

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

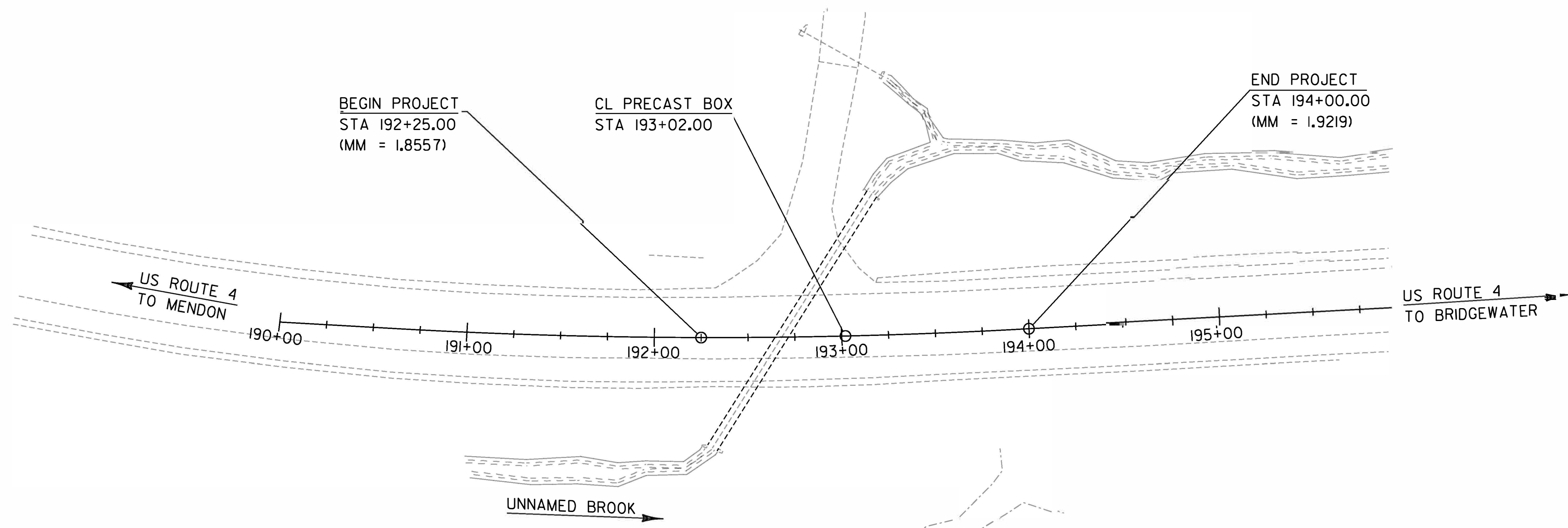
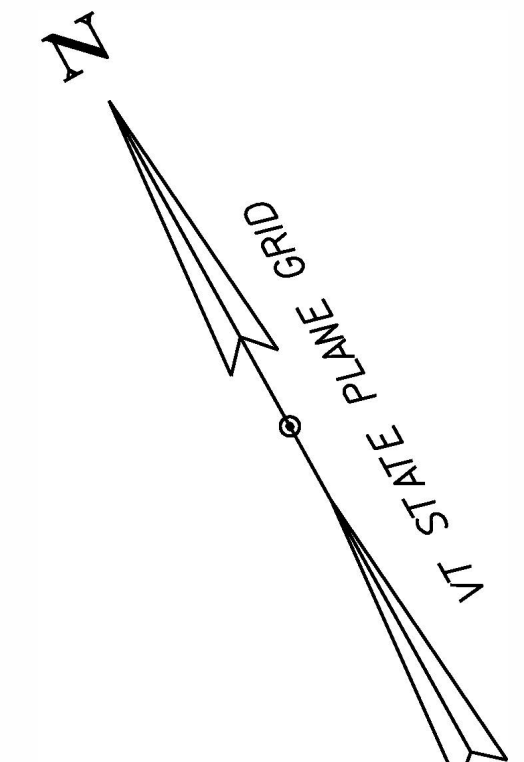
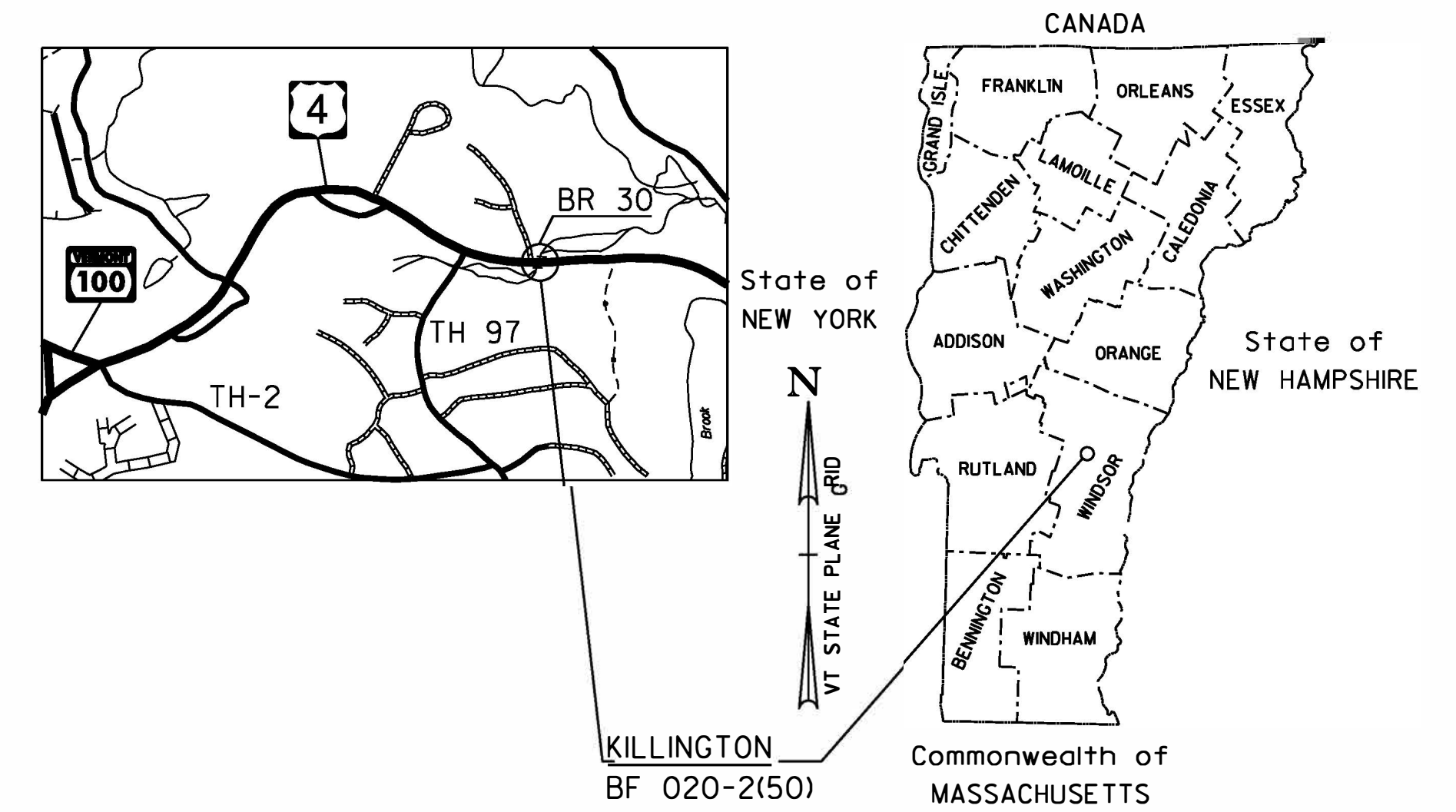
TOWN OF KILLINGTON
COUNTY OF RUTLAND

ROUTE NO : US ROUTE 4 BRIDGE NO : 30

PROJECT LOCATION : APPROXIMATELY 1.4 MILES EAST OF THE JUNCTION WITH VT ROUTE 100 (NORTH)
AT THE INTERSECTION WITH SPRING HILL ROAD OVER THE UNNAMED BROOK.

PROJECT DESCRIPTION : WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF
EXISTING STRUCTURE (BRIDGE *30) WITH A NEW PRECAST BOX WITH RELATED ROADWAY APPROACH
WORK, REALIGNMENT OF CHANNEL AND ASSOCIATED CHANNEL WORK.

LENGTH OF STRUCTURE: 16.00 FEET
LENGTH OF ROADWAY: 159.00 FEET
LENGTH OF PROJECT: 175.00 FEET

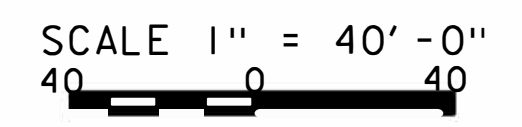


CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL I	
SURVEYED BY :	C. CRY
SURVEYED DATE :	07-26-2019
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83(2011)

CONTRACT
C03112

HIGHWAY DIVISION, CHIEF ENGINEER	
APPROVED	<i>Ann L. Gammell, PE</i> DATE <u>Nov 22, 2022</u>
PROJECT MANAGER :	J.B. MCCARTHY, P.E.
PROJECT NAME :	KILLINGTON
PROJECT NUMBER :	BF 020-2(50)
SHEET 1 OF 41 SHEETS	



PRELIMINARY INFORMATION SHEET (BRIDGE)

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DETAIL SHEETS

HSD - 213.02	MILLED RUMBLE STRIP (CENTERLINE)	9/28/2017
HSD - 400.01	SAFETY EDGE DETAIL	1/5/2018

STANDARDS LIST

B-71a	STANDARD FOR RESIDENTIAL DRIVES	04-07-2020
E-10	ROLLED EROSION CONTROL PRODUCT, TYPE I	04-07-2020
E-11	CHECK DAM, TYPE I	04-07-2020
E-12	STABILIZED CONSTRUCTION ENTRANCE	04-07-2020
E-15	SILT FENCE	04-07-2020
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-192	PAVEMENT MARKING DETAILS	10-12-2000
E-193	PAVEMENT MARKING DETAILS	08-18-1995
S-501	CONCRETE DETAILS AND NOTES	04-07-2020
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-11	CONSTRUCTION APPROACH SIGNING DIVIDED HIGHWAY ONE LANE CLOSED	08-06-2012
T-12	TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED	08-06-2012
T-2	TRAFFIC SIGN GENERAL NOTES	04-07-2020
T-21	TEMPORARY TRAFFIC CONTROL FOR THREE LANE ROADWAY CLOSURE	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	02-17-2022
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013
T-70	VERMONT REGULATORY SIGN DETAILS	02-17-2022
T-80	VERMONT WARNING SIGN DETAILS	02-12-2016

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: _____

DRAINAGE AREA : _____
 CHARACTER OF TERRAIN : Mountainous Rural Watershed
 STREAM CHARACTERISTICS : Steep Straight Mountainous Stream
 NATURE OF STREAMBED : Cobble

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	100	2% =	210
10% =	180	1% =	240
4% =	180	0.2% =	310

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY : @ 2% AEP 7
 ICE CONDITIONS : Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Unknown
 IS ORDINARY RISE RAPID? Unknown
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE: _____

WATERSHED STORAGE: 0% HEADWATERS: _____
 UNIFORM: X
 IMMEDIATELY ABOVE SITE: _____

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: ACCGMPPA
 YEAR BUILT: 1965
 CLEAR SPAN(NORMAL TO STREAM): 6
 VERTICAL CLEARANCE ABOVE STREAMBED: 4
 WATERWAY OF FULL OPENING: 18
 DISPOSITION OF STRUCTURE: Full Replacement
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Borings

WATER SURFACE ELEVATIONS AT:

43% AEP =	1456	VELOCITY =	14
10% AEP =	1458	"	16
4% AEP =	1459	"	16
2% AEP =	1461	"	17
1% AEP =	1463	"	17

LONG TERM STREAMBED CHANGES: Unknown

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
 FREQUENCY: N/A
 RELIEF ELEVATION: N/A
 DISCHARGE OVER ROAD @ 1% AEP: N/A

UPSTREAM STRUCTURE

TOWN: N/A DISTANCE: N/A
 HIGHWAY #: N/A STRUCTURE #: N/A
 CLEAR SPAN: N/A CLEAR HEIGHT: N/A
 YEAR BUILT: N/A FULL WATERWAY: N/A
 STRUCTURE TYPE: N/A

DOWNSTREAM STRUCTURE

TOWN: N/A DISTANCE: N/A
 HIGHWAY #: N/A STRUCTURE #: N/A
 CLEAR SPAN: N/A CLEAR HEIGHT: N/A
 YEAR BUILT: N/A FULL WATERWAY: N/A
 STRUCTURE TYPE: N/A

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:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Box Culvert

CLEAR SPAN(NORMAL TO STREAM): 12
 VERTICAL CLEARANCE ABOVE STREAMBED: 5
 WATERWAY OF FULL OPENING: 60

WATER SURFACE ELEVATIONS AT:

43% AEP =	1452	VELOCITY=	8
10% AEP =	1453	"	9
4% AEP =	1453	"	10
2% AEP =	1454	"	10
1% AEP =	1454	"	11

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
 FREQUENCY: N/A
 RELIEF ELEVATION: N/A
 DISCHARGE OVER ROAD @ 1% AEP: N/A

BRIDGE LOW CHORD ELEVATION: 1455
 FREEBOARD: @ 2% AEP 2

SCOUR: Not applicable because a closed bottom structure is being installed

REQUIRED CHANNEL PROTECTION: Stone Fill Type III*

PERMIT INFORMATION

AVERAGE DAILY FLOW: - DEPTH OR ELEVATION:
 ORDINARY LOW WATER: -
 ORDINARY HIGH WATER: -

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: _____
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

*E-Stone Type III is to be used for all in channel work.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	---
3. DESIGN SPAN	L: 12.00 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. HIGH PERFORMANCE CONCRETE, CLASS PCD	f' _c : ---
9. HIGH PERFORMANCE CONCRETE, CLASS PCS	f' _c : ---
10. CONCRETE HIGH PERFORMANCE, CLASS SCC	f' _c : ---
11. CONCRETE, CLASS C	f' _c : 3.0 KSI
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f _y : 50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q _n : 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
16. NOMINAL BEARING RESISTANCE OF ROCK	q _n : 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
18. PILE RESISTANCE FACTOR	φ: ---
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V _{3s} : ---
21. MINIMUM GROUND SNOW LOAD	p _g : ---
22. SEISMIC DATA	PGA: --- S _s : --- S ₁ : ---
23.	---
24.	---
25.	---
26.	---

PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)

FILE NAME: I9B207pl.dgn PLOT DATE: 11/28/2022
 PROJECT LEADER: JB MCCARTHY DRAWN BY: G.ROKES
 DESIGNED BY: R.HOOD CHECKED BY: JB MCCARTHY
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 41

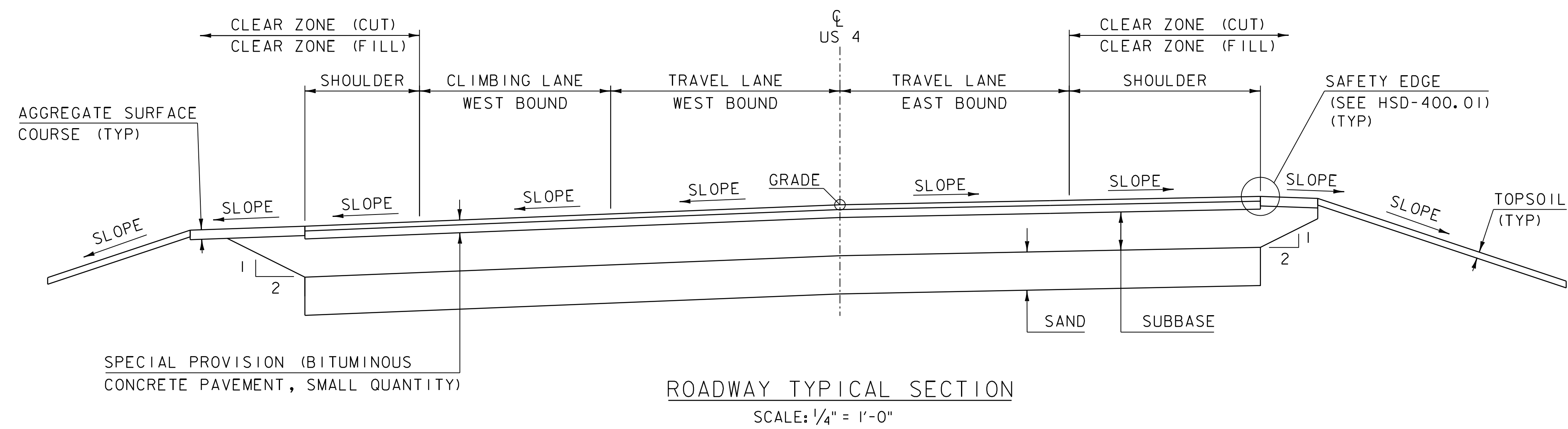
TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2023	5100	780	54	10.9	500
2043	5600	860	54	15.8	800

20 year ESAL for flexible pavement from 2023 to 2043 : 2816000
 40 year ESAL for flexible pavement from 2023 to 2063 : 6283000
 Design Speed : 50 mph

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE: _____	TYPE: _____	TYPE: _____
GRADE: _____	GRADE: _____	GRADE: _____



BITUMINOUS CONCRETE PAVEMENT MATERIAL REQUIREMENTS

DL/DL ESALS	1,520,640	DESIGN LANE/DESIGN LIFE ESALS
BINDER	70-28	PERFORMANCE GRADE ASPHALT BINDER
GYRATION	65	DESIGN NUMBER OF GYRATIONS

ROAD TYPICAL INFORMATION

	LEFT		RIGHT	
	WIDTH	SLOPE	WIDTH	SLOPE
TRAVEL LANE	12' -0"	VARIES	12' -0"	VARIES
CLIMBING LANE	10' -0"	VARIES	---	---
SHOULDER	6' -0"	VARIES	10' -0"	VARIES
AGGREGATE SURFACE COURSE	6' -0"	6.00%	3' -0"	6.00%
FILL SLOPE	---	1:3 MAX	---	1:3 MAX
CLEAR ZONE (CUT)	16' -0"	---	16' -0"	---
CLEAR ZONE (FILL)	24' -0"	---	24' -0"	---

MATERIAL INFORMATION

	THICKNESS	TYPE
WEARING COURSE	1 1/2"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IVS)
INTERMEDIATE COURSE	1 1/2"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IVS)
BASE COURSE #2	2 1/2"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIS)
BASE COURSE #1	2 1/2"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIS)
SUBBASE	24"	SUBBASE OF DENSE GRADED CRUSHED STONE
SAND	24"	SAND BORROW
AGGREGATE SURFACE COURSE	6"	AGGREGATE SURFACE COURSE
TOPSOIL	4"	TOPSOIL

MATERIAL TOLERANCES

(IF USED ON PROJECT)

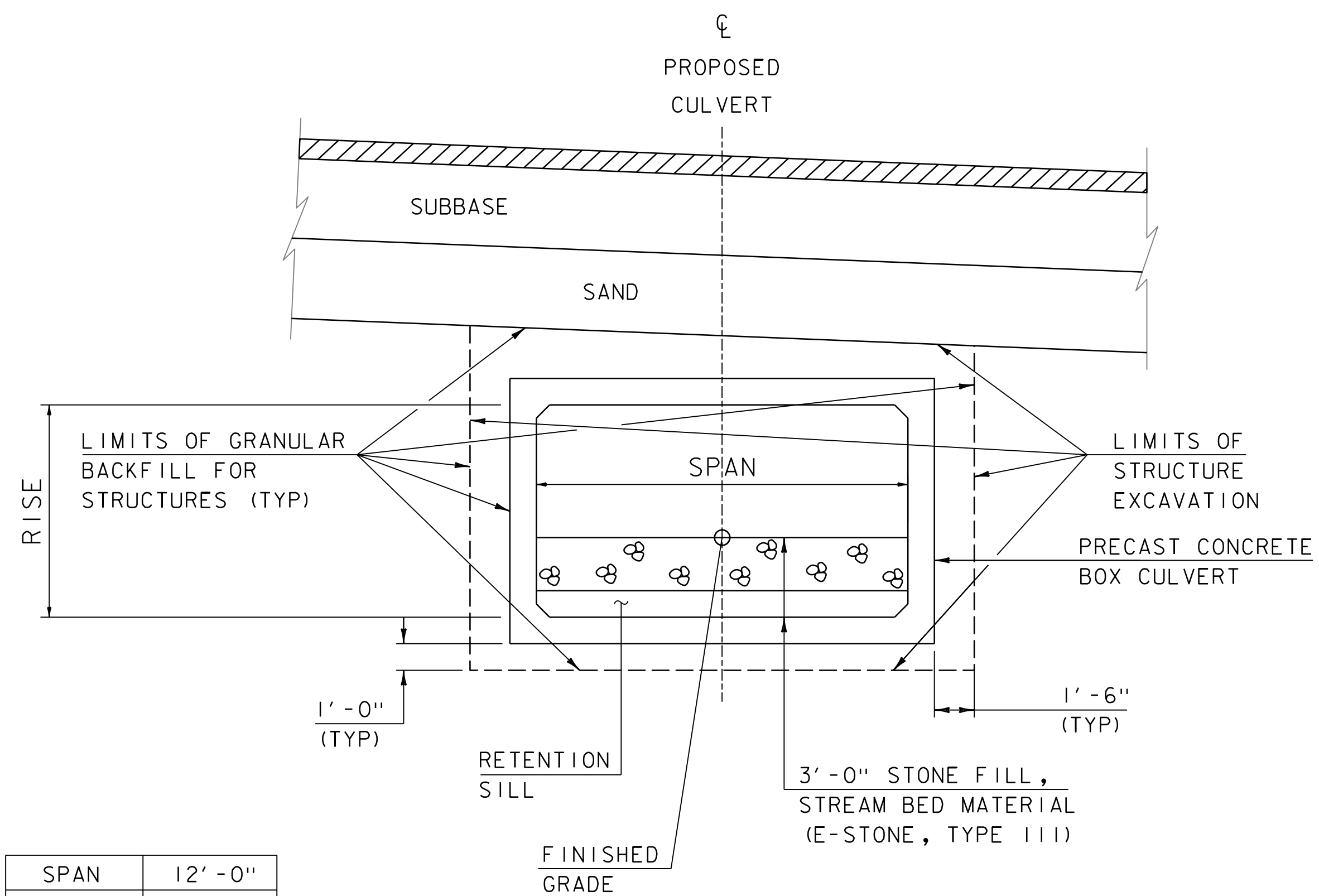
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND	+/- 1"

EMULSION SHALL BE APPLIED PER THE APPLICATION RATES IN TABLE 406.12A OF THE STANDARD SPECIFICATIONS.

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

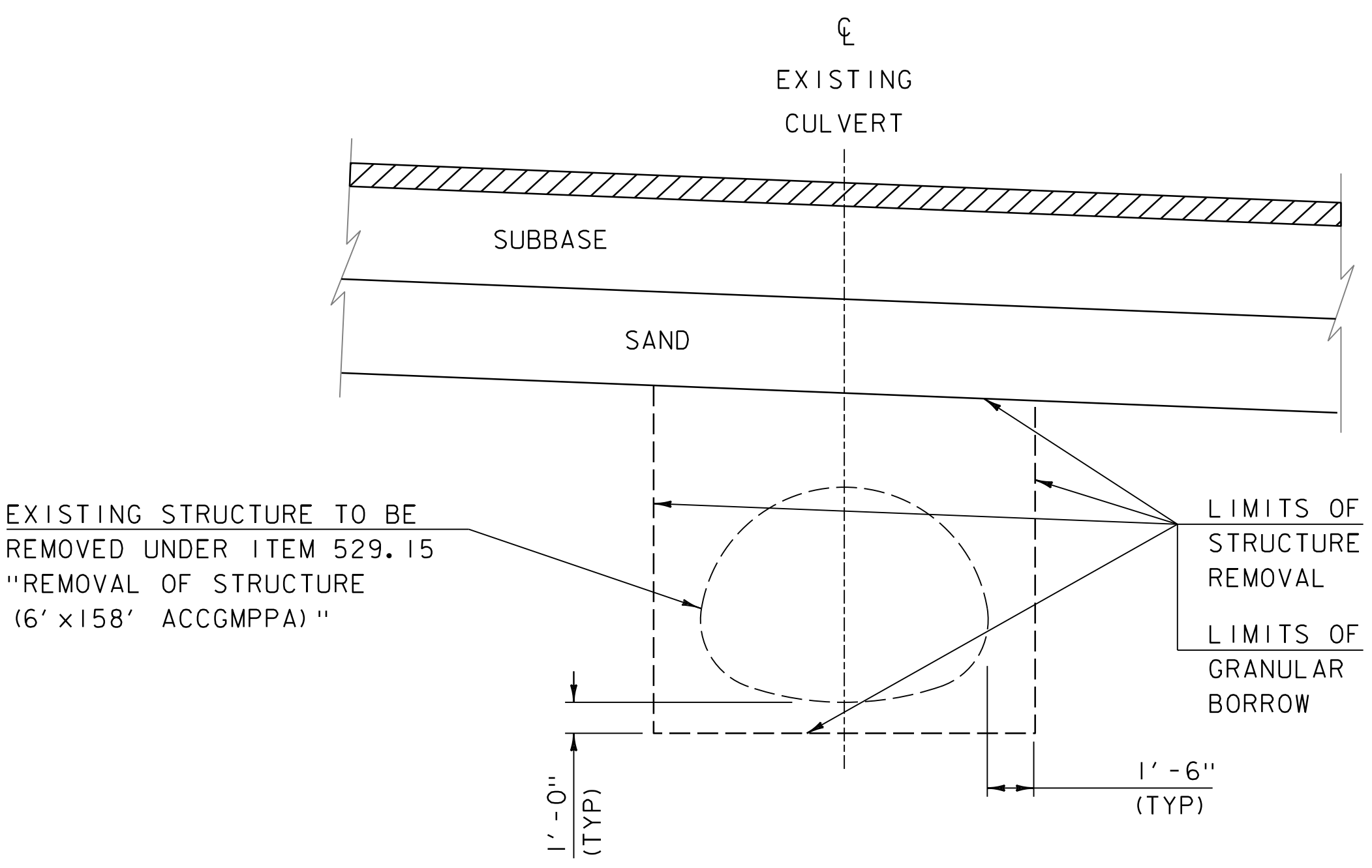
FILE NAME: sl9b207typ.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: R. HOOD
TYPICAL SECTION SHEET 1

PLOT DATE: 11/28/2022
DRAWN BY: G. ROKES
CHECKED BY: R. HOOD
SHEET 3 OF 41

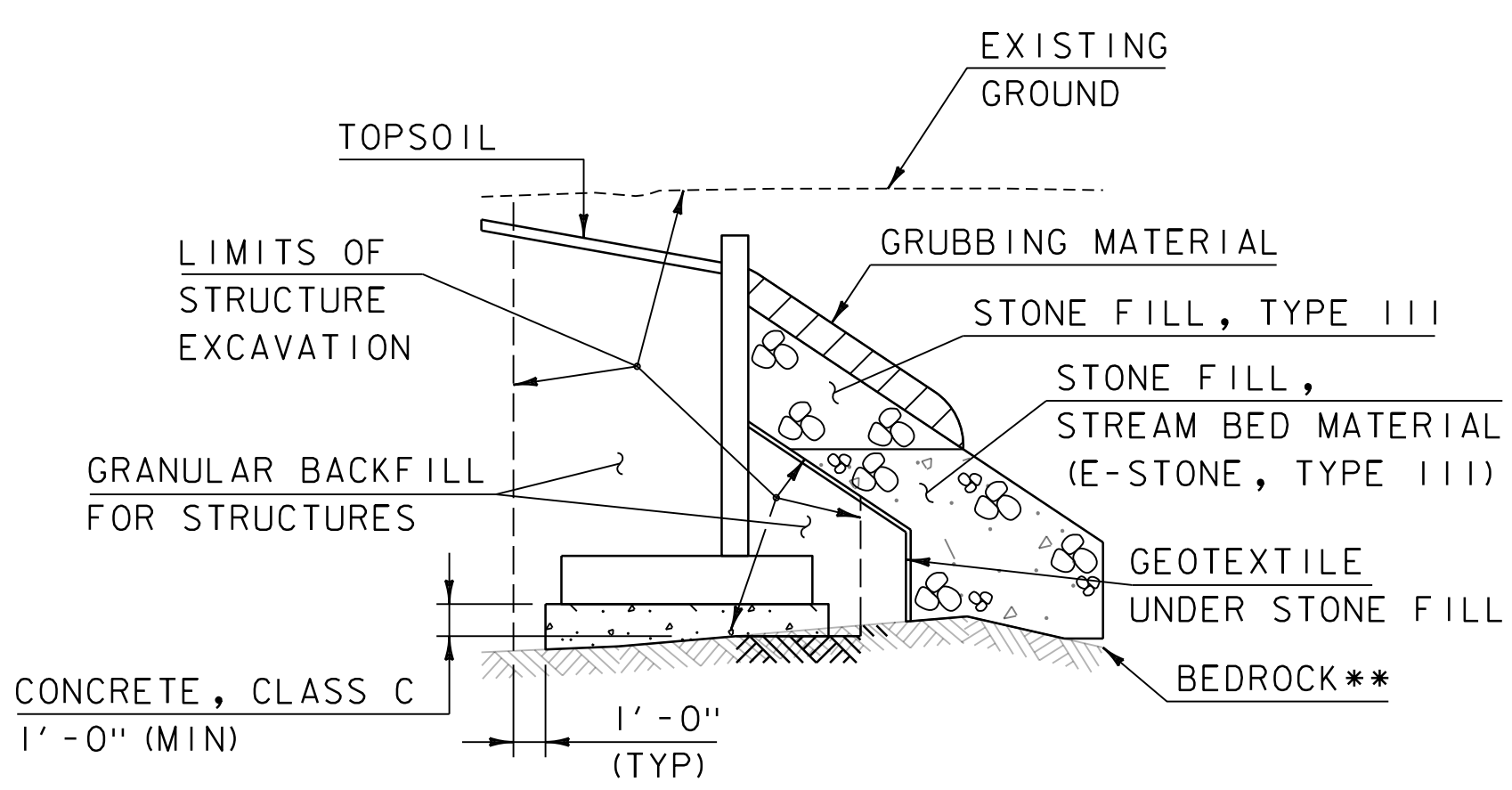


SPAN	12'-0"
RISE	8'-0"
LENGTH	138'-0"

PROPOSED BOX CULVERT TYPICAL SECTION
NOT TO SCALE

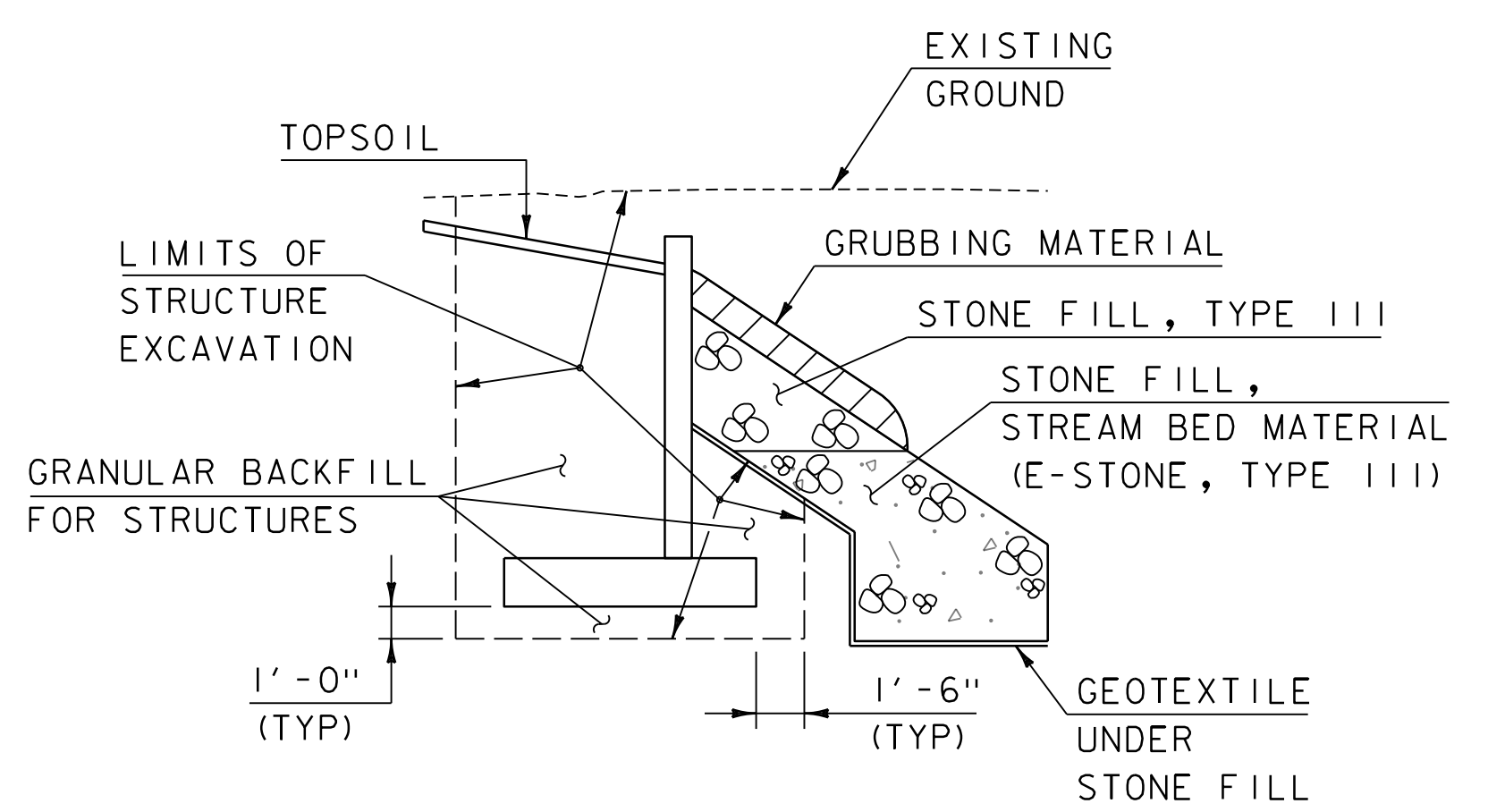


EXISTING CULVERT TYPICAL SECTION
NOT TO SCALE

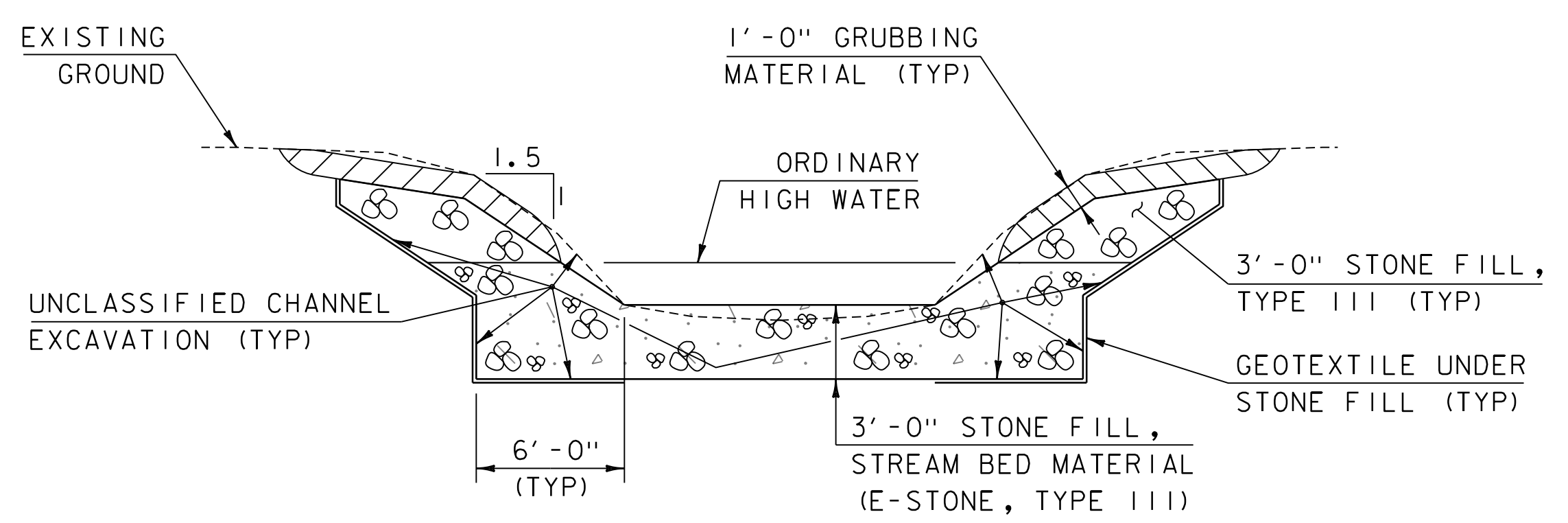


WINGWALL EARTHWORK TYPICAL SECTION
FOUNDED ON BEDROCK
NOT TO SCALE

** THE BEDROCK SHOWN IN THIS TYPICAL SECTION IS NOT REPRESENTATIVE OF ACTUAL SUBSURFACE CONDITIONS. SEE PROJECT NOTE 5 FOR MORE INFORMATION.



WINGWALL EARTHWORK TYPICAL SECTION
FOUNDED ON SOIL
NOT TO SCALE



CHANNEL TYPICAL SECTION
NOT TO SCALE

1. THE CONTRACTOR SHALL CREATE A LOW-FLOW CHANNEL IN THE STREAM BED MATERIAL AS DIRECTED BY THE ENGINEER. CREATE THE LOW FLOW CHANNEL AT THE INLET, OUTLET, AND INSIDE THE CULVERT.
2. GRUBBING MATERIAL SHALL BE PLACED OVER STONE FILL WHEN ABOVE THE OHW ELEVATION. SEE THE CHANNEL SECTIONS FOR ADDITIONAL DETAILING.

PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	G. ROKES
FILE NAME:	sl9b207typ.dgn	DESIGNED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	TYPICAL SECTION SHEET	2
CHECKED BY:	R. HOOD	SHEET	4 OF 41

GENERAL

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2018; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, DATED 2020; AND THEIR LATEST REVISIONS.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CONSISTENCY BETWEEN THE FABRICATOR'S SHOP DRAWINGS AND ENSURING THAT ALL PRECAST COMPONENTS FIT TOGETHER.
- 3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS OTHERWISE NOTED.
- 4. MEASURES NECESSARY TO MAINTAIN WATER PASSAGE WILL BE INCLUDED IN THE PAYMENT OF ITEM 900.620 "SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)."

EARTHWORK

- 5. THE LOCATION OF BEDROCK SHOWN IN THE PLANS IS SUBJECT TO THE LIMITATIONS OF THE METHODS USED TO INVESTIGATE SUBSURFACE CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ACTUAL ELEVATIONS.
- 6. THE CONTRACTOR SHALL PROOF ROLL FOUNDATION SOILS USING A MINIMUM 5-TON, SELF-PROPELLED VIBRATORY ROLLER TO COMPACT SOILS DISTURBED BY EXCAVATION. SATURATED FOUNDATION SOILS SHALL BE PROOF ROLLED WITHOUT VIBRATION. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 204.30 "GRANULAR BACKFILL FOR STRUCTURES."
- 7. THE CONTRACTOR SHALL MAINTAIN ALL SECTIONS OF THE HIGHWAY UNDER CONSTRUCTION SATISFACTORY TO THE ENGINEER TO ENSURE THE SAFETY OF THE TRAVELING PUBLIC. PAYMENT WILL BE UNDER ITEM 527.10 "MAINTENANCE OF STRUCTURES AND APPROACHES" WHICH SHALL INCLUDE BUT NOT BE LIMITED TO PERFORMING THE WORK AND FOR FURNISHING ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING CULVERT, AND ALL APPROACHES.
- 8. ALL OVERBREAKAGE BEYOND ALLOWANCE SPECIFIED IN SUBSECTION 204.06(B)(1) SHALL BE REPLACED WITH CLASS C CONCRETE AT THE CONTRACTOR'S EXPENSE.
- 9. THE CONTRACTOR SHALL CONTACT THE RIVER MANAGEMENT ENGINEER, JOSHUA CARVAJAL – (802) 490-6163 – A MINIMUM OF TWO WEEKS PRIOR TO CONSTRUCTION FOR APPROVAL OF STREAM BED MATERIAL AND FOR CONSULTATION REGARDING FINAL GRADING OF THE CHANNEL.

TEMPORARY ROADWAY AND TRAFFIC CONTROL

- 10. THE TEMPORARY ROADWAY ALIGNMENT SHALL BE POSTED FOR 35 MPH AND SHALL MAINTAIN TWO-WAY TRAFFIC, AT ALL TIMES, THROUGH THE PROJECT LIMITS. SEE PHASE TYPICAL SHEET AND PHASE LAYOUT SHEETS FOR ADDITIONAL DETAILS AND REQUIREMENTS.
- 11. ALL TEMPORARY TRAFFIC CONTROL DEVICES AND MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. FOR ADDITIONAL SIGNING INSTRUCTIONS, SEE THE T-SERIES STANDARD DRAWINGS LISTED IN THE STANDARDS LIST. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.
- 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, SUBMITTAL, AND IMPLEMENTATION OF A SITE-SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT THE PLAN TO THE ENGINEER FOR APPROVAL, AS PER SUBSECTION 105.03. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE, AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. ALL RELATED COSTS WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY AND TRAFFIC CONTROL, ALL-INCLUSIVE)."
- 13. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. ANY ADDITIONAL WORK NECESSARY TO MAINTAIN ACCESS TO SIDE ROADS AND DRIVES WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY AND TRAFFIC CONTROL, ALL-INCLUSIVE)."
- 14. TEMPORARY TRAFFIC BARRIER SHALL MEET THE REQUIREMENTS OF SUBSECTION 621.07. FURNISHING, MAINTAINING, INSTALLATION, REMOVAL, AND RESETTING WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY AND TRAFFIC CONTROL, ALL-INCLUSIVE)."

- 15. ANY REMOVAL, COVERING, AND/OR RESETTING OF EXISTING TRAFFIC SIGNS, AS DEEMED NECESSARY BY THE ENGINEER, WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY AND TRAFFIC CONTROL, ALL-INCLUSIVE)."
- 16. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION NECESSARY TO MAINTAIN TRAFFIC WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY AND TRAFFIC CONTROL, ALL-INCLUSIVE)." THE CONTRACTOR SHALL SUBMIT CONSTRUCTION DRAWINGS TO THE ENGINEER FOR APPROVAL AS PER SUBSECTION 105.03.

CONCRETE/PRECAST CONCRETE

- 17. ALL LIFTING POINTS SHALL BE REMOVABLE OR COVERABLE TO THE MINIMUM CLEAR COVER OF 2". THE LIFTING POINTS SHALL BE DETAILED IN THE APPROPRIATE FABRICATION DRAWING. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 540.10 "PRECAST CONCRETE STRUCTURE (12' X 8' X 138' BOX AND WINGWALLS)."
- 18. ALL RECESSED LIFTING POINTS AND BLOCK OUTS SHALL BE FILLED WITH MORTAR TYPE IV PER SUBSECTION 540.11. ALL RELATED COSTS WILL BE CONSIDERED INCIDENTAL TO THE PAYMENT OF ITEM 540.10 "PRECAST CONCRETE STRUCTURE (12' X 8' X 138' BOX AND WINGWALLS)."
- 19. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".
- 20. ALL PRECAST CONCRETE ELEMENTS SHALL BE DESIGNED BY THE FABRICATOR IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS REFERENCED IN PROJECT NOTE 1. DESIGNS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS AND CALCULATIONS TO THE ENGINEER IN ACCORDANCE WITH SECTION 105. USE THE FOLLOWING DESIGN CRITERIA:
 - A. SOIL UNIT WEIGHT = 140 PCF
 - B. DESIGN LIVE LOAD = HL-93
 - C. DESIGN FILL OVER BOX = 0-6 FEET
 - D. AT-REST EARTH PRESSURE (K_o) = 0.38
 - E. CONCRETE COMPRESSIVE STRENGTH = 5.0 KSI (MINIMUM)
 - F. DESIGN LIFE = 100 YR
- 21. THE CONNECTION BETWEEN THE WINGWALL SUBFOOTING AND FOOTING SHALL BE DESIGNED BY THE FABRICATOR.
- 22. THE PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED FOR HYDROSTATIC PRESSURE UNLESS RAPID DRAINING MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 704.18 IS USED.
- 23. THE SPAN, RISE, AND LENGTH OF THE PRECAST CONCRETE STRUCTURE SHALL BE NO LESS THAN WHAT IS SHOWN IN THE PRECAST BOX CULVERT TYPICAL SECTION. THE ACTUAL DIMENSIONS AND CONFIGURATION WILL BE DEPENDENT ON THE FABRICATOR. BOX DETAILS AND BOX LAYOUT SHEETS ARE INCLUDED FOR REFERENCE. BOTH INLET AND OUTLET FACES, OF THE PRECAST CONCRETE BOX, SHALL BE VERTICAL IN THEIR FINAL POSITION.
- 24. WATERPROOFING MEMBRANE SYSTEM, TYPE III – MEETING THE REQUIREMENTS OF SUBSECTION 726.11(c) – SHALL BE APPLIED, SATISFACTORY TO THE ENGINEER, TO THE TOPS AND SIDES OF THE PRECAST CONCRETE BOX JOINTS. MEMBRANE SHALL EXTEND PAST PRECAST JOINTS A MINIMUM OF ONE FOOT. MEMBRANE SHALL BE APPLIED TO THE SIDES OF THE PRECAST CONCRETE BOX PRIOR TO THE TOPS. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLED STYLE WITH A MINIMUM OVERLAP OF ONE FOOT. ALL OF THE CONCRETE JOINTS SHALL BE GROUTED PRIOR TO MEMBRANE. A 1" THICK POLYSTYRENE INSULATION BOARD – MEETING THE REQUIREMENTS OF SUBSECTION 735.01 – SHALL BE PLACED OVER THE MEMBRANE PRIOR TO BACKFILLING. PAYMENT FOR THIS WORK AND MATERIALS WILL BE CONSIDERED INCIDENTAL TO ITEM 540.10 "PRECAST CONCRETE STRUCTURE (12' X 8' X 138' BOX AND WINGWALLS)."
- 25. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE FIELD APPLIED TO ALL EXPOSED EXTERIOR SURFACES OF THE PRECAST CONCRETE STRUCTURE.
- 26. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO WINGWALL 2. SEE STANDARD DRAWING S-501 FOR FURTHER DETAILS.
- 27. RETENTION SILLS SHALL BE DESIGNED BY THE FABRICATOR AND SHALL BE SPACED AT A MAXIMUM OF 8'-0", AND AT THE INLET AND OUTLET.

REINFORCING STEEL

- 28. ALL REINFORCING STEEL SHALL BE LEVEL II 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"

EPSC

- 31. THE CONTRACTOR SHALL PROVIDE A SITE-SPECIFIC EROSION PREVENTION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH SECTION 653 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. ESTIMATED QUANTITIES FOR EPSC WORK HAVE BEEN INCLUDED IN THE CONTRACT FOR BIDDING PURPOSES. IF THE CONTRACTOR'S EPSC PLAN REQUIRES ITEMS OF WORK THAT ARE NOT INCLUDED IN THE PLANS IT SHALL BE PAID FOR AS PART OF ITEM 653.03 "MAINTENANCE OF EPSC PLAN."
- 32. EXISTING CONDITIONS SHEET HAS BEEN PROVIDED FOR THE CONTRACTOR'S USE IN SUBMITTALS.

PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207forms.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. McCARTHY	DRAWN BY: R. HOOD
DESIGNED BY: R. HOOD	CHECKED BY: F. BARROWS
PROJECT NOTES	SHEET 5 OF 41

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						1011 - ROADWAY	1051 - EROSION CONTROL	1083 - UTILITIES - BID ITEMS (NO FEDERAL/STATE PARTICIPATION)	1211 - BRIDGE	1999 - 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				
						2,700					2,700		CY	COMMON EXCAVATION	203.15				
									1,700		1,700		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		1,890.00	CY	COMMON EXCAVATION (2700 x 0.7)
						860					860		CY	SAND BORROW	203.31		510.00	CY	CHANNEL EXCAVATION (1700 x 0.3)
						1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		405.00	CY	STRUCTURE EXCAVATION (1350 x 0.3)
									1,350		1,350		CY	STRUCTURE EXCAVATION	204.25		5.00	CY	ROUNDING
									650		650		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		2,810.00	CY	TOTAL FILL AVAILABLE
						700					700		SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.10				FILL REQUIRED
						250					250		LF	MILLED RUMBLE STRIPS (CENTERLINE)	213.10		540.50	CY	FACTORED GRANULAR BORROW (470 x 1.15)
						1,350					1,350		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		9.50	CY	ROUNDING
						70					70		CY	AGGREGATE SURFACE COURSE	401.10		550.00	CY	TOTAL FILL REQUIRED
						40					40		OWT	EMULSIFIED ASPHALT	404.65				TOTAL WASTE MATERIAL
						1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY (TYPE IIS)
									5		5		GAL	WATER REPELLENT, SILANE	514.10		292.00	TON	BASE COURSE
									1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10		292.00	TON	BASE COURSE
									1		1		EACH	REMOVAL OF STRUCTURE (6' X 158' ACCGMPPA)	529.15		6.00	TON	ROUNDING
									1		1		LS	PRECAST CONCRETE STRUCTURE (12' X 8' X 138' BOX AND WINGWALLS)	540.10				TOTAL PAVEMENT (TYPE IIS) REQUIRED
									24		24		CY	CONCRETE, CLASS C	541.30				BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY (TYPE IVS)
						10					10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25		218.00	TON	INTERMEDIATE COURSE
						130					130		MGAL	DUST CONTROL WITH WATER	609.10		251.00	TON	WEARING COURSE
						1					1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15		6.00	TON	ROUNDING
									950		950		CY	STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE III)	613.06		475.00	TON	TOTAL PAVEMENT (TYPE IVS) REQUIRED
									20		20		CY	STONE FILL, TYPE II	613.11				N.A.B.I. = NOT A BID ITEM
									450		450		CY	STONE FILL, TYPE III	613.12				
						600					600		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, CONCRETE	631.16				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										1	1		LS	TESTING EQUIPMENT, GROUT	631.19				
										3,000	3,000		DL	FIELD OFFICE COMMUNICATIONS (N.A.B.I.)	631.26				
						7					7		EACH	CPM SCHEDULE	633.10				
						1					1		LS	MOBILIZATION/DEMobilIZATION	635.11				
						4					4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
						1,150					1,150		LF	4 INCH WHITE LINE, WATERBORNE PAINT	646.201				
						950					950		LF	4 INCH YELLOW LINE, WATERBORNE PAINT	646.2111				
						20					20		LF	24 INCH STOP BAR, WATERBORNE PAINT	646.261				
						4					4		EACH	LETTER OR SYMBOL, WATERBORNE PAINT	646.301				
						250					250		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11				

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207forms.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: R. HOOD
QUANTITY SHEET 1

PLOT DATE: 11/28/2022
DRAWN BY: R. HOOD
CHECKED BY: F. BARROWS
SHEET 6 OF 41

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					1011 - ROADWAY	1051 - EROSION CONTROL	1083 - UTILITIES - BID ITEMS (NO FEDERAL/STATE PARTICIPATION)	1211 - BRIDGE	1999 - FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1,000				1,000		SY	GEOTEXTILE UNDER STONE FILL	649.31				
						46				46		LB	SEED	651.15				
						250				250		LB	FERTILIZER	651.18				
						1				1		TON	AGRICULTURAL LIMESTONE	651.20				
						170				170		CY	TOPSOIL	651.35				
						750				750		SY	GRUBBING MATERIAL (12")	651.40				
						1				1		LS	EPSC PLAN	653.01				
						100				100		HR	MONITORING EPSC PLAN	653.02				
						1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	653.03				
						1				1		TON	HAY MULCH	653.10				
						550				550		SY	ROLLED EROSION CONTROL PRODUCT, TYPE I	653.20				
						80				80		CY	CHECK DAM, TYPE I	653.25				
						60				60		CY	STABILIZED CONSTRUCTION ENTRANCE	653.35				
						1				1		EACH	FILTER BAG	653.45				
						1,050				1,050		LF	SILT FENCE, TYPE I	653.475				
						650				650		LF	BARRIER FENCE	653.50				
						470				470		LF	PROJECT DEMARCATION FENCE	653.55				
						2				2		EACH	EVERGREEN TREES (PICEA GLAUCA)(CONT.)(3'-4' HT)	656.20				
						2				2		EACH	DECIDUOUS TREES (ACER RUBRUM)(CONT.)(5'-6' HT)	656.30				
						2				2		EACH	DECIDUOUS TREES (QUERCUS BICOLOR)(CONT.)(5'-6' HT)	656.30				
						6				6		EACH	DECIDUOUS SHRUBS (CORNUS SERICEA)(CONT.)(2 GAL)	656.35				
						7				7		EACH	DECIDUOUS SHRUBS (CORNUS AMOMUM)(CONT.)(2 GAL)	656.35				
						6				6		EACH	DECIDUOUS SHRUBS (ILEX VERTICILLATA)(CONT.)(2 GAL)	656.35				
						1				1		EACH	DECIDUOUS SHRUBS (ILEX VERTICILLATA 'JM DANDY')(CONT.)(2 GAL)	656.35				
						8				8		EACH	DECIDUOUS SHRUBS (SALIX DISCOLOR)(CONT.)(2 GAL)	656.35				
						10				10		EACH	DECIDUOUS SHRUBS (SALIX LUCIDA)(CONT.)(2 GAL)	656.35				
						5				5		EACH	DECIDUOUS SHRUBS (VIBURNUM LENTAGO)(CONT.)(2 GAL)	656.35				
						14				14		MGAL	LANDSCAPE WATERING	656.65				
						8				8		CY	LANDSCAPE BACKFILL, TRUCK MEASUREMENT	656.80				
						1				1		SF	TRAFFIC SIGN, TYPE A	675.20				
						85				85		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						5				5		EACH	REMOVING SIGNS	675.50				
						5				5		EACH	RESETTING SIGNS	675.60				
										1		EACH	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.620				
							1			1		LS	SPECIAL PROVISION (SANITARY SEWER SYSTEM)(12")	900.645				N.A.B.I. = NOT A BID ITEM
						1				1		LS	SPECIAL PROVISION (TEMPORARY ROADWAY AND TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						1,065				1,065		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)
 FILE NAME: s19b207forms.dgn
 PROJECT LEADER: JB. MCCARTHY
 DESIGNED BY: R. HOOD
 QUANTITY SHEET 2
 PLOT DATE: 11/28/2022
 DRAWN BY: R. HOOD
 CHECKED BY: F. BARROWS
 SHEET 7 OF 41

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT CODE	DESCRIPTION
BF	BARRIER FENCE
CH	CHANNEL EASEMENT
CONST	CONSTRUCTION EASEMENT
CUL	CULVERT EASEMENT
D&C	DISCONNECT & CONNECT
DIT	DITCH EASEMENT
DR	DRAINAGE EASEMENT
DRIVE	DRIVEWAY EASEMENT
EC	EROSION CONTROL
HWY	HIGHWAY EASEMENT
I&M	INSTALL & MAINTAIN EASEMENT
LAND	LANDSCAPE EASEMENT
PDF	PROJECT DEMARCATION FENCE
R&RES	REMOVE & RESET
R&REP	REMOVE & REPLACE
R.T.& I.	RIGHT, TITLE, AND INTEREST
SR	SLOPE RIGHT
UE	UTILITY EASEMENT
(P)	PERMANENT EASEMENT
(T)	TEMPORARY EASEMENT
■	BNDNS BOUND SET
▣	BNDNS BOUND TO BE SET
◎	IPNF IRON PIN FOUND
●	IPNS IRON PIN TO BE SET
⊠	CALC EXISTING ROW POINT
○	PROW PROPOSED ROW POINT
[LENGTH]	LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT CODE	DESCRIPTION
⊕	APL BOUND APPARENT LOCATION
◻	BM BENCHMARK
◻	BND BOUND
⊞	CB CATCH BASIN
⊞	COMB COMBINATION POLE
⊞	DITHR DROP INLET THROATED DNC
⊞	EL ELECTRIC POWER POLE
◊	FPOLE FLAGPOLE
○	GASFIL GAS FILLER
○	GP GUIDE POST
×	GSO GAS SHUT OFF
◊	GUY GUY POLE
◊	GUYW GUY WIRE
×	GV GATE VALVE
⊞	H TREE HARDWOOD
△	HCTRL CONTROL HORIZONTAL
△	HVCTRL CONTROL HORIZ. & VERTICAL
◇	HYD HYDRANT
◊	IP IRON PIN
◊	IPIPE IRON PIPE
⊞	LI LIGHT - STREET OR YARD
⊞	MB MAILBOX
○	MH MANHOLE (MH)
◻	MM MILE MARKER
◻	PM PARKING METER
◻	PMK PROJECT MARKER
◊	POST POST STONE/WOOD
⊞	RRSIG RAILROAD SIGNAL
⊞	RRSL RAILROAD SWITCH LEVER
⊞	S TREE SOFTWOOD
⊞	SAT SATELLITE DISH
⊞	SHRUB SHRUB
⊞	SIGN SIGN
⊞	STUMP STUMP
⊞	TEL TELEPHONE POLE
◊	TIE TIE
⊞	TSIGN SIGN W/DOUBLE POST
⊞	VCTRL CONTROL VERTICAL
◊	WELL WELL
×	WSO WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE
CB	CHORD BEARING

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

— UGU —	UTILITY (GENERIC-UNKNOWN)
— UT —	TELEPHONE
— UE —	ELECTRIC
— UC —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEPHONE
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

— AGU —	UTILITY (GENERIC-UNKNOWN)
— T —	TELEPHONE
— E —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEPHONE
—	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

— CZ —	CLEAR ZONE
—	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

—	TOP OF CUT SLOPE
—	TOE OF FILL SLOPE
—	STONE FILL
—	BOTTOM OF DITCH
—	CULVERT PROPOSED
—	STRUCTURE SUBSURFACE
— PDF —	PROJECT DEMARCATION FENCE
— BF —	BARRIER FENCE
—	TREE PROTECTION ZONE (TPZ)
—	STRIPING LINE REMOVAL
—	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

— TOWN LINE —	TOWN BOUNDARY LINE
— COUNTY LINE —	COUNTY BOUNDARY LINE
— STATE LINE —	STATE BOUNDARY LINE
—	PROPOSED STATE R.O.W. (LIMITED ACCESS)
—	PROPOSED STATE R.O.W.
—	STATE ROW (LIMITED ACCESS)
—	STATE ROW
—	TOWN ROW
—	PERMANENT EASEMENT LINE (P)
—	TEMPORARY EASEMENT LINE (T)
—	SURVEY LINE
— P —	PROPERTY LINE (P/L)
— SR —	SLOPE RIGHTS
— 6f —	6F PROPERTY BOUNDARY
— 4f —	4F PROPERTY BOUNDARY
— HAZ —	HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

—	FILTER CURTAIN
—	SILT FENCE
—	SILT FENCE WOVEN WIRE
—	CHECK DAM
—	DISTURBED AREAS REQUIRING RE-VEGETATION
—	EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

ENVIRONMENTAL RESOURCES

—	WETLAND BOUNDARY
—	RIPARIAN BUFFER ZONE
—	WETLAND BUFFER ZONE
—	SOIL TYPE BOUNDARY
— T&E —	THREATENED & ENDANGERED SPECIES
— HAZ —	HAZARDOUS WASTE AREA
— AG —	AGRICULTURAL LAND
— HABITAT —	FISH & WILDLIFE HABITAT
— FLOOD PLAIN —	FLOOD PLAIN
— OHW —	ORDINARY HIGH WATER (OHW)
—	STORM WATER
—	USDA FOREST SERVICE LANDS
—	WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

— ARCH —	ARCHEOLOGICAL BOUNDARY
— HISTORIC DIST —	HISTORIC DISTRICT BOUNDARY
— HISTORIC —	HISTORIC AREA
— (H) —	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

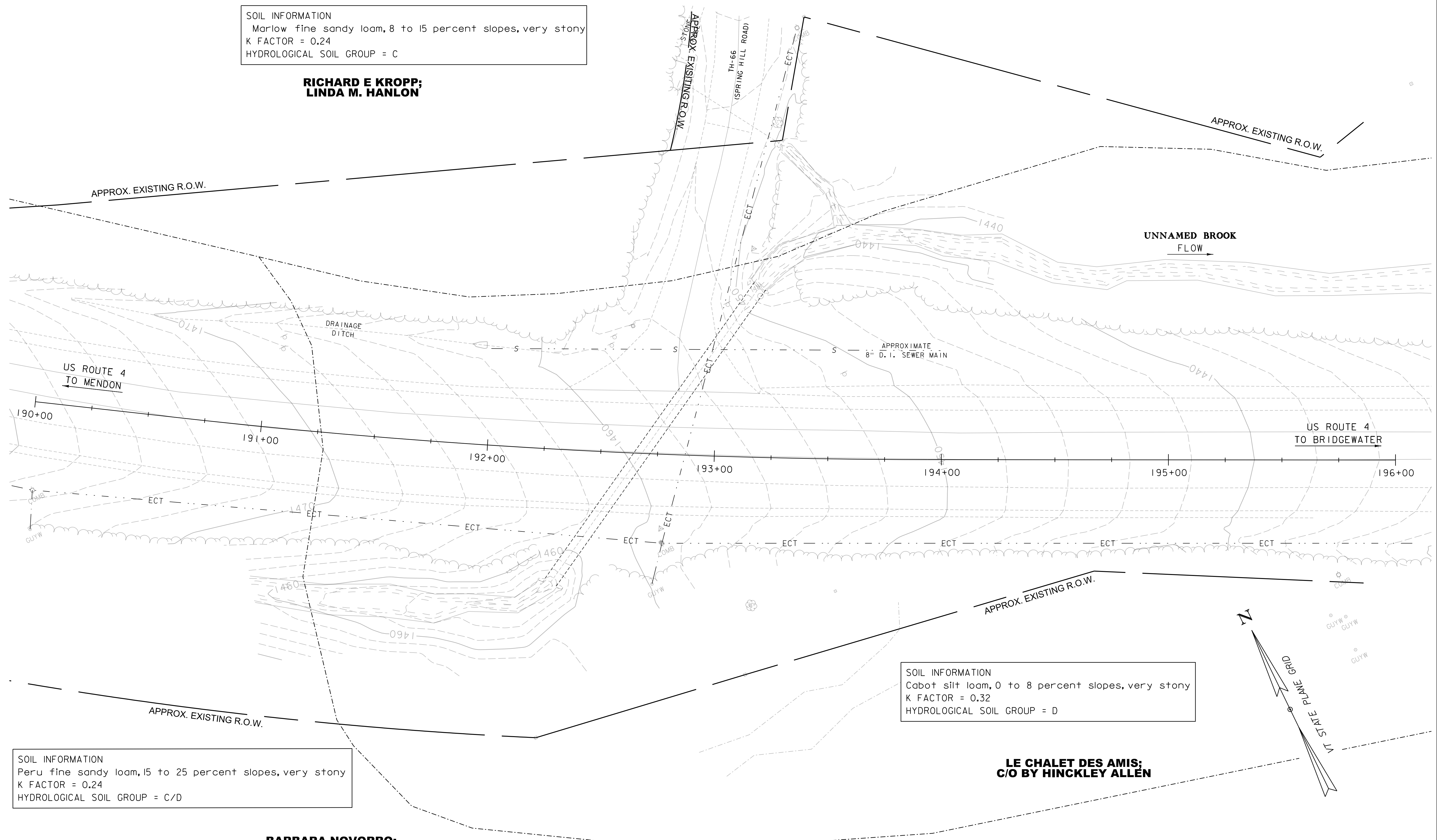
—	ROAD EDGE PAVEMENT
—	ROAD EDGE GRAVEL
—	DRIVEWAY EDGE
—	DITCH
—	FOUNDATION
—	FENCE (EXISTING)
—	FENCE WOOD POST
—	FENCE STEEL POST
—	GARDEN
—	ROAD GUARDRAIL
—	RAILROAD TRACKS
—	CULVERT (EXISTING)
—	STONE WALL
—	WALL
—	WOOD LINE
—	BRUSH LINE
—	HEDGE
—	BODY OF WATER EDGE
—	LEDGE EXPOSED

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207legend.dgn PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD CHECKED BY: R. HOOD
LEGEND SHEET SHEET 8 OF 41

SOIL INFORMATION
 Marlow fine sandy loam, 8 to 15 percent slopes, very stony
 K FACTOR = 0.24
 HYDROLOGICAL SOIL GROUP = C

**RICHARD E KROPP;
 LINDA M. HANLON**



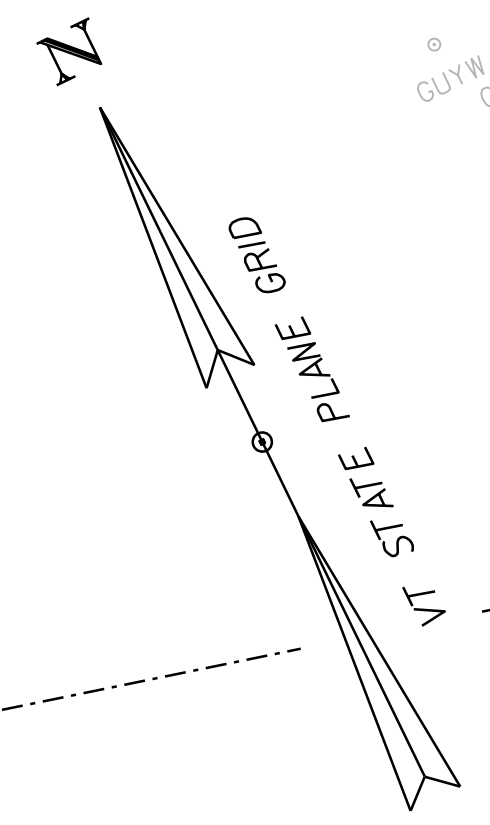
SOIL INFORMATION
 Peru fine sandy loam, 15 to 25 percent slopes, very stony
 K FACTOR = 0.24
 HYDROLOGICAL SOIL GROUP = C/D

**BARBARA NOVORRO;
 DAVID NOVORRO**

SOIL INFORMATION
 Cabot silt loam, 0 to 8 percent slopes, very stony
 K FACTOR = 0.32
 HYDROLOGICAL SOIL GROUP = D

**LE CHALET DES AMIS;
 C/O BY HINCKLEY ALLEN**

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



PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207epscbdr.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD	CHECKED BY: R. HOOD
EXISTING CONDITIONS	SHEET 9 OF 41

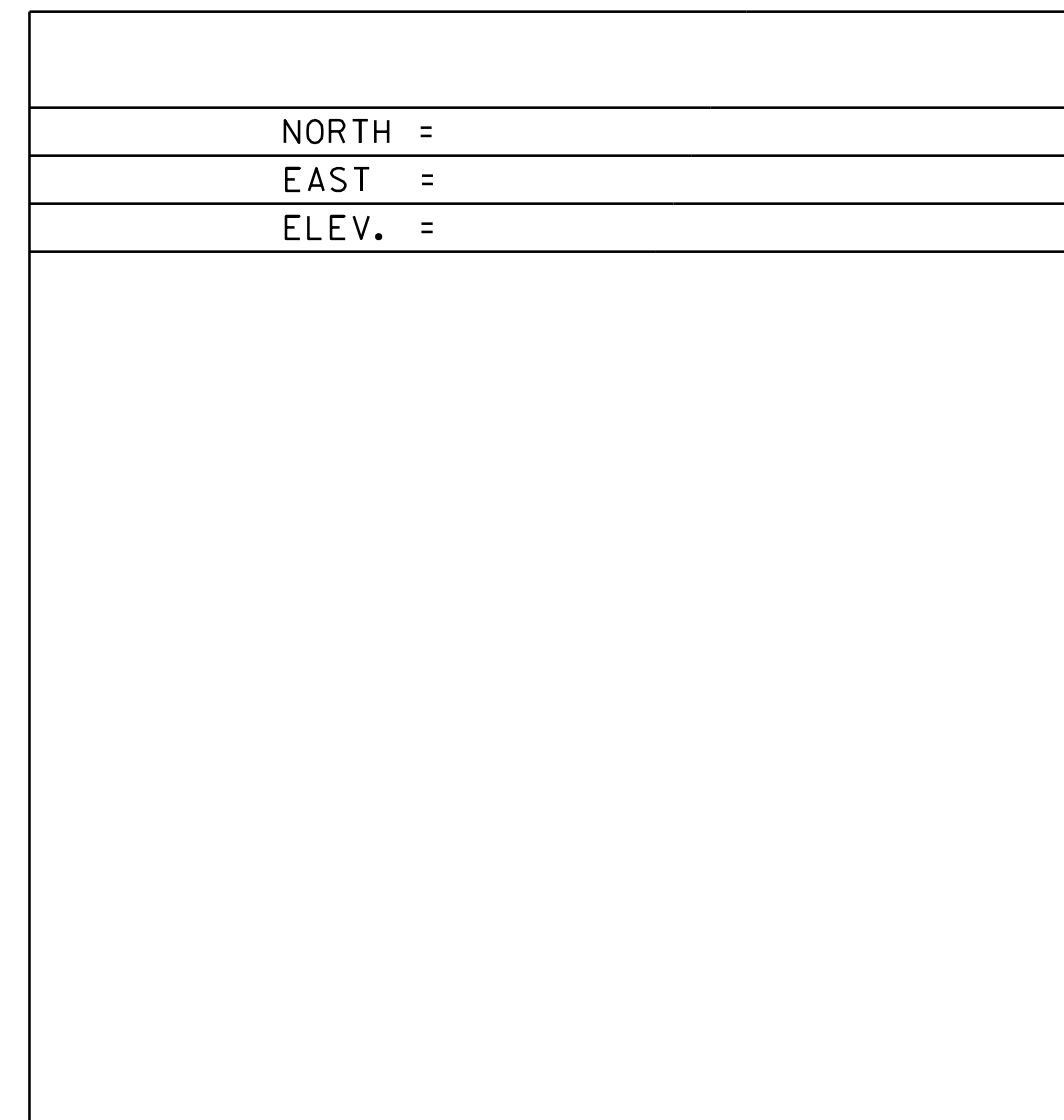
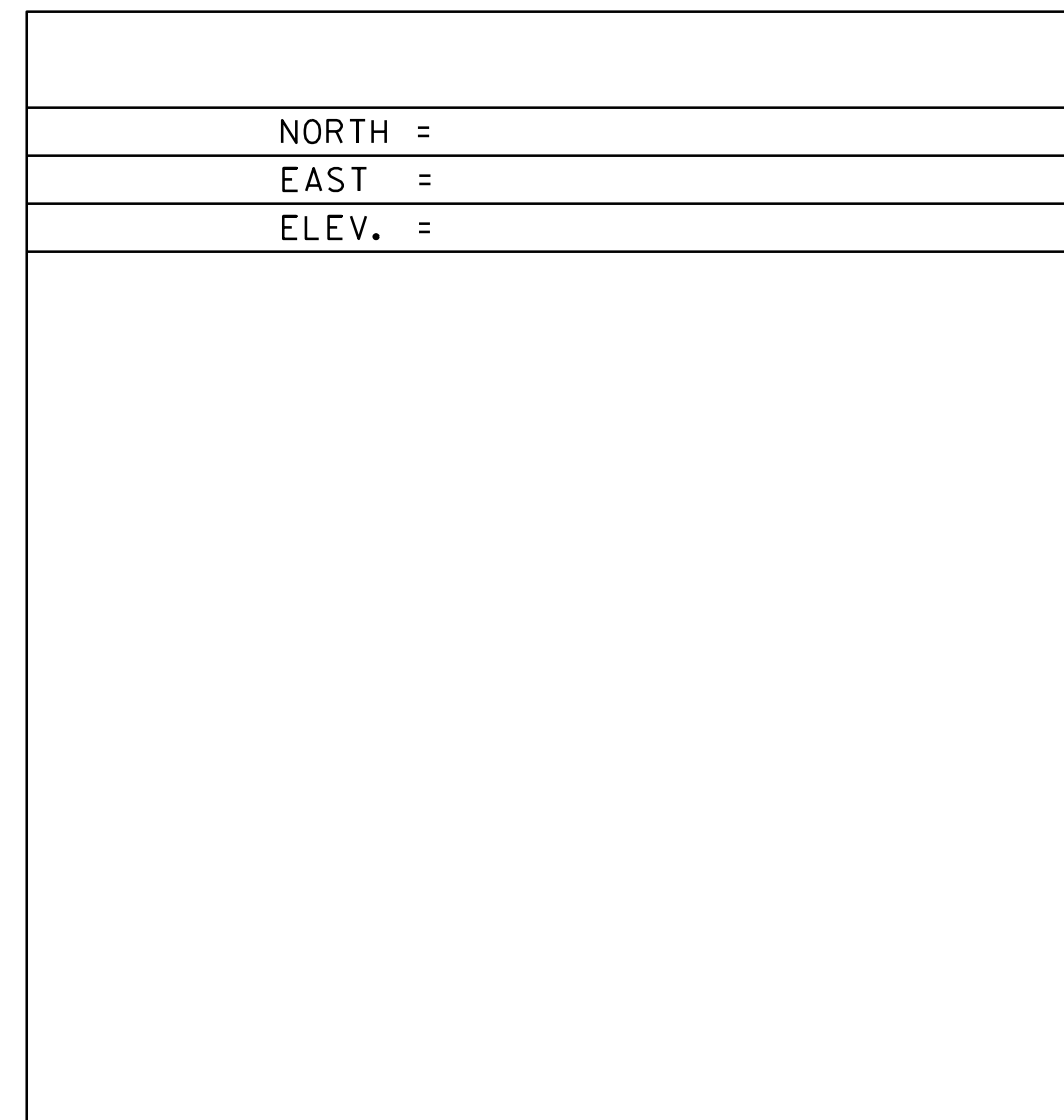
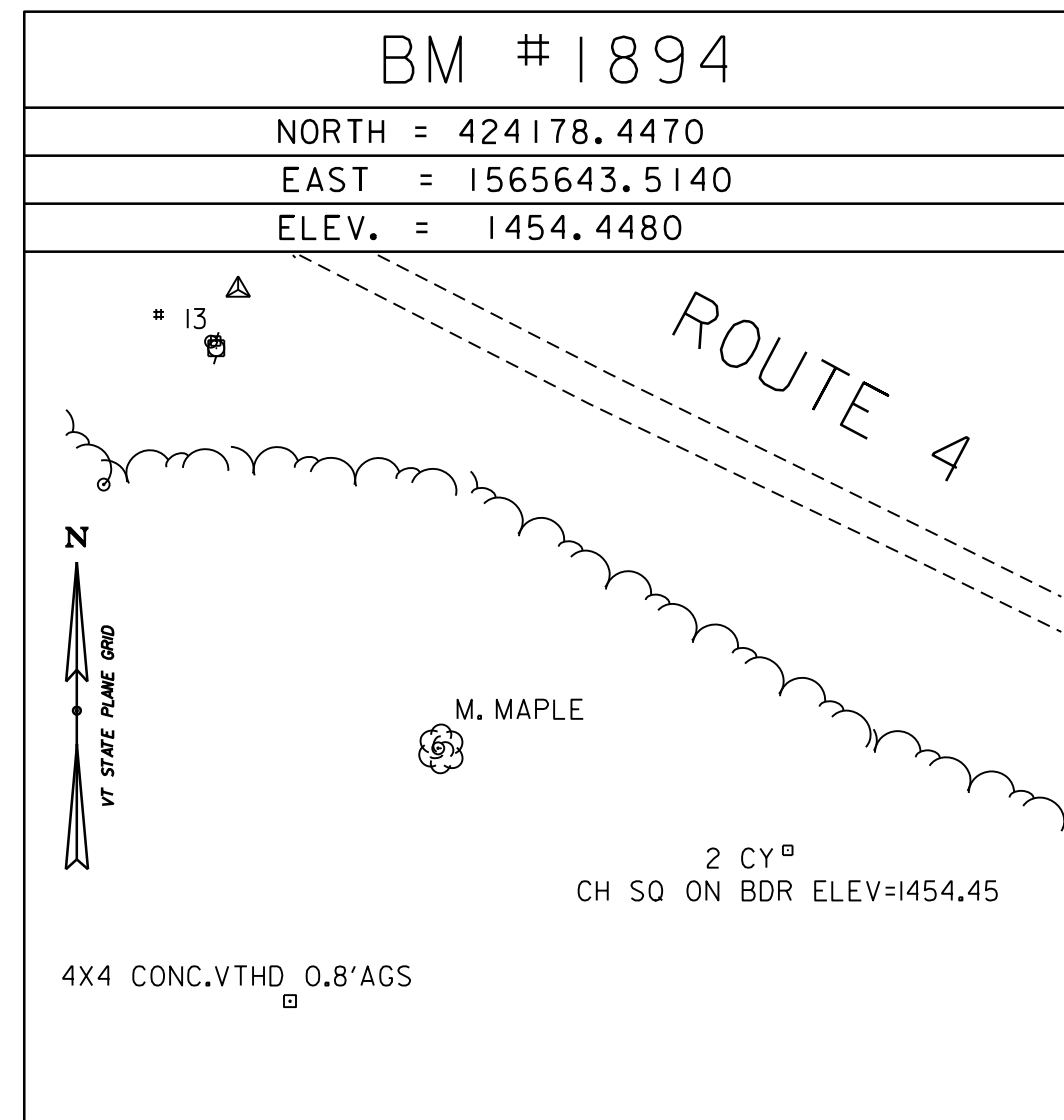
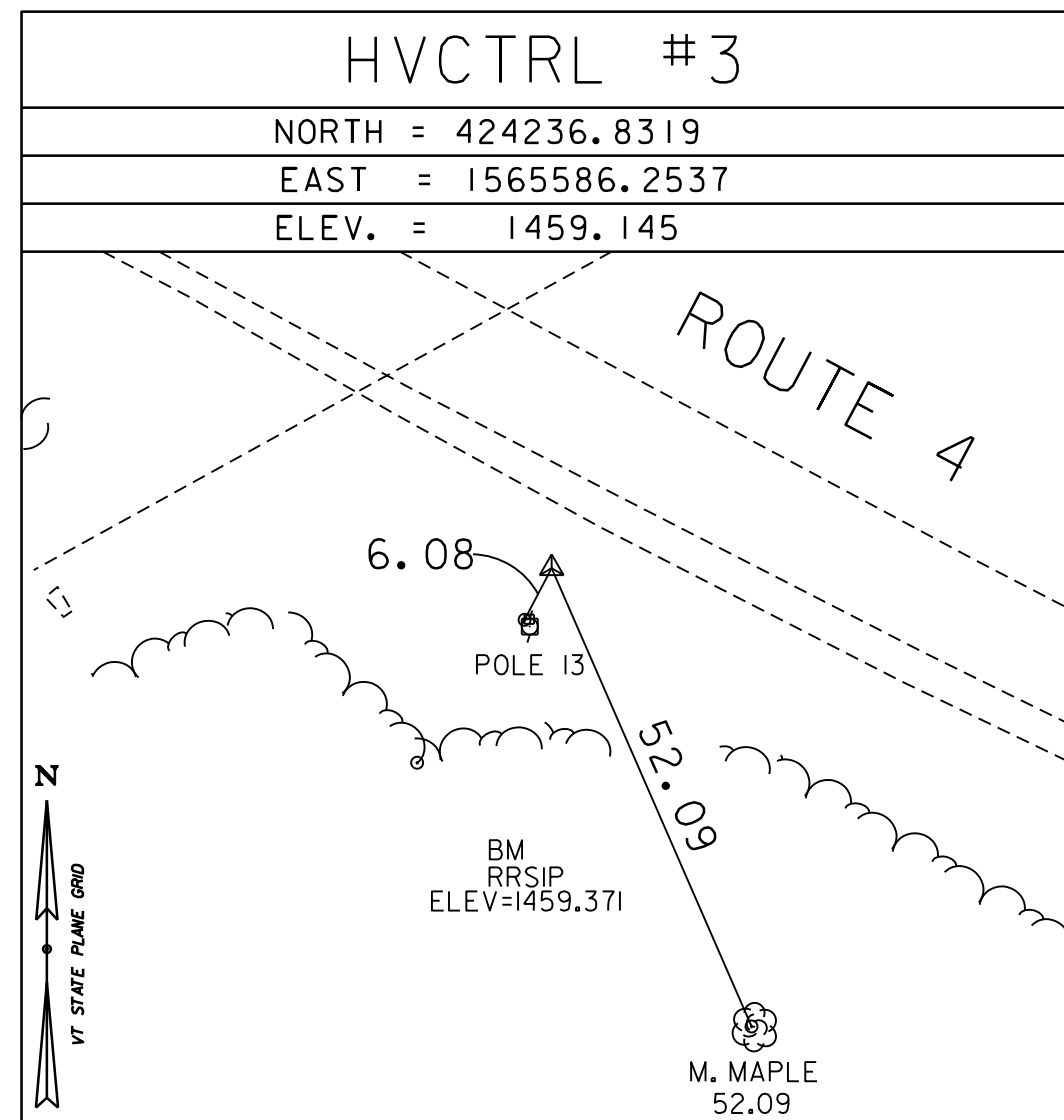
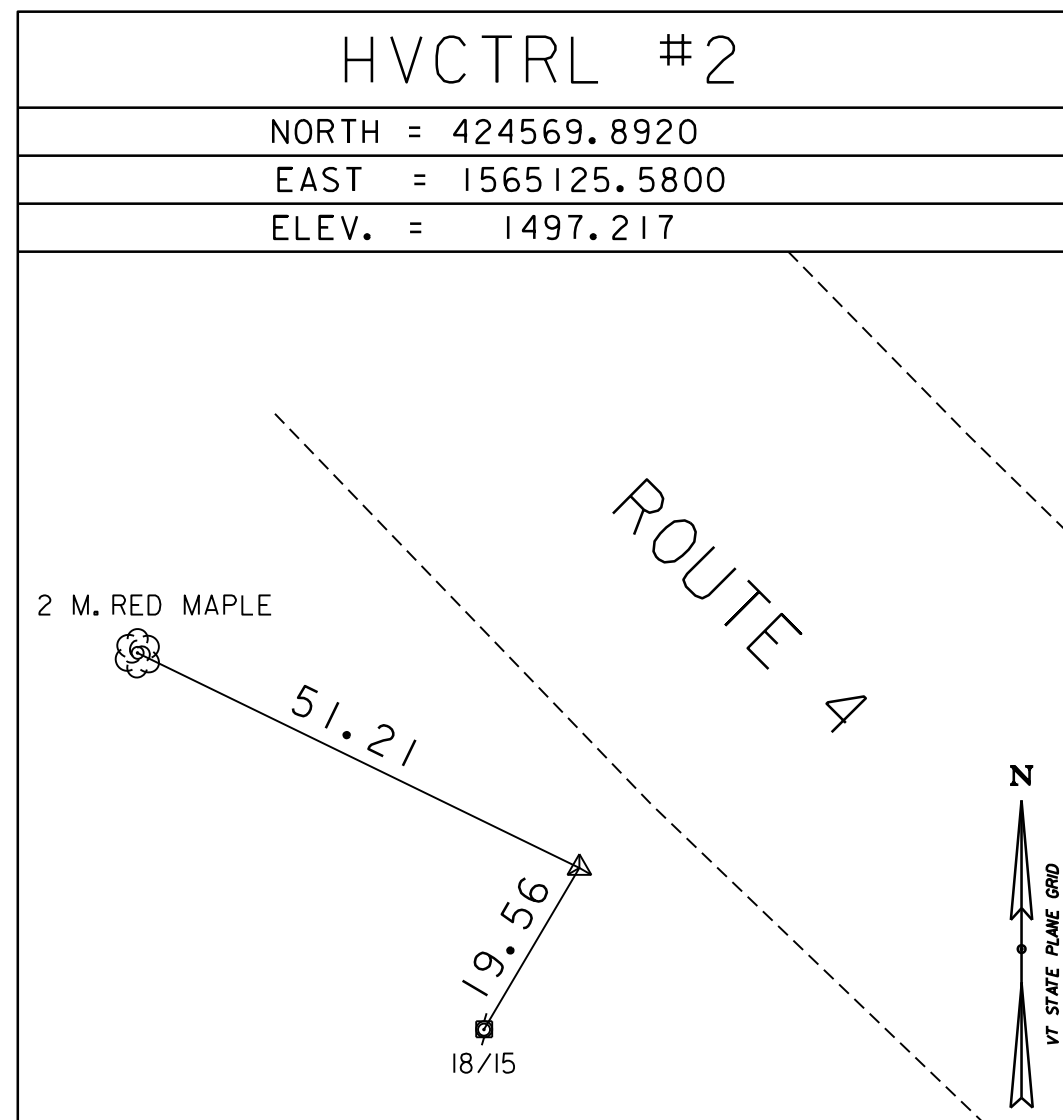
NETWORK CONTROL

HVCTRL #1

B94019
 NORTH = 424922.4800
 EAST = 1564978.8800
 ELEV. = 1525.320

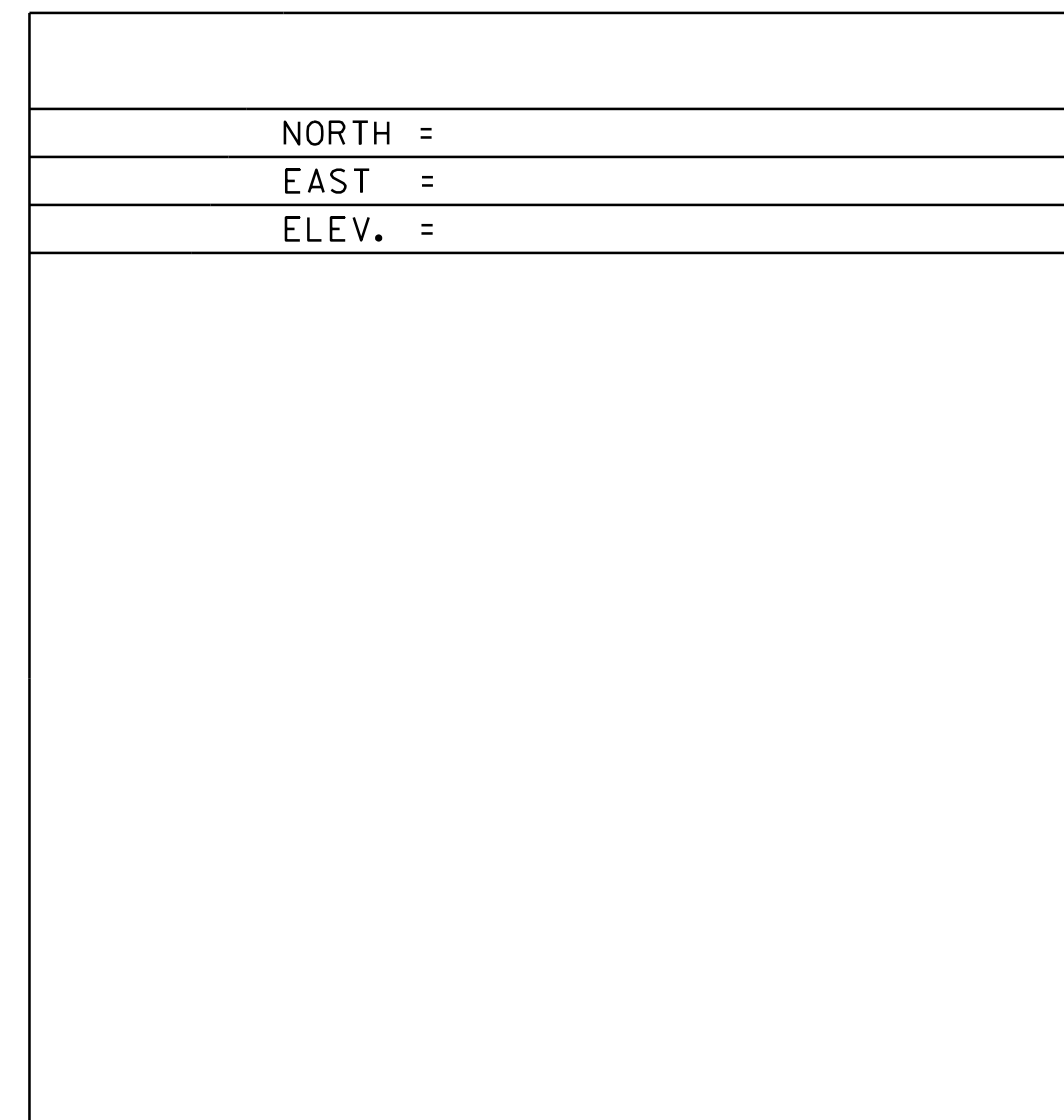
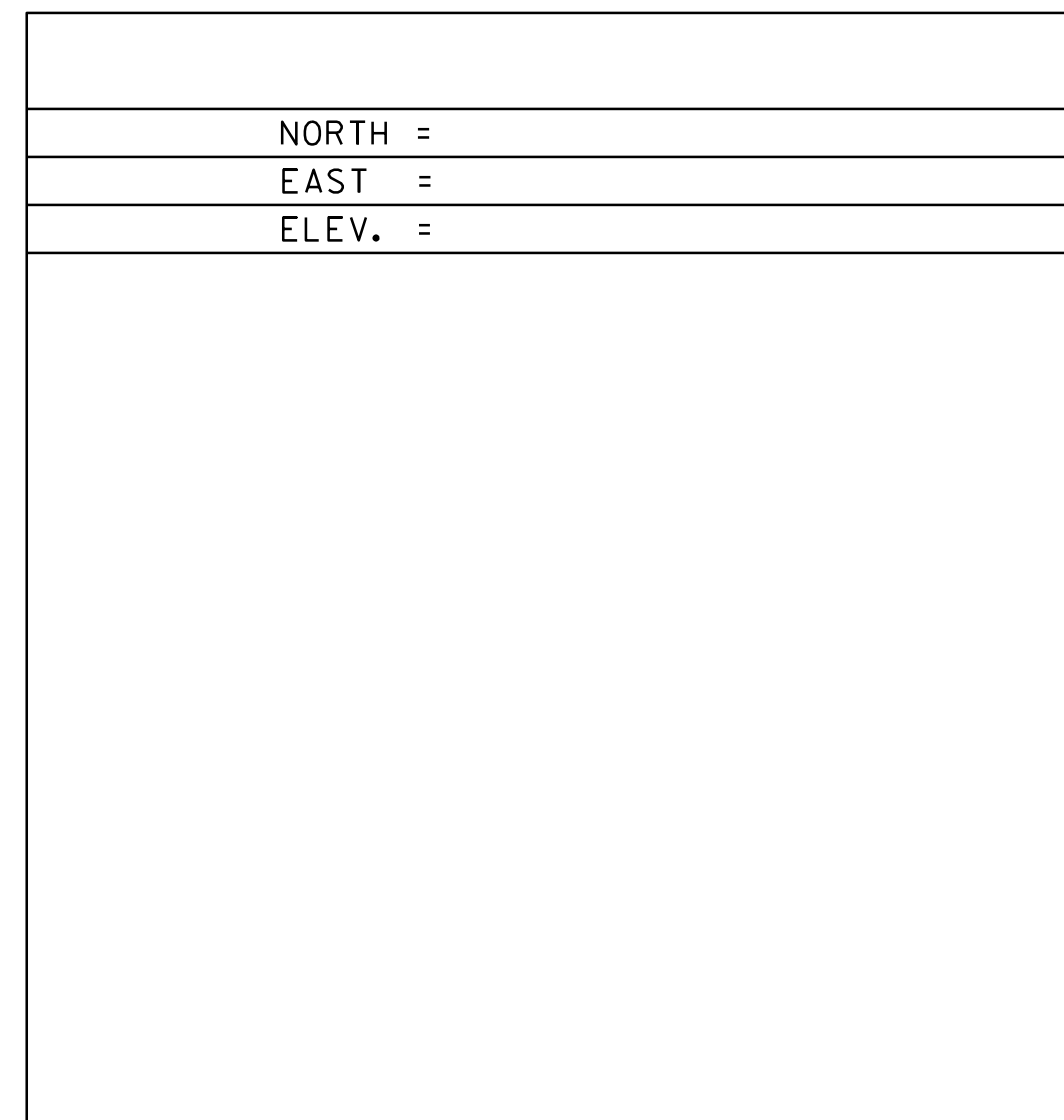
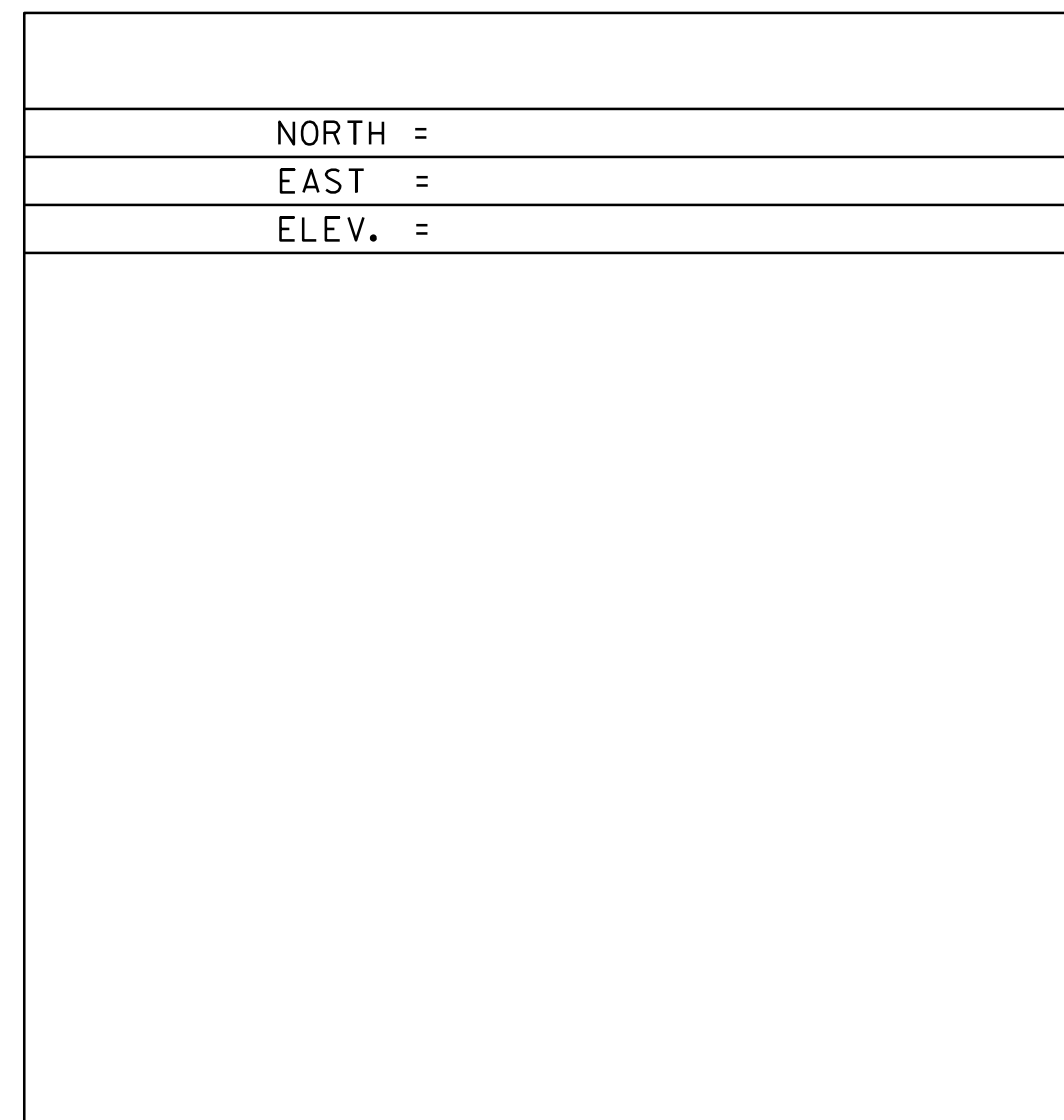
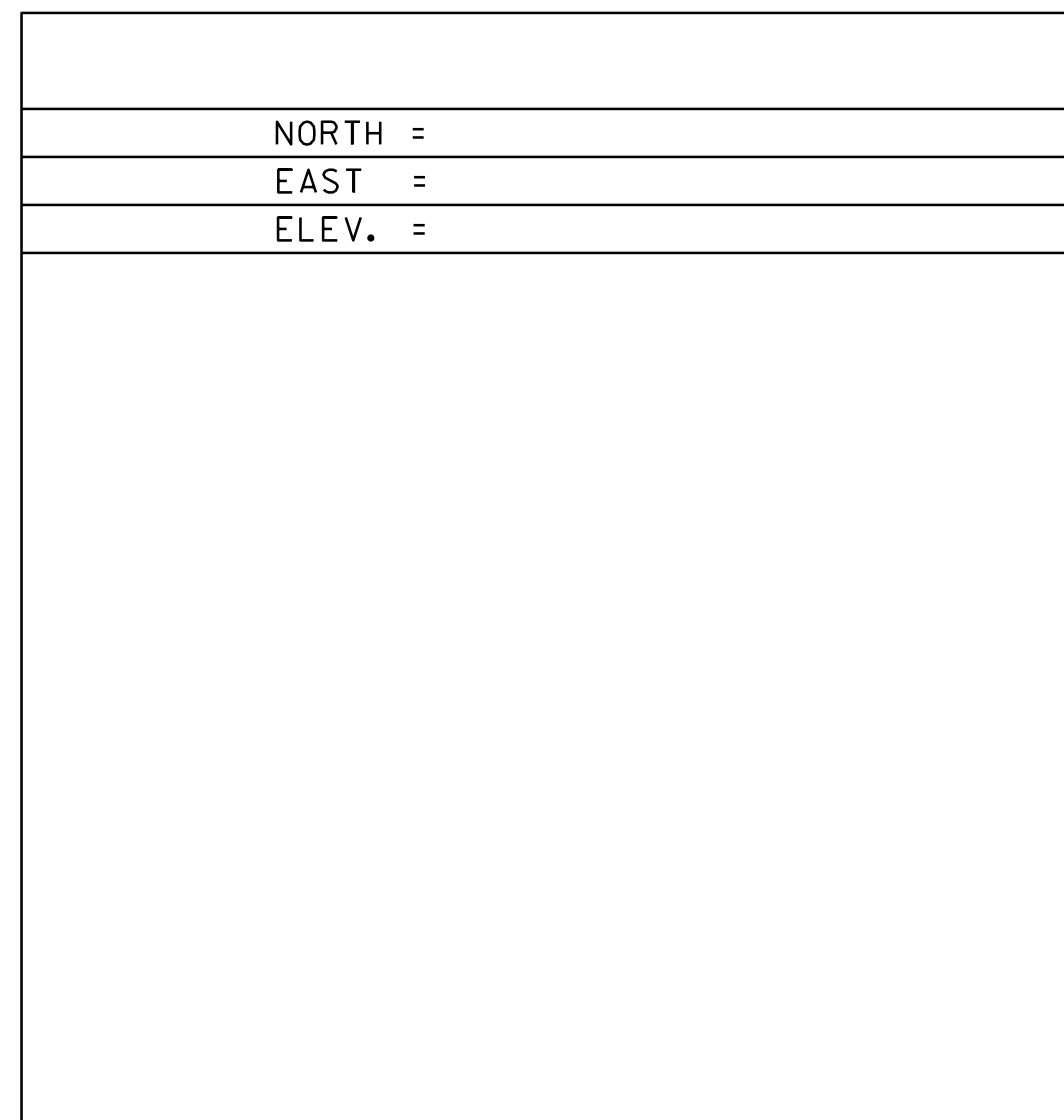
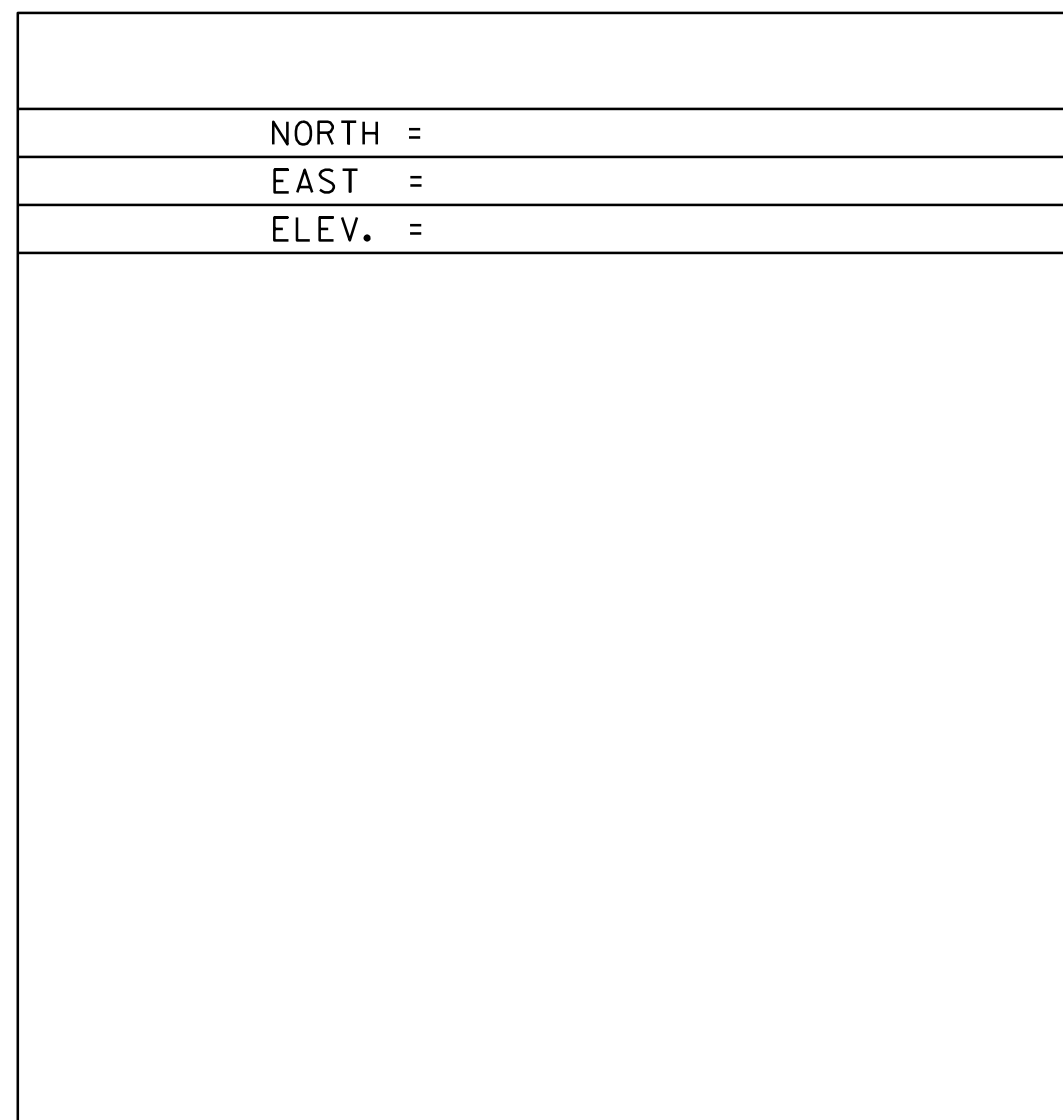
GENERAL LOCATION, KILLINGTON, VT
 ABOUT 10 MI (16.1 KM) EAST OF RUTLAND. TO REACH FROM THE
 INTERSECTION OF U.S. ROUTE 4 AND VT ROUTE 100 NORTH IN KILLINGTON
 GO EAST ALONG U.S. ROUTE 4 FOR 1.2 MI (1.9 KM) TO THE ASPEN EAST
 SKI SHOP AND THE MARK ON THE LEFT. THE MARK IS 13.9 M (45.6 FT)
 AA8771' EAST OF AND ABOUT 4 M (13.1 FT) HIGHER THAN THE EAST EDGE OF
 PAVEMENT OF U.S. ROUTE 4, 16.5 M (54.1 FT) SOUTHWEST OF THE
 SOUTHWEST CORNER OF THE ASPEN EAST SKI SHOP, 26.7 M (87.6 FT) NORTH
 OF POLE NO. 18/16/20/1, AND 5.0 M (16.4 FT) EAST OF A FIBERGLASS
 WITNESS POST, SET IN THE TOP OF A 2.4 M (7.9 FT) X 2.2 M (7.2 FT)
 ROCK OUTCROP.

LOCAL CONTROL



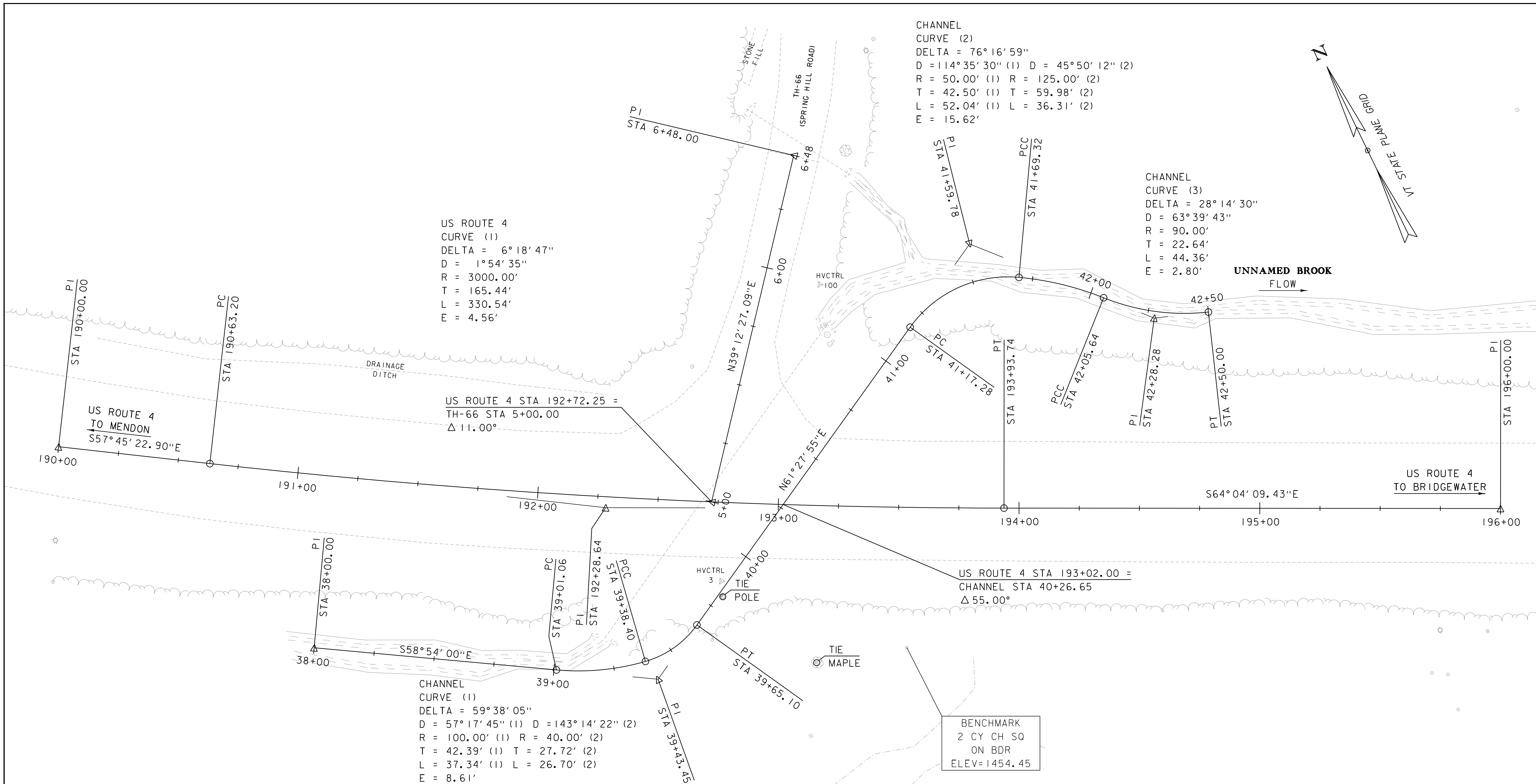
*MAIN TRAVERSE COMPLETED BY C. CYR & T. CATTANEO ON 07/26/19

ALIGNMENT TIES



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83(2011)
ADJUSTMENT	COMPASS

PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207+1e.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: C. CYR
DESIGNED BY: VTRANS	CHECKED BY: G. HITCHCOCK
TIE SHEET	SHEET 10 OF 41



US ROUTE 4
 CURVE (1)
 DELTA = 6° 18' 47"
 D = 1° 54' 35"
 R = 3000.00'
 T = 165.44'
 L = 330.54'
 E = 4.56'

CHANNEL
 CURVE (2)
 DELTA = 76° 16' 59"
 D = 114° 35' 30" (1) D = 45° 50' 12" (2)
 R = 50.00' (1) R = 125.00' (2)
 T = 42.50' (1) T = 59.98' (2)
 L = 52.04' (1) L = 36.31' (2)
 E = 15.62'

CHANNEL
 CURVE (3)
 DELTA = 28° 14' 30"
 D = 63° 39' 43"
 R = 90.00'
 T = 22.64'
 L = 44.36'
 E = 2.80'

CHANNEL
 CURVE (1)
 DELTA = 59° 38' 05"
 D = 57° 17' 45" (1) D = 143° 14' 22" (2)
 R = 100.00' (1) R = 40.00' (2)
 T = 42.39' (1) T = 27.72' (2)
 L = 37.34' (1) L = 26.70' (2)
 E = 8.61'

BENCHMARK
 2 CY CH SQ
 ON BDR
 ELEV=1454.45

CONTROL LINE DATA - US ROUTE 4 PROPOSED

POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R	L	T
6	S 57°45'22.90" E	63.20	424,407.2442	1,565,362.9646		190+00.00					
	S 64°04'09.43" E	371.70	424,285.2609	1,565,556.3440	190+63.20		193+93.74	6°18'46.53"	-3000.00'	330.54'	165.44'
10			424,122.7240	1,565,890.6193		196+00.00					

CONTROL LINE DATA - TH-66 PROPOSED

POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R	L	T
44	N 39°12'27.09" E	148.00	424,268.2398	1,565,596.9743		5+00.00					
48			424,382.9193	1,565,690.5297		6+48.00					

CONTROL LINE DATA - CHANNEL PROPOSED

POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R	L	T
27	S 58°54'00.00" E	101.06	424,285.7398	1,565,421.9901		38+00.00					
	S 80°17'46.06" E	45.59	424,223.7827	1,565,524.6975	39+01.06		39+38.40	21°23'46.06"	-100.00'	37.34'	18.89'
	N 61°27'55.12" E	184.34	424,218.2611	1,565,556.9868	39+38.40		39+65.10	38°14'18.82"	-40.00'	26.70'	13.87'
	S 58°53'48.20" E	64.97	424,311.2716	1,565,728.0438	41+17.28		41+69.32	59°38'16.68"	50.00'	52.04'	28.66'
	S 42°15'06.06" E	62.65	424,287.0217	1,565,768.2382	41+69.32		42+05.64	16°38'42.14"	125.00'	36.31'	18.29'
	S 70°29'36.52" E		424,256.7276	1,565,795.7571	42+05.64		42+50.00	28°14'30.46"	-90.00'	44.36'	22.64'

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

PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)
 FILE NAME: sl9b207alg.dgn
 PROJECT LEADER: JB. MCCARTHY
 DESIGNED BY: R. HOOD
 ALIGNMENT SHEET
 PLOT DATE: 11/28/2022
 DRAWN BY: G. ROKES
 CHECKED BY: R. HOOD
 SHEET 11 OF 41

4 INCH WHITE LINE, WATERBORNE PAINT

STA.	OFFSET	STA.	OFFSET	COMMENT
190+75.00	12.00 RT	195+50.00	12.00 RT	US-4
190+75.00	22.00 LT	5+79.00	9.00 LT	US-4/TH-66
5+79.00	9.00 RT	195+50.00	22.00 LT	US-4/TH-66
190+95.00	12.00 LT	195+45.00	12.00 LT	US-4 (10 FT DASH)

4 INCH YELLOW LINE, WATERBORNE PAINT

STA.	OFFSET	STA.	OFFSET	COMMENT
190+75.00	0.00 RT	192+50.00	0.00 RT	US-4 (DOUBLE LINE)
193+00.00	0.00 RT	195+50.00	0.00 RT	US-4 (DOUBLE LINE)
5+39.00	0.00 RT	5+79.00	0.00 RT	TH-66 (DOUBLE LINE)

MILLED RUMBLE STRIPS (CENTERLINE)

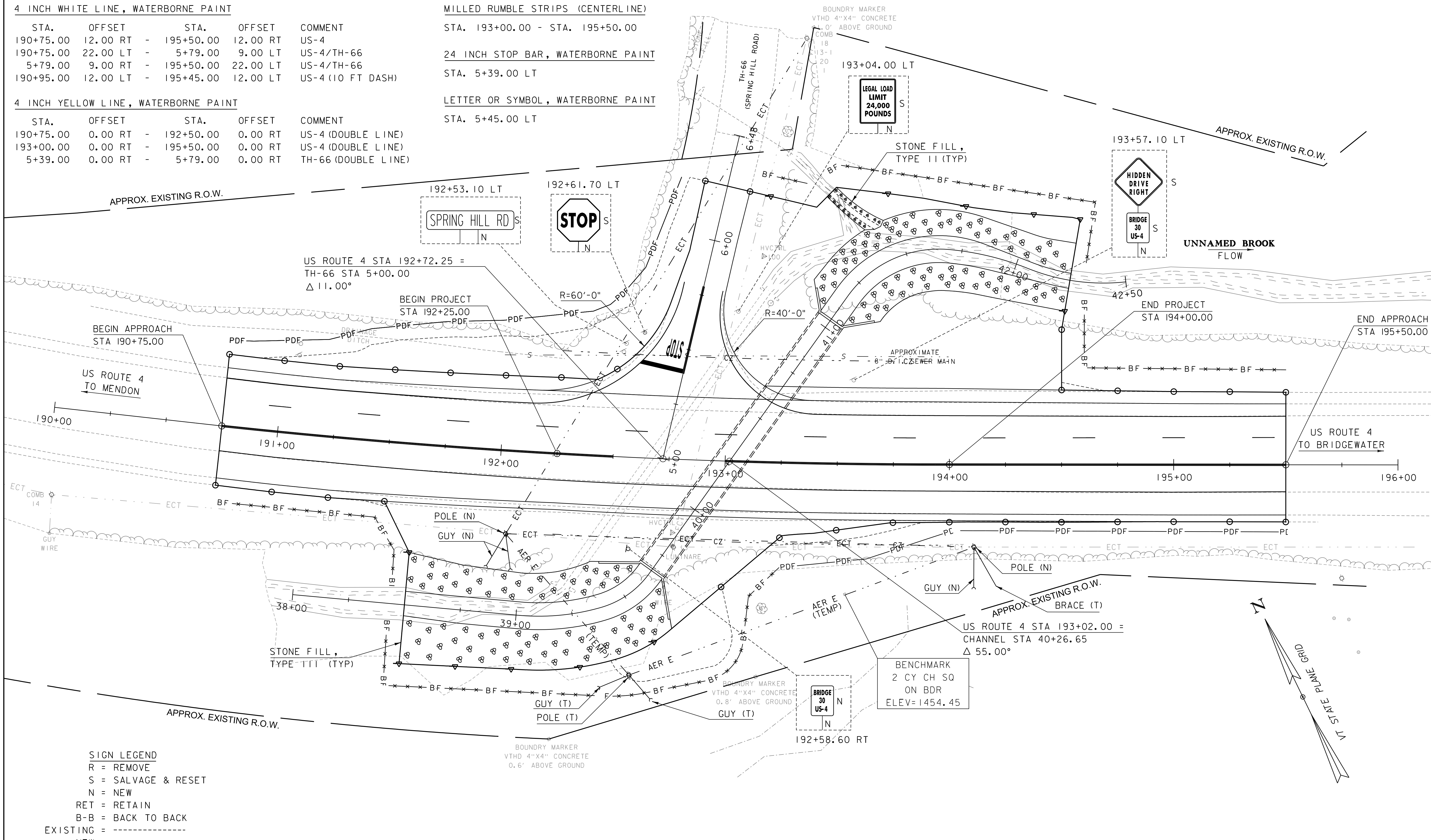
STA. 193+00.00 - STA. 195+50.00

24 INCH STOP BAR, WATERBORNE PAINT

STA. 5+39.00 LT

LETTER OR SYMBOL, WATERBORNE PAINT

STA. 5+45.00 LT







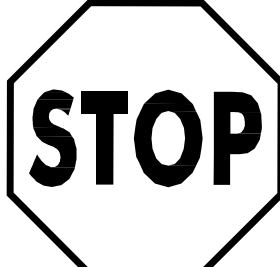
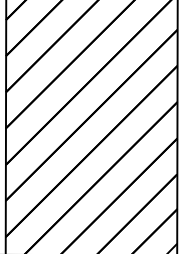
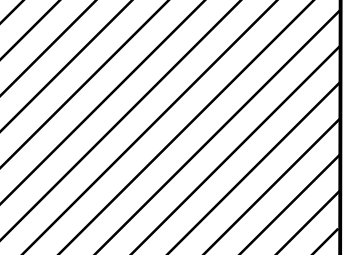
SIGN LEGEND

- R = REMOVE
- S = SALVAGE & RESET
- N = NEW
- RET = RETAIN
- B-B = BACK TO BACK
- EXISTING = - - - - -
- NEW = _____

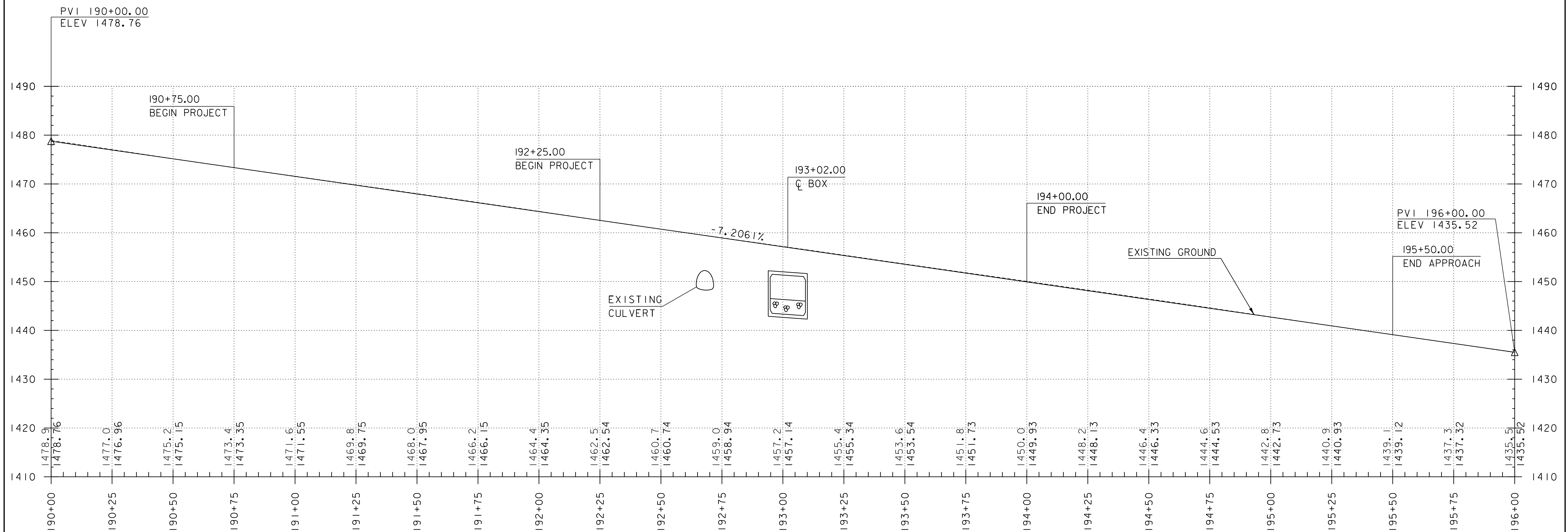
EXISTING CULVERT INFORMATION
 48" X 72" X 158' ACCGMPPA
 BUILT 1965,
 7' AVERAGE COVER
 18 SQFT WATERWAY AREA

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

PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	G. ROKES
FILE NAME:	sl9b207bdr.dgn	DESIGNED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	CHECKED BY:	R. HOOD
LAYOUT SHEET		SHEET	12 OF 41

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS		NEW & SALVAGED SIGNS		EXIST POST	NO. OF POSTS	NEW SIGN POSTS					REMARKS	SHSM	SIGN DETAIL			
		WIDTH (in)	HEIGHT (in)	"A"	SALV SIGNS			R E T A I N	S A L V A G E	SQUARE STEEL (in)					A N C H O R	S L E E V E	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
										1.75	2.0	2.5						
							lb/ft											
							1.88	2.42	3.35									
192+58.60 RT		6	10	0.42			1	10			X		VD-701		T-42			
193+57.10 LT					X		1		15		X		VW-045R VD-701		T-80 T-42			
192+53.10 LT					X		2		30		X		W3-5					
193+04.00 LT					X		1		15		X		VD-018		T-70			
192+61.70 LT					X		1		15		X		RI-1					
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."								FT	FT	FT		EA						
								10	75						FT	85	SHSM = STANDARD HIGHWAY SIGNS (MUTCD)	
				TOTALS	SF	EACH												
					1	5												

PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	F. BARROWS
FILE NAME:	sl9b207sign.dgn	CHECKED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	SHEET	13 OF 41
DESIGNED BY:	F. BARROWS	SIGNS SUMMARY	

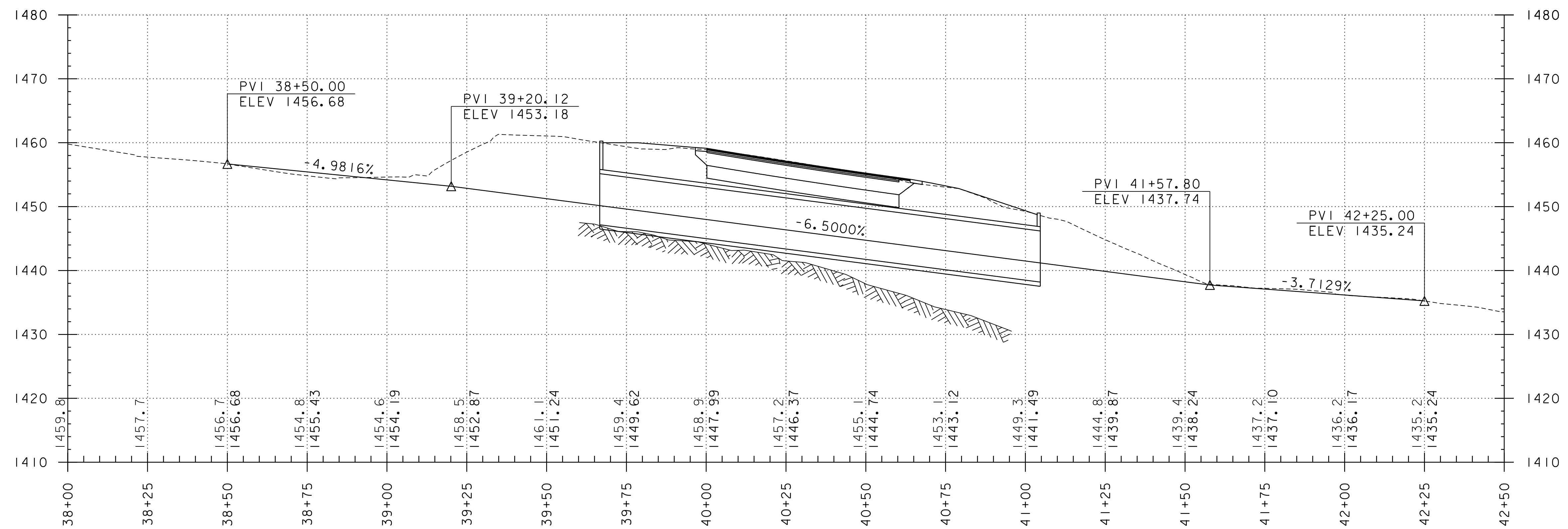


US ROUTE 4 PROFILE

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

THE GRADES SHOWN TO THE TENTH ARE THE EXISTING GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.
 THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG PROPOSED ALIGNMENT.

PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	G. ROKES
FILE NAME:	sl9b207pro.dgn	CHECKED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	SHEET	14 OF 41
DESIGNED BY:	R. HOOD		
US ROUTE 4 PROFILE SHEET			



CHANNEL PROFILE

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

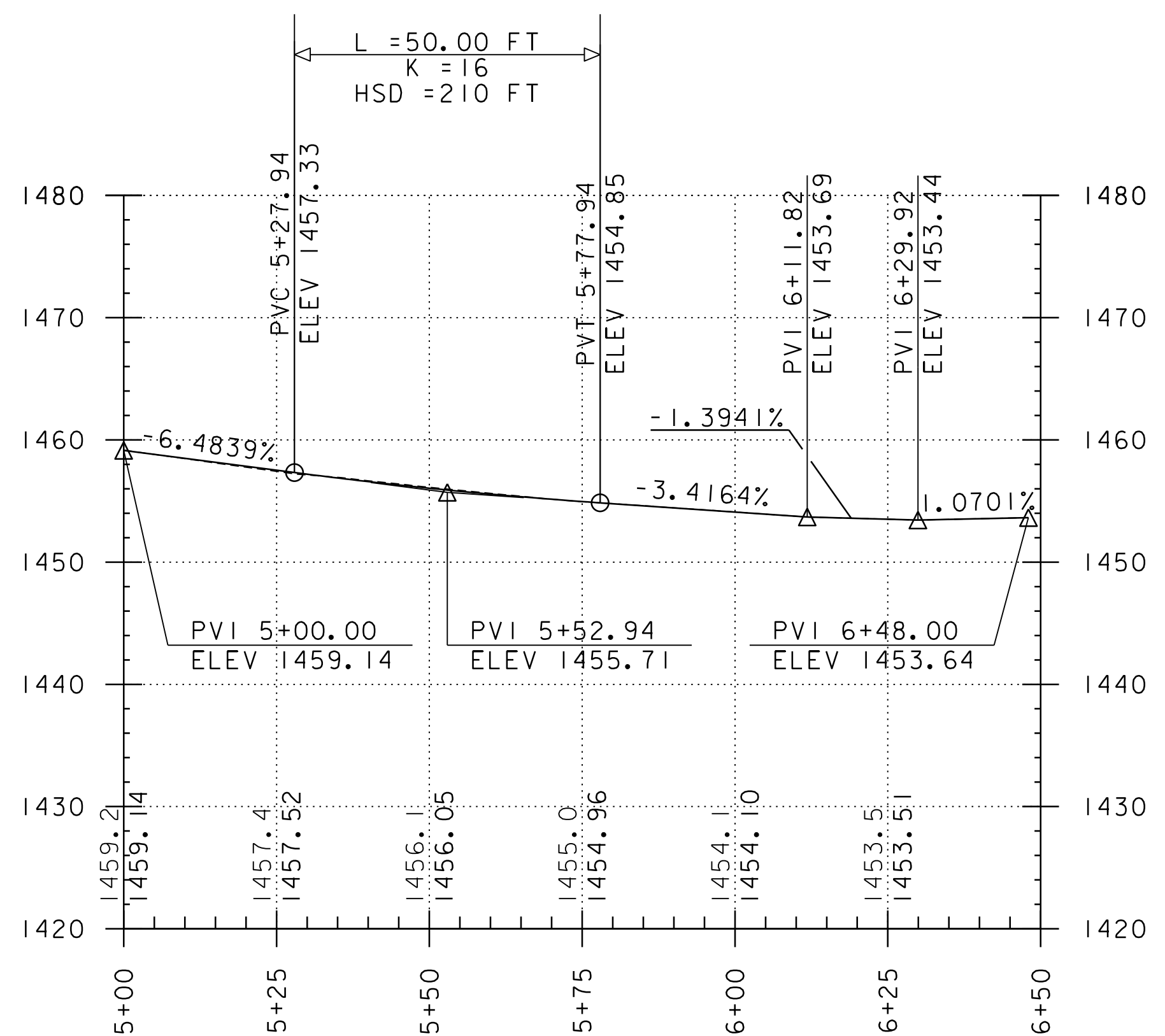
THE GRADES SHOWN TO THE TENTH ARE THE EXISTING GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

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

PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207pro.dgn
 PROJECT LEADER: JB. MCCARTHY
 DESIGNED BY: R. HOOD
 CHANNEL PROFILE SHEET

PLOT DATE: 11/28/2022
 DRAWN BY: G. ROKES
 CHECKED BY: R. HOOD
 SHEET 15 OF 41

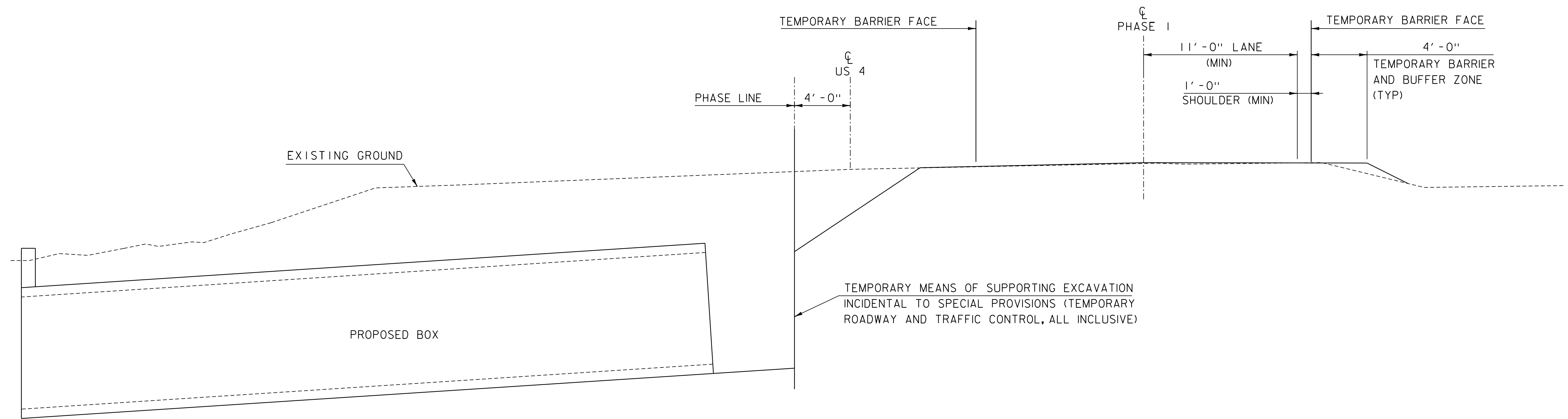


TH-66 PROFILE

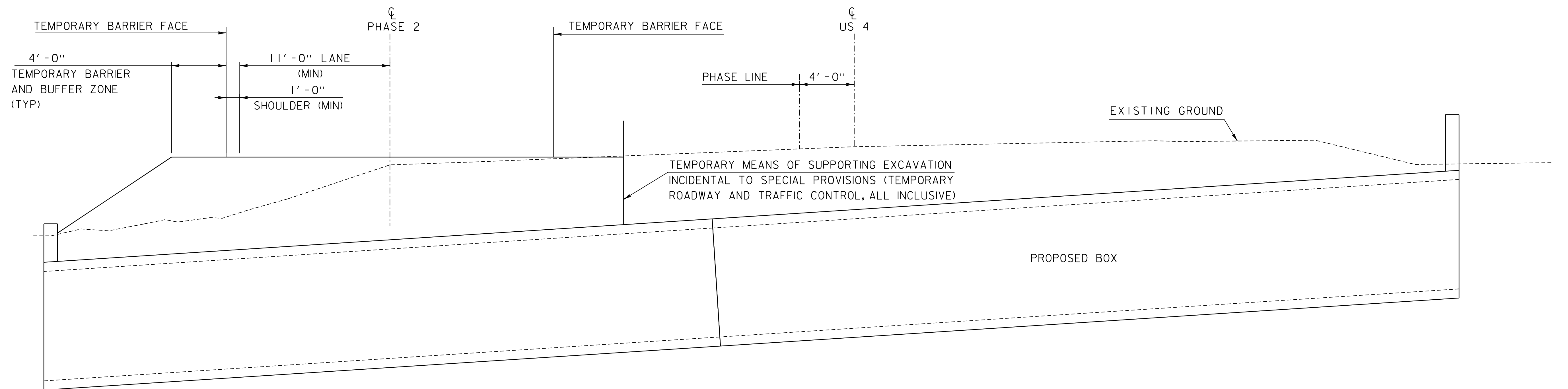
SCALE: HORIZONTAL 1"=20'-0"
 VERTICAL 1"=10'-0"

THE GRADES SHOWN TO THE TENTH ARE THE EXISTING GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.
 THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG PROPOSED ALIGNMENT.

PROJECT NAME: KILLINGTON	PLOT DATE: 11/28/2022
PROJECT NUMBER: BF 020-2(50)	DRAWN BY: G. ROKES
FILE NAME: s19b207pro.dgn	CHECKED BY: R. HOOD
PROJECT LEADER: JB. MCCARTHY	SHEET 16 OF 41
DESIGNED BY: R. HOOD	
TH-66 PROFILE SHEET	



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



PHASE 2 TYPICAL
SCALE: 1/4" = 1'-0"

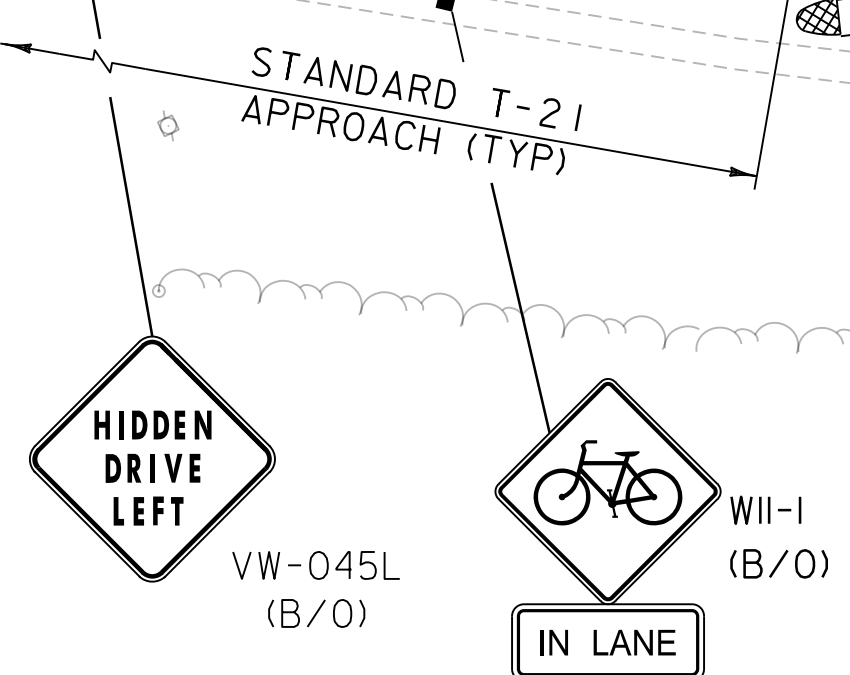
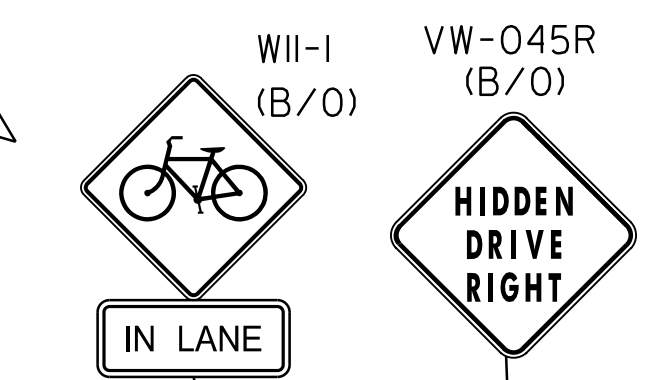
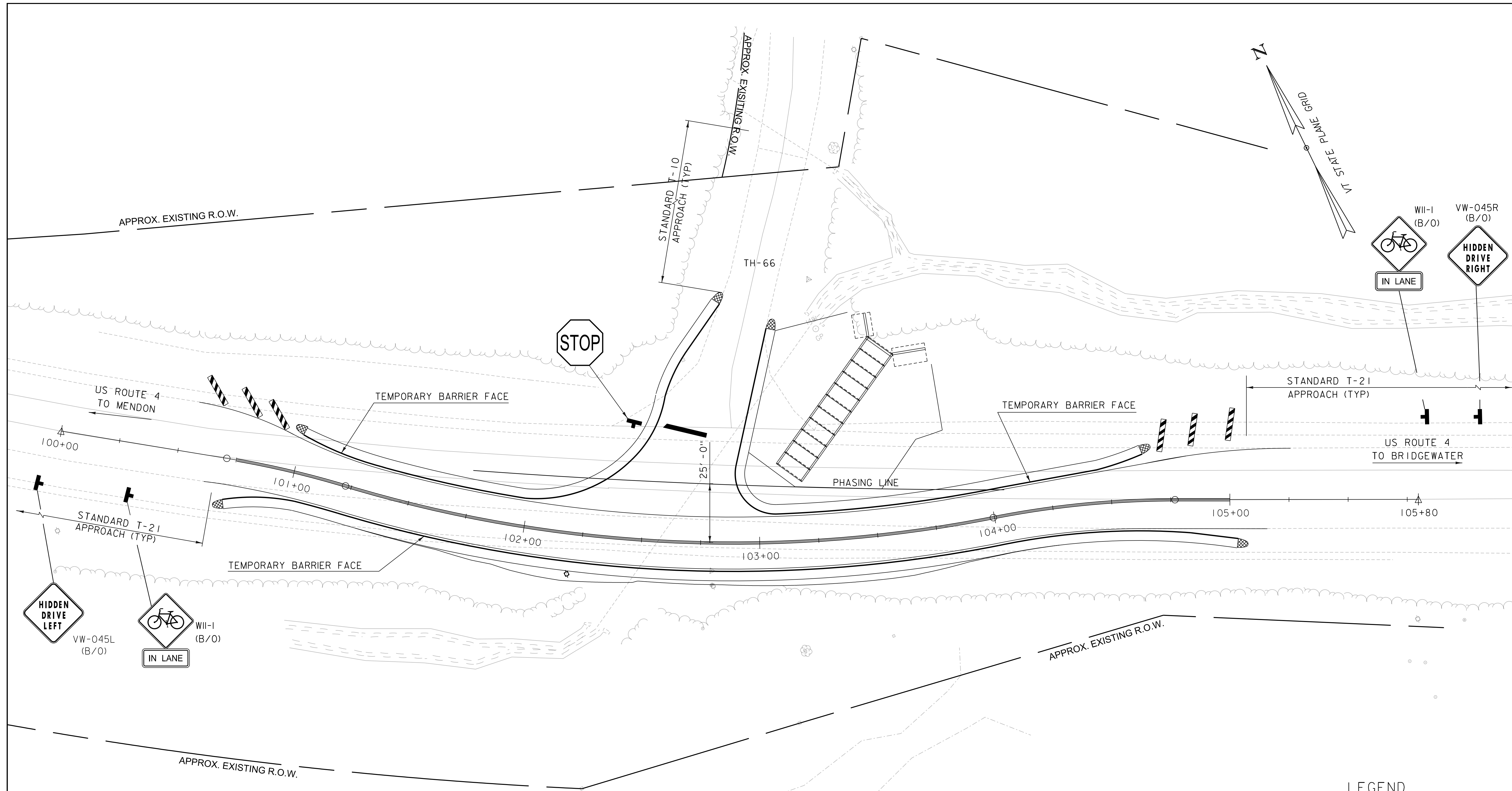
NOTES

- PHASING TYPICAL SECTIONS ARE CONCEPTUAL ONLY. PHASING TYPICAL SECTIONS ARE INTENDED TO COMMUNICATE BASIC SITE CONDITIONS THAT INCLUDE LANE WIDTHS, SHOULDER WIDTHS, FILL SLOPES, AND ANTICIPATED LOCATIONS WHERE EARTH MAY NEED TO BE RETAINED.
- TEMPORARY BARRIER EXPOSED TO TRAFFIC SHALL BE DELINEATED TO MATCH THE CORRESPONDING TEMPORARY PAVEMENT MARKING. REFLECTORS SHALL BE MOUNTED EVERY 20 FEET ALONG THE SIDE OF THE BARRIER EXPOSED TO TRAFFIC.
- SUPPORT OF EXCAVATION LOCATED WITHIN THE DEFLECTION DISTANCE OF THE TRAFFIC BARRIER SHALL BE DESIGNED TO WITHSTAND A TRAFFIC BARRIER COLLISION LOAD. THE SUPPORT OF EXCAVATION SHALL EXTEND UP TO A HEIGHT THAT IS EQUAL TO OR HIGHER THAN THE TOP OF THE ADJACENT BARRIER.

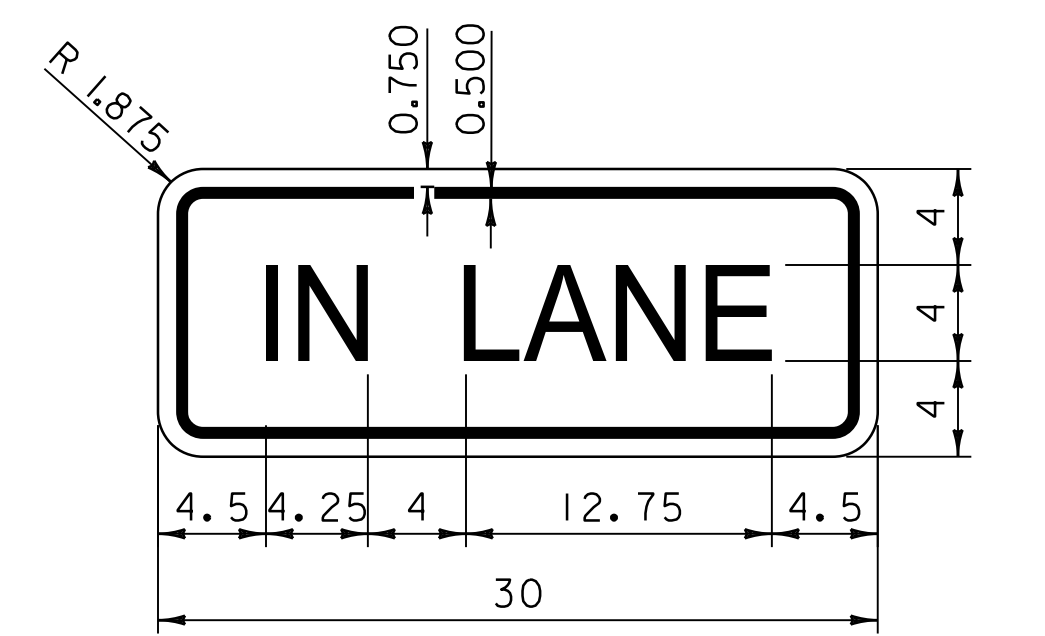
PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207+c.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: R. HOOD
PHASE TYPICAL SHEET

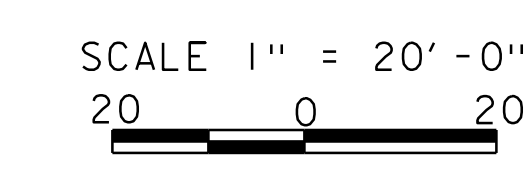
PLOT DATE: 11/28/2022
DRAWN BY: G. ROKES
CHECKED BY: R. HOOD
SHEET 17 OF 41



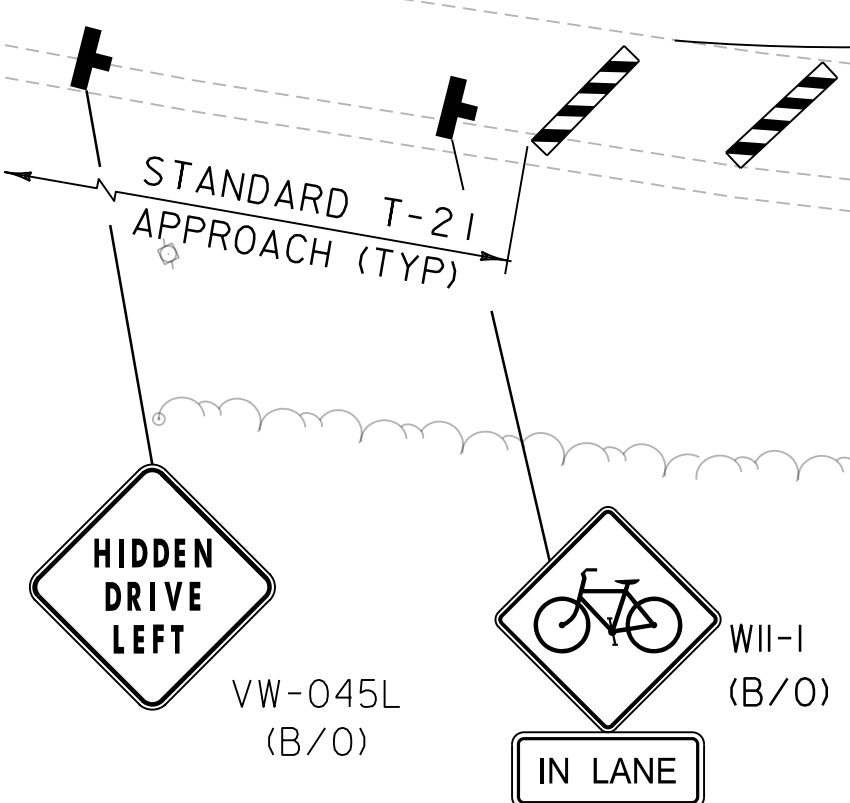
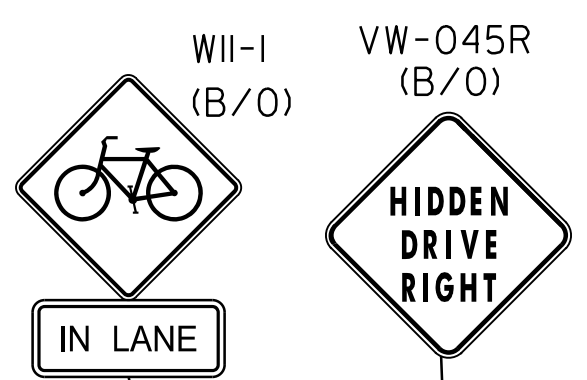
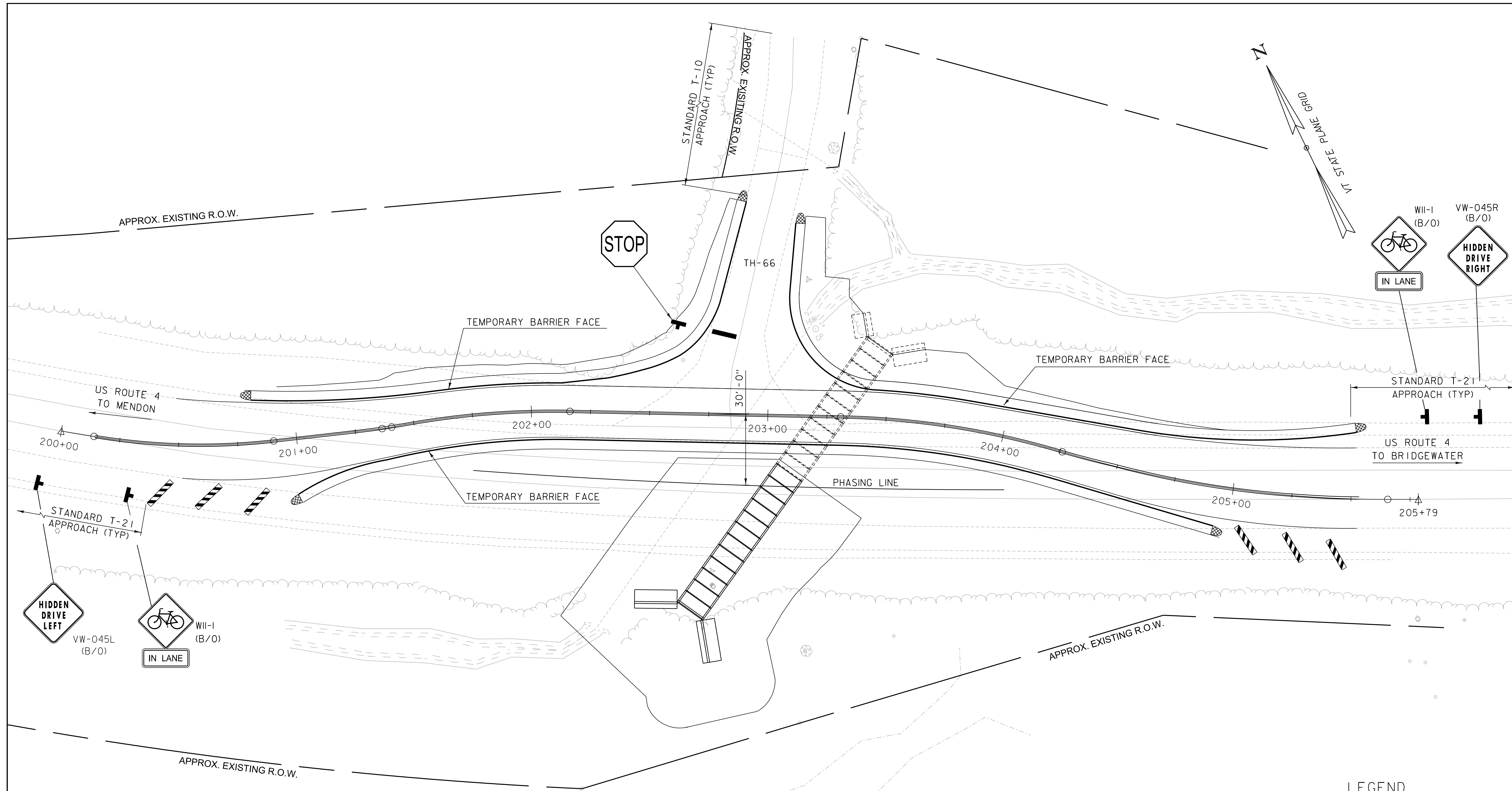
- LEGEND**
- CRASH ATTENUATOR
 - TEMPORARY STOP BAR
 - CONSTRUCTION SIGN
 - TYPE III BARRICADE



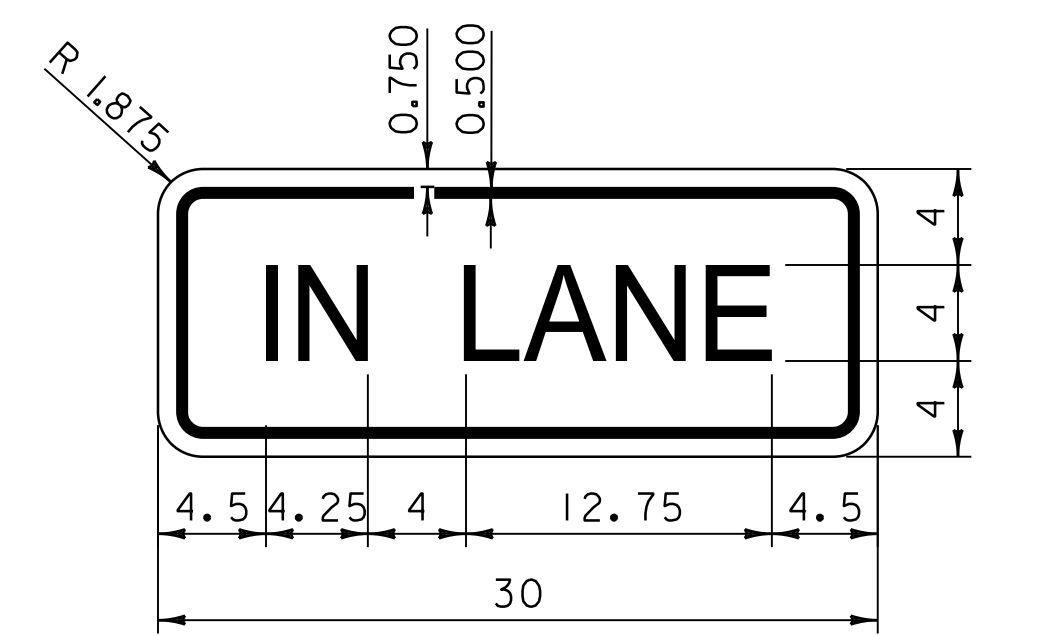
BLACK ON FLORESENCENT ORANGE (B/F) "IN LANE" D



PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207+c.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD	CHECKED BY: R. HOOD
PHASE LAYOUT SHEET 1	SHEET 18 OF 41



- LEGEND**
- CRASH ATTENUATOR
 - TEMPORARY STOP BAR
 - CONSTRUCTION SIGN
 - TYPE III BARRICADE



BLACK ON FLORESENCENT ORANGE (B/F) "IN LANE" D

SCALE 1" = 20'-0"

PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207+c.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD	CHECKED BY: R. HOOD
PHASE LAYOUT SHEET 2	SHEET 19 OF 41

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.O.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

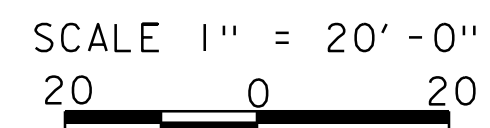
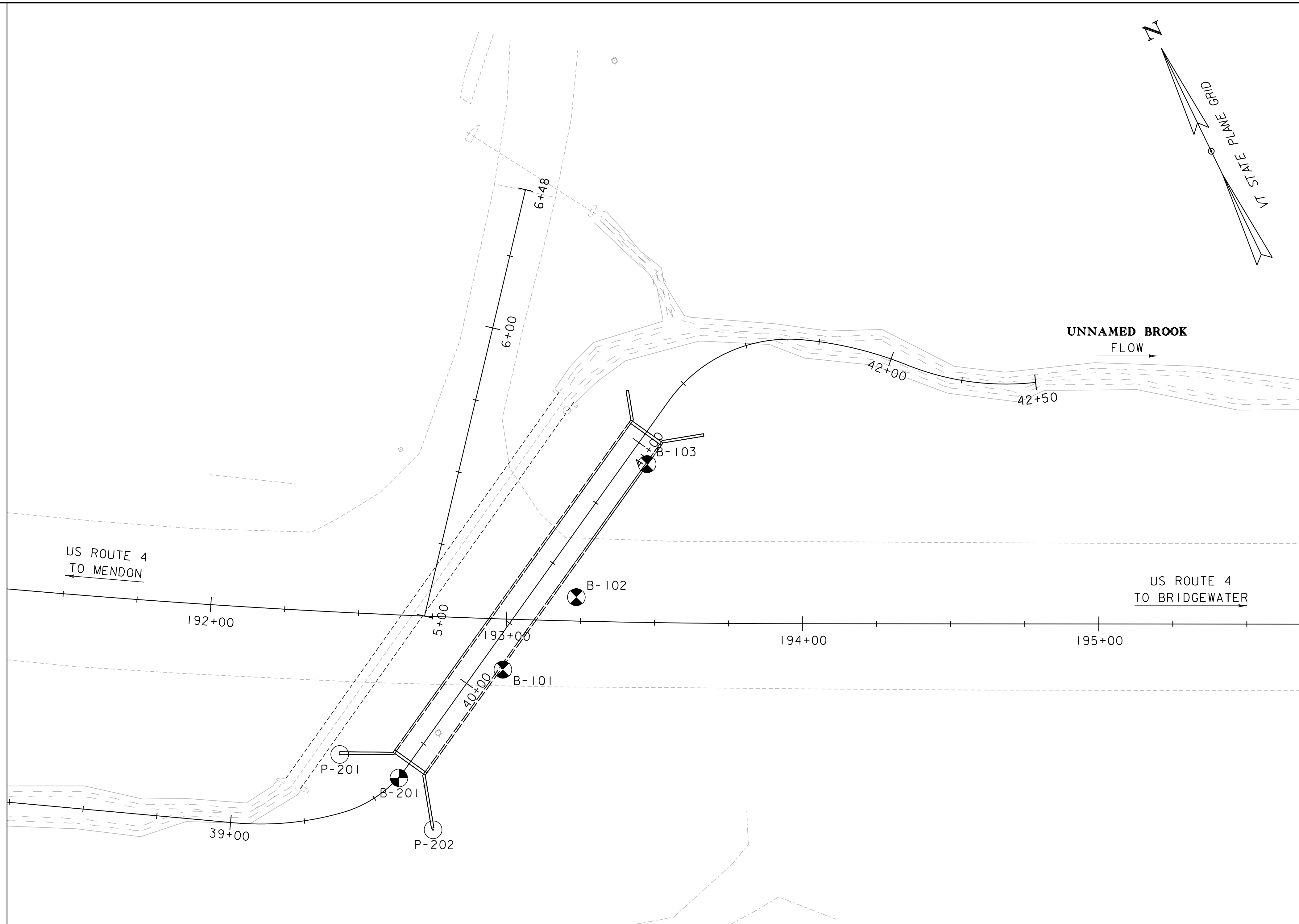
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

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
- 1/2 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 |
| gr'y | Gray | wh | White |
| gn | Green | yel | Yellow |
| lt | Light | mltc | Multicolored |
| or | Orange | | |



DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SILT** - Soil < 0.0025" (#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 12/15/21 and 5/11/22 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.

BORING CHART

HOLE NO.	STATION	OFFSET	GROUND ELEVATION	TLOB ELEVATION
B-101	193+00	17.10' RT	1457.9'	1442.4'
B-102	193+24	7.50' LT	1455.1'	1439.6'
B-103	193+48	52.50' LT	1449.9'	1430.2'
B-201	192+66	55.00' RT	1460.5'	1447.5'
P-201	192+46	48.00' RT	1460.9'	1447.4'
P-202	192+78	72.00' RT	1460.3'	1446.0'

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: si9b207bor.dgn PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD CHECKED BY: R. HOOD
BORING INFORMATION SHEET SHEET 20 OF 41

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY		BORING LOG		Boring No.: B-101			
		Killington BF 020-2 (50) US-4 BR 30				Page No.: 1 of 1			
						Pin No.: 19B207			
						Checked By: END			
Boring Crew: MCGINLEY, MONETTE, AUBUT, ZOTTOLA		Casing Type: WB		Sampler Type: SS		Groundwater Observations			
Date Started: 12/15/21 Date Finished: 12/16/21		I.D.: 4 in 1.5 in		Date		Notes			
VTSPG NAD83: N 424240.40 ft E 1565612.90 ft		Hammer Wt: N.A. 140 lb.		12/15/21		4.5 WT after drilling			
Station: 193+00.00 Offset: 17.10		Hammer Fall: N.A. 30 in.		12/16/21		13.0 WT before drilling			
Ground Elevation: 1457.9 ft		Hammer/Rod Type: Auto/AWJ		12/16/21		3.8 WT after drilling			
		Rig: CME 55 TRACK AUTO		CE = 1.52					
Depth (ft)	Strata (i)	Run (Dip deg.)	Core Rec. (RDP %)	Drill Rate (min/ft)	Blows (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0	Field Note: Asphalt 0.0-0.3'				22-29-21-16 (30)	8.1	52.7	32.4	14.9
0.3	A-1-b, SaGr, brn, Moist, Rec. = 0.9 ft								
1.3	A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft				4-6-11-14 (17)	13.2	36.2	50.6	13.2
0.8	A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft, Rollercone cleanout 5.0-6.0'				11-12-12-15 (24)	12.0	34.9	51.7	13.4
6.0	Field Note: Boulder 6.0-11.0', Refusal @ 6.1' 10 blows/ no movement Rollercone cleanout 9.0-11.0'				R@1" (R)				
12.0	Field Note: No Recovery, Refusal @ 11.6', Rollercone cleanout 12.0-13.0'								
13.0	Field Note: No Recovery, Refusal @ 13.0' 10 blows/ no movement Rollercone cleanout 14.0-15.0'								
15.0	Field Note: Possible Weathered Bedrock Vertical fractures noted								
15.5	Field Note: No Recovery, Refusal @ 15.0' 10 blows/ no movement	R-2 (40)	96 (71)	2					
15.5	15.5 ft - 20.5 ft, Light gray to dark gray, Biotite-quartz GNEISS, with magnetite. Gneissic fabric with alternating dark (biotite rich) and light (quartz rich) discontinuous banding. At ~0-0.5' of recovered portion, moderately to intensely fractured/fragmented and slightly weathered. Hard, Slightly weathered, Good rock, NXMDC, RMR = 65			3					
20.5	20.5 ft - 25.5 ft, Light gray to dark gray, Biotite-quartz GNEISS, with magnetite. Gneissic fabric with alternating dark (biotite rich) and light (quartz rich) discontinuous banding. Hard, Fresh, Good rock, NXMDC, RMR = 67	R-3 (40)	68 (66)	3					
25.5	Hole stopped @ 25.5 ft			2					
25.5	Remarks: Hole collapsed @ 11.2'			3					
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. CE 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.									

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY		BORING LOG		Boring No.: B-102			
		Killington BF 020-2 (50) US-4 BR 30				Page No.: 1 of 1			
						Pin No.: 19B207			
						Checked By: END			
Boring Crew: MCGINLEY, MONETTE, AUBUT, ZOTTOLA		Casing Type: WB		Sampler Type: SS		Groundwater Observations			
Date Started: 12/21/21 Date Finished: 12/21/21		I.D.: 4 in 1.5 in		Date		Notes			
VTSPG NAD83: N 424251.60 ft E 1565645.90 ft		Hammer Wt: N.A. 140 lb.		12/21/21		4.0 WT after drilling			
Station: 193+24.00 Offset: -7.50		Hammer Fall: N.A. 30 in.							
Ground Elevation: 1455.1 ft		Hammer/Rod Type: Auto/AWJ							
		Rig: CME 55 TRACK AUTO		CE = 1.52					
Depth (ft)	Strata (i)	Run (Dip deg.)	Core Rec. (RDP %)	Drill Rate (min/ft)	Blows (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0	Field Note: Asphalt 0.0-0.7'								
0.7	Field Note: Advanced to bedrock. Discharge material appears to be coarse sand.								
13.1	Field Note: NXMDC Cleanout 13.1-15.5'								
15.5	15.5 ft - 20.0 ft, Light gray, Biotite-quartz-plagioclase GNEISS, with magnetite. Gneissic fabric of alternating dark and light colored discontinuous banding. At ~0.4'-0.9' intensely to very intensely fractured/fragmented and slightly weathered. At ~2.15'-2.6' intensely fractured/fragmented and slightly weathered. Hard to moderately hard, Slightly weathered, Fair rock, NXMDC, RMR = 52	R-1 (40)	78 (56)	2					
20.0	20.0 ft - 25.0 ft, Light to medium gray, Biotite-quartz-plagioclase GNEISS, with magnetite. Gneissic fabric of alternating dark and light colored discontinuous banding. Top 0.1' very intensely fractured/fragmented and slightly weathered with face discolored. At 2.3'-2.7' of recovered portion, dark gray to black biotite rich band. Hard, Fresh, Good rock, NXMDC, RMR = 69	R-2 (40)	100 (96)	3					
25.0	Hole stopped @ 25.0 ft			2					
25.0	Remarks: Hole collapsed @ 4.3'			2					
25.0				3					
25.0				3					
25.0				4					
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. CE 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.									

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY		BORING LOG		Boring No.: B-103			
		Killington BF 020-2 (50) US-4 BR 30				Page No.: 1 of 1			
						Pin No.: 19B207			
						Checked By: END			
Boring Crew: MCGINLEY, MONETTE, AUBUT, ZOTTOLA		Casing Type: WB		Sampler Type: SS		Groundwater Observations			
Date Started: 12/16/21 Date Finished: 12/17/21		I.D.: 4 in 1.5 in		Date		Notes			
VTSPG NAD83: N 424281.60 ft E 1565687.00 ft		Hammer Wt: N.A. 140 lb.		12/16/21		5.9 WT after drilling			
Station: 193+48.00 Offset: -52.50		Hammer Fall: N.A. 30 in.		12/17/21		7.5 WT before drilling			
Ground Elevation: 1449.9 ft		Hammer/Rod Type: Auto/AWJ		12/17/22		1.8 WT after drilling			
		Rig: CME 55 TRACK AUTO		CE = 1.52					
Depth (ft)	Strata (i)	Run (Dip deg.)	Core Rec. (RDP %)	Drill Rate (min/ft)	Blows (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
1.4	A-2-4, GrSa, Dk/brn, Moist, Rec. = 1.4 ft				2-5-10-13 (15)	13.1	33.2	47.3	19.5
1.2	A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft, Rock in end of sampler.				6-10-9-6 (19)	12.0	26.7	56.8	16.5
0.6	A-2-4, SigGrSa, brn, Moist, Rec. = 0.6 ft				2-3-3-4 (6)	13.7	31.9	39.4	28.7
0.6	A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft, Rollercone cleanout 7.5-8.0'				3-2-3-2 (5)	12.3	42.5	55.4	2.1
10.0	Field Note: No Recovery, Refusal @ 10.0' 10 blows/ no movement. Rollercone cleanout 14.2-15.0'				8-5-23-33 (28)	R@0" (R)			
16.3	Field Note: No Recovery, Refusal @ 16.3' 100 blows. NXDC cleanout 18.5-19.7'				34-42- R@4" (R)				
19.7	19.7 ft - 24.7 ft, Light gray to dark gray, Biotite-quartz-plagioclase GNEISS, with magnetite. Gneissic fabric of alternating dark and light colored discontinuous banding. Top 0.8' fragmented and very slightly weathered. At ~2.5'-2.95' dark gray to black biotite rich moderately hard band with few thin quartz/plagioclase rich bands. Hard, Fresh, Fair rock, NXMDC, RMR = 59	R-1 (40)	100 (58)	2					
24.7	24.7 ft - 29.7 ft, Light gray to dark gray, Biotite-quartz-plagioclase GNEISS, with magnetite. Gneissic fabric of alternating dark and light colored discontinuous banding. At ~0.15'-1.75' and 2.5'-2.7' dark gray to black biotite rich moderately hard, few quartz/plagioclase rich bands of non-uniform thickness. Hard to moderately hard, Fresh, Good rock, NXMDC, RMR = 63	R-2 (40)	86 (76)	2					
29.7	Hole stopped @ 29.7 ft			2					
29.7	Remarks: Hole collapsed @ 6.0'			2					
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. CE 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.									

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207bor.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: R. HOOD
BORING LOG SHEET 1

PLOT DATE: 11/28/2022
DRAWN BY: G. ROKES
CHECKED BY: R. HOOD
SHEET 21 OF 41

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY		BORING LOG		Boring No.: B-201					
		Killington BF 020-2 (50) US-4 BR 30				Page No.: 1 of 1 Pin No.: 19B207 Checked By: END					
Boring Crew: MCGINLEY, MONETTE, ZOTTOLA		Casing Type: WB		Sampler: SS		Groundwater Observations					
Date Started: 5/11/22 Date Finished: 5/11/22		I.D.: 4 in 1.5 in		Date: 05/11/22		Depth (ft): 5.0					
VITSPG NAD83: N 424222.70 ft E 1565565.50 ft		Hammer Wt: N.A. 140 lb		Notes: WT after drilling							
Station: 192+66.00 Offset: 55.00		Hammer Fall: N.A. 30 in									
Ground Elevation: 1460.5 ft		Hammer/Rod Type: Auto/AWJ									
		Rig: Diedrich 25		CE = 1.45							
Depth (ft)	Strata (i)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg)	Core Rec. (ft)	Drill Rate (min/ft)	Blows/ft (N Value)	Moisture Content (%)	Gravel (%)	Sand (%)	Fines (%)
0		A-1-b, SaGr Lab Note: significant amount of wood was within sample, gry, Dry, Rec. = 1.0 ft					11-17-17-19 (34)	12.8	52.0	37.3	10.7
0		A-1-b, SaGr Lab Note: significant amount of wood was within sample, Lt brn, Dry, Rec. = 1.1 ft, Refusal @ 3.3' 100 blows. Rollercone cleanout 3.5-4.0'					29-50-189 (R)	6.6	40.8	39.4	19.8
5		A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft					12-17-33-40 (50)	10.6	46.7	34.0	19.3
5		A-2-4, GrSiSa Rock in end of sampler, brn, Moist, Rec. = 0.8 ft, Refusal @ 7.3' 10 blows no movement. Rollercone cleanout 6.7-8.0'					34-35-80 (R)	11.1	24.1	48.0	27.9
10		A-2-4, GrSiSa, brn, Moist, Rec. = 1.1 ft					20-30-27-22 (57)	13.7	22.5	47.5	30.0
10		A-2-4, SiGrSa, Lt brn, Moist, Rec. = 0.9 ft, Rollercone cleanout 11.5-13.0'					23-20-80 (R)	10.6	33.5	42.4	24.1
15		13.0 ft - 18.0 ft, Light to medium gray, Biotite-quartz-plagioclase GNEISS, with magnetite. Fine-grained. Joints and magnetite stained rust colored. Gneissic fabric with alternating dark (biotite rich) and light (quartz rich) discontinuous banding. Close to moderately close joint spacing and rough. Moderately hard, Slightly weathered, Fair rock, NXDC, RMR=50		R-1 (35-65)	100 (46)	5	4	4	4	4	4
15		18.0 ft - 23.0 ft, Light to medium gray, Biotite-quartz-plagioclase GNEISS, with magnetite. Fine-grained. Joints and magnetite stained rust colored. Gneissic fabric with alternating dark (biotite rich) and light (quartz rich) discontinuous banding. Close to moderately close joint spacing and rough. Moderately hard, Slightly weathered, Fair rock, NXDC, RMR=60		R-2 (40-45)	100 (67)	6	5	3	4	4	4
20		Hole stopped @ 23.0 ft									
25		Remarks: Hole collapsed @ 10.8'									

Notes:
 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 2. N Values have not been corrected for hammer energy. CE 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.

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY		BORING LOG		Boring No.: P-201					
		Killington BF 020-2 (50) US-4 BR 30				Page No.: 1 of 1 Pin No.: 19B207 Checked By: END					
Boring Crew: MCGINLEY, MONETTE		Casing Type: WB		Sampler: N.A.		Groundwater Observations					
Date Started: 5/10/22 Date Finished: 5/10/22		I.D.: 4 in 1.5 in		Date: 05/10/22		Depth (ft): 7.2					
VITSPG NAD83: N 424238.70 ft E 1565550.80 ft		Hammer Wt: N.A. N.A.		Notes: WT after drilling							
Station: 192+46.00 Offset: 48.00		Hammer Fall: N.A. N.A.									
Ground Elevation: 1460.9 ft		Hammer/Rod Type: Auto/AWJ									
		Rig: Diedrich 25		CE = 1.45							
Depth (ft)	Strata (i)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg)	Core Rec. (ft)	Drill Rate (min/ft)	Blows/ft (N Value)	Moisture Content (%)	Gravel (%)	Sand (%)	Fines (%)
0		0.0 ft - 13.5 ft, Advanced casing to refusal @ 13.5'									
15		13.5 ft - 18.5 ft, Light gray and blue gray, Quartz-plagioclase GNEISS, Fine-grained. Joints stained rust colored. Close joint spacing and rough. No gneissic fabric, predominately quartz rich gneiss, when broken dark colored biotite rich discontinuous bands visible. Close joint spacing and rough. Hard, Slightly weathered, Fair rock, NXDC, RMR=55		R-1 (60)	100 (45)	4	6	7	5	5	5
20		Hole stopped @ 18.5 ft									
25		Remarks: Hole collapsed @ 9.0'									

Notes:
 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 2. N Values have not been corrected for hammer energy. CE 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.

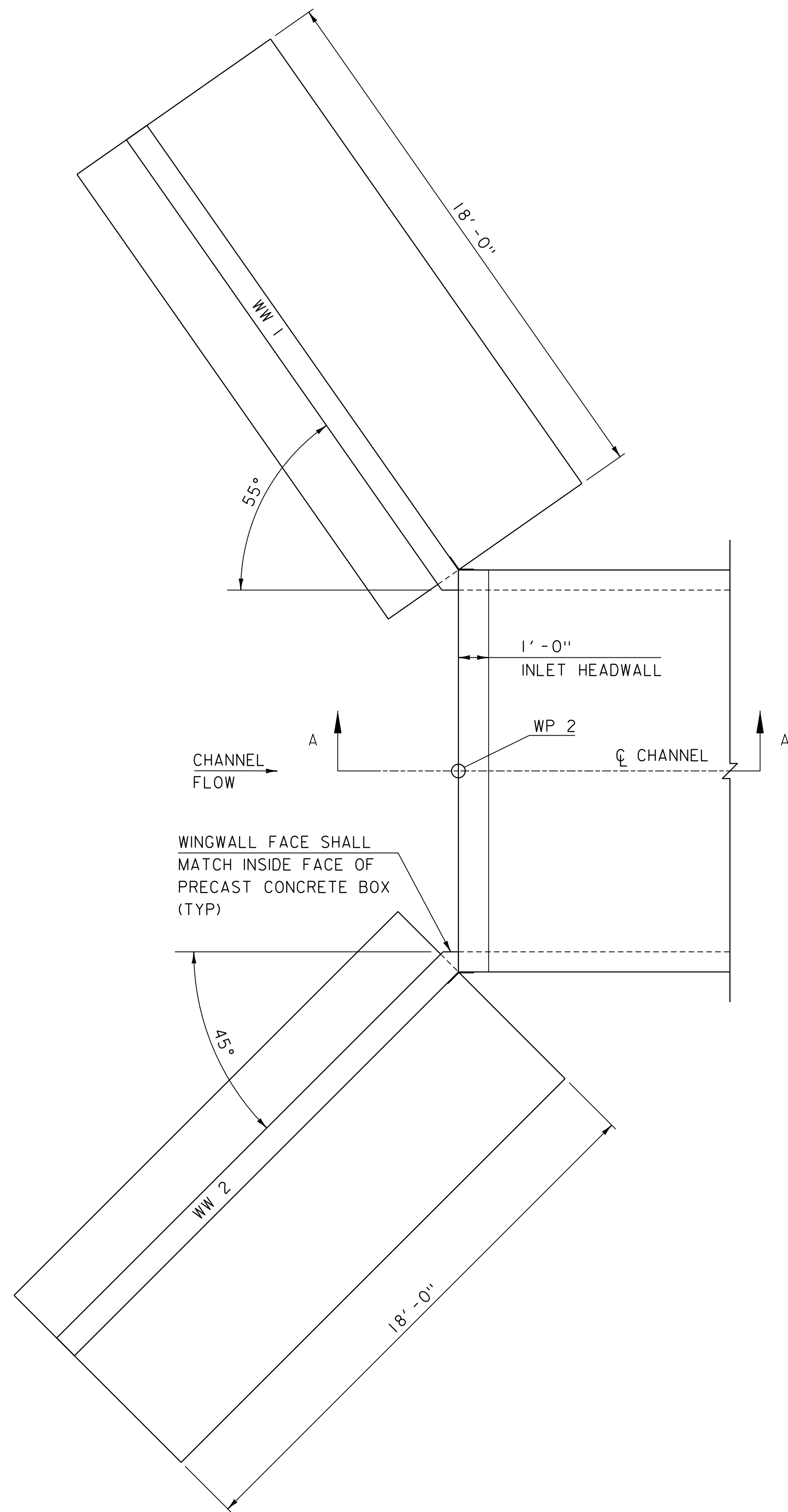
VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION CONSTRUCTION AND MATERIALS BUREAU CENTRAL LABORATORY		BORING LOG		Boring No.: P-202					
		Killington BF 020-2 (50) US-4 BR 30				Page No.: 1 of 1 Pin No.: 19B207 Checked By: END					
Boring Crew: MCGINLEY, MONETTE		Casing Type: WB		Sampler: N.A.		Groundwater Observations					
Date Started: 5/10/22 Date Finished: 5/10/22		I.D.: 4 in 1.5 in		Date: 05/10/22		Depth (ft): 4.7					
VITSPG NAD83: N 424202.10 ft E 1565568.00 ft		Hammer Wt: N.A. N.A.		Notes: WT after drilling							
Station: 192+78.00 Offset: 72.00		Hammer Fall: N.A. N.A.									
Ground Elevation: 1460.3 ft		Hammer/Rod Type: Auto/AWJ									
		Rig: Diedrich 25		CE = 1.45							
Depth (ft)	Strata (i)	CLASSIFICATION OF MATERIALS (Description)		Run (Dip deg)	Core Rec. (ft)	Drill Rate (min/ft)	Blows/ft (N Value)	Moisture Content (%)	Gravel (%)	Sand (%)	Fines (%)
0		0.0 ft - 14.3 ft, Advanced casing to refusal at 9.3'. Attempted rock core. 9.3-14.3'. No recovery, no bedrock.									
15		14.3 ft - 19.3 ft, Light to medium gray, Biotite-quartz-plagioclase micaceous GNEISS, with magnetite. Fine-grained. Joints and magnetite stained rust colored. Gneissic fabric with alternating dark (biotite rich) and light (quartz rich) discontinuous banding. Close to moderately close joint spacing and rough. Moderately hard, Slightly weathered, Fair rock, NXDC, RMR=55		R-2 (25-50)	100 (28)	3	3	3	3	3	3
20		Hole stopped @ 19.3 ft									
25		Remarks: Hole collapsed @ 7.5'									

Notes:
 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 2. N Values have not been corrected for hammer energy. CE 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.

PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)

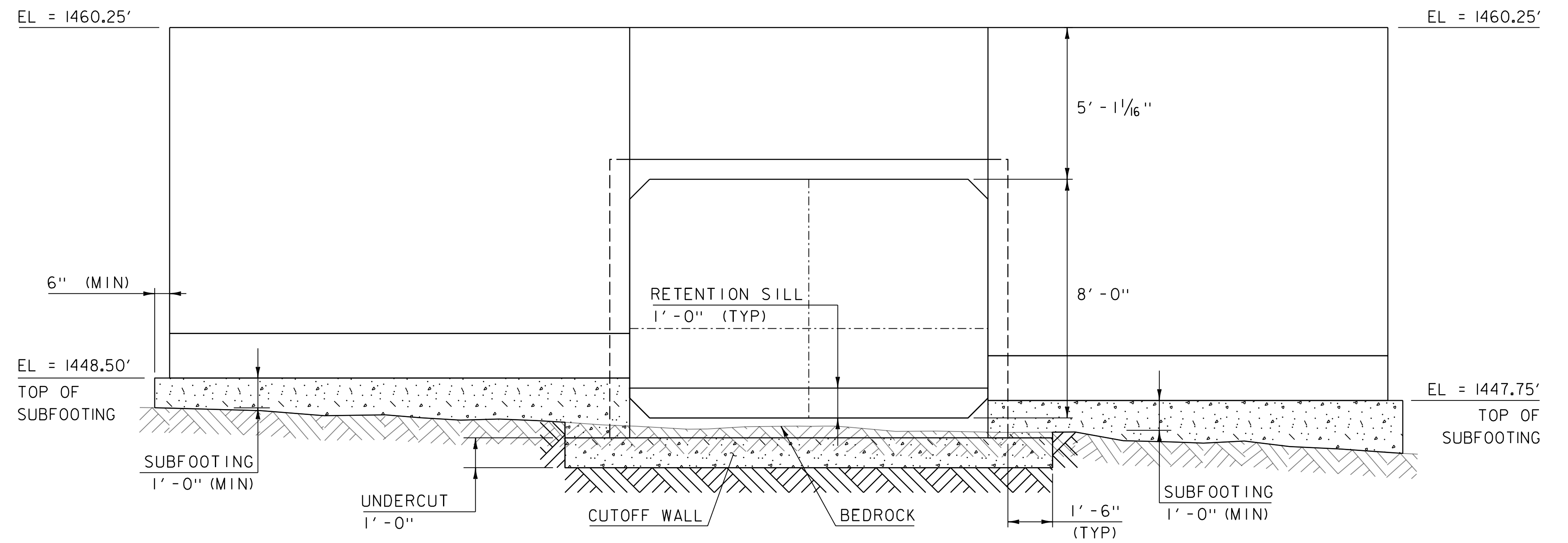
FILE NAME: si9b207bor.dgn
 PROJECT LEADER: JB. McCARTHY
 DESIGNED BY: R. HOOD
 BORING LOG SHEET 2

PLOT DATE: 11/28/2022
 DRAWN BY: G. ROKES
 CHECKED BY: R. HOOD
 SHEET 22 OF 41



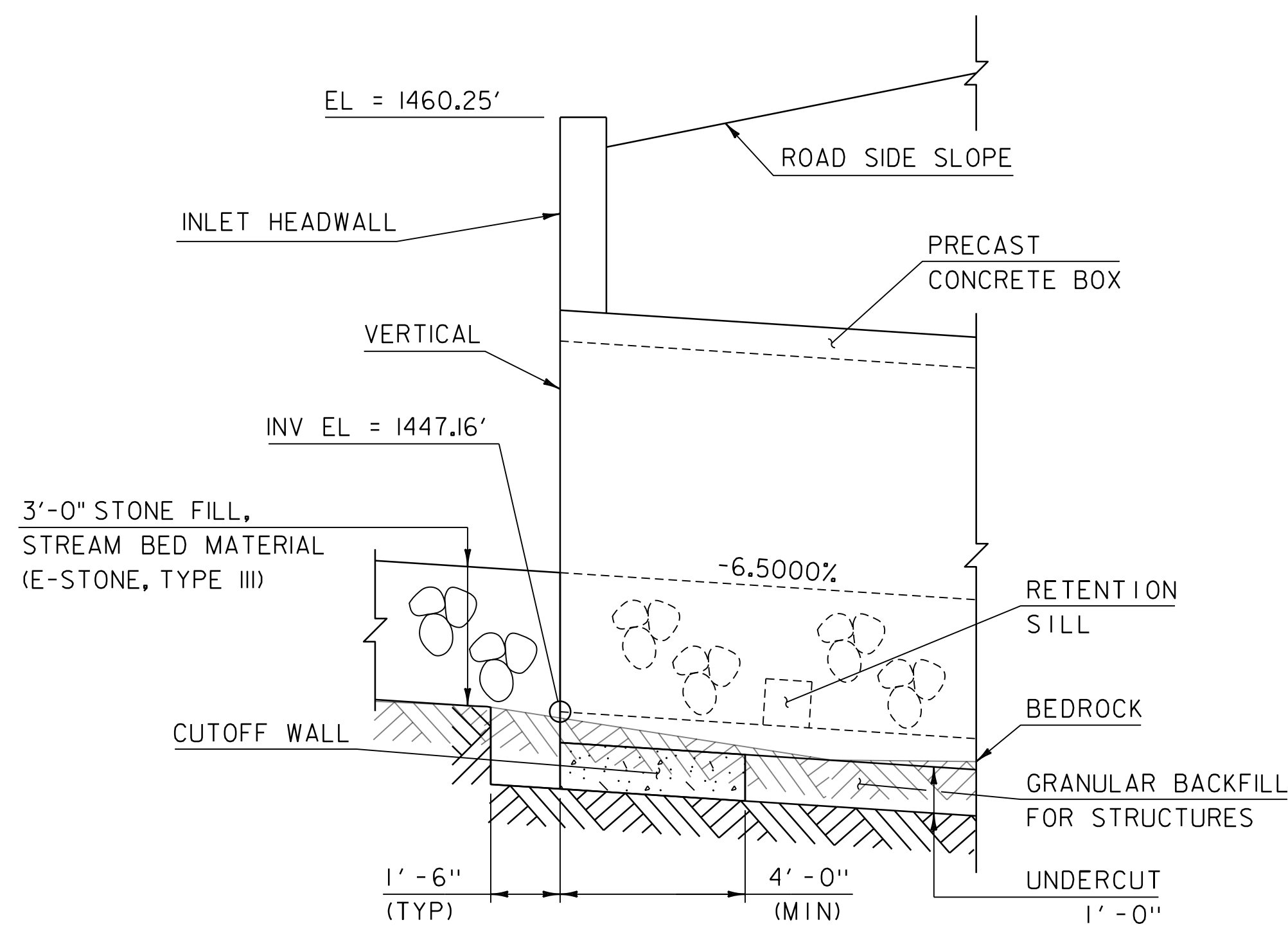
BOX INLET PLAN

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



BOX INLET ELEVATION

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



SECTION A-A

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

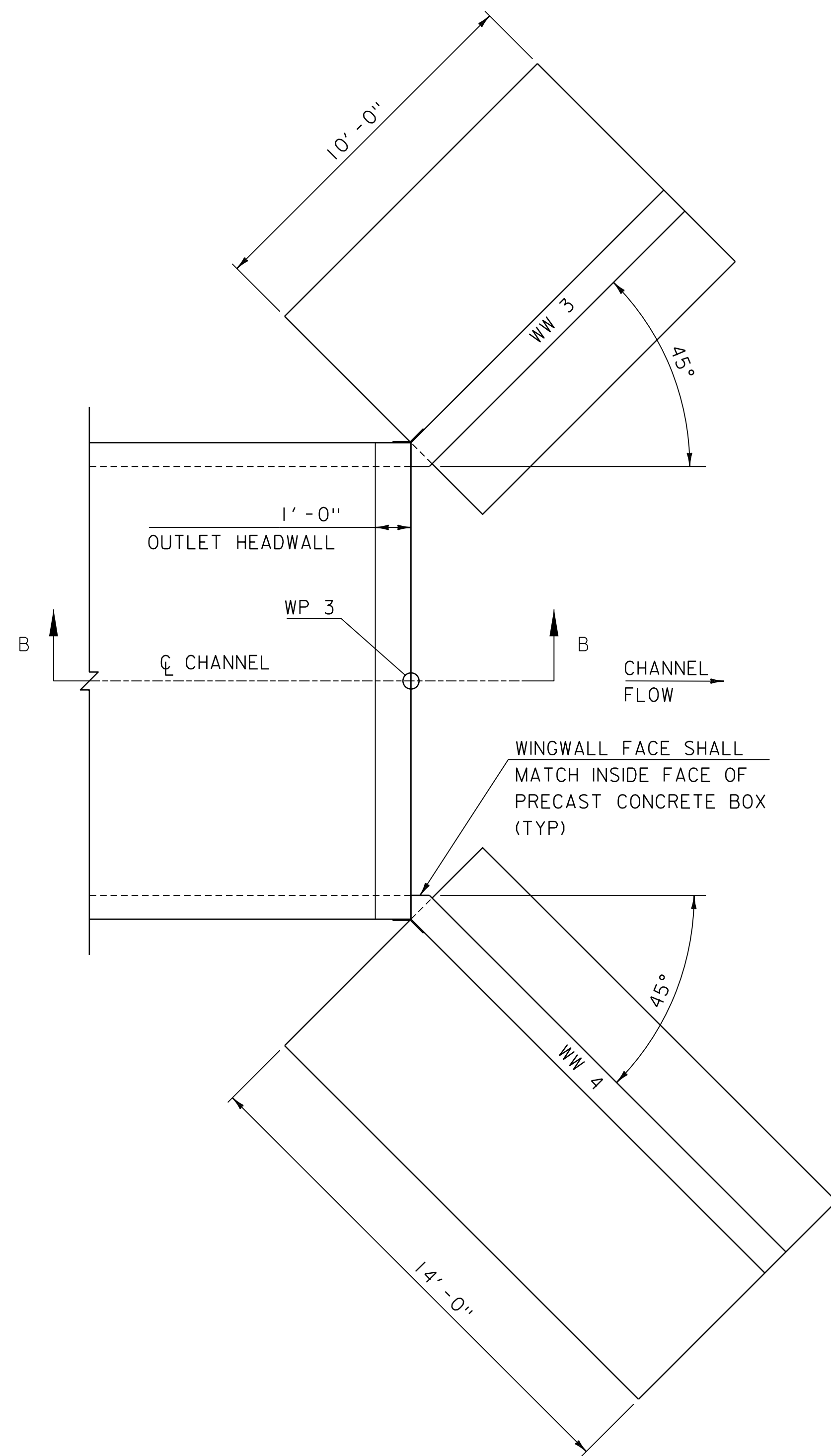
NOTES:

1. THE BEDROCK SHOWN IS NOT REPRESENTATIVE OF ACTUAL SUBSURFACE CONDITIONS, BUT IS AN EXAMPLE USED TO SPECIFY HOW THE STRUCTURE MAY BE CONSTRUCTED OVER BEDROCK. CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ACTUAL ELEVATIONS. SEE PROJECT NOTE 5 FOR MORE INFORMATION.
2. PRECAST CONCRETE BOX AND WINGWALLS ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND SHAPE OF THE PRECAST CONCRETE STRUCTURE WILL BE DEPENDENT ON THE FABRICATOR'S DESIGN.

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

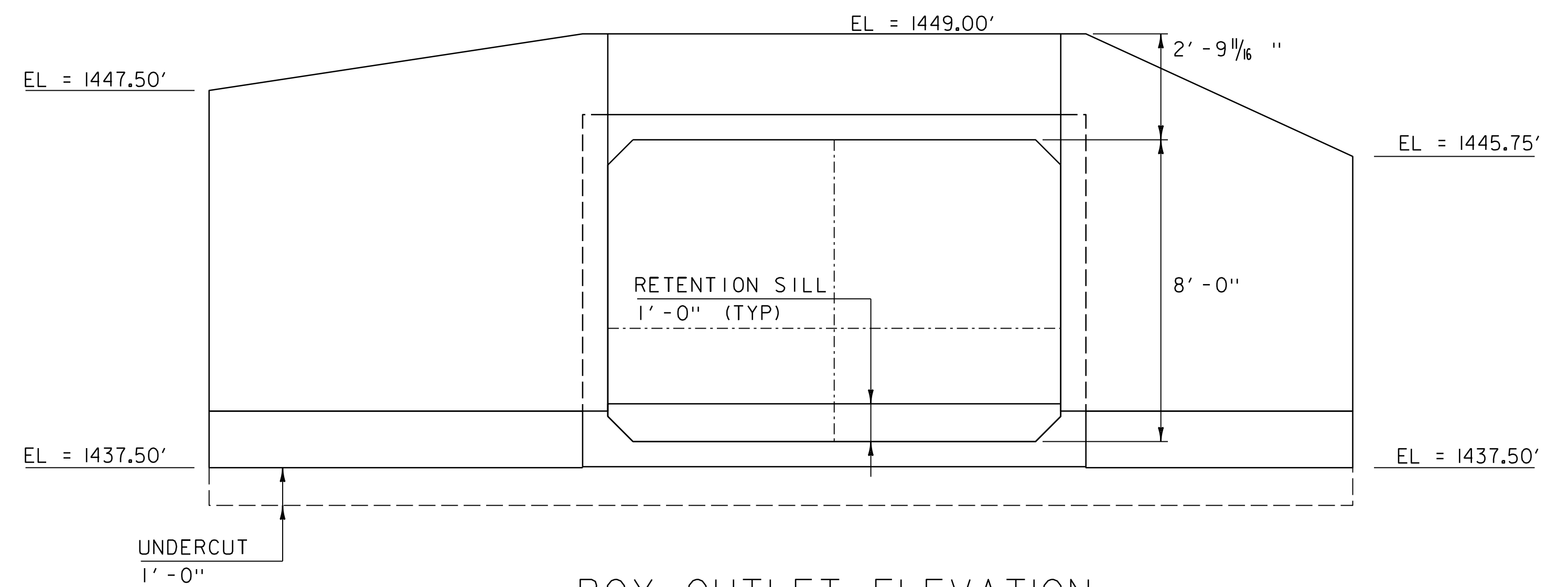
FILE NAME: s19b207boxdetails.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: G. ROKES
BOX INLET DETAILS

PLOT DATE: 11/28/2022
DRAWN BY: G. ROKES
CHECKED BY: R. HOOD
SHEET 23 OF 41



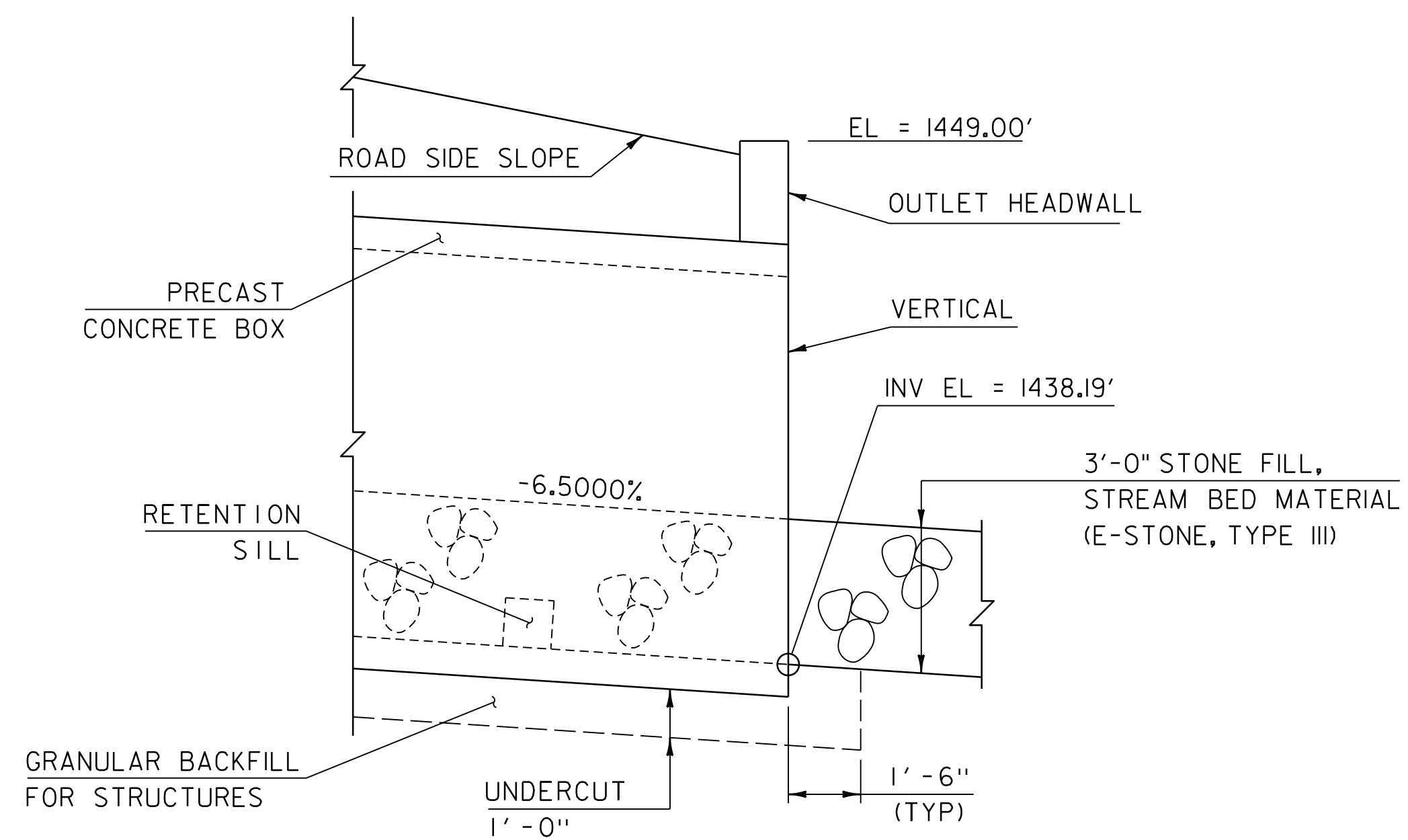
BOX OUTLET PLAN

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



BOX OUTLET ELEVATION

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



SECTION B-B

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

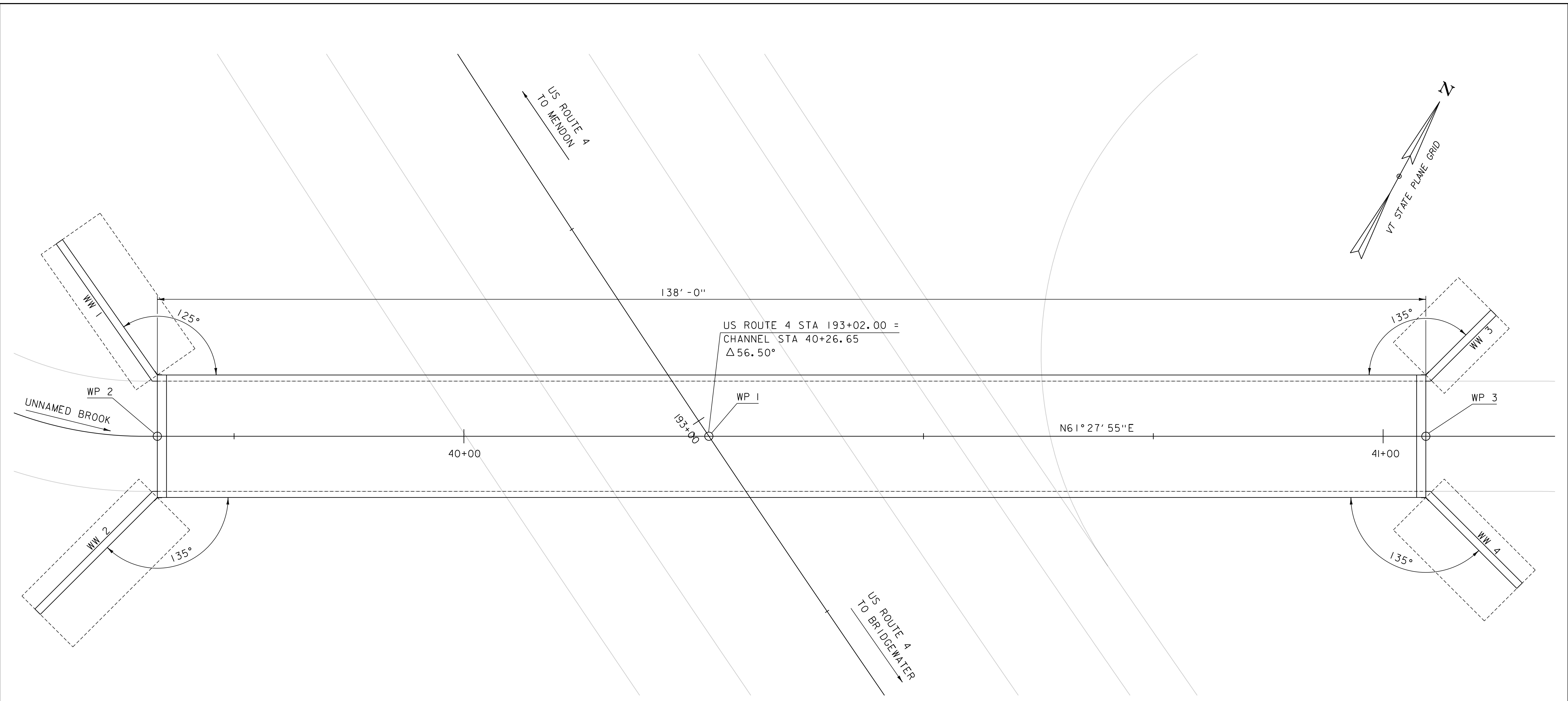
NOTES:

1. PRECAST CONCRETE BOX AND WINGWALLS ARE SHOWN FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND SHAPE OF THE PRECAST CONCRETE STRUCTURE WILL BE DEPENDENT ON THE FABRICATOR'S DESIGN.

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207boxdetails.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: G. ROKES
BOX OUTLET DETAILS

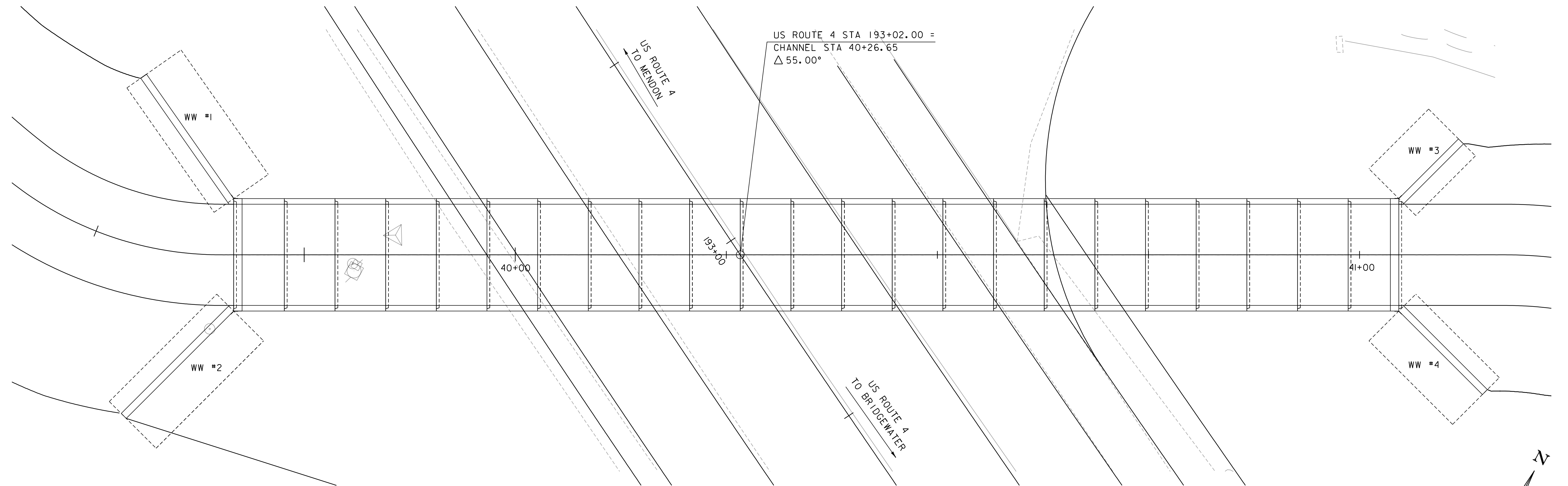
PLOT DATE: 11/28/2022
DRAWN BY: G. ROKES
CHECKED BY: R. HOOD
SHEET 24 OF 41



BOX LAYOUT
SCALE 3/16" = 1'-0"

	NORTHING	EASTING	STATION	OFFSET
WP 1	424254.29	1565623.25	193+02.00	0.00 FT
WP 2	424225.63	1565570.54	192+69.18	RT 50.05 FT
WP 3	424291.55	1565691.77	193+46.33	LT 64.51 FT

PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	G. ROKES
FILE NAME:	sl9b207boxdetails.dgn	CHECKED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	SHEET	25 OF 41
DESIGNED BY:	G. ROKES		
BOX LAYOUT			

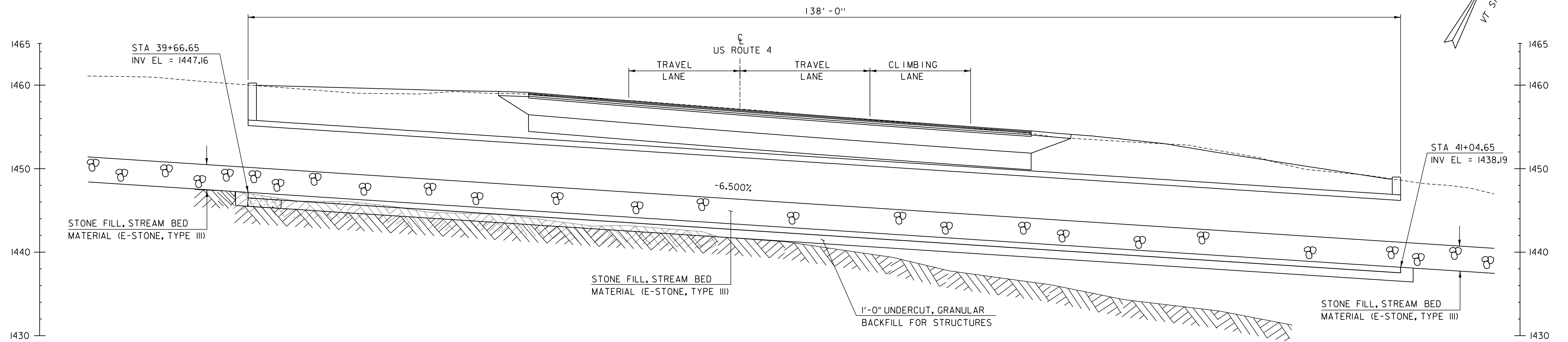


BOX LAYOUT

SCALE 3/16" = 1'-0"

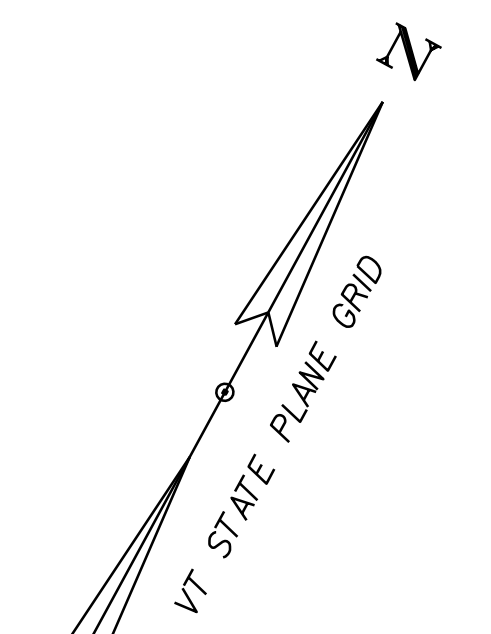
NOTE:

1. PRECAST CONCRETE BOX SECTIONS AND WINGWALLS ARE SHOWN FOR REFERENCE ONLY. ACTUAL CONFIGURATION AND DIMENSIONS OF THE PRECAST CONCRETE STRUCTURE WILL BE DEPENDENT ON THE FABRICATOR'S DESIGN.

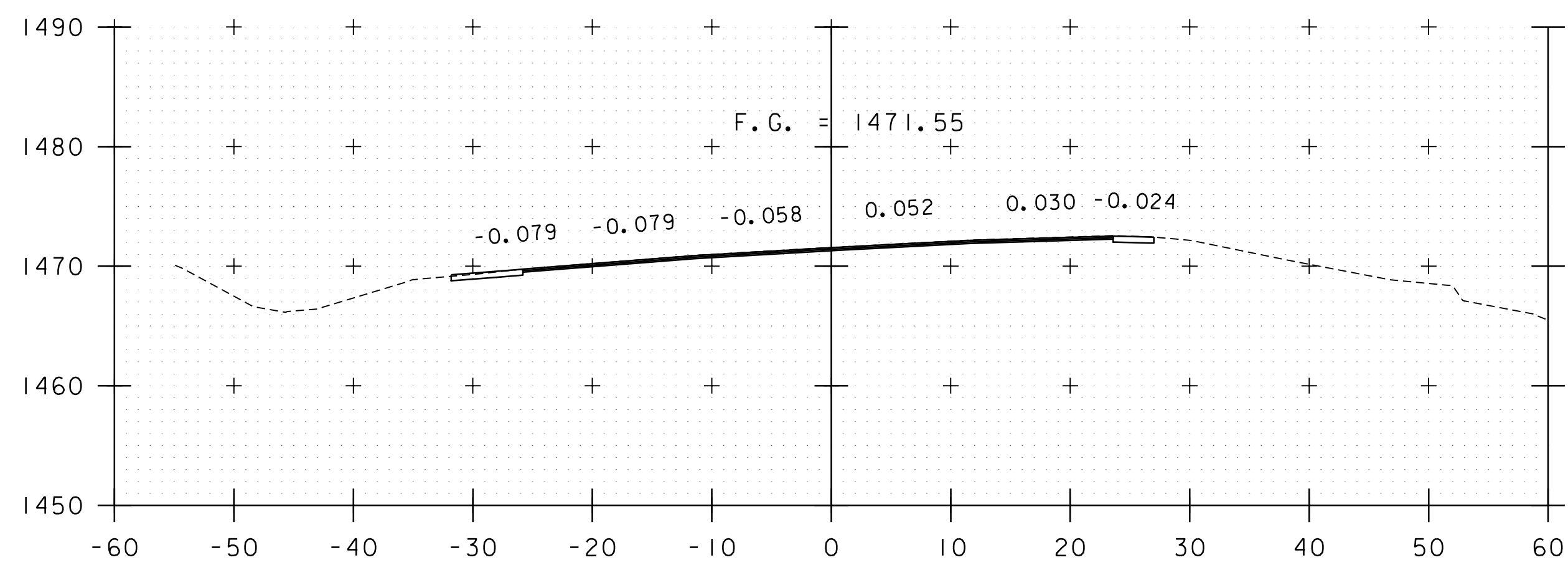


BOX PROFILE

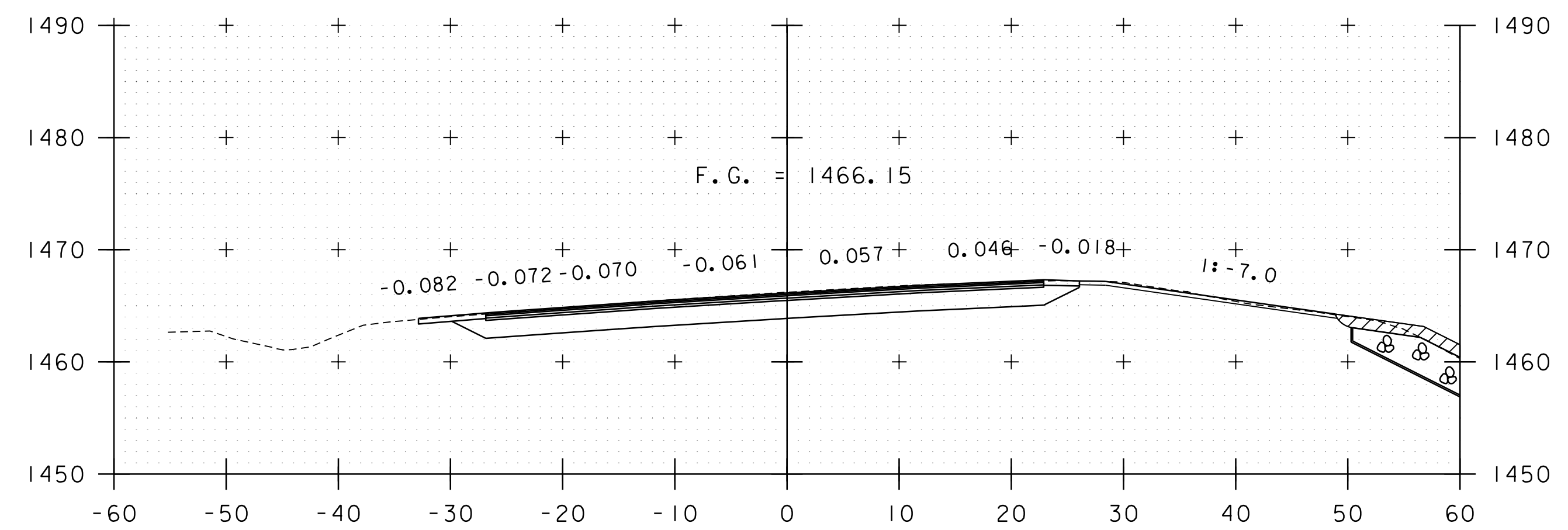
SCALE 3/16" = 1'-0"



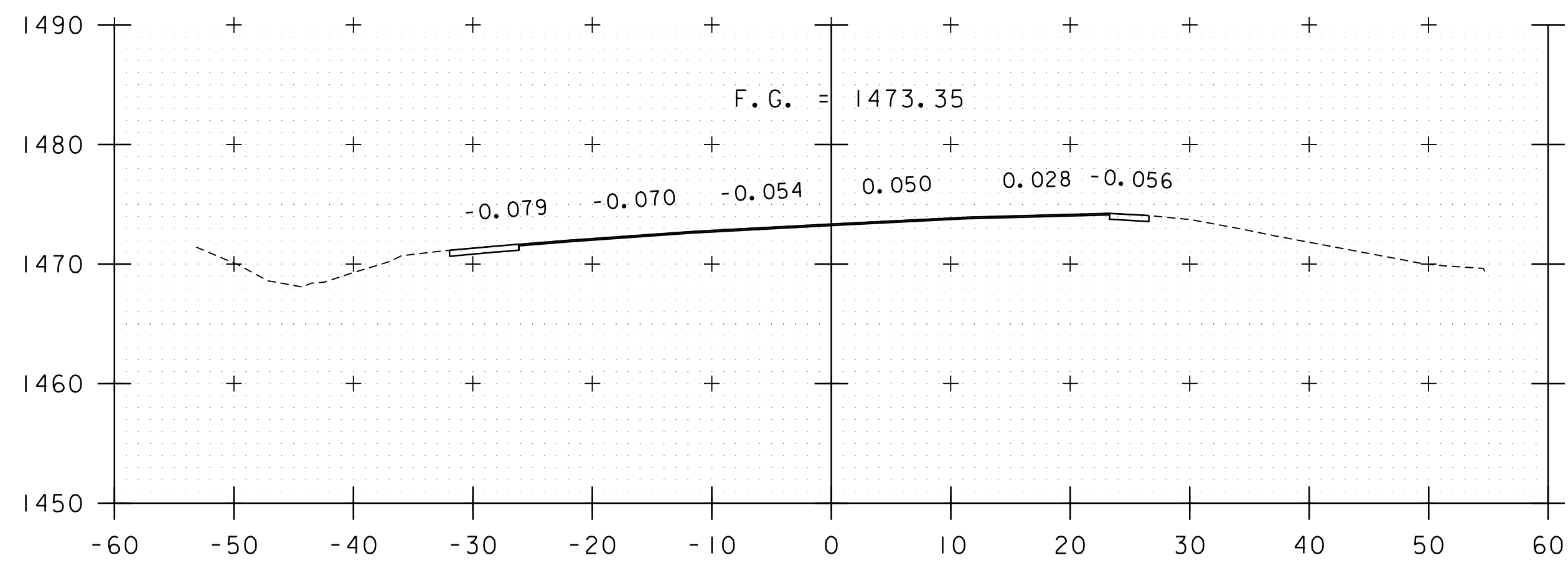
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PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207pe.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD	CHECKED BY: R. HOOD
PROFILE AND ELEVATION SHEET	SHEET 26 OF 41



191+00

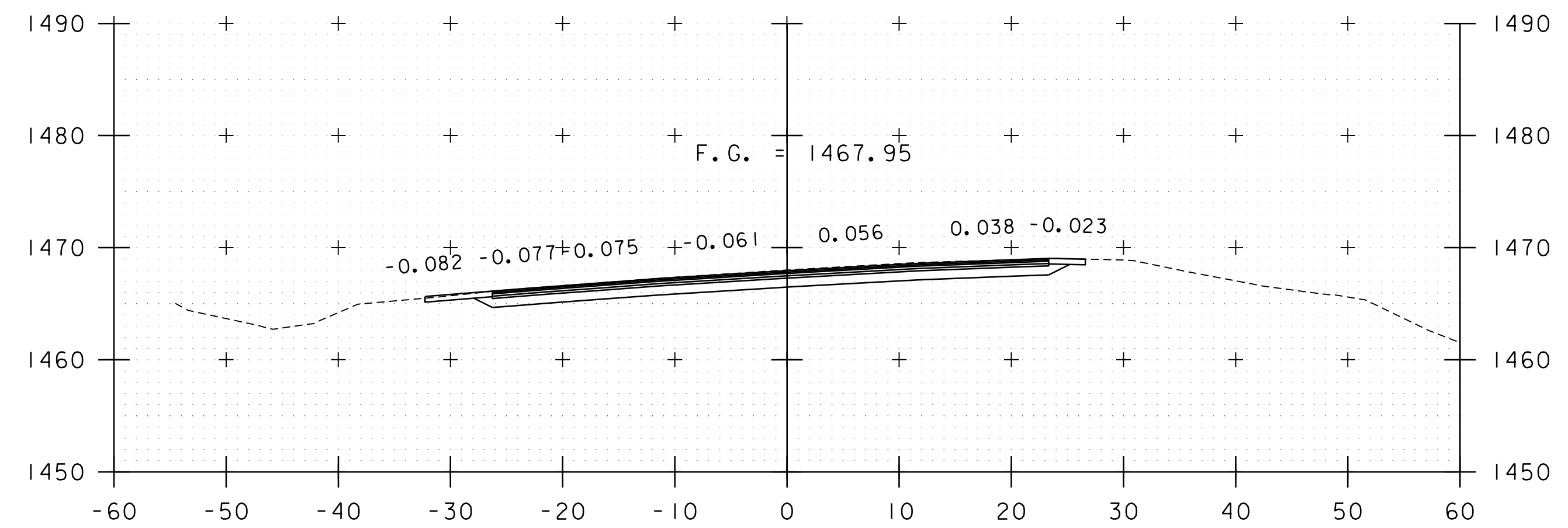


191+75

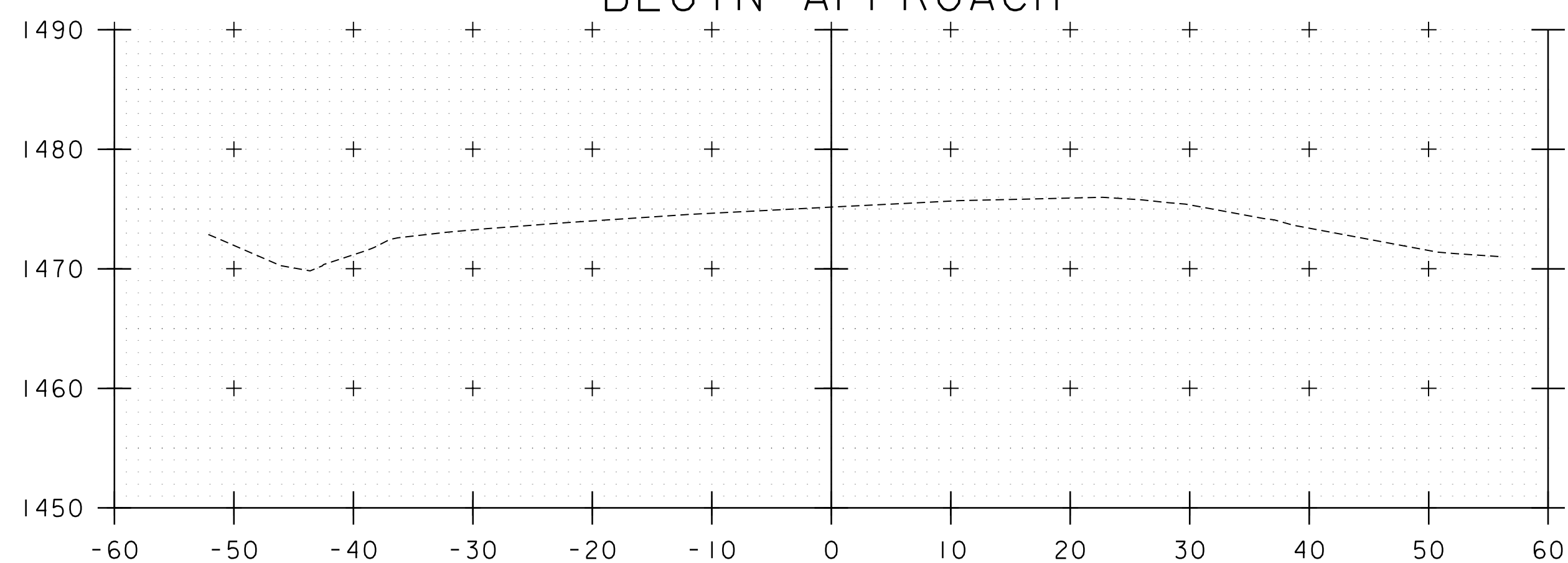


190+75
BEGIN APPROACH

190+50



191+50



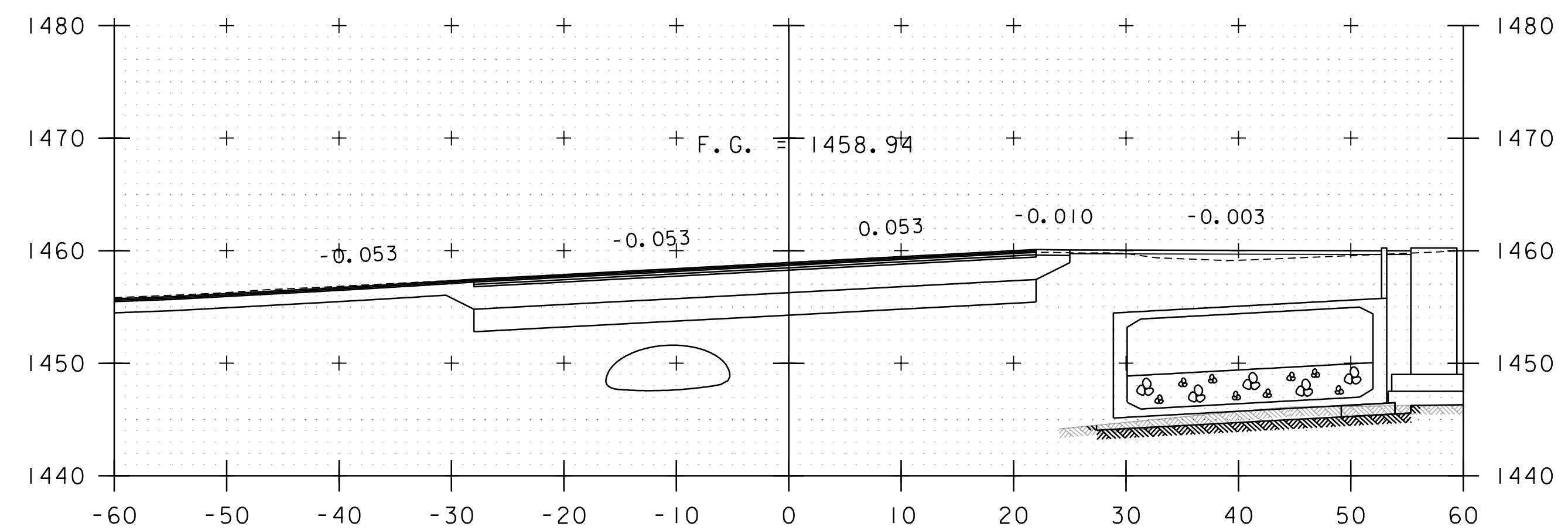
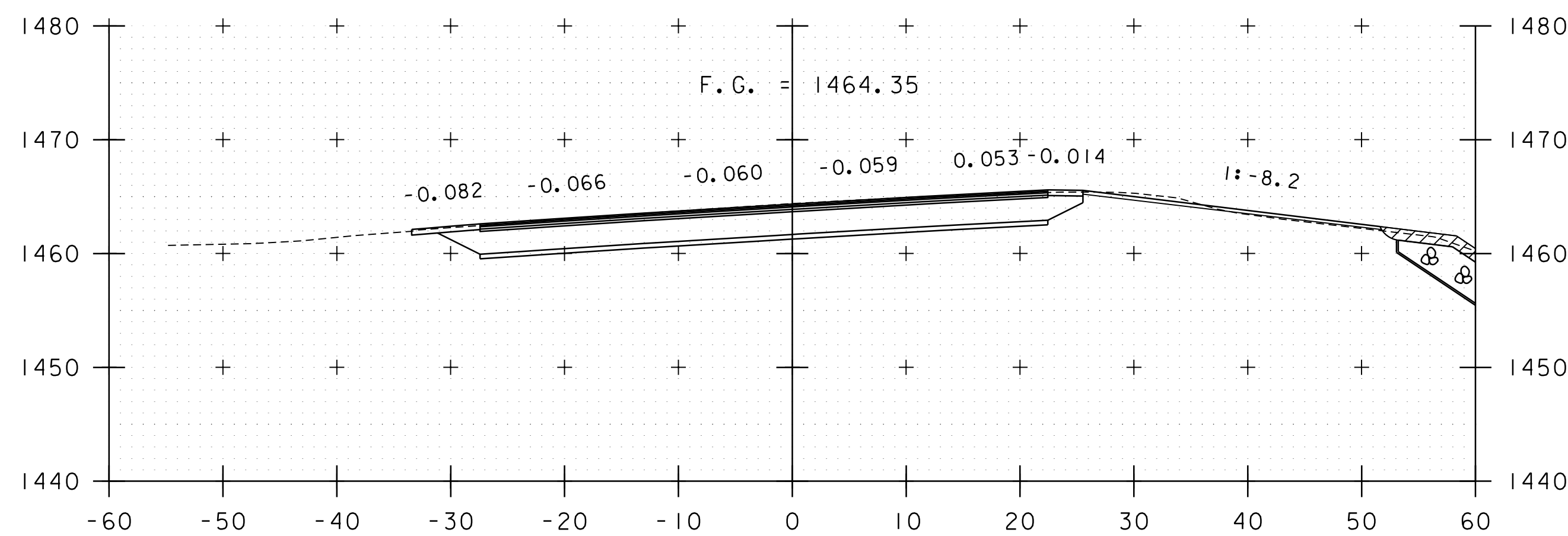
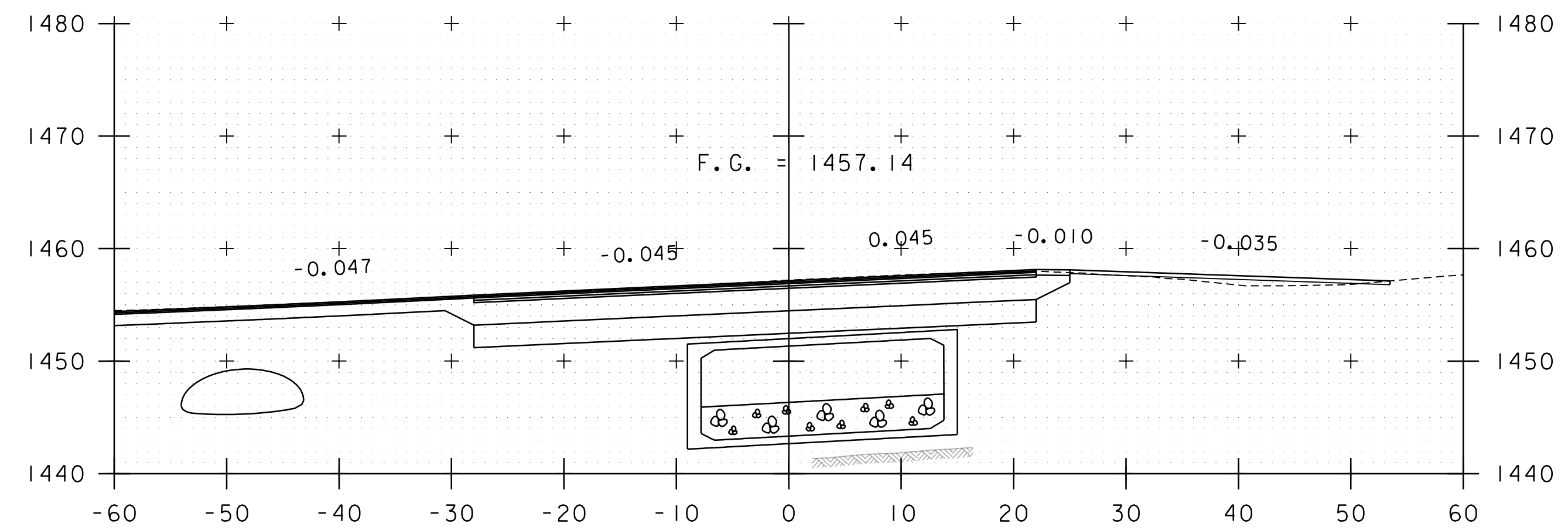
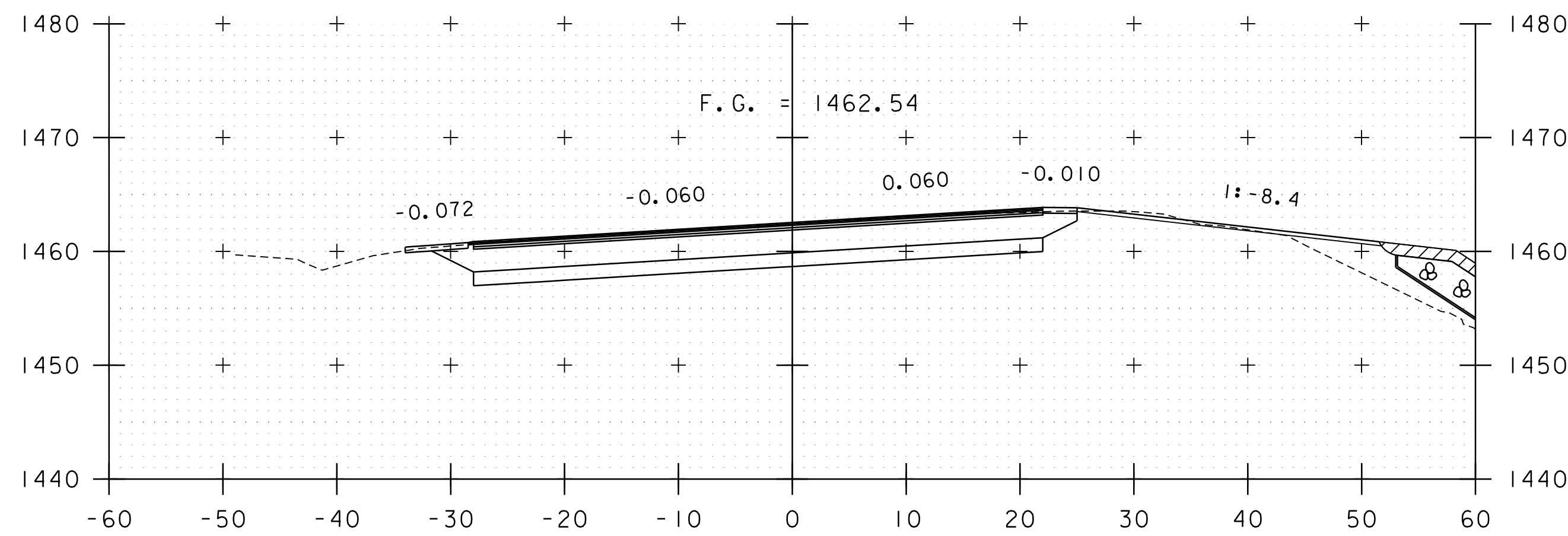
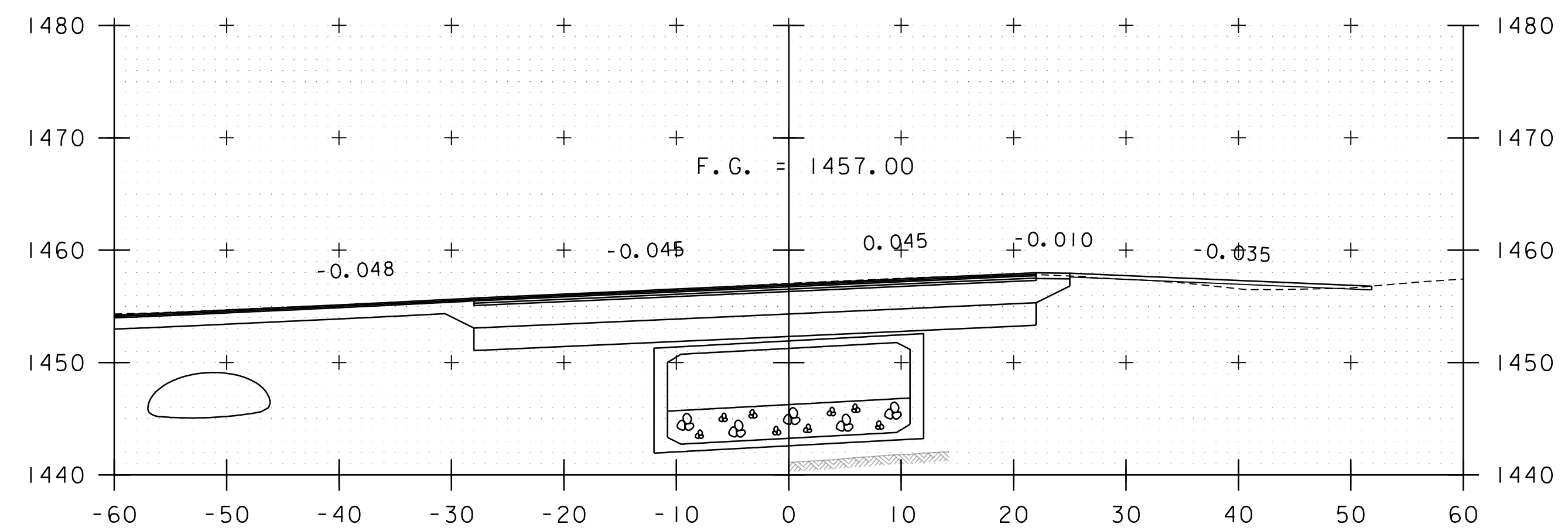
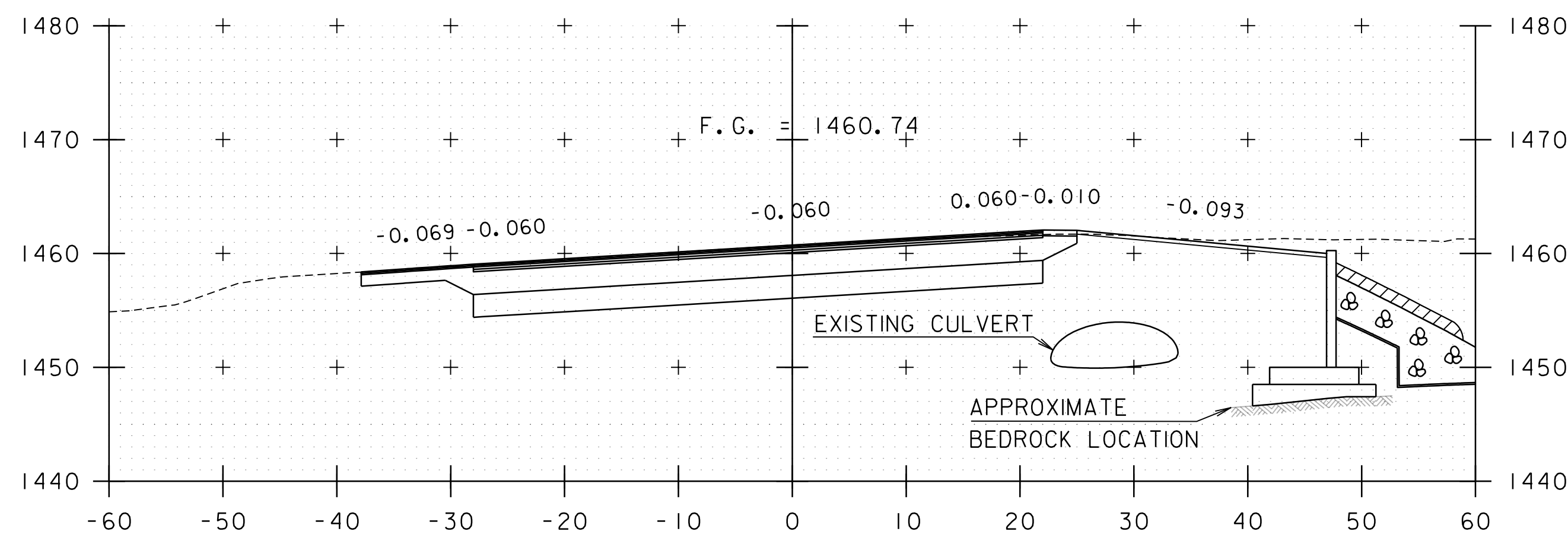
191+25

STA. 190+50 TO STA. 191+75

PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

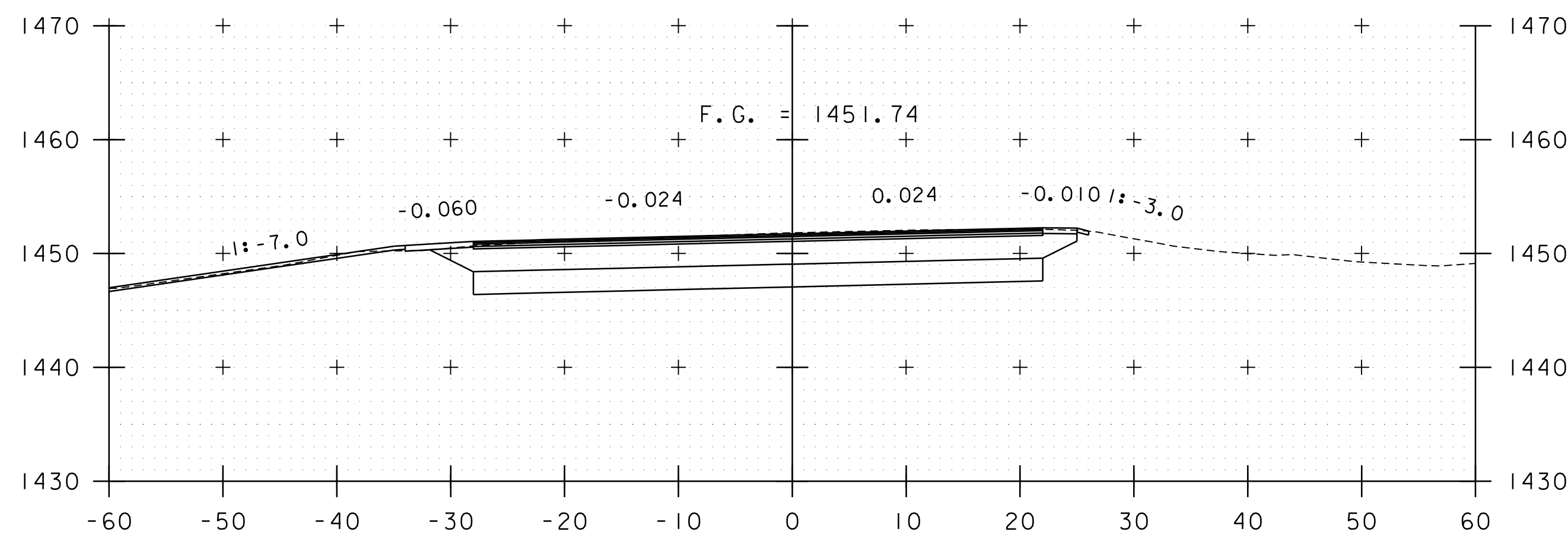
FILE NAME: sl9b207xs.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: R. HOOD
US ROUTE 4 SECTIONS SHEET 1

PLOT DATE: 11/28/2022
DRAWN BY: R. HOOD
CHECKED BY: JB. MCCARTHY
SHEET 27 OF 41

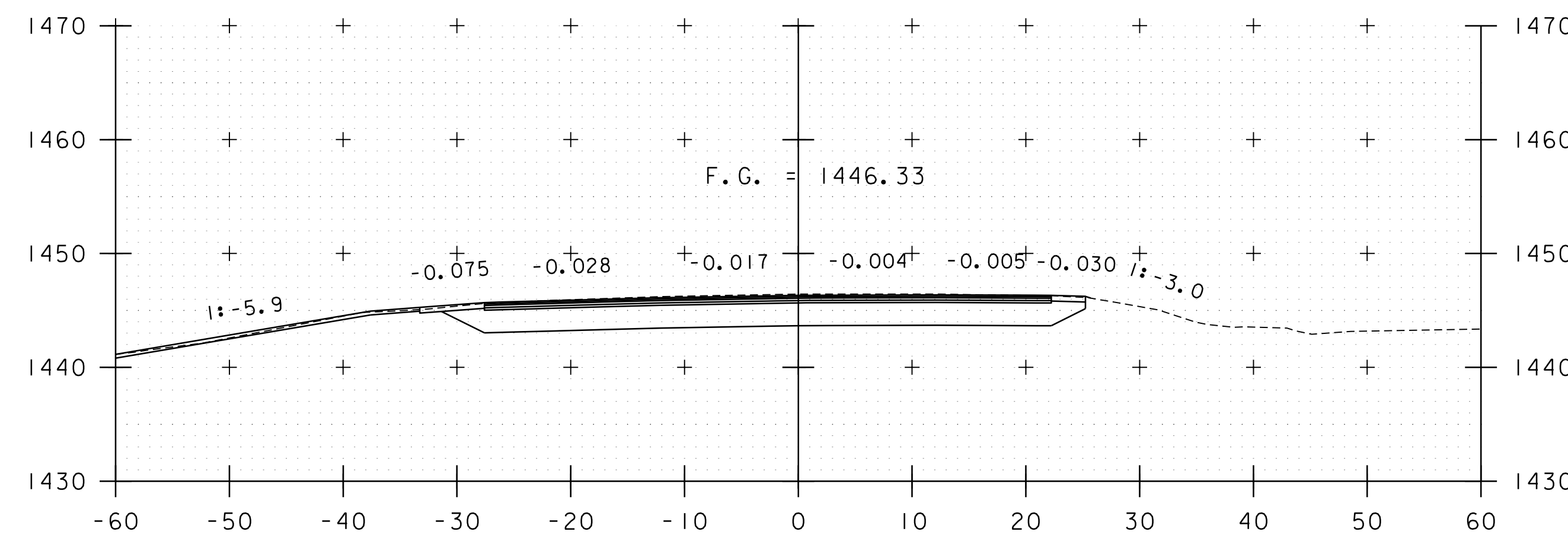


STA. 192+00 TO STA. 193+02

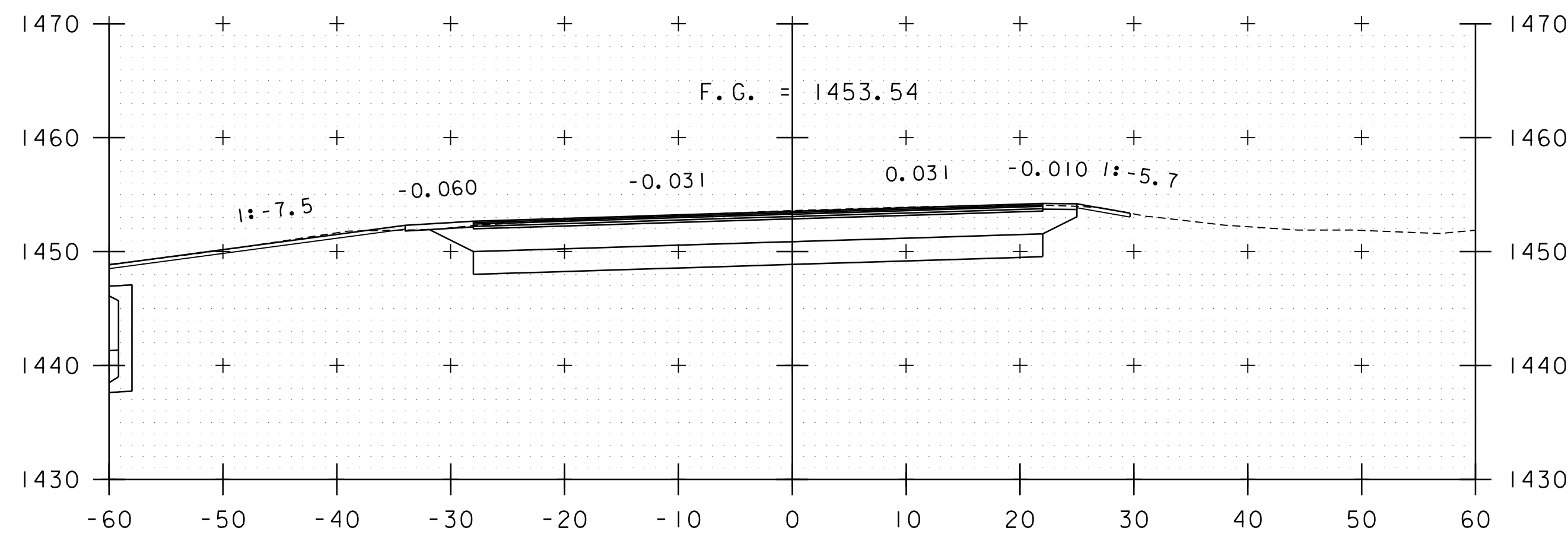
PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	R. HOOD
FILE NAME:	sl9b207xs.dgn	CHECKED BY:	JB. MCCARTHY
PROJECT LEADER:	JB. MCCARTHY	SHEET	28 OF 41
DESIGNED BY:	R. HOOD		
US ROUTE 4 SECTIONS SHEET 2			



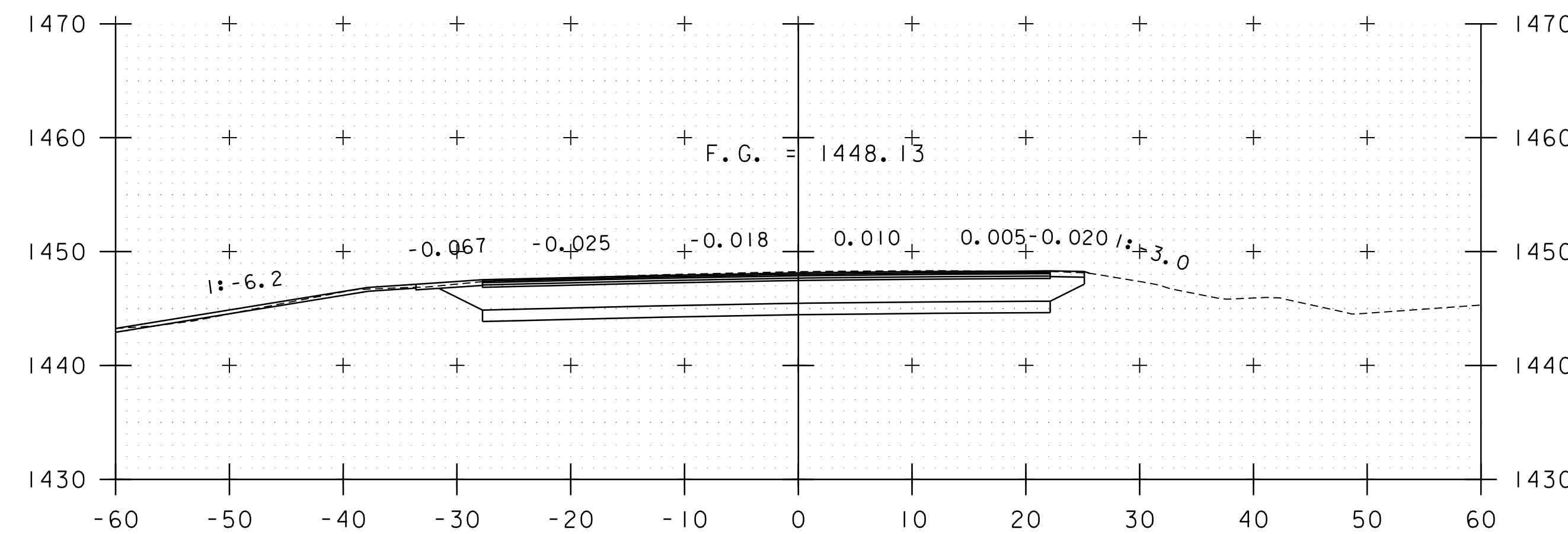
193+75



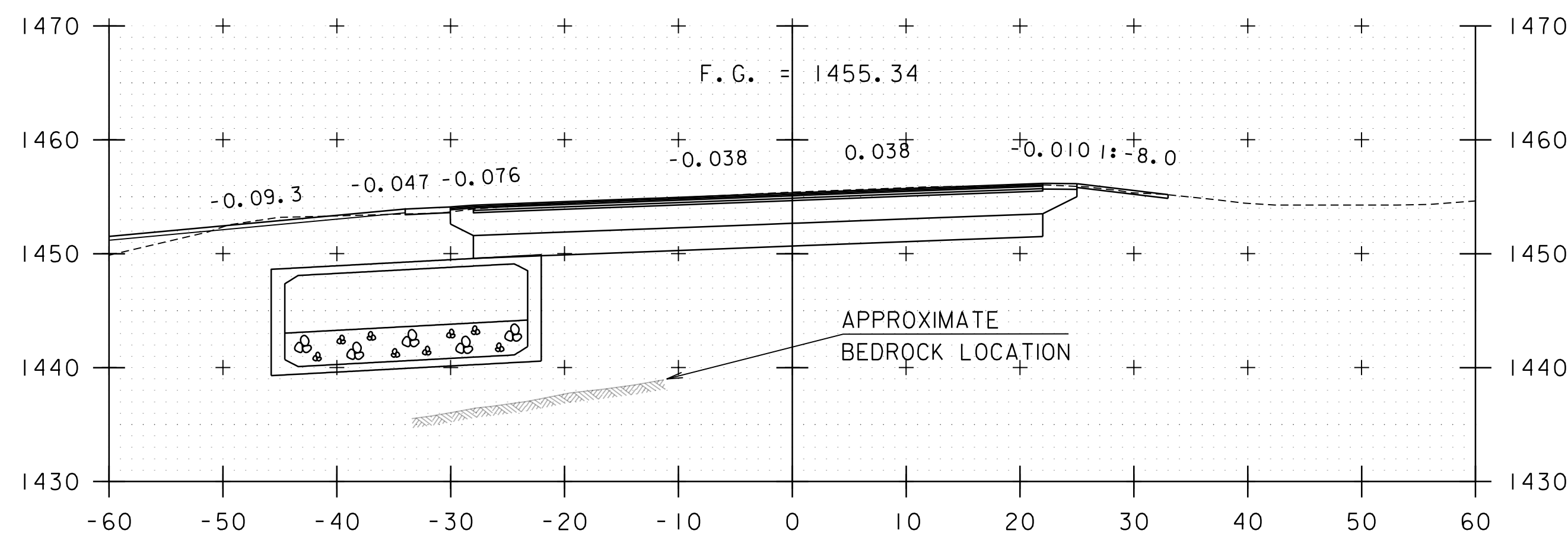
194+50



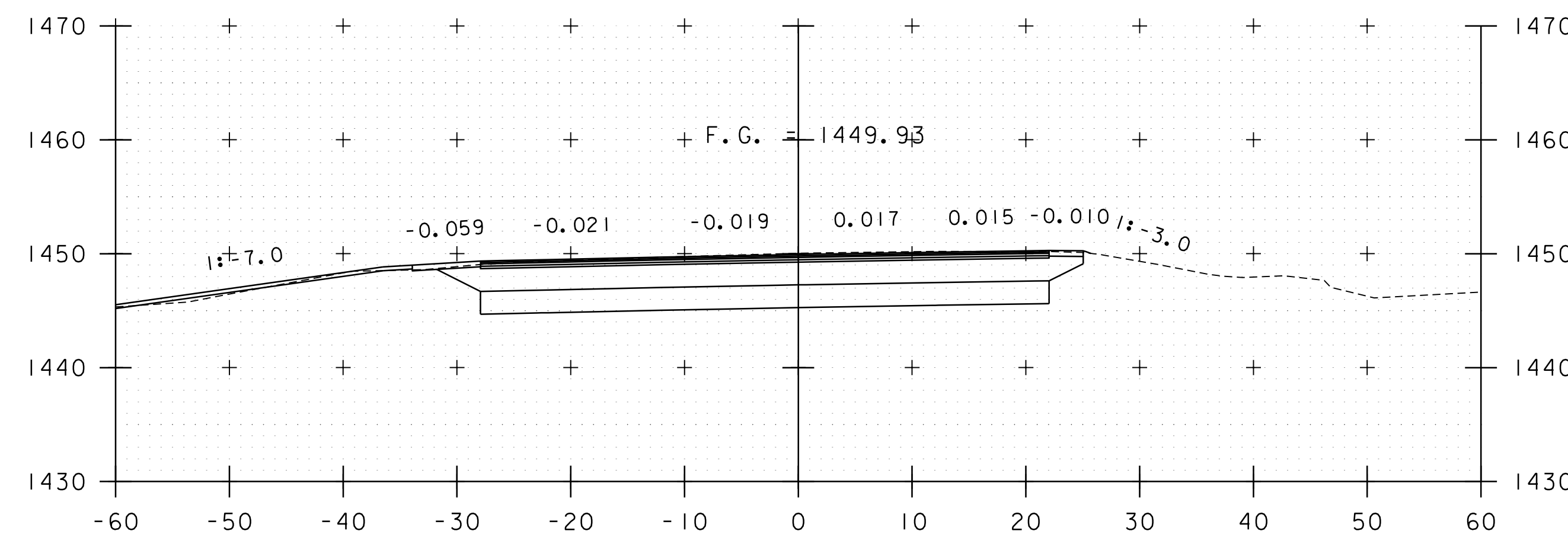
193+50



194+25



193+25

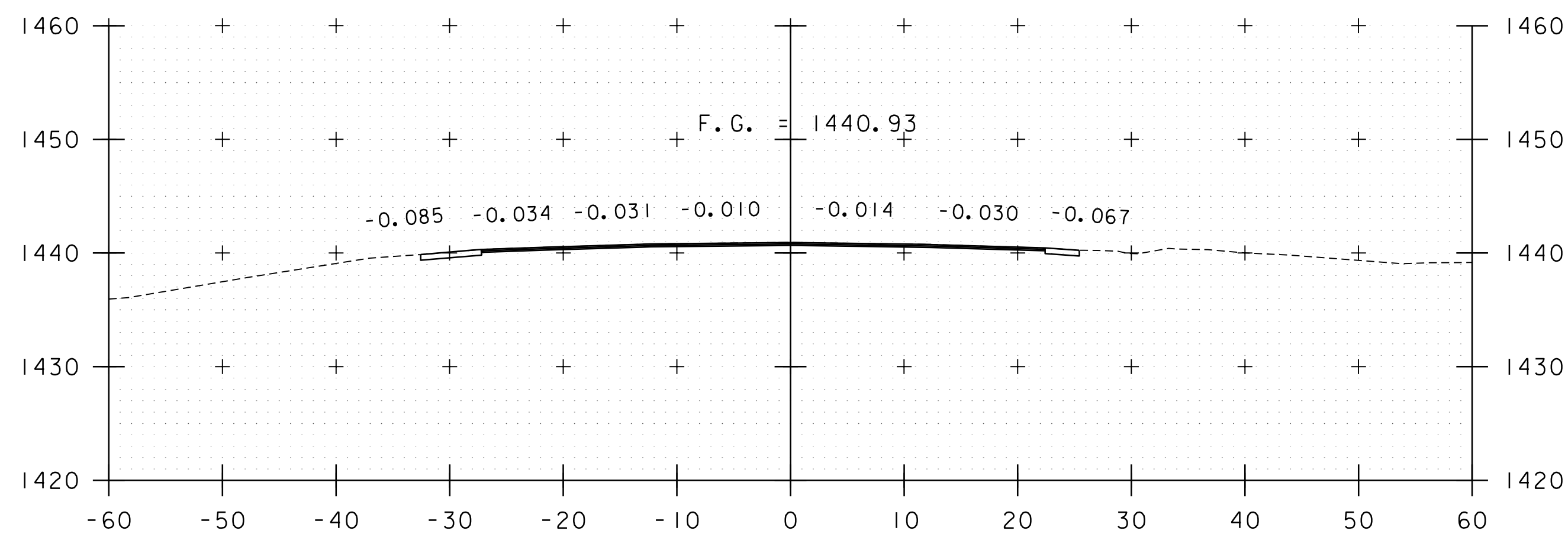


194+00
END PROJECT

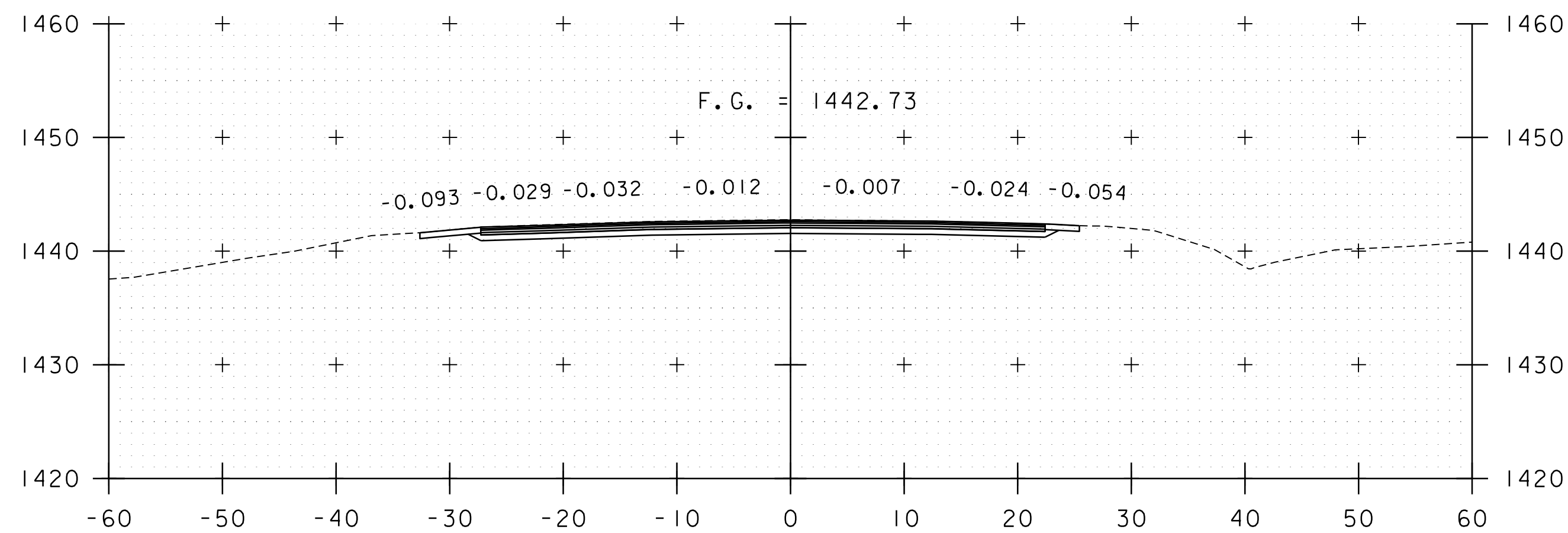
STA. 193+25 TO STA. 194+50

PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)
 FILE NAME: sl9b207xs.dgn
 PROJECT LEADER: JB. MCCARTHY
 DESIGNED BY: R. HOOD
 US ROUTE 4 SECTIONS SHEET 3

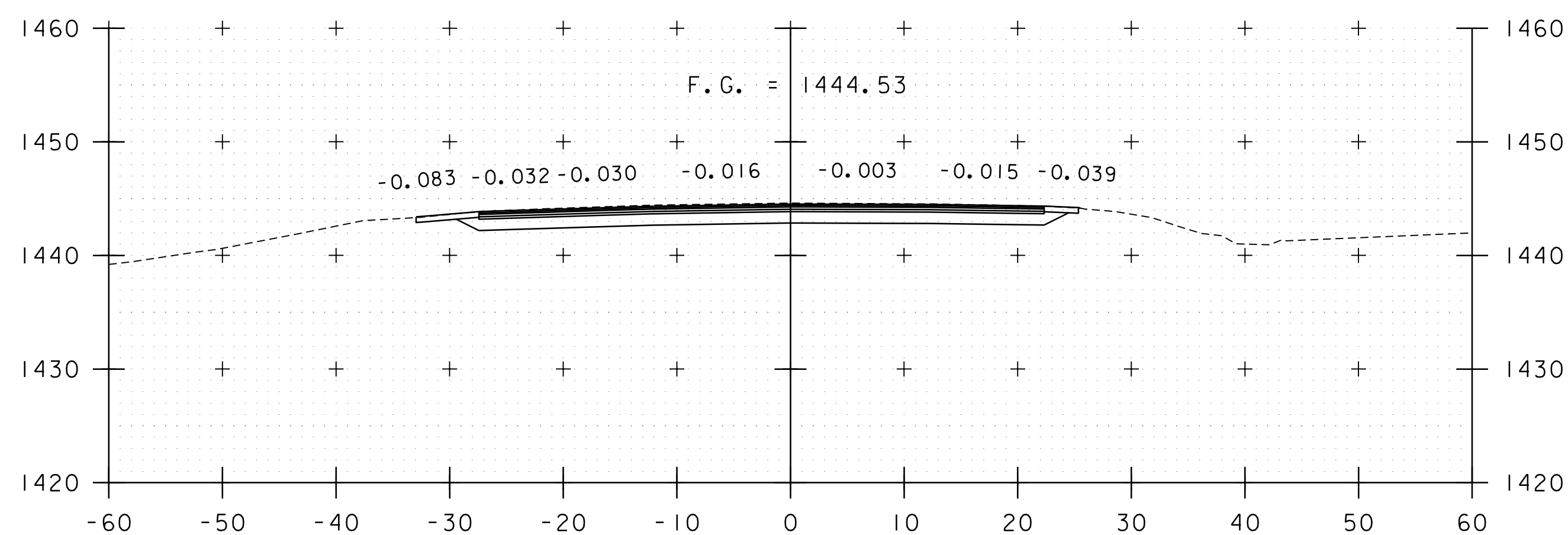
PLOT DATE: 11/28/2022
 DRAWN BY: R. HOOD
 CHECKED BY: JB. MCCARTHY
 SHEET 29 OF 41



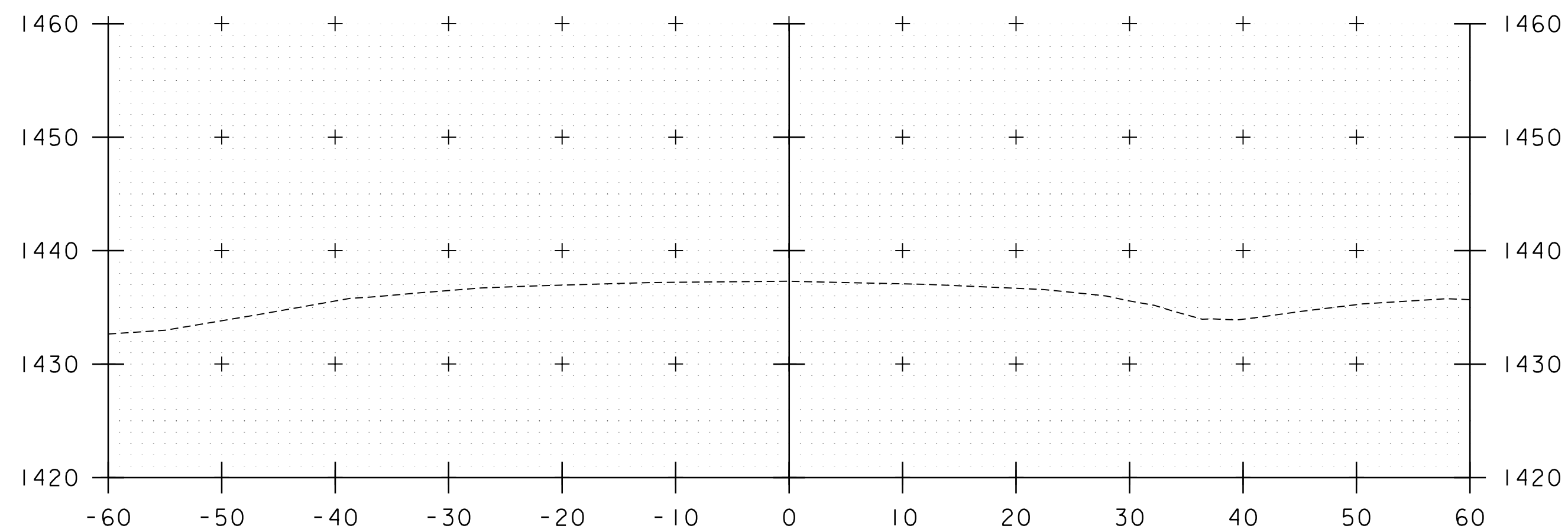
195+25



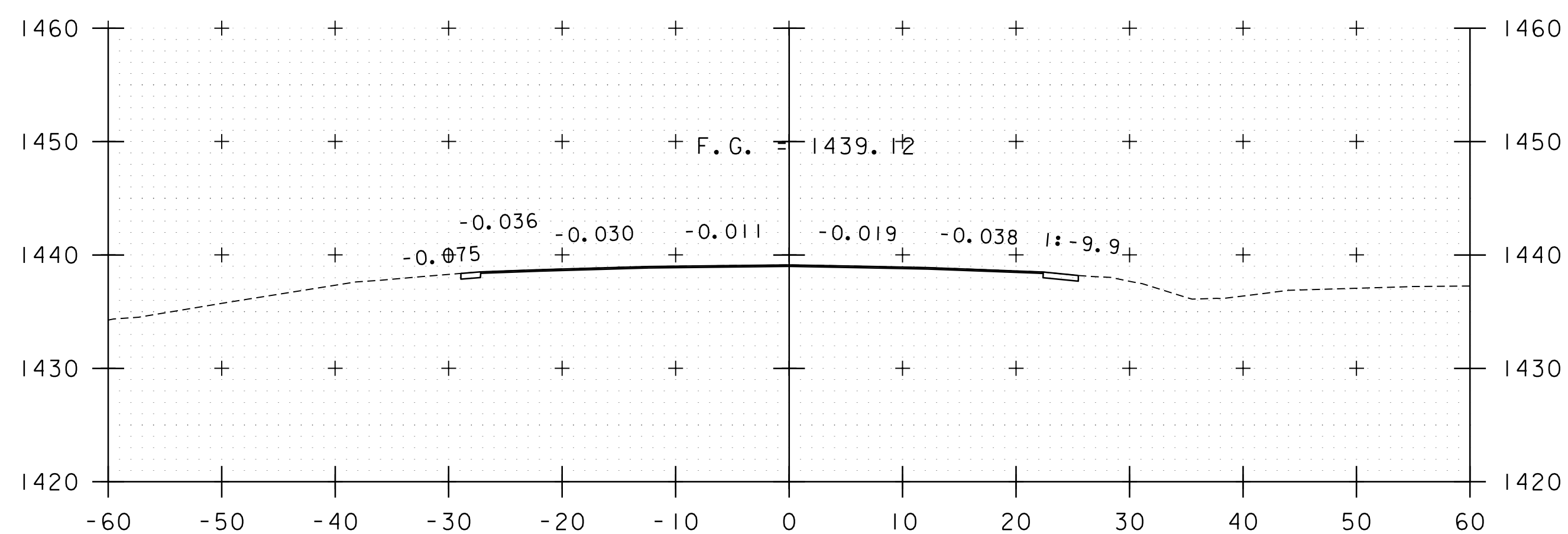
195+00



194+75



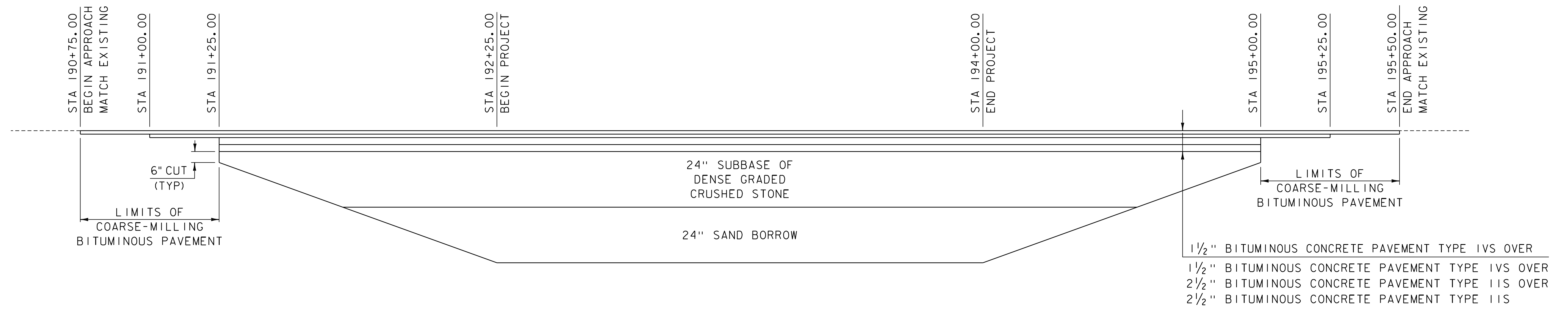
195+75



195+50
END APPROACH

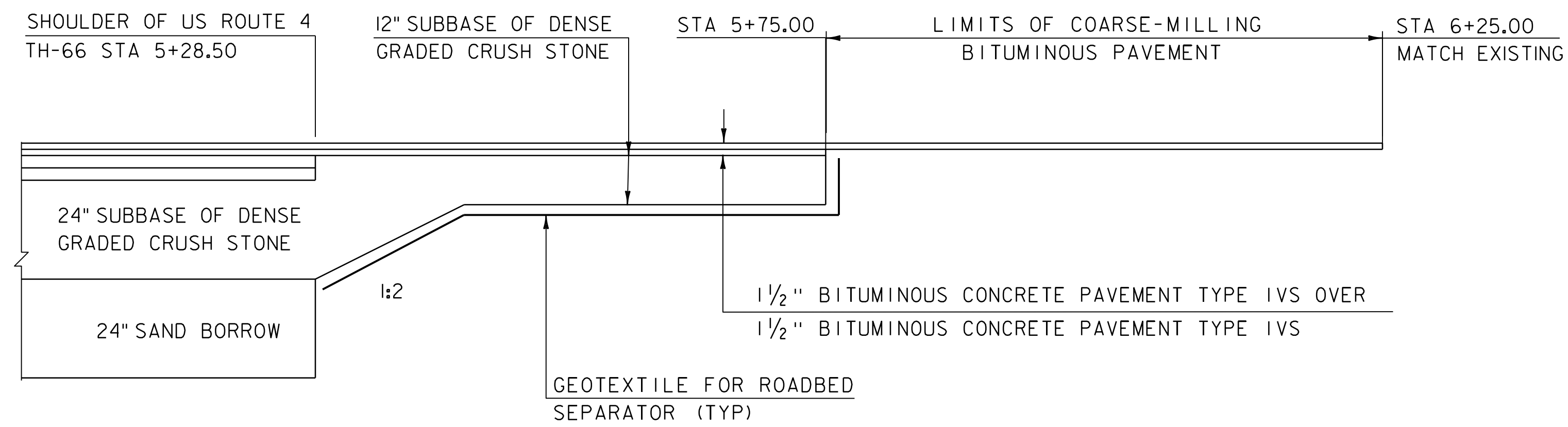
STA. 194+75 TO STA. 195+75

PROJECT NAME: KILLINGTON	PLOT DATE: 11/28/2022
PROJECT NUMBER: BF 020-2(50)	DRAWN BY: R. HOOD
FILE NAME: s19b207xs.dgn	CHECKED BY: JB. MCCARTHY
PROJECT LEADER: JB. MCCARTHY	SHEET 30 OF 41
DESIGNED BY: R. HOOD	
US ROUTE 4 SECTIONS SHEET 4	



US 4 MATERIAL TRANSITION

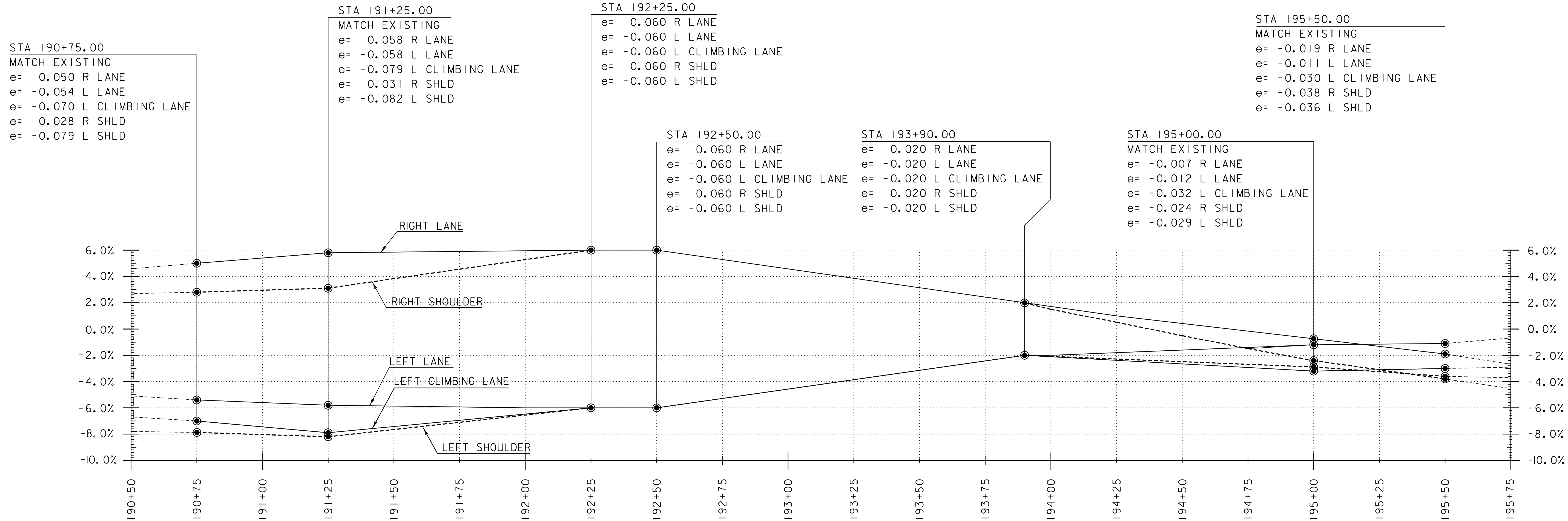
NOT TO SCALE



TH-66 MATERIAL TRANSITION

NOT TO SCALE

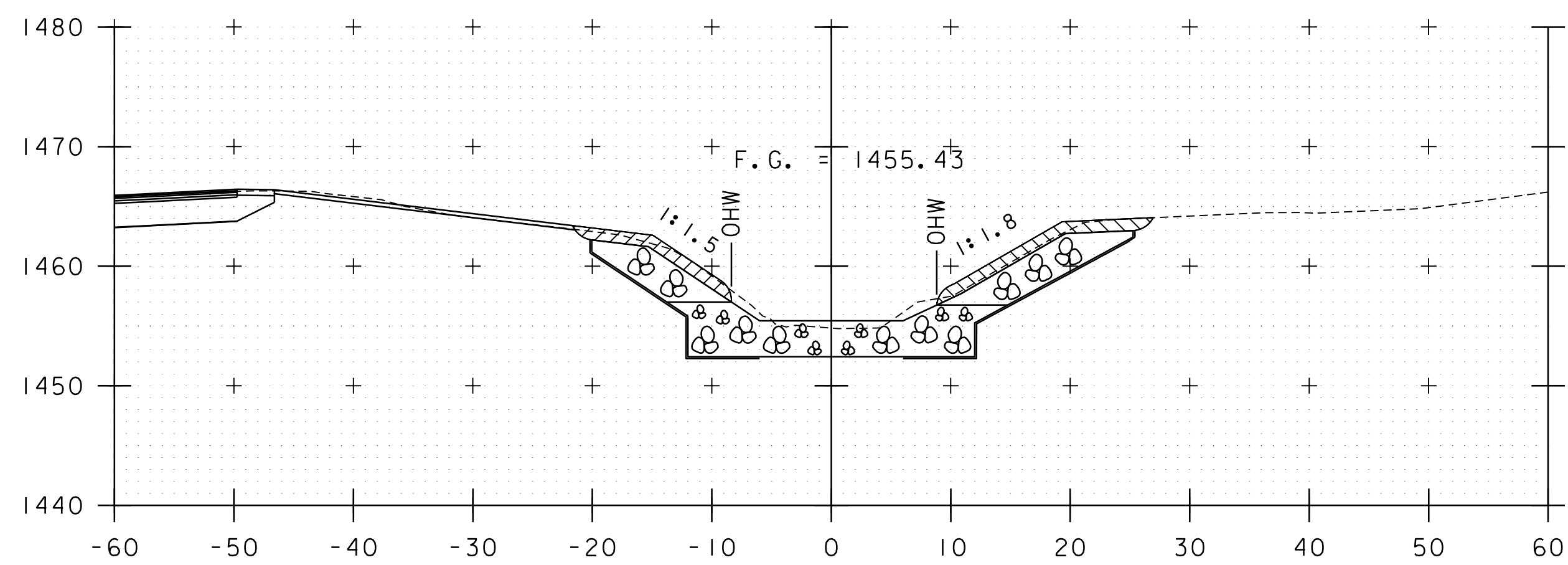
PROJECT NAME: KILLINGTON	PLOT DATE: 11/28/2022
PROJECT NUMBER: BF 020-2(50)	DRAWN BY: G. ROKES
FILE NAME: s19b207pro.dgn	CHECKED BY: R. HOOD
PROJECT LEADER: JB. MCCARTHY	SHEET 31 OF 41
DESIGNED BY: R. HOOD	
MATERIAL TRANSITION SHEET	



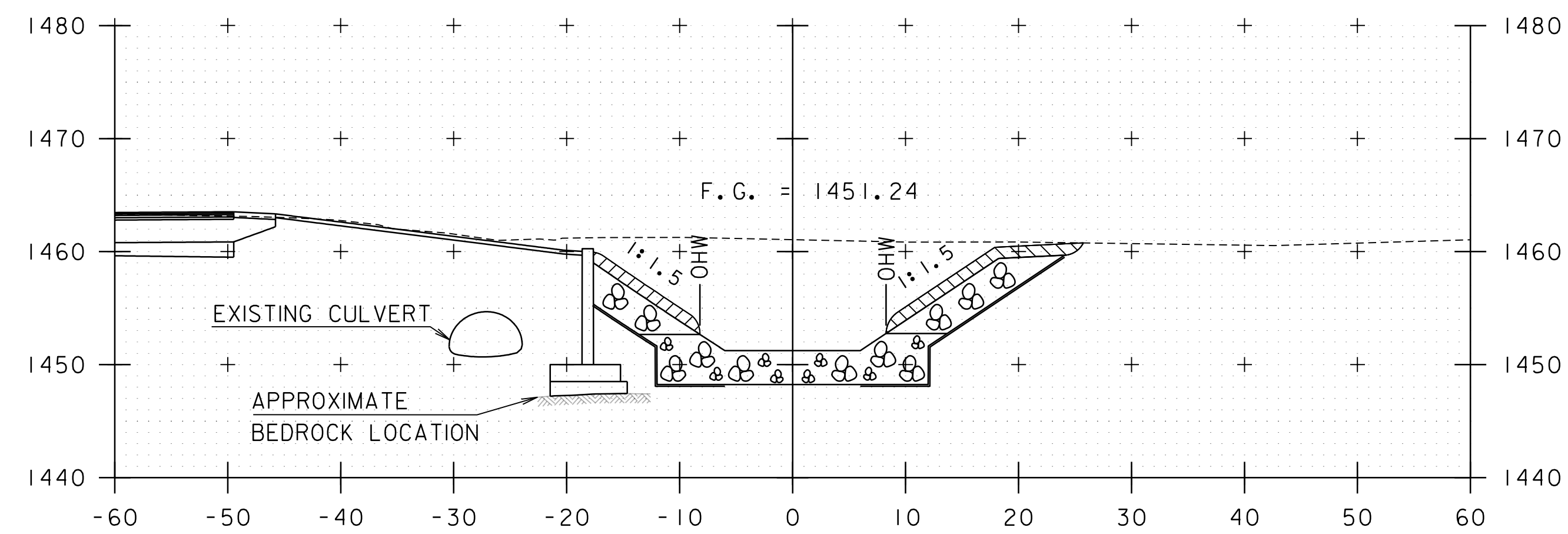
BANKING DIAGRAM

SCALE: HORIZONTAL 1" = 20' - 0"
 VERTICAL 1" = 4%

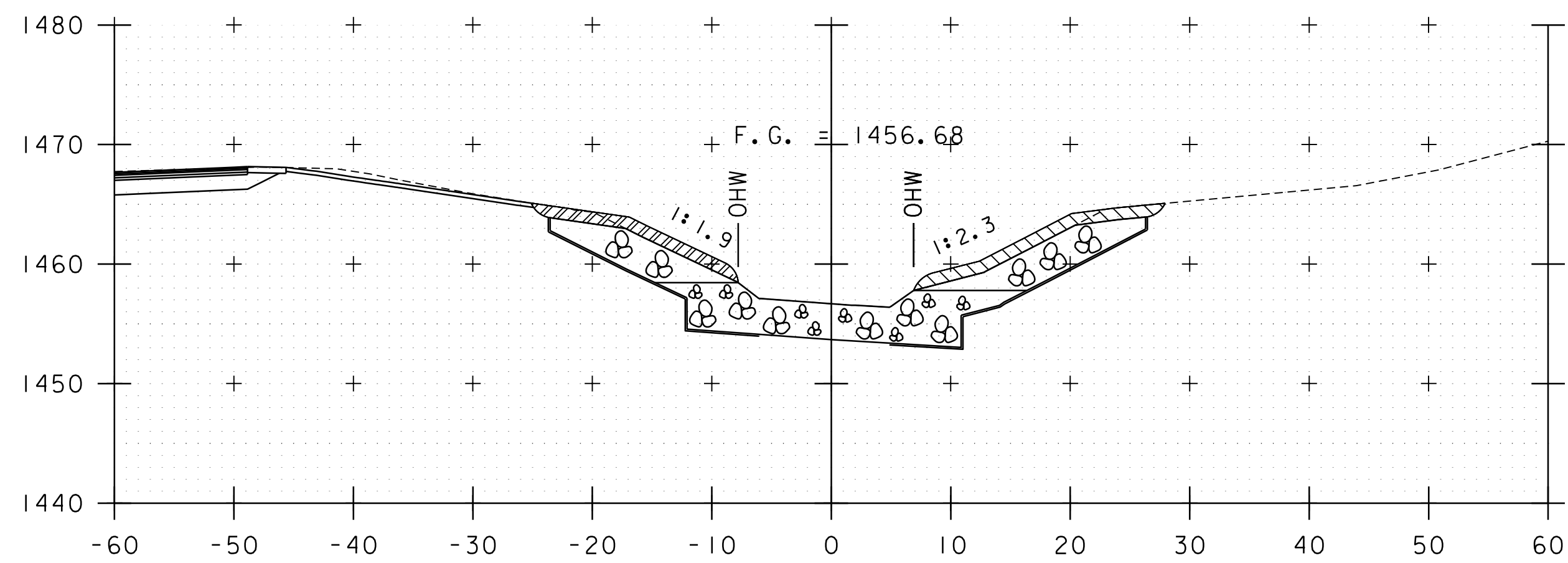
PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207pro.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: G. ROKES
DESIGNED BY: R. HOOD	CHECKED BY: R. HOOD
SUPERELEVATION SHEET	SHEET 32 OF 41



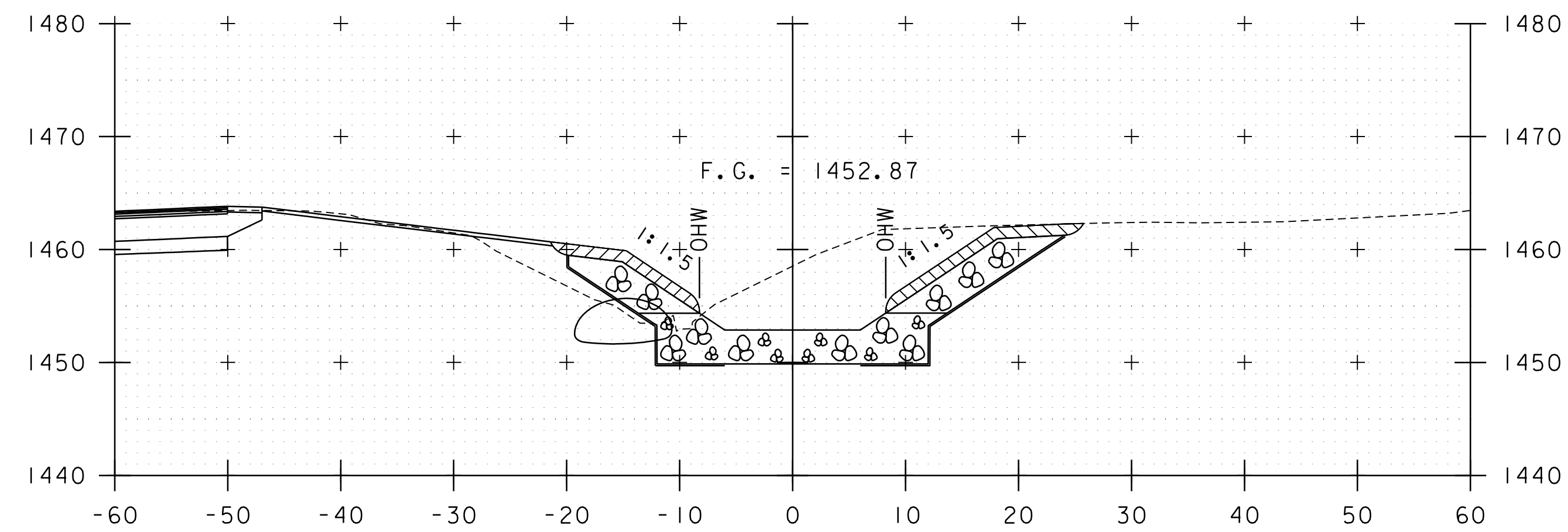
38+75



39+50



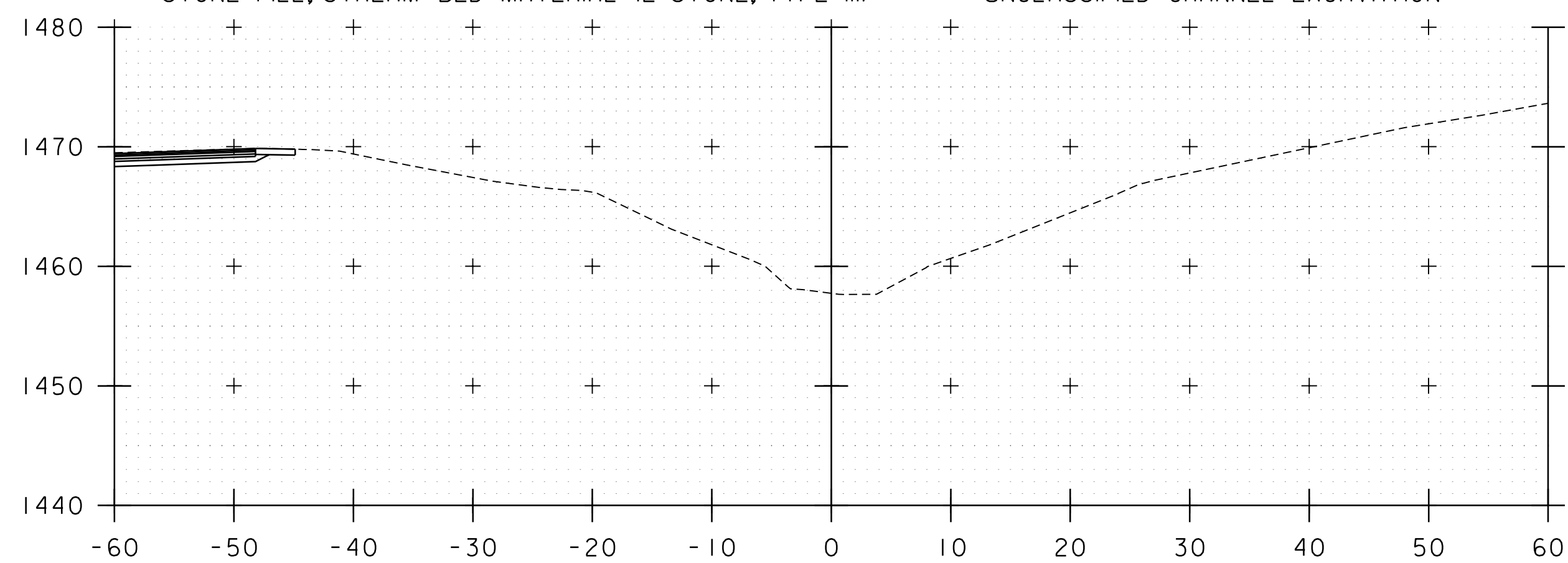
38+50



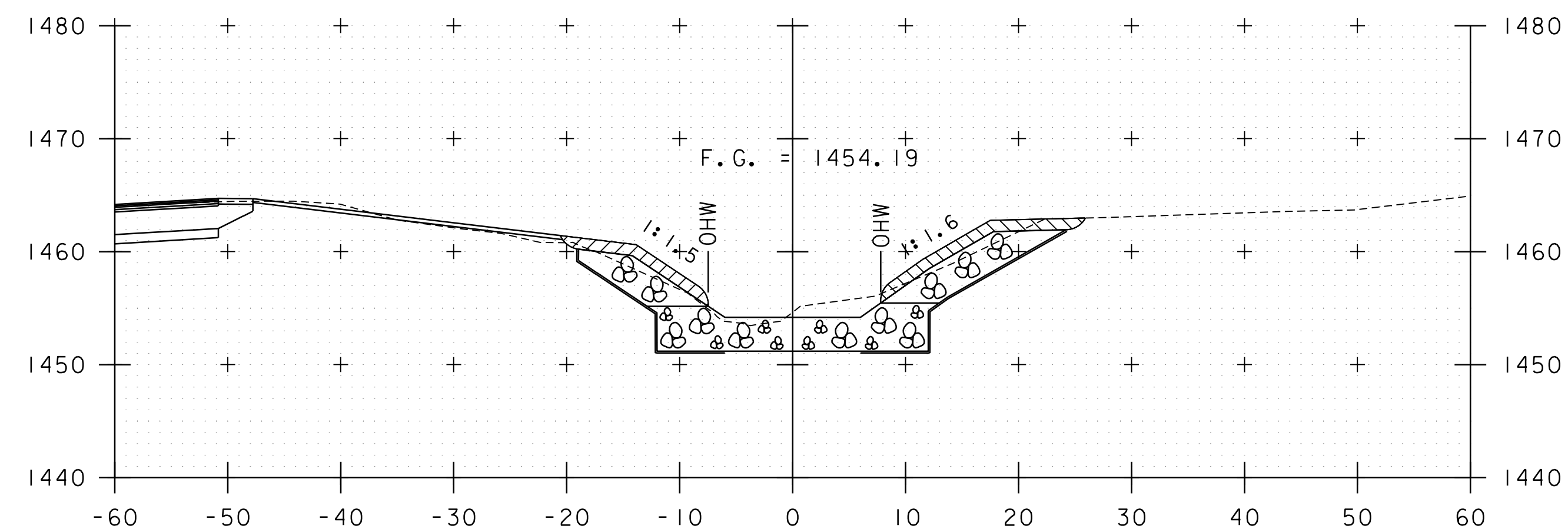
39+25

BEGIN
STA 38+50.00
STONE FILL, TYPE III
STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE III)

BEGIN
STA 38+50.00
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION



38+25



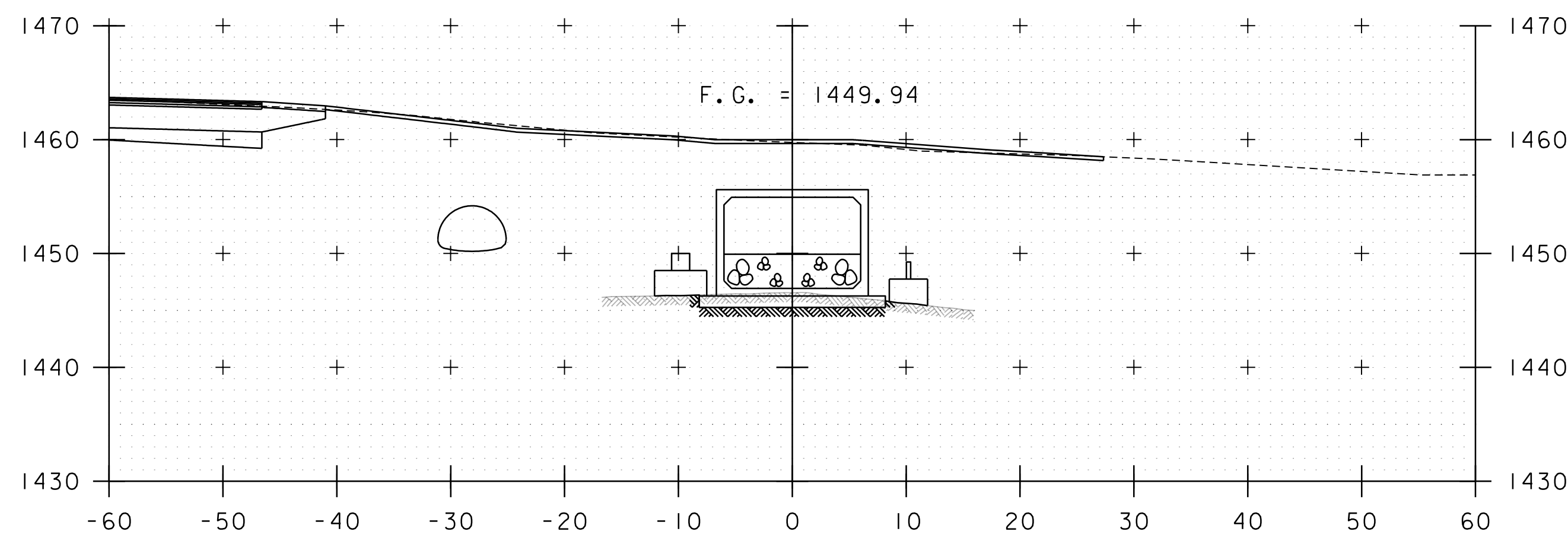
39+00

STA. 38+25 TO STA. 39+50

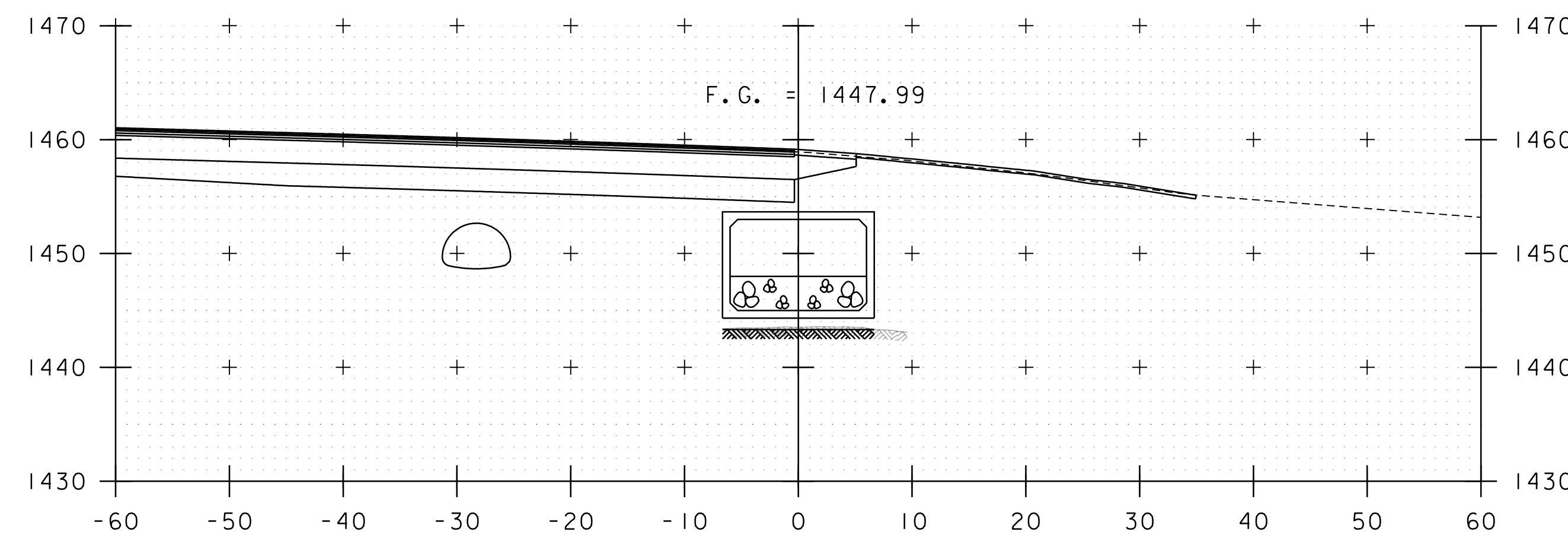
PROJECT NAME: KILLINGTON
PROJECT NUMBER: BF 020-2(50)

FILE NAME: sl9b207xs.dgn
PROJECT LEADER: JB. MCCARTHY
DESIGNED BY: R. HOOD
CHANNEL SECTIONS SHEET 1

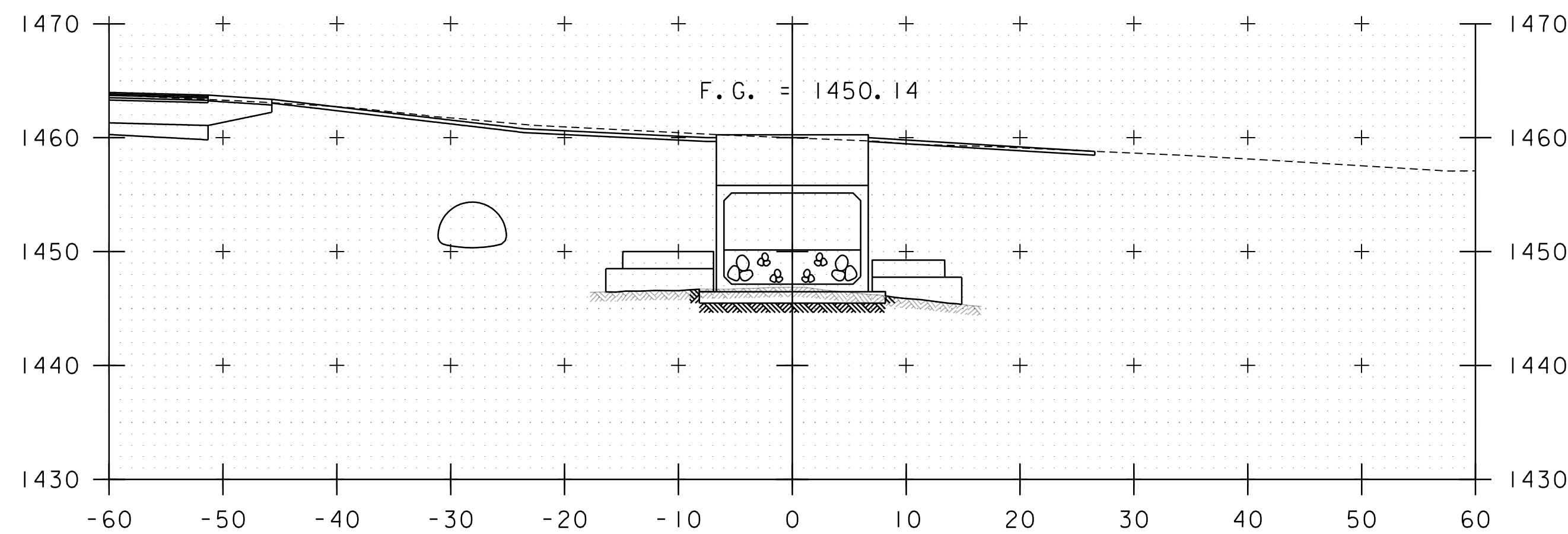
PLOT DATE: 11/28/2022
DRAWN BY: R. HOOD
CHECKED BY: JB. MCCARTHY
SHEET 33 OF 41



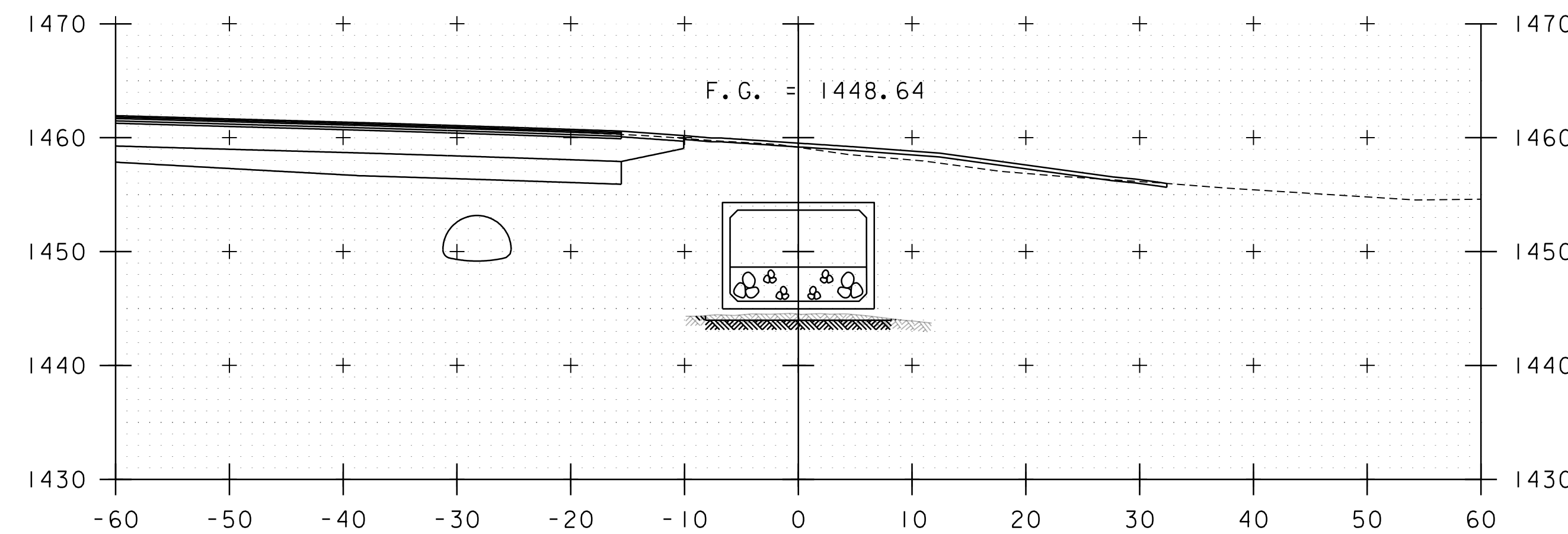
39+70



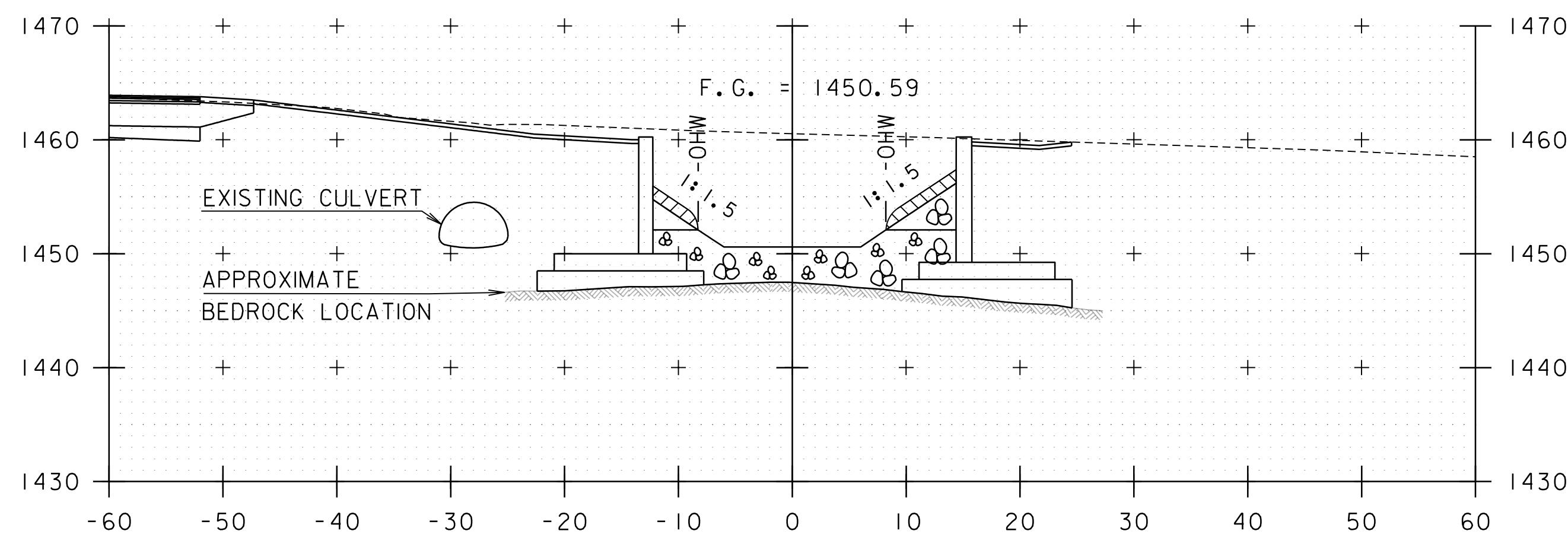
40+00



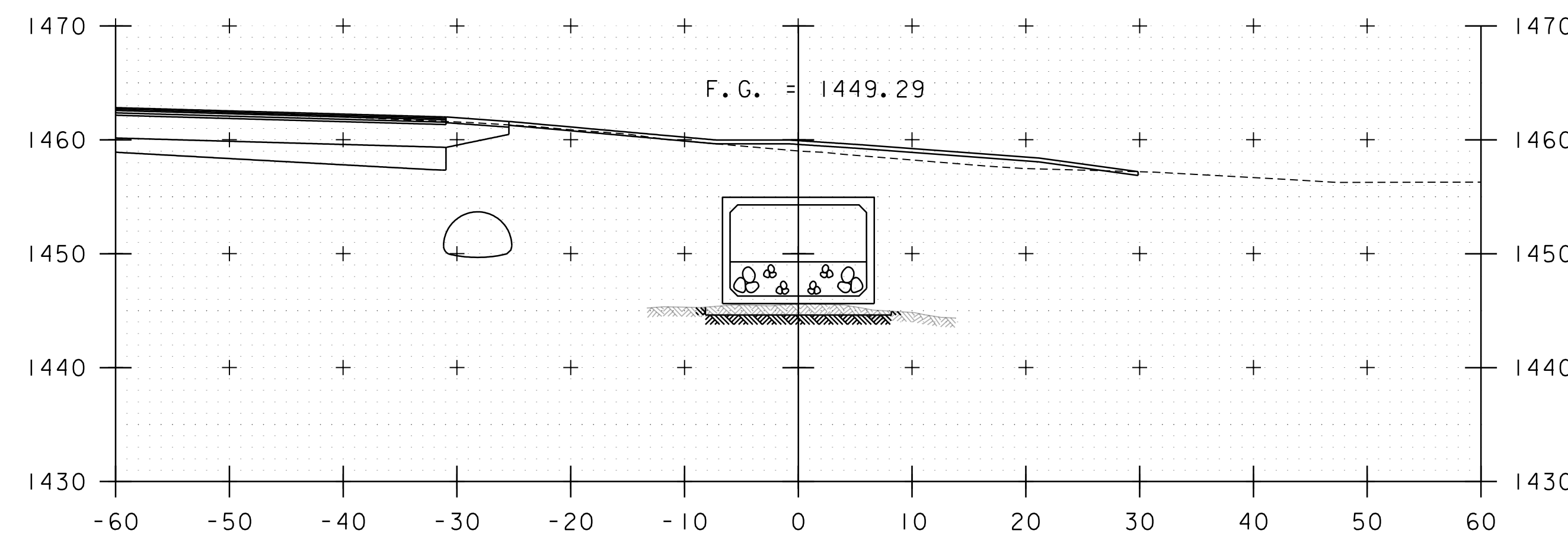
39+67



39+90



39+60



39+80

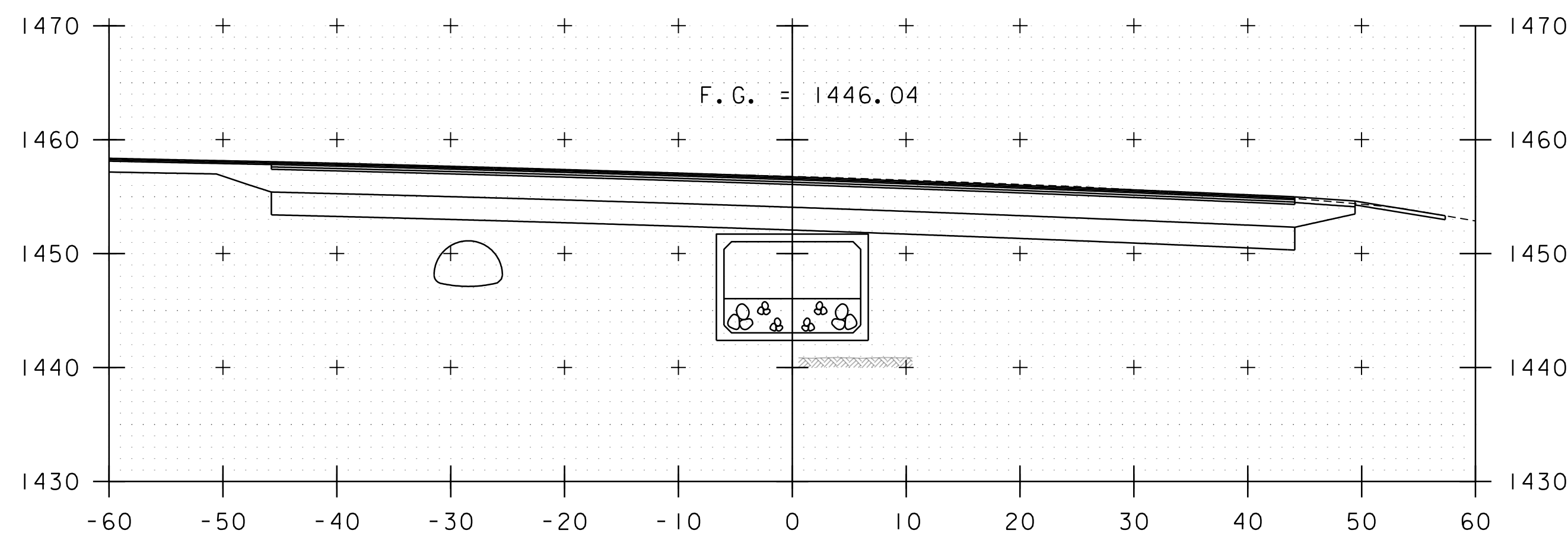
END
 STA 39+66.00
 STONE FILL, TYPE III
 GEOTEXTILE UNDER STONE FILL
 UNCLASSIFIED CHANNEL EXCAVATION

STA. 39+60 TO STA. 40+00

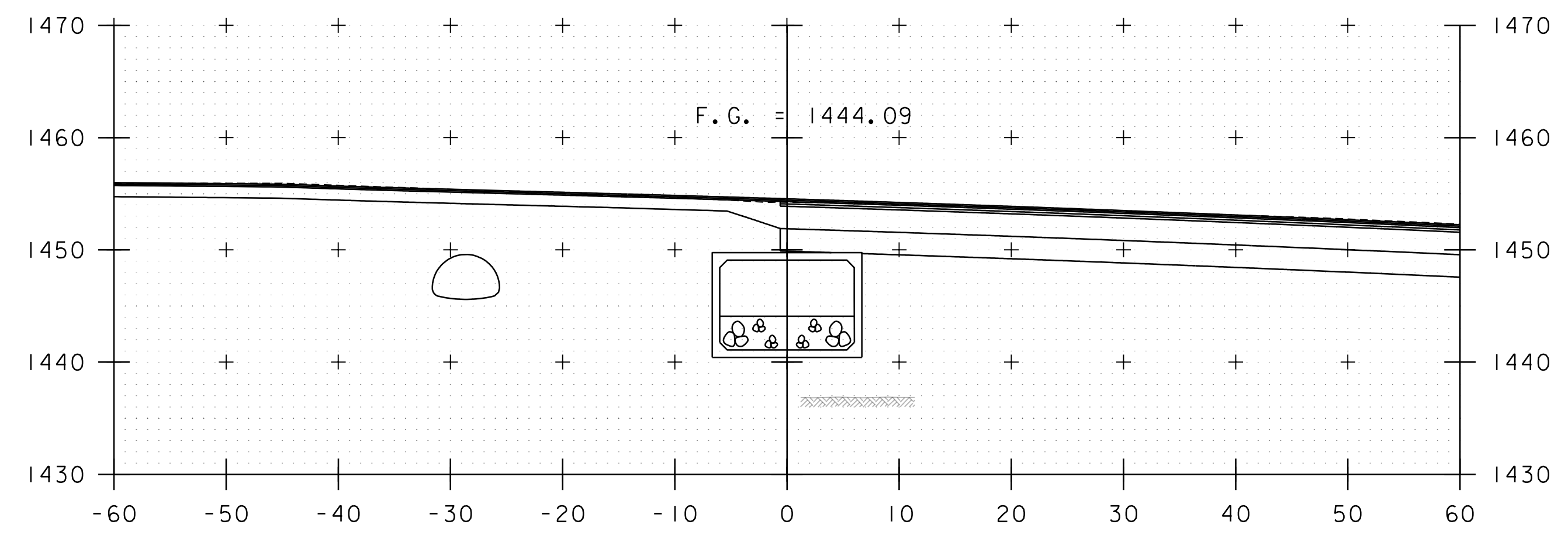
PROJECT NAME: KILLINGTON
 PROJECT NUMBER: BF 020-2(50)

FILE NAME: s19b207xs.dgn
 PROJECT LEADER: JB. MCCARTHY
 DESIGNED BY: R. HOOD
 CHANNEL SECTIONS SHEET 2

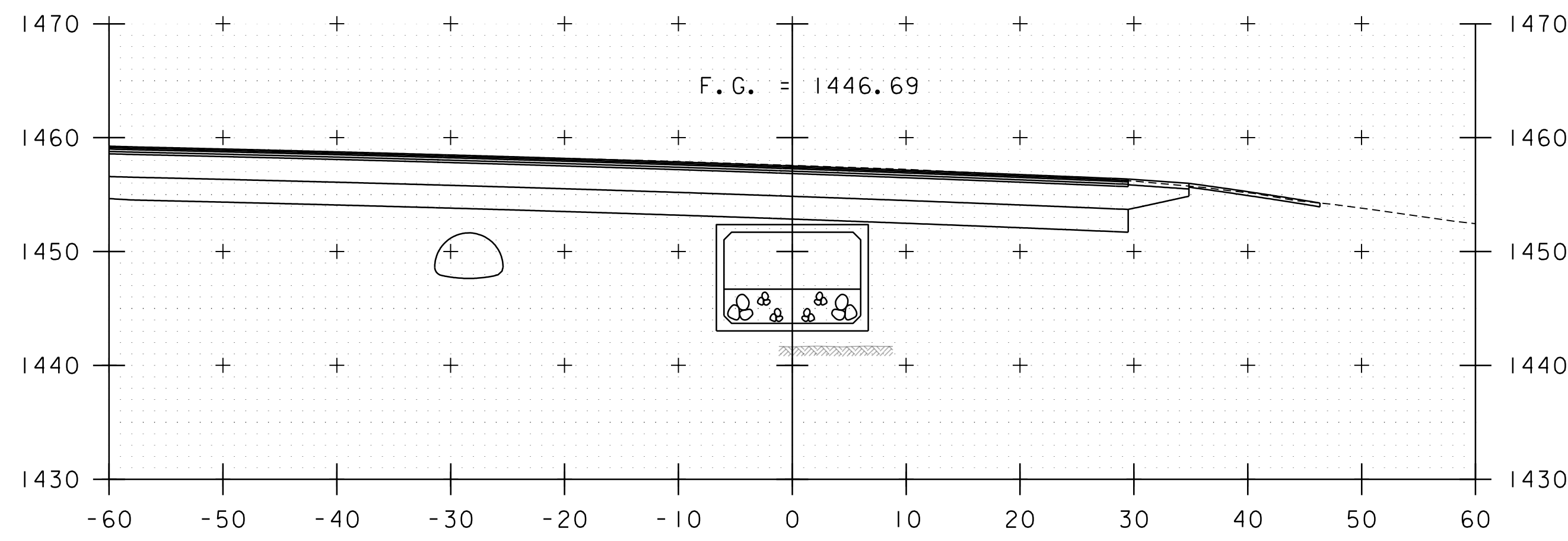
PLOT DATE: 11/28/2022
 DRAWN BY: R. HOOD
 CHECKED BY: JB. MCCARTHY
 SHEET 34 OF 41



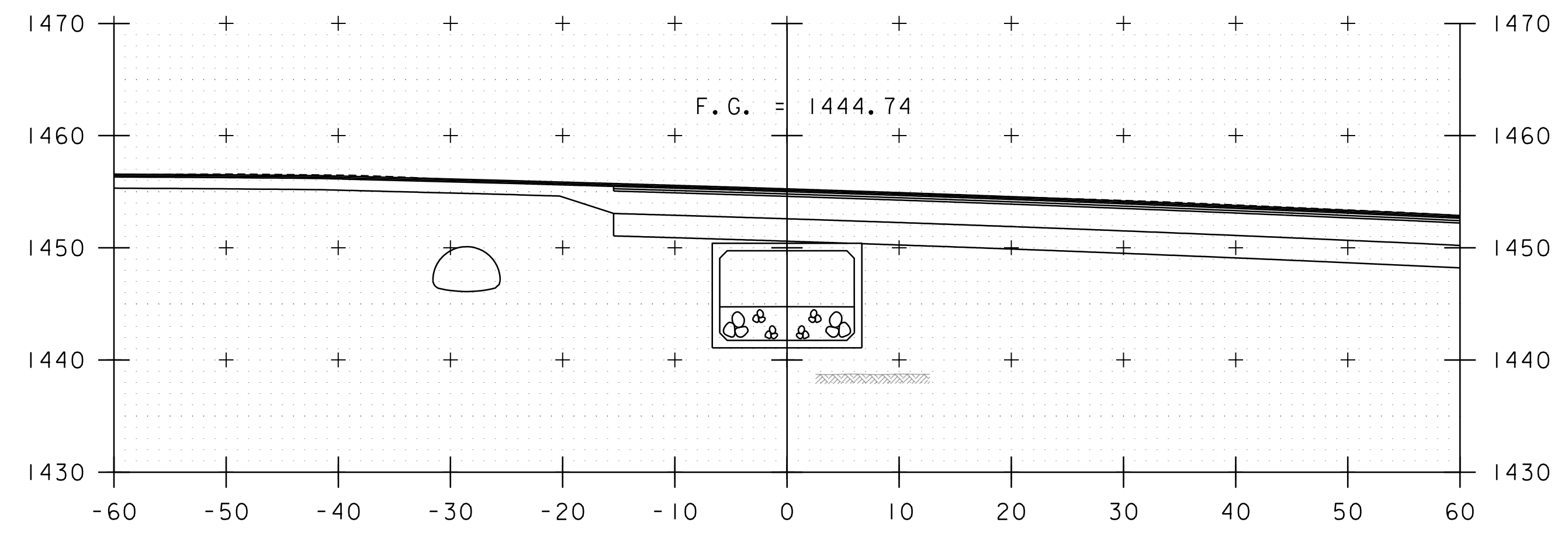
40+30



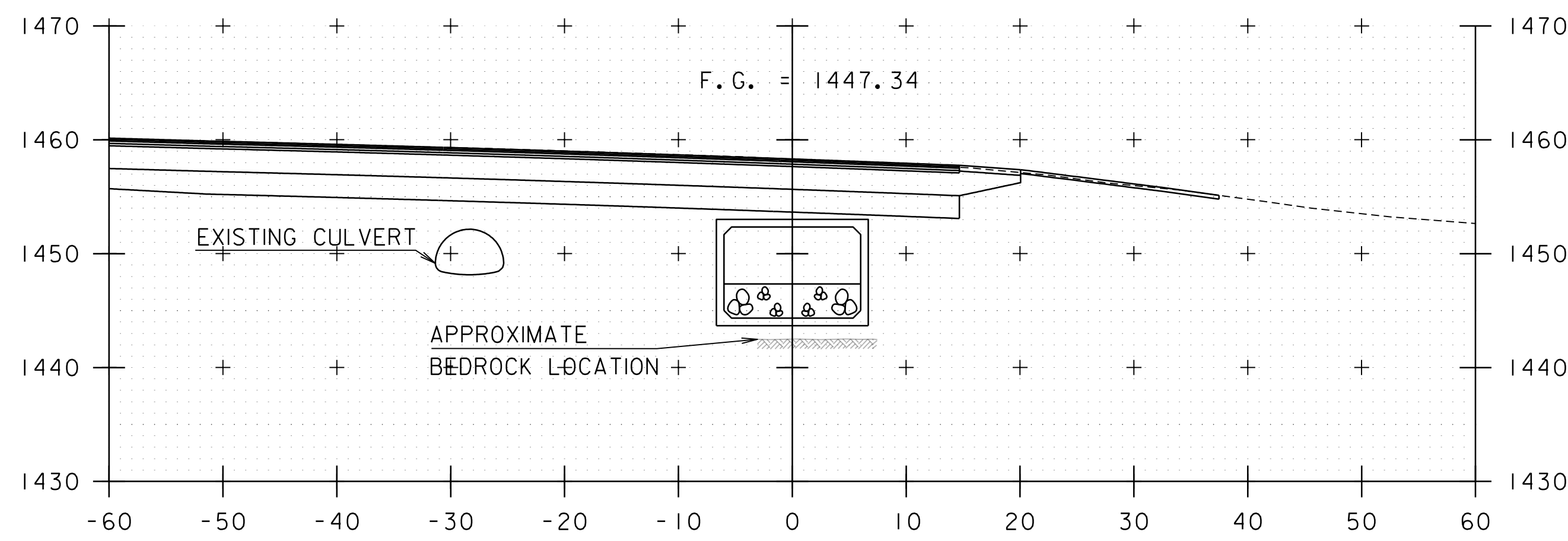
40+60



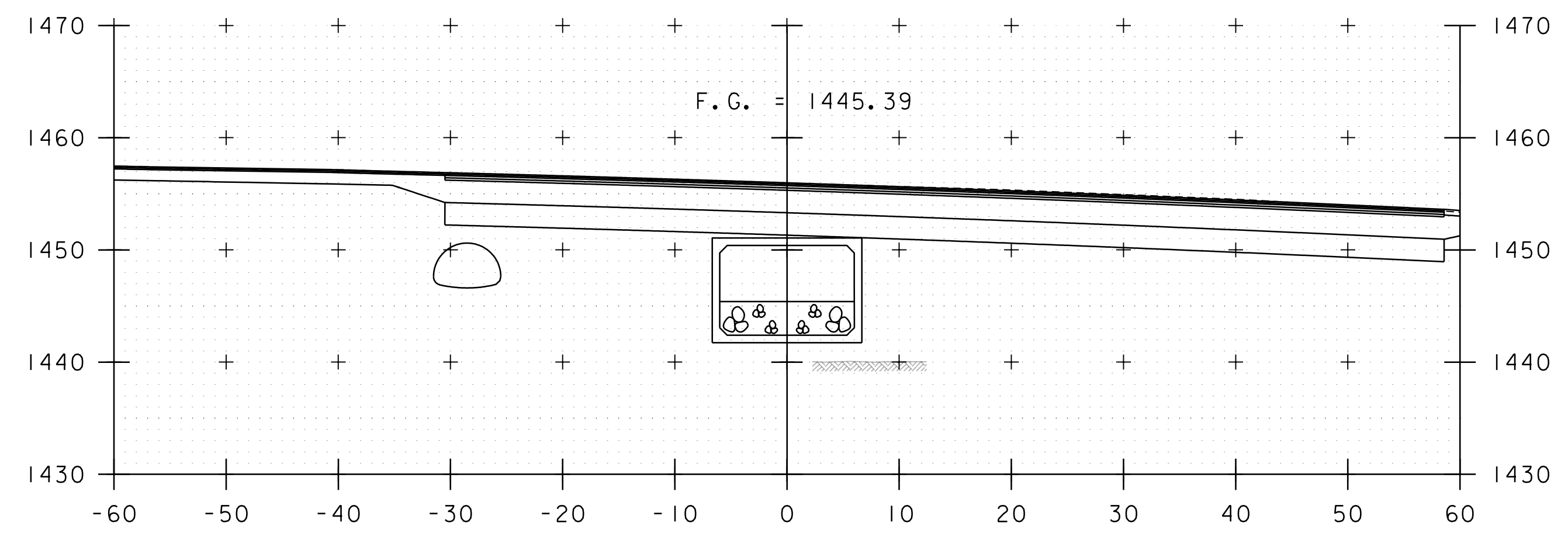
40+20



40+50



40+10



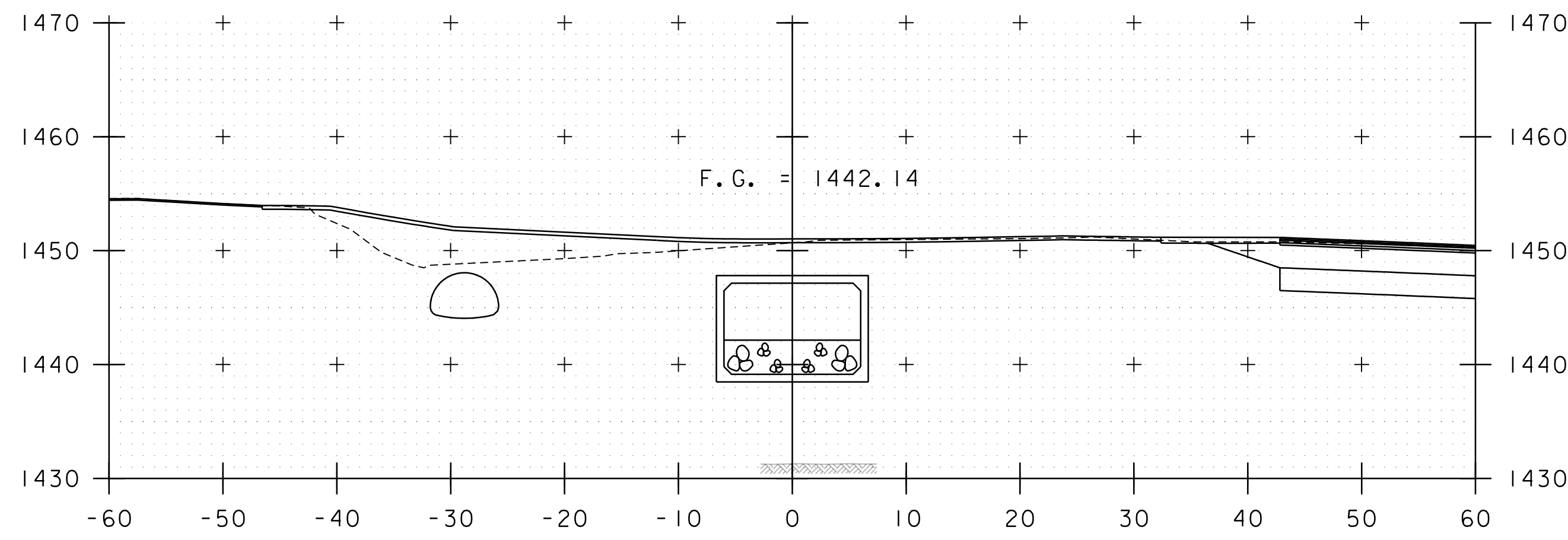
40+40

STA. 40+10 TO STA. 40+60

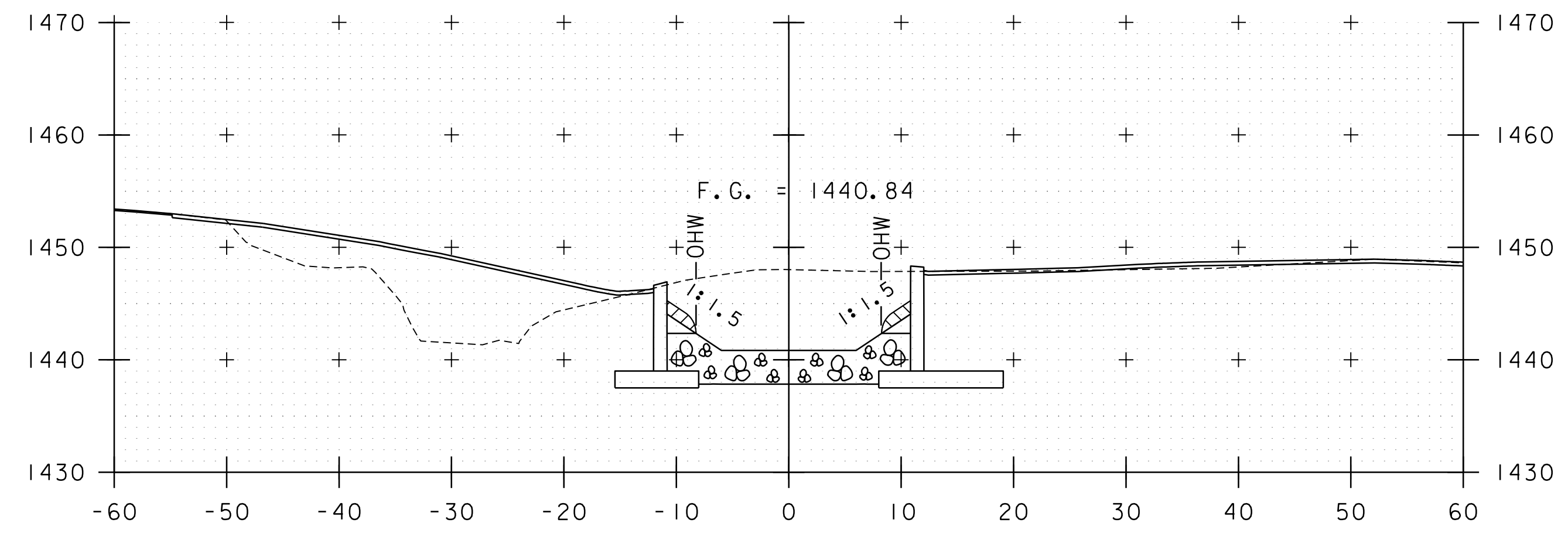
PROJECT NAME:	KILLINGTON
PROJECT NUMBER:	BF 020-2(50)
FILE NAME:	sl9b207xs.dgn
PROJECT LEADER:	JB. MCCARTHY
DESIGNED BY:	R. HOOD
CHANNEL SECTIONS SHEET	3

PLOT DATE:	11/28/2022
DRAWN BY:	R. HOOD
CHECKED BY:	JB. MCCARTHY
SHEET	35 OF 41

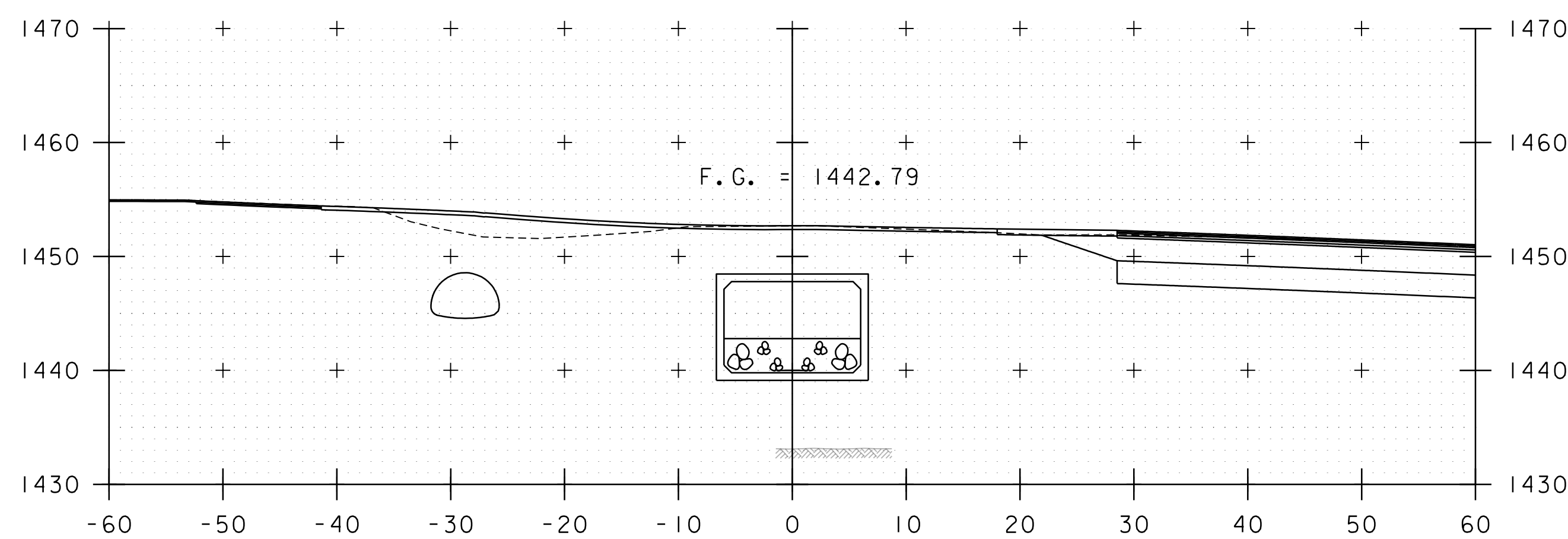
BEGIN
 STA 41+05.00
 STONE FILL, TYPE III
 GEOTEXTILE UNDER STONE FILL
 UNCLASSIFIED CHANNEL EXCAVATION



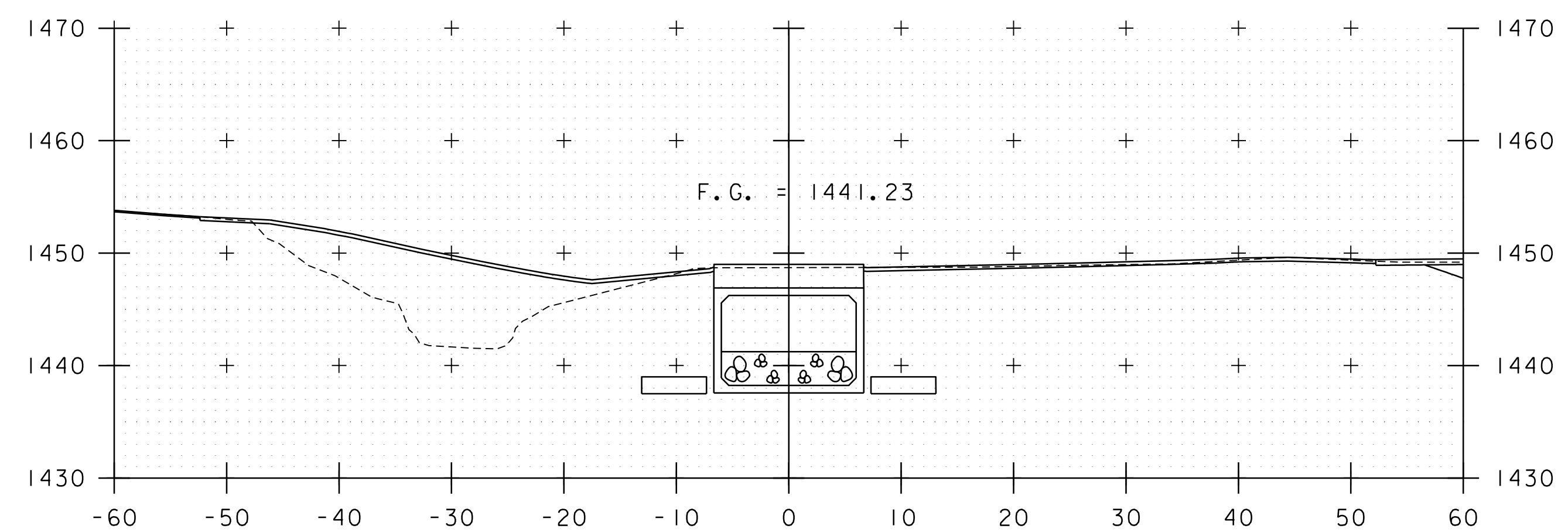
40+90



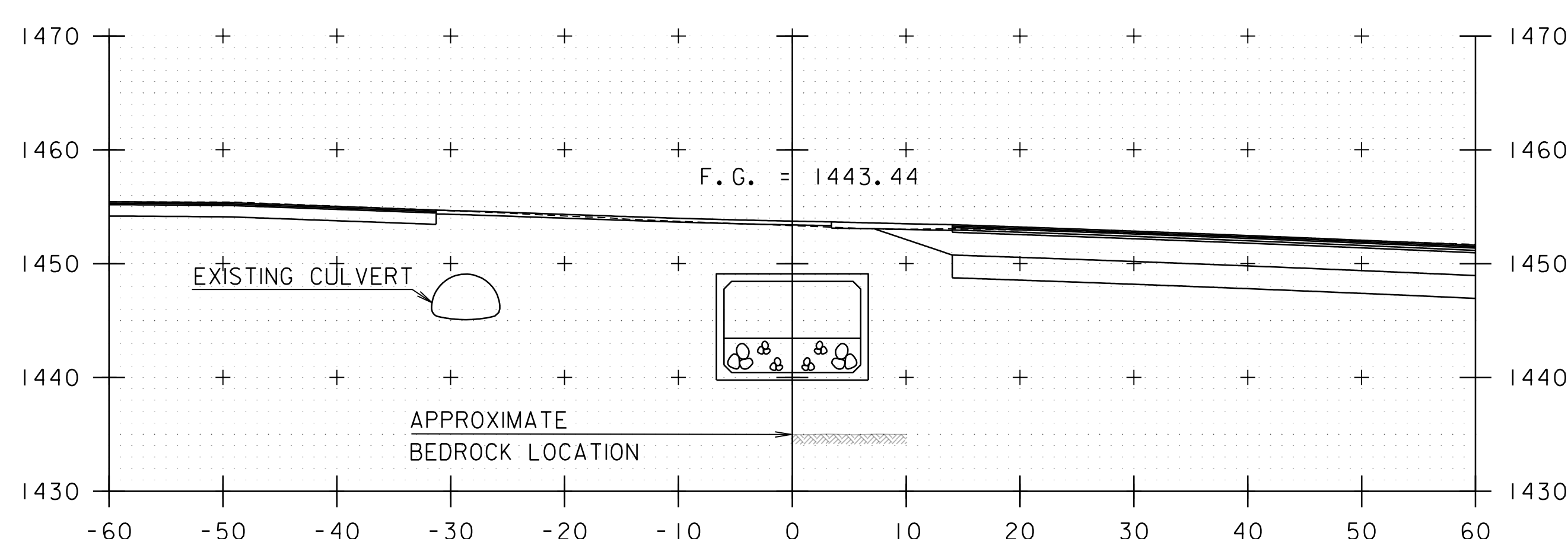
41+10



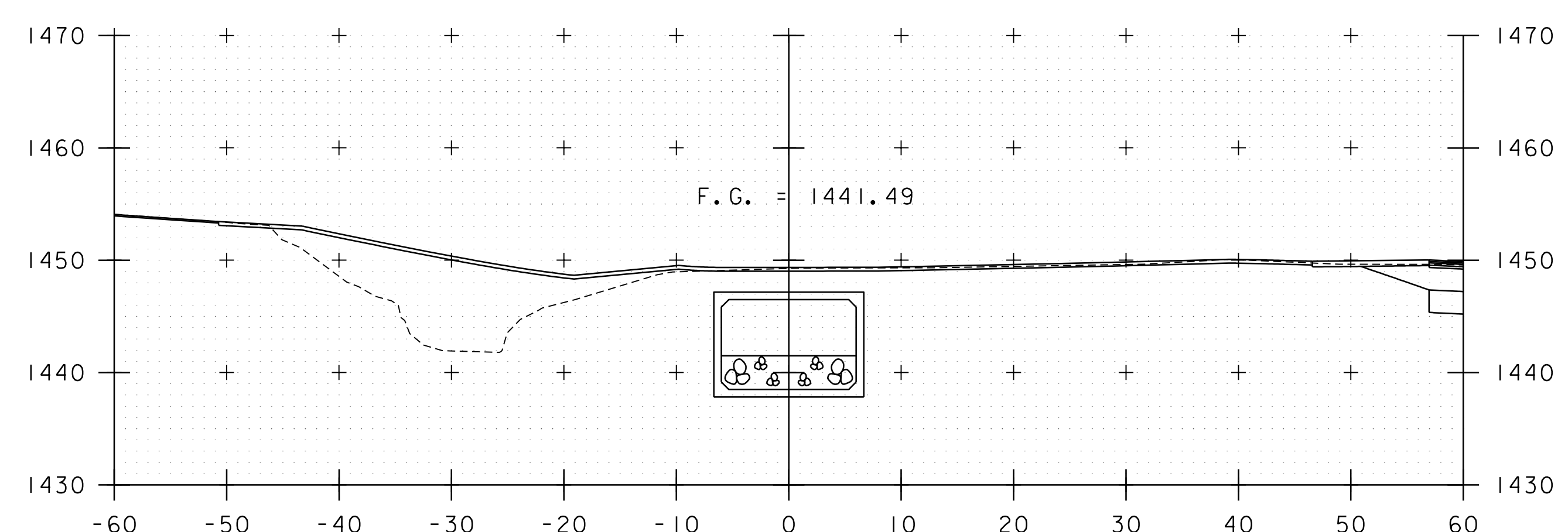
40+80



41+04



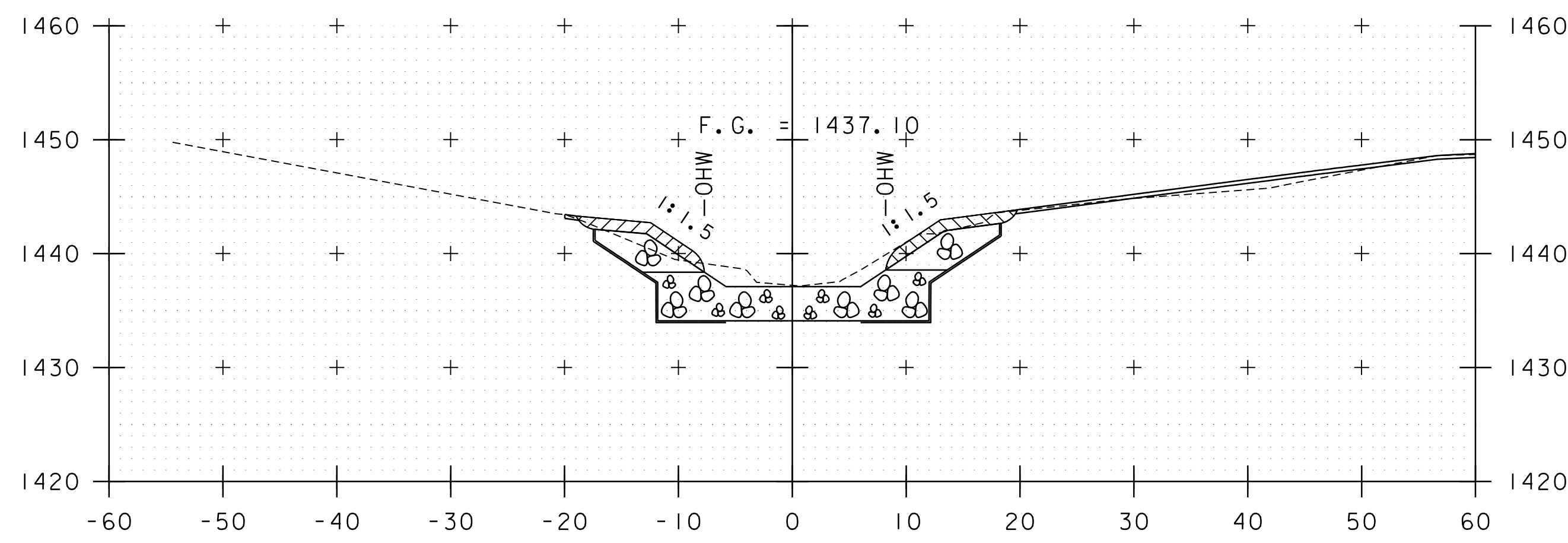
40+70



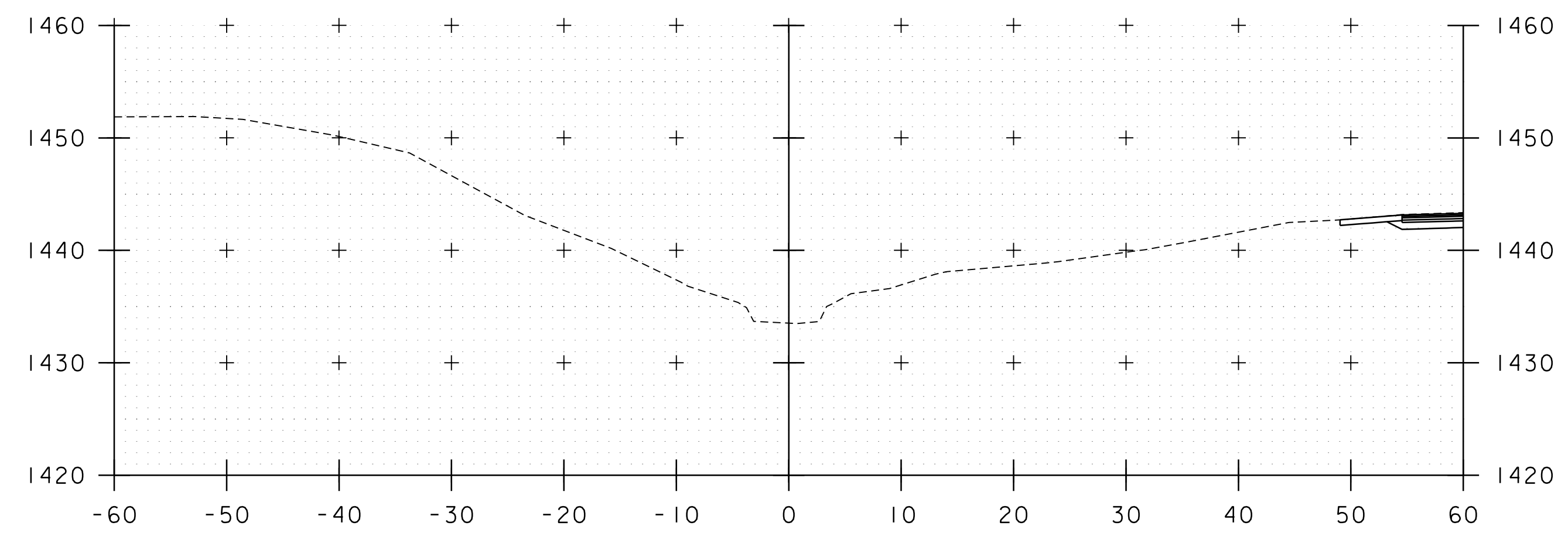
41+00

STA. 40+70 TO STA. 41+10

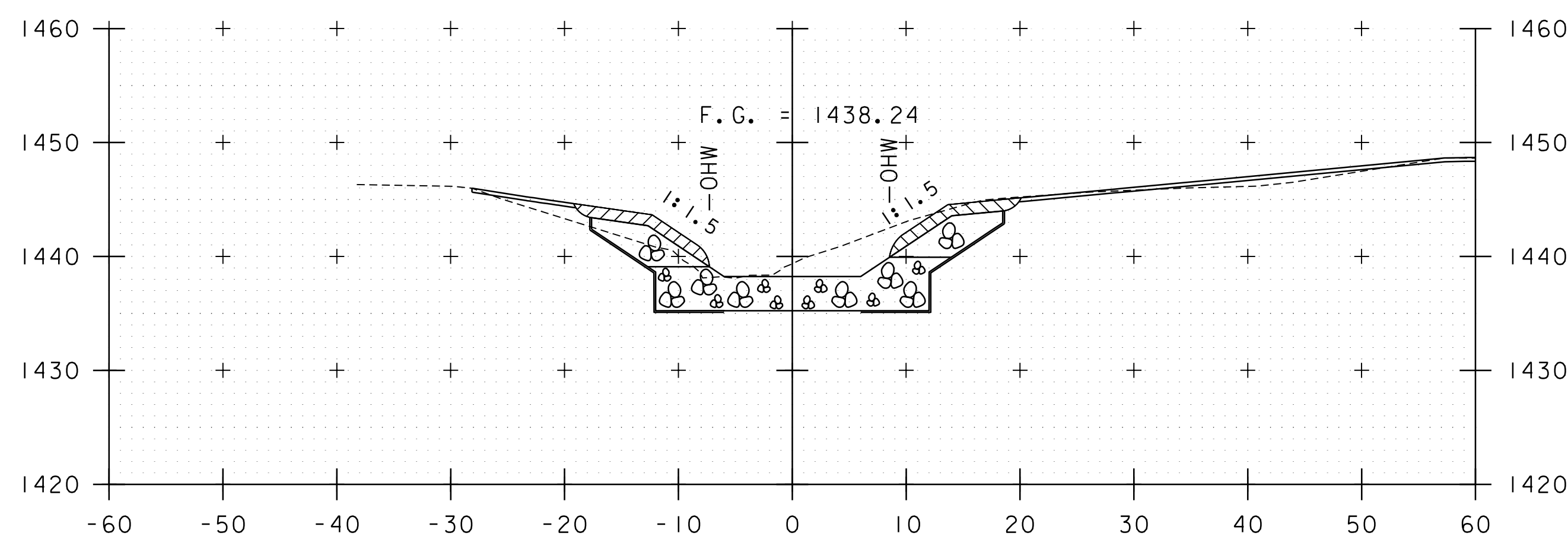
PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	R. HOOD
FILE NAME:	sl9b207xs.dgn	DESIGNED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	CHECKED BY:	JB. MCCARTHY
CHANNEL SECTIONS SHEET	4	SHEET	36 OF 41



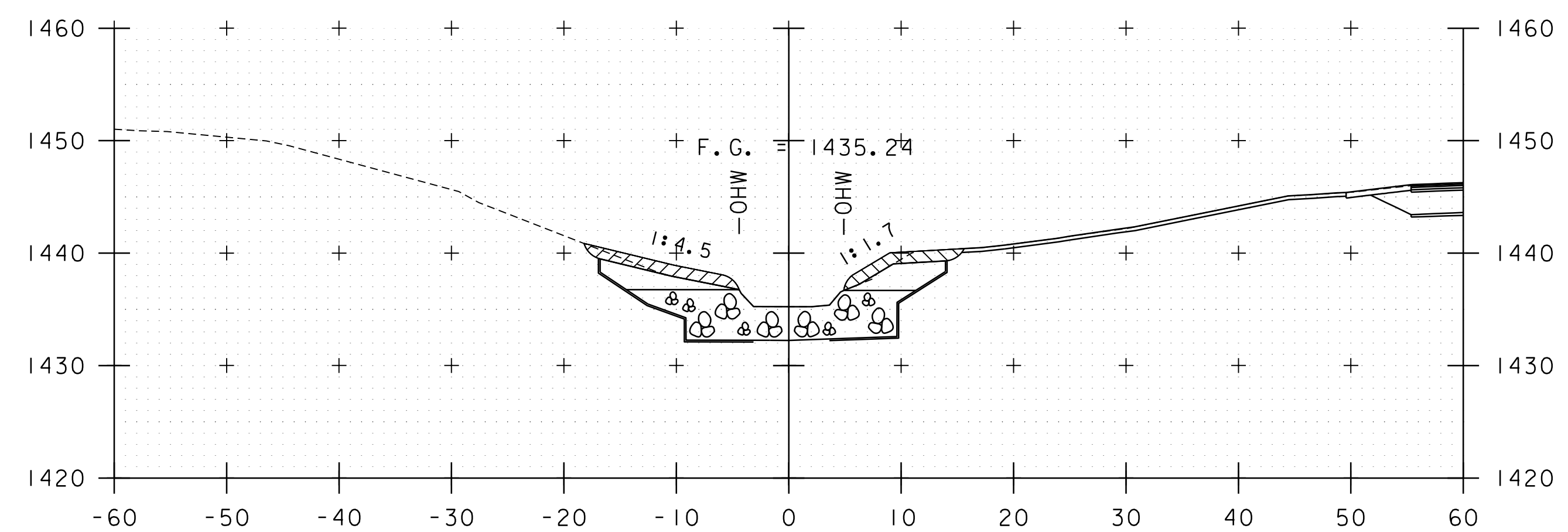
41+75



42+50



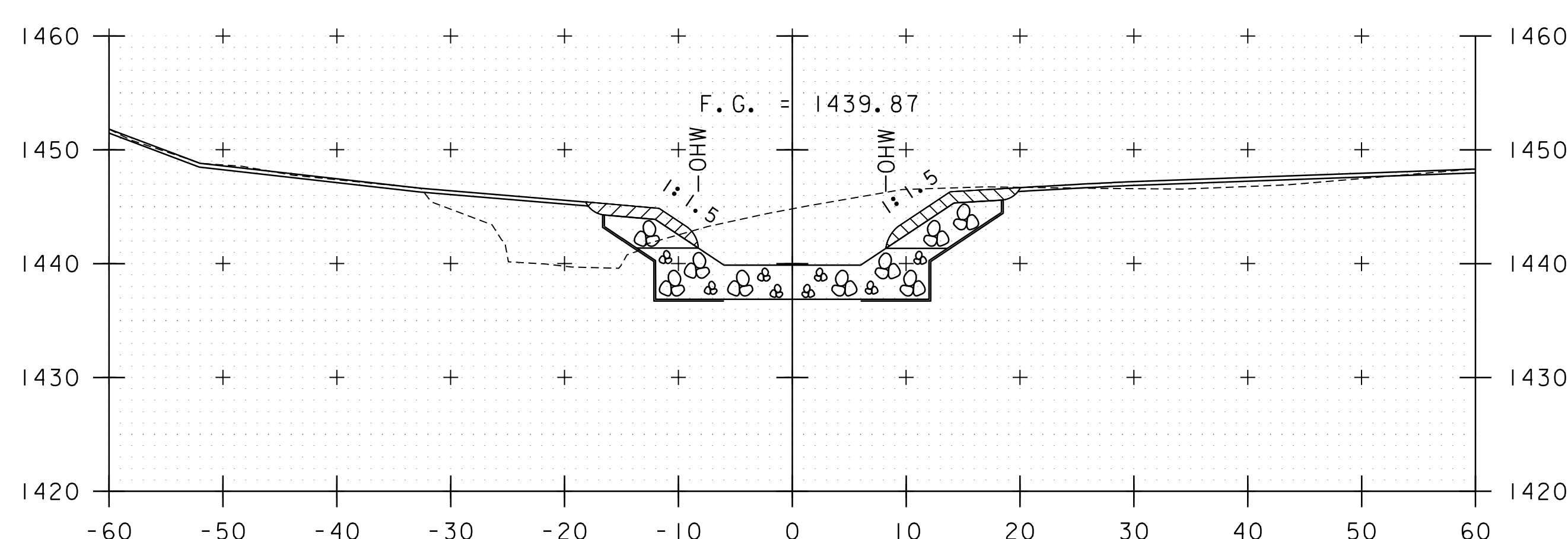
41+50



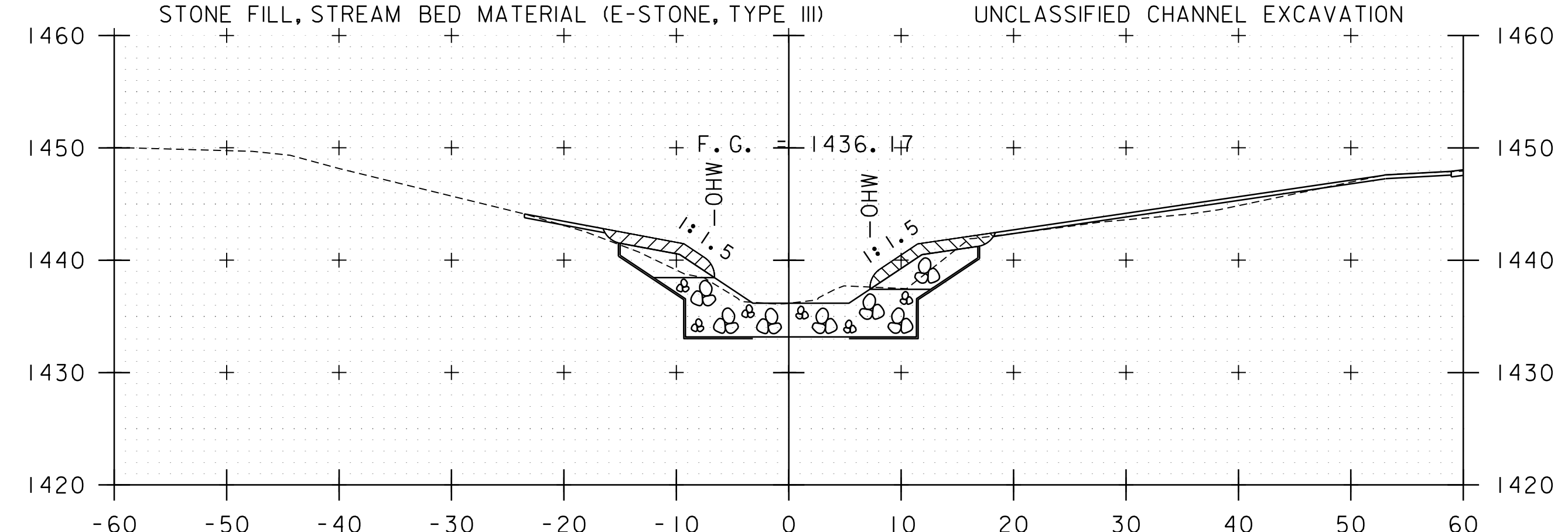
42+25

END STA 42+25.00
 STONE FILL, TYPE III
 STONE FILL, STREAM BED MATERIAL (E-STONE, TYPE III)

END STA 42+25.00
 GEOTEXTILE UNDER STONE FILL
 UNCLASSIFIED CHANNEL EXCAVATION



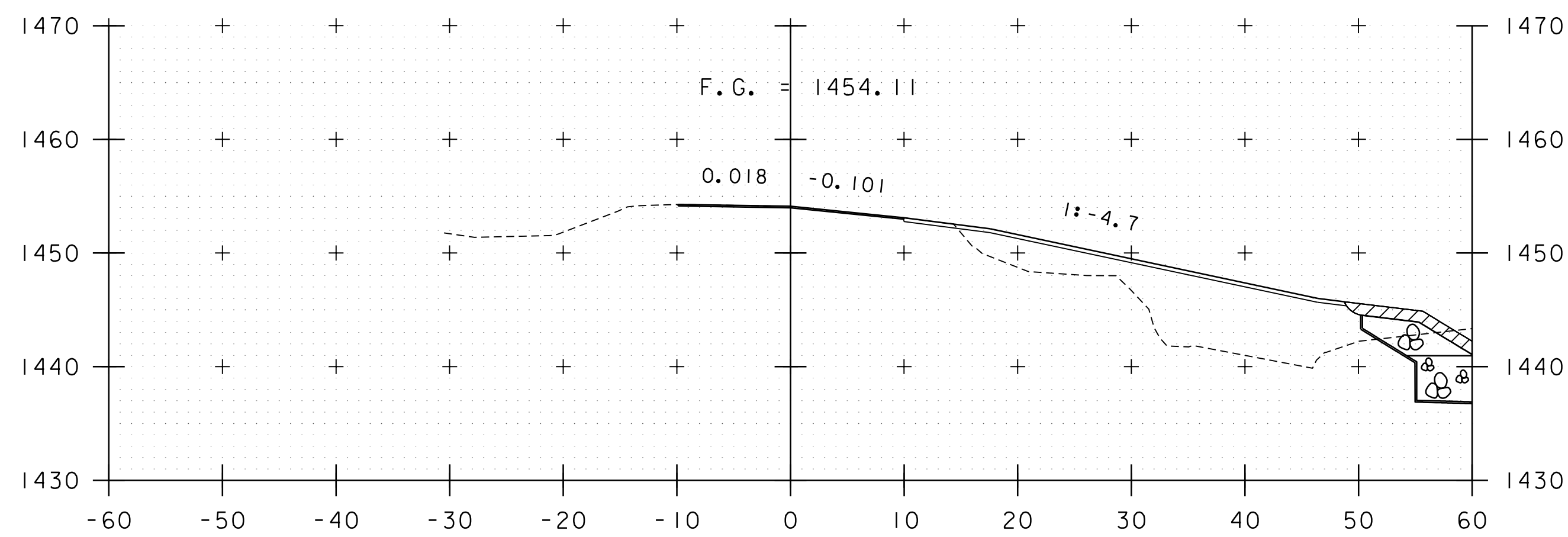
41+25



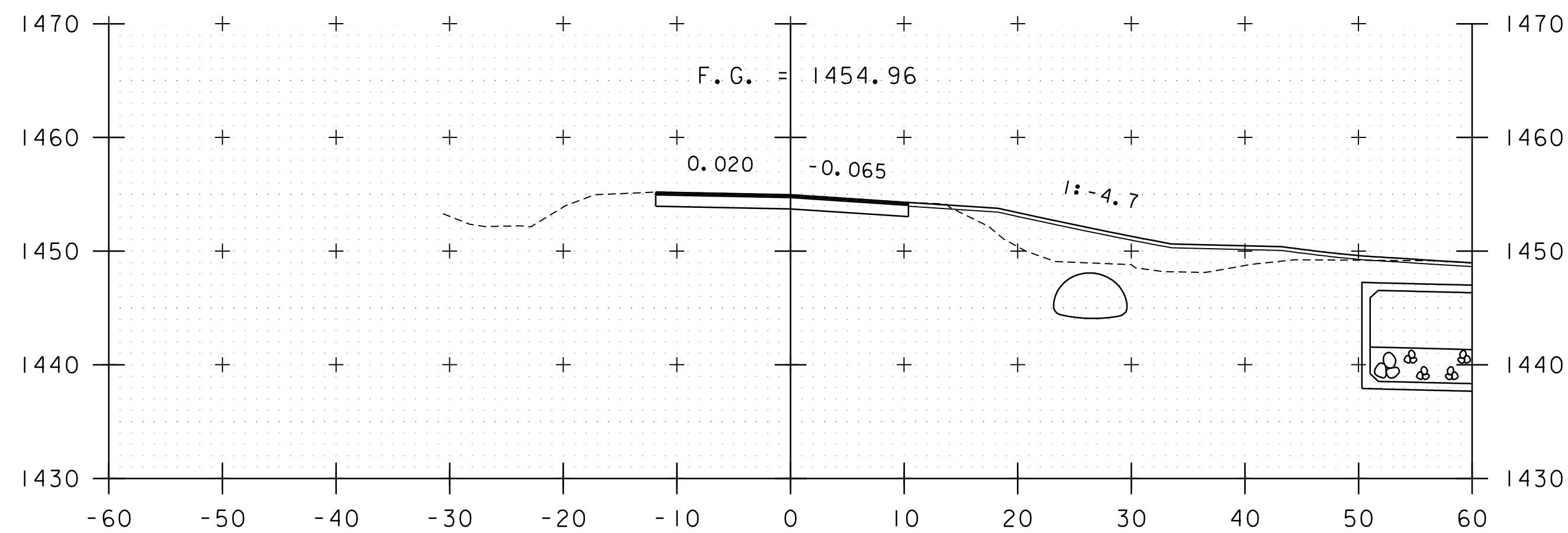
42+00

STA. 41+25 TO STA. 42+50

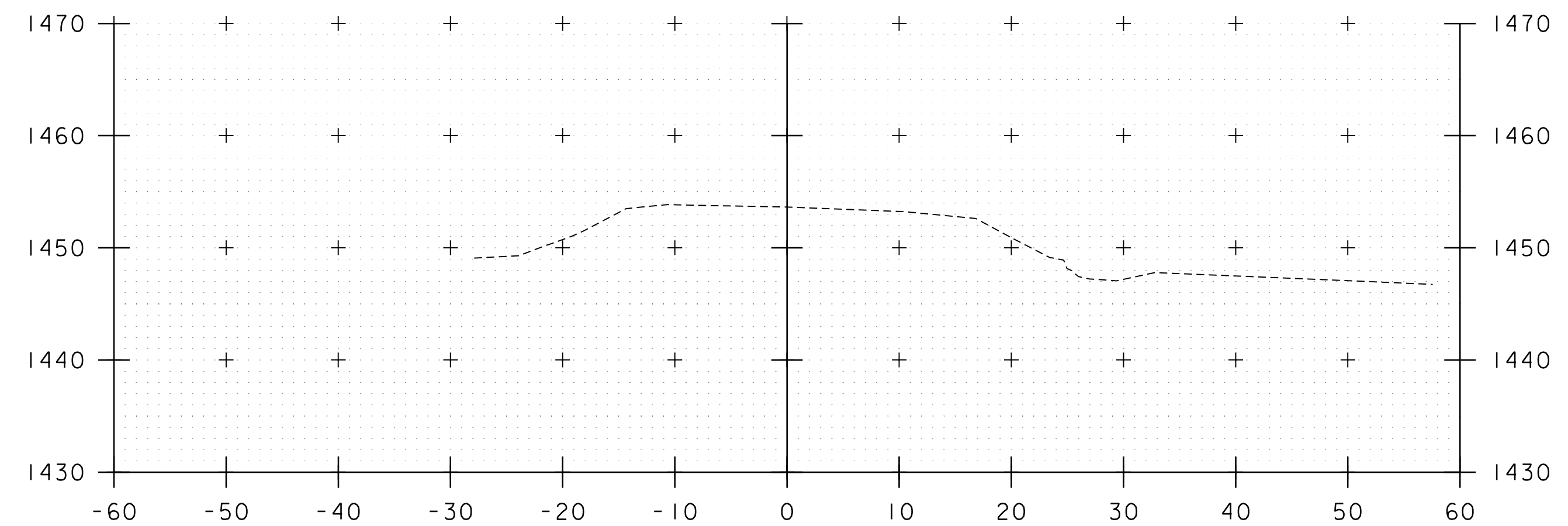
PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	R. HOOD
FILE NAME:	sl9b207xs.dgn	CHECKED BY:	JB. MCCARTHY
PROJECT LEADER:	JB. MCCARTHY	SHEET	37 OF 41
DESIGNED BY:	R. HOOD		
CHANNEL SECTIONS SHEET	5		



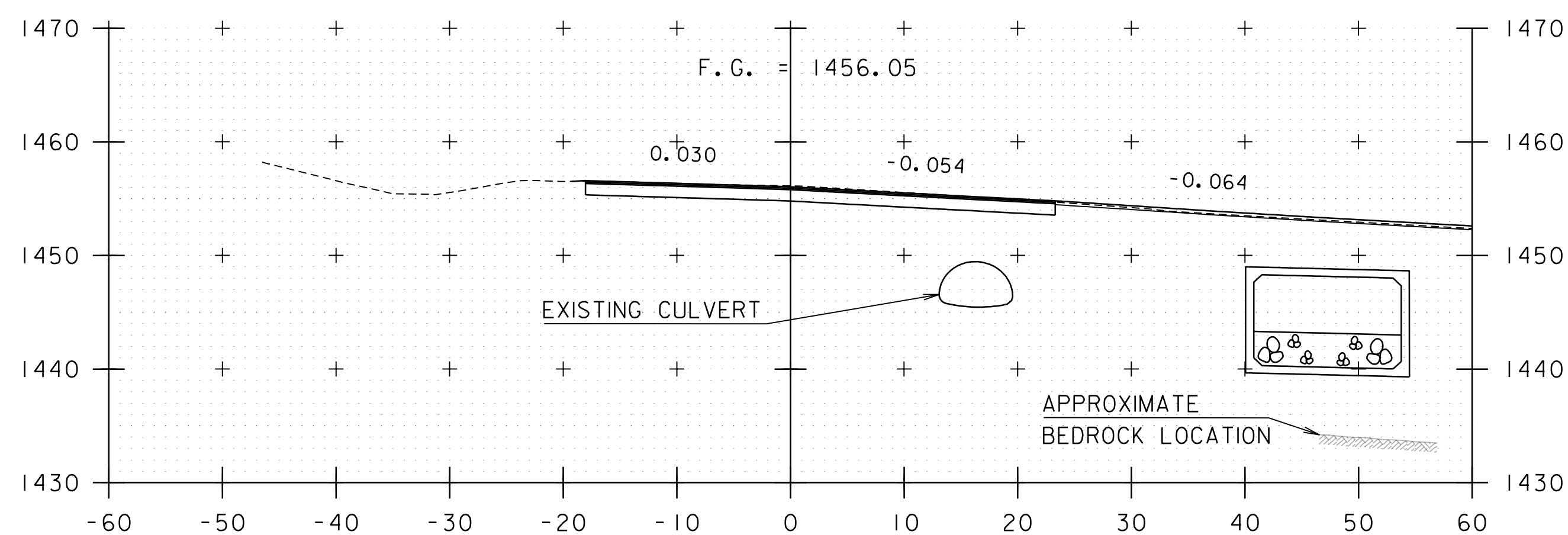
6+00



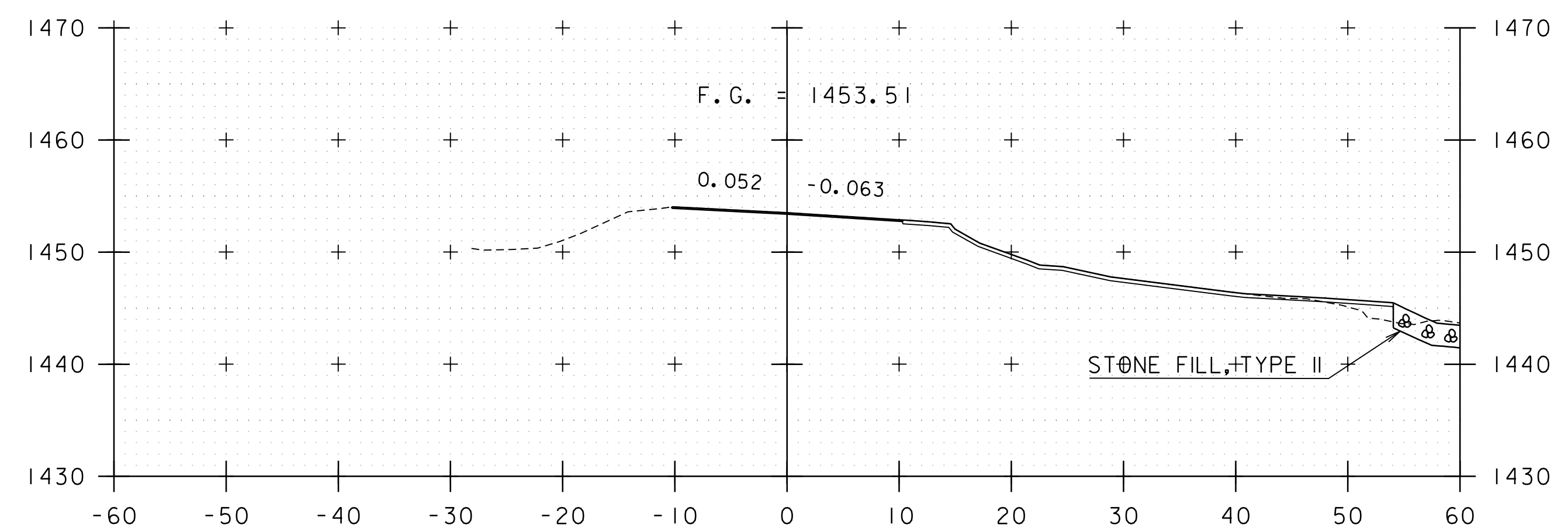
5+75



6+48



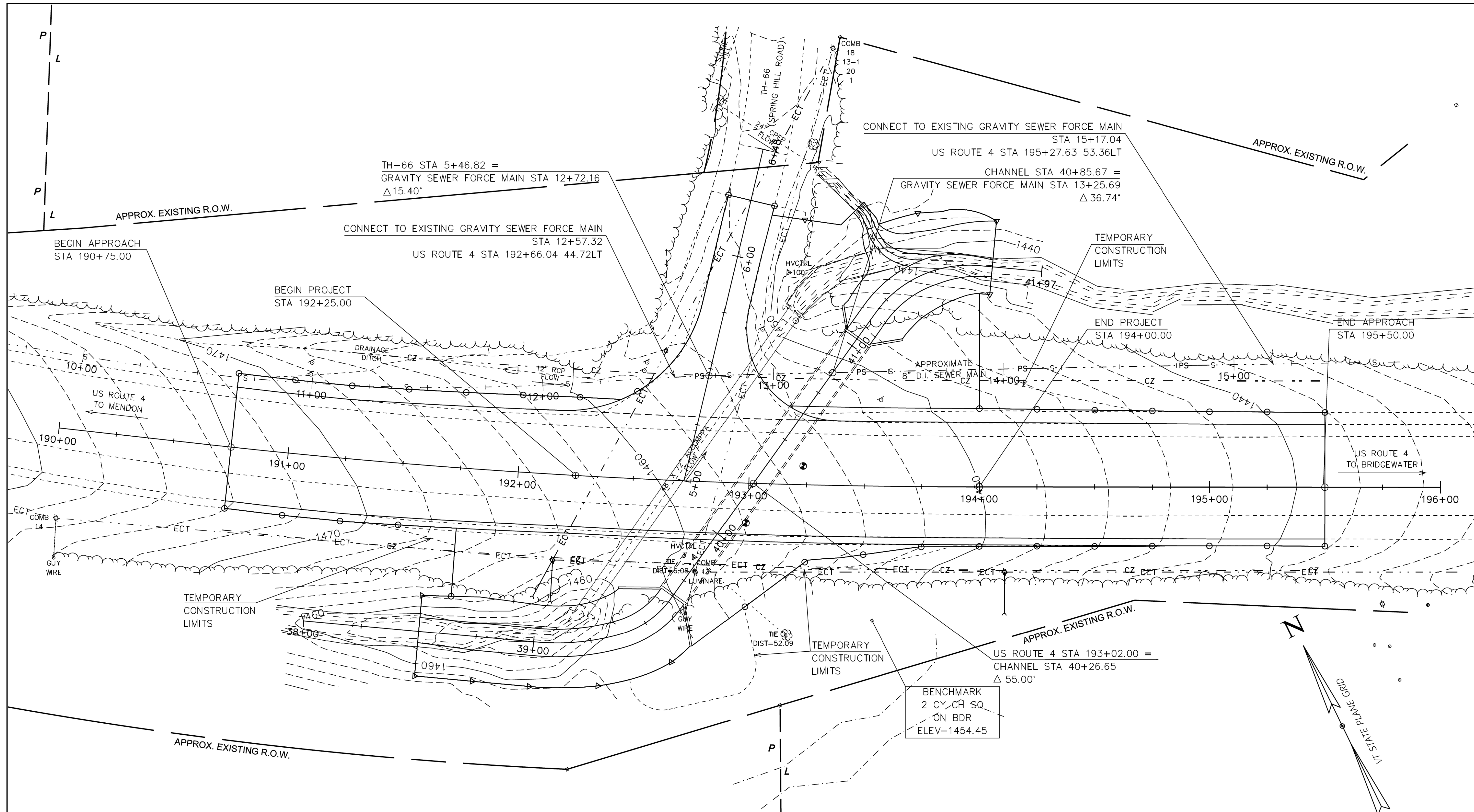
5+50



6+25

STA. 5+50 TO STA. 6+48

PROJECT NAME:	KILLINGTON	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	DRAWN BY:	R. HOOD
FILE NAME:	sl9b207xs.dgn	DESIGNED BY:	R. HOOD
PROJECT LEADER:	JB. MCCARTHY	CHECKED BY:	JB. MCCARTHY
TH-66 SECTIONS SHEET		SHEET	38 OF 41

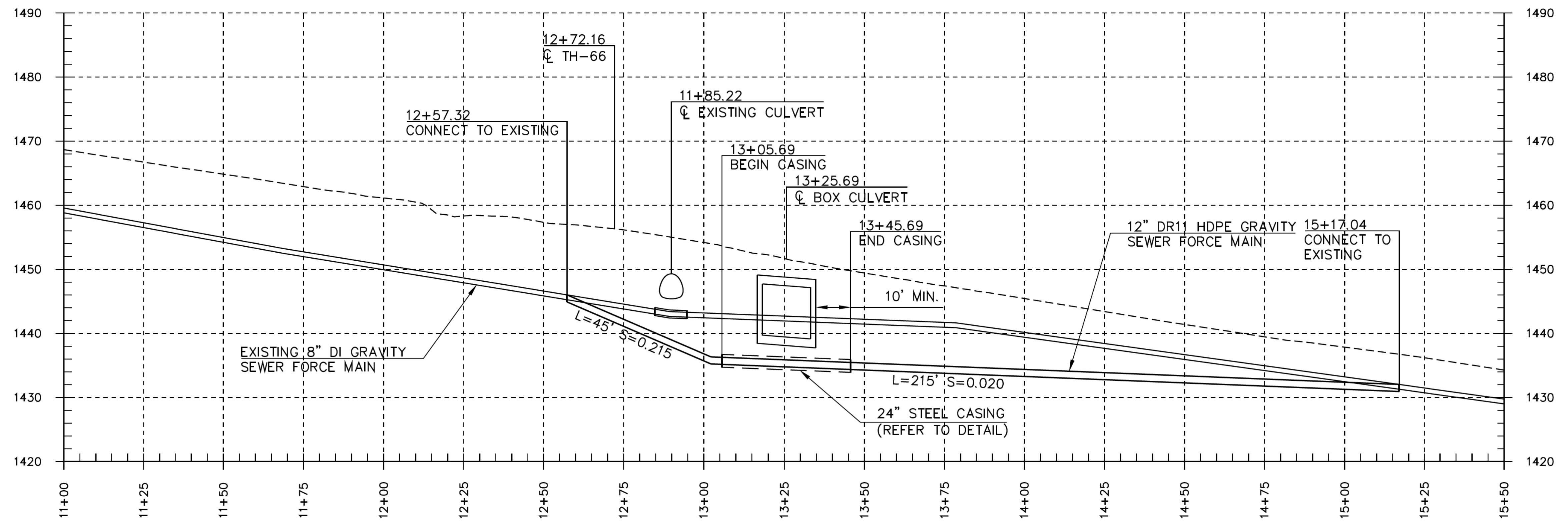


GRAVITY SEWER FORCE MAIN NOTES:

1. HORIZONTAL AND VERTICAL ALIGNMENT OF BOX CULVERT SHALL BE VERIFIED BEFORE START OF ANY WORK RELATED TO GRAVITY SEWER FORCE MAIN.
2. PRIOR TO CONSTRUCTION EXPLORATORY EXCAVATION SHALL BE COMPLETED TO VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF CONNECTION LOCATIONS. RESULTS SHALL BE REVIEWED WITH THE DESIGN ENGINEER.
3. PROVIDE FITTINGS AS NECESSARY TO CONNECT TO EXISTING.

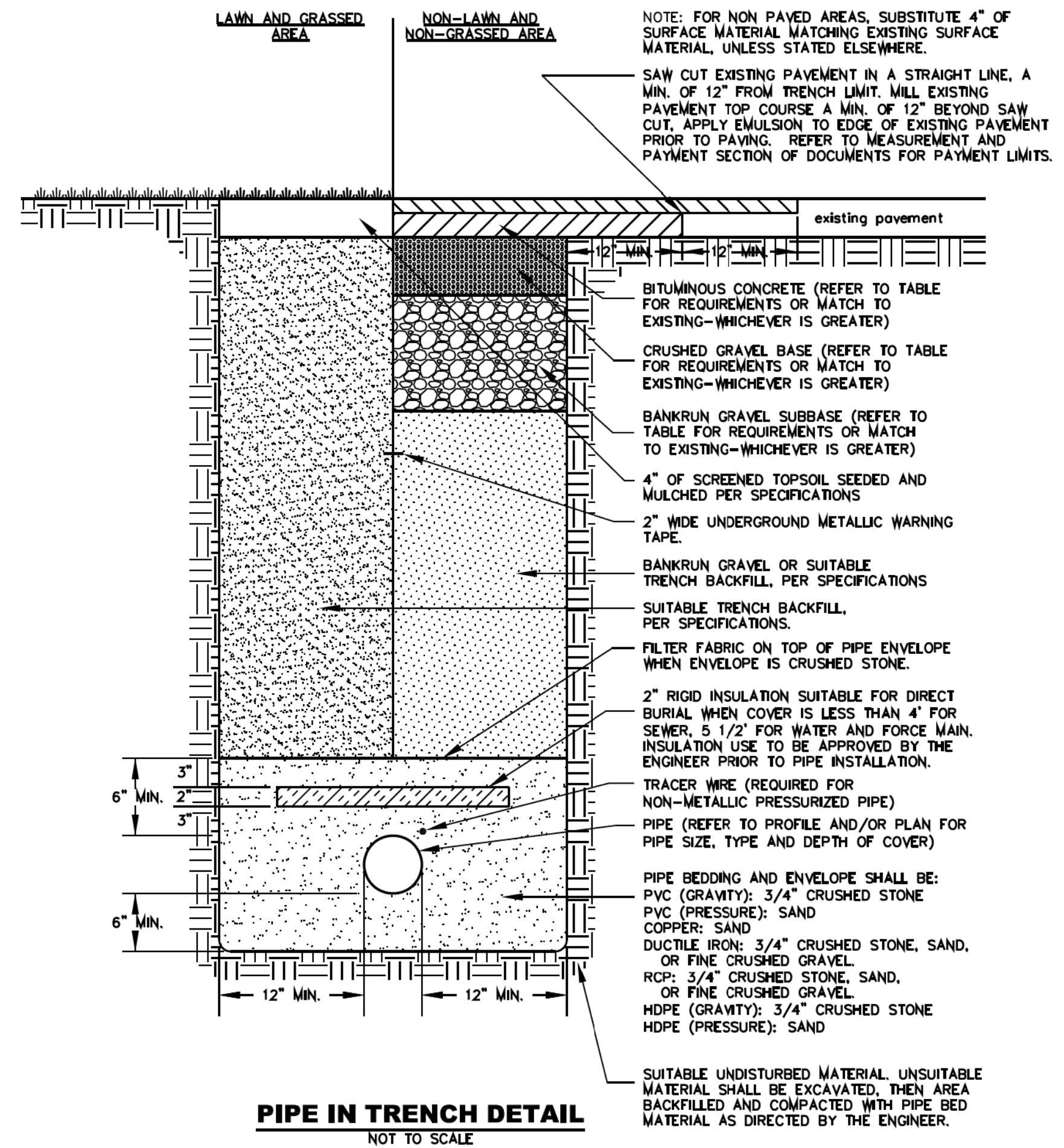
SCALE 1" = 20'-0"
 20 0 20

PROJECT NAME: KILLINGTON	
PROJECT NUMBER: BF 020-2(50)	
FILE NAME: sl9b207sewer.dgn	PLOT DATE: 11/28/2022
PROJECT LEADER: JB. MCCARTHY	DRAWN BY: R. ROOKER
DESIGNED BY: C. JEWETT	CHECKED BY: C. JEWETT
WASTEWATER SHEET	SHEET 40 OF 41

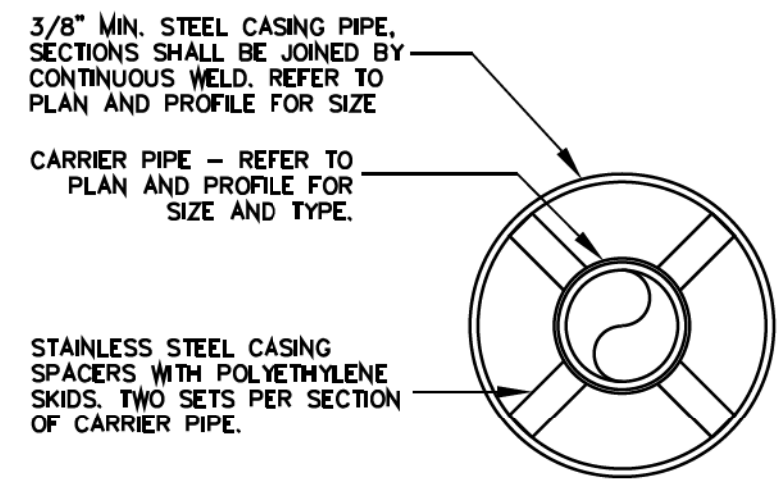


GRAVITY SEWER FORCE MAIN PROFILE

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



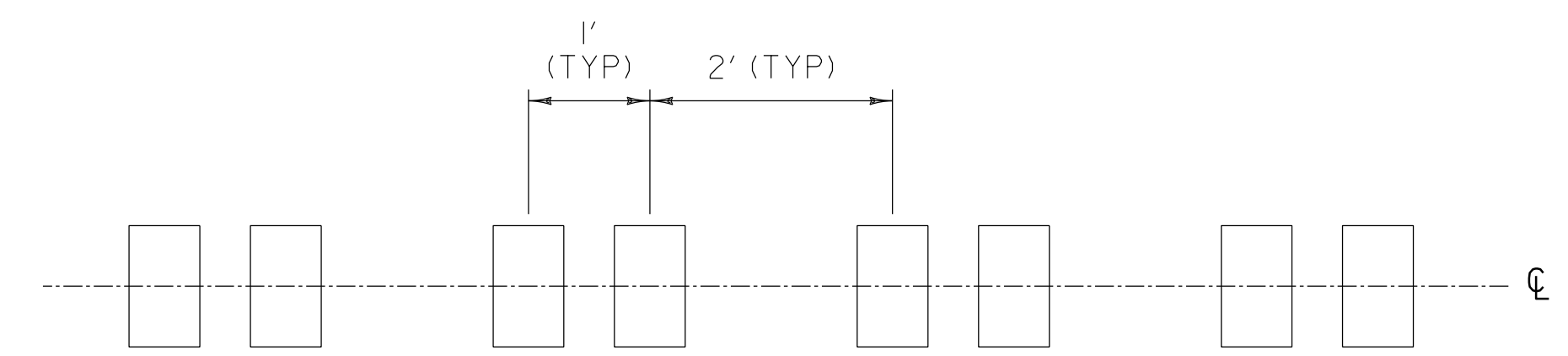
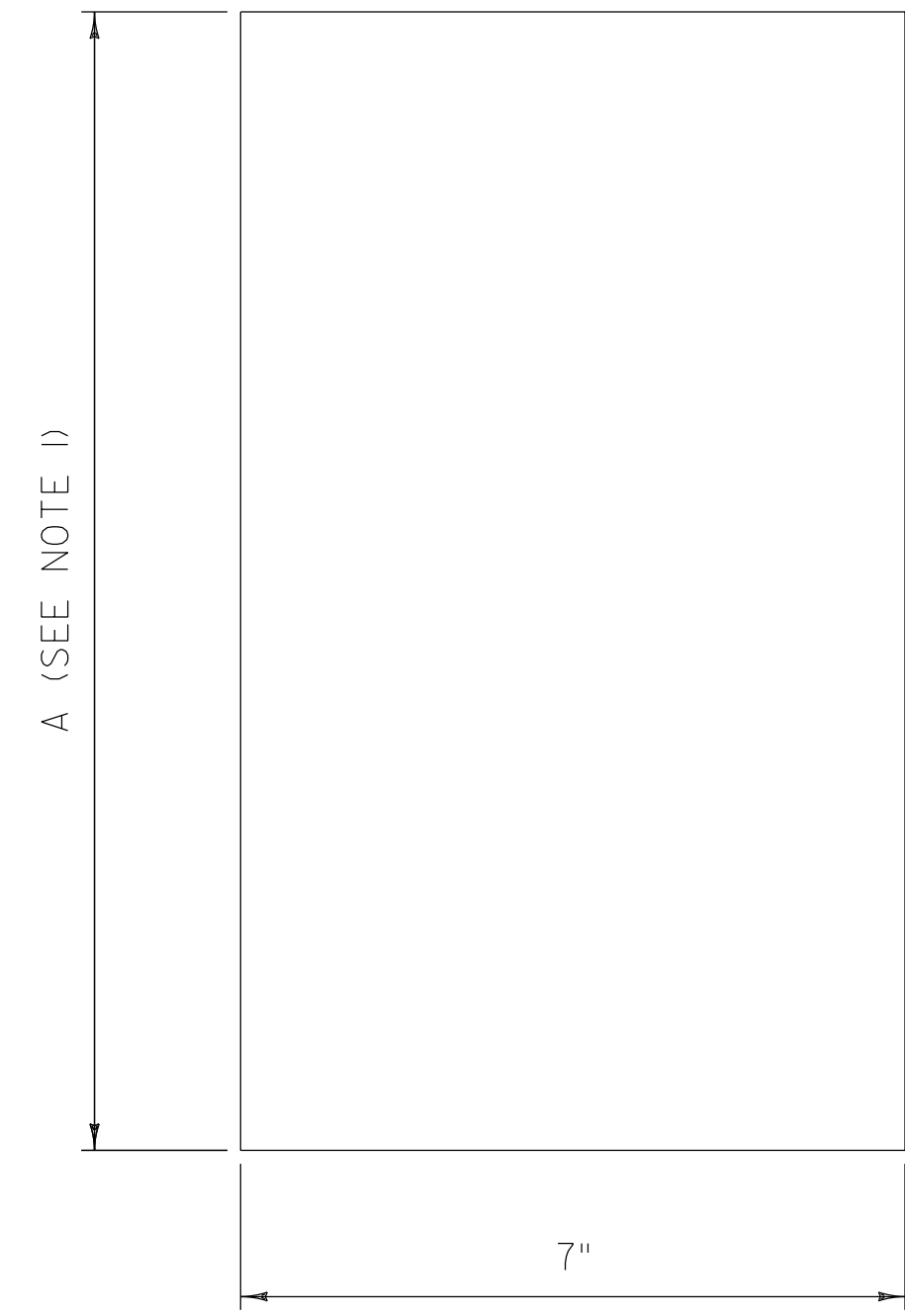
PIPE IN TRENCH DETAIL
NOT TO SCALE



CASING AND CARRIER PIPE DETAIL
NOT TO SCALE

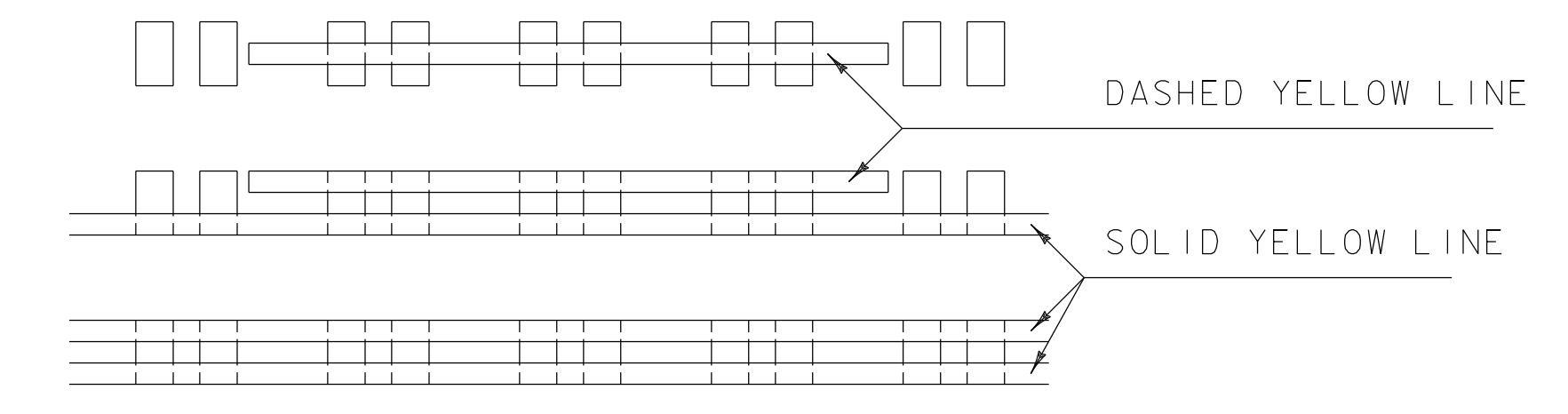
CONSTRUCTION NOTE:
CONTRACTOR SHALL DEVELOP A BYPASS PLAN IN COORDINATION WITH THE FIRE DISTRICT AND ENGINEER. BYPASS PLAN SHALL BE REVIEWED AND APPROVED BY THE FIRE DISTRICT PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING A BYPASS TO ALLOW FOR CONTINUOUS SEWER SERVICE THROUGH CONSTRUCTION.

PROJECT NAME:	KILLINGTON	FILE NAME:	sl9b207sewer.dgn	PLOT DATE:	11/28/2022
PROJECT NUMBER:	BF 020-2(50)	PROJECT LEADER:	JB. MCCARTHY	DRAWN BY:	R. ROOKER
		DESIGNED BY:	C. JEWETT	CHECKED BY:	C. JEWETT
		WASTEWATER PROFILE		SHEET	41 OF 41



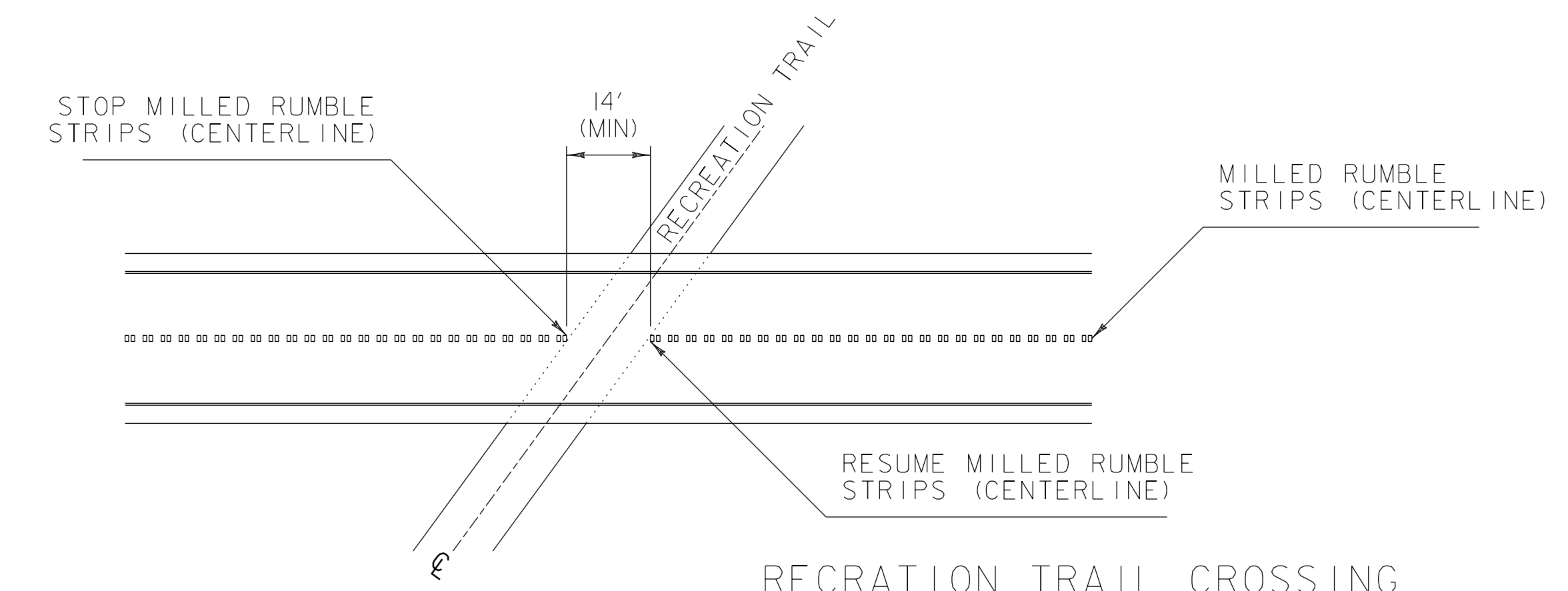
RUMBLE STRIP LAYOUT DETAIL

NOTE:
 1. MILLED RUMBLE STRIPS (CENTERLINE) SHALL BE CENTERED ALONG THE CENTERLINE OF THE ROADWAY WITH A LATERAL TOLERANCE OF +/- TWO INCHES AND INSTALLED AT THE INTERVALS AS DETAILED.



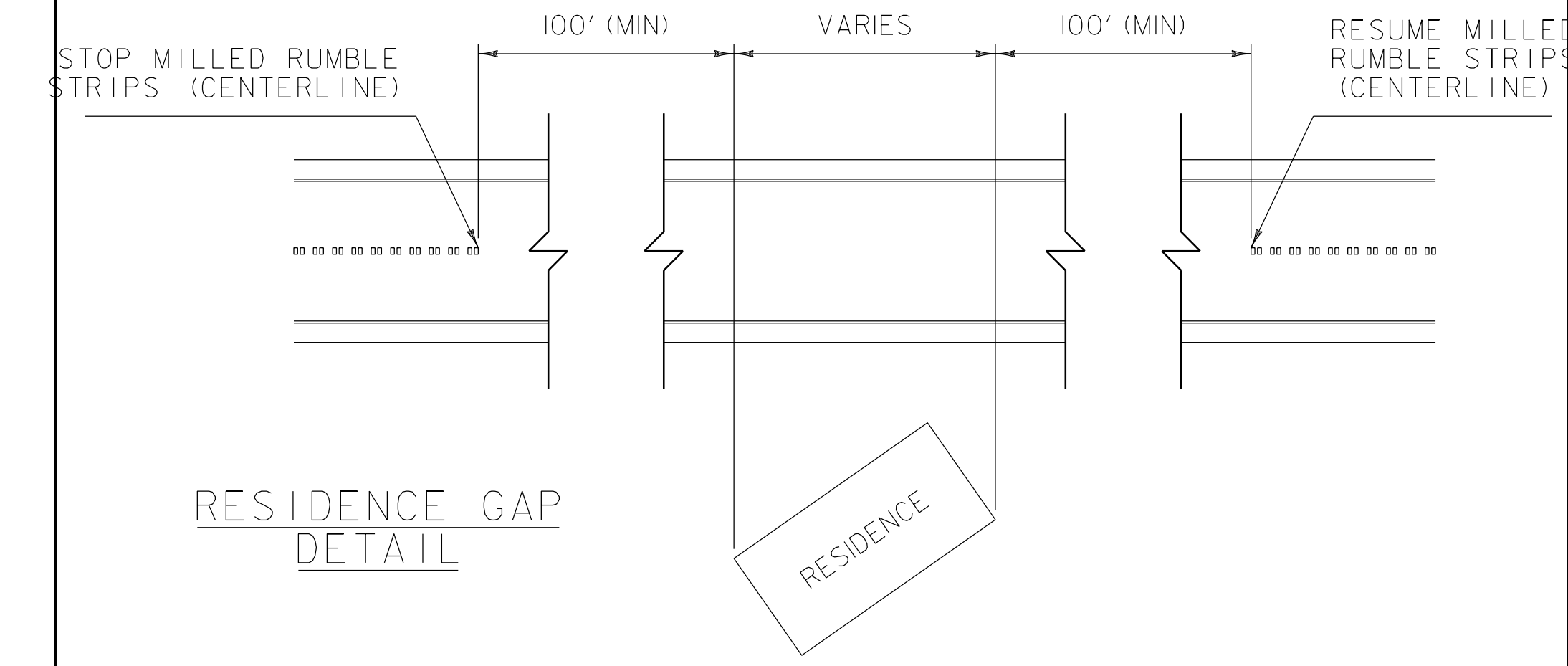
PAVEMENT MARKING LAYOUT DETAIL

NOTES:
 1. MILLED RUMBLE STRIPS (CENTERLINE) SHALL BE INSTALLED PRIOR TO FINAL CENTERLINE PAVEMENT MARKINGS.
 2. ALL FINAL CENTERLINE PAVEMENT MARKINGS SHALL BE CENTERED ON THE MILLED RUMBLE STRIPS (CENTERLINE) WITH A LATERAL TOLERANCE OF +/- ONE INCH.
 3. UNLESS OTHERWISE SPECIFIED IN THE PLANS, CENTERLINE PAVEMENT MARKINGS SHALL BE POLYUREA.



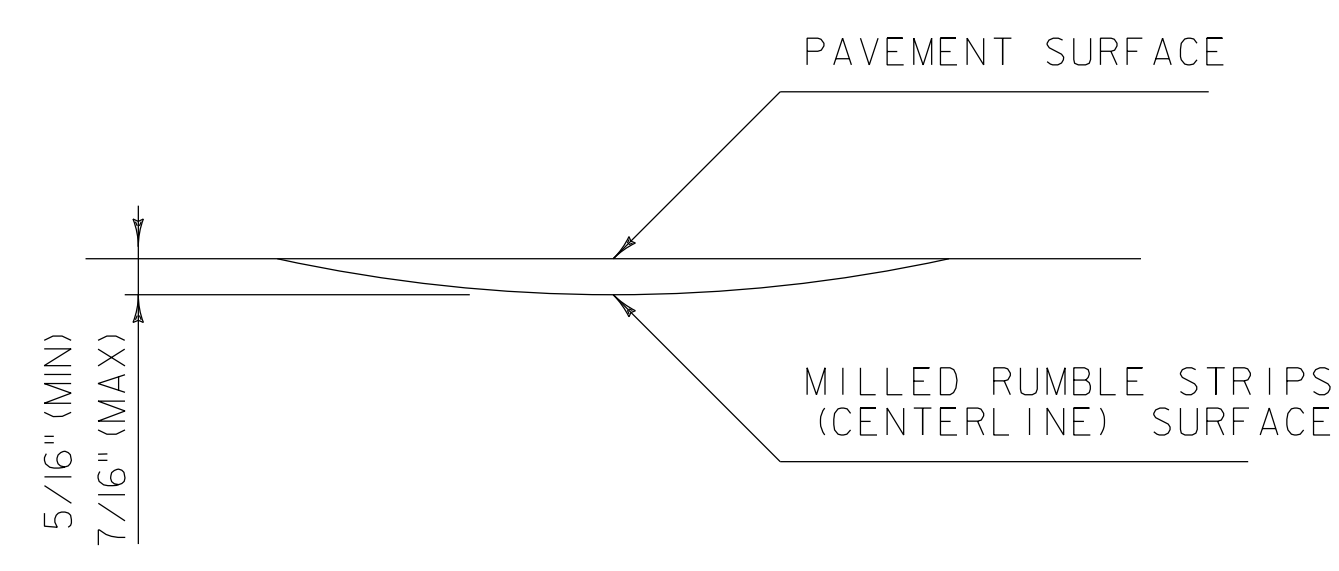
RECREATION TRAIL CROSSING GAP DETAIL

NOTE:
 1. WIDTH OF GAP FOR RAIL TRAILS WILL VARY DEPENDENT ON THE SKEW OF THE TRAIL, WITH A 14 FOOT MINIMUM GAP.



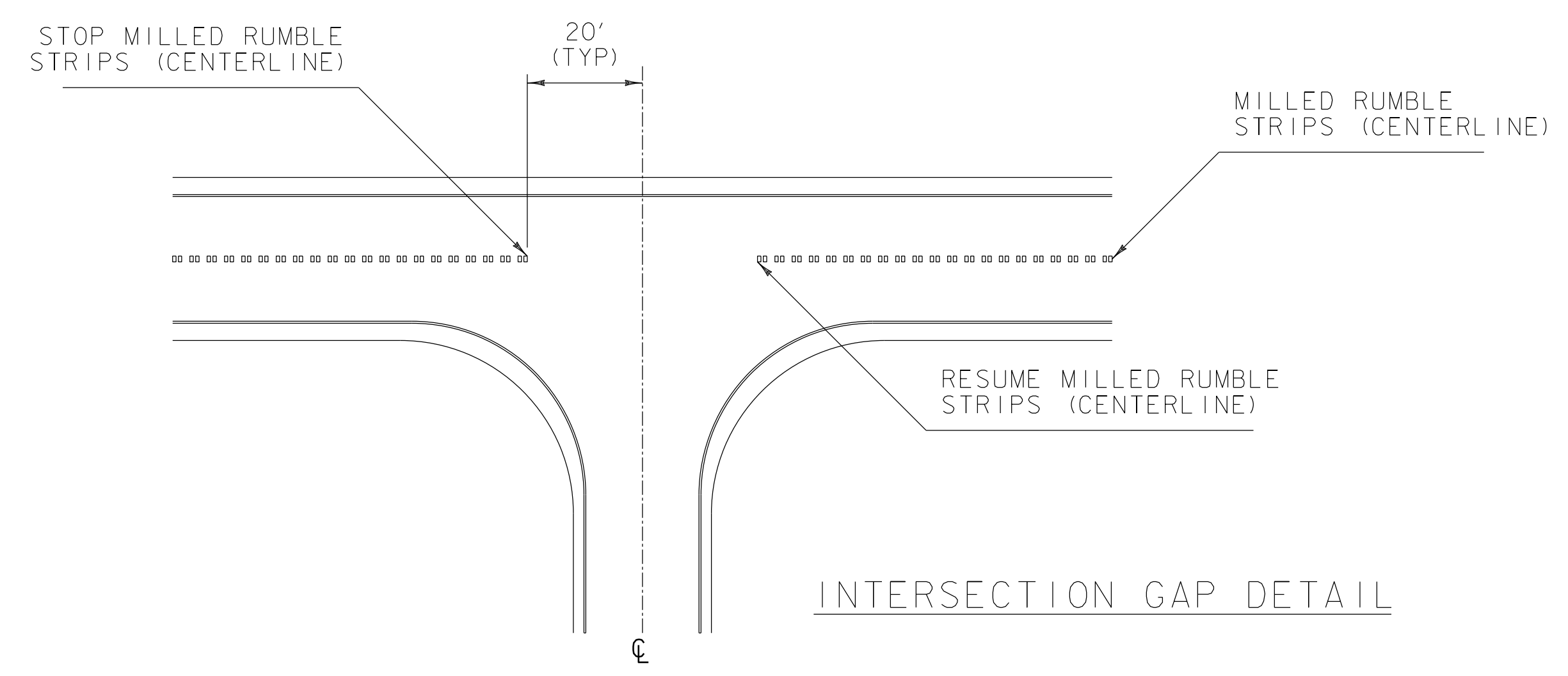
RESIDENCE GAP DETAIL

NOTE:
 1. MILLED RUMBLE STRIPS (CENTERLINE) SHALL BE GAPPED, AS DETAILED, WHEN ANY PORTION OF A RESIDENCE IS WITHIN 100 FEET OF THE ROADWAY CENTERLINE.



RUMBLE STRIP DETAIL

NOTES:
 1. DIMENSION "A" SHALL BE 12 INCHES WHEN FOUR INCH CENTERLINE PAVEMENT MARKINGS ARE TO BE INSTALLED AND 16 INCHES WHEN SIX INCH CENTERLINE PAVEMENT MARKINGS ARE TO BE INSTALLED.
 2. WHEN MILLED RUMBLE STRIPS (CENTERLINE) IS SPECIFIED TO BE SEALED WITH SPECIAL PROVISION (FOG SEAL SURFACE TREATMENT) IT SHALL BE SEALED WITH TWO APPLICATIONS.



INTERSECTION GAP DETAIL

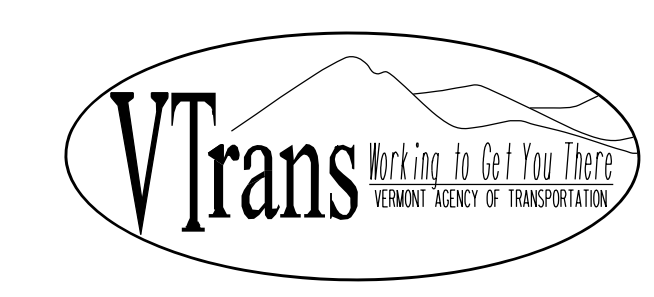
NOTE:
 1. MILLED RUMBLE STRIPS (CENTERLINE) SHALL STOP 20 FEET PRIOR TO ALL INTERSECTIONS, IN BOTH DIRECTIONS OF TRAVEL.

GENERAL NOTES:
 1. STATIONING SHOWN ON PLANS, FOR MILLED RUMBLE STRIPS (CENTERLINE), IS BASED ON LIMITED FIELD SURVEY, ALL GAPS SHALL BE FIELD VERIFIED PRIOR TO INSTALLATION.

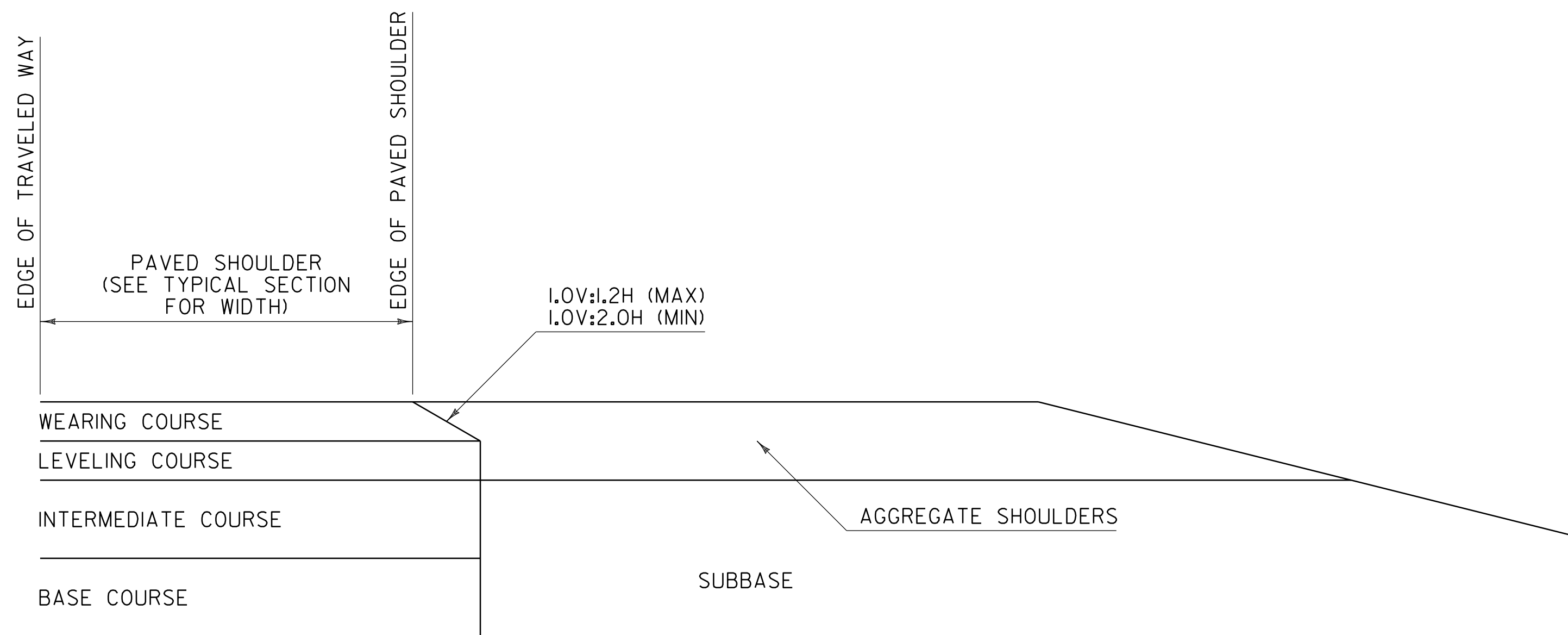
REV.	DATE	DESCRIPTION
0	NOV. 3, 2015	ORIGINAL APPROVAL
1	FEB. 4, 2016	ADDED LATERAL TOLERANCE NOTE
2	FEB. 27, 2017	ADDED RESIDENTIAL GAP DETAIL
3	SEP. 28, 2017	REVISED RUMBLE STRIP WIDTH FROM 18 INCHES TO 16 INCHES, FOR 12 INCH MARKINGS

OTHER DETAILS REQUIRED: NONE
 DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

MILLED RUMBLE STRIPS (CENTERLINE)



HIGHWAY SAFETY & DESIGN DETAIL
 HSD-213.02

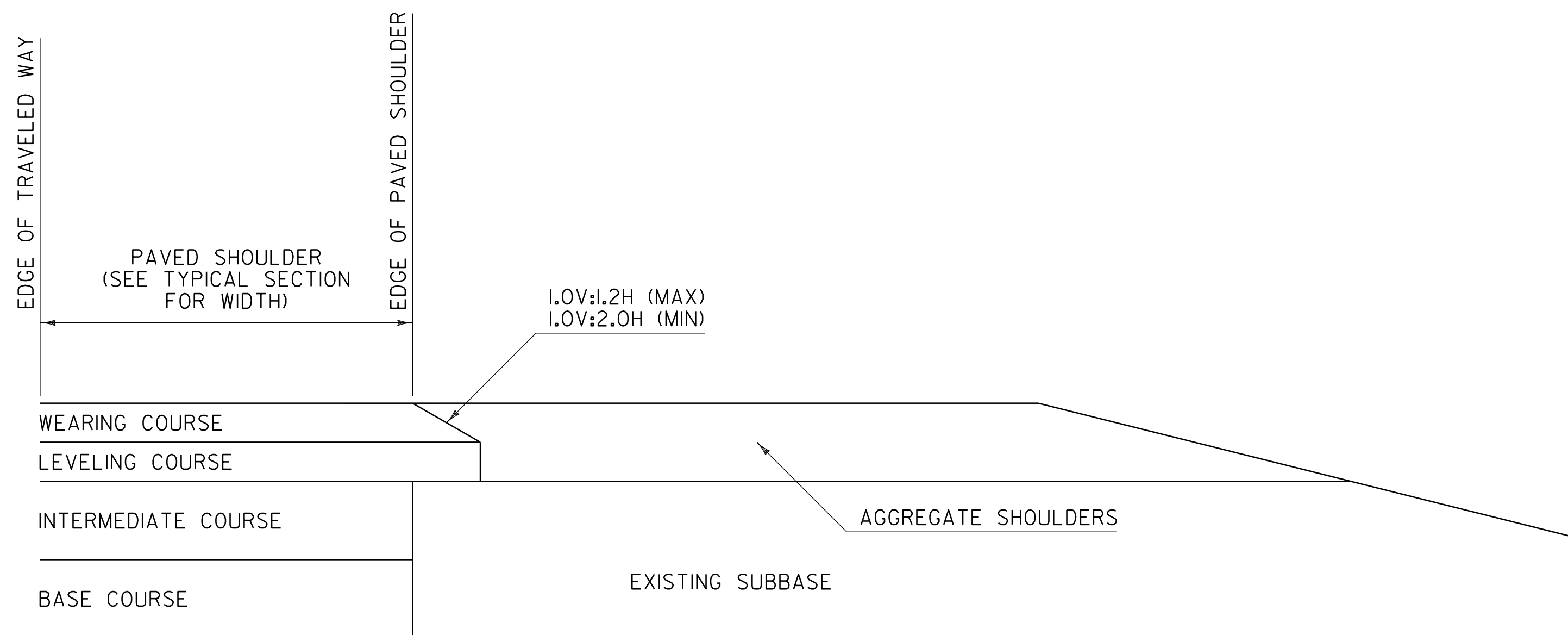


**SAFETY EDGE DETAIL
FOR PAVING BELOW WEARING COURSE**

NOTES:

1. THIS DETAIL IS INTENDED FOR WHEN PAVING EXTENDS BELOW THE WEARING COURSE.
2. PRIOR TO PLACEMENT OF THE LEVELING AND/OR WEARING COURSE, THE SUBBASE LOCATED BENEATH THE AGGREGATE SHOULDERS SHALL BE PREPARED FLUSH WITH THE BOTTOM OF THE LEVELING COURSE.
3. BASE COURSE LIMITS MAY VARY, SEE TYPICAL SECTIONS FOR WIDTH.

SAFETY EDGE WIDTH BASED ON WEARING COURSE THICKNESS AND A 1V:1.6H SLOPE	
WEARING COURSE THICKNESS (INCHES)	NOMINAL SAFETY EDGE WIDTH (INCHES)
1.25	2.000
1.50	2.375
1.75	2.750
2.00	3.125
2.25	3.500
2.50	4.000



**SAFETY EDGE DETAIL
FOR PAVING WEARING COURSE ONLY**

NOTES:

1. THIS DETAIL IS INTENDED FOR WHEN ONLY THE LEVELING AND/OR WEARING COURSE IS TO BE PLACED.
2. PAVEMENT COURSES MAY VARY, SEE TYPICAL SECTIONS FOR ACTUAL PAVEMENT COURSES REQUIRED.

GENERAL NOTES:

1. PLACEMENT OF THE WEARING COURSE SHALL INCLUDE THE SAFETY EDGE, UNLESS THE FOLLOWING APPLIES:
 - A. THE ADJACENT SLOPE IS STEEPER THAN THE SAFETY EDGE.
 - B. THE EDGE OF PAVEMENT BEING PLACED ABUTS BOUND MATERIAL.
 - C. VEHICLES ARE RESTRICTED FROM LEAVING THE PAVED SURFACE (EXAMPLE: GUARDRAIL).
2. THE SAFETY EDGE SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE SLOPE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE SAFETY EDGE SHALL NOT BE CONSIDERED PART OF THE PAVED SHOULDER.
4. THIS WORK SHALL BE INCIDENTAL TO THE RESPECTIVE BITUMINOUS CONCRETE PAVEMENT ITEM.

SAFETY EDGE DETAILS

REV.	DATE	DESCRIPTION
0	MAR. 29, 2016	ORIGINAL APPROVAL
1	JAN. 5, 2018	ANNOTATION CORRECTIONS
OTHER DETAILS REQUIRED: NONE		
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN		



HIGHWAY SAFETY
& DESIGN DETAIL
HSD-400.01