

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT

BRIDGE PROJECT

TOWN OF MIDDLESEX

COUNTY OF WASHINGTON

VT. ROUTE 12 (MAJOR COLLECTOR)

BRIDGE #78

PROJECT LOCATION: BEGINNING AT A POINT ON VT. ROUTE 12, APPROXIMATELY 3.1 KILOMETERS NORTH OF THE MONTPELIER - MIDDLESEX TOWN LINE AND EXTENDING NORTHERLY 150 METERS.

LENGTH OF STRUCTURE 44 METERS
LENGTH OF ROADWAY 106 METERS
LENGTH OF PROJECT 150 METERS
LENGTH OF ROW PROJECT 213.22 METERS (699.54 FEET)
PROJECT DESCRIPTION: COMPLETE REPLACEMENT OF BRIDGE #78 ALONG WITH RELATED ROADWAY AND CHANNEL WORK

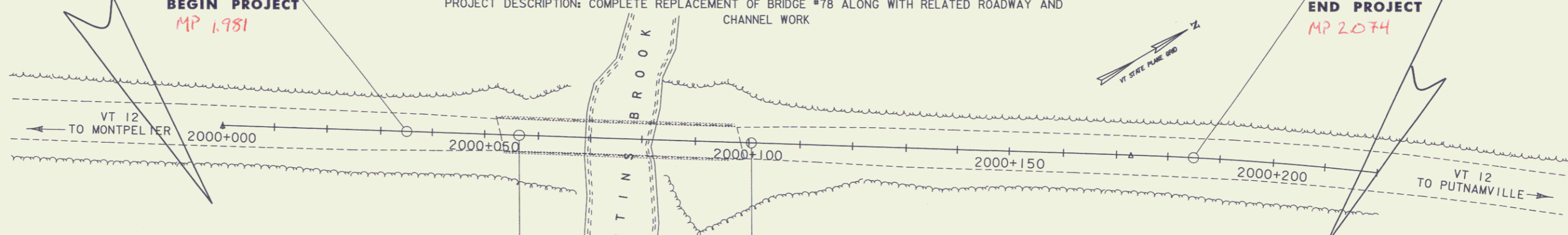
R.O.W. PLANS

BEGIN R. O. W. PROJECT
BRF 0241(32) STA. 1999+998.42
15.24M (50') RT.

END R. O. W. PROJECT
BRF 0241(32)
STA. 2000+211.64
15.24M (50') RT.

STA 2000+035
BEGIN PROJECT
MP 1.981

STA 2000+185
END PROJECT
MP 2.074



STA 2000+056.50
BEGIN BRIDGE

STA 2000+100.50
END BRIDGE

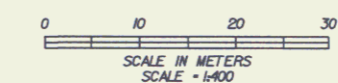
CONVENTIONAL SYMBOLS

COUNTY LINE	— — — — —
TOWN LINE	— — — — —
LIMITS OF ACCESS	— — — — —
POINT OF ACCESS	X
FENCE LINE	X — X — X — X —
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	— — — — —

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

SURVEYED BY : RB & RG
SURVEYED DATE : 03/06/2000

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 / 96

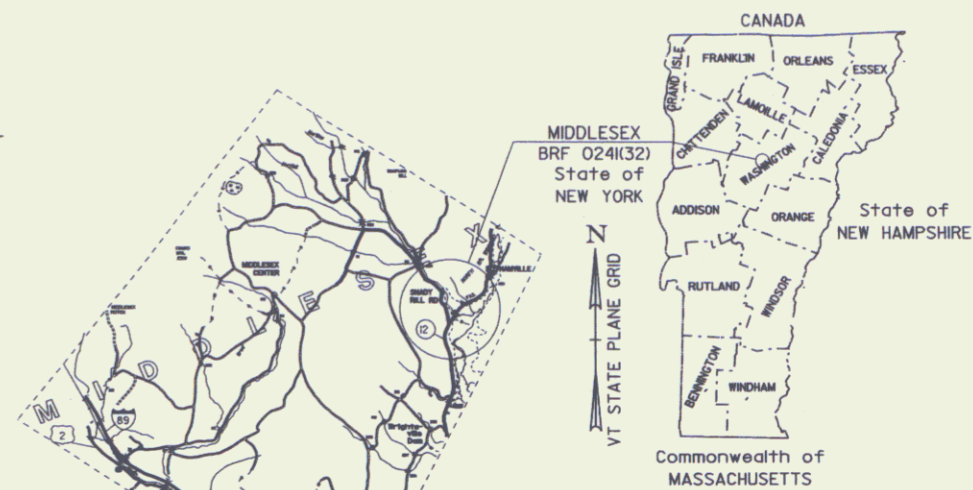


THE FOLLOWING RIGHT OF WAY PLAN SHEETS PERTAIN DIRECTLY TO THE ACQUISITION OF LAND AND RIGHTS NECESSARY TO CONSTRUCT THIS TRANSPORTATION PROJECT. SHEETS REGARDING SPECIFIC CONSTRUCTION DETAILS ARE NOT INCLUDED IN THIS RECORDED SET.

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROJECT 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.

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



Pin # 90A003



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

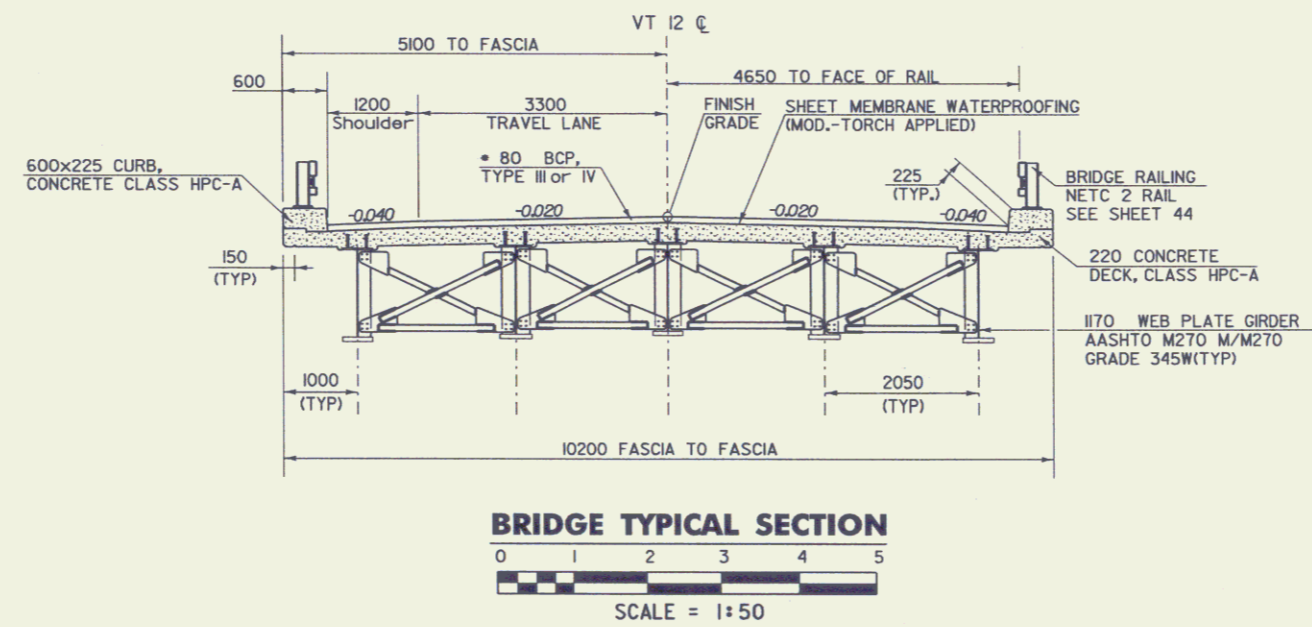
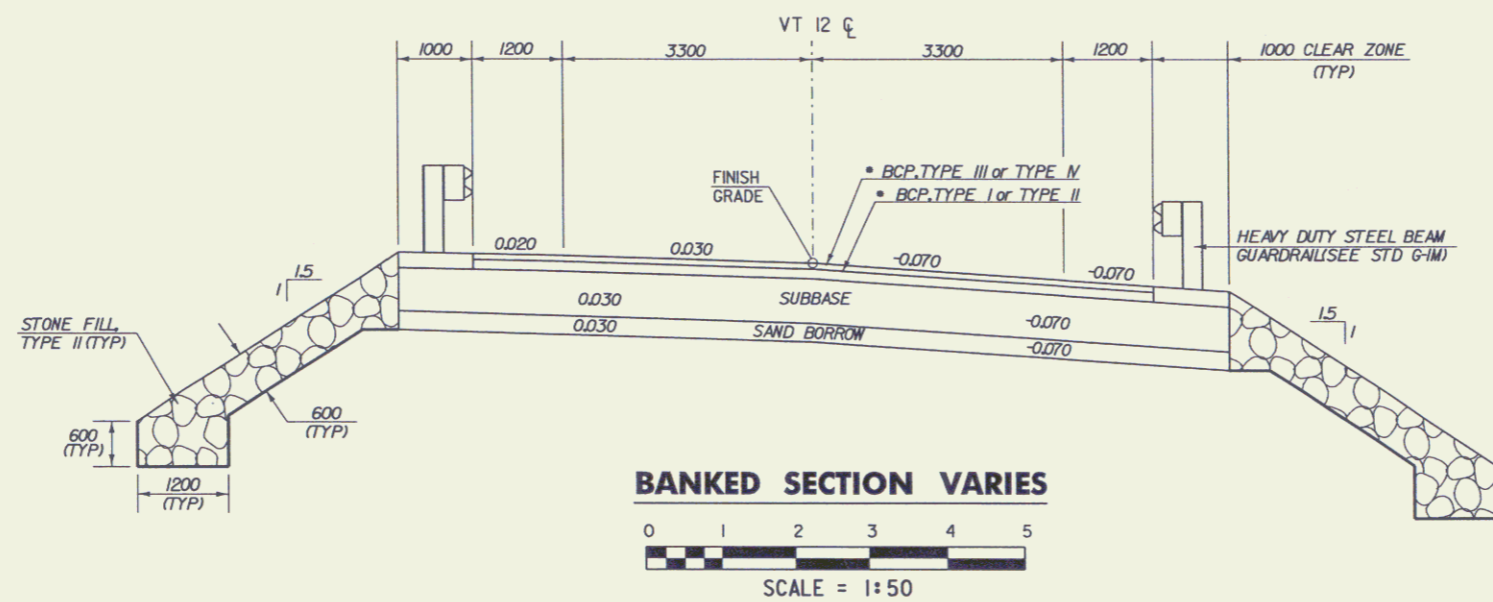
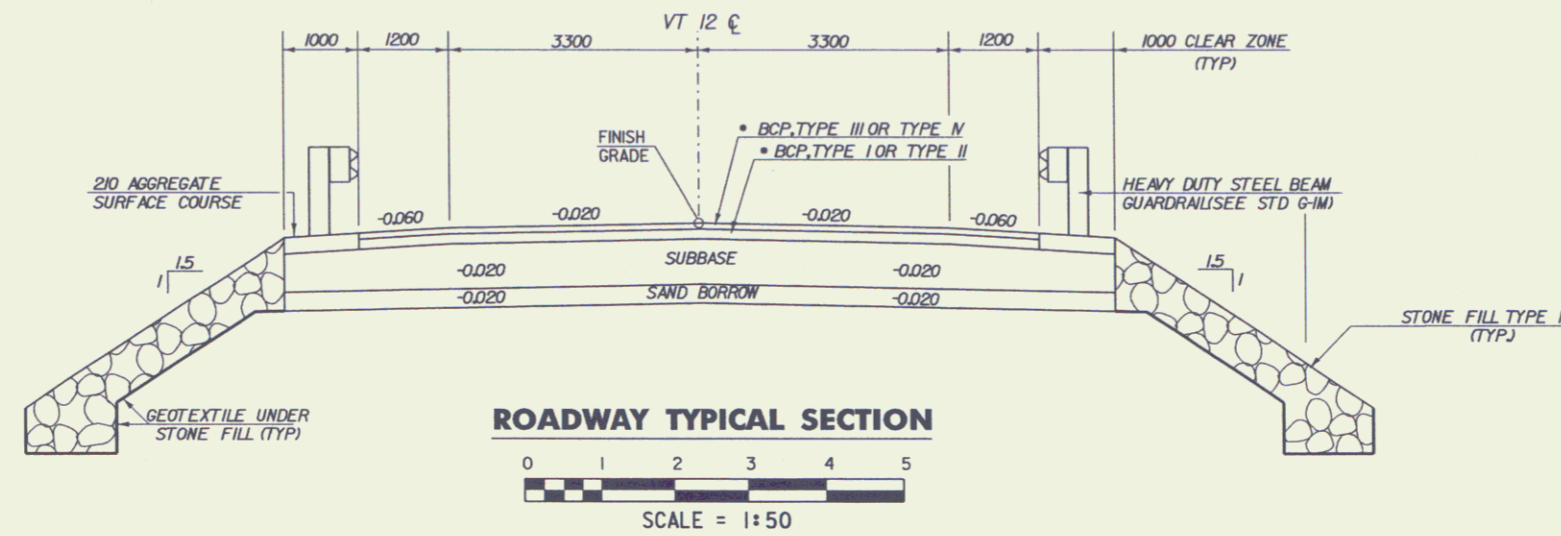
APPROVED: *Richard J. Strawn* DATE 11/22/05
Director of Program Development

APPROVED: *Willis S. Morse* DATE 11/18/05
Chief of Right of Way

MIDDLESEX
BRF 0241 (32)
R. O. W. SHEET 1 OF 17 SHEETS

MATERIAL TOLERANCES	
Bituminous Concrete (total depth)	+/-5mm
Subbase	+/-30mm
Sand Borrow	+/-30mm

80mm B.C.P., Type III or Type IV (2 - 40mm Lifts)
 130mm B.C.P., Type I or Type II (2 - 65mm Lifts)
 600mm Subbase of Dense Graded Crushed Stone
 250mm Sand Borrow



SEEDING FORMULA				
RURAL AREAS				
% MASS	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	BIRDFOOT TREFOIL	98	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.0	70.0			

GENERAL NOTES

SEED MIXTURES SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY MASS AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEEDS 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.

MARKER POSTS: TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5M.

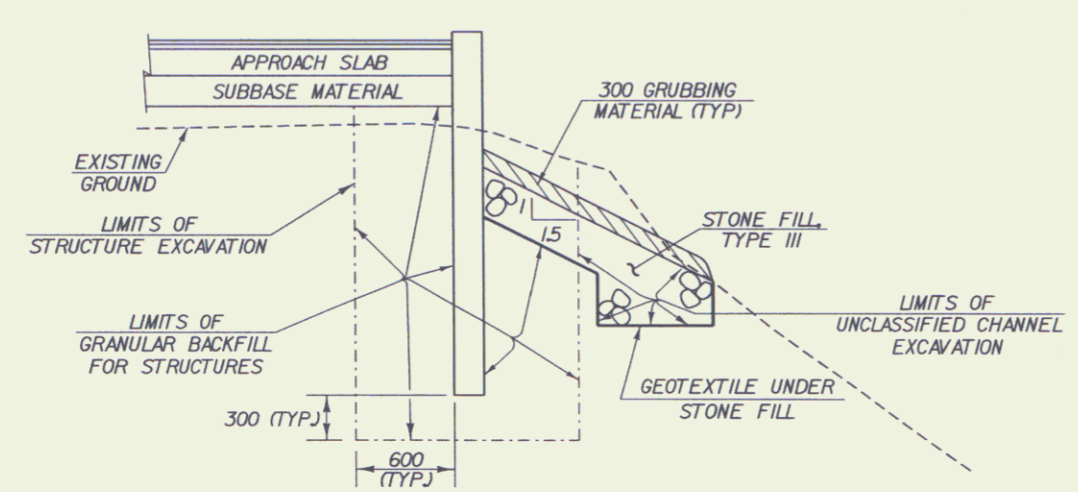
• 80 TYPE III OR TYPE IV OVER 130 TYPE I OR TYPE II

• TOP LIFT 40 TYPE III OR TYPE IV OVER 40, TYPE III OR TYPE IV

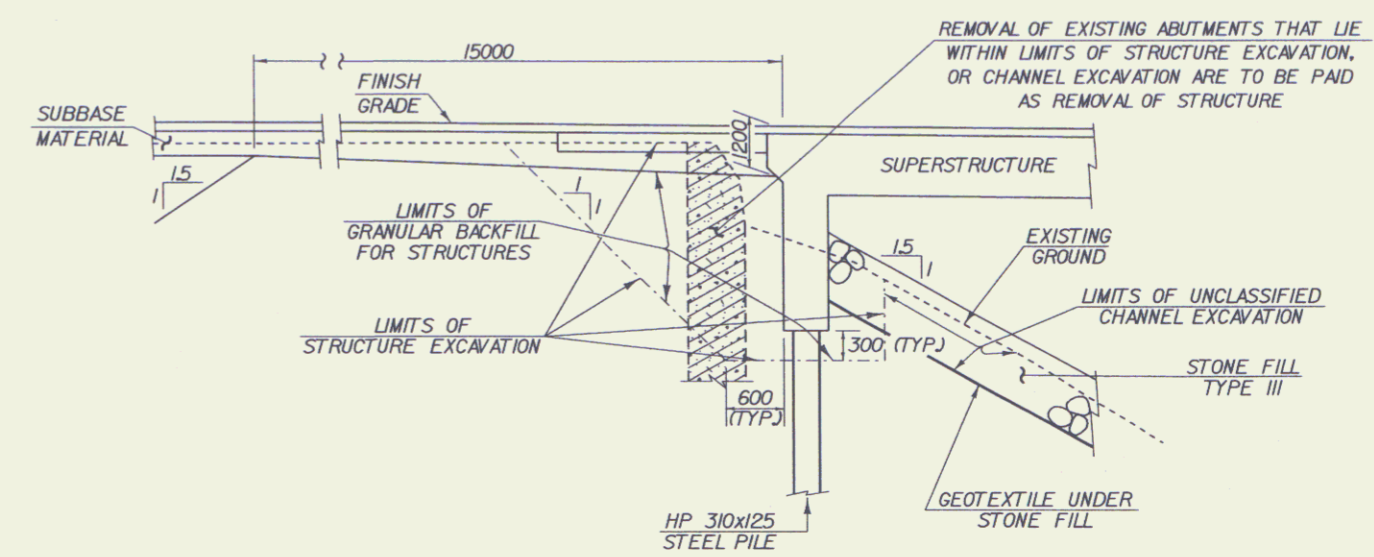
TYPICAL SECTIONS

PROJECT NAME: MIDDLESEX
 PROJECT NUMBER: BRF 0241 (32)

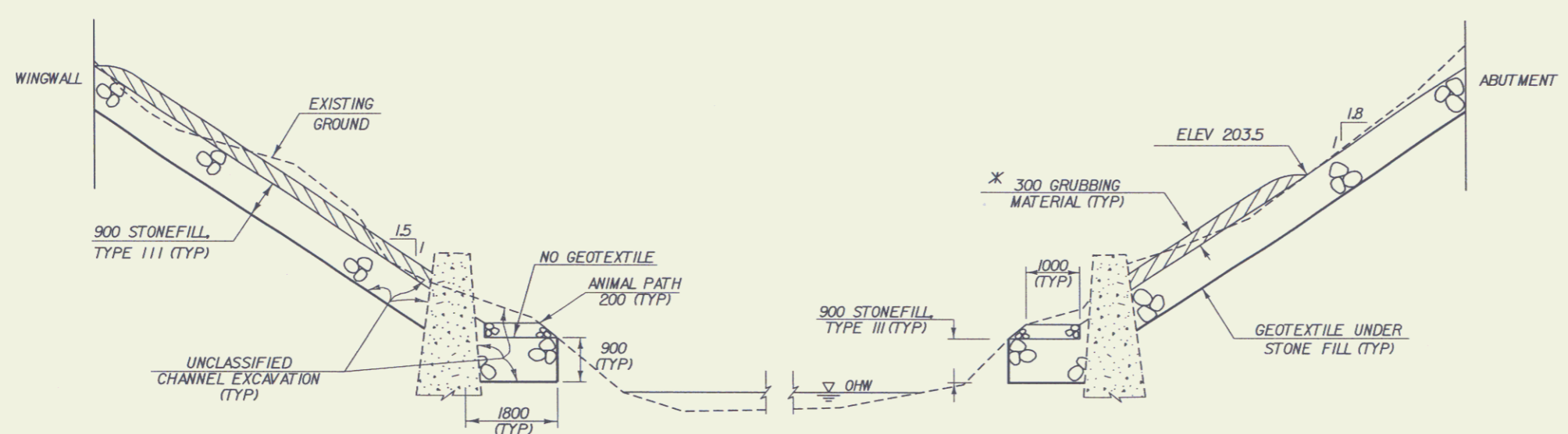
FILE NAME: 90a003/str/ea003typ1.dgn PLOT DATE: 06-SEP-2005
 PROJECT LEADER: Evans-Mongeon DRAWN BY: HUSK
 DESIGNED BY: SCRIBNER CHECKED BY: SCRIBNER
 lparam ea003typ1 ROW SHEET 2 OF 17



TYPICAL WINGWALL SECTION
(NOT TO SCALE)



TYPICAL ABUTMENT SECTION
(NOT TO SCALE)



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

TYPICAL CHANNEL SECTION WITH EXISTING PIER
(NOT TO SCALE)

* GRUBBING MATERIAL SHALL BE PLACED TO AN ELEVATION OF 203.5m IN THE AREA UNDER THE BRIDGE. GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE WHEREVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE.

MISCELLANEOUS TYPICAL SECTIONS

PROJECT NAME: MIDDLESEX	PLOT DATE: 06-SEP-2005
PROJECT NUMBER: BRF 0241 (32)	DRAWN BY: HUSK
FILE NAME: 90a003/str/so003typ1.dgn	CHECKED BY: SCRIBNER
PROJECT LEADER: Evans-Mongeon	ROW SHEET 3 OF 17
DESIGNED BY: SCRIBNER	

GPS CONTROL POINTS

HVCTRL # 1

STANDARD DISK STAMPED

* SHADY RILL AZ MK *

N = 203086.2340
E = 493570.3160
ELEV. = 236.450

SHADY RILL AZ MK
GENERAL LOCATION, MIDDLESEX, VT. TO REACH FROM THE INTERSECTION OF US ROUTE 2 (MEMORIAL DRIVE) AND VT ROUTE 12 IN MONTPELIER GO NORTHEAST ALONG VT ROUTE 12 (MAIN STREET) FOR 0.2 MI (0.3 KM) TO THE INTERSECTION OF STATE STREET LEFT AND EAST STATE STREET RIGHT. CONTINUE STRAIGHT AHEAD AND GO NORTHEAST ALONG VT ROUTE 12 (MAIN STREET) FOR 0.25 MI (0.40 KM) TO A ROUNDABOUT. PASS AROUND THE ROUNDABOUT AND GO NORTHWEST ALONG VT ROUTE 12 (NOW SPRING STREET) FOR 0.1 MI (0.2 KM) TO THE INTERSECTION OF ELM STREET. TURN RIGHT AND GO NORTH ALONG VT ROUTE 12 (ELM STREET) FOR 4.7 MI (7.6 KM) TO THE SITE OF THE MARK ON THE LEFT IN A POWERLINE. IT IS 0.25 MI (0.40 KM) SOUTH ALONG VT ROUTE 12 FROM ITS INTERSECTION WITH SHADY RILL ROAD. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 1.2 M (3.9 FT) X 0.5 M (1.6 FT) ROCK OUTCROP. IT IS 23.4 M (76.8 FT) WEST OF AND ABOUT 3.5 M (11.5 FT) HIGHER THAN THE CENTERLINE OF VT ROUTE 12. 22.0 M (72.2 FT) SOUTH WEST OF POLE NO 6K/2H/56, 23.2 M (76.1 FT) NORTH OF POLE NO 55/20, AND 0.9 M (3.0 FT) EAST OF A FIBERGLASS WITNESS POST.

* DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

HVCTRL # 2


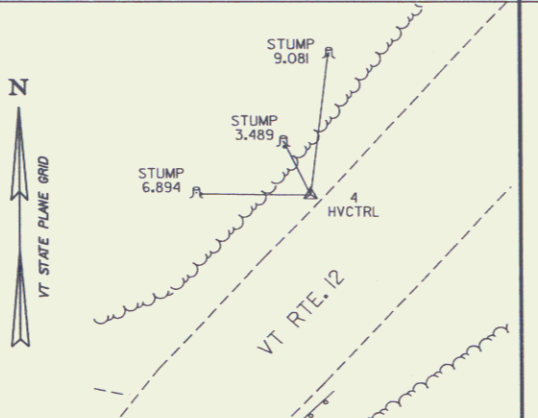
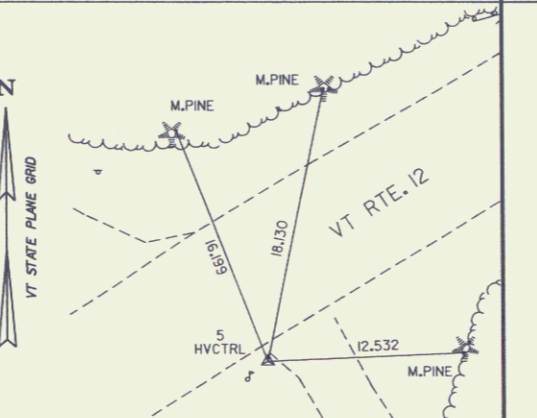
STANDARD DISK STAMPED

* SHADY RILL *

N = 203412.0870
E = 493747.7910
ELEV. = 213.340

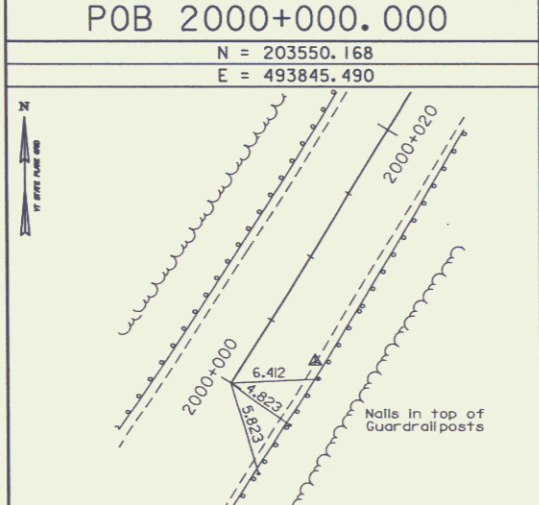
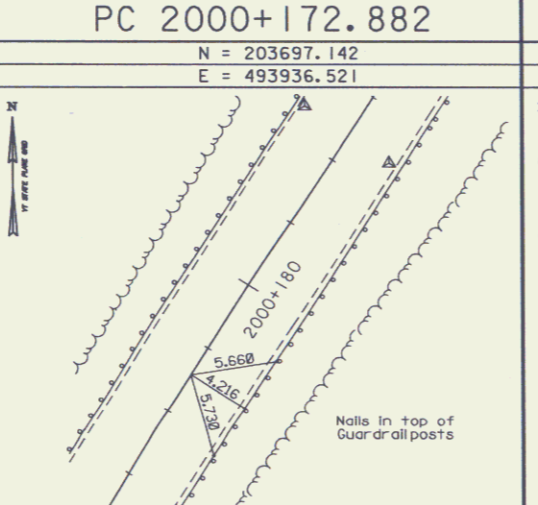
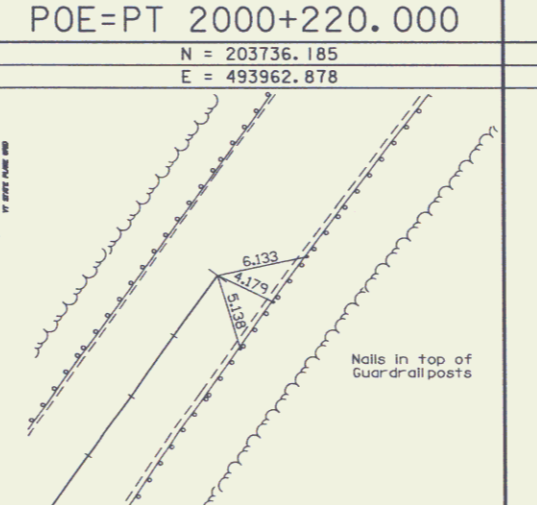
SHADY RILL
GENERAL LOCATION, MIDDLESEX, VT. TO REACH FROM THE INTERSECTION OF US ROUTE 2 (MEMORIAL DRIVE) AND VT ROUTE 12 IN MONTPELIER GO NORTHEAST ALONG VT ROUTE 12 (MAIN STREET) FOR 0.2 MI (0.3 KM) TO THE INTERSECTION OF STATE STREET LEFT AND EAST STATE STREET RIGHT. CONTINUE STRAIGHT AHEAD AND GO NORTHEAST ALONG VT ROUTE 12 (MAIN STREET) FOR 0.25 MI (0.40 KM) TO A ROUNDABOUT. PASS AROUND THE ROUNDABOUT AND GO NORTHWEST ALONG VT ROUTE 12 (NOW SPRING STREET) FOR 0.1 MI (0.2 KM) TO THE INTERSECTION OF ELM STREET. TURN RIGHT AND GO NORTH ALONG VT ROUTE 12 (ELM STREET) FOR 4.9 MI (7.9 KM) TO THE INTERSECTION OF SHADY RILL ROAD LEFT AND THE SITE OF THE MARK ON THE LEFT IN THE NORTH END OF A GRASS TRIANGLE FORMED BY THE INTERSECTION. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT ANCHORED TO ROCK 40 CM DEEP. IT IS 9.9 M (32.5 FT) NORTHWEST OF AND ABOUT LEVEL WITH THE CENTERLINE OF VT ROUTE 12. 8.2 M (26.9 FT) SOUTH OF THE CENTERLINE OF THE NORTH LEG OF SHADY RILL ROAD, 32.3 M (106.0 FT) WEST OF POLE NO 6/6, AND 0.3 M (1.0 FT) SOUTHWEST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

HVCTRL # 3	HVCTRL # 4	HVCTRL # 5		
N = 203476.4235 E = 493805.4558 ELEV. = 208.974	N = 203789.6964 E = 494000.0919 ELEV. = 210.013	N = 203881.9387 E = 494125.9421 ELEV. = 211.839	N = E = ELEV. =	N = E = ELEV. =
				

* MAIN TRAVERSE COMPLETED 3-06-00 BY R.G. AND R.B.

ALIGNMENT TIES

POB 2000+000.000	PC 2000+172.882	POE=PT 2000+220.000		
N = 203550.168 E = 493845.490	N = 203697.142 E = 493936.521	N = 203736.185 E = 493962.878	N = E =	N = E =
				

* ALIGNMENT STAKED 08/20/02 by R. Gilman P.C.P. Wint

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 / 96
ADJUSTED YES
TYPE COMPASS

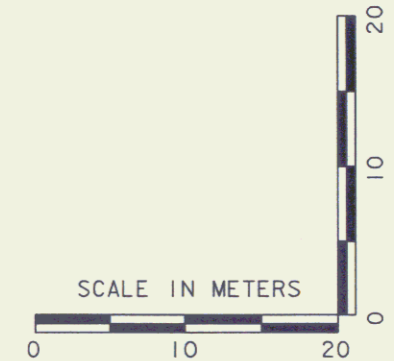
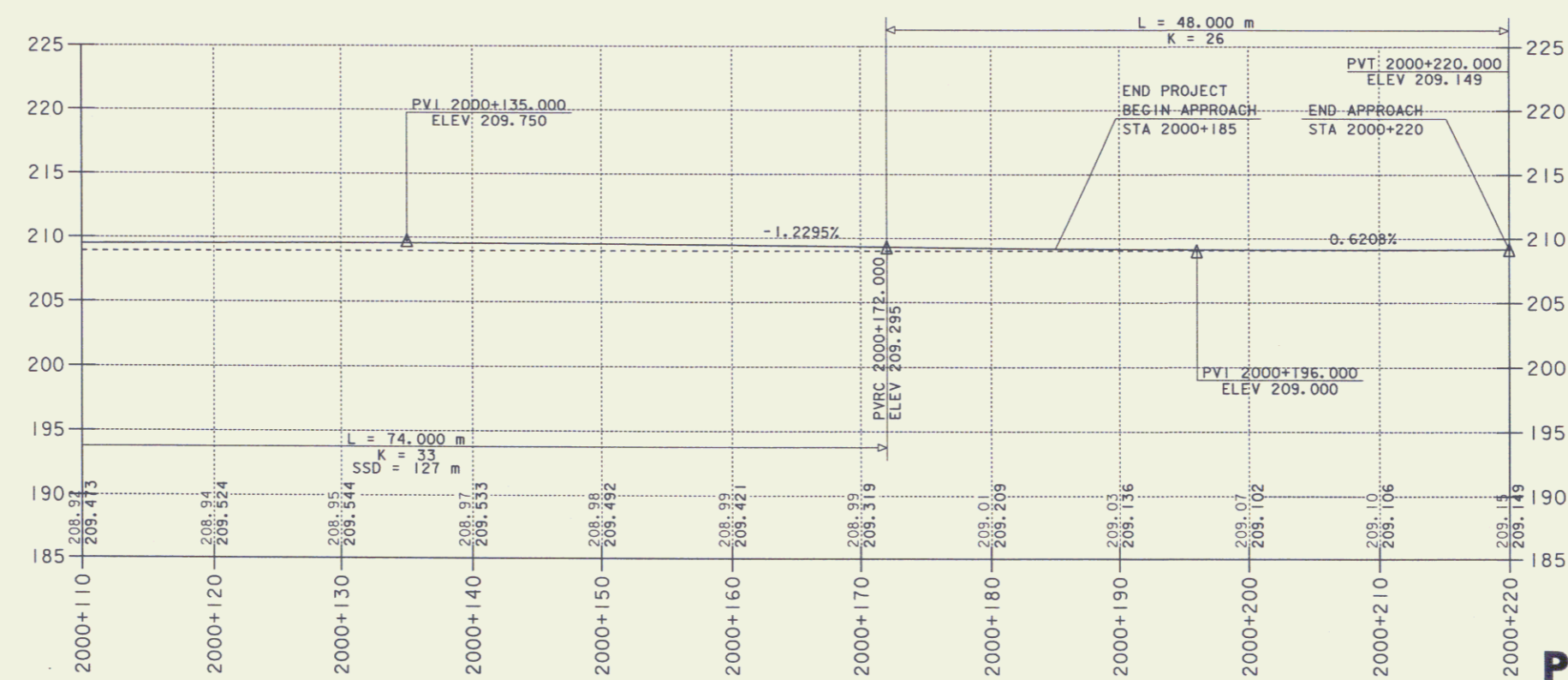
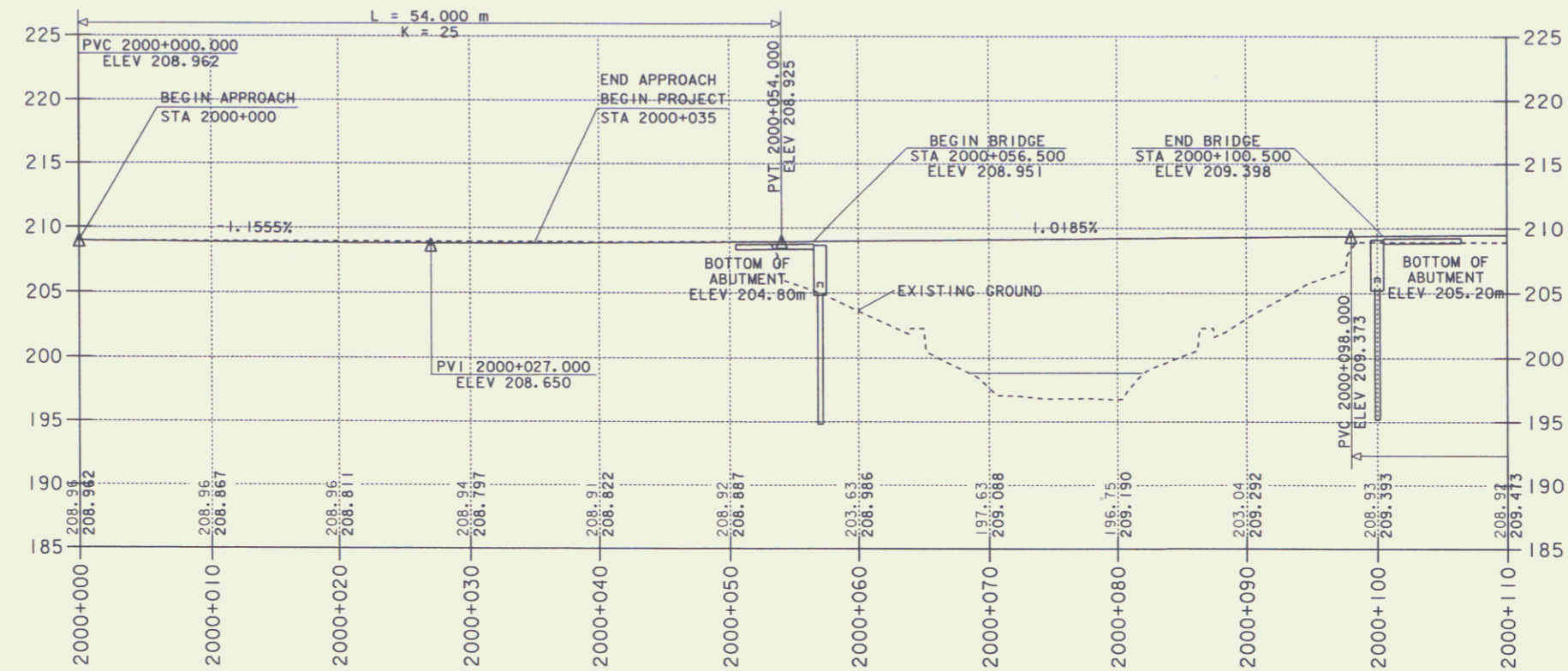
* POB - POINT OF BEGINNING
* POE - POINT OF END

SURVEY TIE SHEET

PROJECT NAME: MIDDLESEX
PROJECT NUMBER: BRF 0241 (32)

FILE NAME: 90a003/str/sa003tie.dgn
PROJECT LEADER: Evans-Mongeon
DESIGNED BY: SCRIBNER
PLOT DATE: 06-SEP-2005
DRAWN BY: G.H.
CHECKED BY: SCRIBNER
ROW SHEET 4 OF 17

PROFILE ALONG CENTERLINE VT 12



NOTE: ELEVATIONS SHOWN TO THE HUNDREDTH ARE EXISTING GROUND.
ELEVATIONS SHOWN TO THE NEAREST THOUSANDTH ARE FINISH GRADE.

PROFILE SHEET

PROJECT NAME: MIDDLESEX	PLOT DATE: 07-SEP-2005
PROJECT NUMBER: BRF 0241 (32)	DRAWN BY: HUSK
FILE NAME: 90a003/str/so003wk.dgn	CHECKED BY: SCRIBNER
PROJECT LEADER: Evans-Mongeon	ROW SHEET 5 OF 11
DESIGNED BY: SCRIBNER	
IPARM sa003pro.l	

5

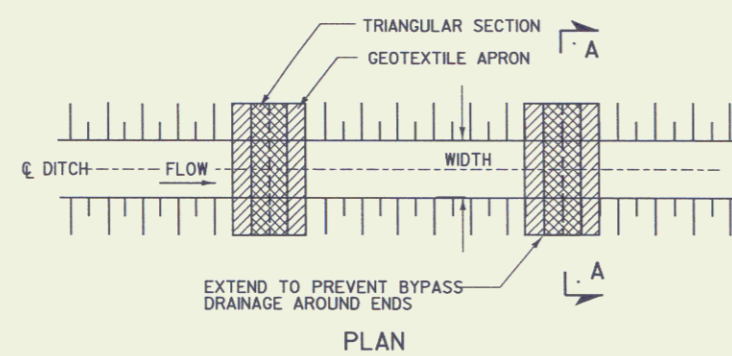
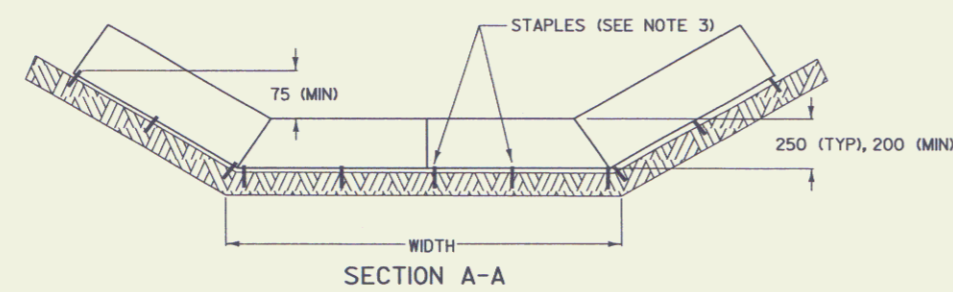
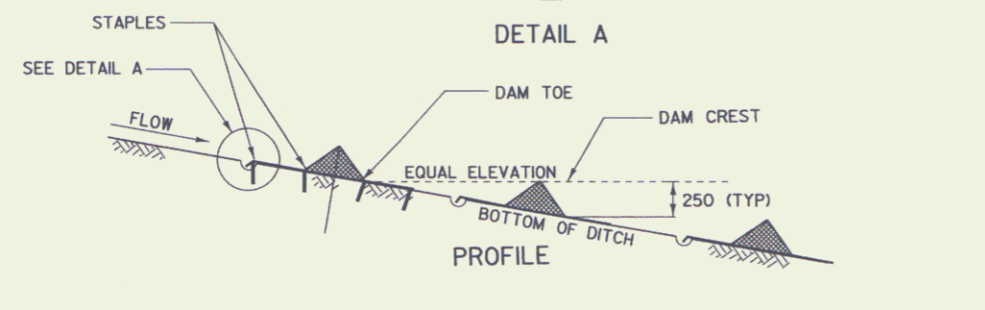
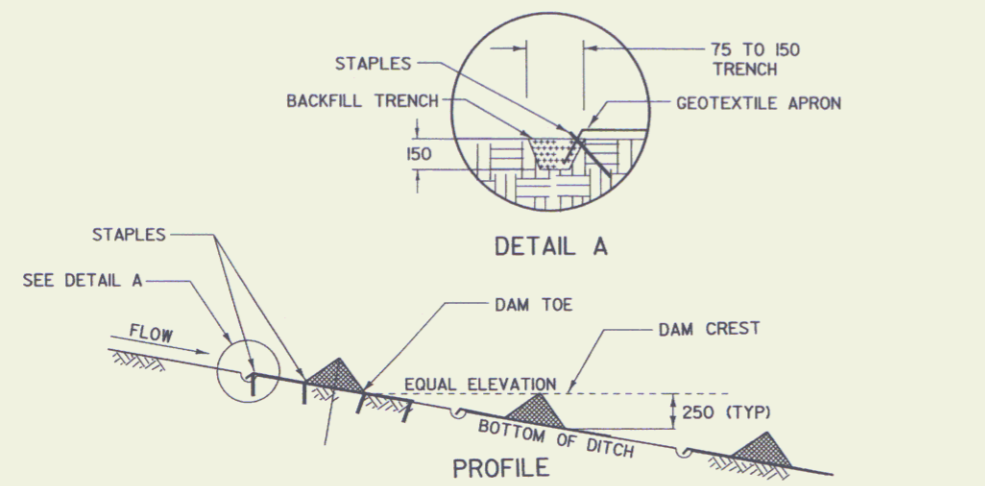
CHECK DAMS

APPLICATION NOTES:

- THE PRIMARY PURPOSE OF A CHECK DAM IS TO REDUCE EROSION IN A CHANNEL BY REDUCING FLOW VELOCITY.
- CHECK DAMS WILL CAPTURE SEDIMENT THAT FALLS OUT OF SUSPENSION BEHIND THE CHECK DAM DUE TO DECREASED VELOCITY.
- CHECK DAMS ARE NOT INTENDED TO FILTER SEDIMENT FROM TURBID WATER.
- DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALLATION ONLY.
- PREFABRICATED DAMS ARE NOT TO BE USED ON SLOPES GREATER THAN 5% PER MANUFACTURER'S SPECIFICATIONS.
- PREFABRICATED DAM SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

GENERAL NOTES:

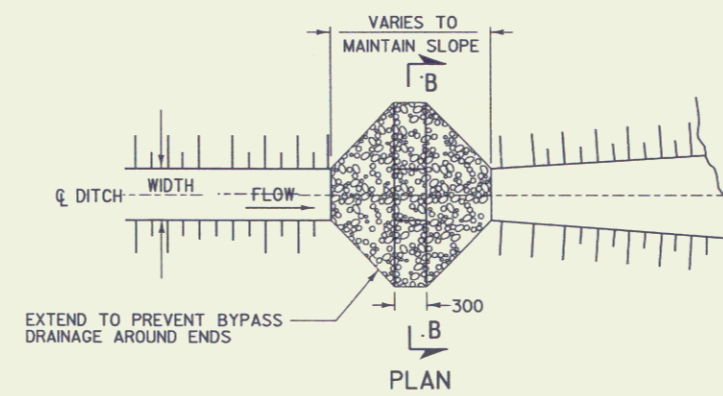
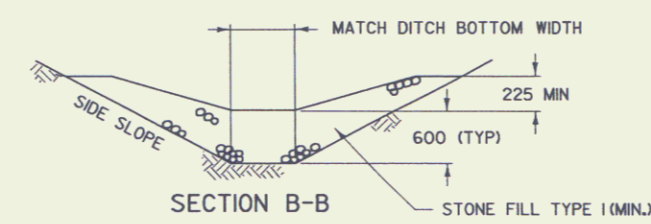
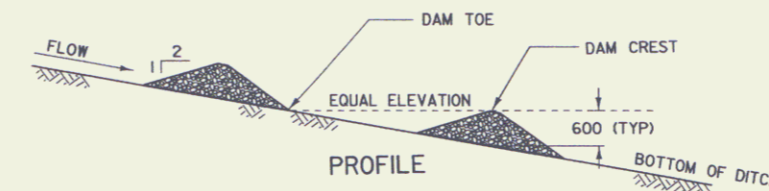
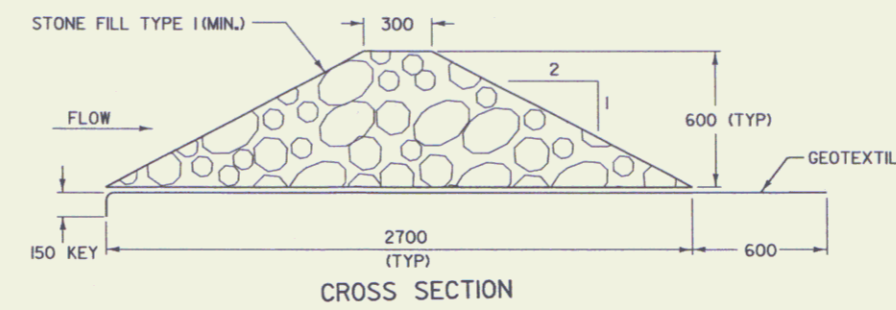
- GEOTEXTILE SHALL BE INSTALLED UNDER STONE FILL, IT SHALL BE KEYED IN ON THE UP HILL END AND SHALL EXTEND 0.6 m BEYOND THE STONE ON THE DOWN HILL END.
- CORE MATERIAL FOR THE STONE CHECK DAM SHALL MEET THE GRADATION REQUIREMENTS OF STONE FILL TYPE 1(MIN.). STONE SIZE SHOULD BE INCREASED WITH INCREASED SLOPE AND VELOCITY.
- 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 MANUFACTURER'S LITERATURE.
- MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
- MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
- AT TIME OF REMOVAL OF THE CHECK DAMS, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
- 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.
- PAYMENT FOR MONITORING CHECK DAMS SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
- 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.



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

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

CHECK DAM DETAIL SHEET

PROJECT NAME:	MIDDLESEX	PLOT DATE:	06-SEP-2005
PROJECT NUMBER:	BRF 0241(32)	DRAWN BY:	HUSK
FILE NAME:	90a003/str2/so03ero.dgn	CHECKED BY:	SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	ROW SHEET:	7 OF 17
DESIGNED BY:	SCRIBNER		

Geotextile Under Stone Fill
 2000+002.0 ~ 2000+065.0 LT
 2000+003.0 ~ 2000+068.0 RT
 2000+084.0 ~ 2000+214.0 LT
 2000+086.0 ~ 2000+215.0 RT

Geotextile for Silt Fence
 Detour 4+007.0 ~ 2000+009.0 LT
 Detour 4+004.0 ~ 2000+009.0 RT
 2000+082.0 ~ 2000+220.0 LT
 2000+082.0 ~ 2000+220.0 RT

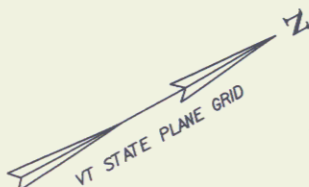
SOIL INFORMATION
 Rumney Fine Sandy Loam, 0%-2% Slope
 Hydrologic Soil Group C
 Depth To Bedrock: 1500mm
 Depth To Water Table: 450mm
 Not Highly Erodible Land

SOIL INFORMATION
 Ottawa Fine Sandy Loam, 0%-3% Slope
 Hydrologic Soil Group B
 Depth To Bedrock: 1500mm
 Depth To Water Table: 1800mm
 Not Highly Erodible Land

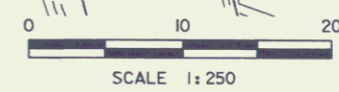
SOIL INFORMATION
 Rumney Fine Sandy Loam, 0%-2% Slope
 Hydrologic Soil Group C
 Depth To Bedrock: 1500mm
 Depth To Water Table: 450mm
 Not Highly Erodible Land

LEGEND

EXISTING CONTOURS	----- 200 m -----
SILT FENCE	-----
SOIL BOUNDARY	-----
CLASS II WETLAND	-----
FLOOD PLAIN	FLOOD PLAIN
WETLAND BUFFER ZONE	-----
PERMANENT CONST. LIMITS	-----



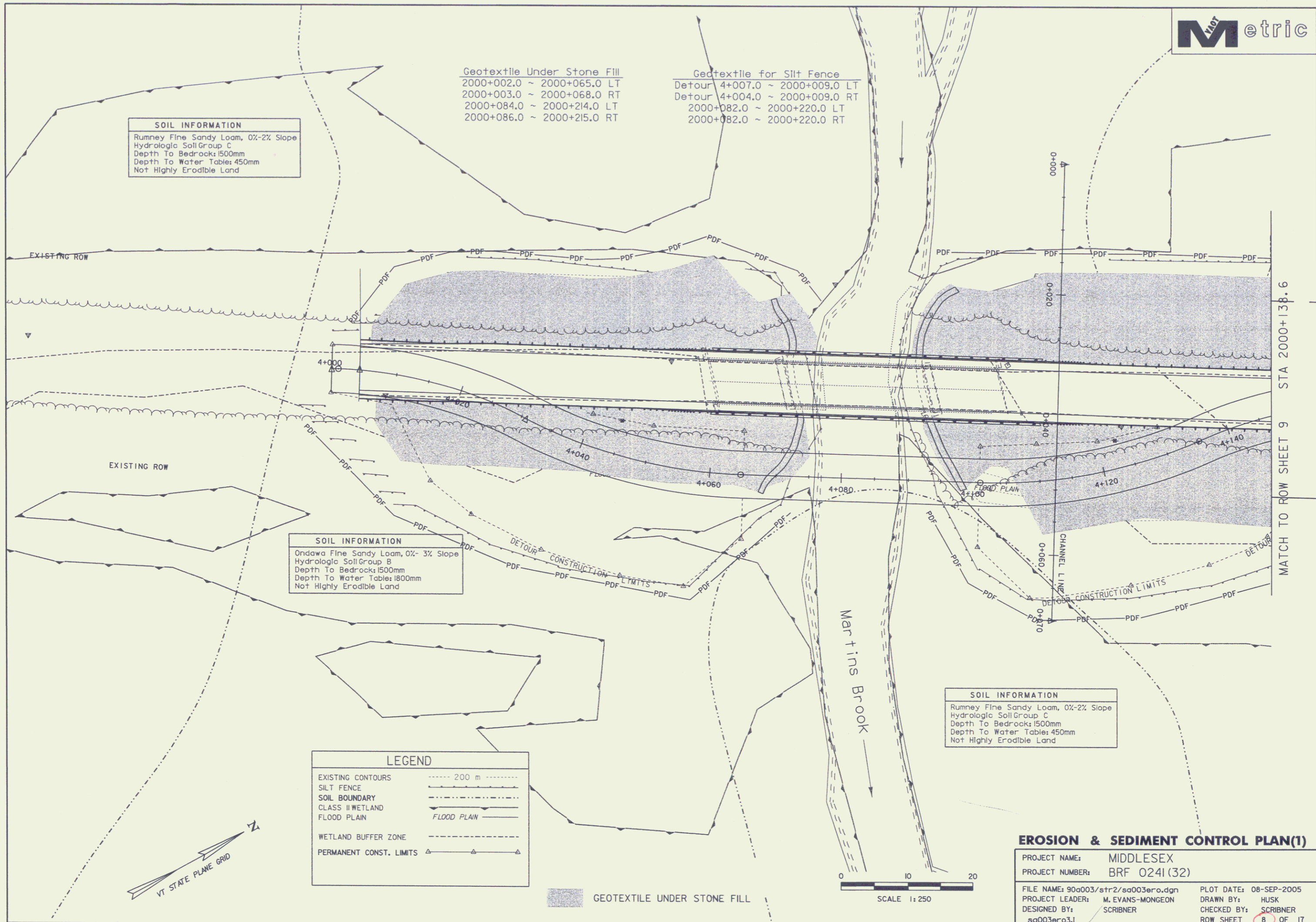
GEOTEXTILE UNDER STONE FILL

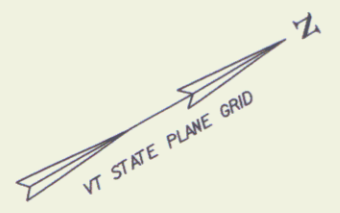


EROSION & SEDIMENT CONTROL PLAN(1)

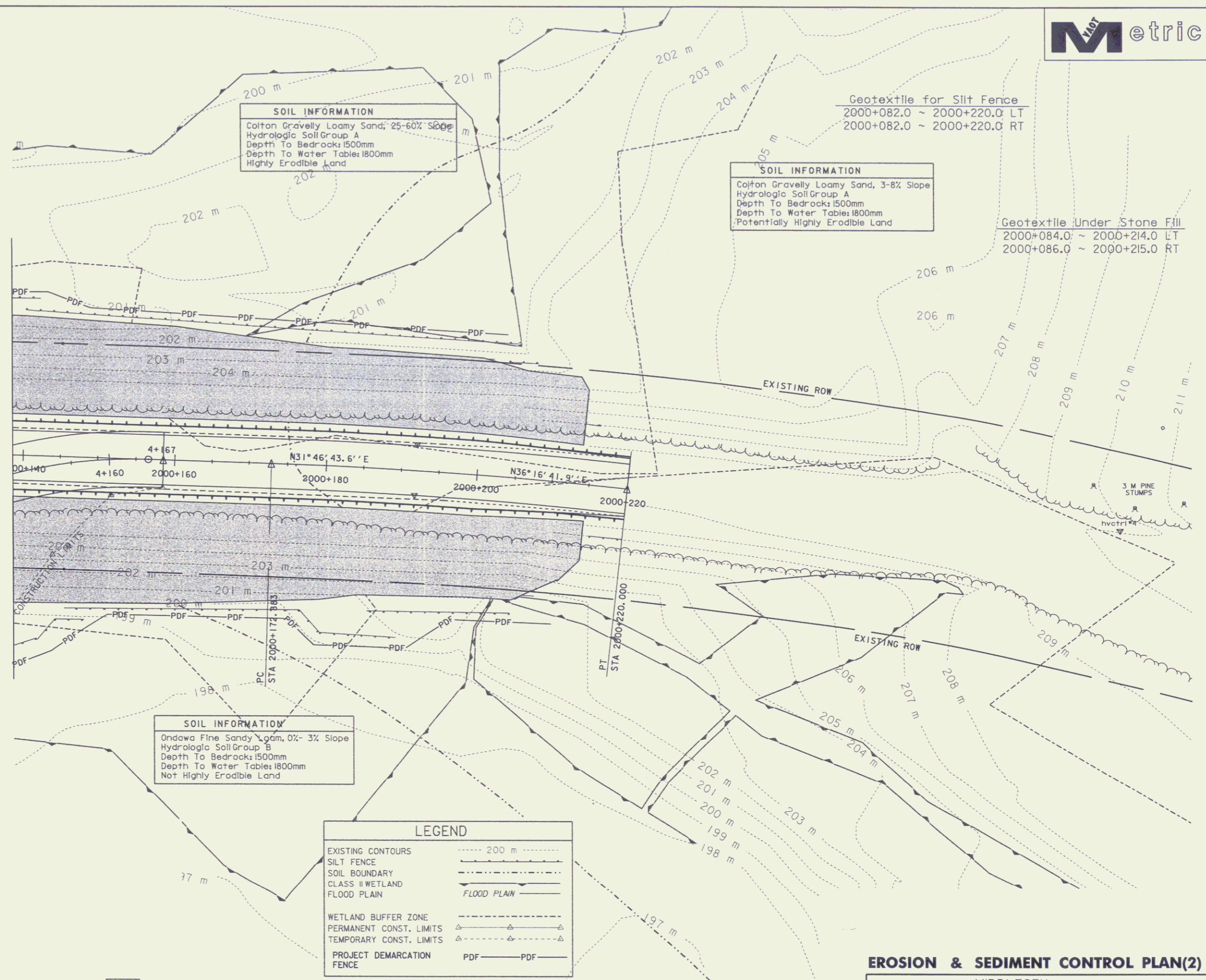
PROJECT NAME:	MIDDLESEX	PLOT DATE:	08-SEP-2005
PROJECT NUMBER:	BRF 0241 (32)	DRAWN BY:	HUSK
FILE NAME:	90a003/str2/sa003ero.dgn	CHECKED BY:	SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	ROW SHEET	8 OF 17
DESIGNED BY:	SCRIBNER		

MATCH TO ROW SHEET 9 STA 2000+138.6





MATCH TO SHEET 8
STA 2000+138.6



SOIL INFORMATION
Colton Gravelly Loamy Sand, 25-60% Slope
Hydrologic Soil Group A
Depth To Bedrock: 1500mm
Depth To Water Table: 1800mm
Highly Erodible Land

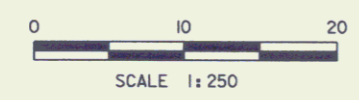
SOIL INFORMATION
Colton Gravelly Loamy Sand, 3-8% Slope
Hydrologic Soil Group A
Depth To Bedrock: 1500mm
Depth To Water Table: 1800mm
Potentially Highly Erodible Land

Geotextile Under Stone Fill
2000+084.0 ~ 2000+214.0 LT
2000+086.0 ~ 2000+215.0 RT

SOIL INFORMATION
Ondawa Fine Sandy Loam, 0%- 3% Slope
Hydrologic Soil Group B
Depth To Bedrock: 1500mm
Depth To Water Table: 1800mm
Not Highly Erodible Land

LEGEND

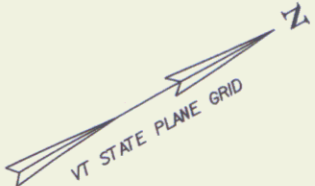
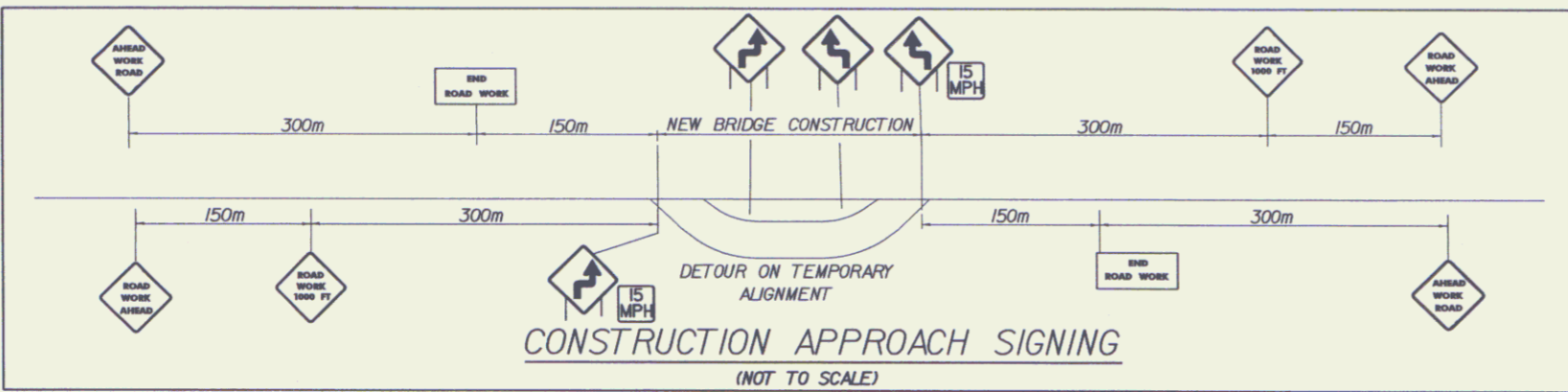
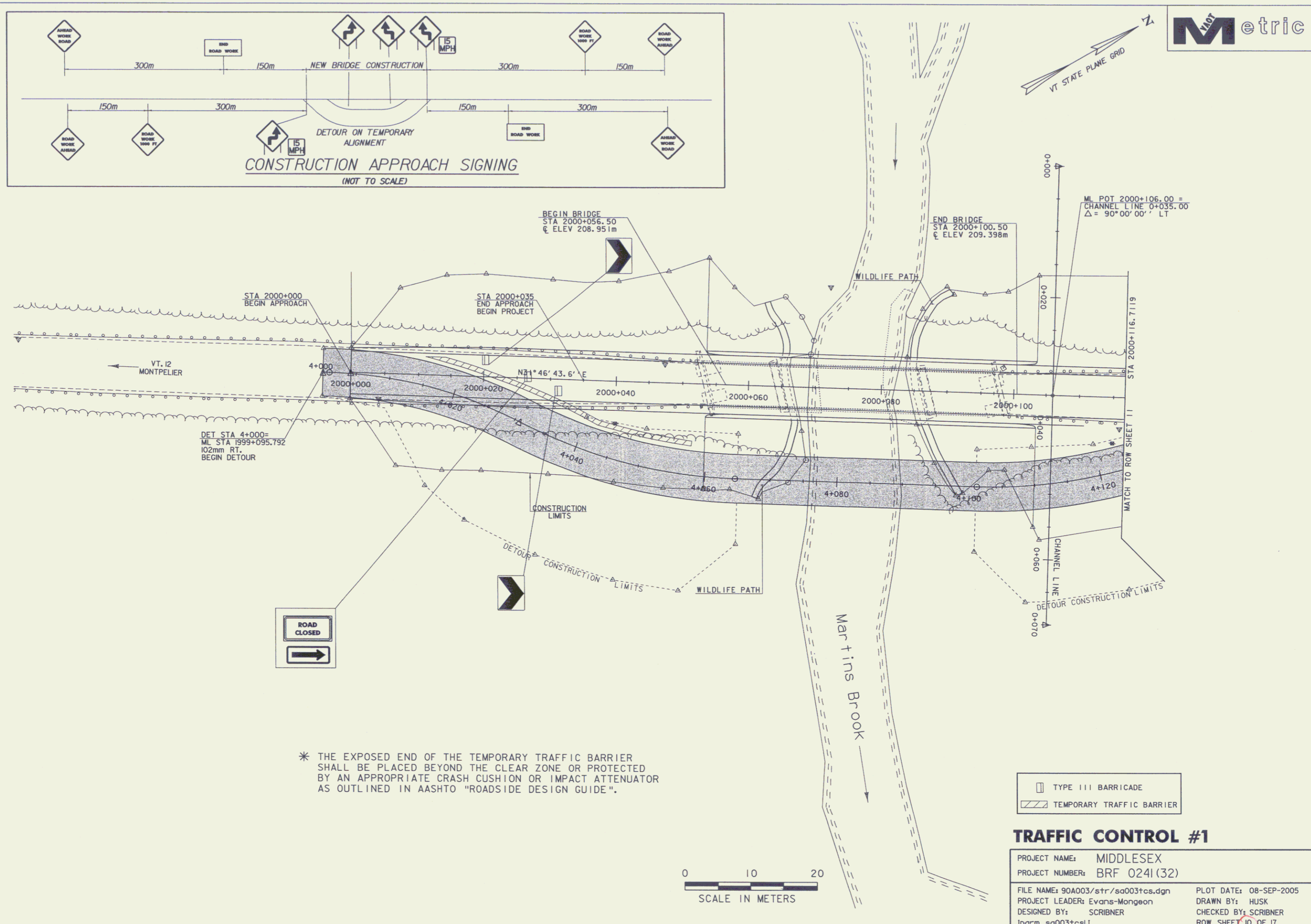
EXISTING CONTOURS	----- 200 m -----
SILT FENCE	-----
SOIL BOUNDARY	-----
CLASS II WETLAND	-----
FLOOD PLAIN	-----
WETLAND BUFFER ZONE	-----
PERMANENT CONST. LIMITS	-----
TEMPORARY CONST. LIMITS	-----
PROJECT DEMARCATION FENCE	PDF-----PDF



GEOTEXTILE UNDER STONE FILL

EROSION & SEDIMENT CONTROL PLAN(2)

PROJECT NAME:	MIDDLESEX	PLOT DATE:	08-SEP-2005
PROJECT NUMBER:	BRF 024(32)	DRAWN BY:	HUSK
FILE NAME:	90a003/str2/so03ero.dgn	CHECKED BY:	SCRIBNER
PROJECT LEADER:	M. EVANS-MONGEON	ROW SHEET:	9 OF 17
DESIGNED BY:	SCRIBNER		



CONSTRUCTION APPROACH SIGNING
(NOT TO SCALE)

BEGIN BRIDGE
STA 2000+056.50
E ELEV 208.951m

END BRIDGE
STA 2000+100.50
E ELEV 209.398m

ML POT 2000+106.00 =
CHANNEL LINE 3+035.00
Δ = 90°00'00" LT

STA 2000+000
BEGIN APPROACH

STA 2000+035
END APPROACH
BEGIN PROJECT

VT 12
MONTPELIER

DET STA 4+000=
ML STA 1999+095.792
102mm RT.
BEGIN DETOUR

CONSTRUCTION
LIMITS

DETOUR

CONSTRUCTION
LIMITS

WILDLIFE PATH

CHANNEL LINE

DETOUR CONSTRUCTION LIMITS



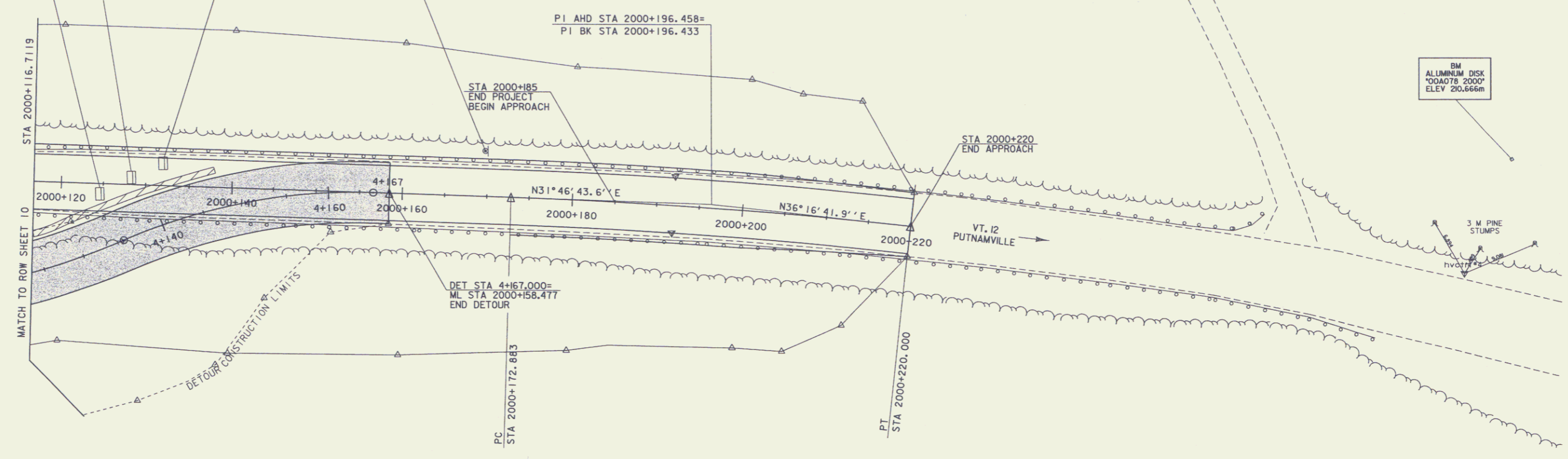
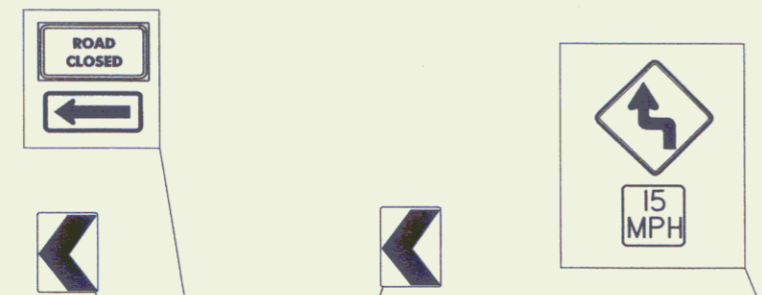
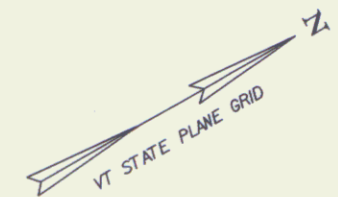
* THE EXPOSED END OF THE TEMPORARY TRAFFIC BARRIER SHALL BE PLACED BEYOND THE CLEAR ZONE OR PROTECTED BY AN APPROPRIATE CRASH CUSHION OR IMPACT ATTENUATOR AS OUTLINED IN AASHTO "ROADSIDE DESIGN GUIDE".

- TYPE III BARRICADE
- ▨ TEMPORARY TRAFFIC BARRIER

TRAFFIC CONTROL #1

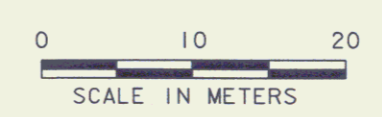
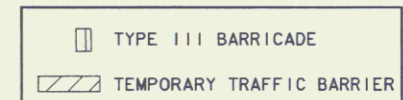
PROJECT NAME:	MIDDLESEX	PLOT DATE:	08-SEP-2005
PROJECT NUMBER:	BRF 0241 (32)	DRAWN BY:	HUSK
FILE NAME:	90A003/str/so003tcs.dgn	CHECKED BY:	SCRIBNER
PROJECT LEADER:	Evans-Mongeon	ROW SHEET:	10 OF 17
DESIGNED BY:	SCRIBNER		
IPARM:	so003tcs.l		





BM ALUMINUM DISK
"00A078 2000"
ELEV 210.666m

3 M PINE STUMPS



TRAFFIC CONTROL #2

PROJECT NAME: MIDDLESEX	PLOT DATE: 08-SEP-2005
PROJECT NUMBER: BRF 0241 (32)	DRAWN BY: HUSK
FILE NAME: 90A003/str/so003+cs.dgn	CHECKED BY: SCRIBNER
PROJECT LEADER: Evans-Mongeon	ROW SHEET: 11 OF 17
DESIGNED BY: SCRIBNER	
iparm so003+cs2.i	

PRELIMINARY INFORMATION SHEET



INDEX OF SHEETS

1. TITLE SHEET
2. PRELIMINARY INFORMATION SHEET
3. ROADWAY & BRIDGE TYPICALS
4. MISCELLANEOUS TYPICALS
- 5-6. QUANTITY SHEETS
7. SURVEY TIE SHEET
- 8-9. PROJECT LAYOUTS
10. VT. RT. 12 PROFILE
- 11-12. EROSION CONTROL NARRATIVE
- 13-14. EXISTING CONDITIONS SITE PLAN
- 15-16. EROSION AND SEDIMENT CONTROL PLAN
- 17-18. FINAL CONDITIONS SITE PLAN
19. EROSION CONTROL DETAIL SHEET
- 20-21. TRAFFIC CONTROL SHEETS
- 22-23. BORING INFORMATION SHEETS
24. PLAN & ELEVATION
25. GENERAL NOTES
26. BRIDGE TYPICAL SECTION AND POUR SEQUENCE
27. DECK REINFORCING PLAN
28. FRAMING PLAN AND GIRDER ELEVATION
29. STRUCTURAL STEEL DETAILS
- 30-31. APPROACH SLAB DETAILS
32. MISCELLANEOUS DETAILS
33. ABUTMENT TYPICAL SECTIONS
34. ABUTMENT NO. 1 DETAILS
35. ABUTMENT NO. 2 DETAILS
36. WINGWALL DETAILS
37. MISCELLANEOUS PROJECT DETAILS
- 38-39. SIGN LAYOUT SHEETS
40. VT. RT. 12 BANKING DIAGRAM
- 41-43. NETC BRIDGE RAIL SHEETS
44. REINFORCING STEEL SCHEDULE
45. MATERIAL & SHOULDER WIDTH TRANSITIONS
- 46-56. VERMONT RT. 12 CROSS SECTIONS
- 57-63. MARTINS BROOK CROSS SECTIONS

LIST OF STANDARDS

- E-100M CONSTRUCTION APPROACH SIGNS
- E-101M CONSTRUCTION SIGN DETAILS
- E-102AM CONSTRUCTION SIGN DETAILS
- E-102M CONSTRUCTION SIGN DETAILS
- E-107M DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREA
- E-121M STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD
- G-1M STEEL BEAM GUARDRAIL (50 MPH & OVER)
- T-1M TEMPORARY EROSION CONTROL DETAILS

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: June 2004

DRAINAGE AREA: 33.1 sq km
 CHARACTER OF TERRAIN: Mountainous and mostly forested
 STREAM CHARACTERISTICS: Sinuous, locally braided, equiwidth, low relief
 NATURE OF STREAMBED: Sand, gravel, cobble to small boulders

PEAK FLOW DATA
 Q 2.33 = 14.0 cms Q 50 = 54.0 cms
 Q 10 = 33.0 cms Q 100 = 64.0 cms
 Q 25 = 44.0 cms Q 500 = 88.0 cms

DATE OF FLOOD OF RECORD: November 1927
 ESTIMATED DISCHARGE: Unknown
 WATER SURFACE ELEV.: Unknown
 NATURAL STREAM VELOCITY: @ Q50 = 2.7 mps*
 ICE CONDITIONS: Moderate
 DEBRIS: Moderate
 DOES THE STREAM REACH MAXIMUM HIGH-WATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? Yes - to Ordinary High Water
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE: Bridge 78 is in the backwater of the Wrightsville Reservoir

WATERSHED STORAGE: <1% HEADWATERS: _____
 UNIFORM: _____
 IMMEDIATELY ABOVE SITE: _____

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Three span steel beam bridge with concrete deck
 YEAR BUILT: 1940
 CLEAR SPAN (NORMAL TO STREAM): 36 m total
 VERTICAL CLEARANCE ABOVE STREAMBED: 12 m (Avg. Bot. beams @ 207.6m)
 WATERWAY OF FULL OPENING: 285 sq m
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Refer to boring logs.

WATER SURFACE ELEVATIONS AT:
 Q2.33 = 201.0 m** VELOCITY = 1.2 mps*
 Q10 = 205.5 m " 1.9 mps
 Q25 = 207.6 m " 2.3 mps
 Q50 = 208.8 m " 2.7 mps
 Q100 = 208.8 m " 3.1 mps

LONG TERM STREAMBED CHANGES: Channel profiles show a scour hole through the existing bridge

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 208.9 m
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Middlesex DISTANCE: 1.7 km
 HIGHWAY #: TH-9 STRUCTURE #: 34
 CLEAR SPAN: 13.7 m CLEAR HEIGHT: 4.2 m
 YEAR BUILT: 1974 FULL WATERWAY: Unknown
 STRUCTURE TYPE: Single span steel beam bridge with concrete deck

DOWNSTREAM STRUCTURE

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

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
INVENTORY	25	45					
POSTED	36	64	69		61	61	67
OPERATING		76	83	90	72	73	

COMMENTS: Strength R₁₇ = 1.3 Mpa, A = 34.1 m²

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	2800	390	66	2	80
2025	3700	520	66	1	50

20 year ESAL for feasible pavement from 2005 to 2025 : 503,000
 40 year ESAL for feasible pavement from 2005 to 2045 : 1,171,000
 Design Speed : 80 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge with concrete deck
 CLEAR SPAN (NORMAL TO STREAM): 42 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 11 m (Avg. Bot. beams @ 207.6m)
 WATERWAY OF FULL OPENING: 315 sq m

WATER SURFACE ELEVATIONS AT:
 Q2.33 = 201.0 m** VELOCITY = 1.2 mps*
 Q10 = 205.5 m " 1.9 mps
 Q25 = 207.6 m " 2.3 mps
 Q50 = 208.8 m " 2.7 mps
 Q100 = 208.8 m " 3.0 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 208.8 m
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 207.6 m
 VERTICAL CLEARANCE: @ Q50 = -1.2 m**

SCOUR: 1 m of contraction scour at Q500 (used maximum velocities to compute scour)*
 REQUIRED CHANNEL PROTECTION: Type III stone fill

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1.0 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.5 cms 0.2 m
 ORDINARY HIGH WATER: 6.0 cms 1.0 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 36 m (minimum)**
 VERTICAL CLEARANCE ABOVE STREAMBED: 205.8 m (minimum)
 WATERWAY AREA OF FULL OPENING: 285 sq. m

ADDITIONAL INFORMATION

*All velocities listed above are based on the assumption of no backwater from the reservoir.
 **All water surface elevations listed above are based on backwater from the reservoir.
 ***The temporary bridge requirements above are minimums, given the natural resources in the vicinity a longer span may be required, plans will supercede the above requirements.

DESIGN CRITERIA

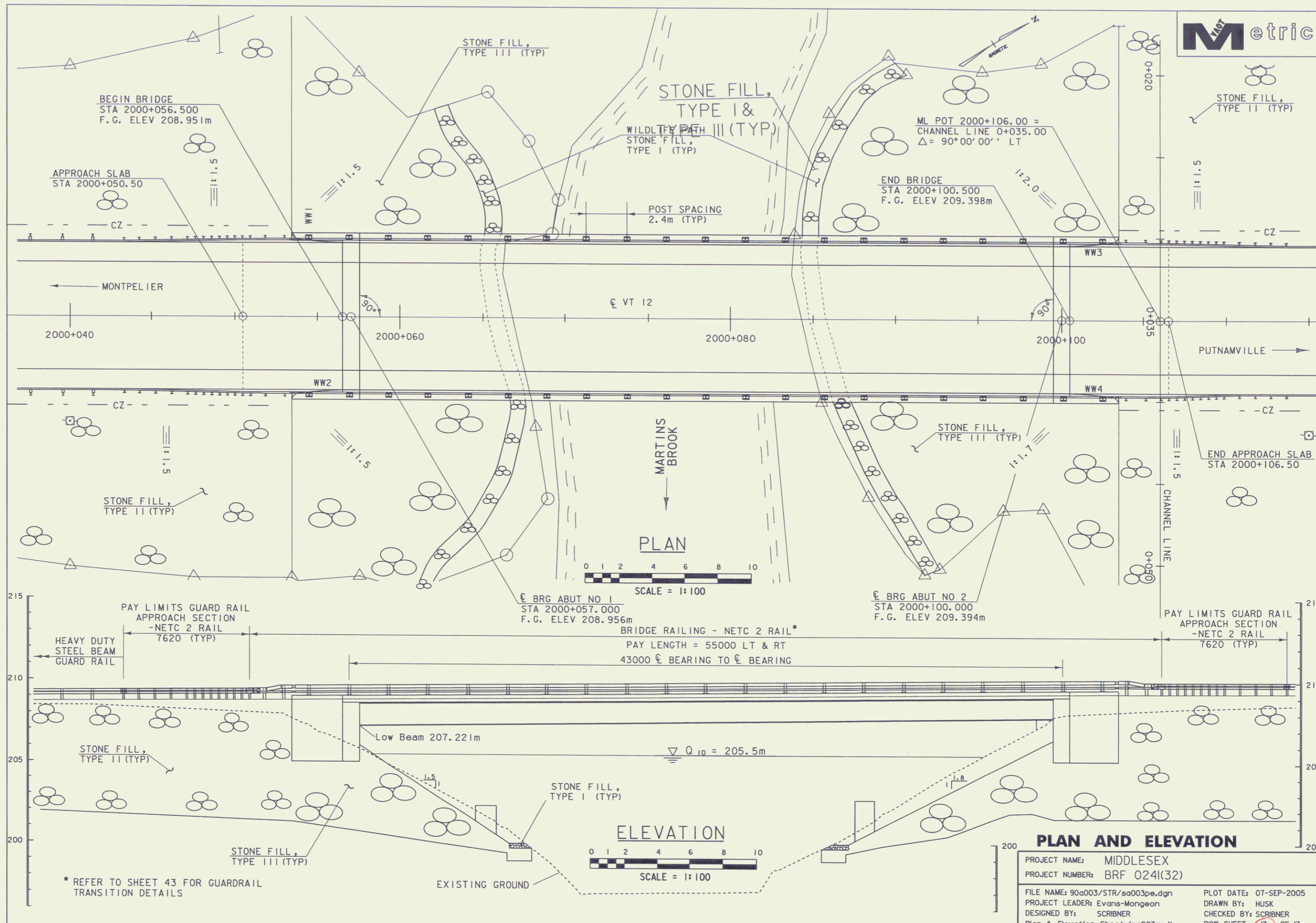
1. DESIGN LIVE LOAD AASHTO HL-93
2. DESIGN SPAN 43.0 M
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING TYPE HP 330 x 149 ASTM A572/A572M GR 345 ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO M270/M270 GRADE 345W
6. REINFORCING STEEL GRADE 420
7. CONCRETE, HIGH PERFORMANCE CLASS A f_c: 30 Mpa CONCRETE, HIGH PERFORMANCE CLASS B f_c: 25 Mpa
8. DESIGN SOIL UNIT WEIGHT 22.00 kN/m³
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

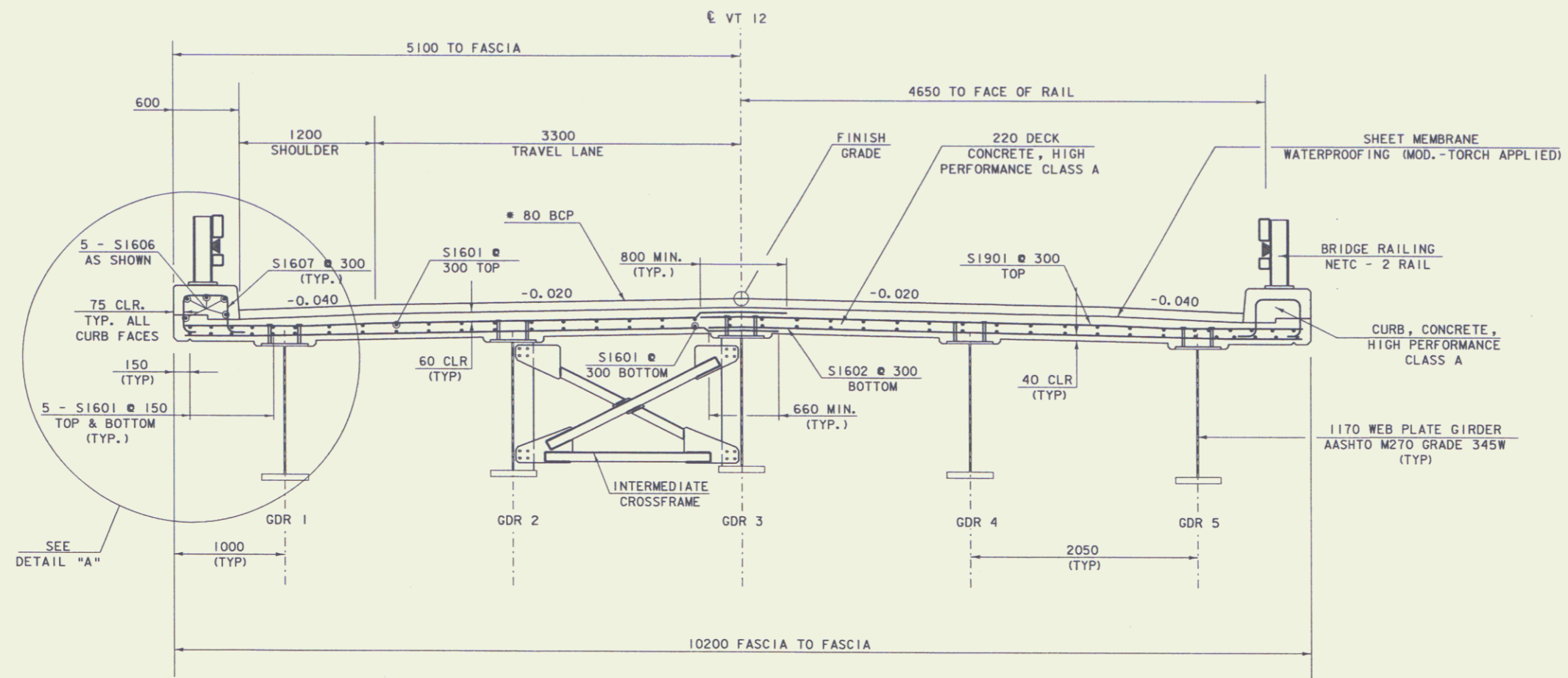
TRAFFIC MAINTENANCE

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

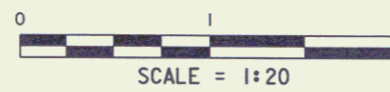
PROJECT NAME: MIDDLESEX
 PROJECT NUMBER: BRF 0241(32)

FILE NAME: sa063pl.xls PLOT DATE: 04/01/2005
 PROJECT MANAGER: M. EVANS-MONGEON DRAWN BY: T. HUSK
 DESIGNED BY: S. SCRIBNER CHECKED BY: S. SCRIBNER
 PRELIMINARY INFORMATION SHEET ROW SHEET 12 OF 17

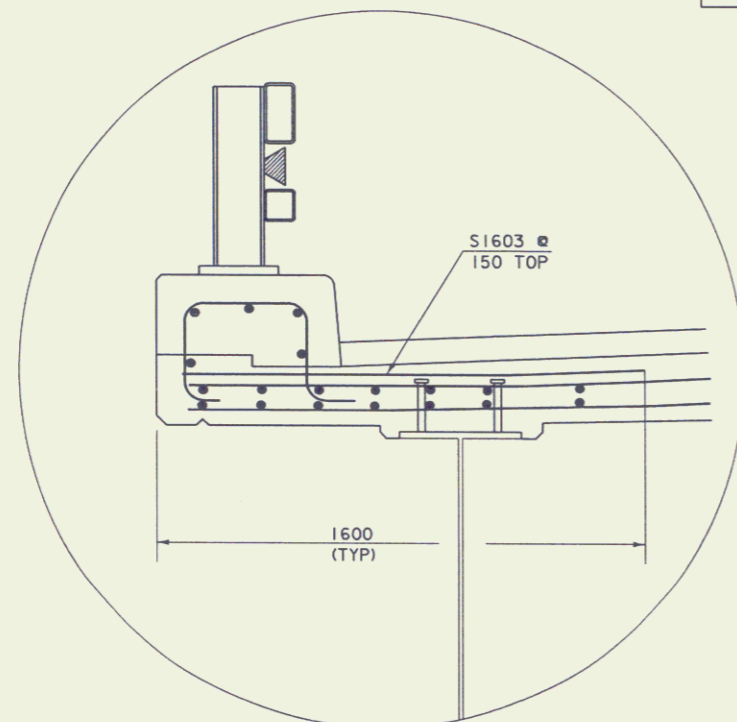




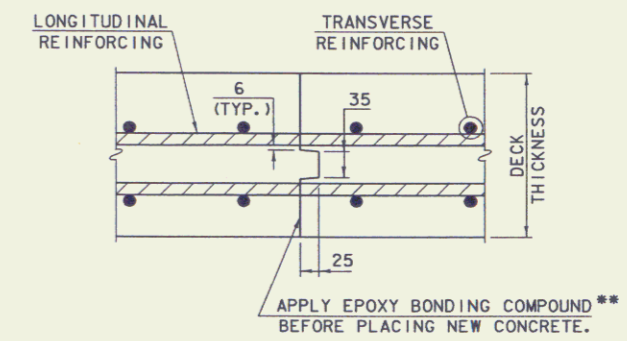
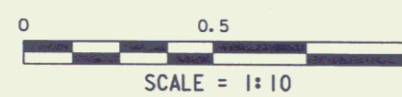
BRIDGE TYPICAL SECTION



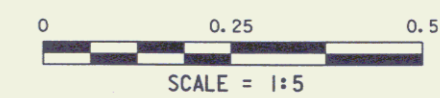
* TOP LIFT 40 TYPE III OR TYPE IV OVER 40, TYPE III OR TYPE IV



DETAIL "A"



TRANSVERSE BRIDGE DECK CONSTRUCTION JOINT DETAILS



** PAYMENT SHALL BE MADE INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.07 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

NOTE:

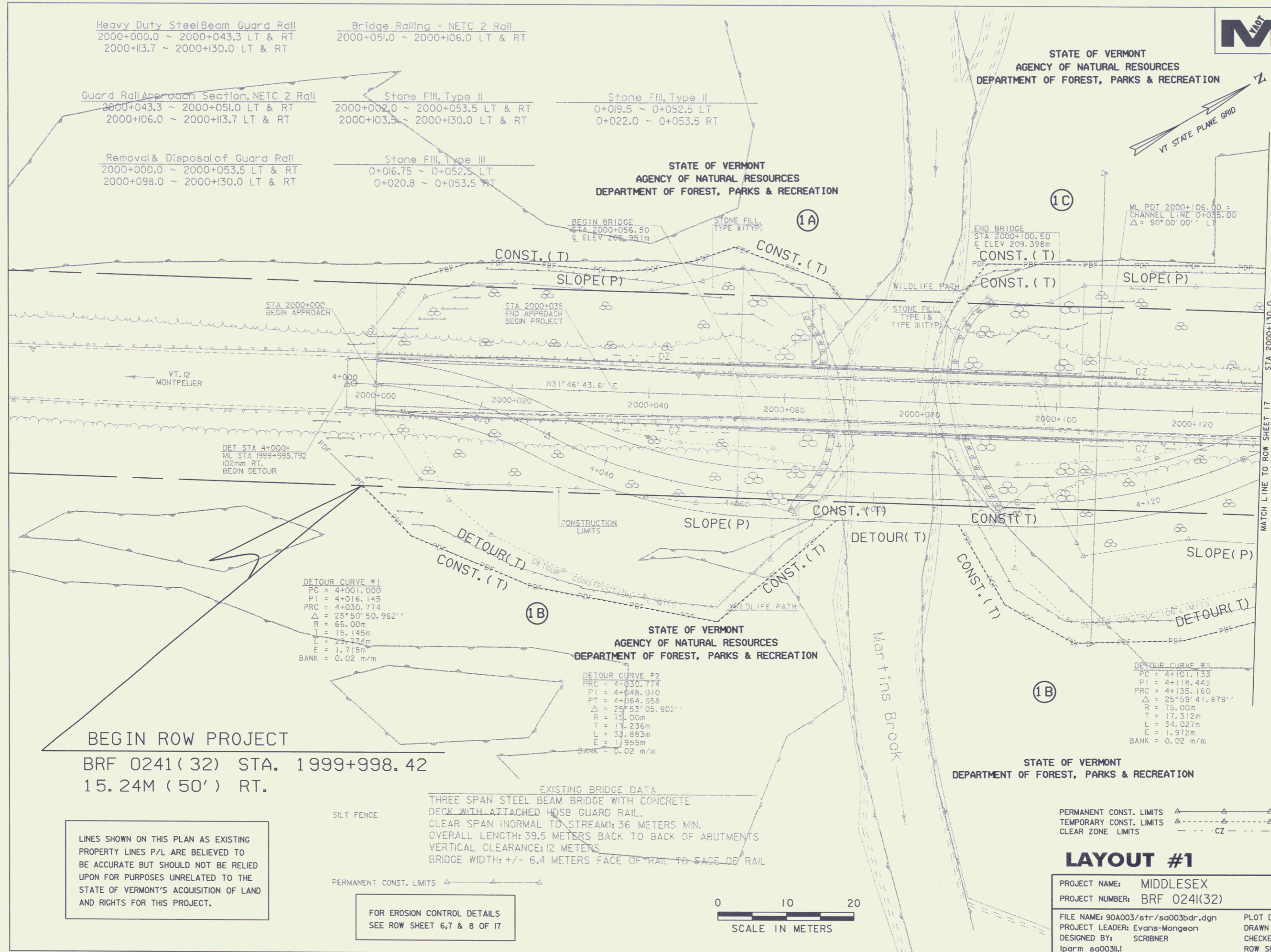
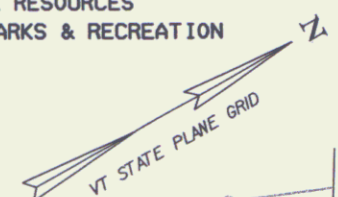
NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 A = CUT TO FIT IN FIELD
 75 CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

BRIDGE DECK DETAILS

PROJECT NAME: MIDDLESEX	PLOT DATE: 07-SEP-2005
PROJECT NUMBER: BRF 0241 (32)	DRAWN BY: HUSK
FILE NAME: 90a003/str/sa003sup.dgn	CHECKED BY: SCRIBNER
PROJECT LEADER: Evans-Mongean	ROW SHEET: 14 OF 17
DESIGNED BY: SCRIBNER	
IParm sa003typ.l	



STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF FOREST, PARKS & RECREATION



Heavy Duty Steel Beam Guard Rail
2000+000.0 ~ 2000+043.3 LT & RT
2000+113.7 ~ 2000+130.0 LT & RT

Bridge Railing - NETC 2 Rail
2000+051.0 ~ 2000+106.0 LT & RT

Guard Rail Approach Section, NETC 2 Rail
2000+043.3 ~ 2000+051.0 LT & RT
2000+106.0 ~ 2000+113.7 LT & RT

Stone Fill, Type II
2000+002.0 ~ 2000+053.5 LT & RT
2000+103.5 ~ 2000+130.0 LT & RT

Stone Fill, Type II
0+019.5 ~ 0+052.5 LT
0+022.0 ~ 0+053.5 RT

Removal & Disposal of Guard Rail
2000+000.0 ~ 2000+053.5 LT & RT
2000+098.0 ~ 2000+130.0 LT & RT

Stone Fill, Type III
0+016.75 ~ 0+052.5 LT
0+020.8 ~ 0+053.5 RT

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF FOREST, PARKS & RECREATION

BEGIN BRIDGE
STA 2000+056.50
ELEV 209.351m

STONE FILL
TYPE II (TYP)

END BRIDGE
STA 2000+106.50
ELEV 209.398m

ML POT 2000+106.00 =
CHANNEL LINE 0+035.00
Δ = 90°00'00" LT

VT, 12
MONTPELIER

DET STA 4+000 =
ML STA 1999+995.792
102mm RT,
BEGIN DETOUR

DETOUR CURVE #1
PC = 4+001.000
PI = 4+016.145
PRC = 4+030.774
Δ = 25°50'50.962"
R = 65.00m
T = 15.145m
L = 29.774m
E = 1.715m
BANK = 0.02 m/m

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF FOREST, PARKS & RECREATION

DETOUR CURVE #2
PC = 4+030.774
PI = 4+048.010
PRC = 4+064.958
Δ = 25°53'05.902"
R = 75.00m
T = 17.236m
L = 33.883m
E = 1.955m
BANK = 0.02 m/m

DETOUR CURVE #3
PC = 4+101.133
PI = 4+118.445
PRC = 4+135.160
Δ = 25°59'41.679"
R = 75.00m
T = 17.312m
L = 34.027m
E = 1.972m
BANK = 0.02 m/m

BEGIN ROW PROJECT
BRF 0241(32) STA. 1999+998.42
15.24M (50') RT.

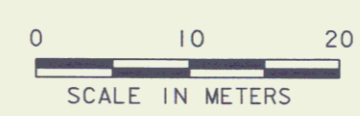
EXISTING BRIDGE DATA
THREE SPAN STEEL BEAM BRIDGE WITH CONCRETE
DECK WITH ATTACHED HDSB GUARD RAIL.
CLEAR SPAN (NORMAL TO STREAM): 36 METERS MIN.
OVERALL LENGTH: 39.5 METERS BACK TO BACK OF ABUTMENTS
VERTICAL CLEARANCE: 12 METERS
BRIDGE WIDTH: +/- 6.4 METERS FACE OF TRAIL TO FACE OF RAIL

STATE OF VERMONT
DEPARTMENT OF FOREST, PARKS & RECREATION

PERMANENT CONST. LIMITS ————▲————▲————
TEMPORARY CONST. LIMITS ————▲————▲————
CLEAR ZONE LIMITS ————CZ————

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

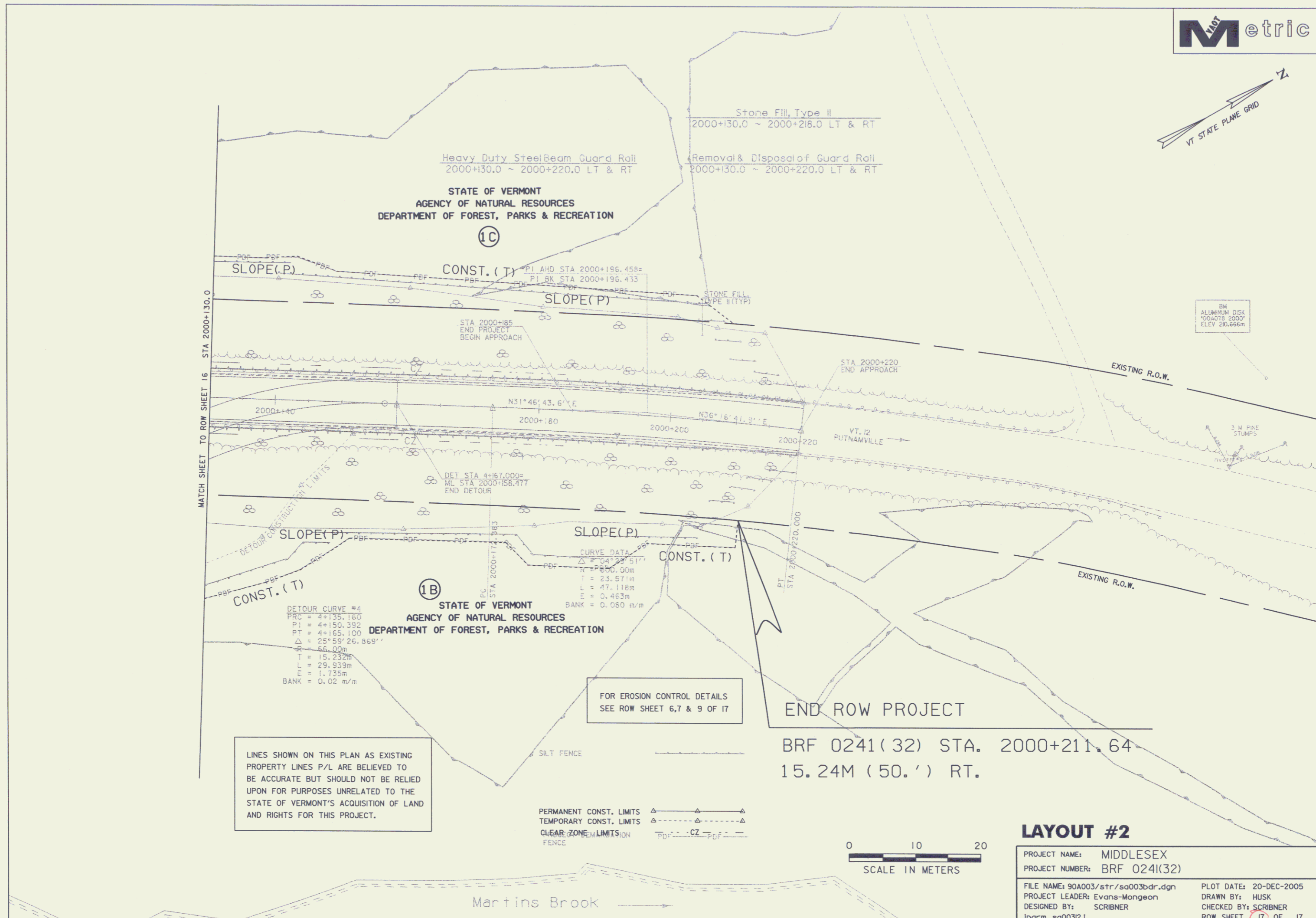
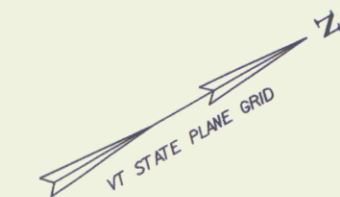
FOR EROSION CONTROL DETAILS
SEE ROW SHEET 6, 7 & 8 OF 17



LAYOUT #1

PROJECT NAME:	MIDDLESEX	FILE NAME:	90A003/str/so03bdr.dgn	PLOT DATE:	20-DEC-2005
PROJECT NUMBER:	BRF 0241(32)	PROJECT LEADER:	Evans-Mongeon	DRAWN BY:	HUSK
		DESIGNED BY:	SCRIBNER	CHECKED BY:	SCRIBNER
		iparm so003il		ROW SHEET	16 OF 17

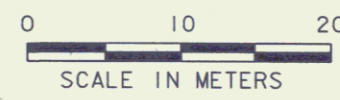
16



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

FOR EROSION CONTROL DETAILS SEE ROW SHEET 6,7 & 9 OF 17

PERMANENT CONST. LIMITS
 TEMPORARY CONST. LIMITS
 CLEAR ZONE LIMITS ON FENCE



LAYOUT #2

PROJECT NAME: MIDDLESEX	PLOT DATE: 20-DEC-2005
PROJECT NUMBER: BRF 024(32)	DRAWN BY: HUSK
FILE NAME: 90A003/str/sa003bdr.dgn	CHECKED BY: SCRIBNER
PROJECT LEADER: Evans-Mongeon	ROW SHEET 17 OF 17
DESIGNED BY: SCRIBNER	