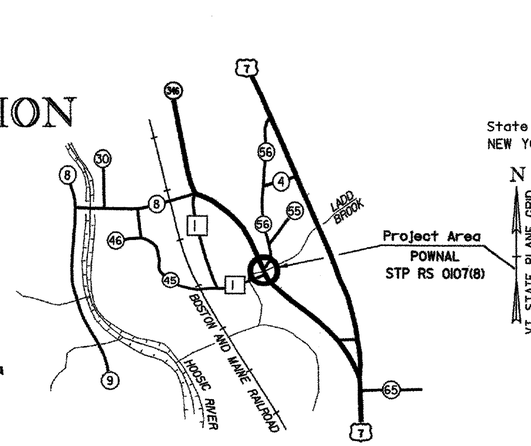
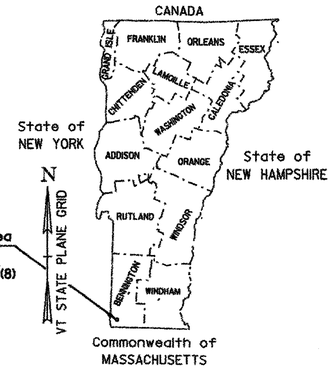
SEE SHEET 2 FOR INDEX OF SHEETS
& LIST OF STANDARDS

STATE OF VERMONT
AGENCY OF TRANSPORTATION





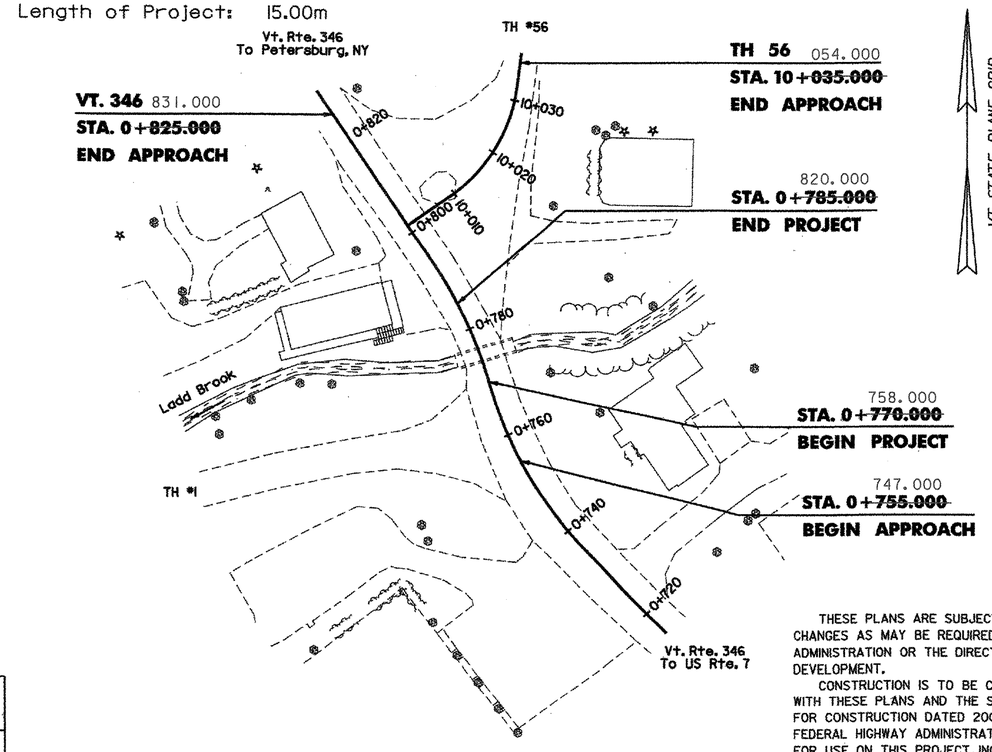
Project Area
POWNAL
STP RS 0107(8)

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF POWNAL
COUNTY OF BENNINGTON
VT. ROUTE 346, MAJOR COLLECTOR

Project Location: Beginning at a point on Vt. Route 346, approximately 0.338 km Northwesterly of the intersection of Vt. Route 346 and U.S. Route 7, and extending Northwesterly along Vt. Route 346 for 0.026 km.

Project Description: Work to be performed under this project consists of replacement of bridge #1 on Vt. Route 346 and all necessary roadway approach work.

Length of Project: 15.00m



RECORD PLANS

CONTRACTOR: Renaud Brothers, Inc.– Vernon VT

RESIDENT ENGINEER: R. Lemaire

CONSTRUCTION BEGAN: AUGUST 6, 2007

CONSTRUCTION COMPLETE: November 13, 2007

RECORD PLANS BY: R. Lemaire

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

BY _____ RESIDENT ENGINEER

DATE 9/30/08

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

CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS
SURVEYED DATE : SEPT. 22, 1998

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (1992)

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 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

PLOT DATE: 26-APR-2007
/84c028/str/sc028t1.dgn sc028t1.i

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 4/24/07

PROJECT MANAGER : WAYNE SYMONDS

PROJECT NAME : POWNAL
PROJECT NUMBER : STP RS 0107(8)

SHEET 1 OF 65 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

Metric

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2.	PRELIMINARY INFORMATION SHEET	
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10. - 13.	BLANKS	
14. - 15.	TIE SHEET #1 & #2	
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18.	ROADWAY PROFILES	
19.	TEMPORARY DETOUR TRAFFIC CONTROL PLAN	
20.	BORING LAYOUT	
21.	BORING LOGS	
22.	PLAN & ELEVATION	
23. - 24.	BLANKS	
25. - 26.	EROSION CONTROL NARRATIVE #1 & #2	
27. - 28.	EPSC - EXISTING CONDITIONS #1 & #2	
29. - 30.	EPSC - DURING CONSTRUCTION #1 & #2	
31. - 32.	EPSC - FINAL CONDITIONS #1 & #2	
33.	EPSC-1 - SILT FENCE	
34.	EPSC-2 - CHECK DAMS	
35.	EPSC-3 - INLET PROCTECTION	
36.	EPSC-4 - VEHICLE TRACKING PAD	
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38.	DRAINAGE DETAIL SHEET	
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LIST OF STANDARDS

B-5	6/1/1994
B-12	6/1/1994
B-17	2/23/1995
B-71	7/8/2005
D-1	6/1/1994
D-3	6/1/1994
D-6	6/1/1994
D-8	1/3/2000
D-11	6/1/1994
D-15	6/1/1994
D-16	6/1/1994
D-20	3/3/2003
D-22	3/10/1995
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-107A	8/8/1995
E-119	3/1/2004
E-121	8/8/1995
E-134	8/8/1995
E-143	9/20/1995
E-150	1/15/1997
E-151	5/1/2004
E-160	5/20/1999
E-191	2/1/1999
E-192	10/12/2000
E-193	8/18/1995
E-197	4/1/2005
E-198	4/1/2005
E-199	4/1/2005
G-1	1/3/2000
G-18	6/1/1994
SB-R6-82M	7/10/1997
SB-R7-90M	7/10/1997

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DRAINAGE AREA: 4.32 sq. km
CHARACTER OF TERRAIN: Mountainous
STREAM CHARACTERISTICS: Small, perennial but flashy
NATURE OF STREAMBED: Gravel, cobbles and boulders over sandy silt

PEAK FLOW DATA:

Q2.33 =	2.8 cms	Q50 =	11.3 cms
Q10 =	5.7 cms	Q100 =	14.2 cms
Q25 =	8.5 cms	Q500 =	

DATE OF FLOOD RECORD: Unknown
ESTIMATED DISCHARGE:
WATER SURFACE ELEV.:
NATURAL STREAM VELOCITY: Q10 = 2.7 mps
ICE CONDITIONS: Minor
DEBRIS:
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: Minimal
HEADWATERS:
UNIFORM:
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Rail steel and concrete deck on stone masonry walls
YEAR BUILT: 1930
CLEAR SPAN (NORMAL TO STREAM): 2.29 m +/-
VERTICAL CLEARANCE ABOVE STREAMBED: 2.29 m +/-
WATERWAY OF FULL OPENING: 5.20 sq. m +/-
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Sandy silt

WATER SURFACE ELEVATIONS AT:

Q2.33 =	0.61 m Depth	VELOCITY =	
Q10 =		"	
Q25 =		"	
Q50 =	1.58 m Depth	"	
Q100 =		"	

LONG TERM STREAMBED CHANGES:

IS THE ROADWAY OVERTOPPED BELOW Q100? No
FREQUENCY:
RELIEF ELEVATION:
DISCHARGE OVER ROAD @ Q100:

UPSTREAM STRUCTURE

TOWN: Pownal
DISTANCE: 245 m
HIGHWAY#: US 7
STRUCTURE #: 3A
CLEAR SPAN: 1.8 m
CLEAR HEIGHT: 1.8 m
YEAR BUILT: 1961
FULL WATERWAY: 2.6 sq. m
STRUCTURE TYPE: ACCGMP

DOWNSTREAM STRUCTURE

TOWN: Pownal
DISTANCE: 140 m
HIGHWAY#: T.H. 1
STRUCTURE #: 8
CLEAR SPAN: 3.0 m
CLEAR HEIGHT: 2.1 m
YEAR BUILT: 1993
FULL WATERWAY: 6.5 sq m
STRUCTURE TYPE: Precast Concrete Box

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	X	X					
POSTED	X	X	X		X	X	X
OPERATING		X	X	X	X	X	

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
1999	2680	375	53	7	215
2019	3640	505	53	6	255

20 year ESAL for flexible pavement from 1999 to 2019 : 2,817,000
40 year ESAL for flexible pavement from 1999 to 2039 : 7,068,000
Design Speed : 40 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete box, 3.050m x 2.450m gross rise *0.6m bed material
CLEAR SPAN (NORMAL TO STREAM): 3.05m, for 1.85 m net rise
VERTICAL CLEARANCE ABOVE STREAMBED: 1.85 m
WATERWAY OF FULL OPENING: 5.64 sq. m

WATER SURFACE ELEVATIONS AT:

Q2.33 =	178.1 m	VELOCITY:	2.1 mps
Q10 =	178.5 m	"	2.8 mps
Q25 =	178.9 m	"	3.3 mps
Q50 =	179.2 m	"	3.7 mps
Q100 =	179.5 m	"	4.0 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: NO
FREQUENCY:
RELIEF ELEVATION:
DISCHARGE OVER ROAD @ Q100:

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE:
VERTICAL CLEARANCE: @ Q50 =0.8m in barrel (0.3m at inlet)'

SCOUR:

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	0.1 cms	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	0.06 cms	< 0.3 m
ORDINARY HIGH WATER:	1.2 cms	< 0.3m

TEMPORARY BRIDGE REQUIREMENTS:

STRUCTURE TYPE:
CLEAR SPAN (NORMAL TO STREAMBED):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TAILWATER ELEVATION @ Q50 = 178.0
OUTLET VELOCITY @ Q50 = 3.7 mps
OUTLET VELOCITY @ Q100 = 4.0 mps

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO HL-93
2. DESIGN SPAN 3050mm x 2450mm Precast Box
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL 210 kPa
   ON LEDGE
4. ALLOWABLE LOAD FOR PILING
   TYPE
   ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO M270M/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

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? No, road closed to through traffic.
   IF YES, ON EXISTING STRUCTURE?
   OR ON TEMPORARY BRIDGE?
   ONE OR TWO-WAY TRAVEL?
2. TRAFFIC CONTROL SIGNALS REQUIRED?
3. ARE SIDEWALKS REQUIRED?
   IF SO, ON WHAT SIDE?

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

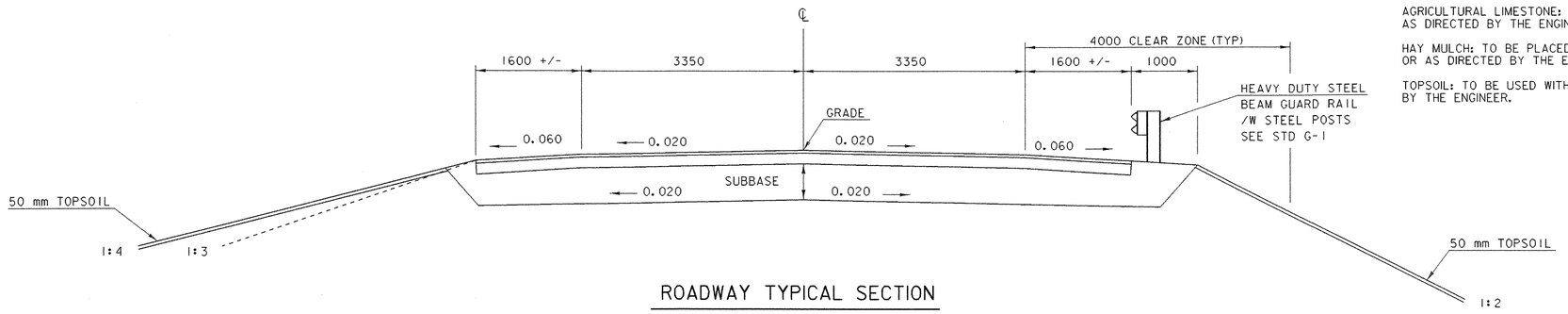
FILE NAME: /84c028/str/s84c028pi.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: R. PELLETT
PRELIMINARY INFORMATION SHEET

PLOT DATE: 4/23/2007
DRAWN BY: K. RUTTER
CHECKED BY: T. FILLBACH

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

* EMULSIFIED ASPHALT -
MIN APPLICATION OF 0.12 LITERS PER SQUARE METER OF BITUMINOUS CONCRETE PAVEMENT.

80 mm BITUMINOUS CONCRETE PAVEMENT TYPE IV (2 LIFTS)
150 mm BITUMINOUS CONCRETE PAVEMENT TYPE II(2 LIFTS)
910 mm SUBBASE OF DENSE GRADED CRUSHED STONE



ROADWAY TYPICAL SECTION
(NOT TO SCALE)

SEEDING FORMULA
URBAN AREAS

% WT.	kg/ha	NAME	PUR %	GERM %
42.5	38.0	CREEPING RED FESCUE	98	85
10.0	9.0	PERENNIAL RYE GRASS	95	90
42.5	38.0	KENTUCKY BLUE GRASS	85	85
5.0	5.0	ANNUAL RYE GRASS	95	85
100.0	90.0			

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.

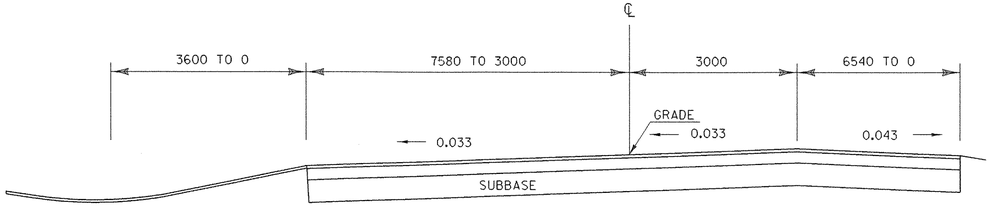
FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

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

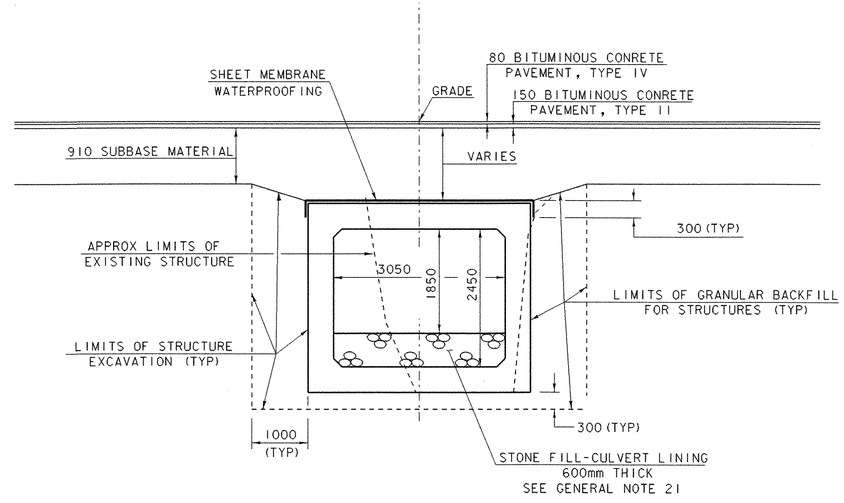
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

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

80 mm BITUMINOUS CONCRETE PAVEMENT TYPE IV (2 LIFTS)
150 mm BITUMINOUS CONCRETE PAVEMENT TYPE II(2 LIFTS)
375 mm SUBBASE OF DENSE GRADED CRUSHED STONE



ROADWAY TYPICAL SECTION (TH 56)
(NOT TO SCALE)



TYPICAL BOX SECTION
(NOT TO SCALE)

SEE SHEET 63 FOR CHANNEL SECTION

TYPICAL SECTIONS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028typ.dgn
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: K. RUTTER
sc028typ.i
PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 3 OF 65

Not Metric

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

TABLE OF PROJECT PROPERTY ACQUISITION

ALL STATIONS ARE FROM THE REVISED ℄

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS			TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS
1A	GILPIN, BERNARD M. & JACQUELINE A.	8	0+769.32 RT.	0+774.38 RT.	10.0 SM±					WD	10-24-05	POWNAL	141	341	108 S.F.±
			0+767.70 RT.	0+773.93 RT.			UTILITY EASE	(P)	8.6SM±						93 SF±, INCLUDES TEMP. PDF
			0+754.10 RT.	0+770.90 RT.			CONST.	(T)	178.4 SM±						INCLUDES EROSION CONTROL
															& PDF; 1920 S.F.±
			0+758.50 RT.	0+760.20 RT.			SLOPE	(T)	0.3 SM±						3 S.F.±
			0+767.20 RT.	0+769.30 RT.			SLOPE	(T)	1.9 SM±						20 S.F.±
			0+767.30 RT.	0+772.70 RT.			CHANNEL	(P)	24.0 SM±						258 S.F.±
1B		8,9	0+774.22 RT.	0+780.00 RT.	8.0 SM±										86 S.F.±
			0+773.50 RT.	0+779.10 RT.			CHANNEL	(P)	35.0 SM±						377 S.F.±
			0+773.40 RT.	0+787.60 RT.			CONST	(T)	100 SM±						1,076 S.F.±INCL.
															EROSION CONTROL & PDF
			0+774.22 RT.	TH 56 10+034.70 RT.			UTILITY EASE	(P)	82.5 SM±						888 SF±, INCLUDES TEMP. PDF
			0+779.00 RT.	0+781.00 RT.			SLOPE	(T)	1.0 SM±						11 S.F.±
			TH 56 10+015.00 RT.												DRIVE 5M (16') GRAVEL
			TH 56 10+018.70 RT.				REMOVE	(T)							TREE
			TH 56 10+016.60 RT.	TH 56 10+021.00 RT.			INSTALL	(T)	22.2 SM±						PDF, 239 S.F.±
			TH 56 10+034.60 RT.				INSTALL	(P)							GUY & ANCHOR
1C		8	0+752.82 CL	0+774.38 RT.	158.0 SM±		ALL R.T. & I.								1,700 S.F.±;
															VT RTE. 346 HWY. EASE.
1D		8,9	0+774.38 CL	0+800.42 RT.	203.0 SM±		ALL R.T. & I.								2,185 S.F.±;
															VT RTE. 346 HWY. EASE.
1E		8	0+775.39 RT.	0+780.00 RT.	8.0 SM±		ALL R.T. & I.								86 S.F.±;
															T.H. #56 HWY. EASE.
2	NICHOLAS, ROBERT C. & DEBORAH A.	9	0+800.42 CL	0+828.00 CL	209 SM±		ALL R.T. & I.			WD	12-19-05	POWNAL	142	257	2,250 S.F.±;
															VT RTE. 346 HWY. EASE.
3	QUINN, BRIAN J. & MARGARET A.	9	0+799.91 LT.	0+828.00 CL	213 SM±		ALL R.T. & I.			WD	10/27/05	POWNAL	141	404	2,293 S.F.±;
															VT RTE. 346 HYW. EASE.
			0+797.38 LT.				DRIVE	(T)							4M (13') PAVED
															MM 0024 IN COMMON/PARCEL 4
			0+809.30 LT.	0+814.30 LT.											EXCEPT & RESERVE FENCE
4A	CANNELL, CHRISTIAN G. & JOAN I.	8,9	0+768.03 LT.	0+784.00 LT.	44.0 SM±					WD	12-19-05	POWNAL	142	253	474 S.F.±
			0+768.86 LT.	0+775.00 LT.			SLOPE	(T)	18.0 SM±						194 S.F.±
			0+770.80 LT.	0+778.60 LT.			CHANNEL	(P)	31.0 SM±						334 S.F.±
			0+770.50 LT.	0+783.75 LT.			CONST.	(T)	61.0 SM±						INCLUDES EROSION CONTROL,
															TEMP. FENCING & PDF;
															657 S.F.±
			0+779.40 LT.	0+784.00 LT.			CHANNEL	(P)	21.0 SM±						226 S.F.±
			0+782.10 LT.	0+784.00 LT.			CONST.	(T)	11.0 SM±						INCLUDES EROSION CONTROL
															& PDF; 118 S.F.±
			0+782.10 LT.				DRAINAGE	(P)							
			0+784.10 LT.	0+794.85 LT.			INSTALL	(T)	9.4 SM±						SIDEWALK; 101 SF±
			0+784.00 LT.	0+792.64 LT.			SLOPE	(T)	8.8 SM±						REMOVE PAVEMENT. SEED
															& MULCH; 95 SF±
			0+797.38 LT.				DRIVE	(T)							4M (13') PAVED; MM0024
															IN COMMON/PARCEL 3
															INCLUDES PARKING
4B		8,9	0+760.53 LT.	0+799.91 CL	297 SM±		ALL R.T. & I.								3,197 S.F.±;
															VT RTE. 346 HWY. EASE.

REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY
1	7, 8, 9	PARCEL NO. 1 GILPIN. EROSION CONTROL WAS CHANGED. PDF WAS ADDED. PER C.O. 9389.	10-18-04	G.J.F.	R.P.D.
2	7, 8, 9	PARCEL NO. 4 CANNELL. EROSION CONTROL WAS CHANGED. PDF WAS ADDED. PER C.O. 9390.	10-18-04	G.J.F.	R.P.D.
3	7, 8, 9	PARCEL NO. 1 GILPIN. CHANGE CONST.(T) AREA TO 103 SM±. ADD INSTALL(T) FOR PDF AROUND TREE IN FRONT YARD. PER C.O. 9395.	10-25-04	G.J.F.	R.P.D.
4	7, 8, 9	PARCEL NO. 1 GILPIN. CHANGE EROSION HAYBALES TO SAND BAGS. CHANGE MULTIPLE STATIONS AND AREAS. PER C.O. 9396.	12-01-04	M.J.R.	R.P.D.
5	7, 9	PARCEL NO. 2 NICHOLAS. COMBINE PARCELS 2A & 2B INTO ONE PARCEL. PER C.O. 9377.	12-01-04	M.J.R.	R.P.D.
6	7, 9	PARCEL NO. 3 QUINN. ADD NEW EROSION FILES. ADD MILE MARKERS TO DRIVES. COMBINE HWY. EASEMENTS THAT ARE TO BE ACQUIRED. PER C.O. 9398.	12-01-04	M.J.R.	R.P.D.
7	7, 8, 9	PARCEL NO. 4 CANNELL. ADD NEW EROSION FILES. CHANGE STATIONS. ADD MILE MARKERS TO DRIVES. CREATE TWO SEPERATE DRIVE RIGHTS. PER C.O. 9399.	12-01-04	M.J.R.	R.P.D.
8	7A, 8 9	PARCEL NO. 5 TOWN OF POWNAL. ADD NEW EROSION CONTROL FILE. CHANGE STATIONS AND AREAS. ADD RIGHT FOR TRAFFIC BARRIER. PER C.O. 9400.	12-01-04	M.J.R.	R.P.D.
9	7, 8	PARCEL NO. 4 CANNELL. CHANGE INSTALL (T) FOR CURB TO INSTALL (T) FOR SIDEWALK. 0+784.10 LT. ~ 0+794.85 LT.; 9.4 SM±; 101 SF± CHANGE DRIVE (T) TO SLOPE (T); 0+784.00 LT. ~ 0+792.64 LT.; 8.85 SM±; 95 SF±; REMARKS: REMOVE PAVEMENT. SEED & MULCH. PER C.O. 9420.	05-16-05	M.J.R.	R.P.D.
10	7, 8	PARCEL NO. 3 QUINN. CHANGE DRIVE STA. FROM 0+797.40 LT. TO 0+797.38 LT. PER C.O. 9422	06-01-50	M.J.R.	R.P.D.
11	7	PARCEL NO. 4B CANNELL. CHANGE TAKE FROM 235 SM± TO 297 SM±; 3,197 S.F.± PER C.O. 9424.	06-08-05	M.J.R.	R.P.D.
		ELECTRONIC FILES TO STRUCTURES 12-01-06			

ACCT. mcassidy
M:\Projects\84c028\RightOfWay\rc028d.dgn
DATE PLOTTED 10-MAY-2007

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
(P) PERMANENT EASEMENT
(T) 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: 02-04-03
CHIEF. PLANS & TITLES

R.O.W. PLANS
POWNAL
STP RS 0107(8)
R.O.W. SHEET 7 OF 9 SHEETS
SHEET 4 OF 65

Metric

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

TABLE OF PROJECT PROPERTY ACQUISITION

ALL STATIONS ARE FROM THE REVISED ℄

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS
5A	TOWN OF POWNAL	8	0+775.39 RT.	0+780.00 RT.	8.0 SM±		ALL R.T. & I.	QCD	09-27-05	POWNAL	141	118	86 S.F.±; T.H. #56 HYW. EASE.
5B		8,9	T.H. 56 10+007.5 CL	T.H.56 10+036.7 CL			APPROACH (T)						T.H. 56
			0+786.60 RT.	0+814.00 RT.			CULVERT (P)						INCLUDES 2 DROP INLETS
			0+788.10 RT.	0+789.80 RT.			INSTALL & MAINTAIN (P)						GUARDRAIL
5C		8	0+760.53 CL.	0+768.03 CL.	58.0 SM±		ALL R.T. & I.						VT. RTE. 346 HWY. EASE.
													624 S.F.±
			0+760.53 LT.	0+770.80 LT.			SLOPE (T) 75.0 SM±						807 S.F.±
			0+766.40 LT.	0+768.30 LT.			INSTALL & MAINT. (P)						GUARDRAIL
			0+768.50 LT.				INSTALL (T)						EROSION CONTROL
													(LENGTH 2.7M) [9']
			0+770.54 LT.				INSTALL (T)						EROSION CONTROL
													(LENGTH 4.1M) [13']
			0+763.29 LT.	0+769.11 LT.			INSTALL (T)						TRAFFIC BARRIER
5D		8,9	0+774.38 CL.	0+828.00 RT.	412.0 SM±		ALL R.T. & I.						4,435 S.F.±
													VT RTE. 346 HWY. EASE.
6	POWNAL FIRE DISTRICT #2 - (WATER)												UTILITY
7	VERIZON NEW ENGLAND, INC.												UTILITY
8	CENTRAL VERMONT PUBLIC SERVICE CORPORATION												UTILITY
9	ADELPHIA CABLE COMMUNICATIONS												UTILITY
	MAINTENANCE AGREEMENT ZONE #1	9	T.H.56 10+005.0 CL.	T.H.56 10+007.5 CL.									LENGTH=2.5M (8') ± TH #56

REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY

ACCT. mcassidy
M:\Projects\84c028\RightOfWay\rc028d.dgn
DATE PLOTTED 10-MAY-2007

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
(P) PERMANENT EASEMENT
(T) 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: 02-04-03
CHIEF, PLANS & TITLES

R. O. W. PLANS
POWNAL
STP RS 0107(8)
R.O.W. SHEET 7A OF 9 SHEETS
SHEET 5 OF 65

VAOT Metric

MATCH LINE 0+795.000

MATCH LINE 0+795.000

INSTALL & MAINT(P)

5B

5D

[25.53M(83.8')]

[21.80M(71.5')]

P L

Benchmark #2
Chiseled Square
in Conc. Base
Elev. 179.895 M

N

MAGNETIC

SR(T)

0+780.00
10.67M(35.0')RT

WSO

Lawn

Small Plum

Large Maple

House

INSTALL(T)
SIDEWALK

New Concrete Sidewalk
see cross sections for details

STA. 0+785.000
END PROJECT
BEGIN APPROACH
CONSTRUCTION
VT. 346 & TH 56

Item 529.20
Partial Removal of
Structure
(Horizontal Timber)

0+784.00
7.54M(25.0')LT

Paved Parking

SLOPE (T)

0+782.50
10.67M(35.0')LT

3.39M
(11.1')

CONST(T)

DR(P)

CHANNEL (P)

0+780.00
7.54M(25.0')RT

1D

5.07M
(16.6')

14.73M
(48.3')

4B

0+780

5.07M
(16.6')

0+775.39
7.54M(25.0')RT

1.11M
(3.64')

7.54M(25.0')

0+774.38
CL

0+774.38
7.54M
(25.0')RT

6.14M
(20.1')

0+770

5.48M
(18.0')

1C

7.54M
(25.0')

0+768.03
CL

0+769.32
7.54M(25.0')RT

5C

0+768.03
7.54M(25.0')LT

15.21M
(49.9')

0+760

7.55M
(24.77')

0+760.53
CL

7.71M
(25.3')

7.54M
(25.0')

0+752.82
7.54M(25.0')RT

0+752.82
CL

0+750

0+740

3.12M
(10.2')

1E

5A

1B

1A

6.04M
(19.8')

2.09M
(6.9')

6.64M
(21.8')

0+774.22
9.62M(31.6')RT

5.42M
(17.8')

CHANNEL (P)

BITUMINOUS CONCRETE

CONST(T)

0+769.32
9.14M(30.0')RT

Channel Line
N 71° 32' 51.79" E

5+035

5+020

Brush

Stone Wall

Medium Duty Steel Beam Guard Rail (typ)

DO NOT MOW INSIDE FENCE

Lilac

Hedge

Approx. location of Septic Field

Ladd Brook

Large Willow

2 Small Poplars

Archaeological Area
Do Not Disturb

4+965

4+980

CHANNEL (P)

STONE
TYPE III (T&P)

11.96M
(39.2')
N20°22'E

Pole #
47/90/25

Guy Pole

Sign

Item 653.50
Barrier Fence
to be installed
prior to any
construction
activities.

PDF

AERIAL E&T

INSTALL(T)

INSTALL & MAINT.(P)

Tall Grass

Guy Wire

Pole #89

UT

W

SR(T)

0+768.86
10.67M(35.0')LT

3.27M
(10.7')

8.01M
(26.28')

0+760.53
7.55M(24.77')LT

TOWN OF POWNAL
HIGHWAY EASEMENT

TH #1

STA. 0+770.000
BEGIN PROJECT

BEGIN R.O.W. PROJECT
STA. 0+752.82 ℄

Sign

Lawn

Parking Lot

Shrub

Town Survey Point #4

WSO

Hydrant

STATUTORY
3 ROD ROW

Vt. Rte. 346
To US Rte. 7

STA. 0+755.000
BEGIN APPROACH

0 2 4 6 8 10
SCALE IN METERS (1:100)

CANNELL, CHRISTIAN G. & JOAN I.

GILPIN, BERNARD M. & JACQUELINE A.

ROW PLAN SHEET #1

PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107(8)

FILE NAME: /84c028/str/sc028bdr.dgn	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: G. SHANGRAW	CHECKED BY: T. FILLBACH
R. O. W. SHEET 8 OF 9 SHEETS	SHEET 6 OF 65

END R. O. W. PROJECT
STA. 0+828.00 ℄

VT. 346
STA. 0+825.000
END APPROACH

TH 56
STA. 10+035.000
END APPROACH

TH #56
10+040

NICHOLAS,
ROBERT C. & DEBORAH A.

STATUTORY
3 ROD ROW

N /F
LAFONTAINE,
ALBERT A.
& LAURIE A.

0+828.00
7.54M(25.0')RT
2.28M(7.5')

REMOVE

DO NOT
DISTURB

TH 56 Curve Data
Delta: 48° 20'04.1" Lt.
Radius: 27.858
Tangent: 12.501
Length: 23.501
External: 2.676

APPROACH(T)

5B

Pole #
172 B
260
473
2

Iron
Pin

P

INSTALL(P)

L

Vt. Rte. 346
To Petersburg, NY

0+828.00
CL

7.54M
(25.0')

Shrub

Conc.
Steps

Lawn

Paved
Gutter

Sign

AERIAL E&T

10+030

Guy

UE(P)

8" waterline
in place

27.69M(90.84')

0+820

W

12" CL 52
DI waterline

TOWN OF POWNAL
HIGHWAY EASEMENT

0+828.00
7.54M(25.0')LT

2

5D

CUL (P)

10+020

5B

Lawn

EXCEPT &
RESERVE
FENCE

28.18M(92.45')

Abandoned

0+810

Guy

Sign

Sign

BEGIN MAINTENANCE
AGREEMENT ZONE #1
STA. TH 56 10+005.0 CL

3

END MAINTENANCE
AGREEMENT ZONE #1
STA. TH 56 10+007.5 CL

INSTALL(T)

1B

Large
Maple

REMOVE(T)

REMOVE

10+010

0+800.42
7.54M(25.0')RT

L(21.80M(71.5'))

P L P L

0+800.42
CL

0+800

.50M
(1.64')

0+799.91
CL

(25.53M(83.81'))

5D

1D

MATCH LINE 0+795.000

QUINN, BRIAN J.
& MARGARET A.

Fence

Paved
Walk

House

3

3 Small
White Birch

Stone

4B

0+799.91
7.54M
(25.0')LT

R(4.93M(50.0'))

P L

4A

DRIVE(P)

DRIVE(T)

Limit of
Pavement

Gravel
Drive

CANNELL,
CHRISTIAN G.
& JOAN I.

MATCH LINE 0+795.000

Lawn

WSO

GILPIN, BERNARD M.
& JACQUELINE A.

House

Gravel
Drive

CONST.

GILPIN, BERNARD M.
& JACQUELINE A.

Propane
Tank

Lawn

N

MAGNETIC

0 2 4 6 8 10
SCALE IN METERS (1:100)

ROW PLAN SHEET #2

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028bdr.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
R. O. W. SHEET 9 OF 9 SHEETS

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

Metric

SUMMARY OF ESTIMATED QUANTITIES						TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	UTILITIES (NO FED/ST PART)	BRIDGE	FULL C.E. ITEMS	DIESEL EMISSIONS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	---			
410						410		CM	COMMON EXCAVATION	203.15	EST.			
100						100		CM	SOLID ROCK EXCAVATION	203.16	EST.			ASSUMED 200mm SLAB DEPTH FOR SOLID ROCK EXCAVATION
			250			250		CM	UNCLASSIFIED CHANNEL EXCAVATION	203.27	4.2			
20						20		CM	EXCAVATION OF SURFACES AND PAVEMENTS	203.28	EST.			ASSUMED 150mm OF PAVEMENT DEPTH FOR EXCAVATION OF PAVEMENTS AND SURFACES.
135	10	12				157		CM	TRENCH EXCAVATION OF EARTH	204.20	EST.			
40						40		CM	TRENCH EXCAVATION OF ROCK	204.21	EST.			
			290			290		CM	STRUCTURE EXCAVATION	204.25	6.7			
			220			220		CM	GRANULAR BACKFILL FOR STRUCTURES	204.30	1.7			
360						360		SM	COLD PLANING, BITUMINOUS PAVEMENT	210.10	3.4			
390						390		CM	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	.8			
255						255		KG	EMULSIFIED ASPHALT	404.65	.5			
530						530		T	BITUMINOUS CONCRETE PAVEMENT (PG 58-28)	406.25	10.8			
			60			60		CM	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	5			
			3700			3700		KG	REINFORCING STEEL	507.15	165			
			150			150		KG	EPOXY COATED REINFORCING STEEL	507.17	7.7			
			22			22		L	WATER REPELLENT, SILANE	514.10	---			
			52			52		SM	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20	.7			
			12			12		M	BRIDGE RAILING, GALVANIZED HD STEEL BEAM/FASCIA MOUNTED	525.41	.6			
			1			1		EACH	PARTIAL REMOVAL OF STRUCTURE (EXISTING BRIDGE)	529.20	---			
			1			1		EACH	PARTIAL REMOVAL OF STRUCTURE (HORIZONTAL TIMBER)	529.20	---			
			1			1		LS	PRECAST CONCRETE STRUCTURE (3050 X 2450 X 10560 BOX)	540.10	---			
									BEGIN OPTION AA					
50						50		M	600 CAAP 1.52 (68 X 12)	601.0225	---			
50						50		M	600 PCCSP 1.63 (68 X 12)	601.0425	---			
50						50		M	600 CPEP(SL)	601.2620	---			
									END OPTION AA					
2						2		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18	---			
	120					120		CM	DUST CONTROL WITH WATER	609.10	EST.			
			270			270		CM	STONE FILL, TYPE III	613.12	10.6			
24						24		T	BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS	616.47	.7			
			9.5			9.5		SM	PORTLAND CEMENT CONCRETE SIDEWALK, 125 MM	618.10	.1			
72						72		M	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21	.4			
4						4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	---			
37						37		M	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	.9			
18						18		EACH	REMOVAL AND DISPOSAL OF GUIDE POSTS	621.81	---			
				1		1		LS	FIELD OFFICE, ENGINEERS	631.10	---			
				1		1		LS	TESTING EQUIPMENT, CONCRETE	631.16	---			
				1		1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	---			
				1		1		LS	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25	---			

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: VAOT_quant_sc028.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
QUANTITY SHEET #1

PLOT DATE: 04/27/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 8 OF 65

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET

Metric

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	UTILITIES (NO FED/ST PART)	BRIDGE	FULL C.E. ITEMS	DIESEL EMISSIONS
1					
1					
240					
160					
6					
4					
830					
9					
90					
			310		
	90				
	10				
	50				
	1				
	1				
	10				
			40		
	1				
	60				
	1				
	300				
	10				
	6				
	20				
	4				
	4				
	25				
	162				
4					
40					
10					
		110			
	40				
			1		
					1
					1
					1

TOTALS

GRAND TOTAL	FINAL
1	
1	
240	
160	
6	
4	
830	
9	
90	
310	
90	
10	
50	
1	
1	
10	
40	
1	
60	
1	
300	
10	
6	
20	
4	
4	
25	
162	
4	
40	
10	
110	
40	
1	
1	
1	
1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	MOBILIZATION/DEMOBILIZATION	635.11	---
LS	TRAFFIC CONTROL	641.10	---
M	DURABLE 100 MM WHITE LINE	646.400	4.5
M	DURABLE 100 MM YELLOW LINE	646.410	2.6
M	DURABLE 600 MM STOP BAR	646.480	.2
EACH	DURABLE LETTER OR SYMBOL	646.490	---
M	TEMPORARY 100 MM YELLOW LINE	646.610	EST.
M	TEMPORARY 600 MM STOP BAR	646.680	EST.
SM	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85	EST.
SM	GEOTEXTILE UNDER STONE FILL	649.31	3
SM	GEOTEXTILE FOR SILT FENCE	649.51	EST.
KG	SEED	651.15	EST.
KG	FERTILIZER	651.18	EST.
T	AGRICULTURAL LIMESTONE	651.20	EST.
T	HAYMULCH	651.25	EST.
CM	TOPSOIL	651.35	EST.
SM	GRUBBING MATERIAL	651.40	EST.
LS	EPSC PLAN	652.10	---
HR	MONITORING EPSC PLAN	652.20	EST.
LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	---
SM	TEMPORARY EROSION MATTING	653.20	EST.
	BEGIN OPTION BB		
CM	TEMPORARY STONE CHECK DAM, TYPE II	653.26	EST.
EACH	PREFABRICATED CHECK DAM	653.30	EST.
	END OPTION BB		
CM	VEHICLE TRACKING PAD	653.35	EST.
	BEGIN OPTION CC		
EACH	INLET PROTECTION DEVICE, TYPE I	653.40	---
EACH	INLET PROTECTION DEVICE, TYPE II	653.41	---
	END OPTION CC		
M	BARRIER FENCE	653.50	EST.
M	PROJECT DEMARCATION FENCE	653.55	EST.
SM	TRAFFIC SIGNS, TYPE A	675.20	.17
M	FLANGED CHANNEL SIGN POST	675.301	4
EACH	REMOVING SIGNS	675.50	---
M	ELECTRICAL CONDUIT SLEEVE (100 MM) (PVC)	678.30	---
CM	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608	10.2
LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645	---
LU	SPECIAL PROVISION (EMISSION CONTROL DEVICE, CRANE) (N.A.B.I.)	900.650	---
LU	SPECIAL PROVISION (EMISSION CONTROL DEVICE, DUMP TRUCK) (N.A.B.I.)	900.650	---
LU	SPECIAL PROVISION (EMISSION CONTROL DEVICE, EXCAVATOR) (N.A.B.I.)	900.650	---

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: VAOT_quant_sc028.xls
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
QUANTITY SHEET #2

PLOT DATE: 05/16/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER

GPS CONTROL POINTS

HVCTRL # 1

Standard Disk Stamped

Pownal
NORTH = 28861.334
EAST = 440087.102
ELEV. = 170.190

THE MARK IS SET AT THE INTERSECTION OF U.S. ROUTE 7 AND VT. ROUTE 346 IN THE NORTHEAST CORNER OF A TRIANGULAR GRASS ISLAND ON THE WEST SIDE OF U.S. ROUTE 7. THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT SET 1.1 M (3.6 FT) DEEP. IT IS 2.8 M (9.2 FT) WEST OF AND ABOUT 0.2 M (0.7 FT) LOWER THAN THE WEST EDGE OF PAVEMENT OF U.S. ROUTE 7, 8.8 M (28.9 FT) SOUTH OF THE SOUTH EDGE OF PAVEMENT OF VT. ROUTE 346, 22.4 M (73.5 FT) NORTH OF A 1.2 M (3.9 FT) X 1.2 M (3.9 FT) DRAINAGE INLET, 30.0 M (98.4 FT) EAST OF A HYDRANT, AND 5.3 M (17.4 FT) SOUTH OF LIGHT POLE NO. 988 AND A FIBERGLASS WITNESS POST.

HVCTRL # 2

Standard Disk Stamped

Pownal Az Mk
NORTH = 29497.789
EAST = 440041.558
ELEV. = 184.550

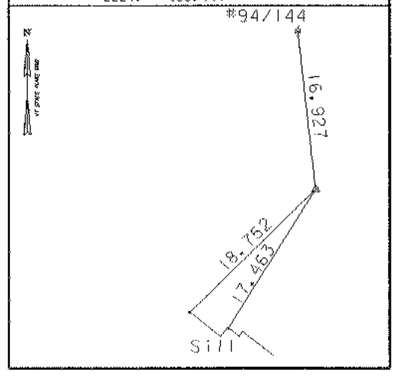
TO REACH FROM THE INTERSECTION OF U.S. ROUTE 7 AND VT. ROUTE 346 IN POWNAL GO SOUTH ALONG U.S. ROUTE 7 FOR 0.4 MI (0.6 KM) TO THE MARK ON THE RIGHT. THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT SET 1.1 M (3.6 FT) DEEP. IT IS 4.5 M (14.8 FT) WEST OF AND ABOUT 0.6 M (2.0 FT) LOWER THAN THE WEST EDGE OF PAVEMENT OF U.S. ROUTE 7, 25.0 M (82.0 FT) EAST OF THE EAST RAIL OF THE B AND M RAILROAD, AND 5.5 M (18.0 FT) SOUTHEAST OF POLE NO. 56/133 AND A FIBERGLASS WITNESS POST.

* Description provided by Vermont Agency of Transportation Geodetic Survey Unit

TRAVERSE TIES

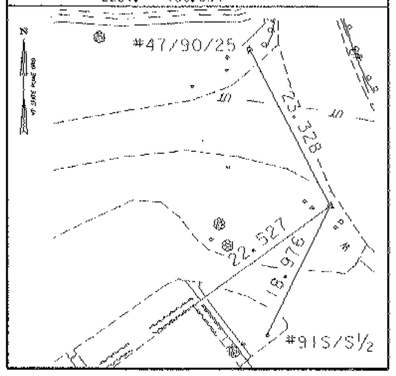
HVCTRTL # 3

NORTH = 29624.560
EAST = 439898.584
ELEV. = 185.444



HVCTRL # 4

NORTH = 29737.375
EAST = 439769.024
ELEV. = 180.634

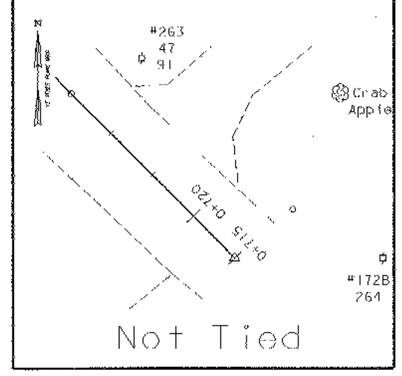


* Main Traverse Completed 09/22/03 by L. Orvis P.C. & R. Bullock

ALIGNMENT TIES

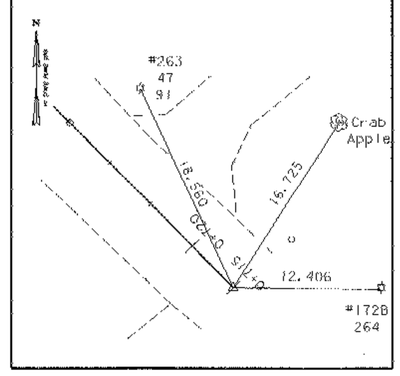
POB ML 0+715.000

NORTH = 29716.086
EAST = 439797.629



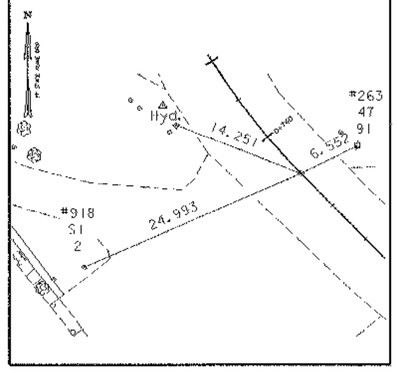
POB ML 0+715.020

NORTH = 29716.100
EAST = 439797.615



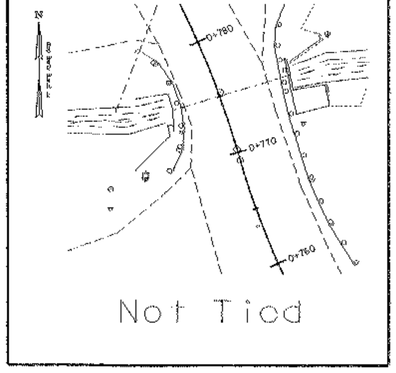
ML PC 0+734.779

NORTH = 29730.150
EAST = 439783.722



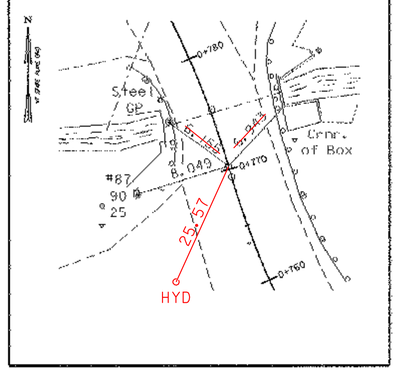
ML PT 0+769.316

NORTH = 29759.593
EAST = 439766.348



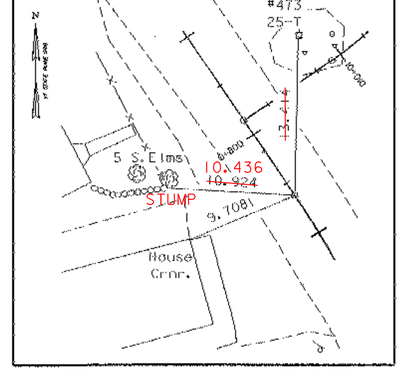
ML PC 0+770.279

NORTH = 29760.517
EAST = 439766.076



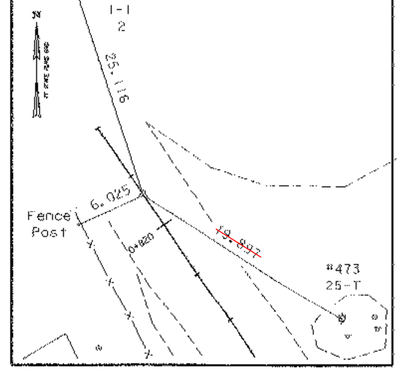
ML PT 0+793.761

NORTH = 29781.647
EAST = 439756.053



ML POE 8+23.120

NORTH = 29805.886
EAST = 439739.487



* Alignment Staked NOT staked coordinates verified 02/03/03

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 88 (96(
ADJUSTMENT Least Sq.

PROJECT NAME: Pownal
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: 84c028/survey/xc028tl.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: L. ORVIS
sc028tl.j

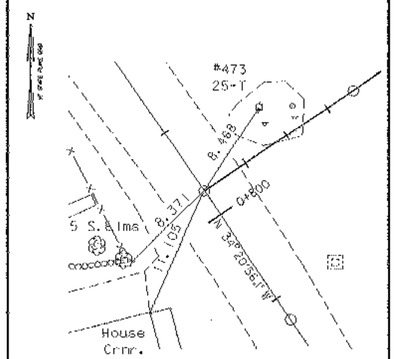
PLOT DATE: 10-MAY-2007
DRAWN BY: R. Bullock
CHECKED BY: J. HULETT
SHEET 14 OF 65

TIE SHEET #1

ALIGNMENT TIES

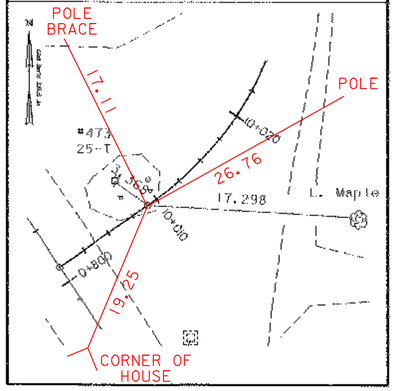
SL POB 10+000.000

NORTH = 29787.961
EAST = 439751.723



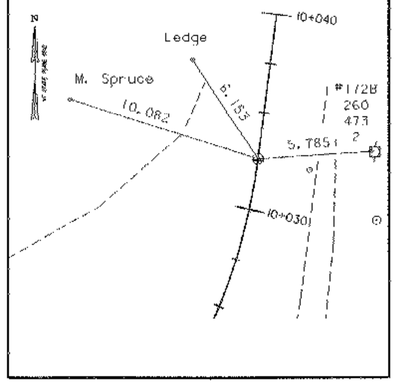
SL PC 10+009.081

NORTH = 29793.104
EAST = 439759.221



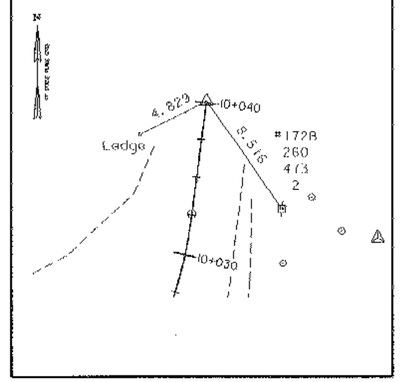
SL PT 100+32.582

NORTH = 29812.556
EAST = 439771.135



SL POE 10+040.000

NORTH = 29819.914
EAST = 439772.080



* Alignment Staked 05/08/03 by L. Orvis P.C. & J. Hulett & C. Harding

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 88 (96(
ADJUSTMENT	Least Sq.

TIE SHEET #2

PROJECT NAME:	Pownal
PROJECT NUMBER:	STP RS 0107 (8)
FILE NAME:	84c028/survey/xc028t1.dgn
PROJECT LEADER:	W. SYMONDS
DESIGNED BY:	L. ORVIS
sc028t12.1	
PLOT DATE:	10-MAY-2007
DRAWN BY:	R. Bullock
CHECKED BY:	J. HULETT
SHEET	15 OF 65

Ⓐ Existing 460 pipe, REMOVE PIPE & RCDI

Ⓑ 0+781.500, 12.000 m Lt - 0+787.500, 9.200 m Rt.
New 600 x 19.0 m Option Pipe with new RCDI@ inlet.

MATCH LINE 0+795.000

MATCH LINE 0+795.000

CURVE DATA #2
Delta: 17°56'22.3" Lt.
Radius: 75.000
Tangent: 11.838
Length: 23.483
External: 0.929

PT 0+793.761

House

New Concrete Sidewalk
see cross sections for details

STA. ~~0+785.000~~ 0+820
END PROJECT
BEGIN APPROACH CONSTRUCTION
VT. 346 & TH 56

Item 529.20
Partial Removal of Structure (Horizontal Timber)

Approx. Aerial Reloc. Route by C.V.P.S., Comcast & Verizon

2.59m Minimum Clearance

Paved Parking

Paved Parking

AERIAL E&T

Ⓐ

Ⓑ

0+780

Inv. 177.5 177.36

Sign

Ladd Brook

2 Small Poplars

Large Willow

4+980

Archaeological Area
Do Not Disturb

4+965

Item 653.50
Barrier Fence to be installed prior to any construction activities.

STONE FILL
TYPE III (TYP)

Pole # 47/90/25

Stone Wall

AERIAL E&T

Guy Pole

Sign

AERIAL E&T

Tall Grass

Guy Wire

Pole #89

AERIAL E&T

6-4" Tel Ducts

UT

New Verizon Anchor Lead

PC 0+770.279

0+770

0+760

Guy Strand

UT

STA. ~~0+770.000~~ 0+758
BEGIN PROJECT

TH #1

PI 0+752.406=
0+751.689

8" DI Water Line

W

BEGIN APPROACH

Sign

Utility Note:
6 underground telephone ducts cross the existing bridge encased in 3-100 mm galvanized steel pipes. They are approximately 150 mm below existing grade only in the area of the box culvert. The average depth of the ducts in other areas is 600 to 750 mm.

Lawn

Parking Lot

Shrub

Lawn

WSO

WSO

8" DI Water Line

Hydrant

WSO

Survey Point #4

Vt. Rte. 346
To US Rte. 7

0+740

GUTTER TO
STA. 0+718

N 16° 24' 33.9" W

0+750

N 4° 40' 41.3" W

Sleeve

600 mm

200mm DI Water Line

UT

2-4" Tel Ducts

STA. ~~0+755.000~~ 0+747
BEGIN APPROACH

PI 0+782.116=
0+781.923

WSO

Lawn

Small Plum

Existing water shut-off @ 0+781Rt.
to be witnessed and flagged prior to construction activities.

Benchmark #2
Chiseled Square in Conc. Base
Elev. 179.895 M

ML POST 0+775.314=
CHAN POT 5+000.000
Askew 93°-57'-26" Rt.

Large Maple

Stone Wall

Brush

Channel Line
N 77° 32' 51.79" E

5+035

5+020

Brush

Stone Wall

Brush

BITUMINOUS CONCRETE GUTTER

Sign

Medium Maple

SAVE

Lawn

Steel Beam Guard Rail (typ)

PT 0+769.316

Stone Wall

House

Lilac

CURVE DATA #1
Delta: 28°16'07.4" Rt.
Radius: 70.000
Tangent: 17.627
Length: 34.537
External: 2.185

Approx. location of Septic Field

Hedge

179.97
INV 177.76

AERIAL E&T

Stone Wall

Aaronsburg Rd

8" DI Water Line

N

MAGNETIC

Bridge Rail Galvanized Heavy Duty
Steel Beam-Fascia Mounted
0+773.02 - 0+779.08 Lt.
0+772.00 - 0+777.37 Rt.

Heavy Duty Steel Beam Guardrail
0+760.46 - 0+772.02 Rt.
0+767.53 - 0+771.04 Lt.
0+779.20 - 0+789.58 Rt.
0+779.25 - 0+791.08 Lt.

Anchor for Steel Beam Guardrail
0+763.00 Rt.
0+766.50, 15.0 m Lt.
0+786.92 Lt.
0+786.00 Rt.

Portland Cement Concrete Sidewalk, 125mm
0+784.105 to 0+794.857 Lt.

Cold Planing
0+755.000 - 0+765.000 +/-

Bituminous Concrete Gutters and Traffic Islands
0+770 +/- Rt.

PRECAST DI
0+781.500 12.0 LT OUTLET
0+787.500 9.2 RT DI

0 2 4 6 8 10
SCALE IN METERS (1:100)

PLAN SHEET #1

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028bdr.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028dsl.t

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH
SHEET 16 OF 65

(C) Existing 200 pipe, REMOVE

(D) 0+787.500, 9.200 m Rt. - 0+814.000, 10.000 m Rt.
New 600 x 28.0 m Option Pipe. with new RCDI @ inlet.

Metric

INV DI4
183.065
INV 181.665

END RE-CONSTRUCTION
STA 10+054

TH 56
STA. 10+035.000
END APPROACH

TH #56

10+040

VT. 346
STA. ~~0+825.000~~ 0+831.000
END APPROACH

Bituminous Concrete Gutters and Traffic Islands
TH56 10+035.000 Lt to 0+825.000 Rt

Paved Drive (80 mm)
ML 0+797.38 Lt.
TH 56 10+015.000 Rt.

Cold Planing
ML 0+810.000 to 825.000 +/-
TH 56 10+020.000 to 10+035.000 +/-

PRECAST DI
0+814.0 10.0 RT DI

N
MAGNETIC

TH 56 Curve Data
Delta: 48° 20' 04.1" Lt.
Radius: 27.858
Tangent: 12.501
Length: 23.501
External: 2.676

INV DI 3
181.785
INV 180.385

Lawn

Pole #
172 B
260
473
2

Iron Pin

Guy

REMOVE

Shrub

Vt. Rte. 346
To Petersburg, NY

Guy Strand

AERIAL E&T

Conc. Steps

Lawn

Paved Gutter

PT 10+032.582

10+030

Guy

Sign

Approx. Aerial Reloc. Route
by C.V.P.S., Comcast & Verizon

8" waterline in sleeve

INV DI 179.68
INV 178.110

END PROJECT
STA. 0+820

0+820

N 34° 20' 56.1" W

Lawn

N 29° 19' 12.4" E 12" CL 52 Waterline

10+020

TH 56 PI 10+021.582 bk=
10+020.081 ahd

HOUSE REMOVED

~~House~~

WSO

WSO

PC 10+009.081

Lawn

Guy

Sign

Sign

0+810

10+010

N55° 39' 16.5" E

Large Maple

REMOVE

5-4" Telports

Gravel Drive

ML POT 0+801.433=
TH 56 POT 10+000.000
Askew 90° -00' -00" Rt.

Fence

Paved Walk

House

3 Small White Birch

Stone Wall

Paved Drive

Limit of Pavement

Gravel Drive

0+800

MATCH LINE 0+795.000

MATCH LINE 0+795.000

new pole #261
with guy

Propane Tank

Lawn

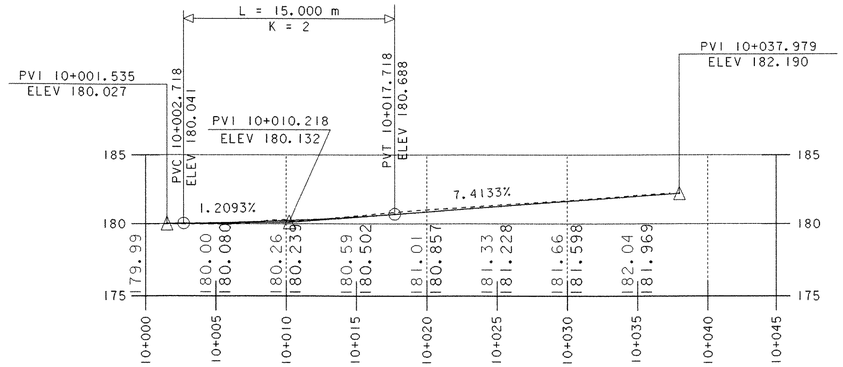
0 2 4 6 8 10
SCALE IN METERS (1:100)

PLAN SHEET #2

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028bdr.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sb254la2.i

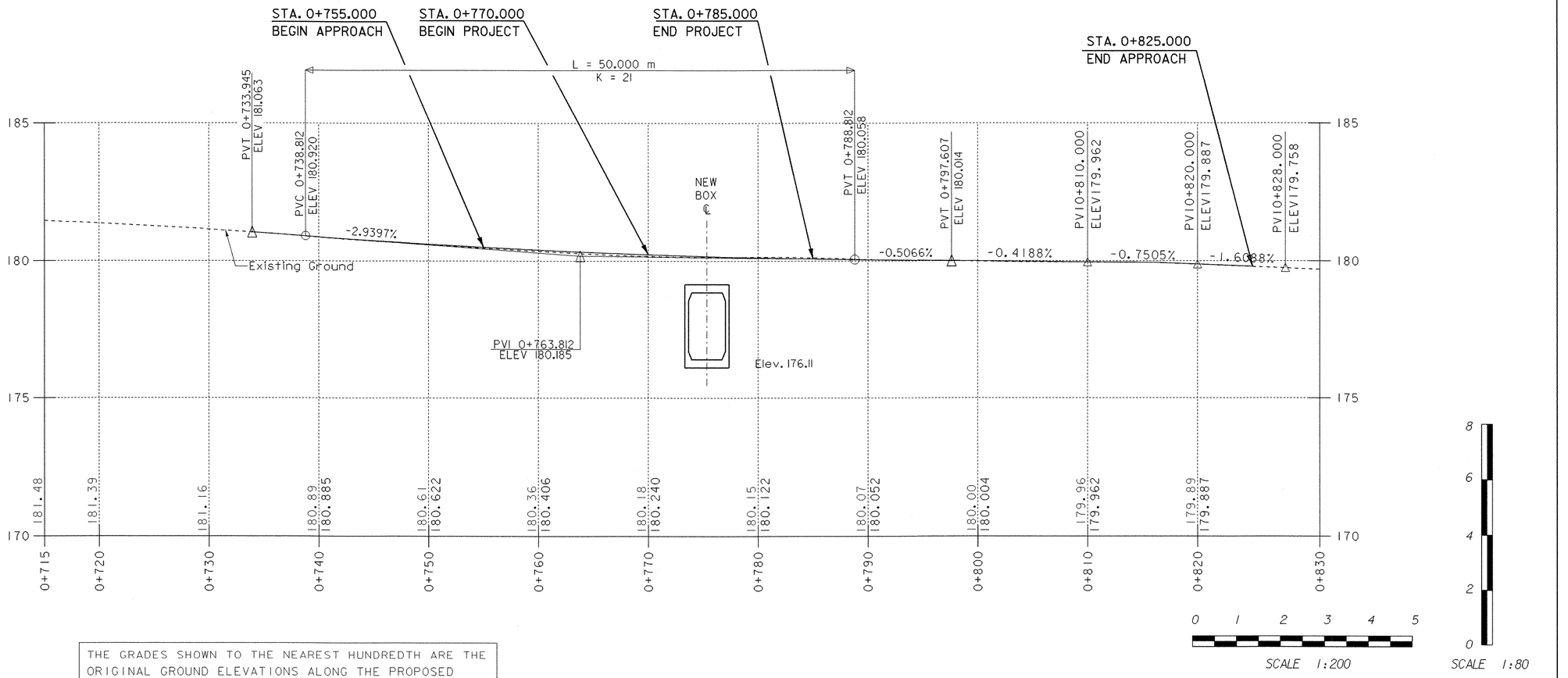
PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH
SHEET 17 OF 65



TH56 Profile

0 2 4 6 8 10

SCALE 1:200



0 1 2 3 4 5

SCALE 1:200

8 6 4 2 0

SCALE 1:80

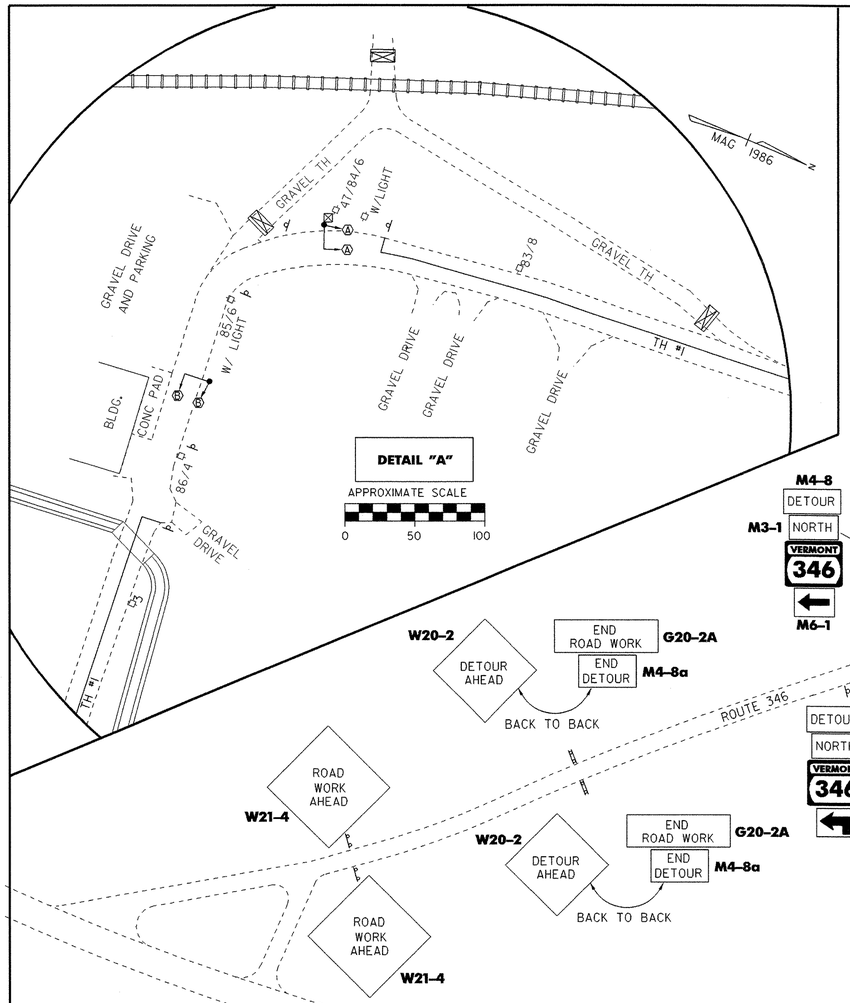
THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT. THE GRADES SHOWN TO THE NEAREST THOUSANDTH ARE THE PROPOSED GRADES FOR THE NEW ALIGNMENT.

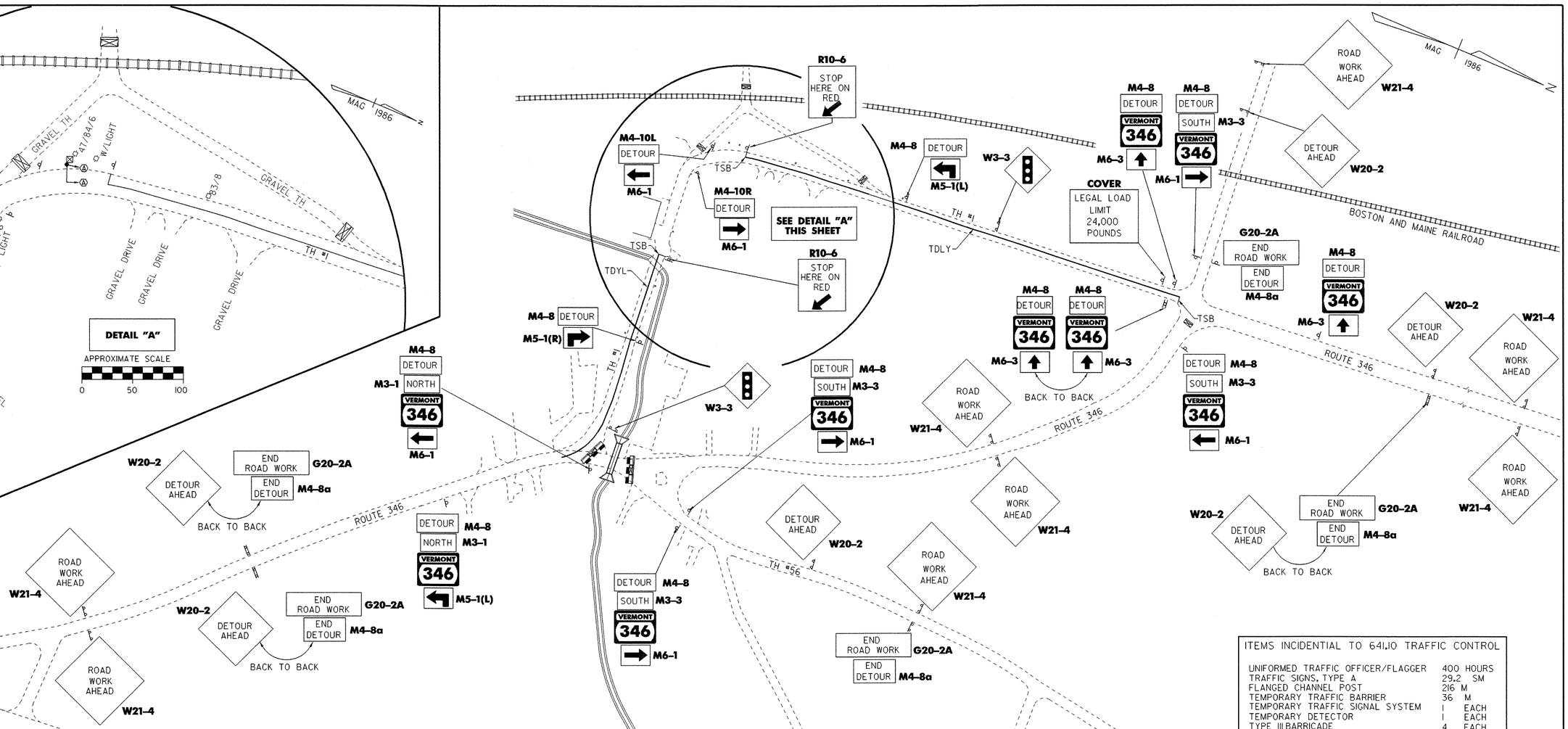
ROADWAY PROFILES

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028pr1.i

PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 18 OF 65





PHASING DIAGRAM AND SPECIAL NOTES FOR EACH LOCATION

PHASE	A			B		
INTERVAL	1	2	3	4	5	6
MINIMUM	8	-	-	-	-	-
EXTENSION	1	-	-	-	-	-
MAXIMUM	15	4	12	15	4	12
HEAD A	G	Y	R	R	R	R
HEAD B	R	R	R	G	Y	R

SIGNAL TO DWELL ON PHASE "B".

SPECIAL REQUIREMENTS

APPROACH	TEMPORARY VEHICLE DETECTOR	DILEMMA ZONE LOOP	FLASHING BEACON ON ADVANCED WARNING SIGN
A	1.30M×12M	-	NONE
B	-	-	NONE

LEGEND

- TRAFFIC SIGNAL STRAIN POLE
- SIGN (SINGLE POST)
- SIGN (DOUBLE POST)
- TYPE III BARRICADE
- TYPE III BARRICADE, MOD.
- SIGNAL HEAD
- PHASE
- CONTROLLER AND CABINET
- TDYL TEMPORARY 100 DOUBLE YELLOW LINE
- TSB TEMPORARY 600 STOP BAR
- TEMPORARY CONCRETE BARRIER

ITEMS INCIDENTIAL TO 641.10 TRAFFIC CONTROL

UNIFORMED TRAFFIC OFFICER/FLAGGER	400	HOURS
TRAFFIC SIGNS, TYPE A	29.2	SM
FLANGED CHANNEL POST	216	M
TEMPORARY TRAFFIC BARRIER	36	M
TEMPORARY TRAFFIC SIGNAL SYSTEM	1	EACH
TEMPORARY DETECTOR	1	EACH
TYPE III BARRICADE	4	EACH
TYPE III BARRICADE (MOD.)	6	EACH

ALL QUANTITIES ARE APPROXIMATE.

SEE SHEET 40 FOR ADDITIONAL NOTES.

APPROXIMATE SCALE
0 100 200

TEMPORARY DETOUR TRAFFIC CONTROL PLAN

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028trf.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: B. NYQUIST
sc028trf.i

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. SUMNER
SHEET 19 OF 65

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

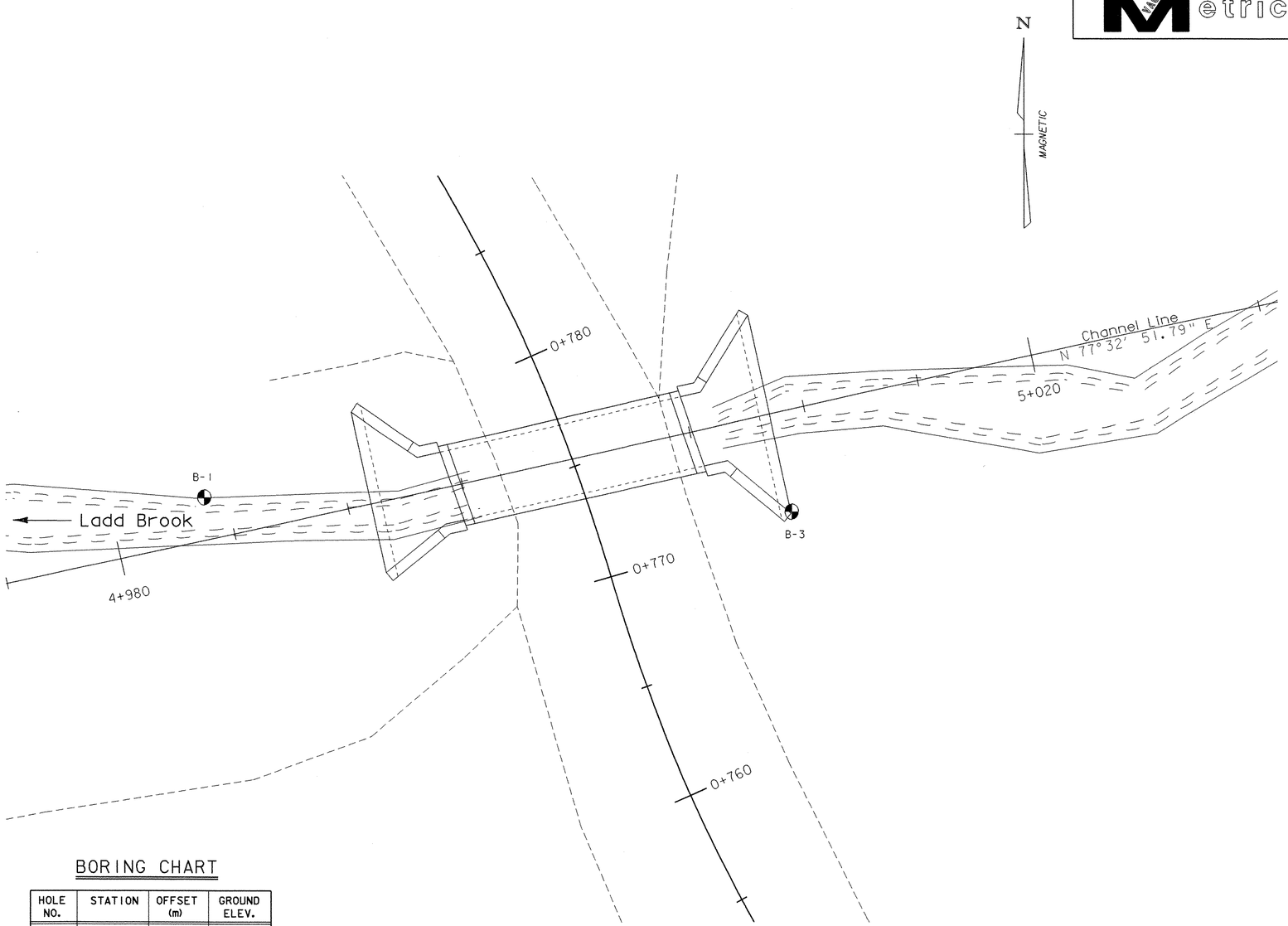
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

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 30.1mm
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		



BORING CHART

HOLE NO.	STATION	OFFSET (m)	GROUND ELEV.
B-1	0+778.200	15.240LT	178.390
B-3	0+770.500	8.230 RT	179.430

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.

GENERAL NOTES

1. The subsurface explorations shown herein were made between 19 May 93 and 20 May 93 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.

0 2 4 6 8 10

SCALE IN METERS (1:100)

BORING LAYOUT

PROJECT NAME: POWNAL

PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028bor.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028bor.i

PLOT DATE: 10-MAY-2007
DRAWN BY: J.GILMORE
CHECKED BY: T. FILLBACH
SHEET 20 OF 65

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

HOLE NO.: B-1
SHEET 1 OF 1
DATE STARTED: 5/20/93
DATE COMPLETED: 5/20/93

PROJECT NAME: POWNAL
SITE NAME: BR-1
STATION: 0+778.20
GROUND EL.: 178.39

PROJECT NUMBER: RS 0107 (8)
SITE NO.: RT-346
OFFSET: -15.24
G.W. DEPTH:

BORING CREW
CREW CHIEF: WILLIS
DRILLER: NELSON
LOGGER:
ADDITIONAL CREW:

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

Approximate bottom of apron cut-off wall - Elev. 174.602

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-1-b, SiGrSa, brn, Moist, Rec. = 0.12m	11	17.3					
		A-1-a, SaGr, brn, Moist, Rec. = 0.09m	56	38.4					
		No Rec.	16						
		No Rec.	7						
	A-7-6	A-7-6, Clay, brn, Wet, Rec. = 0.06m	6	27.7				51	22
		A-4, Si, brn, Wet, Rec. = 0.12m	8	34.7				34	5
		A-4, Si, brn, Wet, Rec. = 0.15m	4	42.6				33	6
		A-4, Si, gry, Wet, Rec. = 0.30m	5	26.7					
5		A-4, Si, gry, Wet, Rec. = 0.30m	3	39.3				32	3
		A-4, Si, gry, Wet, Rec. = 0.30m	8	30.5				21	0
		A-4, Si, gry, Wet, Rec. = 0.09m	7	37.8					
		A-6, SiCl, gry, Wet, Rec. = 0.15m	6	42.7				40	14
10		No Rec.	R	Top of bedrock @ 10.97 m					

	RUN	REC%	ROD%
Run #1: BXMDC, 10.97m-12.50m, Rec. = 1.37m, See Geologist's Report.	1	90	7
Run #2: BXMDC, 12.50m-14.02m, Rec. = 1.52m, See Geologist's Report.	2	100	16

Hole stopped @ 14.02m in bedrock

GEOLOGISTS REPORT:

Core consists of black, carbonaceous phyllite with numerous quartz lenses. The rock is moderately soft, unweathered and competent.

Low RQD due to numerous mechanical breaks along foliation planes. Does not reflect core competency.

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

HOLE NO.: B-3
SHEET 1 OF 1
DATE STARTED: 5/19/93
DATE COMPLETED: 5/19/93

PROJECT NAME: POWNAL
SITE NAME: BR-1
STATION: 0+770.50
GROUND EL.: 179.43

PROJECT NUMBER: RS 0107 (8)
SITE NO.: RT-346
OFFSET: 8.23
G.W. DEPTH:

BORING CREW
CREW CHIEF: WILLIS
DRILLER: NELSON
LOGGER:
ADDITIONAL CREW:

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

Approximate bottom of apron cut-off wall - Elev. 175.044

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		A-1-b, SiGrSa, brn, Moist, Rec. = 0.03m	7	19.3					
		A-1-a, SaGr, brn, Moist, Rec. = 0.06m	22	9.1					
		No Rec.	44						
		No Rec.	6						
		A-6, SiCl, brn, Wet, Rec. = 0.52m	3	43.4				39	12
		A-4, Si, brn, Wet, Rec. = 0.30m	5	38.6					
		A-4, Si, brn, Wet, Rec. = 0.40m	5	35.7				32	5
		A-6, SiCl, brn, Wet, Rec. = 0.24m	4	38.2				36	12
5		A-4, Si, gry, Wet, Rec. = 0.60m	4	40.3				29	5
		A-4, Si, gry, Wet, Rec. = 0.30m	6	32.5				20	0
		A-4, Si, gry, Wet, Rec. = 0.20m	16	26.6					
10		Hole stopped @ 9.75m NLTD							

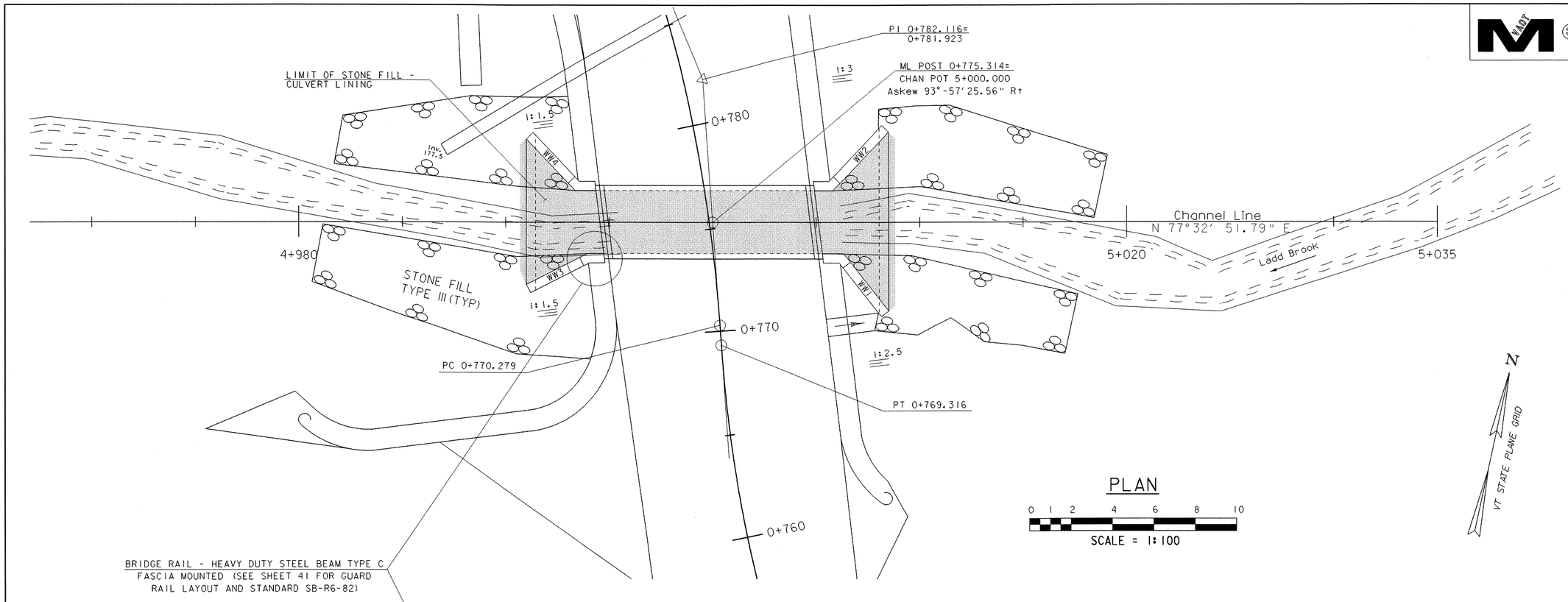
GEOLOGISTS REPORT:

BORING LOGS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028bor.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028log.1

PLOT DATE: 10-MAY-2007
DRAWN BY: J.GILMORE
CHECKED BY: T. FILLBACH
SHEET 21 OF 65



PLAN & ELEVATION

PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107 (8)
FILE NAME: /84c028/str/sc028pe.dgn	PLOT DATE: 10-MAY-2007
PROJECT MANAGER: W. SYMONDS	DRAWN BY: K. RUTTER
DESIGNED BY: K. RUTTER	CHECKED BY: T. SUMNER
sc028pe.i	SHEET 22 OF 65

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EROSION CONTROL NARRATIVE

Metric

DESCRIPTION OF PROJECT

THIS PROJECT INVOLVES THE RECONSTRUCTION OF A BRIDGE OVER THE LADD BROOK. THE PROJECT IS ON VT ROUTE 346, A MAJOR COLLECTOR ROUTE IN THE TOWN OF POWNAL. A NEW PRECAST CONCRETE BOX CULVERT WILL BE CONSTRUCTED ON EXISTING ALIGNMENT WHILE THE TRAFFIC IS REROUTED DOWN TOWN HIGHWAY #1. TOTAL ROADWAY WORK, INCLUDING BOTH APPROACHES, IS APPROXIMATELY 65 METERS. THE LIMITS OF CONSTRUCTION DO NOT ENCROACH UPON WETLANDS. THERE ARE SEVERAL BUILDINGS AND ONE LEACH FIELD THAT BOARDER THE CONSTRUCTION LIMITS. NO THREATENED OR ENDANGERED SPECIES OR HISTORICAL RESOURCES HAVE BEEN IDENTIFIED IN THE PROJECT AREA. THE SITE IS LOCATED, BASED ON NAD 83/92, AT 29760.517 N, 4939766.076 E.

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

TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW AND STAGING AREAS): 0.046 ha (0.11 ACRES).

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:
THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED VEGETATION WITH GENTLE SLOPES OF VARIOUS GRASSES, SHRUBS AND TREES. DRAINAGE WAYS ARE NOT WELL DEFINED BUT RUNOFF WATER ENTERING THE PROJECT SITE IS LIMITED TO WATER CONVEYED ALONG ROUTE 346. THERE ARE NO ROADWAY DITCHES ALONG ROUTE 346.

DRAINAGE, WATERWAYS, BODIES OF WATER:
LADD BROOK IS LOCATED WITHIN THE PROJECT AREA. THERE ARE NO OTHER WATER BODIES OR WETLANDS WITHIN THE PROJECT AREA. THE LADD BROOK IS CLASSIFIED AS A SMALL PERENNIAL BUT FLASHY BROOK IN MOUNTAINOUS TERRAIN. THE BROOK IS A TRIBUTARY OF THE HOOSIC RIVER WITH A STREAMBED OF GRAVEL, COBBLES, AND BOULDERS OVER SANDY SILT. THE CONTRIBUTED DRAINAGE AREA OF THE STRUCTURE CROSSING IS 4.33 SQ. KM. (1.67 SQ. MI.).

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:
THE TOPOGRAPHY OF THE PROJECT SITE IS MOSTLY LEVEL LAWNS AND WOODS, WITH ROUTE 346 PERPENDICULAR TO THE BROOK. LADD BROOK IS CONTAINED BY STEEP BANKS ALONG EACH SIDE AT THE STRUCTURE. DEVELOPMENT ALONG ROUTE 346 CONSISTS OF MOSTLY RESIDENTIAL DWELLINGS WITH A FEW BUSINESSES IN THE AREA. OVERHEAD UTILITIES RUN ALONG ROUTE 346 AND TH1. BURIED UTILITIES ARE LOCATED ALONG ROUTE 346 ACROSS THE EXISTING STRUCTURE. THE PLANS CALL FOR RELOCATION OF BOTH OVER-HEAD AND BURIED UTILITIES.

VEGETATION:
A MIX OF HARDWOOD AND SOFTWOOD TREES OF ALL SIZES EXIST ALONG ROUTE 346. THE RESIDENTS ON EACH SIDE OF THE STRUCTURE HAVE LAWNS WITH LANDSCAPE PLANTINGS. BOTH BANKS OF THE BROOK HAVE BRUSH COVER. NO FIELDS OR OTHER AGRICULTURAL CROPS EXIST NEAR THE PROJECT. IMPACTS TO VEGETATION WILL BE LIMITED TO THAT WHICH ARE AFFECTED BY THE CONSTRUCTION OF THE NEW STRUCTURE ON THE EXISTING ALIGNMENT.

SOILS:
THE SOIL CONSERVATION SERVICE HAS MAPPED THE SOILS THROUGHOUT BENNINGTON COUNTY. THE SOIL TYPE IDENTIFIED FOR THIS PROJECT SITE IS COPAKE. THE DESCRIPTION IS AS FOLLOWS:

"THE COPAKE SERIES CONSISTS OF COARSE-LOAMY OVER SANDY OR SANDY SKELETAL, MIXED, MESIC DYSTRIC EUTHROCHREPTS. THE SOILS ARE DEEP AND SOMEWHAT EXCESSIVELY DRAINED. THEY HAVE AN A HORIZON OF VERY DARK GRAYISH BROWN FINE SANDY LOAM, A B HORIZON OF DARK BROWN SANDY LOAM AND DARK YELLOWISH BROWN GRAVELLY SANDY LOAM, AND A C HORIZON OF DARK BROWN AND VERY DARK GRAYISH BROWN GRAVELLY COARSE SAND AND GRAVELLY SAND. THE SOILS FORMED IN GRAVELLY, WATER-DEPOSITED MATERIAL."

THE EROSION FACTOR "K" VALUES FOR COPAKE SOILS ARE AS FOLLOWS:

DEPTH (mm)	EROSION FACTOR
0-200	0.32
200-525	0.24
525-1500	0.17

SOILS BORINGS TAKEN AT THE SITE WERE CLASSIFIED AS FOLLOWS:

DEPTH (m)	CLASSIFICATION
0 - 0.6	SILTY GRAVELLY SAND
0.6 - 1.2	SANDY GRAVEL
1.2 - 1.8	UNKNOWN
1.8 - 2.4	UNKNOWN
2.4 - 3.0	SILTY CLAY
3.0 - 3.6	SILT
3.6 - 4.2	SILT

SENSITIVE RESOURCE AREAS:
NO THREATENED OR ENDANGERED SPECIES HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS AND THERE WILL BE NO ADVERSE EFFECT TO HISTORIC OR ARCHAEOLOGICAL FEATURES. LADD BROOK IS THE ONLY IDENTIFIED RESOURCE AND BEING A STEEP, HIGH GRADIENT STREAM THERE ARE NO WETLANDS WITHIN THE VICINITY OF THE PROJECT.

A HISTORICAL SITE IS LOCATED NEAR THE PROJECT SITE AND THE FOLLOWING CONDITIONS SHALL BE MET.

A. TEMPORARY CONSTRUCTION FENCING SHALL BE ERECTED AROUND THE ARCHEOLOGICAL SITE VT-BE-128.

B. THE SITE SHALL BE MARKED "DO NOT DISTURB".

C. THE VAOT ARCHEOLOGIST WILL BE PRESENT AT THE PRE-CONSTRUCTION MEETING TO ENSURE THAT THE CONTRACTOR IS AWARE OF THE SENSITIVE ARCHEOLOGICAL AREA.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:
DISTURBANCE OF SOILS NEAR NATURAL OR MAN-MADE WATERWAYS CONSISTS OF THAT WHICH IS NECESSARY TO CONSTRUCT THE NEW STRUCTURE. STABILIZATION OF DISTURBANCES TO STREAM BANKS WILL BE ACCOMPLISHED WITH TYPE III STONE FILL.

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. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING, OR AN EQUIVALENT PRODUCT, WILL BE UTILIZED ON ALL SLOPES STEEPER THAN 3:1 THAT ARE NOT LINED WITH STONE FILL. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE OR DURING INTERMITTENT PHASES OF CONSTRUCTION ACTIVITY UNLESS THE FORECAST OF RAINFALL DICTATES STABILIZATION SOONER.

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, WILL ALSO BE UTILIZED ON A REGULAR BASIS. ANY SLOPES TO BE EXPOSED FOR SEVERAL DAYS PRIOR TO FINAL GRADING SHALL BE TRACKED AND MULCHED. THE FORECAST OF RAINFALL EVENTS SHALL ALSO TRIGGER PROTECTION OF EXPOSED SLOPES.

WHERE NECESSARY 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 DITCHES IS COMPLETE AND THE SURROUNDING AREA STABILIZED.

TEMPORARY MEASURES TO CONTROL SEDIMENT TRANSPORT INCLUDE:

SILT FENCE WILL BE INSTALLED 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 30 M (100'). 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.
THIS WILL BE PAID FOR UNDER 653.41, INLET PROTECTION DEVICE, TYPE II.

MEASURES SUCH AS TEMPORARY STONE CHECK DAMS, SILT FENCE, AND SAND BAGS SHALL BE CHECKED EACH WORKDAY AND AFTER EACH RAINFALL EVENT 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 APPROVED AREA SUCH THAT THEY WILL NOT BE SUBJECT TO EROSION.

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 CRITERIA FOUND ON THE NEXT SHEET. (SEE SEDIMENT SETTLING BASIN SIZING CRITERIA.)

THE RESIDENT ENGINEER MAY DIRECT THE INSTALLATION OF CERTAIN EROSION CONTROL MEASURES IN ORDER TO AVOID POTENTIAL EROSION PROBLEMS, OR TO RESPOND TO STORM EVENTS, OR DAMAGE BY CONSTRUCTION OPERATIONS.

PERMANENT EROSION CONTROL MEASURES

SEVERAL PERMANENT EROSION CONTROL MEASURES WILL BE UTILIZED:
STONE LINING OF THE STREAM BANKS WITH STONE FILL, TYPE III AS SPECIFIED BY VTRANS HYDRAULICS PERSONNEL IS SPECIFIED. THIS STONE WILL PROTECT FROM STREAM BANK EROSION DURING STORM EVENTS.

STONE FILL, TYPE III WILL BE UTILIZED AT CULVERT OUTLETS TO DISSIPATE WATER VELOCITIES AND REDUCE EROSION POTENTIAL.

GRASS, OR OTHER SUITABLE GROUND COVER WILL BE ESTABLISHED OUTSIDE OF THE ROADWAY LIMITS WHERE STONE LINING HAS NOT BEEN SPECIFIED. ALL 3:1 SLOPE SHALL BE SEEDED AND MULCHED PROMPTLY UPON ACHIEVING FINAL GRADE.

AFTER PLACEMENT, GRUBBING MATERIAL SHALL BE STABILIZED WITH STRAW MATTING AND/OR SEED AND MULCH AS DIRECTED BY THE RESIDENT ENGINEER.

EROSION & SEDIMENT CONTROL GUIDELINES

GENERAL EROSION CONTROLS:
THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT TO CONTROL EROSION AND MINIMIZE THE SEDIMENTATION OF RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

AN ALTERNATE TEMPORARY EROSION CONTROL PLAN SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE AGENCY OF TRANSPORTATION.

THE CONTRACTOR SHALL 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. THE CONTRACTOR SHALL EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS. THE CONTRACTOR WILL USE ADDITIONAL EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE ENGINEER. SEE SECTION 105.23 OF THE VERMONT AOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006.

PROJECT NAME:	**POWNAL**
PROJECT NUMBER:	**STP RS 0107(8)**

FILE NAME:	/84c028/str/sc028ecn.xls	PLOT DATE:	4/25/2007
PROJECT LEADER:	W. SYMONDS	DRAWN BY:	R. PELLETT
DESIGNED BY:	R. PELLETT	CHECKED BY:	T. SUMNER
EROSION CONTROL NARRATIVE #1		SHEET	25 OF 65

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EROSION CONTROL NARRATIVE

Metric

THE TYPE, SIZE, AND LOCATION OF ANY EROSION CONTROL DEVICES SHALL NOT BE CHANGED UNLESS PRIOR APPROVAL IS OBTAINED FROM THE ENGINEER. ANY APPROVED CHANGES SHALL BE NOTED ON THE EROSION CONTROL PLANS AND DISCUSSED IN THE WEEKLY REPORT.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. THE CONTRACTOR SHALL STABILIZE ALL DISTURBED AREAS PROMPTLY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY VEGETATION SHALL BE ESTABLISHED IF THE AREA IS TO BE WITHOUT CONSTRUCTION ACTIVITY FOR A PERIOD OF 14 DAYS. PERIMETER CONTROL MEASURES SHALL BE INSTALLED FOLLOWING CLEARING, BUT PRIOR TO THE START OF ANY GRUBBING OR GRADING ACTIVITY, OTHER TEMPORARY CONTROLS SHALL BE INSTALLED 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 SHALL BE ESTABLISHED WHEREVER POSSIBLE.

THE CONTRACTOR NEED ONLY CONTROL SEDIMENT-LADEN RUNOFF GENERATED BY THE PROJECT SITE. THE CONTRACTOR SHALL COLLECT AND ROUTE CLEAN OFFSITE RUNOFF AROUND OR THROUGH THE PROJECT SITE USING DIVERSION BERMS, DIVERSION CHANNELS, CULVERTS, AND/OR TEMPORARY PIPES. THIS WILL BE PAID FOR UNDER ITEM 614.10, TEMPORARY RELOCATION OF STREAM

CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED ON THE DOWN SLOPE SIDE OF PERIMETER CONTROL MEASURES.

ALL IN-STREAM CONSTRUCTION SHALL TAKE PLACE IN A DRY CHANNEL BETWEEN JUNE 1 AND OCTOBER 1.

IN GENERAL, EXISTING VEGETATION, SHRUBS, AND TREES SHALL BE PRESERVED WHENEVER POSSIBLE.

THE PROJECT COMPLETION DATE HAS BEEN SET FOR OCTOBER 15TH TO ENSURE ALL FINAL EROSION CONTROL MEASURES FOR THE ESTABLISHMENT OF PERMANENT VEGETATION WILL TAKE PLACE DURING THE GROWING SEASON. THEREFORE WINTER STABILIZATION METHODS WILL NOT BE SHOWN ON THE PLANS OR DESCRIBED IN THE NARRATIVE.

PERIMETER EROSION CONTROLS

PRIOR TO ANY CONSTRUCTION ACTIVITIES, THE PROJECT DEMARCATION FENCING SHALL BE PLACED ALONG THE PERIMETER OF THE PROJECT AS SHOWN ON THE EROSION CONTROL PLANS. THE INSTALLATION OF THE DEMARCATION FENCING SHALL BE PERFORMED SUCH THAT NO VEGETATION ON THE OUTSIDE OF THE FENCING IS DISTURBED.

PRIOR TO ANY CONSTRUCTION OR STAGING THE CONTRACTOR SHALL INSTALL STABILIZED CONSTRUCTION ENTRANCES LEADING TO STAGING AREAS AND THE PROJECT SITE TO PREVENT THE TRACKING OF SILTS AND SEDIMENTS OFFSITE. COARSE STONE FILL OVER FILTER FABRIC SHOULD BE UTILIZED WHERE AN ALREADY ESTABLISHED STABLE ENTRANCE DOES NOT EXIST. THE CRUSHED STONE PRODUCT USED FOR THE CONSTRUCTION OF THE STABILIZED ENTRANCES SHALL BE MONITORED FOR SEDIMENT ACCUMULATION AND REPLACED AS NECESSARY OR AS DIRECTED BY THE ENGINEER. STABILIZED CONSTRUCTION ENTRANCES SHALL ALSO BE ESTABLISHED AND MAINTAINED AT ALL OFFSITE WASTE AND BORROW AREAS. THE MINIMUM SIZE OF A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 4 METERS WIDE BY 15 METERS LONG. ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARDS A CONSTRUCTION ENTRANCE SHALL BE PIPED UNDER THE STONE. PIPES SHALL BE APPROPRIATELY SIZED FOR THE CONTRIBUTING AREA, HOWEVER, NO PIPES SMALLER THAN 150mm DIAMETER SHALL BE USED.

AFTER CLEARING OF TREES AND SHRUBS, BUT PRIOR TO ANY GRUBBING AND EXCAVATION, THE CONTRACTOR SHALL CONSTRUCT PERIMETER CONTROLS TO ENSURE THAT ANY DISTURBED SEDIMENT DOES NOT LEAVE THE SITE. SEDIMENT TRAPS OR BASINS WHERE WATER HAS BEEN ADEQUATELY TREATED, MAY BE DIRECTED TO NEARBY UNDISTURBED STREAMS OR SWALES.

THE CONTRACTOR SHALL INSTALL PERIMETER SILT FENCE IN AREAS OF PROPOSED WORK AS SHOWN ON THE PLANS PRIOR TO GRUBBING AND FILLING ACTIVITIES. IN AREAS OF HIGH EXPOSURE IT MAY BE NECESSARY TO DOUBLE UP PROTECTION WITH ADDITIONAL SILT FENCING. IN AREAS OF EXPOSED LEDGE, STONE CHECK DAMS SHALL BE UTILIZED.

DURING GRUBBING OPERATIONS, STONE CHECK DAM BARRIERS SHALL BE INSTALLED AT ANY OBVIOUS CONCENTRATED FLOW DISCHARGE POINTS, OR AS DIRECTED BY THE RESIDENT ENGINEER.

AFTER GRUBBING OPERATIONS, ALL AREAS OF EXPOSED SOILS SHALL BE TEMPORARILY STABILIZED WITH SEEDING & MULCHING, EROSION MATTING, OR STRAW MATTING AS SOON AS PRACTICABLE AND BEFORE ANY PREDICTED RAINFALL EVENT. THESE TEMPORARY EROSION CONTROL MEASURES CAN BE PLACED IN ANY COMBINATION IN AREAS OF POTENTIAL EROSION AS DEEMED NECESSARY BY THE RESIDENT ENGINEER.

AFTER PERIMETER CONTROLS ARE IN PLACE, AND PRIOR TO GRADING OPERATIONS, THE CONTRACTOR SHALL CONSTRUCT TEMPORARY ONSITE SEDIMENT TRAPS WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER. DISTURBED AREAS SHALL BE GRADED TO DRAIN TOWARDS SEDIMENT TRAP WHERE POSSIBLE.

ANY MATERIAL STOCKPILES, INCLUDING BUT NOT LIMITED TO, GRUBBING MATERIAL, SAND BORROW, EARTH BORROW, GRANULAR BORROW, TOPSOIL, AND ANY EXCAVATED WASTE PILES SHALL BE MULCHED AND SHALL ALSO HAVE SILT FENCE INSTALLED AROUND THE BASE OF THE STOCKPILE.

ANY OFF-SITE AREAS WHERE BORROW OR EXCAVATED MATERIALS WILL BE STOCKPILED AND ANY WASTE DISPOSAL AREAS WILL HAVE TWO INSTALLATIONS OF SILT FENCE, 600mm APART AROUND THE BASE OF EACH STOCKPILE. SEEDING AND MULCHING SHALL BE PERFORMED IMMEDIATELY AFTER FINAL GRADING. REMOVAL OF THE SILT FENCES AROUND THE WASTE AREAS SHALL BE PERFORMED ONLY AFTER APPROVAL FROM THE RESIDENT ENGINEER IS OBTAINED.

INFORMATION REQUIRED BY THE CONTRACTOR

MUCH OF THE INFORMATION SHOWN ON THE EROSION CONTROL PLANS AND DESCRIBED IN THIS NARRATIVE IS GENERAL IN NATURE. MORE SITE SPECIFIC INFORMATION IS NOT YET AVAILABLE AS A CONTRACTOR HAS NOT YET BEEN SELECTED. THE FOLLOWING LIST OUTLINES THE SPECIFIC INFORMATION THAT IS NOT INCLUDED IN THE EROSION CONTROL PLANS AND DESCRIBED IN THIS NARRATIVE:

1. THE LOCATION OF STABILIZED CONSTRUCTION ENTRANCES.
2. THE LOCATION OF STOCK PILES, STAGING AND DISPOSAL AREAS.
3. THE NAME, TITLE, QUALIFICATIONS, AND CONTACT INFORMATION FOR THE ON-SITE COORDINATOR.
4. THE PROPOSED DATES ASSOCIATED WITH PROJECT MILESTONES INDICATED ON THE SEQUENCE CONSISTENT WITH THE PROJECT CPM SCHEDULE.
5. ANY PROPOSED MODIFICATIONS OR ADDITIONS REQUIRED TO THESE EROSION AND SEDIMENT CONTROL PLANS.

MAINTENANCE PLAN FOR EROSION AND SEDIMENT CONTROLS

THE FOLLOWING MAINTENANCE REQUIREMENTS WILL BE MET THROUGHOUT THE DURATION OF THE PROJECT:

1. AN ASSIGNED INDIVIDUAL WHO IS NOT PERMANENTLY ASSOCIATED WITH THE DAY-TO-DAY OPERATIONS OF THE PROJECT SHALL DO MONITORING OF THE EROSION CONTROL MEASURES. THE INSPECTOR WILL BE FAMILIAR WITH THE PLANS, EROSION AND SEDIMENT CONTROL PROCEDURES, AND ROAD AND BRIDGE CONSTRUCTION TECHNIQUES. SITE INSPECTIONS WILL BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER EACH RAIN EVENT OF MORE THAN 13mm (1/2") IN A TWENTY FOUR HOUR PERIOD.

2. A COPY OF THE MONITORING REPORT PREPARED BY THE SITE REVIEWER SHALL BE GIVEN TO THE RESIDENT ENGINEER AFTER EACH SITE VISIT. THE REPORT WILL BE A WRITTEN REPORT STATING THE DATE OF THE REVIEW, AND A DESCRIPTION OF THE EROSION AND SEDIMENT CONTROL MEASURES REVIEWED. ALSO INCLUDED WILL BE THE EFFECTIVENESS OF THE EROSION CONTROL MEASURE, ANY DEFICIENCIES AND CORRECTIVE ACTION TO BE UNDERTAKEN.

3. THE PLAN PREPARER WILL BE AVAILABLE FOR ON-SITE CONSULTATION WITH THE ENGINEER WITHIN TWENTY-FOUR HOURS OF A REQUEST.

4. ALL SILT FENCES AND STONE CHECK DAMS WILL BE INSPECTED EACH SITE VISIT BY THE DESIGNATED INSPECTOR, AS DESCRIBED BELOW:

   A. THESE CONTROLS WILL BE MAINTAINED IN GOOD CONDITION, ANY SILT OR STONE CHECK DAMS THAT ARE INEFFECTIVE WILL BE REPAIRED OR REPLACED IMMEDIATELY.

   B. SEDIMENT DEPOSITS WILL BE REMOVED WHEN THEY REACH ONE-HALF THE HEIGHT OF THE SEDIMENT CONTROL DEVICE, OR SIGNIFICANT RAINFALL IS EXPECTED.

   C. ALL SEDIMENT REMOVED WILL BE DEPOSITED IN AN UPLAND PORTION OF THE PROJECT SITE OR DEPOSITED OFF-SITE IN THE DESIGNATED PROJECT WASTE SITE.

5. ALL SLOPES WILL BE CHECKED EACH SITE VISIT AND ANY ERODED AREAS WILL BE IMMEDIATELY REPAIRED. TEMPORARY STABILIZATION METHODS WILL BE USED AS NECESSARY OR AS DIRECTED BY THE ENGINEER UNTIL FINAL STABILIZATION MEASURES ARE IN PLACE.

6. BOTH TEMPORARY AND PERMANENT SEEDING AND MULCHING WILL BE CHECKED EACH SITE VISIT FOR VEGETATIVE GROWTH. ANY AREAS REQUIRING RE-VEGETATION WILL BE REPAIRED IMMEDIATELY.

7. DRAINAGE STRUCTURES WILL BE CLEANED AS NECESSARY TO REMOVE ANY SEDIMENT BUILDUP IN THE SUMP OR AT THE INLET OF THE STRUCTURE.

   A. ANY INLET CONTROL FOUND TO BE INEFFECTIVE WILL BE REPLACED AS NECESSARY AND WILL BE DONE IMMEDIATELY.

   B. ALL SEDIMENTS REMOVED WILL BE DEPOSITED IN AN UPLAND PORTION OF THE PROJECT SITE OR DEPOSITED OFF-SITE IN THE DESIGNATED PROJECT WASTE SITE.

8. TEMPORARY CONSTRUCTION ACCESSES WILL BE MONITORED EACH SITE VISIT.

9. ALL TEMPORARY EROSION CONTROL DEVICES WILL STAY IN PLACE UNTIL FINAL GRASS GROWTH HAS BEEN ESTABLISHED AND COMPLETE STABILIZATION OF THE AREA HAS OCCURRED.

10. ONCE STABILIZATION HAS OCCURRED, ALL TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED AND ALL DISTURBED AREAS WILL BE STABILIZED WITH STRAW MATTING AND/OR SEED AND MULCH.

11. REMOVAL OF SILT FENCE SHALL COMMENCE ONLY AFTER ALL UPSLOPE AREAS ARE STABILIZED AND WELL ESTABLISHED, AND THE RESIDENT ENGINEER HAS APPROVED THE REMOVAL.

12. REMOVE ALL REMAINING TEMPORARY EROSION CONTROL MEASURES. REGRADE ANY AREAS IF NECESSARY. TREAT ALL REGRADED AREAS WITH STRAW MATTING OR SEED AND MULCH. ESTABLISH ANY FINAL EROSION CONTROL DEVICES AS DEEMED NECESSARY BY THE RESIDENT ENGINEER.

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

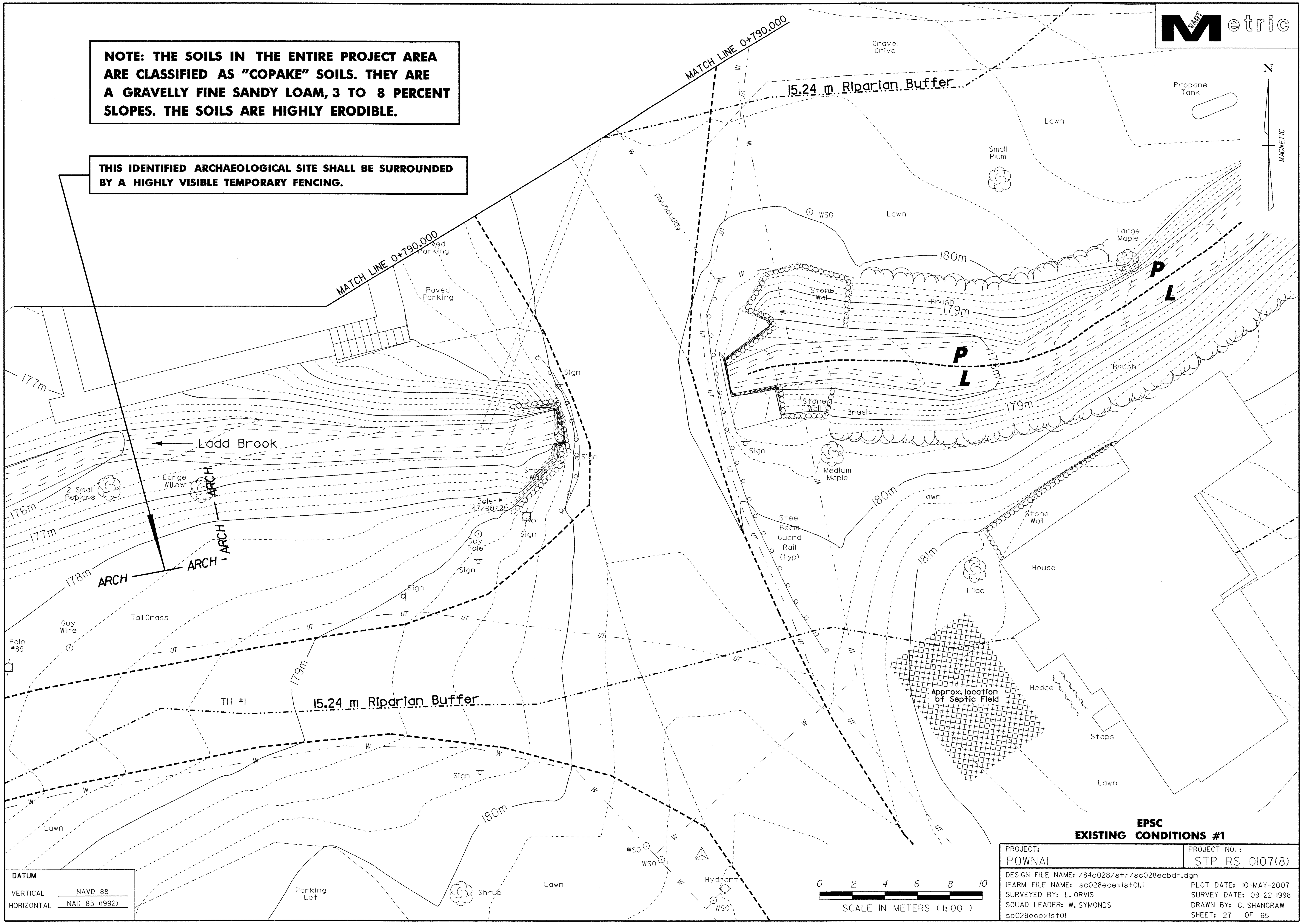
PROJECT NAME: **POWNAL**
PROJECT NUMBER: **STP RS 0107(8)**

FILE NAME: /84c028/str/sc028ecn.xls
PROJECT LEADER: W. SYMONDS
DESIGNED BY: R. PELLETT
EROSION CONTROL NARRATIVE #2

PLOT DATE: 4/25/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 26 OF 65

NOTE: THE SOILS IN THE ENTIRE PROJECT AREA ARE CLASSIFIED AS "COPAKE" SOILS. THEY ARE A GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES. THE SOILS ARE HIGHLY ERODIBLE.

THIS IDENTIFIED ARCHAEOLOGICAL SITE SHALL BE SURROUNDED BY A HIGHLY VISIBLE TEMPORARY FENCING.



DATUM

VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1992)

0 2 4 6 8 10

SCALE IN METERS (1:100)

EPSC
EXISTING CONDITIONS #1

PROJECT: POWNAL	PROJECT NO.: STP RS 0107(8)
DESIGN FILE NAME: /84c028/str/sc028ecbdr.dgn	
IPARM FILE NAME: sc028ecexist01.i	PLOT DATE: 10-MAY-2007
SURVEYED BY: L. ORVIS	SURVEY DATE: 09-22-1998
SQUAD LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
sc028ecexist01	SHEET: 27 OF 65

NOTE: THE SOILS IN THE ENTIRE PROJECT AREA ARE CLASSIFIED AS "COPAKE" SOILS. THEY ARE A GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES. THE SOILS ARE HIGHLY ERODIBLE.

VAOT Metric

TH #56

N

MAGNETIC

Vt. Rte. 346
To Petersburg, NY

Shrub

Conc. Steps

Lawn

Sign

8" waterline in sleeve

W

Abandoned

182m

Pole # 172 B 260 473 2

Iron Pin

P L

Guy

Guy

12" CL 52 DI waterline

Lawn

181m

Lawn

WSO

WSO

House

Lawn

Guy

Sign

Sign

Large Maple

Lawn

Fence

Paved Walk

House

3 Small White Birch

179m

Stone Wall

Paved Drive

House

Gravel Drive

178m

180m

MATCH LINE 0+790.000

MATCH LINE 0+790.000

DATUM

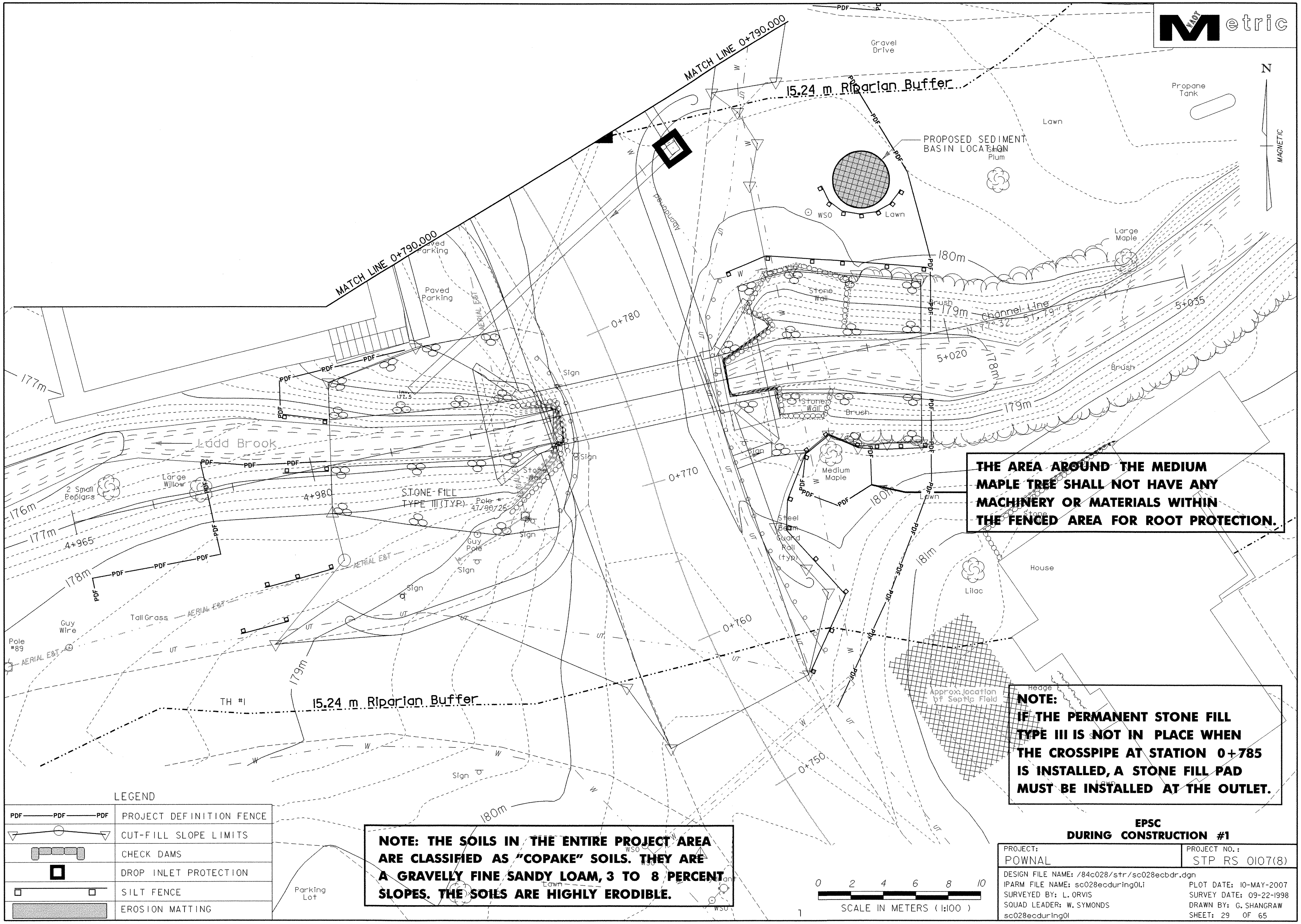
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1992)

0 2 4 6 8 10

SCALE IN METERS (1:100)

EPSC EXISTING CONDITIONS #2

PROJECT: POWNAL	PROJECT NO.: STP RS 0107(8)
DESIGN FILE NAME: /84c028/str/sc028ecbdr.dgn	
IPARM FILE NAME: sc028ecexist02.i	PLOT DATE: 10-MAY-2007
SURVEYED BY: L. ORVIS	SURVEY DATE: 09-22-1998
SQUAD LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
sc028ecexist02	SHEET: 28 OF 65



THE AREA AROUND THE MEDIUM MAPLE TREE SHALL NOT HAVE ANY MACHINERY OR MATERIALS WITHIN THE FENCED AREA FOR ROOT PROTECTION.

NOTE:
IF THE PERMANENT STONE FILL TYPE III IS NOT IN PLACE WHEN THE CROSSPIPE AT STATION 0+785 IS INSTALLED, A STONE FILL PAD MUST BE INSTALLED AT THE OUTLET.

NOTE: THE SOILS IN THE ENTIRE PROJECT AREA ARE CLASSIFIED AS "COPAKE" SOILS. THEY ARE A GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES. THE SOILS ARE HIGHLY ERODIBLE.

LEGEND

Symbol	Description
PDF —— PDF —— PDF	PROJECT DEFINITION FENCE
	CUT-FILL SLOPE LIMITS
	CHECK DAMS
	DROP INLET PROTECTION
	SILT FENCE
	EROSION MATTING

0 2 4 6 8 10
SCALE IN METERS (1:100)

1

EPSC
DURING CONSTRUCTION #1

PROJECT: POWNAL	PROJECT NO.: STP RS 0107(8)
DESIGN FILE NAME: /84c028/str/sc028ecbdr.dgn	
IPARM FILE NAME: sc028ecduring01.i	PLOT DATE: 10-MAY-2007
SURVEYED BY: L. ORVIS	SURVEY DATE: 09-22-1998
SQUAD LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
sc028ecduring01	SHEET: 29 OF 65

Metric

N

MAGNETIC

TH #56

10+040

Vt. Rte. 346
To Petersburg, NY

Shrub

Conc. Steps

Lawn

Sign

AERIAL E&T

Paved Gutter

10+030

182m

Pole # 172 B 260 473 2

Iron Pin

Guy

8" waterline in sleeve

W

0+820

12" CL 52 DI waterline

Abandoned

10+020

181m

Lawn

WSO

0+810

Sign

10+010

Lawn

Large Maple

Fence

Paved Walk

House

3 Small White Birch

Stone Wall

179m

Paved Drive

0+800

180m

House

Gravel Drive

178m

2.39m Minimum Clearance

MATCH LINE 0+790.000

MATCH LINE 0+790.000

NOTE: THE SOILS IN THE ENTIRE PROJECT AREA ARE CLASSIFIED AS "COPAKE" SOILS. THEY ARE A GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES. THE SOILS ARE HIGHLY ERODIBLE.

LEGEND

PDF PDF PDF	PROJECT DEFINITION FENCE
	CUT-FILL SLOPE LIMITS
	CHECK DAMS
	DROP INLET PROTECTION
	SILT FENCE
	EROSION MATTING

0 2 4 6 8 10

SCALE IN METERS (1:100)

EPSC
DURING CONSTRUCTION #2

PROJECT:	PROJECT NO.:
POWNAL	STP RS 0107(8)

DESIGN FILE NAME: /84c028/str/sc028ecbdr.dgn
IPARM FILE NAME: sc028ecduring02.i — PLOT DATE: 10-MAY-2007
SURVEYED BY: L. ORVIS — SURVEY DATE: 09-22-1998
SQUAD LEADER: W. SYMONDS — DRAWN BY: G. SHANGRAW
sc028ecduring02 — SHEET: 30 OF 65

MATCH LINE 0+790.000

MATCH LINE 0+790.000

15.24 m Riparian Buffer

Gravel Drive

Propane Tank

Lawn

Small Plum

N

MAGNETIC

WSO

Lawn

Large Maple

Paved Parking

Paved Parking

Stone Wall

Brush

Channel Line

N 77° 32' 51.79" E

P

L

5+035

5+0

P

L

Brush

0+780

Sign

Inv. 177.5

Stone Wall

Brush

Sign

Stone Wall

4+980

STONE FILL TYPE III (TYP)

Pole # 47/90/25

Sign

Guy Pole

Sign

Sign

Medium Maple

Lawn

0+770

Steel Beam Guard Rail (typ)

2 Small Poplars

Large Willow

4+965

Stone Wall

House

Lilac

Guy Wire

Tall Grass

Pole #89

0+760

Approx. location of Septic Field

Hedge

Steps

15.24 m Riparian Buffer

0+750

Lawn

THE GRAY SHADING SHOWN ON THIS SHEET REPRESENTS AREAS WITHIN THE BOUNDARY OF THE PROJECT DEFINITION FENCE WHICH WILL BE SEEDED, FERTILIZED, AND MULCHED IF DIRECTED BY THE ENGINEER.

Parking Lot

Shrub

Lawn

Hydrant

0 2 4 6 8 10

SCALE IN METERS (1:100)

EPSC
FINAL CONDITIONS #1

PROJECT:	PROJECT NO.:
POWNAL	STP RS 0107(8)

DESIGN FILE NAME: /84c028/str/sc028ecbdr.dgn
IPARM FILE NAME: sc028ecfinal01.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: W. SYMONDS
sc028ecfinal01

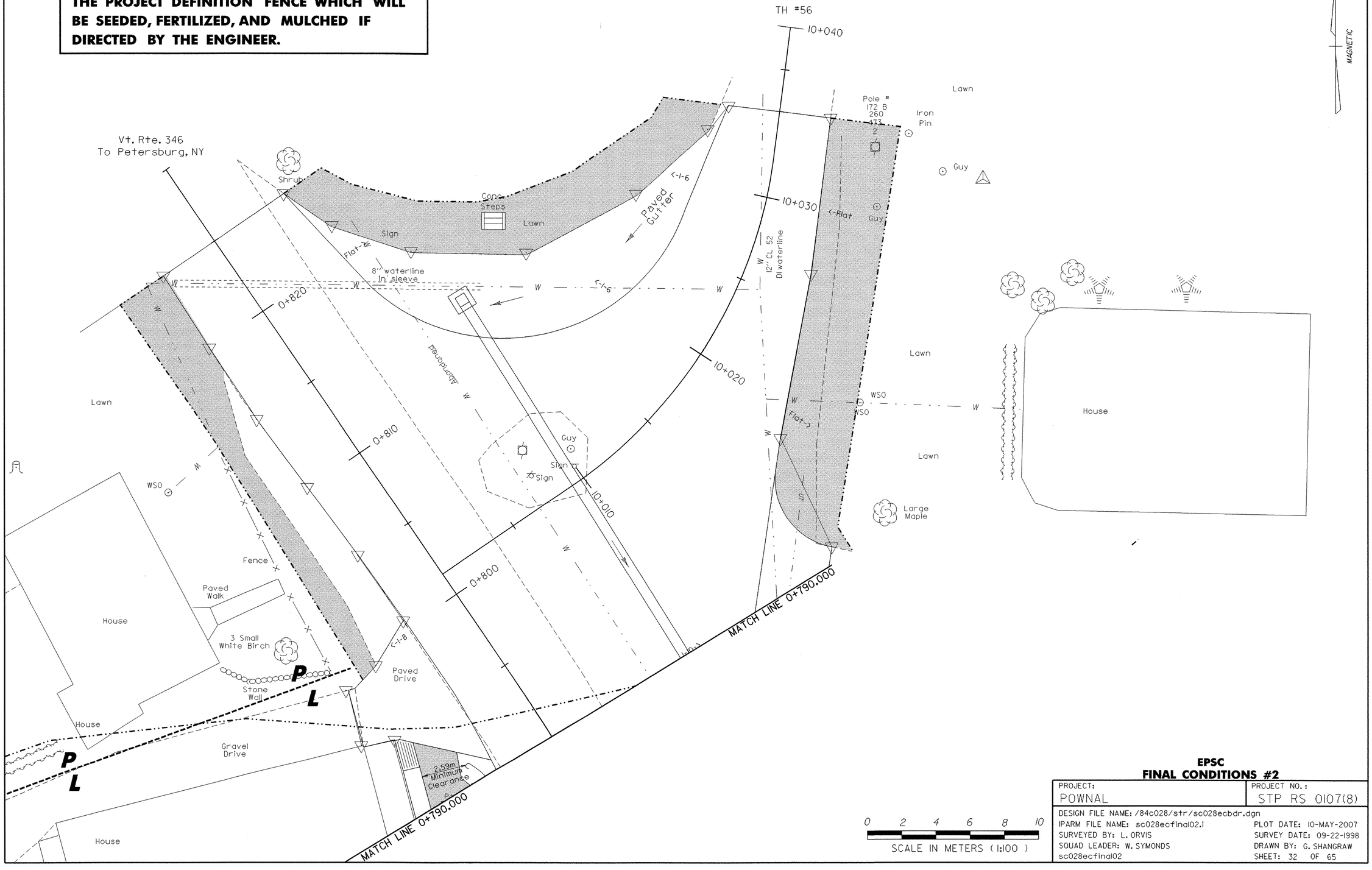
PLOT DATE: 10-MAY-2007
SURVEY DATE: 09-22-1998
DRAWN BY: G. SHANGRAW
SHEET: 31 OF 65

THE GRAY SHADING SHOWN ON THIS SHEET REPRESENTS AREAS WITHIN THE BOUNDARY OF THE PROJECT DEFINITION FENCE WHICH WILL BE SEEDED, FERTILIZED, AND MULCHED IF DIRECTED BY THE ENGINEER.

VAOT Metric

N

MAGNETIC

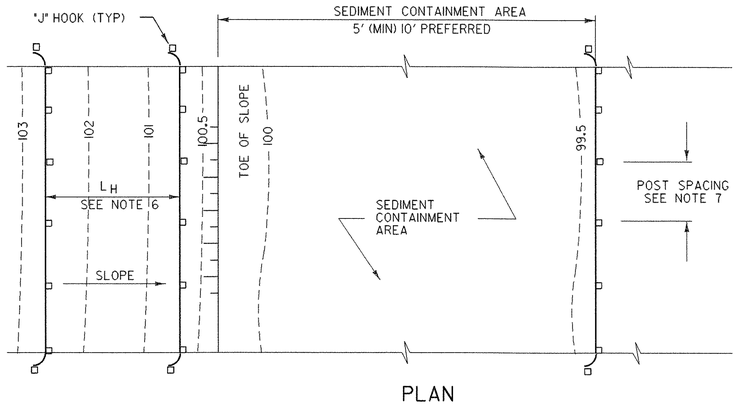


0 2 4 6 8 10

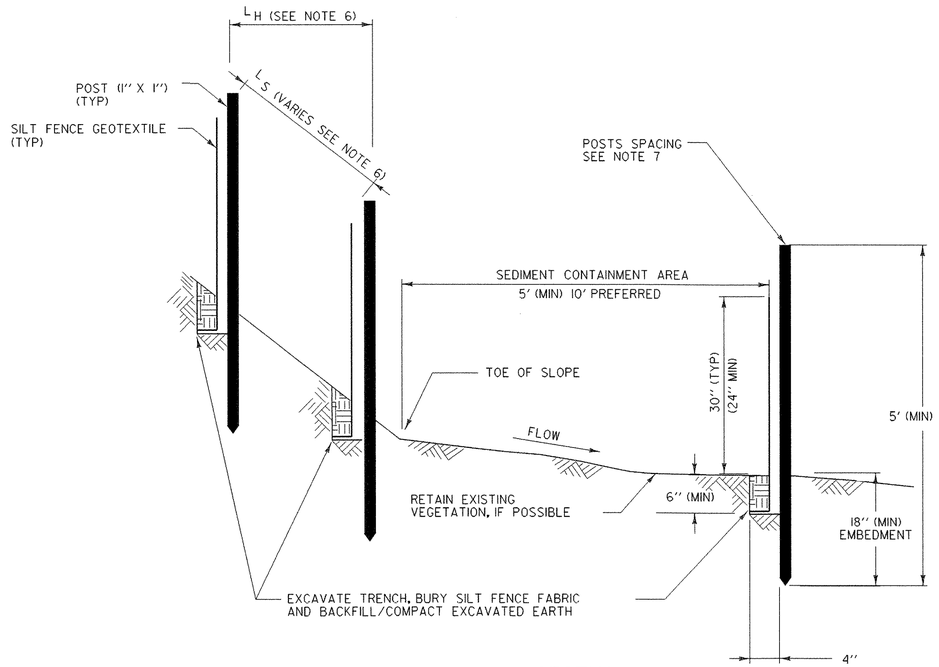
SCALE IN METERS (1:100)

EPSC
FINAL CONDITIONS #2

PROJECT:	PROJECT NO.:
POWNAL	STP RS 0107(8)
DESIGN FILE NAME: /84c028/str/sc028ecbdr.dgn	
IPARM FILE NAME: sc028ecfinal02.i	PLOT DATE: 10-MAY-2007
SURVEYED BY: L. ORVIS	SURVEY DATE: 09-22-1998
SQUAD LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
sc028ecfinal02	SHEET: 32 OF 65



PLAN



SECTION

SILT FENCE - TEMPORARY

NOT TO SCALE

SILT FENCE

APPLICATION NOTES:

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

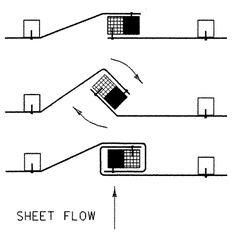
B. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

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

CONSTRUCTED SLOPE	SLOPE LENGTH (LS) FT	HORIZONTAL LENGTH (LH) FT
3H : 1V	80	75
4H : 1V	130	125
5H : 1V	200	200
> 5H : 1V	250	250

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



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

SPLICING DETAIL

NOT TO SCALE

REVISIONS AND CORRECTIONS

JULY 15, 2005 N. GARBACIK

VERMONT AGENCY OF TRANSPORTATION

DETAIL

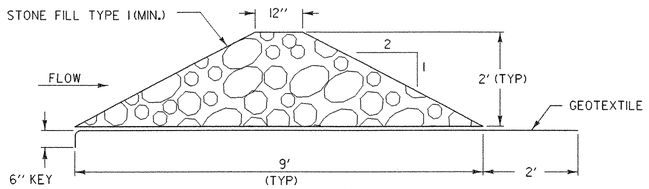
EPSC-1

EROSION PREVENTION & SEDIMENT CONTROL DETAILS SILT FENCE

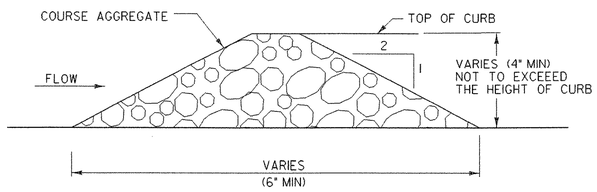
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028ero.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: STANDARD
sc028epsc-1.i

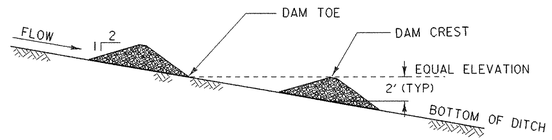
PLOT DATE: 10-MAY-2007
DRAWN BY: STANDARD
CHECKED BY: STANDARD
SHEET 33 OF 65



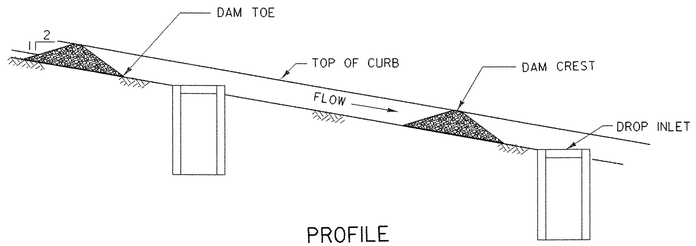
CROSS SECTION



CROSS SECTION



PROFILE



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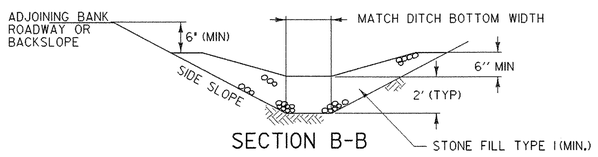
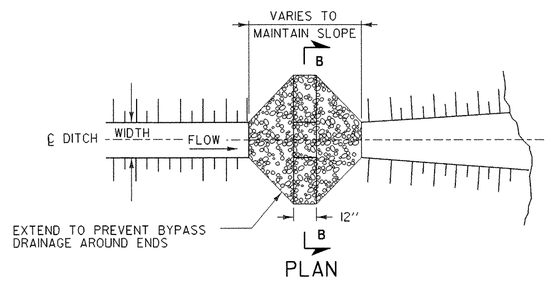
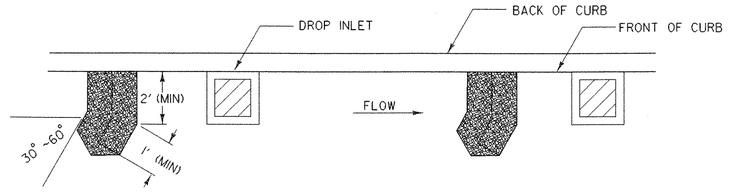


SECTION B-B



PLAN

TEMPORARY STONE CHECK DAM
TYPE I



PLAN

TEMPORARY STONE CHECK DAM
TYPE II

TEMPORARY CHECK DAMS

APPLICATION NOTES:

A. TEMPORARY CHECK DAM TYPE I IS USED FOR CHANNEL FLOW. CHECK DAM TYPE II IS USED FOR FLOW ALONG A CURB.

B. THE PRIMARY PURPOSE OF A TEMPORARY STONE CHECK DAM (TYPE I) IS TO REDUCE EROSION IN A CHANNEL BY REDUCING FLOW VELOCITY.

C. THE PRIMARY PURPOSE OF A TEMPORARY STONE CHECK DAM (TYPE II) IS TO LIMIT THE AMOUNT OF SEDIMENT ENTERING A CLOSED DRAINAGE SYSTEM WITH STORMWATER RUNOFF.

D. TEMPORARY CHECK DAMS WILL CAPTURE SEDIMENT THAT FALLS OUT OF SUSPENSION BEHIND THE CHECK DAMS DUE TO DECREASED VELOCITY. CHECK DAMS ARE NOT INTENDED TO FILTER SEDIMENT FROM STORMWATER.

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

F. USE OF PREFABRICATED TEMPORARY CHECK DAMS SHALL BE AS APPROVED IN THE EPSCP.

GENERAL NOTES:

1. GEOTEXTILE SHALL BE INSTALLED UNDER TEMPORARY STONE CHECK DAMS TYPE I. IT SHALL BE KEYED IN ON THE UPHILL END AND SHALL EXTEND 2 FEET BEYOND THE STONE ON THE DOWNHILL END.
2. STONE FOR TEMPORARY STONE CHECK DAMS SHALL MEET THE GRADATION REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. PREFABRICATED TEMPORARY CHECK DAMS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
4. TEMPORARY CHECK DAMS 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. TEMPORARY CHECK DAMS SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE HEIGHT OR AS RECOMMENDED BY THE MANUFACTURER. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
6. AT TIME OF REMOVAL OF THE TEMPORARY CHECK DAM, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

STONE CHECK DAM PLACEMENT INTERVAL	
DITCH SLOPE	PLACEMENT INTERVAL **
1%	200 FT
2 %	100 FT
3 %	65 FT
4 %	50 FT
5 %	40 FT
6 %	30 FT
8 %	25 FT
10 %	20 FT

** BASED ON 2' TYPICAL HEIGHT

REVISIONS AND CORRECTIONS

JULY 15, 2005 N. GARBACIK

NOT TO SCALE

NOT TO SCALE

VERMONT AGENCY OF TRANSPORTATION

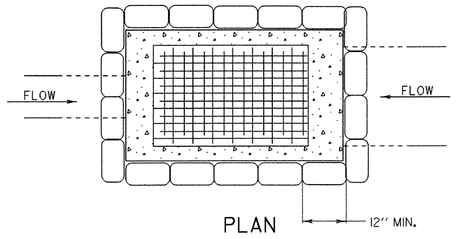
DETAIL
EPSC-2

EROSION PREVENTION & SEDIMENT CONTROL DETAILS TEMPORARY CHECK DAMS

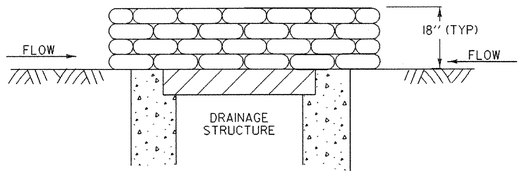
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028ero.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: STANDARD
sc028epsc-2.1

PLOT DATE: 10-MAY-2007
DRAWN BY: STANDARD
CHECKED BY: STANDARD
SHEET 34 OF 65

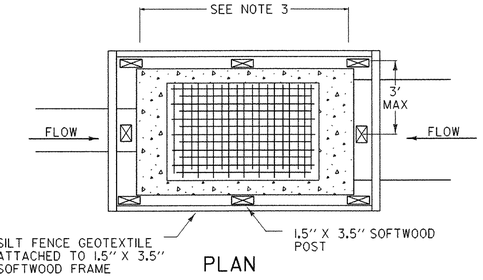


PLAN

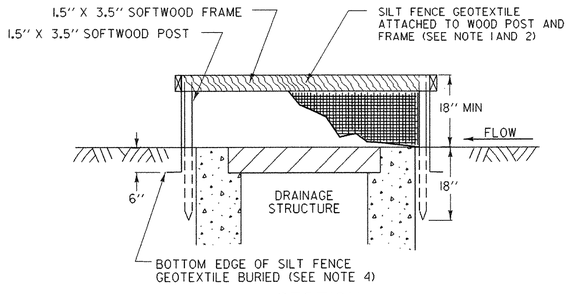


SECTION

GRAVEL BAG INLET PROTECTION



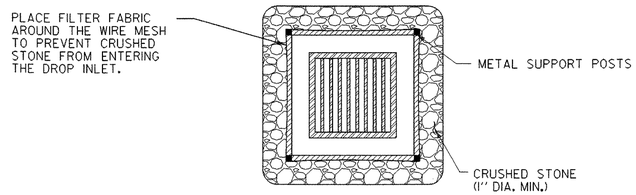
PLAN



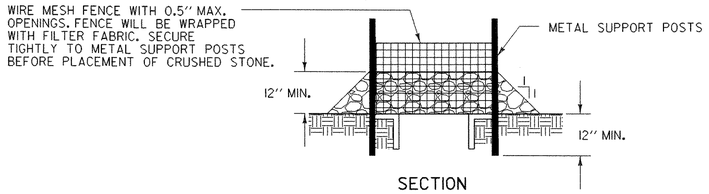
SECTION

SILT FENCE INLET PROTECTION

NOT TO SCALE

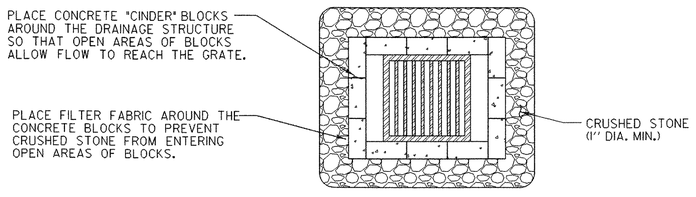


PLAN

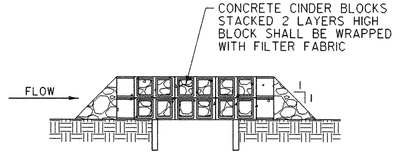


SECTION

ROCK BARRIER INLET PROTECTION TEMPORARY UNPAVED AREAS



PLAN



SECTION

ROCK BARRIER INLET PROTECTION TEMPORARY PAVED AREAS

NOT TO SCALE

INLET PROTECTION

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE STRUCTURE, WHILE STILL ALLOWING THE WATER TO DRAIN. THIS WORKS BY PONDING THE WATER, WHICH WILL ALLOW THE SEDIMENT TO FALL OUT OF SUSPENTION, BEFORE THE WATER ENTERS THE STRUCTURE.

B. THESE EXAMPLES OF INLET PROTECTION ARE NOT INTENDED TO CAUSE STORMWATER TO BYPASS THE STRUCTURE AND CREATE ADDITIONAL EROSION OR FLOODING. IN THE CASE WERE THE INLET PROTECTION STRUCTURE HAS CAUSED WATER TO BYPASS THE DRAINAGE STRUCTURE, ADDITIONAL PROTECTION DEVICES WILL BE REQUIRED. POSSIBLE MODIFICATIONS MAY INCLUDE ADDING CHECK DAMS UPSTREAM OF THE INLET TO CREATE MORE PONDING AND TO SLOW VELOCITIES. A BERM DOWNSTREAM OF THE INLET TO CREATE ADDITIONAL PONDING MAY ALSO BE UTILIZED.

C. DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALATION ONLY.

D. USE OF PREFABRICATED INLET PROTECTION SHALL BE AS APPROVED IN THE EPSCP.

GENERAL NOTES:

1. THE TOP OF THE INLET PROTECTION SHALL BE SET AT THE MAXIMUM DESIRED WATER LEVEL BASED ON FIELD LOCATION AND CONDITIONS.
2. SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO MINIMIZE UNNECESSARY JOINTS.
3. SPACE SILT FENCE POSTS EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 3 FEET. DRIVE POSTS A MINIMUM OF 18 INCHES INTO THE GROUND. WIRE MESH MAY BE REQUIRED BEHIND GEOTEXTILE TO PROVIDE SUPPORT.
4. SILT FENCE GEOTEXTILE SHALL BE EMBEDDED A MINIMUM OF 6 INCHES AND BACKFILLED. GEOTEXTILE SHALL BE SECURELY FASTENED TO POSTS AND FRAME.
5. GRAVEL BAGS SHALL BE FILLED WITH CLEAN STONE, RATHER THAN SAND. THIS WILL PREVENT SAND FROM ENTERING A DRAINAGE SYSTEM IF BAGS ARE DAMAGED DURING USE.
6. GRAVEL BAGS SHALL BE TIED, THEN INVERSELY INSERTED INTO A SECOND BAG, WHICH SHALL ALSO BE TIED. GRAVEL BAGS SHALL LAP THE JOINTS BETWEEN THE BAGS IN THE LAYER BELOW.
7. INLET PROTECTION SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE STORMWATER TO LEAVE THE CONSTRUCTION SITE.
8. INLET PROTECTION SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE HEIGHT OR AS RECOMMENDED BY THE MANUFACTURER. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
9. AT THE TIME OF REMOVAL OF INLET PROTECTION, THE DISTURBED AREA SHALL BE REPAIRED AND STTABILIZED.
10. PREFABRICATED INLET PROTECTION SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION

REVISIONS AND CORRECTIONS

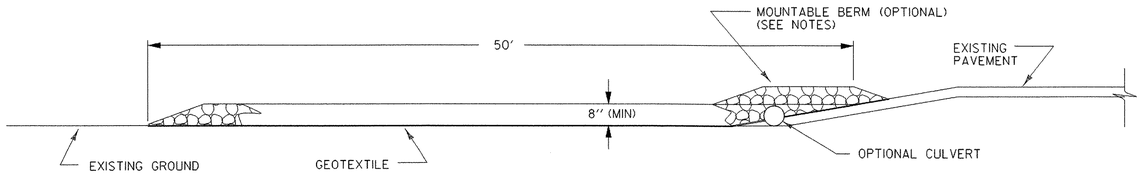
JULY 15, 2005 N. GARBACIK

VERMONT AGENCY OF TRANSPORTATION

DETAIL EPSC-3

EROSION PREVENTION & SEDIMENT CONTROL DETAILS INLET PROTECTION

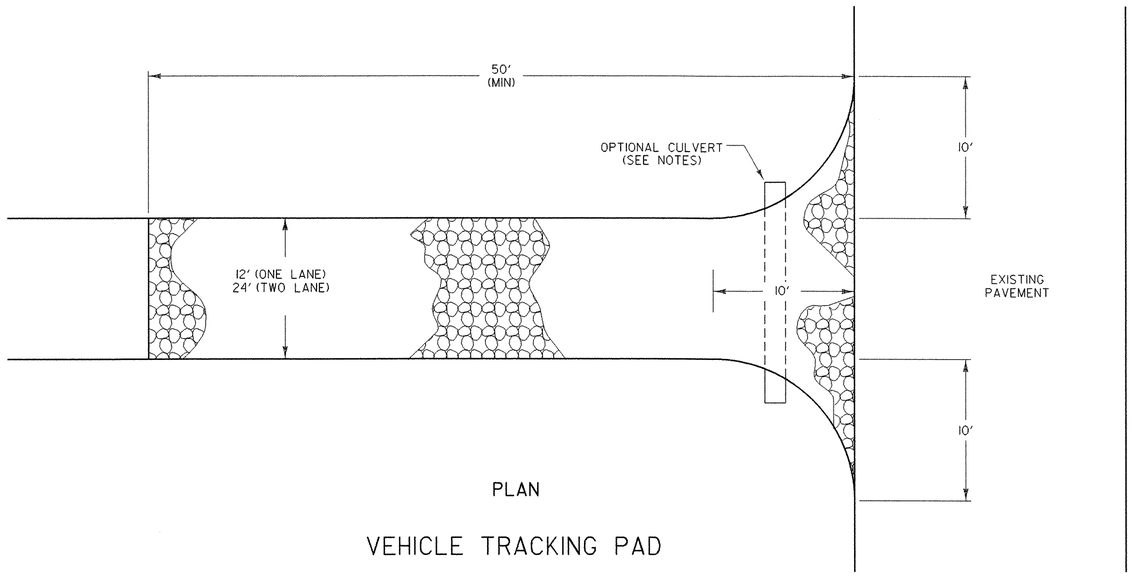
PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107(8)
FILE NAME: /84c028/str/sc028ero.dgn	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: STANDARD
DESIGNED BY: STANDARD	CHECKED BY: STANDARD
sc028epsc-3.1	SHEET 35 OF 65



PROFILE

VEHICLE TRACKING PAD

NOT TO SCALE



PLAN

VEHICLE TRACKING PAD

NOT TO SCALE

REVISIONS AND CORRECTIONS

JULY 15, 2005 N. GARBACIK

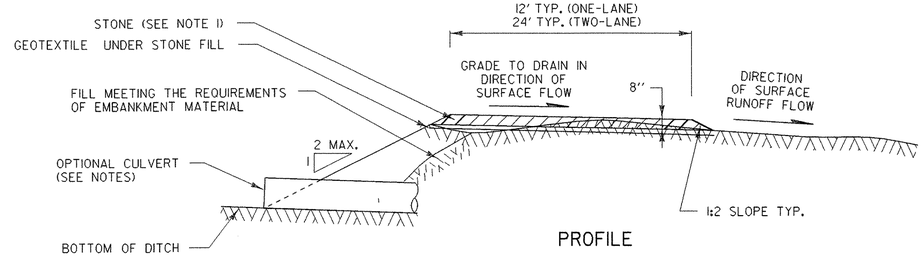
VEHICLE TRACKING PAD

APPLICATION NOTES:

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

GENERAL NOTES:

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



PROFILE

VEHICLE TRACKING PAD

NOT TO SCALE

VERMONT AGENCY OF TRANSPORTATION

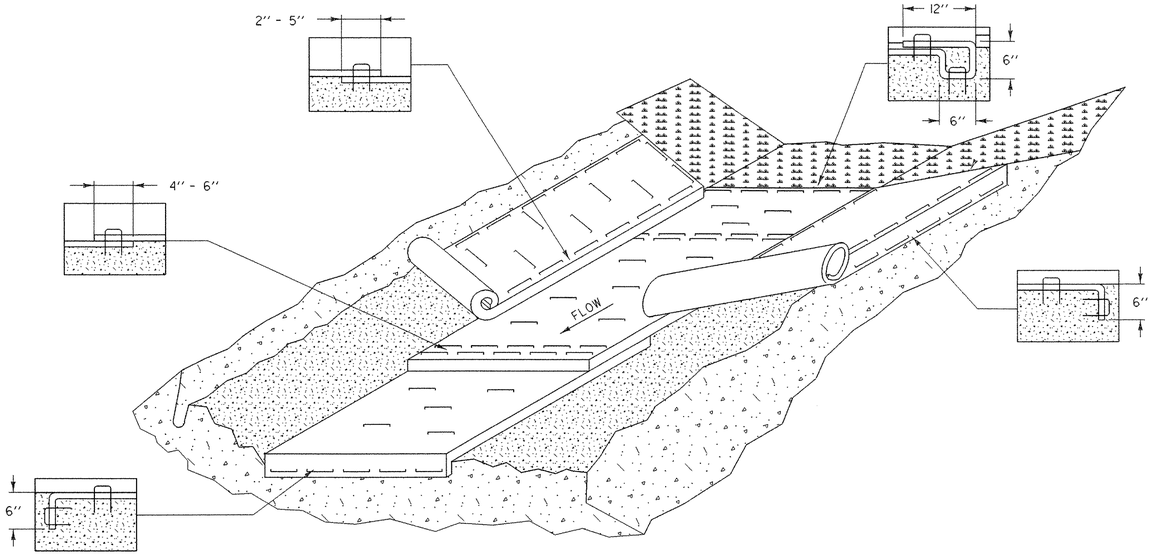
DETAIL EPSC-4

EROSION PREVENTION & SEDIMENT CONTROL DETAILS VEHICLE TRACKING PAD

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028ero.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: STANDARD
sc028epsc-4.1

PLOT DATE: 10-MAY-2007
DRAWN BY: STANDARD
CHECKED BY: STANDARD
SHEET 36 OF 65



EROSION MATTING FOR DITCHES

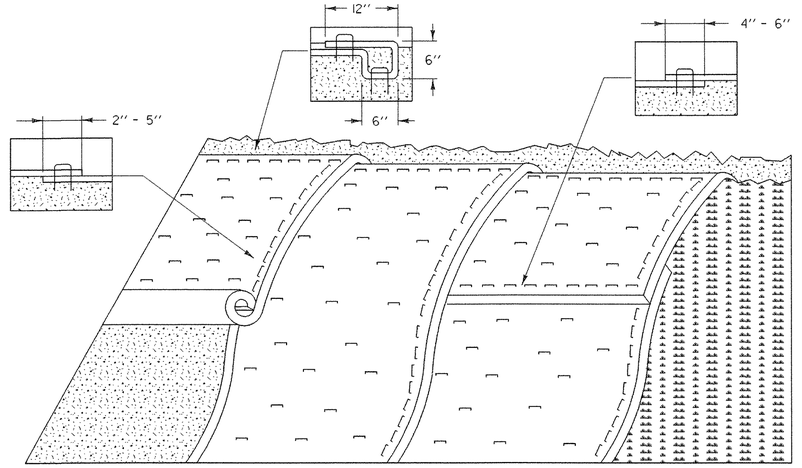
APPLICATION NOTES:

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

B. TYPE OF EROSION MATTING TO BE USED SHOULD BE BASED ON FACTORS SPECIFIC TO EACH APPLICATION. SEE SPECIFICATIONS AND PRODUCT RECOMMENDATIONS FOR SUITABILITY.

GENERAL NOTES:

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



EROSION MATTING FOR SLOPES

APPLICATION NOTES:

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

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

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

GENERAL NOTES:

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

REVISIONS AND CORRECTIONS

JULY 15, 2005 N. GARBACIK

VERMONT AGENCY OF TRANSPORTATION

DETAIL EPSC-5

EROSION PREVENTION & SEDIMENT CONTROL DETAILS

EROSION MATTING FOR DITCHES & SLOPES

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028ero.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: STANDARD
sc028epsc-5.i

PLOT DATE: 10-MAY-2007
DRAWN BY: STANDARD
CHECKED BY: STANDARD
SHEET 37 OF 65

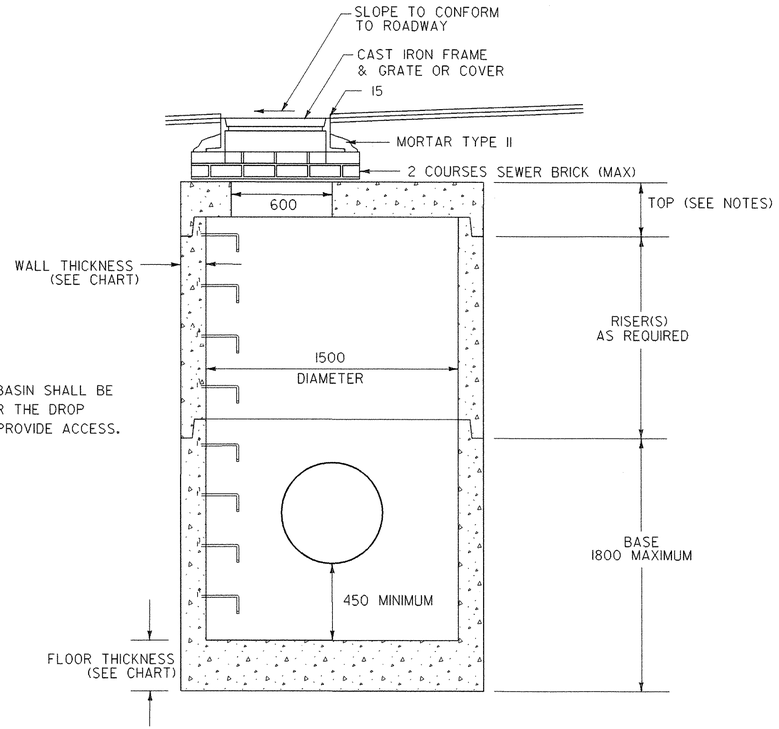
STATE OF VERMONT
AGENCY OF TRANSPORTATION

DRAINAGE DETAIL SHEET

Metric

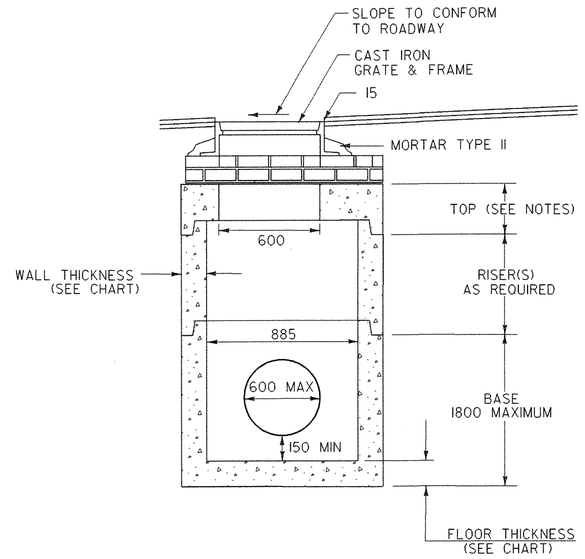
STATION	STATION	POS.	ASKEW	INLET/OUTLET TYPE		DITCH		PIPE ARCH			PIPE		ALLOWABLE OPTIONS						PIPE ELBOW	ES	CB	PRCDI	DEPTH DI	CONC CLASS B	REINF STEEL	DI GRATE	CHAN ELEV	CRM	TRENCH EXCAVATION		COMM EXC	UNC CHAN EXC	STRUCT EXCAV	GRAN BKFILL STRUCT	GRAN BORR	EROS MATT	STONE FILL		MARKER POSTS		REMARKS
				INLET	OUTLET	IN	OUT	SPAN	RISE	L	D	L	PCCSP	CAAP	RCP CL	CSP	CPEP SL	PCCSP PI										EARTH	ROCK									LT	RT	
km + m	km + m		no. deg.					mm	mm	m	mm	m	mm	mm		mm	mm	mm	no. deg.	ea	ea		mm	m^3	kg	type	ea	m^3	m^3	m^3	m^3	m^3	m^3	m^3	m^2	m^3	type	ea	ea	
0+781.500	0+787.500	LT-RT		PRCDI	SF						600	22		0.060			X	0.064				1.0				C		76.44											B: NEW 600 x 18 000 PIPE OPTION W/ PRCDI AT INLET
0+787.500	0+814.000	RT-RT		PRCDI	PRCDI						600	28		0.060			X	0.064				1.0				C		55.1											D: NEW 600 x 28 000 PIPE OPTION W/ PRCDI AT INLET
0+776.569	0+790.621	LT-RT		RCDI	SF																							14.25	4										A: REMOVAL OF PIPE & DI
0+790.621	0+804.848	RT-RT		SF	RCDI																							20.22											C: REMOVAL OF PIPE
SUB-TOTAL												50																166.1	4										
ROUNDING												0																3.9											
TOTAL												**50**																**170**	**4**										
												m																**cu. m.**	**cu. m.**										

PROJECT NAME:	**POWNAL**
PROJECT NUMBER:	**STP RS 0107(8)**
FILE NAME:	**/84c028/str/sc028dds.xls**
PROJECT LEADER:	**W. SYMONDS**
DESIGNED BY:	**G. SHANGRAW**
DRAINAGE DETAIL SHEET	
PLOT DATE:	**4/12/2007**
DRAWN BY:	**R. PELLETT**
CHECKED BY:	**G. SHANGRAW**
SHEET	**38** OF **65**



NOTE:
STEPS IN CATCH BASIN SHALL BE ORIENTATED UNDER THE DROP INLET GRATE TO PROVIDE ACCESS.

PRECAST CATCH BASIN
N. T. S.



PRECAST DROP INLET
N. T. S.

SIZING CHART

DIAMETER	WALL THICKNESS	FLOOR THICKNESS
1200 OR SMALLER	125	150
1500	150	200
1800	175	200
2100	200	250
2400	225	250

NOTES:

1. ALL PRECAST CONCRETE DROP INLETS SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH AASHTO M199M / AASHTO M199
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL INVERT ELEVATIONS, PIPE SIZES AND LOCATIONS SHOWN PRIOR TO ORDERING THE PRECAST COMPONENTS.
3. SEE STANDARDS D-11, D-15, AND D-16 FOR CAST IRON FRAME AND GRATE DETAILS.
4. THE TOP SECTIONS MAY BE EITHER THE FLAT TOPS AS SHOWN OR CONE SECTIONS. IF CONE SECTIONS ARE USED THEY MAY EITHER BE CONCENTRIC OR ECCENTRIC. PIPES ARE NOT PERMITTTED TO ENTER CONE SECTIONS.
5. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROVE JOINT 100 HIGH AT AN ANGLE OF 11 DEGREES CENTERED IN THE WIDTH OF THE JOINT. ALL SECTIONS SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT.
6. ALL SECTIONS WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 300 OF OUTSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES. HOLES SHALL BE NO CLOSER THAN 75 TO A JOINT.
7. SEE STANDARD D-15 FOR SIZING AND SPACING OF STEPS.

Not To Scale

PRECAST DROP INLET & PRECAST CATCH BASIN

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028pcdi.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: W. SYMONDS
sc028pcdi.dgn

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. SUMNER
SHEET 39 OF 65

STATE OF VERMONT
AGENCY OF TRANSPORTATION

GENERAL NOTES

VAOT Metric

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THIRD EDITION, AND ITS LATEST REVISIONS.

2. IN-STREAM CONSTRUCTION SHALL BE RESTRICTED TO JUNE 1 TO OCTOBER 1, UNLESS THE CONTRACTOR OBTAINS WRITTEN PERMISSION FROM THE AGENCY OF NATURAL RESOURCES TO DO WORK OUTSIDE OF THAT TIME FRAME.

3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES C UNLESS OTHERWISE NOTED.

4. FULL ACCESS TO ALL DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES.

CONCRETE AND REINFORCING STEEL

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

6. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 mm BY 25 mm.

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

8. ALL CAST-IN-PLACE CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE HIGH PERFORMANCE CLASS B. PAYMENT FOR THE HEADWALLS, WINGWALLS, CUTOFF WALLS AND APRONS SHALL MADE WITH THE CORRESPONDING AMOUNTS OF ITEM 501.34 CONCRETE, HIGH PERFORMANCE CLASS B, ITEM 507.15 REINFORCING STEEL AND ITEM 507.17 EPOXY COATED REINFORCING STEEL.

9. ITEM 514.10 WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES OF WINGWALLS AND CURBS/HEADWALLS. WATER REPELLENT, SILANE SHALL ALSO BE APPLIED TO THE EXPOSED INSIDE SURFACE OF THE BOX STARTING AT THE OPENING AT EACH END AND EXTENDING 1 METER INTO THE BOX, INCLUDING THE BOTTOM SURFACE OF THE TOP SLAB. DEPENDING ON THE MANUFACTURER'S RECOMMENDATION AND THE CONSTRUCTION SEQUENCE, THIS MAY REQUIRE THAT THE WATER REPELLENT, SILANE BE APPLIED TO PRECAST CONCRETE PIECES BEFORE THE PIECES REACH THE JOBSITE.

10. THE HEADWALLS, WINGWALLS AND APRONS SHALL BE CONNECTED TO THE BOX UNITS USING MECHANICAL CONNECTORS. THESE CONNECTORS WILL BE ANCHORED INTO THE BOX UNITS USING #19 BARS. THE ANCHORS WILL HAVE A MINIMUM LENGTH OF 450 mm PLUS ADDITIONAL LENGTH THAT IS NEEDED TO FIT INTO MECHANICAL CONNECTORS. THE MECHANICAL CONNECTORS WILL BE SUPPLIED AND TESTED IN ACCORDANCE WITH SECTION 713.02 OF THE VERMONT STANDARD SPECIFICATION. THE ANCHORS ON BOTH SIDES OF THE CONNECTORS AND THE MATCHING MECHANICAL CONNECTORS WILL BE SUPPLIED BY THE PRECAST FABRICATOR. THE COST OF THE MECHANICAL CONNECTORS AND ANCHORS WILL BE INCIDENTAL TO ITEM 540.10 "PRECAST CONCRETE STRUCTURE (3050 X 2450 X 10560 BOX)".

11. REINFORCING STEEL IN THE HEADWALLS WILL BE EPOXY COATED.

12. THE EXTERIOR (TOP & SIDES) AND INTERIOR (SIDES & BOTTOM) OF ALL CONCRETE BOX JOINTS ALONG WITH ALL LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THE WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10 "PRECAST CONCRETE STRUCTURE (3050 X 2450 X 10560 BOX)". ALL MORTAR SHALL BE WET CURED A MINIMUM OF 24 HOURS PRIOR TO ANY WATERPROOFING.

13. A. CONCRETE BAFFLES CAN BE PRECAST OR CAST IN PLACE. PAYMENT FOR THIS IS INCIDENTAL TO ITEM "540.10 PRECAST CONCRETE STRUCTURE (3050 X 2450 X 10560 BOX)".
    B. A CONNECTION DETAIL IS GIVEN ON SHEET 42 FOR CONNECTING THE CONCRETE BAFFLES TO THE CONCRETE BOX AND APRONS. ALL OF THE CONNECTING HARDWARE WILL BE SUPPLIED BY THE FABRICATOR OF THE CONCRETE BOX AND PAID FOR UNDER THE ITEM "540.10 PRECAST CONCRETE STRUCTURE (3050 X 2450 X 10560 BOX)".
    C. ALTERNATIVE CONNECTING DETAILS MAY BE APPROVED BY THE PROJECT MANAGER. HOWEVER, FIELD DRILLING ANCHORS INTO THE BOX SECTION WILL NOT BE ALLOWED.
    D. ALL PRECAST ELEMENTS MAY UTILIZE THE SAME CONCRETE MIX DESIGN AS THAT APPROVED FOR THE PRECAST CONCRETE STRUCTURE.

PRECAST CONCRETE BOX

14. DESIGN CRITERIA:

    A. SOIL UNIT WEIGHT = 22 KN/M^3
    B. DESIGN LIVE LOAD = HL-93
    C. DESIGN FILL OVER BOX = 1 M

15. ALL DESIGNS SHALL CONFORM TO ALL APPROPRIATE SECTIONS OF THE LRFD BRIDGE SPECIFICATIONS, THIRD EDITION, AND ITS LATEST REVISIONS. THE ENDS OF THE TOP SLAB OF THE PRECAST BOX WILL BE DESIGNED TO RESIST A MINIMUM DISTRIBUTED MOMENT OF 54.95 KN-M/M TRANSFERRED FROM THE HEADWALL.

16. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. THE MINIMUM CLEAR INSIDE DIMENSIONS WILL BE 2450 mm HIGH AND 3050 mm WIDE. THE OVERALL LENGTH OF THE BOX WILL BE 10560 mm HORIZONTALLY. THE ENDS OF THE BOX WILL BE SKEWED 7 DEGREES. ALL EXTERNAL FACES OF THE CONCRETE BOX SHALL BE VERTICAL IN THE FINAL POSITION.

17. THE CONNECTION DETAIL BETWEEN PRECAST BOX SEGMENTS SHALL BE DETAILED BY THE FABRICATOR AND APPROVED BY THE PROJECT MANAGER. THIS WORK SHALL BE INCIDENTAL TO ITEM "540.10 PRECAST CONCRETE STRUCTURE (3050 X 2450 X 10560 BOX)".

18. A 600 mm WIDE STRIP OF ITEM 519.20 SHEET MEMBRANE WATERPROOFING, TORCH APPLIED SHALL BE APPLIED AT EACH SIDE JOINT. THE MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT OF SIDE JOINTS. THE ENTIRE TOP SHALL THAN BE COVERED WITH MEMBRANE. THE SHEETS SHALL OVERLAP THE EDGES BY 300 mm ON EACH SIDE.

EXCAVATION, EARTHWORK AND RELATED ITEMS

19. THE EXISTING ABUTMENTS AND WINGWALLS SHALL BE REMOVED TO THE LIMITS SHOWN ON THE PLANS UNDER ITEM 204.25 "STRUCTURE EXCAVATION."

20. REMOVAL OF EXISTING DECK, PAVEMENT, BRIDGE RAIL AND ANY SUBSTRUCTURE NOT REMOVED UNDER ITEM 204.25 "STRUCTURE EXCAVATION" OR ITEM 203.16 "SOLID ROCK EXCAVATION" WILL BE PAID FOR AS ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE (EXISTING BRIDGE)".

21. ITEM 900.608, "SPECIAL PROVISION (STONE FILL, CULVERT LINING)" IS TO BE PLACED ON THE APRONS AND IN THE BOX. IT SHALL BE CLEAN, WASHED, BANK RUN STONE, WITH 100% SMALLER THAN 200 mm AND 100% RETAINED ON THE 100 mm SIEVE, AND HAVE 0% FRACTURES. THE BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND THE AGENCY OF NATURAL RESOURCES STREAM ALTERATION ENGINEER.

22. REPLACE THE MATERIAL EXCAVATION FROM THE BOTTOM OF THE EXISTING CONCRETE SLAB (SEE SHEET 51) TO THE BOTTOM OF THE BITUMINOUS CONCRETE PAVEMENT WITH SUBBASE OF DENSE GRADED CRUSHED STONE.

23. REPLACE THE MATERIAL EXCAVATED FOR THE EXISTING GRASS ISLAND (SEE SHEET 61) DOWN TO 735 mm BELOW FINISH GRADE AND REPLACE THE MATERIAL UP TO THE BOTTOM OF THE BITUMINOUS CONCRETE PAVEMENT WITH SUBBASE OF DENSE GRADED CRUSHED STONE.

DETOUR

24. VT ROUTE 346 SHALL REMAIN CLOSED TO THROUGH TRAFFIC DURING THE CONSTRUCTION PERIOD. TRAFFIC SHALL BE DETOURED ALONG TH1.

25. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING GROUPS OR INDIVIDUALS AT LEAST 2 WEEKS PRIOR TO THE BEGINNING OF CONSTRUCTION: TOWN, LOCAL AND STATE LAW ENFORCEMENT, EMERGENCY SERVICES, HIGHWAY MAINTENANCE OFFICIALS. THE CONTRACTOR SHALL NOTIFY LOCAL NEWSPAPERS SO AS TO GIVE THE PUBLIC SOME ADVANCE WARNING WHICH MAY RESULT IN THE DIVERSION OF TRAFFIC AWAY FROM THE CONSTRUCTION ZONE.

26. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT OF SIGNS SHOWN ON THE TEMPORARY DETOUR TRAFFIC CONTROL PLAN, SHEET 19. PLACEMENTS SHOWN MAY BE ADJUSTED AT THE RESIDENT ENGINEER'S DISCRETION.

27. ADDITIONAL SIGNING MAY BE REQUIRED AT THE RESIDENT ENGINEER'S DISCRETION.

28. ALL COSTS ASSOCIATED WITH THE FABRICATION, ERECTION, MAINTENANCE, AND REMOVAL OF ALL TEMPORARY DETOUR SIGNS, INCLUDING NECESSARY HARDWARE AND POSTS SHALL BE INCIDENTAL TO ITEM 641.10 "TRAFFIC CONTROL".

29. ALL COSTS ASSOCIATED WITH THE TEMPORARY TRAFFIC SIGNAL SYSTEM AND TEMPORARY DETECTOR SHALL BE INCIDENTAL TO ITEM 641.10 "TRAFFIC CONTROL".

30. THE COST OF ON-PROJECT SIGNS, BARRICADES, TEMPORARY TRAFFIC BARRIER AND REMOVING AND RESETTING TEMPORARY TRAFFIC BARRIER SHALL BE INCIDENTAL TO ITEM 641.10 "TRAFFIC CONTROL".

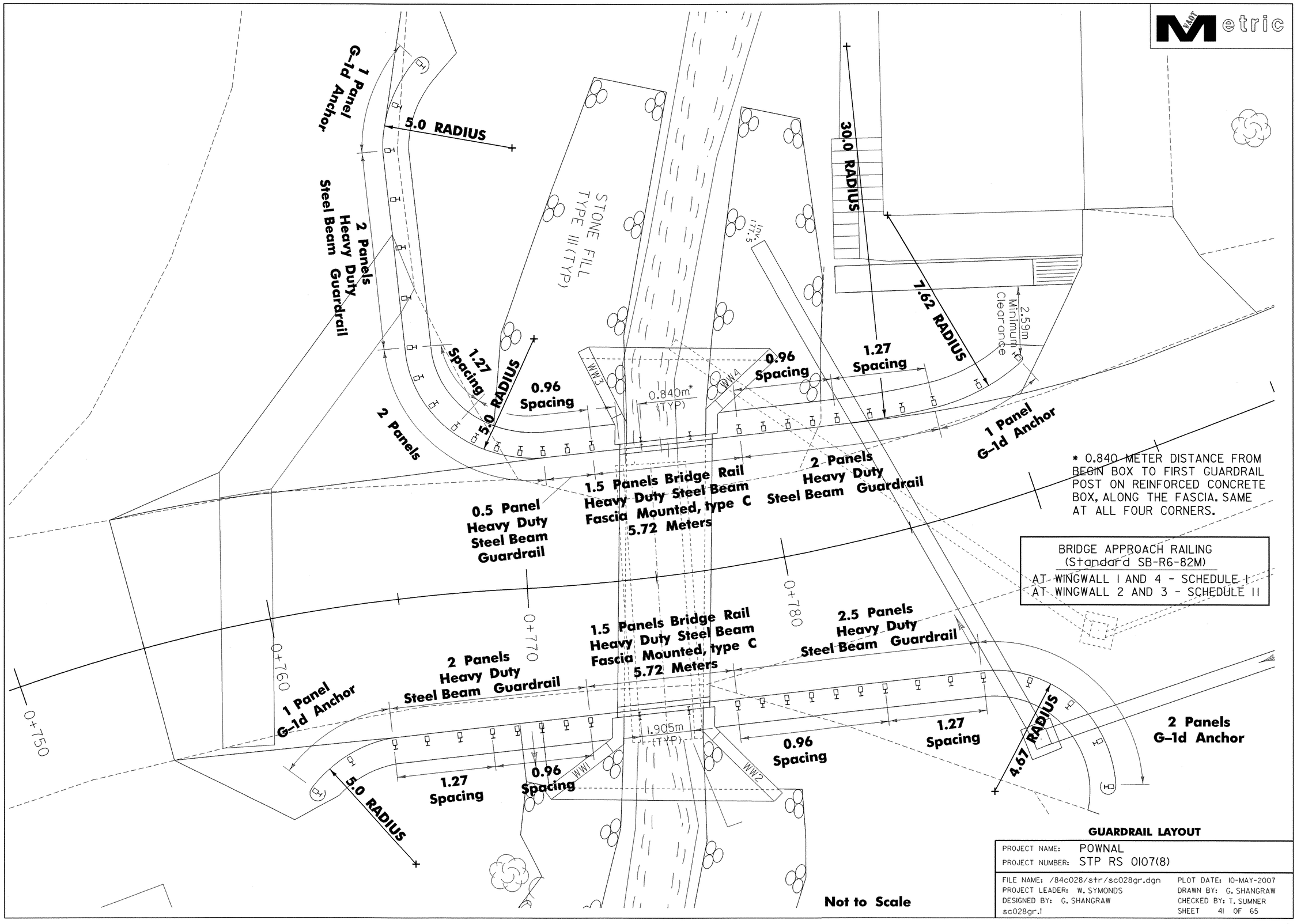
31. THE REMOVAL AND/OR RESETTING OF TEMPORARY TRAFFIC SIGNS, AS DEEMED NECESSARY BY THE RESIDENT ENGINEER, SHALL BE INCIDENTAL TO ITEM 641.10 "TRAFFIC CONTROL".

32. ALL SIGN ASSEMBLES SHALL BE INSTALLED AT A HEIGHT OF 7' ABOVE ROADWAY SURFACE.

33. ALL SIGNS WIDER THEN 30 INCHES SHALL BE INSTALLED WITH TWO POSTS.

34. ALL COSTS ASSOCIATED WITH UNIFORMED TRAFFIC OFFICERS AND FLAGGERS SHALL BE INCIDENTAL TO 641.10 "TRAFFIC CONTROL".

PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107(8)
FILE NAME: /84c028/str/sc028gen	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: R. PELLETT
DESIGNED BY: K. RUTTER	CHECKED BY: T. SUMNER
GENERAL NOTES	SHEET 40 OF 65



Metric

* 0.840 METER DISTANCE FROM BEGIN BOX TO FIRST GUARDRAIL POST ON REINFORCED CONCRETE BOX, ALONG THE FASCIA. SAME AT ALL FOUR CORNERS.

BRIDGE APPROACH RAILING
(Standard SB-R6-82M)

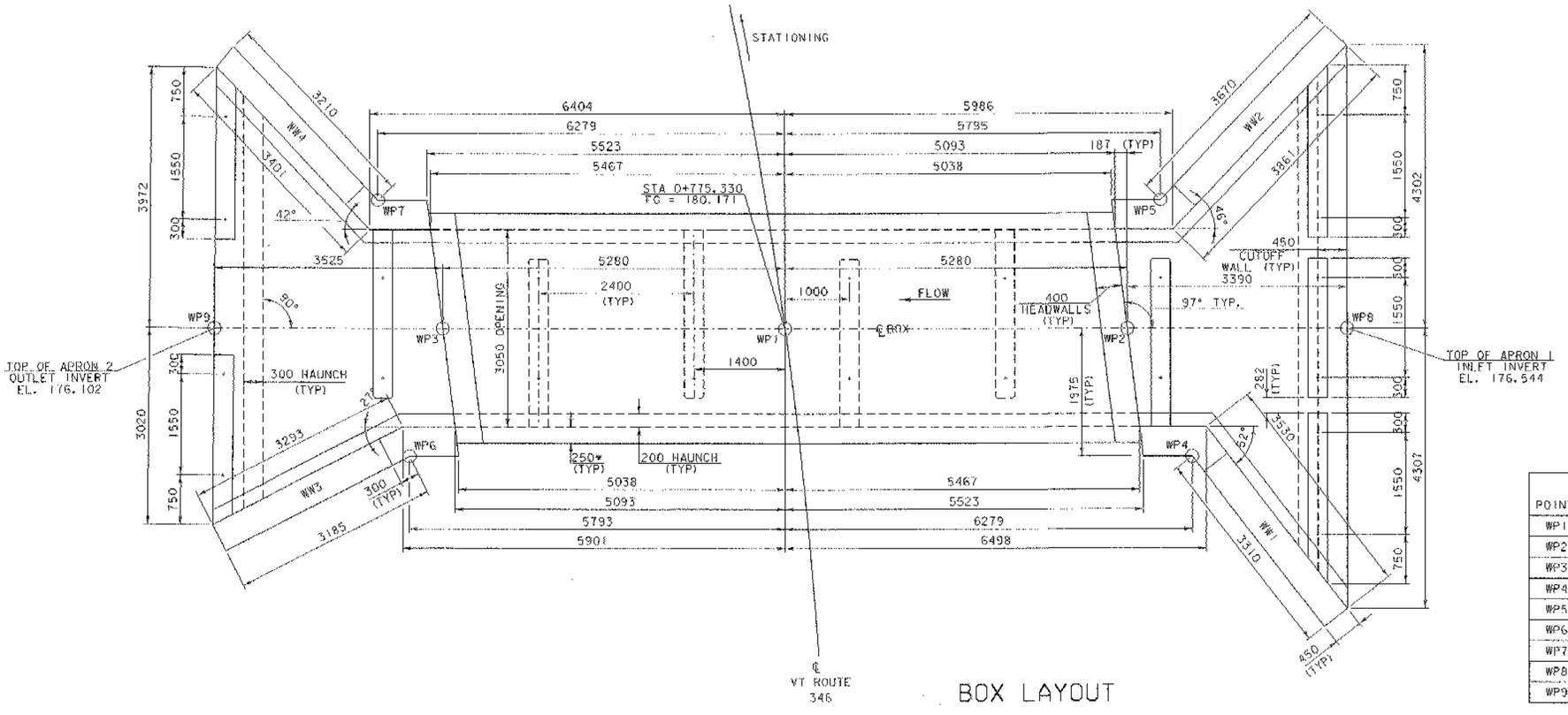
AT WINGWALL 1 AND 4 - SCHEDULE I
AT WINGWALL 2 AND 3 - SCHEDULE II

GUARDRAIL LAYOUT

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028gr.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028gr.1

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. SUMNER
SHEET 41 OF 65



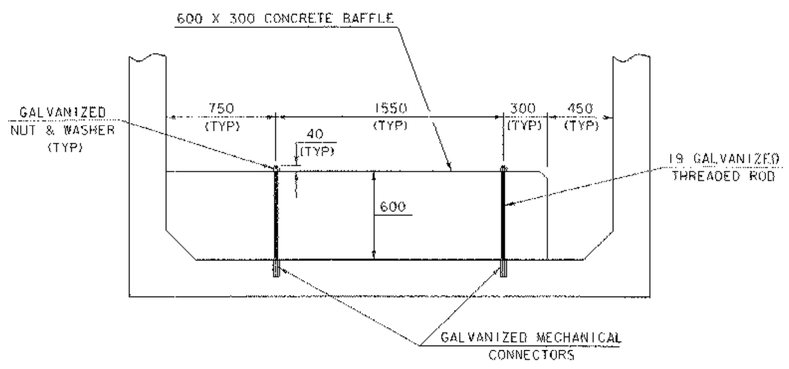
BOX LAYOUT

SCALE = 1:40

POINT	CHANNEL STATION	OFFSET
WP1	4+999.829	0.000
WP2	5+005.109	0.000
WP3	4+994.549	0.000
WP4	5+006.108	1.975
WP5	5+005.624	-1.975
WP6	4+994.037	1.975
WP7	4+993.550	-1.975
WP8	5+008.499	0.000
WP9	4+990.995	0.000

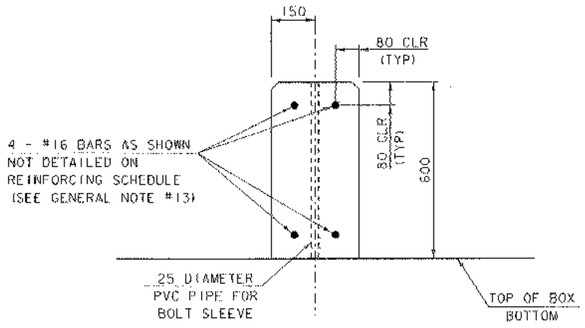
* THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR.

CHANGED TO PRE-CAST



BAFFLE DETAIL

SCALE = 1:20



BAFFLE SECTION

SCALE = 1:10

NOTE:

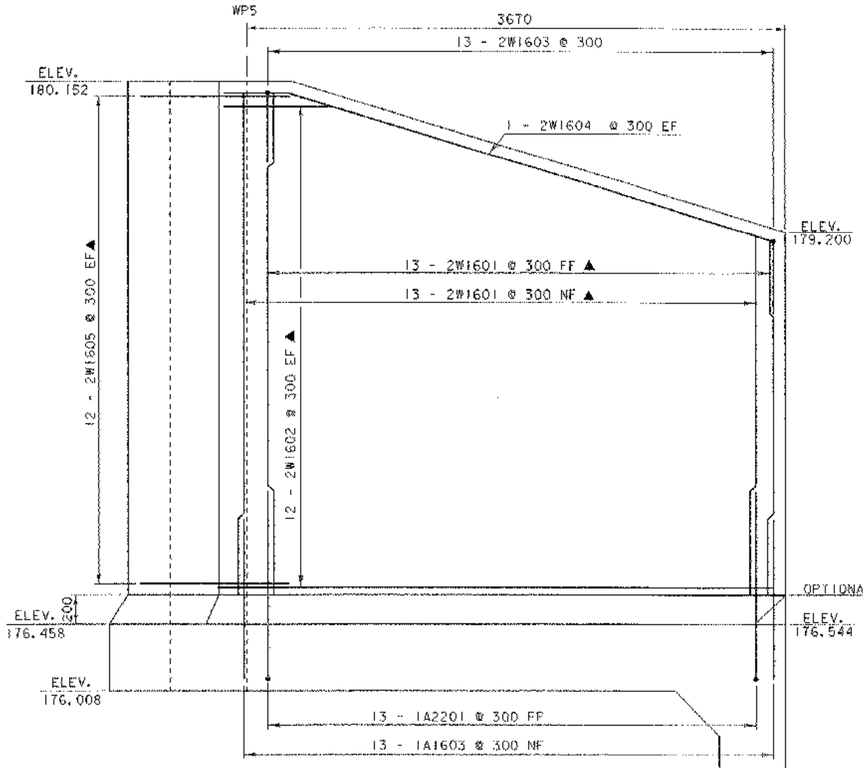
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

BOX LAYOUT

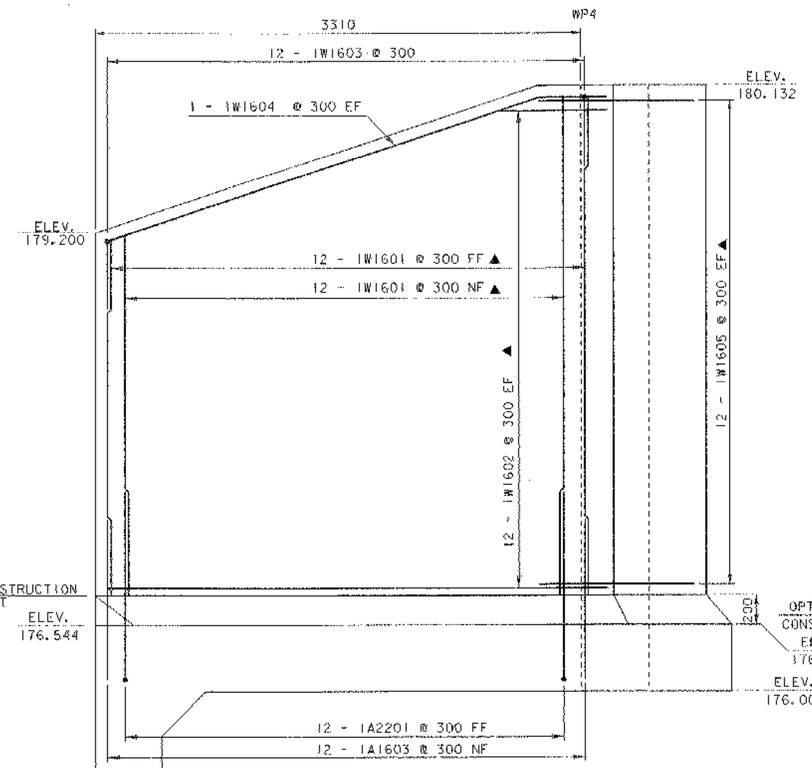
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028ww.dgn
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: K. RUTTER
sc028box.i

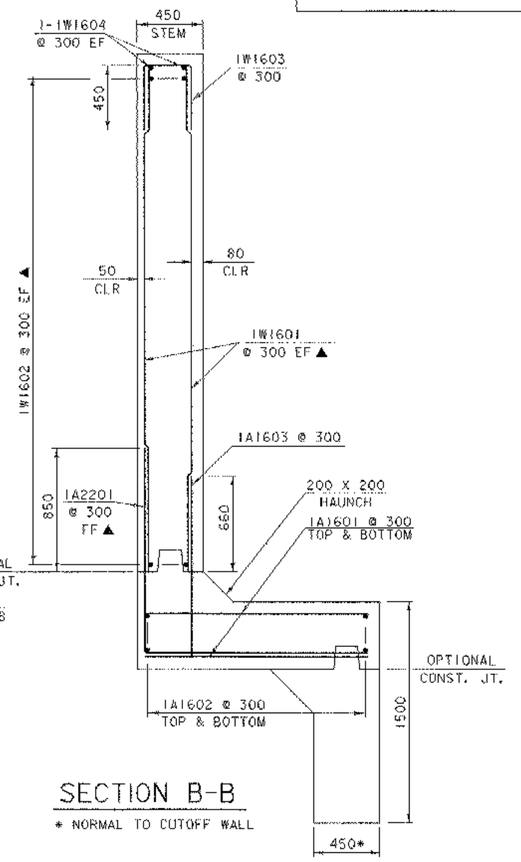
PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 42 OF 65



ELEVATION WINGWALL 2



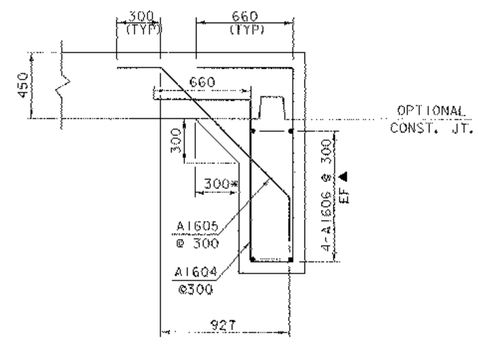
ELEVATION WINGWALL 1



SECTION B-B

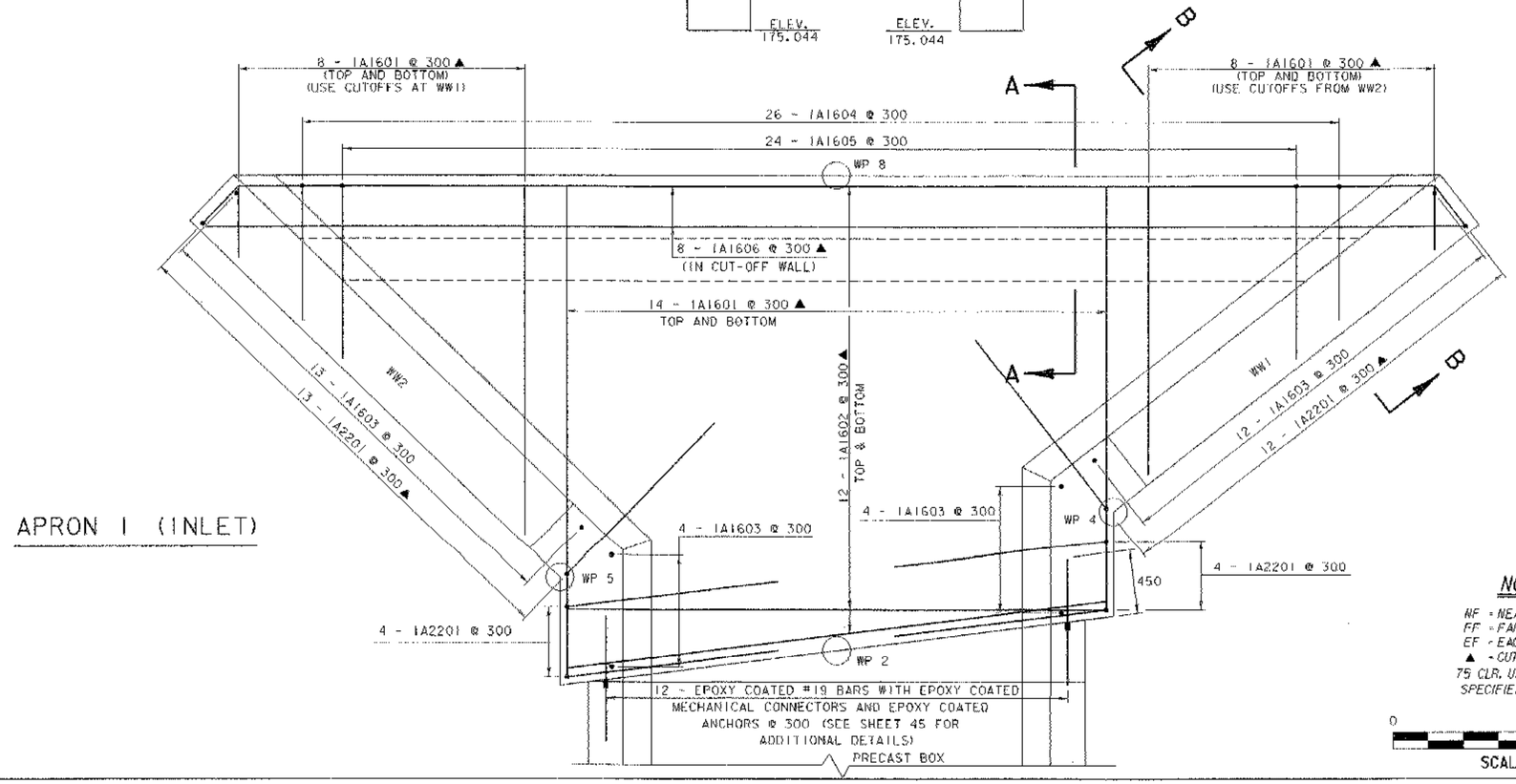
* NORMAL TO CUTOFF WALL

CHANGED TO PRE-CAST



SECTION A-A
CUT-OFF WALL TYPICAL

* NORMAL TO CUTOFF WALL



APRON 1 (INLET)

NOTE:

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

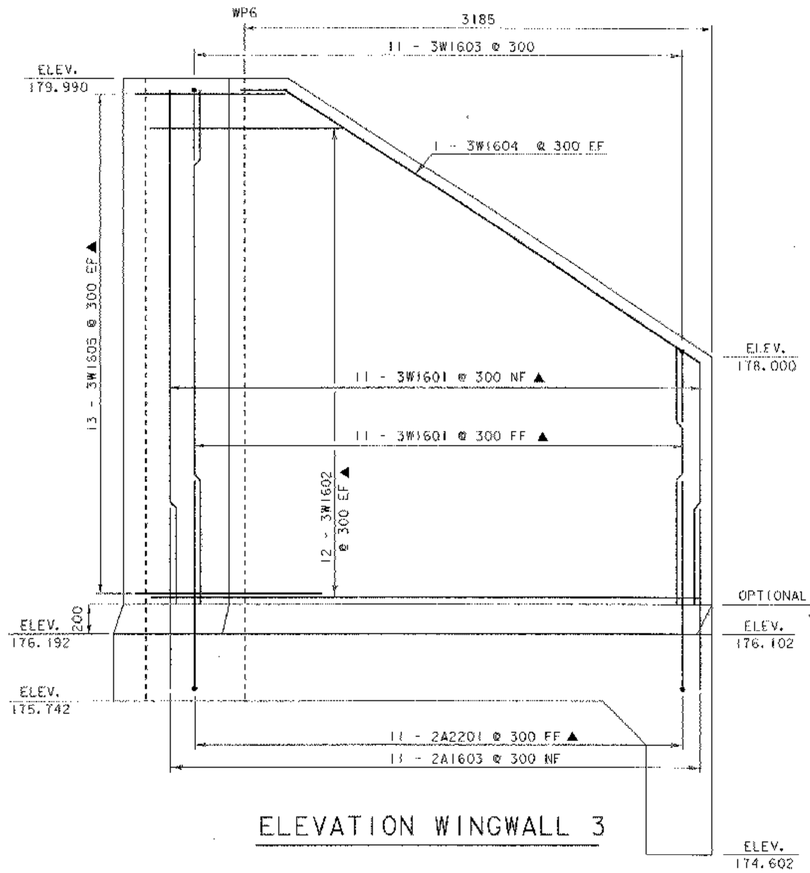
0 1 2
SCALE = 1:20

WINGWALL #1 & #2 DETAILS

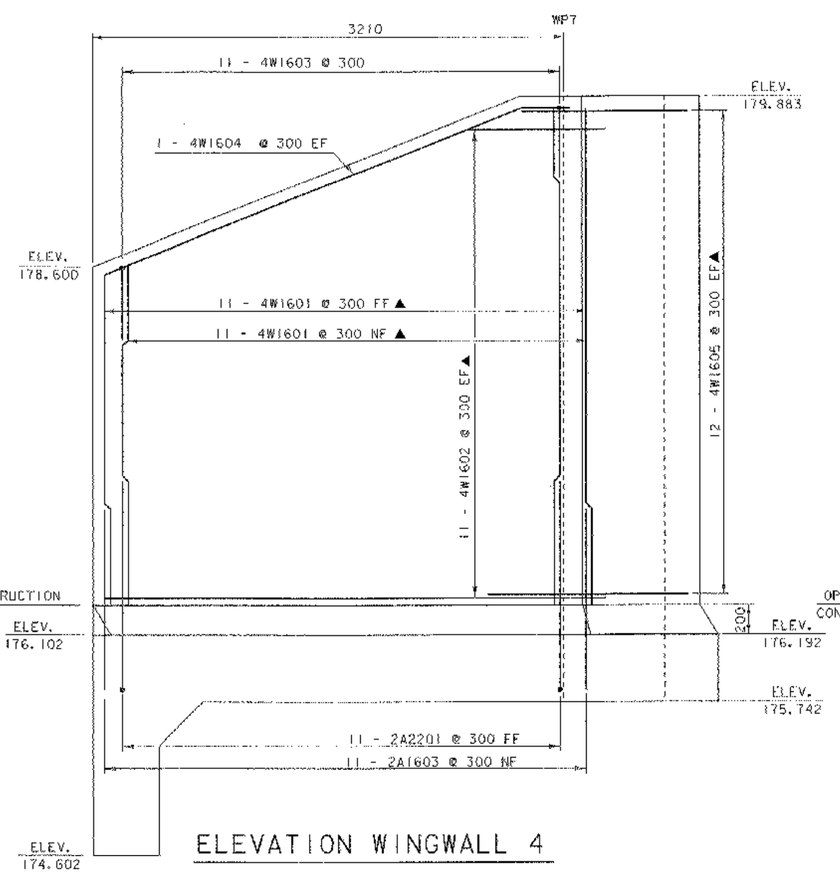
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028ww.dgn
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: T. FILLBACH
sc028ww1.i

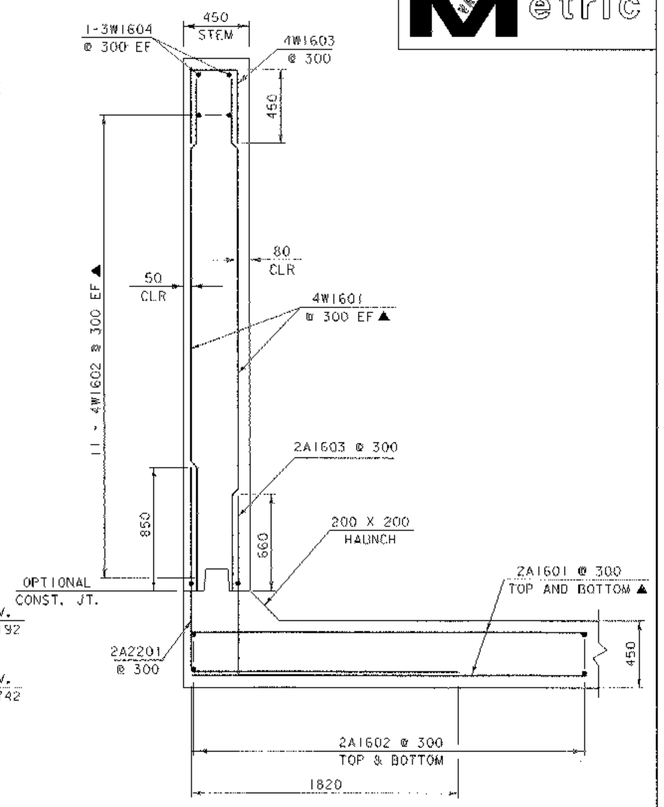
PLOT DATE: 10-MAY-2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 43 OF 65



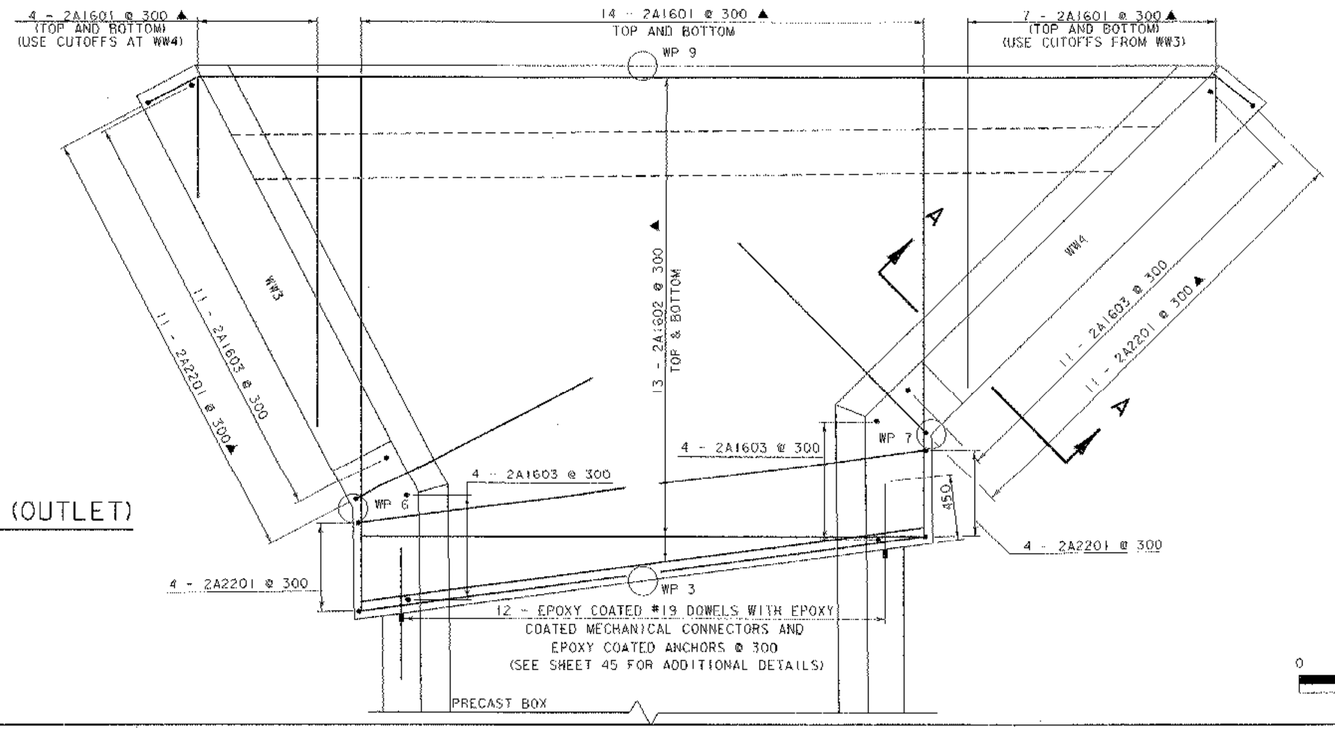
ELEVATION WINGWALL 3



ELEVATION WINGWALL 4



SECTION A-A



APRON 2 (OUTLET)

CHANGED TO PRE-CAST

NOTE:

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

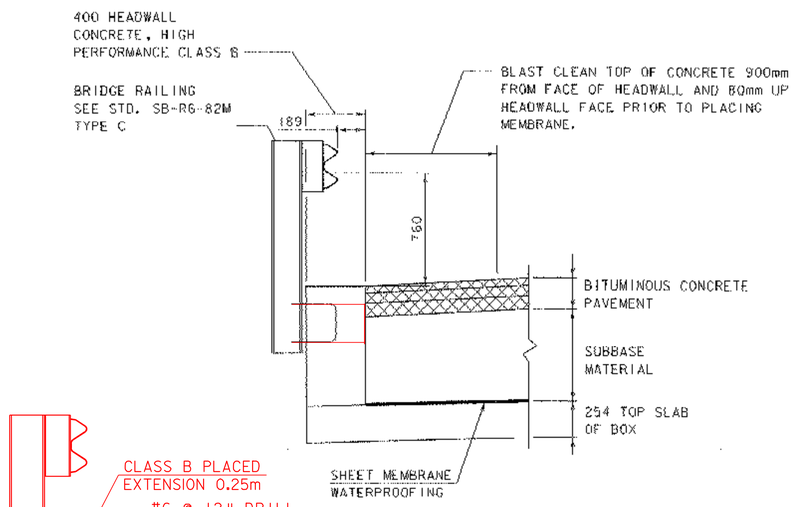
0 1 2
SCALE = 1:20

WINGWALL #3 & #4 DETAILS

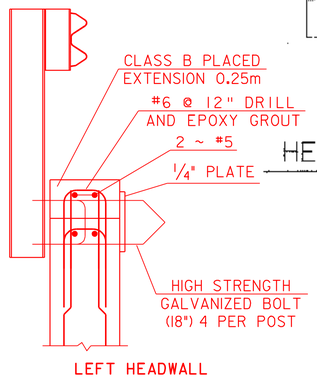
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028ww.dgn
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: T. FILLBACH
sc028ww2.1

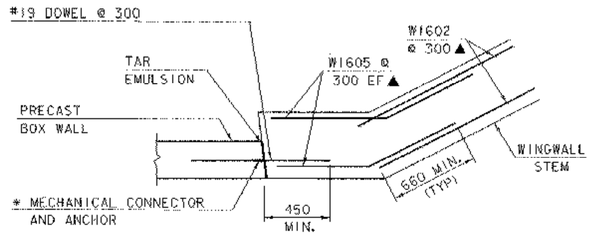
PLOT DATE: 10-MAY-2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 44 OF 65



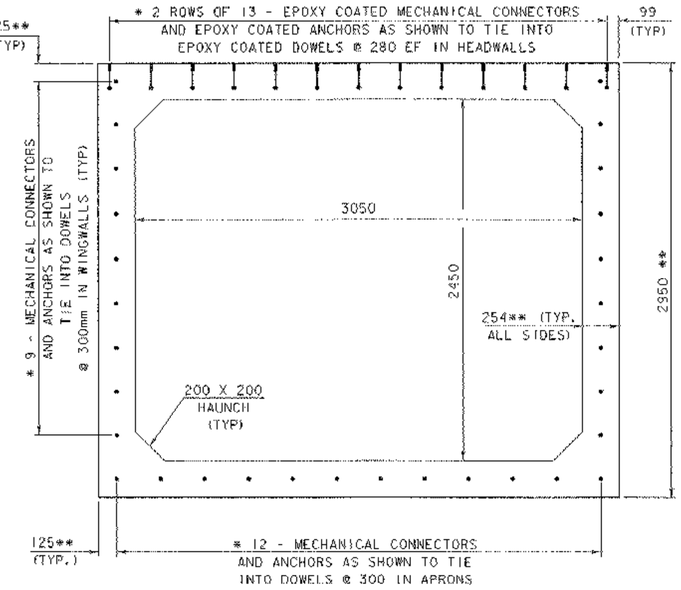
HEADWALL DETAIL



LEFT HEADWALL

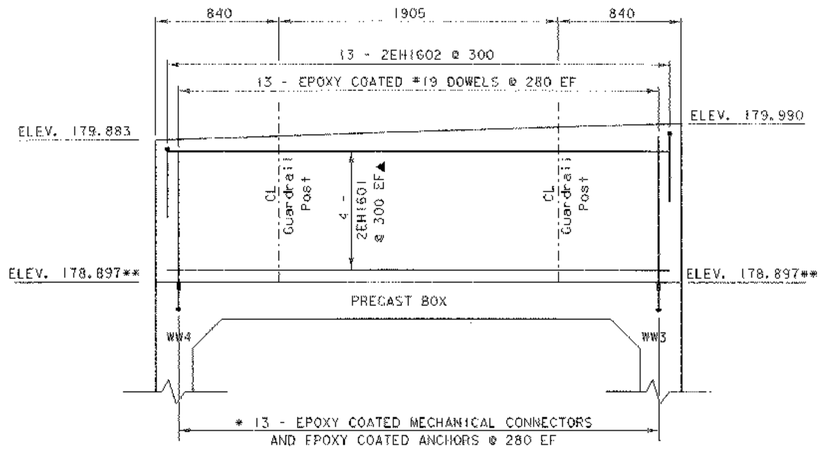


TYPICAL WINGWALL CORNER DETAIL

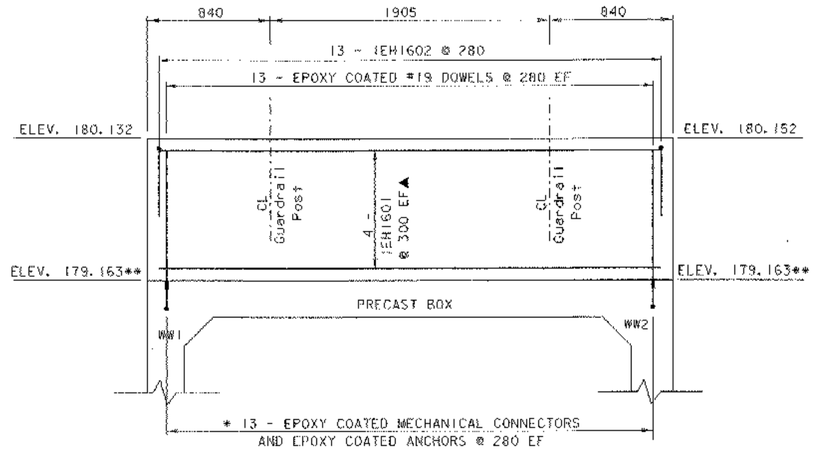


PRECAST BOX TYPICAL (END SECTION)

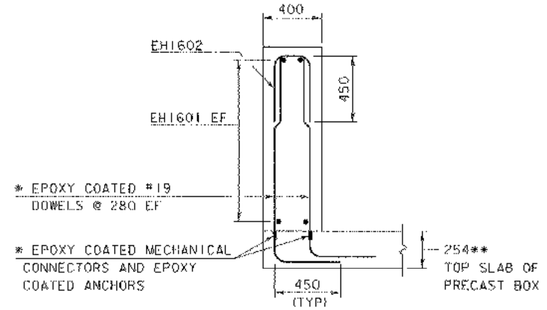
** ASSUMED DIMENSIONS AND ELEVATIONS. ACTUAL DIMENSIONS AND ELEVATIONS WILL BE DETERMINED BY THE FABRICATOR.



HEADWALL #2 (OUTLET)



HEADWALL #1 (INLET)



HEADWALL TYPICAL

* DOWELS, MECHANICAL CONNECTORS AND ANCHORS ARE TO BE PROVIDED BY THE PRECAST BOX FABRICATOR AND ARE NOT REFLECTED ON THE REINFORCING STEEL SCHEDULE.

SEE PRECAST CONCRETE BOX NOTES ON SHEET 40

NOTE:

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

0 1 2
SCALE = 1:20

HEADWALL DETAILS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028ww.dgn
PROJECT MANAGER: W. SYMONDS
DESIGNED BY: T. FILLBACH
sc028hw.i
PLOT DATE: 10-MAY-2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 45 OF 65

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

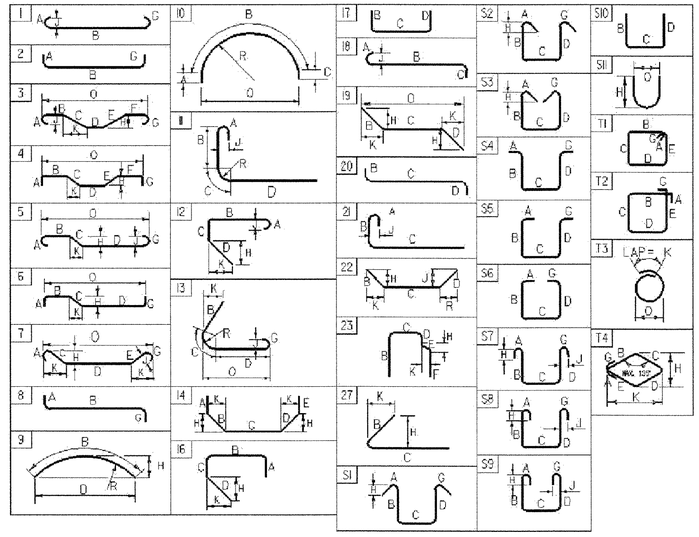
Metric

	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
APRON #1 (INLET)																	
▲	44	16	3500	1A1601	STR												
* ▲	25	16	8541	1A1602	STR												
	33	16	1235	1A1603	STR												
▲	8	16	8997	1A1606	STR	8997											
	24	16	1935	1A1605	22		300	1335	300				212	212	212	212	
	26	16	4020	1A1604	S5	660	1350	300	1050			660					
*	34	22	3330	1A2201	17		1510	1820	---								
INLET HEADWALL																	
* ▲	9	16	3433	1EH1601	STR												
	13	16	1150	1EH1602	S10		450	250	450								
WINGWALL #1																	
▲	24	16	3393	1W1601	STR												
▲	24	16	3418	1W1602	STR												
	2	16	3568	1W1604	19		459	3109	---				146		435		3544
▲	24	16	1320	1W1605	22		660	660					520		406		1066
	12	16	1225	1W1603	S10		450	325	450								
WINGWALL #2																	
▲	26	16	3418	2W1601	STR												
▲	24	16	3754	2W1602	STR												
	2	16	3889	2W1604	19		430	3459					127		411		3870
▲	24	16	1320	2W1605	22		660	660					475		459		1119
	13	16	1225	2W1603	S10		450	325	450								
APRON #2 (OUTLET)																	
▲	39	16	3681	2A1601	STR												
▲	26	16	6962	2A1602	STR												
	30	16	1235	2A1603	STR												
*	31	22	3245	2A2201	17		1425	1820	---								
OUTLET HEADWALL																	
* ▲	9	16	3433	2EH1601	STR												
	13	16	1150	2EH1602	17		450	250	450								
WINGWALL #3																	
▲	22	16	3505	3W1601	STR												
* ▲	25	16	3225	3W1602	STR												
	2	16	3687	3W1604	19		305	3382					167		255		3637
▲	26	16	1320	3W1605	22		660	660					477		456		1116
	11	16	1225	3W1603	S10		450	325	450								
WINGWALL #4																	
▲	22	16	3387	4W1601	STR												
▲	22	16	3414	4W1602	STR												
	2	16	3403	4W1604	19		332	3071					124		308		3379
▲	24	16	1320	4W1605	22		660	660					522		404		1064
	11	16	1225	4W1603	S10		450	325	450								

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ 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.



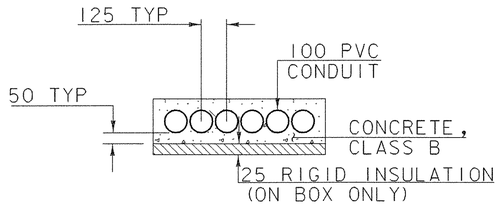
ASTM STANDARD REINFORCING BARS

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

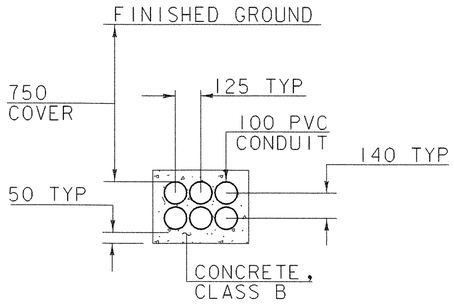
PROJECT NAME: **POWNAL**
PROJECT NUMBER: **STP RS 0170(8)**

FILE NAME: /84c028/str/sc028rss.xls
PROJECT LEADER: W. SYMONDS
DESIGNED BY: R. PELLETT
REINFORCING STEEL SCHEDULE

PLOT DATE: 4/26/2007
DRAWN BY: R. PELLETT
CHECKED BY: T. SUMNER
SHEET 46 OF 65



1 x 6 FORMATION
NOT TO SCALE



2 x 3 FORMATION
NOT TO SCALE

CONDUIT SUMMARY

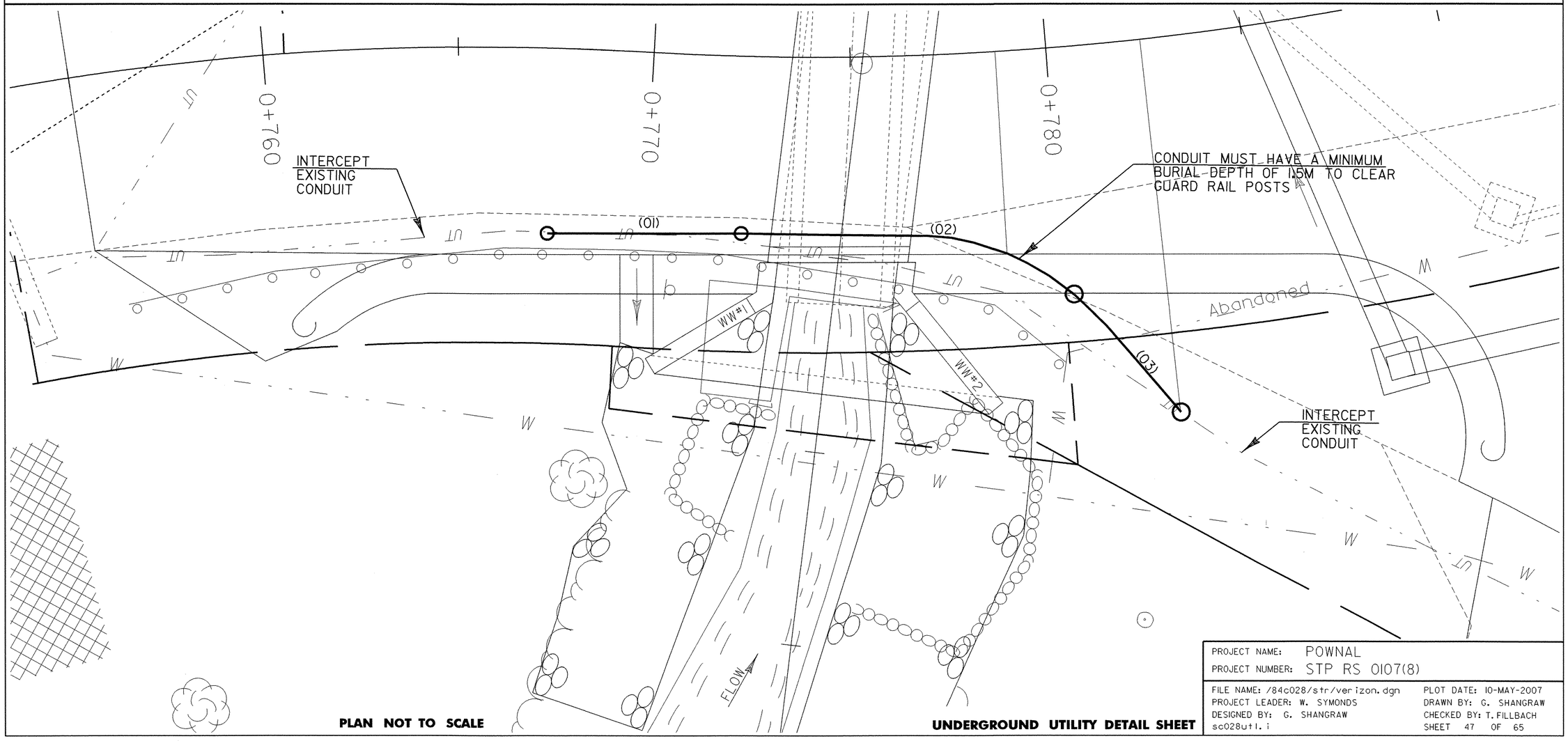
SECTION (01) PLACE 4.57M 6-100mm PVC CONCRETE ENCASED CONDUITS (TRANSITION FROM 2 x 3 FORMATION TO 1x 6 FORMATION)

SECTION (02) PLACE 8.86M 6-100mm PVC CONCRETE ENCASED CONDUITS (1x 6 FORMATION)

SECTION (03) PLACE 4.07M 6-100mm PVC CONCRETE ENCASED CONDUITS (TRANSITION FROM 1x 6 FORMATION TO 2 x 3 FORMATION)

Notes:

1) The cost of concrete, insulation, spacers, adhesives and other materials necessary to install the conduit shall be incidental to item 678.30 Electrical Conduit Sleeve.
2) The work and materials to properly intercept the existing conduit shall be incidental to item 678.30 Electrical Conduit Sleeve.
3) Excavation shall be paid under the appropriate excavation items in the Contract.
4) Installed conduit shall be inspected and approved before any concrete is placed.
5) Backfill outside the limits for Subbase of Dense Graded Crushed Stone shall be incidental to item 678.30 Electrical Conduit Sleeve. The backfill material shall be placed in 150 mm thick layers and compacted in accordance with Subsection 203.11(d) using air or mechanical tampers.



PLAN NOT TO SCALE

UNDERGROUND UTILITY DETAIL SHEET

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/verizon.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028utl.i

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH
SHEET 47 OF 65

MAINE Metric

MATCH LINE 0+795.000

MATCH LINE 0+795.000

CURVE DATA #2
Delta: 17°56'22.3" Lt.
Radius: 75.000
Tangent: 11.838
Length: 23.483
External: 0.929

PT 0+793.761

2.59m Minimum Clearance

New Concrete Sidewalk
see cross sections for details

STA. 0+785.000
END PROJECT
BEGIN APPROACH
CONSTRUCTION
VT. 346 & TH 56

Item 529.20
Partial Removal of Structure
(Horizontal Timber)

BRIDGE 1 VT 346

0+780.552 LT

Approx. Aerial Reloc. Route by C.V.P.S., Comcast & Verizon

Inv. 177.5

Ladd Brook

Archaeological Area Do Not Disturb

4+965

Item 653.50
Barrier Fence to be installed prior to any construction activities.

CHURCH STREET

0+768.545 LT

STONE FILL TYPE III (TYP)

Sign

LEGAL LOAD LIMIT 24,000 POUNDS

0+767.688 LT

6-4" Tel Ducts

New Verizon Anchor Lead

Guy Strand

PC 0+770

STA. 0+770.000
BEGIN PROJECT

0+768.545 LT

TH #1

CHURCH STREET

STOP

0+758.455 LT

8" DI Water Line

Utility Note:
6 underground telephone ducts cross the existing bridge encased in 3-100 mm galvanized steel pipes. They are approximately 150 mm below existing grade only in the area of the box culvert. The average depth of the ducts in other areas is 600 to 750 mm.

PI 0+752.406=
0+751.689

PI 0+782.116=
0+781.923

Existing water shut-off @ 0+781 Rt. to be witnessed and flagged prior to construction activities.

Abandoned

8" Drinking Water Line

0+777.50W LT

ML POST 0+775.314=
CHAN POT 5+000.000
Askew 93°-57'-26'' Rt.

Channel Line
N 77° 32' 51.79" E

5+035

5+020

0+770.749 RT

BITUMINOUS CONCRETE GUTTER

SAVE

PT 0+769.316

0+772.980 LT

0+780

0+770

0+760

0+750

0+740

N 16° 24' 33.9" W

0+771.581 LT

0+772.276 LT

CURVE DATA #1
Delta: 28° 16' 07.4" Rt.
Radius: 70.000
Tangent: 17.627
Length: 34.537
External: 2.185

Approx. location of Septic Field

STA. 0+755.000
BEGIN APPROACH

200mm DI Water Line in 600 mm Sleeve

N 44° 03' 33" W
STATUTORY 3 ROD ROW

Vt. Rte. 346
To US Rte. 7

12-4" Tel Ducts

Durable 100mm White Line
0+757.3 - 0+790.0 Rt.
0+765.5 - 0+790.0 Lt.

Durable 100mm Yellow Line
0+766.8 - 0+790.0 (Double)

LEGEND
N = NEW
R = REMOVE
S = SALVAGE

N
MAGNETIC

0 2 4 6 8 10
SCALE IN METERS (1:100)

SIGN SHEET #1

PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107(8)
FILE NAME: /84c028/str/sc028bdr.dgn	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: G. SHANGRAW	CHECKED BY: T. FILLBACH
sc028sgl.i	SHEET 48 OF 65

100mm white line

ML 0+765.900 - 0+828.000 Lt.
ML 0+757.300 - TH#56 10+036.700 Rt.
TH 56 10+005.000 - 10+036.700 Lt.
ML 0+807.000 - 0+828.000 Rt.
45.3 m As Shown on Sheet 50

100mm double yellow line

ML 0+766.800 - 0+795.5.000 CL.
ML 0+807.500 - 0+828.000 CL.
TH 56 10+006.100 - 10+036.700 CL.

600mm stop bar

TH 56 10+006.500, 5.80 m left

Durable Letter or Symbol

Sta. 10+009.2 Lt. (S.T.O.P.)

Note - Stop Ahead sign to be located approximately 76 meter from painted STOP markings. Final placement to be determined by the Resident Engineer.

LEGEND

N = NEW
R = REMOVE

TH 56
STA. 10+035.000
END APPROACH

VT. 346
STA. 0+825.000
END APPROACH

TH #56
10+040

STATUTORY
3 ROD ROW

10+082 LT (APPROX)

Vt. Rte. 346
To Petersburg, NY

REMOVE

0+820.000 RT

TH 56 Curve Data
Delta: 48° 20' 04.1" Lt.
Radius: 27.858
Tangent: 12.501
Length: 23.501
External: 2.676

10+020.000 LT

PT 10+032.582

LEGAL LOAD LIMIT 24,000 POUNDS

10+030 RT

AERIAL E&T

Paved Gutter

8" waterline in Sleeve

0+820

N 34° 20' 56.1" W

0+810

Abandoned

10+030

N2° 19' 12.4" E 12" CL 52 DI waterline

10+020

N55° 39' 16.5" E

10+010.000 LT
TH 56 PI 10+021.582 bk=
10+020.081 ahd

PC 10+009.081

10+010

REMOVE

ML POT 0+801.433=
TH 56 POT 10+000.000
Askew 90°-00'-00" Rt.

0+800

C

D

MATCH LINE 0+795.000

Limit of Pavement

MATCH LINE 0+795.000

N

MAGNETIC

0 2 4 6 8 10
SCALE IN METERS (1:100)

SIGN SHEET #2

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028bdr.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sb254sg2. i

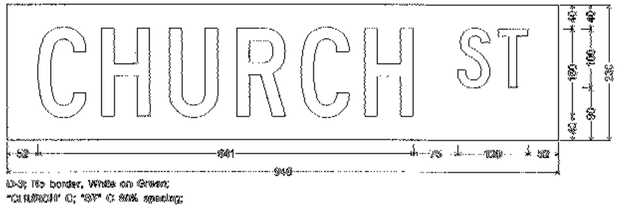
PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH
SHEET 49 OF 65

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

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	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	SUPPORT	NEW SIGN POSTS TUBULAR ALUMINUM Ø (mm) kg/m 75 4.9	100 2.5	100 MOD. 2.5	FOUNDATION	TUBULAR STEEL Ø (mm) 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	BREAKAWAY FOUNDATION	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												OPTION ITEMS																									
STA 10+020 LT	STOP	1	750	750	0.56						1			X 4.02																					RI-1		E-143
STA 10+030 RT	LEGAL LOAD LIMIT 24,000 POUNDS	1	600	750	0.45						1			X 3.94																					VR-017		E-141
STA 10+082 LT		1	900	900	0.81						2			X 4.07																					W3-1A		E-150
STA 0+758 LT	STOP	1	750	750	0.56						1			X 3.90																					RI-1		E-143
STA 0+758 LT	CHURCH STREET	1	940	230	0.22																													SEE DETAIL BELOW		
STA 0+768 LT	LEGAL LOAD LIMIT 24,000 POUNDS	1	600	750	0.45						1			X 3.92																					VR-017		E-141
STA 0+769 LT		1	1200	600	0.72						2			X 8.68																					W1-6		E-152
STA 0+771RT	BRIDGE 1 VT 346	1	150	200	0.03						1		X	2.57																					VD-701		E-134
STA 0+781LT	BRIDGE 1 VT 346	1	150	200	0.03						1		X	2.63																					VD-701		E-134



D-3; No border, White on Green;
"CHURCH" C; "ST" C 6MM spacing;

FINAL POST 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	m	m	m	EA.	kg	kg	kg	kg	kg	kg	kg	EA.	kg	EA.	EA.	kg
		0 ~~3.6~~	33.73 ~~32.4~~																
TOTALS	m^2 3.83	m^2	EA.	m^2		m ~~36.0~~ 33.73		m		kg	EA.	kg			EA.	EA.	kg		

TRAFFIC SIGN SUMMARY

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: /84c028/str/sc028sgn.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028sgl.i

PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH
SHEET 50 OF 65

VADOT Metric

N

MAGNETIC

The gray shape represents the area where concrete slabs are estimated to exist beneath the existing pavement. These slabs are to be removed, and will be paid for as item 203.16, Solid Rock Excavation.

The hatching represents the area of existing pavement to be removed, and will be paid for as item 203.28, Excavation of Surfaces and Pavements.

8" waterline in sleeve

12" CL 4 DI waterline

Abandoned

Railroad

0+820

0+810

0+800

0+780

0+770

0+760

10+020

10+010

Item 529.20
Partial Removal of Structure
(Horizontal Timber)

Ladd Brook

4+965

4+980

Channel Line
N 77° 32' 51.79" E

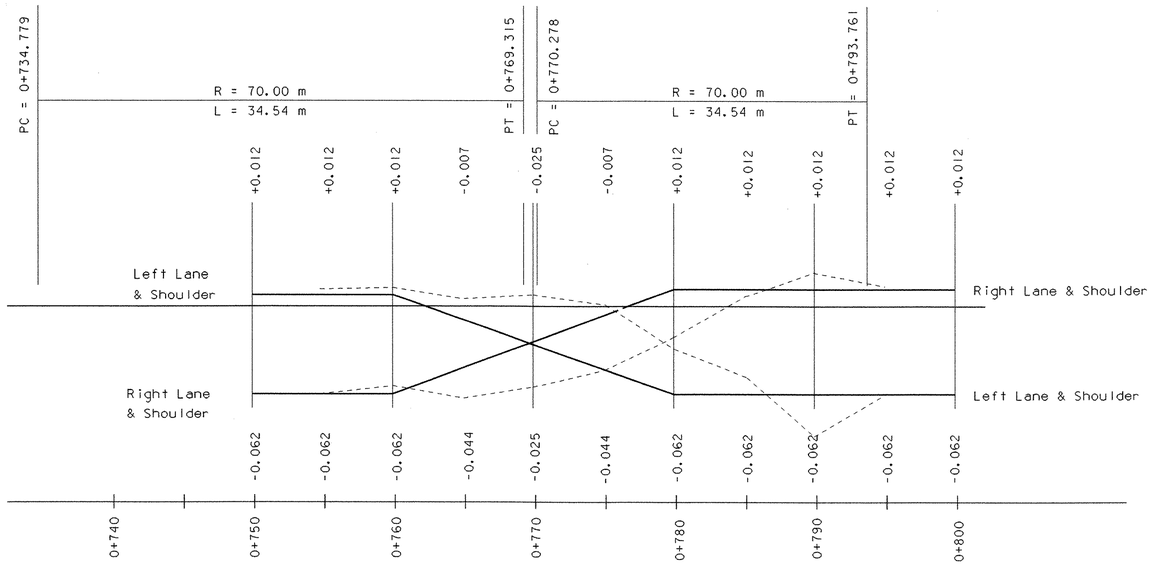
5+020

5+035

0 2 4 6 8 10
SCALE IN METERS (1:100)

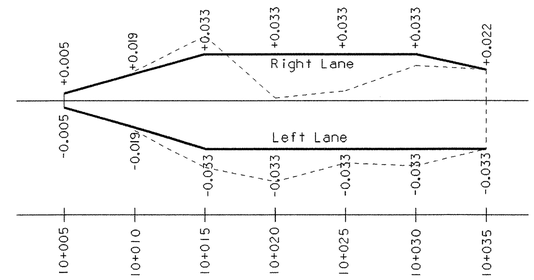
EXISTING CONCRETE SLAB AREA

PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107(8)
FILE NAME: /84c028/str/sc028cnc.dgn	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: G. SHANGRAW	CHECKED BY: T. FILLBACH
sc028cnc.i	SHEET 51 OF 65



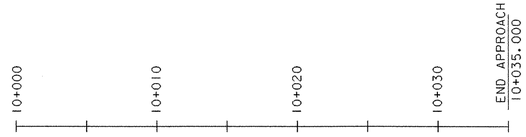
Banking Transition

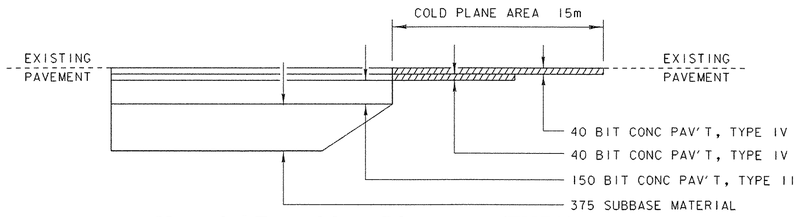
Not to Scale



TH56 Banking Transition

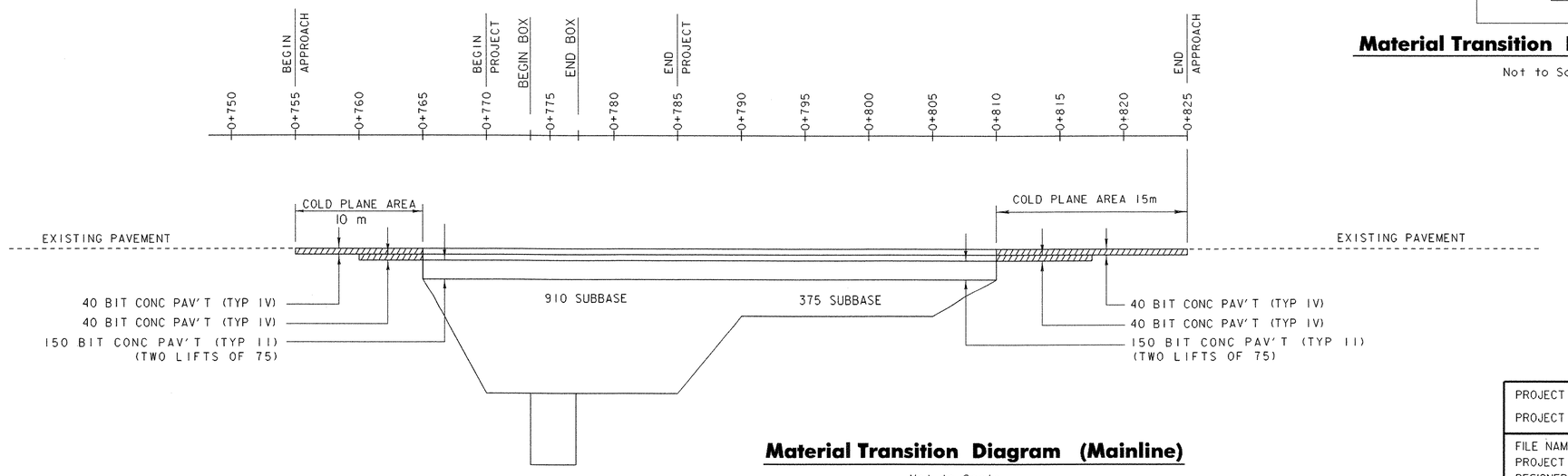
Not to Scale





Material Transition Diagram (TH56)

Not to Scale



Material Transition Diagram (Mainline)

Not to Scale

BANKING DIAGRAM & MATERIAL TRANSITIONS

PROJECT NAME:	POWNAL
PROJECT NUMBER:	STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: K. RUTTER
DESIGNED BY: G. SHANGRAW	CHECKED BY: T. SUMNER
sc028bnk.i	SHEET 52 OF 65

MINOT Metric

MAGNETIC N

30.0 R.
STA. 0+789.751
34.180 LT

7.62 R.
STA. 0+787.601
11.848 LT

5.0 R.
STA. 0+770.476
17.008 LT

2.59m Minimum Clear arc

5.0 R.
STA. 0+770.920
9.630 LT

0+783.189
4.549 LT.

0+770.995
4.983 LT.

3.350

4.900

0+820

6.030

0+810

0+800

4.950

4.530 TO GUARDRAIL

4.370 TO GUARDRAIL

4.840 TO GUARDRAIL

5.050 TO GUARDRAIL

5.050 TO GUARDRAIL

5.050 TO GUARDRAIL

5.270 TO GUARDRAIL

5.860 TO GUARDRAIL

5.290 TO GUARDRAIL

5.160 TO GUARDRAIL

0+760

0+770

0+780

0+790

0+800

0+810

0+820

0+830

0+840

0+850

0+860

0+870

0+880

0+890

0+900

0+910

0+920

0+930

0+940

0+950

0+960

0+970

0+980

0+990

1+000

1+010

1+020

1+030

1+040

STOP

10.160

7.580

5.150

4.690

4.290

3.000

3.140

3.000

4.070

5.930

9.540

12.450 TO GUARDRAIL

11.3 R.
STA. 0+820.147
RT 17.054

0+786.163
6.052 RT.

4.67 R.
STA. 0+785.498
RT 10.659

0+764.090
5.274 RT.

5.0 R.
STA. 0+764.337
10.265 LT

R=4.0
STA. 10+018.884
RT 11.029

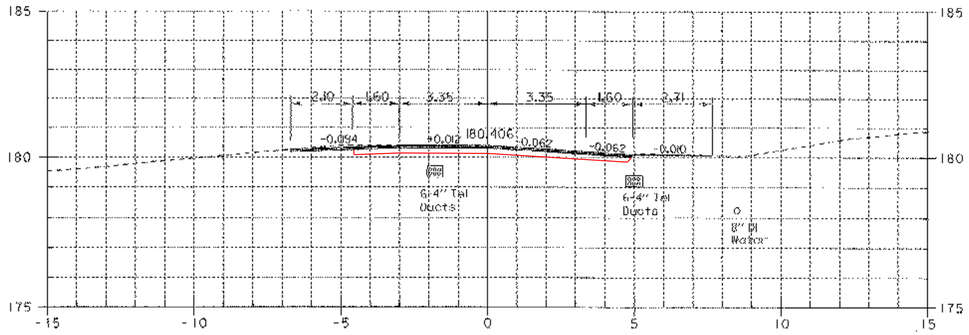
0 2 4 6 8 10
SCALE IN METERS (1:100)

LAYOUT DIMENSIONS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107(8)

FILE NAME: 84c028/sc028misc.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
84c028dimensions.i

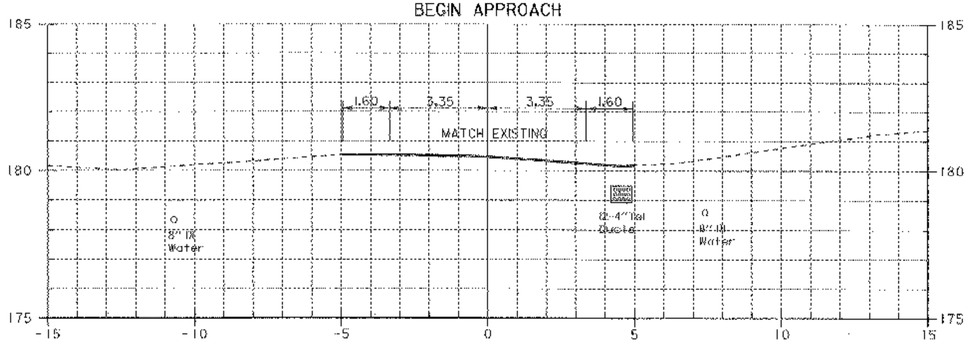
PLOT DATE: 10-MAY-2007
DRAWN BY: G. SHANGRAW
CHECKED BY: T. FILLBACH
SHEET 53 OF 65



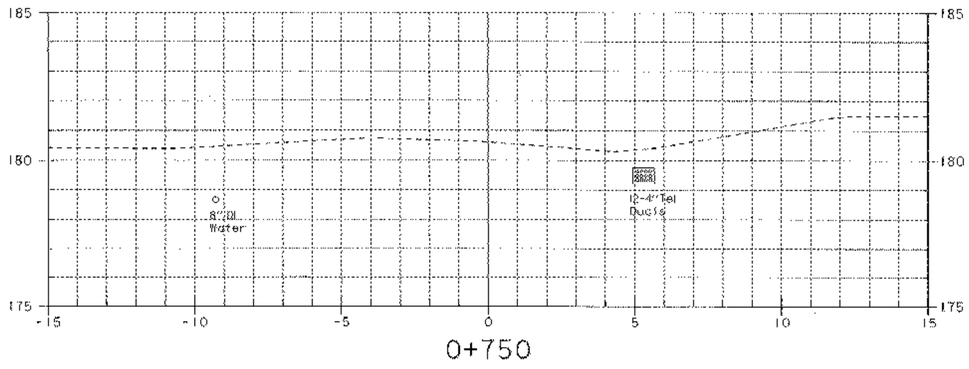
~~0+760~~
0+758

0+760.000	Left	Center	Right
Offset	-4.950	0.000	4.950
Finish Grade	180.466	180.406	180.093
Bottom Pavement	180.386	180.326	180.013
Bottom Subbase	--	--	--

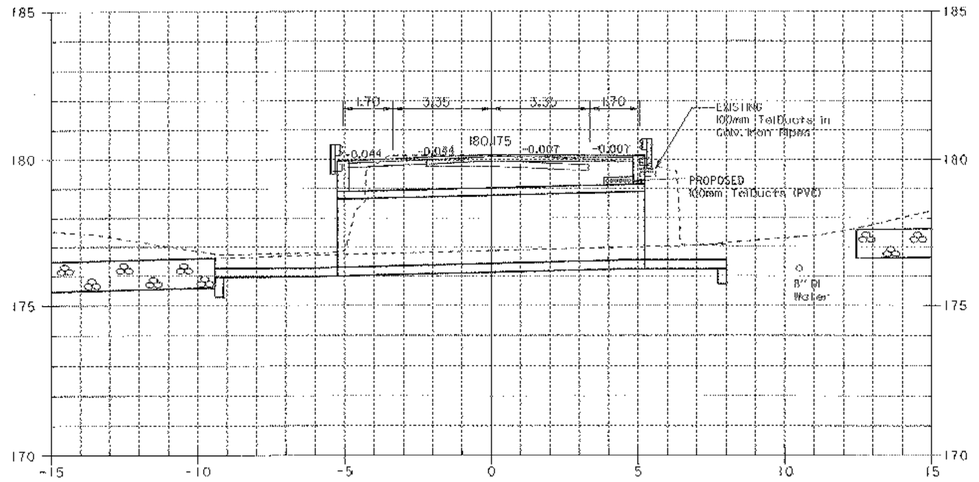
STA. 0+755.000
BEGIN APPROACH



0+755



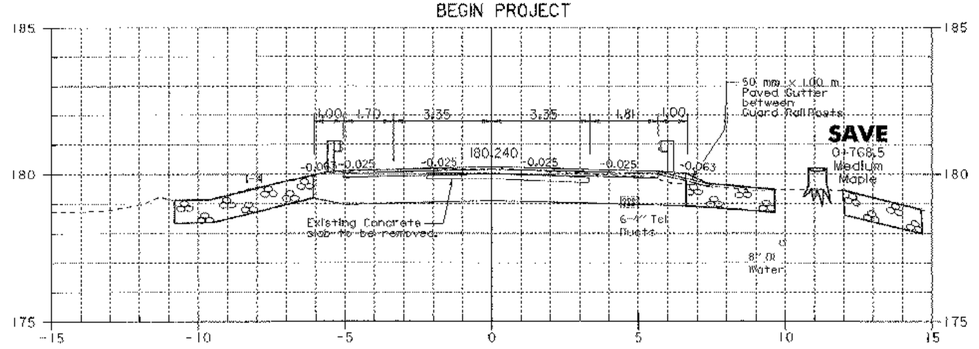
0+750



0+770.000	Left	Center	Right
Offset	-4.950	0.000	4.837
Finish Grade	179.964	180.175	180.143
Bottom Pavement	179.714	179.845	179.913
Bottom Subbase	178.967	179.035	178.951

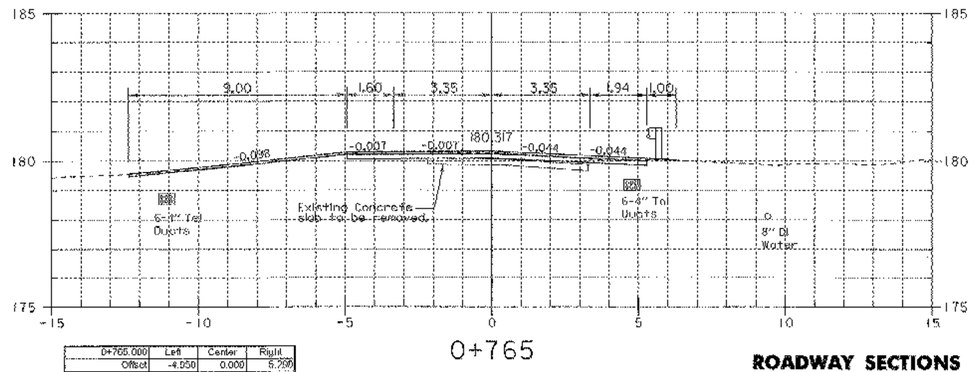
0+775

STA. 0+770.000
BEGIN PROJECT



0+770.000	Left	Center	Right
Offset	-5.050	0.000	5.199
Finish Grade	180.119	180.240	180.111
Bottom Pavement	179.868	180.010	179.881
Bottom Subbase	178.973	179.100	178.971

0+770



0+765.000	Left	Center	Right
Offset	-4.950	0.000	5.299
Finish Grade	180.285	180.317	180.087
Bottom Pavement	180.035	180.087	179.857
Bottom Subbase	--	--	--

0+765

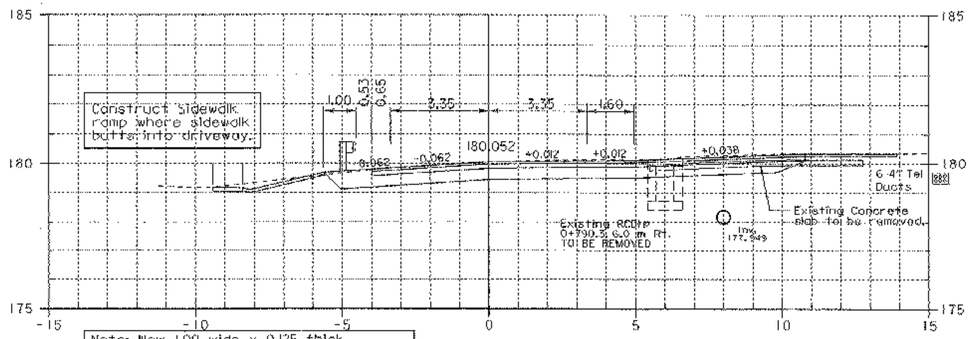
0 2 4 6 8 10
SCALE 1:100

ROADWAY SECTIONS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: C. SHANGRAW
sc028xsl.l

PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 58 OF 65

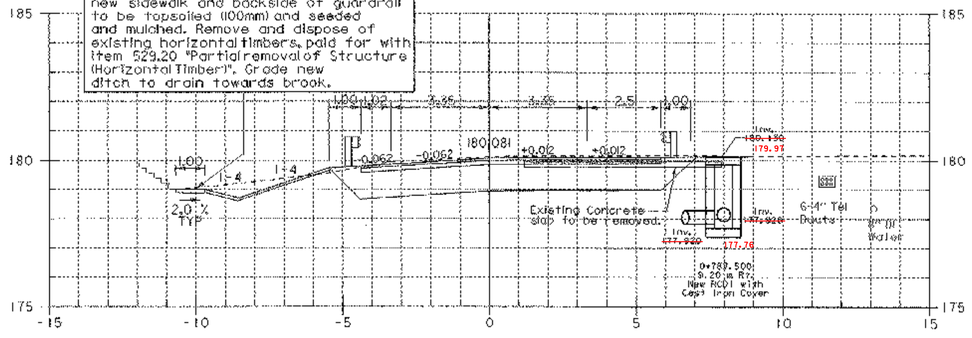


0+790

Note: New 1.00 wide x 0.125 thick concrete sidewalk. Remove existing pavement between driveway and top of streambank. Match grade of existing paved walk adjacent to house. Any voids between new sidewalk and existing paved walk to be patched with new pavement. Entire area between new sidewalk and backside of guardrail to be topsoiled (100mm) and seeded and mulched. Remove and dispose of existing horizontal timbers, paid for with Item 529.20 "Partial removal of Structure (Horizontal Timber)". Grade new ditch to drain towards brook.

0+790.000	Left	Center	Right
Offset	-4.000	0.000	4.950
Finish Grade	179.804	180.052	180.111
Bottom Pavement	179.674	179.927	179.861
Bottom Subbase	179.599	179.447	179.506

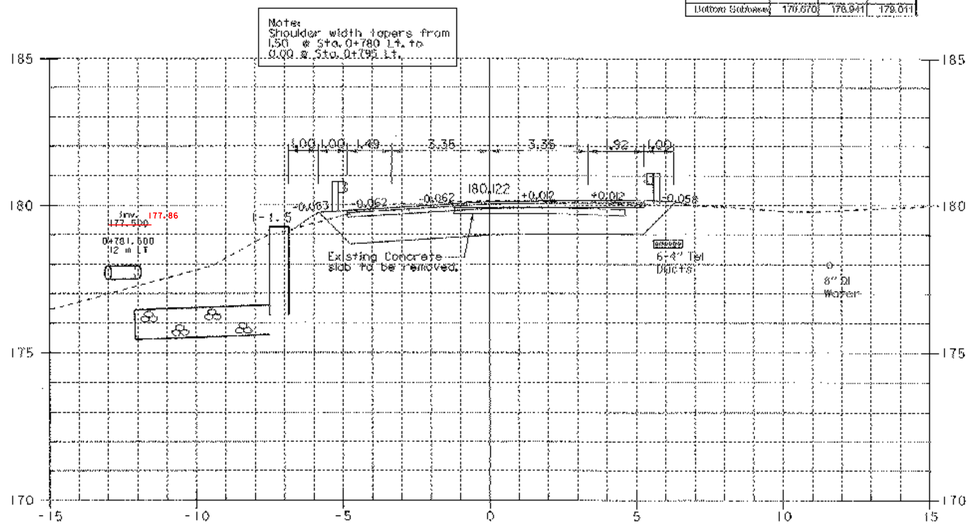
STA. 0+789.000
END PROJECT



0+785

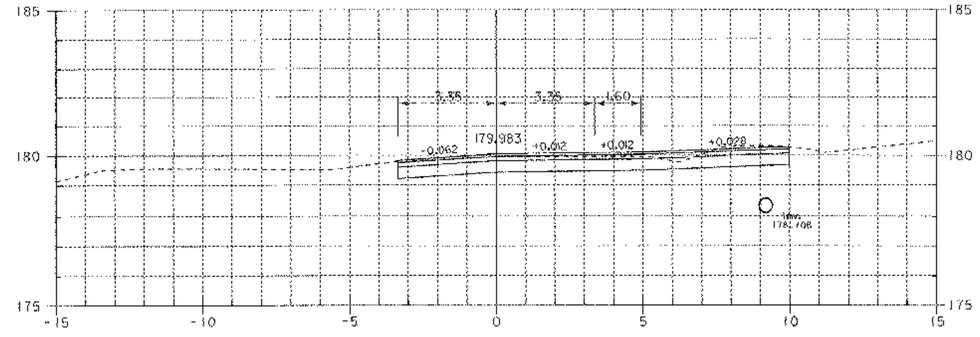
0+785.000	Left	Center	Right
Offset	-4.370	0.000	5.180
Finish Grade	179.810	180.081	180.151
Bottom Pavement	179.580	179.851	179.921
Bottom Subbase	179.670	179.941	179.011

Note:
Shoulder width tapers from 1.50 @ Sta. 0+780 Lt. to 0.00 @ Sta. 0+795 Lt.



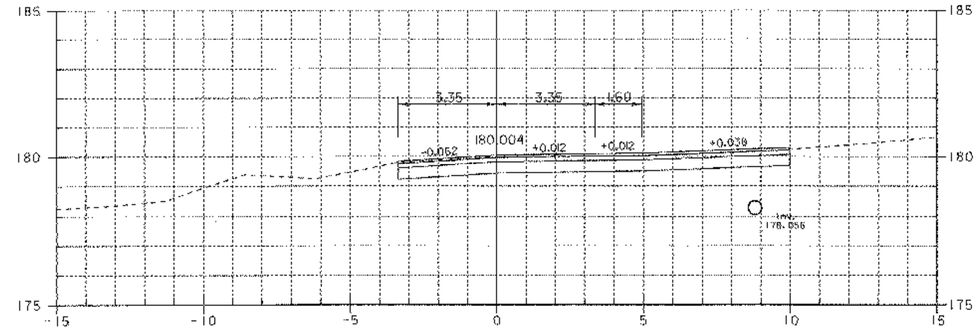
0+780

0+780.000	Left	Center	Right
Offset	-4.840	0.000	5.270
Finish Grade	179.822	180.122	180.105
Bottom Pavement	179.692	179.992	179.955
Bottom Subbase	179.082	179.982	179.045



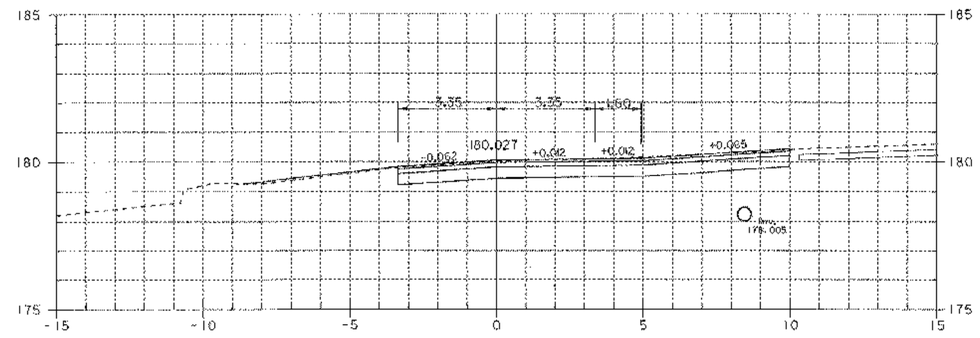
0+805

0+805.000	Left	Center	Right
Offset	-3.350	0.000	4.950
Finish Grade	179.778	179.983	180.042
Bottom Pavement	179.648	179.753	179.612
Bottom Subbase	178.770	179.378	179.437



0+800

0+800.000	Left	Center	Right
Offset	-3.350	0.000	4.950
Finish Grade	179.798	180.004	180.063
Bottom Pavement	179.566	179.774	179.633
Bottom Subbase	179.191	179.389	179.448



0+795

0+795.000	Left	Center	Right
Offset	-3.350	0.000	4.950
Finish Grade	179.818	180.027	180.086
Bottom Pavement	179.592	179.797	179.656
Bottom Subbase	179.214	179.423	179.481

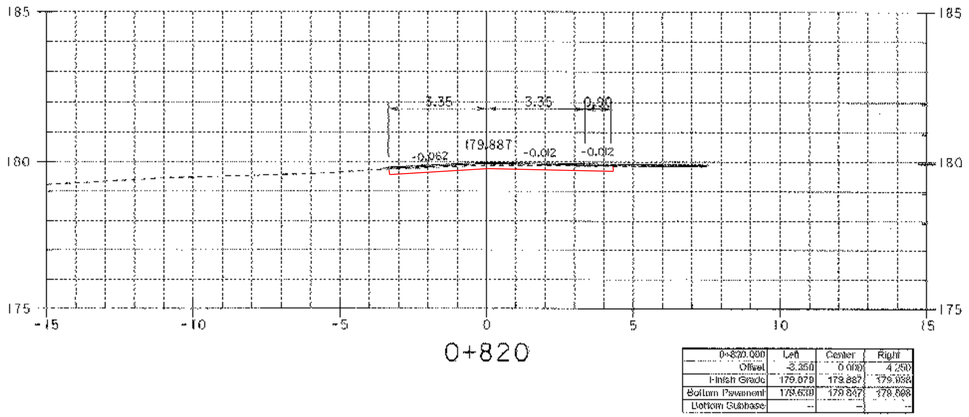
ROADWAY SECTIONS

PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028xs2.1

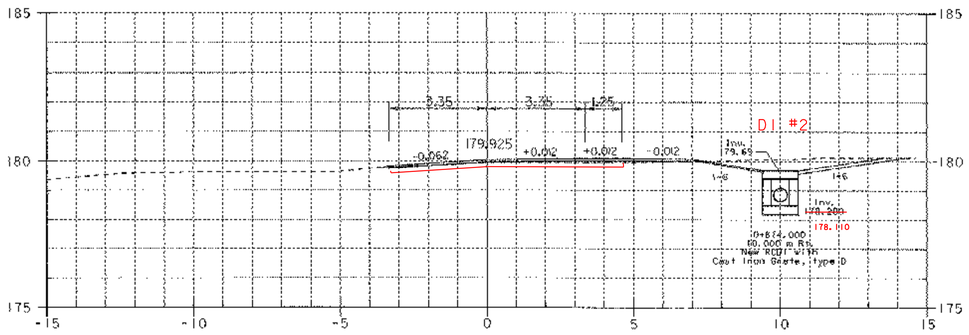
PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 59 OF 65

0 2 4 6 8 10
SCALE 1:100



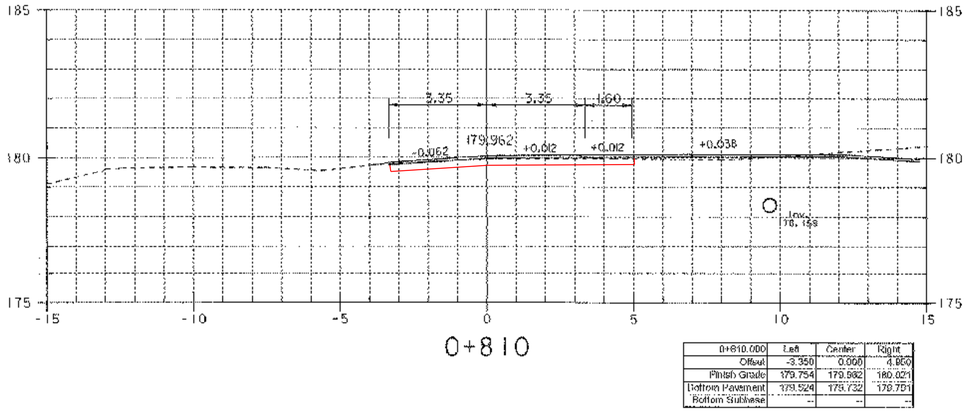
0+820

0+820.000	Left	Center	Right
Offset	-3.350	0.000	4.250
Finish Grade	179.879	179.887	179.958
Bottom Pavement	179.638	179.687	179.888
Bottom Subbase	--	--	--



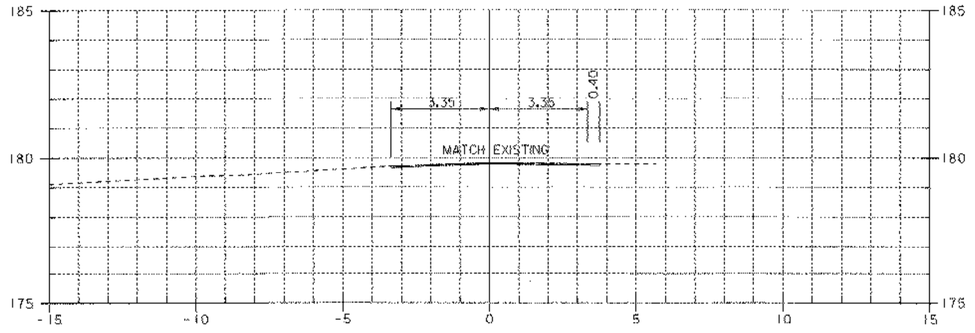
0+815

0+815.000	Left	Center	Right
Offset	-3.350	0.000	4.600
Finish Grade	179.717	179.825	179.980
Bottom Pavement	179.637	179.845	179.900
Bottom Subbase	--	--	--



0+810

0+810.000	Left	Center	Right
Offset	-3.350	0.000	4.800
Finish Grade	179.754	179.962	180.021
Bottom Pavement	179.524	179.732	179.701
Bottom Subbase	--	--	--



0+825

STA. 0+825.000
END APPROACH

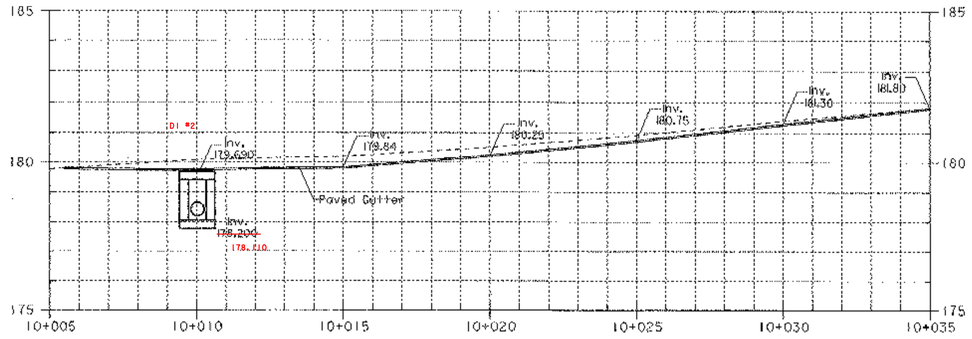
0 2 4 6 8 10
SCALE 1:100

ROADWAY SECTIONS

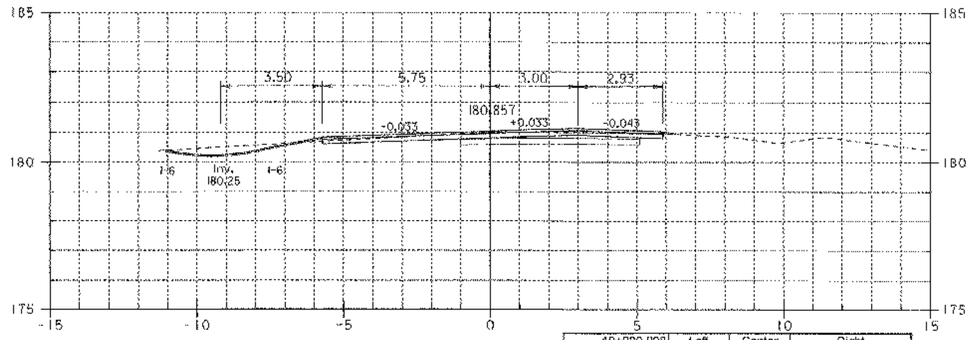
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: C. SHANGRAW
sc028xs3.i

PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 60 OF 65

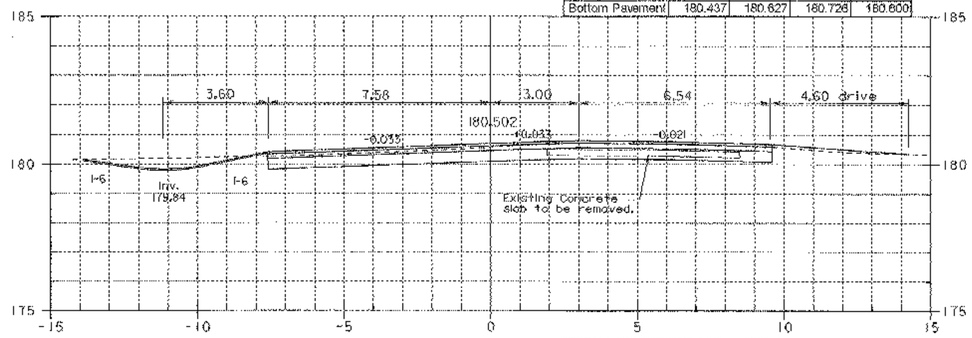


DITCH PROFILE @ TH56 Lt.



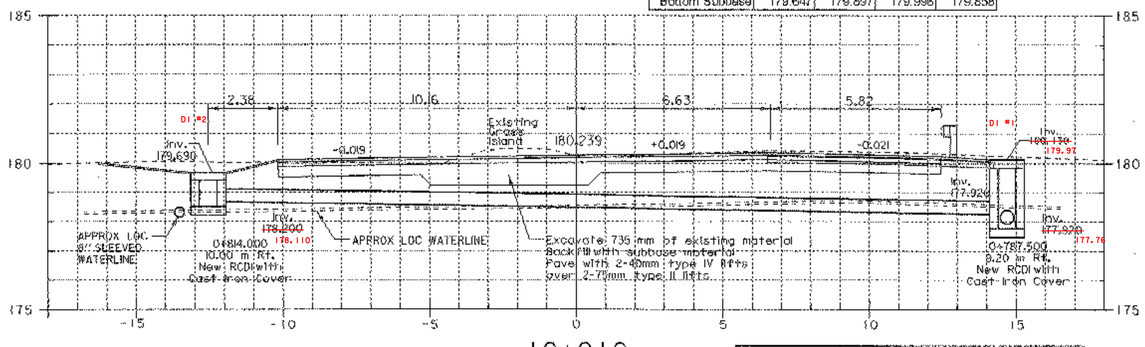
10+020

10+020.000	Left	Center	Right	
Offset	-5.750	0.000	3.000	5.930
Finish Grade	180.667	180.857	180.996	180.830
Bottom Pavement	180.437	180.627	180.726	180.600



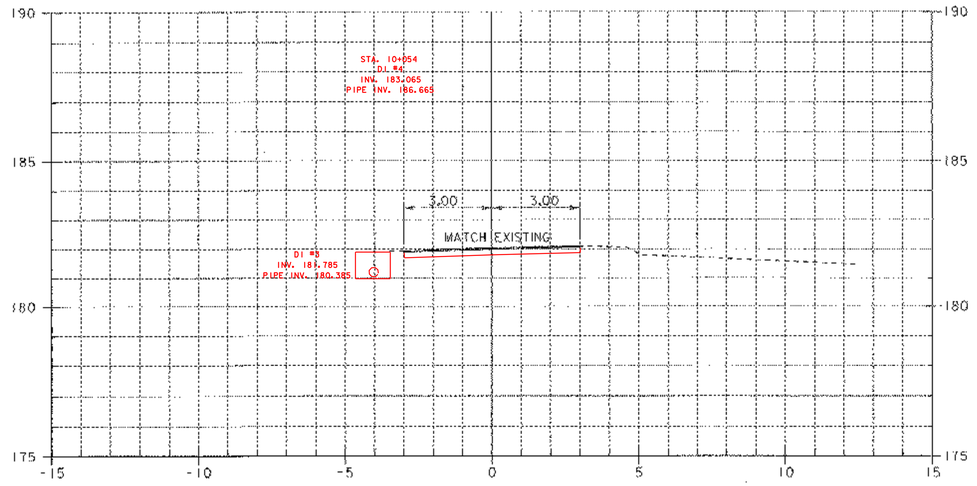
10+015

10+015.000	Left	Center	Right	
Offset	-7.580	0.000	3.000	9.540
Finish Grade	180.252	180.502	180.601	180.463
Bottom Pavement	180.022	180.272	180.371	180.233
Bottom Subbase	179.647	179.897	179.996	179.858

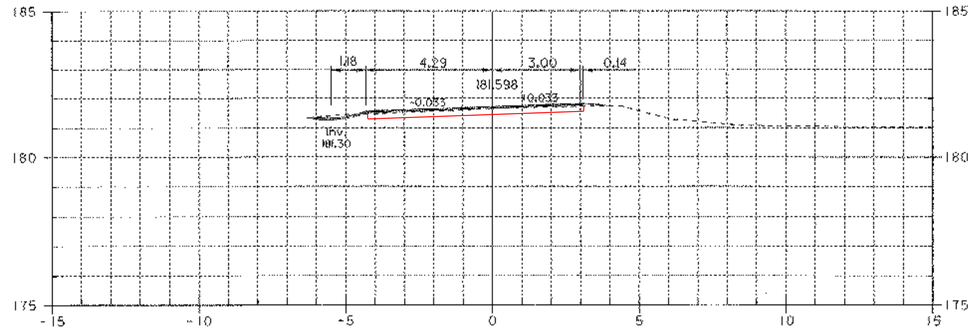


10+010

10+010.000	Left	Center	Right	
Offset	-10.160	0.000	6.630	12.450
Finish Grade	180.046	180.239	180.365	180.243
Bottom Pavement	179.816	180.009	180.135	180.013
Bottom Subbase	179.441	179.634	179.760	179.638

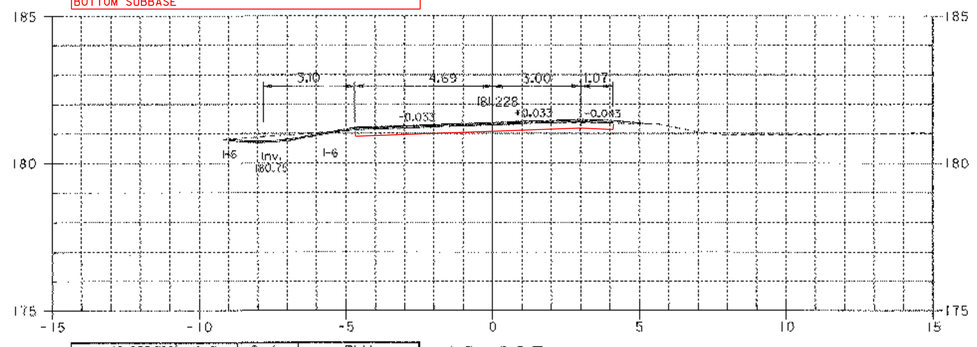


10+035 TO 10+054



10+030

10+030.000	Left	Center	Right	
Offset	-4.290	0.000	3.000	3.140
Finish Grade	181.457	181.598	181.697	181.702
Bottom Pavement	181.417	181.558	181.657	181.662
BOTTOM SUBBASE				



10+025

10+025.000	Left	Center	Right	
Offset	-4.690	0.000	3.000	4.070
Finish Grade	181.073	181.228	181.327	181.281
Bottom Pavement	180.993	181.148	181.247	181.201
BOTTOM SUBBASE				

0 2 4 6 8 10

SCALE 1:100

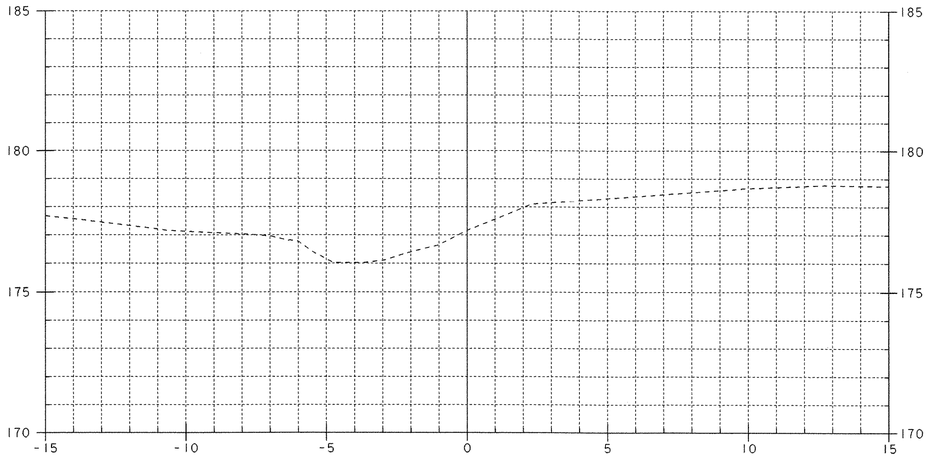
TH#56 SECTIONS

PROJECT NAME: POWNAL

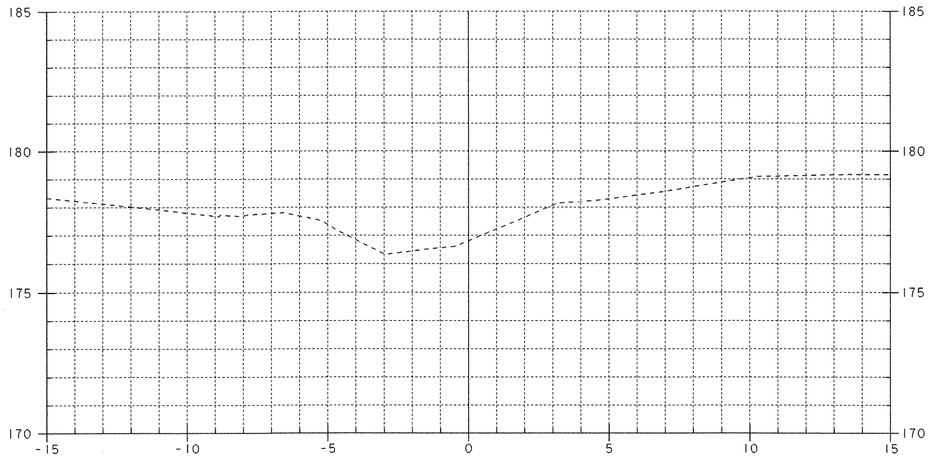
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: C. SHANGRAW
sc028thl1

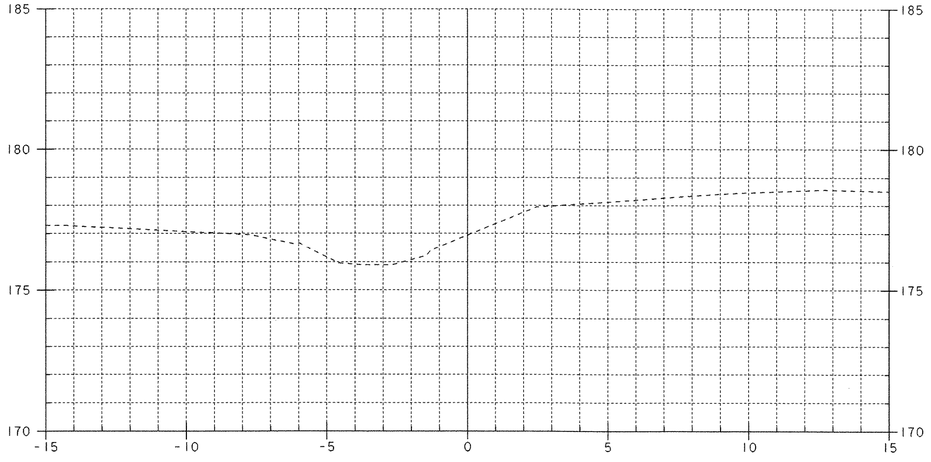
PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 61 OF 65



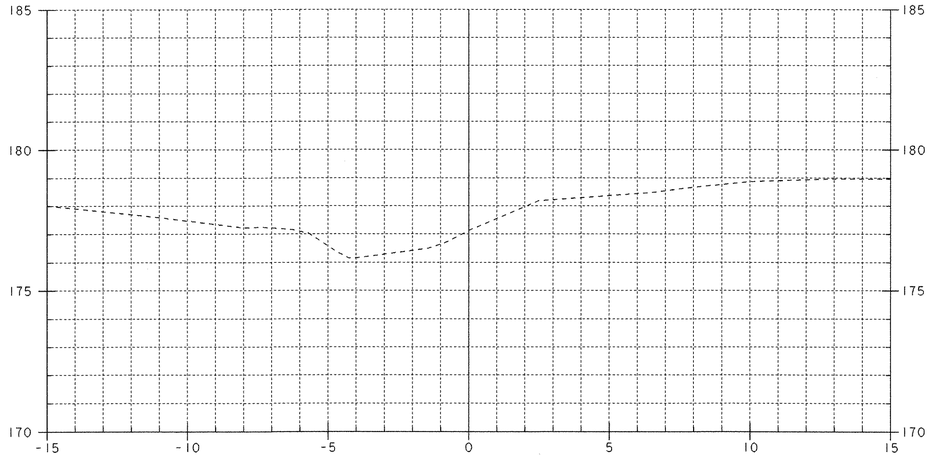
4+970



4+980



4+965



4+975

CHANNEL SECTIONS

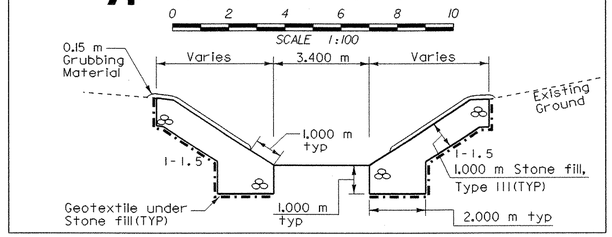
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

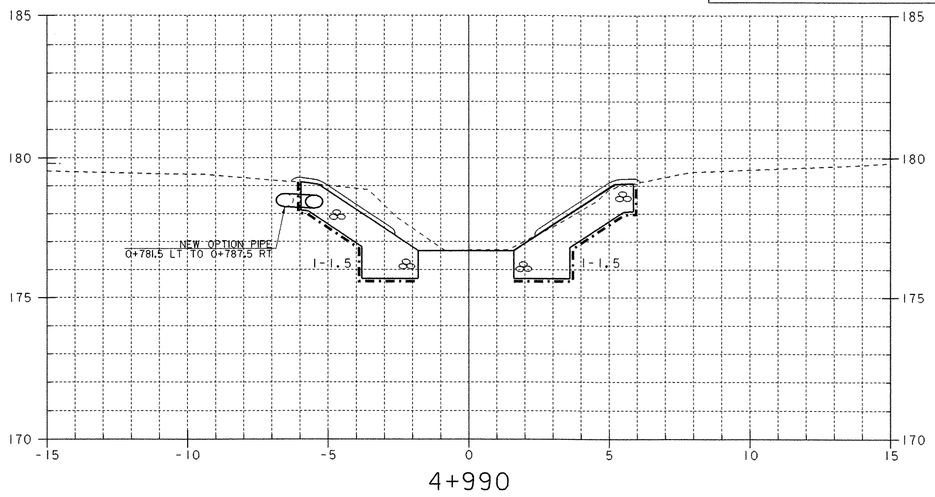
FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028csl.i

PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 62 OF 65

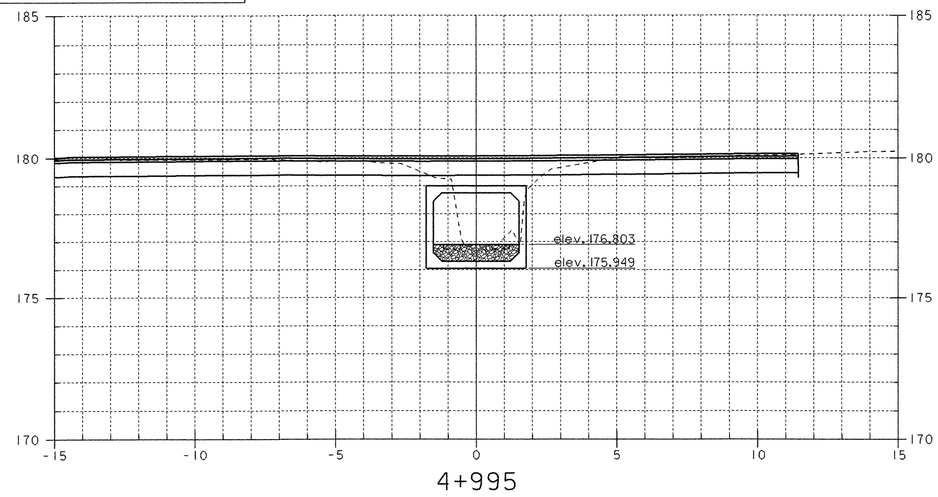
0 2 4 6 8 10
SCALE 1:100

Typical Channel Section

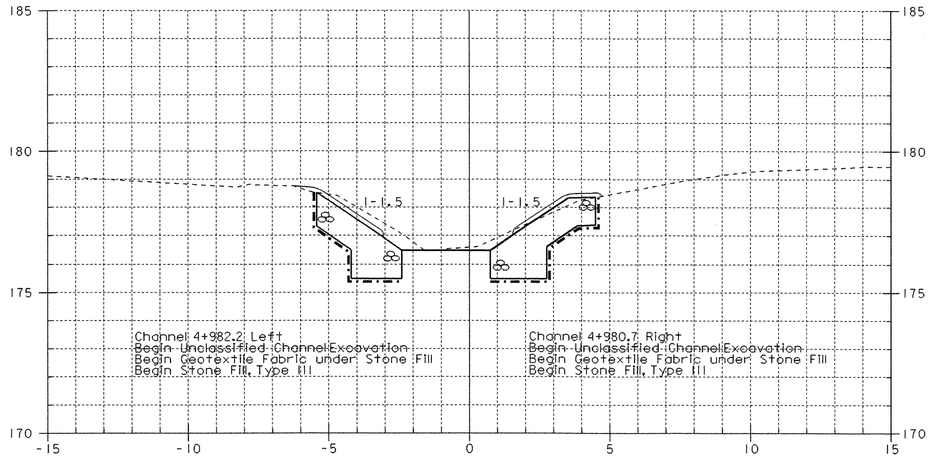




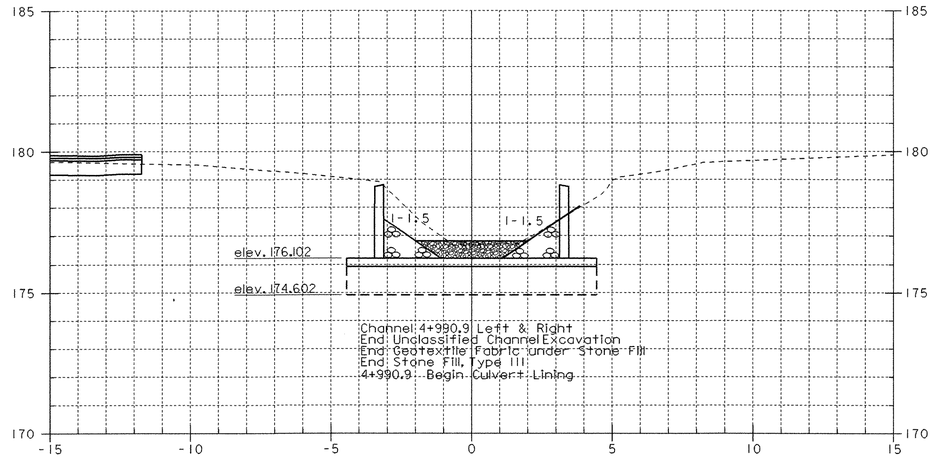
4+990



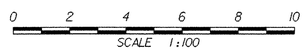
4+995



4+985



4+990.995

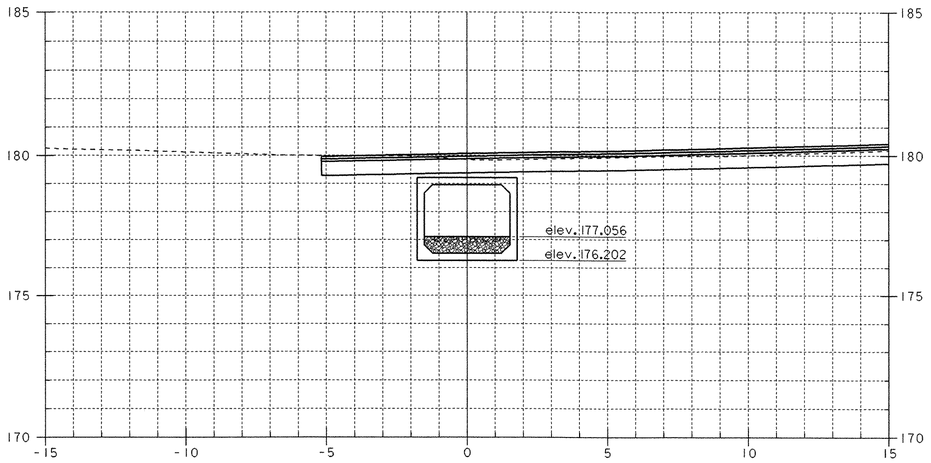


CHANNEL SECTIONS

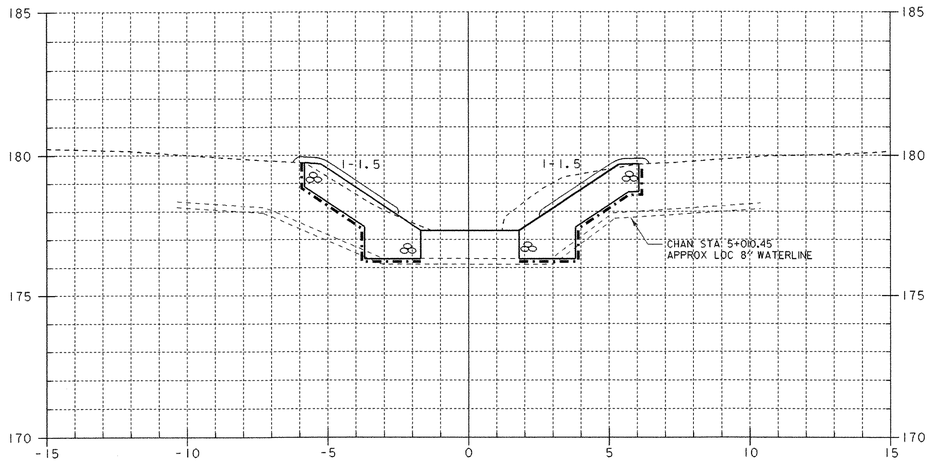
PROJECT NAME: POWNAL
PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028cs2.i

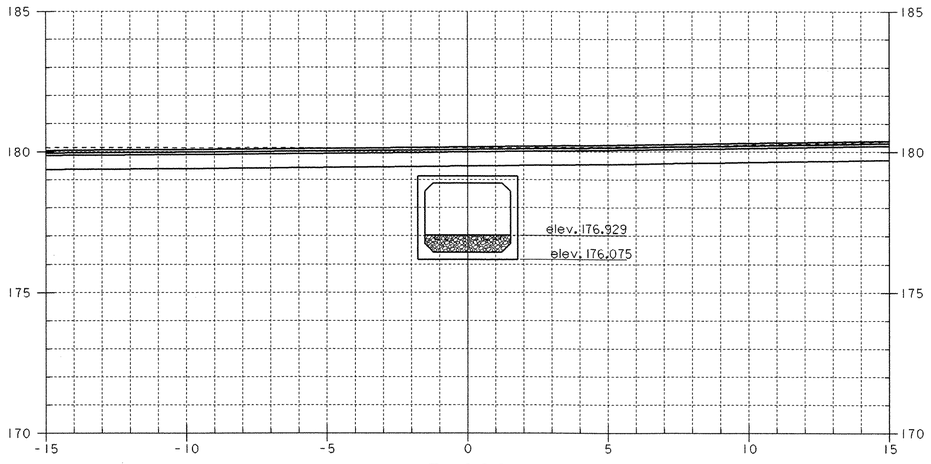
PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 63 OF 65



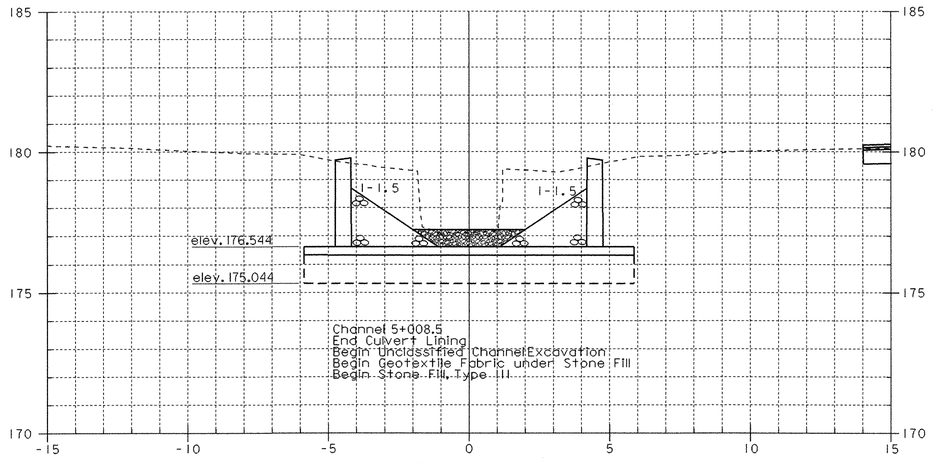
5+005



5+010



5+000



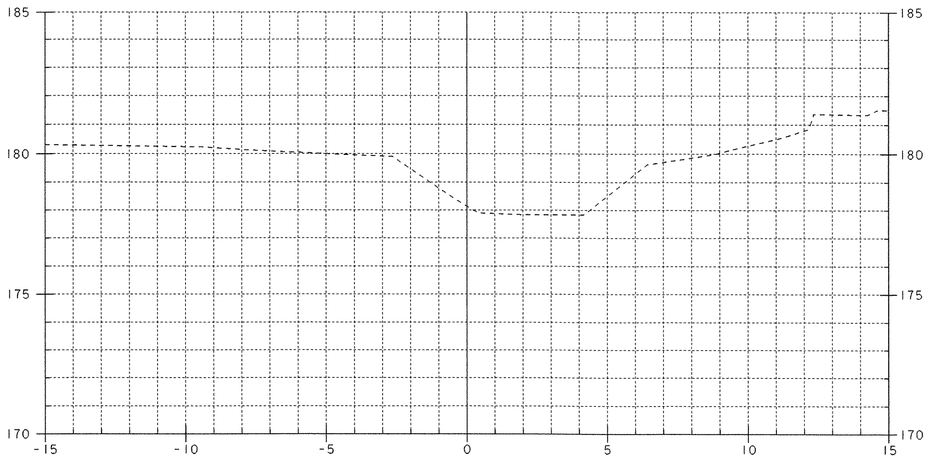
5+008.5

CHANNEL SECTIONS

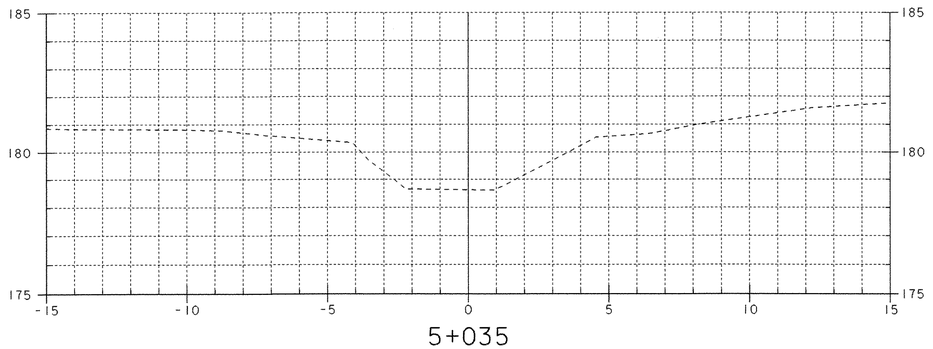
0 2 4 6 8 10

SCALE 1:100

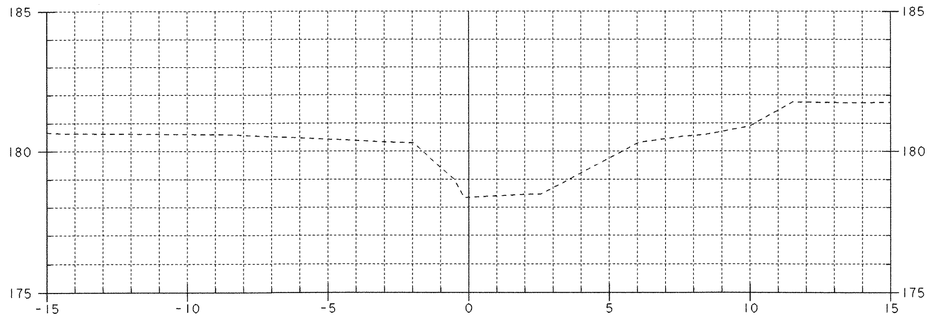
PROJECT NAME: POWNAL	
PROJECT NUMBER: STP RS 0107 (8)	
FILE NAME: /84c028/str/sc028xs.dgn	PLOT DATE: 10-MAY-2007
PROJECT LEADER: W. SYMONDS	DRAWN BY: K. RUTTER
DESIGNED BY: G. SHANGRAW	CHECKED BY: T. SUMNER
sc028cs3.i	SHEET 64 OF 65



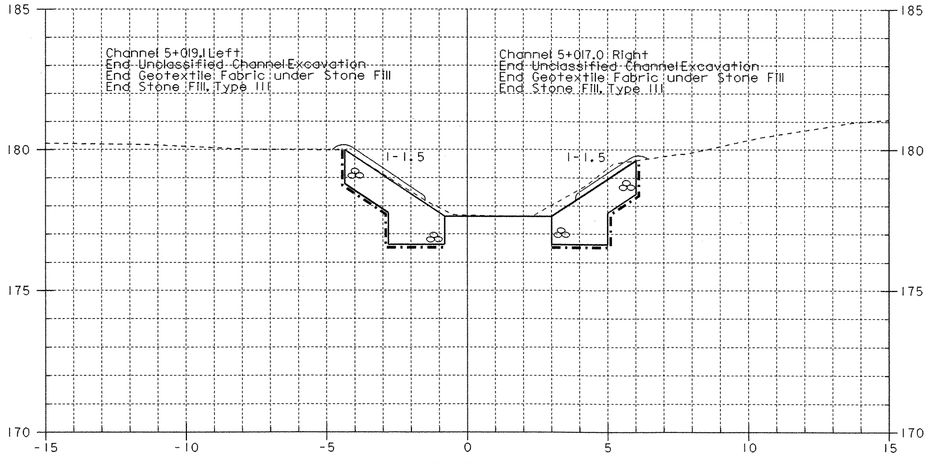
5+020



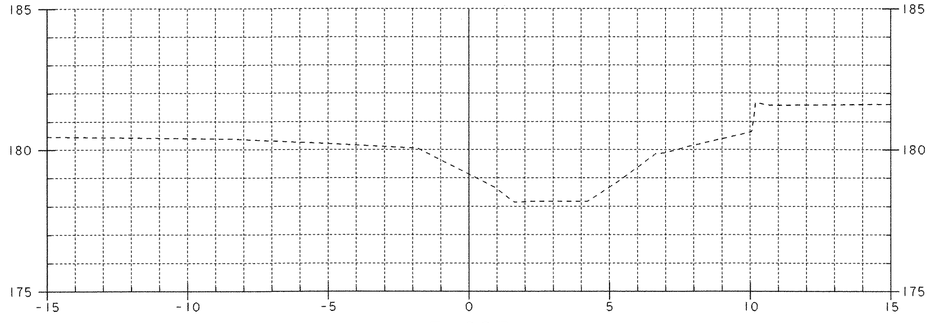
5+035



5+030



5+015



5+025

0 2 4 6 8 10

SCALE 1:100

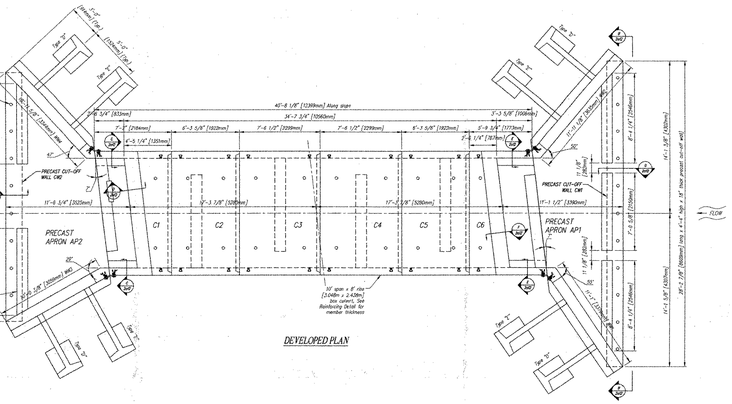
CHANNEL SECTIONS

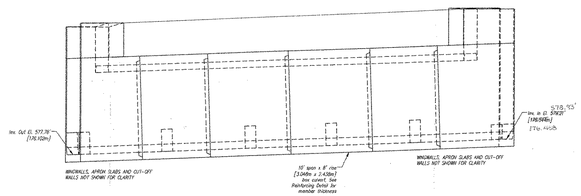
PROJECT NAME: POWNAL

PROJECT NUMBER: STP RS 0107 (8)

FILE NAME: /84c028/str/sc028xs.dgn
PROJECT LEADER: W. SYMONDS
DESIGNED BY: G. SHANGRAW
sc028cs4.1

PLOT DATE: 10-MAY-2007
DRAWN BY: K. RUTTER
CHECKED BY: T. SUMNER
SHEET 65 OF 65





ELEVATION

GENERAL NOTES:
1. Reference Standards: LRFD Bridge Design Specifications
   AASHTO "Standard Specifications for Highway Bridges"
   ASTM C443"
2. Design Parameters:
   Live Load: HL-93
   Earth Cover: 1' [0.915m]
   Concrete: Design strength f'c = 5000 psi [34.47 MPa]
   Unit weight = 150 pcf [2403 kg/m^3]
   Reinforcing: ASTM A615M (rebar), Grade 420
   ASTM A775M (rebar), Grade 420, epoxy coated
   ASTM A185 (WWF) fy = 60 ksi [414 MPa]
   Soil: Unit weight = 120 pcf [1922 kg/m^3] 130 psi Equiv. H
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 1 1/2" [38mm] u.n.o.
3. Dimensions include a joint gap. Actual culvert piece length is 3/4"[13mm] shorter (i.e. 5'-2"= 5'-1 3/4" [2286mm]). CS
4. No dampproofing supplied by CSI.
5. QTO are based for Splitters and D1 are based Inv.
6. Precast headwall design taken from sheet 45 of 65 of the contract drawings.

Wingwalls to be done by Contractor

PIECE SCHEDULE (MCP4300058)					
MARK	QTY	LENGTH	TOS	WEIGHT	
C1	1	6.47	11.54	23.38	TONS
C2	1	6.26	7.74	14.66	TONS
C3	1	7.00	8.95	17.32	TONS
C4	1	7.00	8.95	17.32	TONS
C5	1	6.26	7.74	14.66	TONS
C6	1	6.47	10.07	20.39	TONS
UP1	1	7.75	8.13	15.41	TONS
AP2	1	8.92	5.48	11.10	TONS
CW1	1	22.24	5.80	13.77	TONS
CW2	1	22.84	6.52	17.18	TONS

Aprons and headwalls to be 4,500 psi (MCP4300058)

WINGWALL PIECE SCHEDULE (MCP4300058)				
MARK	QTY	LENGTH	TOS	WEIGHT
WW1	1	11.08	5.25	10.63 TONS
WW2	1	11.83	4.59	11.30 TONS
WW3	1	10.01	4.59	9.58 TONS
WW4	1	10.01	4.23	10.59 TONS

Wingwalls to be 4,500 psi (MCP4300058)

RECEIVED
DATE BY
JUL 3 0 2007
REVIEWED APPROVED, AS NOTED
BY DATE

Contractor is to verify that all information shown on this drawing is correct and complies with the intent of the contract documents and is adequate to meet the field conditions. Some dimensions and details may have been modified during the shop drawing process by the manufacturing or design process. Approval of this drawing indicates that any deviation from the contract documents has been brought to our attention and is acceptable. Production will not commence until receipt of signed, approved shop drawings.

This drawing contains information proprietary to CONCRETE SYSTEMS, INC. This drawing is disclosed with the understanding that it will be received in confidence and its use limited solely to the purpose for which it is intended. Any unauthorized use, reproduction or this drawing is prohibited without the express written consent of CONCRETE SYSTEMS, INC. It will be returned to CONCRETE SYSTEMS, INC. upon request.

Rev.	Date	DESCRIPTION REVISIONS	By
5			
4			
3			
2			
1			

This drawing is based upon information provided from the following documents and/or sources:
Engineer: VAOT
Project No: STP RS 0107 (8)
Drawings: Pownal – STP RS 0107(8)
Sheets 38 through 46
Specifications: N/A
Other Sources:

Concrete Systems Inc.
3 Eisenhower Lane North, Lombard, Illinois 60148
Phone 630-889-9400
Fax 630-889-9417

STATE AGENCY
Drawn by: MLS/TT
Checked by: MLS/DV
Approved by:
Date: 07/23/2007
Date: 07/24/2007

VAOT
STP RS 0107(8)

RENAUD BROTHERS
POWNAL STP RS 0107 (8)
POWNAL, VT

BOX CULVERT LAYOUT

Drawing No. C18733-LO1-A

REV 0

Quantity: Project No.

SHEET 1 OF 3

RECEIVED
CCDP: YES DRSP: YES
AUG 3 0 2007
ASSIGNED APPROVED
BY TMC DATE 8/31/07

Contractor is to verify that all information shown on drawings has been thoroughly checked, complies with the contract documents and is adequate to meet the field conditions. Contractor is responsible for any and all other slightly from contract drawings to accommodate the manufacturing or design process. Approval of this drawing does not relieve the contractor of the contract documents has been reviewed and found to be unacceptable. Production will not commence until receipt of stamped, approved shop drawings.

This drawing contains information proprietary to CONCRETE SYSTEMS, INC. This drawing is designed with the understanding that it will be retained and used only by the staff of the agency for the purpose for which it is obtained. It is understood that no information contained in this drawing will be released or reproduction from CONCRETE SYSTEMS, INC. and that it will be returned to CONCRETE SYSTEMS, INC. upon request.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:
Engineer: VAOT
Project No: STP RS 0107 (8)
Drawings: Pownal – STP RS 0107(8) Sheets 38 through 45
Specifications: N/A
Other Sources:

Concrete Systems Inc.
9 Commercial St. Pownal, VA(Rt9) 05261
Tel 802-823-5600-(Rt9)
Fax 802-823-2437

STATE AGENCY
VAOT
STP RS 0107(8)

Date:	07/23/2007
No. 90-017	
Drawn by:	MS/CP
Approved by:	
Date	07/24/2007

RENAUD BROTHERS
POWNAL STP RS 0107 (8)
POWNAL, VT

BOX CULVERT DETAILS — REV 0

Drawing No.: C18733-L01-B

Quantity: Project No:

SHEET 2 OF 3

DETAIL 1 of 2

DETAIL 2 of 2

DETAIL 3 of 2

DETAIL 4 of 2

DAYTON/RICHMOND TWO BOLT PRESET ANCHOR

DAYTON/RICHMOND TWO BOLT PRESET ANCHOR

SECTION - TYPE D

BAR LIST - TYPE D						
MARK	QTY	SIZE	#	TYPE	LENGTH	FINISH
b1	7	19M [#6]	864 [2'-10"]	3	------	Epoxy*
b2	3	16M [#5]	------	Str.	965 [3'-2"]	Black
b3	4	16M [#5]	------	Str.	1385 [4'-6"]	Black
b4	9	19M [#6]	------	Str.	660 [2'-2"]	Black
b5	2	16M [#5]	1118 [3'-8"]	2	------	Black
b6	1	16M [#5]	1140 [3'-9"]	1	------	Black
b7	1	16M [#5]	1265 [4'-1"]	1	------	Black
b8	1	16M [#5]	1346 [4'-5"]	1	------	Black
b9	1	16M [#5]	1422 [4'-8"]	1	------	Black
b10	1	16M [#5]	1473 [4'-10"]	1	------	Black
b11	1	16M [#5]	1524 [5'-0"]	1	------	Black
b12	1	16M [#5]	1600 [5'-3"]	1	------	Black

Note: "Str." denotes straight bar. Standard Clearance = 51 [2"]

PRECAST ANCHOR TYPE D

SECTION - TYPE E

BAR LIST - TYPE E						
MARK	QTY	SIZE	#	TYPE	LENGTH	FINISH
b1	8	19M [#6]	914 [3'-0"]	3	------	Epoxy*
b2	4	16M [#5]	------	Str.	965 [3'-2"]	Black
b3	4	16M [#5]	------	Str.	1395 [4'-7"]	Black
b4	11	16M [#5]	------	Str.	660 [2'-2"]	Black
b5	2	16M [#5]	1118 [3'-8"]	2	------	Black
b6	1	16M [#5]	1448 [4'-9"]	1	------	Black
b7	1	16M [#5]	1826 [5'-4"]	1	------	Black
b8	1	16M [#5]	1870 [5'-6"]	1	------	Black
b9	1	19M [#6]	1727 [5'-8"]	1	------	Black
b10	1	16M [#5]	1778 [5'-10"]	1	------	Black
b11	1	19M [#6]	1829 [6'-0"]	1	------	Black
b12	1	19M [#6]	1854 [6'-1"]	1	------	Black
b13	1	19M [#6]	1905 [6'-3"]	1	------	Black

Note: "Str." denotes straight bar. Standard Clearance = 51 [2"]

PRECAST ANCHOR TYPE E

BACKFILL DESCRIPTION					
Group Classification	A-1-a	A-1-b	A-3	A-2 A-2-4 A-2-5 A-2-6 A-2-7	A-4
Sieve Analysis, Percent Passing No. 10	50 max.				
No. 40	30 max.	50 max.	51 min.		
No. 200	15 max.	25 max.	10 max.	35 max. 35 max. 35 max. 35 max.	36 min.
Characteristics of Fraction Passing No. 40					
Liquid Limit				40 max. 41 min. 40 max. 41 min.	40 max.
Plasticity Index	6 max.		N.P.	10 max. 10 max. 11 min. 11 min.	10 max.
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Fine Sand	Silty or Clayey Gravel and Sand	Silty Soils
General Rating as Subgrade	Excellent to Good				Fair to Poor

NOTES:
1. BACKFILLING OPERATIONS WITHIN THE C.S.Z. SHALL BE PERFORMED IN LIFTS OF 9" OR LESS (LOOSE DEPTH).
2. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
3. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

WINGWALL BACKFILL REQUIREMENTS

RECEIVED
DATE OF TRANS. DATE BY TRANS.
JUL 3 0 2007
RESIDENT ENGR. APPROVED
BY DATE 8/31/07

Contractor is to verify that all information shown on these drawings is consistent with the requirements of the contract documents and is adequate to meet the field conditions. Some dimensions and details may require field verification. Contractor is responsible for the manufacturing or design process. Approval of this drawing indicates that only deviation from the contract documents that have been noted in writing by the contractor. Production will not commence until receipt of signed, approved shop drawings.

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:
Engineer: VAOT
Project No: STP RS 0107 (8)
Drawings: Pownal — STP RS 0107(8) Sheets 38 through 46
Specifications: N/A
Other Sources:

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Phone 603-889-4133
Fax 603-889-0417

STATE AGENCY
Designed by: VAOT
Drawn by: STP RS 0107(8)
Checked by: 07/23/2007
Approved by: MD/CV 07/24/2007
Date:

RENAUD BROTHERS
POWNAL STP RS 0107 (8)
POWNAL, VT

BOX CULVERT WINGWALL DETAILS

Drawing No. C18733-L01-C
Project No.
Quantity:
SHEET 3 OF 3
REV. D