

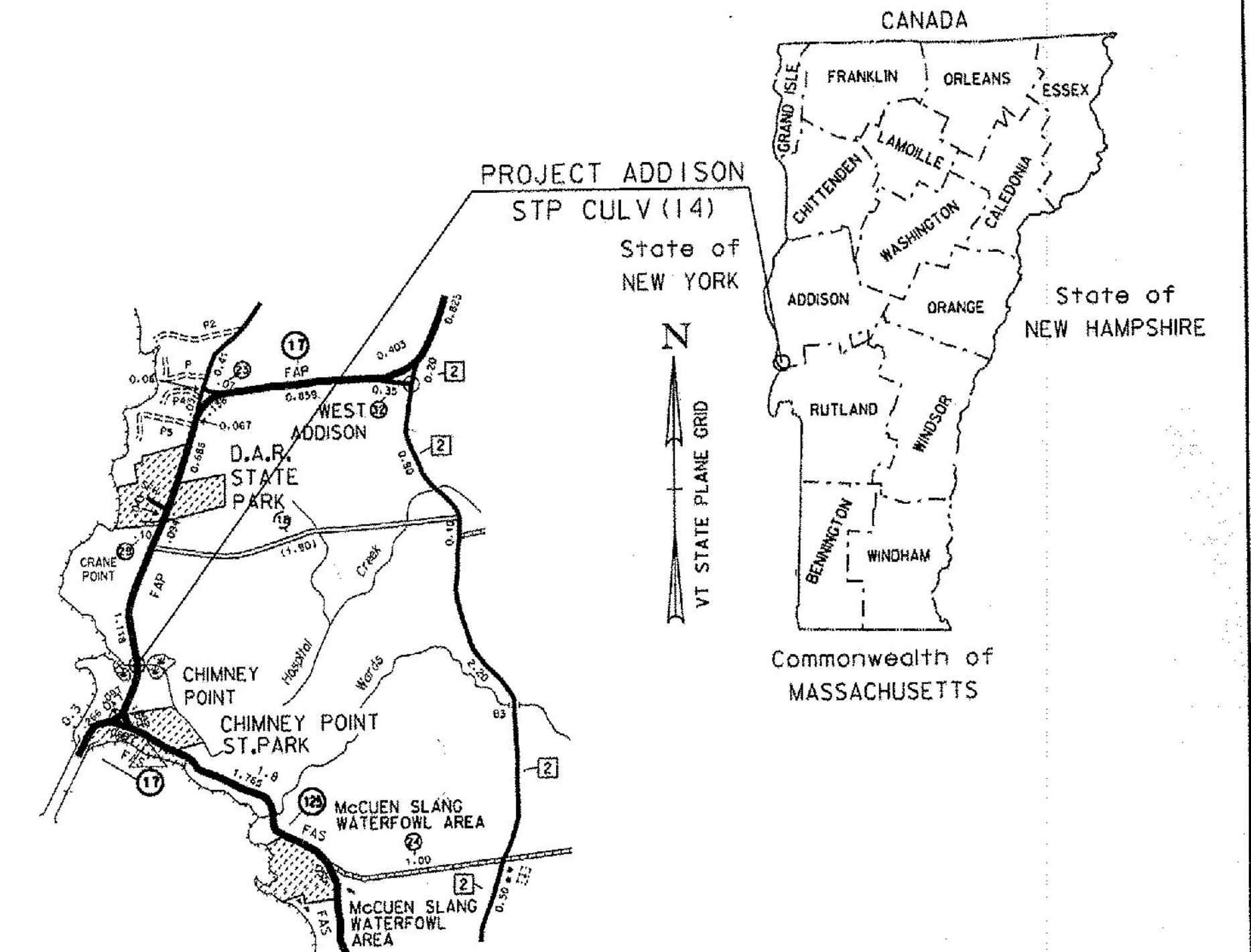
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ADDISON
COUNTY OF ADDISON

VT ROUTE 17 (RURAL MINOR ARTERIAL) - BRIDGE #2

RECORD PLANS	
CONTRACTOR:	S. D. IRELAND CONC. CONST. CORP. - BURLINGTON, VT
RESIDENT ENGINEER:	JOE KNIPES
CONSTRUCTION BEGAN:	OCTOBER 9, 2013
CONSTRUCTION COMPLETE:	DECEMBER 6, 2013
RECORD PLANS BY:	JOE KNIPES & AARON JAMES
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	RESIDENT ENGINEER
DATE:	DATE
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.	



PROJECT LOCATION : THE PROJECT IS LOCATED ON VERMONT ROUTE 17, APPROXIMATELY 0.4 MILES NORTH FROM THE INTERSECTION OF VERMONT ROUTE 125.

PROJECT DESCRIPTION : REMOVAL OF THE EXISTING TWIN REINFORCED CONCRETE CULVERTS AND REPLACING THEM WITH A NEW REINFORCED CONCRETE BOX CULVERT.

LENGTH OF BRIDGE : 12.00 FEET
LENGTH OF ROADWAY : 113.00 FEET
LENGTH OF PROJECT : 125.00 FEET



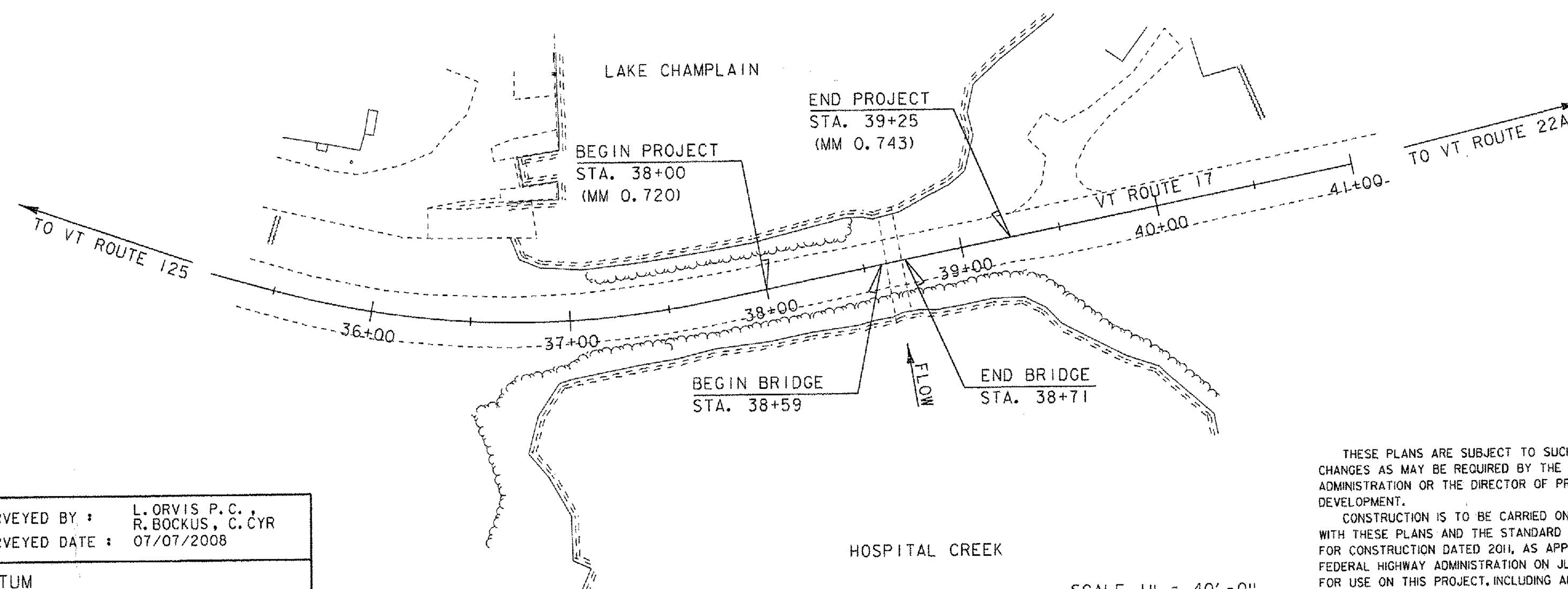
QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS P.C.
SURVEYED DATE : 07/07/2008

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07) CONUS



SCALE 1" = 40'-0"

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2014, 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.

DIRECTOR OF OPERATIONS	
APPROVED:	DATE: 3-11-13
PROJECT MANAGER: KRISTIN HIGGINS	
PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV (14)	
SHEET 1 OF 28 SHEETS	

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (CULVERT)

LRFD

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STANDARDS LIST

E-100

CONSTRUCTION APPROACH SIGNS

01-02-2004

E-101

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05-30-2003

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CONSTRUCTION SIGN DETAILS

06-30-2003

E-102A

CONSTRUCTION SIGN DETAILS

05-01-2004

E-107

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

06-30-2003

E-134

BRIDGE NUMBER PLAQUE

08-08-1995

E-164

SQUARE STEEL SIGN POST

06-08-2009

E-192

PAVEMENT MARKING DETAILS

10-12-2000

G-1

STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)

01-03-2000

G-1D

STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)

01-03-2000

G-19

GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS

11-15-2002

HYDROLOGIC DATA

Date: Feb. 7, 2011

DRAINAGE AREA : 4.5 sq. mi.

CHARACTER OF TERRAIN : Relatively flat to small hills

STREAM CHARACTERISTICS : Backwater area to Lake Champlain

NATURE OF STREAMBED : Silt and sand

PEAK FLOW DATA

Q 2.33 = 90 cfs

Q 50 = 320cfs

Q 10 = 200 cfs

Q 100 = 400 cfs

Q 25 = 260cfs

Q 500 = 560 cfs

DATE OF FLOOD OF RECORD Unknown

ESTIMATED DISCHARGE: Unknown

WATER SURFACE ELEV.: Unknown

NATURAL STREAM VELOCITY : @ Q50 = Less than 1 fps due to lake backwater

ICE CONDITIONS : Moderate to Heavy

DEBRIS: Light

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No

IS ORDINARY RISE RAPID? No

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes

IF YES, DESCRIBE: Water surface elevations at this site are controlled by Lake Champlain.
This site is in a backwater bay of the lake.

WATERSHED STORAGE: 3% HEADWATERS:

UNIFORM:

IMMEDIATELY ABOVE SITE: X

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Two 5' RCP's

YEAR BUILT: 1949

CLEAR SPAN(NORMAL TO STREAM): 5' + 5' = 10' total

VERTICAL CLEARANCE ABOVE STREAMBED: 5'

WATERWAY OF FULL OPENING: two at 19.6 sq. ft. = 39.2 sq. ft. total

DISPOSITION OF STRUCTURE: Remove

TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 98.5'

VELOCITY = 2.3 fps

Q10 = 100.8'

" 5.1 fps

Q25 = 101.7'

" 6.6 fps

Q50 = 102.1'

" 7.0 fps

Q100 = 102.4'

" 7.0 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes

FREQUENCY: Just below Q25

RELIEF ELEVATION: 101.6'

DISCHARGE OVER ROAD @Q100: 126 cfs

UPSTREAM STRUCTURE

TOWN: Not Applicable DISTANCE:

HIGHWAY #: STRUCTURE #:

CLEAR SPAN: CLEAR HEIGHT:

YEAR BUILT: FULL WATERWAY:

STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: None - Lake Champlain DISTANCE:

HIGHWAY #: STRUCTURE #:

CLEAR SPAN: CLEAR HEIGHT:

YEAR BUILT: FULL WATERWAY:

STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS

TRUCK

H-20

HL-93

3S2

6 AXLE

3A. STR.

4A. STR.

5A. SEMI

TONNAGE

20

36

36

66

30

34.5

38

INVENTORY

POSTING

OPERATING

COMMENTS: TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER

CULVERT DESIGN CRITERIA

1. PROPOSED CULVERT IS A PRECAST CONCRETE STRUCTURE (10'-0" x 8'-0" x 71'-8" BOX).

2. CULVERT ENDS ARE SKEWED BY AN ANGLE OF 90°

3. CULVERT WILL BE SET AT A SLOPE OF 0.00 IN. ON 72 FT.

4. CULVERT WILL REQUIRE FISH PASSAGE ACCOMODATIONS

5. CULVERT CONSTRUCTION WILL REQUIRE A TEMPORARY PIPE

PROPOSED STRUCTURE

STRUCTURE TYPE: Pre-cast concrete box

CLEAR SPAN(NORMAL TO STREAM): 10'

VERTICAL CLEARANCE ABOVE STREAMBED: 8'

WATERWAY OF FULL OPENING: 80 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 98.8'

VELOCITY= 1.2 fps

Q10 = 100.4'

" 2.5 fps

Q25 = 101.1'

" 3.3 fps

Q50 = 101.5'

" 4.0 fps

Q100 = 102.0'

" 5.0 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes

FREQUENCY: Just above Q50

RELIEF ELEVATION: 101.6'

DISCHARGE OVER ROAD @Q100: 40 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 99.0' at inlet and outlet

VERTICAL CLEARANCE: @ Q50 = The box is submerged just above Q2.33.

SCOUR: Not applicable for a box structure.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III on roadway slopes.

PERMIT INFORMATION

AVERAGE DAILY FLOW: 9 cfs DEPTH OR ELEVATION:

ORDINARY LOW WATER: 4 cfs Elevation 94.0'

ORDINARY HIGH WATER: 39 cfs Elevation 98.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.

CLEAR SPAN (NORMAL TO STREAM):

VERTICAL CLEARANCE ABOVE STREAMBED:

WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

Hydraulics at this site are controlled by Lake Champlain. All hydraulic information is based on equal frequency floods on the lake and Hospital Creek, and on NAVD88 vertical datum.
Vel. will be higher when the lake is lower. (Box Q50 vel. = 8.2 fps with mean lake level of 94.9')
Existing pipe hydraulics is approximate, due to the poor shape and condition of the pipes.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.

2. TRAFFIC SIGNALS ARE NOT NECESSARY.

3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD HL-93

2. FUTURE PAVEMENT d_p : 3.0 INCH

3. CULVERT OPENING D : 10.0 FT FT

4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ : ---

5. PRESTRESSING STRAND f_y : ---

6. PRESTRESSED CONCRETE STRENGTH $f'c$: ---

7. PRESTRESSED CONCRETE RELEASE STRENGTH $f'ci$: ---

8. CONCRETE, HIGH PERFORMANCE CLASS AA $f'c$: ---

9. CONCRETE, HIGH PERFORMANCE CLASS A $f'c$: ---

10. CONCRETE, HIGH PERFORMANCE CLASS B $f'c$: ---

11. CONCRETE, CLASS C $f'c$: ---

12. REINFORCING STEEL f_y : 60 KSI

13. STRUCTURAL STEEL AASHTO M270 f_y : ---

14. SOIL UNIT WEIGHT γ : 0.140 KCF

15. NOMINAL BEARING RESISTANCE OF SOIL q_n : 4.0 KSF

16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---

17. NOMINAL BEARING RESISTANCE OF ROCK q_n : 10.0 KSF

18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) ϕ : ---

19. NOMINAL AXIAL PILE RESISTANCE q_p : ---

20. PILE YIELD STRENGTH ASTM A572 f_y : ---

21. PILE SIZE ---

22. EST. PILE LENGTH L_p : ---

23. PILE RESISTANCE FACTOR ϕ : ---

24. LATERAL PILE DEFLECTION Δ : ---

25. BASIC WIND SPEED V_{3s} : ---

26. MINIMUM GROUND SNOW LOAD p_g : ---

27. SEISMIC DATA PGA : --- S : ---

PROJECT NAME: ADDISON

PROJECT NUMBER: STP CULV (14)

FILE NAME: s08b062.xlsm PLOT DATE: 2/6/2013

PROJECT LEADER: K. HIGGINS DRAWN BY: J. SALVATORI

DESIGNED BY: J. SALVATORI CHECKED BY: W. LAMMER

PRELIMINARY INFORMATION SHEET SHEET 2 OF 28

TRAFFIC DATA

YEAR

ADT

DHV

% D

% T

ADTT

20 year ESAL for flexible pavement from 2009 to 2029 : 1562000

40 year ESAL for flexible pavement from 2009 to 2049 : 3833000

Design Speed : 50 mph

GENERAL NOTES

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 5th EDITION, AND ITS LATEST REVISIONS.
2.

THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE FOR ONE WEEKEND (TWO CONSECUTIVE DAYS) BEGINNING ON A FRIDAY AT 6PM AND REOPENING THE FOLLOWING MONDAY AT 6 AM, TO A MINIMUM OF ONE-WAY TRAFFIC. DURING THAT TIME THE CONTRACTOR WILL BE ALLOWED TO WORK 24 HOURS PER DAY. THE CONTRACTOR SHALL SCHEDULE THEIR WORK SUCH THAT THE BRIDGE IS NOT CLOSED DURING HOLIDAY PERIODS. SEE SPECIAL PROVISIONS FOR FURTHER DETAILS.
3.

THE CONTRACTOR IS TO TAKE NOTICE THAT ACCORDING TO THE BORING, THERE IS A METAL PIPE OF UNKNOWN ORIGIN AT STATION 38+52. IF REMOVAL IS REQUIRED IT SHALL BE INCIDENTAL TO ITEM 208.30 “COFFERDAM EXCAVATION, EARTH”.
4.

ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES F UNLESS OTHERWISE NOTED.
5.

ITEM 529.15 “REMOVAL OF STRUCTURE SHALL BE USED FOR THE REMOVAL OF THE EXISTING TWIN PIPES UNDER VT ROUTE 17.
6.

REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:

SPACING +/- 1”
CLEARANCE +/- ¼”
7.

ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1” X 1”.
8.

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.
9.

PAYMENT FOR TREATMENT OF DISCHARGE OF THE COFFERDAM WILL BE MADE UNDER CONTRACT ITEM 653.45.

TRAFFIC CONTROL

10.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED PRIOR TO, DURING AND AFTER THE CLOSURE PERIOD. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ALTERNATING ONE WAY TRAFFIC, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE RESIDENT ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE). SEE SPECIAL PROVISIONS.
11.

ALL TEMPORARY TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE E SERIES OF THE STANDARDS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.
12.

INSTALLATION OF TEMPORARY TRAFFIC CONTROL SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL TRY TO MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.
13.

ACCESS TO ALL EXISTING DRIVES SHALL BE MAINTAINED AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.
14.

ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR’S TRAFFIC CONTROL PLAN, EXCEPT FOR ITEM 630.15 FLAGGERS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
- PRECAST CONCRETE NOTES
15.

DESIGN CRITERIA:

A. SOIL UNIT WEIGHT = 140 PCF
B. DESIGN LIVE LOAD = HL-93
C. NOMINAL BEARING RESISTANCE = 6.7 KSF
D. BEARING RESISTANCE FACTOR = 0.45
E. DESIGN FILL OVER BOX = 3 FEET
F. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05(e)

16.

ALL CONCRETE SHALL BE PRECAST. ITEM 540.10 “PRECAST CONCRETE STRUCTURE” INCLUDES ALL BOX SEGMENTS, HEADWALLS, AND CUTOFF WALLS. ALL CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10.

17.

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 8’-0” IN HEIGHT AND 10’-0” IN WIDTH. THE OVERALL LENGTH OF THE BOX SHALL BE 71’-8” ALONG THE STREAMBED GRADE. THE EXPOSED ENDS OF THE FIRST AND LAST UNITS SHALL BE VERTICAL.

18.

THE EXTERIOR (TOP AND SIDES) OF ALL CONCRETE BOX JOINTS ALONG WITH ALL LIFTING HOLES SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10.

19.

MEMBRANE WATERPROOFING SHALL BE APPLIED TO THE ENTIRE TOP OF THE CONCRETE BOX. PAYMENT FOR MEMBRANE OVER THE TOP WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 520.10.

20.

A TWO (2) FOOT WIDE STRIP OF MEMBRANE WATERPROOFING SHALL BE PLACED AT EACH VERTICAL JOINT (SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT. THE SIDES SHALL BE COVERED PRIOR TO THE TOP. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE AT EACH VERTICAL JOINT WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.

21.

WATER REPELLENT, SILANE SHALL FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE SHOP APPLIED TO ALL EXPOSED CONCRETE SURFACES OF THE PRECAST CONCRETE STRUCTURE. PAYMENT FOR SILANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.

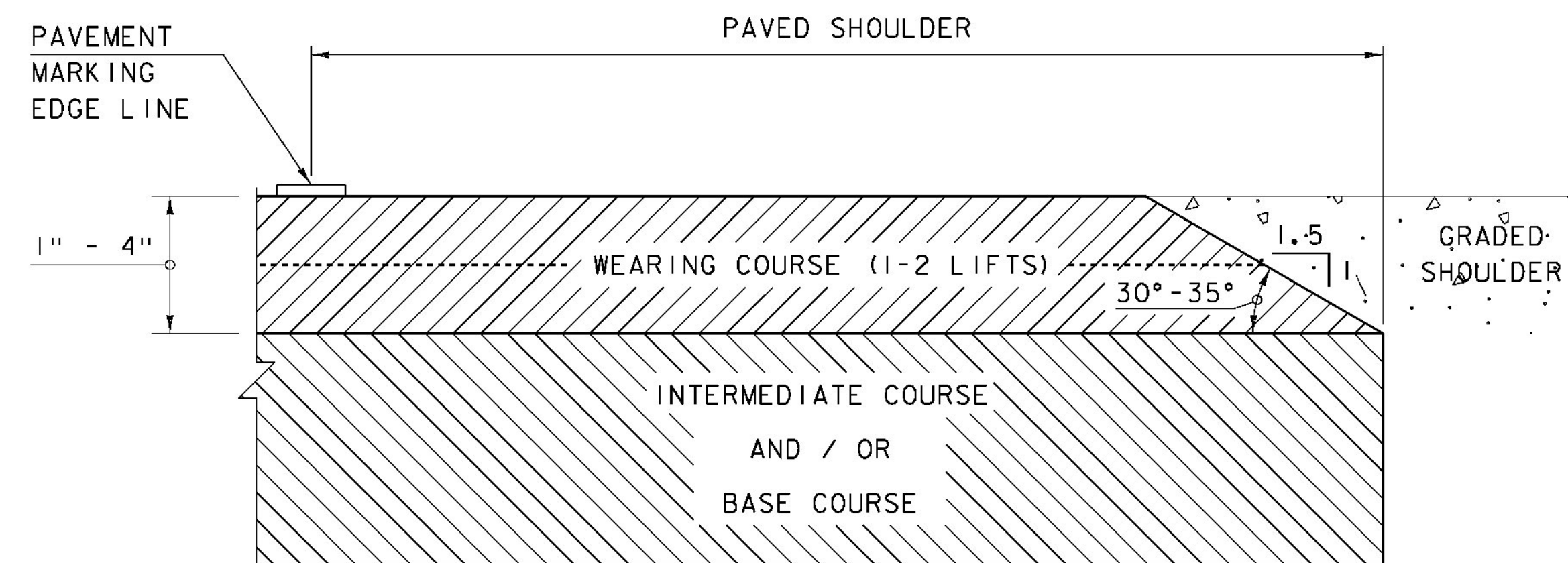
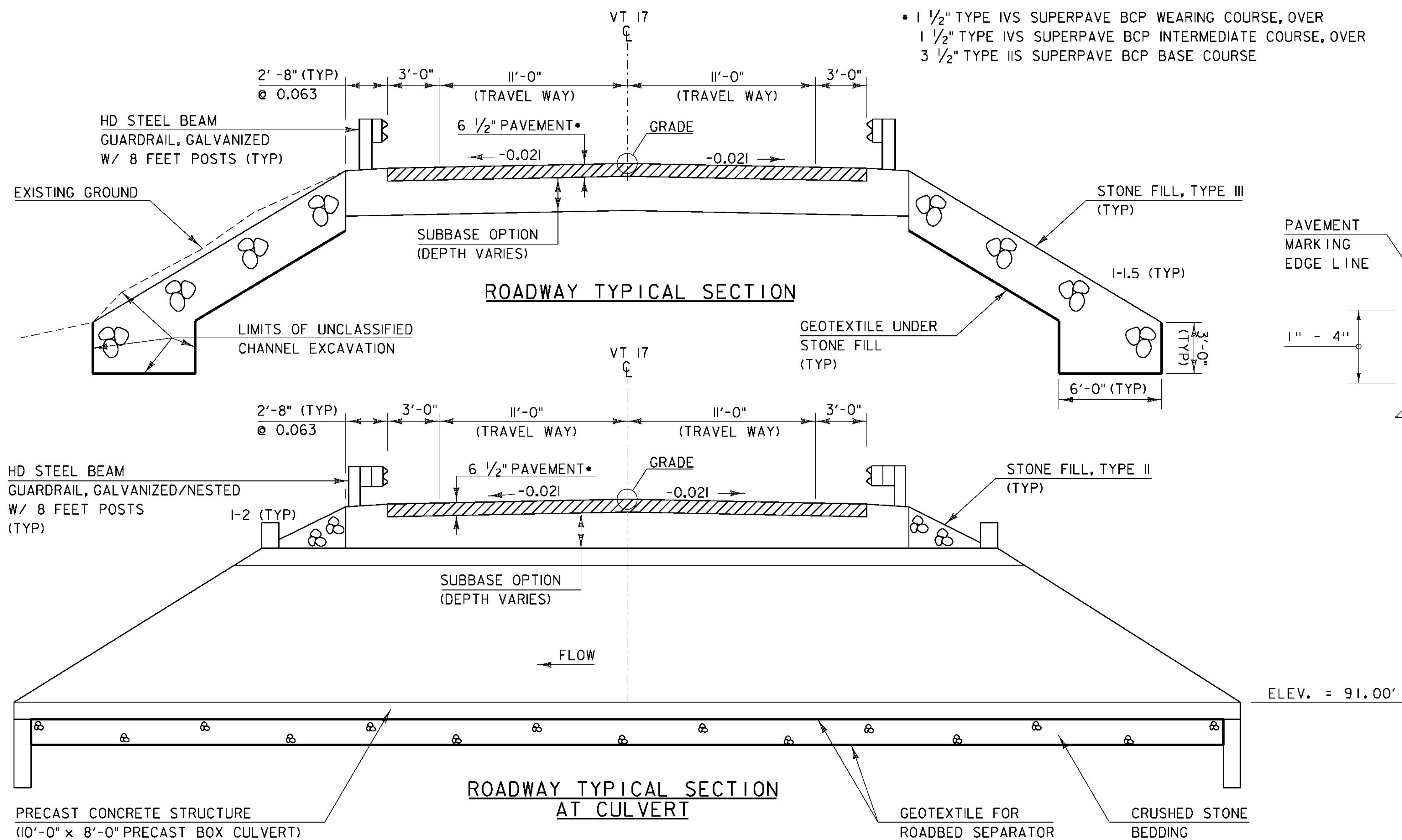
22.

REINFORCING STEEL FOR THE PRECAST HEADWALLS SHALL BE LEVEL II REINFORCING STEEL IN ACCORDANCE WITH SECTION 507. ALL REMAINING REINFORCING STEEL SHALL BE LEVEL I REINFORCING STEEL IN ACCORDANCE WITH SECTION 507. PAYMENT FOR REINFORCING STEEL WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.
- | | |
|------------------------------|------------------------|
| PROJECT NAME: ADDISON | |
| PROJECT NUMBER: STP CULV(14) | |
| FILE NAME: s08b062gen.dgn | PLOT DATE: 15-MAR-2013 |
| PROJECT LEADER: K. HIGGINS | DRAWN BY: J. SALVATORI |
| DESIGNED BY: J. SALVATORI | CHECKED BY: W. LAMMER |
| GENERAL NOTES | SHEET 3 OF 28 |

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 1									
SUMMARY OF ESTIMATED QUANTITIES														TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS			GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS	
								1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				EARTHWORK SUMMARY	
								350						350		CY	COMMON EXCAVATION	203.15				350 CY	COMMON EXCAVATION (350 * 1.0)
										200				200		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				60 CY	UNCLASSIFIED CHANNEL EXCAVATION (200 * 0.3)
								1						1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				146 CY	COFFERDAM EXCAVATION (485 * 0.3)
										225				225		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				556 CY	SUB TOTAL
										425				425		CY	COFFERDAM EXCAVATION, EARTH	208.30				556 CY	TOTAL FILL AVAILABLE
										60				60		CY	COFFERDAM EXCAVATION, ROCK	208.35				0 CY	TOTAL FILL REQUIRED
										1				1		LS	COFFERDAM	208.40				556 CY	TOTAL WASTE
								300						300		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10					
																	BEGIN OPTION AA					SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	
								275						275		CY	SUBBASE OF GRAVEL	301.15				105 TON	TYPE IIS
								275						275		CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25				75 TON	TYPE IVS
								275						275		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				180 TON	TOTAL SUPERPAVE
																	END OPTION AA						
								3						3		CWT	EMULSIFIED ASPHALT	404.65					
								1						1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50					
										95				95		SY	SHEET MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10					
										2				2		EACH	REMOVAL OF STRUCTURE (5'-0" RCP)	529.15					
										1				1		LS	PRECAST CONCRETE STRUCTURE (10'-0" x 8'-0" x 71'-8" BOX)	540.10					
									1					1		MGAL	DUST CONTROL WITH WATER	609.10					
										5				5		CY	STONE FILL, TYPE II	613.11					
										250				250		CY	STONE FILL, TYPE III	613.12					
								2						2		EACH	STEEL MARKER POSTS	619.16					
								54						54		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.215					
								200						200		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED W/8 FEET POSTS	621.217					
								2						2		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60					
								50						50		LF	REMOVE AND RESET GUARDRAIL	621.75					
								250						250		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80					
										110				110		TON	CRUSHED STONE BEDDING	629.54					
								200						200		HR	FLAGGERS	630.15					
											1			1		LS	FIELD OFFICE, ENGINEERS	631.10					
											1			1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17					
											2000			2000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26					
								1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11					
								450						450		LF	4 INCH WHITE LINE	646.20					
								450						450		LF	4 INCH YELLOW LINE	646.21					
										330				330		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11					
										350				350		SY	GEOTEXTILE UNDER STONE FILL	649.31					
									90					90		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515					
									85	25				110		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61					
																		PROJECT NAME: ADDISON					
																		PROJECT NUMBER: STP CULV(I4)					
																		FILE NAME: s08b062qnt.dgn				PLOT DATE: 09-MAR-2013	
																		PROJECT LEADER: K. HIGGINS				DRAWN BY: J. GRIGAS	
																		DESIGNED BY: J. SALVATORI				CHECKED BY: J. SALVATORI	
																		QUANTITY SHEET I				SHEET 4 OF 28	

QUANTITY SHEET 2

PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(I4)	
FILE NAME: s08b062qnt.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
QUANTITY SHEET 2	SHEET 5 OF 28



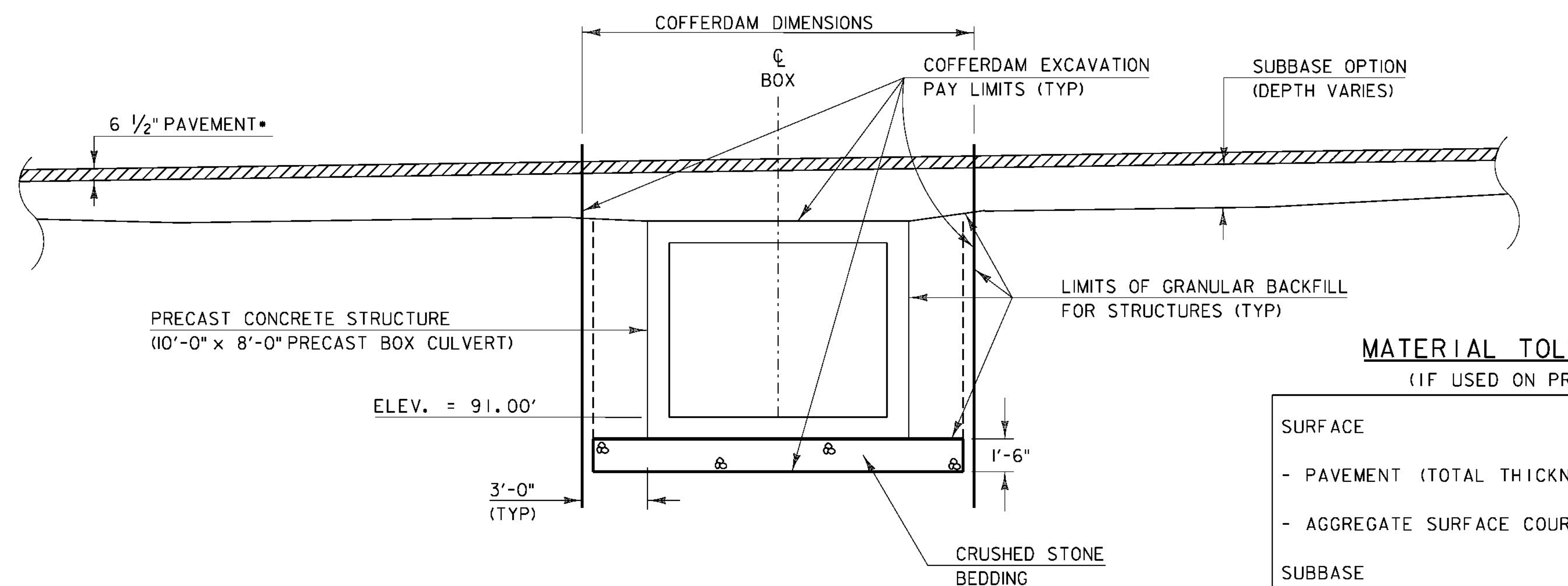
SAFETY EDGE DETAIL

NOT TO SCALE

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

COFFERDAM NOTES

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



MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

SCALE 1/4" = 1'-0"

PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV (14)

FILE NAME: s08b062typ.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
TYPICAL SECTIONS

PLOT DATE: 09-MAR-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 6 OF 28

GPS CONTROL POINTS

HVCTRL #1

WILLOW AZ MK RESET
NORTH = 556126.333
EAST = 1411019.783
ELEV. = 205.80

GENERAL LOCATION, BRIDPORT, VT.

TO REACH FROM THE INTERSECTION OF VT ROUTE 17 AND VT ROUTE 125 IN ADDISON, GO SOUTHEAST ALONG VT ROUTE 125 FOR 1.8 MI (2.3 KM) TO THE INTERSECTION OF TOWN LINE ROAD LEFT. TURN LEFT AND GO EAST ALONG TOWN LINE ROAD FOR 1.0 MI (1.6 KM) TO THE INTERSECTION OF JERSEY STREET LEFT, TOWN LINE ROAD STRAIGHT, AND BASIN HARBOR ROAD RIGHT. TURN RIGHT AND GO SOUTH ALONG BASIN HARBOR ROAD FOR 0.1 MI (0.2 KM) TO THE SITE OF THE MARK ON THE LEFT IN THE NORTHWEST CORNER OF A MOWED LAWN.

THE MARK IS SET 4 CM (2 INCHES) BELOW GROUND SURFACE IN THE TOP OF A FENO STYLE MONUMENT.

IT IS 4.8 M (15.7 FT) SOUTHEAST OF AND 0.1 M (0.3 FT) LOWER THAN THE CENTERLINE OF BASIN HARBOR ROAD, 35.8 M (117.5 FT) SOUTHWEST OF POLE NO 36/64, 5.3 M (17.4 FT) WEST OF THE WEST CORNER OF A WOVEN WIRE FENCE CORNER POST, 3.5 M (11.5 FT) WEST NORTHWEST OF THE WEST END OF A WOODEN FENCE END POST, AND 2.9 M (9.5 FT) WEST NORTHWEST OF A 1.0 CM (.375 INCHES) DIAMETER REBAR WITH PLASTIC CAP FOR A PROPERTY BOUND.

HVCTRL #2

WILLOW 2000
NORTH = 557235.067
EAST = 1404773.259
ELEV. = 111.43

GENERAL LOCATION ADDISON, VT.

TO REACH FROM THE INTERSECTION OF VT ROUTE 17 AND VT ROUTE 125 IN ADDISON, GO SOUTHEAST ALONG VT ROUTE 125 FOR 1.4 MI (2.3 KM) TO THE SITE OF THE MARK ON THE LEFT. THE MARK IS ALSO 0.1 MI (0.2 KM) WEST OF THE WILLOW POINT BOAT LAUNCH.

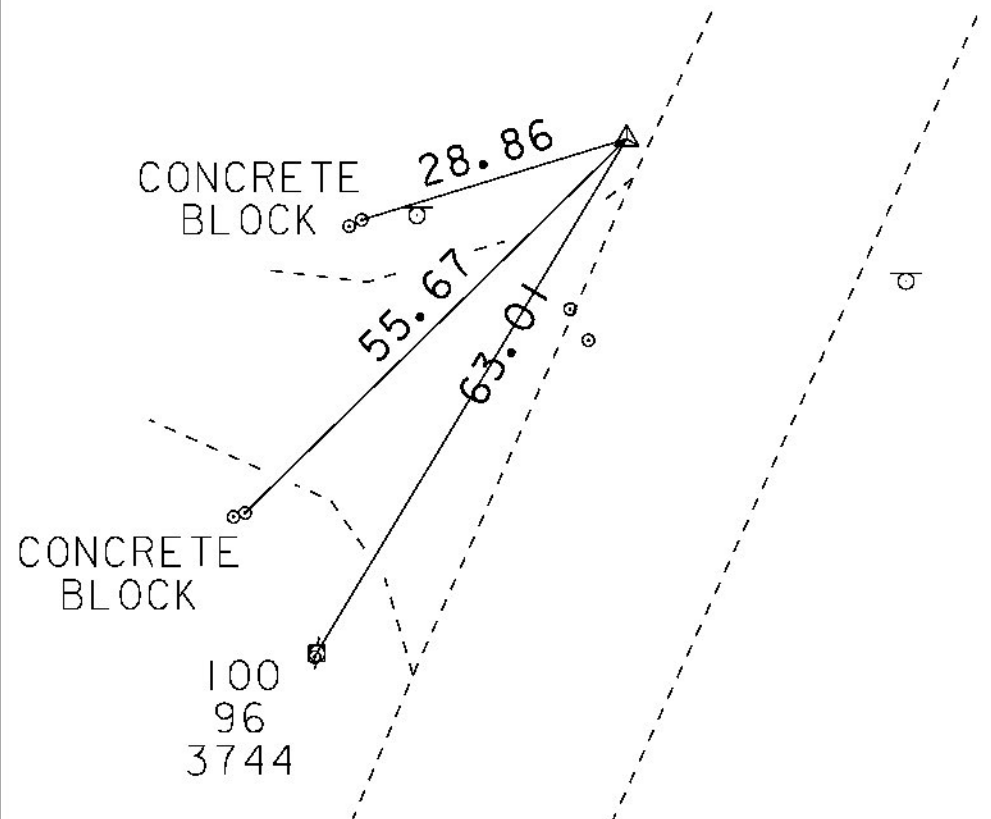
THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A FENO STYLE MONUMENT DRIVEN 0.9 M (3.0 FT) DEEP.

IT IS 34.5 M (113.2 FT) EAST-SOUTHEAST OF A BARBED WIRE FENCE CORNER, 5.7 M (18.7 FT) NORTH-NORTHEAST OF CENTERLINE OF VT ROUTE 125, 19.4 M (63.6 FT) NORTH-NORTHWEST OF SOUTHEASTERLY END OF A GUARDRAIL, AND 0.3 M (1.0 FT) SOUTH-SOUTHWEST OF FIBERGLASS WITNESS POST.

TRAVERSE TIES

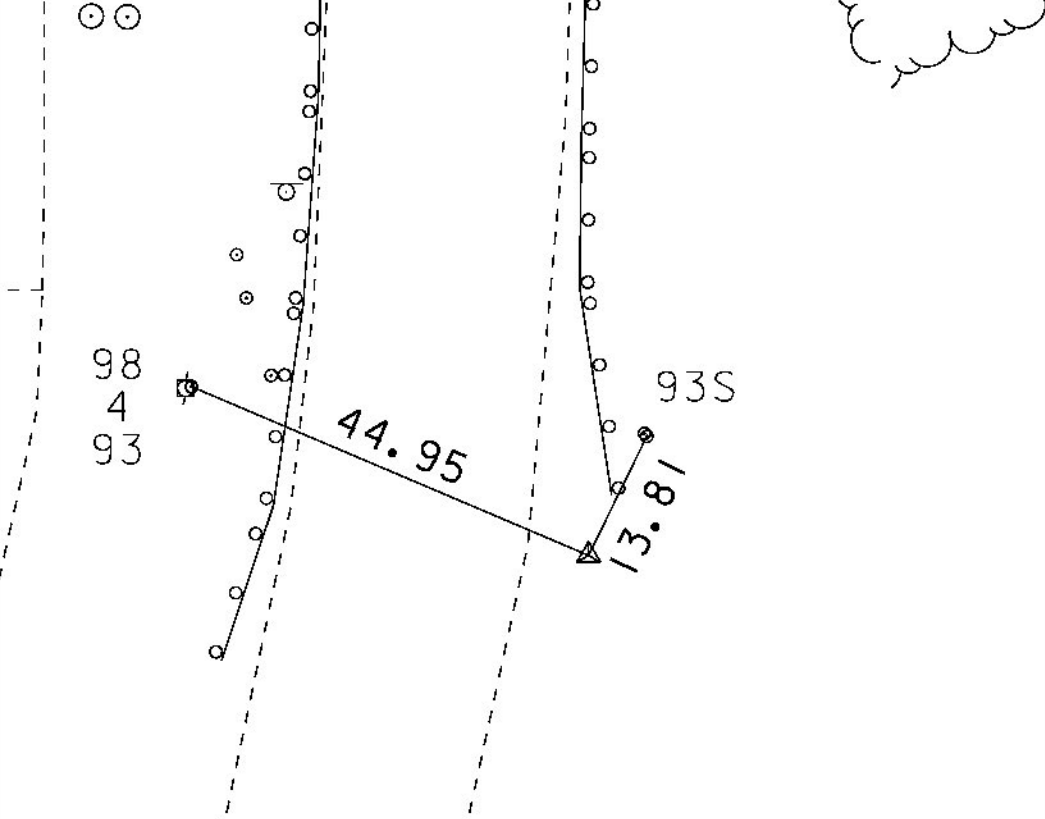
HVCTRL #16

NORTH = 562264.59
EAST = 1399419.10
ELEV. = 114.89



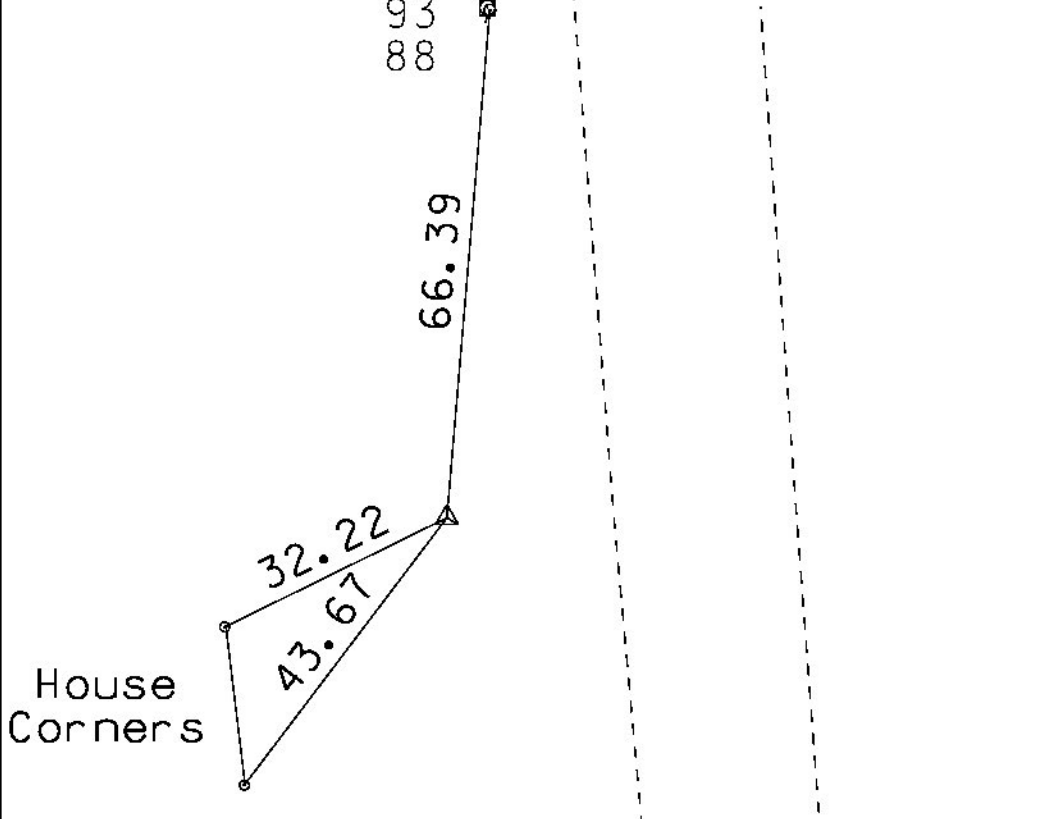
HVCTRL #17

NORTH = 562848.72
EAST = 1399699.14
ELEV. = 105.19



HVCTRL #18

NORTH = 564332.02
EAST = 1399462.46
ELEV. = 149.90



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

• Main Traverse Completed 7/1/08 by L.ORVIS P.C. & R.BOICKUS & C.CYR

ALIGNMENT TIES

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

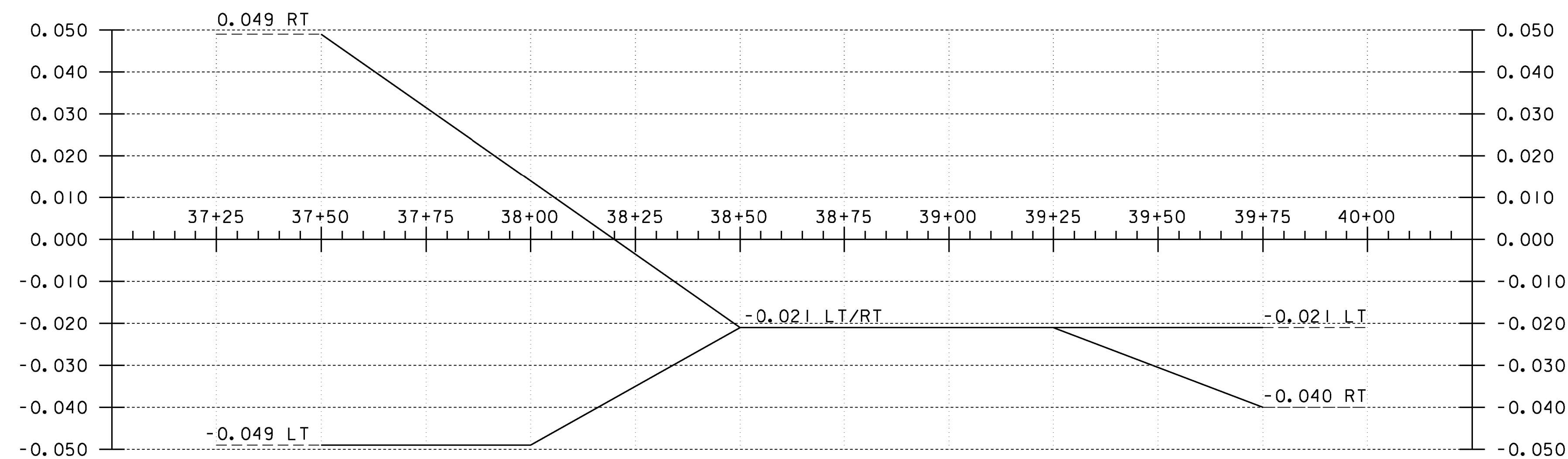
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83(07) Conus
ADJUSTMENT Compass

PROJECT NAME: Addison

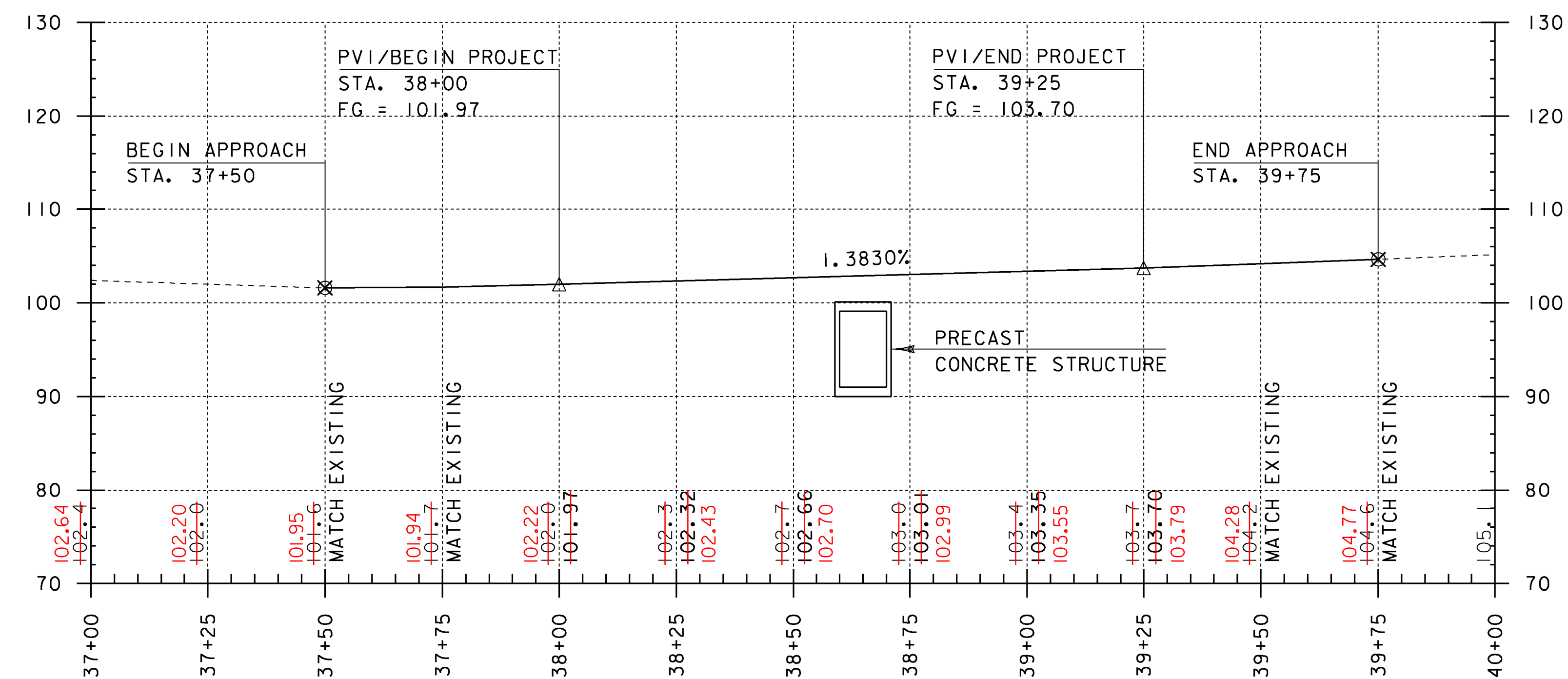
PROJECT NUMBER: STP CULV (14)

FILE NAME: 08b062\survey\08b062.tl.dg PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS DRAWN BY: R. Bullock
DESIGNED BY: SURVEY CHECKED BY: SURVEY
TIE SHEET SHEET 7 OF 28

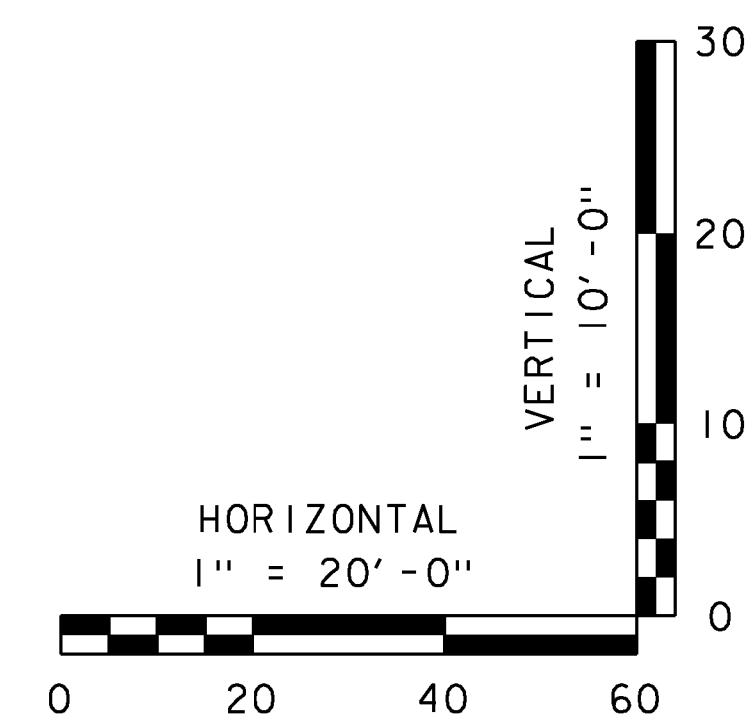
FILE NAME: s08b062bdr.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
LAYOUT SHEET	SHEET 8 OF 28



BANKING DIAGRAM
NOT TO SCALE

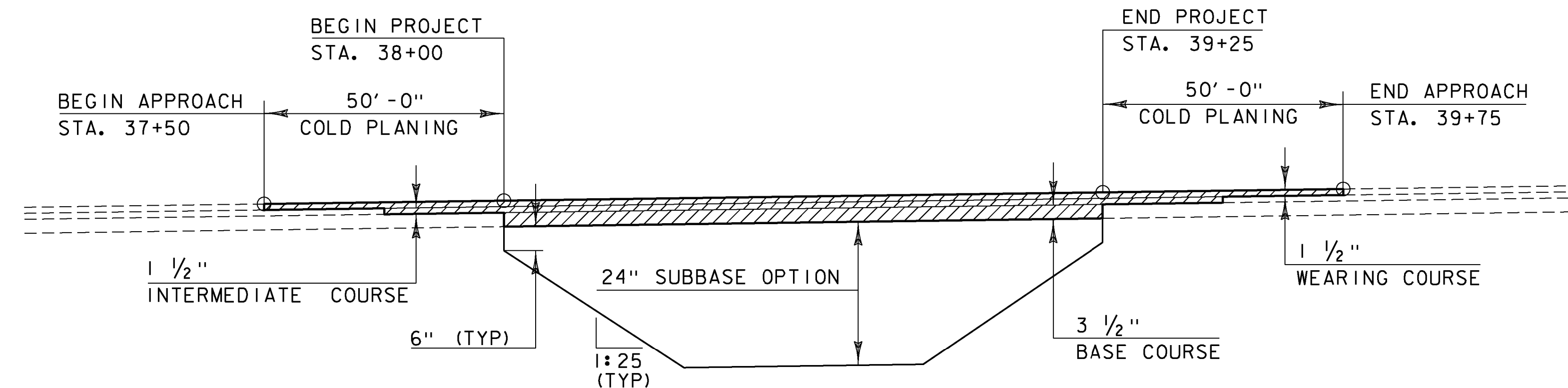


MAINLINE PROFILE
HORIZONTAL SCALE 1" = 20'-0"
VERTICAL SCALE 1" = 10'-0"



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 PROPOSED GRADES FOR THE NEW ALIGNMENT.

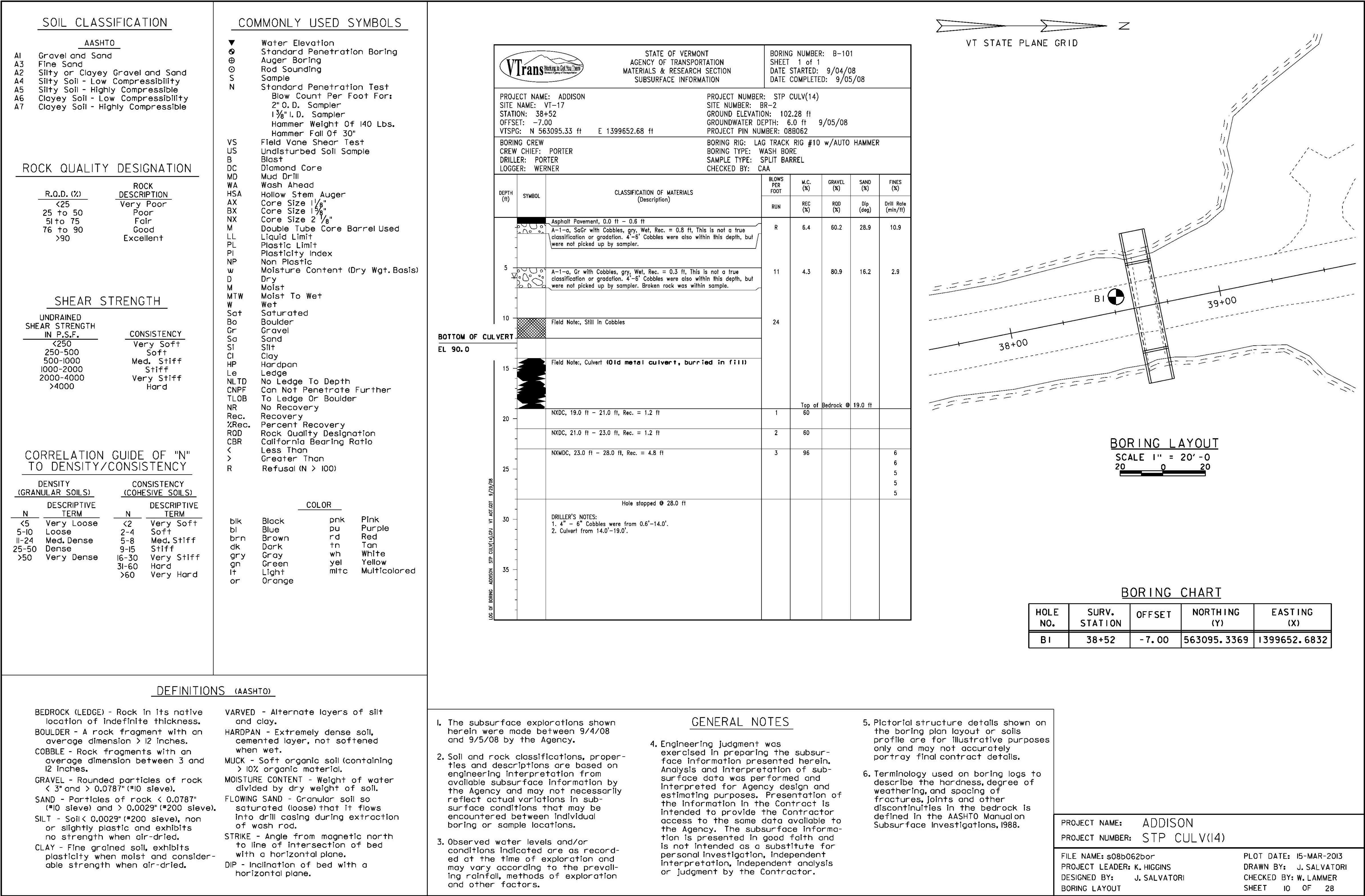


MATERIAL TRANSITION
NOT TO SCALE

PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV(14)

FILE NAME: s08b062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE PROFILE

PLOT DATE: 09-MAR-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 9 OF 28



VT 17
CLOSED

PORTABLE CHANGABLE SIGN - PHASE 1

NORTH OF
CHIMNEY
POINT

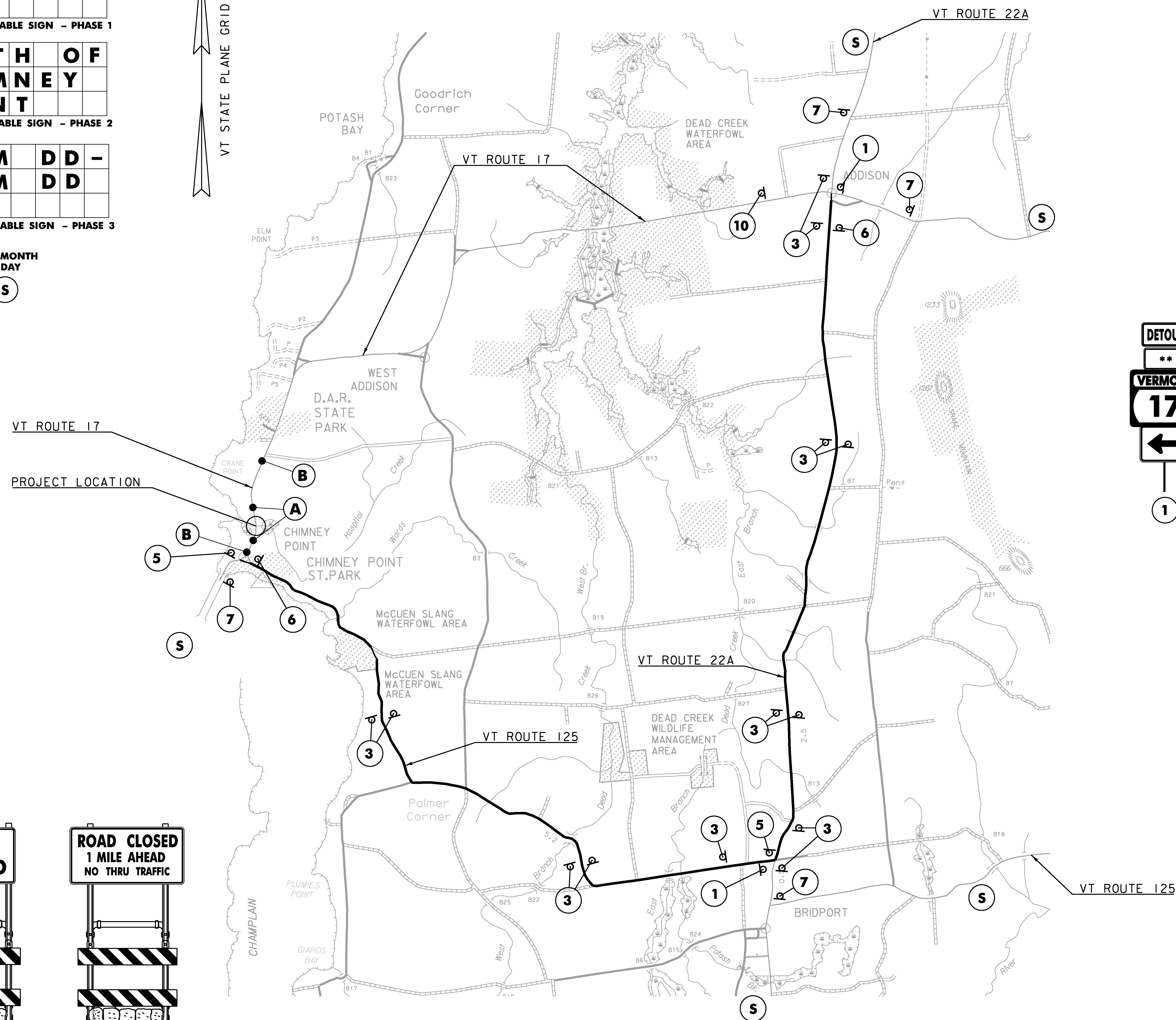
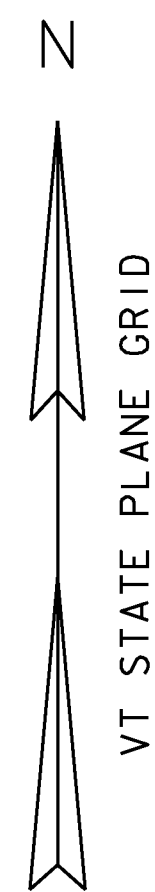
PORTABLE CHANGABLE SIGN - PHASE 2

* MMM DD -
* MMM DD

PORTABLE CHANGABLE SIGN - PHASE 3

* M=MONTH
D=DAY

S



SIGN MOUNTING ON
TYPE III BARRICADE
(MODIFIED)

A



SIGN MOUNTING ON
TYPE III BARRICADE
(MODIFIED)

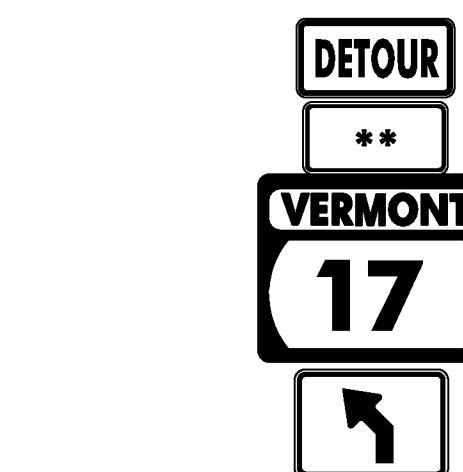
B

DETOUR PLAN

NOT TO SCALE

ROAD CLOSED
XX MILES AHEAD
NO THRU TRAFFIC

10



1



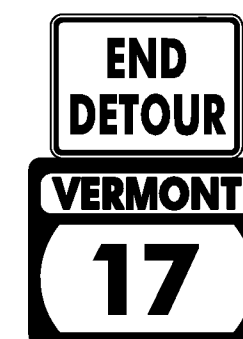
4



3



5



6



7

**E= EAST
OR
W= WEST

NOTES:

1. THE PORTABLE CHANGABLE MESSAGE SIGNS SHALL BE FULLY OPERATIONAL A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT 17.
2. DURING ACTUAL CLOSURE, ELIMINATE PHASE 3 ONLY.
3. DETOUR SIGNS SHALL BE LOCATED ADJACENT TO EXISTING INTERSECTION ROUTE MARKER ASSEMBLIES WHERE APPLICABLE.
4. CONFIRMATION ROUTE MARKERS (SIGN 3) SHALL BE PLACED IMMEDIATELY AFTER EACH TURN AND AT ALL LOCATIONS ALONG THE DETOUR ROUTE WHERE ROUTE MARKERS FOR THE PARENT ROUTE EXIST.
5. DETOUR SIGNING IS THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES FOR IMPLEMENTING THE DETOUR, INCLUDING BUT NOT LIMITED TO SIGNS, BARRICADES AND MESSAGE BOARDS, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
6. THIS DETOUR PLAN IS AN OUTLINE ONLY AND THE CONTRACTOR SHALL SUBMIT A DETAILED PLAN OF EACH INTERSECTION SHOWING DETOUR SIGN LOCATIONS IN RELATION TO EXISTING SIGNS.

PROJECT NAME: ADDISON
PROJECT NUMBER: STP_CULV(I4)

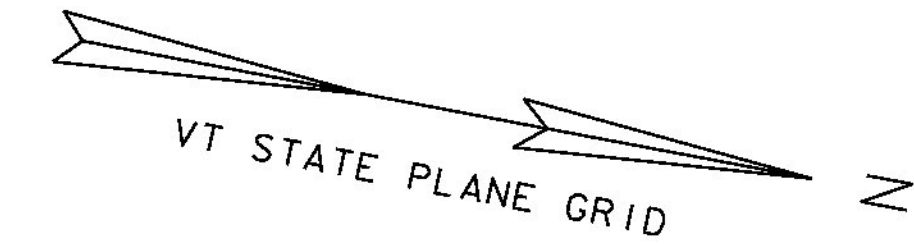
FILE NAME: s08b062detour.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
DETOUR PLAN

PLOT DATE: 15-MAR-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET II OF 28

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 38+15 - 39+31 LT
STA 38+15 - 39+42 RT
REMOVE AND RESET GUARDRAIL
STA 37+90 - 38+15 LT/RT

HD STEEL BEAM GUARDRAIL, GALV/NESTED
W/ 8 FEET POSTS
STA 38+15 - 39+15 LT/RT
HD STEEL BEAM GUARDRAIL, GALV. W/ 8 FEET POSTS
STA 39+15 - 39+27 LT
STA 39+15 - 39+52 RT

ANCHOR FOR STEEL BEAM RAIL
STA 39+29 LT
STA 39+54 RT
STEEL MARKER POSTS
STA 39+29 LT
STA 39+54 RT



MATCH EXISTING

25'-0"
REMOVE AND RESET
GUARDRAIL

37'-6" NESTED W BEAM
(6-12'-6" SECTIONS OR
2-25'-0" & 2-12'-6"
SECTIONS) (TYP)
6 SPACES @ 6'-3" (TYP)

25'-0" NESTED
W BEAM (2-25'-0"
SECTIONS) (TYP)

37'-6" NESTED W BEAM
(6-12'-6" SECTIONS OR
2-25'-0" & 2-12'-6"
SECTIONS) (TYP)

14'-6" HD STEEL BEAM,
GALVANIZED W/ 8 FT POSTS

TO VT ROUTE 125

VERMONT ROUTE 17

TO VT ROUTE 22A

38+00

39+00

40+00

MATCH EXISTING

25'-0"
REMOVE AND RESET
GUARDRAIL

HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED W/ 8 FT POSTS (TYP)

POST SPACING
25'-0" (TYP)

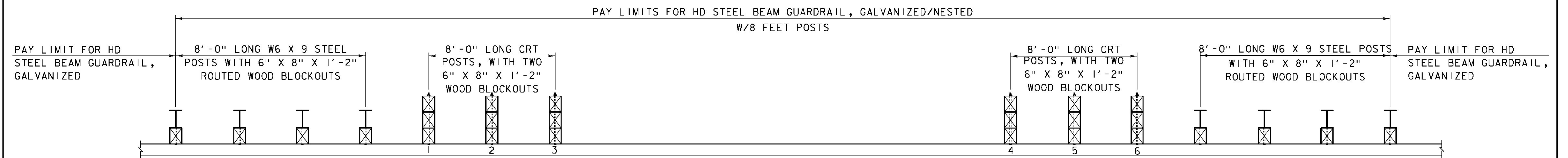
100'-0" PAY LIMIT FOR

39'-6"
PAY LIMIT FOR
HD STEEL BEAM GUARDRAIL,
GALVANIZED W/ 8 FT POSTS

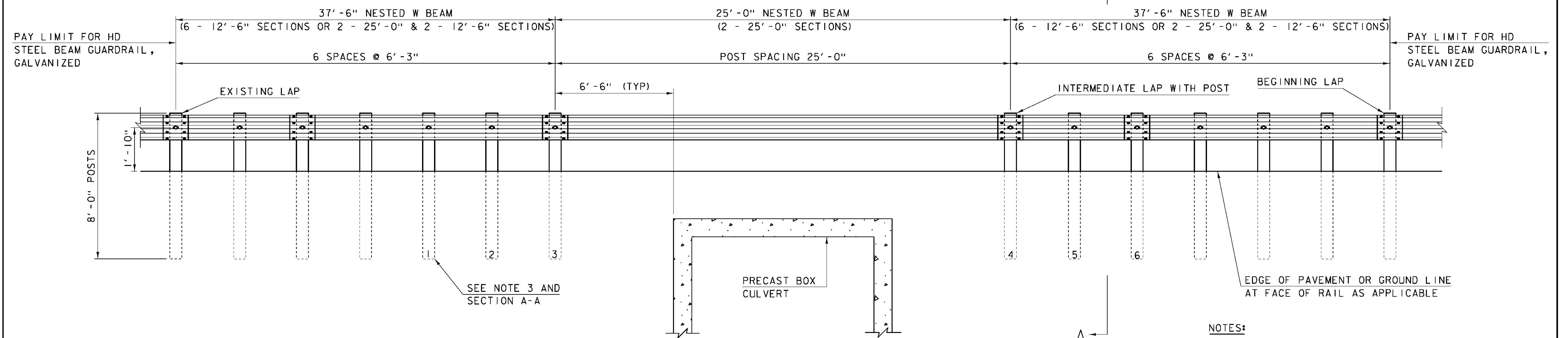
GUARDRAIL LAYOUT SHEET
SCALE 1" = 10'-0"

PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV(14)

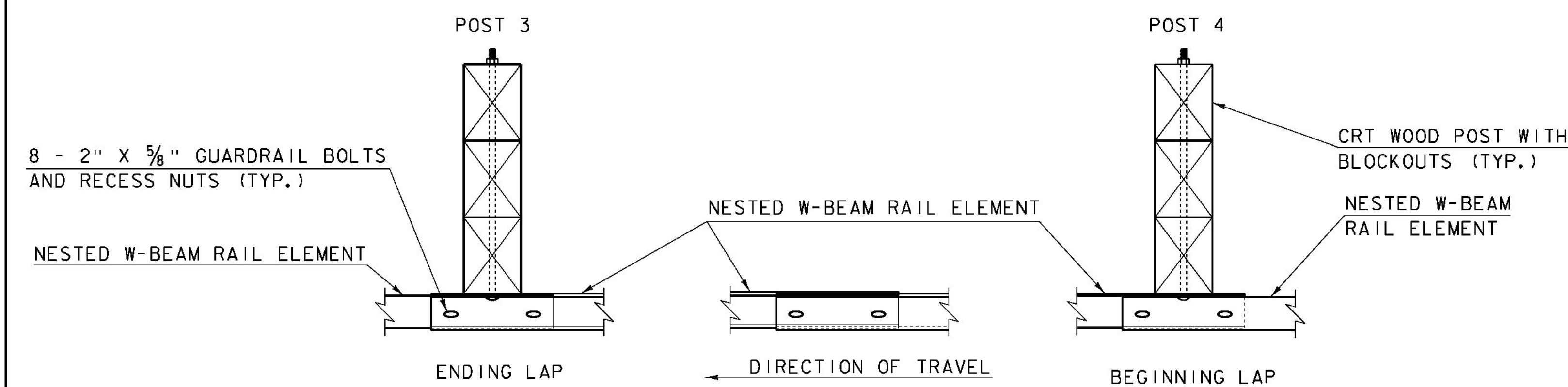
FILE NAME: s08b062r01.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
GUARDRAIL LAYOUT SHEET
PLOT DATE: 15-MAR-2013
DRAWN BY: J. GRIGAS
CHECKED BY: J. SALVATORI
SHEET 12 OF 28



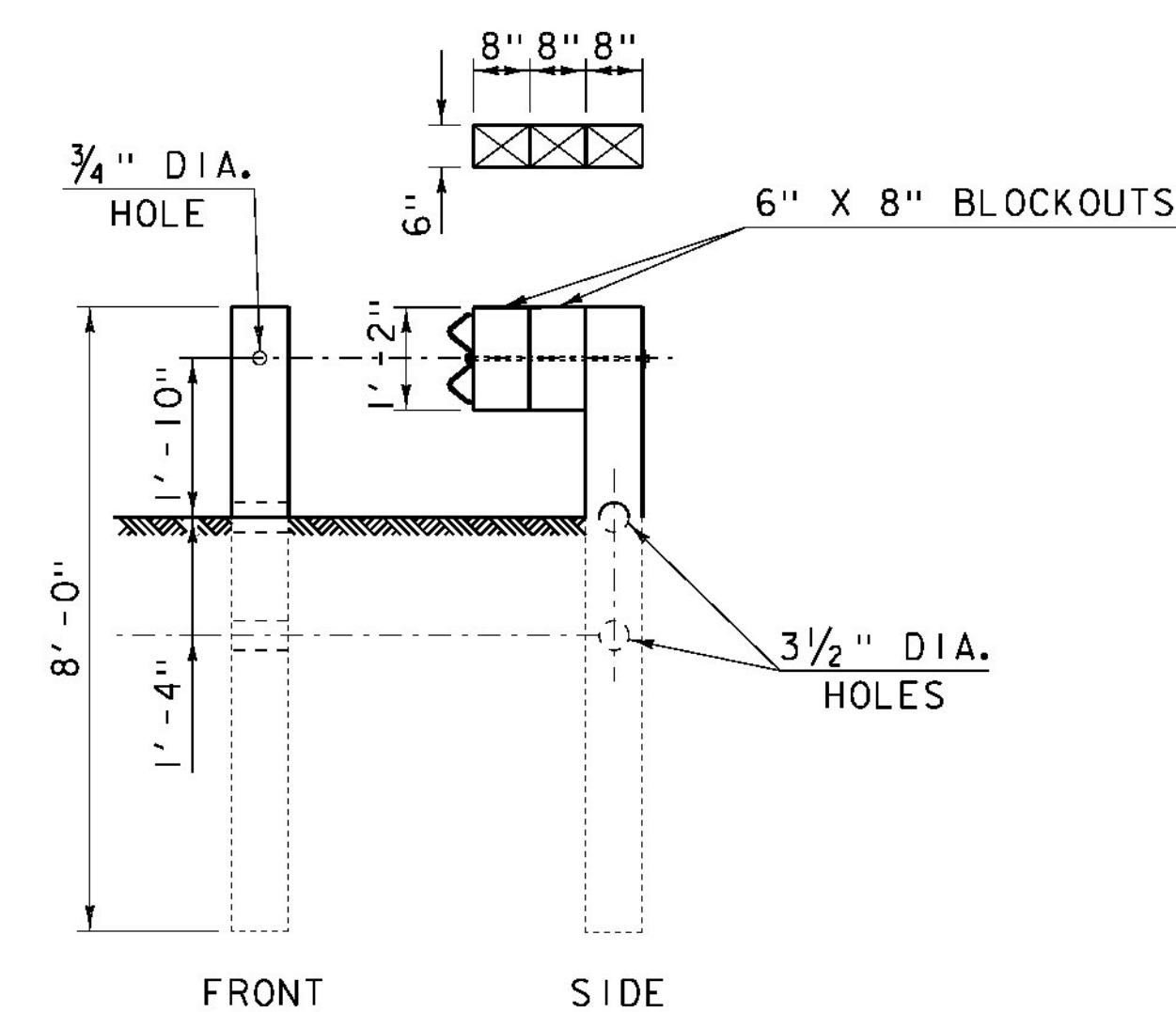
NESTED RAILING PLAN VIEW
(NOT TO SCALE)



NESTED RAILING ELEVATION VIEW
(NOT TO SCALE)



INTERMEDIATE LAP WITHOUT POST
(NOT TO SCALE)



SECTION A-A
(POSTS 1 THRU 6)
(SEE NOTES 3 & 4)

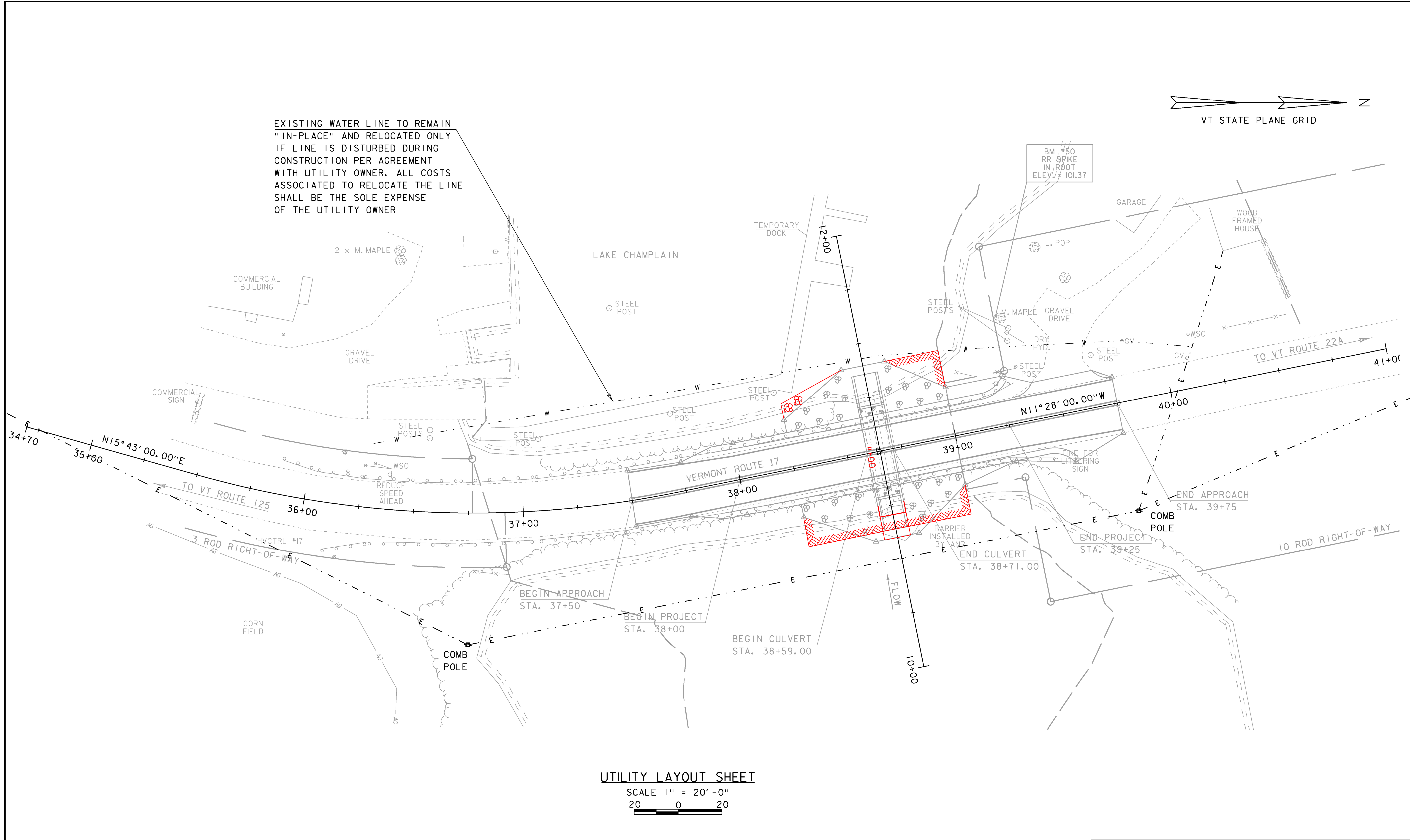
NOTES:

1. RAIL MEETS TEST LEVEL 3 REQUIREMENTS OF NCHRP REPORT 350.
2. 25'-0" RAIL LENGTH WILL BE USED TO ELIMINATE THE INTERMEDIATE LAP WITHOUT A POST.
3. POSTS 1 THRU 6 ARE BREAKAWAY CONTROLLED RELEASING TERMINAL (CRT) POSTS, SEE SECTION A-A FOR DETAILS.
4. POSTS 1 THRU 6 HAVE TWO, 6" X 8" BLOCKOUTS. SEE SECTION A-A FOR DETAILS.
5. ON POSTS 1 THRU 6, GUARDRAIL BOLT "D", AS SHOWN ON STD G1, SHALL BE 26" LONG.
6. ON ALL POSTS WHERE THE RAIL IS DOUBLE-NESTED GUARDRAIL BOLT "A", AS SHOWN ON STD G1, SHALL BE 2" LONG.
7. ALL POSTS WHERE THE RAIL IS DOUBLE-NESTED SHALL BE 8 FEET LONG TO PROVIDE FOR A 2'-8" SLOPE BREAKLINE.
8. SEE STD G1 FOR ADDITIONAL GUARDRAIL DETAILS.

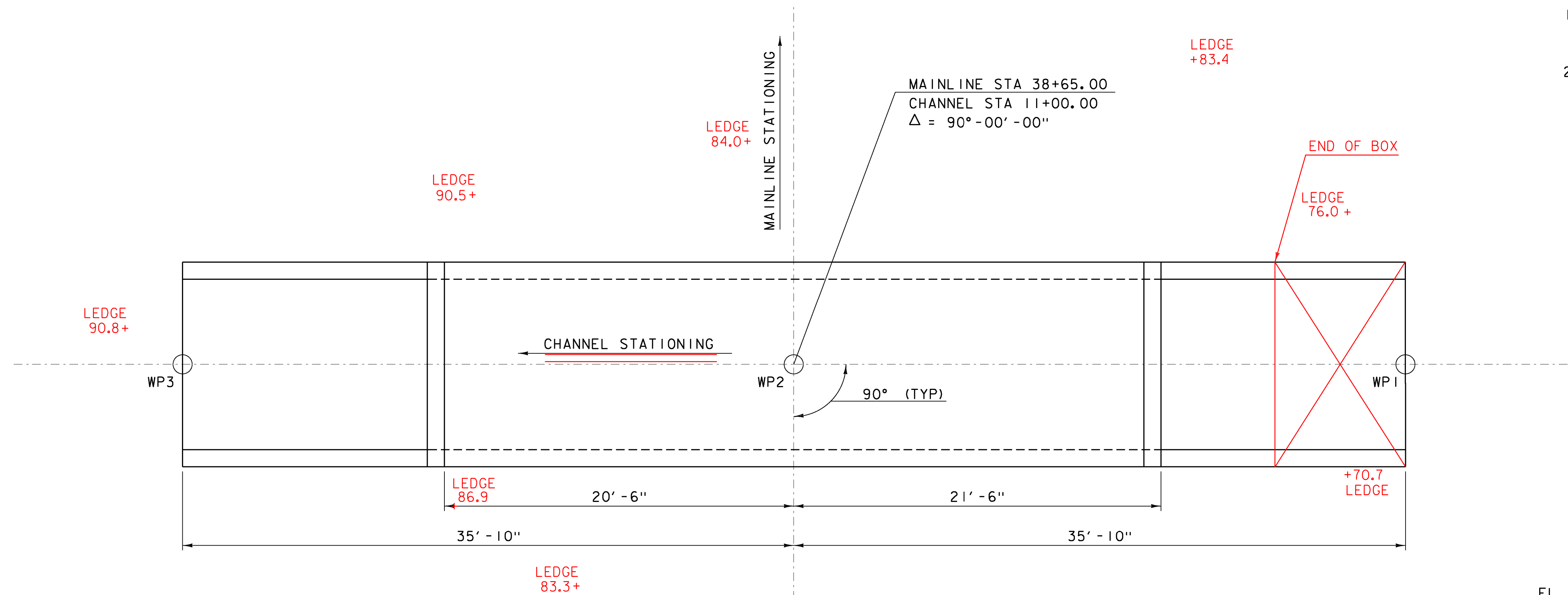
PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV (14)

FILE NAME: s08b062rail.det.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
NESTED HDSB GUARDRAIL DETAILS

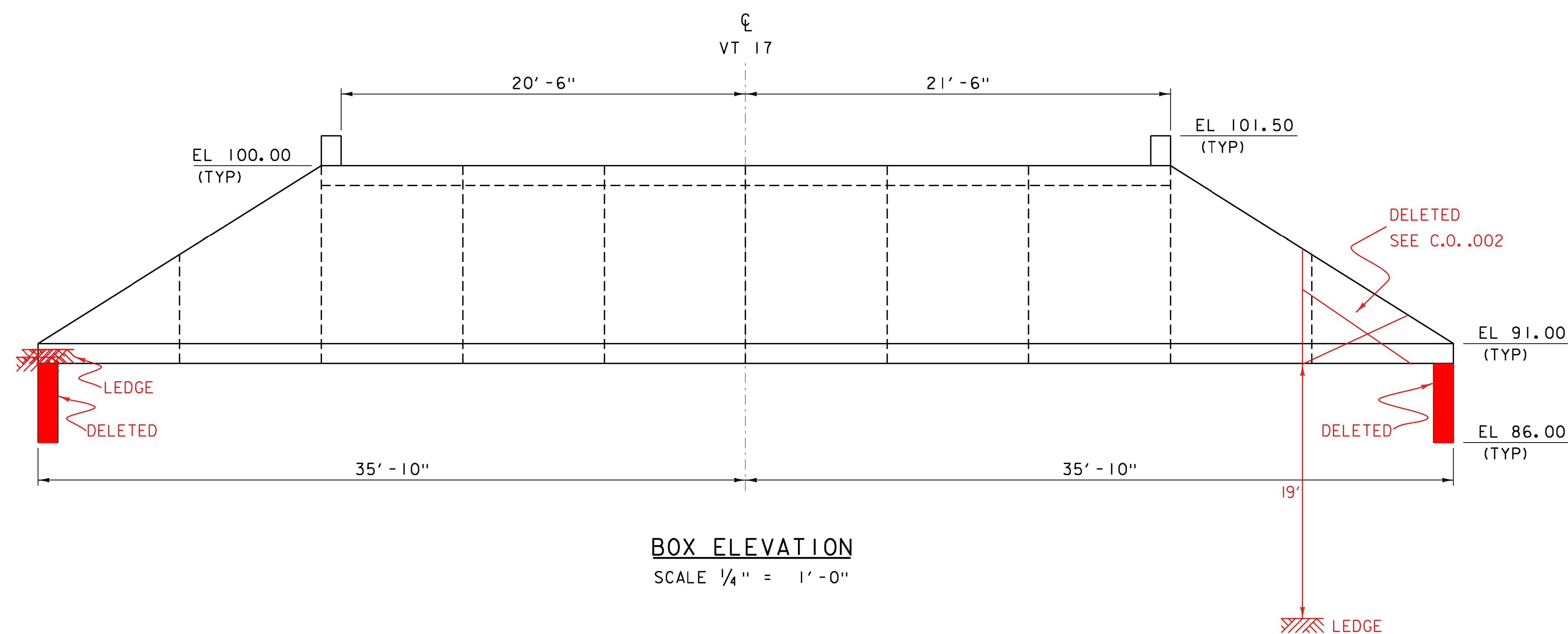
PLOT DATE: 15-MAR-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 13 OF 28



PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(I4)	
FILE NAME: s08b062u+11.dgn	PLOT DATE: 15-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
UTILITY LAYOUT SHEET	SHEET 14 OF 28



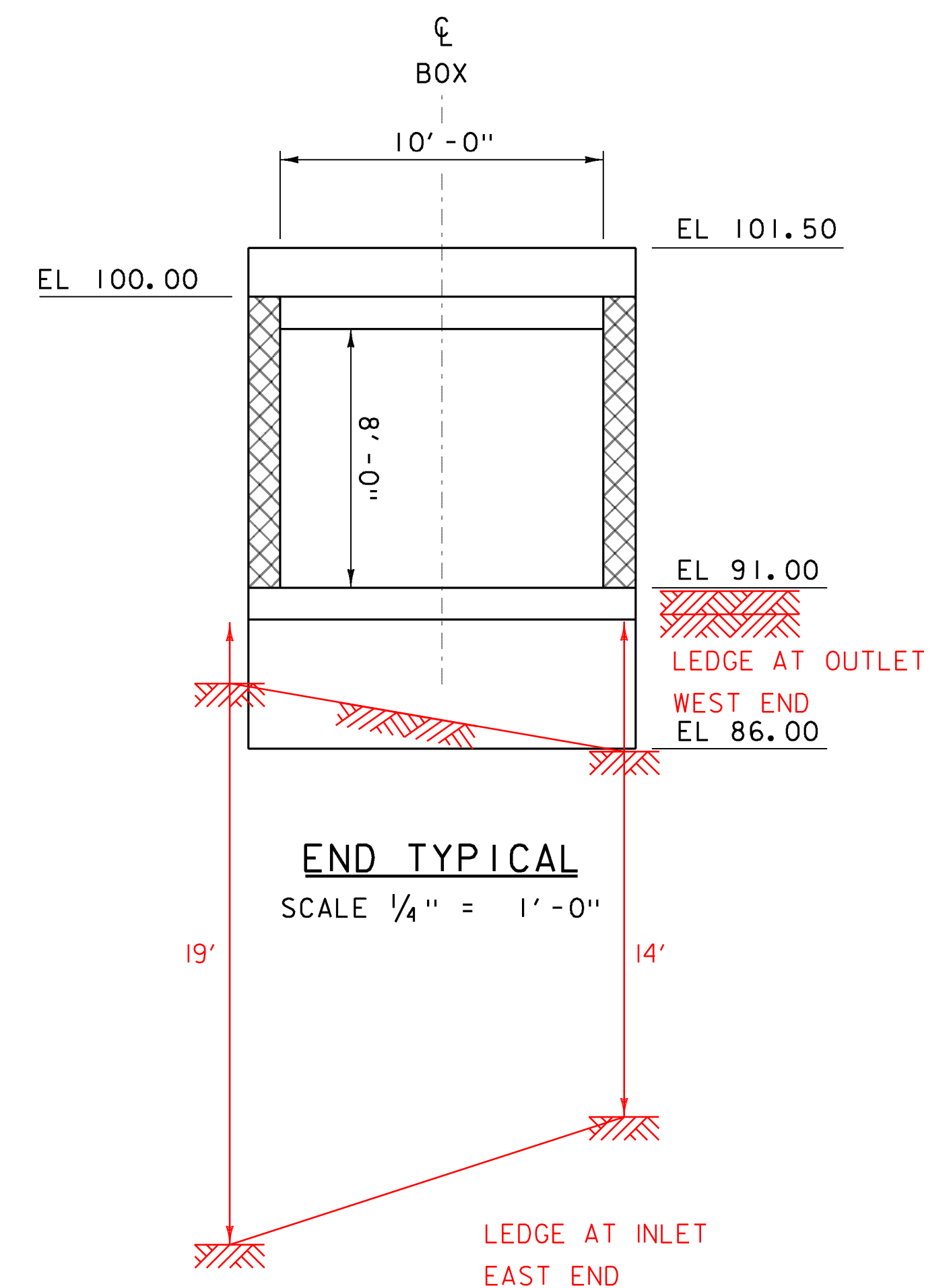
BOX LAYOUT
SCALE 1/4" = 1'-0"



BOX ELEVATION
SCALE 1/4" = 1'-0"

NOTES:

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



END TYPICAL
SCALE 1/4" = 1'-0"

PROJECT NAME:	ADDISON
PROJECT NUMBER:	STP CULV(I4)
FILE NAME:	s08b062sub.dgn
PROJECT LEADER:	K. HIGGINS
DESIGNED BY:	J. SALVATORI
BOX LAYOUT	
PLOT DATE:	09-MAR-2013
DRAWN BY:	J. SALVATORI
CHECKED BY:	J. GRIGAS
SHEET	15 OF 28

EPSC NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE REMOVAL OF THE EXISTING TWIN REINFORCED CONCRETE CULVERTS AND REPLACING THEM WITH A NEW REINFORCED CONCRETE BOX CULVERT.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

THE TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.23 ACRES.

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

1.2 SITE INVENTORY

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

THE WATER RUNOFF SHOULD BE MINIMAL AND BE LIMITED TO THE PROJECT AREAS DUE TO THE NATURE OF THE SURROUNDING TERRAIN.

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

THIS PROJECT IS LOCATED ALONG A CAUSEWAY THAT DIVIDES LAKE CHAMPLAIN TO THE WEST AND HOSPITAL CREEK TO THE EAST.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE AREA IS RELATIVELY FLAT, WITH STEEP SLOPES OCCURRING ONLY AT VERMONT ROUTE 17 SIDE SLOPES.

1.2.4 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MOSTLY OPEN LAWN AREAS WITH PATCHES OF TREES AND OTHER VEGETATION. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY THE PROPOSED PROJECT.

DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.5 SOILS

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

MrA - MELROSE FINE SANDY LOAM, 0 -3% SLOPE, “K FACTOR” = 0.28

VgC - VERGENNES CLAY, 6-12% SLOPE, “K FACTOR” = 0.49

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

1.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: YES. LAKE CHAMPLAIN AND HOSPITAL CREEK.
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 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.

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

EROSION CONTROL DETAILS MAY ALSO BE FOUND ON THE FOLLOWING WEBSITE:
www.aot.state.vt.us/Caddhelp

1.4.1 MARK SITE BOUNDARIES

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

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES AS SHOWN ON THE EROSION CONTROL PLANS.

1.4.2 LIMIT DISTURBANCE AREA

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

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

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

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES AS DIRECTED BY THE ENGINEER. AT A MINIMUM A CONSTRUCTION ENTRANCE SHALL BE PLACED ON EITHER END OF THE PROJECT AS SHOWN ON THE EROSION CONTROL PLANS.

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, WOVEN WIRE REINFORCED WILL BE INSTALLED AS SHOWN ON THE EROSION CONTROL PLANS.

FILTER CURTAINS SHALL BE INSTALLED ON THE INLET AND OUTLET ENDS OF THE PROPOSED BOX AS SHOWN IN THE EROSION CONTROL 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.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT CHECK STRUCTURES WILL BE NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS
PERMANENT STORM WATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

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.

IT IS NOT ANTICIPATED THAT EROSION CONTROL MATTING WILL BE NECESSARY.

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 FILTER BAG 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.

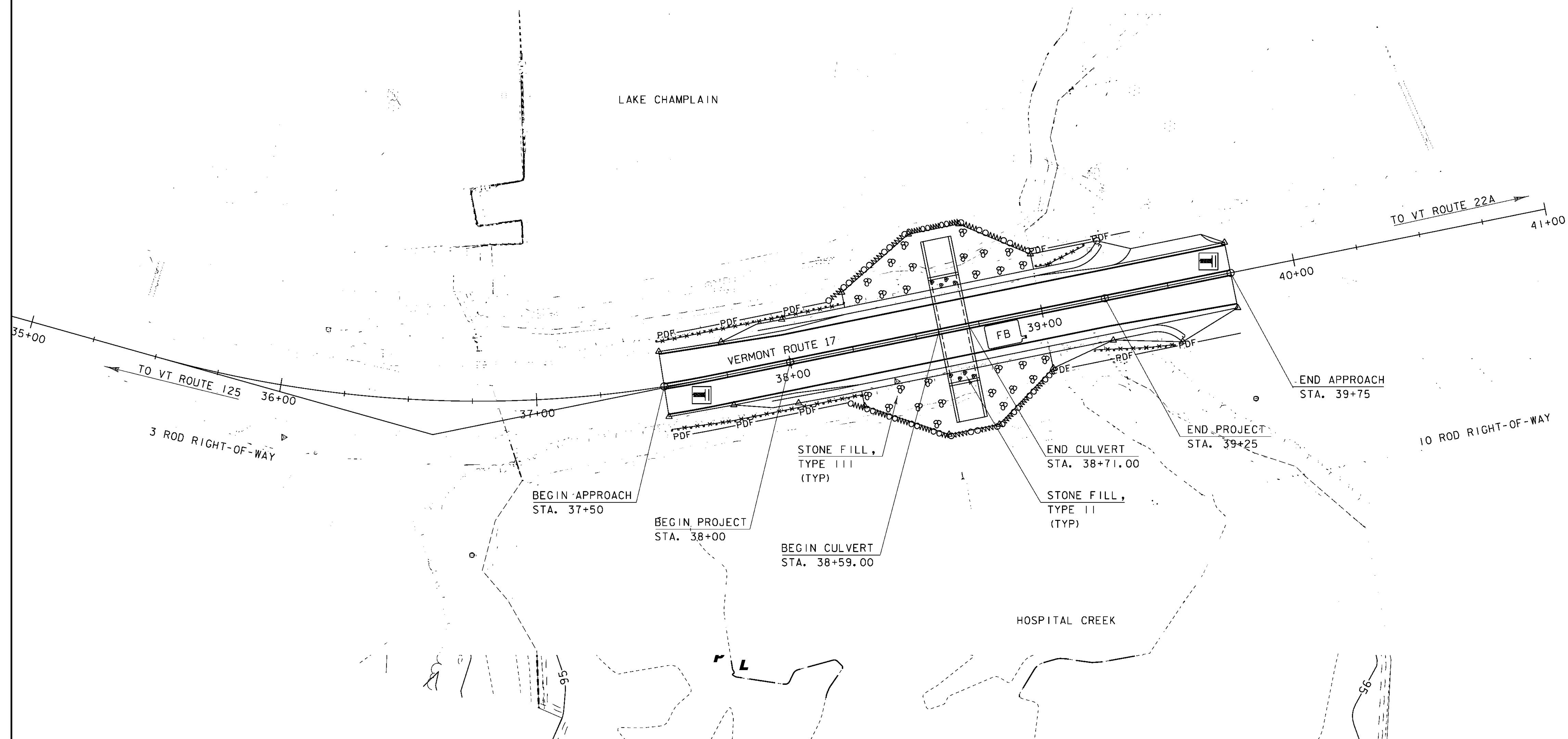
1.5 SEQUENCE AND STAGING

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 SUBSECTION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

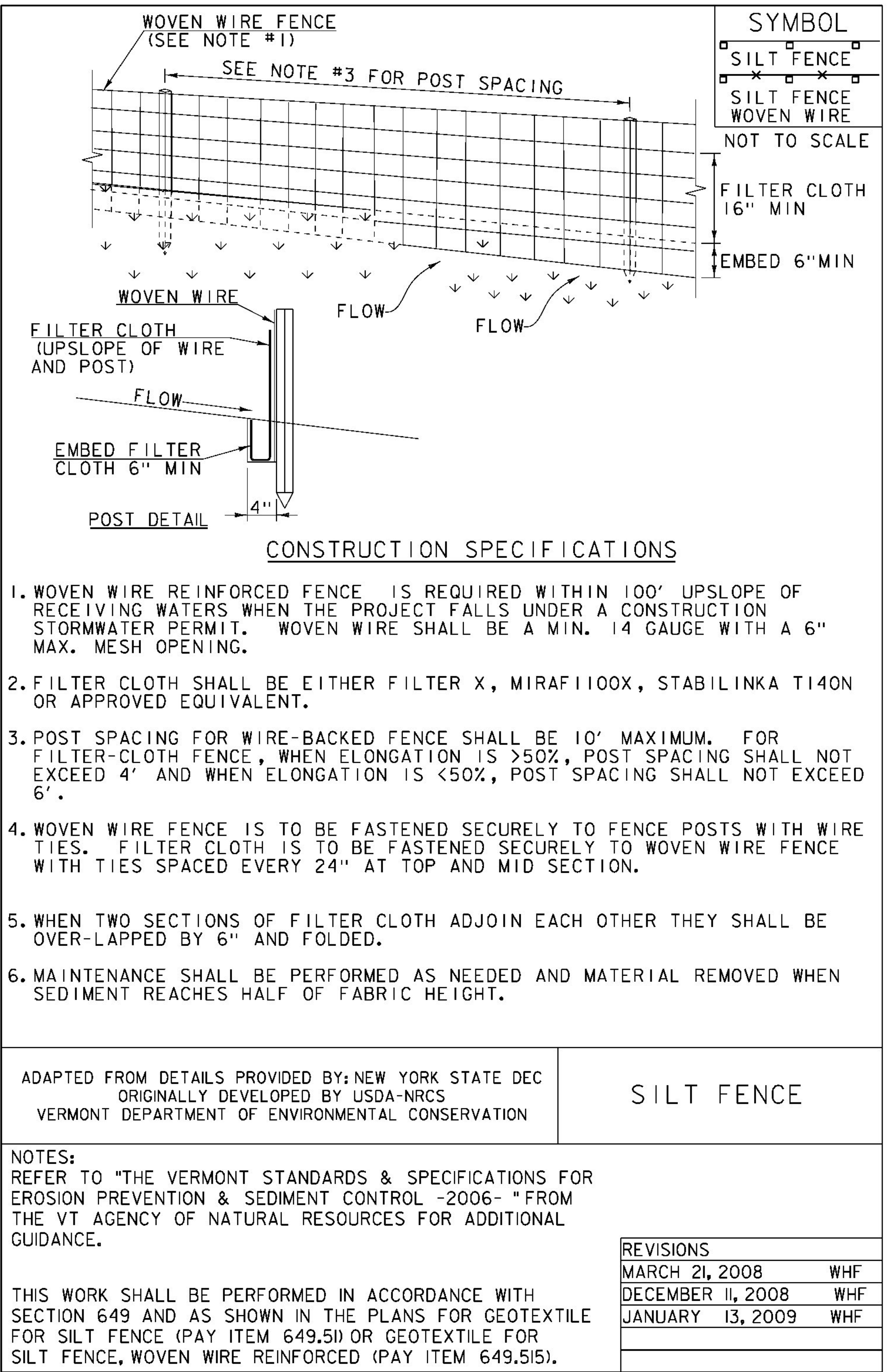
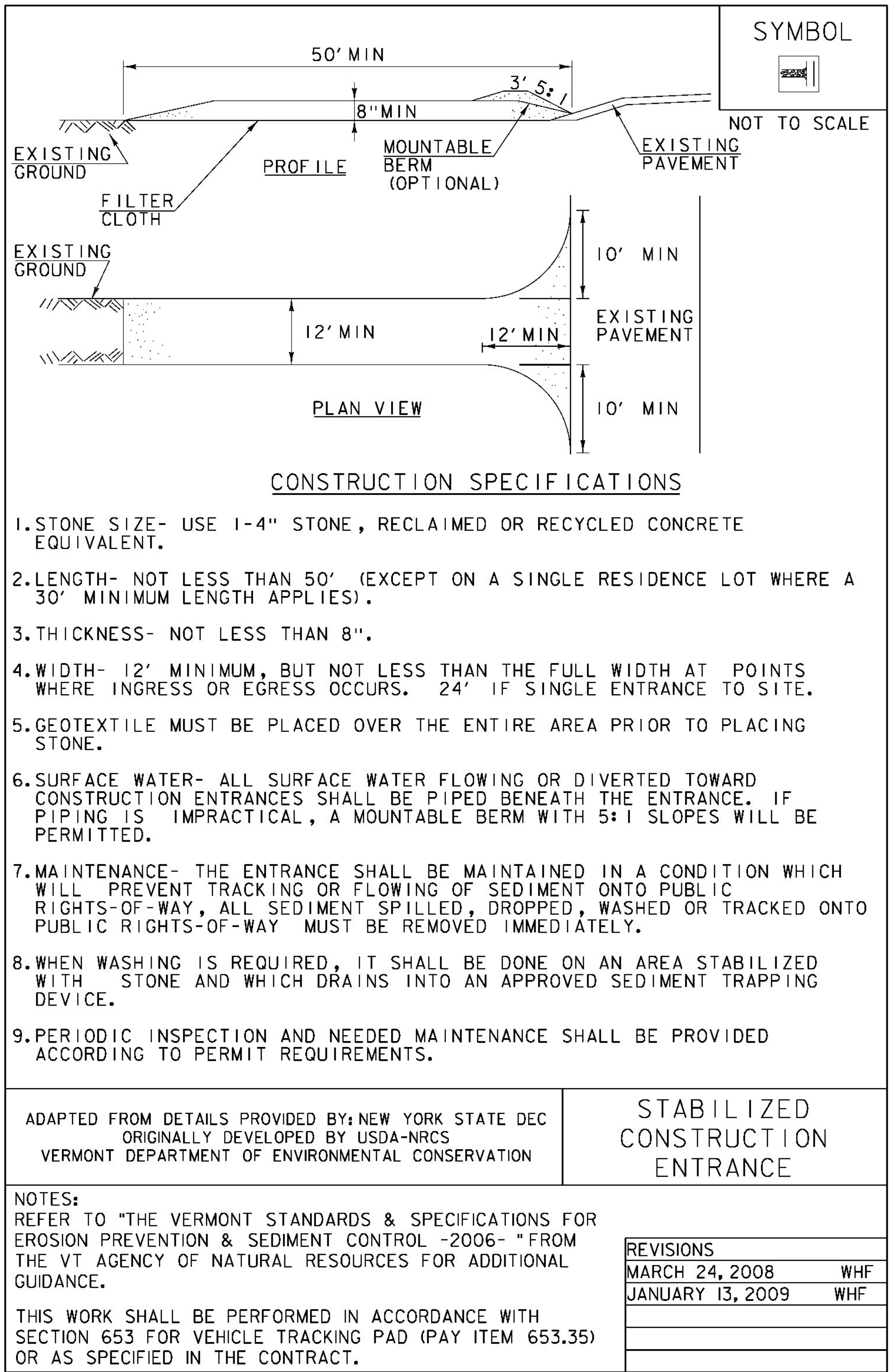
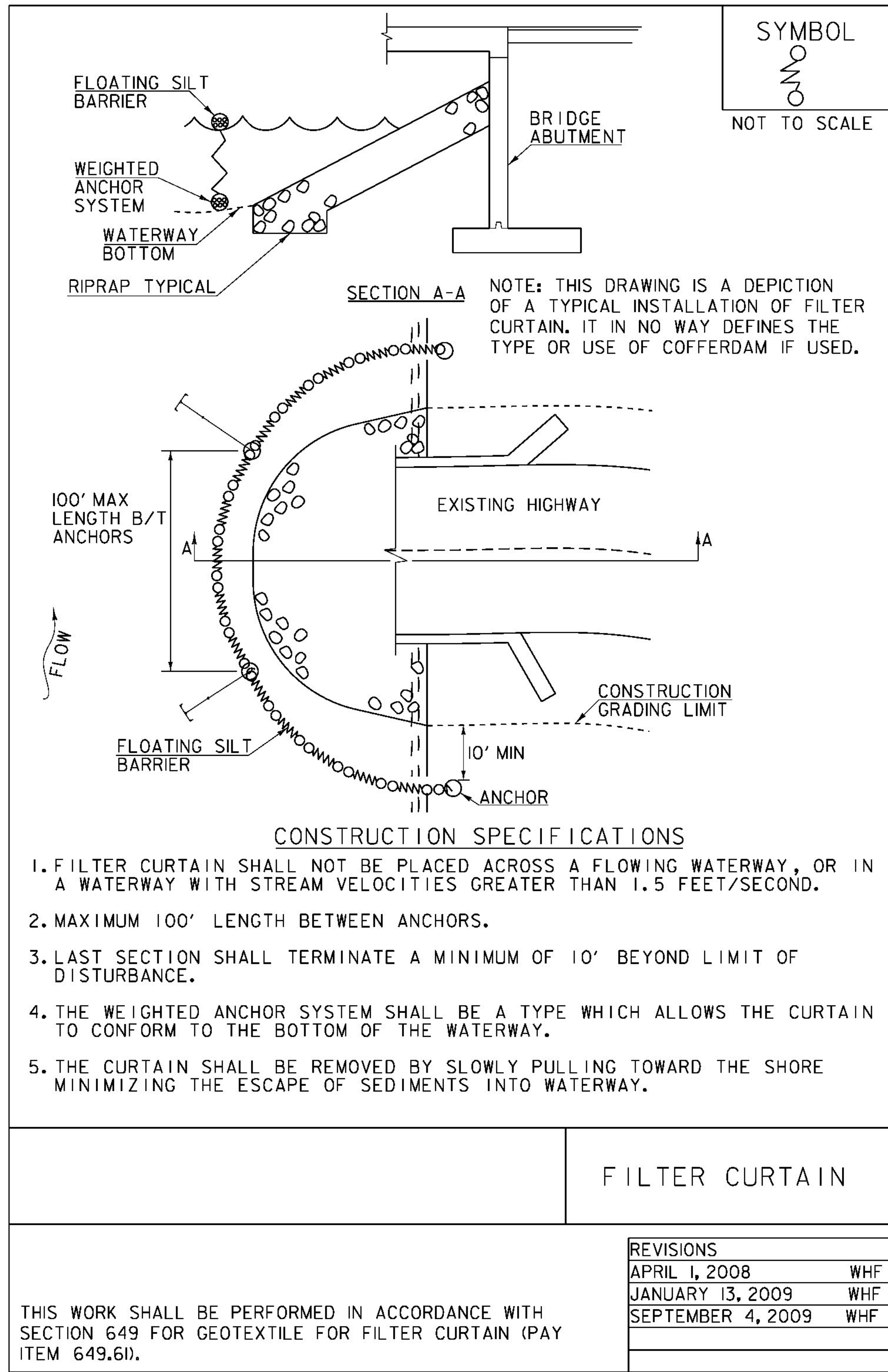
PROJECT NAME: ADDISON	
PROJECT NUMBER: STP_CULV(14)	
FILE NAME: s08b062epsc_nor.dgn	PLOT DATE: 15-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
EPSC NARRATIVE	SHEET 16 OF 28



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

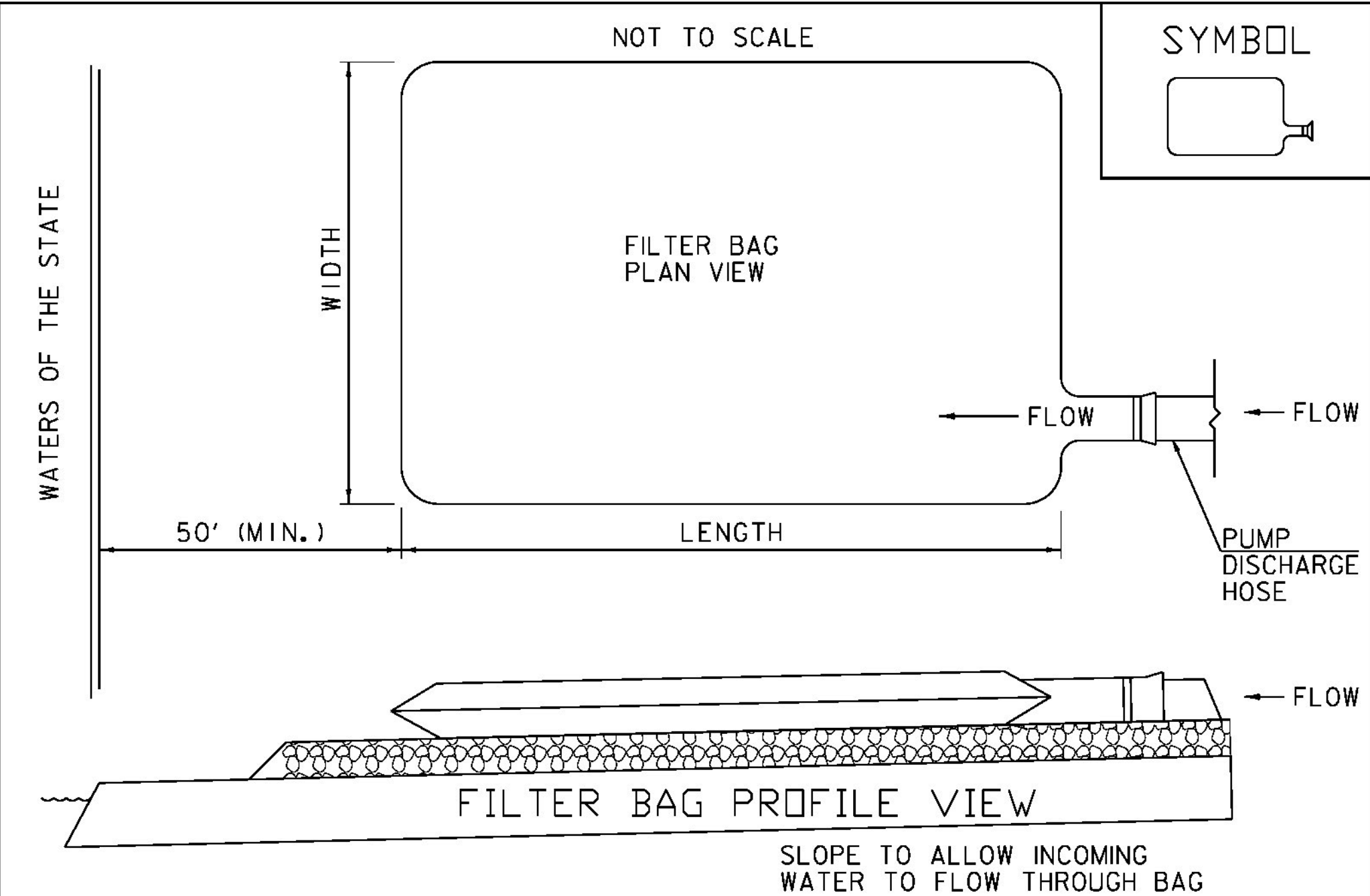
PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV(14)

FILE NAME: s08b062epsc_dur.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
EPSC SITE PLAN	SHEET 17 OF 28



EPSC LAYOUT PLAN SYMOLOGY LEGEND			
PROJECT BOUNDARY FENCE		ENVIRONMENTAL RESOURCES	
PDF — PDF	PROJECT DEMARCATION FENCE	WETLAND BOUNDARY	
BF — BF	BARRIER FENCE	RIPARIAN BUFFER ZONE	
EPSC MEASURES		SOIL TYPE BOUNDARY	
ONNOONNOONNO	FILTER CURTAIN	THREATENED & ENDANGERED SPECIES	
— — — — —	SILT FENCE	HAZ — HAZ	HAZARDOUS WASTE AREA
— — — — —	SILT FENCE WOVEN WIRE	— — — — —	AGRICULTURAL LAND
— — — — —	CHECK DAM	— — — — —	FISH & WILDLIFE HABITAT
— — — — —	DISTURBED AREAS REQUIRING RE-VEGETATION	— — — — —	FLOOD PLAIN
— — — — —	EROSION MATTING	— — — — —	STORM WATER
		— — — — —	USDA FOREST SERVICE LANDS
		— — — — —	WILDLIFE HABITAT SUIT/CONN
		UTILITY SYMOLOGY	
		— AER E&T —	AREAL ELECTRIC & TELEPHONE
		— E — — — —	AREAL ELECTRIC
		— UE — — — —	UNDERGROUND ELECTRIC
		— UT — — — —	UNDERGROUND TELEPHONE
		— UC — — — —	UNDER GROUND TV
		— G — — — —	GAS LINE
		— W — — — —	WATER LINE
		CONSTRUCTION FEATURES	
		— — — — —	TOE OF SLOPE CUT OR FILL
		— — — — —	STONE FILL, TYPE III
		— — — — —	STONE FILL, TYPE II
		— — — — —	STONE FILL, TYPE I

PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(14)	
FILE NAME: s08b062	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
EPSC DETAILS I	SHEET 18 OF 28



APPLICATION NOTES:

THE PRIMARY PURPOSE OF THE FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS WHILE ALLOWING WATER TO PASS THROUGH THE BAG.

GENERAL NOTES:

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

FILTER BAG

THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.45 FILTER BAG

REVISIONS		
SEPTEMBER 18, 2007	WHF	
DECEMBER 13, 2007	WHF	

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

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

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

CONSTRUCTION GUIDANCE

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

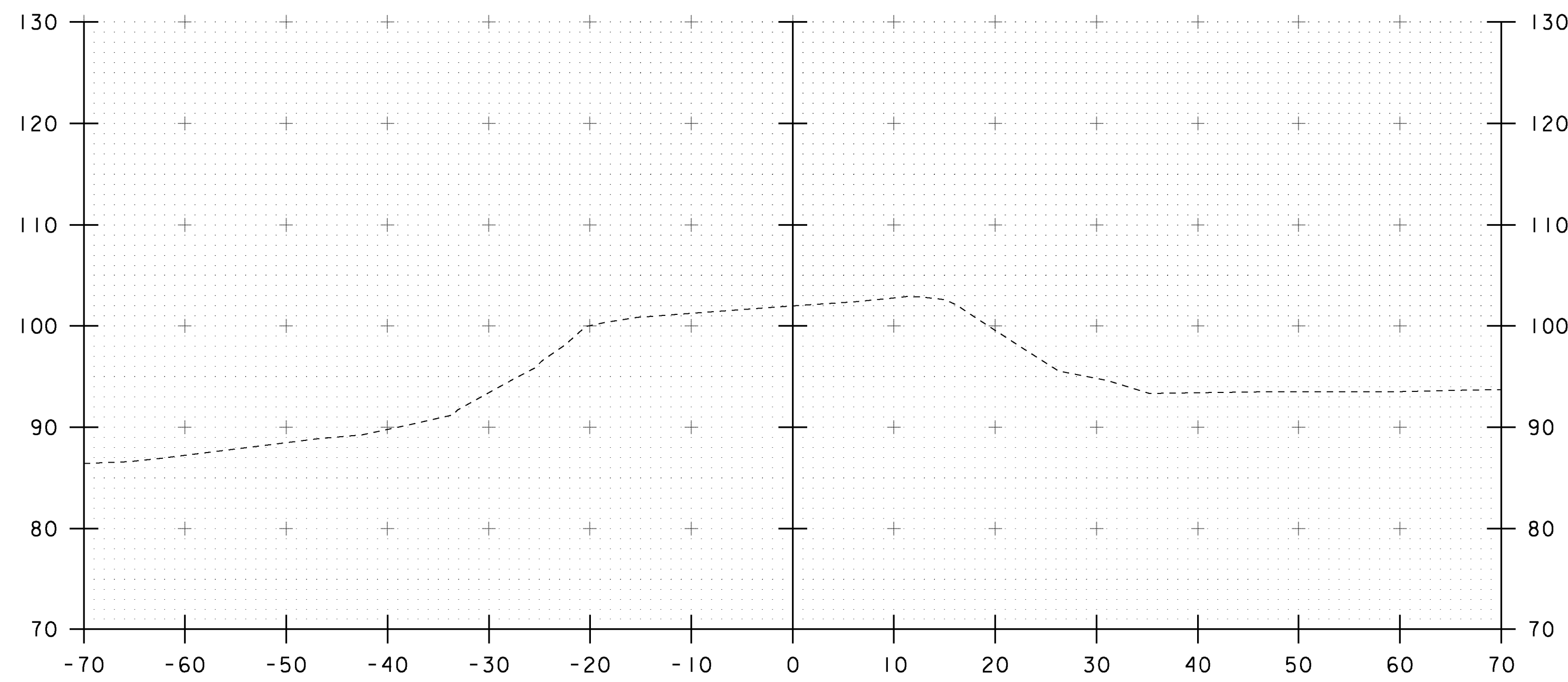
ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

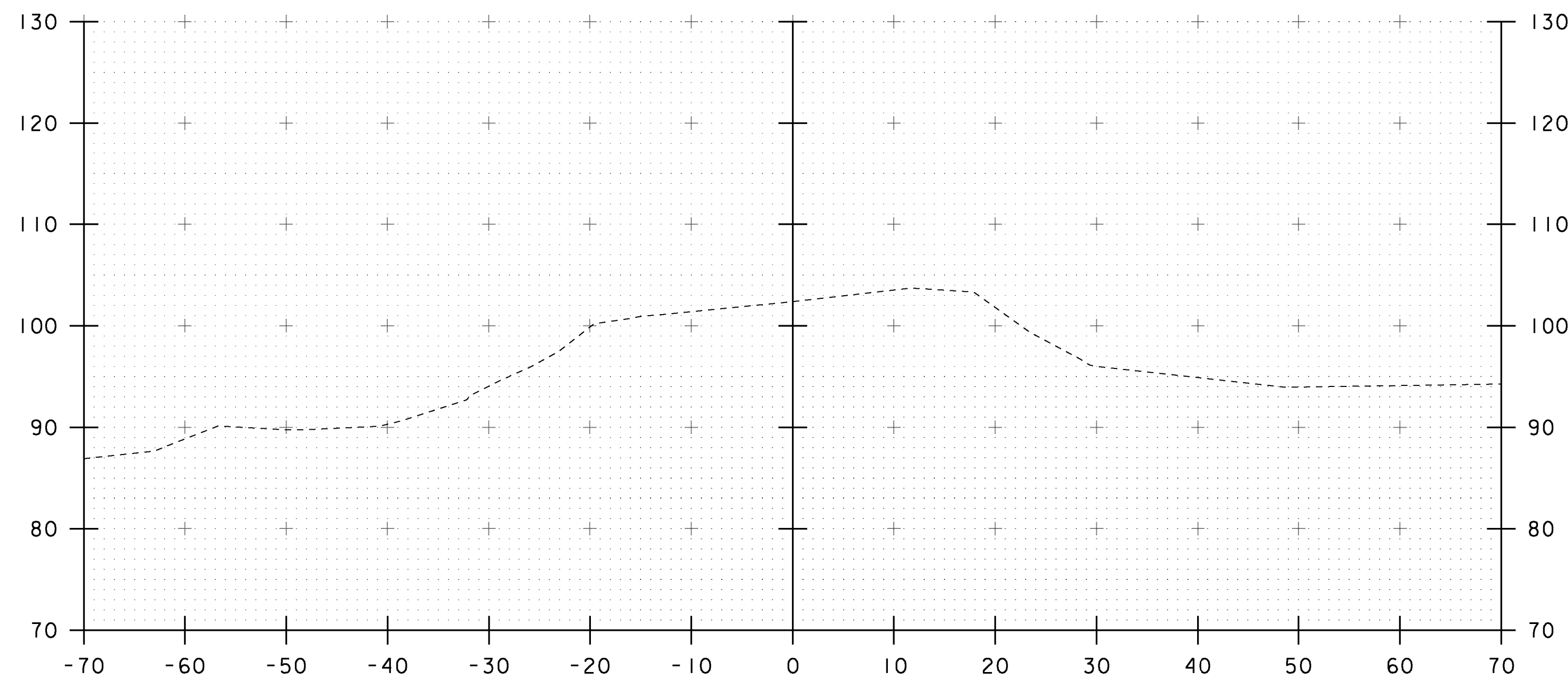
REVISIONS		
JUNE 23, 2009	WHF	
JANUARY 15, 2010	WHF	
FEBRUARY 16, 2011	WHF	

PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV(14)

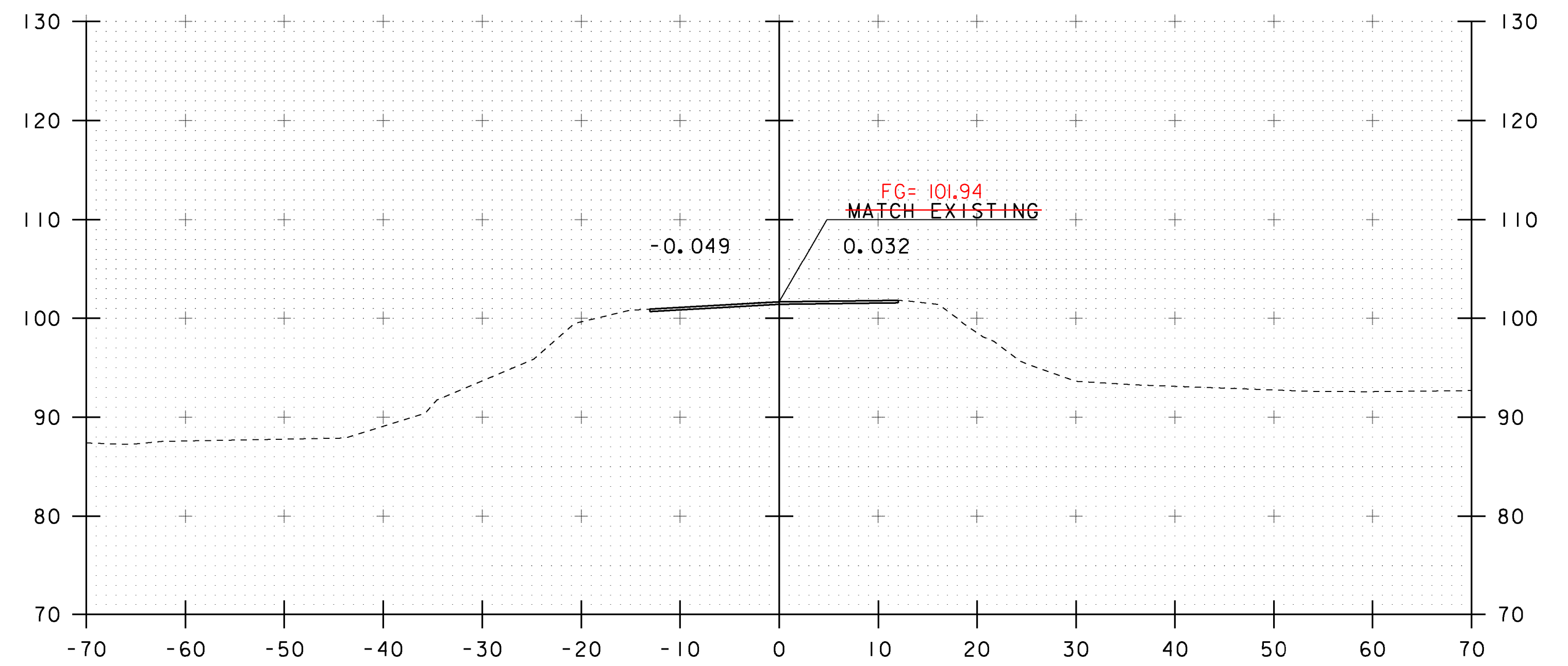
FILE NAME: s08b062	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
EPSC DETAILS 2	SHEET 19 OF 28



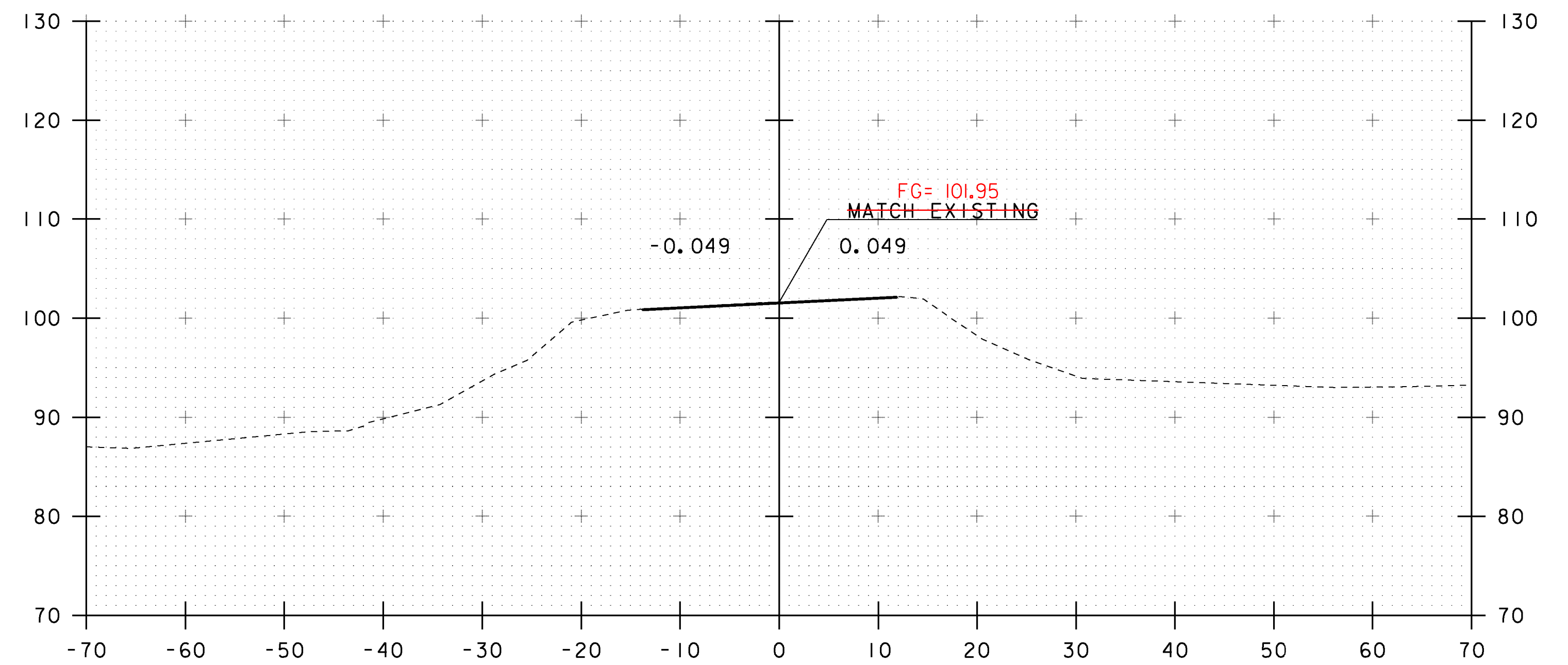
37+25



37+00



37+75

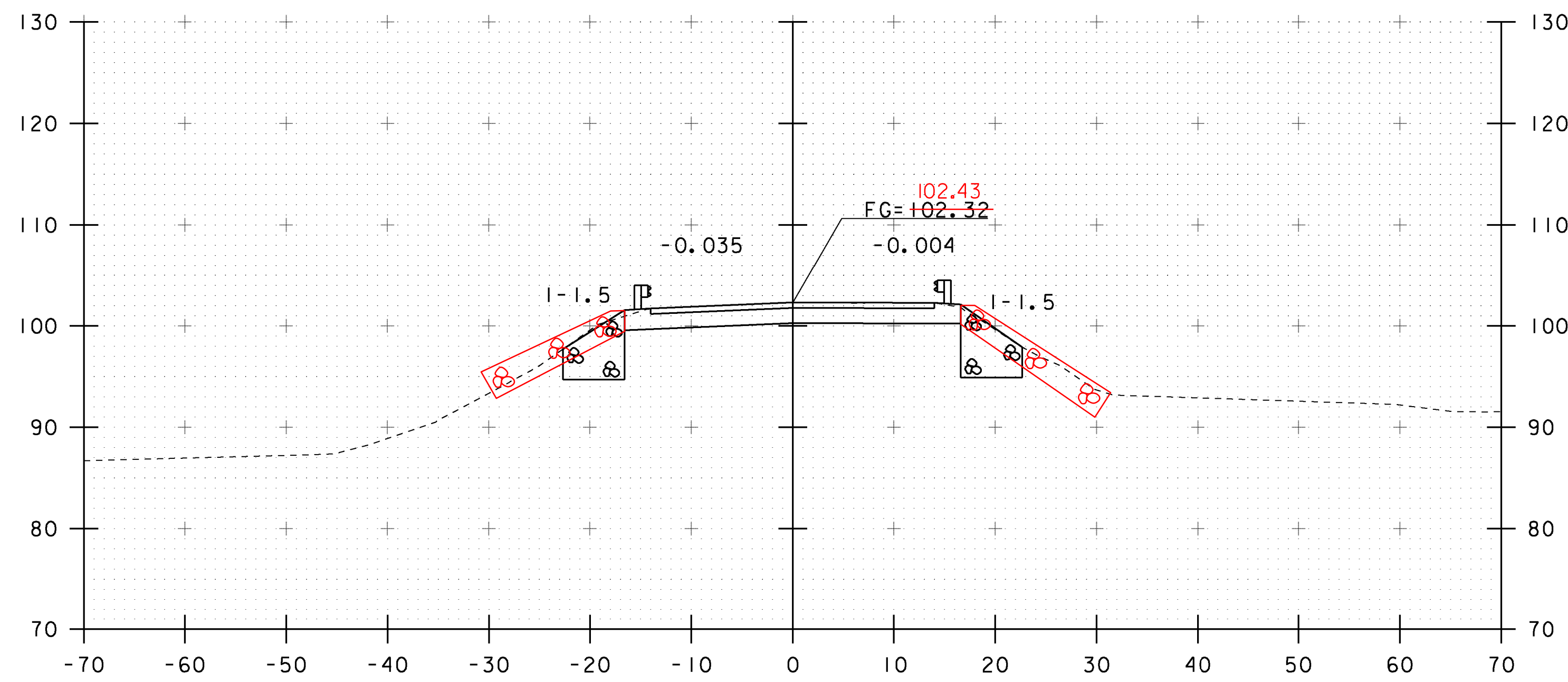


BEGIN APPROACH

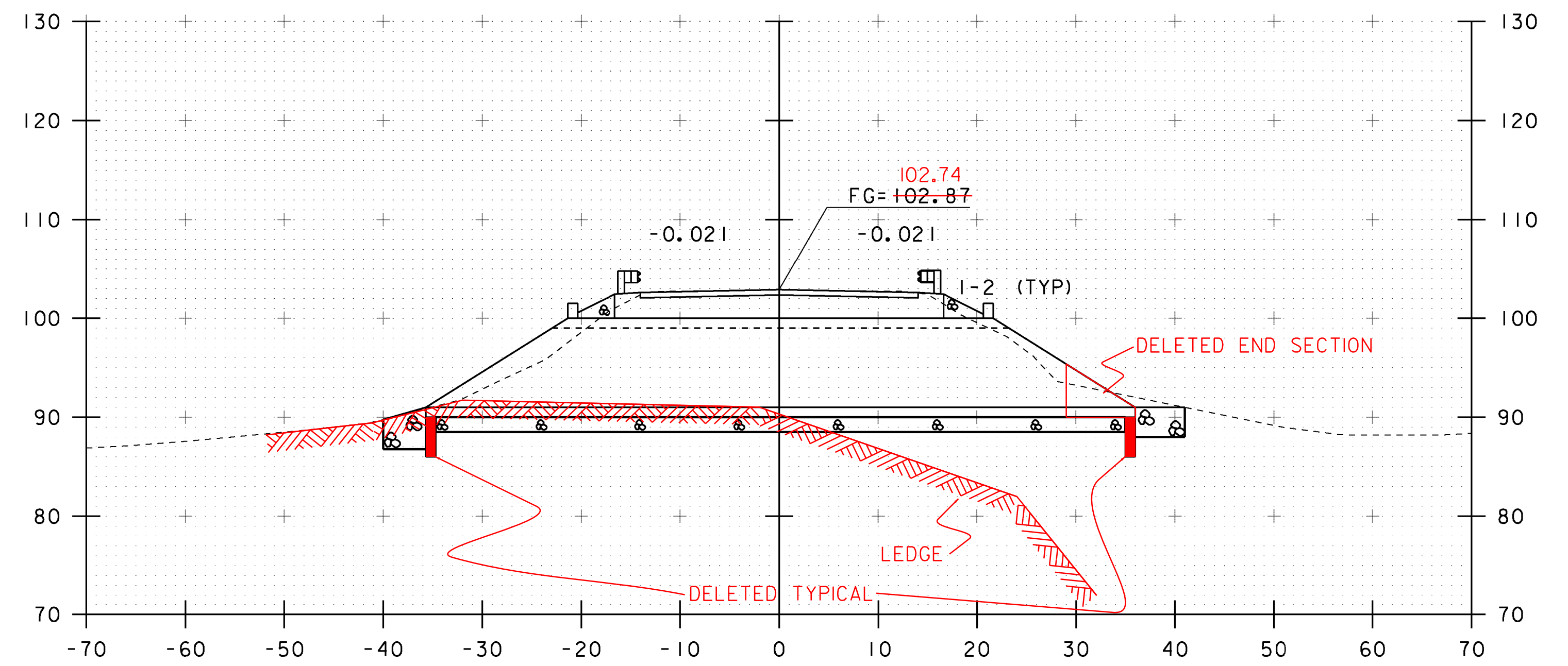
37+50

STA. 37+00 TO STA. 37+75

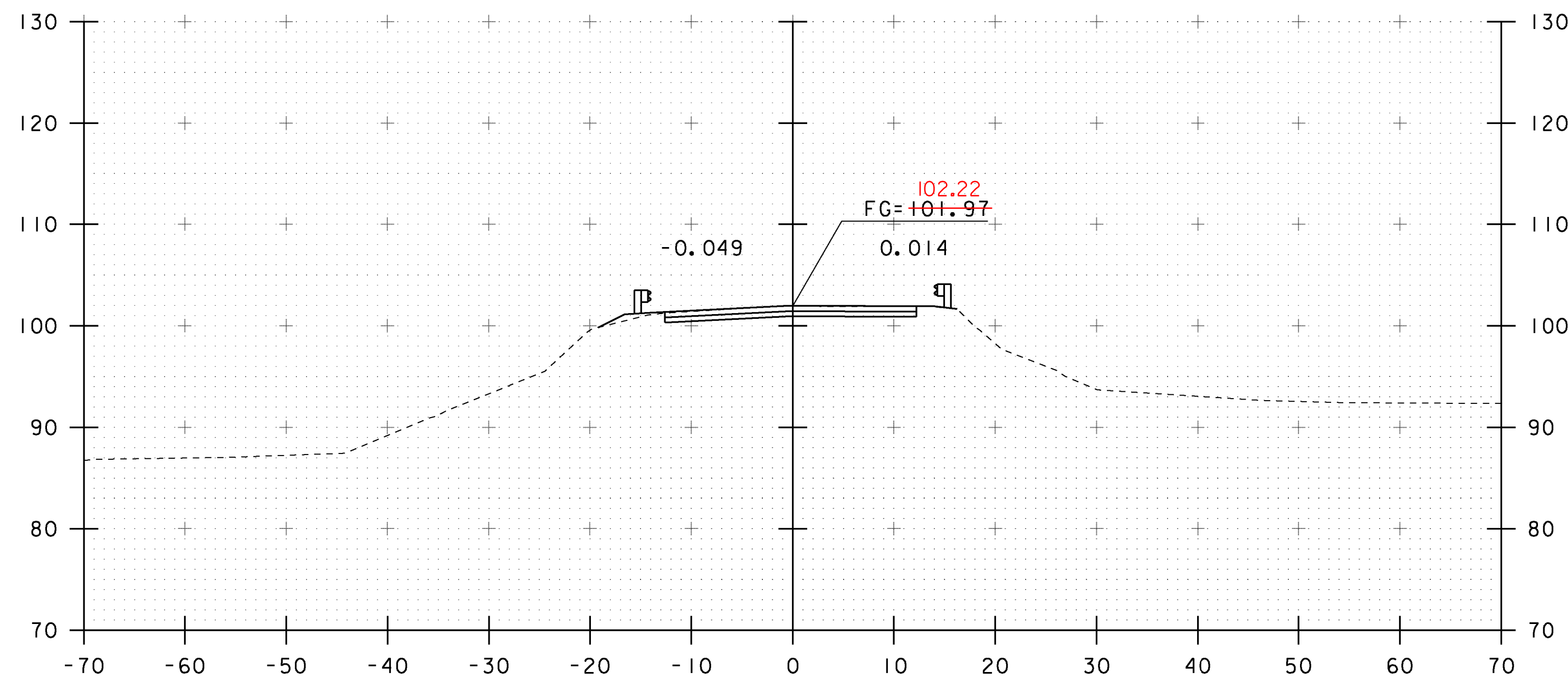
PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(I4)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
MAINLINE SECTIONS - I	SHEET 20 OF 28



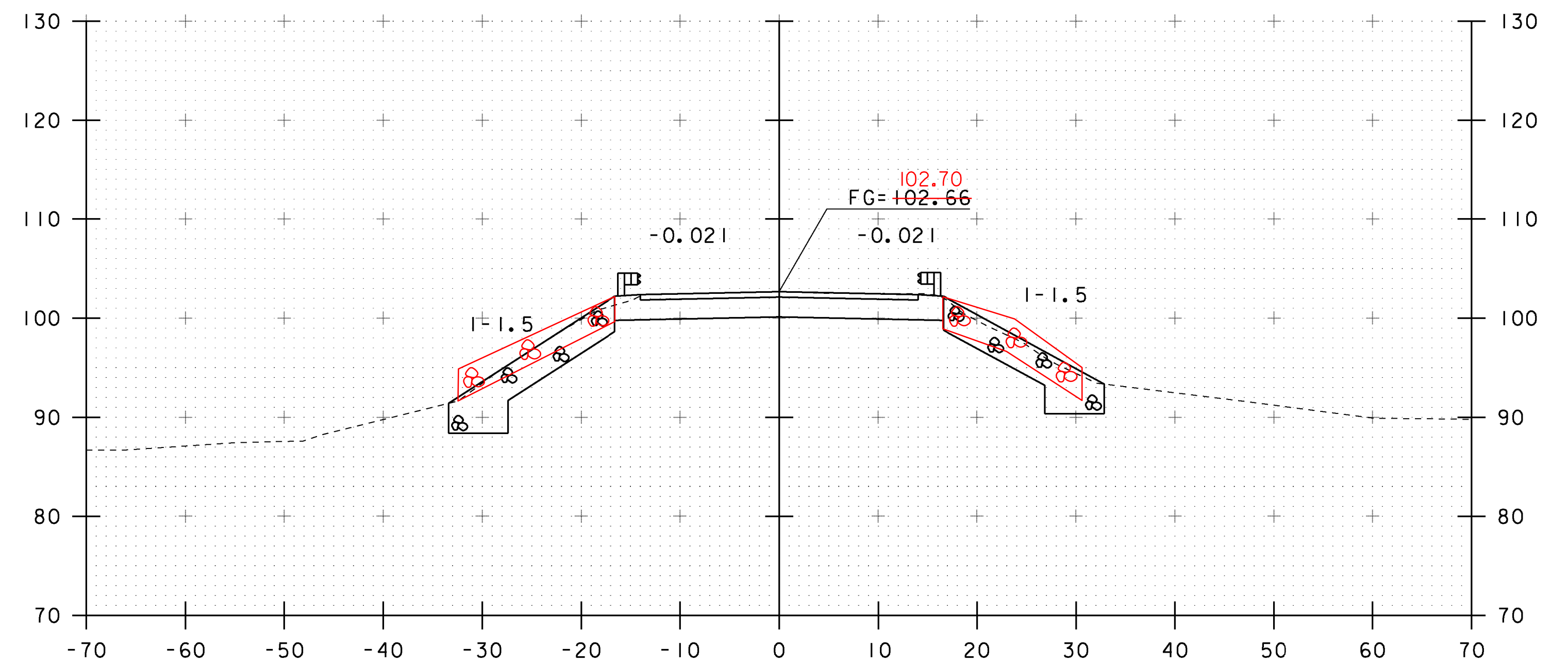
38+25



CL BOX CULVERT
38+65



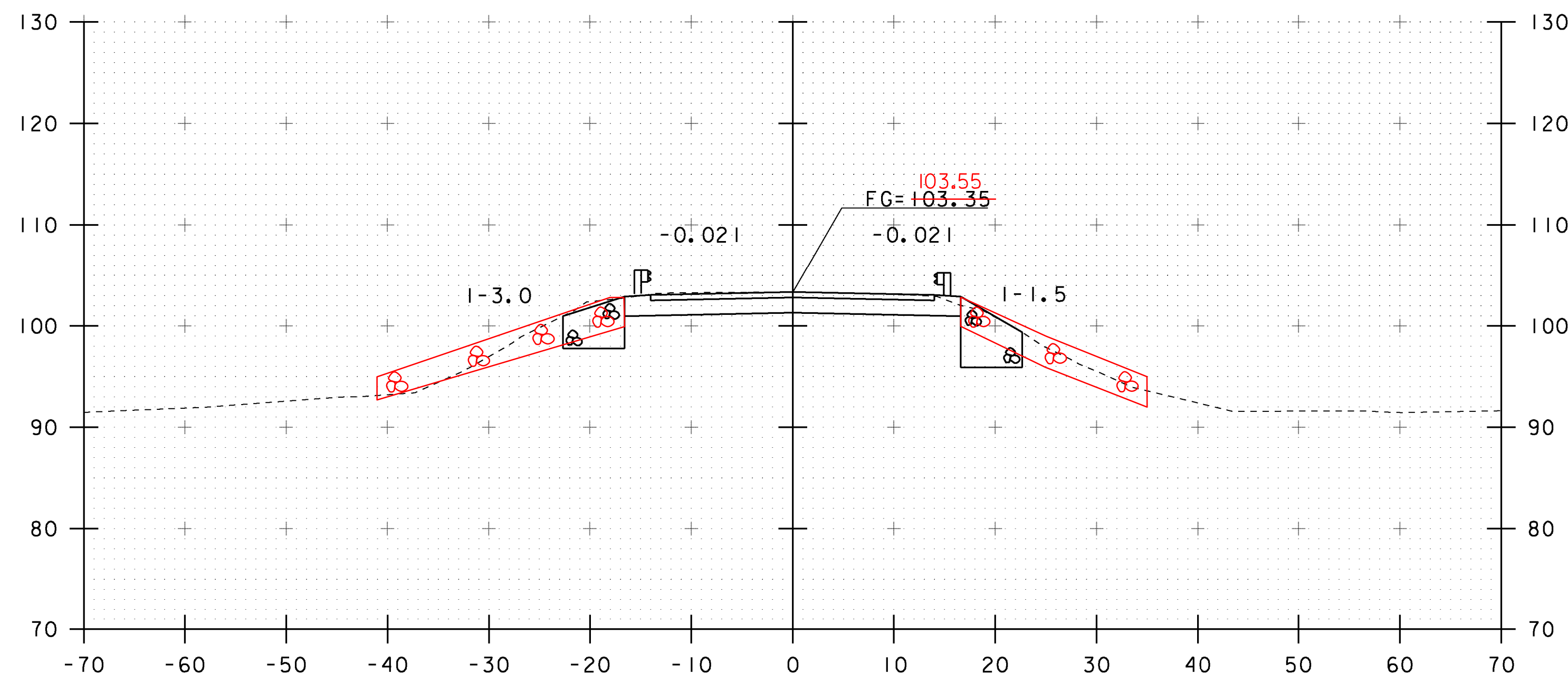
BEGIN PROJECT
38+00



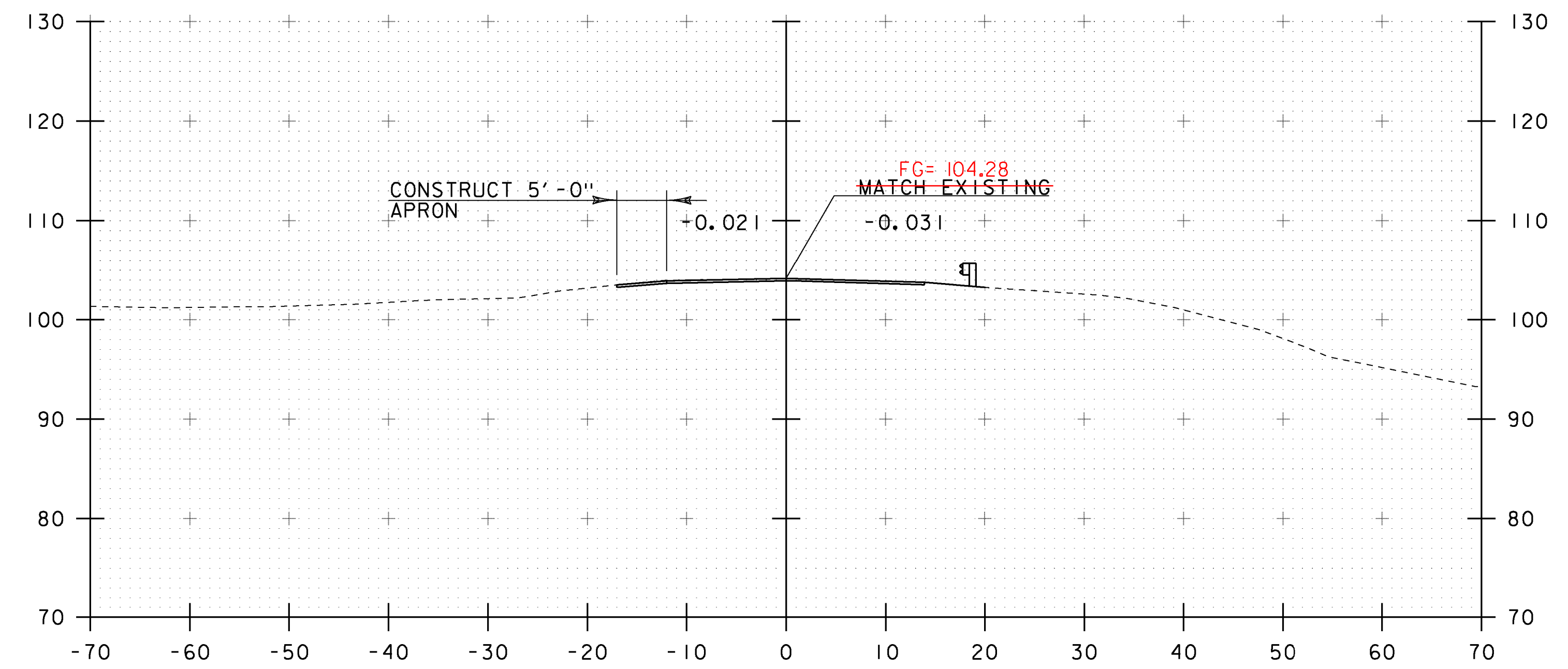
38+50

STA. 38+00 TO STA. 38+65

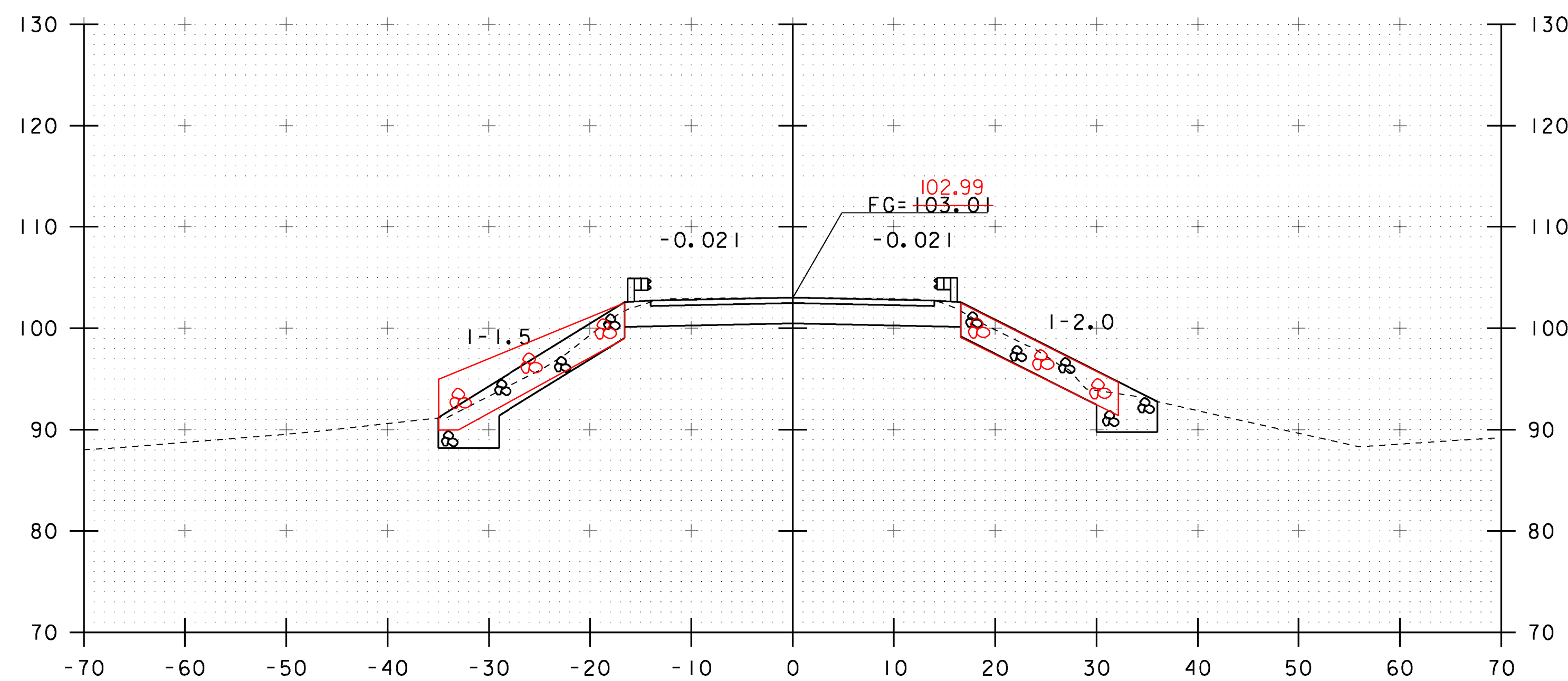
PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(I4)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
MAINLINE SECTIONS - 2	SHEET 21 OF 28



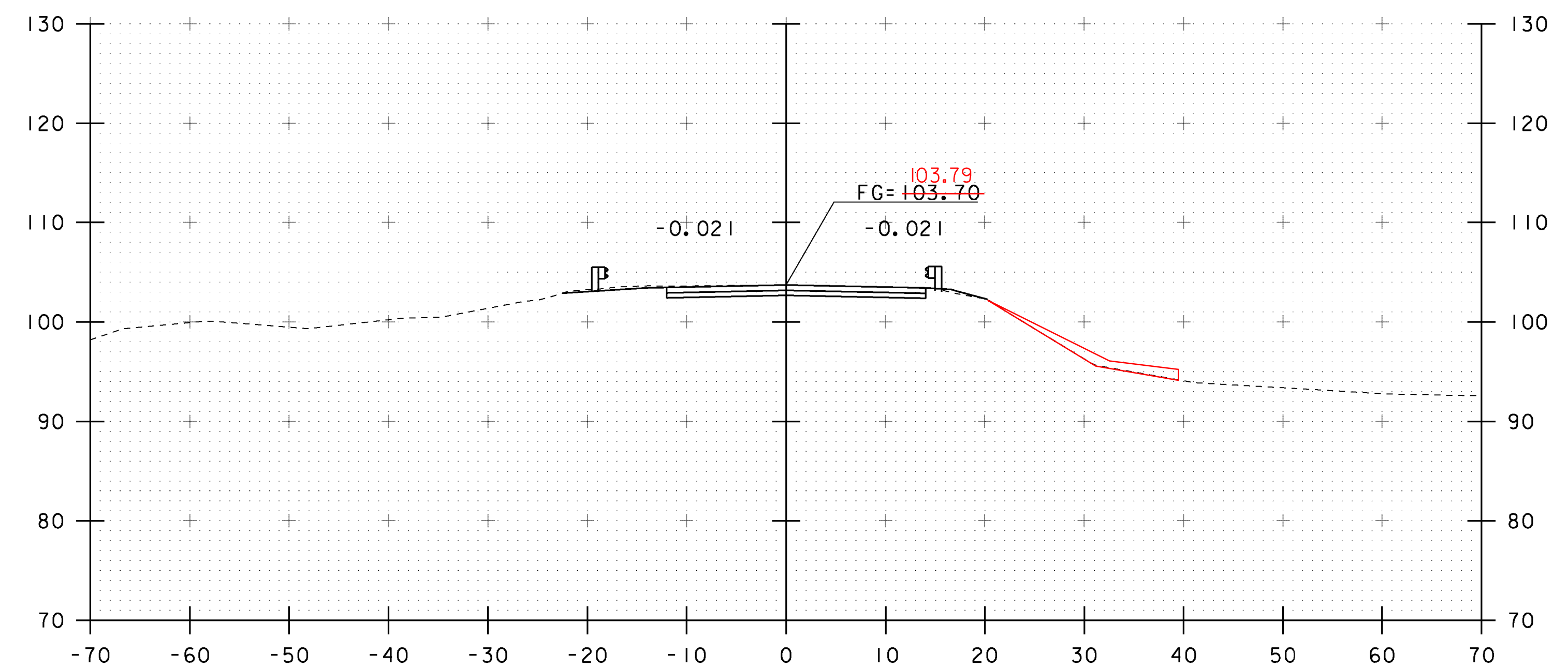
39+00



39+50



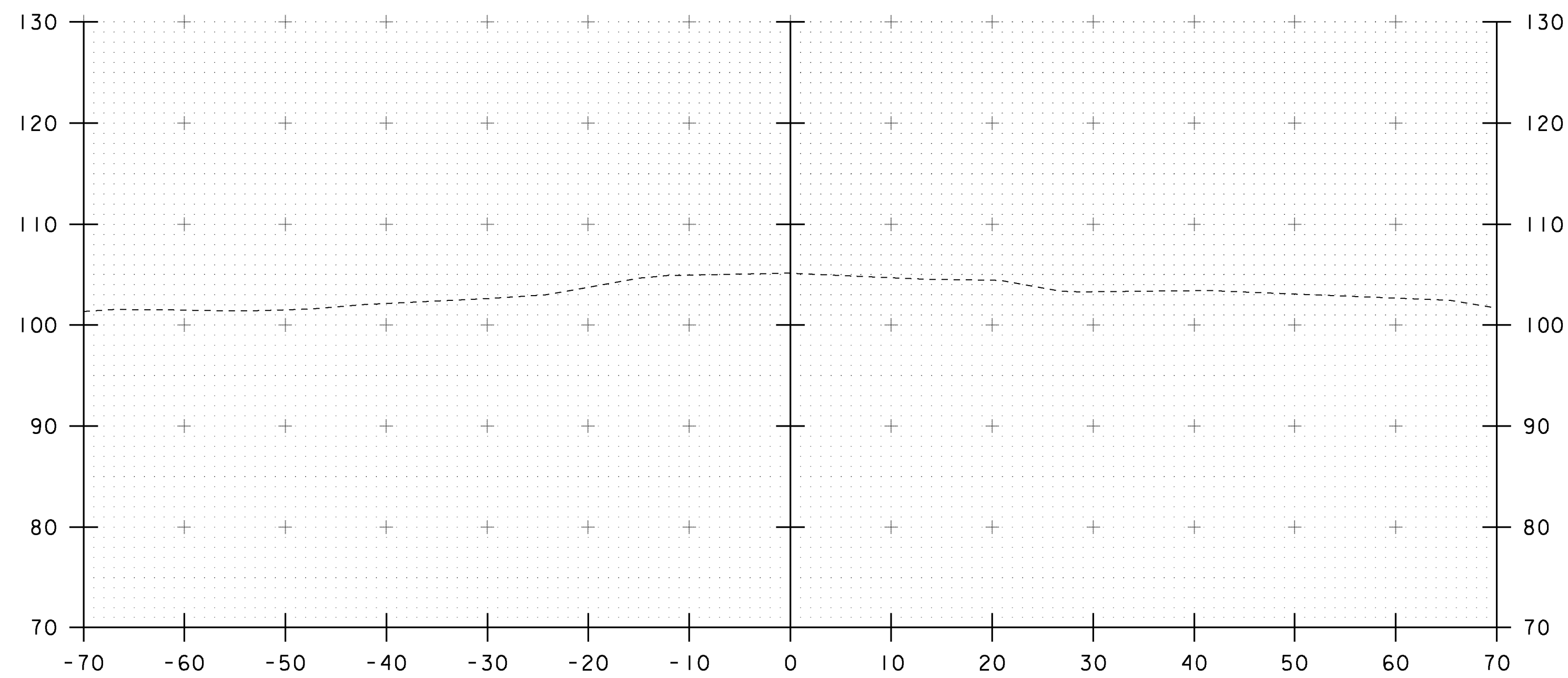
38+75



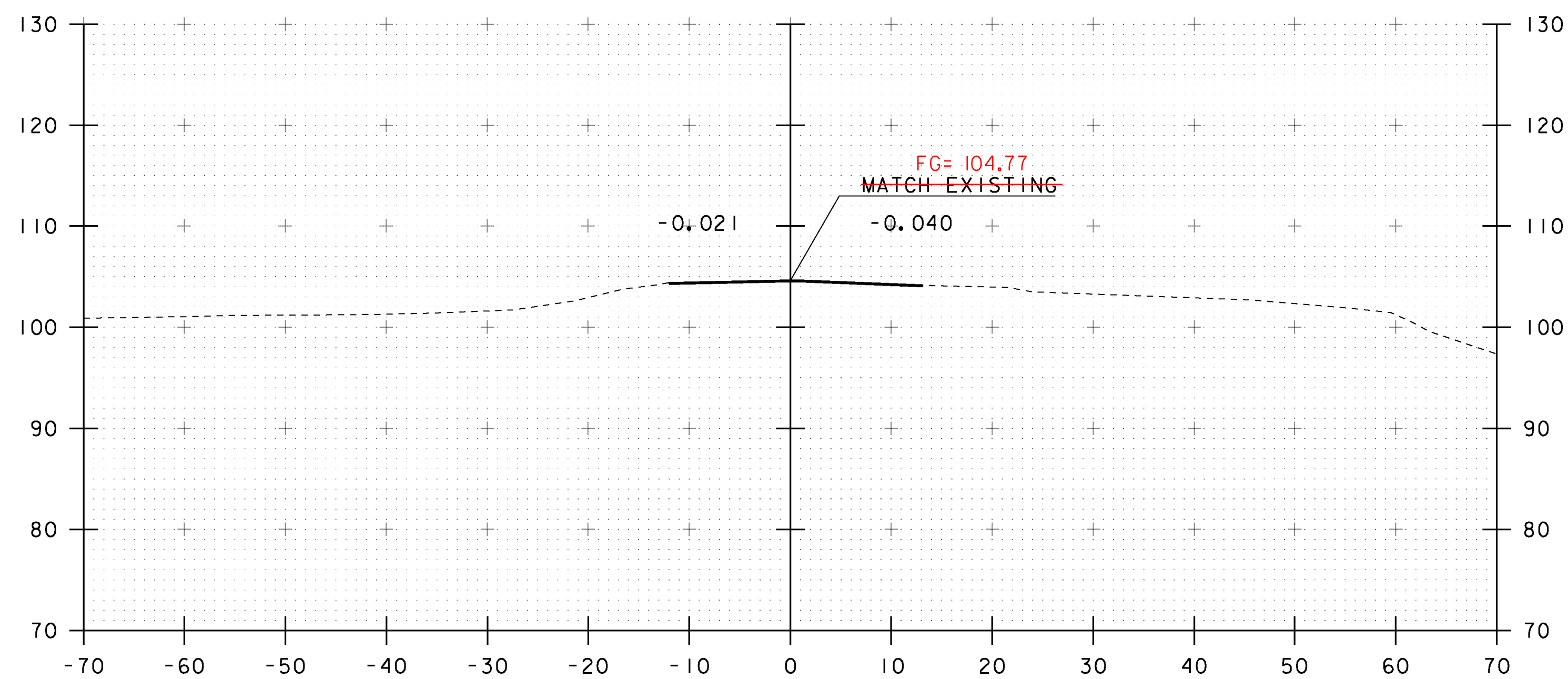
END PROJECT
39+25

STA. 38+75 TO STA. 39+50

PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(I4)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
MAINLINE SECTIONS - 3	SHEET 22 OF 28



40+00



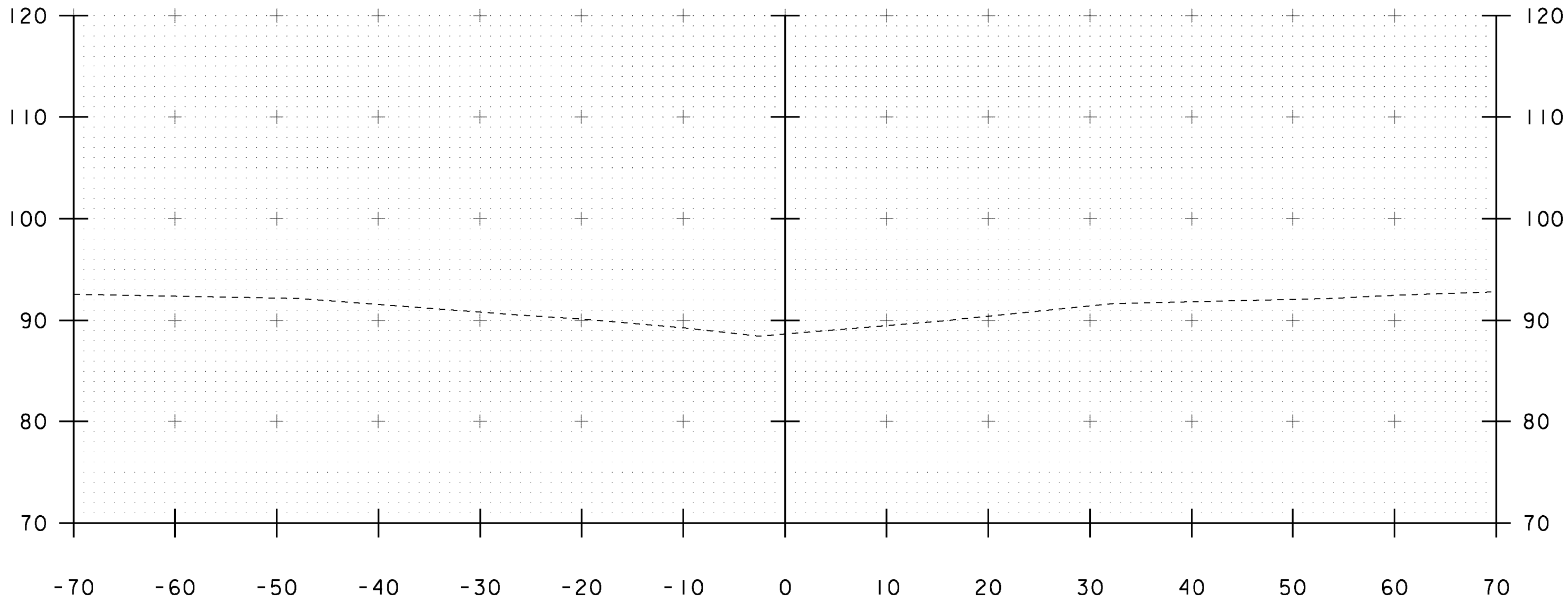
END APPROACH

39+75

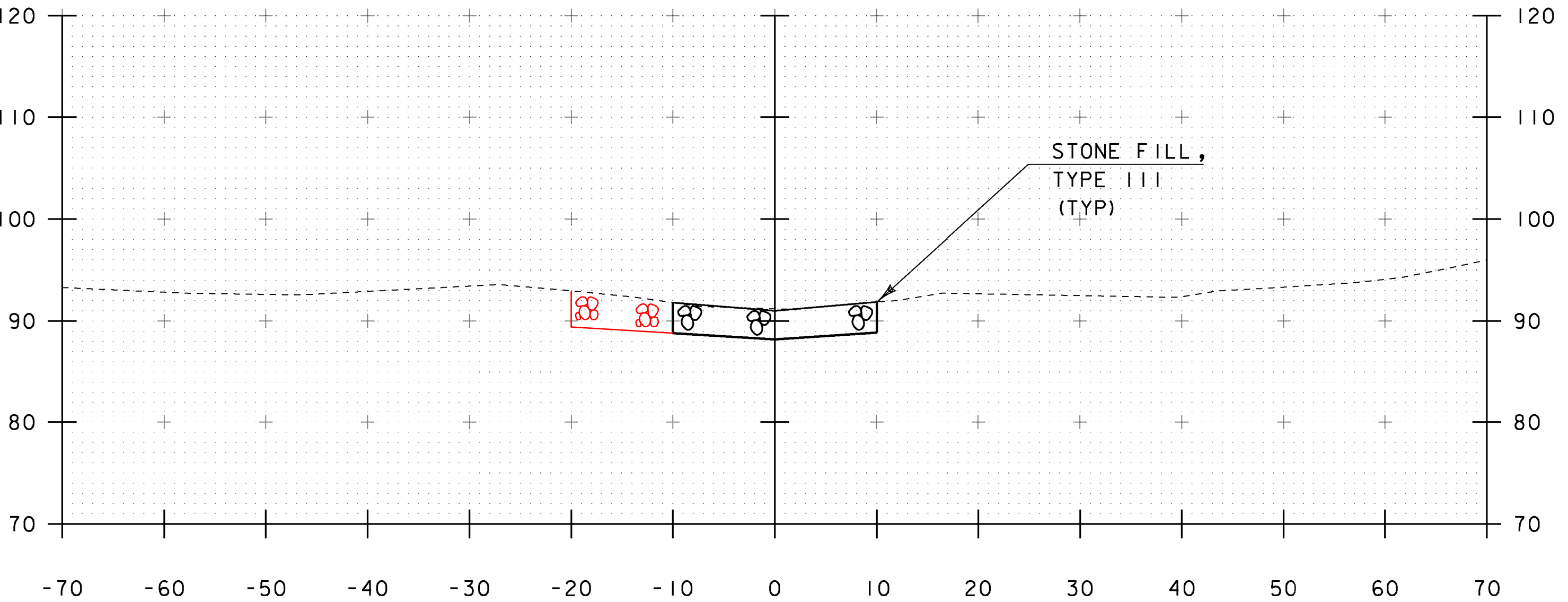
STA. 39+75 TO STA. 40+00

PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(I4)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
MAINLINE SECTIONS - 4	SHEET 23 OF 28

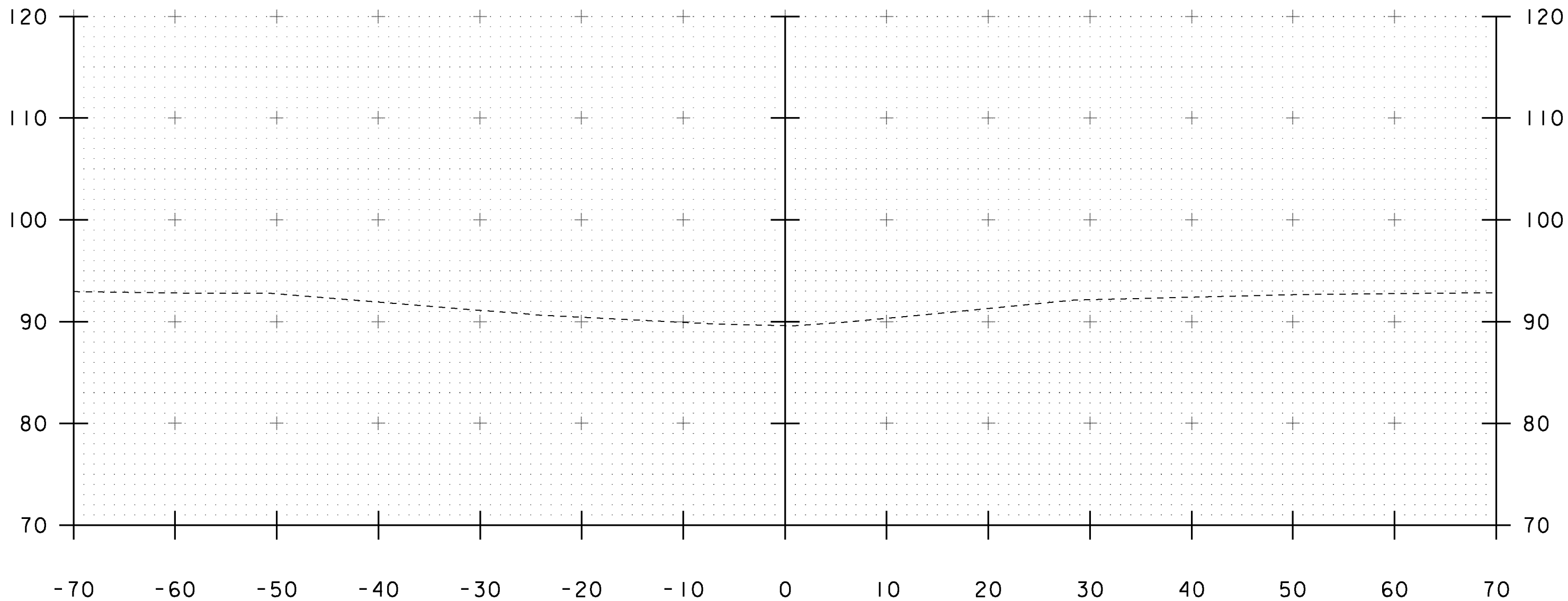
STA 10+60.00
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III



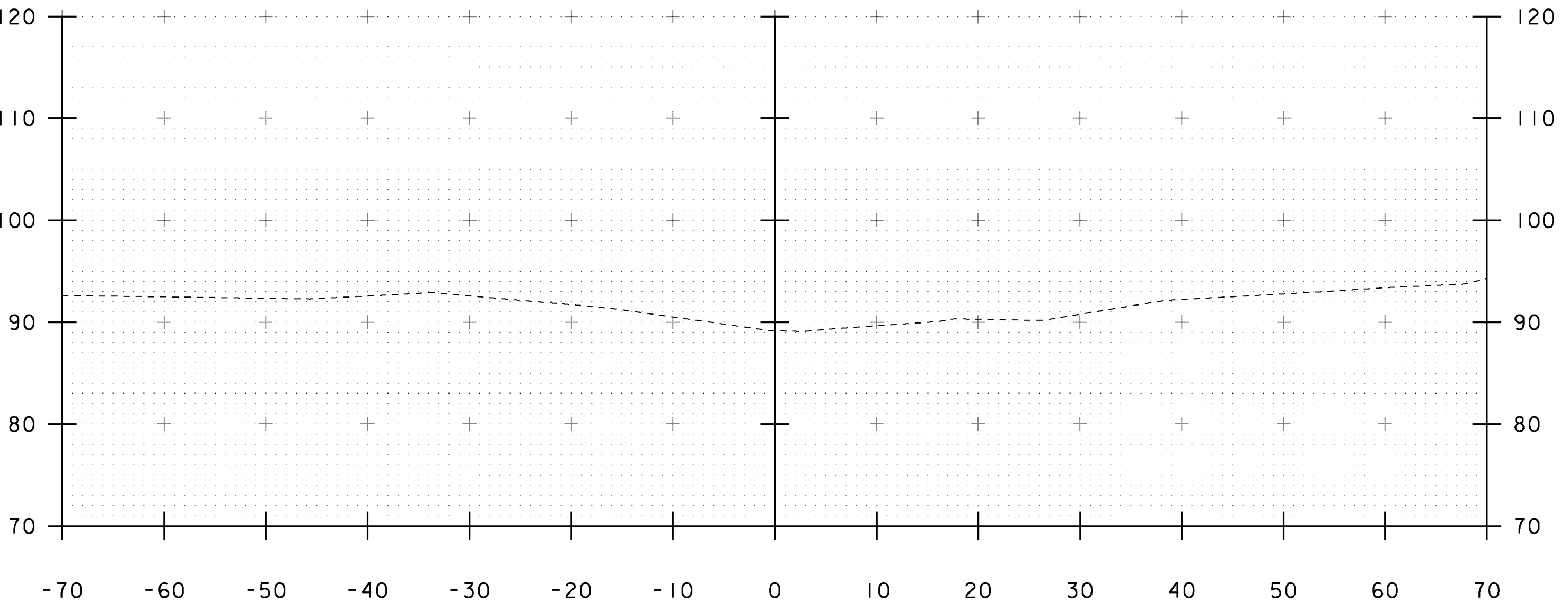
10+25



10+60



10+00

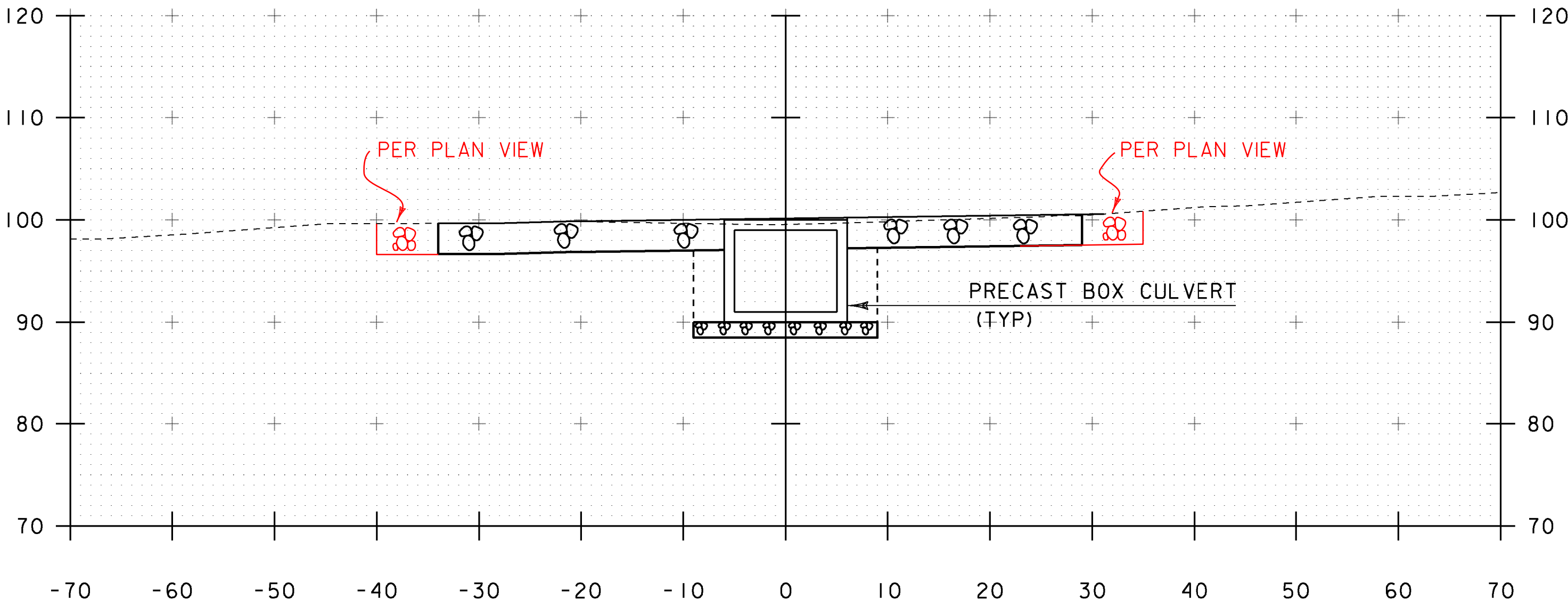


10+50

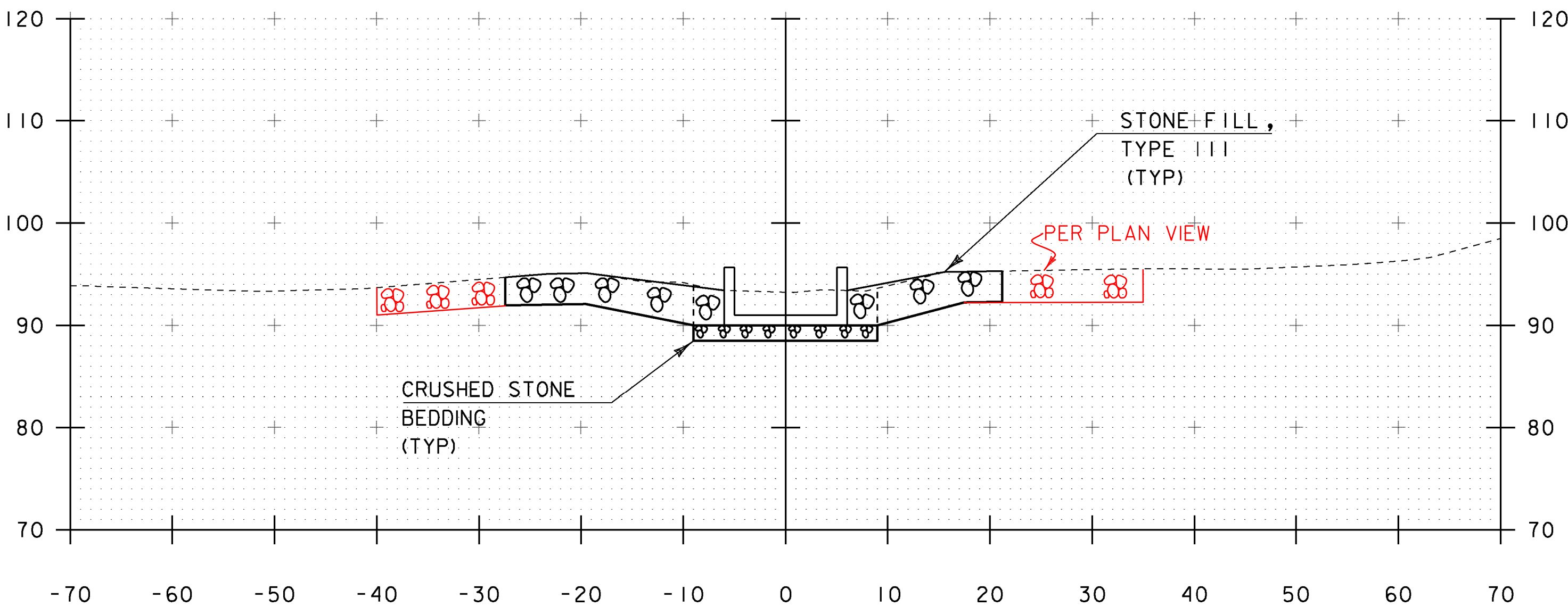
PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(14)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
CHANNEL SECTIONS - I	SHEET 24 OF 28

STA. 10+00 TO STA. 10+60

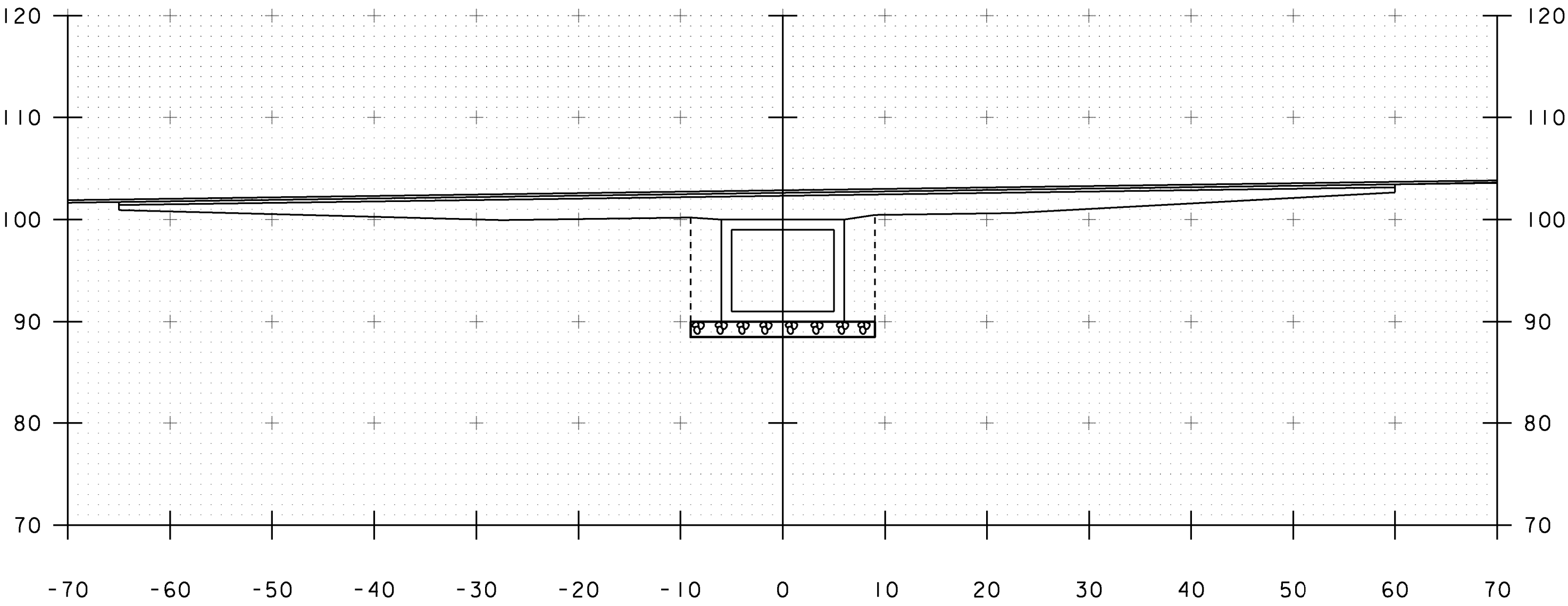
STA 10+83.40
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III



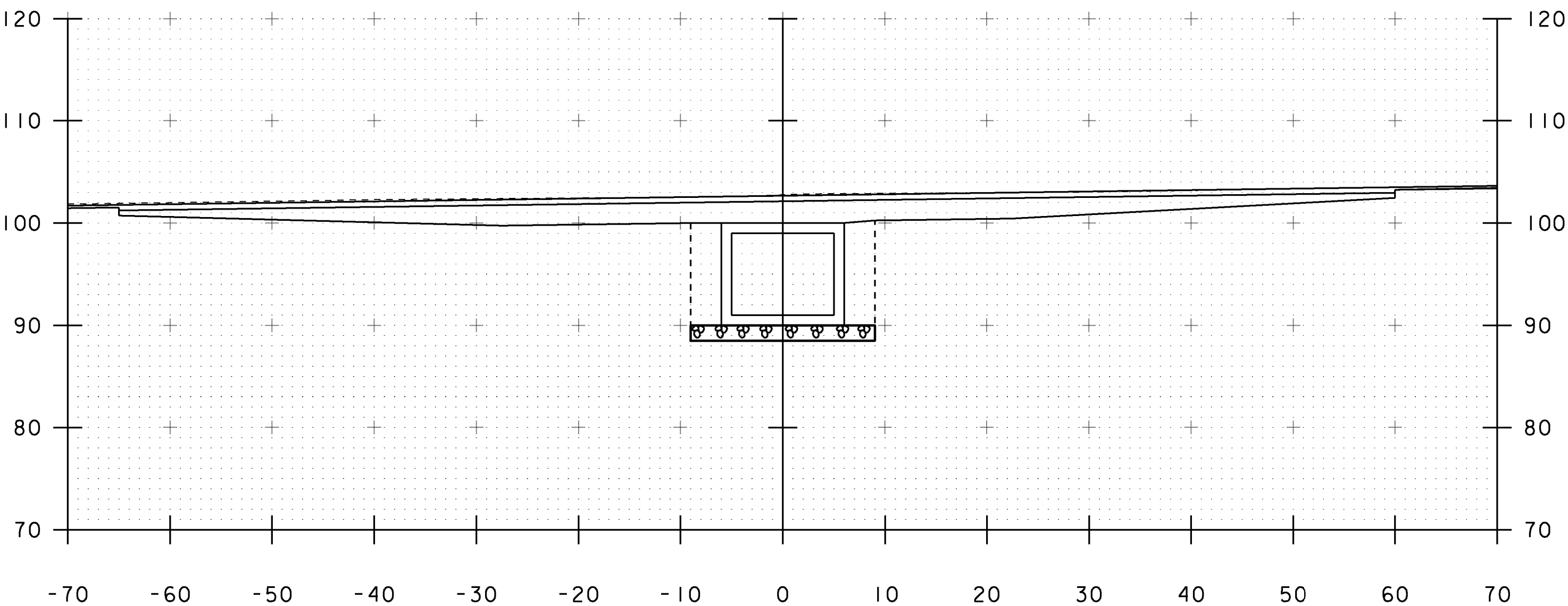
10+80



10+70



11+00



10+90

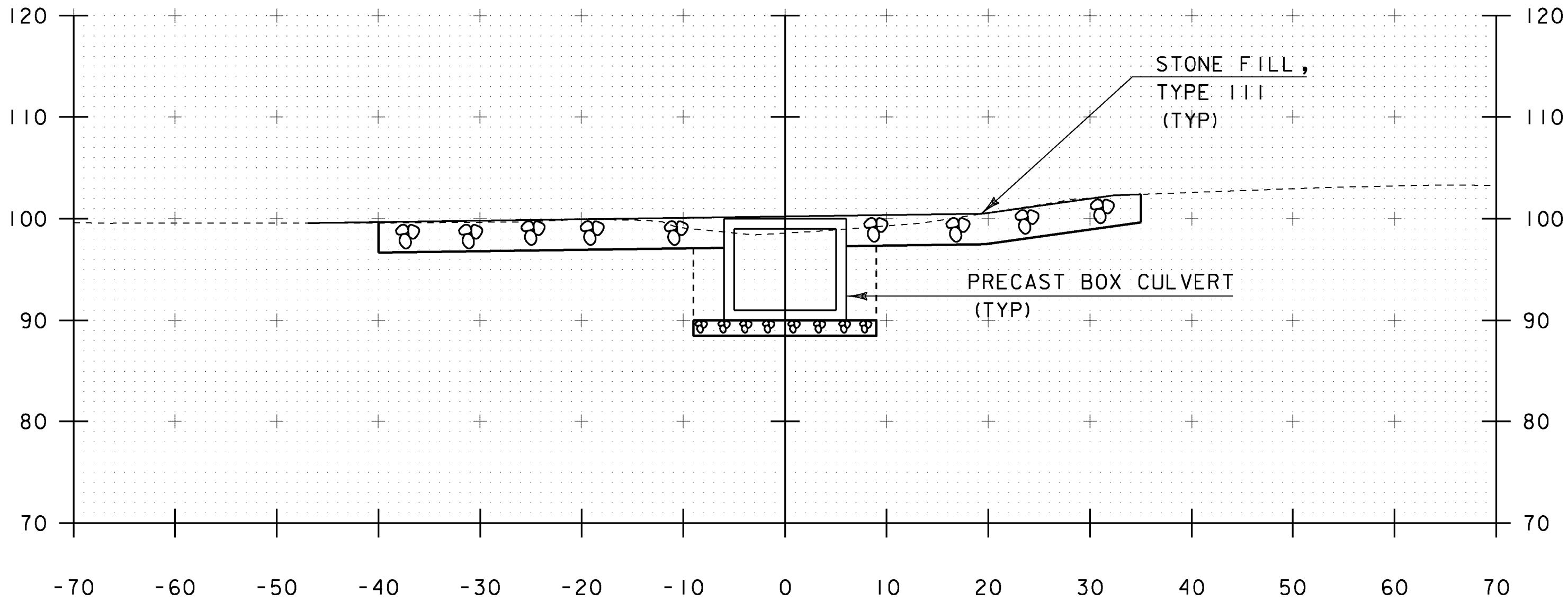
STA. 10+70 TO STA. 11+00

PROJECT NAME: ADDISON
PROJECT NUMBER: STP CULV(I4)

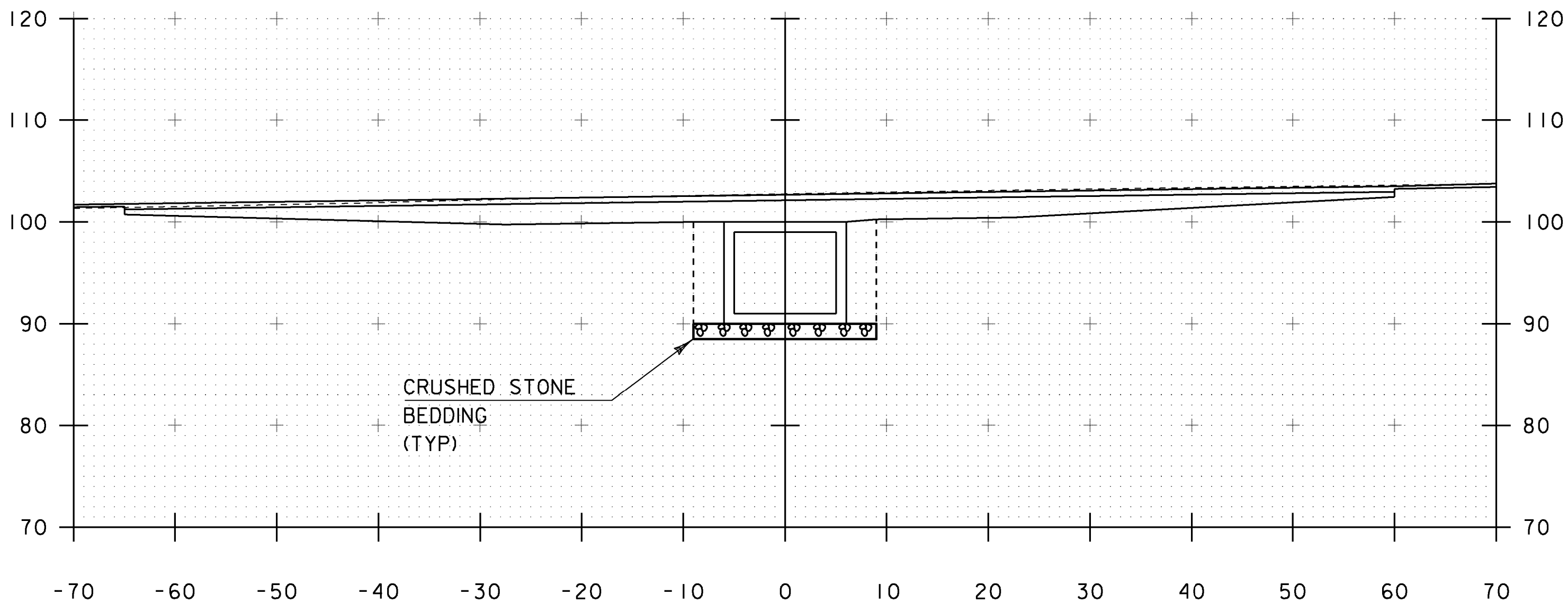
FILE NAME: s08b062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
CHANNEL SECTIONS - 2

PLOT DATE: 09-MAR-2013
DRAWN BY: J. GRIGAS
CHECKED BY: J. SALVATORI
SHEET 25 OF 28

STA 11+16.70
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III

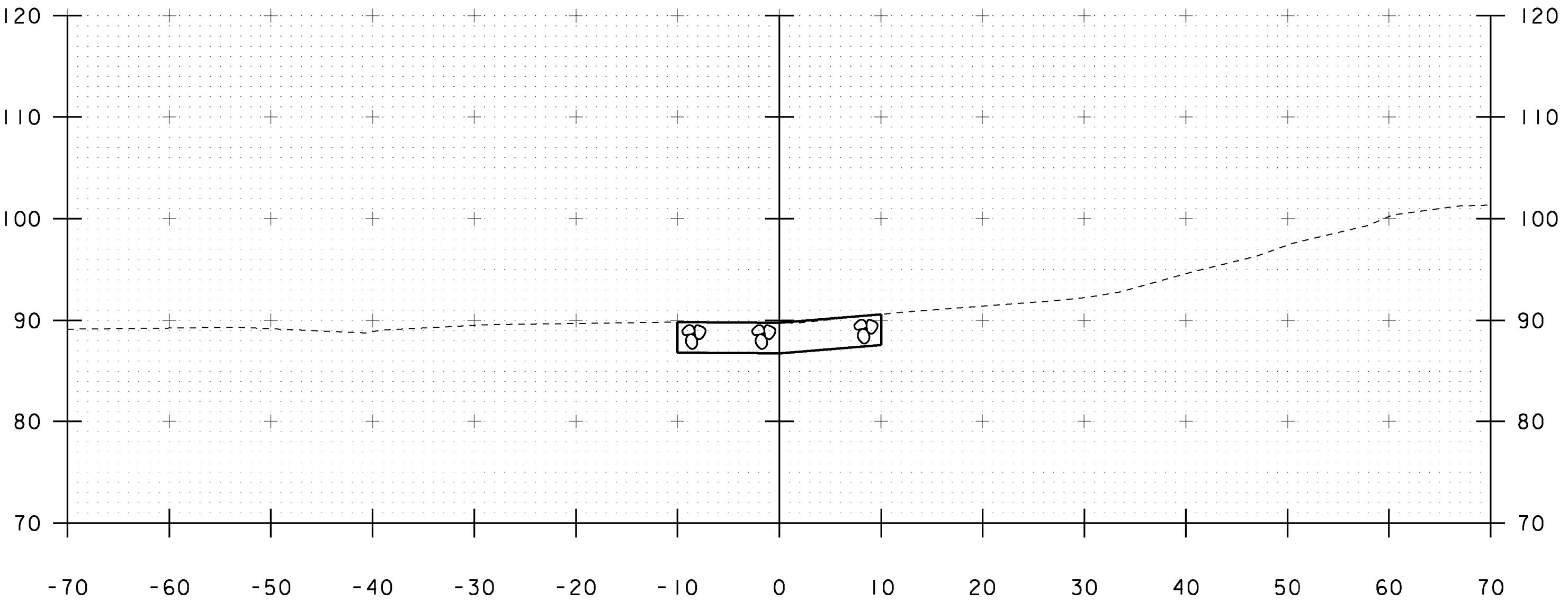


11+20

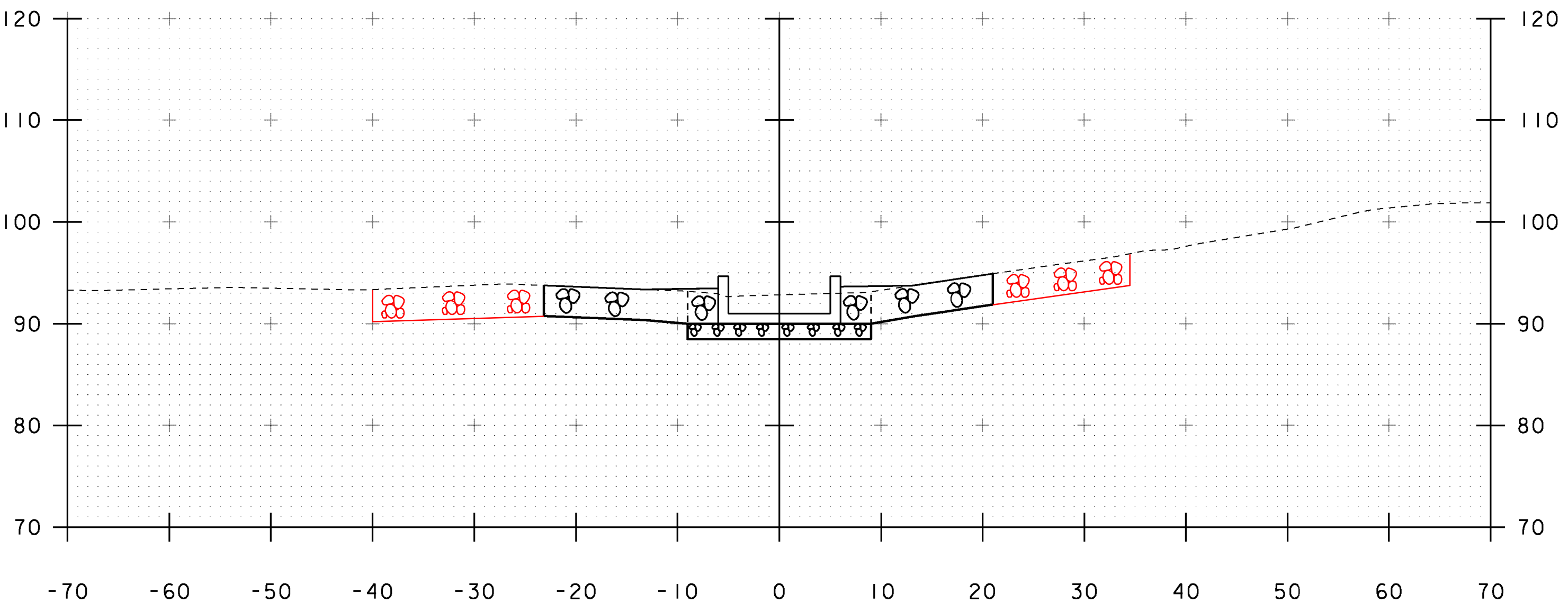


11+10

STA 11+40.00
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III



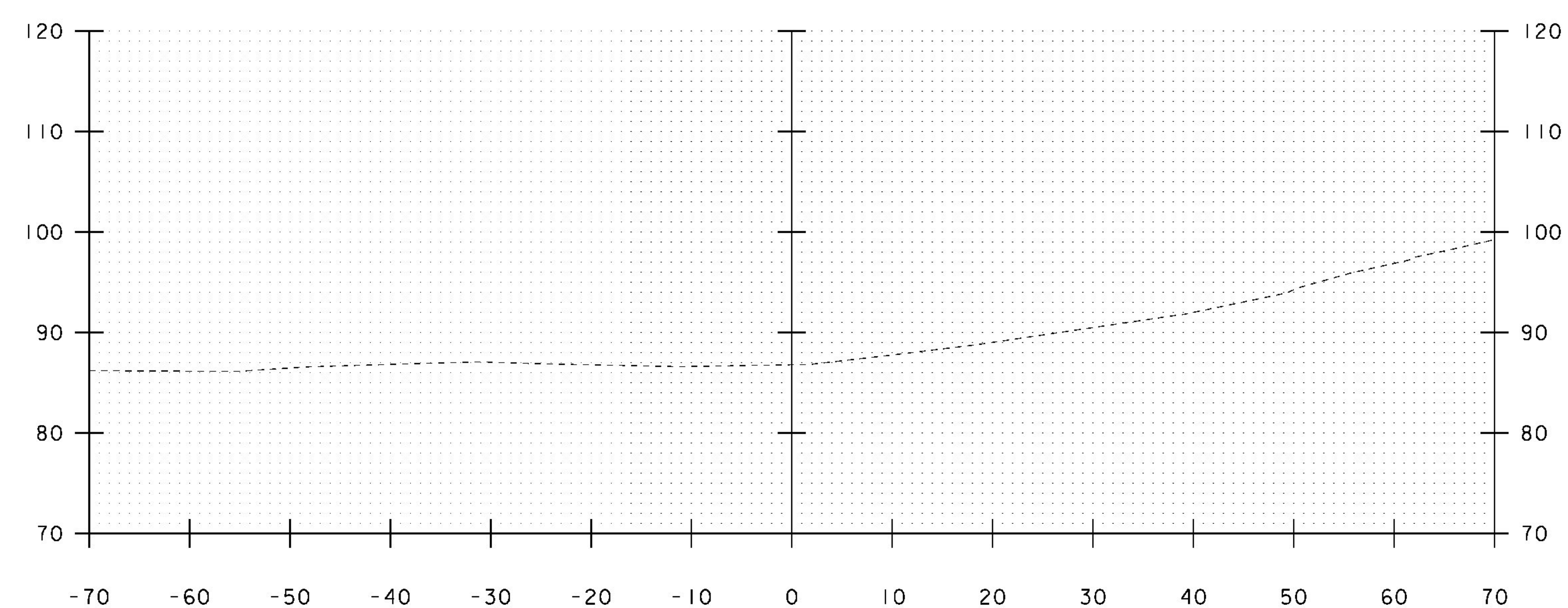
11+40



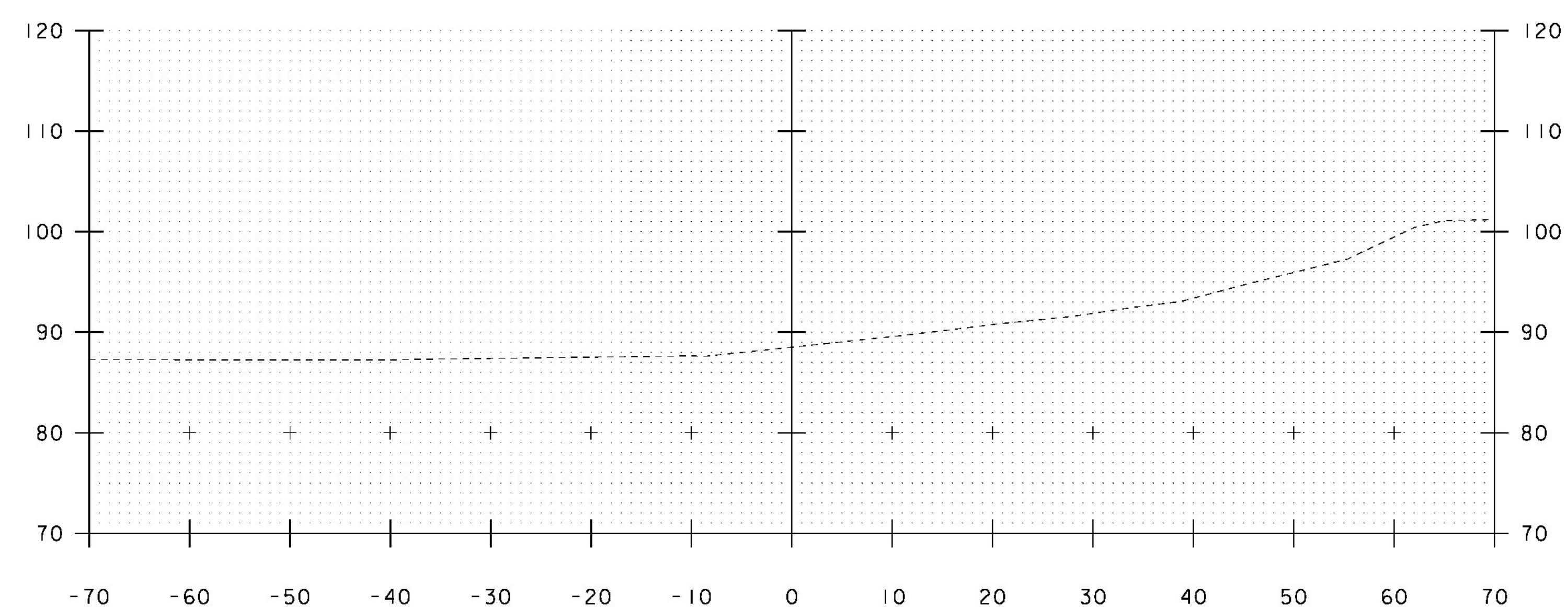
11+30

PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(14)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
CHANNEL SECTIONS - 3	SHEET 26 OF 28

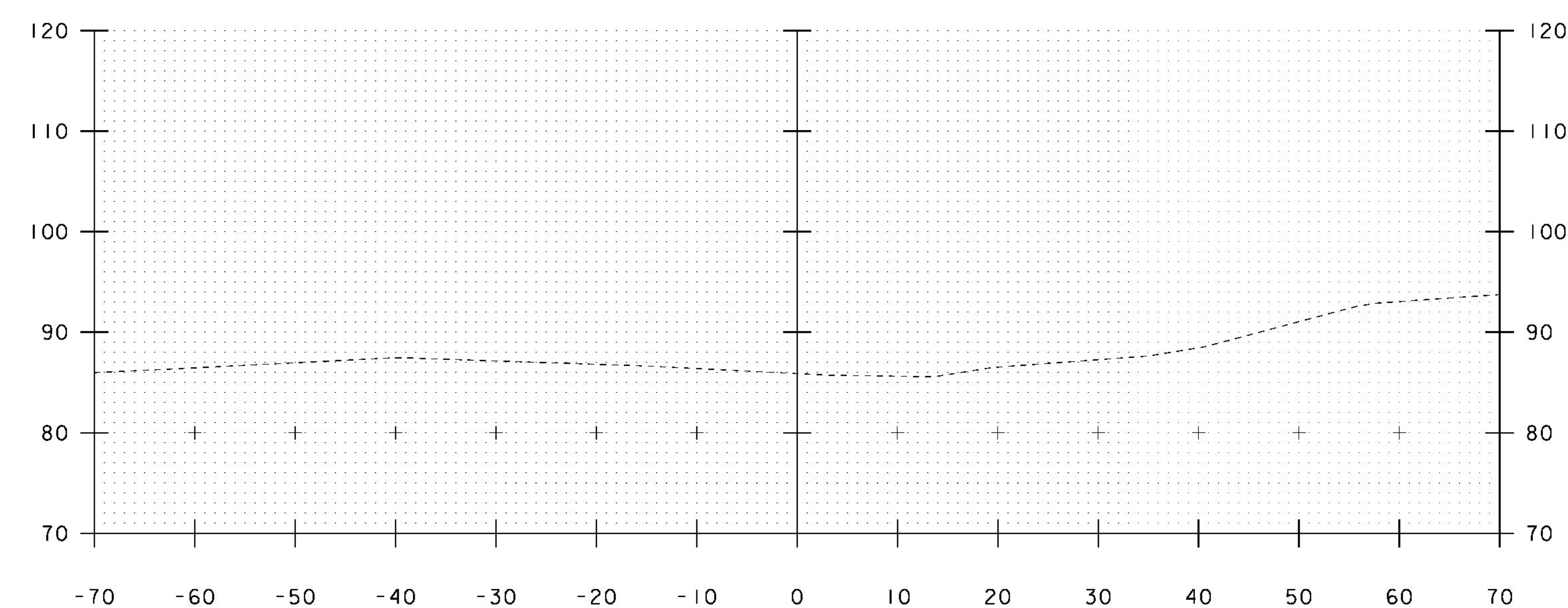
STA. 11+10 TO STA. 11+40



11+75



11+50



12+00

STA. 11+50 TO STA. 12+00

PROJECT NAME: ADDISON	
PROJECT NUMBER: STP CULV(14)	
FILE NAME: s08b062xs.dgn	PLOT DATE: 09-MAR-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
CHANNEL SECTIONS - 4	SHEET 27 OF 28

COLD PLANING, BITUMINOUS PAVEMENT

STA 37+50 - 38+00
STA 39+25 - 39+75

4" WHITE LINE
STA 37+50 - 39+75 LT & RT

4" YELLOW LINE (DOUBLE)
STA 37+50 - 39+75

CONSTRUCT FIVE FOOT APRON (3 IN)

STA 39+25 - 39+75 LT

TRAFFIC SIGNS, TYPE A

STA 39+00 LT
STA 38+80 RT

GEOTEXTILE FOR FILTER
CURTAIN

STA 38+45 - 38+85 RT

CURVE DATA

DELTA = 27°11'00"
D = 12°21'22"
R = 463.71'
T = 112.11'
L = 220.00'
E = 13.36'

EXISTING WATER LINE TO REMAIN
"IN-PLACE" AND RELOCATED ONLY
IF LINE IS DISTURBED DURING
CONSTRUCTION PER AGREEMENT
WITH UTILITY OWNER. ALL COSTS
ASSOCIATED TO RELOCATE THE LINE
SHALL BE THE SOLE EXPENSE
OF THE UTILITY OWNER

STATE OF VERMONT

LAKE CHAMPLAIN

STEEL MAINLINE STA 38+65 =
CHANNEL STA 11+00
 $\Delta = 90^\circ$

CHAMPLAIN
BRIDGE
MARINA

COMMERCIAL
BUILDING

2 x M. MAPLE

GRAVEL
DRIVE

COMMERCIAL
SIGN

STA. 36+76.81
24.62' LT.

STEEL
POSTS

WSO

REDUCE
SPEED
AHEAD

KAYHART, R. LEE & PATRICIA

CORN
FIELD

PI STA 36+62.11 BACK =
PI STA 36+57.89 AHEAD

BEGIN APPROACH
STA. 37+50

STA. 36+91.67
24+89' RT.

BEGIN PROJECT
STA. 38+00

BEGIN CULVERT
STA. 38+59.00

REMOVAL AND REPLACEMENT OF FILTER
CURTAIN SHALL BE PAID FOR BY OWNER
GEOTEXTILE FOR FILTER CURTAIN

STATE OF VERMONT

HOSPITAL CREEK

CHAMPLAIN
BRIDGE
MARINA

GARAGE

WOOD
FRAMED
HOUSE

CHAMPLAIN
BRIDGE
MARINA

STA. 39+27.49
82.45' LT.

STA. 39+27.49
24.70' LT.

STA. 39+27.49
24.80' RT.

END CULVERT
STA. 38+71.00

END PROJECT
STA. 39+25

END APPROACH
STA. 39+75

COMB
POLE

GIROUX, FRANCINE R.

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

LAYOUT SHEET

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

PROJECT NAME: ADDISON

PROJECT NUMBER: STP CULV(14)

FILE NAME: r08b062zzz.dgn

PROJECT LEADER: K. HIGGINS

DESIGNED BY: J. SALVATORI

ROW LAYOUT SHEET

PLOT DATE: 09-MAR-2013

DRAWN BY: J. BLANCHARD

CHECKED BY: H. PETROVS

SHEET 28 OF 28

Proposed Bridge Improvement Project

Addison - STP CULV (14)

Bridge #2 on Vermont Route 17

Concrete:

Mix Designation: P60TER

Required Strengths:

- 1. Mix Design - 6000 PSI
- 2. Striping Strength - 3000 PSI
- 3. Handling Strength - 3000 PSI
- 4. Shipping Strength - 4500 PSI
- 5. Install Strength - 4500 PSI
- 6. Traffic Loading - 6000 PSI

Fabrication Tolerances:

- 1. Width ±1/4"
- 2. Height ±1/4"
- 3. Length ±1/2"
- 4. Rebar Cover 2" Min. (Unless Noted Otherwise)
- 5. Rebar Spacing ±1"
- 6. Rebar Clearance ±1/4"
- 7. Insert Placement ±1/4"

Design Notes:

- 1. Design is in accordance w/ ASTM C1433, PCI MNL135, VAOT540 & AASHTO 2010 LRFD Bridge Design Specs Fifth Edition
- 2. Any conflict between tolerances listed above shall result in the usage of the stricter tolerance
- 3. Design Live Load = HL-93
- 4. Materials and Manufacturing shall conform to ASTM C1433
- 5. Earth Fill Design: 3'-0"

Installation:

- 1. Sub Base for Box Culvert / Cut Off Walls to be compacted and level
- 2. Precast Cut Off Walls to be installed
- 3. All Elevations are to be Checked and Verified they Match Those of Plan Set
- 4. Begin Sequence of Installing All Box Culvert Sections
- 5. Clean Granular Backfill for structures used for Backfill of Footers & of Box Culvert so water can reach weep holes if applicable
- 6. Fill all Lifting Holes, Bolt Pockets and Box Culvert grooves and seams w/ non-shrink grout

Reinforcing:

General Notes:

- 1. Reinforcing Steel -
 - a. Precast Frame Sections & Cut Off Walls shall be Level I ASTM A615
 - b. Precast Headwalls shall be Level III Stainless Steel ASTM A955 Grade 60
- 2. Materials and Manufacturing shall conform to ASTM C1433
- 3. Bar Tied at Every Intersection

Tolerances:

- 1. Spacing ±1"
- 2. Clearance ±1/4"

Lap Lengths:

- 1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1
 - Lap Length for Level I (Plain):
 - #4 Bar=21"
 - #5 Bar=26"
 - #6 Bar=31"
 - Lap Lengths for Level III (Stainless Steel):
 - #4 Bar=21"
 - #5 Bar=26"
 - #6 Bar=31"

Joint Treatment:

Vertical Seams:

Per VTrans Approved Product List 780.02
Overhead & Vertical Concrete Repair Mortar

Horizontal Seams / Grout:

Per VTrans Approved Product List 707.03
Mortar, Type IV

Waterproofing:

- 1. Membrane waterproofing shall be applied to the entire top of concrete box
- 2. Silane shall be applied on all exposed concrete surfaces, this includes Headwall, Box Ends & any other portions of concrete open to the weather
- 3. A two foot wide strip of membrane shall cover each vertical joint

Miscellaneous:

- 1. All exposed hardware to be galvanized.
- 2. All bolts & threaded rods to be ASTM F1554 Grade 105 Unless Noted Otherwise
- 3. All Exposed Edges of Concrete Shall be Chamfered 1"x1"

Legend:

- (A) 2"Ø PVC Sleeve
- (B) 4"Ø PVC Sleeve
- (C) Mechanical Bolt Pocket (A.L. Patterson w/ 1"Ø Galv. Coil Rod)
- (D) Oxford A750-7 Lifting Device
- (E) 1"Ø x 12" CX-9 Coil Loop Insert
- (F) 1/2"Ø x 2 3/4" FI-42 Flared Loop Ferrule Insert
- (G) 7/8"Ø x 6" FI-42 Flared Loop Ferrule Insert
- (H) 1 1/2" x 3 1/2" Continuous Keyway
- (I) Solid Lines Indicate Chamfered Edge (Isometrics)

CONTRACTORS VTSPE:

09/26/13 - Revised Per Vermont Agency of Transportation Review

Vermont Agency of Transportation

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CK'D BY RKJW OK'D BY JS

September 26, 2013

RESUBMIT NO Approved AsNoted

BY KH DATE 9-30-2013

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #13510)

SUPERVISOR: M. WHEELER

DETAILER: C. DUPLANTIS

CHECKER: M. WHEELER

ENGINEER: ENGINEERING VENTURES

PROJECT NAME: ADDISON

PROJECT #: STP CULV (14)

LOCATION: ADDISON, VT

BRIDGE: #2 ON VT ROUTE 17

CONTRACTOR:

193 INDUSTRIAL AVE.

WILLISTON, VT 05495

Ph: (802) 658-0201

09/19/13

FABRICATOR:

193 INDUSTRIAL AVE.

WILLISTON, VT 05495

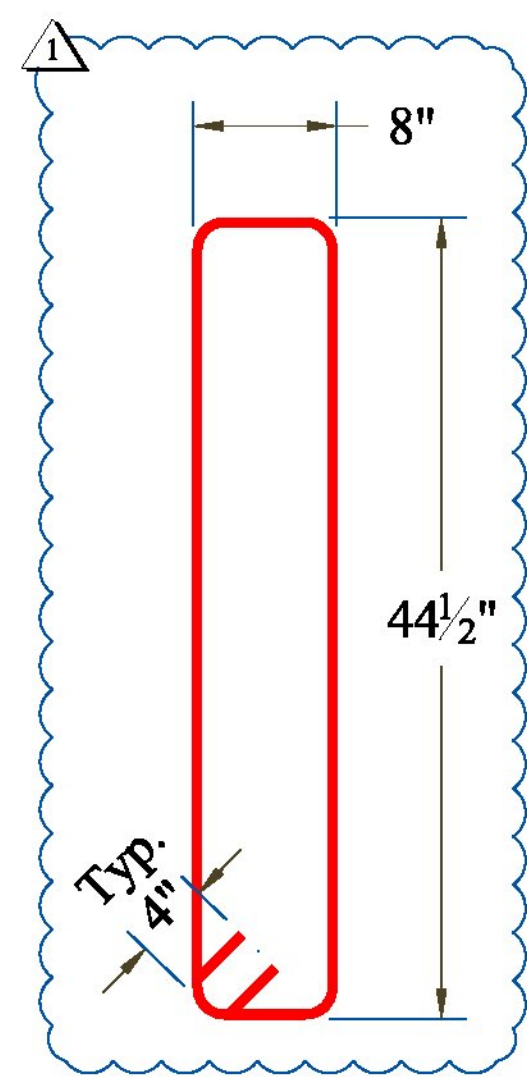
Ph: (802) 658-0201

SD Ireland

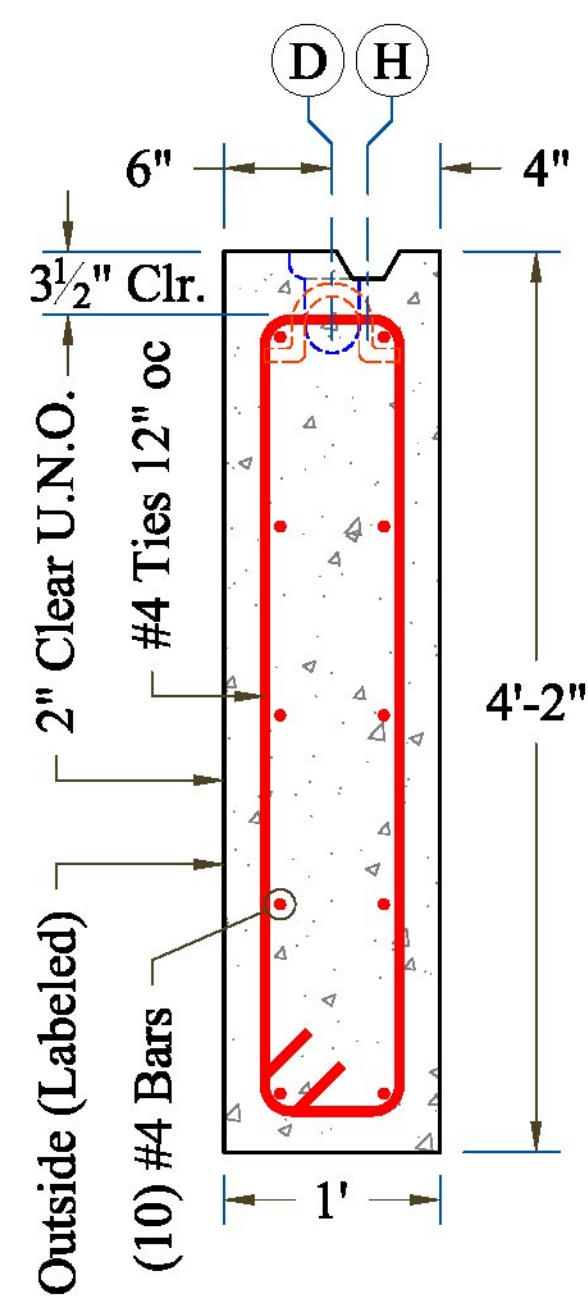
Precast Division

PRECAST NOTES, SPECIFICATIONS AND LEGEND

1 OF 4

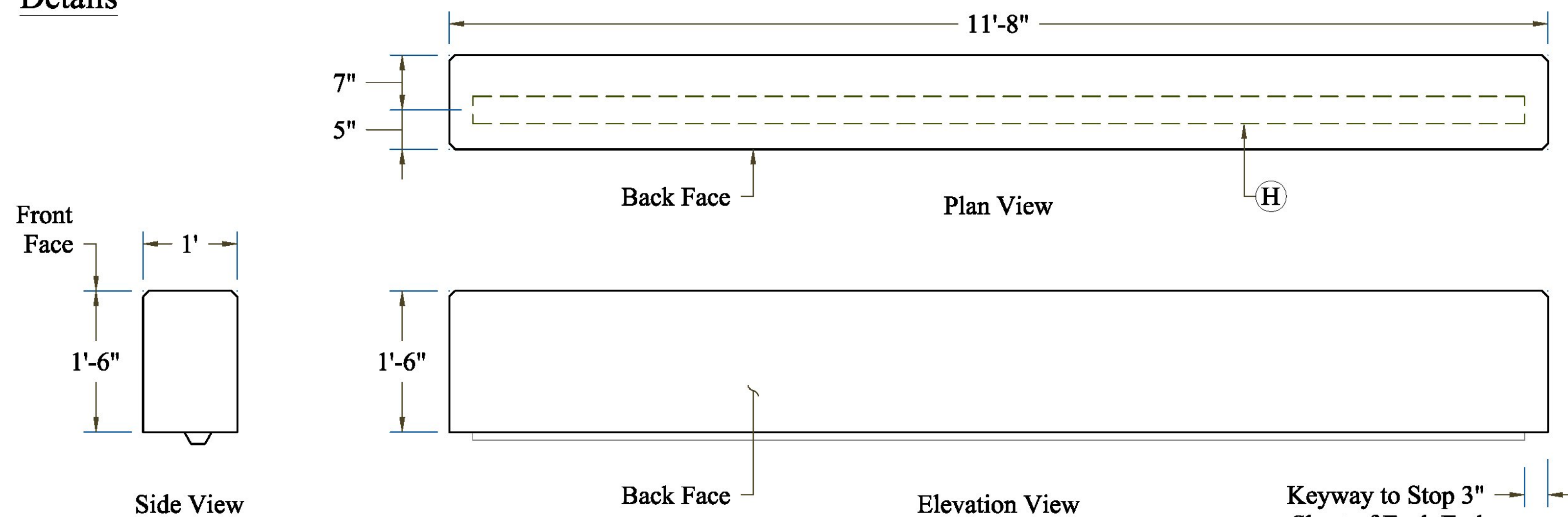


CW Stirrup

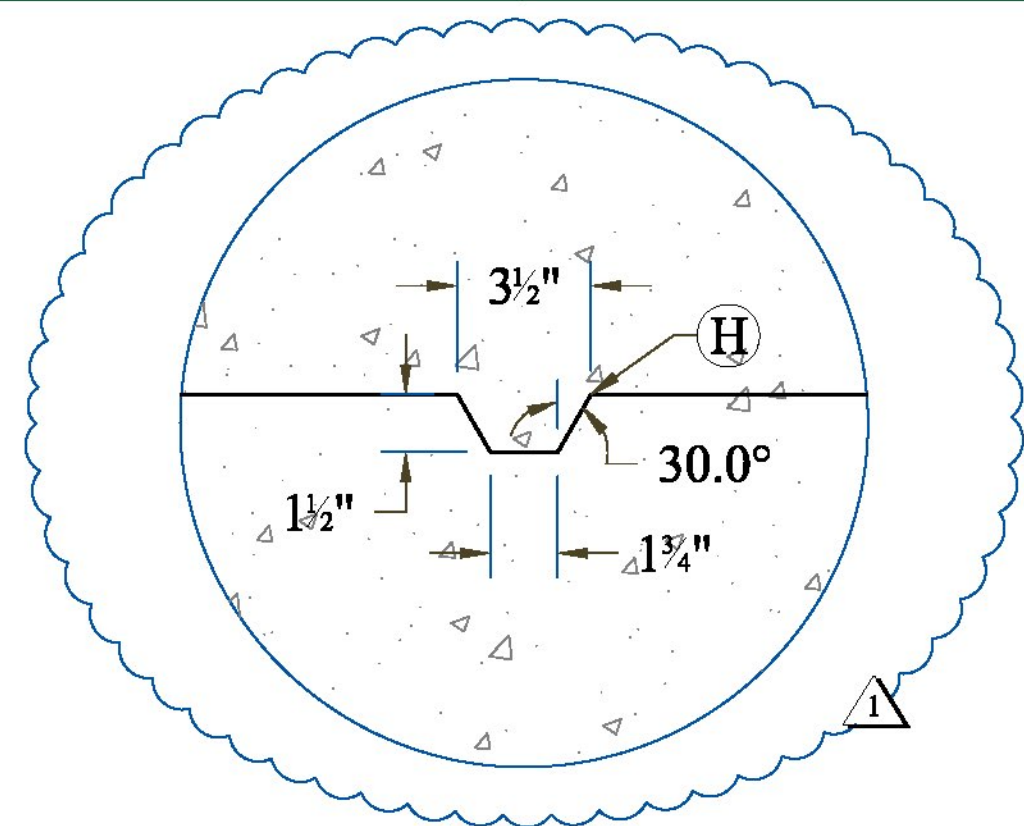
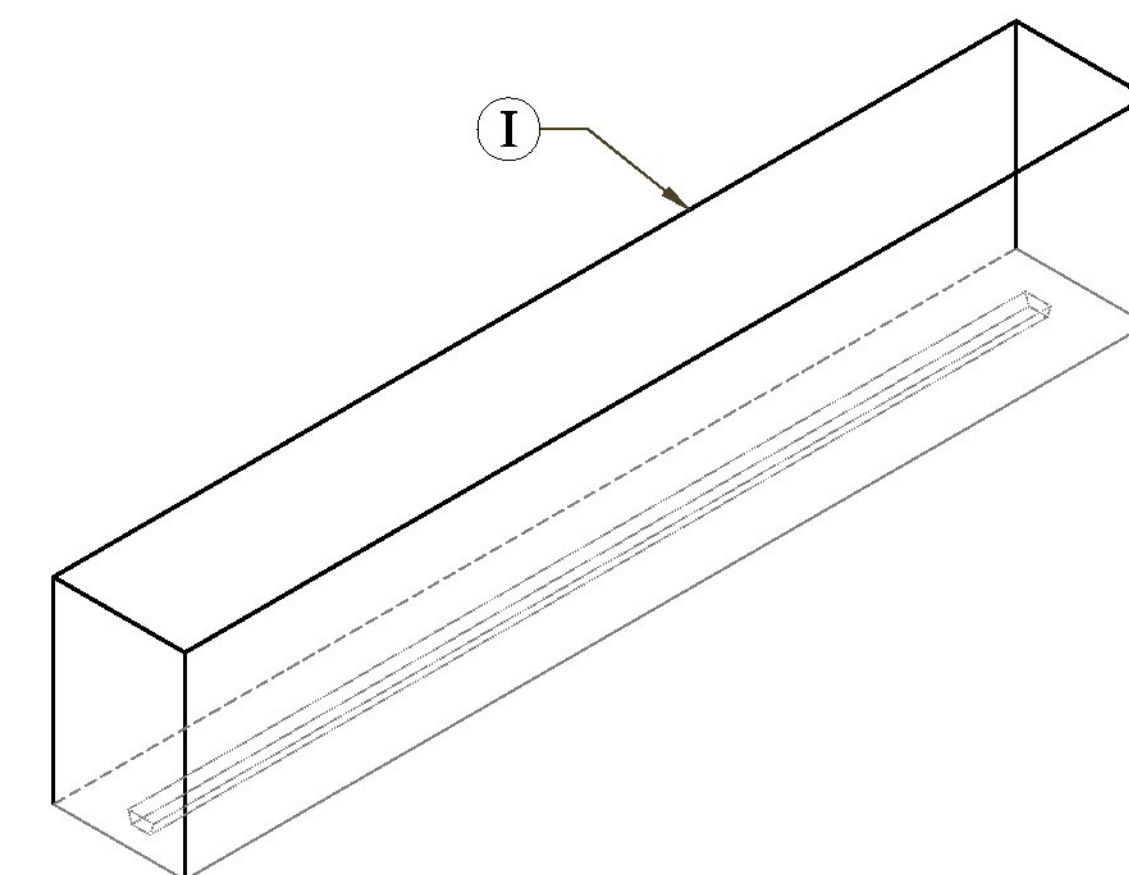


CW Section

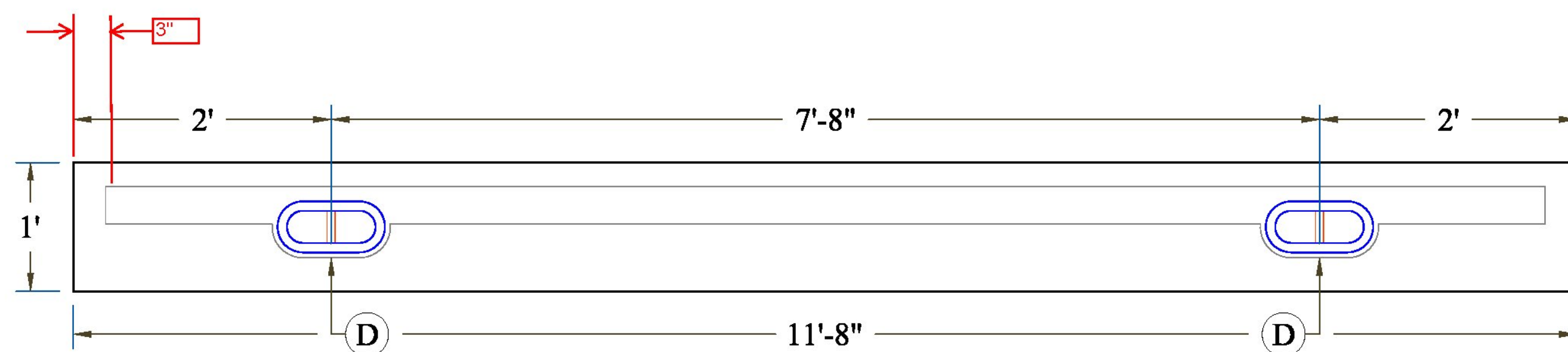
Head Wall Details



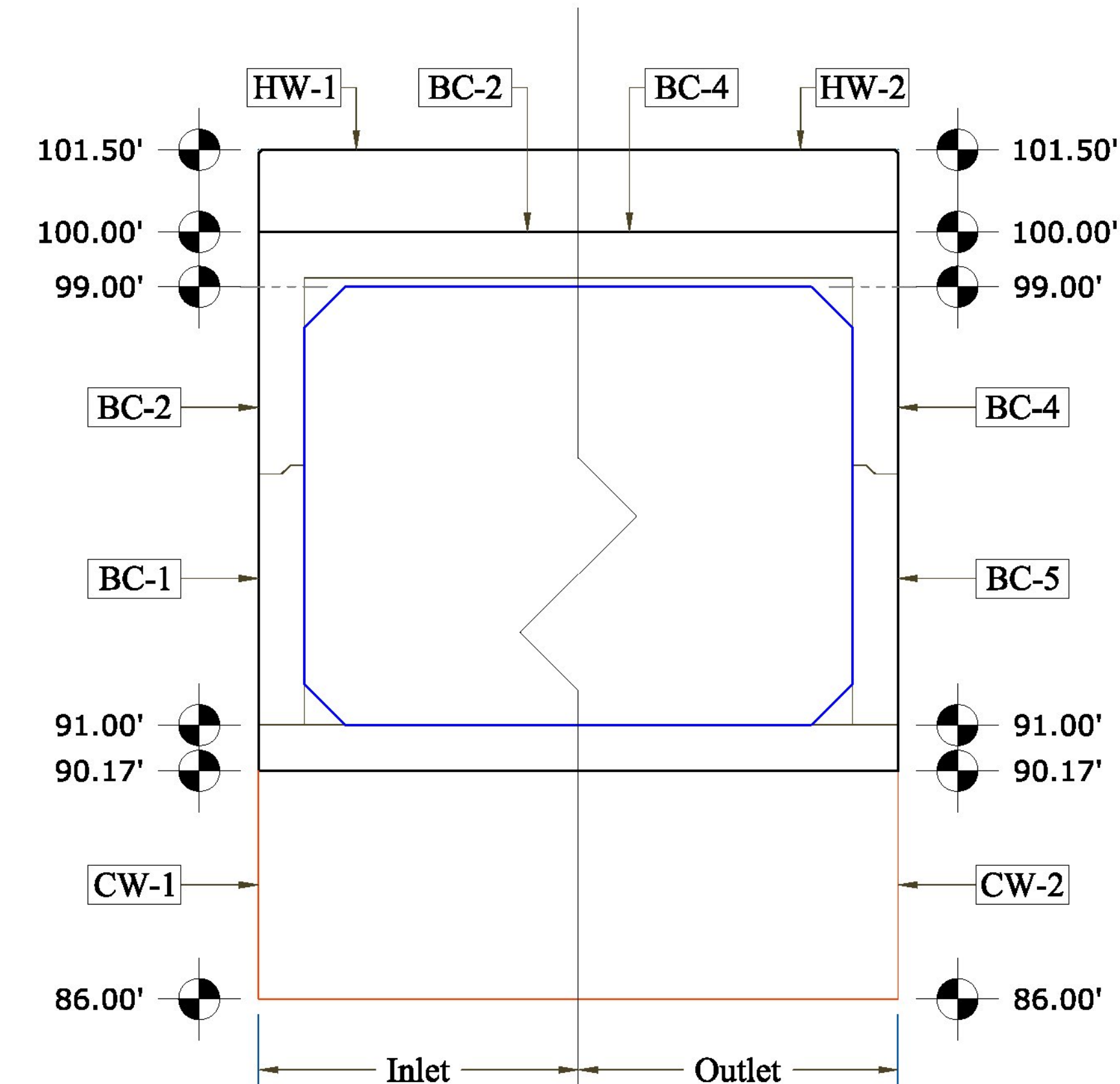
Head Wall Isometric



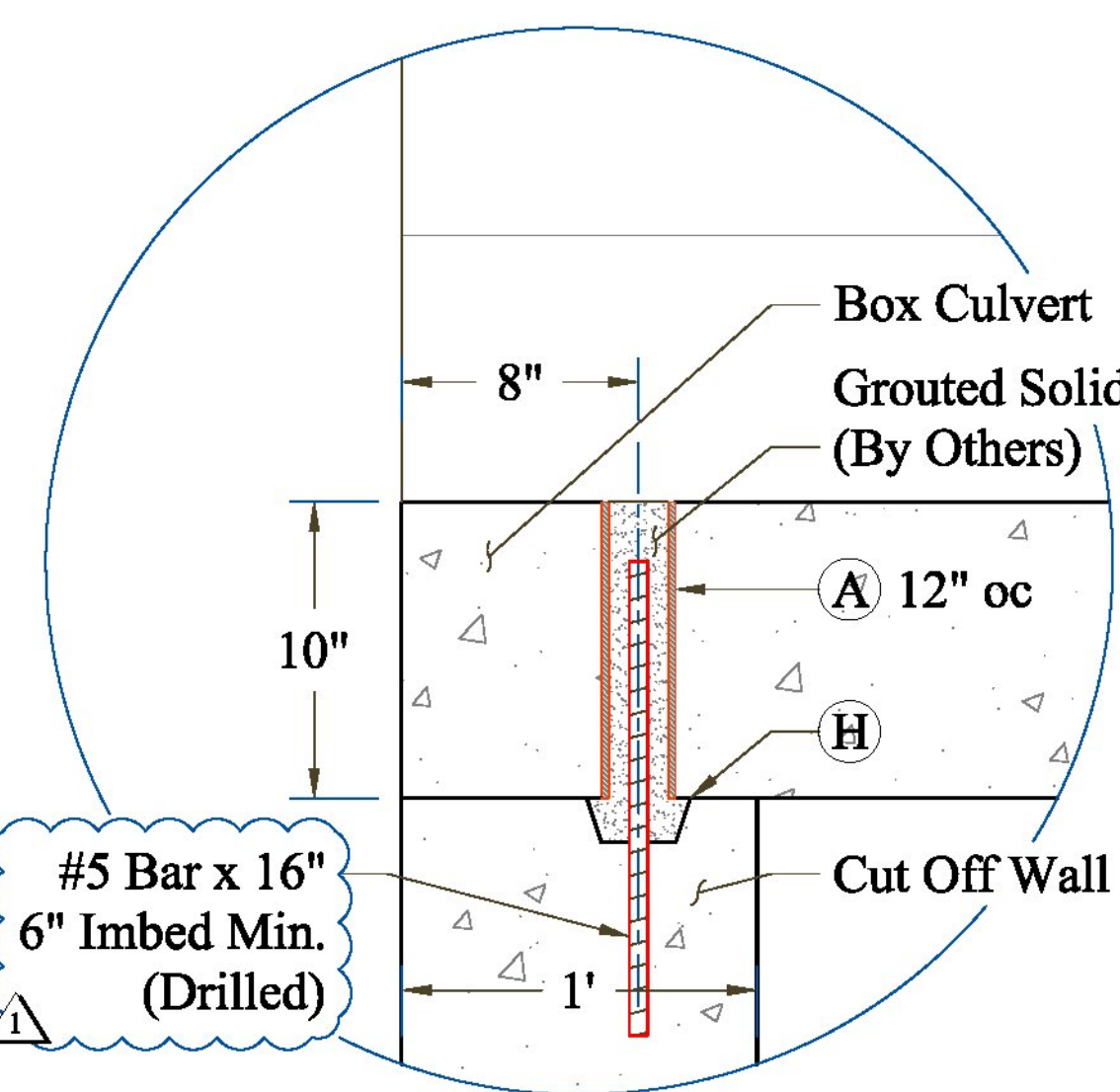
Typical Keyway Detail



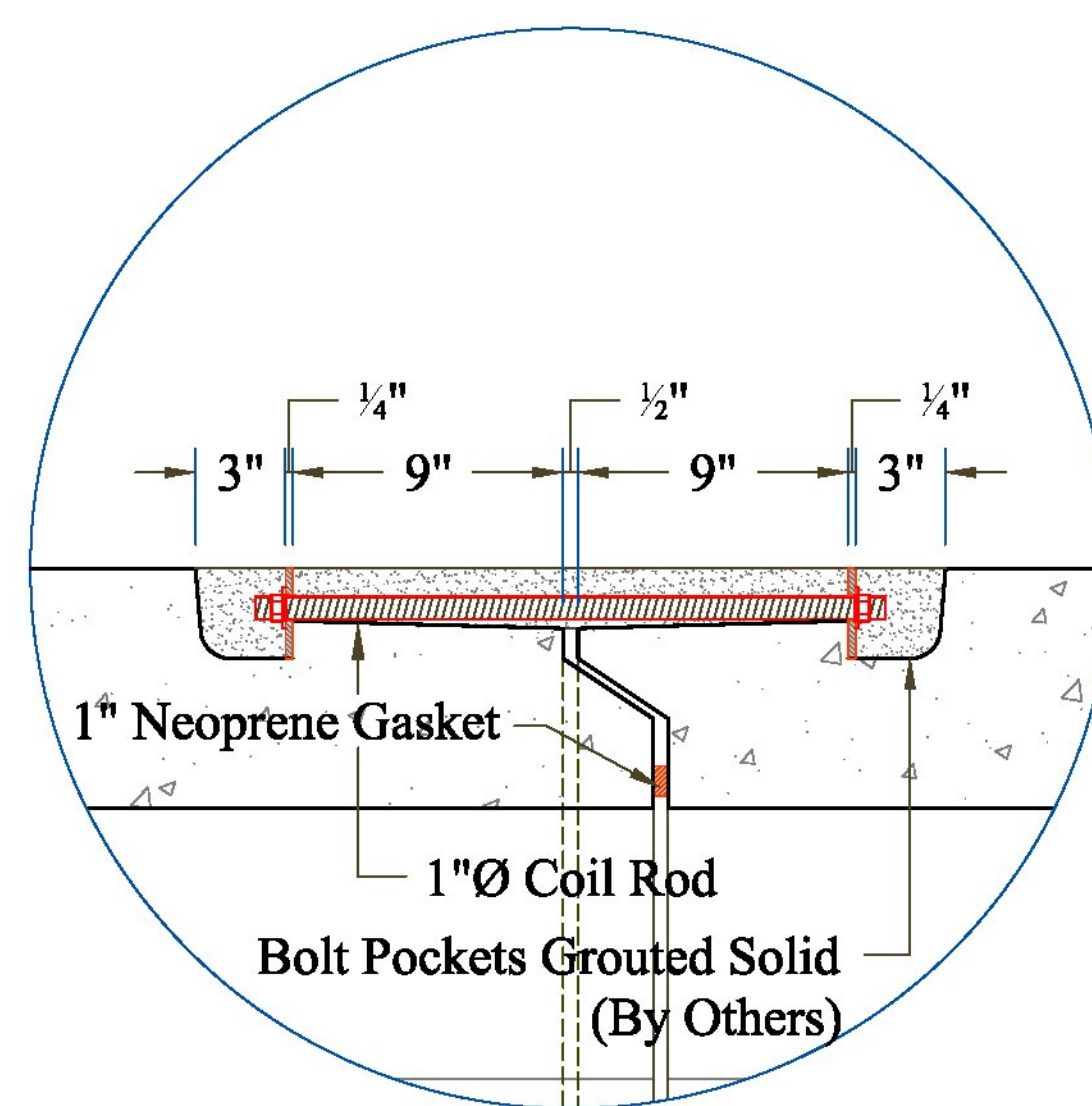
Cut Off Wall Plan



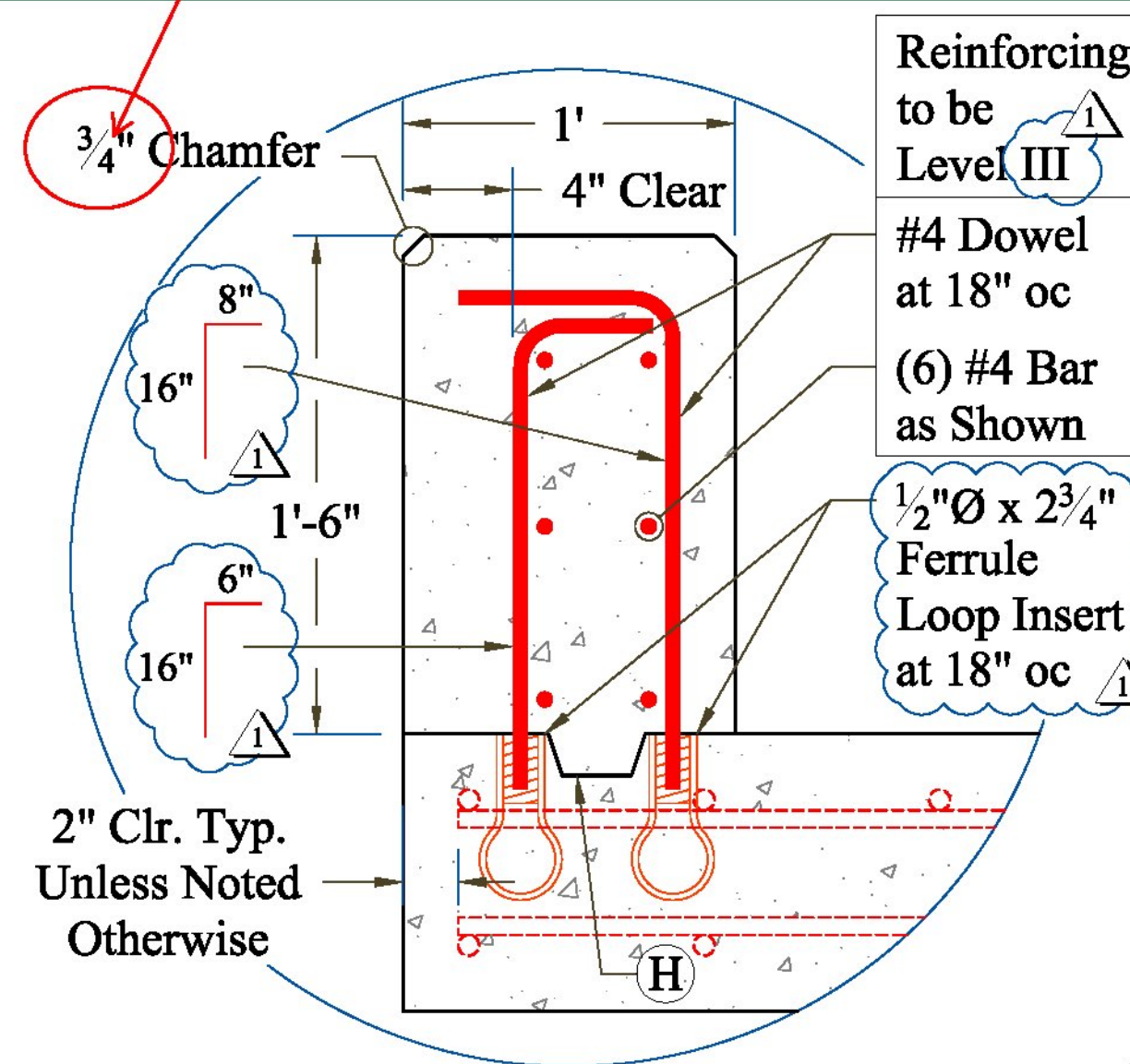
Inlet & Outlet Elevation



Culvert to Cut Off Wall Connection



Bolt Pocket Connection Detail



Head Wall to Box Culvert Connection

CONTRACTORS VTSP:

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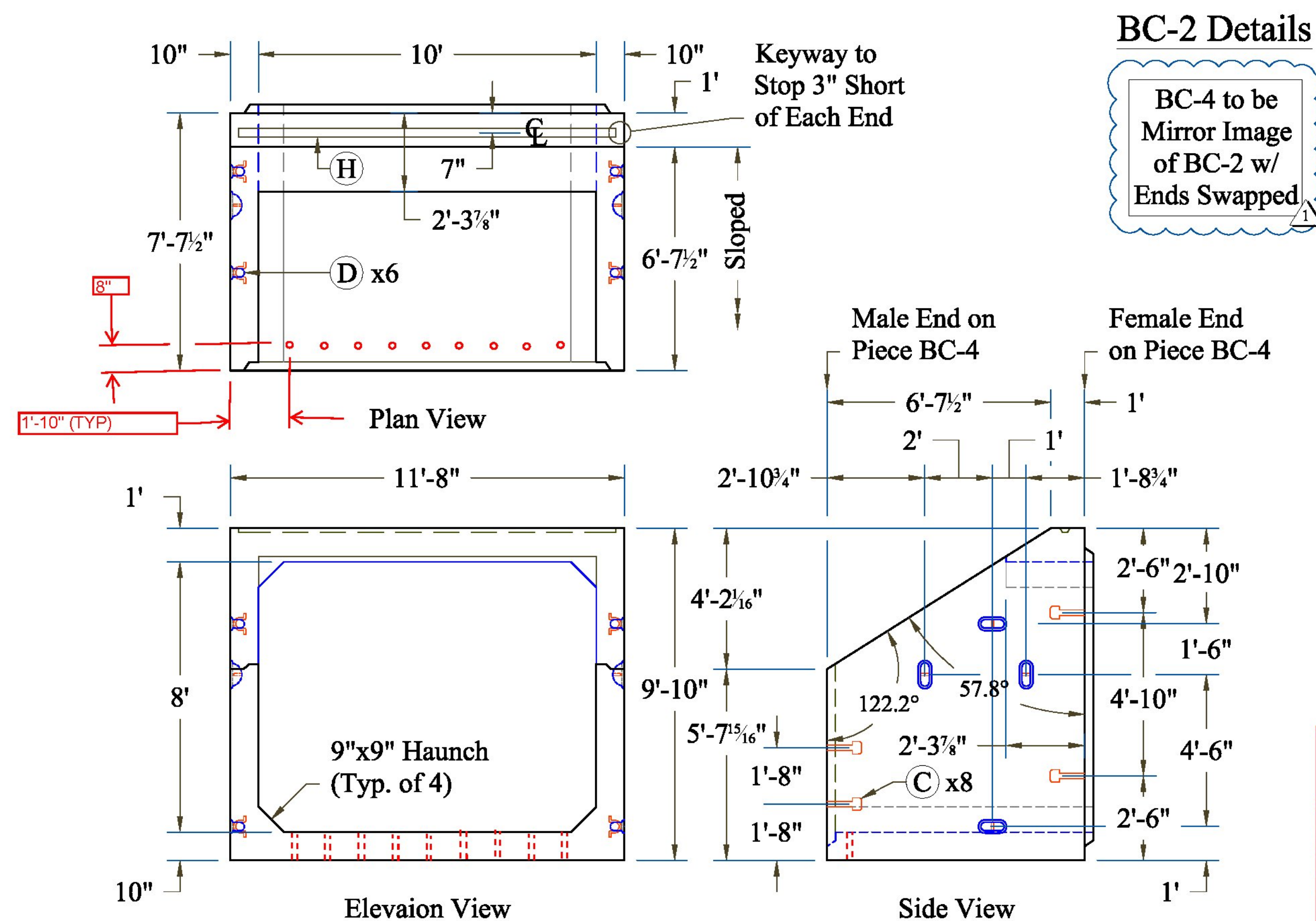
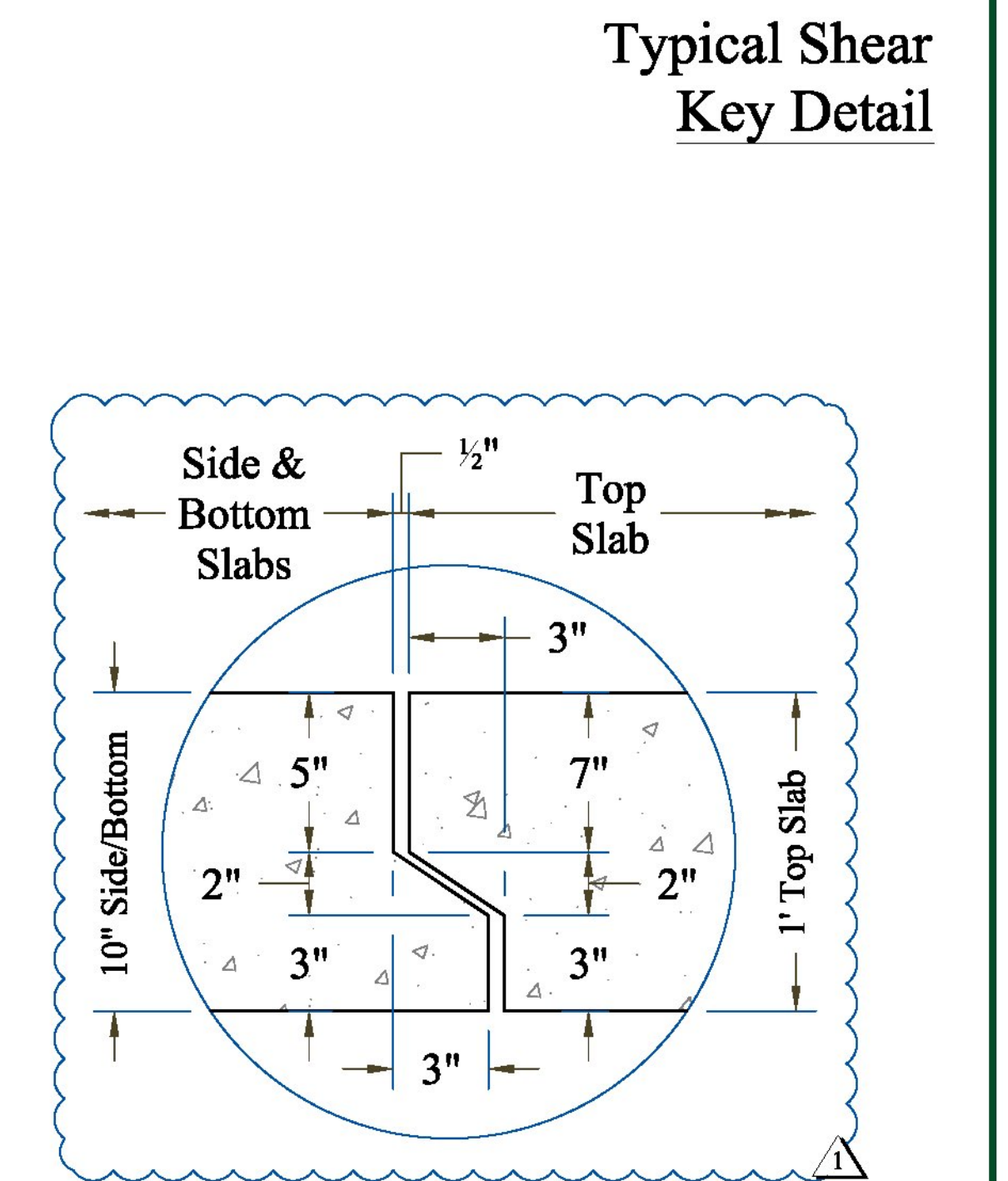
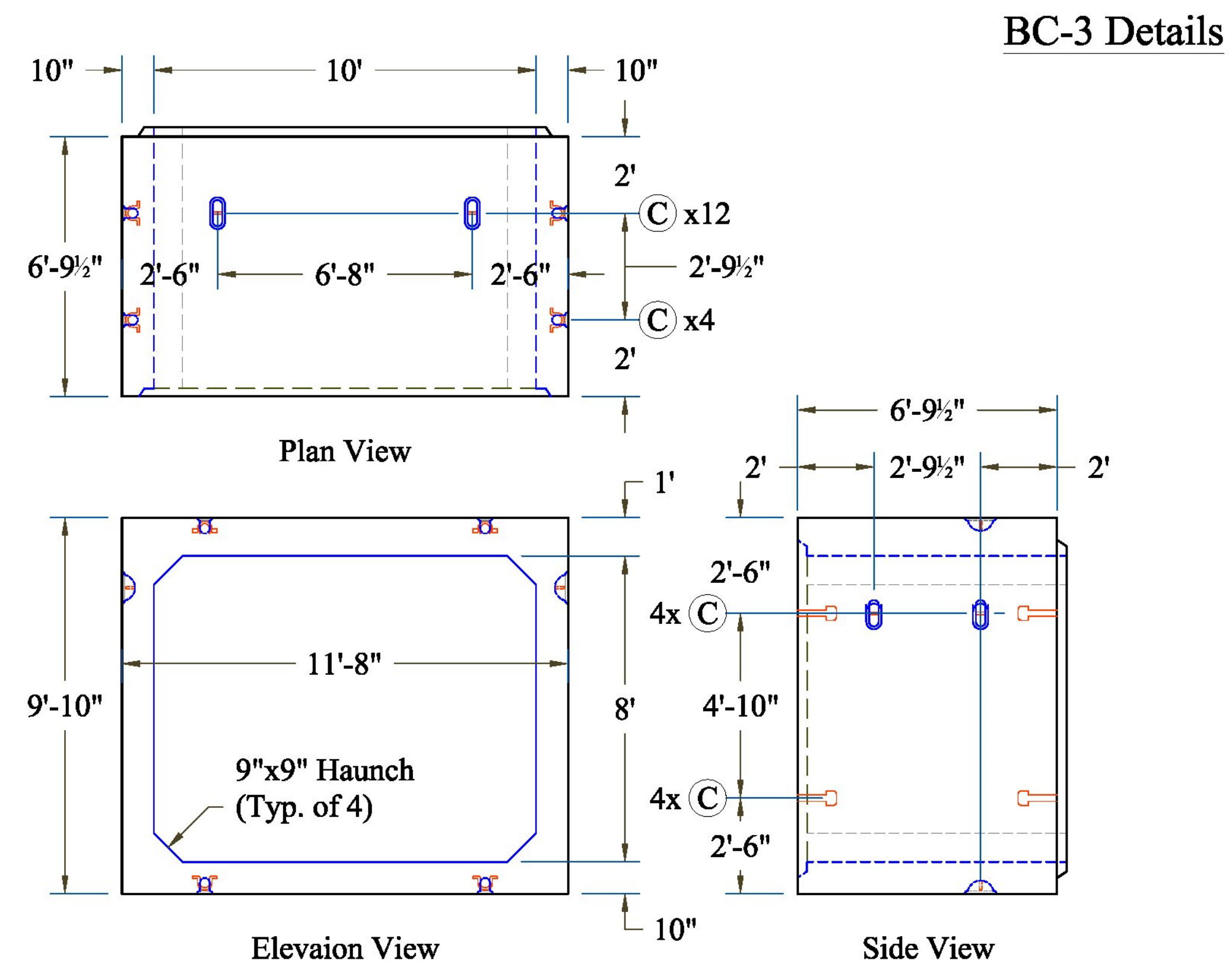
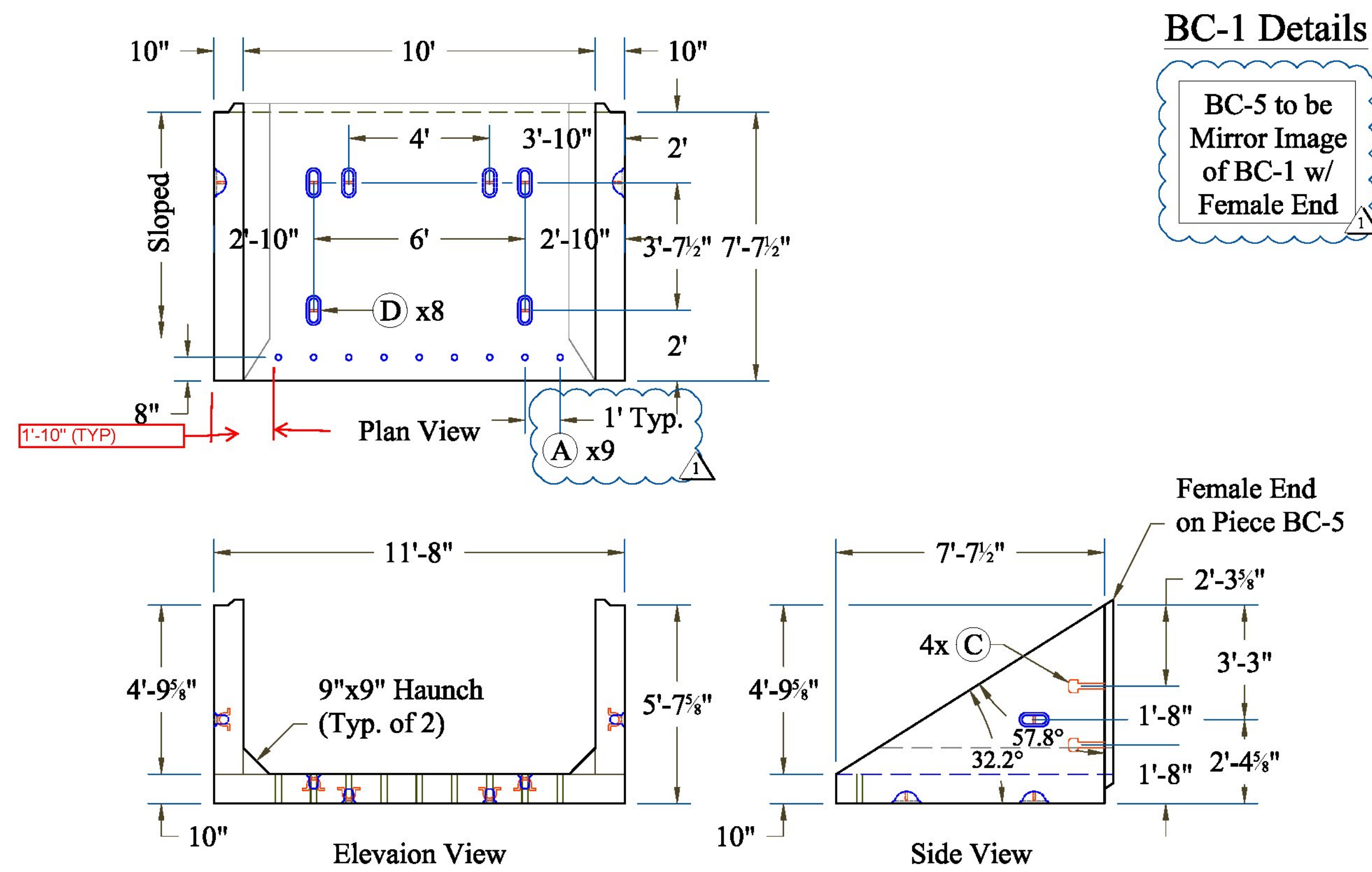
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MISC. DETAILS ,HEADWALL & CUTOFF WALLS

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3 OF 4



Rebar Schedule for BC-1 & BC-5

Mark	Size	Max Spacing	Length	Type	A	B
As1	#4	12"	Varies	Bent	---	32"
As2	#4	12"	Varies	Hook	---	21"
As3	#4	10"	14'-10"	Hook	136"	21"
As4	#4	12"	11'-4"	Str.	136"	---
As5	#4	18"	Varies	Str.	---	---

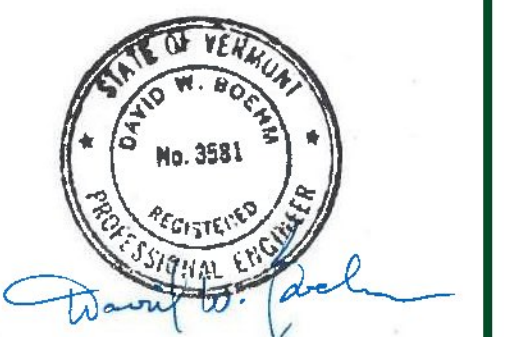
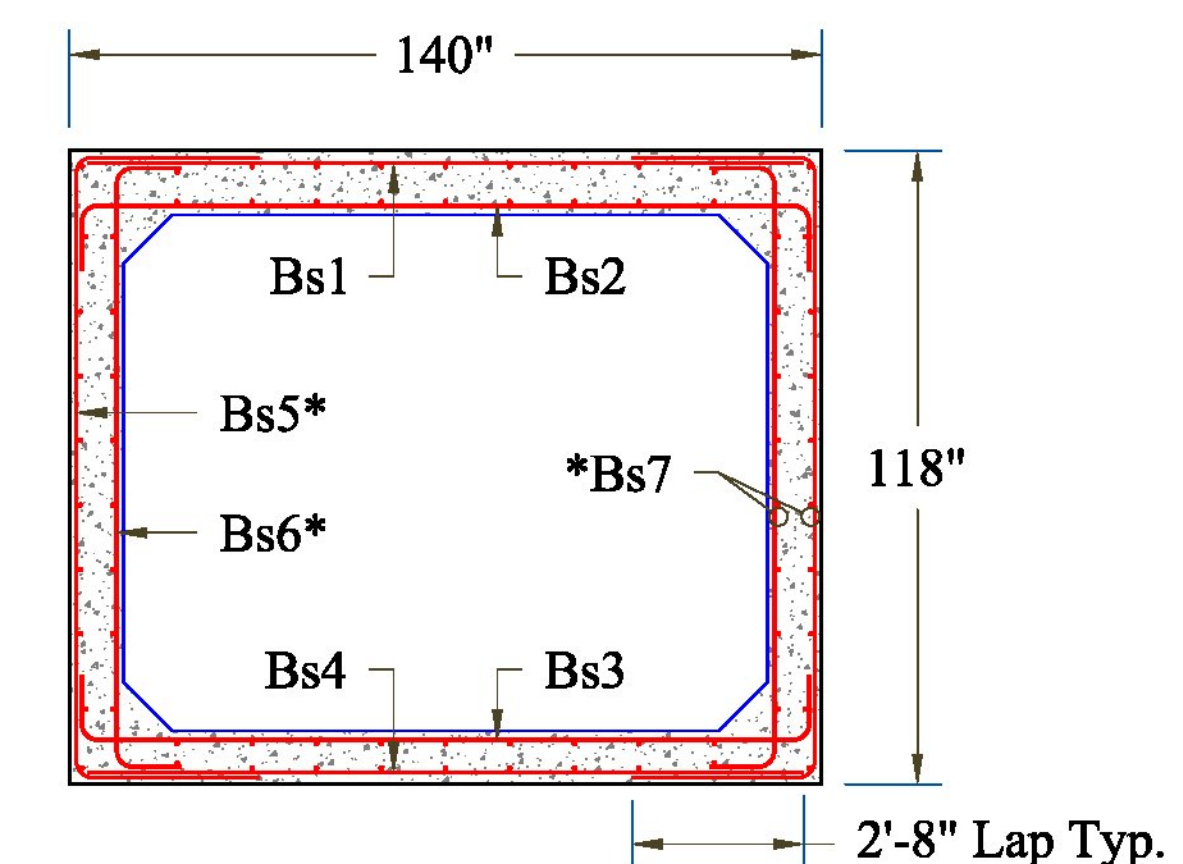
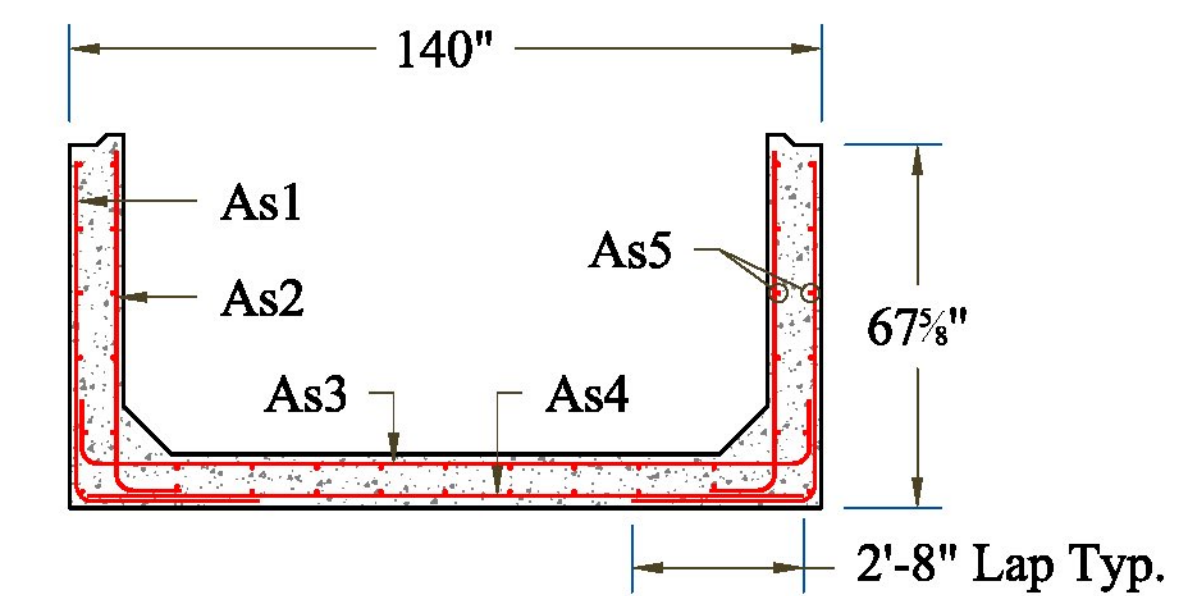
Notes: 1. 2" Clear Typical Unless Noted Otherwise
2. Where Indicated as Varies, Lengths of Rebar Change Due to Slope

Rebar Schedule for BC-2, BC-3 & BC-4

Mark	Size	Max Spacing	Length	Type	A	B
Bs1	#5	12"	11'-4"	Str.	136"	---
Bs2	#6	10"	16'-6"	Hook	136"	31"
Bs3	#6	10"	16'-6"	Hook	136"	31"
Bs4	#4	12"	11'-4"	Str.	136"	---
Bs5	#6	12"	14'-10"	Bent	114"	32"
Bs6	#5	12"	13'-10"	Hook	114"	26"
Bs7	#4	18"	6'-5 1/2"	Str.	77 1/2"	---

Notes: 1. 2" Clear Typical Unless Noted Otherwise
2. Where Indicated as Varies, Lengths of Rebar Change Due to Slope

* Varies on Box Culvert Sections BC-2 & BC-4



CONTRACTORS VTSPE:

REVISED 10-25-2013 JTS
BC-1 HAS BEEN OMITTED AND WILL NOT BE FABRICATED.
HOLES FOR FOR DOWELING CUT OFF WALL SHALL BE ADDED TO BC-2

Vermont Agency of Transportation

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Precast Division

09/19/13 BOX CULVERT SECTION DETAILS & REINFORCING 4 OF 4