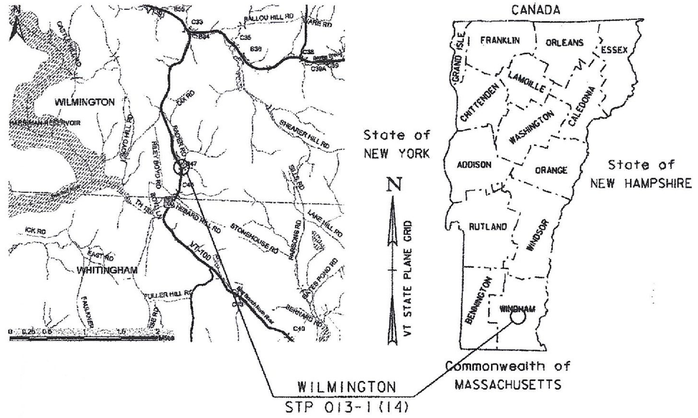
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF WILMINGTON
COUNTY OF WINDHAM

VT ROUTE 100 (RURAL MINOR ARTERIAL) BRIDGE 47

PROJECT LOCATION: 2.1 MILES SOUTH OF JUNCTION WITH VT ROUTE 9

PROJECT DESCRIPTION: REPLACEMENT OF THE EXISTING CULVERT WITH A NEW REINFORCED PRECAST CONCRETE BOX CULVERT WITH RELATED APPROACH AND CHANNEL WORK

LENGTH OF STRUCTURE:	20.00 FEET
LENGTH OF ROADWAY:	80.00 FEET
LENGTH OF PROJECT:	100.00 FEET

RECORD PLANS

CONTRACTOR: M & M EXCAVATING, INC. – CHESTER, VT

RESIDENT ENGINEER: CHAD GREENWOOD

CONSTRUCTION BEGAN: JULY 17, 2014

CONSTRUCTION COMPLETE: SEPTEMBER 29, 2014

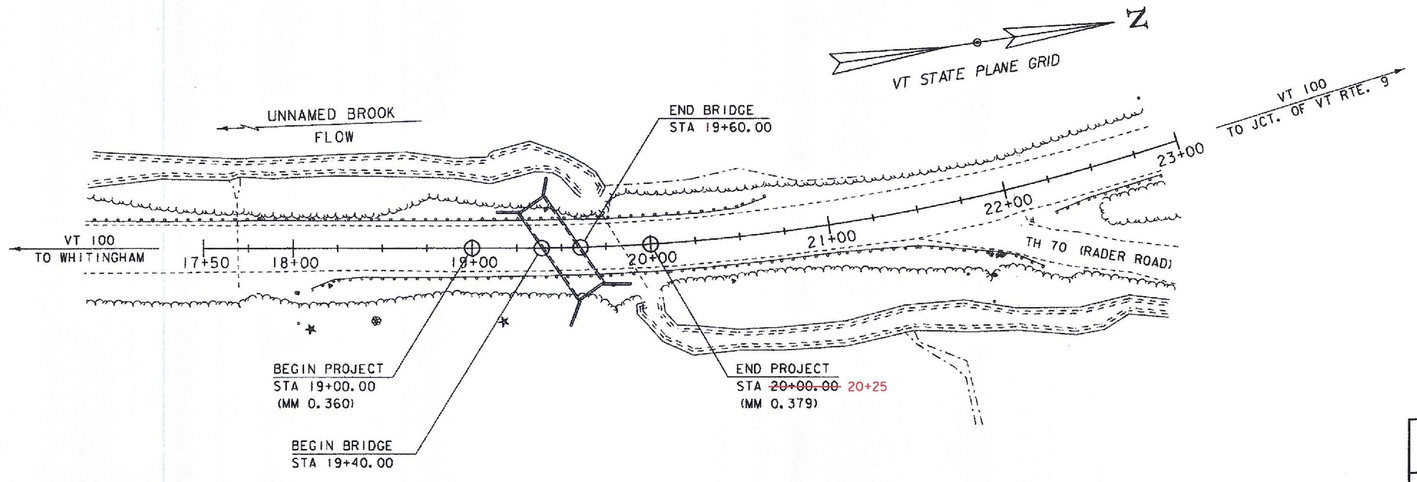
RECORD PLANS BY: CHAD GREENWOOD & C. PIERCE

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

BY Chad C RESIDENT ENGINEER

DATE 5/12/15

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.



SCALE 1" = 40'-0"
40 0 40

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 :	L. ORVIS
SURVEYED DATE :	UNKNOWN
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (07)

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED Richard Edwards DATE 1-2-19

PROJECT MANAGER : K. HIGGINS, P.E.

PROJECT NAME : WILMINGTON

PROJECT NUMBER : STP 013-1(14)

SHEET 1 OF 31 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (CULVERT)

Version 11.06.15

LRFD

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STANDARDS LIST

E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-136B	STATE ROUTE MARKER	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES DETAILS

SD-366.00	LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED	11-25-2013
SD-501.00	CONCRETE DETAILS AND NOTES	04-07-2010
SD-502.00	CONCRETE DETAILS AND NOTES	05-04-2010

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: April 2013

DRAINAGE AREA : 1.1 sq. mi.
CHARACTER OF TERRAIN : Forested and rural
STREAM CHARACTERISTICS : Sinuous, incised and alluvial
NATURE OF STREAMBED : Sand, gravel, cobbles

PEAK FLOW DATA

Q 2.33 =	75 cfs	Q 50 =	300 cfs
Q 10 =	190 cfs	Q 100 =	350 cfs
Q 25 =	250 cfs	Q 500 =	490 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 8.9 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Metal Pipe Arch
YEAR BUILT: 1950
CLEAR SPAN(NORMAL TO STREAM): 10' - 8"
VERTICAL CLEARANCE ABOVE STREAMBED: 6' - 11"
WATERWAY OF FULL OPENING: 58 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1622.7'	VELOCITY =	5.8 fps
Q10 =	1624.6'	"	8.3 fps
Q25 =	1625.4'	"	9.2 fps
Q50 =	1626.0'	"	9.8 fps
Q100 =	1626.6'	"	10.4 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 1629'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Wilmington — DISTANCE: 200'
HIGHWAY # : TH 36 — STRUCTURE #: 27
CLEAR SPAN: 6' — CLEAR HEIGHT: 6'
YEAR BUILT: 1970 — FULL WATERWAY: 28.3 sq. ft.
STRUCTURE TYPE: Boiler Plate Pipe

DOWNSTRUCTURE STRUCTURE

TOWN: Wilmington — DISTANCE: 1900'
HIGHWAY # : TH 38 — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE: Not Available

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:	TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER						

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box

CLEAR SPAN(NORMAL TO STREAM): 16'
VERTICAL CLEARANCE ABOVE STREAMBED: 6'
WATERWAY OF FULL OPENING: 96 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1621.7'	VELOCITY=	5.5 fps
Q10 =	1622.7'	"	8.2 fps
Q25 =	1623.2'	"	9.1 fps
Q50 =	1623.6'	"	9.8 fps
Q100 =	1623.9'	"	10.4 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 1629'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1626.4'
VERTICAL CLEARANCE: @ Q50 = 2.8'

SCOUR: Not calculated for a box

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	2 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	1 cfs	<0.5'
ORDINARY HIGH WATER:	35 cfs	1.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: None required
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	3.0 INCH
3. CULVERT OPENING	D:	96.00 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:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	---
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.135 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	70.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
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:	---

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	2600	290	60	8.3	210
2035	2800	320	60	13.9	230

20 year ESAL for flexible pavement from 2015 to 2035 : 809000
40 year ESAL for flexible pavement from 2015 to 2055 : 1930000
Design Speed : 50 mph

AS BUILT "REBAR" DETAIL

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

CULVERT DESIGN CRITERIA

1. PROPOSED CULVERT IS A PRECAST CONCRETE STRUCTURE (16'-0" x 8'-0" x 60'-0" BOX)
2. CULVERT ENDS ARE NOT SKEWED.
3. CULVERT WILL BE SET AT A SLOPE OF 21.60 IN. ON 60 FT.
4. CULVERT WILL REQUIRE FISH PASSAGE ACCOMODATIONS
5. CULVERT CONSTRUCTION WILL NOT REQUIRE A TEMPORARY PIPE

PROJECT NAME:
PROJECT NUMBER: **STP 013-1(14)**

FILE NAME: **00b252\s00b252excel.dgn**
PROJECT LEADER: **K. HIGGINS**
DESIGNED BY: **J. SALVATORI**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 1/2/2014
DRAWN BY: **J. SALVATORI**
CHECKED BY: **G. LAROCHE**

GENERAL NOTES

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

2. THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE FOR ONE WEEKEND (TWO CONSECUTIVE DAYS) BEGINNING ON A FRIDAY AT 6PM AND REOPENING THE FOLLOWING MONDAY AT 6 AM, TO A MINIMUM OF ONE-LANE, TWO-WAY TRAFFIC. DURING THAT TIME THE CONTRACTOR WILL BE ALLOWED TO WORK 24 HOURS PER DAY. THE CONTRACTOR SHALL SCHEDULE THEIR WORK SUCH THAT THE BRIDGE IS NOT CLOSED DURING HOLIDAY PERIODS. SEE SPECIAL PROVISIONS FOR FURTHER DETAILS.

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

4. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR ALL WORK REQUIRED TO REMOVE AND PROPERLY BACKFILL TO PROPOSED SUBGRADE, THE EXISTING CGMPPA UNDER VT 100.

5. ITEM 404.65 "EMULSIFIED ASPHALT" IS TO BE APPLIED AT A RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT OR AS DIRECTED BY THE ENGINEER.

6. AN EXISTING CONDITIONS SHEET HAS BEEN INCLUDED IN THE PLANS FOR USE OF CONTRACTOR IN SUBMITTALS.

7. EXCAVATION FOR OR PLACEMENT OF BOX SECTIONS WILL ONLY BE ALLOWED DURING CLOSURE PERIOD.

TRAFFIC CONTROL

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED PRIOR TO, DURING AND AFTER THE CLOSURE PERIOD. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ALTERNATING ONE WAY TRAFFIC, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE RESIDENT ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE). SEE SPECIAL PROVISIONS.

9. ALL TEMPORARY TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE T SERIES OF THE STANDARDS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

10. INSTALLATION OF TEMPORARY TRAFFIC CONTROL SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL TRY TO MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.

11. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN NOT PAID UNDER A SEPARATE CONTRACT ITEM WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

12. A UNIFORMED TRAFFIC OFFICER SHALL BE POSTED AT THE INTERSECTION OF VT ROUTES 100 AND 112 DURING DAYLIGHT HOURS OF THE CLOSURE.

PRECAST CONCRETE

13. DESIGN CRITERIA:

    A. SOIL UNIT WEIGHT = 135 PCF
    B. DESIGN LIVE LOAD = HL-93
    C. NOMINAL BEARING RESISTANCE (BEDROCK) = 70 KSF
    D. NOMINAL BEARING RESISTANCE (GRANULAR BACKFILL) = 21 KSF
    E. BEARING RESISTANCE FACTOR = 0.45
    F. DESIGN FILL OVER BOX = 0-2 FEET
    G. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05(e)

14. ALL CONCRETE SHALL BE PRECAST. ITEM 540.10 "PRECAST CONCRETE STRUCTURE" INCLUDES ALL BOX SEGMENTS, HEADWALLS, AND CUTOFF WALLS. ALL CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10.

15. THE PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED FOR HYDROSTATIC PRESSURE UNLESS RAPID DRAINING MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 704.18 IS USED. IF USED, RAPID DRAINING MATERIAL SHALL BE PAID AT THE UNIT PRICE BID FOR ITEM 204.30. NO WEEPHOLES IN THE BOX SECTIONS WILL BE ALLOWED.

16. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR. THE MINIMUM INSIDE DIMENSIONS SHALL BE 8'-0" IN HEIGHT AND 16'-0" IN WIDTH. THE OVERALL LENGTH OF THE BOX SHALL BE 60'-0'' ALONG THE STREAMBED GRADE. THE EXPOSED ENDS OF THE FIRST AND LAST UNITS SHALL BE VERTICAL.

17. ALL LIFTING HOLES AND BOLT POCKETS SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10. FILLING THE JOINTS BETWEEN BOX SEGMENTS WITH GROUT IS NOT REQUIRED.

18. NO ADDITIONAL WORK (I.E. BACKFILLING OR MEMBRANE) IS ALLOWED UNTIL THE GROUT HAS REACHED A STRENGTH OF 2000 PSI OR 30% OF MAXIMUM.

19. A TWO (2) FOOT WIDE STRIP OF SHEET MEMBRANE WATERPROOFING SHALL BE PLACED AT EACH JOINT. MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL HEIGHT. THE SIDES SHALL BE COVERED PRIOR TO THE TOP. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE AT EACH VERTICAL JOINT WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.

20. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE SHOP APPLIED TO ALL EXPOSED EXTERIOR SURFACES OF THE PRECAST CONCRETE STRUCTURE. PAYMENT FOR SILANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.

REINFORCING STEEL

21. ALL REINFORCING STEEL SHALL BE LEVEL II REINFORCING STEEL IN ACCORDANCE WITH SECTION 507. PAYMENT FOR ALL REINFORCING STEEL WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 540.10.

22. ALL REINFORCING STEEL SHALL HAVE A MINIMUM CLEAR COVER OF 2".

23. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:

    SPACING +/- 1"
    CLEARANCE +/- ¼"

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252gs.dgn	PLOT DATE: 03-FEB-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
GENERAL NOTES	SHEET 3 OF 31

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	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				**EARTHWORK SUMMARY**
						400				400		CY	COMMON EXCAVATION	203.15		400.00	CY	COMMON EXCAVATION (400*1.0)
								1000		1000		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		750.00	CY	UNCLASSIFIED CHANNEL EXCAVATION (1000*0.75)
								240		240		CY	GRANULAR BORROW	203.32		543.75	CY	COFFERDAM EXCAVATION, EARTH (725*0.75)
						1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		50.00	CY	COFFERDAM EXCAVATION, ROCK (50*1.0)
								325		325		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1743.75	CY	SUB TOTAL
								725		725		CY	COFFERDAM EXCAVATION, EARTH	208.30		6.25	CY	ROUNDING
								50		50		CY	COFFERDAM EXCAVATION, ROCK	208.35		1750.00	CY	TOTAL FILL AVAILABLE
								1		1		LS	COFFERDAM	208.40		500.00	CY	TOTAL FILL REQUIRED
						290				290		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10		1250.00	CY	TOTAL WASTE
						225				225		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				**SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANITIY)**
						45				45		CY	AGGREGATE SHOULDERS, IN PLACE	402.10		95	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IIS
						4				4		CWT	EMULSIFIED ASPHALT	404.65		55	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IVS
						1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50		150	TON	TOTAL SUPERPAVE
								1		1		EACH	REMOVAL OF STRUCTURE (6'-11" x 10'-8" CGMPPA)	529.15				
								1		1		LS	PRECAST CONCRETE STRUCTURE (16'-0" x 8'-0" x 60'-0" BOX)	540.10				
							1			1		MGAL	DUST CONTROL WITH WATER	609.10				
						80				80		CY	STONE FILL, TYPE I	613.10				
								650		650		CY	STONE FILL, TYPE III	613.12				
						125				125		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
						200				200		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED	621.216				
						2				2		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
						50				50		LF	REMOVE AND RESET GUARDRAIL	621.75				
						437.5				437.5		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
						50				50		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
						400				400		HR	FLAGGERS	630.15				
									1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
									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				
						400				400		LF	4 INCH WHITE LINE	646.20				
						400				400		LF	4 INCH YELLOW LINE	646.21				
						220		535		755		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							165			165		SY	GEOTEXTILE FOR SILT FENCE	649.51				
							70			70		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							6			6		LB	SEED	651.15				
							6			6		LB	SEED, WINTER RYE	651.17				
							80			80		LB	FERTILIZER	651.18				
							1			1		TON	AGRICULTURAL LIMESTONE	651.20				
							1			1		TON	HAY MULCH	651.25				

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252qs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
QUANTITY SHEET 1

PLOT DATE: 03-FEB-2014
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 4 OF 31

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							55			55		CY	TOPSOIL	651.35				
								300		300		SY	GRUBBING MATERIAL	651.40				
							1			1		LS	EPSC PLAN	652.10				
							40			40		HR	MONITORING EPSC PLAN	652.20				
							1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							475			475		SY	TEMPORARY EROSION MATTING	653.20				
							20			20		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
							60			60		CY	VEHICLE TRACKING PAD	653.35				
							1			1		EACH	FILTER BAG	653.45				
							725			725		LF	PROJECT DEMARCATION FENCE	653.55				
						0.66				0.66		SF	TRAFFIC SIGNS, TYPE A	675.20				
						16				16		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						2				2		EACH	DELINEATOR WITH STEEL POST	676.10				
								70		70		CY	SPECIAL PROVISION (STONE FILL, STREAM BED MATERIAL)	900.608				
						1				1		LS	SPECIAL PROVISION (CPM SHEDULE)	900.645				
						1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1				1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.650				
						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				
						150				150		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252qs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
QUANTITY SHEET 2

PLOT DATE: 02-JAN-2014
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 5 OF 31

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 RADUIS 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

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- 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
- P/L — P/L — 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
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- Ⓗ HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

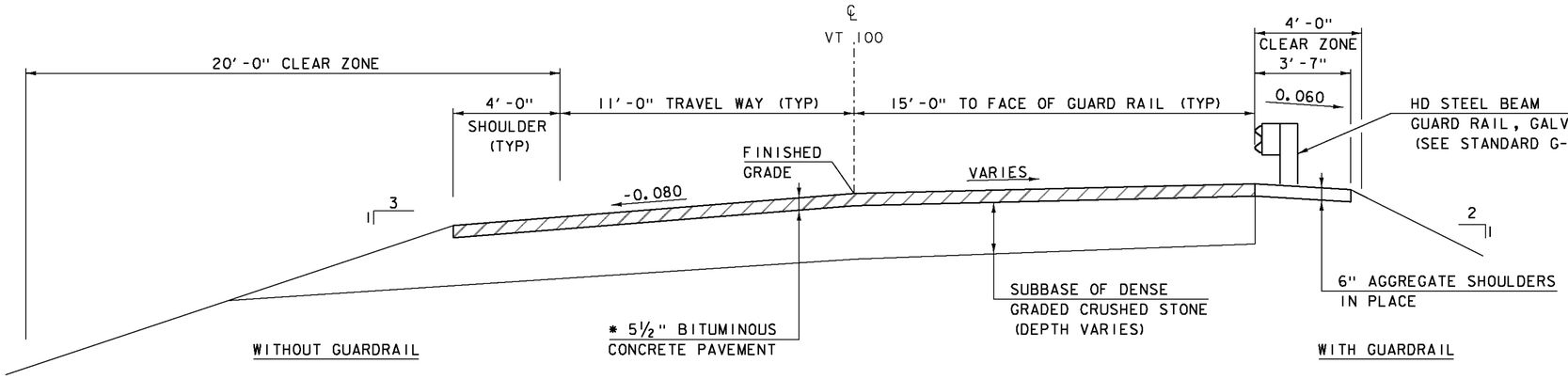
- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

PROJECT NAME: WILLMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252Legend.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
LEGEND SHEET

PLOT DATE: 02-JAN-2014
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 6 OF 31

* 1½" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IV OVER
2" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IIIS OVER
2" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT TYPE IIIS



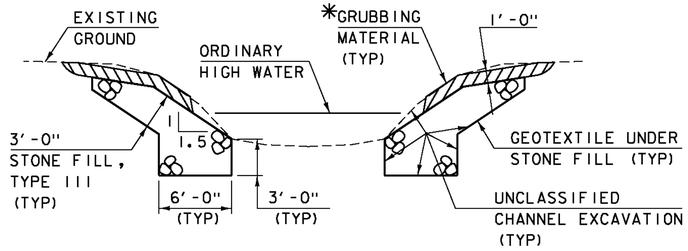
VT ROUTE 100 TYPICAL ROADWAY SECTION

SCALE ⅜" = 1'-0"

MATERIAL TOLERANCES

(IF USED ON PROJECT)

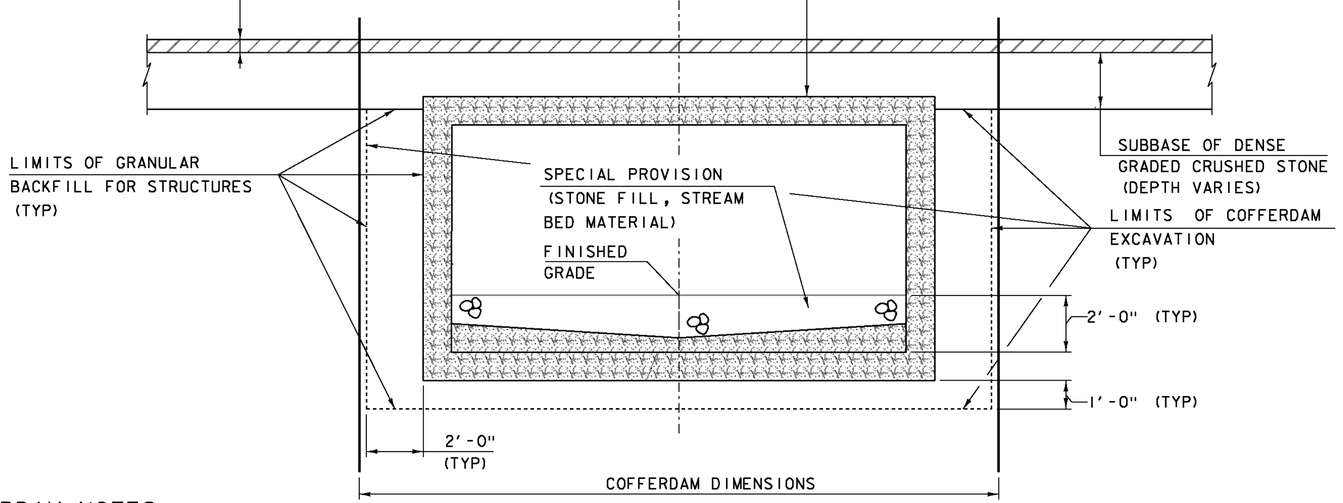
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



TYPICAL CHANNEL SECTION

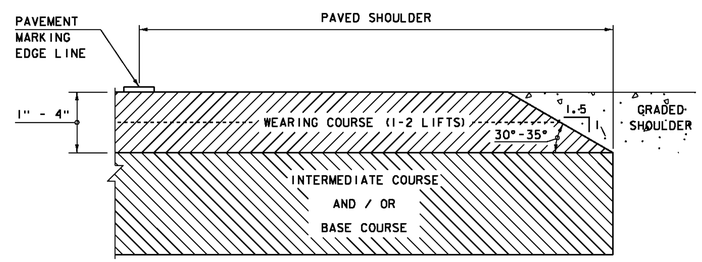
(NOT TO SCALE)

*WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



TYPICAL PRECAST BOX CULVERT SECTION

SCALE ⅜" = 1'-0"



SAFETY EDGE DETAIL

NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.

COFFERDAM NOTES

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF EITHER "COFFERDAM EXCAVATION, EARTH" OR "COFFERDAM EXCAVATION, ROCK" SHALL BE AS DETAILED IN THE TYPICAL SECTION.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN DETAILED ABOVE, NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THOSE PAY LIMITS.

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252typ.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
TYPICAL SECTIONS

PLOT DATE: 03-FEB-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 7 OF 31

GPS CONTROL POINTS

	UTM COORDINATES UTM (Zone 18)	STATE PLANE COORDINATES SPC (4400 VT)
Northing (Y) [meters]	4745213.916	37765.583
Easting (X) [meters]	675242.668	470928.211
Convergence [degrees]	1.45843429	-0.24180258
Point Scale	0.99997782	0.99997468
Combined Factor	0.99989818	0.99989503

US NATIONAL GRID DESIGNATOR: 18TXN7524245213 (NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE (m)
DK8255	VTBE BENNINGTON CORS ARP	N425257.029	W0731159.649	28544.0
DJ8953	VTD2 DUMMERSTON CORS ARP	N425506.108	W0723206.441	27618.4
DJ8961	VTSP SPRINGFIELD VT CORS ARP	N431653.241	W0722839.238	57968.4

NEAREST NGS PUBLISHED CONTROL POINT

AB7379	B95050	N425119.2	W0725016.4	2286.8

HVCTRL #1
REBAR W/ CAP

NORTH = 123902.590
EAST = 1545036.936
ELEV. = 1758.140

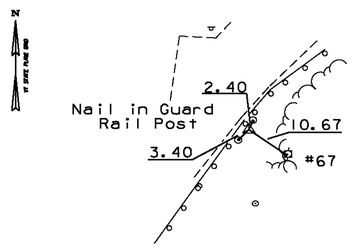
HVCTRL #2
REBAR W/ CAP

NORTH = 123308.339
EAST = 1545180.768
ELEV. = 1777.820

TRAVERSE TIES

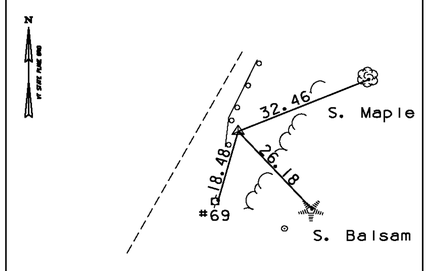
HVCTRL #5

NORTH = 121704.956
EAST = 1545441.535
ELEV. = 1639.530



HVCTRL #6

NORTH = 121333.720
EAST = 1545403.495
ELEV. = 1624.441



• MAIN TRAVERSE COMPLETED 4/18/2012 by L. Orvis (P.C.) & G. Hitchcock

ALIGNMENT TIES

Project Name: s00b252
Description: Wilmington STP 013-1(14)
Horizontal Alignment Name: VT100Pro
Description: Mainline Allignment
Style: align1

	STATION	NORTHING	EASTING
POB	17+50.00	121266.6584	1545372.4788
Tangent Direction:	N 8°22'00.00" E		
Tangent Length:	178.66		
PC	19+28.66	121443.4190	1545398.4756
PI	21+09.67	121622.5016	1545424.8139
Radius:	1145.00		
Delta:	17°58'00.12" Left		
Degree of Curvature (Arc):	5°00'14.39"		
Length:	359.05		
Tangent:	181.01		
Chord:	357.58		
PT	22+87.71	121800.9759	1545394.6272
Tangent Direction:	N 9°36'00.00" W		
Tangent Length:	12.29		
POE	23+00.00	121813.0948	1545392.5774

Project Name: s00b252
Description: Wilmington STP 013-1(14)
Horizontal Alignment Name: ChannelAlongStream Prop
Description: New Channel Alignment Along Stream
Style: align4

	STATION	NORTHING	EASTING
POB	79+75.00	121582.2313	1545467.5047
Tangent Direction:	S 3°22'00.00" W		
Tangent Length:	58.50		
PC#1	80+33.50	121523.8346	1545464.0694
PI#1	80+62.37	121495.0169	1545462.3741
Radius:	50.00		
Delta:	60°00'00.00" Right		
Degree of Curvature (Arc):	114°35'29.61"		
Length:	52.36		
Tangent:	28.87		
Chord:	50.00		
PT#1	80+85.86	121482.0762	1545436.5697
Tangent Direction:	S 63°22'00.00" W		
Tangent Length:	75.67		
PC#2	81+61.53	121448.1554	1545368.9297
PI#2	81+79.75	121439.9878	1545352.6431
Radius:	35.00		
Delta:	55°00'00.00" Left		
Degree of Curvature (Arc):	163°42'08.02"		
Length:	33.60		
Tangent:	18.22		
Chord:	32.32		
PT#2	81+95.12	121421.9619	1545349.9920
Tangent Direction:	S 8°22'00.00" W		
Tangent Length:	54.88		
POE	82+50.00	121367.6700	1545342.0071

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)
ADJUSTMENT COMPASS

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252ti.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
TIE SHEET

PLOT DATE: 02-JAN-2014
DRAWN BY: R. BULLOCK
CHECKED BY: J. SALVATORI
SHEET 8 OF 31

18D WORDEN LOAM
WITH 15% TO 25% SLOPES
"K" FACTOR = 0.49
VERY BOULDERY

N

VT STATE PLANE GRID

18C WORDEN LOAM
WITH 8% TO 15% SLOPES
"K" FACTOR = 0.49
VERY BOULDERY

RIPARIAN BUFFER

LARGE PINE TREES

UNNAMED BROOK FLOW

WOODS

VT 100
TO JCT. OF VT RTE. 9

MILE MARKER 16.4000
1322
0040
SIGN
PH-L

VT 100
TO WHITINGHAM

18" RCP CONDUIT FLOW

COMB
GUY

TH 70

TH 70 (RADAR ROAD)

EXISTING ROW (TOWN)

44C MUNDAL
FINE SANDY LOAM
WITH 8% TO 15% SLOPES
"K" FACTOR = 0.49
VERY STONEY

31B WILMINGTON
VERY FINE SANDY LOAM
WITH 2% TO 8% SLOPES
"K" FACTOR = 0.43
VERY STONEY

EXISTING BRIDGE DATA
6'-11"H x 10'-8"W CGMPPA
CULVERT BUILT IN 1949
CULVERT BARREL LENGTH = 68 FT
WATERWAY AREA = 96 SF

EXISTING CONDITIONS

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252epsc.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
EXISTING CONDITIONS	SHEET 9 OF 31

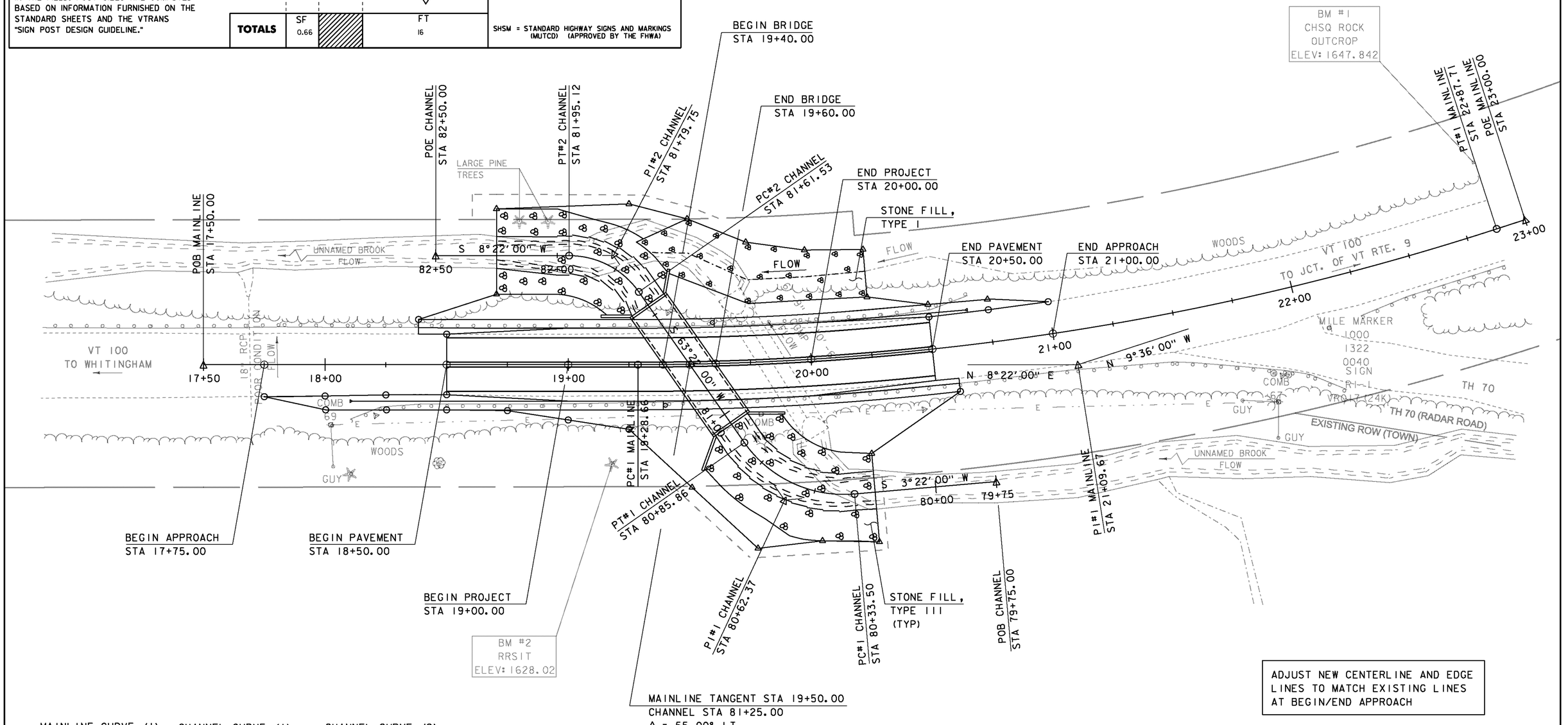
MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS WIDTH (In)	SIGN DIMENSIONS HEIGHT (In)	NEW SIGN "A"	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	SQUARE STEEL (In) 2.0 lb/ft 2.16	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	REMARKS	SIGN DETAIL DETAIL IN SHSM	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
19+40.00 RT.	BRIDGE 47 VT 100	6	8	0.33			1	8			X		VD-701			E-134
19+60.00 LT.	BRIDGE 47 VT 100	6	8	0.33			1	8			X		VD-701			E-134
								FT	FT	FT		EA				
									16							
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."		TOTALS		SF 0.66				FT 16					SHSM = STANDARD HIGHWAY SIGNS AND MARKINGS (MUTCD) (APPROVED BY THE FHWA)			

4 INCH WHITE LINE
STA 18+50 - 20+50 LT/RT

4 INCH YELLOW LINE
STA 18+50 - 20+50 CL

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 18+10 - 20+35 RT
STA 18+38 - 20+67 LT

N
VT STATE PLANE GRID



MAINLINE TANGENT STA 19+50.00
CHANNEL STA 81+25.00
Δ = 55.00° LT

MAINLINE CURVE (1)	CHANNEL CURVE (1)	CHANNEL CURVE (2)
DELTA = 17° 58' 00"	DELTA = 60° 00' 00"	DELTA = 55° 00' 00"
D = 5° 00' 14"	D = 114° 35' 30"	D = 163° 42' 08"
R = 1145.00'	R = 50.00'	R = 35.00'
T = 181.01'	T = 28.87'	T = 18.22'
L = 359.05'	L = 52.36'	L = 33.60'
E = 14.22'	E = 7.74'	E = 4.46'

ADJUST NEW CENTERLINE AND EDGE LINES TO MATCH EXISTING LINES AT BEGIN/END APPROACH

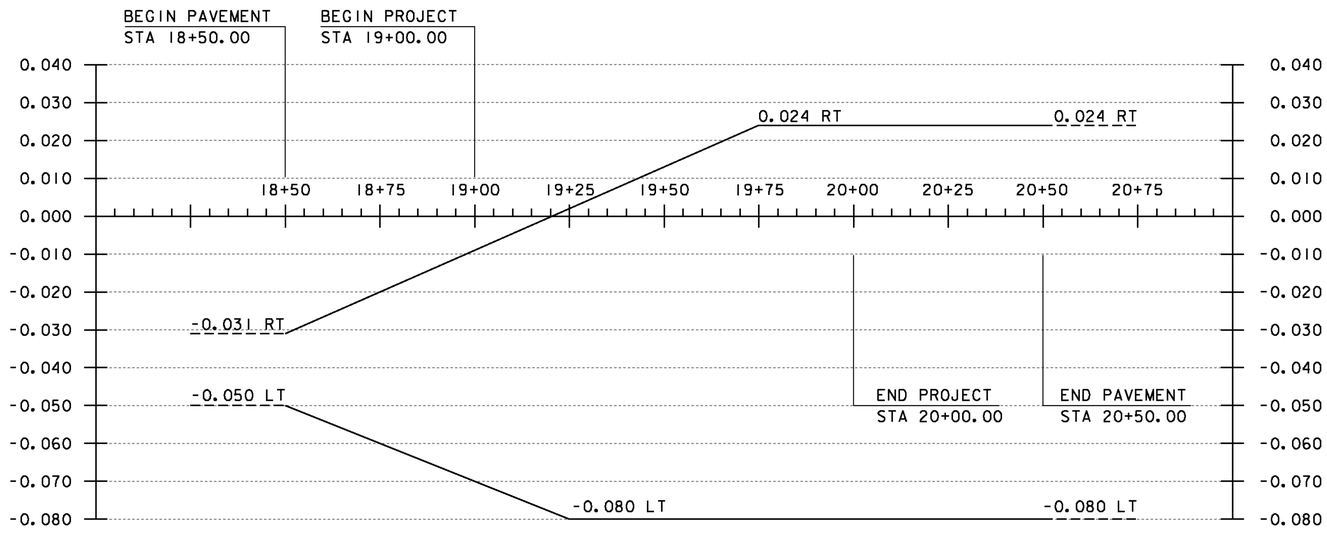
LAYOUT SHEET

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252bdr.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
LAYOUT SHEET

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 10 OF 31

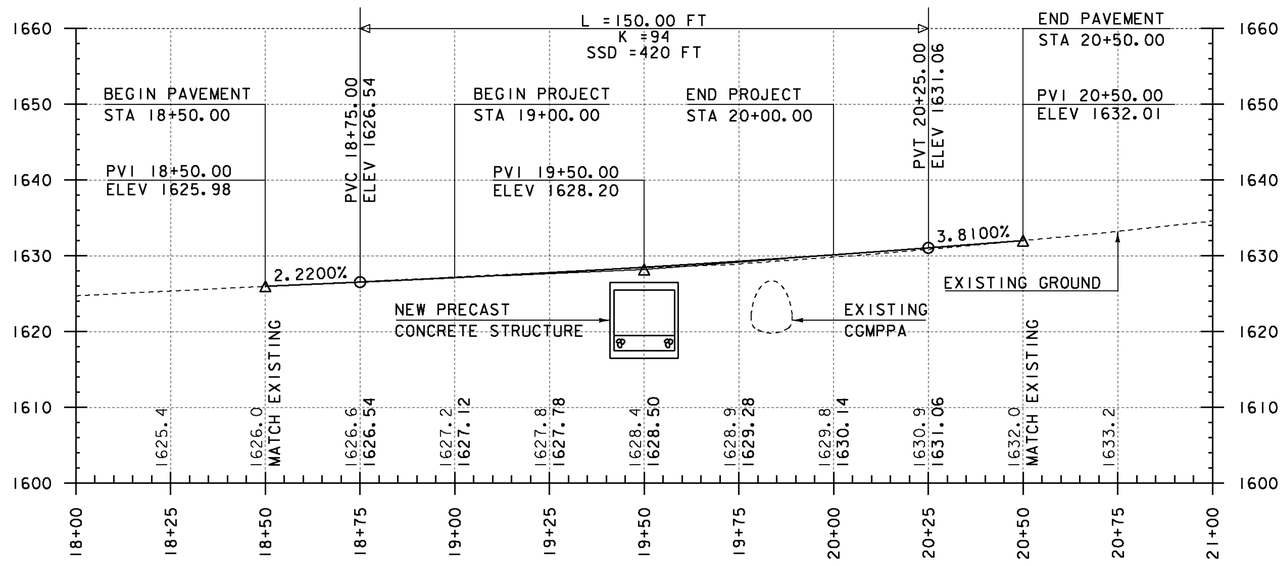


BANKING DIAGRAM

HOR. SCALE 1" = 20'-0"
NO VER. SCALE

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

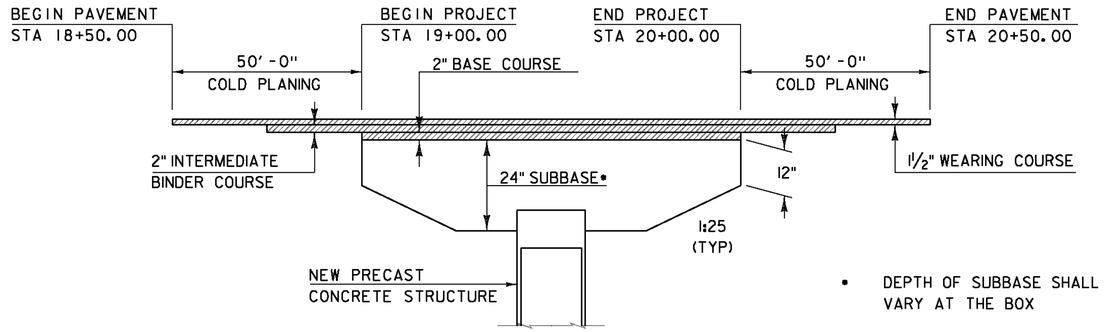
THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.



MAINLINE PROFILE

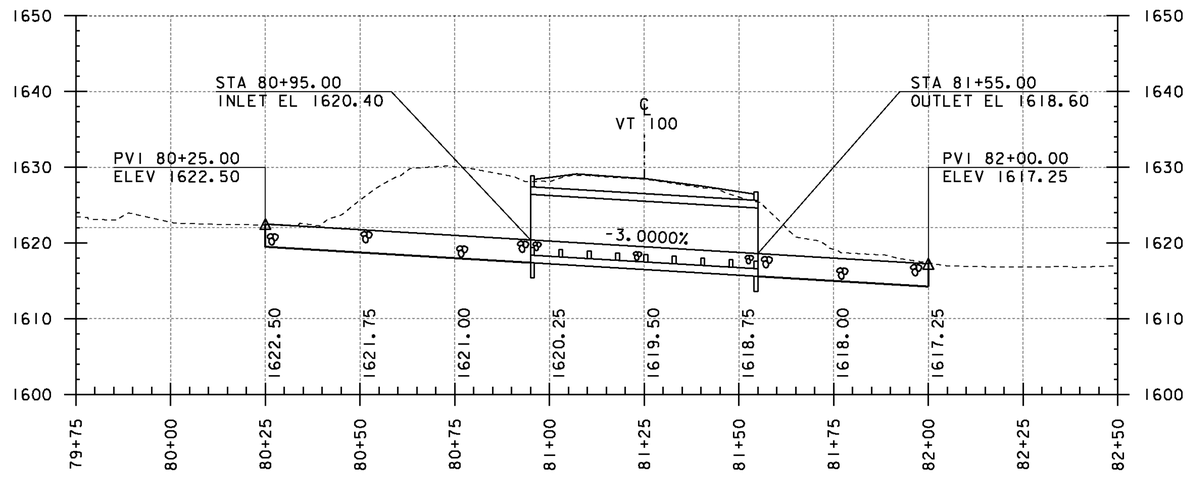
HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 10'-0"

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: 00b252\s00b252profile.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
MAINLINE PROFILE	SHEET 11 OF 31



MATERIAL TRANSITION

HOR. SCALE 1" = 20'-0"
NO VER. SCALE



BOX CULVERT PROFILE

HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 10'-0"

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: 00b252\s00b252profile.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
BOX CULVERT PROFILE	SHEET 12 OF 31

N

VT STATE PLANE GRID

LARGE PINE TREES

WOODS

VT 100
TO JCT. OF VT RTE. 9

VT 100
TO WHITINGHAM

17+50 18+00 19+00 20+00 21+00 22+00 23+00

COMB 69

COMB 68

COMB 67

GUY

GUY

GUY

WOODS

TH 70

TH 70 (RADAR ROAD)

EXISTING ROW (TOWN)

EXISTING POLE
TO REMAIN

STA 19+25 22.0' RT
PROPOSED POLE LOCATION

STA 19+78 EXISTING
POLE TO BE REMOVED

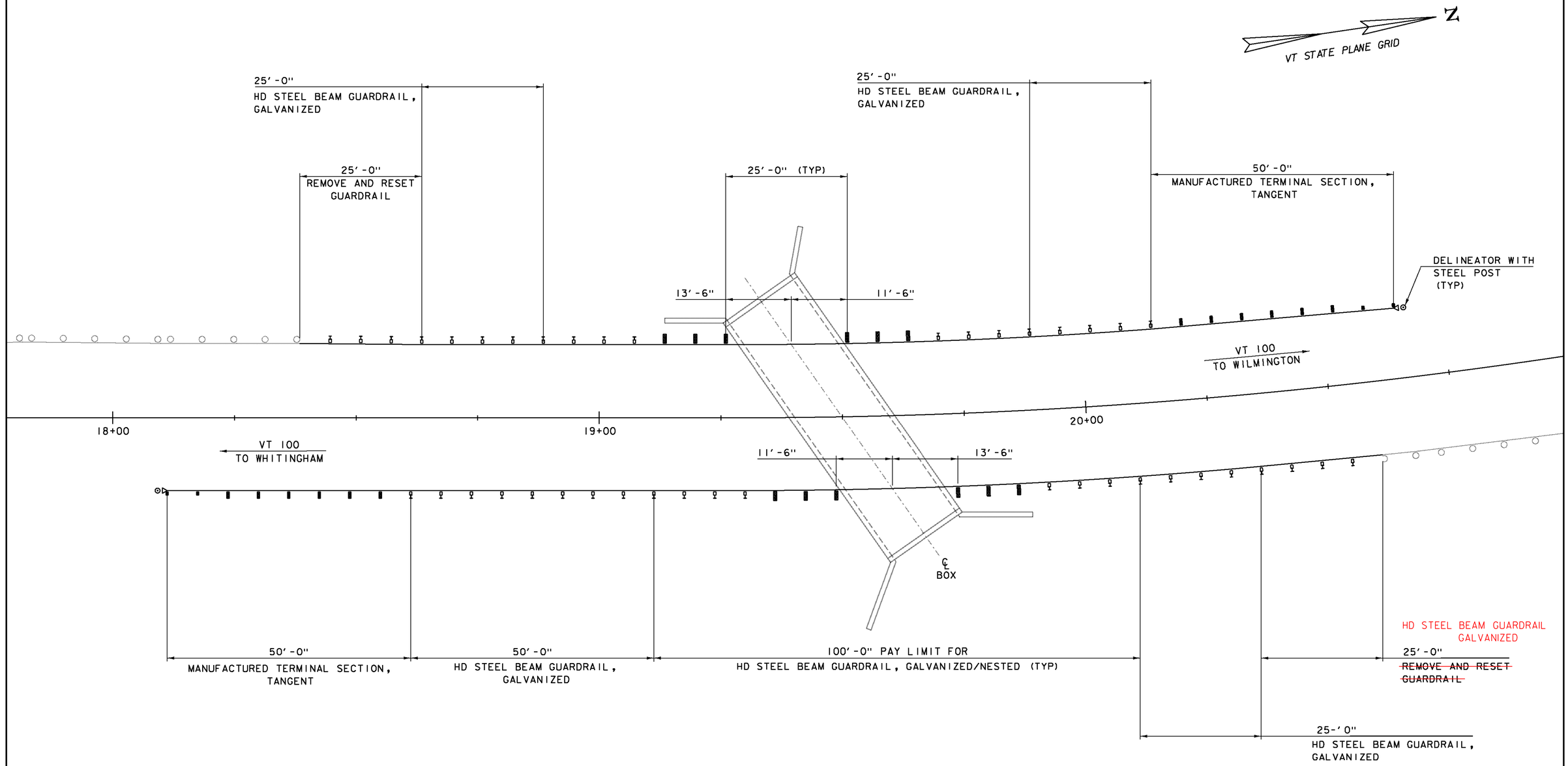
STA 20+50 25.0' RT
PROPOSED POLE LOCATION

EXISTING POLE
TO REMAIN

PROPOSED UTILITIES

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252util.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
PROPOSED UTILITIES	SHEET 13 OF 31



NOTES:

1. ALL DIMENSIONS ARE ALONG FACE OF RAIL.
2. SEE STANDARDS G-1, G-19, T-40 AND STRUCTURES DETAIL SD-366.00 FOR FUTHER DETAILS.

RAIL LAYOUT SHEET

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

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252rail.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
RAIL LAYOUT SHEET	SHEET 14 OF 31

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

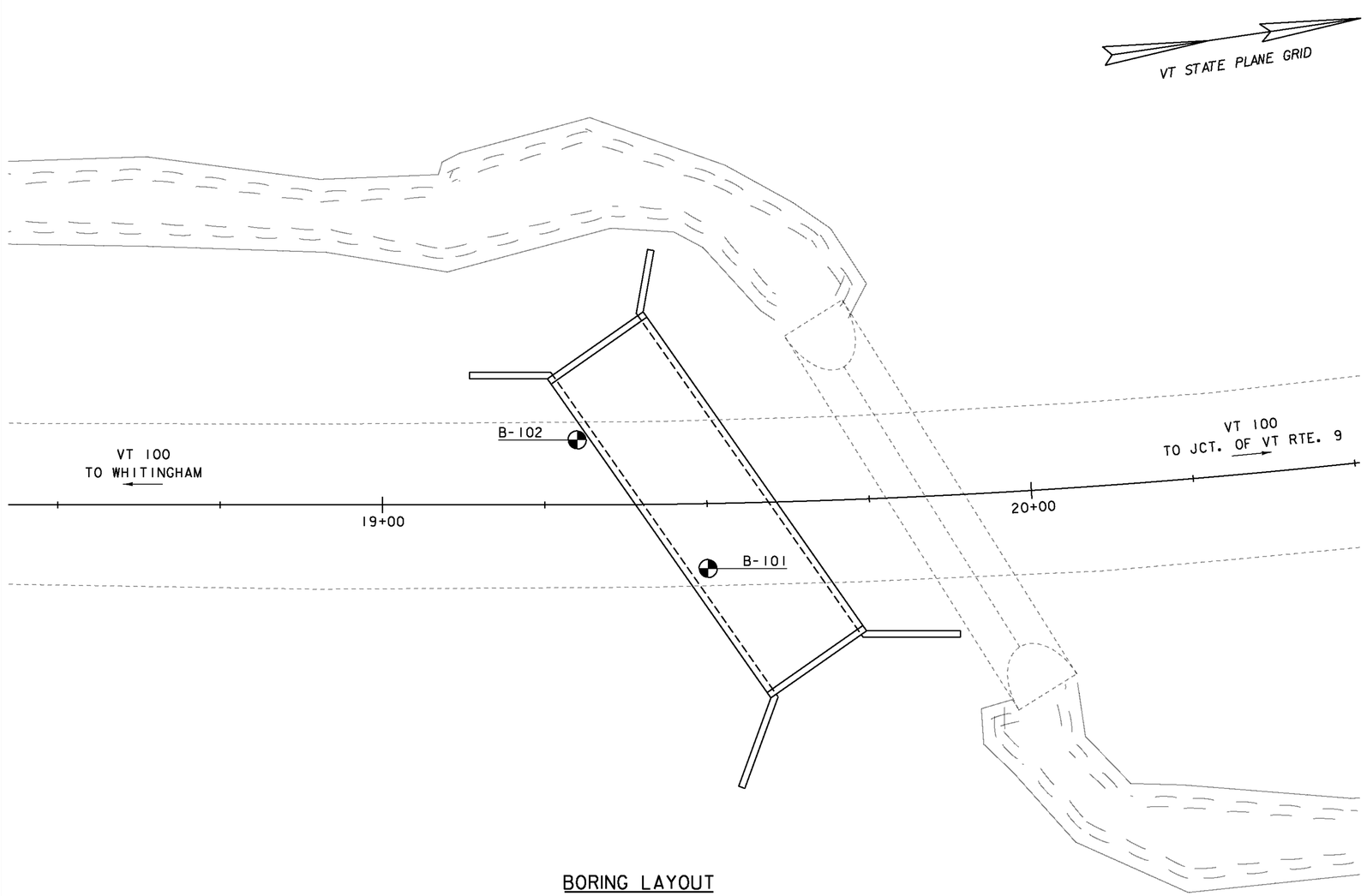
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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 1 3/8" 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 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
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	Top of 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)
VTSPG	NAD83 - See Note 7

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

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.

The subsurface explorations shown herein were made on 3/4/2013 by the Agency.

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.

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.

GENERAL NOTES

4. Engineering judgment 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 judgment 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.

7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
BORING LAYOUT SHEET

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 15 OF 31

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

BORING LOG

Wilmington
STP013-1(14)

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.:
Checked By: RJF

Boring Crew: Geosearch, Inc., RJF
Date Started: 3/04/13 Date Finished: 3/04/13
VTSPG NAD83: N 121478.00 ft E 1545401.00 ft
Station: 19+50.00 Offset: 8RT
Ground Elevation: 1628.63 ft

	Casing	Sampler
Type:	Auger/WB	SS
I.D.:	3 in	1.38 in
Hammer Wt:	300	140 lb.
Hammer Fall:	24	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	CME 75 Truck	C_E = 1.0

Groundwater Observations

Date	Depth (ft)	Notes
03/04/13	9.0	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Bituminous concrete, 0.0 ft - 0.5 ft							
		A-1-b, GrSaSi Base, subbase, brn, Rec. = 0.8 ft			50-65 (65+)	6.6	46.5	37.0	16.5
2.5		A-1-b, SaGrSi, brn, Rec. = 2.0 ft			55-70-62-52 (132)	8.8	38.3	44.0	17.7
5.0		A-1-b, SaGrSi, brn, Rec. = 0.6 ft			14-9-50/9" (50+)	10.8	40.4	43.9	15.7
		A-1-b, SaGrSi, brn, Rec. = 0.7 ft			6-35-33-30 (68)	5.5	36.3	42.0	21.7
7.5		A-1-b, GrSaSi, brn, Rec. = 1.5 ft			20-21-18-25/1" (39)	10.2	44.3	39.3	16.4
10.0		A-1-b, GrSaSi, brn, Rec. = 1.0 ft			44-29-30-26 (59)	8.1	53.3	32.8	13.9
		EL 1616.7 BOTTOM OF CULVERT							
12.5		A-2-4, SaGrSi, brn, Rec. = 0.8 ft			19-18-50/2" (68+)	14.0	30.5	47.4	22.1
		Rollerbit to 14.5 feet, begin NX core, 14.0 ft - 14.5 ft							
15.0		14.5 ft - 19.5 ft, NXDC, Gray Granite, hard, slightly weathered to fresh. Joints low angle, close to moderately close spacing, rough, undulating, slightly open to moderately open	1	58 (69)					
17.5									
		Hole stopped @ 19.5 ft							
20.0									

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor. C_E is an estimated value.
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.

2010 COPY J1135104.GPJ VERMONT.AGT.GDT 4/26/13

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

BORING LOG

Wilmington
STP013-1(14)

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.:
Checked By: RJF

Boring Crew: Geosearch, Inc., RJF
Date Started: 3/04/13 Date Finished: 3/04/13
VTSPG NAD83: N 121453.00 ft E 154382.00 ft
Station: 19+30.00 Offset: 10LT
Ground Elevation: 1627.33 ft

	Casing	Sampler
Type:	Auger/WB	SS
I.D.:	3 in	1.38 in
Hammer Wt:	300	140 lb.
Hammer Fall:	24	30 in.
Hammer/Rod Type:	Safety/N	
Rig:	CME 75 Truck	C_E = 1.0

Groundwater Observations

Date	Depth (ft)	Notes
03/04/13	8.5	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Bituminous concrete, 0.0 ft - 0.58 ft							
		Base, subbase, 0.58 ft - 2.0 ft							
2.5		A-1-b, SaGrSi, brn, Rec. = 1.8 ft			50-32-30-30 (62)	9.0	33.5	50.1	16.4
5.0		A-1-b, SaGrSi, brn, Rec. = 0.3 ft			13-50/2" (50+)	8.2	35.0	48.2	16.8
		A-2-4, SaGrSi, brn, Rec. = 0.1 ft			25/0" (0)	7.9	16.6	53.0	30.4
7.5		A-1-b, GrSaSi, brn, Rec. = 0.6 ft			9-15-12-16 (27)	6.9	57.2	28.8	14.0
10.0		A-2-4, SaGrSi, brn, Rec. = 1.3 ft			11-9-14-23 (23)	16.0	17.4	60.2	22.4
		EL 1615.9 BOTTOM OF CULVERT							
12.5		A-2-4, SaGrSi, brn, Rec. = 0.5 ft			42-25/0" (0)	9.7	24.5	48.1	27.4
15.0		14.0 ft - 19.0 ft14.0 ft - 19.0 ft, NXDC, Dark Gray Schist, hard, slightly weathered to fresh. Joints low angle to moderately dipping, close to moderately close spacing, rough, undulating, slightly open	1	58 (85)		14.0			
17.5									
		Hole stopped @ 19.0 ft							
20.0									

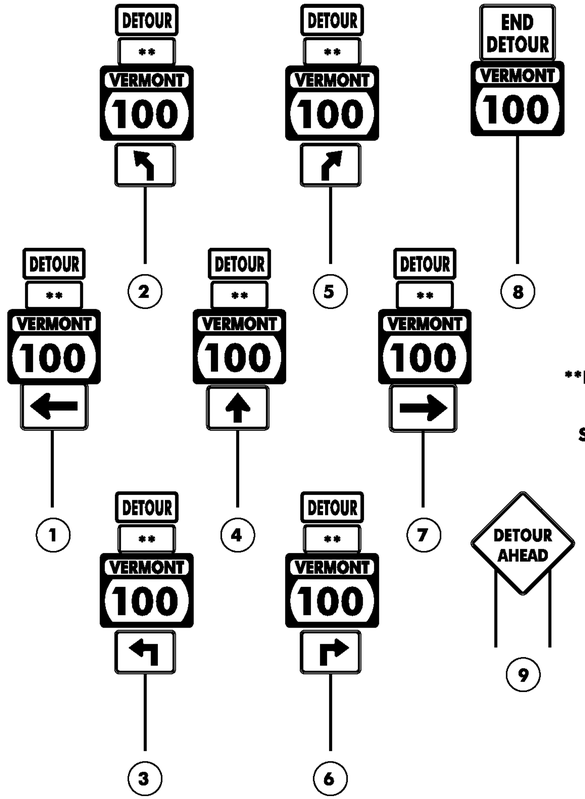
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor. C_E is an estimated value.
3. Water level readings have been made at times and under conditions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

2010 COPY J1135104.GPJ VERMONT.AGT.GDT 4/26/13

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252bor-.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
BORING LOGS

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 16 OF 31





**N= NORTH OR S= SOUTH

V	T		1	0	0		
C	L	O	S	E	D		

PHASE 1

S	O	U	T	H		O	F
W	I	L	M	I	N	G	-
T	O	N					

PHASE 2

*	F	R	I		M	/	D D
*	6	P	M	-		M	O N
	M	/	D	D		6	A M

PHASE 3

* M=MONTH
D=DAY

S-1

B	R	I	D	G	E		
C	L	O	S	E	D		

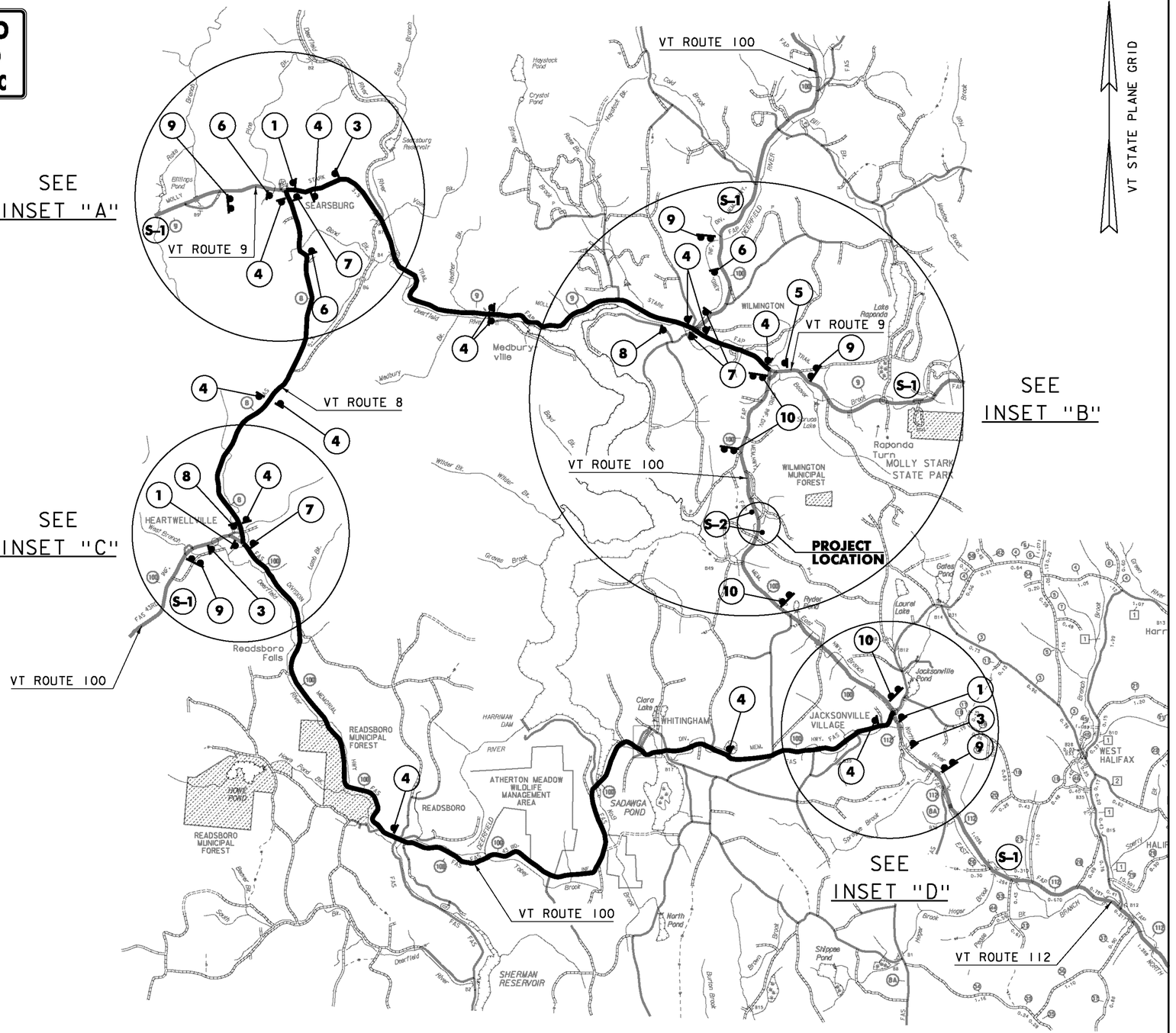
PHASE 1

*	F	R	I		M	/	D D
*	6	P	M	-		M	O N
	M	/	D	D		6	A M

PHASE 2

* M=MONTH
D=DAY

S-2



DETOUR PLAN SHEET 1

NOT TO SCALE

NOTES:

1. SEE DETOUR PLAN SHEET 2 FOR INSETS.

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252detour.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
DETOUR PLAN SHEET 1	SHEET 17 OF 31

NOTES:

1. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE FULLY OPERATIONAL A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT 100.

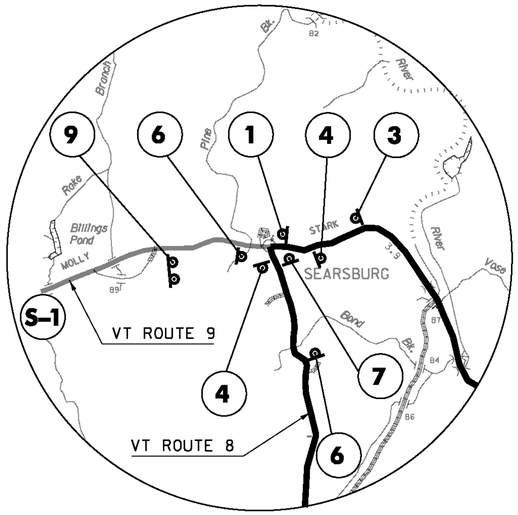
2. DURING ACTUAL CLOSURE, ELIMINATE PHASE 3 FOR S-1.

3. DETOUR SIGNS SHALL BE LOCATED ADJACENT TO EXISTING INTERSECTION ROUTE MARKER ASSEMBLIES WHERE APPLICABLE.

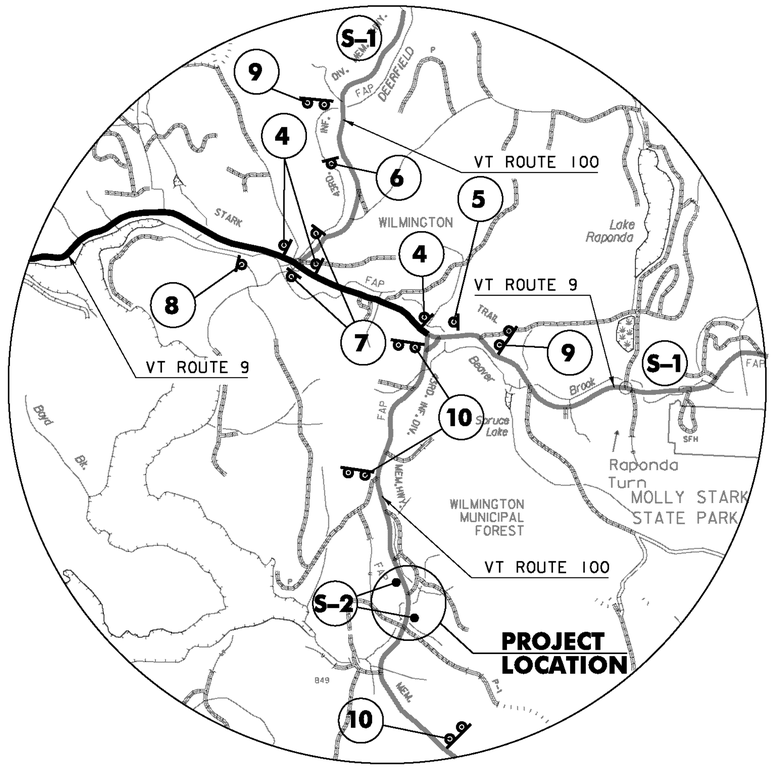
4. COVER ANY CONFLICTING EXISTING SIGNS AS DIRECTED BY THE ENGINEER.

5. CONFIRMATION ROUTE MARKERS (SIGN 4) SHALL BE INSTALLED IMMEDIATELY FOLLOWING EACH TURN AND AT ALL LOCATIONS ALONG DETOUR WHERE ROUTE MAKERS EXIST FOR THE PARENT ROUTE.

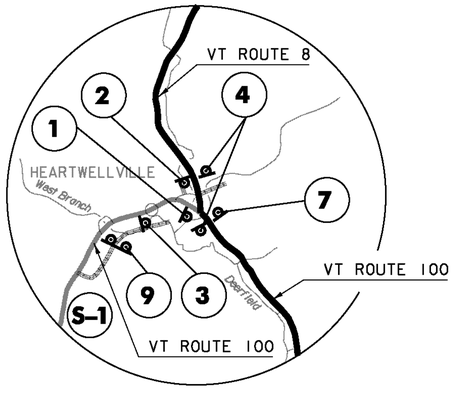
6. DETOUR SIGNING IS THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES FOR IMPLEMENTING THE DETOUR, INCLUDING BUT NOT LIMITED TO SIGNS, BARRICADES AND MESSAGE BOARDS, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL -INCLUSIVE).



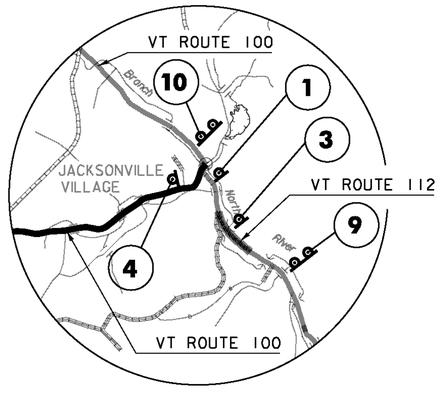
INSET "A"



INSET "B"



INSET "C"

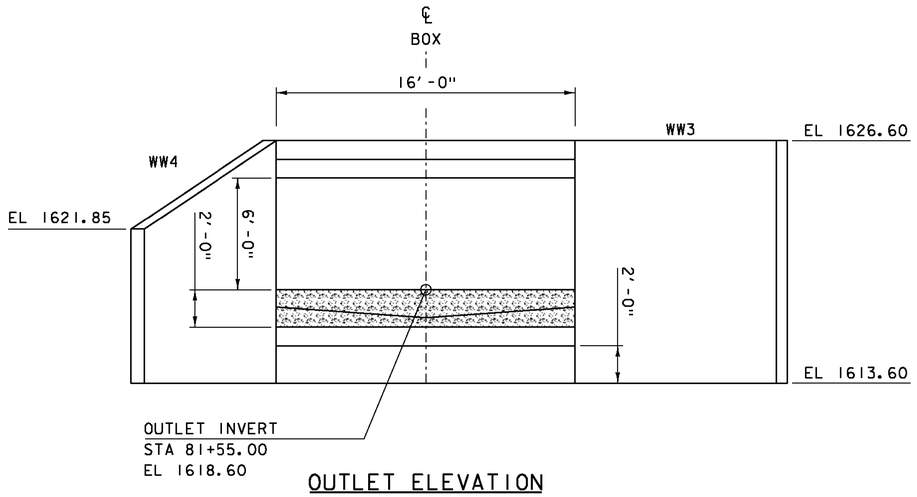


INSET "D"

SIGN LEGEND	SIGN DIMENSIONS		SIGN COLOR		DETAIL IN SHSM	STD. SHEET NUMBER
	WIDTH (In)	HEIGHT (In)	LETTERING	BACKGROUND		
DETOUR	24	12	BLACK	ORANGE	M4-8	
NORTH	24	12	GREEN	WHITE	M3-1	E-136B
VERMONT 100	30	24	GREEN	WHITE	M3-1	E-136B
	21	15	BLACK	ORANGE	M5/M6	
DETOUR AHEAD	48	48	BLACK	ORANGE	W20-2	
ROAD CLOSED XX MILES AHEAD NO THRU TRAFFIC	60	30	BLACK	ORANGE	R11-3A	

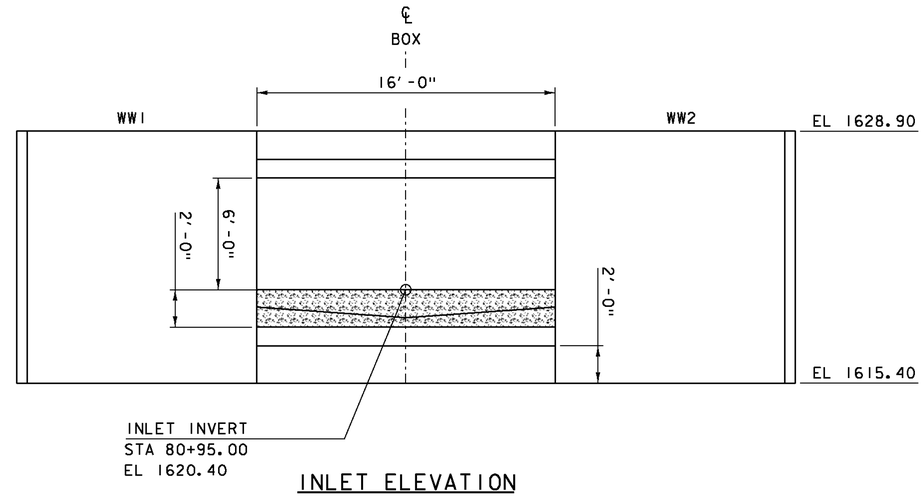
DETOUR PLAN SHEET 2
NOT TO SCALE

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252detour.dgn	PLOT DATE: 03-FEB-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: J. SALVATORI	CHECKED BY: J. SALVATORI
DETOUR PLAN SHEET 2	SHEET 18 OF 31



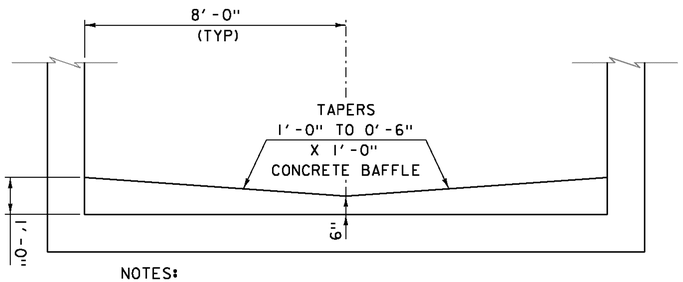
OUTLET ELEVATION

SCALE 1/4" = 1'-0"



INLET ELEVATION

SCALE 1/4" = 1'-0"

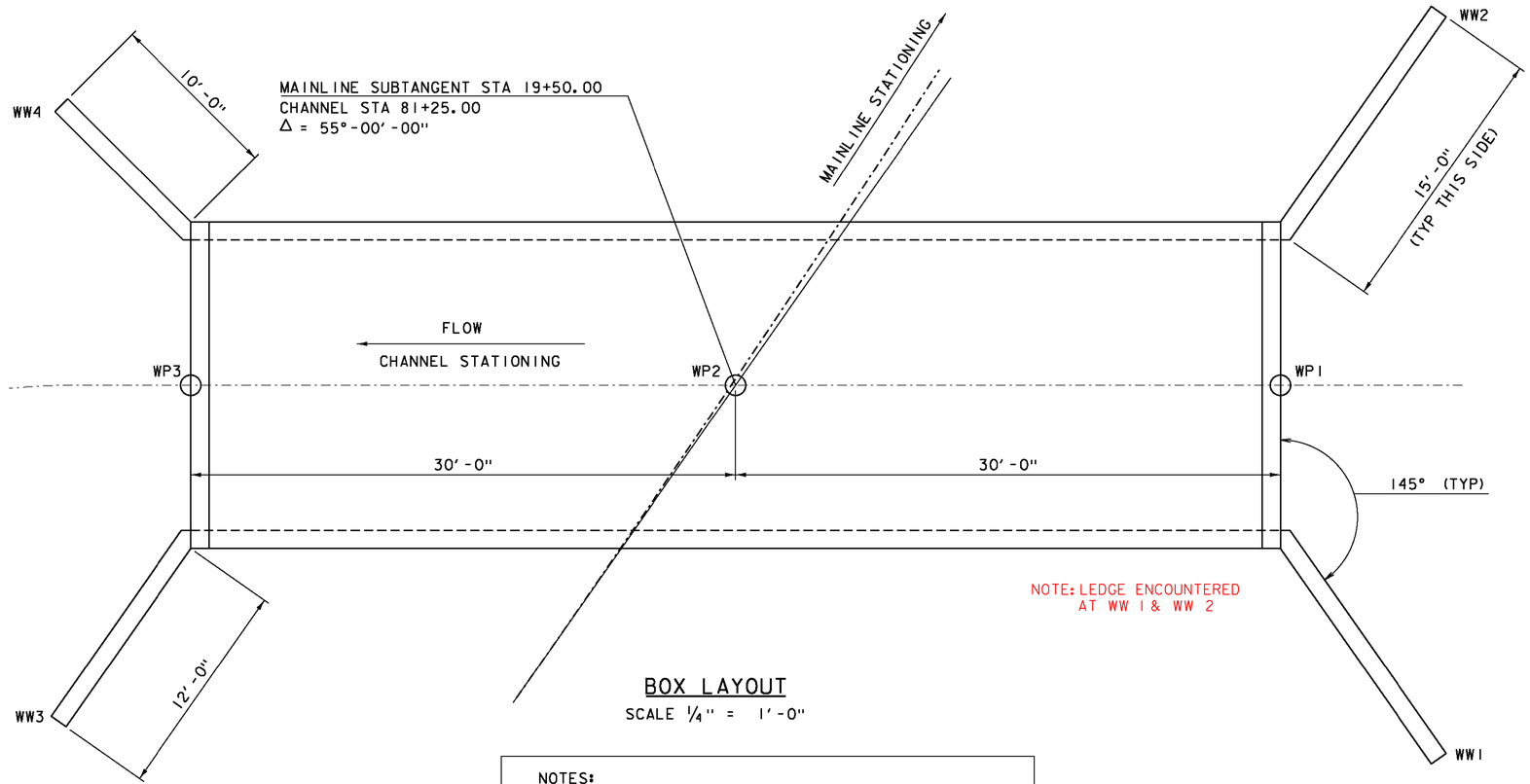


NOTES:

1. BAFFLES TO BE SPACED A MAXIMUM OF EVERY 8'-0" AND AT THE INLET AND OUTLET.
2. FABRICATOR TO DETAIL BAFFLE CONNECTION.

LOW FLOW BAFFLE DETAIL

NOT TO SCALE



BOX LAYOUT

SCALE 1/4" = 1'-0"

NOTE: LEDGE ENCOUNTERED AT WW 1 & WW 2

NOTES:

1. DIMENSIONS SHOWN ARE BASED ON AN ASSUMED WALL THICKNESS OF 1'-0"
2. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND SHAPE WILL BE DEPENDENT ON THE FABRICATOR.

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252box.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
BOX LAYOUT

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 19 OF 31

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF THE EXISTING CULVERT WITH A NEW REINFORCED PRECAST CONCRETE BOX CULVERT WITH RELATED APPROACH AND CHANNEL WORK.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, 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 0.50 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 A SADDLE THAT IS MOSTLY WELL ESTABLISHED FOREST WITH OCCASIONAL OPEN AREAS.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

AN UNNAMED BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING CULVERT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD 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 WINDHAM, VERMONT. SOILS ON THE PROJECT SITE ARE AS FOLLOWS:

18C WORDEN LOAM. WITH 8-15% SLOPES. “K” FACTOR = 0.49. VERY BOULDERY

18D WORDEN LOAM. WITH 15-25% SLOPES. “K” FACTOR = 0.49. VERY BOULDERY

31B WILMINGTON VERY FINE SANDY LOAM WITH 2-8% SLOPES. “K” FACTOR = 0.43. VERY STONEY

44C MUNDAL FINE SANDY LOAM WITH 8-15% SLOPES. “K” FACTOR = 0.49. VERY STONEY

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 DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, 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 APPROVED 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.

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.

FILTER CURTAINS SHALL BE INSTALLED ON THE INLET AND OUTLET ENDS OF THE PROPOSED BOX AS SHOWN IN THE EROSION CONTROL PLAN.

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.

NO DIVERSIONARY MEASURES ARE ANTICIPATED ON THIS PROJECT.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

CHECK STRUCTURES WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

A DITCH LINED WITH STONE FILL, TYPE I WILL BE CONSTRUCTED AS PART OF THIS PROJECT.

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 FILTER BAG LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER 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.

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252epsc.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
EPSC NARRATIVE	SHEET 20 OF 31

18D WORDEN LOAM
WITH 15% TO 25% SLOPES
"K" FACTOR = 0.49
VERY BOULDERY

N

VT STATE PLANE GRID

18C WORDEN LOAM
WITH 8% TO 15% SLOPES
"K" FACTOR = 0.49
VERY BOULDERY

44C MUNDAL
FINE SANDY LOAM
WITH 8% TO 15% SLOPES
"K" FACTOR = 0.49
VERY STONEY

31B WILMINGTON
VERY FINE SANDY LOAM
WITH 2% TO 8% SLOPES
"K" FACTOR = 0.43
VERY STONEY

NOTES:

1. EXISTING CONTOURS SHOWN. SEE CROSS SECTIONS FOR FINAL CONDITIONS.
2. FOR CLARITY, AREAS TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.

EPSC PLAN

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252epsc.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
EPSC PLAN	SHEET 21 OF 31

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*

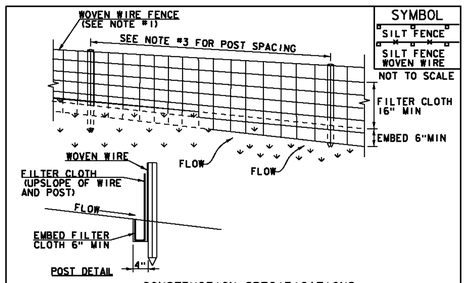
CONSTRUCTION GUIDANCE

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



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.

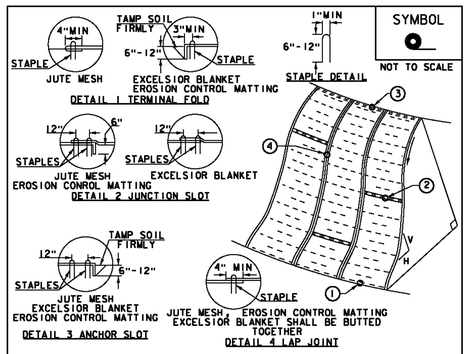
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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 649.50 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

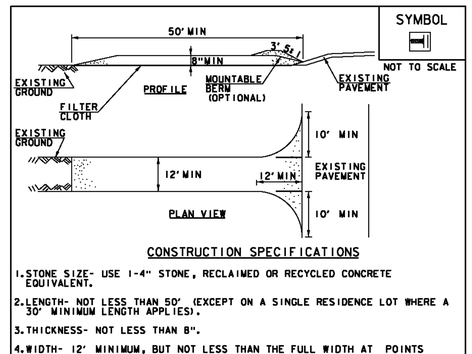
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 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



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.

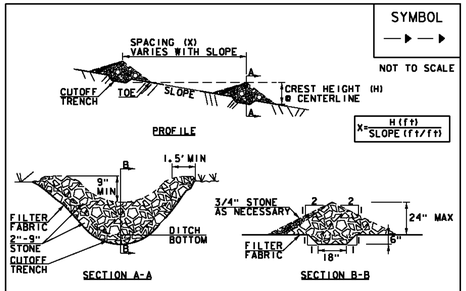
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



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.

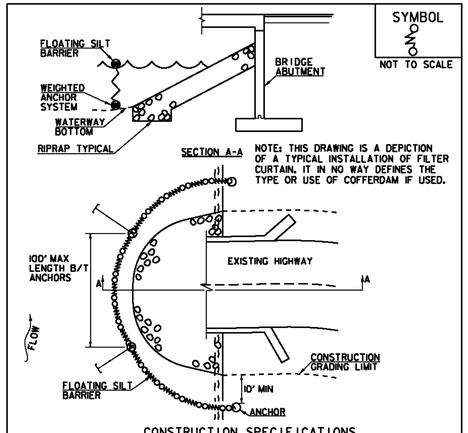
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

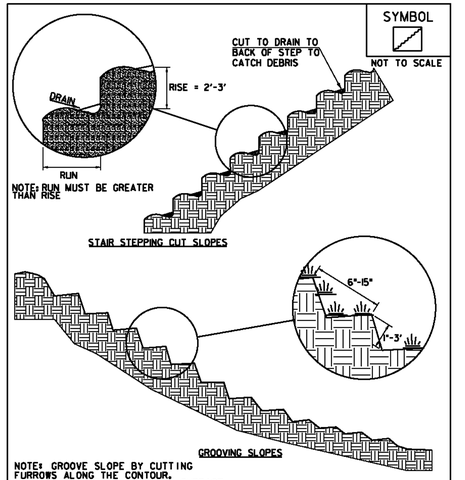
CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.60).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF



SYMBOL

NOT TO SCALE

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

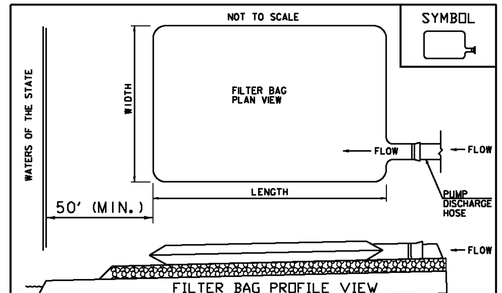
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



SYMBOL

APPLICATION NOTES:

THE PRIMARY PURPOSE OF THE FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS WHILE ALLOWING WATER TO PASS THROUGH THE BAG.

GENERAL NOTES:

1. FILTER BAG SHALL BE INSTALLED ON A VEGETATED SLOPE TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
2. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
3. FILTER BAG SHALL BE LOCATED A MINIMUM OF 50 FEET FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
5. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
6. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

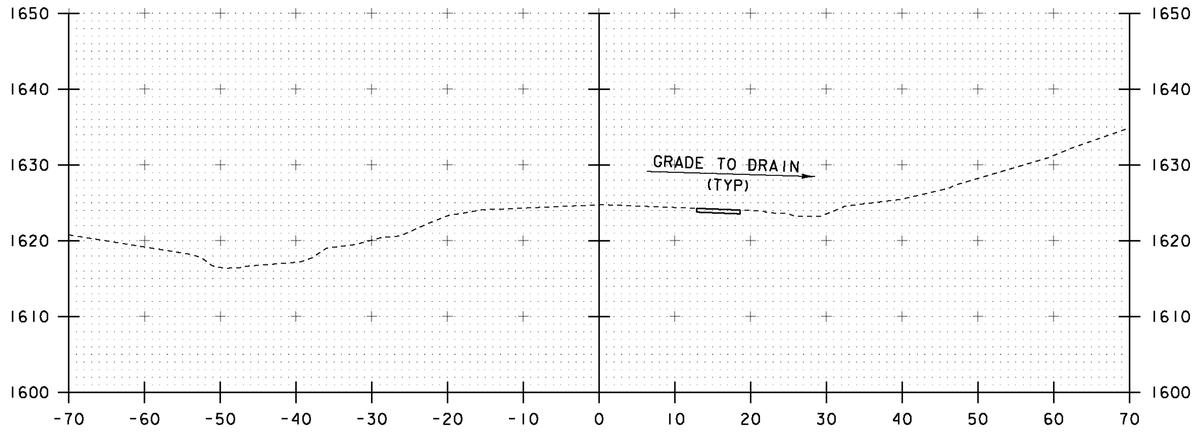
THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.45 FILTER BAG

REVISIONS	
SEPTEMBER 18, 2007	WHF
DECEMBER 13, 2007	WHF

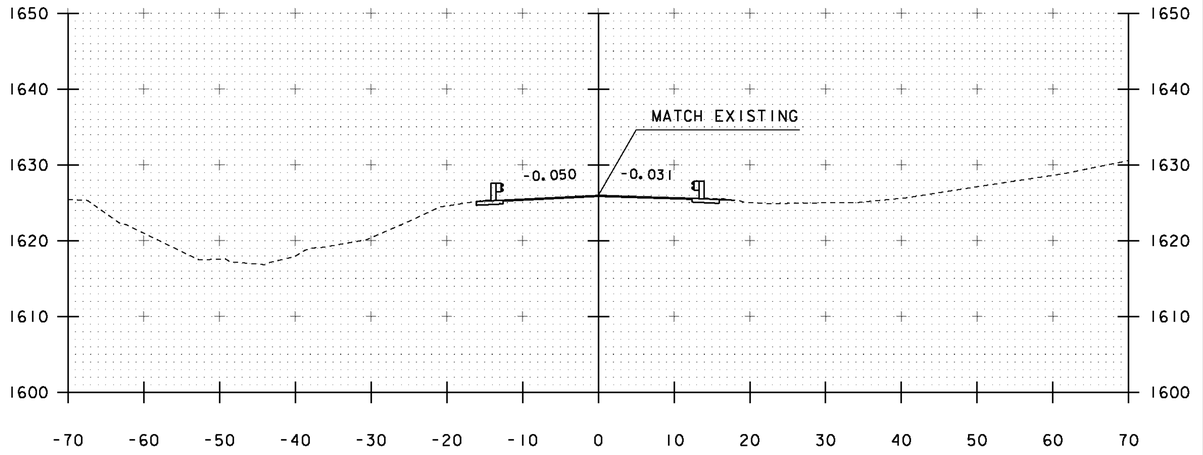
PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252epsc_det.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
EPSC DETAILS

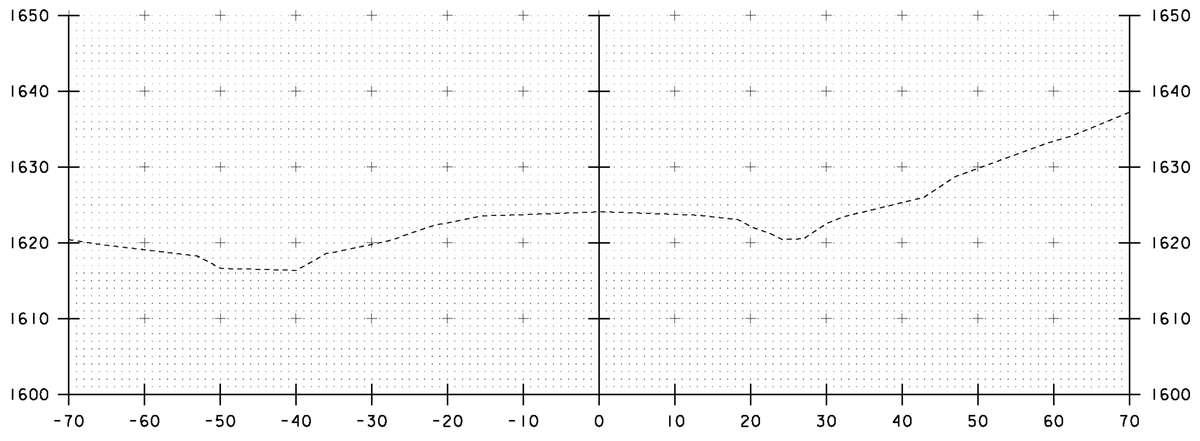
PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE



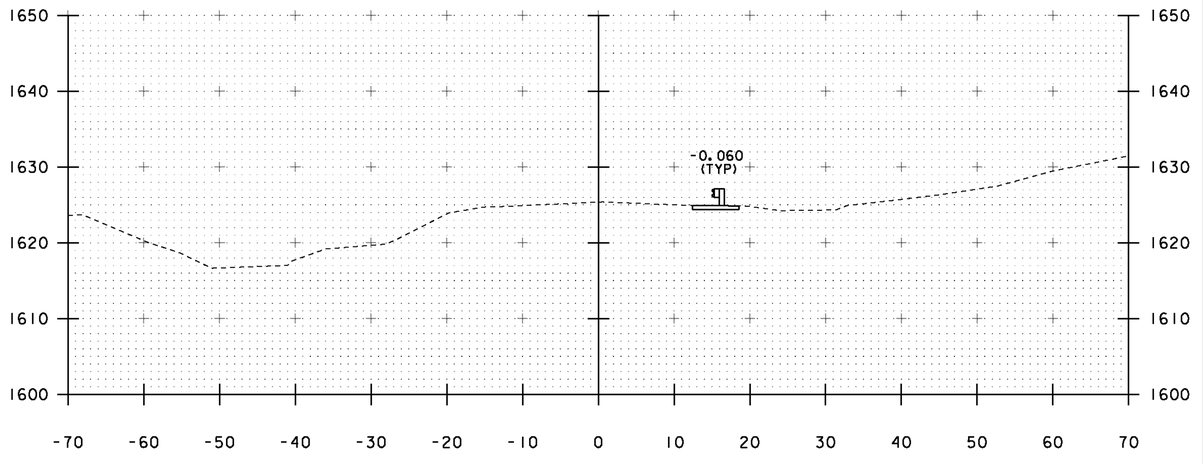
18+00



18+50
BEGIN PAVEMENT



17+75
BEGIN APPROACH



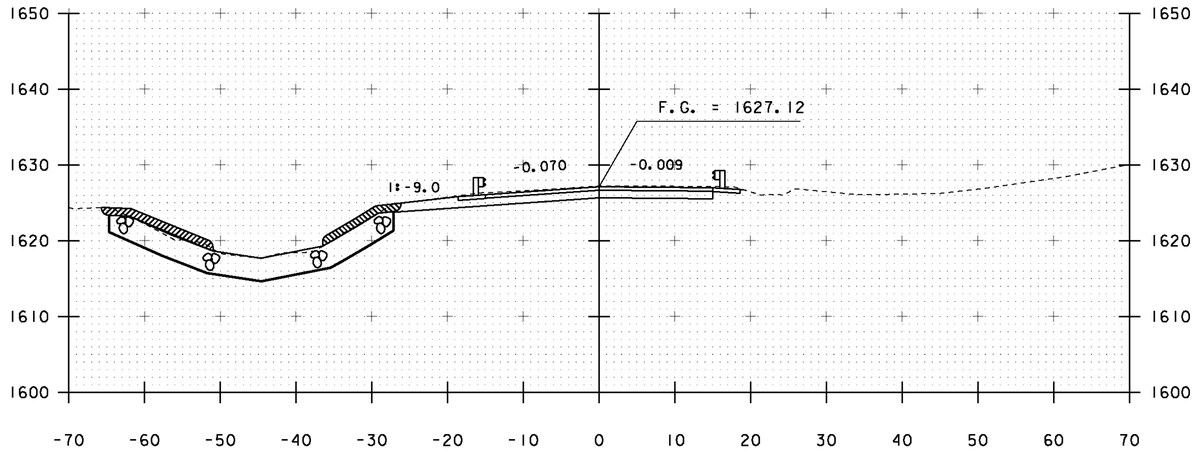
18+25

STA. 17+75 TO STA. 18+50

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

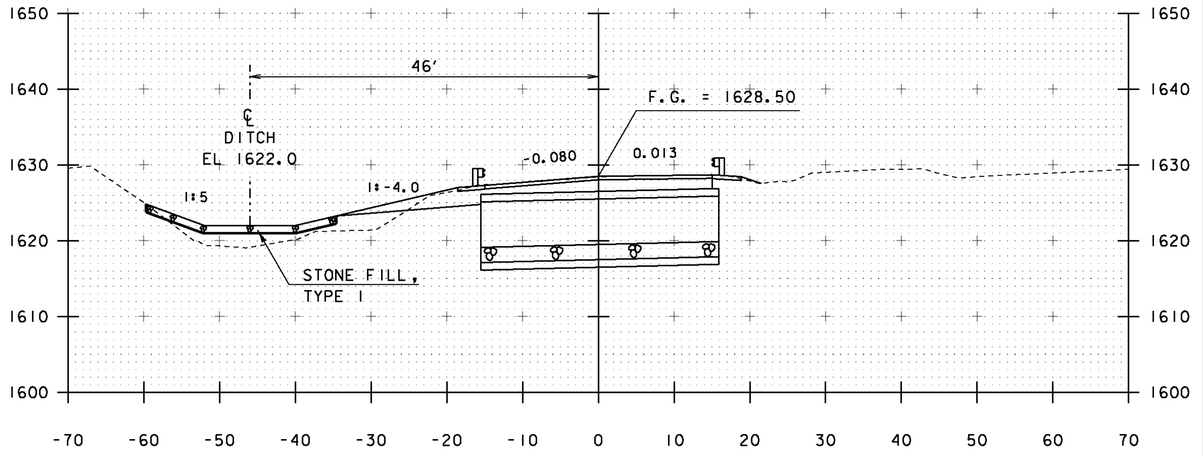
FILE NAME: s00b252xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE SECTIONS 1

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 23 OF 31

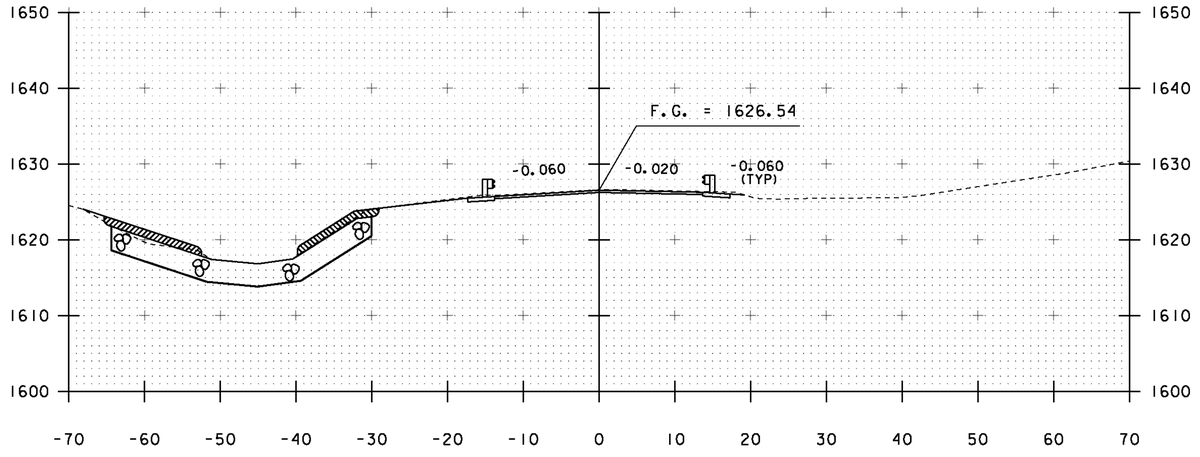


19+00

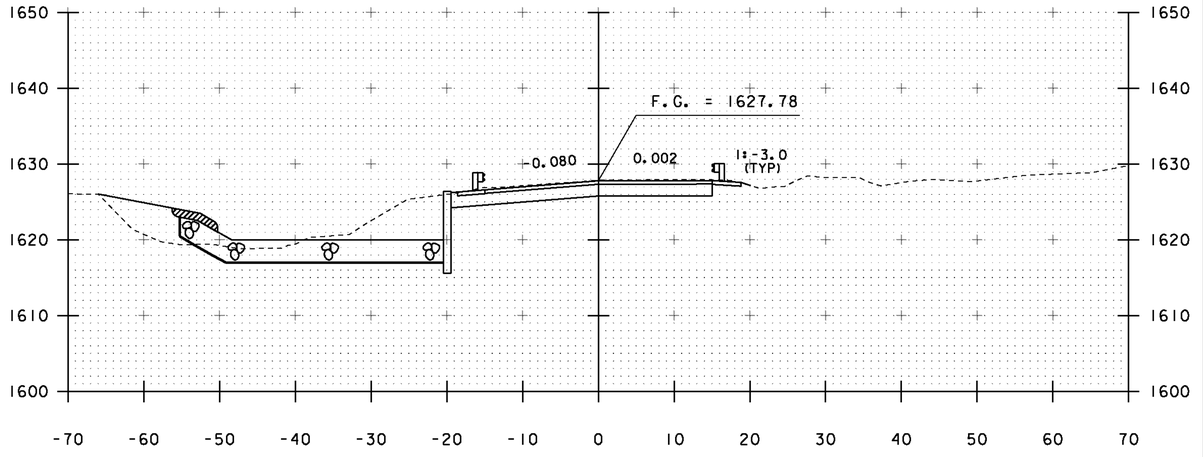
BEGIN PROJECT



19+50



18+75



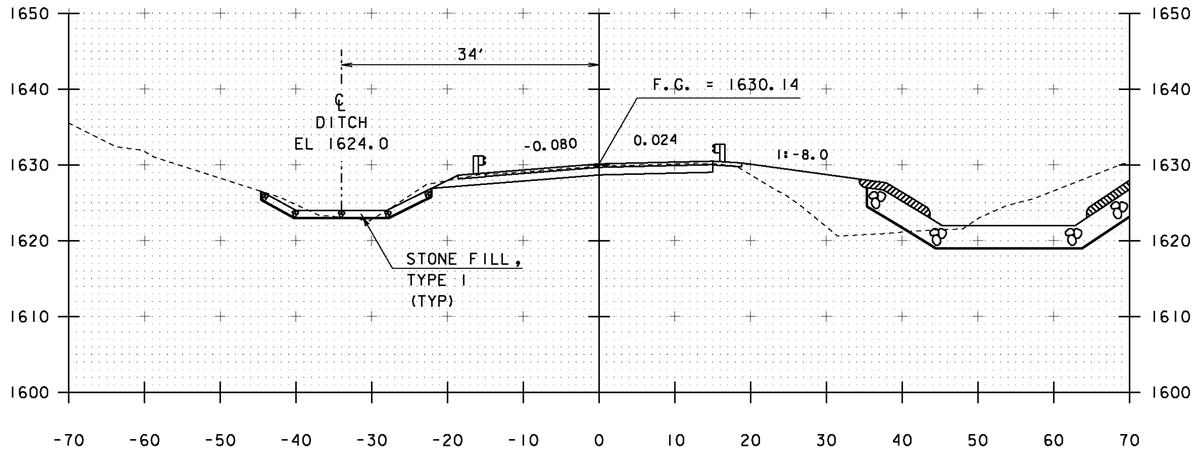
19+25

STA. 18+75 TO STA. 19+50

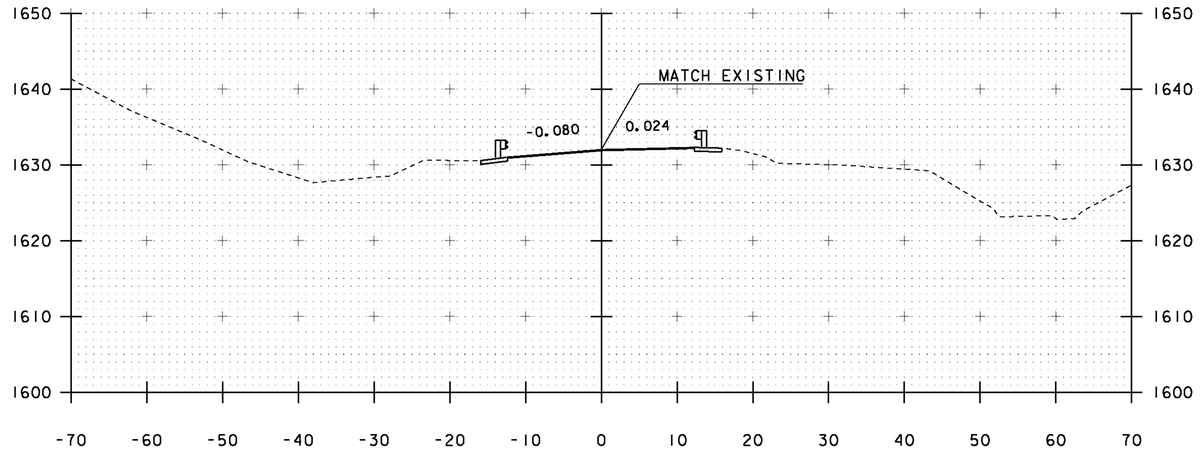
PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE SECTIONS 2

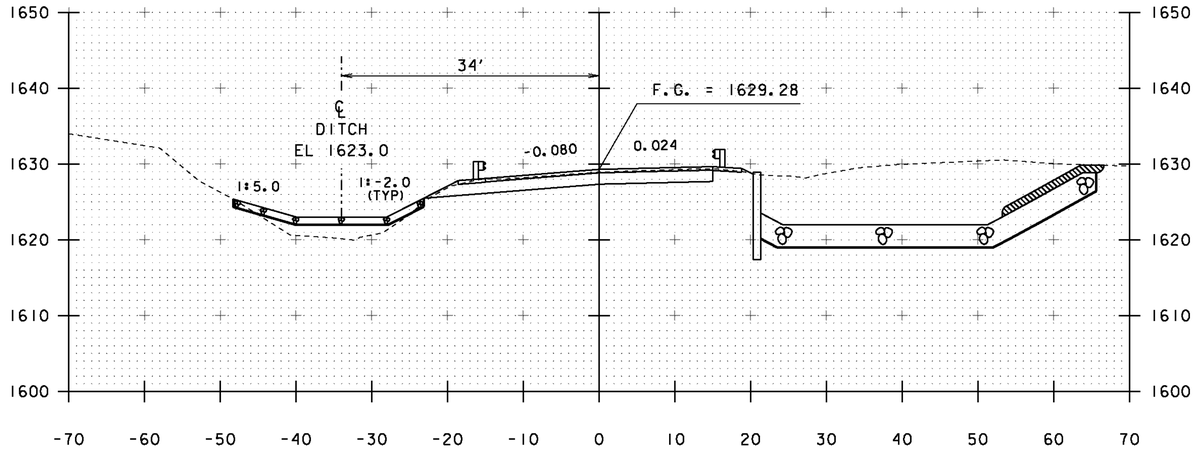
PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 24 OF 31



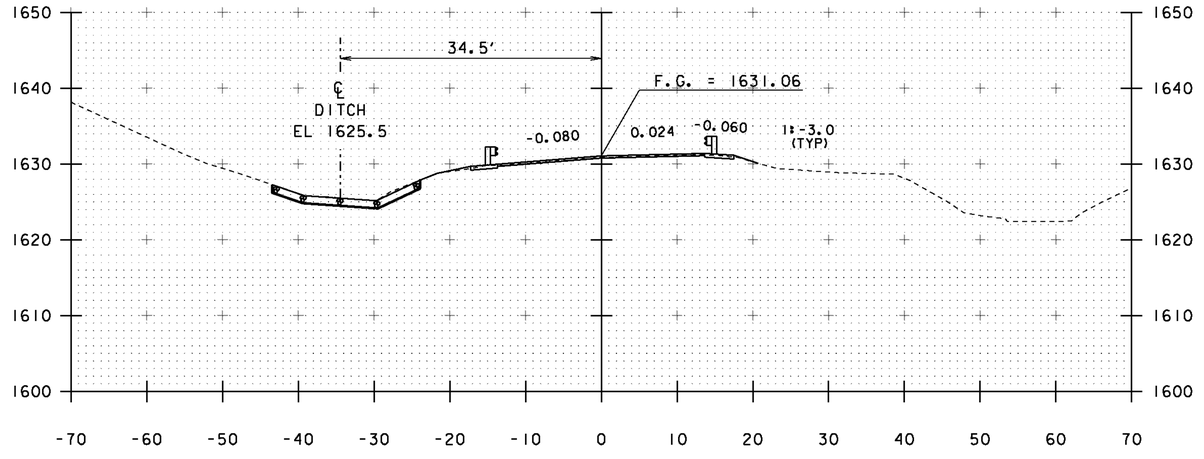
20+00
END PROJECT



20+50
END PAVEMENT



19+75



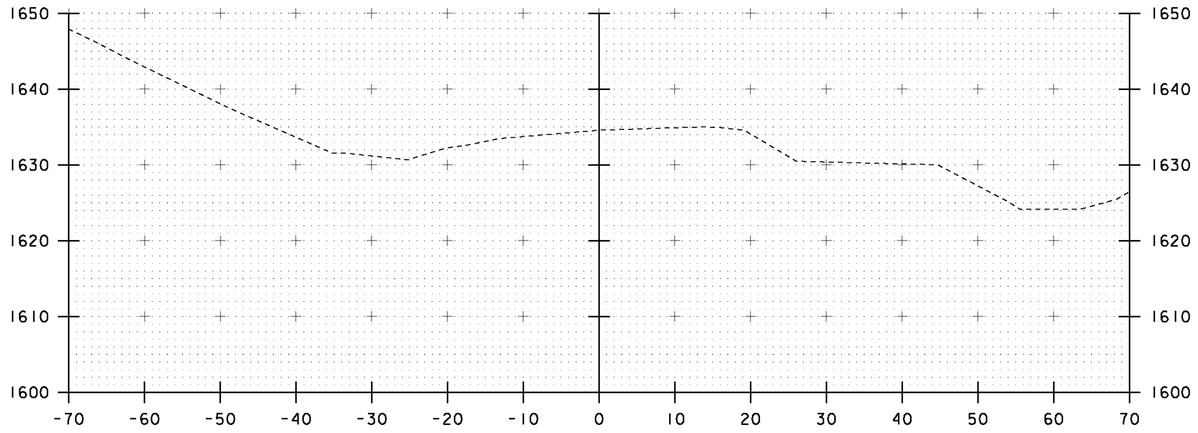
20+25

STA. 19+75 TO STA. 20+50

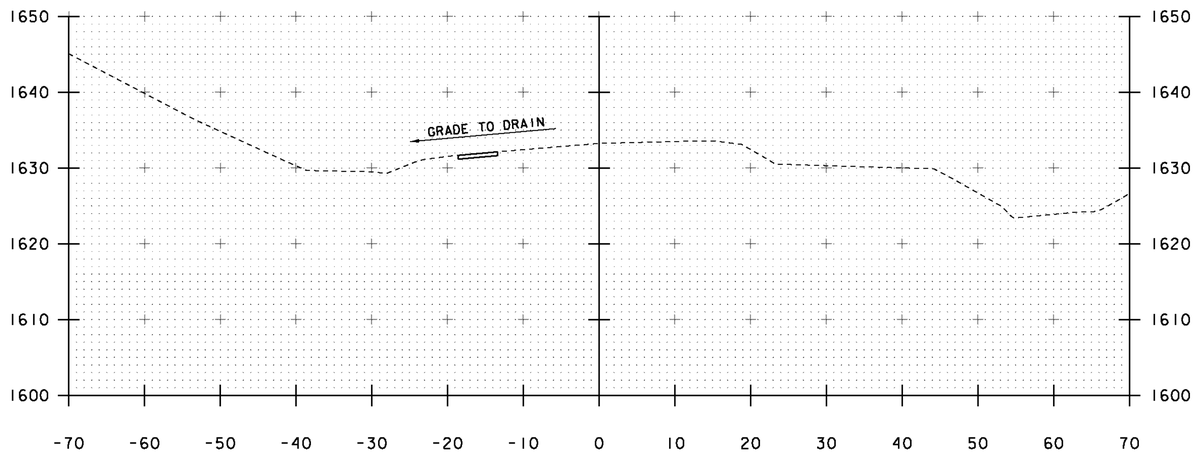
PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE SECTIONS 3

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 25 OF 31



21+00
END APPROACH

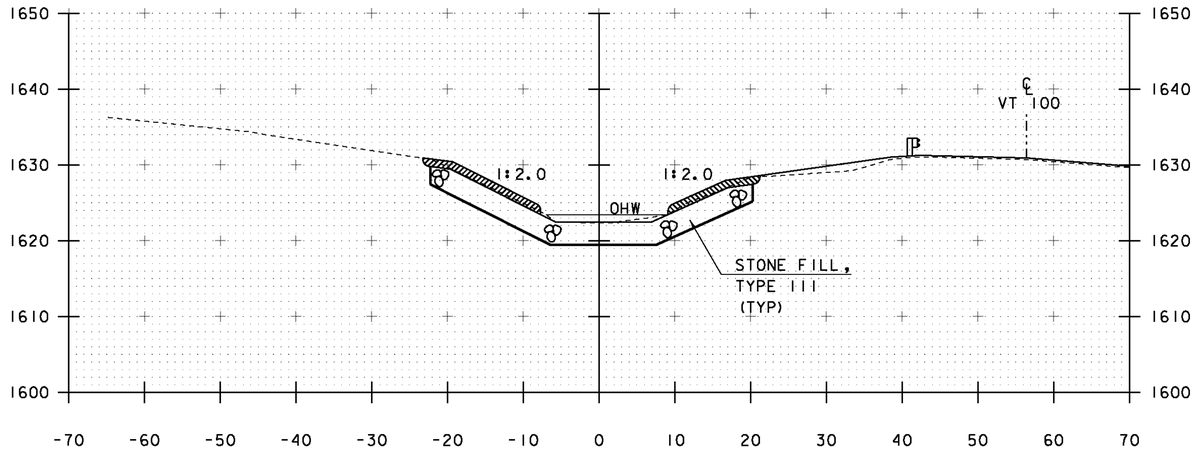


20+75

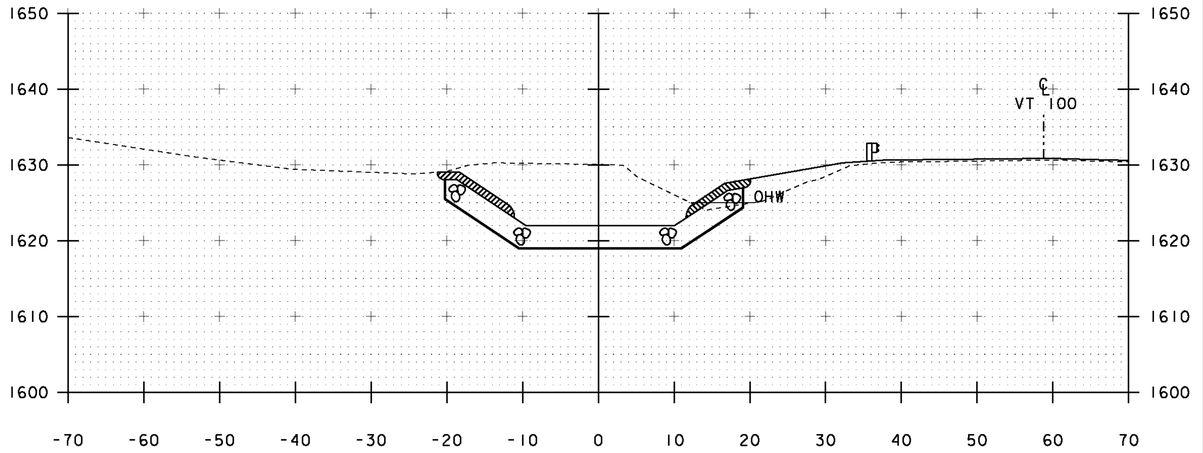
STA. 20+75 TO STA. 21+00

PROJECT NAME:	WILMINGTON
PROJECT NUMBER:	STP 013-1(14)
FILE NAME: s00b252xs.dgn	PLOT DATE: 02-JAN-2014
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: G. LAROCHE
MAINLINE SECTIONS 4	SHEET 26 OF 31

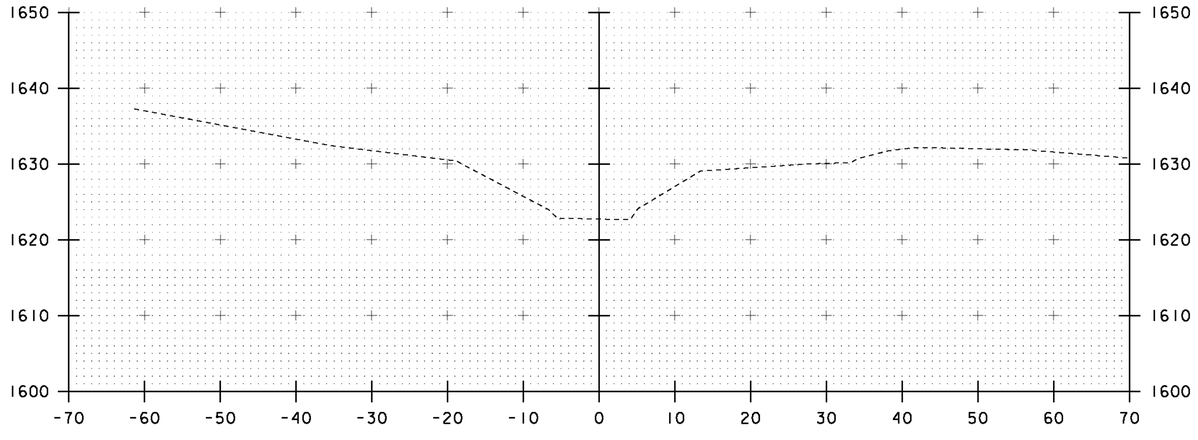
STA 80+25 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE III
BEGIN GRUBBING MATERIAL



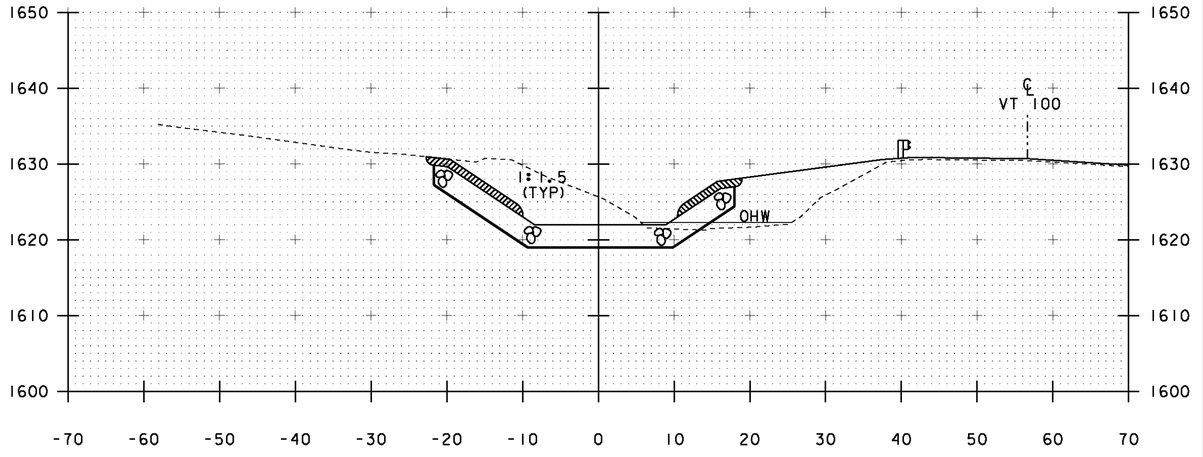
80+25



80+75



80+00



80+50

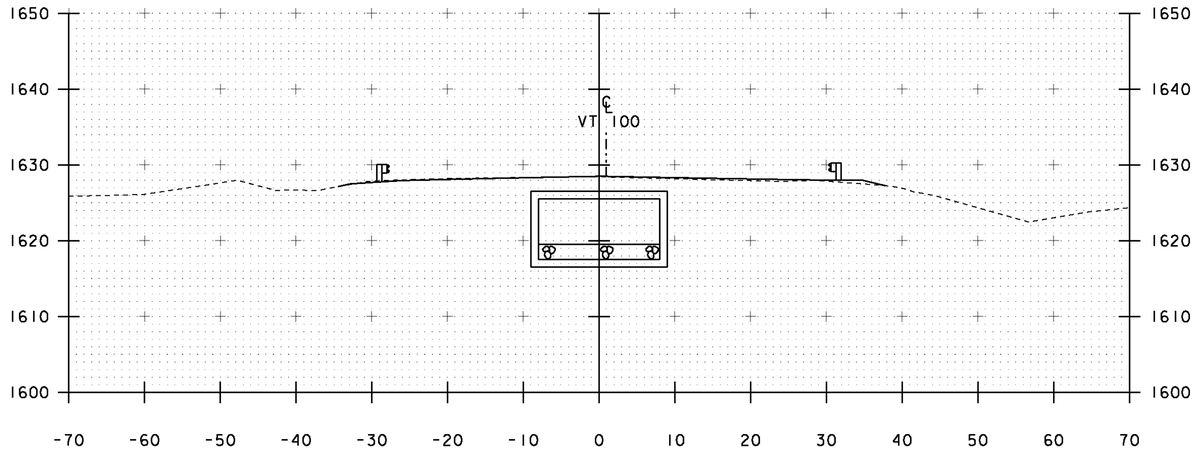
STA. 80+00 TO STA. 80+75

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

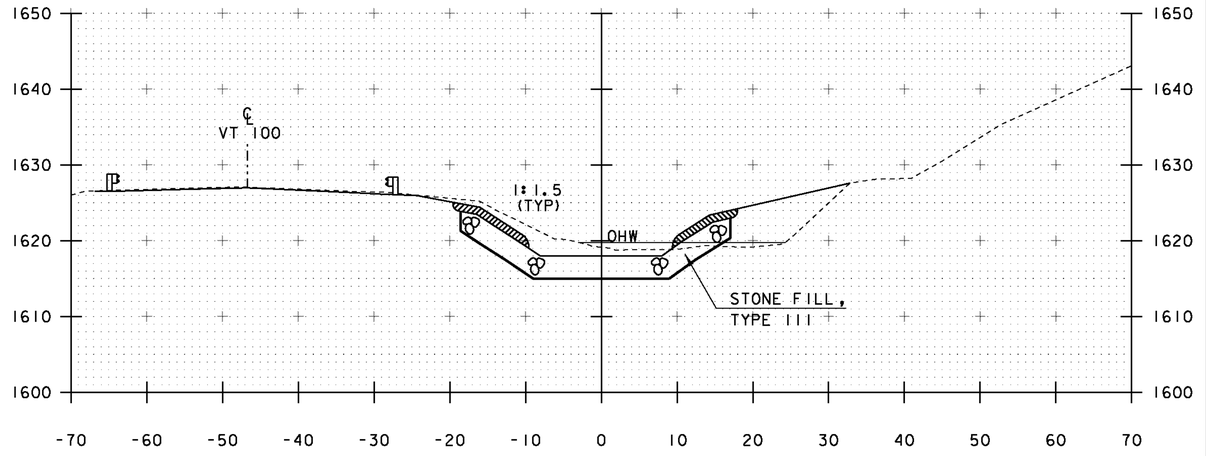
FILE NAME: s00b252xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
CHANNEL SECTIONS 1

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 27 OF 31

STA 81+55 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE III
BEGIN GRUBBING MATERIAL

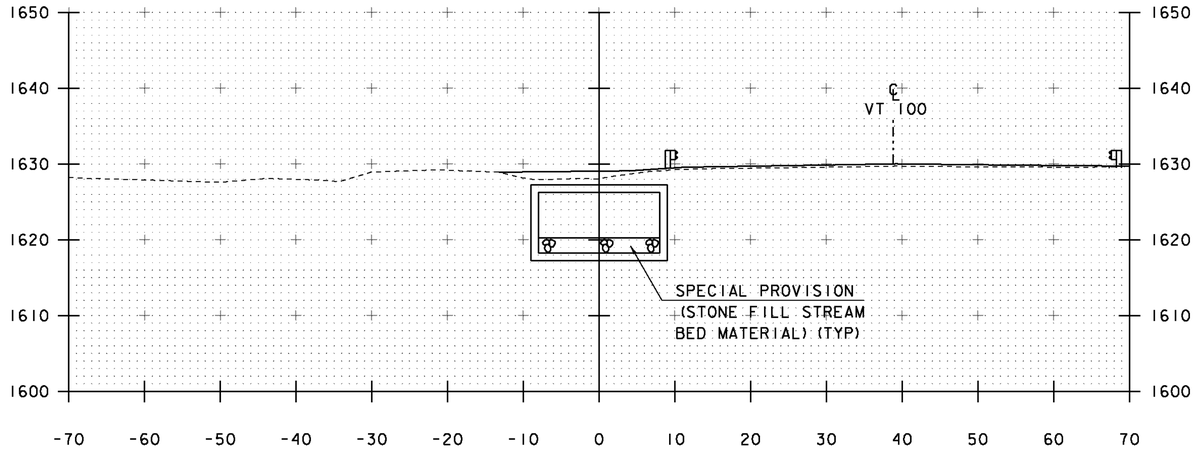


81+25

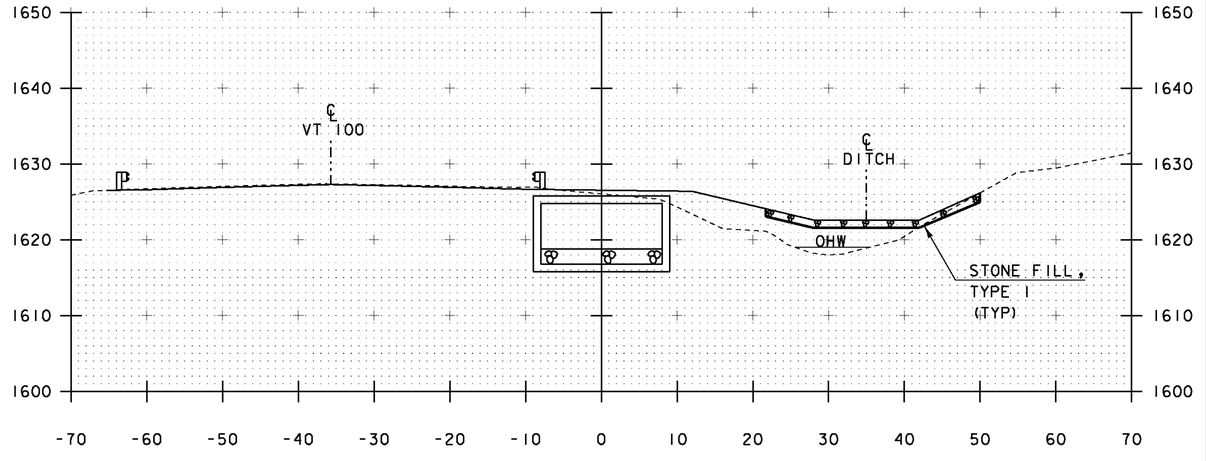


81+75

STA 80+95 END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL, TYPE III
END GRUBBING MATERIAL



81+00



81+50

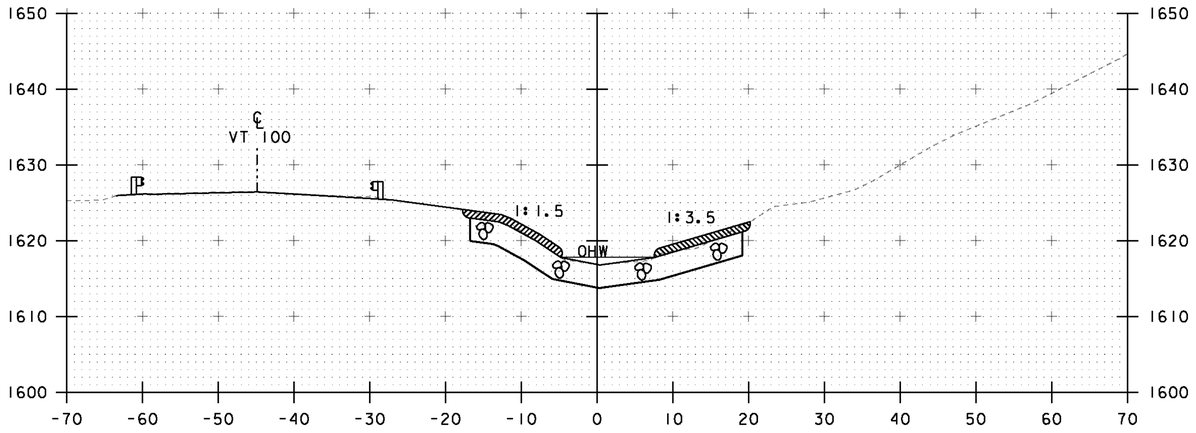
STA. 81+00 TO STA. 81+75

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

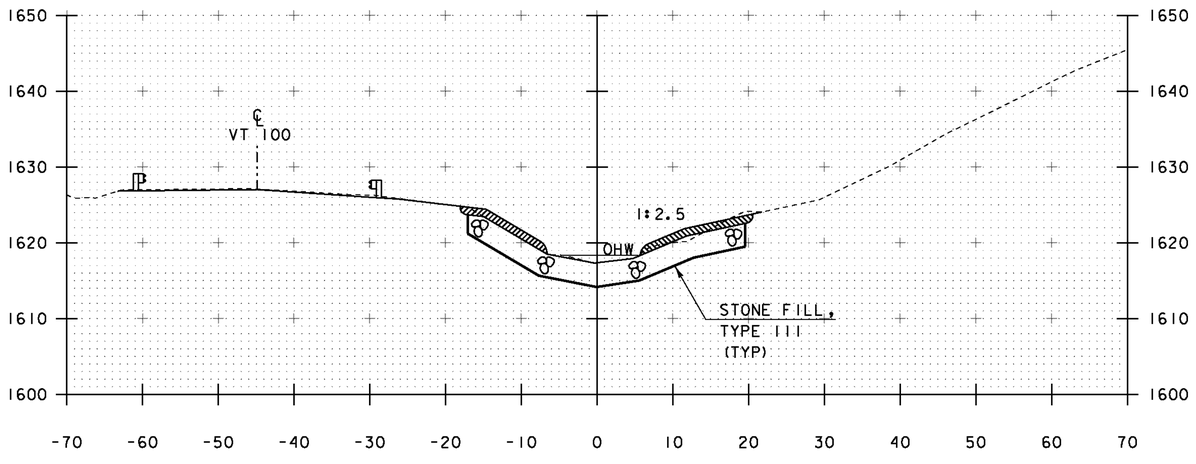
FILE NAME: s00b252xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
CHANNEL SECTIONS 2

PLOT DATE: 02-JAN-2014
DRAWN BY: J. SALVATORI
CHECKED BY: G. LAROCHE
SHEET 28 OF 31

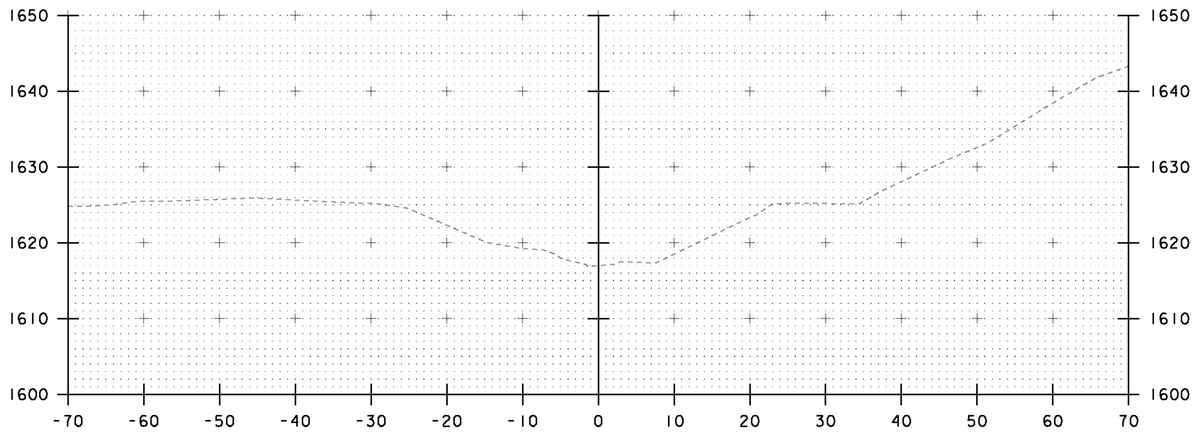
STA 82+25 END UNCLASSIFIED CHANNEL EXCAVATION
END GEOTEXTILE UNDER STONE FILL
END STONE FILL, TYPE III
END GRUBBING MATERIAL



82+25



82+00



82+50

STA. 82+00 TO STA. 82+50

PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

FILE NAME: s00b252xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
CHANNEL SECTIONS 3

PLOT DATE: 02-JAN-2014
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 29 OF 31

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	ROW LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	T / P	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	BALLANTINE, NORMAN A., JR. & SALLIE	1	18+60 LT	19+64 LT			CONST.	T	520 SF			WILMINGTON			INCL. PDF & EC
			18+70 LT	19+50 LT			SLOPE	T	365 SF						INCL. STONE FILL
2	MORENA, MARIE L.	1	19+43 RT	20+25 RT			CONST.	T	535 SF						INCL. PDF & EC
			19+50 RT	20+00 RT			SLOPE	T	400 SF						
			19+61 RT	20+22 RT			CHANNEL	P	1,210 SF						INCL. STONE FILL
3	GREEN MOUNTAIN POWER CORPORATION														UTILITY
4	TELEPHONE OPERATING COMPANY OF VERMONT LLC (d/b/a FAIRPOINT COMMUNICATIONS)														UTILITY

TABLE OF REVISIONS

REVISION NO.	ROW SET SHEET #	DESCRIPTION	DATE

APPROVED: ED PIERCE DATE: 08-09-13
ACTING CHIEF, PLANS & TITLES

PROJECT NAME: **WILMINGTON**
PROJECT NUMBER: **STP013-1(14)**

FILE NAME: **r00b252detail.xls**
PROJECT LEADER: **K. HIGGINS**
DESIGNED BY: **R. WHITE**
R.O.W. DETAIL SHEET #1

PLOT DATE: **02-JAN-2014**
DRAWN BY: **M. TROTTIER**
CHECKED BY: **A. EGIZI**
SHEET **30** OF **31**

VT STATE PLANE GRID

N

1

BALLANTINE,
NORMAN A., JR. & SALLIE

BEGIN ROW PROJECT
STP 013-1(14)
STA. 18+60 60'LT

N 121275.33
E 1545313.54
17+50.00 59.57' LT

EXISTING ROW

183.97
N8°17'48"E

LARGE PINE TREES

CONST (T)

SR (T)

R=1086.34
L=74.34

10.00
S86°8'17"E

R=1096.34
L=242.35

N 121780.82
E 1545348.38
22+75.00 48.89' LT

EXISTING ROW

UNNAMED BROOK
FLOW

FLOW

WOODS

VT 100
TO JCT. OF VT RTE. 9

VT 100
TO WHITINGHAM

17+50

18+00

19+00

20+00

21+00

22+00

23+00

18" RCP
POOR CONDITION
FLOW

COMB

GUY

WOODS

184.11
N8°17'48"E

EXISTING ROW

N 121259.32
E 1545422.37
17+50.00 50.43' RT

CHANNEL (P)

SR (T)

CONST (T)

R=1196.34
L=356.18

APPROX. EASEMENT TO MAINTAIN CHANNEL 1949

EXISTING ROW

EXISTING ROW (TOWN)

TH 70 (RADAR ROAD)

N 1217.96.40
E 1545447.16
22+75.00 51.11' RT

EXISTING POLE
TO REMAIN

STA 19+78 EXISTING
POLE TO BE REMOVED

STA 20+50 25.0' RT
PROPOSED POLE LOCATION

EXISTING POLE
TO REMAIN

STA 19+25 22.0' RT
PROPOSED POLE LOCATION

2

MORENA, MARIE L.

END ROW PROJECT
STP 013-1(14)
STA. 20+25 50'RT

EXISTING BRIDGE DATA
6'-11"H x 10'-8"W CGMPPA
CULVERT BUILT IN 1949
CULVERT BARREL LENGTH = 68 FT
WATERWAY AREA = 96 SF

LAYOUT SHEET

SCALE 1" = 20'-0"
20 0 20

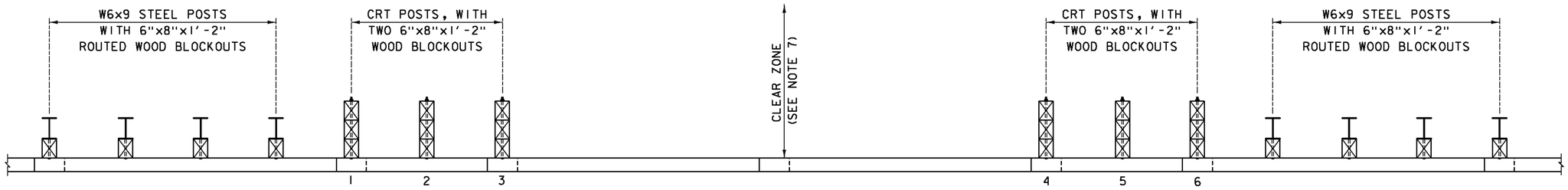
FOR R.O.W. USE ONLY

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

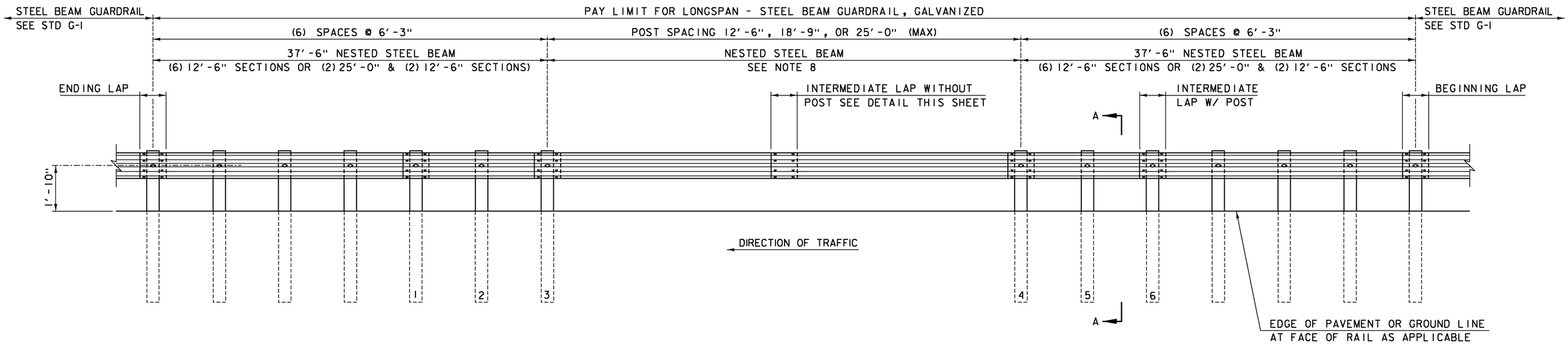
PROJECT NAME: WILMINGTON
PROJECT NUMBER: STP 013-1(14)

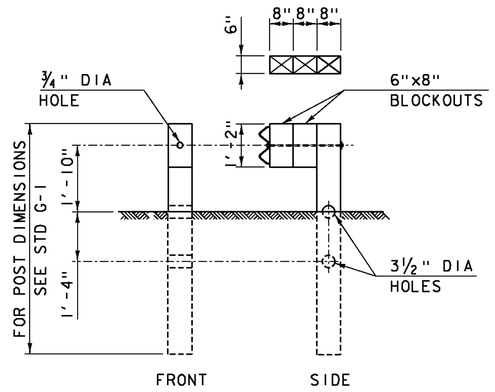
FILE NAME: r00b252lay.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
ROW LAYOUT SHEET 1OF 1

PLOT DATE: 02-JAN-2014
DRAWN BY: A. EGIZI
CHECKED BY: E. PIERCE
SHEET 31 OF 31



LONGSPAN STEEL BEAM GUARDRAIL PLAN

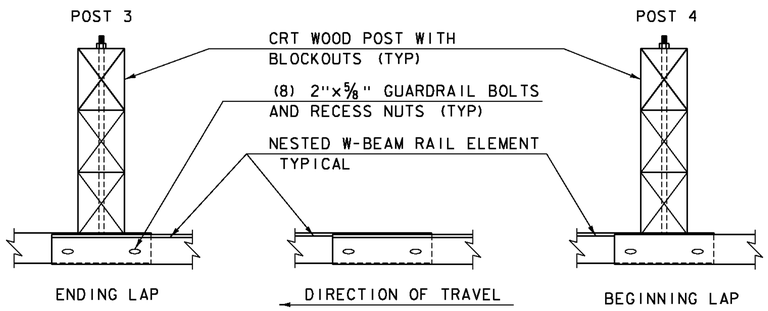




SECTION A-A

SECTION A-A TYPICAL FOR POST 1-6.
SEE NOTES (3) (AND 4)

LONGSPAN STEEL BEAM GUARDRAIL ELEVATION



INTERMEDIATE LAP WITHOUT POST

NOTES:

1. RAIL MEETS TEST LEVEL 3 REQUIREMENTS OF NCHRP REPORT 350.
2. THERE SHALL BE NO MORE THAN ONE SPLICE IN THE LONGSPAN LOCATION.
3. POSTS 1THRU 6 ARE BREAKAWAY CONTROLLED RELEASING TERMINAL (CRT) POSTS, SEE SECTION A-A FOR DETAILS.
4. POSTS 1THRU 6 HAVE TWO, 6"x8" BLOCKOUTS. SEE SECTION A-A FOR DETAILS.
5. ON POSTS 1THRU 6, GUARDRAIL BOLT "D", AS SHOWN ON STD G1, SHALL BE 26" LONG.
6. ON ALL POSTS WHERE THE RAIL IS DOUBLE-NESTED GUARDRAIL BOLT "A", AS SHOWN ON STD G1, SHALL BE 2" LONG.
7. CLEAR AREA BEHIND BACK OF RAIL SHALL BE:
   5'-0" MINIMUM FOR OBSTRUCTIONS LESS THAN OR EQUAL TO THE HEIGHT OF RAIL.
   6'-0" FOR OBSTRUCTIONS TALLER THAN THE TOP OF RAIL.
8. W6x9 STEEL POST MAY BE REPLACED WITH CRT WOOD POST WITH THE APPROVAL OF THE ENGINEER.

REVISIONS	
NOVEMBER 25, 2013	APPROVED FOR USE BY VAOT STRUCTURES SECTION

LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED

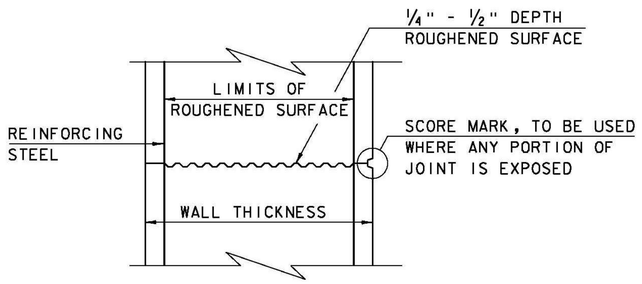
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL

SD-366.00

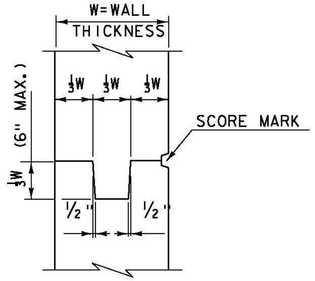
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

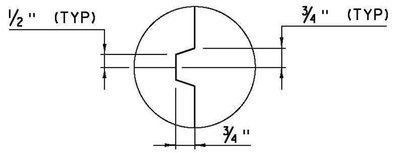


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

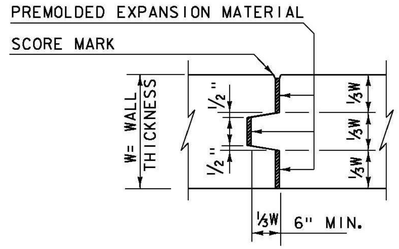
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



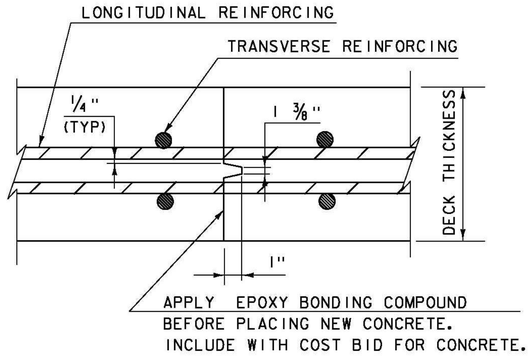
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



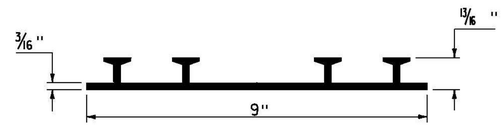
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



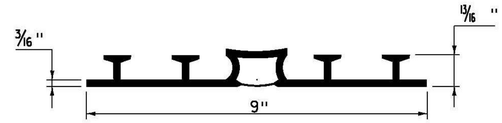
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

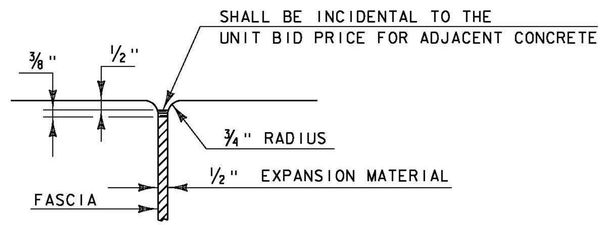
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



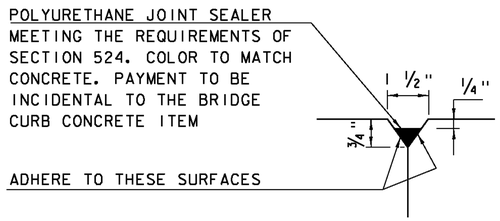
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

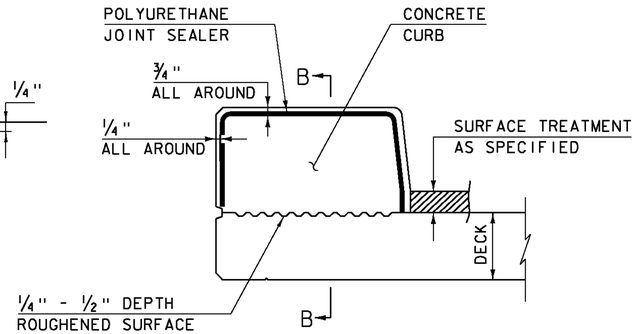
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES SECTION

STRUCTURES DETAIL
SD-501.00

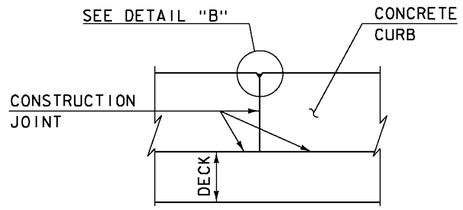


DETAIL "B"
(NOT TO SCALE)

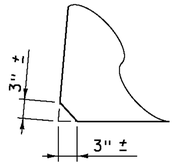


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

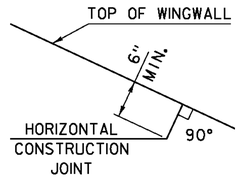
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

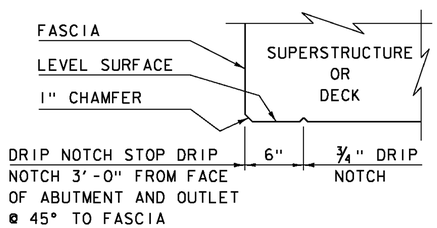
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

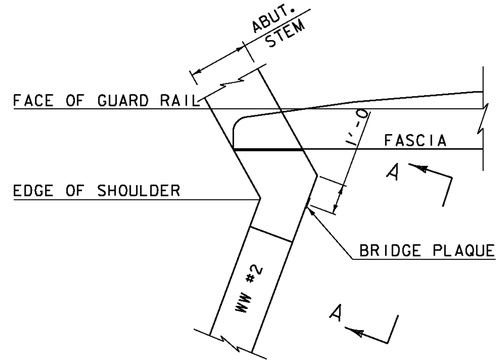
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



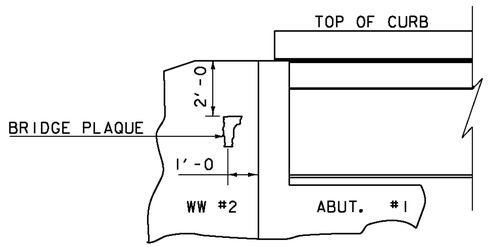
HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE
DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES
DETAIL
SD-502.00

Proposed Bridge Improvement Project

Wilmington STP 013-1(14)

Concrete:

Mix Designation: P60TER
1. Specified Mix Design - 5000 PSI
2. Proposed Mix Design - 6000 PSI
3. Striping Strength - 3000 PSI
4. Handling Strength - 3000 PSI
5. Shipping Strength - 5000 PSI
6. Install Strength - 5000 PSI
7. Traffic Loading - 5000 PSI

Fabrication Tolerances:
1. Width ±1/4"
2. Height ±1/4"
3. Length ±1/2"
4. Rebar Cover 2" Min. (Unless Noted Otherwise)
5. Rebar Spacing ±1"
6. Rebar Clearance ±1/4"
7. Insert Placement ±1/4"

Design Notes:
1. Design is in accordance w/ ASTM C1577, PCI MNL135, VAOT540 & AASHTO 2012 LRFD bridge design specs fifth edition
2. Any conflict between tolerances listed above shall result in the usage of the stricter tolerance
3. Design live load = HL-93
4. Materials and manufacturing shall conform to ASTM C1433

Installation:

1. Sub Base for Box Culvert / Cut Off Walls to be Compacted and Level
2. Precast Cut Off Walls to be installed
3. All Elevations are to be Checked and Verified they Match Those of Plan Set
4. Begin Sequence of Installing All Box Culvert Sections
5. Clean Granular Backfill for structures used for Backfill of Footers & of Box Culvert so water can reach weep holes if applicable
6. Fill all Lifting Holes, Bolt Pockets ~~and Box Culvert grooves and seams~~ w/ non-shrink grout. Applied by Site Contractor.
7. ASTM C1675-11 Box culvert installation guidelines shall be followed.

Reinforcing:

General Notes:
1. Reinforing Steel -
   a. Precast box sections, headwalls, wing walls, & cut off walls shall be level II dual coated bar ASTM A615

2. Materials and manufacturing shall conform to ASTM C1433

Tolerances:
1. Spacing ±1"
2. Clearance ±1/4"

Lap Lengths:
1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1
   Lap length for level II (dual coated):
   #4 Bar = 25"
   #6 Bar = 46"

Joint Treatment:

Vertical Seams:
Per VTrans approved product list 780.02
Overhead & vertical concrete repair mortar
Applied by site contractor

Horizontal Seams / Grout:
Per VTrans approved product list 707.03
Mortar, type IV
Applied by site contractor

Waterproofing:

1. By others if applicable
2. VTrans approved silane shall be shop applied to all exposed surfaces.

Miscellaneous:

1. All exposed hardware to be galvanized.
2. All exposed edges of concrete shall be chamfered

Legend:

- (A) 2"Ø PVC Sleeve
- (B) 4"Ø PVC Sleeve
- (C) Mechanical Bolt Pocket (A.L. Patterson w/ 1"Ø Coil Rod)
- (D) Oxford A750-7 Lifting Device
- (E) 1"Ø x 12" CX-9 Coil Loop Insert
- (F) 3/4"Ø FI-4234P Flared Loop Ferrule Insert
- (G) 1 1/2" x 3 1/2" Continuous Keyway
- (H) Solid Lines Indicate ¾" Chamfer
- (I) ⅝" FI 64 Ferrule Insert

Vermont Agency of Transportation
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CK'D BY JW OK'D BY JS
June 24, 2014
RESUBMIT NO Approved
BY KH DATE 6-25-2014

STATE OF VERMONT
WILLIAM A. NOURSE
NO. 74452
Structural II
LICENSED
PROFESSIONAL ENGINEER

CONTRACTORS VISPE:

1 - Revised per VTrans approved as noted comments from May 9, 2014 review. Also revised lifting insert locations for stripping in shop.

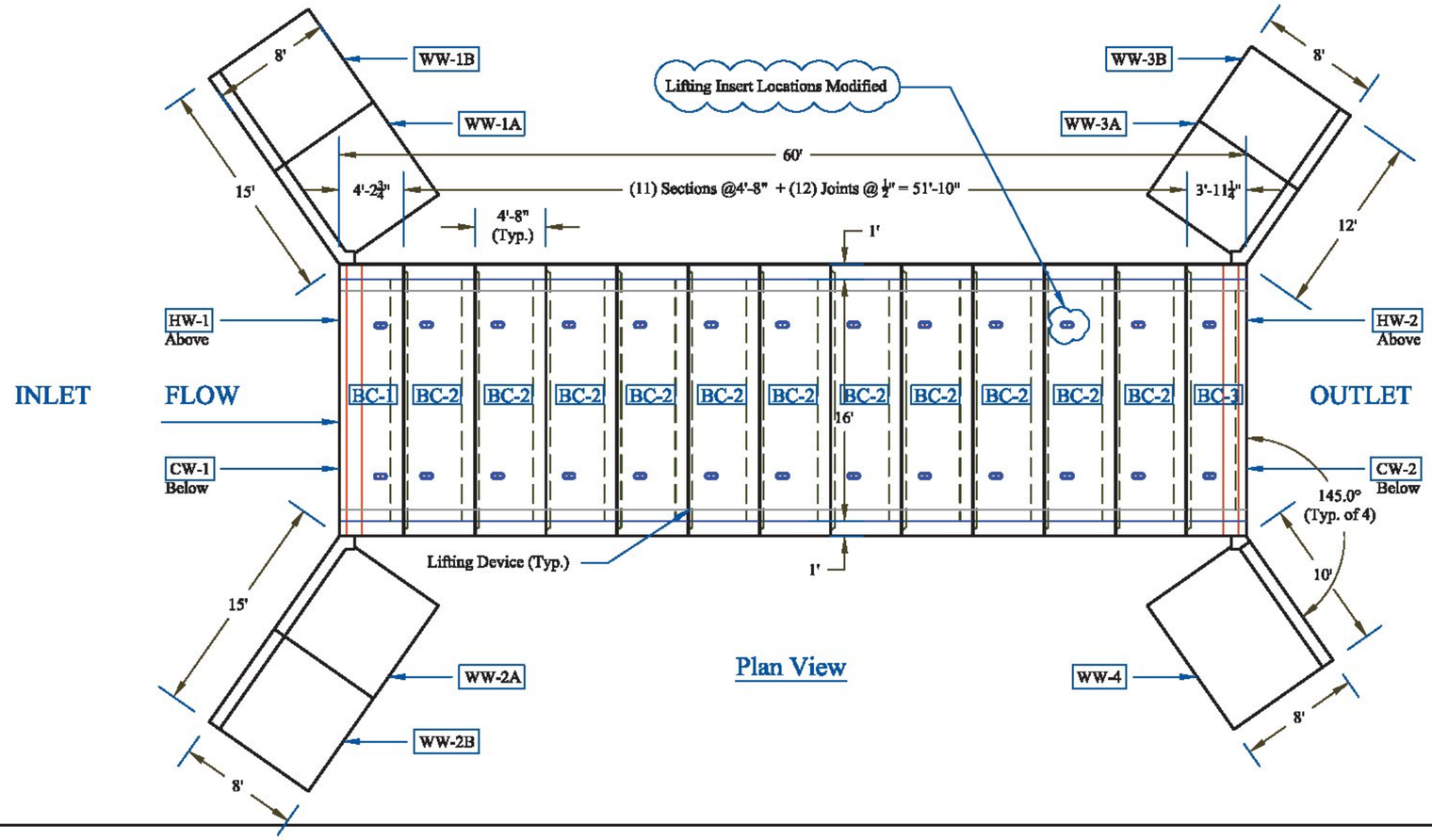
PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #14213)
SUPERVISOR: M. WHEELER
DETAILER: I. ADAMS
CHECKER: T. Dudley
ENGINEER:
PROJECT NAME: Wilmington
PROJECT #: STP 013-1(14)
LOCATION: Wilmington, VT

M&M Excavating
PO Box 585
Chester, VT 05143
Ph: (802) 875-3319

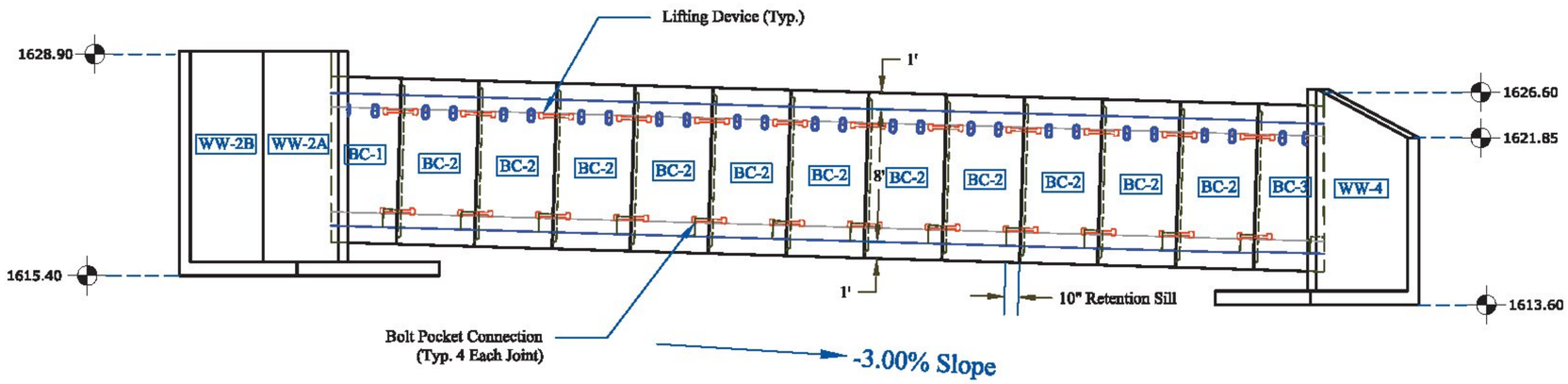
FABRICATOR:
193 INDUSTRIAL AVE.
WILLISTON, VT 05495
Ph: (802) 658-0201

SD Ireland PRECAST

06/23/2014 | TEXT | 1_OF_7



Plan View



Side Elevation View

Table of Units				
Name	Qty	Length	Vol.(CY)	Wt.(lbs.)*
BC-1**	1	4'-1"	9.37	37,480
BC-2*	11	4'-8"	9.57	38,280
BC-3**	1	4'-1"	9.10	36,400
WW-1A	1	7'-6"	5.35	21,400
WW-1B	1	7'-6"	5.12	20,480
WW-2A	1	7'-6"	5.35	21,400
WW.2B	1	7'-6"	5.12	20,480
WW-3A	1	6'-0"	4.23	16,900
WW-3B	1	6'-0"	4.00	16,000
WW-4	1	10'	6.19	24,760
CW-1	1	18'	1.32	5280
CW-2	1	18'	1.32	5280

* Baffle Weight Included in BC-2
** Baffle and Headwall Included in BC-1 and BC-3

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STATE OF VERMONT
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Culvert Specifications	
Inside Dimensions	8'-0"x16'-0"
Waterway Area	96 Sq. Ft.
Top Slab Thickness	12"
Side Wall Thickness	12"
Bottom Slab Thickness	12"

CONTRACTORS VISPE:

Ⓐ 2"Ø PVC Sleeve
Ⓑ 4"Ø PVC Sleeve
Ⓒ Mechanical Bolt Pocket (A.L. Patterson w/ 1"Ø Coil Rod)
Ⓓ Oxford A750-7 Lifting Device
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PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #14213)

SUPERVISOR: M. WHEELER
DETAILER: I. ADAMS
CHECKER: T. Dudley
ENGINEER:

PROJECT NAME: Wilmington
PROJECT #: STP 013-1(14)
LOCATION: Wilmington, VT

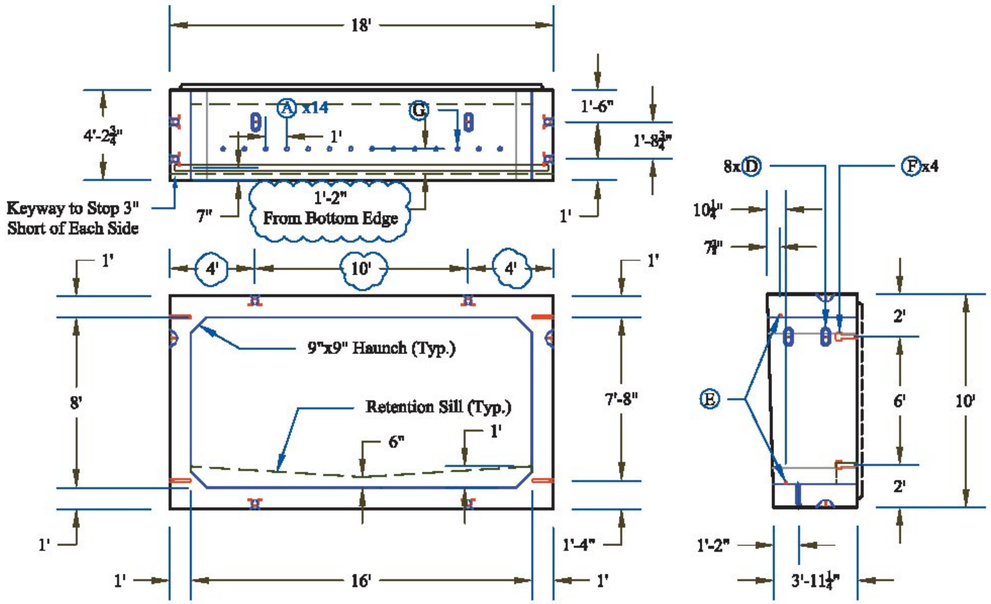
M&M Excavating
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WILLISTON, VT 05495
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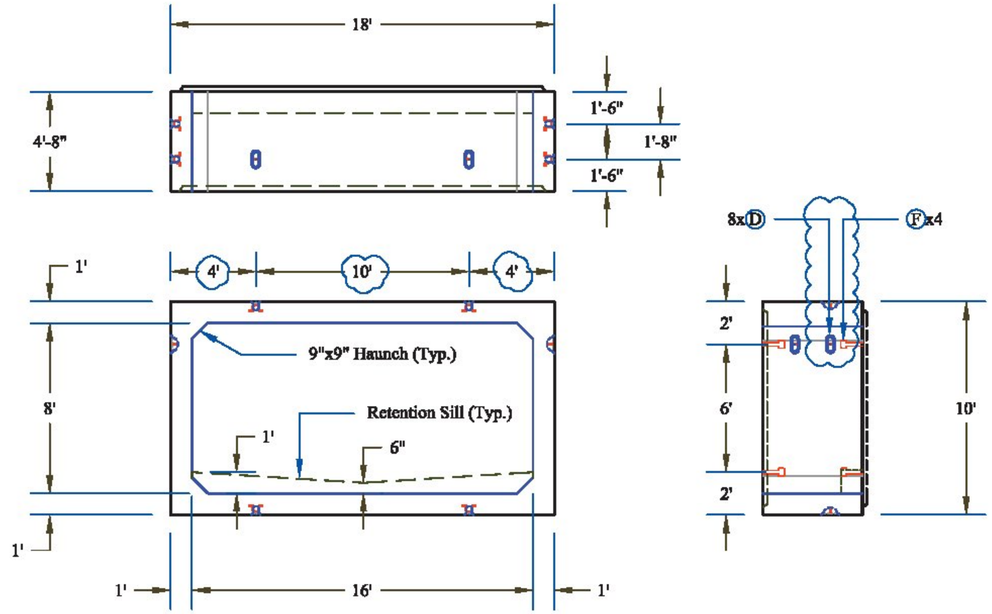
SD Ireland PRECAST

06/23/2014 | PLAN_AND_ELEVATION | 2_OF_7

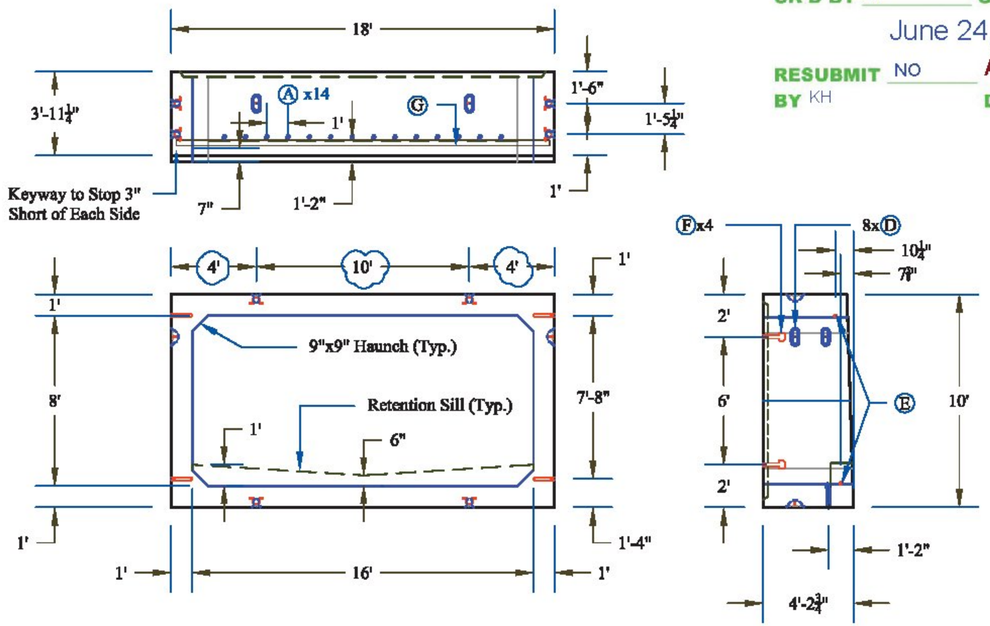
BC-1 Detail



BC-2 Detail



BC-3 Detail



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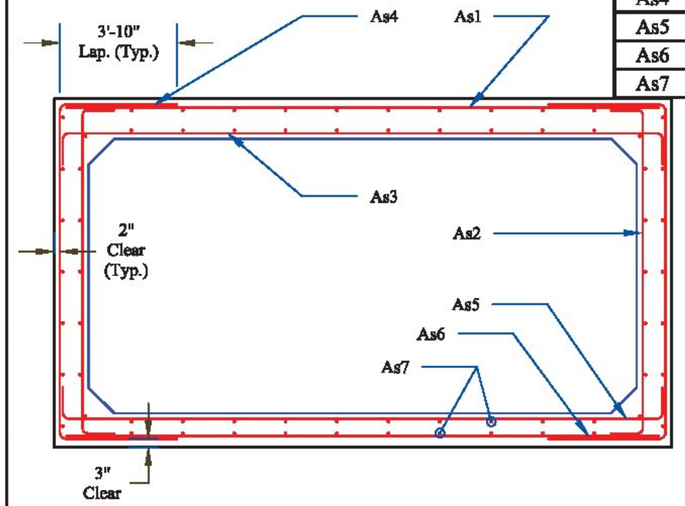
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June 24, 2014

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BY KH DATE 6-25-2014

Box Reinforcing Detail



Rebar Schedule								
Mark	Size	Qty.*	Max Spacing	Length	Type	A	B	C
As1	#4	39	18"	212"	Str	212"		
As2**	#4	39	18"	127"	Bent	6"	115"	6"
As3**	#6	127	6"	230"	Bent	9"	212"	9"
As4	#6	260	6"	207"	Bent	46"	115"	46"
As5	#6	101	8"	228"	Bent	8"	212"	8"
As6	#4	39	18"	212"	Str	212"		
As7	#4	572	18"	Varies	Str	Varies		

*Quantities Apply for Box Culvert
**Additional Bars as Per T. Dudley's Email Dated 05/21/14, Item #5
Note: Quantities in Addition to Consideration to Dudley's Email Dated 05/21/14, Items 1 - 9

STATE OF VERMONT
WILLIAM A. NOURSE
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Structural II
LICENSED
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CONTRACTORS VISPE:

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Ⓑ 4"Ø PVC Sleeve
Ⓒ Mechanical Bolt Pocket (A.L. Patterson w/ 1"Ø Coil Rod)
Ⓓ Oxford A750-7 Lifting Device
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Ⓕ Patterson Bolt Pocket Former
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ENGINEER:

PROJECT NAME: Wilmington
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LOCATION: Wilmington, VT

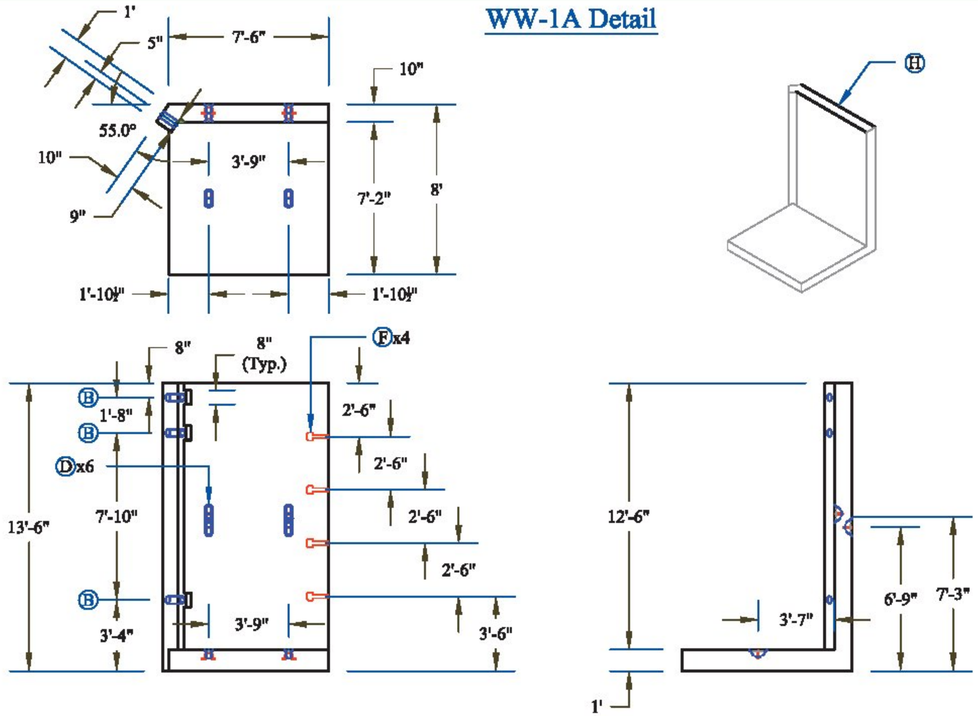
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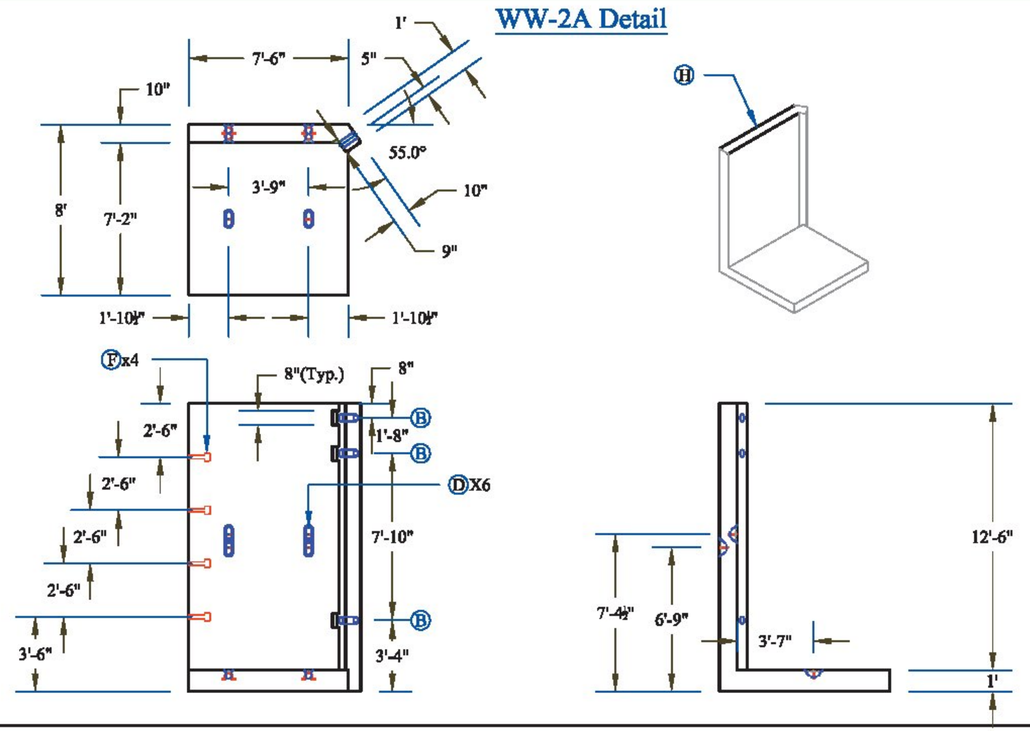
SD Ireland PRECAST

06/23/2014 | BOX_SECTIONS | 3_OF_7

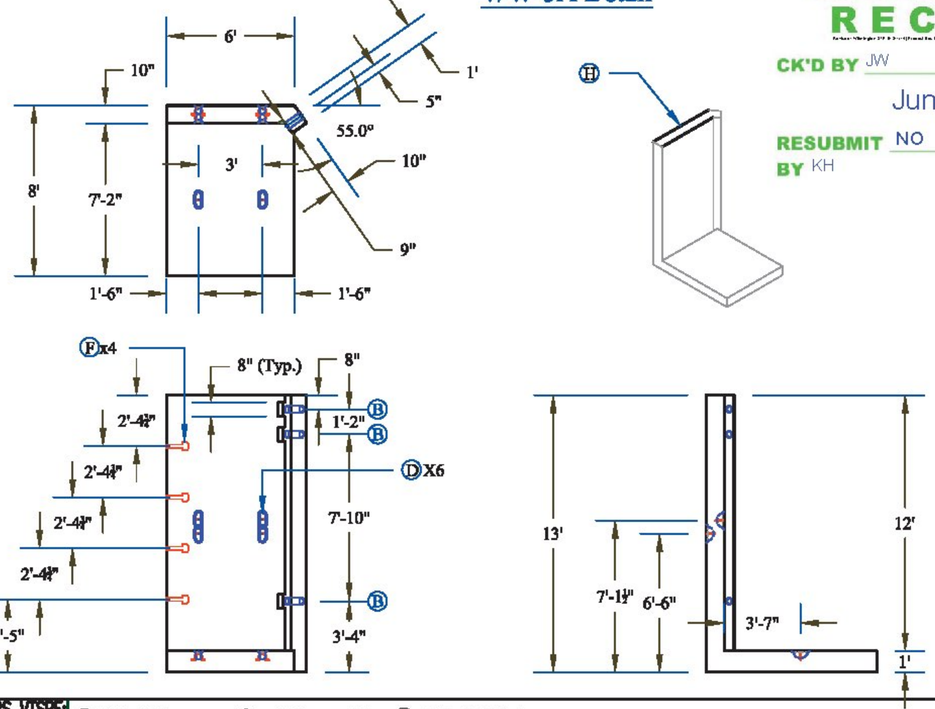
WW-1A Detail



WW-2A Detail



WW-3A Detail



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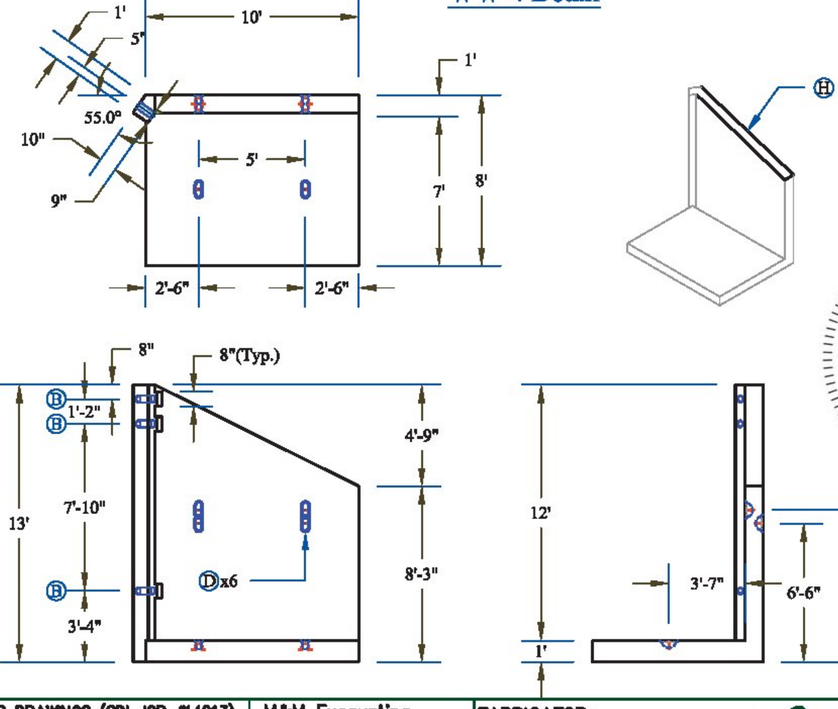
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June 24, 2014

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WW-4 Detail



STATE OF VERMONT
WILLIAM A. NOURSE
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SUPERVISOR: M. WHEELER
DETAILER: I. ADAMS
CHECKER: T. Dudley
ENGINEER:

PROJECT NAME: Wilmington
PROJECT #: STP 013-1(14)
LOCATION: Wilmington, VT

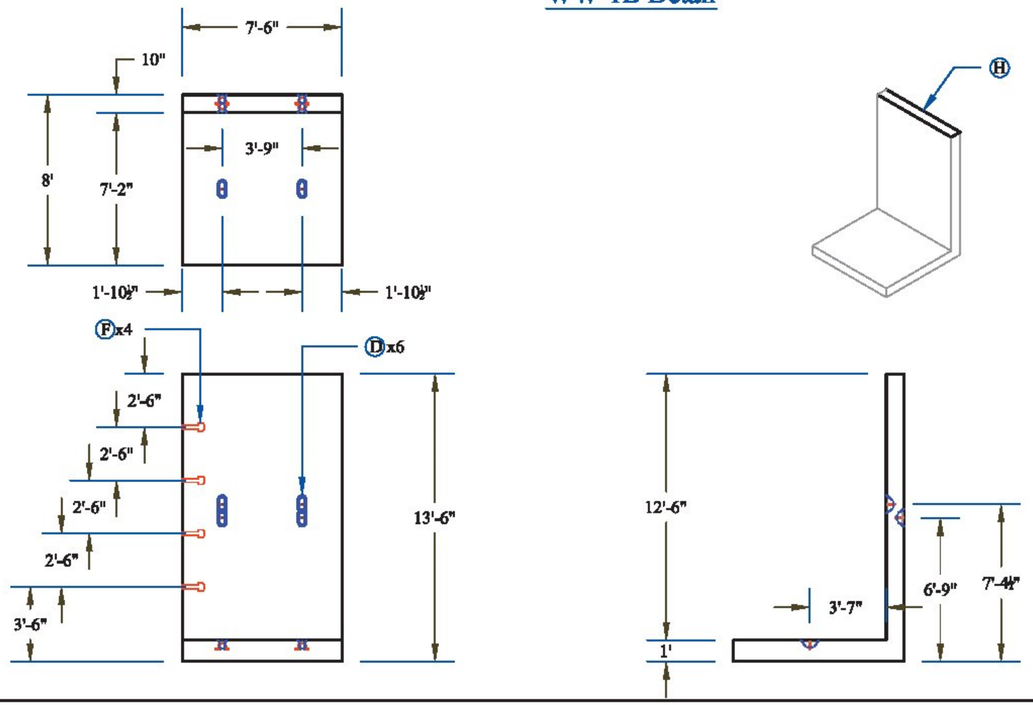
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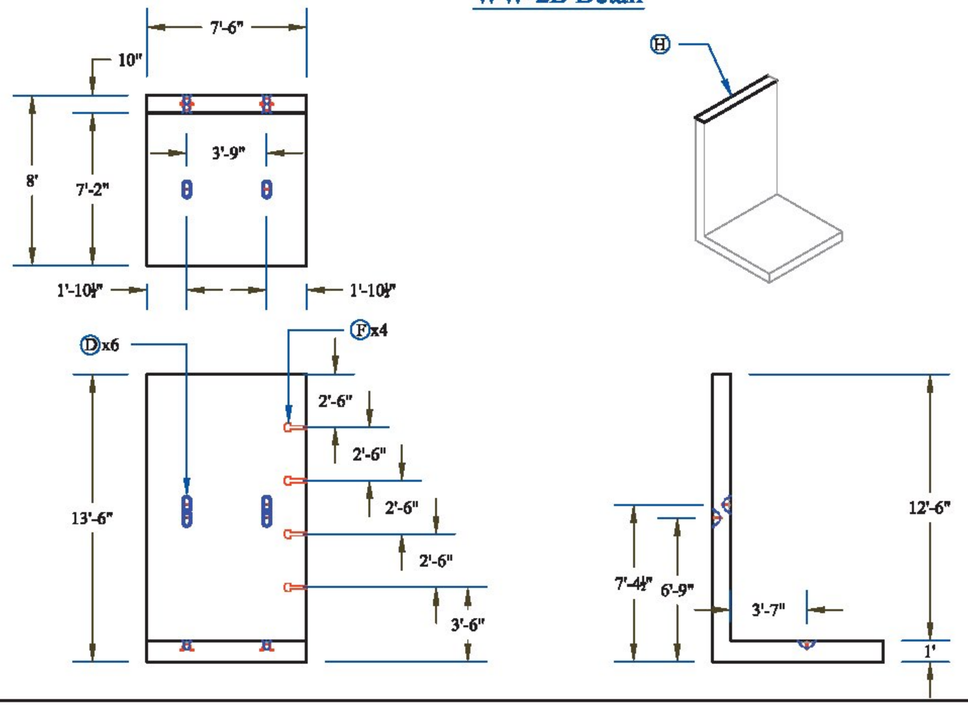
SD Ireland PRECAST

06/23/2014 | WINGWALLS | 4_OF_7

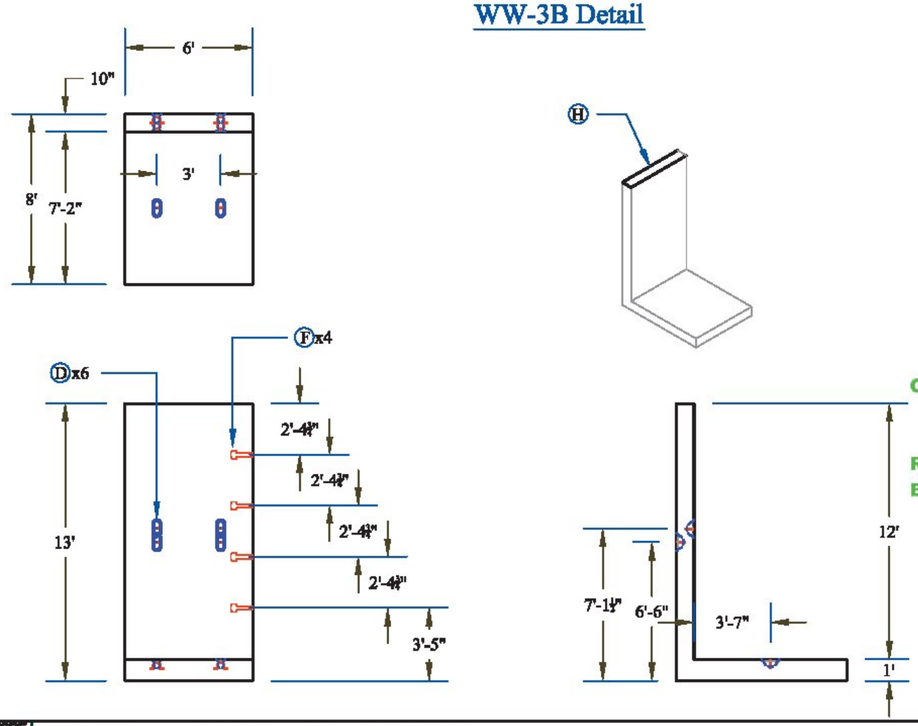
WW-1B Detail



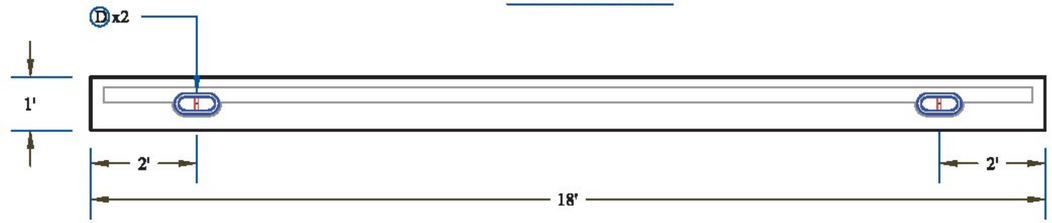
WW-2B Detail



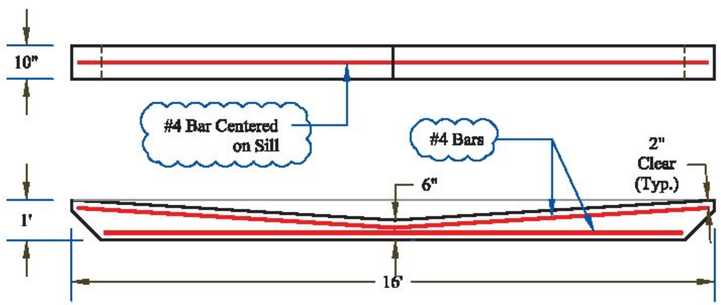
WW-3B Detail



CW-1/2 Detail



Retention Sill Detail



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- Ⓗ Solid Lines Indicate ¾" Chamfer
- Ⓘ ⅝" FI 64 Ferrule Insert

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #14213)

SUPERVISOR: M. WHEELER
DETAILER: I. ADAMS
CHECKER: T. Dudley
ENGINEER:

PROJECT NAME: Wilmington
PROJECT #: STP 013-1(14)
LOCATION: Wilmington, VT

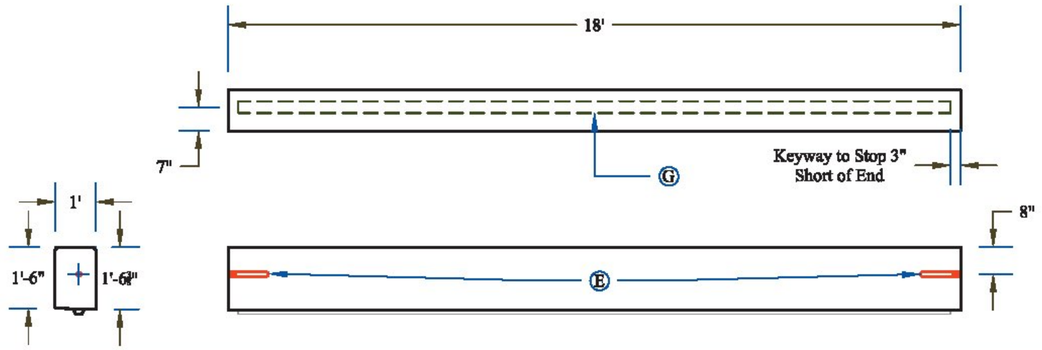
M&M Excavating
PO Box 585
Chester, VT 05143
Ph: (802) 875-3319

FABRICATOR:
193 INDUSTRIAL AVE.
WILLISTON, VT 05495
Ph: (802) 658-0201

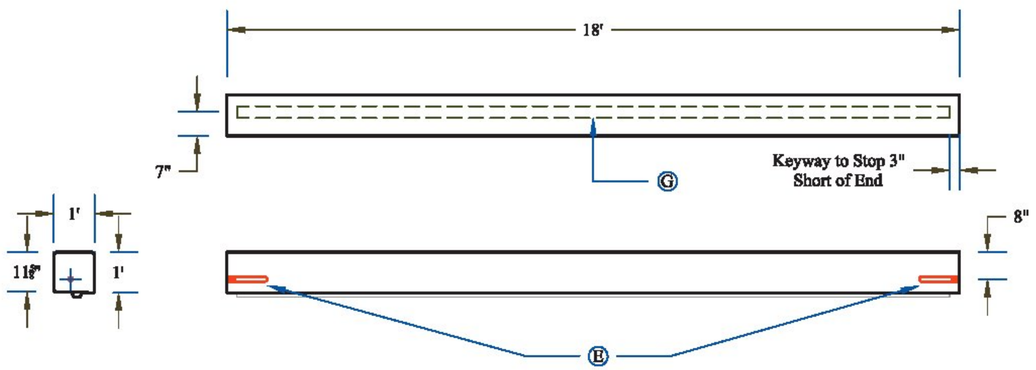
SD Ireland PRECAST

06/23/2014 | WINGWALLS | 5_OF_7

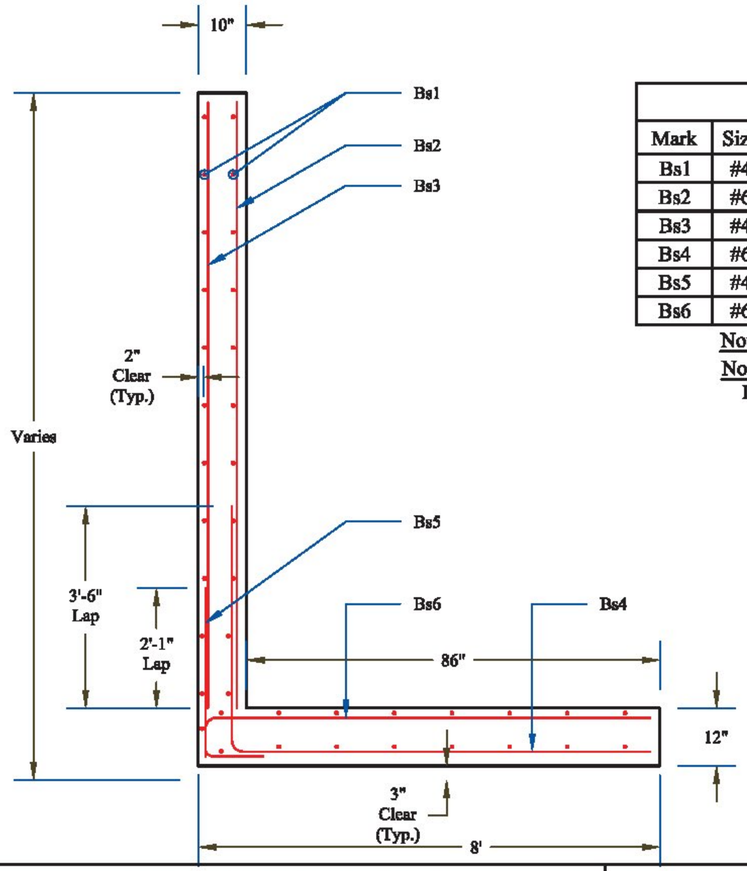
HW-1 Detail (Inlet)



HW-2 Detail (Outlet)



Wingwall Reinforcing Detail



Vermont Agency of Transportation

RECEIVED

CK'D BY JW OK'D BY JS

June 24, 2014

RESUBMIT NO Approved

BY KH DATE 6-25-2014

Rebar Schedule

Mark	Size	Qty	Max Spacing	Length	Type	A	B
Bs1	#4	210	18"	Varies	Str	Varies	
Bs2	#6	84	8"	Varies	Str	Varies	
Bs3	#4	61	12"	Varies	Str	Varies	
Bs4	#6	84	8"	135"	Bent	86"	49"
Bs5	#4	61	12"	46"	Bent	12"	34"
Bs6	#6	84	8"	99"	Str	92"	7"

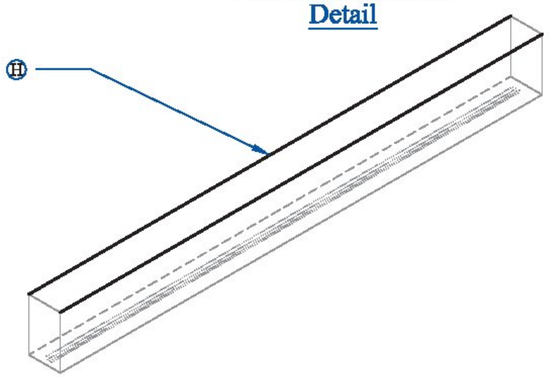
Note: 2" Clear Typical Unless Noted Otherwise

Note: Quantities in Addition to Consideration to Dudley's Email Dated 05/21/14, Items 1 - 9

Bent Bar Dimension Guide

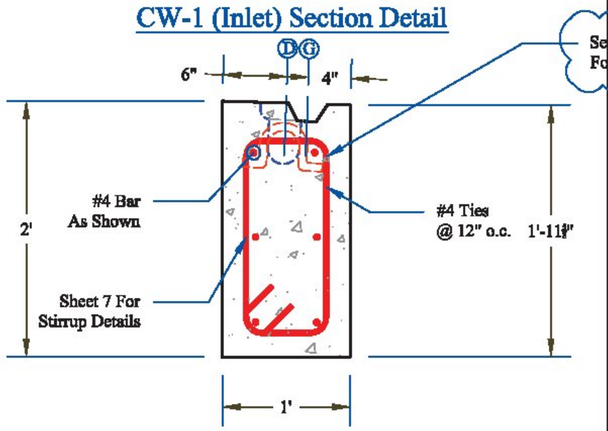


Headwall Isometric Detail

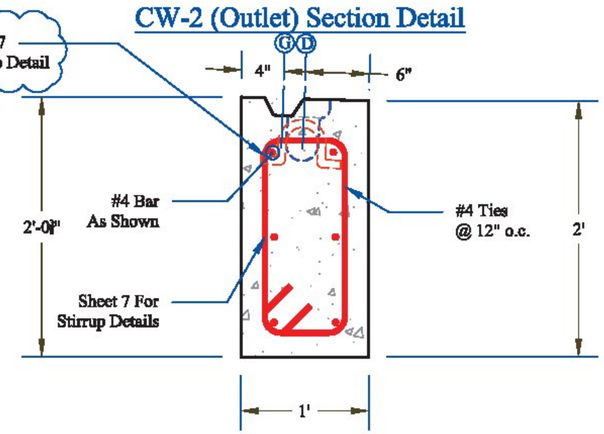


STATE OF VERMONT
WILLIAM A. NOURSE
NO. 74452
Structural II
LICENSED
PROFESSIONAL ENGINEER

CW-1 (Inlet) Section Detail



CW-2 (Outlet) Section Detail



CONTRACTORS VISPEC:

- Ⓐ 2"Ø PVC Sleeve
- Ⓑ 4"Ø PVC Sleeve
- Ⓒ Mechanical Bolt Pocket (A.L. Patterson w/ 1"Ø Coil Rod)
- Ⓓ Oxford A750-7 Lifting Device
- Ⓔ 1"Øx12" CX-9 Coil Loop Insert
- Ⓕ Patterson Bolt Pocket Former
- Ⓖ 1 1/2" x 3 1/2" Continuous Keyway
- Ⓗ Solid Lines Indicate ¾" Chamfer
- Ⓘ ¾" FI 64 Ferrule Insert

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #14213)

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DETAILER: I. ADAMS
CHECKER: T. Dudley
ENGINEER:

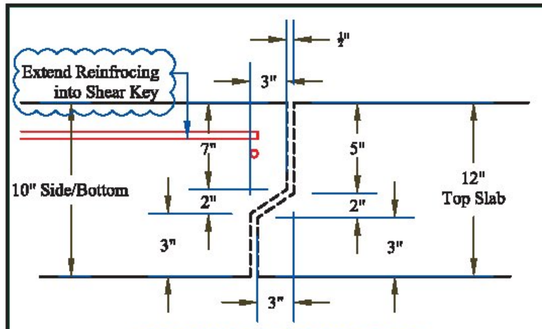
PROJECT NAME: Wilmington
PROJECT #: STP 013-1(14)
LOCATION: Wilmington, VT

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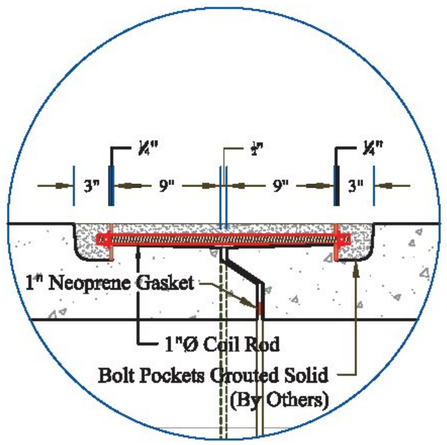
SD Ireland PRECAST

06/23/2014 | CUTOFF/HEADWALLS | 6_OF_7

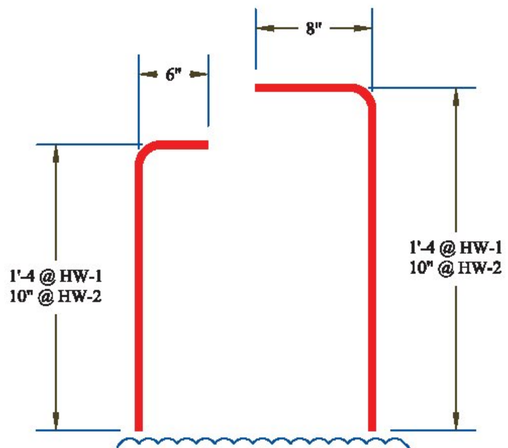


Box Culvert Key Detail

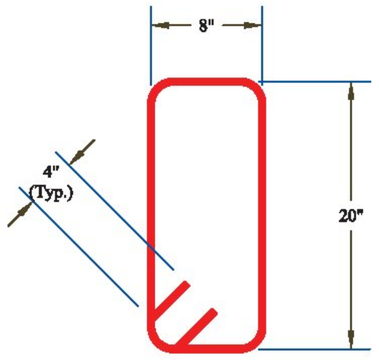
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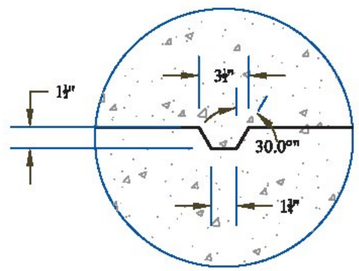
Bolt Pocket Connection Detail



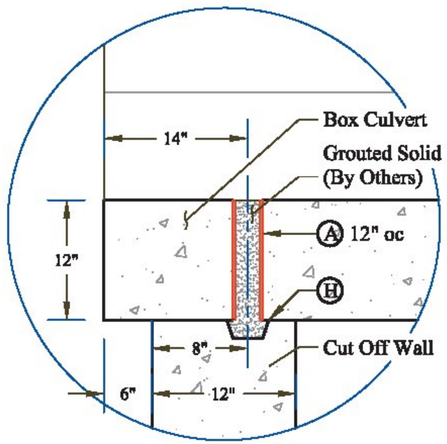
Headwall Rebar Detail



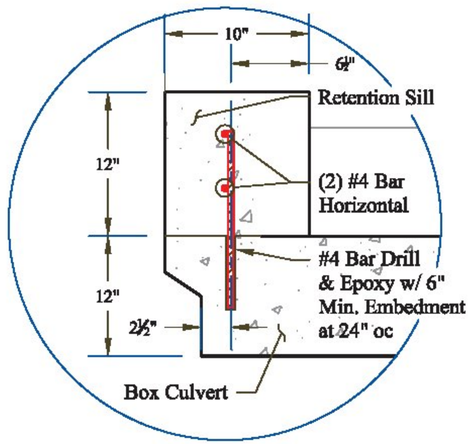
Cuttoff Wall Stirrup Detail



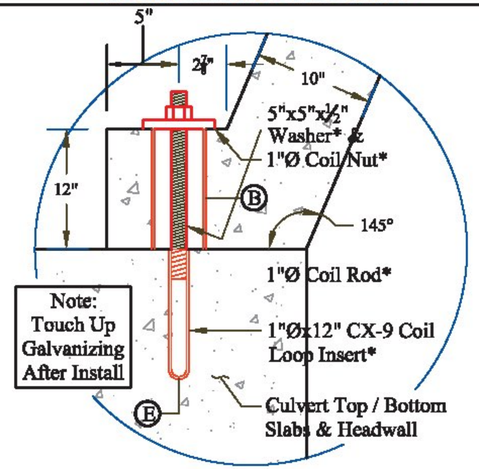
Keyway Detail



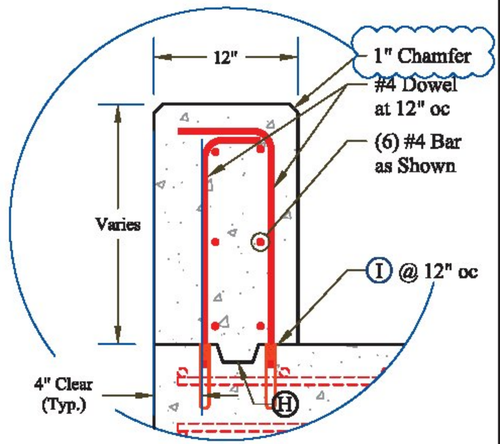
Culvert to Cut Off Wall Connection



Retention Sill Reinforcing Detail



Wing Wall to Box Culvert Connection



Head Wall - 1 to Box Culvert Connection

STATE OF VERMONT
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06/23/2014 | CONNECTIONS | 7_OF_7