BITUMINOUS CONCRETE PAVEMENT SUPERPAVE DESIGN MIXTURE CRITERIA	
DESIGN LIFE ESAL'S (DESIGN LANE)	2,029,040
DESIGN NUMBER OF GYRATIONS	65
PERFORMANCE GRADED ASPHALT BINDER	SEE SUBSECTION 490.03(b)

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS AND STANDARDS LIST

RECORD PLANS

CONTRACTOR: B.U.R. CONSTRUCTION, LLC. CLAREMONT, NH

RESIDENT ENGINEER: PETER HODGSON

CONSTRUCTION BEGAN: MAY 30, 2014

CONSTRUCTION COMPLETE: MAY 28, 2015

RECORD PLANS BY: PETER HODGSON & KEVIN KING

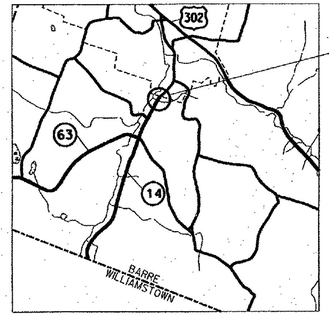
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

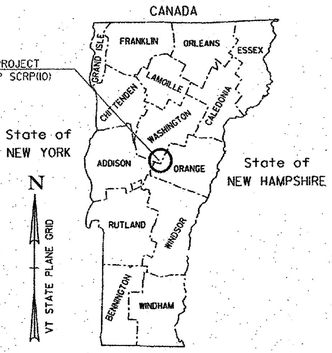
BY Pete Hodgson RESIDENT ENGINEER

DATE March 5, 2018

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.

STATE OF VERMONT
AGENCY OF TRANSPORTATION





PROJECT STP SCRP(10)

N

VT STATE PLANE GRID

0 1.0 2.0 3.0

SCALE IN MILES

PROPOSED IMPROVEMENT
TOWN OF BARRE
COUNTY OF WASHINGTON
VT ROUTE 14 (MINOR ARTERIAL)

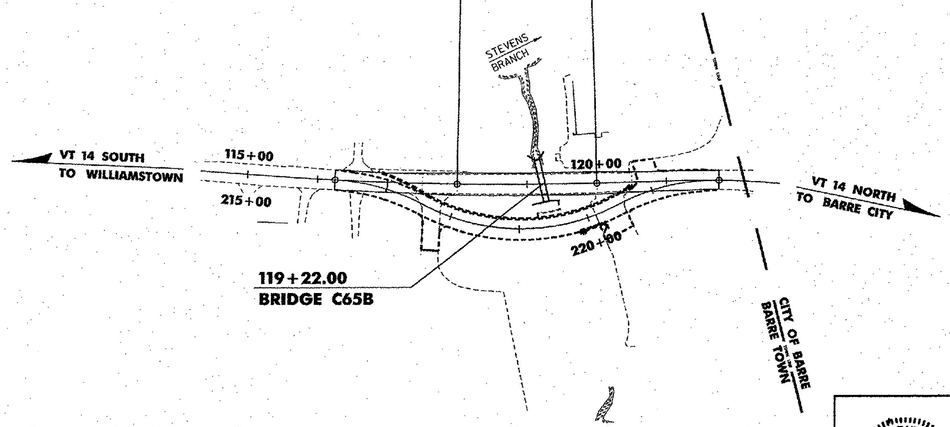
PROJECT LOCATION: BEGINNING IN THE TOWN OF BARRE ON VT ROUTE 14, AT STATION 118+00.00 (MM 2.235) AND EXTENDING NORTHERLY APPROXIMATELY 200' (0.038 MILE) TO STATION 120+00.00 (MM 2.273)

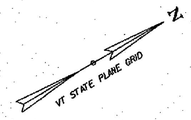
LENGTH OF ROADWAY = 193.00 FEET = 0.037 MILES
LENGTH OF BRIDGE = 7.00 FEET = 0.001 MILES
LENGTH OF PROJECT = 200.00 FEET = 0.038 MILES

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REMOVAL OF AN EXISTING STONE BOX CULVERT, CONCRETE HEADWALLS, INSTALLATION OF A NEW PRECAST CONCRETE BOX CULVERT, PAVEMENT, SUBBASE, STEEL BEAM GUARDRAIL AND OTHER HIGHWAY RELATED ITEMS.

BEGIN BARRE TOWN STP SCRP(10)
STA. 118+00.00 (MM 2.235)

END BARRE TOWN STP SCRP(10)
STA. 120+00.00 (MM 2.273)





0 100 200

SCALE IN FEET

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 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : P. WINTERS

SURVEYED DATE : 10/11/2010

DATUM

VERTICAL NAVD88

HORIZONTAL NAD 83 (1992)

STATE OF VERMONT JOHN P. EVATT NO. 0478 Structural LICENSED PROFESSIONAL ENGINEER

STATE OF VERMONT CHRISTOPHER R. BEAM No. 0529 REGISTERED PROFESSIONAL ENGINEER

CONSULTING ENGINEERS
540 Commercial Street
Manchester, NH 03101
(603) 668-8223
www.cldengineers.com

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED [signature] DATE 2/12/14

PROJECT MANAGER : KEN UPMAL, P.E.

PROJECT NAME : BARRE TOWN

PROJECT NUMBER : STP SCRP(10)

SHEET 1 OF 43 SHEETS

CLD II-0160

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 12.09.13

LRFD

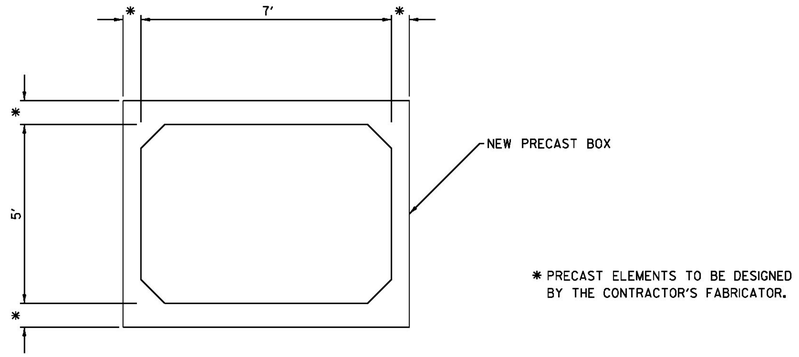
INDEX OF SHEETS

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3	CONVENTIONAL SYMBOLOGY LEGEND SHEET
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STANDARDS LIST

B-5	06-01-1994
B-71	07-08-2005
D-3	06-01-1994
D-4	08-13-2007
E-134	08-08-1995
G-1	01-03-2000
G-1d	01-03-2000
G-19	11-15-2002
J-3	08-07-1995
T-1	08-06-2012
T-10	08-06-2012
T-17	08-06-2012
T-28	08-06-2012
T-30	08-06-2012
T-35	08-06-2012
T-45	01-02-2013



PRECAST BOX CULVERT

NOT TO SCALE

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Feb. 2012

DRAINAGE AREA : 0.6 sq. mi.
CHARACTER OF TERRAIN : Hilly, a mixture of developed, open and forested land cover
STREAM CHARACTERISTICS : Long pipe upstream. Steep, confined banks downstream.
NATURE OF STREAMBED : Sand, gravel and stones

PEAK FLOW DATA

Q 2.33 =	70 cfs	Q 50 =	190 cfs
Q 10 =	130 cfs	Q 100 =	210 cfs
Q 25 =	160 cfs	Q 500 =	300 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 11.3 fps
ICE CONDITIONS : Slight
DEBRIS: Slight
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Stone and concrete box
YEAR BUILT: Unknown
CLEAR SPAN(NORMAL TO STREAM): 3'
VERTICAL CLEARANCE ABOVE STREAMBED: 3'
WATERWAY OF FULL OPENING: 9 sq. ft.
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	662.0'	VELOCITY =	9.1 fps
Q10 =	668.1'	"	14.4 fps
Q25 =	671.1'	"	16.6 fps
Q50 =	671.4'	"	16.7 fps
Q100 =	671.5'	"	16.8 fps

LONG TERM STREAMBED CHANGES: None known

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
FREQUENCY: Below Q25
RELIEF ELEVATION: 670.8'
DISCHARGE OVER ROAD @Q100: 60 cfs

UPSTREAM STRUCTURE

TOWN: Barre Town — DISTANCE: 10'
HIGHWAY # : Private pipe under lawn — STRUCTURE #: Private
CLEAR SPAN: 3.5' — CLEAR HEIGHT: 3.5'
YEAR BUILT: Unknown — FULL WATERWAY: 9.6 sq. ft.
STRUCTURE TYPE: CPEP (SL)

DOWNSTREAM STRUCTURE

TOWN: Barre Town — DISTANCE: 150'
HIGHWAY # : Confluence with Stevens Branch — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

LRFR LOAD RATING FACTORS *

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

* LRFR LOAD RATING FACTORS TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER.

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete box

CLEAR SPAN(NORMAL TO STREAM): 7'
VERTICAL CLEARANCE ABOVE STREAMBED: 5'
WATERWAY OF FULL OPENING: 35 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	660.4'	VELOCITY=	13.5 fps
Q10 =	661.6'	"	15.4 fps
Q25 =	662.2'	"	16.0 fps
Q50 =	662.7'	"	16.6 fps
Q100 =	663.1'	"	16.9 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 671.2'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: Inside top of box 663.0' at inlet
VERTICAL CLEARANCE: @ Q50 = 0.3'

SCOUR: Not applicable for a box.

REQUIRED CHANNEL PROTECTION: See below.*

PERMIT INFORMATION

AVERAGE DAILY FLOW:	1 cfs	
ORDINARY LOW WATER:	0.5 cfs	DEPTH OR ELEVATION:
ORDINARY HIGH WATER:	30 cfs	Depth < 0.5'
		Depth = 2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary structure needed.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

*Use Stone Fill, Type III on the stream bed and up the channel banks to 5' above stream bed, or to the top of bank. Smaller stone may be used for slope protection from that point up as needed and as shown on the plans.

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	2.0 INCH
3. DESIGN SPAN	L:	7.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2012	9200	970	52	5.2	590	20 year ESAL for flexible pavement from 2012 to 2032 : 3902000
2032	9300	980	52	7.2	840	40 year ESAL for flexible pavement from 2012 to 2052 : 8320000
						Design Speed : 35 mph

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202pi.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
PRELIMINARY INFORMATION SHEET

PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 2 OF 43

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⊡	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
❄	APL	BOUND APPARENT LOCATION
▫	BM	BENCH MARK
▫	BND	BOUND
⊡	CB	CATCH BASIN
⊕	COMB	COMBINATION POLE
⊡	DITHR	DROP INLET THROATED DNC
⊕	EL	ELECTRIC POWER POLE
⚑	FPOLE	FLAGPOLE
⊙	GASFIL	GAS FILLER
⊙	GP	GUIDE POST
⋈	GSO	GAS SHUT OFF
⊙	GUY	GUY POLE
⊙	GUYW	GUY WIRE
⋈	GV	GATE VALUE
❀	H	TREE HARDWOOD
△	HCTRL	CONTROL HORIZONTAL
▲	HVCTRL	CONTROL HORIZ. & VERTICAL
◇	HYD	HYDRANT
●	IP	IRON PIN
●	IPIPE	IRON PIPE
⊕	LI	LIGHT - STREET OR YARD
♂	MB	MAILBOX
⊙	MH	MANHOLE (MH)
▫	MM	MILE MARKER
●	PM	PARKING METER
▫	PMK	PROJECT MARKER
⊙	POST	POST STONE/WOOD
⚑	RRSIG	RAILROAD SIGNAL
◆	RRSL	RAILROAD SWITCH LEVER
✱	S	TREE SOFTWOOD
⊙	SAT	SATELLITE DISH
❀	SHRUB	SHRUB
⊽	SIGN	SIGN
⅄	STUMP	STUMP
⊸	TEL	TELEPHONE POLE
⊙	TIE	TIE
⊽⊽	TSIGN	SIGN W/DOUBLE POST
⅄	VCTRL	CONTROL VERTICAL
⊙	WELL	WELL
⋈	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEP.
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEP.
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH 'L'
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PDF — PROJECT DEMARCATION FENCE
- BF — BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6F — 6F — 6F PROPERTY BOUNDARY
- 4F — 4F — 4F PROPERTY BOUNDARY
- HAZ — HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AGRICULTURAL LAND
- FISH & WILDLIFE HABITAT
- FLOOD PLAIN
- ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCHEOLOGICAL BOUNDARY
- HISTORIC DISTRICT BOUNDARY
- HISTORIC AREA
- Ⓗ HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

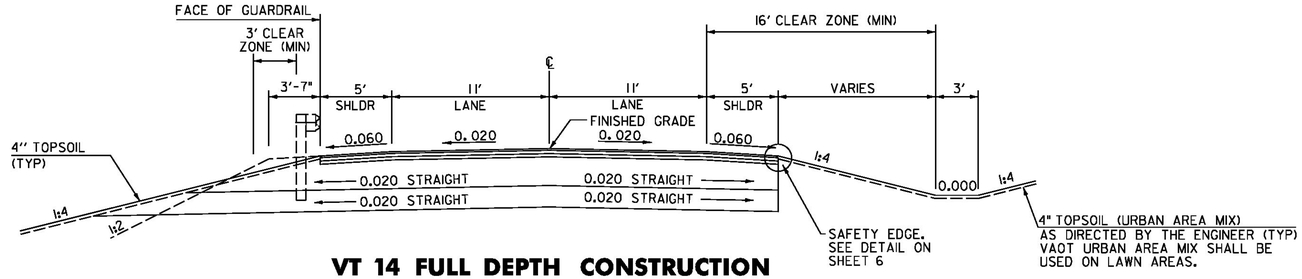
PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: z10d202legend.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: M. HALEY
DESIGNED BY: P. SHEDD	CHECKED BY: P. SHEDD
CONVENTIONAL SYMBOLOGY LEGEND SHEET	SHEET 3 OF 43

CLD II-0160

MATERIAL TOLERANCES

PAVEMENT (TOTAL DEPTH)	± 1/4"
SUBBASE (TOTAL DEPTH)	± 1"
SAND BORROW (TOTAL DEPTH)	± 1"

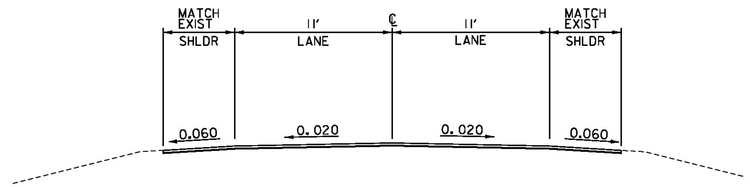
1½" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS WEARING COURSE
2¾" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IIS INTERMEDIATE COURSE
2¾" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IIS BASE COURSE
24" SUBBASE OF DENSE GRADED CRUSHED STONE
18" SAND BORROW



VT 14 FULL DEPTH CONSTRUCTION
STA 118+00.00 TO 120+00.00

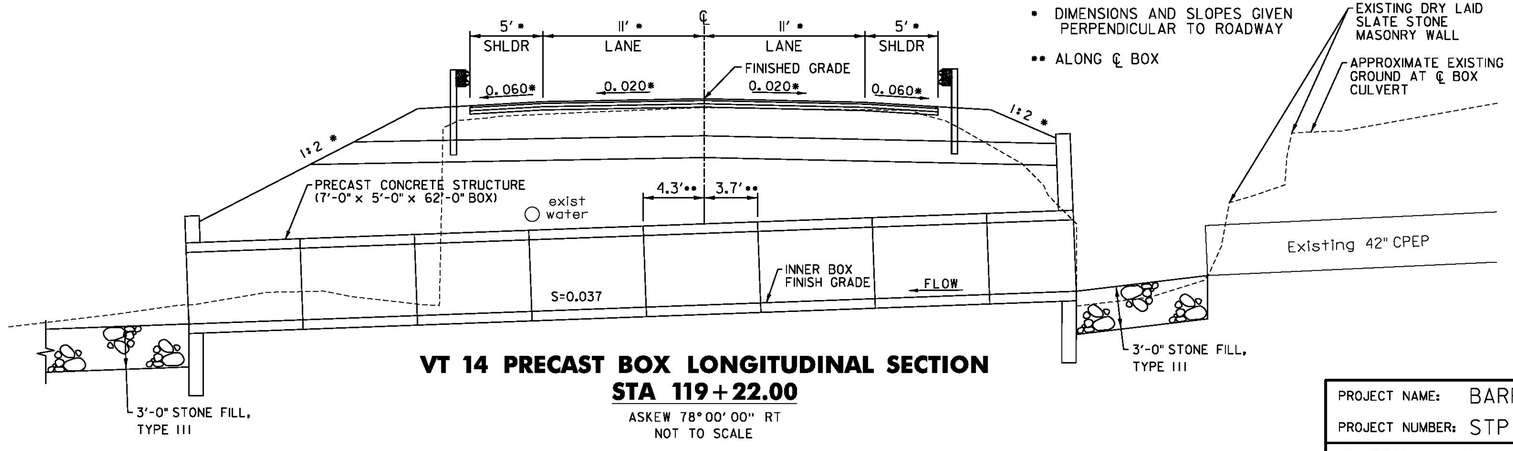
NOT TO SCALE

2" COLD PLANE
1½" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS WEARING COURSE
½" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS LEVELING COURSE



VT 14 COLD PLANE & OVERLAY
STA 116+25.00 TO 118+00.00
STA 120+00.00 TO 121+75.00

NOT TO SCALE

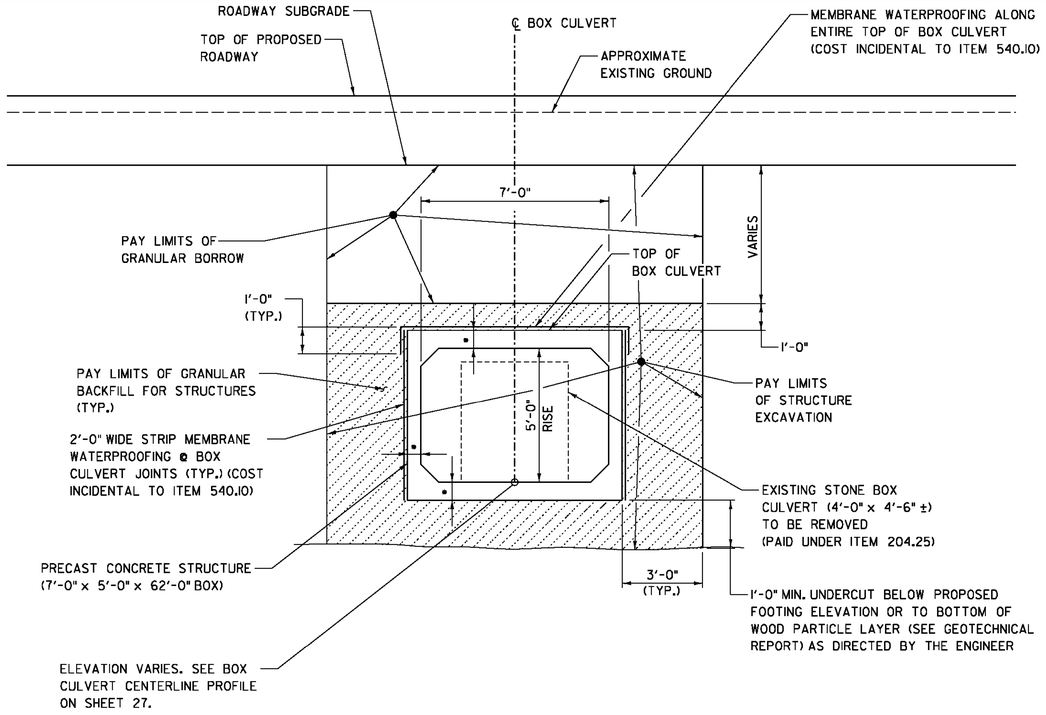


VT 14 PRECAST BOX LONGITUDINAL SECTION
STA 119+22.00

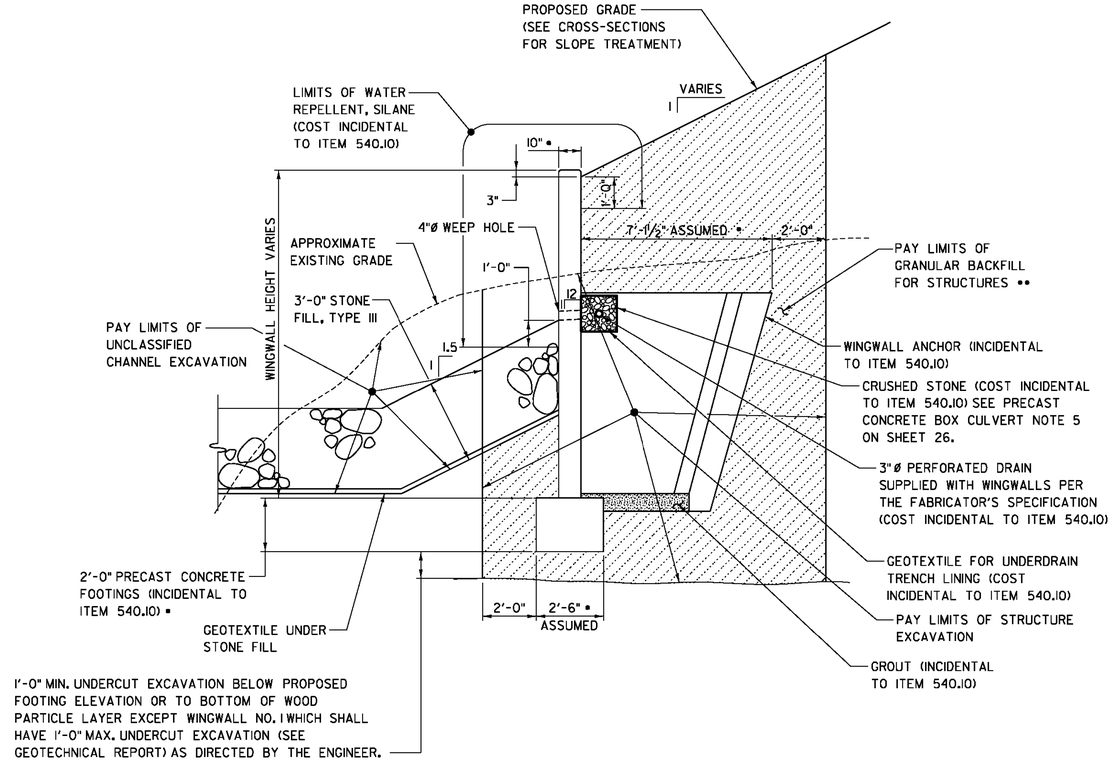
ASKEW 78° 00' 00" RT
NOT TO SCALE

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: z10d202typ.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
TYPICAL SECTIONS	SHEET 4 OF 43

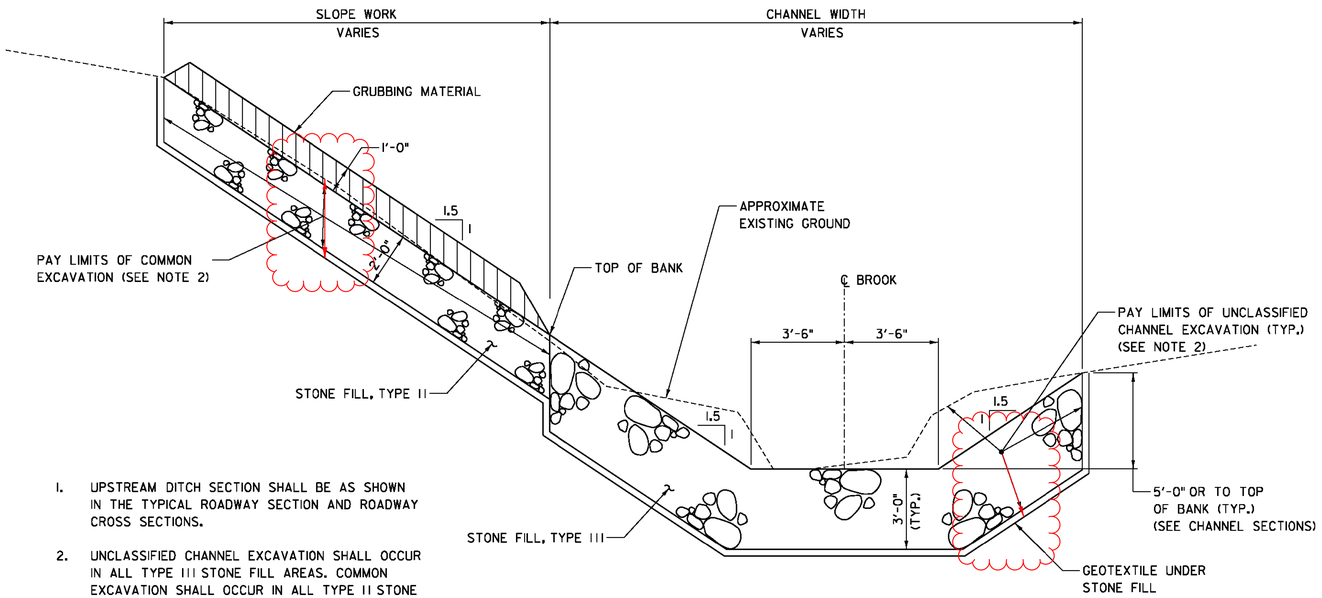
CLD 11-0160



TYPICAL BOX CULVERT SECTION
NOT TO SCALE



TYPICAL WINGWALL SECTION
NOT TO SCALE



1. UPSTREAM DITCH SECTION SHALL BE AS SHOWN IN THE TYPICAL ROADWAY SECTION AND ROADWAY CROSS SECTIONS.
2. UNCLASSIFIED CHANNEL EXCAVATION SHALL OCCUR IN ALL TYPE III STONE FILL AREAS. COMMON EXCAVATION SHALL OCCUR IN ALL TYPE II STONE FILL AREAS.

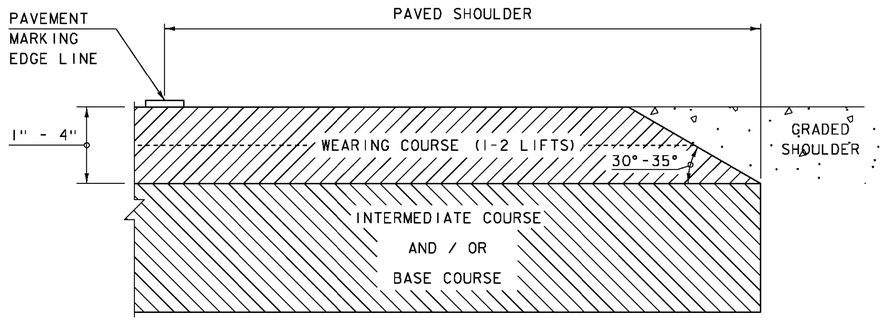
TYPICAL DOWNSTREAM CHANNEL SECTION
NOT TO SCALE

NOTES

- BOX, WINGWALL, WINGWALL ANCHOR, HEADWALL, AND FOOTING THICKNESSES ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. THE ACTUAL THICKNESSES WILL BE DETERMINED BY THE CONTRACTOR'S FABRICATOR.
- •• ROADWAY SUBBASE EXCAVATION SHALL NOT BE INCLUDED UNDER STRUCTURE EXCAVATION. WHENEVER BACKFILL SLOPE INTERSECTS ROADWAY SUBBASE, GRANULAR BACKFILL FOR STRUCTURES AND STRUCTURE EXCAVATION SHALL BEGIN AT THE BOTTOM OF SUBBASE.

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202sub.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: J. BYATT
TYPICAL EARTHWORK SECTIONS	SHEET 5 OF 43

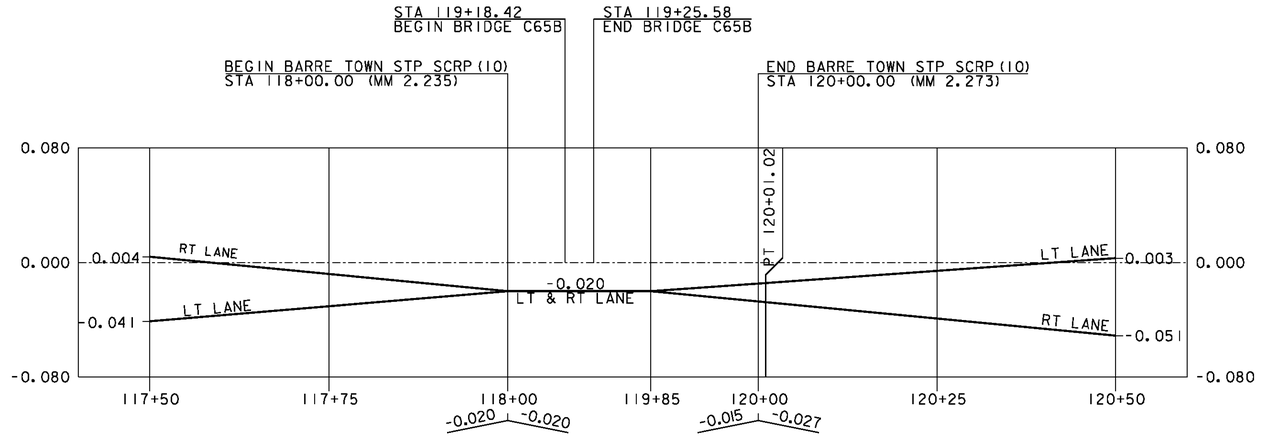
CLD 11-0160



SAFETY EDGE DETAIL

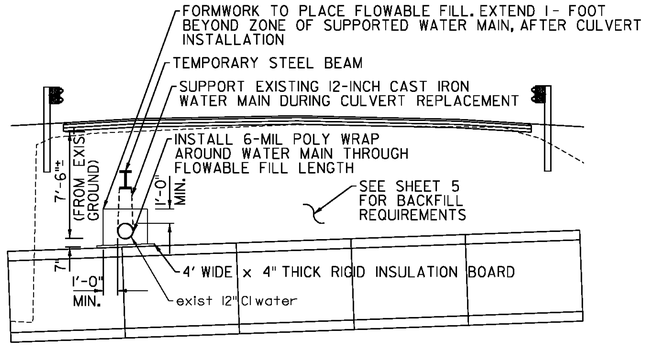
NOT TO SCALE

NOTES:
1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.



VT 14 BANKING DIAGRAM

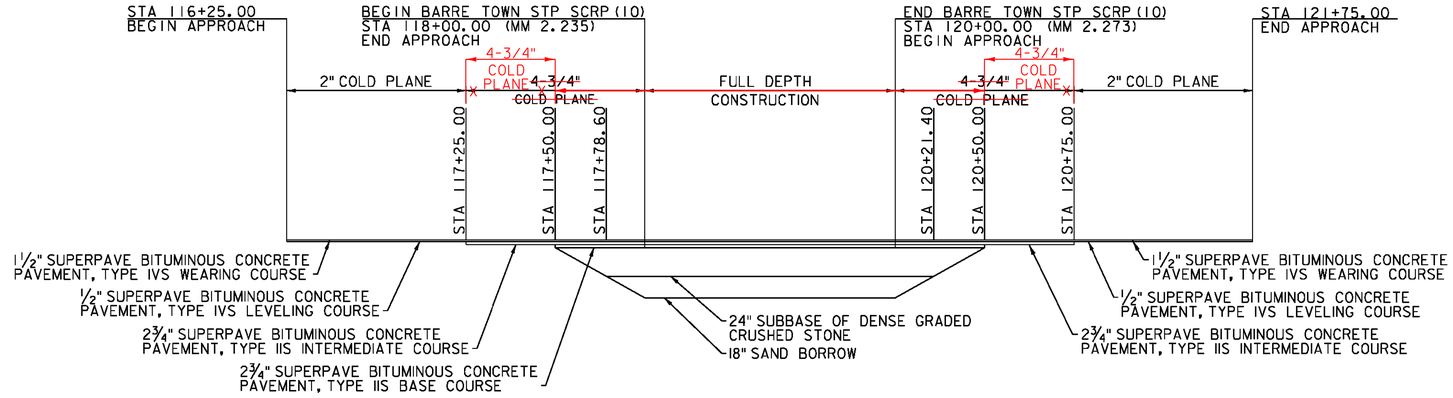
NOT TO SCALE



NOTE: TEMPORARY WATER MAIN SHALL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TEMPORARY SUPPORT OF WATER MAIN). SEE SPECIAL PROVISION FOR ADDITIONAL INFORMATION.

TEMPORARY SUPPORT OF WATER MAIN

NOT TO SCALE



MATERIAL TRANSITION DIAGRAM

NOT TO SCALE

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: zl0d202typ.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
DETAIL SHEET	SHEET 6 OF 43

CLD 11-0160

GPS CONTROL POINTS

HVCTRL #1

STANDARD DISK STAMPED
So. Barre Az MK
N = 608573.40
E = 1634218.22
ELEV. = 838.29

TO REACH FROM THE JUNCTION OF VERMONT ROUTE 63 AND VERMONT ROUTE 14 IN SOUTH BARRE PROCEED WESTERLY ALONG ROUTE 63 FOR 0.9 MI (1.4 KM) TO THE MARK ON THE LEFT. TO REACH FROM THE JUNCTION OF VERMONT ROUTE 63 AND MILLER ROAD (EXT) PROCEED EASTERLY ALONG ROUTE 63 FOR 1.1 MI (1.8 KM) TO THE MARK ON THE RIGHT. THE MARK IS SET IN A 5 FT (1.5 M) WIDE X 3 FT (0.9 M) HIGH ROCK OUTCROP. THE MARK IS LOCATED 59 FT (18.0 M) SOUTHWEST OF A 2 FOOT (0.6 M) SQUARE DI, 31 FT (9.4 M) SOUTH OF AND 6 FT (1.8 M) HIGHER THAN THE SOUTH EDGE OF VERMONT ROUTE 63.

HVCTRL #2

STANDARD DISK STAMPED
So. Barre
N = 610161.99
E = 1637191.18
ELEV. = 655.67

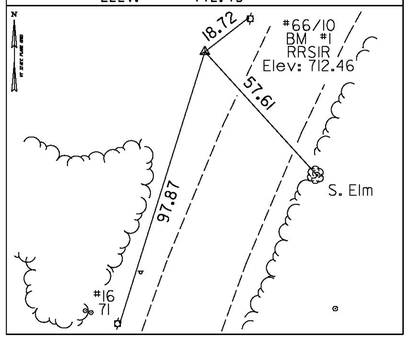
TO REACH FROM THE JUNCTION OF VERMONT ROUTE 63 AND VERMONT ROUTE 14 IN SOUTH BARRE PROCEED WESTERLY ALONG ROUTE 63 FOR 0.25 MI (0.40 KM) TO THE MARK ON THE RIGHT. TO REACH FROM THE JUNCTION OF VERMONT ROUTE 63 AND MILLER ROAD (EXT) PROCEED EASTERLY ALONG ROUTE 63 FOR 1.75 MI (2.82 KM) TO THE MARK ON THE LEFT. THE MARK IS A 4 INCH SQUARE RIGHT OF WAY MONUMENT WITH A SURVEY DISK SET IN THE TOP AND IS LOCATED 0.7 FT. (21.3 CM) BELOW THE ROAD. THE MARK IS LOCATED 119.4 FT (36.4 M) EAST OF AN 18 INCH CGMP CULVERT WITH CONCRETE HEADWALL, 74.9 FT (22.8 M) NORTHWEST OF A TRAFFIC SIGNAL SIGN, 71.5 FT (21.8 M) NORTHEAST OF A DIVIDED HIGHWAY SIGN AND 2.3 FT (0.7 M) NORTH OF THE EDGE OF VERMONT ROUTE 63.

• DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

TRAVERSE TIES

HVCTRL #5

NORTH = 612010.98
EAST = 1639435.38
ELEV. = 712.15



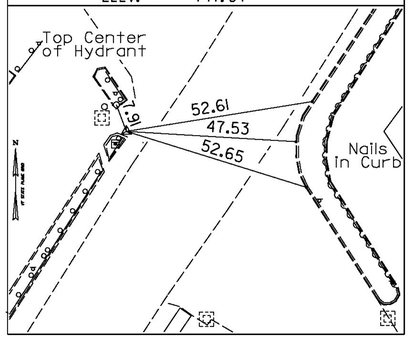
HVCTRL #10

NORTH = 610259.58
EAST = 1638557.65
ELEV. = 745.52

NOT TIED

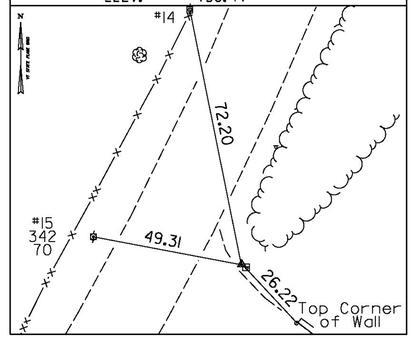
HVCTRL #11

NORTH = 611286.65
EAST = 1639112.68
ELEV. = 741.64



HVCTRL #12

NORTH = 611535.62
EAST = 1639321.85
ELEV. = 750.17



• MAIN TRAVERSE COMPLETED 04/09/96 by R. Gilman P.C. & T. Companion

ALIGNMENT TIES

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (92)
ADJUSTMENT Compass

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

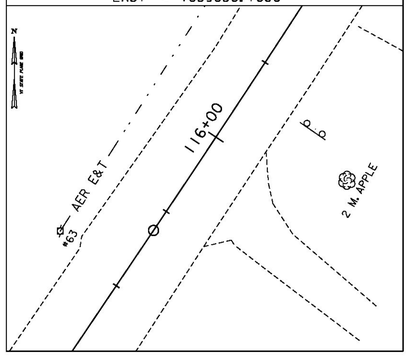
FILE NAME: x10d202t1.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: R. BULLOCK
TIE SHEET 1

PLOT DATE: 2/13/2014
DRAWN BY: R. BULLOCK
CHECKED BY: P. BEYOR
SHEET 7 OF 43

ALIGNMENT TIES

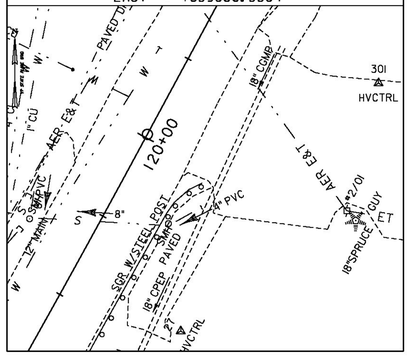
PC 115+68.63

NORTH = 612306.8517
EAST = 1639656.7686



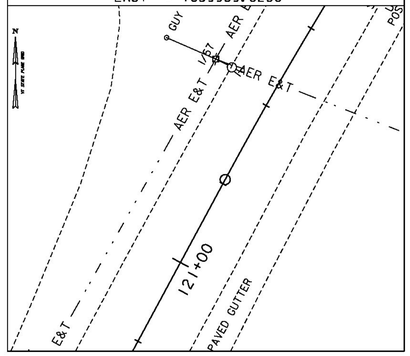
PT 120+01.02

NORTH = 612676.7493
EAST = 1639880.3384



PC 121+26.35

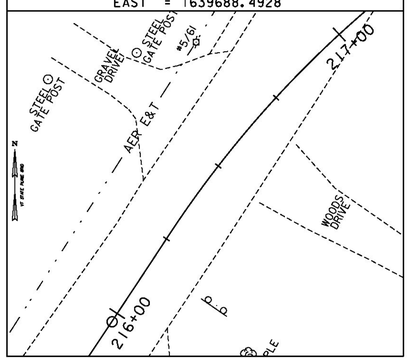
NORTH = 612787.0690
EAST = 1639939.8238



ALIGNMENT TIES

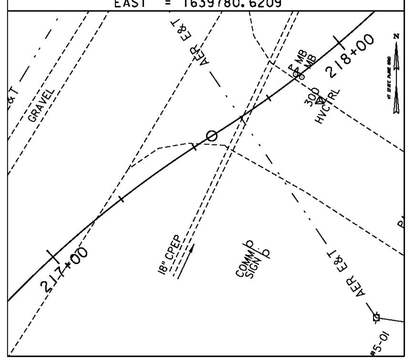
PRC 216+25.97

NORTH = 612354.6166
EAST = 1639688.4928



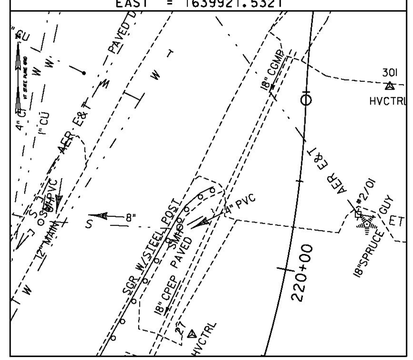
PRC 217+55.88

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EAST = 1639780.6209



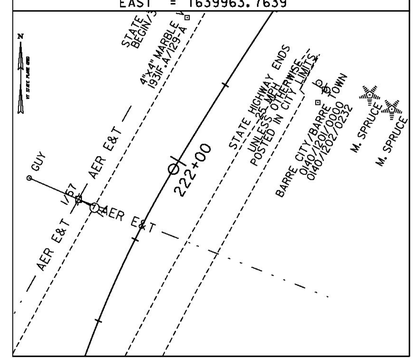
PRC 220+47.75

NORTH = 612687.2973
EAST = 1639921.5321



PCC 221+97.37

NORTH = 612829.2172
EAST = 1639963.7639



ALIGNMENT TIES

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (92)

ADJUSTMENT Compass

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d2021.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
TIE SHEET 2

PLOT DATE: 2/13/2014
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 8 OF 43

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 P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

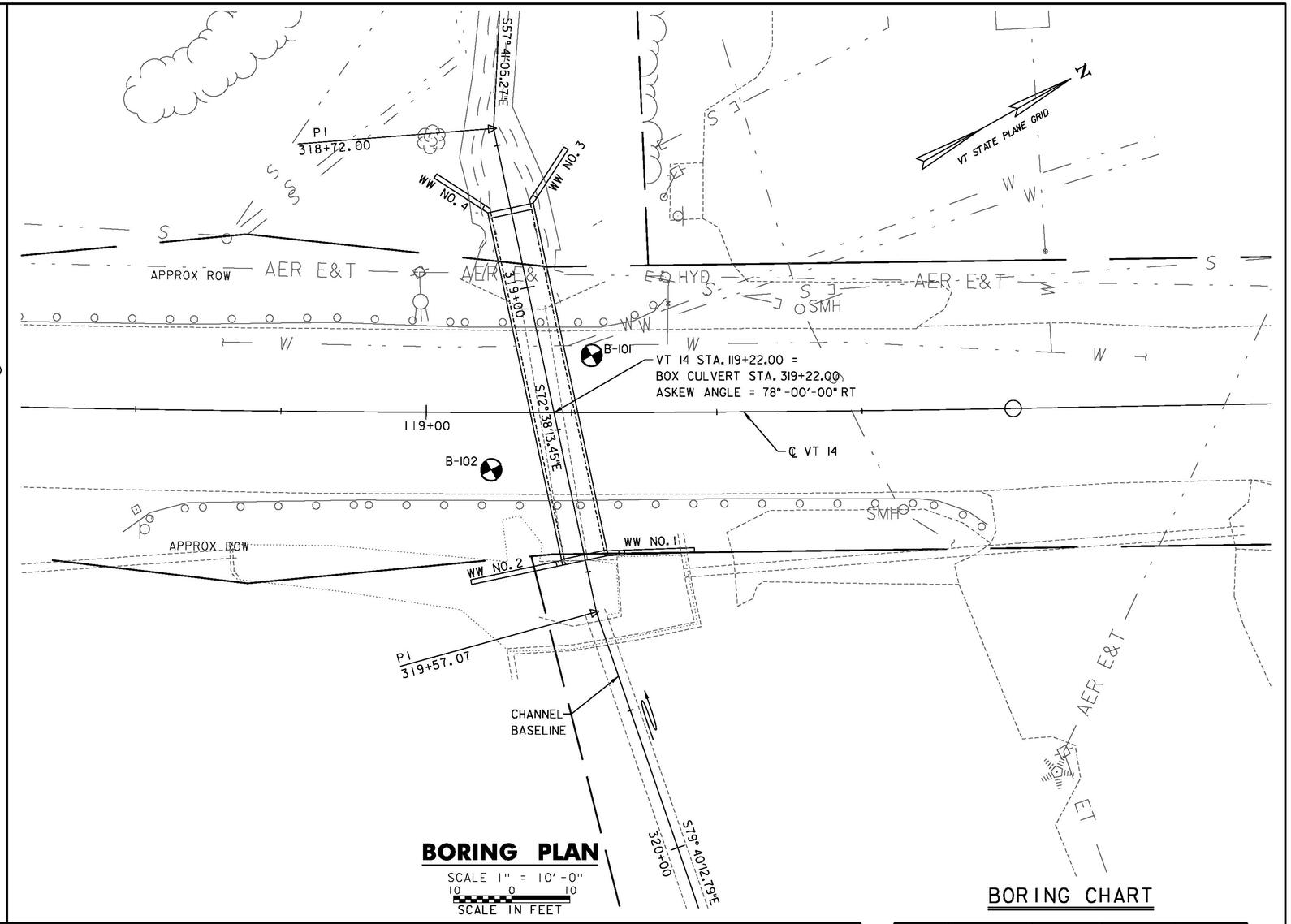
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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 Foot For: 2" O.D. Sampler 1⅜" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
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 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2 ⅛"
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
RQD	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 PLAN

SCALE 1" = 10'-0"

10 0 10

SCALE IN FEET

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	119+29	10.00 LT	670.0	N/A
B-102	119+11	11.00 RT	671.0	N/A

DEFINITIONS (AASHTO)

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

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#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 8/02/12 and 8/23/12 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

PROJECT NAME: BARRE TOWN

PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202bor.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
BORING INFORMATION SHEET

PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 9 OF 43

CLD 11-060

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

BORING LOG

BARRE TOWN
STP SCRP(10)
VT-14 CULVERT, JOCKEY HOLLOW

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 10D202
Checked By: LAR

Boring Crew: GARROW, SALISBURY
Date Started: 8/02/12 Date Finished: 8/23/12
VTSPG NAD83: N 612617.96 ft E 1639836.80 ft
Station: 119+29 Offset: -10.00
Ground Elevation: 670.0 ft

	Casing	Sampler
Type:	H.S.A.	SS
I.D.:	3.25 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	CE = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
		No data collected.

BOX INV. OUT
EL. 655.70

B.O.F. WINGWALL NO. 3 AND 4
EL. 650.70

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt Pavement					
		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft, A few pieces of Broken Granite & Concrete were within sample.	10-12-11-6 (23)	5.1	40.0	42.6	17.4
5		Visual Description:, SiSa, brn, Wet, Rec. = 0.2 ft, Insufficient sample for testing.	(WH)				
		Field Note:, Possible void in this area.					
10		A-2-4, GrSiSa, brn, Moist, Rec. = 0.9 ft	2-1-5-6 (6)	17.2	21.0	44.6	34.4
		A-1-a, SaGr, gry, Moist, Rec. = 0.5 ft, Sample was mostly Broken/Fractured Rock.		9.9	64.3	23.2	12.5
15		A-2-4, SiSa, brn, Moist, Rec. = 1.1 ft, Some pieces of Wood were within sample. Possible wood mat.	7-4-3-4 (7)	27.4	4.0	66.0	30.0
		A-4, SaSi, Dk/brn, Moist, Rec. = 0.7 ft, A lot of Sticks/Wood were within sample. Possible wood mat.		40.7	3.1	46.9	50.0
		Field Note:, Switched over to Wash Bore method of drilling and used 4" casing					
20		A-1-b, Sa, gry, Moist, Rec. = 0.8 ft	1-2-2-3 (4)	24.4	2.3	90.1	7.6
		A-1-b, Sa, gry, Moist, Rec. = 1.5 ft	3-3-6-6 (9)	21.2	9.0	81.7	9.3
25		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft	9-8-5-4 (13)	10.5	46.9	38.7	14.4
		A-1-a, SaGr, brn, Moist, Rec. = 1.0 ft	5-6-8-7 (14)	11.3	54.9	35.3	9.8
		A-1-b, SaGr, brn, Moist, Rec. = 0.6 ft	5-5-3-3 (8)	18.1	48.9	42.6	8.5
30		A-1-a, SaGr, brn, Moist, Rec. = 0.7 ft	5-4-10-14 (14)	11.7	61.3	28.2	10.5
		A-1-a, SaGr, brn, Moist, Rec. = 0.6 ft	12-16-11-9 (27)	13.4	57.0	30.6	12.4
35		A-1-a, SaGr, brn, Moist, Rec. = 1.3 ft	13-8-6-7 (14)	13.3	56.9	35.7	7.4
		Hole stopped @ 36.0 ft					
40		Remarks: During washbore method of drilling with water pumped from a nearby stream, suds were noticeable.					

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 BARRE TOWN STP SCRP(10).GPJ VERMONT AOT.GDT 9/14/12

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

BORING LOG

BARRE TOWN
STP SCRP(10)
VT-14 CULVERT, JOCKEY HOLLOW

Boring No.: B-102
Page No.: 1 of 1
Pin No.: 10D202
Checked By: LAR

Boring Crew: GARROW, SALISBURY, WHITLOCK
Date Started: 8/23/12 Date Finished: 8/23/12
VTSPG NAD83: N 612593.29 ft E 1639845.49 ft
Station: 119+11 Offset: 11.00
Ground Elevation: 671.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3.25 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	CE = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
		No data collected.

B.O.F. WINGWALL NO. 1
EL. 659.50
BOX INV. IN
EL. 658.00

B.O.F. WINGWALL NO. 2 AND C.I.P FILLER WALL
EL. 653.00

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt Pavement					
		A-1-b, GrSiSa, brn, Moist, Rec. = 1.3 ft	20-15-8-9 (23)	10.8	24.7	50.2	25.1
5		Field Note:, Roller Coned ahead. Appears to be sandy silt.					
		Visual Description:, SiSa, brn, Moist, Rec. = 0.2 ft, Similar material as 10-12 ft. Insufficient sample for testing.	4-4-4-3 (8)				
10		Field Note:, Roller Coned ahead. Appears to be sandy silt.					
		A-4, SiSa, brn, Moist, Rec. = 1.1 ft	3-3-7-13 (10)	21.3	9.7	52.9	37.4
15		Field Note:, Roller Coned ahead. Appears to be sandy silt.	3-3-1-2 (4)				
		Visual Description:, Wood Particles, brn, Moist, Rec. = 0.1 ft, Possible wood mat.					
		Visual Description:, Wood Particles with silty sand, brn, Moist, Rec. = 0.4 ft, Roller Coned ahead. Possible wood mat.	WH-WH-3-3 (3)				
20		A-1-b, Sa, brn, Wet, Rec. = 1.0 ft, Some Wood particles were within sample.	4-4-7-5 (11)	27.4	4.4	88.4	7.2
		A-1-b, SiSa, brn, MTW, Rec. = 1.3 ft	2-3-5-5 (8)	22.8	5.3	73.5	21.2
		A-1-b, Sa, brn, Moist, Rec. = 0.8 ft	6-5-8-7 (13)	17.3	19.9	67.2	12.9
25		A-1-a, SaGr, brn, Moist, Rec. = 0.5 ft	5-5-8-6 (13)	12.0	62.6	26.0	11.4
		A-1-a, SaGr, brn, Moist, Rec. = 0.7 ft	8-8-6-8 (14)	12.3	64.6	25.2	10.2
30		A-1-a, SaGr, gry, Moist, Rec. = 0.7 ft	10-12-20-18 (32)	13.8	73.5	23.3	3.2
		A-2-4, Sa, gry, Moist, Rec. = 0.3 ft	9-6-6-6 (12)	22.7	19.2	66.6	14.2
35		A-1-b, SiGrSa, gry, Moist, Rec. = 0.4 ft	9-8-8-8 (16)	20.1	27.3	52.6	20.1
		Hole stopped @ 35.0 ft					
40		Remarks: During washbore method of drilling with water pumped from a nearby stream, suds were noticeable.					

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 BARRE TOWN STP SCRP(10).GPJ VERMONT AOT.GDT 9/14/12

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: z10d202bor.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: J. BYATT
BORING LOGS	SHEET 10 OF 43

CLD II-0160

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
							ROADWAY	EROSION CONTROL	BRIDGE NO. C65B	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	-			
							1050		115		1165		CY	COMMON EXCAVATION	203.15	8			
							290				290		CY	SOLID ROCK EXCAVATION	203.16	4			
									165		165		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	3.4			
							10				10		CY	EARTH BORROW	203.30	-			
							450				450		CY	SAND BORROW	203.31	2			
									110		110		CY	GRANULAR BORROW	203.32	3.2			
							110				110		CY	TRENCH EXCAVATION OF EARTH	204.20	3.9			
							1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-			
									790		790		CY	STRUCTURE EXCAVATION	204.25	4.7			
							15		610		625		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	2.1			
							1100				1100		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	10			
							980				980		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	6			
							8				8		CWT	EMULSIFIED ASPHALT	404.65	0.3			
							1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-			
									1		1		LS	PRECAST CONCRETE STRUCTURE (7'-0" X 5'-0" X 62'-0" BOX CULVERT)	540.10	-			
							164				164		LF	18" CPEP	601.0915	-			
							2				2		EACH	18" CPEPES	601.7015	-			
							80				80		HR	BULLDOZER RENTAL, TYPE I	608.10	EST.			
							80				80		HR	POWER GRADER RENTAL	608.15	EST.			
							80				80		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.			
							5				5		HR	POWER BROOM RENTAL, TYPE I	608.30	EST.			
							80				80		HR	TRUCK RENTAL	608.37	EST.			
							80				80		HR	LOADER RENTAL, TYPE I	608.40	EST.			
								100			100		CY	STONE FILL, TYPE II	613.11	2.4			
								150			150		CY	STONE FILL, TYPE III	613.12	4.7			
							14				14		TON	BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS	616.47	0.1			
							2				2		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10	-			
							2				2		EACH	YIELDING MARKER POSTS	619.17	-			
							410				410		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	2			
							4				4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	-			
							275				275		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	-			
							200				200		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
							200				200		HR	FLAGGERS	630.15	EST.			
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-			
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-			
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-			
							1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-			
							1				1		LS	TRAFFIC CONTROL	641.10	-			

CLD II-060

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202qss.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
QUANTITY SHEET I

PLOT DATE: 2/27/2014
DRAWN BY: W. GORDON
CHECKED BY: P. SHEDD
SHEET II OF 43

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE NO. C65B	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
2				2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	-
2				2		EACH	PORTABLE ARROW BOARD	641.16	-
1100				1100		LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402	-
1100				1100		LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412	-
50				50		EACH	LINE STRIPING TARGETS	646.76	EST.
	370			370		SY	GEOTEXTILE UNDER STONE FILL	649.31	2.9
	20			20		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	1
	50			50		LB	SEED	651.15	6
	275			275		LB	FERTILIZER	651.18	-
	1.5			1.5		TON	AGRICULTURAL LIMESTONE	651.20	0.4
	1.5			1.5		TON	HAY MULCH	651.25	0.4
260				260		CY	TOPSOIL	651.35	3
		110		110		SY	GRUBBING MATERIAL	651.40	1.8
	1			1		LS	EPSC PLAN	652.10	-
	80			80		HR	MONITORING EPSC PLAN	652.20	EST.
	1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	-
	785			785		SY	TEMPORARY EROSION MATTING	653.20	3
	1			1		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25	EST.
	15			15		CY	VEHICLE TRACKING PAD	653.35	-
	3			3		EACH	INLET PROTECTION DEVICE, TYPE I	653.40	-
	450			450		LF	BARRIER FENCE	653.50	8
	570			570		LF	PROJECT DEMARCATION FENCE	653.55	7
1				1		LS	TREE PROTECTION	656.85	-
1				1		SF	TRAFFIC SIGNS, TYPE A	675.20	0.2
35				35		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	-
1				1		EACH	REMOVING SIGNS	675.50	-
1				1		EACH	ERECTING SALVAGED SIGNS	675.60	-
4				4		EACH	DELINEATOR WITH STEEL POST	676.10	-
1				1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	-
		1		1		LS	SPECIAL PROVISION (REMOVE AND RESET EXISTING STONE WALL)	900.645	-
		1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645	-
1				1		LS	SPECIAL PROVISION (TEMPORARY ROADWAY)	900.645	-
		1		1		LS	SPECIAL PROVISION (TEMPORARY STEEL SHEET PILING)	900.645	-
1				1		LS	SPECIAL PROVISION (TEMPORARY SUPPORT OF WATER MAIN)	900.645	-
1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650	-
1				1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650	-
560				560		SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675	-
550				550		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	5

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		SPECIAL PROVISION
		(BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
160	TON	TYPE IVS WEARING COURSE
23	TON	TYPE IVS LEVELING COURSE
194	TON	TYPE I IS INTERMEDIATE COURSE
168	TON	TYPE I IS BASE COURSE
545	TON	PROJECT SUBTOTAL
5	TON	ROUNDING
550	TON	PROJECT TOTAL

CLD 11-060

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202qss.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
QUANTITY SHEET 2

PLOT DATE: 2/27/2014
DRAWN BY: W. GORDON
CHECKED BY: P. SHEDD
SHEET 12 OF 43

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EARTHWORKS

STATION	DIST FT.	TOTAL EXCAVATION EARTH AND ROCK AREA S.F.	TOTAL EXCAVATION EARTH AND ROCK VOLUME C.Y.	ROCK EXCAVATION AREA S.F.	ROCK EXCAVATION VOLUME C.Y.	EMBANKMENT AREA S.F.	EMBANKMENT VOLUME C.Y.	AREA S.F.	VOLUME C.Y.
VT 14									
116+25		0.00		0.00		0.00			
	25		0.0		0.0		0.0		
116+50		0.00		0.00		0.00			
	50		0.0		0.0		0.0		
117+00		0.00		0.00		0.00			
	50		0.0		23.8		0.0		
117+50 BUTT		~~0.00~~ 24	~~138.3~~ 160.6	25.70		0.00			
	50				47.6		8.4		
118+00		149.40		25.70		9.10			
	50		259.8		47.6		21.6		
118+50		131.20		25.70		14.20			
	50		294.3		47.6		36.8		
119+00		186.60		25.70		25.50			
	22		127.4		20.9		10.4	CUT	~~1304~~ 1347
119+22		126.20		25.70		0.00		ROCK	~~286~~ 277
	28		125.1		26.7		4.0	R.FAC	0.495
119+50		115.00		25.70		7.80		FILL	91
	50		223.3		47.6		8.3	F.FAC	1.15
120+00		126.20	~~142.8~~	25.70		1.14		EX. C	1341
	50		~~125.7~~		23.8		1.1		
120+50		BK ~~7.40~~ 28		0.00		0.00			
	50	AHD 4 4	~~6.9~~ 7.4		0.0		0.0		
121+00		~~0.00~~	~~0.0~~ 5.6	0.00		0.00			
	50	2			0.0		0.0		
121+50		~~0.00~~	~~0.0~~ 0.9	0.00		0.00			
	25 ~~50~~				0.0		0.0		
~~122+00~~ 121+75		0.00		0.00		0.00			
DETOUR (INSTALLATION)									
216+50		0.00				0.30			
	50		13.0				0.0		
217+00		13.60				0.00			
	50		37.0				0.0		
217+50		26.10				0.00			
	50		140.0				0.0		
217+74		105.50				0.00			
	26		111.0				0.0		
218+00		125.20				0.70			
	50		360.0				1.0		
218+50		264.00				0.00			
	50		453.0				0.0	CUT	1612
219+00		225.30				0.20		ROCK	0
	50		292.0				8.0	R.FAC	0.495
219+50		90.30				8.70		FILL	149
	50		138.0				26.0	F.FAC	1.15
220+00		58.20				19.10		EX. C	1441
	50		58.0				38.0		
220+50		4.20				21.70			
	50		4.0				44.0		
221+00		0.00				25.50			
	50		3.0				28.0		
221+50		3.60				4.70			
	48		3.0				4.0		
221+98		0.00				0.00			
DETOUR (REMOVAL)									
216+50		0.00				0.00			
	50		3.0				0.0		
217+00		3.40				0.00			
	50		12.0				0.0		
217+50		9.90				0.00			
	50		19.0				71.0		
217+74		7.90				76.60			
	26		9.0				83.0		
218+00		10.60				95.20			
	50		19.0				306.0		
218+50		9.90				235.10			
	50		18.0				400.0	CUT	494
219+00		9.90				196.40		ROCK	0
	50		35.0				246.0	R.FAC	0.495
219+50		27.70				69.30		FILL	1262
	50		68.0				107.0	F.FAC	1.15
220+00		45.50				45.90		EX. F	-957
	50		95.0				43.0		
220+50		57.40				0.00			
	50		113.0				0.0		
221+00		64.40				0.00			
	50		82.0				3.0		
221+50		24.30				3.00			
	48		21.0				3.0		
221+98		0.00				0.00			

VT 14 DRIVES

STATION	DIST FT.	TOTAL EXCAVATION EARTH AND ROCK AREA S.F.	TOTAL EXCAVATION EARTH AND ROCK VOLUME C.Y.	ROCK EXCAVATION AREA S.F.	ROCK EXCAVATION VOLUME C.Y.	EMBANKMENT AREA S.F.	EMBANKMENT VOLUME C.Y.	AREA S.F.	VOLUME C.Y.
117+63	25	9.60	8.7			0.00	0.0	CUT	32
120+11	35	15.30	19.8			0.00	0.0	ROCK	0
120+40	40	2.50	3.7			0.00	0.0	R.FAC	0.495
								FILL	0
								F.FAC	1.15
								EX. C	32

1347
277 ∴ COMMON EXCAVATION = 1070 CY

ROCK EXCAVATION

		DIST FT.	AREA S.F.	VOLUME C.Y.
117+50	BUTT		24	
		50		44.4
118+00			24	
		50		44.4
118+50			24	
		50		44.4
119+00			24	
		25		22.2
119+25	BK		24	
		—		—
119+25	AHD		33	
		25		30.6
119+50	BK		33	
		—		—
119+50	AHD		27	
		20		20.0
119+70	BK		27	
		—		—
119+70	AHD		24	
		30		26.7
120+00			24	
		50		44.4
120+50	BUTT		24	
			TOTAL	277.1 CY

SUMMARY AND BALANCES

STATION TO STATION	TOT EXC. EARTH & ROCK C.Y.	ROCK EXCAV C.Y.	EMBANK C.Y.	EXCESSES CUT	EXCESSES FILL	ACUMULATIVE EXCESSES CUT	ACUMULATIVE EXCESSES FILL
VT 14 116+25 122+00	1304	286	91	1341		1341	
VT 14 DRIVES	32	0	0	32		1373	
STONE FILL EXCAVATION 119+22	115	0	0	115		115	
DETOUR (INSTALLATION) 217+00 221+50	1612	0	149	1441		1441	
DETOUR (REMOVAL) 217+00 221+50	494	ITEM 900.645 SPECIAL PROVISION (TEMPORARY ROADWAY) 0	1262		-957	484	

REMARKS

EARTH AND ROCK EXCAVATION	1336
SOLID ROCK EXCAVATION	286
EARTH EXCAVATION	1050
PLANIMETERED FILL	91
LESS FACTORED SOLID ROCK	0
LESS DISPLACEMENT OF ANY LARGE STRUCTURES	0
NET PLANIMETERED FILL	91
FACTOR	14
PLANIMETERED FILL INCLUDING FACTOR	105
MATERIALS AVAILABLE FOR FILLS	
EARTH EXCAVATION	1050
CHANNEL EXCAVATION	162
STONE FILL EXCAVATION	115
STRUCTURE EXCAVATION	785
TOTAL MATERIAL AVAILABLE FOR FILL	2112
TOTAL FILL INCLUDING FACTOR	105
TOTAL MATERIAL FOR FILL	2112
BORROW	
EXCESS EXCAVATION	2393

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202ew.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
EARTHWORK SHEET

PLOT DATE: 2/27/2014
DRAWN BY: P. SHEDD
CHECKED BY: M. HALEY
SHEET 13 OF 43

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	LOWERY, WILLIAM & JANE	1	VT RTE 14 116+39.23 RT	VT RTE 14 119+36.93 RT			DETOUR	(T)	0.37 A	WDOE	09/11/13	BARRE TOWN	270	905-907	INC. PDF,BF,& ERO CTL.; 15,897 SF±
			VT RTE 14 116+55.00 RT												WOODS DRIVE MM 2.2
			VT RTE 14 117+06 RT	VT RTE 14 119+21 RT			CUL., DIT., & DR	(P)							INC. STONE DAM
			VT RTE 14 117+12 RT	VT RTE 14 118+42 RT			REMOVE	(T)							EXISTING CULVERT
			VT RTE 14 117+29 RT	VT RTE 14 118+50 RT			SR	(T)	1392 SF						
			VT RTE 14 117+48 RT	VT RTE 14 117+87 RT			ACCESS	(T)							FOR DETOUR
			VT RTE 14 117+62.5 RT				DRIVE	(T)							24.5' PAVED DRIVE
			VT RTE 14 117+95 RT	VT RTE 14 118+08 RT			SR	(P)	17 SF						
			VT RTE 14 118+50 RT	VT RTE 14 119+11 RT			SR	(P)	672 SF						
			VT RTE 14 118+80 RT	VT RTE 14 118+90 RT			INSTALL	(T)							CULVERT & STONE DAM
			VT RTE 14 118+90 RT	VT RTE 14 119+21 RT			INSTALL	(T)							TWO TEMPORARY PIPE EXTENSIONS
			VT RTE 14 119+00 RT	VT RTE 14 119+21 RT			CH	(P)	214 SF						INC, STONE FILL
			VT RTE 14 119+08 RT	VT RTE 14 119+19 RT			I & M	(P)							WING WALL
2	LOWERY, WILLIAM	1	VT RTE 14 119+18.13 RT	VT RTE 14 119+46 RT			I & M	(P)	22 SF	WDOE	09/11/13	BARRE TOWN	270	908-909	CULVERT & WINGWALL
			VT RTE 14 119+18.13 RT	VT RTE 14 119+34 RT			CH	(P)	161 SF						
			VT RTE 14 119+32.69 RT	VT RTE 14 119+49 RT			SR	(P)	89 SF						
			VT RTE 14 119+18.13 RT	VT RTE 14 121+61.53 RT			DETOUR	(T)	8318 SF						INC. ACCESS OFF DETOUR, PDF, BF,
															ERO CTL. & TRAFFIC CONTROL
															DEVICES
			VT RTE 14 119+21 RT	VT RTE 14 119+45 RT			INSTALL	(T)							TWO TEMPORARY PIPE EXTENSIONS
			VT RTE 14 119+51 RT	VT RTE 14 120+00 RT			SR	(T)	293 SF						
			VT RTE 14 120+11 RT				DRIVE	(T)							35' PAVED MM 2.27
			VT RTE 14 120+50 RT	VT RTE 14 120+89 RT			SR	(T)	89 SF						
3	MALONE 309 ROUTE 14 PROPERTIES, LLC.	1	VT RTE 14 119+34.20 LT	VT RTE 14 119+78 LT			CONST.	(T)	1038 SF	WDOE	11/22/12	BARRE TOWN	272	257	INC. BF & ERO CTL.
			VT RTE 14 119+35.42 LT	VT RTE 14 119+42 LT			CH	(P)	209 SF						
			VT RTE 14 119+42.11 LT	VT RTE 14 120+20 LT			SR	(T)	193 SF						
			VT RTE 14 120+40 LT				DRIVE	(T)							40' PAVED MM 2.27
			VT RTE 14 120+50 LT	VT RTE 14 120+84 LT			ACCESS	(T)							FROM DETOUR
			VT RTE 14 120+69 LT				REMOVE	(T)							UTILITY POLE
			VT RTE 14 120+81.26 LT	VT RTE 14 121+47 LT			DETOUR	(T)	320 SF						INC. PDF
			VT RTE 14 119+34.20 LT	VT RTE 14 119+68 LT			I & M	(P)	737 SF						SEWER LINE - ACQUIRING IN THE
															NAME OF THE TOWN OF BARRE
4	CITY OF BARRE	1	VT RTE 14 117+66 LT	VT RTE 14 119+35.44 LT			CONST.	(T)	3778 SF	QCD	12/09/13	BARRE CITY	279	419	PDF, BF & ERO. CTL. & TEMPORARY
			VT RTE 14 117+91 LT	VT RTE 14 117+98 LT			SLOPE	(P)	6 SF						
			VT RTE 14 117+81 LT	VT RTE 14 118+50 LT			SR	(T)	226 SF						
			VT RTE 14 118+50 LT	VT RTE 14 119+08 LT			SR	(P)	591 SF						
			VT RTE 14 118+86 LT	VT RTE 14 119+08 LT			INSTALL	(T)							TEMPORARY CULVERT
			VT RTE 14 119+00 LT	VT RTE 14 119+38.30 LT			CH	(P)	1396 SF						
			VT RTE 14 119+01 LT	VT RTE 14 119+25 LT			I & M	(P)							CULVERT & WING WALLS
			VT RTE 14 119+08 LT				REMOVE	(T)							MANHOLE
			VT RTE 14 119+04 LT	VT RTE 14 119+14 LT			INSTALL	(T)							EROSION CTL.
			VT RTE 14 118+52 LT	VT RTE 14 119+33 LT			I & M	(P)	1747 SF						SEWER LINE & MANHOLE - ACQUIRING
															IN THE NAME OF THE TOWN OF BARRE
5	TOWN OF BARRE SEWER DEPT.	1	VT RTE 14 116+39.23 RT	VT RTE 14 121+61.53 RT											UTILITY
6	GREEN MOUNTAIN POWER CORPORATION	1	VT RTE 14 116+39.23 RT	VT RTE 14 121+61.53 RT											UTILITY
7	CHARTER COMMUNICATIONS HOLDING COMPANY, LLC	1	VT RTE 14 116+39.23 RT	VT RTE 14 121+61.53 RT											UTILITY
8	TELEPHONE OPERATING COMPANY OF VERMONT, LLC	1	VT RTE 14 116+39.23 RT	VT RTE 14 121+61.53 RT											UTILITY
9	SOVERNET	1	VT RTE 14 116+39.23 RT	VT RTE 14 121+61.53 RT											UTILITY
10	CITY OF BARRE WATER DEPT.	1	VT RTE 14 116+39.23 RT	VT RTE 14 121+61.53 RT											UTILITY

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE

PLAN LEGEND

- EXISTING RIGHT-OF-WAY
- TAKING WITH ACCESS
- TAKING WITHOUT ACCESS
- CLEAR ZONE (CZ)
- PROPERTY LINE (P / L)
- TOE OF SLOPE
- TOP OF CUT
- SLOPE RIGHT (SR (P))
- CONSTRUCTION RIGHT (CONST. (T))
- PROJECT DEMARCATION FENCE (PDF ——— PDF)

EC -EROSION CONTROL
(P) -PERMANENT
(T) -TEMPORARY
DR. -DRAINAGE RIGHT
DIT. -DITCHING RIGHT
CH. -CHANNEL RIGHT
DRIVE -DRIVE RIGHT
CUL. -CULVERT RIGHT
C&T -CLEARING & TRIMMING RIGHT
SR -SLOPE RIGHT
UE -UTILITY EASEMENT

R & R - REMOVE & RESET
I & M - INSTALL & MAINTAIN

APPROVED: HARRY PETROVS DATE: 5-17-13
CHIEF, PLANS & TITLES

PLOT DATE 02/25/14

PROJECT NAME: **BARRE TOWN**
PROJECT NUMBER: **STP SCRP (10)**

FILE NAME: r10D202detail.xls
PROJECT LEADER: K UPMAL
DESIGNED BY: PTS
R.O.W. DETAIL SHEET

PLOT DATE:
DRAWN BY: MR
CHECKED BY: BF
SHEET 14 OF 43

DURABLE 4 INCH WHITE LINE, THERMOPLASTIC
STA 116+25 TO 121+75 LT & RT

DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC
STA 116+25 TO 121+75 LT & RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 118+16 TO 119+41 LT
STA 118+47 TO 119+97 RT

STEEL BEAM GUARDRAIL, GALVANIZED
STA 117+97.0 TO 120+09.5 LT
STA 118+05.5 TO 119+93.0 RT

ANCHOR FOR STEEL BEAM RAIL
STA 117+97.0 LT
STA 118+05.5 RT
STA 119+93.0 RT
STA 120+09.5 LT

CONSTRUCT DRIVES
STA 117+62.5 RT 24.5' WIDE, PAVED-COMM
STA 120+11.0 RT 35.0' WIDE, PAVED-COMM
STA 120+40.0 LT 40.0' WIDE, PAVED-COMM

BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS
STA 120+38 TO 121+50 RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA 117+78 RT (2)

REMOVING SIGNS
STA 118+52 RT

ERECTING SALVAGED SIGNS
STA 118+52 RT

SQUARE TUBE SIGN POST AND ANCHOR
STA 118+52 RT

VT 14 STA 116+25.00 =
DETOUR STA 216+25.00
BEGIN APPROACH
BEGIN DETOUR

VT 14 CURVE 1
DELTA = 5°37'50"LT
D = 1°18'08"
R = 4400.00'
T = 216.37'
L = 432.39'
E = 5.32'
BRG BK N33°57'51.84"E
PC = 115+68.63
BANK = NC

BEGIN BARRE TOWN STP SCRP(10)
STA 118+00.00 (MM 2.235)

VT 14 STA 119+22.00 =
BOX CULVERT STA 319+22.00
ASKEW ANGLE=78°00'00" RT

END BARRE TOWN STP SCRP(10)
STA 120+00.00 (MM 2.273)

MALONE 309
ROUTE 14 PROPERTIES, LLC

VT 14 STA 121+75.00 =
DETOUR STA 221+97.54
END APPROACH
END DETOUR

CITY OF BARRE
TOWN OF BARRE

CITY OF BARRE

VT 14 CURVE 2
DELTA = 12°37'03"RT
D = 5°12'31"
R = 1100.00'
T = 121.61'
L = 242.24'
E = 6.70'
BRG AHD N40°57'05.14"E
PI 122+47.97 BK =
122+46.98 AHD
PT = 123+68.59
BANK = MATCH EXIST

BEGIN R.O.W. STP SCRP (10)
STA. 116+39.23
24.95' RT.

END R.O.W. STP SCRP (10)
STA. 121+61.53
25.76' RT.

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

LOWERY, WILLIAM & JANE

LOWERY, WILLIAM L.

FOR R.O.W. USE ONLY

0 20 40
SCALE IN FEET

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME:	REV$
PROJECT LEADER: K UPMAL	
DESIGNED BY: PTS	
ROW LAYOUT	
PLOT DATE: 28-FEB-2014	
DRAWN BY: PTS	
CHECKED BY: DAM	
SHEET 15 OF 43	

CLD II-0160

DURABLE 4 INCH WHITE LINE, THERMOPLASTIC
STA 116+25 TO 121+75 LT & RT

DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC
STA 116+25 TO 121+75 LT & RT

SPECIAL PROVISION (REMOVE AND RESET EXISTING STONE WALL)
STA 119+14 TO 119+47 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 118+16 TO 119+41 LT
STA 118+47 TO 119+97 RT

STEEL BEAM GUARDRAIL, GALVANIZED
STA 117+97.0 TO 120+09.5 LT
STA 118+05.5 TO 119+93.0 RT

ANCHOR FOR STEEL BEAM RAIL
STA 117+97.0 LT
STA 118+05.5 RT
STA 119+93.0 RT
STA 120+09.5 LT

DELINEATOR WITH STEEL POST
STA 117+97.0 LT
STA 118+05.5 RT
STA 119+93.0 RT
STA 120+09.5 LT

CONSTRUCT DRIVES
STA 117+62.5 RT 24.5' WIDE, PAVED-COMM
STA 120+11.0 RT 35.0' WIDE, PAVED-COMM
STA 120+40.0 LT 40.0' WIDE, PAVED-COMM

BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS
STA 120+38 TO 121+50 RT

RELOCATE MAILBOX, SINGLE SUPPORT
STA 117+78 RT (2)

REMOVING SIGNS
STA 118+52 RT

ERECTING SALVAGED SIGNS
STA 118+52 RT

TRAFFIC SIGNS, TYPE A
STA 119+15 RT
STA 119+25 LT

SQUARE TUBE SIGN POST AND ANCHOR
STA 118+52 RT
STA 119+15 RT
STA 119+25 LT

VT 14 STA 116+25.00 =
DETOUR STA 216+25.00
BEGIN APPROACH
BEGIN DETOUR

VT 14 CURVE 1
DELTA = 5°37'50"LT
D = 1°18'08"
R = 4400.00'
T = 216.37'
L = 432.39'
E = 5.32'
BRG BK N33°57'51.84"E
PC = 115+68.63
BANK = NC

BEGIN BARRE TOWN STP SCRP(10)
STA 118+00.00 (MM 2.235)

VT 14 STA 119+22.00 =
BOX CULVERT STA 319+22.00
ASKEW ANGLE=78°00'00" RT

END BARRE TOWN STP SCRP(10)
STA 120+00.00 (MM 2.273)

VT 14 STA 121+75.00 =
DETOUR STA 221+97.54
END APPROACH
END DETOUR

VT STATE PLANE GRID

STA 119+25 LT
BRIDGE C65B VT14 N

STA 118+52 RT
BARRE CITY EAST MONTPELIER 5 2/2009

STA 119+15 RT
BRIDGE C65B VT14 N

STA 118+52 RT
BARRE CITY EAST MONTPELIER 5 S

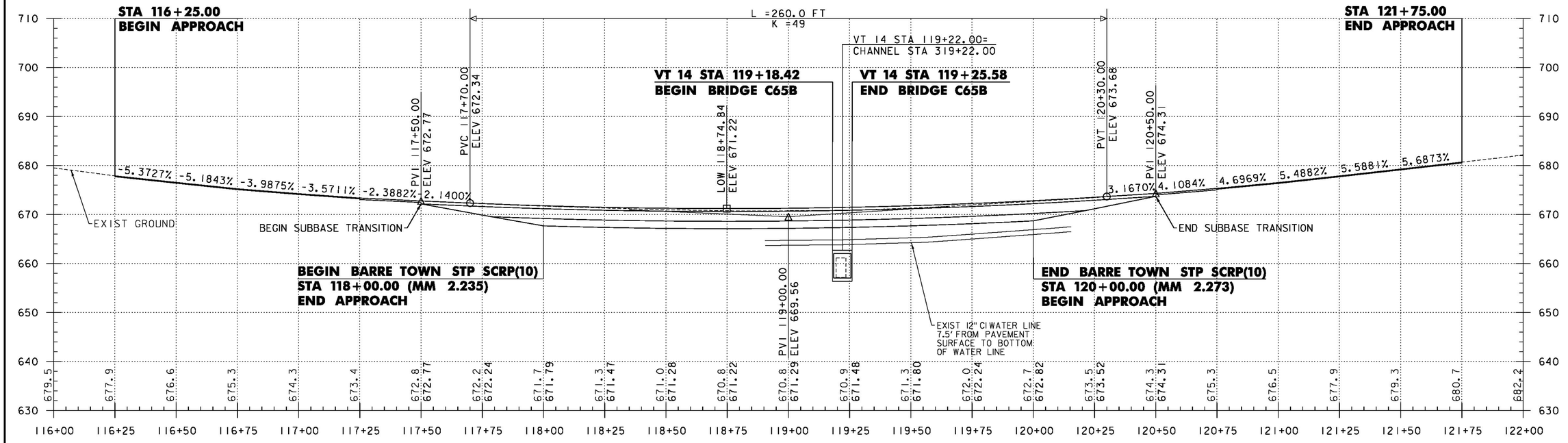
VT 14 CURVE 2
DELTA = 12°37'03"RT
D = 5°12'31"
R = 1100.00'
T = 121.61'
L = 242.24'
E = 6.70'
BRG AHD N40°57'05.14"E
PI 122+47.97 BK =
122+46.98 AHD
PT = 123+68.59
BANK = MATCH EXIST

LEGEND
YL = YELLOW LINE
WL = WHITE LINE
—O— = DELINEATOR
N = NEW SIGN
R = RETAIN SIGN
S = SALVAGE SIGN
REMOVE SIGN

0 20 40
SCALE IN FEET

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)
FILE NAME: z10d202bdr.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
ROADWAY PLAN SHEET
PLOT DATE: 2/13/2014
DRAWN BY: W. GORDON
CHECKED BY: D. MUNRO
SHEET 16 OF 43

CLD II-0160



STATIONS AND ELEVATIONS ARE IN FEET.

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

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202pro.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
VT 14 PROFILE	SHEET 17 OF 43

CLD II-0160

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF A BOX CULVERT AND ITS HEADWALLS. THE BOX CULVERT WILL BE REPLACED WITH A PRECAST CONCRETE BOX CULVERT WITH A 5 FOOT RISE, SPANNING 7 FEET OVER AN UNNAMED BROOK, ALONG THE SAME ALIGNMENT. THE BOX CULVERT IS LOCATED IN THE TOWN OF BARRE, ON VT ROUTE 14, APPROXIMATELY 275 FEET SOUTH OF THE BARRE TOWN AND BARRE CITY TOWN LINE. THE LENGTH OF THE BOX CULVERT WILL BE INCREASED BY 17 FEET.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, THE TEMPORARY CONSTRUCTION ACCESS AREAS, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 1.27 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY
THE TOPOGRAPHY OF THE AREA IS HILLY WITH A MIXTURE OF DEVELOPED, OPEN AND FORESTED LAND COVER WITH WELL ESTABLISHED LAWNS. VT ROUTE 14, AN UNNAMED BROOK, AND THREE PAVED DRIVEWAYS ARE WITHIN THE PROJECT SITE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES
THE UNNAMED BROOK IS THE ONLY WATER BODY ON THE PROJECT SITE. THE PROJECT SITE IS APPROXIMATELY 130' UPSTREAM OF THE CONFLUENCE WITH STEVENS BRANCH. JUST UPSTREAM FROM THE BOX CULVERT, THE BROOK IS CONVEYED ACROSS PRIVATE LAND IN A LONG 42" PIPE. THE BROOK CAN BE CLASSIFIED AS STEEP WITH CONFINED BANKS. THE STREAM BED CONSISTS OF SAND, GRAVEL AND STONES. THE AREA DRAINING TO THE BOX CULVERT IS 0.6 MILES^2. THERE ARE TWO 18" PIPES ON SITE THAT DRAIN FROM THE ROADWAY TO THE INLET OF THE BOX CULVERT.

1.2.3 VEGETATION
THE VEGETATION IN THE PROJECT AREA CONSISTS OF WELL ESTABLISHED LAWNS AND OPEN AREAS WITH SCRUB BRUSH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BOX CULVERT AND INSTALLATION OF STONE FILL; INCLUDING THE AREA REQUIRED FOR A TEMPORARY DETOUR. UPON PROJECT COMPLETION, THE CHANNEL AND SLOPES WILL BE ARMORED WITH STONE FILL AND GRUBBING MATERIAL AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD TOPSOIL, SEED AND MULCH PRACTICES.

1.2.4 SOILS
ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WASHINGTON, VERMONT. SOILS ON THE PROJECT SITE ARE:
ADAMS LOAMY FINE SAND, 8% TO 15%, "K FACTOR" = 0.17. THE SOIL IS CONSIDERED NOT HIGHLY ERODIBLE.
ADAMS LOAMY FINE SAND 15% TO 25% SLOPES, "K FACTOR" = 0.17. THE SOIL IS CONSIDERED NOT HIGHLY ERODIBLE.
RUMNEY FINE SANDY LOAM 0% TO 2% SLOPES, "K FACTOR" = 0.24. THE SOIL IS CONSIDERED NOT HIGHLY ERODIBLE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS
CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: UNNAMED BROOK
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES
SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

1.4.2 LIMIT DISTURBANCE AREA
PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION
TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS
SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

INLET PROTECTION DEVICE, TYPE I SHALL BE INSTALLED AT CULVERT INLETS AS SHOWN ON THE PLANS.

1.4.5 DIVERT UPLAND RUNOFF
DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA DRAINS VIA DRIVE CULVERTS AND A 42" CPEP TO THE BOX CULVERT INLET. IT IS NOT FEASIBLE TO DIVERT THE UPLAND RUNOFF TO AVOID THE BOX CULVERT. SEE SECTION 1.4.11 DE-WATERING ACTIVITIES FOR ADDITIONAL INFORMATION.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF
TEMPORARY CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

TEMPORARY STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS
PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS. THIS PRINCIPLE IS NOT ANTICIPATED TO BE NEEDED AS DESIGNED.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION
ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION
VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES
DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR TREATMENT SHALL BE PLACED A MINIMUM OF 20' FROM WETLAND OR SURFACE WATERS AND WITH THE APPROVAL OF THE RESIDENT ENGINEER. DE-WATERING ACTIVITIES INCLUDE DAMMING, PUMPING AND/OR DIVERTING THE STREAM WATER IN ORDER TO CONSTRUCT THE BOX CULVERT AND WINGWALLS IN THE DRY. THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE
INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

CLD 11-0160

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202EPSC_Narrative.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
EPSC NARRATIVE

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 18 OF 43

VT 14 STA 116+25.00=
DETOUR STA 216+25.00
BEGIN APPROACH
BEGIN DETOUR

BEGIN BARRE TOWN STP SCRP(10)
STA 118+00.00 (MM 2.235)

END BARRE TOWN STP SCRP(10)
STA 120+00.00 (MM 2.273)

VT 14 STA 121+75.00=
DETOUR STA 221+97.54
END APPROACH
END DETOUR

VT STATE PLANE GRID

RUMNEY FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES

ADAMS LOAMY FINE SAND, 8 TO 15 PERCENT SLOPES

ADAMS LOAMY FINE SAND, 15 TO 25 PERCENT SLOPES

VT 14

WILLIAMSTOWN

BARRE CITY

TOWN LINE

STEVENS BRANCH

50' RIPARIAN BUFFER

116+00 117+00 118+00 119+00 120+00 121+00 122+00

NOTE
SEE SHEET 3 FOR CONVENTIONAL SYMBOLOGY LEGEND.

0 20 40
SCALE IN FEET

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202bdreroex.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
EPSC EXISTING CONDITIONS PLAN SHEET	SHEET 19 OF 43

CLD 11-0160

PROJECT DEMARCATION FENCE
STA 116+25 TO 116+49 RT
STA 116+63 TO 117+50 RT
STA 116+75 TO 118+05 LT
STA 120+53 TO 121+75 RT
STA 120+95 TO 121+75 LT

GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED
STA 118+98 TO 119+06 LT
STA 119+09 TO 119+17 LT
STA 119+16 TO 119+21 LT

BARRIER FENCE
STA 117+75 TO 120+12 RT
STA 118+05 TO 119+09 LT
STA 119+15 TO 119+71 LT

STONE FILL, TYPE II
STA 118+75 TO 119+00 RT (DITCH)
STA 119+22 TO 119+42 LT (SLOPE)

STONE FILL, TYPE III
STA 119+00 TO 119+32 RT (DITCH)
STA 119+00 TO 119+24 LT (CHANNEL)

GEOTEXTILE UNDER STONE FILL
STA 118+75 TO 119+00 RT (DITCH)
STA 119+00 TO 119+32 RT (DITCH)
STA 119+00 TO 119+24 LT (CHANNEL)
STA 119+22 TO 119+42 LT (SLOPE)

INLET PROTECTION DEVICE, TYPE I
STA 117+12 RT
STA 121+30 RT
STA 219+00 RT

TEMPORARY EROSION MATTING
STA 217+92 TO 220+12 RT
STA 219+25 TO 219+75 LT

VEHICLE TRACKING PAD
STA 117+86 LT

TEMPORARY STONE CHECK DAM, TYPE I
STA 218+00 TO 219+00 RT
STA 219+00 TO 220+00 RT

VT 14 STA 116+25.00=
DETOUR STA 216+25.00
BEGIN APPROACH
BEGIN DETOUR

BEGIN BARRE TOWN STP SCRP(10)
STA 118+00.00 (MM 2.235)

END BARRE TOWN STP SCRP(10)
STA 120+00.00 (MM 2.273)

VT 14 STA 121+75.00=
DETOUR STA 221+97.54
END APPROACH
END DETOUR

VT STATE PLANE GRID

TOWN LINE

STEVENS BRANCH

50' RIPARIAN BUFFER

BRUSH

FIELD/ SCRUB BRUSH

P.3, T. 193210

P.2, T. 193209

TEMPORARY CONSTRUCTION ACCESS

TEMP. DETOUR LIMITS

VT 14

BARRE CITY

ENERGY ABSORPTION ATTENUATOR (TYP)

PROTECT POLE AND TREE WITH TEMPORARY TRAFFIC BARRIER

STA 219+00 LT & RT
TEMPORARY 18" X 52' CSP

STA 120+40.4 TO 121+30.4 RT
TEMPORARY 18" X 90' CSP

NOTE
SEE SHEET 3 FOR CONVENTIONAL SYMBOLOGY LEGEND.

0 20 40
SCALE IN FEET

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202bdrerocn.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
EPSC CONSTRUCTION PLAN SHEET	SHEET 20 OF 43

CLD II-0160

TEMPORARY EROSION MATTING
STA 118+50 TO 119+50 RT
STA 118+50 TO 119+42 LT
STA 119+16 TO 119+40 LT

VT 14 STA 116+25.00 =
DETOUR STA 216+25.00
BEGIN APPROACH
BEGIN DETOUR

BEGIN BARRE TOWN STP SCRP(10)
STA 118+00.00 (MM 2.235)

END BARRE TOWN STP SCRP(10)
STA 120+00.00 (MM 2.273)

VT 14 STA 121+75.00 =
DETOUR STA 221+97.54
END APPROACH
END DETOUR

VT STATE PLANE GRID

TOWN LINE

STEVENS BRANCH

50' RIPARIAN BUFFER

50' RIPARIAN BUFFER

GRANITE CRIB WALL

15" SPRUCE

25' HVCTRL

4 ABOVEGROUND PROPANE TANKS

UNDERGROUND PROPANE

18" SPRUCE

CONCRETE FILLED STEEL BOLLARD (3)

STEEL GATE POST

GRAVEL DRIVE

STEEL GATE POST

P.3, T. 193210

P.2, T. 193209

TEMPORARY CONSTRUCTION ACCESS

TEMPORARY CONSTRUCTION ACCESS

TEMP. DETOUR LIMITS

TEMP. DETOUR LIMITS

TEMP. DETOUR LIMITS

VT 14

116+00

117+00

118+00

119+00

120+00

121+00

122+00

WILLIAMSTOWN

BARRE CITY

STATE HIGHWAY BEGIN/35 MPH

STATE HIGHWAY ENDS 25 MPH UNLESS OTHERWISE POSTED IN CITY LIMITS

BARRE CITY/BARRE TOWN
0140/120I/0000
0140/202/0232

4"x4" MARBLE VT ℄ 1931F.A/129-A

2 M. APPLE

WOODS DRIVE

PAVED DRIVE

PAVED DRIVE

PAVED GUTTER

M. SPRUCE

M. SPRUCE

18" CPEP

18" CPEP

18" CPEP

42" CPEP

18" CGMP

SGR W/STEEL POST

SGR W/STEEL POST

SGR W/STEEL POST

BARRE CITY EAST MONTPELIER-5

STONE BOX 4.5'X4.5'

STONE

STONE

12" MAIN

6" DI

SMH

10" PVC

8" PVC

AER E&T

ET

GRAVEL

PAVED DRIVE

GUY

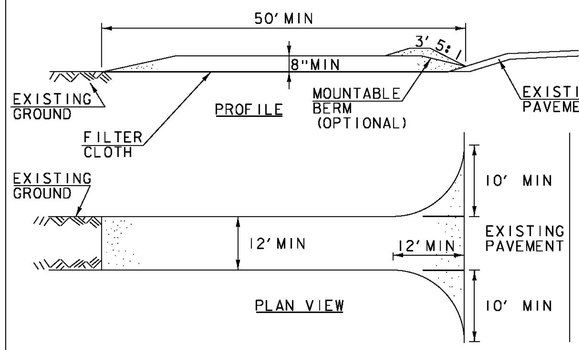
COMM SIGN

NOTES
1. SEE CROSS SECTIONS FOR FINISHED GRADING.
2. SEE SHEET 3 FOR CONVENTIONAL SYMBOLOGY LEGEND.

0 20 40
SCALE IN FEET

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202bdrerofl.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
EPSC FINAL CONDITIONS PLAN SHEET	SHEET 21 OF 43

CLD 11-0160



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

VAOT RURAL AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	*FOLLOW*	PELLETIZED	*FOLLOW*
500 LBS/AC	*MANUFACTURER*	2 TONS/AC	*MANUFACTURER*

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

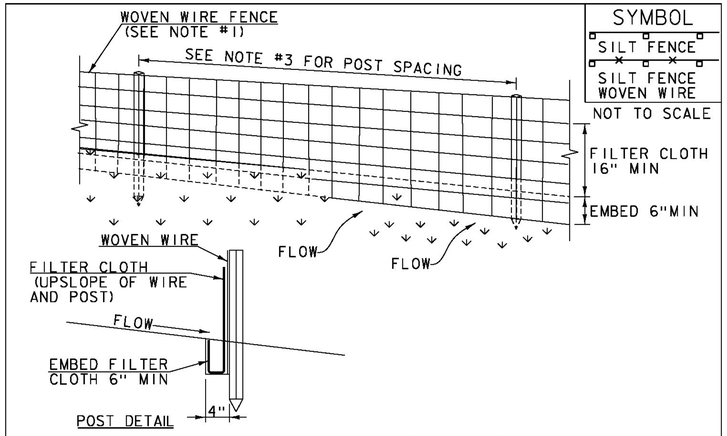
REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

CLD II-0160

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202EPSC_Details.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
EPSC DETAIL SHEET 1

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 22 OF 43



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

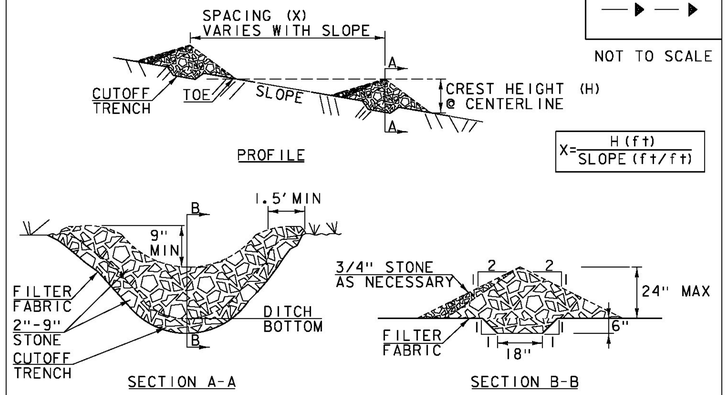
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR ~~GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR~~ GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

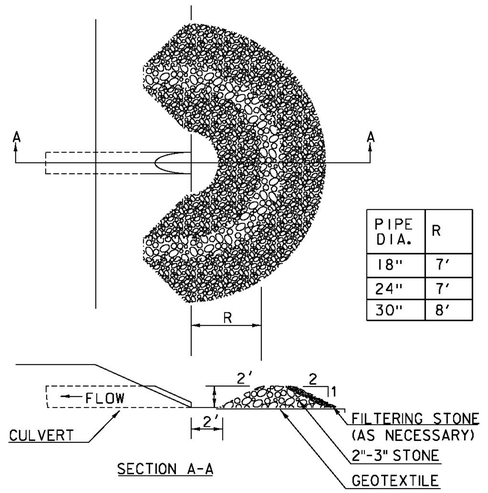
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. USE 2" TO 3" STONE. FILTERING STONE SHALL BE 3/4".
2. PLACE STONE OVER GEOTEXTILE.
3. ONCE THE AREAS UPSTREAM FROM THE CHECK DAM ARE STABILIZED WITH VEGETATION, THE SEDIMENT TRAPPED BEHIND THE DAM SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA.
4. THE CHECK DAM(S) SHALL BE FLATTENED AND GRADED IN A MANNER WHICH PROTECTS THE AREA FROM EROSION AND CHANNEL BLOCKAGE. (GEOTEXTILE MUST BE REMOVED).
5. THE GEOTEXTILE MUST BE DISPOSED OF APPROPRIATELY.
6. THE AREA CONTRIBUTING TO THE CHECK DAM SHALL NOT EXCEED 4 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS

PIPE INLET PROTECTION

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I (PAY ITEM 653.40).

REVISIONS	
MARCH 6, 2008	WHF
JANUARY 13, 2009	WHF

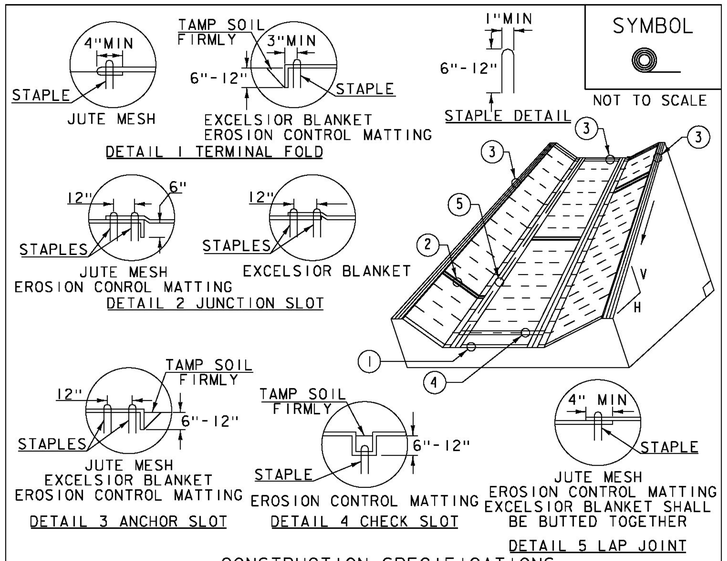
CLD 11-0160

PROJECT NAME: BARRE TOWN

PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202EPSC_Details.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
EPSC DETAIL SHEET 2

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 23 OF 43



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

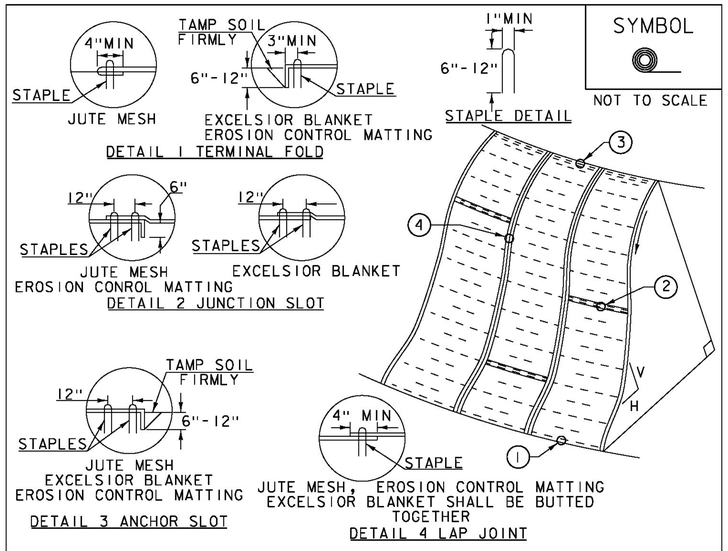
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME AND SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) DITCH

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
MARCH 8, 2007	JMF
APRIL 16, 2007	WHF
JANUARY 13, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

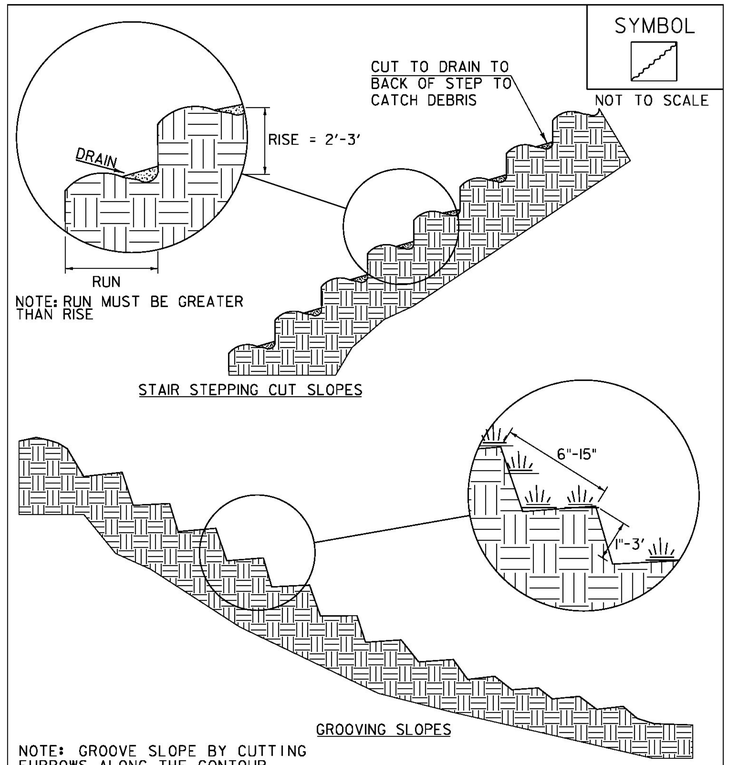
1. APPLY TO SLOPES GREATER THAN 3H: IV OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME AND SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

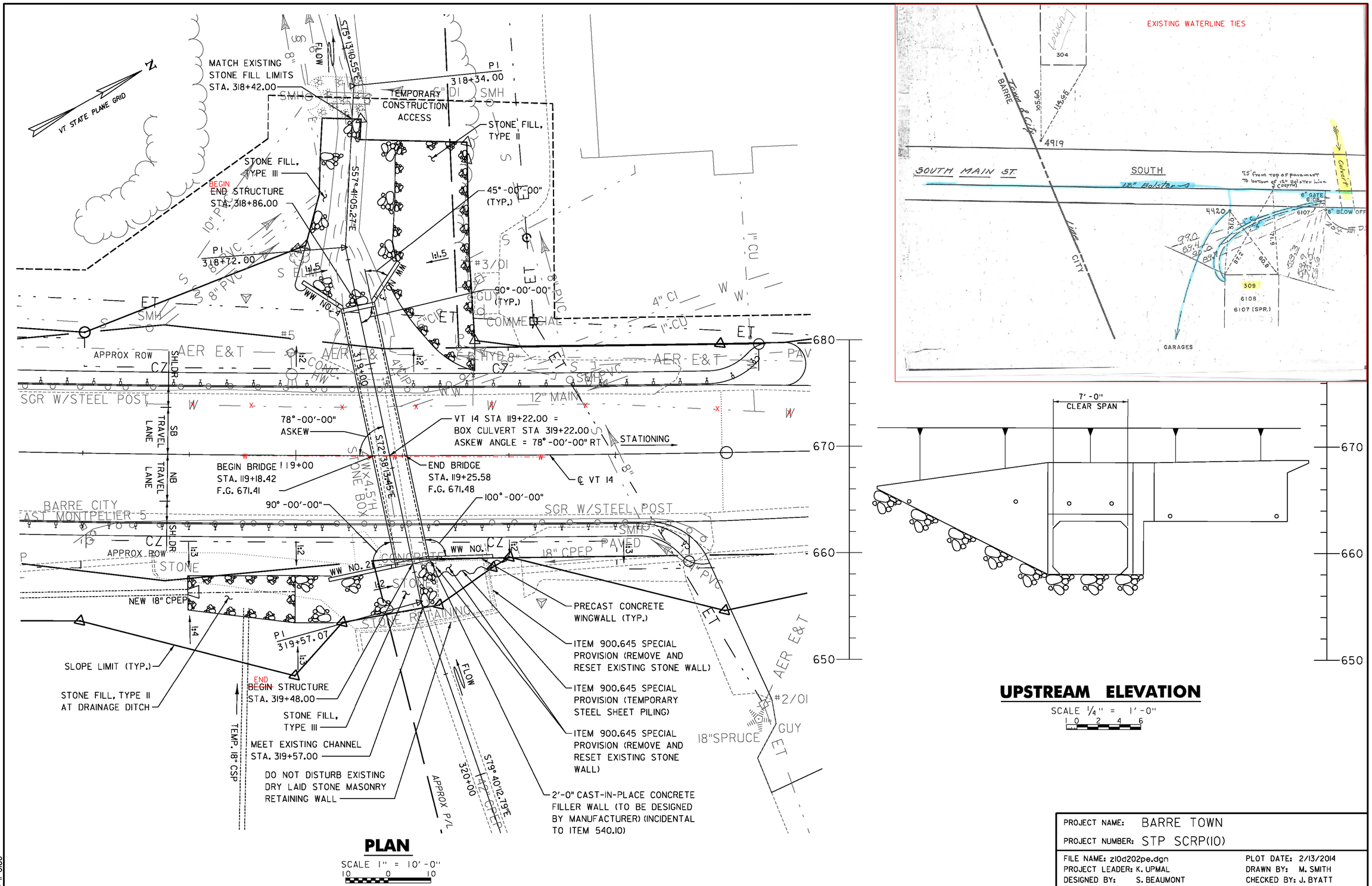
REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202EPSC_Details.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
EPSC DETAIL SHEET 3

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 24 OF 43

CLD 11-0160



PLAN

SCALE 1" = 10'-0"
10 0 10

UPSTREAM ELEVATION

SCALE 1/4" = 1'-0"
1 0 2 4 6

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: z10d202pe.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: J. BYATT
CULVERT PLAN AND ELEVATION	SHEET 25 OF 43

CLD 0960-11

GENERAL NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, DATED 2012, AND ITS LATEST REVISIONS.

2. DIMENSIONS, ANGLES AND ELEVATIONS SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM SURVEY INFORMATION AND LIMITED FIELD INVESTIGATION AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS. ACCORDINGLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS FOR ALL STRUCTURE COMPONENTS IMPACTED BY THE WORK (EXISTING OR PROPOSED) TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO ATTENTION OF THE ENGINEER BEFORE ADVANCING THE WORK. FABRICATION DRAWINGS REQUIRED FOR VARIOUS ITEMS OF THE WORK SHALL INDICATE THE ACTUAL FIELD MEASUREMENTS AND SHALL BE SO NOTED.

3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

4. ANY PORTIONS OF THE EXISTING DRY LAID STONE MASONRY WALLS AND STONE SHELF DISTURBED DURING CONSTRUCTION OPERATIONS SHALL BE REMOVED AND RESET. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 900.645, SPECIAL PROVISION (REMOVE AND RESET EXISTING STONE WALL). ANY BRACING SYSTEM NECESSARY TO SUPPORT THE WALLS DURING CONSTRUCTION OPERATIONS WILL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TEMPORARY STEEL SHEET PILING).

5. ALL PG BINDER USED IN BITUMINOUS CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH SUBSECTION 490.03(b).

6. EMULSIFIED ASPHALT SHALL BE APPLIED ON COLD PLANED SURFACES AT THE RATE OF 0.040 GAL/SY AND BETWEEN ALL COURSES OF PAVEMENT AT THE RATE OF 0.025 GAL/SY OR AS DIRECTED BY THE ENGINEER.

7. ANY REQUIRED SAWCUT OF EXISTING PAVEMENT SHALL BE INCIDENTAL TO THE WEARING COURSE PAY ITEM.

8. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND ALL APPLICABLE ENVIRONMENTAL PERMITS AND ENSURE THAT ALL CONSTRUCTION CONDITIONS ARE MET.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTY CAUSED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.

10. UPON COMPLETION OF THE BOX CULVERT CONSTRUCTION THE CONTRACTOR SHALL REMOVE THE DETOUR, RESTORE THE DETOUR SITE TO THE ORIGINAL GRADE AND STABILIZE AS SHOWN ON THE EPSC FINAL CONDITIONS PLAN.

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

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

13. AN ESTIMATED QUANTITY OF ITEM 203.16 SOLID ROCK EXCAVATION HAS BEEN INCLUDED TO REMOVE EXISTING CONCRETE ROAD BED.

UTILITY NOTES:

1. THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE. NO CLAIMS ARE MADE AS TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL UTILITIES ON SITE DURING ALL STAGES OF CONSTRUCTION. SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2. THE WATER LINE WILL BE TEMPORARILY SUSPENDED AND SUPPORTED IN PLACE DURING CONSTRUCTION OF THE BOX CULVERT. SEE SPECIAL PROVISIONS AND DETAIL ON SHEET 6.

TEMPORARY RELOCATION OF STREAM NOTES:

1. ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM), SHALL BE USED TO DIVERT THE UNNAMED BROOK FLOW AROUND THE CONSTRUCTION AREA OF THE NEW STRUCTURE. THE CONTRACTOR SHALL SUBMIT PLANS SHOWING THE PROPOSED METHOD FOR DIVERTING THE BROOK AND ALLOWING THE NEW STRUCTURE TO BE BUILT IN THE DRY. ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING WORK:

   A. THE TEMPORARY PIPE AND HARDWARE, AS WELL AS ANY PIPE EXTENSIONS REQUIRED TO EXTEND THE EXISTING PIPES.

   B. ANY EXCAVATION NEEDED TO PLACE AND REMOVE THE TEMPORARY PIPE THAT FALLS OUTSIDE THE PAY LIMITS OF STRUCTURE OR COMMON EXCAVATION AS DEFINED ON THE PLANS.

   C. ANY BACKFILL NEEDED TO PLACE THE TEMPORARY PIPE SUCH THAT THE EXISTING STREAM ELEVATIONS WILL MAINTAIN THE FLOW OF WATER AT ALL TIMES.

   D. MATERIAL AND LABOR TO PLACE THE BACKFILL WHICH FALLS OUTSIDE THE PAY LIMITS OF THE ROADWAY SUBBASE AND GRANULAR BACKFILL FOR STRUCTURES AS DEFINED ON THE PLANS.

   E. INCIDENTALS USED WHILE DIVERTING THE WATER TO THE TEMPORARY PIPES. (SANDBAGS, ETC.)

PRECAST CONCRETE BOX CULVERT NOTES:

1. THE LUMP SUM COST FOR ITEM 540.10 SHALL INCLUDE THE DESIGN, FABRICATION, DELIVERY, HANDLING, REPAIR AND CONSTRUCTION OF ALL THE PRECAST BRIDGE ELEMENTS, INCLUDING THE BOX CULVERT, HEADWALLS, CUT-OFF WALLS, WINGWALLS, WINGWALL FOOTINGS, CAST-IN-PLACE CONCRETE FILLER WALL, REINFORCING STEEL, MEMBRANE WATERPROOFING, WATER REPELLENT, SILANE, AND DRAINAGE MATERIALS.

2. THE FABRICATOR SHALL DESIGN THE PRECAST BRIDGE ELEMENTS, INCLUDING, BUT NOT LIMITED TO, THE BOX CULVERT, HEADWALLS, CUT-OFF WALLS, WINGWALLS, WINGWALL FOOTINGS AND ALL CONNECTIONS INCLUDING CLOSURE HARDWARE. THE MANUFACTURER SHALL ALSO DESIGN THE CAST-IN-PLACE CONCRETE FILLER WALL AS WELL AS THE CONNECTIONS BETWEEN THIS WALL AND THE PRECAST BRIDGE ELEMENTS. THE JOINTS BETWEEN THE PRECAST BOX CULVERT SECTIONS SHALL BE MADE WATERTIGHT UTILIZING FLEXIBLE RUBBER OR PLASTIC GASKETS. MECHANICAL DEVICES SHALL BE USED TO LOCK THE INDIVIDUAL SECTIONS TOGETHER. THE MANUFACTURER SHALL PROVIDE STAMPED DESIGN CALCULATIONS PREPARED BY A REGISTERED VERMONT PROFESSIONAL ENGINEER. THE MANUFACTURER SHALL CONSIDER STRENGTH, SERVICEABILITY, STIFFNESS AND STABILITY OF THE PRECAST ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, CONSTRUCTION OPERATIONS, AND ULTIMATE TRAFFIC CONDITIONS. THE MANUFACTURER SHALL OBTAIN WRITTEN APPROVAL FROM THE VERMONT AGENCY OF TRANSPORTATION STRUCTURES SECTION PRIOR TO FABRICATION. ALL COSTS SHALL BE INCLUDED IN ITEM 540.10.

3. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. ALL UNITS EXCEPT THE FIRST AND LAST WILL BE THE SAME SHAPE AND THE SAME LENGTH.

4. THE PRECAST BRIDGE SYSTEM SHALL BE DESIGNED PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, DATED 2012, AND ITS LATEST REVISIONS, AND SHALL CONSIDER THE FOLLOWING DESIGN CRITERIA:

   A. DESIGN LOADING = HL-93

   B. WEIGHT OF BACKFILL MATERIAL = 140 PCF

   C. SEE GEOTECHNICAL REPORT FOR FACTORED SOIL BEARING RESISTANCES FOR BOX AND WINGWALLS.

   D. PRECAST CONCRETE COMPRESSIVE STRENGTH: f'c = 5000 psi
   CAST-IN-PLACE CONCRETE COMPRESSIVE STRENGTH: f'c = 3500 psi

   E. REINFORCING STEEL (CAST-IN-PLACE CONCRETE FILLER WALL): Fy = 60,000 psi

5. A 3" DIAMETER PERFORATED PVC DRAIN PIPE PER THE FABRICATOR'S SPECIFICATIONS SHALL BE PLACED WITHIN A MINIMUM 16" THICK ZONE OF DRAINAGE AGGREGATE CONFORMING TO SUBSECTION 704.16. STONE SHALL BE COMPLETELY SEPARATED FROM THE IN SITU SOILS BY GEOTEXTILE CONFORMING TO THE REQUIREMENTS OF SECTION 649, GEOTEXTILE FOR UNDERDRAIN TRENCH LINING. PERFORATED PVC PIPE SHALL BE LAID WITH PERFORATIONS DOWN. THIS WORK AND MATERIALS SHALL BE INCIDENTAL TO ITEM 540.10.

6. WEEP HOLES IN THE WINGWALLS AND HEADWALLS SHALL BE PLACED APPROXIMATELY EVERY 10' OR AS INDICATED ON THE PLANS. WEEP HOLES SHALL BE SCREENED TO RETAIN CRUSHED STONE (MAXIMUM 1/2" SQUARE OPENINGS) AND TO PREVENT ENTRY BY ANIMALS.

7. JOINTS BETWEEN ABUTTING PRECAST UNITS SHALL BE WATERTIGHT. THE EXTERIOR (TOP AND SIDES) AND INTERIOR (SIDES AND BOTTOM) JOINTS SHALL BE FILLED WITH MORTAR, TYPE IV, AFTER BEING SET IN THEIR FINAL POSITION. MORTAR SHALL BE WET CURED A MINIMUM OF 24 HOURS PRIOR TO APPLYING WATERPROOFING MEASURES. MORTAR SHALL BE INCIDENTAL TO ITEM 540.10.

8. BOX CULVERTS SHALL BEAR ON COMPACTED GRANULAR BACKFILL FOR STRUCTURES. ANY UNSUITABLE MATERIALS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATION FOR THE BOX CULVERT SHALL BE REMOVED AND REPLACED WITH GRANULAR BACKFILL FOR STRUCTURES TO A DEPTH OF 1.5 FEET AS DIRECTED BY THE ENGINEER OR DEEMED NECESSARY BASED ON BORINGS.

9. THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATIONS REGARDING BACKFILL AND COMPACTION LIMITS, PROPERTIES, AND PROCEDURES, INCLUDING RESTRICTIONS OF CONSTRUCTION MACHINERY AND OPERATIONS.

10. THE CONTRACTOR SHALL PROVIDE EQUIPMENT CAPABLE OF UNLOADING, LIFTING, AND PLACING PRECAST UNITS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND UNDER THE DIRECTION OF THE MANUFACTURER'S FIELD REPRESENTATIVE. COST SHALL BE INCLUDED IN ITEM 540.10.

11. PRIOR TO SHIPPING THE PRECAST ELEMENTS, THE CONTRACTOR SHALL SUPPLY CERTIFICATION STATING THAT THE BACKFILL SOIL MEETS THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS PRIOR TO APPROVAL OF THE ENGINEER.

12. THE DRILLING OF HOLES IN THE PRECAST ELEMENTS SHALL NOT BE PERMITTED, UNLESS APPROVED IN WRITING BY THE VERMONT AGENCY OF TRANSPORTATION STRUCTURES SECTION. ANY LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV. COST FOR MORTAR SHALL BE INCIDENTAL TO ITEM 540.10.

13. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO PRECAST CONCRETE ELEMENTS AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.

14. A 2 FOOT WIDE STRIP OF MEMBRANE WATERPROOFING SHALL BE APPLIED AT EACH OUTER SIDE JOINT AND AT CAST-IN-PLACE CONCRETE FILLER WALL JOINT. THE MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT OF THE SIDE JOINTS. THE ENTIRE TOP SHALL THEN BE COVERED WITH MEMBRANE. THE MEMBRANE SHALL OVERLAP THE EDGES BY 1 FOOT ON EACH SIDE. PAYMENT FOR THE MEMBRANE SHALL BE INCIDENTAL TO ITEM 540.10.

15. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE HEADWALLS, WINGWALLS (INCLUDING CAST-IN-PLACE CONCRETE FILLER WALL), AND EXPOSED INTERIOR SURFACES OF THE ENTIRE BOX CULVERT, INCLUDING THE BOTTOM SURFACE OF THE TOP SLAB, THE TOP SURFACE OF THE BOTTOM SLAB, AND THE VERTICAL WALLS. COST SHALL BE INCIDENTAL TO ITEM 540.10. WATER REPELLENT SHALL BE APPLIED IN THE SHOP FOR ALL SURFACES EXCEPT CAST-IN-PLACE CONCRETE FILL WALL, WHICH SHALL HAVE WATER REPELLENT APPLIED IN THE FIELD.

16. MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS:

CAST-IN-PLACE CONCRETE:	SECTION 501 FOR CONCRETE, HIGH PERFORMANCE CLASS B
REINFORCING STEEL:	SECTION 507 FOR LEVEL 1 REINFORCING, EPOXY COATED.
MEMBRANE WATERPROOFING:	SECTION 519 FOR TOP OF BOX CULVERT AND SECTION 540 FOR BOX CULVERT JOINTS
WATER REPELLENT, SILANE:	SECTION 514

17. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:

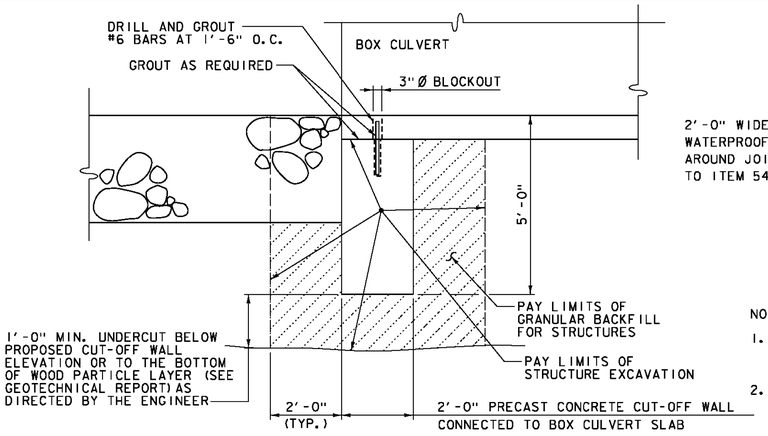
   A. SPACING +/- 1/2"

   B. CLEARANCE +/- 1/4"

18. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: z10d202notes.dgn	PLOT DATE: 2/27/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: J. BYATT
PROJECT NOTES	SHEET 26 OF 43

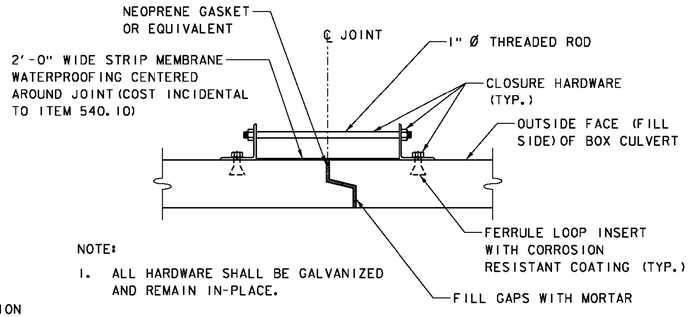
CLD 11-060



TYPICAL CUT-OFF WALL DETAIL

SCALE ½" = 1'-0"

SCALE IN FEET

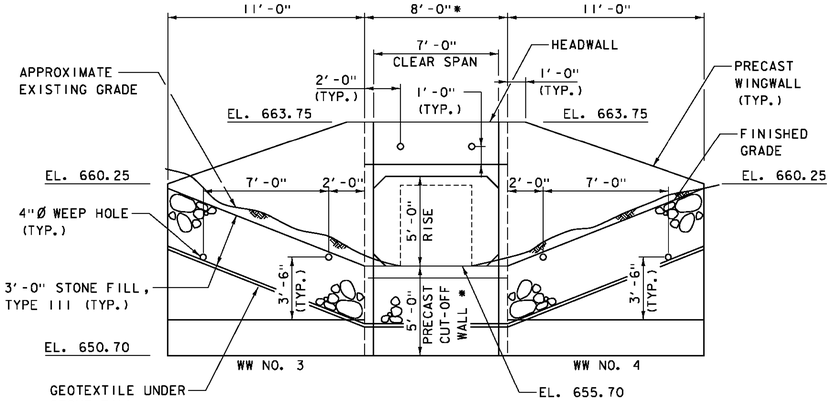


NOTE:

1. ALL HARDWARE SHALL BE GALVANIZED AND REMAIN IN-PLACE.
2. ALL JOINTS SHALL BE WATER TIGHT

BOX CULVERT JOINT DETAIL

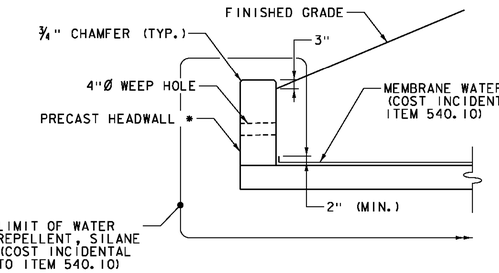
SCALE 1" = 1'-0"



DOWNSTREAM ELEVATION

SCALE ¼" = 1'-0"

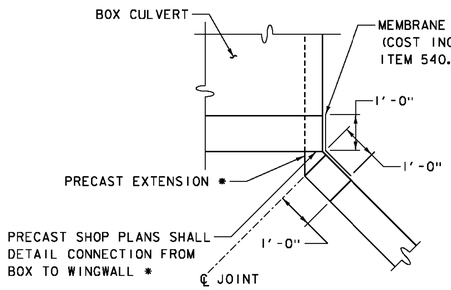
SCALE IN FEET



TYPICAL HEADWALL DETAIL

SCALE ½" = 1'-0"

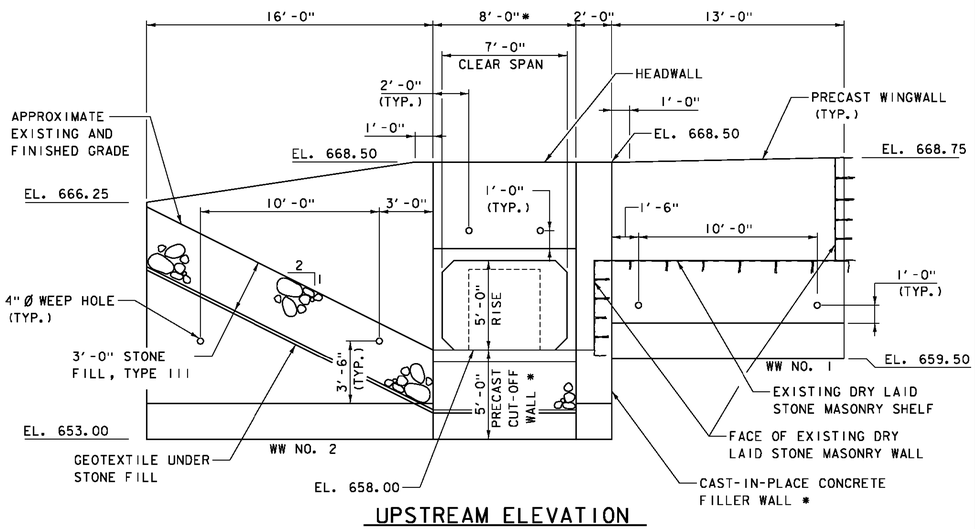
SCALE IN FEET



DOWNSTREAM PRECAST WINGWALL JOINT DETAIL

SCALE ½" = 1'-0"

SCALE IN FEET

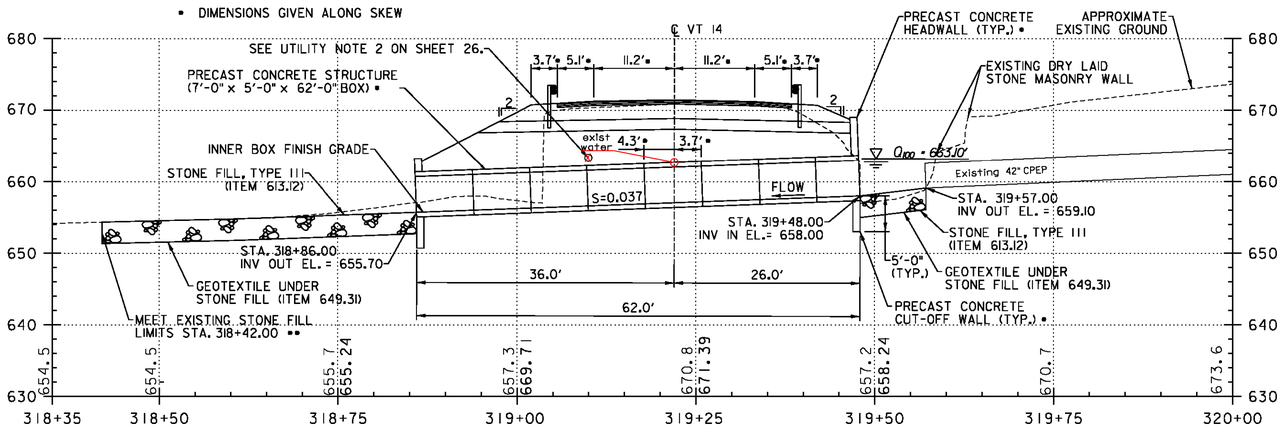


UPSTREAM ELEVATION

SCALE ¼" = 1'-0"

SCALE IN FEET

• DIMENSIONS GIVEN ALONG SKEW

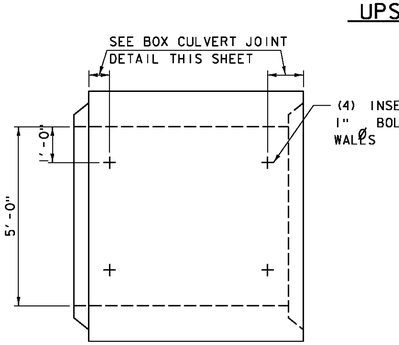


BOX CULVERT CENTERLINE PROFILE

SCALE 1" = 10'-0"

SCALE IN FEET

NOTE: SEE SHEET 4 FOR TYPICAL BOX AND WINGWALL SECTIONS



FERRULE LOOP INSERT LAYOUT

SCALE ½" = 1'-0"

SCALE IN FEET

NOTES

- BOX CULVERT, WINGWALL, WINGWALL ANCHOR, HEADWALL, AND FOOTING THICKNESSES ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. THE ACTUAL THICKNESSES WILL BE DETERMINED BY THE CONTRACTOR'S FABRICATOR. A CONSTRUCTION JOINT IN THE BOX CULVERT SHALL BE REQUIRED UNDERNEATH THE EXISTING WATER LINE. THE CONTRACTOR SHALL LOCATE THE EXISTING WATER LINE PRIOR TO BOX FABRICATION.

•• CONTRACTOR SHALL EXTEND DOWNSTREAM CHANNEL AND SLOPE WORK TO LIMITS OF EXISTING STONE FILL IF LIMITS OF EXISTING STONE FILL DIFFER FROM THAT SHOWN ON THIS SHEET.

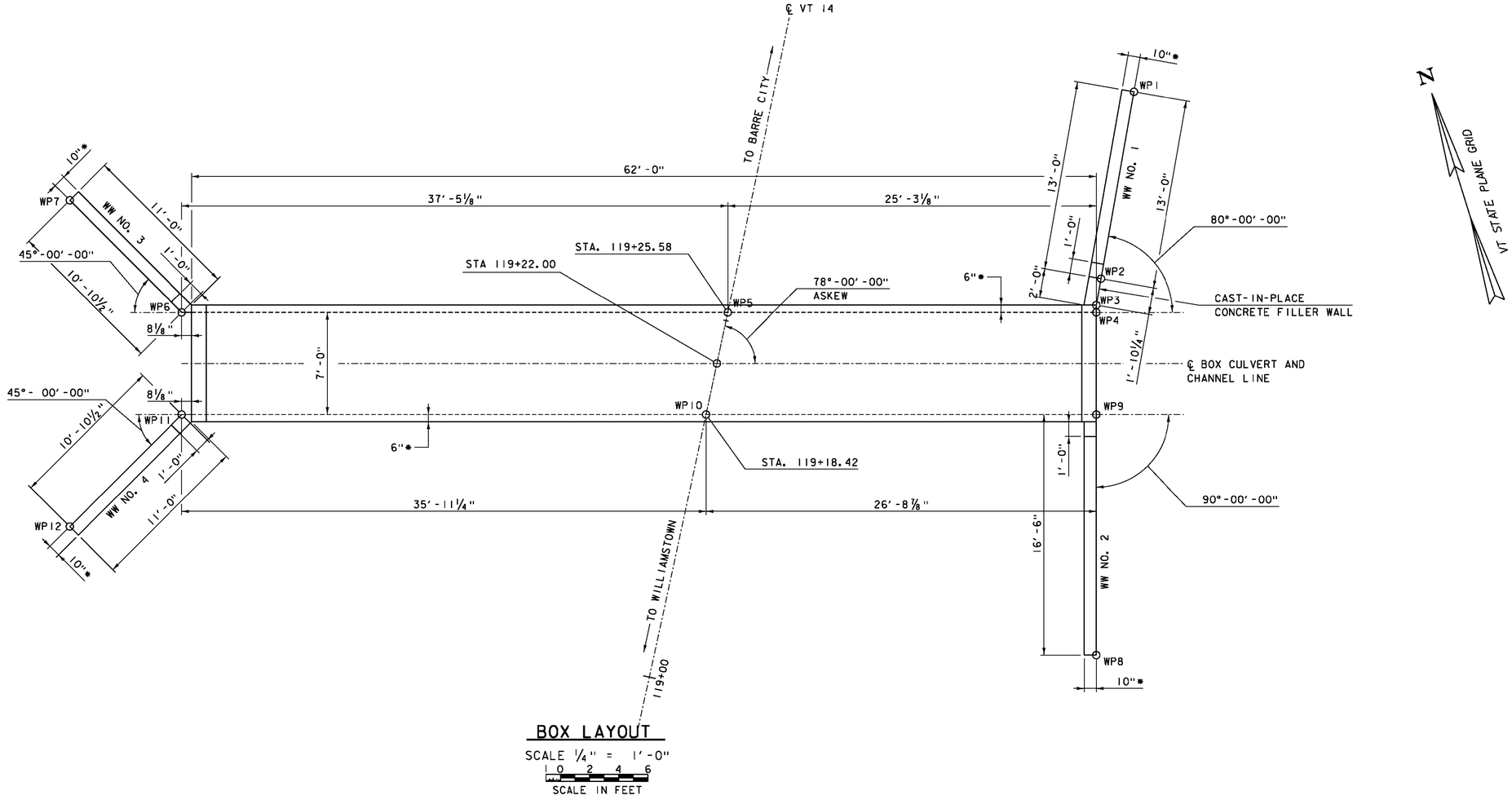
PROJECT NAME: BARRE TOWN

PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202sub.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
STRUCTURE DETAILS

PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 27 OF 43

CLD 11-0160



BOX LAYOUT

SCALE ¼" = 1'-0"

0 2 4 6

SCALE IN FEET

WORKING POINTS

	STA.	OFFSET	NORTHING	EASTING
WP1	119+46.03	24.15 RT	612616.7878	1639875.0471
WP2	119+33.11	24.55 RT	612605.2424	1639869.0719
WP3	119+31.27	24.61 RT	612603.5966	1639868.2202
WP4	119+30.78	24.71 RT	612603.1194	1639868.0710
WP5	119+25.58	0	612610.6564	1639843.9658
WP6	119+17.76	36.60 LT	612621.8241	1639808.2485
WP7	119+23.74	45.73 LT	612631.4573	1639803.2045
WP8	119+07.94	29.61 RT	612580.6902	1639861.0580
WP9	119+23.97	26.16 RT	612596.4384	1639865.9820
WP10	119+18.42	0	612604.4194	1639840.4567
WP11	119+10.86	35.14 LT	612615.1431	1639806.1596
WP12	119+01.64	41.03 LT	612610.0991	1639796.5264

WORKING POINTS (CSI DESIGN)

	STA.	OFFSET	NORTHING	EASTING
WP1	119+46.15	24.03 RT		
WP2	119+33.33	24.48 RT		
WP3	119+31.48	24.54 RT		
WP4	119+30.82	24.68 RT		
WP5	119+25.58	0	612610.6564	1639843.9658
WP6	119+17.80	36.60 LT		
WP7	119+23.72	45.73 LT		
WP8	119+07.84	29.59 RT		
WP9	119+23.98	26.14 RT		
WP10	119+18.42	0	612604.4194	1639840.4567
WP11	119+10.95	35.15 LT		
WP12	119+01.83	41.07 LT		

NOTES

- BOX, WINGWALL, WINGWALL ANCHORS, HEADWALL, AND FOOTING THICKNESSES ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. THE ACTUAL THICKNESSES WILL BE DETERMINED BY THE CONTRACTOR'S FABRICATOR.

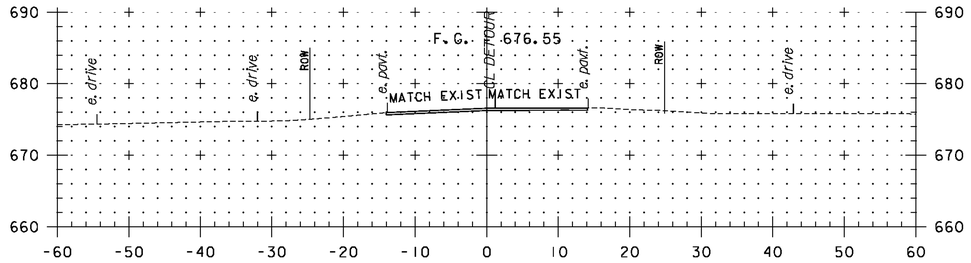
PROJECT NAME: BARRE TOWN

PROJECT NUMBER: STP SCRP(10)

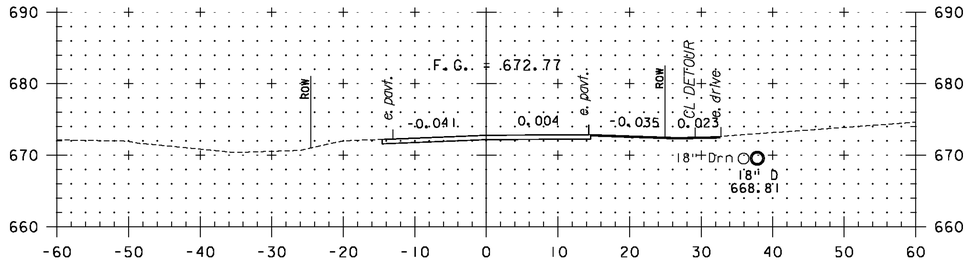
FILE NAME: z10d202wpl.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
BOX LAYOUT

PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. FRENCH
SHEET 28 OF 43

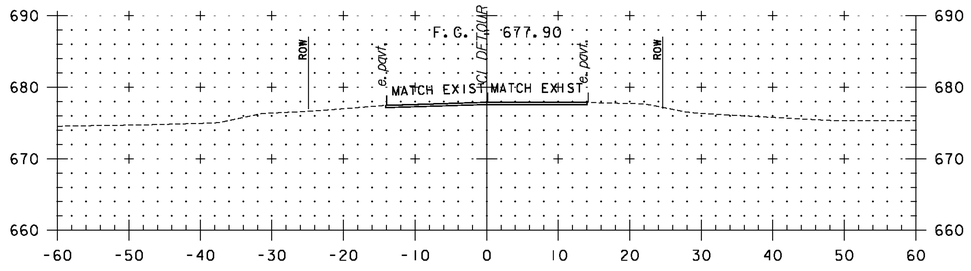
CLD 11-0160



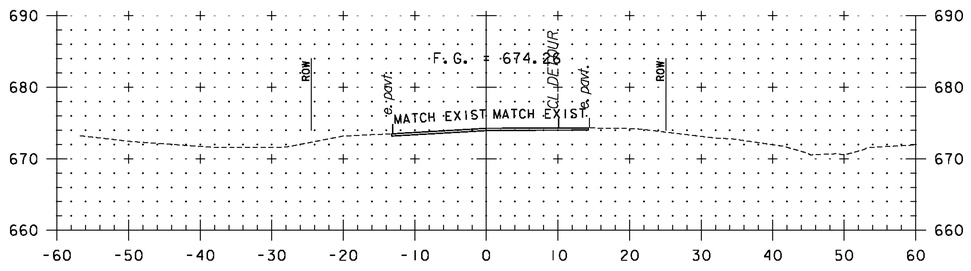
116+50



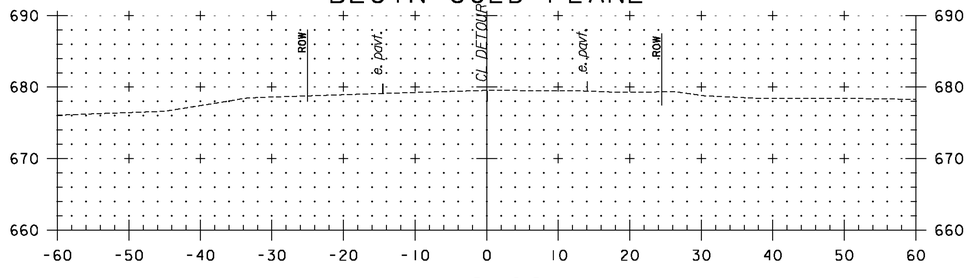
117+50
END COLD PLANE



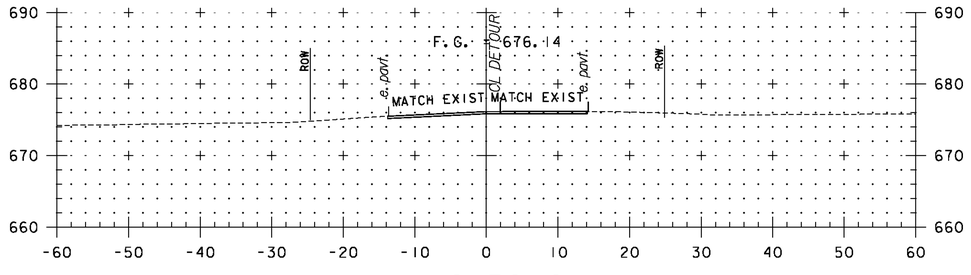
116+25.00
BEGIN APPROACH
BEGIN COLD PLANE



117+00



116+00



116+58.0
DRIVE LT & RT

SCALE IN FEET
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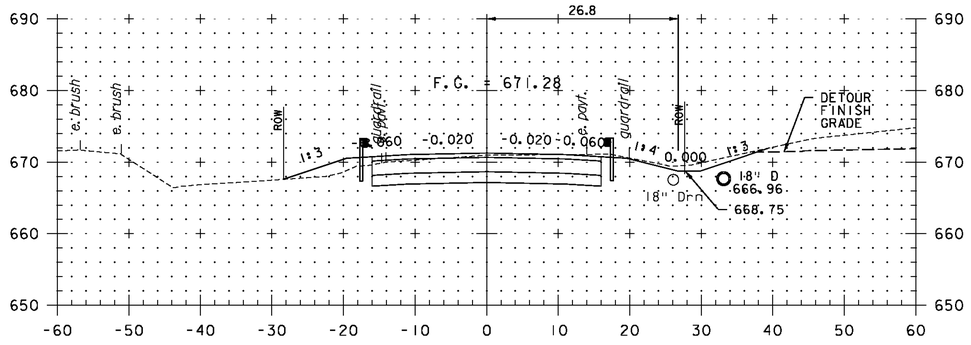
STA. 116+00 TO STA. 117+50

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

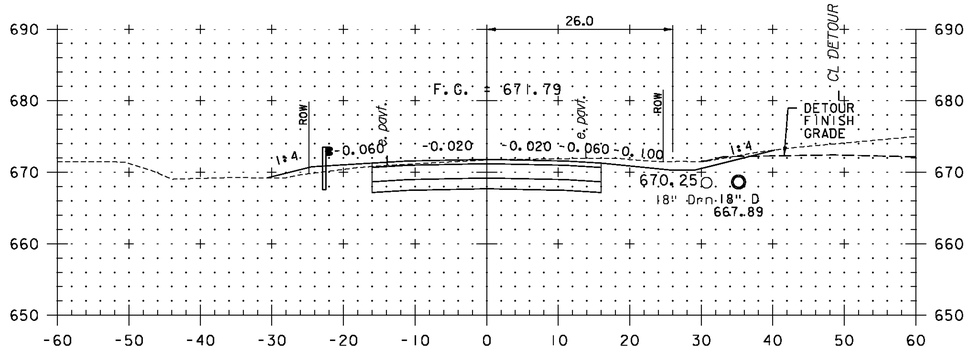
FILE NAME: zl0d202xsl_VT14.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
VT 14 CROSS SECTION SHEET 1

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 29 OF 43

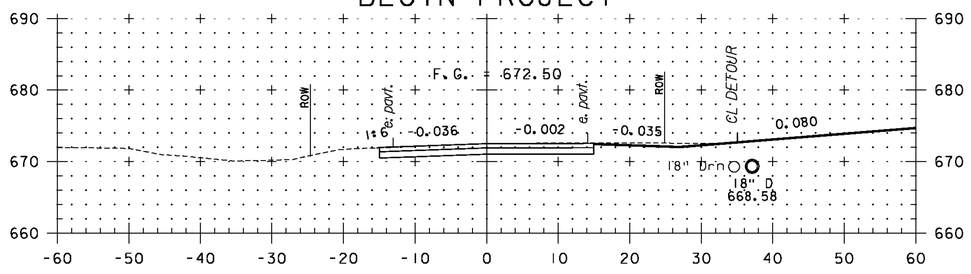
CLD 11-0160



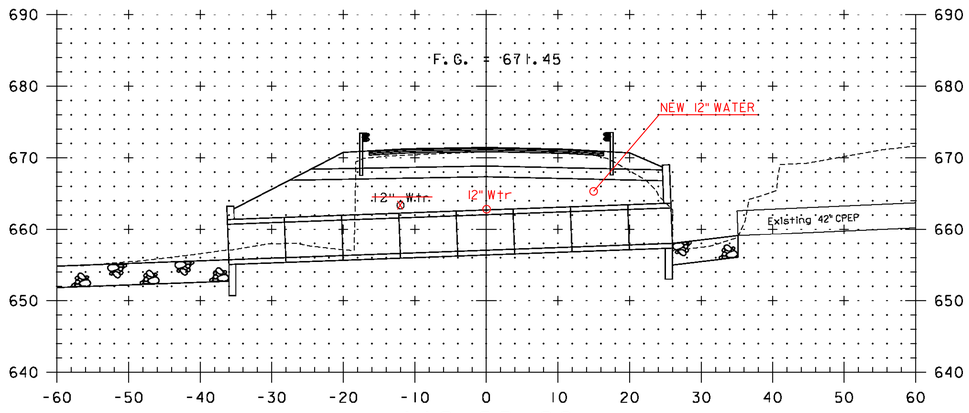
118+50



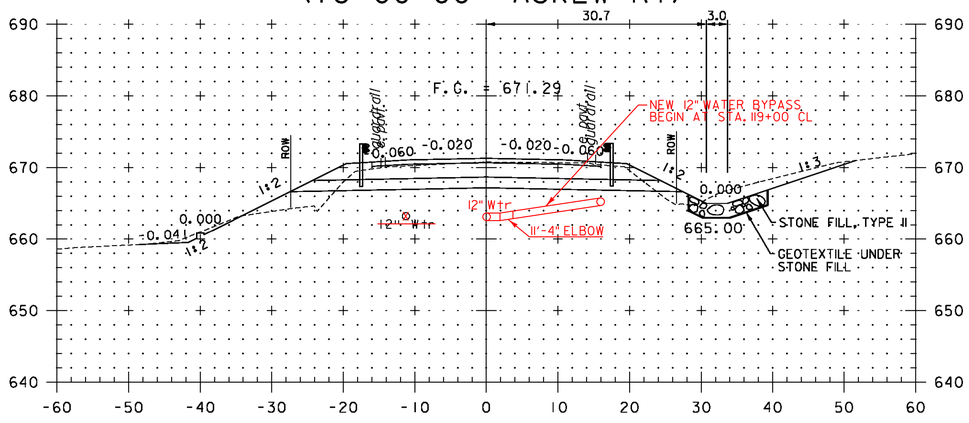
118+00.00
END APPROACH/~~END COLD PLANE~~
BEGIN PROJECT



117+62.5
DRIVE RIGHT



119+22.00
ALONG BOX CULVERT
(78°00'00" ASKEW RT)



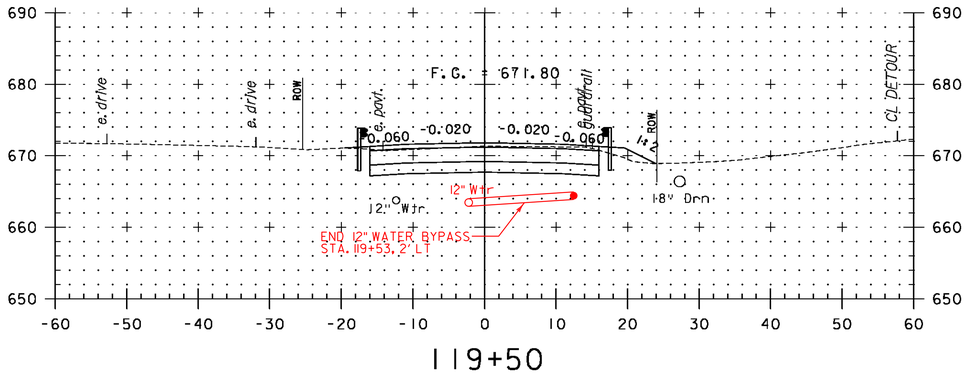
119+00

SCALE IN FEET
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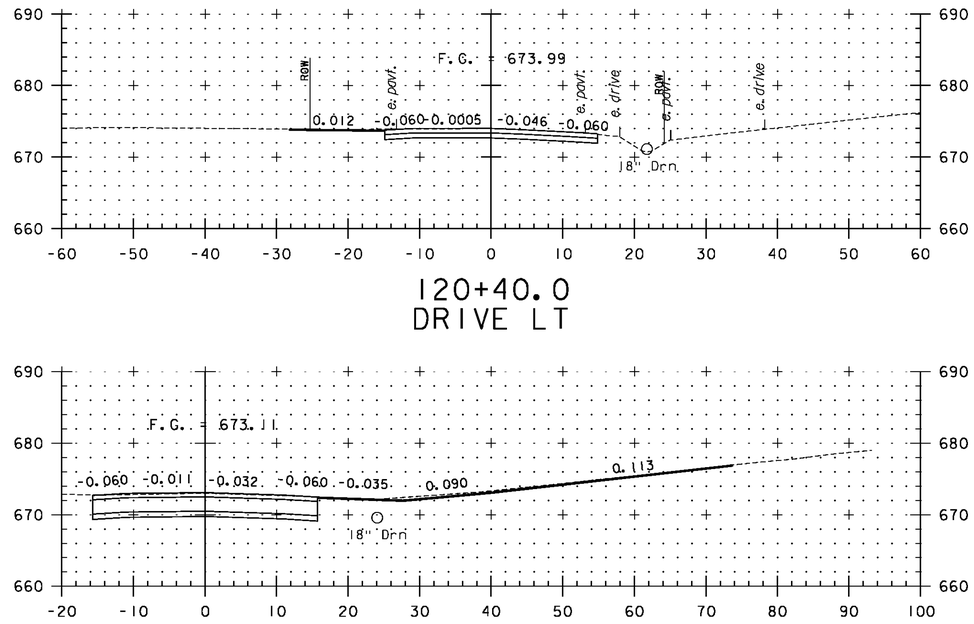
STA. 117+62.5 TO STA. 119+22.00

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202xsl_VT14.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
VT 14 CROSS SECTION SHEET 2	SHEET 30 OF 43

CLD II-0160

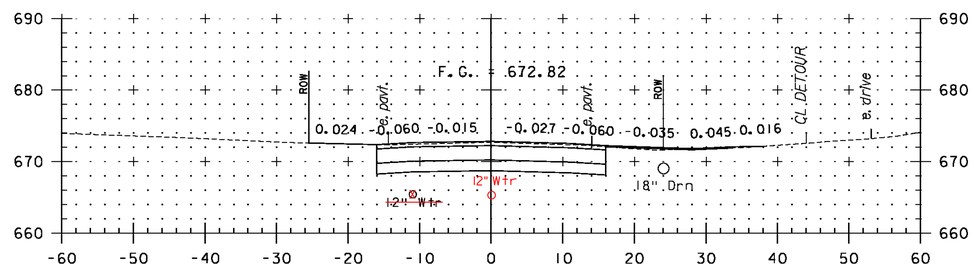


119+50



120+40.0
DRIVE LT

120+11.0
DRIVE RIGHT



120+00.00
END PROJECT
BEGIN APPROACH
~~BEGIN COLD PLANE~~

SCALE IN FEET
10 0 10

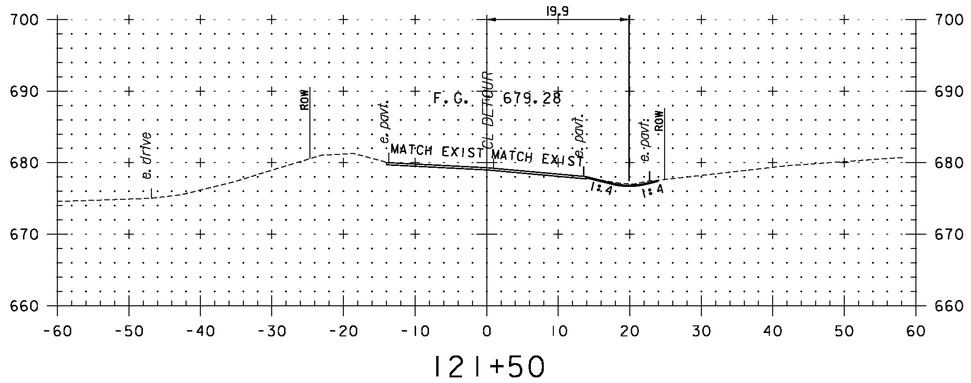
STA. 119+50 TO STA. 120+40.0

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

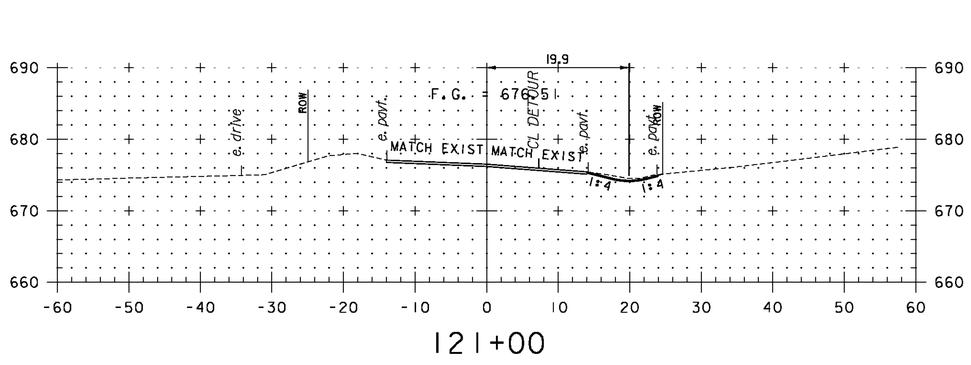
FILE NAME: z10d202xsl_VT14.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
VT 14 CROSS SECTION SHEET 3

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 31 OF 43

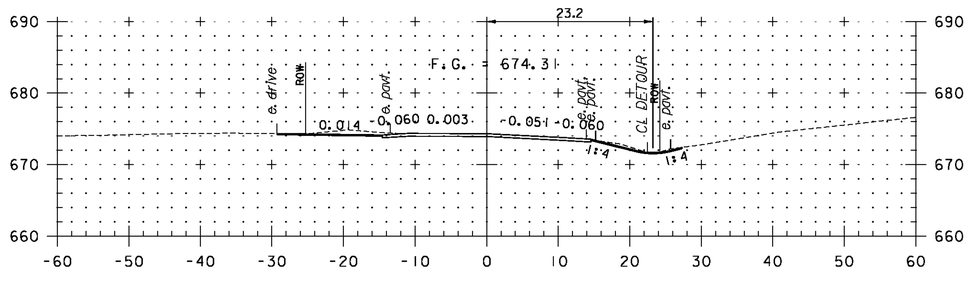
CLD 11-0160



121+50

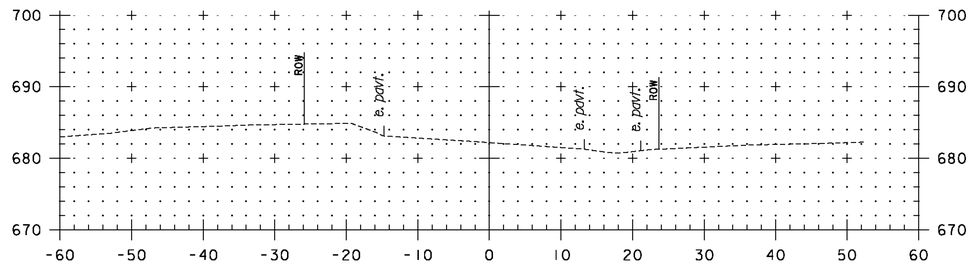


121+00

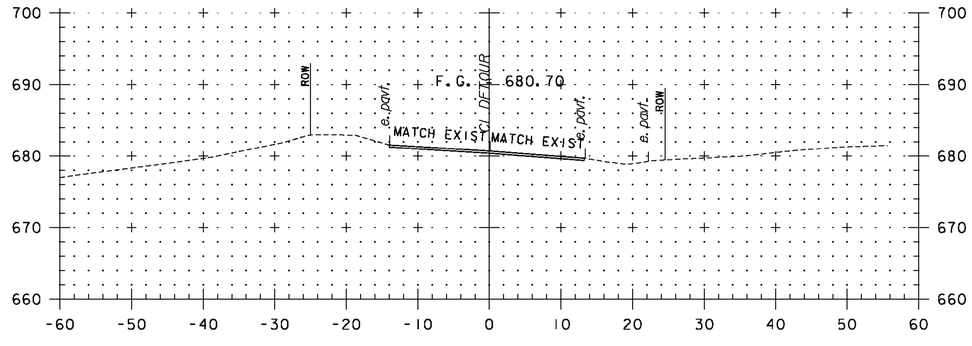


120+50

BEGIN COLD PLANE



122+00



121+75.00

END APPROACH

END COLD PLANE

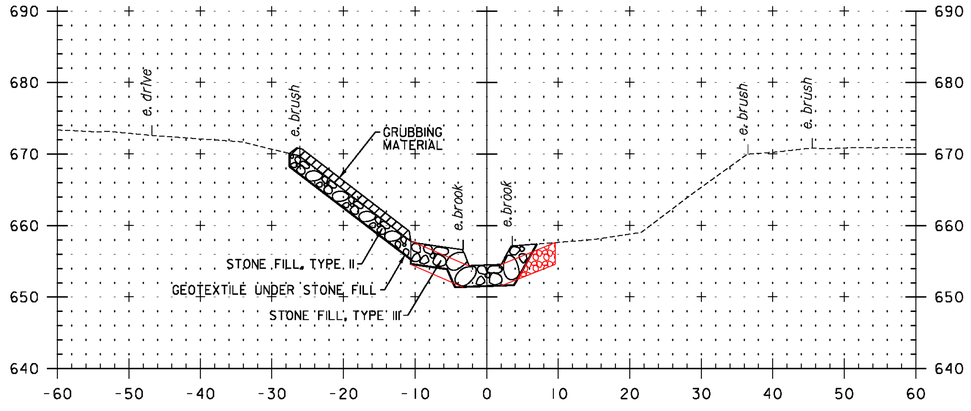
SCALE IN FEET

10 0 10

STA. 120+50 TO STA. 122+00

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202xsl_VT14.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
VT 14 CROSS SECTION SHEET 4	SHEET 32 OF 43

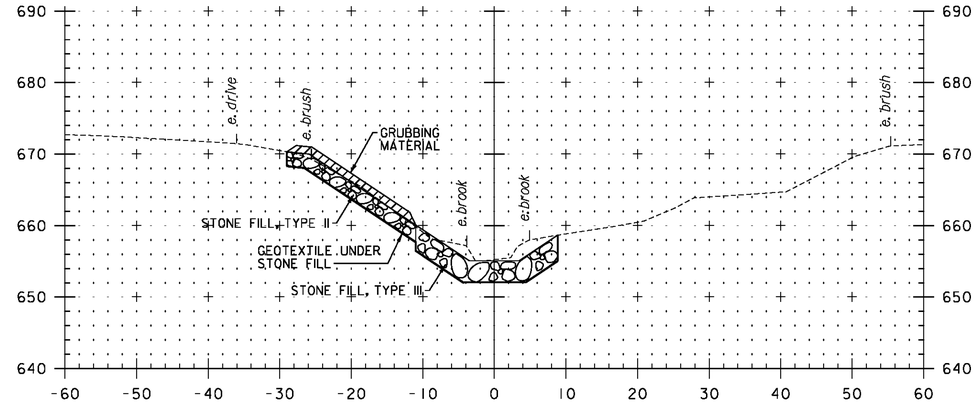
CLD 11-0160



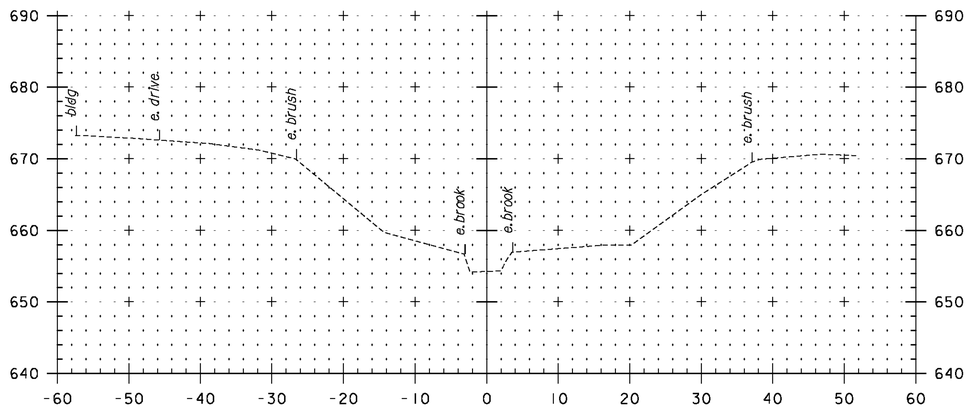
318+50

STA. 318+45.91 LT
BEGIN COMMON EXCAVATION
BEGIN STONE FILL, TYPE II
BEGIN GRUBBING MATERIAL

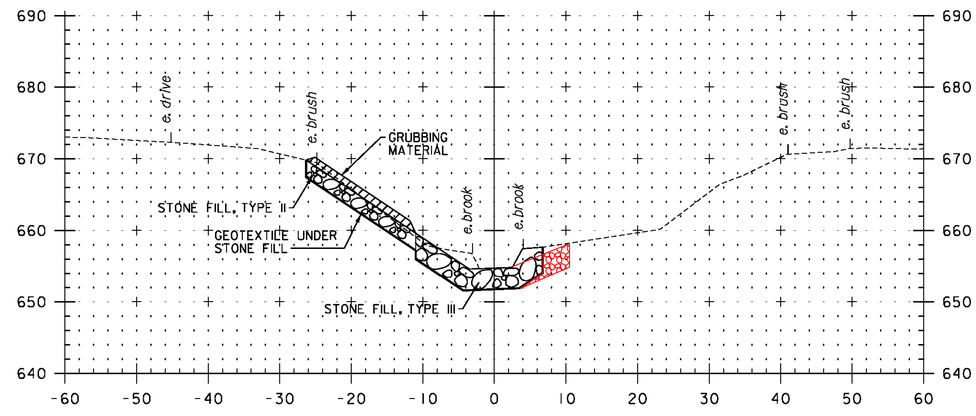
STA. 318+42.00 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE III



318+70



318+40



318+60

SCALE IN FEET
10 0 10

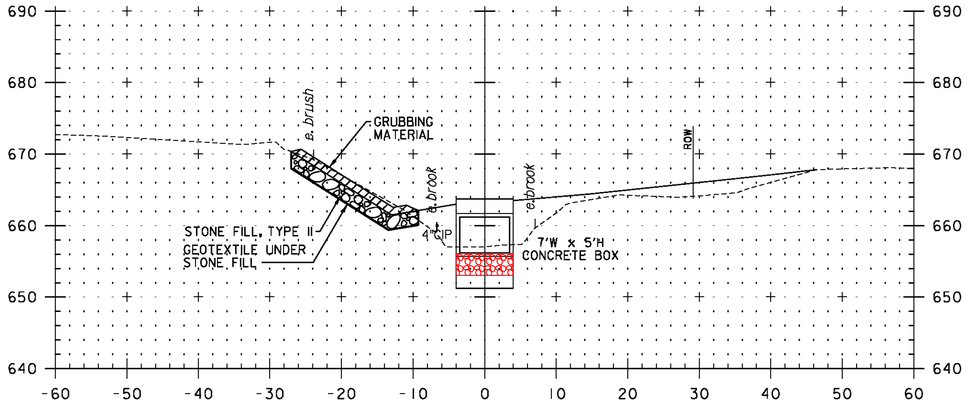
STA. 318+40 TO STA. 318+70

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202xsl_Channel.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
CHANNEL CROSS SECTION SHEET 1

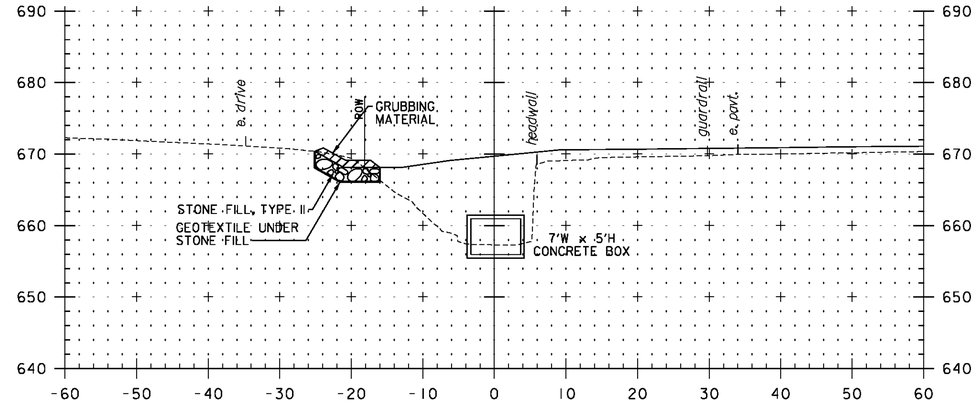
PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 33 OF 43

CLD 11-0160

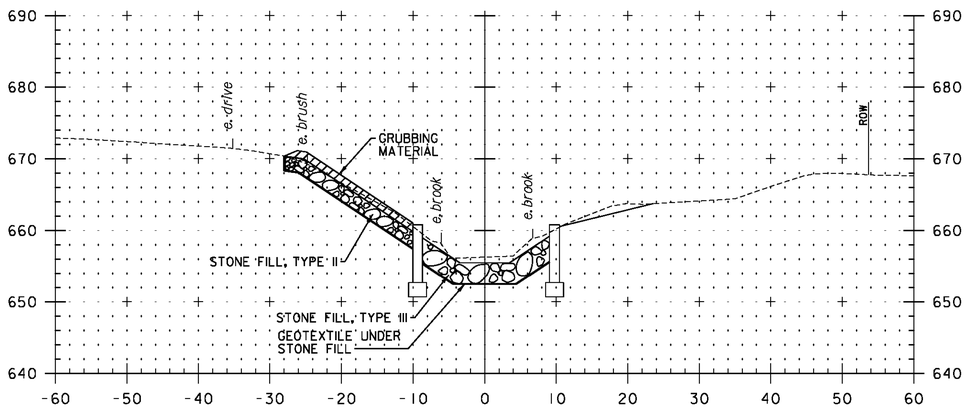


STA. 318+86.08
END UNCLASSIFIED CHANNEL EXCAVATION
END STONE FILL, TYPE III

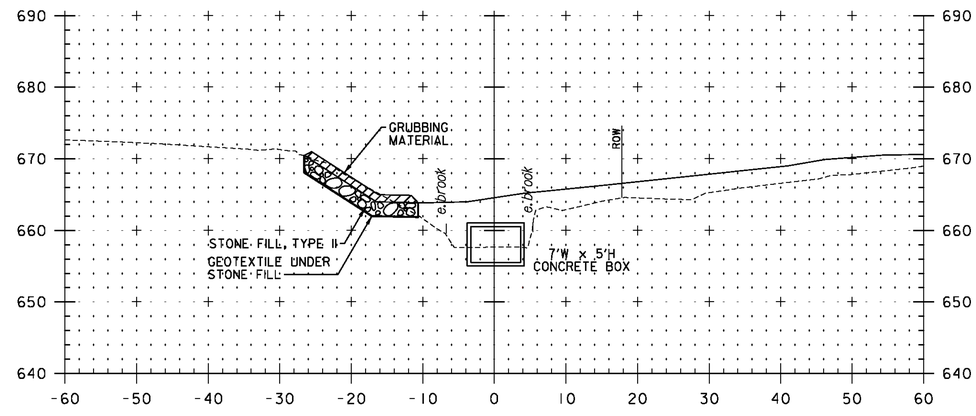
318+86.00
BOX OUTLET



319+00



318+80



318+90

SCALE IN FEET
10 0 10

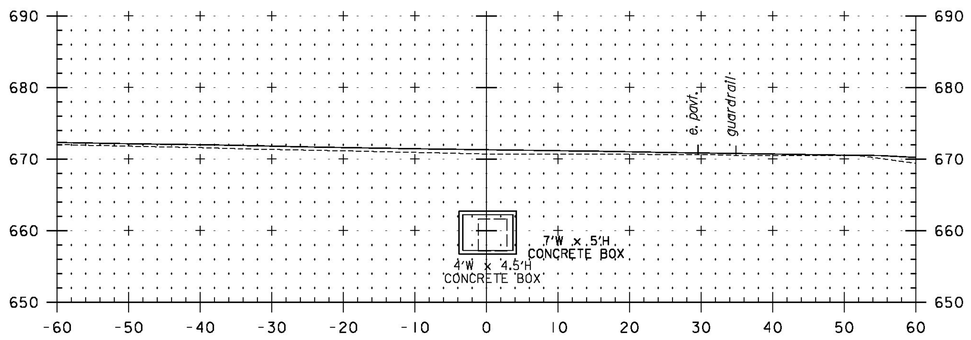
STA. 318+80 TO STA. 319+00

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

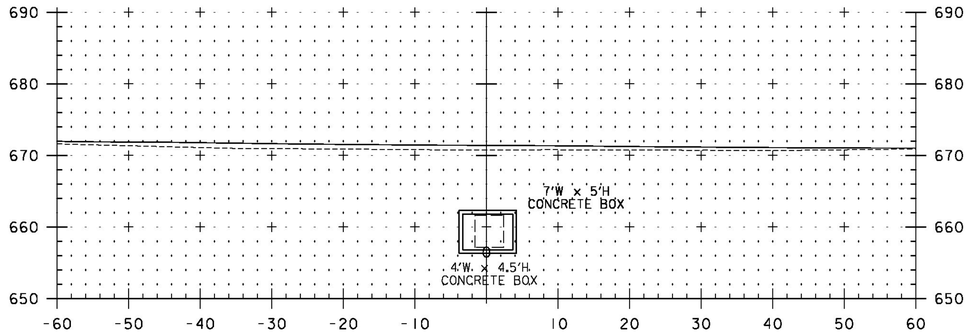
FILE NAME: z10d202xsl_Channel.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
CHANNEL CROSS SECTION SHEET 2

PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 34 OF 43

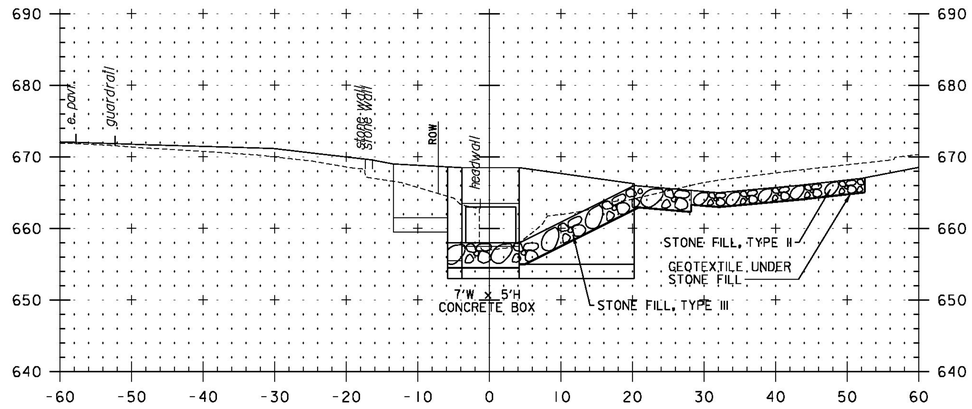
CLD 11-0160



319+30

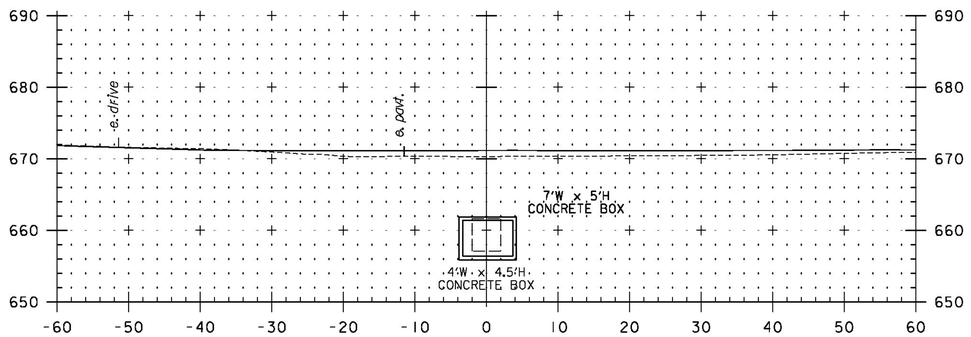


319+20



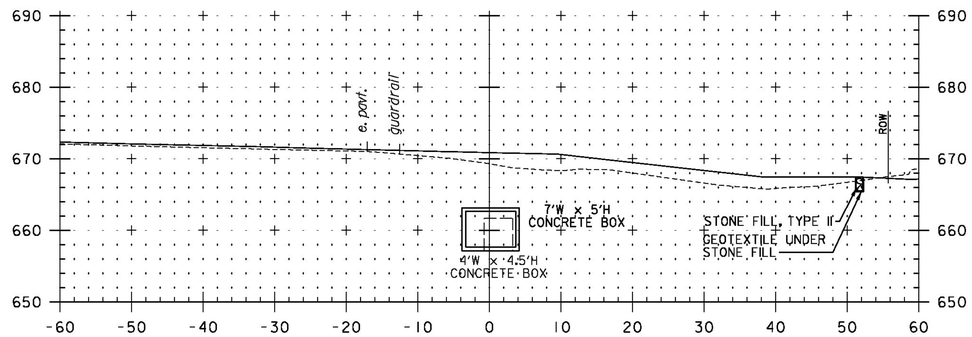
STA. 319+44.94 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL, TYPE III

319+48.00
BOX INLET



STA. 319+06.66 LT
END COMMON EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL, TYPE II
END GRUBBING MATERIAL

319+10



STA. 319+39.78 RT
BEGIN COMMON EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE II

319+40

CLD 11-0160

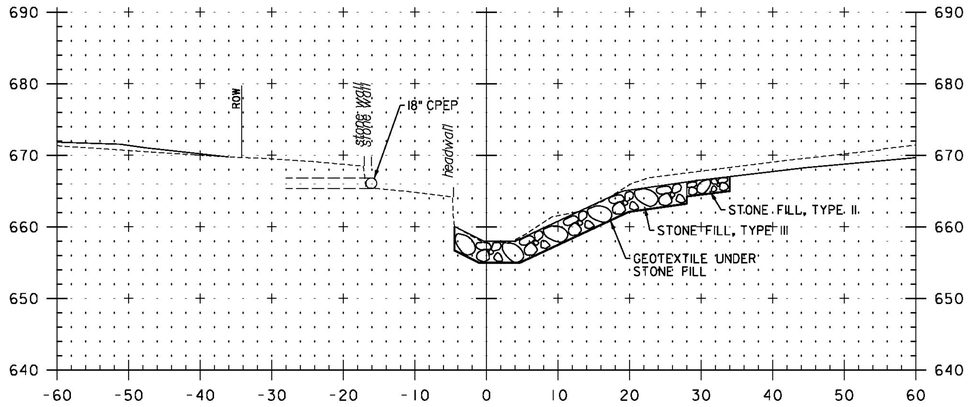
SCALE IN FEET
10 0 10

STA. 319+10 TO STA. 319+48.00

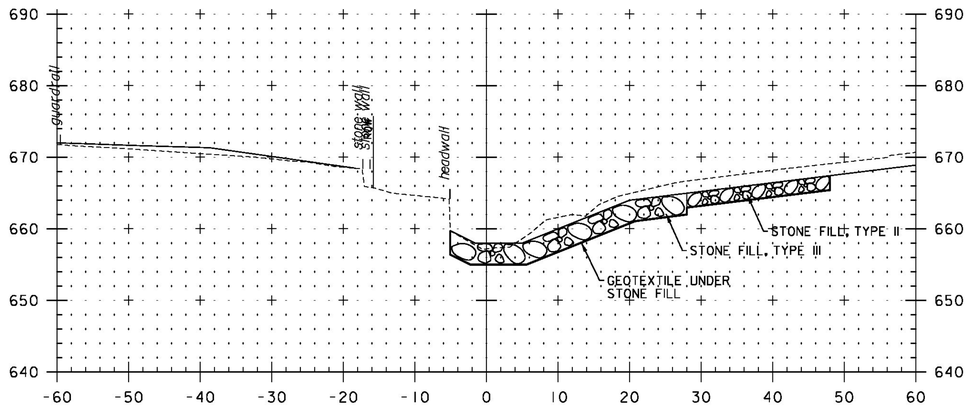
PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202xsl_Channel.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
CHANNEL CROSS SECTION SHEET 3

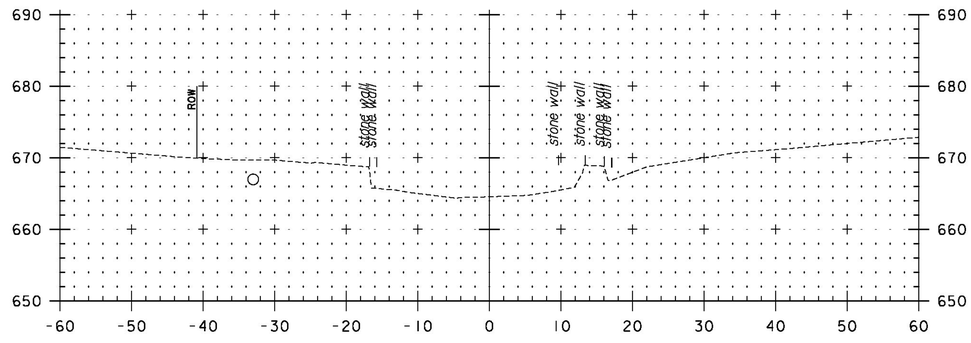
PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 35 OF 43



319+53.65
EXIST 18" CPEP PIPE INVERT OUT



319+50



319+60

STA. 319+55.77 RT
END COMMON EXCAVATION
END STONE FILL, TYPE II

STA. 319+59.20 LT
END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL, TYPE III

SCALE IN FEET
10 0 10

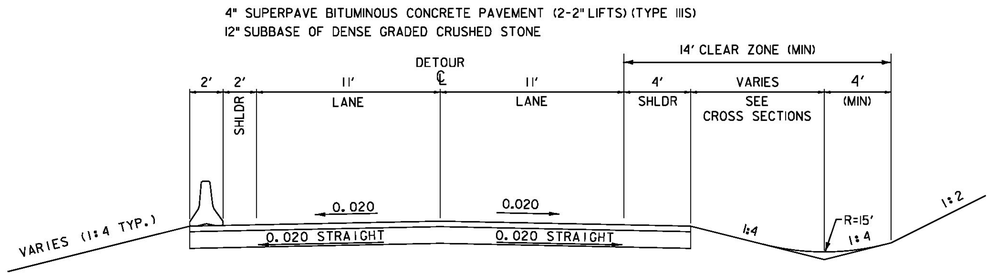
STA. 319+50 TO STA. 319+60

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202xsl_Channel.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: S. BEAUMONT
CHANNEL CROSS SECTION SHEET 4

PLOT DATE: 2/13/2014
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 36 OF 43

CLD 11-0160



DETOUR TYPICAL SECTION
STA 216+25.00 TO 221+97.54

NOT TO SCALE

TRAFFIC CONTROL NOTES

1. ANY USE OF UNIFORMED TRAFFIC OFFICERS SHALL BE PAID UNDER ITEM 630.10 UNIFORMED TRAFFIC OFFICERS. ANY USE OF FLAGGERS SHALL BE PAID UNDER ITEM 630.15 FLAGGERS.

2. TRAFFIC CONTROL SHALL CONSIST OF ROAD CLOSURE WITH A TWO-LANE DETOUR. TWO LANES OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. ANY EXCAVATION, GRANULAR BACKFILL FOR STRUCTURES, SUBBASE MATERIAL, DRAINAGE CULVERTS, TEMPORARY TRAFFIC BARRIER, TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, BITUMINOUS CONCRETE PAVEMENT AND OTHER ITEMS REQUIRED TO CONSTRUCT, INSPECT, MAINTAIN AND REMOVE THE TEMPORARY DETOUR SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TEMPORARY ROADWAY). ALL OTHER ITEMS RELATED TO TRAFFIC CONTROL, INCLUDING THE PROJECT TRAFFIC CONTROL PLAN AND ALL OTHER ON AND OFF-PROJECT TEMPORARY CONSTRUCTION SIGNING, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10.

3. ANY VEGETATION WITHIN OR OUTSIDE THE CONSTRUCTION LIMITS SHOWN ON THE PLANS WHICH IS DISTURBED IN ORDER TO MAINTAIN TRAFFIC IN CONJUNCTION WITH THIS PLAN OR ANY OTHER PLAN, SHALL BE RE-ESTABLISHED TO THE SATISFACTION OF THE ENGINEER. PAYMENT WILL BE MADE UNDER THE APPROPIATE PAY ITEM.

4. NO ADDITIONAL ACCOMMODATIONS NEED TO BE MADE FOR PEDESTRIAN AND BICYCLE TRAFFIC.

5. ACCESS TO ALL EXISTING DRIVES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

6. INSTALLATION OF NECESSARY SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL ATTEMPT TO MAINTAIN AT LEAST 100 FEET BETWEEN SIGN ASSEMBLIES.

7. THE CONTRACTOR SHALL CONTACT DIG SAFE AT 1-888-344-7233 PRIOR TO COMMENCING ANY WORK.

8. ALL SIGNS THAT ARE 36" X 36" OR LARGER SHALL BE MOUNTED ON TWO POSTS.

9. ALL SIGN PACKAGES SHALL CONFORM TO THE 2009 MUTCD OR ITS LATEST REVISION.

10. NON CRASHWORTHY FEATURES RESULTING FROM CONSTRUCTION ACTIVITIES THAT ARE LOCATED WITHIN THE CLEAR ZONE SHALL BE PROPERLY PROTECTED. ALL TEMPORARY DEVICES SHALL BE NCHRP REPORT 350 OR MASH COMPLIANT AND SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621.

11. WHERE TEMPORARY BARRIER IS USED, BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE OR PROTECTED WITH AN ENERGY ABSORPTION ATTENUATOR.

12. REFER TO MUTCD FIGURE 6H-7, ROAD CLOSURE WITH A DIVERSION (TA-7) FOR ADDITIONAL INFORMATION REGARDING REQUIRED SIGNAGE AND SIGN LOCATIONS.

13. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION. THE COST OF PREPARING THE PLAN (AND MAKING CHANGES IF NECESSARY) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TEMPORARY ROADWAY).

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202tcp.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: M. HALEY
TRAFFIC CONTROL TYPICAL SECTIONS

PLOT DATE: 2/13/2014
DRAWN BY: N. LEMAY
CHECKED BY: P. SHEDD
SHEET 37 OF 43

CLD 11-0160

TEMPORARY 4 INCH WHITE LINE
STA 216+25 TO 221+97.54 LT & RT

TEMPORARY 4 INCH YELLOW LINE
STA 216+25 TO 221+97.54 LT & RT

ENERGY ABSORPTION ATTENUATOR
STA 219+91 RT
STA 220+70 LT

TEMPORARY TRAFFIC BARRIER
STA 216+83 TO 220+70 LT
STA 219+91 TO 220+21 RT

CONSTRUCT TEMPORARY DRIVES
STA 217+74.0 RT 24.5' WIDE, PAVED-COMM
STA 220+37.0 RT 44.1' WIDE, PAVED-COMM
STA 221+00.0 LT 30.0' WIDE, PAVED-COMM

TREE PROTECTION
STA 220+16 RT

VT 14 STA 116+25.00=
DETOUR STA 216+25.00
BEGIN APPROACH
BEGIN DETOUR

BEGIN BARRE TOWN STP SCRP(10)
STA 118+00.00 (MM 2.235)

DETOUR CURVE 2
DELTA = 55°44'38"LT
D = 19°05'55"
R = 300.00'
T = 158.65'
L = 291.87'
E = 39.37'
BANK = NC

VT 14 STA 119+22.00 =
BOX CULVERT STA 319+22.00
ASKEW ANGLE=78°00'00" RT

END BARRE TOWN STP SCRP(10)
STA 120+00.00 (MM 2.273)

VT 14 STA 121+75.00=
DETOUR STA 221+97.54
END APPROACH
END DETOUR

VT STATE PLANE GRID

DETOUR CURVE 1
DELTA = 24°48'38"RT
D = 19°05'55"
R = 300.00'
T = 65.99'
L = 129.91'
E = 7.17'
BRG BK N33°13'03.80"E
PRC = 216+25.97
BANK = NC

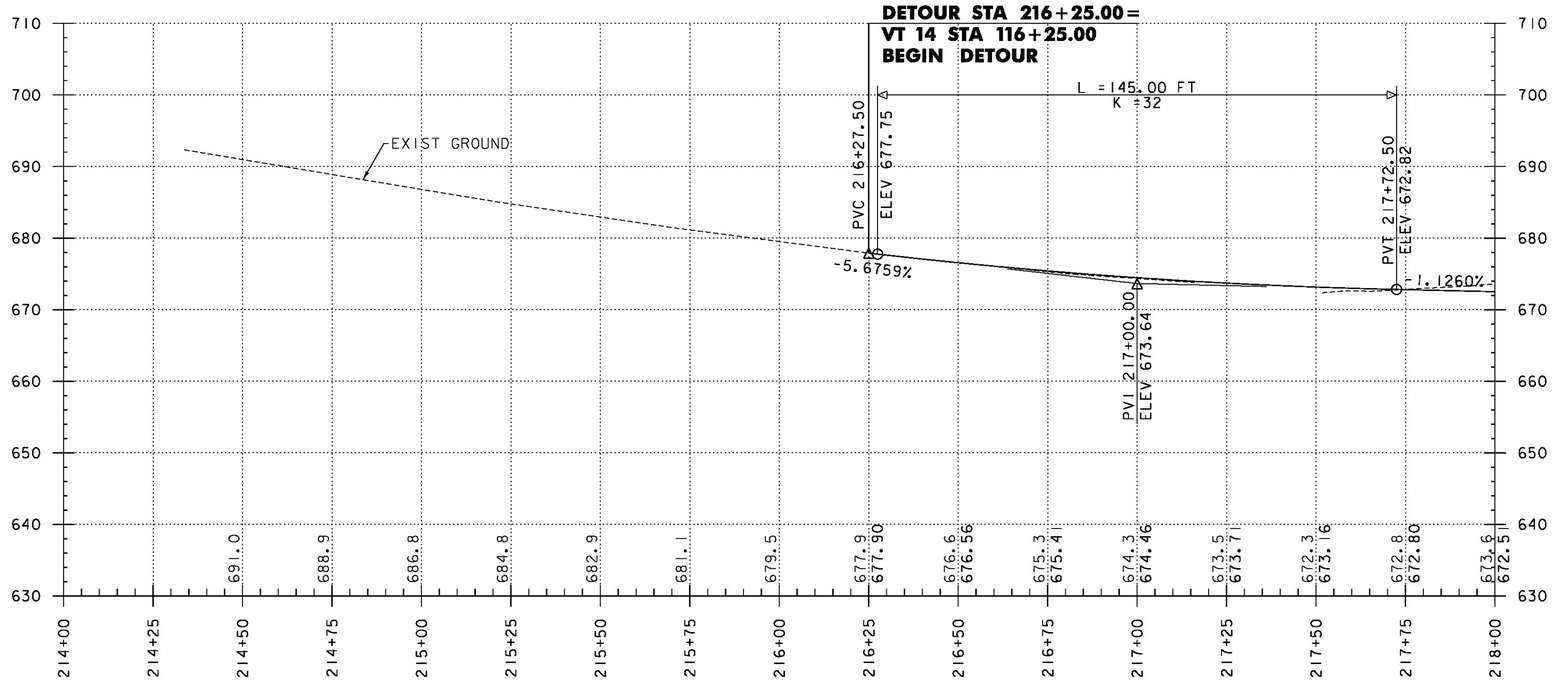
DETOUR CURVE 3
DELTA = 28°34'28"RT
D = 19°05'55"
R = 300.00'
T = 76.40'
L = 149.62'
E = 9.57'
BRG AHD N30°51'32.27"E
BANK = NC

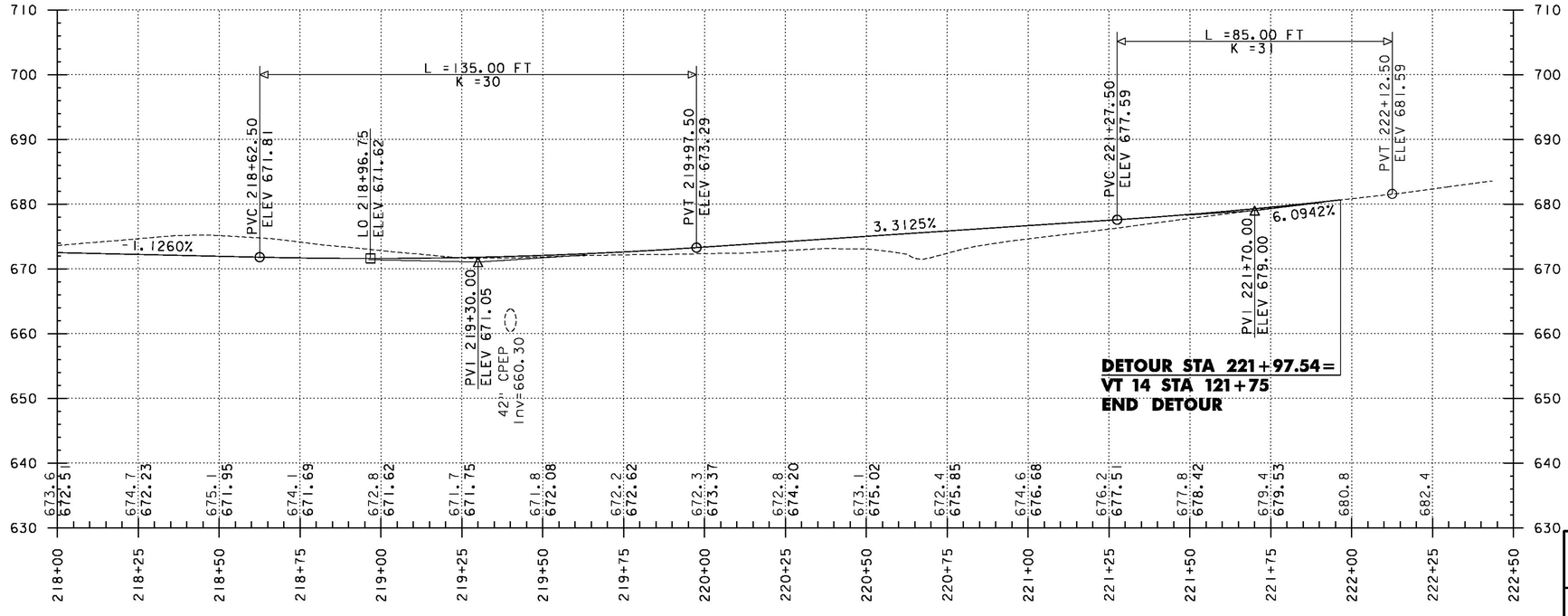
LEGEND
YL = YELLOW LINE
WL = WHITE LINE

PROJECT NAME:	BARRE TOWN
PROJECT NUMBER:	STP SCRP(10)
FILE NAME: z10d202bdrdtr.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: W. GORDON
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
TRAFFIC CONTROL PLAN	SHEET 38 OF 43

SCALE IN FEET 0 20 40

CLD 11-0160



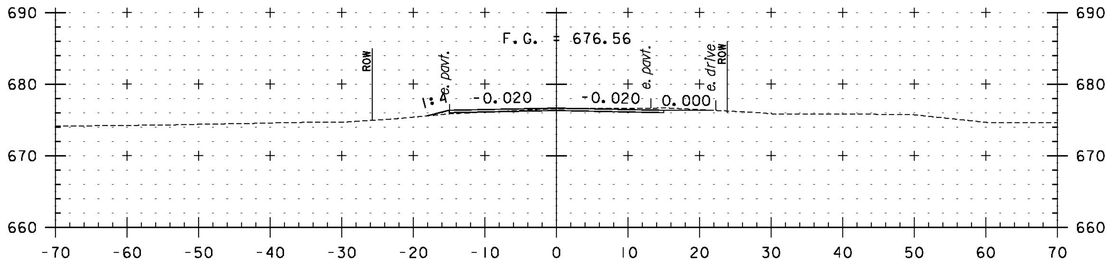


STATIONS AND ELEVATIONS ARE IN FEET.

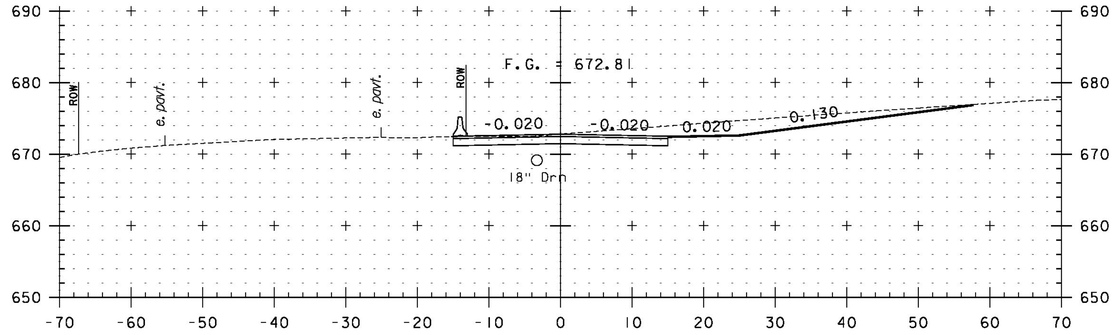
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE OLD GROUND ALONG THE CENTERLINE. THE GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE PROPOSED FINISHED GRADE ALONG THE CENTERLINE.

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202pro.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
TRAFFIC CONTROL PROFILE	SHEET 39 OF 43

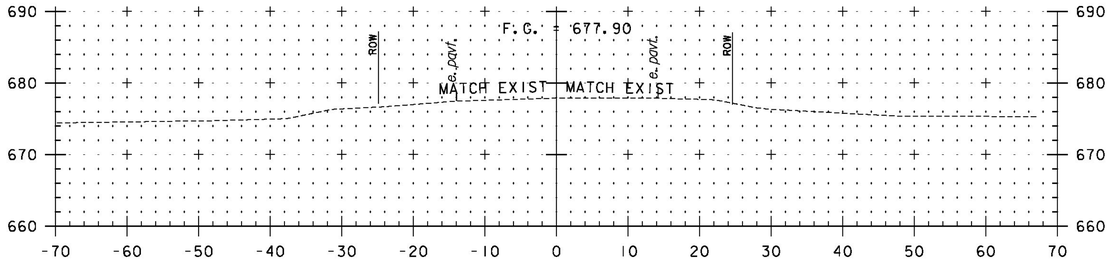
CLD 11-0160



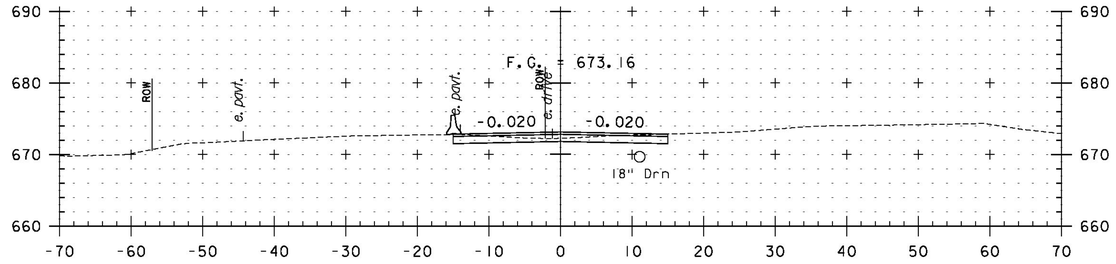
216+50



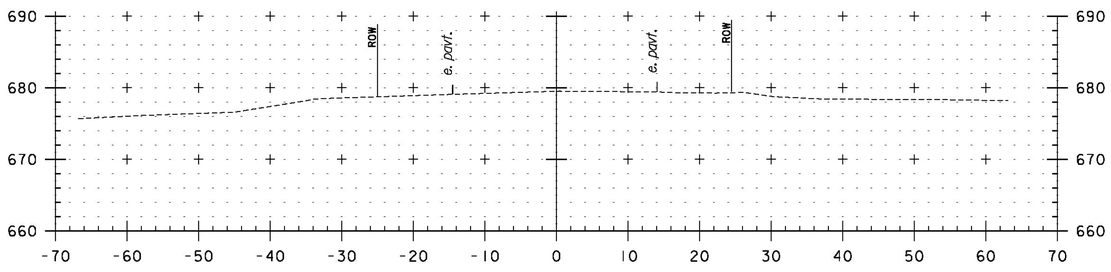
217+74.0
DRIVE RT



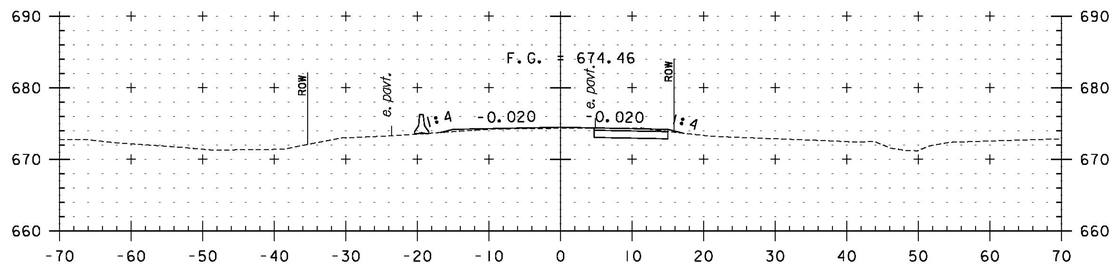
216+25.00
BEGIN DETOUR



217+50



216+00



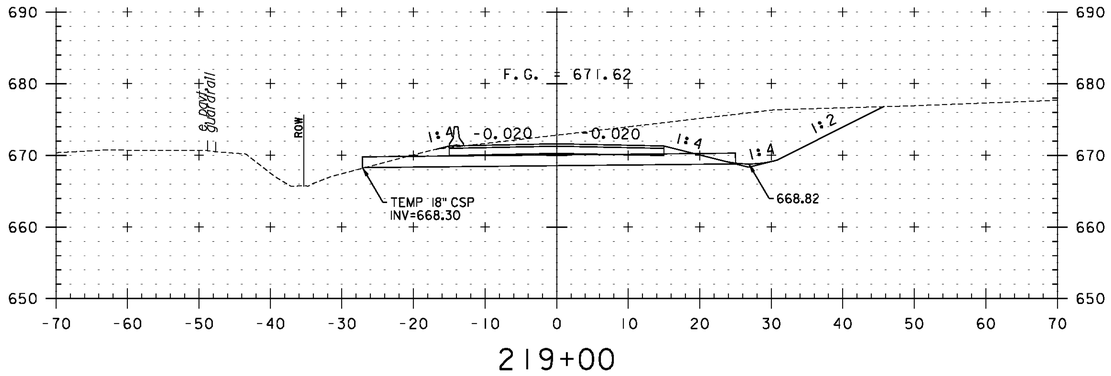
217+00

SCALE IN FEET
10 0 10

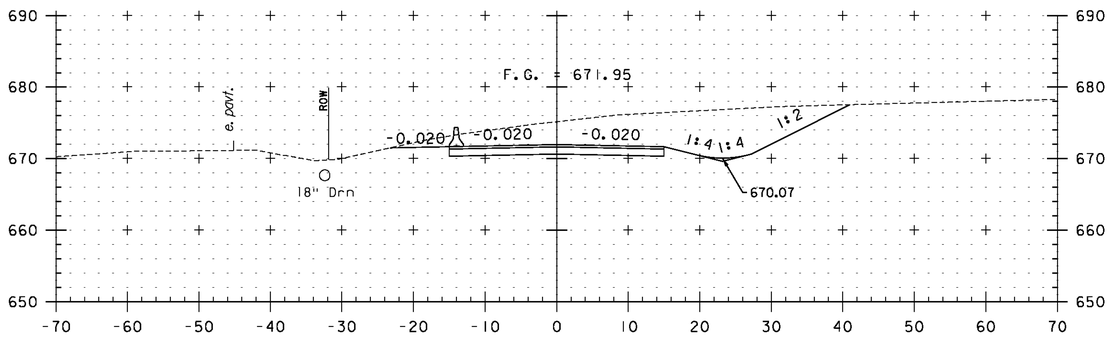
STA. 216+00 TO STA. 217+74.0

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202xsl_Detour.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: P. SHEDD
DESIGNED BY: P. SHEDD	CHECKED BY: D. MUNRO
TRAFFIC CONTROL CROSS SECTION SHEET 1	SHEET 40 OF 43

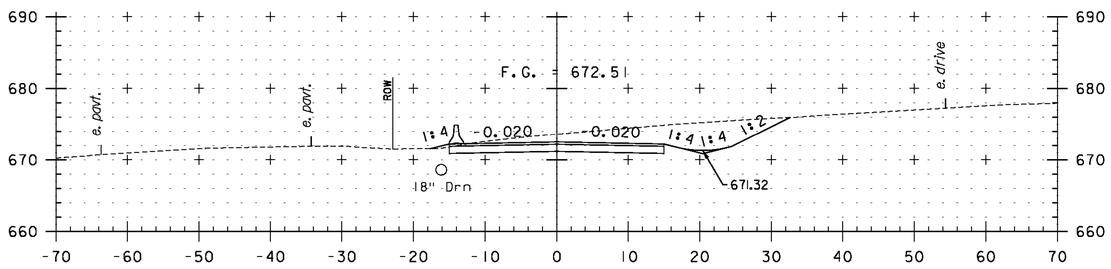
CLD 11-0160



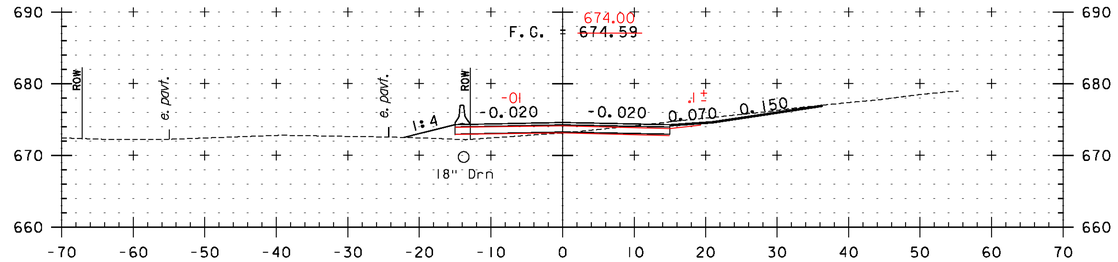
219+00



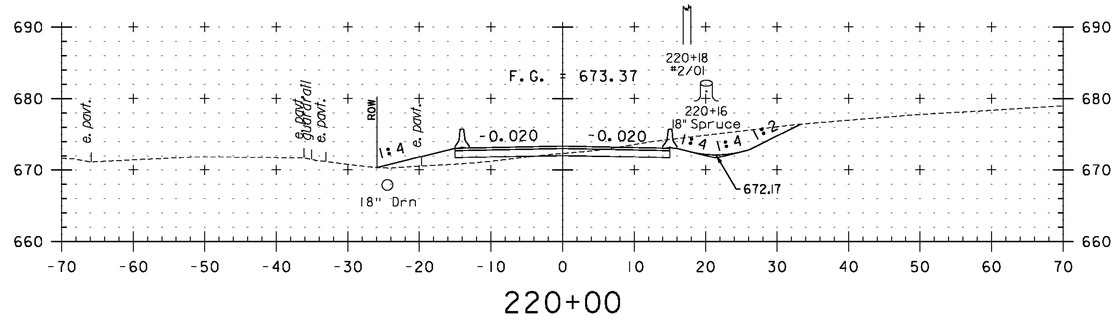
218+50



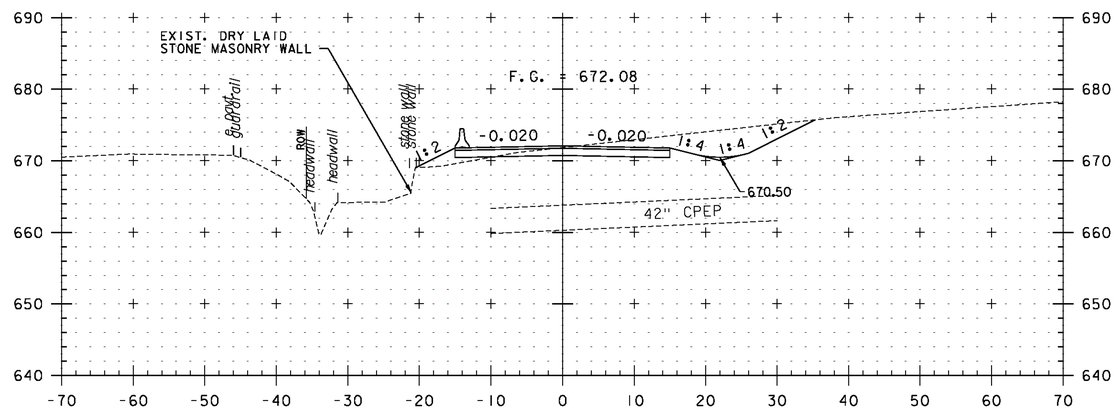
218+00



220+37.0
DRIVE RT



220+00



219+50

SCALE IN FEET
10 0 10

STA. 218+00 TO STA. 220+37.0

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

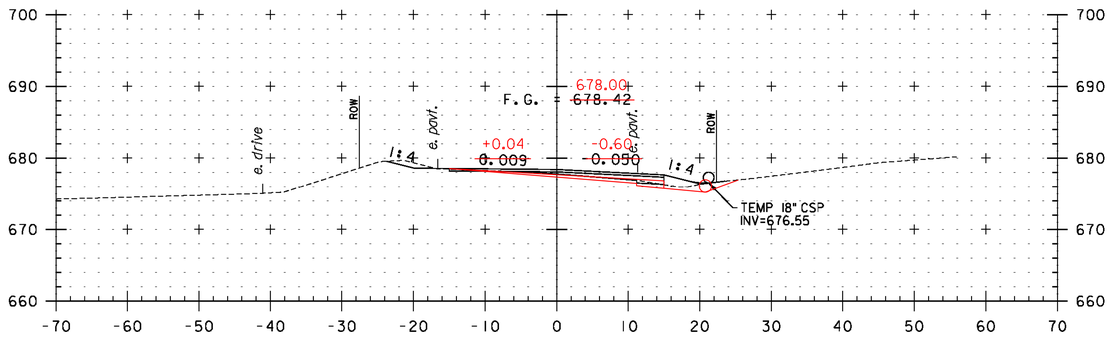
FILE NAME: z10d202xsl_Detour.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
TRAFFIC CONTROL CROSS SECTION SHEET 2

PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 41 OF 43

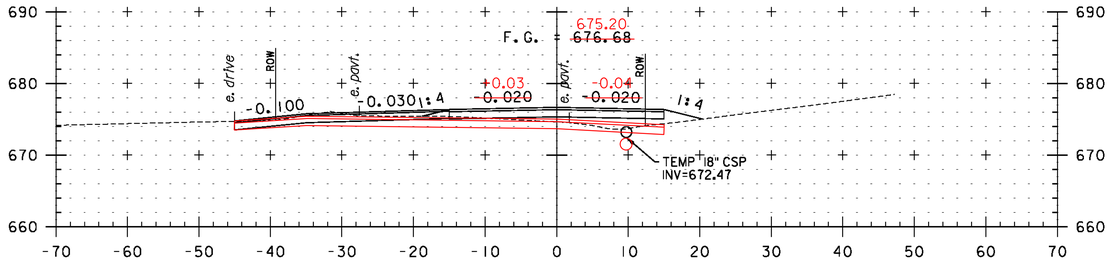
CLD 11-0160

221+75
MATCH EXISTING

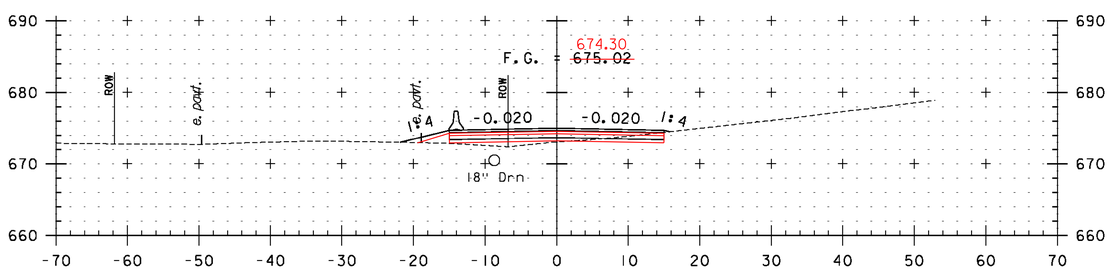
+0.06 -0.08



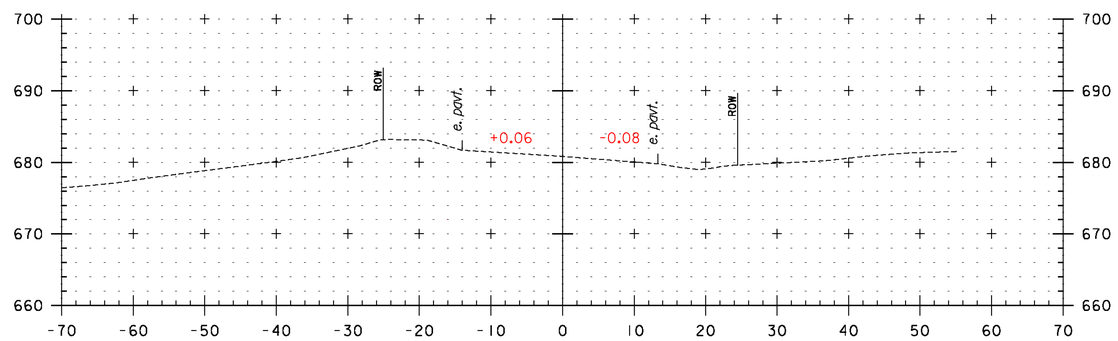
221+50



221+00.00
DRIVE LT



220+50



222+00

SCALE IN FEET
10 0 10

STA. 220+50 TO STA. 222+00

PROJECT NAME: BARRE TOWN
PROJECT NUMBER: STP SCRP(10)

FILE NAME: z10d202xsl_Detour.dgn
PROJECT LEADER: K. UPMAL
DESIGNED BY: P. SHEDD
TRAFFIC CONTROL CROSS SECTION SHEET 3

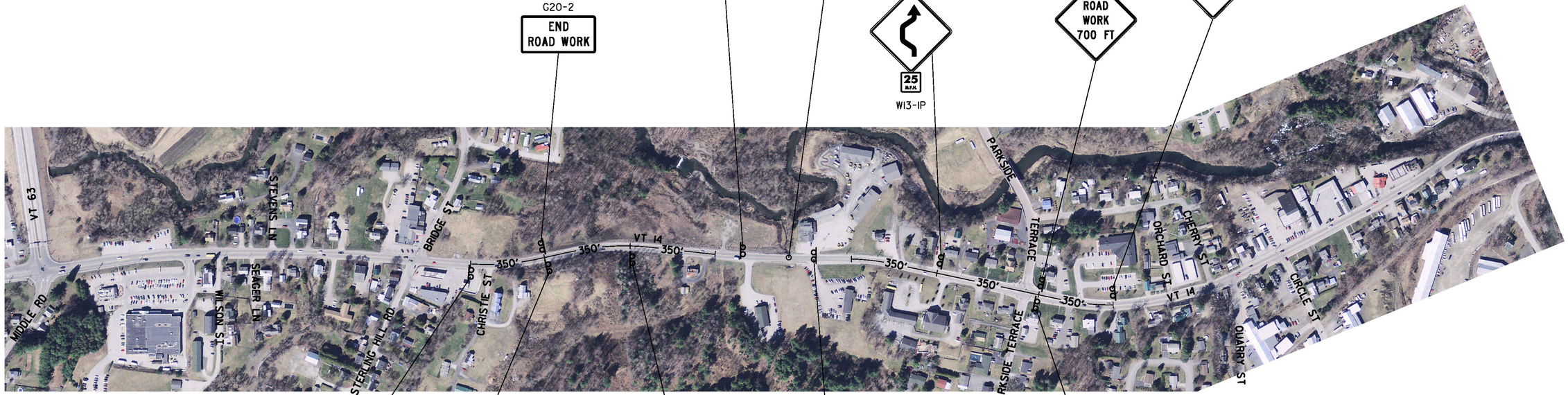
PLOT DATE: 2/13/2014
DRAWN BY: P. SHEDD
CHECKED BY: D. MUNRO
SHEET 42 OF 43

CLD 11-0160

VT 14 STA 119+22.00 =
BOX CULVERT STA. 319+22.00
ASKEW ANGLE = 78°00'00" RT

N

VT STATE PLANE GRID



G20-2
END
ROAD WORK

W1-6

W24-1

25
M.P.H.
W13-IP

W20-1
ROAD
WORK
700 FT

W20-1
ROAD
WORK
1000 FT

W20-1
ROAD
WORK
1000 FT

W24-1

25
M.P.H.
W13-IP

W20-1
ROAD
WORK
700 FT

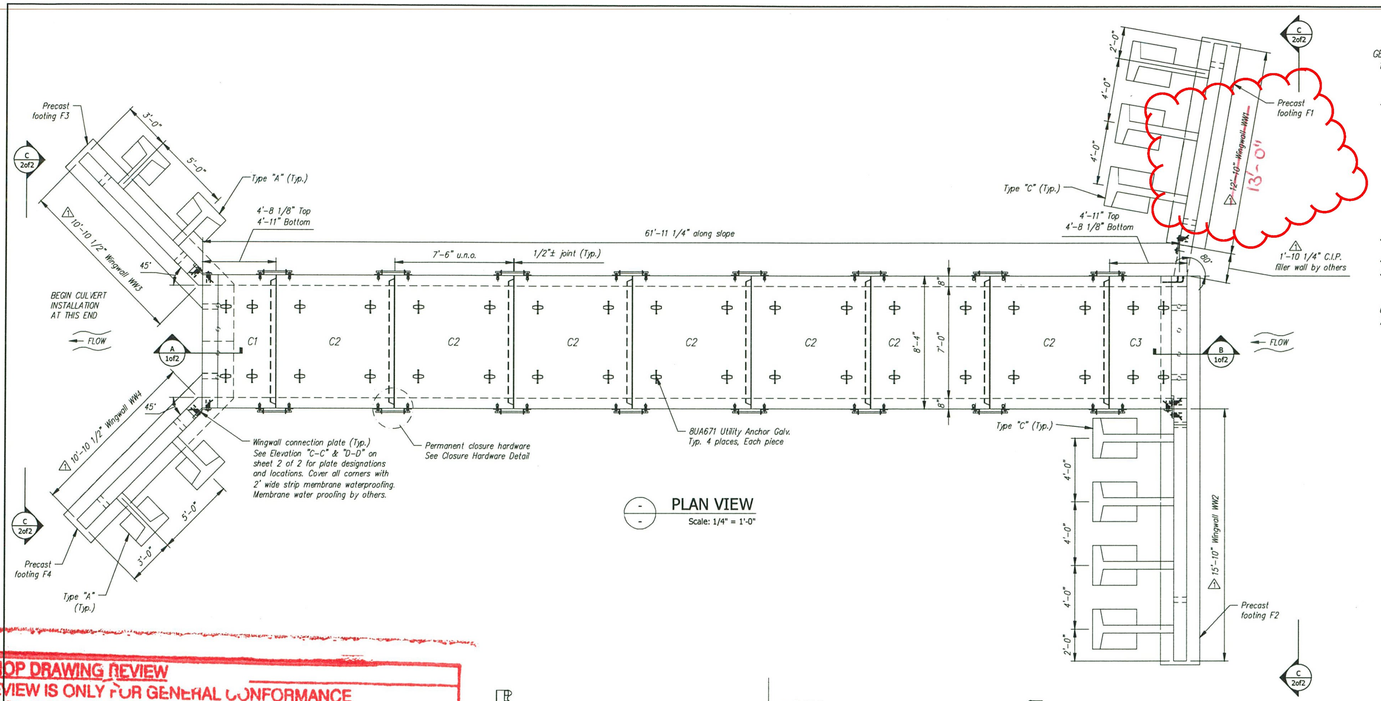
W1-6

G20-2
END
ROAD WORK

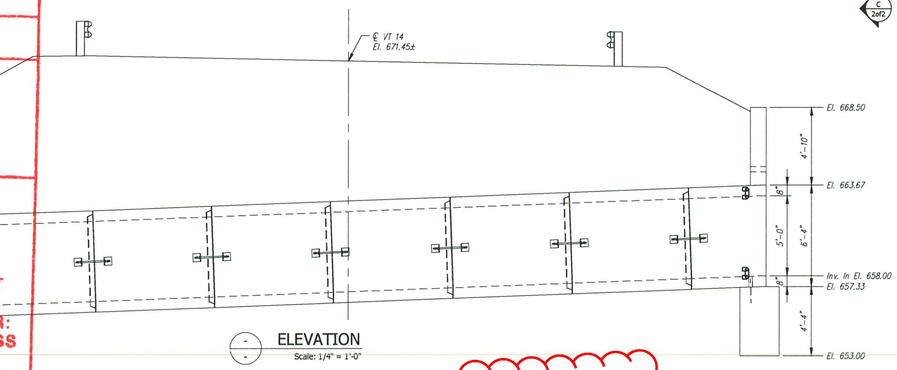
0 100 200
SCALE IN FEET

PROJECT NAME: BARRE TOWN	
PROJECT NUMBER: STP SCRP(10)	
FILE NAME: z10d202tcp.dgn	PLOT DATE: 2/13/2014
PROJECT LEADER: K. UPMAL	DRAWN BY: M. HALEY
DESIGNED BY: M. HALEY	CHECKED BY: P. SHEDD
TRAFFIC CONTROL SIGN PLAN	SHEET 43 OF 43

CLD 11-0160



PLAN VIEW
Scale: 1/4" = 1'-0"

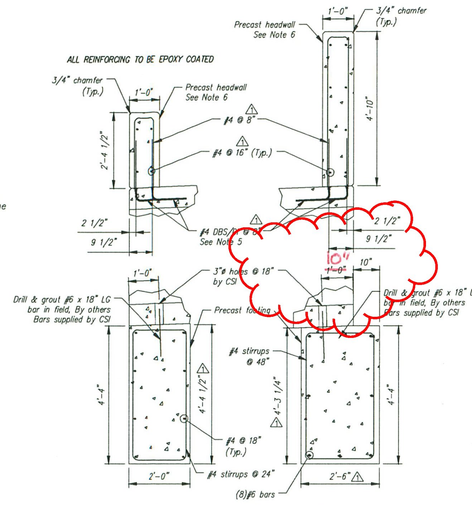


ELEVATION
Scale: 1/4" = 1'-0"

GENERAL NOTES:
1. Reference Standards:
   AASHTO "LRFD Bridge Design Specifications"
   ASTM C1577
2. Design Parameters:
   Live load: HL-93
   Earth Cover: 7.5' to 10.0'
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A775 (rebar), grade 60, Epoxy
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" headwalls
   1 1/2" elsewhere u.n.o.
3. Dimensions include a joint 1/2" joint creep. Overall length of culvert will vary depending on installation.
4. No damproofing or waterproofing supplied by CSI.
5. DBS are Dowel Bar Splicers and DI are Dowel Ins. Both are supplied by CSI. DI's for C.I.P. work are to be installed and cut/bent in the field by others as required.
6. Headwalls not designed for impact load.
7. Water repellant by CSI on all exposed faces of culvert, headwalls, and wingwalls. Included is the inside top, bottom and walls for the entire length of the culvert. Water repellant to be Certi-Vex Penseal 244 40% AIM. ⚠1

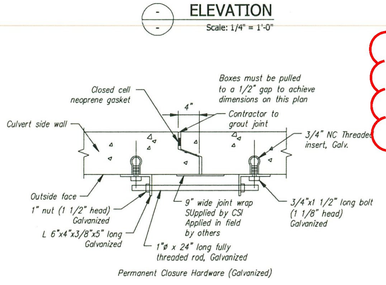
PIECE SCHEDULE (MX-FA5000SC30)

MARK	QTY	LENGTH	YDS	WEIGHT	
C1	1	4.60 '	3.80	7.70	TONS
C2	7	7.50 '	5.19	10.50	TONS
C3	1	4.60 '	4.79	9.70	TONS



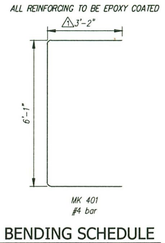
A 1of2 OUTLET END SECTION
Scale: 1/2" = 1'-0"

⚠ B 1of2 INLET END SECTION
Scale: 1/2" = 1'-0"

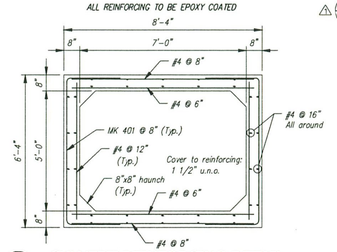


CLOSURE HARDWARE DETAIL
Scale: N.T.S.

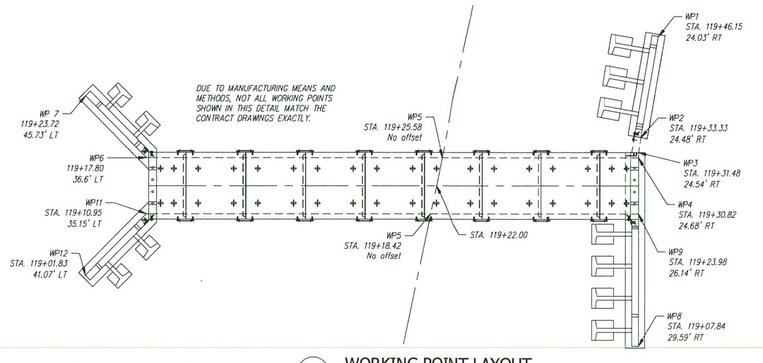
PE Stamp please



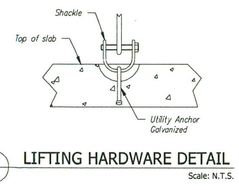
BENDING SCHEDULE
Scale: N.T.S.



CULVERT REINFORCING DETAIL
Scale: 3/8" = 1'-0"



⚠ WORKING POINT LAYOUT
Scale: N.T.S.



LIFTING HARDWARE DETAIL
Scale: N.T.S.

SHOP DRAWING REVIEW
REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT
☐ PROVIDE AS SUBMITTED
☐ PROVIDE AS CORRECTED
☒ REVISE AND RESUBMIT
☐ REJECTED - SEE REMARKS
☐ SUBMITTAL NOT REQUIRED - RETURNED WITHOUT REVIEW

THIS REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION, CORRECTIONS OR COMMENTS SHOWN AND/OR NOTED ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR: DETERMINING THE ACCURACY AND COMPLETENESS OF DETAILS, SUCH AS: DIMENSIONS AND QUANTITIES; SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS; THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION, INCLUDING SAFETY PRECAUTIONS AND PROCEDURES; AND THE SELECTION OF FABRICATION PROCESSES. ENGINEER'S APPROVAL OF A SPECIFIC ITEM SHALL NOT INDICATE APPROVAL OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. FURTHER, ENGINEER'S REVIEW OF CONTRACTOR'S SUBMITTALS SHALL NOT RELIEVE THE CONTRACTOR OF ITS OBLIGATIONS UNDER THE CONTRACT DOCUMENTS WITH RESPECT TO THE PREPARATION AND/OR APPROVAL OF SUBMITTALS

CLD CONSULTING ENGINEERS, INC.
540 COMMERCIAL ST.
MANCHESTER, NH - NEW HAMPSHIRE 03101

BY: _____ DATE: 6/25/14

Contractor is to verify that information shown on drawing has been checked against field conditions and is adequate to meet the conditions. Any information shown on drawing differs greatly from contract drawings to accommodate field manufacturing or construction, approval of shop drawing indicates that only variations from contract documents has been reviewed and found to be satisfactory. Approval does not relieve contractor of signing approved shop drawings.

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	06/19/14	Added working points; Misc. revisions	MS/CV

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:
Engineer: CLD CONSULTING ENGINEERS
Project No: STP SCRP(10)
Drawings: PROPOSED IMPROVEMENT VT ROUTE 14 (MINOR ARTERIAL)
Specifications: PROPOSED IMPROVEMENT VT ROUTE 14 (MINOR ARTERIAL)
Other Sources:

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

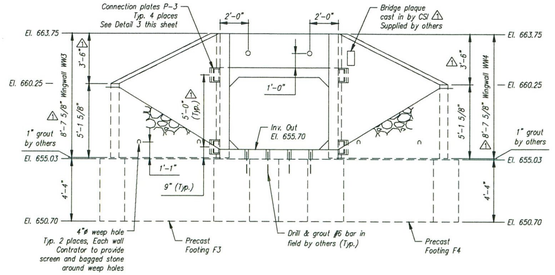
STATE AGENCY
VTrans Building Bridges for Today Roads Built to Tomorrow

Drawn By	M. SCOTT	Date 05/30/2014
Reviewed By	B. KOLAWOLE	Date 06/02/2014
Approved By		Date

PROJECT NO. STP SCRP(10)

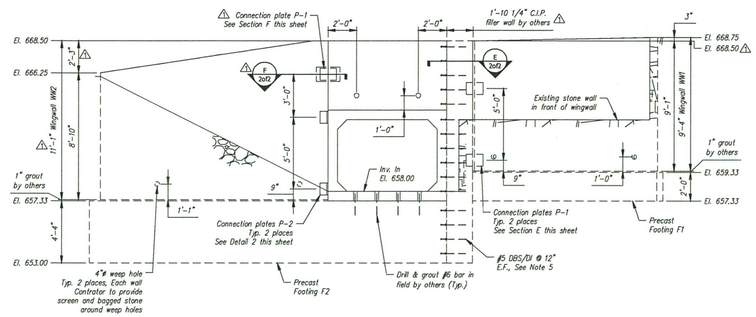
B.U.R. CONSTRUCTION
VT ROUTE 14 (MINOR ARTERIAL)
BARRE, VT

D — BOX CULVERT LAYOUT AND DETAILS — REV 1
Drawing No. C21980-L01A
Quantity: Project No: STP SCRP(10) SHEET 1 OF 2



C-C 1of2 **OUTLET END ELEVATION**

Scale: 1/4" = 1'-0"



D-D 1of2 **INLET END ELEVATION**

Scale: 1/4" = 1'-0"

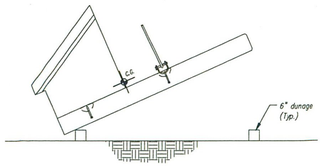
WINGWALL GENERAL NOTES:

1. Reference standard:
   AASHTO LRFD Specifications
2. Design Parameters:
   Soil Bearing: 4500 psf
   Concrete: Design strength f'c = 4000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar), grade 60
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .34
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" u.n.o.
3. The wingwalls have been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation, including scour and confirmation of soil conditions.
4. Prior to construction, contractor must verify all elevations shown through the engineer.

WINGWALL PIECE SCHEDULE (MX-FA3000SC30)

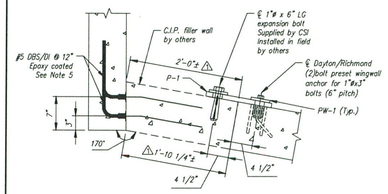
MARK	QTY	LENGTH	YDS	WEIGHT	
WW1	1	12.83	4.97	10.06	TONS
WW2	1	15.83	6.67	13.51	TONS
WW3	1	10.88	2.77	5.61	TONS
WW4	1	10.88	2.77	5.61	TONS
F-1	1	13.25	2.45	4.97	TONS
F-2	1	24.58	9.86	19.97	TONS
F-3	1	15.48	5.99	12.13	TONS
F-4	1	15.48	5.99	12.13	TONS

Footings to be 4,000 psi (MX-FA4000SC30)



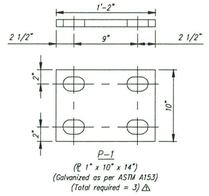
- - **TRIPPING DETAIL**

Scale: N.T.S.



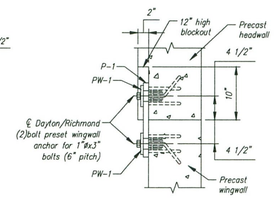
E 2of2 **WINGWALL CONNECTION SECTION E**

Scale: 1" = 1'-0"



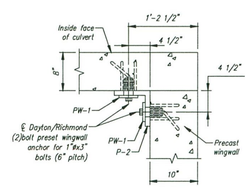
- - **P-1 PLATE DETAIL**

Scale: N.T.S.



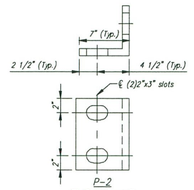
F 2of2 **WINGWALL CONNECTION TYPE 1**

Scale: 1" = 1'-0"



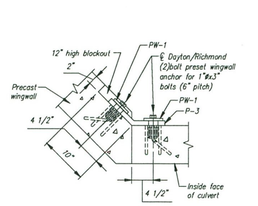
2 2of2 **WINGWALL CONNECTION TYPE 2**

Scale: 1" = 1'-0"



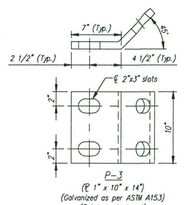
- - **P-2 PLATE DETAIL**

Scale: N.T.S.



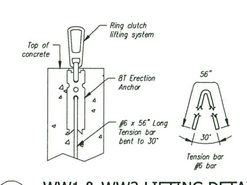
1 2of2 **WINGWALL CONNECTION TYPE 3**

Scale: 1" = 1'-0"



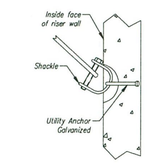
- - **P-3 PLATE DETAIL**

Scale: N.T.S.



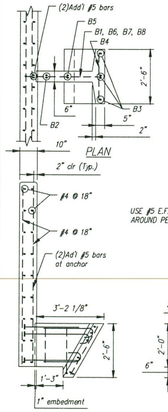
- - **WW1 & WW2 LIFTING DETAIL**

Scale: N.T.S.



- - **WW3 & WW4 LIFTING DETAIL**

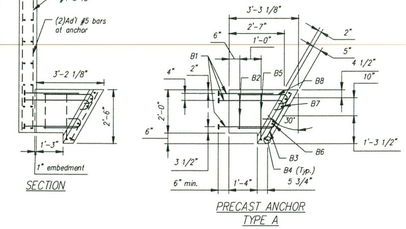
Scale: N.T.S.

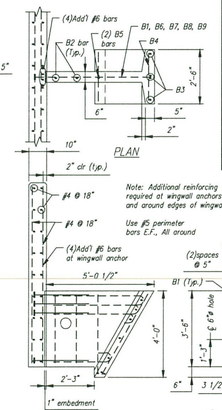


ALL REINFORCING TO BE EPOXY COATED

BAR LIST					
MARK	QTY.	SIZE	L	TYPE	LENGTH
B1	3	#6	2'-7"	3	——
B2	1	#5	——	Str.	1'-8"
B3	4	#5	——	Str.	2'-6"
B4	6	#5	——	Str.	2'-2"
B5	2	#5	2'-2"	2	——
B6	1	#5	1'-9"	1	——
B7	1	#5	2'-1"	1	——
B8	1	#5	2'-4"	1	——

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





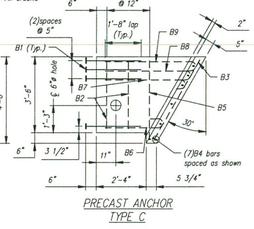
Note: Additional reinforcing required at wingwall anchors and around edges of wingwall

Use #5 perimeter bars E.F., All around

ALL REINFORCING TO BE EPOXY COATED

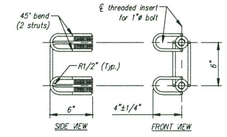
BAR LIST					
MARK	QTY.	SIZE	a	TYPE	LENGTH
B1	4	#6	2'-7"	3	——
B2	2	#5	——	Str.	3'-2"
B3	4	#5	——	Str.	4'-2"
B4	7	#5	——	Str.	2'-2"
B5	2	#5	3'-8"	2	——
B6	1	#5	2'-9"	1	——
B7	1	#5	3'-9"	1	——
B8	1	#3	4'-0"	1	——
B9	1	#5	4'-3"	1	——

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



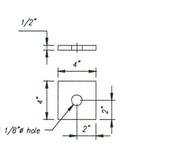
- - **WINGWALL REINFORCING DETAILS**

Scale: 3/8" = 1'-0"



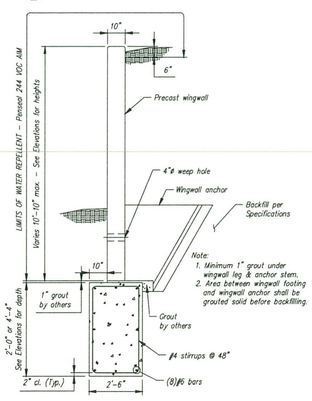
- - **TWO-BOLT PRESET WING ANCHOR**

Scale: N.T.S.



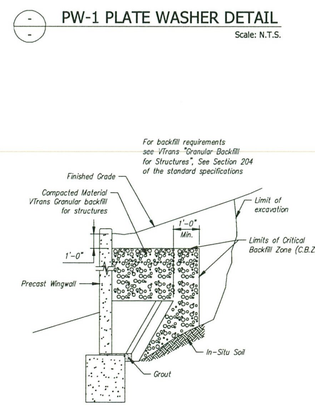
- - **PW-1 PLATE WASHER DETAIL**

Scale: N.T.S.



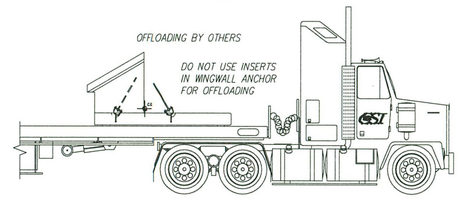
- - **TYPICAL WINGWALL SECTION**

Scale: 3/8" = 1'-0"



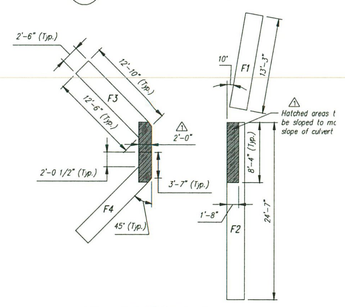
- - **WINGWALL BACKFILL REQUIREMENTS**

Scale: N.T.S.



- - **TYPICAL WINGWALL OFFLOADING DETAIL**

Scale: N.T.S.



- - **FOOTING PLAN**

Scale: 1/8" = 1'-0

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

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plans need to have a PE stamp (TYP each sheet)

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	06/19/14	Revised wingwall lengths; Miscellaneous revisions	MS/CV

REVISIONS

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

Engineer: CLD CONSULTING ENGINEERS
Project No: STP SCRP(10)
Drawings: PROPOSED IMPROVEMENT VT ROUTE 14 (MINOR ARTERIAL)

Specifications: PROPOSED IMPROVEMENT VT ROUTE 14 (MINOR ARTERIAL)

Other Sources:

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4168
Fax 603-889-2417

STATE AGENCY

VTrans

Drawn by M SCOTT	Date 05/30/2014
Reviewed by B KOLAWOLE	Date 06/02/2014
Approved by	Date

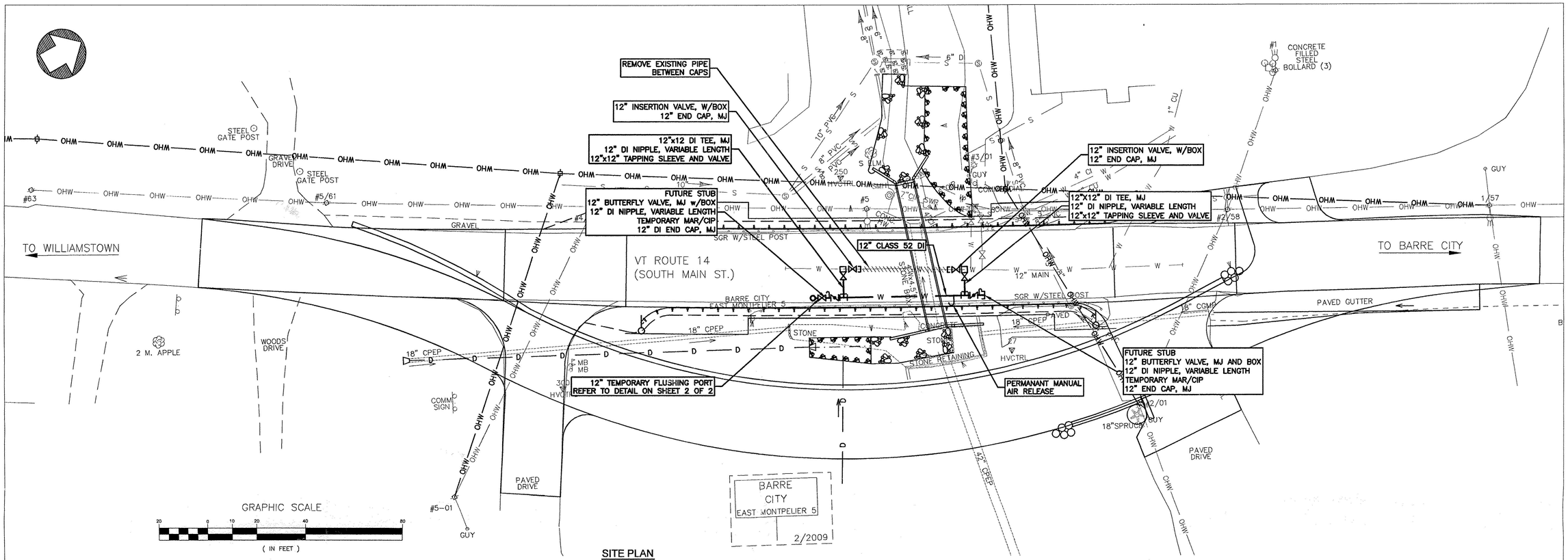
PROJECT NO. STP SCRP(10)

B.U.R. CONSTRUCTION
VT ROUTE 14 (MINOR ARTERIAL)
BARRE, VT

D — BOX CULVERT WINGWALL DETAILS — REV 1

Drawing No. C21980-L01B

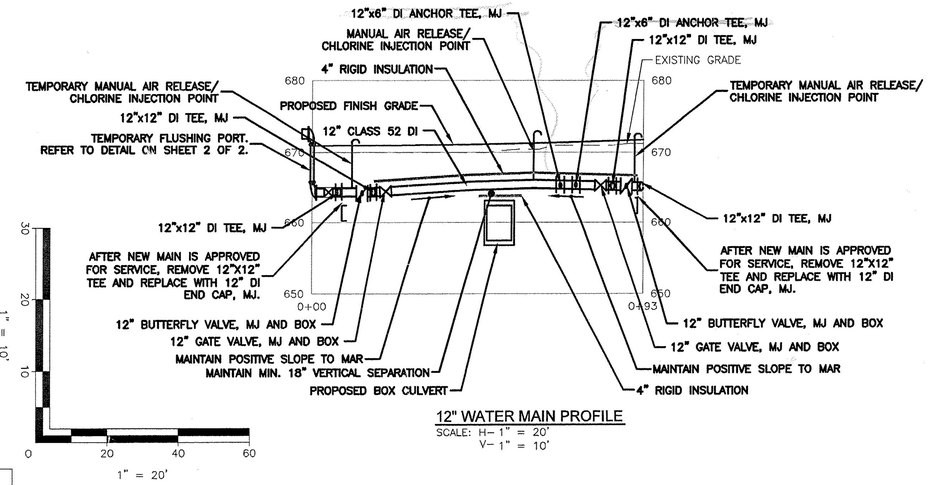
Quantity: Project No: STP SCRP(10) SHEET 2 OF 2



SITE PLAN
SCALE: 1" = 20'

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

BARRE CITY EAST MONTPELIER 5
2/2009



12" WATER MAIN PROFILE
SCALE: H- 1" = 20'
V- 1" = 10'

GENERAL NOTES
1. SURVEY PROVIDED BY VTRANS.
2. EXPLORATORY EXCAVATION IS REQUIRED TO LOCATE UNDERGROUND UTILITIES. CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION TO LOCATE EXISTING WATER MAIN AT POINT OF CONNECTIONS TO NEW MAIN. CONTRACTOR SHALL USE EXTREME CAUTION TO PREVENT DAMAGE TO EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE WITH DIG SAFE (1-888-DIG SAFE) A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION. THE EXISTING WATER MAIN IS OWNED BY THE CITY OF BARRE.
3. ALL WORK TO BE DONE SHALL BE IN PUBLIC RIGHT-OF-WAY OR EASEMENT AREAS. RIGHT-OF-WAY INFORMATION PROVIDED BY VTRANS.
4. LISTING OF ADAPTERS, FITTINGS, NIPPLES, ETC. IS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. ADDITIONAL MATERIAL MAY BE REQUIRED.
5. SOLID SLEEVE COUPLINGS OR TRANSITION COUPLINGS MAY ALSO BE REQUIRED FOR CONNECTION TO EXISTING MAINS. THESE COUPLINGS ARE INCLUDED IN THIS WORK AND NOT PAID FOR INDIVIDUALLY.
6. MINIMUM VERTICAL CLEARANCE BETWEEN NEW WATER MAINS AND ALL EXISTING UTILITIES, EXCEPT SEWERS AND STORM DRAINS TO BE SIX (6) INCHES AT CROSSING LOCATIONS. FOR SEWERS AND STORM DRAINS SEE NOTES AND DETAILS ON SHEET 2 OF 2.
7. ALL BURIED FITTINGS MUST UTILIZE CONCRETE THRUST BLOCK RESTRAINTS. REFER TO THRUST BLOCK DETAILS, HYDRANT ASSEMBLY DETAIL, AND TRENCH DETAIL SHOWN ON SHEET 2 OF 2.
8. MECHANICAL JOINT RESTRAINTS AND ROD TIE BACKS SHALL BE USED WHERE WATER MAIN VALVES WILL BE SUBJECTED TO SERVICE PRESSURES ON ONE SIDE BEFORE BEING FULLY INCORPORATED INTO THE DISTRIBUTION SYSTEM. PUSH-ON JOINTS SHALL BE PROPERLY RESTRAINED IN ACCORDANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION GUIDANCE MATERIAL.
9. WATER MAINS TO HAVE 6.0 FEET MINIMUM COVER UNLESS OTHERWISE STATED OR SHOWN ON THE PROFILES. WHEN 6.0 FEET OF COVER CANNOT BE MAINTAINED 4" RIGID BOARD INSULATION SHALL BE USED. DEPTH OF COVER SHALL NOT BE LESS THAN 4 FEET EVEN WITH INSULATION.
10. ALL MECHANICAL JOINT, PIPE, FITTINGS, VALVES AND HYDRANTS SHALL INCORPORATE A WEDGE TYPE RETAINER GLAND INSTEAD OF THE COMMON FOLLOWER GLAND.
11. ALL EXISTING UNDERGROUND UTILITIES WERE LOCATED USING THE BEST AVAILABLE INFORMATION. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL UTILITIES WHETHER OR NOT THEY ARE SHOWN ON THE PLANS. ALL REPAIRS TO DAMAGED UTILITIES SHALL BE MADE BY THE CONTRACTOR USING MATERIALS APPROVED BY THE ENGINEER PRIOR TO INSTALLATION AND AT NO ADDITIONAL COST TO THE OWNER.
12. WATER SERVICE SHALL NOT BE INTERRUPTED FOR MORE THAN FOUR (4) HOURS. ALL CUSTOMERS THAT MAY BE TEMPORARILY OUT OF WATER SHALL BE NOTIFIED TWENTY-FOUR (24) HOURS PRIOR TO ACTIVITY BY THE CONTRACTOR. THE CITY SHALL BE GIVEN THE SAME NOTICE TO PREPARE FOR ALL SYSTEM SHUTDOWNS. CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION TO LOCATE EXISTING WATER MAIN AT POINT OF CONNECTIONS TO NEW MAIN.
13. ALL CHLORINATED WATER FROM DEWATERING, TESTING, OR ANY OTHER CONSTRUCTION ACTIVITIES SHALL BE DECHLORINATED AND DISPOSED OF IN AN APPROVED MANNER. NO CHLORINATED WATER SHALL BE DISCHARGED TO WATERS OF THE STATE.
14. WHENEVER A SOLID SLEEVE IS INDICATED ON THE DRAWINGS, THE CONTRACTOR MAY BE REQUIRED TO USE A TRANSITION COUPLING DEPENDING ON THE MATERIAL OF THE EXISTING PIPE. THE CONTRACTOR SHALL CONFIRM THE EXISTING MATERIAL AND CONFIRM COMPATIBILITY PRIOR TO CUTTING THE PIPE. SHOULD A TRANSITION COUPLING BE REQUIRED IN LIEU OF A SOLID SLEEVE, THE TRANSITION COUPLING SHALL BE PAID FOR AS A SOLID SLEEVE AT THE UNIT PRICE IN THE BID.
15. CONTRACTOR IS RESPONSIBLE FOR FLUSHING, PRESSURE TESTING AND DISINFECTING ALL NEW WATER MAIN. CHLORINE INJECTION POINTS SHALL BE INSTALLED WHERE REQUIRED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION AND REMOVED UPON COMPLETION OF TESTING. CONTRACTOR TO DISCUSS PROCEDURES WITH ENGINEER PRIOR TO COMMENCEMENT OF TESTING ACTIVITIES. ALL CHLORINATION INJECTION POINTS SHALL BE WITHIN 10-FEET FROM THE SOURCE OF WATER. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
16. CONTRACTOR SHALL VERIFY LOCATION OF ALL OVERHEAD AND UNDERGROUND ELECTRIC, CABLE AND TELEPHONE LINES AND TAKE NECESSARY PRECAUTIONS IN STRICT ACCORDANCE WITH OSHA STANDARDS DURING CONSTRUCTION. CONTRACTOR SHALL CONTACT THE LOCAL POWER UTILITY AND TELEPHONE UTILITY REGARDING ANY NECESSARY SUPPORT OF ANY UTILITY POLES DURING CONSTRUCTION. LOCAL ELECTRIC UTILITY IS GREEN MOUNTAIN POWER. LOCAL PHONE UTILITY IS FAIRPOINT COMMUNICATIONS.
17. CONTRACTOR TO PROVIDE CAPS FOR ALL ABANDONED PIPING THAT IS SHOWN TO BE LEFT IN PLACE. ALL TYPES OF PIPE CAPPING TO BE PAID FOR UNDER CHANGE ORDER LUMP SUM. ALL PIPE TO BE ABANDONED SHALL BE DRAINED OF WATER AND CAPPED UNLESS SHOWN TO BE REMOVED.
18. GENERALLY HEAVY OR DARK LINE WORK OR NOTES REFER TO PROPOSED IMPROVEMENTS INCLUDED IN THIS CONTRACT. LIGHT LINE WORK OR SCREENED GENERALLY DENOTES EXISTING FACILITIES AND FEATURES
19. TECHNICAL SPECIFICATIONS PROVIDE NECESSARY INFORMATION AND ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT
20. CONTRACTOR SHALL LOCATE AND CONNECT WATER SERVICES TO ALL WATER USERS WITHIN PROJECT AREA UPON COMPLETION OF INSTALLATION OF WATER MAIN, SUCCESSFUL PRESSURE TEST AS DISCUSSED IN THE SPECIFICATIONS AND RECEIPT OF TWO CONSECUTIVE SUCCESSFUL BACTERIOLOGICAL TESTS. WATER SERVICE CONNECTIONS SHALL NOT BE MADE WITHOUT APPROVAL OF THE ENGINEER.
21. TEMPORARY WATER MAIN IS SHOWN APPROXIMATELY AND FUSION WELDIED RADII OR FITTINGS MAY BE REQUIRED.

LOCAL VALVE OPERATION
1. EXISTING AND PROPOSED MAIN LINE GATE VALVES AND BUTTERFLY VALVES SHALL OPEN RIGHT OR CLOCKWISE. OPERATION OF ALL VALVES WILL BE PERFORMED BY THE OWNER'S STAFF ONLY.
2. ALL INTERCONNECTIONS TO THE EXISTING SYSTEM CAN ONLY BE MADE WITH THE WRITTEN PERMISSION OF THE FIELD ENGINEER.

LEGEND

W	WATER MAIN
TW	TEMPORARY WATER
	FITTINGS
	BUTTERFLY VALVE
	GATE VALVE
	MANUAL AIR RELEASE
	TAPPING SLEEVE AND VALVE

ABBREVIATIONS

CI	CAST IRON PIPE
CIP	CHLORINE INJECTION POINT
DI	DUCTILE IRON PIPE
HYD	FIRE HYDRANT
MAR	MANUAL AIR RELEASE
MJ	MECHANICAL JOINT

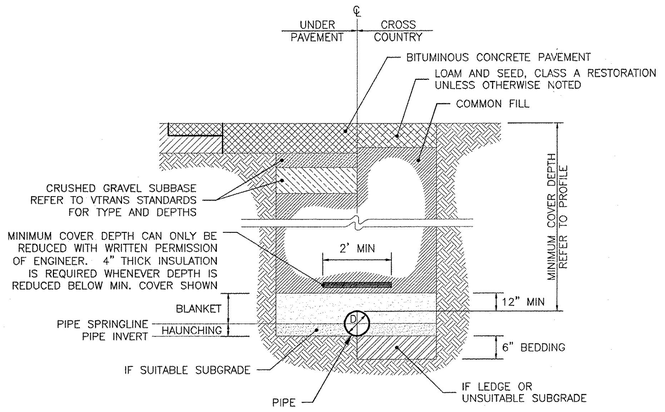
STATE OF VERMONT — RICHARD E. DUFRESNE — NO. 3836 — CIVIL — LICENSED PROFESSIONAL ENGINEER
8-20-2014

DUFRESNE GROUP
CONSULTING ENGINEERS

PROJECT NAME: BARRE TOWN WATER MAIN RELOCATION
PROJECT NUMBER: STP SCRP(10)

FILE NAME: WATER MAIN PLAN
PROJECT LEADER: K UPMAL
DESIGNED BY: B.L. BAKER
PLOT DATE: 8/20/14
DRAWN BY: B.L. BAKER
CHECKED BY: R.E. DUFRESNE
SHEET 1 OF 2

FILE: P:\Barre VT\Dgn & Xrefs\143011 - Route 14 Culvert Water Main\CAD\Water Main - revised Sep 03, 2014 - 8:04am



BEDDING – EXCAVATE BELOW PIPE AND REFILL ONLY WHEN SPECIFICALLY ORDERED. MATERIALS AND COMPACTION AS SPECIFIED.

HAUNCHING – FROM INVERT OF PIPE TO SPRINGLINE OF PIPE. HAND PLACE AND HAND TAMP TO REMOVE ALL VOIDS FROM UNDER PIPE. MATERIAL AND COMPACTION AS SPECIFIED.

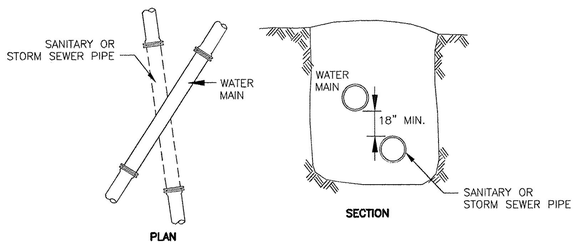
BLANKET – FROM SPRINGLINE TO 12" MIN. ABOVE PIPE. MATERIAL AND COMPACTION AS SPECIFIED.

WATER MAIN TYPICAL TRENCH DETAIL

NOT TO SCALE

NOTES:

1. REFER TO VTRANS STANDARDS FOR PAVEMENT THICKNESS REQUIREMENTS.
2. REFER TO THE SPECIFICATIONS FOR COMPACTION AND SPECIALTY MATERIALS FOR BLANKET, HAUNCHING, BEDDING, AND GRAVELS.
3. NORMALLY, EXCAVATED MATERIAL FROM THE TRENCH CAN BE USED AS COMMON FILL BACKFILL AND COMPACTED AS NECESSARY TO ACHIEVE COMPLIANCE WITH THE SPECIFICATIONS. IF IN THE OPINION OF THE ENGINEER, THE EXCAVATED MATERIAL WHEN REMOVED IS TOO WET TO BE USED AS BACKFILL TO ACHIEVE THE MINIMUM SPECIFIED COMPACTION, MATERIAL MEETING THE COMMON FILL SPECIFICATION WILL BE FURNISHED AND INSTALLED WITH NO ADDITIONAL CHARGE TO THE OWNER.
4. IF THE EXCAVATED MATERIAL BECOMES TOO WET DUE TO WEATHER CONDITIONS OR DUE TO IMPROPER HANDLING PROCEDURES AND CANNOT BE REUSED FOR BACKFILL, THE MATERIAL SHALL BE SUFFICIENTLY DRIED OR MIXED WITH DRY MATERIAL TO OBTAIN PROPER MOISTURE CONTENT AT NO ADDITIONAL CHARGE TO THE OWNER.
5. TRENCH WIDTH SHALL BE SUFFICIENT TO ALLOW PIPE TO BE LAID AND JOINED PROPERLY AND FOR PLACEMENT AND COMPACTION OF BEDDING. TRENCH SUPPORT SHALL BE ADEQUATE TO PERMIT SAFE ACCESS BY INSPECTOR FOR COMPACTION SAMPLES.
6. WHERE PIPE IS INSTALLED IN GRAVEL SHOULDER OR IN GRAVELED ROAD, GRAVEL SUBBASE MATERIAL AND COMPACTION SHALL BE AS SPECIFIED.

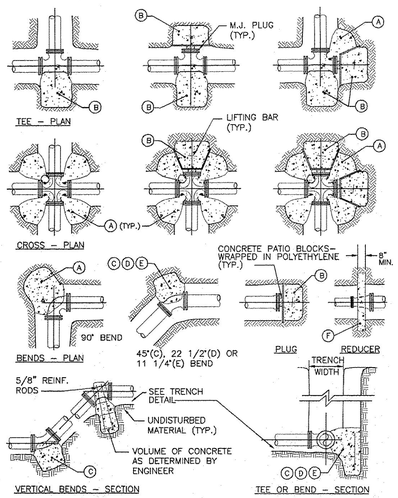


NOTES:

1. PARALLEL INSTALLATION: WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED MANHOLE OR SANITARY SEWER. THIS DISTANCE CAN BE REDUCED TO 5 FEET FOR STORM SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
2. CROSSINGS: WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SANITARY OR STORM SEWER. THIS SHALL BE THE CASE WHERE THE WATER MAIN IS EITHER ABOVE OR BELOW THE SEWER. AT CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF THE SEWER MAIN IS OVER THE WATER MAIN, THE FIRST SEWER PIPE JOINTS ON EACH SIDE OF THE WATER MAIN MUST BE CONCRETE ENCASED. SPECIAL STRUCTURAL SUPPORT FOR THE WATER AND SEWER PIPES MAY BE REQUIRED. WATER MAINS SHALL NOT PASS THROUGH SEWER MANHOLES OR BE SUBMERGED IN BASINS CONTAINING SEWAGE OR OTHER GROSSLY CONTAMINATED OR HAZARDOUS MATERIAL.
3. EXCEPTION: THE ENGINEER MUST SPECIFICALLY APPROVE ANY VARIANCE FROM THESE REQUIREMENTS WHEN IT IS IMPOSSIBLE TO OBTAIN THE SPECIFIED SEPARATION DISTANCES.

SANITARY AND/OR STORM SEWER PIPE AND WATER MAIN CROSSING DETAIL

NOT TO SCALE



TEST PRESSURE = 200 PSIG	REACTION TYPE	PIPE SIZE 4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	(A)	5.12	10.58	18.19	27.37	38.71	52.00	67.26	84.47	103.64	147.87
	(B)	3.62	7.48	12.87	19.35	27.37	36.77	47.56	59.73	73.29	104.56
	(C)	2.77	5.72	9.85	14.81	20.95	28.14	36.40	45.72	56.09	80.03
	(D)	1.41	2.92	5.02	7.55	10.68	14.35	18.56	23.31	28.60	40.80
	(E)	0.71	1.47	2.52	3.79	5.37	7.21	9.32	11.71	14.37	20.50
	(F)	–	3.86	9.25	15.73	23.75	29.29	40.08	46.86	53.93	77.19

NOTES:

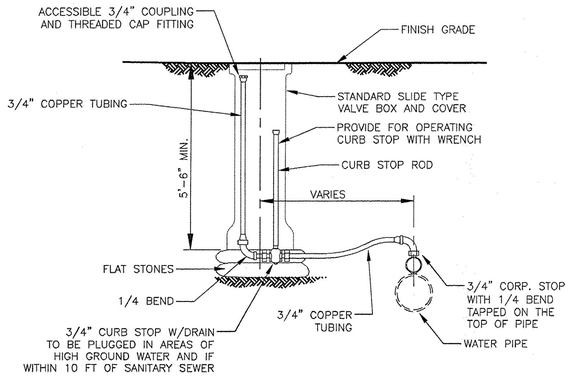
1. THRUST RESTRAINT IS REQUIRED FOR ALL TEES, BENDS, REDUCERS, CAPS, PLUGS, OR CROSSES.
2. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
3. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
4. PLACE CONCRETE PATIO BLOCKS IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK.
5. PRE-FORMED AND PRE-POURED THRUST BLOCKS ARE NOT ACCEPTABLE.
6. THE USE OF A MECHANICAL JOINT RESTRAINT SYSTEM DOES NOT REDUCE THE REQUIREMENTS SHOWN IN THIS DETAIL.
7. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE OR BUILDING PAPER PRIOR TO INSTALLATION OF CONCRETE RESTRAINT.
8. IF THREADED ROD IS USED, IT SHALL BE ANSI A242 FY50 PIPE RESTRAINT NUTS TO MATCH AWWA C111.
9. SIZES FOR REDUCERS SHOWN ARE BASED ON THE SMALLEST AVAILABLE RUN SIZE FOR A GIVEN PIPE SIZE.
10. INSTALL LIFT HOOKS INTO THRUST BLOCKS AT END CAPS AND PLUGS.
11. TEST PRESSURE TO BE 200 PSI MIN. AT LOW END OF THE TEST SECTION. SQUARE FEET OF CONCRETE THRUST BLOCKING FOR OTHER TEST PRESSURES IS DIRECTLY PROPORTIONAL TO THE ABOVE TABLE. FOR INSTANCE, AT 300 PSI TEST PRESSURE, THE NUMBERS SHOWN IN THE ABOVE TABLE ARE MULTIPLIED BY 1.5. SEE BELOW FOR EXAMPLE CALCULATION.
12. THRUST BLOCK AREA IS BASED ON A SOIL BEARING STRENGTH OF 1500 LBS/SF AND A SAFETY FACTOR OF 1.5. MULTIPLY THE BEARING AREA FROM ABOVE (WITH CONSIDERATION OF TEST PRESSURE) AND MULTIPLY BY THE FOLLOWING FACTORS TO DETERMINE BEARING AREA REQUIRED FOR VARIOUS SOIL CONDITIONS:

SOIL TYPE	BEARING CAPACITY (LB/SF)	FACTOR
SOFT CLAY	1,000	1.50
SILT	1,500	1.00
SANDY SILT	3,000	0.50
SAND	4,000	0.38
SANDY GRAVEL	5,000	0.30
SANDY CLAY	6,000	0.25
GRAVEL W/ ROCK	7,000	0.21
HARD CLAY	9,000	0.17

EXAMPLE: AN 8-INCH 90° BEND IN SANDY GRAVEL SOILS, TEST PRESSURE OF 200 PSI:
AREA REQUIRED = 18.195F x 1 x 0.30 = 5.465F

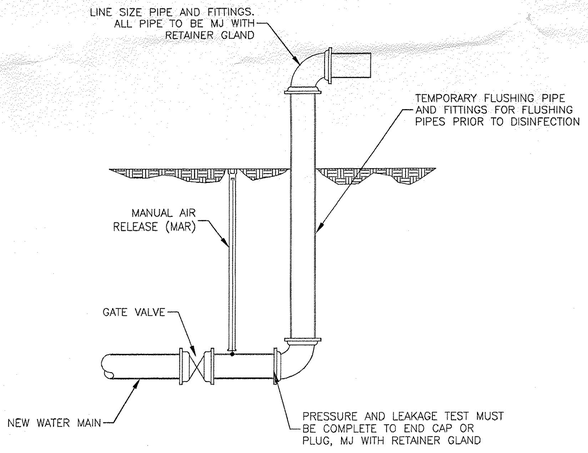
THRUST BLOCK DETAILS AND NOTES

NOT TO SCALE



MANUAL AIR RELEASE DETAIL

NOT TO SCALE

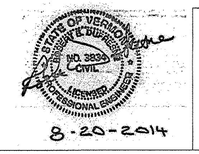


TEMPORARY FLUSHING CONNECTION

SCALE: NOT TO SCALE

NOTES:

1. MINIMUM FLUSHING VELOCITY IS 3 FEET PER SECOND.
2. CONTRACTOR TO ENSURE ALL FLUSHING WATER IS CONTROLLED IN ACCORDANCE WITH CONSTRUCTION GENERAL PERMIT AND DECHLORINATED PRIOR TO DISCHARGE.



DUFRESNE GROUP
CONSULTING ENGINEERS

PROJECT NAME: BARRE TOWN WATER MAIN RELOCATION
PROJECT NUMBER: STP SCRP(10)

FILE NAME:
PROJECT LEADER: K UPMAL
DESIGNED BY: B.L. BAKER
WATER DETAILS

PLOT DATE: 8/20/14
DRAWN BY: B.L. BAKER
CHECKED BY: R.E. DUFRESNE
SHEET 2 OF 2

FILE: P:\Barre *\City of Barre\41\2011 - Route 14 Culvert Water Main\CAD\Water Main.dwg Aug 21, 2014 - 11:08am