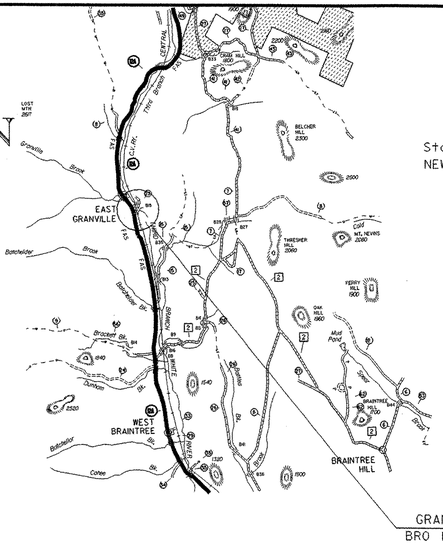
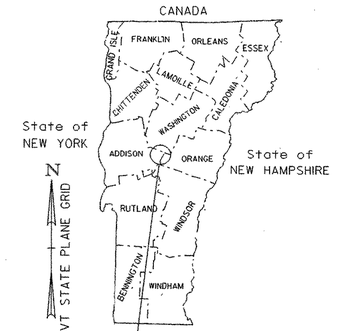
1. TITLE SHEET
2. INDEX OF SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION





PROPOSED IMPROVEMENT
BRIDGE PROJECT

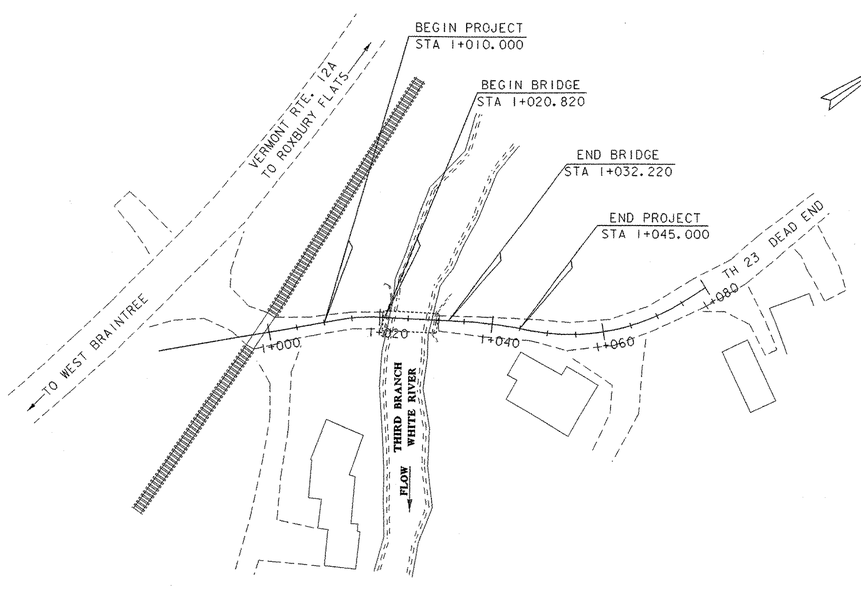
TOWN OF GRANVILLE
COUNTY OF ADDISON

ROUTE NO : TH 23, CL 3 BRIDGE NO : 15

PROJECT LOCATION : ON TH 23 APPROXIMATELY 0.02 Km EASTERLY OF THE INTERSECTION OF TH 23 AND VT ROUTE 12A, PROCEEDING NORTHEASTERLY APPROXIMATELY 35 m.

PROJECT DESCRIPTION : CONSTRUCTION OF A NEW STRUCTURE ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE :	11.400	METERS
LENGTH OF ROADWAY :	23.600	METERS
LENGTH OF PROJECT :	35.000	METERS



0 10 20 30
SCALE 1:500

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 : 1/96

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

RECORD PLANS

CONTRACTOR:	MILLER CONSTRUCTION INC. – WINDSOR, VT
RESIDENT ENGINEER:	IAN JENIKE
CONSTRUCTION BEGAN:	APRIL 18, 2007
CONSTRUCTION COMPLETE:	NOVEMBER 30, 2007
RECORD PLANS BY:	IAN JENIKE & C. PIERCE

I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE APRIL 14, 2009

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

VAOT 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.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 2-6-06

PROJECT MANAGER : C. P. WILLIAMS

PROJECT NAME : GRANVILLE
PROJECT NUMBER : BRO 1444(34)

SHEET 1 OF 39 SHEETS

IP_PWP: dms03760\sj100bdr.dgn sj100tit.i PLOTTED 03-FEB-2006

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

Metric

INDEX OF SHEETS

LIST OF STANDARDS

B-5M	1/3/2000
B-71	7/8/2005
E-100	1/2/2004
E-100A	1/2/2004
E-101	5/30/2003
E-102	6/30/2003
E-102A	5/1/2004
E-106	3/1/2004
E-107	6/30/2003
E-121	8/8/1995
E-138	5/30/2003
E-141	9/20/1995
E-143	6/15/2004
E-160	5/20/1999
E-164	5/20/1999
E-190	6/20/2003
G-1M	1/3/2000
G-1DM	1/3/2000
SB-R6-82M	7/10/1997

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: December 1999

DRAINAGE AREA : 60.4 sq. km
CHARACTER OF TERRAIN : Mountainous, mostly forested
STREAM CHARACTERISTICS : Perenial but flashy, incised, sinuous, and laterally unstable.
NATURE OF STREAMBED : Mostly cobbles, with some gravel and boulders.

PEAK FLOW DATA

Q 2.33 =	28.3 cms	Q 50 =	100.5 cms
Q 10 =	60.9 cms	Q 100 =	117.5 cms
Q 25 =	85.0 cms	Q 500 =	145.0 cms

DATE OF FLOOD RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q25 = 3.0 mps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span bridge with wood deck on steel beams
YEAR BUILT: 1919
CLEAR SPAN(NORMAL TO STREAM): 7.6 m
VERTICAL CLEARANCE ABOVE STREAMBED: 2.7 m
WATERWAY OF FULL OPENING: 19.0 sq. m
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	252.1 m	VELOCITY =	2.7 mps
Q10 =	253.5 m	"	2.8 mps
Q25 =	253.7 m	"	3.0 mps
Q50 =	253.7 m	"	3.1 mps
Q100 =	254.0 m	"	3.2 mps

LONG TERM STREAMBED CHANGES: Minor scour and some channel instability noted upstream. No changes noted at the bridge.

IS THE ROADWAY OVERTOPPED BELOW Q100: yes
FREQUENCY: Below Q10.
RELIEF ELEVATION: 253.4 m
DISCHARGE OVER ROAD @Q100: 57.5 cms

UPSTREAM STRUCTURE

TOWN: Granville DISTANCE: 100 m +-
HIGHWAY# : Railroad STRUCTURE #: Unknown
CLEAR SPAN: 21.3 m CLEAR HEIGHT: 3.4 m
YEAR BUILT: Unknown FULL WATERWAY: 71 sq. m +-
STRUCTURE TYPE: Single span side girder bridge

DOWNSTREAM STRUCTURE

TOWN: Braintree DISTANCE: 0.8 km
HIGHWAY# : T.H. 15 STRUCTURE #: 13
CLEAR SPAN: 9.8 m CLEAR HEIGHT: 2.6 m
YEAR BUILT: 1971 FULL WATERWAY: 23 sq. m +-
STRUCTURE TYPE: Single span bridge with timber deck on steel beams

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	29	42					
POSTED	40	60	79		46	49	78
OPERATING		71	94	89	55	58	

COMMENTS: $RF=\emptyset M_N - 1.3M_{DL} / A \times M_{LL+1}$

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2001	40	5	--	1	<5
2021	55	10	--	1	<5

20 year ESAL for flexible pavement from 2001 to 2021 : <50,000
20 year ESAL for flexible pavement from 2001 to 2041 : <50,000
Design Speed : 30 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete slab bridge

CLEAR SPAN(NORMAL TO STREAM): 10.0 m
VERTICAL CLEARANCE ABOVE STREAMBED: 3.1 m
WATERWAY OF FULL OPENING: 28 sq. m

WATER SURFACE ELEVATIONS AT:

Q2.33 =	252.1 m	VELOCITY=	2.0 mps
Q10 =	252.8 m	"	3.2 mps
Q25 =	253.2 m	"	4.1 mps
Q50 =	253.7 m	"	2.8 mps
Q100 =	253.7 m	"	3.2 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Above Q30
RELIEF ELEVATION: 253.4
DISCHARGE OVER ROAD @Q100: 49 cms

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 253.3 m
VERTICAL CLEARANCE: @ Q25 = 0.1 m

SCOUR: 0.3 m of contraction scour up to Q500.
The greatest contraction scour occurs at the roadway overtopping freaquency, Q30.
REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	1.3 cms	
ORDINARY LOW WATER:	0.6 cms	DEPTH OR ELEVATION: 0.3 m
ORDINARY HIGH WATER:	12.2 cms	0.7 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge, to be removed before winter
CLEAR SPAN (NORMAL TO STREAM): 7.6 m minimum
VERTICAL CLEARANCE ABOVE STREAMBED: bottom elev. 253.5 minimum
WATERWAY AREA OF FULL OPENING: 20 sq. m minimum

ADDITIONAL INFORMATION

Streambed elevation at upstream Approach section = 250.6.
Streambed elevation at bridge section = 250.2.
Water surface elevations are listed at a location approximately 20 m upstream of the bridge.
Velocities are listed in the area of the bridge and roadway.

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO MS 22.5
2. DESIGN SPAN 11.4 m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
   ON LEDGE 500 KPa
4. ALLOWABLE LOAD FOR PILING N/A
   TYPE N/A
   ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO GRADE N/A
6. REINFORCING STEEL GRADE 420
7. CONCRETE CLASS HPC A f 'c : 30 Mpa
   CONCRETE CLASS HPC B f 'c : 25 Mpa
8. SOIL UNIT WEIGHT 22 KN/m3
9. DESIGN LOAD FOR SPREAD FOOTINGS ON LEDGE 275 Kpa

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? YES
   IF YES, ON EXISTING STRUCTURE NO
   OR ON TEMPORARY BRIDGE YES
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OF TWO WAY ONE-WAY
   TRAFFIC CONTROL SIGNALS REQUIRED NO
   MINIMUM CLEAR SPAN (NORMAL TO STREAM): 7.6 m minimum
   WATERWAY OF FULL OPENING: 20 sq. m minimum
   VERTICAL CLEARANCE ABOVE STREAMBED: bottom elev. 253.5 minimum
   ARE SIDEWALKS REQUIRED? NO
   IF SO, ON WHAT SIDE? N/A
   STRUCTURE TYPE:

PROJECT NAME: Granville
PROJECT NUMBER: BRO 1444(34)

FILE NAME: pw94j100/s94j100xls.dgn
PROJECT LEADER: C.P. Williams
DESIGNED BY: P. Rowe
PRELIMINARY INFORMATION SHEET #1

PLOT DATE: 12/29/2005
DRAWN BY: P. Rowe
CHECKED BY: K.M. Higgins
SHEET 2 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

Metric

SUMMARY OF ESTIMATED QUANTITIES

Roadway	Super-Structure	Abutment #1	Abutment #2	Erosion Control	Full E & C
1					
150					
		20	50		
				10	
		70	95		
		130	230		
		52	28		
		1			
			1		
240				10	
60					
	38	45	48		
		3160	3220		
		14	12		
	3445	50	50		
		41			
	25	15	20		
	27				
1					
	1				
5					
1					
		1	2	10	
				10	
				10	
		40	70		
				100	
27					
4					
40					
240					
					1
					1
					1
1					
1					
		20	70		
				25	
				50	
				10	
				5	
				50	
				1	

TOTALS

BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL
		1	
		150	
		70	
		10	
		165	
		360	
		80	
		1	
		1	
		250	
		60	
		131	
		6380	
		26	
		3545	
		41	
		60	
		27	
		1	
		1	
		5	
		1	
		13	
		10	
		10	
		110	
		100	
		27	
		4	
		40	
		240	
		1	
		1	
		1	
		1	
		1	
		90	
		25	
		50	
		10	
		5	
		50	
		1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
LS	CLEARING AND GRUBBING (INCL INDV. TREES & STUMPS)	201.10
CM	COMMON EXCAVATION	203.15
CM	UNCLASSIFIED CHANNEL EXCAVATION	203.27
CM	TRENCH EXCAVATION OF EARTH	204.20
CM	GRANULAR BACKFILL FOR STRUCTURES	204.30
CM	COFFERDAM EXCAVATION, EARTH	208.30
CM	COFFERDAM EXCAVATION, ROCK	208.35
LS	COFFERDAM (STA 1+020.820)	208.40
LS	COFFERDAM (STA 1+032.220)	208.40
CM	SUBBASE OF GRAVEL	301.15
CM	AGGREGATE SURFACE COURSE	401.10
CM	CONCRETE, HIGH PERFORMANCE CLASS B	501.34
KG	REINFORCING STEEL	507.15
M	DRILLING AND GROUTING DOWELS	507.16
KG	EPOXY COATED REINFORCING STEEL	507.17
EACH	MECHANICAL BAR CONNECTOR	507.19
L	WATER REPELLENT (MOD. - SILANE)	514.10
M	BRIDGE RAILING - HD STEEL BEAM/FASCIA MOUNTED (GALVANIZED)	525.41
LS	ONE-WAY TEMPORARY BRIDGE(38 SM - EST.) (MOD.)	528.10
EACH	REMOVAL OF STRUCTURE (40 SM - EST.)	529.15
HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25
T	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15
CM	STONE FILL, TYPE I	613.10
CM	STONE FILL, TYPE I (MOD. - CHECK DAM)	613.10
CM	STONE FILL, TYPE I (MOD. - CONSTRUCTION ENTRANCE)	613.10
CM	STONE FILL, TYPE III	613.12
M	SNOW FENCE (MOD. - PDF)	620.70
M	HEAVY DUTY STEEL BEAM GUARD RAIL (GALVANIZED)	621.21
EACH	ANCHOR FOR STEEL BEAM RAIL	621.60
HR	FLAGGERS	630.15
HR	FLAGGERS (MOD. - RAILROAD)	630.15
LS	FIELD OFFICE-ENGINEERS	631.10
LS	TESTING EQUIPMENT - CONCRETE	631.16
LU	FIELD OFFICE - TELEPHONE (N.A.B.I.)	631.25
LS	MOBILIZATION/DEMOBILIZATION	635.11
LS	TRAFFIC CONTROL	641.10
SM	GEOTEXTILE UNDER STONE FILL	649.31
SM	GEOTEXTILE FOR SILT FENCE	649.51
SM	GEOTEXTILE FOR FILTER CURTAIN	649.61
KG	SEED	651.15
KG	SEED-WINTER RYE	651.17
KG	FERTILIZER	651.18
T	AGRICULTURAL LIMESTONE	651.20

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
150	CM	COMMON EXCAVATION: 150 X1.0
21	CM	UNCLASSIFIED CHANNEL EXCAVATION: 70 X 0.3
108	CM	COFFERDAM EXCAVATION, EARTH: 360 X 0.3
279	CM	SUBTOTAL
1	CM	ROUNDING
280	CM	TOTAL
280	CM	FILL AVAILABLE
0	CM	FILL REQUIRED
280	**CM**	**WASTE**

PROJECT NAME: **GRANVILLE**
PROJECT NUMBER: **BRO 1444(34)**

FILE NAME: **pw94j100/s94j100xls.dgn**
PROJECT LEADER: **C. WILLIAMS**
DESIGNED BY: **N. WARK**
QUANTITY SHEET #1

PLOT DATE: **3/20/2006**
DRAWN BY: **N. WARK**
CHECKED BY: **K. HIGGINS**
SHEET **3** OF **39**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

Metric

SUMMARY OF ESTIMATED QUANTITIES

Roadway		Super-Structure		Abutment #1		Abutment #2		Erosion Control		Full E & C
								1		
								40		
								10		
								70		
								1		
								100		
								1		
								10		
6										
5										
38										

TOTALS

BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL
		1	
		40	
		10	
		70	
		1	
		100	
		1	
		10	
		6	
		5	
		38	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
T	HAY MULCH	651.25
EACH	HAY BALES FOR EROSION CONTROL	651.26
CM	TOPSOIL	651.35
SM	GRUBBING MATERIAL	651.40
LS	EROSION PREVENTION AND SEDIMENT CONTROL PLAN	652.10
HR	MONITORING EROSION PREVENTION AND SEDIMENT CONTROL PLAN	652.20
LU	MAINTENANCE OF EROSION PREVENTION & SEDIMENT CONTROL PLAN (N.A.B.I.)	652.30
SM	EROSION MATTING	654.10
EACH	EVERGREEN TREES (B/B ABIES BALSAMEA - 3000 MM)	656.20
SM	TRAFFIC SIGNS, TYPE A	675.20
M	FLANGED CHANNEL SIGN POST	675.301

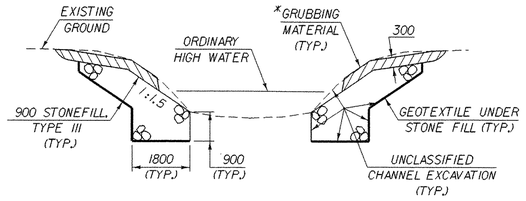
DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: **GRANVILLE**
PROJECT NUMBER: **BRO 1444(34)**

FILE NAME: pw94j100/s94j100xls.dgn
PROJECT LEADER: C. WILLIAMS
DESIGNED BY: N. WARK
QUANTITY SHEET #2

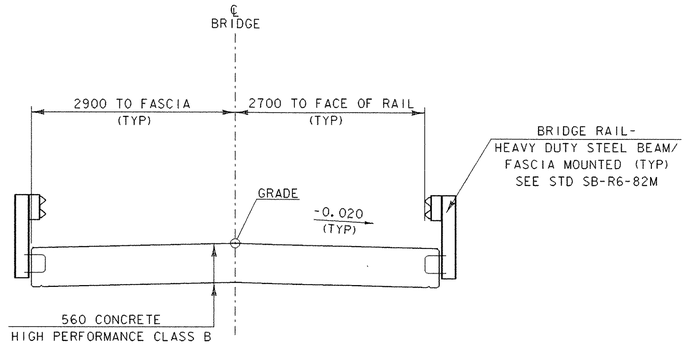
PLOT DATE: 2/27/2006
DRAWN BY: N. WARK
CHECKED BY: K. HIGGINS
SHEET 4 OF 39



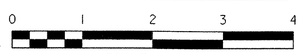
TYPICAL CHANNEL SECTION

(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.



BRIDGE TYPICAL SECTION



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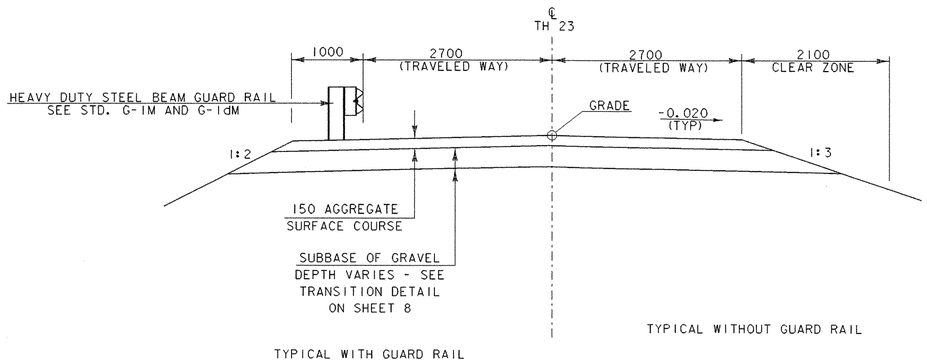
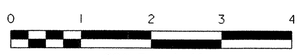


ROADWAY TYPICAL SECTION



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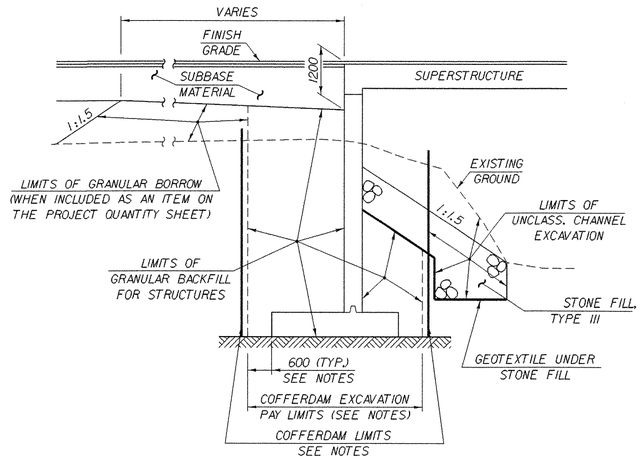


TYPICAL ABUTMENT SECTION

(NOT TO SCALE)

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. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

MATERIAL ITEM	TOLERANCE
PAVEMENT	±5 mm TOTAL THICKNESS
AGGREGATE SURFACE COURSE	± 10 mm
BASE COURSE	± 10 mm
SUBBASE	± 30 mm
SAND BORROW	± 30 mm
GRANULAR BORROW	± 30 mm

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100typ.dgn	
IPARM FILE NAME: sj100typ.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: L. ORVIS	SURVEY DATE: 1/96
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: P. ROWE
TYPICAL SECTIONS	SHEET: 5 OF 39

GEODETIC CONTROL INFORMATION

GENERAL LOCATION: West Braintree, 1.9mi (3.1km) north of West Braintree Village 6.9mi (11.1km) northwest of Randolph, and 11.3mi (18.2km) south southwest of Northfield. To reach from the junction of Vermont route 12 and Vermont route 12A in Randolph, proceed northerly along Vermont route 12A for 7.2mi (11.6km) to the mark on right.

To reach from the junction of Vermont route 12A and the road to Warren (Roxbury Mountain Road) in Roxbury Village, proceed south for 7.5mi (12.1km) along route 12A to the mark on left.

To reach from the junction of Vermont route 12A and Thresher road in West Braintree proceed north along route 12A for 0.4mi (0.6km) to the mark on the right. The mark is a State of Vermont survey disk set in the top of a concrete monument 30 cm in diameter, flush with the ground surface.

It is located 94.5ft (28.8m) north northwest of telephone pole 181, 61.5ft (18.7m) south southeast of mile marker 0121/0902/0600, 15.5ft (4.7m) east of the centerline of Vermont route 12A, and 2.5ft (0.8m) west of a fiberglass witness post.

Ownership is the State of Vermont.

"BAINBRIDGE"
(NOT SHOWN)
N = 165967.27882 m
E = 479766.18590 m
Z = 244.23118 m
Survey Disk set into top of a round concrete monument.

GENERAL LOCATION: West Braintree, 1.4mi (2.3km) north of West Braintree Village, 6.6mi (10.6km) northwest of Randolph, and 11.8mi (19.0km) south southwest of Northfield.

To reach from the junction of Vermont route 12 and Vermont route 12A in Randolph. proceed northerly along route 12A for 6.9mi (11.1km) to the mark on left. To reach from the junction of Vermont route 12A and the road to Warren (Roxbury Mountain Road) in Roxbury Village, proceed 7.8mi (12.6km) south along route 12A to the mark on right.

To reach from the junction of Vermont route 12A and Thresher road in West Braintree proceed north for 0.1mi (0.2km) along route 12A to the mark on left. The mark is a State of Vermont survey disk set in the top of a concrete monument 30cm in diameter, flush with the ground surface.

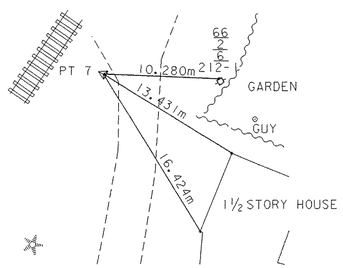
It is located 137ft (41.8m) north of the west end of a 15 inch corrugated metal pipe 35.5ft (10.8m) west of a two cable guardrail, 20.0ft (6.1m) west of the centerline of Vermont route 12A, and 8ft (2.4m) east southeast of a fiberglass witness post.

Ownership is the State of Vermont.

"BRAINDEAD"
(NOT SHOWN)
N = 165521.75231m
E = 479710.27754 m
Z = 244.69942m
Survey Disk is set into the top of a round concrete monument.

TRAVERSE TIE INFORMATION

POINT #7



N = 168158.4286
E = 479511.3662
Z = 254.696

NEW ALIGNMENT TIE INFORMATION

POB STA. 1+000.000
N = 168164.0190 m
E = 479504.9940 m

PC STA. 1+013.014
N = 168175.9840 m
E = 479510.1140 m

PI #1
STA. 1+016.300 BK =
STA. 1+016.274 AHD
N = 168179.0046 m
E = 479511.4065 m

PT STA. 1+019.559
N = 168181.6739 m
E = 479513.3222 m

PC STA. 1+034.076
N = 168193.4673 m
E = 479521.7863 m

PI #2
STA. 1+040.275 BK =
STA. 1+040.247 AHD
N = 168198.5036 m
E = 479525.4008 m

PRC STA. 1+046.446
N = 168202.8781 m
E = 479529.7931 m

PI #3
STA. 1+061.367 BK =
STA. 1+059.901 AHD
N = 168213.4073 m
E = 479540.3652 m

PT STA. 1+074.821
N = 168228.3241 m
E = 479540.7125 m

POE STA. 1+080.000
N = 168233.5020 m
E = 479540.8330 m

ALL TIES ARE SHOWN NOT TO SCALE

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD-83 (92)

PROJECT: GRANVILLE
PROJECT NO.: BRO 1444 (34)

DESIGN FILE NAME: /94j100/sj100tie.dgn
IPARM FILE NAME: /94j100/sj100tie.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: C.P. WILLIAMS
TIES
PLOT DATE: 03-MAR-2006
SURVEY DATE: 1/96
DRAWN BY: D.G. BASSETT
SHEET: 6 OF 39

VAOT Metric

BRIDGE RAILING - HEAVY DUTY STEEL BEAM/ FASCIA MOUNTED
STA 1+019.400 TO STA 1+032.600 RT
STA 1+020.300 TO STA 1+033.700 LT

(6) EVERGREEN TREES (B/B ABIES BALSAMEA-3000 mm)
STA 1+031 TO STA 1+052.600 LT
(AS DIRECTED BY RESIDENT ENGINEER)

CONSTRUCT DRIVE
STA 1+001.000 RT
150 AGGREGATE SURFACE COURSE
OVER 150 SUBBASE OF GRAVEL

ANCHORS FOR GUARD RAIL
STA 1+015.100 RT
STA 1+017.400 LT
STA 1+034.400 RT
STA 1+035.000 LT

HEAVY DUTY STEEL BEAM GUARD RAIL
STA 1+013.000 TO STA 1+019.400 RT
STA 1+032.600 TO STA 1+036.500 RT
STA 1+015.300 TO STA 1+020.300 LT
STA 1+033.700 TO STA 1+037.100 LT

TRAFFIC SIGN PLACEMENT
#1 STA 0+996 LT
#2 STA 0+990 LT
#3 STA 0+990 LT
#4 STA 0+992 RT
#4 STA 1+008 LT
#5 STA 1+060 LT
#6 RT 12 NORTH BOUND
#7 RT 12 SOUTH BOUND

BM 2
CHISELLED SQUARE
IN LEDGE OUTCROP
EL = 259.141

BM 3
CHISELLED SQUARE
IN ABUTMENT
EL = 252.857

CURVE No. 3
R = 37.132m
T = 14.921m
L = 28.375m
E = 2.886m
Bank = Normal

NEW VT 12A #7
NEW STA 0+996.000 #1
REMOVE (3)
NEW (2) STA 0+992.000 STA 1+008.000 #4
NEW VT 12A #6
NEW STA 0+990.000 #2
NEW STA 0+990.000 #3
REMOVE
REMOVE
REMOVE
NEW STA 1+060.000 #5

REDUCED SPEED AHEAD
STOP
LEGAL LOAD LIMIT 5 TONS
LEGAL LOAD LIMIT 24,000 POUNDS
DEAD END
RAIL CROSSING ROAD

TEMPORARY CONSTRUCTION LIMITS
MAINLINE POT Sta 1+025.000=
CHANNEL LINE Sta 2+015.000
Δ = 100°00' RT

CHAN. POE Sta 2+030.000
BEGIN BRIDGE STA 1+020.820 FG=254.208
END BRIDGE STA 1+032.220 FG=253.729
END APPROACH STA 1+055.000
POE Sta 1+080.000
PI #1 Sta 1+016.300 BK= Sta 1+016.274 AHD Δ=12°30' RT
PI #2 Sta 1+040.275 BK= Sta 1+040.247 AHD Δ=9°27' RT
END PROJECT STA 1+045.000
PT Sta 1+014.82
NEW POLE
POB Sta 0+980.000
BEGIN APPROACH STA 1+000.000
PT 7
RADIUS 7.5 m (TYP)
BEGIN PROJECT STA 1+010.000
PC Sta 1+013.104
PT Sta 1+019.559
PC Sta 1+034.076
PRC Sta 1+046.446
PI #3 Sta 1+061.367 BK= Sta 1+059.901 AHD Δ=43°47' LT
CHAN. POB Sta 2+000.000
TEMPORARY UTILITY ROUTE
TEMPORARY POLE
CHANNEL LINE
C DETOUR
N23° 10' 00"E
N25° 40' 00"E
N45° 07' 00"E
N1° 20' 00"E
1+000
1+020
1+040
1+060
2+000
0+980
1+080

VERMONT RTE. 12A
TO ROXBURY FLATS
NEW ENGLAND CENTRAL RAILROAD
TO WEST BRAINTREE
TH 23 (GRAVEL ROAD)
DEAD END
ASSUMED EXISTING RIGHT OF WAY
FLOW THIRD BRANCH WHITE RIVER

WOODS
GRAVEL DRIVE
HOUSE
GARDEN
M. APPLE
M. LOCUSTS
WILLOW (3)
S. APPLE
S. MAPLE
S. SPRUCE
LILAC
STONE WALL
STONE RETAINING WALL
212-2
212-3

CURVE No. 1
R = 30.000m
T = 3.286m
L = 6.545m
E = 0.179m
Bank = Normal

CURVE No. 2
R = 75.000m
T = 6.199m
L = 12.370m
E = 0.256m
Bank = Normal

NOTE:
THIS SURVEY WAS TAKEN BEFORE THE JUNE 1998 FLOOD. MINOR CHANGES IN TOPOGRAPHY MAY HAVE OCCURED.

EXISTING BRIDGE DATA
6 STEEL BEAMS
TIMBER DECK
SPAN LENGTH = 10.7 m
ROADWAY WIDTH = 3.5 m
DECK WIDTH = 3.7 m

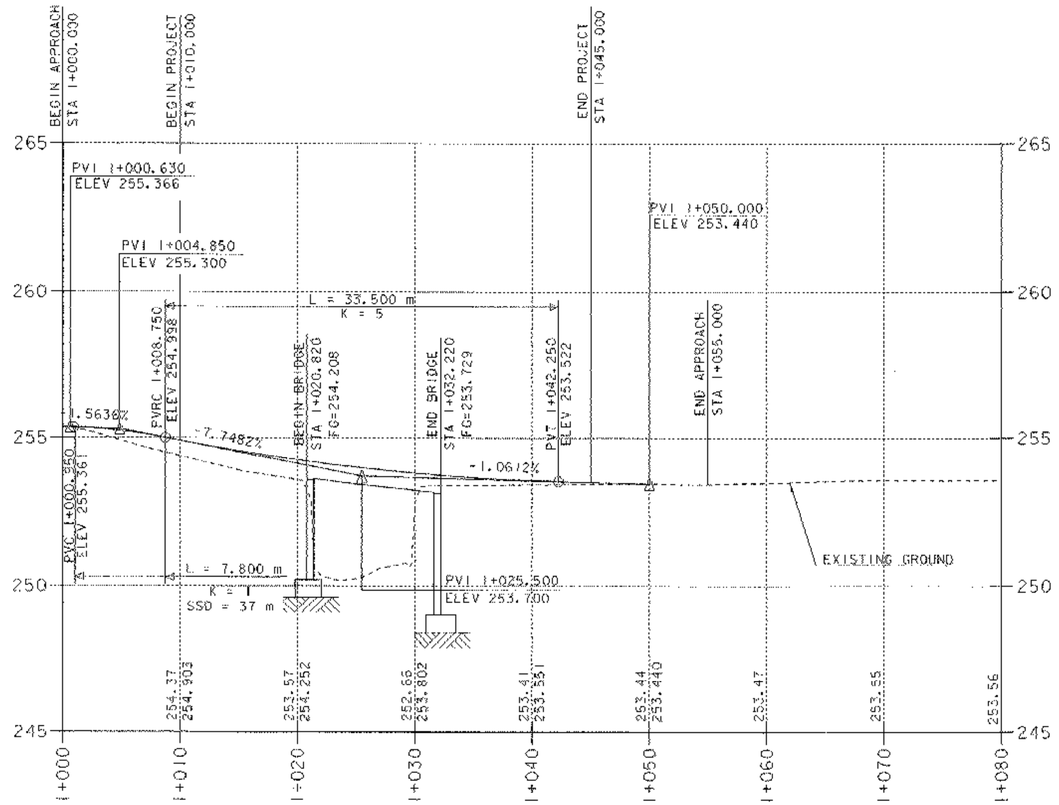
LAYOUT

0 10 20
SCALE 1 : 250

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT:	PROJECT NO.:
GRANVILLE	BRO 1444 (34)

DESIGN FILE NAME: 94J100/structures/sj100bdr.dgn
IPARM FILE NAME: sj100lal.i
SURVEYED BY: L. ORVIS — SURVEY DATE: 1/96
SQUAD LEADER: C. P. WILLIAMS — DRAWN BY: P. ROWE
LAYOUT — SHEET: 7 OF 39
PLOT DATE: 03-MAR-2006

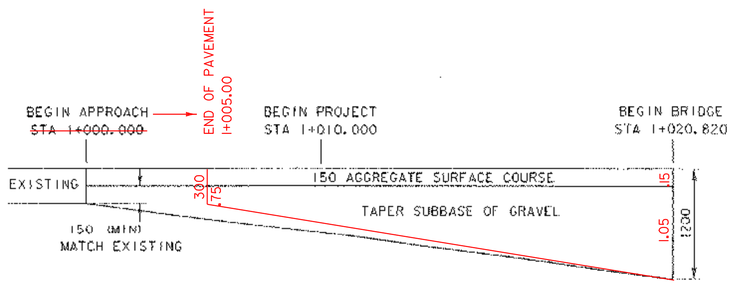


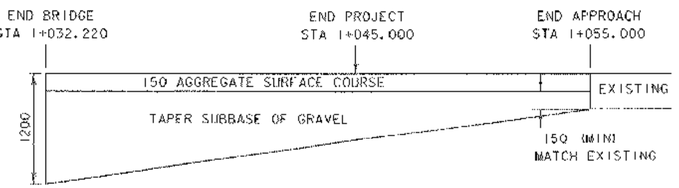
Profile TH 23

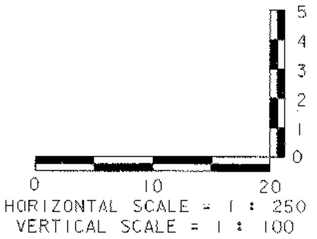
NOTE:

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE EXISTING GROUND ALONG ℄.

GRADES SHOWN TO THE NEAREST THOUSANDTH ARE FINISH GRADE ALONG ℄.







SUBBASE TRANSITION
NTS

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT:	PROJECT NO.:
GRANVILLE	BRO 1444 (34)

DESIGN FILE NAME: 94J100/structures/sj100pro.dgn
IPARM FILE NAME: 94J100pro.i
SURVEYED BY: L. ORVIS — PLOT DATE: 03-MAR-2006
SQUAD LEADER: C. P. WILLIAMS — SURVEY DATE: 1/96
DRAWN BY: KMH
PROFILE TH 23 — SHEET: 8 OF 39

Metric

N

VT STATE PLANE GRID

SIDE ROAD WORK 500 FT

SIDE ROAD WORK AHEAD

END ROAD WORK

ROAD CLOSED

TEMPORARY BARRELS PLACED TO KEEP TRAFFIC PERPENDICULAR TO RAILROAD TRACKS

ONE LANE BRIDGE AHEAD

STOP

SIDE ROAD WORK 500 FT

END ROAD WORK

TEMPORARY CONSTRUCTION LIMITS

YIELD

TO ONCOMING TRAFFIC

ONE LANE BRIDGE AHEAD

BEGIN BRIDGE
STA 1+020.820
FG=254.208

END BRIDGE
STA 1+032.220
FG=253.729

END APPROACH
STA 1+055.000

R = 10m (TYP)

℄ DETOUR

END PROJECT
STA 1+045.000

0+980

1+000

1+020

1+040

1+060

1+080

BEGIN APPROACH
STA 1+000.000

BEGIN PROJECT
STA 1+010.000

ASSUMED EXISTING RIGHT OF WAY

SIDE ROAD WORK AHEAD

END ROAD WORK

ROAD CLOSED

NOTE:
THIS SURVEY WAS TAKEN BEFORE THE JUNE 1998 FLOOD. MINOR CHANGES IN TOPOGRAPHY MAY HAVE OCCURED.

MAINTENANCE OF TRAFFIC NOTES:

1. TEMPORARY APPROACH TRAFFIC SIGNS SHALL BE PLACED ACCORDING TO VERMONT STANDARDS E-107 AND E-100A AND MUTCD 2003 PART 6.
2. FOR ADDITIONAL SIGNING INSTRUCTION SEE VERMONT STANDARDS E-100, E-100A, E-101, E-102, E-102A, AND E-106.
3. TRAFFIC CONTROL SHALL BE PAID FOR UNDER CONTRACT ITEM 641.10 "TRAFFIC CONTROL"

TRAFFIC CONTROL

0 10 20

SCALE 1 : 250

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83/92

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444(34)
DESIGN FILE NAME: 94J100/structures/sJ100bdr.dgn	
IPARM FILE NAME: sJ100trf.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: L. ORVIS	SURVEY DATE: JAN. 1996
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY: P.G. JARVIS
TRAFFIC CONTROL PLAN	SHEET: 9 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

VAOT Metric

KILOMETER MARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (mm)	HEIGHT (mm)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NO. OF POSTS	NEW SIGN POSTS: FLANGED CHANNEL kg/m 1.7	3.0	4.5	SQUARE STEEL (mm) kg/m 44 3.4	50 3.9	63 5.0	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (mm) kg/m 75 1.9	100 2.5	100 MOD 2.5	TUBULAR STEEL Ø (mm) FOUNDATION	kg/m 75 11.3	89 13.4	100 16.1	125 21.7	W-SHAPE STEEL FTG. SIZE 600 mm	750 mm	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL: DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												OPTION ITEMS																								
#1 STA 0+996 LT	STOP	1	750	750	0.468						1			X																				R1-1		E-143
#2 STA 0+990 LT	LEGAL LOAD LIMIT 24,000 POUNDS	1	600	750	0.450						1			X																				VR-017		E-141
#3 STA 0+990 LT	DEAD END	1	750	750	0.563						1			X																				W14-1		*
#4 STA 0+992 RT	RAIL CROSSING ROAD	1	225	1200	0.490						1			X																				R15-1		E-190
#4 STA 1+008 LT	RAIL CROSSING ROAD	1	225	1200	0.490						1			X																				R15-1		E-190
#5 STA 1+060 LT	R X R	1	750	750	0.656						1			X																				W10-1		E-190
#6 VT RT 12 (NORTHBOUND)		1	750	750	0.563						1			X																				W10-3		*
#7 VT RT 12 (SOUTHBOUND)		1	750	750	0.563						1			X																				W10-3		*

* SEE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR SIGN AND LETTERING SPECIFICATIONS.

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."

	m	m	m 38	m	m	m		EA	kg	kg	kg		kg	kg	kg	kg																			
TOTALS	m^2 5	m^2	EA.	m^2		m 38			m			kg		EA.	kg					EA.	EA.	kg													

PROJECT NAME: GRANVILLE
PROJECT NUMBER: BRO 1444(34)

FILE NAME: 94j100/structures/sj100trf.dgn PLOT DATE: 03-MAR-2006
PROJECT LEADER: C.P. WILLIAMS DRAWN BY: D.G. BASSETT
DESIGNED BY: P. ROWE CHECKED BY: P. ROWE
TRAFFIC SIGN SUMMARY SHEET 10 OF 39

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN kPa	CONSISTENCY
<12	Very Soft
12-24	Soft
24-48	Med. Stiff
48-96	Stiff
96-192	Very Stiff
>192	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per 300 mm For: 50.8 mm O.D. Sampler 35.0 mm I.D. Sampler Hammer Weight Of 63.5 kg. Hammer Fall Of 762 mm
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 30.1 mm
BX	Core Size 42.0 mm
NX	Core Size 54.7 mm
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 304.8 mm.

COBBLE - Rock fragments with an average dimension between 76.2 and 304.8 mm.

GRAVEL - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve).

SAND - Particles of rock < 2 mm (#10 sieve) and > 75 μm (#200 sieve).

SILT - Soil < 75 μm (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

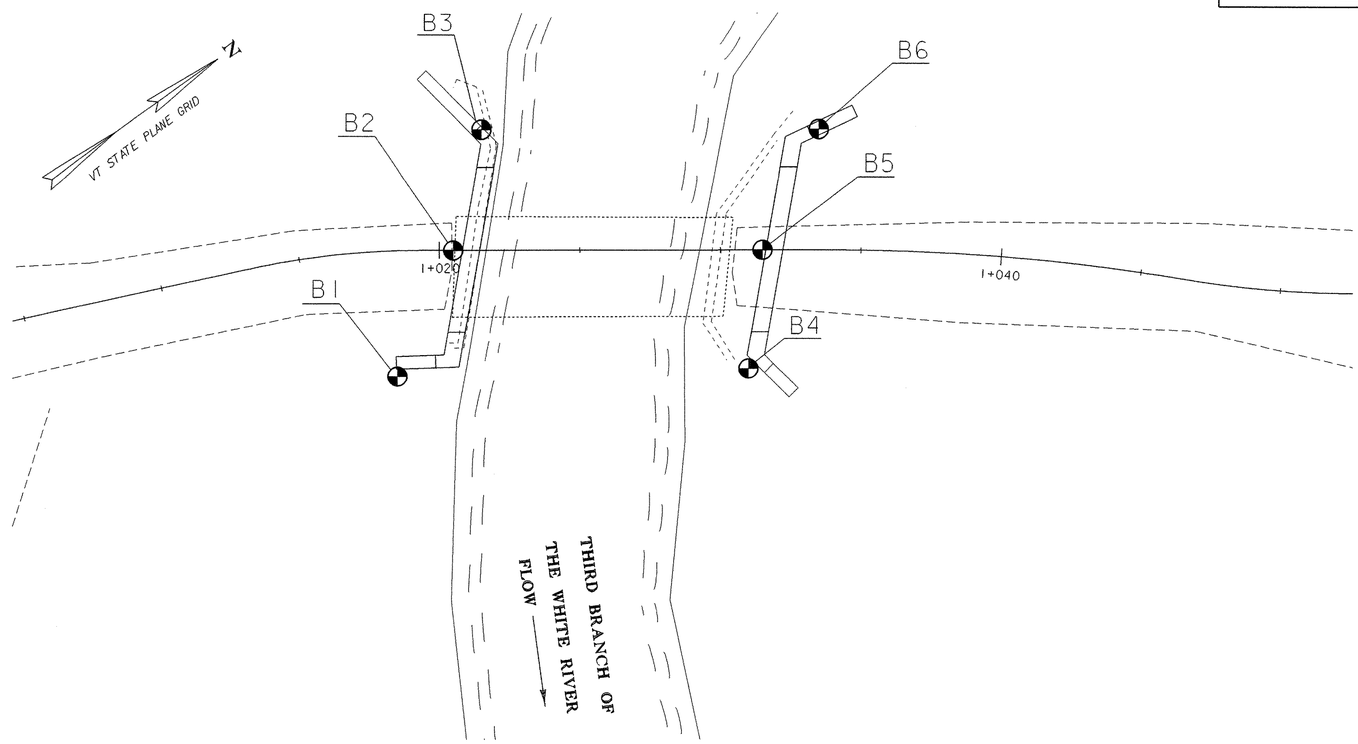
MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.



BORING CHART

HOLE NO.	STATION	OFFSET (m)	GROUND ELEV.	TLOB
B-1	1+18.5	4.5RT	253.412	249.15
B-2	1+20.5	0.0	253.580	249.57
B-3	1+21.3	4.0LT	252.949	250.06
B-4	1+31.0	4.2RT	252.927	248.21
B-5	1+31.5	0.0	253.421	248.54
B-6	1+33.5	4.2LT	252.964	248.47

BORING LAYOUT

0 2 4 6 8 10

SCALE 1 : 100

GENERAL NOTES

1. The subsurface explorations shown herein were made between 8/8/00 and 8/30/00 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100bor.dgn	
IPARM FILE NAME: sj100bor.i	PLOT DATE: 03-MAR-2006
TH 23 OVER THIRD BRANCH OF WHITE RIVER	
BORING LAYOUT	SHEET: 11 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B-1
SHEET 1 OF 1
DATE STARTED: 8/30/0
DATE COMPLETED: 8/31/0

PROJECT NAME: GRANVILLE
SITE NAME: BR 15
STATION: 1+018.50
GROUND EL.: 253.412

PROJECT NUMBER: BRO 1444(34)
SITE NO.: TH 23
OFFSET: 4.50
G.W. DEPTH:

BORING CREW
CREW CHIEF: R. TALLMAN
DRILLER: R. TALLMAN
LOGGER: K. RUSSELL
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

TOP OF FOOTING, ABUTMENT # 1, ELEV 250.200

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		0.00m-1.55m (BXDC 1.37m-1.55m) Possible fill material							
		1.55m-2.00m, Wood - Changed casing bit from diamond to sawtooth							
		BXDC 2.10m-3.30m No Sample, Boulders							
				Top of Bedrock at 4.26m					
				RUN	REC%	ROD%	DIP°		
5		RUN#1: BXMDC 4.26m-5.78m Rec.=1.30m See Geologist's Report		1	86	86	85		
		RUN#2: BXMDC 5.78m-7.30m Rec.=1.50m See Geologist's Report		2	99	90	85		
				Hole stopped at 7.30m					
10									

GEOLOGISTS REPORT:

Run #1: Pale green quartz-chlorite-albite-seracite schist with quartz veins. Moderately hard. Unweathered. Competent.

Run #2: Same as Run #1. Competent.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B-2
SHEET 1 OF 1
DATE STARTED: 8/15/0
DATE COMPLETED: 8/15/0

PROJECT NAME: GRANVILLE
SITE NAME: BR 15
STATION: 1+020.50
GROUND EL.: 253.580

PROJECT NUMBER: BRO 1444(34)
SITE NO.: TH 23
OFFSET: 0.00
G.W. DEPTH:

BORING CREW
CREW CHIEF: R. TALLMAN
DRILLER: R. TALLMAN
LOGGER: E. CHABOT
ADDITIONAL CREW:

BORING RIG: UNI-MOG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

TOP OF FOOTING, ABUTMENT # 1, ELEV 250.200

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No sample, possible fill material							
		A-1-a,SaGr,brn,Moist rec.=0.14m	R	13.5	56.3	30.5	13.2		
				Top of Bedrock at 4.01 m					
				RUN	REC%	ROD%	DIP°		
		RUN#1: BXDC 4.01m-4.63m Rec.=0.52m See Geol. Report		1	100	0	85		
5		RUN#2: BXDC 4.63m-5.83m Rec.=0.61m See Geologist's Report		2	51	0	85		
		RUN#3: BXDC 5.83m-6.81m Rec.=0.62m See Geologist's Report		3	63	57	85		
				Hole stopped at 6.81m					
10									

GEOLOGISTS REPORT:

Run #1: Pale green quartz-chlorite-albite-seracite schist with quartz veins. Moderately soft. Slightly Weatherd. Poor Competency.

Run #2: Same as Run #1. Poor Competency.

Run #3: Same as Run #1, but rock is moderately hard with little little weathering. Competent.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B-3
SHEET 1 OF 1
DATE STARTED: 8/28/0
DATE COMPLETED: 8/28/0

PROJECT NAME: GRANVILLE
SITE NAME: BR 15
STATION: 1+021.30
GROUND EL.: 252.949

PROJECT NUMBER: BRO 1444(34)
SITE NO.: TH 23
OFFSET: -4.00
G.W. DEPTH:

BORING CREW
CREW CHIEF: R. TALLMAN
DRILLER: R. TALLMAN
LOGGER: E. CHABOT
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

TOP OF FOOTING, ABUTMENT # 1, ELEV 250.200

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
	CONCRE	0.00m-0.20 Concrete							
		1.50m-2.10m, Possible fill material							
				Top of Bedrock at 2.89m					
				RUN	REC%	ROD%	DIP°		
		RUN#1: BXDC 2.89m-3.24m Rec.=0.35m See Geol. Report		1	100	100	85		
		RUN#2: BXDC 3.24m-3.84m Rec.=0.53m See Geol. Report		2	88	88	85		
		RUN#3: BXDC 3.84m-4.44m Rec.=0.59m See Geol. Report		3	98	93	85		
5		RUN#4: BXMDC 4.44m-5.96m Rec.=1.35m See Geologist's Report		4	89	76	85		
				Hole stopped at 5.96m					
		See Geol. Report							
10									

GEOLOGISTS REPORT:

Run #1: Pale green quartz-chlorite-albite-seracite schist with quartz veins. Moderately hard. Unweathered. Competent.

Run #2: Same as Run #1. Competent

Run #3: Same as Run #1. Competent

Run #4: Same as Run #1. Competent

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B-4
SHEET 1 OF 1
DATE STARTED: 8/8/0
DATE COMPLETED: 8/8/0

PROJECT NAME: GRANVILLE
SITE NAME: BR 15
STATION: 1+031.00
GROUND EL.: 252.927

PROJECT NUMBER: BRO 1444(34)
SITE NO.: TH 23
OFFSET: 4.20
G.W. DEPTH:

BORING CREW
CREW CHIEF: R. YOUNG
DRILLER: R. YOUNG
LOGGER: K. RUSSELL
ADDITIONAL CREW:

BORING RIG: UNI-MOG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

TOP OF FOOTING, ABUTMENT # 2, ELEV 249.000

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		1.50m-2.10m, Possible fill material							
		A-1-a,SaGr,brn-gry,Moist rec.=0.22m	60	9.7	60.6	27.3	12.1		
		A-1-b,SiSaGr (HP),brn-gry,Dry Rec.=0.08m	R	8.1	40.5	39.1	20.4		
				Top of Bedrock at 4.72m					
				RUN	REC%	ROD%	DIP°		
5		RUN#1: BXMDC 4.72m-6.24m Rec.=1.43m See Geologist's Report		1	94	80	85		
		RUN#2: BXMDC 6.24m-7.76m Rec.=1.50m See Geologist's Report		2	99	86	85		
				Hole stopped at 7.76m					
10									

GEOLOGISTS REPORT:

Run #1: Pale green quartz-chlorite-albite-seracite schist with quartz veins. Moderately hard. Unweathered. Competent.

Run #2: Same as Run #1. Competent.

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: MJ100BOR.DGN	PLOT DATE: 09/21/00
IPARM FILE NAME: sj100boi.i	SURVEY DATE: 1/96
SURVEYED BY: L. ORVIS	DRAWN BY: CHAD A. ALLEN
SQUAD LEADER: CHRISTOPHER C. BENDA	SHEET: 12 OF 39

VAOT Metric

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B-5
SHEET 1 OF 1
DATE STARTED: 8/10/0
DATE COMPLETED: 8/10/0

PROJECT NAME: GRANVILLE
SITE NAME: BR 15
STATION: 1+031.50
GROUND EL.: 253.421

PROJECT NUMBER: BRO 1444(34)
SITE NO.: TH 23
OFFSET: 0.00
G.W. DEPTH:

BORING CREW
CREW CHIEF: R. YOUNG
DRILLER: R. YOUNG
LOGGER: E. CHABOT
ADDITIONAL CREW:

BORING RIG: UNI-MOG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

TOP OF FOOTING, ABUTMENT # 2, ELEV 249.000

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		1.50m-2.10m, Possible fill material							
		A-1-a,SaGr,brn,Moist,rec.=0.46m	43	10.1	55.5	30.1	14.4		
		Top of Bedrock at 4.88m							
				RUN	REC%	ROD%	DIP°		
5		RUN#1: BXDC 4.88m-5.88m Rec.=0.69m		1	69	65	85		
		RUN#2: BXDC 5.88m-7.08m Rec.=1.20m See Geologist's Report		2	100	63	85		
		RUN#3: BXDC 7.08m-7.98m Rec.=0.93m See Geol. Report		3	100	100	85		
		Hole stopped at 7.98m							
10									

GEOLOGISTS REPORT:

Run #1: Pale green quartz-chlorite-albite-seracite schist with quartz veins. Moderately hard. Unweatherd. Competent.

Run #2: Same as Run #1, but rock becomes soft and moderately weathered near bottom of run.

Run #3: Same as Run #1. Competent.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B-6
SHEET 1 OF 1
DATE STARTED: 8/9/0
DATE COMPLETED: 8/9/0

PROJECT NAME: GRANVILLE
SITE NAME: BR 15
STATION: 1+033.50
GROUND EL.: 252.964

PROJECT NUMBER: BRO 1444(34)
SITE NO.: TH 23
OFFSET: -4.20
G.W. DEPTH:

BORING CREW
CREW CHIEF: R. YOUNG
DRILLER: R. YOUNG
LOGGER: K. RUSSELL
ADDITIONAL CREW:

BORING RIG: UNI-MOG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

TOP OF FOOTING, ABUTMENT # 2, ELEV 249.000

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-1-a,SaGr,brn-gry,Moist,rec.0.31m	28	10.3	53.7	36.1	10.2		
		BXDC 2.74m-3.00m, Boulders							
		A-1-a,SaGr,brn-gry,Dry,rec.=0.22m	46	9.3	57	31.6	11.4		
		BXDC 3.96m-4.49m, Boulders		Top of Bedrock at 4.49m					
				RUN	REC%	ROD%	DIP°		
5		RUN#1: BXDC 4.49m-5.70m Rec.=1.23m See Geologist's Report		1	100	89	85		
		RUN#2: BXDC 5.70m-6.97m Rec.=1.22m See Geologist's Report		2	96	96	85		
		Hole stopped at 6.97m							
10									

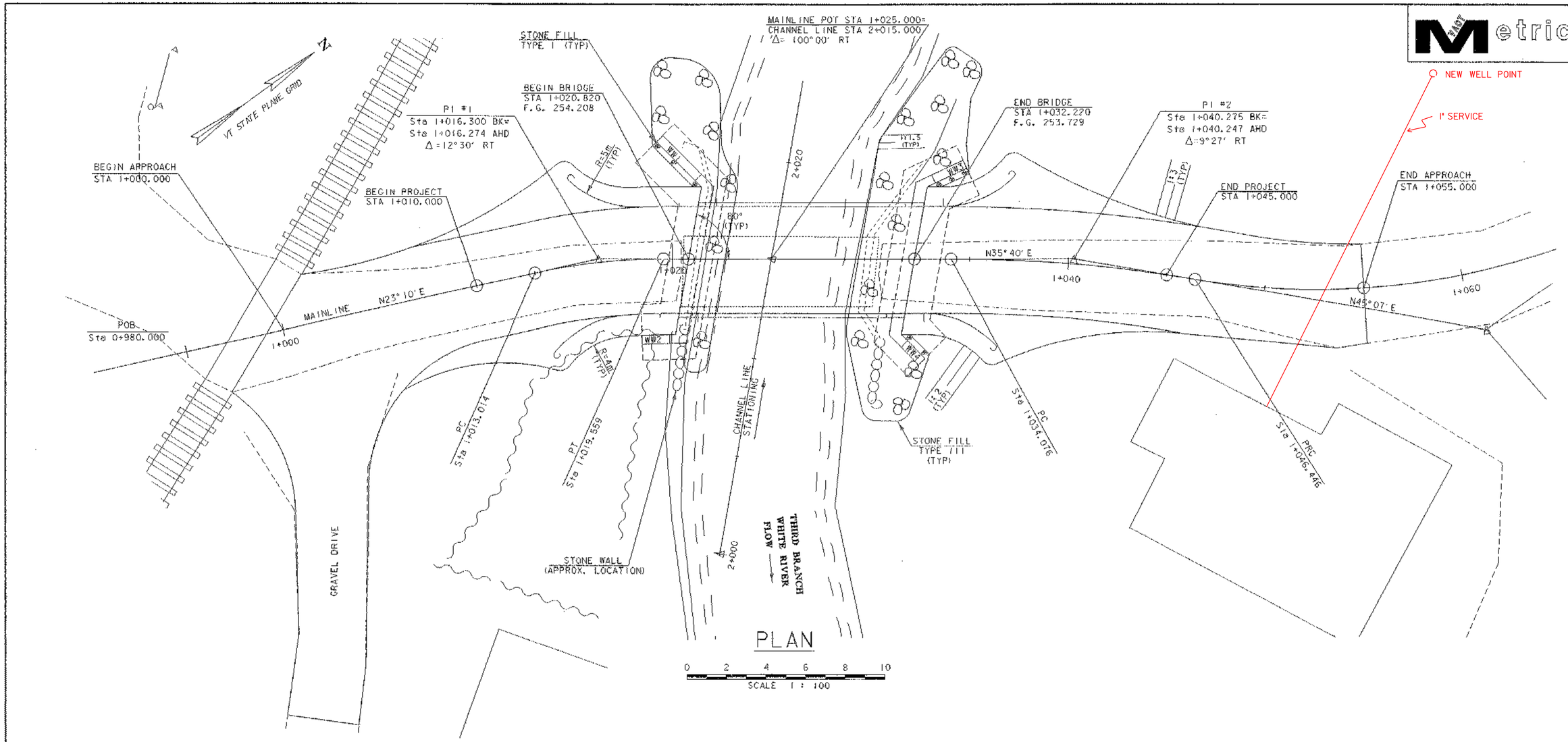
GEOLOGISTS REPORT:

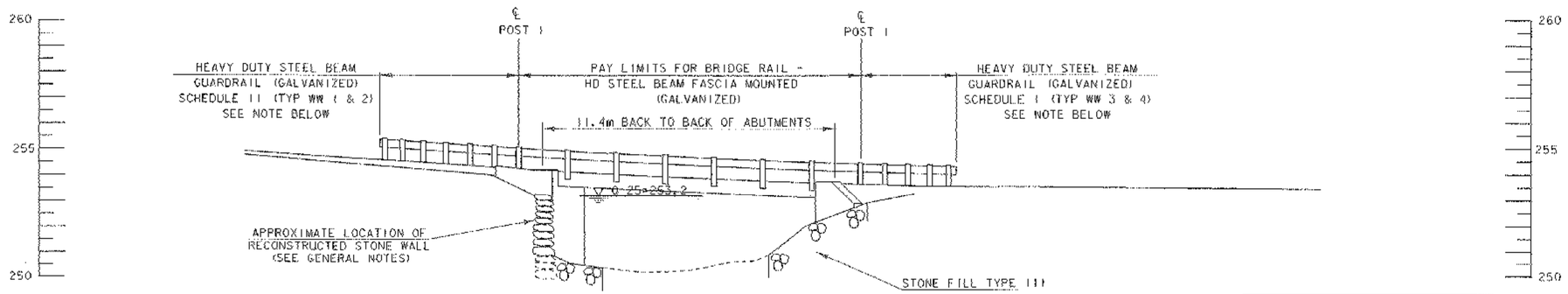
Run #1: Pale green quartz-chlorite-albite-seracite schist with quartz veins. Moderately hard. Unweatherd. Competent.

Run #2: Same as Run #1. Competent.

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: MJ100BOR.DGN	PLOT DATE: 09/21/00
IPARM FILE NAME: sj100bo2.i	SURVEY DATE: 1/96
SURVEYED BY: L. ORVIS	DRAWN BY: CHAD A. ALLEN
SQUAD LEADER: CHRISTOPHER C. BENDA	SHEET: 13 OF 39

EAST Metric





ELEVATION AT DOWNSTREAM FASCIA

0 2 4 6 8 10
SCALE 1 : 100

NOTE:
POST SPACING FOR ALL APPROACH RAILING AS SHOWN @ 952.5 mm

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT: GRANVILLE
PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100pe.dgn
IPARM FILE NAME: sj100pe.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: C. P. WILLIAMS
PLAN AND ELEVATION
PLOT DATE: 03-MAR-2006
SURVEY DATE: 1/96
DRAWN BY: D. G. BASSETT
SHEET: 14 OF 39

GENERAL NOTES

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. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20° C, UNLESS OTHERWISE NOTED.

3. DESIGN CRITERIA:
DESIGN LIVE LOAD = MS 22.5
SOIL UNIT FORCE = 22.00 kN/m3

4. REINFORCING STEEL PLACEMENT TOLERANCE SHALL BE AS FOLLOWS:

SPACING	+/-	25mm
CLEARANCE	+/-	6mm

5. ALL REINFORCING STEEL IN THE CONCRETE BRIDGE SLAB SHALL BE EPOXY COATED AND PAID FOR UNDER THE ITEM 507.17. WHEN EPOXY COATED REINFORCING STEEL IS CUT THE UNCOATED ENDS SHALL BE REPAIRED WITH MATERIALS AND PROCEDURES APPROVED BY THE COATING MANUFACTURER. FLAME CUTTING OF EPOXY COATED REINFORCING STEEL WILL NOT BE PERMITTED.

6. THE MINIMUM COVER FOR REINFORCING STEEL IN THE SUBSTRUCTURES SHALL BE 50mm ALONG WALL FACES AGAINST EARTH, AND 75mm ELSEWHERE UNLESS DETAILED OTHERWISE

7. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25mm X 25mm.

8. JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

9. THE BRIDGE DECK SURFACE SHALL BE TEXTURED TRANSVERSELY USING A BROOM OR OTHER METHOD APPROVED BY THE ENGINEER. THE TEXTURING OPERATION SHALL BE DONE SO AS NOT TO INTERFERE WITH THE APPLICATION OF THE INITIAL CURE.

10. CONCRETE PORTIONS OF THE ABUTMENT AND WINGWALL ABOVE THE ADJACENT BRIDGE SEAT ELEVATIONS SHALL NOT BE PLACED UNTIL THE FINISH GRADE HAS BEEN DETERMINED BY THE RESIDENT ENGINEER.

11. THE KEY IN THE CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. UPWARD KEYS SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.

12. WATER REPELLENT (MOD.-SILANE) SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE SLAB BETWEEN DRIP NOTCHES.

13. ALL TEMPORARY ON AND OFF PROJECT SIGNS AND BARRICADES AS SHOWN ON THE TRAFFIC CONTROL SHEET SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND PAID FOR UNDER THE ITEM 641.10 "TRAFFIC CONTROL".

14. IN ACCORDANCE WITH SECTION 641 THE CONTRACTOR MAY CONSTRUCT A DETOUR DIFFERENT THAN WHAT IS SHOWN ON THE PLANS. ANY DETOUR MUST ALLOW EMERGENCY VEHICLE PASSAGE AND BEGIN NORMAL TO THE RAILROAD TRACKS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL ROW RIGHTS AND ALL ADDITIONAL PERMITS IF THE LIMITS OF AN ALTERNATE DETOUR EXTEND BEYOND THE LIMITS SHOWN ON THE PLANS.

15. IF THE CONTRACTOR CONSTRUCTS THE TEMPORARY DETOUR AS SHOWN ON THE PLANS, WINGWALL #1 WILL REQUIRE STAGED CONSTRUCTION. REINFORCING BARS MARKED 1W1601, 1W1605 AND 1W1606 SHALL BE ADJUSTED TO CONFORM TO THE STAGED CONSTRUCTION. IF USED, MECHANICAL CONNECTORS SHALL HAVE A MINIMUM YIELD (Fy) EQUAL TO 150% Fy OF THE REINFORCING STEEL BEING CONNECTED. MECHANICAL BAR CONNECTORS SHALL BE PAID FOR UNDER THE ITEM 507.19 "MECHANICAL BAR CONNECTOR".

16. ANY EXISTING SIGNS NOT REUSED SHALL REMAIN THE PROPERTY OF THE TOWN OF GRANVILLE.

17. FULL ACCESS TO ALL THE DRIVES WITHIN THE PROJECT SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

18. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ANY PORTION OF THE SUBSTRUCTURE NOT REMOVED UNDER THE ITEM 208.35 "COFFERDAM EXCAVATION, ROCK" OR "UNCLASSIFIED CHANNEL EXCAVATION".

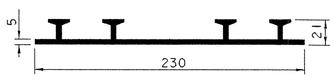
19. "STONE FILL TYPE III" SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE SLAB IS POURED.

20. A ONE WAY TEMPORARY BRIDGE WILL BE USED TO MAINTAIN TRAFFIC UPSTREAM FROM EXISTING STRUCTURE.

21. THE BRIDGE PLAQUE SHALL BE FURNISHED BY THE AGENCY OF TRANSPORTATION AND INSTALLED BY THE CONTRACTOR AS SHOWN ON THE DETAILS ON THIS SHEET.

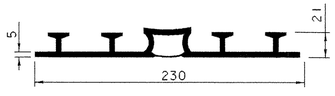
22. THE SITE SURVEY WAS COMPLETED PRIOR TO THE CONSTRUCTION OF THE STONE WALL AT ABUTMENT NO. 1. PRIOR TO THE CONSTRUCTION OF ABUTMENT NO. 1 THE LOCATION OF THE STONE WALL MUST BE VERIFIED BY THE ENGINEER. THE FRONT FACE OF THE NEW ABUTMENT SHALL MATCH AS CLOSE AS POSSIBLE THE FACE OF THE STONE WALL. IF ADJUSTMENTS ARE MADE TO THE "BEGIN BRIDGE" STATIONING, THE END OF BRIDGE LOCATION WILL NEED TO BE ADJUSTED AS WELL. ALL ADJUSTMENTS SHALL BE APPROVED IN WRITING BY THE PROJECT MANAGER.

23. ANY DISTURBANCE OF THE STONE WALL ADJACENT TO WINGWALL #2 SHALL BE REPAIRED TO THE SATISFACTION OF THE RESIDENT ENGINEER AND SHALL BE INCIDENTAL TO THE ITEM 208.40, "COFFERDAM (STA 1+020.820)".



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS

NTS



P.V.C. WATERSTOP FOR EXPANSION JOINTS

NTS

The costs for P.V.C. Waterstop shall be included in the unit price bid for concrete. Other configurations may be used upon approval of the structures engineer.

SUBSTRUCTURES ON LEDGE:

24. THE FOOTINGS FOR THE SUBSTRUCTURES SHALL BE FOUNDED ON LEDGE, WHICH SHALL BE CLEANED OF ALL LOOSE ROCK AND OTHER DEBRIS. THE LEDGE SHALL BE REMOVED AS REQUIRED TO ENSURE THE FOOTINGS ARE PLACED ON COMPETENT ROCK.

25. LEDGE THAT IS EXCAVATED FOR THE PLACEMENT OF FOOTINGS SHALL BE EXCAVATED TO PROVIDE A LEVEL SURFACE OR AS DIRECTED BY THE RESIDENT ENGINEER.

26. A MAXIMUM OF 150mm OVER BREAKAGE WILL BE ALLOWED AND REPLACED WITH "CONCRETE, HIGH PERFORMANCE CLASS B". OVER BREAKAGE BEYOND 150mm WILL BE REPLACED WITH "CONCRETE, HIGH PERFORMANCE CLASS B" AT THE EXPENSE OF THE CONTRACTOR.

27. FOR ALL SUBSTRUCTURE UNITS WHERE LEDGE IS WITHIN 300mm OF THE BOTTOM OF THE FOOTING AS DESIGNED, THE FOOTING MAY BE POURED TO THE TOP OF THE LEDGE USING "CONCRETE, HIGH PERFORMANCE CLASS B".

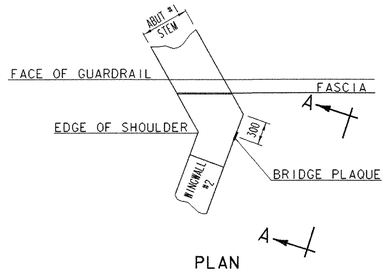
28. FOR ALL SUBSTRUCTURE UNITS WHERE LEDGE IS BELOW THE BOTTOM OF FOOTING BY MORE THAN 300mm, A LEDGE PROFILE SHALL BE PROVIDED TO THE PROJECT MANAGER TO DETERMINE IF THE FOOTING MAY BE LOWERED OR IF A SUBFOOTING IS REQUIRED.

29. IF LEDGE IS ABOVE THE DESIGN BOTTOM OF FOOTING, THE FOOTING ELEVATION MAY BE RAISED. BEFORE ANY ADJUSTMENT IS MADE IN FOOTING ELEVATIONS THE PROJECT MANAGER SHALL BE CONTACTED FOR APPROVAL.

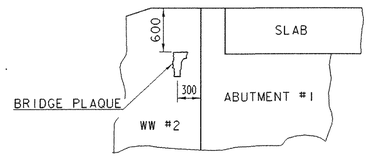
30. #25 DOWELS SHALL BE DRILLED AND GROUTED INTO LEDGE AS SHOWN ON THE PLANS. THE DOWELS SHALL HAVE A 600mm EMBEDMENT IN THE LEDGE AND SHALL EXTEND IN THE FOOTING A MINIMUM OF 450mm UNLESS NOTED OTHERWISE. THE DRILLING AND GROUTING SHALL BE PAID FOR UNDER THE ITEM 507.16 "DRILLING AND GROUTING DOWELS". HOWEVER, THE DOWELS SHALL BE PAID FOR UNDER THE ITEM 507.15 "REINFORCING STEEL".

31. REMOVAL OF LEDGE SHALL BE DONE BY MECHANICAL MEANS ONLY. BLASTING WILL NOT BE ALLOWED DUE TO THE PROXIMITY OF RAILROAD FACILITIES.

32. UPON COMPLETION OF EXCAVATION FOR THE SUBSTRUCTURES AND PRIOR TO PLACING FORMWORK, THE RESIDENT ENGINEER SHALL CONTACT THE SOILS AND FOUNDATION ENGINEER/ENGINEERING GEOLOGIST FROM THE VERMONT AGENCY OF TRANSPORTATION TO INSPECT THE LEDGE TO DETERMINE IF IT IS COMPETENT TO SUPPORT THE DESIGN PRESSURE AS SHOWN ON THE PLANS. THE GEOLOGIST SHALL BE ALLOWED 5 WORKING DAYS FROOM NOTICE OF EXCAVATION TO MAKE THE INSPECTION AND THE DETERMINATION OF THE COMPETENCY OF THE LEDGE.



PLAN

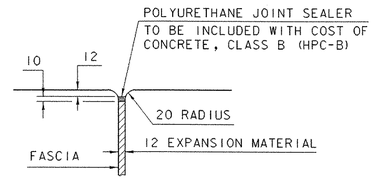


VIEW "A - A"

LOCATE BRIDGE PLAQUE

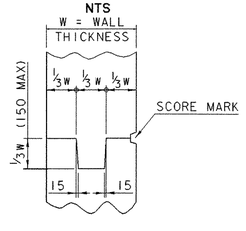
NTS

The bridge plaque will be supplied by The Agency of Transportation and shall be installed by the contractor at abutment #1 on the right side as shown or as directed by the engineer.



JOINT BETWEEN FASCIA AND WINGWALL

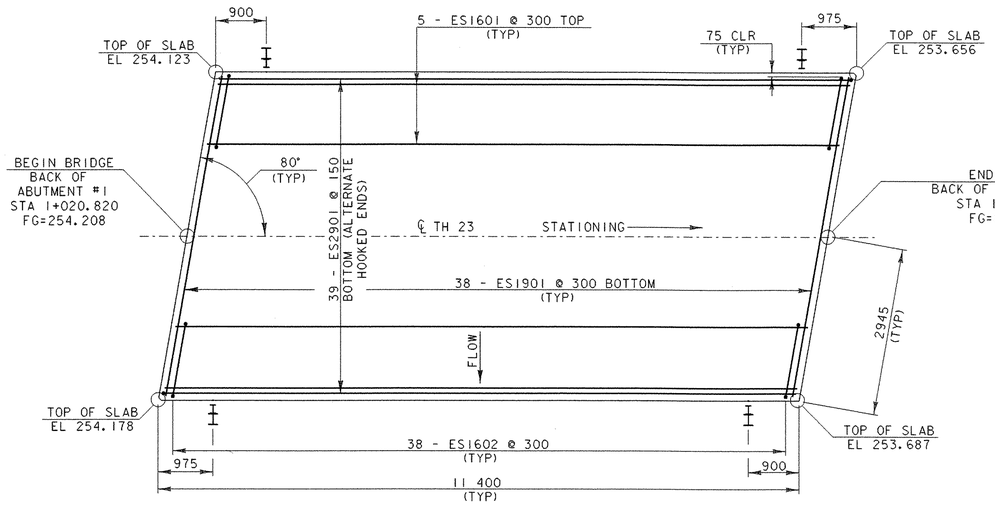
NTS



TYPICAL CONCRETE CONSTRUCTION JOINT

NTS

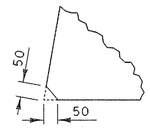
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100sup.dgn	
IPARM FILE NAME: sj199not.i	PLOT DATE: 03-MAR-2006
DESIGNED BY: N. WARK	DRAWN BY: N. WARK
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K. HIGGINS
GENERAL NOTES AND MISC. DETAILS	SHEET: 15 OF 39



PLAN

0 1 2 3 4 5

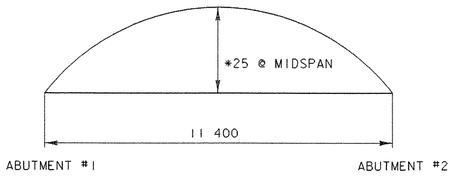
SCALE = 1:50



ACUTE ANGLE DETAIL

0 0.5 1

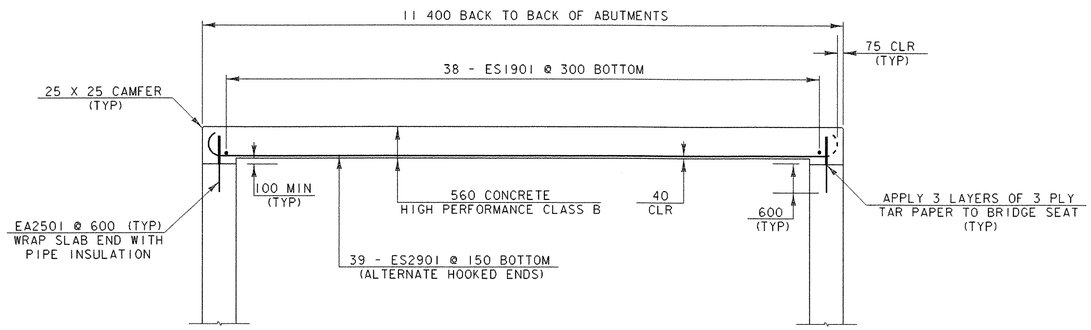
SCALE = 1:10



* SET CONSTRUCTION FORMS TO THIS CAMBER
CAMBER SHALL APPROXIMATE A CIRCULAR CURVE

CAMBER

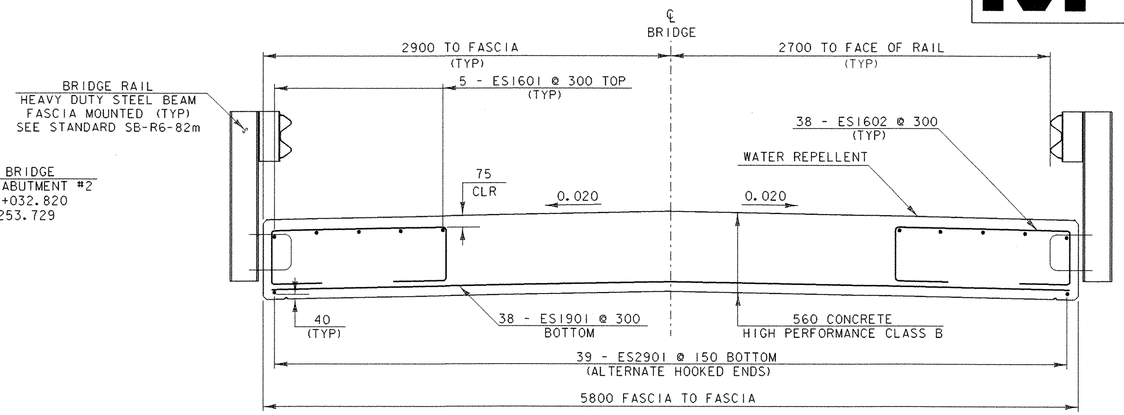
NTS



ELEVATION ALONG ROADWAY

0 1 2 3 4 5

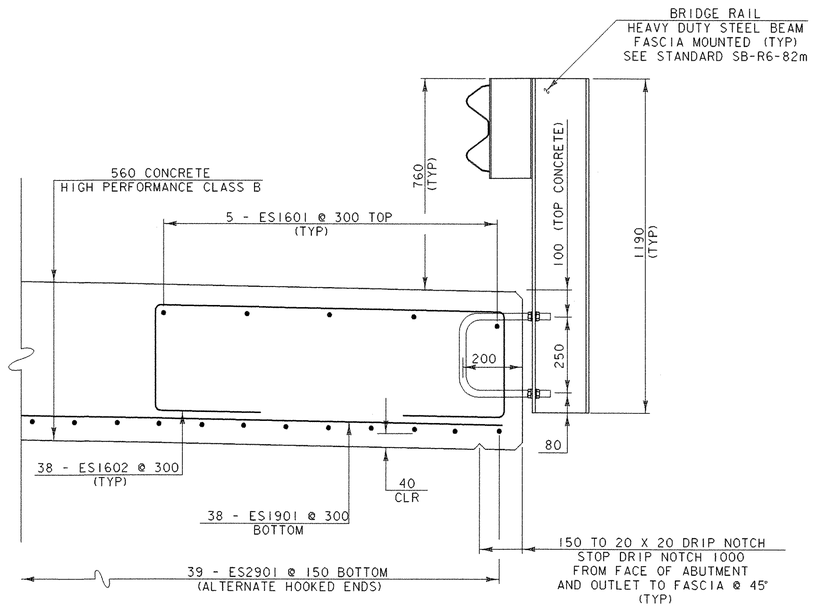
SCALE = 1:50



BRIDGE TYPICAL SECTION

0 1 2

SCALE = 1:20

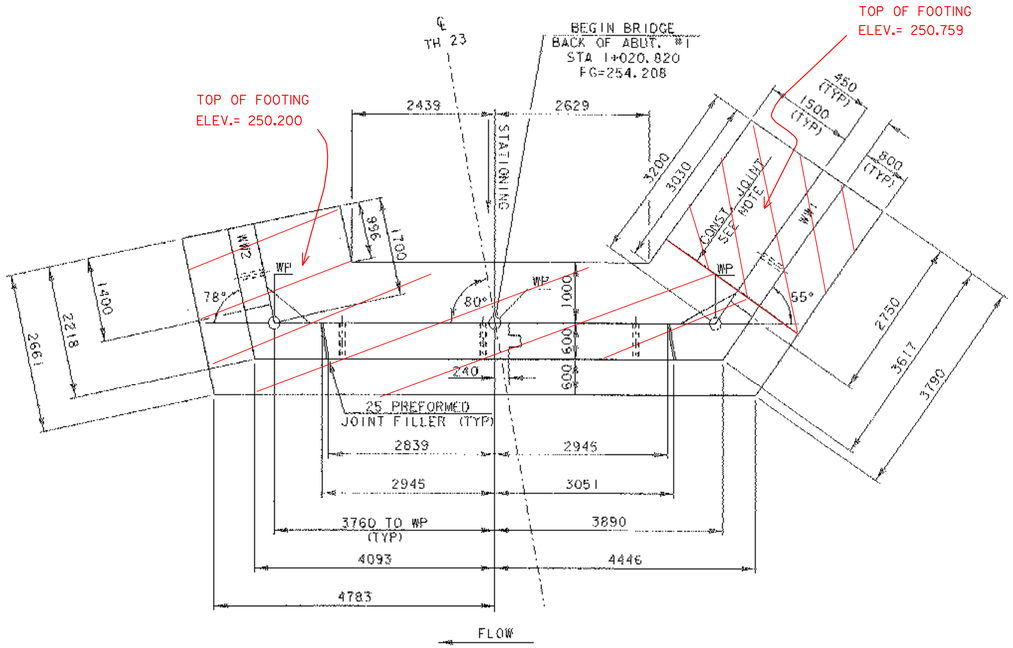


FASCIA & RAILING DETAILS

0 0.5 1

SCALE = 1:10

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100sup.dgn	
IPARM FILE NAME: sj100sup.i	PLOT DATE: 03-MAR-2006
DESIGNED BY: N. WARK	DRAWN BY: N. WARK
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K HIGGINS
SLAB DETAILS	SHEET: 16 OF 39



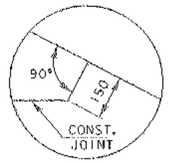
ABUTMENT NO. 1 PLAN

0 1 2 3 4 5

SCALE = 1:50

NOTE:

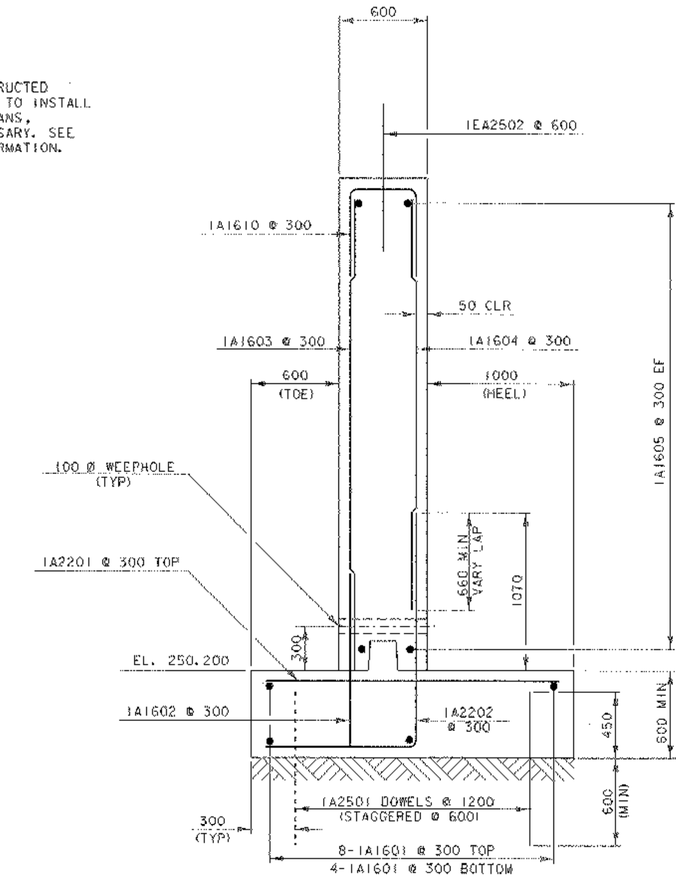
DUE TO THE LOCATION OF THE TEMPORARY BRIDGE, WINGWALL 1 MAY HAVE TO BE CONSTRUCTED IN TWO STAGES. IF THE CONTRACTOR ELECTS TO INSTALL THE TEMPORARY BRIDGE AS SHOWN IN THE PLANS, MECHANICAL BAR CONNECTORS WILL BE NECESSARY. SEE GENERAL NOTES #14 AND #15 FOR MORE INFORMATION.



DETAIL "A"

0 0.5 1

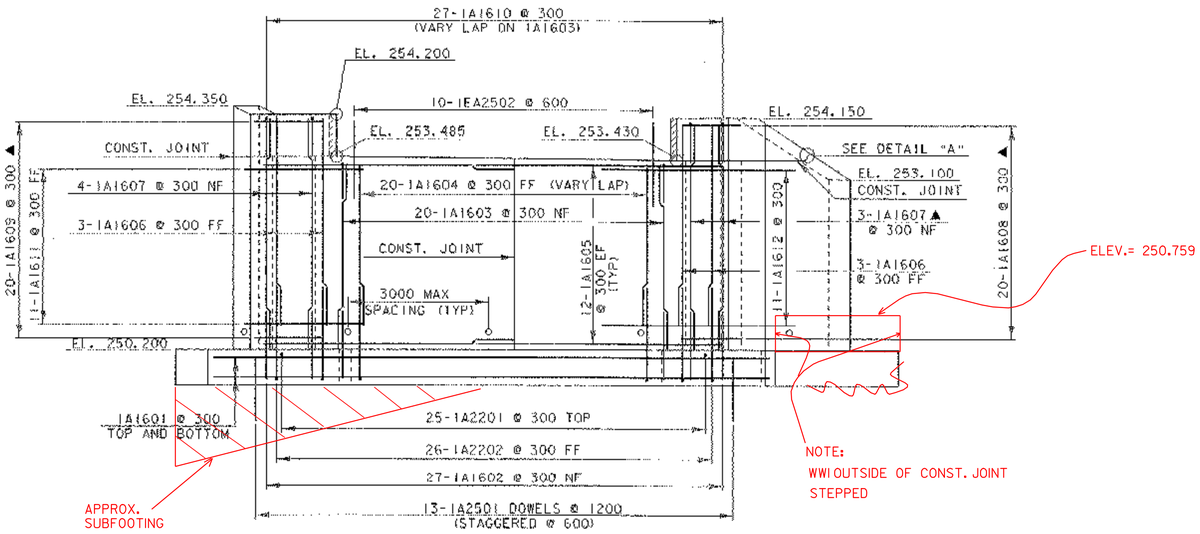
SCALE = 1:10



ABUTMENT NO. 1 TYPICAL SECTION

0 1 2

SCALE = 1:20



ABUTMENT NO. 1 ELEVATION

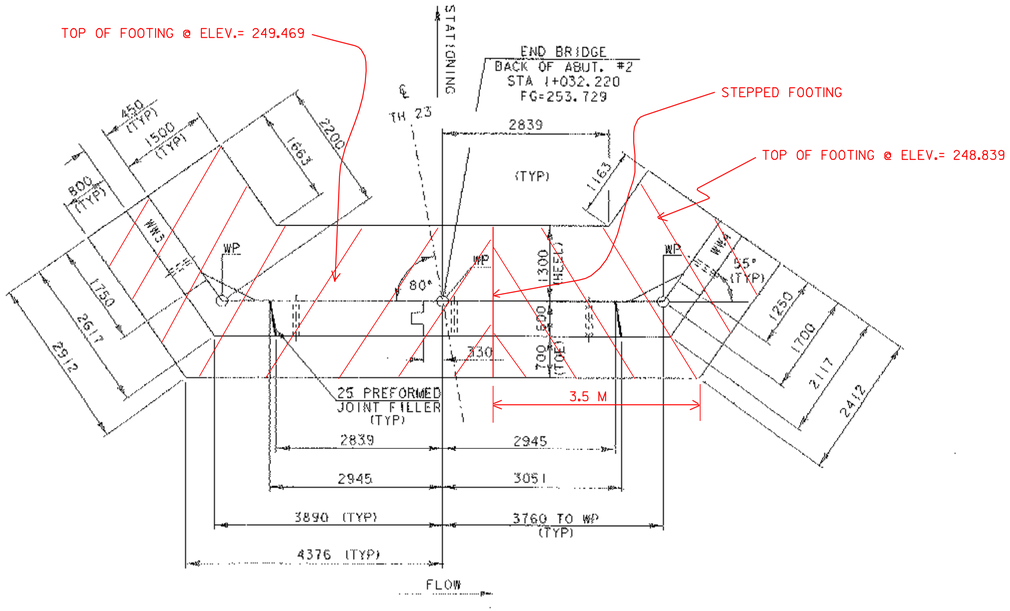
0 1 2 3 4 5

SCALE = 1:50

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.
ALL LAPS 660 UNLESS OTHERWISE SPECIFIED ON THE PLANS.

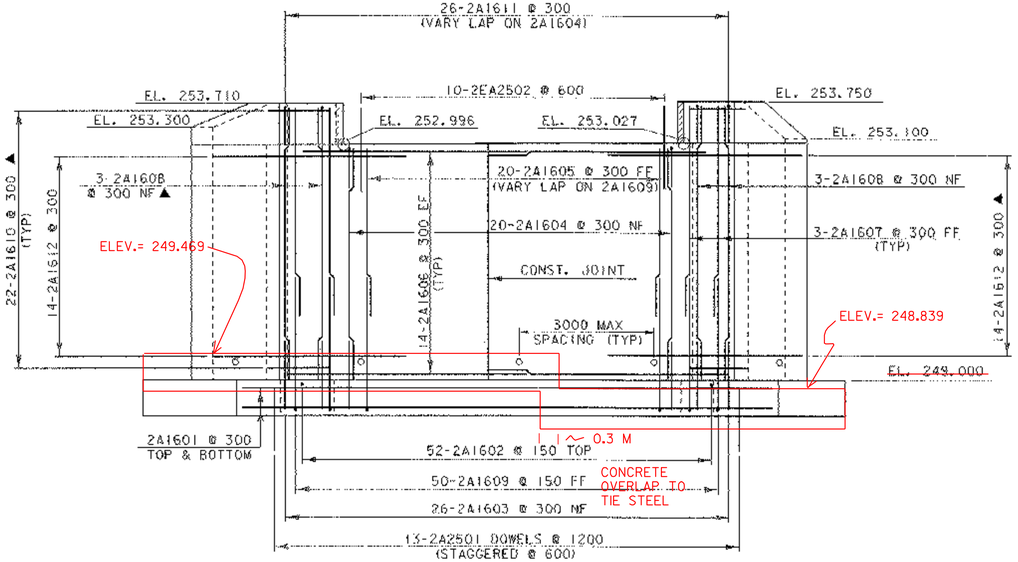
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444(34)
DESIGN FILE NAME: 94J100/structuros/sj100sub.dgn	
IPARM FILE NAME: sj100ab1.i	PLOT DATE: 03-MAR-2006
DESIGNED BY: N. WARK	DRAWN BY: N. WARK
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K. HIGGINS
ABUTMENT NO. 1 DETAILS	SHEET: 17 OF 39



ABUTMENT NO. 2 PLAN

0 1 2 3 4 5

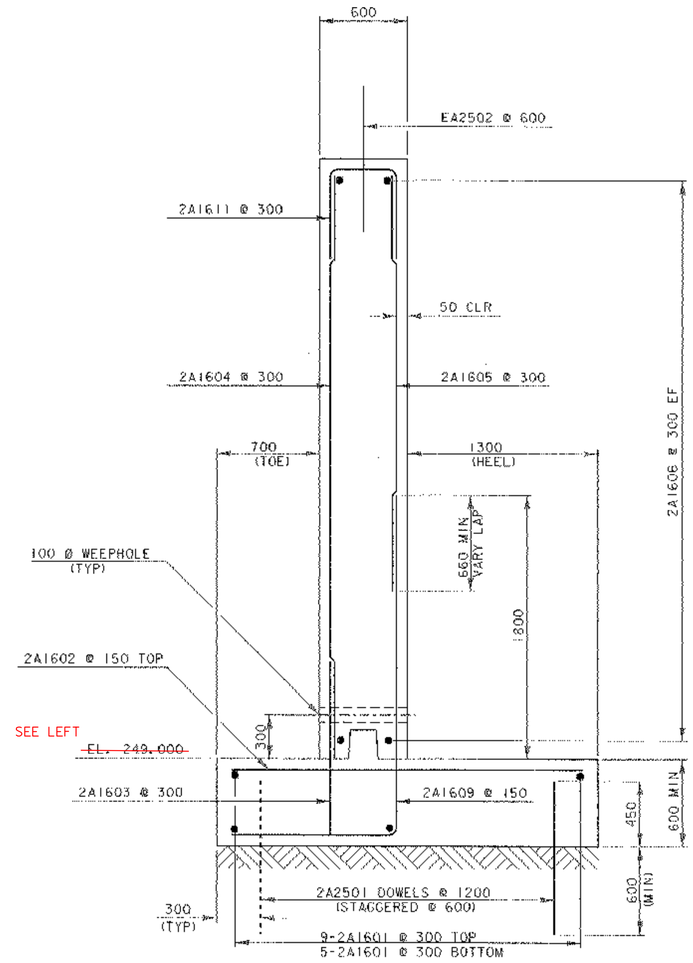
SCALE = 1:50



ABUTMENT NO. 2 ELEVATION

0 1 2 3 4 5

SCALE = 1:50



ABUTMENT NO. 2 TYPICAL SECTION

0 1 2

SCALE = 1:20

NOTE:

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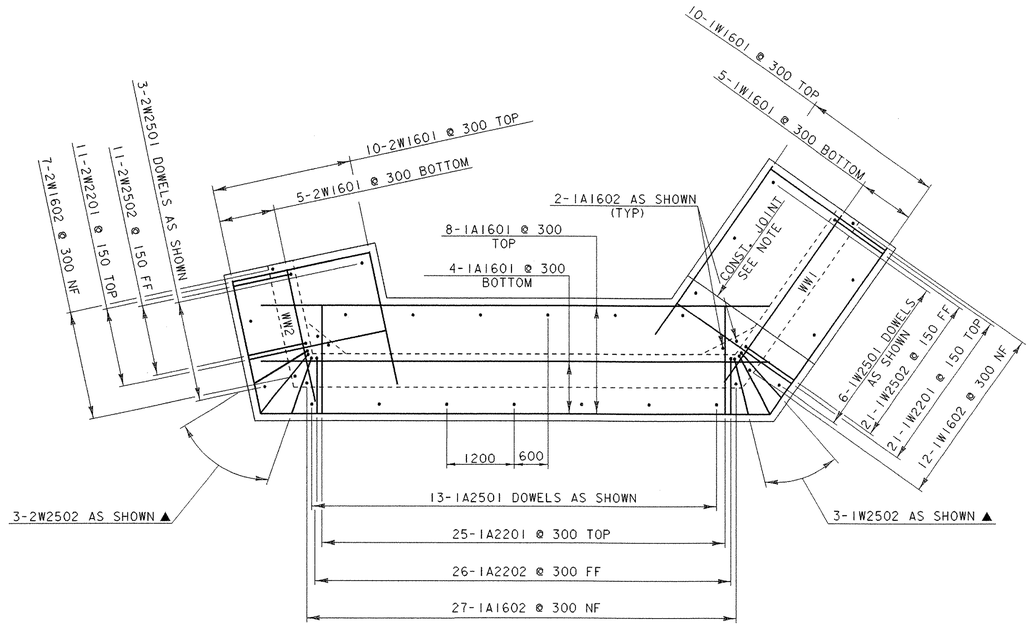
ALL LAPS 660 UNLESS OTHERWISE SPECIFIED ON THE PLANS.

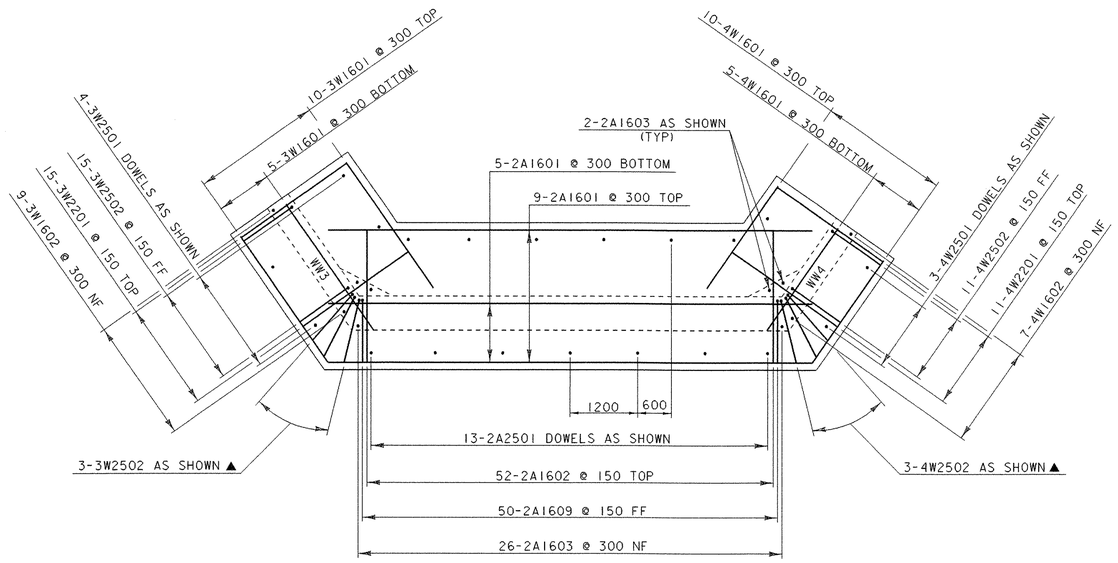
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444(34)
DESIGN FILE NAME: 94j100/structures/sj100sub.dgn	
IPARM FILE NAME: sj100ab2.i	PLOT DATE: 03-MAR-2006
DESIGNED BY: N. WARK	DRAWN BY: N. WARK
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K. HIGGINS
ABUTMENT NO. 2 DETAILS	SHEET: 18 OF 39



ABUTMENT NO. 1 PLAN

0 1 2 3 4 5

SCALE = 1:50



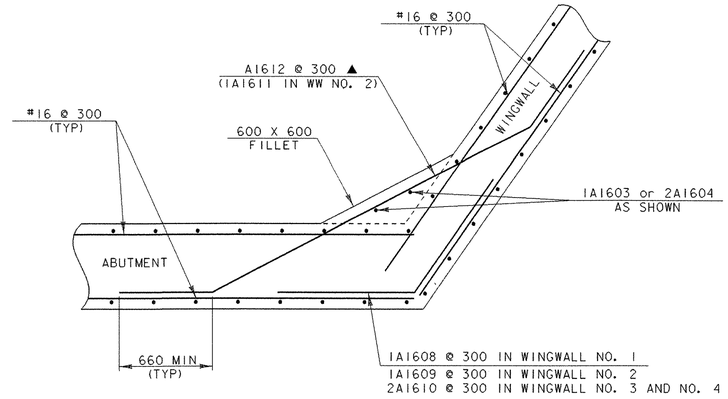
ABUTMENT NO. 2 PLAN

0 1 2 3 4 5

SCALE = 1:50

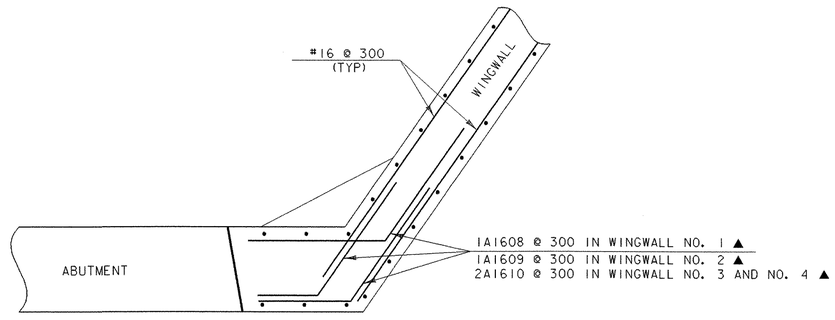
NOTE:

DUE TO THE LOCATION OF THE TEMPORARY BRIDGE, WINGWALL 1 MAY HAVE TO BE CONSTRUCTED IN TWO STAGES. IF THE CONTRACTOR ELECTS TO INSTALL THE TEMPORARY BRIDGE AS SHOWN IN THE PLANS, MECHANICAL BAR CONNECTORS WILL BE NECESSARY. SEE GENERAL NOTES #14 AND #15 FOR MORE INFORMATION.



CORNER DETAILS BELOW BRIDGE SEAT (TYP)

NTS



CORNER DETAILS ABOVE BRIDGE SEAT (TYP)

NTS

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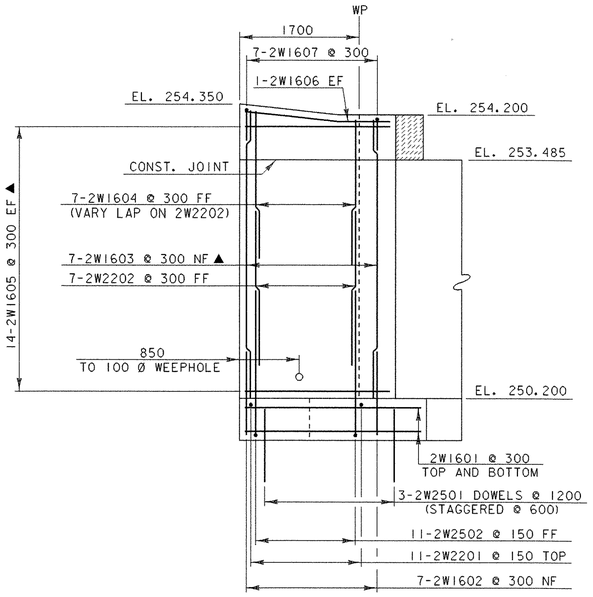
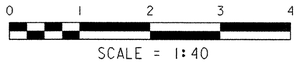
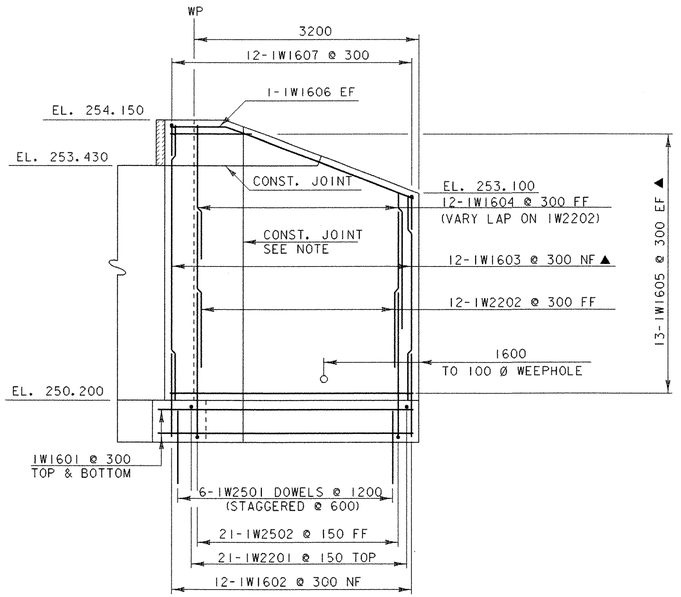
ALL LAPS 660 UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94J100/structures/sj100sub.dgn	
IPARM FILE NAME: sj100ftg.i	PLOT DATE: 03-MAR-2006
DESIGNED BY: N. WARK	DRAWN BY: N. WARK
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K. HIGGINS
FOOTING AND CORNER DETAILS	SHEET: 19 OF 39

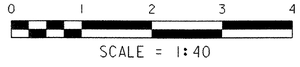


WINGWALL NO. 2 ELEVATION





WINGWALL NO. 1 ELEVATION



NOTE:

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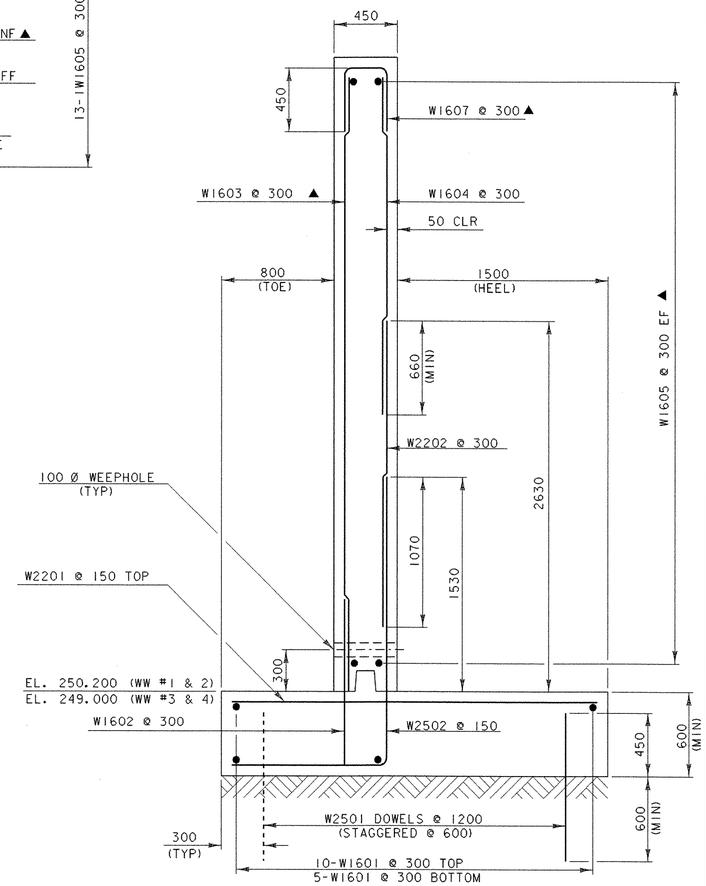
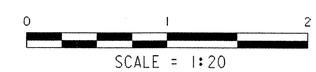
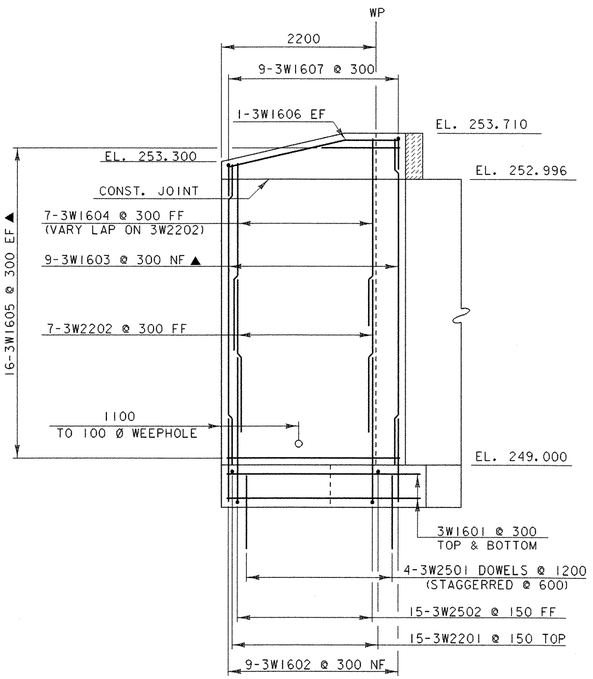
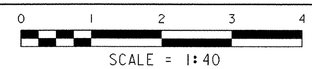


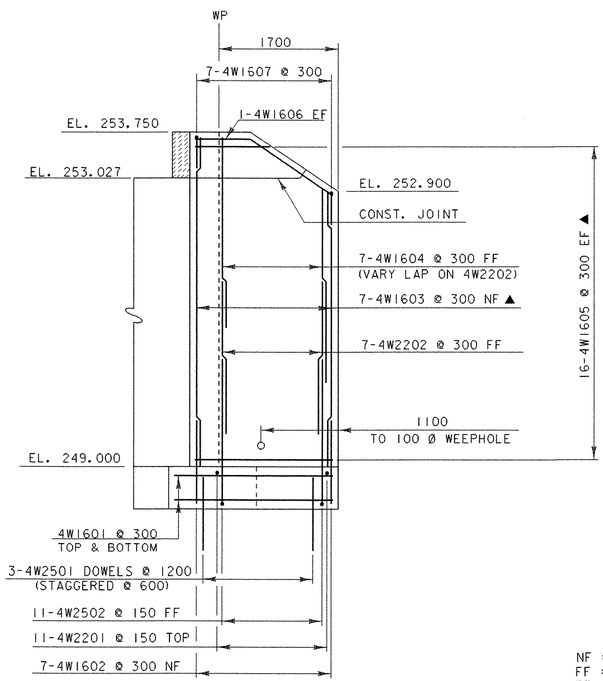
WINGWALL TYPICAL SECTION



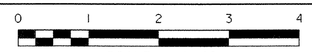


WINGWALL NO. 3 ELEVATION





WINGWALL NO. 4 ELEVATION



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ALL LAPS 660 UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100sub.dgn	
IPARM FILE NAME: sj100ww.i	PLOT DATE: 03-MAR-2006
DESIGNED BY: N. WARK	DRAWN BY: N. WARK
SQUAD LEADER: C.P. WILLIAMS	CHECKED BY: K. HIGGINS
WINGWALL DETAILS	SHEET: 20 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

Metric

SUPER STRUCTURE

	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
△	12	16	11240	ES1601	STR												
△	40	19	5730	ES1902	STR												
	76	16	2640	ES1602	S6	300	410	1220	410			300					
△	41	29	11615	ES2901	1	375	11240		240			---					

ABUTMENT #1

	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	12	16	9120	1A1601	STR												
	31	16	1190	1A1602	STR												
✳	25	16	3150	1A1603	STR												
	20	16	2800	1A1604	STR												
	48	16	4270	1A1605	STR												
	6	16	3520	1A1606	STR												
▲	7	16	3920	1A1607	STR												
△	27	22	2050	1A2201	STR												
	13	25	1050	1A2501	STR												
	10	25	1180	1EA2502	STR												
▲	20	16	2180	1A1608	19		1090	1090	---				900	---	630	---	
▲	20	16	2160	1A1609	19		1080	1080	---				1055	---	225	---	
	27	16	1910	1A1610	S10		720	470	720								
	11	16	3500	1A1611	22		660	2180	660				420	420	510	510	
	11	16	4070	1A1612	22		660	2750	660				300	300	590	590	
	26	22	2670	1A2202	17		1070	1600	---								

WINGWALL #1

	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	15	16	3640	1W1601	STR												
	12	16	1190	1W1602	STR												
▲	12	16	3870	1W1603	STR												
✳	12	16	1910	1W1604	STR												
▲	26	16	3300	1W1605	STR												
	21	22	2600	1W2201	STR												
	12	22	2170	1W2202	STR												
	6	25	1050	1W2501	STR												
	2	16	3440	1W1606	19		760	2680	---				280	---	710	---	
	12	16	1220	1W1607	S10		450	320	450								
△	26	25	3180	1W2502	17		1120	2060	---								

WINGWALL #2

	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	15	16	2510	2W1601	STR												
	7	16	1190	2W1602	STR												
▲	7	16	4070	2W1603	STR												
	7	16	2100	2W1604	STR												
▲	28	16	2060	2W1605	STR												
	11	22	2600	2W2201	STR												
	7	22	2170	2W2202	STR												
	3	25	1050	2W2501	STR												
	2	16	2070	2W1606	19		740	1330	---				75	---	740	---	
	7	16	1220	2W1607	S10		450	320	450								
	14	25	3180	2W2502	17		1120	2060	---								

ABUTMENT #2

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	14	16	8670	2A1601	STR												
✳	53	16	2450	2A1602	STR												
	30	16	1190	2A1603	STR												
	24	16	3920	2A1604	STR												
	20	16	2820	2A1605	STR												
	56	16	4180	2A1606													
	6	16	3540	2A1607	STR												
▲	6	16	4670	2A1608	STR												
	13	25	1050	2A2501	STR												
	10	25	1180	2EA2502	STR												
	52	16	3500	2A1609	17		1170	2330	---								
▲	44	16	2180	2A1610	19		1090	1090	---				900	---	630	---	
	26	16	1870	2A1611	S10		700	470	700								
▲	28	16	4070	2A1612	22		660	2750	660				300	300	590	590	

WINGWALL #3

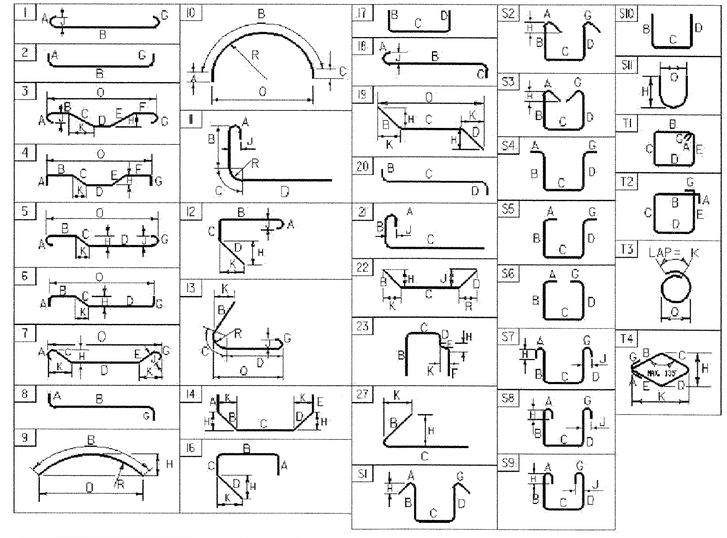
ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	15	16	2750	3W1601	STR												
	9	16	1190	3W1602	STR												
▲	9	16	4630	3W1603	STR												
▲ ✳	33	16	2460	3W1605	STR												
△	17	22	2600	3W2201	STR												
	7	22	2170	3W2202	STR												
	4	25	1050	3W2501	STR												
	2	16	2510	3W1606	19		790	1720	---				180	---	770	---	
	9	16	1220	3W1607	S10		450	320	450								
✳	19	25	3180	3W2502	17		1120	2060	---								

WINGWALL #4

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	15	16	2260	4W1601	STR												
	7	16	1190	4W1602	STR												
▲	7	16	4670	4W1603	STR												
	7	16	2710	4W1604	STR												
▲	32	16	1980	4W1605	STR												
	11	22	2600	4W2201	STR												
	7	22	2170	4W2202	STR												
	3	25	1050	4W2501	STR												
	2	16	2240	4W1606	19		790	1450	---				445	---	650	---	
	7	16	1220	4W1607	S10		450	320	450								
✳	15	25	3180	4W2502	17		1120	2060	---								

~ NOTES ~

1. 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.
2. 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".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

BAR SIZE	NOMINAL MASS (Kg/m)	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER (mm)	CROSS 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: GRANVILLE
PROJECT NUMBER: BRO 1444 (34)

FILE NAME: pw94j100/s94j100xls.dgn
PROJECT LEADER: C.P.WILLIAMS
DESIGNED BY: N. WARK
REINFORCING STEEL SCHEDULE SHEET

PLOT DATE: 7/1/2004
DRAWN BY: N. WARK
CHECKED BY: K. HIGGINS
SHEET 21 OF 39

VAOT Metric

BRIDGE RAILING - HEAVY DUTY STEEL BEAM/ FASCIA MOUNTED
STA 1+019.400 TO STA 1+032.600 RT
STA 1+020.300 TO STA 1+033.700 LT

(6) EVERGREEN TREES (B/B ABIES BALSAMEA-3000 mm)
STA 1+031 TO STA 1+052.600 LT
(AS DIRECTED BY RESIDENT ENGINEER)

CONSTRUCT DRIVE
STA 1+001.000 RT
150 AGGREGATE SURFACE COURSE
OVER 150 SUBBASE OF GRAVEL

ANCHORS FOR GUARD RAIL
STA 1+015.100 RT
STA 1+017.400 LT
STA 1+034.400 RT
STA 1+035.000 LT

HEAVY DUTY STEEL BEAM GUARD RAIL
STA 1+013.000 TO STA 1+019.400 RT
STA 1+032.600 TO STA 1+036.500 RT
STA 1+015.300 TO STA 1+020.300 LT
STA 1+033.700 TO STA 1+037.100 LT

TRAFFIC SIGN PLACEMENT
#1 STA 0+996 LT
#2 STA 0+990 LT
#3 STA 0+990 LT
#4 STA 0+992 RT
#4 STA 1+008 LT
#5 STA 1+060 LT
#6 RT 12 NORTH BOUND
#7 RT 12 SOUTH BOUND

END R.O.W. PROJECT
BRO 1444(34)
STA. 1+052.58 7.4M (24.3') LT.

UTILITLY RIGHTS TO BE ACQUIRED BY OTHERS.

BM 2
CHISELLED SQUARE
IN LEDGE OUTCROP
EL = 259.141

BM 3
CHISELLED SQUARE
IN ABUTMENT
EL = 252.857

TEMPORARY CONSTRUCTION LIMITS

MAINLINE POT Sta 1+025.000=
CHANNEL LINE Sta 2+015.000
Δ = 100°00' RT

CURVE No. 3
R = 37.132m
T = 14.921m
L = 28.375m
E = 2.886m
Bank = Normal

N/F
HANDLY ESTATE

M. APPLE

EXISTING R.O.W.

WOODS

VERMONT RTE. 12A

TO ROXBURY FLATS

HWY R.O.W.

NEW ENGLAND CENTRAL RAILROAD

1B

C.V. PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD INC.

CHAN. POE
Sta 2+030.000

1+024.96
7.6M
24.9' LT.

.68M
2.2'

1+024.58
6.9M
22.6' LT.

GRAVEL DRIVE

212

PI #1
Sta 1+016.300 BK=
Sta 1+016.274 AHD
Δ=12°30' RT

DETOUR (T)

CHANNEL (P)

SR (P)

EDF

2A

LUMBRA, JOSEPH R. & ELIZABETH A.
PI #2
Sta 1+040.275 BK=
Sta 1+040.247 AHD
Δ=9°27' RT

LANDSCAPE (T)

REMOVE & RESET (T)

1+047.59 LT.
7.6M (24.9') LT.
NEW POLE

PT
Sta 1+074.82

PT 200

TH 23 (GRAVEL ROAD) DEAD END

GRAVEL DRIVE

WILLOW (3)

M. LOCUSTS

HOUSE

PROPOSED SEDIMENT DEWATERING LOCATION (CONTRACTOR TO PROVIDE DETAILS AND METHODOLOGY WITH COFFERDAM DESIGN, SEE EROSION PREVENTION AND SEDIMENT CONTROL NOTES 7 & 8 ON SHEET #28).

WOODS

TO WEST BRAINTREE

0+980

1+000

1+020

1+040

1+060

N23° 10' 00"E

N35° 40' 00"E

N1° 20' 00E

N45° 07' 00"E

77.8' @ 23.7M

17.5M (57.4')

6.5M
21.3'

1+081.09 LT.
6.9M
22.6' LT.

CHANNEL LINE

PC Sta 1+013.10

PT Sta 1+019.559

PC Sta 1+034.07

CHAN. POB
Sta 2+000.000

N/F
DICKERSON

WOODS

FLOW THIRD BRANCH WHITE RIVER

CONST. (T)

TEMPORARY UTILITY ROUTE

INSTALL (T)

PT 7
INSTALL (T)

GARDEN

2T2

GRAVEL DRIVE (T)

S. SPRUCE

HOUSE

CHARTIER, BEVERLY D. & LEWIS, GLORIA D.

STONE WALL

STONE RETAINING WALL

COOK, TIMOTHY L. & LUMBRA, ANN

30' R.O.W TO HANDLY TRUST

REMOVE (T)
EXCEPT & RESERVE
Approx. gas tank loc.
Approx. gray water tank loc.

TEMPORARY POLE
S. SPRUCE

EXCEPT & RESERVE
HOUSE

2B

S. MAPLE

LILAC

S. SPRUCE

GRAVEL DRIVE

PI #3
Sta 1+061.367 BK=
Sta 1+059.901 AHD
Δ=43°47' LT

N/F
J. LUMBRA

LUMBRA, JOSEPH R. & ELIZABETH A.

CURVE No. 2
R = 75.000m
T = 6.199m
L = 12.370m
E = 0.256m
Bank = Normal

NOTE:
THIS SURVEY WAS TAKEN BEFORE THE JUNE 1998 FLOOD. MINOR CHANGES IN TOPOGRAPHY MAY HAVE OCCURED.

EXISTING BRIDGE DATA
6 STEEL BEAMS
TIMBER DECK
SPAN LENGTH = 10.7 m
ROADWAY WIDTH = 3.5 m
DECK WIDTH = 3.7 m

CURVE No. 1
R = 30.000m
T = 3.286m
L = 6.545m
E = 0.179m
Bank = Normal

1A

C.V. PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD INC.

BEGIN R.O.W. PROJECT
BRO 1444(34)
STA. 0+996.63 18.5M (61.0') RT.

LAYOUT

0 10 20
SCALE 1 : 250

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

FOR R.O.W. USE ONLY

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PROJECT:	PROJECT NO.:
GRANVILLE	BRO 1444(34)
DESIGN FILE NAME: /prop/94j100/rj100zzz.dgn	
IPARM FILE NAME: rj100lr.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: L. ORVIS	SURVEY DATE: JAN. 1996
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY:
R.O.W. SHEET 9 OF 9 SHEETS	SHEET 22 OF 39

Metric

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
1A	CENTRAL VERMONT PROPERTIES, INC.,	9	0+996.63 RT.	0+997.09 RT.			INSTALL (T) 11 SM±						EROSION CONTROL, 118 S.F.±
	JOINED BY NEW ENGLAND CENTRAL		1+000.00 RT.	1+005.00 RT.			INSTALL (T) 13 SM±						EROSION CONTROL, 140 S.F.±
	RAILROAD, INC.		1+005.200 RT.±	1+015.49 RT.			CONST. (T) 47 SM±						506 S.F.±; INCLUDES
													EROSION CONTROL
			1+001.00 RT.				DRIVE (T)						3.5M. (11') GRAVEL DRIVE
													ACCESS TO 3 PROPERTIES
1B			1+006.91 LT.	1+029.56 LT.			DETOUR (T) 105 SM±						1,130 S.F.±; INCLUDES
													EROSION CONTROL
			1+011.30 LT.	1+023.50 LT.			SLOPE (P) 35 SM±						377 S.F.±
			1+019.10 LT.	1+022.48 LT.			CHANNEL (P) 10 SM±						108 S.F.±
2A	LUMBRA, JOSEPH R. & ELIZABETH A.	9	1+024.58 LT.	1+047.59 LT.	13.8 SM±			WDOE	08-20-04	GRANVILLE	35	231-	149 S.F.±
			1+031.91 LT.	1+052.58 LT.			DETOUR (T)117 SM±					233	ONE WAY VEHICULAR
													INCLUDES EROSION CONTROL
													1259 S.F.±
			1+031.91 LT.	1+052.58 LT.			LANDSCAPE (T)						TO REPLACE DETOUR IMPACT
													6 CONIFEROUS TREES
			1+031.90 LT.	1+038.58 LT.			SLOPE (P) 13 SM±						140 S.F.±
			1+043.65 LT.				REMOVE & RESET (T)						PINE TREE
			1+031.90 LT.	1+035.49 LT.			CHANNEL (P) 10 SM±						108 S.F.±
2B		9	1+028.59 RT.	1+033.84 RT.			CONST. (T) 3 SM±						32 S.F.±; INCLUDES
													EROSION CONTROL
			1+039.10 RT.	1+045.27 RT.									EXCEPT & RESERVE SEPTIC
													SYSTEM & GRAY WATER
			1+044.62 RT.	1+056.61 RT.									EXCEPT & RESERVE HOUSE
			1+046.46 RT.				REMOVE (T)						PROPANE GAS TANK
3	VERIZON NEW ENGLAND, INC.												UTILITY
4	CENTRAL VERMONT PUBLIC SERVICE CORPORATION												UTILITY

REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY
		ELECTRONIC IPRMS TO STRUCTURES	12-5-05		

ACCT. hlawrence
IP_PWP:dms03759\rj100d.dgn
DATE PLOTTED 03-MAR-2006

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
CONST. (T) — CONSTRUCTION EASEMENT
SR SR — SLOPE RIGHTS
P L — PROPERTY LINE
TOP OF CUT
TOE OF SLOPE
UE (P) — PERMANENT UTILITY EASEMENT

APPROVED: ROGER P. DUMAS DATE: 08-06-03
CHIEF, PLANS & TITLES

R. O. W. PLANS

GRANVILLE
BRO 1444(34)
R. O. W. SHEET 8 OF 9 SHEETS
SHEET 23 OF 39

EROSION PREVENTION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

This project involves the placement of a temporary bridge, the removal and replacement of Bridge #15 on TH 23 in Granville, and the temporary relocation of an overhead power line. The project site is located at the intersection of Rt. 12A and TH 23 in the town of Granville. The current bridge is a steel beam wooden deck spanning 7.6 meters over the Third Branch of the White River. The proposed bridge is a single span concrete slab bridge that will span the same distance over the Third Branch of the White River.

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

SITE INVENTORY AND ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS
The property surrounding the project site consists of well established vegetation with moderate slopes at the project site and very steep slopes around the outer edges of the project location. The property surrounding the project site is mostly grass and bushes with some trees in the area. Due to the nature of the surrounding terrain the project site could receive runoff water onto the project site from a few nearby slopes. If this is the case it should be minimal at best.

DRAINAGE, WATERWAYS, BODIES OF WATER:
The Third Branch of the White River is the only water source in or near the project location. The river is classified as perennial but flashy, incised, sinuous, and laterally unstable with a streambed made up of mostly cobbles, with some gravel and boulders. The tributary area at the bridge crossing is 60.4 sq km. This river does have a tendency of rising fast.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:
The topography of the project site is classified as mountainous and mostly forested. The land at the project site is mostly flat but the land in the distance is very steep in spots. There is one house near the project site, a stone retaining wall at the bridge site, and an overhead power line that is going to be relocated.

VEGETATION:
The vegetation in the project area is made up of grass, bushes, and trees. The impact to vegetation will be limited to that which is affected by construction of the temporary bridge and the removal and replacement of the new abutments. After the project is finished, the slopes will be stabilized with stone fill and vegetation will be reestablished with standard seed and mulch practices.

SOILS:
The U.S. Department of Agriculture Conservation Service soil survey of Addison County provided all soils information. There are three types of soils present in the project location: Hadley, Stetson, and Cobbly alluvial land. The Hadley soil is a fine sandy loam in hydrologic group B, with a K-value of 0.49. The Stetson type soils are found on the South-West side of the project area with a K-value of 0.1. This soil is a gravely, fine sandy loam from hydrologic group B with slopes of 0-5% and it is not a highly erodible soil. Cobbly alluvial land is found on the North-East side of the project area and is made up of many layers of silt and clay.

SENSITIVE RESOURCE AREAS:
There are no 'Threatened & Endangered Species' living on or near the project site. The southwestern quadrant of the project area is sensitive for historic and archaeological resources. There are also portions of the project site that do get flooded out on a regular basis.

PROXIMITY TO NATURAL OR MAN-MADE FEATURES:
Disturbance of soils near natural or man-made waters consists of that which is necessary to the placement of the temporary bridge, the removal and replacement of Bridge #15, its abutments, and some minor approach work. Stabilization of disturbance to the stream banks will be accomplished with Stone Fill, Type III under laid with erosion control matting.

TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

TEMPORARY EROSION PREVENTION MEASURES TO BE UTILIZED INCLUDE:
"Project Demarcation Fencing," denoted -PDF- on the plans, to delineate the limits the contractor can access with construction equipment. The area that can be disturbed and exposed to erosion is limited by this measure.

Stabilization is required for any soil exposed for more than 48 hours. Seeding, and biodegradable erosion control matting or equivalent product is needed for slopes greater than 1:3. In areas with large slopes stone fill under laid with erosion control matting is required. Areas at stations 1+020 – 1+024LT – RT, 1+028 – 1+031.8LT – RT all require this technique. All slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity.

Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for 48 hours prior to final grading shall be tracked and mulched. The forecast of rainfall events shall also trigger protection of exposed slopes.

Temporary stone check dams will be placed in ditches to reduce flow velocities and thus reduce the potential for erosion. Check dams will be placed along the ditches such that the elevation of the top of each check dam corresponds with the elevation of the toe of the preceding upslope check dam. See "Erosion Control Details" sheet. The check dams may be removed once the stone lining of the ditch is complete and the surrounding area stabilized.

TEMPORARY MEASURES TO CONTROL SEDIMENT TRANSPORT INCLUDE:
Silt fence will be installed a distance of 5' to 10' (1500-3000) from the toe of slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with ends turned slightly uphill to create a ponding effect should water try to run along the fencing and around the ends. The maximum slope length between separate runs of silt fence is 100' (30,000). Silt fence shall be installed prior to any upslope earthwork.

Sand bags filled with clean, small diameter stone, or an equivalent barrier, will be utilized around the drop inlet to create a temporary ponding area for particles to settle out as water drains through the barrier. Inlet protection shall be installed as soon as there is the possibility of water flowing to the structure. The height of the barrier shall be limited such that the ponding area does not present a hazard to the traveling public. Alternative inlet control measures shall be approved by the engineer prior to implementation.

Measures such as temporary stone check dams, silt fence, and sand bags shall be checked regularly for accumulation of sediment. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediments shall be disposed of in an area where they 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 12'X50' (3700X15, 000). All surface water flowing to or diverted toward a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area, however, no pipe smaller then 6" (150) diameter shall be used. When constructing a stabilized entrance, utilize the materials and construction method shown on the 'Erosion & Sediment Control Plan' sheet.

Temporary sediment settling basins may or may not be utilized on this project. If a sediment settling basin is to be used for dewatering a cofferdam, it should be sized based upon the following criteria: (See Sediment Settling Basin Sizing Criteria.)

PERMANENT EROSION CONTROL MEASURES

SEVERAL PERMANENT EROSION CONTROL MEASURES WILL BE UTILIZED:
A stone lining of the stream bank with Stone Fill, Type III will be employed as a control measure as specified by VTrans Hydraulics personnel. This stone will protect from stream bank erosion during design storm events. In order to dissipate water velocities and reduce erosion potential, utilize Stone Fill, Type I at culvert outlets. Disturbed soil must be seeded and mulched within 48 hours after final grade has been established.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

The Erosion Control Plans are meant as a guideline for preventing erosion and controlling sediment transportation. The work outlined in this narrative consists of applying measures throughout the life of the project to control erosion and minimize the sediment into 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 be the engineer. 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. Do not modify the type, size or location of any control or practice without approval of the engineer. Any changes shall be noted on the plans, in the weekly inspection report, and reported to the appropriate authority in a timely manner. Inspect all control measures weekly and after each rainfall event. Repair measures shall be taken as needed.

Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas within 48 hours 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 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.

SEDIMENT SETTLING BASIN SIZING CRITERIA

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH / WIDTH = 2:1			
Q(gpm)	Q(m^3/s)	(ft^2)	(m^2)	L (ft)	W (ft)	L (m)	W (m)
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

PROJECT:	PROJECT NO.:
GRANVILLE	BRF 1444 (34)
DESIGN FILE NAME: pw94J100/s94J100ecnotes.dgn	
IPARM FILE NAME: sJ100ecnar.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: E.L. RUSTAY
EROSION CONTROL NARRATIVE	SHEET: 24 OF 39

VT STATE PLANE GRID

BM 2
CHISELLED SQUARE
IN LEDGE OUTCROP
EL = 259.141

BM 3
CHISELLED SQUARE
IN ABUTMENT
EL = 252.857

WOODS

VERMONT RTE. 12A

TO ROXBURY FLATS

HWY. B.O.W.

NEW ENGLAND CENTRAL RAILROAD

C.V. PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD INC.

N/F
HANDLY ESTATE

M. APPLE

M. APPLE

LUMBRA, JOSEPH R. &
ELIZABETH A.

GRAVEL DRIVE

DEAD END

M. LOCUSTS

GRAVEL DRIVE

WILLOW (3)

TH 23 (GRAVEL ROAD)

S. PINE

S. ASH (2)

S. APPLE

212-2

GRAVEL DRIVE

HOUSE

ASSUMED EXISTING
RIGHT OF WAY

M. LOCUSTS

WOODS

TO WEST BRAINTREE

S. MAPLE

S. SPRUCE

LILAC

HOUSE

2B

GRAVEL DRIVE

S. SPRUCE

N/F
J. LUMBRA

LUMBRA, JOSEPH R. & ELIZABETH A.

GARDEN

FLOW THIRD BRANCH WHITE RIVER

C.V. PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD INC.

S. SPRUCE

GRAVEL DRIVE

HOUSE

N/F
DICKERSON

WOODS

STONE RETAINING WALL

STONE WALL

CHARTIER, BEVERLY D. &
LEWIS, GLORIA D.

COOK, TIMOTHY L. &
LUMBRA, ANN

EXISTING BRIDGE DATA

6 STEEL BEAMS
TIMBER DECK
SPAN LENGTH = 10.7 m
ROADWAY WIDTH = 3.5 m
DECK WIDTH = 3.7 m

EXISTING CONDITIONS

0 10 20

SCALE 1:250

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

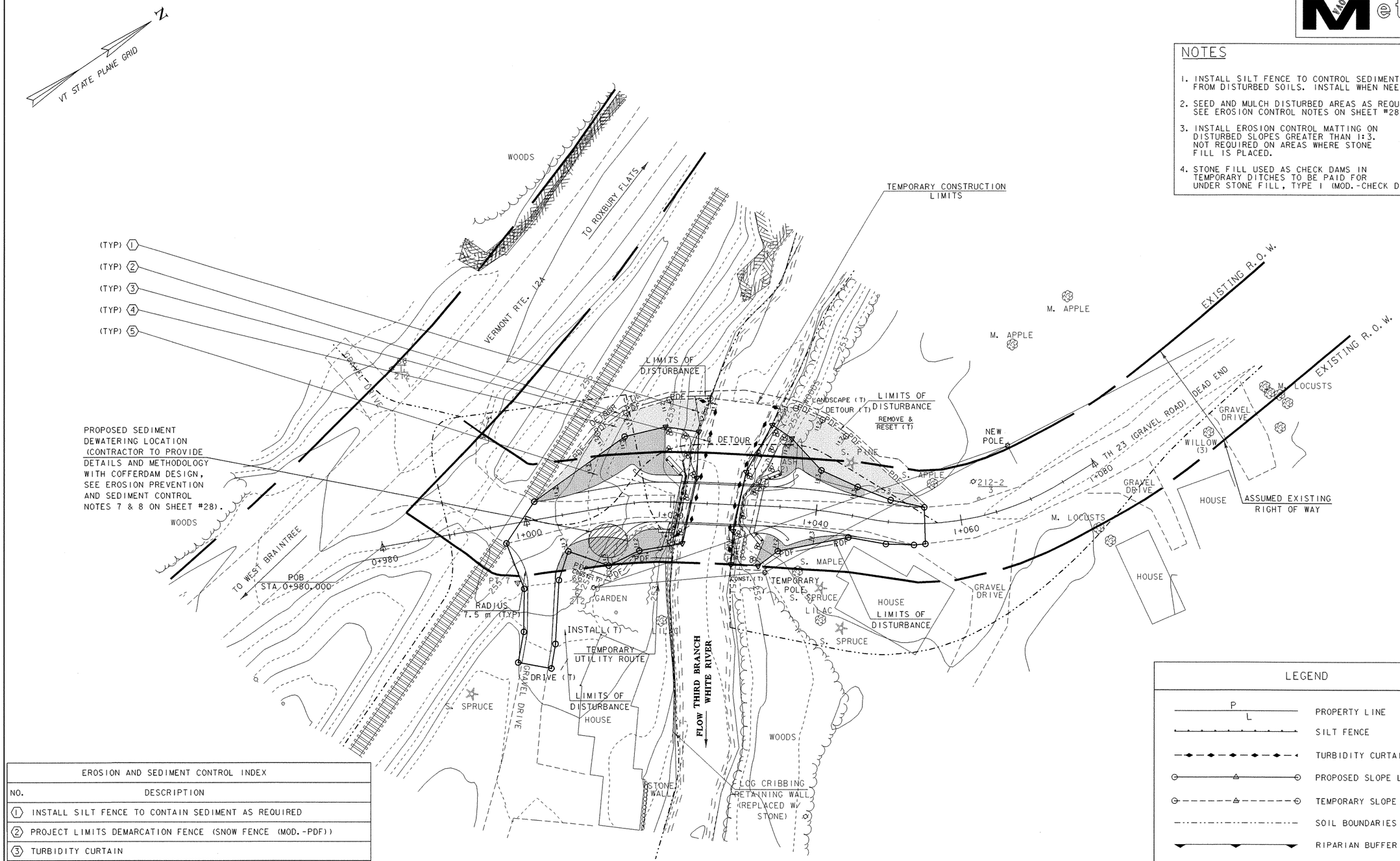
PROJECT:	PROJECT NO.:
GRANVILLE	BRO 1444 (34)

DESIGN FILE NAME: 94J100/structures/sj100bdr ecs.dgn
IPARM FILE NAME: sj100excond.i — PLOT DATE: 03-MAR-2006
SURVEYED BY: L. ORVIS — SURVEY DATE: 1/96
SQUAD LEADER: C. P. WILLIAMS — DRAWN BY: M.FESSEL
EXISTING CONDITIONS — SHEET: 25 OF 39

VAOT Metric

NOTES

1. INSTALL SILT FENCE TO CONTROL SEDIMENT RUNOFF FROM DISTURBED SOILS. INSTALL WHEN NEEDED.
2. SEED AND MULCH DISTURBED AREAS AS REQUIRED. SEE EROSION CONTROL NOTES ON SHEET #28.
3. INSTALL EROSION CONTROL MATTING ON DISTURBED SLOPES GREATER THAN 1:3. NOT REQUIRED ON AREAS WHERE STONE FILL IS PLACED.
4. STONE FILL USED AS CHECK DAMS IN TEMPORARY DITCHES TO BE PAID FOR UNDER STONE FILL, TYPE I (MOD.-CHECK DAM).



EROSION AND SEDIMENT CONTROL INDEX

NO.	DESCRIPTION
1	INSTALL SILT FENCE TO CONTAIN SEDIMENT AS REQUIRED
2	PROJECT LIMITS DEMARCATION FENCE (SNOW FENCE (MOD.-PDF))
3	TURBIDITY CURTAIN
4	SEED AND MULCH. Apply to disturbed areas as needed.
5	EROSION CONTROL MATTING

NOTE: ALL DISTURBED AREAS WITH SLOPES GREATER THAN 1:3 WILL REQUIRE TEMPORARY EROSION MATTING. SEE EROSION CONTROL DETAILS SHEET AND CROSS SECTIONS.

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83/92

LEGEND

- P / L — PROPERTY LINE
- SILT FENCE
- TURBIDITY CURTAIN
- PROPOSED SLOPE LIMITS
- TEMPORARY SLOPE LIMITS
- SOIL BOUNDARIES
- RIPARIAN BUFFER ZONE
- PDF—PDF—PDF — PROJECT DEMARCATION FENCE
- EROSION CONTROL MATTING
- SEED AND MULCH

EROSION PREVENTION AND SEDIMENT CONTROL PLAN

0 10 20
SCALE 1:250

PROJECT:	PROJECT NO.:
GRANVILLE	BRO 1444 (34)

DESIGN FILE NAME: 94J100/structures/sj100bdr ecs.dgn
IPARM FILE NAME: sj100eroplan.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: C. P. WILLIAMS
EROSION PLAN
PLOT DATE: 03-MAR-2006
SURVEY DATE: 1/96
DRAWN BY: M.FESSEL
SHEET: 26 OF 39

VAOT Metric

N

VT STATE PLANE GRID

WOODS

TO ROXBURY FLATS

VERMONT RTE. 12A

HWY. R.O.W.

C.V. PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD INC.

N/F
HANDLY ESTATE

M. APPLE

M. APPLE

LUMBRA, JOSEPH R. &
ELIZABETH A.

GRAVEL DRIVE

DEAD END

M. LOCUSTS

GRAVEL DRIVE

WILLOW (3)

TH 23 (GRAVEL ROAD)

1+080

S. PINE

S. APPLE

212-2

3

GRAVEL DRIVE

HOUSE

ASSUMED EXISTING
RIGHT OF WAY

M. LOCUSTS

HOUSE

WOODS

TO WEST BRAINTREE

0+980

1+000

1+020

1+040

1+060

S. MAPLE

S. SPRUCE

LILAC

S. SPRUCE

HOUSE

2B

GRAVEL DRIVE

N/F
J. LUMBRA

LUMBRA, JOSEPH R. & ELIZABETH A.

GARDEN

LILAC

FLOW THIRD BRANCH WHITE RIVER

C.V. PROPERTIES, INC.
JOINED BY
NEW ENGLAND CENTRAL
RAILROAD INC.

S. SPRUCE

GRAVEL DRIVE

HOUSE

N/F
DICKERSON

WOODS

CHARTIER, BEVERLY D. &
LEWIS, GLORIA D.

STONE WALL

LOG CRIBBING
RETAINING WALL
(REPLACED W/
STONE)

COOK, TIMOTHY L. &
LUMBRA, ANN

NOTE:

THE PDF FENCING MAY BE PLACED AT THE EXTREME LIMITS OF CONSTRUCTION EASEMENTS PURCHASED FOR THIS PROJECT. THE LIMITS ON THE PLANS ARE SHOWN JUST INSIDE THESE EASMENTS FOR CLARITY.

LEGEND

P / L	PROPERTY LINE
	PROPOSED SLOPE LIMITS
	RIPARIAN BUFFER ZONE
PDF	PROJECT DEMARCATION FENCE

FINAL CONDITIONS

0 10 20

SCALE 1:250

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83/92

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94J100/structures/sJ100bdr ecs.dgn	
IPARM FILE NAME: sJ100fincond.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: L. ORVIS	SURVEY DATE: 1/96
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: M.FESSEL
FINAL CONDITIONS	SHEET: 27 OF 39

EROSION PREVENTION AND SEDIMENT CONTROL NOTES:

1. THE AREA OF DISTURBANCE IS 0.0812 ha (0.2008 acres)
2. AN EROSION PREVENTION AND SEDIMENT CONTROL PLAN SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE AGENCY OF TRANSPORTATION IN ACCORDANCE WITH SECTION 652.
3. TIME ALL GRADING TO MINIMIZE SOIL EXPOSURE.
4. AT THE END OF EACH DAY'S GRADING OPERATIONS, SHAPE EARTHWORK TO MINIMIZE THE EROSION FROM STORM RUNOFF.
5. THE AREA DISTURBED FOR CONSTRUCTION OF THE TEMPORARY DETOUR SHALL BE RETURNED TO ITS ORIGINAL CONDITION INCLUDING SEEDING AND MULCHING.
6. PREPARE TEMPORARY DRAINAGEWAYS TO HANDLE CONCENTRATED FLOW UNTIL PERMANENT DRAINAGE IS CONSTRUCTED AND STABILIZED.
7. SPECIAL CONSIDERATION MUST BE GIVEN TO THE FIRST PUMP-DOWN OF THE COFFERDAMS. THIS WILL CONTAIN THE GREATEST VOLUME OF WATER WITH A HIGH SEDIMENT LOAD. THE CONTRACTOR MAY PROVIDE ADDITIONAL SEDIMENT SETTLING BASINS WITHIN THE RIGHT-OF-WAY IF REQUIRED OR CONTROL THE RATE OF DRAW-DOWN. ADDITIONAL SEDIMENT SETTLING BASINS MUST BE APPROVED BY THE RESIDENT ENGINEER.
8. AFTER COMPLETION OF THE SUBSTRUCTURE, THE SEDIMENT IN THE SETTLING BASINS SHALL BE REMOVED AND THE GROUND RESTORED TO ITS ORIGINAL SLOPES OR GRADED AS SHOWN ON THE CONSTRUCTION DRAWINGS.
9. SEE SHEETS 29-33 FOR EROSION PREVENTION AND SEDIMENT CONTROL DETAILS.

PERIMETER CONTROL NOTES:

1. IDENTIFY SENSITIVE AREAS AND AREAS PRONE TO EROSION BASED ON SITE EVALUATION.
2. CLEARLY DEMARCATE SENSITIVE AREAS TO AVOID DISTURBANCE WITH SNOW FENCE (MOD.-PDF).
3. PROTECT ALL SENSITIVE AREAS AND WATER FEATURES FROM SEDIMENT.
4. DIVERT OR OTHERWISE KEEP ALL CONCENTRATED OFF-SITE "RUN-ON" FROM AREAS TO BE DISTURBED.
5. PERIMETER CONTROLS (SILT FENCE, TURBIDITY CURTAIN, ETC.) TO BE INSTALLED PRIOR TO SOIL DISTURBANCE AND MAINTAINED UNTIL SITE IS PERMANENTLY STABILIZED TO THE SATISFACTION OF THE ENGINEER AND ON-SITE COORDINATOR.
6. SEED AND MULCH SHALL BE APPLIED IMMEDIATELY TO ALL LAWNS DISTURBED BEYOND THE WORK AREA DELINEATED ON THESE PLANS.
7. PREVENT SEDIMENT FROM LEAVING THE SITE BY MAINTAINING AND MODIFYING PERIMETER CONTROLS AS NEEDED.

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.

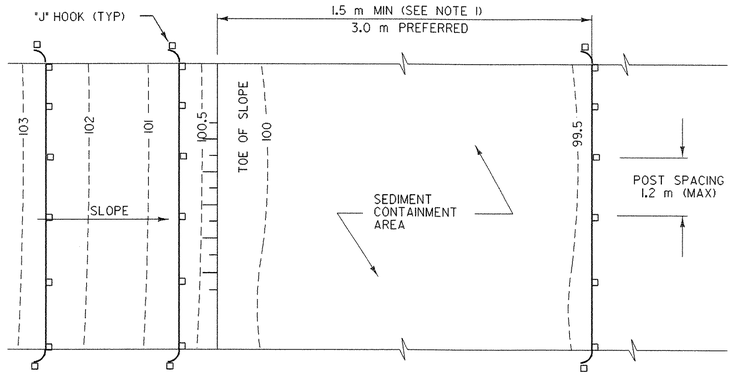
FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

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

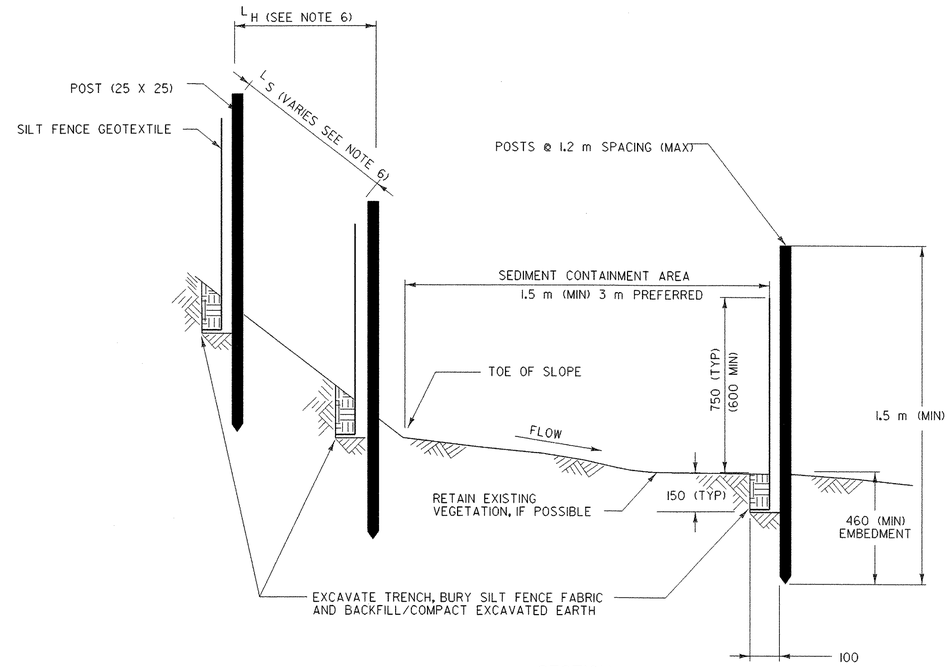
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

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

PROJECT: GRANVILLE	PROJECT NO.: BRF 1444 (34)
DESIGN FILE NAME: pw94j100/s94j100ecnotes.dgn	
IPARM FILE NAME: sj100ecnote.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
EROSION CONTROL NOTES	SHEET: 28 OF 39



PLAN



SECTION

SILT FENCE - TEMPORARY

SILT FENCE

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.

B. SILT FENCE SHALL 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.

C. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

1. 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.

2. ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.

3. IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.

4. 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.

5. MAXIMUM DRAINAGE AREA TRIBUTARY TO 30 m OF SILT FENCE SHALL BE 0.1 Ha.

6. THE FOLLOWING ARE MAXIMUM SLOPE LENGTHS FOR THESE MEASURES:

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

7. 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.

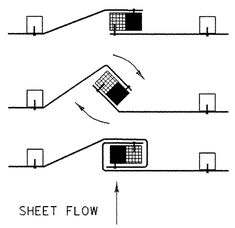
8. MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.

9. 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.

10. PAYMENT FOR INSTALLATION AND REMOVAL OF SILT FENCE SHALL BE MADE UNDER THE GEOTEXTILE FOR SILT FENCE ITEM.

11. PAYMENT FOR MONITORING SILT FENCE SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.

12. PAYMENT FOR MAINTAINING SILT FENCE SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



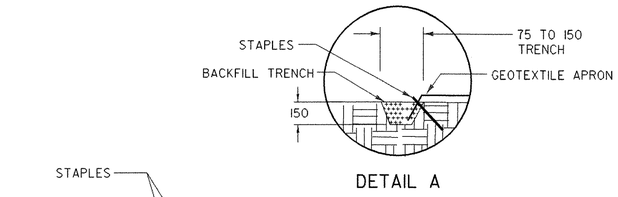
1. PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL
3. DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY THE FLAP IN THE TRENCH.

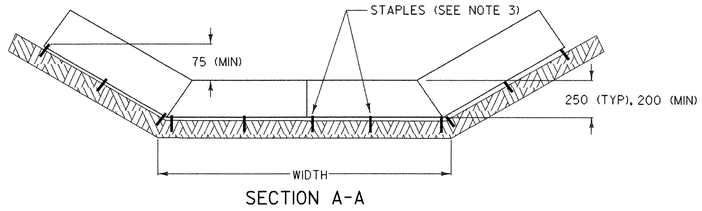
SPLICING DETAIL

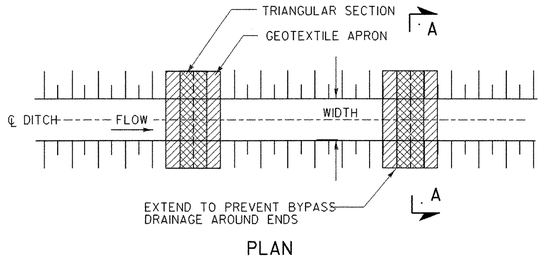
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

EROSION PREVENTION & SEDIMENT CONTROL DETAILS
SILT FENCE

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: s94sj100/structures/sj100eronotes.dgn	
IPARM FILE NAME: s94sj100epsclm.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
SILT FENCE	SHEET: 29 OF 39



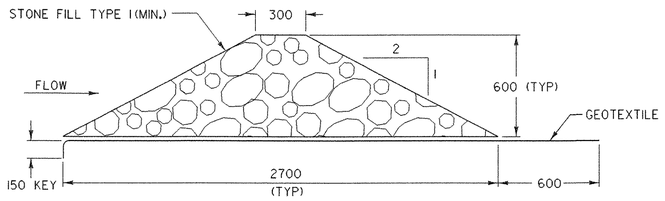


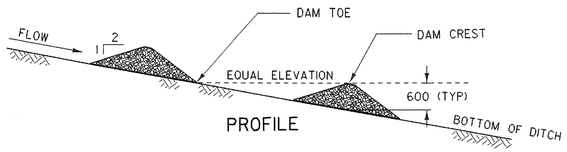


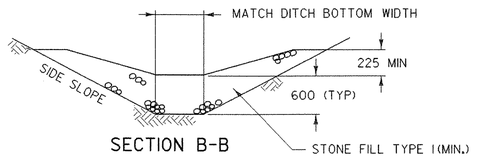
CHECK DAM - TEMPORARY
(PREFABRICATED)

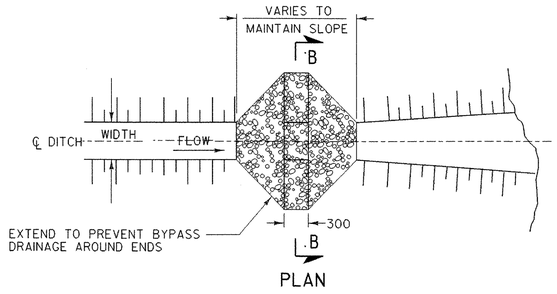
PREFABRICATED CHECK DAM PLACEMENT INTERVAL	
DITCH SLOPE	PLACEMENT INTERVAL **
1%	15 m
2 %	12 m
3 %	8 m
4 %	6 m
5 %	5 m

** BASED ON 0.25 m TYPICAL HEIGHT









CHECK DAM - TEMPORARY
(STONE)

STONE CHECK DAM PLACEMENT INTERVAL	
DITCH SLOPE	PLACEMENT INTERVAL **
1%	60 m
2 %	30 m
3 %	20 m
4 %	15 m
5 %	12 m
6 %	10 m
8 %	7.5 m
10 %	6 m

** BASED ON 0.6 m TYPICAL HEIGHT

CHECK DAMS

Metric

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF A CHECK DAM IS TO REDUCE EROSION IN A CHANNEL BY REDUCING FLOW VELOCITY.

B. CHECK DAMS WILL CAPTURE SEDIMENT THAT FALLS OUT OF SUSPENSION BEHIND THE CHECK DAM DUE TO DECREASED VELOCITY.

C. CHECK DAMS ARE NOT INTENDED TO FILTER SEDIMENT FROM TURBID WATER.

D. DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALLATION ONLY.

E. PREFABRICATED DAMS ARE NOT TO BE USED ON SLOPES GREATER THAN 5% OR PER MANUFACTURER'S SPECIFICATIONS.

F. PREFABRICATED DAM SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

GENERAL NOTES:

1. GEOTEXTILE SHALL BE INSTALLED UNDER STONE FILL. IT SHALL BE KEYED IN ON THE UP HILL END AND SHALL EXTEND 0.6 m BEYOND THE STONE ON THE DOWN HILL END.

2. CORE MATERIAL FOR THE STONE CHECK DAM SHALL MEET THE GRADATION REQUIREMENTS OF STONE FILL TYPE I(MIN.). STONE SIZE SHOULD BE INCREASED WITH INCREASED SLOPE AND VELOCITY.

3. THE UPHILL END OF THE APRON FOR THE PREFABRICATED CHECK DAM SHALL BE STAPLED AND BURIED AS SHOWN IN DETAIL "A" OR AS RECOMMENDED BY THE MANUFACTURERS LITERATURE.

4. 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.

5. 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.

6. AT TIME OF REMOVAL OF THE CHECK DAMS, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

7. PAYMENT FOR INSTALLATION AND REMOVAL OF CHECK DAMS SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS OR UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM.

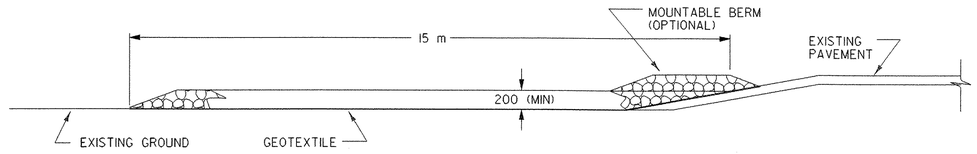
8. PAYMENT FOR MONITORING CHECK DAMS SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.

9. PAYMENT FOR MAINTAINING CHECK DAMS SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

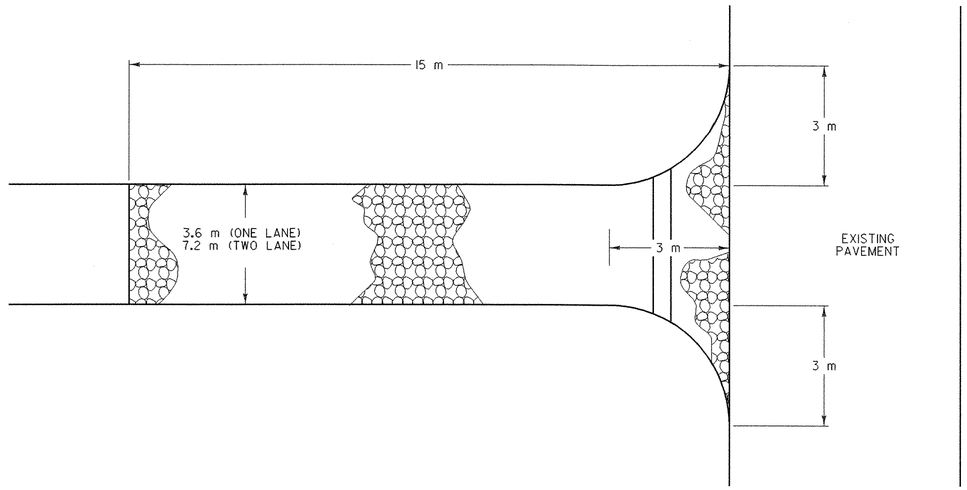
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

EROSION PREVENTION & SEDIMENT CONTROL DETAILS
CHECK DAMS

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: s94sj100/structures/sj100eronotes.dgn	
IPARM FILE NAME: sj100epsc2m.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
CHECK DAMS	SHEET: 30 OF 39



TYPICAL CONSTRUCTION ENTRANCE PROFILE
(CUT AND DITCH SECTIONS)



TYPICAL CONSTRUCTION ENTRANCE PLAN
(CUT/DITCH AND FILL SECTIONS)

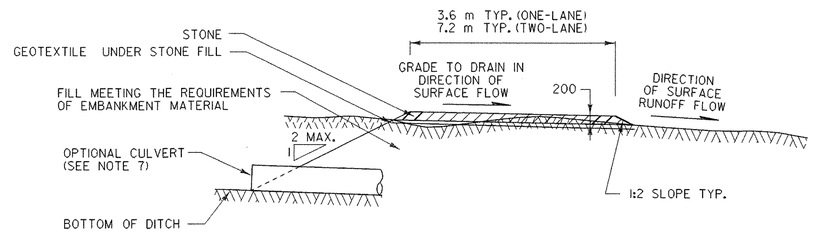
STABILIZED CONSTRUCTION ENTRANCE

APPLICATION NOTES:

A. THE PURPOSE OF A STABILIZED CONSTRUCTION ENTRANCE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY OR STREETS.

GENERAL NOTES:

1. STONE SIZE - USE CLEAN STONE WITH GRADATION BETWEEN 50 mm AND 100 mm.
2. LENGTH - 15 m (MIN)
3. THICKNESS - 200 mm (MIN)
4. WIDTH - 3.6 m (MIN)
5. GEOTEXTILE UNDER STONE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE AS DIRECTED BY THE ENGINEER. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. PROPOSED DRAINAGE PIPES SHALL BE SIZED WITH SUFFICIENT CAPACITY TO CARRY DITCH FLOWS. ALTERNATIVE WAYS OF TRANSPORTING DITCH DRAINAGE ACROSS CONSTRUCTION ENTRANCES MAY BE PROPOSED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
8. WHEN WASHING OF VEHICLE IS NECESSARY, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. 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.
10. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
11. AT THE TIME OF REMOVAL OF THE STABILIZED CONSTRUCTION ENTRANCE THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
12. PAYMENT OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS OR UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM.
13. PAYMENT FOR MONITORING STABILIZED CONSTRUCTION ENTRANCES SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
14. PAYMENT FOR MAINTAINING STABILIZED CONSTRUCTION ENTRANCES SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

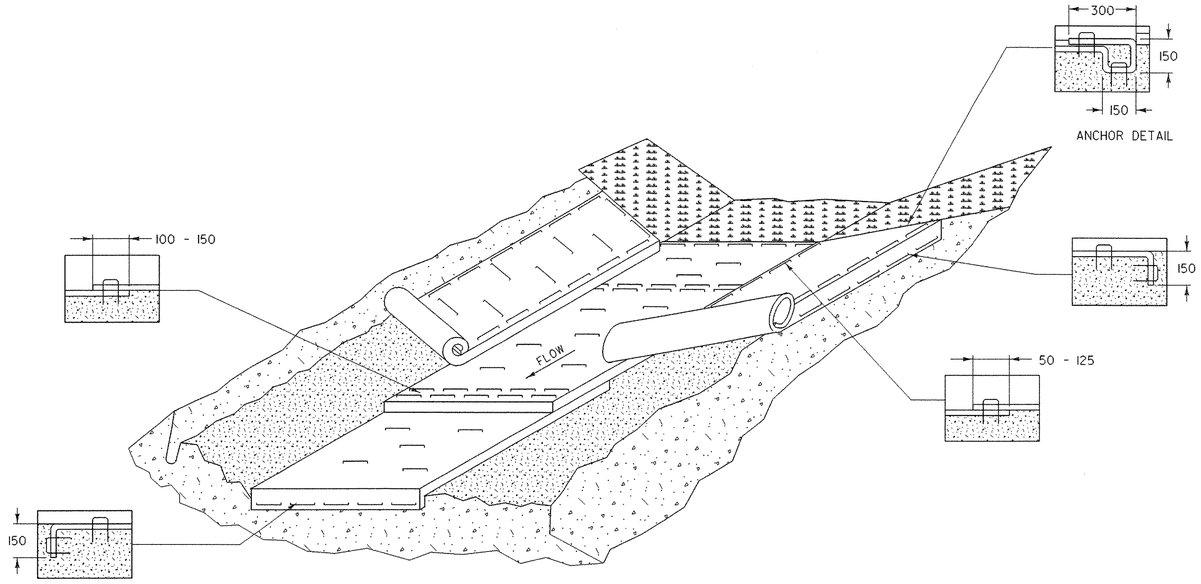


TYPICAL CONSTRUCTION ENTRANCE SECTION

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

EROSION PREVENTION & SEDIMENT CONTROL DETAILS CONSTRUCTION ENTRANCE

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: s94sj100/structures/sj100eronotes.dgn	
IPARM FILE NAME: sj100epsc4m.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
CONSTRUCTION ENTRANCE	SHEET: 31 OF 39



EROSION PROTECTION FOR DITCHES

APPLICATION NOTES:

A. THE PURPOSE OF LINING THE DITCH WITH EROSION MATTING IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION AT LOW VELOCITIES.

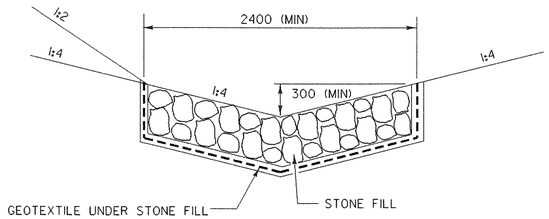
B. THE FOLLOWING CHARTS SHALL BE USED TO DETERMINE THE APPROPRIATE EROSION CONTROL MEASURE:

DITCH AND CHANNEL PROTECTION	
SLOPE	LINING
< 1%	GRASS
1% TO 4 %	EROSION MATTING
4 % TO 10 %	STONE FILL, TYPE I
> 10 %	STONE FILL, TYPE II

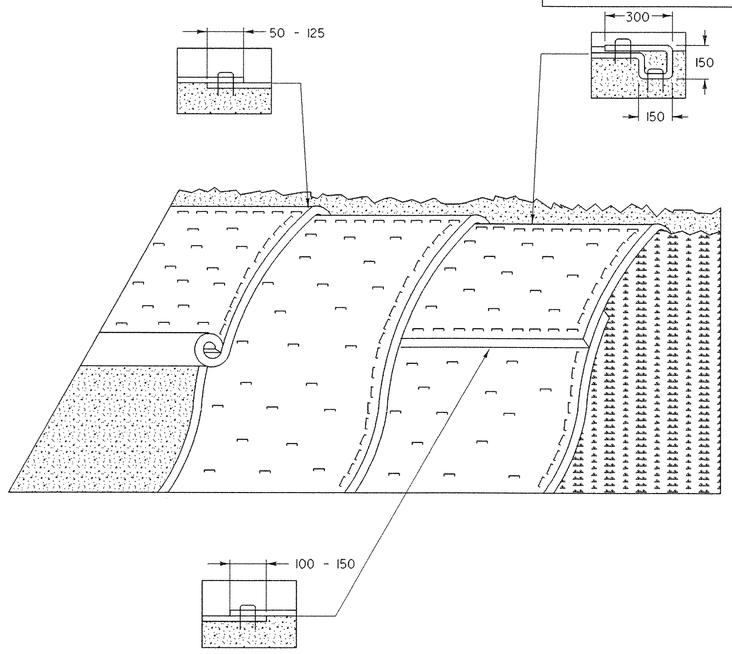
STONE FILL THICKNESS	
STONE FILL TYPE	THICKNESS
TYPE I	0.3 m
TYPE II	0.6 m

GENERAL NOTES:

1. WATER MAY NEED TO BE DIVERTED TO ALLOW PROPER MATTING INSTALLATION.
2. GRADE AND SMOOTH CHANNEL TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
3. APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
4. INSTALL MATTING IN THE CENTER OF THE CHANNEL, IN THE DIRECTION OF THE WATER FLOW.
5. INSTALL MATTING ON THE SIDE SLOPES OF THE CHANNEL, OVERLAPPING THE CENTER MAT.
6. ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INTALLATION INSTRUCTIONS.
7. 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.
8. MEASURES SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.
9. PAYMENT FOR INSTALLATION OF MATTING SHALL BE MADE UNDER THE EROSION CONTROL WITH MATTING ITEM.
10. PAYMENT FOR MONITORING EROSION CONTROL MATTING SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
11. PAYMENT FOR MAINTAINING EROSION CONTROL MATTING SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



TEMPORARY
STONE LINED
DITCH



EROSION PREVENTION FOR SIDE SLOPES

APPLICATION NOTES:

A. THE PURPOSE OF MATTING ON SIDE SLOPES IS TO REDUCE EROSION AND AID THE ESTABLISHMENT OF VEGETATION

B. EROSION CONTROL MATTING SHALL BE USED FOR THE FOLLOWING REASONS:

- SIDE SLOPES > 3:1 (H:V)
- AREAS WHERE SEED AND MULCH WILL NOT STAY IN PLACE ALONE
- WHERE SEEDING IS OUTSIDE THE GROWING SEASON.

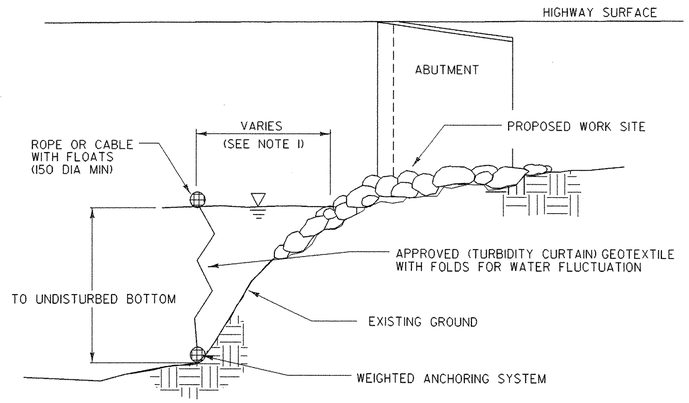
GENERAL NOTES:

1. GRADE AND SMOOTH THE SLOPE TO PROVIDE GOOD MATTING TO SOIL SURFACE CONTACT.
2. APPLY FERTILIZER, LIME, AND SEED PRIOR TO PLACING MATTING.
3. ANCHOR MATTING AS SHOWN, UTILIZING ANCHOR STAPLES. STAPLE PLACEMENT SHALL BE DETERMINED BY THE MANUFACTURER'S INTALLATION INSTRUCTIONS.
4. UNROLL MATTING VERTICALLY DOWN SLOPE IN THE DIRECTION OF WATER FLOW.
5. OVERLAP UPPER MATTING OVER LOWER MATTING AS SHOWN.
6. OVERLAP ADJACENT MATTING AS SHOWN.
7. CUT EXCESS MATTING AT END OF SLOPE AND ANCHOR THE END.
8. 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.
9. MATTING SHALL BE REPAIRED AND RESTAPLED AS NECESSARY TO ENSURE PROPER FUNCTION.
10. PAYMENT FOR INSTALLATION OF MATTING SHALL BE MADE UNDER THE EROSION CONTROL WITH MATTING ITEM.
11. PAYMENT FOR MONITORING EROSION CONTROL MATTING SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
12. PAYMENT FOR MAINTAINING EROSION CONTROL MATTING SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

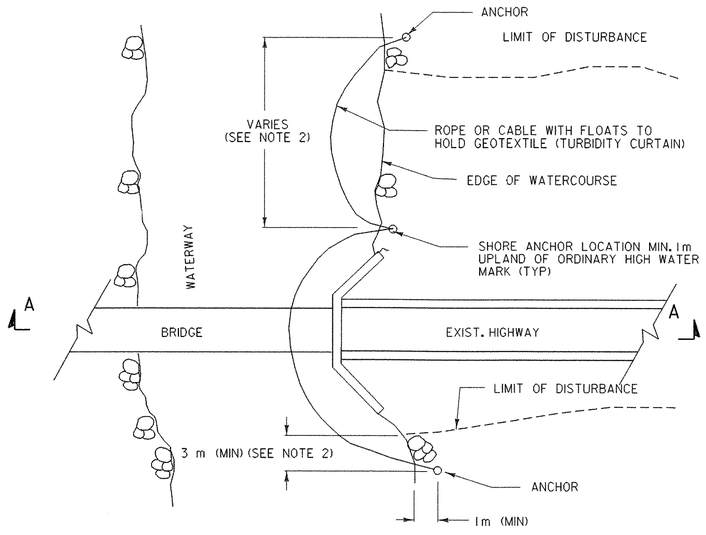
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

EROSION PREVENTION & SEDIMENT CONTROL DETAILS DITCH & SIDE SLOPE PROTECTION

PROJECT:	PROJECT NO.:
GRANVILLE	BRO 1444 (34)
DESIGN FILE NAME: s94sj100/structures/sj100eronotes.dgn	
IPARM FILE NAME: sj100epsc5m.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
DITCH & SIDE SLOPE PROTECTION	SHEET: 32 OF 39



SECTION A-A



PLAN

TURBIDITY CURTAIN - TEMPORARY

TURBIDITY CURTAIN

APPLICATION NOTES:

A. THE PURPOSE OF A TURBIDITY CURTAIN IS TO SEPARATE WORK AREAS IN OR ADJACENT TO WATERS, TO PREVENT SEDIMENT FROM ENTERING THE WATERS.

B. TURBIDITY CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 0.5m/SEC.

C. TURBIDITY CURTAIN SHALL NOT BE PLACED AT THE OUTLET OF A CULVERT OR DITCH UNLESS THE VELOCITY DOES NOT EXCEED 0.5 m/SEC.

D. THE DETAIL DEPICTS WORK AT A BRIDGE LOCATION, BUT TURBIDITY CURTAIN MAY BE APPLIED AT OTHER LOCATIONS.

GENERAL NOTES:

1. THE TURBIDITY CURTAIN SHALL BE PLACED AS CLOSE TO THE WORK AS POSSIBLE WITHOUT INTERFERING WITH CONSTRUCTION OPERATIONS.

2. THE TURBIDITY CURTAIN SHALL BE A MAXIMUM OF 30 m LONG BETWEEN ANCHORS. LAST SECTION SHALL TERMINATE A MINIMUM OF 3 m BEYOND THE LIMIT OF DISTURBANCE.

3. THE CONTRACTOR SHALL MONITOR THE TURBIDITY CURTAIN, TAKING INTO ACCOUNT WEATHER PATTERNS AND PREVAILING WIND DIRECTIONS THAT MAY AFFECT WATER LEVELS, VELOCITY AND MOVEMENT OF THE TURBIDITY CURTAIN.

4. THE TURBIDITY CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE TO MINIMIZE ESCAPE OF SEDIMENTS INTO THE WATERWAY.

5. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE THAT ALLOWS THE CURTAIN TO CONFORM TO THE CONTOUR ON THE BOTTOM OF THE WATERWAY.

6. PAYMENT FOR INSTALLATION AND REMOVAL OF THE TURBIDITY CURTAIN SHALL BE MADE UNDER THE GEOTEXTILE FOR FILTER CURTAIN ITEM.

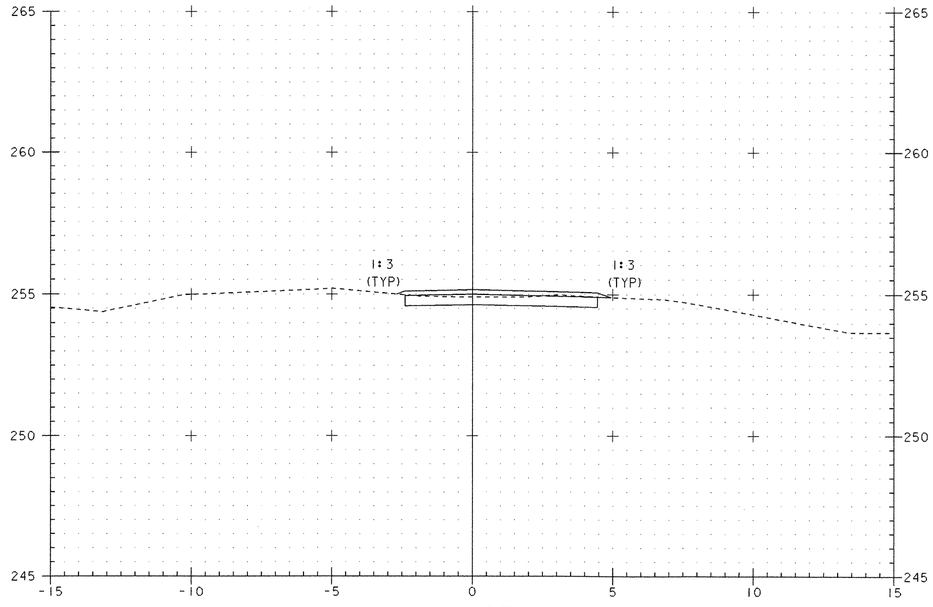
7. PAYMENT FOR MONITORING TURBIDITY CURTAIN SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.

8. PAYMENT FOR MAINTAINING TURBIDITY CURTAIN SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.

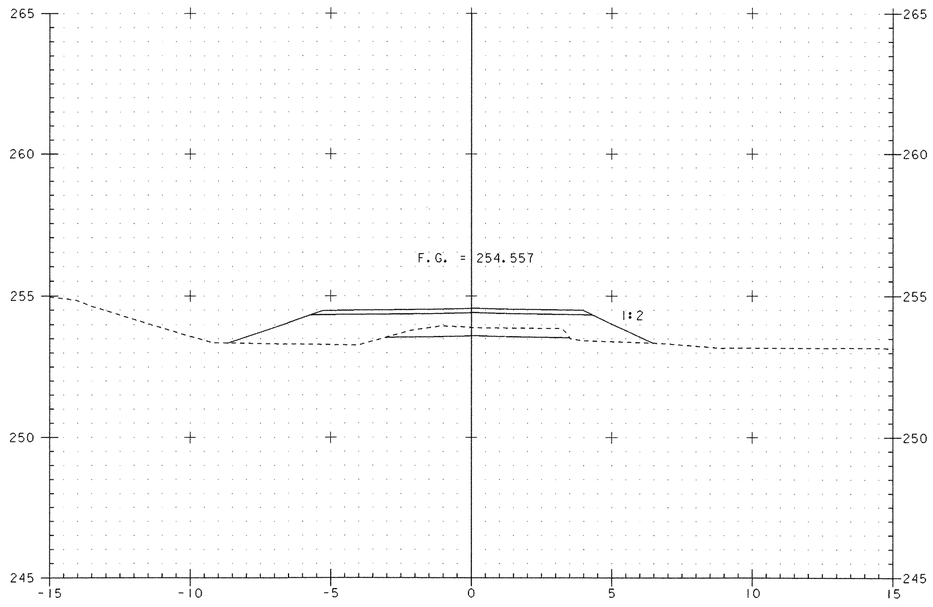
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

EROSION PREVENTION & SEDIMENT CONTROL DETAILS TURBIDITY CURTAIN

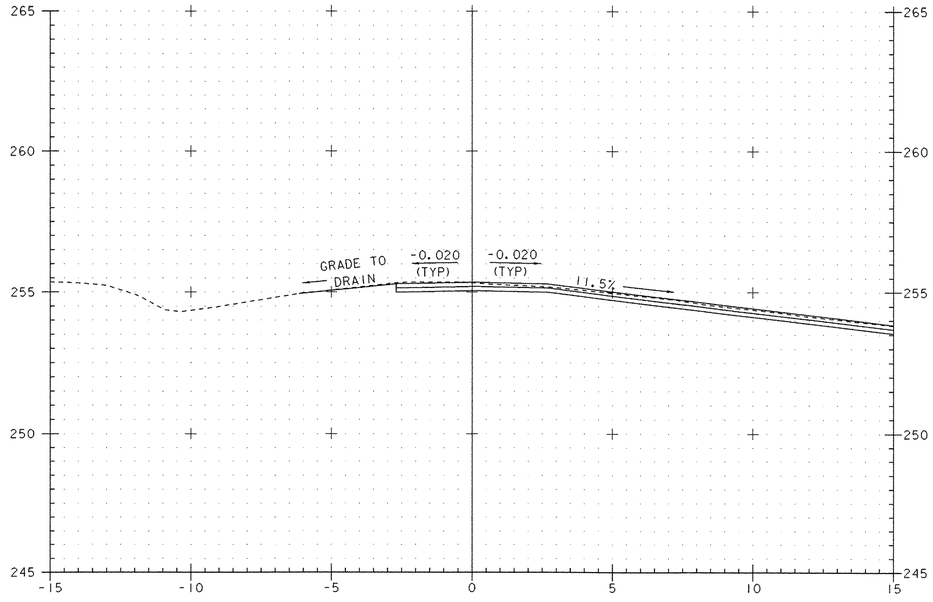
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: s94sj100/structures/sj100eronotes.dgn	
IPARM FILE NAME: sj100epsc6m.i	PLOT DATE: 03-MAR-2006
SURVEYED BY: R. MOREAU	SURVEY DATE: 3/93
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
TURBIDITY CURTAIN	SHEET: 33 OF 39



1+005

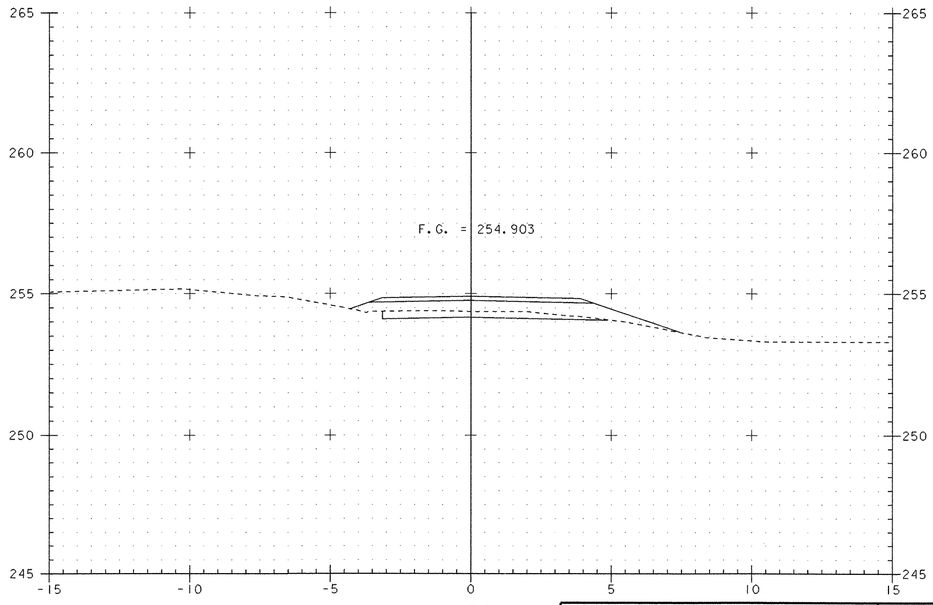


1+015



1+000

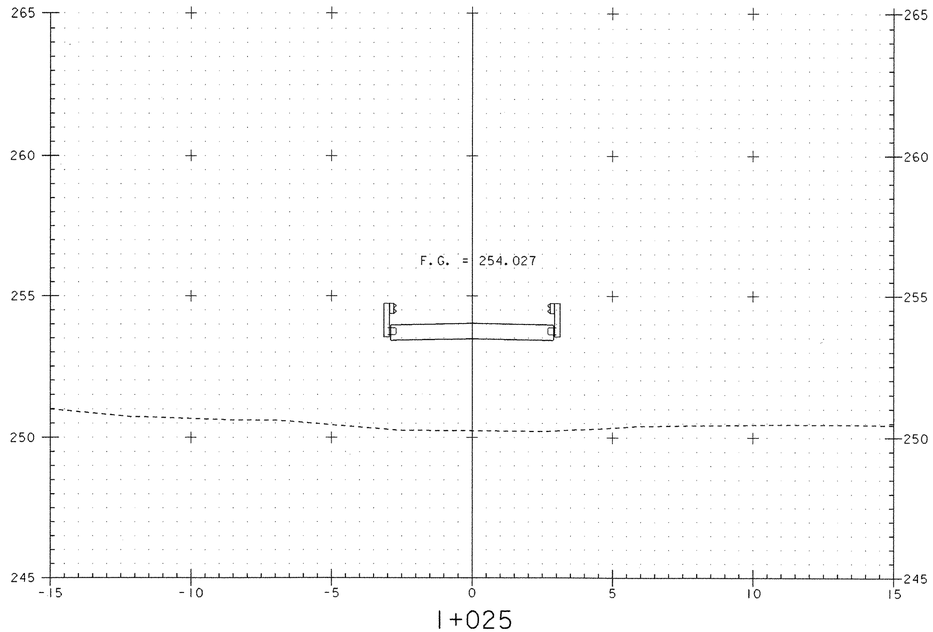
BEGIN APPROACH
STA. 1+000.000



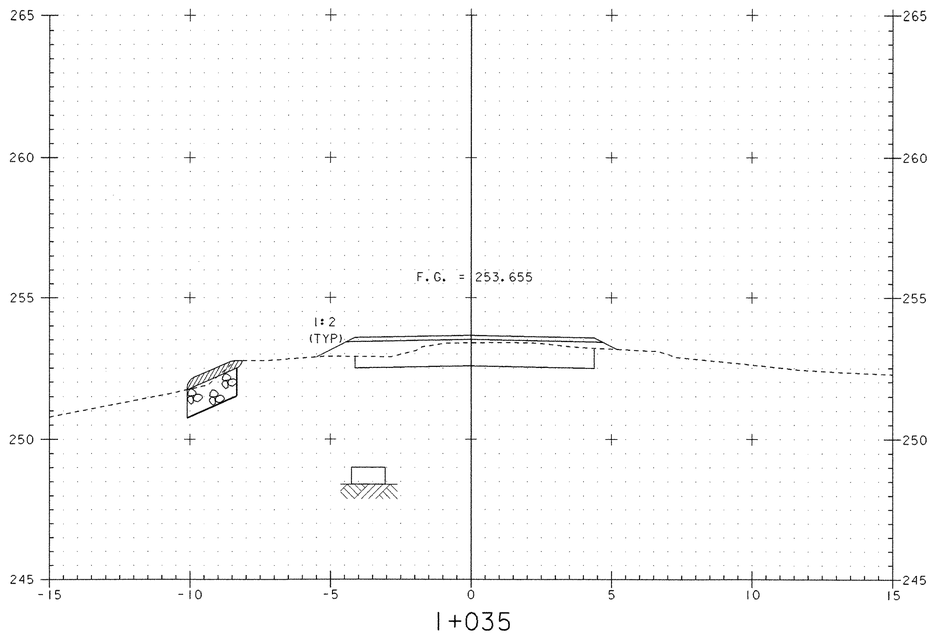
1+010

0 2 4 6 8 10
SCALE 1 : 100

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94J100/structures/sj100xsl.dgn IPARM FILE NAME: sj100mll.i	PLOT DATE: 03-MAR-2006
MAINLINE CROSS SECTIONS	
SECTION 1+000 THROUGH 1+015	SHEET: 34 OF 39

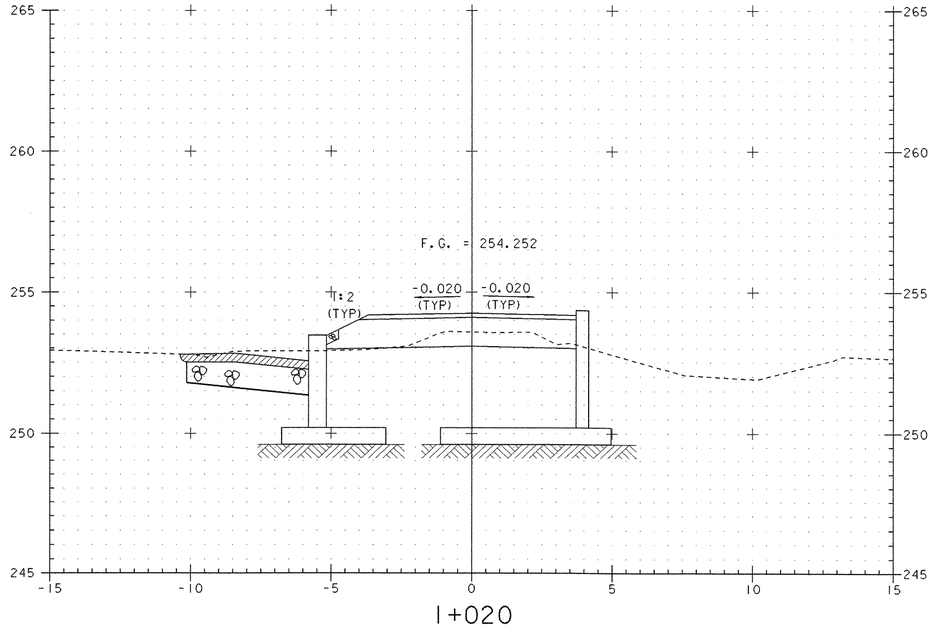


1+025



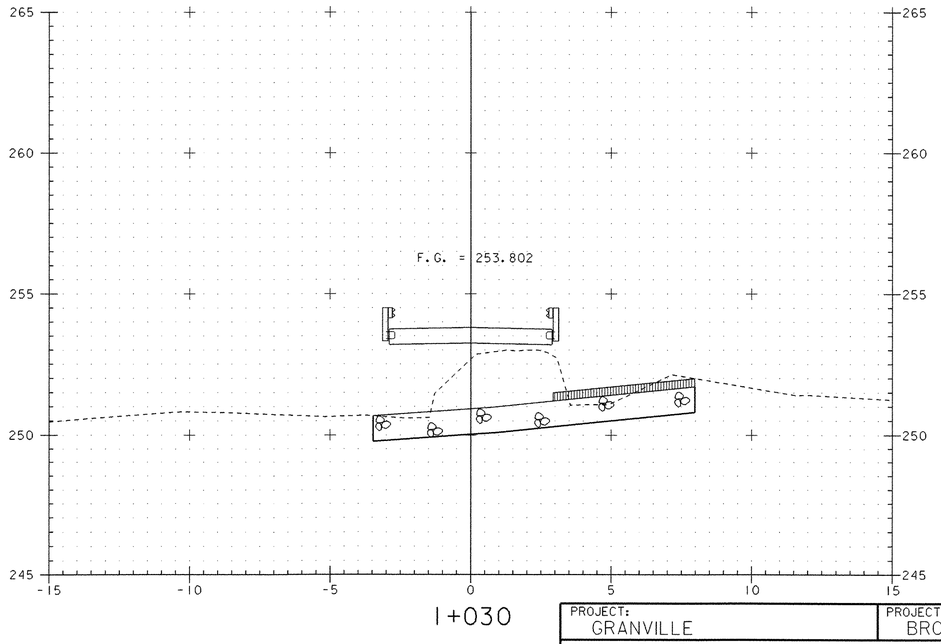
1+035

BEGIN BRIDGE
STA 1+020.820



1+020

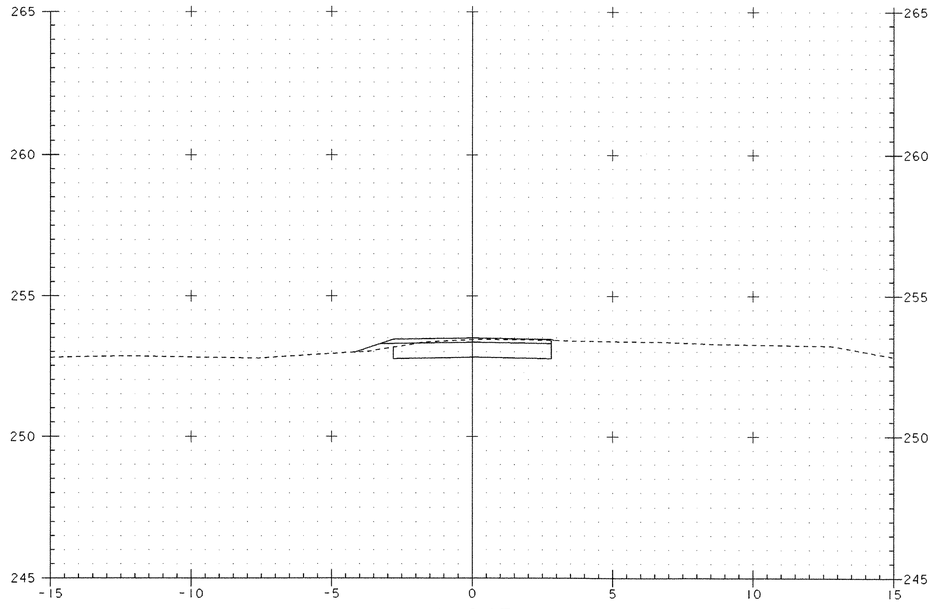
END BRIDGE
STA 1+032.220



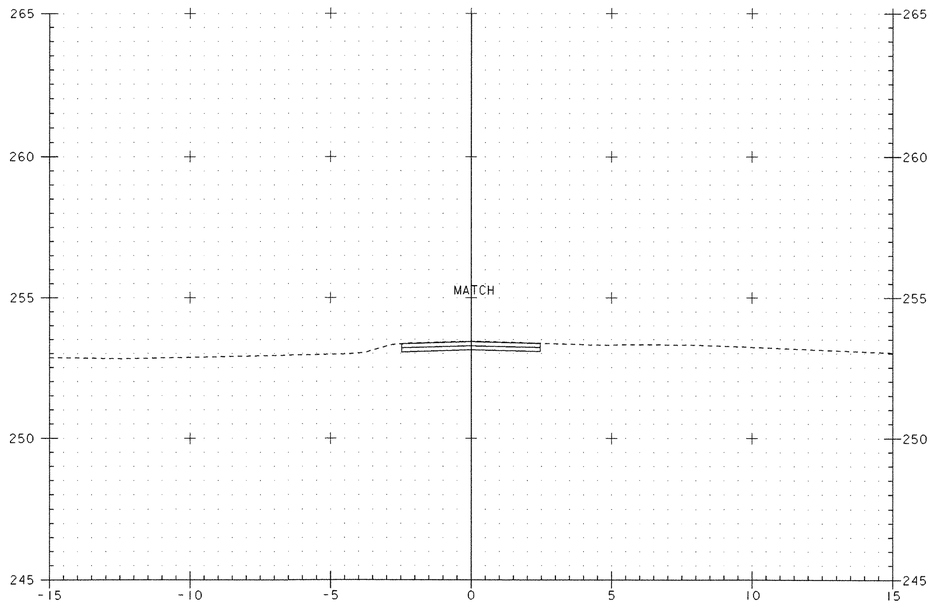
1+030

0 2 4 6 8 10
SCALE 1 : 100

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100xsl.dgn IPARM FILE NAME: sj100ml2.i	PLOT DATE: 03-MAR-2006
MAINLINE CROSS SECTIONS	
SECTION 1+020 THROUGH 1+035	SHEET: 35 OF 39

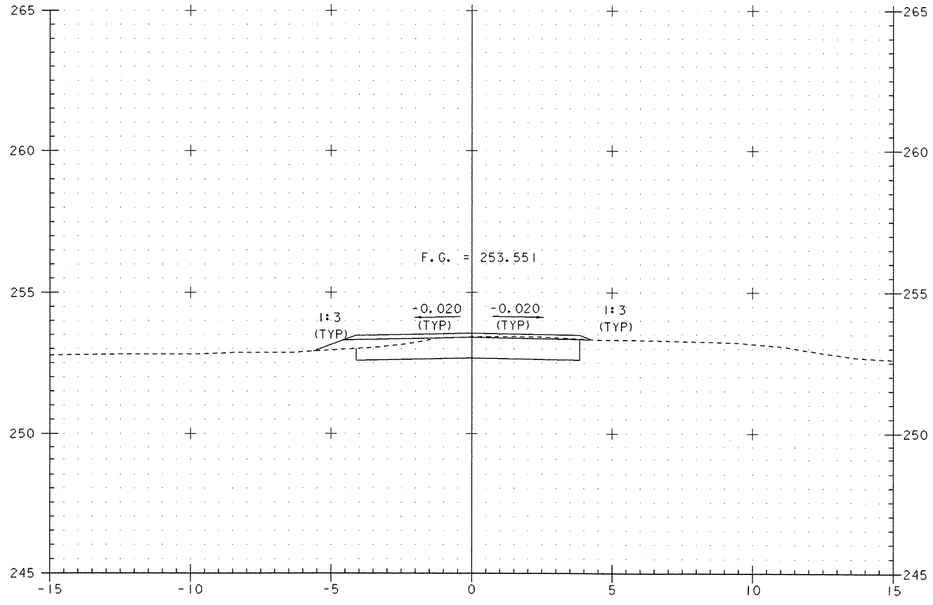


1+045

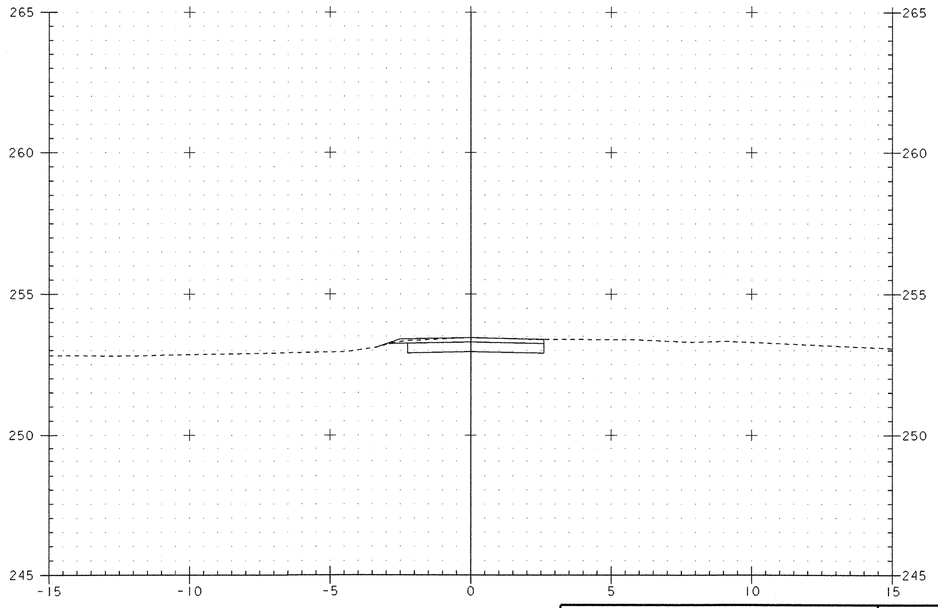


1+055

END APPROACH
STA. 1+055.000



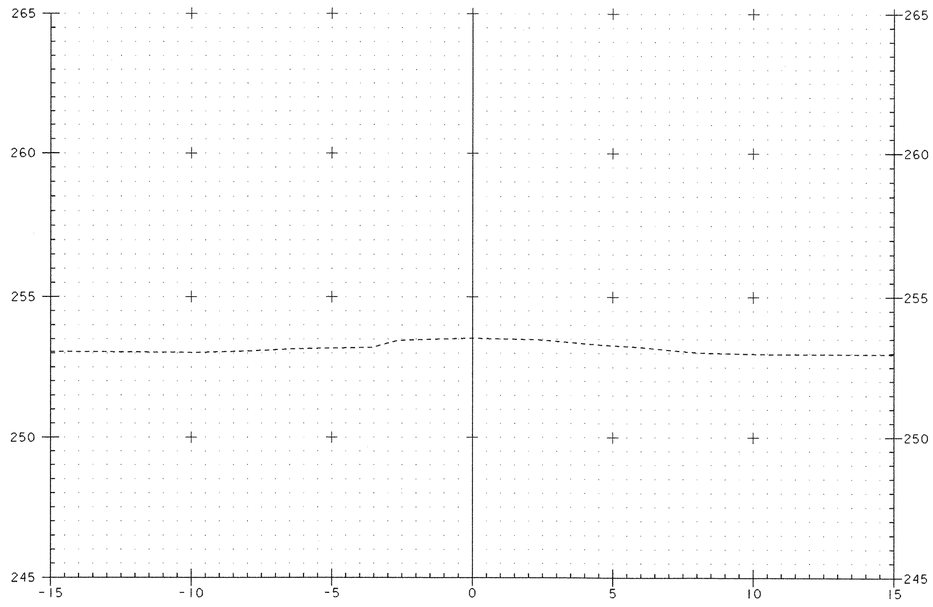
1+040



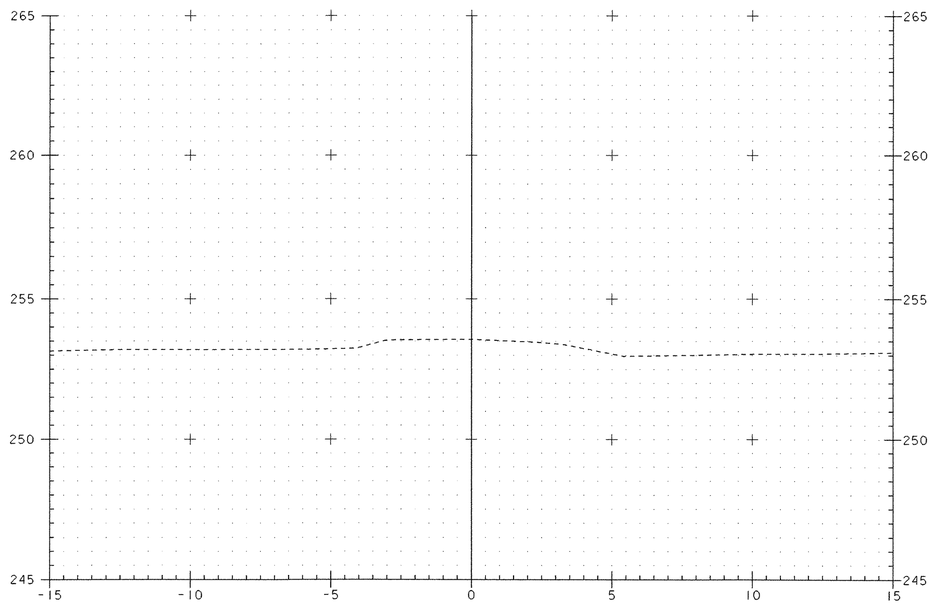
1+050

0 2 4 6 8 10
SCALE 1 : 100

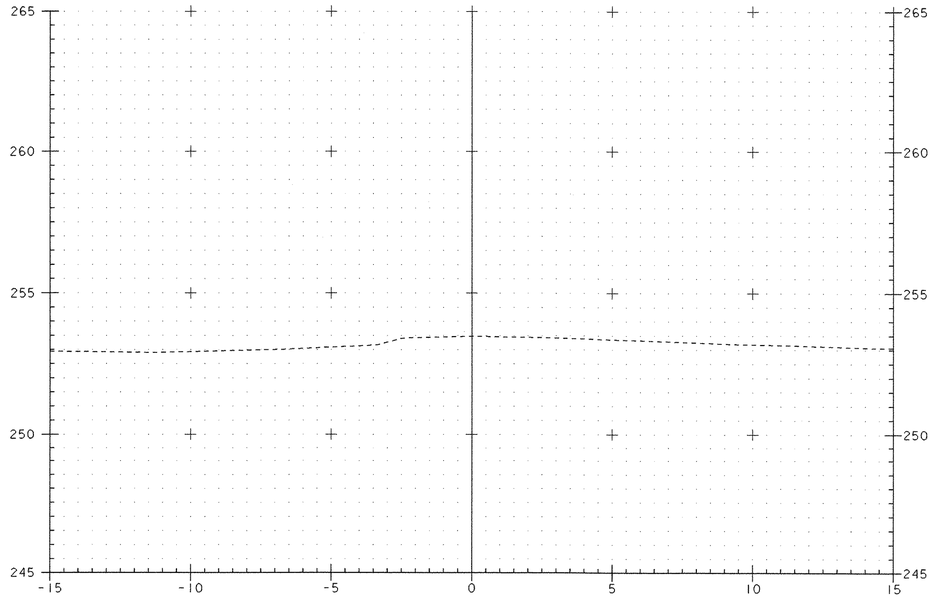
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100xsl.dgn IPARM FILE NAME: sj100ml3.i	PLOT DATE: 03-MAR-2006
MAINLINE CROSS SECTIONS	
SECTION 1+040 THROUGH 1+055	SHEET: 36 OF 39



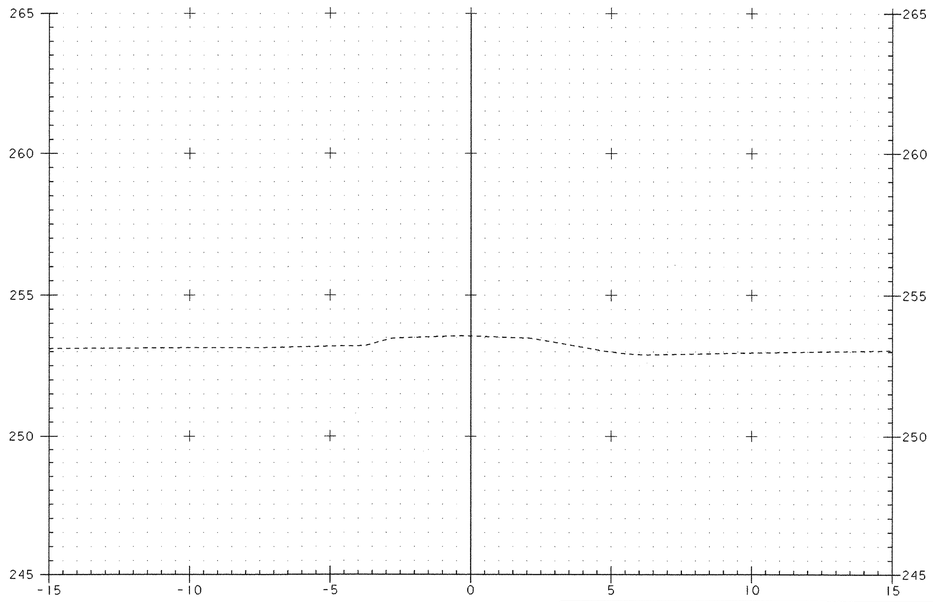
1+065



1+075



1+060



1+070

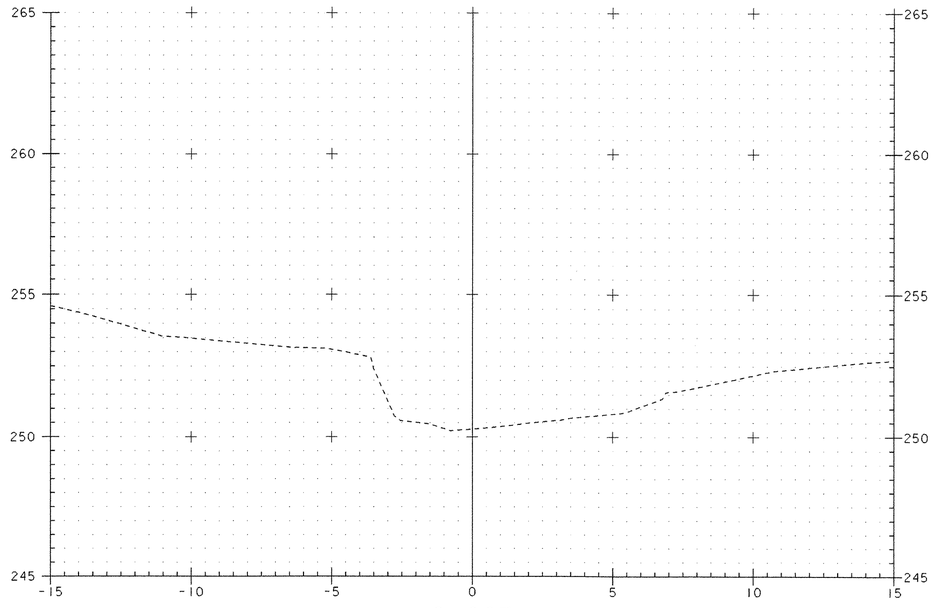
0 2 4 6 8 10

SCALE 1 : 100

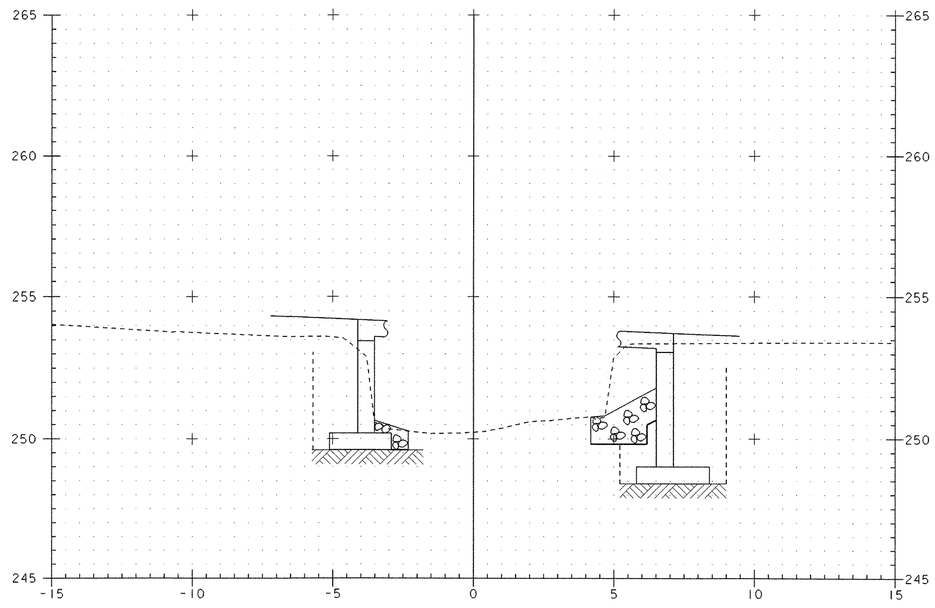
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100xsl.dgn IPARM FILE NAME: sj100ml4.i	PLOT DATE: 03-MAR-2006
MAINLINE CROSS SECTIONS	
SECTION 1+060 THROUGH 1+075	SHEET: 37 OF 39

STA. 2+008.500 LT (ABUT #1)
BEGIN STONE FILL TYPE III
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN UNCLASSIFIED CHANNEL EXCAVATION

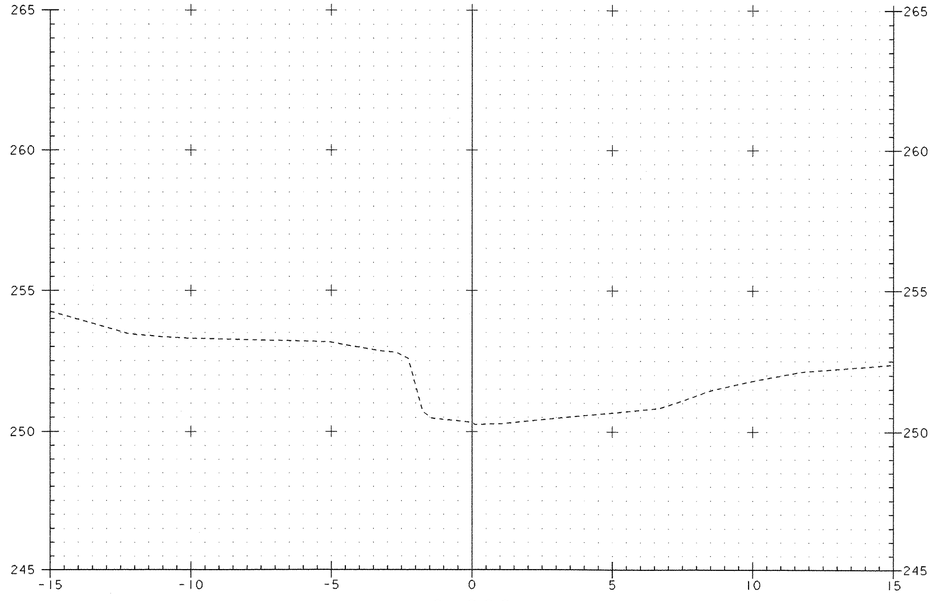
STA. 2+007.000 RT (ABUT #2)
BEGIN STONE FILL TYPE III
BEGIN GRUBBING MATERIAL
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN UNCLASSIFIED CHANNEL EXCAVATION



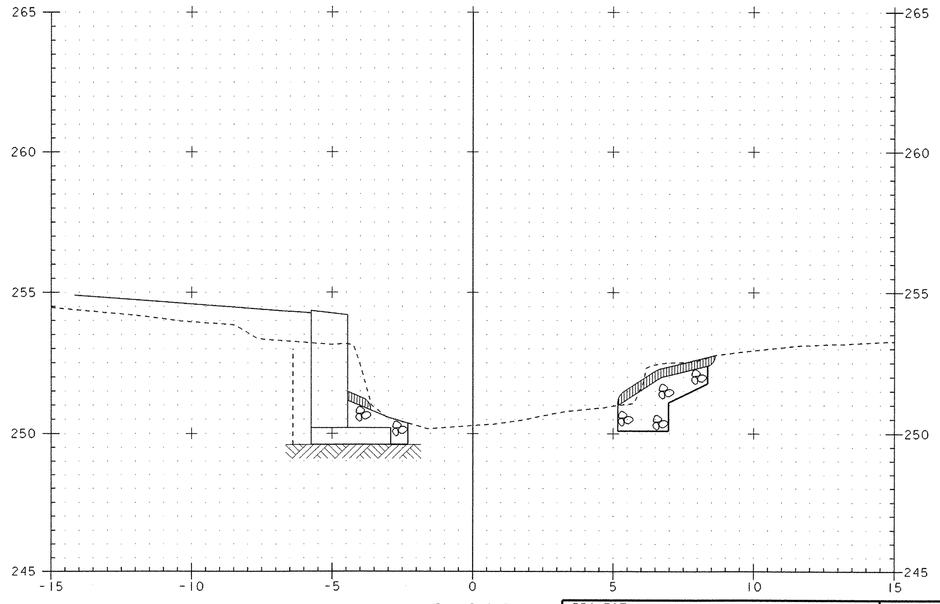
2+005



2+015



2+000

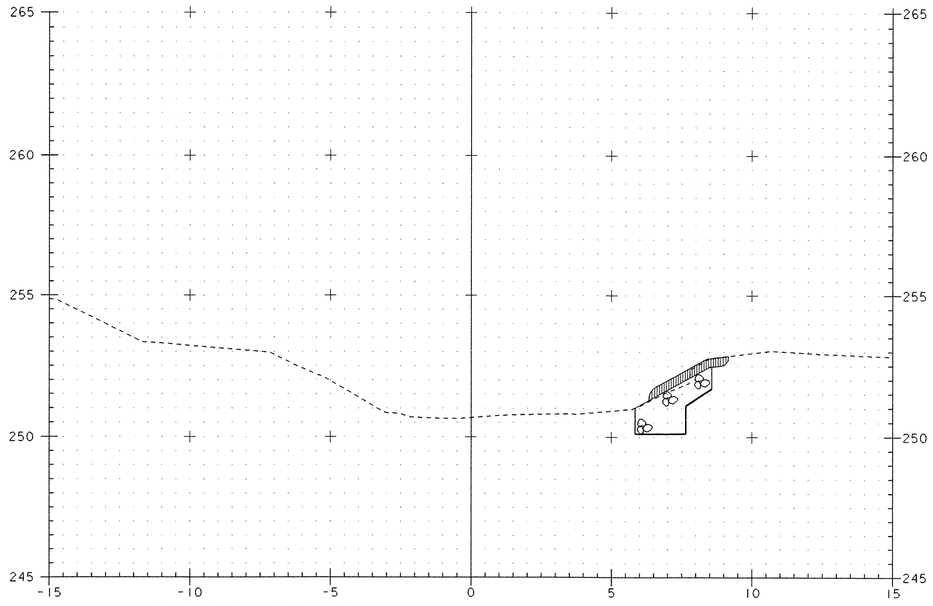


2+010

0 2 4 6 8 10
SCALE 1 : 100

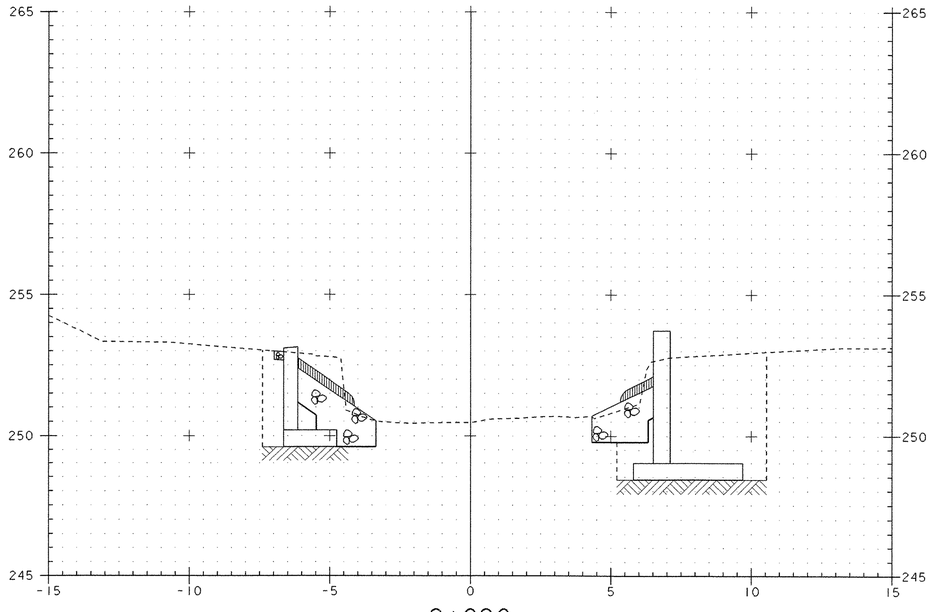
PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100xsl.dgn IPARM FILE NAME: sj100chl.i	PLOT DATE: 03-MAR-2006
CHANNEL LINE CROSS SECTIONS	
SECTION 2+000 THROUGH 2+015	SHEET: 38 OF 39

STA. 2+027.000 RT (ABUT. #2)
END STONE FILL TYPE III
END GRUBBING MATERIAL
END GEOTEXTILE UNDER STONE FILL
END UNCLASSIFIED CHANNEL EXCAVATION



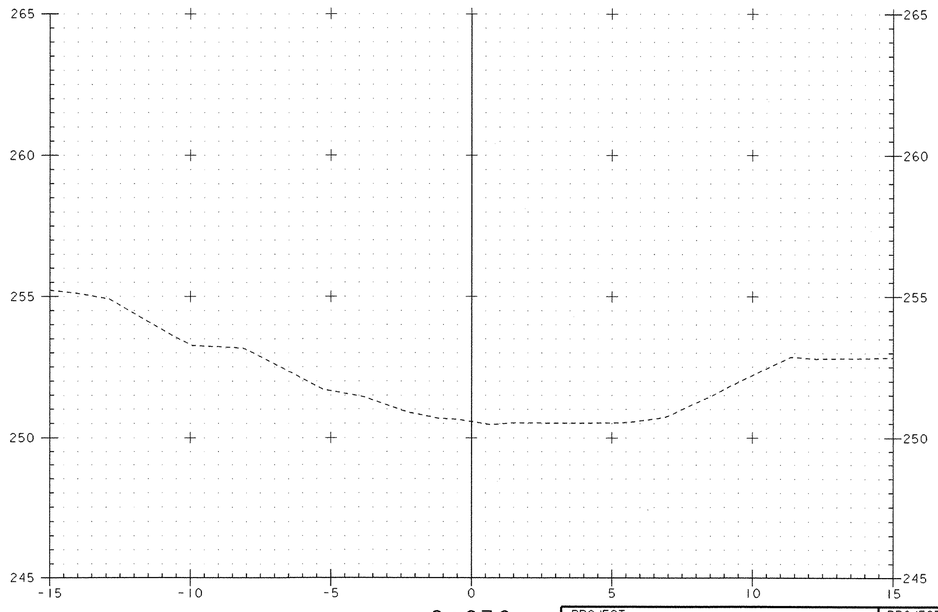
STA. 2+024.500 LT (ABUT #1)
END STONE FILL TYPE III
END GRUBBING MATERIAL
END GEOTEXTILE UNDER STONE FILL
END UNCLASSIFIED CHANNEL EXCAVATION

2+025



STA. 2+017.400 LT (ABUT #1)
BEGIN GRUBBING MATERIAL

2+020



2+030

0 2 4 6 8 10
SCALE 1 : 100

PROJECT: GRANVILLE	PROJECT NO.: BRO 1444 (34)
DESIGN FILE NAME: 94j100/structures/sj100xsl.dgn IPARM FILE NAME: sj100ch2.i	PLOT DATE: 03-MAR-2006
CHANNEL LINE CROSS SECTIONS	
SECTION 2+020 THROUGH 2+030	SHEET: 39 OF 39