

SEE SHEET 2 FOR
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LIST OF STANDARDS

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

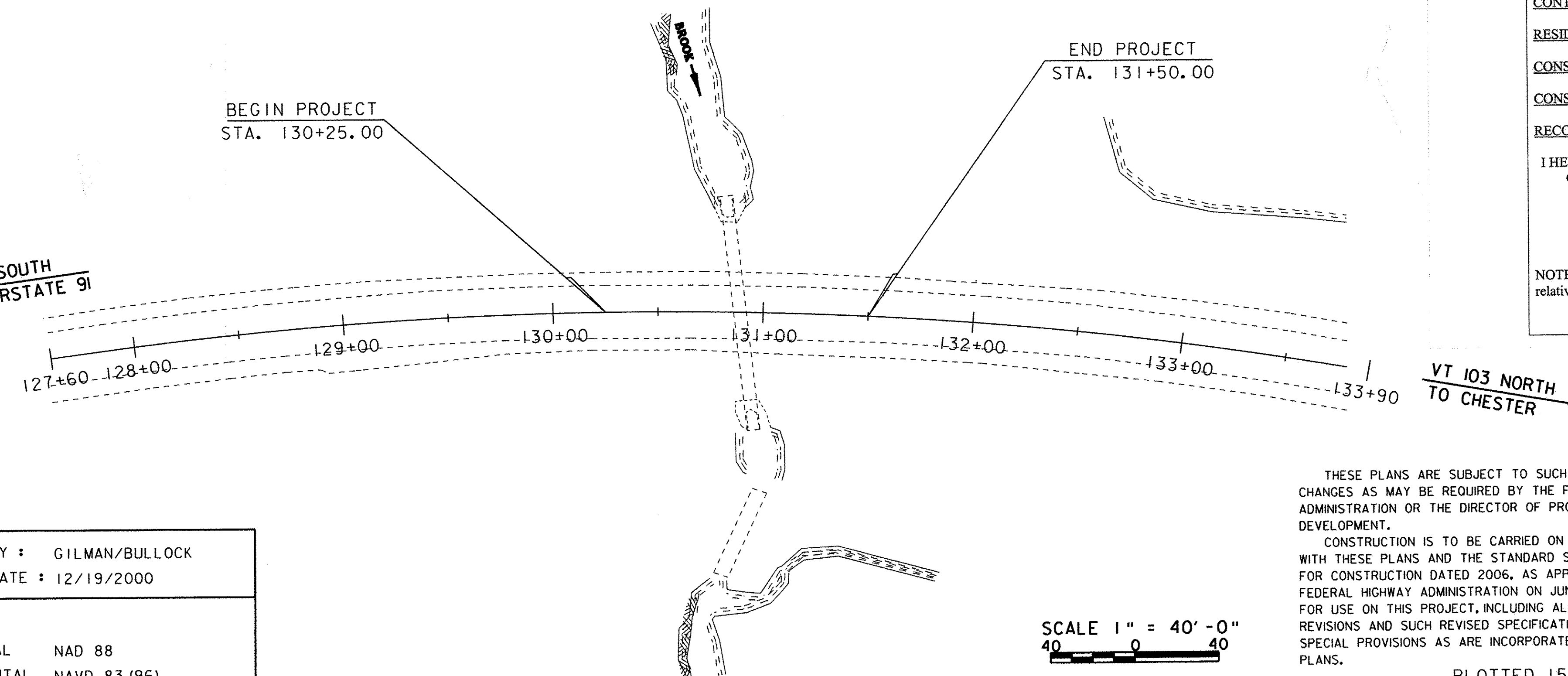
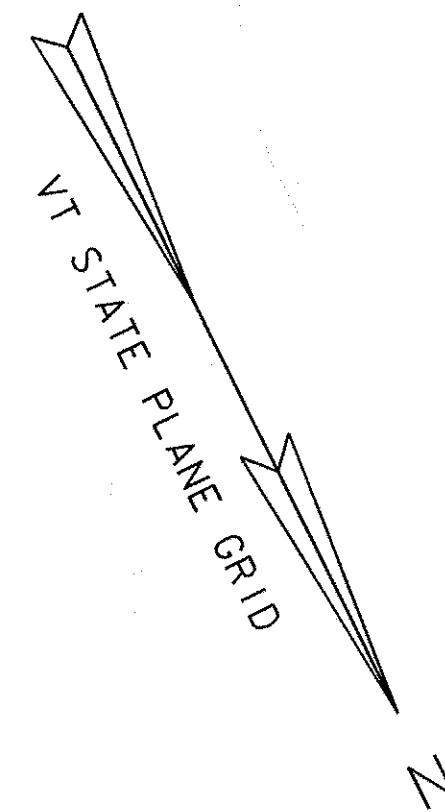
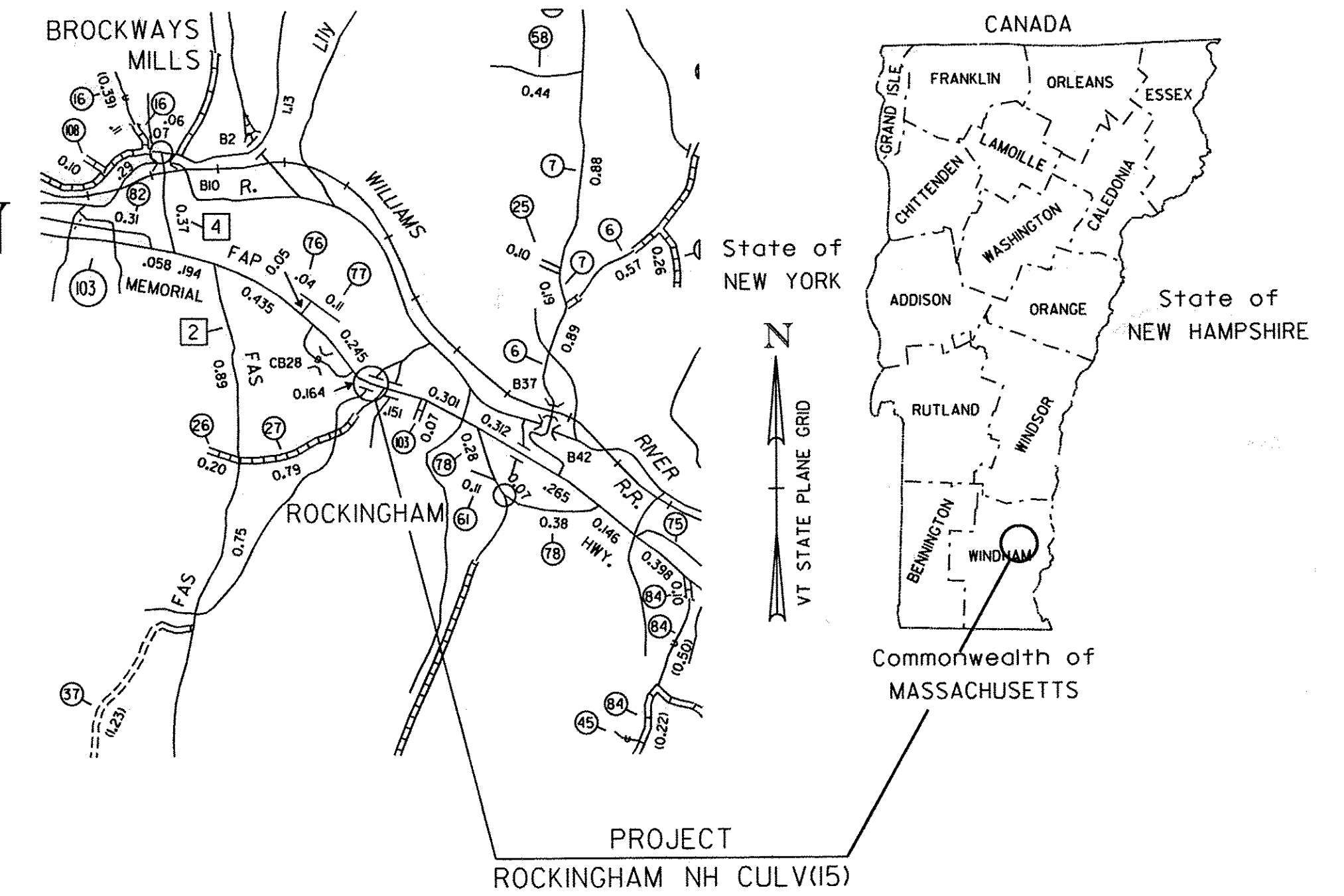
TOWN OF ROCKINGHAM
COUNTY OF WINDHAM

ROUTE NO : VT 103 RURAL PRINCIPAL ARTERIAL NATIONAL HIGHWAY SYSTEM BRIDGE NO : 4

PROJECT LOCATION : 2.4 MILES NORTH OF JUNCTION US 5

PROJECT DESCRIPTION : REPLACE EXISTING 6' CORRUGATED METAL PIPE CULVERT WITH 14' X 8' CONCRETE BOX CULVERT WITH NECESSARY APPROACH WORK. THE PROJECT ALSO INCLUDES REMOVAL OF AN ADDITIONAL CULVERT WITHIN THE PROJECT LIMITS AND ASSOCIATED CHANNEL WORK.

LENGTH OF STRUCTURE : N/A
LENGTH OF ROADWAY : 125.00 FEET.
LENGTH OF PROJECT : 125.00 FEET.



RECORD PLANS	
CONTRACTOR:	RENAUD BROTHERS, INC. - VERNON, VT
RESIDENT ENGINEER:	BUTCH COLBY
CONSTRUCTION BEGAN:	AUGUST 20, 2009
CONSTRUCTION COMPLETE:	JUNE 2, 2010
RECORD PLANS BY:	BUTCH COLBY & AMOS KEMPTON
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	<i>[Signature]</i> RESIDENT ENGINEER
DATE:	7/22/11
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	

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

SURVEYED BY : GILMAN/BULLOCK
SURVEYED DATE : 12/19/2000
DATUM
VERTICAL NAD 88
HORIZONTAL NAVD 83 (96)

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.
PLOTTED 15-APR-2009

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED *[Signature]* DATE 4/15/09
PROJECT MANAGER : K. M. HIGGINS
PROJECT NAME : ROCKINGHAM
PROJECT NUMBER : NH CULV (15)
SHEET 1 OF 27 SHEETS

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

PRELIMINARY INFORMATION SHEET (CULVERT)

LRFD

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STANDARDS LIST

E-100	CONSTRUCTION APPROACH SIGNS	2-Jan-04
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	2-Jan-04
E-101	CONSTRUCTION SIGN DETAILS	30-May-03
E-102	CONSTRUCTION SIGN DETAILS	30-Jun-03
E-103	MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED	1-Mar-04
E-107	DELINEATION BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	30-Jun-03
E-134	BRIDGE NUMBER PLAQUE	8-Aug-95
G-1	STEEL BEAM GUARDRAIL WITH STEEL POSTS :: STEEL BEAM GUARDRAIL WITH W	3-Jan-00
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS) :: HEAVY DUTY STEEL BEAM GUARDRA	3-Jan-00

FINAL HYDRAULIC REPORT

PROJECT #: NH CULV(15) STREAM: Unnamed
HIGHWAY #: VT 103 STRUCTURE #: 4

HYDROLOGIC DATA

DRAINAGE AREA: 2.6 sq. mi.
CHARACTER OF TERRAIN: Hilly to mountainous, mostly forested
STREAM CHARACTERISTICS: Sinuous, incised
NATURE OF STREAMBED: Sandy gravel and cobbles

PEAK FLOW DATA

Q 2.33 =	120 cfs	Q 50 =	500 cfs
Q 10 =	300 cfs	Q 100 =	600 cfs
Q 25 =	400 cfs	Q 500 =	850 cfs

DATE OF FLOOD OF RECORD: unknown
ESTIMATED DISCHARGE: unknown
WATER SURFACE ELEV.: unknown
NATURAL STREAM VELOCITY: @ Q50 = 11.7 fps
ICE CONDITIONS: moderate
DEBRIS: moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? yes
IS ORDINARY RISE RAPID? yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? no
IF YES, DESCRIBE:

WATERSHED STORAGE: 1.2% HEADWATERS: UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 6' dia. CGMP
YEAR BUILT: 1958
CLEAR SPAN(NORMAL TO STREAM): 6'
VERTICAL CLEARANCE ABOVE STREAMBED: 6'
WATERWAY OF FULL OPENING: 28.3 sq. ft.
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	469.4'	VELOCITY =	12.9 fps
Q10 =	474.3'	"	16.8 fps
Q25 =	478.4'	"	18.7 fps
Q50 =	480.3'	"	17.7 fps
Q100 =	481.0'	"	17.9 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Below Q100
RELIEF ELEVATION: 480.6'
DISCHARGE OVER ROAD @Q100: 95 cfs

UPSTREAM STRUCTURE

TOWN: Rockingham DISTANCE: 1984'
HIGHWAY #: TH 27 STRUCTURE #:
CLEAR SPAN: 8' CLEAR HEIGHT: 8'
YEAR BUILT: FULL WATERWAY: 50.3 sq. ft.
STRUCTURE TYPE: Corrugated metal pipe

DOWNSTREAM STRUCTURE

TOWN: Rockingham DISTANCE: 1865'
HIGHWAY #: STRUCTURE #:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR	4A STR	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER						

CULVERT DESIGN CRITERIA

- PROPOSED CULVERT IS A CONCRETE STRUCTURE (14'-0" X 8'-0" X 84'-0" BOX).
- CULVERT ENDS ARE NOT SKEWED.
- CULVERT WILL BE SET AT A SLOPE OF 48.00 IN. ON 84 FT.
- CULVERT WILL NOT REQUIRE FISH PASSAGE ACCOMMODATIONS

YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE: Confluence with Williams River

PROPOSED STRUCTURE

STRUCTURE TYPE: Concrete Box
CLEAR SPAN(NORMAL TO STREAM): 14'
VERTICAL CLEARANCE ABOVE STREAMBED: 8' with 1' baffles in the bottom
WATERWAY OF FULL OPENING: 98 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	466.1'	VELOCITY =	7.0 fps
Q10 =	467.9'	"	10.1 fps
Q25 =	468.8'	"	11.2 fps
Q50 =	469.7'	"	12.3 fps
Q100 =	470.6'	"	13.2 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 480.5'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 471.0' at inlet
VERTICAL CLEARANCE: @ Q50 = 1.3' at inlet

SCOUR: N/A for culverts

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 5 cfs DEPTH OR ELEVATION:
ORDINARY LOW WATER: 3 cfs 0.5'
ORDINARY HIGH WATER: 60 cfs 1.5'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: To be determined by contractor.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

Elevations based on NAV88.

TRAFFIC MAINTENANCE NOTES

- SEE PLANS AND SPECIAL PROVISIONS

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _p : 3.0 INCH
3. CULVERT OPENING	D: 14.00 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'cr: ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'c: 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'c: 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'c: 3.5 KSI
11. CONCRETE, CLASS C	f'c: 3.0 KSI
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : ---
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q _p : ---
20. PILE YIELD STRENGTH ASTM A572	f _y : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L _p : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V _{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	PGA: --- S: ---

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: NH CULV(15)
FILE NAME:
PROJECT LEADER: K. HIGGINS PLOT DATE: 4/21/2009
DESIGNED BY: J. SALVATORI DRAWN BY: M. FESSEL
PRELIMINARY INFORMATION SHEET 1 CHECKED BY: J. SALVATORI
SHEET 2 OF 27

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2010	6100	920	55	8.1	890	20 year ESAL for flexible pavement from 2010 to 2030 : 10678000
2030	7200	1100	55	8.1	1200	40 year ESAL for flexible pavement from 2010 to 2050 : 25699000
Design Speed : 50 mph						

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 4th EDITION, AND ITS LATEST REVISIONS.
2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES F UNLESS OTHERWISE NOTED.
3. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT OR AS DIRECTED BY THE ENGINEER.
4. ITEM 514.10 "WATER REPELLENT, SILANE" SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE WINGWALLS AND HEADWALLS. WATER REPELLENT, SILANE SHALL BE APPLIED TO THE EXPOSED INSIDE SURFACE OF THE BOX STARTING AT THE OPENING AT EACH END AND EXTENDING 3 FEET INTO THE BOX, INCLUDING THE TOP SURFACE OF THE BOTTOM SLAB AND THE BOTTOM SURFACE OF THE TOP SLAB.
5. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:

SPACING +/- 1"
CLEARANCE +/- 1/4"
6. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".
7. THE CONTRACTOR MAY SUBSTITUTE SUBBASE MATERIAL FOR THE SAND BORROW SHOWN ON THE PLANS. THE SUBBASE MATERIAL SHALL BE THE TYPE SPECIFIED IN THE CONTRACT AND SHALL BE PLACED TO MEET THE SUBBASE SPECIFICATIONS. IF SUBBASE IS PLACED IN LIEU OF SAND BORROW, A GEOTEXTILE MEETING THE REQUIREMENTS OF SECTION 649 AND 720 FOR "GEOTEXTILE FOR ROAD BED SEPERATOR" SHALL BE PLACED BETWEEN THE SUBGRADE AND THE SUBBASE MATERIAL. ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING THE GEOTEXTILE WILL BE INCLUDED IN THE UNIT PRICE BID FOR 203.31 "SAND BORROW".
8. ITEM 529.15 "REMOVAL OF STRUCTURE (6'-0" x 112'-0" CGMMP) SHALL BE USED FOR THE REMOVAL OF THE EXISTING PIPE UNDER VT ROUTE 103.
9. ITEM 529.15 "REMOVAL OF STRUCTURE (7'-0" x 7'-0" x 44'-0" BOX) SHALL BE USED FOR THE REMOVAL OF THE EXISTING BOX IN THE CHANNEL DOWNSTREAM OF VT ROUTE 103".

TRAFFIC CONTROL

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. SEE CONTRACT SPECIAL PROVISIONS FOR DETAILS
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE LOCAL TRAFFIC CONTROL PACKAGE IDENTIFYING THE PROJECT BEFORE, DURING, AND AFTER THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN TO THE PROJECT MANAGER FOR ALL STAGES OF CONSTRUCTION. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645, SPECIAL PROVISION, (TRAFFIC CONTROL, ALL-INCLUSIVE).
12. ACCESS TO ALL EXISTING DRIVES SHALL BE MAINTAINED AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.
13. INSTALLATION OF DETOUR SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL TRY TO MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.

PRECAST CONCRETE NOTES

14. DESIGN CRITERIA:
 - A. SOIL UNIT WEIGHT = 140 PCF
 - B. DESIGN LIVE LOAD = HL-93
 - C. NOMINAL BEARING RESISTANCE = 6.7 KSF
 - D. BEARING RESISTANCE FACTOR = 0.45
 - E. DESIGN FILL OVER BOX = 11 FEET
 - F. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05(e)
 - G. AT A MINIMUM ALL REINFORCING STEEL SHALL BE GRADE 60 BLACK REBAR.
15. ALL CONCRETE SHALL BE PRECAST. ITEM 540.10 PRECAST CONCRETE STRUCTURE INCLUDES ALL BOX SEGMENTS, HEADWALLS, AND WINGWALLS. ALL CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10. ALL CONNECTIONS MUST BE SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.
16. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. ALL UNITS EXCEPT THE FIRST AND LAST WILL BE THE SAME SHAPE AND THE SAME LENGTH. THE MINIMUM INSIDE DIMENSIONS SHALL BE 8'-0" IN HEIGHT AND 14'-0" IN WIDTH. THE OVERALL LENGTH OF THE BOX SHALL BE 84'-0" ALONG THE STREAMBED GRADE. THE EXPOSED ENDS OF THE FIRST AND LAST UNITS SHALL BE VERTICAL.
17. THE EXTERIOR (TOP AND SIDES) OF ALL CONCRETE BOX JOINTS ALONG WITH ALL LIFTING HOLES SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10.
18. A TWO (2) FOOT WIDE STRIP OF MEMBRANE WATERPROOFING SHALL BE APPLIED AT EACH BOX JOINT (TOP AND SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL WIDTH OF THE TOP AND FULL HEIGHT OF THE SIDES. THE SIDES SHALL BE COVERED FIRST AND THE TOP WILL FOLLOW. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE SHALL BE UNDER ITEM 519.20 SHEET MEMBRANE WATERPROOFING, TORCH APPLIED.
19. THE STRUCTURE WILL BE AT A 4.76% GRADE SIMULATING THAT OF THE STREAM.
20. THERE ARE OVERHEAD UTILITY LINES LOCATED ALONG THE SOUTH EDGE OF VT 103 OVER THE INLET OF THE NEW BOX CULVERT. NO PROVISIONS HAVE BEEN MADE TO RELOCATE THESE UTILITY LINES. THE CONTRACTOR SHALL CONSIDER

THE PLACEMENT OF THE BOX CULVERT SECTIONS AT THE INLET SO AS TO AVOID CONFLICT WITH THESE UTILITY LINES. ANY ACCESS ROAD CONSTRUCTED TO THE INLET LOCATION MUST STAY WITHIN THE RIGHT OF WAY SHOWN ON THE PLANS. ANY DISTURBANCE OUTSIDE THE CONSTRUCTION LIMITS SHOWN ON THE PLANS SHALL BE GRADED AND RESEEDED TO ITS ORIGINAL CONDITION.

PROJECT: ROCK INGHAM	PROJECT NO. : NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064gen.dgn	PLOT DATE: 22-APR-2009
IPARM FILE NAME: s08b064gen.i	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: J. LACROIX
SQUAD LEADER: K.M.HIGGINS	SHEET: 3 OF 27
GENERAL NOTES	

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1				+	1	LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10			EARTH WORK SUMMARY	
						1250				4250	1290.9	CY	COMMON EXCAVATION	203.15		1250	CY	COMMON EXCAVATION
								1200		1200	1084.5	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		1200	CY	UNCLASSIFIED CHANNEL EXCAVATION
						280				280	326.1	CY	SAND BORROW	203.31		980	CY	STRUCTURE EXCAVATION
								980		980	980	CY	STRUCTURE EXCAVATION	204.25		3430	CY	SUBTOTAL
								710		710	844.9	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		20	CY	ROUND
						670				670	1133.4	SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10		3450	CY	TOTAL FILL AVAILABLE
						750				750	813.2	CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		50	CY	TOTAL FILL REQUIRED
						8				8	21.4	CWT	EMULSIFIED ASPHALT	404.65		3400	CY	TOTAL WASTE
						1				+	137.61	LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
								13		13	5.5	GAL	WATER REPELLENT, SILANE	514.10				
								120		120	88	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
								1		1	1	EACH	REMOVAL OF STRUCTURE (6'-0" x 112'-0" CGMPP)	529.15				
								1		1	1	EACH	REMOVAL OF STRUCTURE (7'-0" x 7'-0" x 44'-0" BOX)	529.15				
								1		1	1	LS	PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 84'-0" BOX)	540.10				
								650		650	532.1	CY	STONE FILL, TYPE IV	613.13				
						475				475	475	LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				▲
						4				4	4	EACH	MANUFACTURED TERMINAL SECTION, FLARED	621.50				▲
						621				621	588	LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				▲
									1	+	0	LS	FIELD OFFICE, ENGINEERS	631.10				
									1	1	1	LS	TESTING EQUIPMENT, BITUMNOUS	631.17				
									1	+	0	LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25				
						1				1	1	LS	MOBILIZATION/DEMOBILIZATION	635.11				
						750				750	1600	LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402				
						750				750	1600	LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412				
								425		425	878	SY	GEOTEXTILE UNDER STONE FILL	649.31				
							270			270	301	SY	GEOTEXTILE FOR SILT FENCE	649.51				
							25			25	68	LB	SEED	651.15				
							100			100	430	LB	FERTILIZER	651.18				
							0.5			0.5	0.5	TON	AGRICULTURAL LIMESTONE	651.20				
							60			60	99.6	CY	TOPSOIL	651.35				
								260		260	167	SY	GRUBBING MATERIAL	651.40				
							1			1	1	LS	EPSC PLAN	652.10				
							50			50	12	HR	MONITORING EPSC PLAN	652.20				
							1			+	0.333	LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							1400			1400	2003	SY	TEMPORARY EROSION MATTING	653.20				
													BEGN OPTION AA					
						5				5	16.9	CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
						5				5	0	EACH	PREFABRICATED CHECK DAM	653.30				
													END OPTION AA					

PROJECT NAME: **ROCKINGHAM**
PROJECT NUMBER: **CULV(15)**
FILE NAME: s08b064qs.xls PLOT DATE: 05/29/2009
PROJECT MANAGER: K. HIGGINS DRAWN BY: J.SALVATORI
DESIGNED BY: J.SALVATORI CHECKED BY: GLAROCHE
QUANTITY SHEET #1 SHEET 4 OF 27

REV.	DATE	BY	DESCRIPTION
▲	05/29/09	VAOT	REVISED PAY ITEMS

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							36			36	32.9	CY	VEHICLE TRACKING PAD	653.35				
							1000			1000	998	LF	PROJECT DEMARCATION FENCE	653.55				
						0.67				0.67	0.66	SF	TRAFFIC SIGNS, TYPE A	675.20				
						12				12	12	LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						2				2	2	EACH	REMOVING SIGNS	675.50				
						4				4	4	EACH	DELINEATOR WITH STEEL POST	676.10	△			
						1				+	1165.4	LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
						1				1	1	LS	SPECIAL PROVISION (TEMPORARY RELCATION OF STREAM)	900.645				
						1				1	1	LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1				+	0	LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
						1				+	0	LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						615				615	889.94	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: **ROCKINGHAM**
PROJECT NUMBER: **CULV(15)**
FILE NAME: s08b064qs.xls
PROJECT MANAGER: K. HIGGINS
DESIGNED BY: J.SALVATORI
QUANTITY SHEET #2

PLOT DATE: 05/29/2009
DRAWN BY: J.SALVATORI
CHECKED BY: G.LAROCHE
SHEET 5 OF 27

REV.	DATE	BY	DESCRIPTION
△	05/29/09	VAOT	REVISED PAY ITEMS

MATERIAL TOLERANCES

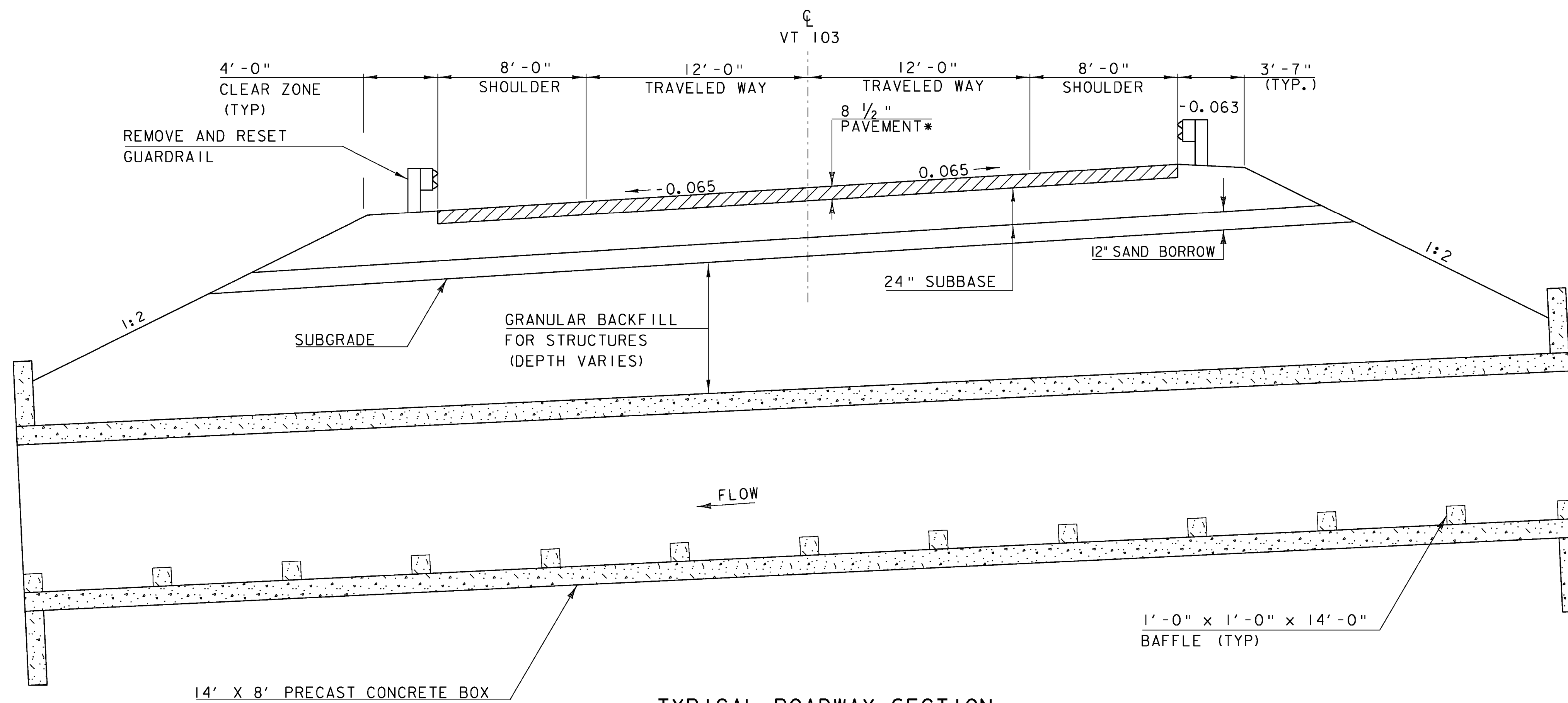
(IF USED ON PROJECT)

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

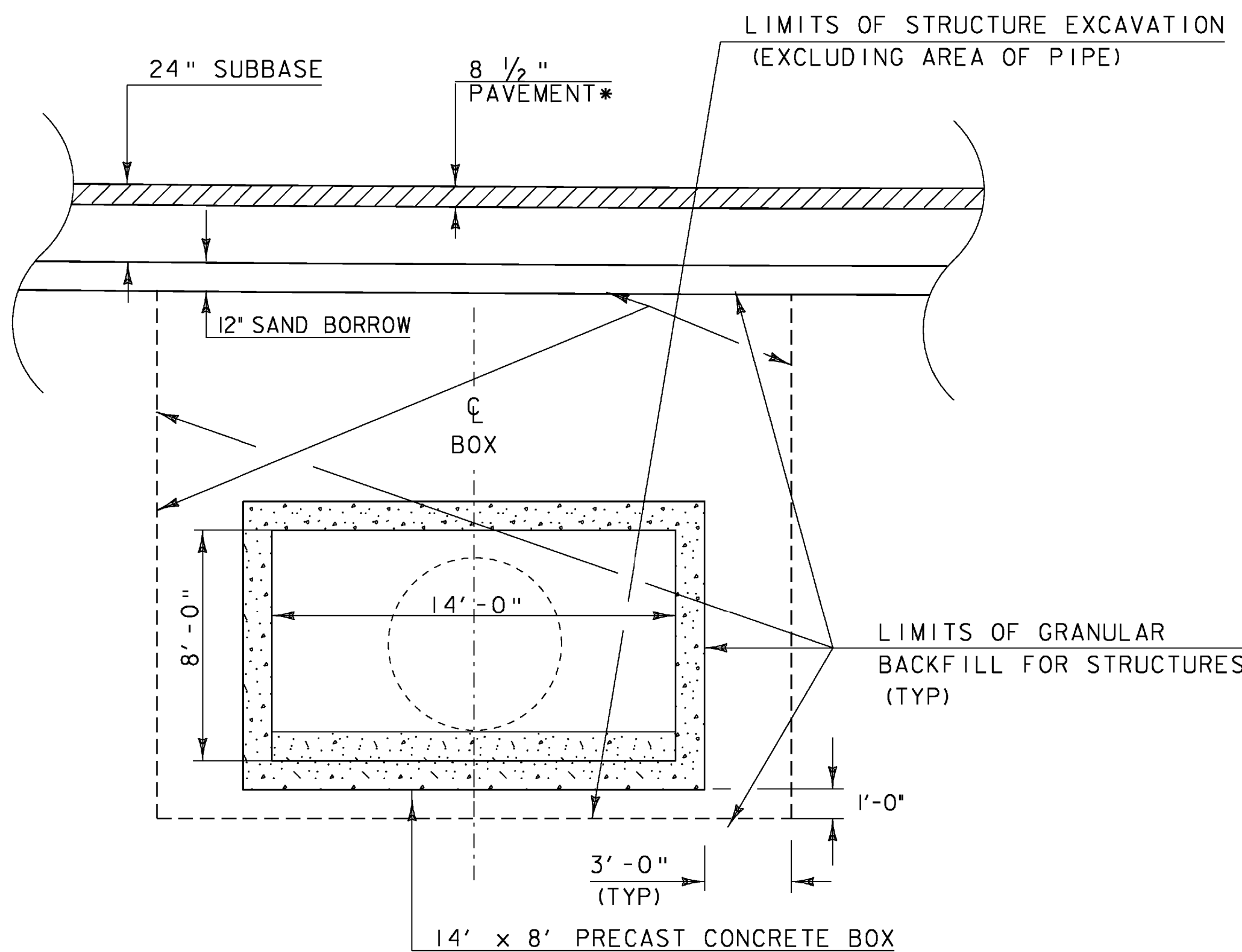
* 1 3/4" TYPE ^{III} SUPERPAVE BCP WEARING COURSE, OVER
 1 3/4" TYPE ^{III} SUPERPAVE BCP BINDER COURSE, OVER
 2 1/2" TYPE IIS SUPERPAVE BCP BASE COURSE, OVER
 2 1/2" TYPE IIS SUPERPAVE BCP BASE COURSE, OVER
 24" DENSE GRADED CRUSHED STONE SUBBASE, OVER
 12" SAND BORROW

BCP = BITUMINUS CONCRETE PAVEMENT AND SHALL BE PAID FOR UNDER ITEM 900.680 SPECIAL PROVISION (BITUMINUS CONCRETE PAVEMENT, SMALL QUANTITY)

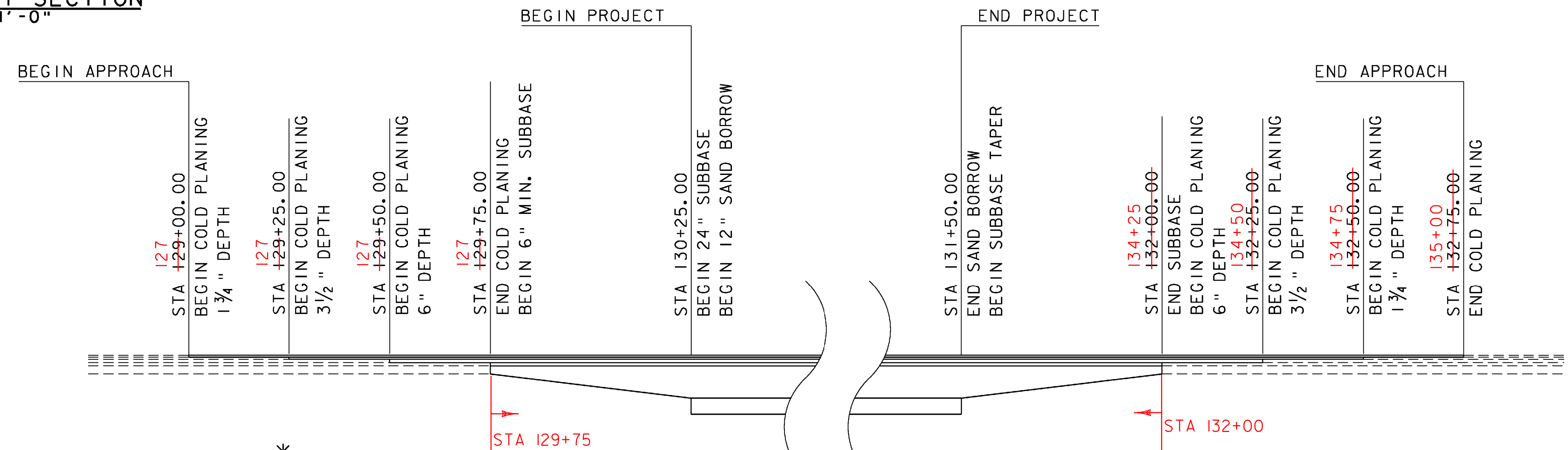
NOTE: NUMBER OF GYRATION (N^{DESIGN}) = 75



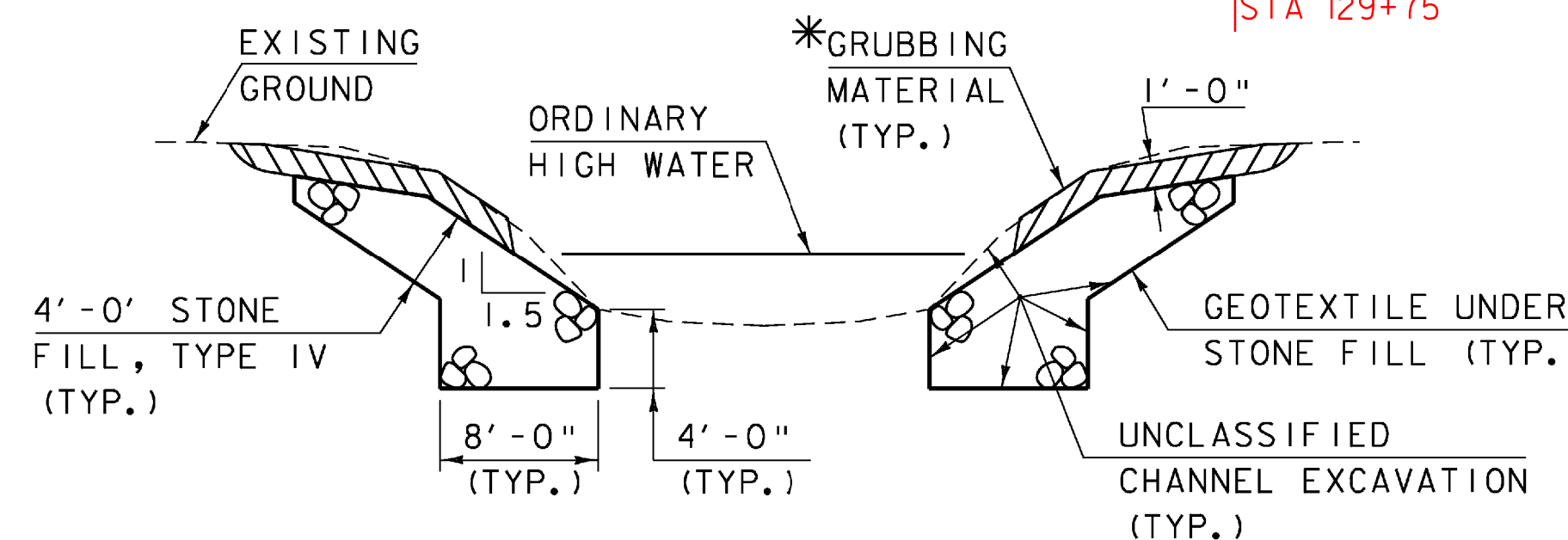
TYPICAL ROADWAY SECTION
SCALE: 1/4" = 1'-0"



PROPOSED BOX CULVERT SECTION
SCALE: 1/4" = 1'-0"

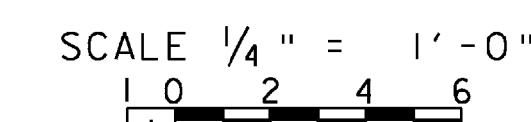


MATERIAL TRANSITION
NOT TO SCALE



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

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



PROJECT NAME: ROCKINGHAM	PROJECT NUMBER: NH CULV(15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064typ.dgn	PLOT DATE: 13-MAY-2009
IPARM FILE NAME: s08b064typ.i	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 6 OF 27
TYPICAL SECTIONS	

GPS CONTROL POINTS

HVCTRL #1

STANDARD DISK STAMPED

STORE AZ MK

N = 254547.864
E = 1638864.859
ELEV. = 526.01

GENERAL LOCATION - ROCKINGHAM, VT
OWNERSHIP - THE COUNTRY STORE, 1292 VT ROUTE 103 ROCKINGHAM, VT 05101

TO REACH FROM THE INTERSECTION OF US ROUTE 5 AND VT ROUTE 103 IN ROCKINGHAM GO NORTH ALONG VT ROUTE 103 FOR 2.8 MI (4.5 KM) TO THE MARK ON THE LEFT SET IN THE TOP OF A 0.3 M (1.0 FT) X 1.3 M (4.3 FT) ROCK OUTCROP THAT PROJECTS ABOUT 0.2 M (0.7 FT) ABOVE THE GROUND. THE MARK IS LOCATED 16.4 M (53.8 FT) SOUTHWEST OF AND ABOUT 2.5 M (8.2 FT) HIGHER THAN THE SOUTHWEST EDGE OF PAVEMENT OF VT ROUTE 103, 64.8 M (212.6 FT) NORTH NORTHWEST OF THE INLET OF A 40 CM METAL CULVERT, 32.6 M (107.0 FT) NORTHEAST OF A 50 CM TWIN PINE, AND 23 M (75.5 FT) SOUTH OF THE ENTRANCE SIGN TO THE COUNTRY STORE AND A FIBERGLASS WITNESS POST.

• DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

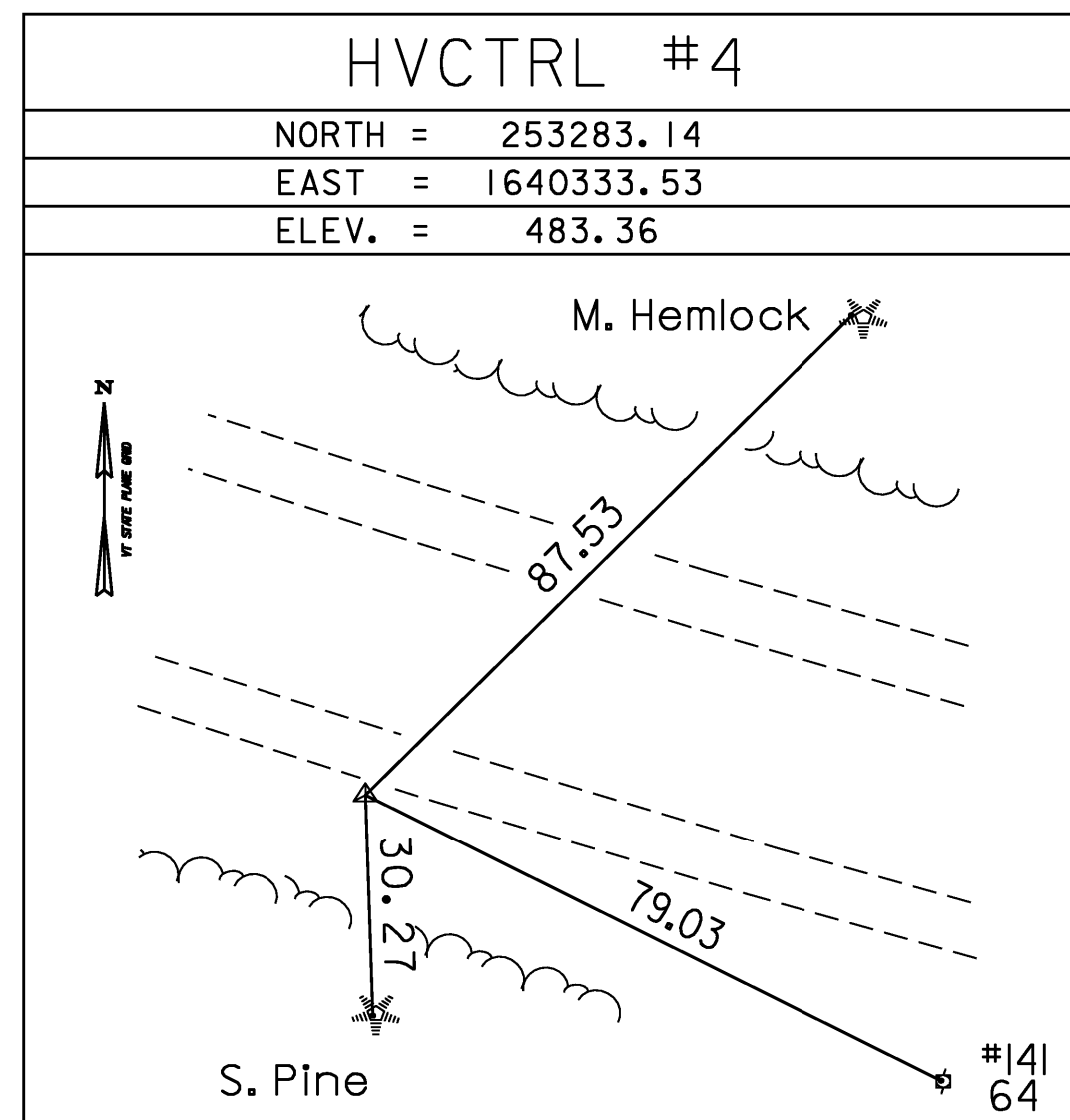
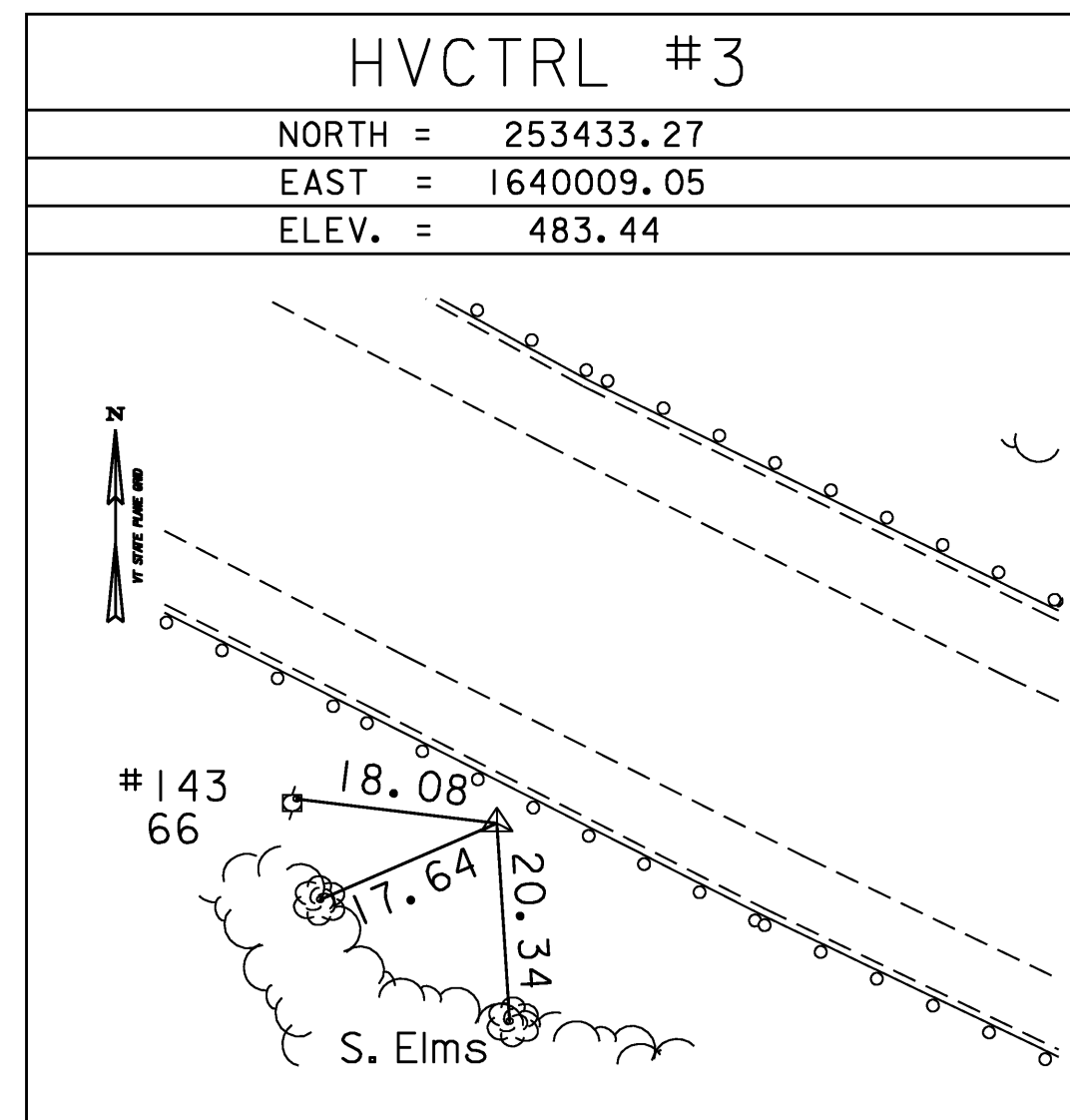
HVCTRL #2

STANDARD DISK STAMPED
STORE

N = 253668.230
E = 1639652.029
ELEV. = 494.01

GENERAL LOCATION - ROCKINGHAM, VT
OWNERSHIP - THE COUNTRY STORE, 1292 VT ROUTE 103 ROCKINGHAM, VT 05101
THE MARK IS LOCATED 7.7 M (25.3 FT) WEST SOUTHWEST OF AND ABOUT LEVEL WITH THE SOUTHWEST EDGE OF PAVEMENT OF VT ROUTE 103, 32.5 M (106.6 FT) SOUTH SOUTHEAST OF A 1.2 M (3.9 FT) X 1.2 M (3.9 FT) DROP INLET, 46.2 M (151.6 FT) NORTH NORTHEAST OF THE NORTHWEST CORNER OF THE GRIST MILL HOUSE, AND 4.2 M (13.8 FT) WEST SOUTHWEST OF A WOOD FENCE POST AND A FIBERGLASS WITNESS POST.

TRAVERSE TIES



• MAIN TRAVERSE COMPLETED 12/19/00 by R. Gilman, R. Bullock, & G. Wilson

ALIGNMENT TIES

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

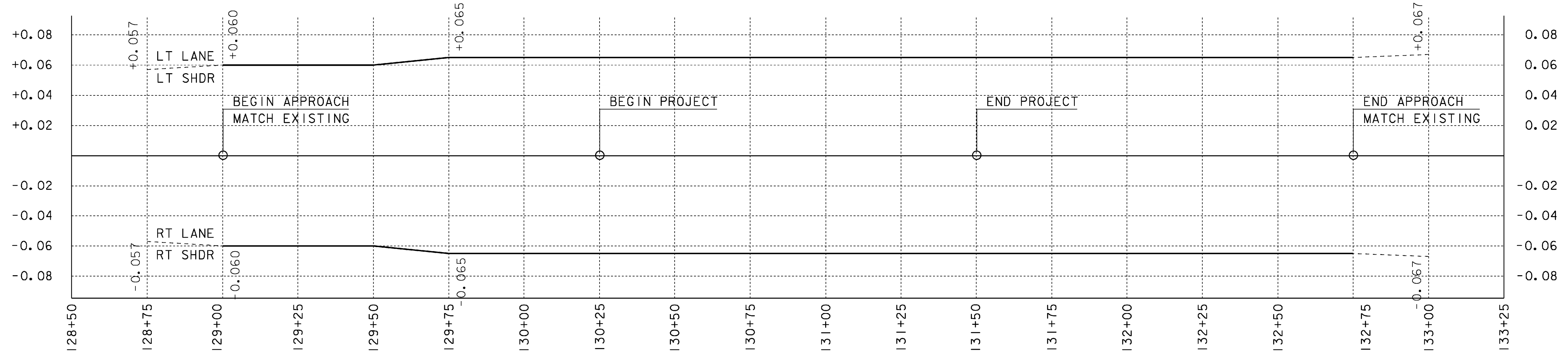
NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

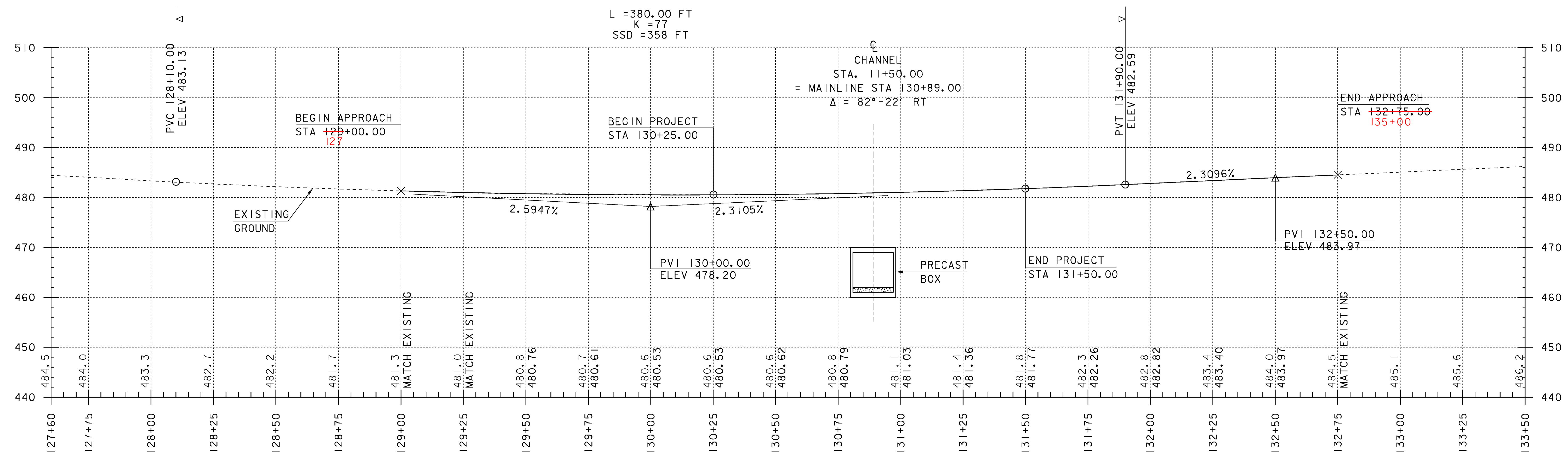
NORTH =
EAST =
ELEV. =

DATUM	
VERTICAL	NAD 88
HORIZONTAL	NAVD 83 (96)
ADJUSTMENT	none

PROJECT NAME:	RockIngham
PROJECT NUMBER:	NH CULV (15)
FILE NAME:	08b064\survey\x08b064t1.dg
PROJECT LEADER:	K.M.HIGGINS
DESIGNED BY:	J.SALVATORI
GPS CONTROL AND TRAVERSE TIES	
PLOT DATE:	16-APR-2009
DRAWN BY:	R. Bullock
CHECKED BY:	J.SALVATORI
SHEET	7 OF 27



BANKING DIAGRAM

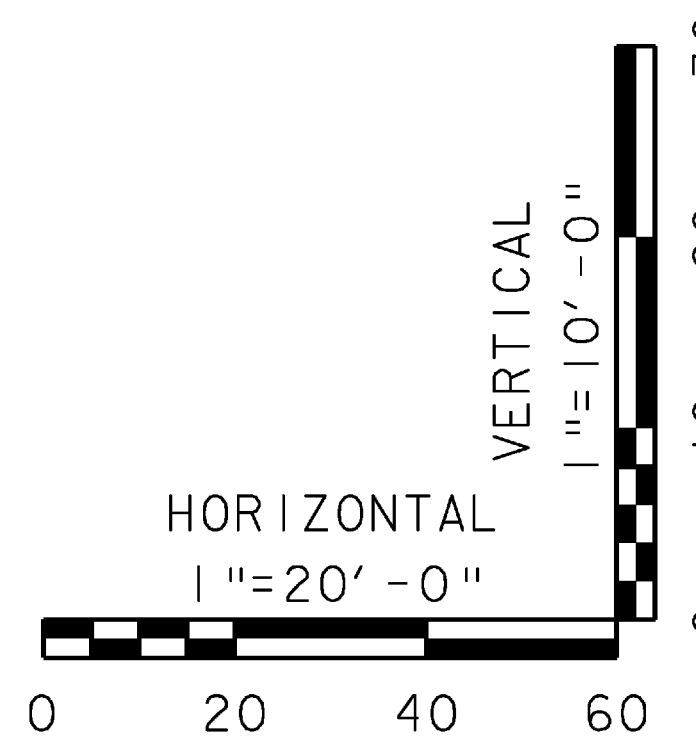


VT 103 MAINLINE

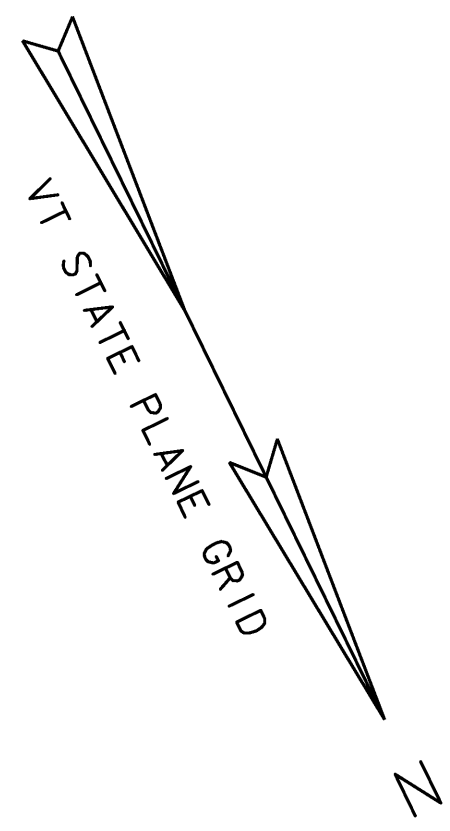
HOR. SCALE 1" = 20'-0"
 VER. SCALE 1" = 10'-0"

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

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

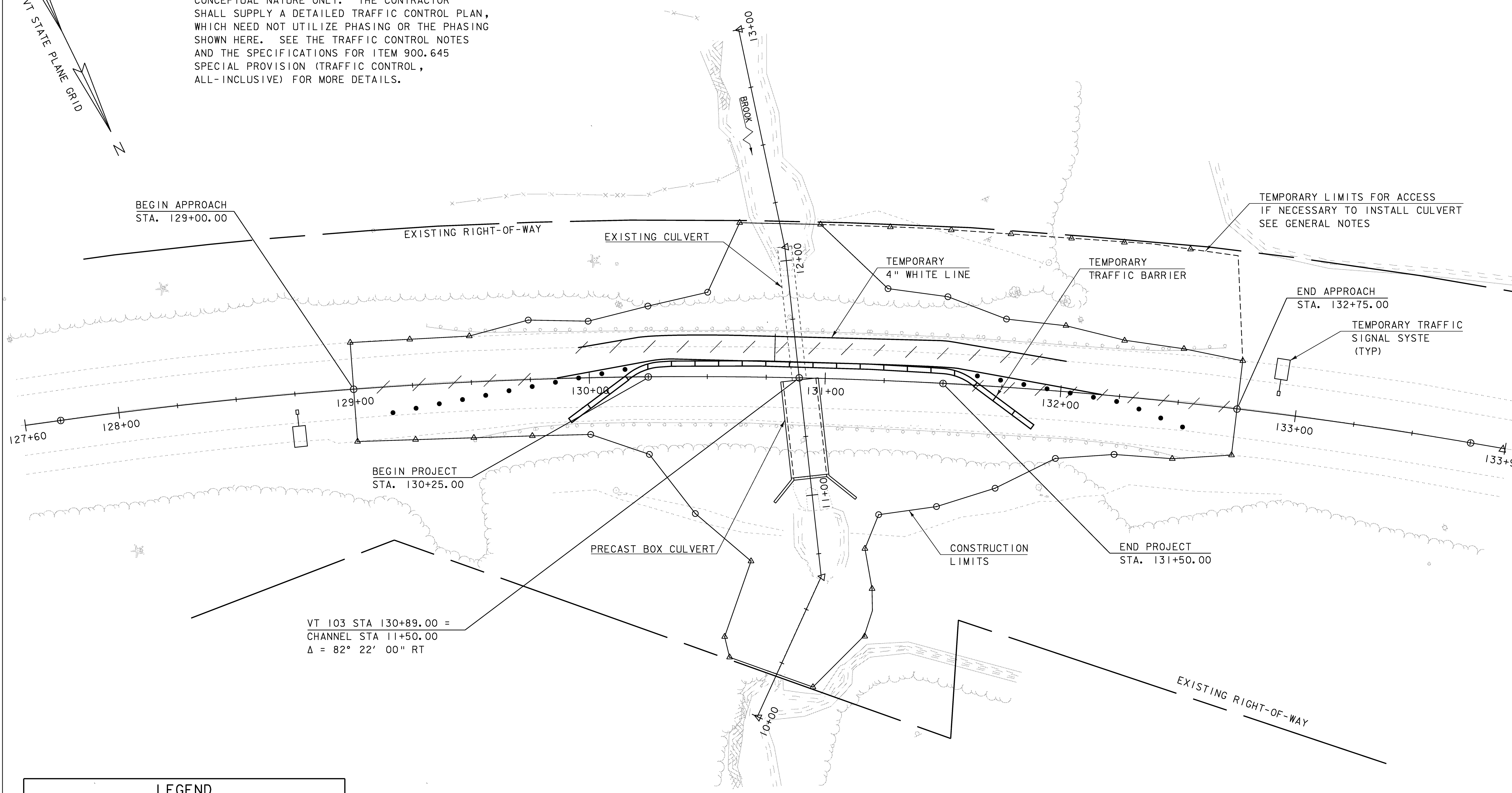


PROJECT: ROCK INGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064pro.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064pro.i	DESIGNED BY: J. SALVATORI
SQUAD LEADER: K. M. HIGGINS	DRAWN BY: M. FESSEL
MAINLINE PROFILE	CHECKED BY: J. SALVATORI
	SHEET: 9 OF 27



NOTE:

THE TRAFFIC CONTROL PHASING SHOWN IS OF A CONCEPTUAL NATURE ONLY. THE CONTRACTOR SHALL SUPPLY A DETAILED TRAFFIC CONTROL PLAN, WHICH NEED NOT UTILIZE PHASING OR THE PHASING SHOWN HERE. SEE THE TRAFFIC CONTROL NOTES AND THE SPECIFICATIONS FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) FOR MORE DETAILS.

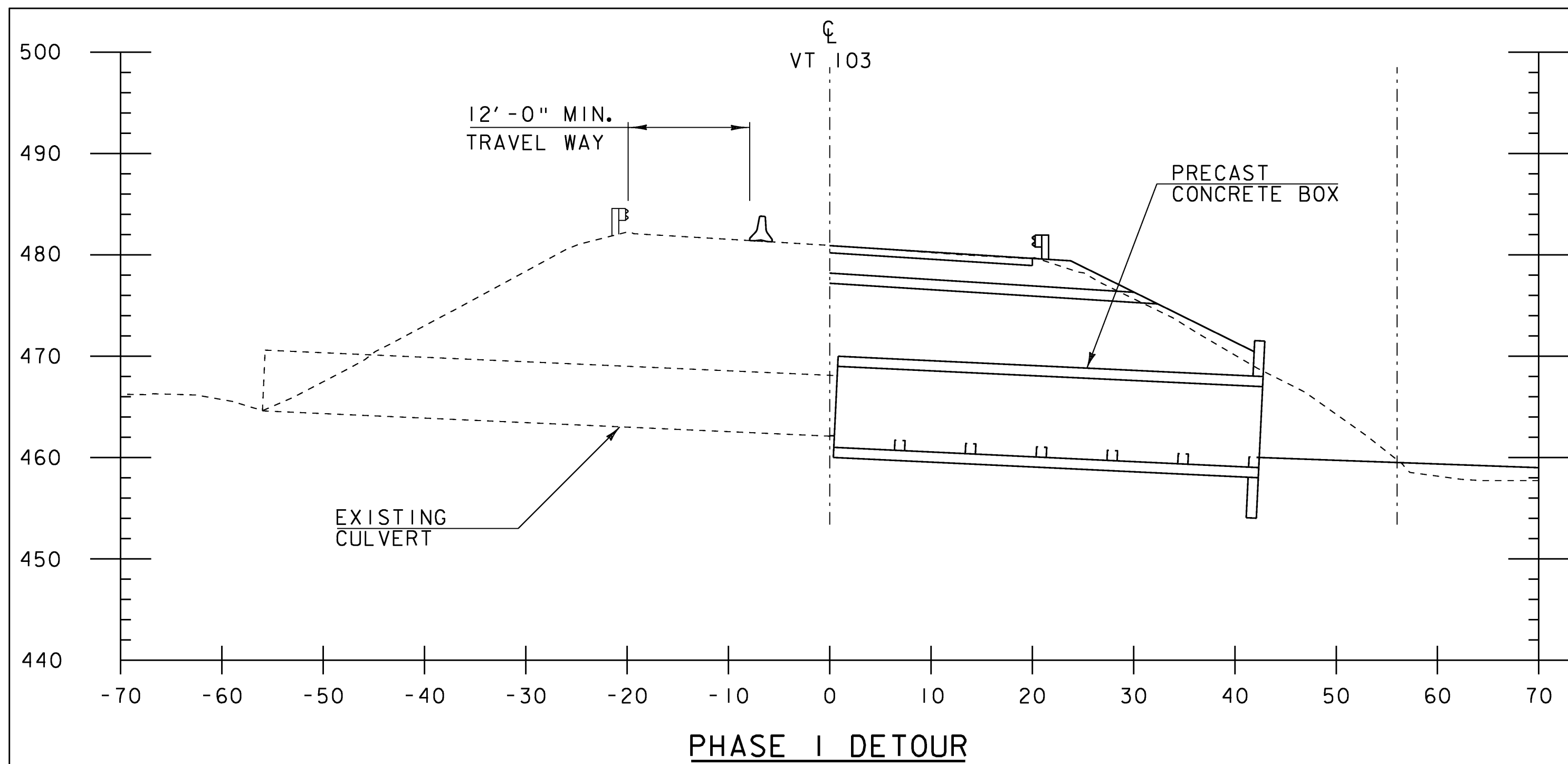


LEGEND	
	- REMOVAL OF EXISTING PAVEMENT MARKINGS
	- TEMP. TRAFFIC BARRIER
	- CHANNELIZING CONE

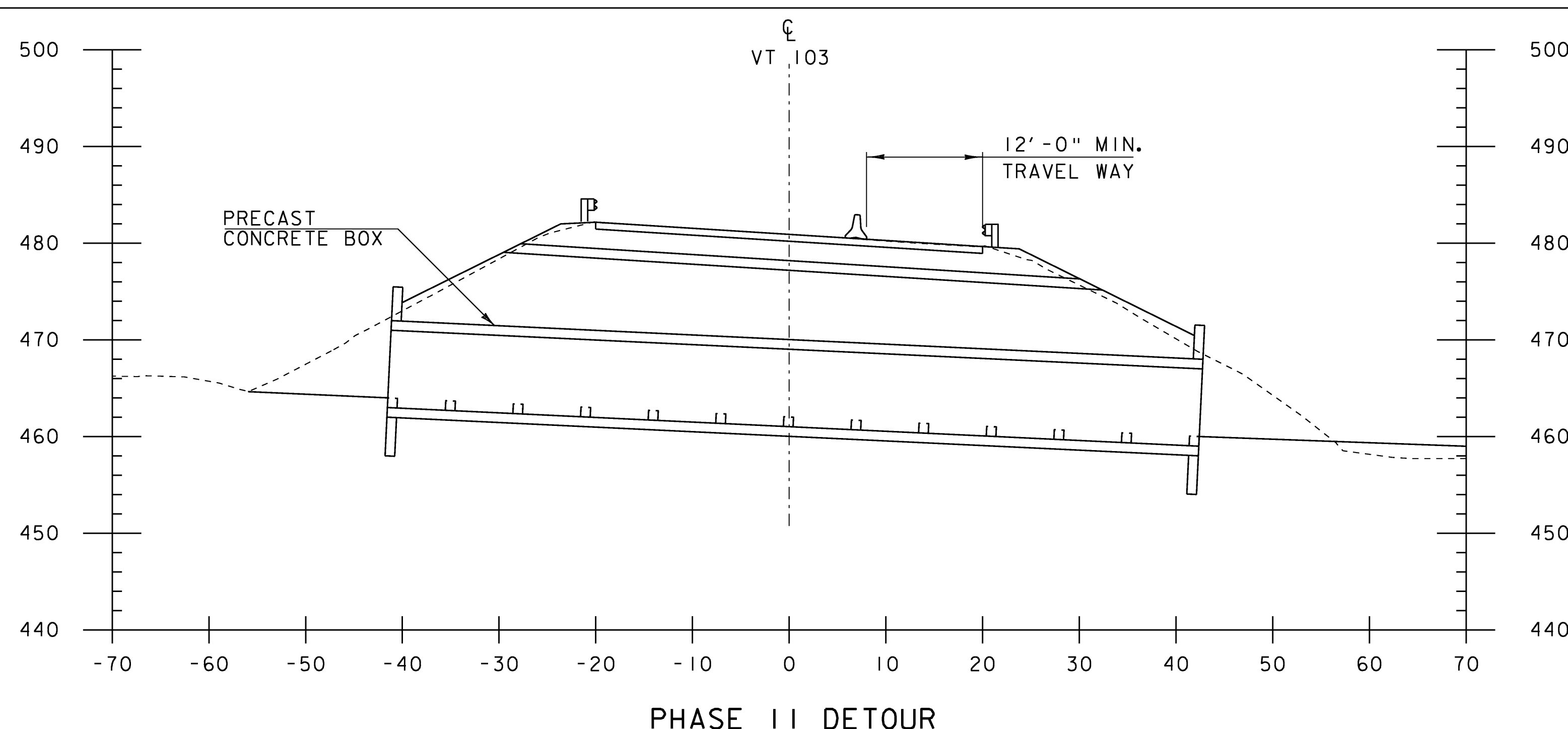
TRAFFIC CONTROL - PHASE I

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

PROJECT: ROCKINGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\structures\08b064a1\tp.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064tc.ph1.i	DRAWN BY: J. CUTLER
DESIGNED BY: J. CUTLER	CHECKED BY: J. SALVATORI
SQUAD LEADER: K.M.HIGGINS	SHEET: 10 OF 27
TRAFFIC CONTROL - PHASE I	



PHASE I DETOUR



PHASE II DETOUR

TRAFFIC PHASE DESCRIPTION:

PHASE 1: (SEE TRAFFIC CONTROL - PHASE I SHEET)

ALL TRAFFIC SHALL BE SHIFTED TO THE SOUTHBOUND SHOULDER AND TRAVEL WAY OF VT 103. A TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL ALTERNATE THE NORTH AND SOUTHBOUND TRAFFIC. DURING THIS PHASE THE DOWN STREAM END OF THE CULVERT WILL BE REMOVED AND REPLACED WITH A NEW PRECAST CONCRETE BOX.

PHASE 2:

ALL TRAFFIC SHALL BE SHIFTED TO THE NORTHBOUND SHOULDER AND TRAVEL WAY OF VT 103. A TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL ALTERNATE THE NORTH AND SOUTHBOUND TRAFFIC. AT THIS TIME THE UPSTREAM END OF THE CULVERT WILL BE REMOVED AND REPLACED WITH THE NEW PRECAST CONCRETE BOX. AFTER THE BOX IS FINISHED THE TRAFFIC IS TO BE RETURNED TO THE ORIGINAL ALIGNMENT AND THE SHOULDERS RESTORED.

TRAFFIC CONTROL NOTES:

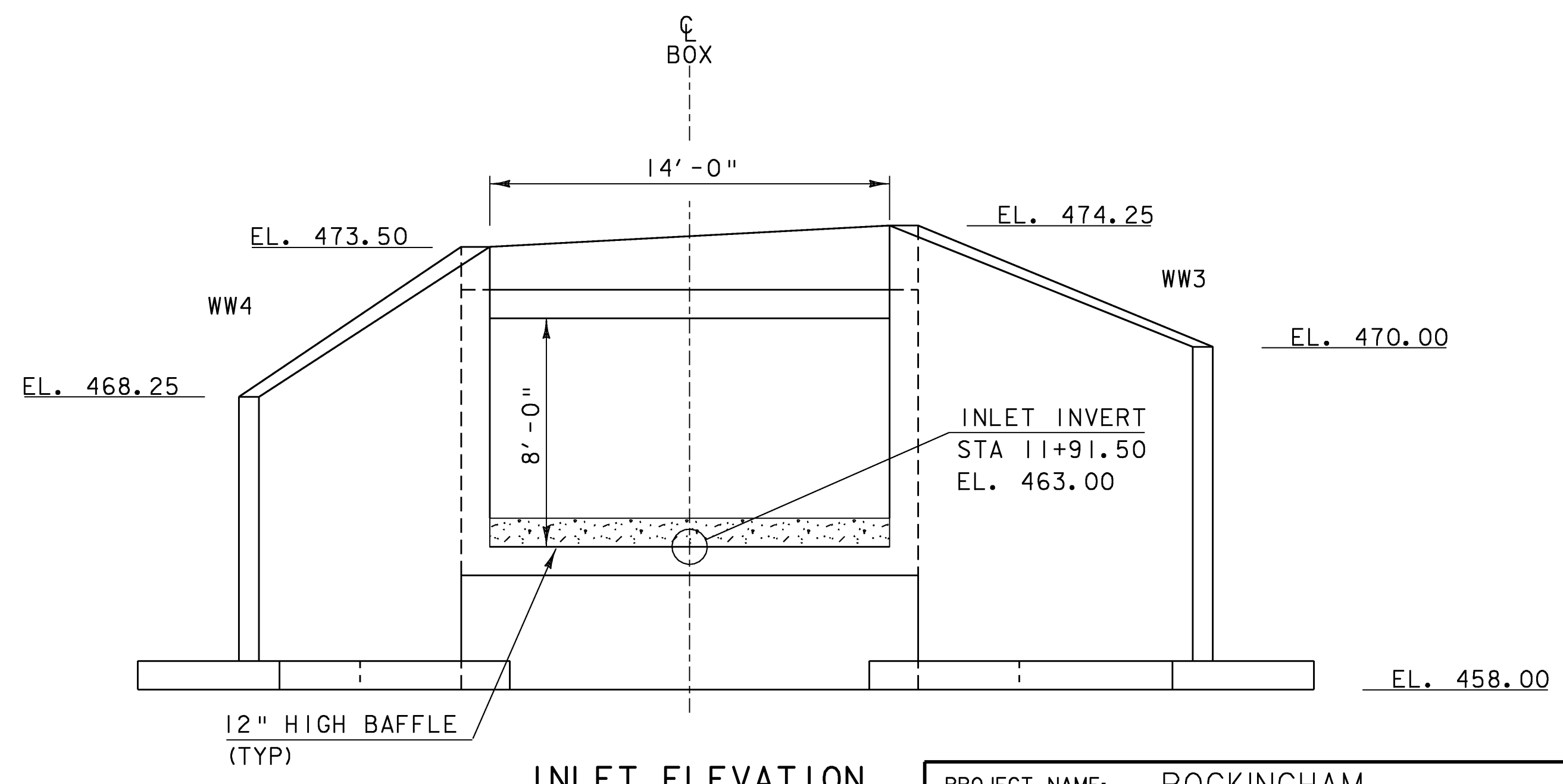
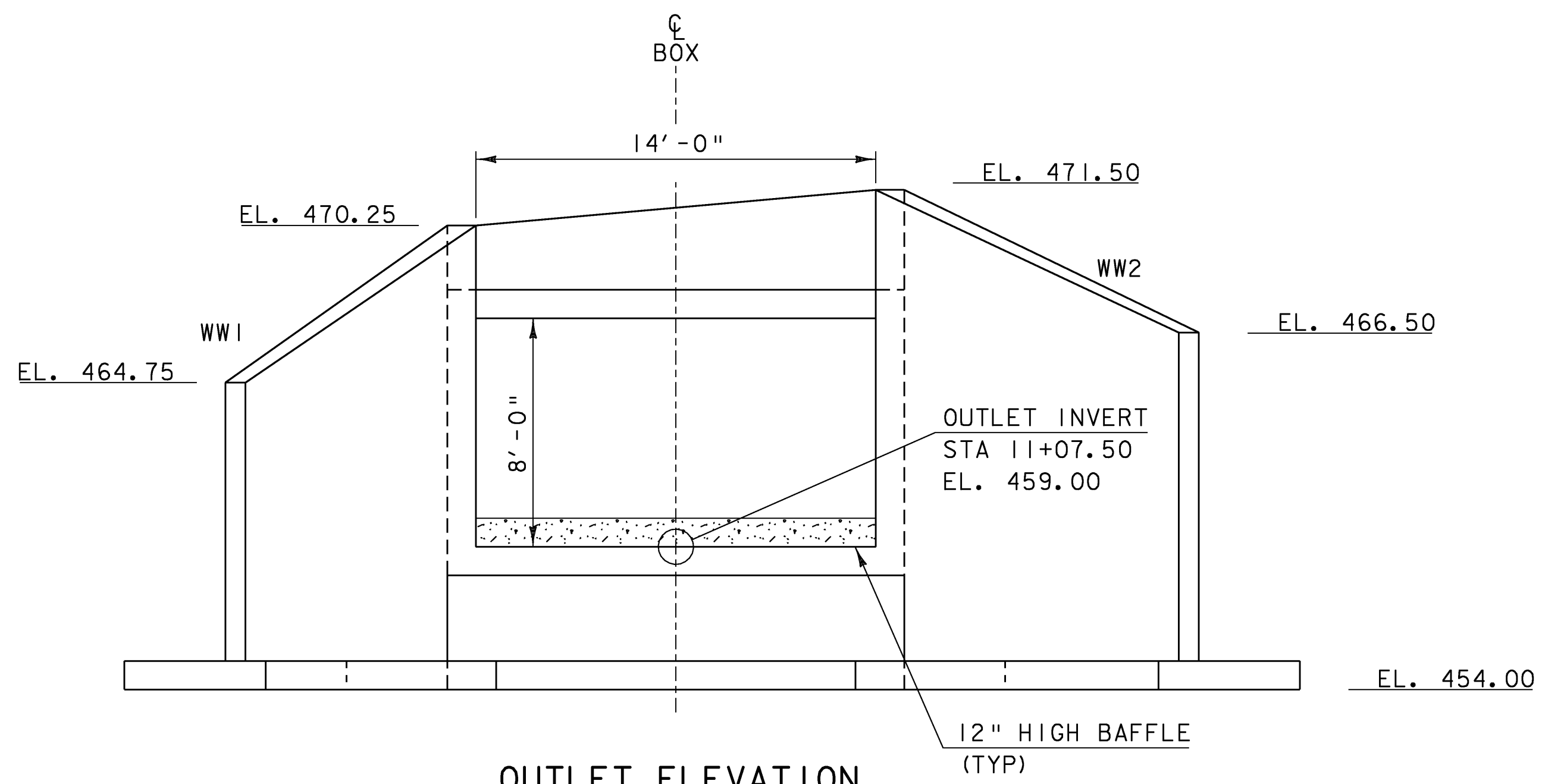
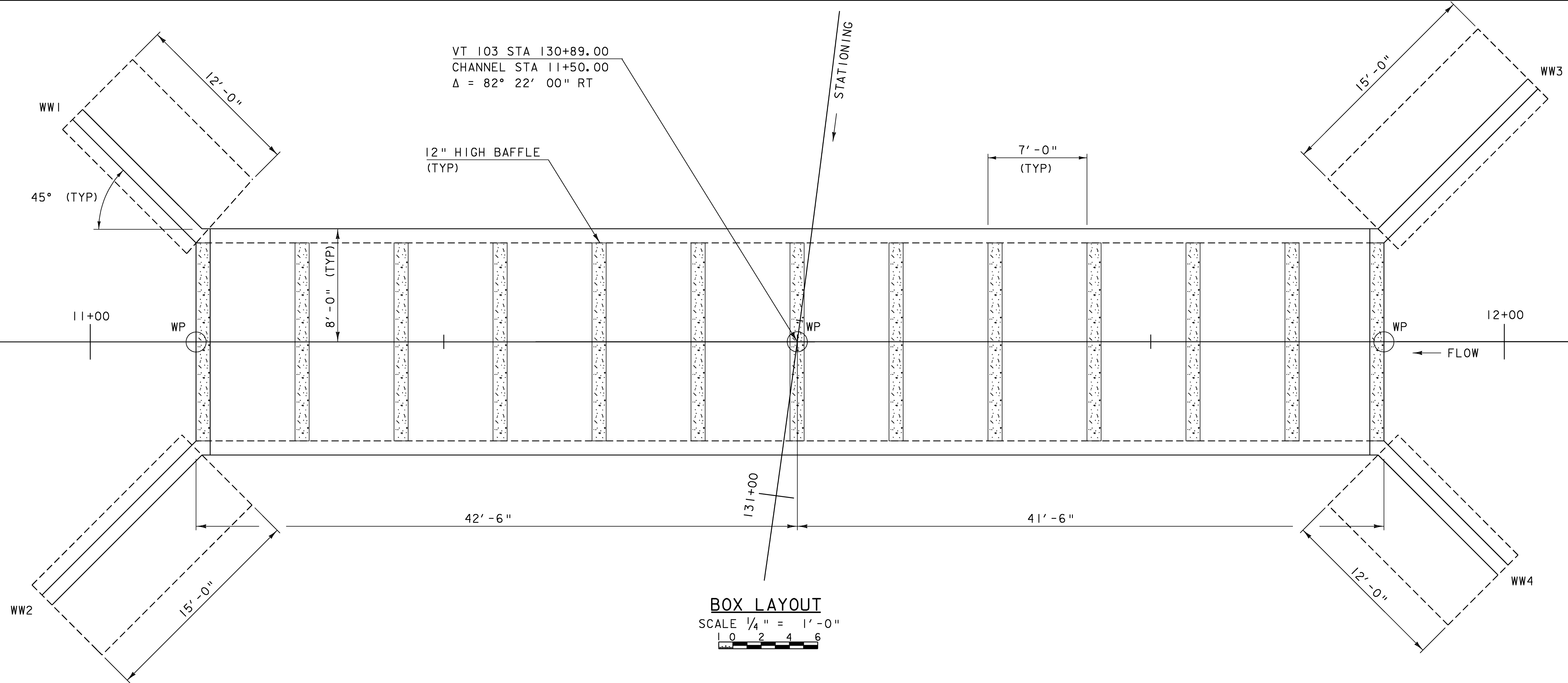
1. THE CONTRACTOR SHALL COORDINATE THE UNIT DELIVERY WITH PHASING REQUIREMENTS. ANY CONSTRUCTION CLEARANCES, COVER AND BACKFILL REQUIREMENTS SHALL BE PER MANUFACTURER'S SPECIFICATIONS.
2. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 204.25 "STRUCTURE EXCAVATION" AND SHALL MEET THE REQUIREMENTS OF SECTION 204.
3. ANY TEMPORARY MEANS OF SUPPORTING FILL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM REQUIRING THE TEMPORARY FILL. CONSTRUCTION DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH SUBSECTION 105.03

4. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION OR FILL SHALL NOT DAMAGE STRUCTURES THAT ARE TO BE LEFT IN PLACE. IF STRUCTURES THAT ARE TO BE LEFT IN PLACE ARE DAMAGED, THEY SHALL BE REPLACED, OR REPAIRED TO THE RESIDENT ENGINEER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
5. ALL TEMPORARY MEANS OF SUPPORTING EXCAVATION AND FILL SHALL BE ADEQUATELY SEPARATED FROM THE TRAVELING PUBLIC PER THE AASHTO ROADSIDE DESIGN GUIDE.
6. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION OR FILL SHALL BE PLACED TO AVOID OBSCURING SIGHT DISTANCE OF TRAFFIC ON VT RTE 103 AND TRAFFIC ENTERING OR EXITING VT RTE 103.
7. ANY EXCAVATION OR FILL NECESSARY TO MAINTAIN THE STREAM FLOW IN THE BROOK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).
8. EXCAVATION AND FILL SHALL BE PAID TO THE LIMITS SHOWN ON THE PLANS.
9. ANY TEMPORARY EXCAVATION AND FILL NECESSARY TO MAINTAIN TRAFFIC SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
10. ANY TEMPORARY TRAVELED WAY AND SHOULDERS UTILIZED TO MAINTAIN TRAFFIC DURING CONSTRUCTION SHALL BE PAVED WITH A MINIMUM OF 3" OF PAVEMENT AND MEET THE MATERIAL REQUIREMENTS OF SUBSECTION 528.04 (a).
11. AT LEAST ONE LANE OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
12. THE MINIMUM LANE WIDTH OF ANY TEMPORARY ROADWAY SHALL BE 10 FEET AND THE MINIMUM SHOULDER WIDTH SHALL BE 1 FOOT ON EACH SIDE FOR A TOTAL TRAVEL WIDTH OF 12 FEET.
13. NO ADDITIONAL ACCOMODATIONS NEED TO BE MADE FOR PEDESTRIAN AND BICYCLE TRAFFIC.

14. IF SIGNALS ARE INCLUDED IN THE TRAFFIC CONTROL PLAN, THE PROPOSED SIGNAL SEQUENCES SHALL BE INCLUDED IN THE SUBMITTAL. PER SUBSECTION 104.04 (b) THE MAXIMUM PERMISSIBLE QUEUE TIME FOR A SINGLE VEHICLE SHALL BE 10 MINUTES. IF THE QUEUE TIME EXCEEDS 10 MINUTES, THEN THE SIGNAL SEQUENCES SHALL BE MODIFIED TO RECTIFY THE SITUATION.
15. IF TWO WAY TRAFFIC IS NOT MAINTAINED, THEN PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PROVIDED. ONE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE LOCATED NEAR THE INTERSECTIONS OF ROUTES 11 AND 103. ONE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE PLACED ON THE NORTHBOUND LANE OF 91 PRIOR TO EXIT 5. ONE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE PLACED ON THE SOUTHBOUND LANE OF 91 PRIOR TO EXIT 7. EXACT LOCATIONS TO BE APPROVED BY THE ENGINEER.
16. A LANDSCAPE PLAN SHALL ACCOMPANY THE TRAFFIC CONTROL SUBMITTAL IF VEGETATION 10 FEET OUTSIDE THE CONSTRUCTION LIMITS SHOWN ON THE PLANS IS DISTURBED IN ORDER TO MAINTAIN TRAFFIC. THIS PLAN AND ANY REQUIRED VEGETATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
17. ANY TEMPORARY EXCAVATIONS AND FILLS NECESSARY TO MAINTAIN TRAFFIC OUTSIDE THE CONSTRUCTION LIMITS SHOWN ON THE PLANS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. THIS RESTORATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

SCALE 1" = 10'-0"

PROJECT: ROCK INGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064a1.tph.dgn	PLOT DATE: 22-APR-2009
IPARM FILE NAME: s08b064tc.typ.i	DRAWN BY: J. CUTLER
DESIGNED BY: J. CUTLER	CHECKED BY: J. SALVATORI
SQUAD LEADER: K.M.HIGGINS	SHEET: 11 OF 27
TRAFFIC CONTROL - TYP. SECTIONS	



DIMENSIONS SHOWN ARE BASED ON AN ASSUMED WALL THICKNESS OF 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	NH CULV(15)
FILE NAME:	08b064box.dgn
PROJECT LEADER:	K. HIGGINS
DESIGNED BY:	J. SALVATORI
BOX LAYOUT SHEET	
PLOT DATE:	16-APR-2009
DRAWN BY:	J. SALVATORI
CHECKED BY:	K. HIGGINS
SHEET 12	OF 27

EPSC NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE REMOVAL OF AN EXISTING CGMP CULVERT AND REPLACING IT WITH A NEW REINFORCED CONCRETE BOX CULVERT.

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

THE TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.68 ACRES.

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

1.2 SITE INVENTORY

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

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

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

THIS PROJECT IS LOCATED ALONG VERMONT ROUTE 103 AND AN UNNAMED BROOK.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE AREA IS RELATIVELY FLAT, WITH STEEP SLOPES OCCURRING ONLY AT VERMONT ROUTE 103 SIDE SLOPES.

1.2.4 VEGETATION

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

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

1.2.5 SOILS

A DESCRIPTION OF THE SOIL TYPES EXPECTED TO BE ENCOUNTERED IN THE PROJECT AREA ARE INCLUDED IN THE PROJECT PLAN SHEETS, ENTITLED "EPSC EXISTING CONDITIONS."

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

3E - QUONSET & WARWICK SOILS, 25-70% SLOPES, "K FACTOR" = 0.17

5B - WINDSOR LOAMY FINE SAND, 2-8% SLOPES, "K FACTOR" = 0.17

20C - TUNBRIDGE-LYMAN FINE SANDY LOAM, 8-15% SLOPES, "K FACTOR" = 0.20

25B - WESTBURY FINE SANDY LOAM, 3-8% SLOPES, "K FACTOR" = 0.24

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

1.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: YES
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VAHR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

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

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

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

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

1.4.1 MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION. PDF SHALL BE INSTALLED WHERE NECESSARY AND AT A MAXIMUM DISTANCE OF TEN FEET FROM THE CUT/FILL LIMITS

1.4.2 LIMIT DISTURBANCE AREA

IT IS RECOMMENDED TO EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

1.4.3 STABILIZE CONSTRUCTION EXIT

STABILIZED CONSTRUCTION ENTRANCES SHALL BE UTILIZED AS NECESSARY.

1.4.4 INSTALL SILT FENCE

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY SLOPE WORK AS NECESSARY.

1.4.5 DIVERT UPLAND RUNOFF

N/A

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK DAMS SHALL BE UTILIZED AS NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS

STONE FILL TYPE IV SHALL BE USED TO STABILIZE PROPOSED SLOPES.

1.4.8 STABILIZE EXPOSED SOILS

SEED AND MULCH
EROSION MATTING

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

1.4.9 WINTER STABILIZATION

N/A

1.4.10 STABILIZE SOIL AT FINAL GRADE

SEED AND MULCH
EROSION MATTING

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

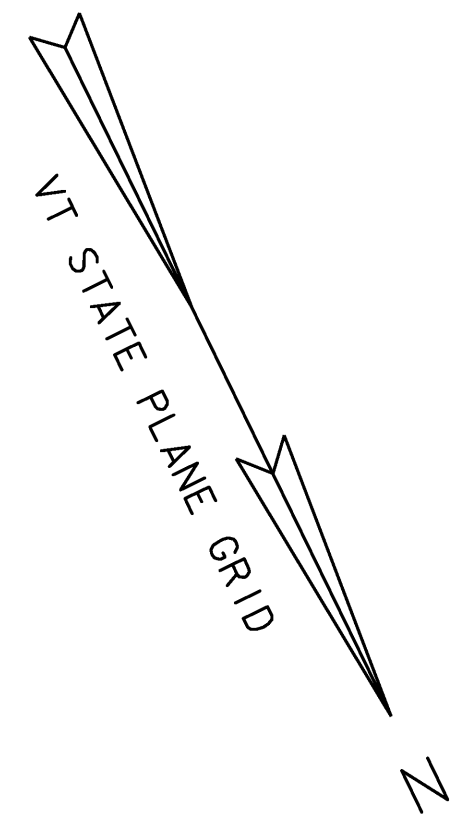
1.4.11 DE-WATERING ACTIVITIES

A DIVERSION PIPE SHALL BE USED TO TEMPORARILLY RELOCATE THE STREAM

1.4.12 INSPECT YOUR SITE

INSPECT SITE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

PROJECT: ROCK INGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064epsc_nar.k	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064epsc_nar.i	DESIGNED BY: J. SALVATORI
	DRAWN BY: M. FESSEL
	SQUAD LEADER: K. M. HIGGINS
	CHECKED BY: J. SALVATORI
EPSC NARRATIVE	SHEET: 14 OF 27



25B WESTBURY FINE SANDY LOAM
3 - 8% SLOPE
"K FACTOR" = 0.24

3E QUONSET & WARWICK SOILS
25 - 70% SLOPE
"K FACTOR" = 0.17

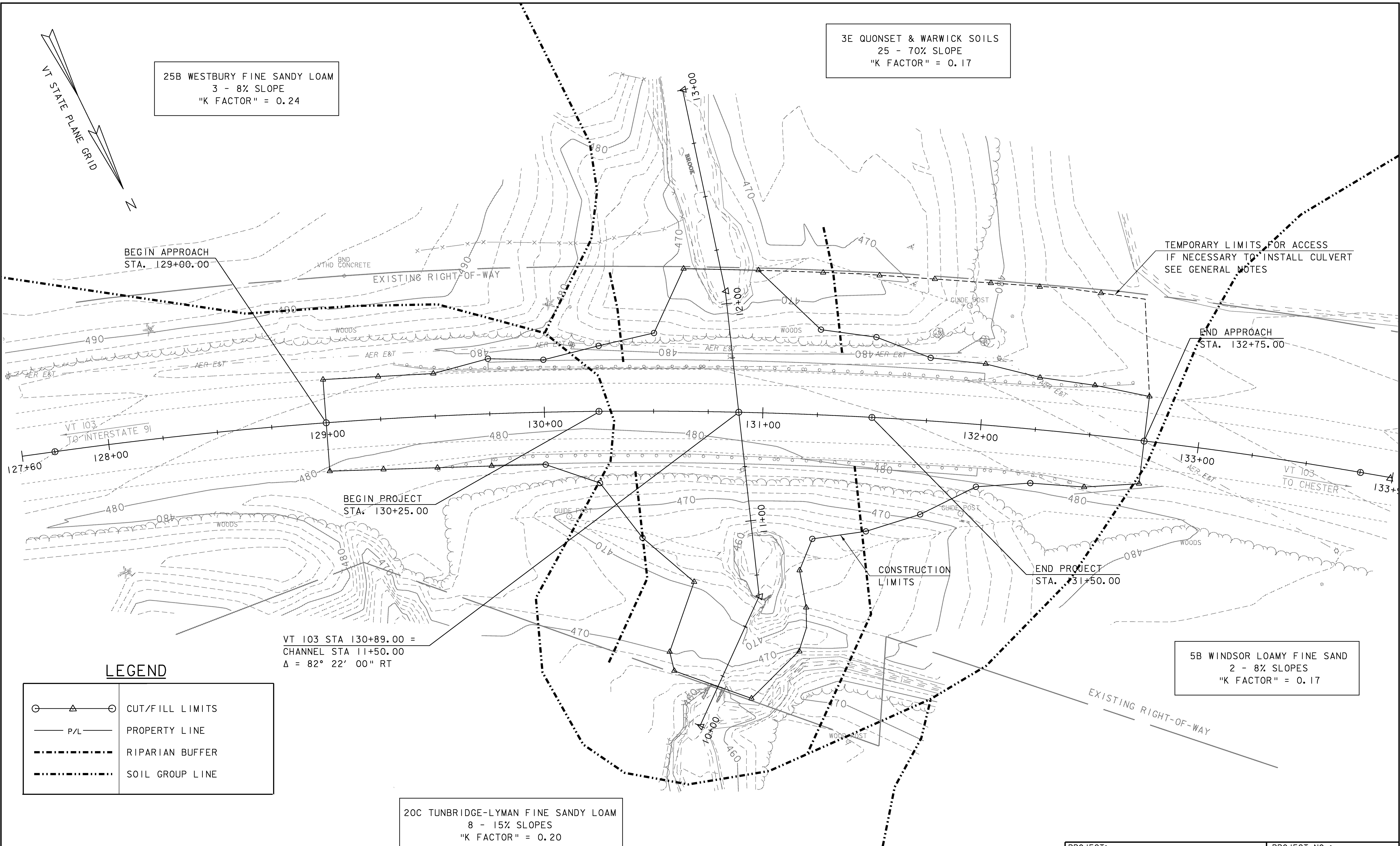
5B WINDSOR LOAMY FINE SAND
2 - 8% SLOPES
"K FACTOR" = 0.17

20C TUNBRIDGE-LYMAN FINE SANDY LOAM
8 - 15% SLOPES
"K FACTOR" = 0.20

LEGEND

	CUT/FILL LIMITS
	PROPERTY LINE
	RIPARIAN BUFFER
	SOIL GROUP LINE

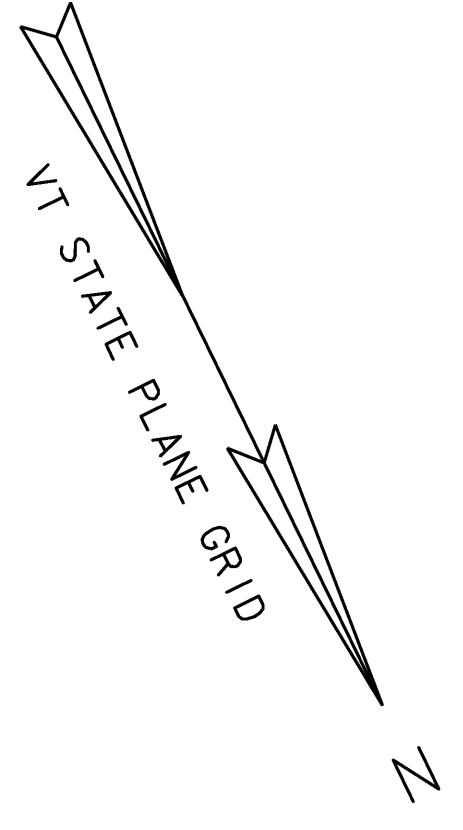
VT 103 STA 130+89.00 =
CHANNEL STA 11+50.00
Δ = 82° 22' 00" RT



EPSC EXISTING CONDITIONS SITE PLANS

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

PROJECT: ROCKINGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064epsc_ex.c	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064epsc_ex.i	DRAWN BY: M.FESSEL
DESIGNED BY: J.SALVATORI	CHECKED BY: J.SALVATORI
SQUAD LEADER: K.M.HIGGINS	
EPSC EXISTING CONDITIONS SITE PLAN	SHEET: 15 OF 27

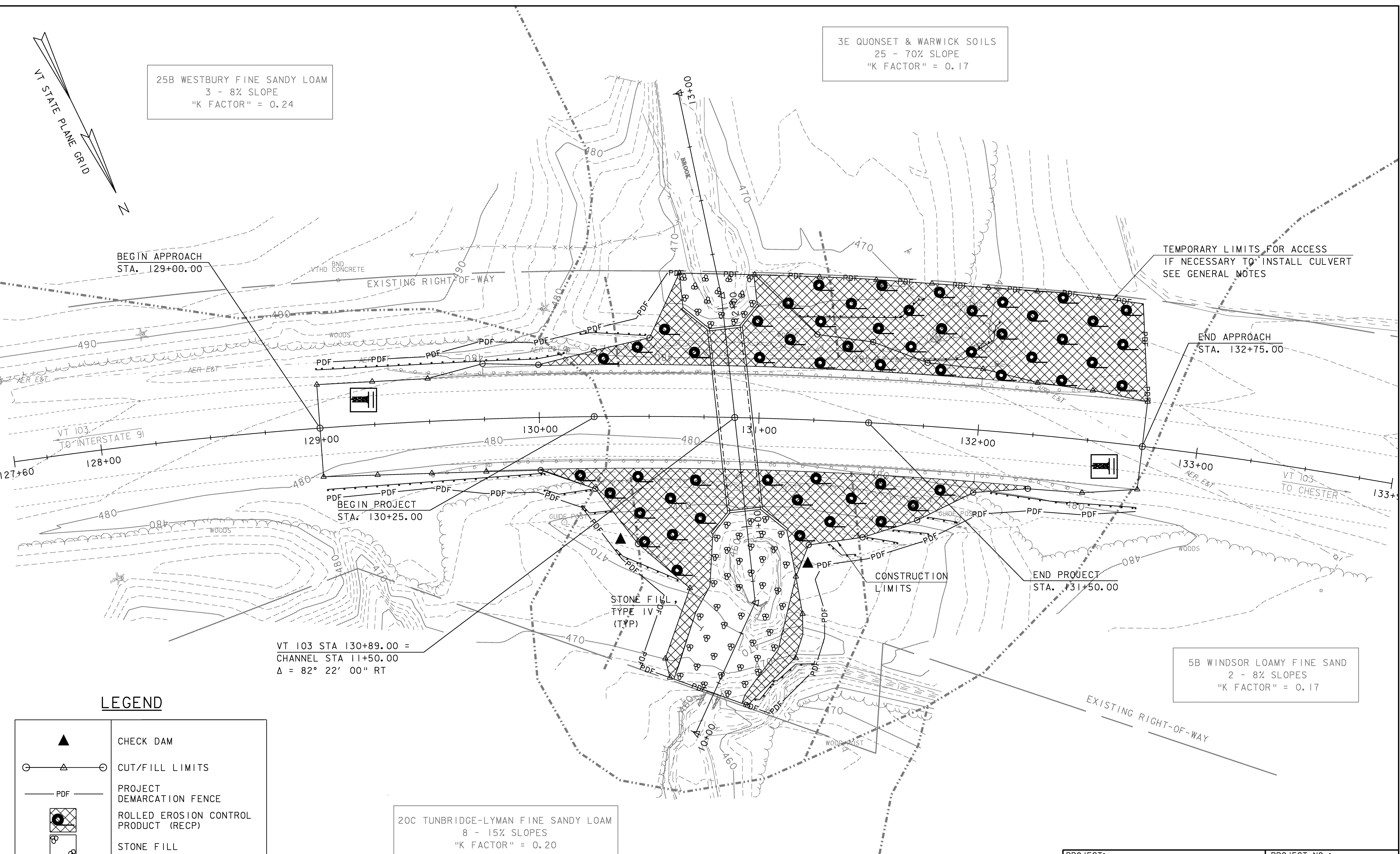


25B WESTBURY FINE SANDY LOAM
3 - 8% SLOPE
"K FACTOR" = 0.24

3E QUONSET & WARWICK SOILS
25 - 70% SLOPE
"K FACTOR" = 0.17

5B WINDSOR LOAMY FINE SAND
2 - 8% SLOPES
"K FACTOR" = 0.17

20C TUNBRIDGE-LYMAN FINE SANDY LOAM
8 - 15% SLOPES
"K FACTOR" = 0.20



TEMPORARY LIMITS FOR ACCESS
IF NECESSARY TO INSTALL CULVERT
SEE GENERAL NOTES

VT 103 STA 130+89.00 =
CHANNEL STA 11+50.00
 $\Delta = 82^\circ 22' 00''$ RT

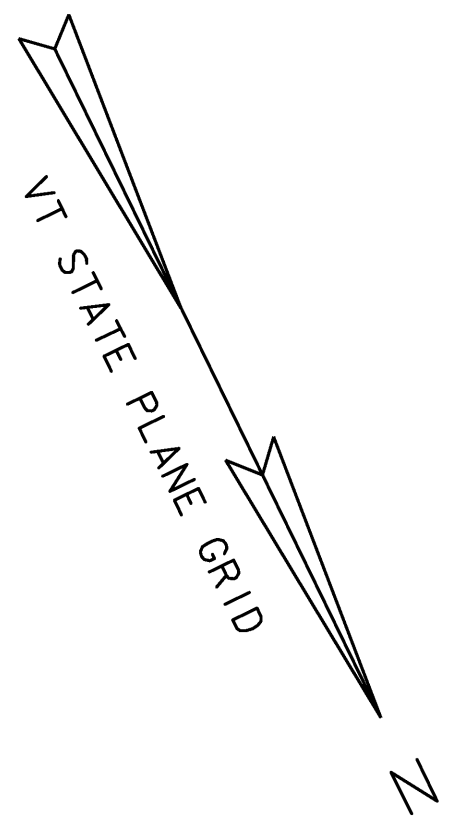
LEGEND

	CHECK DAM
	CUT/FILL LIMITS
	PROJECT DEMARCATION FENCE
	ROLLED EROSION CONTROL PRODUCT (RECP)
	STONE FILL
	SILT FENCE
	STABILIZED CONSTRUCTION ENTRANCE

EPSC CONSTRUCTION SITE PLAN

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

PROJECT: ROCKINGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064epsc_ex.c	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064epsc_dur.i	DESIGNED BY: J. SALVATORI
SQUAD LEADER: K. M. HIGGINS	DRAWN BY: M. FESSEL
EPSC CONSTRUCTION SITE PLAN	CHECKED BY: J. SALVATORI
	SHEET: 16 OF 27



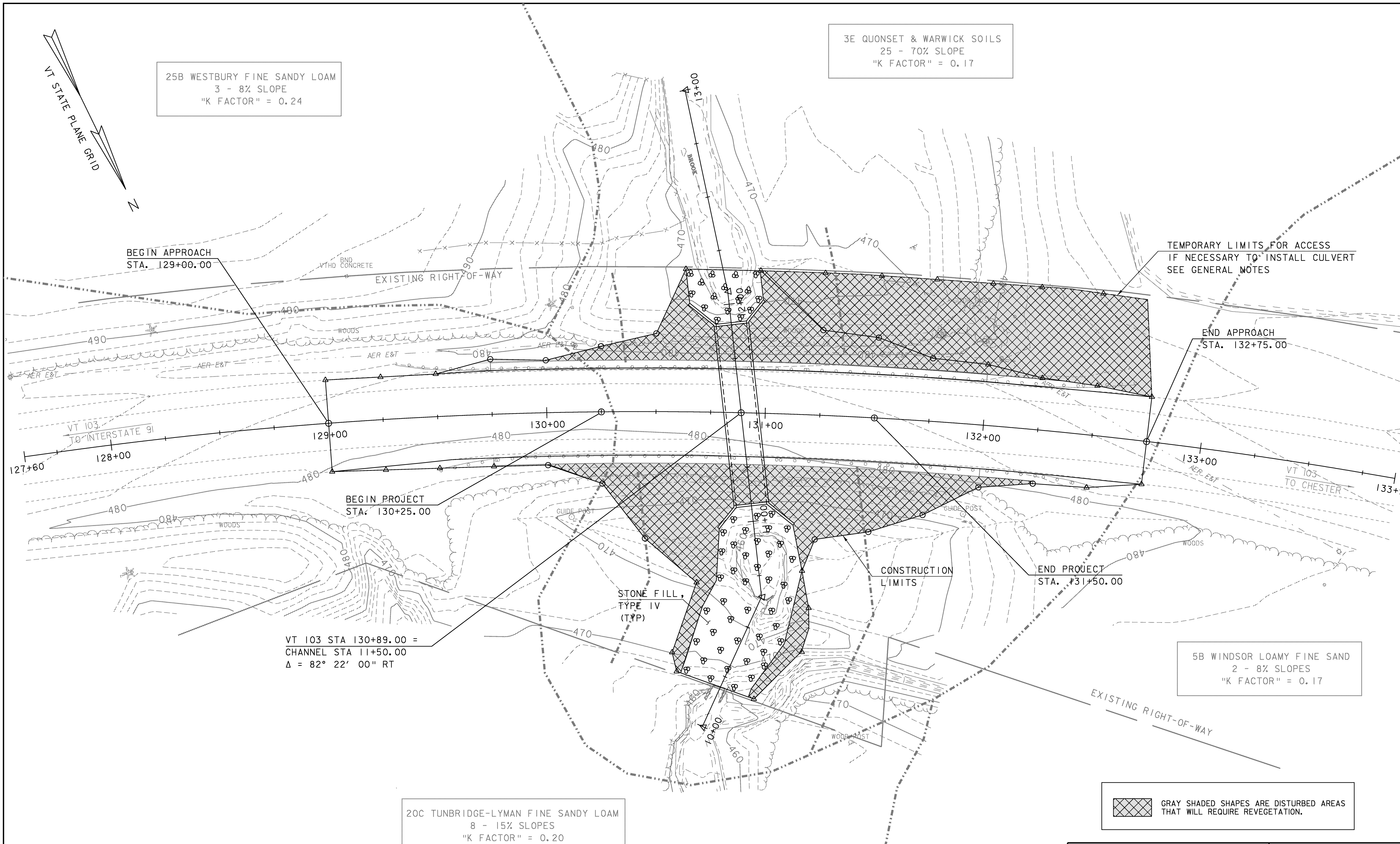
25B WESTBURY FINE SANDY LOAM
3 - 8% SLOPE
"K FACTOR" = 0.24

3E QUONSET & WARWICK SOILS
25 - 70% SLOPE
"K FACTOR" = 0.17

5B WINDSOR LOAMY FINE SAND
2 - 8% SLOPES
"K FACTOR" = 0.17

20C TUNBRIDGE-LYMAN FINE SANDY LOAM
8 - 15% SLOPES
"K FACTOR" = 0.20

GRAY SHADED SHAPES ARE DISTURBED AREAS
THAT WILL REQUIRE REVEGETATION.

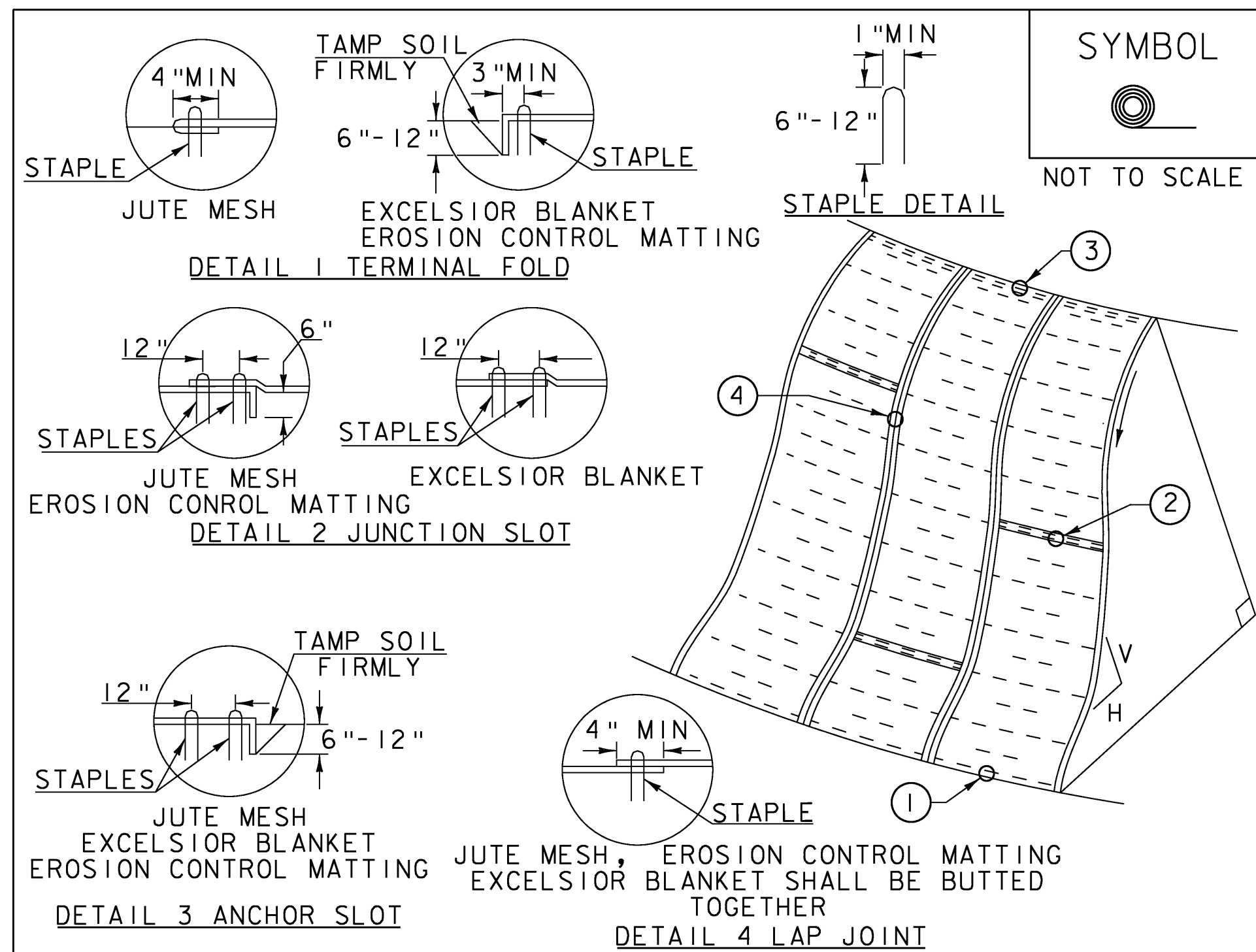


VT 103 STA 130+89.00 =
CHANNEL STA 11+50.00
 $\Delta = 82^\circ 22' 00''$ RT

EPSC FINAL CONDITIONS SITE PLAN

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

PROJECT: ROCKINGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\structures\08b064epsc_ex.c	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064epsc_ex.i	DRAWN BY: M.FESSEL
DESIGNED BY: J.SALVATORI	CHECKED BY: J.SALVATORI
SQUAD LEADER: K.M.HIGGINS	SHEET: 17 OF 27
EPSC FINAL CONDITIONS SITE PLAN	



CONSTRUCTION SPECIFICATIONS

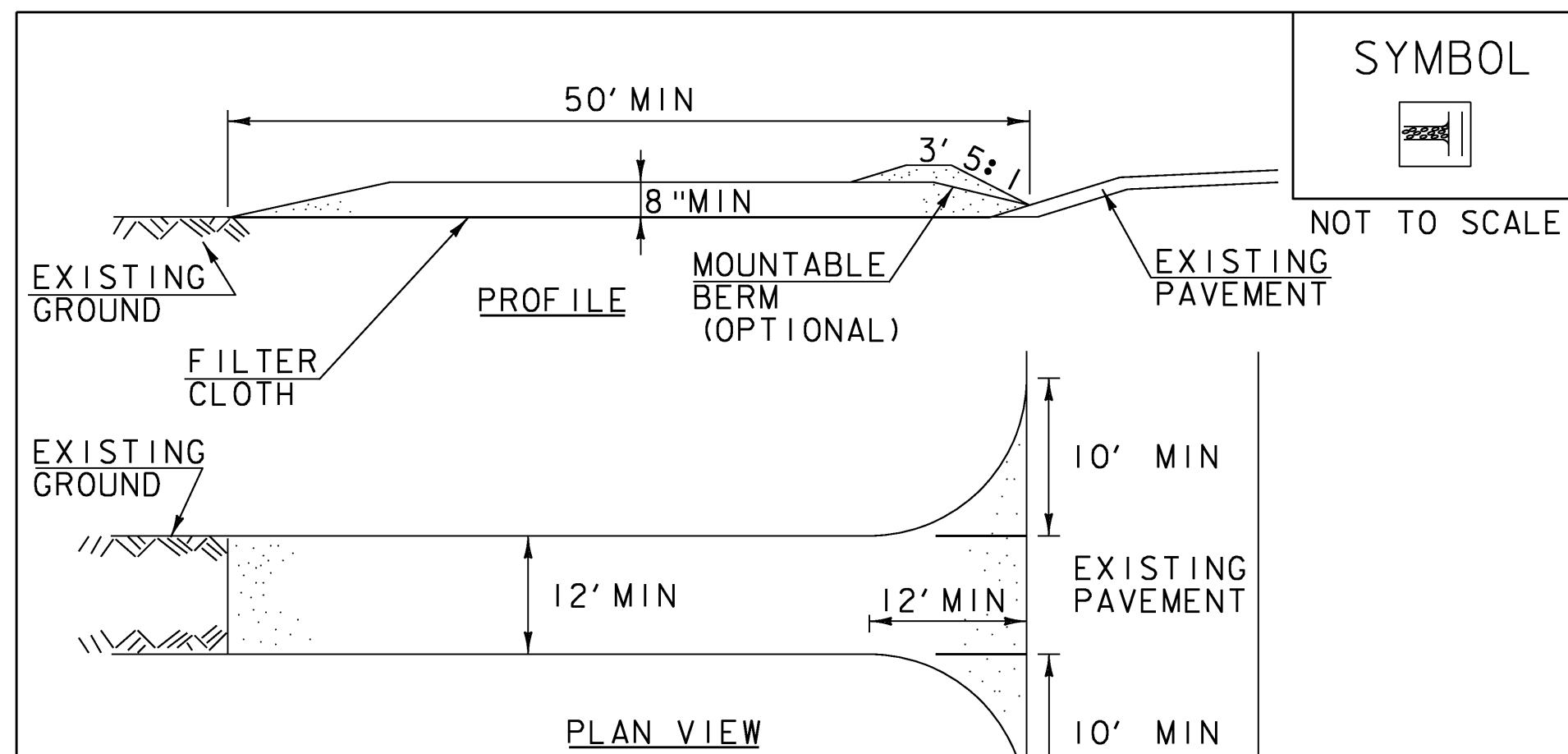
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS		
APRIL 16, 2007	JMF	
JANUARY 13, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

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

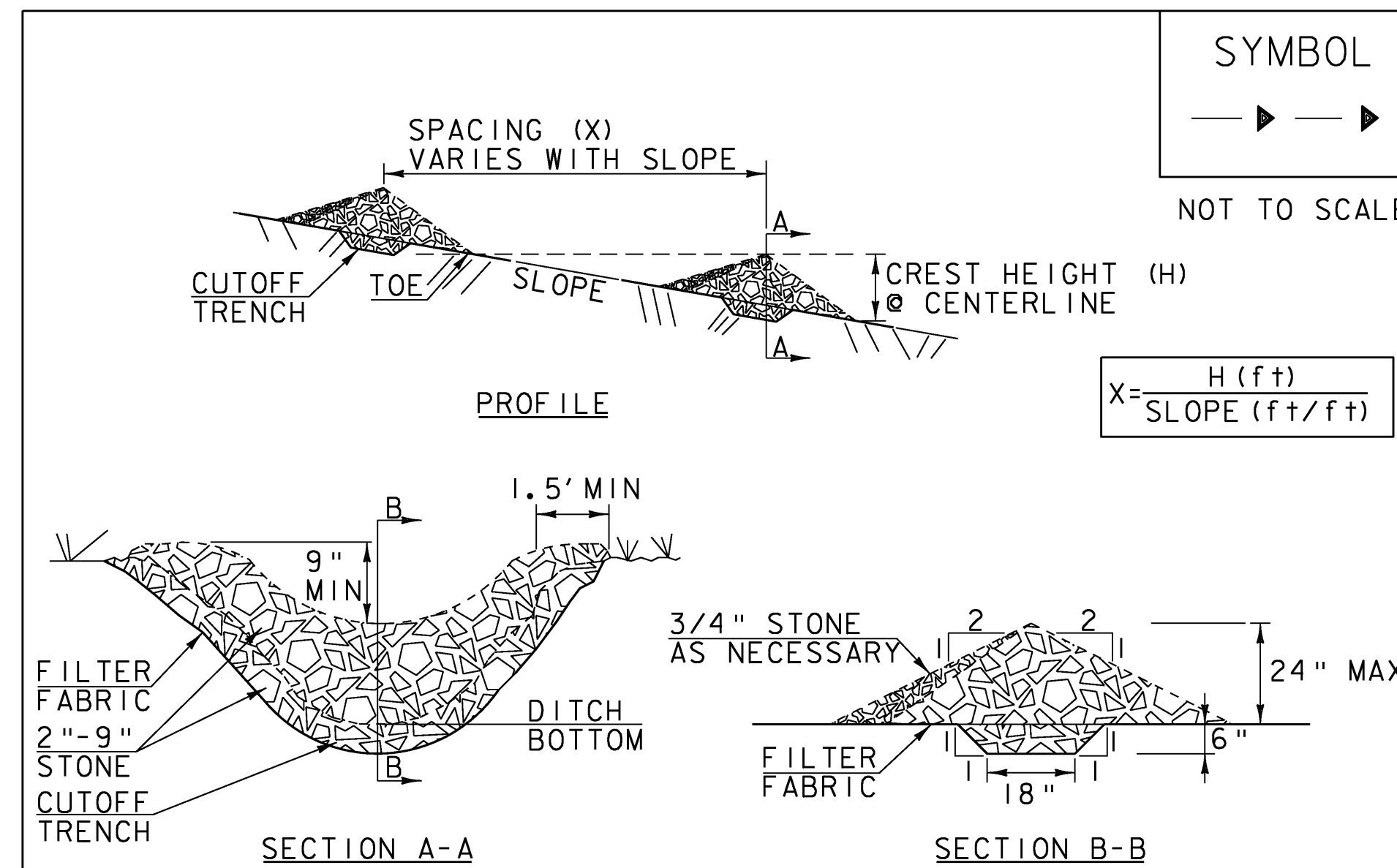
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

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

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

REVISIONS		
MARCH 24, 2008	WHF	
JANUARY 13, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

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

CHECK DAM

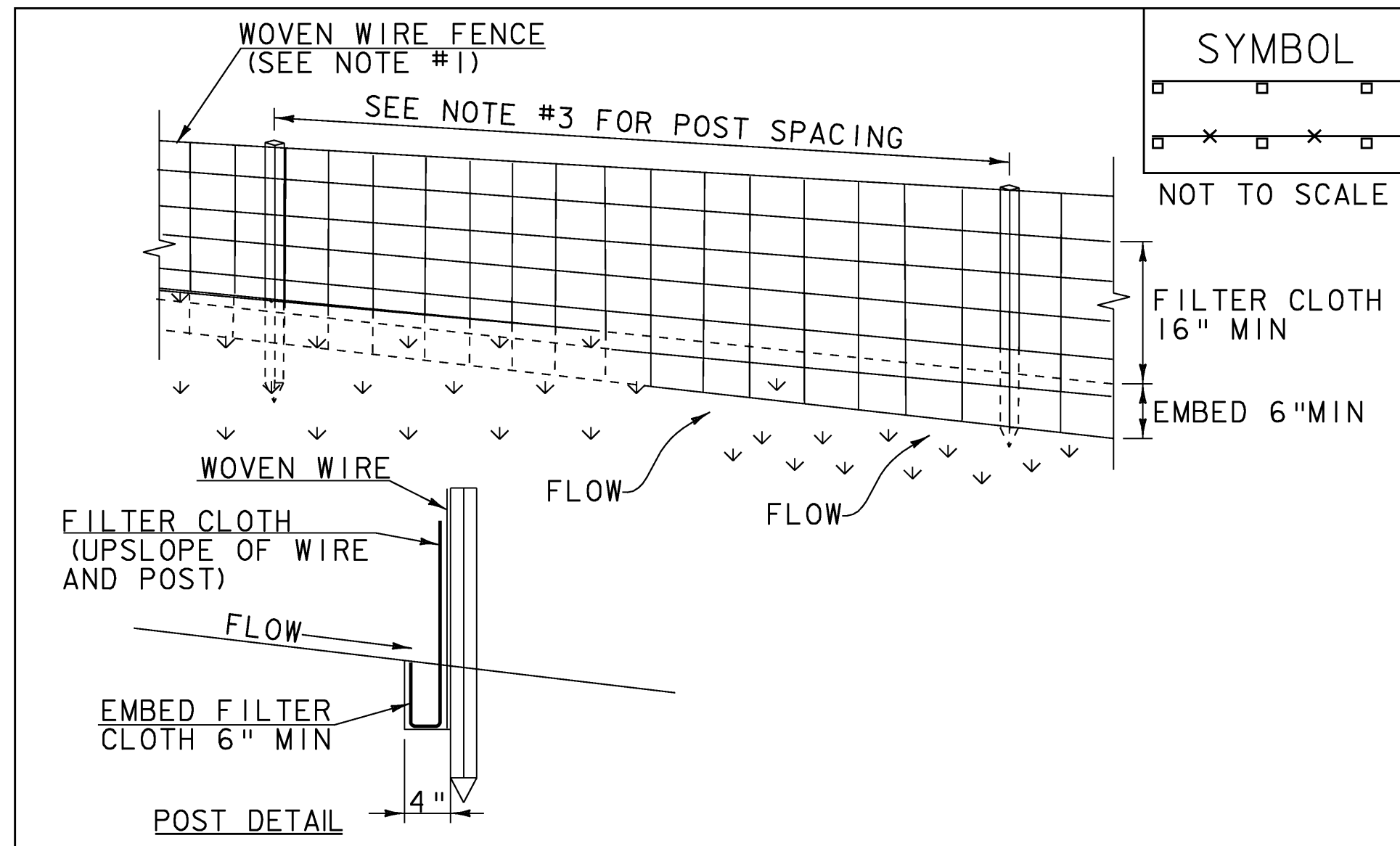
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE 1 (PAY ITEM 653.25)

REVISIONS		
MARCH 21, 2008	WHF	
JANUARY 8, 2009	WHF	

NOTE:
ITEM 653.30 PREFABRICATED CHECK DAM MAY BE USED IN PLACE OF ITEM 653.25 TEMPORARY STONE CHECK DAM, TYPE 1.

PROJECT: ROCK INGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064epsc.det.	
IPARM FILE NAME: s08b064epsc.det.i	
DESIGNED BY: J. SALVATORI	PLLOT DATE: 22-APR-2009
SQUAD LEADER: K.M. HIGGINS	DRAWN BY: M. FESSEL
EPSC DETAILS (1)	CHECKED BY: J. SALVATORI
	SHEET: 18 OF 27



SYMBOL
 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

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

SILT FENCE

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

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

SEEDING FORMULA (RURAL AREAS)

% WT.	LBS. /A.	NAME	PUR %	GERM %
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYE GRASS	95	85
100.0	60.0			

SEEDING GENERAL NOTES

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

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

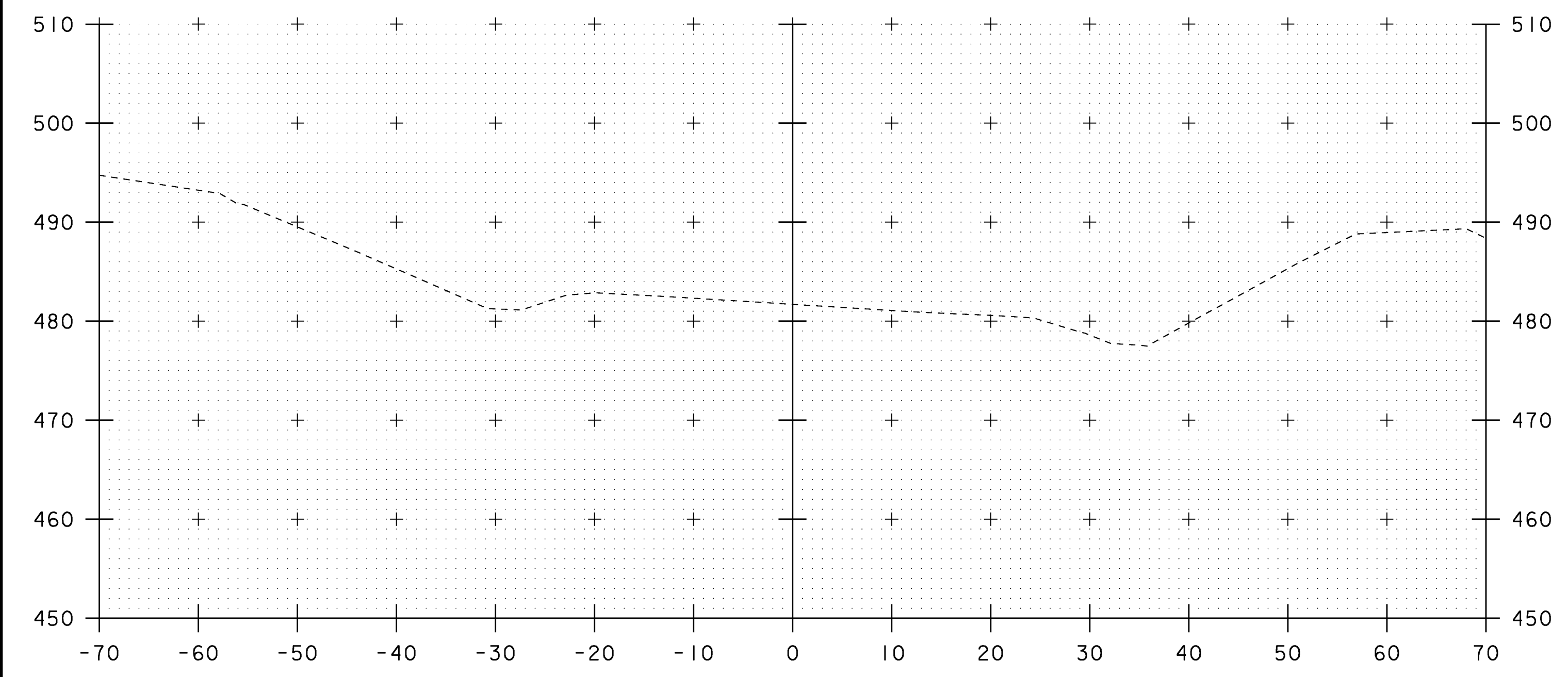
FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS/ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

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

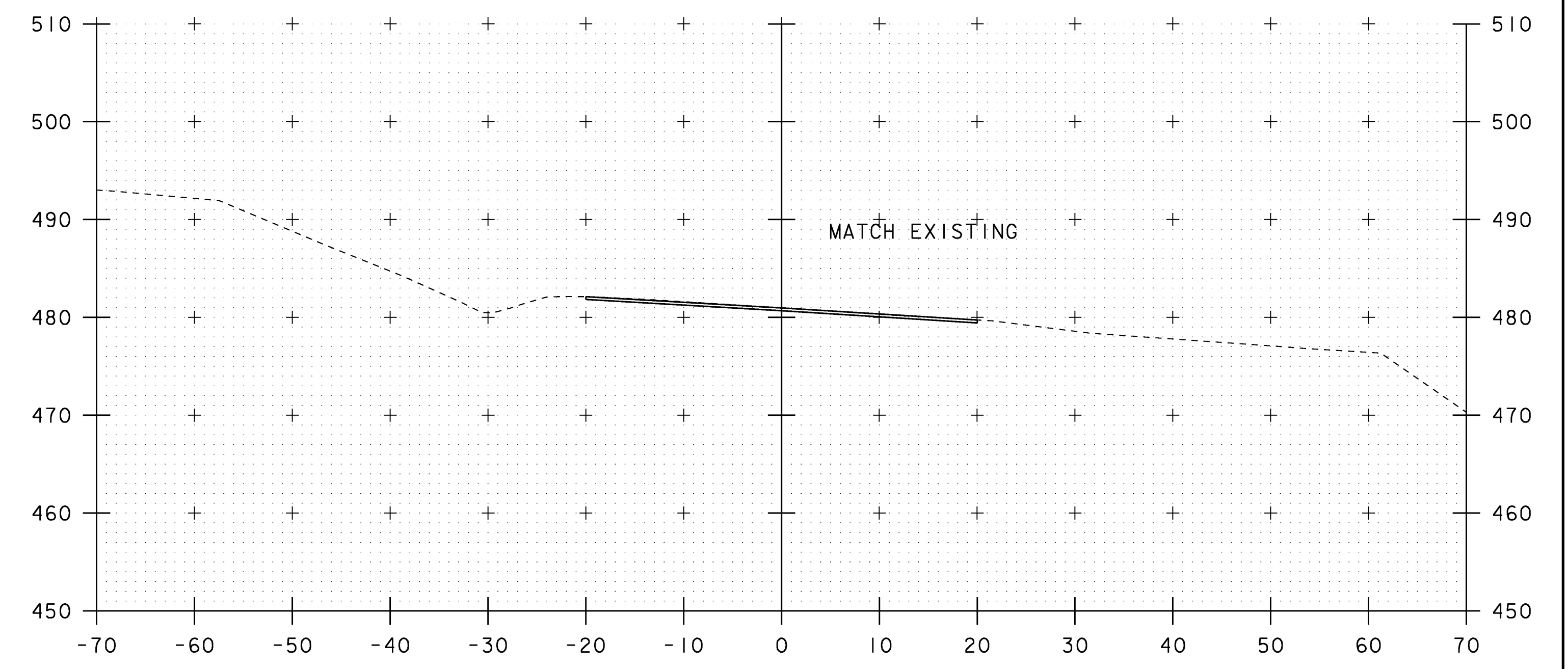
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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

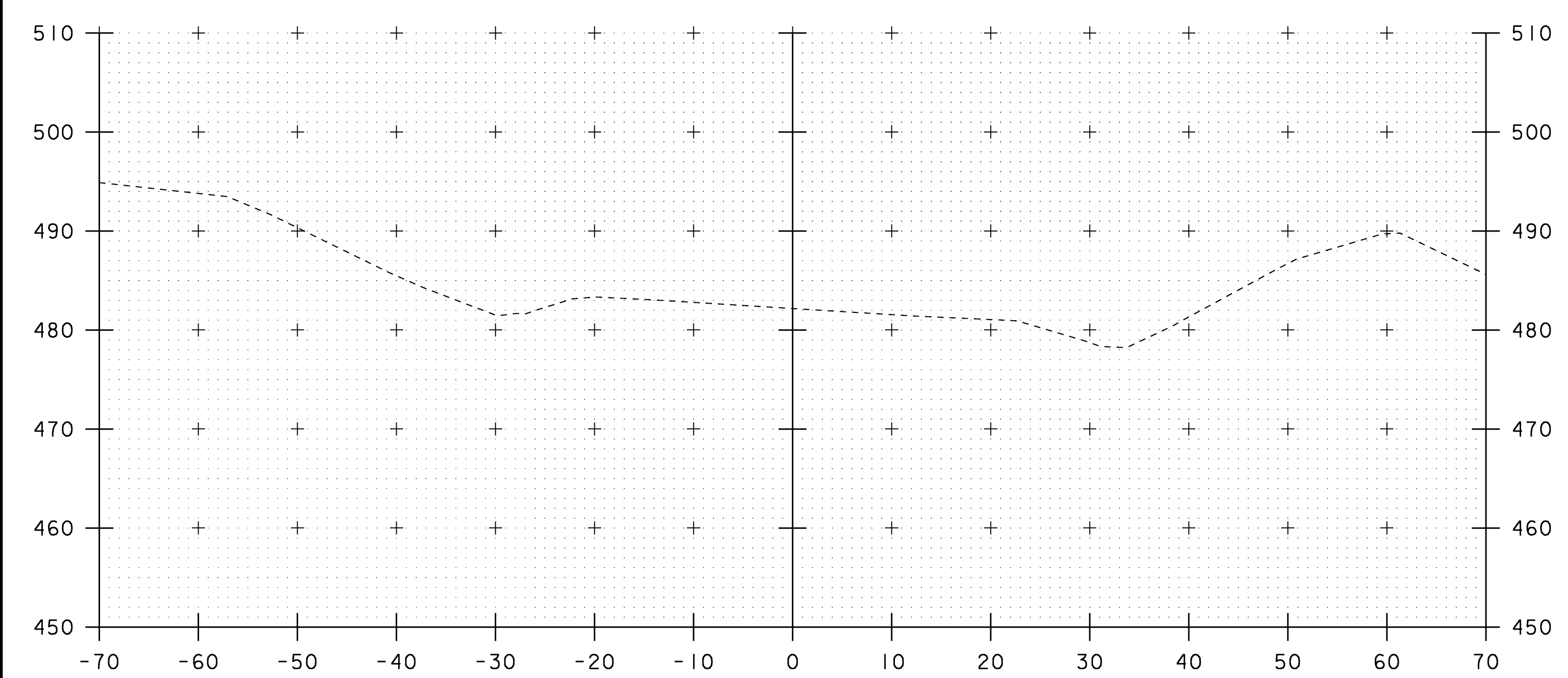
PROJECT: ROCKINGHAM	PROJECT NO.: NH CULV (15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064epsc_det. IPARM FILE NAME: s08b064epsc_det2.i PLOT DATE: 16-APR-2009 DESIGNED BY: J.SALVATORI DRAWN BY: M.FESSEL SQUAD LEADER: K.M.HIGGINS CHECKED BY: J.SALVATORI EPSC DETAILS (2) SHEET: 19 OF 27	



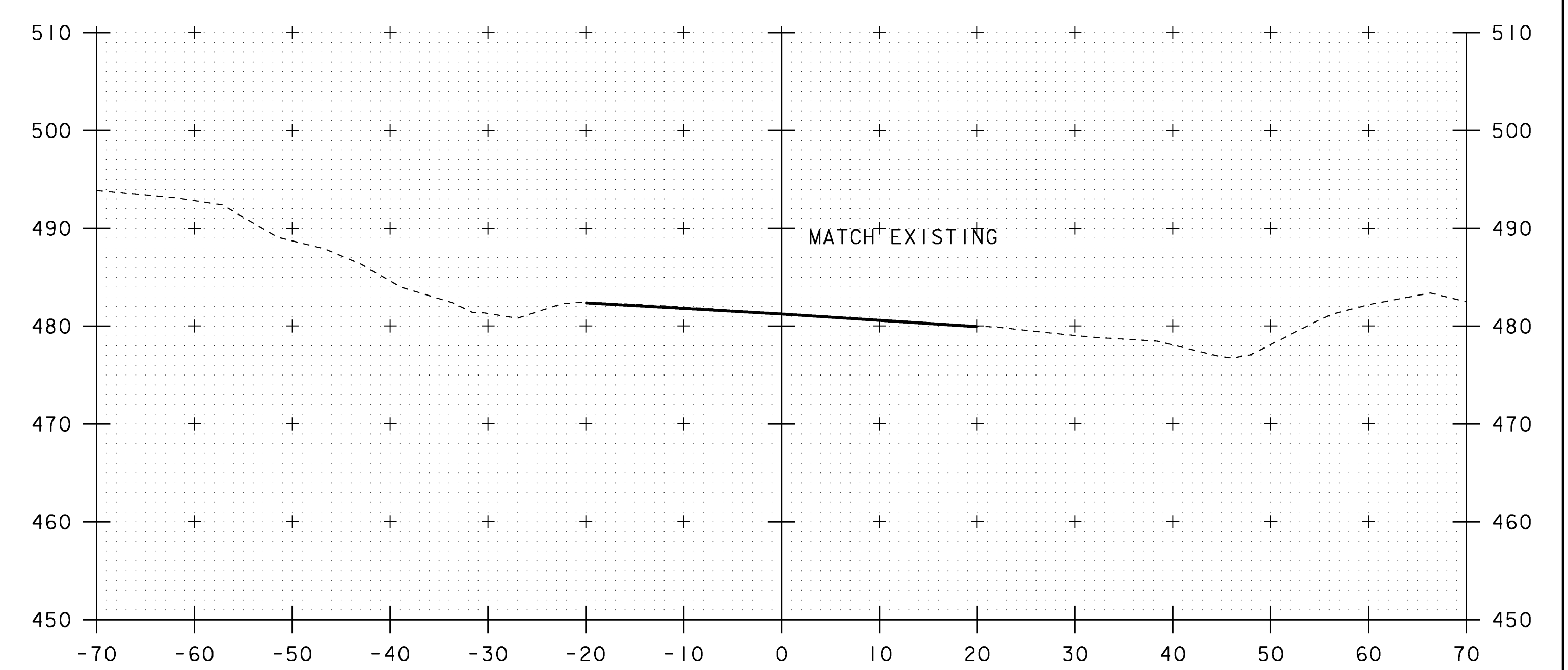
128+75



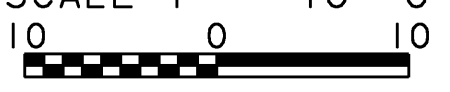
129+25



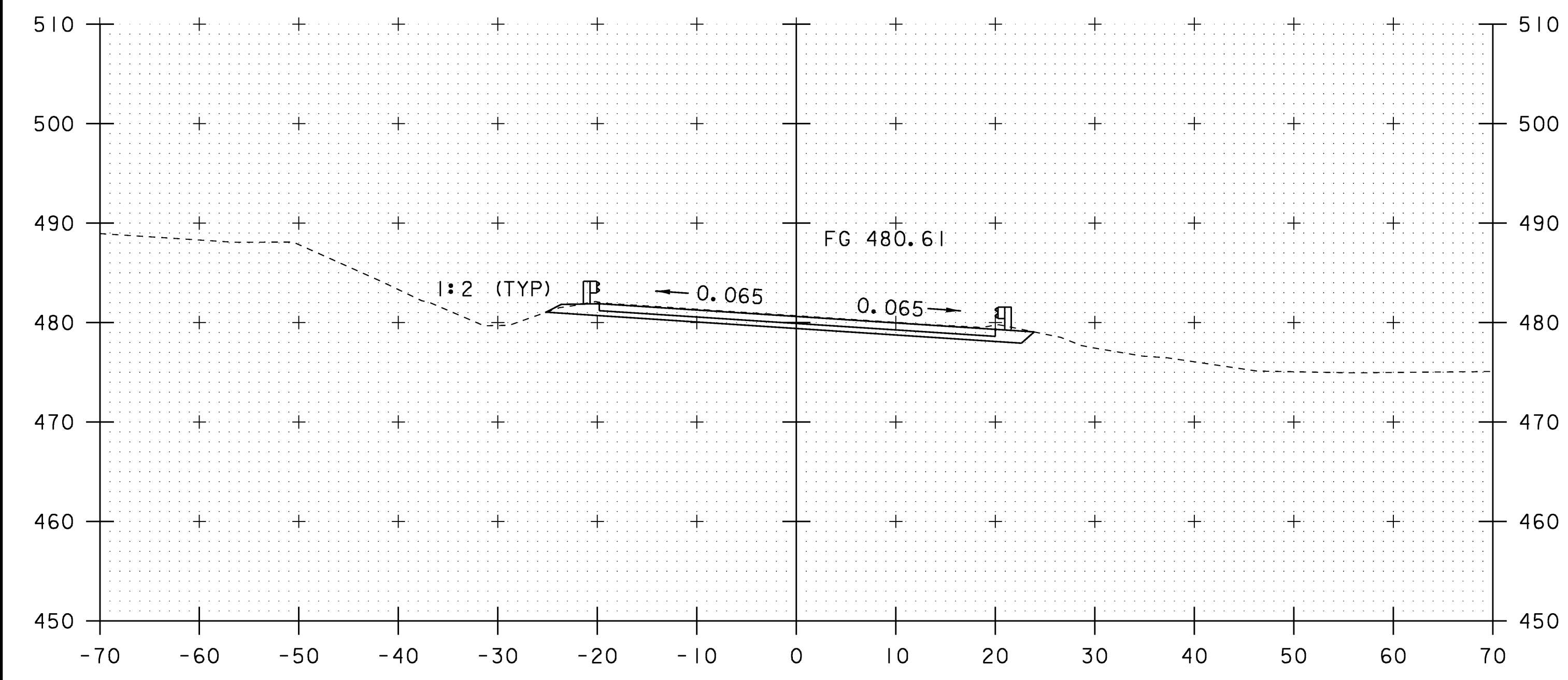
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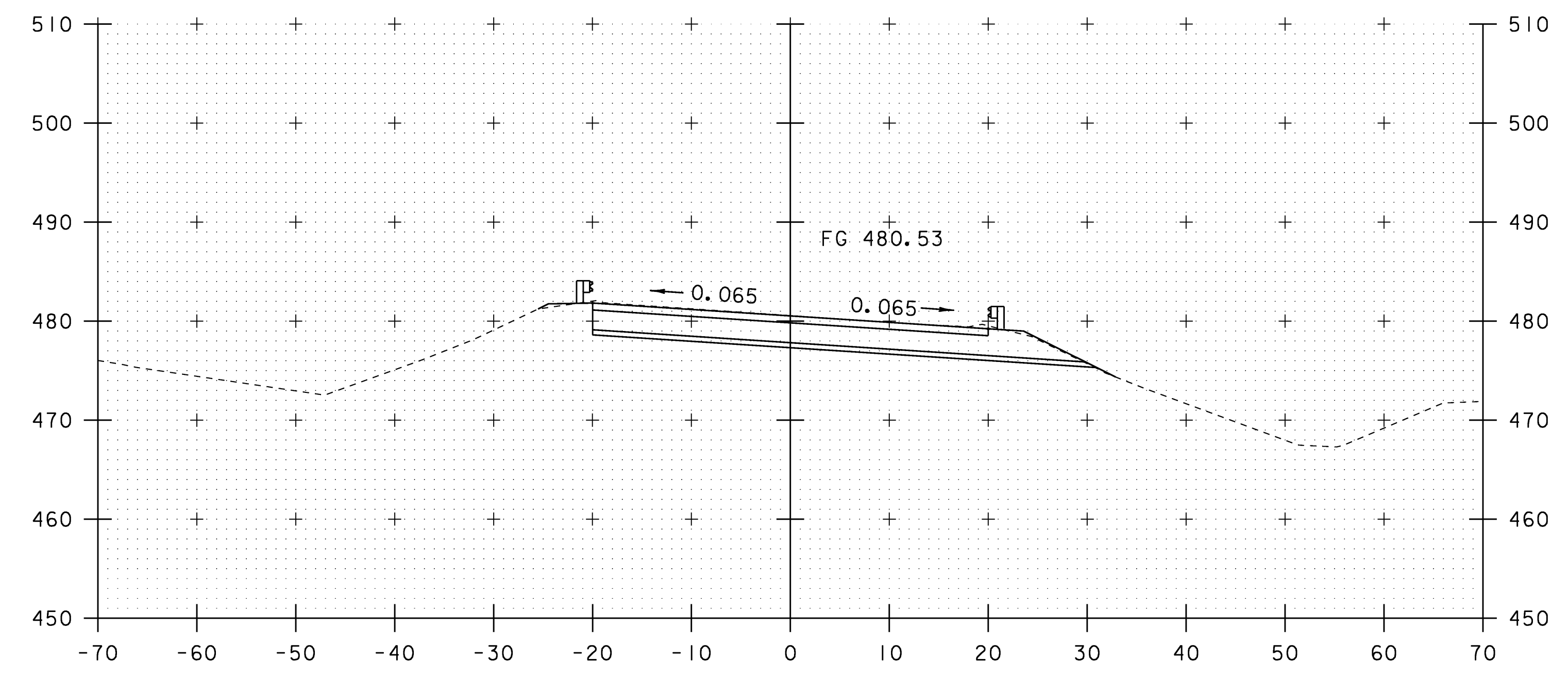
129+00

SCALE 1" = 10'-0"

 STA. 128+50 TO STA. 129+25

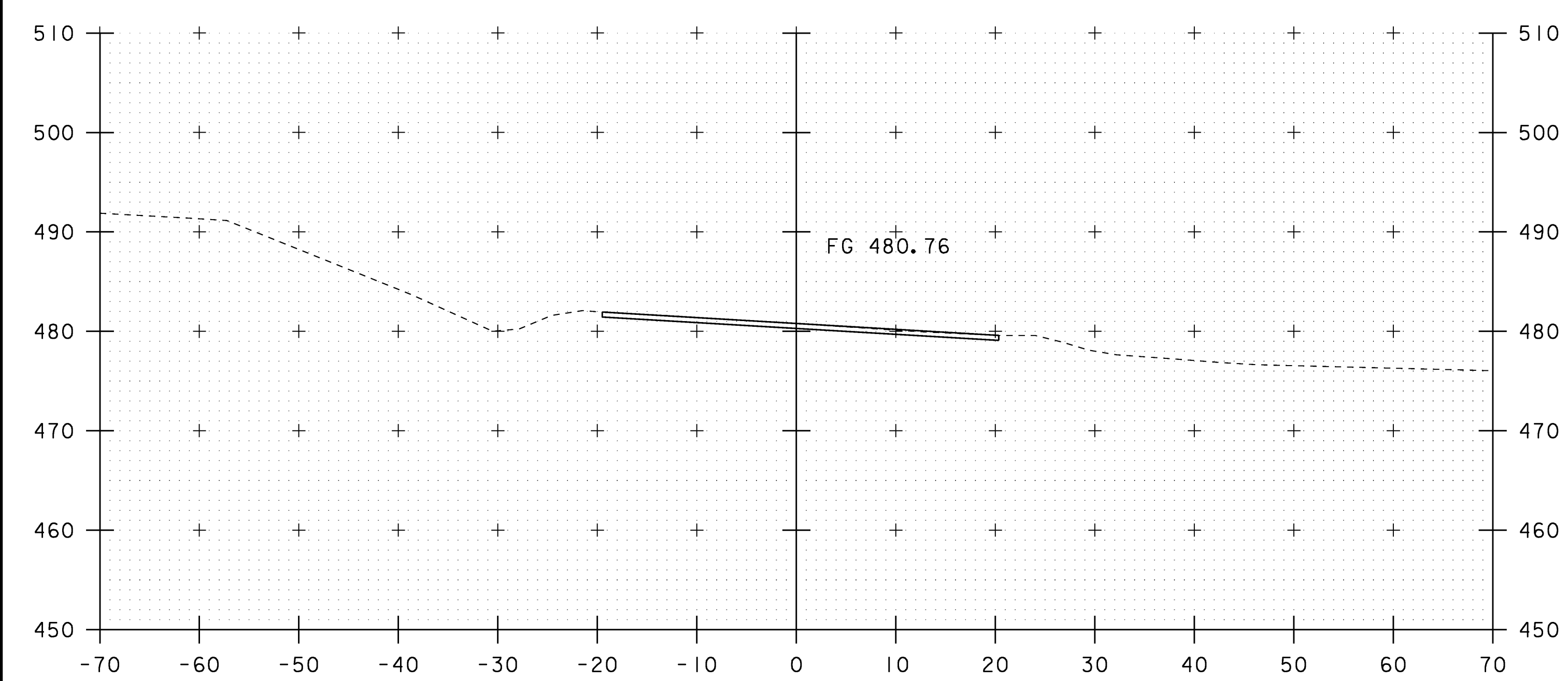
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DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064.mxl	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 20 OF 27
MAINLINE SECTION - SHEET 1	



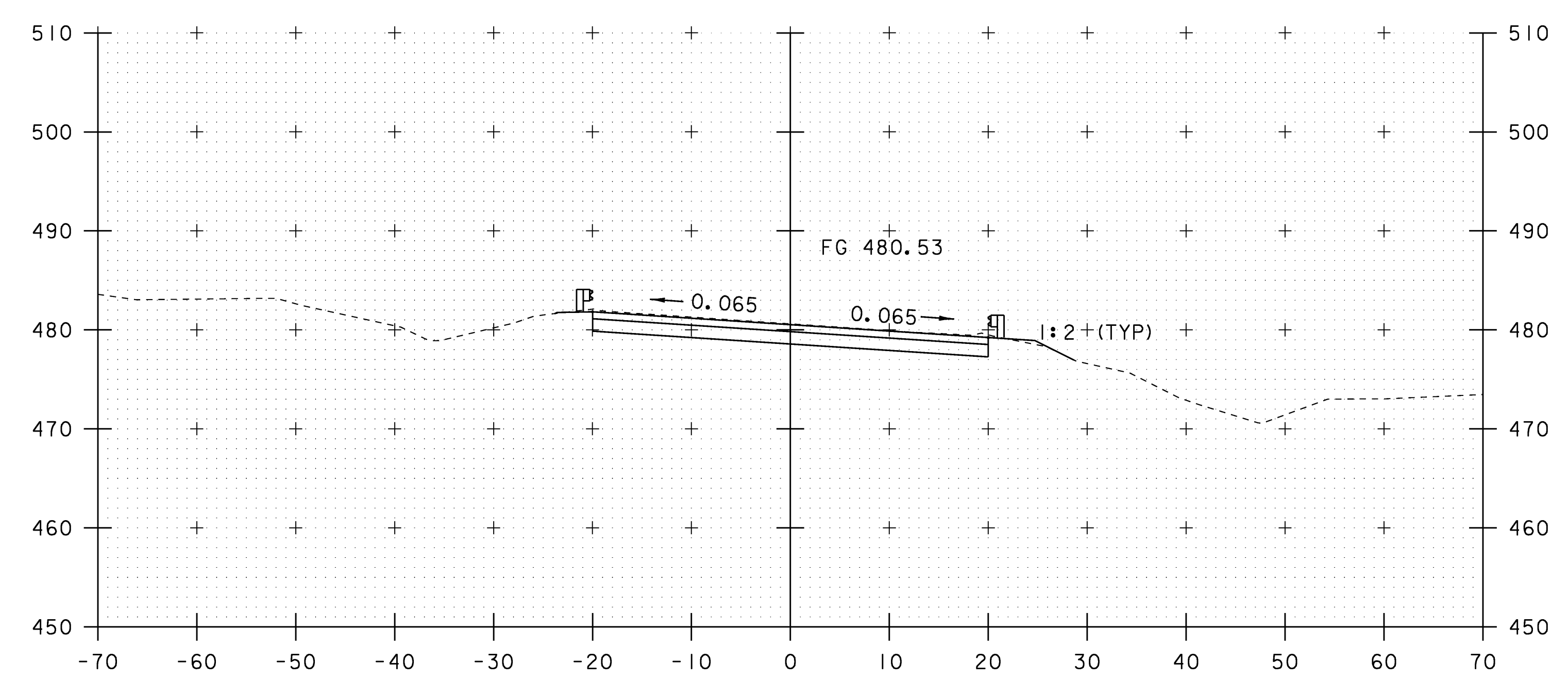
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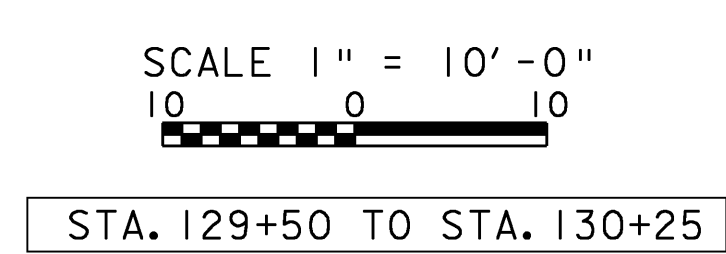
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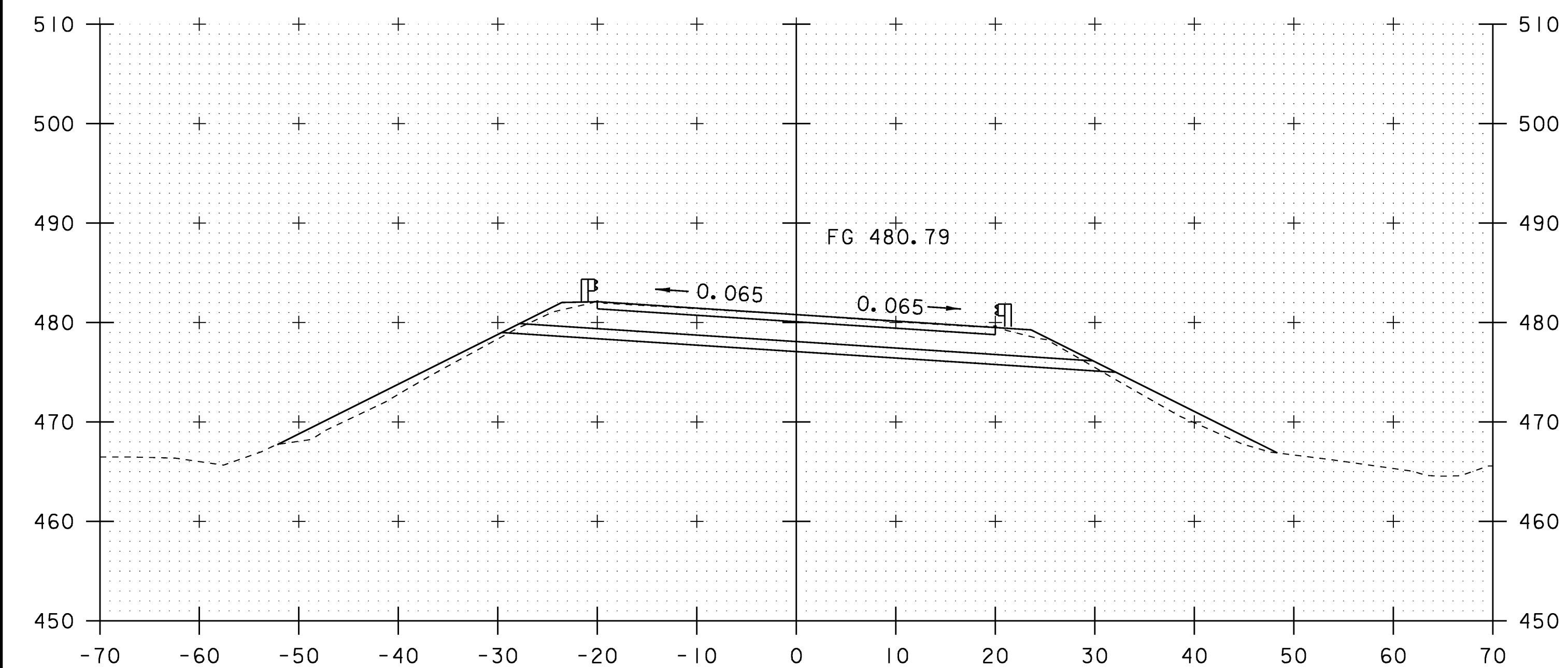
129+50



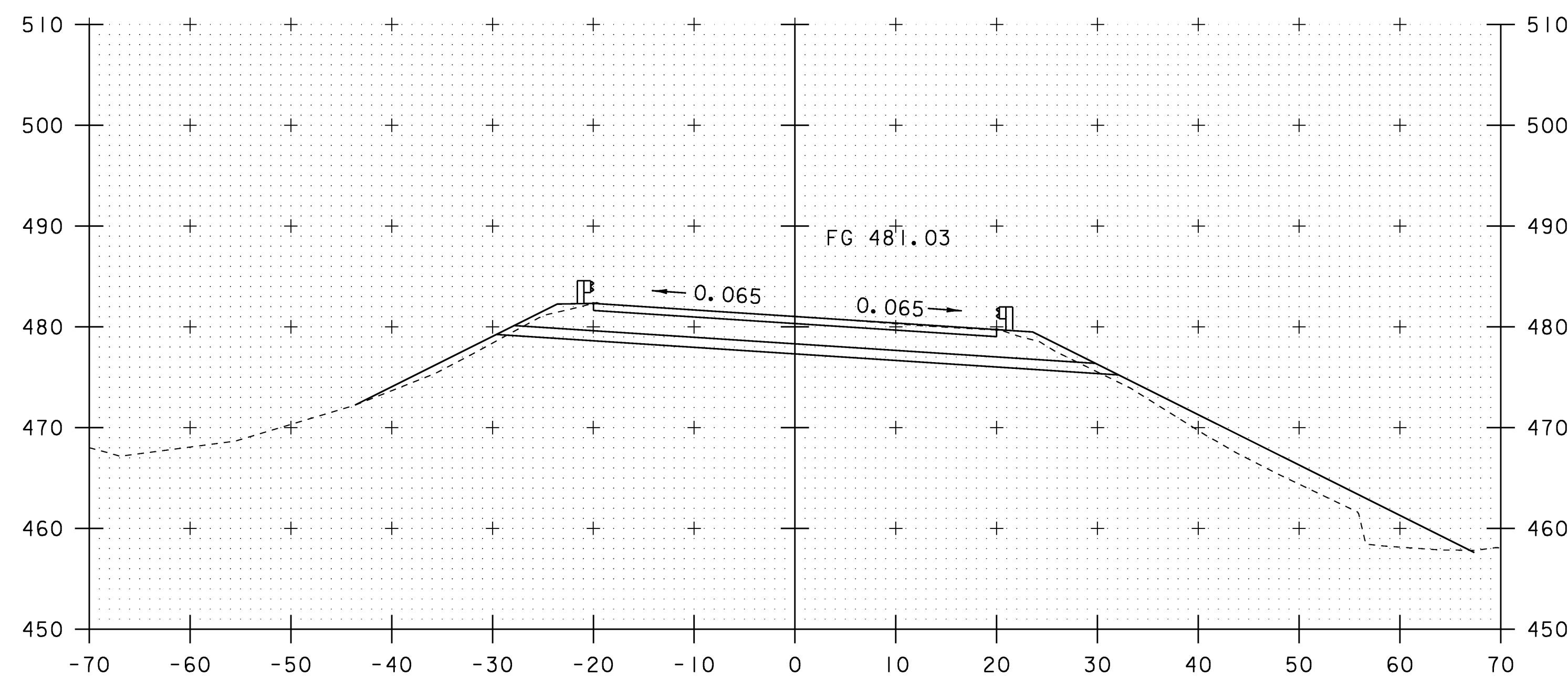
130+00



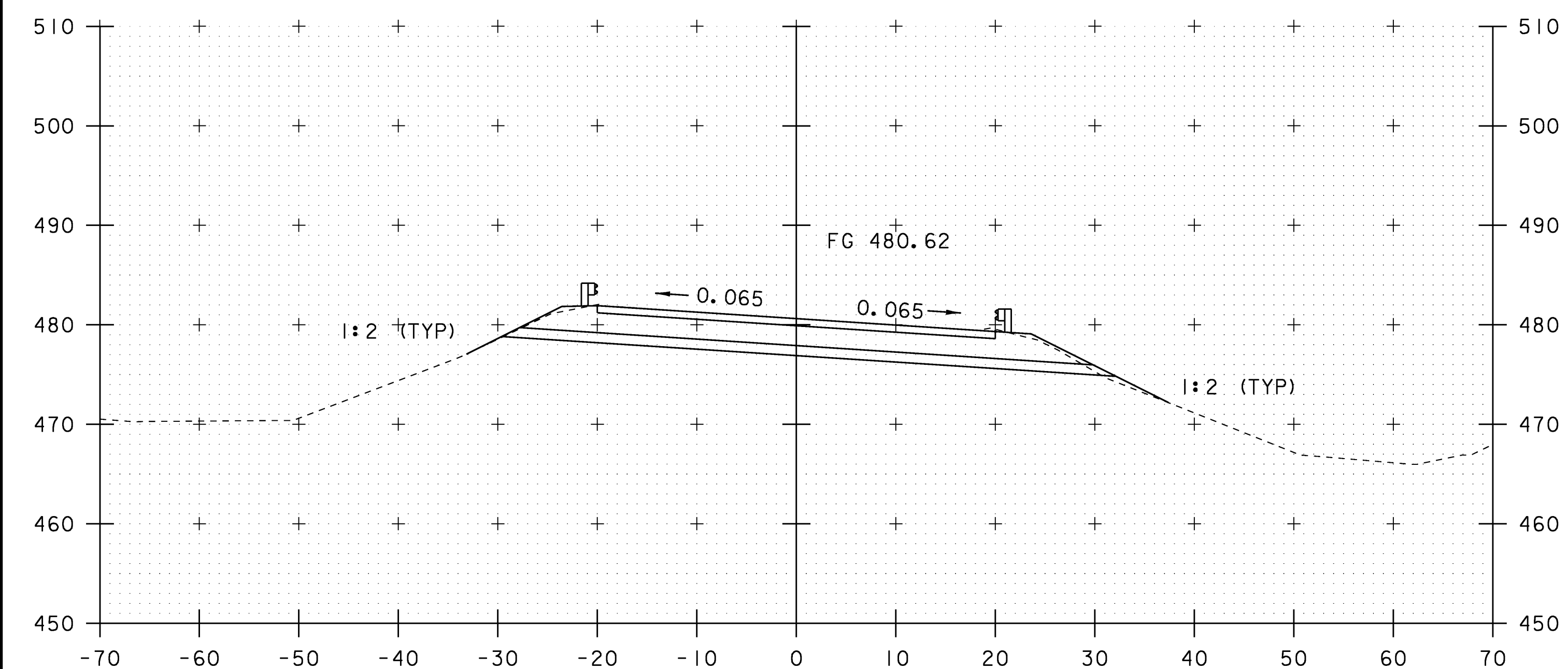
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IPARM FILE NAME: s08b064mx2.i	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 21 OF 27
MAINLINE SECTION - SHEET 2	



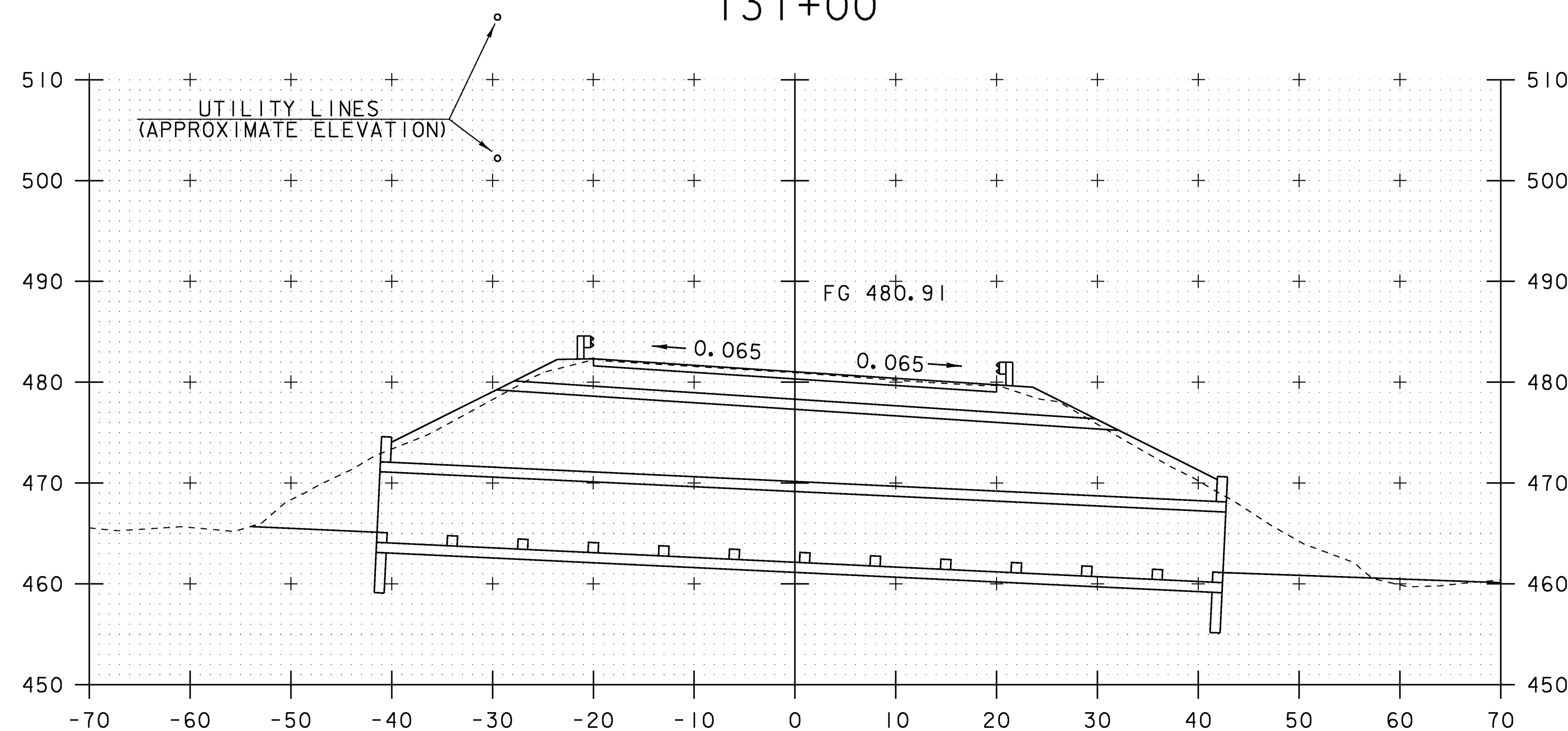
130+75



131+00



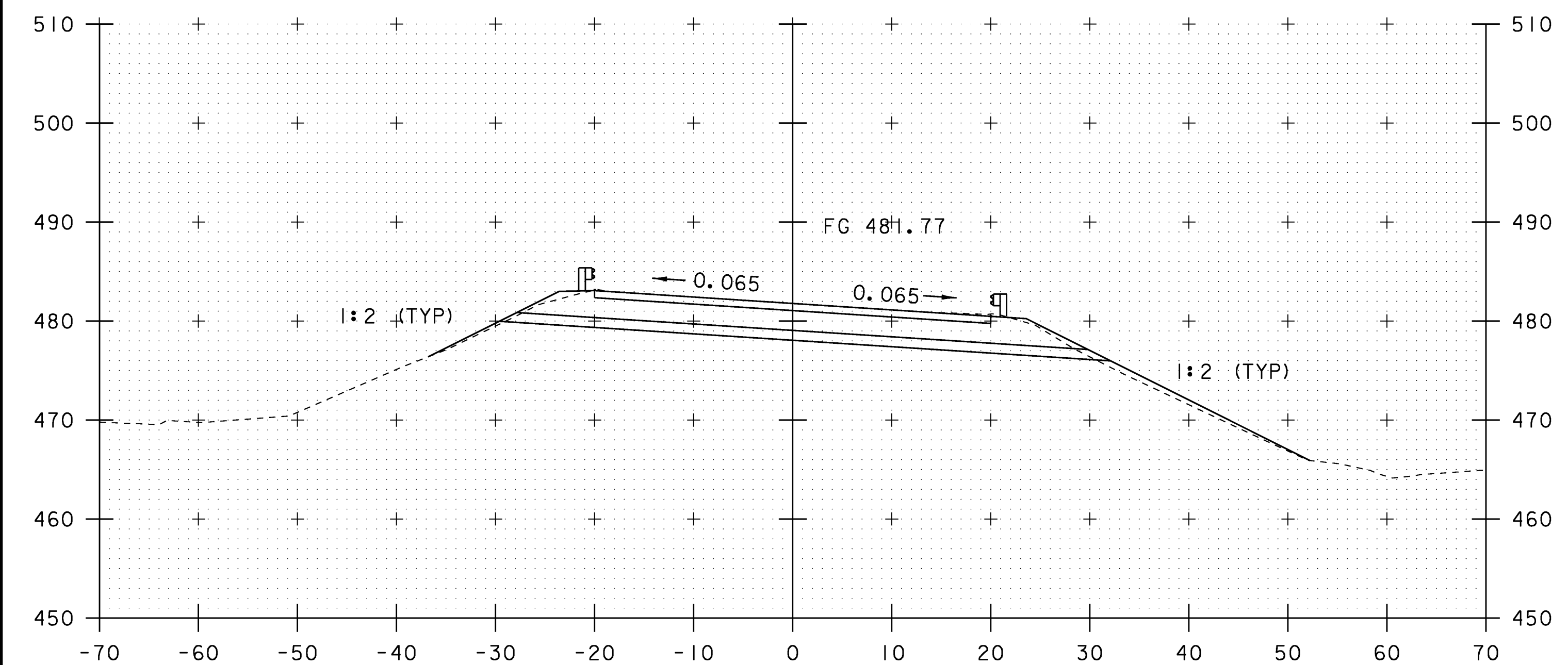
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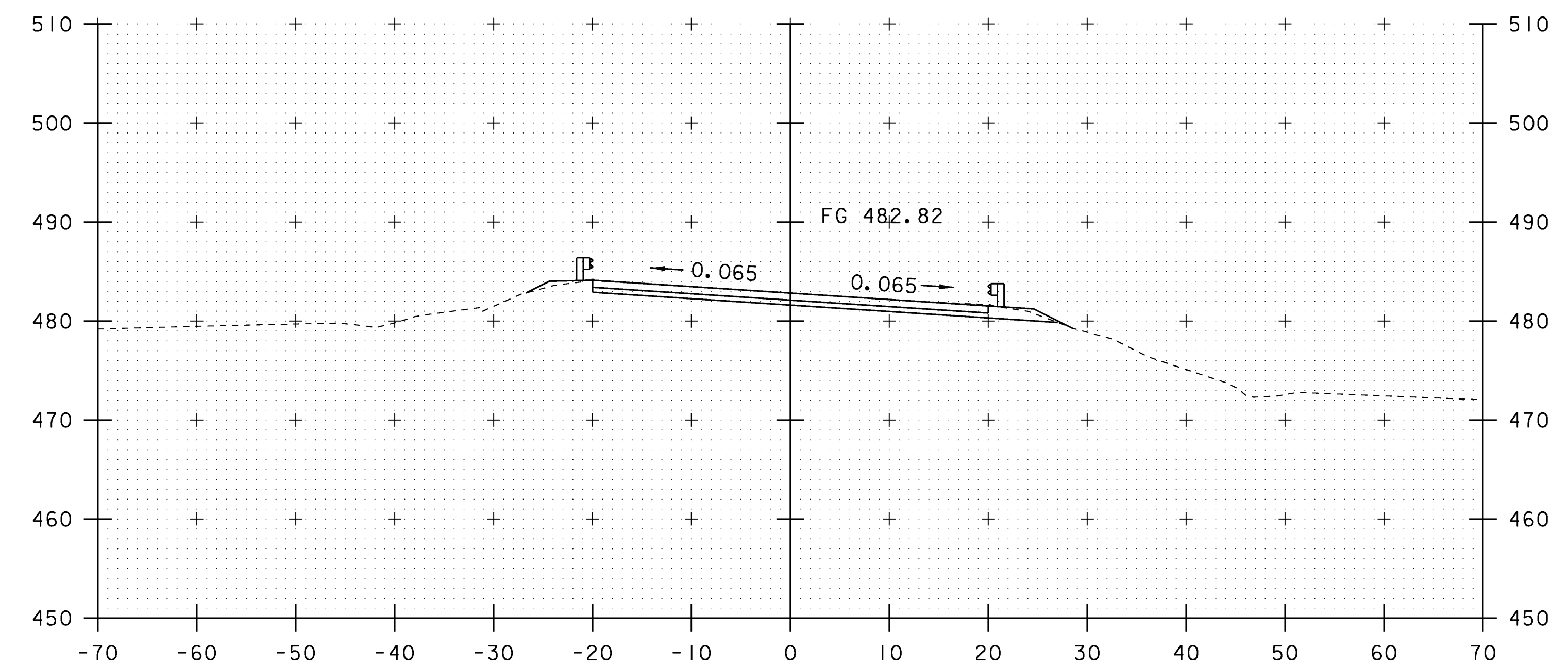
130+89

SCALE 1" = 10'-0"
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 STA. 130+50 TO STA. 131+00

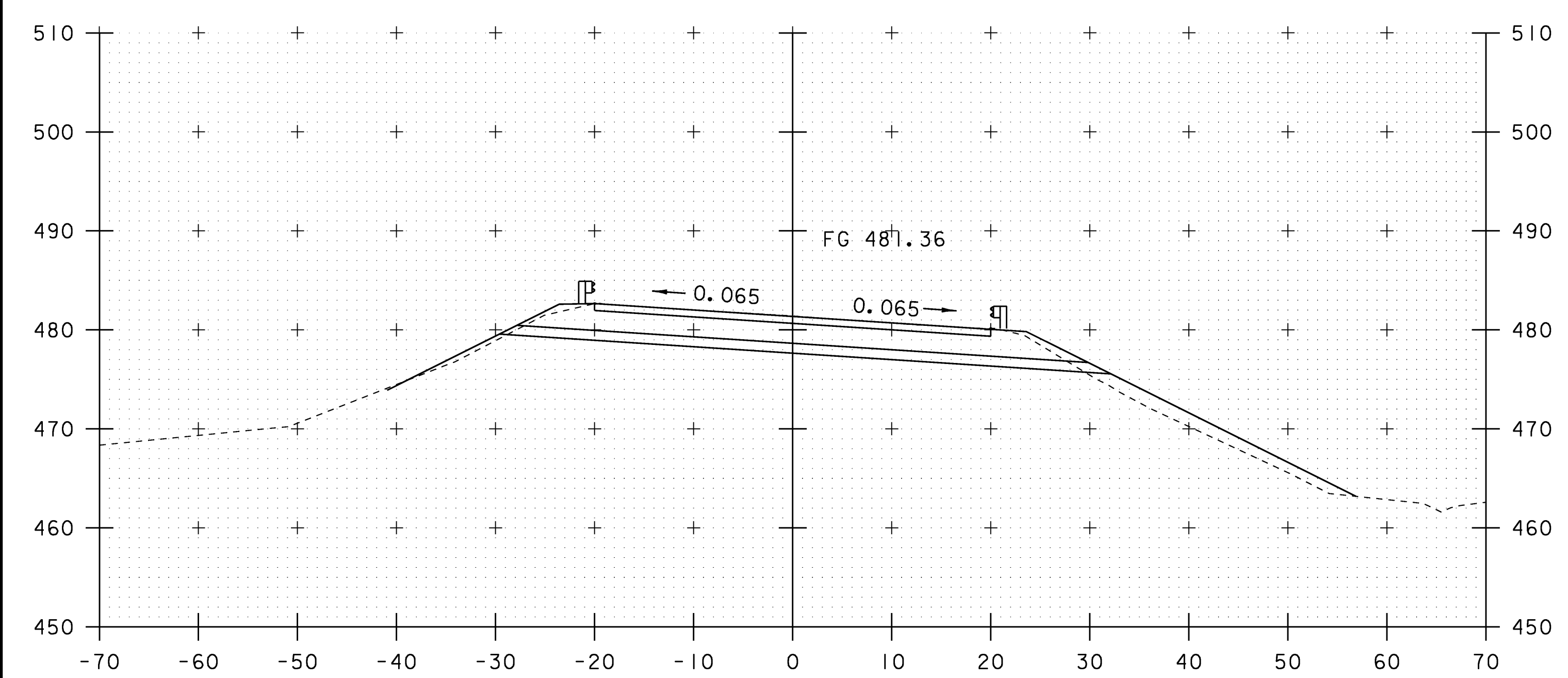
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IPARM FILE NAME: s08b064mx3.l	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 22 OF 27
MAINLINE SECTION - SHEET 3	



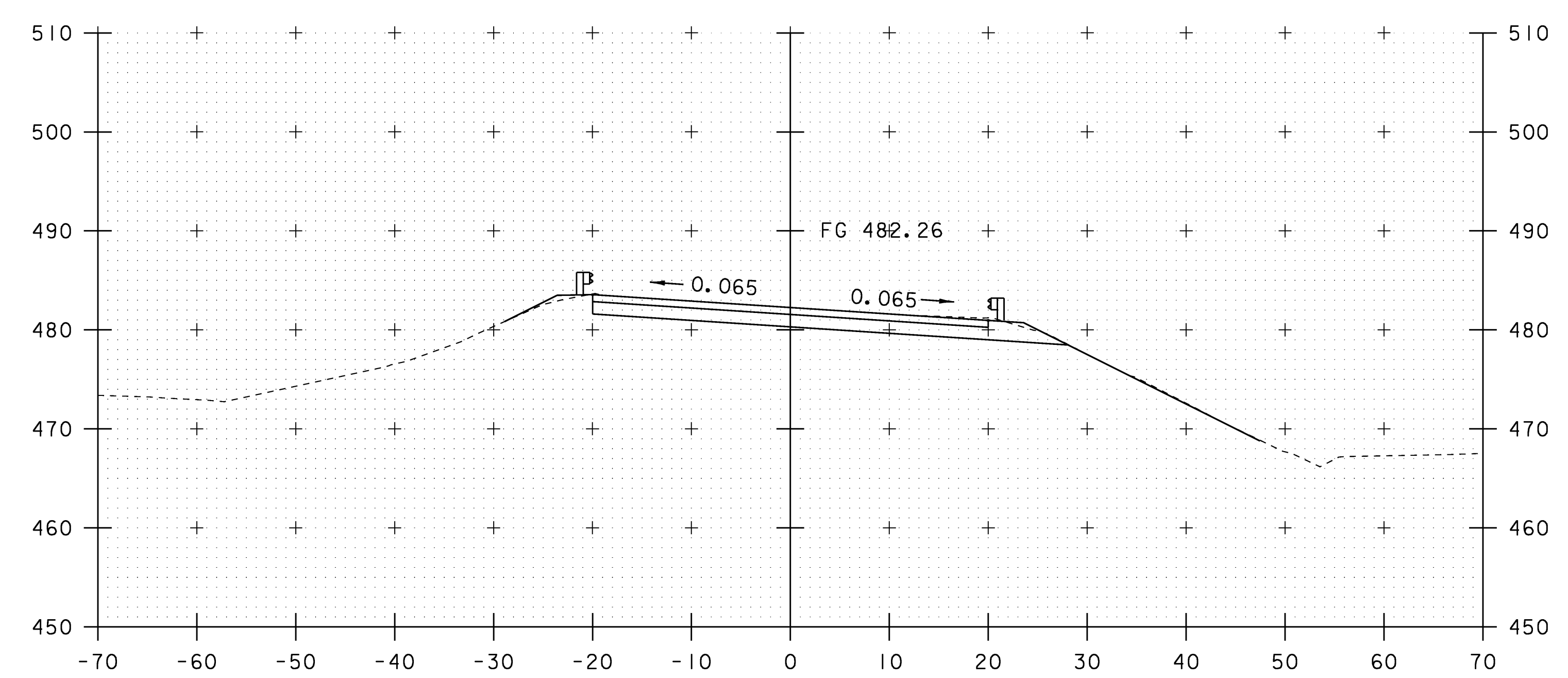
END PROJECT
131+50



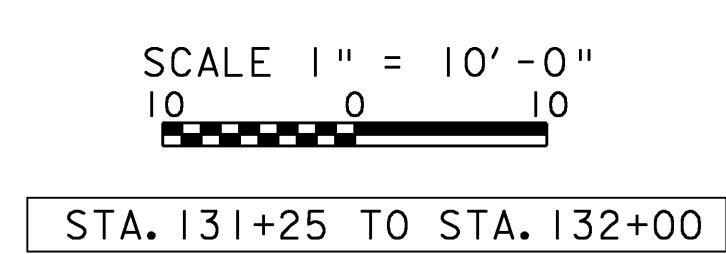
132+00



131+25

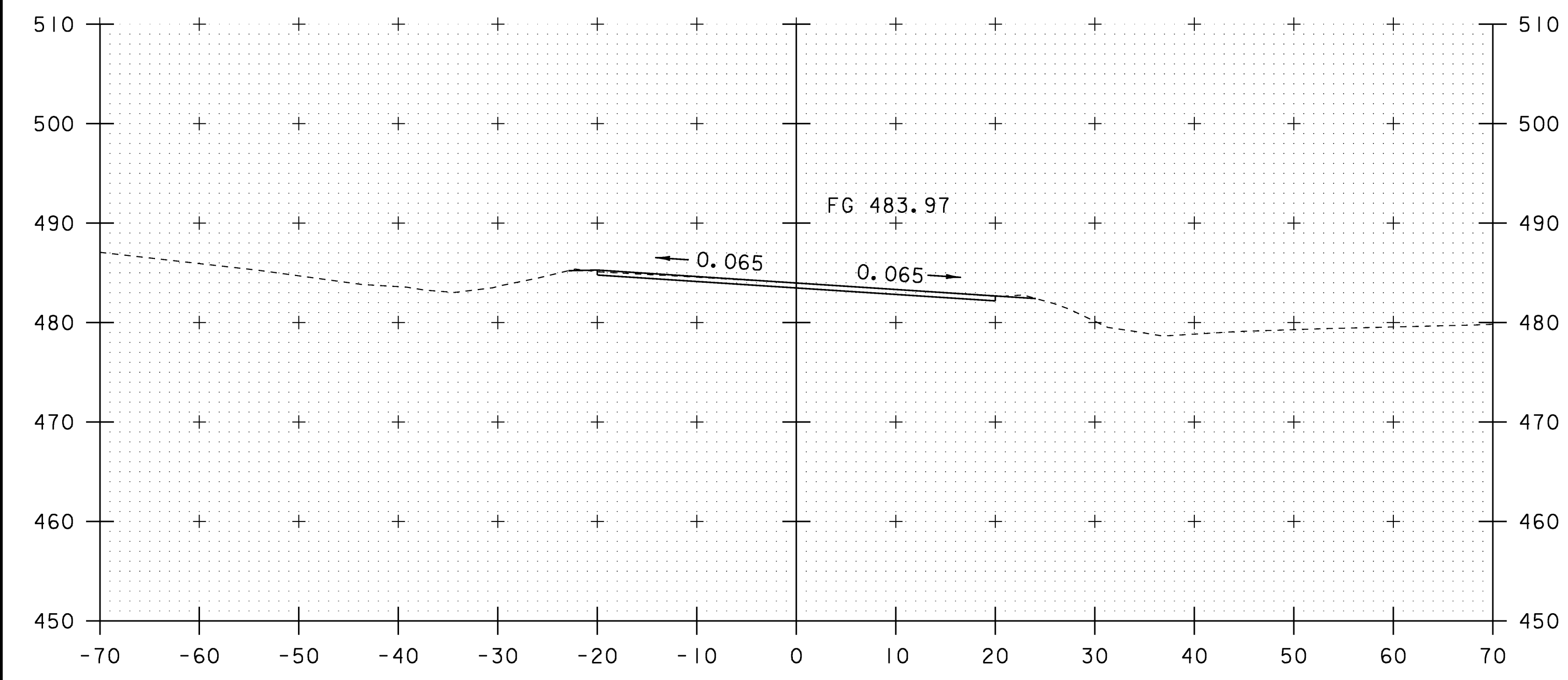


131+75

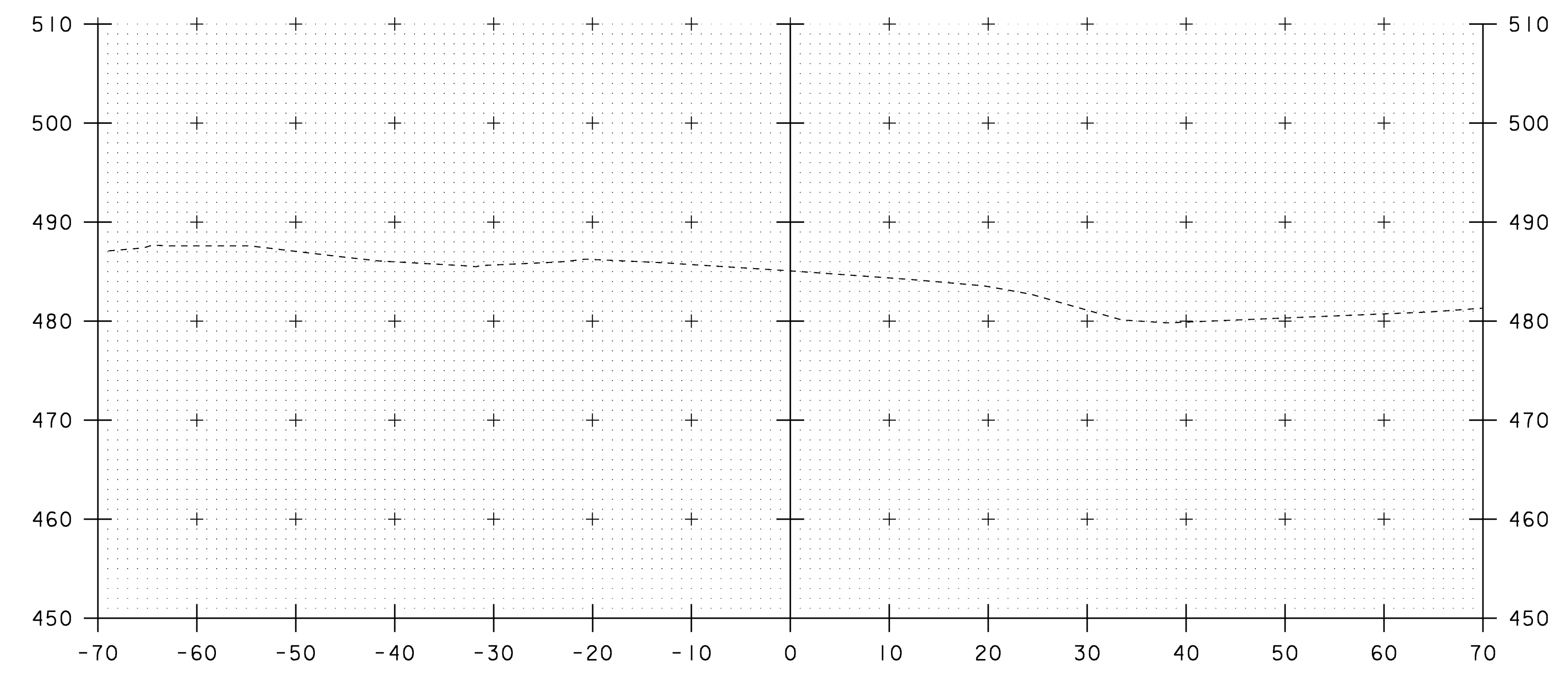


STA. 131+25 TO STA. 132+00

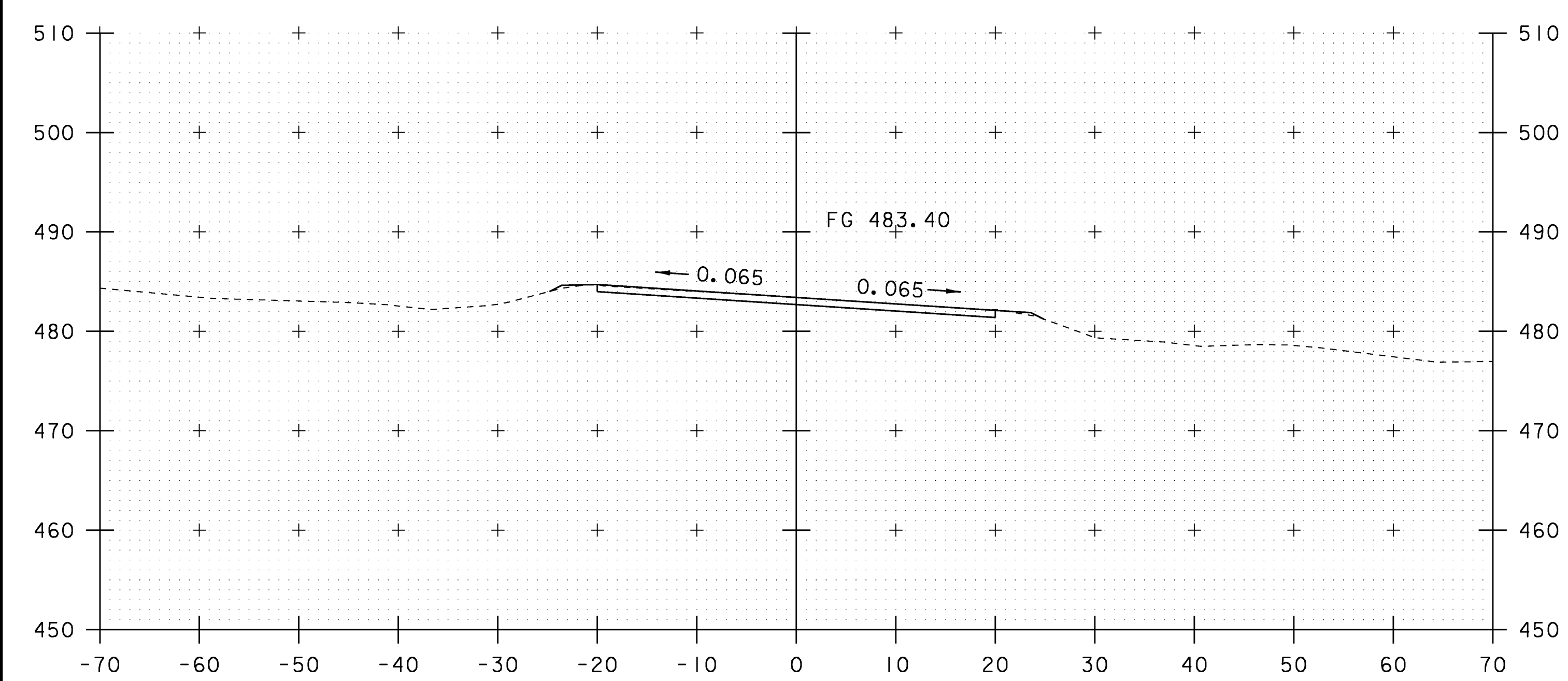
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DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064mx4.l	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 23 OF 27
MAINLINE SECTION - SHEET 4	



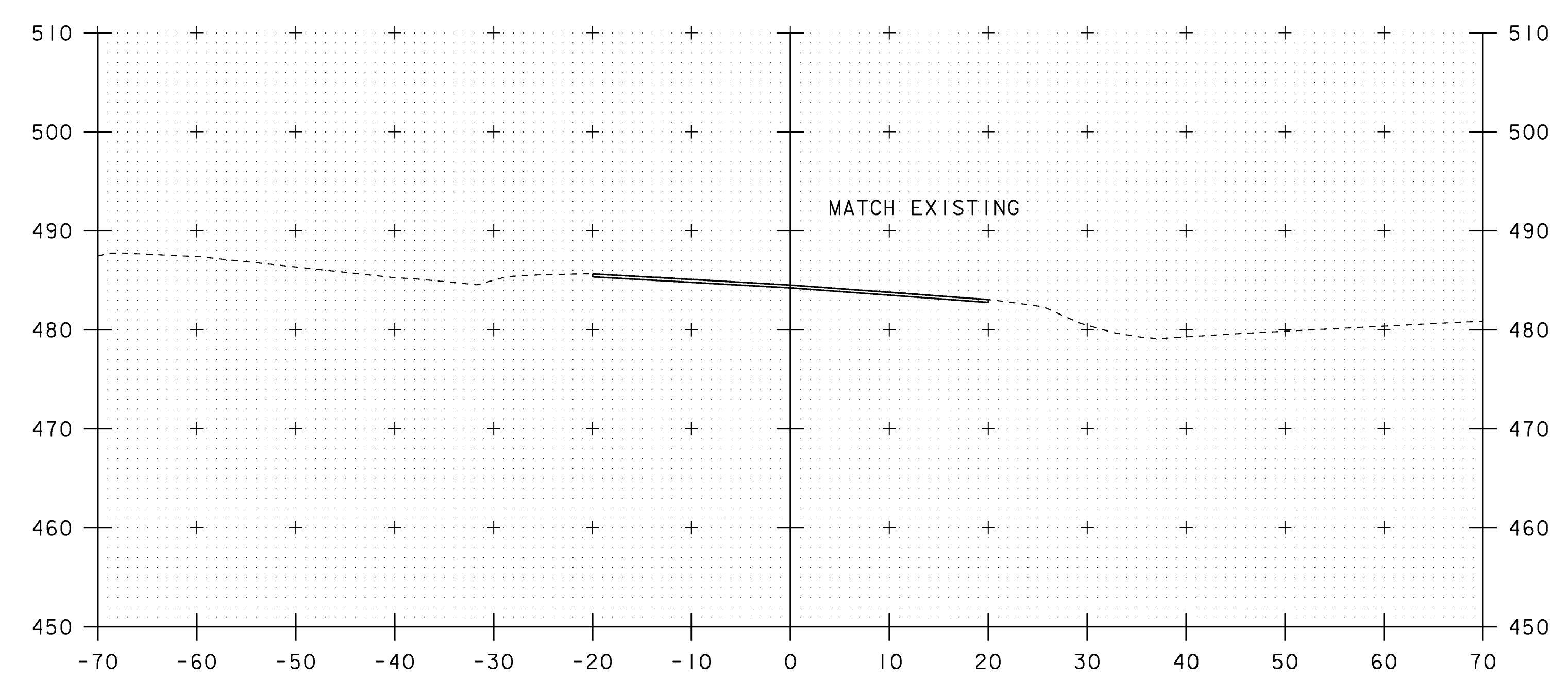
132+50



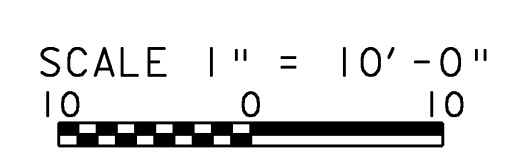
133+00



132+25



132+75

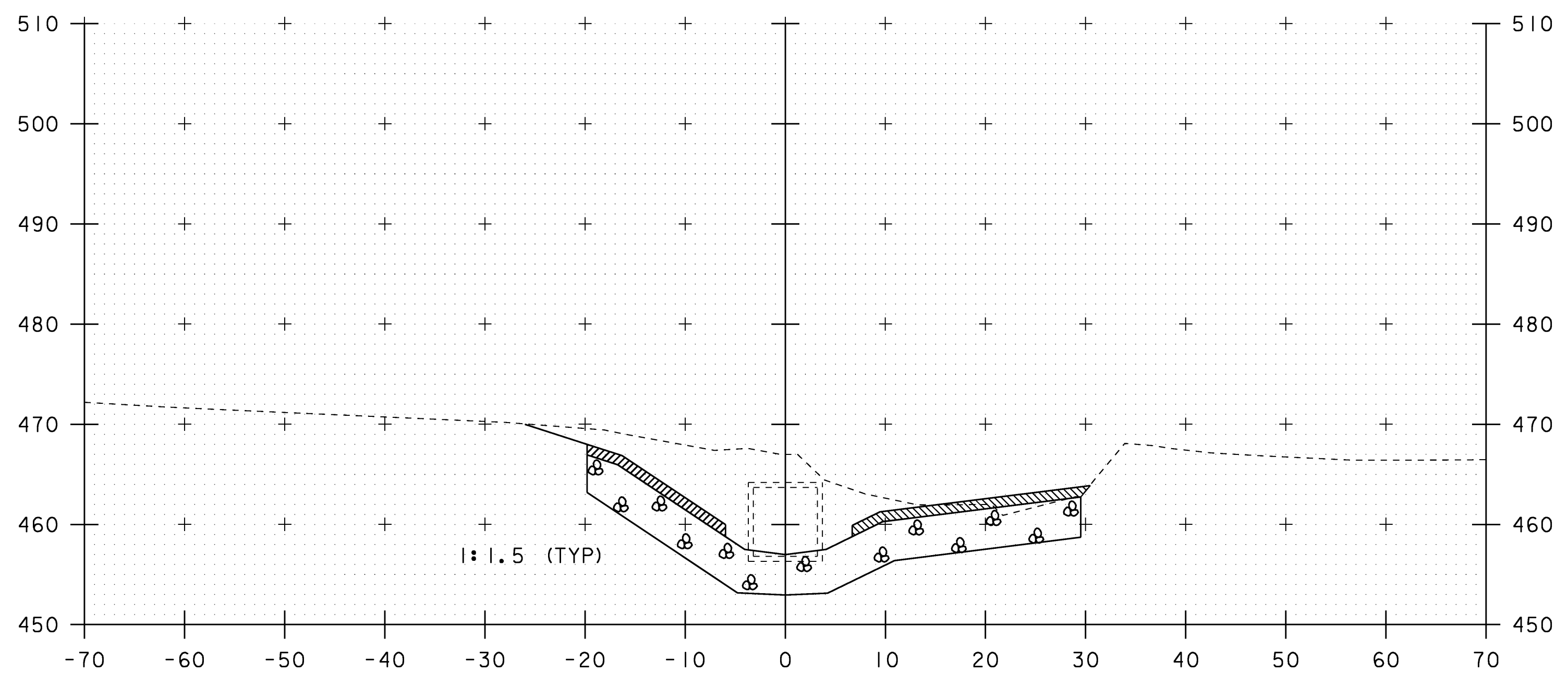


STA. 132+25 TO STA. 133+00

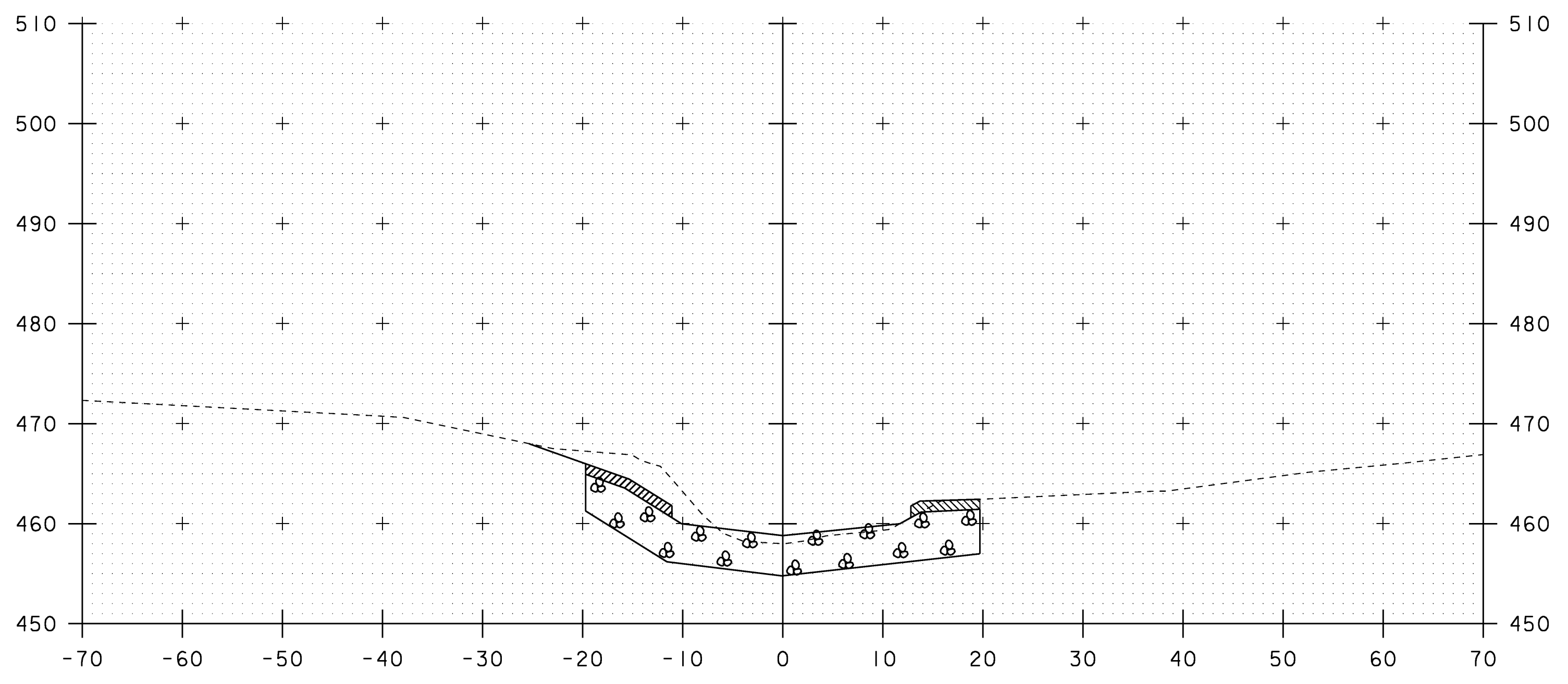
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DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064mx5.l	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 24 OF 27
MAINLINE SECTION - SHEET 5	

STA 10+18.00 LT BEGIN STONE FILL, TYPE IV
 BEGIN GRUBBING MATERIAL
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN GEOTEXTILE UNDER STONE FILL

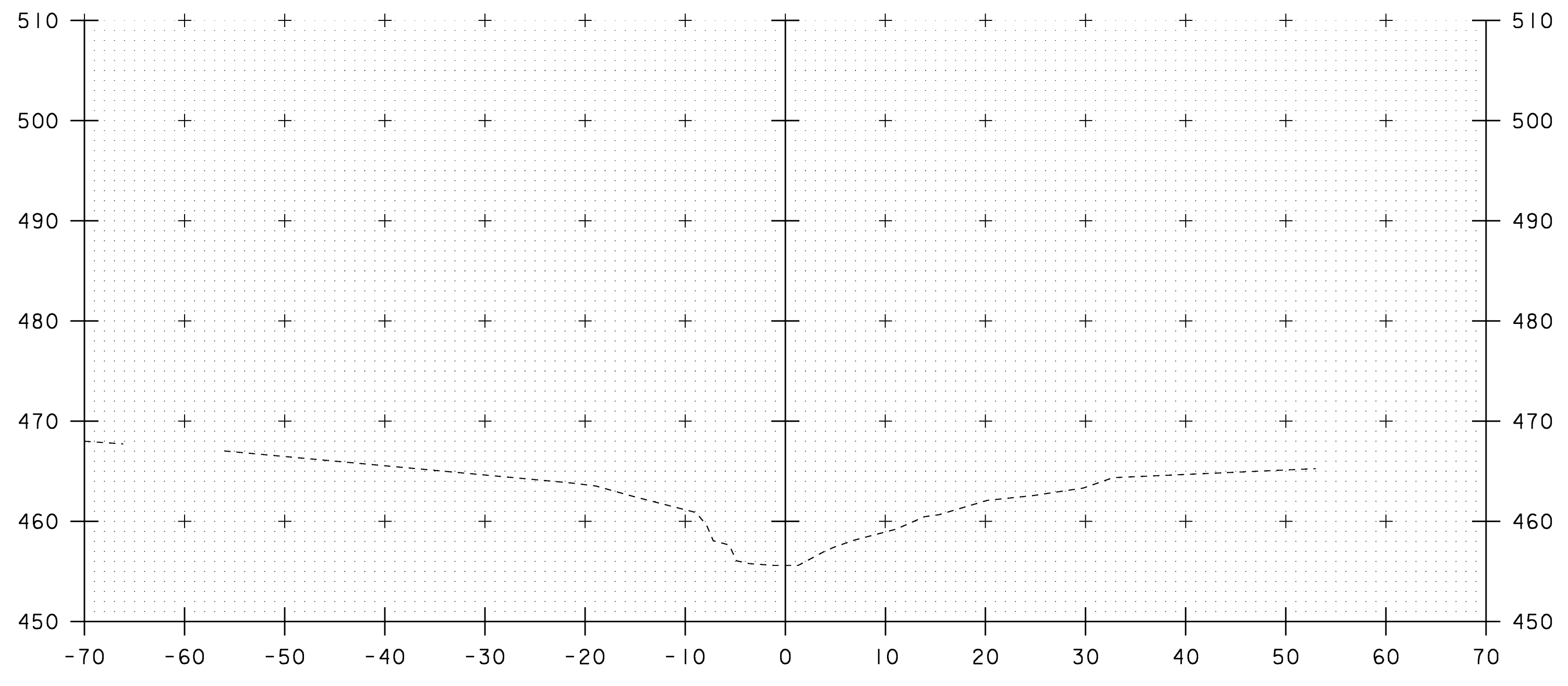
STA 10+20.00 RT BEGIN STONE FILL, TYPE IV
 BEGIN GRUBBING MATERIAL
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN GEOTEXTILE UNDER STONE FILL



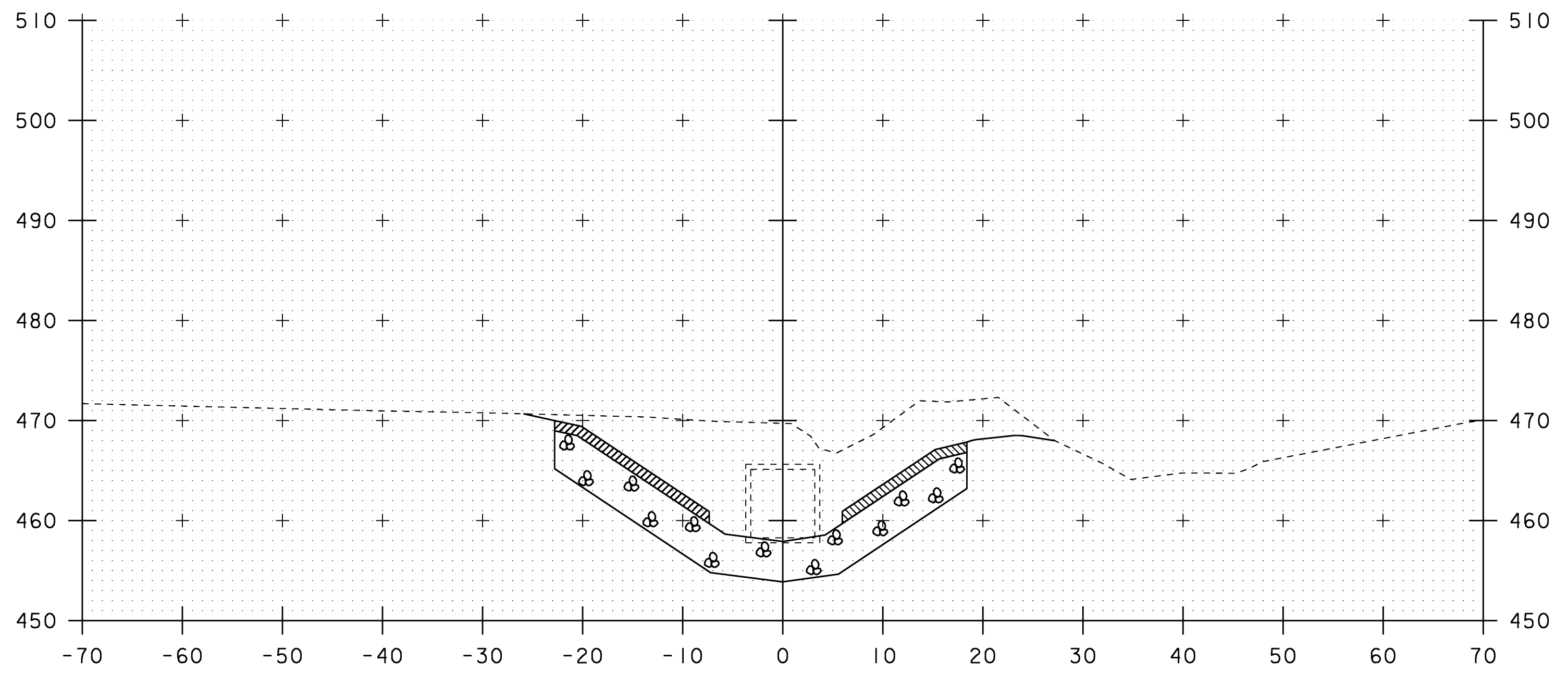
10+25



10+75



10+00

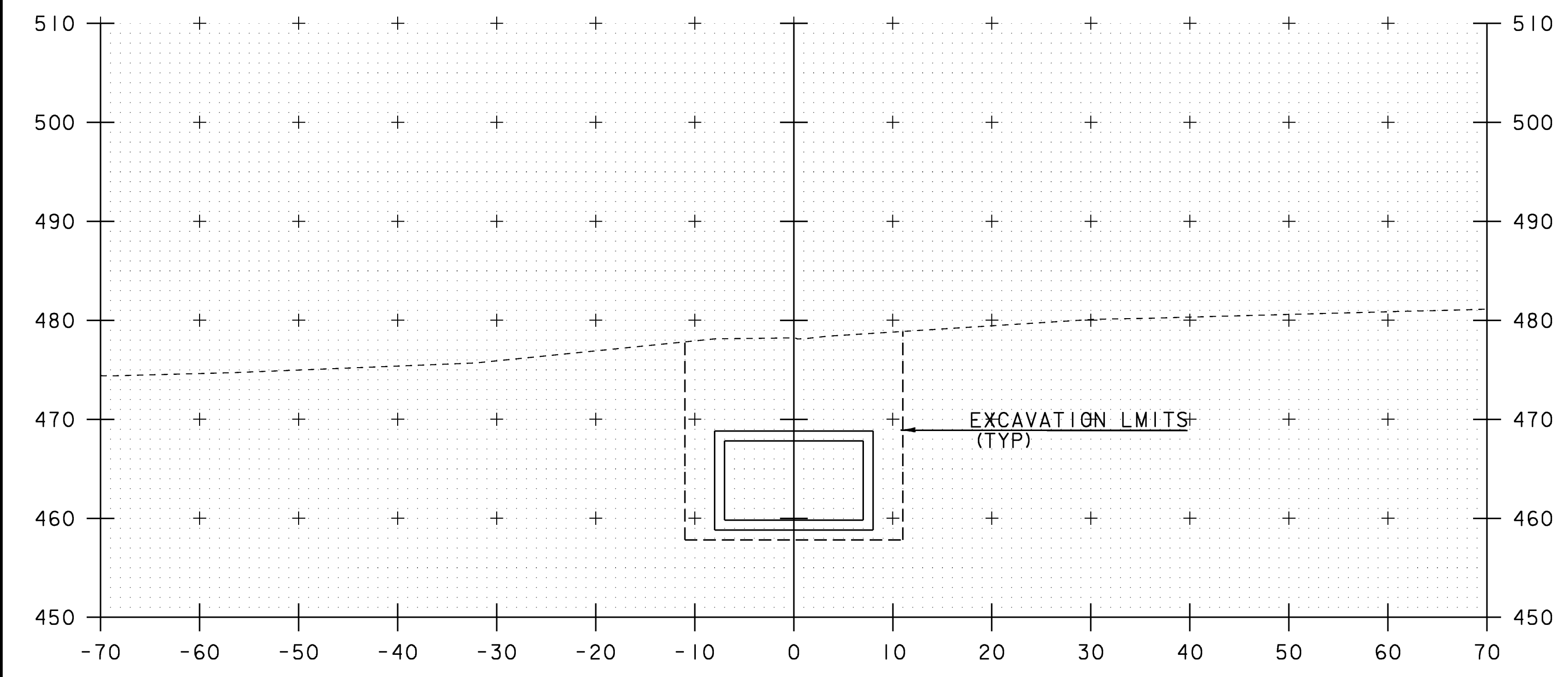


10+50

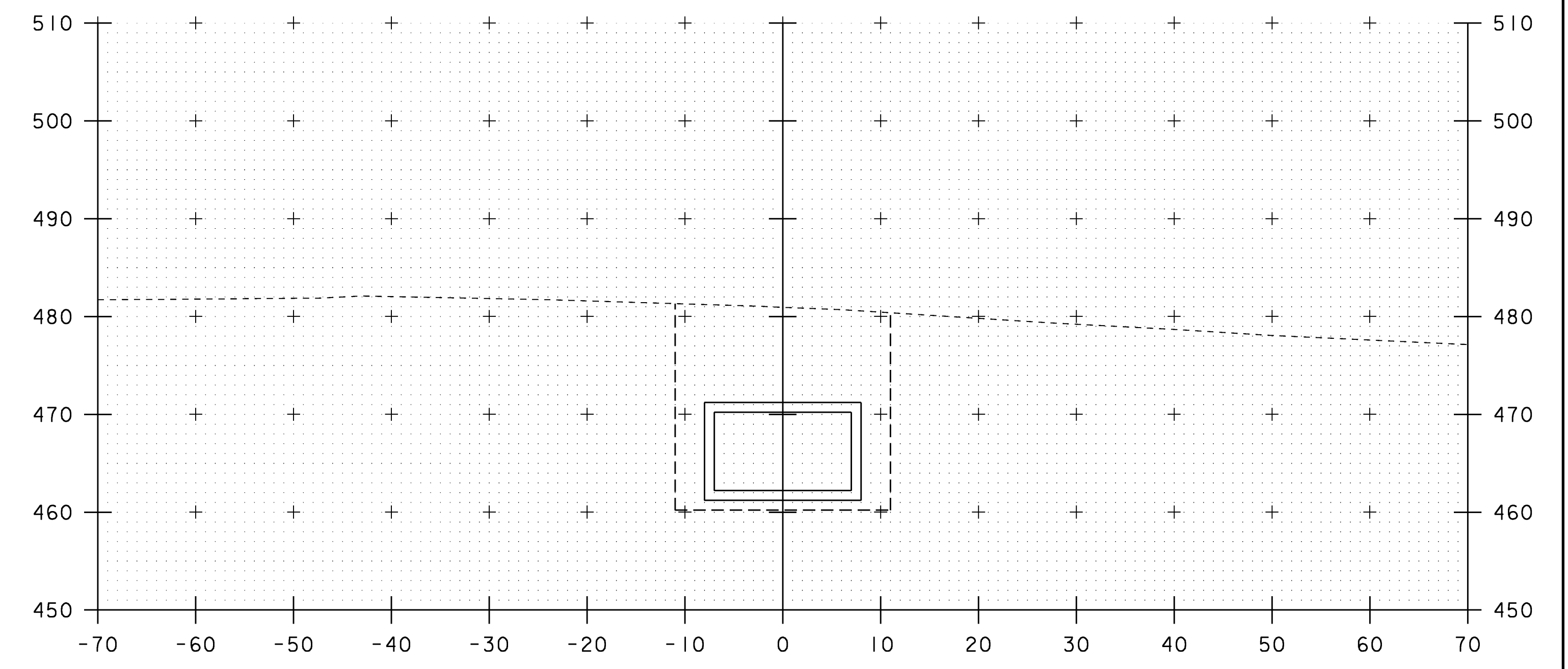
SCALE 1" = 10'-0"
 10 0 10

STA. 10+00 TO STA. 10+75

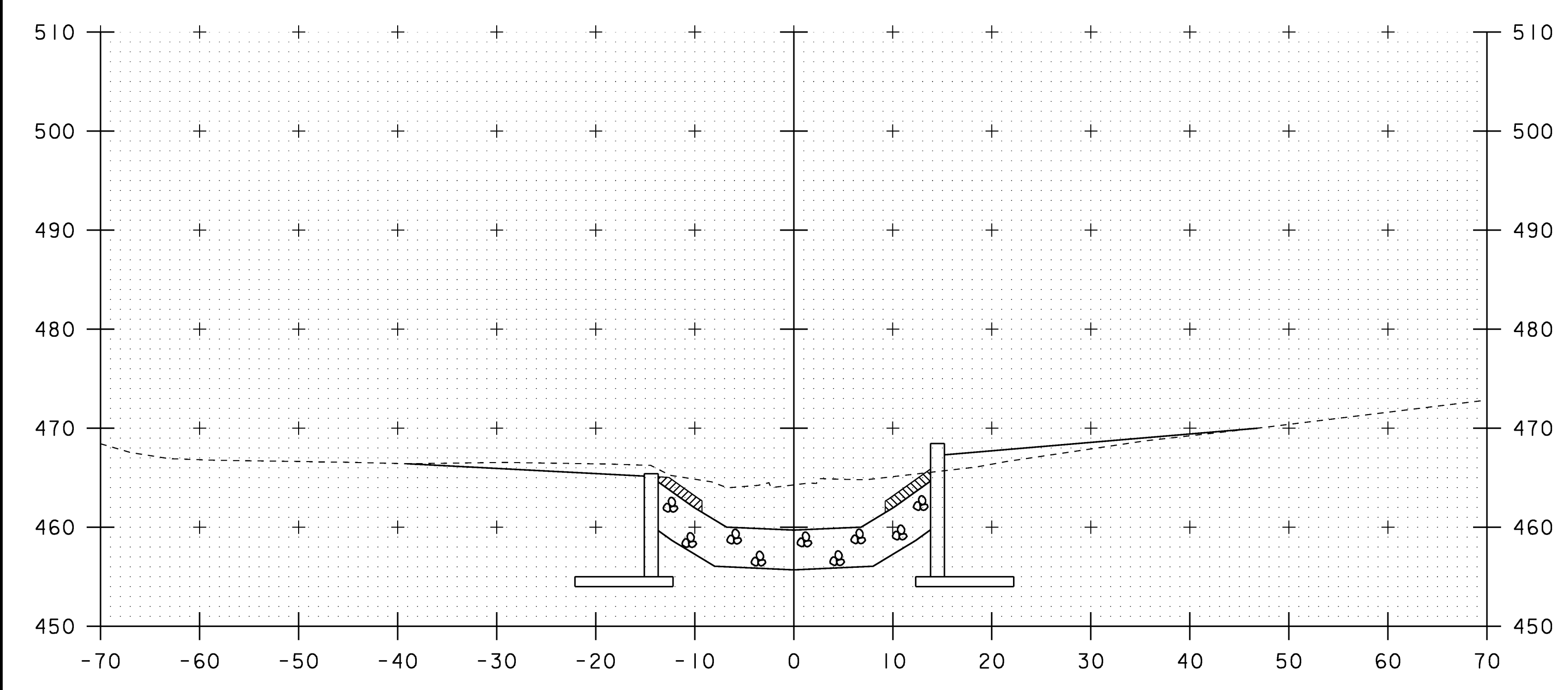
PROJECT NAME: ROCKINGHAM	PROJECT NUMBER: NH CULV(15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064xsl.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064cxl.l	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 25 OF 27
CHANNEL SECTION - SHEET 1	



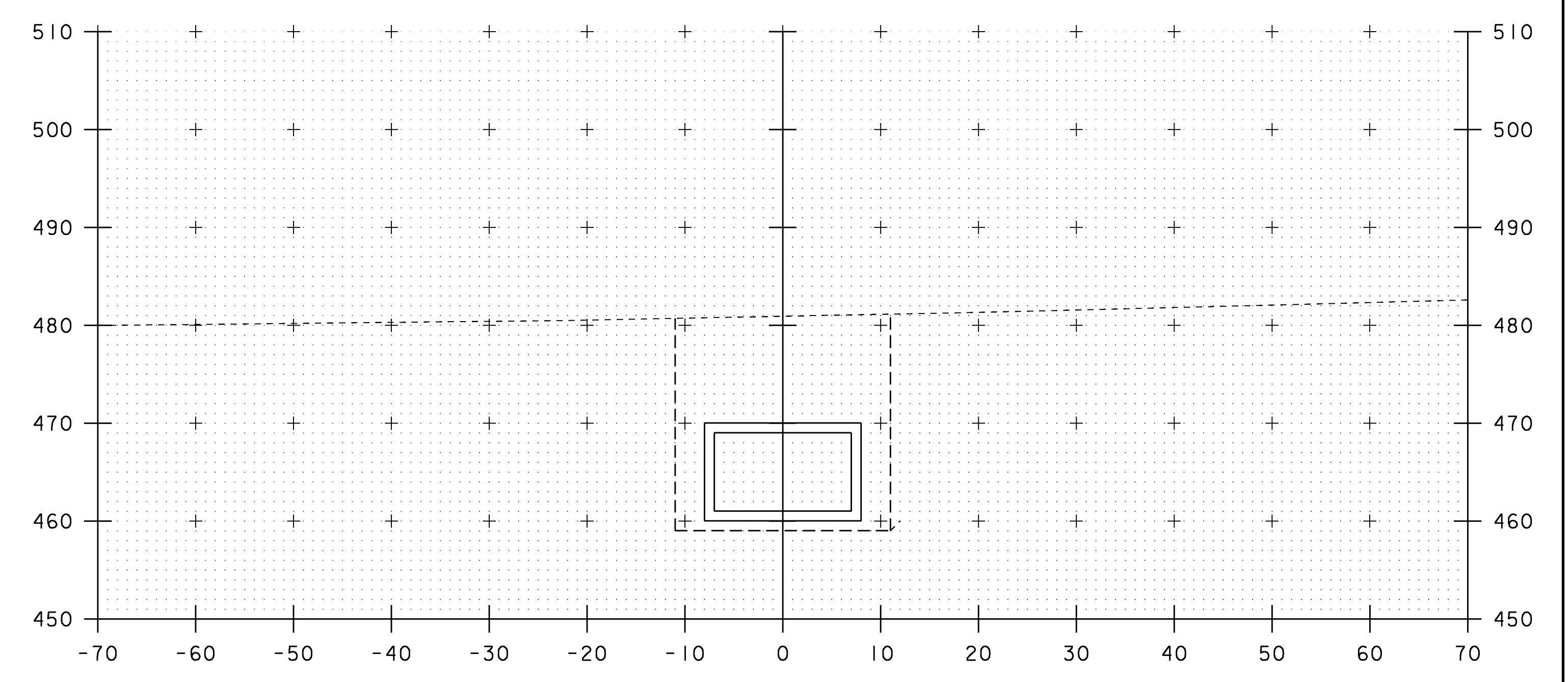
11+25



11+75

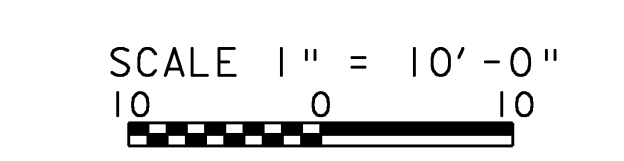


11+00



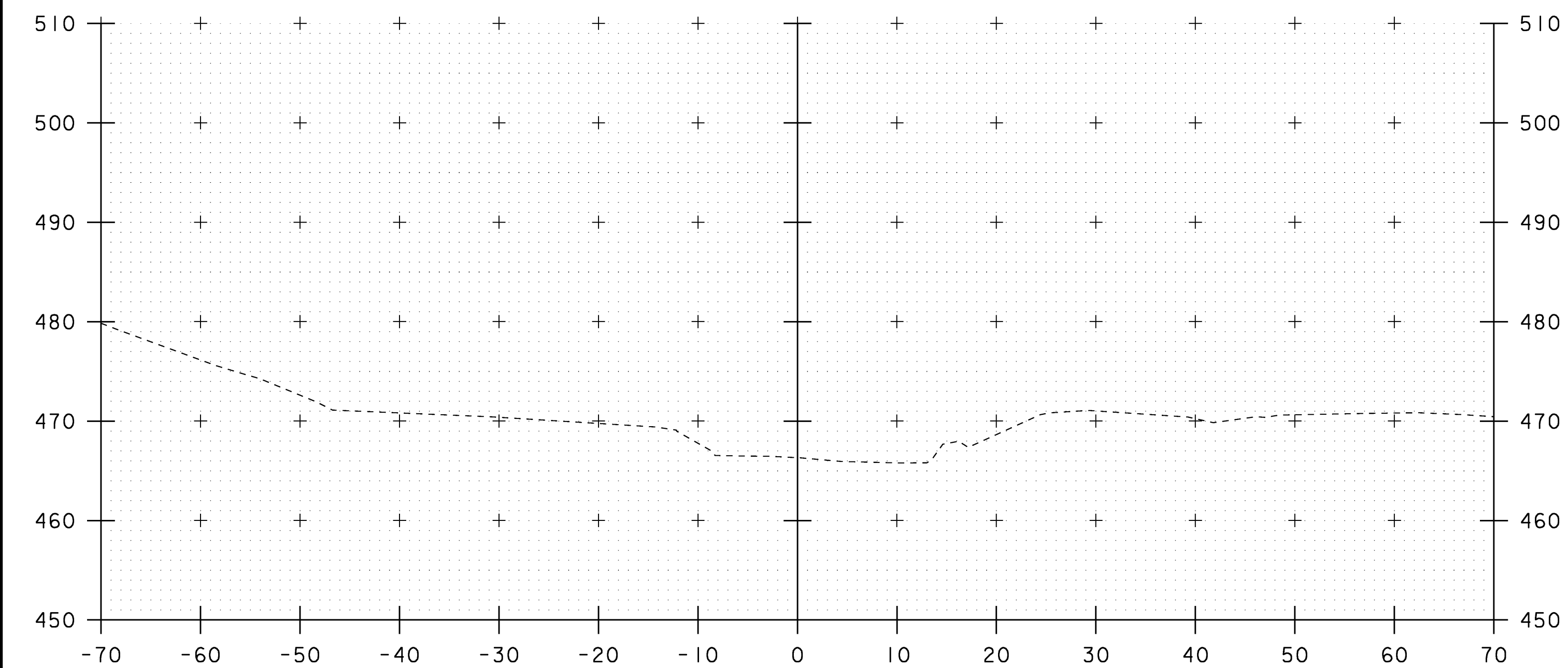
11+50

STA 11+07.50 LT/RT
 END STONE FILL, TYPE IV
 END GRUBBING MATERIAL
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL

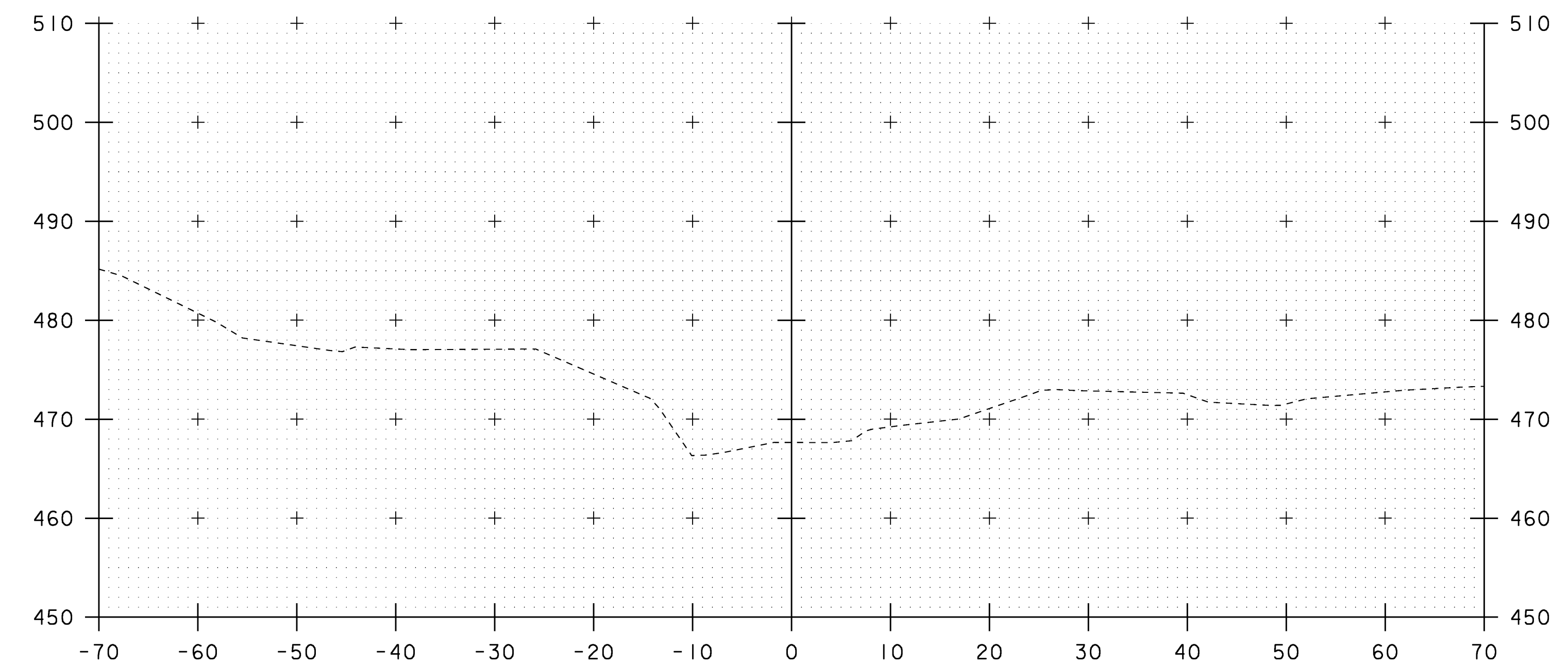


STA. 11+00 TO STA. 11+75

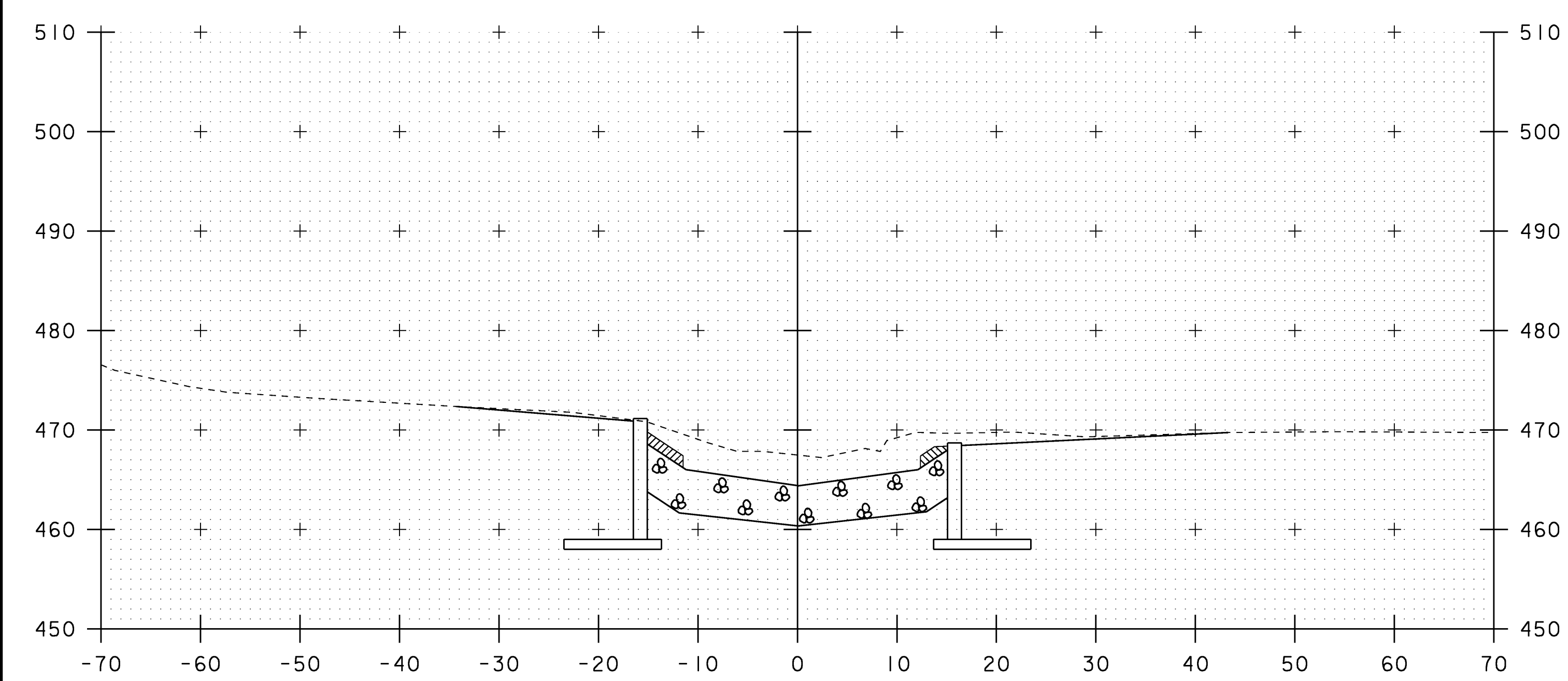
PROJECT NAME: ROCKINGHAM	PROJECT NUMBER: NH CULV(15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064xsl.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064cx2.i	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 26 OF 27
CHANNEL SECTION - SHEET 2	



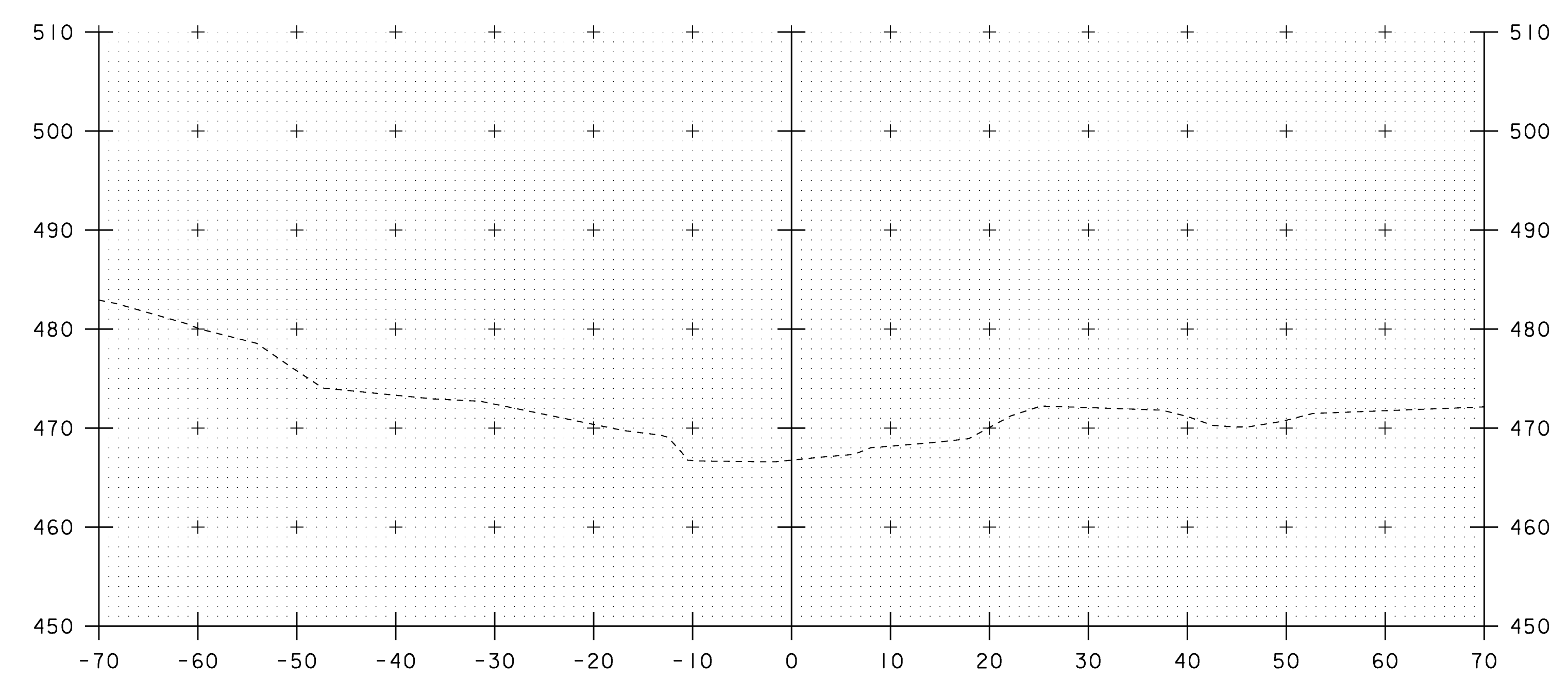
12+25



12+75



12+00



12+50

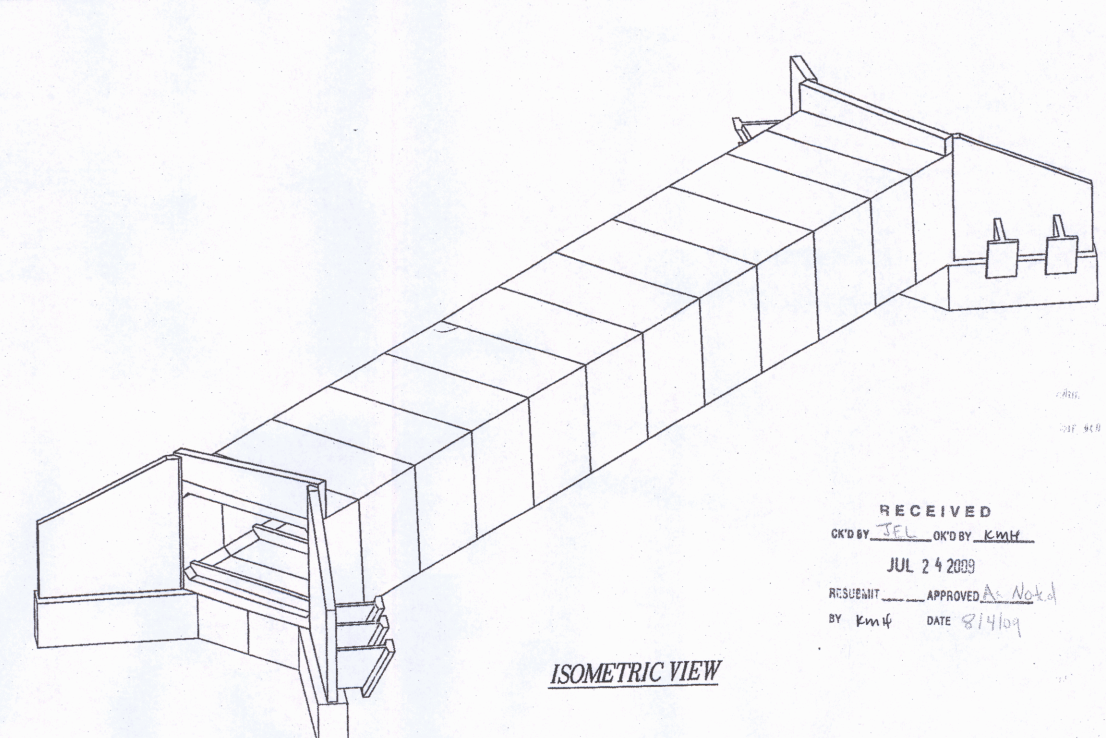
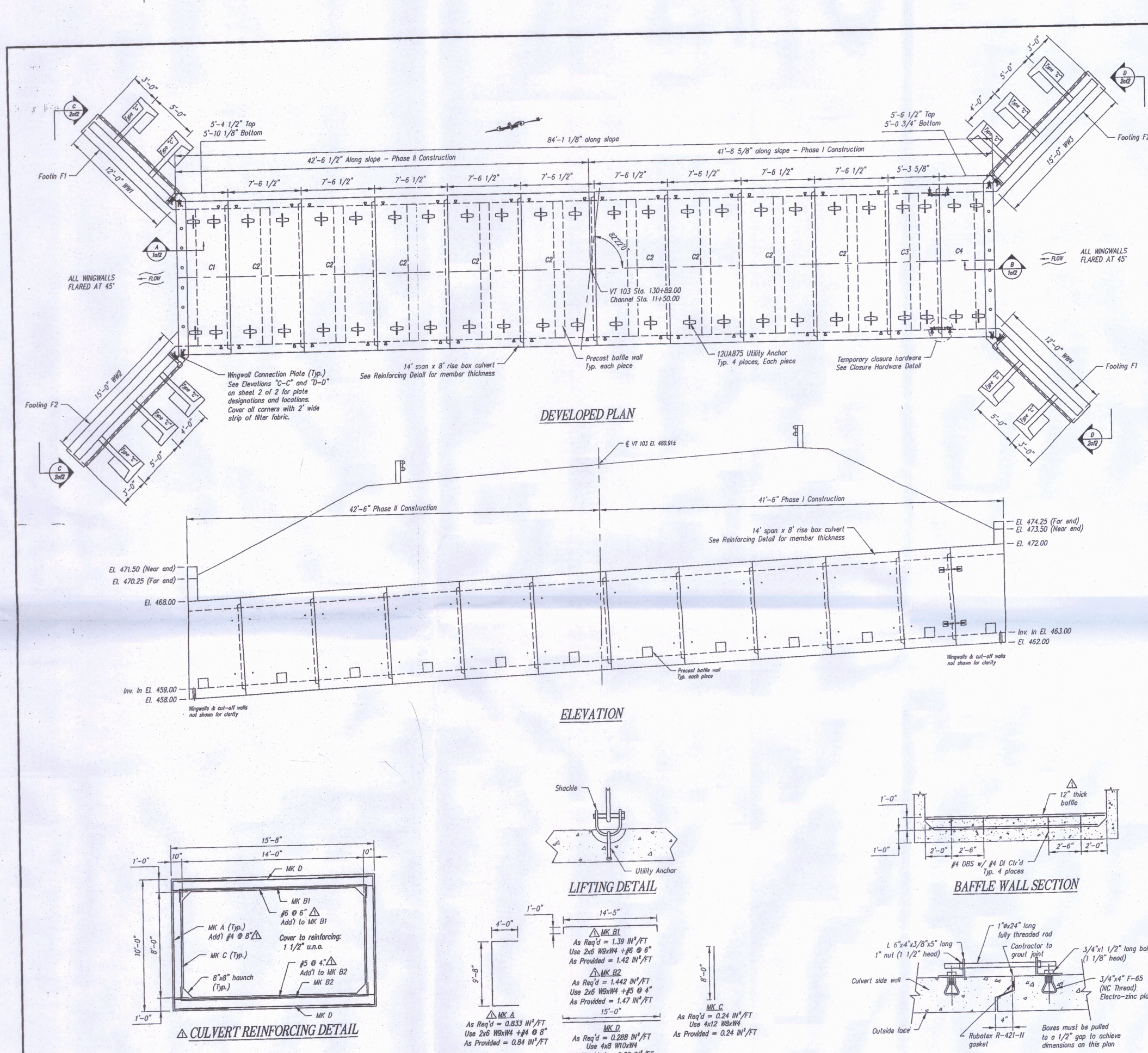
STA 11+91.50 LT/RT BEGIN STONE FILL, TYPE IV
 BEGIN GRUBBING MATERIAL
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 BEGIN GEOTEXTILE UNDER STONE FILL

STA 12+13.00 RT END STONE FILL, TYPE IV
 END GRUBBING MATERIAL
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL

STA 12+20.00 LT END STONE FILLM TYPE IV
 END GRUBBING MATERIAL
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL

SCALE 1" = 10'-0"
 10 0 10
 STA. 12+00 TO STA. 12+75

PROJECT NAME: ROCKINGHAM	PROJECT NUMBER: NH CULV(15)
DESIGN FILE NAME: M:\Projects\08b064\Structures\08b064xsl.dgn	PLOT DATE: 16-APR-2009
IPARM FILE NAME: s08b064cx3.l	DRAWN BY: M.FESSEL
SQUAD LEADER: K.M.HIGGINS	CHECKED BY: J.SALVATORI
DESIGNED BY: J.SALVATORI	SHEET 27 OF 27
CHANNEL SECTION - SHEET 3	



RECEIVED
 JUL 24 2009
 PROJECT: BELLOWS FALLS
 BY: [Signature]

GENERAL NOTES:

- Reference Standards:
 AASHTO LEVEE Bridge Design Specifications
 ASTM C1433
- Design Parameters:
 Line Item: 1E.83
 Earth Cover: 10' to 12'
 Concrete: Culvert Design strength $f'_c = 5000$ psi
 Magnesia A Footing Design strength $f'_c = 4000$ psi
 Unit weight = 150 pcf
 Reinforcing: ASTM A615 (hot), grade 60
 ASTM A615 (cold), 60 ksi
 Unit weight = 140 pcf
 Minimum lateral pressure coefficient .25
 Maximum lateral pressure coefficient .50
 Soil:
 Cover to reinforcement: 1.00' min.
 Maximum lateral pressure coefficient .50
- Dimensions include joint creep. Culvert pieces length is 8' shorter. (i.e. long side of C = 7'-0")
- No compressing or underdrains installed by CSI.
- DES are done per standards and in the event they are.
- Reinforce not designed for impact load.
- All exposed edges of concrete shall be finished with a 1/4" radius.

SECTION	LENGTH	AREA	PERIMETER
CS	11.84	11.71	25.81 TOUS
CS	9.75	12.95	25.73 TOUS
CS	1.26	11.14	18.45 TOUS
CS	1.83	10.45	21.92 TOUS

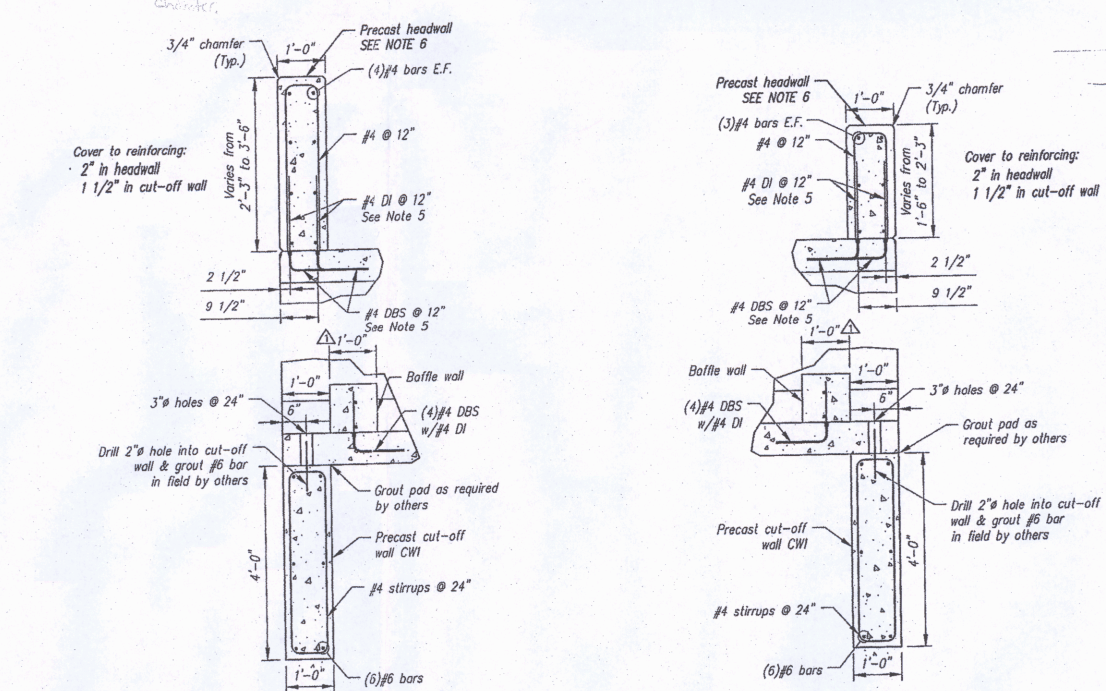
SECTION	LENGTH	AREA	PERIMETER
WVW	12.00	1.41	8.83 TOUS
WVW	11.00	1.45	12.85 TOUS
WVW	11.00	1.88	12.11 TOUS
WVW	11.00	1.71	6.44 TOUS
PF	1.07	1.81	1.78 TOUS
CS	1.27	2.81	1.83 TOUS

CONTRACTOR TO VERIFY THAT ALL DIMENSIONS SHOWN ARE CORRECT AND TO BE RESPONSIBLE FOR ANY DISCREPANCIES BETWEEN THIS DRAWING AND THE FIELD CONDITIONS. THESE DIMENSIONS ARE TO BE USED FOR CONSTRUCTION PURPOSES ONLY AND ARE NOT TO BE USED FOR ANY OTHER PURPOSES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

This drawing is based upon information provided from the following documents and/or sources:

NO.	DESCRIPTION
1	VAOT 103 CULVERT - BRIDGE NO. 4
2	VAOT 103 CULVERT - BRIDGE NO. 4
3	VAOT 103 CULVERT - BRIDGE NO. 4
4	VAOT 103 CULVERT - BRIDGE NO. 4
5	VAOT 103 CULVERT - BRIDGE NO. 4

DATE: 7/23/2009
 DESCRIPTION: Change to culvert reinforcing, 1" thick baffles
 BY: [Signature]



REINFORCING SCHEDULE

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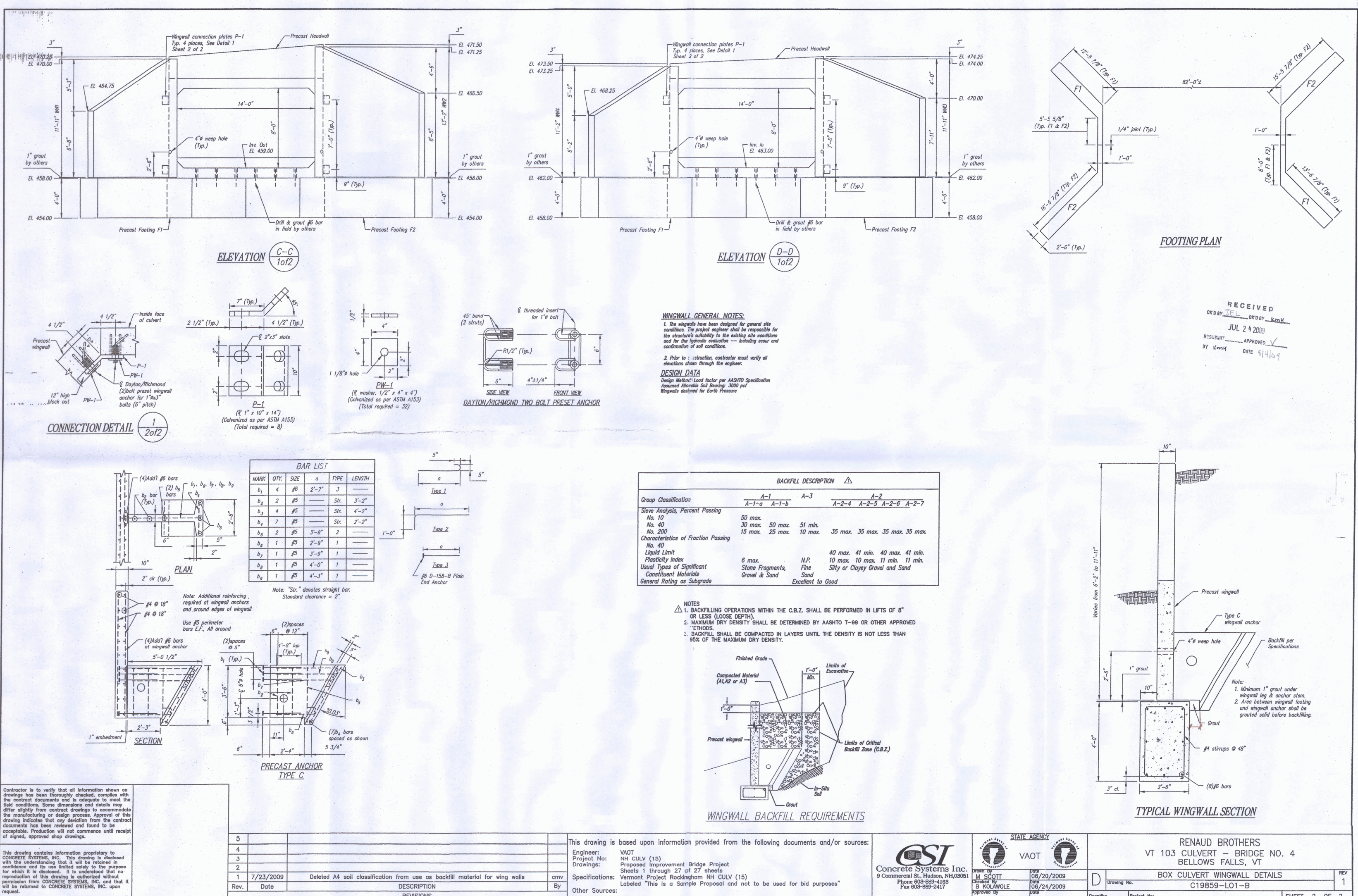
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REINFORCING SCHEDULE

SECTION	LENGTH	AREA	PERIMETER
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RENAUD BROTHERS
 VT 103 CULVERT - BRIDGE NO. 4
 BELLOWS FALLS, VT

CONCRETE SYSTEMS INC.
 4 Commercial St., BELLOWS FALLS, VT 05703
 Phone: 802-888-1122 Fax: 802-888-9417

DATE: 06/24/2009
 DRAWING NO.: C19859-LO1-B
 SHEET: 2 OF 2