

SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

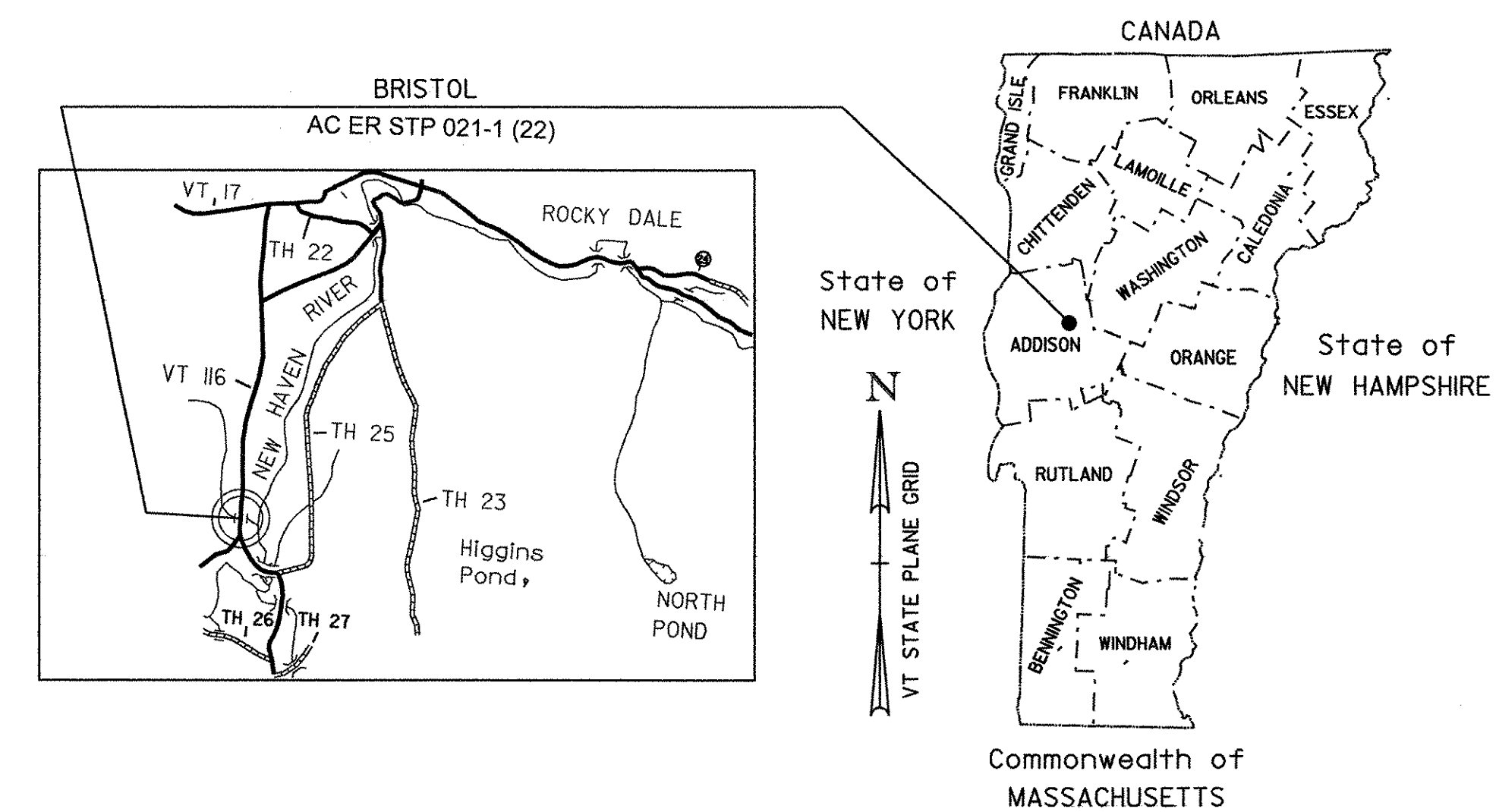
TOWN OF BRISTOL
COUNTY OF ADDISON

ROUTE NO : VT 116, MINOR ARTERIAL BRIDGE NO : 9

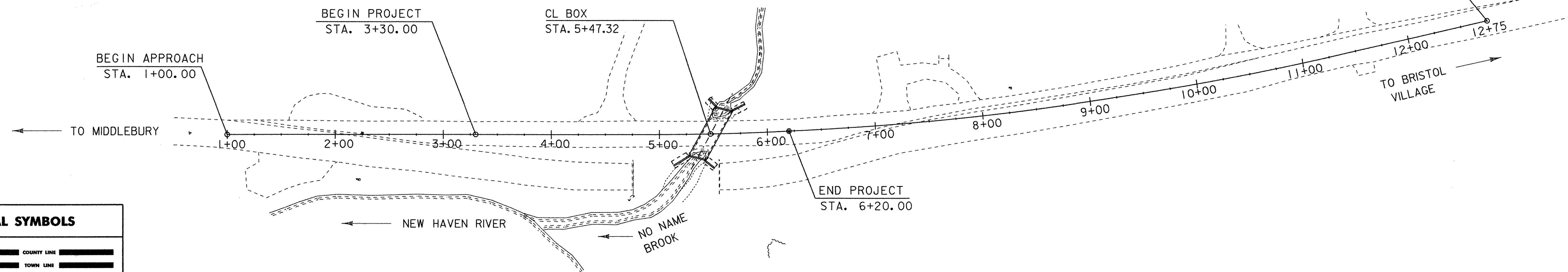
PROJECT LOCATION : IN THE TOWN OF BRISTOL ON VT 116 BEGINNING AT A POINT 2.00 MILES SOUTH OF IT'S INTERSECTION WITH VT 17 AND EXTENDING NORTH TOWARDS VT 17 FOR A DISTANCE OF 290 FT. (0.055 MILES).

PROJECT DESCRIPTION : REPLACE EXISTING STRUCTURE WITH A NEW REINFORCED CONCRETE BOX CULVERT ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF PROJECT: 290 FT
LENGTH OF ROADWAY: 290 FT
LENGTH OF STRUCTURE: N/A



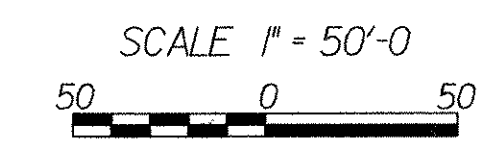
RECORD PLANS	
CONTRACTOR:	PIKE INDUSTRIES, INC. - BERLIN, VT
RESIDENT ENGINEER:	DALE NORTON
CONSTRUCTION BEGAN:	AUGUST 6, 2007
CONSTRUCTION COMPLETE:	NOVEMBER 2, 2007
RECORD PLANS BY:	DALE NORTON & N. GARBACIK
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	<i>Dale R. Norton</i> RESIDENT ENGINEER
DATE	4/29/2009
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 : L. ORVIS PC/J. HULETT
SURVEYED DATE : 05-31-2005

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 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.

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED <i>Rich Phipps</i>	DATE 3-1-07
PROJECT MANAGER : M. EVANS-MONGEON	
PROJECT NAME : BRISTOL	
PROJECT NUMBER : AC ER STP 021-1 (22)	
SHEET 1 OF 66 SHEETS	

PRELIMINARY INFORMATION SHEET

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STANDARDS	DATE
B-71 RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
G-1 STEEL BEAM GUARDRAIL (50MPH & LESS) HEAVY DUTY STEEL BEAM GUARDRAIL TWISTED END TERMINAL ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-1D STEEL BEAM GUARDRAIL (40MPH & LESS) HEAVY DUTY STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-17a MODIFIED ECENTRIC LOADER TERMINAL (MELT)	9/27/2002
G-18 PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER	6/1/1994

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: October 2006

DRAINAGE AREA: 1.9 sq. mi.
 CHARACTER OF TERRAIN: Hilly, mostly open areas with some woods.
 STREAM CHARACTERISTICS: Small, sinuous stream. Probably incised.
 NATURE OF STREAMBED: Gravel and cobbles.

PEAK FLOW DATA

Q 2.33 = 65 cfs	Q 50 = 230 cfs
Q 10 = 150 cfs	Q 100 = 275 cfs
Q 25 = 190 cfs	Q 500 = 385 cfs

DATE OF FLOOD OF RECORD: Unknown
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 8.9 fps (0.8 fps)*
 ICE CONDITIONS: Moderate
 DEBRIS: Light
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE: This site is 180' upstream of the confluence with the New Haven River.
 Hydraulics at this site are controlled by that river during high flows.

WATERSHED STORAGE: 1% HEADWATERS: UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Corrugated Metal Plate Arch. This structure has failed & is not in use.
 YEAR BUILT: Unknown
 CLEAR SPAN (NORMAL TO STREAM): 14'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6'
 WATERWAY OF FULL OPENING: 73.2 sq. ft.
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 = 333.8' (333.8)*	VELOCITY = 7.5 fps (7.5 fps)*
Q10 = 334.5' (338.8)*	" 8.4 fps (1.1 fps)*
Q25 = 334.8' (339.7)*	" 8.7 fps (0.9 fps)*
Q50 = 335.0' (340.5)*	" 8.9 fps (0.7 fps)*
Q100 = 335.2' (341.1)*	" 9.0 fps (0.6 fps)*

LONG TERM STREAMBED CHANGES: Possible deposition upstream.

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
 FREQUENCY: Above Q100 (Between Q25 and Q50)*
 RELIEF ELEVATION: 340.0'
 DISCHARGE OVER ROAD @Q100: None (100 cfs)*

UPSTREAM STRUCTURE

TOWN: None DISTANCE: _____
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: _____

DOWNSTREAM STRUCTURE

TOWN: N.A. - confluence with the New Haven River DISTANCE: 180'
 HIGHWAY #: _____ STRUCTURE #: _____
 CLEAR SPAN: _____ CLEAR HEIGHT: _____
 YEAR BUILT: _____ FULL WATERWAY: _____
 STRUCTURE TYPE: _____

XXXX LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
INVENTORY							
POSTED							
OPERATING							

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2000	4200				

20 year ESAL for flexible pavement from _____ to _____
 40 year ESAL for flexible pavement from _____ to _____
 Design Speed: 40 mph

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete box
 CLEAR SPAN (NORMAL TO STREAM): 14'
 VERTICAL CLEARANCE ABOVE STREAMBED: 5' Maximum (4.7' average)
 WATERWAY OF FULL OPENING: 65 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 333.8' (333.8)*	VELOCITY = 7.5 fps (7.5 fps)*
Q10 = 334.5' (338.8)*	" 8.4 fps (1.1 fps)*
Q25 = 334.8' (339.6)*	" 8.7 fps (0.9 fps)*
Q50 = 335.0' (340.5)*	" 8.9 fps (0.7 fps)*
Q100 = 335.2' (341.1)*	" 9.0 fps (0.7 fps)*

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
 FREQUENCY: Above Q100 (Between Q25 and Q50)*
 RELIEF ELEVATION: 340.0'
 DISCHARGE OVER ROAD @Q100: None (94 cfs)*

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 337.0' at inlet
 VERTICAL CLEARANCE: @ Q50 = 2.0' (-3.5)*

SCOUR: Not applicable to a box structure.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type II

PERMIT INFORMATION

AVERAGE DAILY FLOW: 4 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 2 cfs Depth = <0.5'
 ORDINARY HIGH WATER: 28 cfs Depth = 1.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: A temporary bridge is already in place.
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

*The hydraulics at this site are controlled by the New Haven River. Some lines on this report have two answers. The first answer is based on low flows on the New Haven River, and therefore no effects from that river on the hydraulics. Answers in () represent equal frequency flows on both streams.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO HS 25
- DESIGN SPAN 15 FEET
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 3 KSF
ON LEDGE
- ALLOWABLE LOAD FOR PILING N/A
TYPE
- ESTIMATED LENGTH
- STRUCTURAL STEEL AASHTO M270/M270 GRADE N/A
- REINFORCING STEEL GRADE 60
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 4000 psi
CONCRETE, HIGH PERFORMANCE CLASS B fc: N/A
- DESIGN SOIL UNIT WEIGHT 140 PCF
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES
 IF YES, ON EXISTING STRUCTURE? NO
 OR ON TEMPORARY BRIDGE? YES
 ONE OR TWO-WAY TRAVEL? TWO
- TRAFFIC CONTROL SIGNALS REQUIRED? NO
- ARE SIDEWALKS REQUIRED? NO
 IF SO, ON WHAT SIDE? N/A

PROJECT NAME: Bristol
 PROJECT NUMBER: ER ST 021-1 (22)
 FILE NAME: s05b126excel.dgn PLOT DATE: 3/1/2007
 PROJECT LEADER: M. Evans-Mongeon DRAWN BY: L. Duquette
 DESIGNED BY: M. Evans-Mongeon CHECKED: G. Rokes
 PRELIMINARY INFORMATION SHEET #1 SHEET 2 OF 66

MATERIAL TOLERANCE TABLE

MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT (TOTAL DEPTH)	± 1/4"
BASE COURSE (TOTAL DEPTH)	± 1/2"
SUBBASE (TOTAL DEPTH)	± 1"

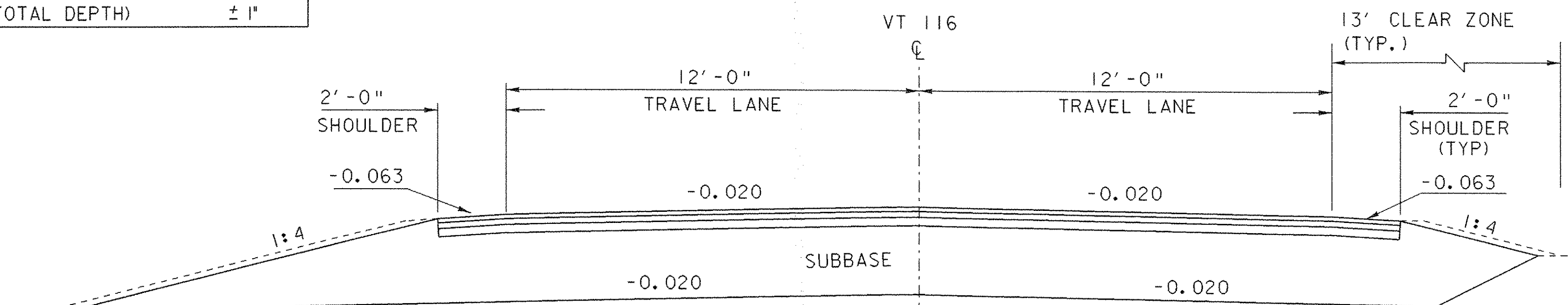
1/2" BITUMINOUS CONCRETE, TYPE III (PG 58-34)
 2" BITUMINOUS CONCRETE, TYPE III (PG 58-34)
 3" BITUMINOUS CONCRETE, TYPE I (PG 58-34)
 24" SUBBASE OF DENSE GRADED CRUSHED STONE

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 RYEGRASS	95	85
100.0	60.0			

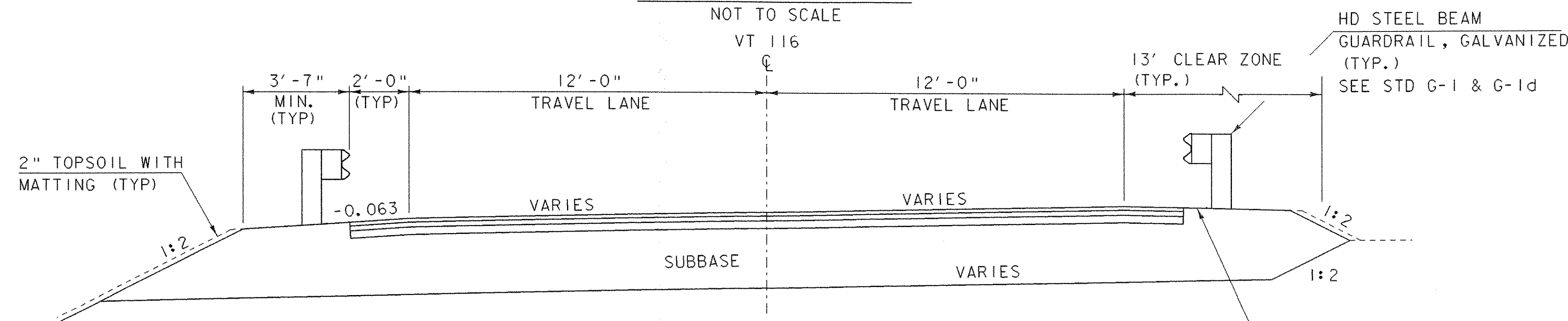
GENERAL NOTES

- SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.
- FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
- AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.



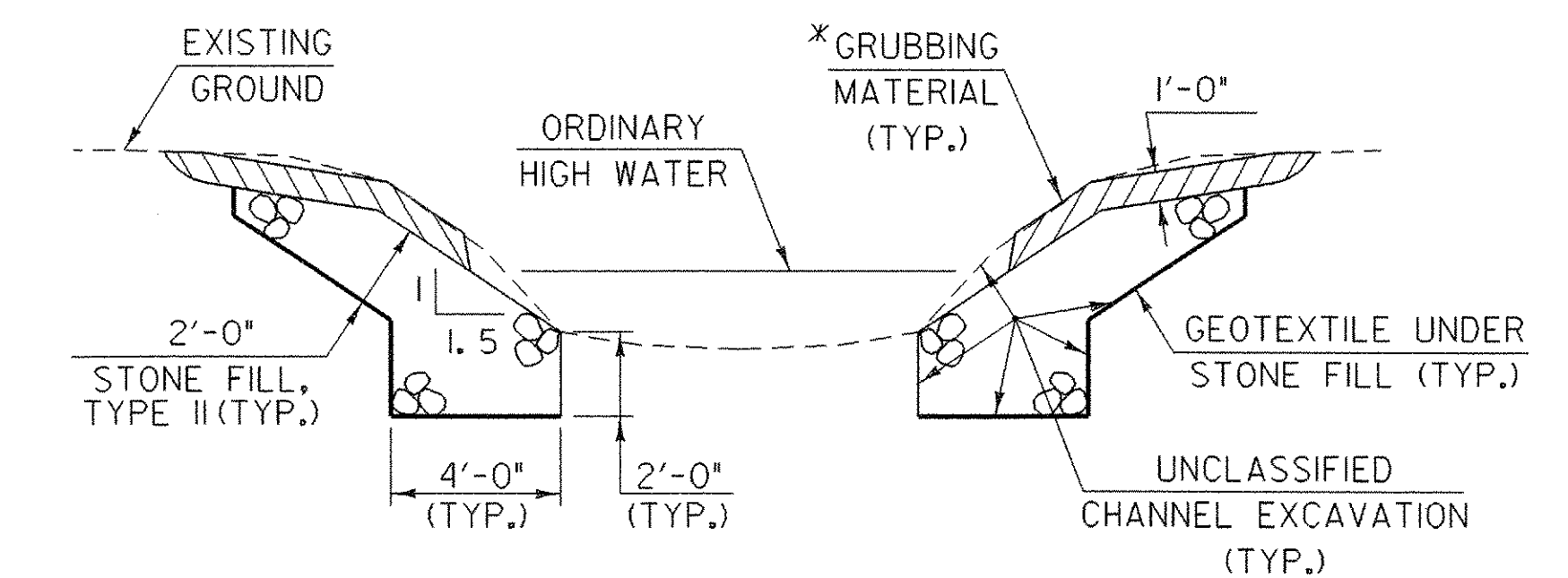
NORMAL SECTION

NOT TO SCALE



BANKED SECTION

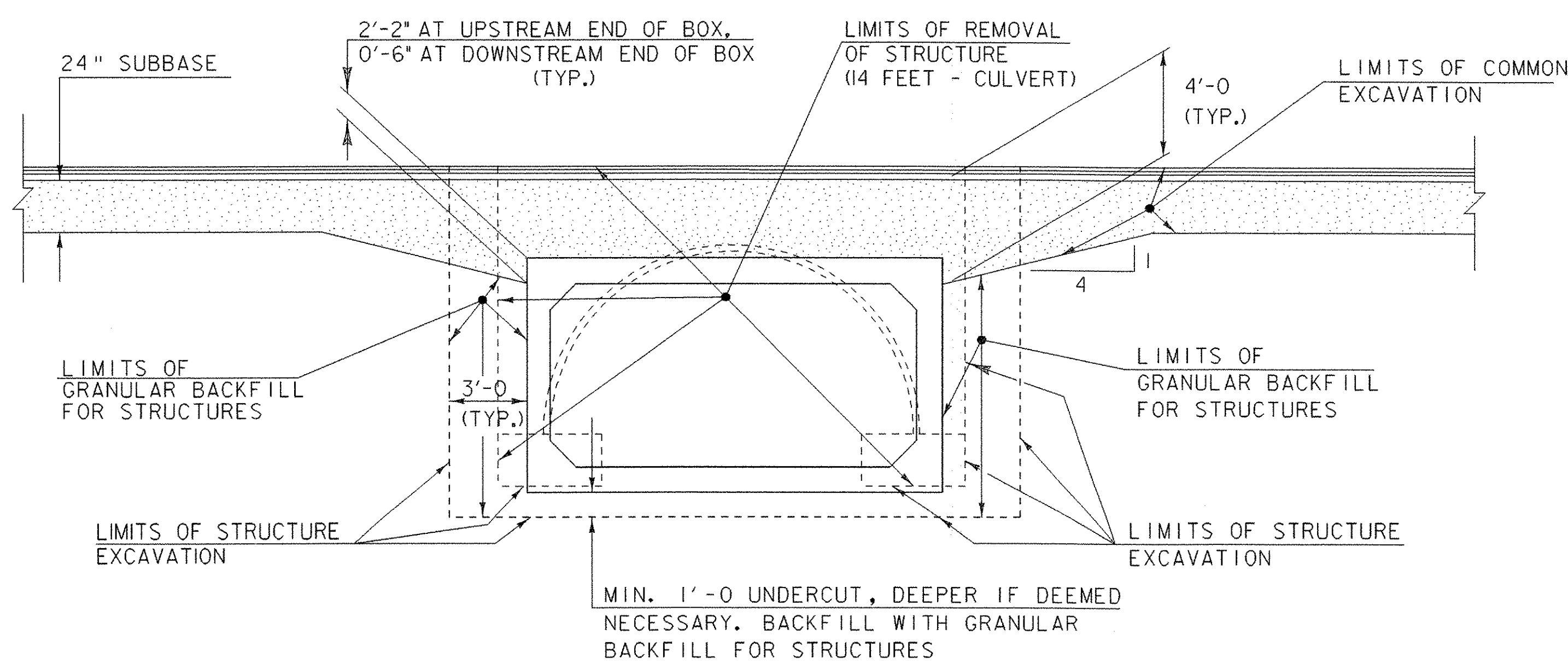
NOT TO SCALE



TYPICAL CHANNEL SECTION

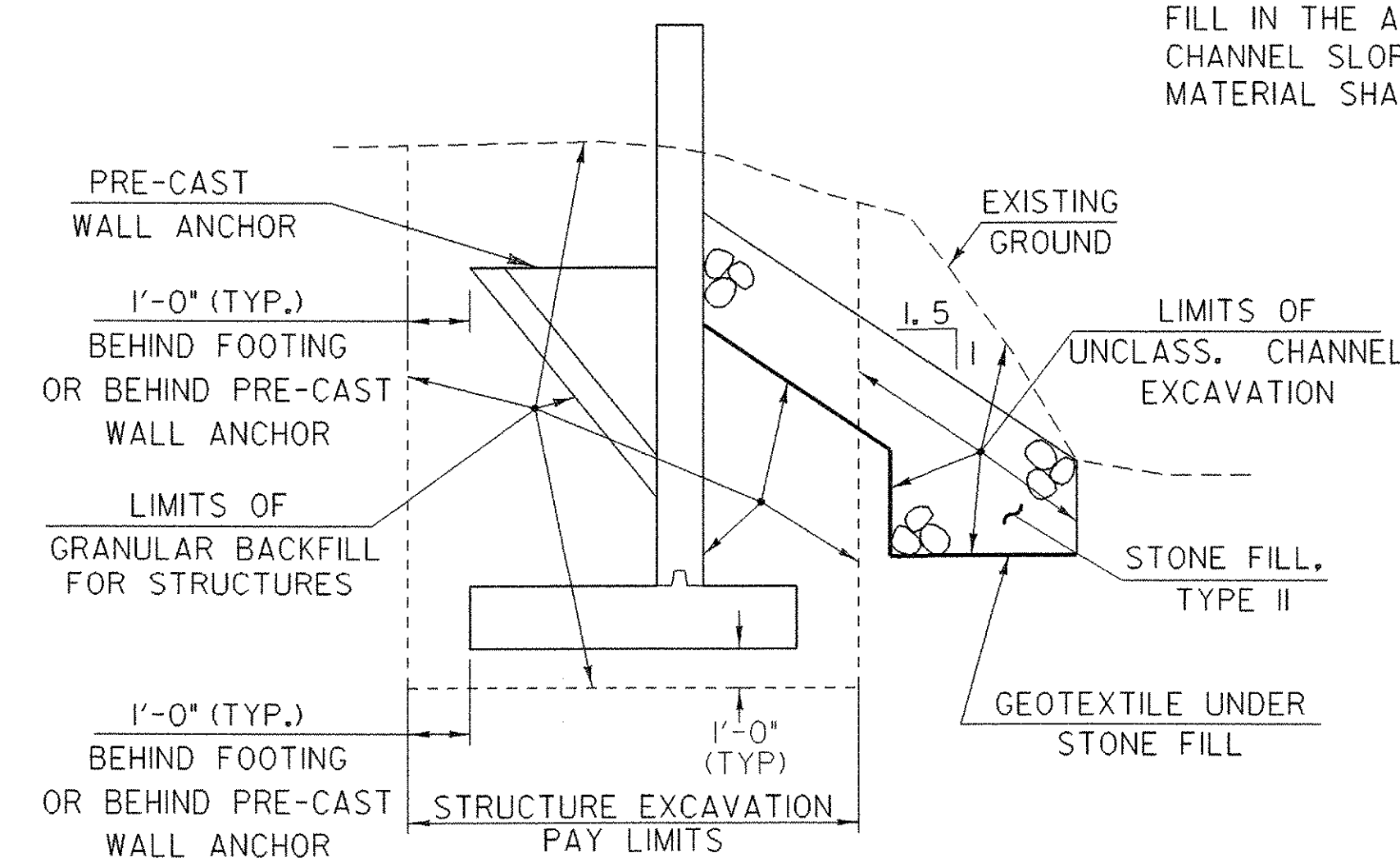
NOT TO SCALE

* 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.



TYPICAL BOX CULVERT SECTION

NOT TO SCALE



TYPICAL WINGWALL SECTION

NOT TO SCALE

TYPICAL SECTIONS

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

FILE NAME: 05bl26\Str\s05bl26+yp.dgn PLOT DATE: 20-MAR-2007
 PROJECT LEADER: M. Evans-Mongeon DRAWN BY: G. ROKES
 DESIGNED BY: M. Evans-Mongeon CHECKED BY: G. ROKES
 SHEET 3 OF 66

QUANTITY SHEET

SUMMARY OF ESTIMATED QUANTITIES

TOTALS

DESCRIPTIONS

DETAILED SUMMARY OF QUANTITIES

SUMMARY OF ESTIMATED QUANTITIES										TOTALS			DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
										ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
											1		LS	CLEARING AND GRUBBING INCLUDING INDIVIDUAL TREES AND STUMPS	201.10			
											2750	2750	CY	COMMON EXCAVATION	203.15			
										105	105		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
										192	192		CY	EXCAVATION OF SURFACES AND PAVEMENTS	203.28			
										475	475		CY	STRUCTURE EXCAVATION	204.25			
										315	315		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
										2750	2750		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10			
										1115	1115		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35			
										3	3		CWT	EMULSIFIED ASPHALT	404.85			
										910	910		TON	BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	408.25			
										90	90		SY	SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET	519.21			
										1	1		EACH	REMOVAL OF STRUCTURE (14 FEET - CULVERT)	529.15			
										1	1		EACH	REMOVAL OF STRUCTURE (1920 SF - EST.)	529.15			
										1	1		LS	PRECAST CONCRETE STRUCTURE (14'-0" x 7'-0" x 62'-0" BOX)	540.10			
										5	5		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25			
										5	5		HR	TRUCK RENTAL	608.37			
										68	68		MGAL	DUST CONTROL WITH WATER	609.10			
										85	85		CY	STONE FILL, TYPE II	613.11			
										1	1		EACH	RELOCATE MAIL BOX, SINGLE SUPPORT	617.10			
										76.100	76.100		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21			
										4	4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.80			
										150	150		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		LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25			
										1	1		LS	MOBILIZATION / DEMOBILIZATION	635.11			
										1	1		LS	TRAFFIC CONTROL	641.10			
										2350	2350		LF	DURABLE 4 INCH WHITE LINE	646.400			
										2350	2350		LF	DURABLE 4 INCH YELLOW LINE	646.410			
										1800	1800		LF	TEMPORARY 4 INCH WHITE LINE	646.600			
										1800	1800		LF	TEMPORARY 4 INCH YELLOW LINE	646.610			
										100	100		EACH	LINE STRIPING TARGETS	648.70			
										600	600		SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	648.85			
										165	165		SY	GEOTEXTILE UNDER STONE FILL	649.31			
										570	570		SY	GEOTEXTILE FOR SILT FENCE	649.51			
										10	50		LB	SEED	651.15			
										10	10		LB	SEED-WINTER RYE	651.17			
										100	100		LB	FERTILIZER	651.18			
										1	1		TON	AGRICULTURAL LIMESTONE	651.20			

PROJECT NAME: Bristol
 PROJECT NUMBER: ER ST 021-1 (22)
 FILE NAME: s05b120excel.dgn PLOT DATE: 2/28/2007
 PROJECT MANAGER: M. Evans-Mongeon DRAWN BY: L. Duquette
 DESIGNED BY: M. Evans-Mongeon CHECKED BY: G. Rokes
 QUANTITY SHEET #1 SHEET 4 OF 66

QUANTITY SHEET

SUMMARY OF ESTIMATED QUANTITIES										TOTALS				DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES				
									FULL E&C	EROSION CONTROL	ROADWAY	BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
										1				1		TON	HAYMULCH	651.25			
										10	170			180		CY	TOPSOIL	651.35			
												100		100		SY	GRUBBING MATERIAL	651.40			
										1				1		LS	EPSC PLAN	652.10			
										15				15		HR	MONITORING EPSC PLAN	652.20			
										1				1		LU	MAINTENANCE OF EPSC PLAN (N. A. B. I.)	652.30			
										140				140		SY	TEMPORARY EROSION MATTING	653.20			
										10				10		CY	VEHICLE TRACKING PAD	653.35			
										2265				2265		LF	PROJECT DEMARCATION FENCE	653.55			
											2			2		EACH	ERECTING SALVAGED SIGNS	675.60			
											1			1		EACH	SETTING SALVAGED POSTS	675.61			
												40		40		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608			
												10		10		GAL	SPECIAL PROVISION (WATER REPELLENT, SILANE)	900.625			
												200		200		LF	SPECIAL PROVISION (HD STEEL BEAM GUARDRAIL, GALVANIZED / NESTED)	900.640			
											1056			1056		LF	SPECIAL PROVISION (MAINTENANCE AND REMOVAL OF TEMPORARY TRAFFIC BARRIER)	900.640			
												1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645			

PROJECT NAME: **Bristol**
 PROJECT NUMBER: **ER ST 021-1 (22)**
 FILE NAME: s05b126excel.dgn PLOT DATE: 2/28/2007
 PROJECT MANAGER: M. Evans-Mongeon DRAWN BY: L. Duquette
 DESIGNED BY: M. Evans-Mongeon CHECKED BY: G. Rokes
 QUANTITY SHEET #2 SHEET 5 OF 66

RIGHT - OF - WAY DETAIL SHEET

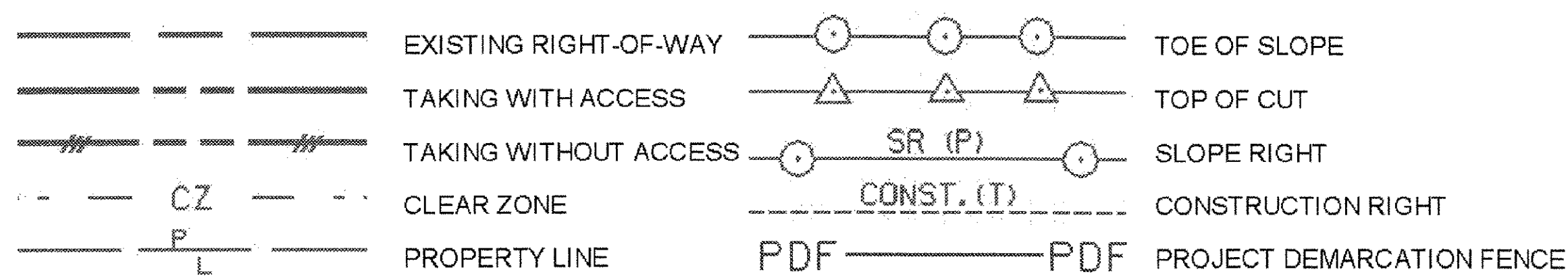
TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE AREA±	REMAINDER AREA±	RIGHT			RECORDING DATA				REMARKS		
							TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK		PAGE	
1	TOWN OF BRISTOL	8, 9 10	1+00.00 RT	8+27.24 LT	0.53A		ALL R.T. & I.								VT RTE. 116 HWY. EASE.	
			5+07 RT	5+50 RT		CHANNEL	(P)	490 SF							NO NAME BROOK	
			5+11 RT	5+23 RT		INSTALL & MAINTAIN	(P)	29 SF							WING WALL AND FOOTING	
			5+44 RT	5+54 RT		INSTALL & MAINTAIN	(P)	40 SF							WING WALL AND FOOTING	
			5+85 LT	5+86 LT		CHANNEL	(P)	90 SF							NO NAME BROOK	
			5+73 LT	5+81 LT		INSTALL & MAINTAIN	(P)	155 SF							WING WALL AND FOOTING	
			7+07 LT	7+32 LT		REMOVE	(T)	247 SF							REMOVE DRIVE, ADD TOPSOIL & SEED	
			7+25 RT												DRIVE 20' WIDE, PAVED MM 0361	
			7+75 LT				DRIVE	(T)						24' WIDE, PAVED MM 0362		
2	ADAMS-ROSE, J. REBECCA & ROSE, DAVID M.	8, 9	1+00.00 LT	3+47.34 LT	0.14A		ALL R.T. & I.								VT RTE. 116 HWY. EASE.	
			1+51 LT	2+74 LT		CONST.	(T)	490 SF						INCL. PDF		
			1+56 LT	2+82 LT		REMOVE	(T)	880 SF							DETOUR LIMITS, ADD TOPSOIL & SEED	
			2+83 LT	3+49 LT		CONST.	(T)	330 SF							INCL. PDF	
3	EMILIO, JOHN A.	9	3+47.17 LT	5+59.59 LT	0.12A		ALL R.T. & I.								VT RTE. 116 HWY. EASE.	
			3+47.34 LT	4+51 LT		CONST.	(T)	600 SF							INCL. PDF	
			4+55 LT			DRIVE	(T)								22' WIDE PAVED MM 0356	
			4+68 LT	5+86 LT		CONST.	(T)	2,520 SF							INCL. E.C. & PDF	
			4+69 LT	5+03 LT		SLOPE	(T)	82 SF							INCL. E.C.	
			5+41 LT	5+52 LT		INSTALL & MAINTAIN	(P)	77 SF								WING WALL & FOOTING
			5+48 LT	5+61 LT		CHANNEL	(P)	97 SF								NO NAME BROOK, INCL. TEMP E.C.
4	BUTLER, JERRY W. AND AVIS BUTLER, TRUSTEE OF THE HAROLD J. BUTLER REVOCABLE TRUST	9, 10	7+47.63 RT	12+75.00 RT	0.31A		ALL R.T. & I.								VT RTE. 116 HWY. EASE.	
			7+45 RT	10+57 RT		CONST.	(T)	0.14 A							INCL. E.C. & PDF	
			7+47 RT	8+31 RT		SLOPE	(T)	260 SF								
			9+32 RT													DO NOT DISTURB-WELL
			11+55 RT													EXISTING DRIVE 16' WIDE, GRAVEL MM 0370
5	FITZGERALD, NATHAN R.	10	10+43 LT												DRIVE 24' WIDE, PAVED MM 0367	
			11+56 LT												DRIVE 24' WIDE, PAVED MM 0370 IN COMMON WITH BACHAND II, THOMAS E. & THRESHER, LEANN, AND WILLIAMS, EUGENE & BETTY	
6	CENTRAL VERMONT PUBLIC SERVICE CORPORATION														UTILITY	
7	WAITSFIELD-FAYSTON TELEPHONE COMPANY INCORPORATED															UTILITY
8	COMCAST OF CONNECTICUT/GEORGIA/ MASSACHUSETTS/NEW HAMPSHIRE/ NEW YORK/NORTH CAROLINA/ VERMONT, LLC															UTILITY

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
		ELECTRONIC IPARMS TO STRUCTURES	2-20-07

PLAN LEGEND



APPROVED: FRANK J. MALNATI JR. DATE: 01-05-07
ACTING CHIEF, PLANS & TITLES

PLOT DATE 02/16/07

PROJECT NAME: BRISTOL
PROJECT NUMBER: ER ST 021-1 (22)

FILE NAME: r05b126.xls
PROJECT LEADER: M. Evans-Mongeon
DESIGNED BY: MEM
R.O.W. SHEET 7 OF 10

PLOT DATE:
DRAWN BY: JAB
CHECKED BY: EP
SHEET 7 OF 66

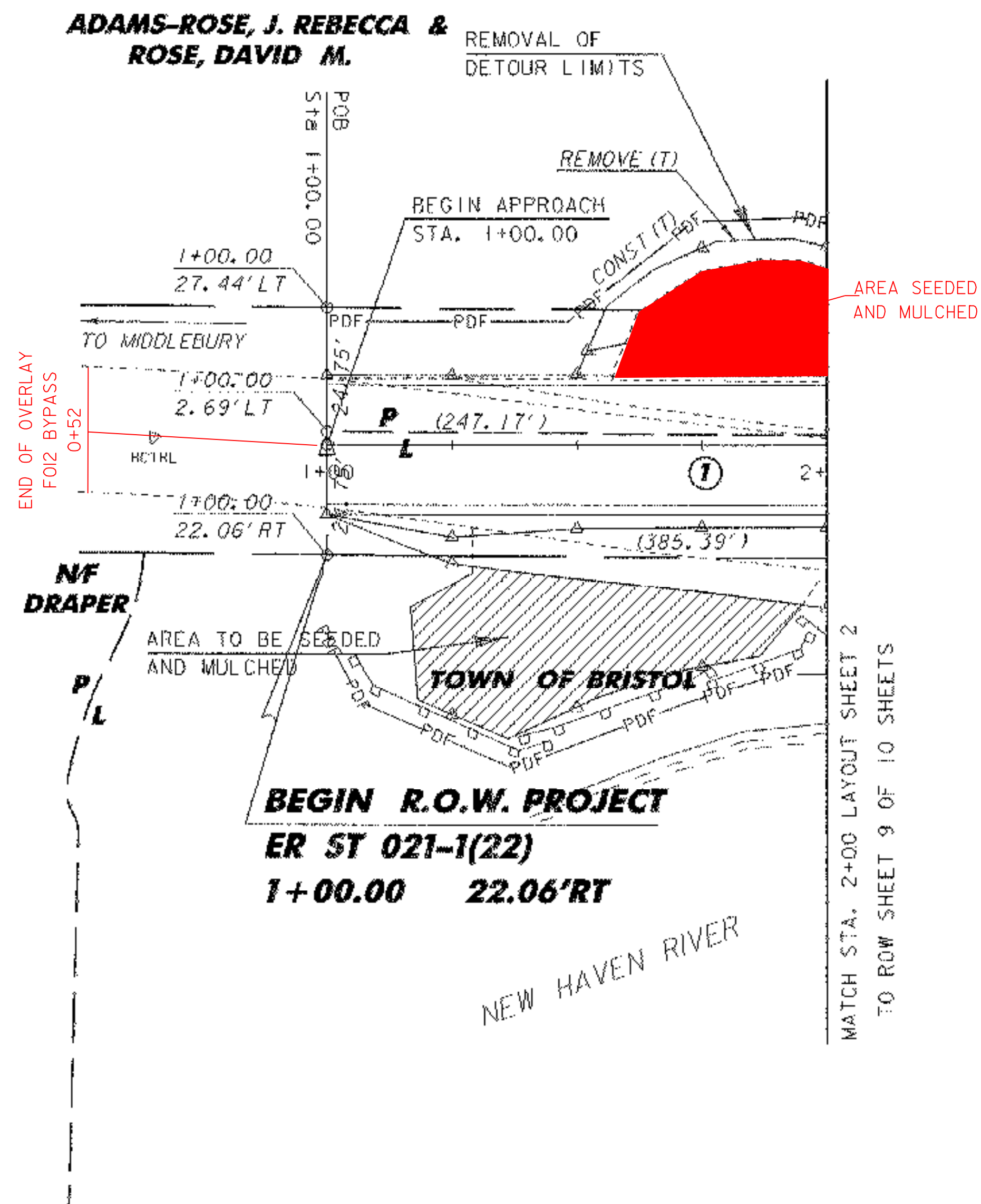
DURABLE 4 INCH WHITE LINE
 STA. 1+00 LT - STA. 2+00 LT
 STA. 1+00 RT - STA. 2+00 RT

DURABLE 4 INCH YELLOW LINE
 STA. 1+00 - STA. 2+00 LT and RT



COLD PLANING, BITUMINOUS PAVEMENT
 STA. 1+00 - STA. 2+00

**ADAMS-ROSE, J. REBECCA &
 ROSE, DAVID M.**



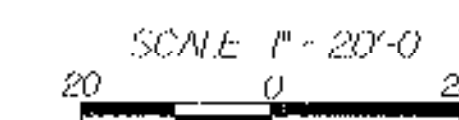
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

ALL DRIVES AS INDICATED ON PLANS ARE SUBJECT TO PERMITS PURSUANT TO TITLE 19 SECTION III, V.S.A

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

LAYOUT SHEET 1

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1(22)
DESIGN FILE NAME: 05b126\5fr\505b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	DESIGNED BY: M. EVANS-MONGEON
	CHECKED BY: G. ROKES
	SQUAD LEADER: M. EVANS-MONGEON
	DRAWN BY: G. ROKES
ROW SHEET: 8 OF 10 SHEETS	SHEET 8 OF 66



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)

ANCHOR FOR STEEL BEAM RAIL
 STA. 4+70 RT
 STA. 5+01 LT 4+90
 STA. 6+05 RT
 STA. 6+12 LT 6+25

CONSTRUCT PAVED DRIVE
 STA. 4+55.00 LT
 STA. 7+25.00 RT @ 43.5°

ERECTING SALVAGED SIGNS
 STA. 6+00.00 LT 21.01 FT
 STA. 6+00.00 LT 21.01 FT

CURVE DATA:
 Delta = 12°58'58.17"
 D = 1°58'32.58"
 R = 2900.00'
 T = 329.97'
 L = 657.12'
 E = 18.71'

CONSTRUCT DRIVE (PAVED COMMERCIAL)
 STA. 7+75.00 LT (20' PAVED APRON)

DURABLE 4 INCH WHITE LINE PAINT
 STA. 2+00 LT - STA. 8+00 LT
 STA. 2+00 RT - STA. 8+00 RT

HD STEEL BEAM GUARDRAIL, GALVANIZED
 STA. 4+64.46 RT - STA. 5+25.55 RT
 STA. 5+50.43 RT - STA. 6+11.28 RT
 STA. 4+95.74 LT - STA. 5+44.35 LT 5+05
 STA. 5+69.47 LT - STA. 6+18.03 LT 6+30

HD STEEL BEAM GUARDRAIL GALVANIZED/ NESTED
 STA. 5+25.55 RT - STA. 5+50.43 RT
 STA. 5+44.35 LT - STA. 5+69.47 LT 5+10
 COLD PLANING BITUMINOUS PAYMENT
 STA. 2+00 - STA. 3+30
 STA. 6+20 - STA. 8+00

EXISTING BRIDGE INFORMATION
 14 FOOT CORRUGATED STEEL ARCH
 ON CAST-IN-PLACE CONCRETE FOOTING
TOWN OF BRISTOL



DURABLE 4 INCH YELLOW LINE PAINT
 STA. 2+00 - STA. 8+00 LT and RT 13+80

RELOCATE MAIL BOX, SINGLE SUPPORT
 STA. 4+37.52 LT 18.75 FT

SETTING SALVAGED POSTS
 STA. 6+00.00 LT 21.00 FT

ADAMS-ROSE, J. REBECCA & ROSE, DAVID M.

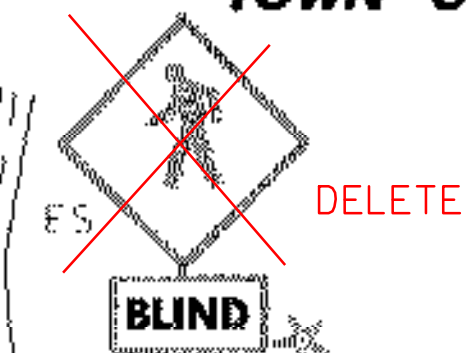
RETAIN 15" CPEP PIPE

RELOCATE MAIL BOX AND POST

END APPROACH BEGIN PROJECT STA. 3+30.00

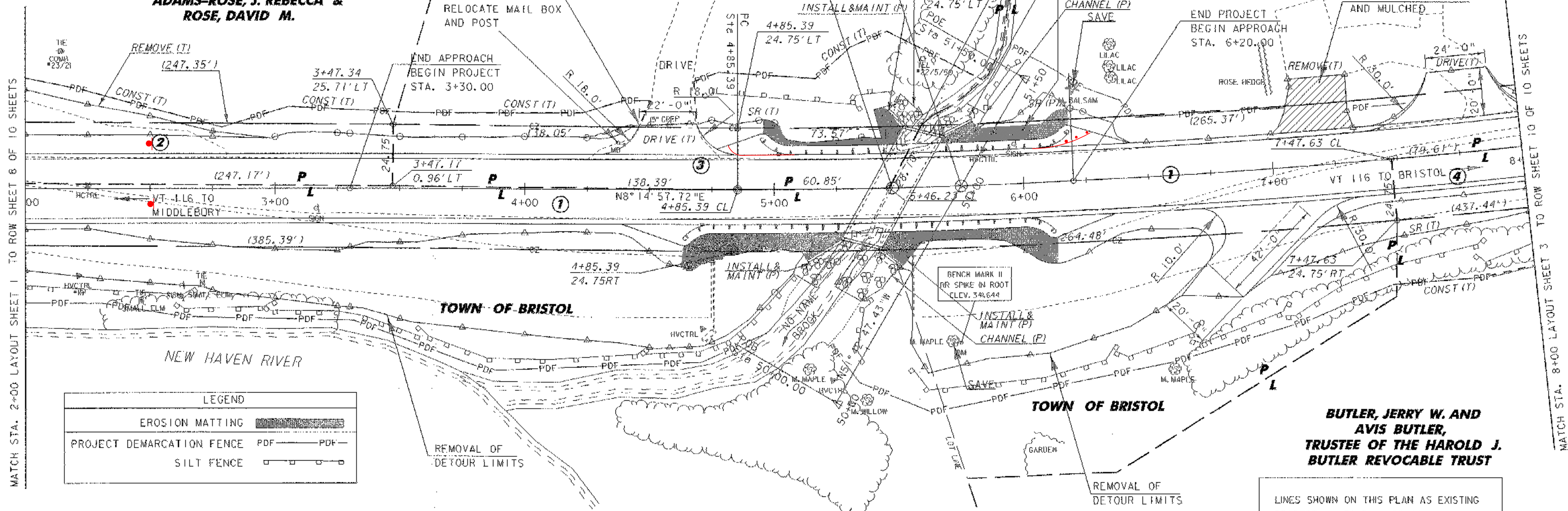
CL BOX TO ML STA. 5+47.32

CHANNEL (P) 5+59.59



END PROJECT BEGIN APPROACH STA. 6+20.00

AREA TO BE SEEDED AND MULCHED



LEGEND	
EROSION MATTING	
PROJECT DEMARCATION FENCE	
SILT FENCE	

REMOVAL OF DETOUR LIMITS

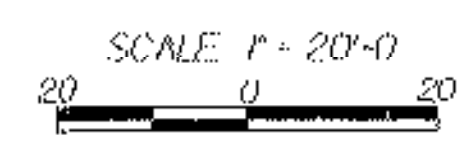
REMOVAL OF DETOUR LIMITS

BUTLER, JERRY W. AND AVIS BUTLER, TRUSTEE OF THE HAROLD J. BUTLER REVOCABLE TRUST

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

FOR R.O.W. USE ONLY

ALL DRIVES AS INDICATED ON PLANS ARE SUBJECT TO PERMITS PURSUANT TO TITLE 19 SECTION III, V.S.A.



LAYOUT SHEET 2

PROJECT: BRISTOL	PROJECT NO. 1 ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\51r\05b126ldr.dgn	PILOT DATE: 27-MAR-2007
IPARM FILE NAME: s05b126ly2.1	CHECKED BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	
ROW SHEET: 9 OF 10 SHEETS	SHEET 9 OF 66

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAVD 83 (96)

MATCH STA. 2+00 LAYOUT SHEET 1 TO ROW SHEET 8 OF 10 SHEETS

MATCH STA. 8+00 LAYOUT SHEET 3 TO ROW SHEET 10 OF 10 SHEETS

TOWN OF BRISTOL

① **DURABLE 4 INCH WHITE LINE PAINT**
 STA. 8+00 LT - STA. 12+75 LT
 STA. 8+00 RT - STA. 12+75 RT

DURABLE 4 INCH YELLOW LINE PAINT
 STA. 8+00 - STA. 12+75 LT and RT
 13+80

COLD PLANING, BITUMINOUS PAVEMENT
 STA. 8+00 - STA. 12+75 13+79

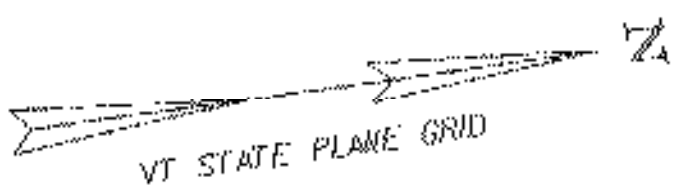
CONSTRUCT DRIVE (PAVED)
 STA. 10+43.00 LT (24' PAVED APRON)
 STA. 11+56.00 LT (24' PAVED APRON)

FITZGERALD, NATHAN R.

M. MAPLE
 M. MAPLE
 M. BOX ADLER

⑤

**BUTLER, JERRY W. AND AVIS BUTLER,
 TRUSTEE OF THE HAROLD J. BUTLER REVOCABLE TRUST**



ROW IN COMMON
 BACHAND II, THOMAS E. & THRESHER, LEANN, AND
 WILLIAMS, EUGENE & BETTY

END APPROACH
 STA. 12+75.00

END OF COLD PLANING
 13+79

**END R.O.W. PROJECT
 ER ST 021-1(22)
 12+75.00 24.75'RT**

LEGEND	
EROSION MATTING	
PROJECT DEMARCATION FENCE	
SILT FENCE	

MATCH STA. 8+00 LAYOUT SHEET 2 TO ROW SHEET 9 OF 10 SHEETS

STA. 8+15.36 BK
 STA. 8+12.54 AH

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

ALL DRIVES AS INDICATED ON PLANS
 ARE SUBJECT TO PERMITS PURSUANT
 TO TITLE 19 SECTION III, V.S.A

SCALE 1" = 20'-0"

LAYOUT SHEET 3

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

PROJECT: BRISTOL	PROJECT NO. # ER ST 021-1(22)
DESIGN FILE NAME: 05b126\5fr\05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: 05b1261y3.i	CHECKED BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	
ROW SHEET: 10 OF 10 SHEETS	SHEET 10 OF 66

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)

GPS CONTROL POINTS

HVCTRL #1

CGS TRIANGULATION STATION DISC

"BRISTOL 2 1970"

N = 583280.18
E = 1483867.85
ELEV. = 340.27

STATION IS LOCATED ABOUT 0.8 KM (0.5 MILE) WEST OF CENTER OF BRISTOL, IN THE WEST ANGLE OF THE T-INTERSECTION OF STATE HIGHWAY 17 AND A MACADAM ROAD RUNNING NORTH, UP ON A LOW CUTBANK, IN SOUTHWEST CORNER OF SCHOOL PLAYGROUND, FORMERLY BRISTOL AIRPORT. TO REACH STATION FROM THE MAIN INTERSECTION IN CENTER OF BRISTOL, GO WEST ON STATE HIGHWAY 17 FOR 0.97 KM (0.6 MILE) TO STATION ON RIGHT, WHERE THE HIGHWAY BEGINS TO CURVE LEFT, DOWNGRADE. STATION MARK IS A STANDARD DISK STAMPED BRISTOL 2 1910, SET IN TOP OF A 0.25 m (10 INCH) DIAMETER, CONCRETE MONUMENT FLUSH WITH THE GROUND. IT IS 21m (69 FEET) NORTHWEST OF CENTER LINE OF HIGHWAY 17, 13.4 m (44 FEET) WEST-NORTHWEST OF CENTER LINE OF MACADAM SIDE ROAD, 1.4 m (4.5 FEET) NORTH OF POWER POLE 29, 6.64 m (21.8 FEET) NORTH OF A FIRE HYDRANT, AND 0.46 m (1.5 FEET) SOUTHWEST OF A METAL WITNESS POST

HVCTRL #2

STANDARD DISK STAMPED

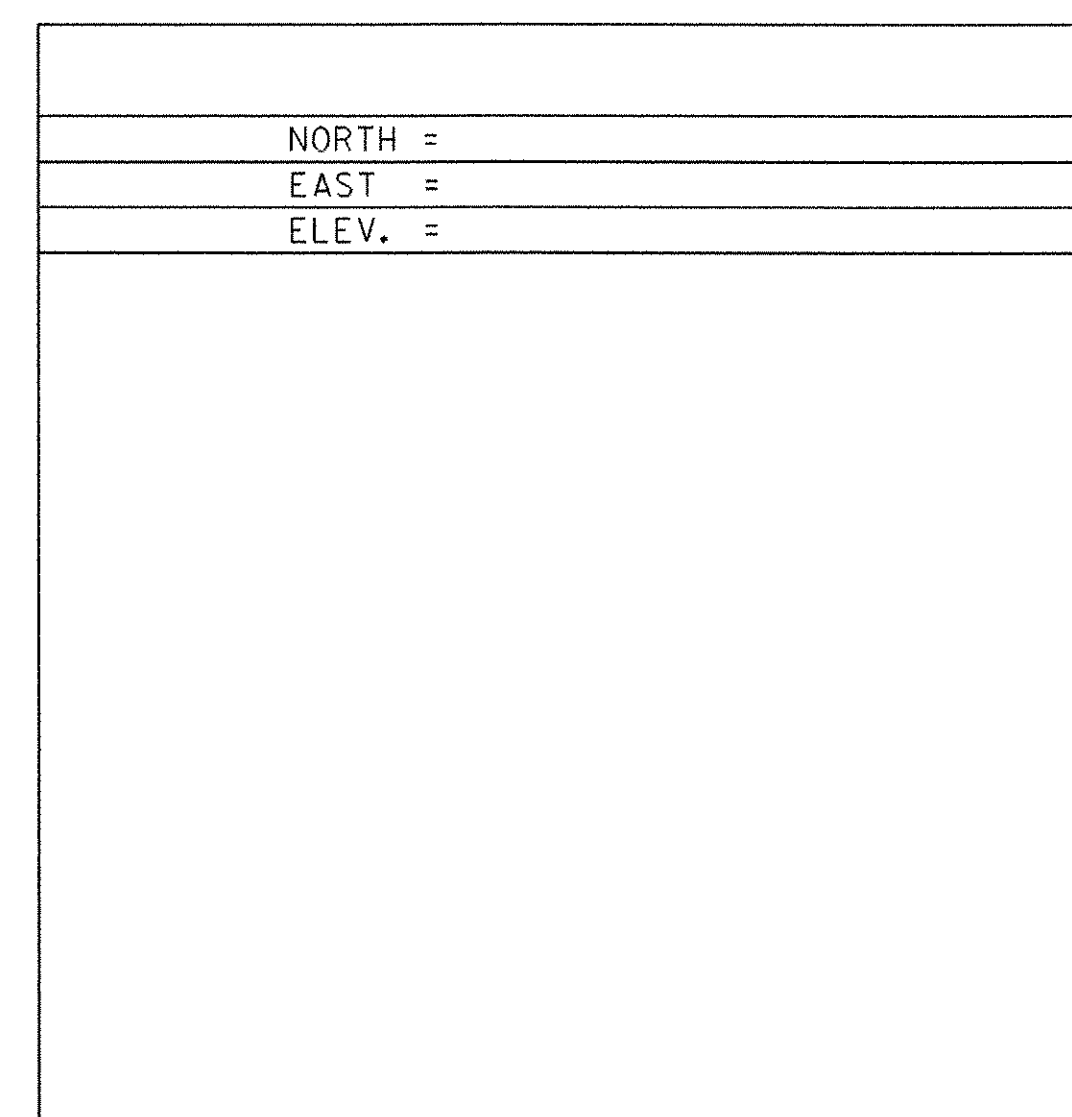
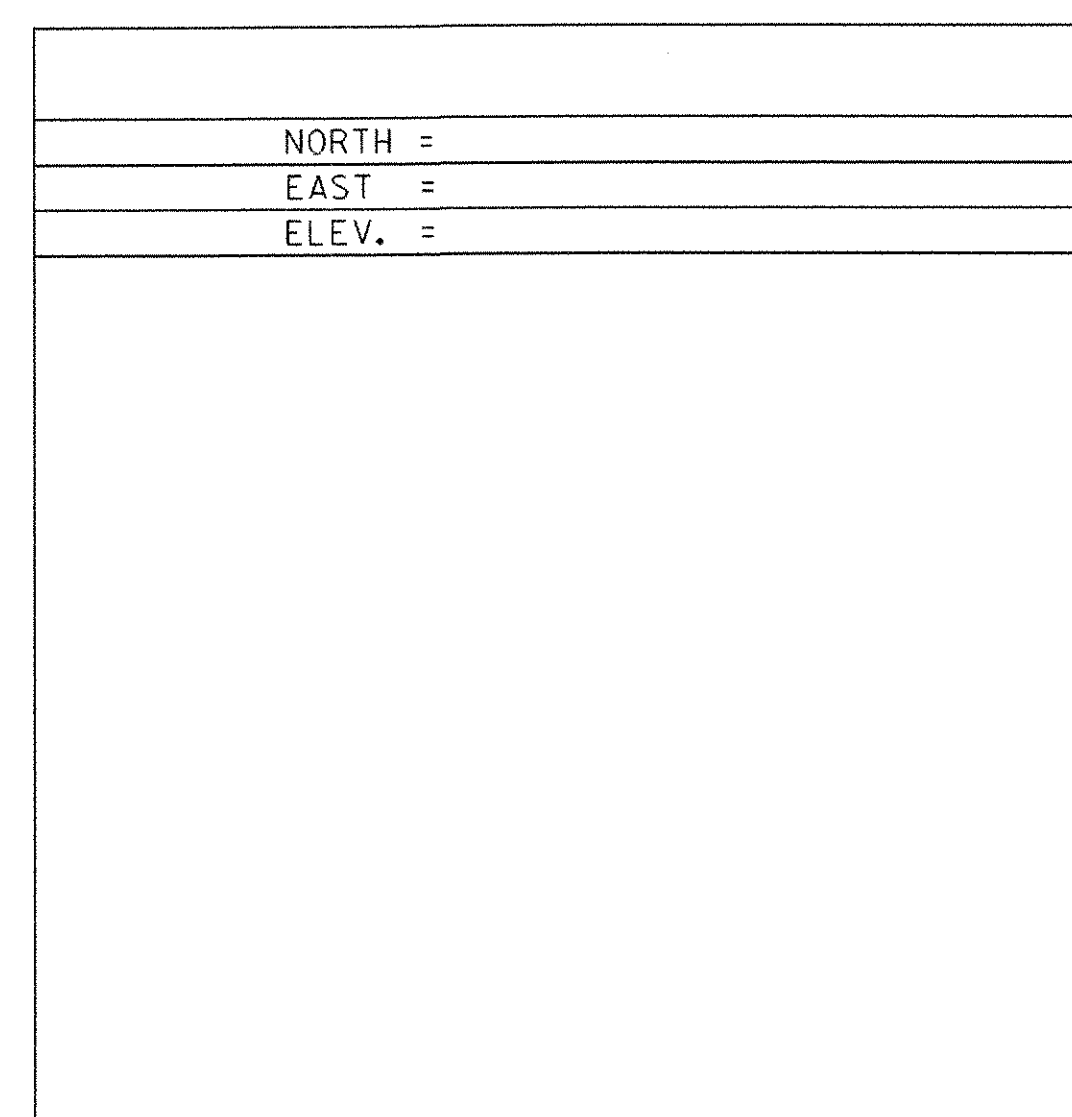
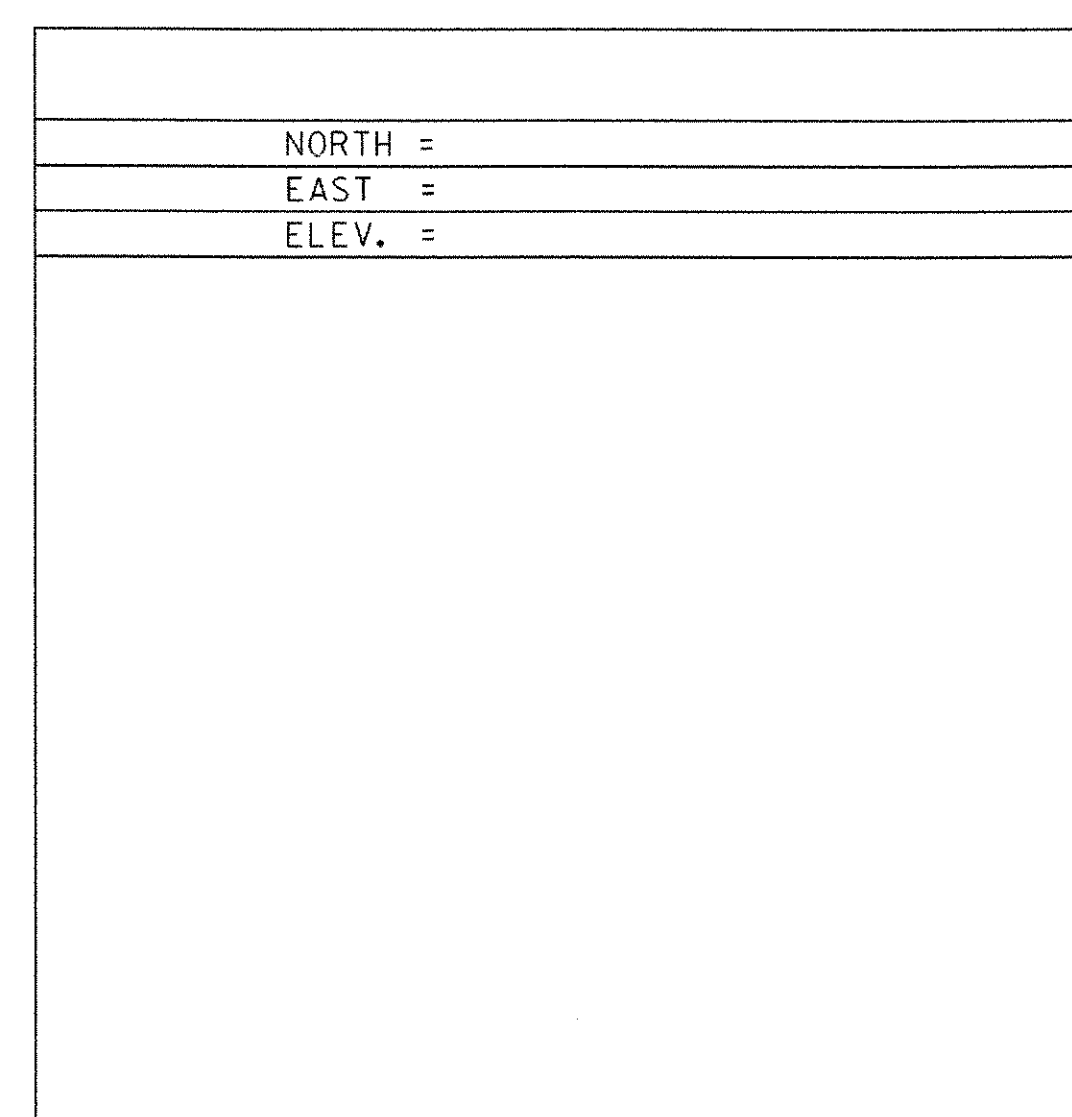
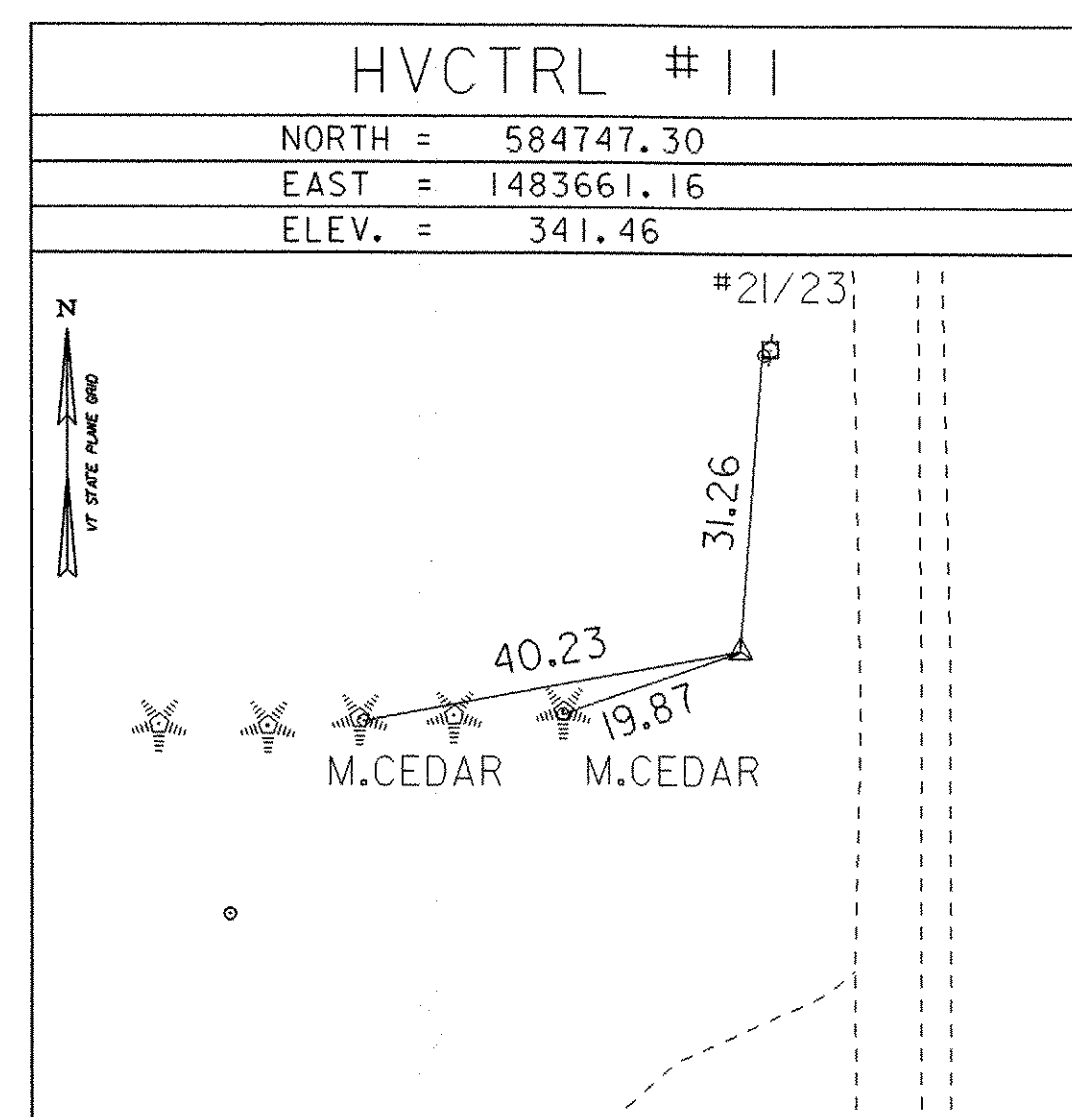
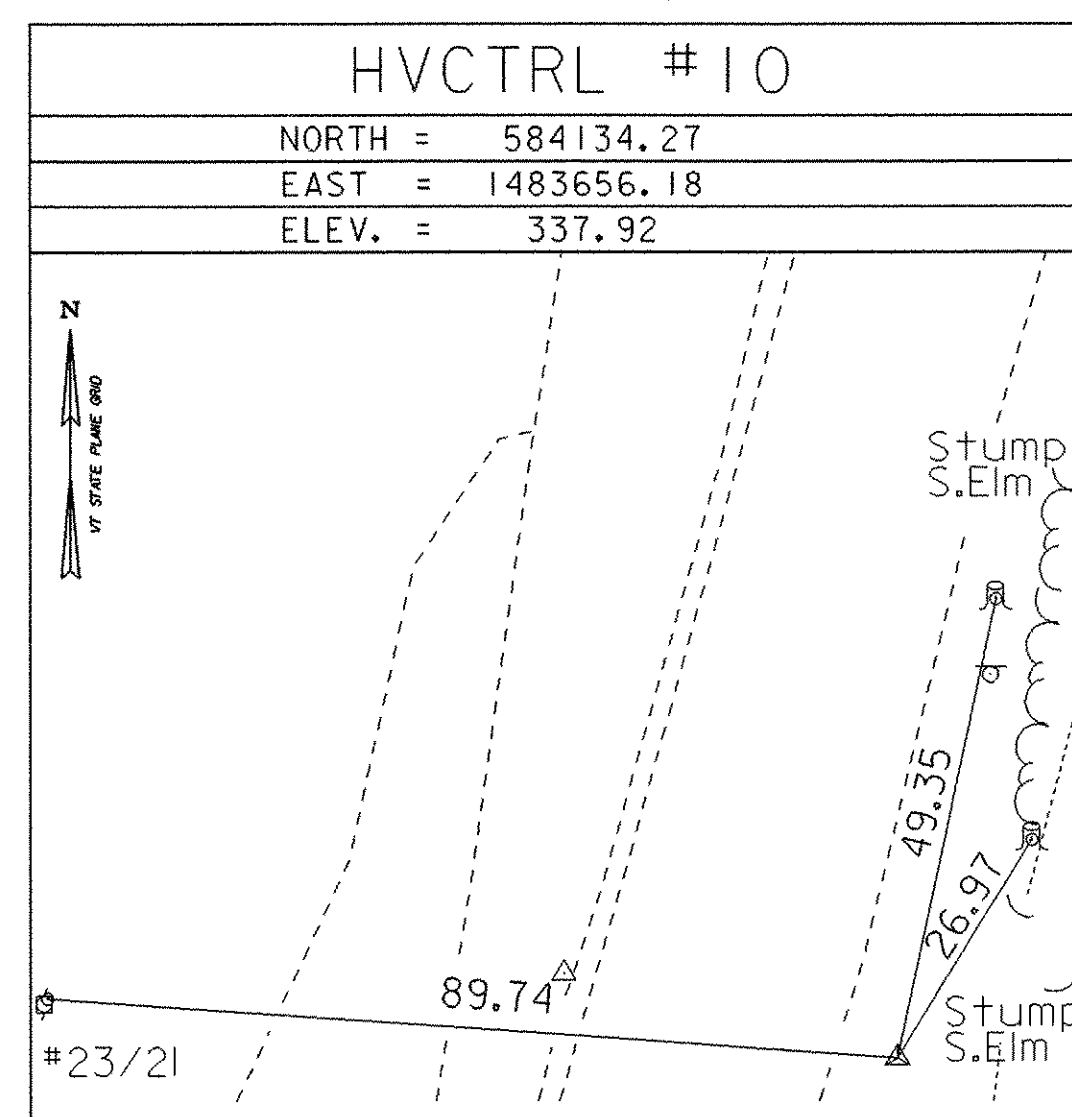
"POWERLINE 1991"

N = 592458.12
E = 1466209.10
ELEV. = 425.52

GENERAL LOCATION, NEW HAVEN, VT. TO REACH FROM THE INTERSECTION OF VT ROUTE 17 EAST AND US ROUTE 7 IN NEW HAVEN JUNCTION, GO EAST ALONG VT ROUTE 17 FOR 1.4 KM (0.9 MILE) TO A POWERLINE CROSSING AND THE MARK ON THE LEFT. THE MARK IS, SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 25 cm (1 FOOT) DIAMETER CONCRETE MONUMENT. IT IS 12.7 m (41.7 FEET) NORTH OF AND ABOUT LEVEL WITH THE CENTERLINE OF VT ROUTE 17, 3.7 m (12.1 FEET) EAST OF POLE NO.3.15.3 m (50.2 FEET) WEST OF POLE NO.303, AND 0.8 m (2.6 FEET) NORTH OF A FIBERGLASS WITNESS POST.

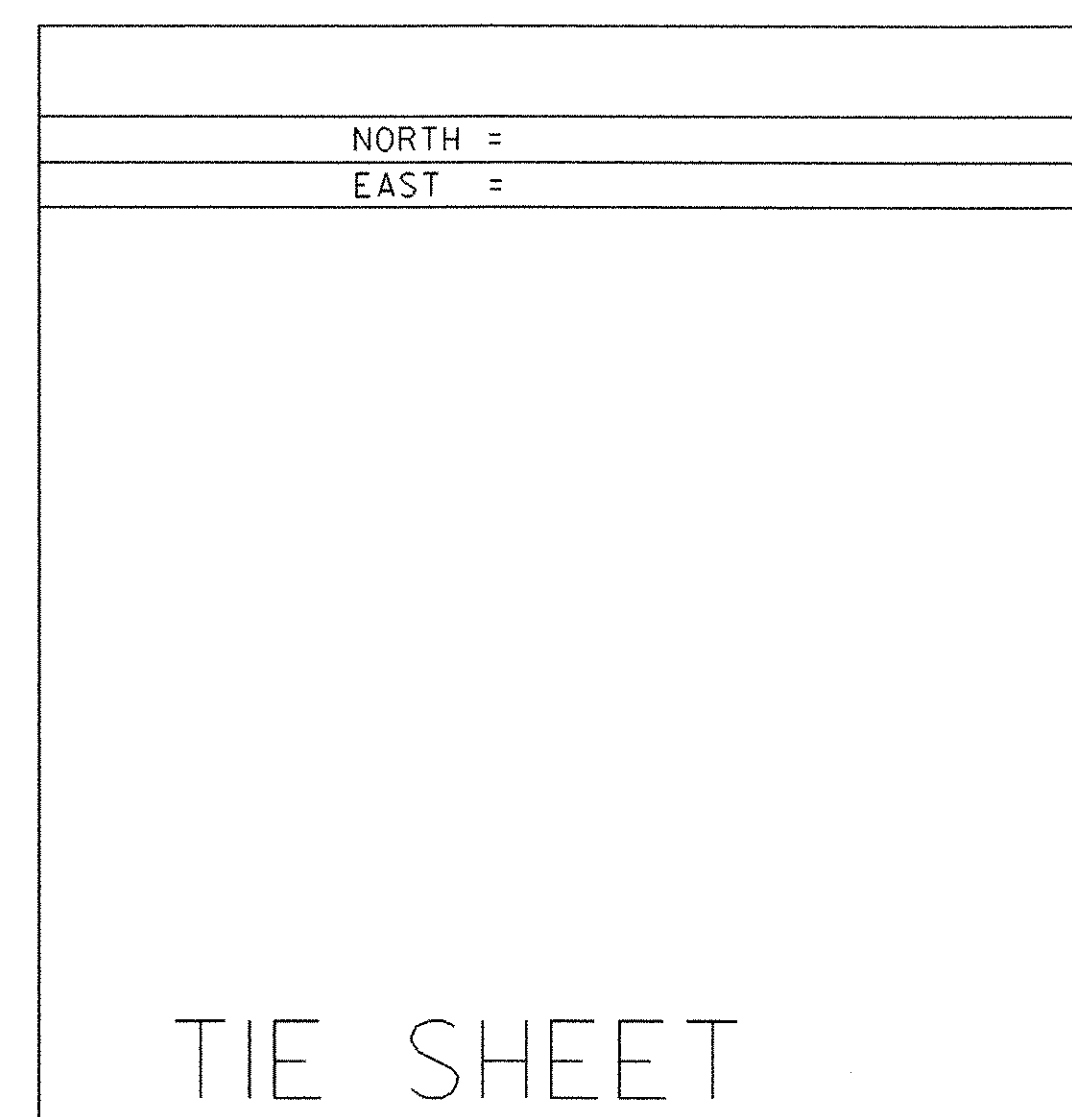
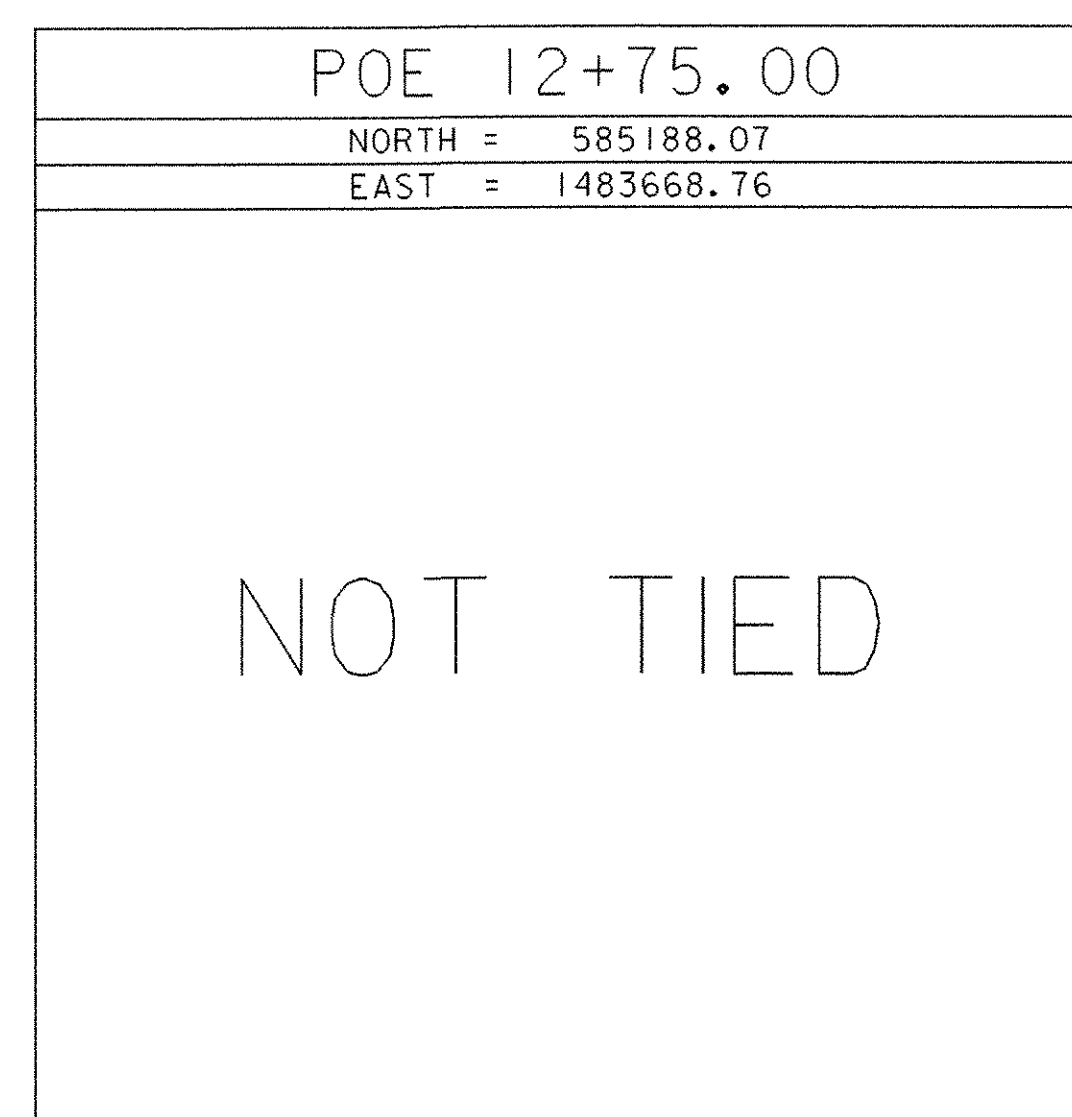
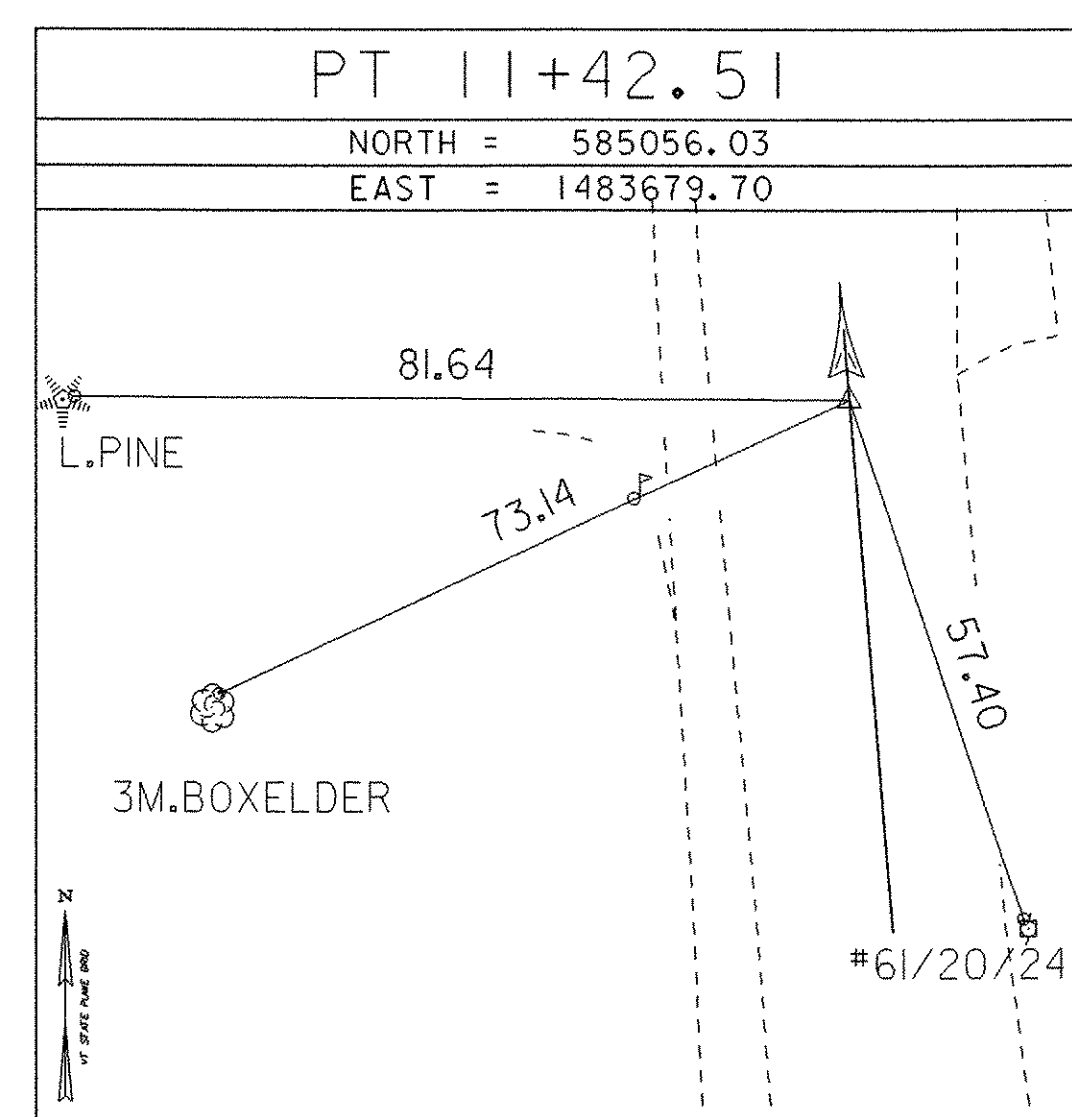
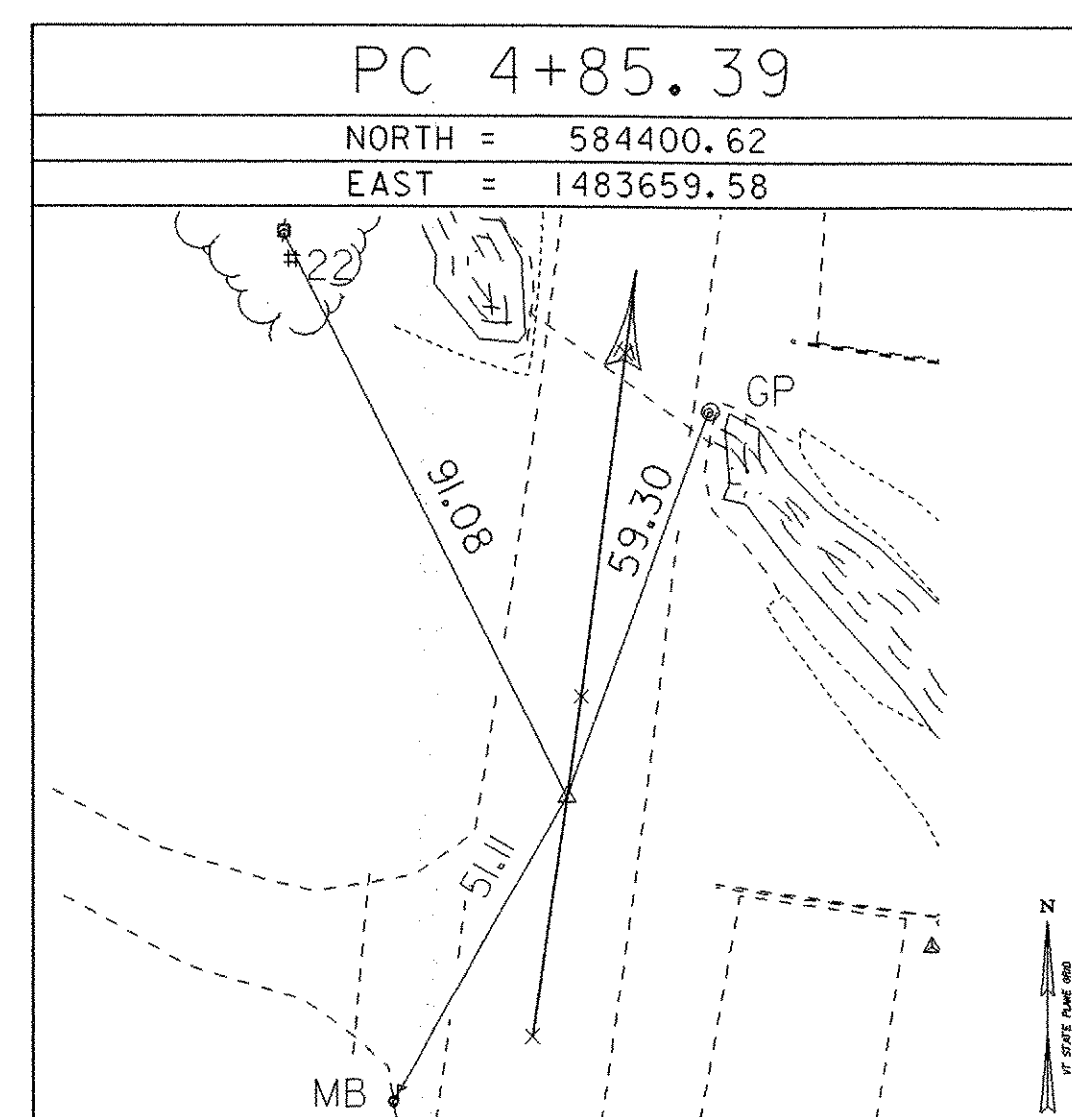
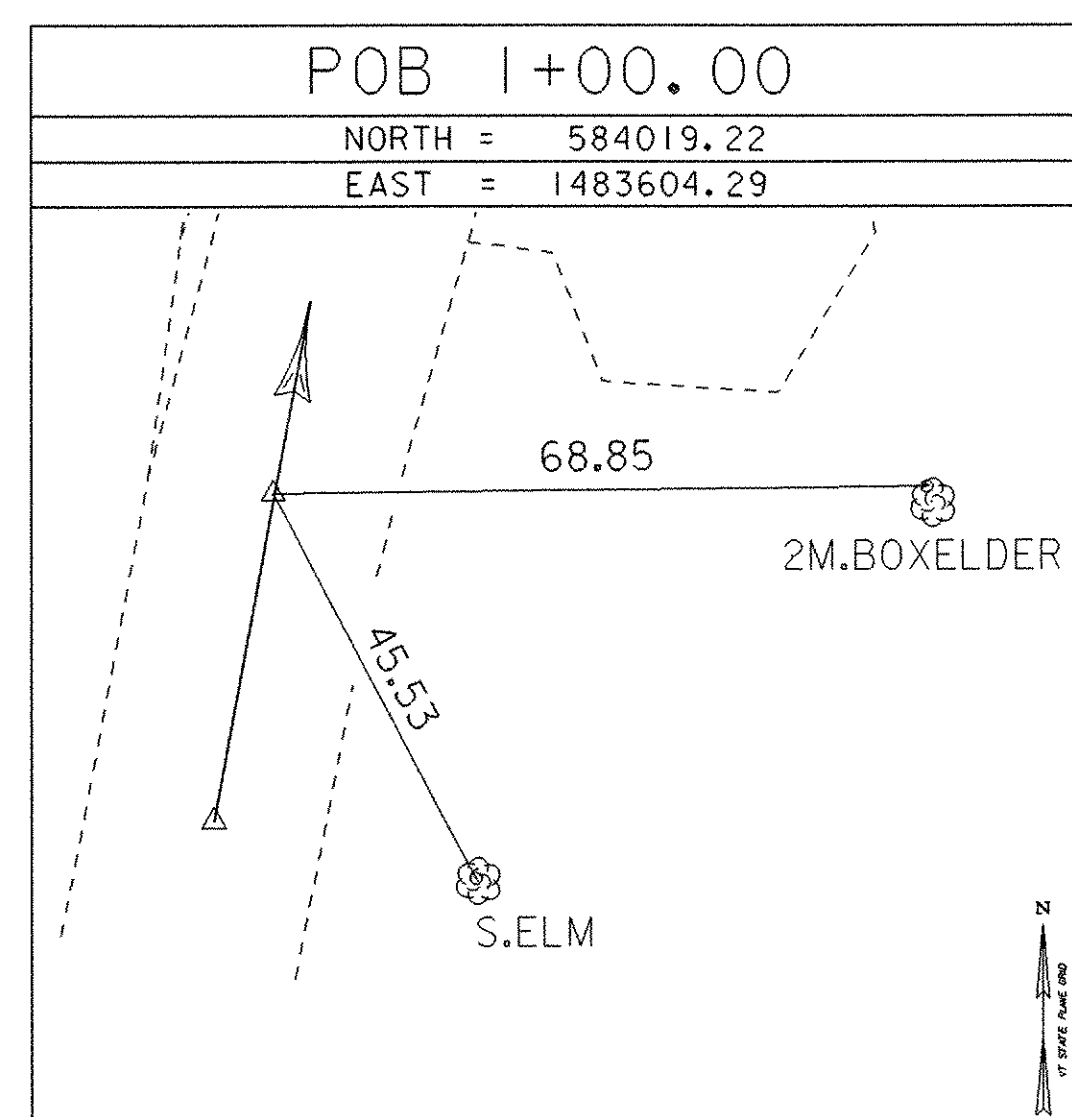
* Description provided by the Vermont Agency of Transportation Geodetic Survey Unit

TRAVERSE TIES



* MAIN TRAVERSE COMPLETED: MAY 10, 1999 BY: CLD Consultant Engineers

ALIGNMENT TIES



* Alignment Staked 11/07/06 by L.Orvis P.C. & G.Hitchcock

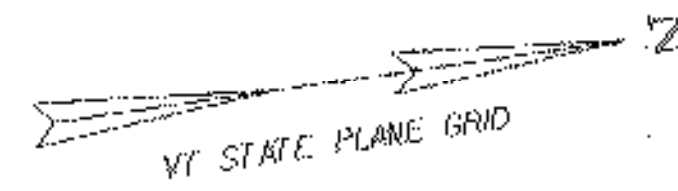
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/96
ADJUSTMENT UNKNOWN

PROJECT NAME: Bristol
PROJECT NUMBER: ER ST 021-1(22)

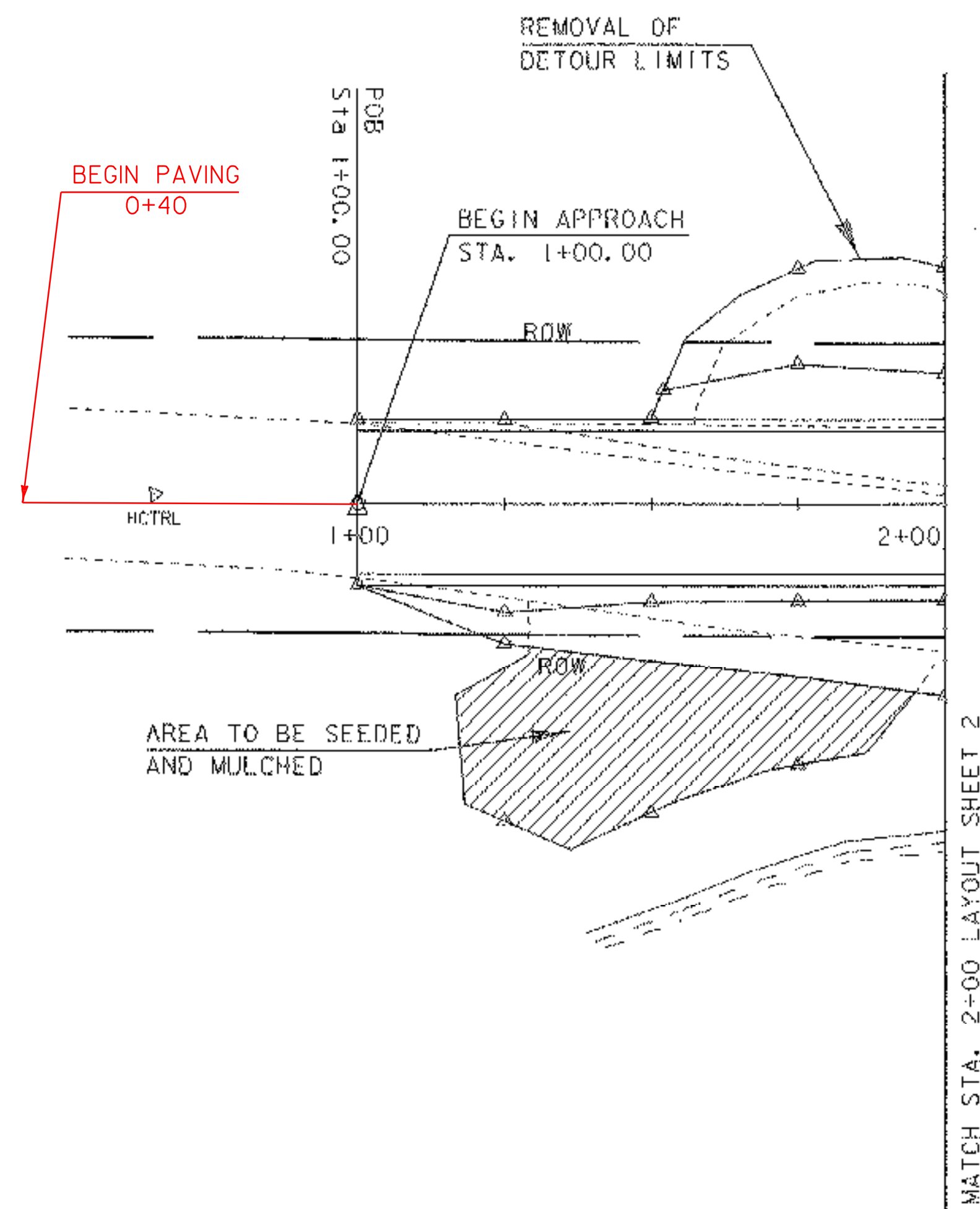
FILE NAME: 05b126/survey/x05b126t1.dgn PLOT DATE: 20-MAR-2007
PROJECT LEADER: M.EVANS-MONGEON DRAWN BY: R. Bullock
DESIGNED BY: CHECKED BY:
IPARM: s05b126t1.i SHEET 12 OF 66

~~DURABLE 4 INCH WHITE LINE PAINT~~
 STA. 1+00 LT - STA. 2+00 LT
 STA. 1+00 RT - STA. 2+00 RT

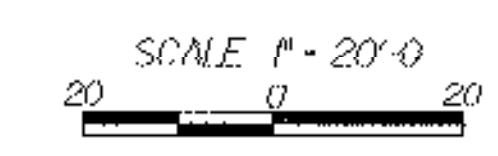
~~DURABLE 4 INCH YELLOW LINE PAINT~~
 STA. 1+00 - STA. 2+00 LT and RT



COLD PLANING, BITUMINOUS PAVEMENT
 STA. 1+00 - STA. 2+00



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



LAYOUT SHEET 1

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\805b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 13 OF 66

ANCHOR FOR STEEL BEAM RAIL
 STA. 4+70 RT
 STA. 5+01 LT
 STA. 6+05 RT
 STA. 6+12 LT

CONSTRUCT PAVED DRIVE
 STA. 4+55.00 LT
 STA. 7+25.00 RT @ 43.5°

DURABLE 4 INCH WHITE LINE
 STA. 2+00 LT - STA. 8+00 LT
 STA. 2+00 RT - STA. 8+00 RT

HD STEEL BEAM GUARDRAIL, GALVANIZED
 STA. 4+64.46 RT - STA. 5+25.55 RT
 STA. 5+50.43 RT - STA. 6+11.28 RT
 STA. 4+95.74 LT - STA. 5+44.35 LT
 STA. 5+69.47 LT - STA. 6+18.03 LT

DURABLE 4 INCH YELLOW LINE
 STA. 2+00 - STA. 8+00 LT and RT

RELOCATE MAIL BOX, SINGLE SUPPORT
 STA. 4+37.52 LT 18.75 FT

~~ELIMINATED
 ERECTING SALVAGED SIGNS
 STA. 6+00.00 LT 21.01 FT
 STA. 6+00.00 LT 21.01 FT~~

HD STEEL BEAM GUARDRAIL
 GALVANIZED/ NESTED
 STA. 5+25.55 RT - STA. 5+50.43 RT
 STA. 5+44.35 LT - STA. 5+69.47 LT

COLD PLANING BITUMINOUS PAYMENT
 STA. 2+00 - STA. 3+30 2+74
 STA. 6+20 - STA. 8+00
 6+82

CURVE DATA:
 Delta = 12°58'58.17"
 D = 1°58'32.58"
 R = 2900.00'
 T = 329.97'
 L = 657.12'
 E = 18.71'

CONSTRUCT DRIVE (PAVED COMMERCIAL)
 STA. 7+75.00 LT (20' PAVED APRON)

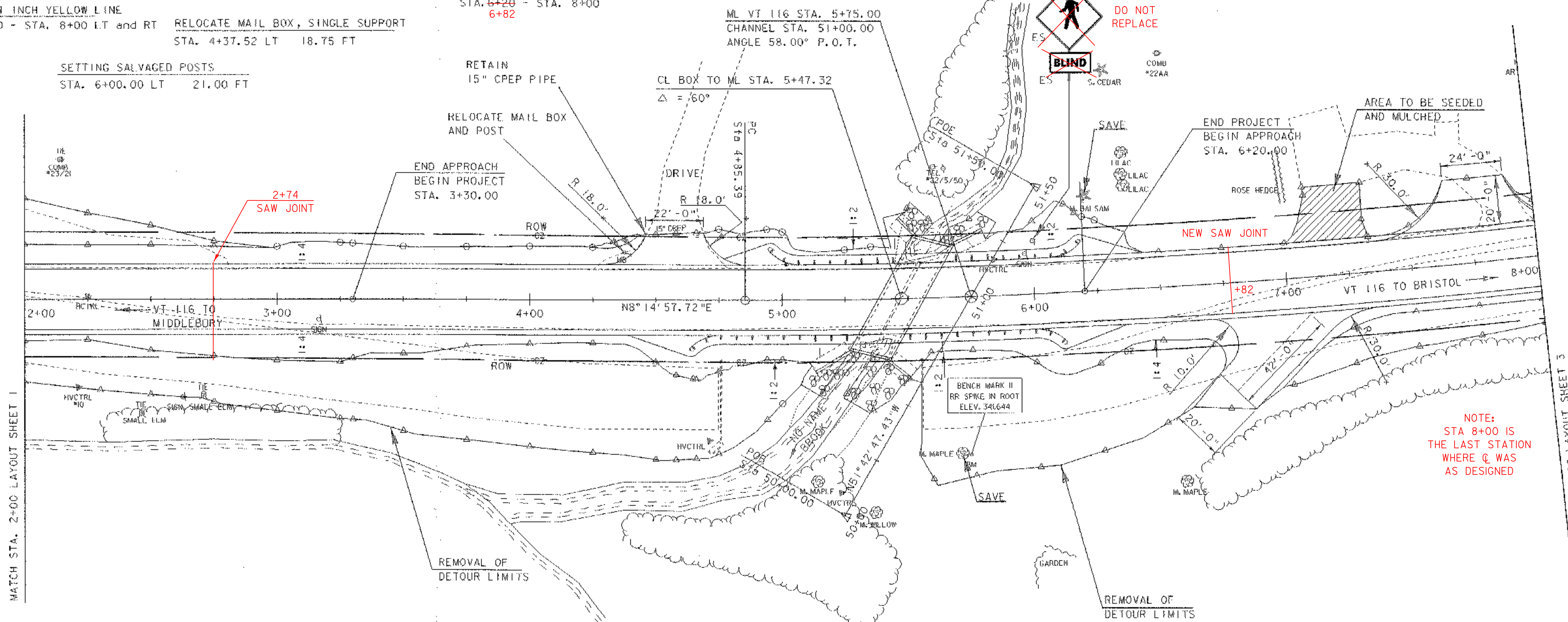
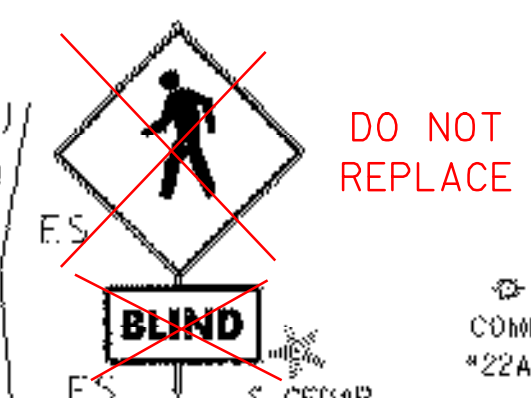
EXISTING BRIDGE INFORMATION
 14 FOOT CORRUGATED STEEL ARCH
 ON CAST-IN-PLACE CONCRETE FOOTING



SETTING SALVAGED POSTS
 STA. 6+00.00 LT 21.00 FT

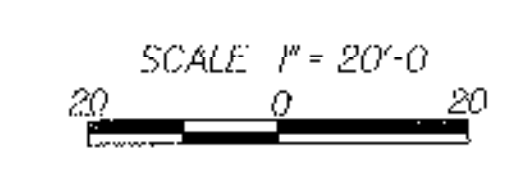
RETAIN
 15" CPEP PIPE

CL BOX TO ML STA. 5+47.32
 $\Delta = 60^\circ$



NOTE:
 STA 8+00 IS
 THE LAST STATION
 WHERE Q WAS
 AS DESIGNED

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)

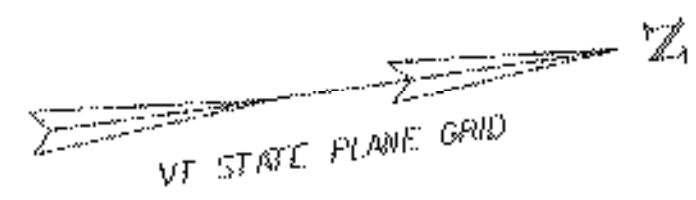


LAYOUT SHEET 2

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: s05b126\str\s05b126bdr.dgn	PLT DATE: 27-MAR-2007
IPARM FILE NAME: s05b1261y2.i	CHECKED BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 14 OF 66

MATCH STA. 2+00 LAYOUT SHEET 1

MATCH STA. 8+00 LAYOUT SHEET 3

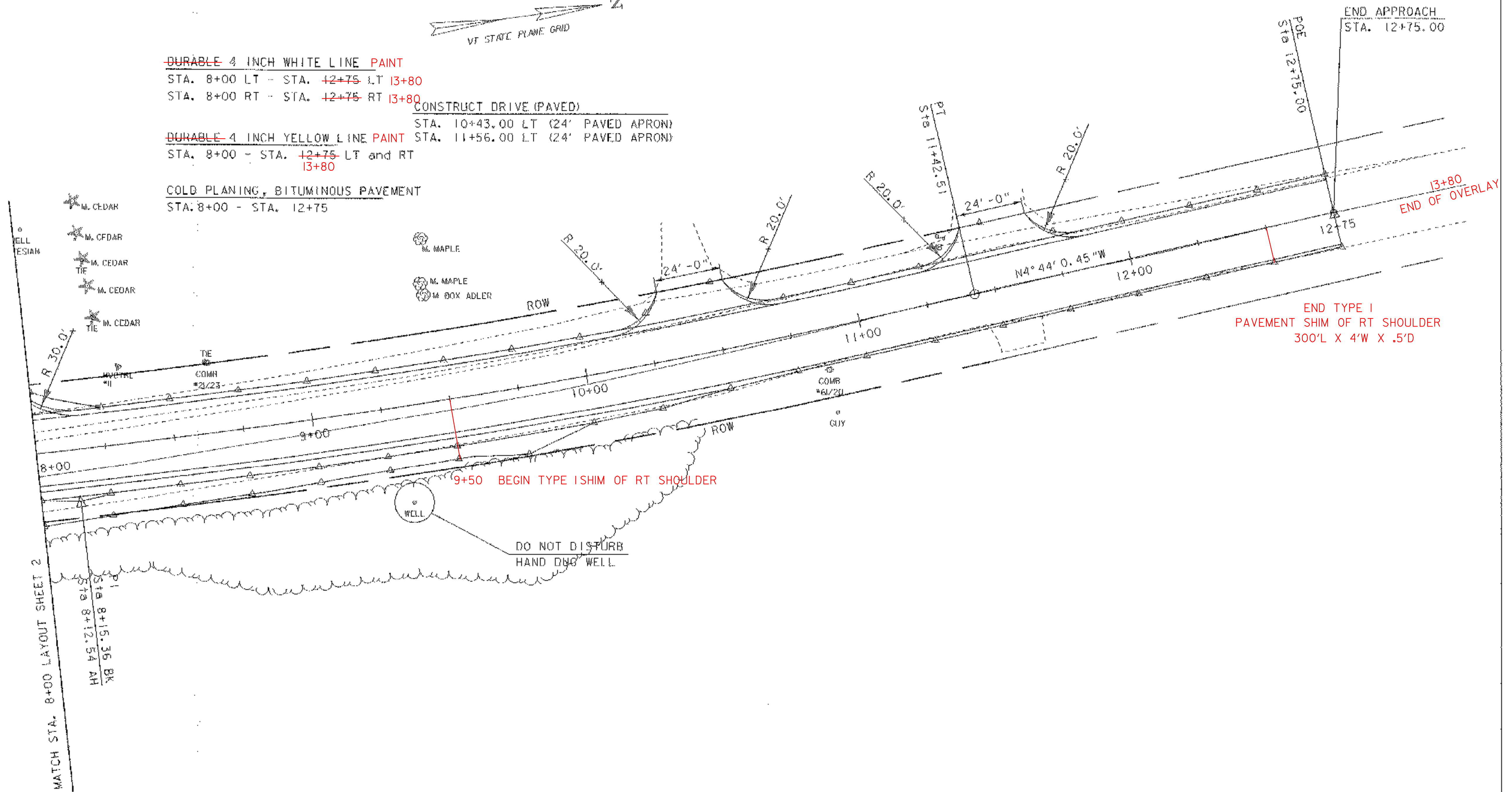


~~DURABLE 4 INCH WHITE LINE PAINT~~
 STA. 8+00 LT - STA. 12+75 LT 13+80
 STA. 8+00 RT - STA. 12+75 RT 13+80

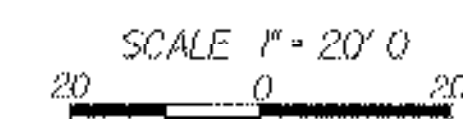
~~DURABLE 4 INCH YELLOW LINE PAINT~~
 STA. 8+00 - STA. 12+75 LT and RT
 13+80

COLD PLANING, BITUMINOUS PAVEMENT
 STA. 8+00 - STA. 12+75

CONSTRUCT DRIVE (PAVED)
 STA. 10+43.00 LT (24' PAVED APRON)
 STA. 11+56.00 LT (24' PAVED APRON)



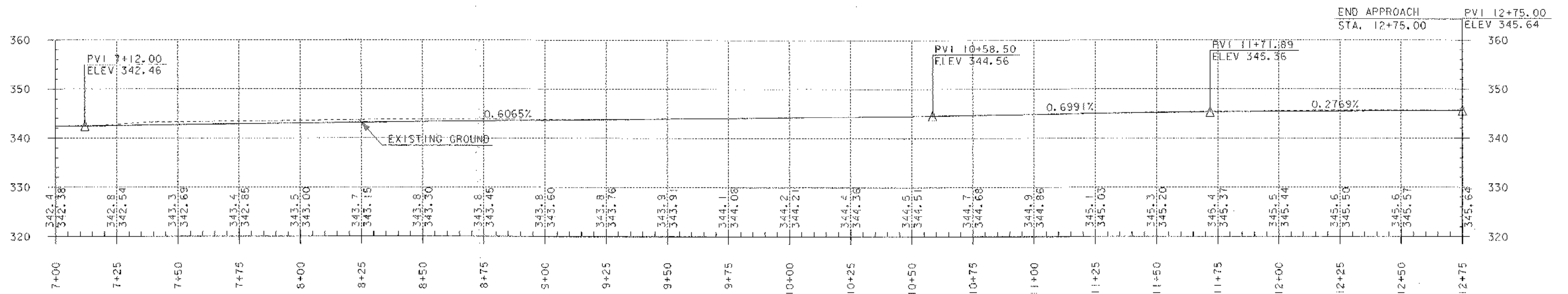
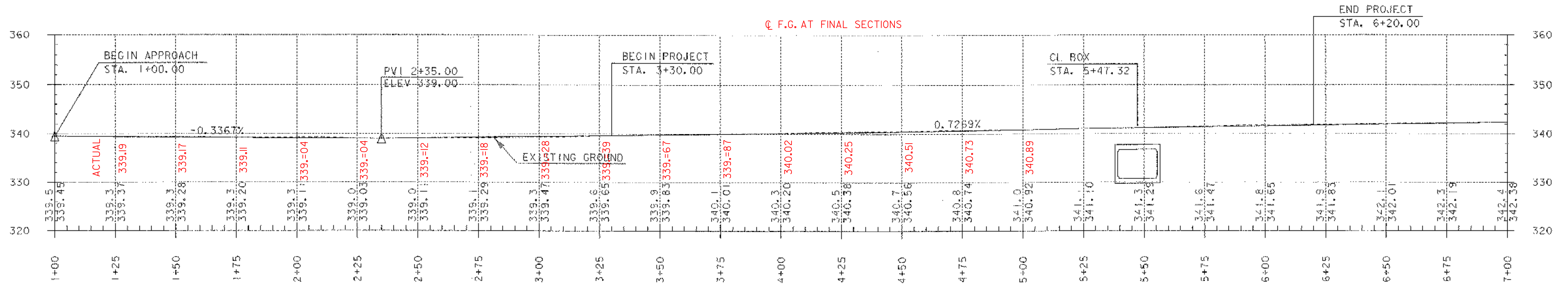
DATUM	
VERTICAL	NAV83
HORIZONTAL	NAD 83 (1983)



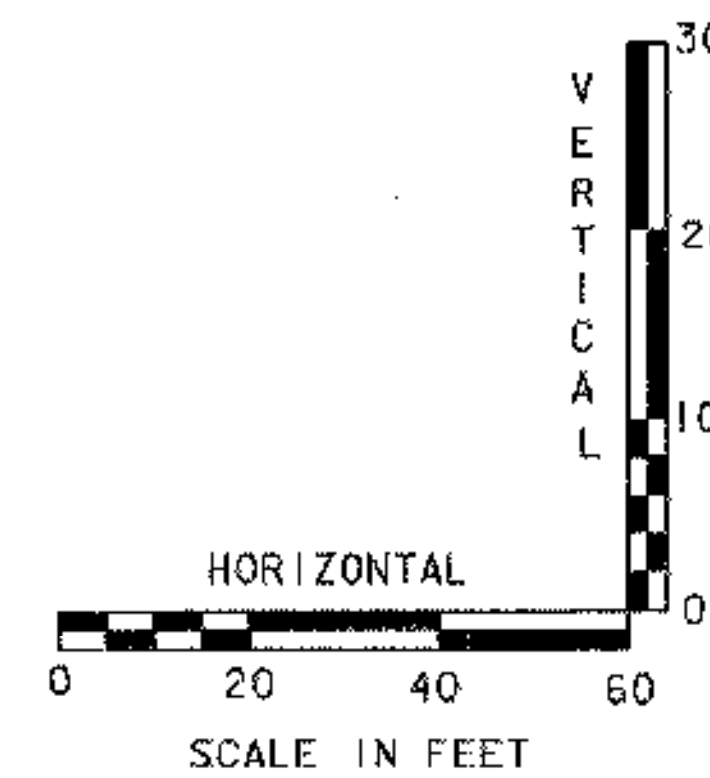
LAYOUT SHEET 3

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b126ty3.i	CHECKED BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 15 OF 66

VT 116



NOTE:
 GRADES SHOWN TO THE NEAREST TENTH
 ARE EXISTING GROUND ALONG CENTERLINE.
 GRADES SHOWN TO THE NEAREST HUNDREDTH
 ARE PROPOSED GROUND ALONG CENTERLINE.



PROFILE SHEET

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\5tr\505b126wrk.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b126pr.f.1	SURVEY DATE:
SQUAD LEADER: M. EVANS-MONGON	DRAWN BY: G. ROKES
	SHEET: 16 OF 66

EROSION PREVENTION AND SEDIMENT CONTROL NARRATIVE

DESCRIPTION OF PROJECT

This project involves the removal and replacement of a corrugated metal arch that was washed out in the "No Name Brook", on VT 116 south of the town of Bristol.

The existing corrugated metal arch was washed out in a storm event and a temporary detour was constructed down stream of the structure. The traffic is at this time detoured around the arch.

The new culvert will be a pre-cast box and pre-cast wingwalls. The pre-cast sections are to be placed in the same location as the existing corrugated metal arch. The approaches will have new pavement, subbase, heavy duty steel rail, road side slopes, channel side slopes, and removal of the existing detour.

It is anticipated that this project will last one construction season.

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:

The property surrounding the project site consists of well established vegetation with moderate to steeply sloping banks to the brook. The surrounding area consists of grassy flat fields and some tall brush around the downstream side of the detour. There is no defined surface drainage ways.

DRAINAGE, WATERWAYS, BODIES OF WATER:

The "No Name Brook" is located in the project area. The New Haven River is located 175 feet down stream of the project. The No Name Brook is a shallow brook and is also a flood relief for the New Haven River.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography of the project site is flat grassy fields. The No Name Brook runs 60 degrees to VT 116 with medium to steep vegetated banks. There is one driveway to a year round residence on the project. There are overhead utilities that will be maintained and the need for relocation of the utility poles is unlikely.

VEGETATION:

The vegetation around the project is medium to tall grass in a flat field. The erosion controls may be placed once the project proceeds to the approach work and guard rail slopes phase. During the approach work, slopes greater than 3:1 will require erosion control matting. Slopes will be vegetated/reestablished with standard seed & mulching practices.

SOILS:

The Soil Conservation Service has mapped the soils throughout Addison County. The soil type identified for this project site is as follows:

(Le) Limerick silty loam.

This soil type is described as "... Level to nearly level and in places, with slight depressions." This soil is considered to be highly erodible. The soil is somewhat poorly drained.

The erodibility coefficient for this soil is rated (k value) is 0.49.

(AdA) Adams loamy fine sand.

This type of soil is described as "... Nearly level to moderately sloping but, steep to very steep in some places." This soil is considered to be not highly erodible. This soil is well drained.

The erodibility coefficient for this soil is rated (k value) of 0.49.

(Hh) Hadley very fine sandy loam.

This soil type is described as "... Level to nearly level and in places, with slight depressions." This soil is considered to be not highly erodible. This soil is well drained.

The erodibility coefficient for this soil is rated (k value) of 0.49.

Generally, K-values indicate the following: 0.0 - 0.23 = low erodibility; 0.24 - 0.36 = moderate erodibility; 0.37 and higher = higher erodibility.

SENSITIVE RESOURCE AREAS:

No 'Threatened & Endangered Species' have been identified within the project limits. There are no historically significant structures at this site and no archeologically sensitive areas in the vicinity of the project. There are no known wetlands in the vicinity of the project. The only resource within the project limits is the New Haven River.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

Disturbance of soils near natural or man-made waterways consists of that which is necessary to excavate out the existing culvert and replace it with a larger pre-cast concrete box with wingwalls on each end, all applicable roadway approaches as well as guard rail flares with slopes. Stabilization of stream banks will be included with this project since this project does have channel work associated with it.

TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

Temporary erosion prevention measures to be utilized include:

Project Demarcation Fencing, denoted -PDF- on the plans, to delineate the limits the contractor can access. This measure limits the area that the contractor may, but not necessarily will, disturb and expose soils to erosion.

Seeding, mulching and biodegradable erosion control matting, or an equivalent product, will be utilized on all slopes steeper than 3:1.

These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity.

Temporary mulching and or matting, will be utilized on a regular basis. Any slopes to be exposed for several days prior to final grading shall be mulched and or matted. The forecast of rainfall events shall also trigger protection of exposed slopes and matting of slopes greater than 3:1.

Temporary measures to control sediment transport include:

Silt fence will be installed and maintained as indicated in "erosion & sediment control plan". The contractor may need to adjust locations as indicated on the plans to better suit their construction needs. Proposed and or alternate silt fence locations will prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with ends turned slightly uphill to create a ponding effect should water try to run along the fencing and around the ends. Because of narrow width of the project, short effective runs of silt fencing should be installed. Silt fence shall be installed prior to any upslope earthwork.

Measures, such as temporary silt fence, shall be checked regularly for accumulation of sediment. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure or if sediment renders the erosion control device ineffective for its intended purpose. Sediments shall be disposed of in an approved area such that they will not be subject to erosion.

Temporary sediment settling basins will not be utilized on this project.

PERMANENT EROSION CONTROL MEASURES

Grass, or other suitable ground cover will be established outside of the roadway limits. Specifically, 3:1 and greater slopes shall be matted and seeded promptly upon achieving final grade.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

The Erosion Control Plans are meant as a guideline for preventing erosion and controlling sediment transport. The work outlined in this narrative consists of applying measures throughout the life of the project to control erosion and minimize the sedimentation of receiving waters. The measures include stabilization and structural practices, stormwater controls and other pollution prevention controls.

Coordinate the installation, use, and removal of erosion and sediment control measures with construction activities to ensure economical, effective and continuous erosion and sediment control. Employ temporary stabilization practices in incremental stages as construction proceeds. The contractor will use additional erosion control measures as necessitated by the sequence of construction and as directed by the Engineer. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2006.

Install all erosion and sediment control measures as shown in the Erosion Control Plan or as directed by the Engineer. Do not modify the type, size or location of any control or practice without approval of the Engineer. Any changes shall be noted on the plans, in the weekly inspection report, and reported to the appropriate authority in a timely manner. Inspect all control measures weekly and after each rainfall event. Repair measures promptly once damage is discovered.

Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas promptly after construction activity has temporarily or permanently ceased. Temporary vegetation shall be established if the area is to be without construction activity for a period of 14 days. Perimeter control measures shall be installed following clearing, but prior to the start of any grubbing or grading activity, install other temporary controls in incremental stages as construction proceeds.

Maintaining vegetated buffers along stream banks, wetlands or other sensitive areas is a crucial erosion and sediment control measure that should be utilized wherever possible.

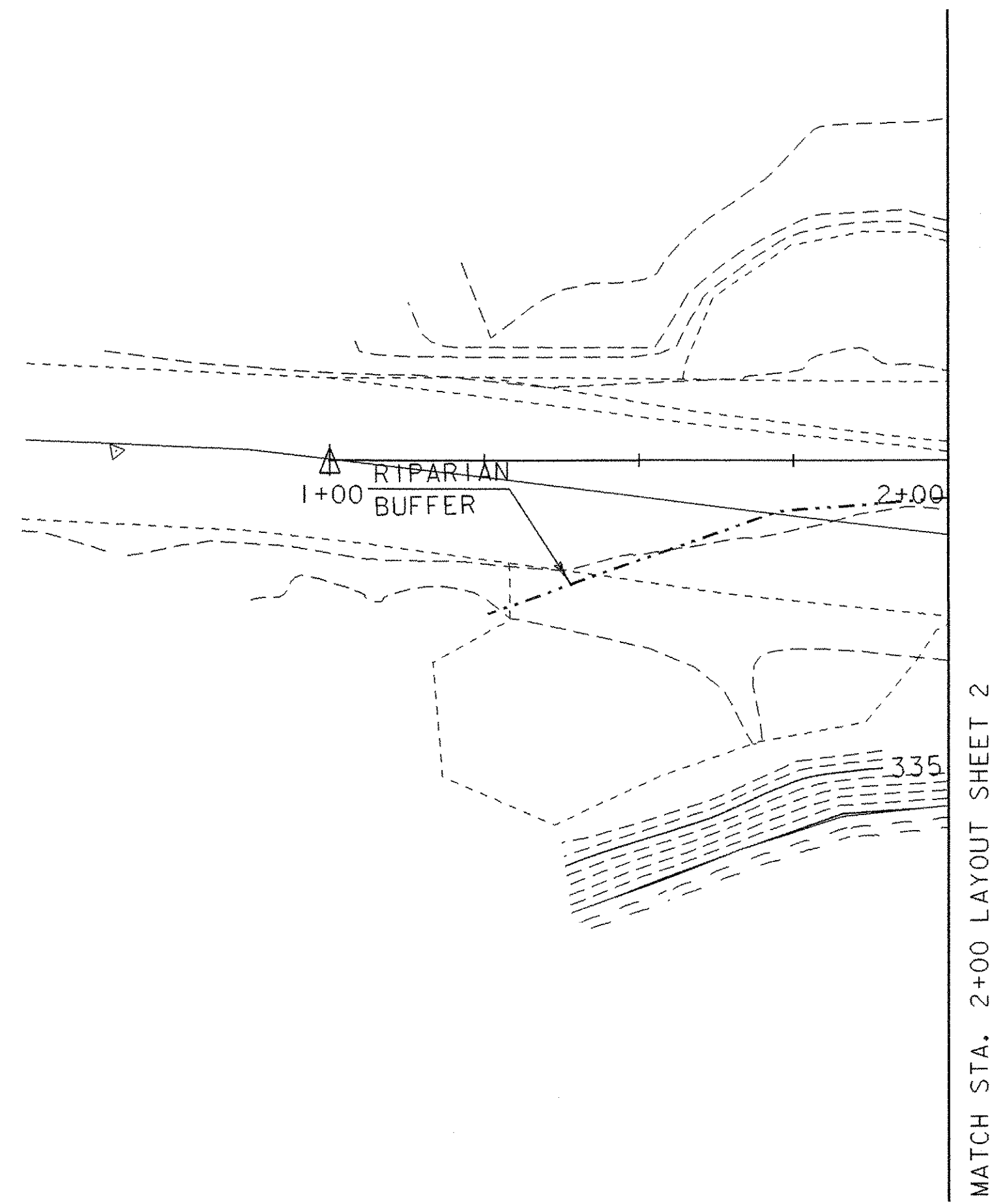
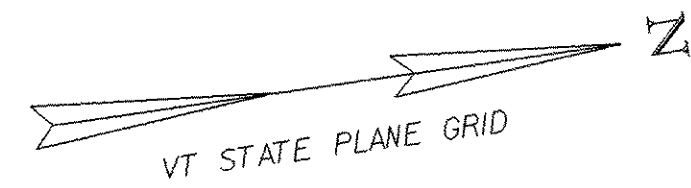
Control only sediment-laden runoff generated by the project site. Collect and route clean offsite runoff around or through the project site using diversion berms, diversion channels, culverts and/or temporary pipes.

Do not allow construction equipment to operate on the down slope side of perimeter control measures.

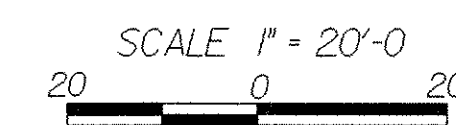
EROSION PREVENTION AND SEDIMENT CONTROL NARRATIVE

PROJECT NAME:	Bristol	PLOT DATE:	10/17/2006
PROJECT NUMBER:	ER ST 021-1 (22)	DRAWN BY:	G.ROKES
FILE NAME:	06b126/Str/s05b126excel.dgn	CHECKED BY:	M. EVANS-MONGE
PROJECT LEADER:	M. EVANS-MONGEON	SHEET	17 OF 66
DESIGNED BY:	G.ROKES		

SOIL INFORMATION	
Le - LIMRICK SILTY LOAM	
HIGH ERODIBILITY	
HYDRAULIC GROUP C	
RAPID SURFACE WATER RUNOFF	
ERODIBILITY COEFFICIENT (K) = 0.49	



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



EXISTING CONDITIONS SITE PLAN 1

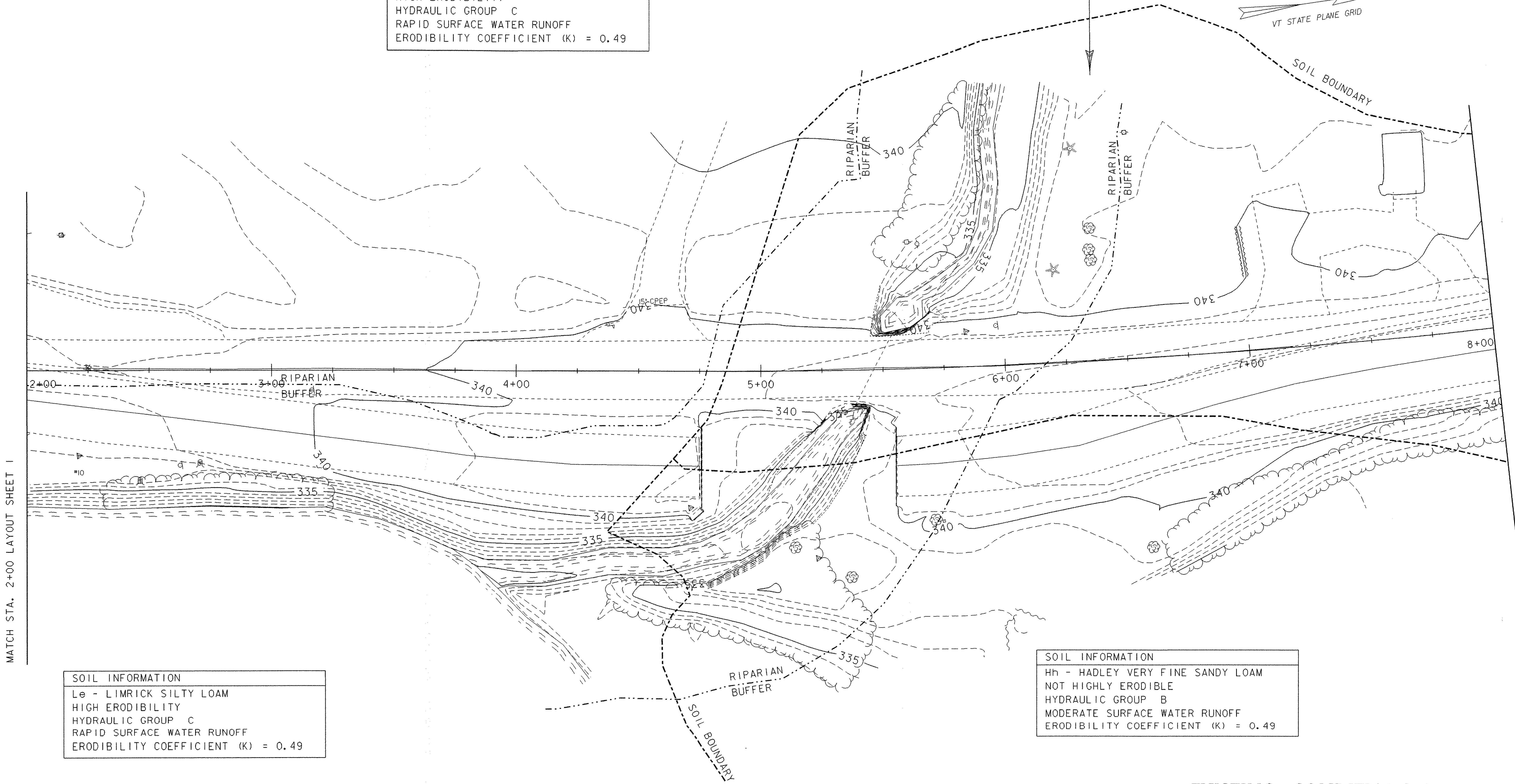
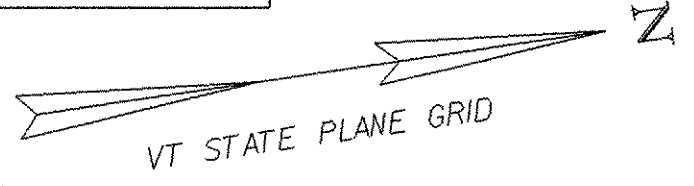
PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\Str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 19 OF 66

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

SOIL INFORMATION
 AdA - ADAMS LOAMY FINE SAND
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP A
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.17

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

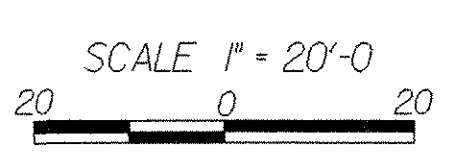
SOIL INFORMATION
 Hh - HADLEY VERY FINE SANDY LOAM
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP B
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49



MATCH STA. 2+00 LAYOUT SHEET 1

MATCH STA. 8+00 LAYOUT SHEET 3

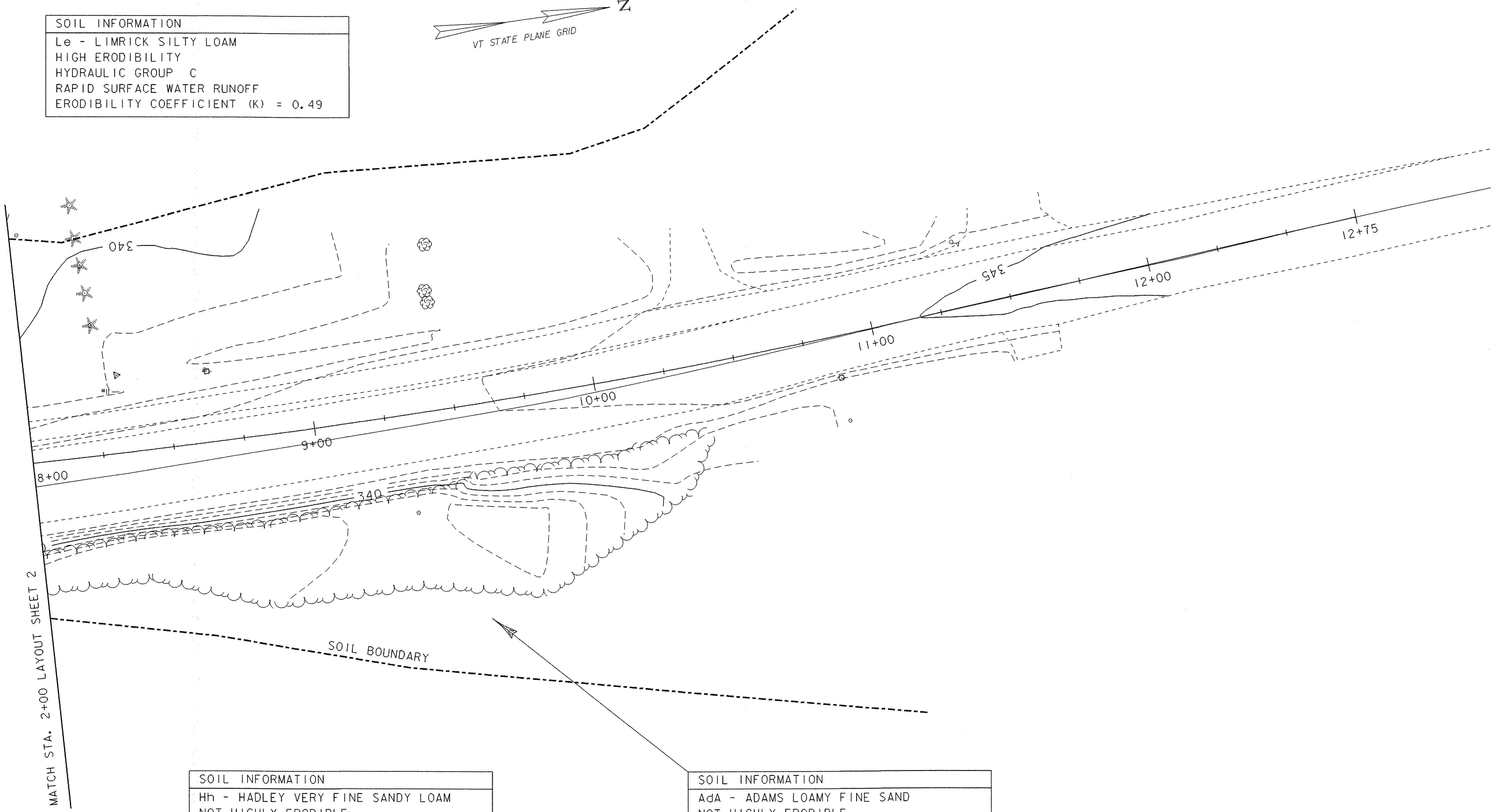
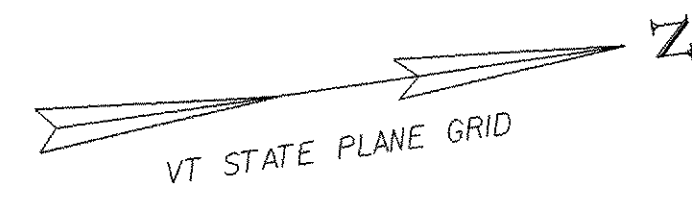
DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)



EXISTING CONDITIONS SITE PLAN 2

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y2.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 20 OF 66

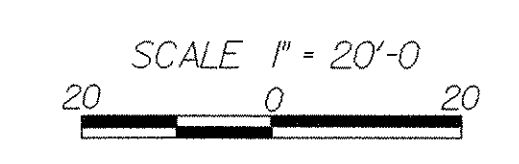
SOIL INFORMATION	
Le	- LIMRICK SILTY LOAM
HIGH ERODIBILITY	
HYDRAULIC GROUP C	
RAPID SURFACE WATER RUNOFF	
ERODIBILITY COEFFICIENT (K) = 0.49	



SOIL INFORMATION	
Hh	- HADLEY VERY FINE SANDY LOAM
NOT HIGHLY ERODIBLE	
HYDRAULIC GROUP B	
MODERATE SURFACE WATER RUNOFF	
ERODIBILITY COEFFICIENT (K) = 0.49	

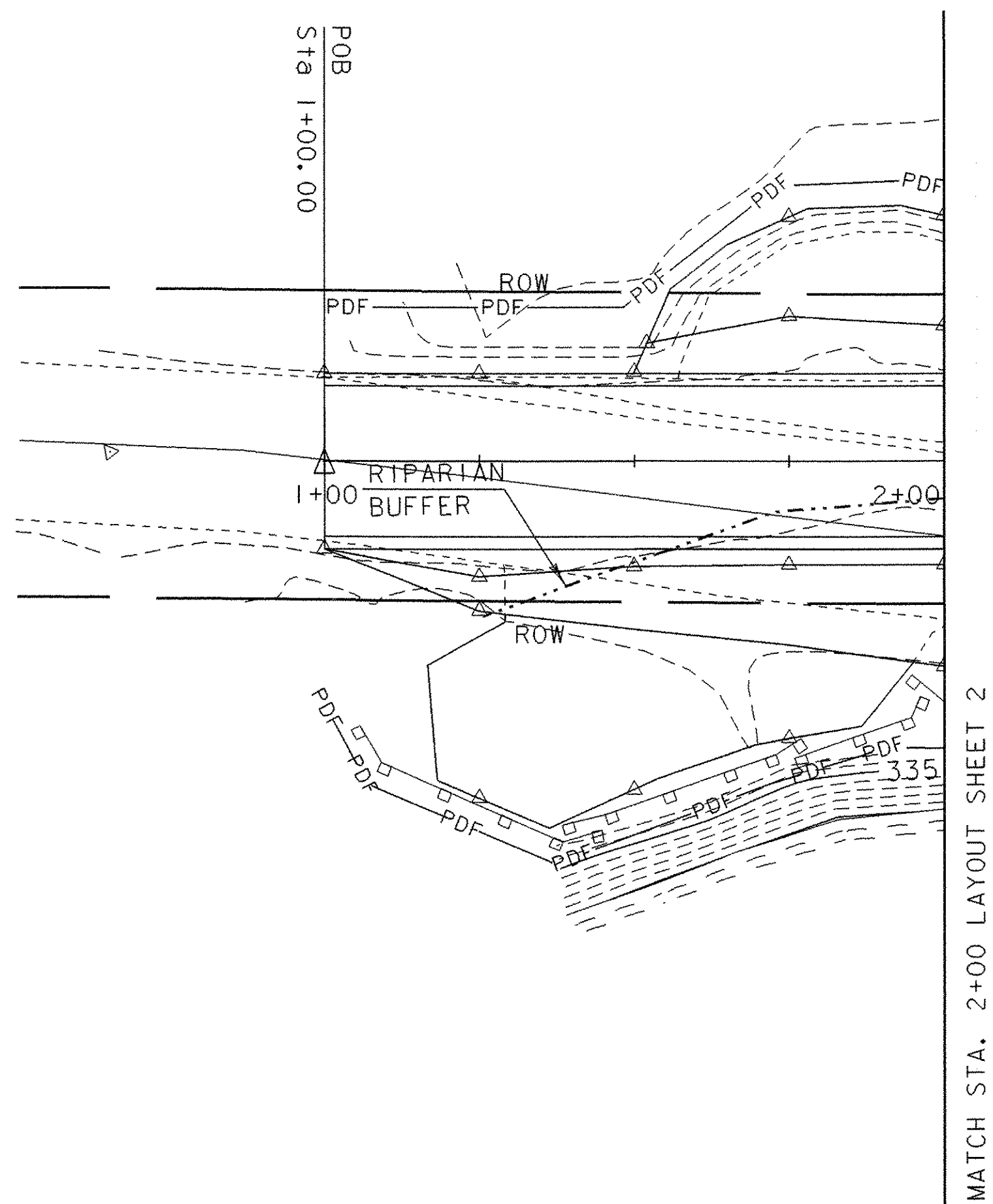
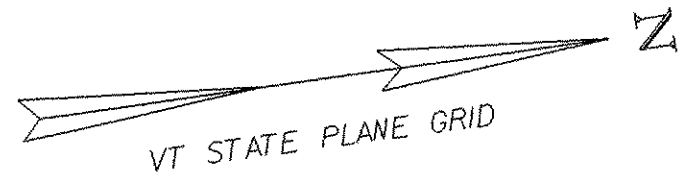
SOIL INFORMATION	
Ada	- ADAMS LOAMY FINE SAND
NOT HIGHLY ERODIBLE	
HYDRAULIC GROUP A	
MODERATE SURFACE WATER RUNOFF	
ERODIBILITY COEFFICIENT (K) = 0.17	

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



EXISTING CONDITION SITE PLAN 3	
PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y3.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 21 OF 66

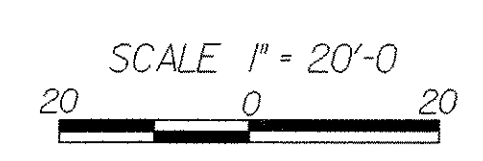
SOIL INFORMATION	
Le - LIMRICK SILTY LOAM	
HIGH ERODIBILITY	
HYDRAULIC GROUP C	
RAPID SURFACE WATER RUNOFF	
ERODIBILITY COEFFICIENT (K) = 0.49	



LEGEND

PROJECT DEMARCATION FENCE	PDF ——— PDF
SILT FENCE	□ — □ — □ — □

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



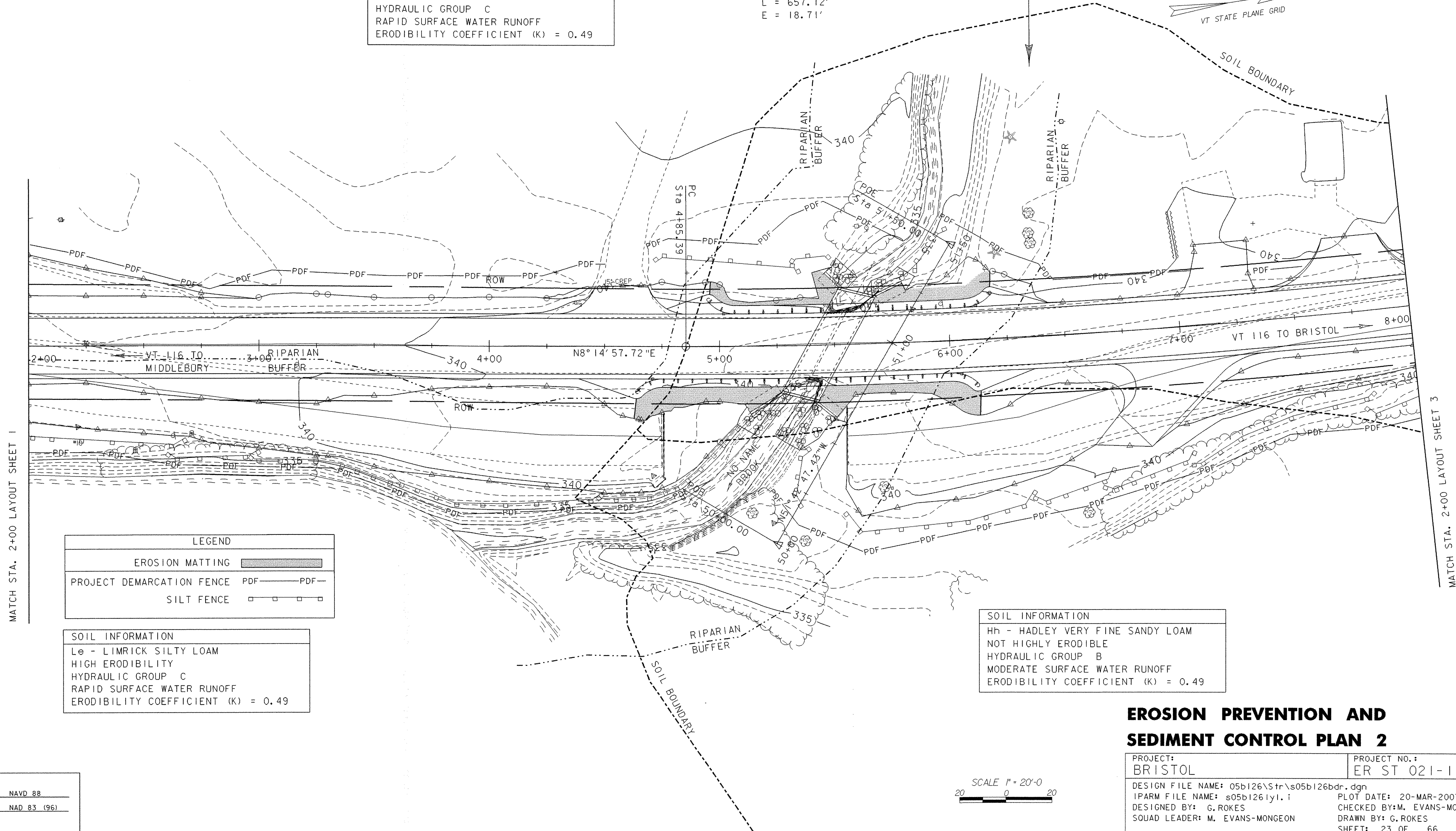
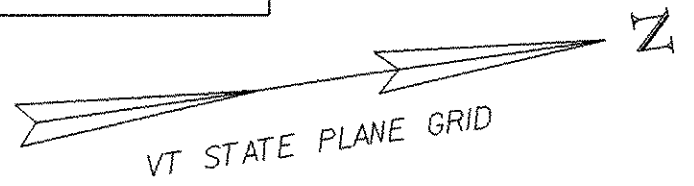
**EROSION PREVENTION AND
SEDIMENT CONTROL PLAN 1**

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 22 OF 66

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

CURVE DATA:
 Delta = 12°58'58.17"
 D = 1°58'32.58"
 R = 2900.00'
 T = 329.97'
 L = 657.12'
 E = 18.71'

SOIL INFORMATION
 AdA - ADAMS LOAMY FINE SAND
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP A
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.17



MATCH STA. 2+00 LAYOUT SHEET 1

MATCH STA. 2+00 LAYOUT SHEET 3

LEGEND

EROSION MATTING	
PROJECT DEMARCATION FENCE	PDF — PDF
SILT FENCE	

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

SOIL INFORMATION
 Hh - HADLEY VERY FINE SANDY LOAM
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP B
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

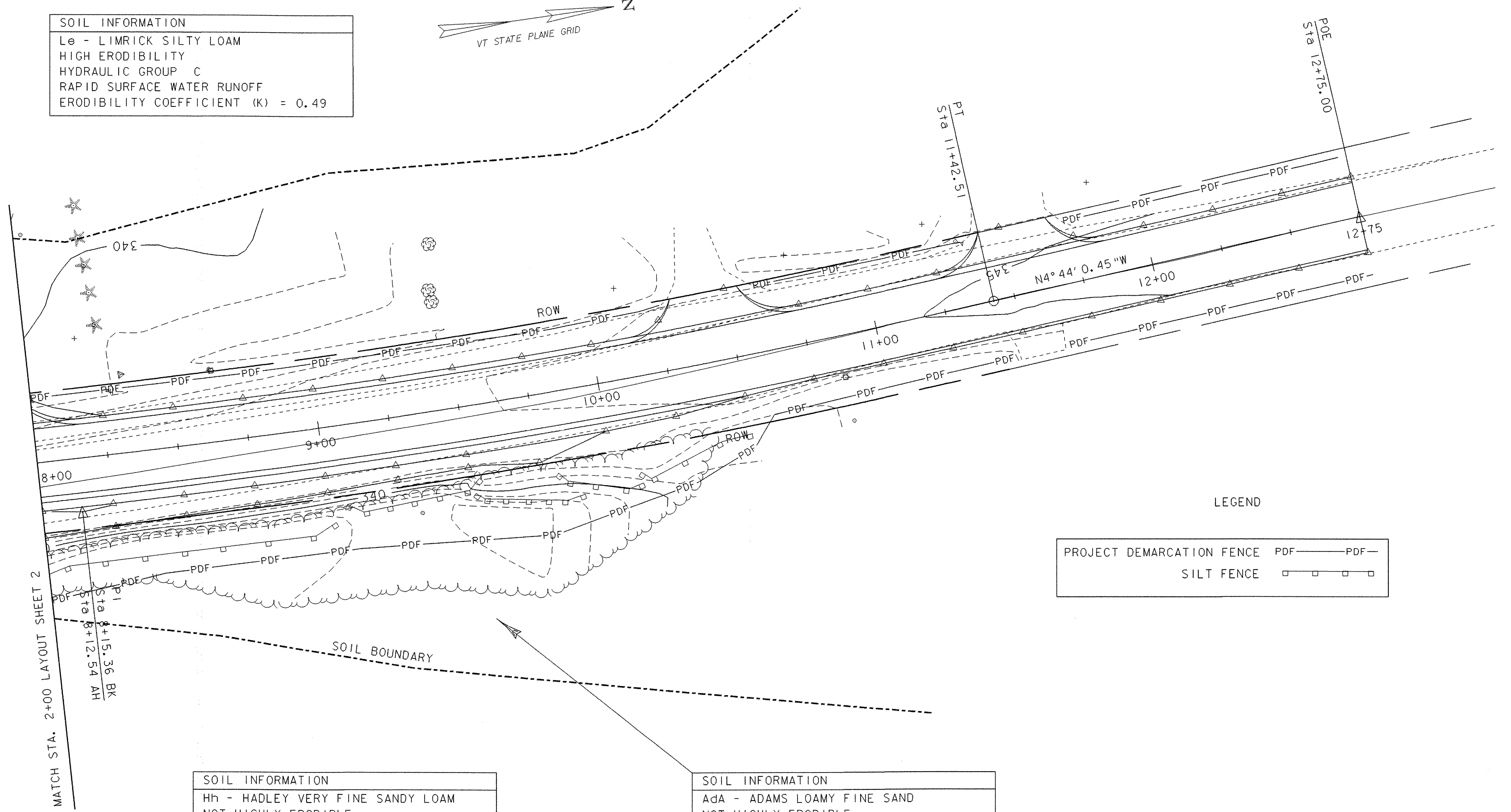
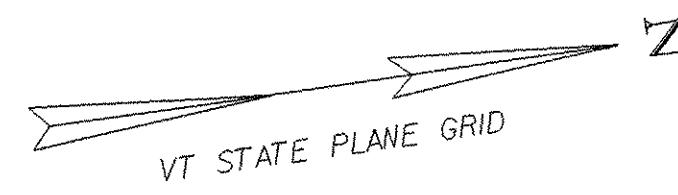
**EROSION PREVENTION AND
 SEDIMENT CONTROL PLAN 2**

DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)

SCALE 1" = 20'-0"

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 23 OF 66

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49



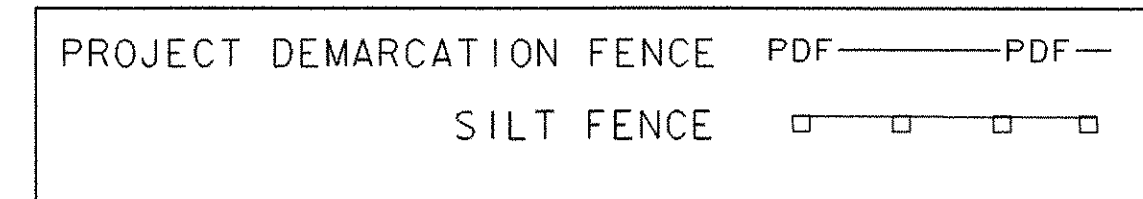
MATCH STA. 2+00 LAYOUT SHEET 2

Sta 8+15.36 BK
Sta 8+12.54 AH

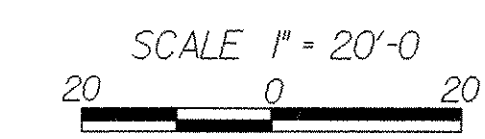
SOIL INFORMATION
 Hh - HADLEY VERY FINE SANDY LOAM
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP B
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

SOIL INFORMATION
 Ada - ADAMS LOAMY FINE SAND
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP A
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.17

LEGEND



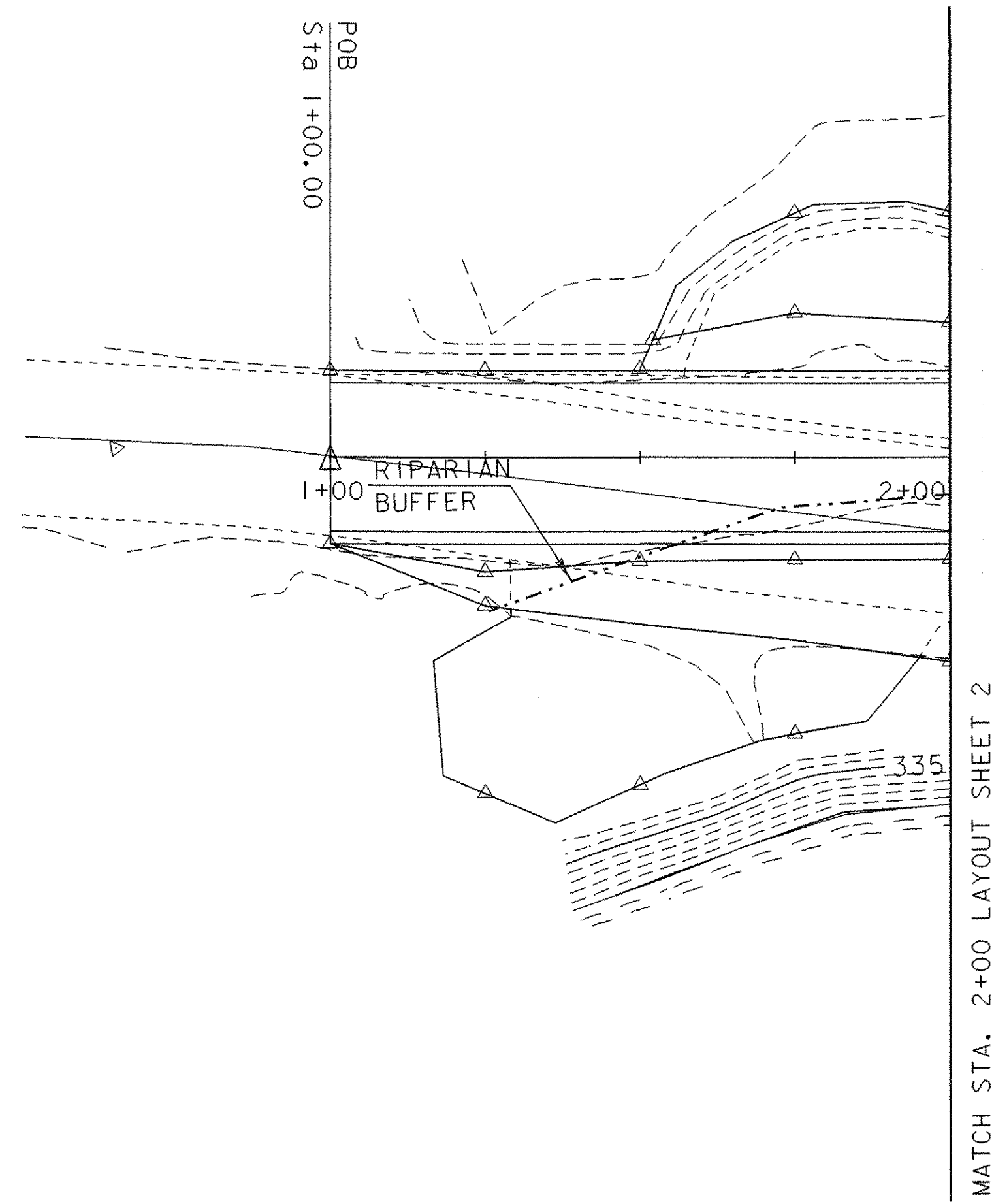
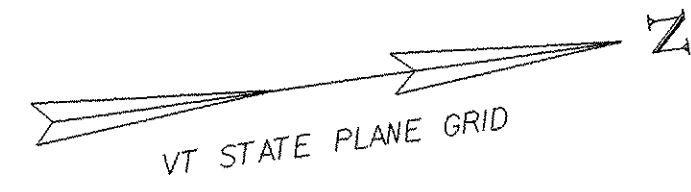
DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)



**EROSION PREVENTION AND
 SEDIMENT CONTROL PLAN 3**

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 24 OF 66

SOIL INFORMATION	
Le	- LIMRICK SILTY LOAM
	HIGH ERODIBILITY
	HYDRAULIC GROUP C
	RAPID SURFACE WATER RUNOFF
	ERODIBILITY COEFFICIENT (K) = 0.49



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



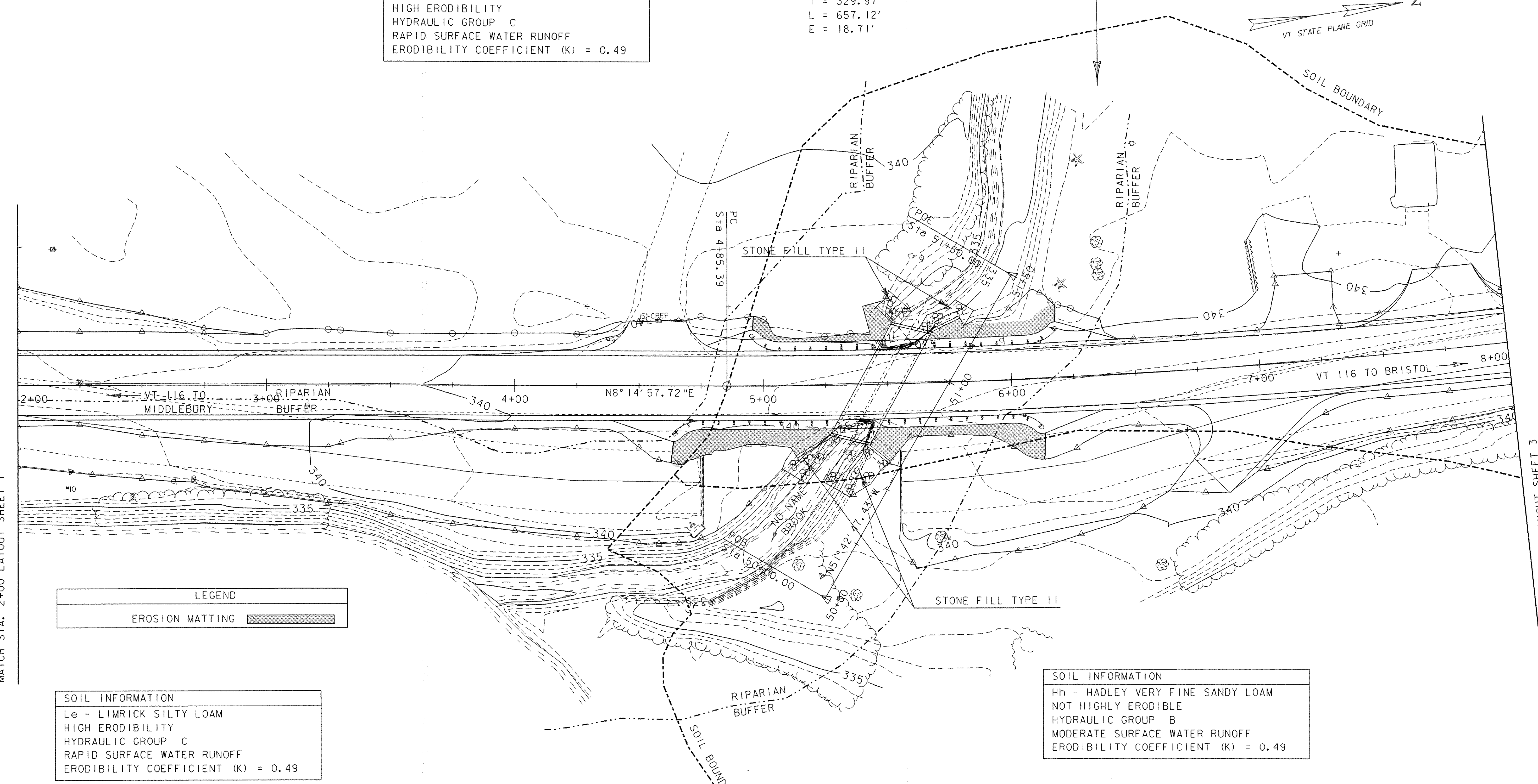
FINAL CONDITIONS SITE PLAN 1

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 25 OF 66

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

CURVE DATA:
 Delta = 12°58'58.17"
 D = 1°58'32.58"
 R = 2900.00'
 T = 329.97'
 L = 657.12'
 E = 18.71'

SOIL INFORMATION
 Ada - ADAMS LOAMY FINE SAND
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP A
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.17



LEGEND
 EROSION MATTING

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

SOIL INFORMATION
 Hh - HADLEY VERY FINE SANDY LOAM
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP B
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)

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

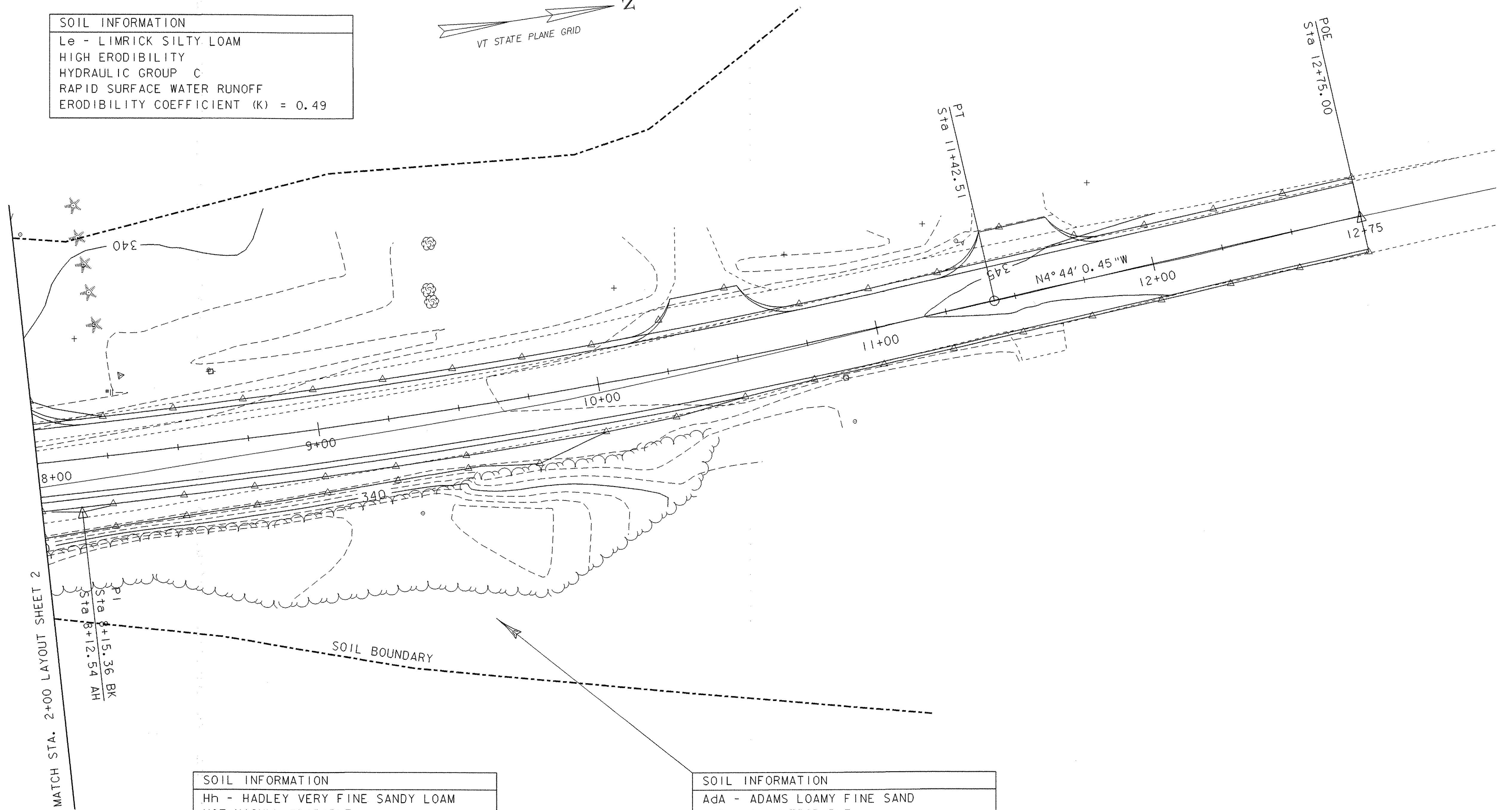
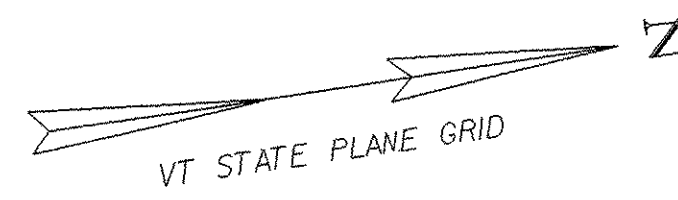
FINAL CONDITIONS SITE PLAN 2

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M.EVANS-MONGEON
DESIGNED BY: G.ROKES	DRAWN BY: G.ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 26 OF 66

MATCH STA. 2+00 LAYOUT SHEET 1

MATCH STA. 2+00 LAYOUT SHEET 3

SOIL INFORMATION
 Le - LIMRICK SILTY LOAM
 HIGH ERODIBILITY
 HYDRAULIC GROUP C
 RAPID SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49



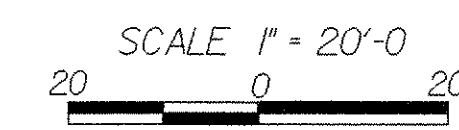
MATCH STA. 2+00 LAYOUT SHEET 2

PI
 Sta 8+15.36 BK
 Sta 8+12.54 AH

SOIL INFORMATION
 Hh - HADLEY VERY FINE SANDY LOAM
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP B
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.49

SOIL INFORMATION
 Ada - ADAMS LOAMY FINE SAND
 NOT HIGHLY ERODIBLE
 HYDRAULIC GROUP A
 MODERATE SURFACE WATER RUNOFF
 ERODIBILITY COEFFICIENT (K) = 0.17

DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)



FINAL CONDITIONS SITE PLAN 3

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b1261y1.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 27 OF 66

SILT FENCE

APPLICATION NOTES:

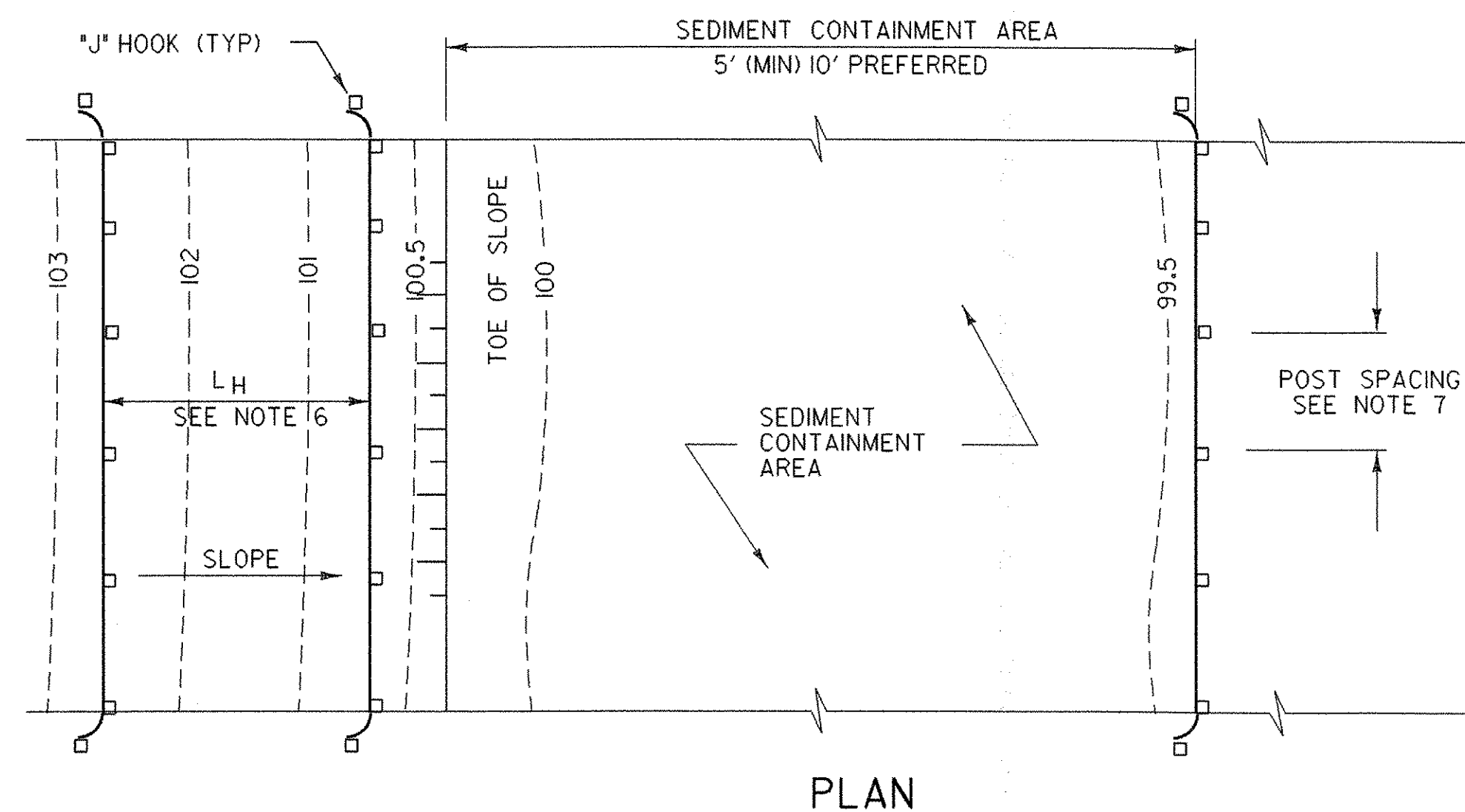
- A. THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.
- B. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

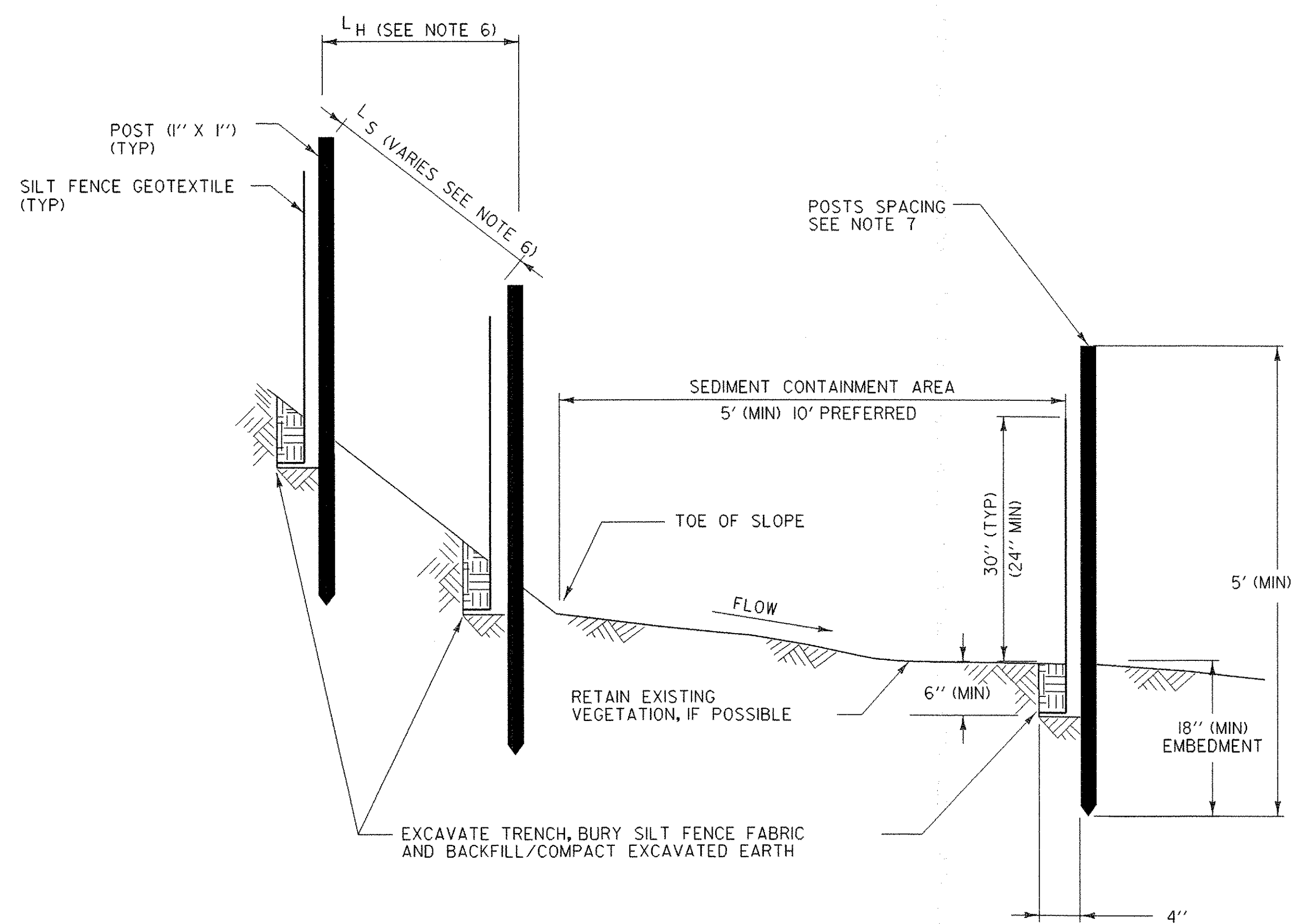
1. SILT FENCE SHALL GENERALLY BE PLACED A MINIMUM OF 5 FEET BEYOND TOE OF SLOPE, 10 FEET PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. SILT FENCE SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL.
3. ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.
4. IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.
5. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6 INCHES BELOW GROUND, AND KEYED IN 4 INCHES. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
6. MAXIMUM DRAINAGE AREA TRIBUTARY TO 100 FEET OF SILT FENCE SHALL BE 0.25 ACRES.
7. THE FOLLOWING ARE MAXIMUM LENGTHS FOR SILT FENCE INSTALATIONS:

CONSTRUCTED SLOPE	SLOPE LENGTH (LS) FT	HORIZONTAL LENGTH (LH) FT
3H : 4V	80	75
4H : 4V	130	125
5H : 4V	200	200
> 5H : 4V	250	250

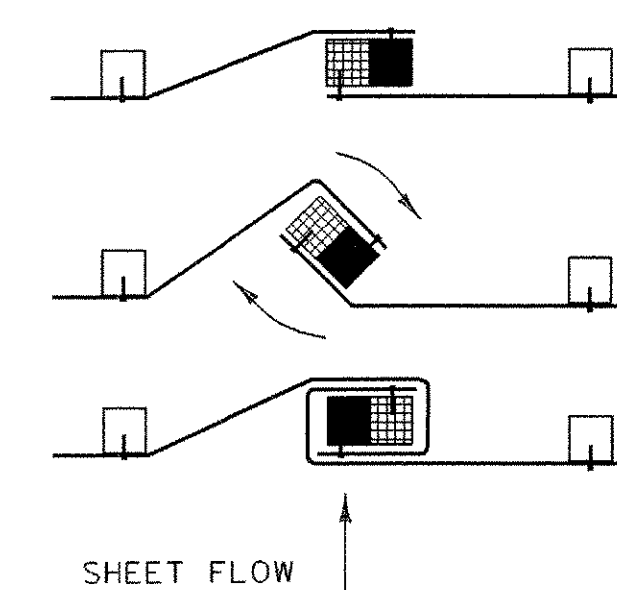
8. WHERE ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FEET. WHERE ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FEET.
9. SILT FENCE SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
10. SILT FENCE SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
11. SILT FENCE SHALL BE REMOVED WHEN THE AREA HAS BEEN STABILIZED. AT TIME OF REMOVAL OF THE SILT FENCE, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.



PLAN



SECTION
SILT FENCE - TEMPORARY
NOT TO SCALE



1. PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
3. DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY THE FLAP IN THE TRENCH.

SPLICING DETAIL

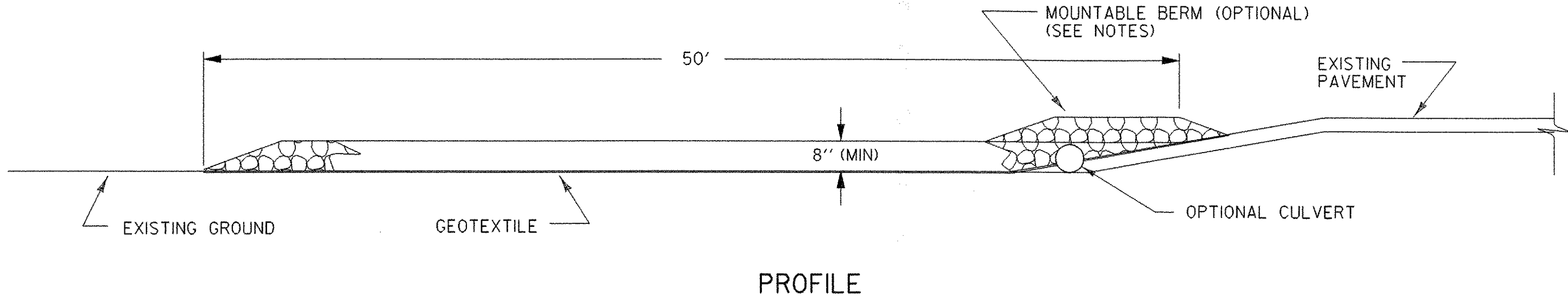
NOT TO SCALE

EROSION DETAIL 1

PROJECT NAME: BRISTOL
PROJECT NUMBER: ER ST 021-1(22)

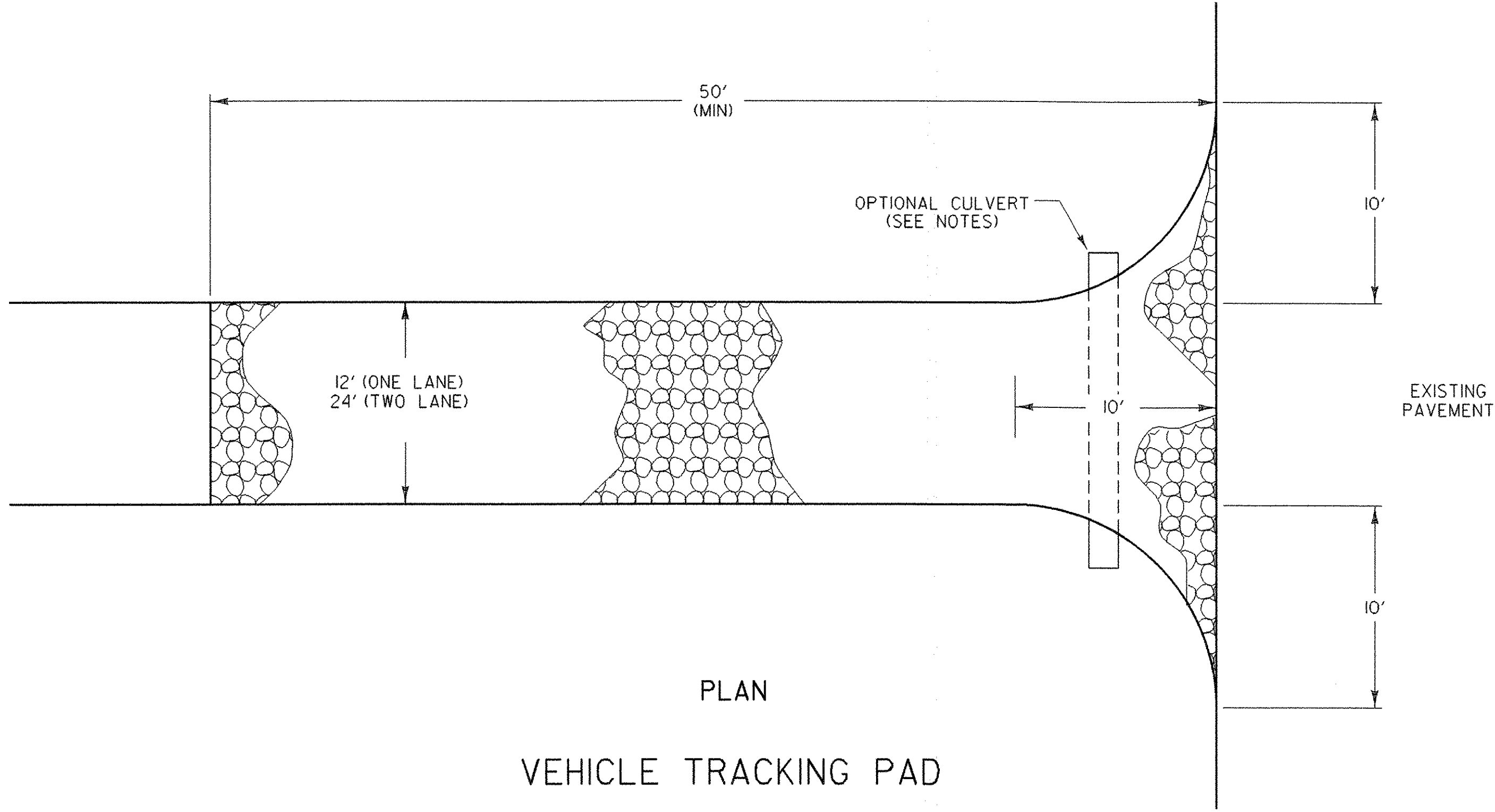
FILE NAME: 05b126\str.\s05b126ero
PROJECT LEADER: M. Evans-Mongeon
DESIGNED BY: G. ROKES
PLOT DATE: 20-MAR-2007
DRAWN BY: G. ROKES
CHECKED BY: M. EVANS-MONGE
SHEET 28 OF 66

VEHICLE TRACKING PAD



PROFILE
VEHICLE TRACKING PAD

NOT TO SCALE



PLAN
VEHICLE TRACKING PAD

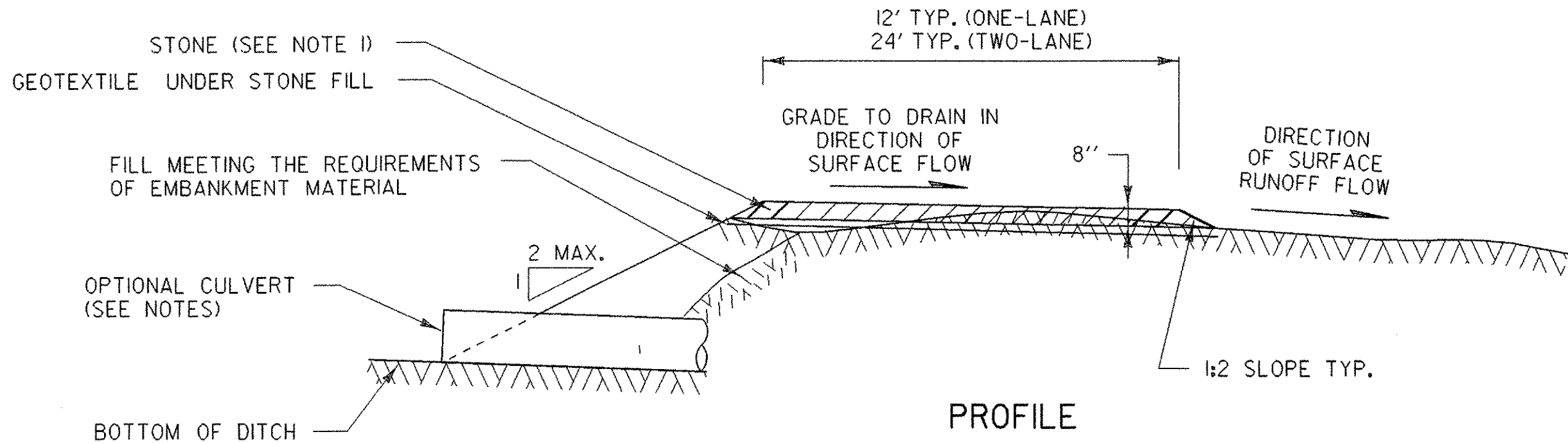
NOT TO SCALE

APPLICATION NOTES:

A. THE PURPOSE OF A VEHICLE TRACKING PAD IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY OR STREETS.

GENERAL NOTES:

1. STONE SIZE - USE CLEAN STONE THAT MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.
2. LENGTH - 50 FEET (MIN.)
3. THICKNESS - 8 INCHES (MIN.)
4. WIDTH - 12 FEET (MIN.)
5. GEOTEXTILE UNDER STONE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE AS DIRECTED BY THE ENGINEER. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. PROPOSED DRAINAGE PIPES SHALL BE SIZED WITH SUFFICIENT CAPACITY TO CARRY DITCH FLOWS. ALTERNATIVE WAYS OF TRANSPORTING DITCH DRAINAGE ACROSS CONSTRUCTION ENTRANCES MAY BE PROPOSED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
8. WHEN A VEHICLE TRACKING PAD ALONE IS NOT CAPABLE OF PREVENTING TRACKING OF SEDIMENT ONTO THE ROAD SURFACE, THE CONTRACTOR SHALL TAKE ADDITIONAL STEPS BEFORE VEHICLES LEAVE THE CONSTRUCTION AREA.
9. VEHICLE TRACKING PAD SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
10. VEHICLE TRACKING PAD SHALL BE MAINTAINED WHEN THE AGGREGATE BECOMES CLOGGED AND NO LONGER PREVENTS TRACKING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. ADDITIONAL AGGREGATE MAY BE ADDED ON TOP OF EXISTING AGGREGATE ONLY TO A POINT WHICH ALLOWS A SMOOTH TRANSITION BETWEEN THE ROAD SURFACE AND CONSTRUCTION AREA.
11. AT THE TIME OF REMOVAL OF THE VEHICLE TRACKING PAD, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

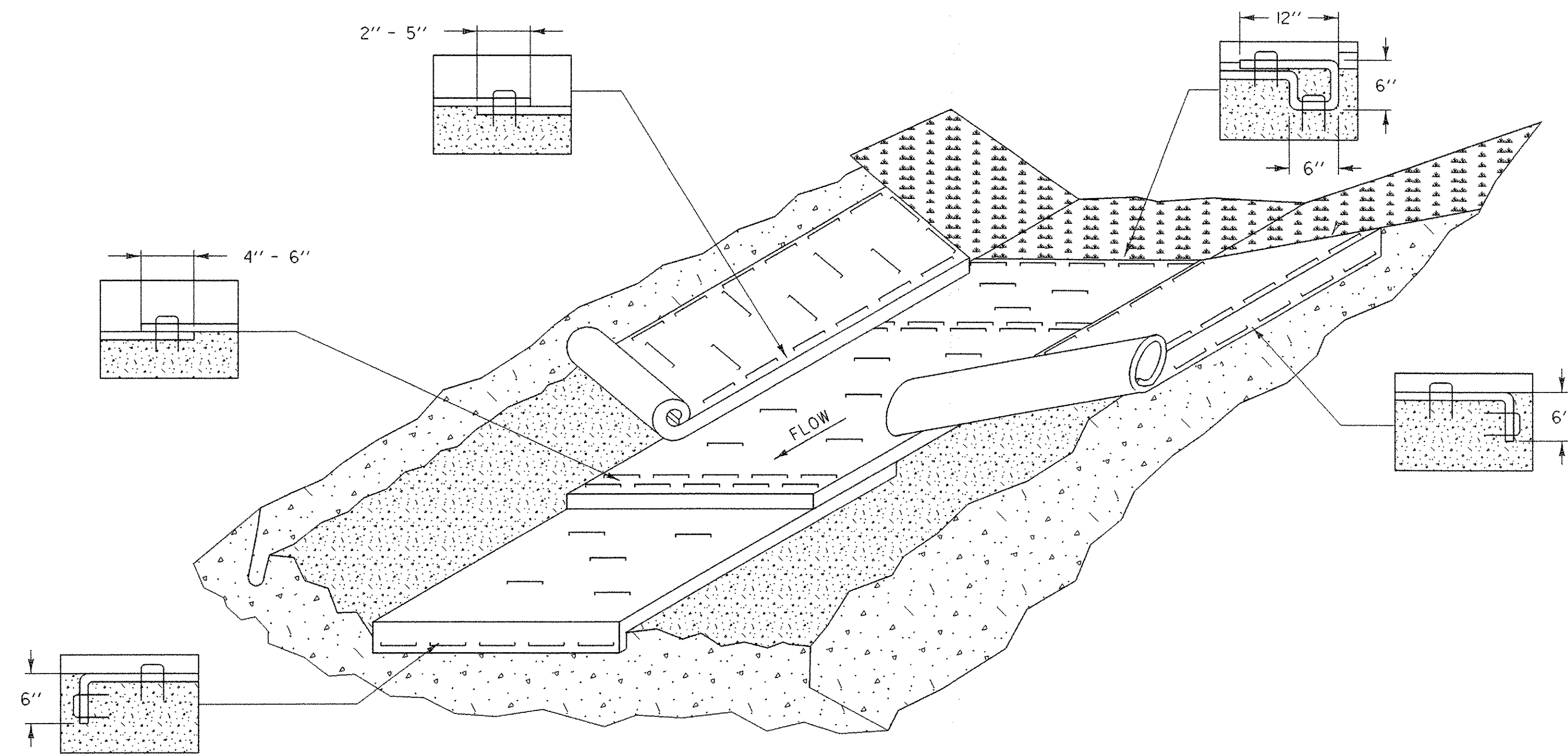


PROFILE
VEHICLE TRACKING PAD

NOT TO SCALE

EROSION DETAIL 2

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	05bl26\str.\s05bl26ero
PROJECT LEADER:	M. Evans-Mongeon
DESIGNED BY:	M.EVANS-MONGEON
PLOT DATE:	20-MAR-2007
DRAWN BY:	G. ROKES
CHECKED BY:	M.EVANS-MONGEON
SHEET	29 OF 66



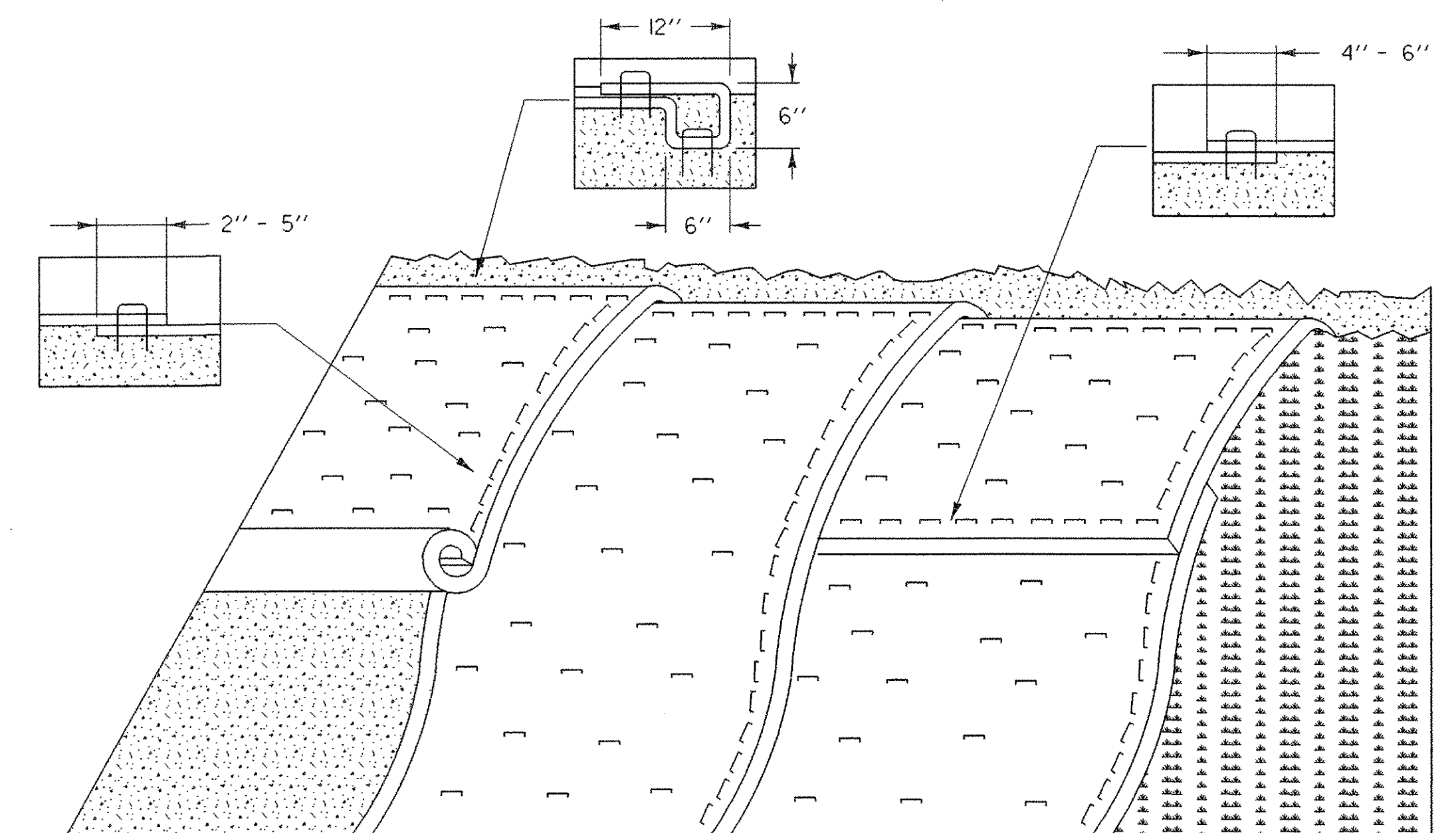
EROSION MATTING FOR DITCHES

APPLICATION NOTES:

- A. THE PURPOSE OF LINING THE DITCH WITH EROSION MATTING IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION AT LOW VELOCITIES.
- B. TYPE OF EROSION MATTING TO BE USED SHOULD BE BASED ON FACTORS SPECIFIC TO EACH APPLICATION. SEE SPECIFICATIONS AND PRODUCT RECOMMENDATIONS FOR SUITABILITY.

GENERAL NOTES:

1. WATER MAY NEED TO BE DIVERTED TO ALLOW PROPER MATTING INSTALLATION.
2. GRADE AND SMOOTH CHANNEL TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
3. APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
4. INSTALL MATTING IN THE CENTER OF THE CHANNEL, IN THE DIRECTION OF THE WATER FLOW.
5. INSTALL MATTING ON THE SIDE SLOPES OF THE CHANNEL, OVERLAPPING THE CENTER MAT.
6. ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7. EROSION MATTING SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
8. EROSION MATTING SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.



EROSION MATTING FOR SLOPES

APPLICATION NOTES:

- A. THE PURPOSE OF EROSION MATTING ON SLOPES IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION
- B. EROSION CONTROL MATTING SHALL BE USED FOR THE FOLLOWING REASONS:
 - SLOPES > 3H:1V
 - AREAS WHERE SEED AND MULCH WILL NOT STAY IN PLACE ALONE
 - WHERE SEEDING IS OUTSIDE THE GROWING SEASON.

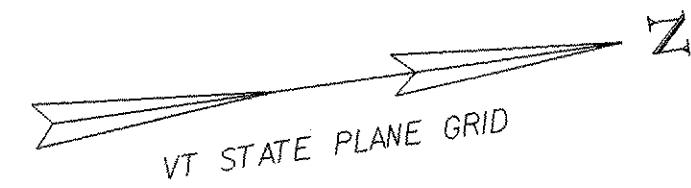
GENERAL NOTES:

1. GRADE AND SMOOTH THE SLOPE TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
2. APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
3. ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. UNROLL EROSION MATTING VERTICALLY DOWN SLOPE IN THE DIRECTION OF WATER FLOW.
5. OVERLAP UPPER MATTING OVER LOWER MATTING AS SHOWN.
6. OVERLAP ADJACENT MATTING AS SHOWN.
7. CUT EXCESS MATTING AT END OF SLOPE AND ANCHOR THE END.
8. EROSION MATTING SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
9. EROSION MATTING SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.

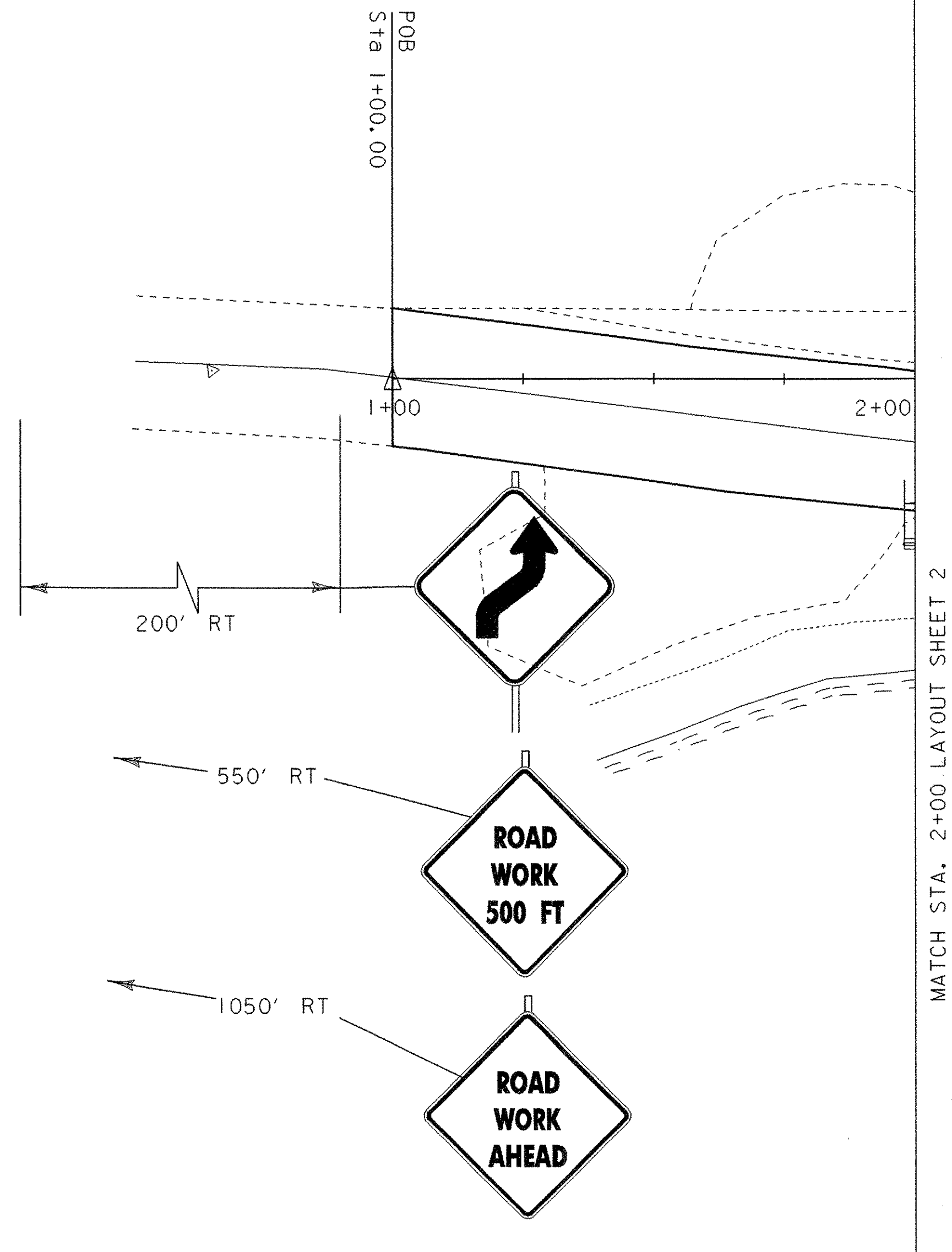
EROSION DETAIL 3

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

FILE NAME: 05b126\str.\s05b126ero PLOT DATE: 20-MAR-2007
 PROJECT LEADER: M. Evans-Mongeon DRAWN BY: G. ROKES
 DESIGNED BY: M.EVANS-MONGEON CHECKED BY: M. EVANS-MONGEON
 SHEET 30 OF 66



THE SIGNS SHOWN ON THIS SHEET ARE ALREADY IN PLACE. THE ITEM, 641.10, TRAFFIC CONTROL, WILL BE USED TO MAINTAIN THESE DEVICES, REMOVE THEM, AND STOCKPILE THEM ON-SITE, WHEN THE CONSTRUCTION IS COMPLETE.



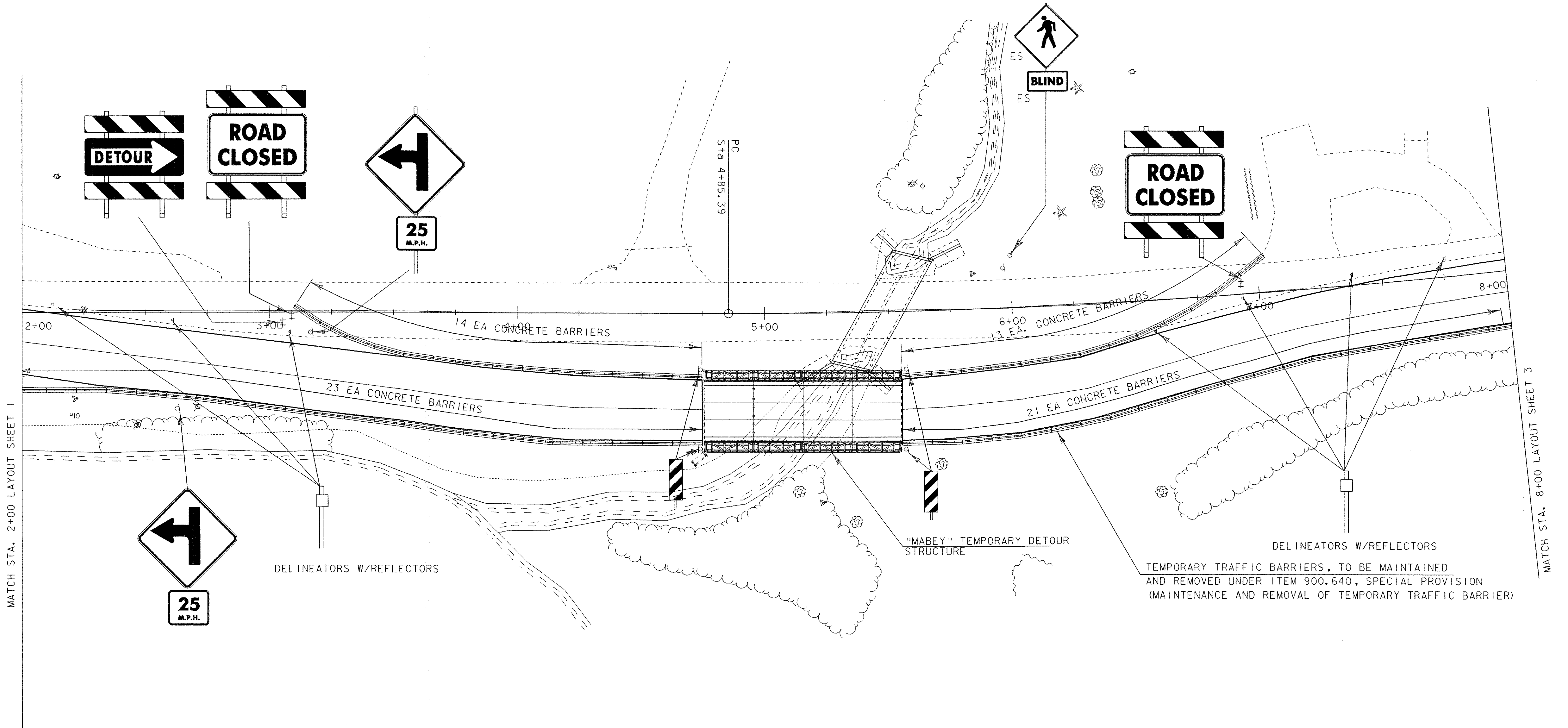
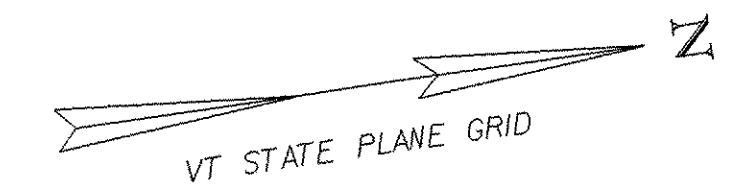
DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)

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

EXISTING DETOUR LAYOUT 1

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126trfbdr.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: s05b126trbl.i	CHECKED BY: M. EVANS-MONG
DESIGNED BY: DISTRICT 5	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 32 OF 66

THE SIGNS SHOWN ON THIS SHEET ARE ALREADY IN PLACE. THE ITEM, 641.10, TRAFFIC CONTROL, WILL BE USED TO MAINTAIN THESE DEVICES, REMOVE THEM, AND STOCKPILE THEM ON-SITE, WHEN THE CONSTRUCTION IS COMPLETE.

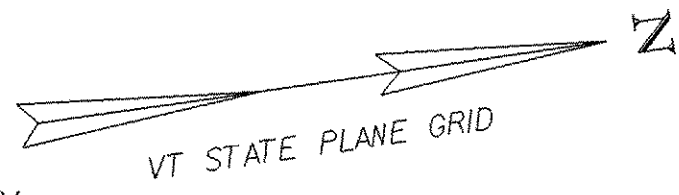


DELINEATORS W/REFLECTORS
 TEMPORARY TRAFFIC BARRIERS, TO BE MAINTAINED AND REMOVED UNDER ITEM 900.640, SPECIAL PROVISION (MAINTENANCE AND REMOVAL OF TEMPORARY TRAFFIC BARRIER)

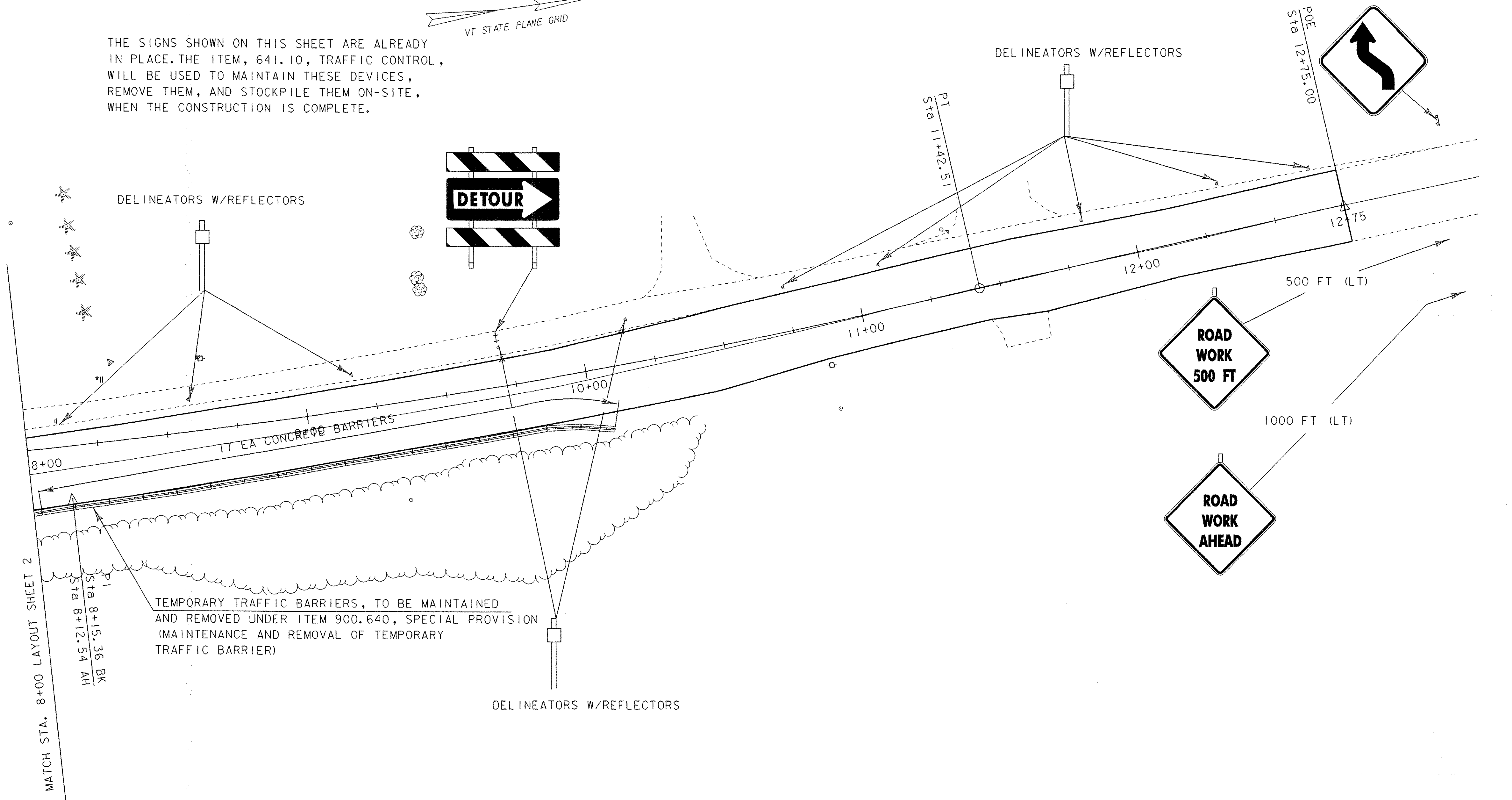
DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)

SCALE 1" = 20'-0"

EXISTING DETOUR LAYOUT 2	
PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 27-MAR-2007
IPARM FILE NAME: s05b126trb2.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: DISTRICT 5	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 33 OF 66



THE SIGNS SHOWN ON THIS SHEET ARE ALREADY IN PLACE. THE ITEM, 641.10, TRAFFIC CONTROL, WILL BE USED TO MAINTAIN THESE DEVICES, REMOVE THEM, AND STOCKPILE THEM ON-SITE, WHEN THE CONSTRUCTION IS COMPLETE.



MATCH STA. 8+00 LAYOUT SHEET 2

PI
Sta 8+15.36 BK
Sta 8+12.54 AH

TEMPORARY TRAFFIC BARRIERS, TO BE MAINTAINED AND REMOVED UNDER ITEM 900.640, SPECIAL PROVISION (MAINTENANCE AND REMOVAL OF TEMPORARY TRAFFIC BARRIER)

DELINEATORS W/REFLECTORS

DELINEATORS W/REFLECTORS

ROAD WORK
500 FT

ROAD WORK
AHEAD

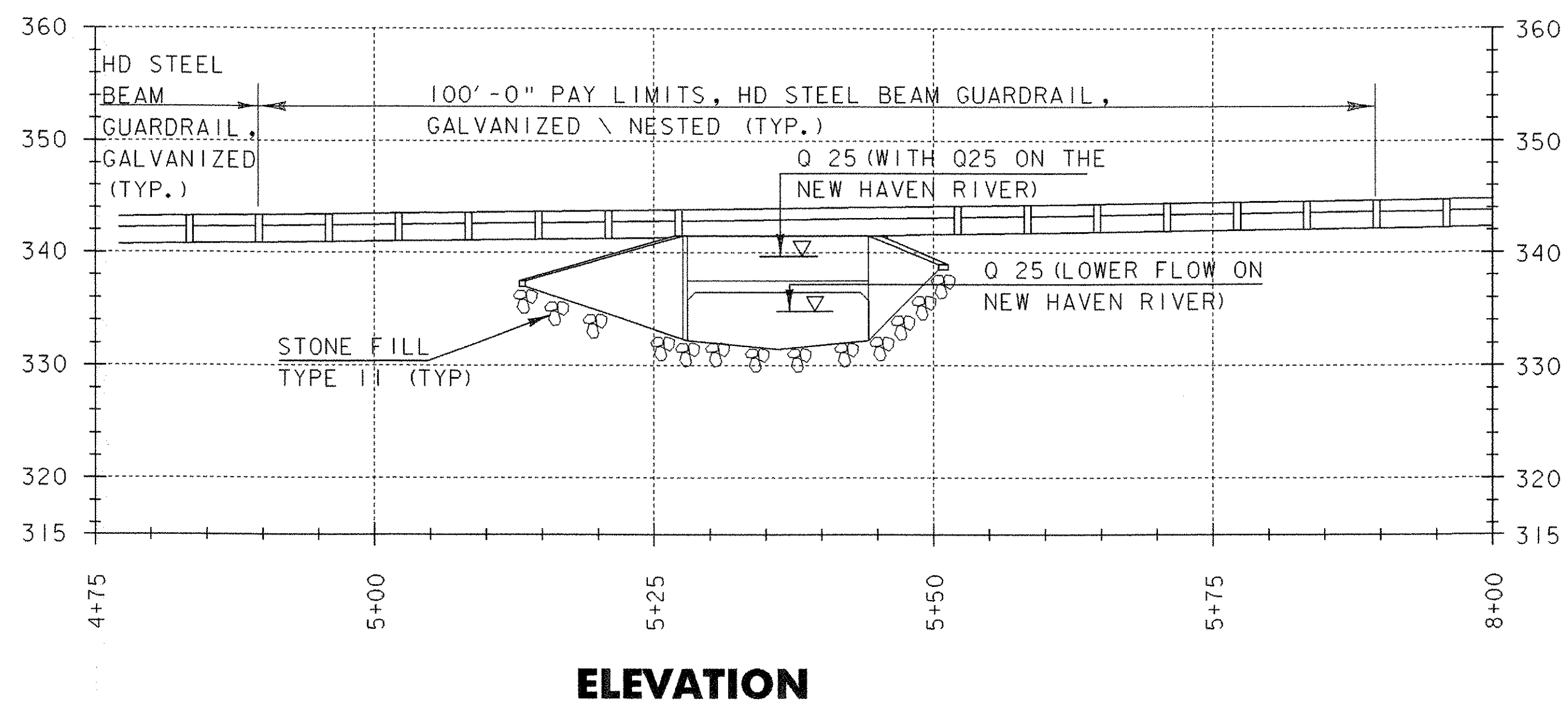
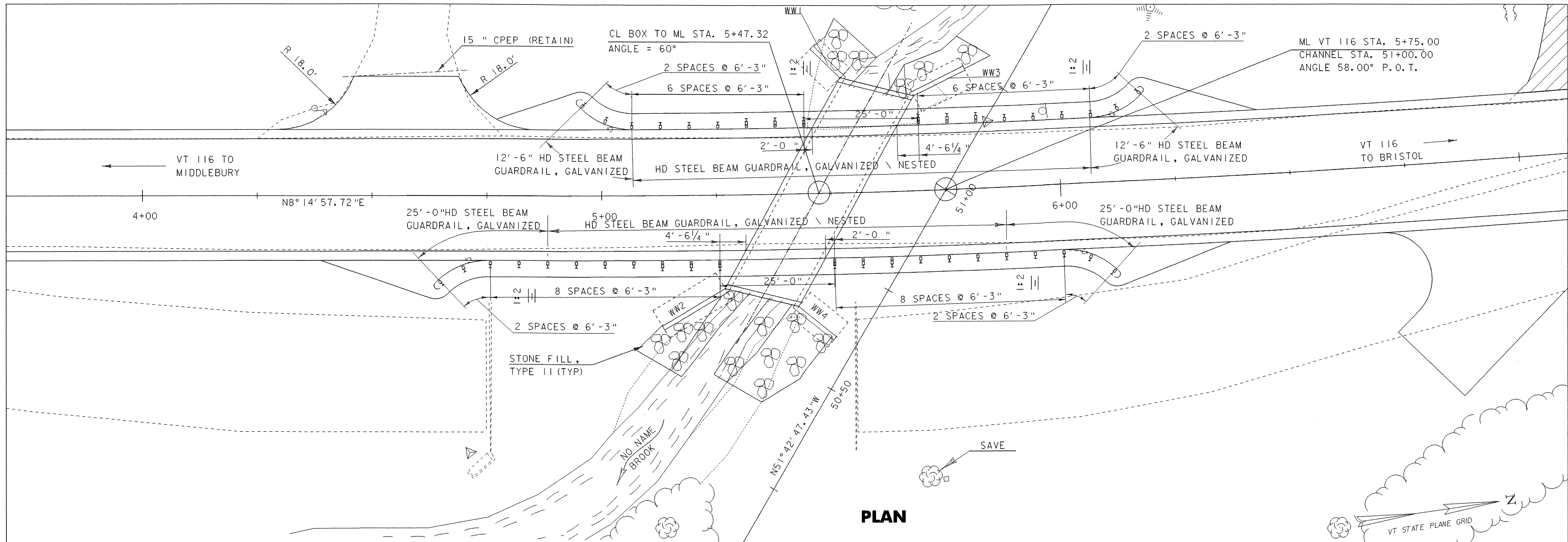
500 FT (LT)

1000 FT (LT)

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)

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

EXISTING DETOUR LAYOUT 3	
PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126bdr.dgn	PLOT DATE: 27-MAR-2007
IPARM FILE NAME: s05b126trb3.i	CHECKED BY: M. EVANS-MONG
DESIGNED BY: DISTRICT 5	DRAWN BY: G. ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 34 OF 66



DATUM
 VERTICAL NAVD 88
 HORIZONTAL NAD 83 (96)

SCALE 1" = 10'-0"

PLAN AND ELEVATION

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126pe.dgn	PLT DATE: 27-MAR-2007
IPARM FILE NAME: s05b126pe.i	CHECKED BY: G.ROKES
DESIGNED BY: M. EVANS-MONGEON	DRAWN BY: G.ROKES
SQUAD LEADER: M. EVANS-MONGEON	SHEET: 35 OF 66

GENERAL NOTES

GENERAL

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 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH (17th) EDITION, AND ITS LATEST REVISIONS.
2. IN-STREAM CONSTRUCTION SHALL BE RESTRICTED TO JULY 1 TO OCTOBER 1, UNLESS THE CONTRACTOR OBTAINS WRITTEN PERMISSION FROM THE AGENCY OF NATURAL RESOURCES TO DO WORK OUTSIDE OF THAT TIME FRAME.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY THE DISCHARGE OF RAW CONCRETE, INTO ANY BROOK, STREAM OR RIVER.
4. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES F UNLESS OTHERWISE NOTED.
5. ACCESS TO ALL DRIVES WILL BE MAINTAINED AT ALL TIMES, DURING THE CONSTRUCTION OF THIS PROJECT.
6. ITEM 529.15 "REMOVAL OF STRUCTURE (14 FEET- CULVERT)" SHALL BE USED FOR REMOVAL OF THE PIPE ARCH AND ANY PORTIONS OF FOOTINGS, HEADWALLS, AND WINGWALLS NOT REMOVED UNDER ITEM 204.25 "STRUCTURE EXCAVATION" OR ITEM 203.27 "UNCLASSIFIED CHANNEL EXCAVATION".
7. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.015 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT OR AS DIRECTED BY THE ENGINEER.

EARTHWORK AND RELATED ITEMS

8. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.

TEMPORARY DETOUR/TEMPORARY BRIDGE

9. TRAFFIC SHALL BE MAINTAINED ON A STEEL, TWO LANE, TRUSS ON A DETOUR WHICH IS ALREADY IN PLACE.
10. THE TWO-LANE STEEL TRUSS, TEMPORARY BRIDGE THAT IS BEING USED TO MAINTAIN TRAFFIC, WILL BE REMOVED, DISASSEMBLED, CLEANED, SORTED, BUNDLED, AND LOADED FOR TRANSPORT TO THE MENDON STATE GARAGE. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 529.15, REMOVAL OF STRUCTURE (1920 SF - EST). SEE SPECIAL PROVISIONS, SALVAGED MATERIAL.
11. THE TEMPORARY TRAFFIC BARRIER, WHICH IS IN PLACE, IS THE PROPERTY OF THE STATE OF VERMONT, TRANSPORTATION DISTRICT 5. WHEN THE BARRIER IS NO LONGER NEEDED, DISTRICT 5 WILL BE NOTIFIED AND ARRANGMENTS WILL BE MADE TO DELIVER THE BARRIER RAIL TO THE FORT ETHAN ALLEN GARAGE, IN COLCHESTER, AND UNLOAD IT IN A LOCATION DETERMINED BY DISTRICT 5 PERSONNEL. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 900.640, SPECIAL PROVISION, (MAINTENANCE AND REMOVAL OF TEMPORARY TRAFFIC BARRIER). THE CONTRACTOR SHALL CONTACT DISTRICT 5 TRANSPORTATION ADMINISTRATOR, GIL NEWBURY, TWO WEEKS PRIOR TO DELIVERY, AT 802-655-1581 TO ARRANGE DELIVERY AND COORDINATE THE STORAGE LOCATION.
12. THE CONSTRUCTION SIGNS, WHICH ARE IN PLACE, ARE THE PROPERTY OF THE STATE OF VERMONT, TRANSPORTATION DISTRICT 5. THEY WILL REMAIN IN PLACE, AND BE MAINTAINED, CLEANED, AND REPAIRED OR REPLACED IF NECESSARY, BY THE CONTRACTOR. WHEN CONSTRUCTION HAS BEEN COMPLETED, THEY WILL BE REMOVED AND STOCKPILED ON-SITE, FOR REMOVAL BY DISTRICT PERSONNEL. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 641.10, TRAFFIC CONTROL.

LEDGE

13. NO BORINGS WERE TAKEN ON THIS PROJECT, SUBSURFACE CONDITIONS MAY VARY FROM THE CONDITIONS ASSUMED FOR DESIGN. IF ANY LEDGE IS ENCOUNTERED, THE PROJECT MANAGER SHALL BE NOTIFIED IMMEDIATELY.

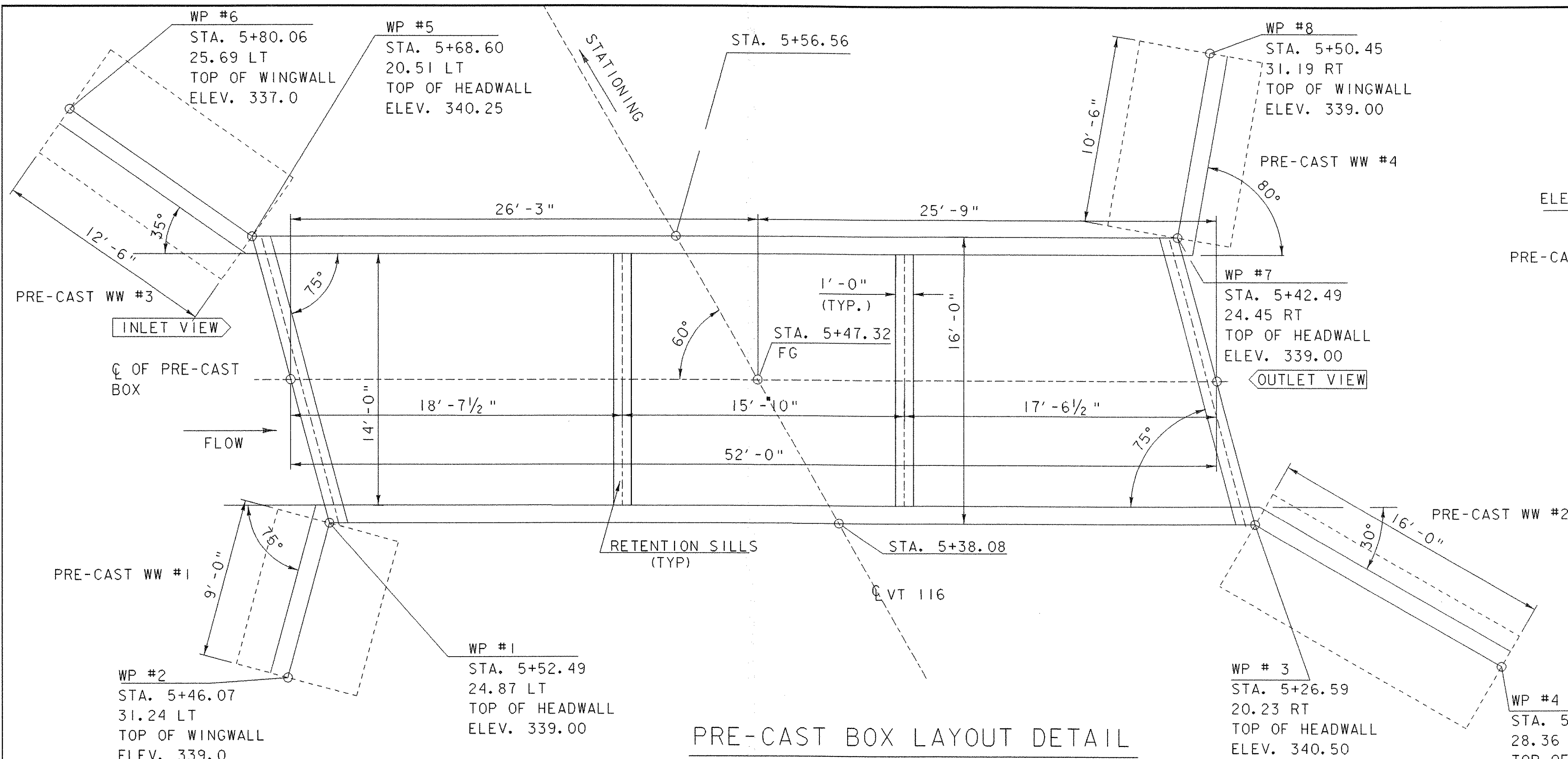
PRECAST CONCRETE BOX. PRECAST WINGWALLS AND PRECAST HEADWALLS

14. DESIGN CRITERIA:
 - A. SOIL UNIT WEIGHT = 140 PCF
 - B. DESIGN LIVE LOAD = AASHTO HS-25
 - C. WINGWALL FOOTING PRESSURE = MAXIMUM 3 KSF
 - D. F.S. OVERTURNING ≥ 2.0
 - E. SLIDING ≥ 1.5
15. ALL CONCRETE ITEMS SHALL BE PRECAST CONCRETE INCLUDING ALL BOX SEGMENTS, HEADWALLS, CUTOFF WALLS, BCD RETENTION SILLS AND WINGWALLS. ALL CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND PAYMENT SHALL BE INCIDENTAL TO THE ITEM 540.10 "PRECAST CONCRETE STRUCTURE (14'-0" x 7'-0" x 52'-0" BOX)". ALL PRECAST COMPONENT AND CONNECTION DETAILS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL.
16. THE RESIDENT ENGINEER WILL PROVIDE TO THE CONTRACTOR A STATE OF VERMONT BRIDGE PLAQUE. THIS PLAQUE IS TO BE CAST INTO WINGWALL #2. THE RESIDENT ENGINEER WILL BE NOTIFIED 72 HOURS PRIOR TO THE CASTING OF WINGWALL #2.

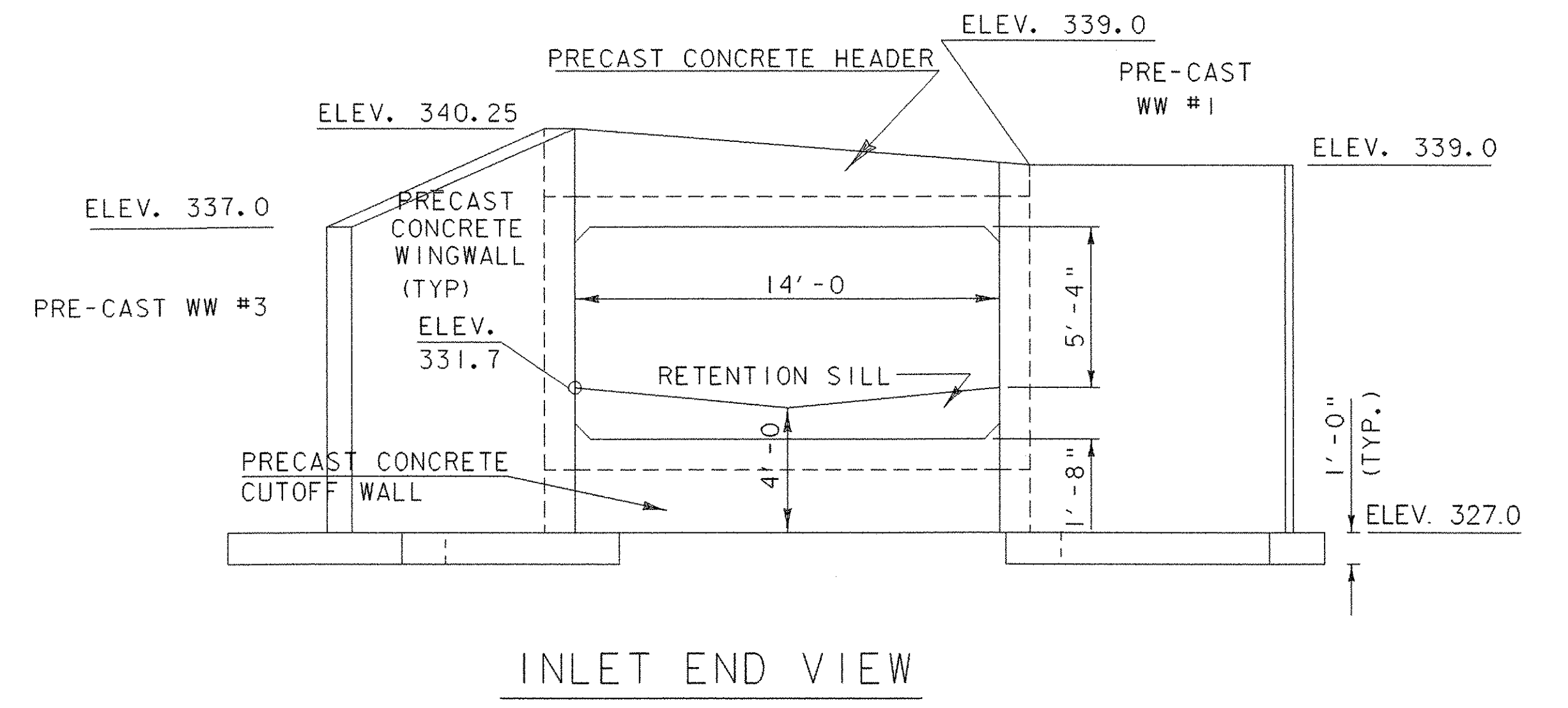
17. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. THE MINIMUM REQUIREMENTS FOR THE PRECAST BOX ARE TO INCLUDE INSIDE DIMENSIONS TO MEET AN 7'-0" HIGH BY 14'- 0" WIDE OPENING. THE INLET AND OUTLET SEGMENTS SHALL HAVE VERTICAL FACES AS SHOWN IN THE PLANS.
18. ALL LIFTING HOLES SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10 "PRECAST CONCRETE STRUCTURE".
19. THE EXTERIOR (TOP AND SIDES) OF ALL CONCRETE BOX SEGMENT JOINTS SHALL BE FILLED WITH A 7/8" X 1 3/8" PRE-FORMED BITUMINOUS JOINT SEALER. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. THE JOINT SEALER WILL EXTEND FROM THE BOTTOM OF ONE SIDE OF THE BOX, UP AND ACROSS THE TOP, AND BACK DOWN TO THE BOTTOM OF THE OTHER SIDE OF THE BOX. PAYEMENT FOR THIS MATERIAL AND ITS INSTALLATION WILL BE CONSIDERED INCIDENTAL TO ITEM 540.10 "PRECAST CONCRETE STRUCTURE".
20. A TWO (2) FOOT WIDE STRIP OF MEMBRANE WATEPROOFING 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 ROOF WILL FOLLOW. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE(1) FOOT. PAYMENT FOR MEMBRANE SHALL BE UNDER ITEM 519.21 "SHEET MEMBRANE WATERPROOFING,PREFORMED SHEET".
21. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" BY 1".
22. ITEM 900.625 "SPECIAL PROVISION (WATER REPLELLENT,SILANE)" SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE INSIDE OF THE BOX MEASURED 3 FEET FROM THE OPENING OF EACH END INWARD.
23. IT MAY BE NECESSARY TO DIVERT THE STREAM IN SOME MANNER DURING CONSTRUCTION. PAYMENT FOR THIS WORK WILL MADE UNDER ITEM 900.645, SPECIAL PROVISION, (TEMPORARY RELOCATION OF STREAM).
24. A MINIMUM OF 2' COVER OVER THE BOX MUST BE PROVIDED BEFORE ALLOWING ANY VEHICLE OVER THE STRUCTURE.
25. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
SPACING +/- 1"
CLEARANCE +/- 1/4"
26. THE KEY ON CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
27. JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GENERAL NOTES

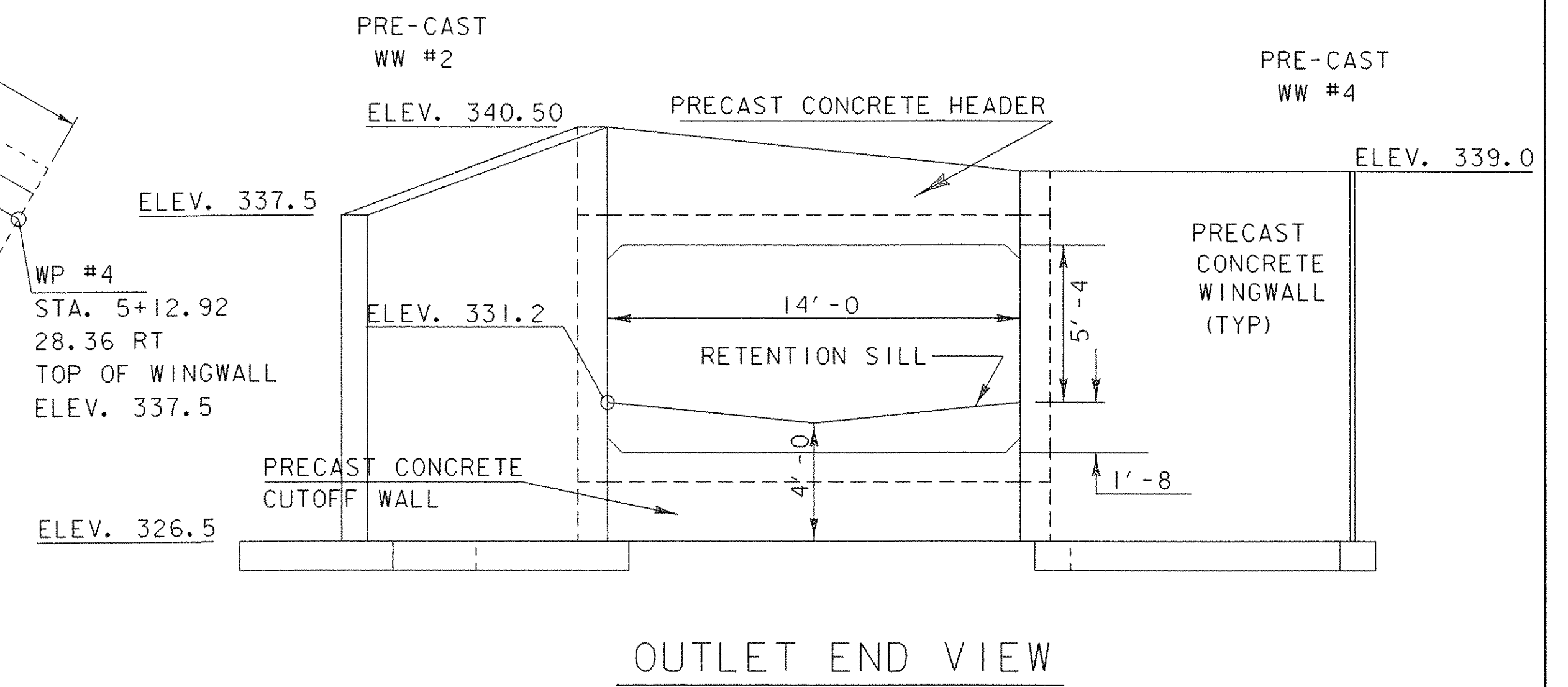
PROJECT NAME:	BRISTOL	PLOT DATE:	2/20/2007
PROJECT NUMBER:	ER ST 021 -1 (22)	DRAWN BY:	G. ROKES
FILE NAME:	05b126/Str/05b126excel.dgn	CHECKED BY:	G. ROKES
PROJECT LEADER:	M. EVANS-MONGEON	SHEET	36 OF 66
DESIGNED BY:	M. EVANS-MONGEON		
IPARM:	s05b126gen.j		



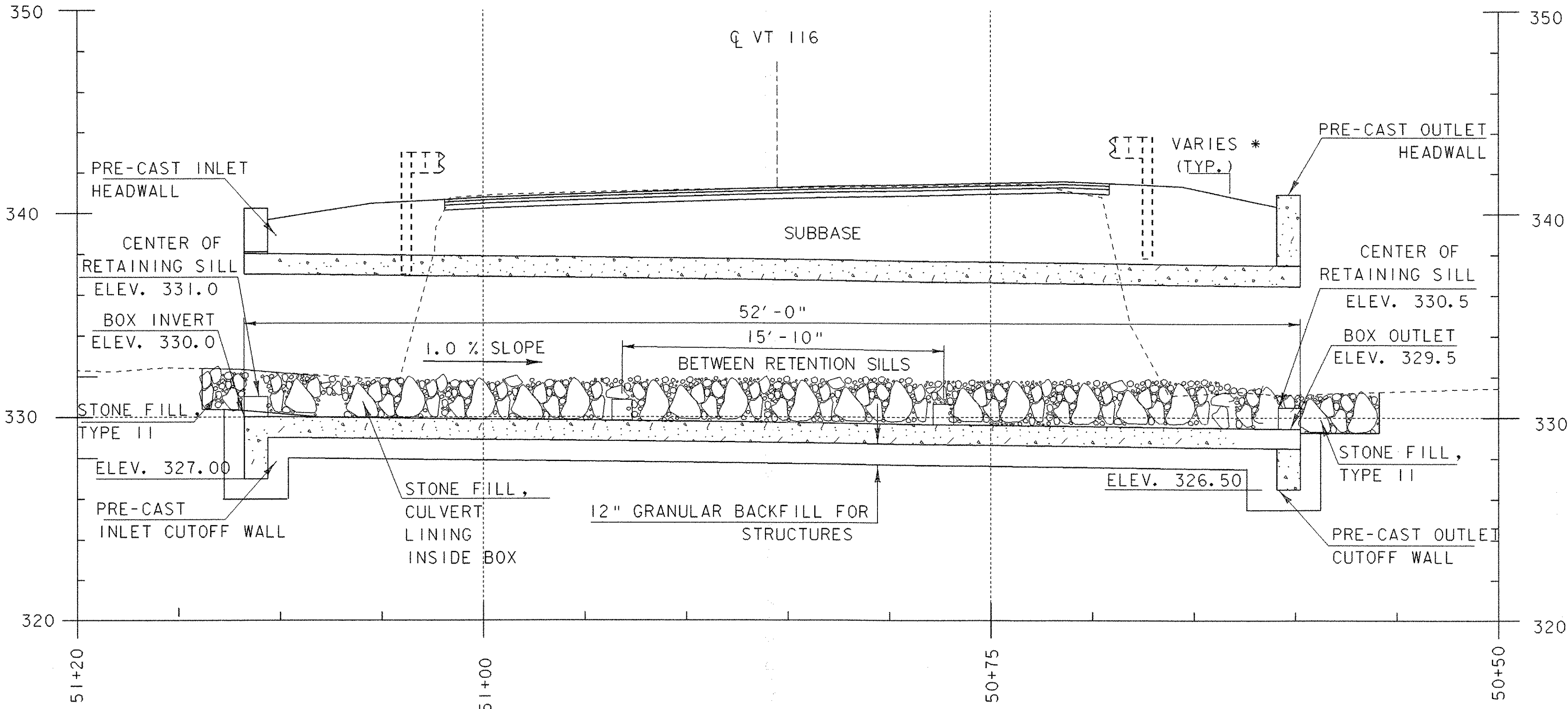
PRE-CAST BOX LAYOUT DETAIL



INLET END VIEW



OUTLET END VIEW



PRE-CAST BOX PROFILE

NOTES

1. THE OVERALL LENGTH MEASURED ALONG THE CENTERLINE OF THE BOX IS 50'-0". THE END SECTIONS SHALL BE FABRICATED SO THE HEADWALL IS PLUMB WHEN INSTALLED. THE PLANNED INVERT GRADE IS 1.00%.
 2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".
- * ADJUST THE FILL SLOPES ACROSS THE BOX, IN THE FIELD, TO RESULT IN A 3" TO 6" REVEAL ALONG THE HEADWALLS ALL THE WAY ACROSS THE STRUCTURE.

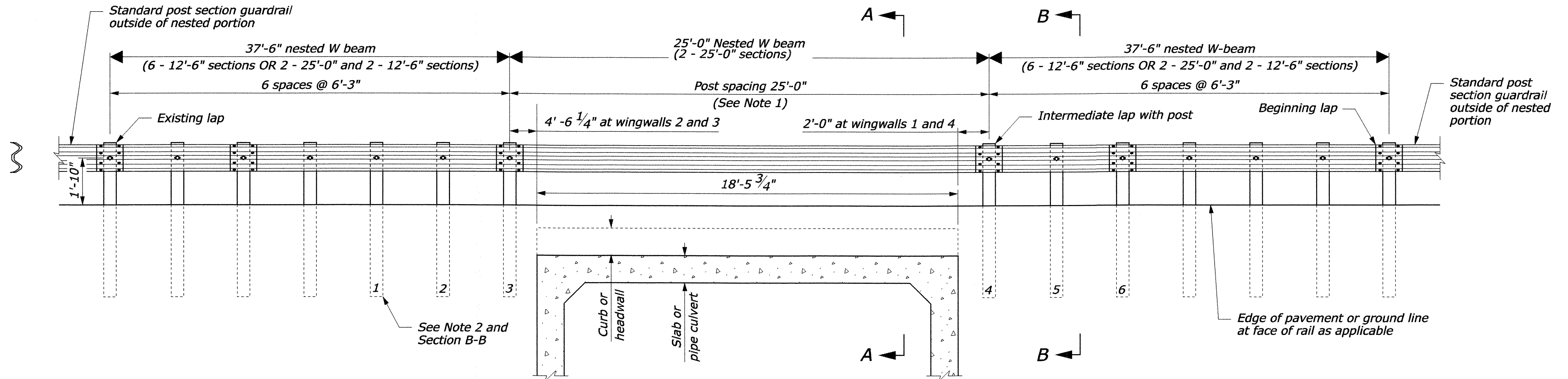
ALL DETAILS ON THIS SHEET ARE
 SCALE 1/4" = 1'-0"
 1 0 2 4 6

PRE-CAST BOX DETAILS

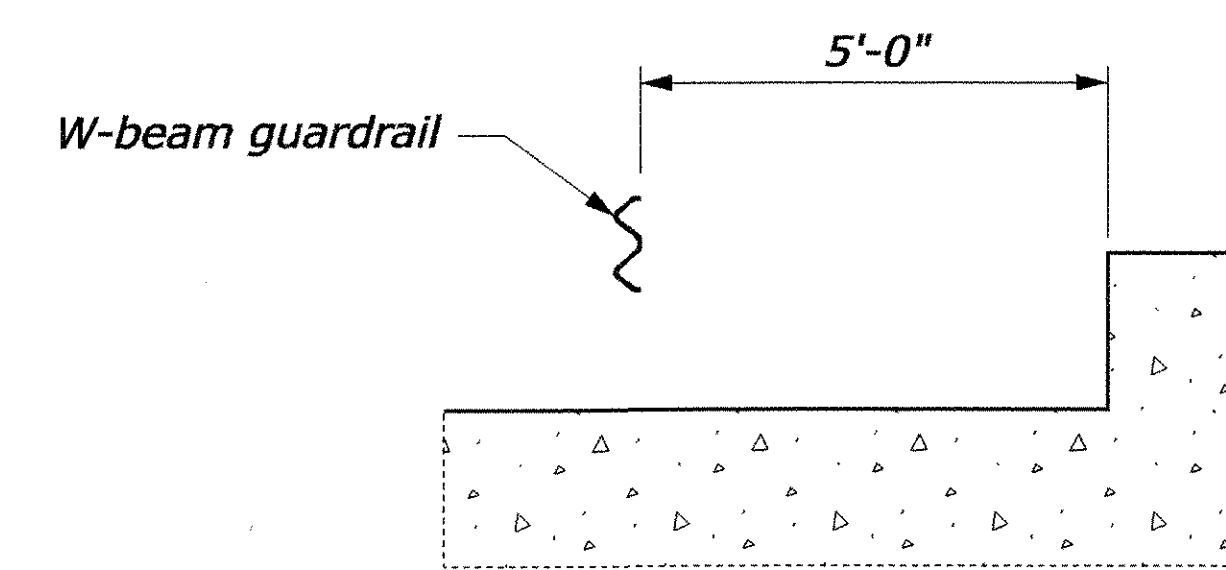
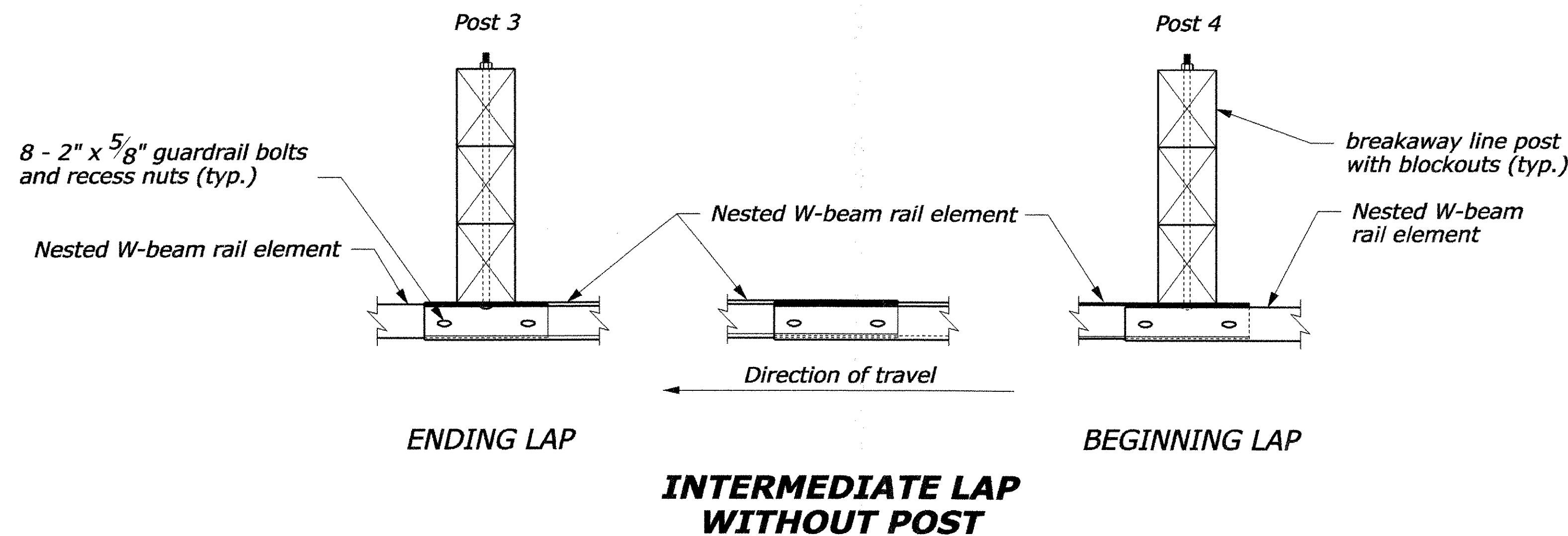
PROJECT NAME:	BRISTOL	PLOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	DRAWN BY:	G.ROKES
FILE NAME:	05b126\gr1stolbr9boxdetail	CHECKED BY:	G.ROKES
PROJECT LEADER:	M.EVANS-MONGEON	SHEET	38 OF 66
DESIGNED BY:	M.EVANS-MONGEON		

NOTE:

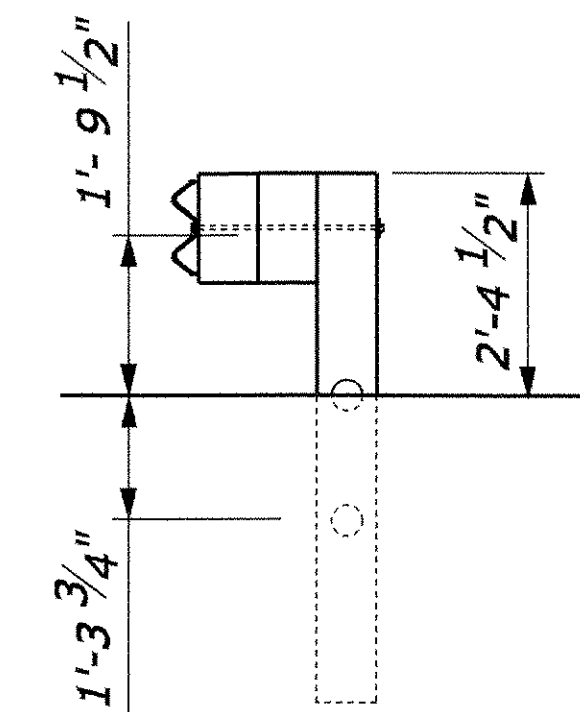
1. 25'-0" rail length will be used to eliminate the intermediate lap without a post.
2. Posts 1 thru 6 are breakaway line posts, see STD G17a. Also see Section B-B for details.
3. Posts 1 thru 6 have two, 6" x 8" blockouts. See Section B-B for details.
4. Install the back face of the nested guardrail a minimum of 5'-0" feet from the face of the curb-like headwall.
5. On Posts 1 thru 6, Guardrail bolt "D", as shown on STD G1, shall be 26" long.
6. On all posts where the rail is double-nested Guardrail bolt "A", as shown on STD G1, shall be 2" long.
7. See STD. G1 and G 17a for additional guardrail details.



ELEVATION



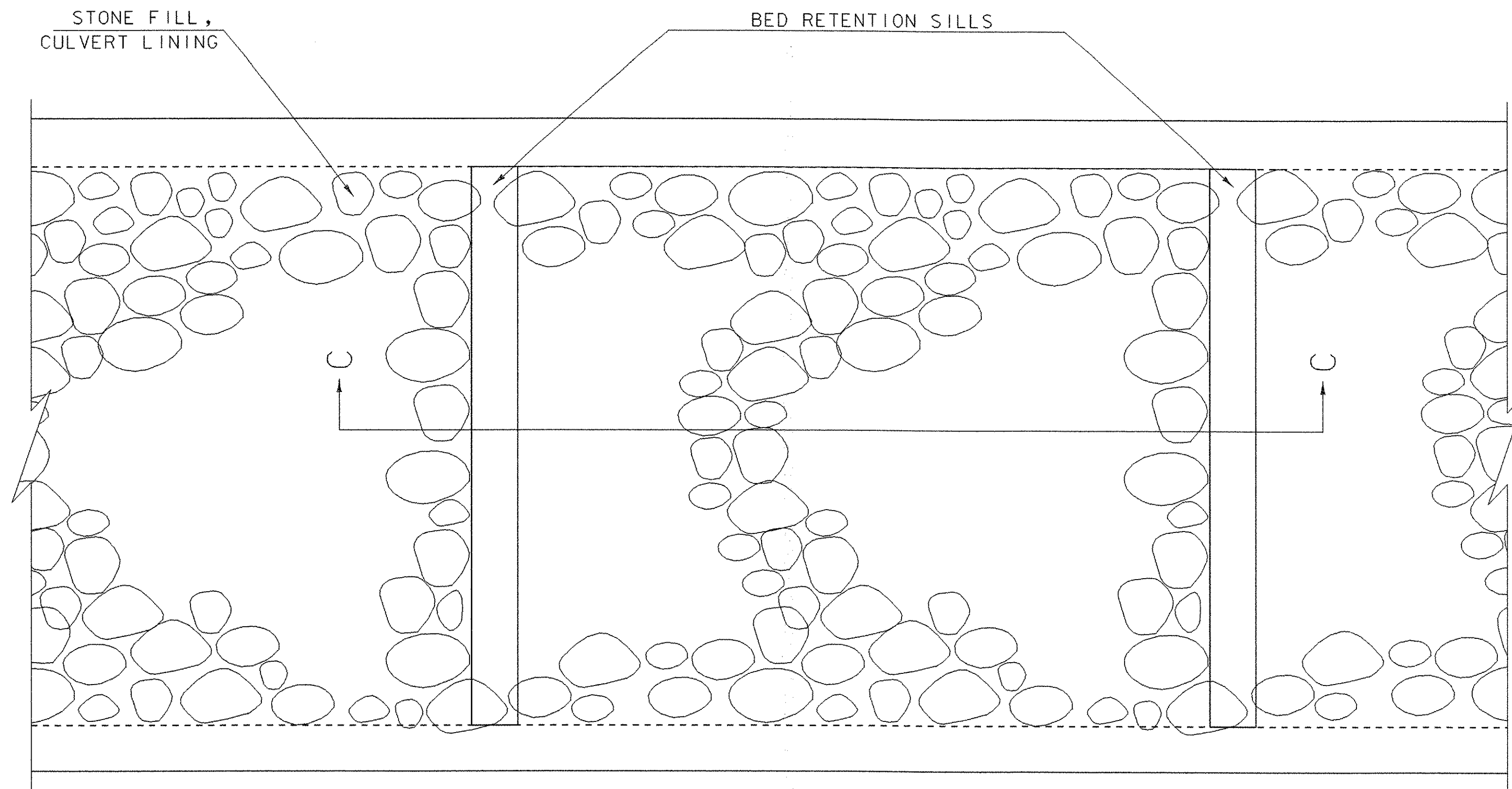
SECTION A-A
(See Note 3)



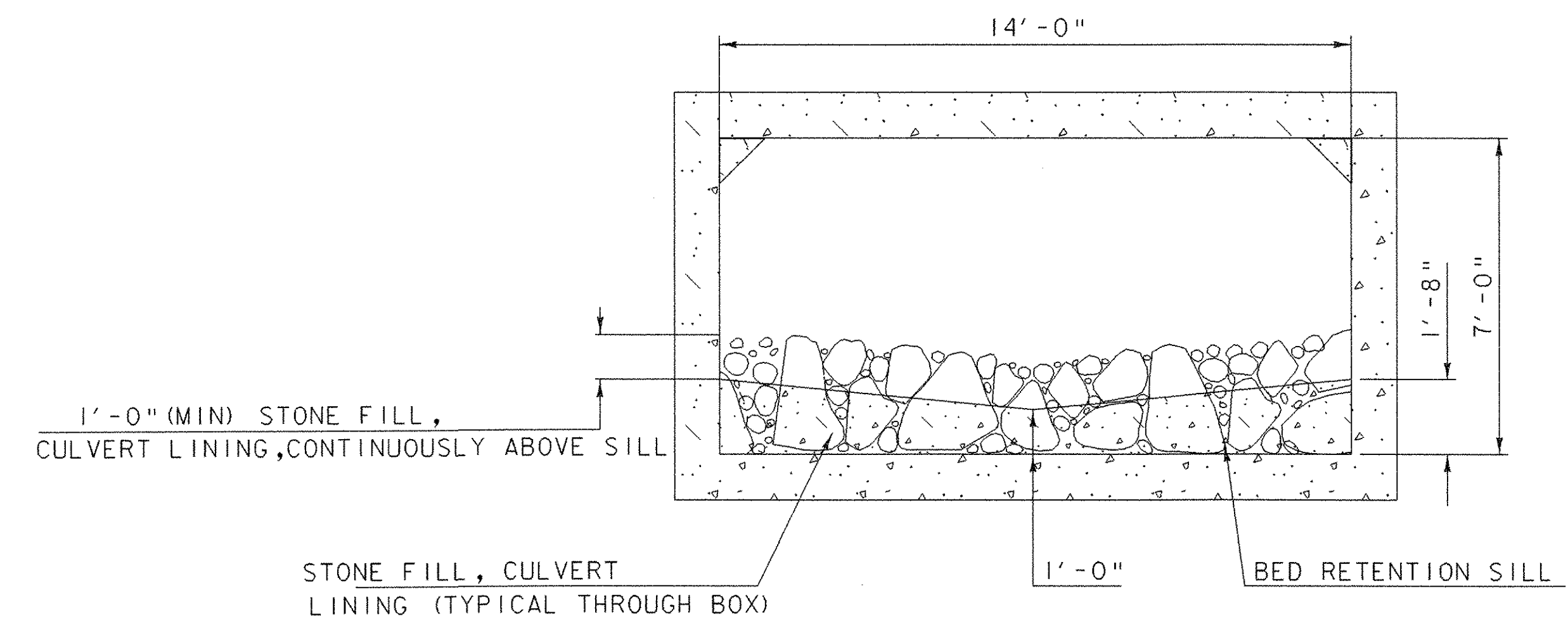
SECTION B-B
(See Note 2)

**HD STEEL BEAM GUARDRAIL,
GALVANIZED \ NESTED
DETAIL SHEET**

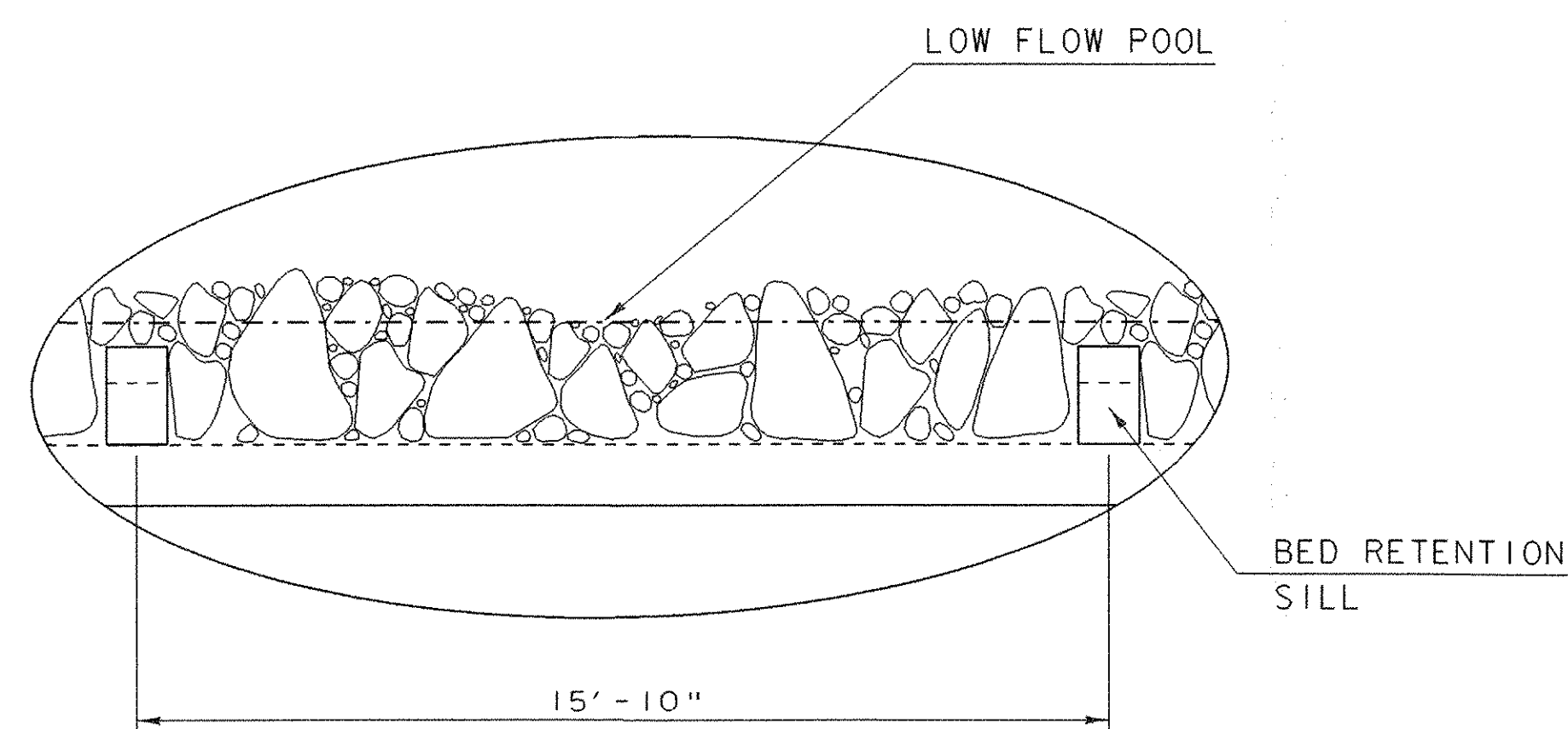
PROJECT NAME:	BRISTOL
PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	05bl26\str\05bl26nestrail.dgn
PROJECT LEADER:	M. Evans-Mongeon
DESIGNED BY:	M. EVANS-MONGEON
PLOT DATE:	27-MAR-2007
DRAWN BY:	M. E-MONGEON
CHECKED BY:	
SHEET	39 OF 66



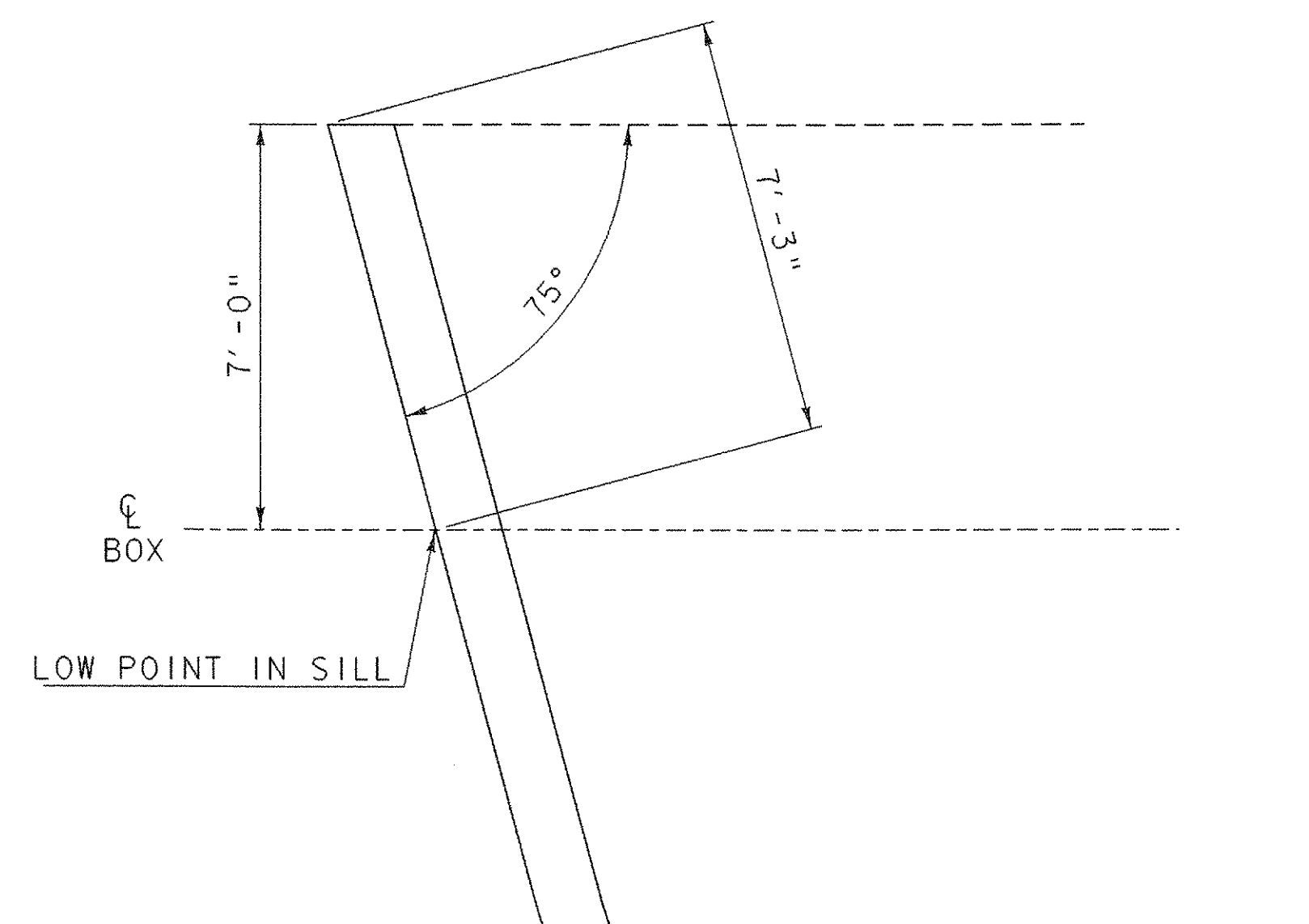
STONE FILL TYPICAL LAYOUT
NOT TO SCALE



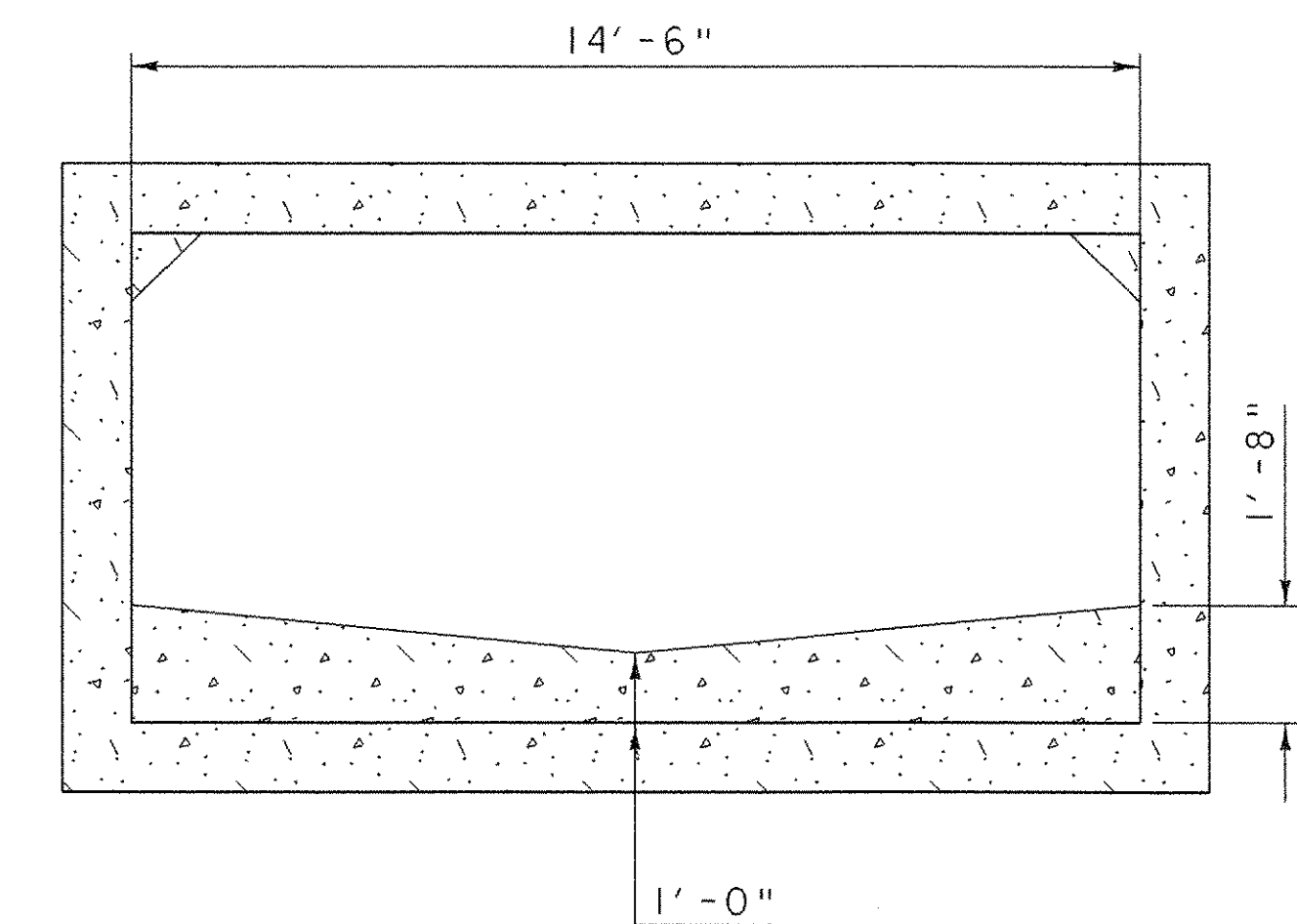
PRECAST CONCRETE BOX CROSS SECTION
NOT TO SCALE



SECTION C-C
NOT TO SCALE



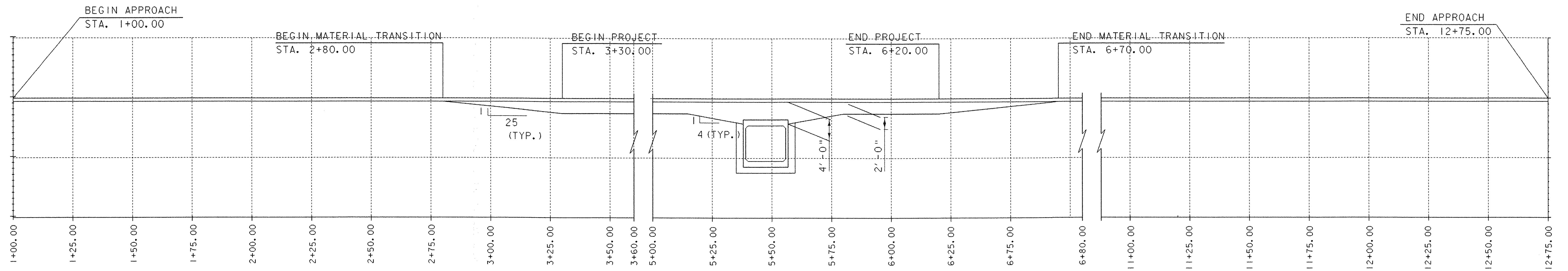
INLET/OUTLET SKEWED RETENTION SILL
NOT TO SCALE



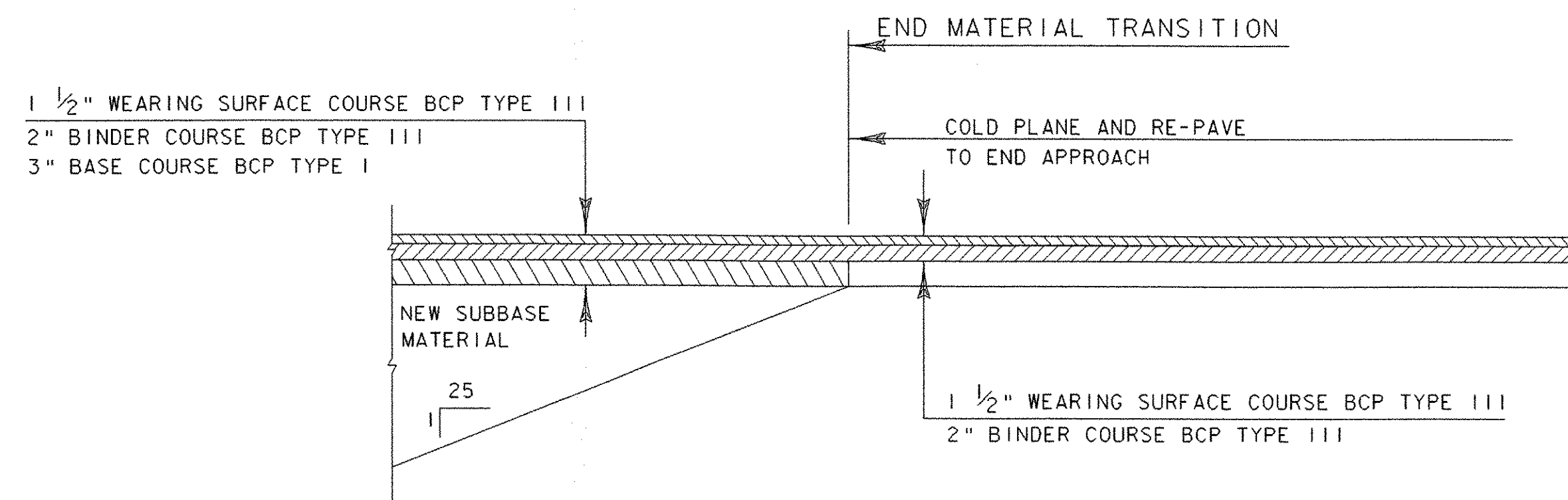
INLET/OUTLET SKEWED RETENTION SILL
CROSS SECTION
NOT TO SCALE

PRE-CAST RETENTION SILL DETAILS

PROJECT NAME:	BRISTOL	PLOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	DRAWN BY:	G. ROKES
FILE NAME:	05bl26\Str\s05bl26+yp.dgn	CHECKED BY:	G. ROKES
PROJECT LEADER:	M. Evans-Mongeon	SHEET	41 OF 66
DESIGNED BY:	M. Evans-Mongeon		



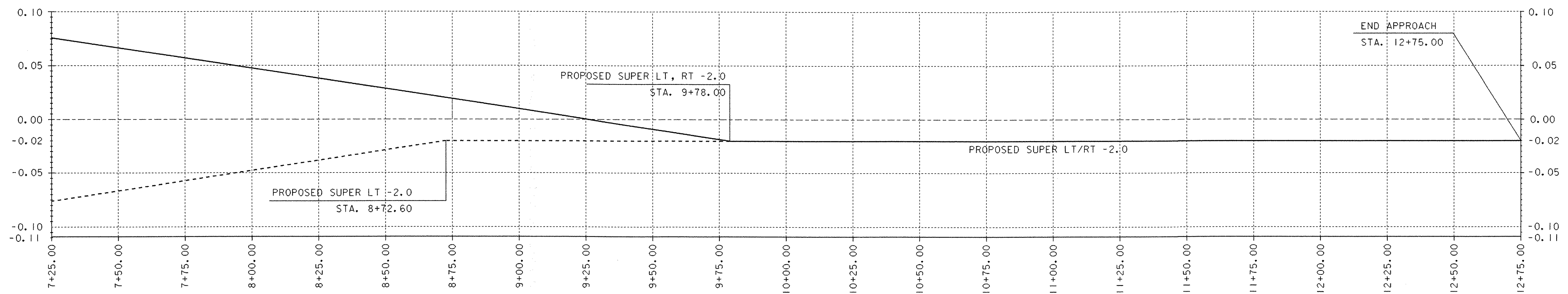
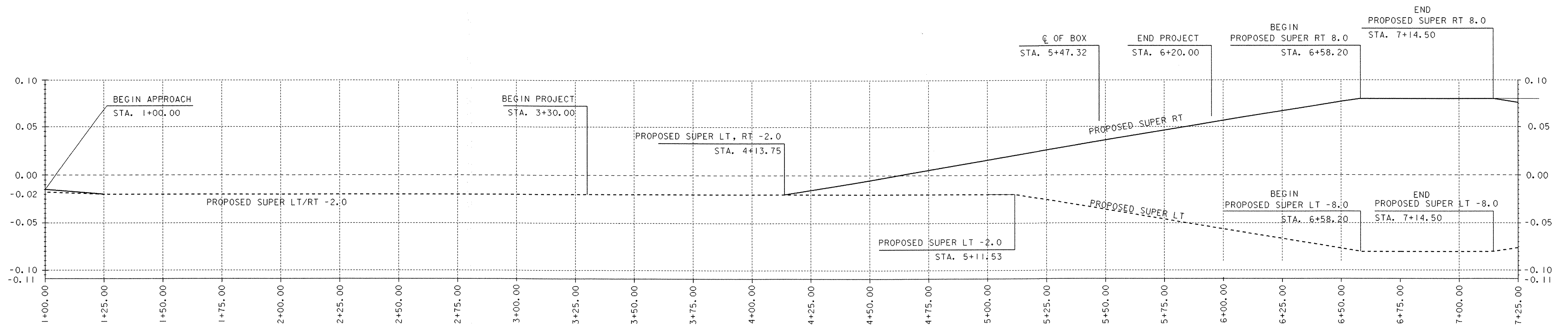
MATERIAL TRANSITION
NTS



PAVEMENT DETAIL
NTS

MATERIAL TRANSITION

PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\Str\s05b126wrk.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: sb126mat.i	CHECKED BY: M. EVANS-MO
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
PROJECT LEADER: M. EVANS-MONGEON	SHEET: 44 OF 66



BANKING DIAGRAM

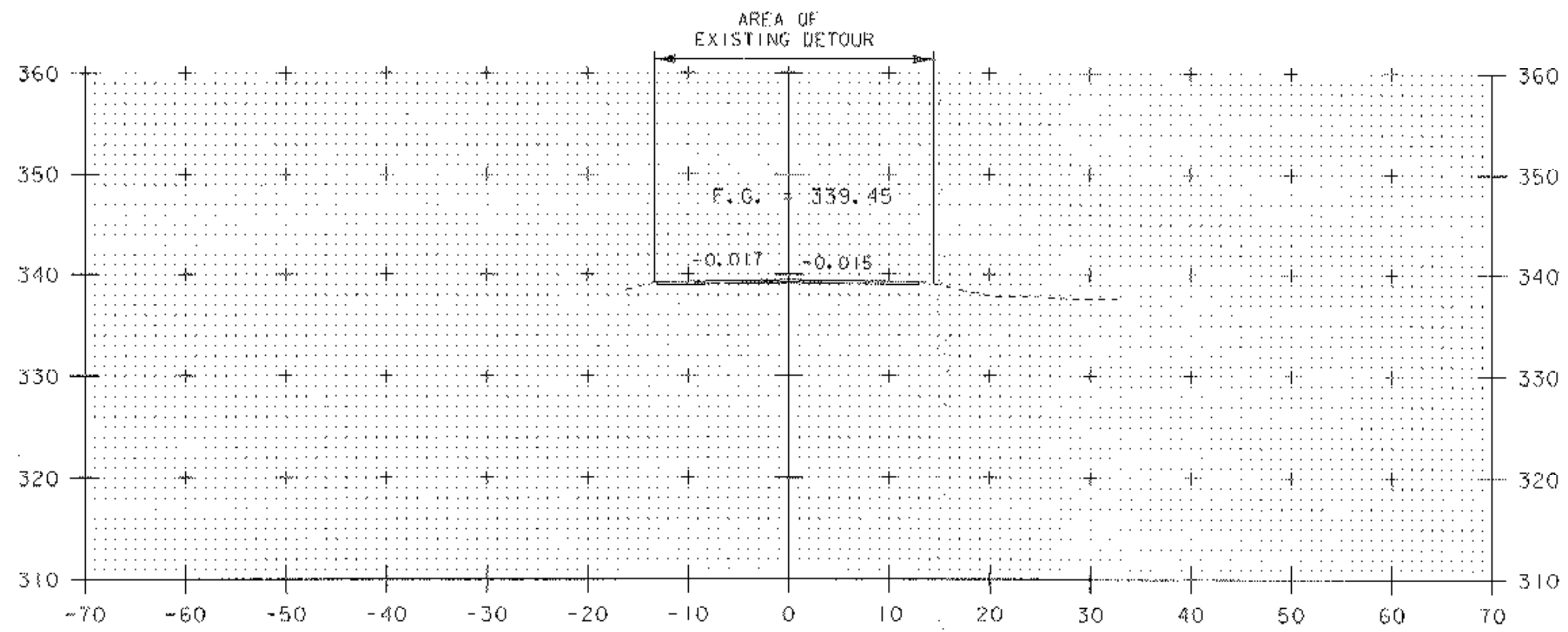
NTS

NOTE:

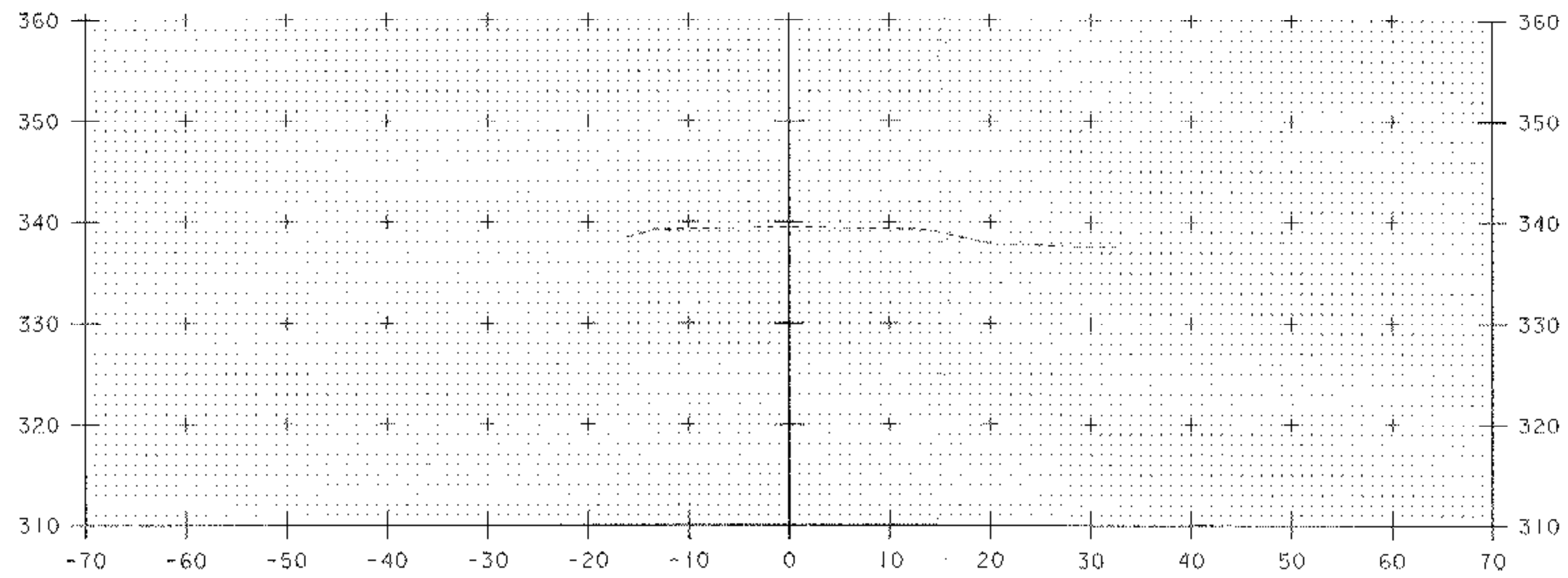
IN THE AREAS OF APPROACH WORK, THE ABOVE BANKING DIAGRAM INDICATES THE POSSIBLE EXISTING ASPHALT SUPER ELEVATION THAT IS UNDER THE TEMPORARY DETOUR ALREADY IN PLACE. IF FIELD CONDITIONS ARE DIFFERENT, THE SUPERELEVATION MAY BE MODIFIED AS DIRECTED BY THE RESIDENT ENGINEER.

BANKING DIAGRAM

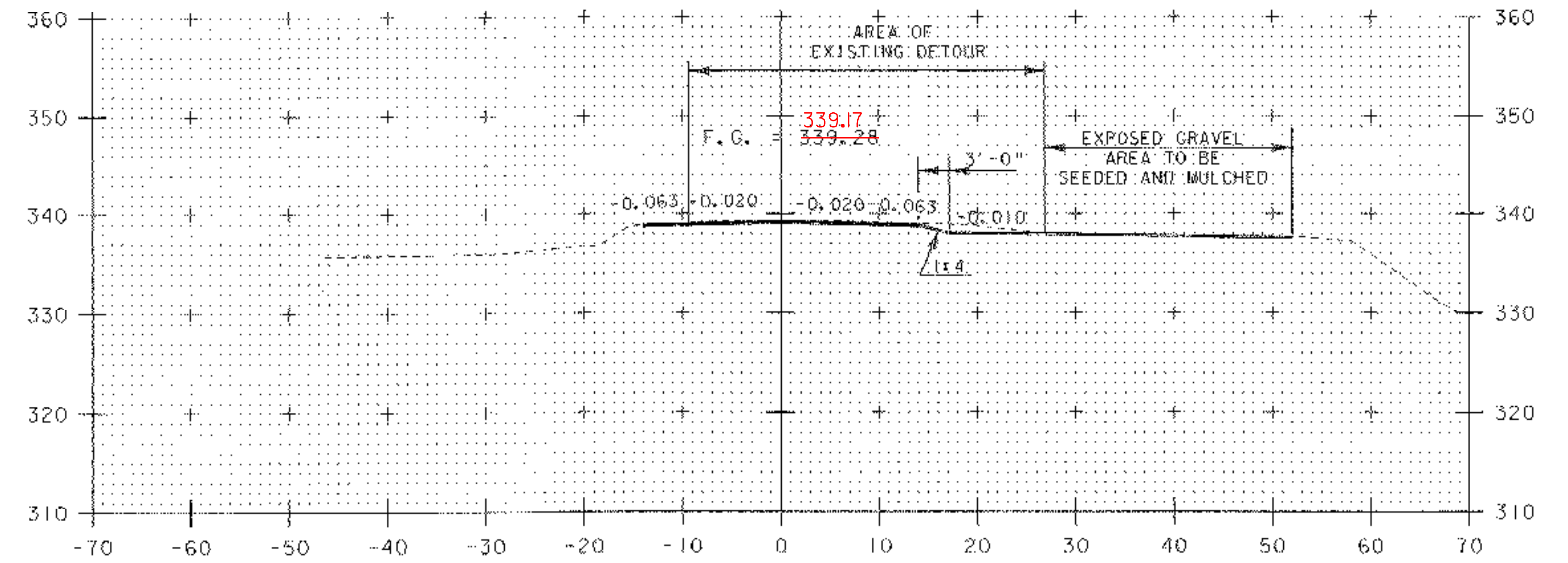
PROJECT: BRISTOL	PROJECT NO.: ER ST 021-1 (22)
DESIGN FILE NAME: 05b126\str\s05b126wrk.dgn	PLOT DATE: 20-MAR-2007
IPARM FILE NAME: sb126bkq.i	CHECKED BY: M. EVANS-MONGEON
DESIGNED BY: G. ROKES	DRAWN BY: G. ROKES
PROJECT LEADER: M. EVANS-MONGEON	SHEET: 45 OF 66



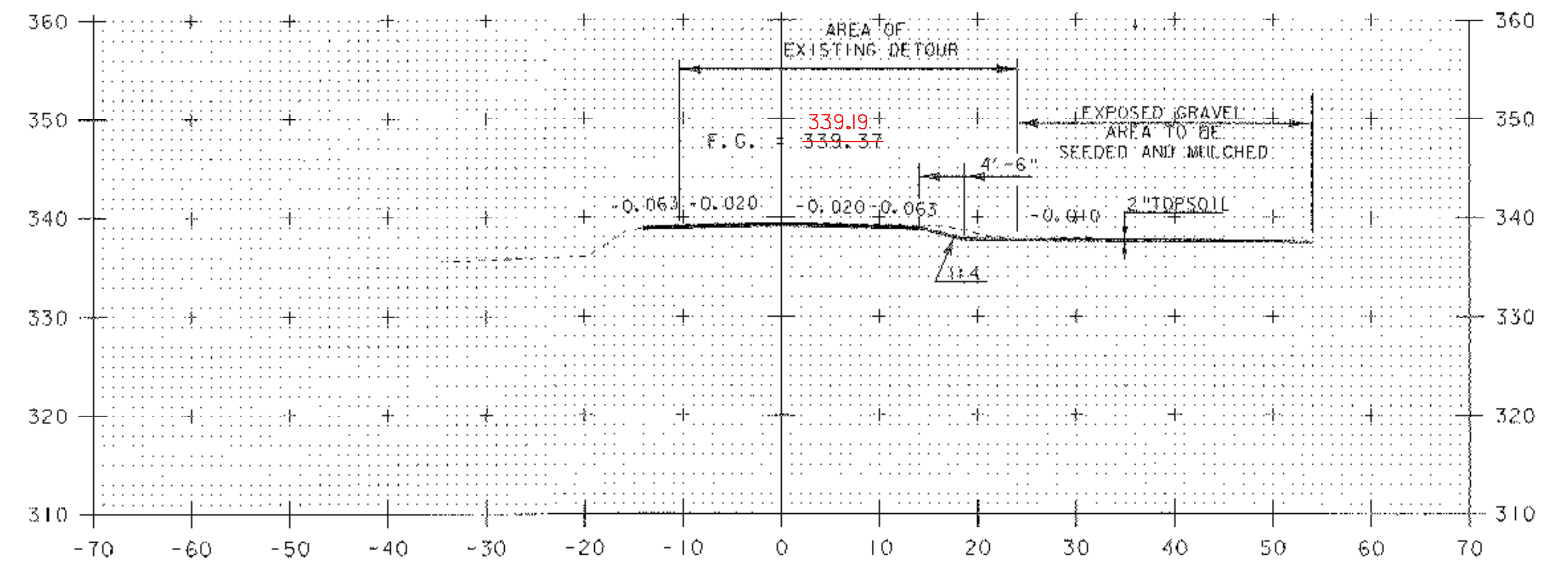
1+00
BEGIN APPROACH



1+00



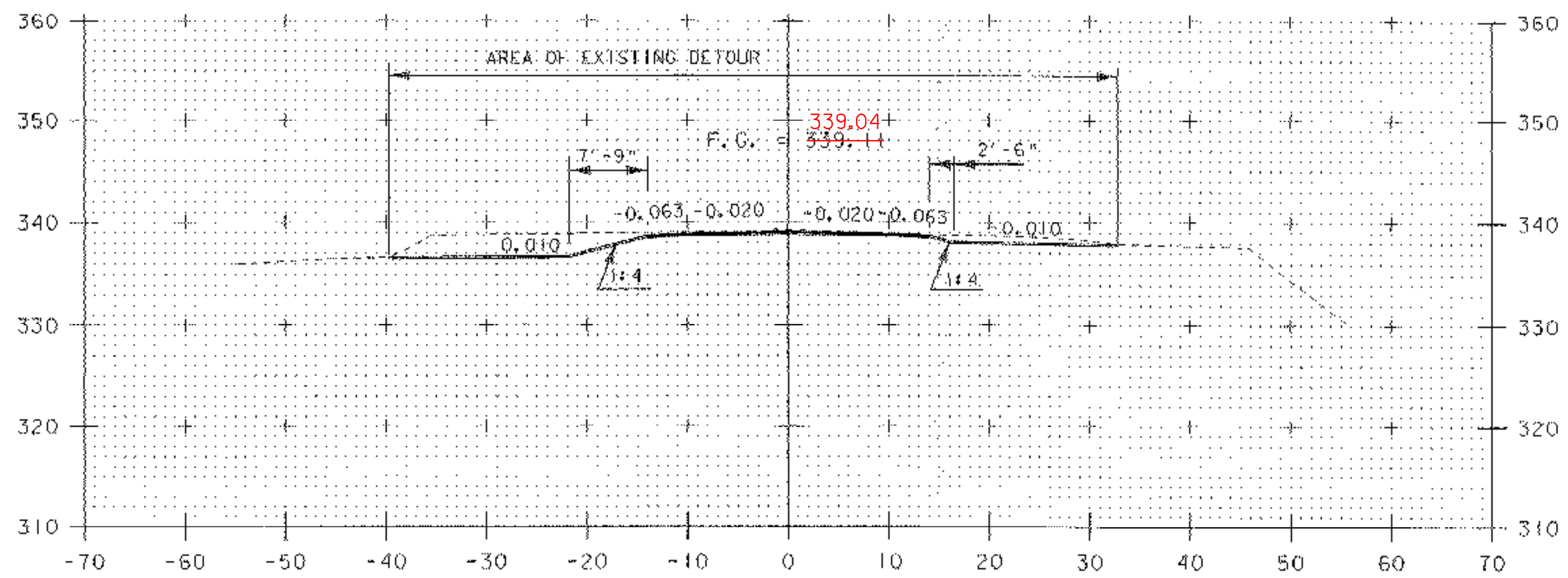
1+50



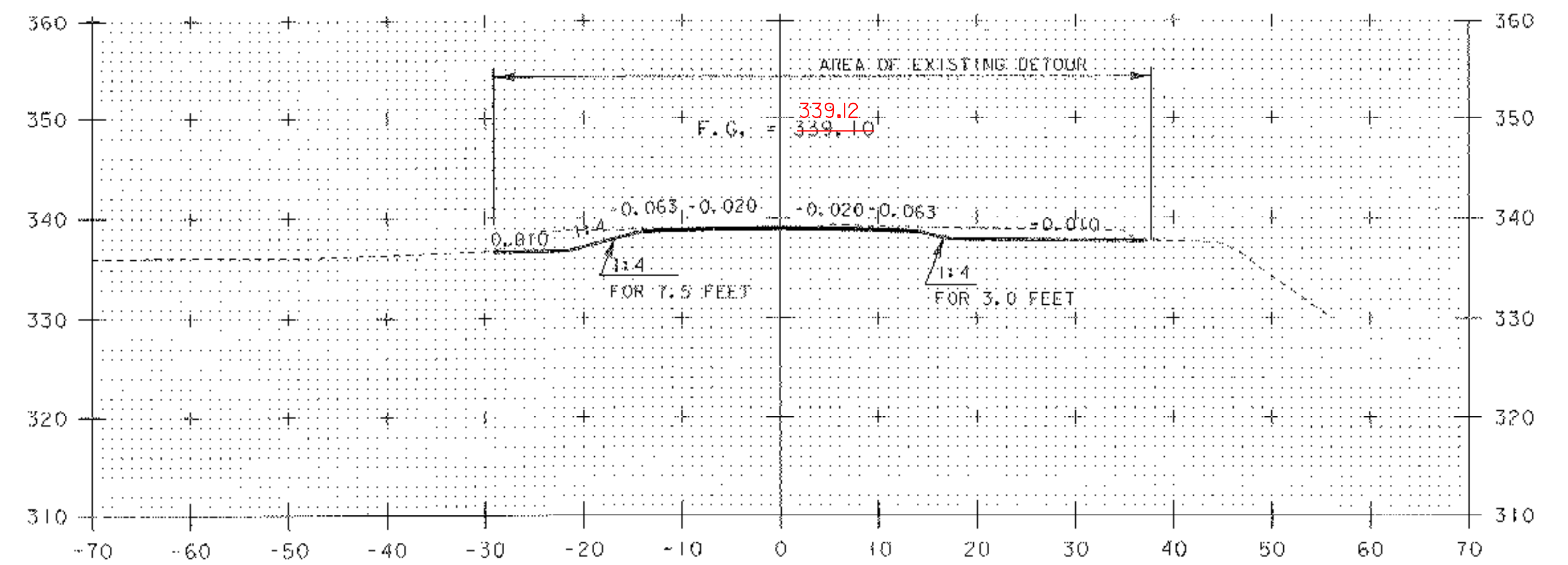
1+25

VT 116 SECTIONS 1

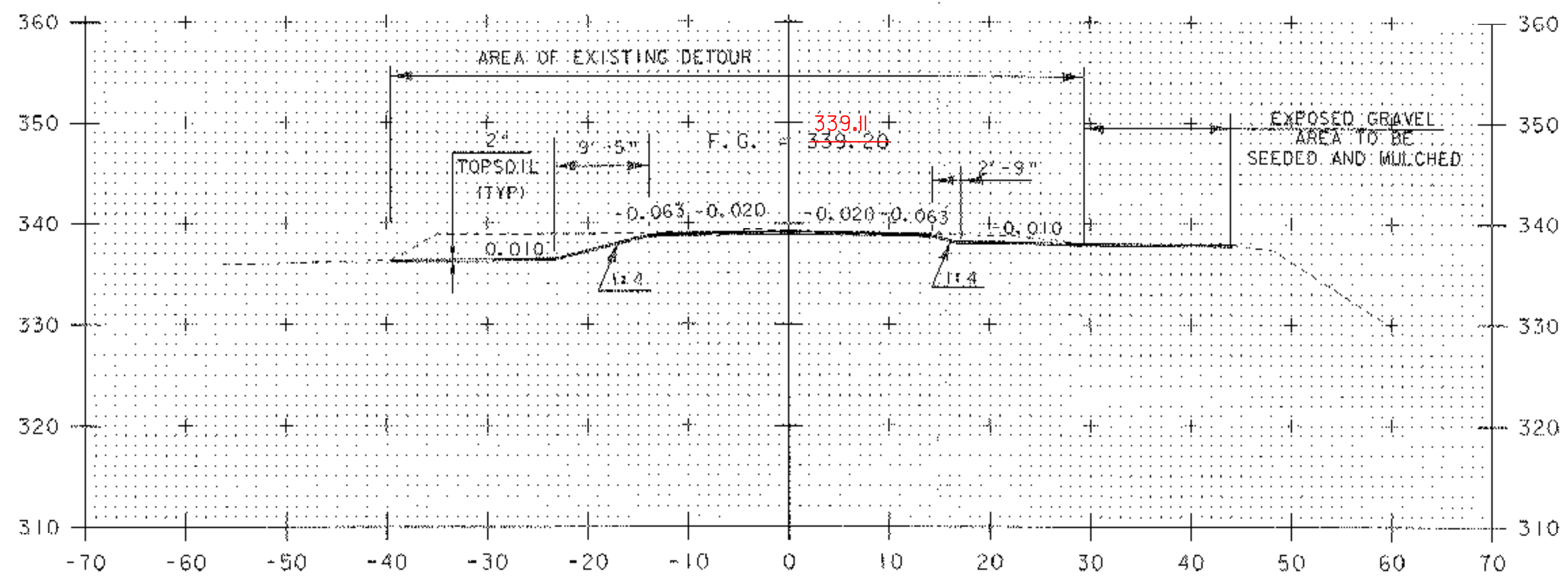
PROJECT NAME:	BRISTOL	PLOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	DRAWN BY:	G.ROKES
FILE NAME:	05b126\STR\05b126.xls.dgn	DESIGNED BY:	M.EVANS.MONGEON
PROJECT LEADER:	M.EVANS.MONGEON	CHECKED BY:	G.ROKES
IPARM:	05b126.xls.1	SHEET:	47 OF 66



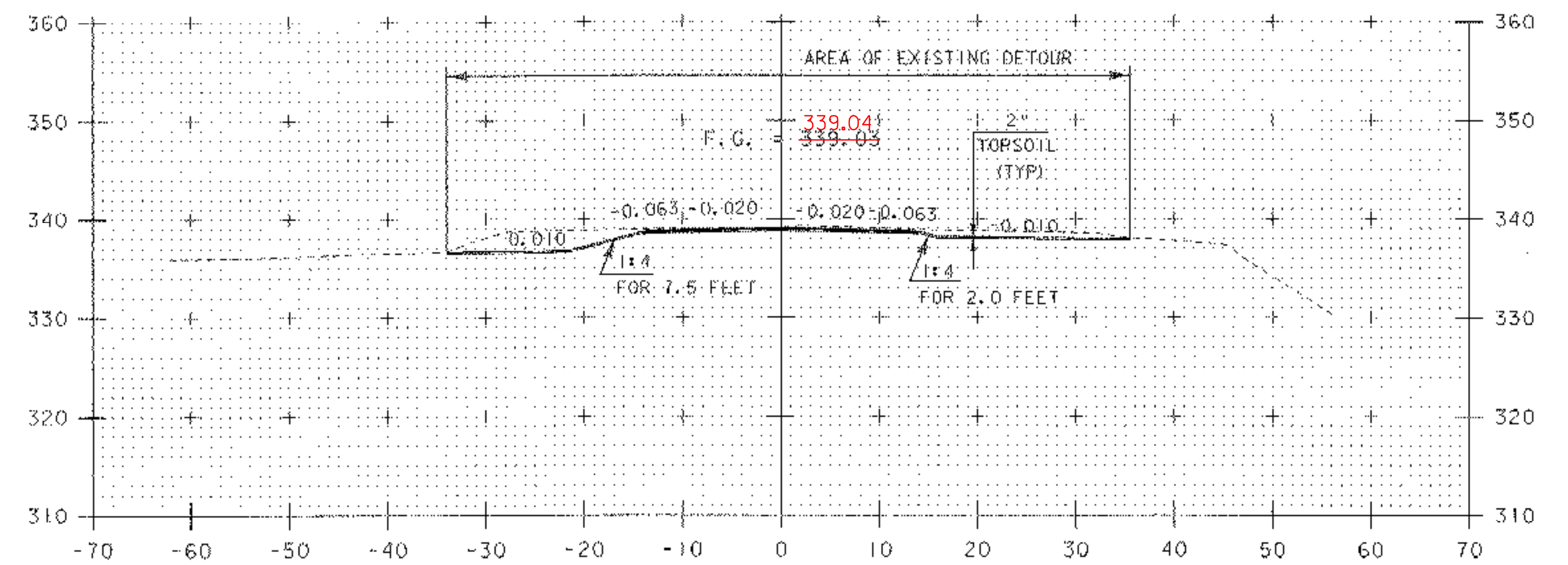
2+00



2+50



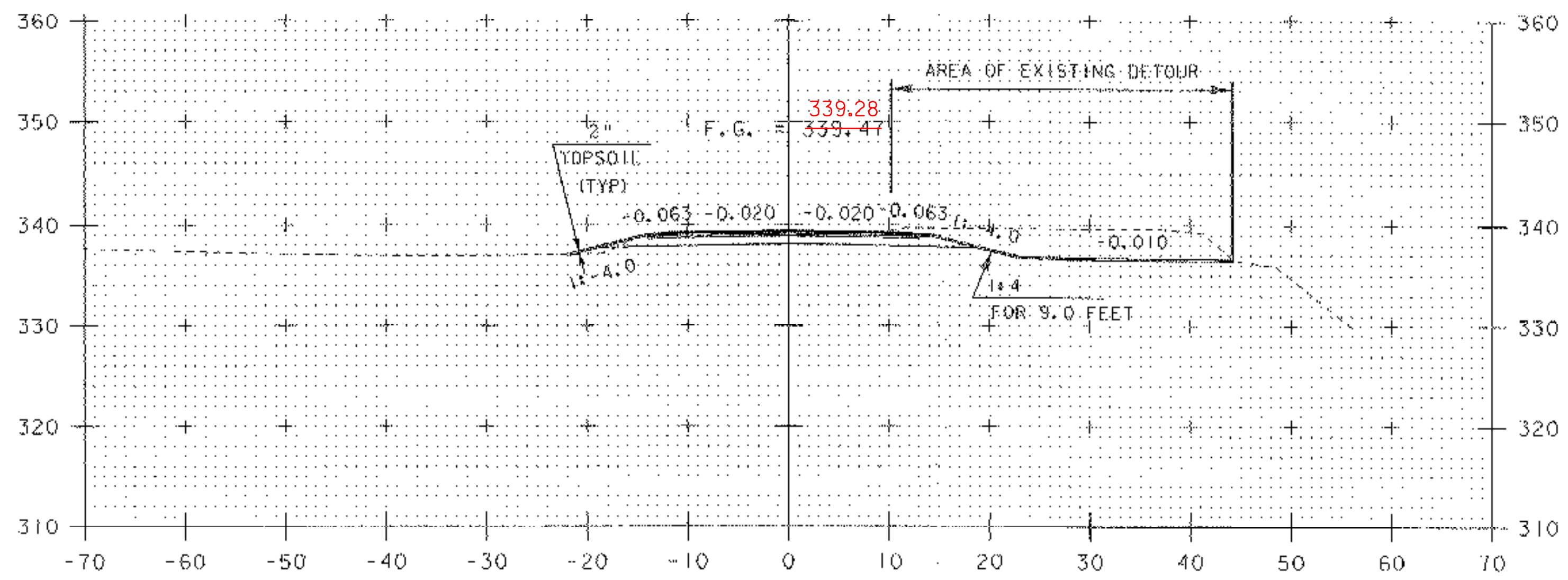
1+75



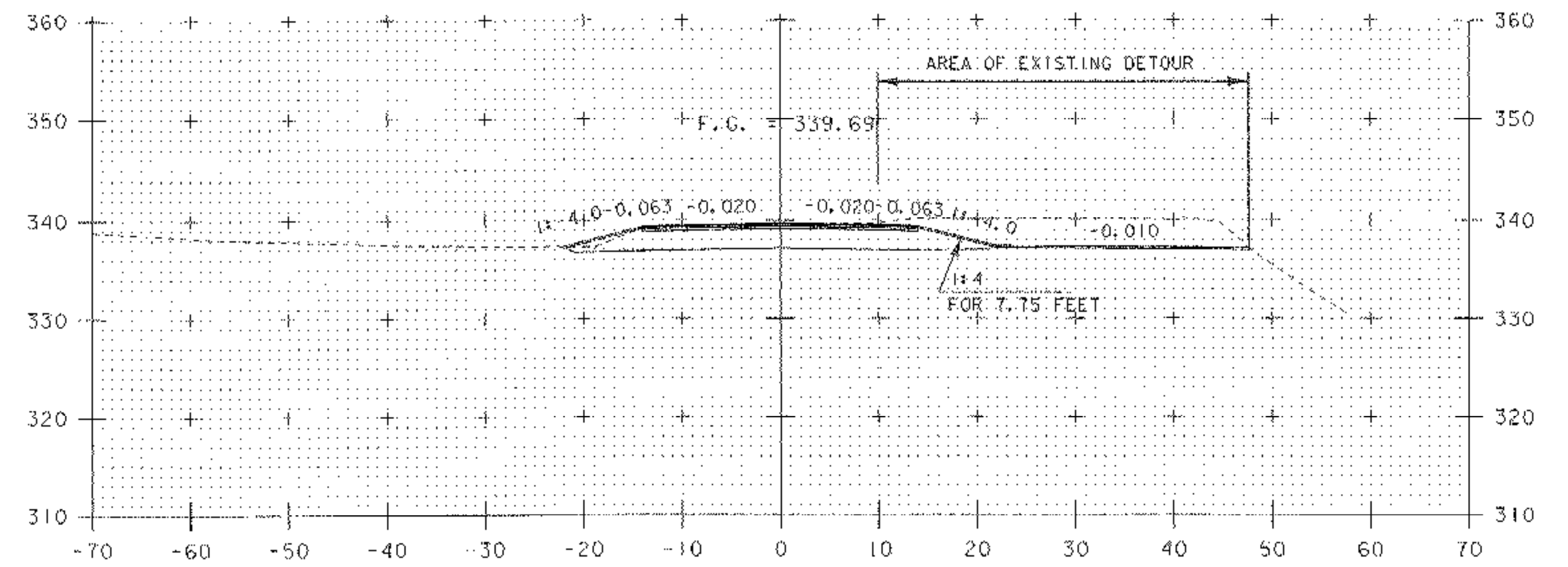
2+25

VT 116 SECTIONS 2

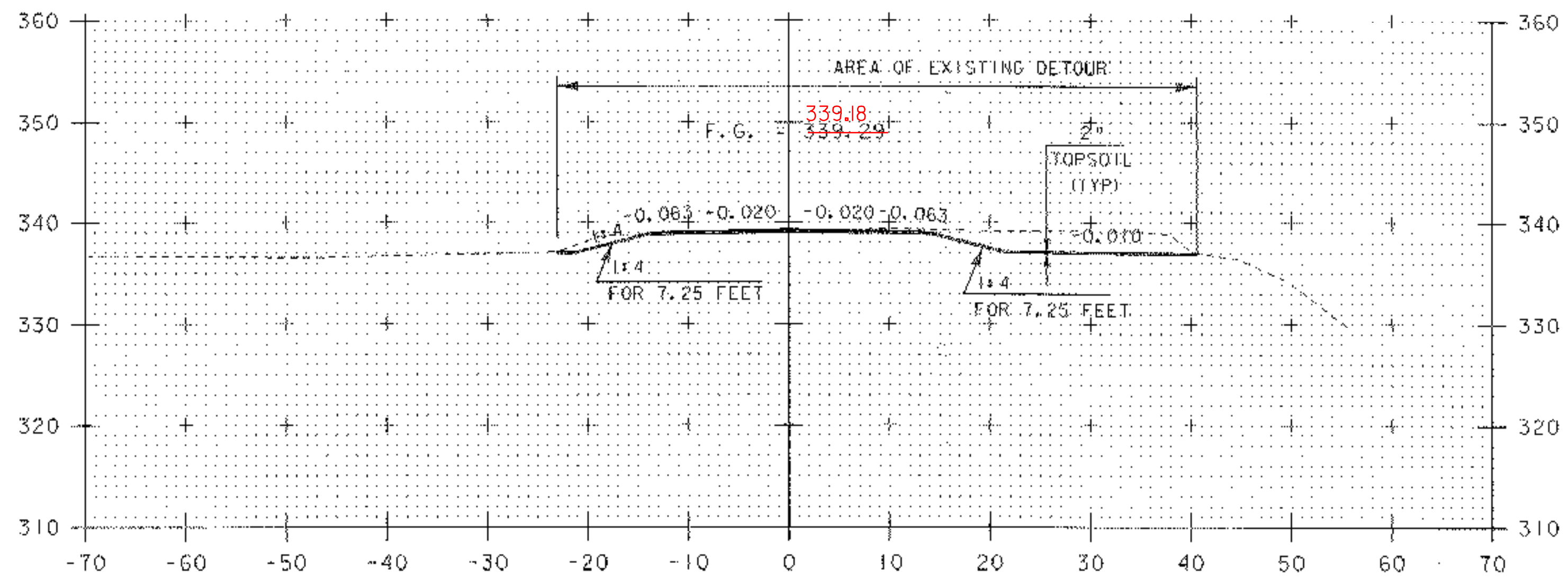
PROJECT NAME:	BRISTOL	PILOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	DRAWN BY:	G. ROKES
FILE NAME:	05b126\STR\s05b126xs.dgn	CHECKED BY:	G. ROKES
PROJECT LEADER:	M. EVANS-MONGEON	SHEET	48 OF 66
DESIGNED BY:	M. EVANS-MONGEON		
IPARM	s05b126x21j		



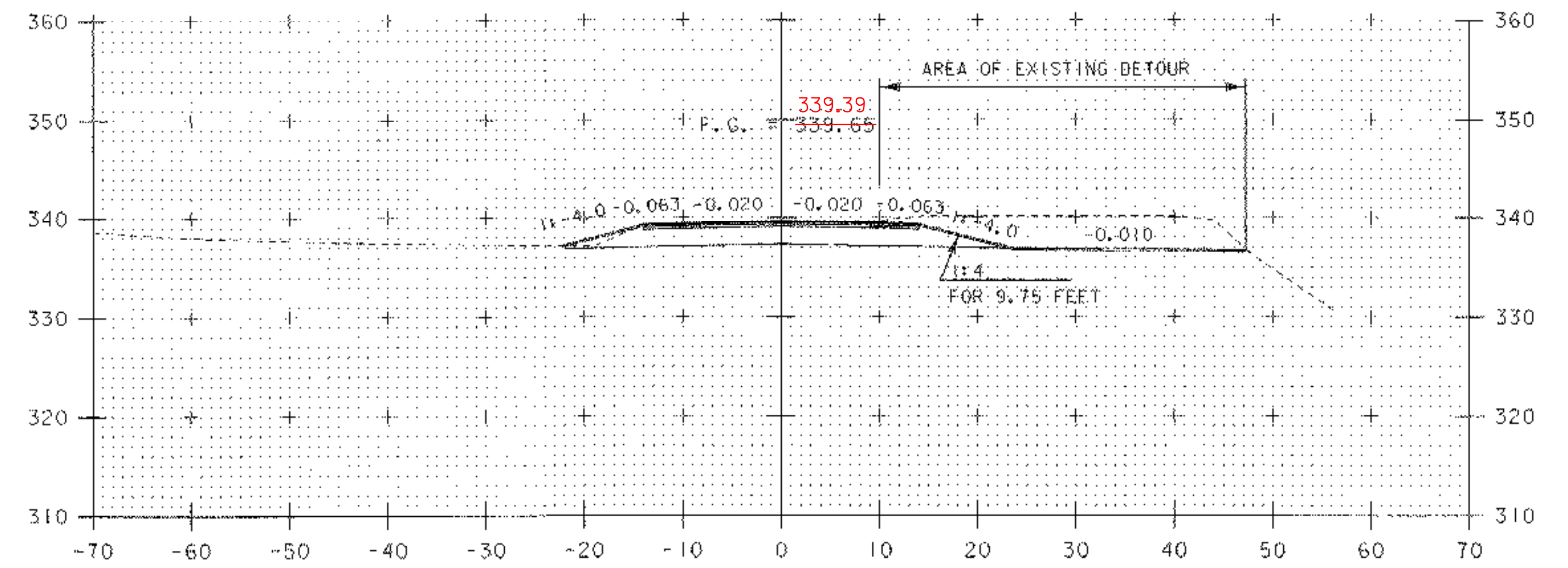
3+00



3+30
BEGIN PROJECT



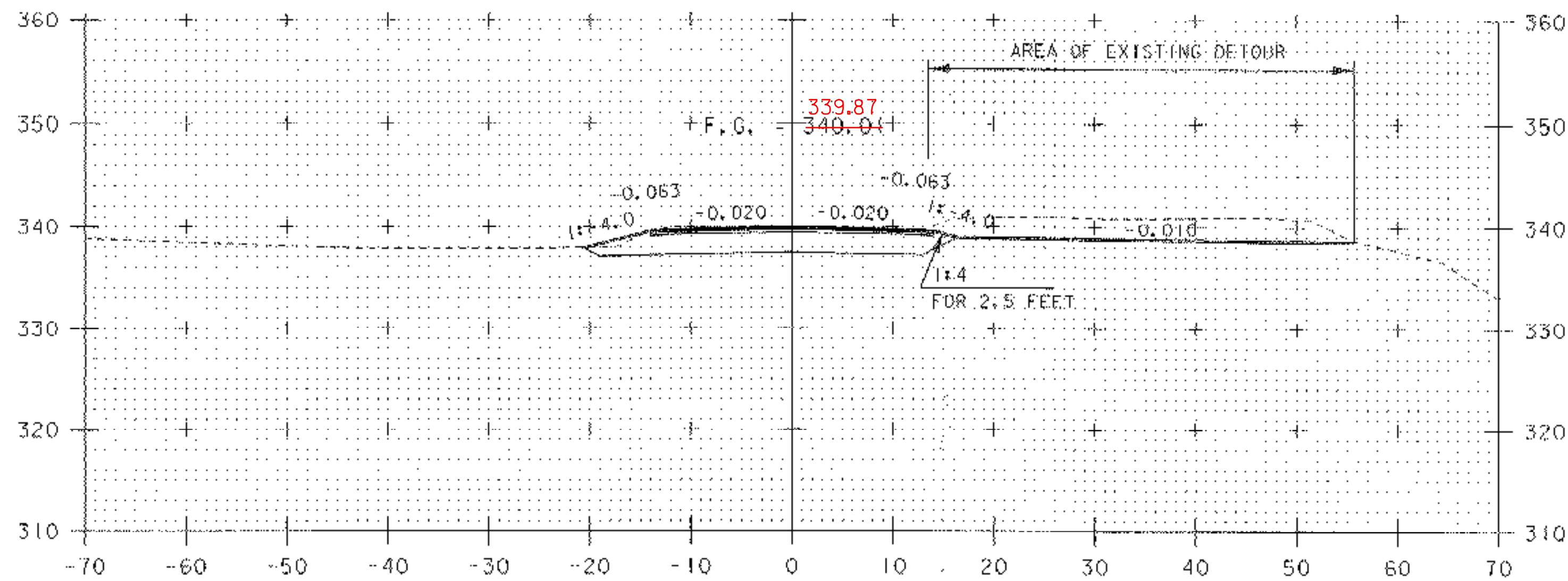
2+75



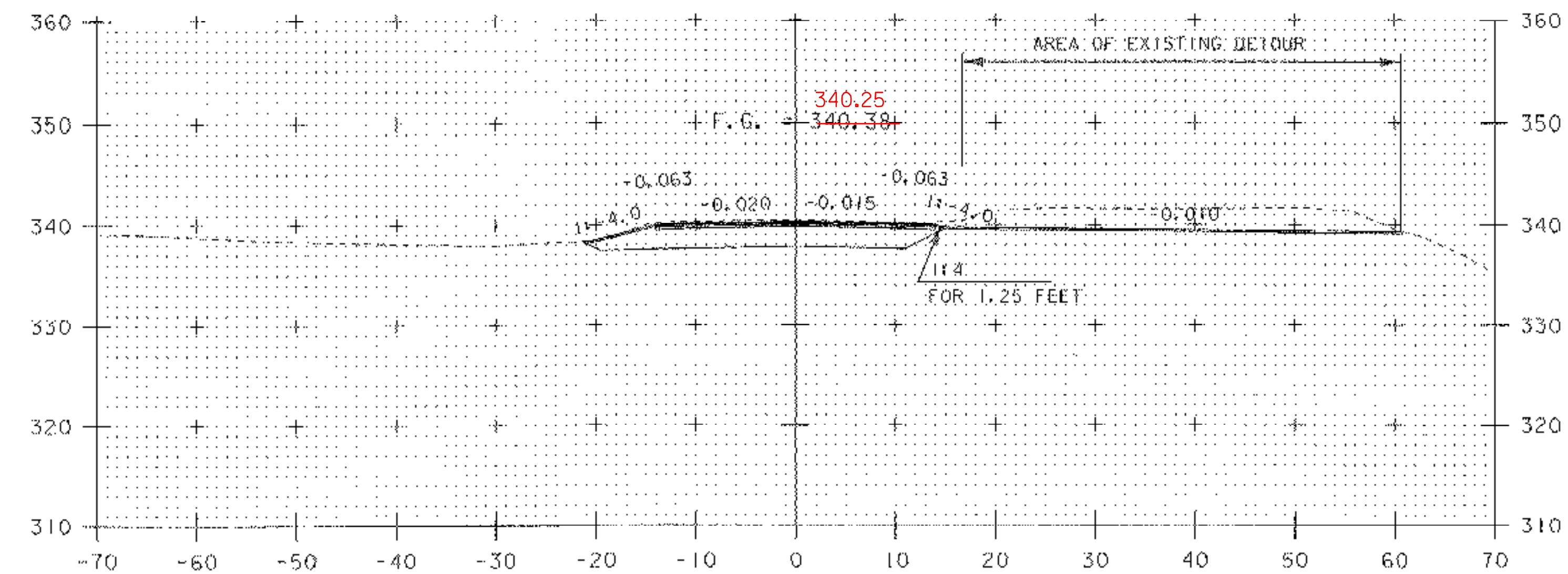
3+25

VT 116 SECTIONS 3

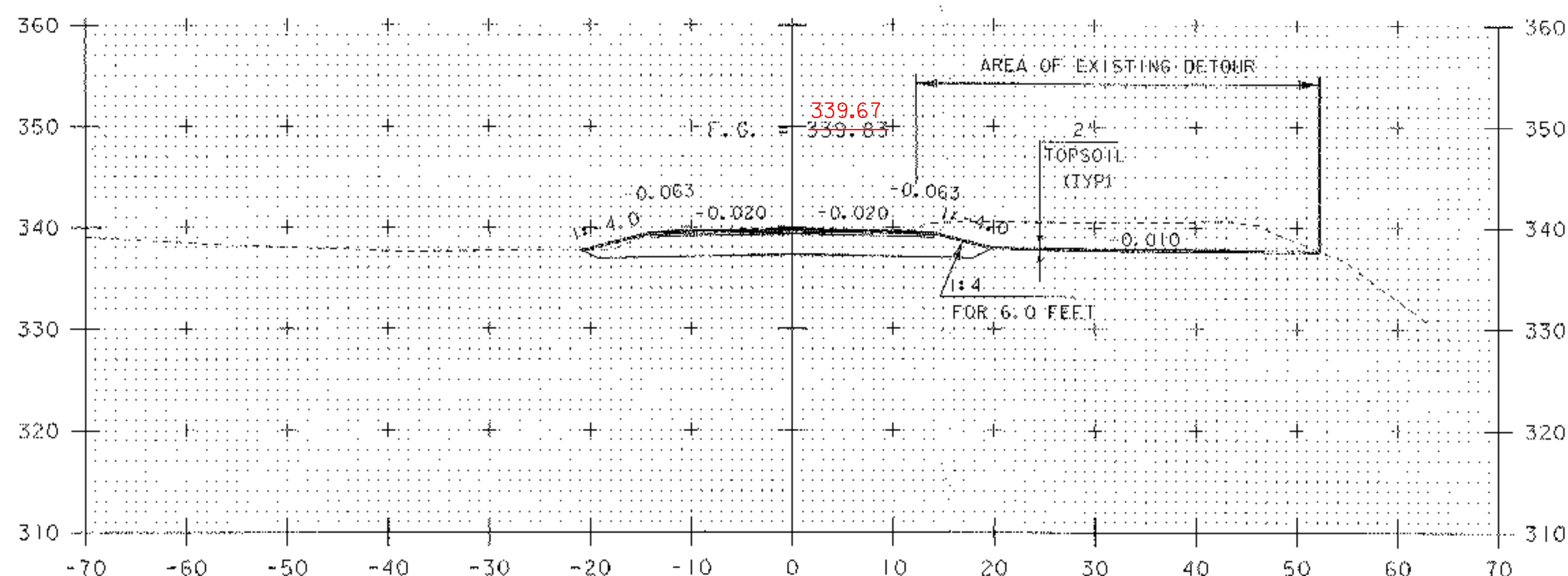
PROJECT NAME:	BRISTOL	PLOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	DRAWN BY:	G.ROKES
FILE NAME:	05b126\STR\s05b126xs.dgn	CHECKED BY:	G.ROKES
PROJECT LEADER:	M.EVANS-MONGEON	SHEET	49 OF 66
DESIGNED BY:	M.EVANS-MONGEON		
IPARM	s05b126xs3.i		



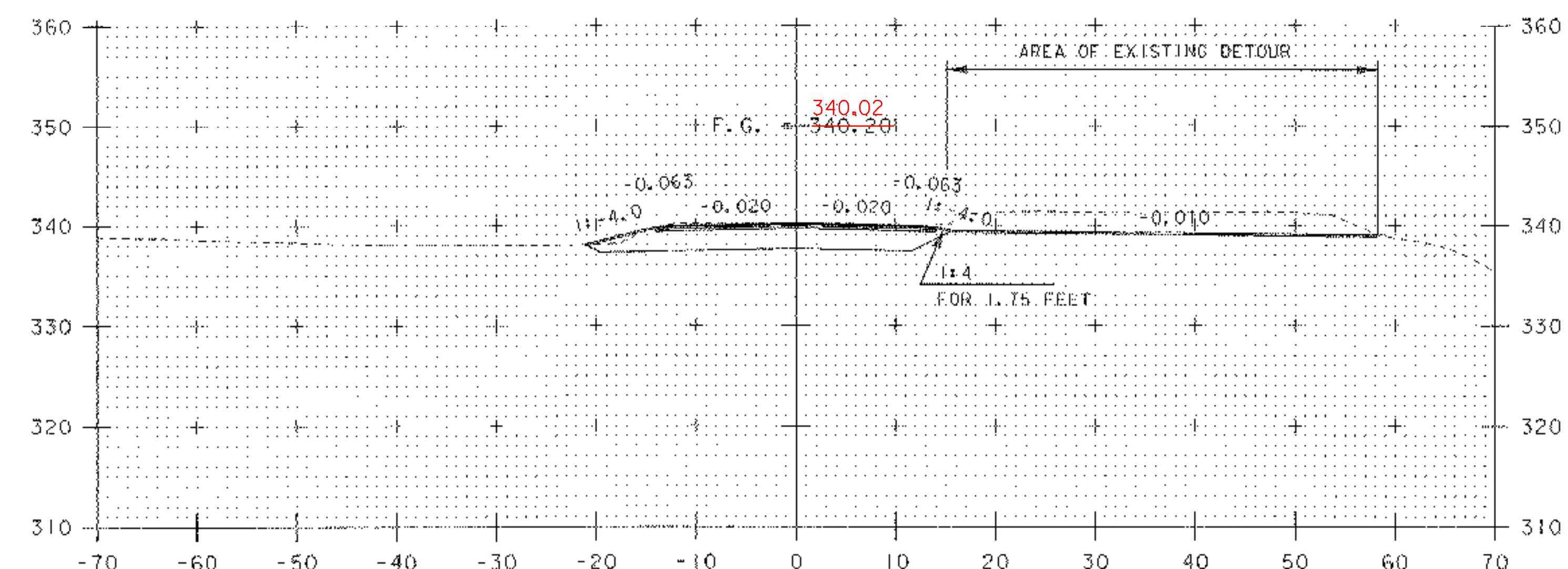
3+75



4+25



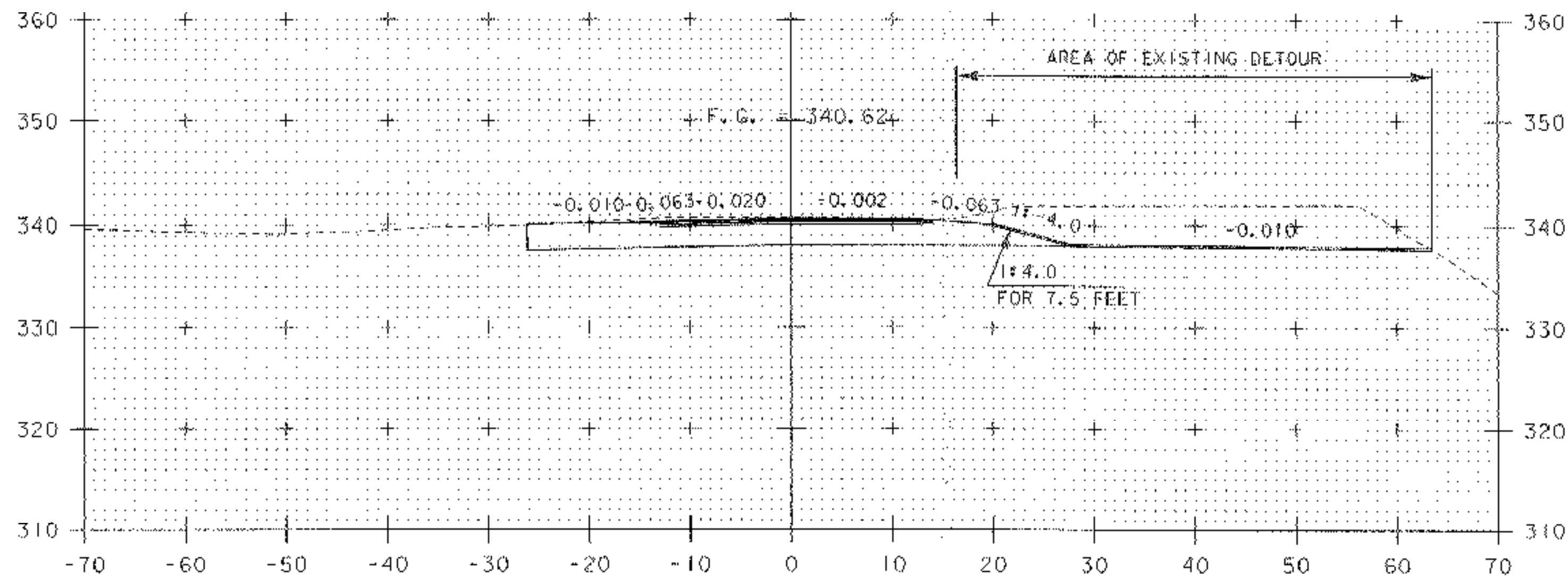
3+50



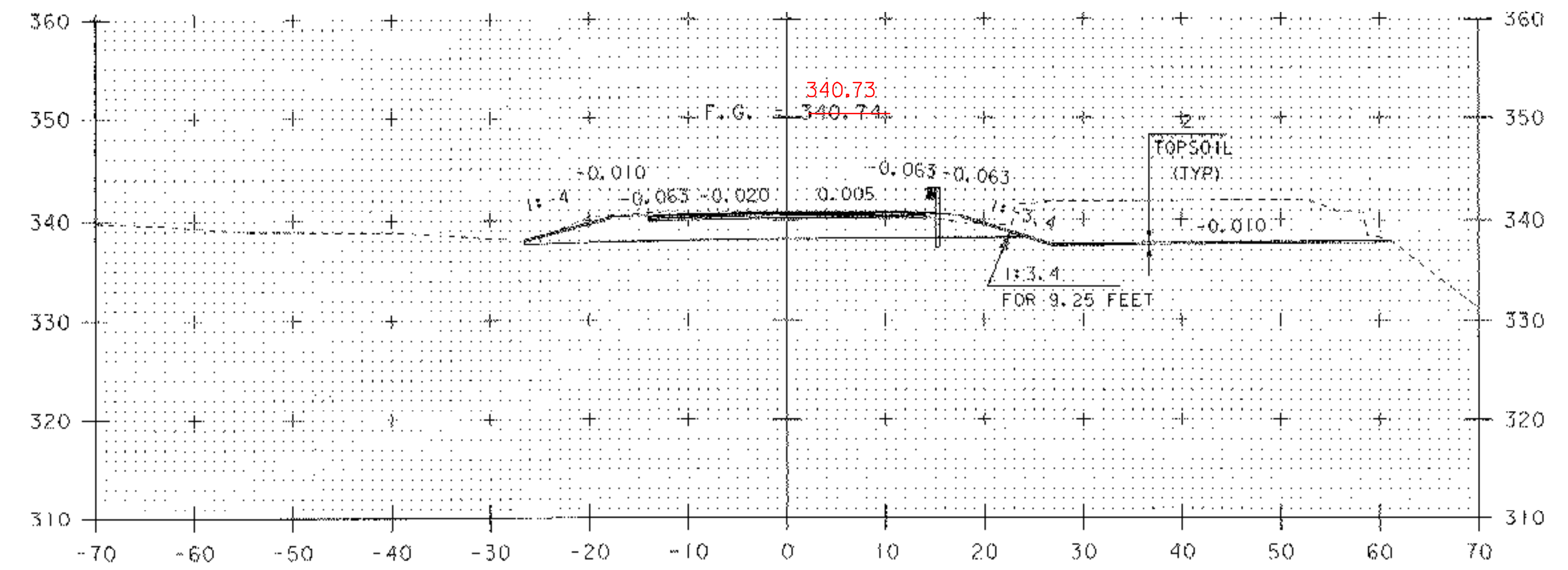
4+00

VT 116 SECTIONS 4

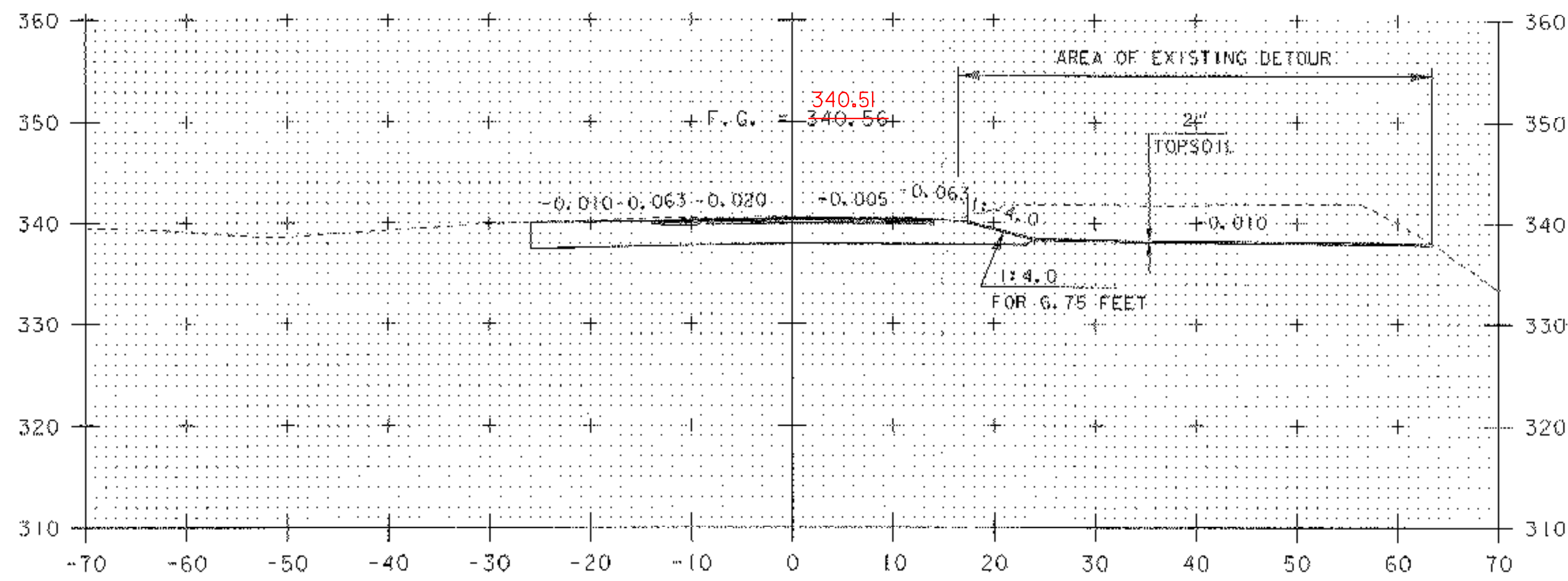
PROJECT NAME:	BRISTOL
PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	05b126\STR\s05b126xs.dgn
PROJECT LEADER:	M. EVANS-MONGEON
DESIGNED BY:	M. EVANS-MONGEON
IPARM:	s05b126xs4.l
PLOT DATE:	20-MAR-2007
DRAWN BY:	G. ROKES
CHECKED BY:	G. ROKES
SHEET:	50 OF 66



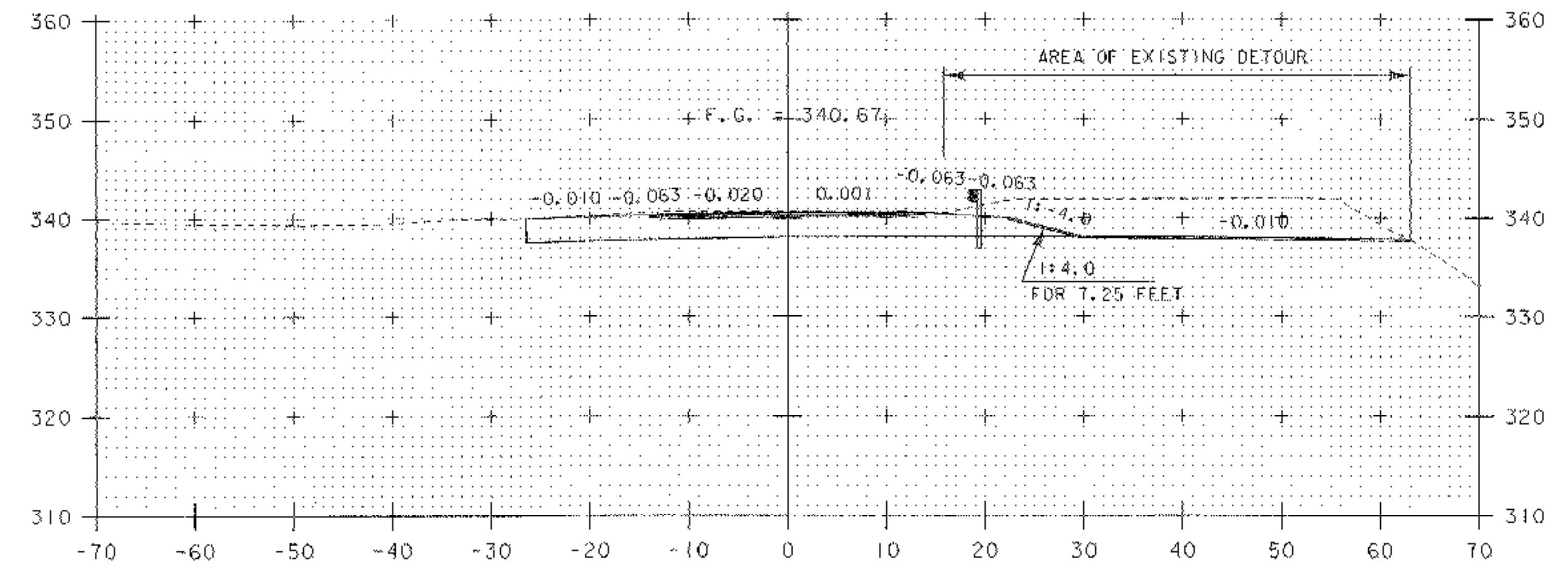
4+58
CENTER DRIVE (LEFT)



4+75



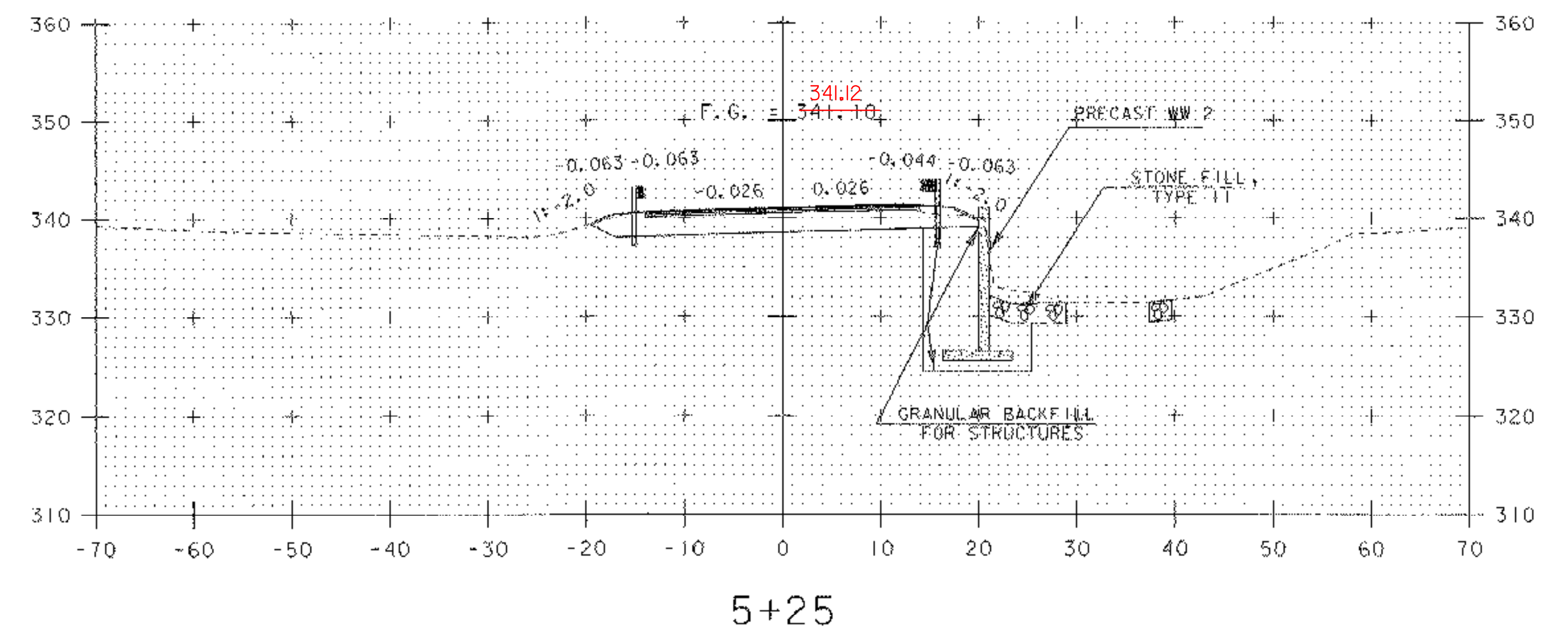
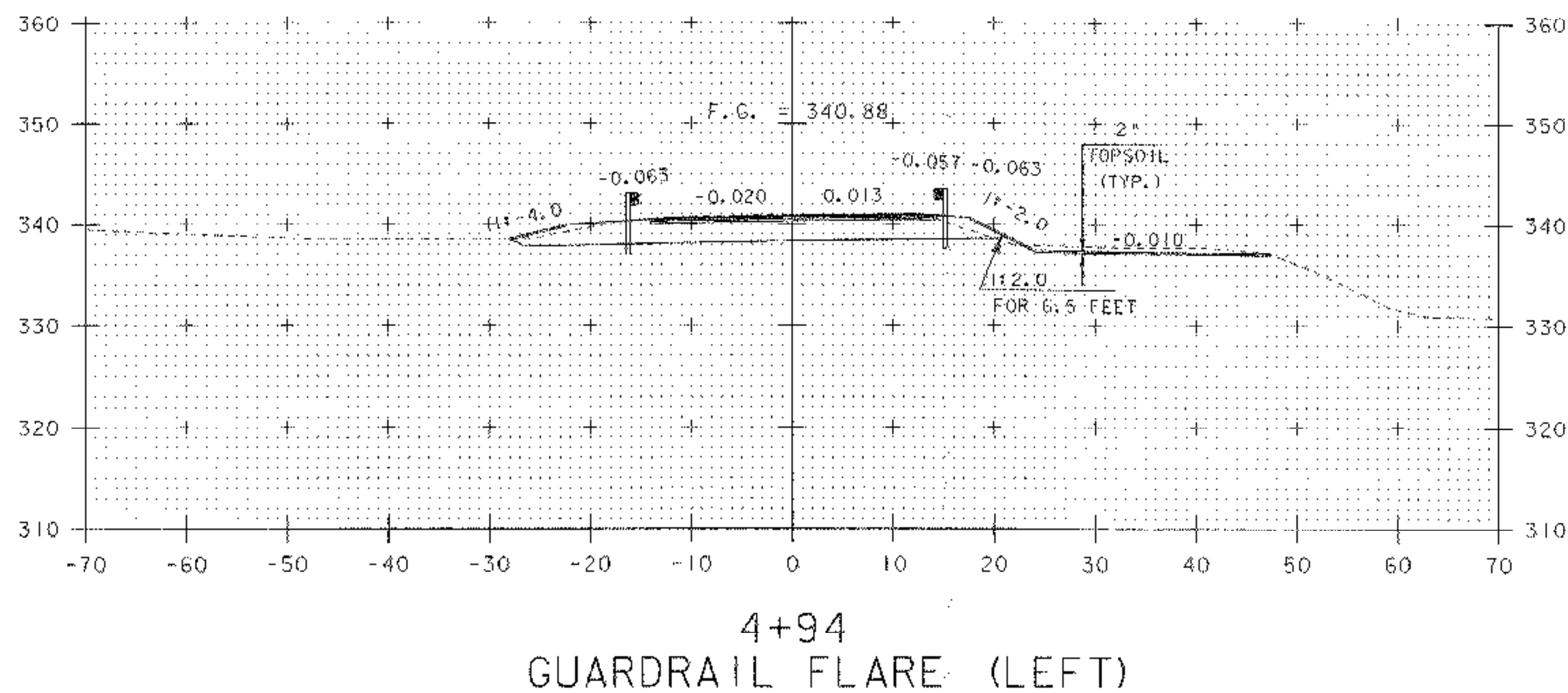
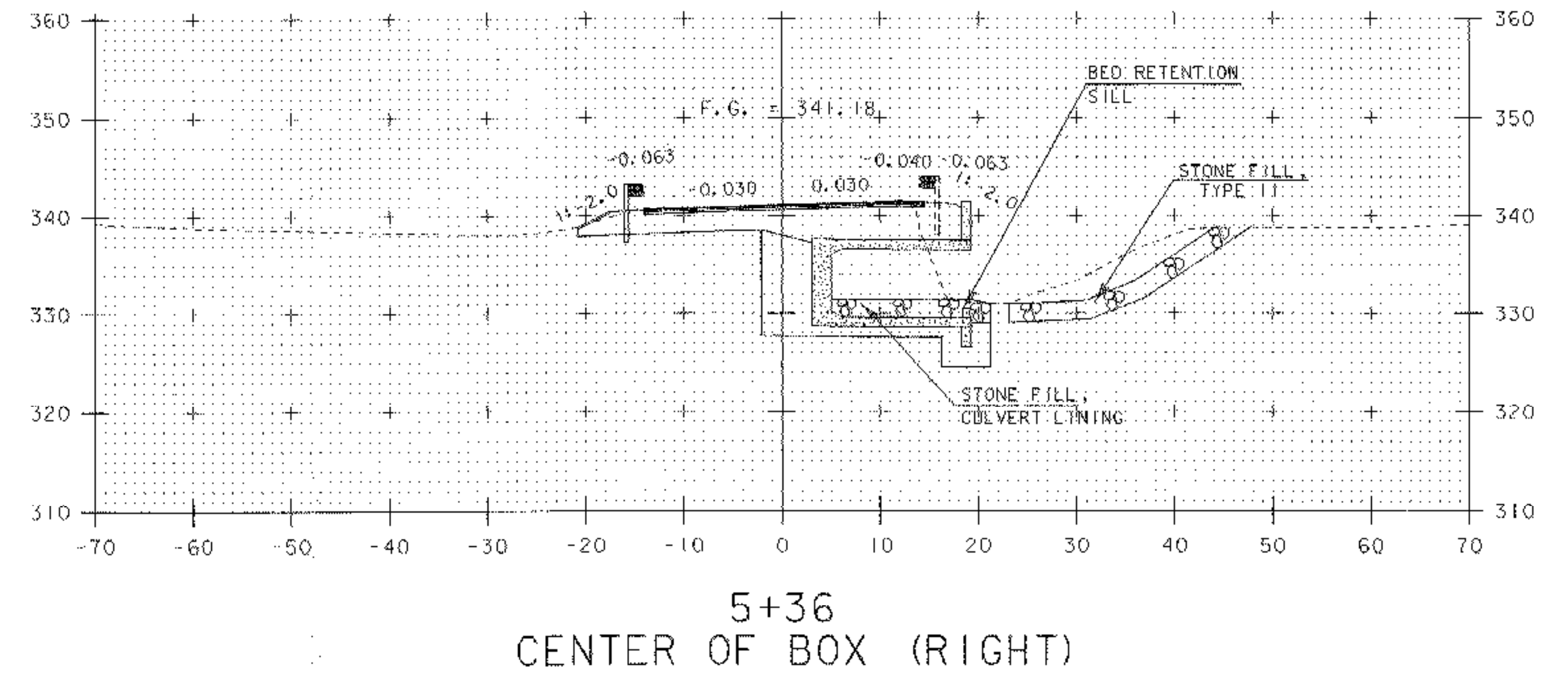
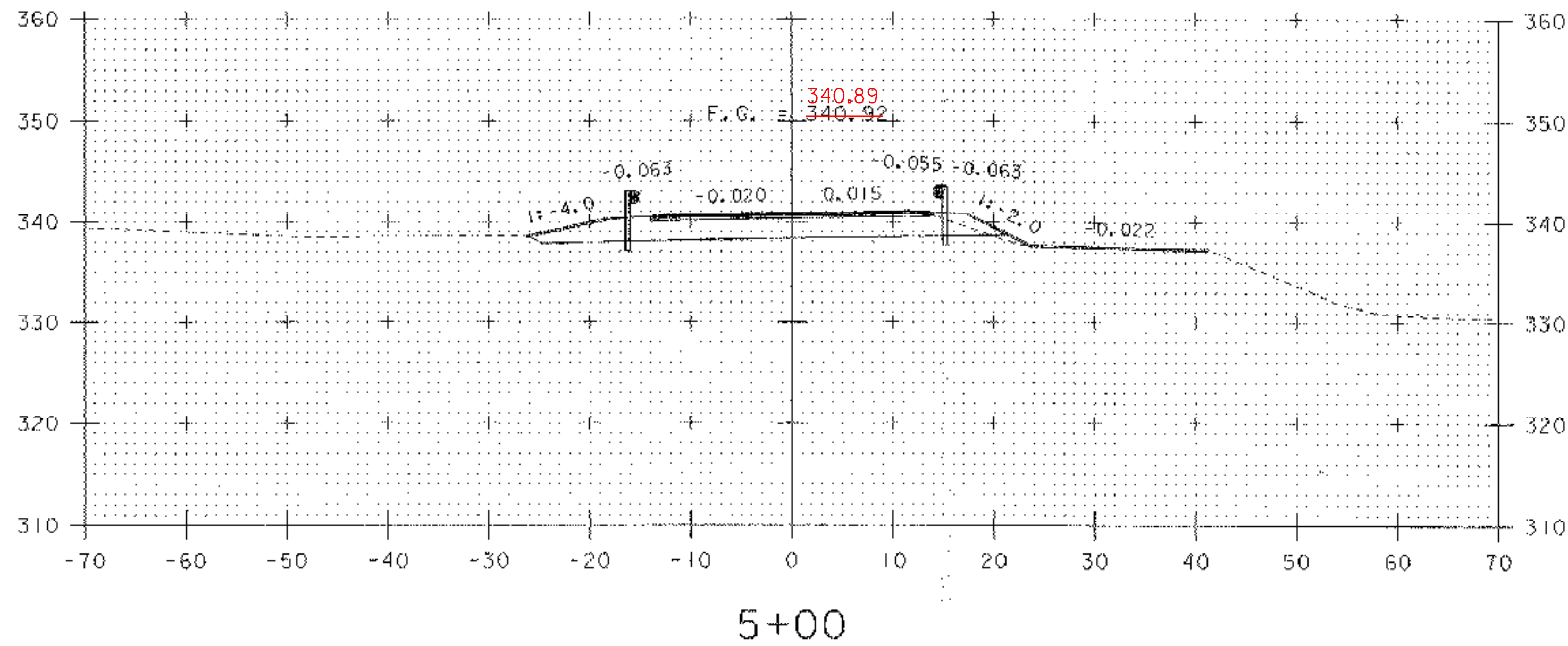
4+50



4+66
GUARDRAIL FLARE (RIGHT)

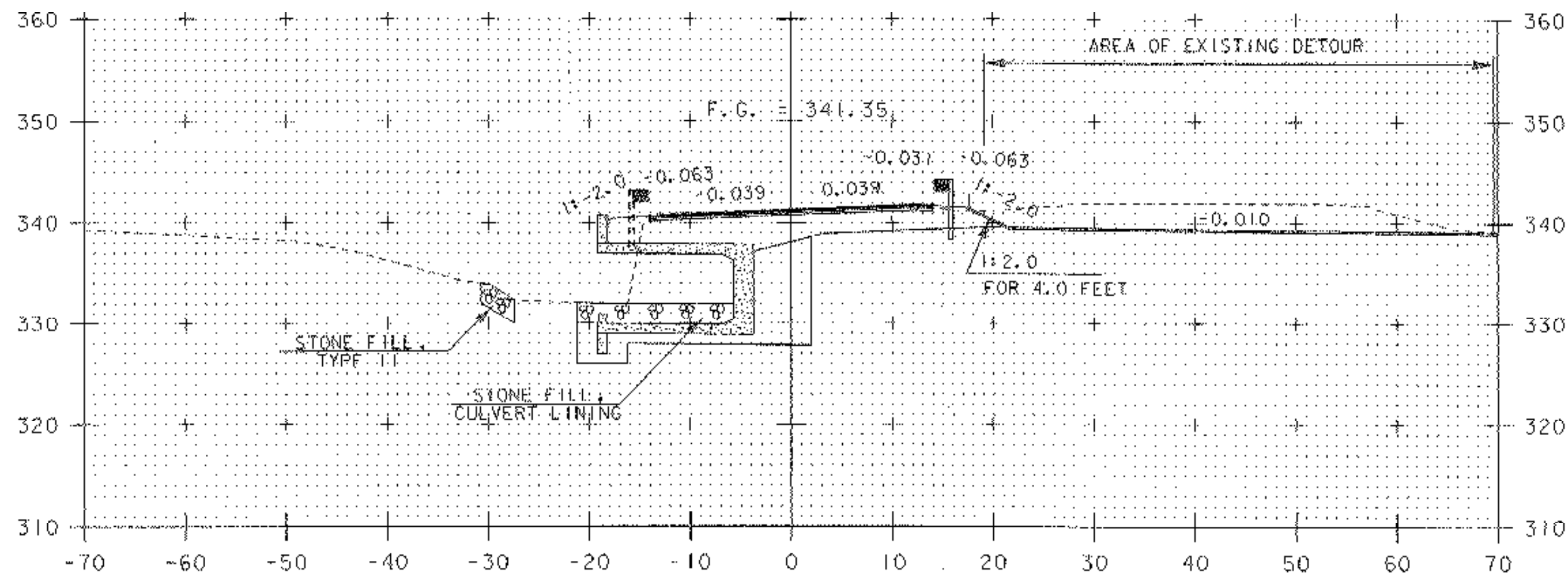
VT 116 SECTIONS 5

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	05b126\STR\05b126xs.dgn
PROJECT LEADER:	M. EVANS-MONGEON
DESIGNED BY:	M. EVANS-MONGEON
IPARM:	05b126fx5.i
PLOT DATE:	20-MAR-2007
DRAWN BY:	G. ROKES
CHECKED BY:	G. ROKES
SHEET:	51 OF 66

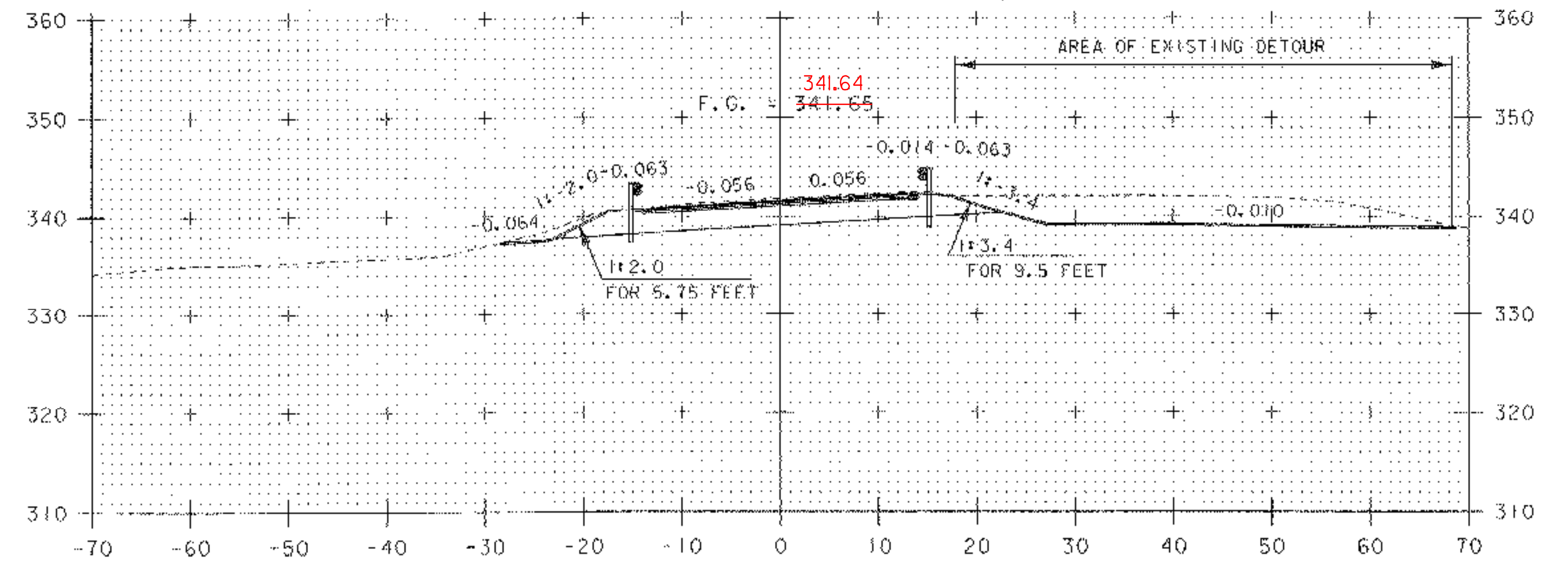


VT 116 SECTIONS 6

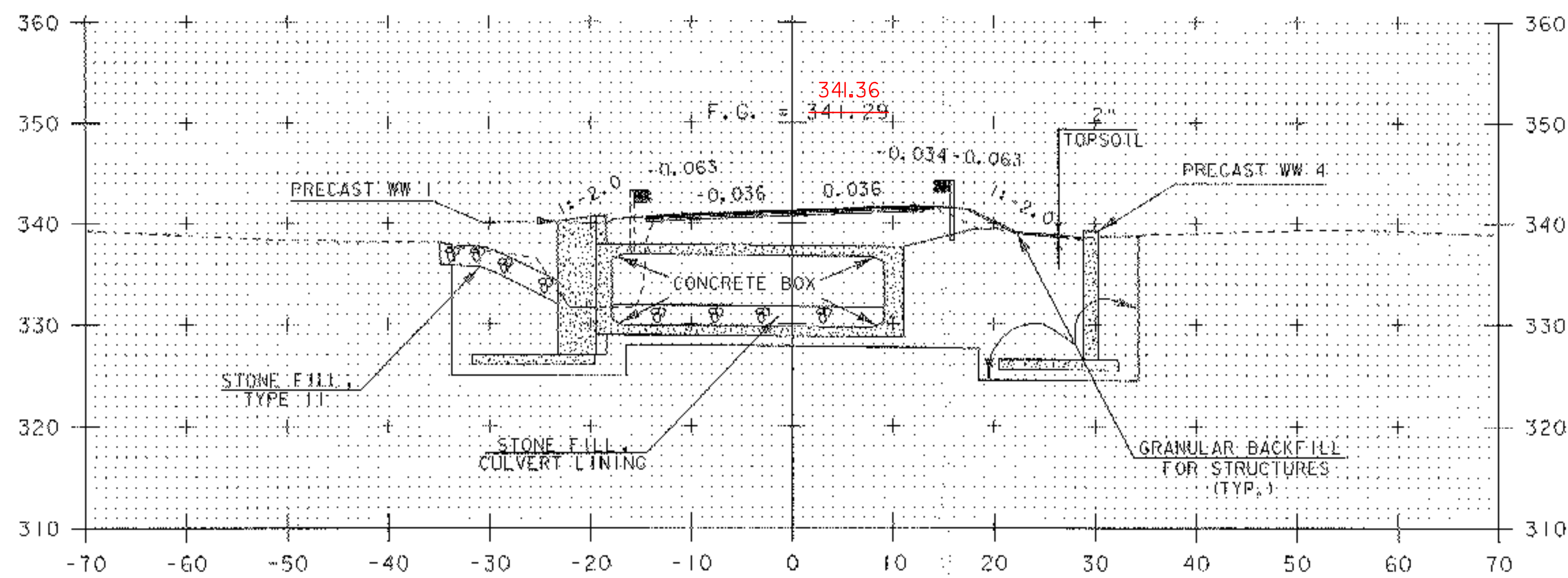
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PROJECT NUMBER:	ER ST 021-1(22)	PROJECT LEADER:	M. EVANS-MONGEON	DRAWN BY:	G. ROKES
		DESIGNED BY:	M. EVANS-MONGEON	CHECKED BY:	G. ROKES
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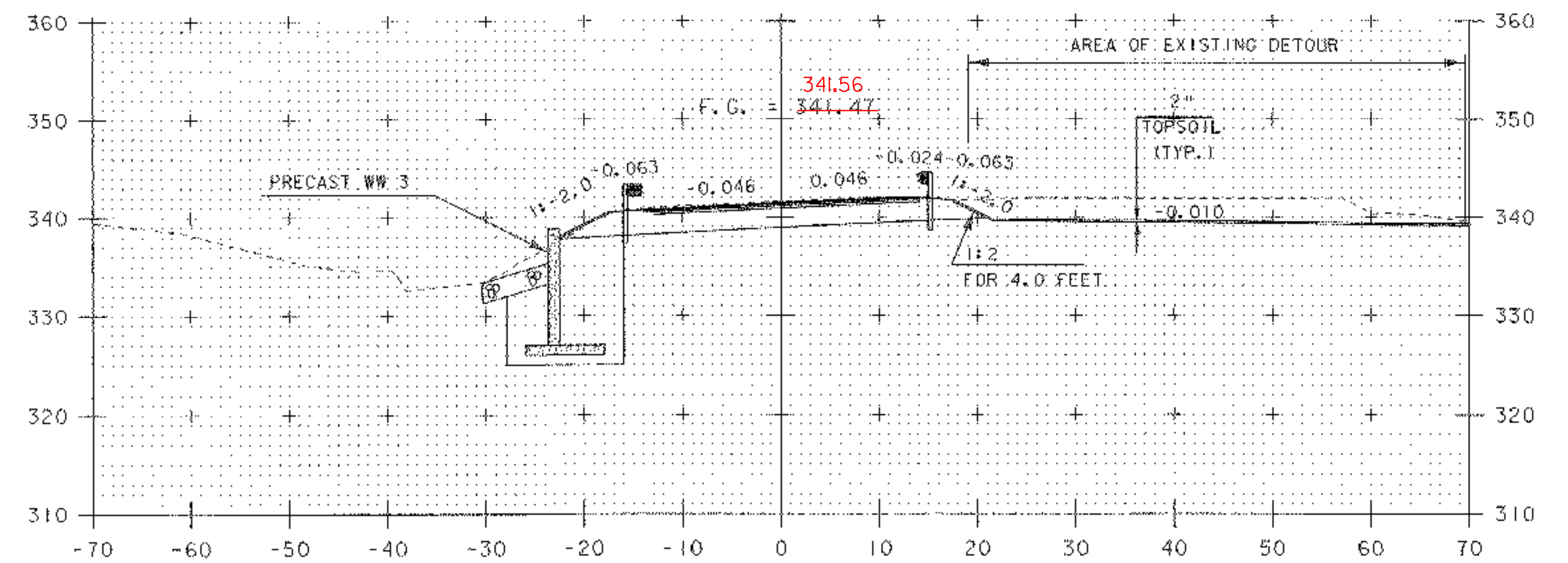
5+59
CENTER OF BOX (LEFT)



6+00



5+50

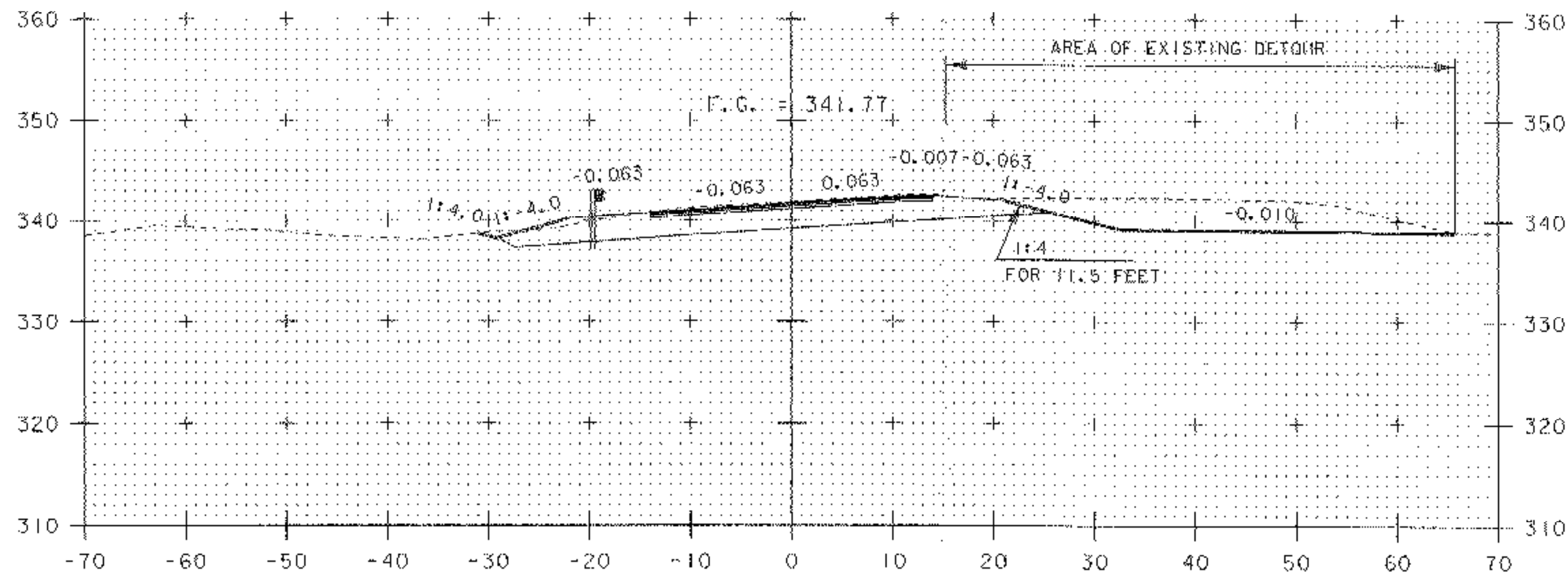


5+75

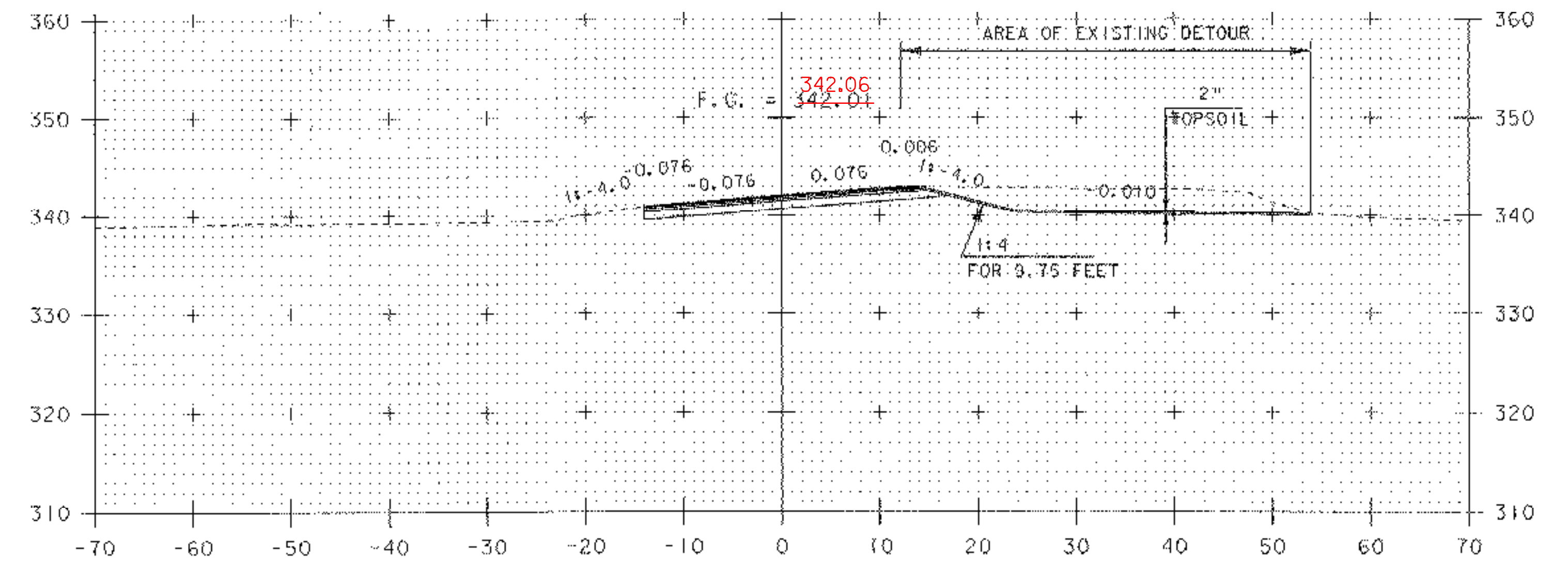
VT 116 SECTIONS 7

PROJECT NAME: BRISTOL
PROJECT NUMBER: ER ST 021-1(22)

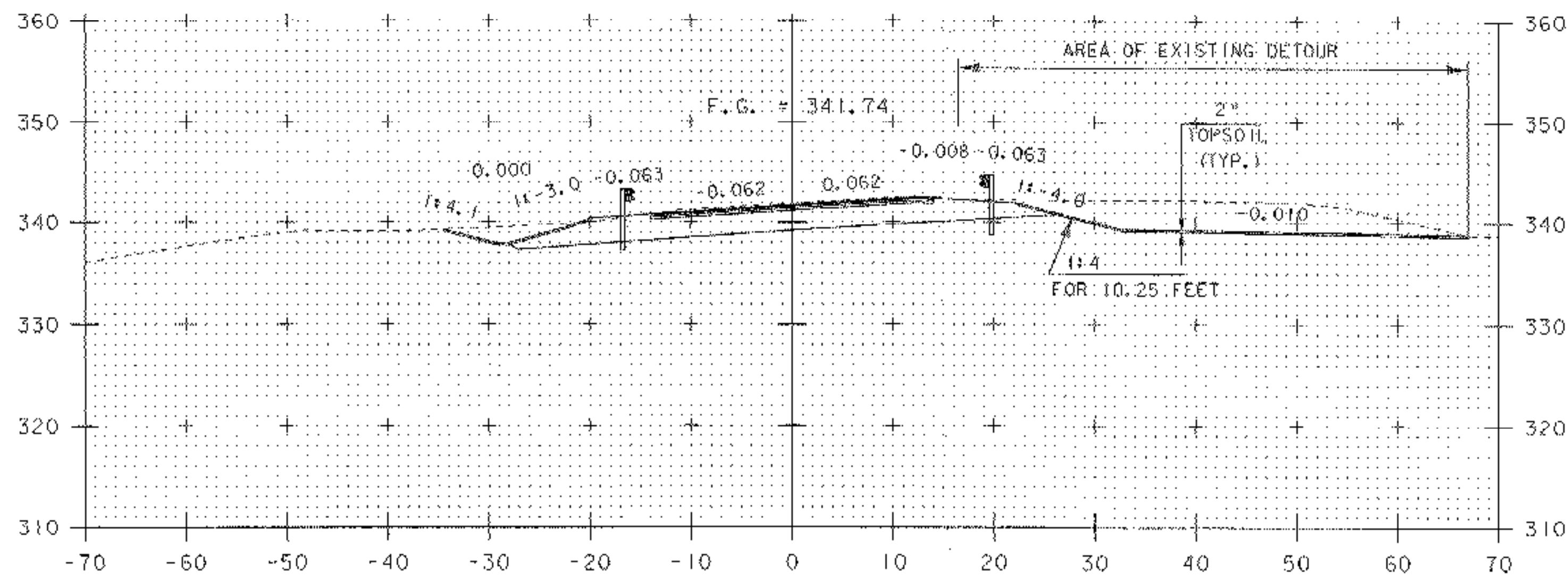
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PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON CHECKED BY: G. ROKES
IPARM s05bl26xs7.1 SHEET 53 OF 66



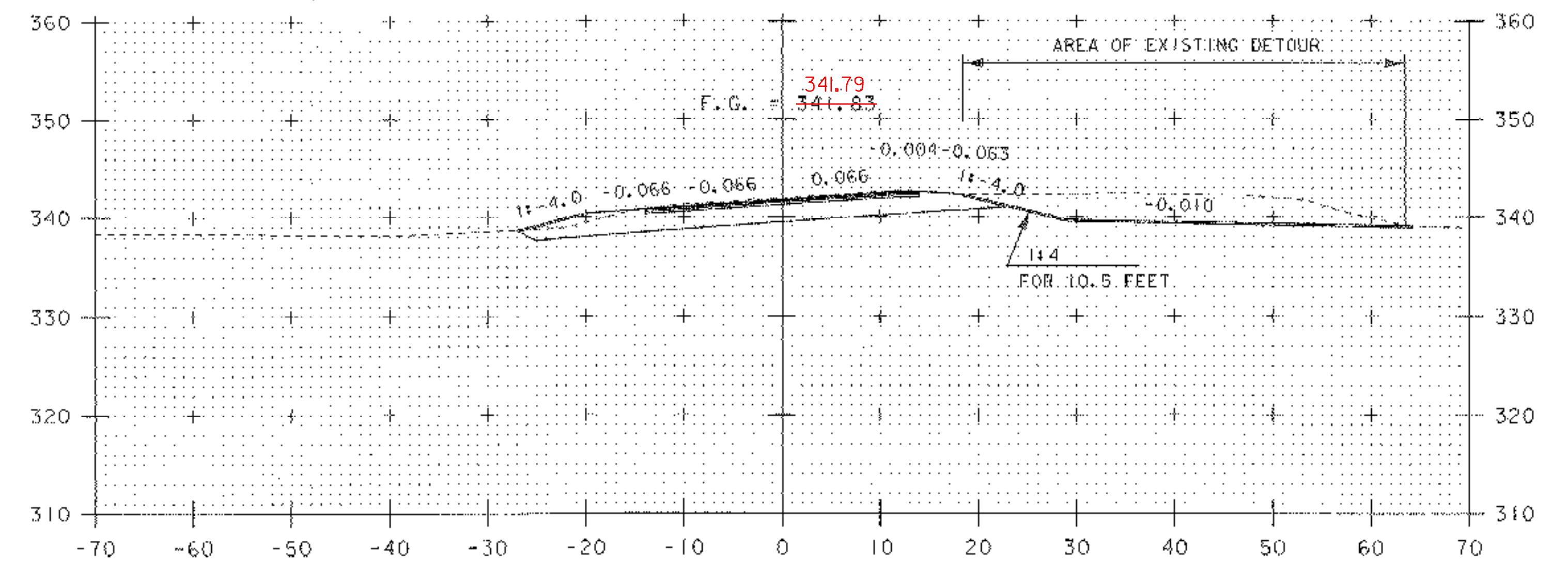
6+17
GUARDRAIL FLARE (LEFT)



6+50



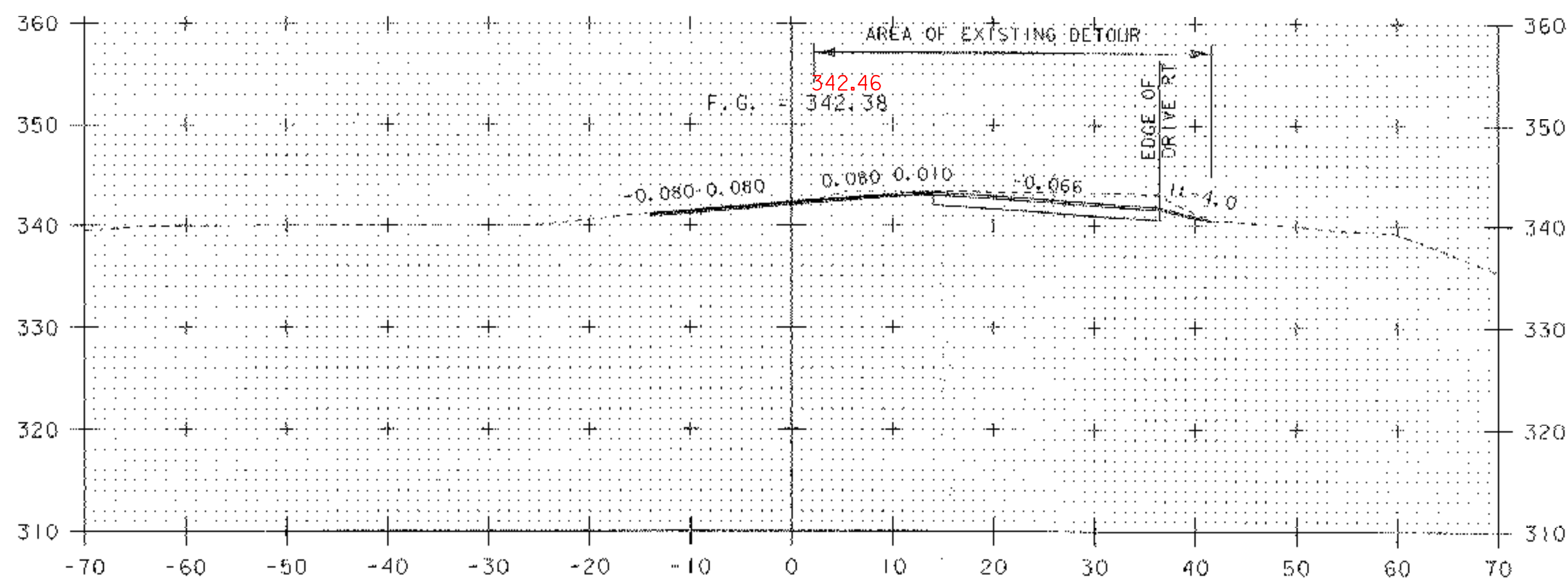
6+13
GUARDRAIL FLARE (RIGHT)



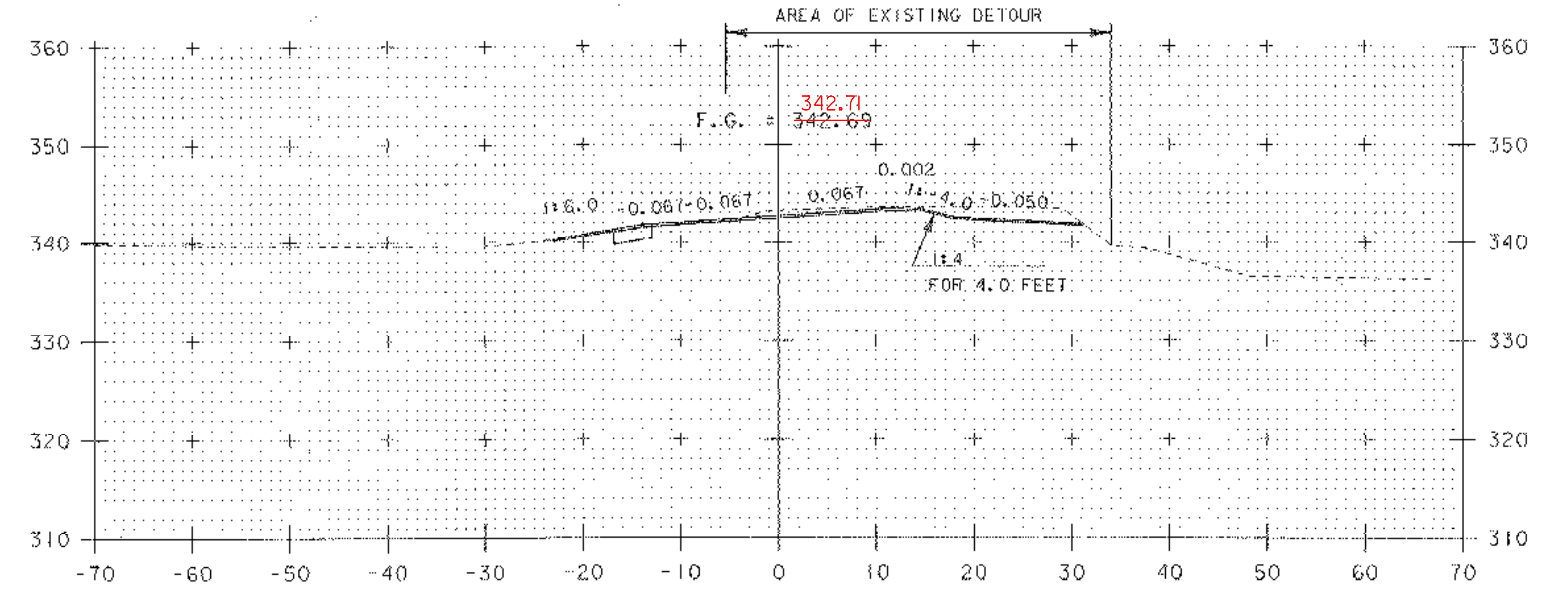
6+25
(END PROJECT STA. 6+20.00)

VT 116 SECTIONS 8

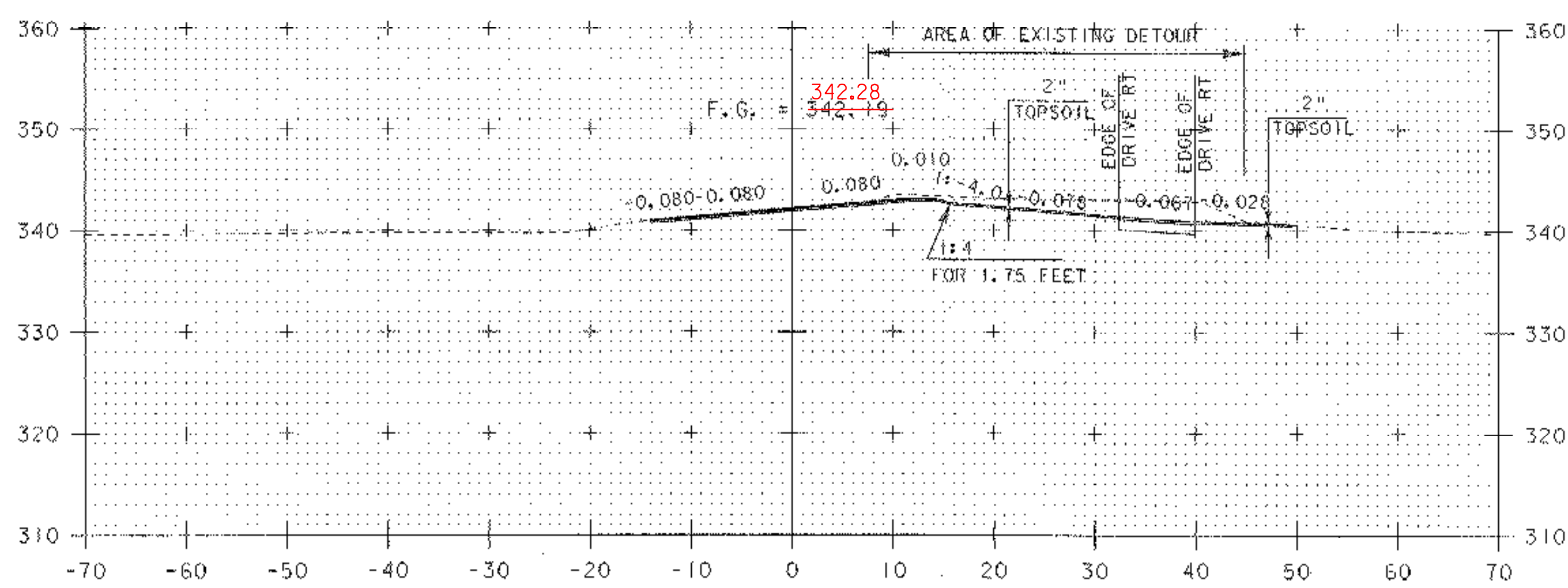
PROJECT NAME:	BRISTOL	PLOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	DRAWN BY:	G.ROKES
FILE NAME:	05b126\STR\05b126xs.dgn	CHECKED BY:	G.ROKES
PROJECT LEADER:	M. EVANS-MONGEON	SHEET	54 OF 66
DESIGNED BY:	M. EVANS-MONGEON		
IPARM	05b126\05b8.i		



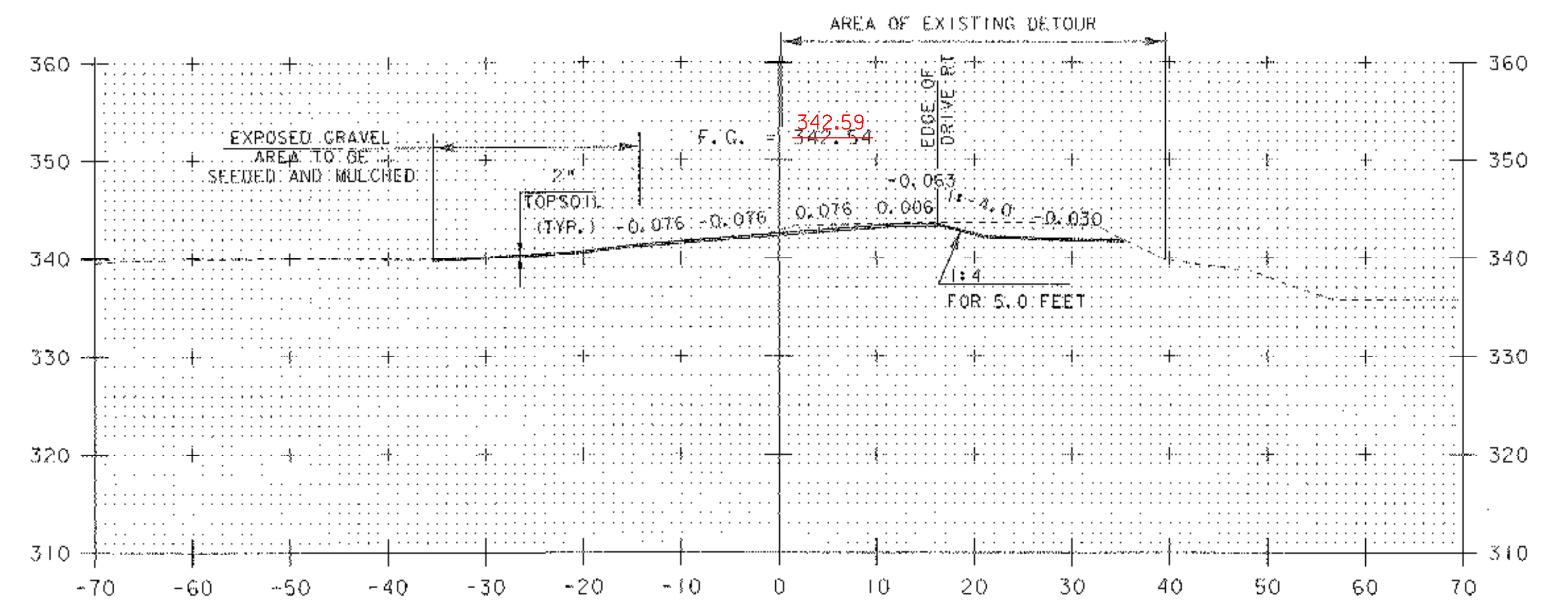
7+00



7+50



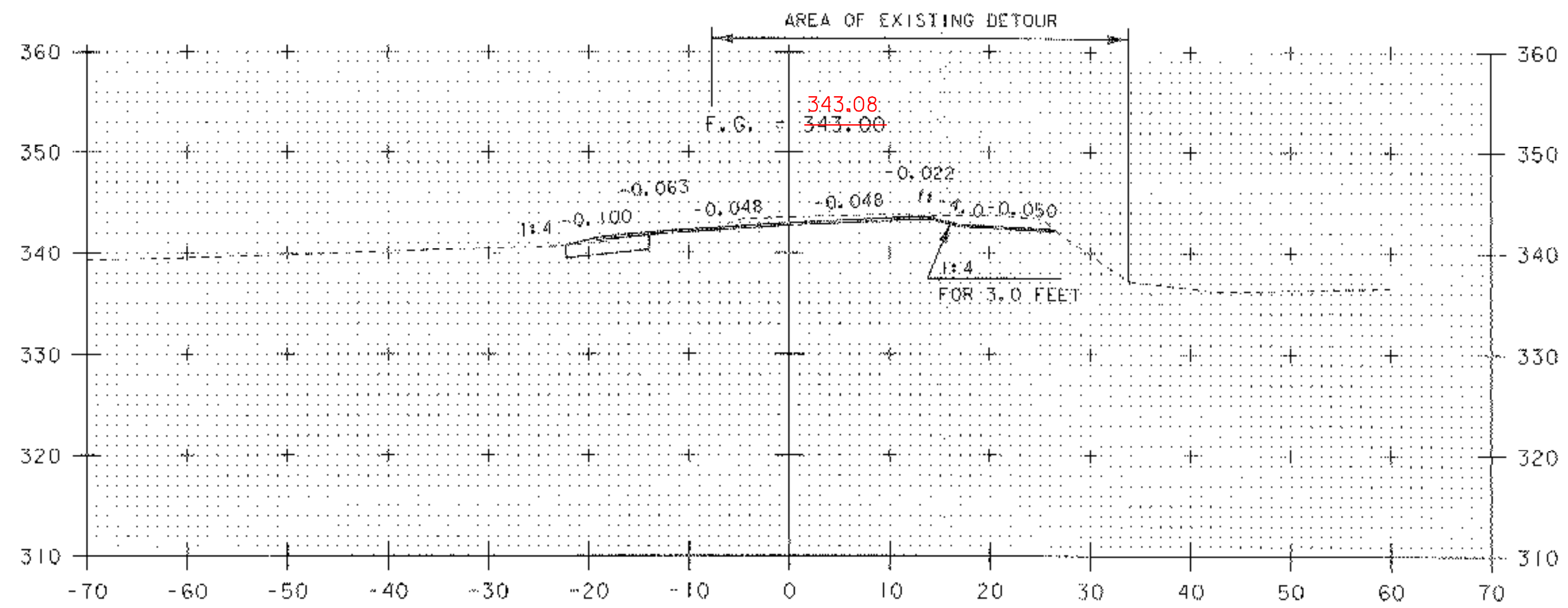
6+75



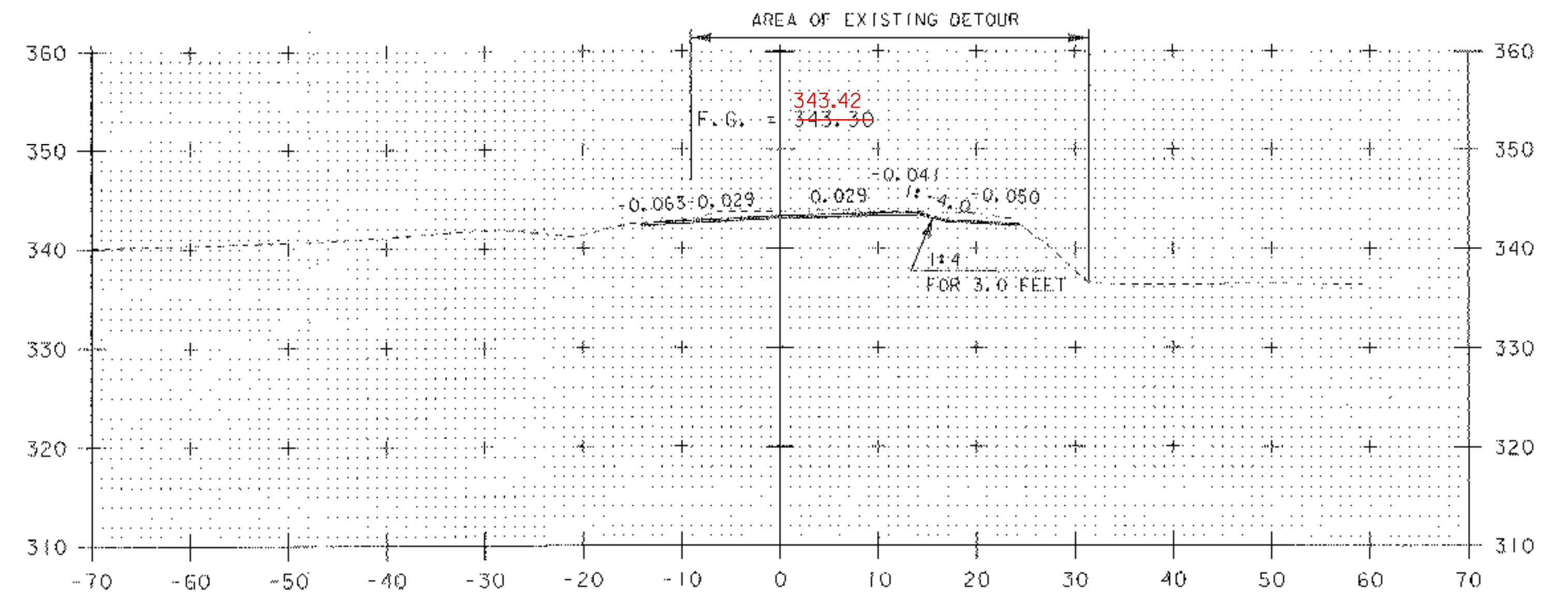
7+25

VT 116 SECTIONS 9

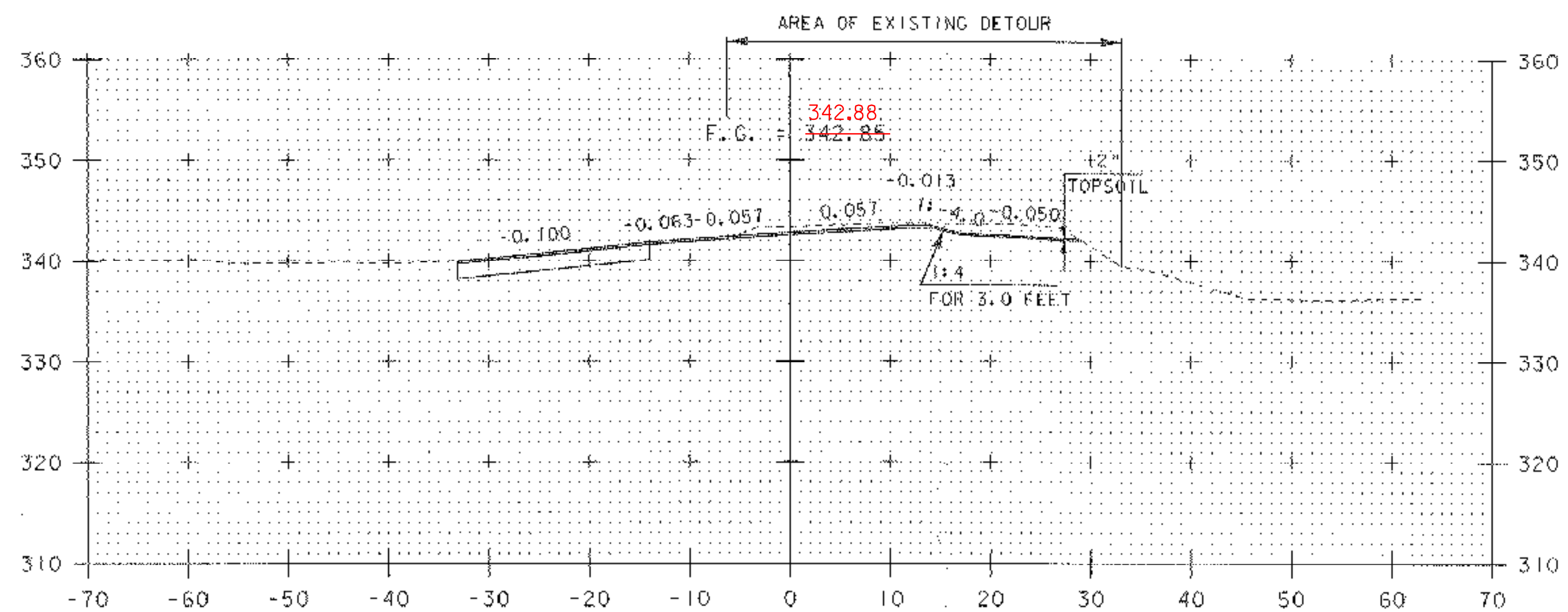
PROJECT NAME:	BRISTOL
PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	05b126\STR\s05b126xs.dgn
PLOT DATE:	20-MAR-2007
PROJECT LEADER:	M. EVANS-MONGEON
DRAWN BY:	G. ROKES
DESIGNED BY:	M. EVANS-MONGEON
CHECKED BY:	G. ROKES
IPARM:	s05b126xs9.i
SHEET:	55 OF 66



8+00

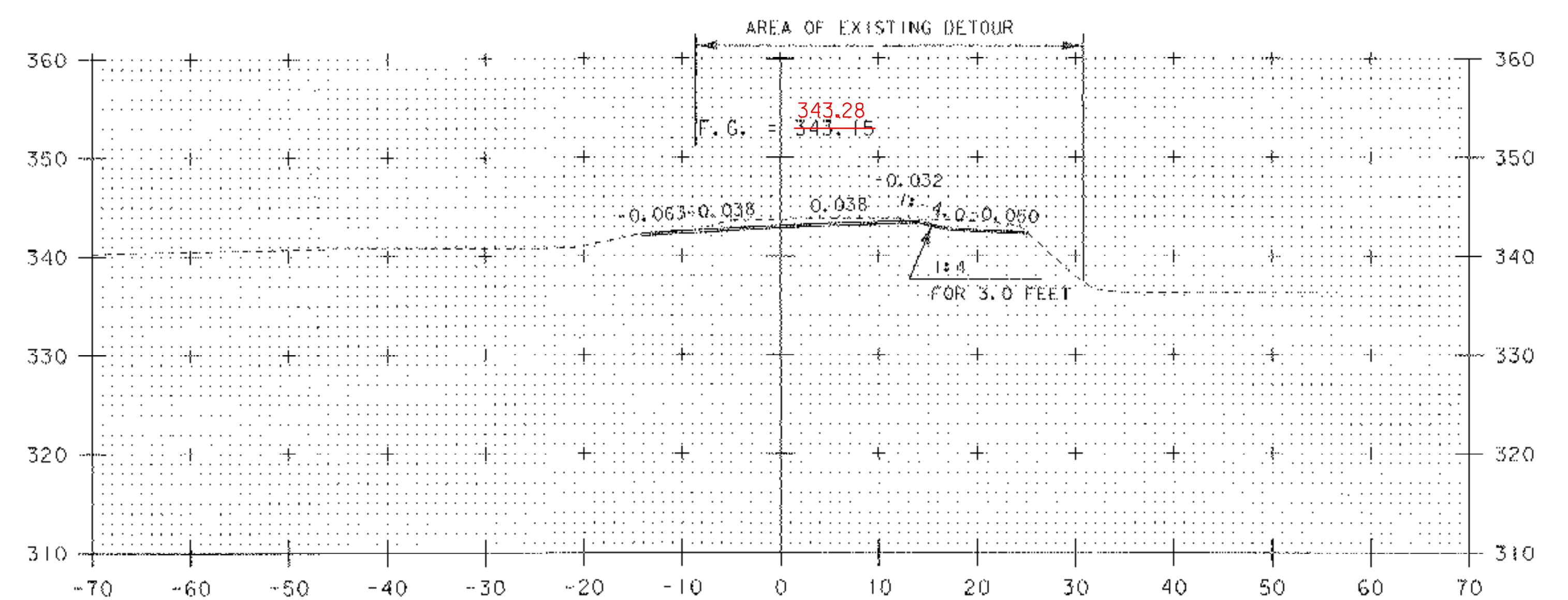


8+50



7+75

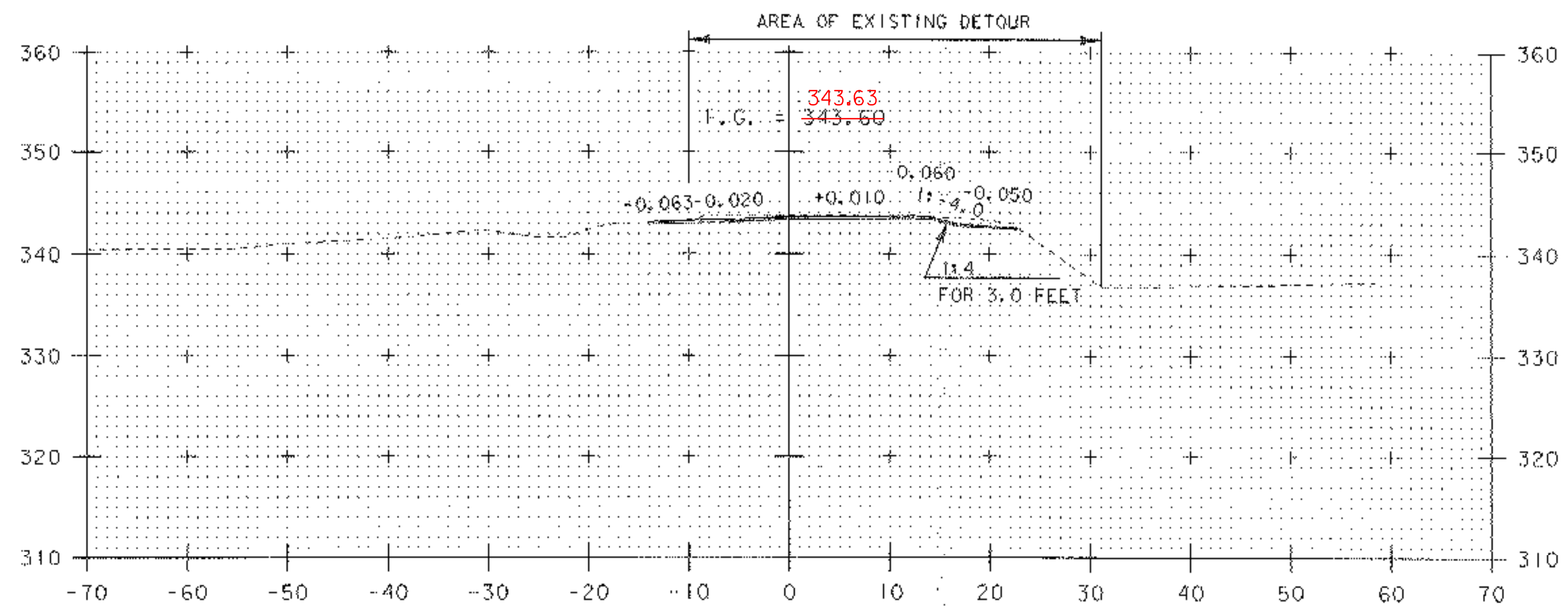
COMMERCIAL DRIVE (LEFT)



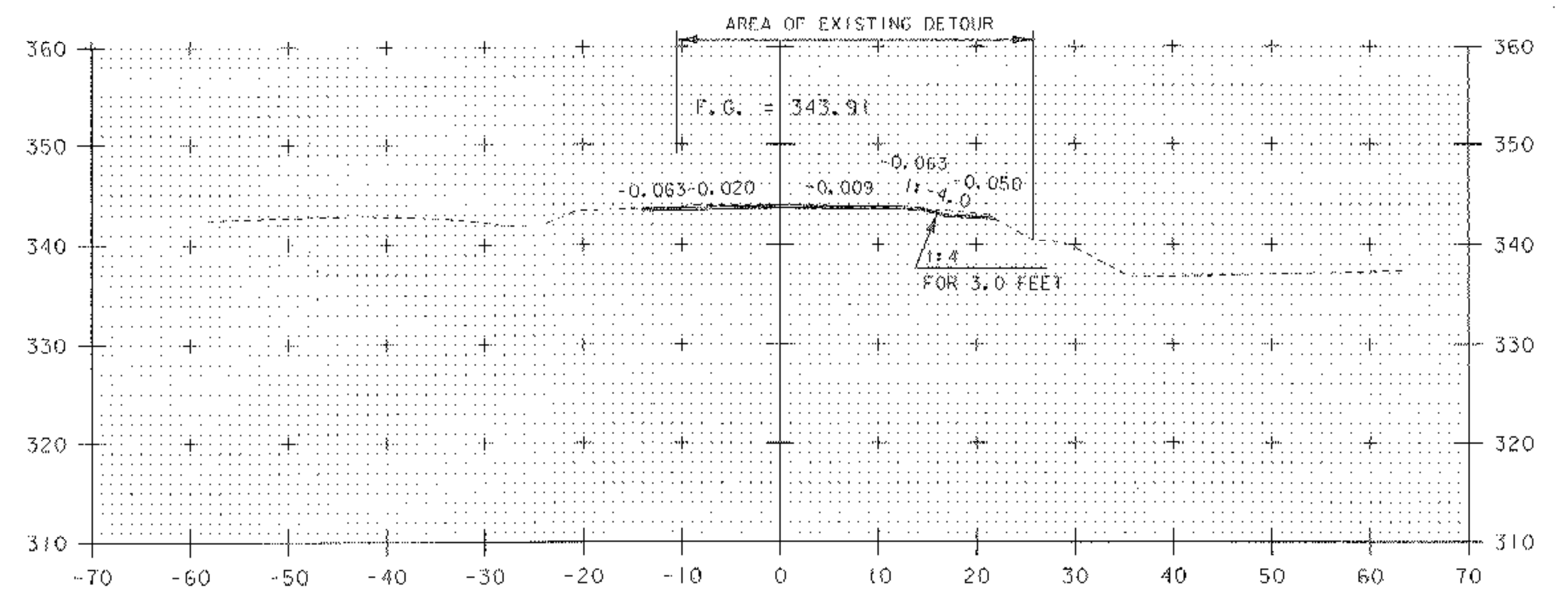
8+25

VT 116 SECTIONS 10

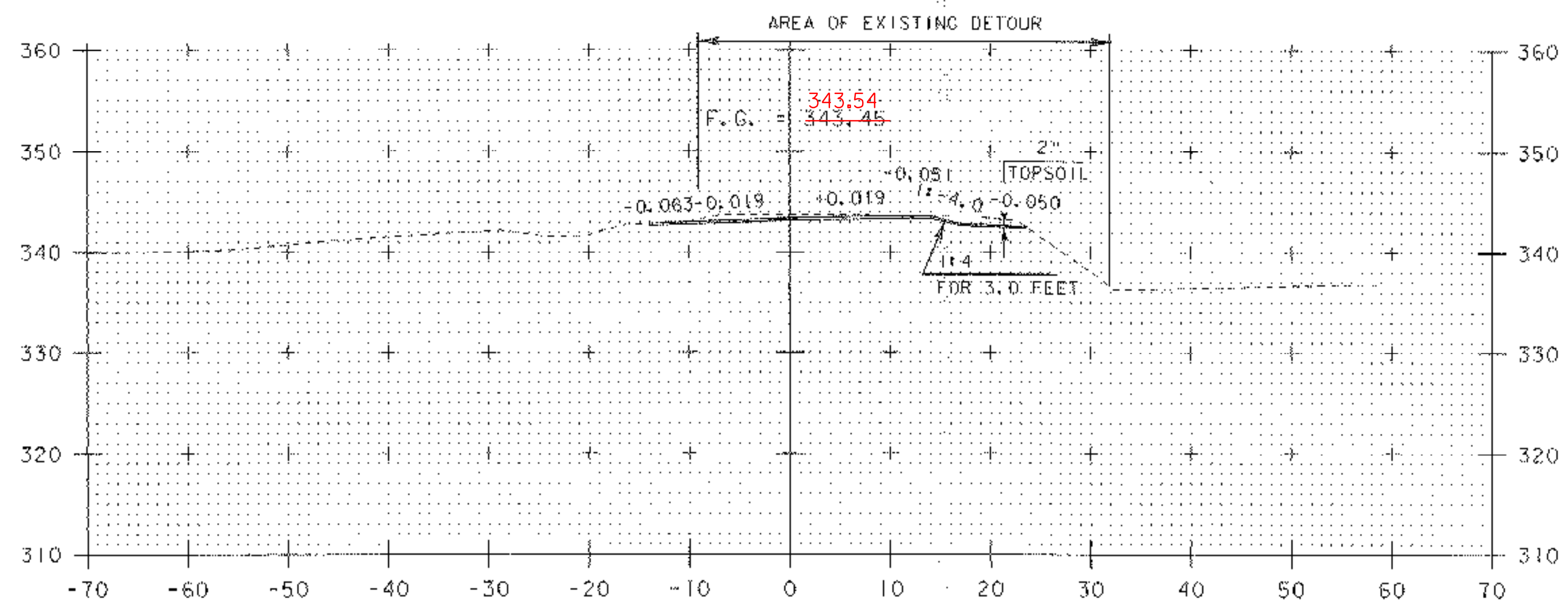
PROJECT NAME:	BRISTOL
PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	Q5b126\STR\805b126\8.s.dgn
PROJECT LEADER:	M. EVANS-MONGEON
DESIGNED BY:	M. EVANS-MONGEON
IPARM:	805b126\10.1
PLOT DATE:	20-MAR-2007
DRAWN BY:	G. ROKES
CHECKED BY:	G. ROKES
SHEET:	56 OF 66



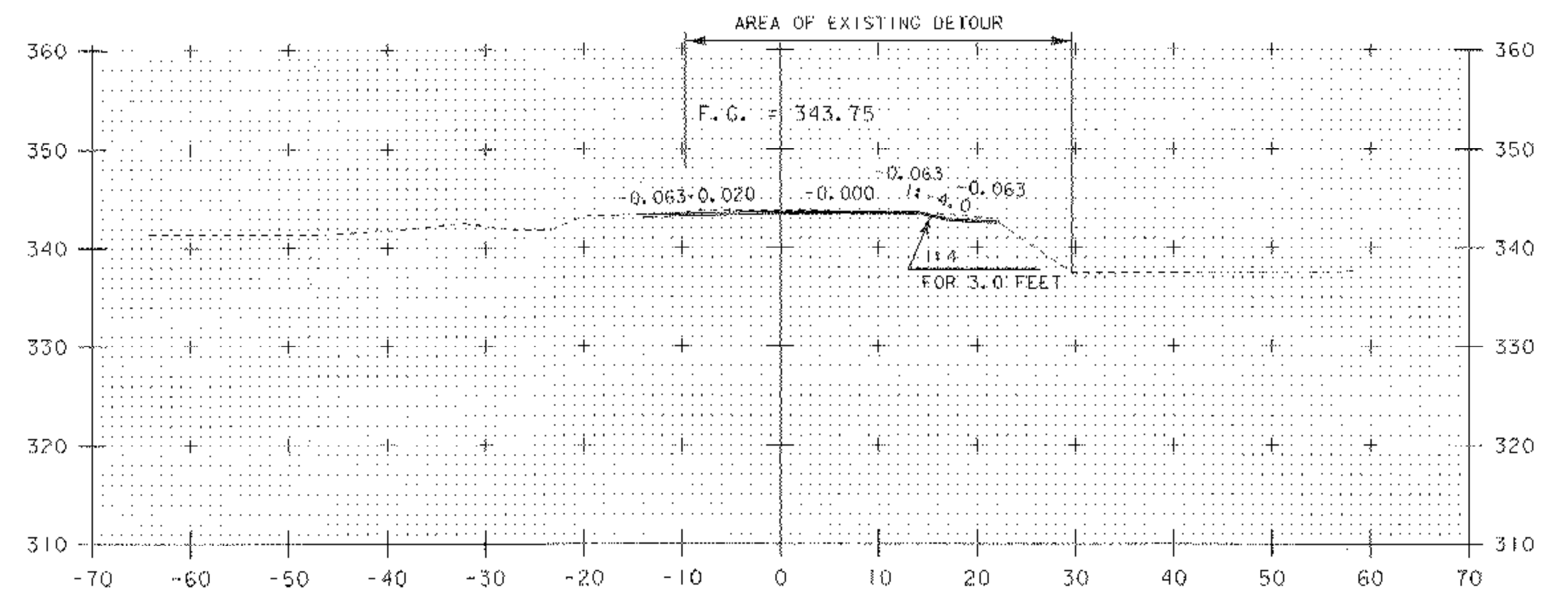
9+00



9+50



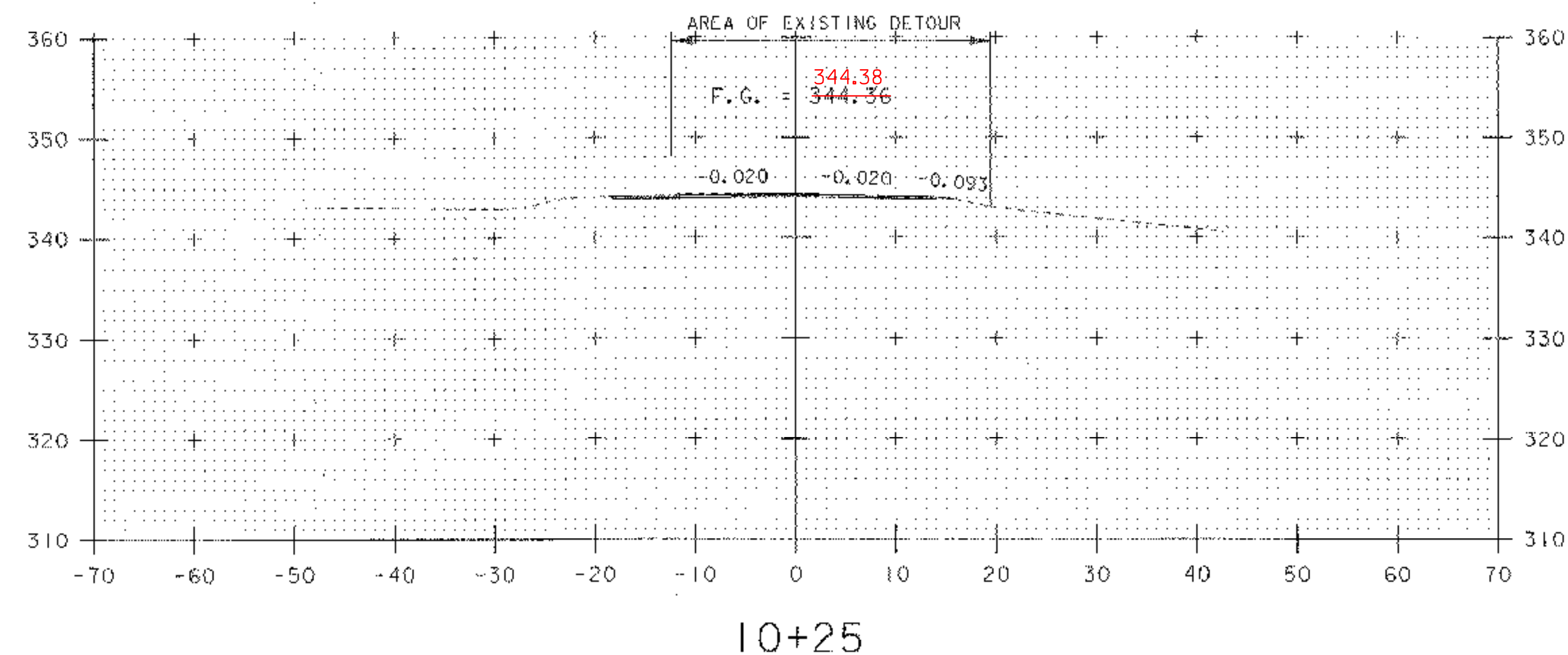
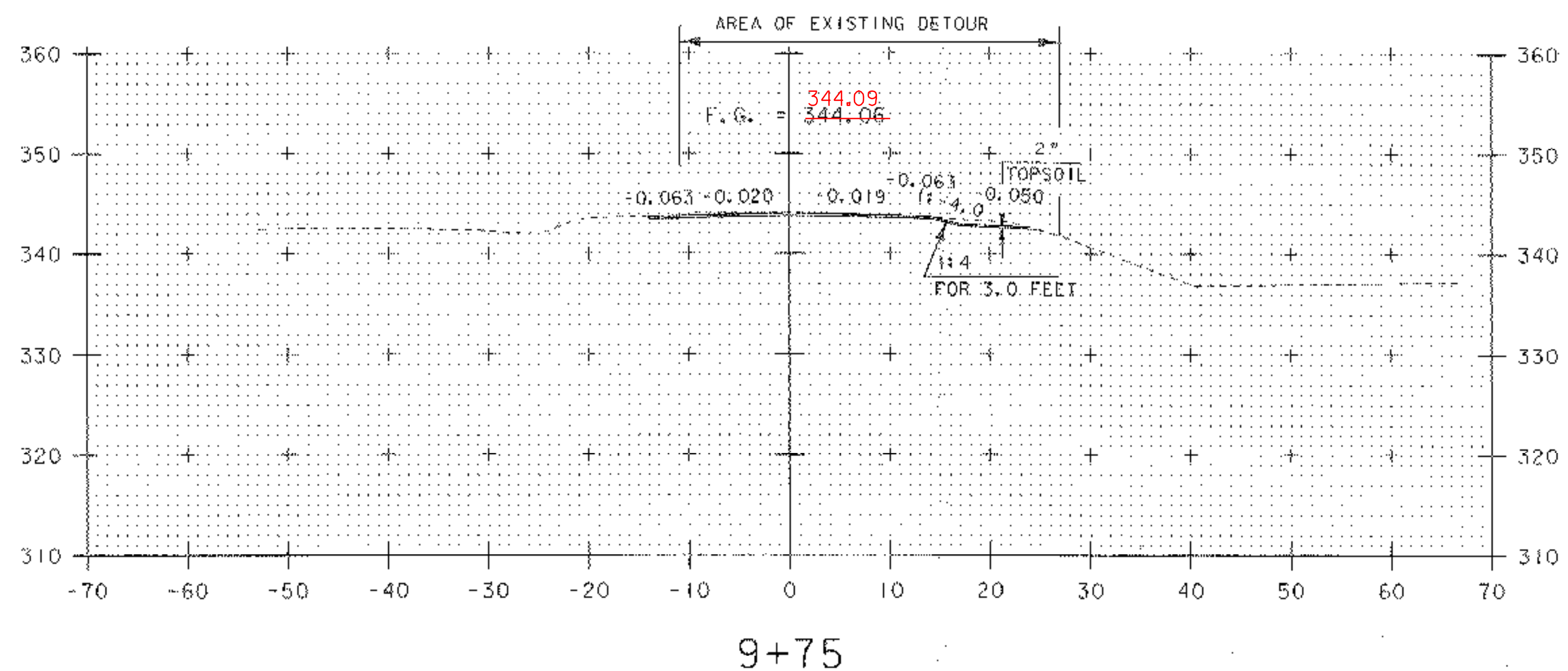
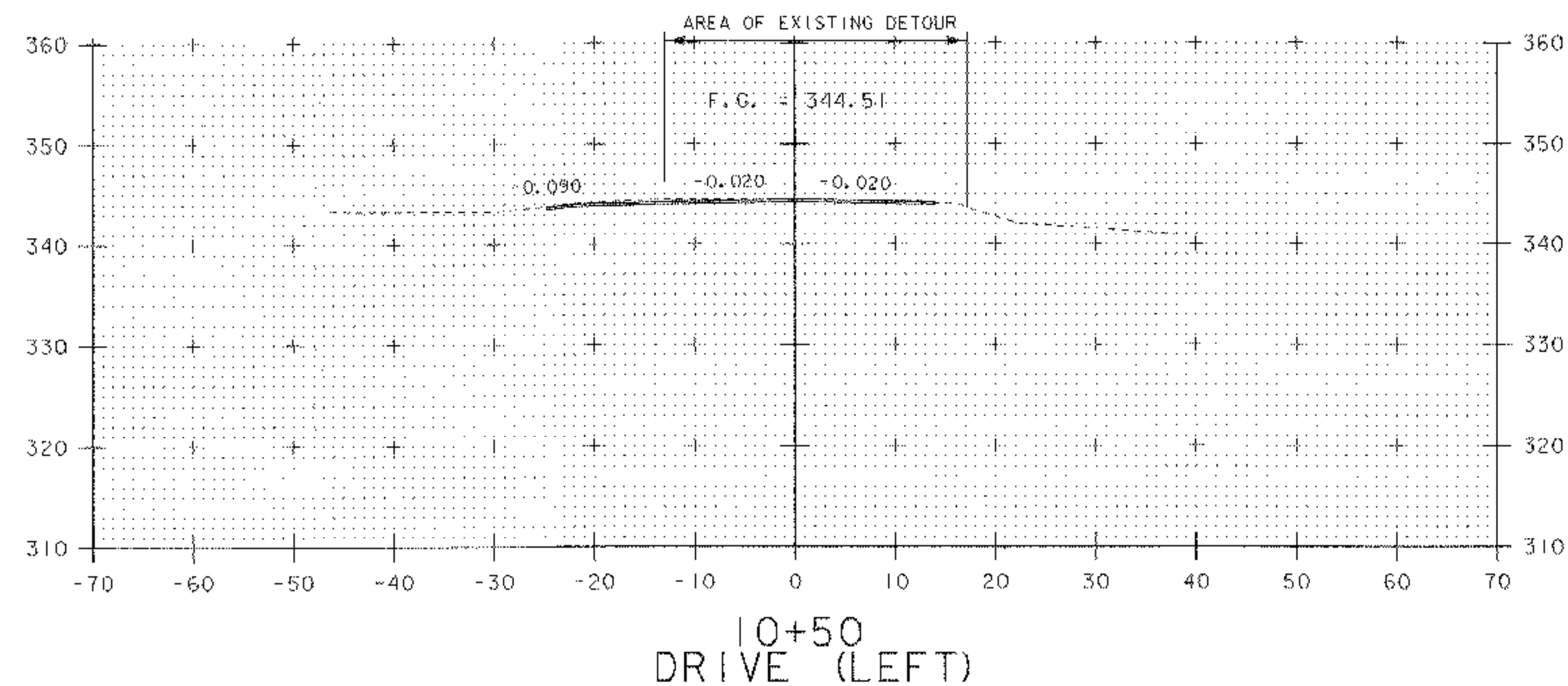
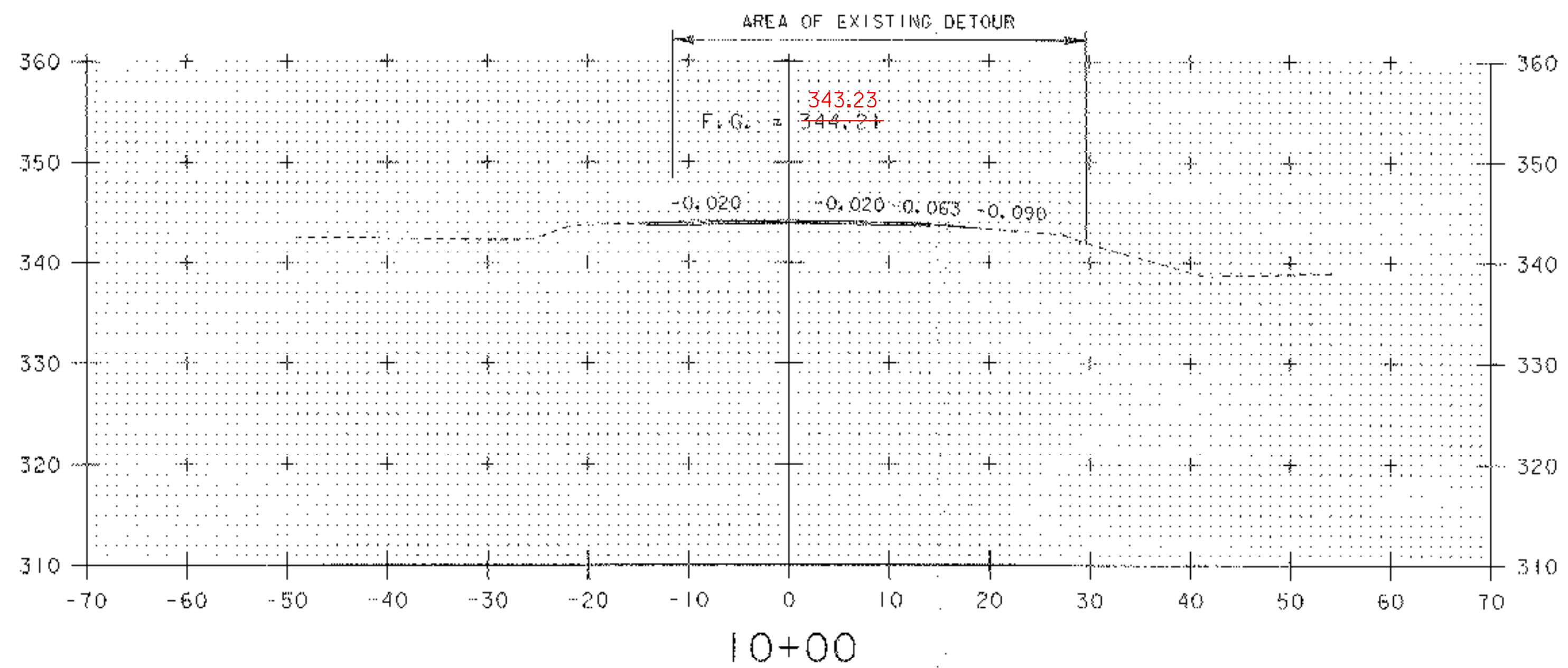
8+75



9+25

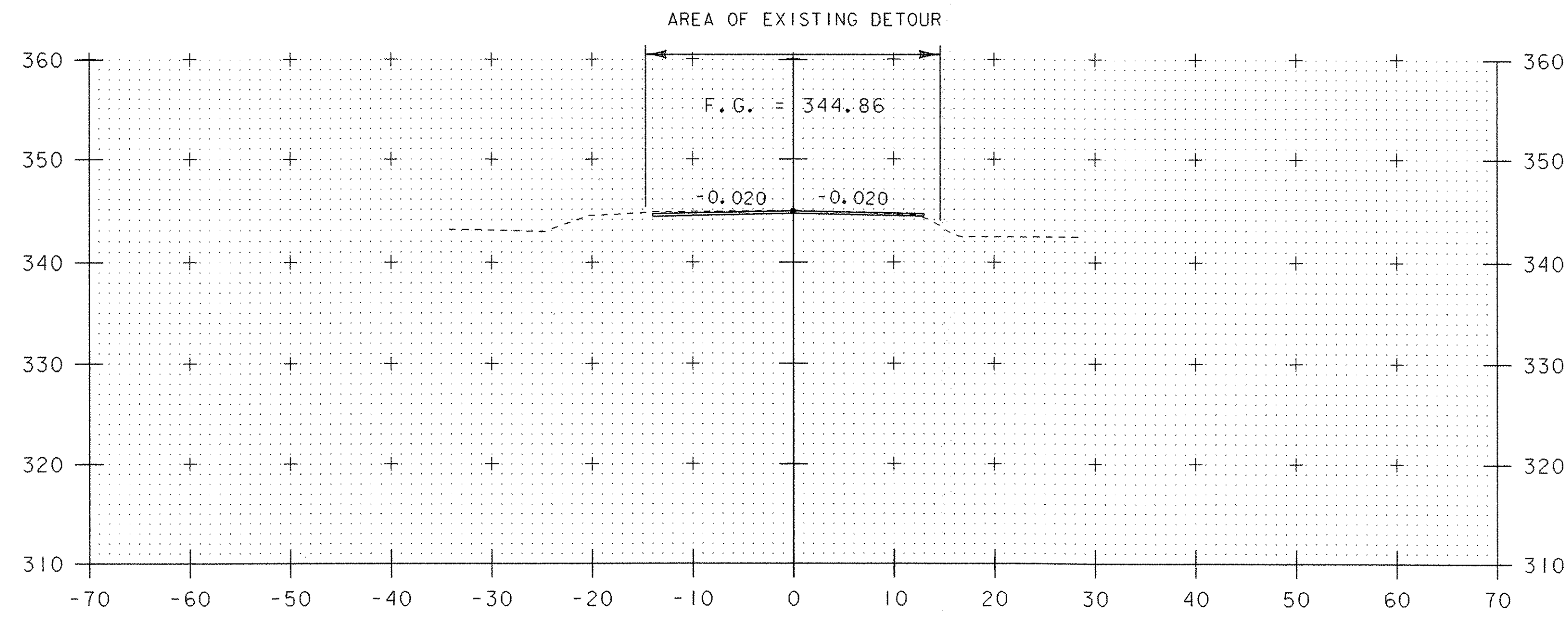
VT 116 SECTIONS 11

PROJECT NAME:	BRISTOL	FILE NAME:	05b126\STR\s05b126.xls.dgn	PLOT DATE:	20-MAR-2007
PROJECT NUMBER:	ER ST 021-1(22)	PROJECT LEADER:	M. EVANS-MONGEON	DRAWN BY:	C. ROKES
		DESIGNED BY:	M. EVANS-MONGEON	CHECKED BY:	G. ROKES
		IPARM	s05b126\11.t	SHEET	57 OF 66

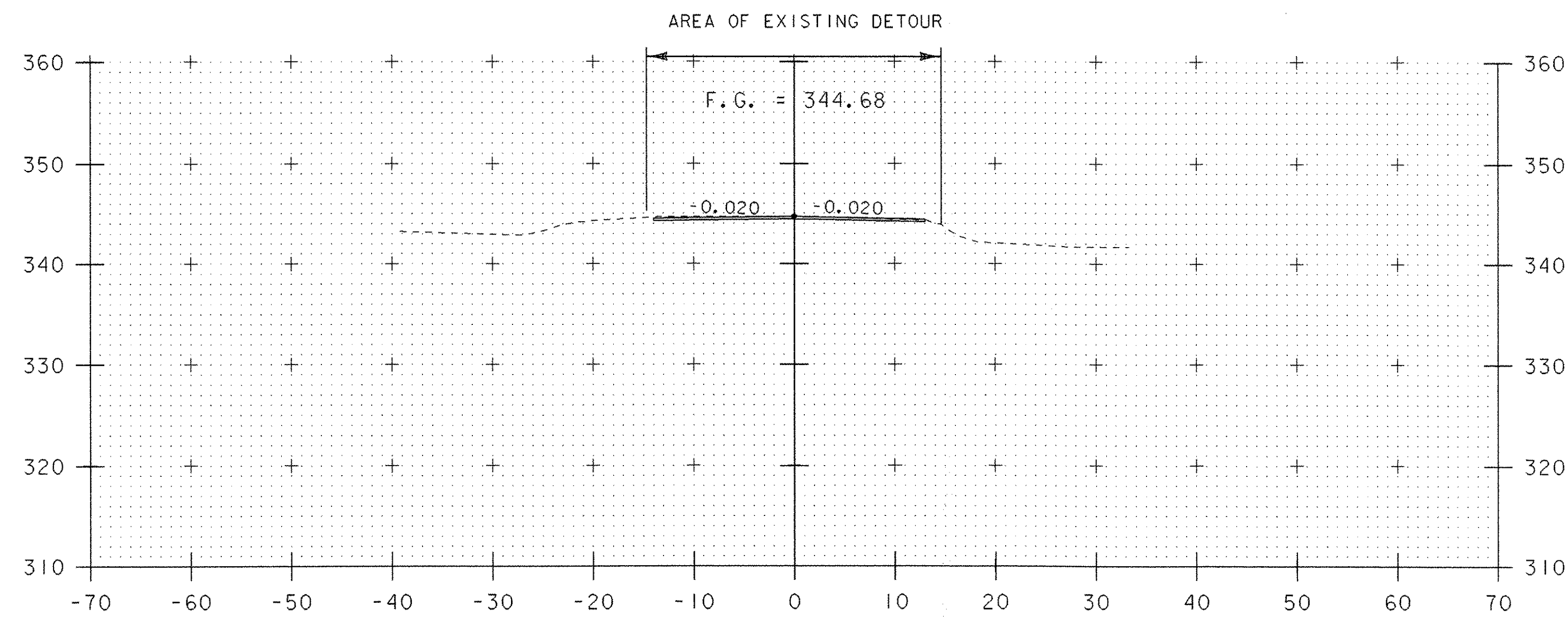


VT 116 SECTIONS 12

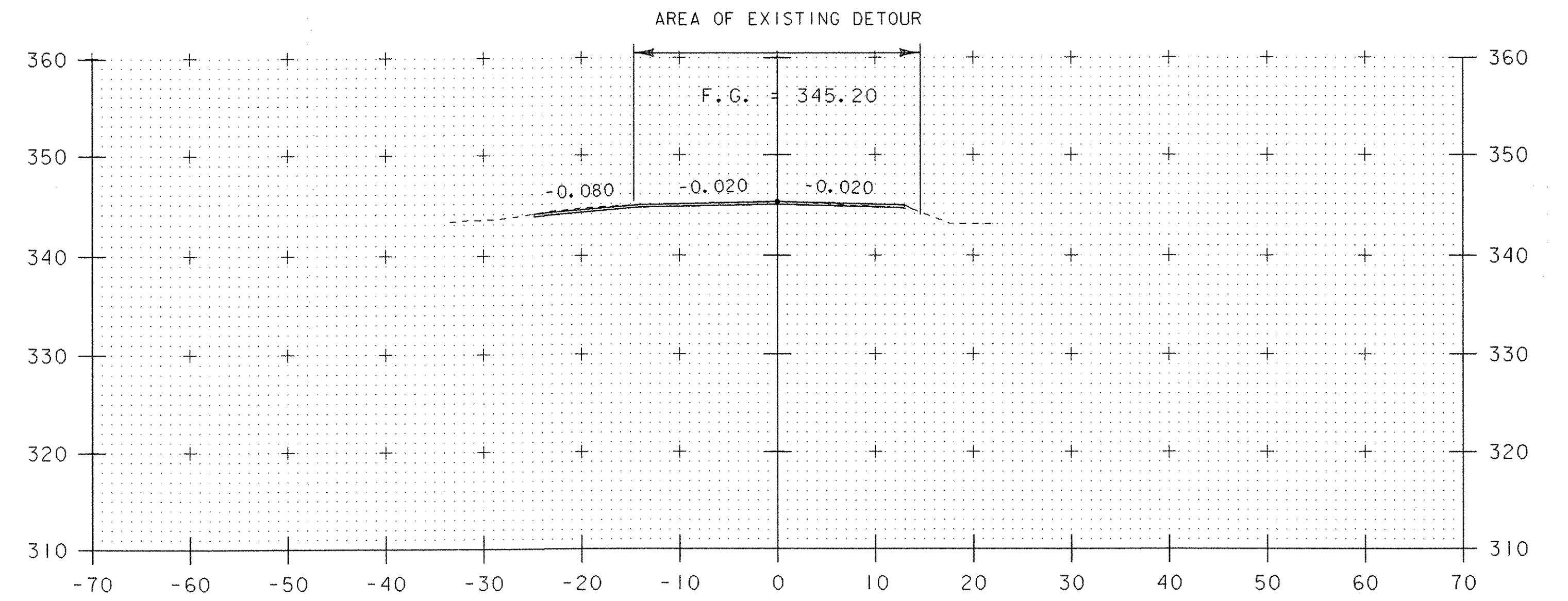
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PROJECT NUMBER:	ER ST 021-1(22)
FILE NAME:	Q5b126\STR\s05b126xs.dgn
PROJECT LEADER:	M. EVANS-MONGEON
DESIGNED BY:	M. EVANS-MONGEON
IPARM:	s05b126\sl2.t
PLOT DATE:	20-MAR-2007
DRAWN BY:	G. ROKES
CHECKED BY:	G. ROKES
SHEET:	58 OF 66



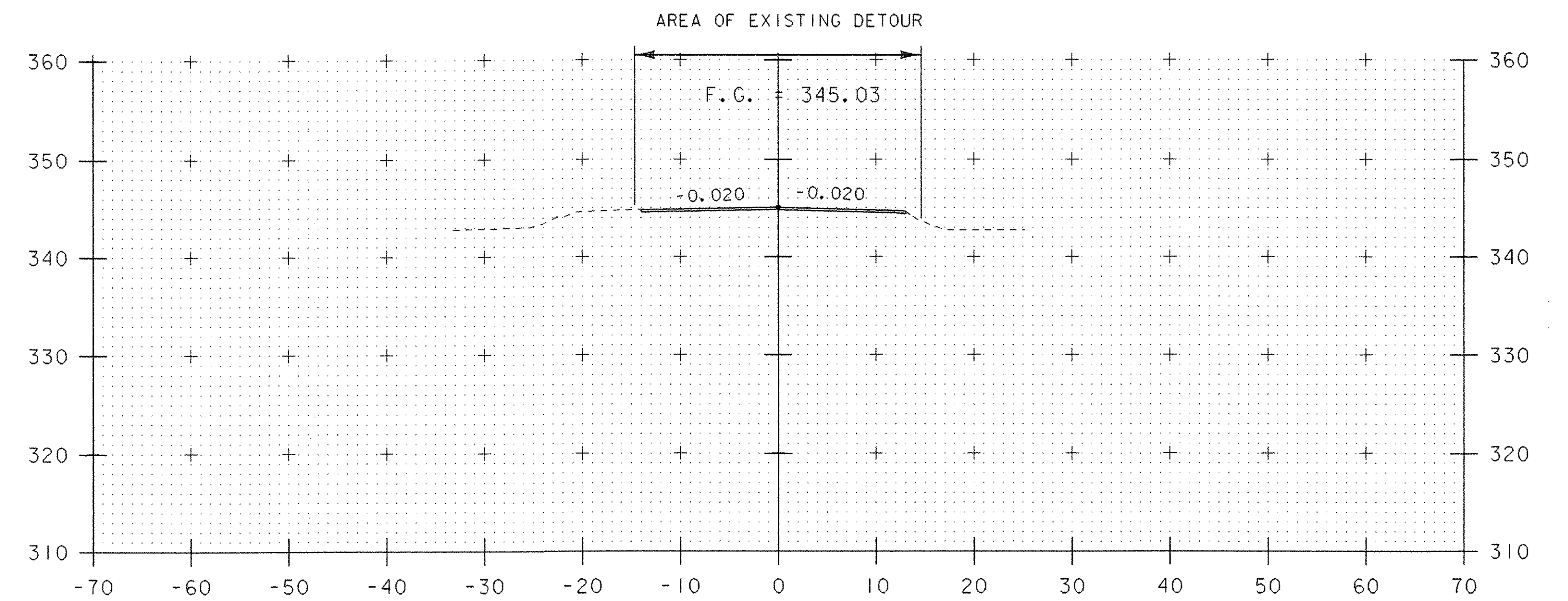
11+00



10+75



11+50
DRIVE (LEFT)

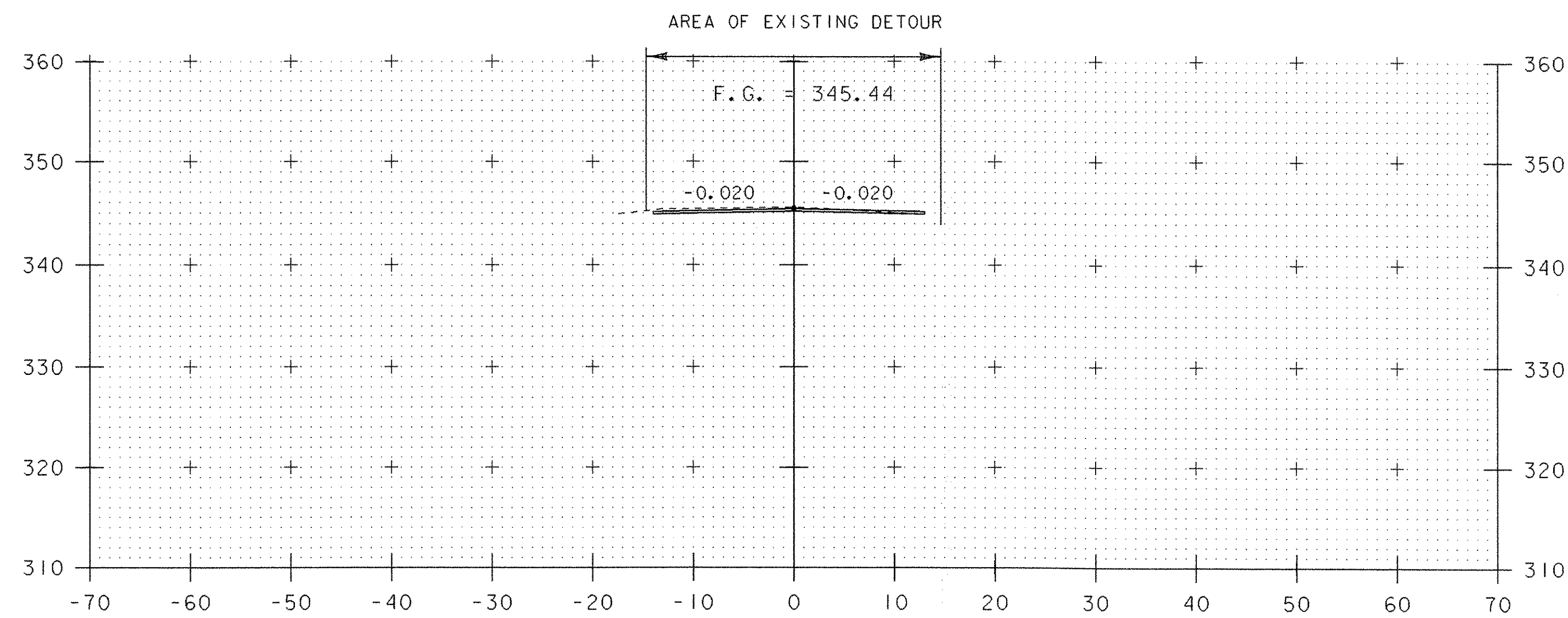


11+25

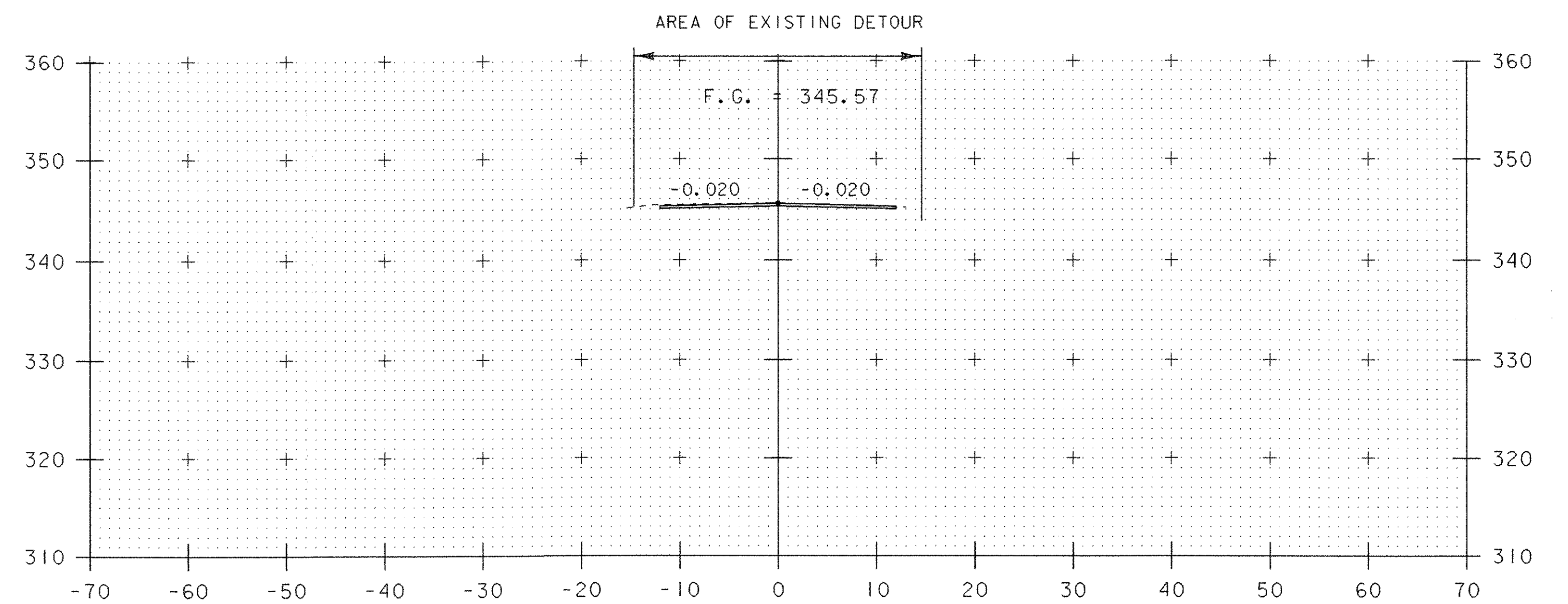
VT 116 SECTIONS 13

PROJECT NAME: BRISTOL
PROJECT NUMBER: ER ST 021-1(22)

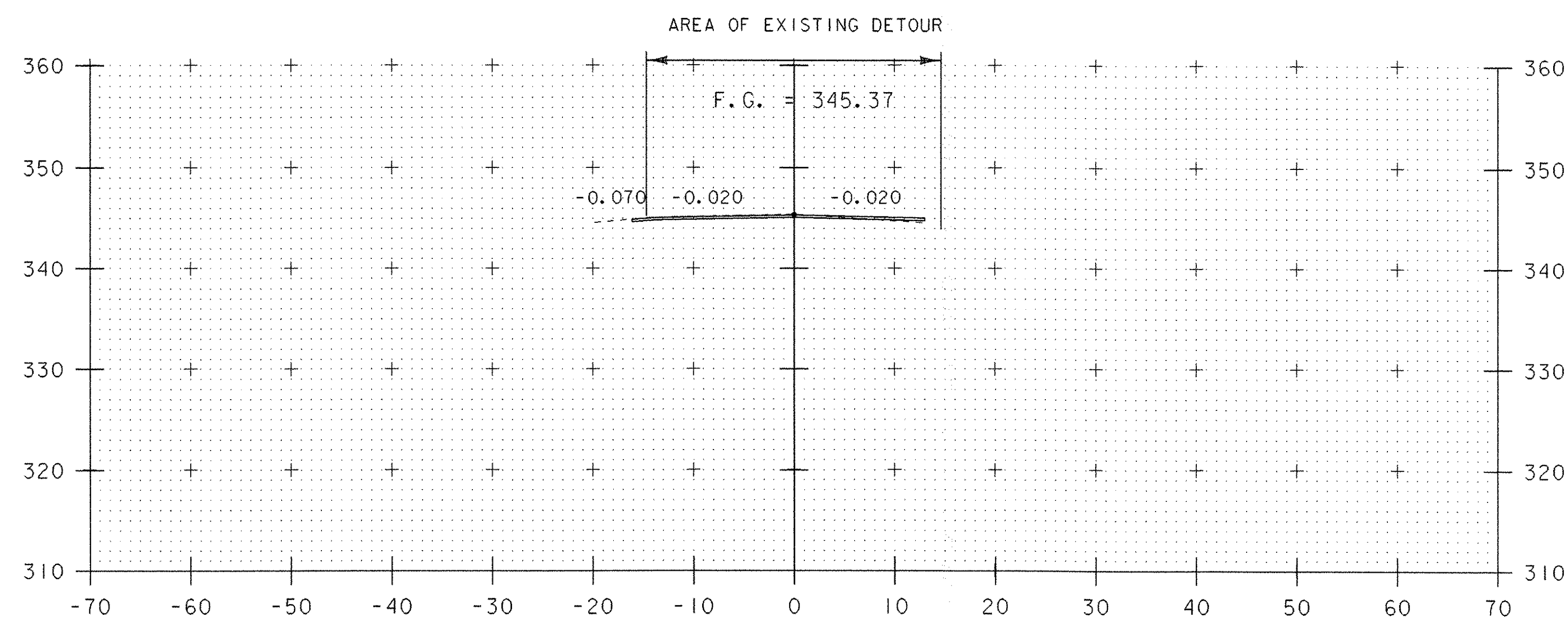
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PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON CHECKED BY: G. ROKES
IPARM s05bl26lxs13.1 SHEET 59 OF 66



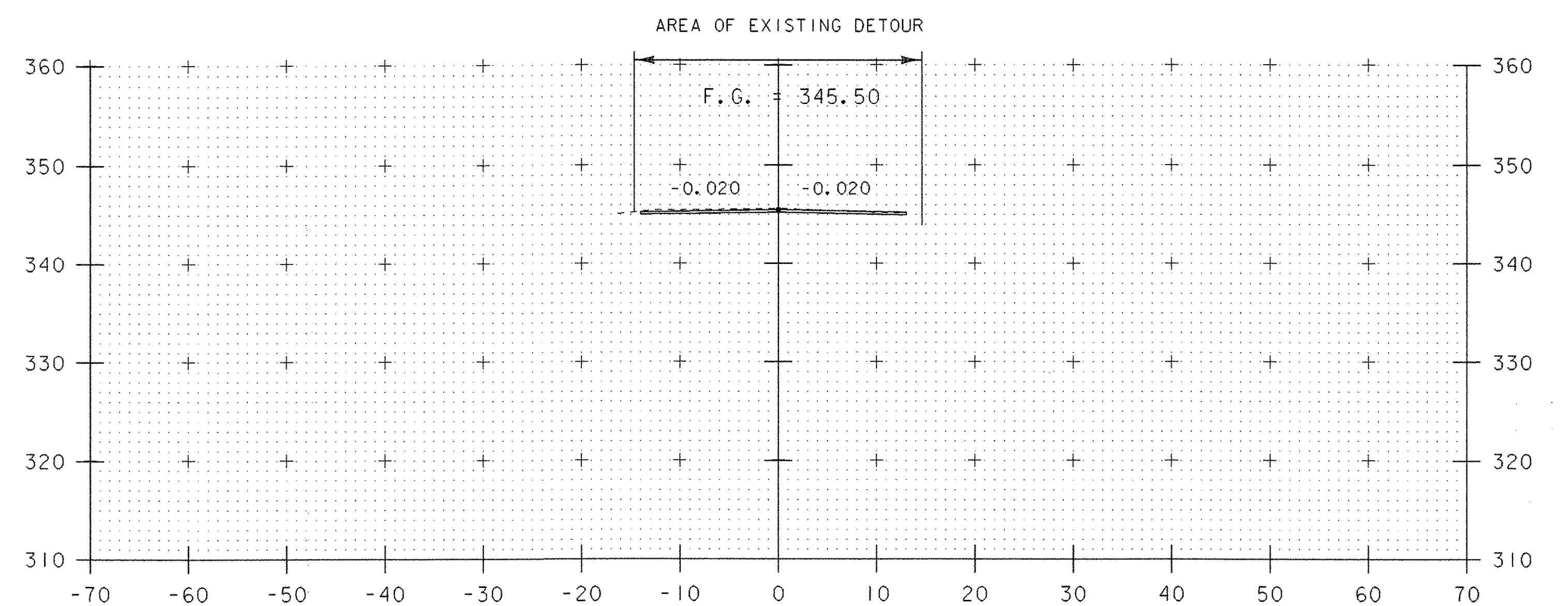
12+00



12+50



11+75

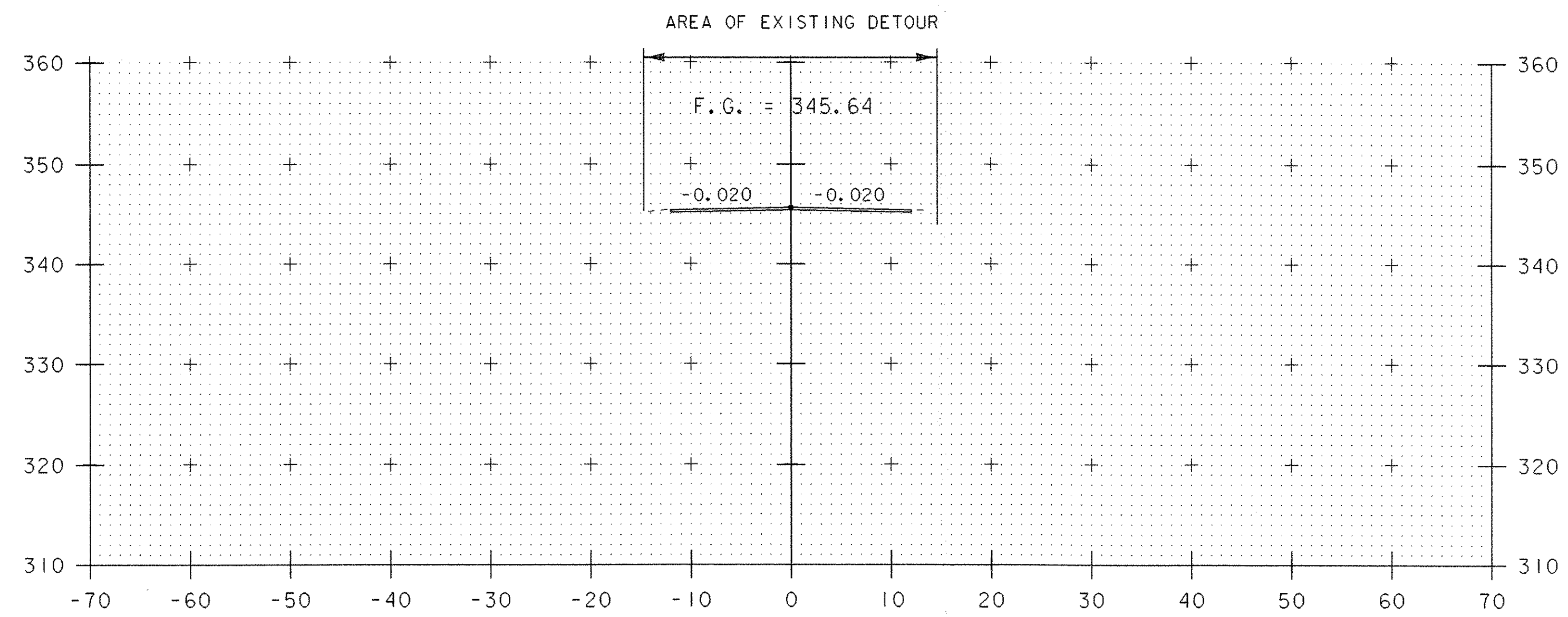


12+25

VT 116 SECTIONS 14

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

FILE NAME: 05b126\STR\s05b126xs.dgn PLOT DATE: 20-MAR-2007
 PROJECT LEADER: M.EVANS-MONGEON DRAWN BY: G.ROKES
 DESIGNED BY: M.EVANS-MONGEON CHECKED BY: G.ROKES
 IPARM s05b126\sl4.1 SHEET 60 OF 66

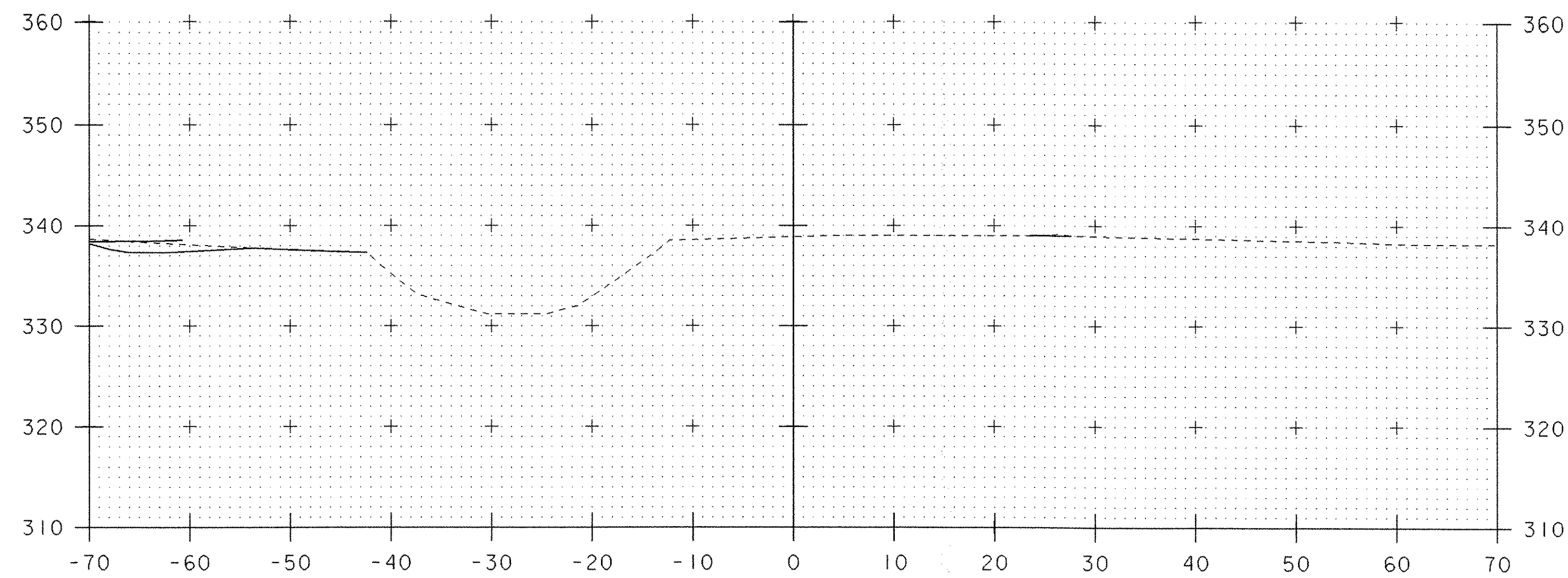


12+75
END APPROACH

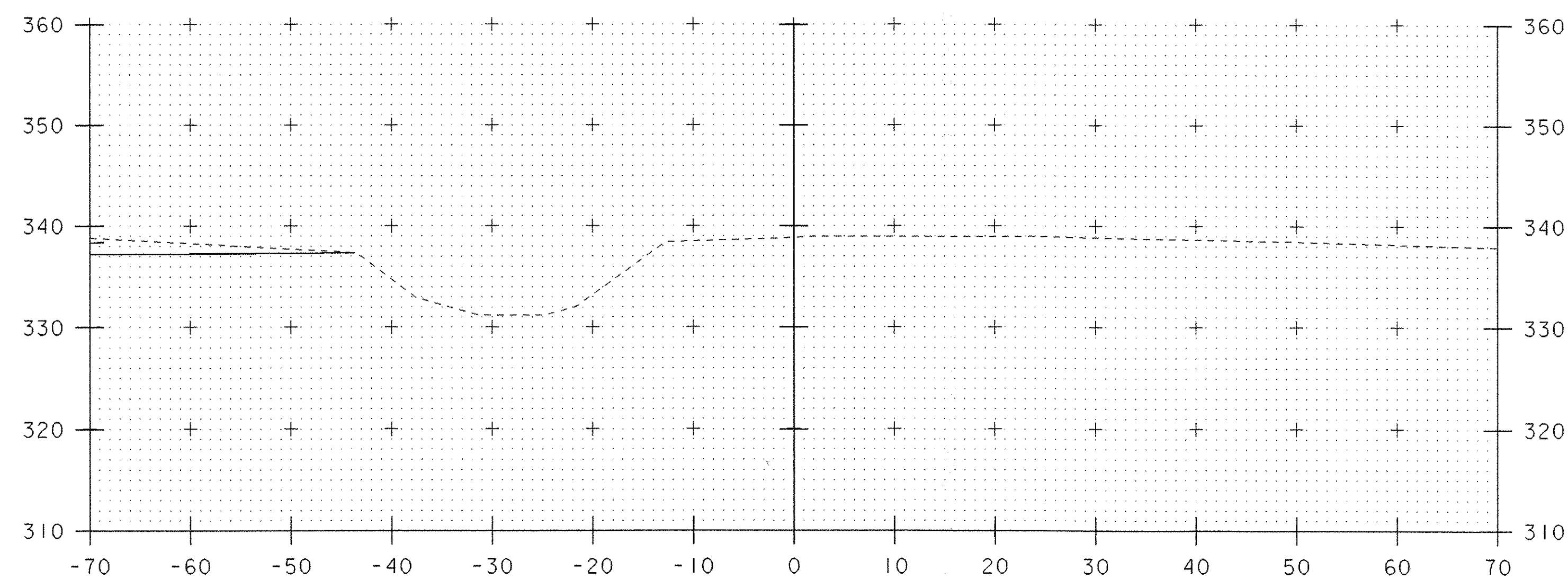
VT 116 SECTIONS 15

PROJECT NAME: BRISTOL
PROJECT NUMBER: ER ST 021-1(22)

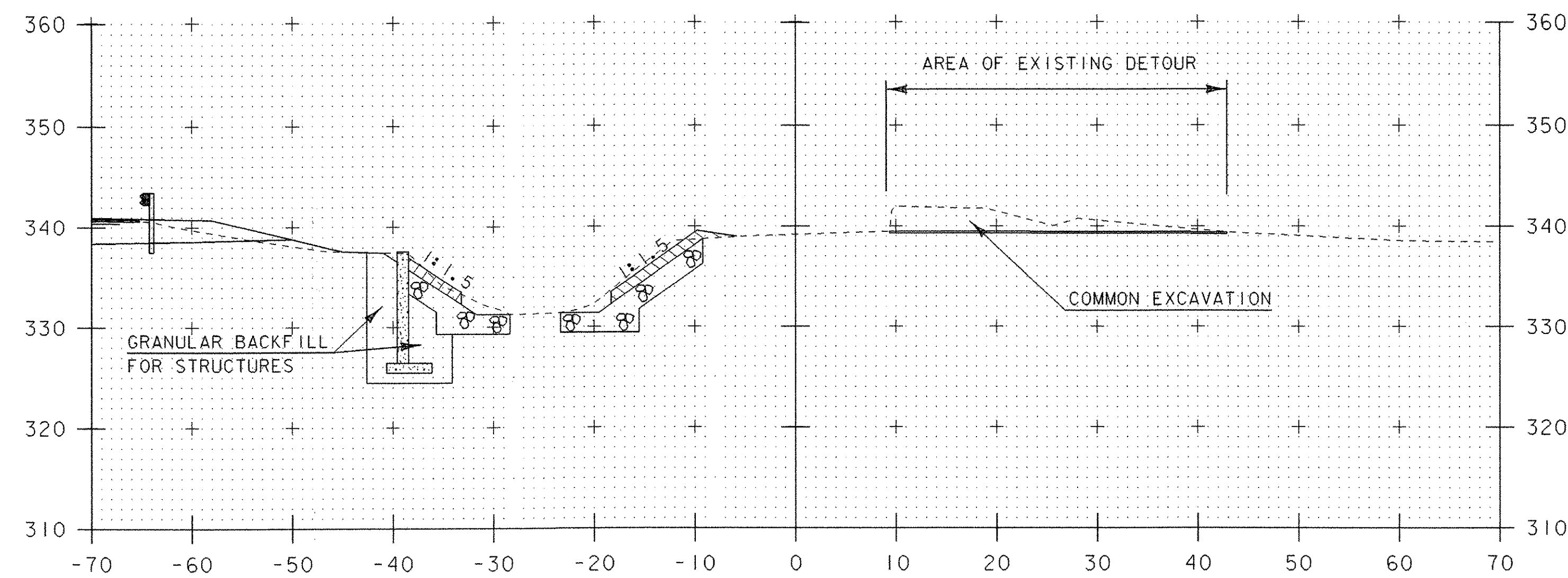
FILE NAME: 05bl26\STR\s05bl26xs.dgn	PLOT DATE: 20-MAR-2007
PROJECT LEADER: M. EVANS-MONGEON	DRAWN BY: G. ROKES
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: G. ROKES
IPARM s05bl26\sls15.1	SHEET 61 OF 66



50+30

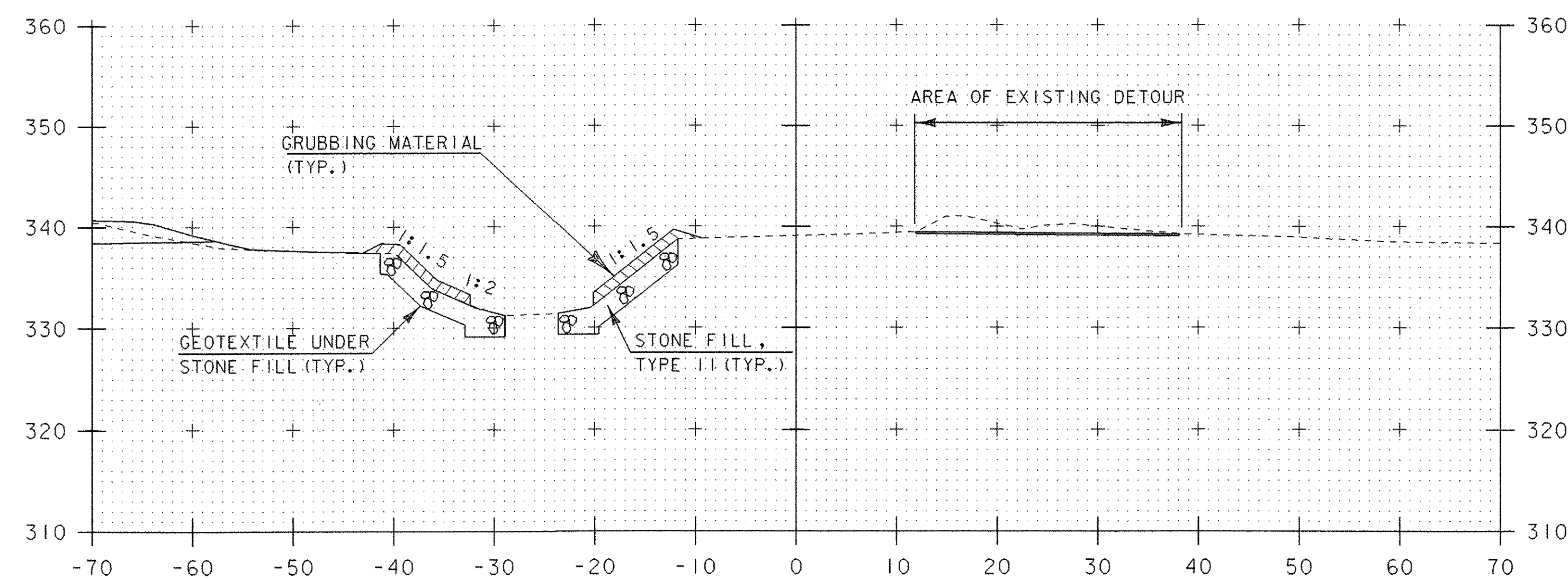


50+25



50+45

CHANNEL SLOPE AT END OF WW#2



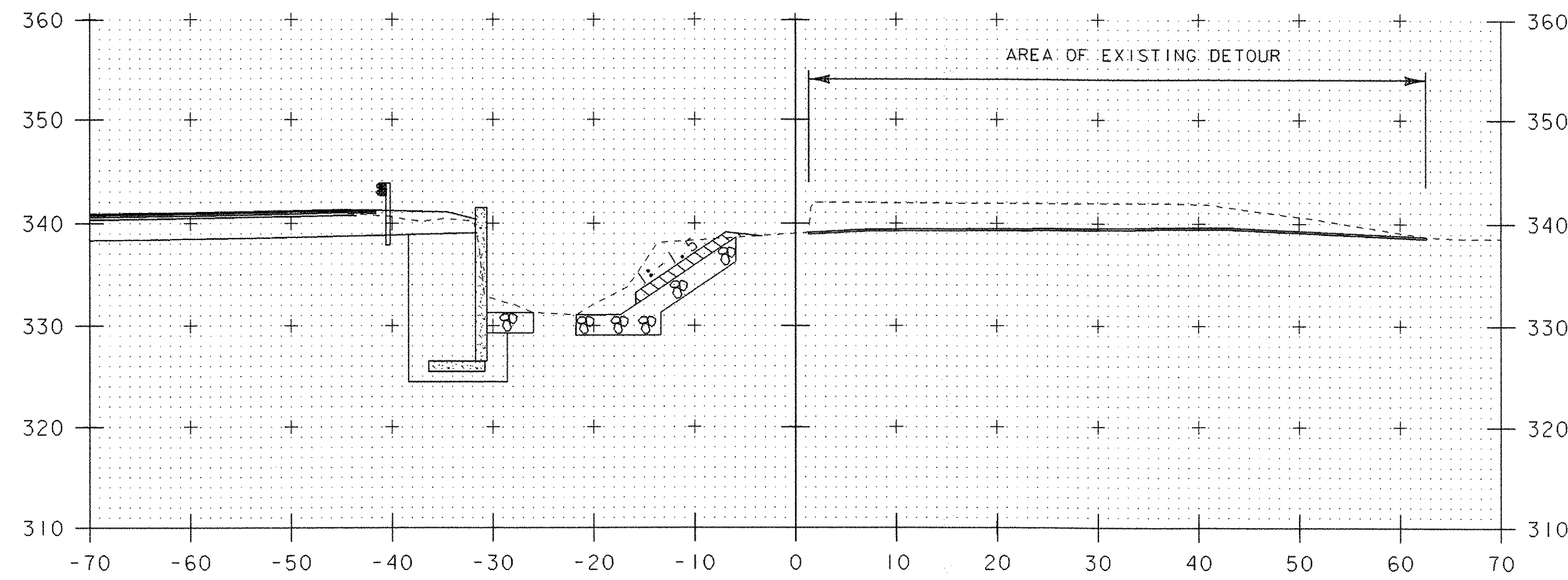
50+40

CHANNEL SECTIONS 1

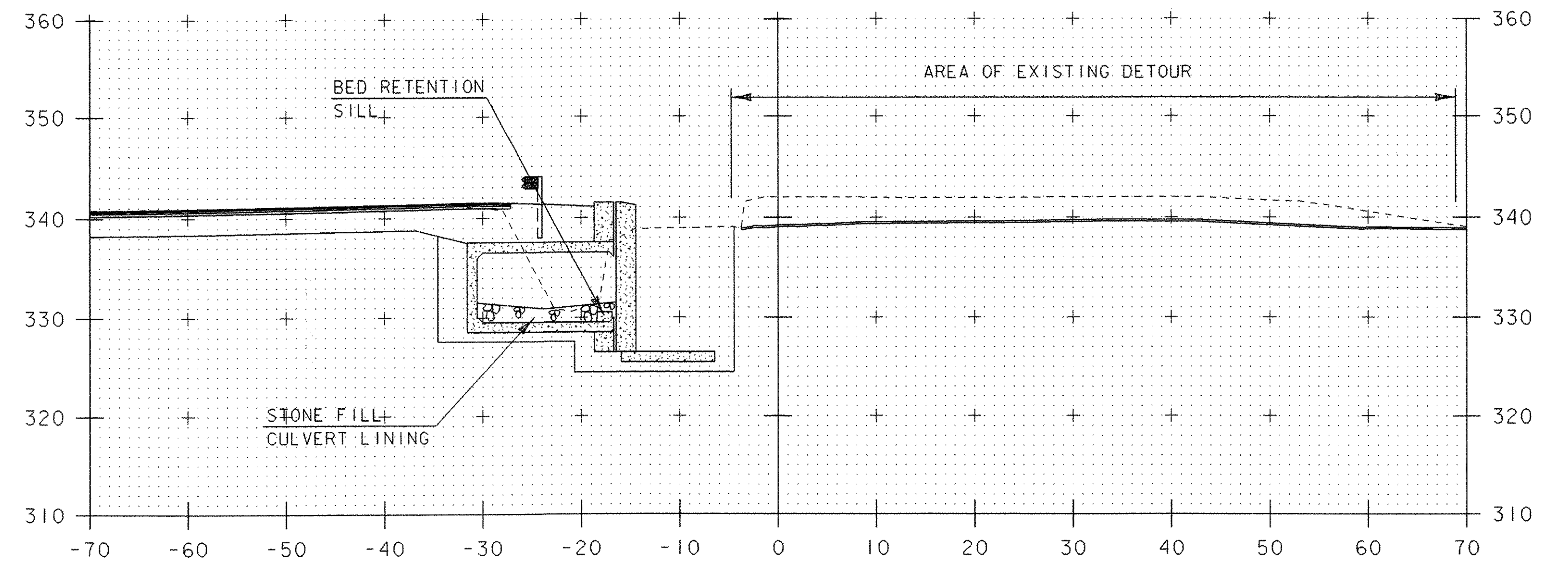
STA. 50+35 LT & STA. 50+40 RT
 BEGIN STONE FILL, TYPE II, CULVERT LINING
 BEGIN GEOTEXTILE UNDER STONE FILL
 BEGIN GRUBBING MATERIAL
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

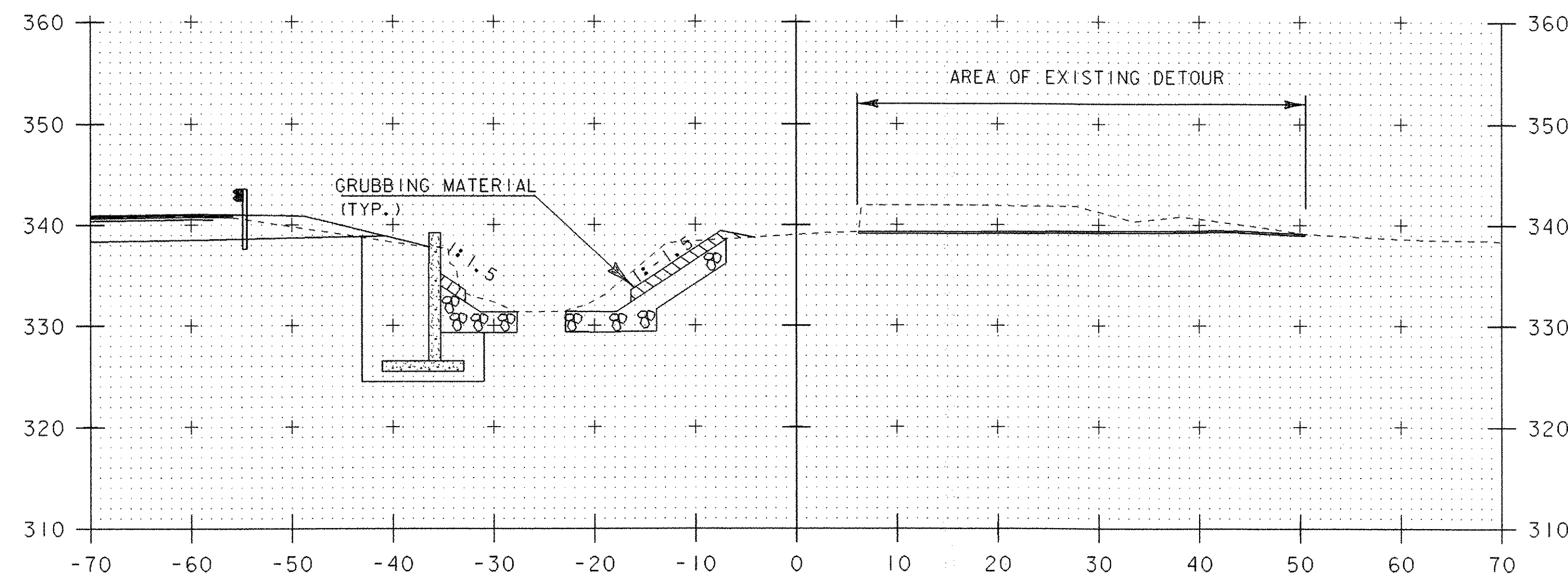
FILE NAME: 05bl26\STR\s05bl26xs.dgn PLOT DATE: 20-MAR-2007
 PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: G. ROKES
 DESIGNED BY: M. EVANS-MONGEON CHECKED BY: G. ROKES
 IPARM s05bl26cxsl.i SHEET 62 OF 66



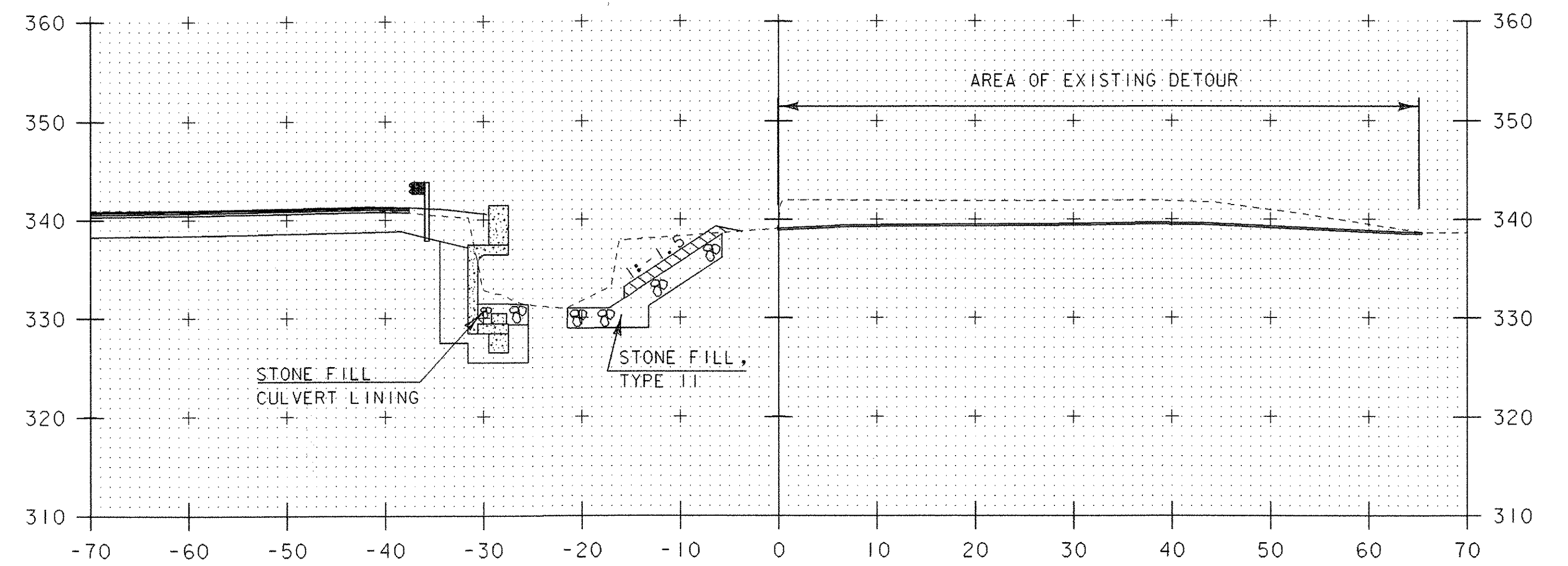
50+58
WW#2 CONNECTION TO BOX



50+67
WW#4 CONNECTION TO BOX



50+50



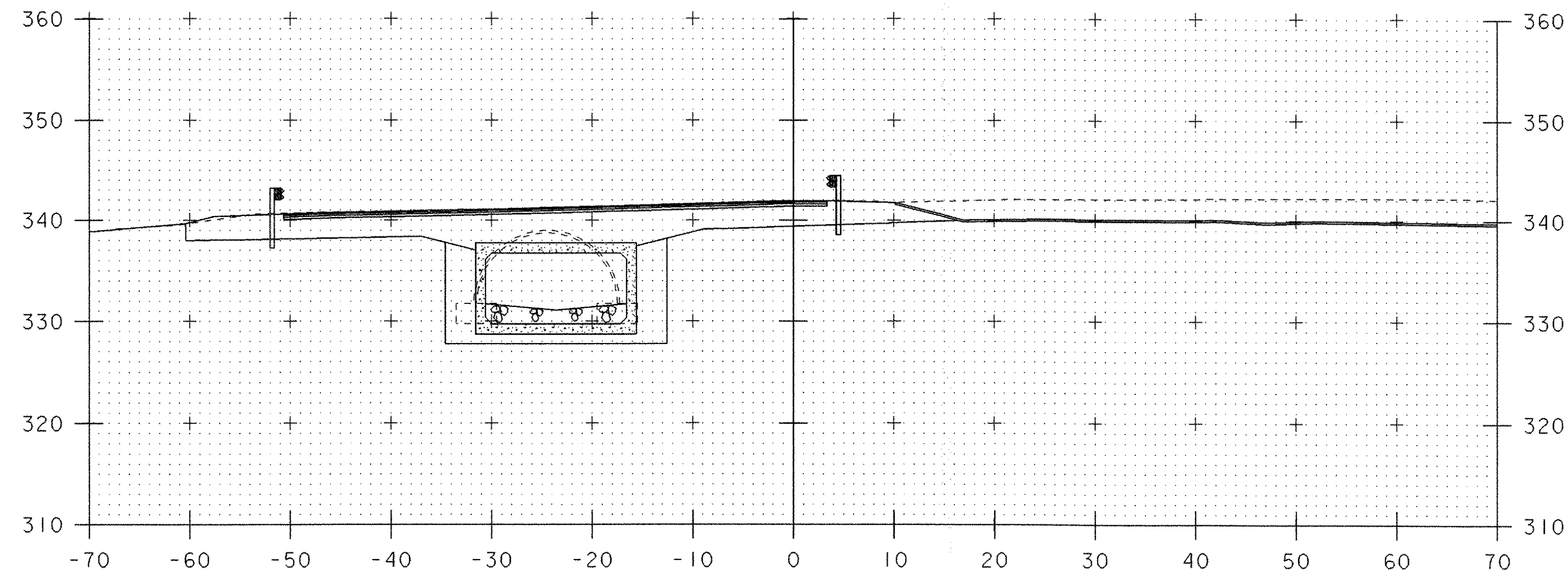
50+61
CHANNEL SLOPE AT END OF WW#4

STA. 50+65 RT AND 50+61 LT
 END STONE FILL, CULVERT LINING
 END GEOTEXTILE UNDER STONE FILL
 END GRUBBING MATERIAL
 END UNCLASSIFIED CHANNEL EXCAVATION

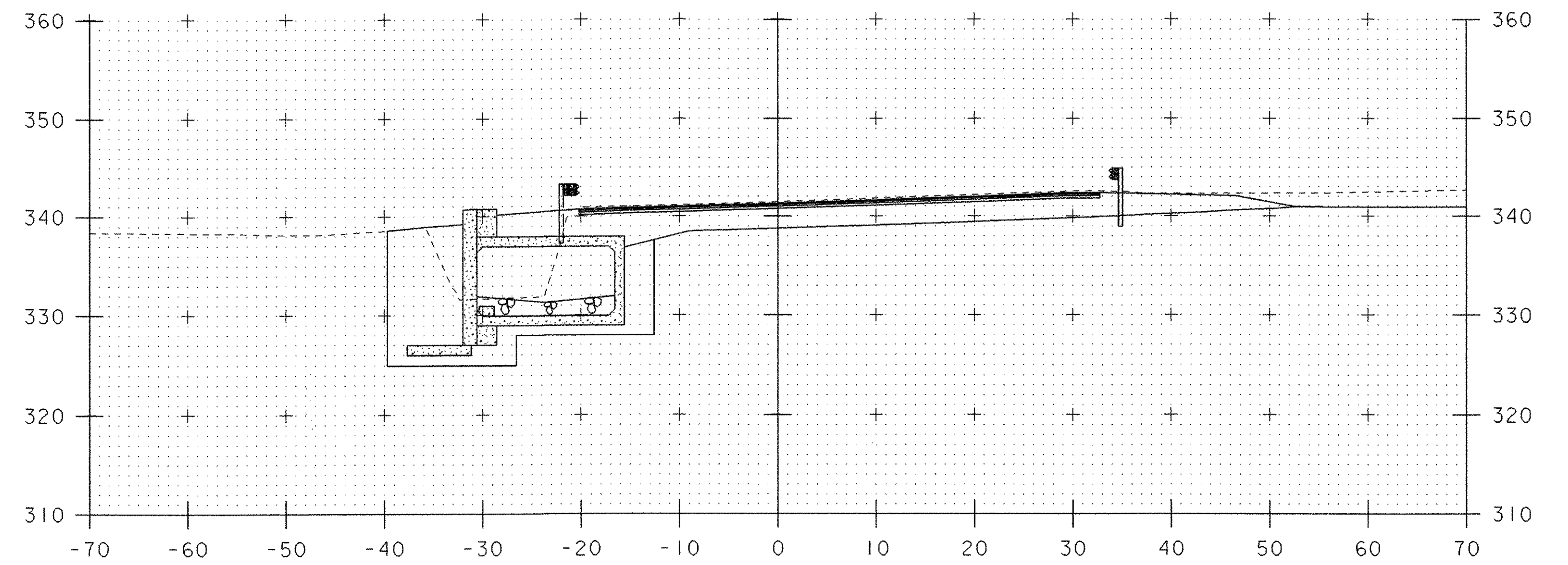
CHANNEL SECTIONS 2

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

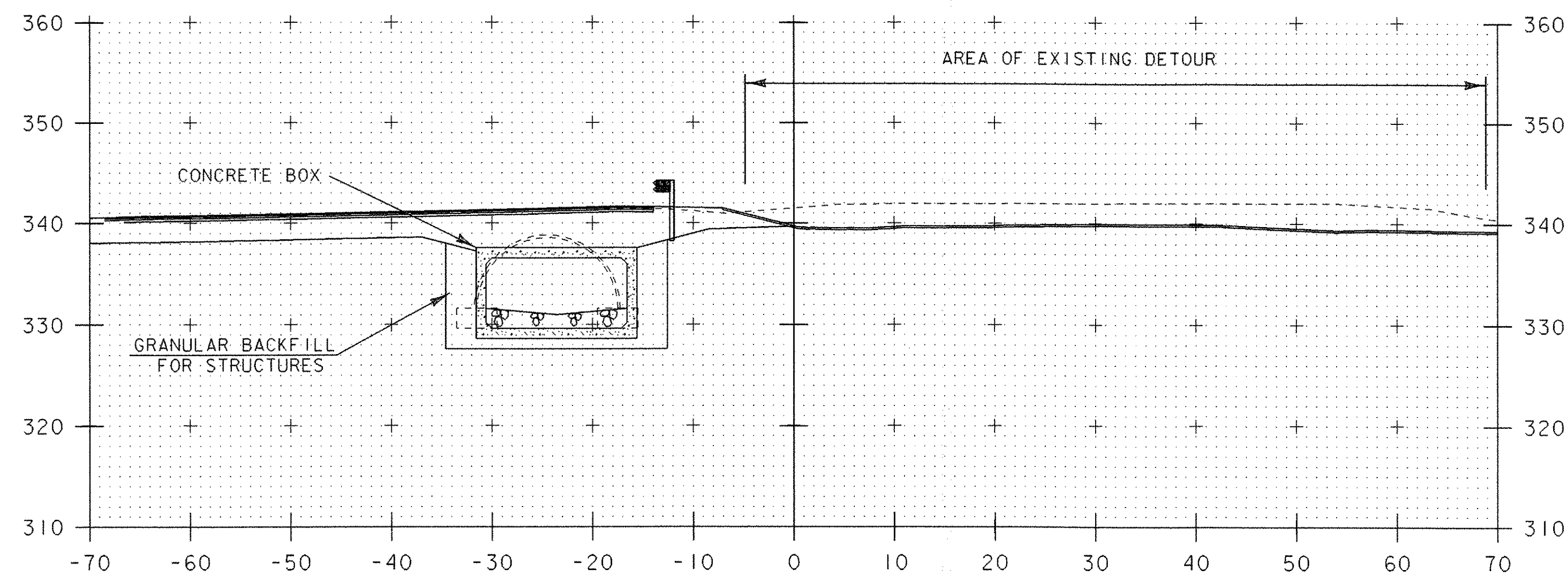
FILE NAME: 05bl26\STR\s05bl26xs.dgn PLOT DATE: 20-MAR-2007
 PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: G.ROKES
 DESIGNED BY: M. EVANS-MONGEON CHECKED BY: G.ROKES
 IPARM s05bl26cx2.1 SHEET 63 OF 66



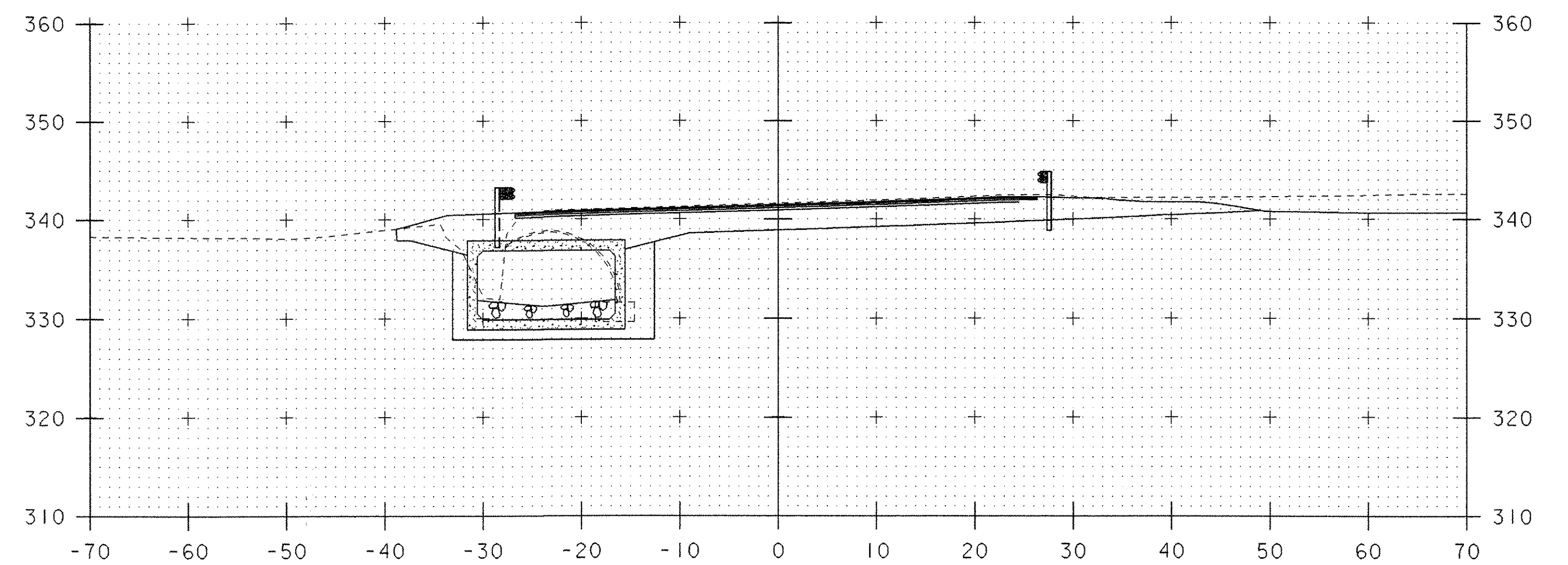
50+86



51+04
WW#1 CONNECTION TO BOX



50+75



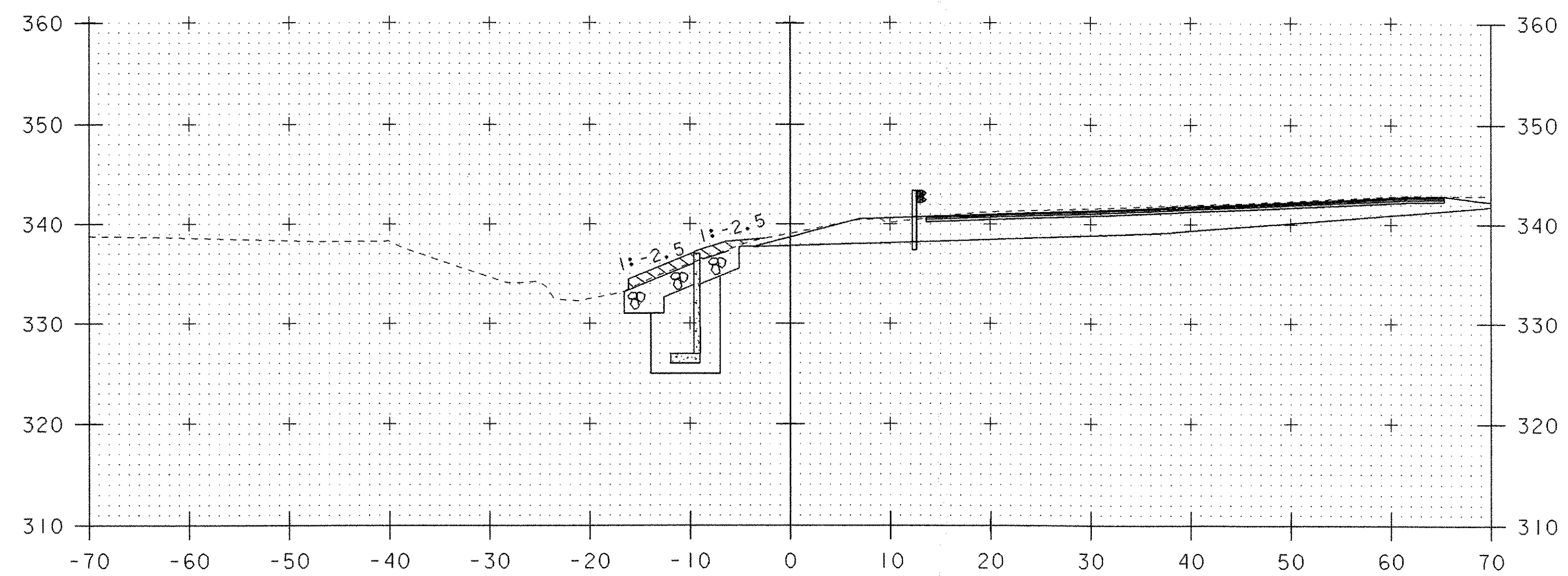
51+00

STA. 51+05 LT AND STA. 51+10 RT
 BEGIN STONE FILL, CULVERT LINING
 BEGIN GEOTEXTILE UNDER STONE FILL
 BEGIN GRUBBING MATERIAL
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION

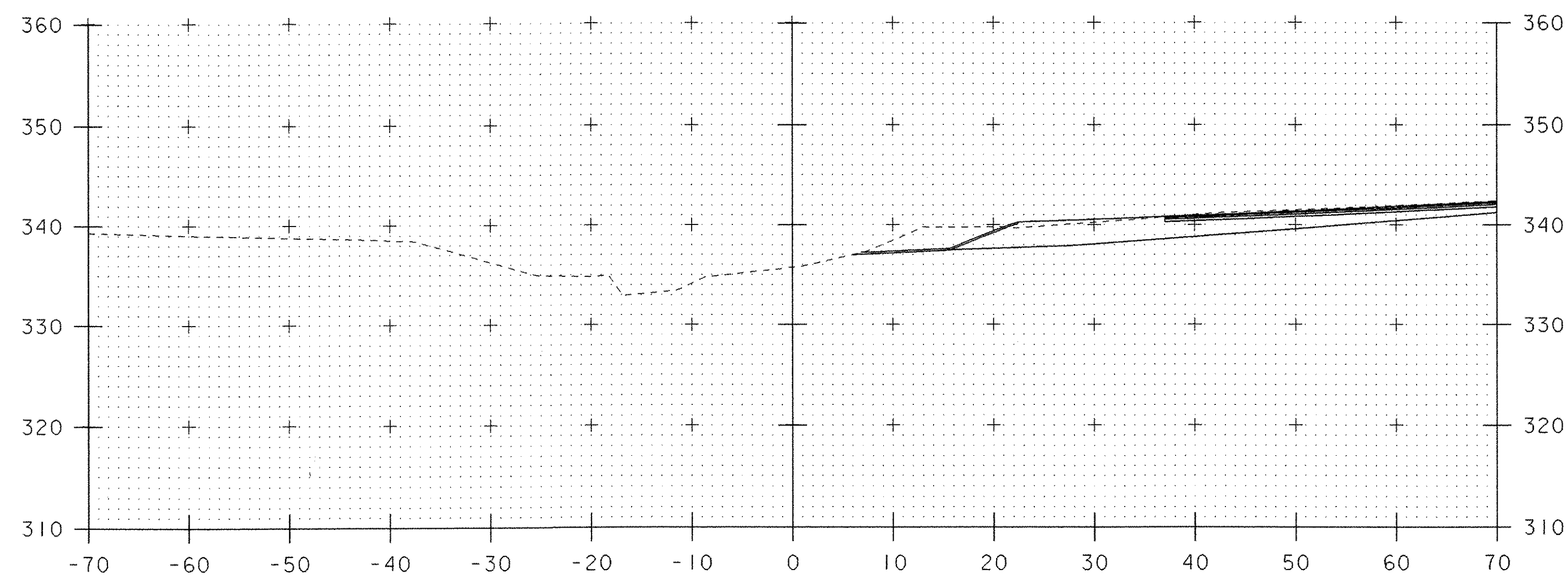
CHANNEL SECTIONS 3

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

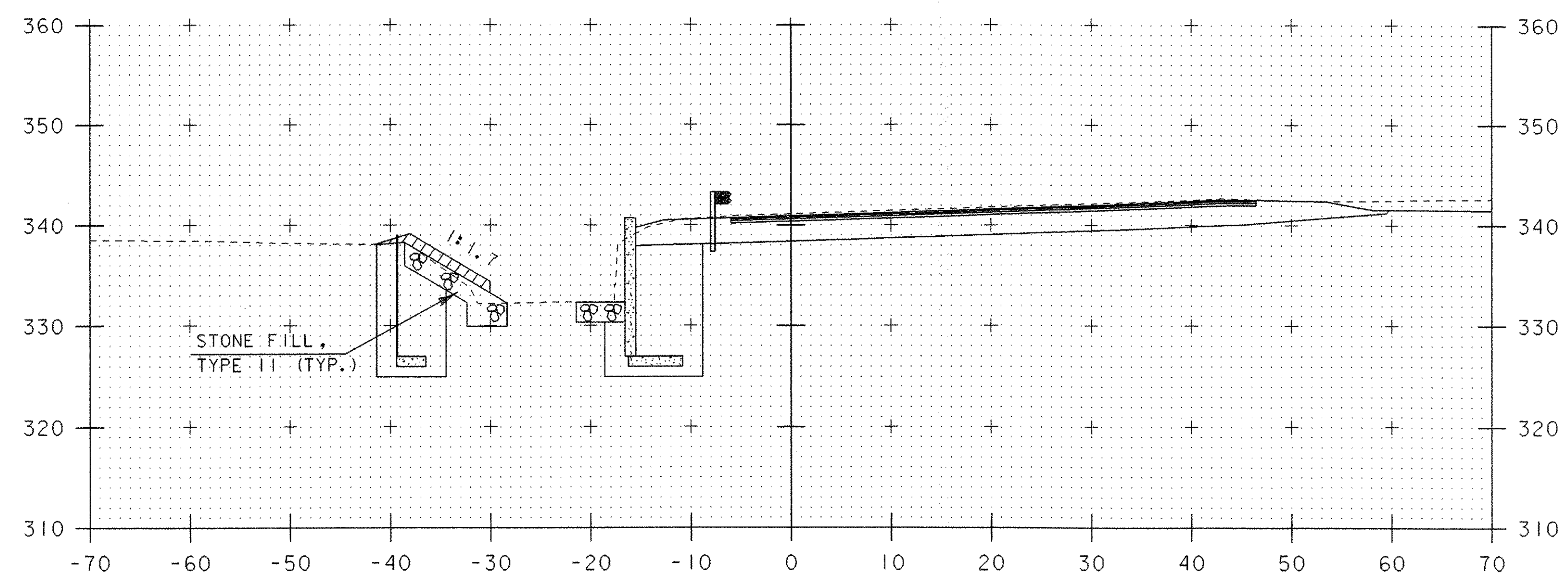
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 PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: G. ROKES
 DESIGNED BY: M. EVANS-MONGEON CHECKED BY: G. ROKES
 IPARM s05bl26xs3.1 SHEET 64 OF 66



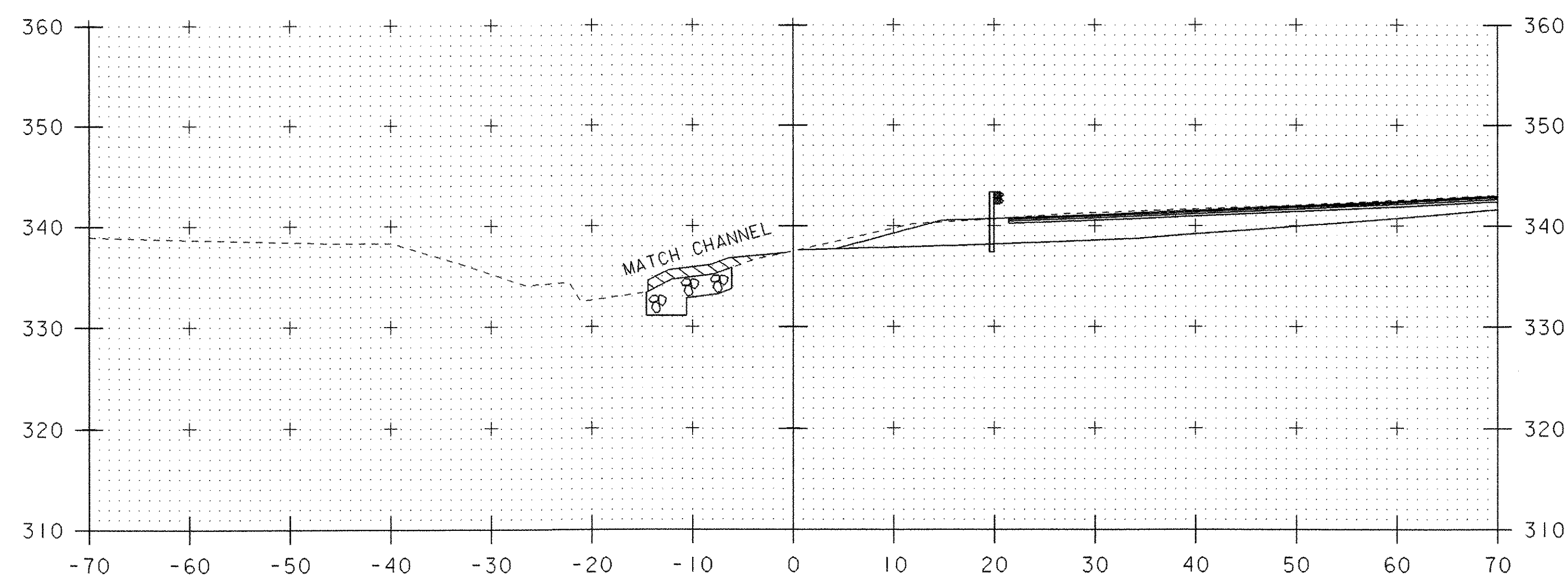
51+25
CHANNEL SLOPE AT END WW#3



51+40



51+13
WW#3 CONNECTION TO BOX
AND SLOPE AT END OF WW#1



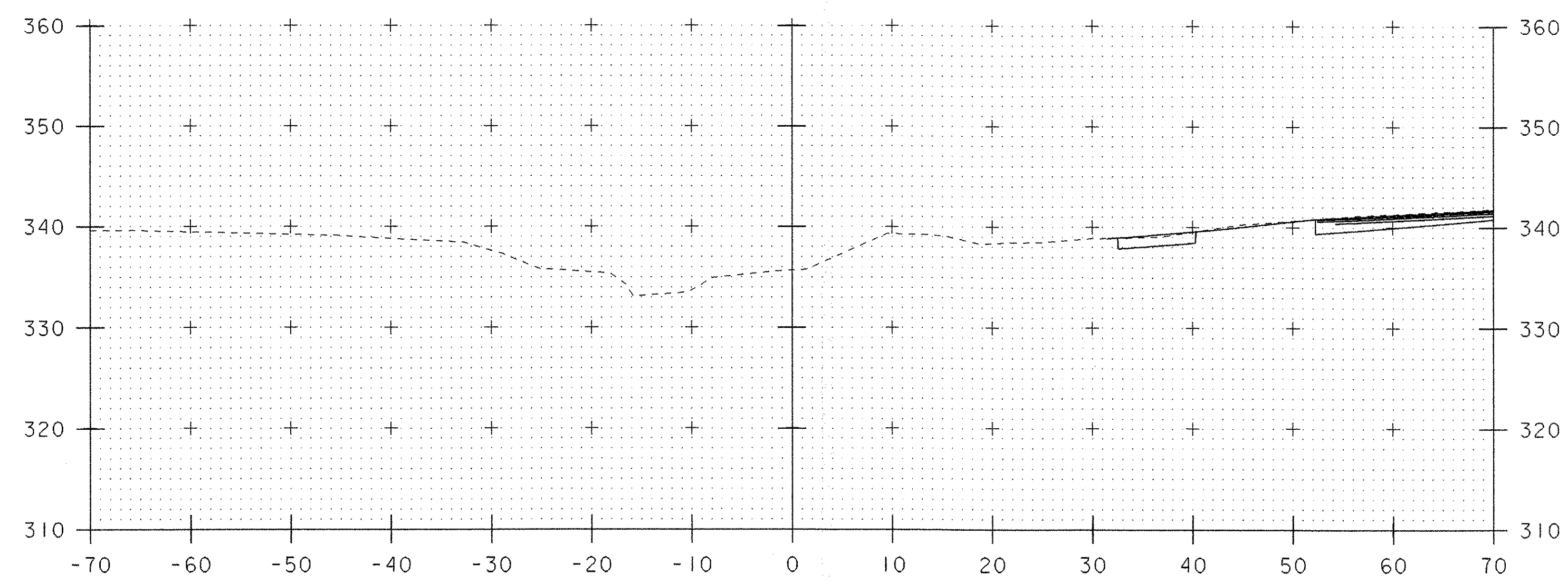
51+30

STA. 51+20 LT AND 51+30 RT
 END STONE FILL, CULVERT LINING
 END GEOTEXTILE UNDER STONE FILL
 END GRUBBING MATERIAL
 END UNCLASSIFIED CHANNEL EXCAVATION

CHANNEL SECTIONS 4

PROJECT NAME: BRISTOL
 PROJECT NUMBER: ER ST 021-1(22)

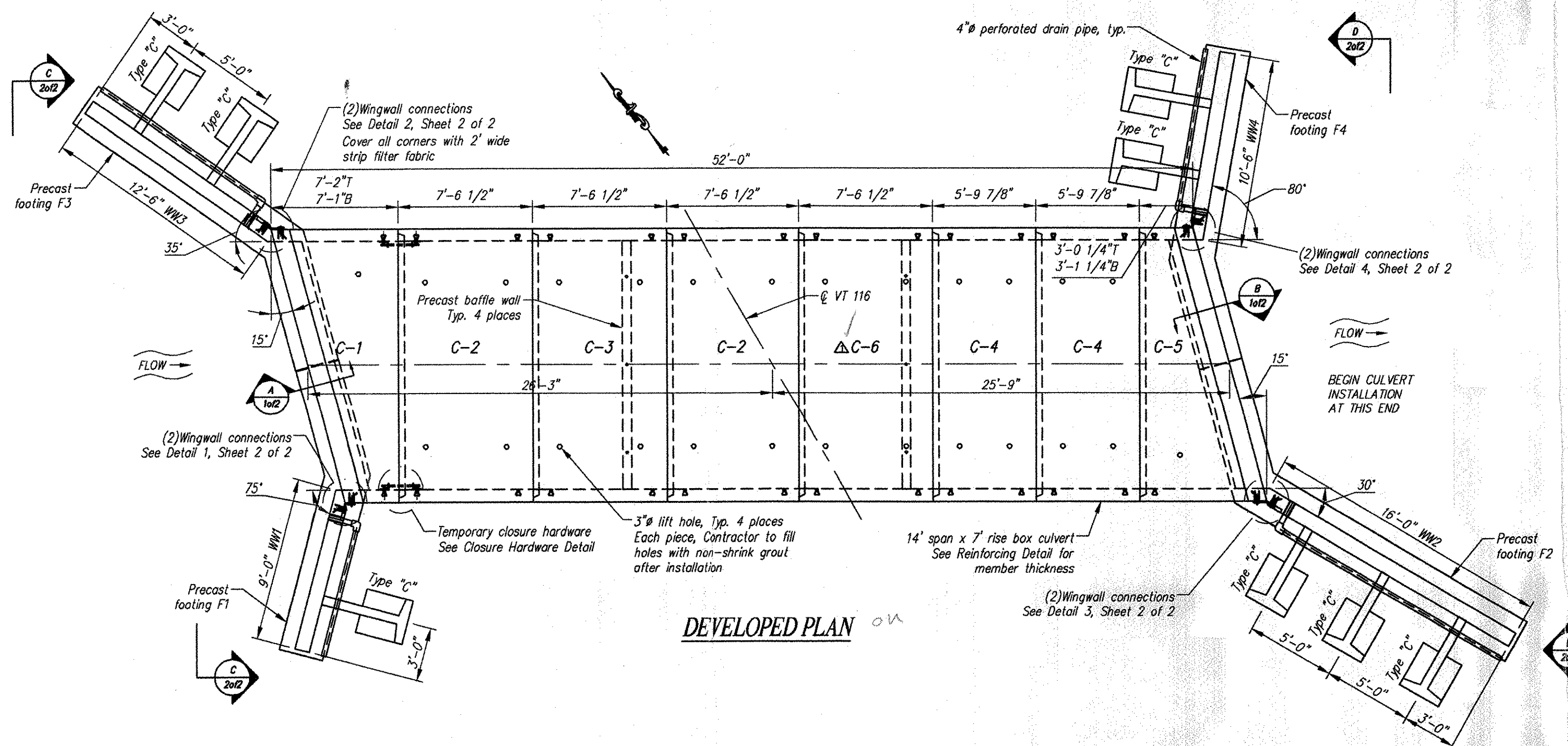
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 PROJECT LEADER: M. EVANS-MONGEON DRAWN BY: G. ROKES
 DESIGNED BY: M. EVANS-MONGEON CHECKED BY: G. ROKES
 IPARM s05bl26cx4.1 SHEET 65 OF 66



51+50

CHANNEL SECTIONS 5

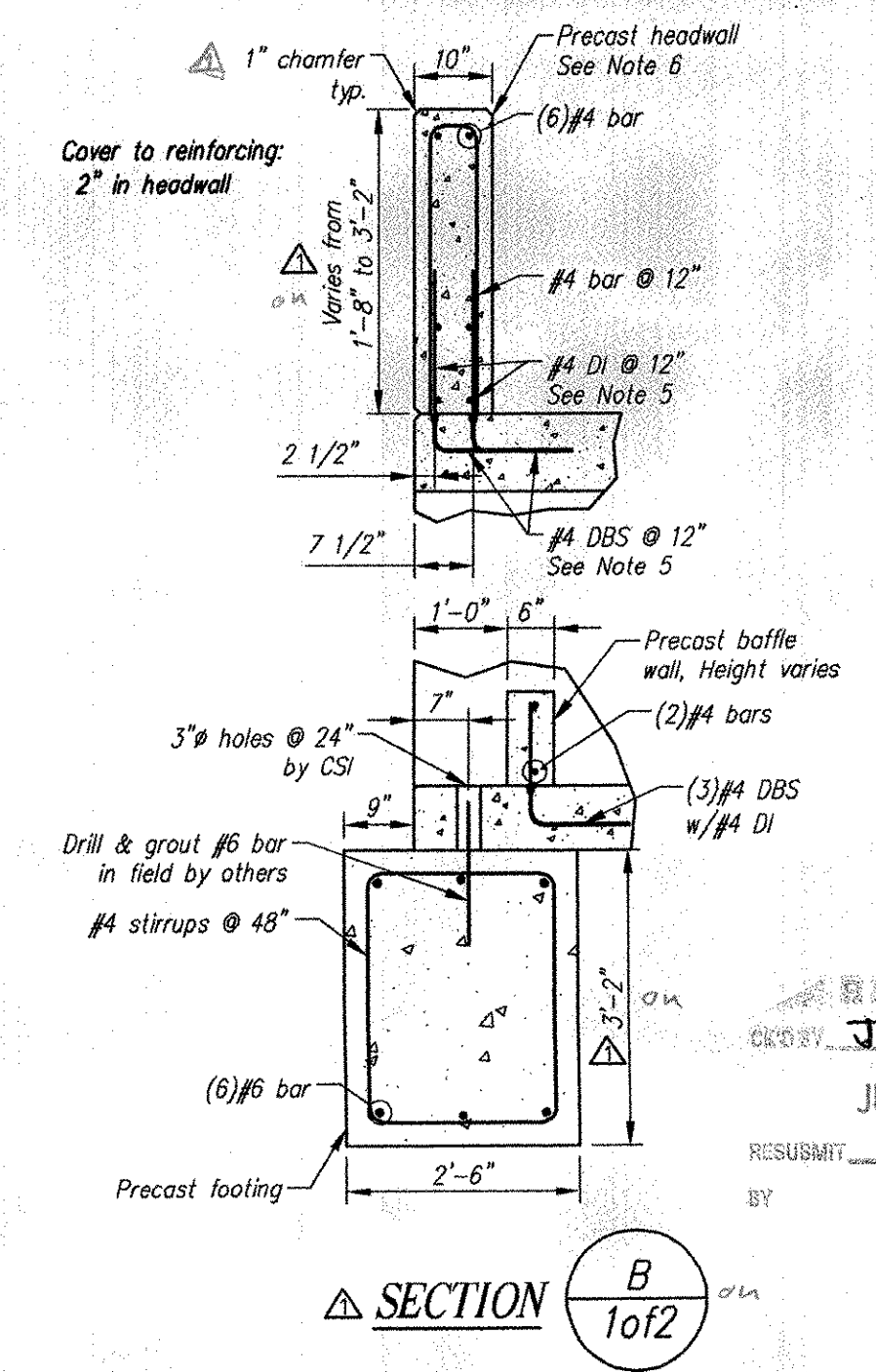
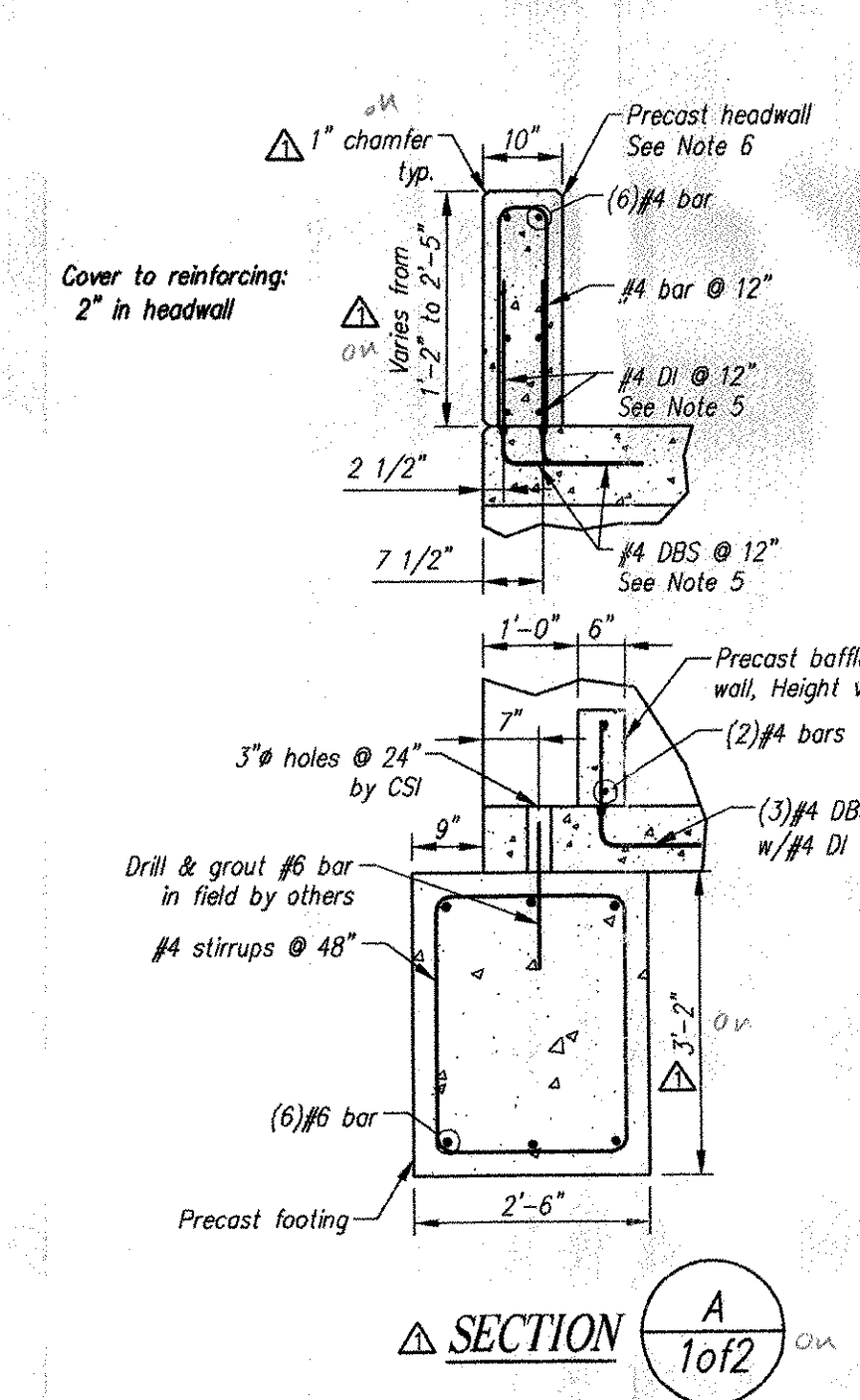
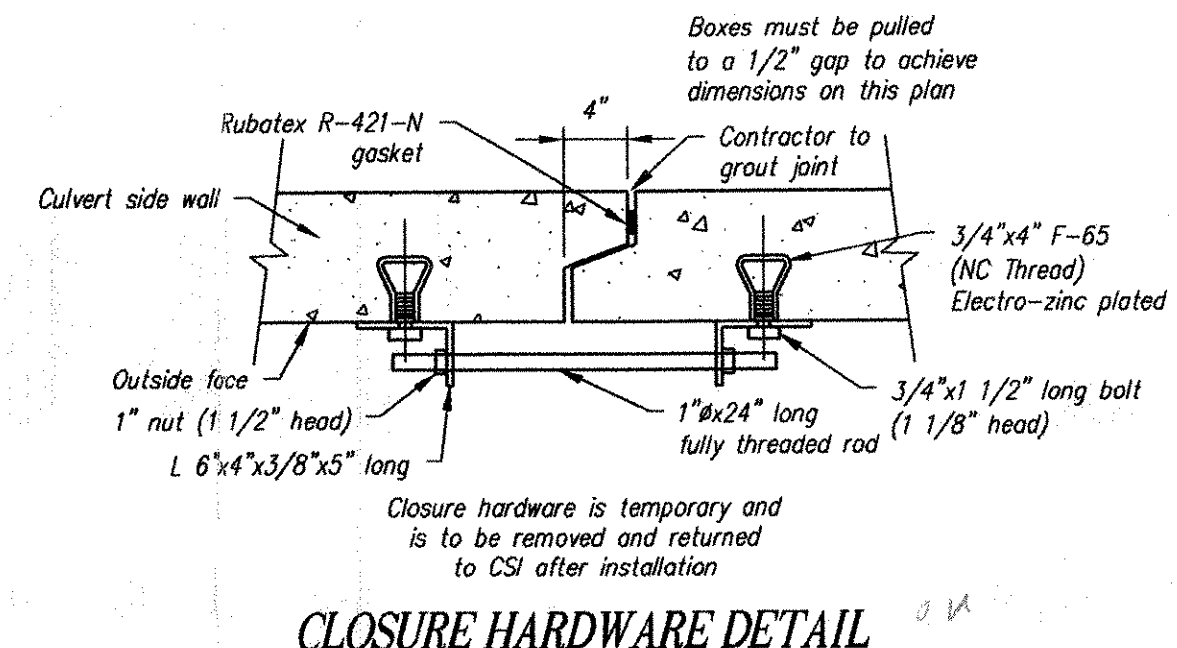
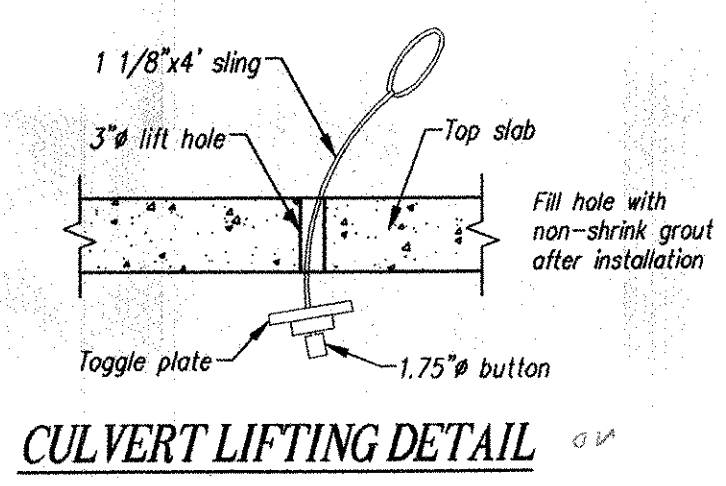
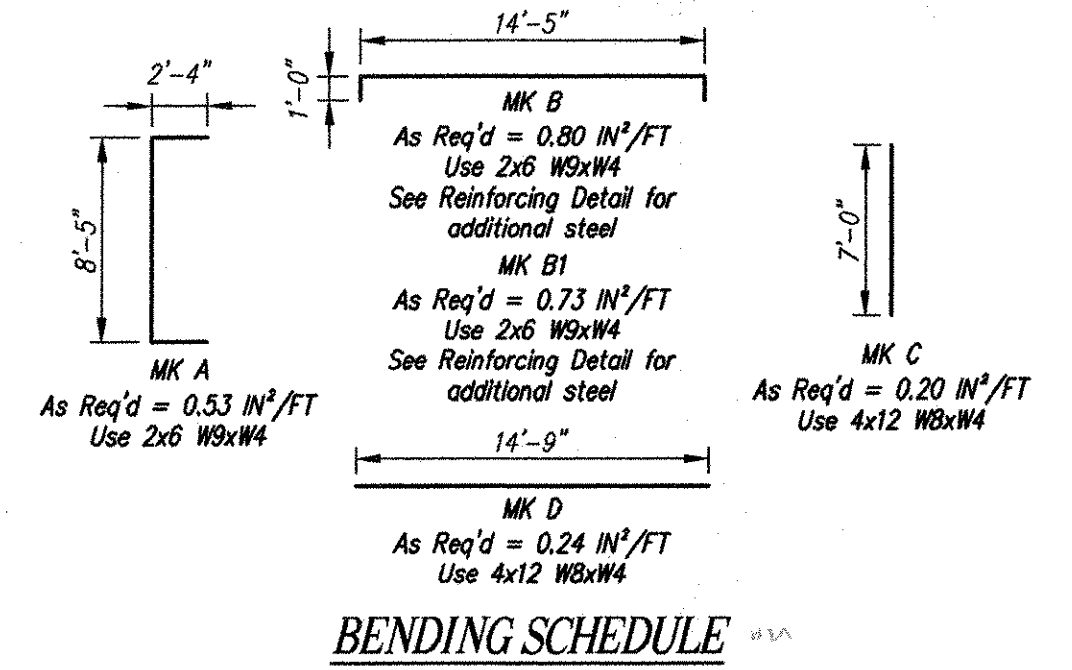
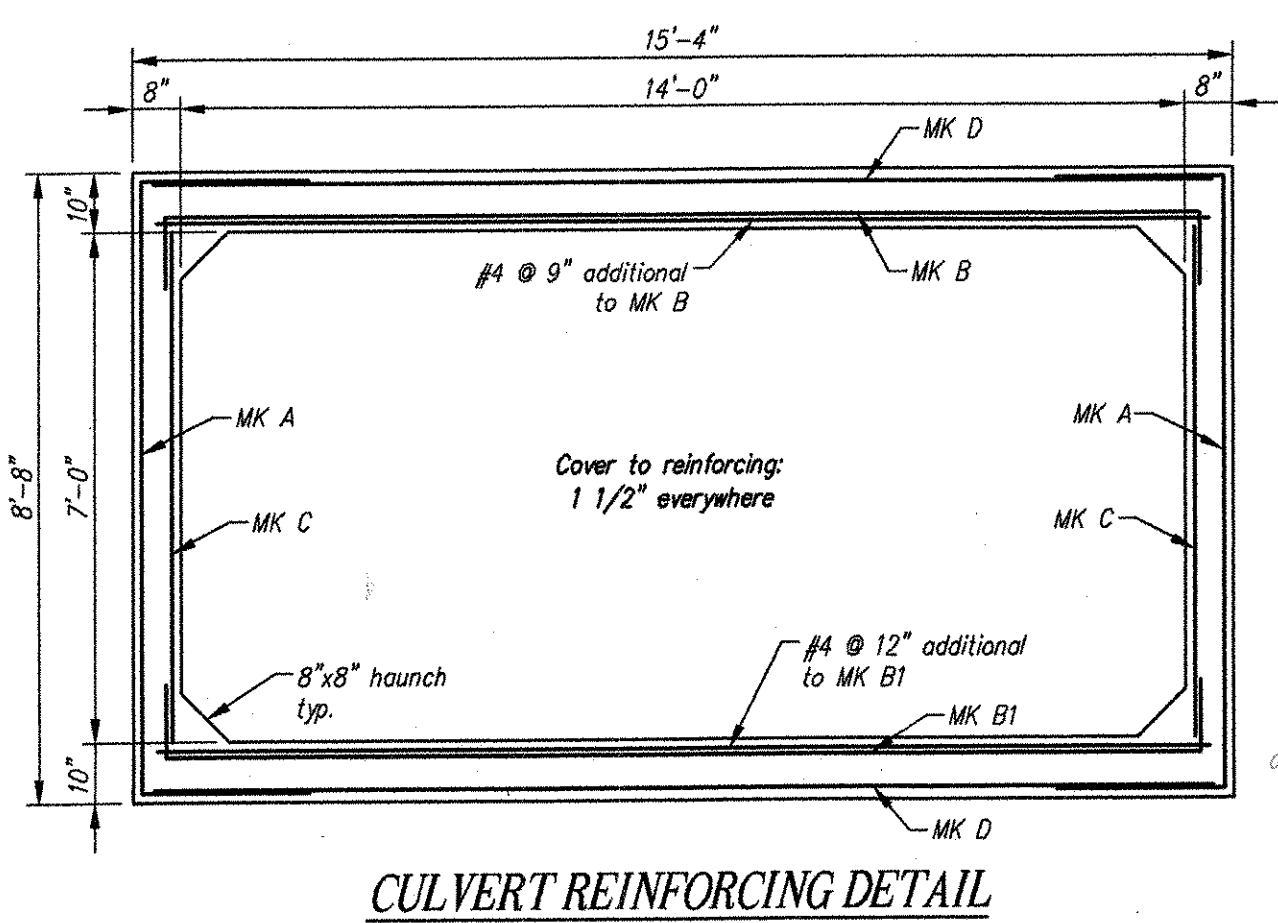
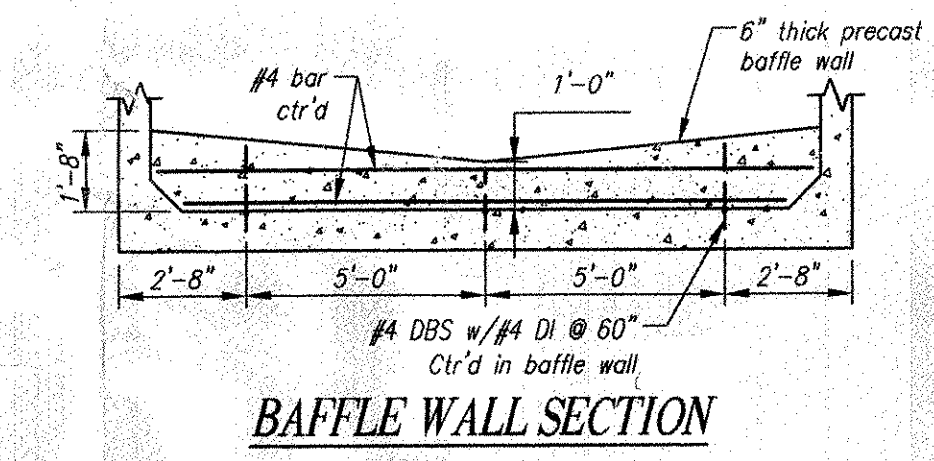
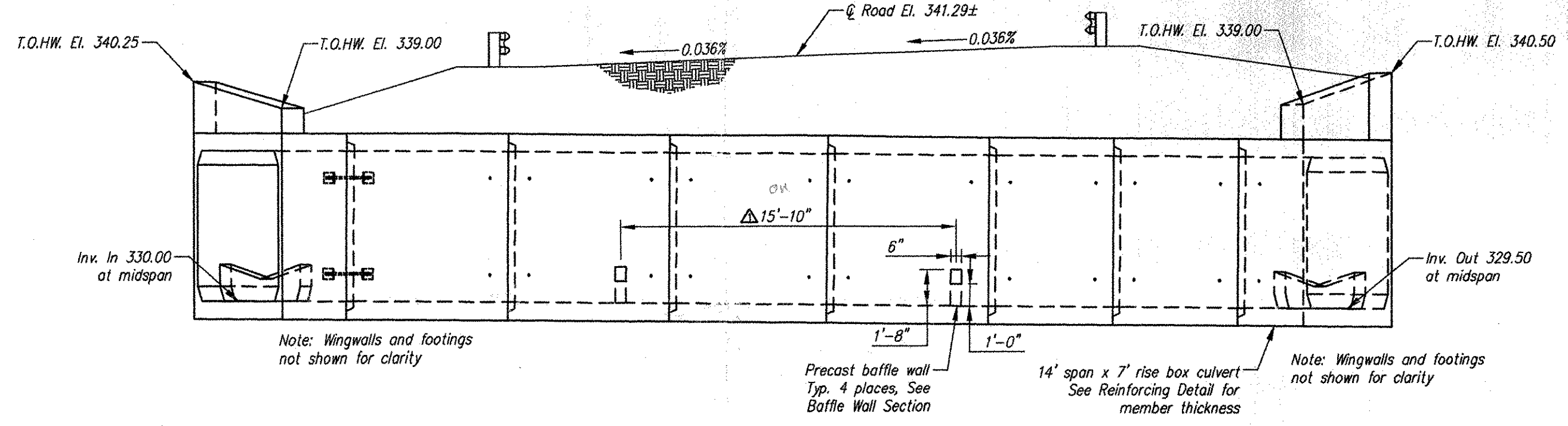
PROJECT NAME: BRISTOL	PLOT DATE: 20-MAR-2007
PROJECT NUMBER: ER ST 021-1(22)	DRAWN BY: G.ROKES
FILE NAME: 05bl26\STR\s05bl26xs.dgn	DESIGNED BY: M.EVANS-MONGEON
PROJECT LEADER: M.EVANS-MONGEON	CHECKED BY: G.ROKES
IPARM s05bl26cx5.1	SHEET 66 OF 66



- GENERAL NOTES:**
- Structure designed and built in accordance with AASHTO "Standard Specifications for Highway Bridges" and ASTM C1433.
 - Design Parameters:
 - Live load: AASHTO HS25
 - Earth Cover: 3' to 4'
 - Concrete: Design strength $f'_c = 5000$ psi
Unit weight = 150 pcf
 - Reinforcing: ASTM A615 (rebar), grade 60
ASTM A185 (W/F) $f_y = 65$ ksi
Unit weight = 140 pcf
Minimum lateral pressure coefficient .25
Maximum lateral pressure coefficient .50
 - Soil: Cover to reinforcing: 1 1/2" u.o.
 - Dimensions include a joint gap. Actual culvert piece length is 1/2" shorter (i.e. C-2 = 7'-6").
 - No dampproofing supplied by CSI.
 - DBS are Dowel Bar Splicers and DI are Dowel Ins.
 - Precast headwalls not designed for impact load.
 - Joint sealant and waterproofing membrane by others.
 - State of Vermont Bridge Plaque to be cast into wingwall WW2. Plaque supplied by resident engineer. Notify resident engineer 72 hours prior to casting of WW2.
 - All exposed surfaces of culvert, headwalls and wingwalls to be coated with silane siloxane by CSI.

CULVERT PIECE SCHEDULE (MX-FA5000SM)

MARK	QTY	LENGTH (FT)	CUBIC YDS	WEIGHT (TONS)
C-1	1	5.07	8.37	16.95
C-2	2	7.5	9.94	20.13
C-3	1	7.5	10.28	20.82
C-4	2	5.78	7.66	15.51
C-5	1	5.07	8.30	16.81
C-6	1	7.5	10.28	20.82



Contractor is to verify that all information shown on drawings has been thoroughly checked, complies with the contract documents and is adequate to meet the field conditions. Some dimensions and details may differ slightly from contract drawings to accommodate the manufacturing or design process. Approval of this drawing indicates that any deviation from the contract documents has been reviewed and found to be acceptable. Production will not commence until receipt of signed, approved shop drawings.

This drawing contains information proprietary to CONCRETE SYSTEMS, INC. This drawing is disclosed with the understanding that it will be retained in confidence and its use limited solely to the purpose for which it is disclosed. It is understood that no reproduction of this drawing is authorized without permission from CONCRETE SYSTEMS, INC. and that it will be returned to CONCRETE SYSTEMS, INC. upon request.

Stamp for structural design only

Professional Engineer License No. 12680

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	06/28/07	Revised depth of footings to be 3'-2"; Revised piece schedule	MS

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

Engineer: VAOT
Project No: AC ER STP 021-1 (22)
Drawings: Proposed Improvement-Bridge Project-Route No: VT 116, Minor Arterial-Bridge No. 9
Specifications: N/P
Other Sources:

CSI
Concrete Systems Inc.
9 Commercial St., Hudson, NH, 03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY
VAOT

Drawn by: M. SCOTT
Checked by: C. VICK
Approved by:

Date: 08/01/2007
Date: 06/12/2007

PIKE INDUSTRIES, INC.
VT 116 - MINOR ARTERIAL - BRIDGE NO. 9
BRISTOL, VT

BOX CULVERT LAYOUT AND DETAILS
C18643-LO1-A

Quantity: 1
Project No: AC ER STP 021-1 (22)

REV 1
SHEET 1 OF 2

RECEIVED
JUL 02 2007
APPROVED: 7/2/07
DATE: 7/2/07

NOTE: DUE TO STEEP SLOPES, CONTRACTOR SHALL PROVIDE SLOPE PROTECTION ON SLOPES GREATER THAN 2:1.

NOTE: DUE TO STEEP SLOPES, CONTRACTOR SHALL PROVIDE SLOPE PROTECTION ON SLOPES GREATER THAN 2:1.

WINGWALL NOTES

GENERAL NOTES:

1. The wingwalls have been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation -- including scour and confirmation of soil conditions.

2. Prior to construction, contractor must verify all elevations shown through the engineer.

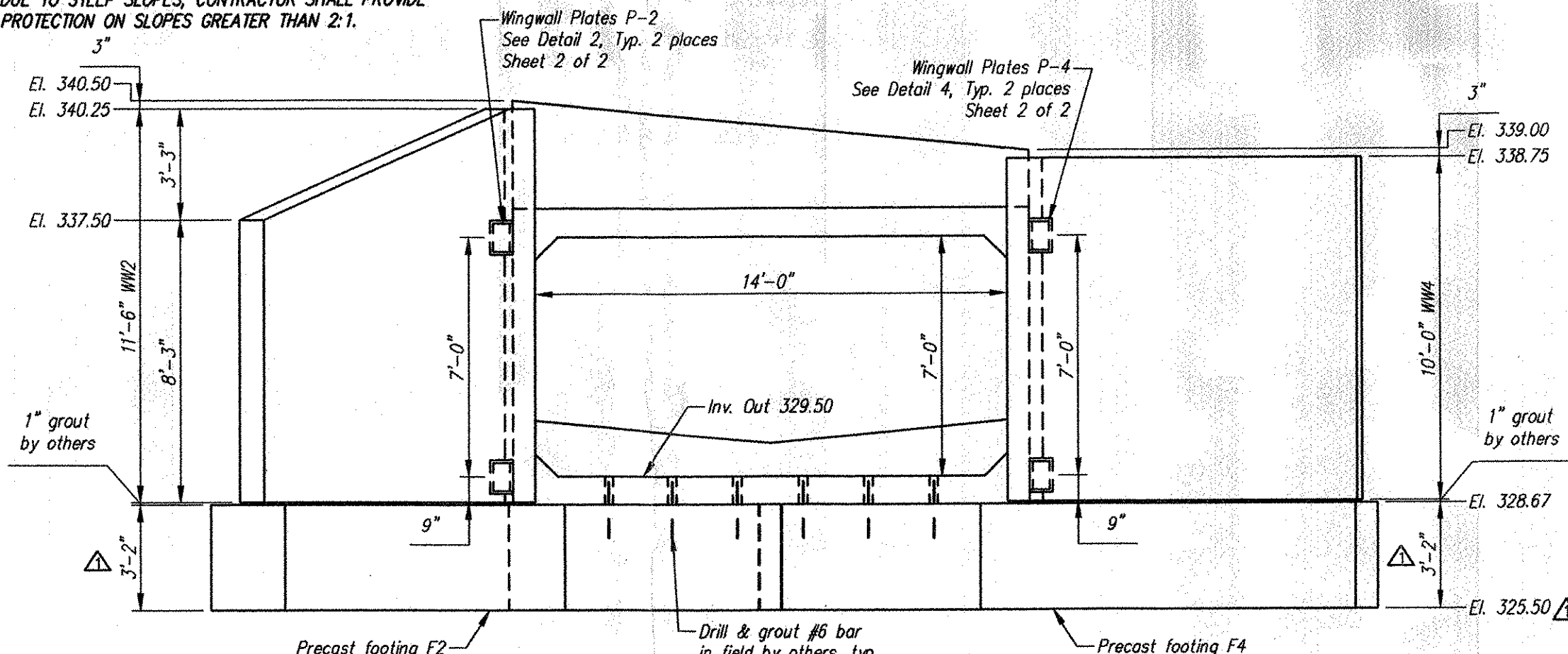
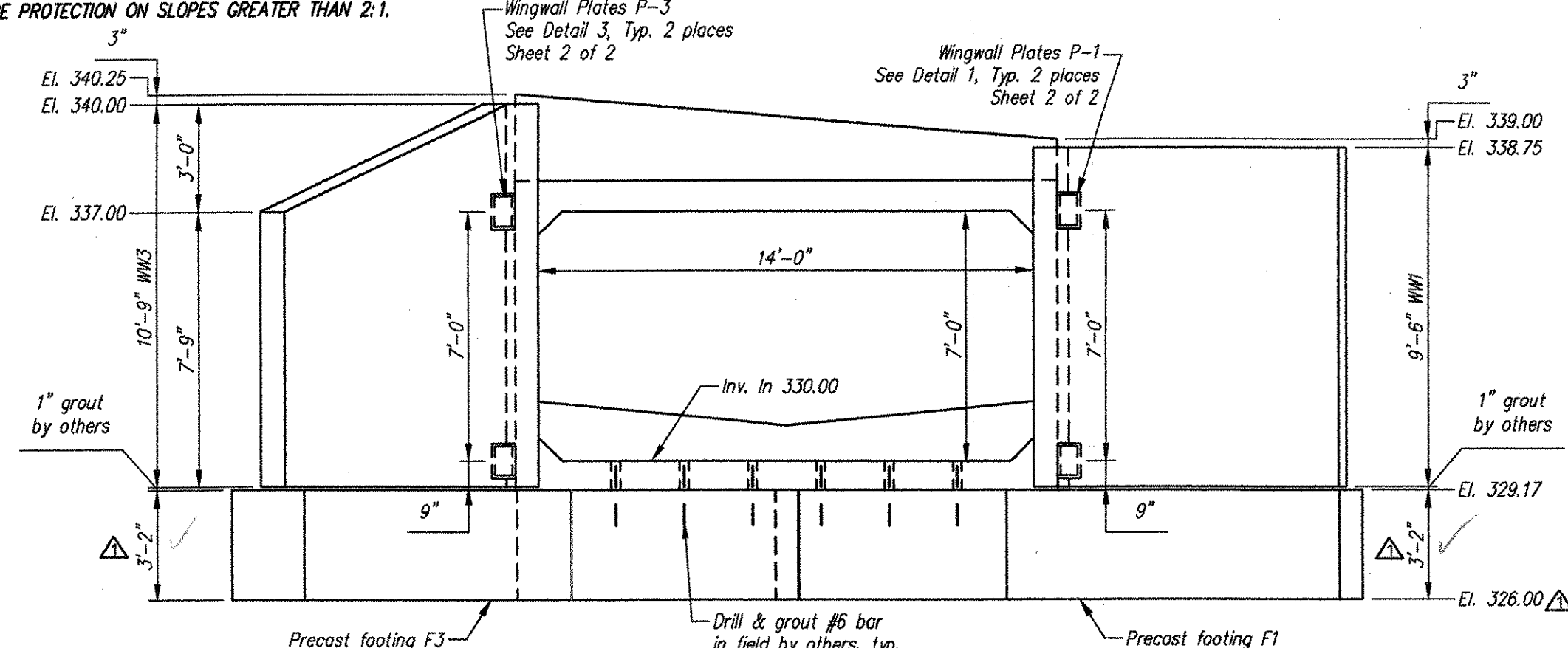
DESIGN DATA

Design Method: Load factor per AASHTO Specification
Assumed Allowable Soil Bearing: 3000 PSF (Verify)
Wingwalls designed for Earth Pressure only

MATERIALS

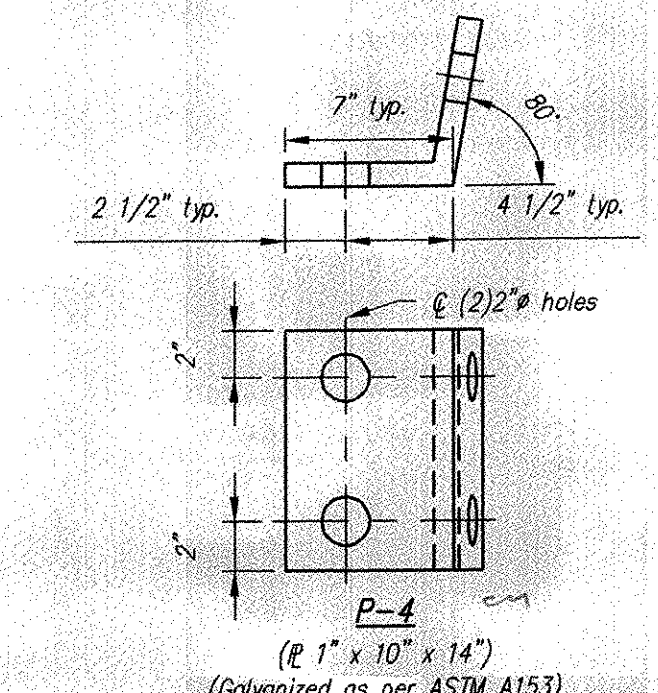
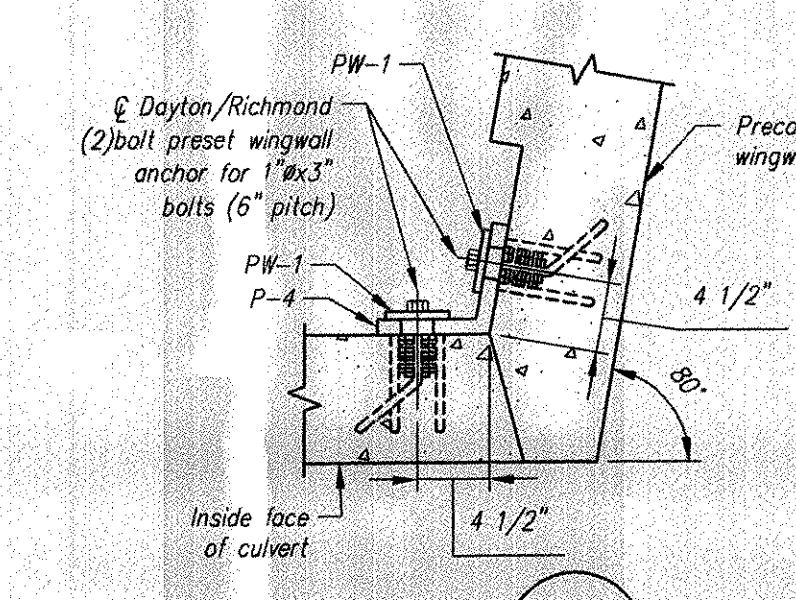
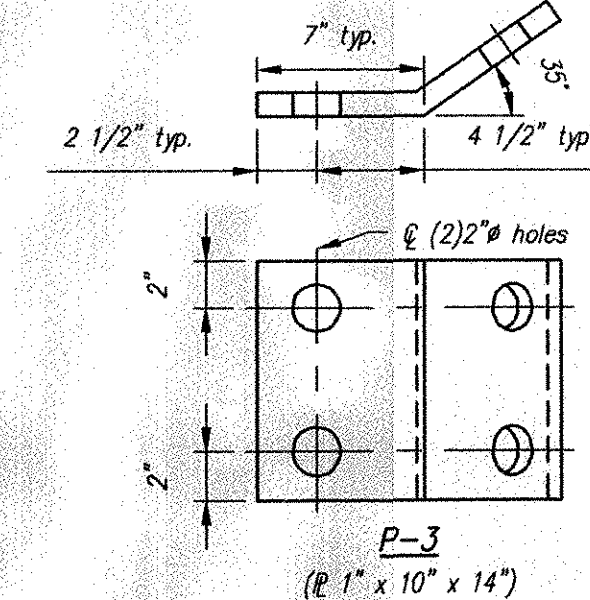
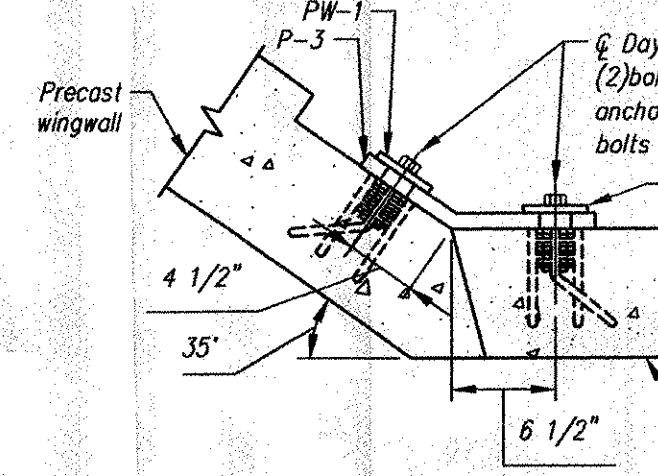
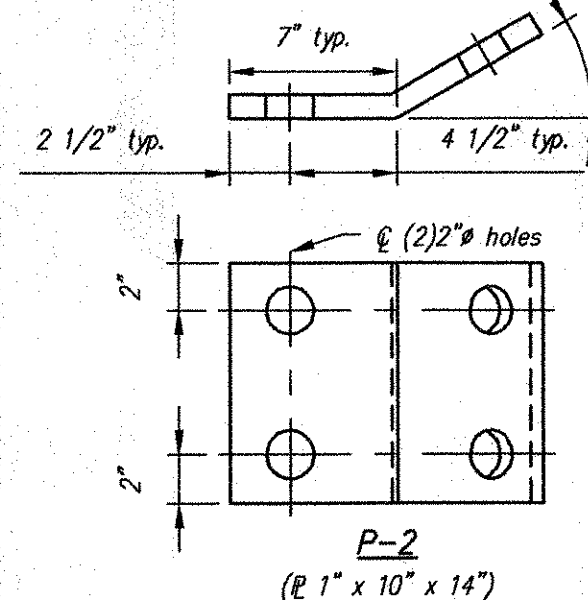
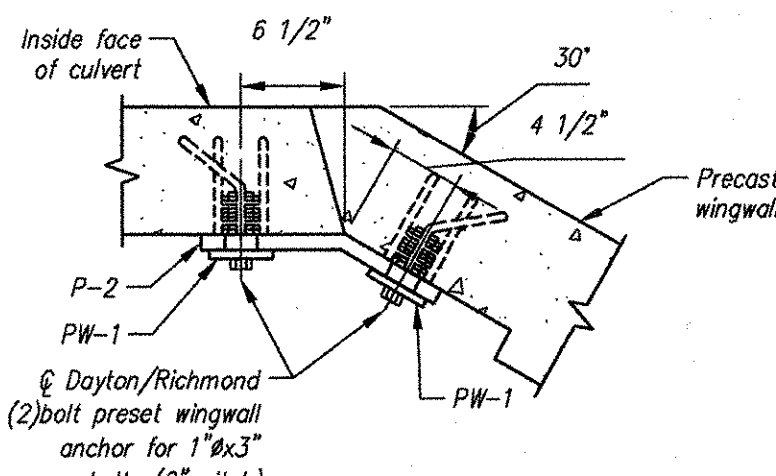
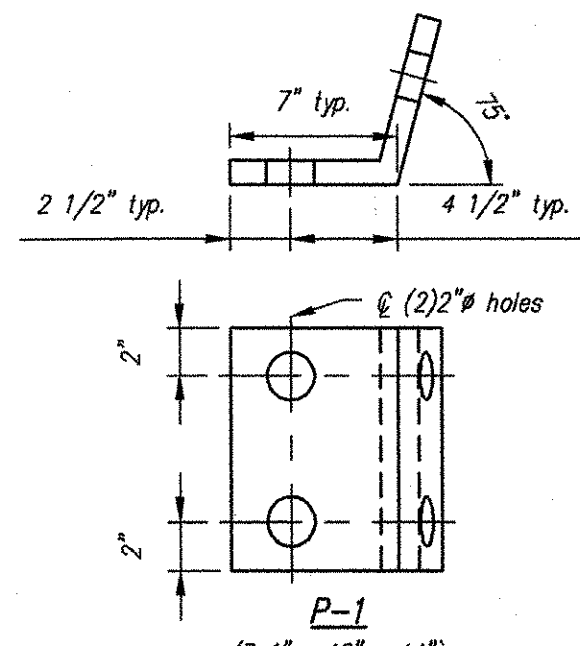
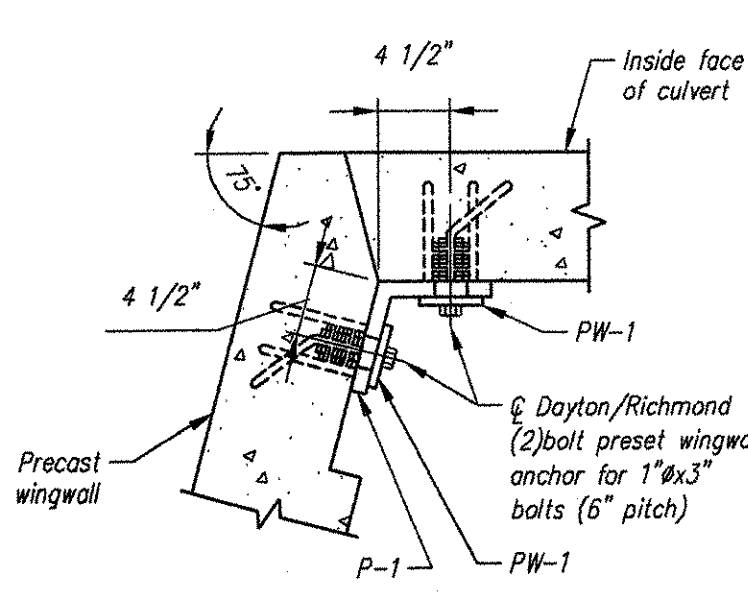
-Precast units shall be constructed and installed in accordance with CON/SPAN Specifications.
-Concrete for Footings and Wingwalls shall have a minimum compressive strength of (5000 psi) Δ
-Reinforcing steel for Footings and Wingwalls shall conform to ASTM A615, A616 or A617-Grade 60.

MARK	QTY	LENGTH (FT)	CUBIC YDS	WEIGHT (TONS)
WW-1	1	9	3.08	6.24
WW-3	1	12.5	4.45	9.01
WW-2	1	16	6.20	12.56
WW-4	1	10.5	4.12	8.34
F-1	1	16.59	4.86	9.85
F-3	1	20.68	6.06	12.28
F-2	1	24.23	7.10	14.39
F-4	1	18.04	5.29	10.71



ELEVATION C-C 1 of 2

ELEVATION D-D 1 of 2



DETAIL 1 1,2 of 2

DETAIL 2 1,2 of 2

DETAIL 3 1,2 of 2

DETAIL 4 1,2 of 2

DETAIL 5 1,2 of 2

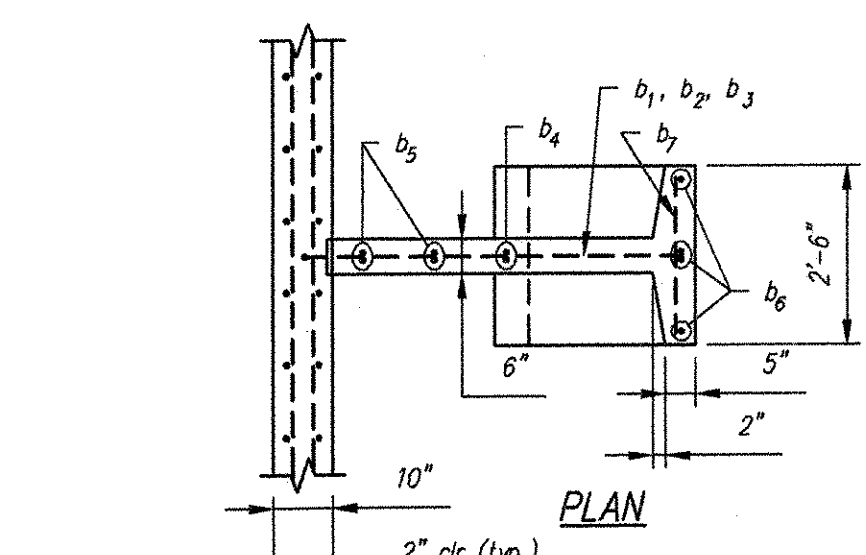
DETAIL 6 1,2 of 2

DETAIL 7 1,2 of 2

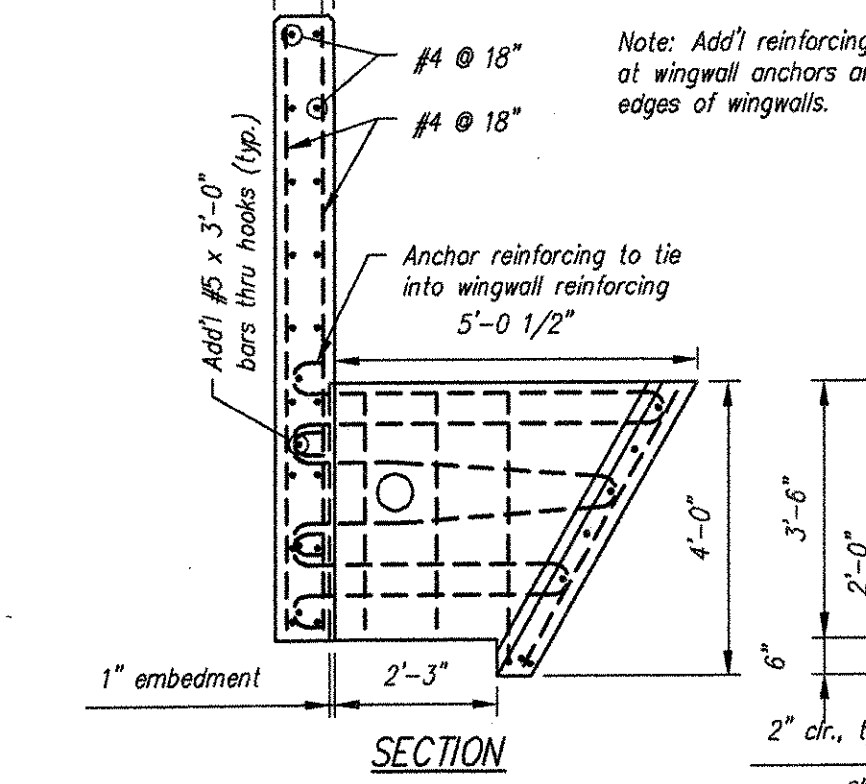
DETAIL 8 1,2 of 2

MARK	QTY	SIZE	L	TYPE	LENGTH
b ₁	1	#5	3'-10"	1	---
b ₂	1	#5	4'-6"	3	---
b ₃	1	#5	5'-2"	1	---
b ₄	2	#5	3'-8"	2	---
b ₅	4	#5	---	Str.	3'-2"
b ₆	4	#5	---	Str.	4'-2"
b ₇	7	#5	---	Str.	2'-2"

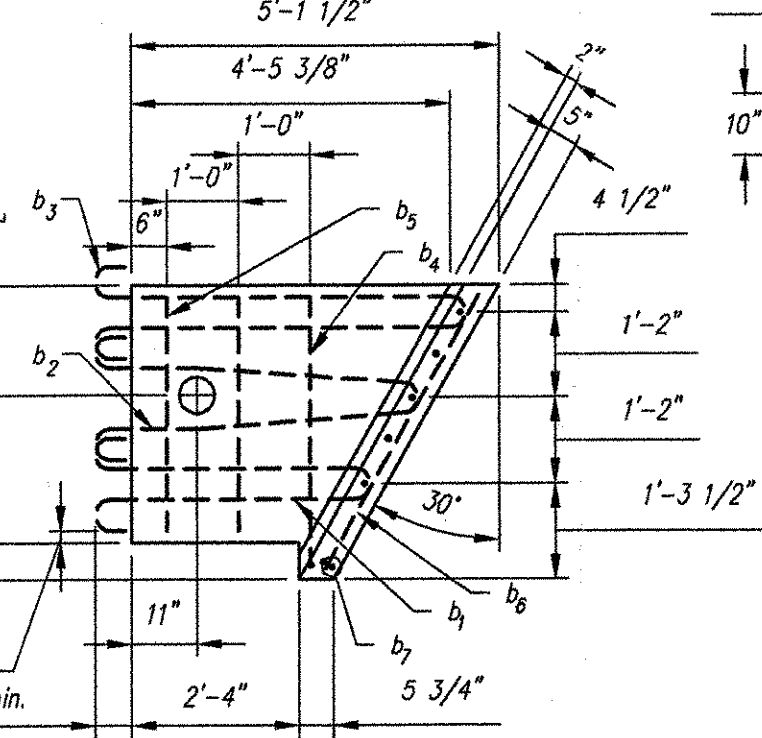
Note: "Str." denotes straight bar. Standard clearance = 2".



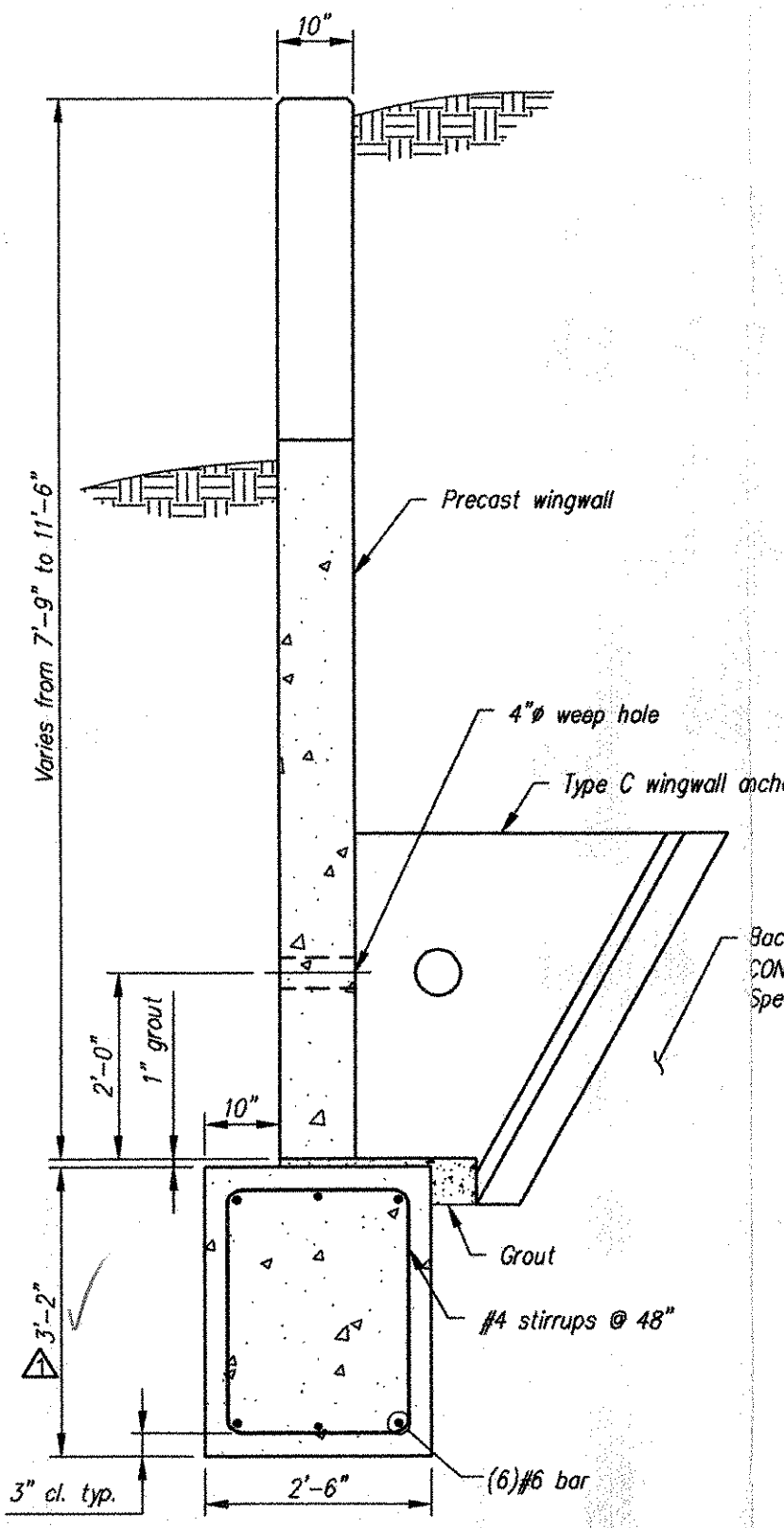
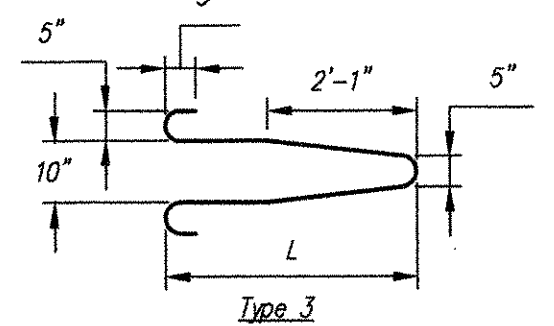
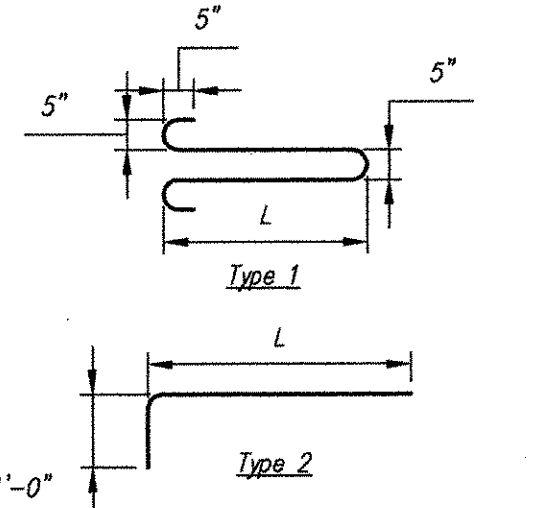
PLAN



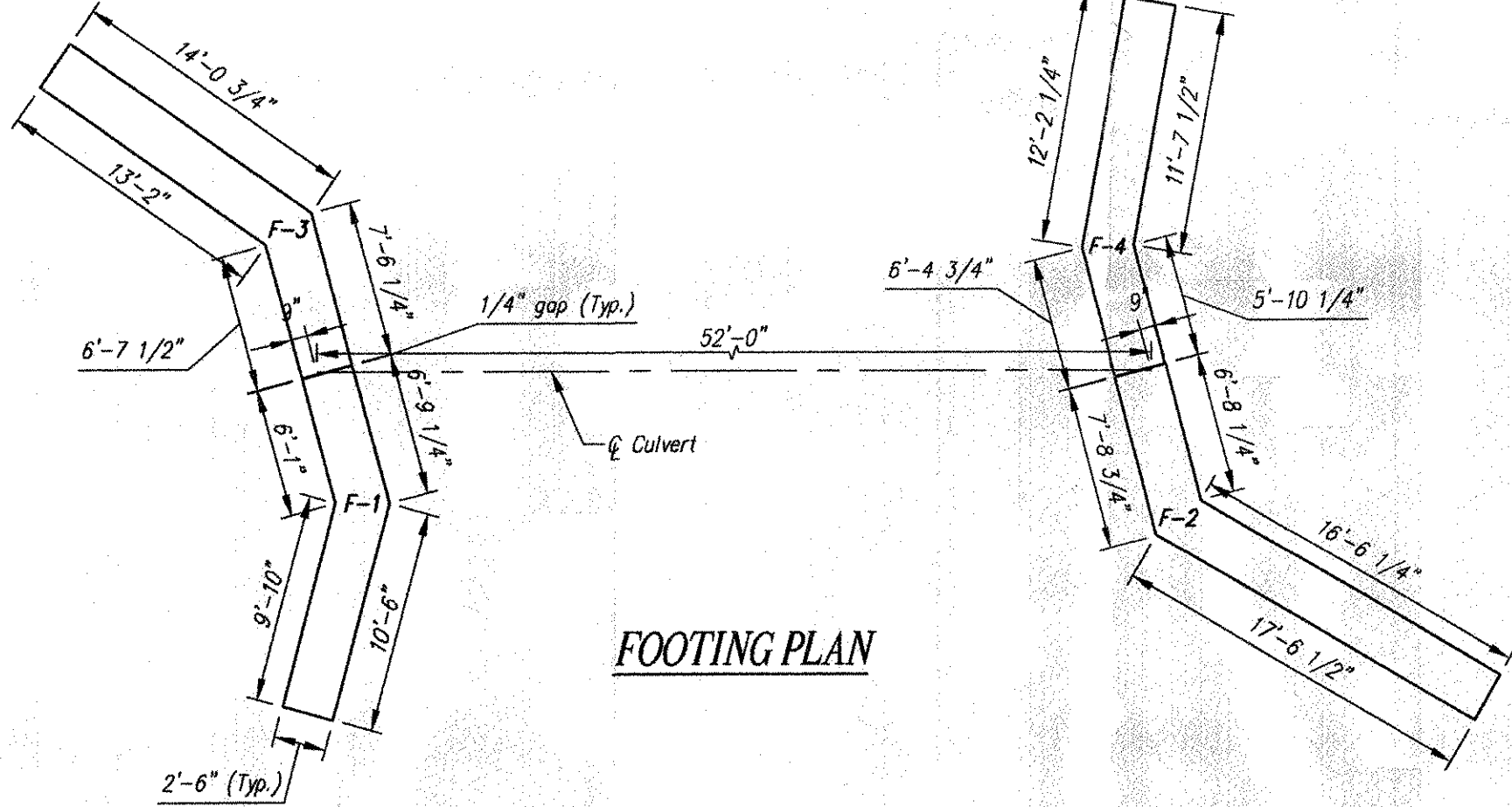
SECTION



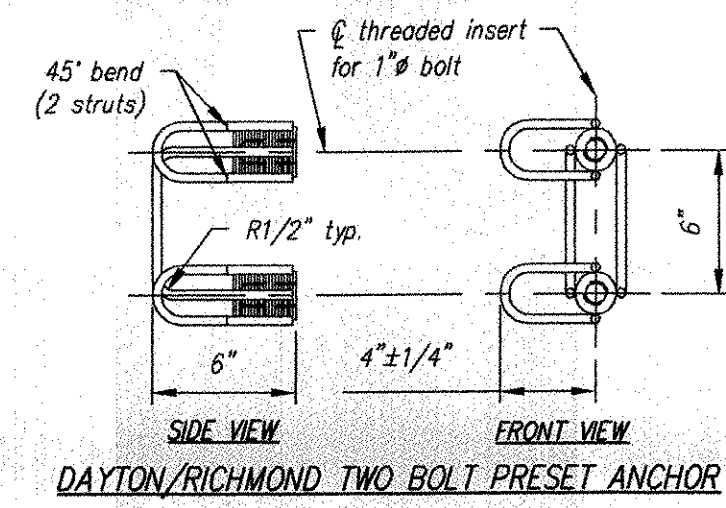
PRECAST ANCHOR TYPE C



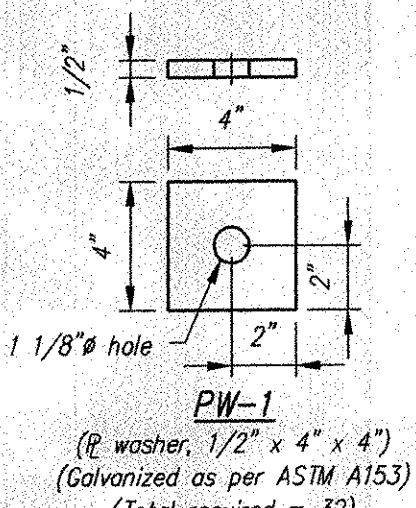
TYPICAL WINGWALL SECTION



FOOTING PLAN

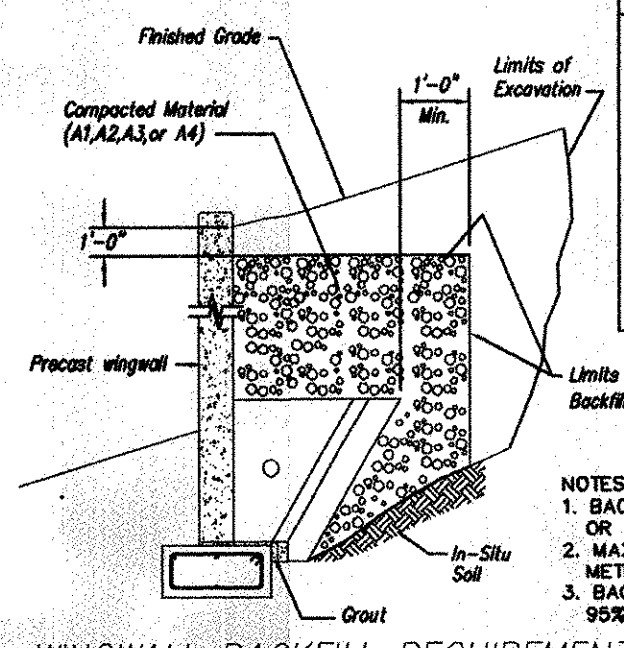


DAYTON/RICHMOND TWO-BOLT PRESET ANCHOR



PW-1

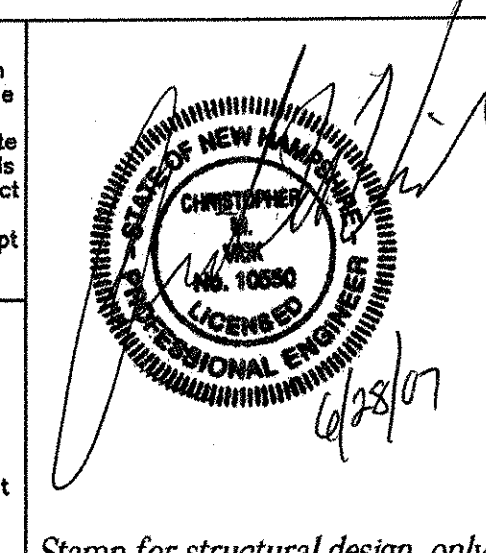
Group Classification	A-1	A-3	A-2	A-4
Sieve Analysis, Percent Passing	A-1-a	A-1-b	A-2-4	A-2-5
No. 10	50 max.	50 max.	35 max.	35 max.
No. 40	30 max.	51 min.	35 max.	35 max.
No. 200	15 max.	10 max.	35 max.	35 max.
Characteristics of Fraction Passing No. 40				
Liquid Limit	6 max.	N.P.	40 max.	41 min.
Plasticity Index	6 max.	N.P.	10 max.	11 min.
Used Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Stony or Clayey Gravel and Sand	Stony Soils
General Rating as Subgrade	Excellent to Good		Excellent to Good	Fair to Poor



WINGWALL BACKFILL REQUIREMENTS

NOTES:
1. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
2. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
3. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 90% OF THE MAXIMUM DRY DENSITY.

Contractor is to verify that all information shown on drawings has been thoroughly checked, complies with the contract documents and is adequate to meet the field conditions. Some dimensions and details may differ slightly from contract drawings to accommodate the manufacturing or design process. Approval of this drawing indicates that any deviation from the contract documents has been reviewed and found to be acceptable. Production will not commence until receipt of signed, approved shop drawings.



Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	06/28/07	Depth of footings to be 3'-2" & footing weights; Footings & wingwalls to be 5,000 psi	MS

This drawing is based upon information provided from the following documents and/or sources:
Engineer: VAO
Project No: AC ER STP 021-1 (22)
Drawings: Proposed Improvement - Bridge Project - Route No: VT 116, Minor Arterial - Bridge Sheets 1 through 65 of 66 sheets
Specifications: N/P
Other Sources:

STATE AGENCY: VAO
Concrete Systems Inc.
9 Commercial St., Hudson, NH 03051
Phone 603-889-4163
Fax 603-889-2417

PIKE INDUSTRIES, INC.
VT 116 - MINOR ARTERIAL - BRIDGE NO. 9
BRISTOL, VT

BOX CULVERT WINGWALL DETAILS
C18643-L01-B

DATE: 06/01/2007
DATE: 06/12/2007

Quantity: 1 Project No: AC ER STP 021-1 (22) SHEET 2 OF 2