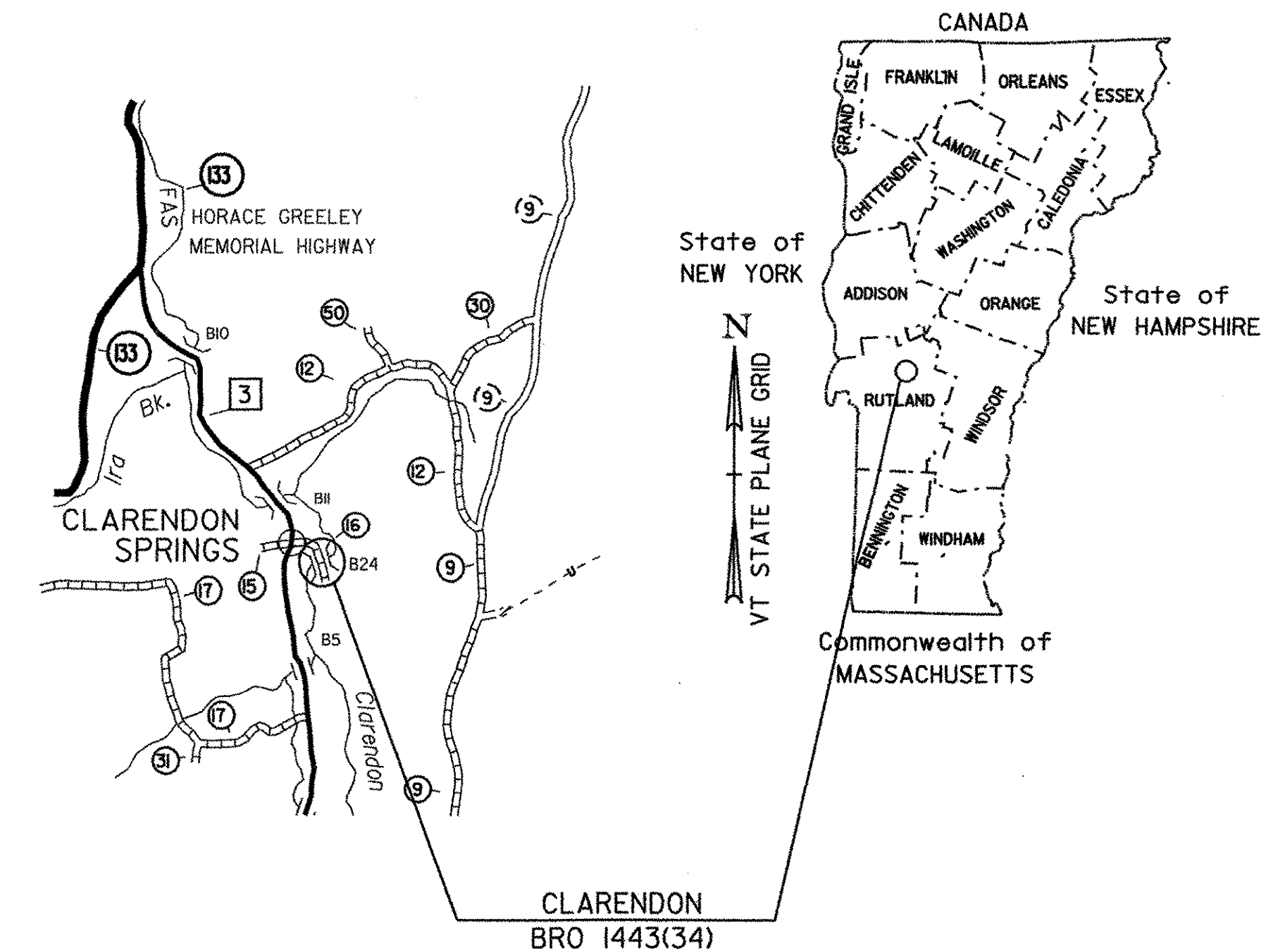


# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT



RECORD PLANS	
CONTRACTOR:	BELDEN COMPANY INC. - RUTLAND, VT
RESIDENT ENGINEER:	DAVE HOSKING
CONSTRUCTION BEGAN:	APRIL 1, 2006
CONSTRUCTION COMPLETE:	OCTOBER 24, 2006
RECORD PLANS BY:	DAVE HOSKING & JUDY GILMORE
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	<i>Dave Hosking</i> RESIDENT ENGINEER
DATE:	3-28-07
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.	

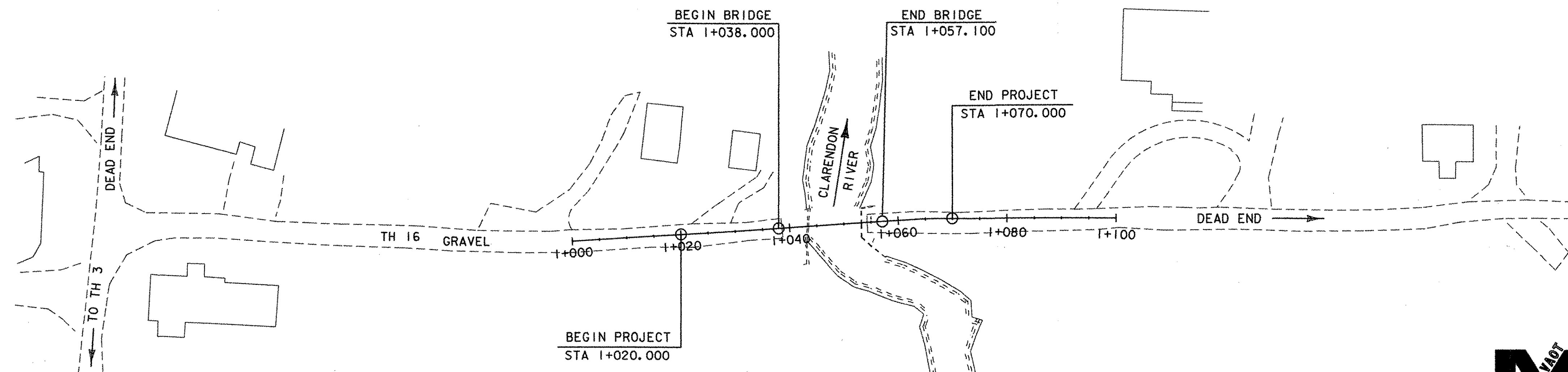
TOWN OF CLARENDON  
COUNTY OF RUTLAND

ROUTE NO : TH #16, CLASS 3 (LOCAL) BRIDGE NO : 24

PROJECT LOCATION : LOCATED APPROXIMATELY .3 KM FROM THE INTERSECTION OF TH 3 AND TH 16.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING STRUCTURE WITH MINIMAL APPROACH ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE : 19.100 METERS.  
LENGTH OF ROADWAY : 30.900 METERS.  
LENGTH OF PROJECT : 50.000 METERS.



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  
SURVEYED DATE : JAN. 1996

DATUM  
VERTICAL NAVD 88  
HORIZONTAL NAD 83/92 GPS



**Metric**  
UNLESS NOTED OTHERWISE  
STATIONS ARE IN KILOMETERS  
ELEVATIONS ARE IN METERS  
DIMENSIONS ARE IN MILLIMETERS

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 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

/PW/95J286/sj286bdr.dgn sj286+1.I PLOTTED: 07-OCT-2005

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED: <i>[Signature]</i>	DATE: 10-7-05
PROJECT MANAGER : R. R. WHITCOMB	
PROJECT NAME :	CLARENDON
PROJECT NUMBER :	BRO 1443(34)
SHEET 1 OF 43 SHEETS	

# PRELIMINARY INFORMATION SHEET



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- 4-5. QUANTITY SHEET
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7. RIGHT-OF-WAY PLAN SHEET
8. TIE SHEET
9. LAYOUT SHEET
10. PROFILE SHEET
- 11-12. TRAFFIC CONTROL/ CONSTRUCTION SIGNING SHEET
13. BORING LAYOUT SHEET
- 14-15. BORING LOG SHEETS
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17. EROSION CONTROL NARRATIVE
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19. EROSION AND SEDIMENT CONTROL PLAN
20. FINAL CONDITION SITE PLANS
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25. DECK DETAILS
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33. REINFORCING STEEL SCHEDULE
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- 41-43. CHANNEL CROSS SECTIONS

LIST OF STANDARDS

B-5M	1-03-00
E-100A	1-02-04
E-100	1-02-04
E-101	5-30-03
E-102A	5-01-04
E-102	6-30-03
E-107A	8-08-95
E-107	6-30-03
E-121	8-08-95
G-1dM	1-03-00
G-1M	1-03-00
SB-R6-82M	7-10-97

FINAL HYDRAULIC REPORT

**HYDROLOGIC DATA** Date: February 2000

DRAINAGE AREA : 61.4 sq. km  
 CHARACTER OF TERRAIN : Mountainous uplands with a wide valley at site.  
 STREAM CHARACTERISTICS : Alluvial, sinuous, probably incised, flat slope, wide flood plain.  
 NATURE OF STREAMBED : Gravel, cobbles, and a few boulders.

**PEAK FLOW DATA**

Q 2.33 =	14 cms	Q 50 =	48 cms
Q 10 =	28 cms	Q 100 =	60 cms
Q 25 =	40 cms	Q 500 =	99 cms

DATE OF FLOOD RECORD : November 1927  
 ESTIMATED DISCHARGE : N/A  
 WATER SURFACE ELEV. : N/A  
 NATURAL STREAM VELOCITY @ Q25 = 1.4 mps  
 ICE CONDITIONS : Moderate  
 DEBRIS : Moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No  
 IS ORDINARY RISE RAPID? No  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
 IF YES, DESCRIBE:

WATERSHED STORAGE: 6% HEADWATERS: X  
 UNIFORM: \_\_\_\_\_  
 IMMEDIATELY ABOVE SITE: \_\_\_\_\_

**EXISTING STRUCTURE INFORMATION**

STRUCTURE TYPE: Single span steel beam bridge  
 YEAR BUILT: 1949  
 CLEAR SPAN(NORMAL TO STREAM): 10.1 m  
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.4 m  
 WATERWAY OF FULL OPENING: 20 m  
 DISPOSITION OF STRUCTURE: Remove  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See Boring Log Sheets

**WATER SURFACE ELEVATIONS AT:**

Q2.33 =	204.6 m	VELOCITY =	1.8 mps
Q10 =	205.2 m	"	2.5 mps
Q25 =	205.6 m	"	2.9 mps
Q50 =	205.8 m	"	3.0 mps
Q100 =	206.0 m	"	2.9 mps

LONG TERM STREAMBED CHANGES: There is a 0.5 m deep pool upstream of the bridge & minor scour at the bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Q15  
 RELIEF ELEVATION: 205.5 m  
 DISCHARGE OVER ROAD @Q100: 8 cms

**UPSTREAM STRUCTURE**

TOWN: Clarendon DISTANCE: 3.4 km  
 HIGHWAY #: T.H. 10 STRUCTURE #: 25  
 CLEAR SPAN: 7.0 m CLEAR HEIGHT: 1.2 m  
 YEAR BUILT: N/A FULL WATERWAY: 8.4 sq. m  
 STRUCTURE TYPE: Single span steel beam bridge with wood deck.

**DOWNSTREAM STRUCTURE**

TOWN: West Rutland DISTANCE: 3.7 km  
 HIGHWAY #: T.H. 17 STRUCTURE #: 14  
 CLEAR SPAN: 11.0 m CLEAR HEIGHT: 1.5 m  
 YEAR BUILT: N/A FULL WATERWAY: 42 sq. m  
 STRUCTURE TYPE: Single span steel beam bridge with conc. deck.

**LOAD FACTOR- LOAD RATING (METRIC TONS)**

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	SA SEMI
INVENTORY	34	46					
POSTED	36	48	61		45	46	55
OPERATING		50	65	78	48	48	

COMMENTS: STRENGTH RF =  $\frac{\phi M_N - 1.3 M_{DL}}{A \times M_{LL} + I}$

**TRAFFIC DATA**

YEAR	ADT	DHV	% D	% T	ADTT
2002	70	10	54	21	10
2022	90	15	54	21	15

20 year ESAL for flexible pavement from 2002 to 2022 : 107,000  
 40 year ESAL for flexible pavement from 2002 to 2042 : 241,000  
 Design Speed : 40 km/h

**PROPOSED STRUCTURE**

STRUCTURE TYPE: Single span prestressed concrete voided slab bridge

CLEAR SPAN(NORMAL TO STREAM): 17.4 m  
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.0 m  
 WATERWAY OF FULL OPENING: 45 sq. m

**WATER SURFACE ELEVATIONS AT:**

Q2.33 =	204.5 m	VELOCITY =	1.2 mps
Q10 =	204.9 m	"	1.5 mps
Q25 =	205.2 m	"	1.7 mps
Q50 =	205.4 m	"	1.9 mps
Q100 =	205.7 m	"	2.1 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes  
 FREQUENCY: Q55  
 RELIEF ELEVATION: 205.5 m  
 DISCHARGE OVER ROAD @Q100: 1 cms

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 206.1 m  
 VERTICAL CLEARANCE @ Q100 = 0.4 m

SCOUR: 0.3 m of contraction scour at Q100 and Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

**PERMIT INFORMATION**

AVERAGE DAILY FLOW:	1.4 cms	DEPTH OR ELEVATION:	
ORDINARY LOW WATER:	0.7 cms	Elev. 203.5 m	
ORDINARY HIGH WATER:	6.1 cms	Elev. 204.0 m	

**TEMPORARY BRIDGE REQUIREMENTS**

STRUCTURE TYPE: Single span bridge  
 CLEAR SPAN (NORMAL TO STREAM): 10 m minimum  
 VERTICAL CLEARANCE ABOVE STREAMBED: Bottom of beams elev. 205.5 minimum  
 WATERWAY AREA OF FULL OPENING: 18 sq. m minimum

**ADDITIONAL INFORMATION**

\_\_\_\_\_

\_\_\_\_\_

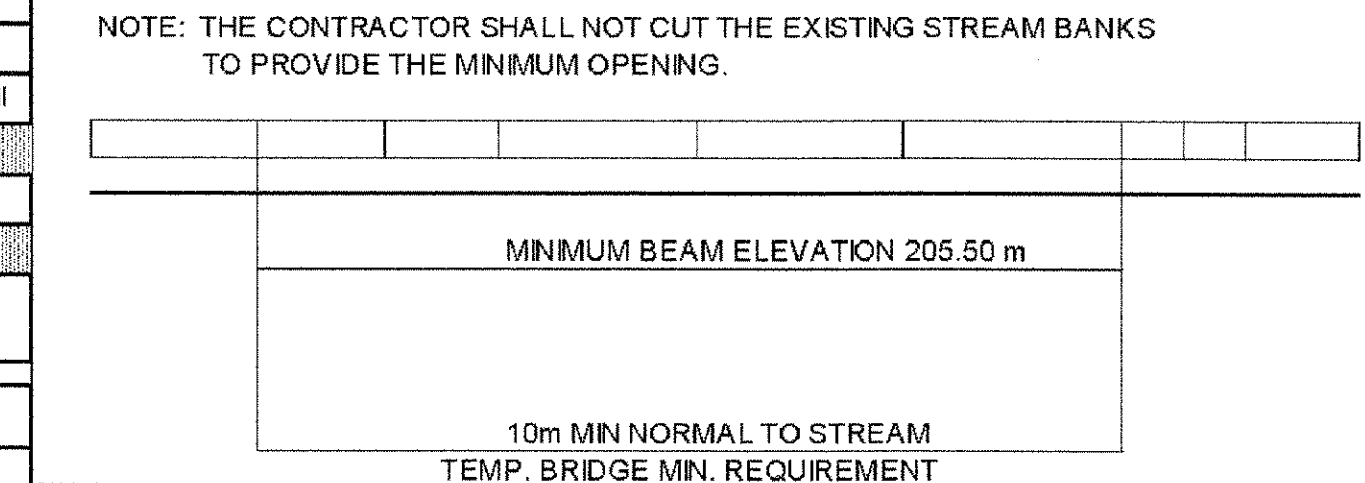
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**DESIGN CRITERIA**

- DESIGN LIVE LOAD AASHTO MS 22.5
- DESIGN SPAN 18.3 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE 480 k Pa (Abutment No. 2)
- DESIGN LOAD FOR PILING 400 kN TYPE HP 310 x 79 ESTIMATED LENGTH 4.500 m (Abutment No. 1)
- STRUCTURAL STEEL AASHTO M270/M270M GRADE N/A
- REINFORCING STEEL GRADE 420
- ALLOWABLE STRESS FOR CONCRETE HIGH PERFORMANCE CLASS AA f'c: 30 Mpa HIGH PERFORMANCE CLASS B f'c: 25 Mpa
- SOIL UNIT WEIGHT 22 kN/m<sup>3</sup>
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

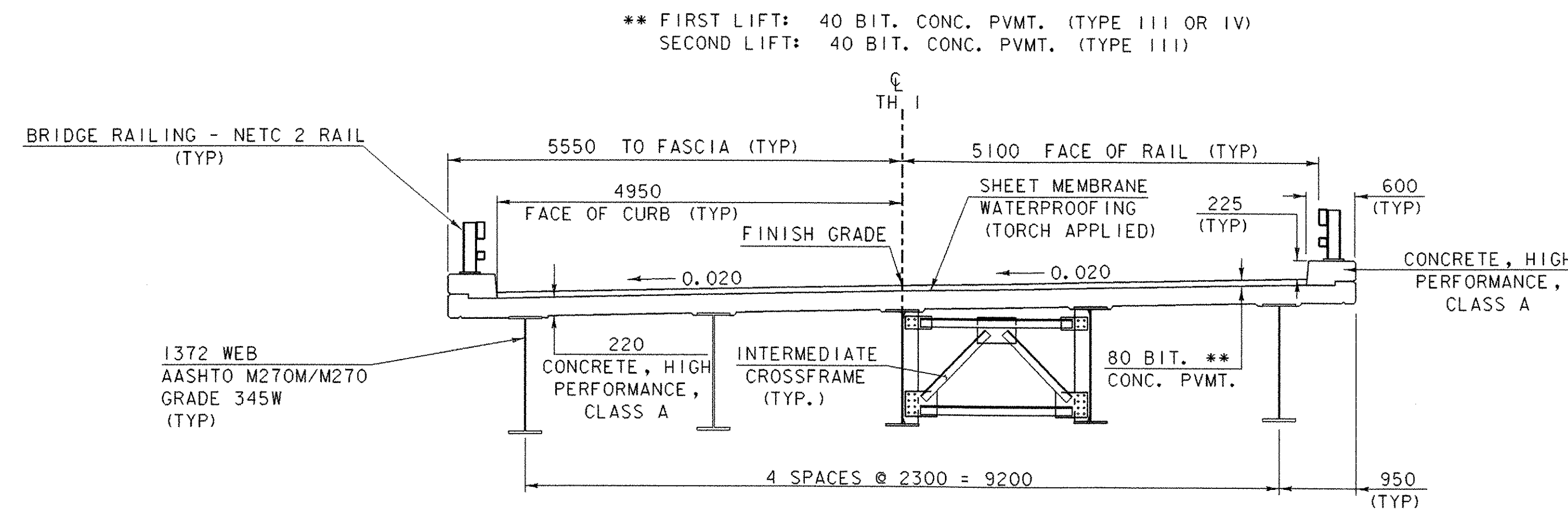
**TRAFFIC MAINTENANCE**

1. IS TRAFFIC TO BE MAINTAINED? YES  
 IF YES, ON EXISTING STRUCTURE? NO  
 OR ON TEMPORARY BRIDGE? YES  
 2. ONE OR TWO-WAY TRAVEL? ONE  
 TRAFFIC CONTROL SIGNALS REQUIRED? NO

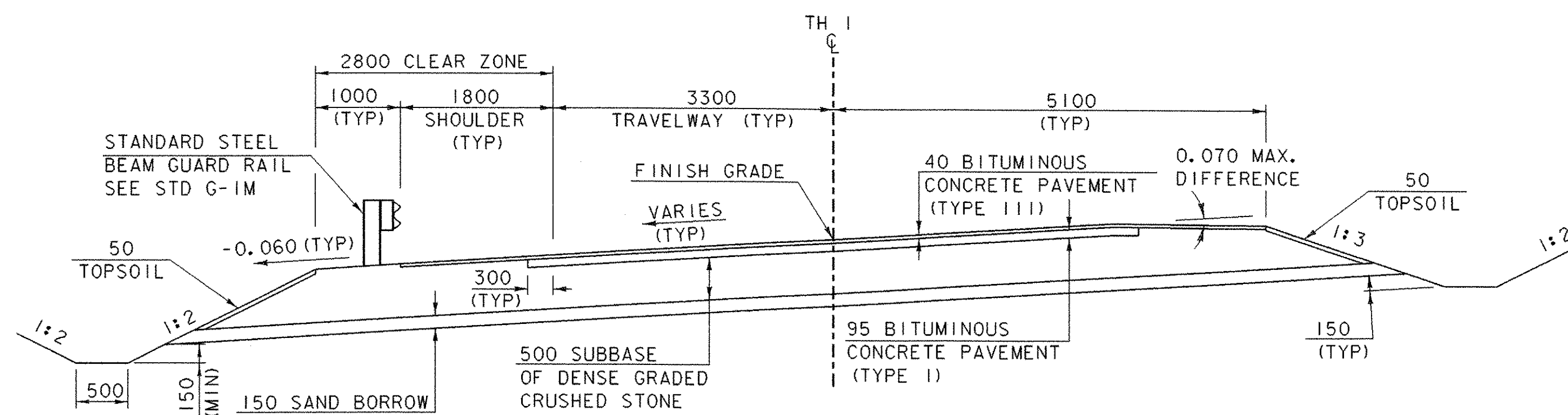
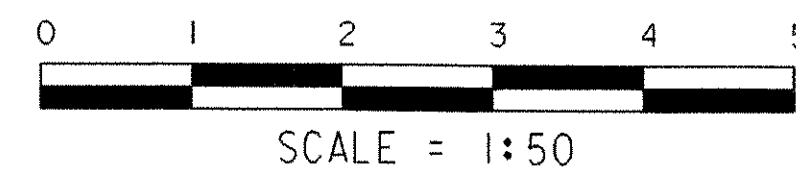


PROJECT NAME: CLARENDON  
 PROJECT NUMBER: BRO 1443(34)

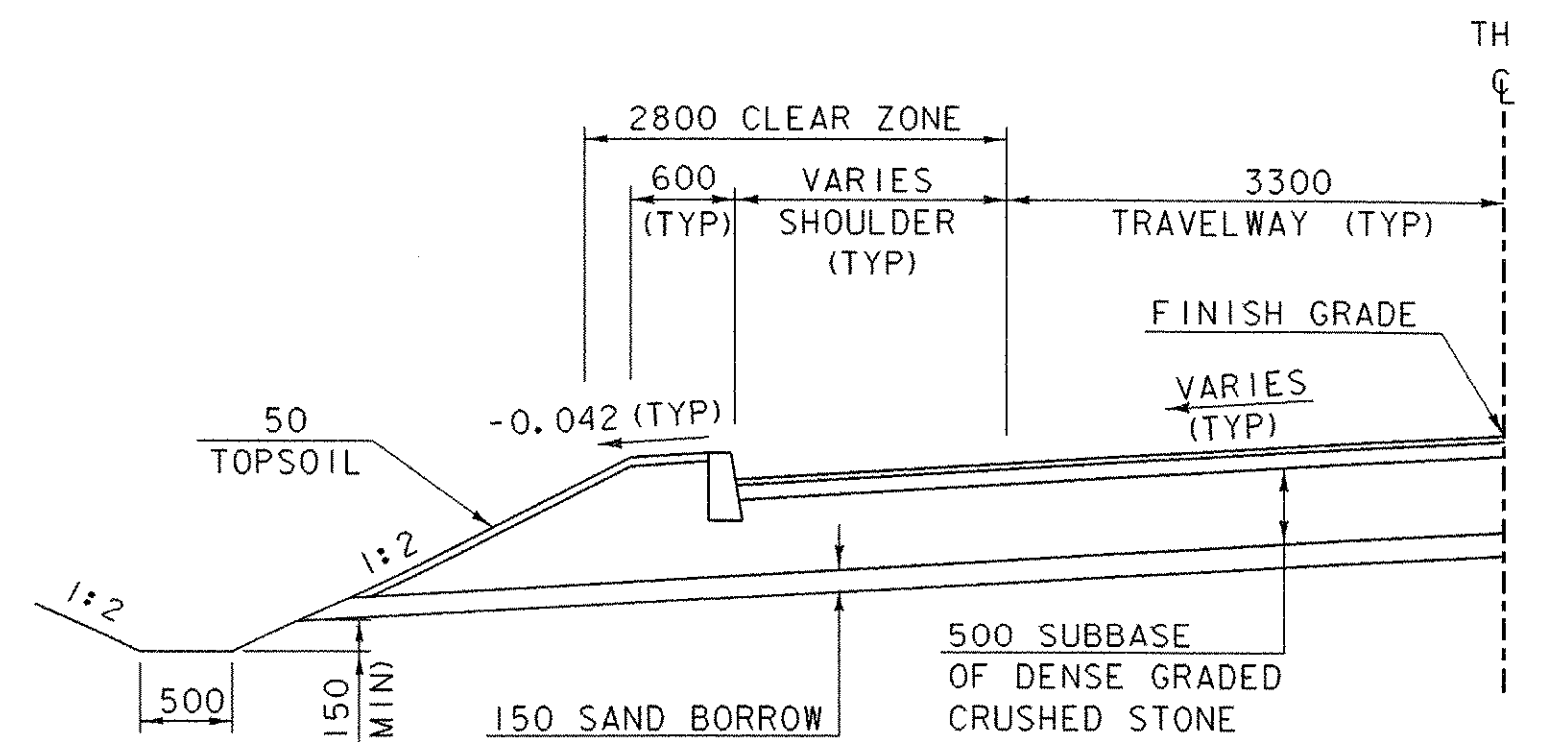
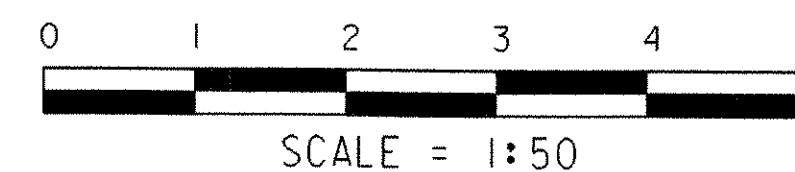
FILE NAME: /str1/95j286/sj286pi.xls PLOT DATE: 9/1/2005  
 PROJECT MANAGER: R. WHITCOMB DRAWN BY: J. GILMORE  
 DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON  
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 43



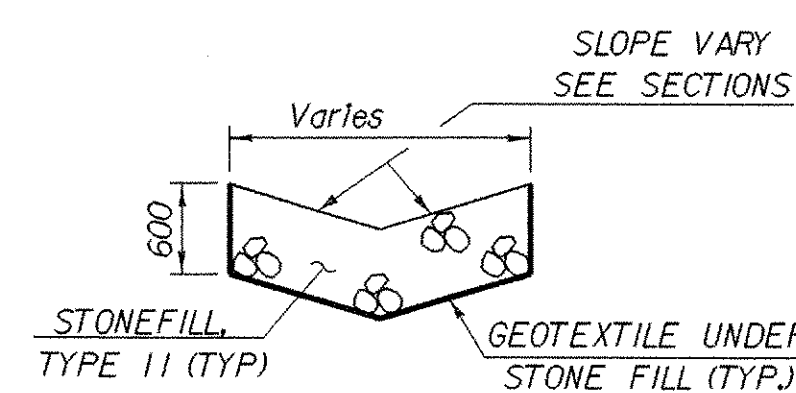
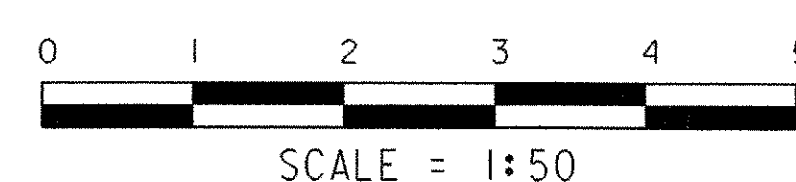
BRIDGE TYPICAL



ROADWAY TYPICAL

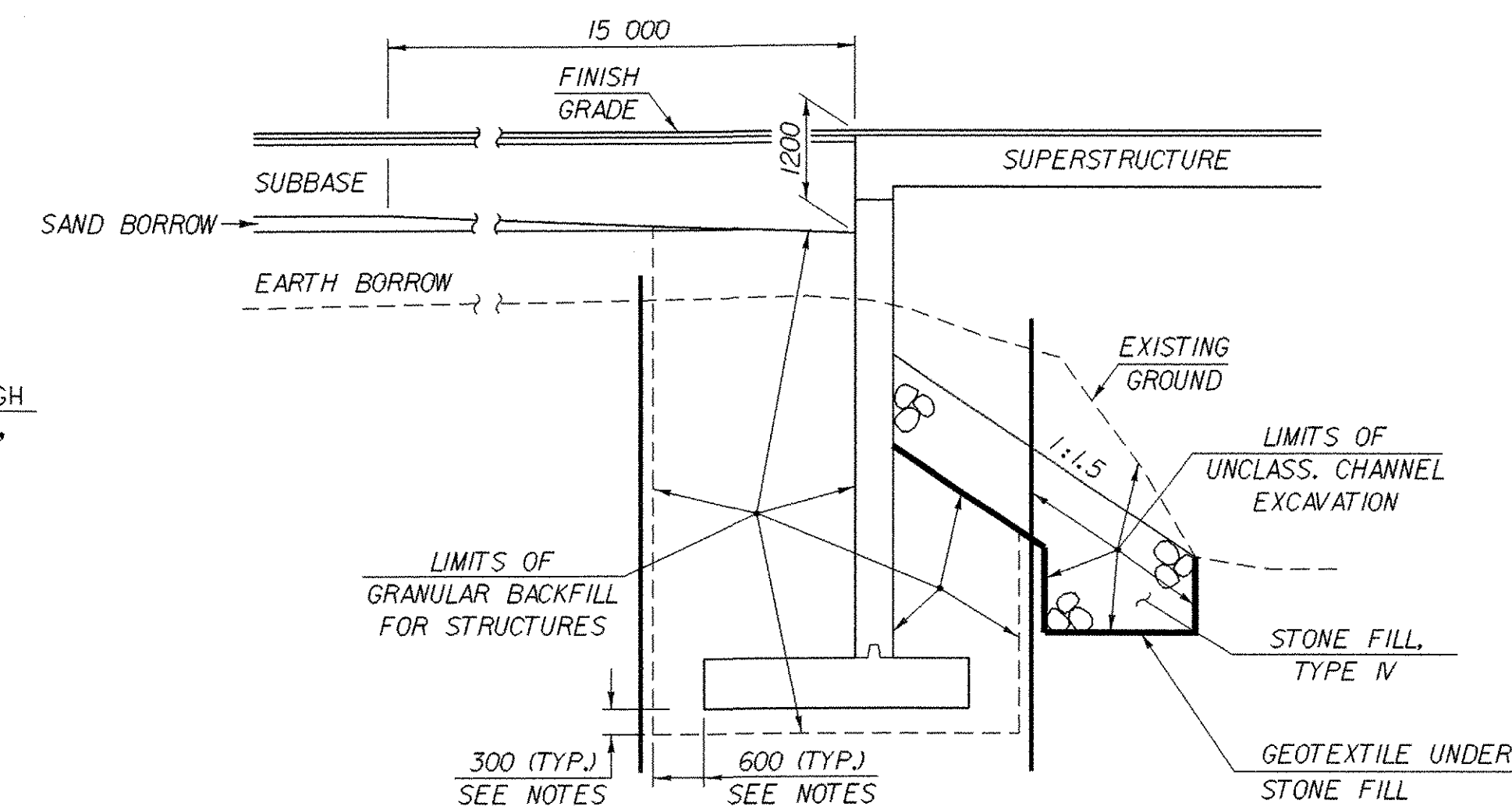


ROADWAY TYPICAL W/ CURB



TYPICAL DITCH SECTION

NOT TO SCALE  
STA 2+206 Rl. - STA 2+800 Rl.

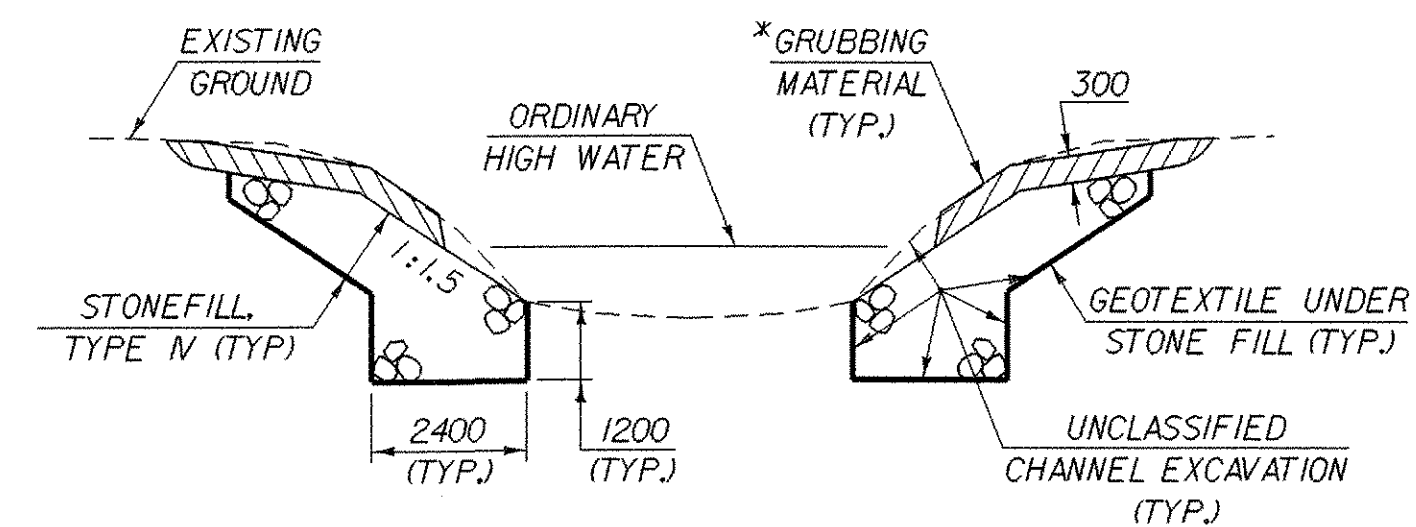


TYPICAL ABUTMENT SECTION

(NOT TO SCALE)

COFFERDAM NOTES

1. COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF COFFERDAM EXCAVATION, EARTH\* AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 600 OUTSIDE THE PERIMETER OF THE FOOTING, UP TO EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. 300 UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
4. ALL COFFERDAM EXCAVATION WHICH IS OUTSIDE THE INDICATED COFFERDAM PAY LIMITS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.



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 SECTIONS

MATERIAL ITEM	TOLERANCE	PROJECT NAME:	MENDON
PAVEMENT	±5 mm TOTAL THICKNESS	PROJECT NUMBER:	BRO 1443(35)
BASE COURSE	±10 mm	FILE NAME:	/str5/95j290/sj290+yp.dgn
SUBBASE	±30 mm	PROJECT LEADER:	C. KELLER
SAND BORROW	±30 mm	DESIGNED BY:	M. EVANS-MONGEON
GRANULAR BORROW	±30 mm	FILE NAME:	s290+yp.i
		PLOT DATE:	18-NOV-2005
		DRAWN BY:	G. Shangraw
		CHECKED BY:	M.E.M.
		SHEET	3 OF 94

# QUANTITY SHEET



SUMMARY OF ESTIMATED QUANTITIES										TOTALS			DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
ROADWAY	CHANNEL	SUPER-STRUCTURE	ABUT. #1	ABUT. #2	EROSION CONTROL	FULL CE ITEMS	BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS		
1									1		LS	CLEARING AND GRUBBING (INCL. IND. TREES AND STUMPS)	201.10					
150									150		CM	COMMON EXCAVATION	203.15					
	300								300		CM	UNCLASSIFIED CHANNEL EXCAVATION	203.27					
100									100		CM	SAND BORROW	203.31					
					10				10		CM	TRENCH EXCAVATION OF EARTH	204.20					
			40						40		CM	STRUCTURE EXCAVATION (ABUTMENT #1 STA. 1+038.500)	204.25					
			20	80					100		CM	GRANULAR BACKFILL FOR STRUCTURES	204.30					
				200					200		CM	COFFERDAM EXCAVATION, EARTH	208.30					
				25					25		CM	COFFERDAM EXCAVATION, ROCK	208.35					
				1					1		LS	COFFERDAM (ABUTMENT #2 STA. 1+056.800)	208.40					
120					10				130		CM	SUBBASE OF GRAVEL	301.15					
70									70		CM	AGGREGATE SURFACE COURSE	401.10					
				6					6		CM	CONCRETE, CLASS C	501.30					
	20								20		CM	CONCRETE, HIGH PERFORMANCE CLASS AA	501.32					
			20	35					55		CM	CONCRETE, HIGH PERFORMANCE CLASS B	501.34					
			1						1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10					
			24						24		M	STEEL PILING (HP 310 X 79)	505.15					
			1						1		EACH	DYNAMIC PILE LOADING TEST	505.45					
			920	2270					3190		KG	REINFORCING STEEL	507.15					
				17					17		M	DRILLING AND GROUTING DOWELS	507.16					
		1880							1880		KG	EPOXY COATED REINFORCING STEEL	507.17					
		55.8							55.8		M	PRESTRESSED CONCRETE VOIDED SLABS (1220 X 540)	510.22					
		37.2							37.2		M	PRESTRESSED CONCRETE VOIDED SLABS (914 X 540)	510.22					
		75							75		M	GROUTING SHEAR KEYS	510.24					
		60	5	5					70		L	WATER REPELLENT (MOD. - SILANE)	514.10					
		50							50		M	BRIDGE RAILING- HDSB/CURB MOUNTED/HAND RAIL (MOD.)	525.42					
		1							1		LS	ONE-WAY TEMPORARY BRIDGE (88 SM) (MOD.)	528.10					
		1							1		EACH	PARTIAL REMOVAL OF STRUCTURE (MOD.)	529.20					
		20							20		EACH	BEARING DEVICE ASSEMBLY (ELASTOMERIC)	531.10					
					10				10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25					
330									330		CM	DUST CONTROL WITH WATER	609.10					
					10				10		CM	STONE FILL, TYPE I	613.10					
					10				10		CM	STONE FILL, TYPE I (MOD. - CHECK DAMS)	613.10					
					10				10		CM	STONE FILL, TYPE I (MOD. - CONSTRUCTION ENTRANCE)	613.10					
	310								310		CM	STONE FILL, TYPE III	613.12					
200									200		M	SNOW FENCE (MOD. - PDF)	620.70					
51									51		M	HEAVY DUTY STEEL BEAM GUARD RAIL (WEATHERING) (WOOD POSTS)	621.21					
1									1		EACH	MANUFACTURED TERMINAL SECTION (TANGENT) (MOD.)	621.505					
3									3		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60					
						1			1		LS	FIELD OFFICE-ENGINEERS	631.10					
						1			1		LS	TESTING EQUIPMENT - CONCRETE	631.16					
						1			1		LU	FIELD OFFICE - TELEPHONE (N.A.B.I.)	631.25					
1									1		LS	MOBILIZATION/DEMOLITION	635.11					

PROJECT NAME: **CLARENDON**  
 PROJECT NUMBER: **BRO 1443(34)**  
 FILE NAME: /TransFANS/95j286/sj286qnt.xl PLOT DATE: 10/28/2005  
 PROJECT LEADER: R. Whitcomb DRAWN BY: J. GILMORE  
 DESIGNED BY: C. Carlson CHECKED BY: C. Carlson  
 QUANTITY SHEET #1 SHEET 4 OF 43

# QUANTITY SHEET



SUMMARY OF ESTIMATED QUANTITIES										TOTALS			DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
ROADWAY	CHANNEL	SUPER-STRUCTURE	ABUT. #1	ABUT. #2	EROSION CONTROL	FULL CE ITEMS	BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS		
1									1		LS	TRAFFIC CONTROL	641.10					
	190							190	190		SM	GEOTEXTILE UNDER STONE FILL	649.31					
					230				230		SM	GEOTEXTILE FOR SILT FENCE	649.51					
					270				270		SM	GEOTEXTILE FOR FILTER CURTAIN	649.61					
					5				5		KG	SEED	651.15					
					5				5		KG	SEED-WINTER RYE	651.17					
					45				45		KG	FERTILIZER	651.18					
					0.25				0.25		T	AGRICULTURAL LIMESTONE	651.20					
					0.25				0.25		T	HAY MULCH	651.25					
					25				25		CM	TOPSOIL	651.35					
	60							60	60		SM	GRUBBING MATERIAL	651.40					
					1				1		LS	EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.10					
					50				50		HR	MONITORING EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.20					
					1				1		LU	MAINTENANCE OF EROSION PREVENTION & SEDIMENT CONTROL PLAN (N.A.B.I.)	652.30					
					10				10		SM	EROSION MATTING	654.10					
2									2		EACH	DECIDUOUS TREES (SUGAR MAPLE-ACER SACCHARUM, B&B, 4" CAL)	656.30					
2.8									2.8		SM	TRAFFIC SIGNS, TYPE A	675.20					
												<b>BEGIN SIGN POST OPTIONS</b>						
22									22		M	FLANGED CHANNEL SIGN POST	675.301					
22									22		M	SQUARE TUBE SIGN POSTS AND ANCHOR	675.341					
												<b>END SIGN POST OPTIONS</b>						
2									2		EACH	REMOVING SIGNS	675.50					

PROJECT NAME: **CLARENDON**  
 PROJECT NUMBER: **BRO 1443(34)**  
 FILE NAME: //TransFANS/95j286/sj286qnt.xl PLOT DATE: 10/6/2005  
 PROJECT LEADER: R. Whitcomb DRAWN BY: J. GILMORE  
 DESIGNED BY: C. Carlson CHECKED BY: C. Carlson  
 QUANTITY SHEET #2 SHEET 5 OF 43



**STATE OF VERMONT  
AGENCY OF TRANSPORTATION  
RIGHT OF WAY PLANS  
DETAIL SHEET**

**TABLE OF PROJECT PROPERTY ACQUISITION**

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS	
1	GRIFFITH, JAMES & WINSLOW, MICHAEL	6	1+027.1 LT.	1+037.2 LT.			CONST. (T) 9 SM±						INCLUDES EROSION CONTROL 97 S.F.±	
			1+029.5 LT.	1+034.6 LT.			DRIVE (T)							
			1+028.0 LT.	1+037.1 LT.			DETOUR (T) 13 SM±							140 S.F.±
2	ROBICHAUD, GILBERT H. & APRIL L.	6	1+037.0 LT.	1+073.5 LT.			DETOUR (T) 174 SM±			CLARENDON			1873 S.F.±	
			1+037.1 LT.	1+043.8 LT.			CONST. (T) 5 SM±						INCLUDES EROSION CONTROL 54 S.F.±	
			1+043.1 LT.	1+044.0 LT.			INSTALL (T)						EROSION CONTROL	
			1+055.1 LT.	1+055.8 LT.			INSTALL (T)						EROSION CONTROL	
			1+055.8 LT.	1+090.7 LT.			CONST. (T) 30 SM±					INCLUDES EROSION CONTROL 323 S.F.±		
3	HESSE, PAMELA L.	6	1+054.7 RT.	1+061.3 RT.			INSTALL (T)						EROSION CONTROL	
			1+061.3 RT.	1+065.9 RT.			CONST. (T) 1 SM±						INCLUDES EROSION CONTROL 11 S.F.±	
4	COSTANTINO, ANTHONY R. & BONITA L.	6	1+034.9 RT.	1+046.5 RT.			CONST. (T) 6 SM±						INCLUDES EROSION CONTROL 65 S.F.±	

REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY
1	5	PARCEL NO. 1. GRIFFITH. CHANGE DETOUR (T) AS FOLLOWS: BEGINNING STATION 1+028.0; 13 SM±, 140 S.F.± PER C.O. 9145.	09-05-00	M. J. R.	R. P. D.
2	6	PARCEL NO. 2 ROBICHAUD. ADD CONSTRUCTION NOTE REGARDING THE PROTECTION OF A DUG WELL. PER C.O. 9188.	05-08-01	M. J. R.	R. P. D.
3	6	PARCEL NO. 1 GRIFFITH & WINSLOW. IDENTIFY WHICH SHRUBS AND TREES ARE TO BE SAVED OR REMOVED. PER C.O. 9196.	05-08-01	M. J. R.	R. P. D.
4	6	PARCEL NO. 3 HESSE. CHANGED PROPERTY OWNER NAME FROM CONGDON, PAMELA L. TO HESSE, PAMELA L. PER C.O. 9215.	12-19-01	P. J. H.	R. P. D.
5	6	PARCEL NO. 2 ROBICHAUD. REMOVE SLOPE (P) AT STA. 1+072.5 LT. ~ STA. 1+074.1 LT. PER C.O. 9224.	03-15-02	G. J. F.	R. P. D.
		ELECTRONIC IPARMS TO STRUCTURES	05-22-03 08-30-05		

ACCT.rdrawn  
IP\_PWP\dms04486\rj286d.dgn  
DATE PLOTTED 01-DEC-2005

DR. (P)- DRAINAGE RIGHT  
DIT. (P)- DITCHING RIGHT  
CH. (P)- CHANNEL RT.  
DRIVE (T)- DRIVE RIGHT  
CUL. (P)- CULVERT RIGHT  
[W]- WATER SOURCES

PRESENT R.O.W.  
TAKING WITHOUT ACCESS  
TAKING WITHOUT ACCESS ALONG PROPERTY LINE  
TAKING WITH ACCESS  
PERMANENT EASEMENT  
TEMPORARY EASEMENT

LEGEND  
C&T (P) --- CLEARING & TRIMMING  
CZ (P) ... CLEAR ZONE  
CONSI. (T) --- CONSTRUCTION EASEMENT  
SR SR --- SLOPE RIGHTS  
P --- PROPERTY LINE  
L --- TOP OF CUT  
O O --- TOE OF SLOPE

PERMANENT UTILITY EASEMENT  
APPROVED: ROGER P. DUMAS DATE: 7-27-00  
CHIEF, PLANS & TITLES

R. O. W. PLANS  
CLARENDON  
BRO 1443(34)  
R.O.W. SHEET 5 OF 6 SHEETS  
SHEET 6 OF 43

CONSTRUCT ACCESS  
STA. 1+019.099 LT (60° ASKEW)

GUARD RAIL - HEAVY DUTY STEEL BEAM  
W/ WOOD POSTS, WEATHERING

STA. 1+029.100 - 1+035.59 LT.  
STA. 1+031.80 - 1+035.59 RT.  
STA. 1+060.36 - 1+073.36 LT.  
STA. 1+060.36 - 1+073.26 RT.

BRIDGE RAILING - HEAVY DUTY  
STEEL BEAM/CURB MOUNTED/HANDRAIL (MOD)

STA. 1+035.59 - 1+060.36 LT.  
STA. 1+035.59 - 1+060.36 RT.

MANUFACTURED TERMINAL END DETAIL  
(TANGENT)(MOD.)

STA. 1+016.18 - 1+031.80 RT.

ANCHOR FOR STEEL BEAM RAIL

STA. 1+031.000 LT.  
STA. 1+071.40 LT. & RT.

THE SEDIMENT SETTLING BASIN WILL BE LINED WITH IMPERVIOUS MEMBRANE AND ALL WATERS DISCHARGED FROM THE SETTLEMENT BASIN WILL BE PIPED BACK TO THE STREAM. THESE PRECAUTIONS ARE TO INSURE THAT THIS WATER WILL NOT CONTAMINATE THE WELL AT STA 1+093.3 12.5m LT.

VT. STATE PLANE GRID

END R.O.W. PROJECT  
BRO 1443 (34)

STA. 1+090.7 7.3M(24')LT.

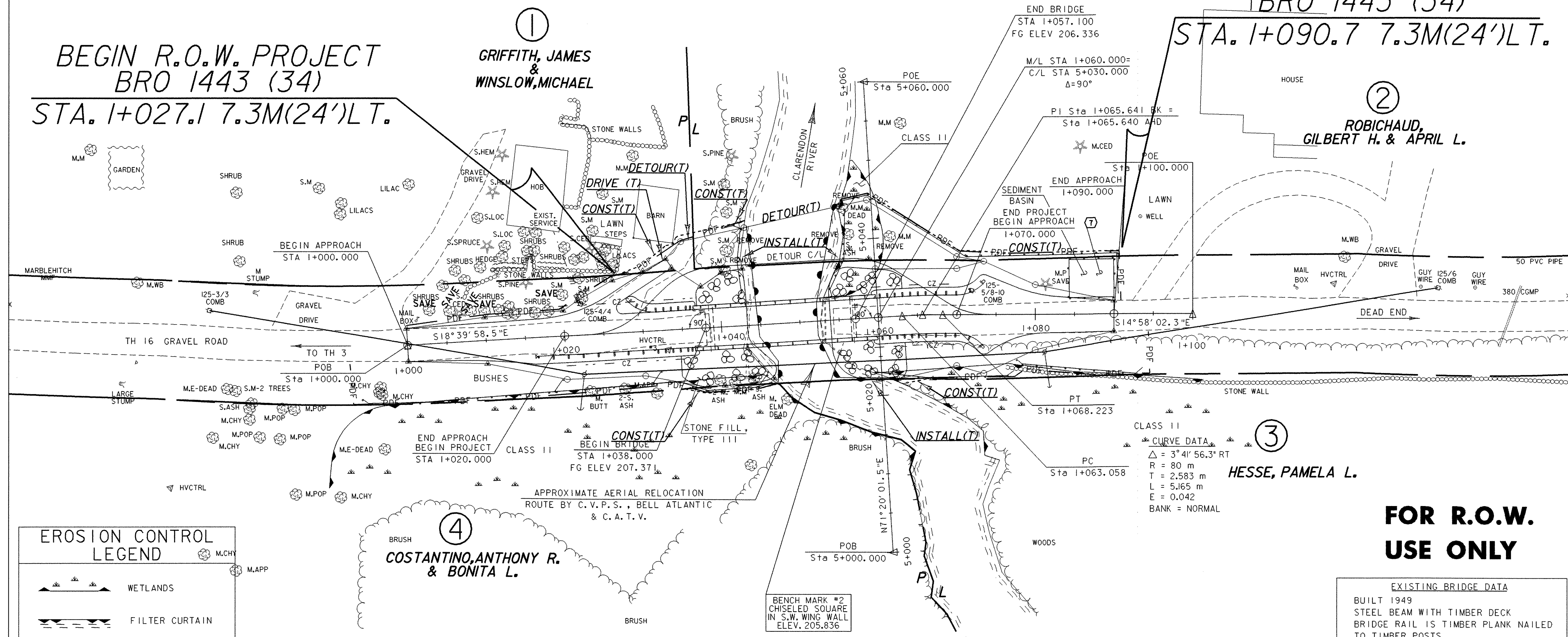
BEGIN R.O.W. PROJECT  
BRO 1443 (34)  
STA. 1+027.1 7.3M(24')LT.

①  
GRIFFITH, JAMES  
&  
WINSLOW, MICHAEL

②  
ROBICHAUD,  
GILBERT H. & APRIL L.

③  
HESSE, PAMELA L.

④  
COSTANTINO, ANTHONY R.  
& BONITA L.



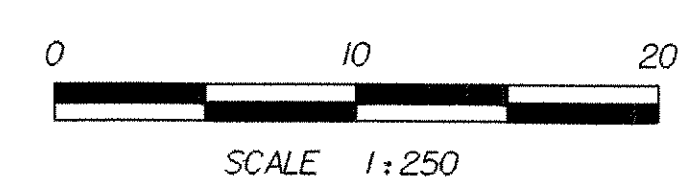
CLASS II  
CURVE DATA  
Δ = 3° 41' 56.3" RT  
R = 80 m  
T = 2.583 m  
L = 5.165 m  
E = 0.042  
BANK = NORMAL

BENCH MARK #2  
CHISELED SQUARE  
IN S.W. WING WALL  
ELEV. 205.836

**EROSION CONTROL LEGEND**

	WETLANDS
	FILTER CURTAIN
	SILT FENCE
	HAY BALES
	STONE FILL, TYPE I
	STONE FILL, TYPE II

NOTE: ALL UTILITY EASEMENTS HAVE BEEN ACQUIRED BY THE UTILITY COMPANIES.



LINE 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 TOWN OF CLARENDON'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

**EXISTING BRIDGE DATA**  
BUILT 1949  
STEEL BEAM WITH TIMBER DECK  
BRIDGE RAIL IS TIMBER PLANK NAILED TO TIMBER POSTS  
DECK WIDTH = 4298  
SPAN LENGTH = 12 497  
ABUTMENT NO. 1 IS LAID UP STONE  
ABUTMENT NO. 2 IS CONCRETE  
\* TEMPORARY "MABEY" BRIDGE IS IN PLACE OVER EXISTING BRIDGE.

SHEET NAME: LAYOUT SHEET		
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16	
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24	
	OVER: CLARENDON RIVER	
FILE NAME: /PW/95j286/sj286bdr.dgn	PLOT DATE: 01-DEC-2005	
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE	
DESIGNED BY: C. CARLSON	IPARM NAME: sj286lcl	
R.O.W. SHEET 6 OF 6 SHEETS	SHEET 7 OF 43 SHEETS	

NOTE:  
THE RESIDENT ENGINEER WILL TRY TO SAVE AS MANY SHRUBS AS POSSIBLE THAT ARE NOT ALREADY MARKED AS "SAVE."

⑤ LINE SEDIMENT BASIN WITH PLASTIC & PIPE WATER BACK TO RIVER

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

SURVEY TRAV. 1	SURVEY TRAV. 2	HVCTRL SURVEY TRAV. 3
N = 116568.667	N = 116259.353	N = (NOT PROVIDED)
E = 457868.082	E = 457956.596	E = (NOT PROVIDED)
ELEV. = 210.640	ELEV. = 207.400	ELEV. = (NOT PROVIDED)

MAINLINE POB	MAINLINE CURVE - PC	MAINLINE CURVE - PT	MAINLINE CURVE - POE
STA. I+000.000	STA. I+063.058	STA. I+068.224	STA. I+100.000
N = 116482.142	N = 116422.401	N = 116417.457	N = 116386.759
E = 457890.580	E = 457910.762	E = 457912.256	E = 457920.463

## GPS CONTROL POINT INFORMATION

### SPRINGS TEMP 1 - REBAR

NORTHING - 116568.667  
 EASTING - 457868.082  
 ELEVATION - 210.640

LOCATION - CLARENDON SPRINGS, 3 MILES SOUTH OF WEST RUTLAND

FROM THE JUNCTION OF ROUTES 4A AND 133 IN WEST RUTLAND, TAKE RTE 133 SOUTH FOR 2.25 MI TO A "Y" INTERSECTION. GO LEFT ON A PAVED ROAD FOR 1.2 MI. TO A GRAVEL ROAD LEFT (EAST). GO LEFT (EAST) ON THE GRAVEL ROAD FOR 50 METERS TO AN INTERSECTION AND THE OLD CLARENDON SPRINGS HOTEL AND THE MARK ON THE LEFT. THE MARK IS A REBAR WITH A DRILL HOLE IN IT, LEFT 0.3 M BELOW GROUND LEVEL. THE MARK IS 12.2 M SOUTH OF THE SW CORNER OF A 3 1/2 STORY BRICK BUILDING, 16.0 M SW OF THE SE CORNER OF A 3 1/2 STORY BRICK BUILDING, 2.1M SW OF POLE # I25-2/8-10/2.

### SPRINGS TEMP 2 - REBAR

NORTHING - 116259.353  
 EASTING - 457956.596  
 ELEVATION - 207.400

LOCATION - CLARENDON SPRINGS, 3 MILES SOUTH OF WEST RUTLAND

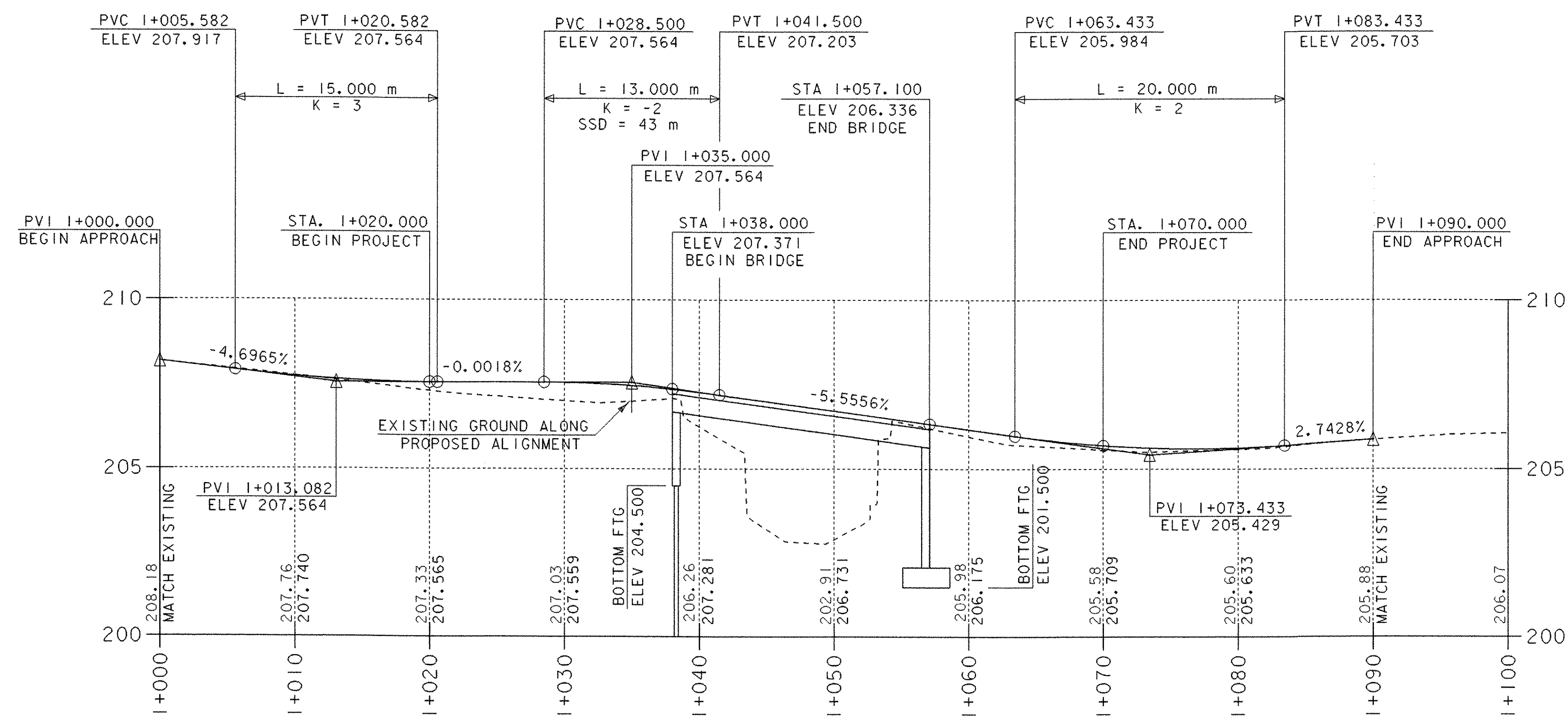
FROM THE JUNCTION OF ROUTES 4A AND 133 IN WEST RUTLAND, TAKE RTE 133 SOUTH FOR 2.25 MI TO A "Y" INTERSECTION. GO LEFT ON A PAVED ROAD FOR 1.2 MI. TO A GRAVEL ROAD LEFT (EAST). GO LEFT (EAST) ON THE GRAVEL ROAD FOR 50 METERS TO AN INTERSECTION AND THE OLD CLARENDON SPRINGS HOTEL AND THE MARK ON THE LEFT. THE MARK IS A REBAR WITH A DRILL HOLE IN IT, LEFT 0.3 M BELOW GROUND LEVEL. THE MARK IS 8.5 M SOUTH OF POLE # I25-7/1, 3.2 M WEST OF THE CENTERLINE OF A GRAVEL ROAD, 8.7 M SE OF THE CORNER OF A WOOD AND WIRE FENCE.

**DATUM**  
 VERTICAL NAVD 88  
 HORIZONTAL NAD 83/92 GPS

NOTE: THE TIE DISTANCES ARE IN METERS.

SHEET NAME: <b>TIE SHEET</b>	
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: TH 16
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286+1e.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R.WHITCOMB	DRAWN BY: P.T.LONSDALE
DESIGNED BY: C. CARLSON	IPARM NAME: sj286+1e.1
BRIDGE SHEET NUMBER:	SHEET 8 OF 43

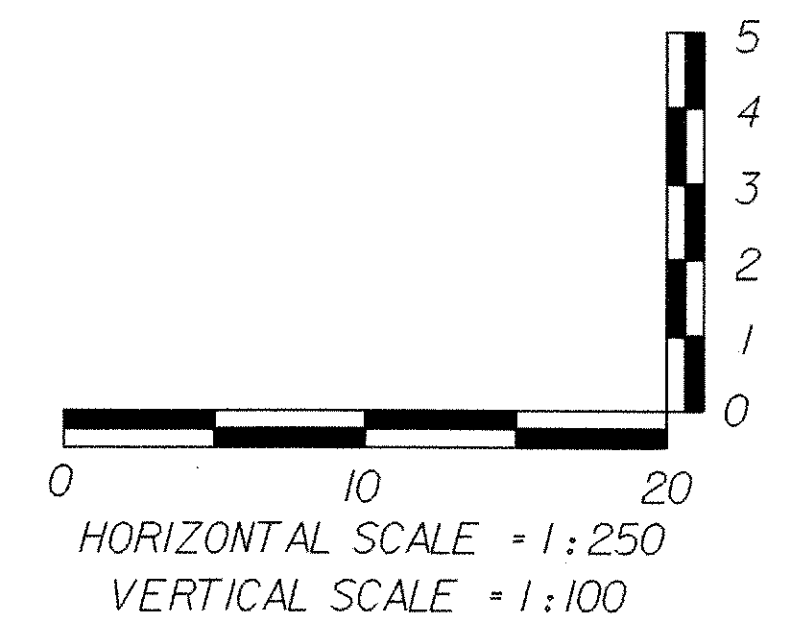




### Profile

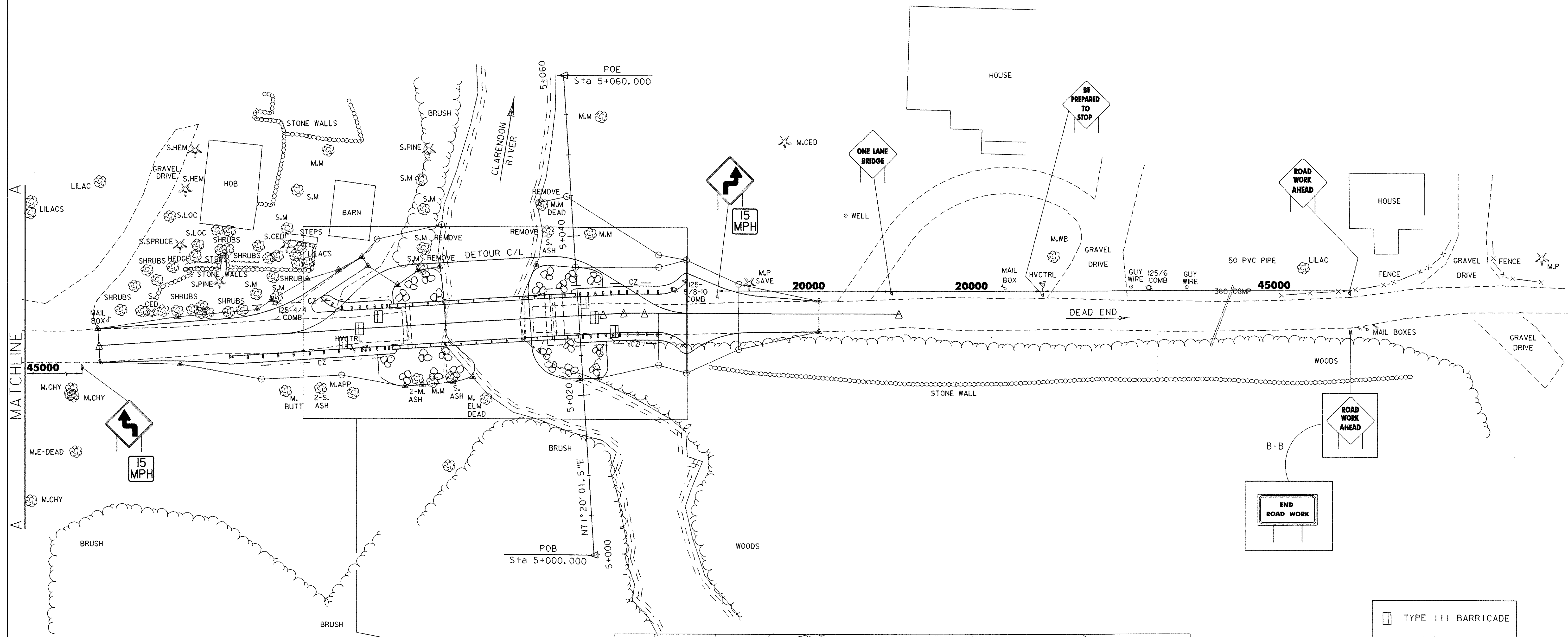
**NOTE:**

GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE OLD GROUND ALONG THE CENTERLINE. GRADES SHOWN TO THE NEAREST THOUSANDTH ARE THE PROPOSED FINISHED GRADE ALONG THE CENTERLINE.

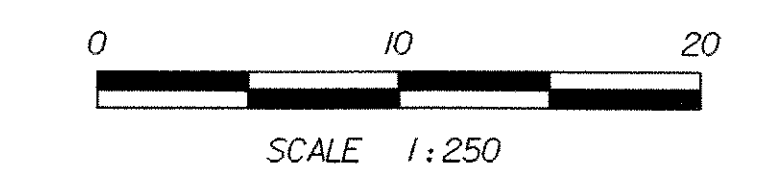
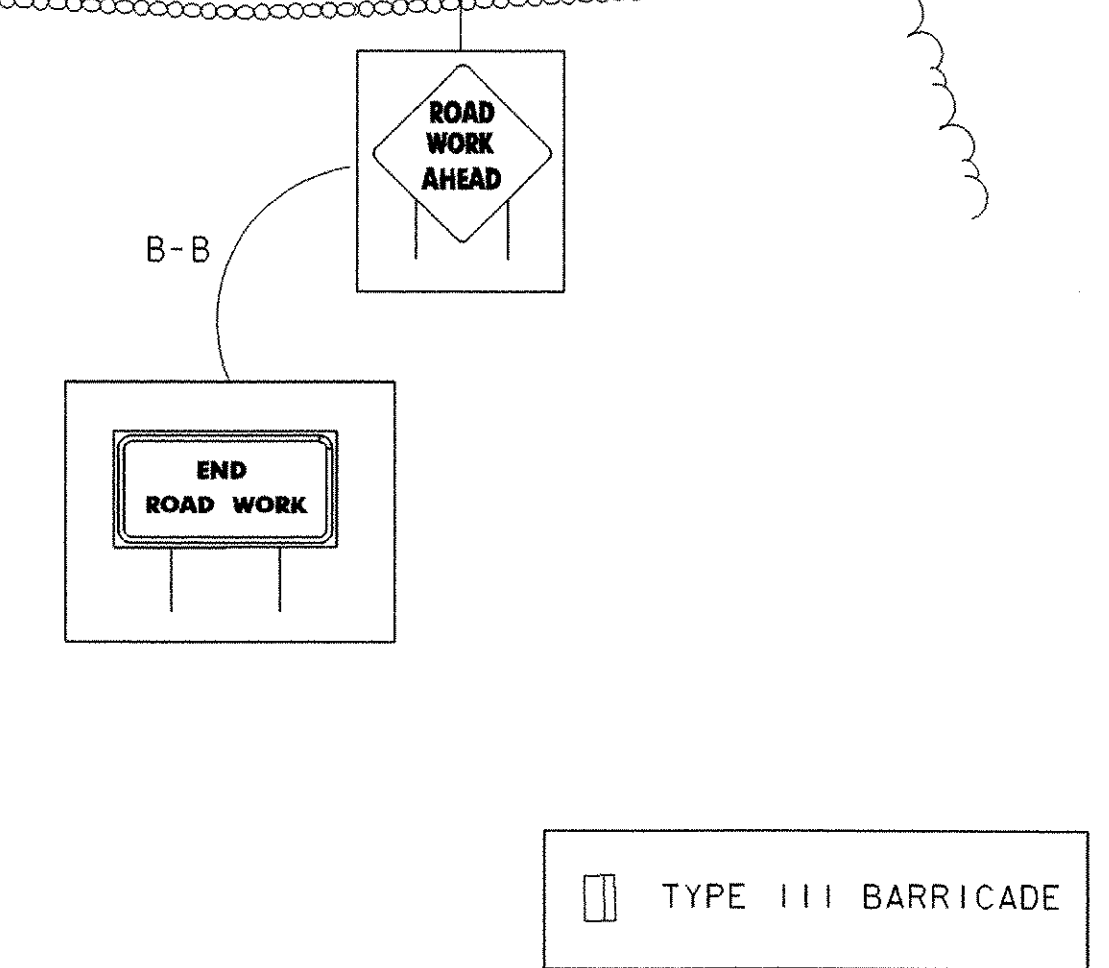
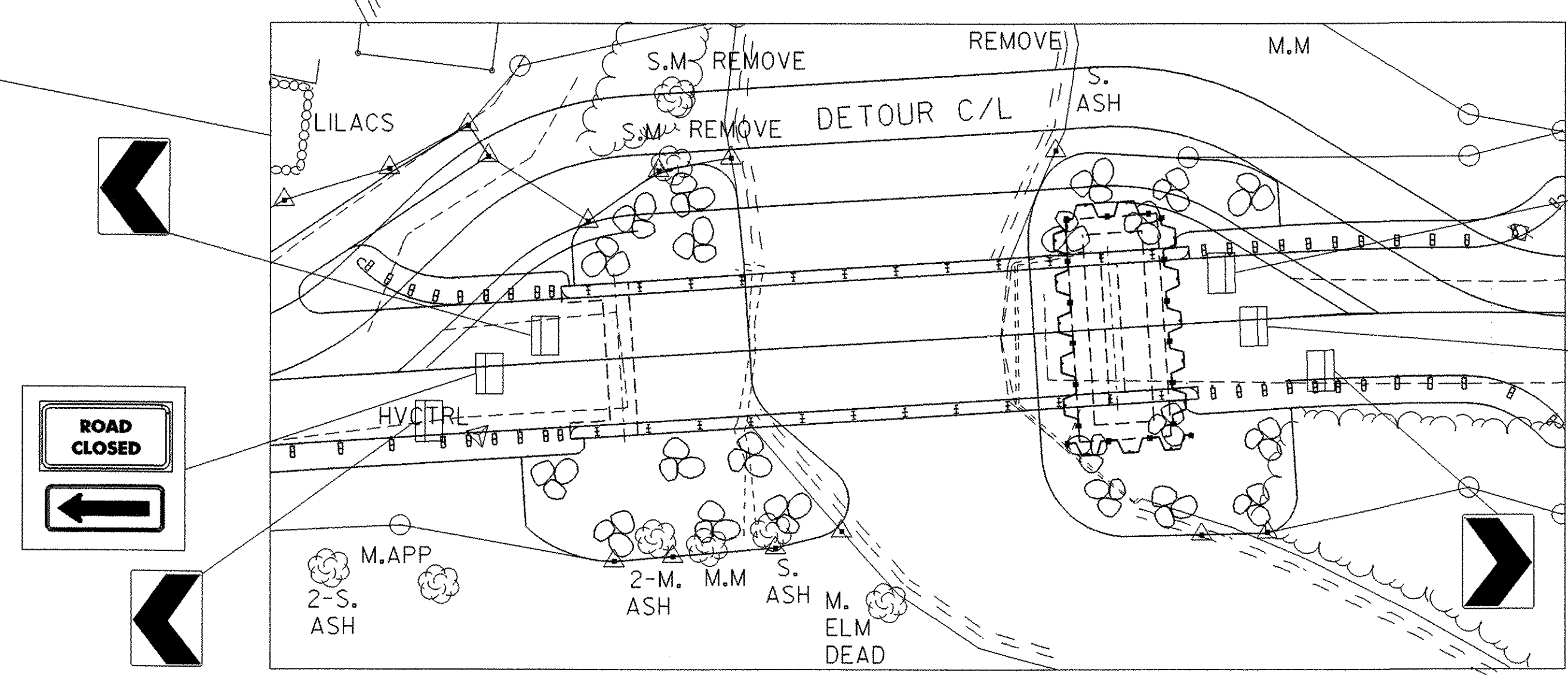


SHEET NAME: <b>MAINLINE PROFILE</b>	
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: TH 16
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95j286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286pl.i
BRIDGE SHEET NUMBER:	SHEET 10 OF 43





MATCHLINE



<b>SHEET NAME: TRAFFIC CONTROL SHEET 2</b>	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286+c.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE
DESIGNED BY: C. CARLSON	IPARM NAME: sj286+c2.1
BRIDGE SHEET NUMBER:	SHEET 12 OF 43

GPS CONTROL POINTS

**HVCTRL # 1**  
 Standard Disk Stamped  
 25-2 Temp  
 NORTH = 127415.261  
 EAST = 465368.172  
 ELEV. =

From the junction of route 7 and route 4 east in Rutland, go east on route 4 for 3.4 miles to its intersection with Park Lane on the left and the mark on the left in the northwest quadrant of the intersection. The mark is a 1m (3ft) rebar, with a drill hole, driven into the ground  
 12.7 m (41.7ft) south of a gate post (old tel pole)  
 10.6m (34.8ft) northeast of the end of a metal guardrail on park lane  
 10.1m (33.1ft) east of a fence corner and conc highway bound  
 1.4m (4.6ft) west of the west edge of route 4

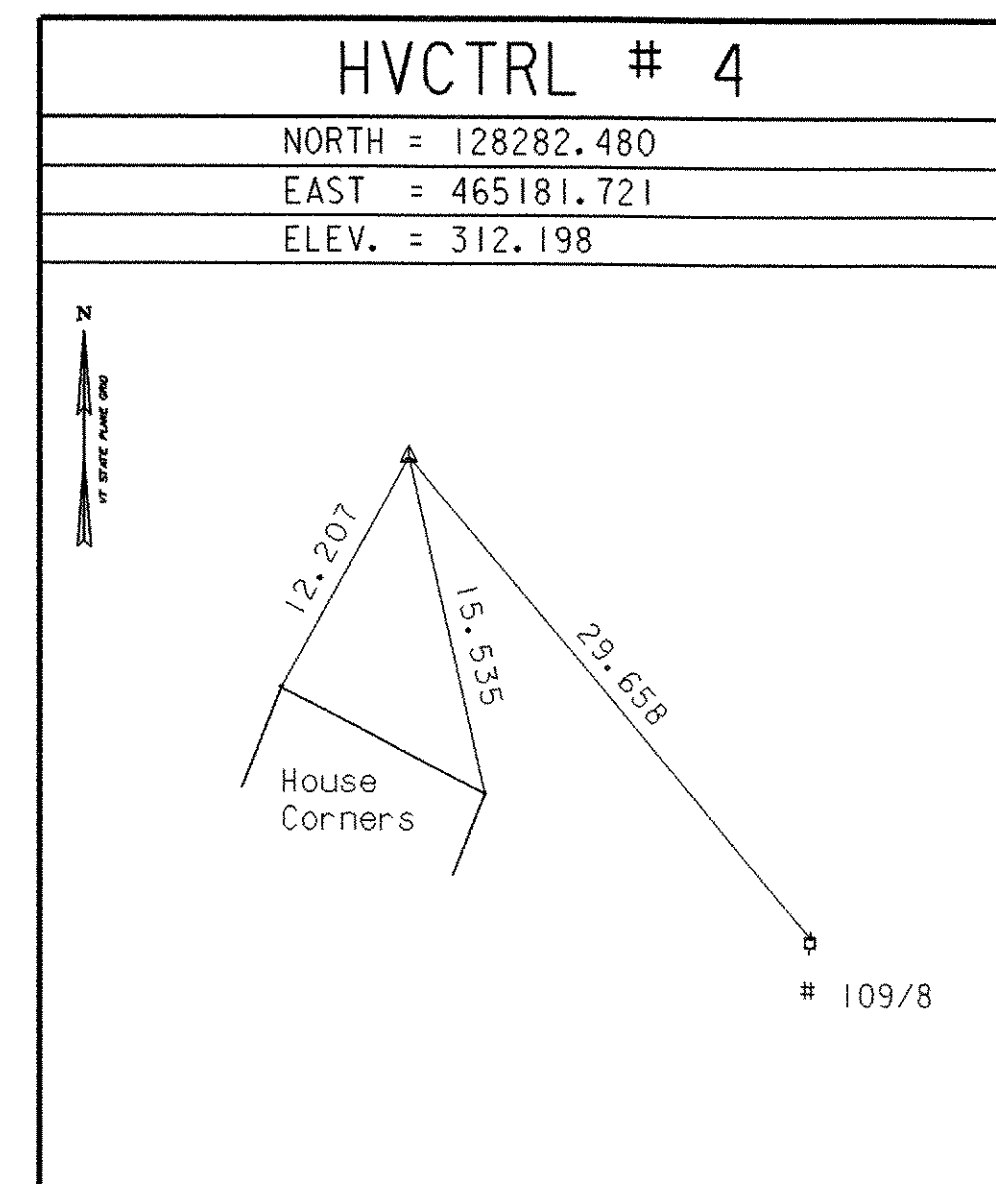
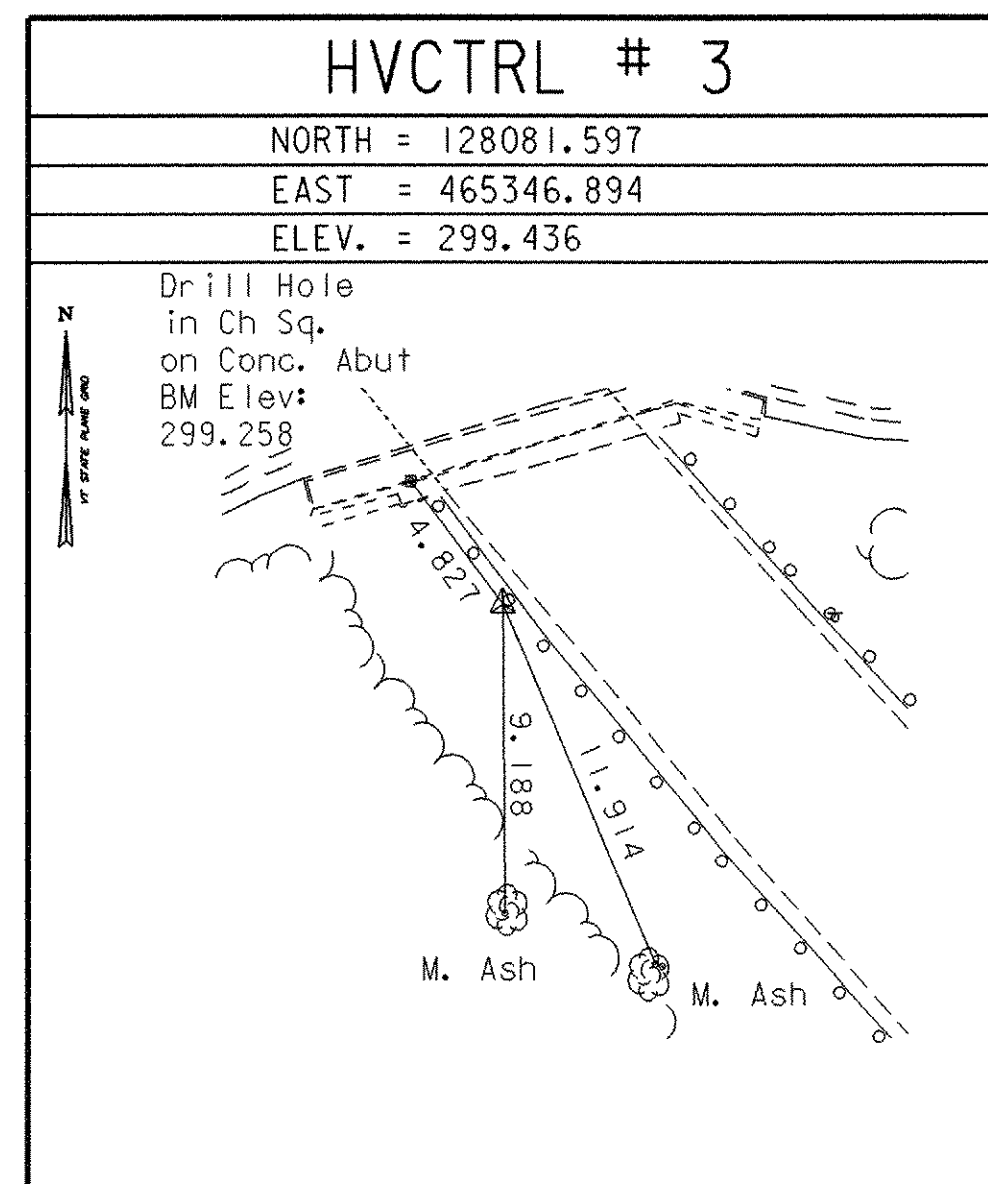
**HVCTRL # 2**  
 Standard Disk Stamped  
 Mendon  
 NORTH = 127997.517  
 EAST = 465501.393  
 ELEV. = 317.408



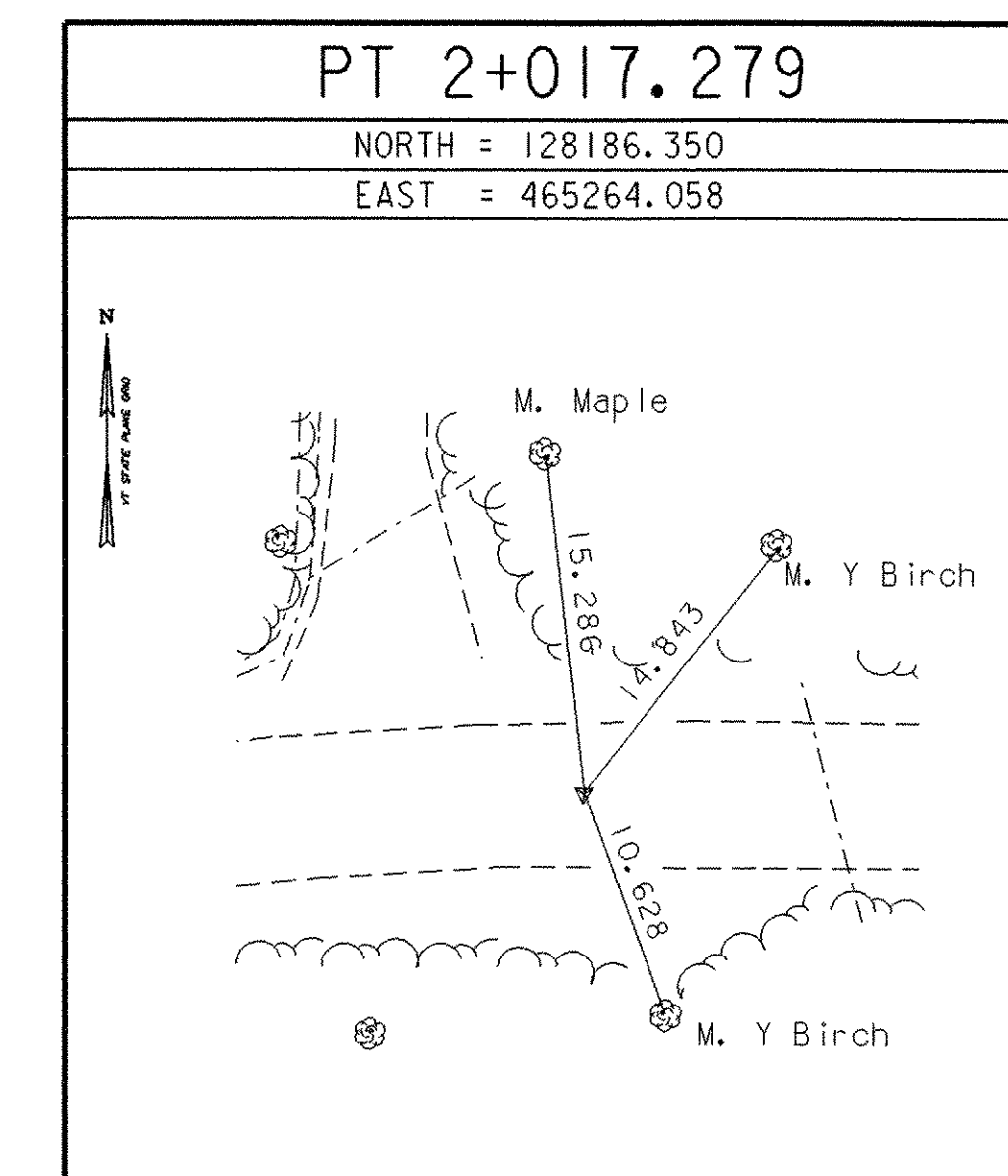
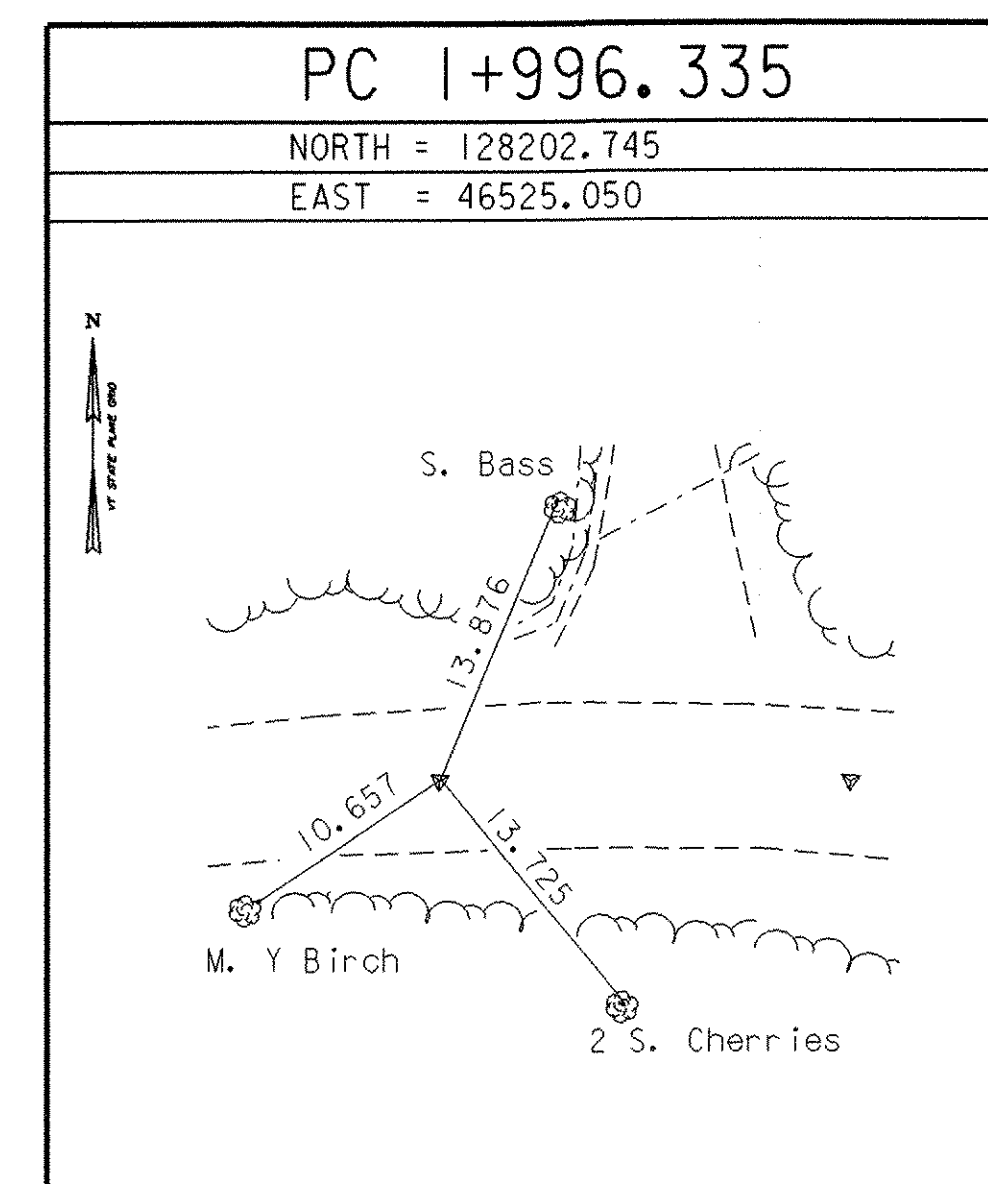
Station Mendon was reported destroyed

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

TRAVERSE TIES

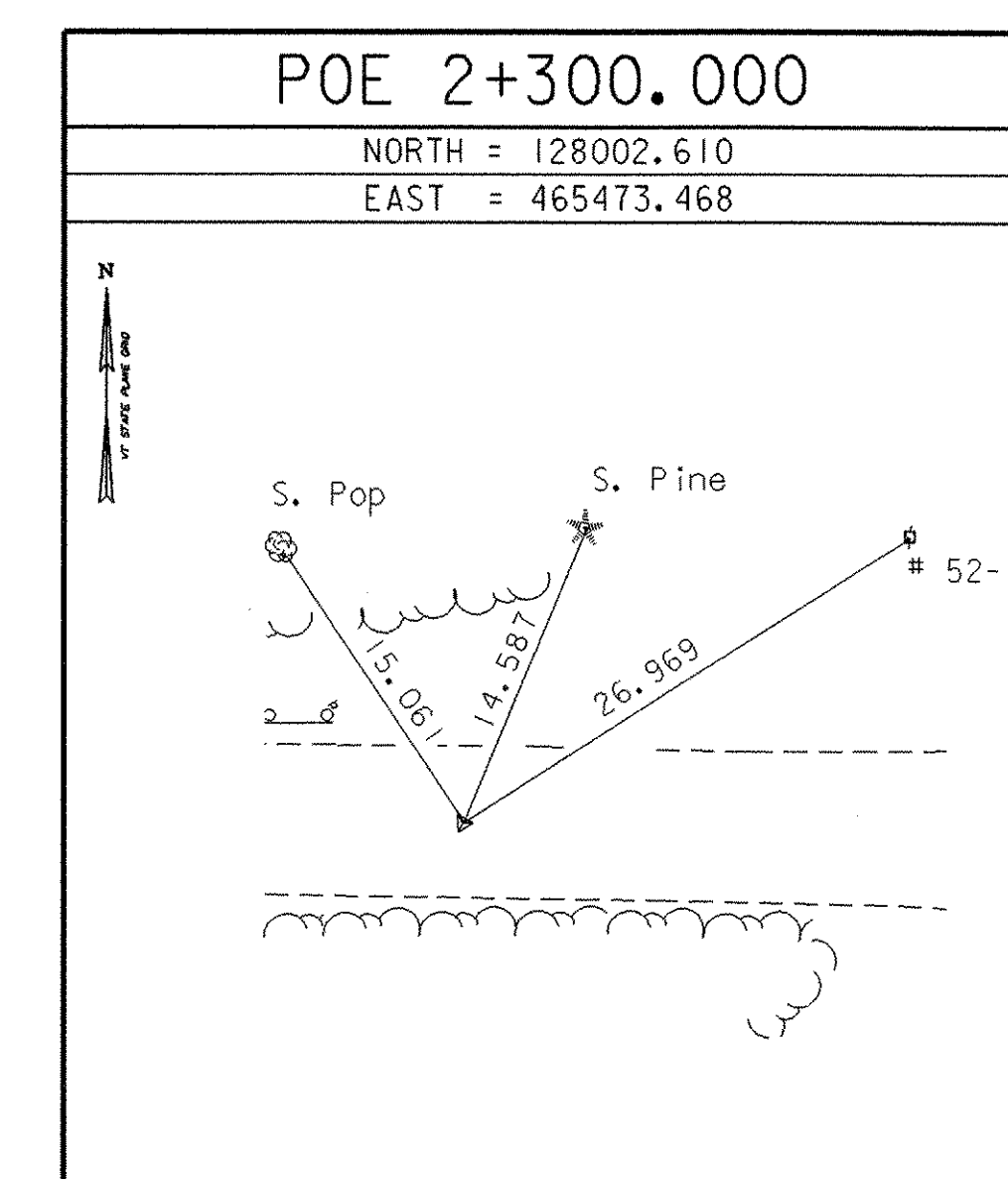
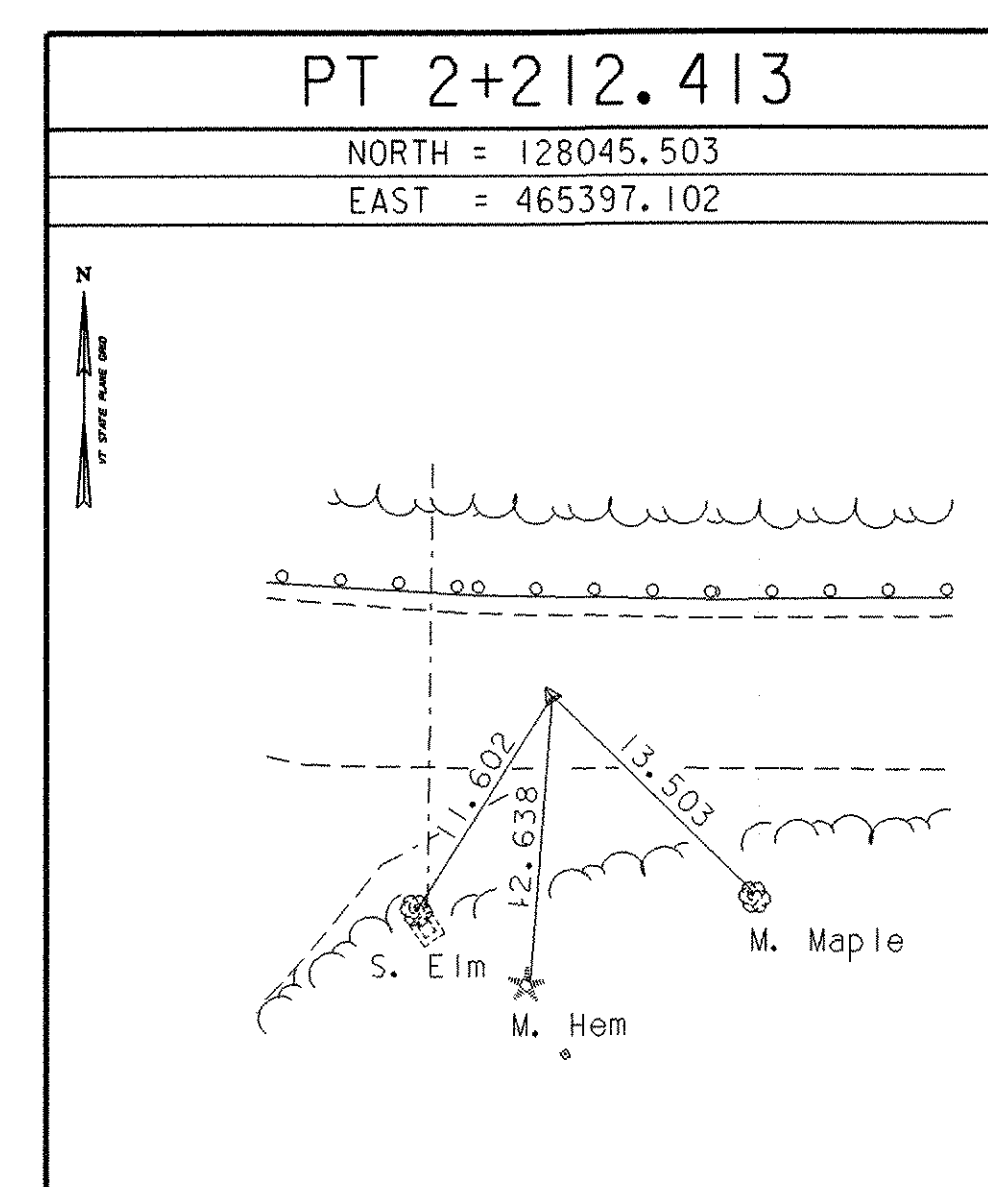
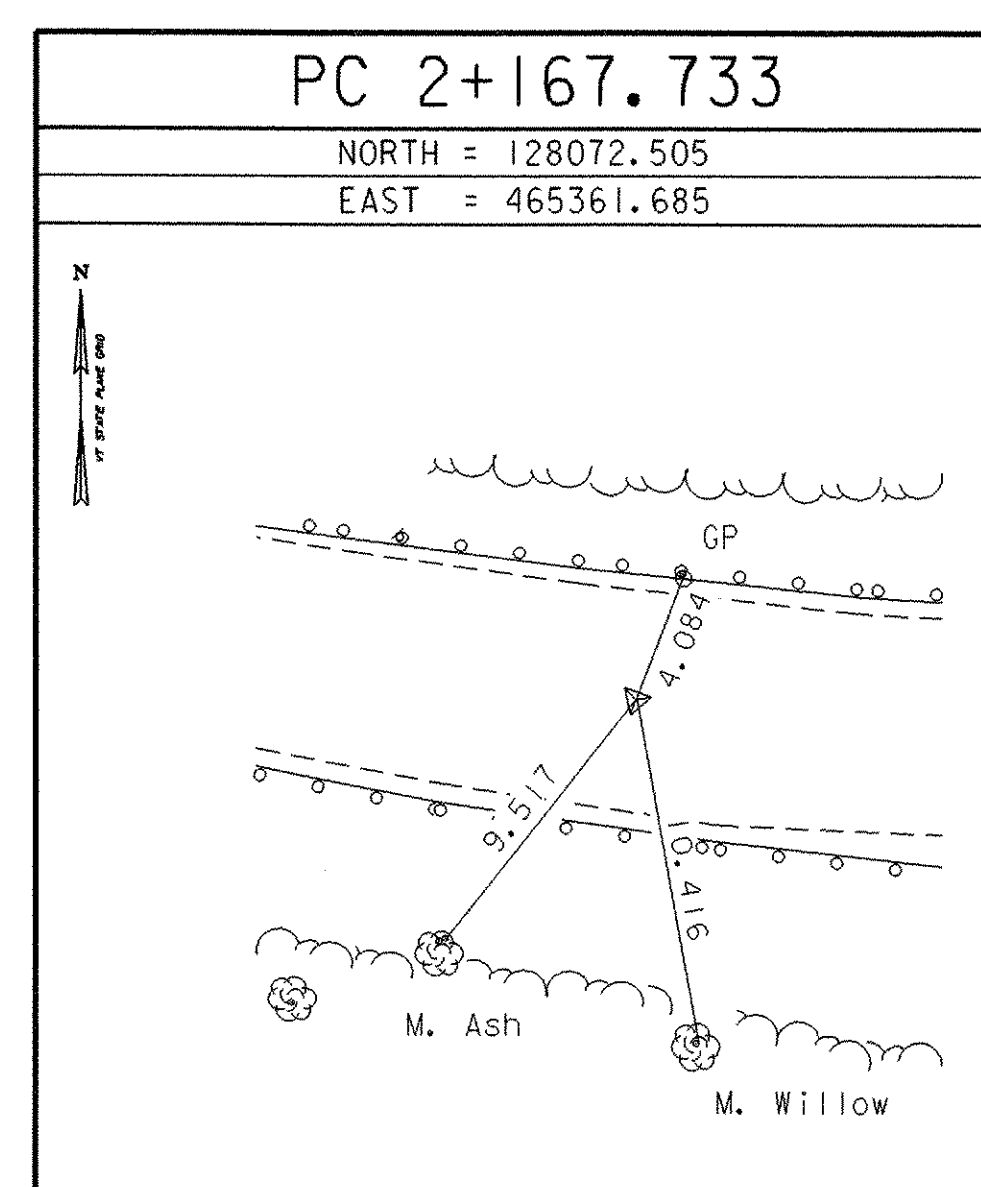
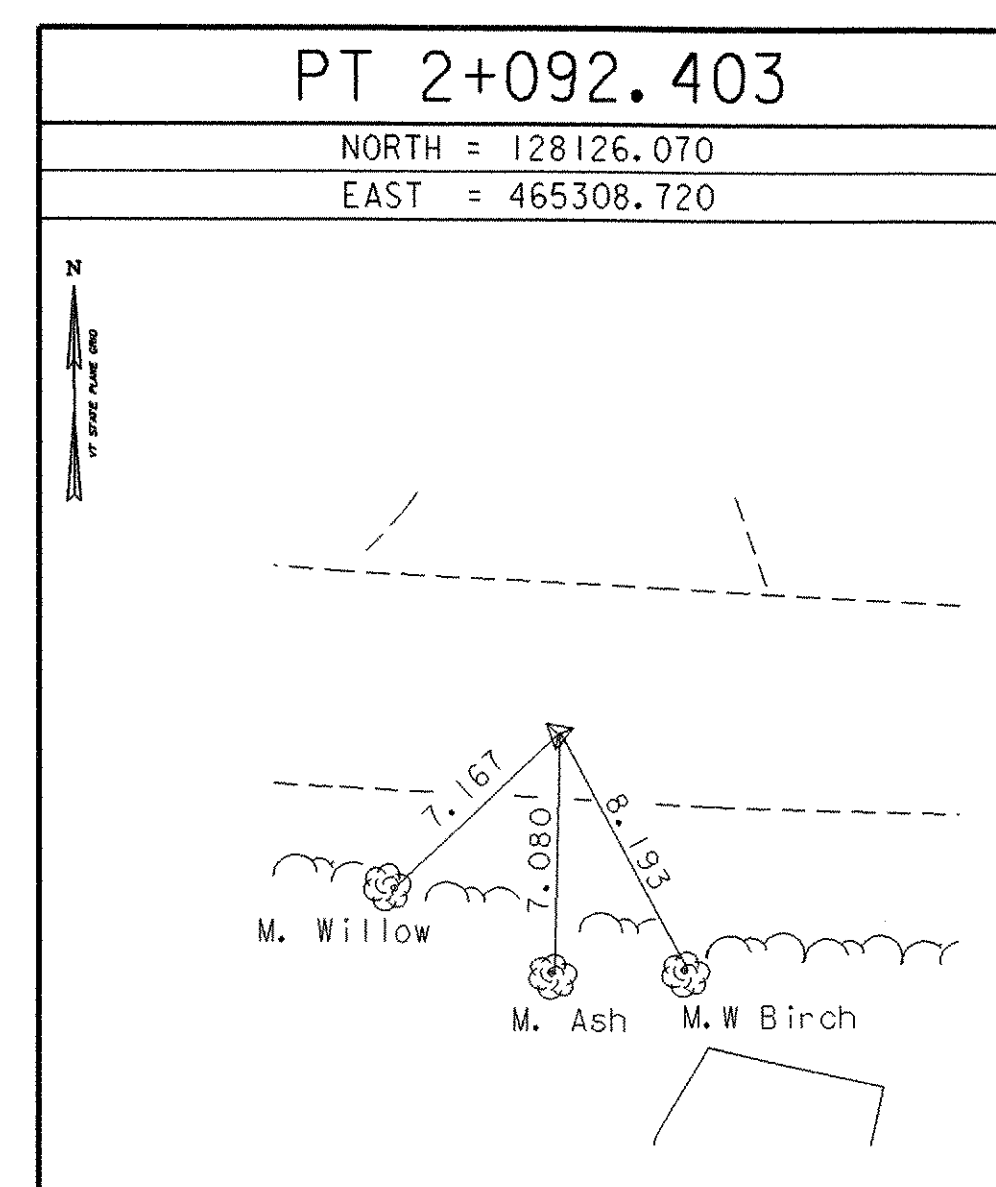
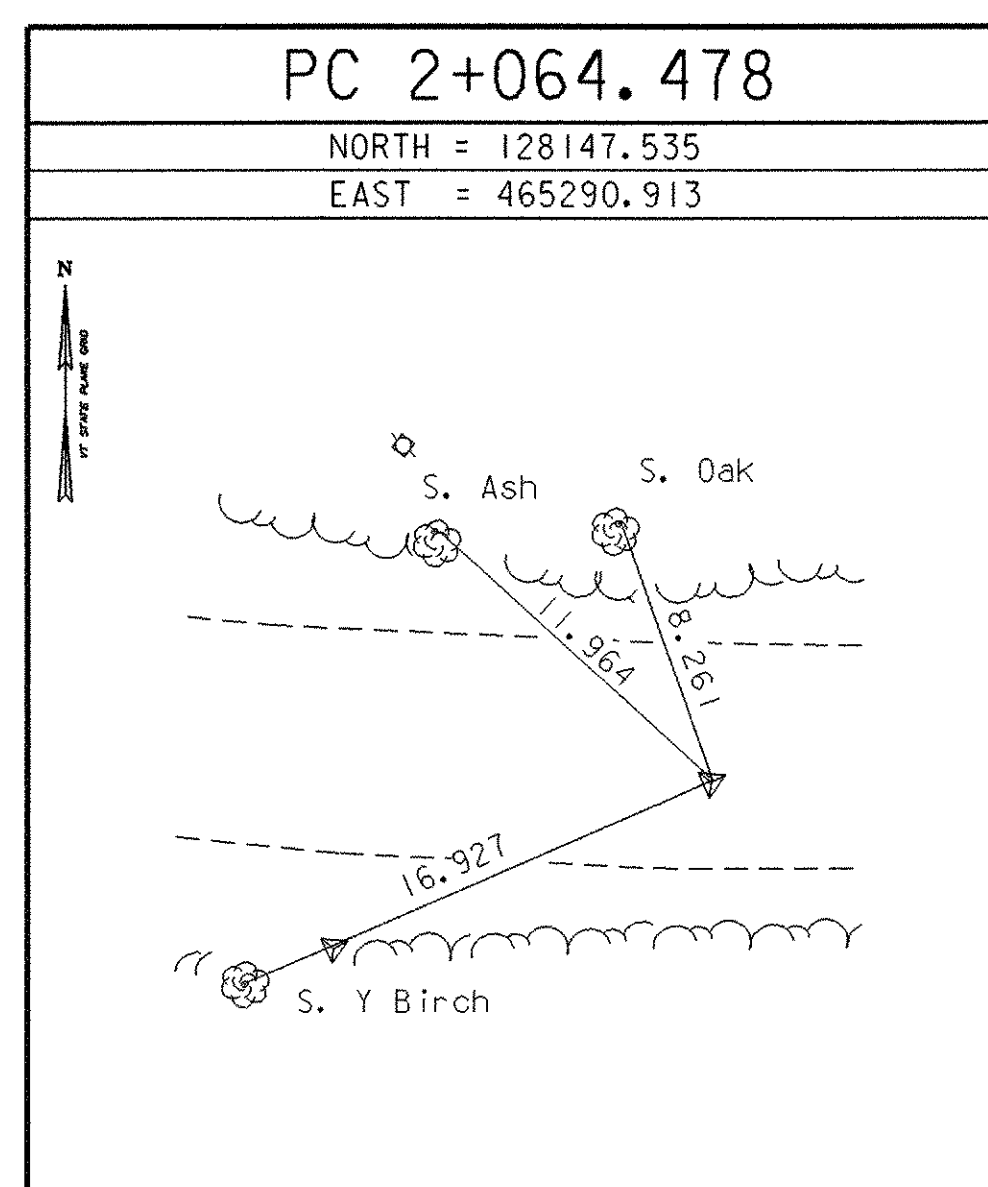


ALIGNMENT TIES



\* Main Traverse Completed 01/31/96 by L. Orvis P.C. & R. Bullock

ALIGNMENT TIES



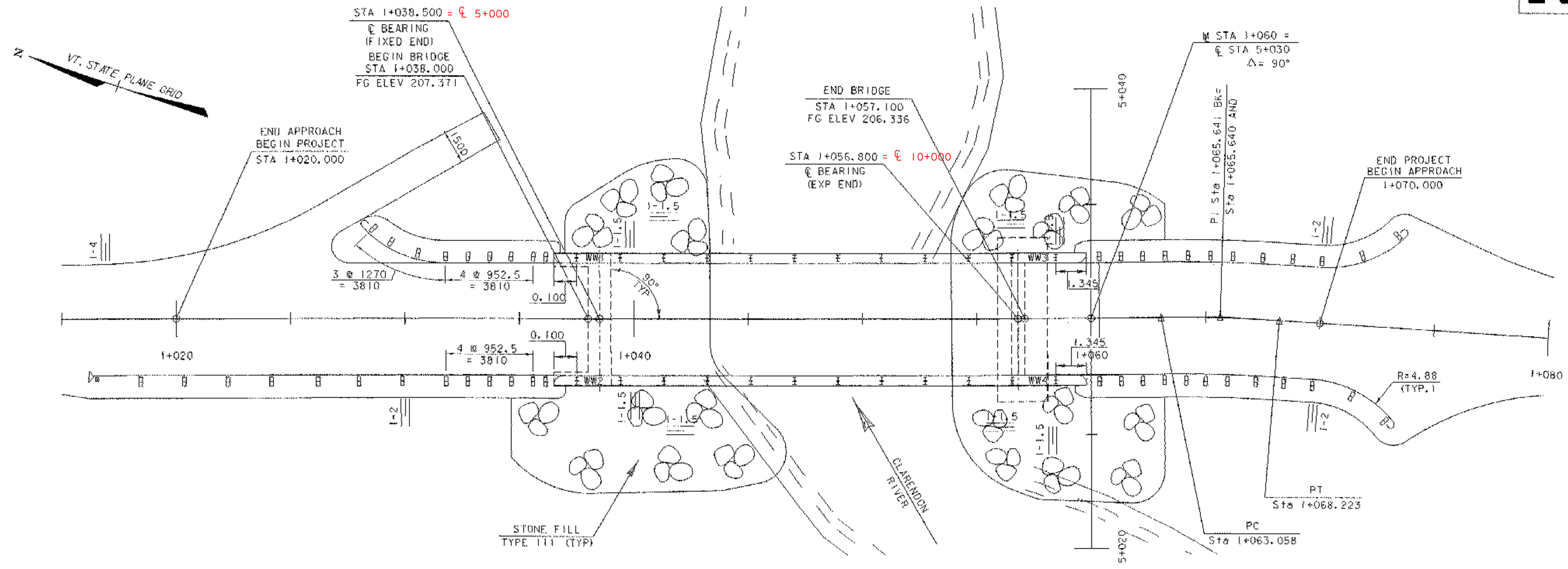
\* Alignment Staked 03/25/99 by L. Orvis P.C. & R. Bullock

<b>DATUM</b>	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92
ADJUSTMENT	none

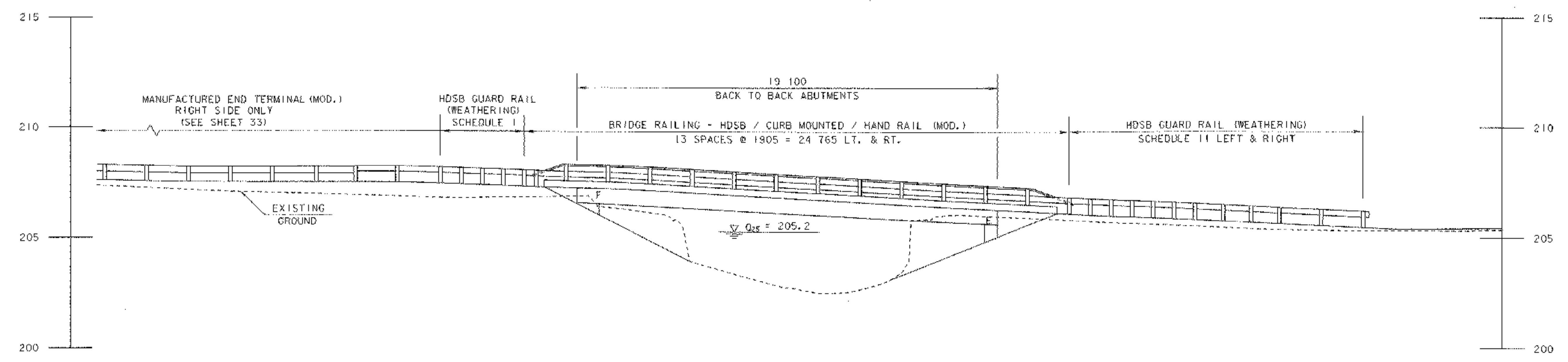
PROJECT NAME:	Mendon
PROJECT NUMBER:	BR0 1443 (35)
FILE NAME:	95j290/survey/xj290ti.dgn
PROJECT LEADER:	C. KELLER
DESIGNED BY:	M. EVANS-MONGEON
PLOT DATE:	18-NOV-2005
DRAWN BY:	R. Bullock
CHECKED BY:	
SHEET	13 OF 94







**PLAN**  
 0 1 2 4 6 8 10  
 SCALE = 1:100



**ELEVATION**  
 0 1 2 4 6 8 10  
 SCALE = 1:100

<b>SHEET NAME: PLAN AND ELEVATION SHEET</b>	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/951286/sj286pe.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STIN
DESIGNED BY: C. CARLSON	IPARM NAME: sj286pe.I
BRIDGE SHEET NUMBER:	SHEET 16 OF 43

**PROJECT DESCRIPTION**

This project involves reconstruction of a bridge over the Clarendon River, in a residential neighborhood, on a Class III town highway, in the town of Clarendon. A new single span, precast concrete bridge will be constructed on the existing alignment while traffic is maintained on a temporary bridge located downstream of the existing bridge.

Total disturbed area (excluding waste, borrow and staging areas): 0.12 ha (0.3 ac.)

**SITE INVENTORY AND ANALYSIS**

**OFF SITE DRAINAGE CHARACTERISTICS:**

There are no obvious drainage ways off-site of the project. The surrounding areas are relatively flat with the exception of the NE quadrant. This quadrant has an approximate slope of 33%. The runoff from this quadrant is expected to be parallel to the project flowing directly towards the Clarendon River.

**DRAINAGE, WATERWAYS, BODIES OF WATER:**

The Clarendon River flows through the project site. The river is described as alluvial, sinuous and probably incised, flat sloping with a wide flood plain. The streambed nature consists of gravel, cobbles and a few boulders. The drainage area at the bridge is approximately 61 square kilometers. There are wetlands indicated in the plans including a Class III wetland in the SE quadrant of the site.

**TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:**

Existing topography near the bridge consists of a moderate (5%-20%) sloping river bank along the northern side of the river and a more gently sloping (0%-15%) bank along the southern side of the river. The river banks range in height along the southern side from negligible to 3 meters and from 2 meters to 4 meters along the northern bank.

Overhead utility lines will be relocated as indicated on the project plans.

There are no buildings located within the project limits.

**VEGETATION:**

Vegetation in the immediate vicinity of the bridge consists of a mixture of trees and shrubs including Red maples, Ash, Willow, Speckled Alder, Blue beech and Red Osier Dogwood. There are also grass lawns along the eastern side of the project.

**SOILS:**

The soils within the project area have been identified as Windsor loamy fine sand found on 8 to 15% slopes. This soil type is described as very deep, strongly sloping, excessively drained soil on terraces dissected by drainageways and the tops of knolls and ridges.

The k-factor for this soil is: 0.17. This is in the low erodibility range.

**SENSITIVE RESOURCE AREAS:**

There is a Class II wetland that has been identified as shown in the plans on the western half of the project. This area will be protected during construction. There is also a small Class III wetland in the SE quadrant. There is a dug well water supply at station 1+093.3 Left. Although the well is not within the project limits extra awareness should be used while working within the vicinity.

No 'Threatened & Endangered Species' have been identified within the Aproject limits and there will be no adverse effect to Historic or Archaeological features.

**PROXIMITY TO NATURAL OR MAN MADE WATER FEATURES**

As noted before the Clarendon River flows through the project. There are outlying wetlands that surround the project. There is a man made well within the vicinity of the site. All areas of specific concern will be protected during construction.

**TEMPORARY EROSION PREVENTION AND 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 with construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for several days prior to final grading shall be tracked and mulched. Slopes shall be stabilized within 48 hours of forecasted rain.

Seeding, mulching and biodegradable erosion control matting, or an equivalent, shall be used to stabilize all slopes greater than 1V:3H. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction.

stabilized within 48 hours of reaching final grade or during intermittent phases of construction.

Silt fence will be installed a distance of 1500 - 3000 (5'-10') from the toe of fill slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with the lower edge buried 150 (6") to prevent underflow and ends turned slightly up grade to create a ponding effect should water try to run along the fencing and around the ends. The maximum slope length between separate runs of silt fence shall be 30,000 (100'). Silt fence shall be installed prior to any upslope earthwork.

Filter curtain shall be used in the channel to prevent sediment flow downstream. The filter curtain shall be installed as shown in the Erosion Control Details.

Measures such as silt fence and filter curtain shall be regularly maintained and shall be checked for sediment build-up. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediment shall be disposed of at an approved site such that it will not be subject to erosion.

Stabilized construction entrances to the project site, staging areas, as well as to waste and borrow areas shall be established. The minimum size of a stabilized construction entrance is 3700 x 15000 (12'x 50'). All surface water flowing to or diverted towards a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area, however, no pipes smaller than 150mm diameter shall be used. See typical detail on 'Erosion & Sediment Control Plan' sheet for materials and construction method to be utilized when constructing a stabilized entrance.

Temporary sediment settling basins will be utilized on this project. It should be sized based upon the following criteria:

PUMP FLOW RATE	REQUIRED SURFACE AREA	LENGTH / WIDTH = 2:1					
		L (ft)	W (ft)	L (m)	W (m)		
Q (gpm)	Q (m <sup>3</sup> /s)						
50	0.0032	595	55	35.0	17.0	10.6	5.3
100	0.0063	1200	111	49.0	24.5	15.0	7.5
150	0.0095	1776	165	59.6	29.8	18.2	9.1
200	0.0126	2368	220	68.8	34.4	21.0	10.5
250	0.0158	2970	276	77.0	38.5	23.4	11.7
300	0.0189	3560	330	84.4	42.2	25.8	12.9
350	0.0221	4155	386	91.2	45.6	27.8	13.9

**PERMANENT EROSION CONTROL MEASURES:**

Several permanent erosion control measures will be utilized:

Stone lining of the stream banks with Stone Fill, Type III as specified by the VTrans Hydraulics unit. The stone lining will stabilize the existing bank in order to protect it from erosion during storm and high water events.

All disturbed areas will be seeded and mulched in order to promote growth of vegetation to prevent erosion in the future.

Stream bank vegetation will be introduced in the grubbing material that is to be placed over the stream bank rip rap.

**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, storm water 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 and On-site Coordinator. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2001.

Install all erosion and sediment control measures as shown in the Erosion Control Plan or as directed by the Engineer and On-site Coordinator. Do not modify the type, size or location of any control or practice without approval of the Engineer and On-site Coordinator. 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 or replace any damaged measures.

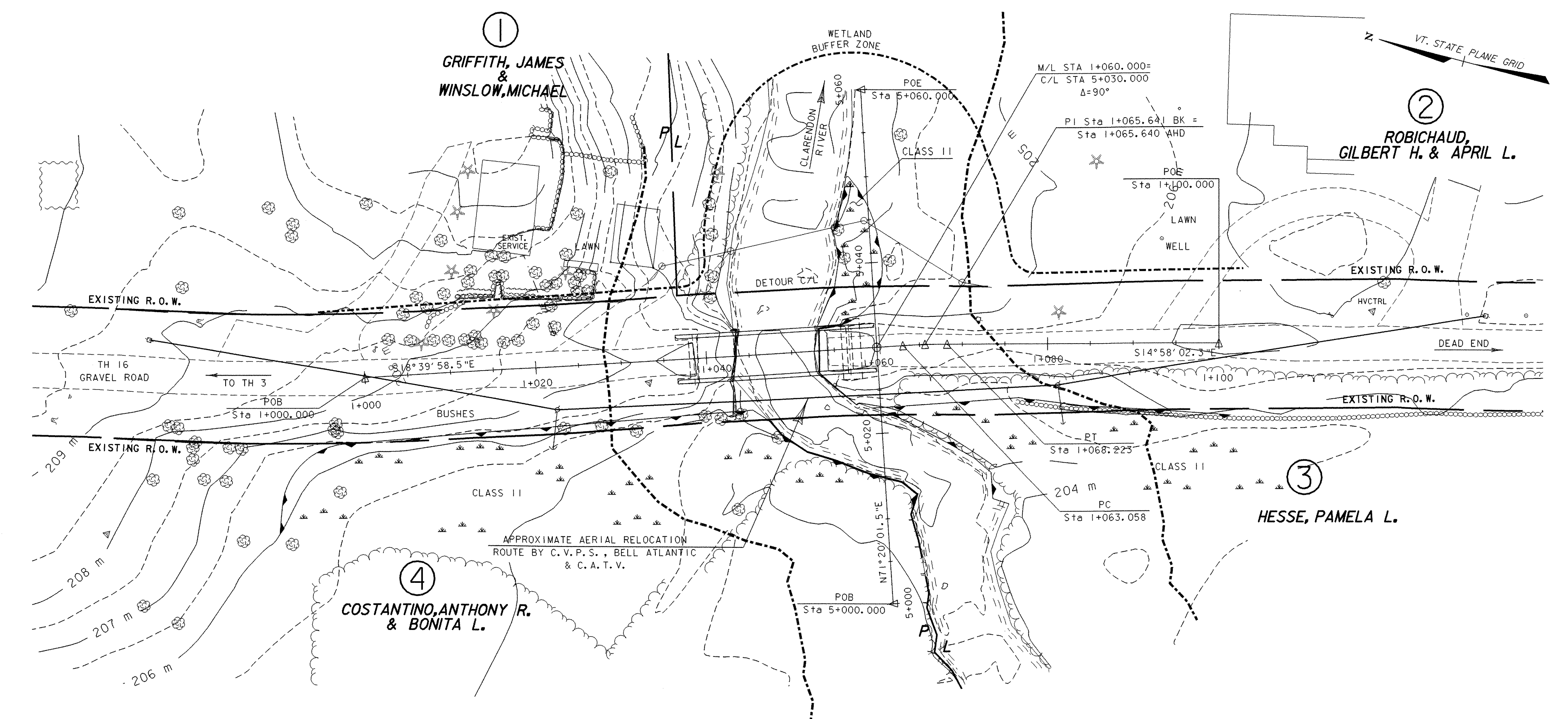
Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas promptly after construction activity has temporarily or permanently ceased. Temporary vegetation shall be established if the area is to be without construction activity for a 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 established wherever possible.

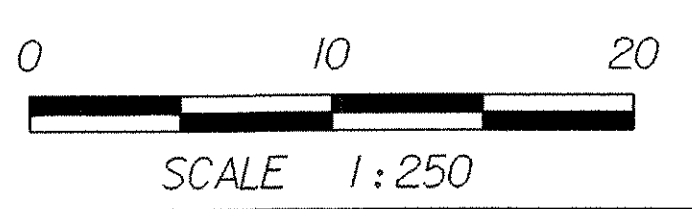
Control only sediment-laden runoff generated by the project site. Collect and route clean offsite runoff around or through the project site using diversion berms, diversion channels, culverts and/or temporary pipes.

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

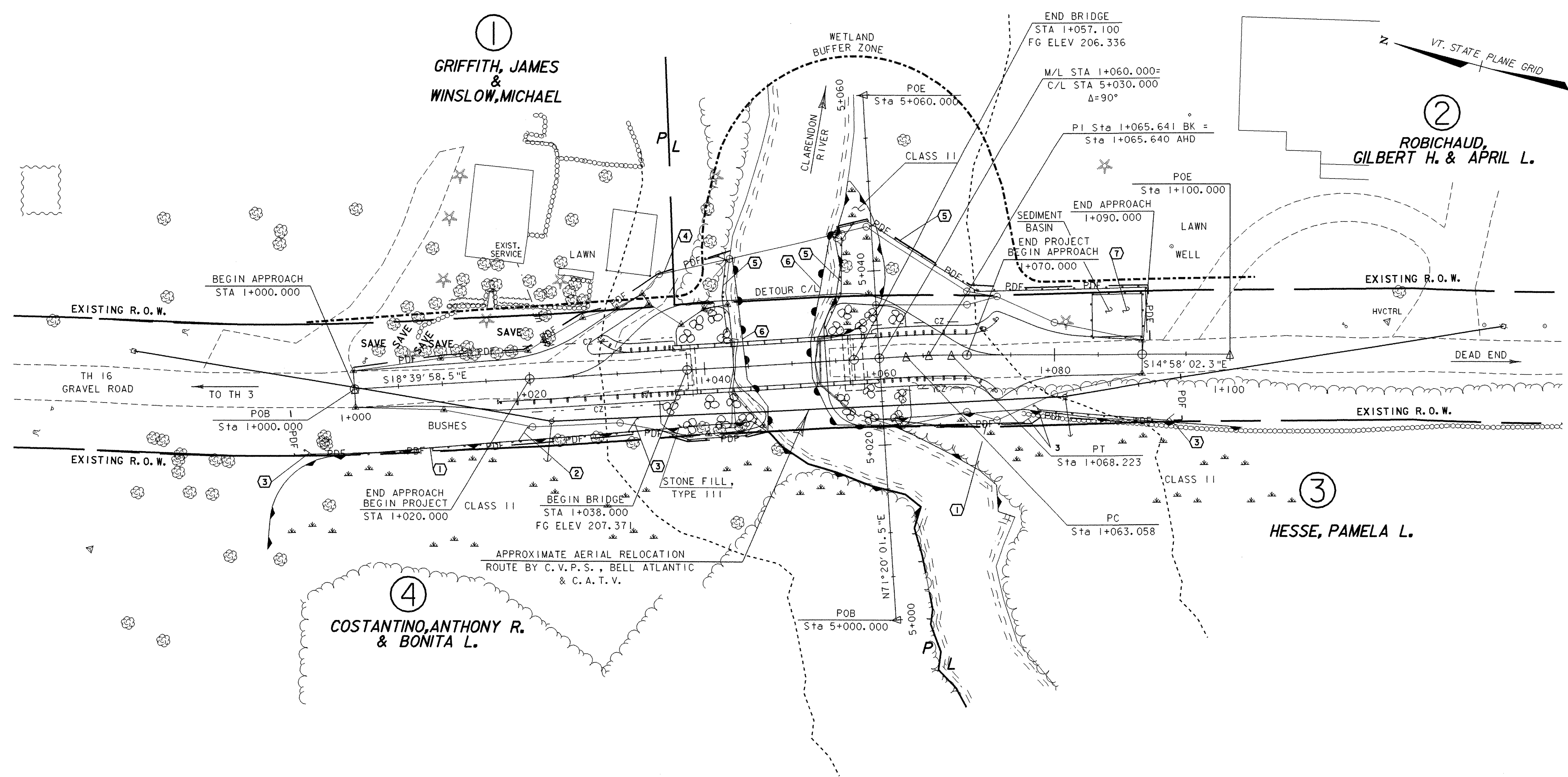
PROJECT NAME: <b>CLARENDON</b>	
PROJECT NUMBER: <b>BRO 1443(34)</b>	
FILE NAME: <b>PW/sj286c.dgn</b>	PLOT DATE: <b>2/4/2005</b>
PROJECT MANAGER: <b>R.R. WHITCOMB</b>	DRAWN BY: <b>J. PERRIGO</b>
DESIGNED BY: <b>C. CARLSON</b>	CHECKED BY: <b>BONNEAU</b>
<b>EROSION CONTROL NARRATIVE</b>	SHEET <b>17</b> OF <b>43</b>



LEGEND	
	WETLANDS
	RIPARIAN BUFFER



SHEET NAME: EXISTING CONDITIONS SITE PLAN	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286ec.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. PERRIGO
DESIGNED BY: C. CARLSON	IPARM NAME: sj286ec1.1
BRIDGE SHEET NUMBER:	SHEET 18 OF 43



①  
GRIFFITH, JAMES  
&  
WINSLOW, MICHAEL

②  
ROBICHAUD,  
GILBERT H. & APRIL L.

③  
HESSE, PAMELA L.

④  
COSTANTINO, ANTHONY R.  
& BONITA L.

LEGEND	
	WETLANDS
	FILTER CURTAIN
	SILT FENCE
	PROJECT DEMARCATION FENCE (SNOW FENCE (MOD- PDF))
	STONE FILL, TYPE III
	RIPARIAN BUFFER

**NOTES:**

SILT FENCE INSTALLATION MAY REQUIRE PHASING TO MAXIMIZE EFFECTIVENESS (SUCH AS AROUND TOE OF TEMPORARY DETOUR FILL SLOPE). INSTALL AND/OR MOVE SILT FENCE AS CONSTRUCTION PROGRESSES TO OBTAIN THE GREATEST PREVENTION OF SEDIMENT TRANSPORT.

SILT FENCE SHOULD BE INSTALLED ALONG THE CONTOURS TO PREVENT CONCENTRATION OF RUNOFF. THE ENDS OF EACH RUN OF SILT FENCE SHOULD BE TURNED UPHILL TO PROVIDE A SMALL POOL FOR SILT SHOULD WATER TRY TO RUN AROUND THE END OF THE SILT FENCE.

TIME GRADING TO MINIMIZE SOIL EXPOSURE

RETAIN EXISTING VEGETATION WHENEVER FEASIBLE

STABILIZE (MULCH) ALL DISTURBED AREAS DAILY TO PREVENT MOBILIZATION OF SEDIMENT

KEEP RUNOFF VELOCITIES LOW

PREPARE TEMPORARY DRAINAGEWAYS TO HANDLE CONCENTRATED FLOW UNTIL PERMANENT DRAINAGE IS CONSTRUCTED AND STABILIZED

PREVENT SEDIMENT FROM LEAVING SITE BY MAINTAINING AND MODIFYING PERIMETER CONTROLS AS NEEDED

MONITOR AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES

ALL IN-STREAM CHANNEL WORK TO TAKE PLACE IN A DRY CHANNEL

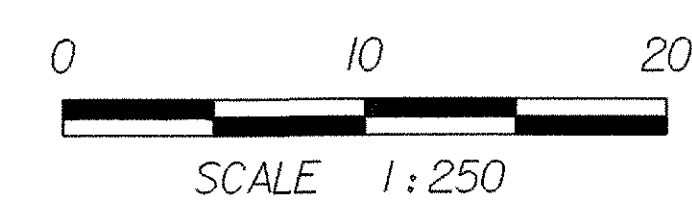
STATE WATER QUALITY STANDARDS WILL BE MAINTAINED AT ALL TIMES

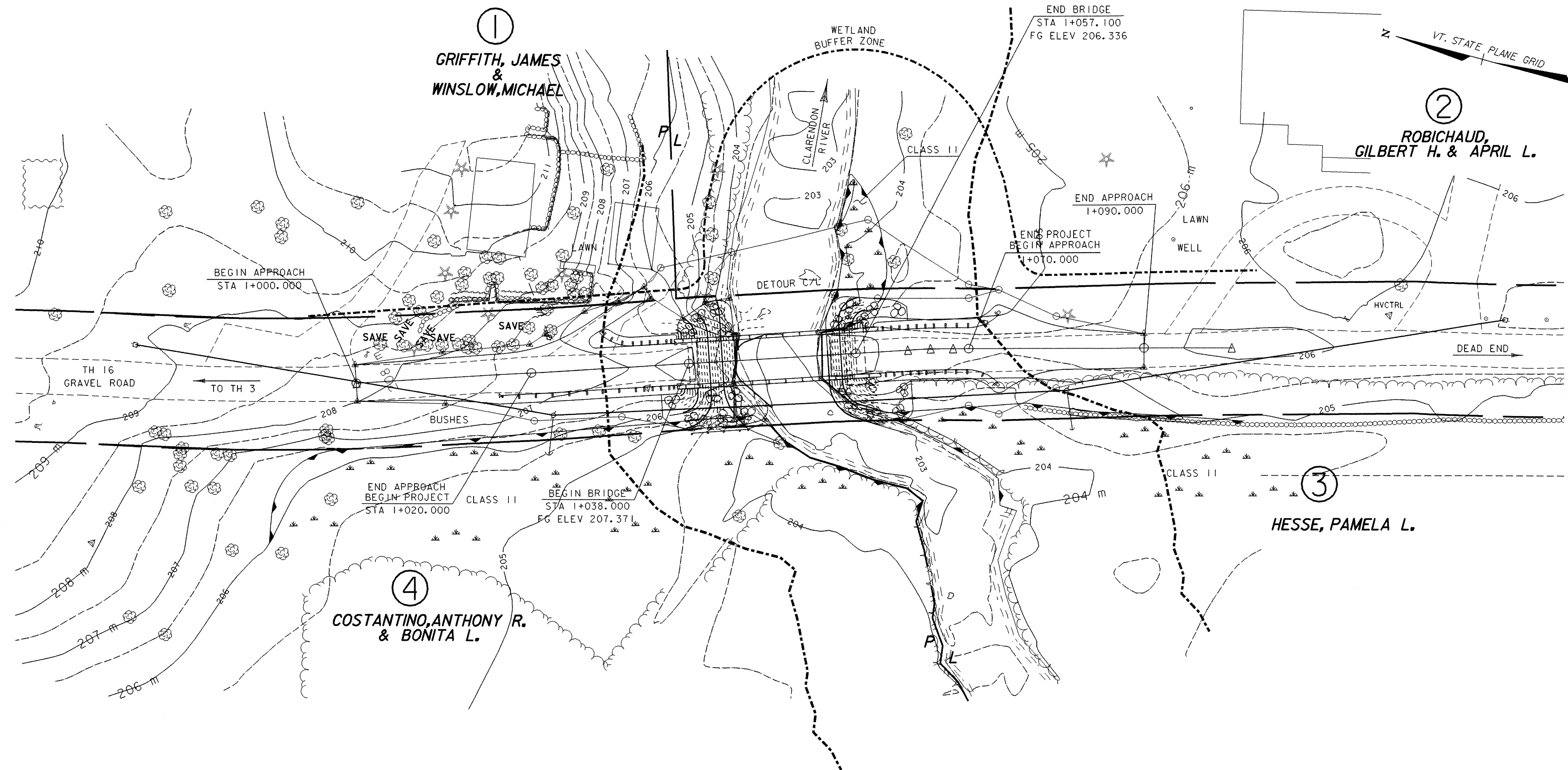
SEE SHEET 21 FOR SEEDING FORMULA

EROSION AND SEDIMENT CONTROL INDEX	
NO.	DESCRIPTION
①	INSTALL CONTINUOUS LINE OF SILT FENCE ALONG EDGE OF WETLAND
②	INSTALL SHORT SECTIONS TO CREATE PONDING OF RUNOFF ALONG FENCE
③	ENDS OF FENCE TURNED UPHILL TO CREATE PONDING
④	PROJECT LIMITS DEMARCATION FENCE (SNOW FENCE (MOD- PDF))
⑤	INSTALL SILT FENCE AT TOE OF DETOUR FILL SLOPES (LOC. APPROX.)
⑥	INSTALL FILTER CURTAIN
⑦	LINE SEDIMENT BASIN WITH PLASTIC & PIPE WATER BACK TO RIVER

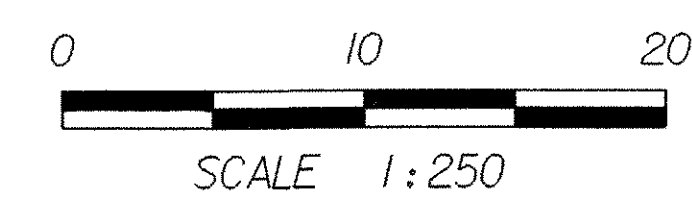
NOTE: ALL DISTURBED AREAS WITH SLOPES GREATER THAN 1V:3H WILL REQUIRE TEMPORARY EROSION MATTING (SEE EROSION CONTROL DETAILS SHEET)

SHEET NAME: <b>EROSION &amp; SEDIMENT CONTROL PLAN</b>	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286ec.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R.R. WHITCOMB	DRAWN BY: J. PERRIGO
DESIGNED BY: C. CARLSON	IPARM NAME: sj286ec2.1
BRIDGE SHEET NUMBER:	SHEET 19 OF 43





LEGEND	
	WETLANDS
	RIPARIAN BUFFER



SHEET NAME:	FINAL CONDITIONS SITE PLAN	
PROJECT NAME:	CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER:	BRO 1443(34)	BRIDGE NO.: 24
		OVER: CLARENDON RIVER
FILE NAME:	/PW/951286/sj286ec.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER:	R.R. WHITCOMB	DRAWN BY: J. PERRIGO
DESIGNED BY:	C. CARLSON	IPARM NAME: sj286ec3.i
BRIDGE SHEET NUMBER:		SHEET 20 OF 43

NOTE: REFER TO THE "VERMONT HANDBOOK FOR SOIL EROSION AND SEDIMENT CONTROL FOR CONSTRUCTION SITES" FOR ADDITIONAL EROSION CONTROL MEASURES.  
HAY BALES AND SILT FENCE ARE NOT TO BE USED ACROSS AREAS OF CONCENTRATED FLOW.

**SEEDING FORMULA  
RURAL AREAS**

% WT.	kg/ha	NAME	PUR %	GERM %
37.5	26.0	CREeping RED FESCUE	98	85
37.5	26.0	TALL FESCUE	95	90
5.0	4.0	RED TOP	95	90
15.0	10.0	BIRDSFOOT TREFOIL	98	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.0	70.0			

**GENERAL NOTES**

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

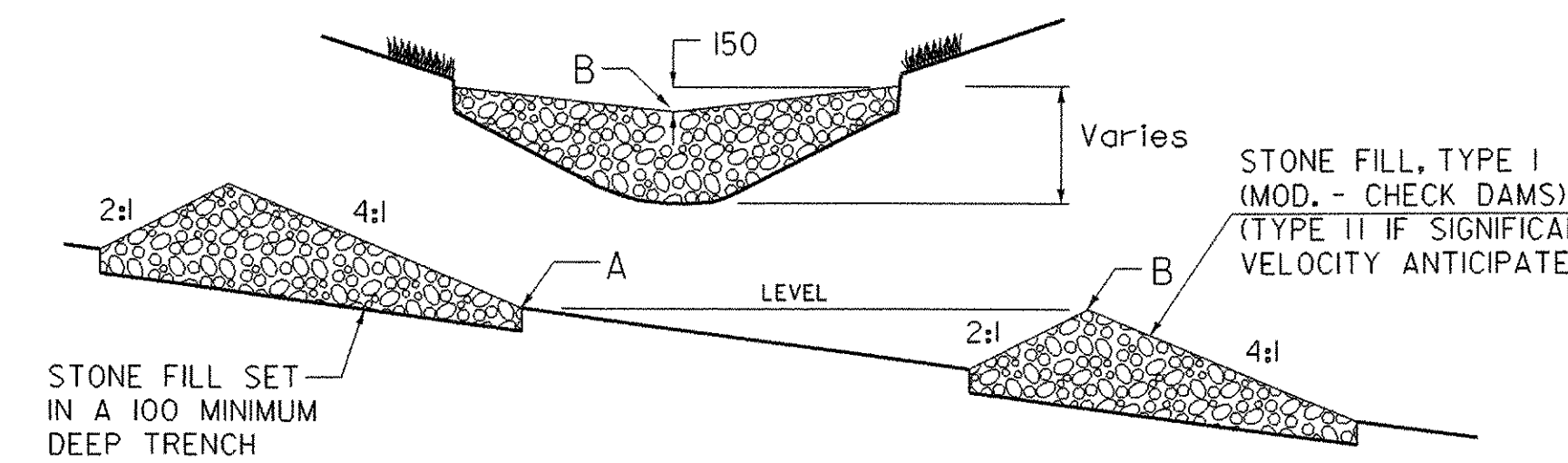
SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

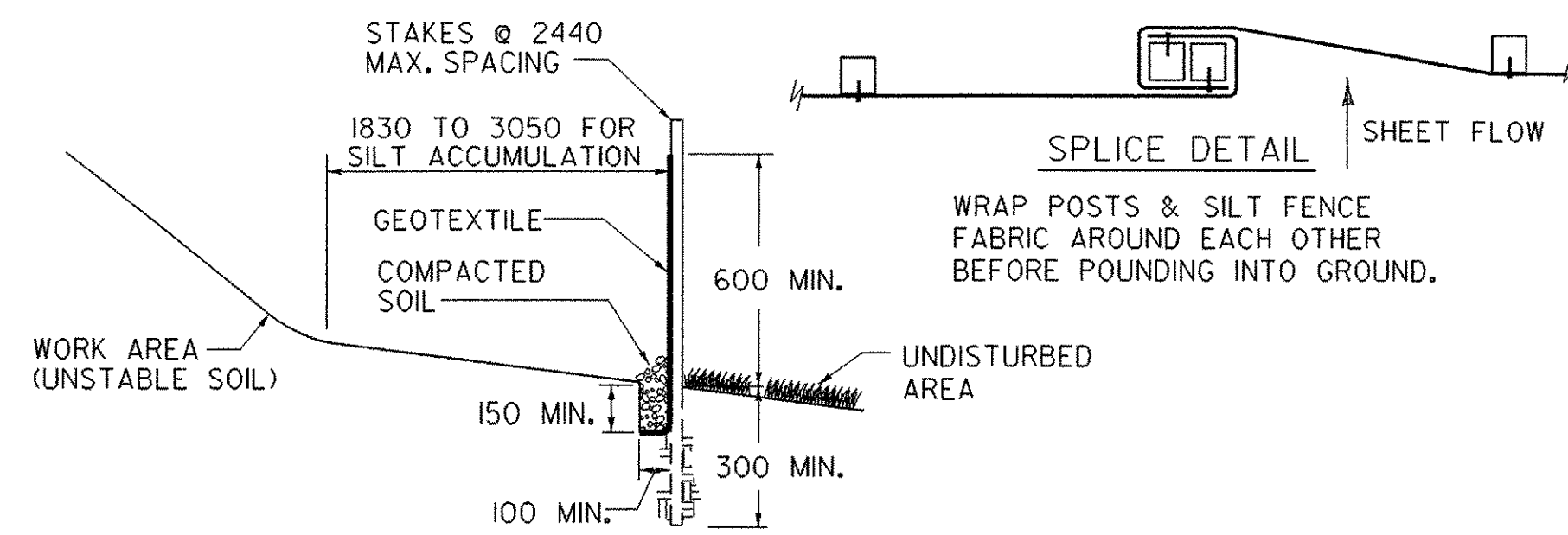
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

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



**DETAIL "B"  
TEMPORARY STONE CHECK DAM**

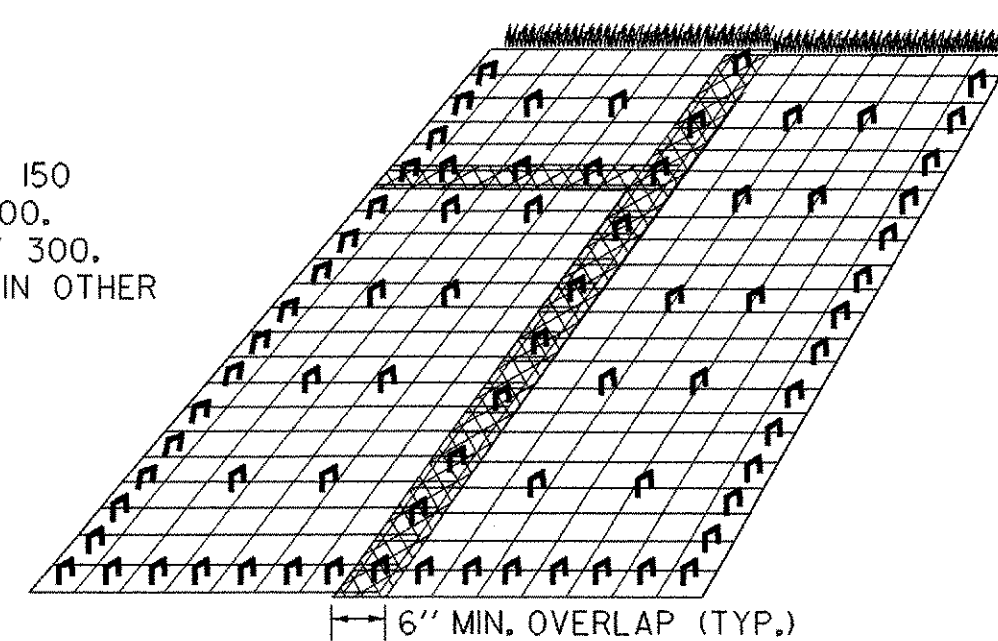
NOTES:  
1. CHECK DAMS TO BE USED DURING ESTABLISHMENT OF GRASS LINED DRAINAGE DITCHES  
2. LOCATE DOWNSTREAM STRUCTURE SUCH THAT POINT "B" IS APPROXIMATELY LEVEL WITH THE LOWEST GROUND ELEVATION "A" OF THE UPSTREAM STRUCTURE.



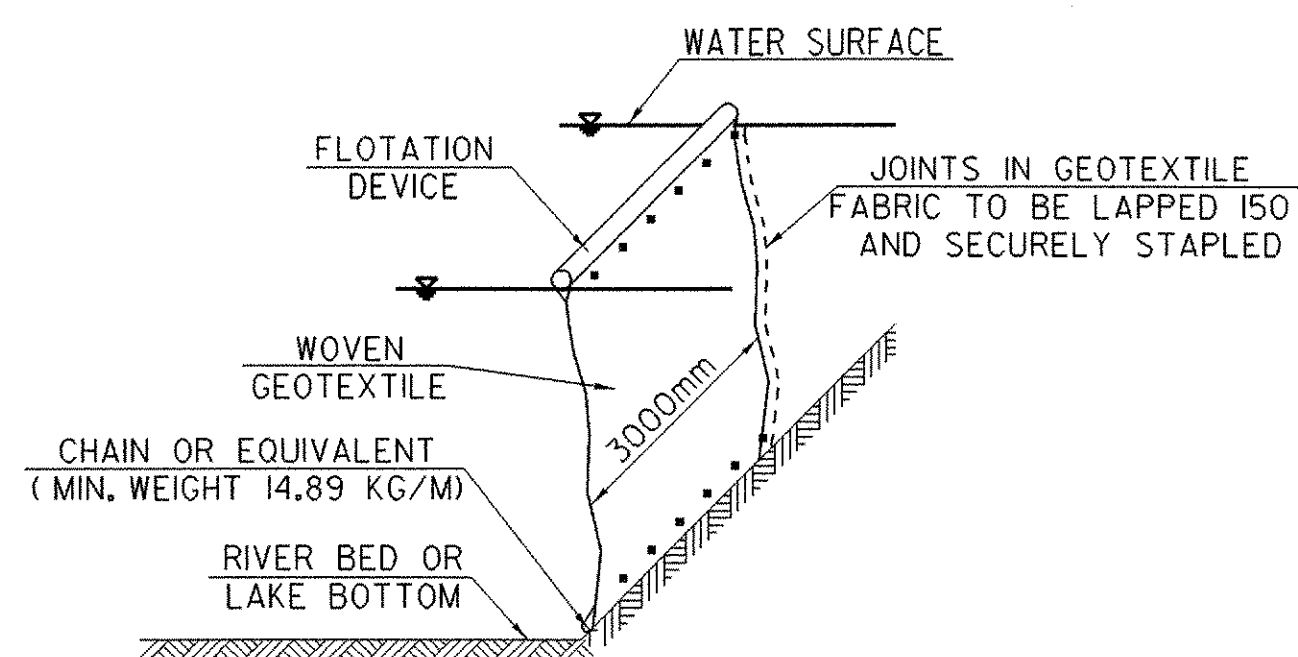
**DETAIL "A"  
SILT FENCE**

NOTES:  
1. DO NOT USE SILT FENCE IN STREAMS, DRAINAGE DITCHES, OR AREAS OF CONCENTRATED FLOW.  
2. BACK WITH STAKED-IN-PLACE HAY BALES OR WIRE FENCE IF ADDITIONAL SUPPORT IS NEEDED.  
3. MUST BE REMOVED WHEN SOIL IS STABILIZED.

NOTES:  
1. ALL FABRIC OVERLAPS SHALL BE 150 MINIMUM WITH STAPLES EVERY 500.  
2. STAPLE EDGES OF FABRIC EVERY 300.  
3. USE 1000 MAX. STAPLE SPACING IN OTHER AREAS.  
4. SEE "EROSION MATTING FOR DITCHES" DETAIL FOR ANCHORING AT TOPS OF SLOPES.

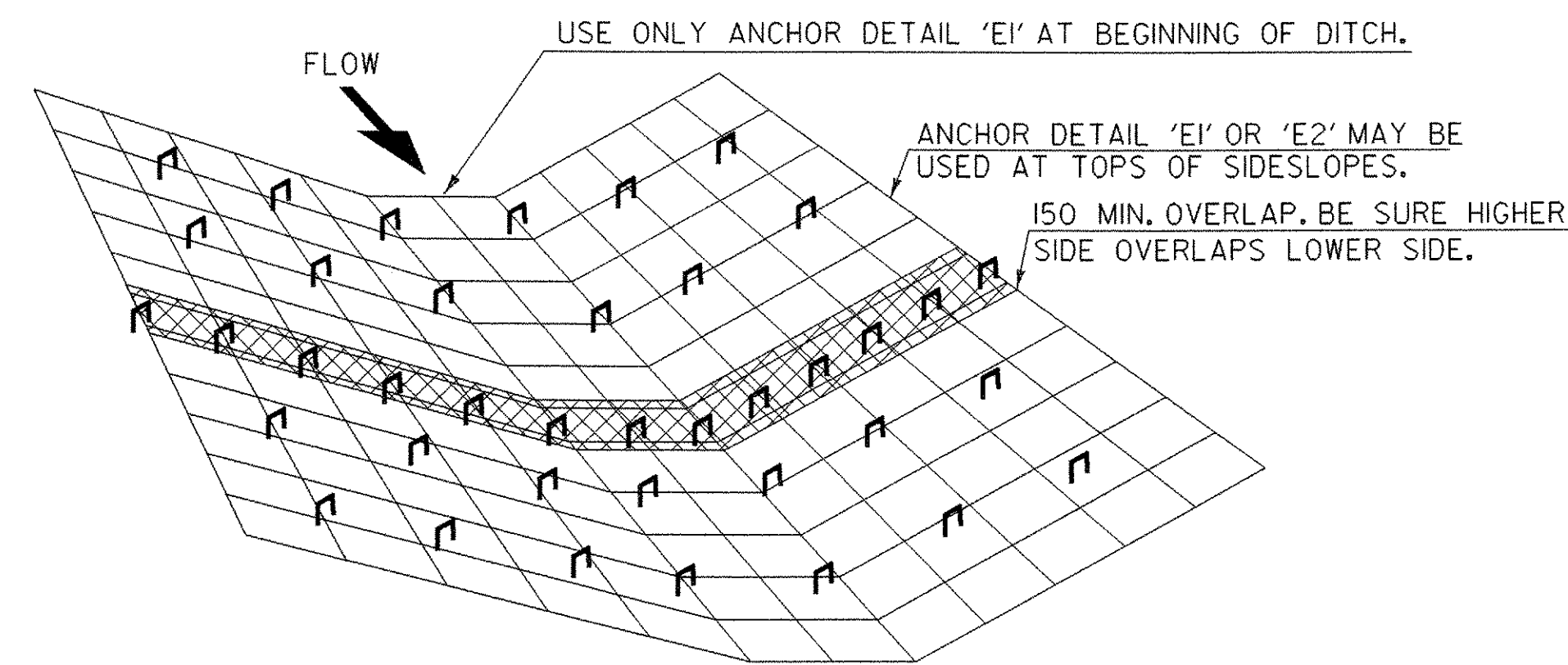


**DETAIL "C"  
EROSION MATTING FOR SLOPES STEEPER THAN 1:3**



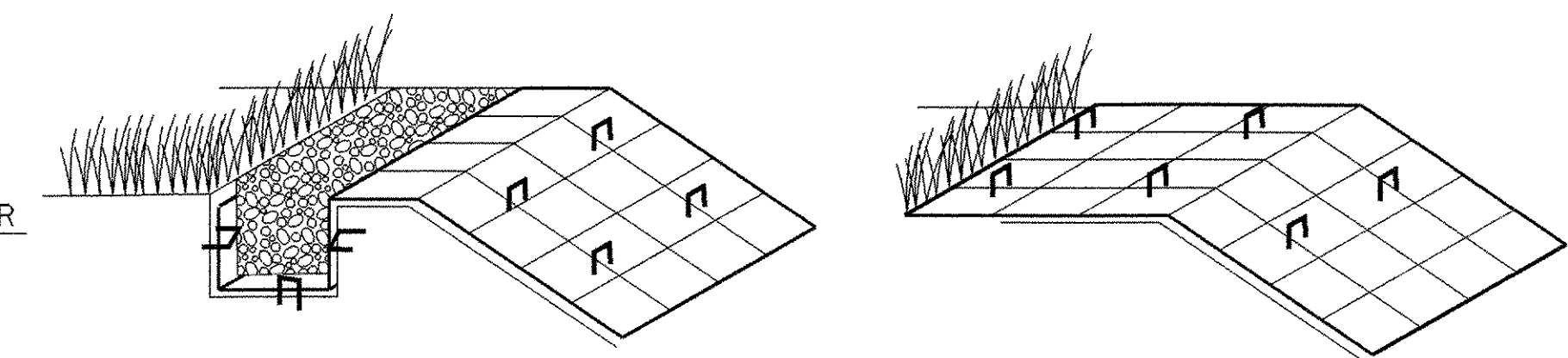
**DETAIL "F"  
FILTER CURTAIN**

1. NOT TO BE USED ACROSS THE FLOW OF WATER
2. HEIGHT SHOULD BE SUFFICIENT TO ALLOW FOR VARIATIONS IN THE BOTTOM AND RISING WATER
3. ANCHOR FIRMLY IN PLACE AS NEEDED
4. INSTALL PRIOR TO EARTH DISTURBING ACTIVITIES AND/ OR INSTALLATION OF COFFERDAM WHERE APPLICABLE
5. LEAVE IN PLACE UNTIL UP-SLOPE AREAS ARE STABLE AND COFFERDAM IS REMOVED
6. USE CARE DURING REMOVAL TO PREVENT THE RELEASE OF CAPTURED SEDIMENT AS MUCH AS POSSIBLE



**DETAIL "D"  
EROSION MATTING FOR DITCHES**

1. TO BE USED WHERE SLOPE OF DITCHLINE RANGES FROM 1% - 2.5%. SLOPES EXCEEDING 2.5% SHALL BE LINED WITH STONE FILL, TYPE I.
2. OVERLAPS SHALL BE 150 MINIMUM IN THE DIRECTION OF FLOW AND STAPLED EVERY 500 MIN. THROUGH BOTH FABRICS.
3. USE 1000 MAX STAPLE SPACING IN OTHER AREAS.



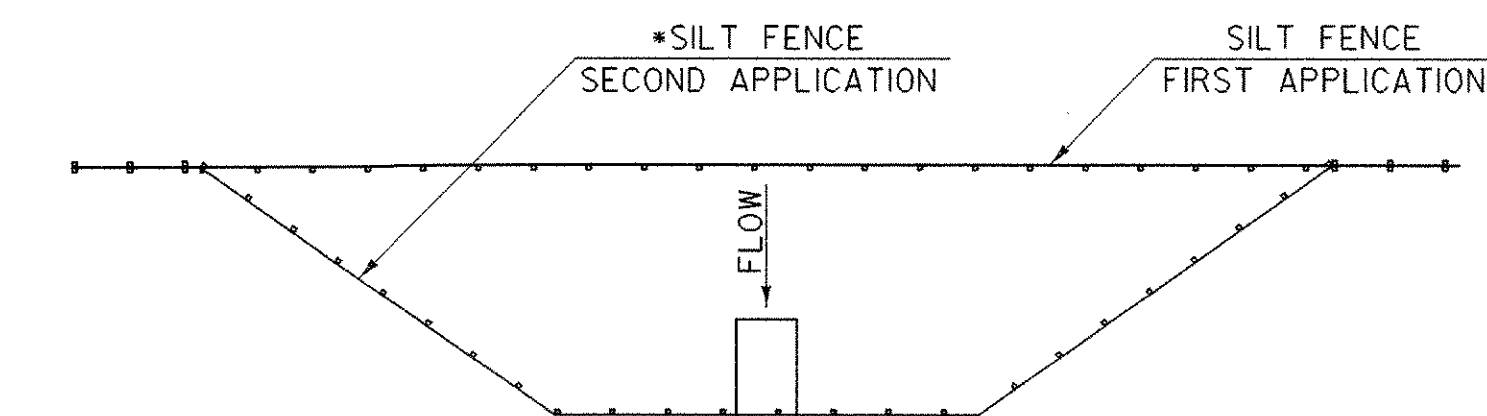
**ANCHOR DETAIL 'E1'**

INSERT & STAPLE FABRIC INTO 150 X 150 TRENCH PRIOR TO BACKFILLING & COMPACTING SOIL. USE 3 STAPLE PATTERN EVERY 500.

**ANCHOR DETAIL 'E2'**

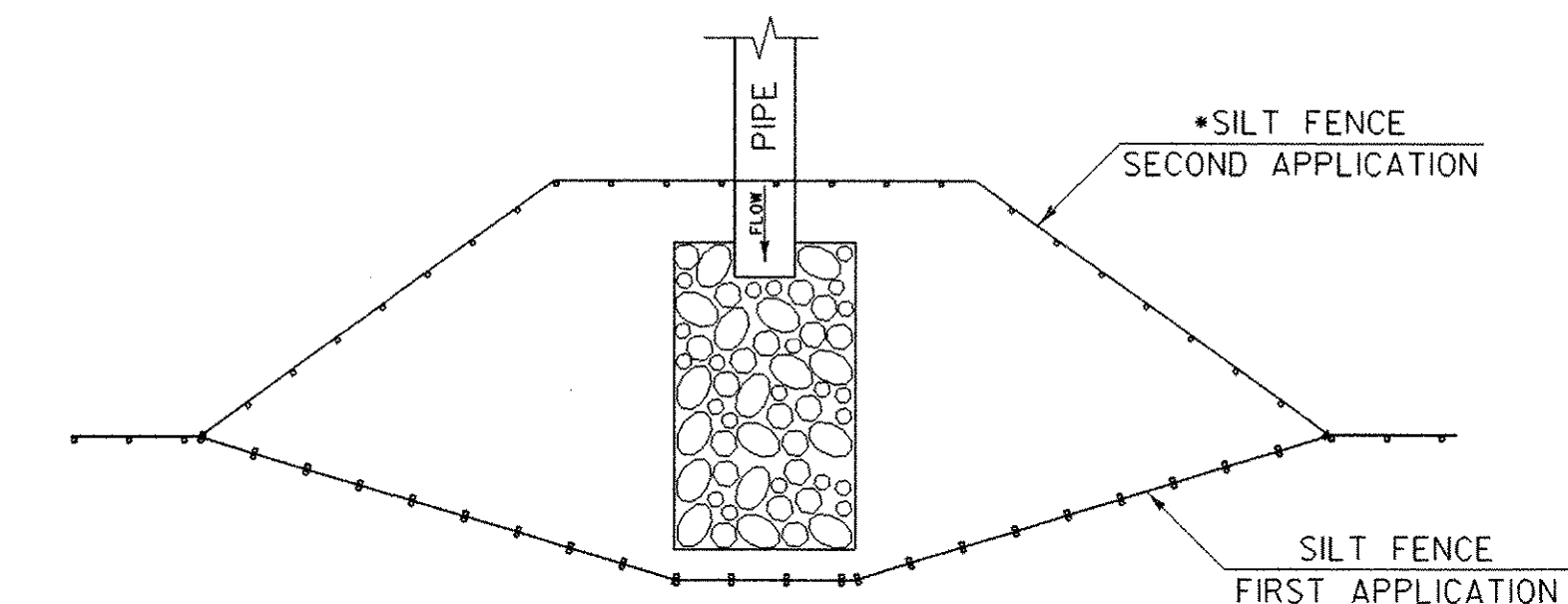
IF THE TOP OF SLOPE IS RELATIVELY FLAT EXTEND MATERIAL APPROXIMATELY 600 AND STAPLE EVERY 500 MINIMUM.

**DETAIL "E"  
ANCHOR DETAILS FOR EROSION MATTING**



**DETAIL "I"  
PROPOSED PIPE INLET CONTROL**

• THE SECOND APPLICATION OF SILT FENCE IS TO BE INSTALLED (REMOVE FIRST APPLICATION) PRIOR TO DIVERTING FLOW INTO NEW PIPE FOR BOTH PROPOSED INLET AND OUTLET CONTROLS



**DETAIL "J"  
PROPOSED PIPE OUTLET CONTROL**

NOTE: DETAILS NOT TO SCALE

SHEET NAME: EROSION CONTROL DETAILS			
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16		
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24		
	OVER: CLARENDON RIVER		
FILE NAME: /PW/95J286/sj286ec.dgn	PLOT DATE: 01-DEC-2005		
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI		
DESIGNED BY: C. CARLSON	IPARM NAME: sj286ec4.i		
BRIDGE SHEET NUMBER:	SHEET 21 OF 43		

## SILT FENCE

### APPLICATION NOTES:

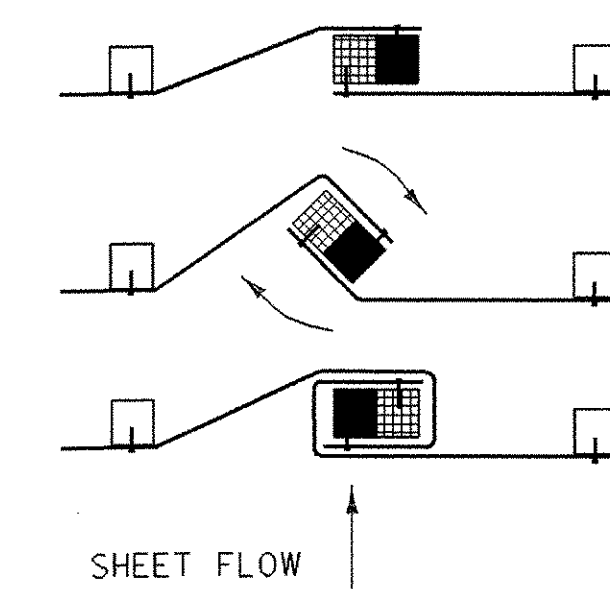
- THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.
- SILT FENCE SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL.
- SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

### GENERAL NOTES:

- SILT FENCE SHALL GENERALLY BE PLACED A MINIMUM OF 1.5 m BEYOND TOE OF SLOPE, 3 m PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
- ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.
- IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.
- THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 150 mm BELOW GROUND, AND KEYED IN 100 mm. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
- MAXIMUM DRAINAGE AREA TRIBUTARY TO 30 m OF SILT FENCE SHALL BE 0.1Ha.
- THE FOLLOWING ARE MAXIMUM SLOPE LENGTHS FOR THESE MEASURES:

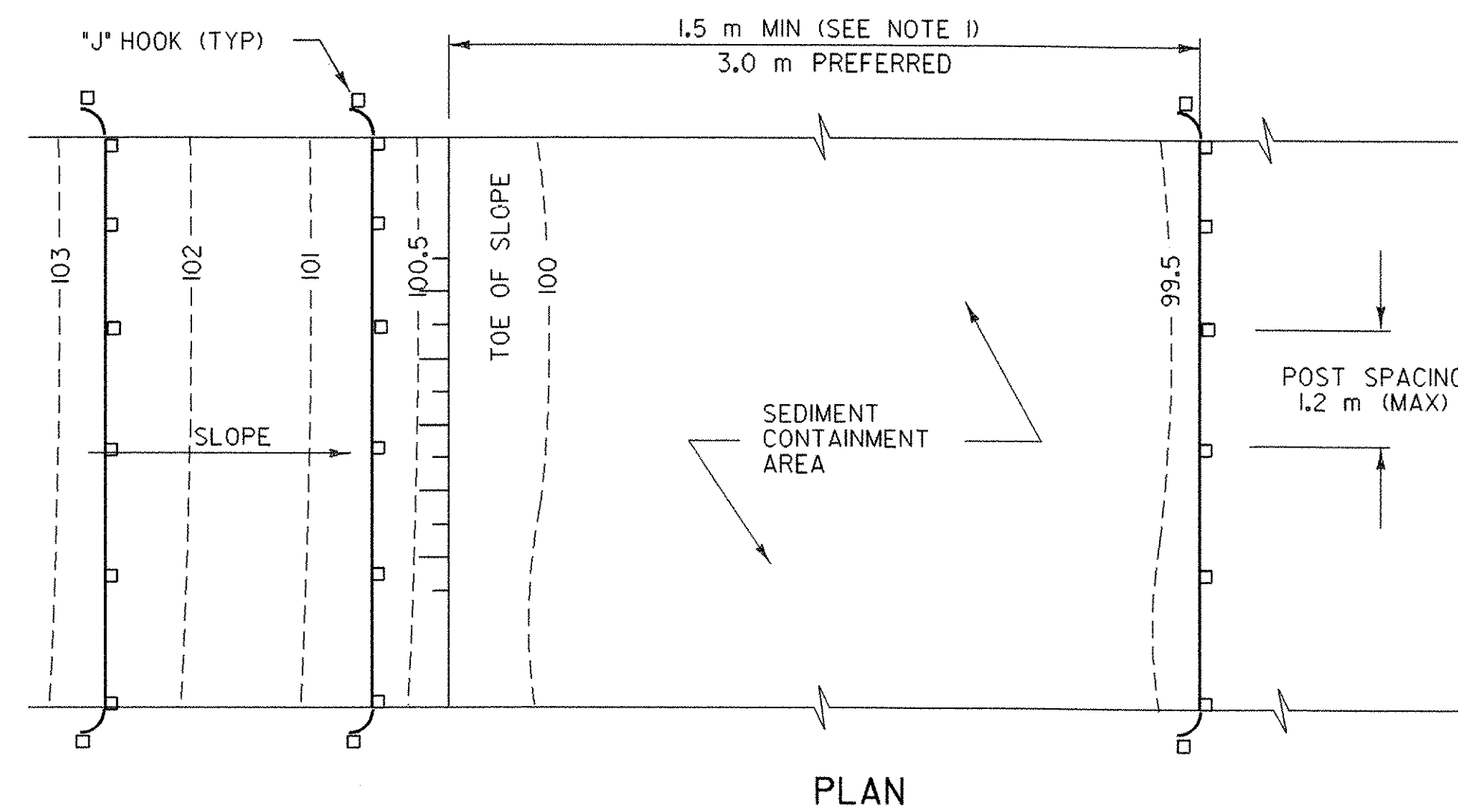
CONSTRUCTED SLOPE (H:V)	SLOPE LENGTH (LS) m	HORIZONTAL LENGTH (LH) m
3 : 1	25	24
4 : 1	40	39
5 : 1	60	60
> 5 : 1	80	80

- MEASURES 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.
- MEASURES 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 AS UNSUITABLE MATERIAL.
- 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.
- PAYMENT FOR INSTALLATION AND REMOVAL OF SILT FENCE SHALL BE MADE UNDER THE GEOTEXTILE FOR SILT FENCE ITEM.
- PAYMENT FOR MONITORING SILT FENCE SHALL BE MADE UNDER THE MONITORING EROSION PREVENTION & SEDIMENT CONTROL PLAN ITEM.
- PAYMENT FOR MAINTAINING SILT FENCE SHALL BE MADE UNDER THE MAINTENANCE OF EROSION PREVENTION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

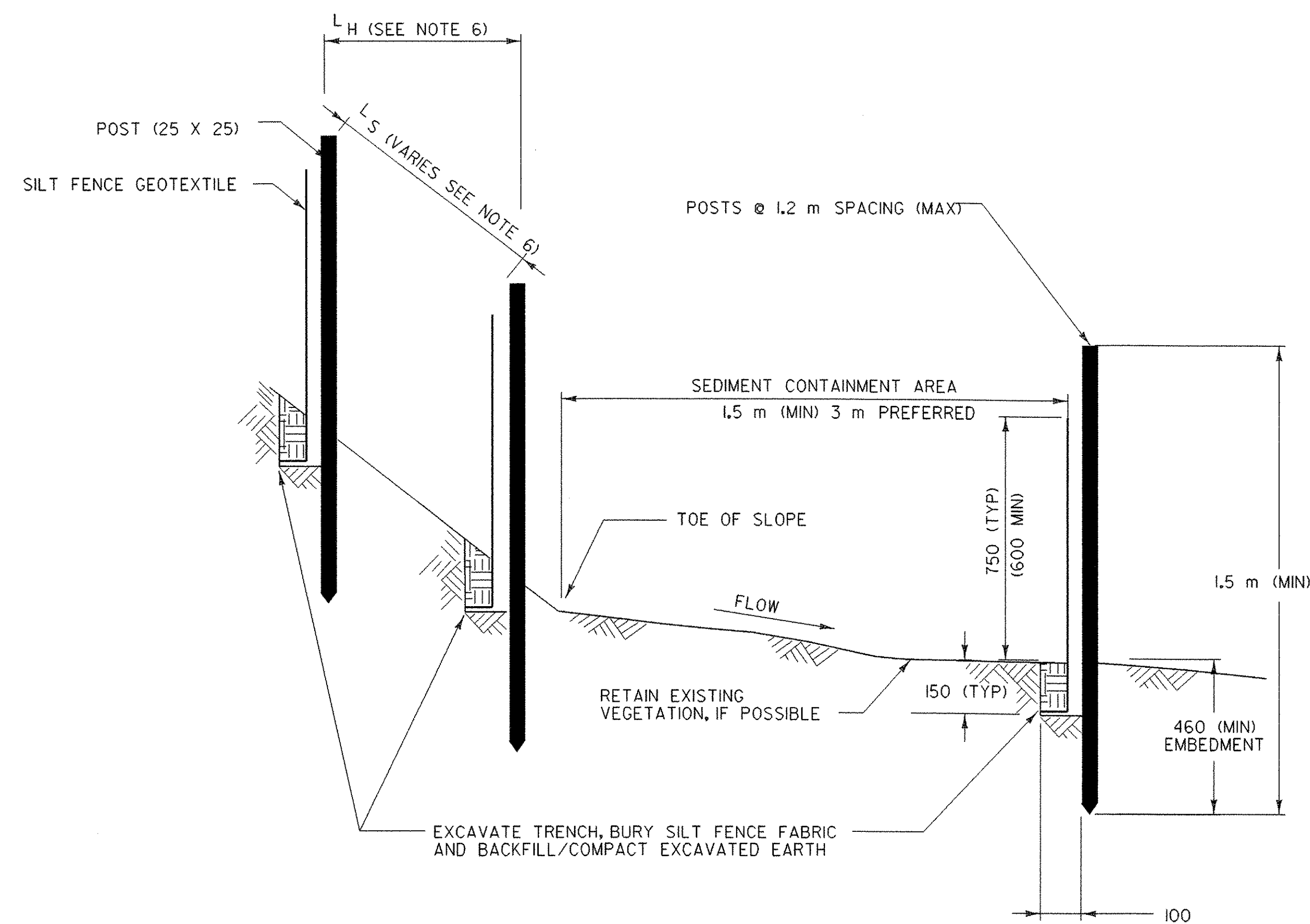


- PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE.
- ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
- DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY THE FLAP IN THE TRENCH.

SPLICING DETAIL



PLAN



SECTION  
SILT FENCE - TEMPORARY

EROSION CONTROL DETAILS SILT FENCE		
SHEET NAME:		
PROJECT NAME:	CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER:	BRO 1443(34)	BRIDGE NO.: 24
		OVER: CLARENDON RIVER
FILE NAME:	/PW/951286/sj286ec.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER:	R. R. WHITCOMB	DRAWN BY: str3
DESIGNED BY:	C. CARLSON	IPARM NAME: sj286ec5.1
BRIDGE SHEET NUMBER:		SHEET 22 OF 43



1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2001, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION AND ITS LATEST REVISIONS.
2. BRIDGE IS DESIGNED FOR MS 22.5 LIVE LOAD WITH NO ALLOWANCE FOR FUTURE PAVEMENT.
3. IN-STREAM CONSTRUCTION SHALL BE RESTRICTED TO JUNE 1 TO OCTOBER 1, UNLESS THE CONTRACTOR OBTAINS WRITTEN PERMISSION FROM THE AGENCY OF NATURAL RESOURCES TO DO WORK OUTSIDE OF THAT TIME FRAME.
4. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY THE DISCHARGE OF RAW CONCRETE, INTO THE CLARENDON RIVER.
5. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES C UNLESS OTHERWISE NOTED.
6. BRIDGE RAILING AND HEAVY DUTY STEEL BEAM GUARD RAIL W/ WOOD POSTS SHALL BE WEATHERING STEEL. (SEE NOTE 4 ON STD. DWG. SB-R6-82.) THE HANDRAIL ON THE BRIDGE SHALL BE COLOR GALVANIZED BROWN (TO MATCH WEATHERING STEEL). THE COLOR GALVANIZING WILL BE PAID FOR UNDER THE ITEM 525.42, "BRIDGE RAILING - HDSB/CURB MOUNTED/HANDRAIL (MOD.)".
7. THE STONE FILL, TYPE III SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE PRESTRESS UNITS ARE PLACED.
8. TWO 4"-6" DIAMETER MAPLE TREES SHALL BE PLANTED ON THE ROBICHAUD PROPERTY AT A LOCATION WHICH IS MUTUALLY ACCEPTABLE TO THE ROBICHAUD'S AND THE RESIDENT ENGINEER. THIS WORK WILL BE PAID FOR UNDER ITEM 656.30, "DECIDUOUS TREES (SUGAR MAPLE-ACER SACCHARUM B&B, 4" CAL)".
9. A WATER QUALITY AND QUANTITY TEST WILL BE PERFORMED AT THE WELL LOCATED AT STA 1+093.3 LT PRIOR TO AND IMMEDIATELY AFTER CONSTRUCTION. THIS WORK WILL BE PERFORMED BY AGENCY STAFF OR ITS DESIGNEES.
10. DUE TO THE PROXIMITY OF THE BARN AT APPROXIMATELY STA 1+030 LT AND THE HOUSES AT STATIONS 1+015 LT AND 1+100 LT(+), IT IS REQUIRED THAT THE CONTRACTOR ARRANGE FOR INSPECTION OF THE HOUSE/BARN FOUNDATIONS PRIOR TO PILE DRIVING AND FOR MONITORING OF THE FOUNDATIONS DURING PILE DRIVING AT ABUTMENT NO. 1. THIS WORK WILL BE INCIDENTAL TO THE ITEM 504.10, "FURNISHING EQUIPMENT FOR DRIVING PILING". SEE SPECIAL PROVISIONS.
11. THE EXISTING WINGWALLS AND ABUTMENTS AT ABUTMENT NO. 1 SHALL BE REMOVED DOWN TO 300 mm BELOW THE FINISHED CHANNEL GRADE UNDER THE ITEMS, "STRUCTURE EXCAVATION AND UNCLASSIFIED CHANNEL EXCAVATION".
12. THE EXISTING WINGWALLS AND ABUTMENTS AT ABUTMENT NO. 2 SHALL BE REMOVED UNDER THE ITEMS, "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK". ANY PORTIONS OF THE EXISTING WINGWALLS/ABUTMENT THAT FALLS OUTSIDE OF THOSE LIMITS SHALL BE REMOVED TO 300 mm BELOW THE FINISHED CHANNEL GRADE AND PAID FOR UNDER THE ITEM "UNCLASSIFIED CHANNEL EXCAVATION".
13. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE (MOD)" WILL INCLUDE THE REMOVAL OF THE "MABEY" BRIDGE WHICH INCLUDES THE DISMANTLING AND DELIVERING TO THE DISTRICT GARAGE IN MENDON. THE CONTRACTOR SHALL COORDINATE REMOVAL OF THE BRIDGE BY CONTACTING DAVE LATHROP, DTA #3 AT LEAST TWO WEEKS PRIOR TO THE DATE THAT THE CONTRACTOR WISHES TO REMOVE THE "MABEY" BRIDGE. DAVE LATHROP CAN BE CONTACTED AT (802)786-0029. SEE SPECIAL PROVISIONS.
14. THE ORIGINAL BEAMS FOR THE STRUCTURE ARE LOCATED BELOW THE "MABEY" BRIDGE. THE BEAMS SHALL BE REMOVED ALONG WITH ANY DECKING (THAT STILL MAY REMAIN) DOWN TO THE EXISTING BRIDGE SEAT ELEVATION. THIS WORK SHALL BE PAID FOR UNDER THE ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" (MOD).
15. THE ORIGINAL BEAMS BELOW THE "MABEY" WERE PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE REMOVED BEAMS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE BEAMS.
16. a) ALL PILES SHALL BE FURNISHED WITH REINFORCED PILE POINT OF PREFABRICATED CAST STEEL MEETING THE REQUIREMENTS OF ASTM A-27. SEE SUBSECTION 505.04 (e).  
b) THE PILES AT ABUTMENT NO. 1 SHALL BE DRIVEN TO AN ULTIMATE CAPACITY OF 900 KN.
17. EXISTING TRAFFIC SIGNS AND SIGN POSTS SHALL BE REMOVED AND STOCKPILED ON THE PROJECT. THEY WILL REMAIN THE PROPERTY OF THE TOWN. THE CONTRACTOR SHALL BE PREPARED TO LOAD THE SIGNS ON TRUCKS FURNISHED AT THE SITE BY THE TOWN FOR REMOVAL FROM THE SITE BY THE TOWN. NOTIFICATION MUST BE GIVEN ONE WEEK IN ADVANCE TO THE TOWN INDICATING WHEN THE MATERIAL WILL BE AVAILABLE. CONTACT FRANCIS BLAIR, JR., ROAD FOREMAN AT (802) 287-9371. THIS WORK WILL BE PAID FOR UNDER THE ITEM 675.50, "REMOVING SIGNS".

**CONCRETE**

18. THE HEIGHT OF FILL BEHIND ABUTMENTS WILL BE LIMITED TO THE BRIDGE SEAT ELEVATION UNTIL THE OVERLAY HAS BEEN POURED AND THE CURING PERIOD IS UP.
19. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT, ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
20. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 mm BY 25 mm.
21. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

22. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
23. REINFORCING PLACEMENT TOLERANCES SHALL BE:  
SPACING +/- 25 mm  
CLEARANCE +/- 5 mm
24. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 50 mm ALONG THE BACK FACES OF WALLS AGAINST EARTH, 50 mm ALONG THE TOP SURFACE OF THE DECK, 40 mm ALONG THE BOTTOM SURFACE OF THE DECK AND 80 mm ELSEWHERE, UNLESS OTHERWISE NOTED.
25. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL.
26. WATER REPELLENT (MOD.-SILANE) SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP BEADS.
27. NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT ELEVATIONS UNTIL THE VOIDED SLABS HAVE BEEN PROFILED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED.
28. ALL SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B UNLESS OTHER WISE NOTED.
29. THE DECK OVERLAY AND CURBS SHALL BE CONCRETE, HIGH PERFORMANCE CLASS AA.

**TEMPORARY BRIDGE**

30. TRAFFIC WILL BE MAINTAINED ON A ONE-WAY TEMPORARY BRIDGE LOCATED DOWNSTREAM OF THE EXISTING STRUCTURE.
31. THE COST OF ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES REQUIRED SHALL BE PAID FOR UNDER THE ITEM 641.10, "TRAFFIC CONTROL".
32. THE REMOVAL AND/OR RESETTING OF TEMPORARY TRAFFIC SIGNS, AS DEEMED NECESSARY BY THE RESIDENT ENGINEER, SHALL BE PAID FOR UNDER THE ITEM 641.10, "TRAFFIC CONTROL".
33. FULL ACCESS TO ALL DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE INCIDENTAL TO ITEM 528.10 "ONE-WAY TEMPORARY BRIDGE." WHEN THE CONTRACTOR MUST TEMPORARILY RESTRICT ACCESS TO THE DRIVES, NOTICE TO THE PROPERTY OWNERS SHALL BE GIVEN IN ADVANCE BY THE CONTRACTOR.

**LEDGE (@ ABUTMENT NO. 2)**

34. THE STRUCTURES SECTION SHALL BE CONTACTED IF LEDGE IS ENCOUNTERED MORE THAN 600 mm BELOW THE INDICATED BOTTOM OF FOOTING ELEVATIONS AS SHOWN ON THE PLANS. PROFILES OF THE LEDGE MAY BE REQUIRED TO ADJUST THE FOOTING ELEVATIONS AND SIZE. NO FURTHER WORK SHALL BE DONE ON THE FOOTINGS UNTIL A REPLY IS RECEIVED FROM THE STRUCTURES SECTION.
35. FOOTINGS SHALL BE PLACED ON SOUND, CLEAN LEDGE, ALL OVER BREAKAGE BELOW INDICATED BOTTOM OF FOOTING SHALL BE REPLACED WITH "CONCRETE, HIGH PERFORMANCE CLASS B". A MAXIMUM OF 150 mm AVERAGE DEPTH SHALL BE PAID FOR AS "CONCRETE, HIGH PERFORMANCE CLASS B", ANY ADDITIONAL CONCRETE REQUIRED SHALL BE PLACED AT THE CONTRACTOR'S EXPENSE. THESE QUANTITIES HAVE BEEN ADDED TO THE QUANTITY SHEET.
36. THE CONTRACTOR HAS THE OPTION OF POURING CONCRETE, HIGH PERFORMANCE CLASS B TO LEDGE INSTEAD OF POURING A SUB-FOOTING WITH CONCRETE, CLASS C. ANY CONCRETE, HIGH PERFORMANCE CLASS B USED IN A SUB-FOOTING WILL BE PAID FOR AT THE CONCRETE, CLASS C BID PRICE.
37. THE SUB-FOOTING SHALL BE FOUNDED ON SOLID LEDGE WHICH HAS BEEN CLEANED OF ALL LOOSE ROCK AND DEBRIS. THE LIMITS OF THE SUB-FOOTING SHALL BE 300 mm OUTSIDE THE LIMITS OF THE FOOTING. REINFORCING STEEL SHALL BE DRILLED AND GROUTED INTO THE LEDGE UNDER THE SUB-FOOTING AS SHOWN ON SHEET 28. THIS WORK SHALL BE PAID FOR UNDER ITEM, "DRILLING AND GROUTING OF DOWELS".

**PRESTRESSED CONCRETE**

38. THE PRESTRESSED UNITS SHALL BE OVERLAID WITH CONCRETE, HIGH PERFORMANCE CLASS AA. THE CONCRETE IS TO BE POURED WITH A MAXIMUM POUR DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED. A NINETY SIX HOUR DELAY BETWEEN THE COMPLETION OF ONE DAY'S POUR AND THE BEGINNING OF ANY OTHER POUR SHALL ALSO BE OBSERVED.
39. PRESTRESSED, PRECAST MEMBERS SHALL:
  - A. CONFORM TO SECTION 510A "PRESTRESSED CONCRETE".
  - B. BE 540 X 914 AND 540 X 1220 VOIDED SLABS
  - C. HAVE THE ENDS OF THE STRANDS RECESSED AND GROUTED AS PER STANDARD PRACTICE
  - D. CONTAIN VOIDS WHICH ARE CONTINUOUS EXCEPT AS SHOWN IN THE PLAN DETAIL
  - E. HAVE VOID DRAINS AT EACH END OF EACH VOID. THE VOID DRAINS SHALL BE 20 mm DIAMETER, NON-FERROUS, AND SHALL BE CLEANED AFTER ERECTION
  - F. USE CONCRETE WITH F'c = 42 Mpa AND Fc = 30 Mpa
  - G. CONTAIN PRESTRESSING STRANDS WHICH ARE 15.24 mm DIAMETER, 1860 Mpa, LO RELAXATION STRANDS PULLED TO 75 % OF THEIR YIELD.
  - H. BE DESIGNED FOR AN AASHTO MS 22.5 LIVE LOAD.
  - I. HAVE THE TOP SURFACE RAKED TO UNIFORM ROUGHNESS WITH AN AVERAGE AMPLITUDE OF 6 mm.
40. THE FABRICATOR MAY, WITH THE APPROVAL OF THE STRUCTURES ENGINEER, ALTER THE DESIGN, AS DETAILED, TO MEET THE PLANT'S PRESTRESSING OPERATION AND MATERIAL REQUIREMENTS. AN ALTERNATE STRAND CONFIGURATION MAY BE SUBMITTED FOR APPROVAL PROVIDED THAT THE DESIGN IS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT AND THAT THE DESIGN MEETS ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES.

41. NOT USED
42. THE 13 mm DIAMETER TRANSVERSE TENDONS SHALL BE POLYSTRAND OR EQUIVALENT. THE 19 mm PLATE SHALL CONFORM TO AASHTO M270/M270M GR 345. THE 19 mm PLATE, AND THE CHUCKS SHALL BE GALVANIZED AFTER FABRICATION, ACCORDING TO AASHTO M232/M232M. ALL WORK COVERED IN THIS NOTE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEMS.
43. THE JOINTS BETWEEN THE VOIDED SLABS SHALL BE FILLED WITH MORTAR, TYPE IV, IN ACCORDANCE WITH SECTION 510.13a. THIS WORK WILL BE PAID FOR UNDER THE ITEM 510.24, "GROUTING SHEAR KEYS".
44. THE TRANSVERSE STRANDS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF THE MORTAR AND CASTING OF THE CONCRETE, HIGH PERFORMANCE CLASS AA.
45. MATERIALS, LABOR AND EQUIPMENT FOR ALL GROUTING AND FOR THE COLD POURED JOINT FILLER SHALL BE INCLUDED IN THE UNIT PRICE FOR THE ITEMS. THE GROUT SHALL CONFORM TO MORTAR, TYPE IV.
46. THE CONTRACTOR SHALL GIVE THE VAOT MATERIALS AND RESEARCH SECTION TWO WEEKS NOTICE PRIOR TO THE PRESTRESS FABRICATOR CONSTRUCTING THE UNITS.

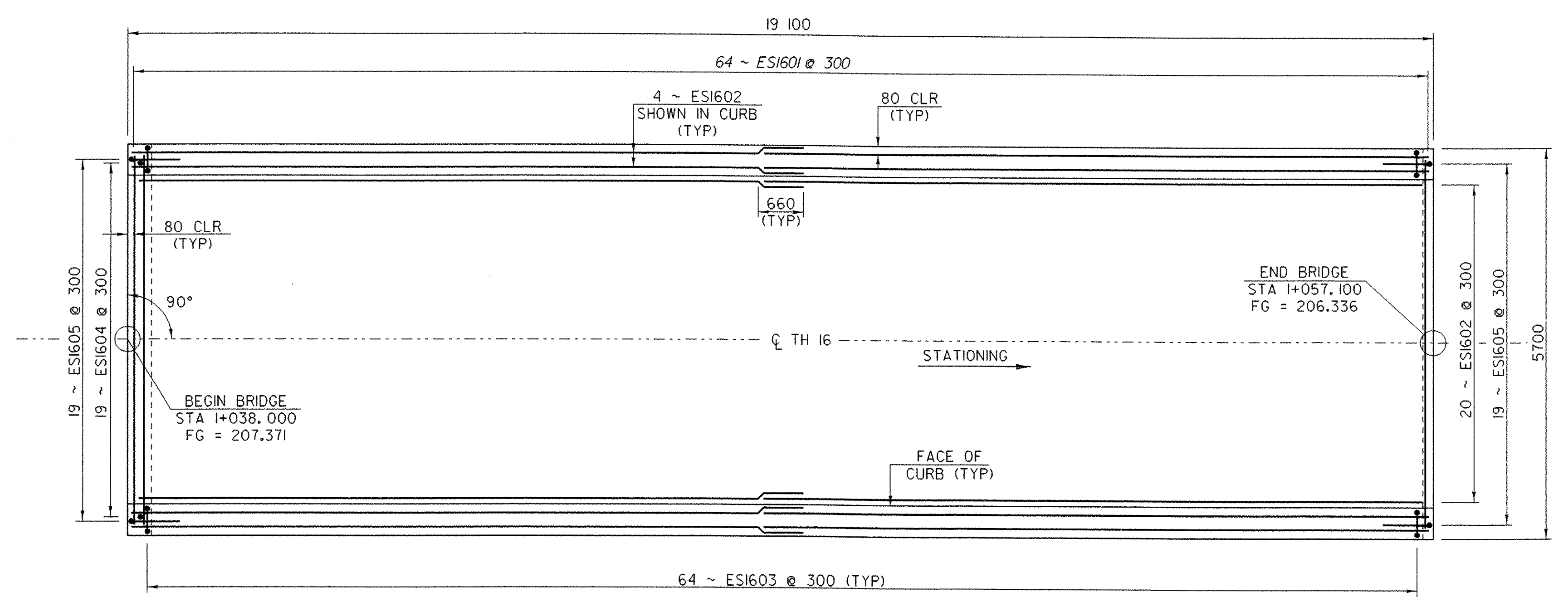
SERVICE LOADS	540x914	540x1220
MEMBER MOMENT	344 kN-m	443 kN-m
DECK MOMENT	153 kN-m	183 kN-m
SUPERIMPOSED DEAD LOAD MOMENT	16 kN-m	20 kN-m
LIVE LOAD & IMPACT MOMENT	439 kN-m	586 kN-m
DEAD LOAD REACTION	129 kN	159 kN
LIVE LOAD & IMPACT REACTION	338 kN	338 kN
TOTAL REACTION	467 kN	497 kN
FINAL CAMBER	22 mm	22 mm

48. BEARING NOTES  
THE BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.10, "BEARING DEVICE ASSEMBLY (ELASTOMERIC)".

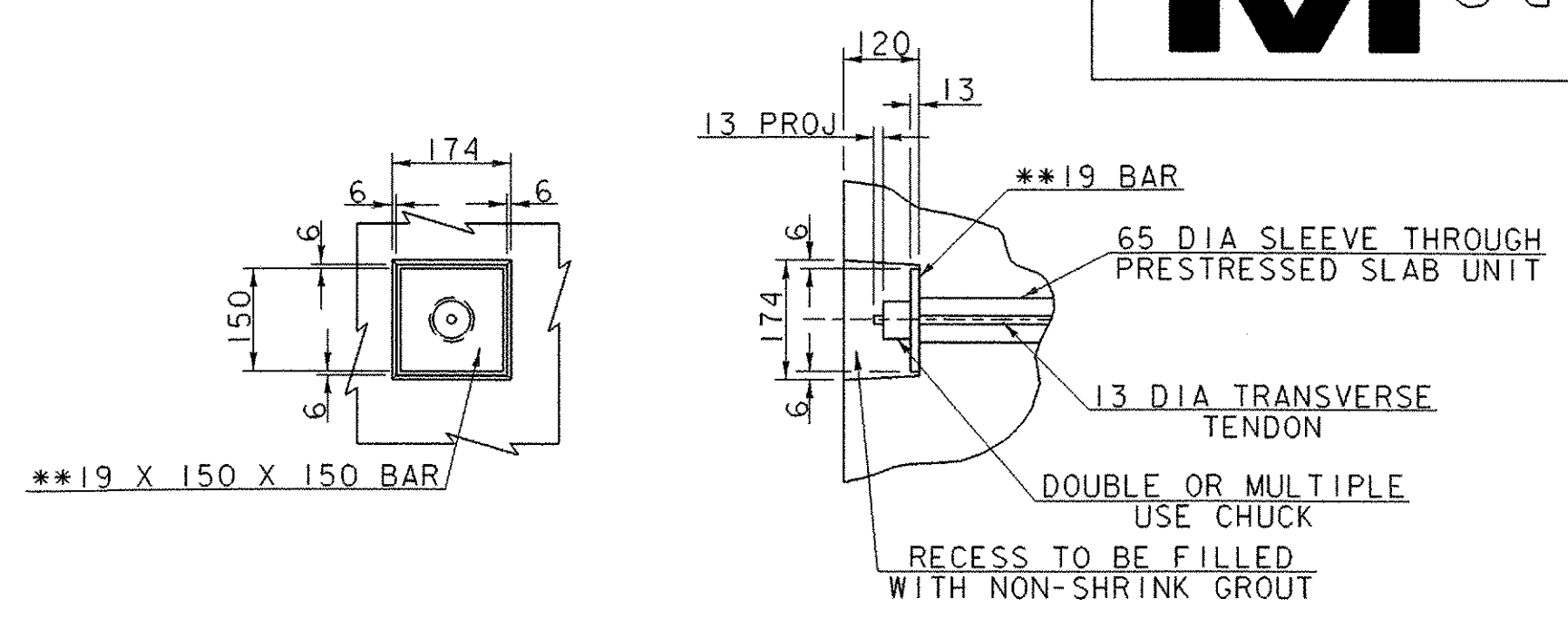
**SEQUENCE OF CONSTRUCTION FOR PRESTRESSED VOIDED SLABS**

- (A) Layout Working Lines
  - \* Lay out working lines for the bridge's entire width on the beam seat. Measure all working lines from a common working point.
  - \* The working lines are to be based on the nominal beam widths.
- (B) Verify Beam Seat Elevations
  - \* Take elevations at beam seats.
  - \* If seats are high, grind to correct elevations.
  - \* If seats are low, add shims.
  - \* Locate and drill 3" dia holes for anchor bolts.
  - \* Install bearings.
- (C) Erect Beams
  - \* Beams shall be placed to fit within the working lines.
  - \* As work progresses, install hardwood wedges between adjacent beams to maintain proper joint opening (a minimum of one wedge at each lateral tie).
  - \* Place anchor bolts.
  - \* Grout anchor bolts in abutment.
- (D) Install Backer Rod
  - \* Filler shall be placed below the key's bottom as shown on the Plans.
- (E) Install Transverse Ties
  - \* A seamless polypropylene sheath shall cover ties (with corrosion inhibitor grease between sheath and strand).
  - \* Feed ties through ducts.
  - \* Verify that hardwood wedges are in place as required to prevent slippage of beams.
  - \* Using calibrated jack, post-tension ties to approximately 22.2 kN to remove sag in the tie and to seat the chuck.
- (F) Grout Shear Keys
  - \* Clean joint with an oil free air-blast immediately before grout placement. Then verify that the backer rod is still in place.
  - \* Additional joint preparation and grout placement shall be per manufacturer's recommendations.
  - \* Carefully rod joints to eliminate any possibility of voids.
- (G) Post-Tension Transverse Ties
  - \* Grout shall attain a minimum compressive strength of 10.3 MPa, based on the manufacturer's recommendations, prior to stressing.
  - \* Using a calibrated jack operated by qualified personnel, post-tension ties to 133.5 kN.
- (H) End Details
  - \* Grout Anchor Bolt Ends at the Fixed Ends at Bridge Seats and Place Cold Poured Joint Sealer at Expansion End
  - \* Before grout cures, place washer plate and install hold down nuts.
    - Fixed end, nut tightened
    - Expansion end, nut hand tightened and loosened by 1/2 turn.
  - \* Grout over nut and bolt on fixed end, place cold poured joint sealer over nut and bolt on expansion end.
- (I) Finish Work
  - \* Remove wedges, and patch deck and fascia beams at transverse ties.
  - \* The contractor shall keep the prestressed units saturated with water for twelve hours prior to placement of the overlay.
  - \* Remove any freestanding water immediately before concrete placement.
  - \* Place an overlay.

PROJECT NAME:	<b>CLARENDON</b>	
PROJECT NUMBER:	<b>BRO 1443(34)</b>	
FILE NAME:	/str1/95j286/sj286gen.xls	PLOT DATE: 7/22/2003
PROJECT LEADER:	R. WHITCOMB	DRAWN BY: J. GILMORE
DESIGNED BY:	C. CARLSON	CHECKED BY: C. CARLSON
GENERAL NOTES SHEET		SHEET 24 OF 43

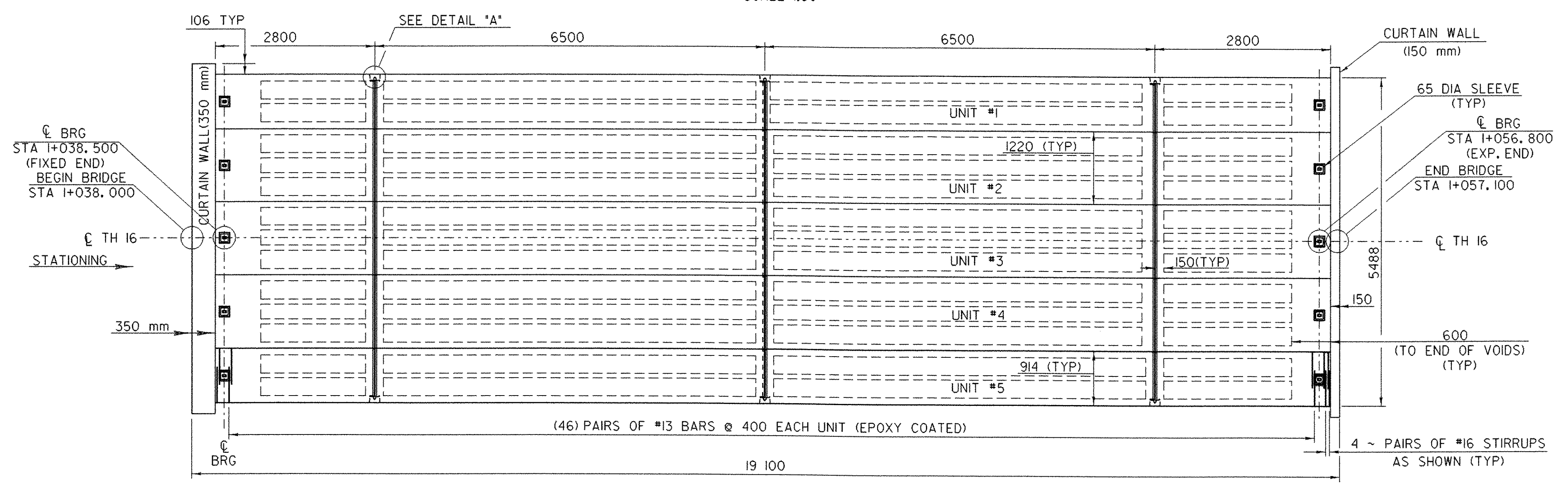


**DECK REINFORCING**  
SCALE 1:50

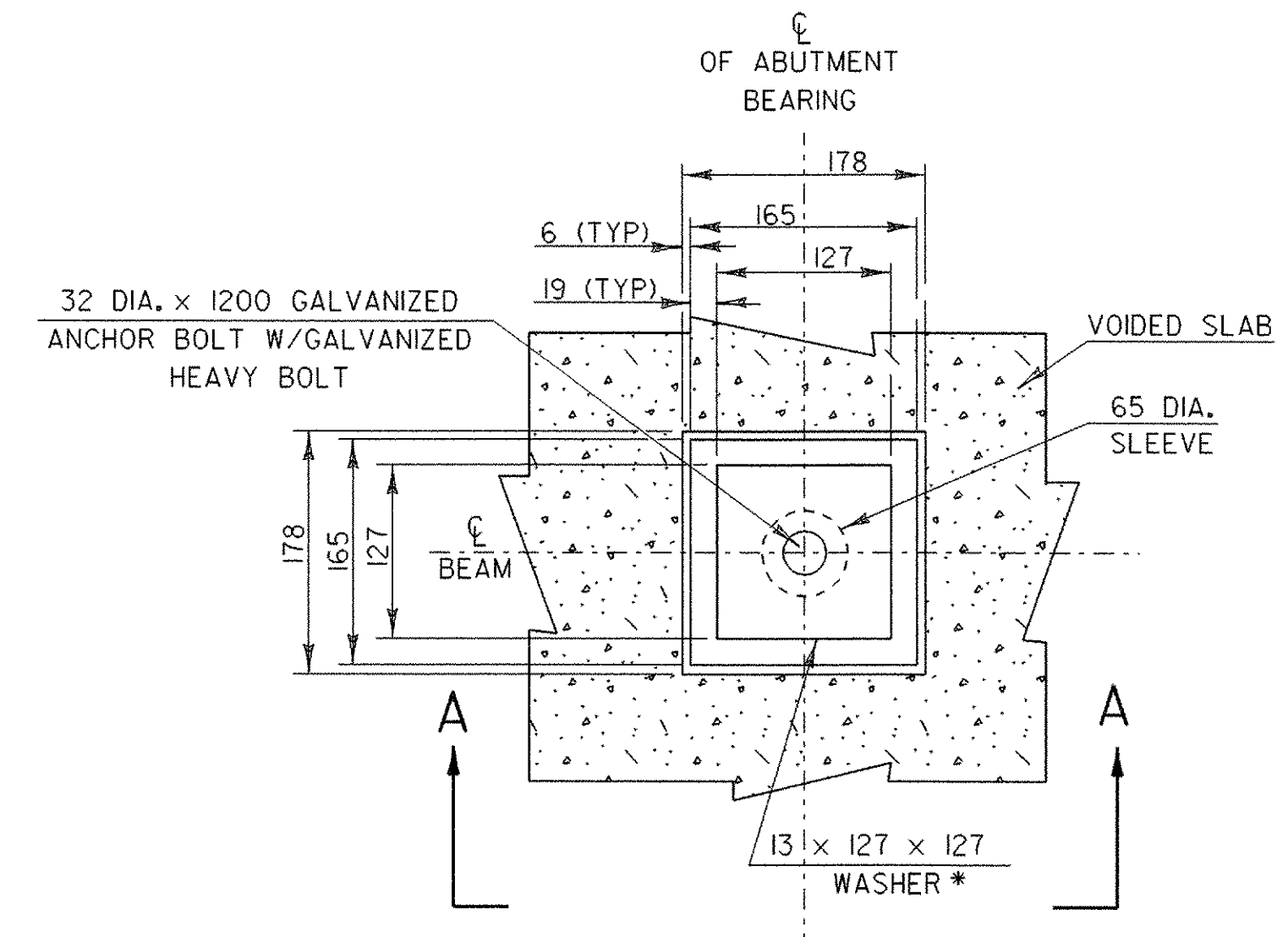


**DETAIL "A"**  
NTS

\* TRANSVERSE TIES SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF STRAND, EXCEPT AT ANCHORAGE LOCATIONS, TIES SHALL BE TENSIONED TO 133.5 KN  
\*\* AASHTO M270/M270M GRADE 345 STEEL

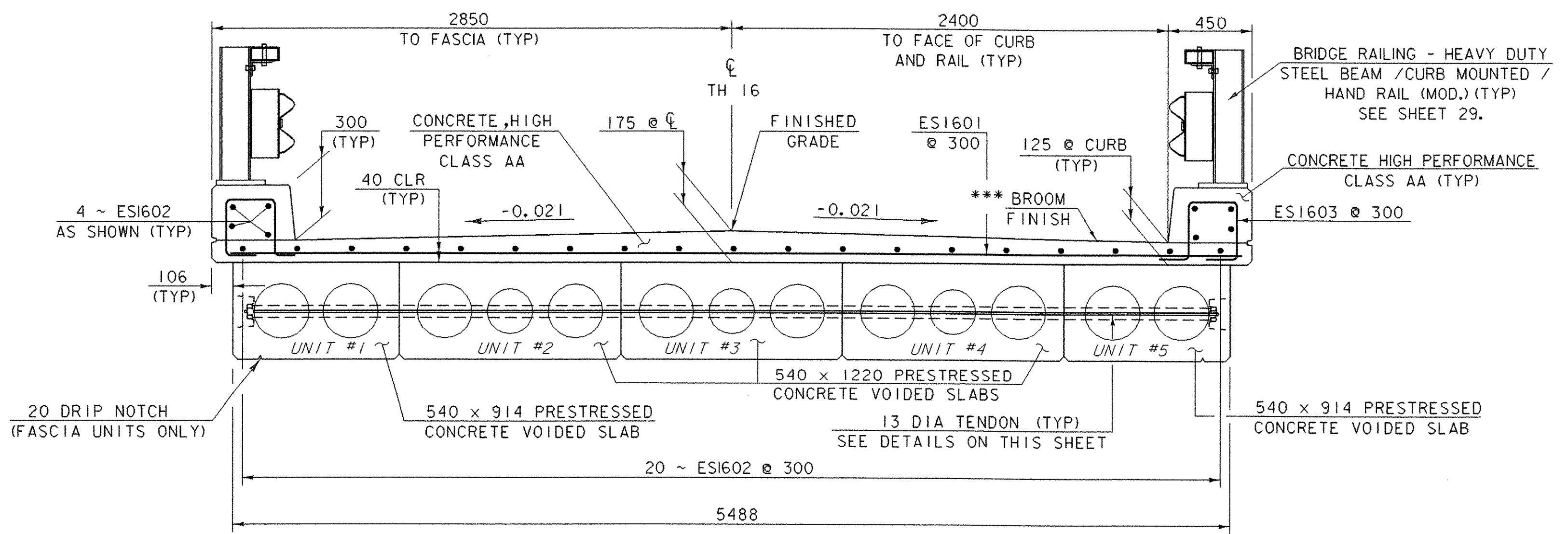


**PLAN PRESTRESSED VOIDED SLAB UNITS**  
SCALE 1:50



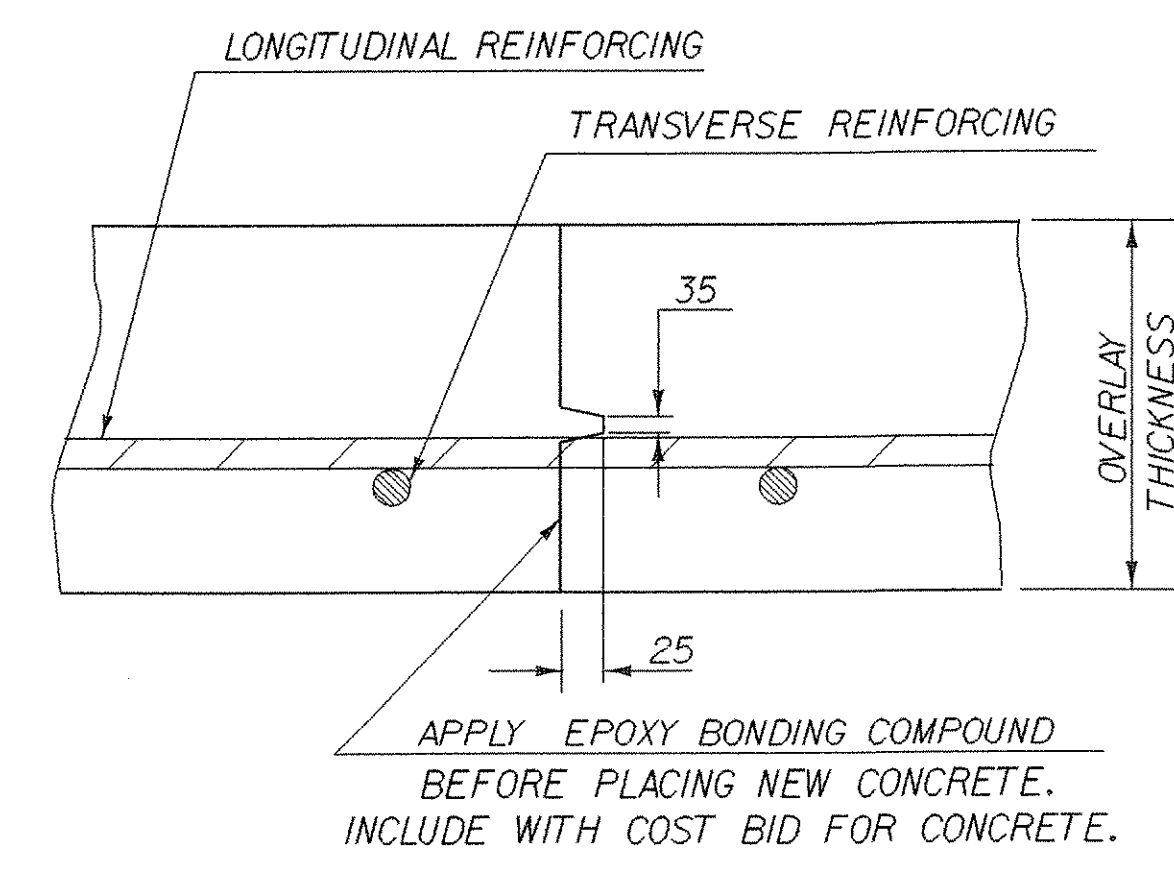
**END BRIDGE ANCHOR BOLT DETAIL**

NOTE: FOR SPECIFICATION FOR ANCHOR BOLTS & NUTS SEE VAOT SPECIFICATION 714.08  
\* EM-3 (13 x 127 x 127) WASHER WITH 38 DIA. HOLE (GALVANIZED)

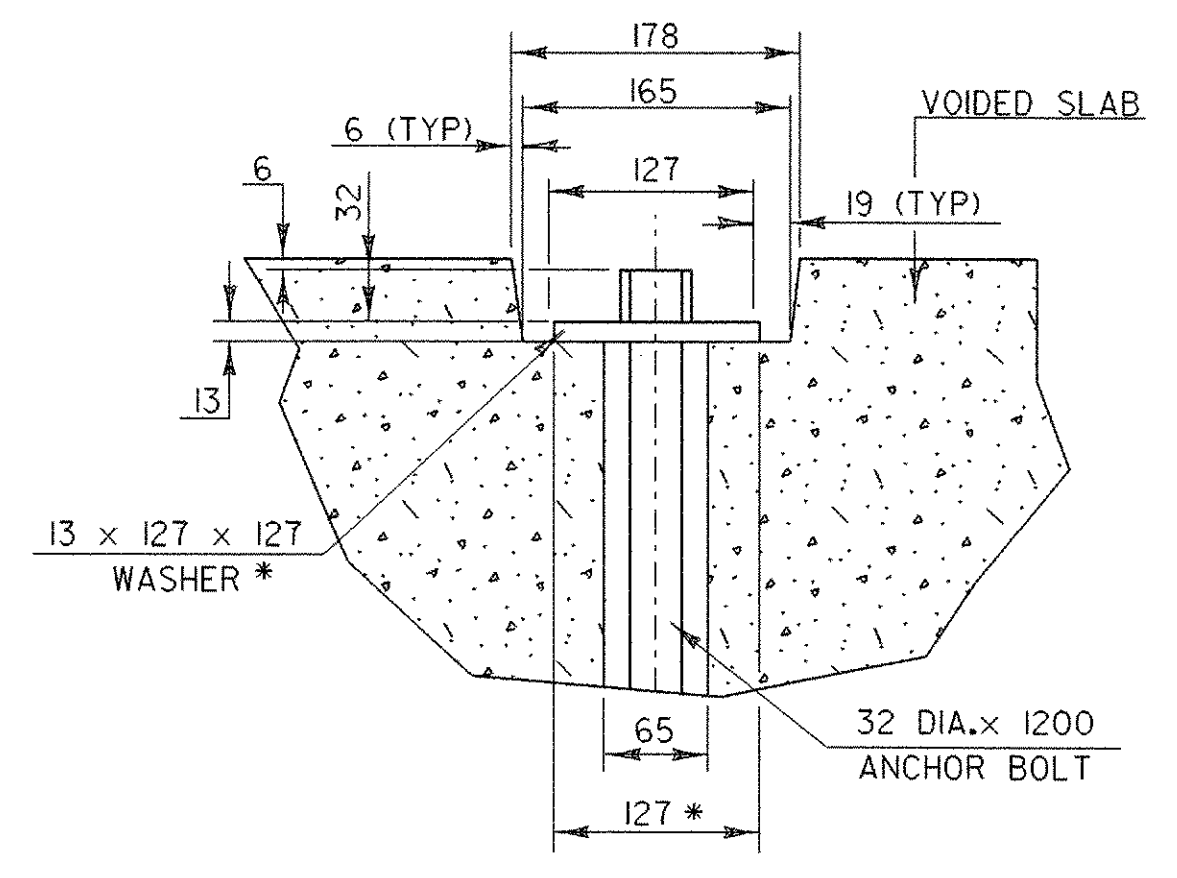


**TYPICAL SECTION AT MIDSPAN**  
SCALE = 1:20

\*\*\* THE CONCRETE DECK WILL BE BROOM FINISHED NORMAL TO CENTERLINE.

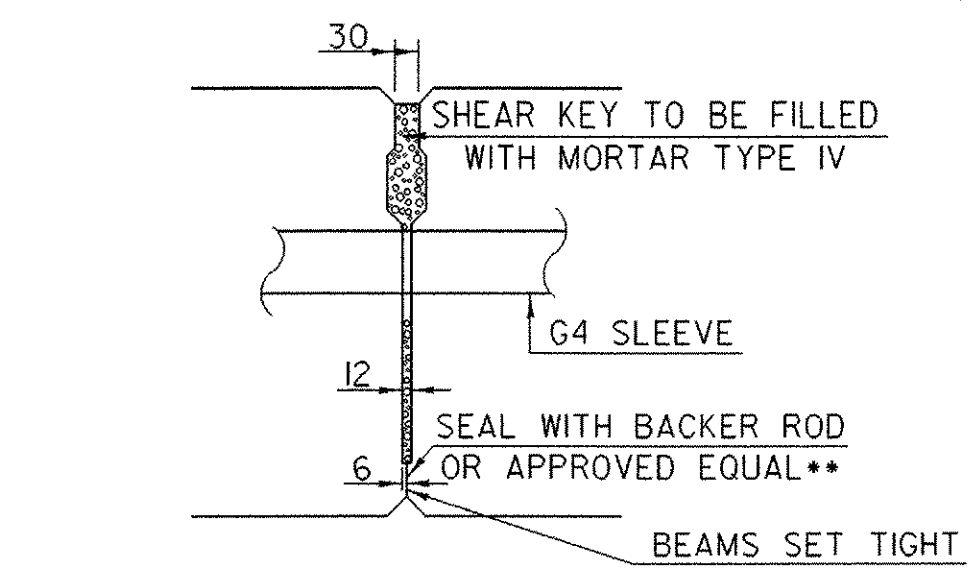


**TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS**



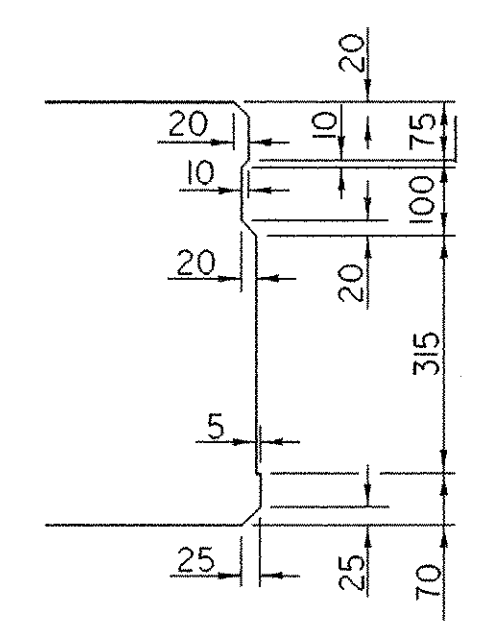
**SECTION A-A**

<b>SHEET NAME: DECK DETAILS</b>		
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16	
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24	
	OVER: CLARENDON RIVER	
FILE NAME: /PW/95j286/sj286sup.dgn	PLOT DATE: 01-DEC-2005	
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE	
DESIGNED BY: C. CARLSON	IPARM NAME: sj286dck.1	
BRIDGE SHEET NUMBER:	SHEET 25 OF 43	

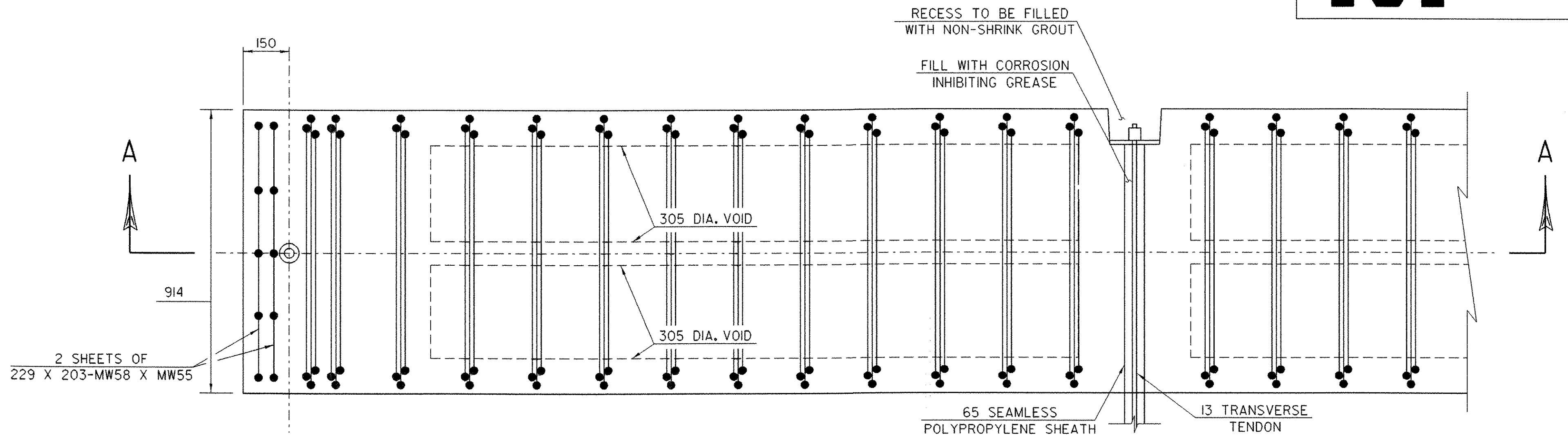


**SHEAR KEY SECTION FOR VOIDED SLAB**  
SCALE: 1:100

\*\*NOTE: INSTALL OAKUM AFTER UNITS HAVE BEEN PLACED

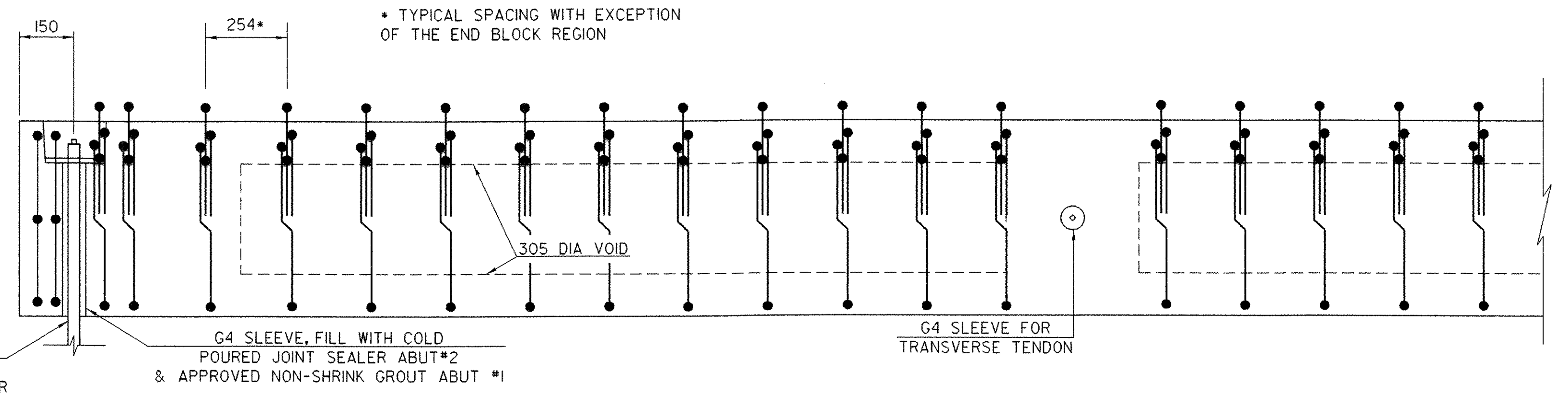


**SHEAR KEY DETAIL FOR VOIDED SLAB**  
SCALE: 1:100

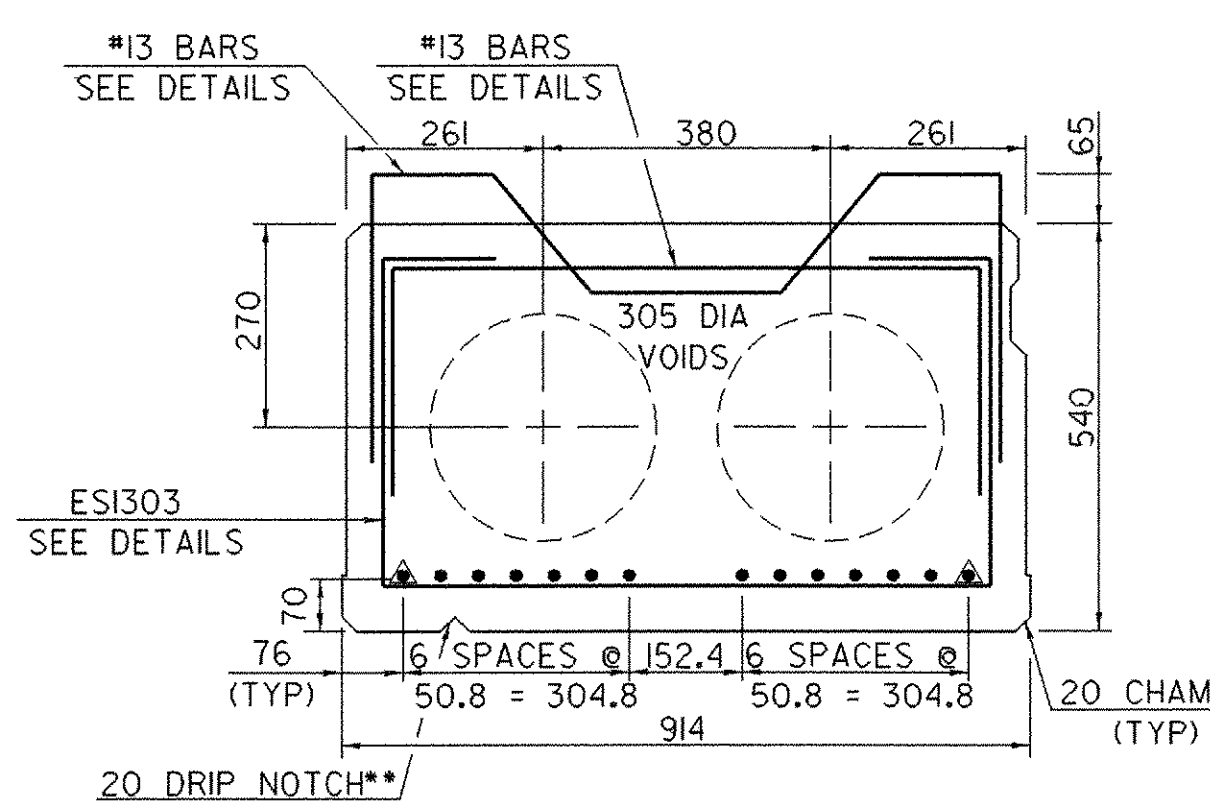


**END BLOCK DETAIL**  
SCALE = 1:10

**DETAIL AT TRANSVERSE TENDON**  
SCALE = 1:10



**VOIDED SLAB SECTION A-A**  
SCALE = 1:10



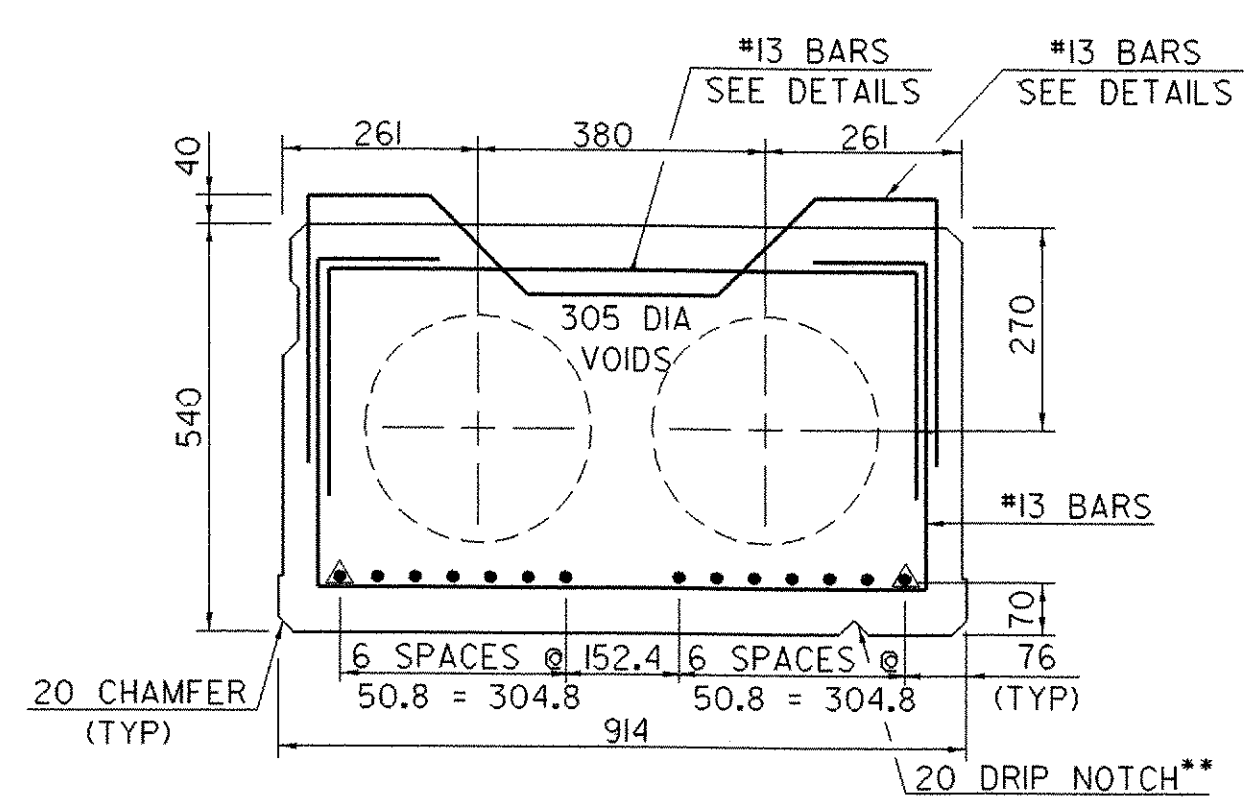
**540 x 914 VOIDED SLAB (LEFT FASCIA UNIT)**  
SCALE = 1:10

▲ = STRAND DEBONDED 1250 EACH END  
\*\* = STOP DRIP NOTCH 1.5 METERS FROM ENDS OF UNIT AND OUTLET AT 45° TO FASCIA.

NUMBER OF STRANDS FOR 540 SLAB

ROW*	NO. OF STRANDS
1 @ 70	14 STRANDS

\* ROWS ARE ALWAYS AT SPECIFIED DISTANCES FROM BOTTOM OF UNIT



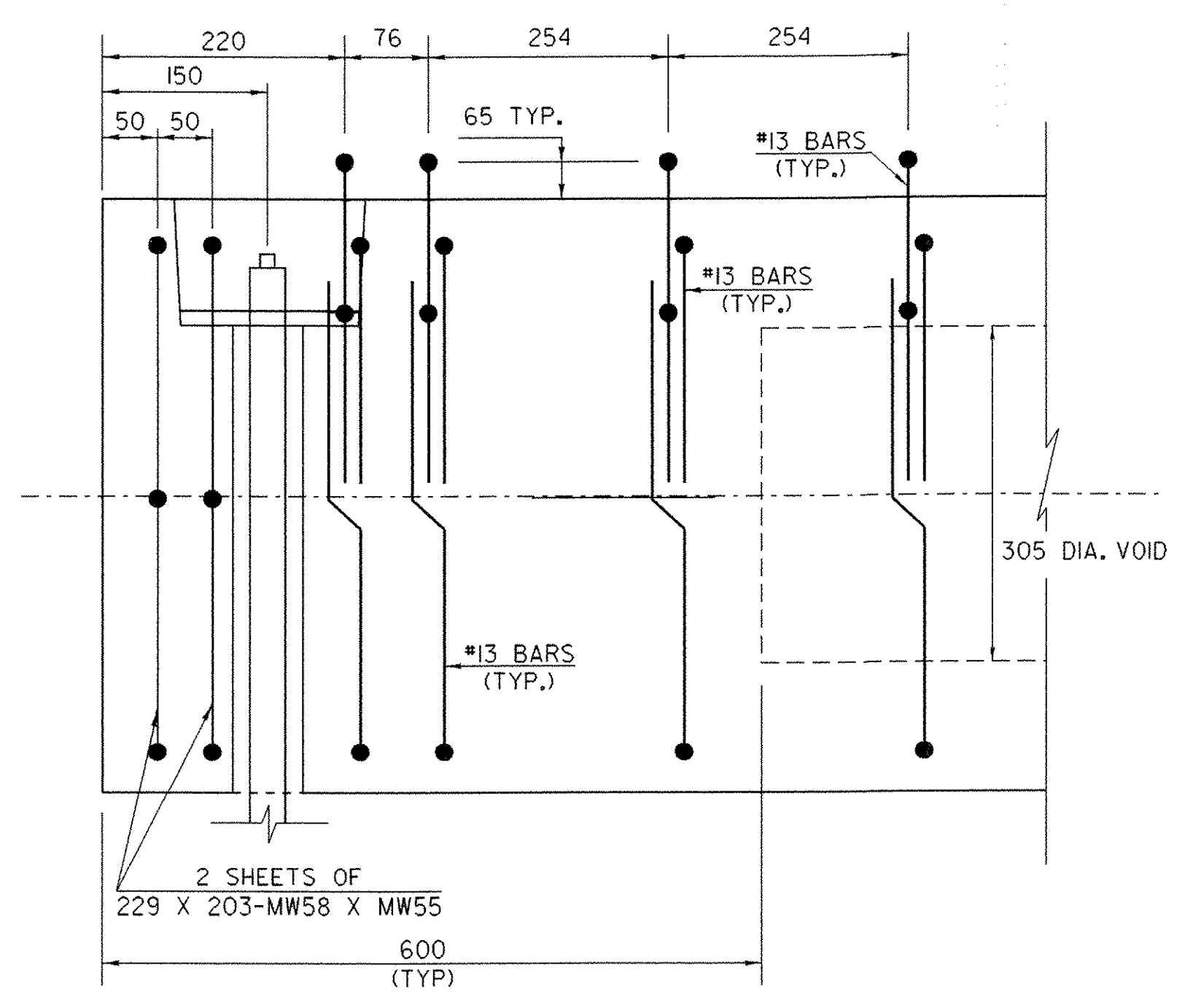
**540 x 914 VOIDED SLAB (RIGHT FASCIA UNIT)**  
SCALE = 1:10

▲ = STRAND DEBONDED 1250 EACH END  
\*\* = STOP DRIP NOTCH 1.5 METERS FROM ENDS OF UNIT AND OUTLET AT 45° TO FASCIA.

NUMBER OF STRANDS FOR 540 SLAB

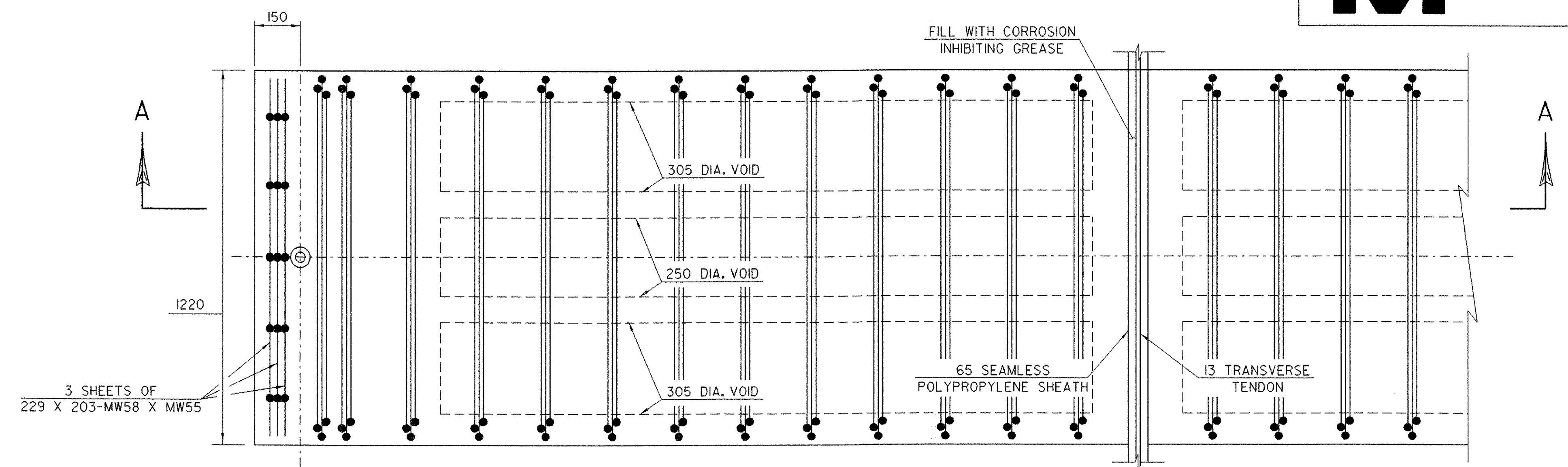
ROW*	NO. OF STRANDS
1 @ 70	14 STRANDS

\* ROWS ARE ALWAYS AT SPECIFIED DISTANCES FROM BOTTOM OF UNIT



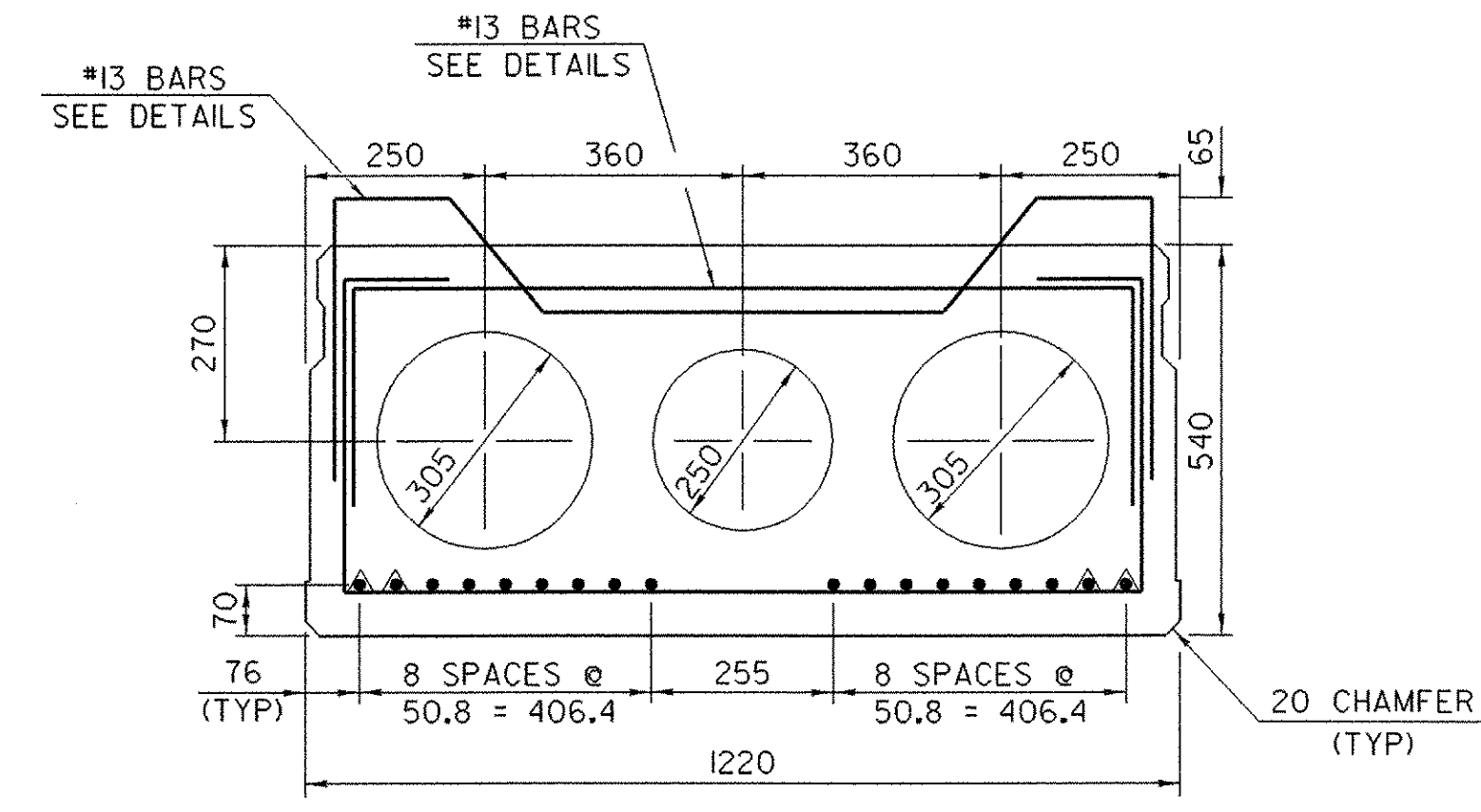
**END BLOCK SECTION**  
SCALE = 1:5

<b>SHEET NAME: 540 x 914 VOIDED SLAB DETAILS</b>	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/951286/sj286sup.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE
DESIGNED BY: C. CARLSON	IPARM NAME: sj286vsd.i
BRIDGE SHEET NUMBER:	SHEET 26 OF 43



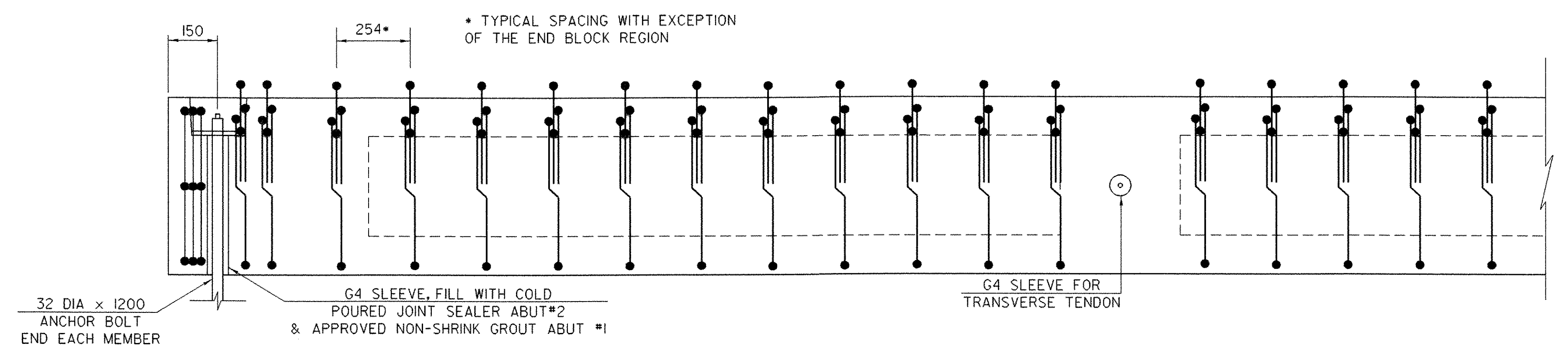
**END BLOCK DETAIL**  
SCALE = 1/10

**DETAIL AT TRANSVERSE TENDON**  
SCALE = 1/10



**540 x 1220 VOIDED SLAB**  
SCALE = 1/10

▲ = STRAND DEBONDED 1850 EACH END

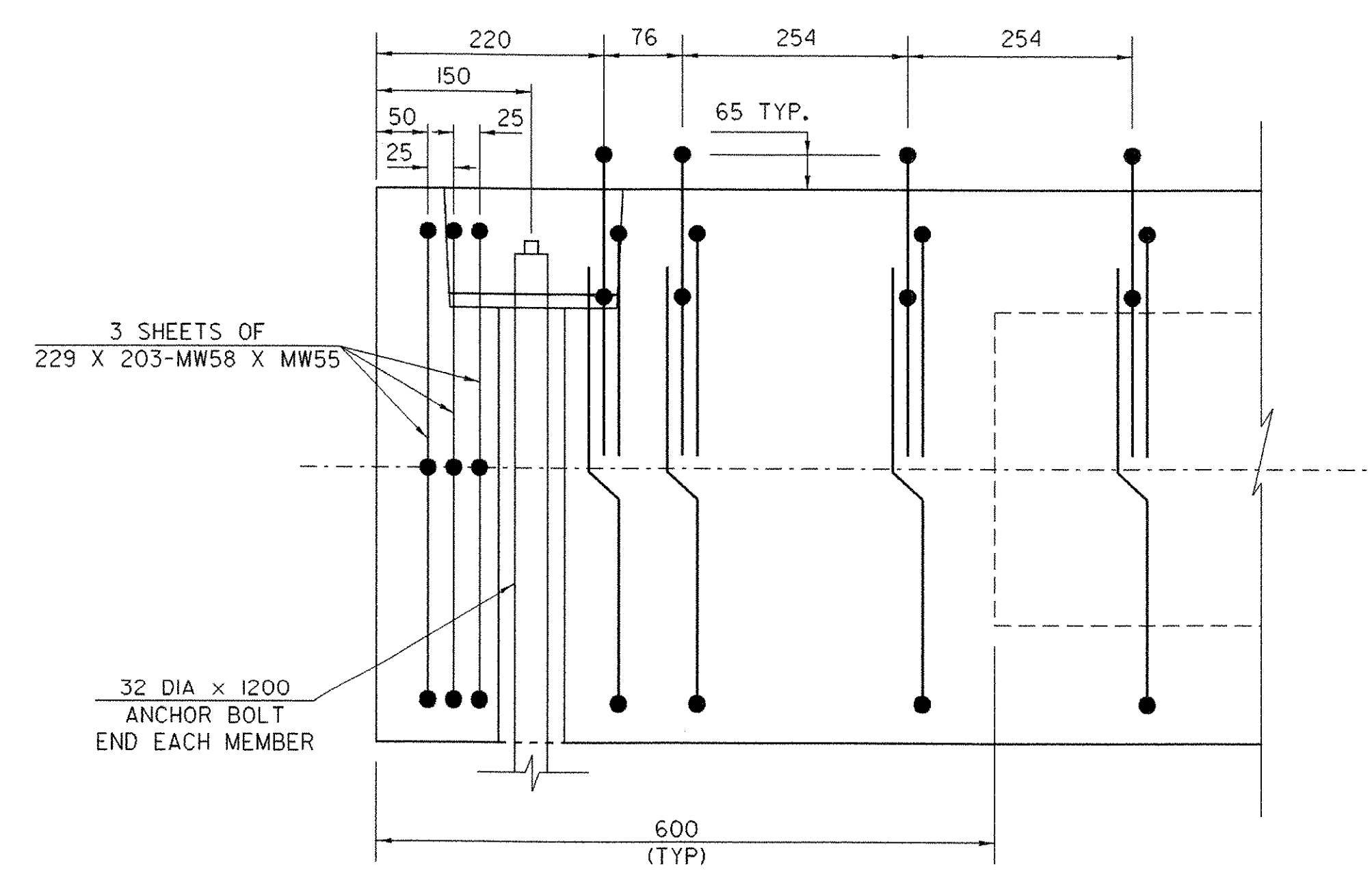


**VOIDED SLAB SECTION A-A**  
SCALE = 1/10

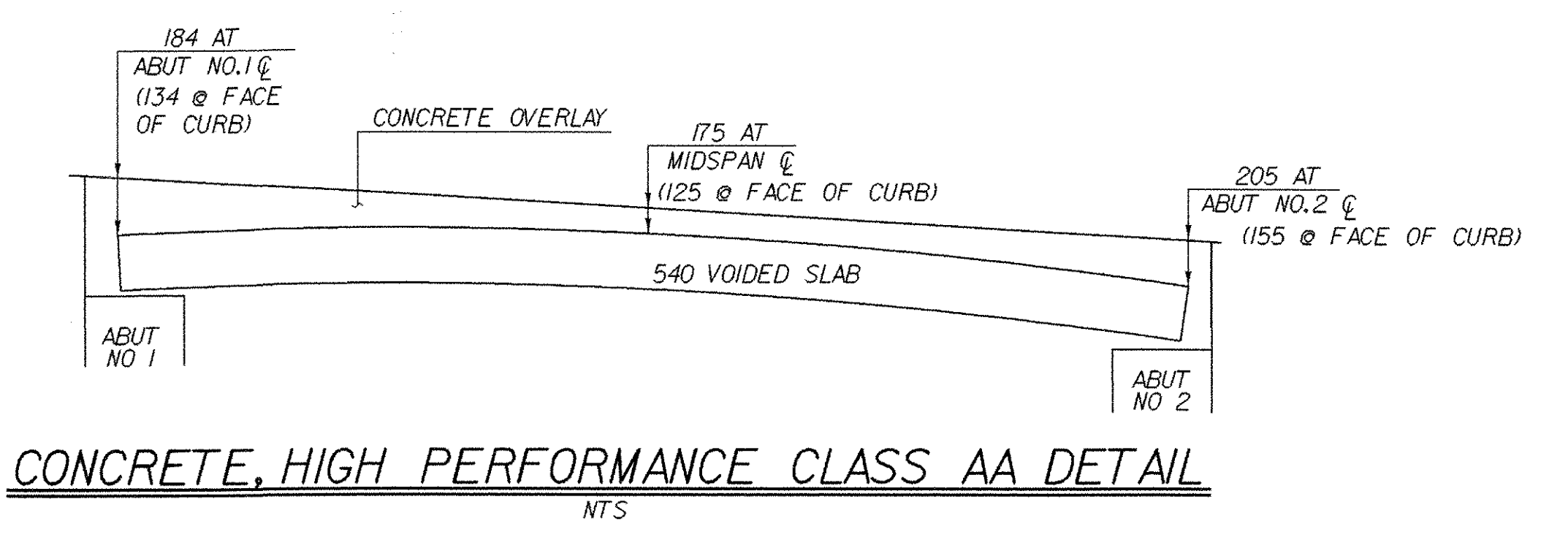
NUMBER OF STRANDS FOR 540x1220 SLAB

ROW*	NO. OF STRANDS
1 @ 70	18 STRANDS

\*ROWS ARE ALWAYS AT SPECIFIED DISTANCES FROM BOTTOM OF UNIT

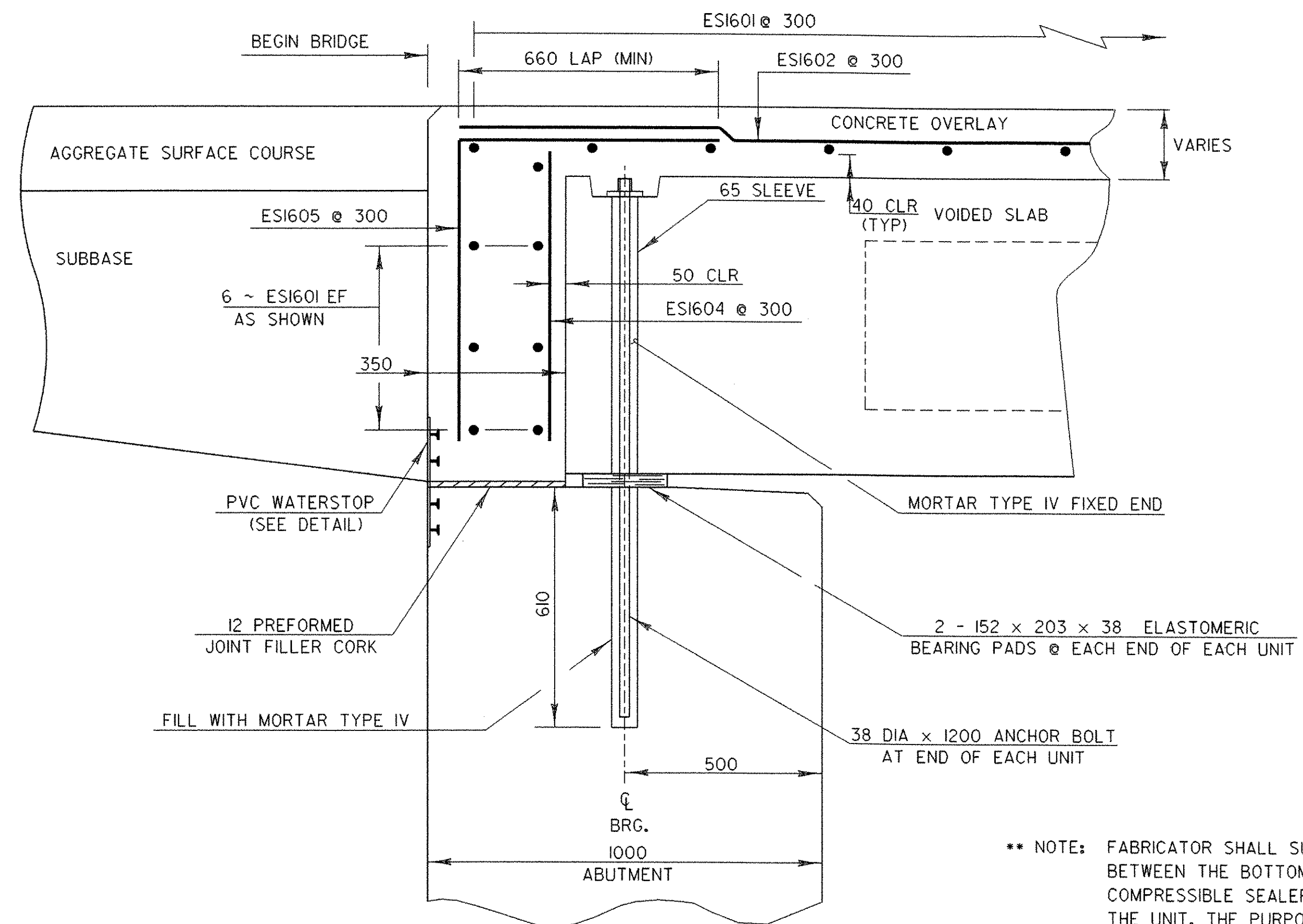


**END BLOCK SECTION**  
SCALE = 1/5



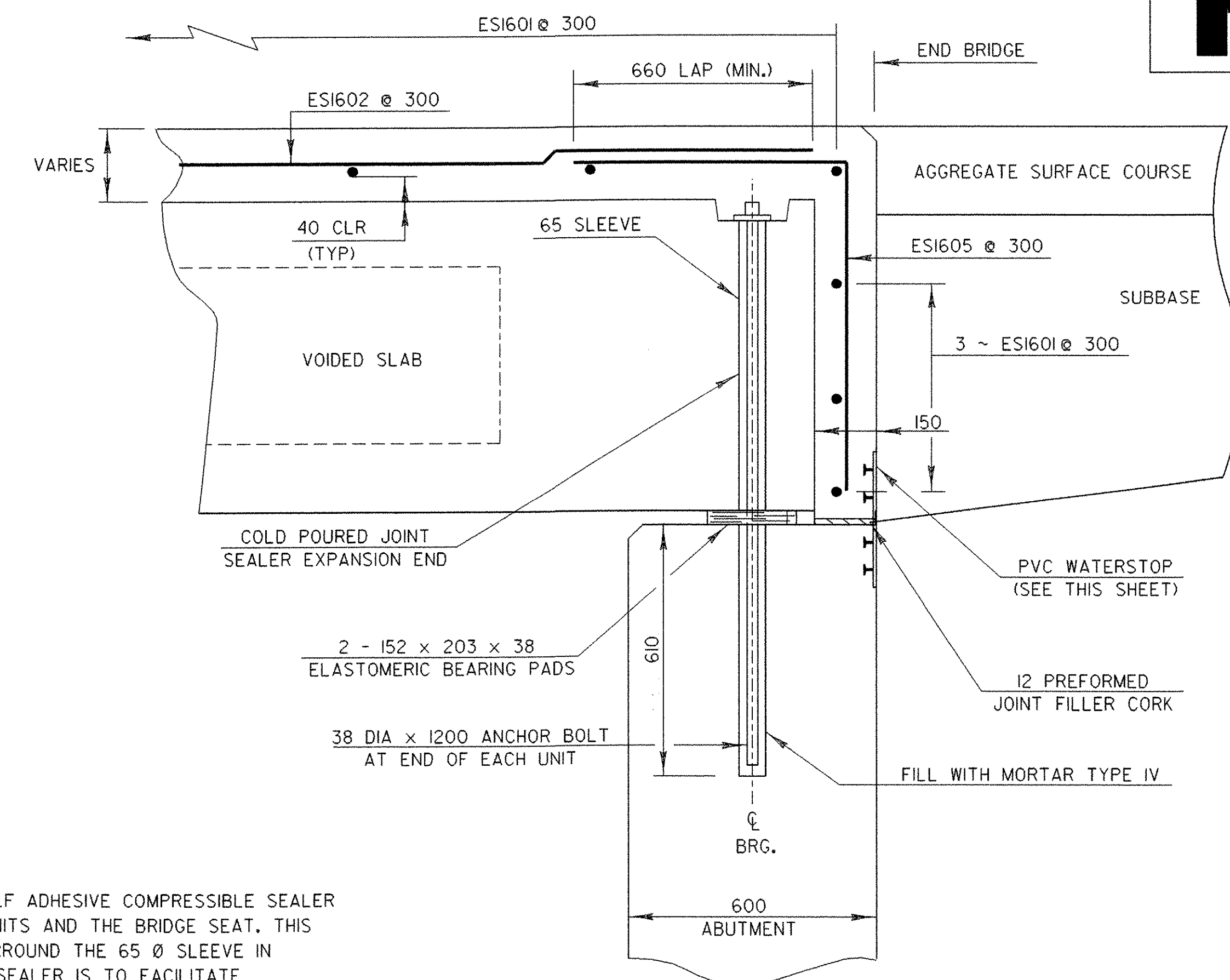
**CONCRETE, HIGH PERFORMANCE CLASS AA DETAIL**  
NTS

SHEET NAME: <b>540 x 1220 VOIDED SLAB DETAILS</b>		
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: <b>TH 16</b>	
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: <b>24</b>	
	OVER: <b>CLARENDON RIVER</b>	
FILE NAME: /PW/95j286/sj286sup.dgn	PLOT DATE: <b>01-DEC-2005</b>	
PROJECT MANAGER: <b>R. WHITCOMB</b>	DRAWN BY: <b>J. GILMORE</b>	
DESIGNED BY: <b>C. CARLSON</b>	IPARM NAME: <b>sj286vs2.1</b>	
BRIDGE SHEET NUMBER:	SHEET <b>27</b> OF <b>43</b>	



**BRIDGE END DETAIL AT ABUTMENT #1 (FIXED)**

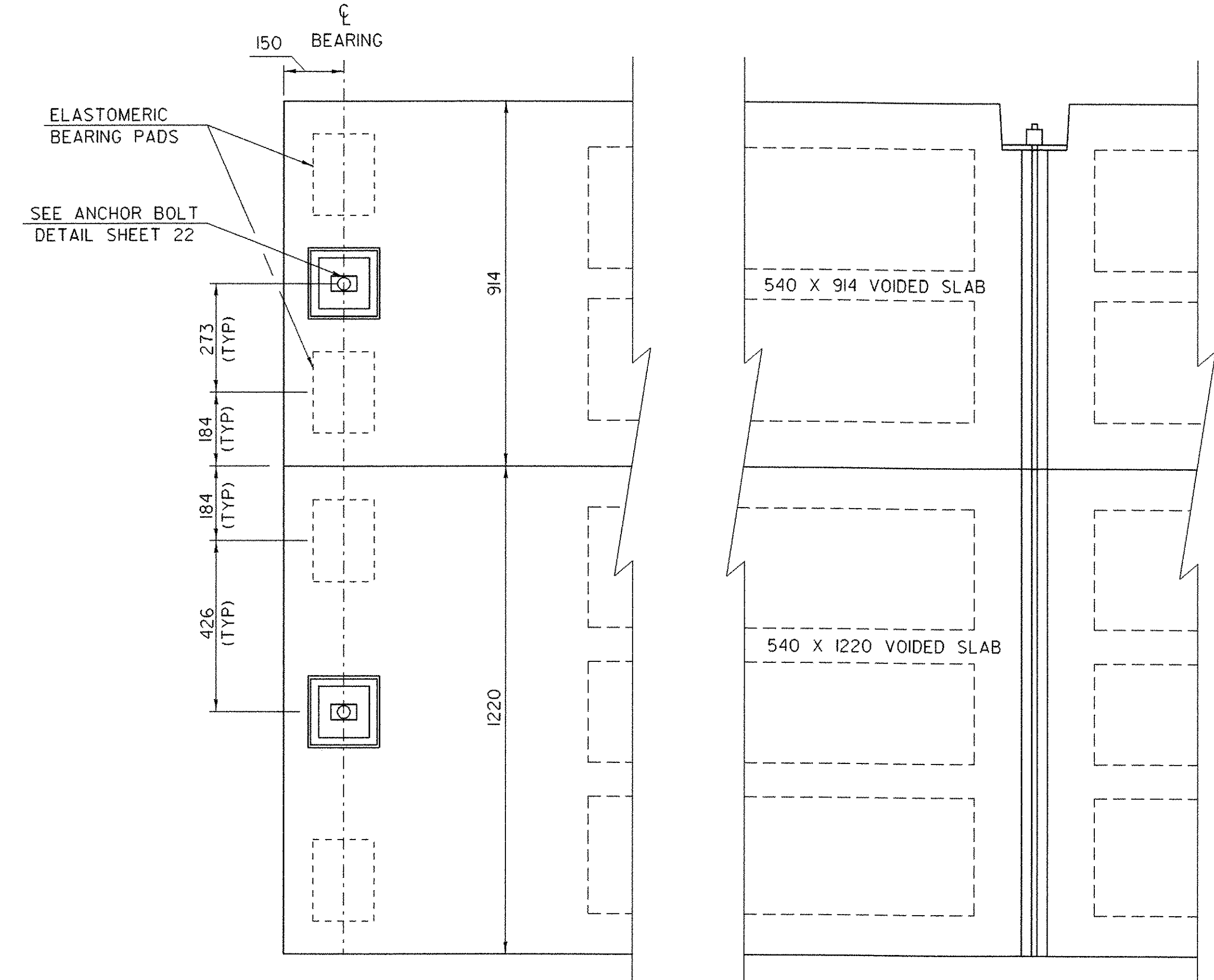
SCALE = 1:10



**BRIDGE END DETAIL AT ABUTMENT #2 (EXP)**

SCALE = 1:10

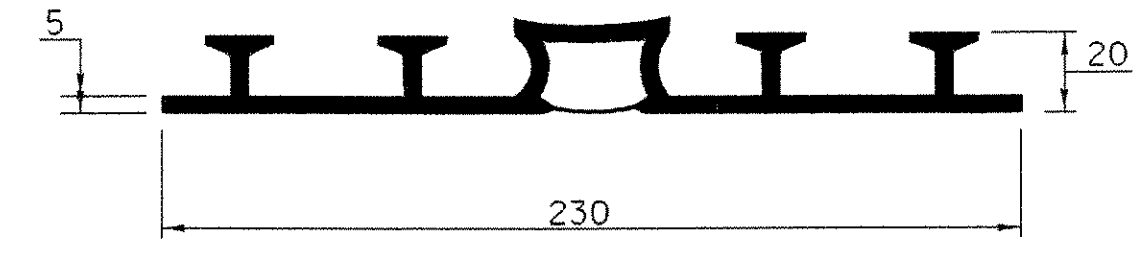
•• NOTE: FABRICATOR SHALL SUPPLY A SELF ADHESIVE COMPRESSIBLE SEALER BETWEEN THE BOTTOM OF THE UNITS AND THE BRIDGE SEAT. THIS COMPRESSIBLE SEALER SHALL SURROUND THE 65 Ø SLEEVE IN THE UNIT. THE PURPOSE OF THE SEALER IS TO FACILITATE PLACEMENT OF THE 'MORTAR OR JOINT SEALER' AROUND THE ANCHOR BOLTS.



**BEARING PAD PLACEMENT DETAIL**

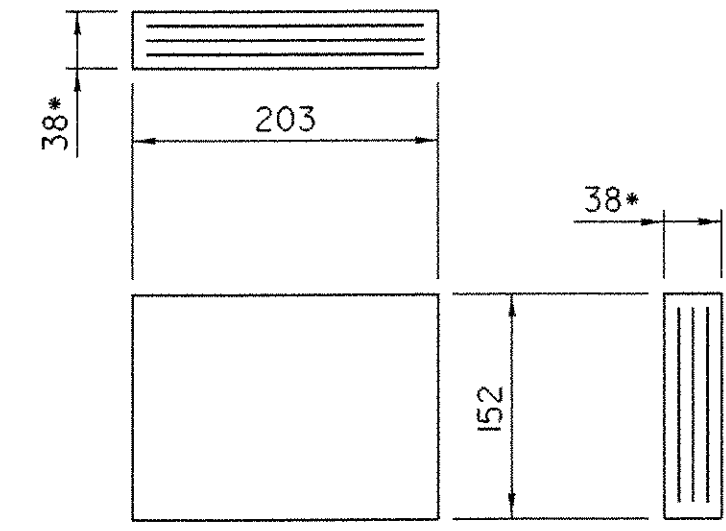
(TYPICAL EACH END)

SCALE = 1:10



**PVC WATERSTOP FOR EXPANSION JOINTS**

THE COSTS FOR PVC WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE. OTHER CONFIGURATIONS MAY BE USED BASED UPON PRIOR APPROVAL OF THE STRUCTURES ENGINEER.



**ELASTOMERIC BEARING DETAIL**

• 4 - 8mm LAYERS OF ELASTOMERIC ALTERNATING WITH  
3 - 14 GAGE STEEL REINFORCING PLATES

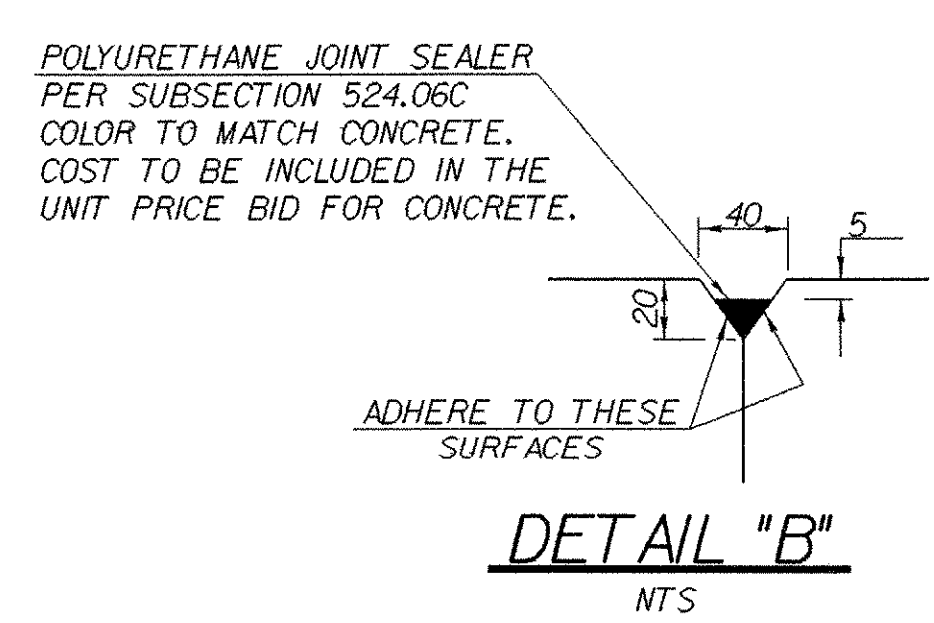
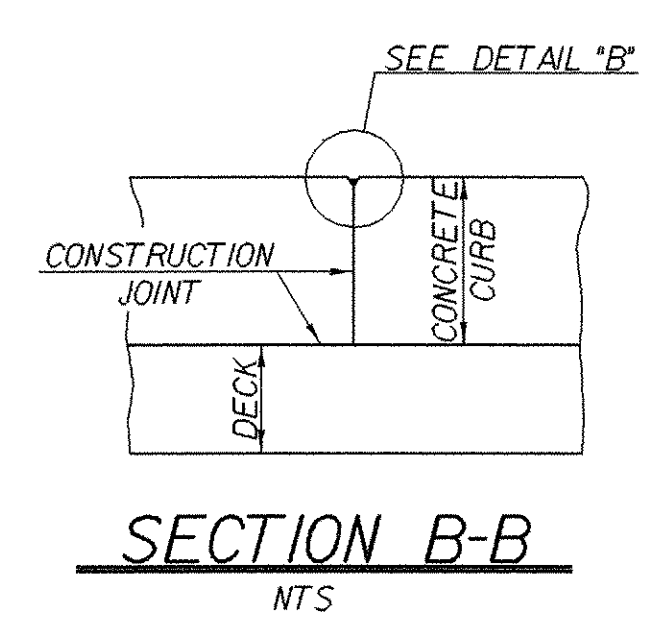
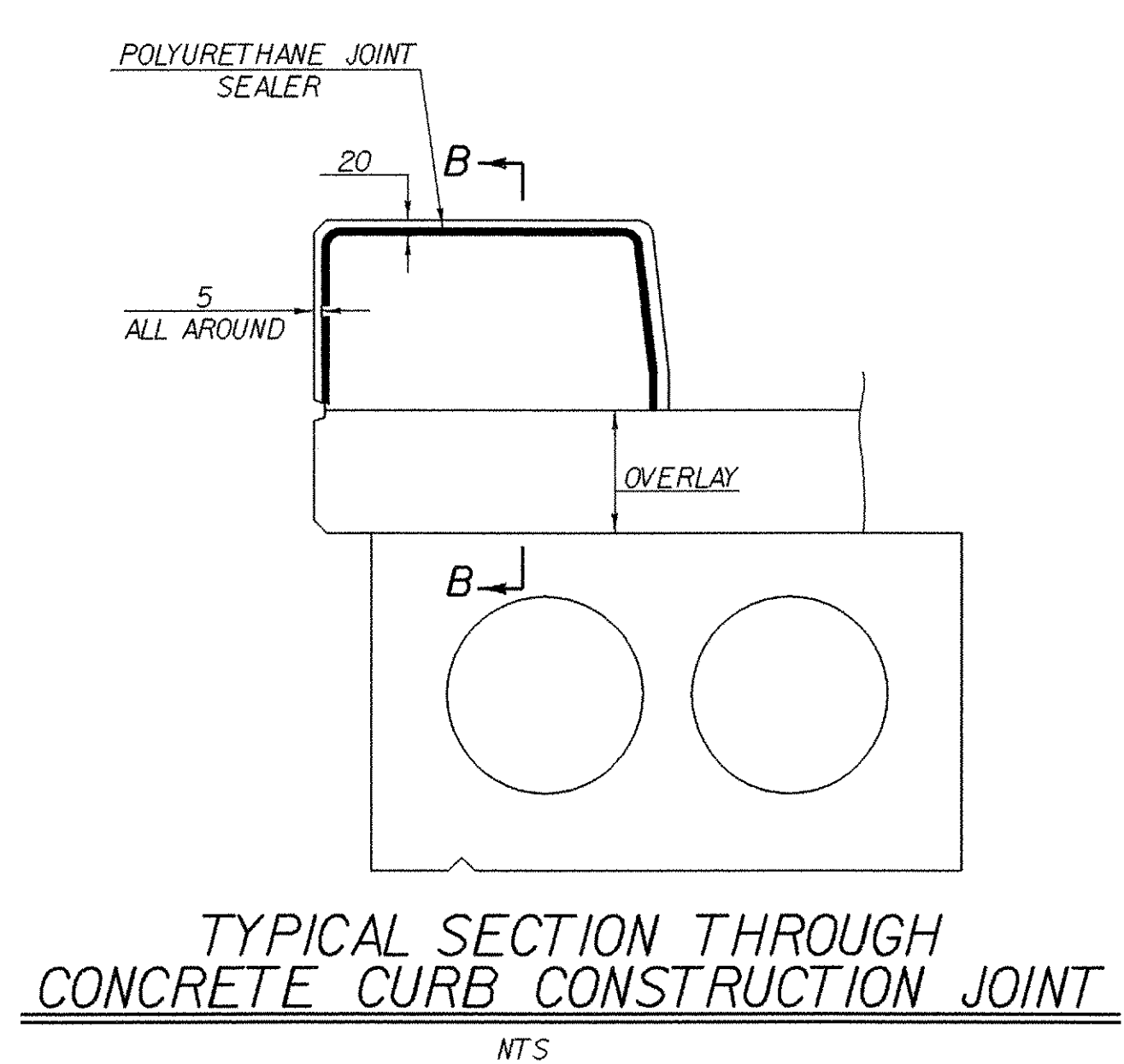
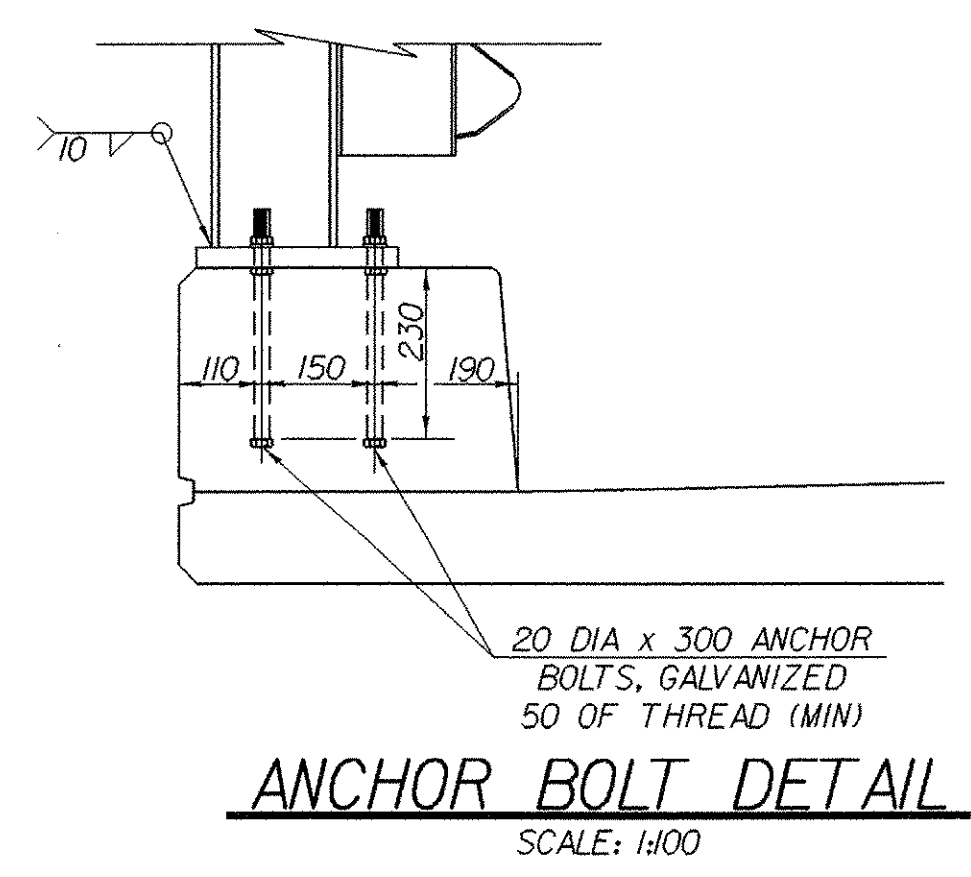
**NOTES**

1. ALTERNATE CONFIGURATIONS FOR ELASTOMERIC BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE BEARING SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE LOADS AND CRITERIA SHOWN ON THIS SHEET AND MAINTAIN THE ANCHORAGE SYSTEM SHOWN. THE BEARINGS SHALL BE DESIGNED ACCORDING TO AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 2002 EDITION AND ITS LATEST REVISIONS.
2. THE BEARING SHAPE FACTOR SHALL BE BETWEEN 5.0 AND 12.0.
3. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL GRADE 250. NO FABRIC REINFORCEMENT WILL BE PERMITTED.
4. ELASTOMERIC BEARINGS REINFORCED WITH STEEL SHALL HAVE A 3mm EDGE SEAL OF ELASTOMERIC INTEGRAL WITH THE BEARING OVER ALL PLATES.
5. ALL MATERIALS AND FABRICATION SHALL BE PER AASHTO DIVISION II SECTION 18.2 AND AASHTO MATERIAL SPECIFICATION M251.
6. DESIGN CRITERIA:
  - A. TEMPERATURE RANGE: 27C
  - B. 60 DUROMETER ELASTOMERIC
  - C. MAXIMUM BEARING STRESS: 7 MPa
  - D. DESIGN ROTATION: 0.015 RAD
  - E. REACTION/BEAM:
    - RDL: 140 KN
    - RLL: 146 KN

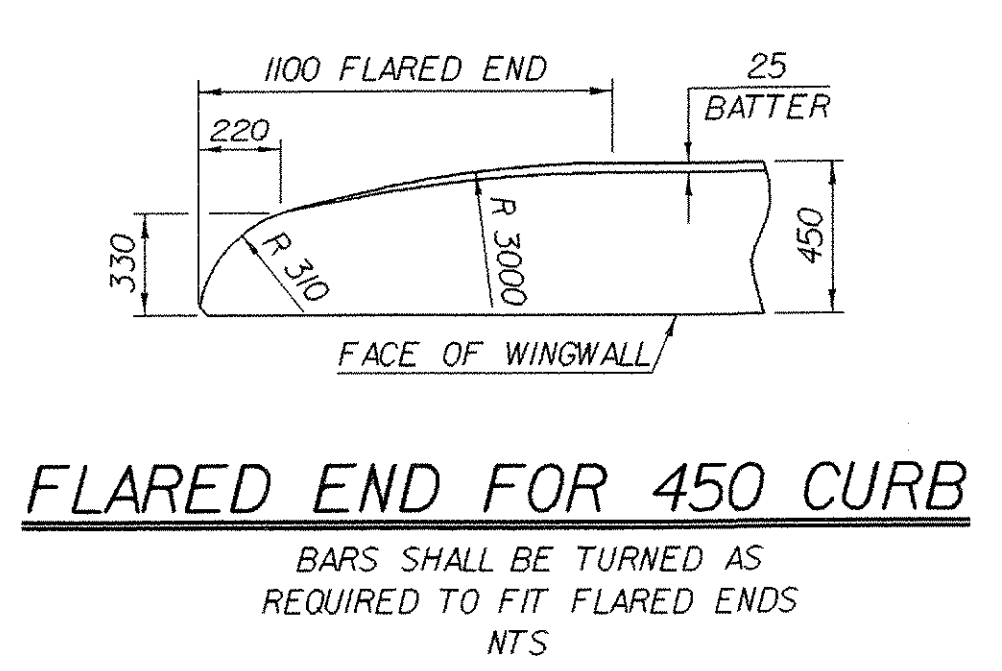
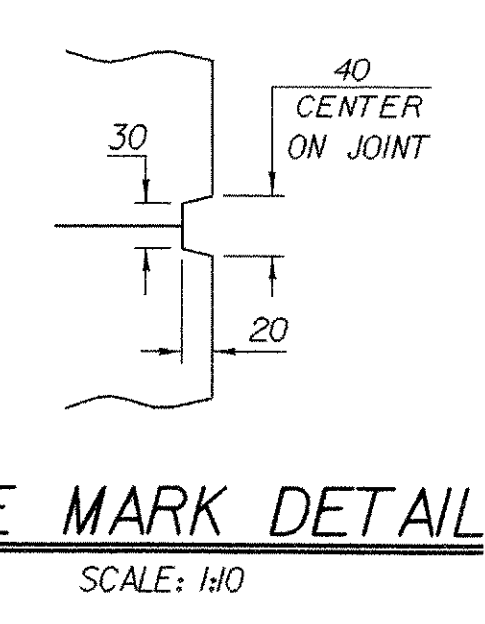
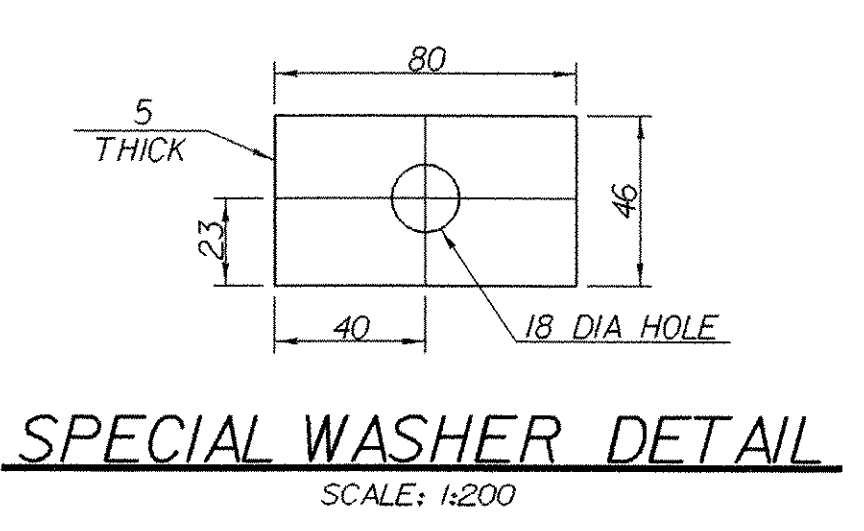
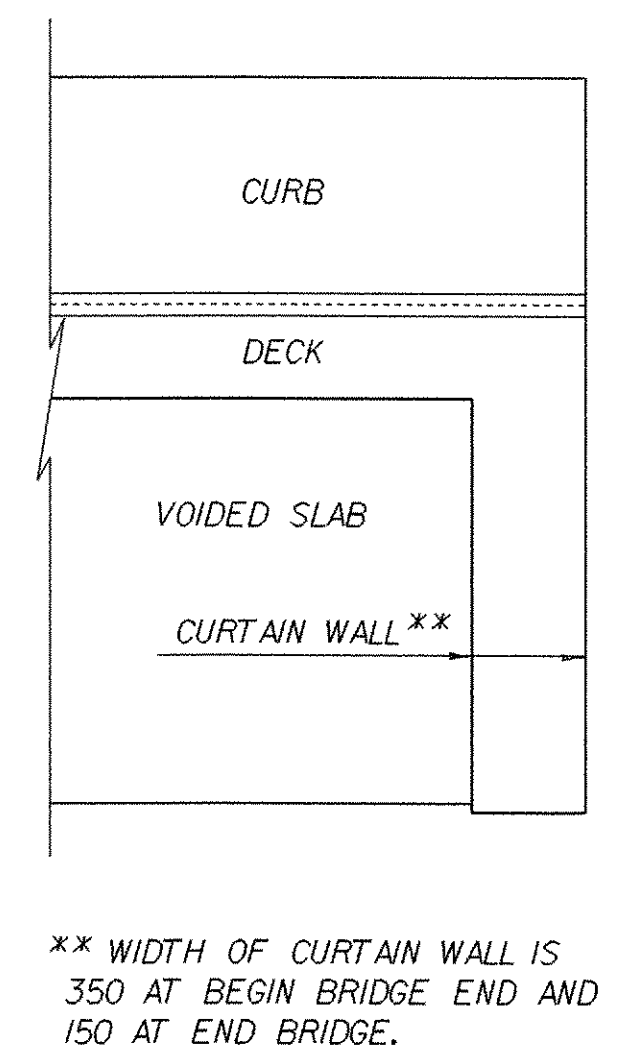
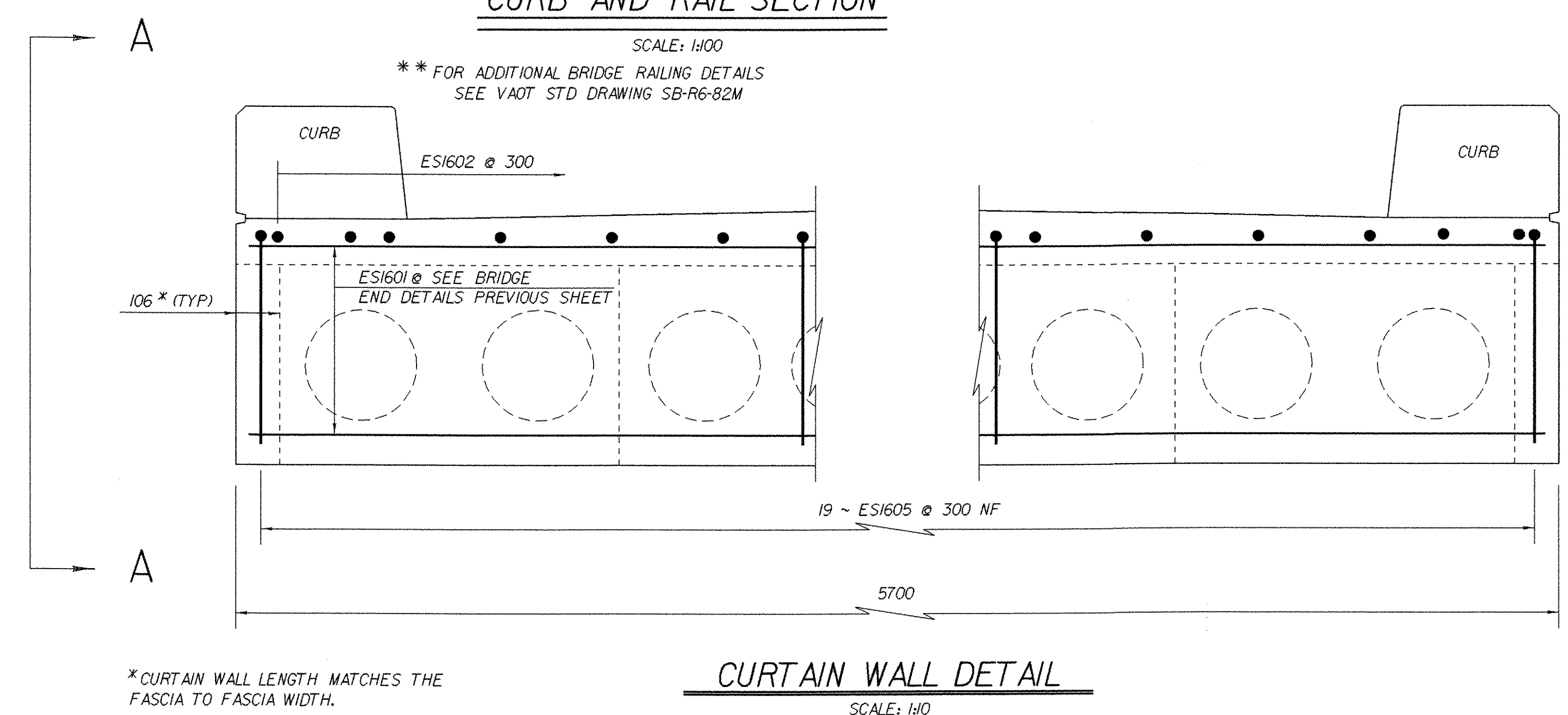
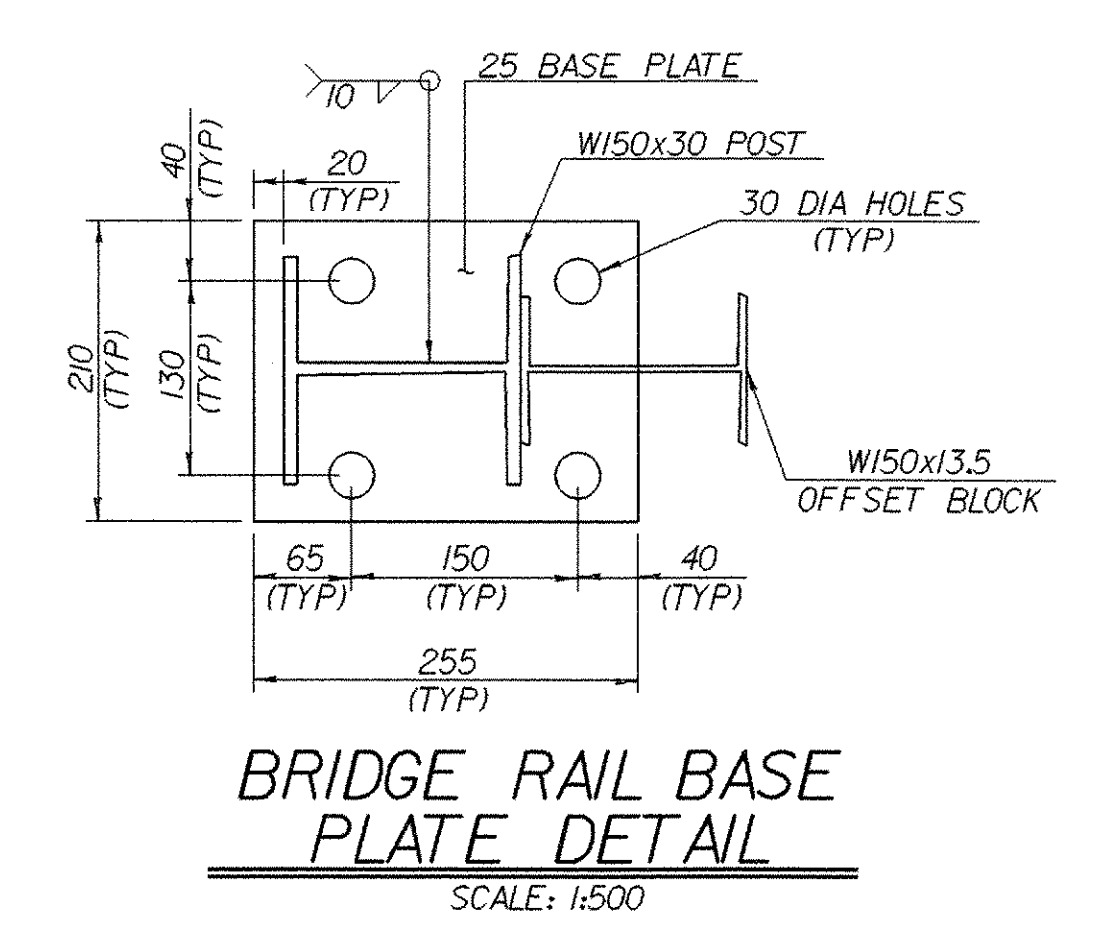
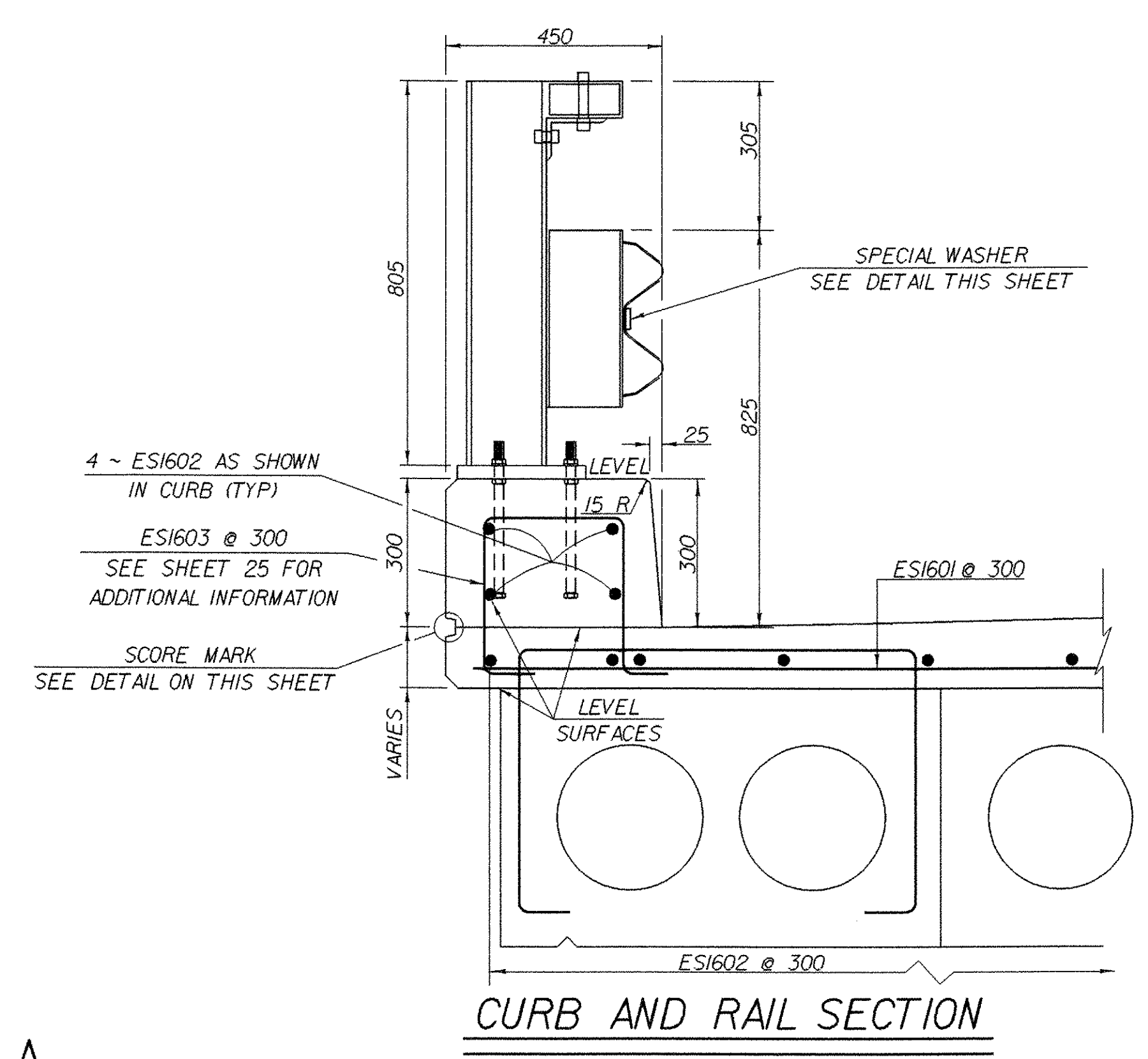
**NOTES**

1. NF = NEAR FACE
2. FF = FAR FACE
3. EF = EACH FACE
4. ▲ = CUT TO FIT IN FIELD
5. 80 CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS

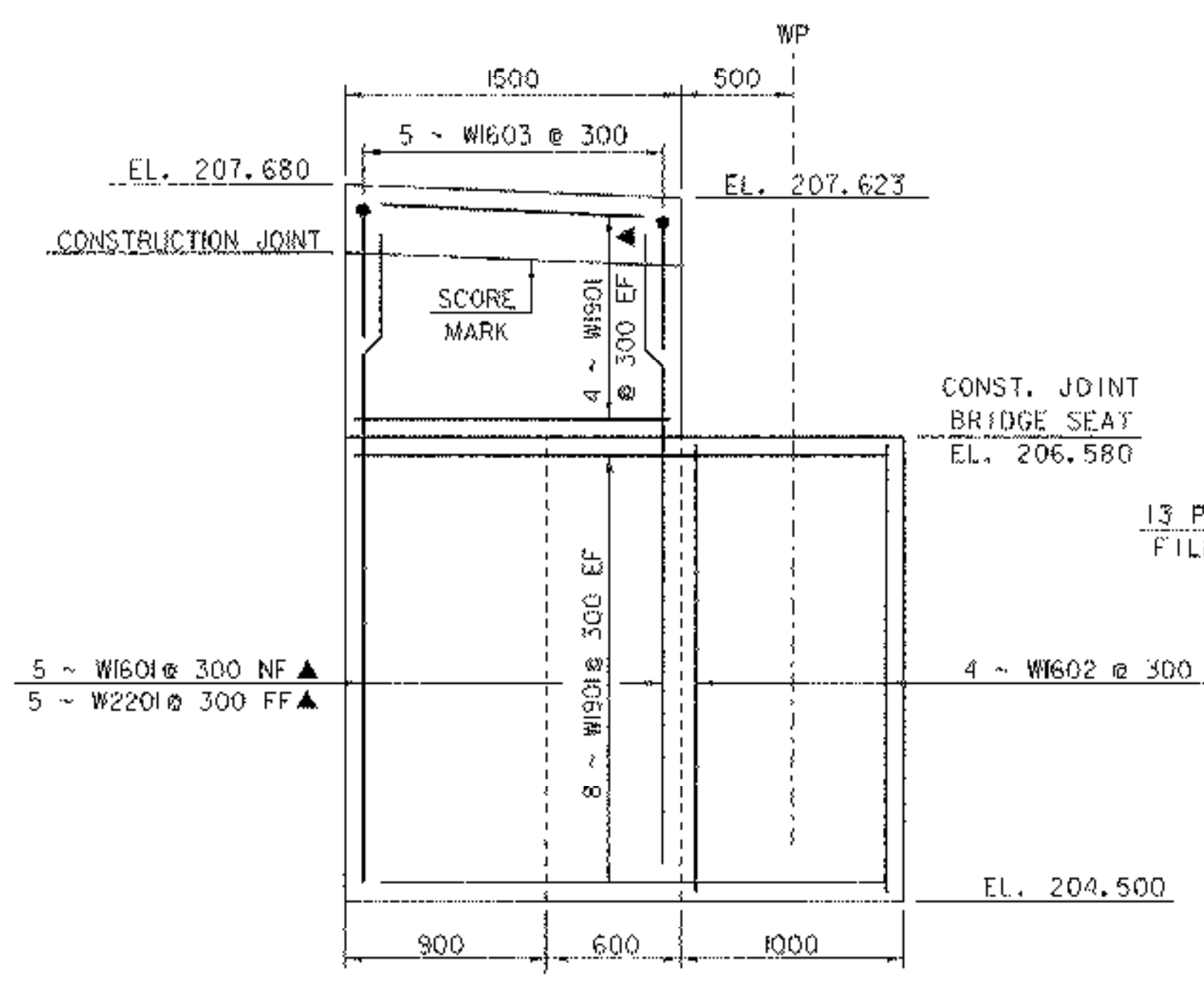
SHEET NAME: <b>BRIDGE END AND BEARING DETAILS</b>		
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: <b>TH 16</b>	
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: <b>24</b>	
	OVER: <b>CLARENDON RIVER</b>	
FILE NAME: /PW/95J286/sj286sup.dgn	PLOT DATE: <b>01-DEC-2005</b>	
PROJECT MANAGER: <b>R. WHITCOMB</b>	DRAWN BY: <b>J. GILMORE</b>	
DESIGNED BY: <b>C. CARLSON</b>	IPARM NAME: <b>sj286bed.j</b>	
BRIDGE SHEET NUMBER:	SHEET <b>28</b> OF <b>43</b>	



NOTES:  
1. CONSTRUCTION JOINTS THROUGH CONCRETE CURBS SHALL BE SPACED MAXIMUM 6000 CENTER TO CENTER AND SHALL BE 450 MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.  
2. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS.

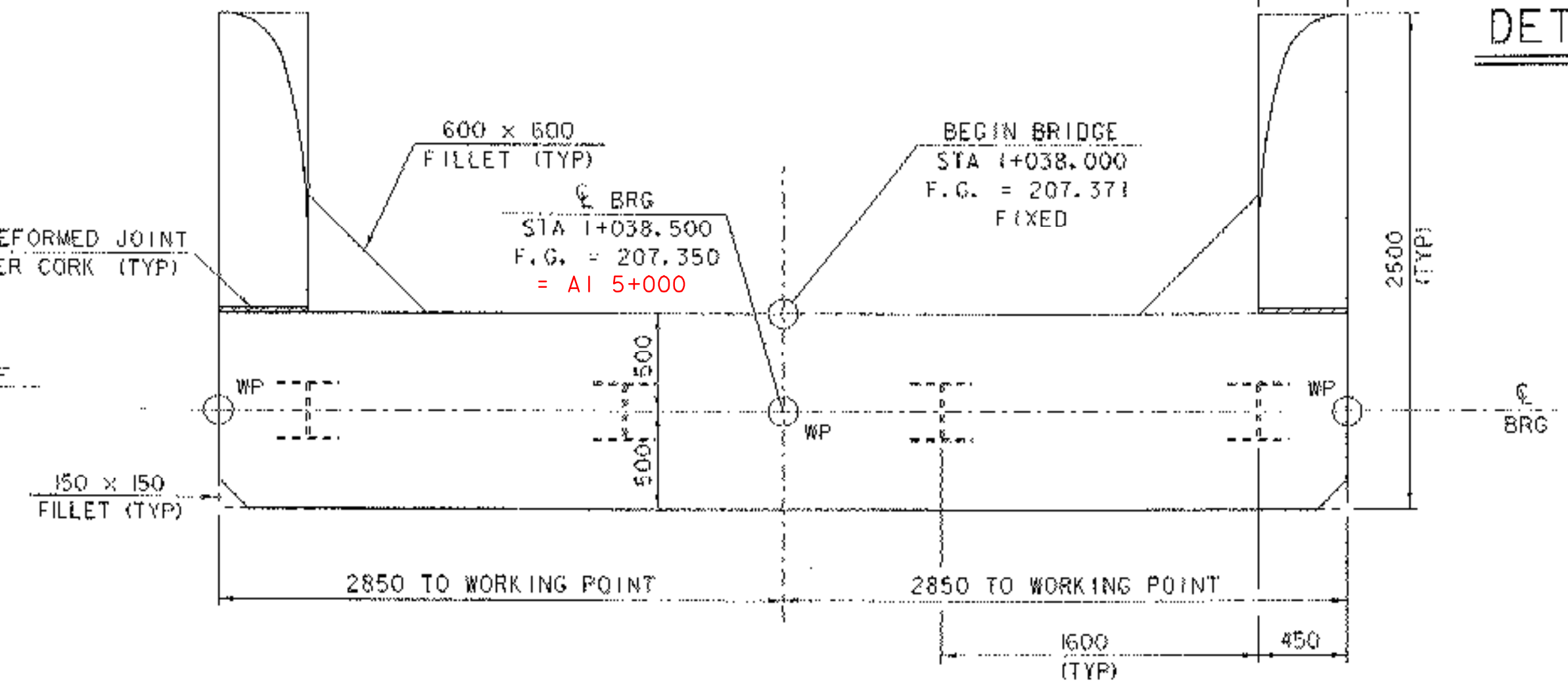


<b>SHEET NAME: CURB AND RAIL DETAILS</b>		
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16	
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24	
	OVER: CLARENDON RIVER	
FILE NAME: /PW/95j286/sj286sup.dgn	PLOT DATE: 01-DEC-2005	
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE	
DESIGNED BY: C. CARLSON	IPARM NAME: sj286crb.i	
BRIDGE SHEET NUMBER:	SHEET 29 OF 43	



**TYPICAL WINGWALL #1 & #2 ELEVATION**

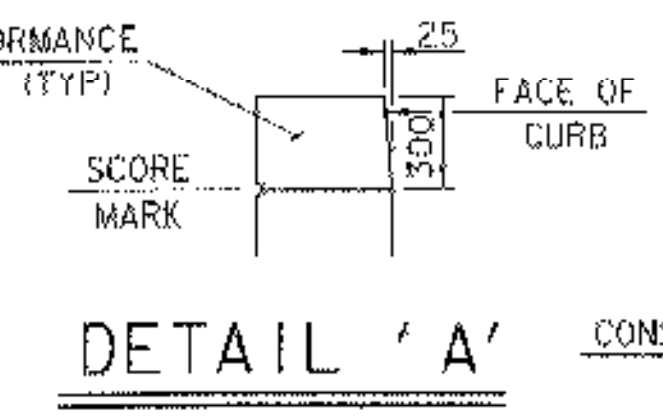
SCALE: 1:25



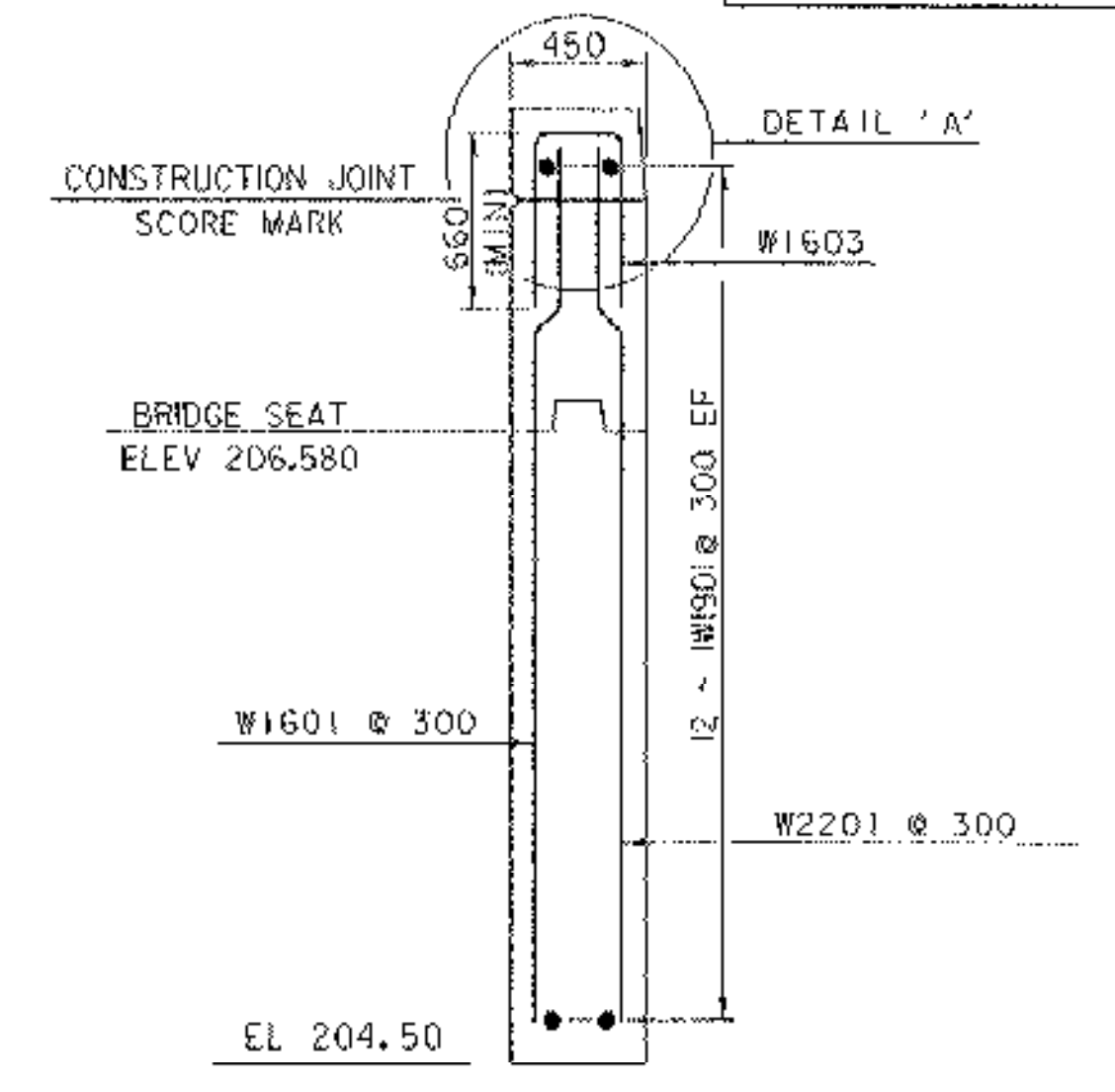
**ABUTMENT #1 PLAN**

SCALE: 1:25

FLOW

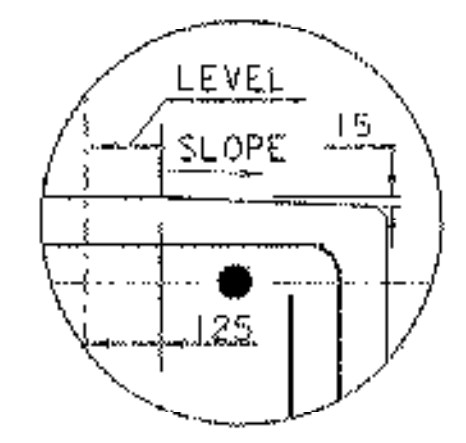


**DETAIL 'A'**

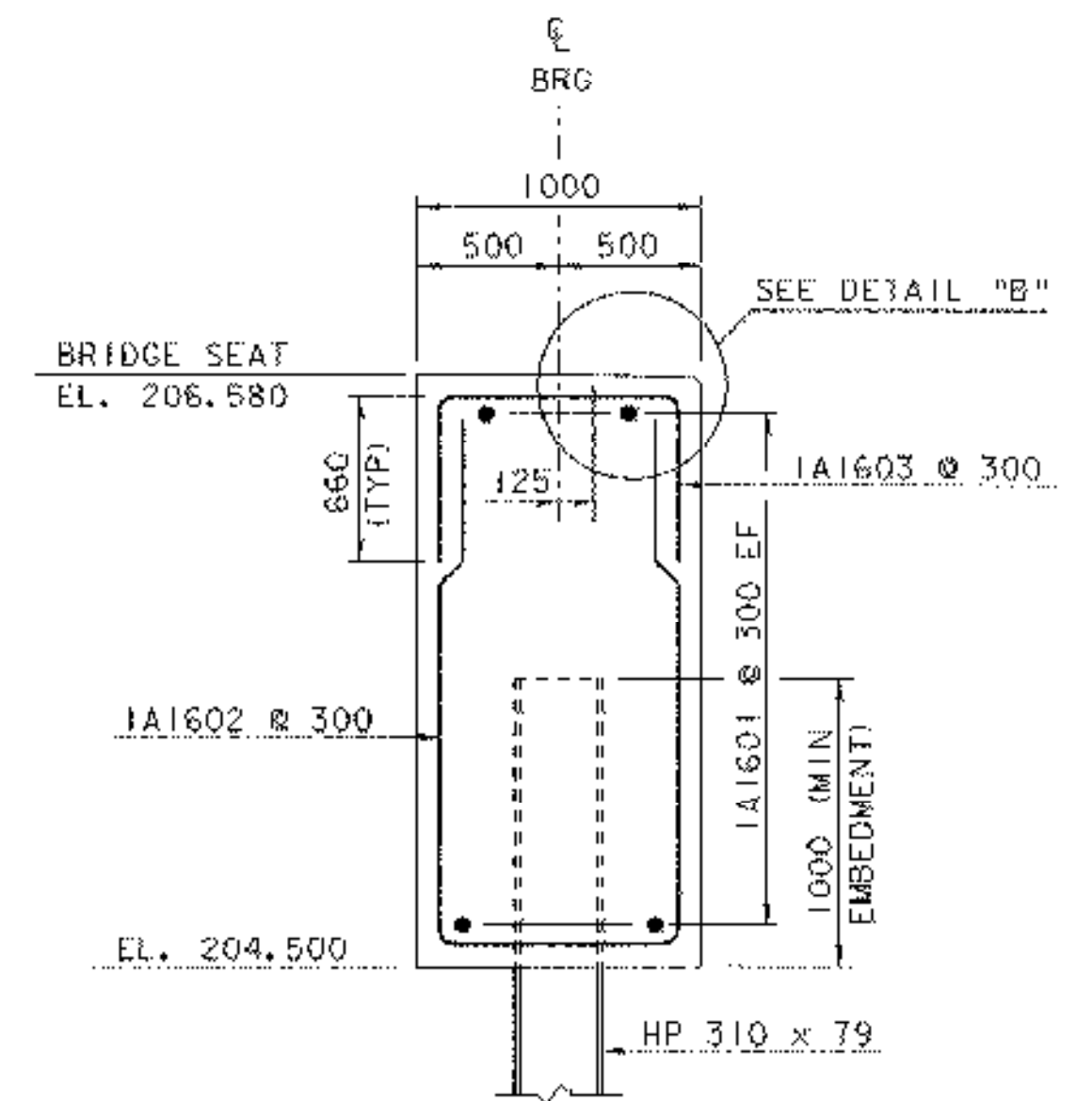


**TYPICAL WINGWALL #1 & #2 SECTION**

SCALE: 1:25

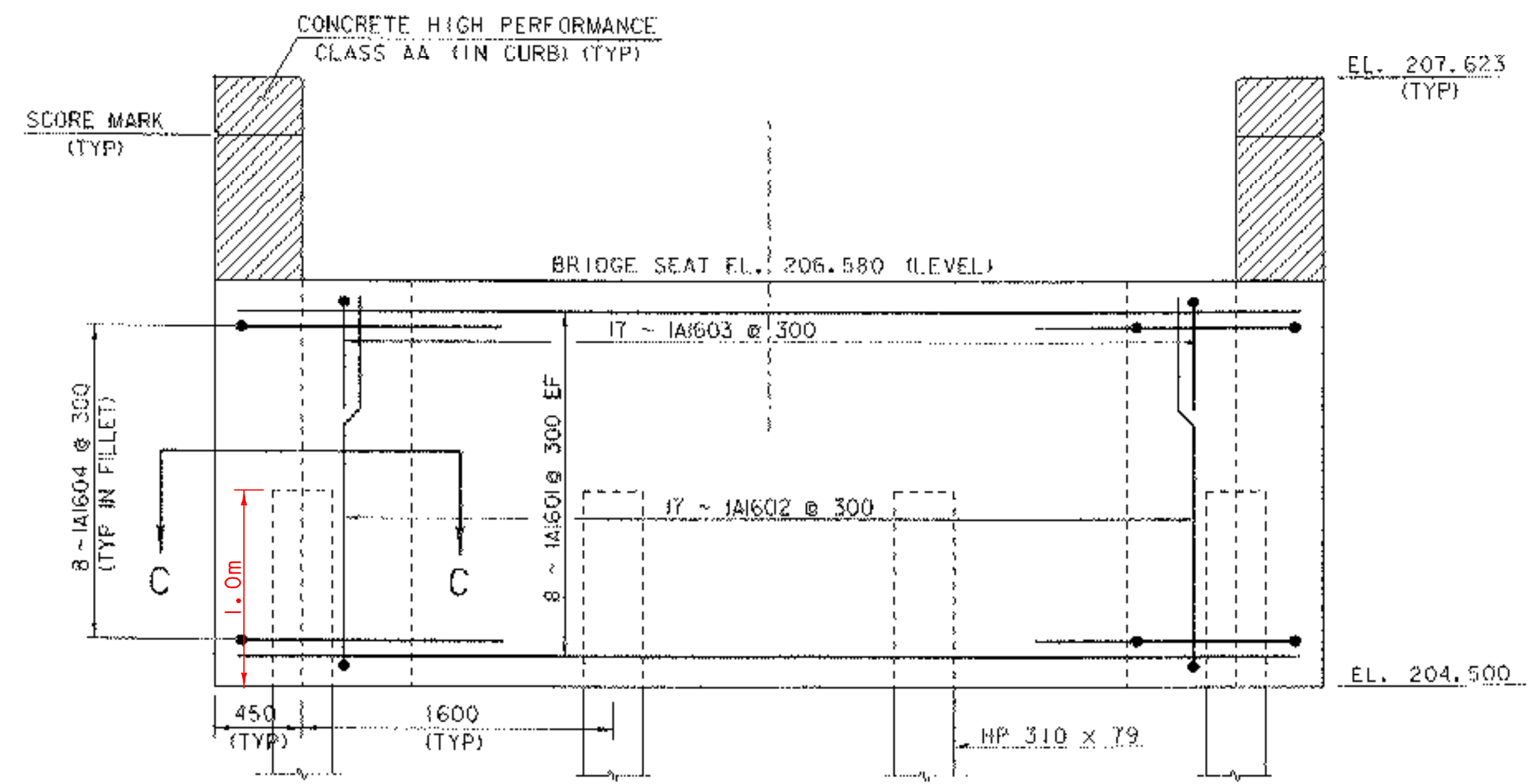


**DETAIL "B"**



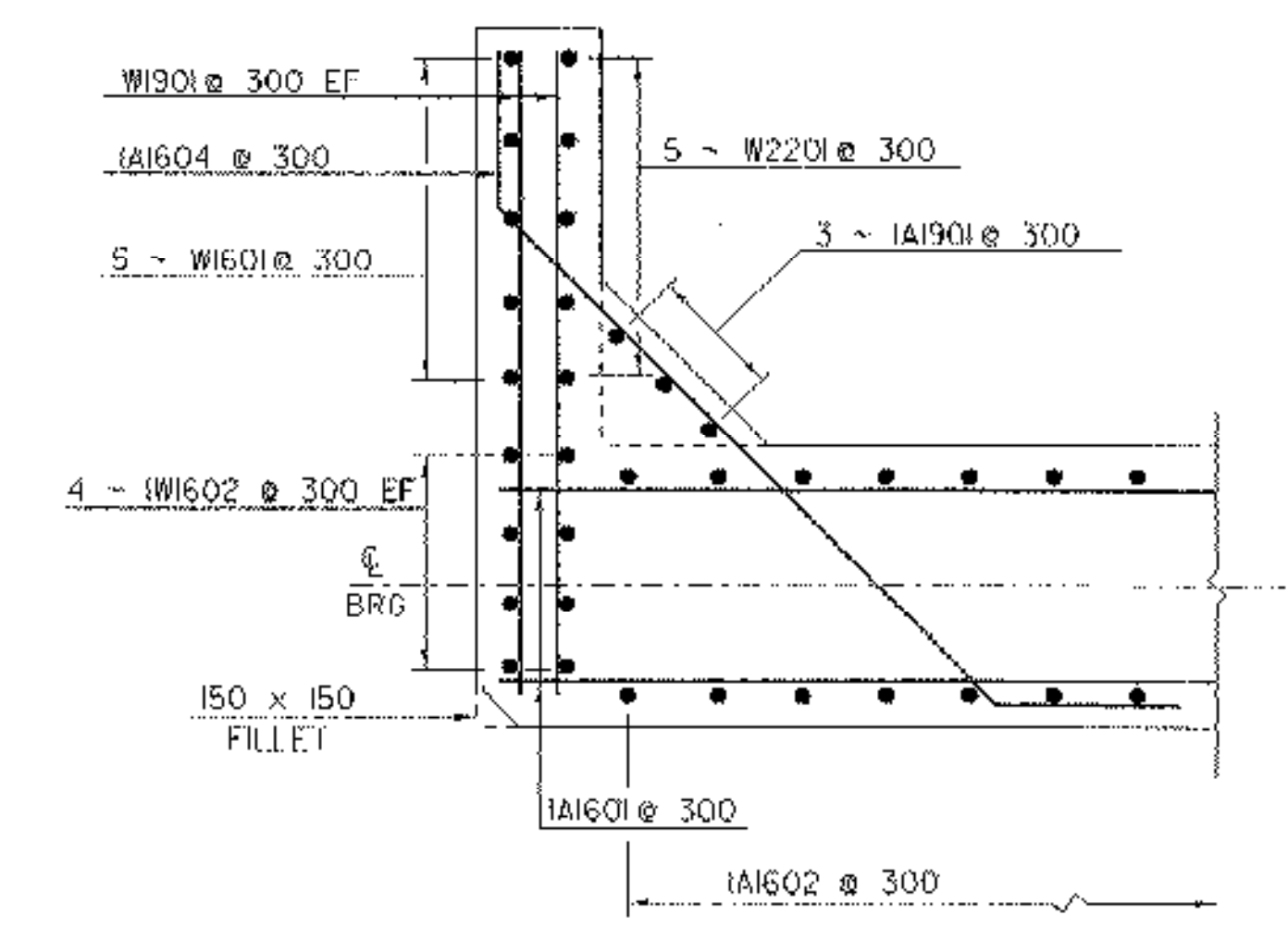
**ABUTMENT #1 SECTION**

SCALE: 1:25  
STATIONING



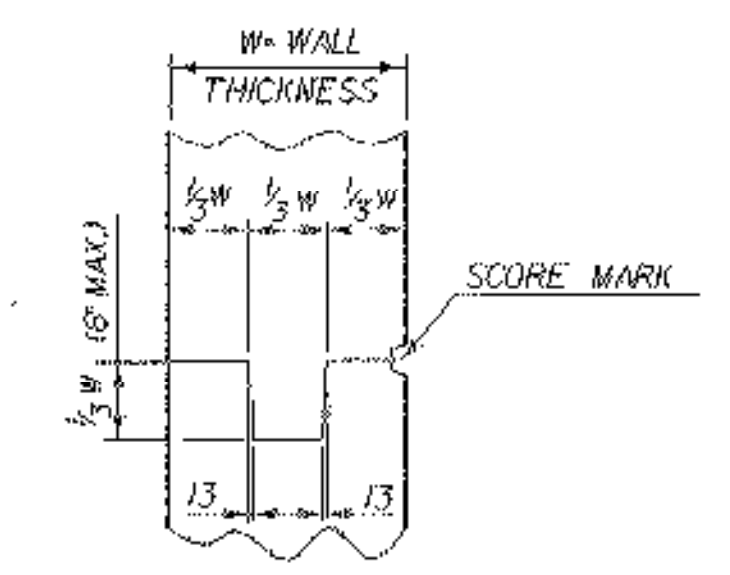
**ABUTMENT #1 ELEVATION**

SCALE: 1:25



**SECTION C-C**

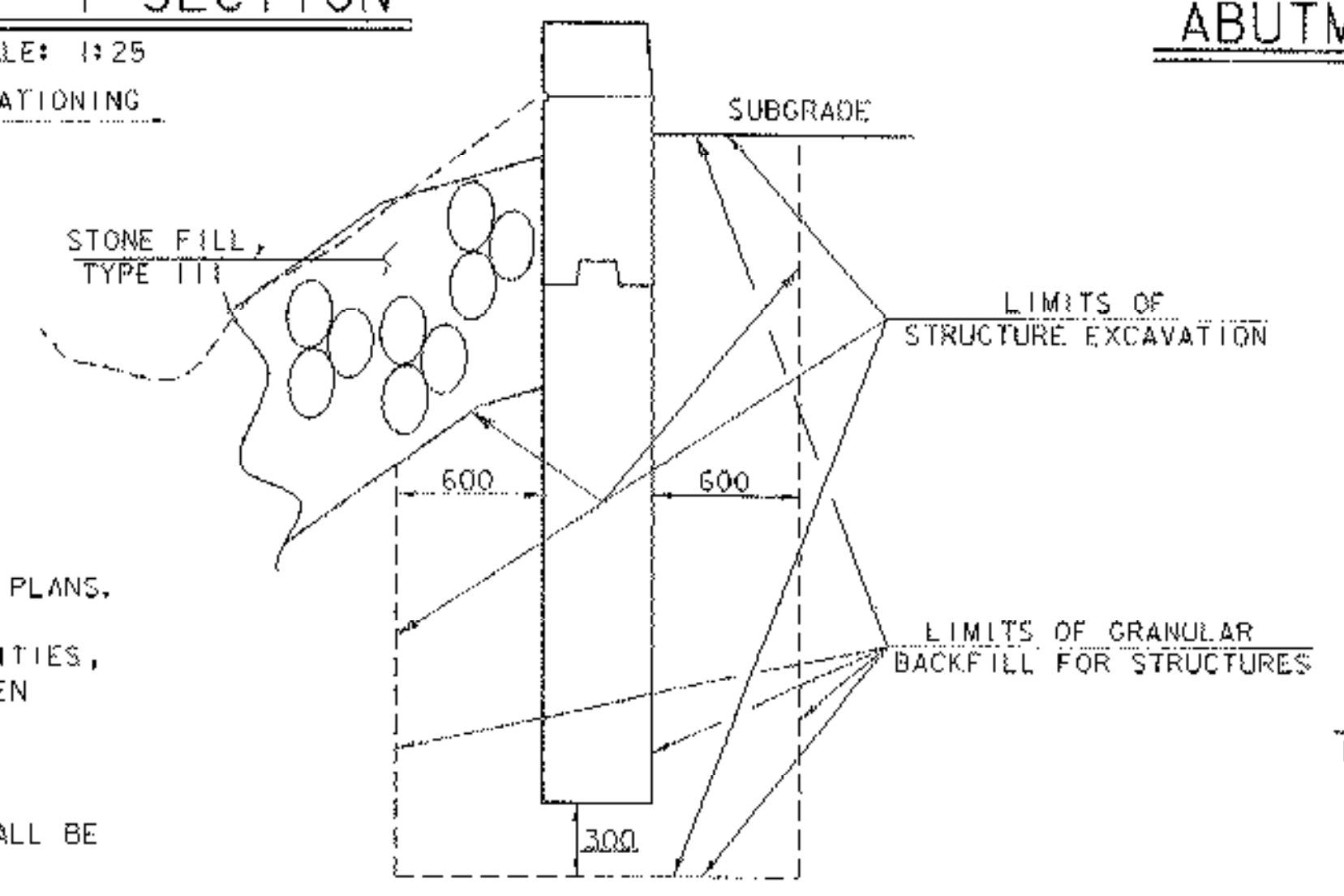
SCALE: 1:25



**TYPICAL CONCRETE CONSTRUCTION JOINT**

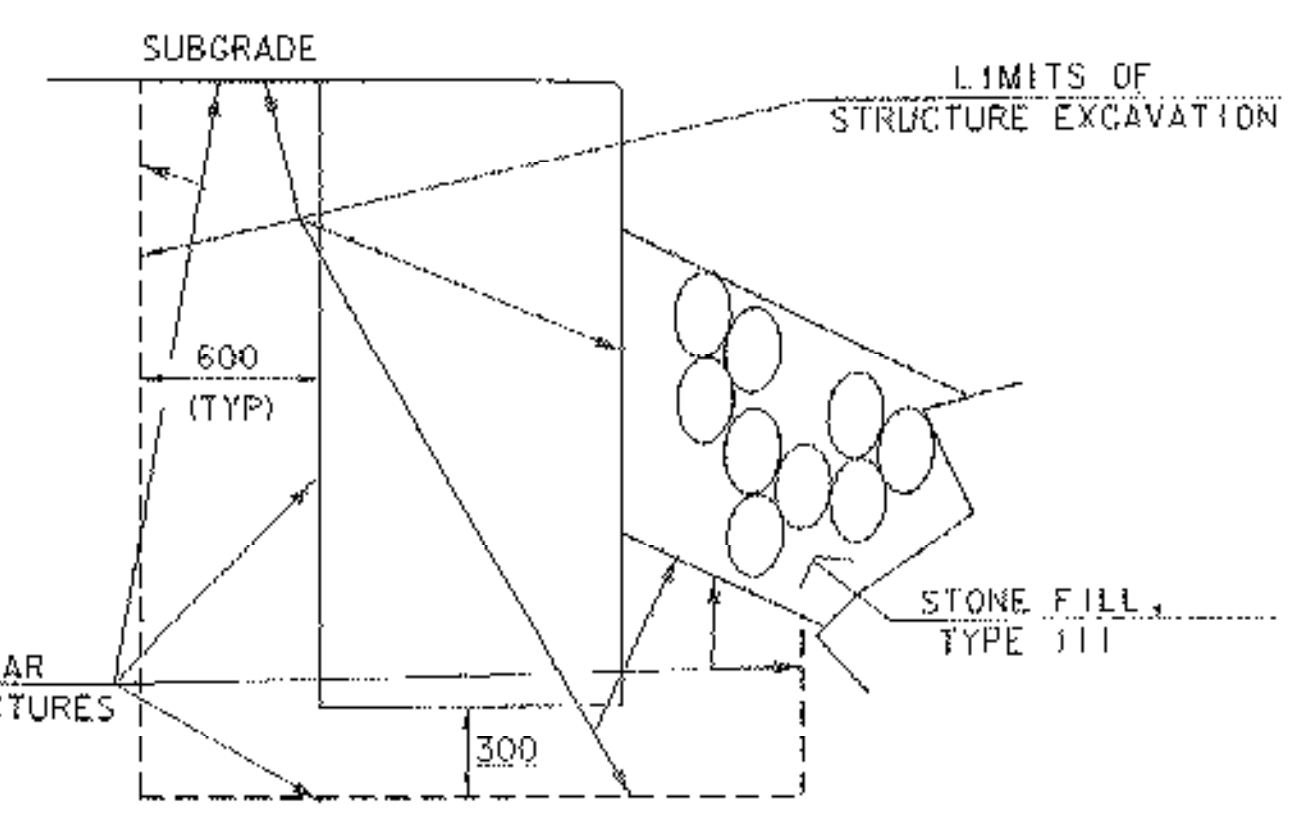
**NOTES**

1. NF = NEAR FACE.
2. FF = FAR FACE.
3. EF = EACH FACE.
4. ▲ = CUT TO FIT IN FIELD.
5. 80 CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS.
6. FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS OF STRUCTURE EXCAVATION HAVE BEEN ASSUMED TO BE A MINIMUM OF 600 OUTSIDE THE PERIMETER OF THE ABUTMENTS AND WINGWALLS.
7. 300 OF GRANULAR BACKFILL FOR STRUCTURES SHALL BE PLACED BELOW THE BOTTOM OF THE ABUTMENT.
8. SEE SHEET 29 FOR CURB FLARE.



**WINGWALL #1 & #2 EARTHWORK SECTION**

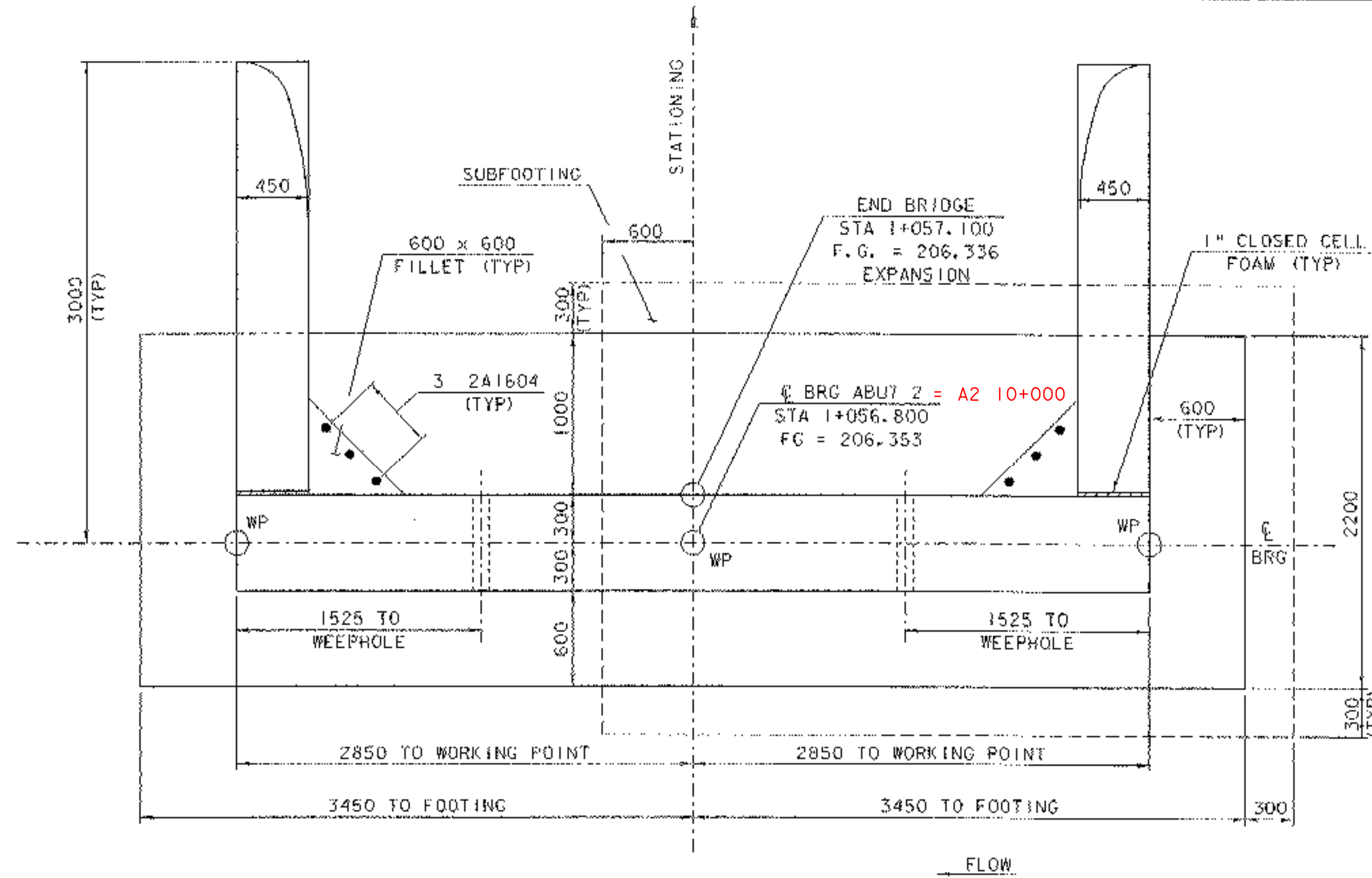
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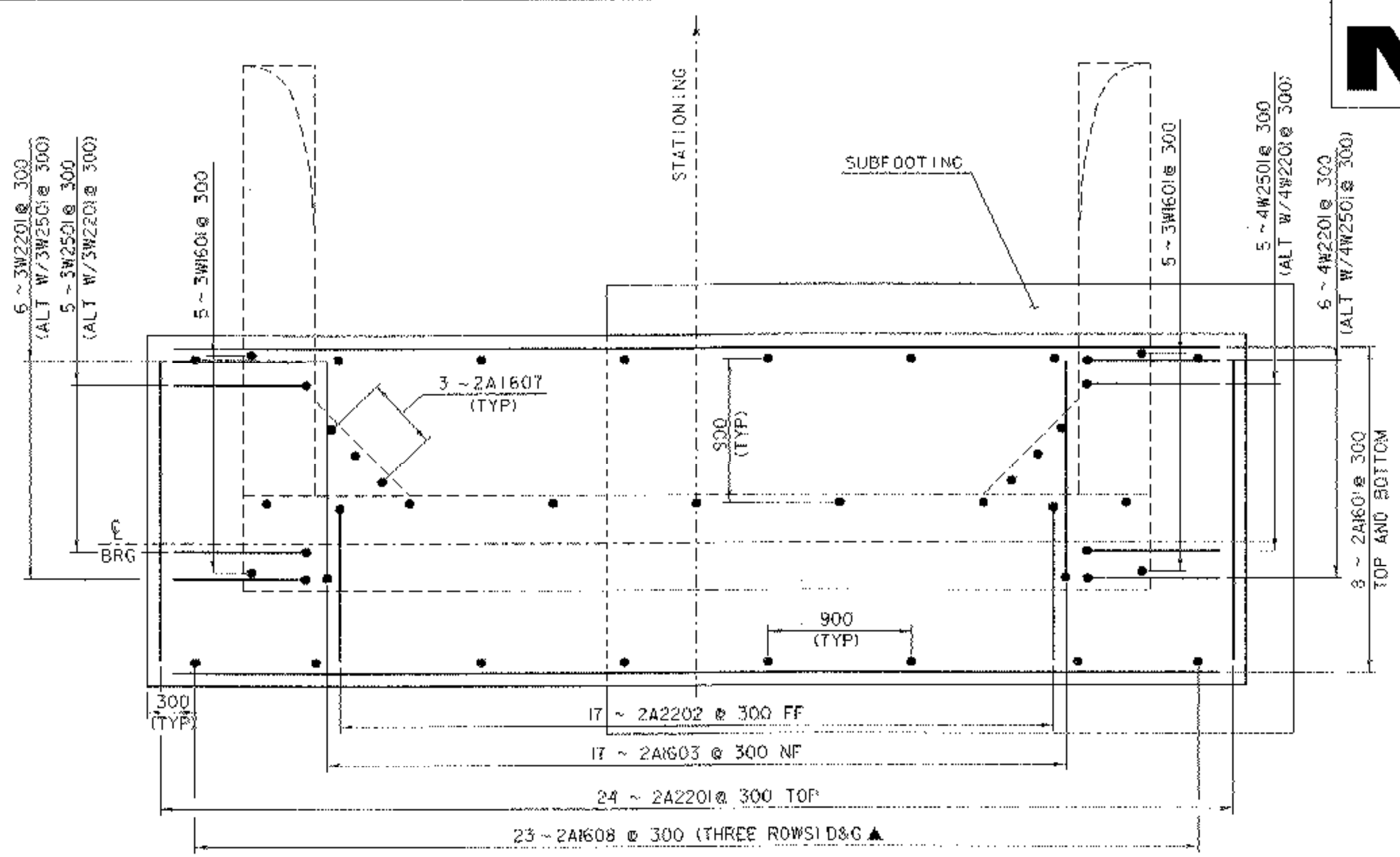
**ABUTMENT #1 EARTHWORK SECTION**

SCALE: 1:25

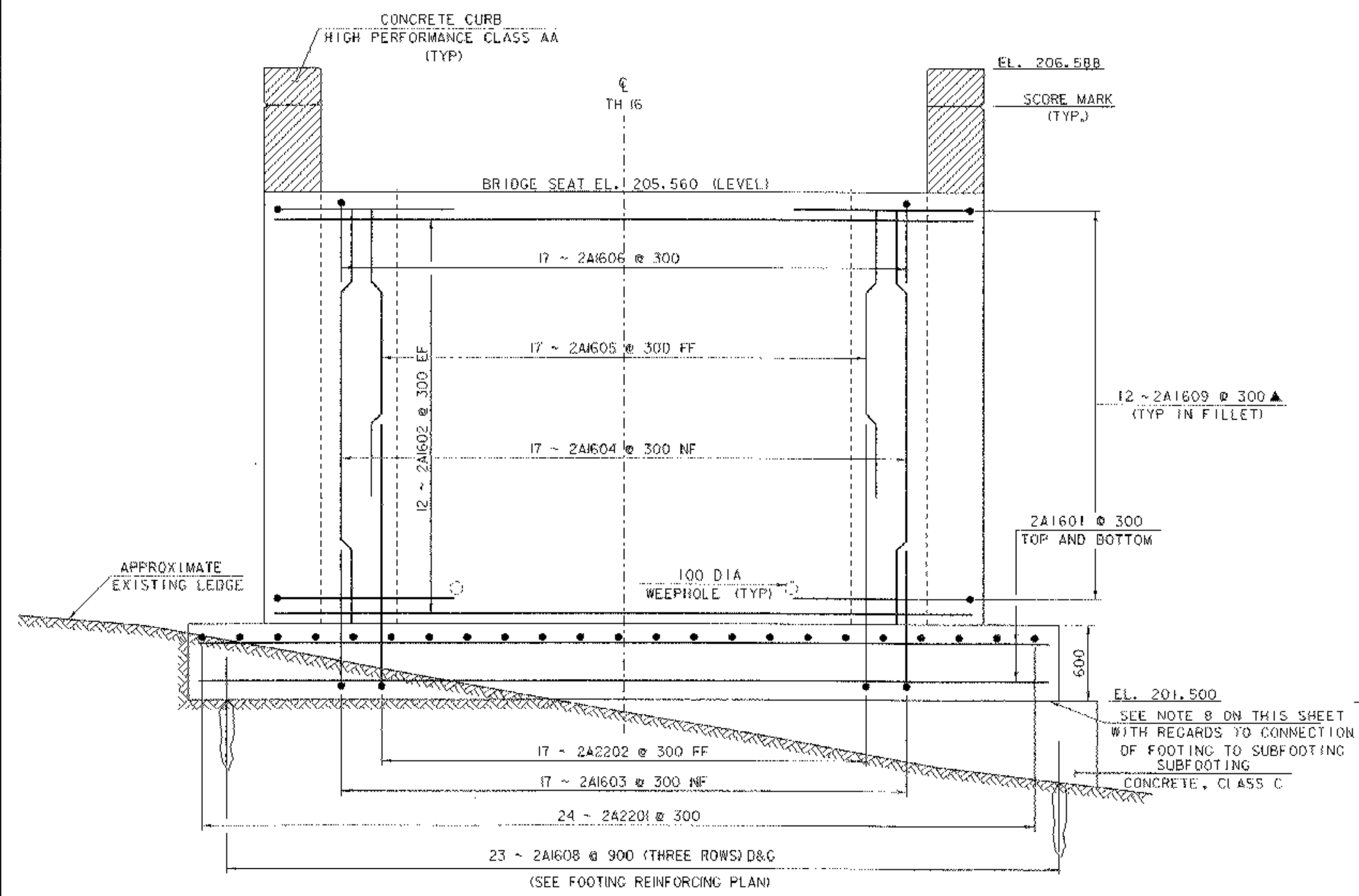
SHEET NAME: <b>ABUTMENT#1 &amp; WINGWALL I&amp;2 DETAILS</b>		
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: <b>TH 16</b>	
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: <b>24</b>	OVER: <b>CLARENDON RIVER</b>
FILE NAME: /PW/95J286/sj286sub.dgn	PLOT DATE: <b>01-DEC-2005</b>	
PROJECT MANAGER: <b>R. WHITCOMB</b>	DRAWN BY: <b>J. GILMORE</b>	
DESIGNED BY: <b>C. CARLSON</b>	IPARM NAME: <b>sj286obl1</b>	
BRIDGE SHEET NUMBER:	SHEET <b>30</b> OF <b>43</b>	



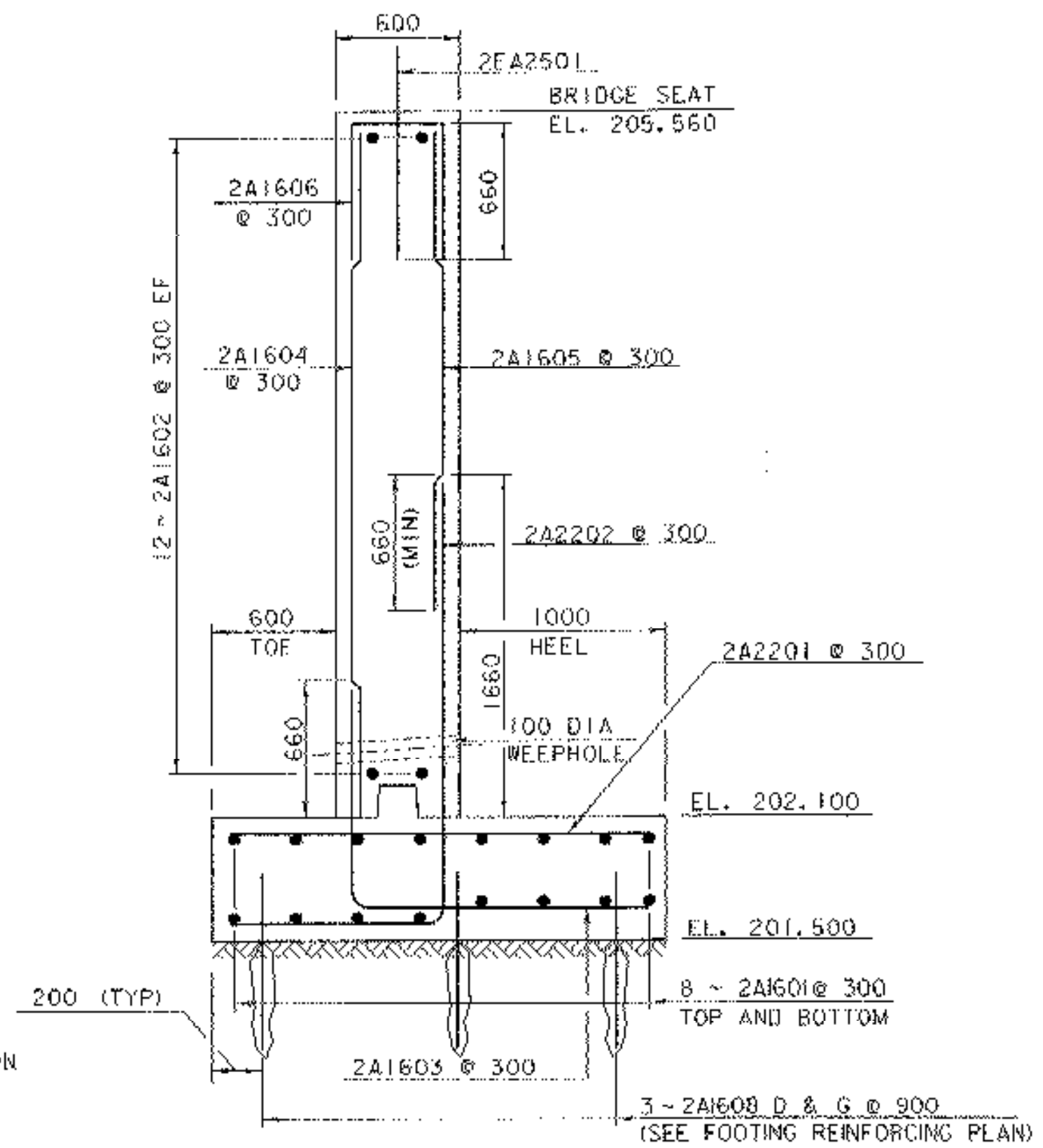
**ABUTMENT #2 PLAN**  
SCALE: 1:25



**FOOTING REINFORCING PLAN**  
SCALE: 1:25



**ABUTMENT #2 ELEVATION**  
SCALE: 1:25

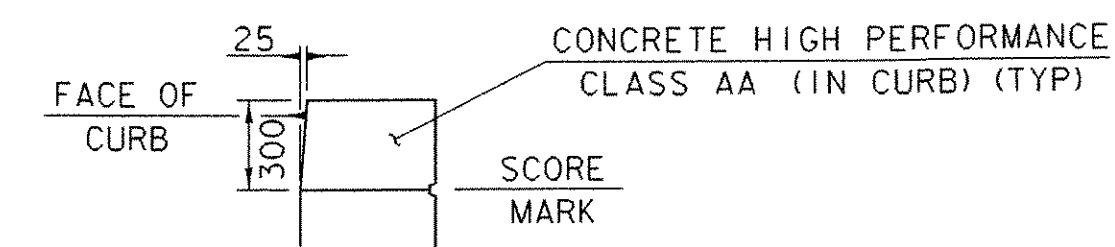


**TYPICAL ABUTMENT #2 SECTION**  
SCALE: 1:25

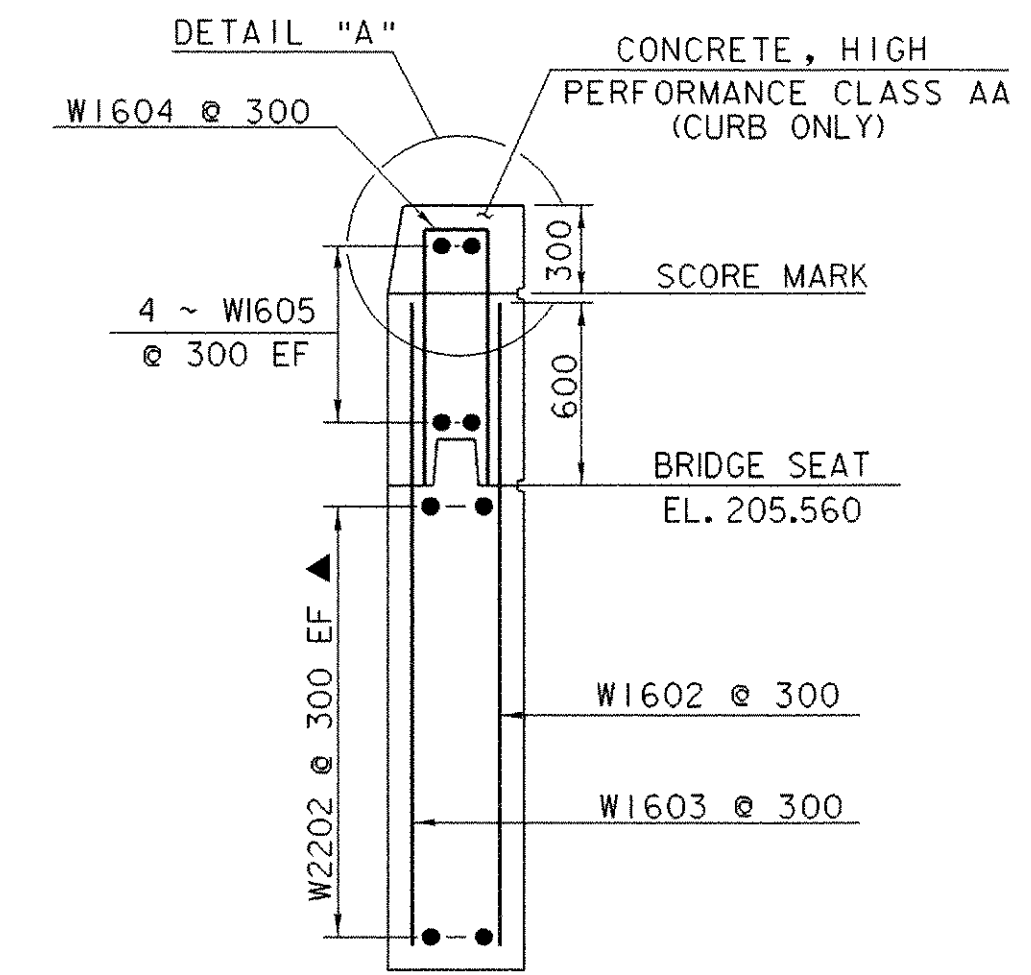
**NOTES**

1. NF = NEAR FACE
2. FF = FAR FACE
3. EF = EACH FACE
4. \* = CUT TO FIT IN FIELD
5. ( ) CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
6. SEE SHEET 26 FOR CURB FLARE DETAILS.
7. D & G - DRILL AND GROUT A MINIMUM OF 660 INTO LEDGE.
8. ROUGHEN SURFACE OF SUBFOOTING.
9. SEE SHEET 29 FOR CURB FLARE DIMENSIONS.

SHEET NAME: <b>ABUTMENT NUMBER 2 DETAILS</b>		
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: <b>TH 16</b>	
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: <b>24</b>	
	OVER: <b>CLARENDON RIVER</b>	
FILE NAME: /PW/951286/sj286sub.dgn	PLOT DATE: <b>01-DEC-2005</b>	
PROJECT MANAGER: <b>R. WHITCOMB</b>	DRAWN BY: <b>J. GILMORE</b>	
DESIGNED BY: <b>C. CARLSON</b>	IFARM NAME: <b>sj286ab2.j</b>	
BRIDGE SHEET NUMBER:	SHEET <b>31</b> OF <b>43</b>	

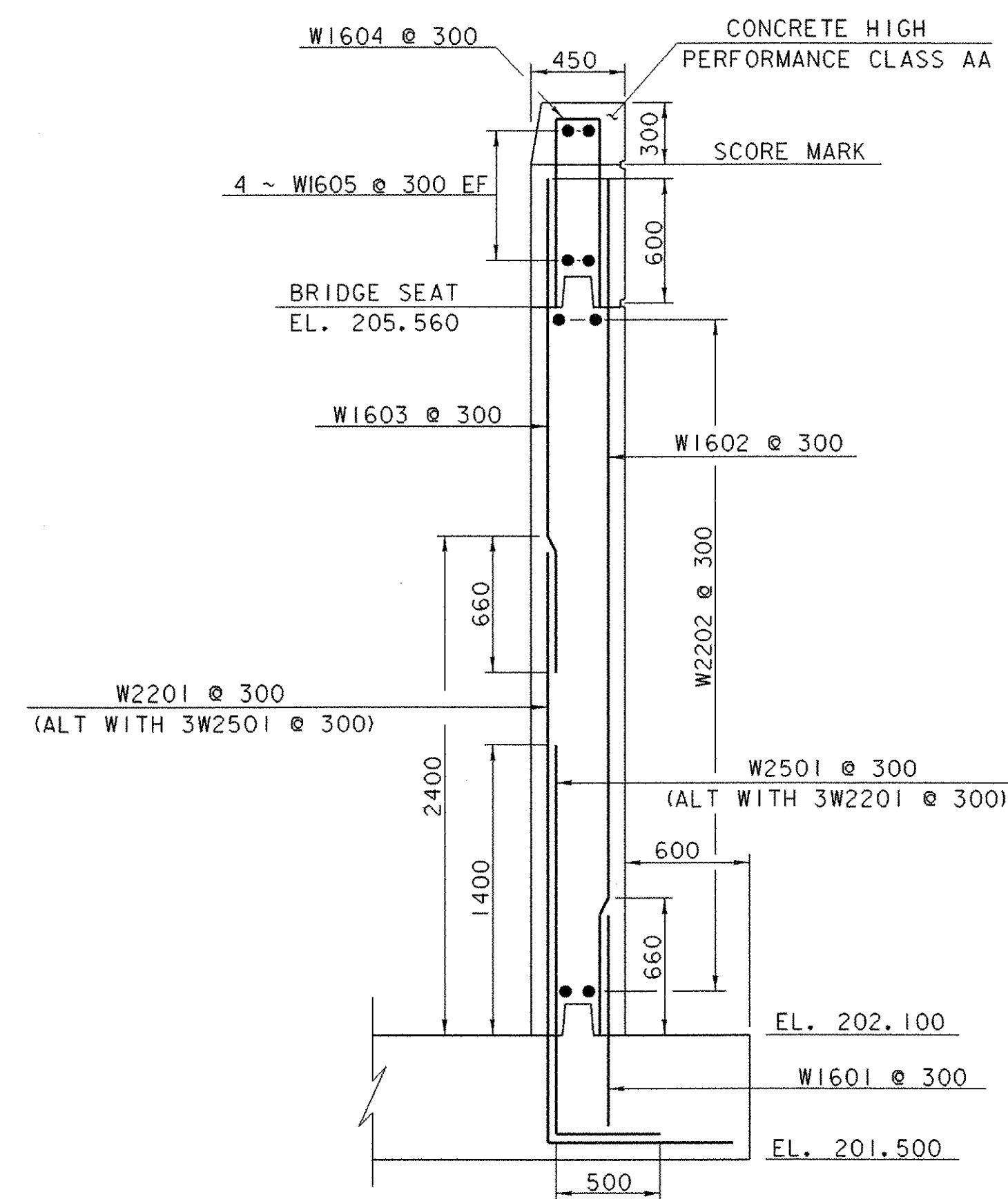


**DETAIL 'A'**



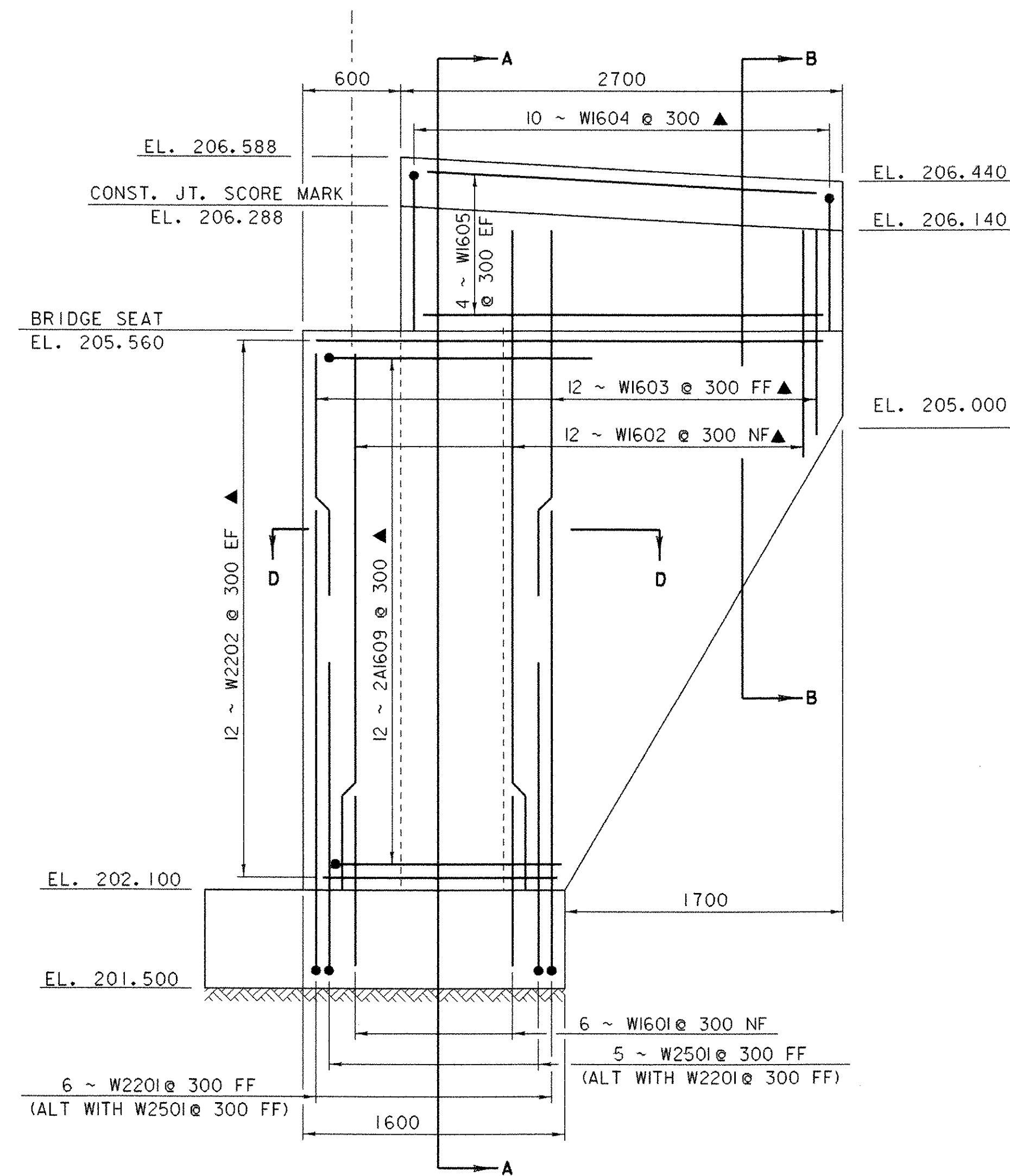
**SECTION B-B**

SCALE: 1:25



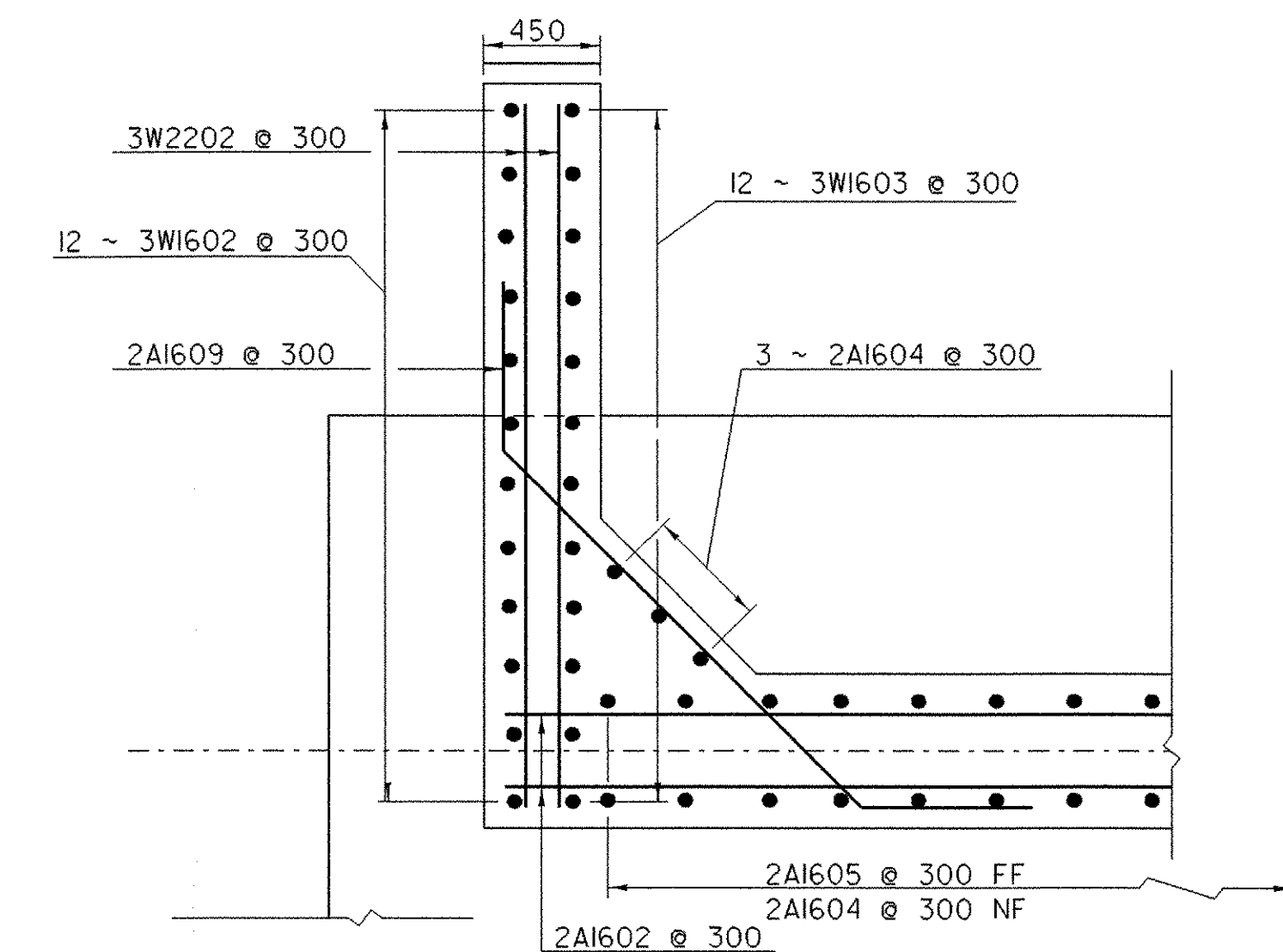
**SECTION A-A**

SCALE: 1:25



**TYPICAL WINGWALL #3 & #4 ELEVATION**

SCALE: 1:25



**SECTION D-D**

SCALE: 1:25

**NOTES**

1. NF = NEAR FACE
2. FF = FAR FACE
3. EF = EACH FACE
4. ▲ = CUT TO FIT IN FIELD
5. 80 CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS

SHEET NAME: <b>WINGWALLS 3&amp;4 DETAILS</b>		
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: <b>TH 16</b>	
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: <b>24</b>	
	OVER: <b>CLARENDON RIVER</b>	
FILE NAME: /PW/95J286/sj286sub.dgn	PLOT DATE: <b>01-DEC-2005</b>	
PROJECT MANAGER: <b>R. WHITCOMB</b>	DRAWN BY: <b>J. GILMORE</b>	
DESIGNED BY: <b>C. CARLSON</b>	IPARM NAME: <b>sj286ob3.1</b>	
BRIDGE SHEET NUMBER:	SHEET <b>32</b> OF <b>43</b>	

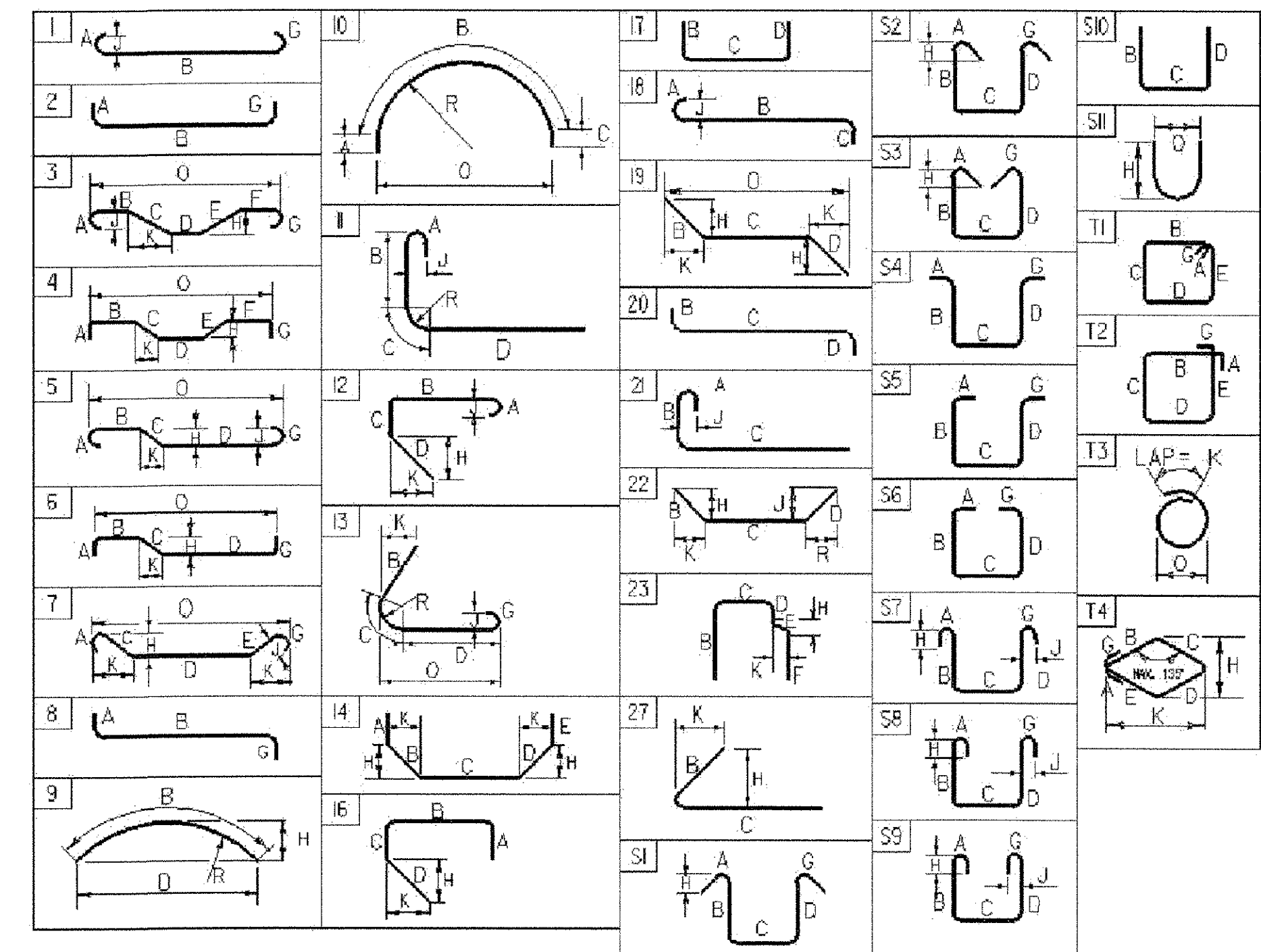
# REINFORCING STEEL SCHEDULE



ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
<b>DECK</b>																	
*	74	16	5540	ES1601	STR												
	56	16	9800	ES1602	STR												
	19	16	570	ES1604	STR												
	128	16	1500	ES1603	S5	300	305	290	305			300					
	38	16	1230	ES1605	17			660	570								
<b>ABUTMENT #1</b>																	
*	17	16	5540	1A1601	STR												
	6	19	1920	1A1901	STR												
	17	16	4680	1A1602	17	1920	840	1920									
	17	16	2160	1A1603	17	660	840	660									
	16	16	3780	1A1604	22	660	2460	660									
<b>WINGWALL #1</b>																	
▲	5	16	2960	1W1601	STR												
*	9	16	1920	1W1602	STR												
▲	24	19	2340	1W1901	STR												
▲	5	22	2960	1W2201	STR												
	5	16	1730	1W1603	S10	720	290	720									
<b>WINGWALL #2</b>																	
▲	5	16	2960	2W1601	STR												
	8	16	1920	2W1602	STR												
*	▲	25	19	2340	2W1901	STR											
▲	5	22	2960	2W2201	STR												
	5	16	1730	2W1603	S10	720	290	720									
<b>ABUTMENT #2</b>																	
	16	16	6740	2A1601	STR												
	24	16	5540	2A1602	STR												
	23	16	3360	2A1604	STR												
*	18	16	2360	2A1605	STR												
	6	16	1180	2A1607	STR												
	23	16	900	2A1608	STR												
*	25	22	2040	2A2201	STR												
	17	16	2620	2A1603	17	1440	1180										
	17	16	1760	2A1606	S10	660	440	660									
	24	16	3270	2A1609	22	660	1900	660									
	17	22	3220	2A2202	17	1040	2180										
<b>WINGWALL #3</b>																	
	6	16	1180	3W1601	STR												
▲	12	16	4060	3W1602	STR												
▲	12	16	2320	3W1603	STR												
	24	22	3140	3W2202	STR												
▲	10	16	2190	3W1604	S10	950	290	950									
	8	16	2540	3W1605	STR												
*	7	22	3810	3W2201	17	890	2920										
	5	25	2420	3W2501	17	500	1920										
<b>WINGWALL #4</b>																	
*	7	16	1180	4W1601	STR												
▲	12	16	4060	4W1602	STR												
▲	12	16	2320	4W1603	STR												
	24	22	3140	4W2202	STR												
▲	10	16	2190	4W1604	S10	950	290	950									
	8	16	2540	4W1605	STR												
	6	22	3810	4W2201	17	890	2920										
	5	25	2420	4W2501	17	500	1920										

~ NOTES ~

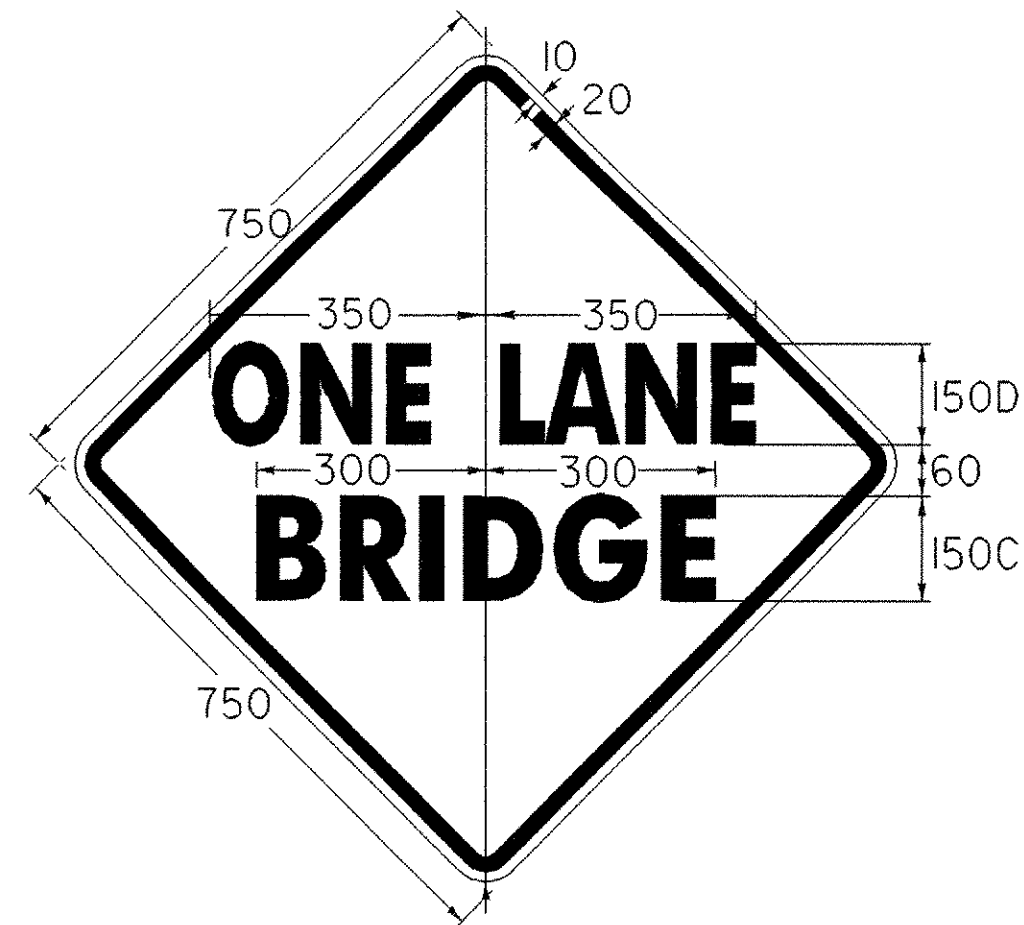
- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31M (ASTM A 615M-SI). ALL BARS SHALL BE GRADE 420, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- \* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- ⊕ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

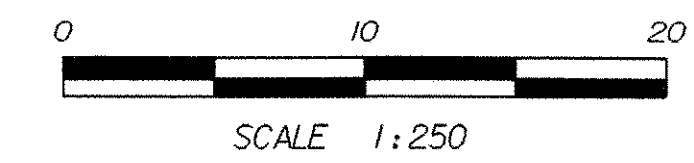
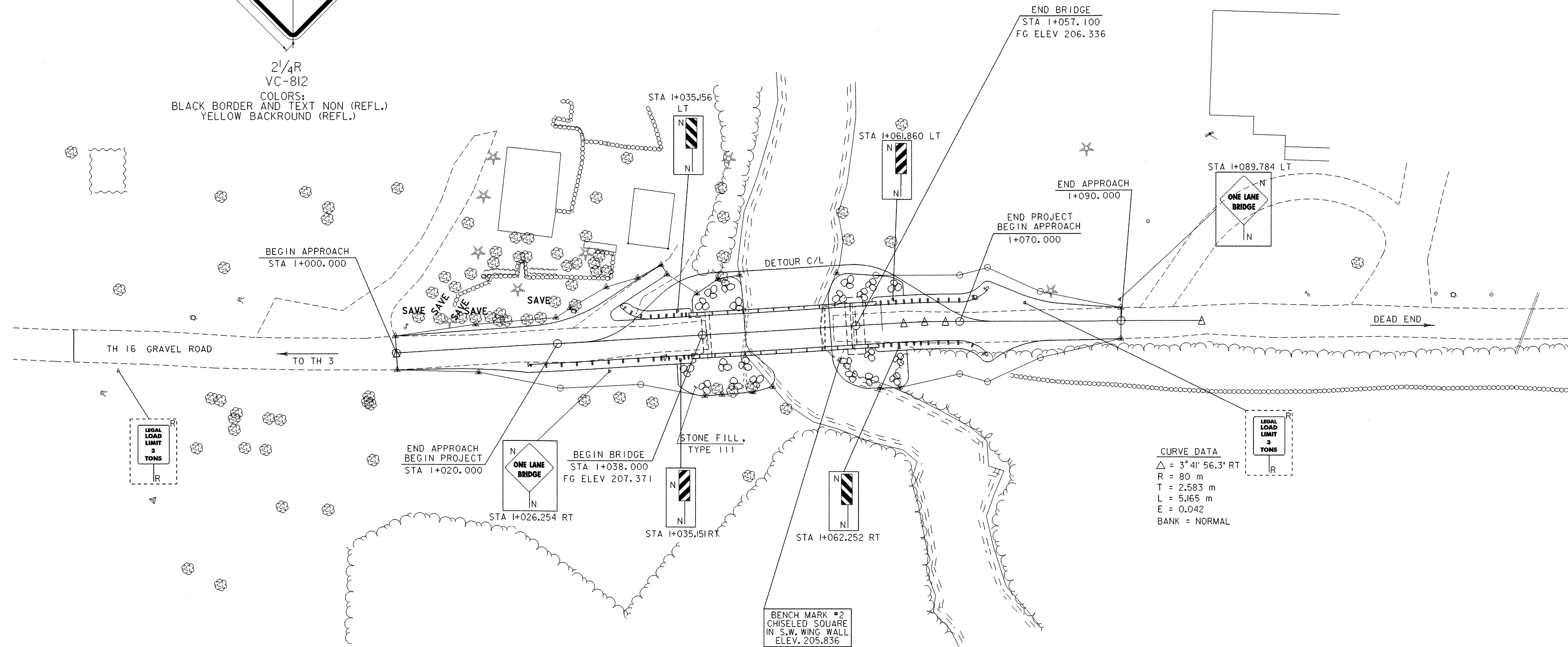
BAR SIZE	NOMINAL MASS (kg/m)	NOMINAL DIMENSIONS ROUND SECTION DIAMETER (mm)	GROSS SECTIONAL AREA (mm²)	PERIMETER (mm)
#10	0.560	9.5	71	29.84
#13	0.994	12.7	129	39.90
#16	1.552	15.9	199	49.95
#19	2.235	19.1	284	60.00
#22	3.042	22.2	387	69.74
#25	3.973	25.4	510	79.80
#29	5.060	28.7	645	90.16
#32	6.404	32.3	819	101.47
#36	7.907	35.8	1006	112.47
#43	11.380	43.0	1452	135.09
#57	20.240	57.3	2581	180.01

PROJECT NAME: **CLARENDON**  
 PROJECT NUMBER: **BRO 1443(34)**  
 FILE NAME: str1/95j286/sj286ren.xls PLOT DATE: 8/31/2005  
 PROJECT LEADER: R. WHITCOMB DRAWN BY: J. GILMORE  
 DESIGNED BY: C. CARLSON CHECKED BY: C. CARLSON  
 REINFORCING STEEL SCHEDULE SHEET SHEET 33 OF 43



2 1/4 R  
VC-812  
COLORS:  
BLACK BORDER AND TEXT NON (REFL.)  
YELLOW BACKGROUND (REFL.)

REMOVING SIGNS  
(LEGAL LOAD LIMIT 3 TONS) BEFORE PROJECT RT  
(LEGAL LOAD LIMIT 3 TONS) STA 1+078.035 LT

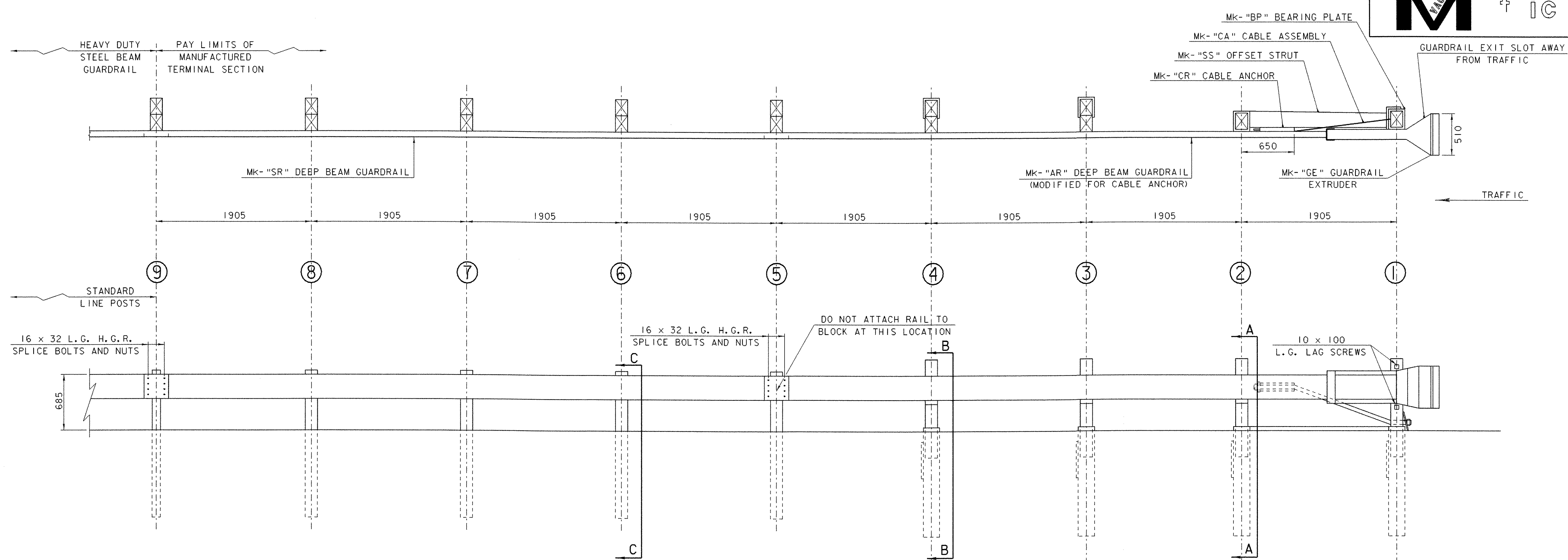


**SIGN LEGEND**

- R - REMOVE
- N - NEW
- - NEW
- - EXISTING

<b>SHEET NAME: SIGN LAYOUT SHEET</b>	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286sgn.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE
DESIGNED BY: C. CARLSON	IPARM NAME: sj286sls.l
BRIDGE SHEET NUMBER:	SHEET 34 OF 43

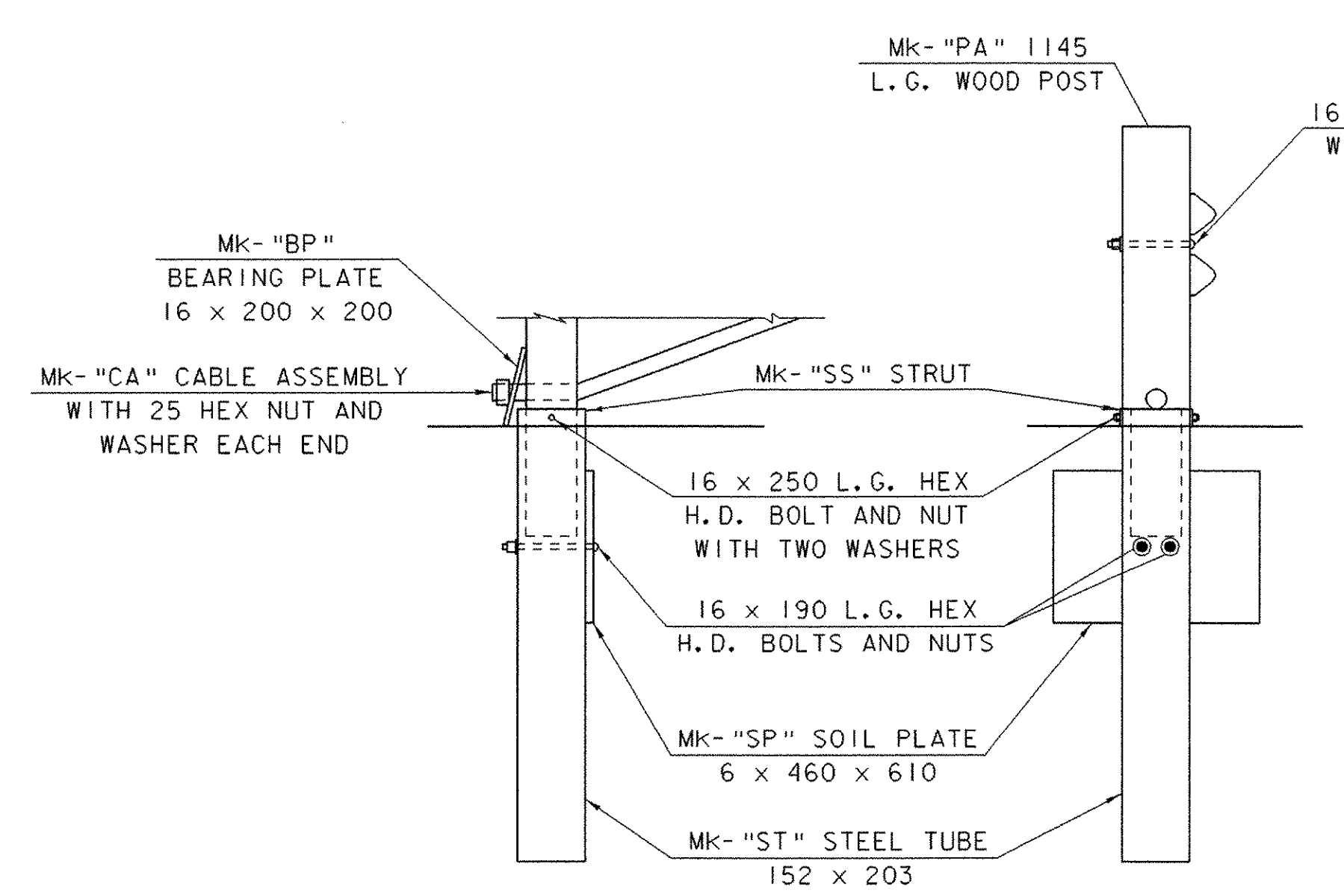




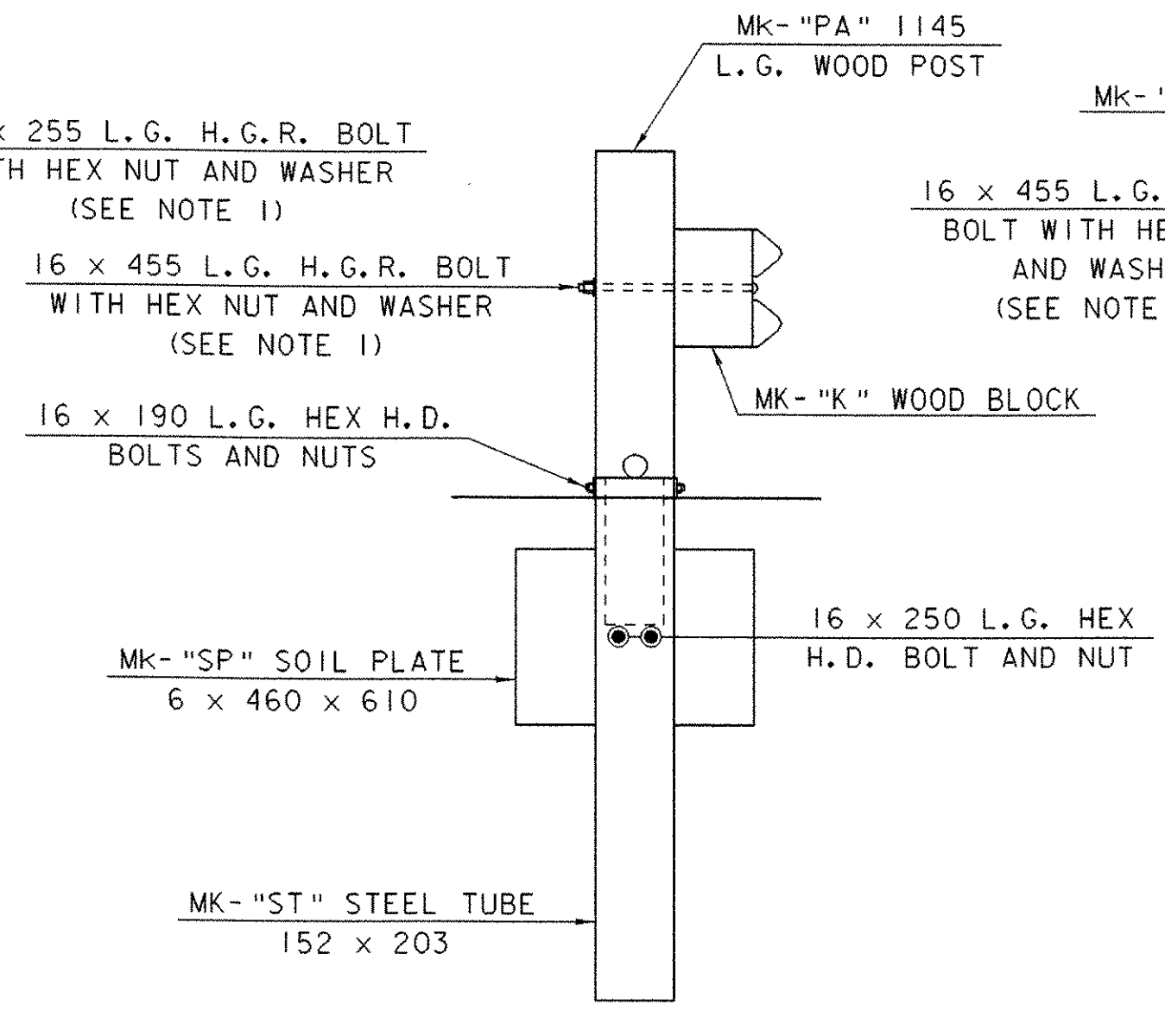
**NOTES:**

1. THE 16 DIA FLAT WASHER IS USED UNDER THE NUT, BEHIND THE POST ONLY. NO WASHER IS USED AT THE RAIL.
2. THE BREAKAWAY POSTS AT LOCATIONS #5, 6, 7 AND 8 MAY BE AS SHOWN, OR FOUNDATION TUBES MAY BE USED AS SHOWN AT POST LOCATIONS #1, 2, 3, AND 4.
3. REFLECTORIZATION OF THE TERMINAL SHALL BE PROVIDED. ALL COSTS SHALL BE INCLUDED IN ITEM 621.505, "MANUFACTURED TERMINAL SECTION (MOD)".
4. GUARDRAIL SHALL BE WEATHERING STEEL. AASHTO M-180, BOLTS SHALL BE AASHTO M-164M, TYPE 3. GUARDRAIL EXTRUDER & OFFSET STRUT SHALL BE WEATHERING STEEL ASTM A588 OR COLOR GALVANIZED BROWN (TO MATCH WEATHERING STEEL.)

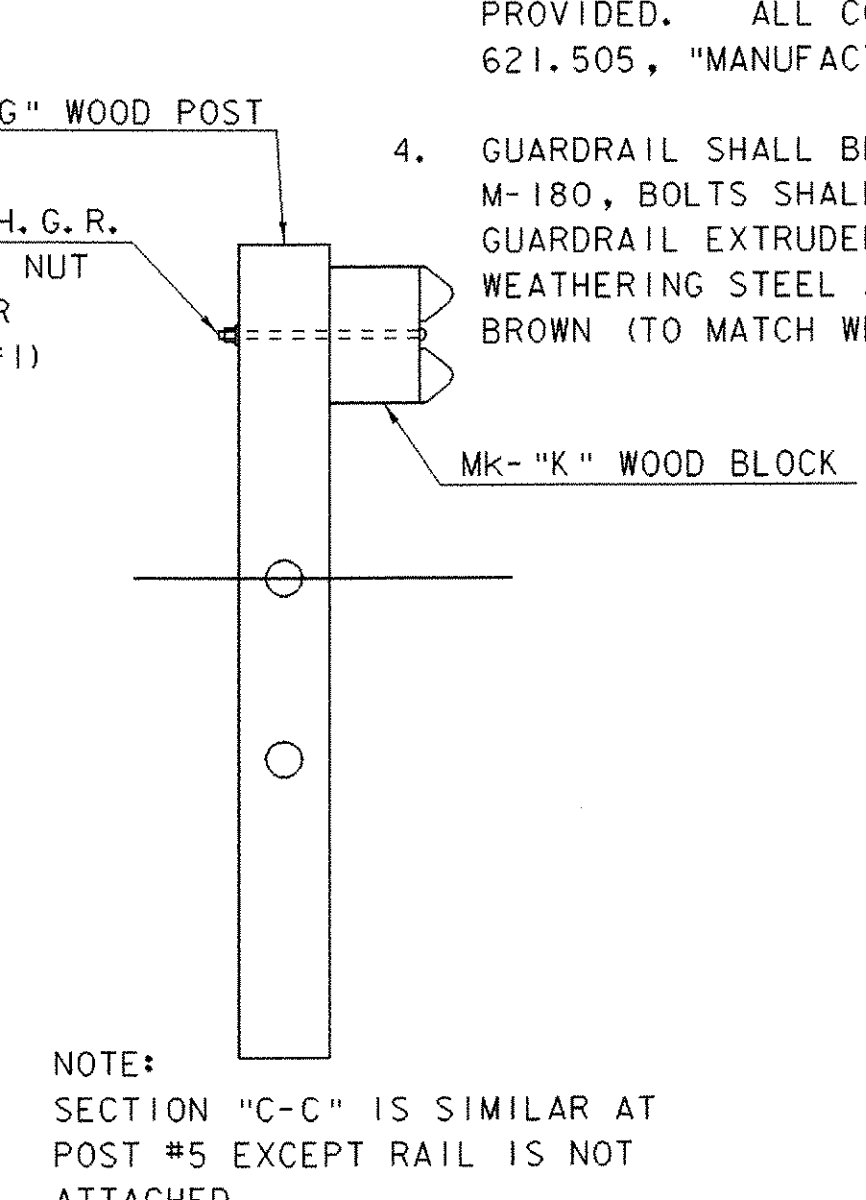
MARK	QUANTITY	DESCRIPTION
SR	1	DEEP BEAM GUARDRAIL
AR	1	DEEP BEAM GUARDRAIL
PS	1	50 x 140 PIPE SLEEVE
SP	4	6 x 460 x 610 SOIL PLATE
K	6	150 x 300 x 355 L.G. WOOD BLOCK
PG	4	150 x 300 x 1830 WOOD POST
PA	4	1550 x 300 x 1145 WOOD POST
ST	4	1370 L.G. STEEL TUBE
BP	1	16 x 200 x 200 BEARING PLATE
CR	1	CABLE ANCHOR BRACKET
CA	1	19 x 1980 CABLE ASSEMBLY
SS	1	1905 STRUT
GE	1	GUARDRAIL EXTRUDER
HARDWARE		
	4	16 x 250 HEX H.D. BOLT
	35	16 HEX NUT
	11	16 DIA. WASHER
	6	16 x 455 H.G.R. POST BOLT
	1	16 x 255 H.G.R. POST BOLT
	16	16 x 32 H.G.R. SPLICE BOLT
	8	16 x 190 HEX H.D. BOLT
	2	10 x 100 LAG SCREW
	2	25 HEX NUT
	2	25 WASHER



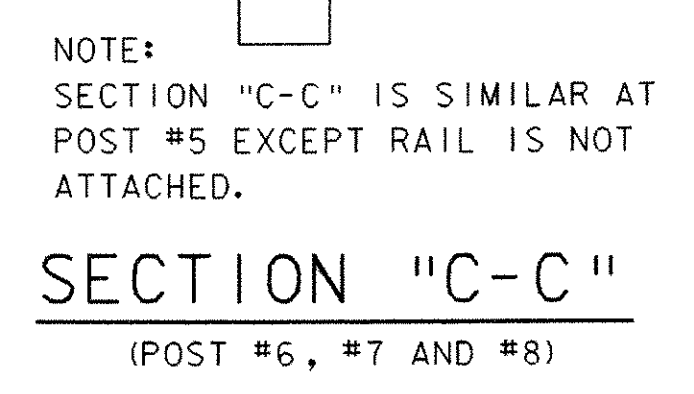
**PARTIAL VIEW AT POST #1**



**SECTION "A-A" (POST #2)**



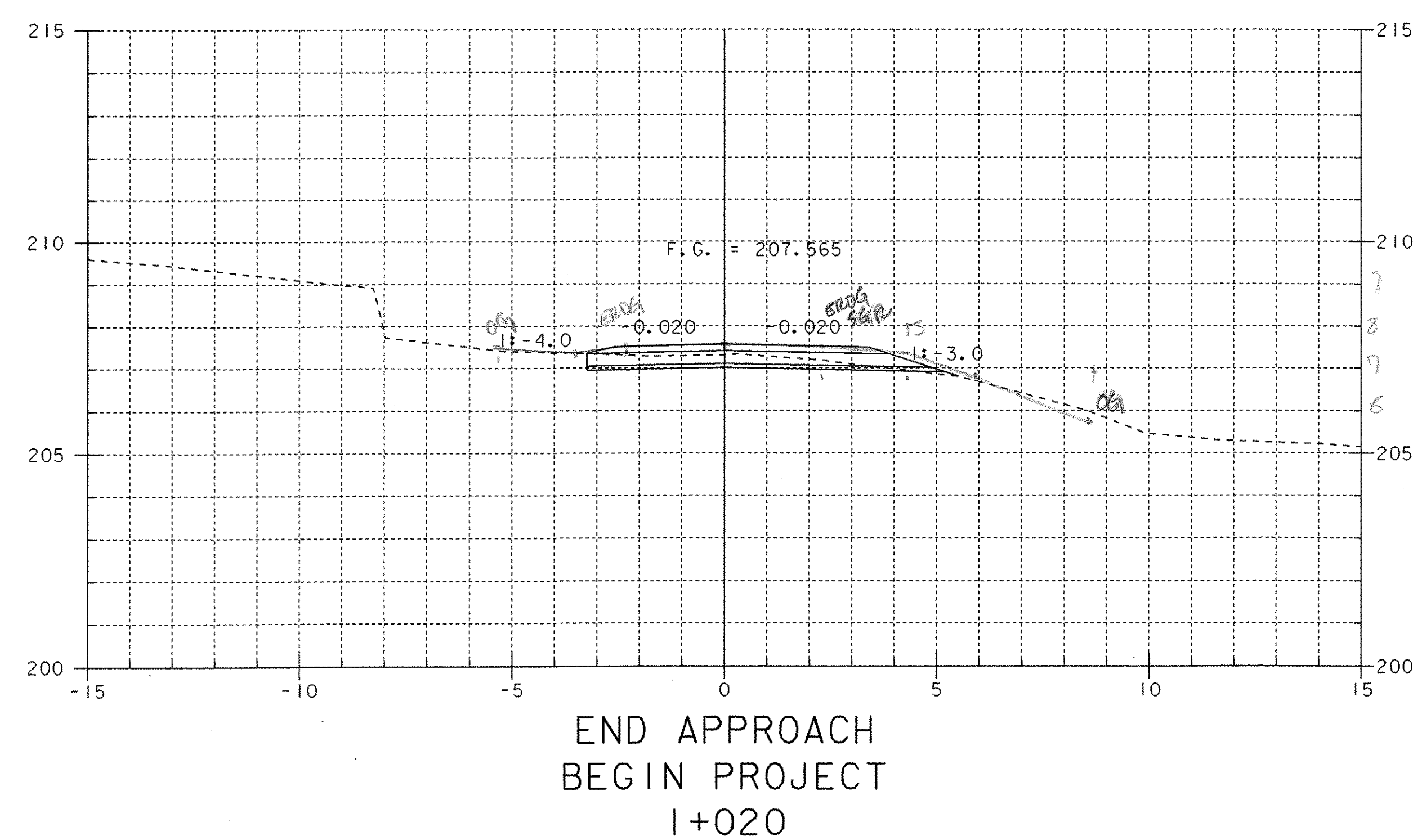
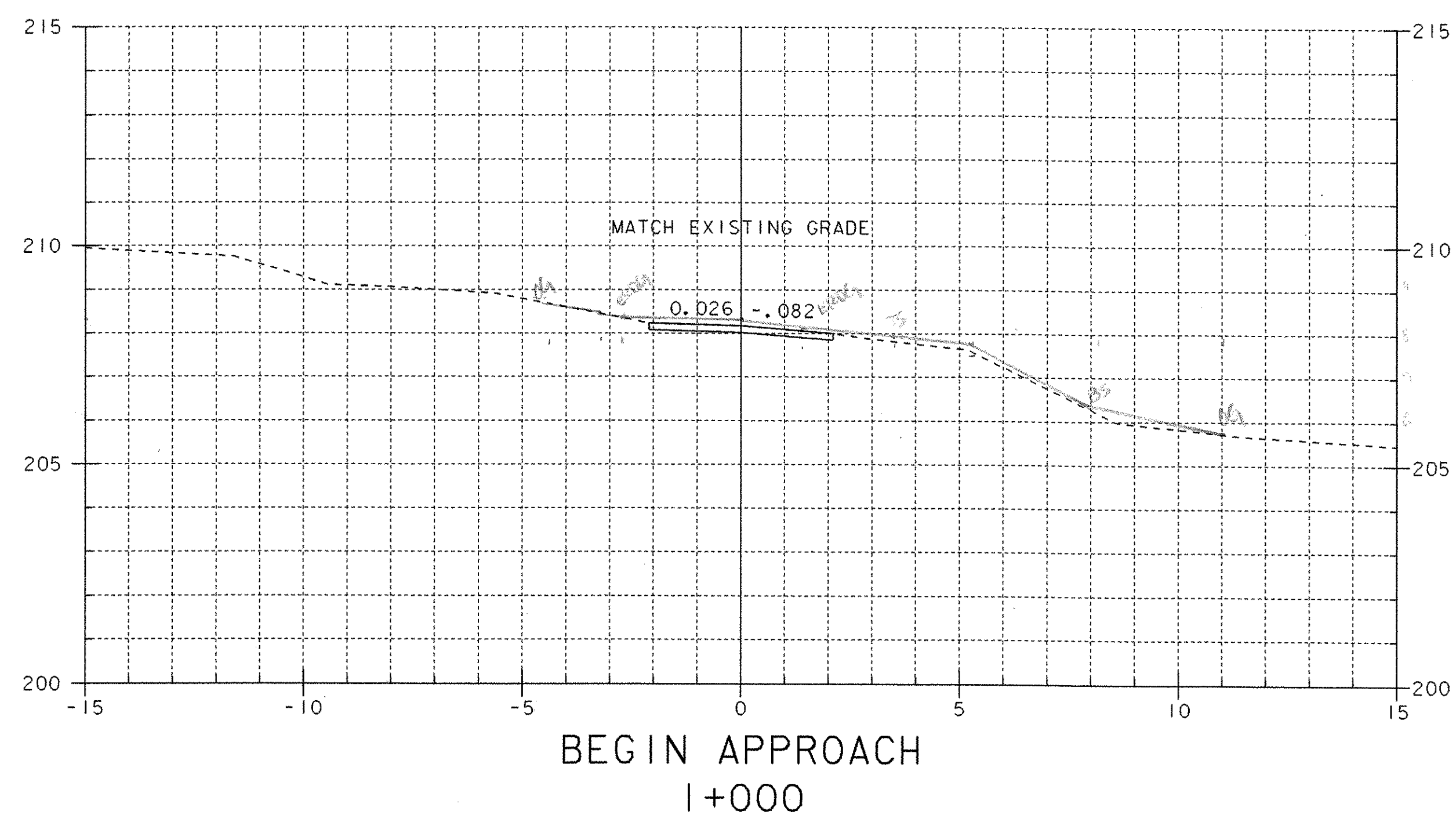
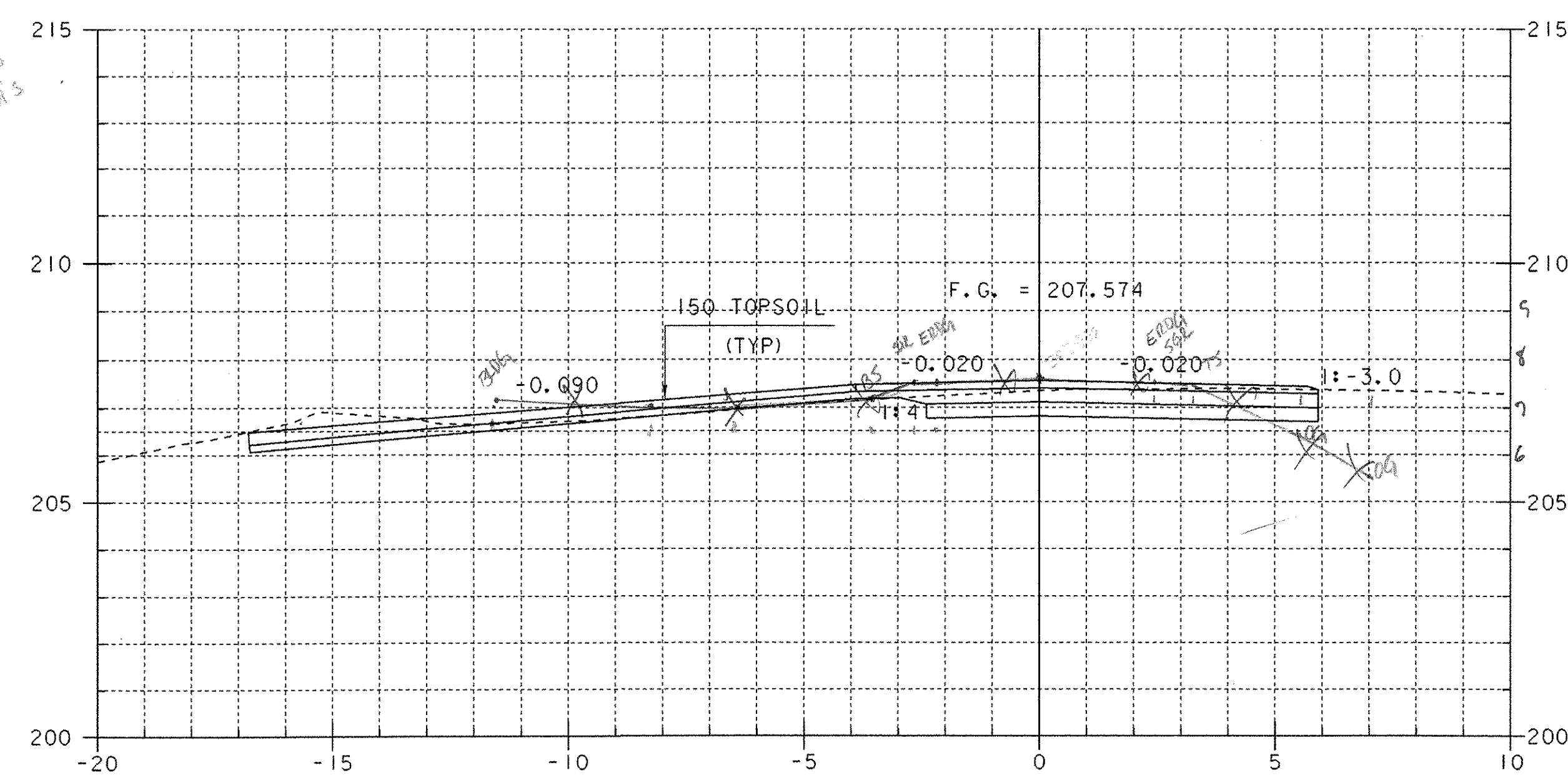
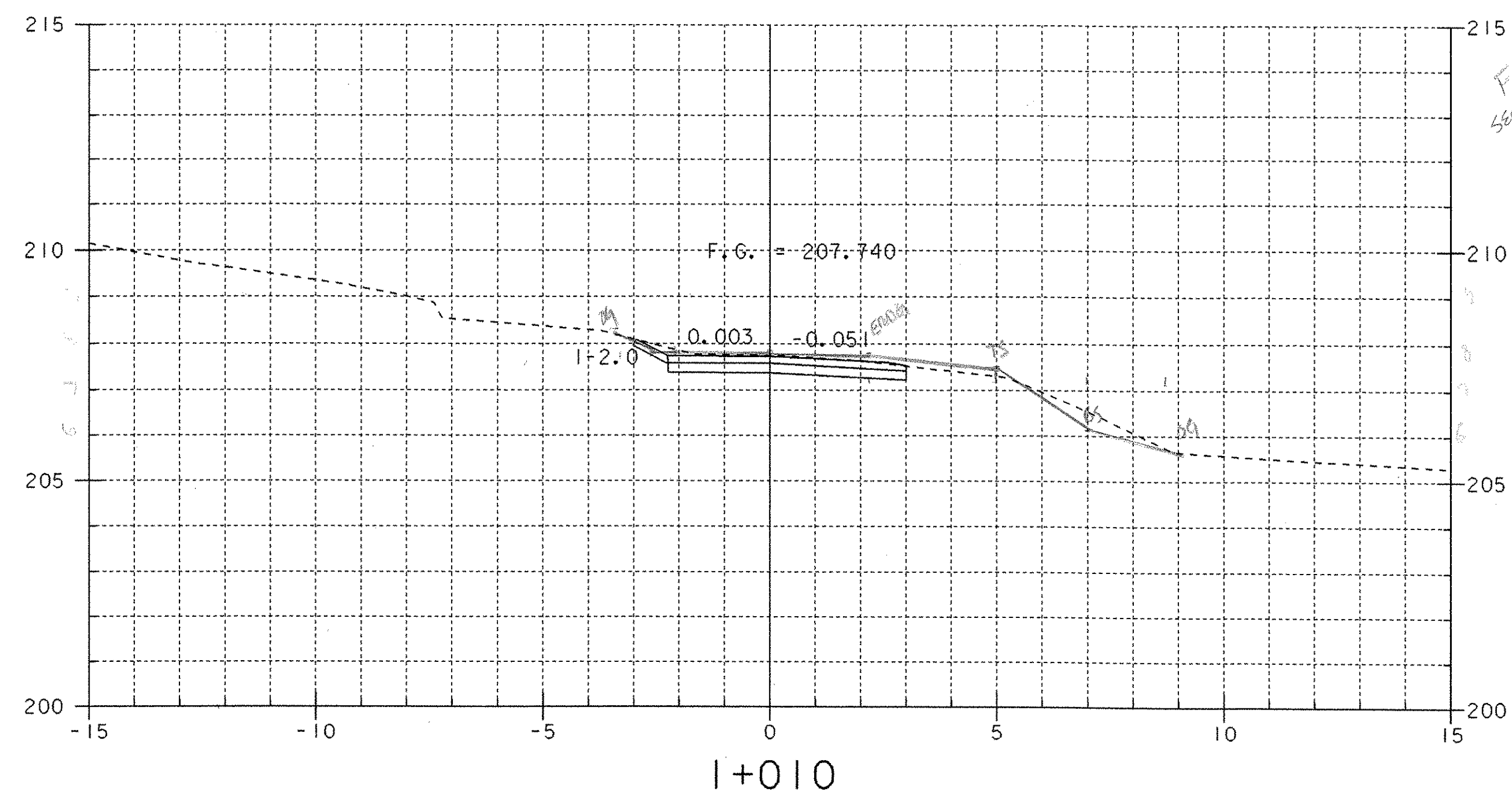
**SECTION "B-B" (POST #3 AND #4)**



**SECTION "C-C" (POST #6, #7 AND #8)**

NOTE: SECTION "C-C" IS SIMILAR TO POST #5 EXCEPT RAIL IS NOT ATTACHED.

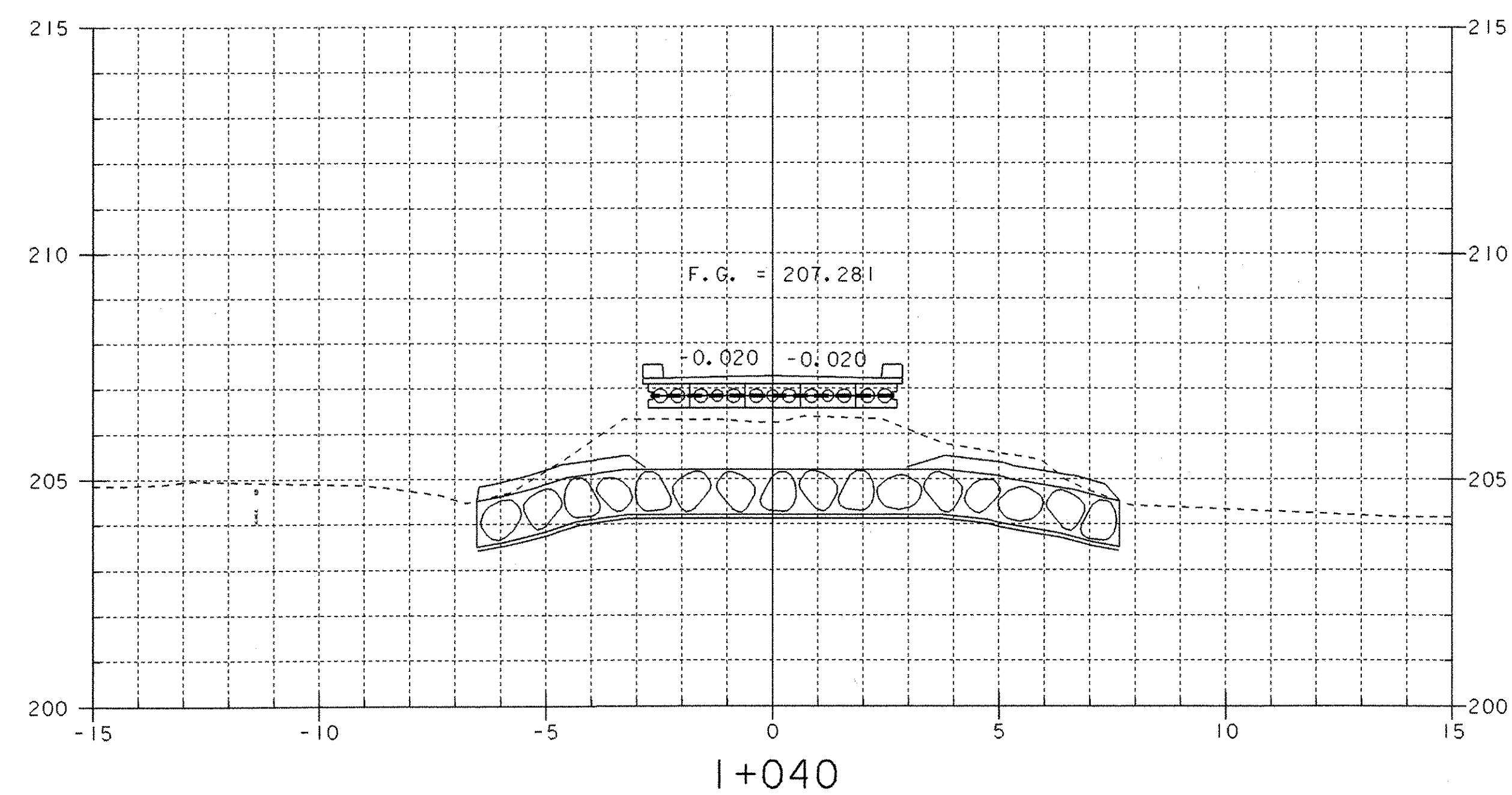
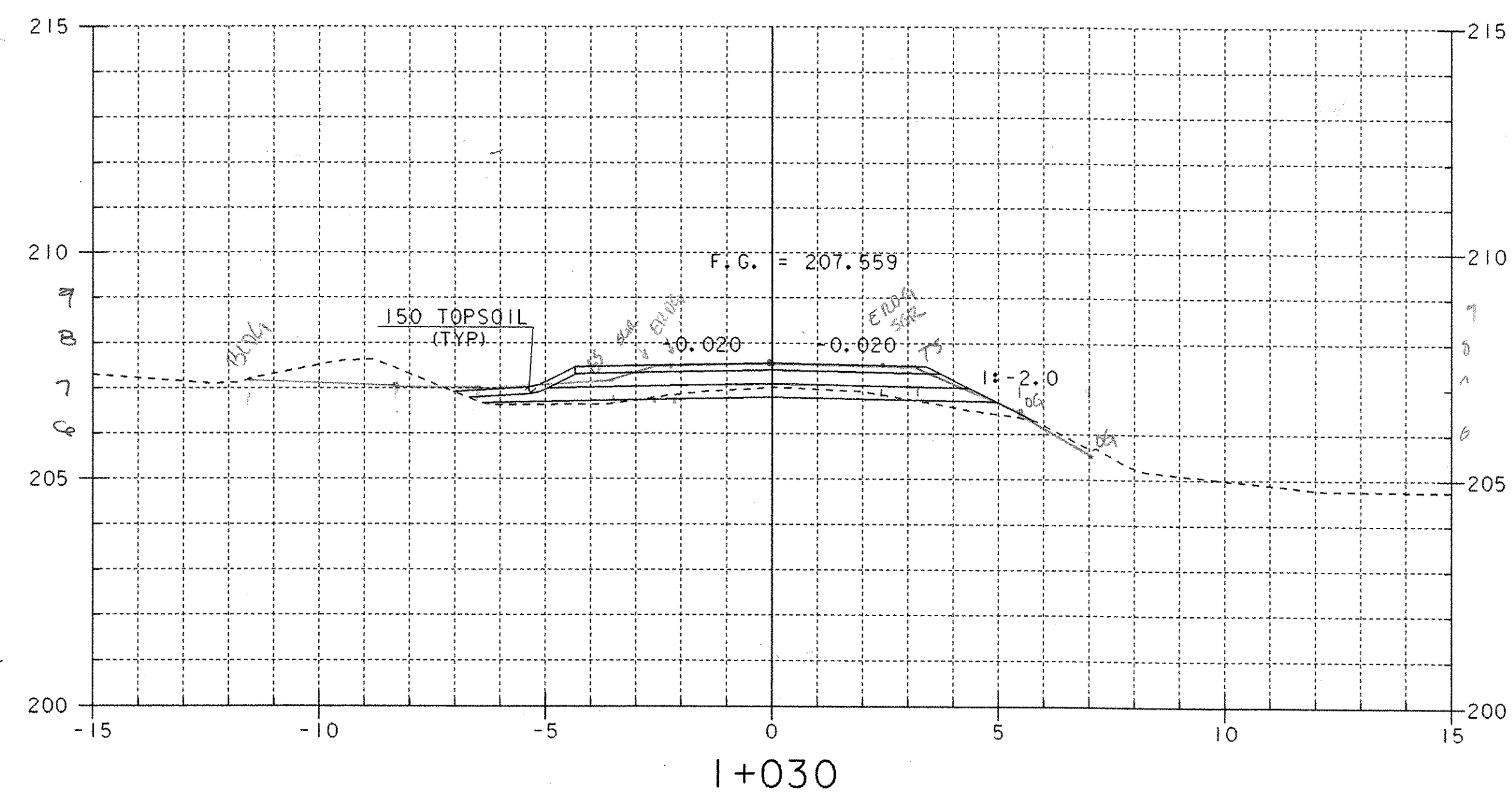
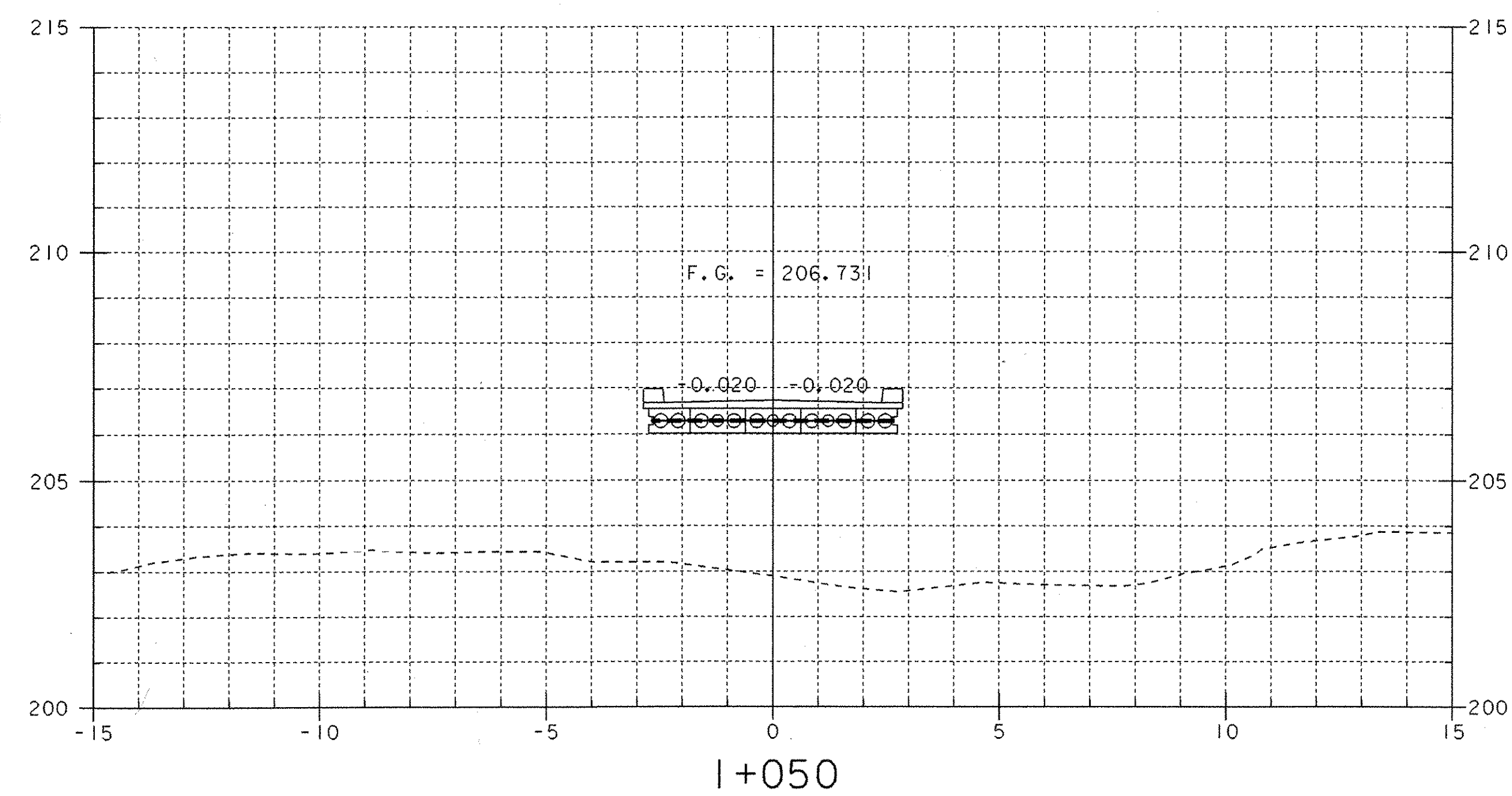
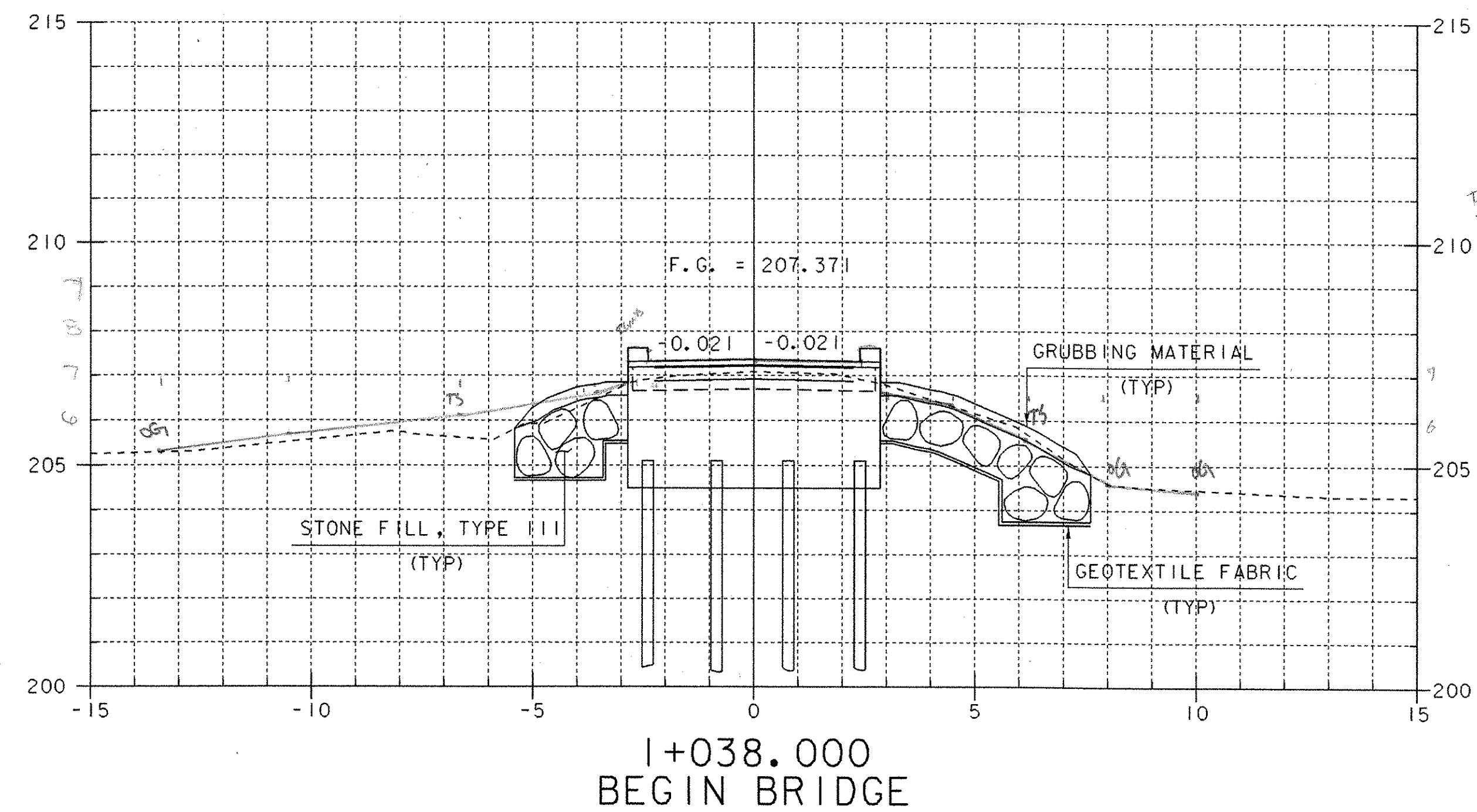
<b>SHEET NAME: MANUFACTURED END TERMINAL</b>		
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16	
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24	
	OVER: CLARENDON RIVER	
FILE NAME: /PW/95j286/sj286sup.dgn	PLOT DATE: 01-DEC-2005	
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: J. GILMORE	
DESIGNED BY: C. CARLSON	IPARM NAME: sj286met.1	
BRIDGE SHEET NUMBER:	SHEET 36 OF 43	



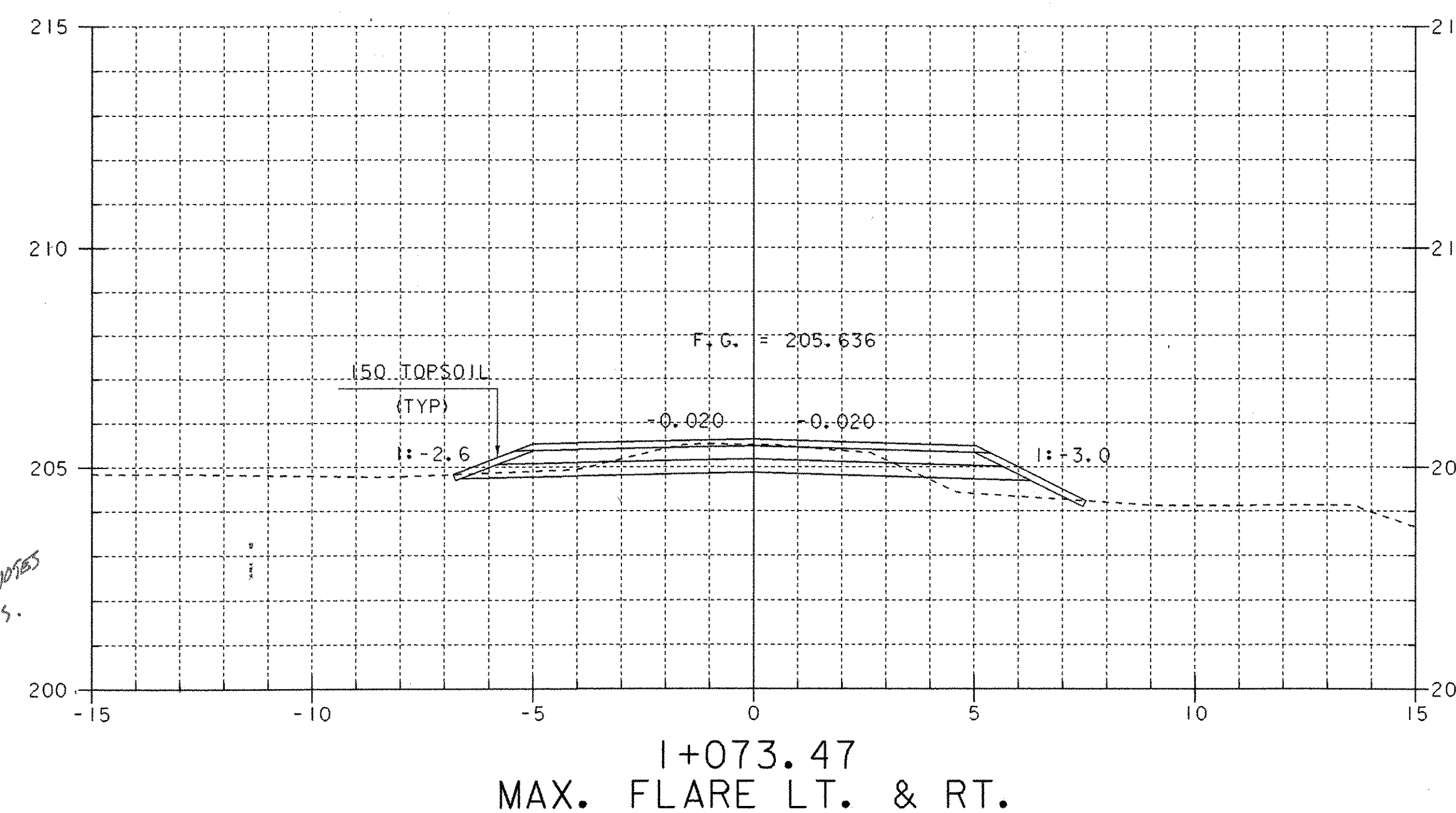
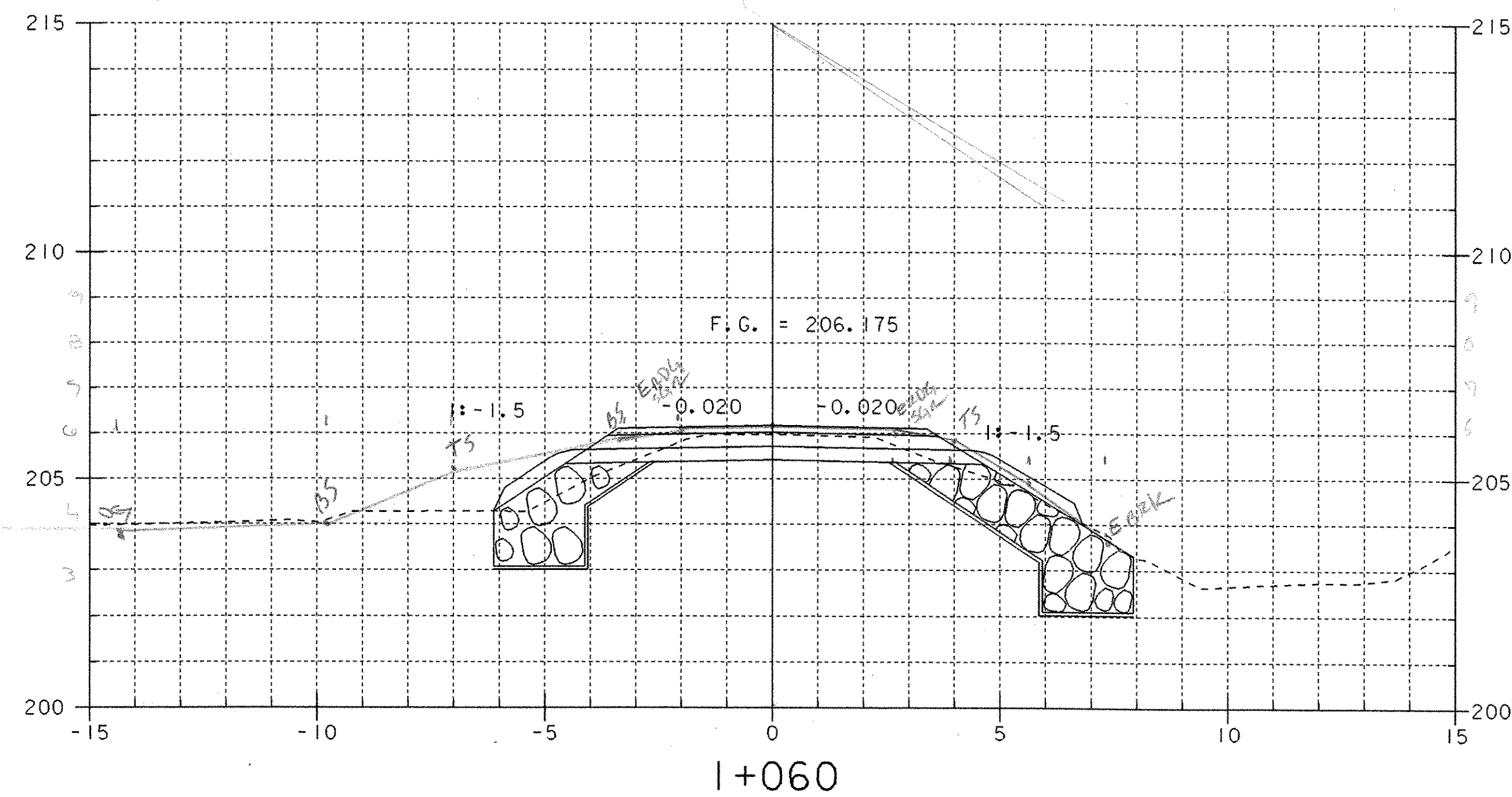
SEE SHEET 40 FOR SUBBASE TRANSITION DETAILS

1:100

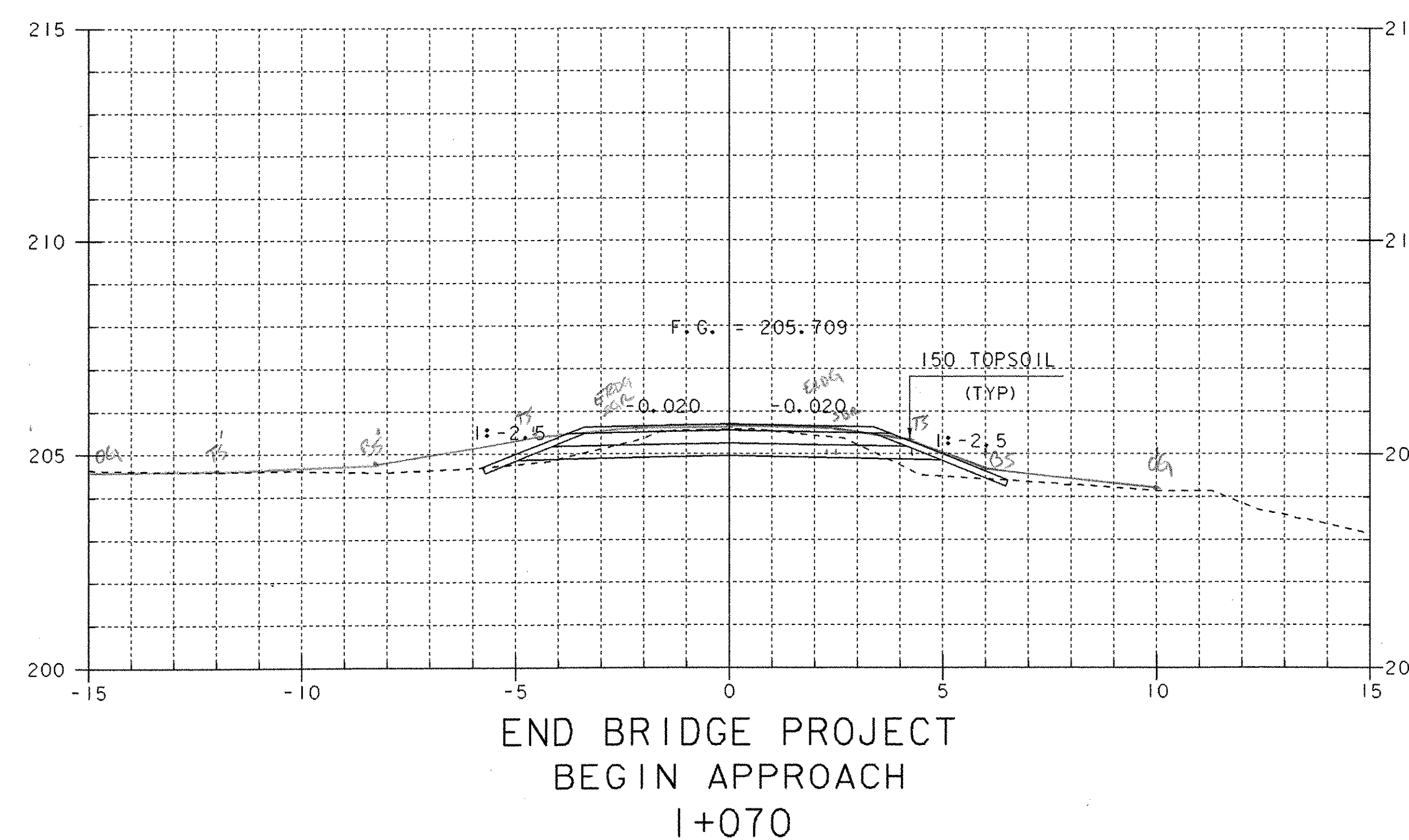
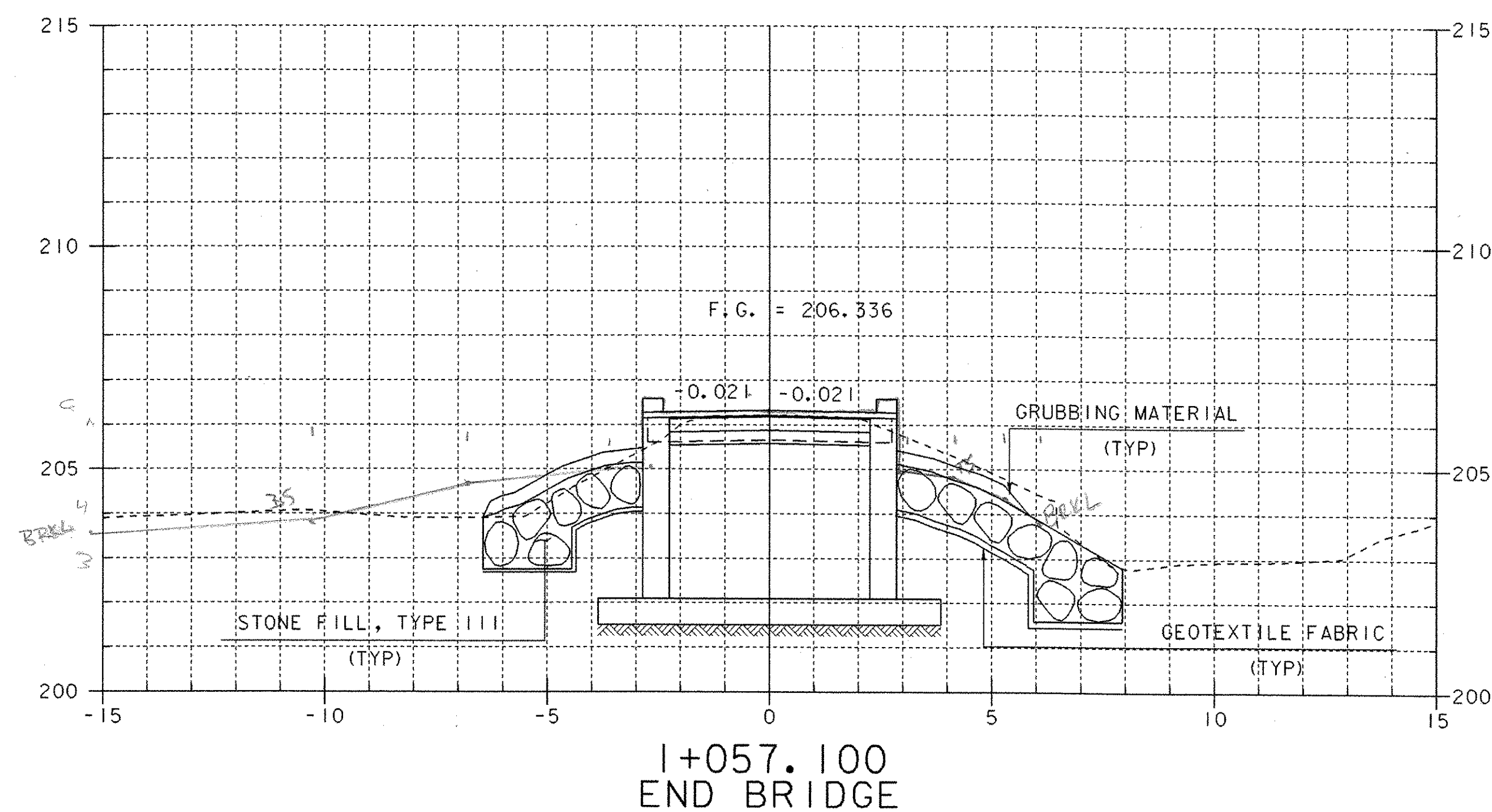
SHEET NAME: <b>MAINLINE SECTIONS</b>	
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: TH 16
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286mxLI
BRIDGE SHEET NUMBER:	SHEET 37 OF 43



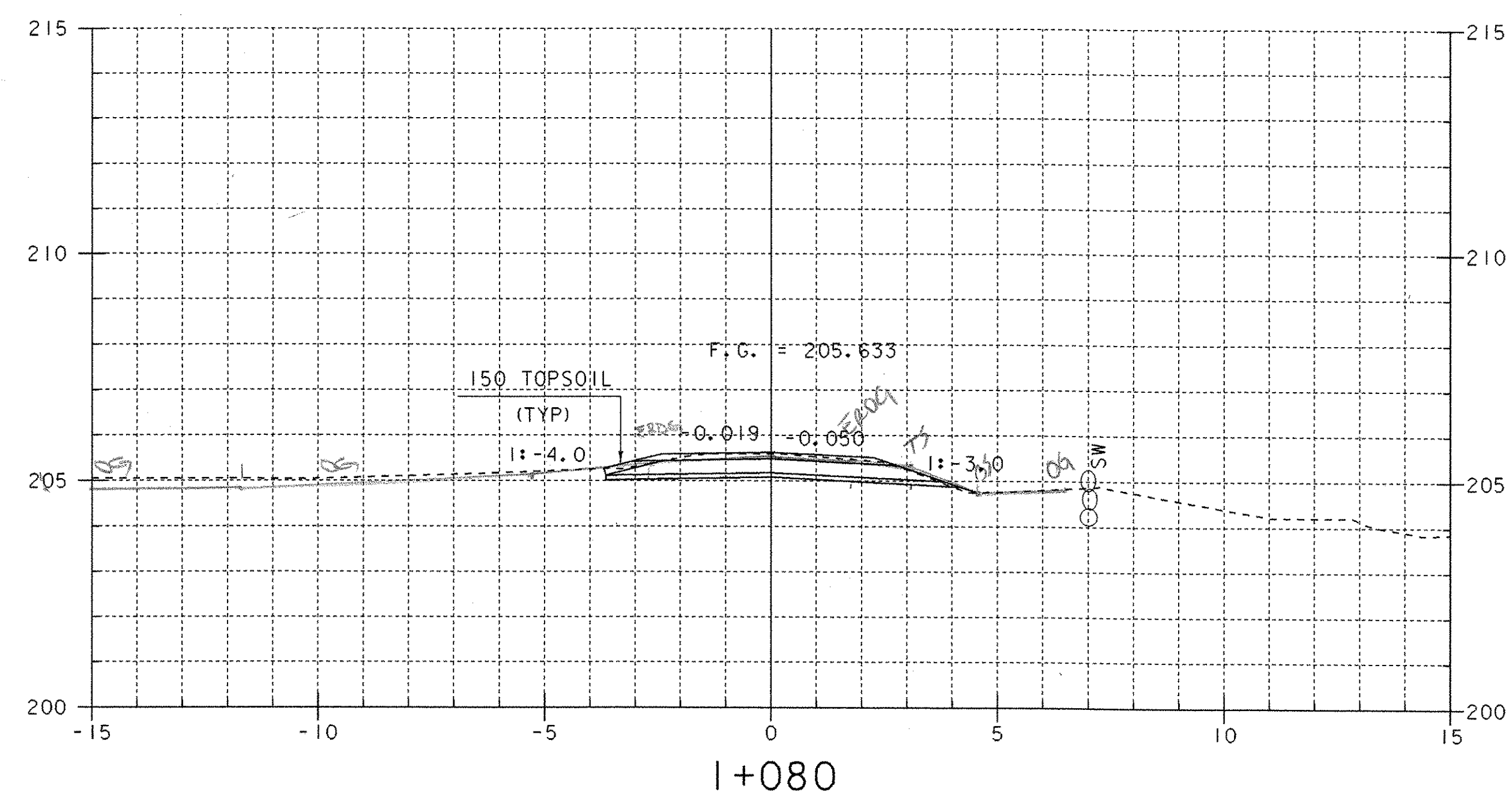
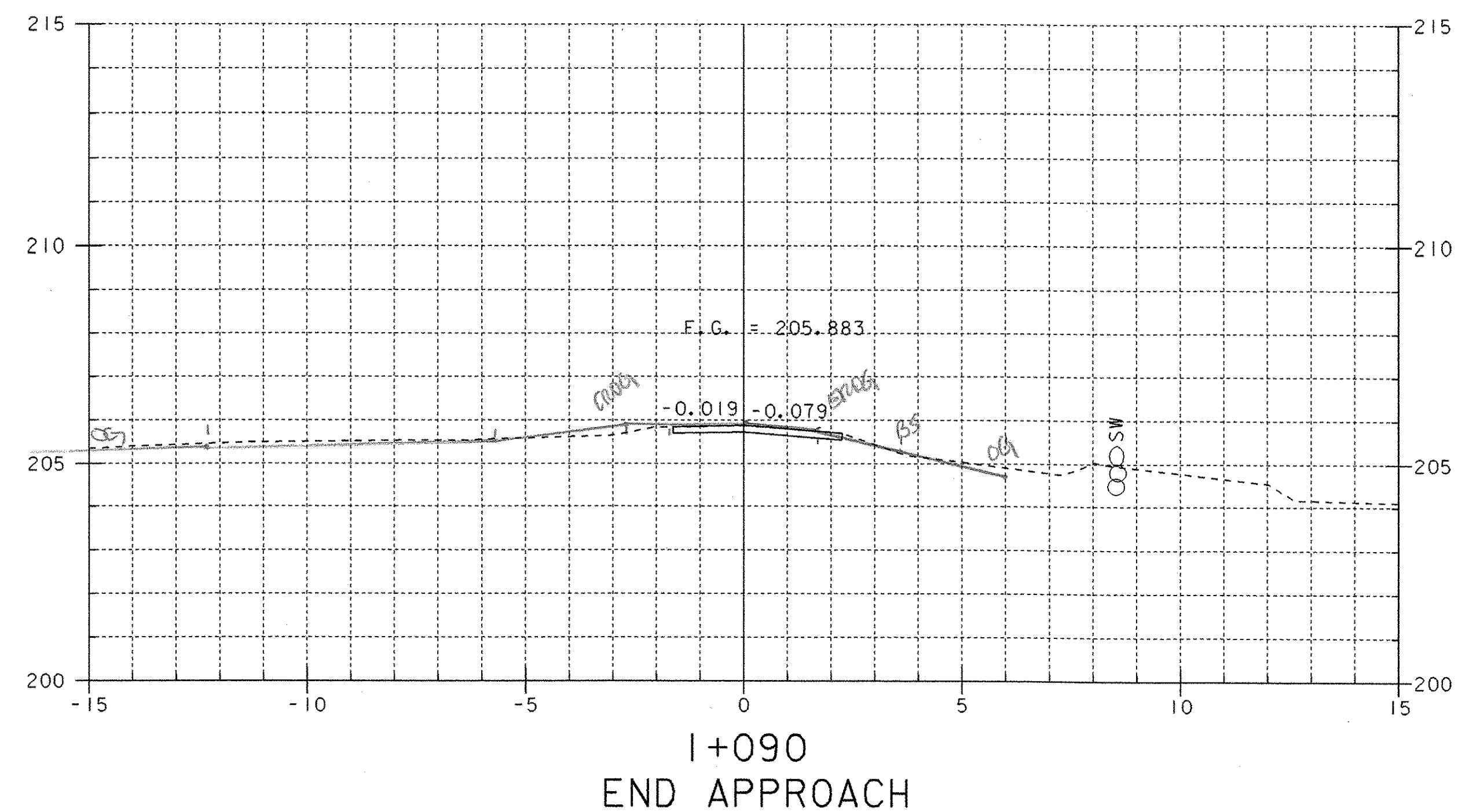
SHEET NAME: <b>MAINLINE SECTIONS</b>	
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: TH 16
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95j286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286m×2.1
BRIDGE SHEET NUMBER:	SHEET 38 OF 43



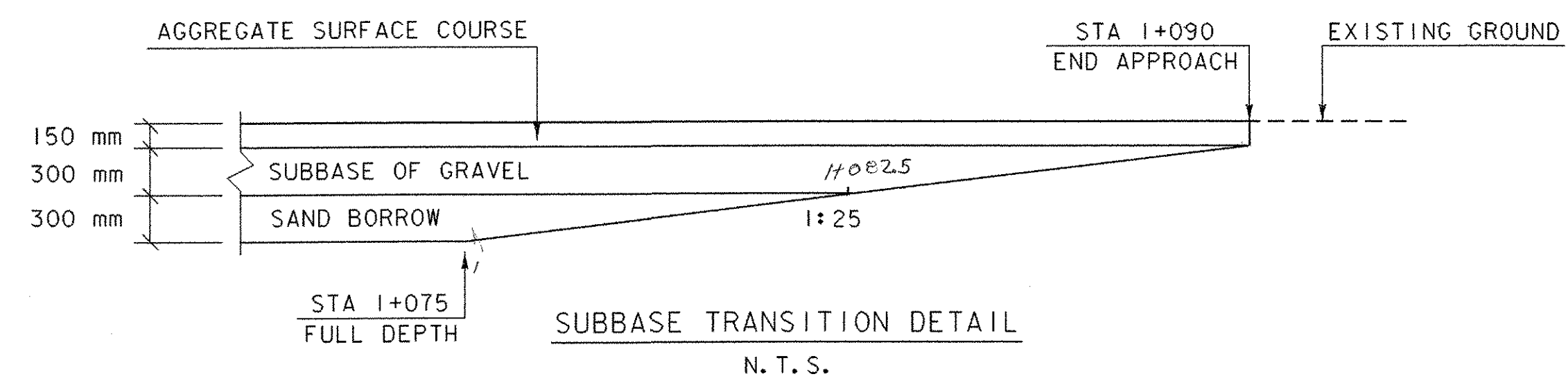
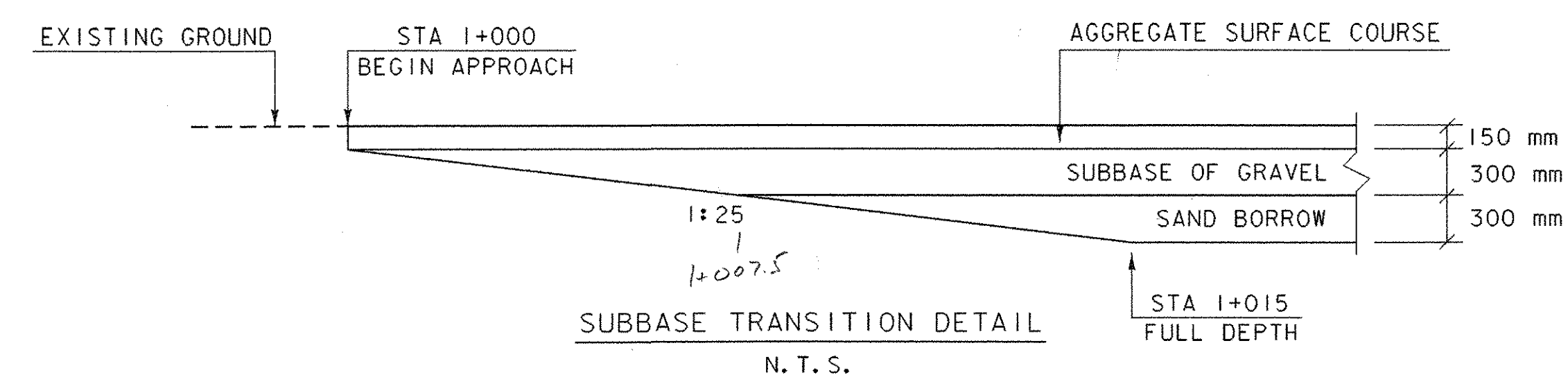
FINAL SECTIONS  
SEE ORIGINAL SURVEY NOTES  
DATED 11/16 BY L. DEWIS.  
DWA  
2/1/04



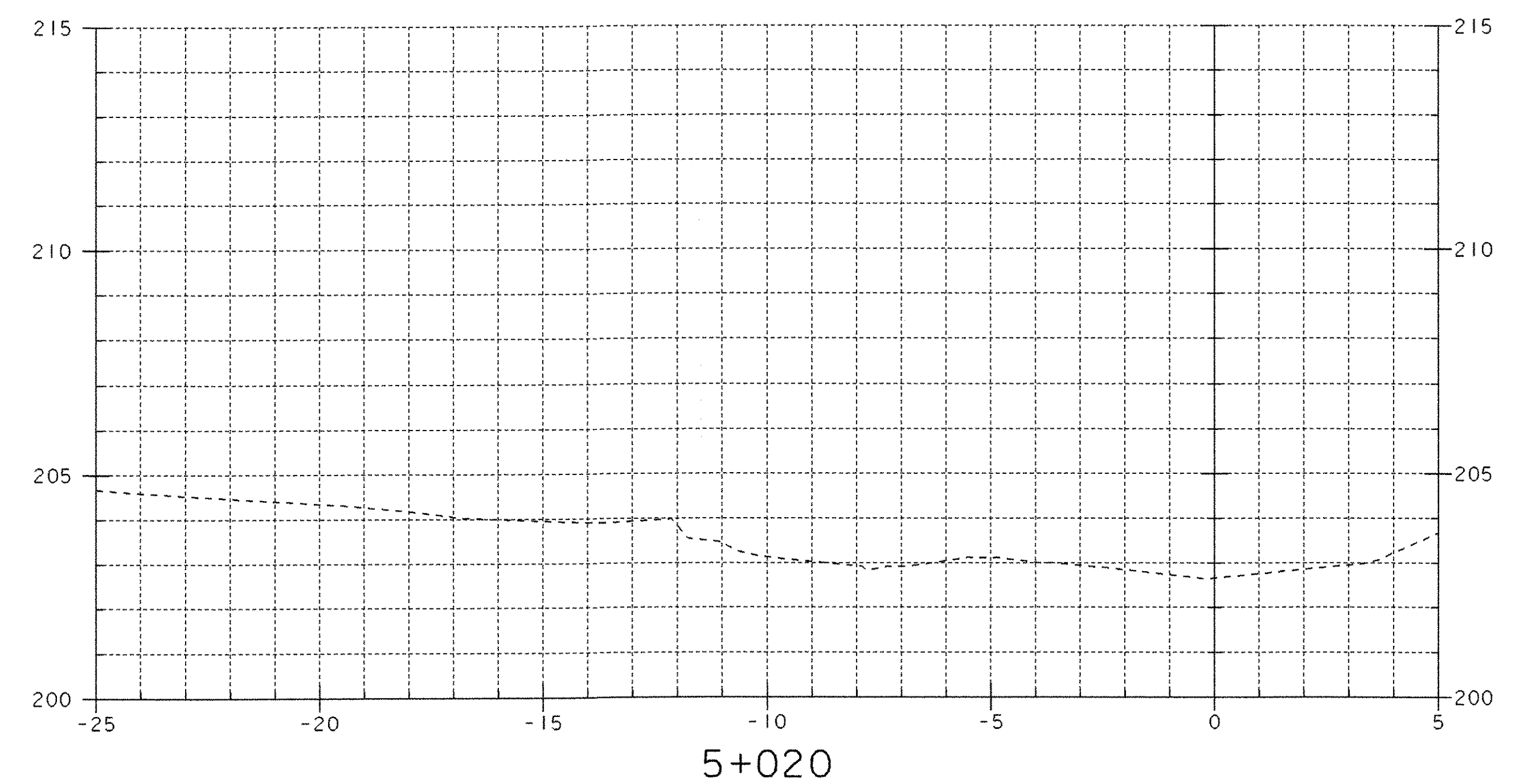
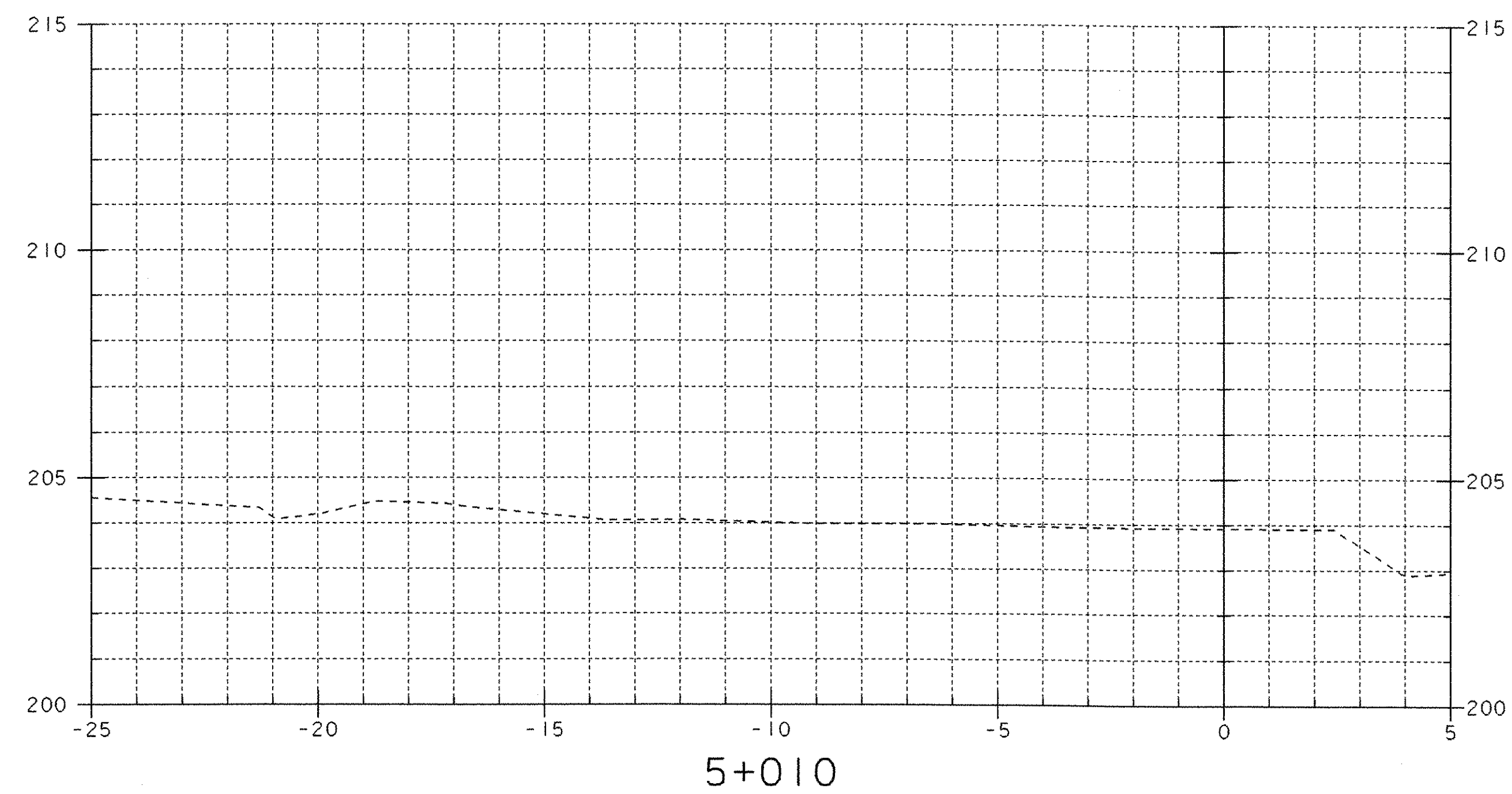
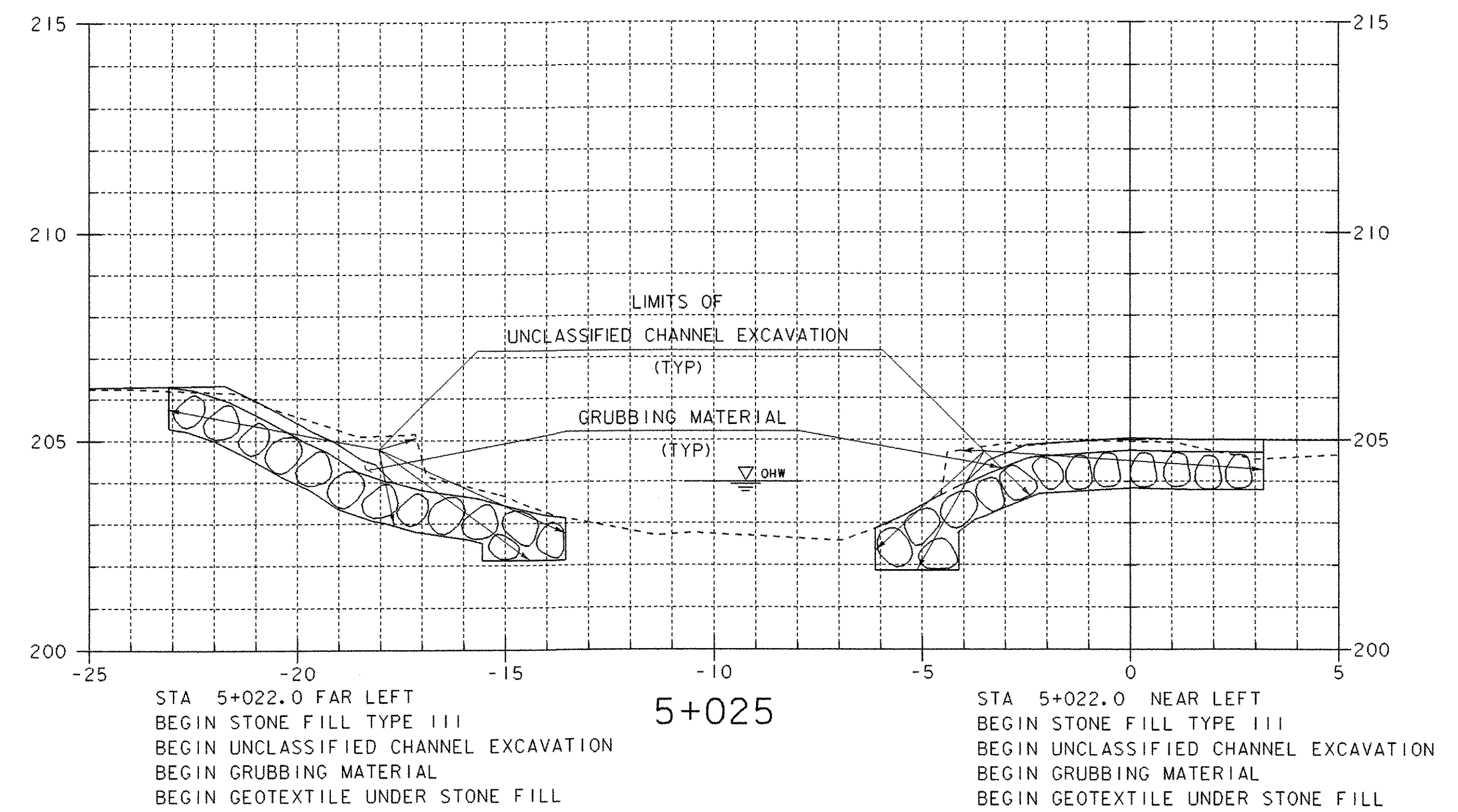
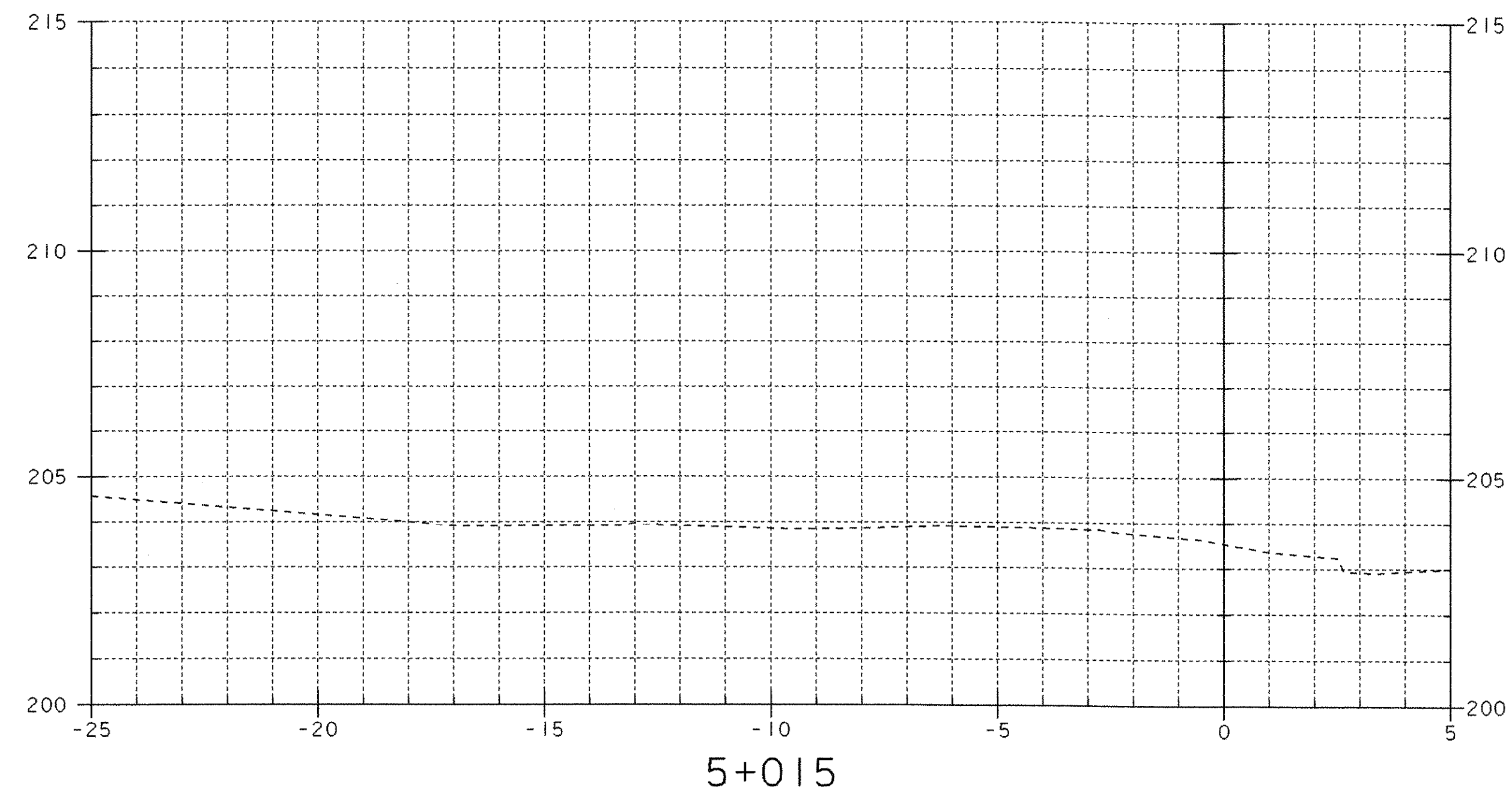
SHEET NAME: MAINLINE SECTIONS		
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16	
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005	
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI	
DESIGNED BY: C. CARLSON	IPARM NAME: sj286m3.1	
BRIDGE SHEET NUMBER:	SHEET 39	OF 43



*FINAL SECTIONS  
BEFORE TO ORIGINAL  
SURVEY NOTES BY L. CARLSON  
DATED 11/16 FOR DETAILS  
DATE 2/16/02*



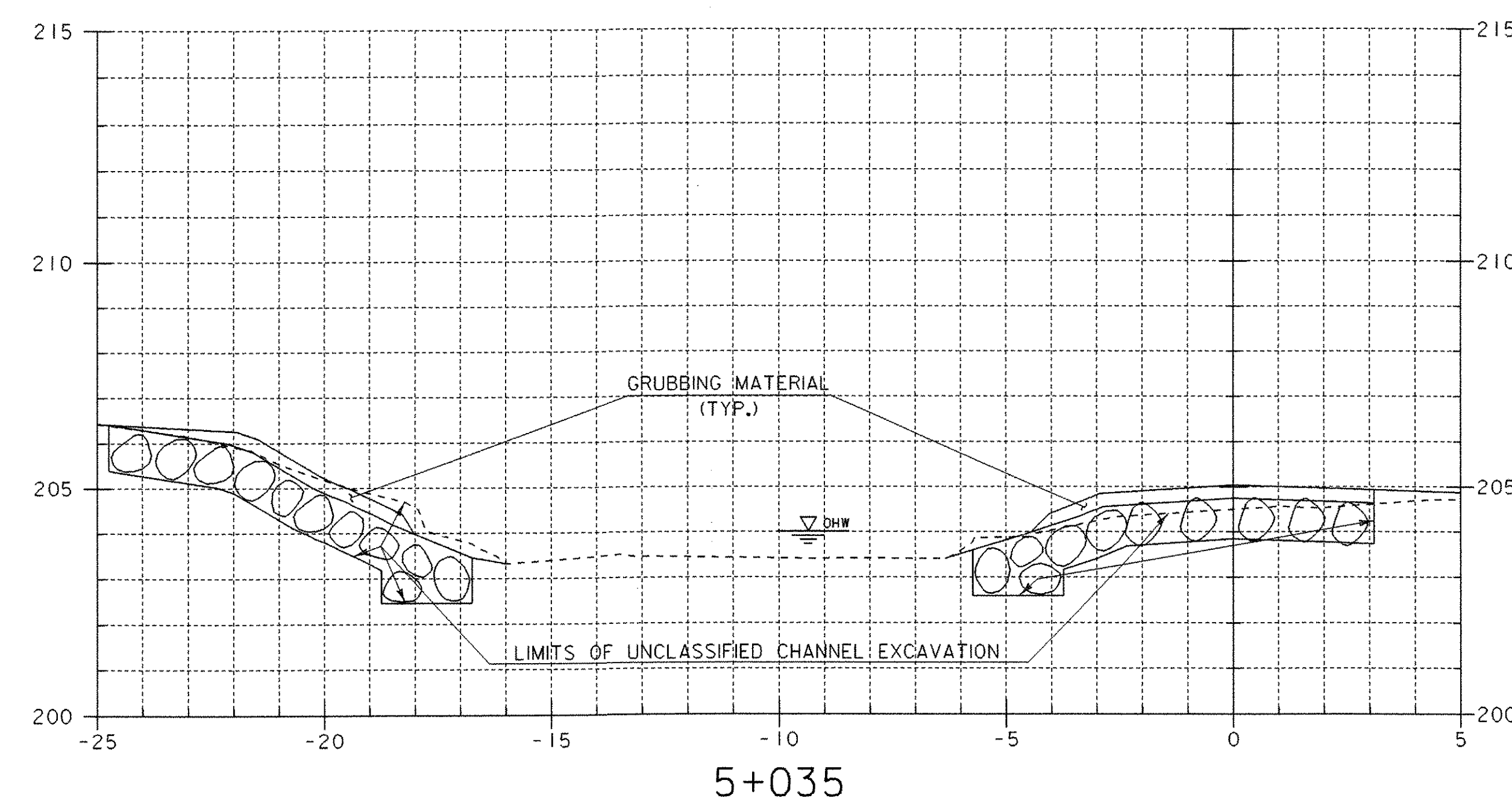
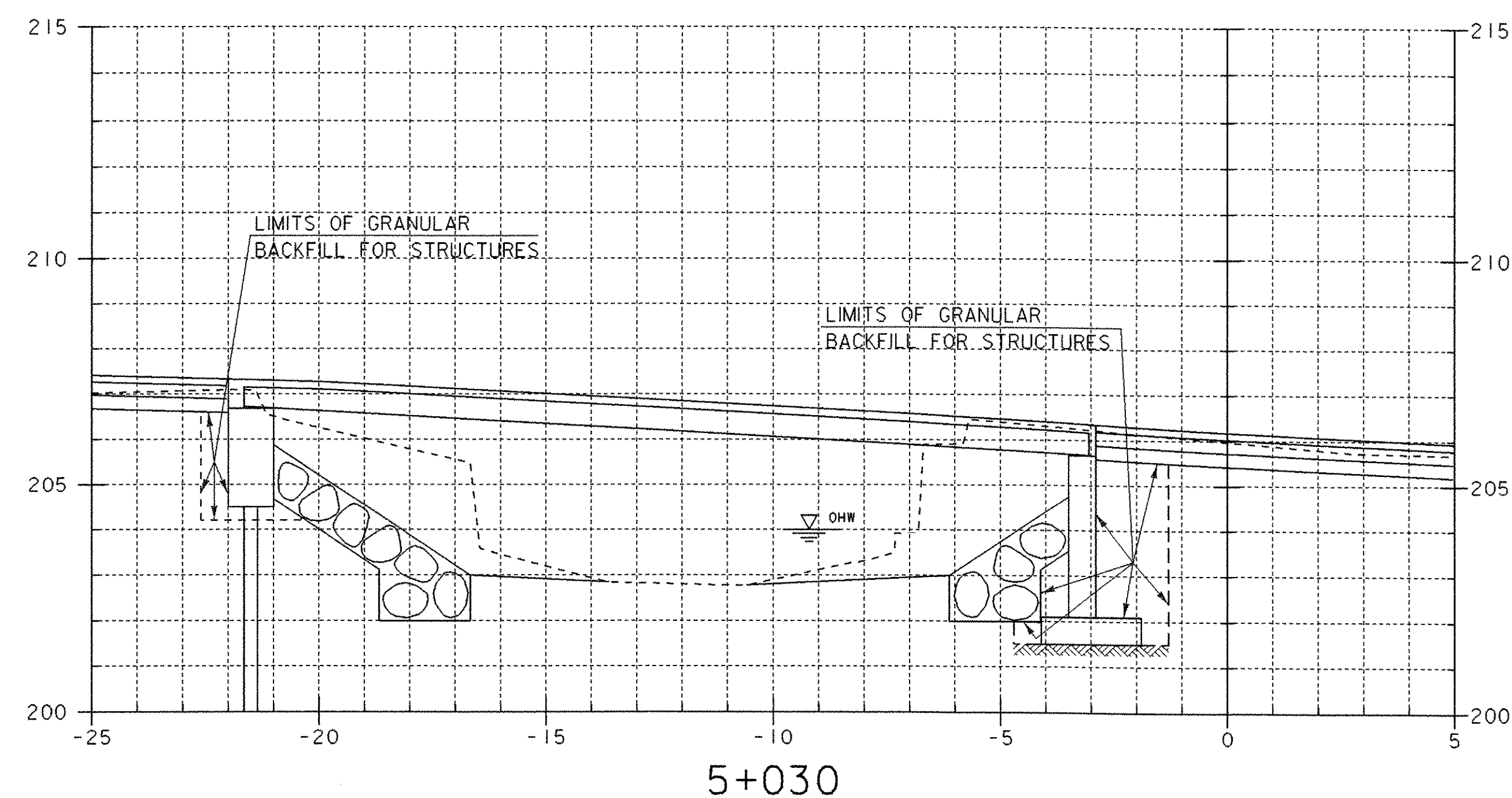
SHEET NAME: <b>MAINLINE SECTIONS</b>	
PROJECT NAME: <b>CLARENDON</b>	HIGHWAY NO.: TH 16
PROJECT NUMBER: <b>BRO 1443(34)</b>	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95j286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286m4.1
BRIDGE SHEET NUMBER:	SHEET 40 OF 43



SHEET NAME: CHANNEL SECTIONS	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286cx1.1
BRIDGE SHEET NUMBER:	SHEET 41 OF 43

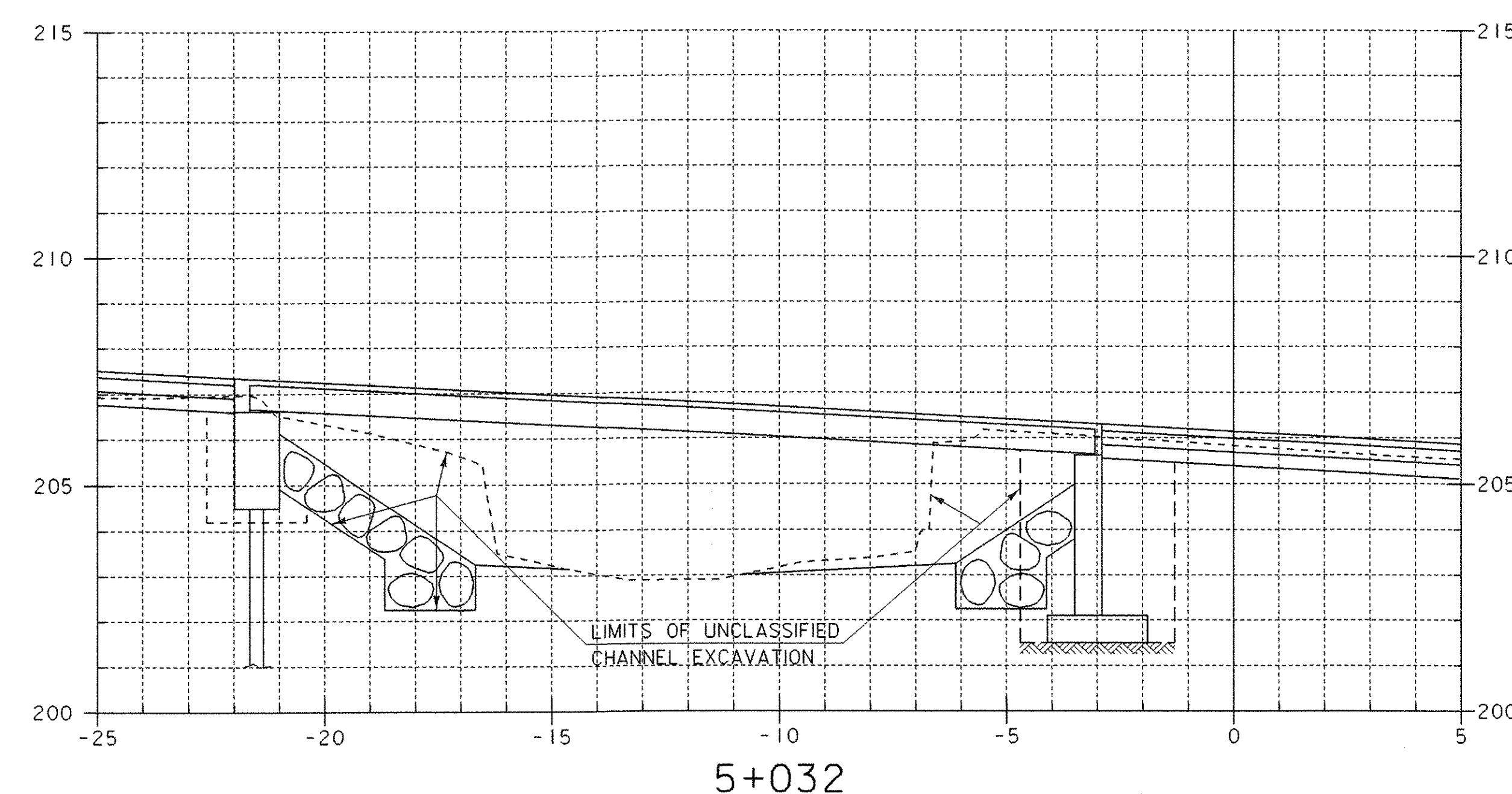
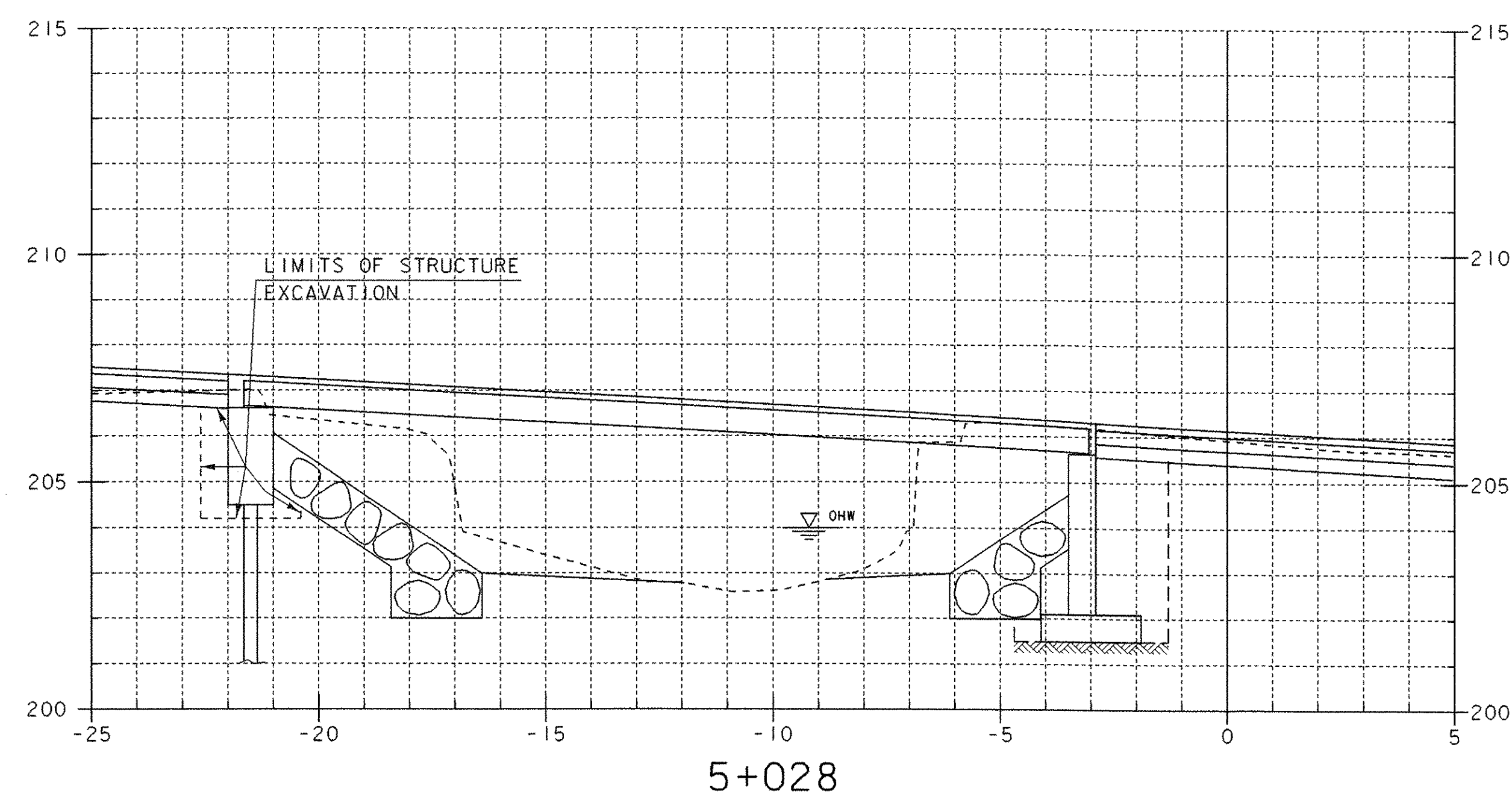
STA 5 + 037 FAR LEFT  
 END STONE FILL TYPE III  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 END GRUBBING MATERIAL  
 END GEOTEXTILE UNDER STONE FILL

STA 5 + 036.5 NEAR LEFT  
 END STONE FILL TYPE III  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 END GRUBBING MATERIAL  
 END GEOTEXTILE UNDER STONE FILL



STA. 5+033.5 FAR LT.  
 END STRUCTURE EXCAVATION &  
 GRANULAR BACKFILL FOR STRUCTURES

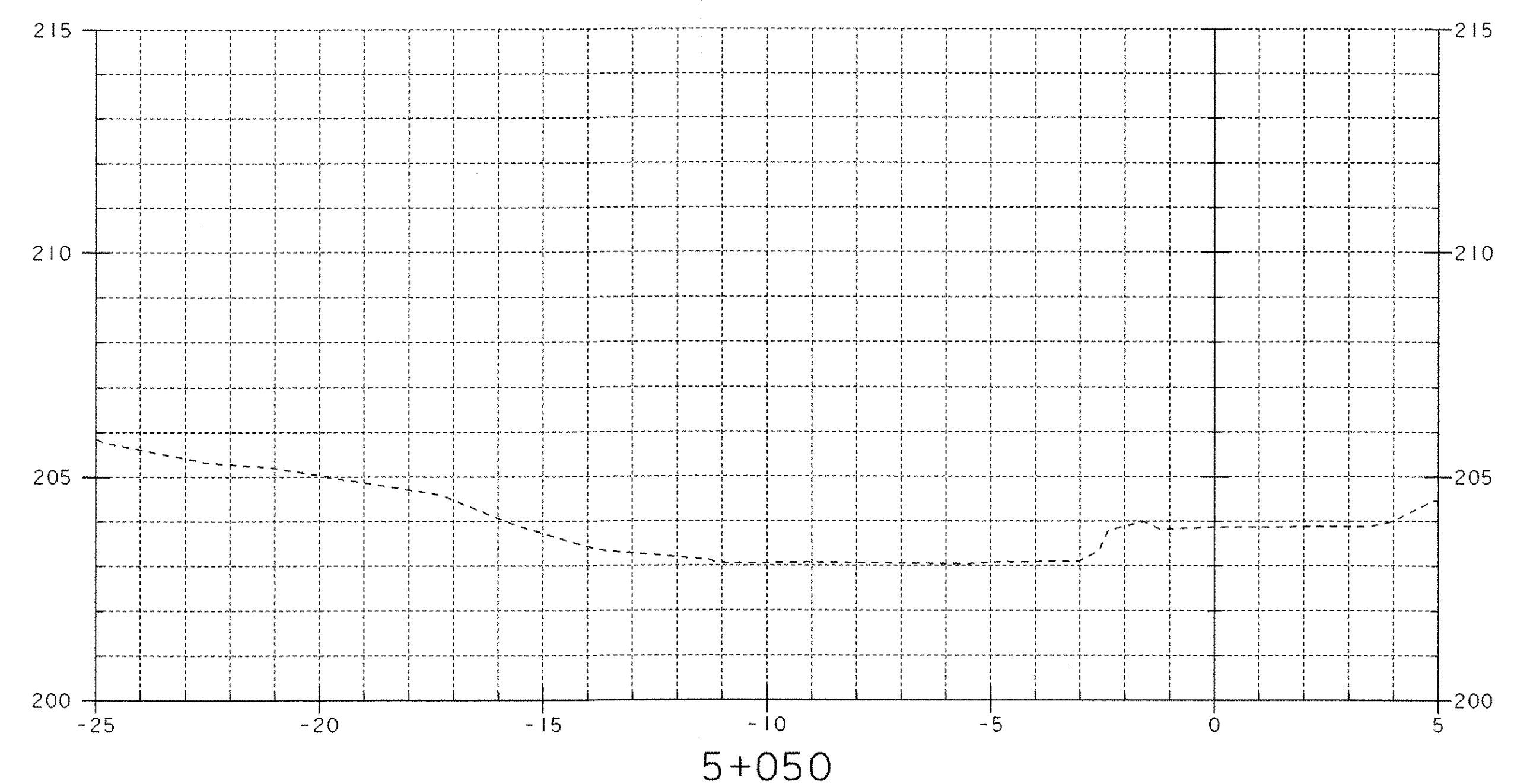
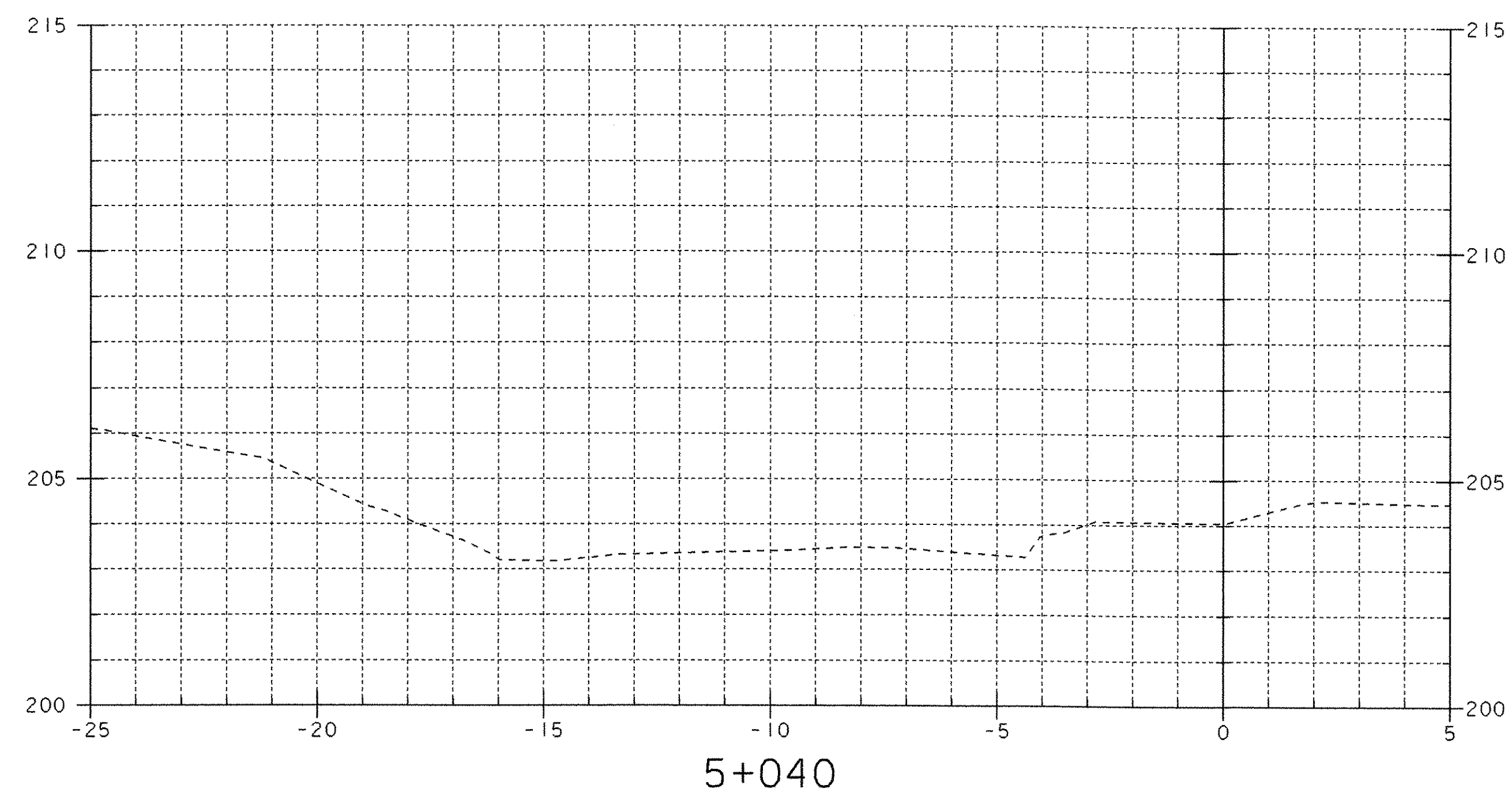
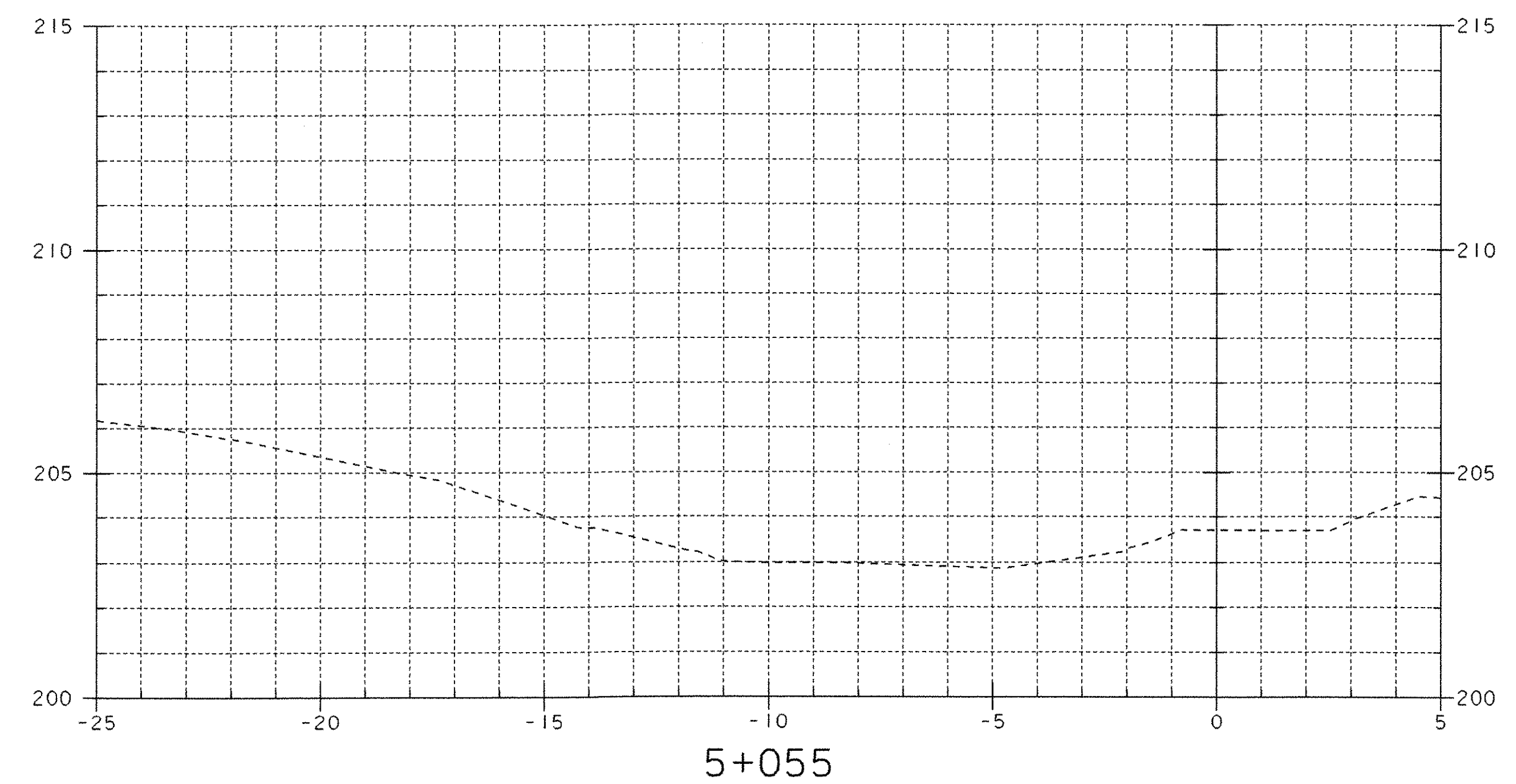
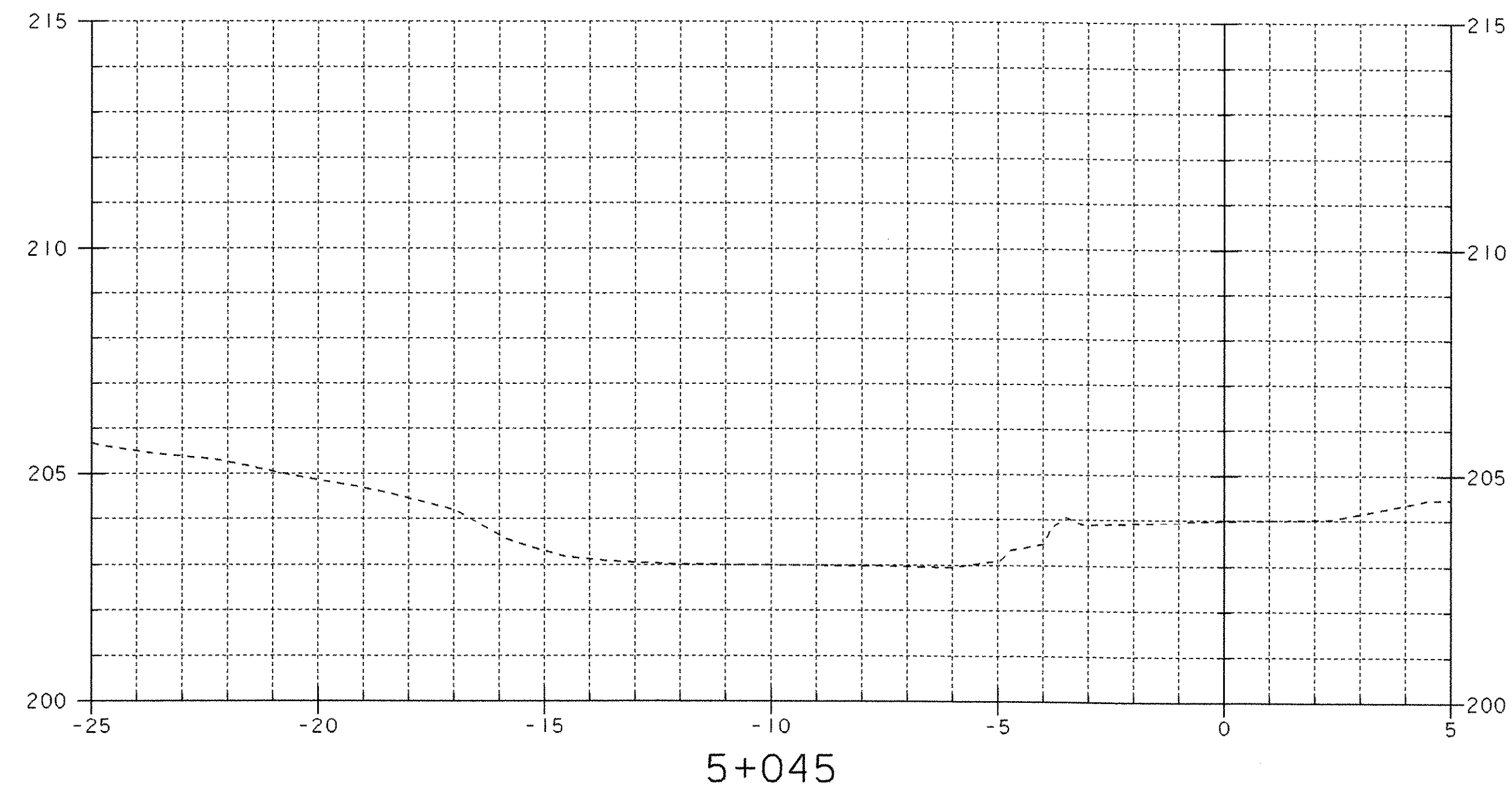
STA 5+033 FAR AND NEAR LEFT  
 BEGIN GRUBBING MATERIAL



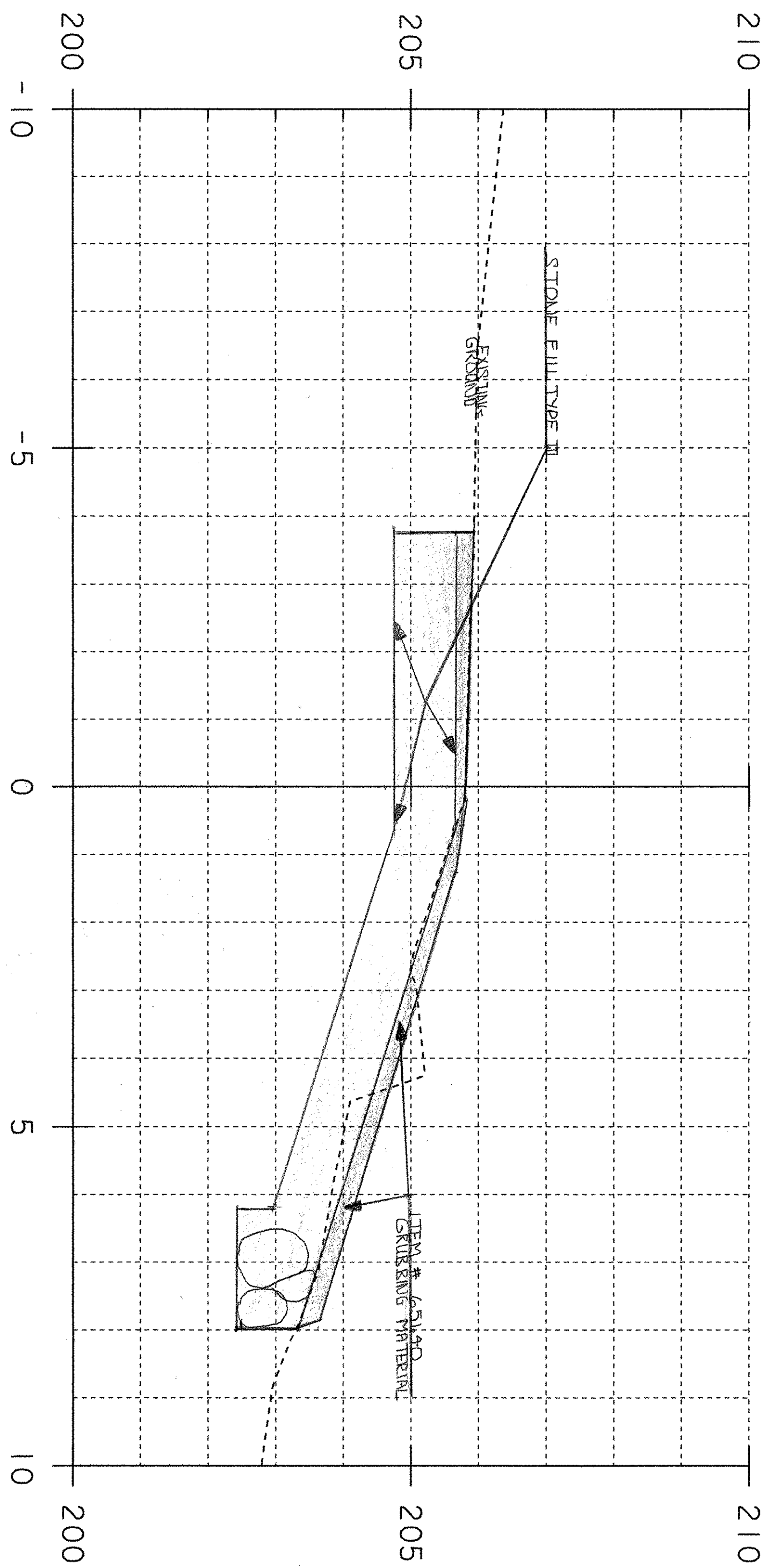
STA 5+027 FAR AND NEAR LEFT  
 END GRUBBING MATERIAL

STA 5+026.5 FAR LT.  
 BEGIN STRUCTURE EXCAVATION AND  
 GRANULAR BACKFILL FOR STRUCTURES

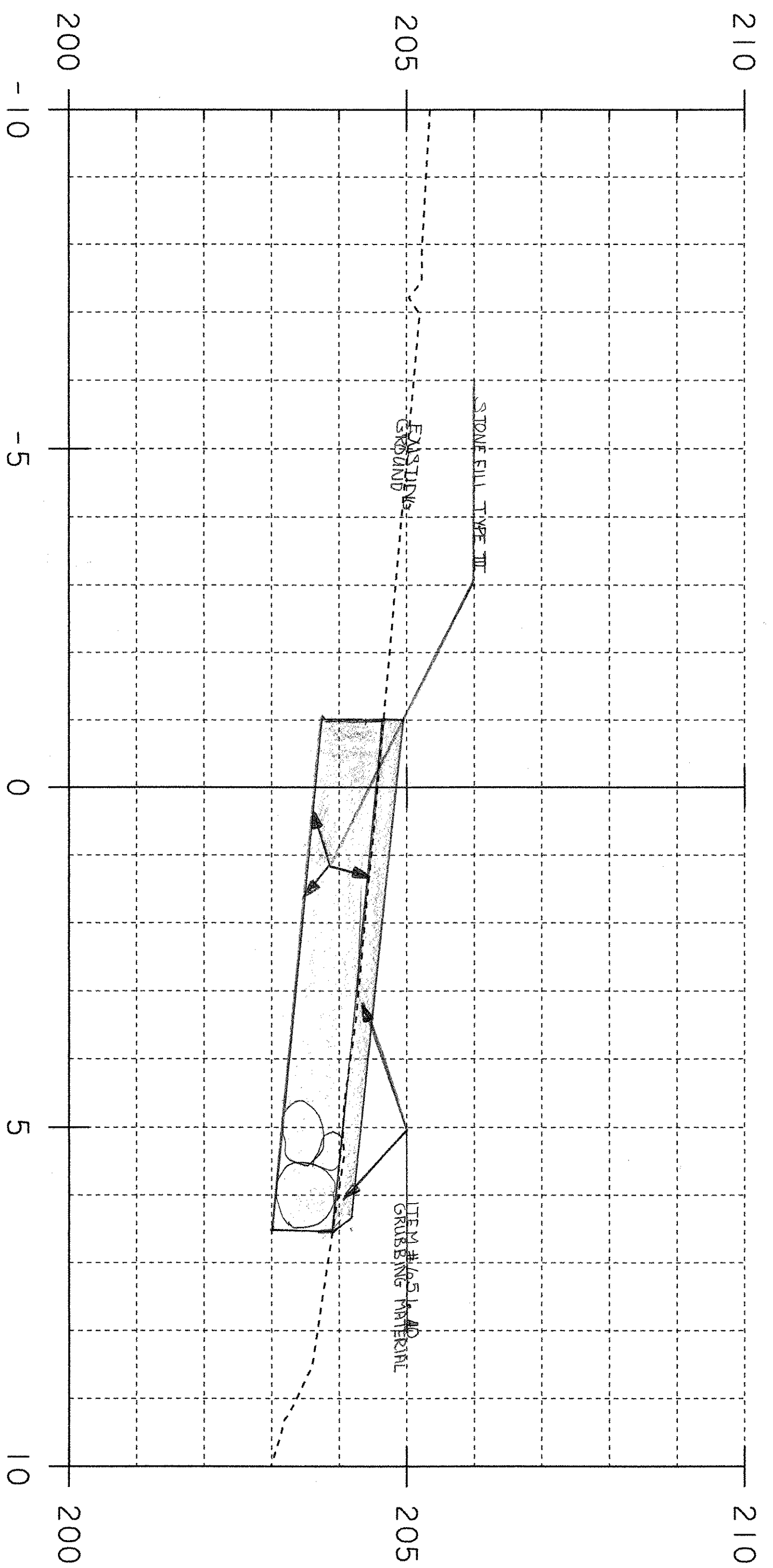
SHEET NAME: CHANNEL SECTIONS	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286cx2.i
BRIDGE SHEET NUMBER:	SHEET 42 OF 43



SHEET NAME: CHANNEL SECTIONS	
PROJECT NAME: CLARENDON	HIGHWAY NO.: TH 16
PROJECT NUMBER: BRO 1443(34)	BRIDGE NO.: 24
	OVER: CLARENDON RIVER
FILE NAME: /PW/95J286/sj286xsl.dgn	PLOT DATE: 01-DEC-2005
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: STRI
DESIGNED BY: C. CARLSON	IPARM NAME: sj286cx3.i
BRIDGE SHEET NUMBER:	SHEET 43 OF 43

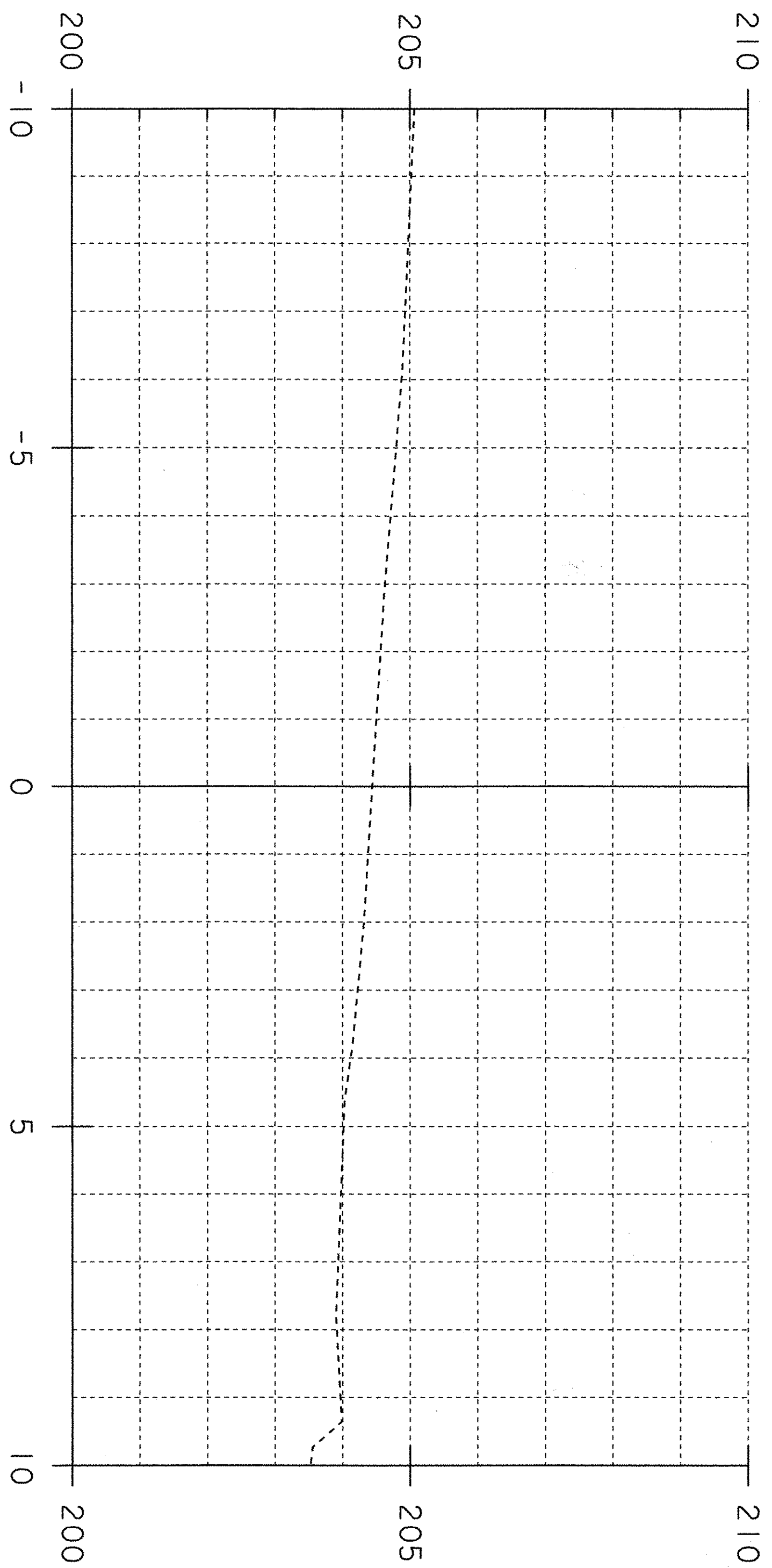


4+994.00



4+992.50

Basin Stone Fill  
(Burr Strain)



4+990.00  
OUTSIDE LIMITS OF WORK

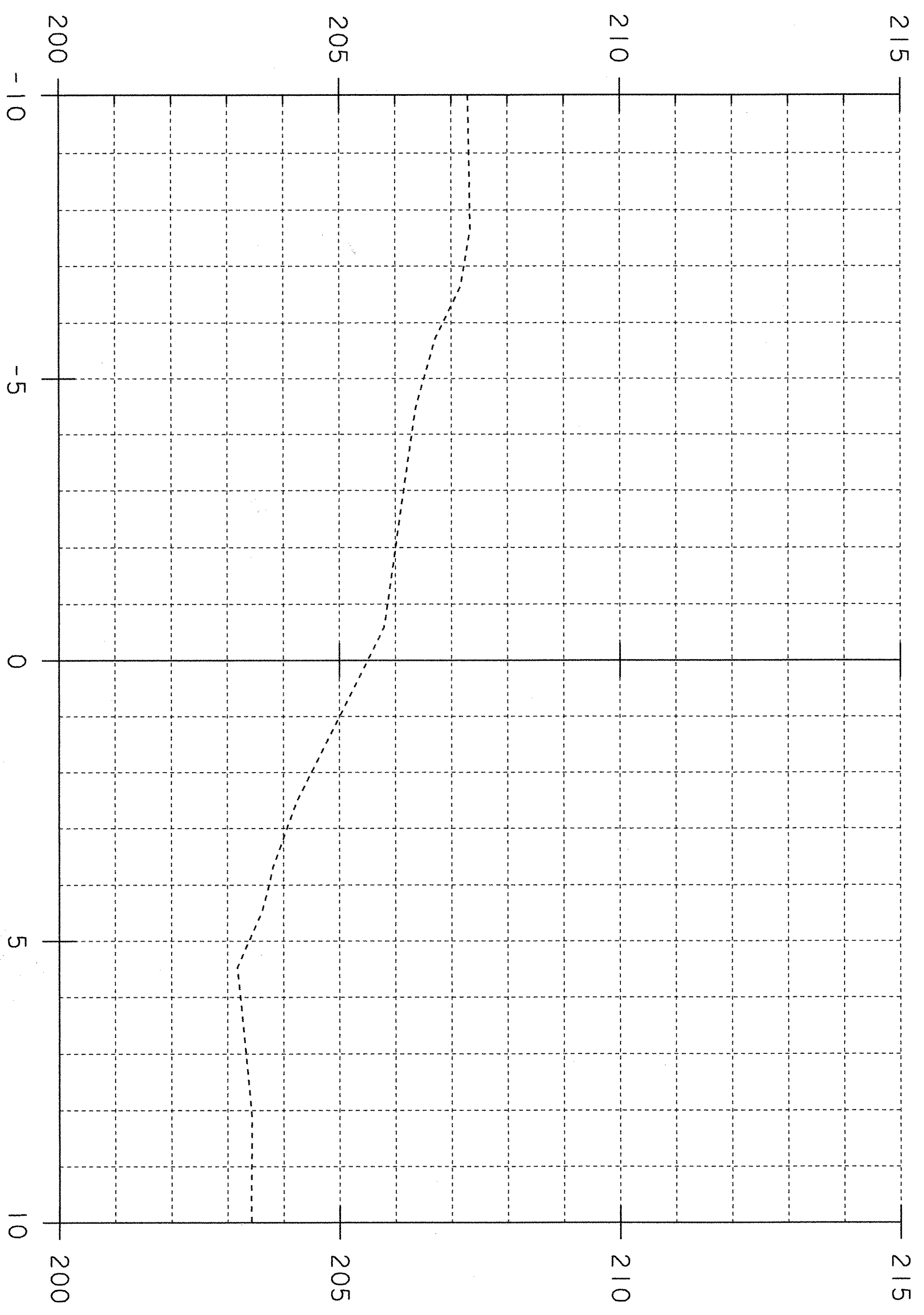
PROJECT NAME: Clarendon  
PROJECT NUMBER: BRO 1443(34)

FILE NAME: 95j286\survey\work.dgn  
PROJECT LEADER:  
DESIGNED BY:

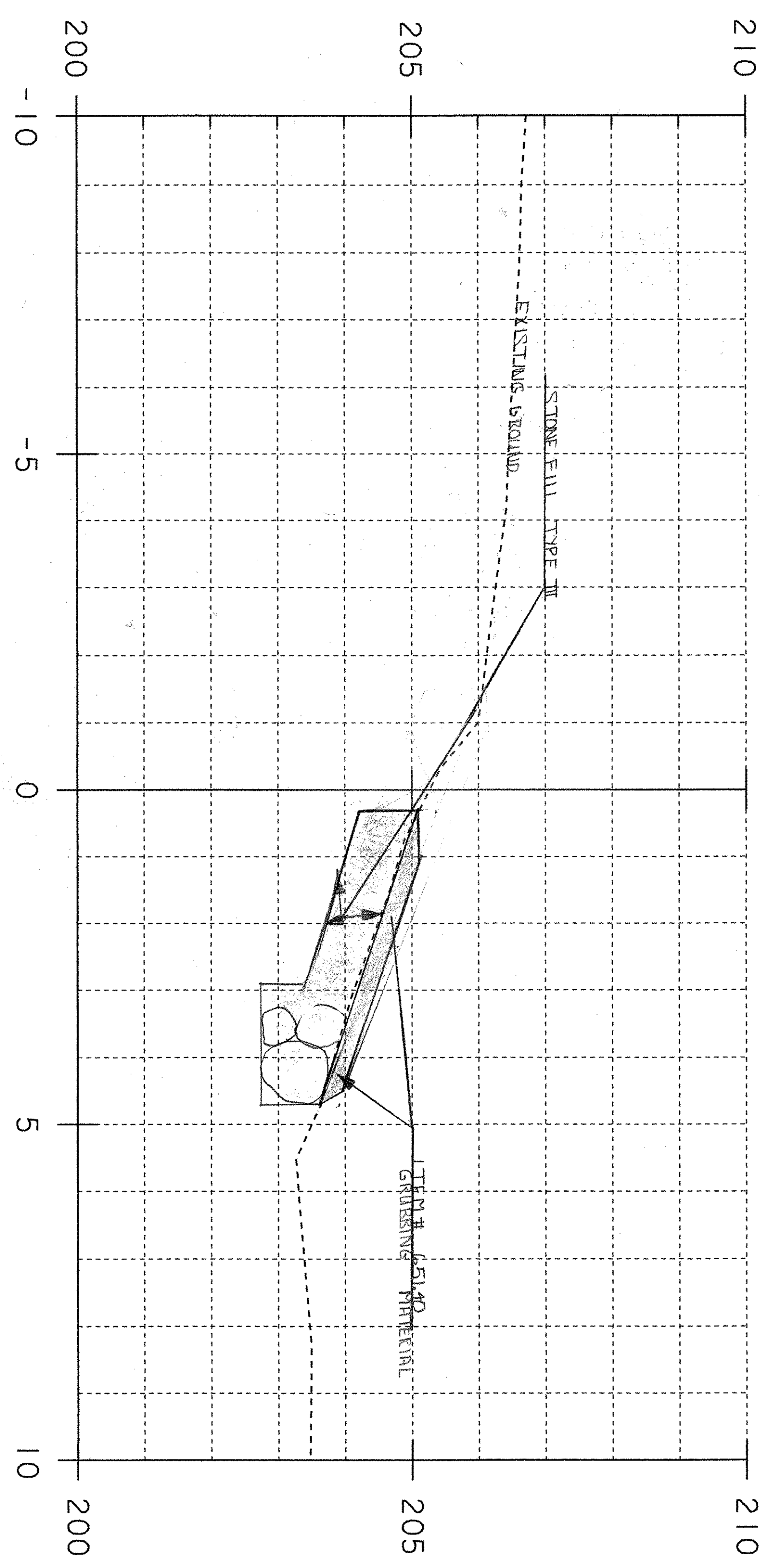
PLOT DATE: 05-APR-2006  
DRAWN BY: R. Bullock  
CHECKED BY:  
SHEET 2 OF 8



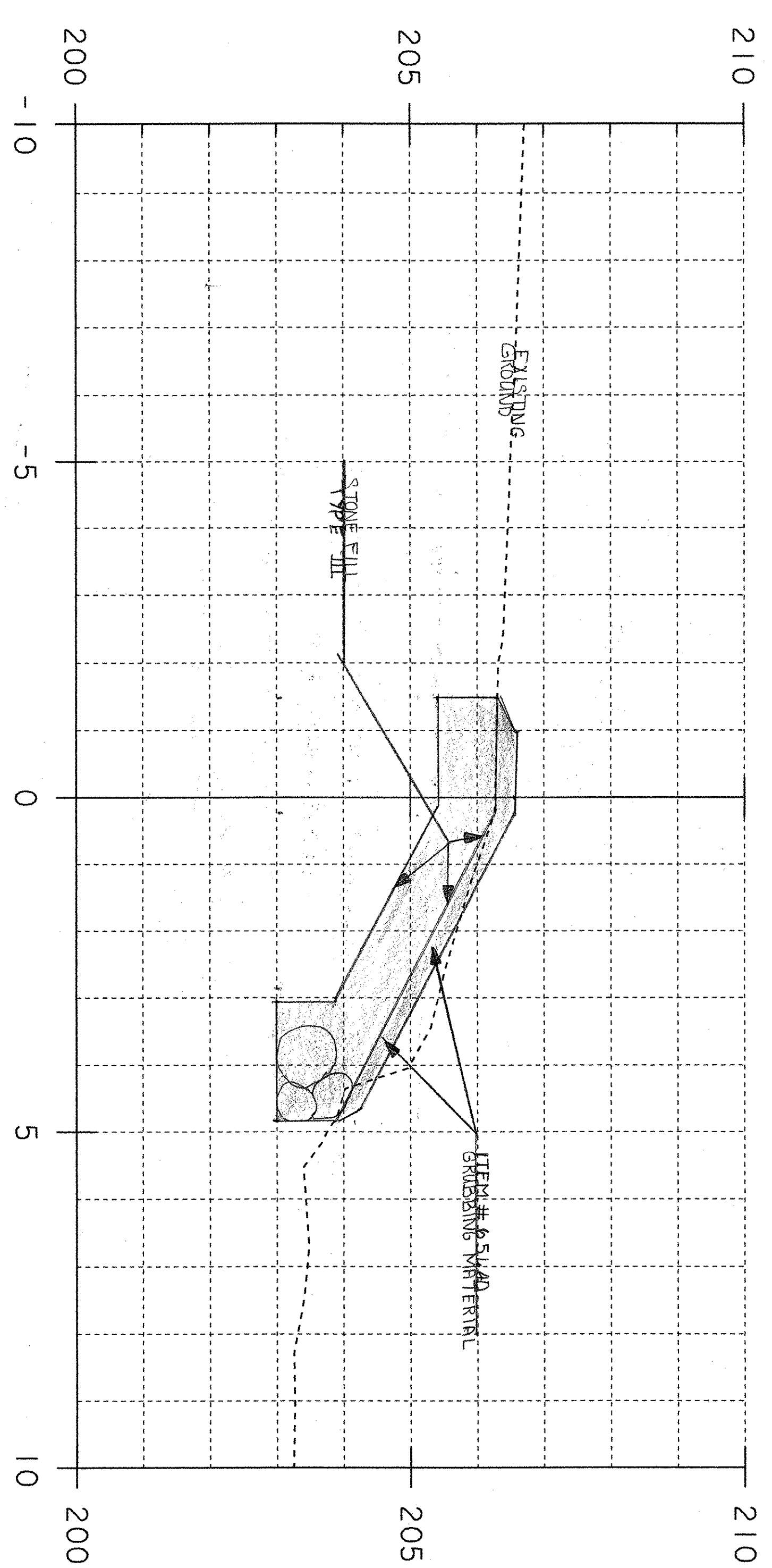




5+008.00

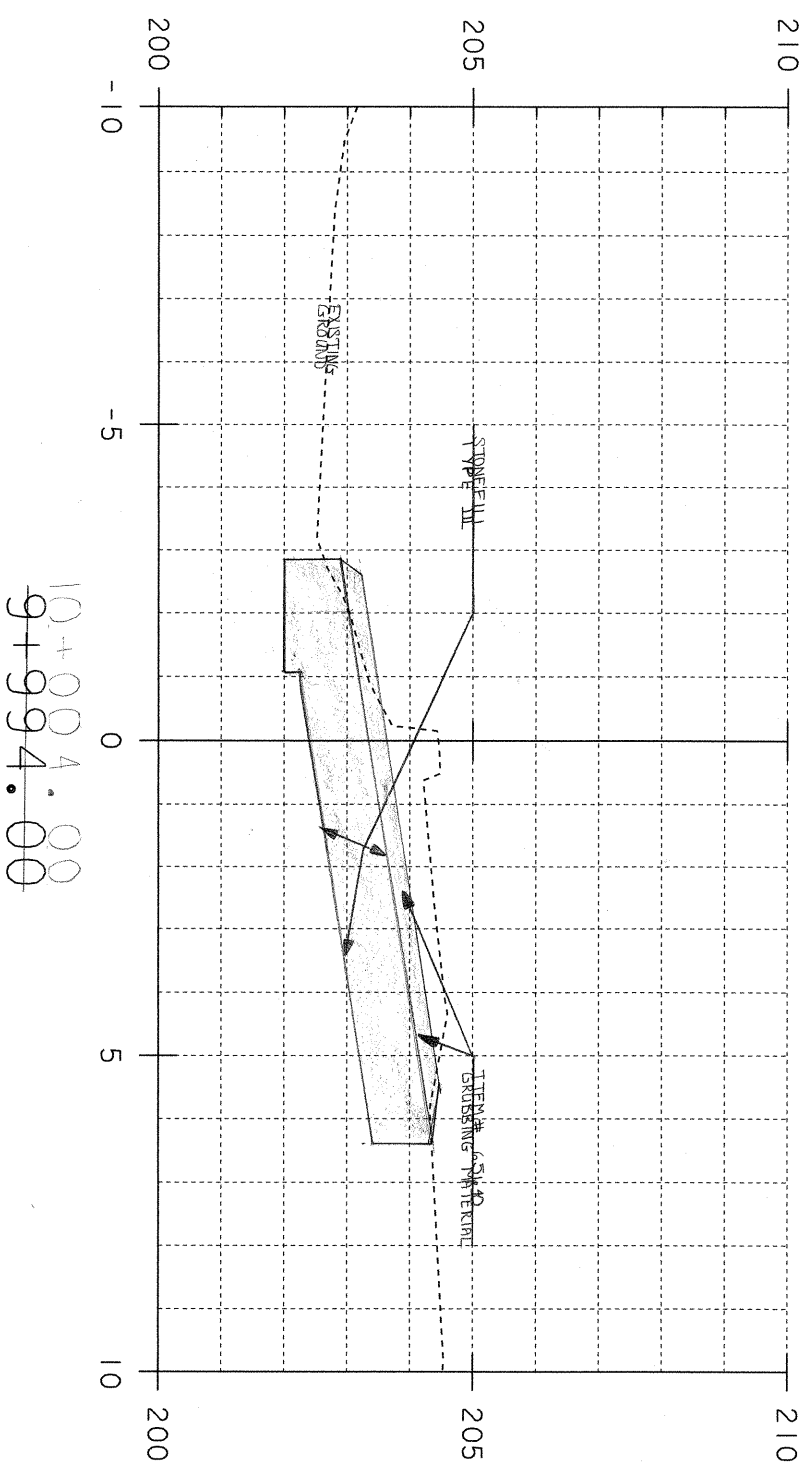


5+006.00

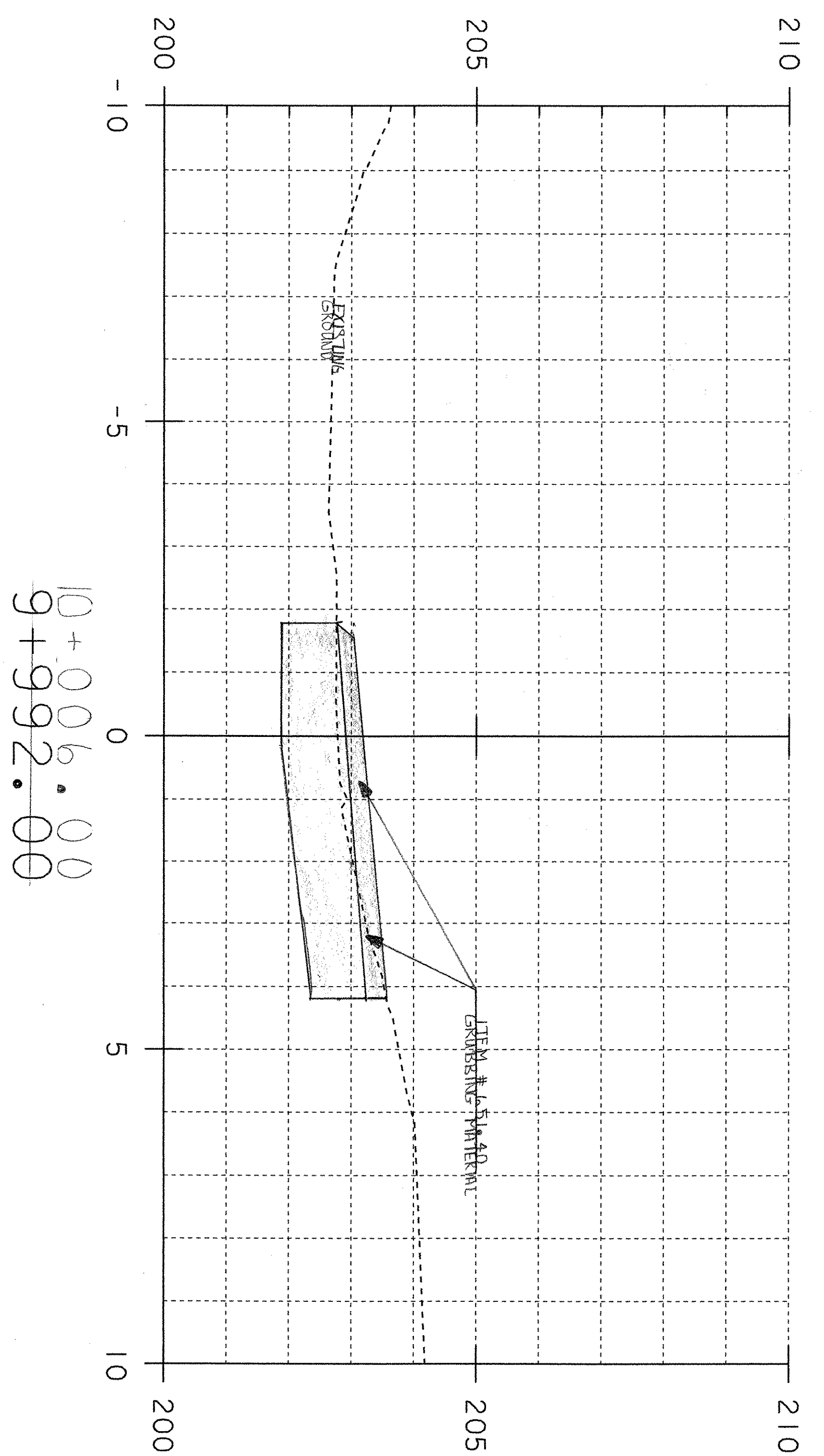


5+004.00

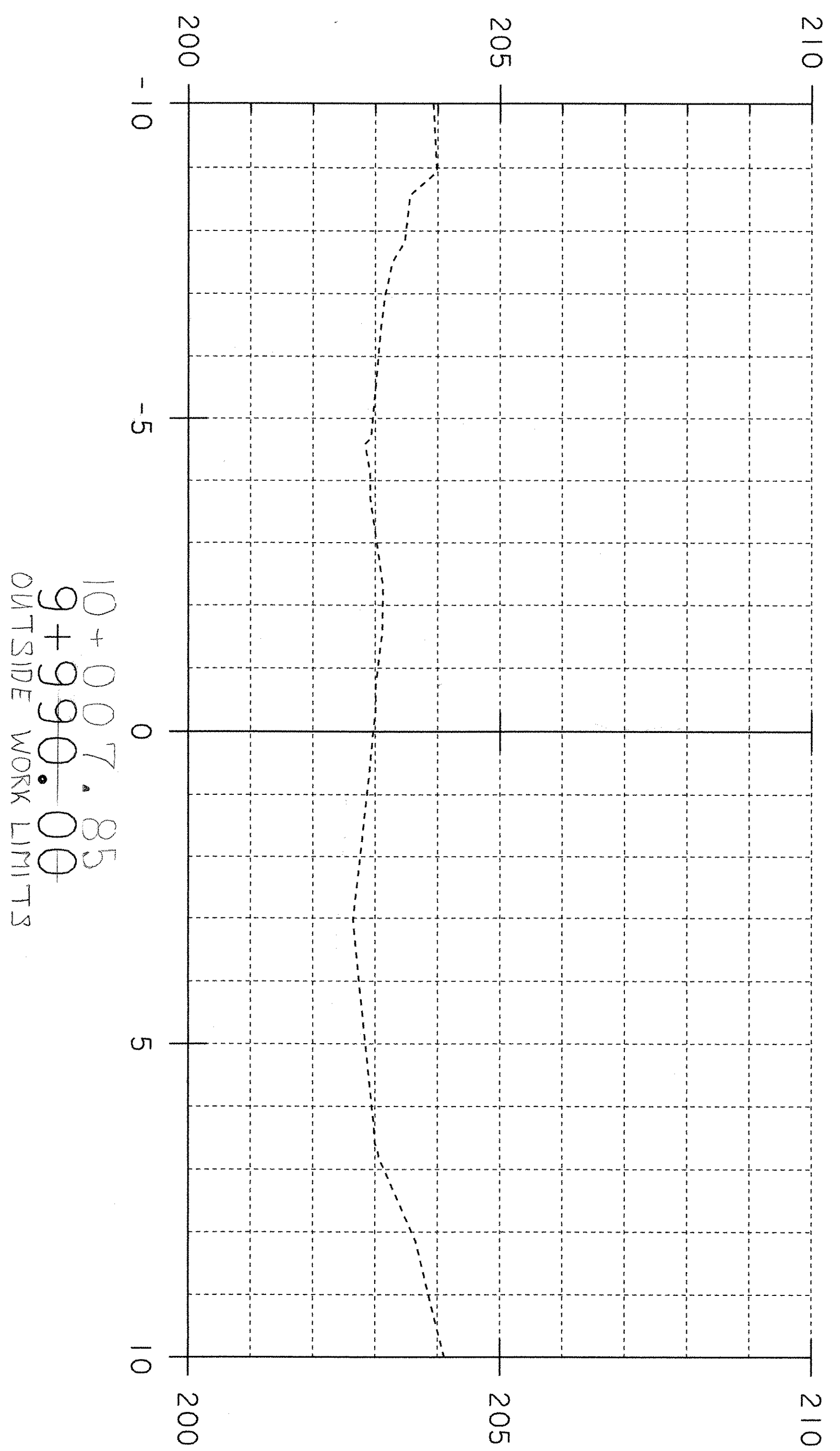
PROJECT NAME:	Clarendon	PLOT DATE:	05-APR-2006
PROJECT NUMBER:	BRO 1443(34)	DRAWN BY:	R. Bullock
FILE NAME:	95J286\survey\work.dgn	CHECKED BY:	
PROJECT LEADER:		DESIGNED BY:	
		SHEET	4 OF 8



10+004.00  
9+994.00



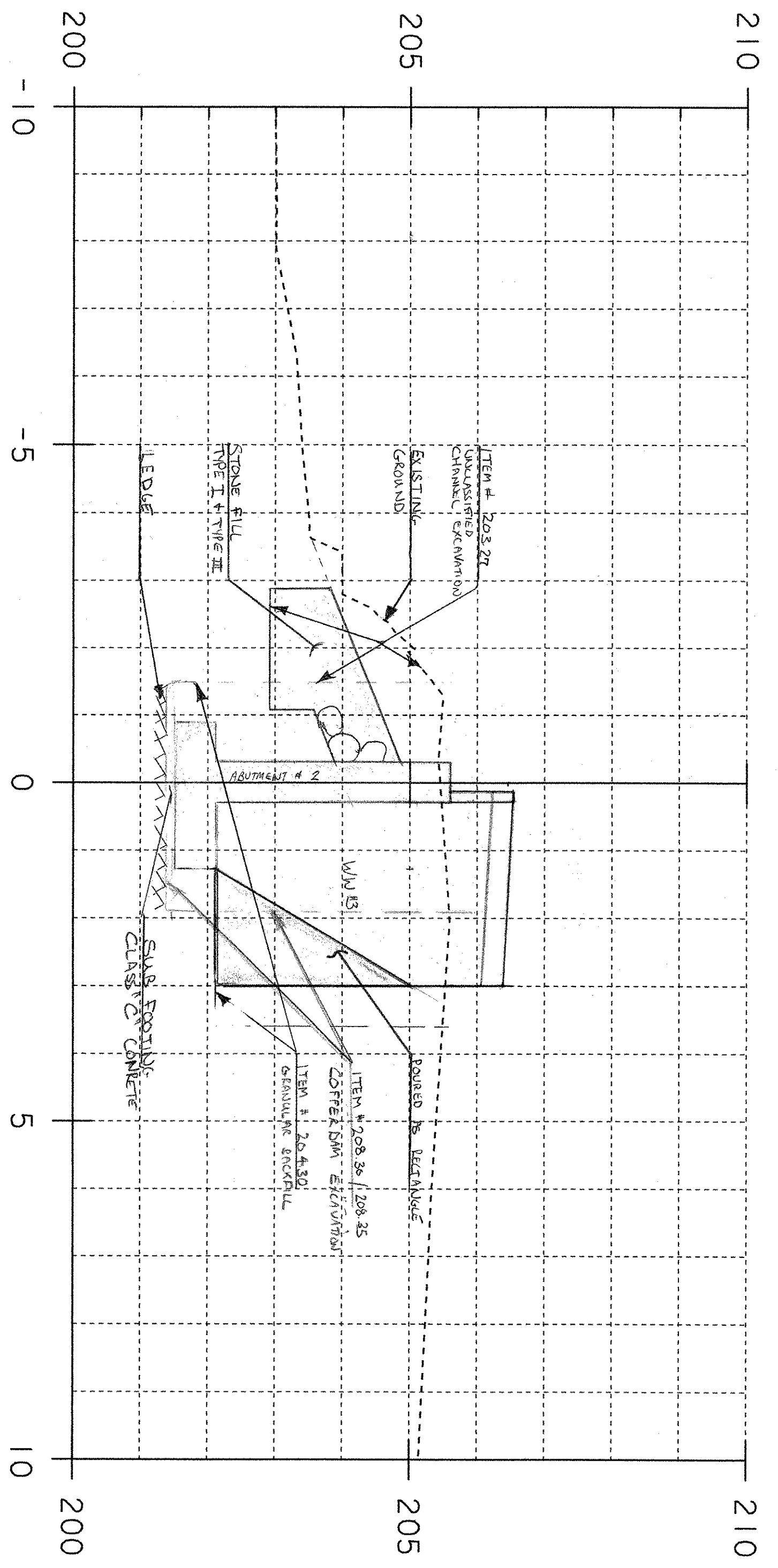
10+006.00  
9+992.00



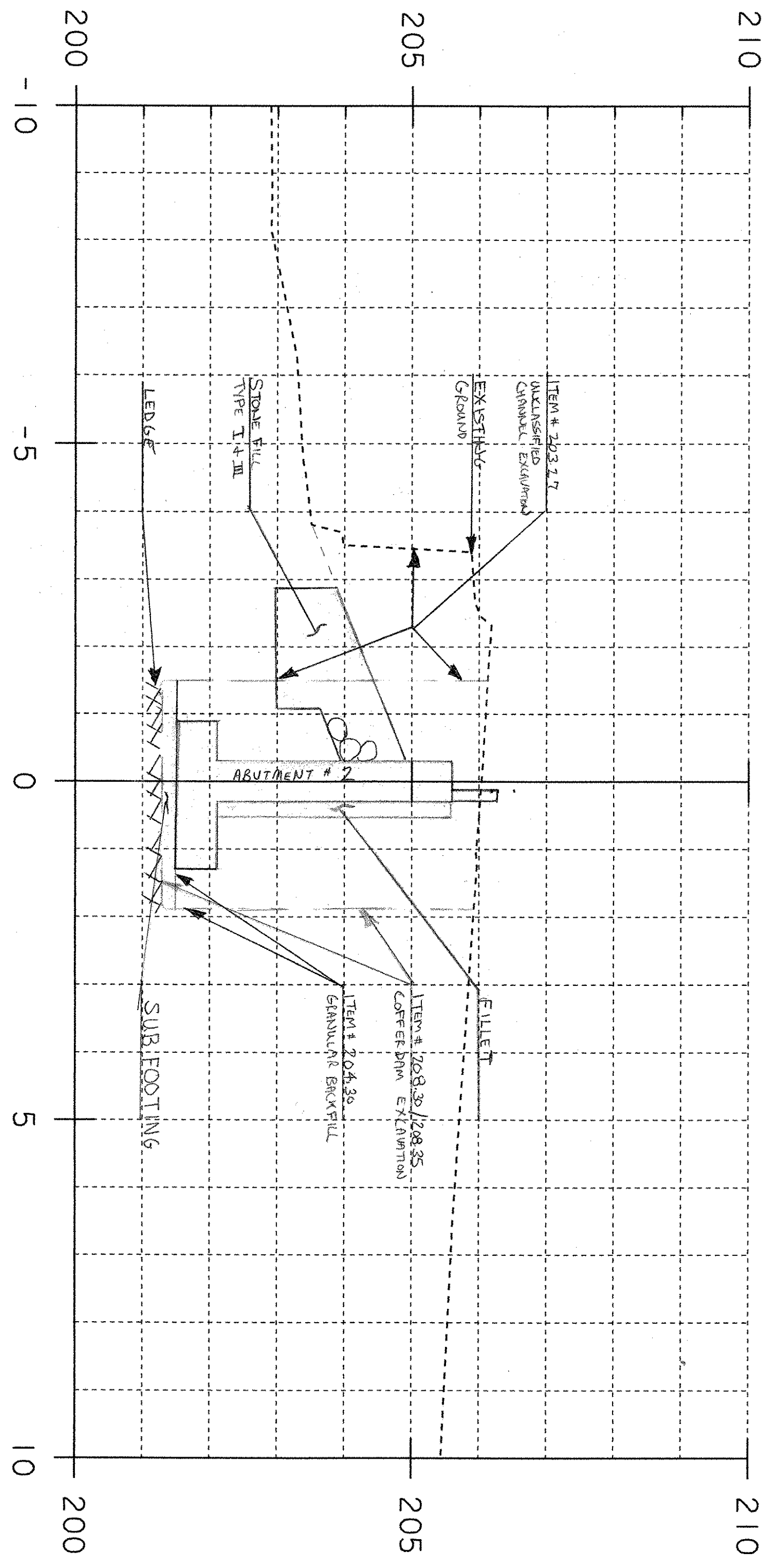
10+007.85  
9+990.00  
OUTSIDE WORK LIMITS

PROJECT NAME:	Clarendon	FILE NAME:	95J286\survey\work.dgn	PLOT DATE:	05-APR-2006
PROJECT NUMBER:	BRO 1443(34)	PROJECT LEADER:		DRAWN BY:	R. Bullock
		DESIGNED BY:		CHECKED BY:	
				SHEET	5 OF 8

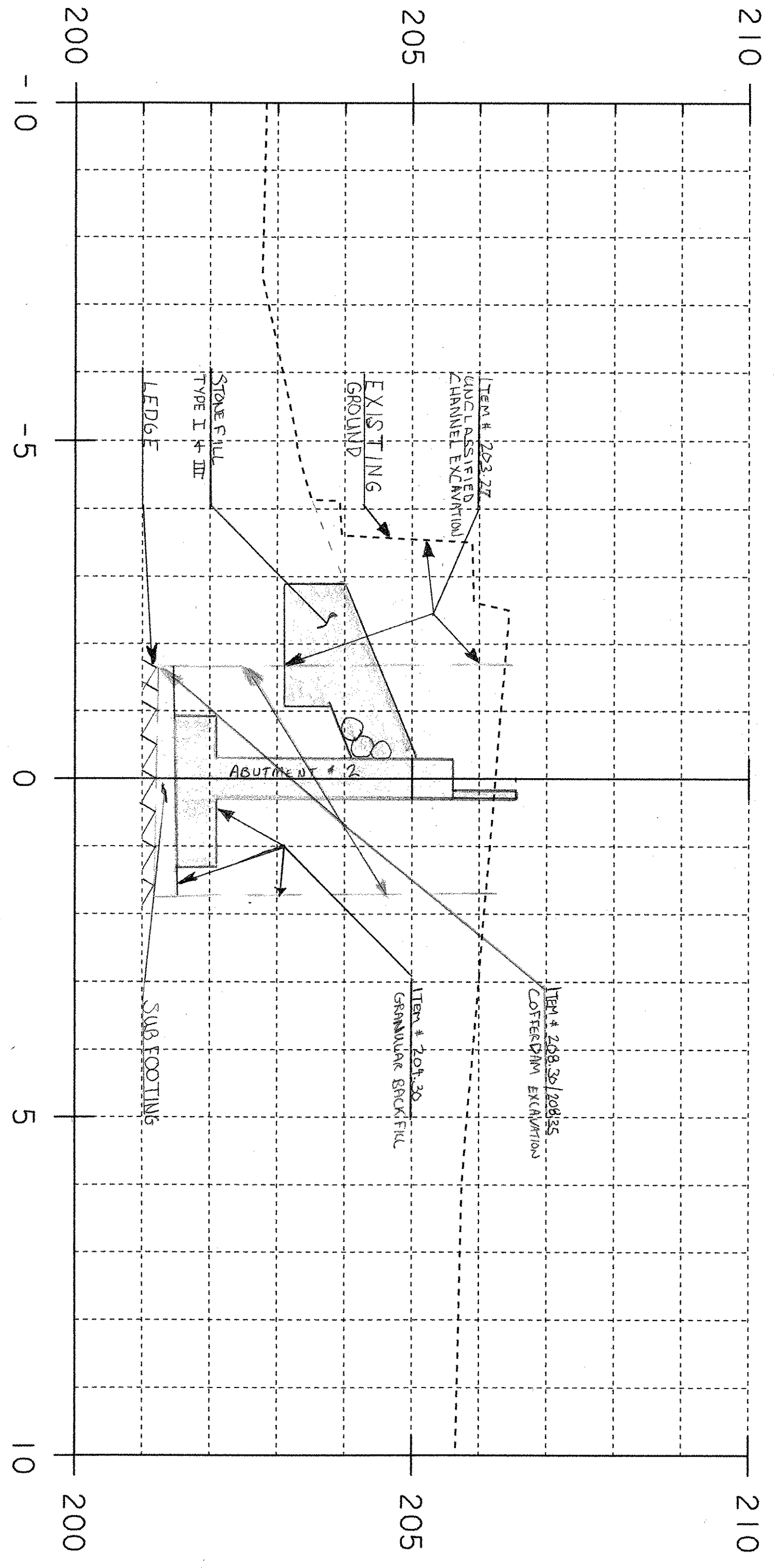




10+002.80

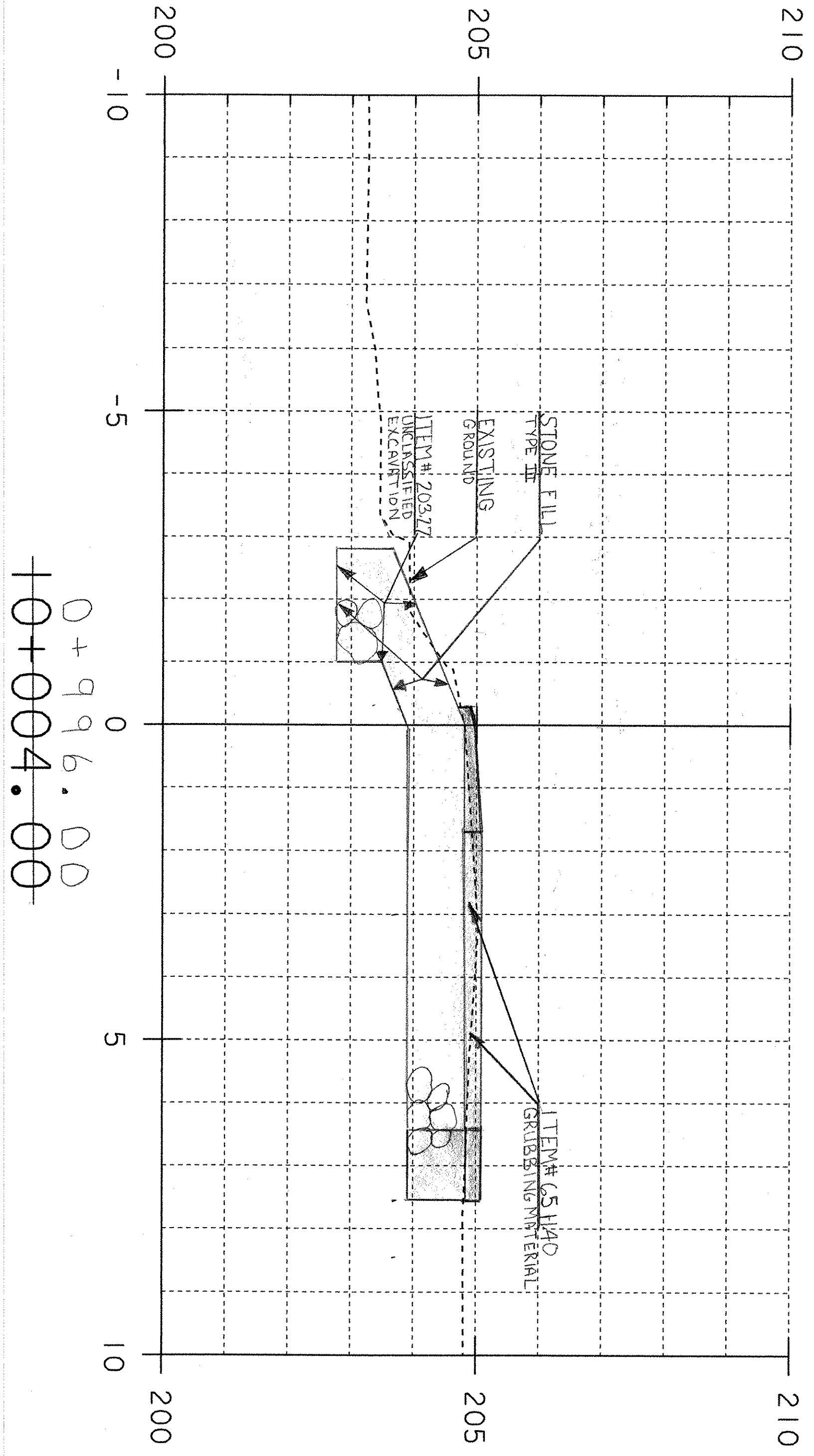
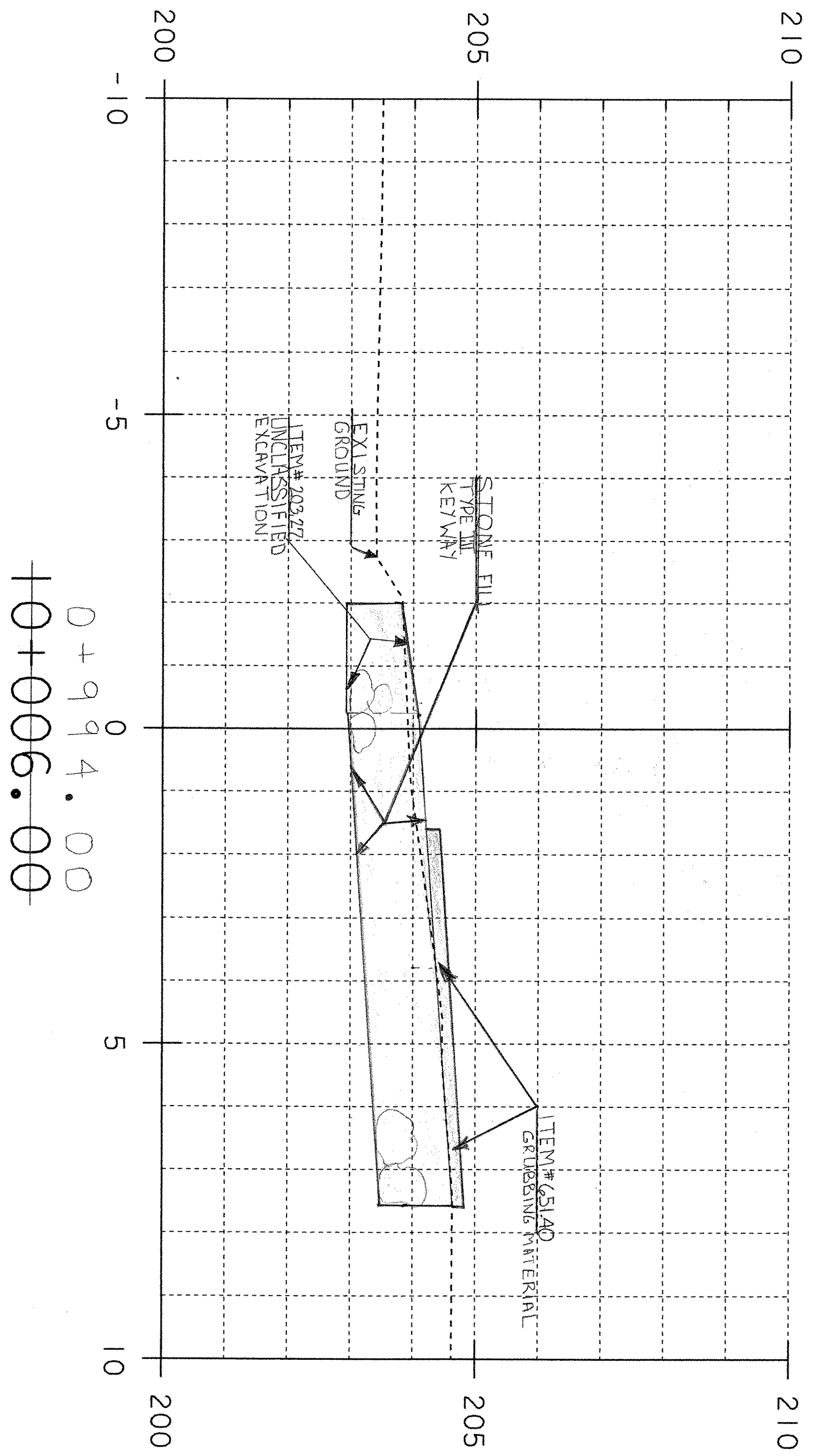
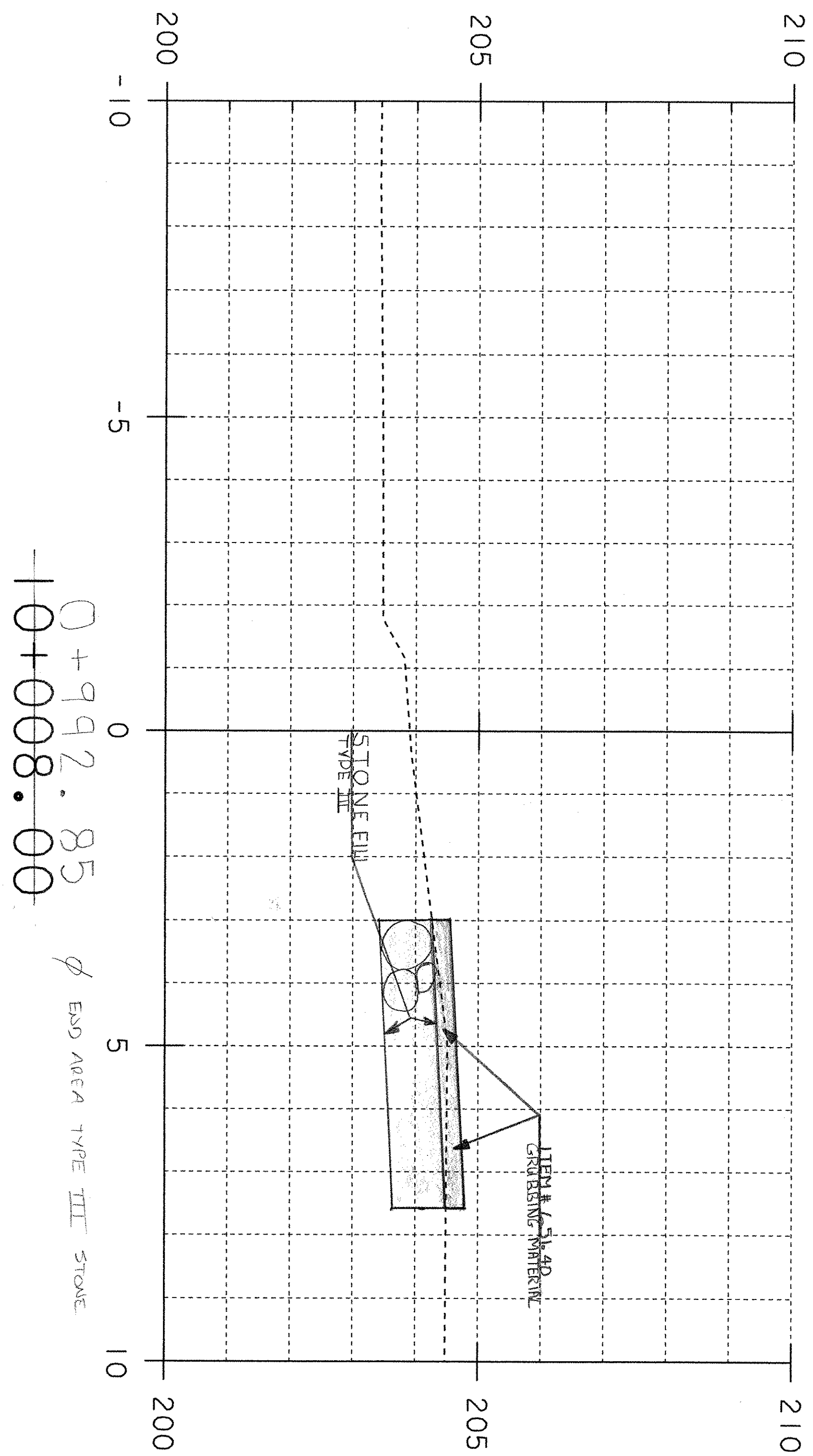


10+002.00




10+000.00

PROJECT NAME:	Clarendon	FILE NAME:	95J286\survey\work.dgn	PLOT DATE:	05-APR-2006
PROJECT NUMBER:	BRO 1443(34)	PROJECT LEADER:		DRAWN BY:	R. Bullock
DESIGNED BY:		CHECKED BY:		SHEET 7	OF 8

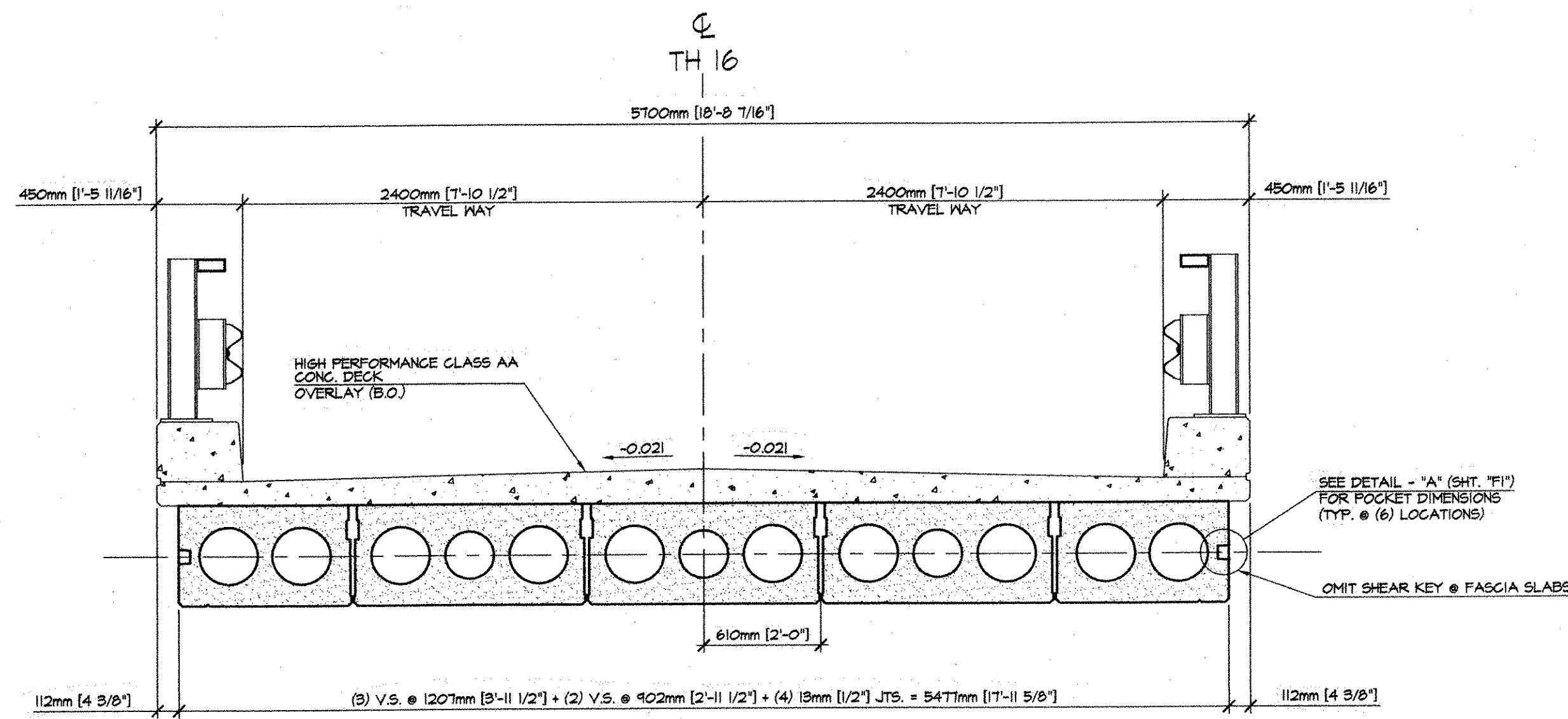


PROJECT NAME: Clarendon  
PROJECT NUMBER: BRO 1443(34)

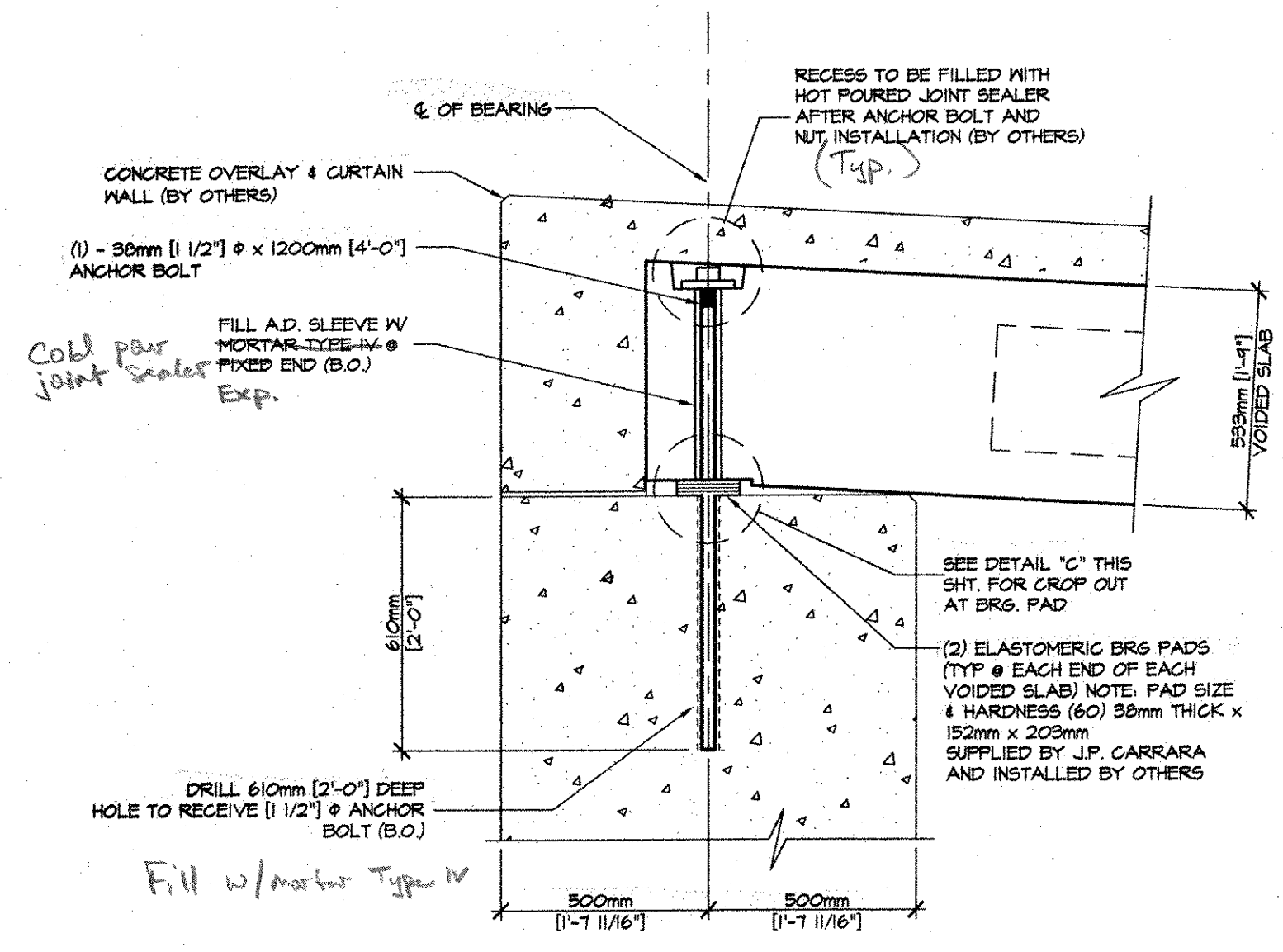
FILE NAME: 95j286\survey\work.dgn  
PROJECT LEADER:   
DESIGNED BY:

PLOT DATE: 05-APR-2006  
DRAWN BY: R. Bullock  
CHECKED BY:  
SHEET 051 OF 8

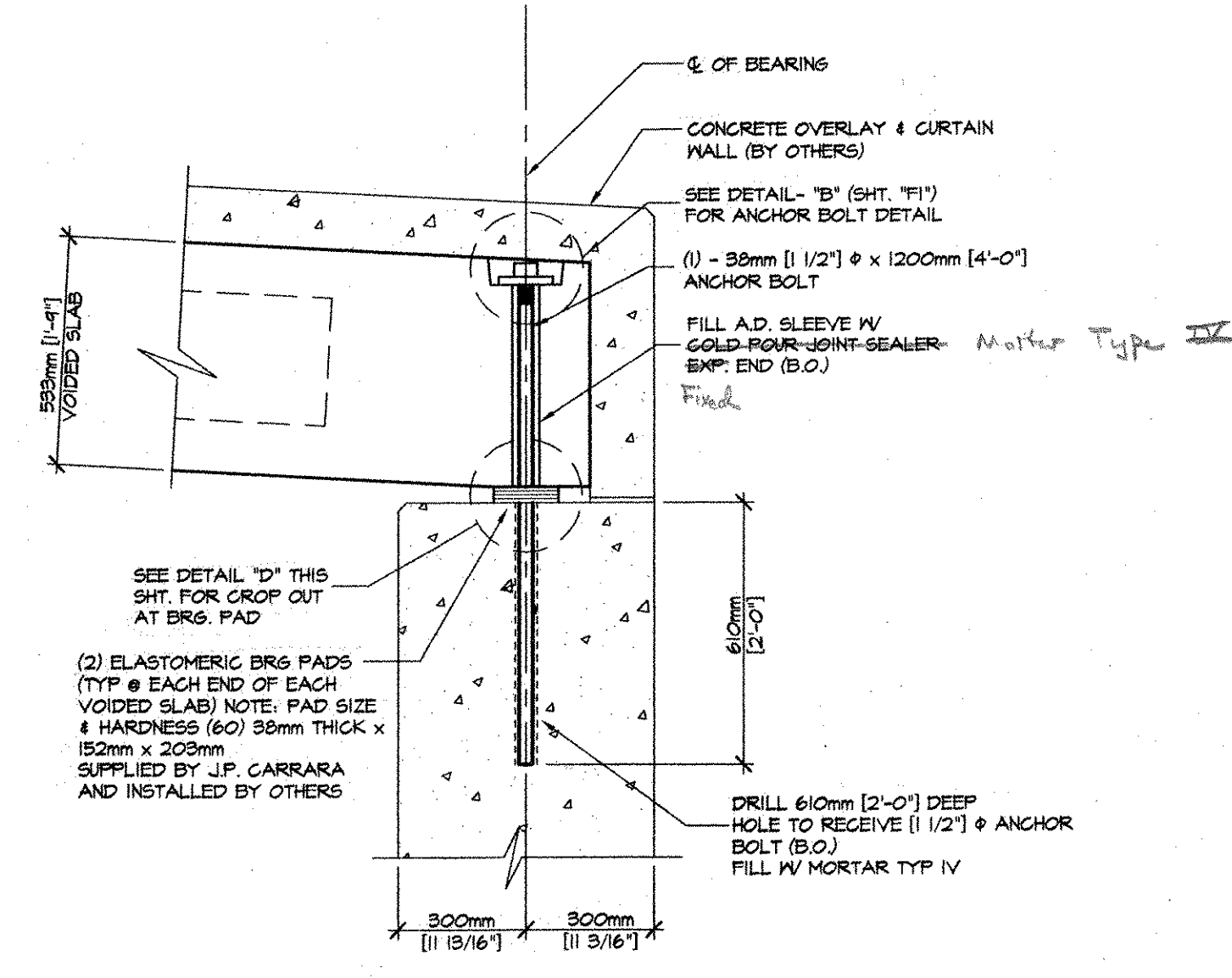




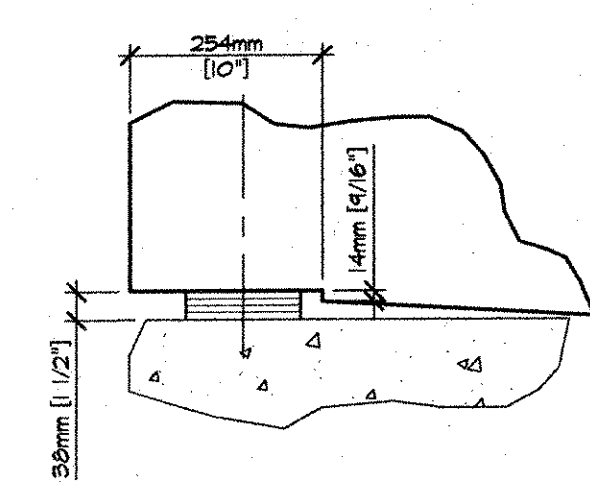
2 TRANSVERSE SECTION  
F2 1:25



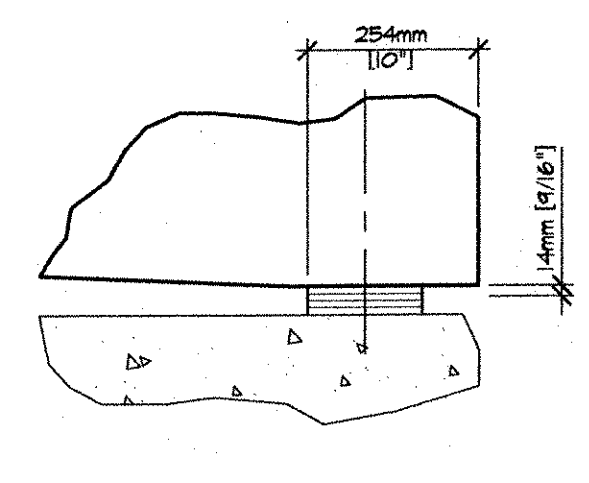
A SECTION @ BEARING  
F2 FIXED END 1:15



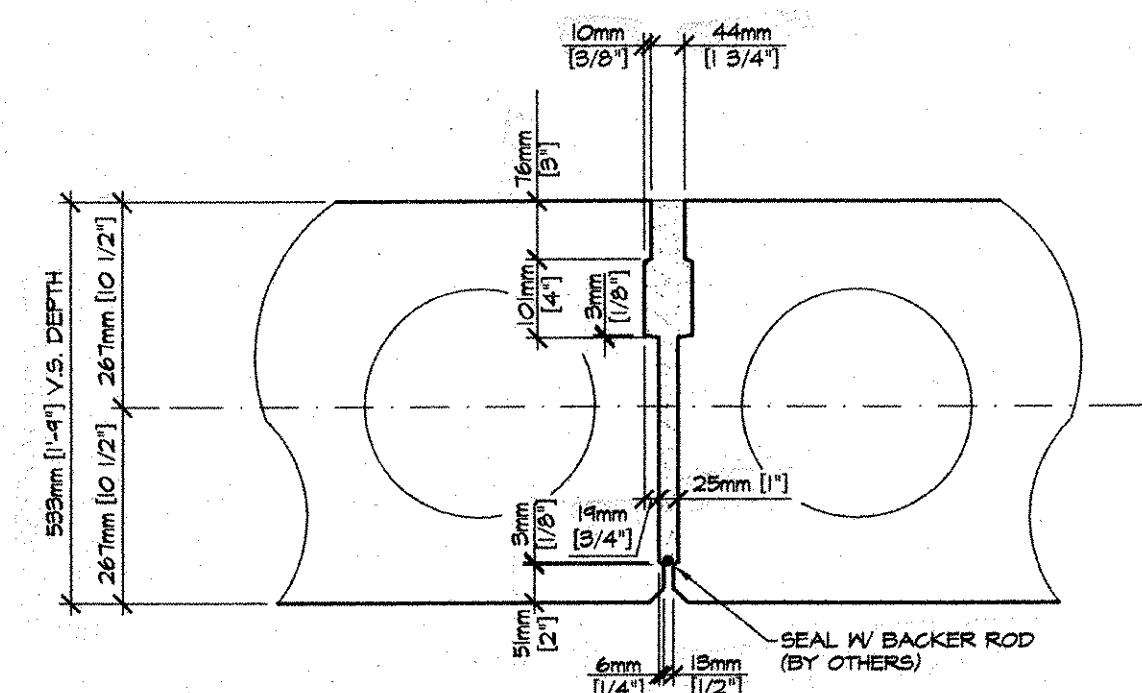
B SECTION @ BEARING  
F2 EXP. END 1:15



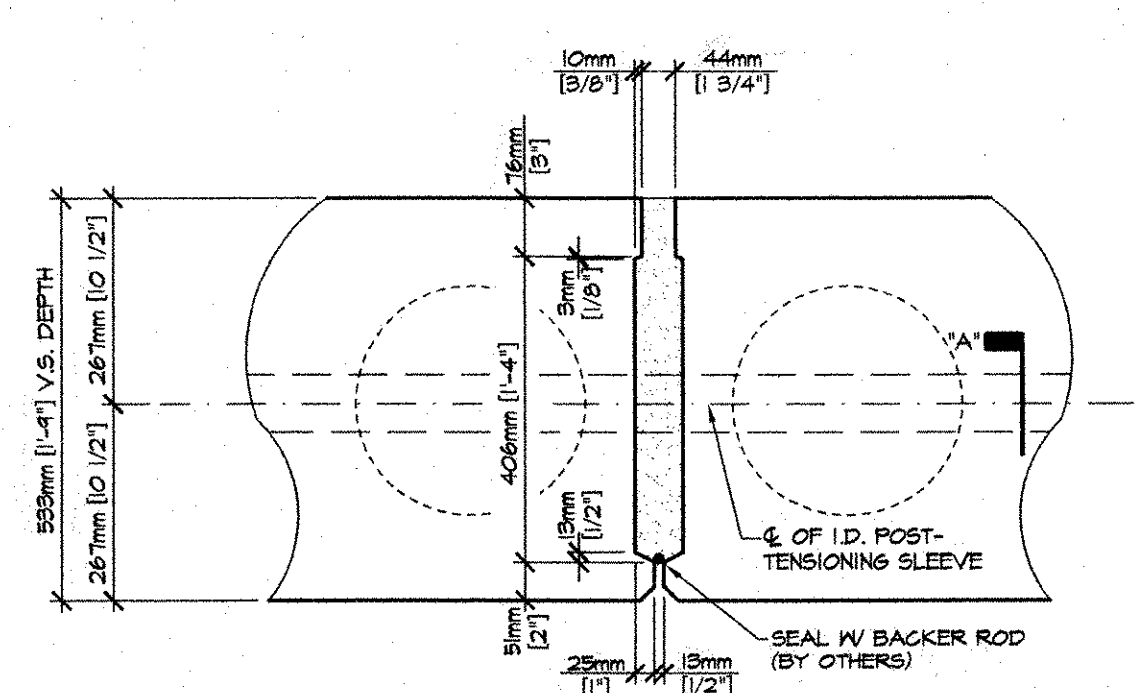
DETAIL - "C" 1:10



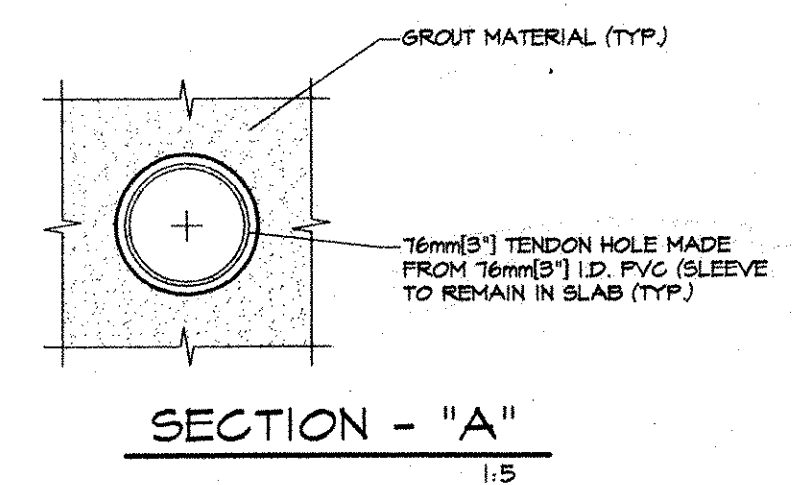
DETAIL - "D" 1:10



C TYP. SHEAR KEY SECTION  
F2 1:10



D SHEAR KEY SECTION @  
F2 P.T. SLEEVE 1:10



SECTION - "A" 1:5

APPROVAL STAMP:  
  
RECEIVED  
OK'D BY JMP OK'D BY CWC  
MAR 31 2006  
RESUBMIT APPROVED As noted  
BY CWC DATE 4.6.06

<b>J.P. CARRARA &amp; SONS INC.</b> Precast & Prestress Manufacturer 2464 ONE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010		<b>BELDEN COMPANY, INC.</b> CONTRACTOR RUTLAND, VERMONT	
STATE OF VERMONT A.O.T. COUNTY OF RUTLAND		DATE: MARCH 29, 2006 SCALE: NOTED	
TOWN OF CLARENDON - BRIDGE #24 TH 16 OVER CLARENDON RIVER		CHKD: - JOB NO: 23236-06	DFTM: D.S.S. DWG. NO: <b>F2</b> 053 pec

RECEIVED  
OK'D BY \_\_\_\_\_ OK'D BY \_\_\_\_\_  
MAR 31 2006  
RESUBMIT \_\_\_\_\_ APPROVED \_\_\_\_\_  
BY \_\_\_\_\_ DATE \_\_\_\_\_







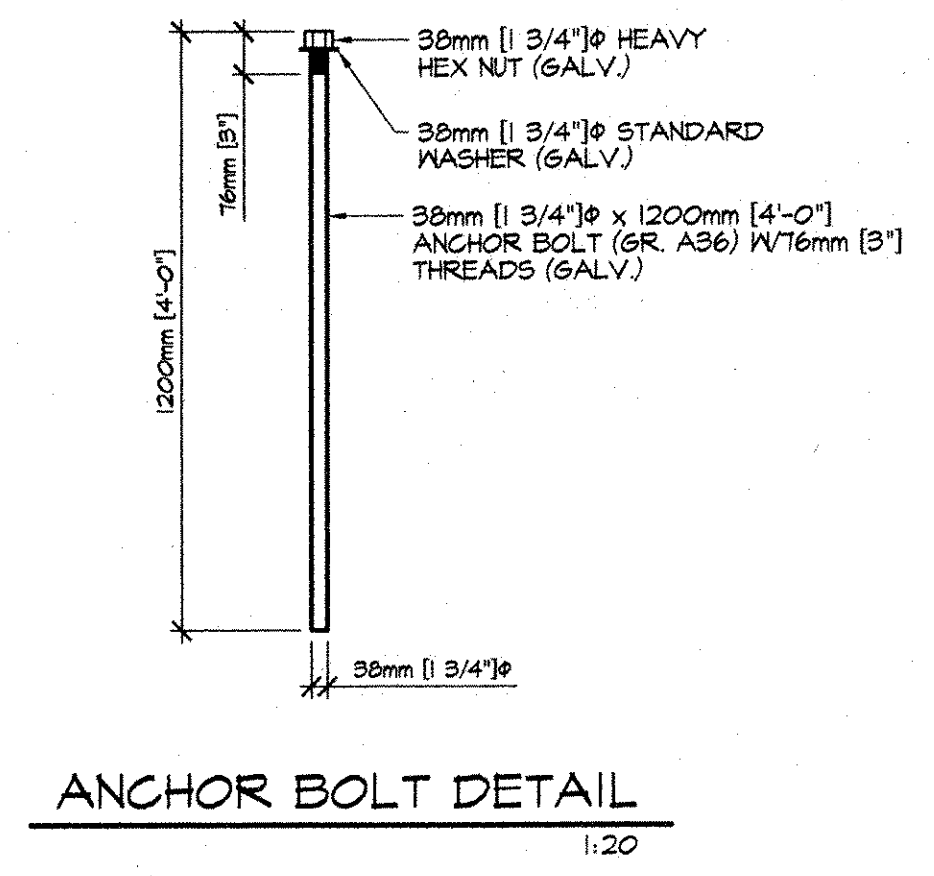
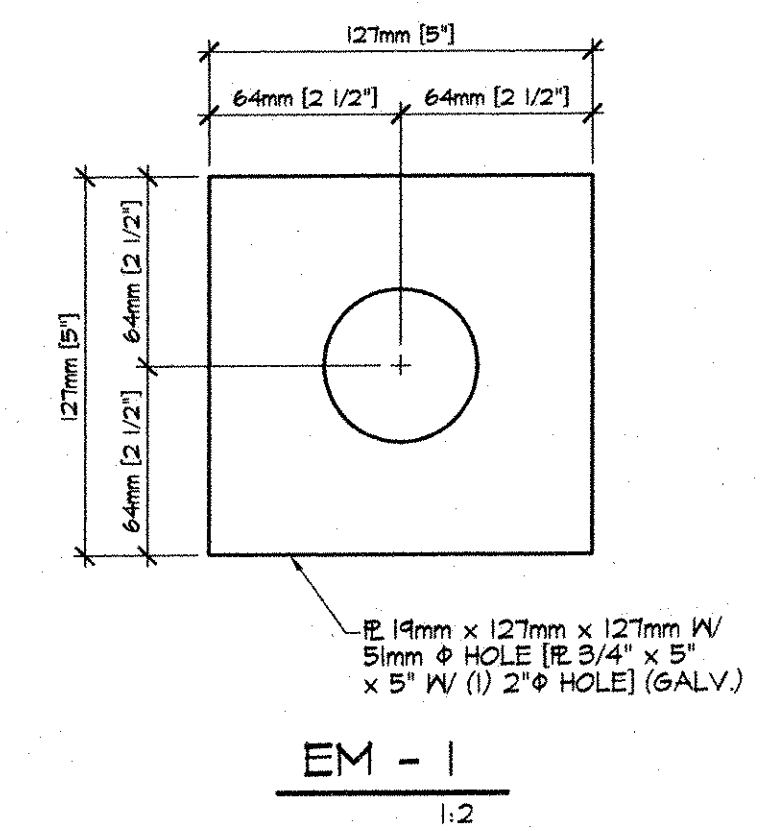
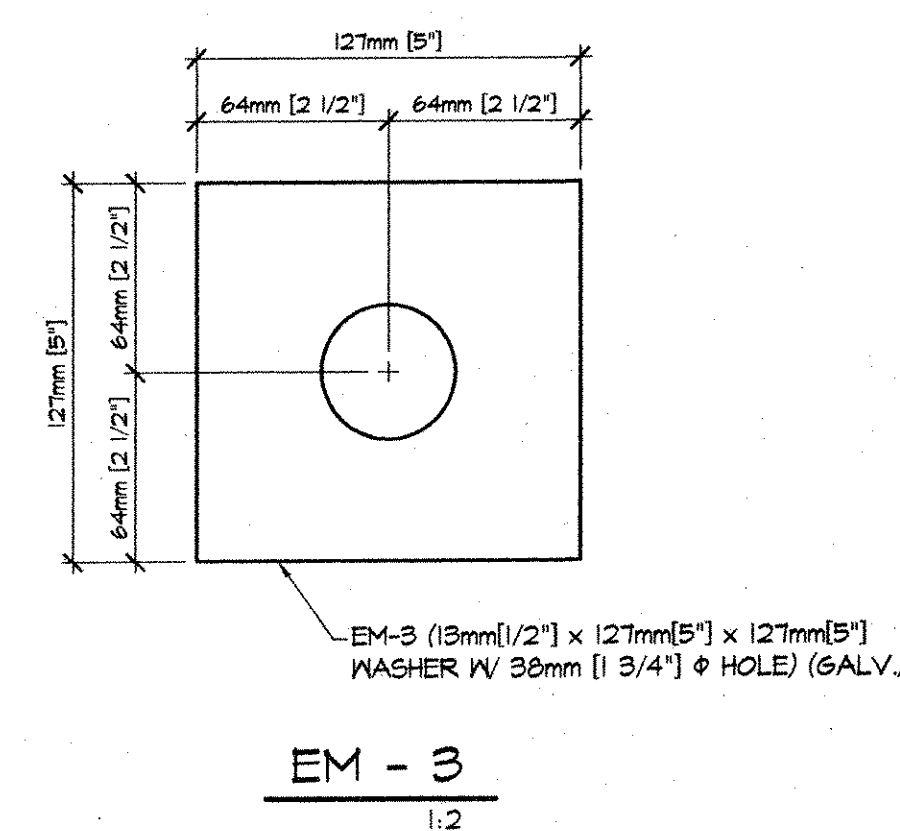
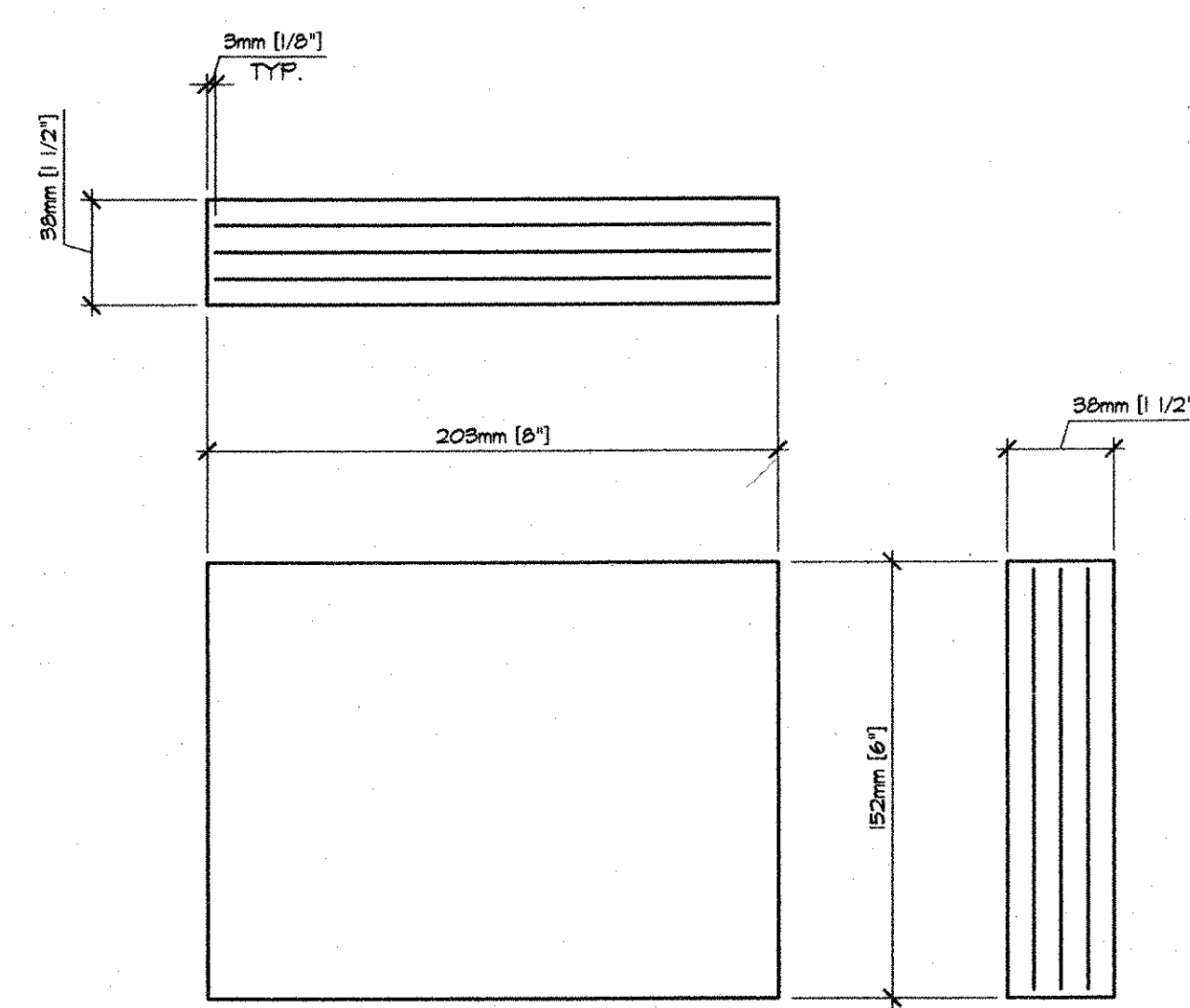
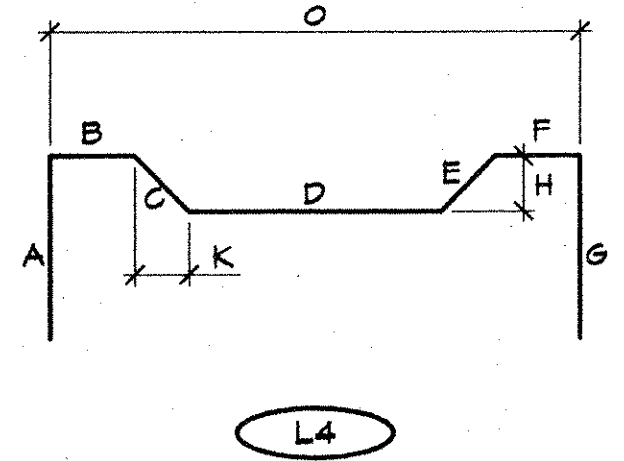
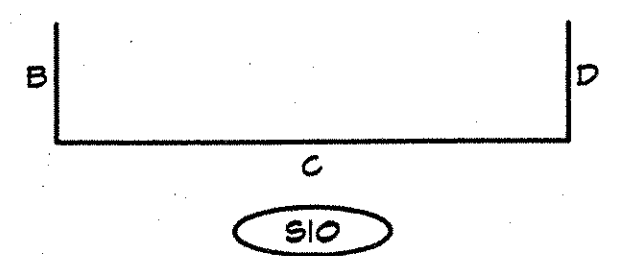
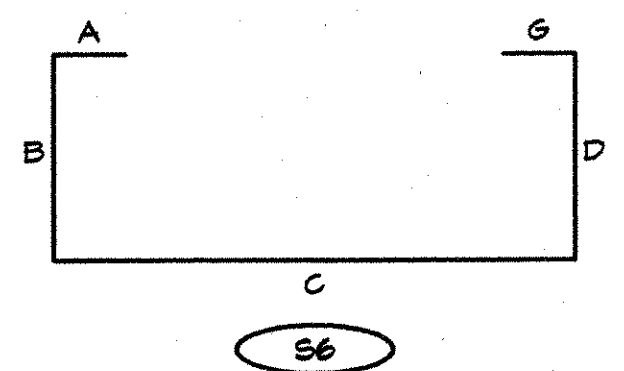
**BENT BARS, TIES, & STIRRUPS**

ITEM	MARK	QTY.	SIZE	LENGTH	TYPE	A	B	C	D	E	F/R	G	H	J	K	O	GRADE	REMARKS	
1	1B01E	222	#3 (#4)	210mm [7'-2 3/16"]	S6	152mm [6"]	440mm [1'-5 3/16"]	1105mm [3'-7 1/2"]	440mm [1'-5 3/16"]			152mm [6"]					420 [60]	EPOXY COATED	
2	1B02E	222	#3 (#4)	210mm [7'-2 3/16"]	S10		440mm [1'-5 3/16"]	1105mm [3'-7 1/2"]	440mm [1'-5 3/16"]								420 [60]	EPOXY COATED	
3	1B03E	222	#3 (#4)	210mm [7'-2 3/16"]	L4	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	1105mm [3'-7 1/2"]	420 [60]	EPOXY COATED
4	1B04E	148	#3 (#4)	180mm [6 3/8"]	S6	152mm [6"]	440mm [1'-5 3/16"]	800mm [2'-7 1/2"]	440mm [1'-5 3/16"]			152mm [6"]					420 [60]	EPOXY COATED	
5	1B05E	148	#3 (#4)	180mm [6 3/8"]	S10		440mm [1'-5 3/16"]	800mm [2'-7 1/2"]	440mm [1'-5 3/16"]								420 [60]	EPOXY COATED	
6	1B06E	14	#3 (#4)	180mm [6 3/8"]	L4	180mm [7 1/16"]	180mm [7 1/16"]	180mm [6 3/8"]	180mm [6 3/8"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	800mm [2'-7 1/2"]	420 [60]	EPOXY COATED
7	1B07E	14	#3 (#4)	180mm [6 3/8"]	L4	180mm [7 1/16"]	180mm [7 1/16"]	180mm [6 3/8"]	180mm [6 3/8"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	180mm [7 1/16"]	800mm [2'-7 1/2"]	420 [60]	EPOXY COATED
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			

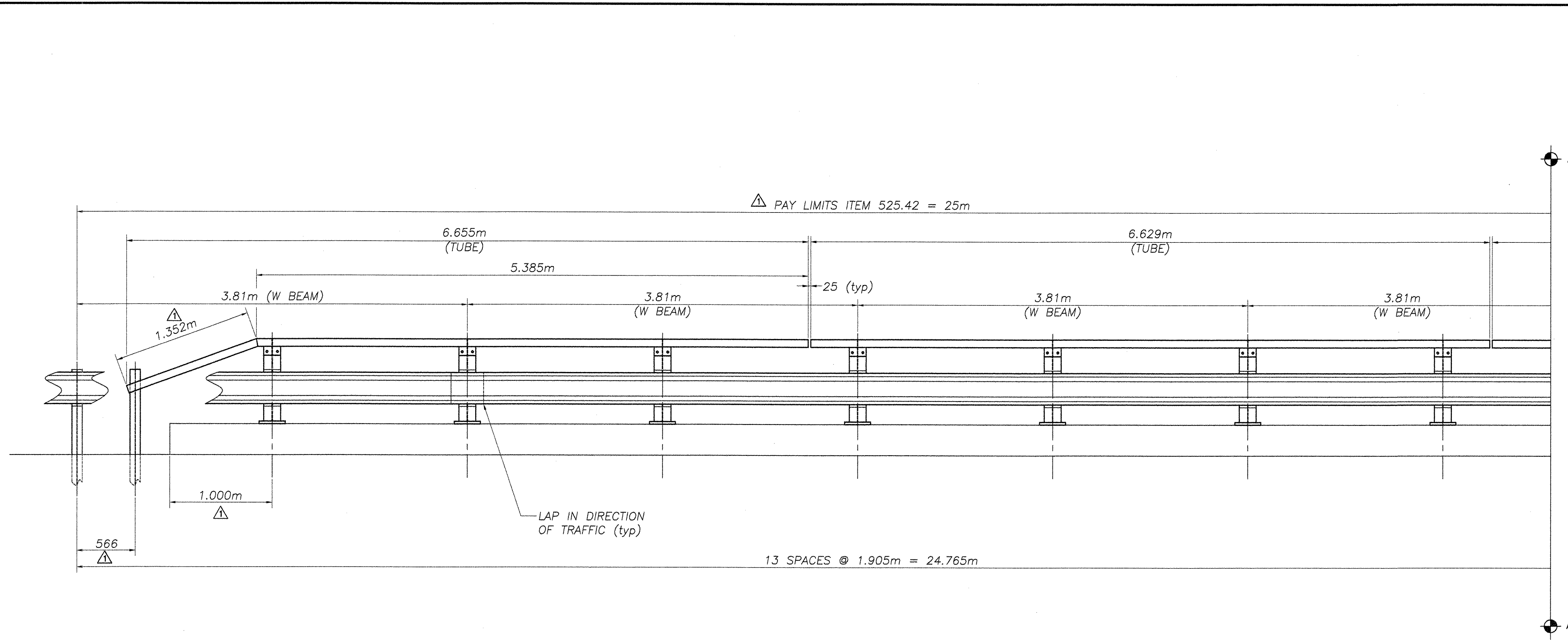
Verify lengths according to revised clearances

**MISCELLANEOUS MATERIALS**

ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1	MKFB	32	DAYTON C24 TYPE 4 - APR PRECAST HALF HANGER (GALV)	FOR ERECTION
2		20	305mm [12"] x 615mm [20'-2 3/8"] LONG VOID	
3		20	305mm [12"] x 2010mm [6'-7 1/8"] LONG VOID	
4		6	254mm [10"] x 615mm [20'-2 3/8"] LONG VOID	
5		6	254mm [10"] x 2010mm [6'-7 1/8"] LONG VOID	
6		80	19mm [3/4"] x 114mm [4 1/2"] NON-FERROUS VOID DRAINS	
7		24	19mm [3/4"] x 140mm [5 1/2"] NON-FERROUS VOID DRAINS	
8		20	DOUBLE 13mm [1/2"] STRAND LIFTING LOOPS	
9	EM-1	6	19mm [3/4"] x 127mm [5"] x 127mm [5"] (1) 51mm [2"] HOLE (GALV)	FOR ERECTION (SEE DETAIL THIS SHEET)
10		3	13mm [1/2"] x 6325mm [20'-4"] POLYSTRAND	
11		6	SINGLE USE STRESSING CHUCK & GREASE CAPS	
12	EM-3	10	19mm [3/4"] x 127mm [5"] x 127mm [5"] (1) 38mm [1 1/2"] HOLE (GALV)	FOR ERECTION (SEE DETAIL THIS SHEET)
13		10	38mm [1 1/2"] x 1200mm [48"] ANCHOR BOLT W/ 16mm [5/8"] THREADED ON END (GALV)	FOR ERECTION (SEE DETAIL THIS SHEET)
14		10	38mm [1 1/2"] HEAVY HEX NUT (GALV)	FOR ERECTION (SEE DETAIL THIS SHEET)
15		10	38mm [1 1/2"] STANDARD WASHER (GALV)	FOR ERECTION (SEE DETAIL THIS SHEET)
16		20	152mm [6"] x 203mm [8"] x 38mm [1 1/2"] ELASTOMERIC BEARING PADS	(SEE DETAIL THIS SHEET)
17		10	MWF 102x102-MM26xMM26 [MWF 4x4-M4xM4] 445mm x 1105mm [1'-5 1/2" x 3'-7 1/2"]	
18		8	MWF 102x102-MM26xMM26 [MWF 4x4-M4xM4] 445mm x 808mm [1'-5 1/2" x 2'-7 1/2"]	
19				
20				
21				
22				



APPROVAL STAMP:  RECEIVED CKD BY: <i>JMP</i> CKD BY: <i>CWC</i>  MAR 3 1 2006 RESUBMIT APPROVED: <i>As noted</i> BY: <i>CWC</i> DATE: <i>4/6/06</i>	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone: (802)388-6361 Fax: (802)388-9010	BELDEN COMPANY, INC. CONTRACTOR RUTLAND, VERMONT
	STATE OF VERMONT A.O.T. COUNTY OF RUTLAND	DATE: MARCH 29, 2006 SCALE: NOTED
	TOWN OF CLARENDON - BRIDGE #24 TH 16 OVER CLARENDON RIVER	CHKD: - DFTM: D.S.S. JOB NO: 23236-06
MATERIALS LIST		DWG. NO: <i>M1</i> <i>057 PCL</i>



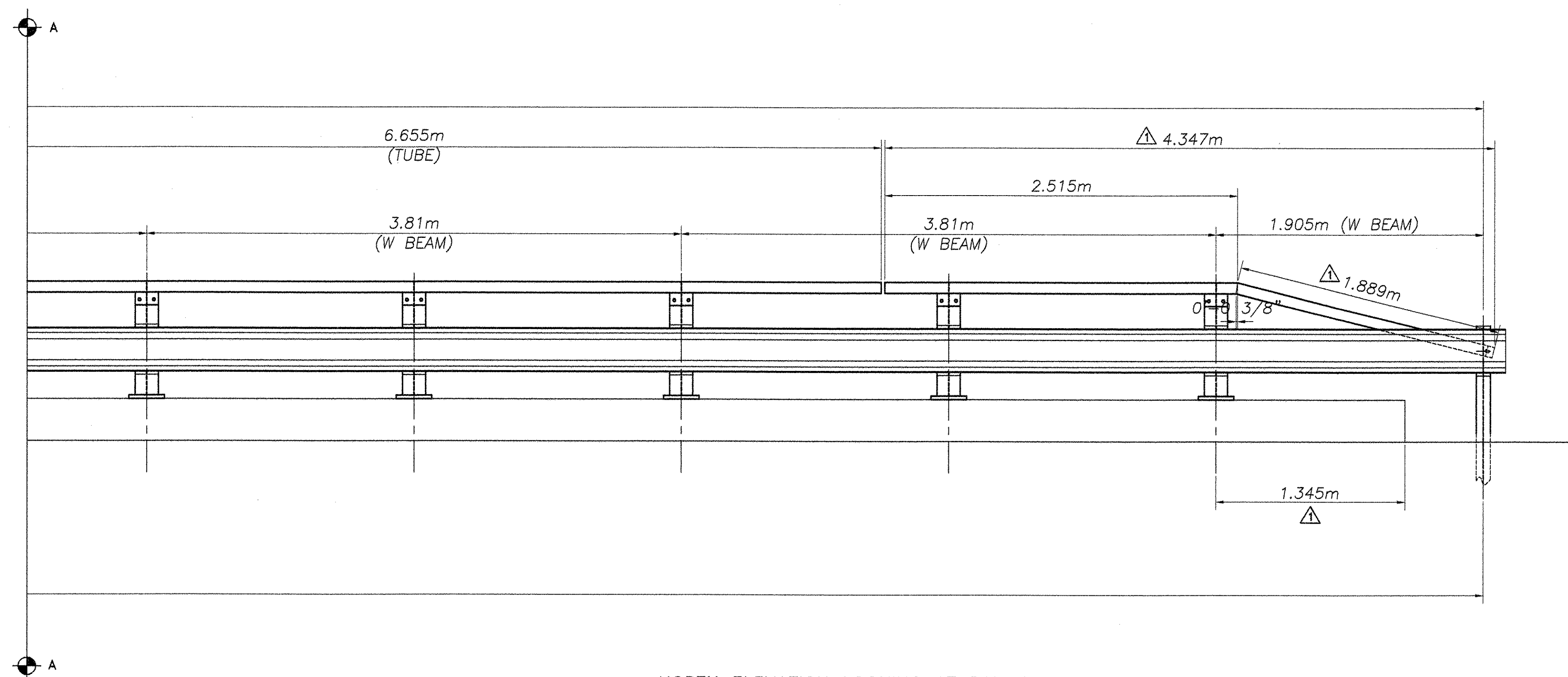
BILL OF MATERIAL ITEM 525.42				
Qty.	Description	Size/Shape	Length	Material
<b>WEATHERING STEEL COMPONENTS</b>				
CURB MOUNTED PEDESTAL POST 830 OAH				
24	w beam post upright	W150 x 30	805	AASHTO M222
24	baseplate welded to post upright	pl 25 x 210	255	AASHTO M222
24	steel blockout	W150 x 13.5	356	AASHTO M222
104	hex bolt w/ flat washer & hex nut	M16	38	A307
28	post bolt w/ flat washer rec washer & hex nut	M16	51	A307
4	hex bolt w/ rec washer flat washer & hex nut	M16	191	A307
24	hand rail attachment angle	L127 x 89 x 10	165	AASHTO M223
48	hex bolt w/ 2 flat washers & hex nut	M16	51	A307
6	driven post	W150 x 13.5	1.83m	AASHTO M222
112	splice bolt w/ DR nut	M16	32	M164 type III

GALVANIZED AND PAINTED STEEL COMPONENTS				
<b>HAND RAIL</b>				
2	hand rail tube w/ drop end	TS 152x76x6	6.655m	A500 gr B
2	hand rail tube	TS 152x76x6	6.629m	A500 gr B
2	hand rail tube	TS 152x76x6	6.655m	A500 gr B
2	hand rail tube w/ drop end	TS 152x76x6	4.347m	A500 gr B
24	hex bolt w/ (2) flat washer & heavy hex nut	M16	114	A307
12	splice bar	PL 20 x 127	787	AASHTO M223
24	hex bolt w/ flat washer & heavy hex nut	M20	114	A307

BILL OF MATERIAL ITEM 525.42 (items furnished by others)				
<b>PANEL (by others)</b>				
12	w beam	1.905m	3.81m	M180 b4
2	w beam	1.905m	1.905m	M180 b4
<b>ANCHORS (by others)</b>				
96	anchor stud w/ 2 hex nuts **BY OTHERS**	M20	300	A449

\*\*\* TS 152 x 76 x 6 HAND RAIL TO BE GALVANIZED AND PAINTED BROWN, COLOR 50059 IN ACCORDANCE WITH VAOT SUPPLEMENTAL SPECIFICATION 513.06(F).

**NOTE**  
Weathering steel hardware provided, subject to availability at time of delivery. Bolts may be alternatively provided galvanized with all surfaces, exposed to view after final installation, touched up with brown paint. Painting of exposed hardware surfaces shall be painted after installation in the field. Touch up paint matching the shop applied paint system will be furnished for minor field repair after installation and painting of hardware if necessary.



NORTH ELEVATION LOOKING AT RAIL FROM \_\_\_\_\_ OF ROAD  
SOUTH ELEVATION SIMILAR  
TOTAL PAY LIMITS = 50m

REVISIONS		
No.	Remarks	Date
0	Initial submittal	7/12/06
1	VT DOT Corrections	8/08/06

VTTRANS  
RECEIVED  
CHK'D BY G. Roy OK'D BY \_\_\_\_\_  
AUG 21 2006  
RESUBMIT \_\_\_\_\_ APPROVED \_\_\_\_\_  
BY \_\_\_\_\_ DATE \_\_\_\_\_  
— RECORD PLANS —

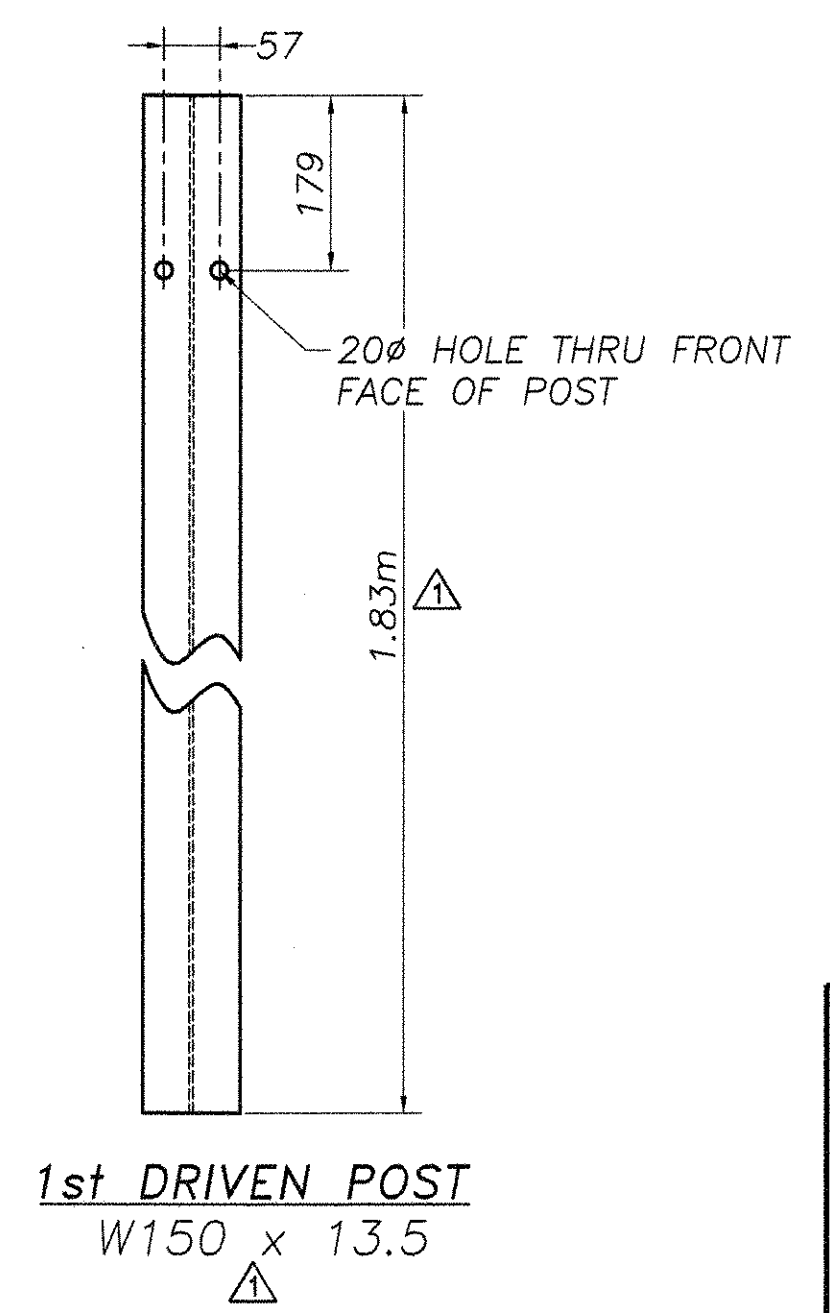
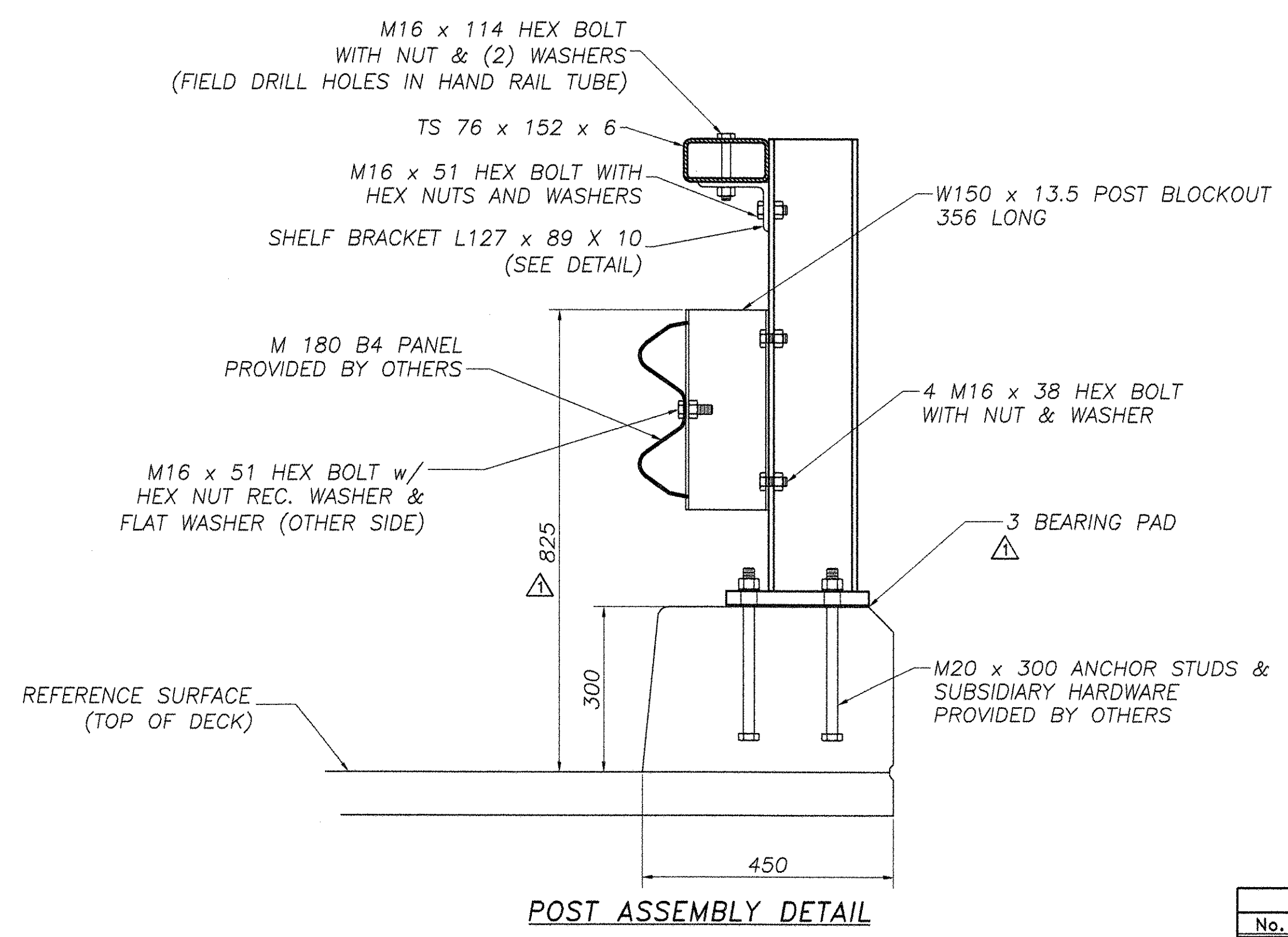
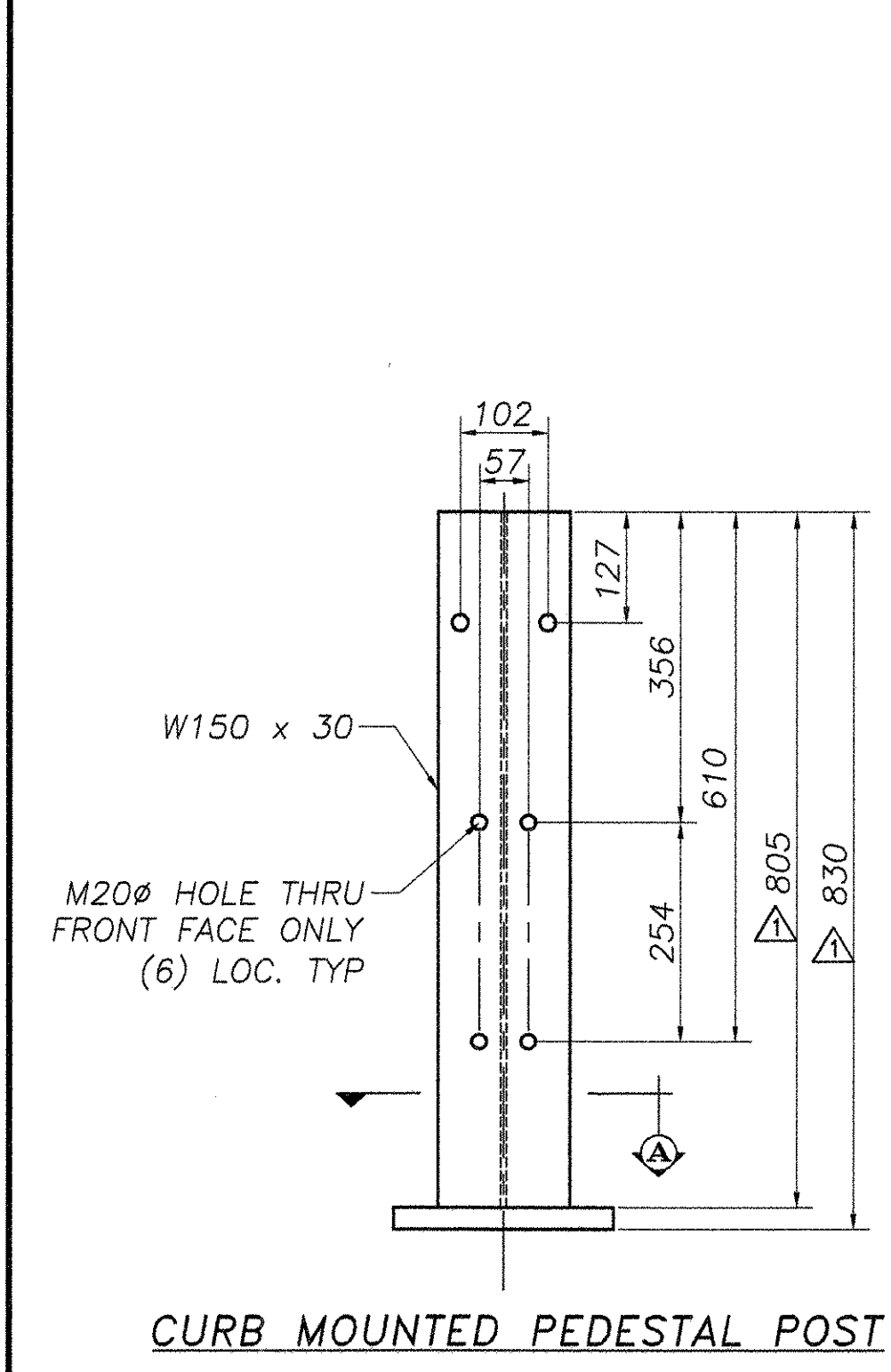
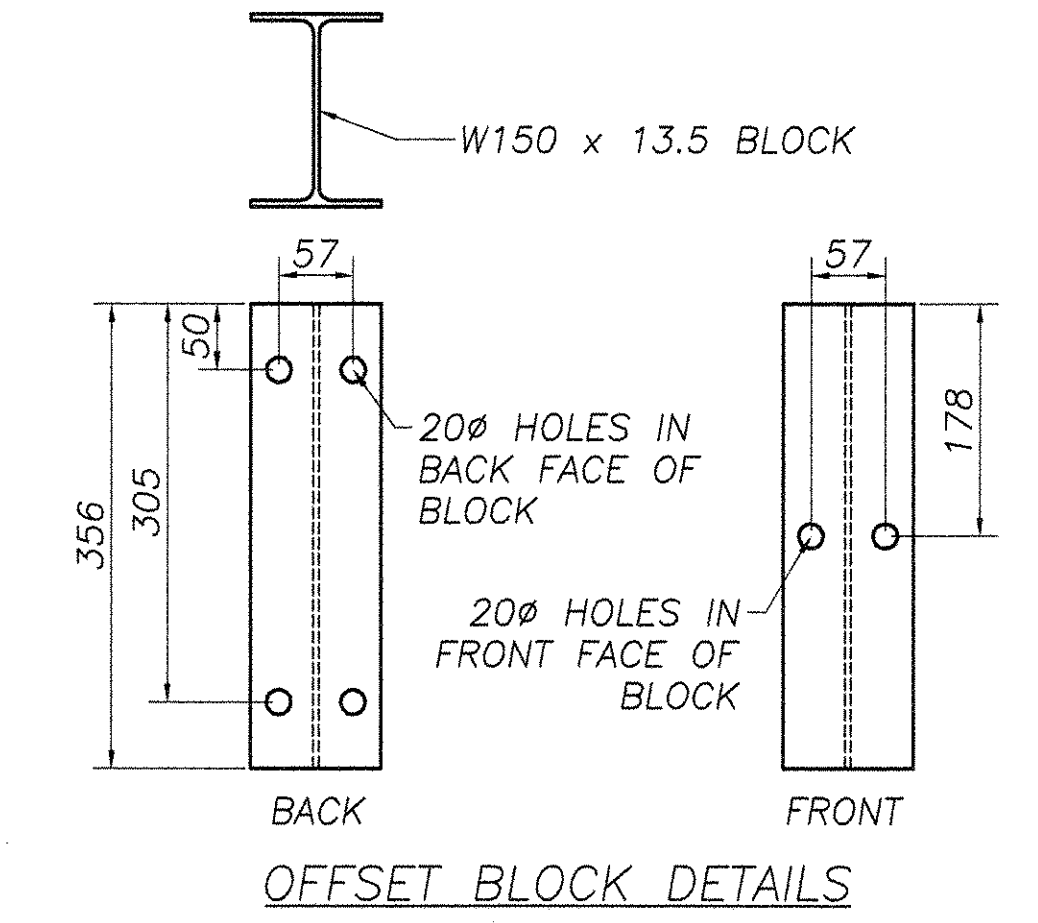
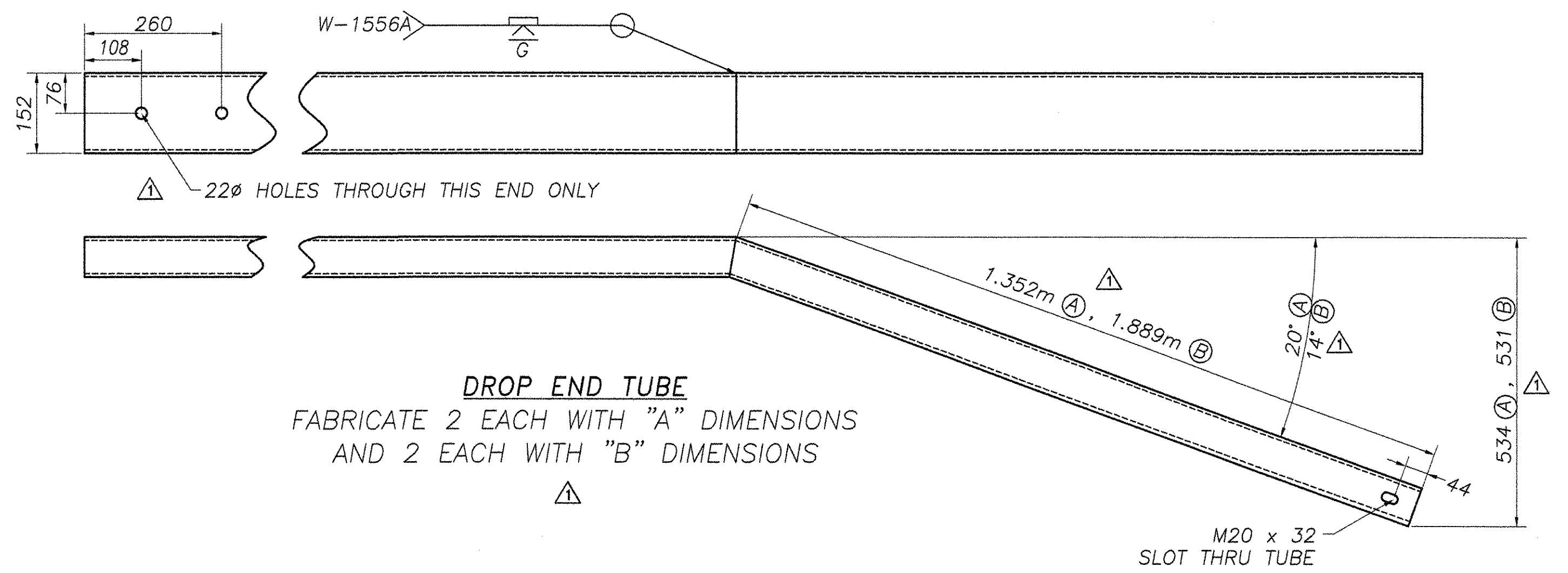
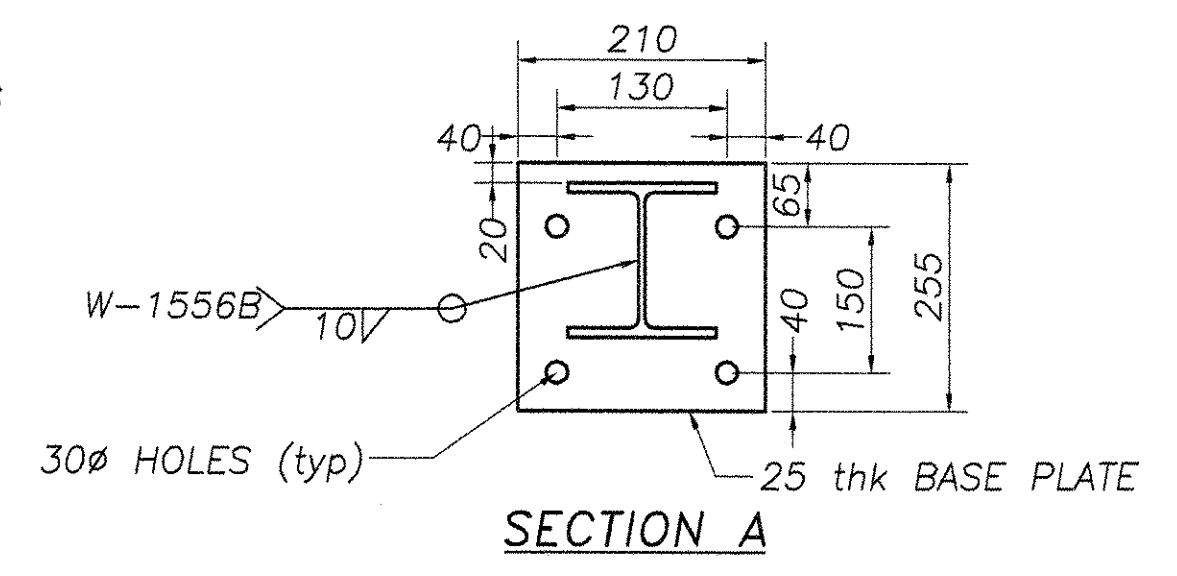
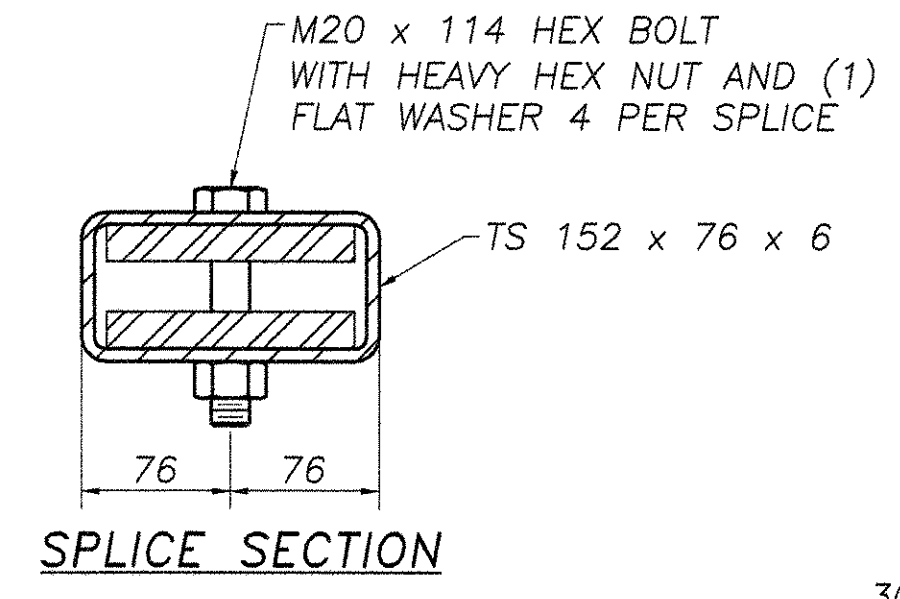
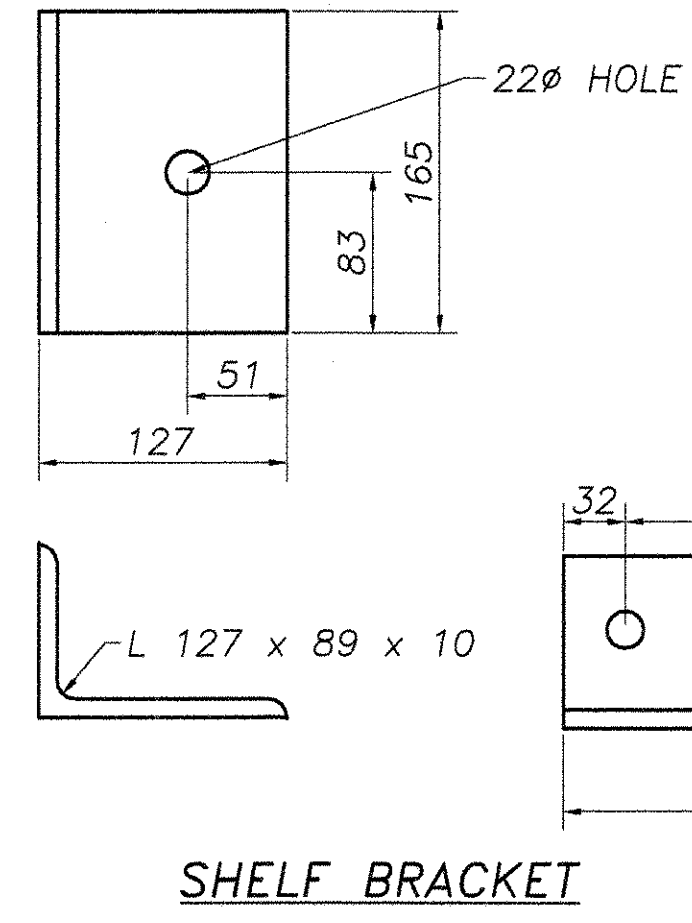
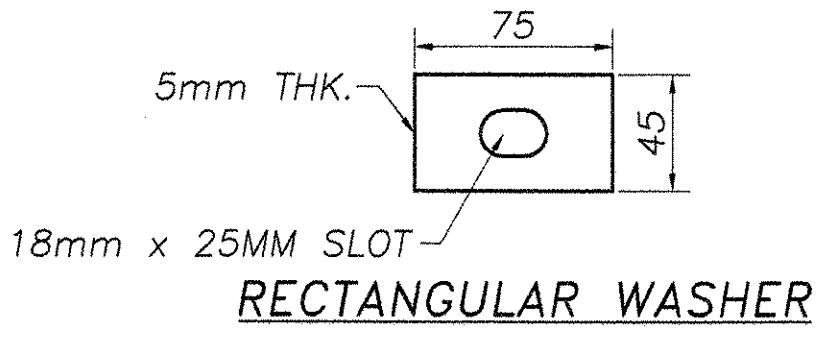
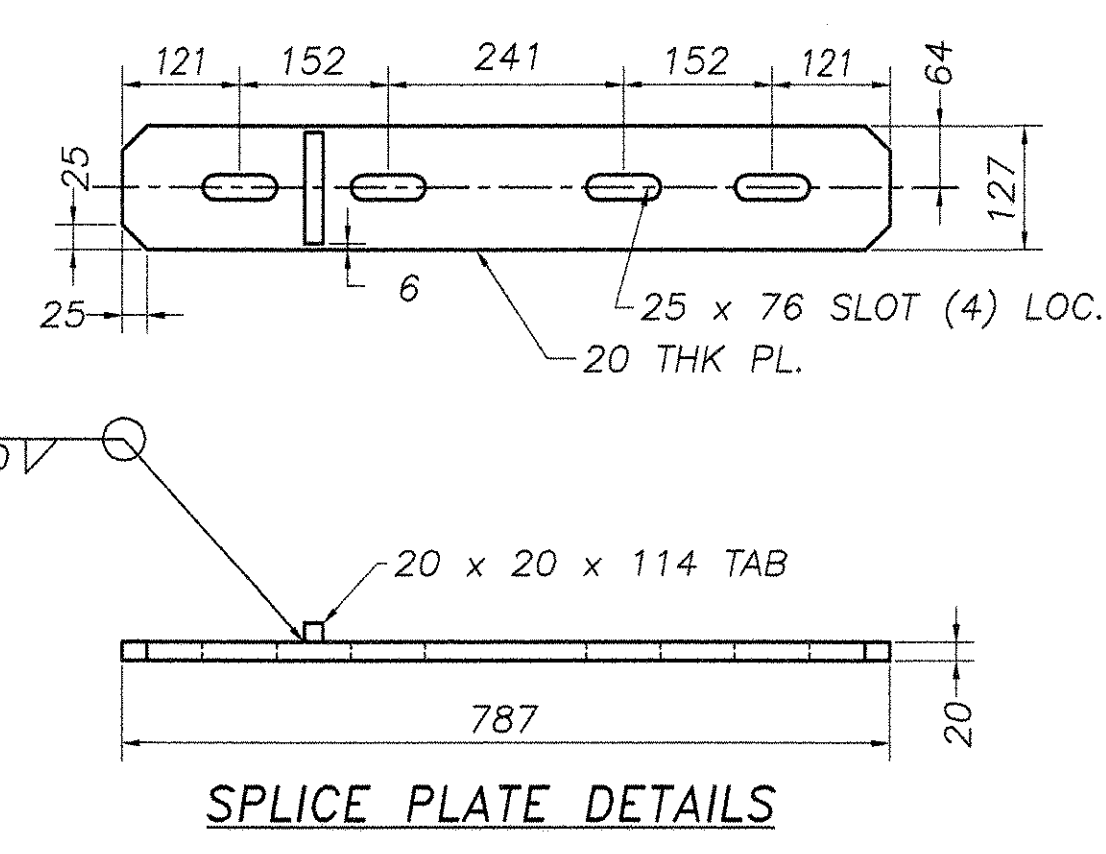
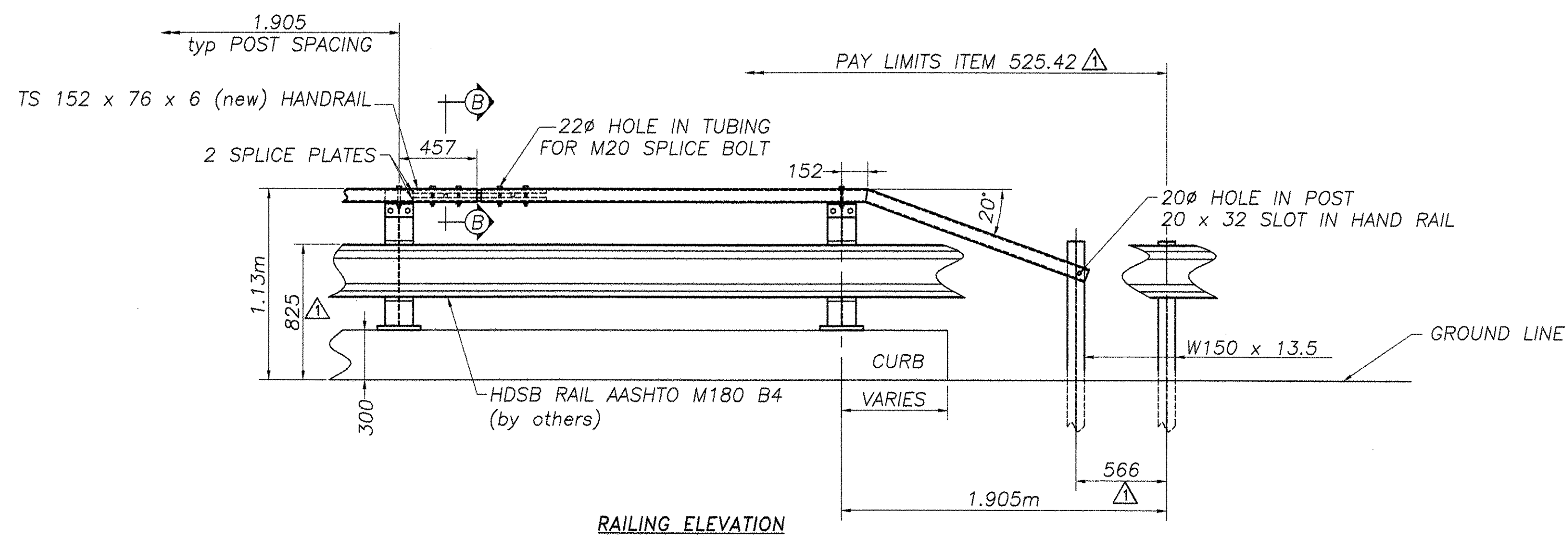
**HIGHWAY SAFETY CORP.**  
GLASTONBURY, CT

ITEM # 525.42 CURB MOUNTED HDSB w/ HAND RAILING  
TOWN OF CLARENDEN  
COUNTY OF RUTLAND  
ROUTE NO. TH 16, CLASS 3 BRIDGE NO. 24

DRAWN C CRAMER  
CHECKED \_\_\_\_\_  
DATE 7/10/06  
SCALE NTS  
HSC REFERENCE NO. 1556  
GENERAL CONTRACTOR \_\_\_\_\_  
SUB CONTRACTOR F.R. LAFAYETTE INC.  
SHEET NO. 1 of 2



#058 BR



VTTRANS RECEIVED  
 CK'D BY G. Roy, OK'D BY \_\_\_\_\_  
 AUG 21 2006  
 RESUBMIT \_\_\_\_\_ APPROVED \_\_\_\_\_  
 BY \_\_\_\_\_ DATE \_\_\_\_\_

RECORDED PLANS

REVISIONS		
No.	Remarks	Date
0	Initial submittal	7/12/06
1	VT DOT Corrections	8/08/06

**NOTES**

- SEE STANDARD G-1dM & SB-R6-82M FOR ADDITIONAL DETAILS OF STEEL BEAM GUARD RAIL AND STANDARD SB-R4a-82 FOR ADDITIONAL DETAILS OF BOX BEAM GUARD RAIL
- ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AND CONFORM TO SECTION 714.07 **\*\*BY OTHERS\*\***
- BRIDGE RAIL TYPES A, C & E: HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M180, CLASS B TYPE-II. POST AND BRACKETS, AS WELL AS PLATE AND SPECIAL WASHERS, SHALL BE AASHTO M223/M223M STEEL. BOLTS SHALL BE ASTM A307. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M111 OR M232 (HARDWARE). PRIOR TO GALV, GRIND ALL EDGES OF SHAPES AND PLATES TO MIN. 2mm RADIUS
- BRIDGE RAIL TYPE B & D: HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M180, CLASS B TYPE 4 **\*\*BY OTHERS\*\***. POSTS AND BRACKETS AS WELL AS PLATE AND SPECIAL WASHERS, SHALL BE AASHTO M222/M222M STEEL.
- ALL POSTS SHALL BE SET TO NORMAL GRADE
- BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY HEIGHT IN 7.62m
- APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM AS DETAILED ON THE CONTRACT PLANS.
- FOR THE TYPE A,B,C, OR D BRIDGE RAILING, THE TRANSITION POST SHALL HAVE AN OFFSET BLOCK AND BE LOCATED AS CLOSE AS PRACTICAL TO THE MID POINT BETWEEN THE BRIDGE END POST AND APPROACH RAIL POST I.
- SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW
- SEE STANDARD SHEET G-1M FOR DELINEATOR DETAILS AND PLACEMENT.
- ERECT DELINEATOR ON EVERY FIFTH POST OR APPROXIMATELY 9m APART. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.
- THE DROP WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING.



**HIGHWAY SAFETY CORP.**  
 GLASTONBURY, CT

ITEM # 525.42 CURB MOUNTED HDSB w/ HAND RAILING  
 TOWN OF CLARENDEN  
 COUNTY OF RUTLAND  
 ROUTE NO. TH 16, CLASS 3 BRIDGE NO. 24

GENERAL CONTRACTOR  
 SUB CONTRACTOR FR LAFAYETTE, INC

DRAWN C CRAMER  
 CHECKED \_\_\_\_\_  
 DATE 7/10/06  
 SCALE NTS  
 HSC REFERENCE NO. 1556  
 SIZE D REVISION  
 SHEET NO. 2 of 2

#059 BK