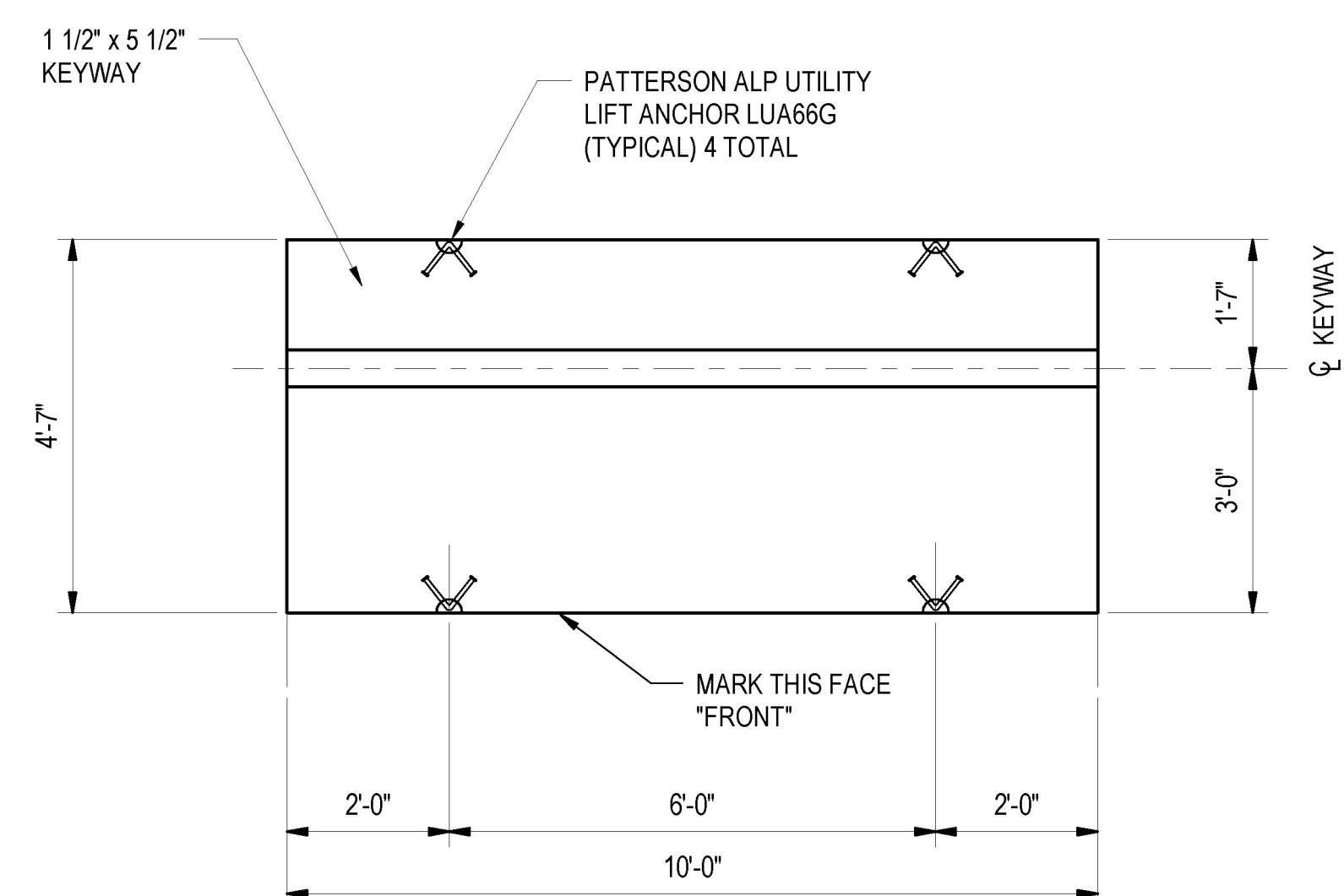
**CUTOFF WALL CW-1 ELEVATION**  
1/2" = 1'-0"

NOTE: REINFORCING STEEL NOT SHOWN IN PLAN, ELEVATION AND SECTION VIEWS.

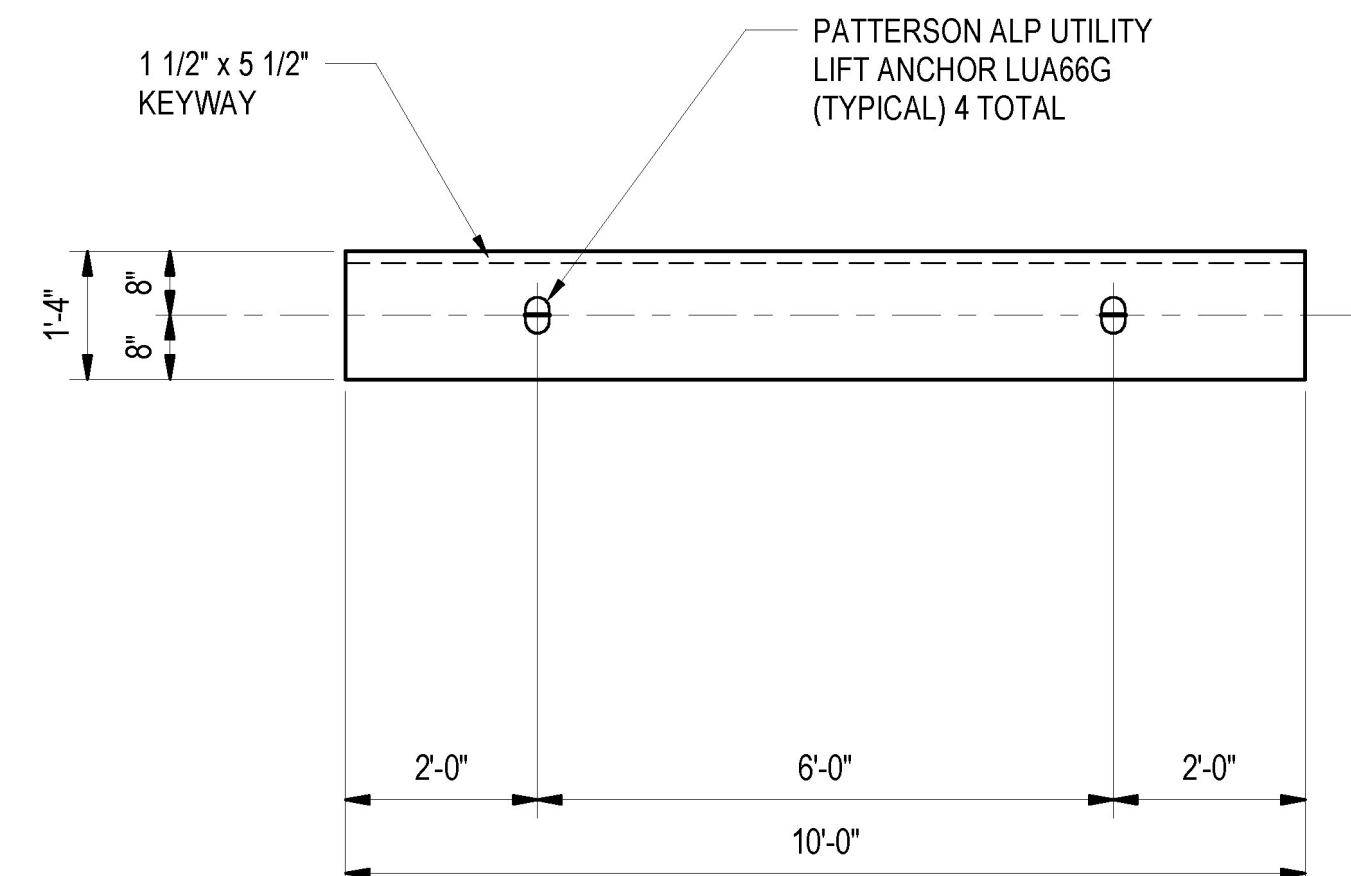


**CUTOFF WALL CW-2 ELEVATION**  
1/2" = 1'-0"

NOTE: REINFORCING STEEL NOT SHOWN IN PLAN, ELEVATION AND SECTION VIEWS.



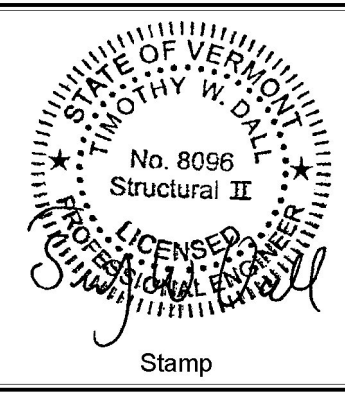
**CUTOFF WALL CW-3 PLAN**  
1/2" = 1'-0"



**CUTOFF WALL CW-3 ELEVATION**  
1/2" = 1'-0"

1. DETAILS APPLICABLE AT CW-3A, CW-3B, CW-3C AND CW-3D.
2. REINFORCING STEEL NOT SHOWN IN PLAN AND ELEVATION VIEWS.

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No.	1

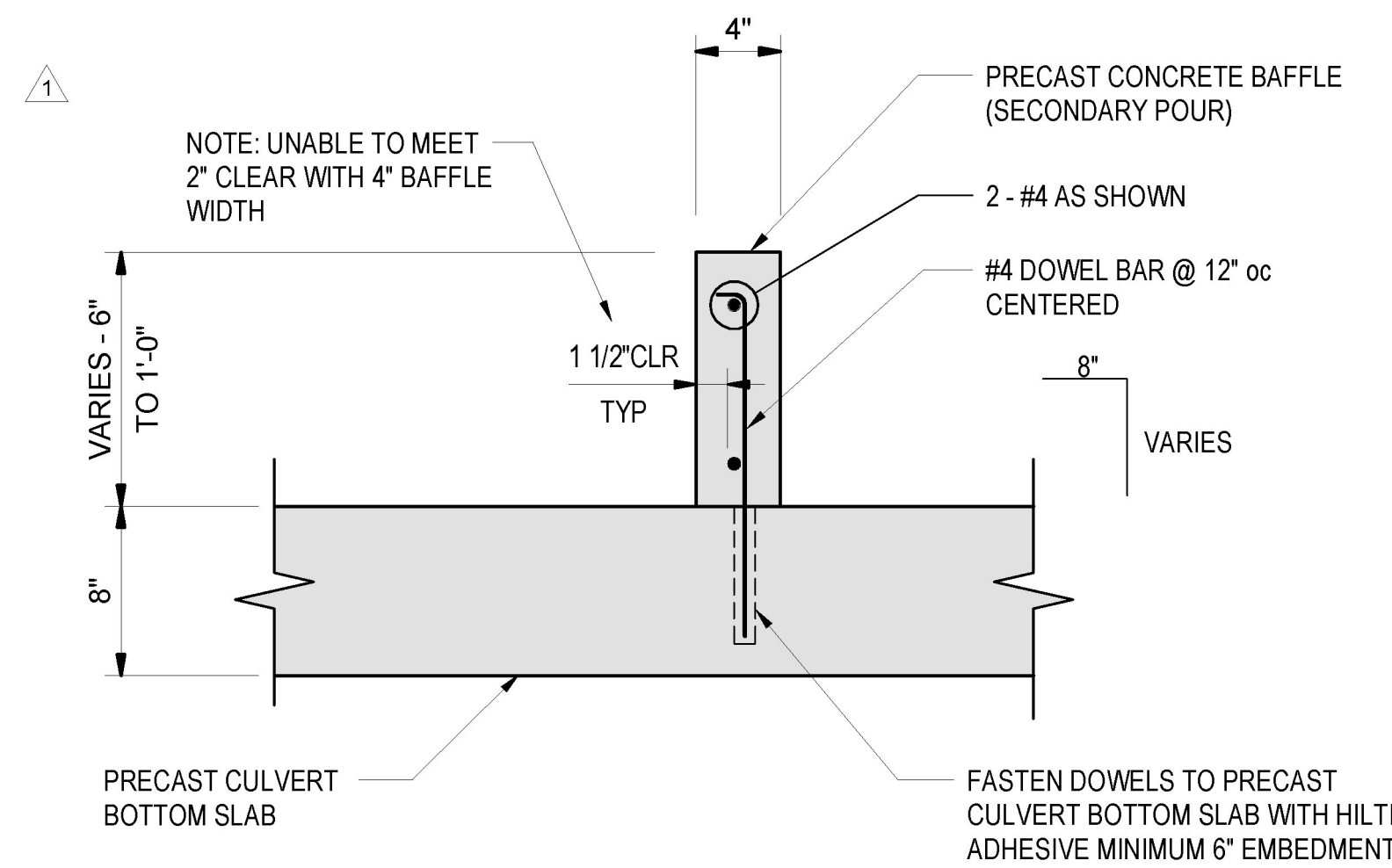
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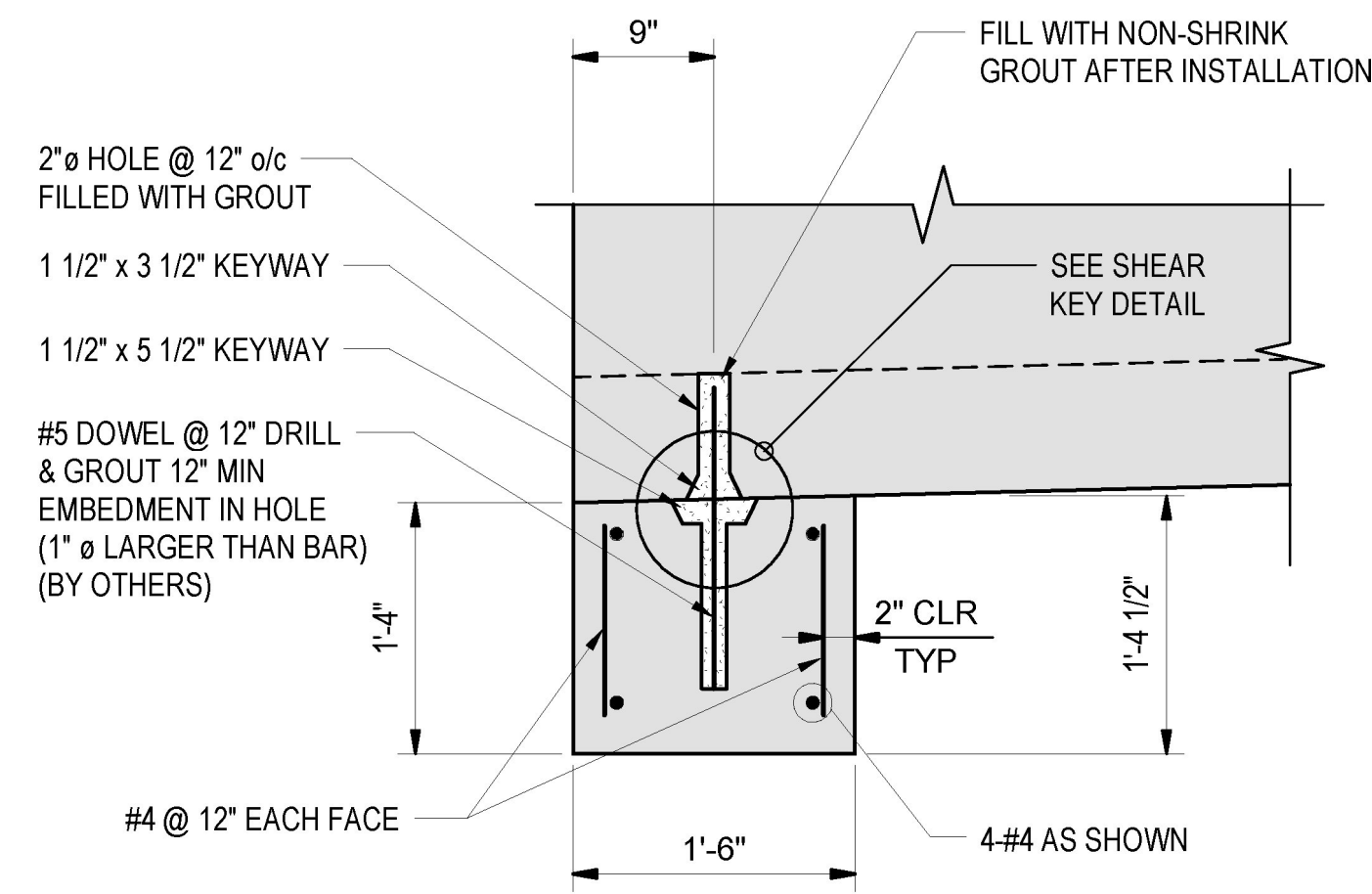
CUTOFF WALL PLANS AND ELEVATIONS  
TOWN OF ST. ALBANS  
VT ROUTE 104, CULVERT #19  
ST. ALBANS, VERMONT

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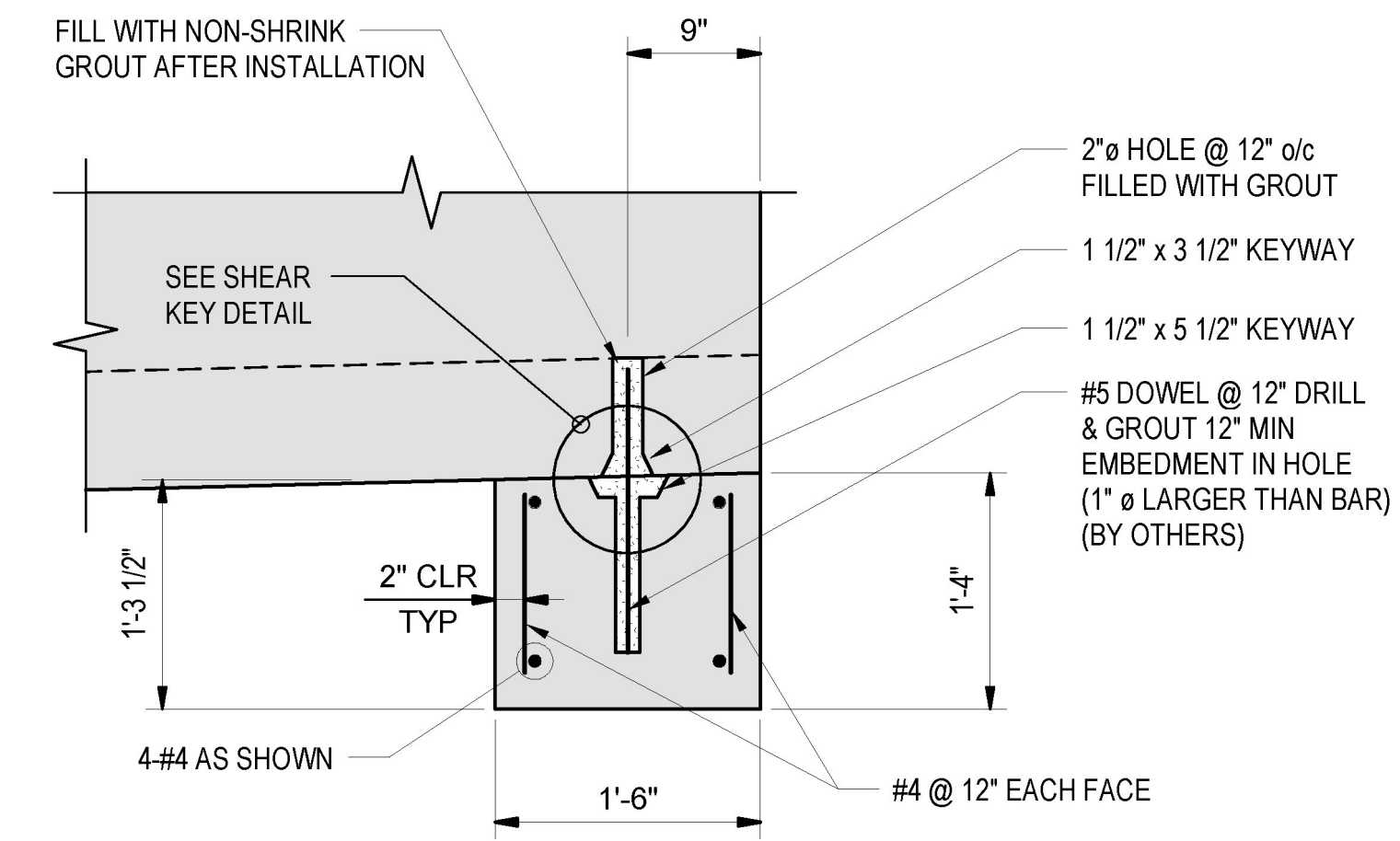
**7**  
EV Project #17022.02



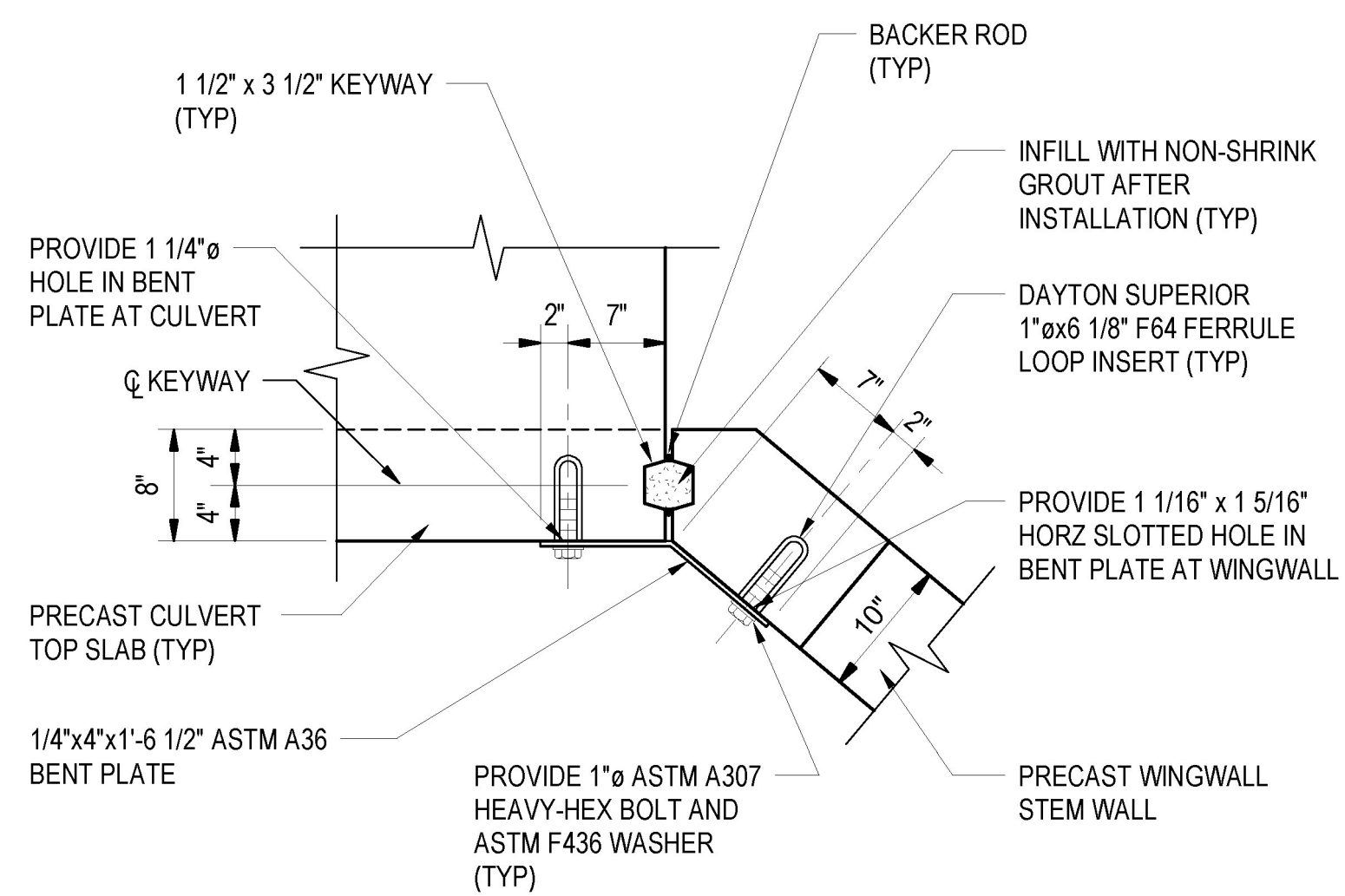
**TYPICAL PRECAST CONCRETE BAFFLE SECTION**  
1 1/2" = 1'-0"



**CUTOFF WALL CW-1 SECTION**  
1" = 1'-0"

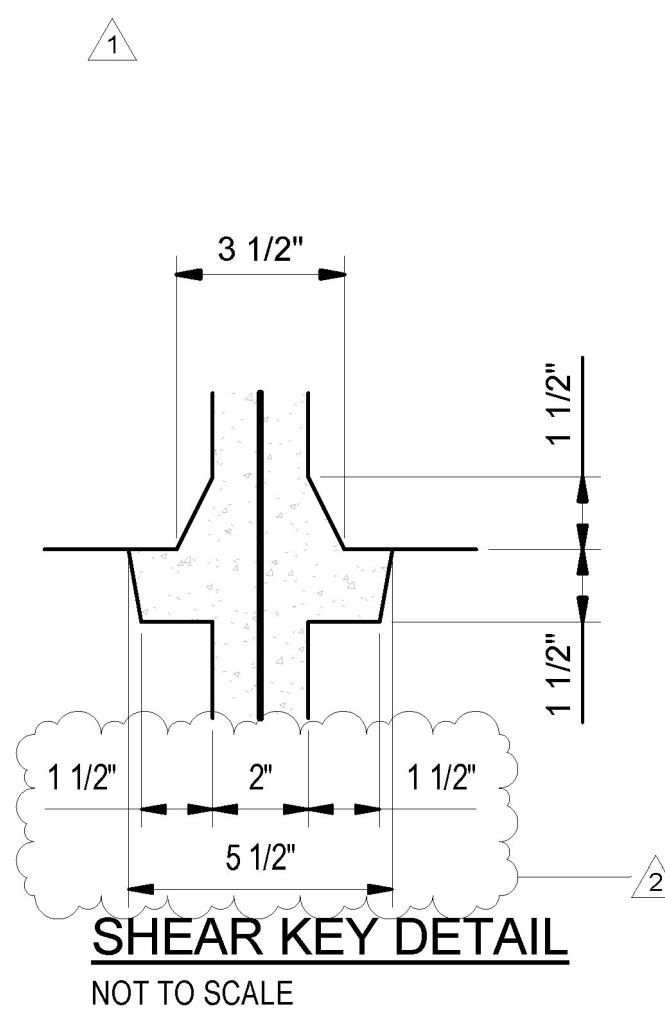


**CUTOFF WALL CW-2 SECTION**  
1" = 1'-0"

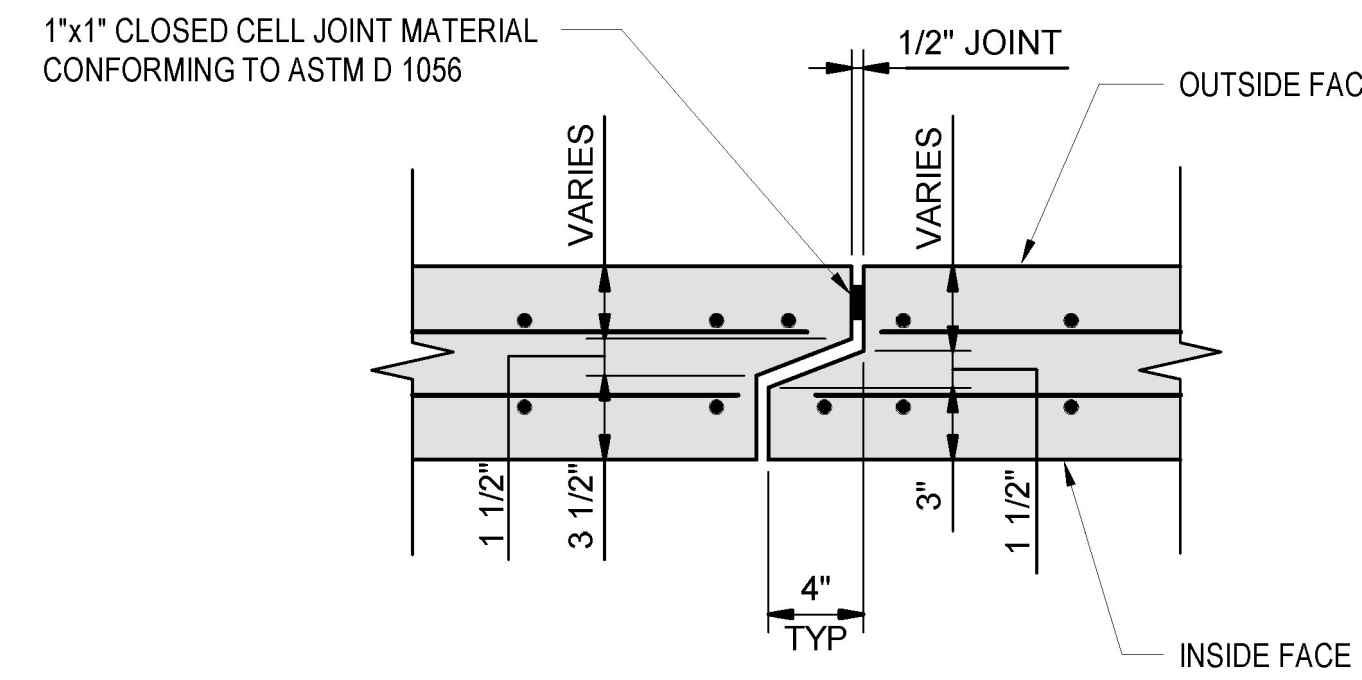


**TYPICAL WINGWALL/CULVERT CONNECTION DETAIL**  
1" = 1'-0"

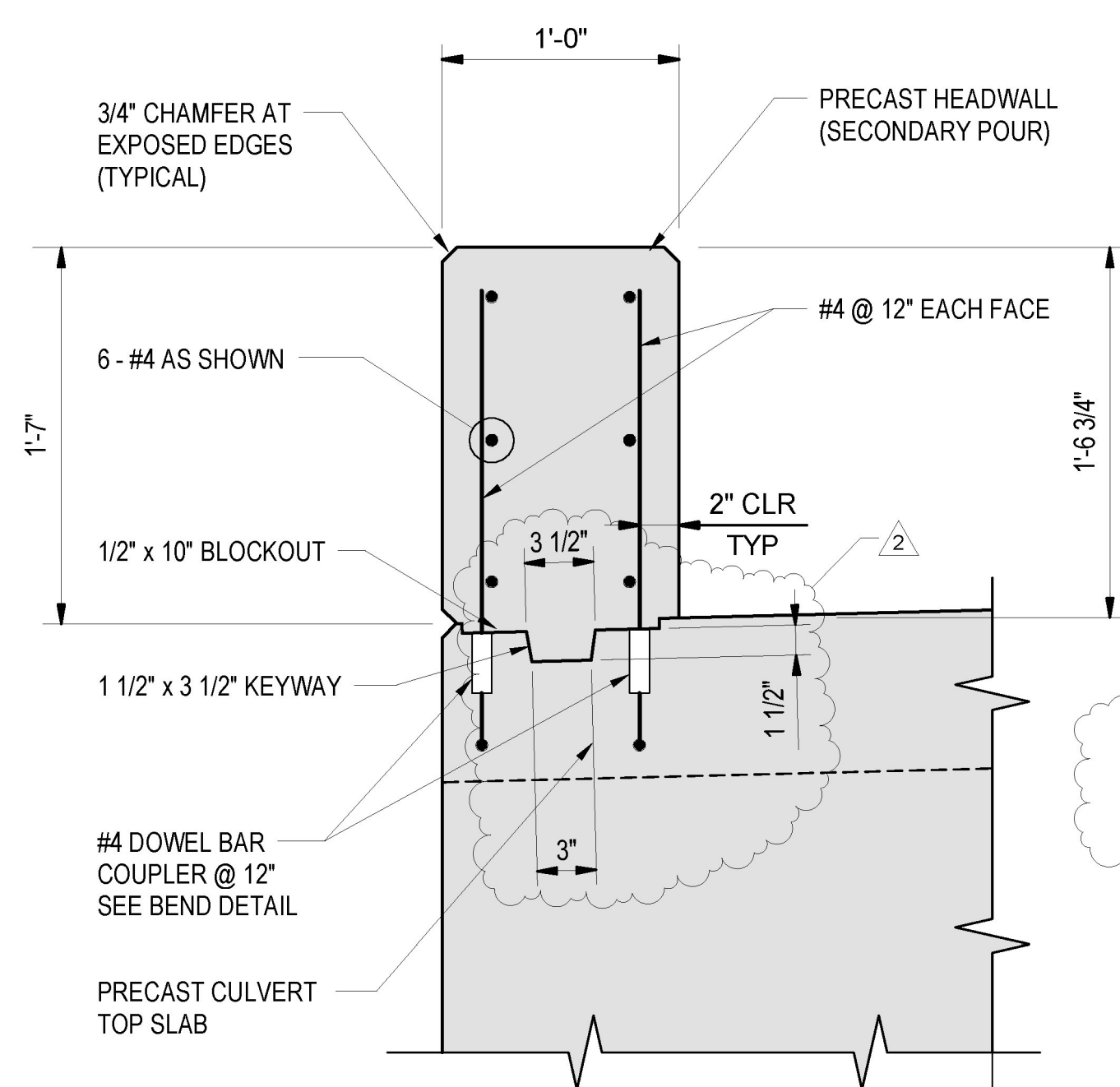
- ALL MECHANICAL CONNECTOR STEEL BETWEEN WINGWALL AND CULVERT SHALL BE GALVANIZED.



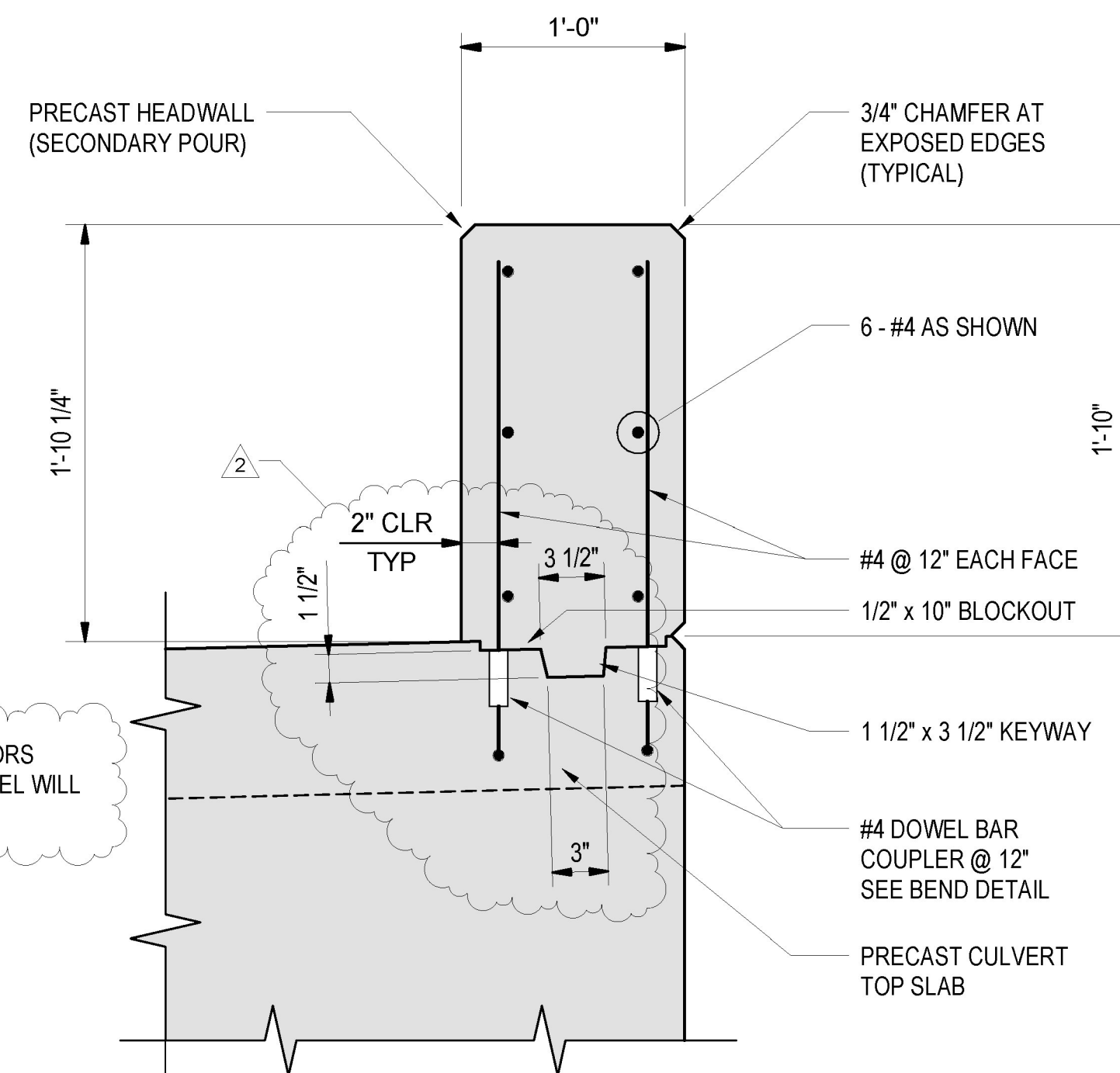
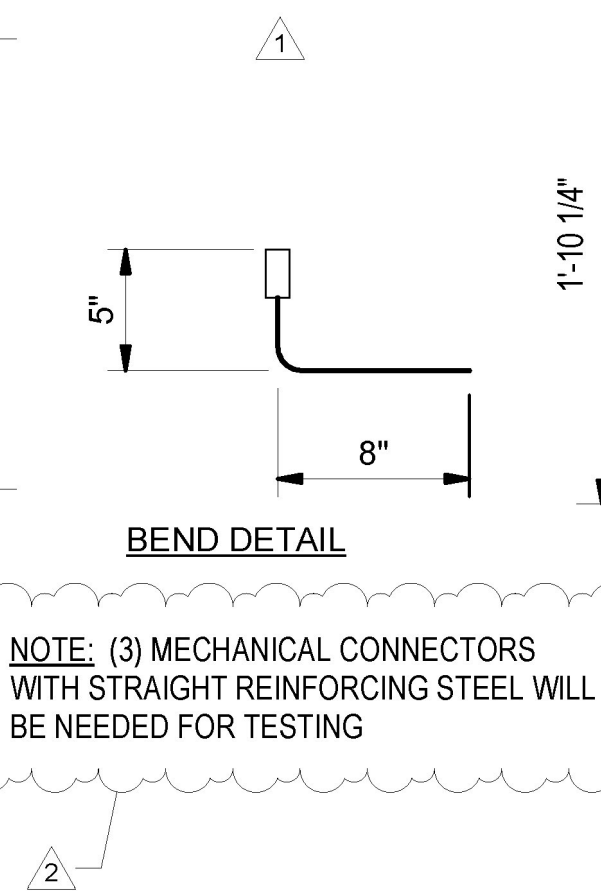
NOTE: SEE E.O.R. DRAWINGS REFERENCED IN DESIGN NOTES ON SHEET 1 FOR JOINT SEALING AND WATERPROOFING REQUIREMENTS



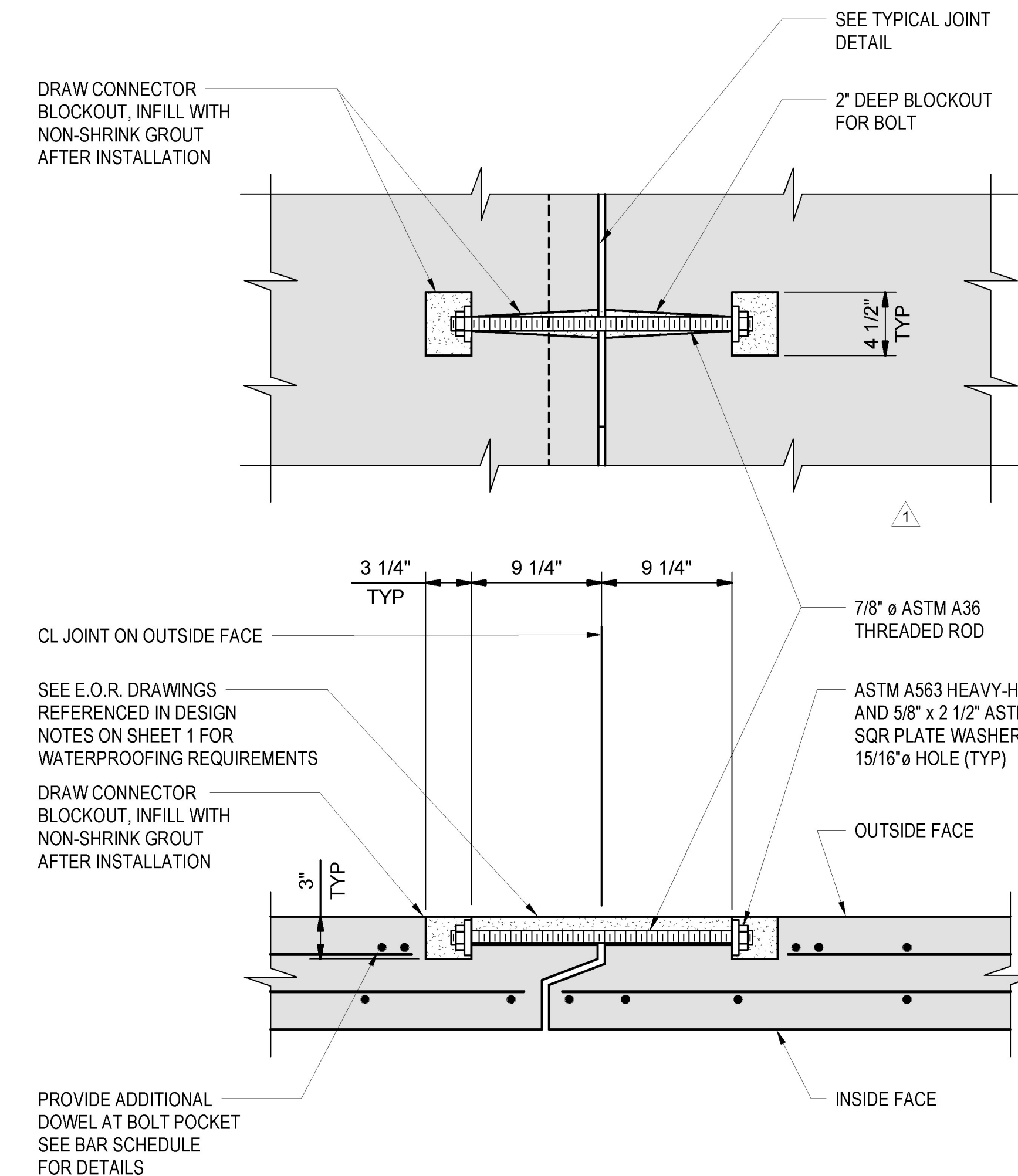
**TYPICAL JOINT DETAIL**  
NOT TO SCALE



**HEADWALL HW-1 SECTION**  
1 1/2" = 1'-0"



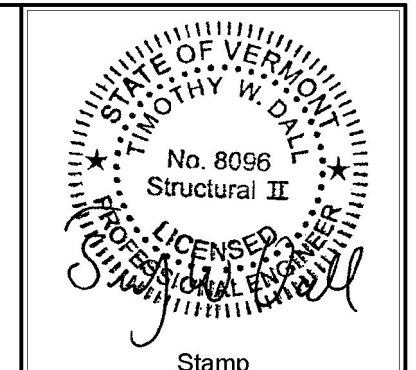
**HEADWALL HW-2 SECTION**  
1 1/2" = 1'-0"



**TYPICAL DRAW CONNECTOR DETAIL**  
NOT TO SCALE

- ALL DRAW CONNECTOR HARDWARE TO BE HOT-DIP GALVANIZED.
- DRAW CONNECTOR TO REMAIN IN PLACE AFTER INSTALLATION.
- DRAW CONNECTOR TO BE PULLED UNTIL JOINT MATERIAL IS COMPRESSED.

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