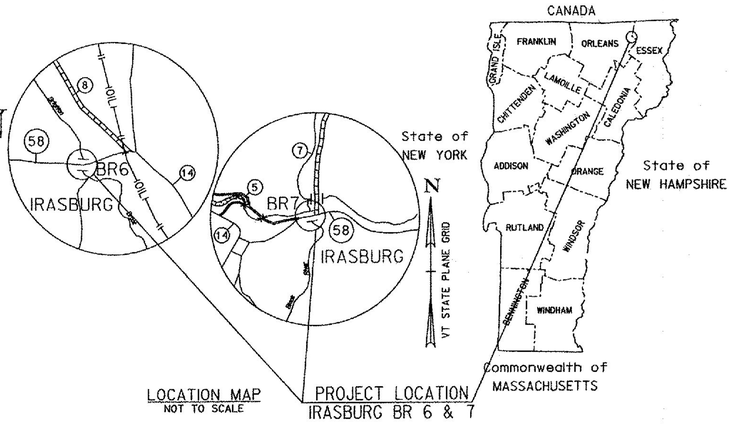
STATE OF VERMONT
AGENCY OF TRANSPORTATION



RECORD PLANS	
CONTRACTOR:	J. A. MCDONALD INC. – LYNDON CENTER, VT
RESIDENT ENGINEER:	KEVIN MCCLURE
CONSTRUCTION BEGAN:	AUGUST 19, 2015
CONSTRUCTION COMPLETE:	OCTOBER 28, 2015
RECORD PLANS BY:	KEVIN MCCLURE & KEVIN KING

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

BY Kevin McClure RESIDENT ENGINEER

DATE 1-4-17

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.

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF IRASBURG
COUNTY OF ORLEANS
VT ROUTE 58 (MAJOR COLLECTOR)
BRIDGE NUMBERS 6 AND 7

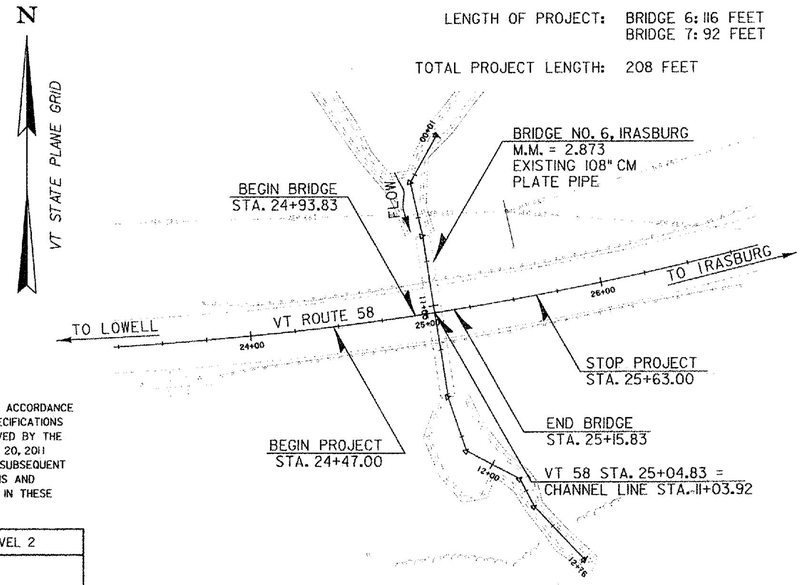
PROJECT LOCATION: BRIDGE NO. 6 IS LOCATED ON VERMONT ROUTE 58, 0.3 MILES WEST OF THE JUNCTION WITH VERMONT ROUTE 14.

BRIDGE NO. 7 IS LOCATED ON VERMONT ROUTE 58, 0.5 MILES EAST OF THE JUNCTION WITH VERMONT ROUTE 14.

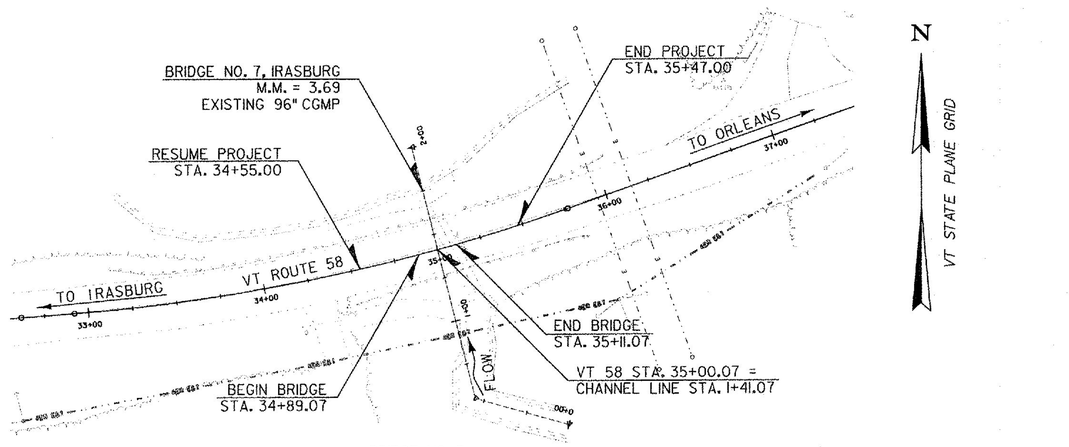
PROJECT DESCRIPTION: REPLACEMENT OF EXISTING CORRUGATED STEEL CULVERTS WITH PRECAST CONCRETE STRUCTURES ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF PROJECT: BRIDGE 6: 116 FEET
BRIDGE 7: 92 FEET

TOTAL PROJECT LENGTH: 208 FEET



BRIDGE NO. 6



BRIDGE NO. 7

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 :	VTRANS
SURVEYED DATE :	FEBRUARY 2012
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (07)

0 40 80
SCALE IN FEET

Stantec
Stantec Consulting Services Inc.
55 Green Mountain Drive
South Burlington VT U.S.A. 05403
Phone: (802) 864-0223
Fax: (802) 864-0165
www.stantec.com

DIRECTOR OF PROJECT DELIVERY
APPROVED JKG. RL DATE 9/29/2014

PROJECT MANAGER : MARK SARGENT P.E.

PROJECT NAME : IRASBURG
PROJECT NUMBER : STP CULV (30)

SHEET 1 OF 55 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

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12	TYPICAL SECTIONS - BR6
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18	TRAFFIC CONTROL PLAN - BR6
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21	ROADWAY CROSS SECTIONS - RXS1 - BR6
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49	EPSC CONSTRUCTION SITE PLAN - ECP1 - BR7
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51	EROSION CONTROL DETAILS - ECD2 - BR7
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STRUCTURE DETAIL SHEETS

SD-366.00 LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED 01/03/14

STANDARDS LIST

VAOT STANDARD SHEETS

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E-192	PAVEMENT MARKING DETAILS	10/12/00
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T-42	BRIDGE NUMBER PLAQUE	04/09/14
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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2013	1700	190	51	8.4	190
2023	1800	200	51	10.6	250

10 year ESAL for flexible pavement from 2013 to 2023 : 715,000

20 year ESAL for flexible pavement from 2013 to 2033 : 1,781,000

Design Speed : 50 mph

AS BUILT "REBAR" DETAIL

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

FINAL HYDRAULIC REPORT – BRIDGE NO. 6

HYDROLOGIC DATA

Date: 7 January 2014

DRAINAGE AREA : 3.55 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous; 45% woods, 55% meadow, small ponds
STREAM CHARACTERISTICS : Perennial, sinuous, moderate slope
NATURE OF STREAMBED : Silty sand; scour susceptible

PEAK FLOW DATA

Q 2.33 =	160 cfs	Q 50 =	650 cfs
Q 10 =	380 cfs	Q 100 =	790 cfs
Q 25 =	520 cfs	Q 500 =	1110 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 13.2 fps
ICE CONDITIONS : Light
DEBRIS: Light
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: 8' diameter multi-plate pipe (CGMP)
YEAR BUILT: 1965
CLEAR SPAN(NORMAL TO STREAM): 9.0'
VERTICAL CLEARANCE ABOVE STREAMBED: 9.0'
WATERWAY OF FULL OPENING: 63.6 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	842.1'	VELOCITY =	8.5 fps
Q10 =	845.2'	"	11.1 fps
Q25 =	847.0'	"	12.4 fps
Q50 =	848.7'	"	13.6 fps
Q100 =	851.2'	"	15.0 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 855.1'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Irasburg DISTANCE: 2336'
HIGHWAY # : TH26 STRUCTURE #:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Irasburg DISTANCE: 360'
HIGHWAY # : STRUCTURE #:
CLEAR SPAN: CLEAR HEIGHT:
YEAR BUILT: FULL WATERWAY:
STRUCTURE TYPE: Confluence w/ Stony Hill Brook

LRFR LOAD RATING FACTORS

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

✱ SEE GEOTECHNICAL REPORT

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box Culvert

CLEAR SPAN(NORMAL TO STREAM): 20.0'
VERTICAL CLEARANCE ABOVE STREAMBED: 6.0'
WATERWAY OF FULL OPENING: 120 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	839.1'	VELOCITY=	4.8 fps
Q10 =	840.8'	"	6.8 fps
Q25 =	841.7'	"	7.8 fps
Q50 =	842.4'	"	8.6 fps
Q100 =	843.2'	"	9.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 855.1'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 842.6'
VERTICAL CLEARANCE: @ Q50 = 0.2'

SCOUR: Replacement structure is a box culvert so scour is not a concern.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	7.5 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	4.0 cfs	Depth = 0.5'
ORDINARY HIGH WATER:	110 cfs	Depth = 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Temporary Bridge not Required
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC UNDER PHASED CONSTRUCTION.
2. TRAFFIC SIGNALS ARE NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	20.0 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	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:	3.5 KSI
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:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	✱ 4.3 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	- - -
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:	- - -

PROJECT NAME: **IRASBURG**
PROJECT NUMBER: **STP CULV(30)**

FILE NAME: z_irasburg_br6_pi.xls
PROJECT LEADER: M. CHENETTE
DESIGNED BY: A. LACHANCE
PRELIMINARY INFORMATION SHEET – BR6

PLOT DATE: 10/20/2014
DRAWN BY: L. BUXTON
CHECKED BY: J. HUNGERFORD

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

STANDARDS LIST

FINAL HYDRAULIC REPORT – BRIDGE NO. 7

HYDROLOGIC DATA

Date: 7 January 2014

DRAINAGE AREA : 2.03 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous; forested with some clearings; small pond
STREAM CHARACTERISTICS : Moderate slope, perennial, sinuous
NATURE OF STREAMBED : Gravelly sand; scour susceptible

PEAK FLOW DATA

Q 2.33 =	100 cfs	Q 50 =	380 cfs
Q 10 =	230 cfs	Q 100 =	450 cfs
Q 25 =	300	Q 500 =	675 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 (without tailwater) = 8.0 cfs
ICE CONDITIONS : Light
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
IF YES, DESCRIBE: The tailwater of the adjacent downstream Black River creates an outlet control condition in the subject culvert.

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 8' diameter multi-plate pipe (CGMP)
YEAR BUILT: 1923
CLEAR SPAN(NORMAL TO STREAM): 8.0'
VERTICAL CLEARANCE ABOVE STREAMBED: 8.0'
WATERWAY OF FULL OPENING: 50.2 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	797.4'	VELOCITY =	12.4 fps
Q10 =	799.8'	"	15.2 fps
Q25 =	800.9'	"	16.1 fps
Q50 =	802.2'	"	17.0 fps
Q100 =	803.2'	"	17.7 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 803.7'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Irasburg — DISTANCE: 6800'
HIGHWAY # : TH 4 — STRUCTURE #: BR 12
CLEAR SPAN: 3.0' — CLEAR HEIGHT: 3.0'
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE: (2) 3' Dia. pipes

DOWNSTREAM STRUCTURE

TOWN: Irasburg — DISTANCE: 100'
HIGHWAY # : — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE: Confluence w/ Black River

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box Culvert

CLEAR SPAN(NORMAL TO STREAM): 20.0'
VERTICAL CLEARANCE ABOVE STREAMBED: 7.0'
WATERWAY OF FULL OPENING: 140 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	797.0'	VELOCITY=	6.5 fps
Q10 =	797.1'	"	9.0 fps
Q25 =	797.1'	"	10.0 fps
Q50 =	797.2'	"	11.0 fps
Q100 =	797.4'	"	11.7 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 803.9'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 798.70'
VERTICAL CLEARANCE: @ Q50 = 1.5'

SCOUR: Replacement structure is a box culvert so scour is not a concern.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	4.0 cfs	
ORDINARY LOW WATER:	2.0 cfs	DEPTH OR ELEVATION:
ORDINARY HIGH WATER:	60 cfs	Depth = 0.5'
		Depth = 1.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Temporary Bridge not Required
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

The Black River tailwater was considered in the hydraulic analyses of the ex./prop. structures by applying a tailwater at elevation 797.0 for all storm events to determine headwater elevations; this represents flood stage elevation for the Black River based on nearby USGS gauging stage information. Normal tailwater depth of flow was used to determine stream velocities.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC UNDER PHASED CONSTRUCTION.
2. TRAFFIC SIGNALS ARE NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	20.0 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	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:	3.5 KSI
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:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	✱ 3.3 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	- - -
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:	- - -

LRFR LOAD RATING FACTORS

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

✱ SEE GEOTECHNICAL REPORT

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2013	2400	270	52	9.7	250
2023	2500	280	52	11.7	330

10 year ESAL for flexible pavement from 2013 to 2023 : 708.000
20 year ESAL for flexible pavement from 2013 to 2033 : 1.541.000
Design Speed : 30 mph

PROJECT NAME: **IRASBURG**
PROJECT NUMBER: **STP CULV (30)**

FILE NAME: **z_irasburg_br7_pi.xls**
PROJECT LEADER: **M. CHENETTE**
DESIGNED BY: **A. LACHANCE**
PRELIMINARY INFORMATION SHEET – BR7

PLOT DATE: 10/20/2014
DRAWN BY: **L. BUXTON**
CHECKED BY: **J. HUNGERFORD**
SHEET 3 OF 55

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION AND ITS LATEST REVISIONS AND THE 6TH EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND ITS LATEST REVISIONS.
2. THE CONTRACTOR SHALL ENSURE ACCESS TO ALL DRIVES AND SIDE ROADS AT ALL TIMES DURING CONSTRUCTION.
3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68°F.
4. IN-STREAM CONSTRUCTION SHALL OCCUR ONLY WITHIN THE TIMEFRAME SPECIFIED IN THE PROJECT PERMITS INCLUDED IN THE CONTRACT DOCUMENTS. IF THE CONTRACTOR PROPOSES TO PERFORM IN STREAM WORK OUTSIDE OF THESE TIMEFRAMES, THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE APPROPRIATE REGULATING ENTITIES PRIOR TO PERFORMING THE WORK.

PRECAST CONCRETE BOX CULVERTS AND WINGWALLS

1. THE BOX CULVERT INCLUDING SILLS, HEADWALLS, CUT-OFF WALLS, AND WINGWALLS WILL BE PAID FOR UNDER THE APPROPRIATE SECTION 540 CONTRACT ITEM.
2. THE BOX CULVERT INCLUDING THE SILLS, HEADWALLS AND WINGWALL STEMS SHALL BE PRECAST. THE CUT-OFF-WALL AND WINGWALL FOOTINGS MAY BE EITHER PRECAST OR CAST IN PLACE. THE DESIGN OF THESE CULVERTS SHALL BE THE RESPONSIBILITY OF THE FABRICATOR. CULVERT SHALL BE DESIGNED FOR AN HL-93 LIVE LOAD. CAST-IN-PLACE CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 501 FOR CONCRETE, HIGH PERFORMANCE CLASS B. THE BOTTOM OF WINGWALL FOOTINGS SHALL BE AT THE ELEVATIONS SHOWN IN THE PLANS. CUT-OFF WALLS BELOW WINGWALL FOOTINGS WILL NOT BE ALLOWED.
3. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR THE BOX CULVERTS AND ALL ASSOCIATED DETAILS IN ACCORDANCE WITH SUBSECTION 105.03.
4. THE BOX CULVERT TYPICAL SECTIONS SHOWN IN THE DRAWINGS ARE FOR SCHEMATIC PURPOSES ONLY. THE ACTUAL SHAPE OF THE BOX CULVERT AND ITS COMPONENTS WILL BE DEPENDENT ON THE FABRICATOR.
5. ALL BOX CULVERT JOINTS SHALL BE STRENGTHENED WITH PERMANENT CLOSURE HARDWARE. ALL HARDWARE COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.
6. ALL REINFORCING TO BE LEVEL I (UNCOATED).
7. AFTER BOX CULVERT SECTIONS HAVE BEEN SET IN THEIR FINAL POSITION, THE EXTERIOR (TOP AND SIDES) AND INTERIOR (SIDES AND BOTTOM) OF ALL BOX CULVERT JOINTS, AND ALL LIFTING HOLES, SHALL BE GROUTED WITH MORTAR, TYPE IV. PRIOR TO THE APPLICATION OF ANY WATERPROOFING, ALL MORTAR SHALL BE WET CURED A MINIMUM OF 12 HOURS OR UNTIL THE COMPRESSIVE STRENGTH HAS REACHED 2000 psi. APPROVED CURING COMPOUNDS MAY BE USED ON INTERIOR SURFACES IN LIEU OF WET CURING.
8. A TWO FOOT WIDE STRIP OF SHEET MEMBRANE WATERPROOFING SHALL BE APPLIED AT EACH SIDE JOINT IN ACCORDANCE WITH SUBSECTION 540.10. THE MEMBRANE SHALL BE CENTERED ON THE JOINT AND SHALL RUN THE ENTIRE HEIGHT OF THE JOINT. THE ENTIRE TOP OF THE BOX CULVERT SHALL THEN BE COVERED WITH TORCH APPLIED MEMBRANE. TORCH APPLIED MEMBRANE WILL BE PAID SEPARATELY UNDER CONTRACT ITEM 519.20. THE MEMBRANE SHEETS SHALL OVERLAP THE EDGES OF THE CULVERT BY ONE FOOT ON EACH SIDE AS SHOWN IN THE PLANS.
9. WATER REPELLENT IN ACCORDANCE WITH ITEM 514.10 SHALL BE APPLIED TO ALL EXPOSED SURFACES EXCEPT THE INSIDE OF THE BOX.

SIMULATED STREAM BED

1. BED MATERIAL TO BE PLACED IN THE RECONSTRUCTED CHANNEL AND BOX CULVERT IS INTENDED TO MIMIC THE NATIVE CHANNEL. THE MATERIAL SHALL BE STONE FILL TYPE II SUPPLEMENTED WITH THE TAILINGS OF A TOPSOIL SCREENING OPERATION WITH GRADATION ADJUSTED TO CONFORM TO THE FOLLOWING TABLE:

STONE/SIEVE SIZE	% FINER, BY WEIGHT
36"	100
12"	30-85
#4	4-30
#200	4-12

2. INSTALLATION OF THE BED MATERIAL MAY REQUIRE INDIVIDUAL PLACEMENT OF LARGE STONES AT SPECIFIC LOCATIONS, AS DIRECTED BY THE ENGINEER. THE BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND THE AGENCY OF NATURAL RESOURCES STREAM ALTERATION ENGINEER, AND WILL BE IN ACCORDANCE WITH ITEM 900.608, SPECIAL PROVISION (STONE FILL, CULVERT LINING).

UTILITY COORDINATION

1. SEE THE LAYOUT SHEETS AND UTILITY SPECIAL PROVISIONS FOR INFORMATION AND REQUIREMENTS RELATED TO UTILITY COORDINATION.

TRAFFIC CONTROL

1. THE TRAFFIC CONTROL PLANS ARE SCHEMATIC ONLY AND SHOULD BE USED AS A REFERENCE. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ONE LANE CLOSURES PER THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL ALLOW THE ENGINEER 14 CALENDAR DAYS TO REVIEW AND ACCEPT THE PROPOSED PLANS BEFORE THEY ARE TO BE IMPLEMENTED. NO WORK SHALL COMMENCE UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. DEVELOPMENT AND IMPLEMENTATION OF TRAFFIC CONTROL PLAN SHALL BE IN ACCORDANCE WITH TRAFFIC CONTROL SECTION 900.
2. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS OR CORNER SIGHT DISTANCE FROM HIGHWAYS OR DRIVES.
3. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
4. ORANGE SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956 TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
5. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM D 4956 TYPE VI.
6. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
7. FIXED SIGNS SHALL BE IN COMPLIANCE WITH VAOT CONSTRUCTION STANDARD E-121.
8. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AT A ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
9. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED, STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
10. THE NUMBER OF CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED IS TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.).
11. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE USED AT THE DISCRETION OF THE ENGINEER AND IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD.
12. TRAVEL LANES SHALL BE A MINIMUM OF 12 FEET WIDE WITH 1 FOOT MINIMUM WIDTH SHOULDERS.
13. THE CONTRACTOR SHALL SHIFT TRAFFIC IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. ALL EQUIPMENT SHALL BE MOVED TO A LOCATION OUTSIDE OF THE CONSTRUCTION CLEAR ZONE (15') DURING NON-WORK PERIODS IF POSSIBLE. IF NOT POSSIBLE, EQUIPMENT SHALL BE OFF ROADWAY AND MARKED WITH CHANNELIZING DEVICES.

TEMPORARY TRAFFIC SIGNALS:

1. TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL BE PAID AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL ALL-INCLUSIVE)
2. DESIGN OF THE SIGNAL SUPPORTS AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. SIGNAL PHASING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED WITHIN A 48 HOUR PERIOD.
4. SIGNAL FACES SHALL BE LED AND CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
5. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16.5 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO ENSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
6. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER FACES.
7. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. HOWEVER, THE USE OF PORTABLE SIGNALS IS ENCOURAGED. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE OF NO GREATER THAN 14.5 FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE CURRENT EDITION OF THE MUTCD FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
8. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
9. THE SIGNAL SYSTEM SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, LUMINAIRES, FLASHING BEACONS, ASSOCIATED PAVEMENT MARKINGS, AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. IT ALSO INCLUDES PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
10. INSTALL WIRING BETWEEN SIGNAL POLES TO PROVIDE FOR A SAFE INSTALLATION. ATTACHMENT TO UTILITY POLES TO BE COORDINATED BY THE CONTRACTOR WITH THE UTILITY COMPANY.
11. PLACE TEMPORARY POLES BEHIND GUARDRAIL OR OUTSIDE OF THE CLEAR ZONE.
12. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELING PUBLIC.
13. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
14. A 250 WATT MER/150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30 FEET ABOVE ROADWAY CENTERLINE. THE INTENT IS TO ILLUMINATE THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
15. SEE STD. E-121 FOR SIGN PLACEMENT. SEE STDS. E-171A AND E-172 FOR ADDITIONAL INFORMATION ON SIGNALS.
16. ALL ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
17. ALL STOP SIGNS AND ANY TRAFFIC SIGNS MADE IRRELEVANT DUE TO THE TEMPORARY SIGNAL SHALL BE COMPLETELY COVERED DURING OPERATION OF THE TEMPORARY SIGNAL OR AT THE DISCRETION OF THE ENGINEER.
18. CONSTRUCTION APPROACH SIGNS SHALL BE PROVIDED ON EACH APPROACH PER THE "TRAFFIC CONTROL APPROACH SIGN PACKAGE" SHOWN ON THE TRAFFIC CONTROL PLAN SHEETS. ADDITIONAL CONSTRUCTION APPROACH SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PER STANDARDS T-1, T-10 AND T-17.
19. THE SIGNAL SYSTEM SHALL UTILIZE VEHICLE DETECTION AND BE PROGRAMMED TO DWELL ON RED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SIGNAL PHASING AND TIMING. THE CONTRACTOR SHALL SUBMIT A PHASING DIAGRAM TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL MAKE SIGNALS OPERATIONAL ONLY AFTER RECEIVING APPROVAL OF THE PHASING DIAGRAM BY THE ENGINEER.

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
PROJECT NOTES

PLOT DATE: 10/21/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES							TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE NO. 6	BRIDGE NO. 7	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 (VT 58 - BRIDGE NO. 6)	201.10				
1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS (VT 58 - BRIDGE NO. 7)	201.10				
1260					1260		CY	COMMON EXCAVATION	203.15				
		600	540		1140		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
		1620	960		2580		CY	STRUCTURE EXCAVATION	204.25				
		870	330		1200		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
			1		1		LS	COFFERDAM (OUTLET, STA. 1+85.00)	208.40				
680					680		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
940					940		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
		5	5		10		GAL	WATER REPELLENT, SILANE	514.10				
		220	200		420		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
			1		1		EACH	REMOVAL OF STRUCTURE (96" X 65' CGMP)	529.15				
		1			1		EACH	REMOVAL OF STRUCTURE (96" X 90' CGMP)	529.15				
			1		1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 10'-0" X 56'-0" BOX)	540.10				
		1			1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 8'-0" X 66'-6" BOX)	540.10				
1					1		MGAL	DUST CONTROL WITH WATER	609.10				
1					1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
		100	410		510		CY	STONE FILL, TYPE III	613.12				
			210		210		CY	RIPRAP, HEAVY TYPE	613.15				
263					263		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
638					638		LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205				
150					150		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
50					50		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED	621.216				
8					8		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
1063					1063		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
		170	230		400		TON	CRUSHED STONE BEDDING	629.54				
20					20		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
100					100		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				
1230					1230		LF	DURABLE 4 INCH WHITE LINE	646.400				
1230					1230		LF	DURABLE 4 INCH YELLOW LINE	646.410				
		310	440		750		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11				
		100	570		670		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	60				60		SY	GEOTEXTILE FOR SILT FENCE	649.51				

NOTE: FOR DETAILED BREAKDOWN OF QUANTITIES BETWEEN BR6 AND BR7 SEE BR6 AND BR7 QUANTITY SHEETS

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
QUANTITY SHEET 1

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 5 OF 55

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES													TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE NO. 6	BRIDGE NO. 7	FULL C.E. ITEMS			GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						40							40		LB	SEED	651.15				
						270							270		LB	FERTILIZER	651.18				
						2							2		TON	AGRICULTURAL LIMESTONE	651.20				
						2							2		TON	HAY MULCH	651.25				
						180							180		CY	TOPSOIL	651.35				
						610							610		SY	GRUBBING MATERIAL	651.40				
							1						1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 6)	652.10				
							1						1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 7)	652.10				
							80						80		HR	MONITORING EPSC PLAN	652.20				
							1						1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 6)	652.30				
							1						1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 7)	652.30				
							2310						2310		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				
							4						4		EACH	FILTER BAG	653.45				
							1660						1660		LF	PROJECT DEMARCATION FENCE	653.55				
						2							2		SF	TRAFFIC SIGNS, TYPE A	675.20				
						75							75		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						2							2		EACH	REMOVING SIGNS	675.50				
						2							2		EACH	ERECTING SALVAGED SIGNS	675.60				
						1							1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
								200	300				500		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608				
								1					1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 6)	900.645				
									1				1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 7)	900.645				
						1							1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 58 - BRIDGE NO. 6)	900.645				
						1							1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 58 - BRIDGE NO. 7)	900.645				
						2							2		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I)	900.650				
						2							2		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						810							810		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
						15							15		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

NOTE: FOR DETAILED BREAKDOWN OF QUANTITIES BETWEEN BR6 AND BR7 SEE BR6 AND BR7 QUANTITY SHEETS

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
QUANTITY SHEET 2

PLOT DATE: 10/21/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 6 OF 55

BR6 QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES				TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE NO. 6	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 (VT 58 - BRIDGE NO. 6)	201.10				
680				680		CY	COMMON EXCAVATION	203.15				
		600		600		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
0.5				0.5		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
		1620		1620		CY	STRUCTURE EXCAVATION	204.25				
		870		870		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
340				340		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
500				500		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
0.5				0.5		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
		5		5		GAL	WATER REPELLENT, SILANE	514.10				
		220		220		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
		1		1		EACH	REMOVAL OF STRUCTURE (96" X 90' CGMP)	529.15				
		1		1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 8'-0" X 66'-6" BOX)	540.10				
0.5				0.5		MGAL	DUST CONTROL WITH WATER	609.10				
0.5				0.5		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
		100		100		CY	STONE FILL, TYPE III	613.12				
638				638		LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205				
4				4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
625				625		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
		170		170		TON	CRUSHED STONE BEDDING	629.54				
10				10		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
50				50		HR	FLAGGERS	630.15				
			0.5	0.5		LS	FIELD OFFICE, ENGINEERS	631.10				
			0.5	0.5		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
			1500	1500		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
0.5				0.5		LS	MOBILIZATION/DEMOBILIZATION	635.11				
640				640		LF	DURABLE 4 INCH WHITE LINE	646.400				
640				640		LF	DURABLE 4 INCH YELLOW LINE	646.410				
		310		310		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11				
		100		100		SY	GEOTEXTILE UNDER STONE FILL	649.31				
	30			30		SY	GEOTEXTILE FOR SILT FENCE	649.51				
30				30		LB	SEED	651.15				
200				200		LB	FERTILIZER	651.18				
1				1		TON	AGRICULTURAL LIMESTONE	651.20				
1				1		TON	HAY MULCH	651.25				
130				130		CY	TOPSOIL	651.35				
100				100		SY	GRUBBING MATERIAL	651.40				
	1			1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 6)	652.10				
	40			40		HR	MONITORING EPSC PLAN	652.20				
	1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 6)	652.30				

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BR6 QUANTITY SHEET 1

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE

BR6 QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES							TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE NO. 6	FULL C.E. ITEMS				GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
	1940						1940		SY	TEMPORARY EROSION MATTING	653.20				
	10						10		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
	30						30		CY	VEHICLE TRACKING PAD	653.35				
	2						2		EACH	FILTER BAG	653.45				
	910						910		LF	PROJECT DEMARCATION FENCE	653.55				
1							1		SF	TRAFFIC SIGNS, TYPE A	675.20				
30							30		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
0.5							0.5		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
		200					200		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608				
		1					1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 6)	900.645				
1							1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 58 - BRIDGE NO. 6)	900.645				
1							1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I)	900.650				
1							1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
430							430		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
8							8		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

Stantec

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BR6 QUANTITY SHEET 2

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 8 OF 55

BR7 QUANTITY SHEET 1

| SUMMARY OF ESTIMATED QUANTITIES | | |

BR7 QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES															TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
							ROADWAY	EROSION CONTROL ITEMS -		BRIDGE NO. 7		FULL C.E. ITEMS			GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							510								510		SY	GRUBBING MATERIAL	651.40				
								1							1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 7)	652.10				
								40							40		HR	MONITORING EPSC PLAN	652.20				
								1							1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 7)	652.30				
								370							370		SY	TEMPORARY EROSION MATTING	653.20				
								10							10		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
								30							30		CY	VEHICLE TRACKING PAD	653.35				
								2							2		EACH	FILTER BAG	653.45				
								750							750		LF	PROJECT DEMARCATION FENCE	653.55				
							1								1		SF	TRAFFIC SIGNS, TYPE A	675.20				
							45								45		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							2								2		EACH	REMOVING SIGNS	675.50				
							2								2		EACH	ERECTING SALVAGED SIGNS	675.60				
							0.5								0.5		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
										300					300		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608				
										1					1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 7)	900.645				
							1								1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT-58 - BRIDGE NO. 7)	900.645				
							1								1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
							1								1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
							380								380		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
							7								7		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BR7 QUANTITY SHEET 2

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 10 OF 55

Stantec

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	BENCHMARK
	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

- UGU — UTILITY (GENERIC-UNKNOWN)
- 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)

- AGU — UTILITY (GENERIC-UNKNOWN)
- 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 — PROJECT DEMARCATION FENCE
- 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 — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6F — 6F PROPERTY BOUNDARY
- 4F — 4F PROPERTY BOUNDARY
- 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
- (H) HISTORIC STRUCTURE

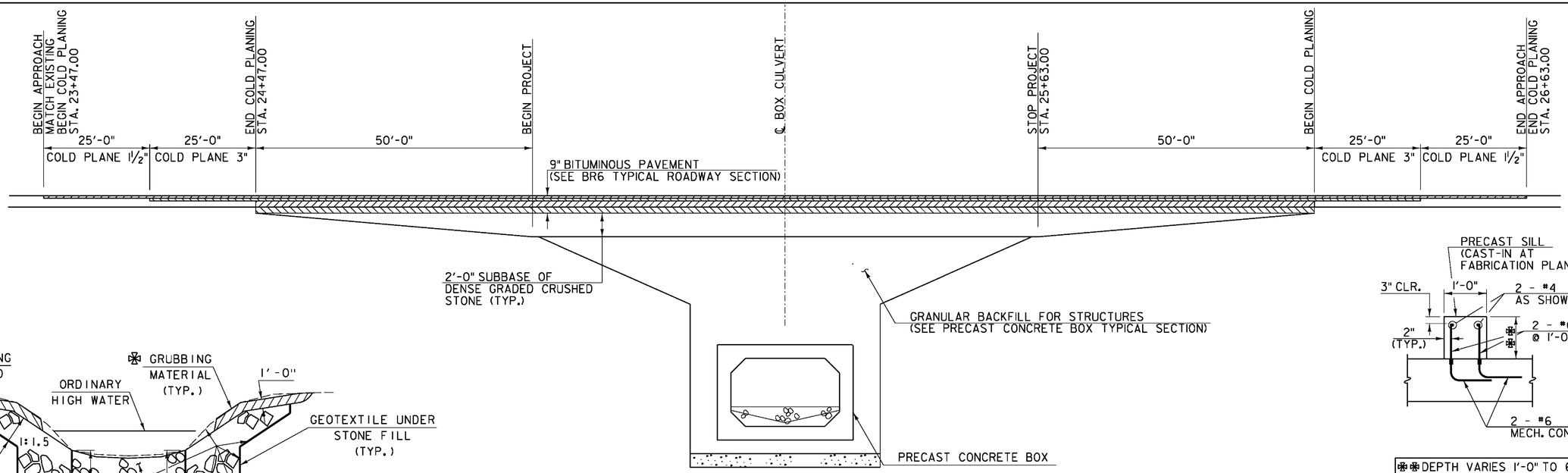
CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

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

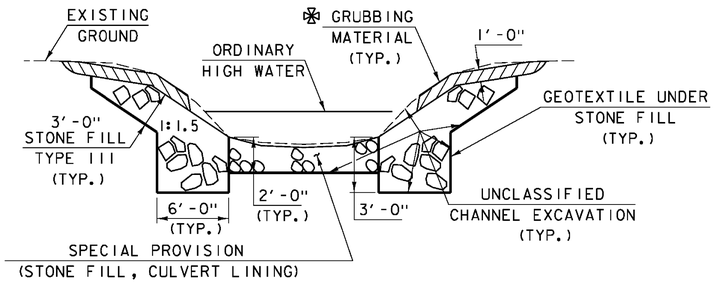
Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266legend.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: VTRANS
DESIGNED BY: VTRANS	CHECKED BY: VTRANS
CONVENTIONAL SYMBOLOGY LEGEND	SHEET 11 OF 55



TYPICAL APPROACH SECTION - BR6

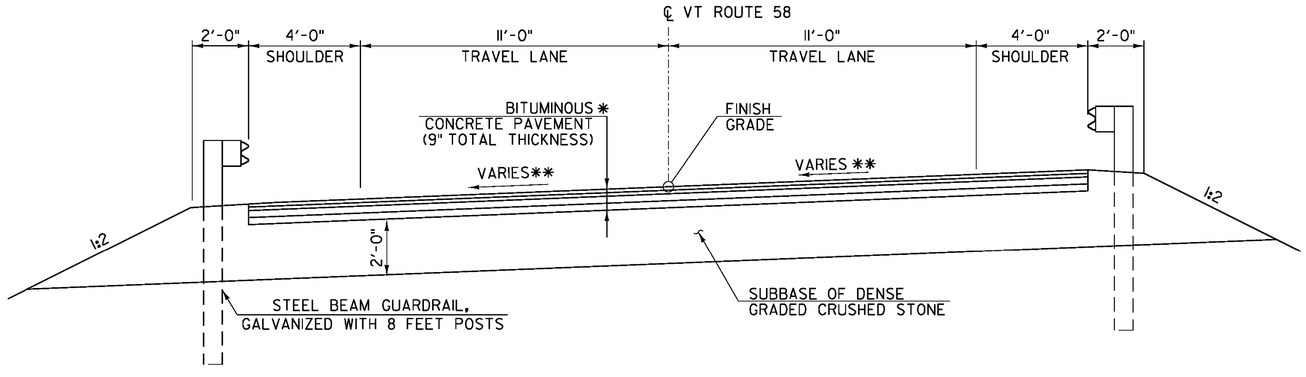
NOT TO SCALE



CHANNEL TYPICAL SECTION

NOT TO SCALE

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

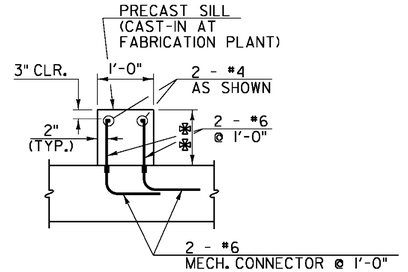


BR6 TYPICAL ROADWAY SECTION

SCALE ⅜" = 1'-0"

✱ BITUMINOUS CONCRETE PAVEMENT:
- 1½" TYPE IVS OVER
- 1½" TYPE IVS OVER
- 3" TYPE IIS OVER
- 3" TYPE IIS

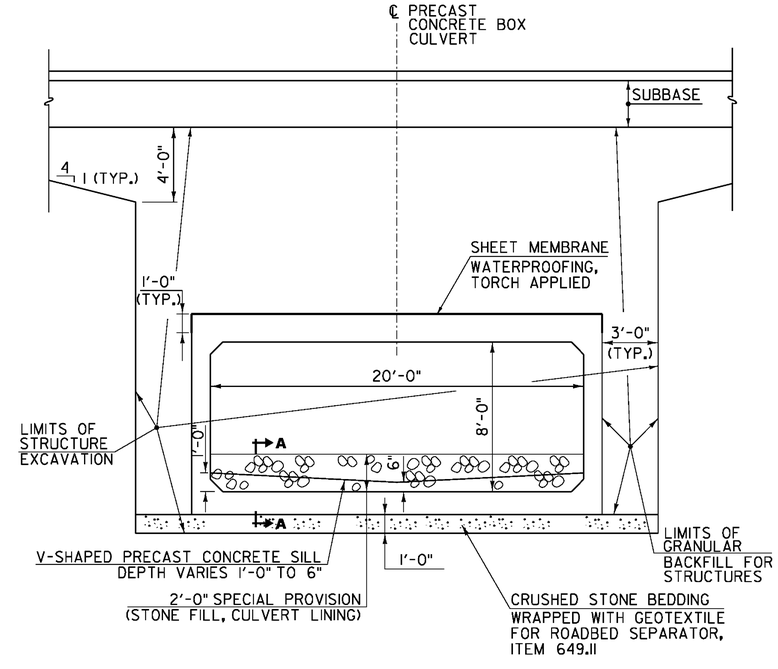
✱✱ SEE BANKING DIAGRAM ON SHEET 15, MATCH EXISTING CROSS SLOPE ON APPROACHES.



✠✠ DEPTH VARIES 1'-0" TO 6"

SECTION A-A

NOT TO SCALE



PRECAST CONCRETE BOX TYPICAL SECTION - BR6

SCALE: ¼" = 1'-0"

MATERIAL TOLERANCES
(IF USED ON PROJECT)

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

BUILT AS DESIGNED

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266typsec.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
TYPICAL SECTIONS - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE

GEODETIC CONTROL

Geodetic control was established from a static GPS survey on temporary marks. No descriptions are available. Horizontal values were derived from a network adjustment tied to the following Continuously Operating Reference Stations (CORS):

VTHA Hardwick
VTIP Brighton
VTD9 Derby

And the following Cooperative Base Network Control Station (CBN):

ASBESTOS

Elevations were computed from a network adjustment using GEOID 09 and local ties to the following benchmarks:

ASBESTOS
D 55
P 55

TRAVERSE TIES

HVCTRL #1

NORTH = 843735.292
EAST = 1690354.252
ELEV. = 870.078

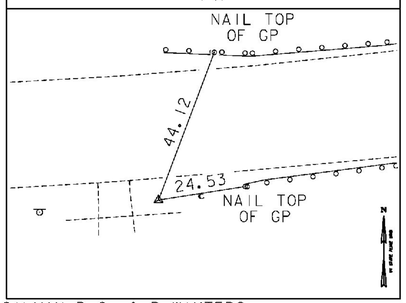
VW AZ MK

NOT TIED

HVCTRL #2

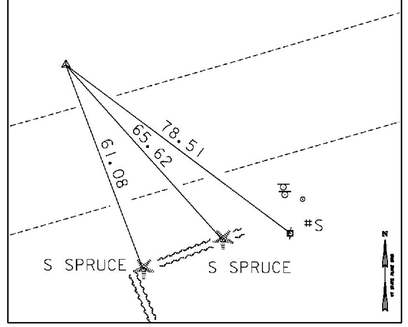
NORTH = 843646.397
EAST = 1691661.171
ELEV. = 855.406

VW



HVCTRL #3

NORTH = 843765.768
EAST = 1692036.143
ELEV. = 855.340



NORTH = / EAST = / ELEV. =

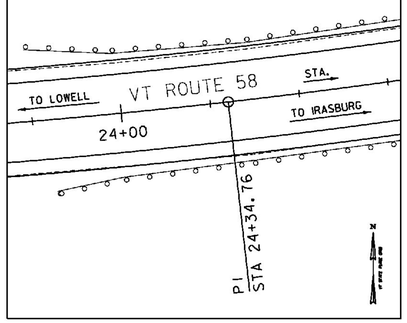
NORTH = / EAST = / ELEV. =

* MAIN TRAVERSE COMPLETED 2/7/2012 BY R.GILMAN P.C. & P.WINTERS

ALIGNMENT TIES

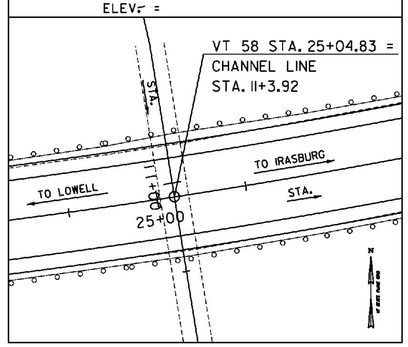
PI, STA. 24+34.76

NORTH = 843673.050
EAST = 1691719.844
ELEV. =



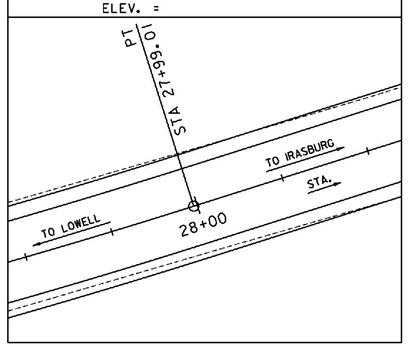
VT58, STA. 25+04.83

NORTH = 843682.925
EAST = 1691793.960
ELEV. =



PT, STA. 27+99.01

NORTH = 843749.780
EAST = 1692308.6131
ELEV. =



NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

DATUM			
VERTICAL	NAVD 88		
HORIZONTAL	NAD 83(07)	ZONE	Vermont 4400
ADJUSTMENT	COMPASS	GEOID	GEOID09 (Conus)

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266tie_br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
SURVEY CONTROL AND TIES - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 13 OF 55

621.205 - STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS
STA. ~~23+70.18, LT. TO 26+94.55, LT.~~ 23+70, LT. TO 26+95, LT.
STA. ~~23+77.40, RT. TO 26+84.27, RT.~~ 23+59, RT. TO 26+84, RT.

621.60 - ANCHOR FOR STEEL BEAM RAIL
STA. 23+70.~~18~~, LT.
STA. ~~23+77.40,~~ RT. 23+59
STA. 26+84.~~27~~, RT.
STA. ~~26+94.55,~~ LT. 26+95

621.80 - REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 23+74.09, LT. TO 26+92.52, LT.
STA. 23+74.67, RT. TO 26+79.79, RT.

675.20 - TRAFFIC SIGNS, TYPE A
675.341 SQUARE TUBE SIGN POST AND ANCHOR
STA. 24+90, RT.
STA. 25+20 LT.

646.400- DURABLE 4 INCH WHITE LINE
STA. 23+47.0, RT. TO STA. 26+63.0, RT.
STA. 23+47.0, LT. TO STA. 26+63.0, LT.

646.410- DURABLE 4 INCH YELLOW LINE
STA. 23+47.0, CL. TO STA. 26+63.0, CL. (DYCL)

CURVE DATA
PC = 20+61.10
DELTA = 22° 15' 07.6"
D = 3° 00' 56.04"
R = 1900.00'
T = 373.66'
L = 737.91'
E = 36.39'

N

VT STATE PLANE GRID

STATE OF VERMONT
HIGHWAY DEPARTMENT

NELSON FARMS, INC.

BEGIN SPECIAL PROVISION (STONE FILL, CULVERT LINING)
STA. 10+58.00

ASSUMED 25' x 25' TEMPORARY WORK AREA FOR IMPOUNDMENT AND/OR STREAM DIVERSION.
WP1
N 843711.16'
E 1691789.39'
STA. 25+20, LT.

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

EXISTING ROW

VT 58 STA. 25+04.83 = CHANNEL LINE STA. 11+03.92

STONE FILL, TYPE III (TYP.)

BEGIN PROJECT
STA. 24+47.00

NEW PUSH BRACE, BY OTHERS
GUY WIRE TO BE REMOVED, BY OTHERS

TO IRASBURG

EXIST. 96" CGMP TO BE REMOVED

VT ROUTE 58

TO LOWELL

S 85° 20' 10.63" E

N 72° 24' 41.75" E

STOP PROJECT
STA. 25+63.00

END APPROACH MATCH EXISTING
END COLD PLANING
STA. 26+63.00

EXISTING ROW

BEGIN COLD PLANING
STA. 26+13.00

BEGIN APPROACH MATCH EXISTING
BEGIN COLD PLANING
STA. 23+47.00

END COLD PLANING
STA. 23+97.00

BEGIN BRIDGE
STA. 24+93.83
STA. 24+90, RT.

END BRIDGE
STA. 25+15.83

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

PI STA 24+34.76 BCK
PI STA 24+25.35 AHD

BERNARD & DENISE ROBILLARD

ROBILLARD, GUY & HELEN

WP2
N 843645.52'
E 1691800.02'

BRIGHTON BROOK

STONE FILL, CULVERT LINING (TYP.)

END SPECIAL PROVISION (STONE FILL, CULVERT LINING)
STA. 11+60.00

PLAN
SCALE: 1" = 20'-0"
0 20 40

TRAFFIC SIGN SUMMARY

STATION	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW SIGNS "A"	NEW SIGNS "B"	NEW SIGN POSTS NO. OF POSTS	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	REMARKS	STD. SHEET NUMBER
24+90, RT	BRIDGE 6 VT 58	1	6	8	0.33		1	X			X		VR-701	T-42
25+20, LT	BRIDGE 6 VT 58	1	6	8	0.33		1	X			X		VR-701	T-42
		TOTALS			SF 0.66	SF		FT 30						

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."

LEGEND
STONE FILL, TYPE III
SPECIAL PROVISION (STONE FILL, CULVERT LINING)

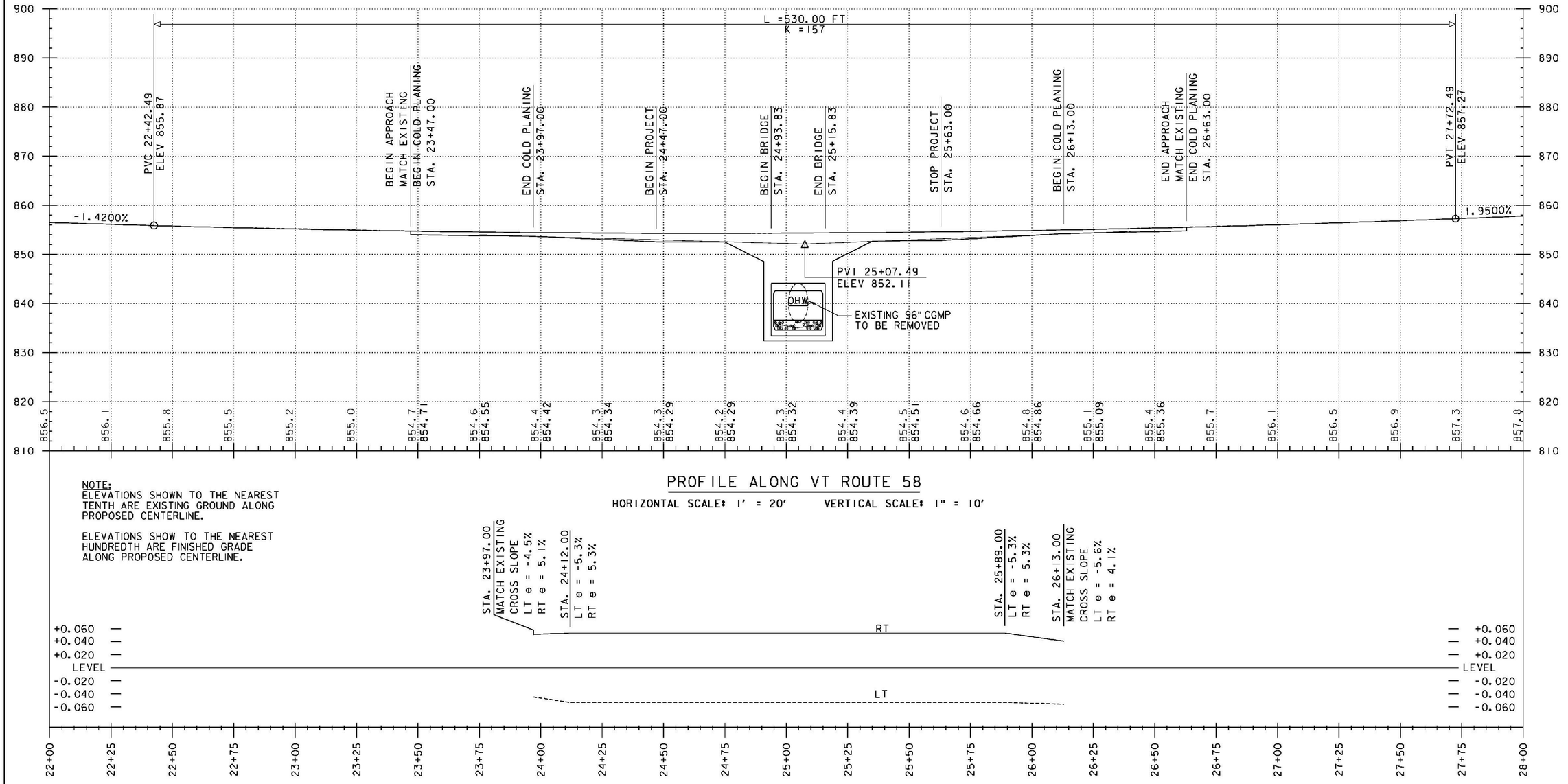
NOTES:
1. GRADE IN ACCORDANCE WITH TYPICAL ROADWAY SECTION AND ROADWAY CROSS SECTIONS UNLESS NOTED OTHERWISE.

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bdr_br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
PLAN LAYOUT SHEET - BR6

PLOT DATE: 10/21/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 14 OF 55



NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT ROUTE 58

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: 1" = 10'

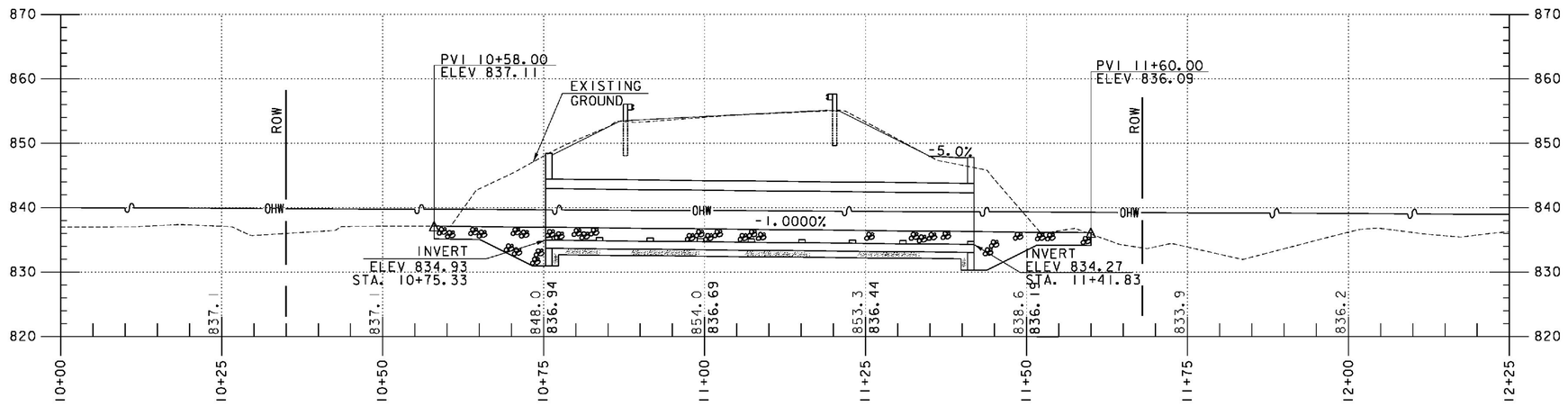
BANKING DIAGRAM

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: N.T.S.

NOTE:
STATIONING IN FEET AND
SUPERELEVATIONS IN PERCENTAGES

Stantec

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266pro.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
ROADWAY PROFILE - BR6	SHEET 15 OF 55



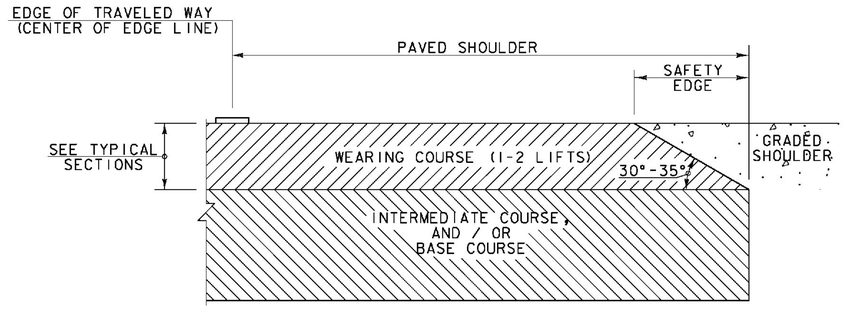
NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.

STREAM PROFILE

0 10 20

SCALE



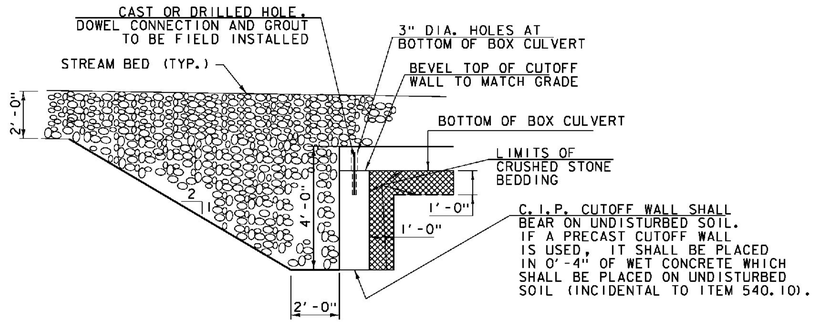
SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.

2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".

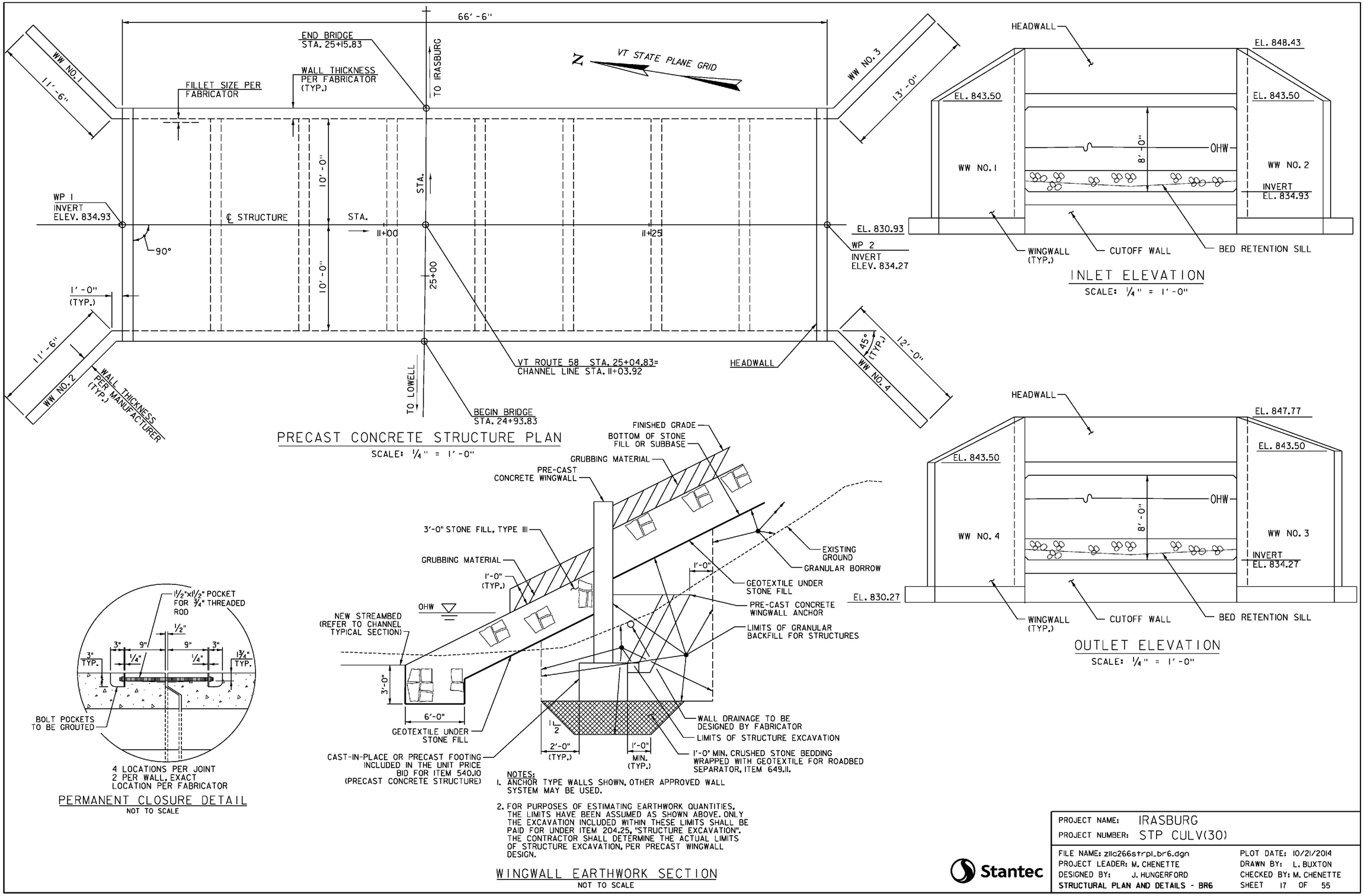


CUTOFF WALL DETAIL

NOT TO SCALE

Stantec

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266strm_pro.dgn	PLOT DATE: 10/21/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
STREAM PROFILE - BR6	SHEET 16 OF 55



PRECAST CONCRETE STRUCTURE PLAN

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

INLET ELEVATION

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

OUTLET ELEVATION

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

4 LOCATIONS PER JOINT
2 PER WALL, EXACT
LOCATION PER FABRICATOR

PERMANENT CLOSURE DETAIL

NOT TO SCALE

NOTES:

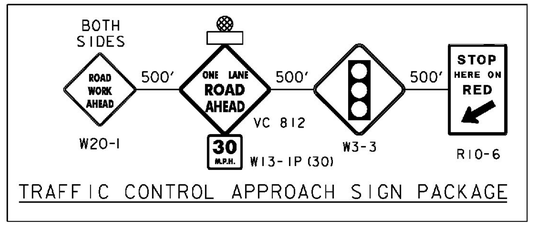
1. ANCHOR TYPE WALLS SHOWN, OTHER APPROVED WALL SYSTEM MAY BE USED.
2. FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS HAVE BEEN ASSUMED AS SHOWN ABOVE. ONLY THE EXCAVATION INCLUDED WITHIN THESE LIMITS SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". THE CONTRACTOR SHALL DETERMINE THE ACTUAL LIMITS OF STRUCTURE EXCAVATION, PER PRECAST WINGWALL DESIGN.

WINGWALL EARTHWORK SECTION

NOT TO SCALE

Stantec

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266strpl_br6.dgn	PLOT DATE: 10/21/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
STRUCTURAL PLAN AND DETAILS - BR6	SHEET 17 OF 55



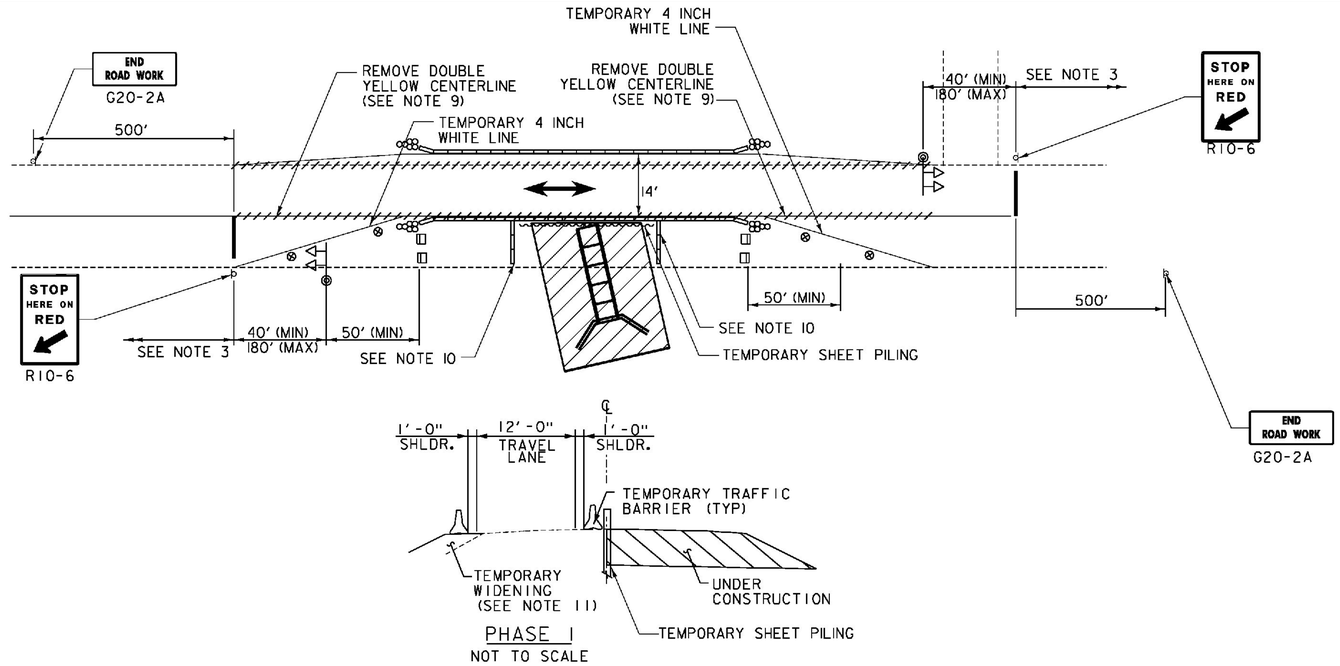
TRAFFIC CONTROL APPROACH SIGN PACKAGE

NOTES:

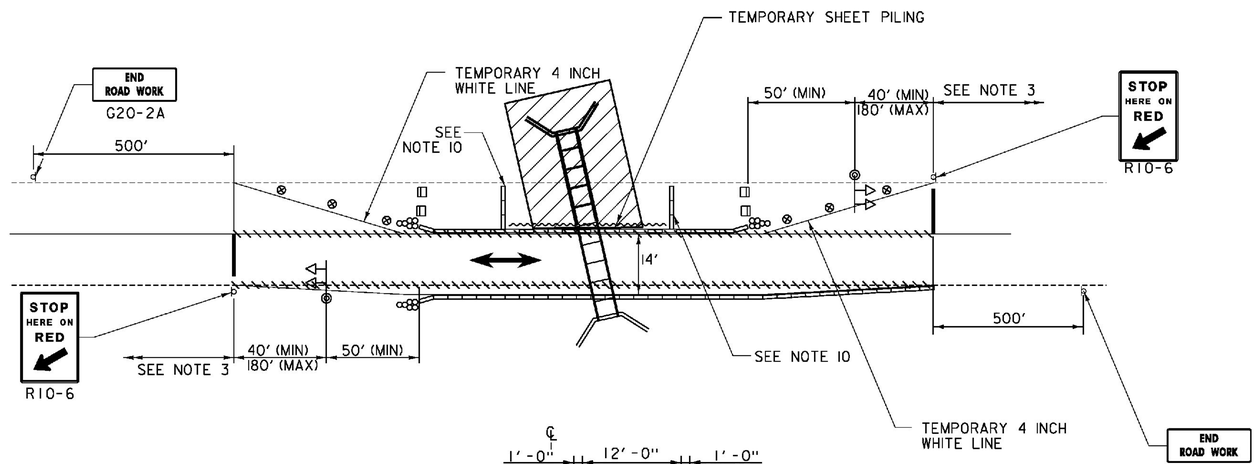
1. SEE SHEET 4 FOR GENERAL TRAFFIC CONTROL NOTES.
2. REFER TO STANDARD T-10 FOR CONSTRUCTION APPROACH SIGNS CRITERIA.
3. REFER TO "TRAFFIC CONTROL APPROACH SIGN PACKAGE" DETAIL THIS SHEET.
4. CHANNELIZING DEVICE SPACING
   TANGENT SECTIONS: 60 FT. (2X DESIGN SPEED LIMIT)
   TAPER SECTIONS: 30 FT. (1X DESIGN SPEED LIMIT)
   DESIGN SPEED THROUGH CONSTRUCTION ZONE = 30MPH
5. ACCESS TO ALL EXISTING SIDE ROADS, DRIVES, AND PARKING AREAS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. TRAFFIC CONTROL SHALL ALLOW FOR A WB-67 DESIGN VEHICLE.
7. ATTENUATORS SHALL MEET THE POSTED SPEED OF 50 MPH.
8. CHANNELIZING DEVICES LEFT OVERNIGHT SHALL BE DRUMS.
9. REMOVED CENTERLINE TO BE REPLACED WITH DURABLE 4 INCH YELLOW LINE.
10. TEMPORARY TRAFFIC BARRIER TO BE IN PLACE WHILE EXCAVATION IS OPEN AND WORK IS NOT ACTIVE OR AT THE DISCRETION OF THE ENGINEER.
11. TEMPORARY WIDENING TO BE PAID FOR AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)

LEGEND

- UNDER CONSTRUCTION
- ALTERNATING ONE WAY TRAFFIC
- TEMPORARY TRAFFIC BARRIER
- CHANNELIZING DEVICE
- ENERGY ABSORPTION ATTENUATOR
- TYPE III BARRIER
- CONSTRUCTION SIGN
- TEMPORARY TRAFFIC SIGNAL
- FLASHING BEACON
- REMOVE OR MASK PAVEMENT MARKINGS



PHASE 1
NOT TO SCALE



PHASE 2
NOT TO SCALE

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266tc.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: I. MAYNARD	CHECKED BY: M. CHENETTE
TRAFFIC CONTROL PLAN - BR6	SHEET 18 OF 55

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

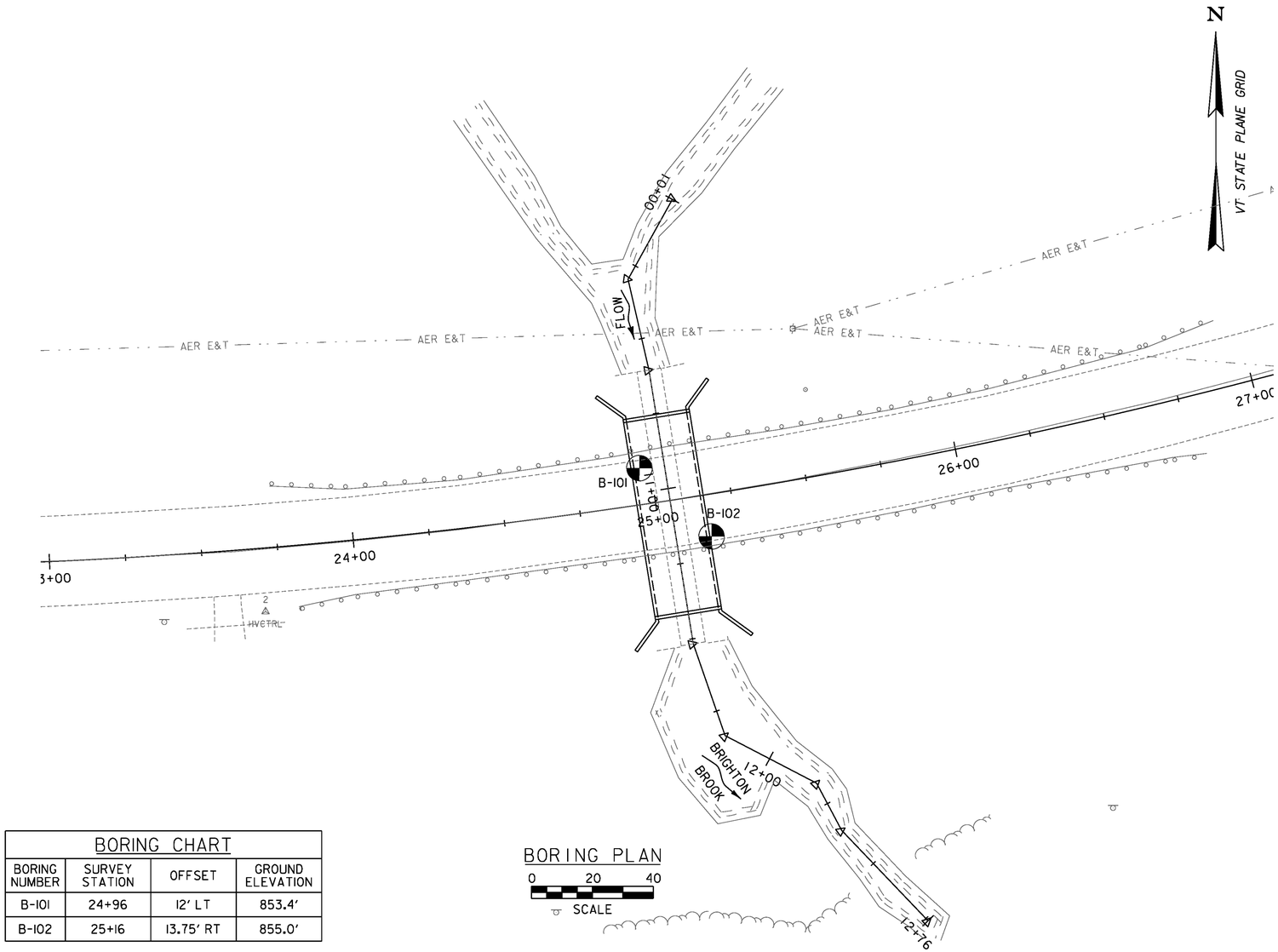
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

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



BORING PLAN

0 20 40

SCALE

BORING CHART			
BORING NUMBER	SURVEY STATION	OFFSET	GROUND ELEVATION
B-101	24+96	12' LT	853.4'
B-102	25+16	13.75' RT	855.0'

DEFINITIONS (AASHTO)

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

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

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

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

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

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made on Oct. 25, 2012 by N.H. Boring.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

Stantec

LEGEND:

BRIDGE BORING

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bdr_bor_pl_br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BORING PLAN - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: J. HUNGERFORD
SHEET 19 OF 55

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

BORING LOG

IRASBURG
STP CULV(30)
VT-58 BR-6&7

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 11C266
Checked By: LAR

Boring Crew: GARROW, JUDKINS
Date Started: 10/11/12 Date Finished: 10/11/12
VTSPG NAD83: N 843693.56 ft E 1691783.85 ft
Station: 24+96 Offset: 12' LT
Ground Elevation: 853.4

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
10/11/12	15.0	Bedstream Bottom

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Asphalt Pavement, 0.0 ft – 0.8 ft							
		A-4, SlSa, brn, Moist, Rec. = 1.0 ft	7-3-3-3 (6)	15.4	12.4	44.2	43.4		
10		Visual Description:, SlGrSa, brn, Moist, Rec. = 0.8 ft	22-13-13-7 (26)						
		Visual Description:, GrSa, brn, Moist, Rec. = 0.8 ft	3-2-5-4 (7)						
		Field Note:, No Recovery, Stone in sampler.	7-6-4-2 (10)						
BOTTOM OF CULVERT APPROX. EL. 833.9									
20		A-2-4, SlSa, Dk/brn, MTW, Rec. = 0.9 ft	4-2-1-1 (3)	42.1	0.5	64.7	34.8		
		Visual Description:, SlSa, Dk/brn, MTW, Rec. = 1.5 ft	1-2-1-2 (3)						
		Visual Description:, SlSa, yellow, MTW, Rec. = 0.1 ft	7-5-8-8 (13)						
		Field Note:, No Recovery	11-8-8-8 (16)						
		A-4, Si, gry, Wet, Rec. = 0.9 ft	7-5-3-4 (8)	26.5		17.3	82.7		
30		Visual Description:, Si, gry, MTW, Rec. = 1.4 ft	2-3-2-2 (5)						
		A-4, Si, gry, MTW, Rec. = 1.4 ft	2-3-5-5 (8)	26.0		17.0	83.0		
		Visual Description:, Si, gry, MTW, Rec. = 1.2 ft	2-3-4-6 (7)						
		A-4, Si, gry, MTW, Rec. = 1.5 ft	3-3-4-5 (7)	24.7		1.6	98.4	23	6
		Visual Description:, Si with little clay, gry, MTW, Rec. = 1.6 ft	3-3-3-4 (6)						
40		Field Note:, No Recovery in Shelby Tube							
		Visual Description:, SlCl, gry, Moist, Rec. = 1.8 ft	3-3-4-6 (7)						
		A-6, SlCl, gry, MTW, Rec. = 1.5 ft	4-5-7-6 (12)	26.5		0.8	99.2	29	11
		Visual Description:, SlCl, gry, MTW, Rec. = 1.8 ft	3-4-6-6 (10)						
		Visual Description:, SlCl, gry, MTW, Rec. = 1.6 ft	5-4-4-6 (8)						
50		Hole stopped @ 50.0 ft							

Remarks:
15.0 feet to bed of stream.

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

BORING LOG 2 IRASBURG STP CULV(30).GPJ VERMONT AOT.GDT 1/28/13

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

BORING LOG

IRASBURG
STP CULV(30)
VT-58 BR-6&7

Boring No.: B-102
Page No.: 1 of 1
Pin No.: 11C266
Checked By: LAR

Boring Crew: GARROW, JUDKINS
Date Started: 10/12/12 Date Finished: 10/12/12
VTSPG NAD83: N 843671.01 ft E 1691807.52 ft
Station: 25+16 Offset: 13.75' RT
Ground Elevation: 855.0

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Asphalt Pavement, 0.0 ft – 0.8 ft							
		Visual Description:, SaGr, brn, Moist, Rec. = 0.6 ft	8-8-8-7 (16)						
10		Visual Description:, Broken Rock pieces, gry, Moist, Rec. = 0.1 ft Field Note:, Boulder	14-R@6.0"						
		Visual Description:, GrSa, brn, MTW, Rec. = 0.4 ft	4-4-3-3 (7)						
		Field Note:, No Recovery, Stone in sampler.	4-3-2-4 (5)						
BOTTOM OF CULVERT APPROX. EL. 833.6									
20		Visual Description:, One stone with little sand, gry, Moist, Rec. = 0.1 ft	3-4-3-4 (7)						
		A-2-4, GrSiSa, Dk/gry, MTW, Rec. = 0.7 ft	4-6-5-2 (11)	17.6	26.1	40.2	33.7		
		Visual Description:, GrSiSa, gry, MTW, Rec. = 0.8 ft	4-4-4-3 (8)						
		A-4, SaSi, gry, Wet, Rec. = 1.1 ft	2-2-4-4 (6)	26.5	0.4	43.7	55.9		
		Visual Description:, SiSa, gry, Wet, Rec. = 1.5 ft	2-4-4-4 (8)						
30		A-4, ClSi, gry, Moist, Rec. = 1.7 ft	4-5-5-5 (10)	22.9		3.2	96.8	25	8
		Visual Description:, ClSi, gry, MTW, Rec. = 1.3 ft	2-5-4-6 (9)						
		A-6, SlCl, gry, MTW, Rec. = 1.8 ft	2-4-3-3 (7)	26.3		1.0	99.0	30	11
		Visual Description:, ClSi, gry, MTW, Rec. = 1.4 ft	2-4-5-5 (9)						
		A-4, ClSi, gry, MTW, Rec. = 1.4 ft	3-3-6-6 (9)	24.4		16.6	83.4	23	8
40		Visual Description:, ClSi, gry, MTW, Rec. = 1.4 ft	2-4-6-5 (10)						
		A-4, ClSi, gry, MTW, Rec. = 1.6 ft	4-5-6-4 (11)	23.1		13.3	86.7	24	10
		Visual Description:, SlCl, gry, MTW, Rec. = 1.4 ft	3-6-9-12 (15)						
		A-6, SlCl, gry, MTW, Rec. = 1.6 ft	4-8-10-12 (18)	24.1		5.5	94.5	34	14
		Visual Description:, SlCl, gry, MTW, Rec. = 1.6 ft	4-8-12-16 (20)						
50		Hole stopped @ 50.0 ft							

Remarks:
15.0 feet to bed of stream.

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

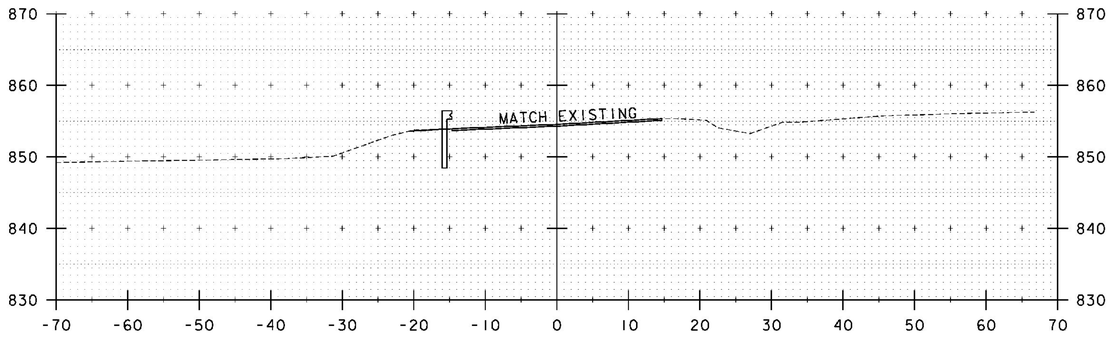
BORING LOG 2 IRASBURG STP CULV(30).GPJ VERMONT AOT.GDT 1/28/13

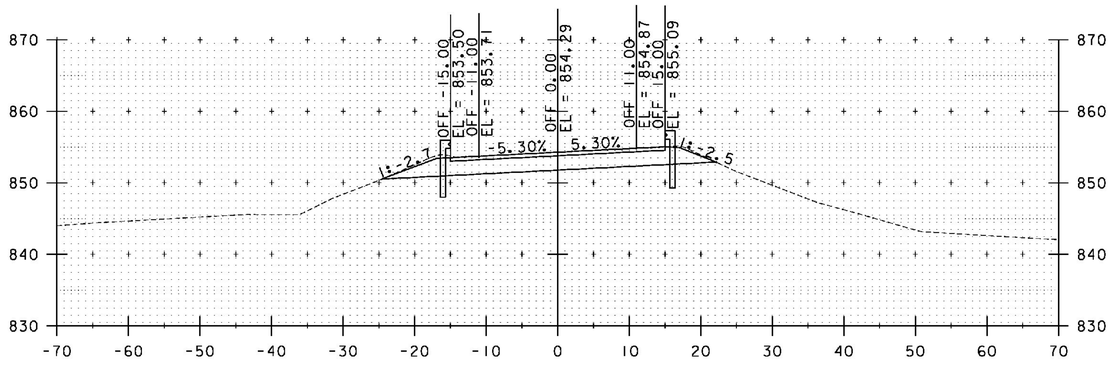
Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

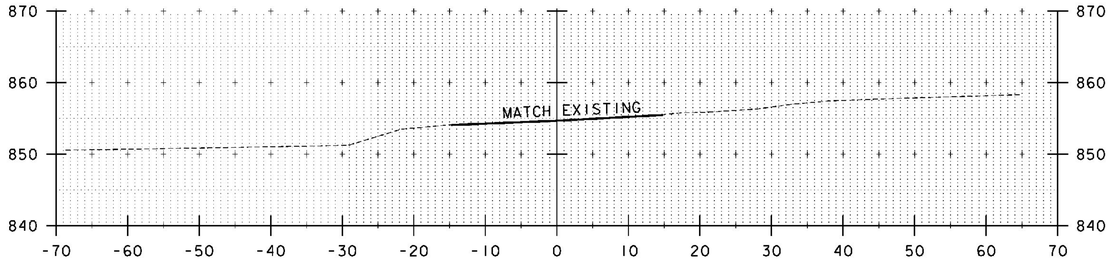
FILE NAME: z11c266bor_log_br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: VTRANS
BORING LOG - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: VTRANS
SHEET 20 OF 55



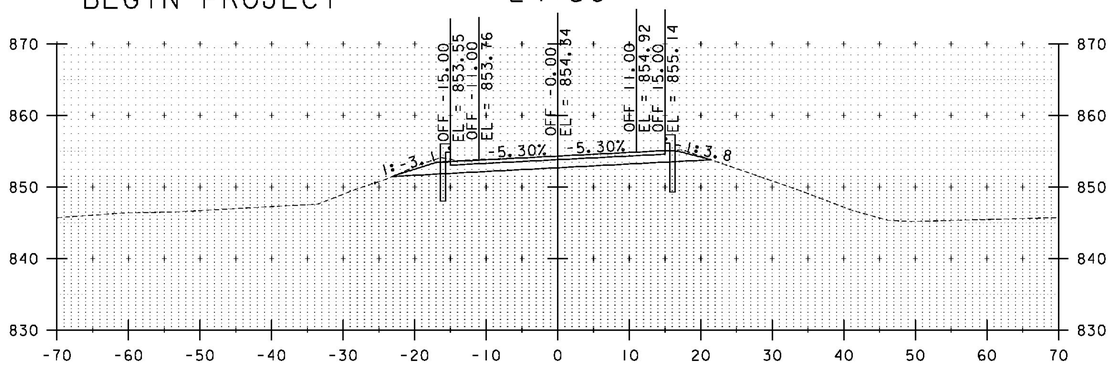


23+75



24+47
BEGIN PROJECT

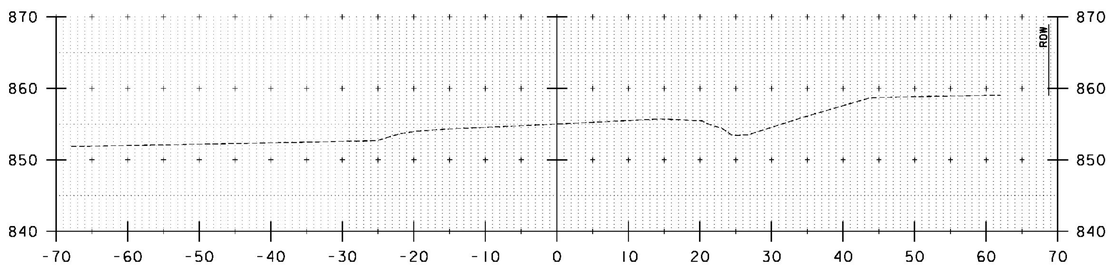
24+50



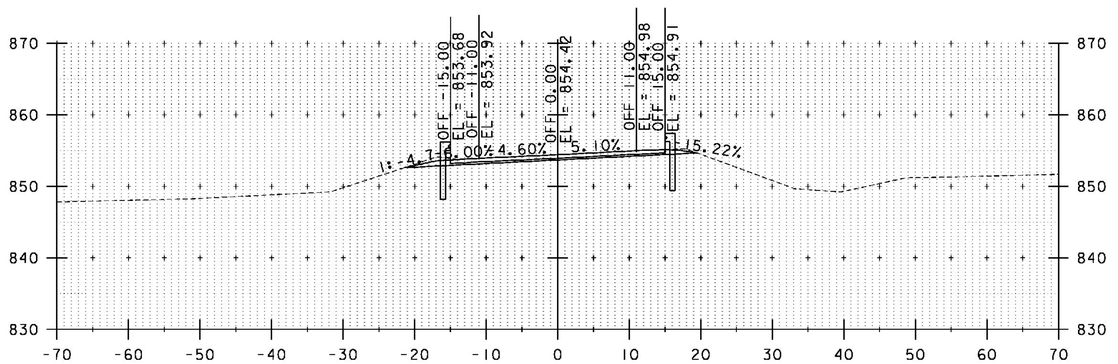
24+25

23+47
BEGIN APPROACH

23+50



23+25



24+00

STA. 23+25 TO STA. 24+50

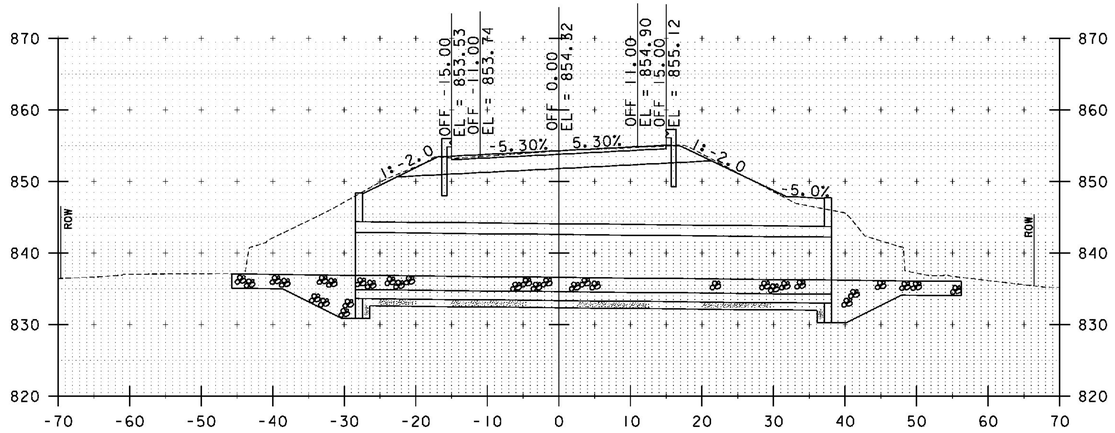
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXSI - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 21 OF 55

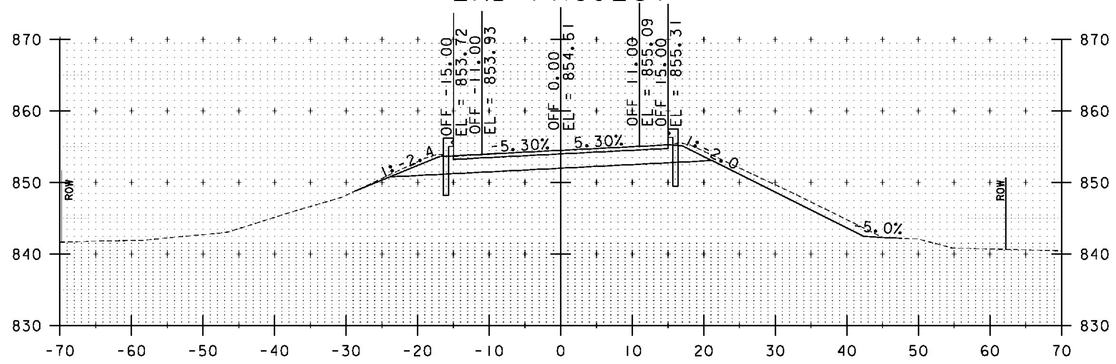
Stantec

25+15.83
END BRIDGE



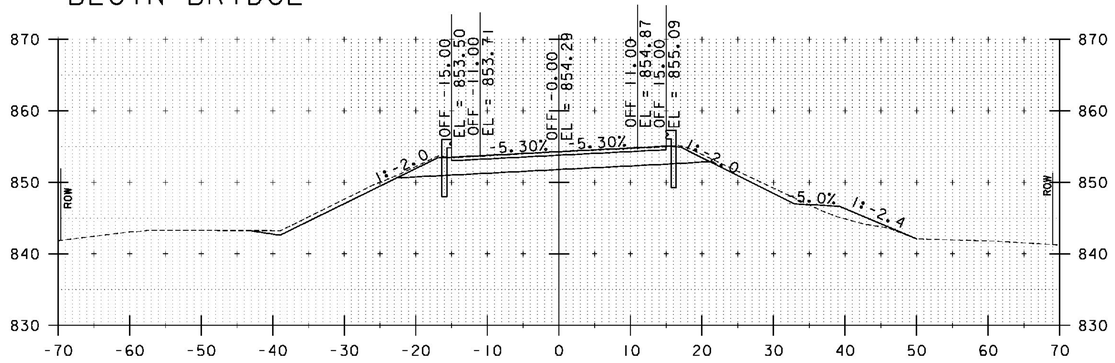
25+00

25+63
END PROJECT

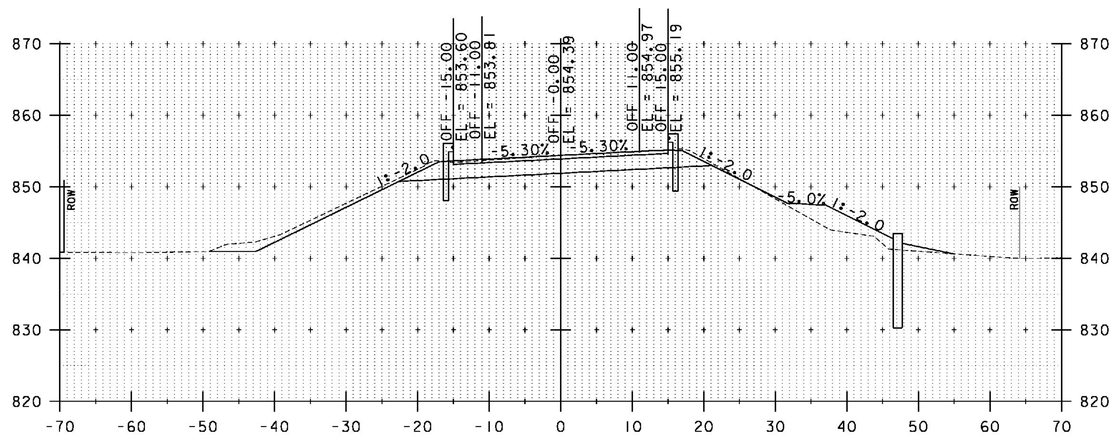


25+50

24+93.83
BEGIN BRIDGE



24+75



25+25

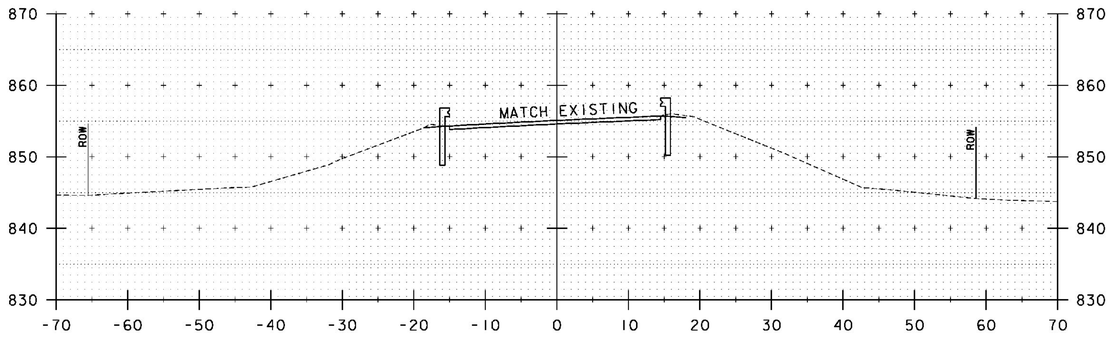
STA. 24+75 TO STA. 25+63

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

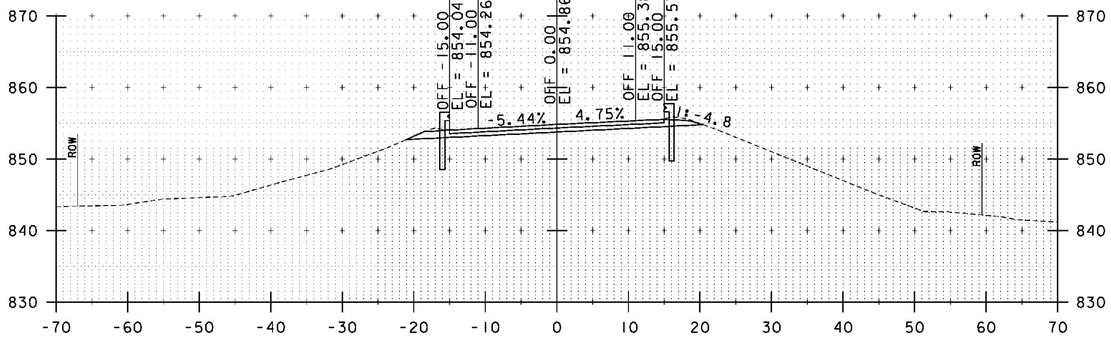
FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXS2 - BR6

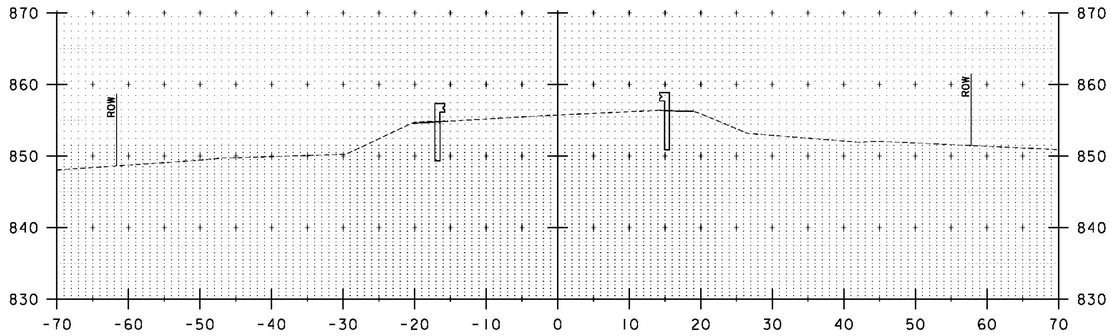
PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 22 OF 55

Stantec



26+25

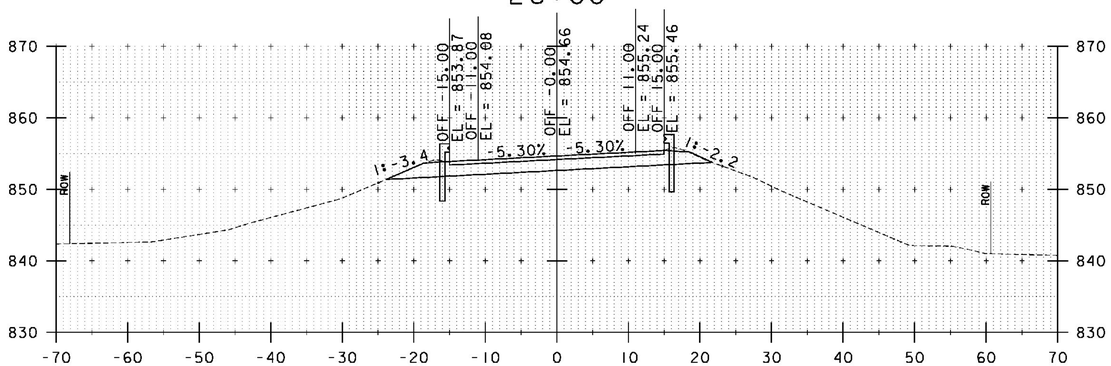


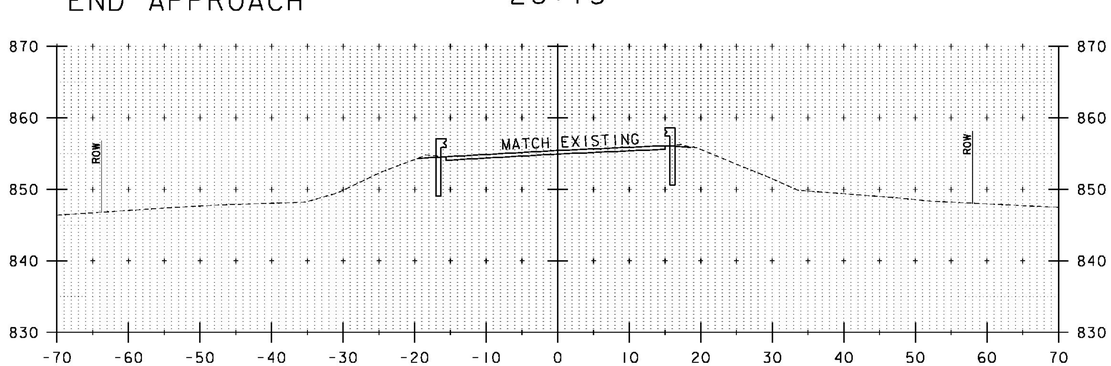


26+63
END APPROACH

26+75

26+00





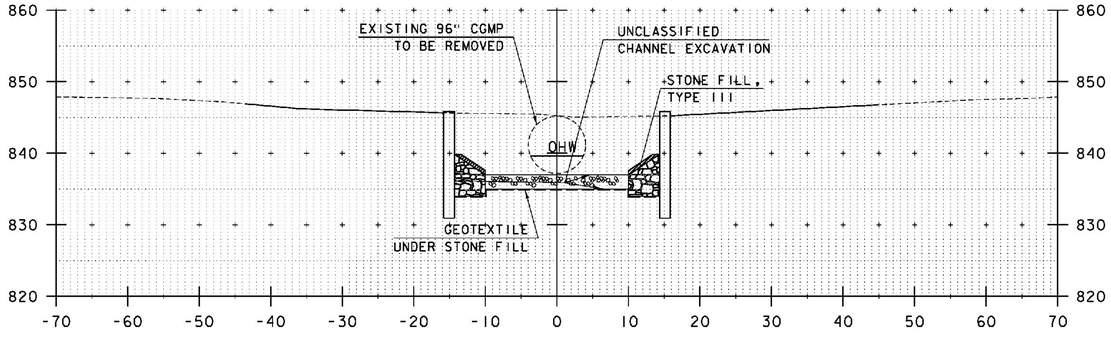
25+75

26+50

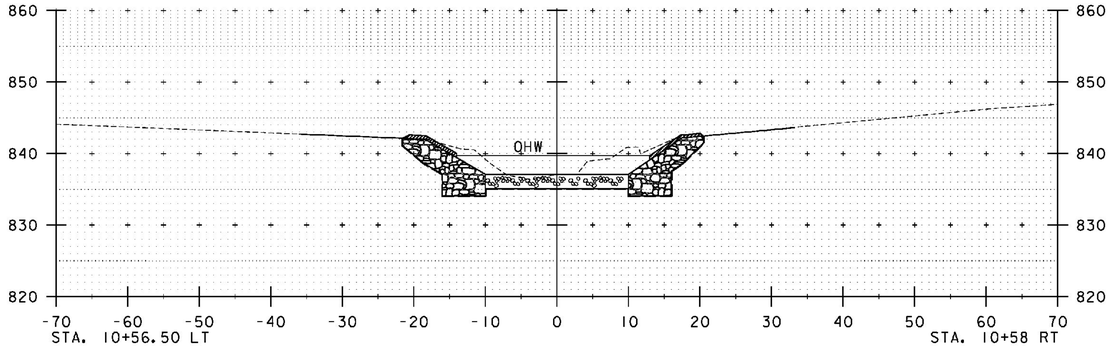
STA. 25+75 TO STA. 26+75

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266xs.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
ROADWAY CROSS SECTIONS - RXS3 - BR6	SHEET 23 OF 55

Stantec



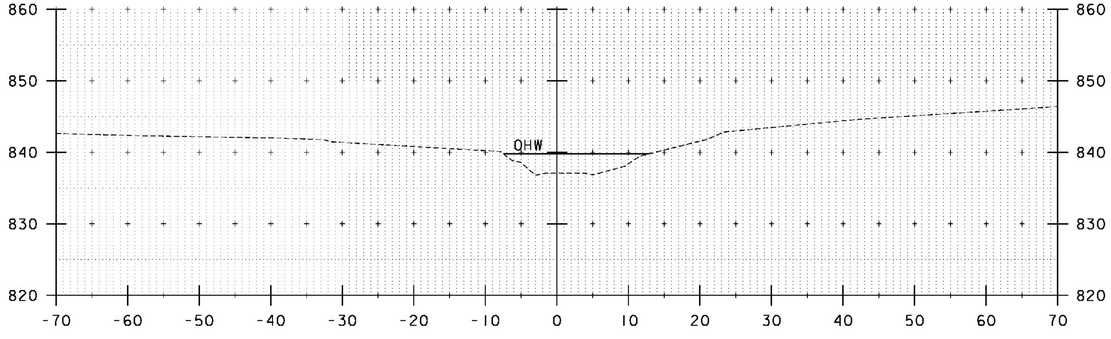
10+70



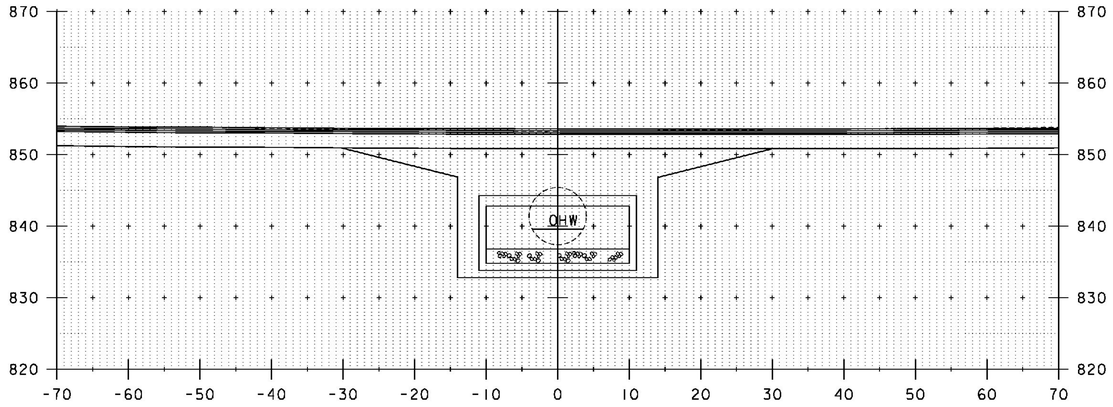
STA. 10+56.50 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL
STA. 10+58 LT
BEGIN SPECIAL PROVISION
(STONE FILL, CULVERT LINING)

10+60

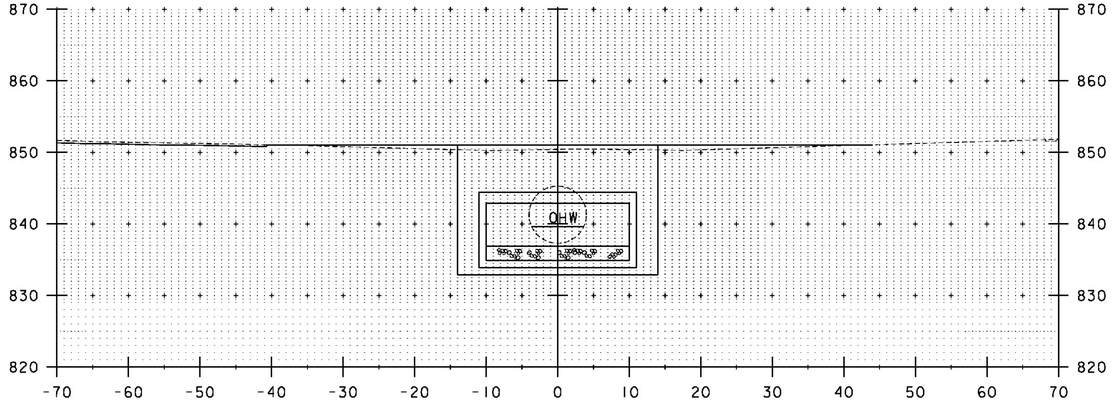
STA. 10+58 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL
BEGIN SPECIAL PROVISION
(STONE FILL, CULVERT LINING)



10+50



10+90



STA. 10+75.33 LT
STOP UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

10+80

STA. 10+75.33 RT
STOP UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

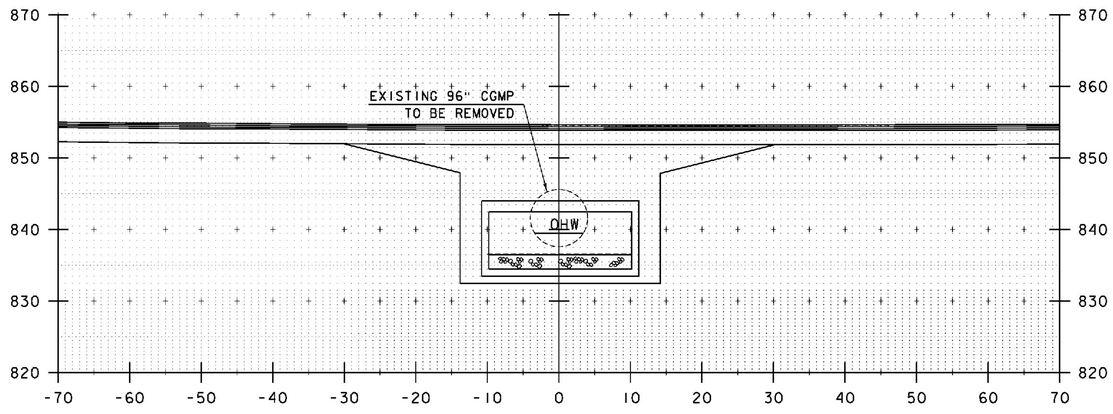
STA. 10+50 TO STA. 10+90

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

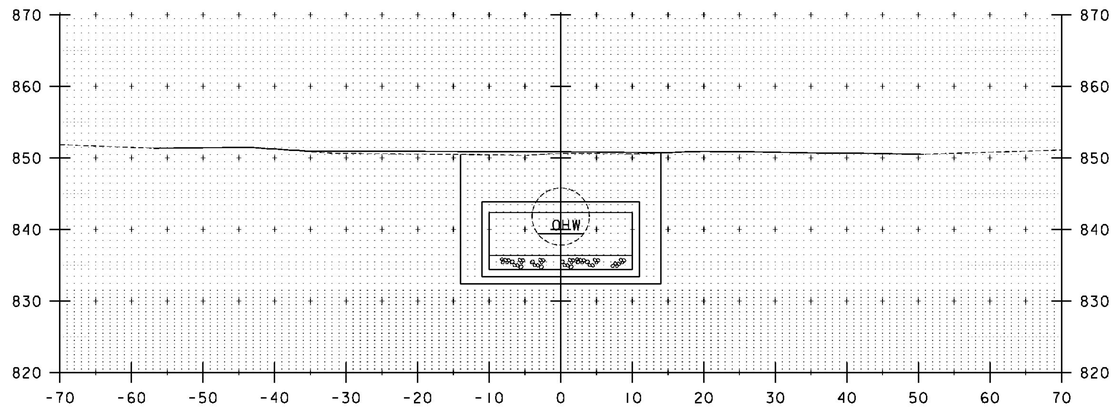
FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXSI - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 24 OF 55

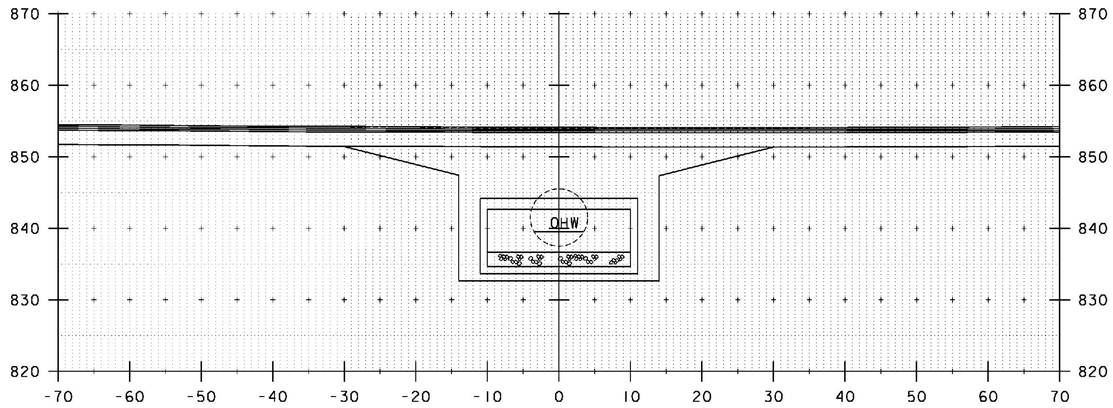
Stantec



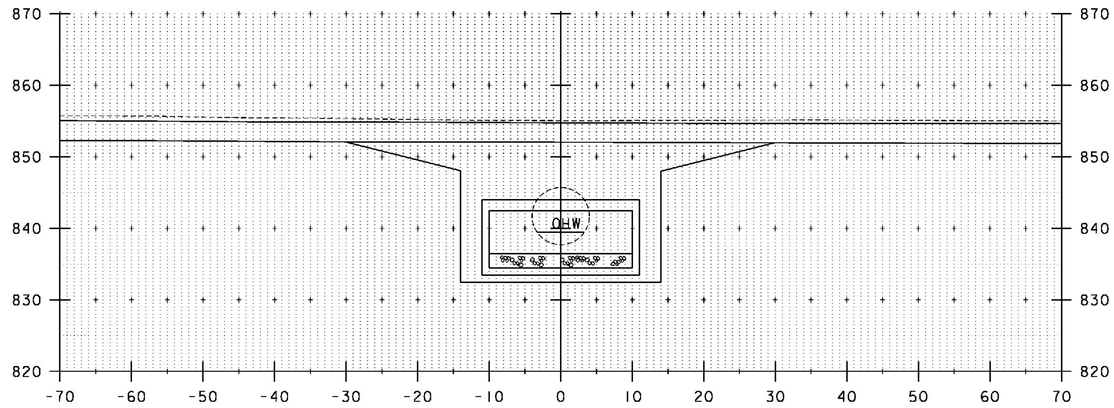
11+10



11+30



11+00



11+20

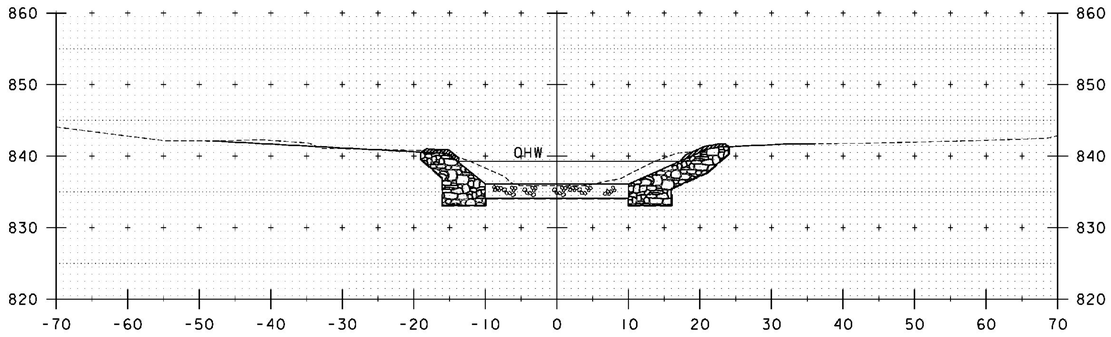
STA. 11+00 TO STA. 11+30

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS2 - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 25 OF 55

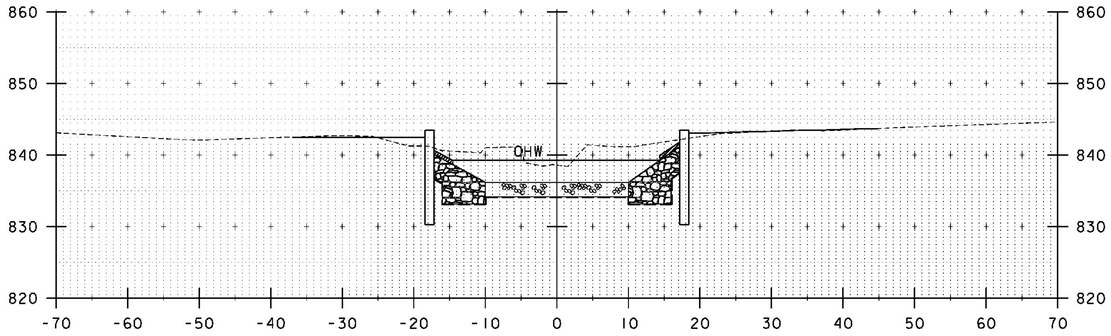
Stantec



STA. 11+60 LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL
END SPECIAL PROVISION
(STONE FILL, CULVERT LINING)

11+60

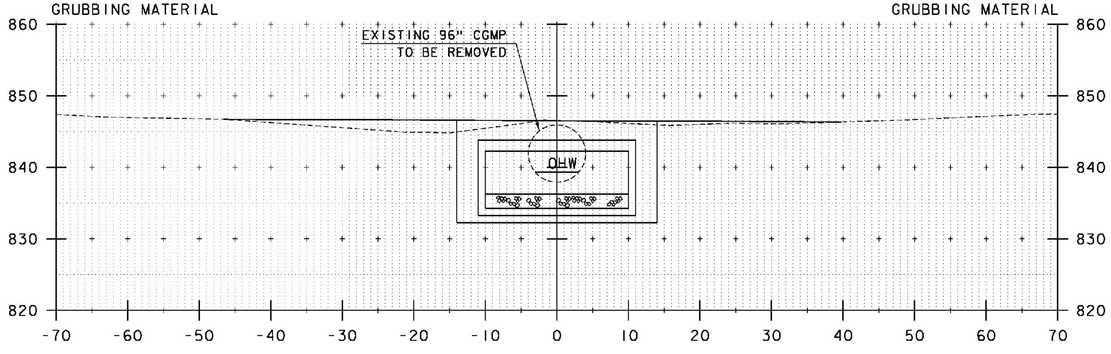
STA. 11+60 RT
END SPECIAL PROVISION
(STONE FILL, CULVERT LINING)



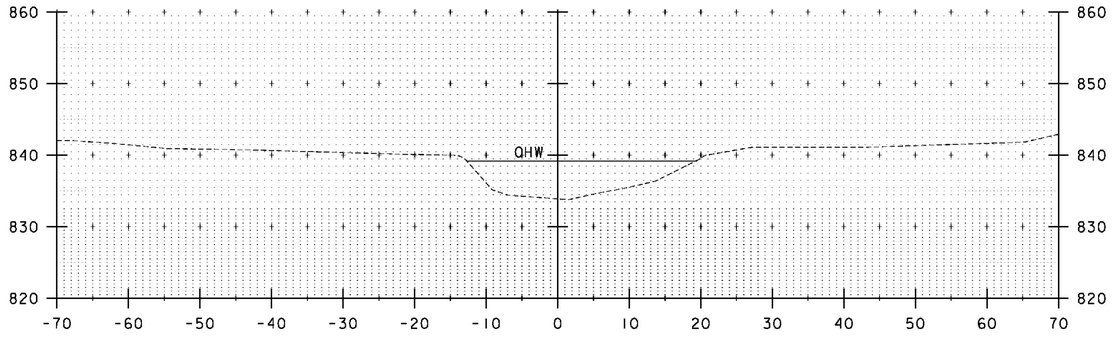
STA. 11+41.83 LT
RESUME UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

11+50

STA. 11+41.83 RT
RESUME UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL



11+40



11+70

STA. 11+62 RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

STA. 11+40 TO STA. 11+70

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS3 - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 26 OF 55

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #6, RELATED CHANNEL WORK AND INCIDENTALS. BRIDGE #6 IS AN EXISTING 96" CORRUGATED STEEL CULVERT, WHICH WILL BE REPLACED WITH A 20' SPAN PRECAST CONCRETE BOX CULVERT TO CONVEY THE BRIGHTON BROOK BENEATH VT ROUTE 58. BRIDGE #6 IS LOCATED IN THE TOWN OF IRASBURG ON VT ROUTE 58, 0.3 MILES WEST OF THE JUNCTION WITH VERMONT ROUTE 14.

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 0.69 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE PROJECT SITE IS A LOW LYING WETLAND / MARSHY AREA WITH GRASSY UNDERGROWTH. VT ROUTE 58 IS WITHIN THE PROJECT SITE. THERE IS AN ADJACENT HOUSE AND FARM TO THE SITE WITH AGRICULTURAL FARMLAND. GRASS AND UNDERGROWTH BUFFERS THE AGRICULTURAL FARMLAND FROM THE PROJECT SITE. THERE ARE OVERHEAD UTILITIES THAT SHOULD NOT BE IMPACTED BY THE PROJECT. THERE IS A GUY WIRE ON THE NORTH SIDE OF THE PROJECT THAT WILL BE REPLACED WITH A PUSH BRACE PRIOR TO THE START OF THE PROJECT.

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

THE WATER SOURCE ON THE PROJECT SITE IS THE BRIGHTON BROOK. THE PROJECT IS IN THE LAKE MEMPHREMAGOG DRAINAGE BASIN. THE TOTAL CONTRIBUTING DRAINAGE AREA IS 3.55 SQ. MI. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF FROM THE SURROUNDING SLOPES, ROADWAY DITCHES AND THE ROADWAY OVER TOP OF CULVERT. THERE ARE CLASS II WETLANDS ON THE NORTH AND SOUTH SIDES OF THE PROJECT AT THE INLET AND OUTLET. SEE THE PROJECT IMPACTS PLANS.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF OPEN GRASSED AREAS, AND UNDERGROWTH ON THE BANKS OF THE BROOK. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS RELATED TO THE EXCAVATION REQUIRED FOR THE INSTALLATION OF THE CULVERT, HEADWALLS, WINGWALLS, STONE FILL, AND TEMPORARY ACCESS. UPON PROJECT COMPLETION, THE CHANNEL AND DISTURBED AREAS WITH SLOPES GREATER THAN 2:1 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 ORLEANS, VERMONT. SOILS ON THE PROJECT SITE ARE LAMOINE SILT LOAM, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED MODERATELY ERODIBLE DUE TO K-VALUE.

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: ARCHEOLOGICALLY SENSITIVE AREAS IN ALL FOUR QUADRANTS AS SHOWN ON THE PLANS
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: BRIGHTON BROOK
WETLANDS: THERE ARE WETLANDS AT THE INLET AND OUTLET OF THE STRUCTURE. SEE THE PROJECT IMPACTS PLANS.

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. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING AN EPSC PLAN IN ACCORDANCE WITH SECTION 652 OF THE SPECIAL PROVISIONS.

IN ADDITION, THE CONTRACTOR SHALL DESIGN AND IMPLEMENT A TEMPORARY STREAM DIVERSION, INCLUDING EPSC MEASURES IN ACCORDANCE WITH ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).

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 CONTRACTOR'S 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.

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 CONSTRUCITON SITE.

THE PROJECT AREA IS RELATIVELY FLAT WITH MINIMAL OFF-SITE RUNOFF FLOWING THROUGH THE SITE. THERFORE DIVERSION MEASURES WILL NOT BE NECESSARY.

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.

STONE CHECK DAMS WILL BE INSTALLED AS NEEDED AND AS DIRECTED BY THE ENGINEER.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE ARE NO PERMANENT STORMWATER TREATMENT DEVICES TO BE INSTALLED WITH 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.

SEDIMENT CONTAINMENT BAGS (FILTER BAGS) FOR HEADWALL WORK SHALL BE USED AS NECESSARY AND AS DIRECTED BY THE ENGINEER. SEE SHEET 30 FOR DETAIL.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

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 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.

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266ero_narr_BR6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
EPSC NARRATIVE - ECN 1- BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE

N

VT STATE PLANE GRID

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

LEGEND

VEHICLE TRACKING PAD

ITEM 653.55 PROJECT DEMARCATION FENCE

STA. 23+30.00 - 27+43.83, RT.
STA. 23+08.16 - 27+56.74, LT.

ITEM 649.51 GEOTEXTILE FOR SILT FENCE

SEE LOCATIONS, THIS SHEET.

PLAN

SCALE: 1" = 20'-0"

0 20 40

NOTES:

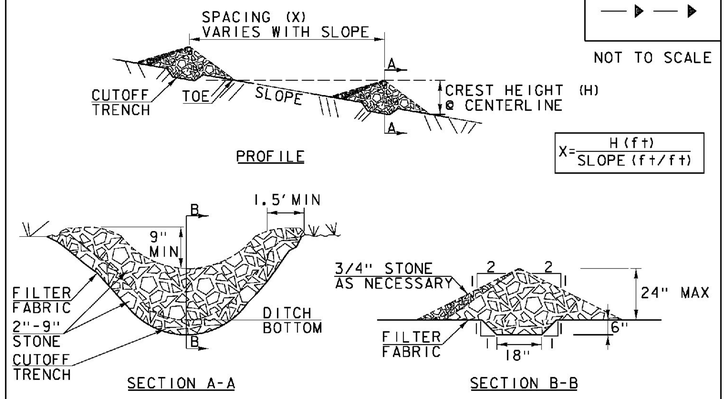
1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A TEMPORARY STREAM DIVERSION PLAN. THE PLAN SHALL INCLUDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT AND CONTROL SEDIMENT DISCHARGE. SEE SPECIAL PROVISION 900.645 (TEMPORARY RELOCATION OF STREAM).
2. DEWATERING ACTIVITIES: ANY FILTER BAG OR DEWATERING ENCLOSURE FOR DISCHARGE OF DEWATERING ACTIVITIES SHALL BE LOCATED A MINIMUM OF 50 FEET FROM THE STREAM UNLESS APPROVED BY THE ENGINEER. THE FILTERING AREA SHALL BE LOCATED WITHIN THE EXISTING RIGHT-OF-WAY AND IF NECESSARY MAY BE LOCATED WITHIN A CLOSED PORTION OF THE EXISTING ROADWAY AND/OR SHOULDER.

Stantec

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266bdr_EPSC_br6.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
EPSC CONST. SITE PLAN - ECPI - BR6	SHEET 28 OF 55

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 OFTHE 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.

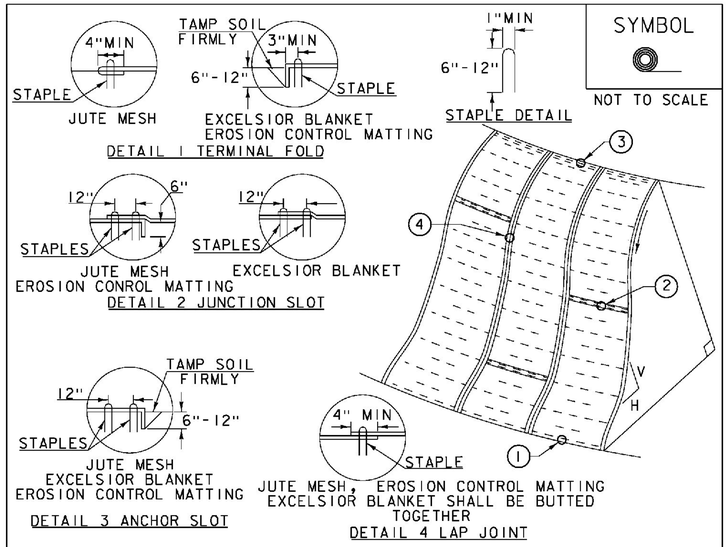
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

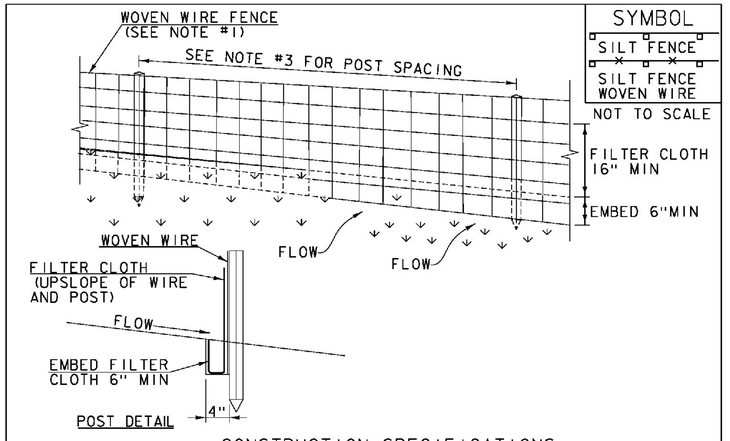
1. APPLY TO SLOPES GREATER THAN 3H: 1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

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

SILT FENCE

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

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

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

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266epsc det_br6.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
EROSION CONTROL DETAILS - ECD 1- BR6	SHEET 29 OF 55

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*

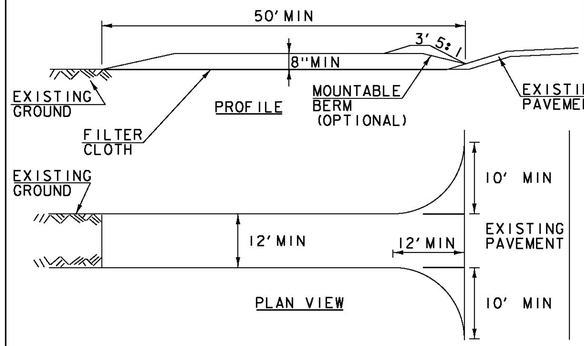
CONSTRUCTION GUIDANCE

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

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.

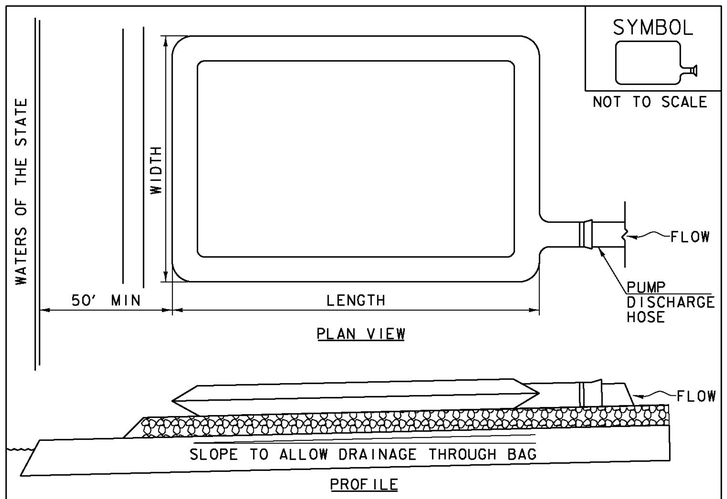
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

FILTER BAG

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 FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

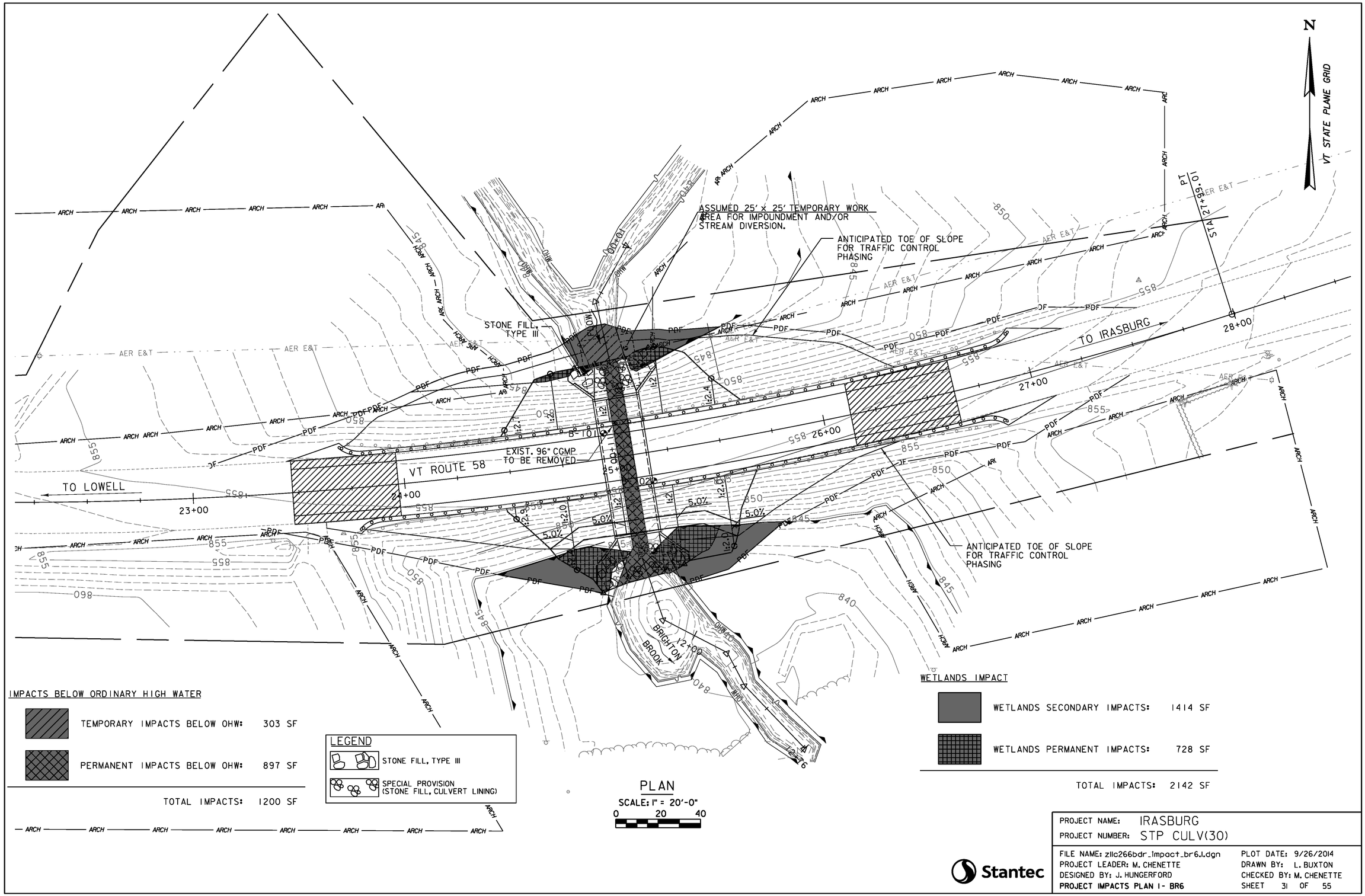
REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266epsc det_br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
EROSION CONTROL DETAILS - ECD 2 - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 30 OF 55



PLAN

SCALE: 1" = 20'-0"

0 20 40

IMPACTS BELOW ORDINARY HIGH WATER

TEMPORARY IMPACTS BELOW OHW:	303 SF
PERMANENT IMPACTS BELOW OHW:	897 SF
TOTAL IMPACTS:	1200 SF

LEGEND

- STONE FILL, TYPE III
- SPECIAL PROVISION (STONE FILL, CULVERT LINING)

WETLANDS IMPACT

WETLANDS SECONDARY IMPACTS:	1414 SF
WETLANDS PERMANENT IMPACTS:	728 SF
TOTAL IMPACTS:	2142 SF

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME:	z11c266bdr_impact_br6.1.dgn
PROJECT LEADER:	M. CHENETTE
DESIGNED BY:	J. HUNGERFORD
PROJECT IMPACTS PLAN 1 - BR6	
PLOT DATE:	9/26/2014
DRAWN BY:	L. BUXTON
CHECKED BY:	M. CHENETTE
SHEET	31 OF 55

N

VT STATE PLANE GRID

50'-0" WETLAND BUFFER

ASSUMED 25' x 25' TEMPORARY WORK AREA FOR IMPOUNDMENT AND/OR STREAM DIVERSION.

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

STONE FILL, TYPE III

TEMP. FLUME

STA 27+89.01 PT

28+00

TO IRASBURG

27+00

26+00

25+00

24+00

23+00

TO LOWELL

VT ROUTE 58

EXIST. 96" CGMP TO BE REMOVED

B-1012

B-1013

5.0%

3.0%

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

BRIGHTON BROOK

12+00

50'-0" WETLAND BUFFER

AER E&T

ARCH

PDF

OHW

LEGEND

STONE FILL, TYPE III

SPECIAL PROVISION (STONE FILL, CULVERT LINING)

PLAN

SCALE: 1" = 20'-0"

0 20 40

WETLANDS BUFFER IMPACTS

WETLANDS BUFFER SECONDARY IMPACTS: 6928 SF

WETLANDS BUFFER PERMANENT IMPACTS: 4760 SF

TOTAL IMPACTS: 11,688 SF

Stantec

PROJECT NAME: IRASBURG

PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bdr_impacts_br6.2.dgn

PROJECT LEADER: M. CHENETTE

DESIGNED BY: J. HUNGERFORD

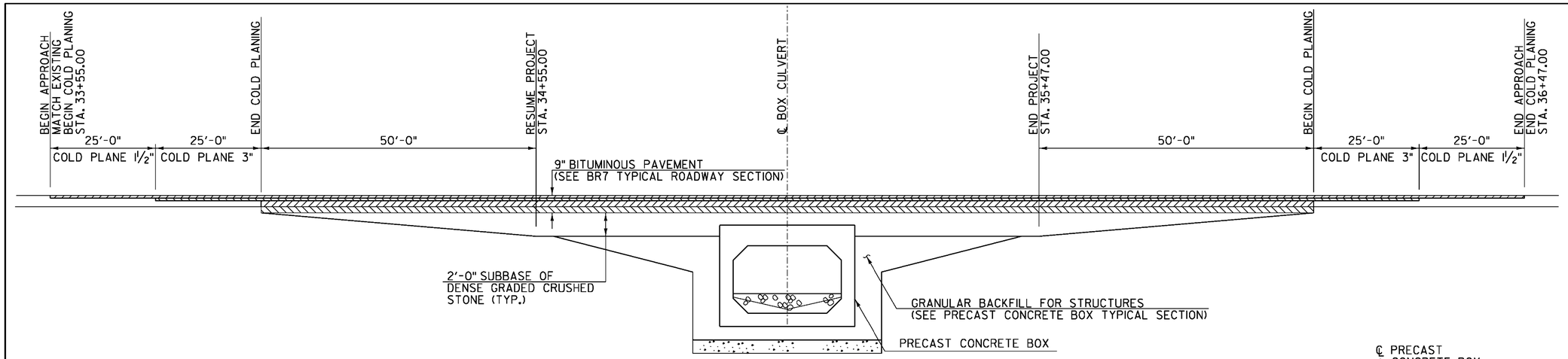
PROJECT IMPACTS PLAN 2 - BR6

PLOT DATE: 9/26/2014

DRAWN BY: L. BUXTON

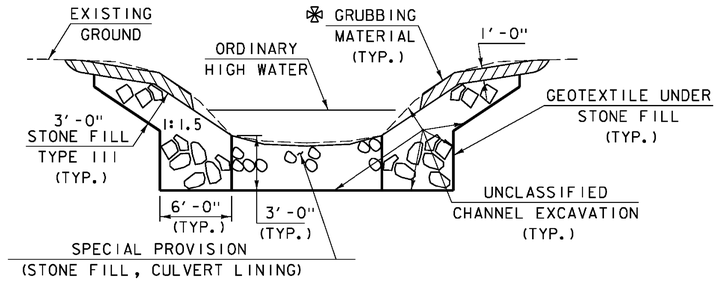
CHECKED BY: M. CHENETTE

SHEET 32 OF 55



TYPICAL APPROACH SECTION - BR7

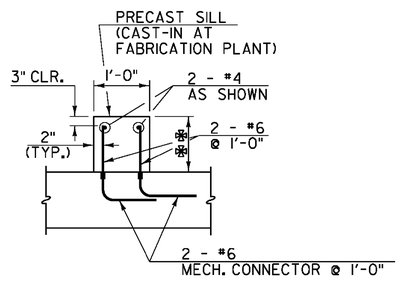
NOT TO SCALE



CHANNEL TYPICAL SECTION

NOT TO SCALE

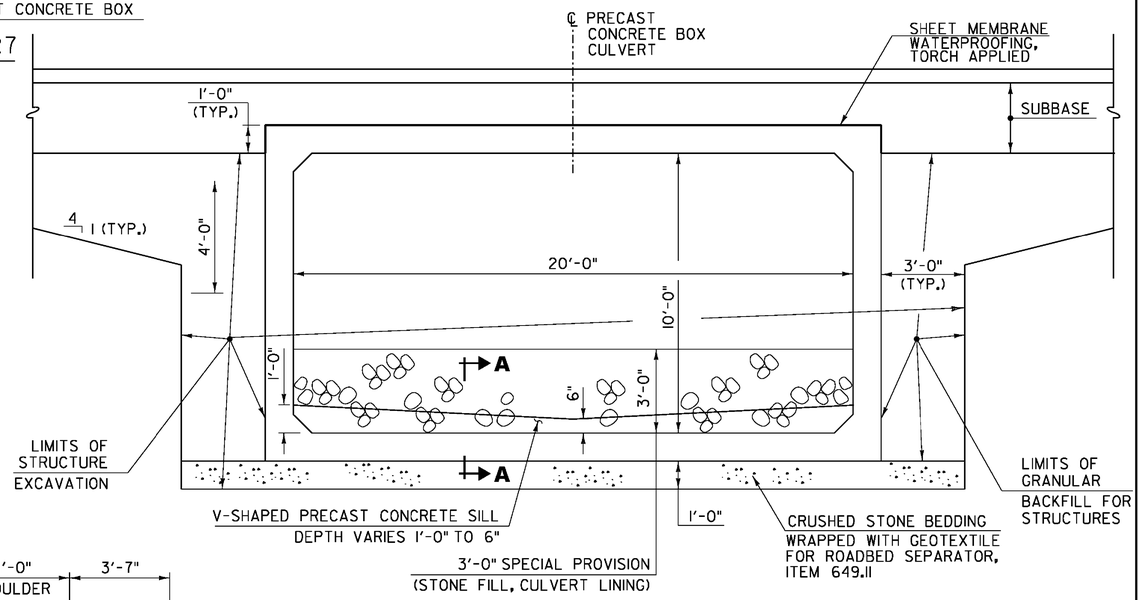
✠ WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

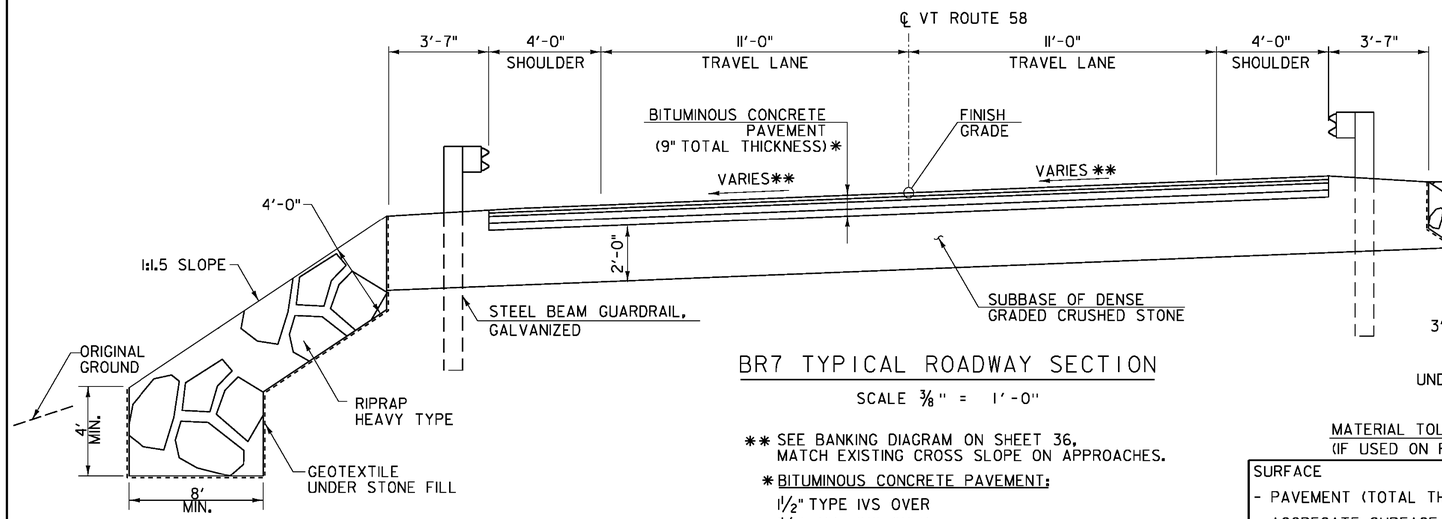


✠✠ DEPTH VARIES 1'-0" TO 6"

SECTION A-A

NOT TO SCALE





BR7 TYPICAL ROADWAY SECTION

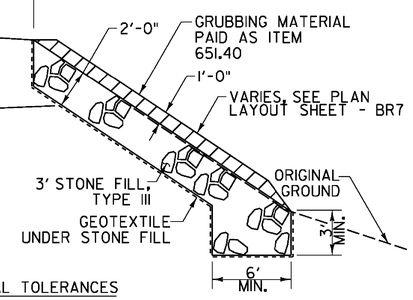
SCALE ⅜" = 1'-0"

** SEE BANKING DIAGRAM ON SHEET 36, MATCH EXISTING CROSS SLOPE ON APPROACHES.

* BITUMINOUS CONCRETE PAVEMENT:
1½" TYPE IVS OVER
1½" TYPE IVS OVER
3" TYPE IIS OVER
3" TYPE IIS

PRECAST CONCRETE BOX TYPICAL SECTION - BR7

SCALE ⅜" = 1'-0"



MATERIAL TOLERANCES
(IF USED ON PROJECT)

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

BUILT AS DESIGNED

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266typsec.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
TYPICAL SECTIONS - BR7	SHEET 33 OF 55

GPS CONTROL POINTS

COORDINATES WERE DERIVED FROM STATIC NETWORK OBSERVATIONS WITH A LEAST SQUARES ADJUSTMENT. THE FOLLOWING CONTINUOUSLY OPERATING GPS REFERENCE STATIONS [CORS] WERE USED.

HARDWICK CORS ARP
DERBY CORS ARP
ISLAND POND CORS ARP

TRAVERSE TIES

HVCTRL #10

NORTH = 841405.296
EAST = 1700175.568
ELEV. = 798.361

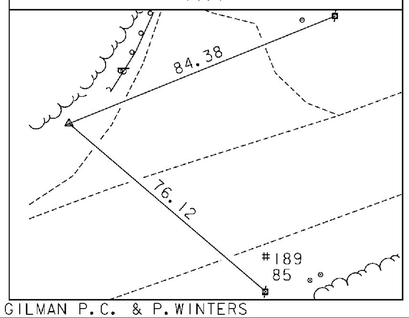
TH7 AZ MK

NOT TIED

HVCTRL #11

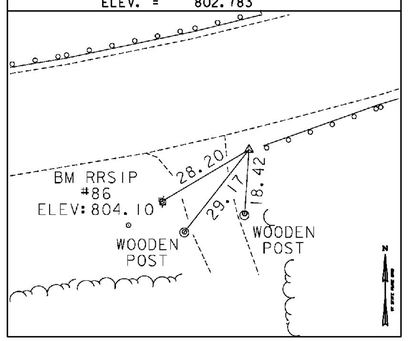
NORTH = 840439.846
EAST = 1700076.501
ELEV. = 807.926

TH7



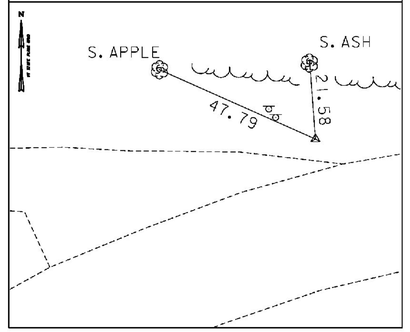
HVCTRL #12

NORTH = 840314.357
EAST = 1699864.898
ELEV. = 802.783



HVCTRL #13

NORTH = 840319.444
EAST = 1699590.596
ELEV. = 815.134



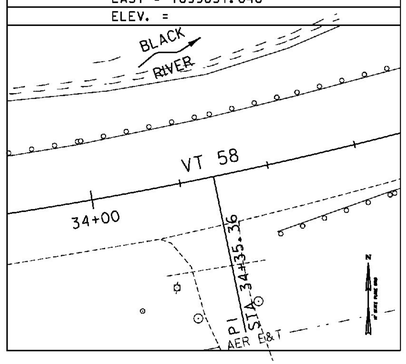
NORTH =
EAST =
ELEV. =

* MAIN TRAVERSE COMPLETED 2/8/2012 BY R. GILMAN P.C. & P. WINTERS

ALIGNMENT TIES

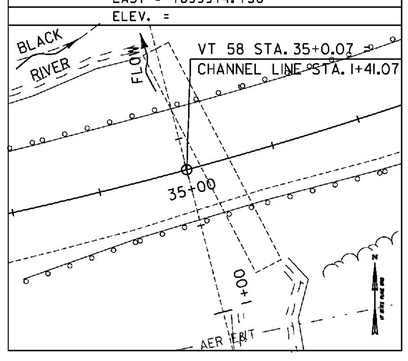
PI, STA. 34+35.36

NORTH = 840330.896
EAST = 1699851.046
ELEV. =



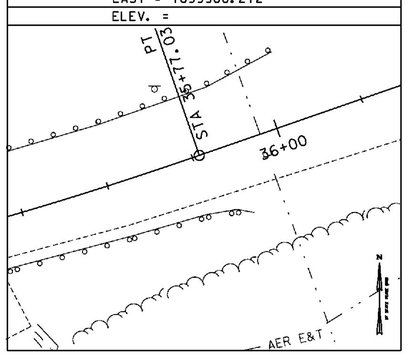
VT58, STA. 35+0.07

NORTH = 840346.133
EAST = 1699914.750
ELEV. =



PT, STA. 35+77.03

NORTH = 840368.838
EAST = 1699988.272
ELEV. =



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

DATUM			
VERTICAL	NAVD 88		
HORIZONTAL	NAD 83(07)	ZONE	Vermont 4400
ADJUSTMENT	COMPASS	GEOID	GEOID09 (Conus)

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266tie_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
SURVEY CONTROL AND TIES - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 34 OF 55

STA. 33+11, LT. TO STA. 34+48.5, LT.
STA. 34+41, RT. TO STA. 34+53.5, RT.
STA. 35+48.5, LT. TO STA. 36+48.5, LT.
STA. 35+53.5, RT. TO STA. 36+66, RT.

STA. 34+48.5, LT. TO STA. 34+86, LT.
STA. 34+53.5, RT. TO STA. 34+91, RT.
STA. 35+11, LT. TO STA. 35+48.5, LT.
STA. 35+16, RT. TO STA. 35+53.5, RT.

621.20 - STEEL BEAM GUARDRAIL, GALVANIZED
~~STA. 33+11.03, LT. TO STA. 34+50.00, LT.~~
~~STA. 34+41.44, RT. TO STA. 34+50.00, RT.~~
~~STA. 35+50.00, LT. TO STA. 36+49.20, LT.~~
~~STA. 35+50.00, RT. TO STA. 36+61.45, RT.~~

621.21 - HD STEEL BEAM GUARDRAIL, GALVANIZED
~~STA. 34+50.0, LT. TO STA. 34+87.5, LT.~~
~~STA. 34+50.0, RT. TO STA. 34+87.5, RT.~~
~~STA. 35+12.5, LT. TO STA. 35+50.0, LT.~~
~~STA. 35+12.5, RT. TO STA. 35+50.0, RT.~~

621.216 - HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
~~STA. 34+87.5, LT. TO STA. 35+12.5, LT.~~
~~STA. 34+87.5, RT. TO STA. 35+12.5, RT.~~

621.60 - ANCHOR FOR STEEL BEAM RAIL
~~STA. 33+11.03, LT.~~ STA. 33+11, LT.
~~STA. 34+41.44, RT.~~ STA. 34+41, RT.
~~STA. 36+49.20, LT.~~ STA. 36+48.5, LT.
~~STA. 36+61.45, RT.~~ STA. 36+66, RT.

621.80 - REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 33+12.71, LT. TO STA. 36+05.57, LT.
STA. 34+48.75, RT. TO STA. 35+86.30, RT.

675.20 - TRAFFIC SIGNS, TYPE A
675.341 SQUARE TUBE SIGN POST AND ANCHOR
STA. 34+81, RT.
STA. 35+18 LT.

646.400- DURABLE 4 INCH WHITE LINE
STA. 33+55.00, RT. TO STA. 36+47.00, RT.
STA. 33+55.00, LT. TO STA. 36+47.00, LT.

646.410- DURABLE 4 INCH YELLOW LINE
STA. 33+55.00, CL. TO STA. 36+47.00, CL. (DYEL)

675.50 - REMOVING SIGNS
STA. 33+22, LT.
STA. 35+70, LT.

675.60 - ERECTING SALVAGED SIGNS
STA. 33+22, LT.
STA. 35+70, LT.

CURVE DATA
DELTA = 14°50'31.6"
D = 5°12'31.4"
R = 1100.00'
T = 143.28'
L = 284.95'
E = 9.29'

STA. 34+86, LT. TO STA. 35+11, LT.
STA. 34+91, RT. TO STA. 35+16, RT.

N

VT STATE PLANE GRID

NELSON FARMS, INC.

SIGN TO REMAIN IN PLACE DURING CONSTRUCTION

PC STA 32+92.08

EXIST. ROW OHW

TO IRASBURG

N 85° 40' 32.72" E

32+00 33+00 34+00 35+00 36+00 37+00 38+00

VT ROUTE 58

TO ORLEANS

EXISTING UTILITY TO BE RELOCATED

EXIST. ROW

PT STA 32+61.91

AER E&T

PROPOSED UTILITY LOCATION

END COLD PLANING STA. 34+05.00

BEGIN APPROACH MATCH EXISTING
BEGIN COLD PLANING STA. 33+55.00

RESUME PROJECT STA. 34+55.00

COFFERDAM

STREAM BED (MATCH EXISTING, REUSE EXISTING MATERIAL WHERE POSSIBLE)

EXIST. 96" CGMP TO BE REMOVED

POE STA 2+00.00

BLACK RIVER

FLOW

WPI
N 840379.06'
E 1699906.53'

RIPRAP, HEAVY TYPE

STA. 35+18. LT.

HIGH VOLTAGE POWER LINES LOCATION NOT SHOWN ON SURVEY (APPROXIMATE LOCATION)

EXISTING VILLAGE SIGN TO BE REMOVED DURING CONSTRUCTION AND REINSTALLED WHEN CONSTRUCTION IS COMPLETE

VT 58 STA. 35+00.07 = CHANNEL LINE STA. 1+41.07

PI STA 0+03.71

STA 1+55.47

COVERED BRIDGE ROAD

HVCTRL

EXISTING 4 ROD ROW PER S55(2)19652

POE

HUTCHINS

B-103

B-104

N 70° 50' 01.09" E

STONE FILL, TYPE III

BEGIN COLD PLANING STA. 35+97.00

PROPOSED POWER LINE
END APPROACH MATCH EXISTING
END COLD PLANING STA. 36+47.00

ANTICIPATED TOE OF SLOPE FOR TRAFFIC CONTROL PHASING

MAGOON, ALAN

END PROJECT STA. 35+47.00

END BRIDGE STA. 35+11.07

BCK = STA 34+35.36 AHD

PI STA 34+33.75 AHD

BEGIN BRIDGE STA. 34+89.07

WP2
N 840324.75'
E 1699920.22'

PI STA 0+54.94

STA. 34+81, RT.

POB STA 0+00.00

FLOW UNNAMED TRIBUTARY

BEGIN SPECIAL PROVISION (STONE FILL, CULVERT LINING) STA. 0+75.00

SPECIAL PROVISION
STONE FILL,
CULVERT MATERIAL
(TYP.)

ASSUMED 25' x 25' TEMPORARY WORK AREA FOR IMPOUNDMENT AND/OR STREAM DIVERSION.

PLAN
SCALE: 1" = 20'-0"
0 20 40

LEGEND
- RIPRAP, HEAVY TYPE
- STONE FILL, TYPE III
- SPECIAL PROVISION (STONE FILL, CULVERT LINING)

NOTES:
1. GRADE IN ACCORDANCE WITH TYPICAL ROADWAY SECTION AND ROADWAY CROSS SECTIONS UNLESS NOTED OTHERWISE.

TRAFFIC SIGN SUMMARY

STATION	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (In)	HEIGHT (In)	NEW SIGNS "A"	NEW SIGNS "B"	NEW SIGN POSTS NO. OF POSTS	SQUARE STEEL (In) 1.75	2.0	2.5	ANCHOR	SLEEVE	REMARKS	STD. SHEET NUMBER
								lb/ft 1.88	2.42	3.35				
33+81, RT	BRIDGE 7 VT 58	1	6	8	0.33		1	X			X		VR-701	T-42
35+18, LT	BRIDGE 7 VT 58	1	6	8	0.33		1	X			X		VR-701	T-42
	TOTALS				SF 0.66	SF		FT 30						

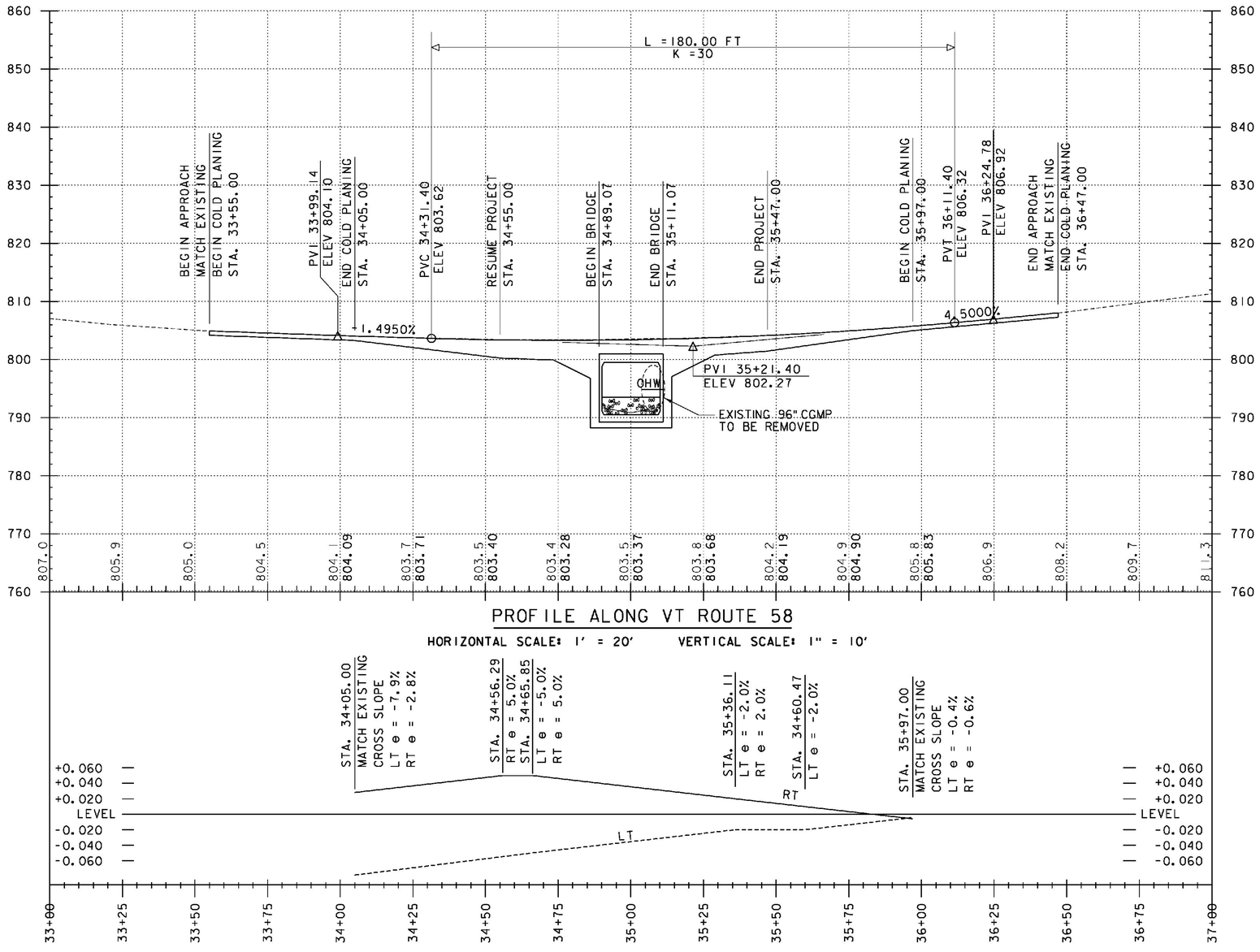
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bdr_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
PLAN LAYOUT SHEET - BR7

PLOT DATE: 10/21/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 35 OF 55



PROFILE ALONG VT ROUTE 58

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: 1" = 10'

BANKING DIAGRAM

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: N.T.S.

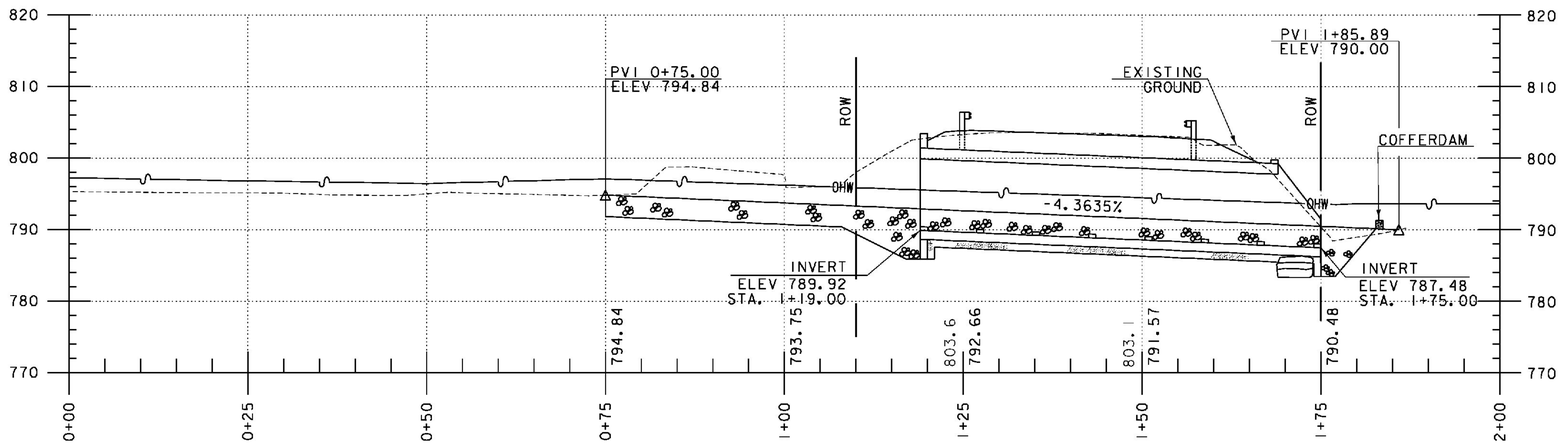
NOTE:
STATIONING IN FEET AND
SUPERELEVATIONS IN PERCENTAGES

NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.

Stantec

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266pro.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
ROADWAY PROFILE - BR7	SHEET 36 OF 55



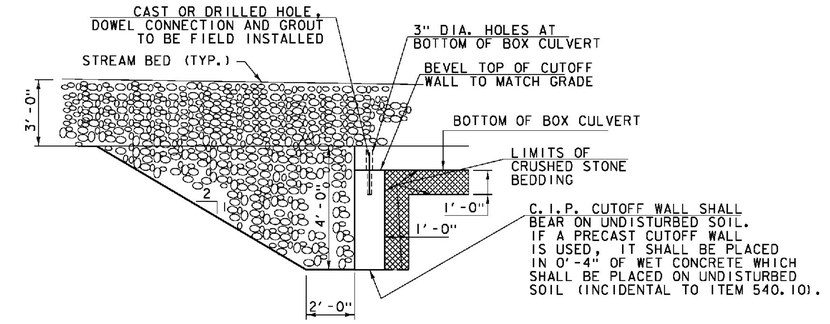
STREAM PROFILE

0 10 20

SCALE

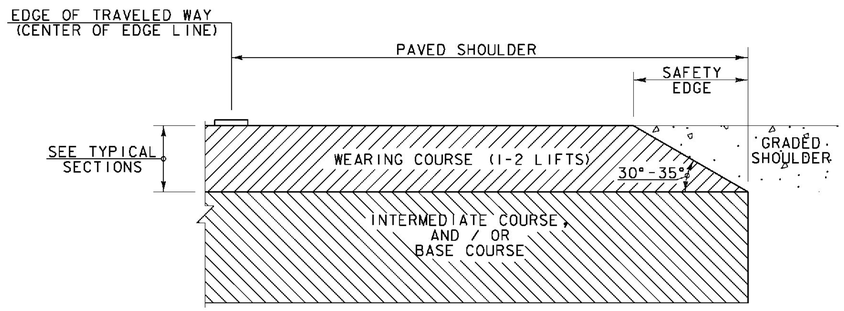
NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.



INLET CUTOFF WALL DETAIL

NOT TO SCALE



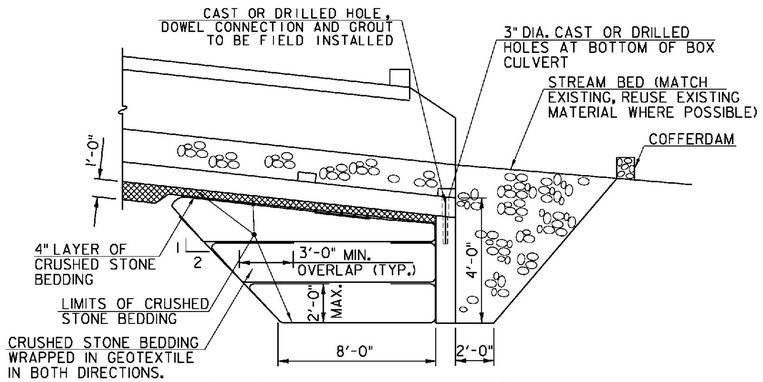
SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.

2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".

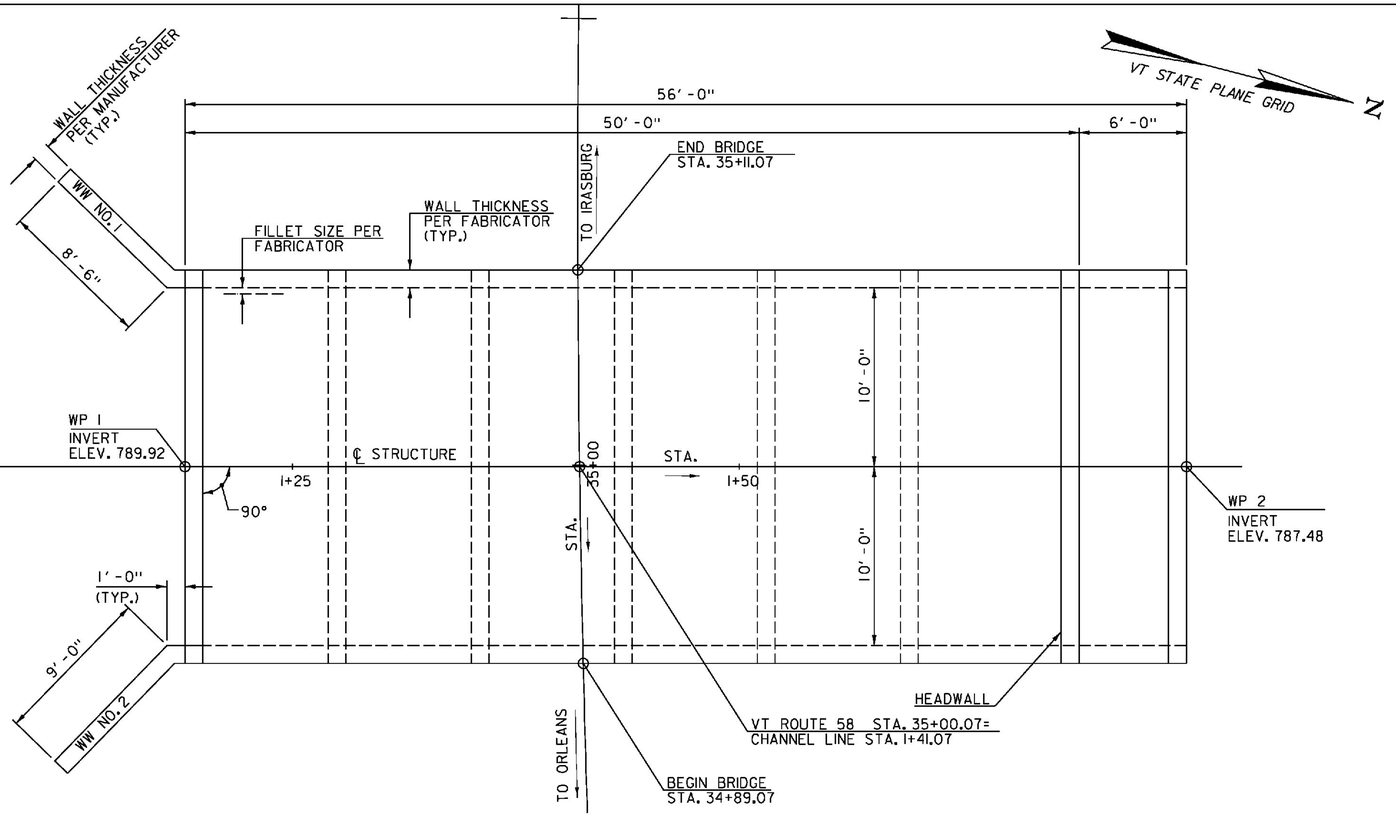


OUTLET CUTOFF WALL DETAIL

NOT TO SCALE

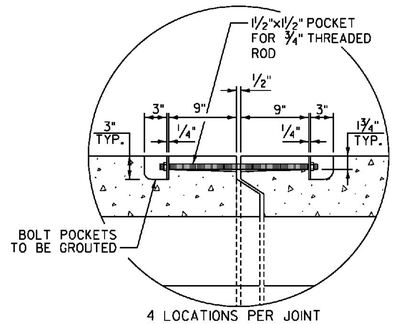
Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266strm_pro.dgn	PLOT DATE: 10/21/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
STREAM PROFILE - BR7	SHEET 37 OF 55



PRECAST CONCRETE STRUCTURE PLAN

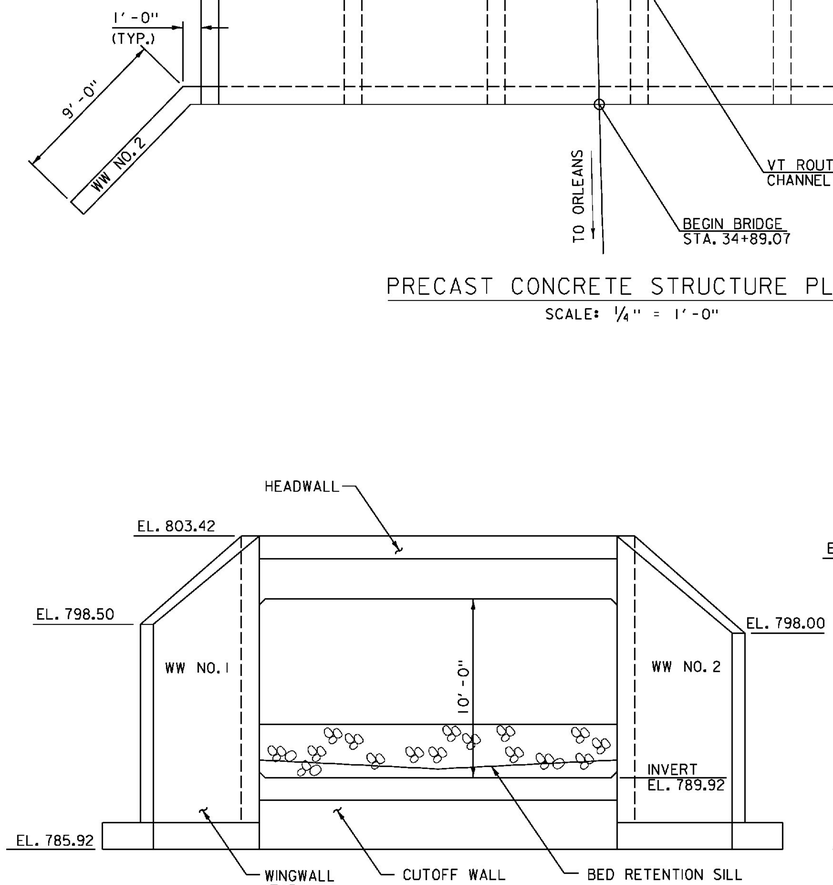
SCALE: 1/4" = 1'-0"



4 LOCATIONS PER JOINT
2 PER WALL, EXACT LOCATION PER FABRICATOR

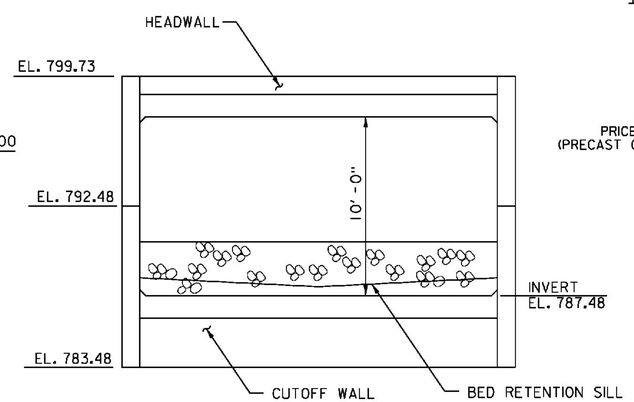
PERMANENT CLOSURE DETAIL

NOT TO SCALE



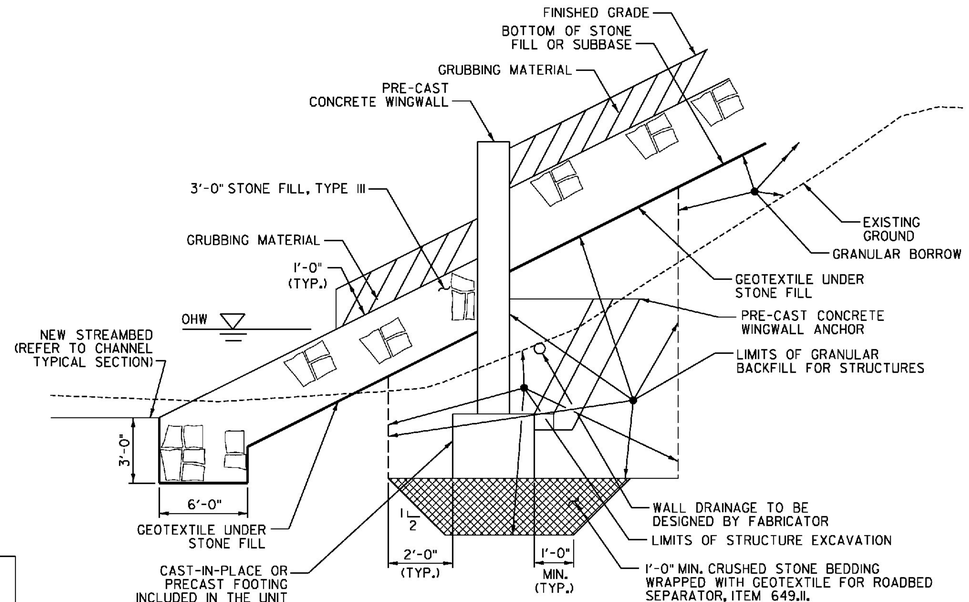
INLET ELEVATION

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



OUTLET ELEVATION

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



NOTES:

1. ANCHOR TYPE WALLS SHOWN, OTHER APPROVED WALL SYSTEM MAY BE USED.
2. FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS HAVE BEEN SHOWN ABOVE. ONLY THE EXCAVATION INCLUDED WITHIN THESE LIMITS SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". THE CONTRACTOR SHALL DETERMINE THE ACTUAL LIMITS OF STRUCTURE EXCAVATION, PER PRECAST WINGWALL DESIGN.

WINGWALL EARTHWORK SECTION

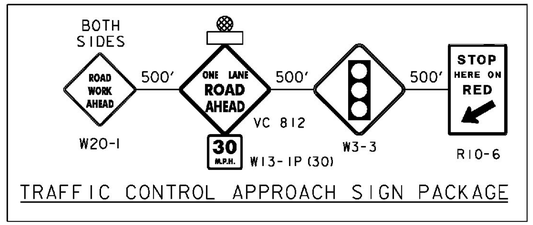
NOT TO SCALE

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266strpl_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
STRUCTURAL PLAN AND DETAILS - BR7

PLOT DATE: 10/21/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 38 OF 55



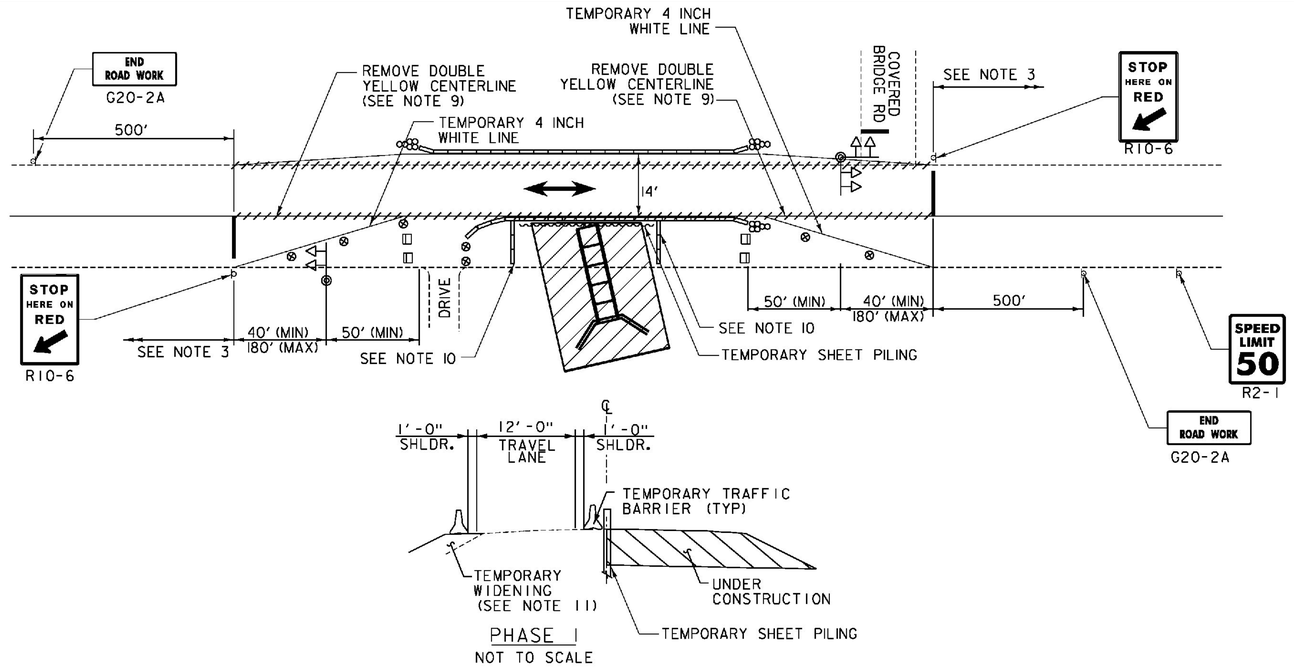
TRAFFIC CONTROL APPROACH SIGN PACKAGE

NOTES:

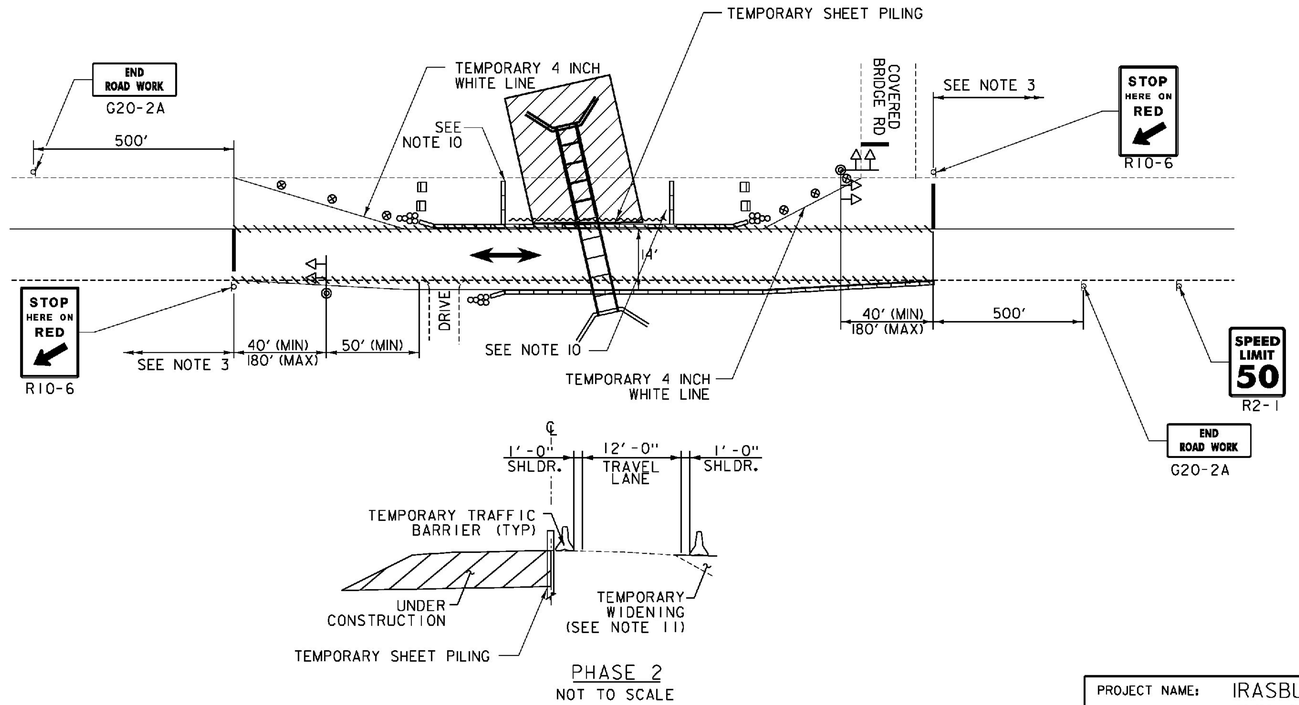
1. SEE SHEET 4 FOR GENERAL TRAFFIC CONTROL NOTES.
2. REFER TO STANDARD T-10 FOR CONSTRUCTION APPROACH SIGNS CRITERIA.
3. REFER TO "TRAFFIC CONTROL APPROACH SIGN PACKAGE" DETAIL THIS SHEET.
4. CHANNELIZING DEVICE SPACING
   TANGENT SECTIONS: 60 FT. (2X DESIGN SPEED LIMIT)
   TAPER SECTIONS: 30 FT. (1X DESIGN SPEED LIMIT)
   DESIGN SPEED THROUGH CONSTRUCTION ZONE = 30MPH
5. ACCESS TO ALL EXISTING SIDE ROADS, DRIVES, AND PARKING AREAS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. TRAFFIC CONTROL SHALL ALLOW FOR A WB-67 DESIGN VEHICLE.
7. ATTENUATORS SHALL MEET THE POSTED SPEED OF 50 MPH.
8. CHANNELIZING DEVICES LEFT OVERNIGHT SHALL BE DRUMS.
9. REMOVED CENTERLINE TO BE REPLACED WITH DURABLE 4 INCH YELLOW LINE.
10. TEMPORARY TRAFFIC BARRIER TO BE IN PLACE WHILE EXCAVATION IS OPEN AND WORK IS NOT ACTIVE OR AT THE DISCRETION OF THE ENGINEER.
11. TEMPORARY WIDENING TO BE PAID FOR AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)

LEGEND

- UNDER CONSTRUCTION
- ALTERNATING ONE WAY TRAFFIC
- TEMPORARY TRAFFIC BARRIER
- CHANNELIZING DEVICE
- ENERGY ABSORPTION ATTENUATOR
- TYPE III BARRIER
- CONSTRUCTION SIGN
- TEMPORARY TRAFFIC SIGNAL
- FLASHING BEACON
- REMOVE OR MASK PAVEMENT MARKINGS



PHASE 1
NOT TO SCALE



PHASE 2
NOT TO SCALE

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266tc.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: I. MAYNARD	CHECKED BY: M. CHENETTE
TRAFFIC CONTROL PLAN - BR7	SHEET 39 OF 55

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

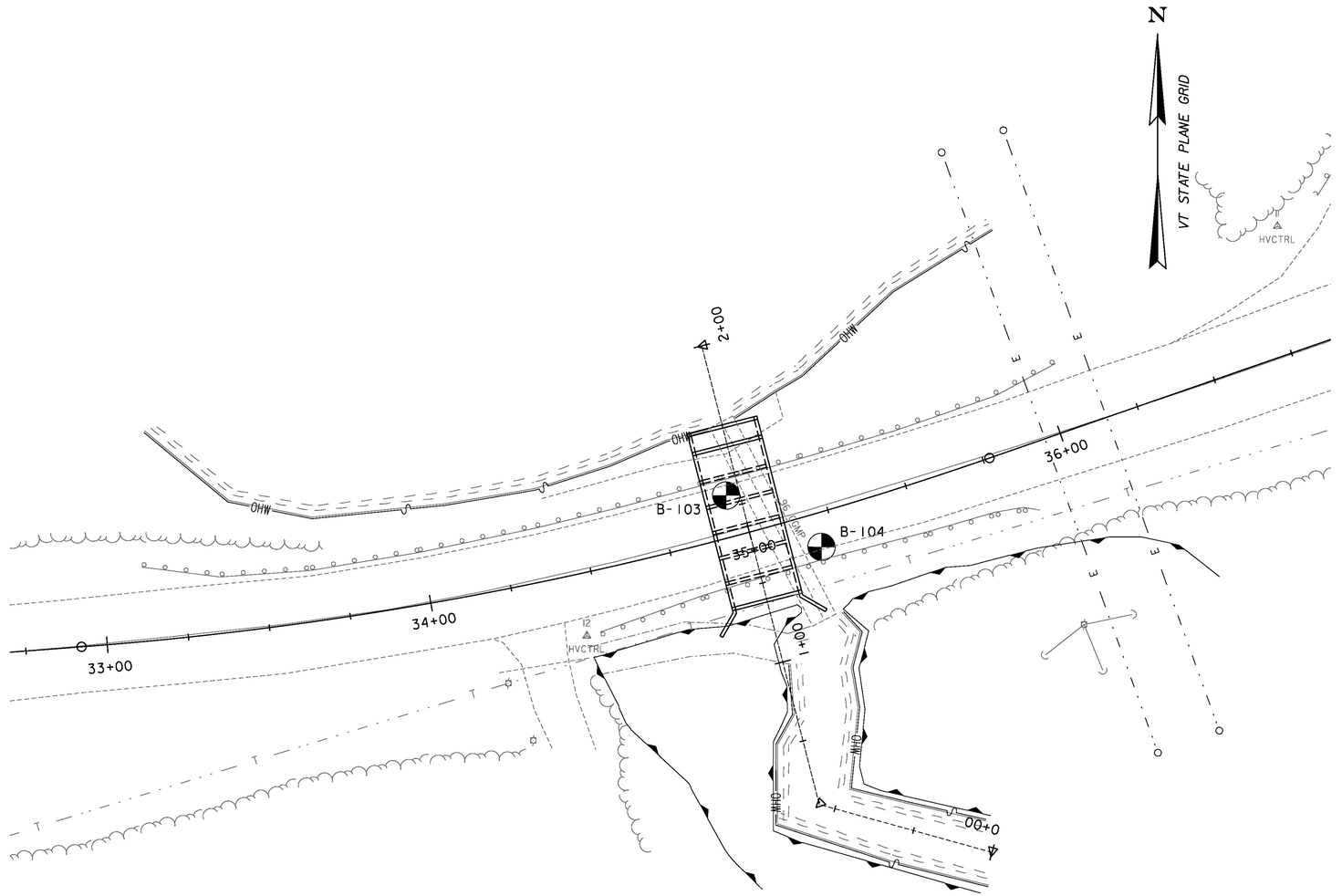
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

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	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

COLOR

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



BORING PLAN

0 20 40

SCALE

BORING CHART

BORING NUMBER	SURVEY STATION	OFFSET	GROUND ELEVATION
B-103	34+96	12.75' LT	803.0'
B-104	35+20	10.25' RT	803.5'

DEFINITIONS (AASHTO)

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

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

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

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

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

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made on Oct. 25, 2012 by N.H. Boring.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

Stantec

LEGEND:

BRIDGE BORING

PROJECT NAME: IRASBURG

PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bdr_bor_pl_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BORING PLAN - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: J. HUNGERFORD
SHEET 40 OF 55

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

BORING LOG

IRASBURG
STP CULV(30)
VT-58 BR-6&7

Boring No.: B-103
Page No.: 1 of 1
PIn No.: 11C266
Checked By: LAR

Boring Crew: GARROW, JUDKINS
Date Started: 10/10/12 Date Finished: 10/10/12
VTSPG NAD83: N 840357.40 ft E 1699907.54 ft
Station: 34+96 Offset: 12.75' LT
Ground Elevation: 803.0

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Asphalt Pavement, 0.0 ft – 0.6 ft							
		Visual Description:, Sa with little Gravel, gry, Moist, Rec. = 0.6 ft	5-4-4-4 (8)						
10		Field Note:, Boulders & Cobbles							
BOTTOM OF CULVERT APPROX. EL. 787.5		Field Note:, No Recovery, gry, Moist, Appears to be Silt.	2-1-2-2 (3)						
		A-6, SICl, gry, MTW, Rec. = 1.5 ft	(WH)	35.1	0.6	3.0	96.4	33	11
20		ClSi Shelby Tube, gry, MTW, Rec. = 0.8 ft, 19.0 ft – 21.0 ft							
		A-4, ClSi, gry, MTW, Rec. = 1.7 ft	(6)	24.2	1.4	16.5	82.1	26	8
		A-4, Si, gry, MTW, Rec. = 1.1 ft	(2)	22.4		12.9	87.1	20	5
		Visual Description:, GrSaSi, gry, Wet, Rec. = 0.2 ft	(2)						
		A-6, SICl, gry, Wet, Rec. = 0.3 ft	(2)	19.1				34	18
30		Visual Description:, ClSi, gry, Wet, Rec. = 0.7 ft	(WH)						
		A-4, SaClSi, gry, Wet, Rec. = 1.7 ft	(WH)	31.5		20.0	80.0	23	9
		Visual Description:, SaClSi, gry, Wet, Rec. = 0.6 ft	1-3-5-5 (8)						
		A-2-4, Sa, gry, MTW, Rec. = 1.7 ft	4-3-3-4 (6)	16.9	5.3	77.5	17.2		
		A-1-b, GrSa, gry, MTW, Rec. = 0.6 ft	8-4-5-6 (9)						
40		A-1-b, GrSa, gry, MTW, Rec. = 0.5 ft	8-7-9-11 (16)	10.1	21.8	69.7	8.5		
		Visual Description:, Sa, gry, MTW, Rec. = 1.1 ft	14-11-11-11 (22)						
		A-2-4, Sa, gry, MTW, Rec. = 1.1 ft	6-6-10-10 (16)	13.5	7.9	78.3	13.8		
		Hole stopped @ 45.0 ft							
50		Remarks: Top of river bed is 16.0 feet below ground surface.							

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

BORING LOG 2 IRASBURG STP CULV(30).GPJ VERMONT AOT.GDT 1/28/13

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

BORING LOG

IRASBURG
STP CULV(30)
VT-58 BR-6&7

Boring No.: B-104
Page No.: 1 of 1
PIn No.: 11C266
Checked By: LAR

Boring Crew: GARROW, WHITLOCK
Date Started: 10/09/12 Date Finished: 10/09/12
VTSPG NAD83: N 840341.66 ft E 1699936.75 ft
Station: 35+20 Offset: 10.25' RT
Ground Elevation: 803.5

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Field Note:, Asphalt Pavement							
5		Visual Description:, SiSaGr, brn, Wet, Rec. = 0.5 ft	8-5-5-4 (10)						
		Field Note:, Boulder							
10		Visual Description:, SiGrSa, brn, Moist, Rec. = 1.2 ft	7-4-5-7 (9)						
BOTTOM OF CULVERT APPROX. EL. 788.5		Field Note:, No Recovery, Appears to be Sandy Silt.	2-1-2-2 (3)						
		A-4, ClSi, gry, Moist, Rec. = 1.1 ft	1-2-2-2 (4)	31.2	11.2	12.3	76.5	31	10
20		A-4, ClSi, gry, Moist, Rec. = 1.0 ft	1-1-2-3 (3)	26.1	4.2	8.2	87.6	29	10
		SaSi Shelby Tube, gry, Moist, Rec. = 1.1 ft, 21.0 ft – 23.0 ft, Tested Non-Plastic.		15.3					
		A-4, SaClSi, gry, Moist, Rec. = 1.8 ft	(2)	22.6	11.6	21.4	67.0	22	8
25		A-4, SaGrSi with some Clay, gry, Wet, Rec. = 1.5 ft	(WH)	19.3	27.4	21.5	51.1	24	9
		A-4, ClSi, gry, Wet, Rec. = 1.4 ft	(2)	21.5	2.6	11.6	85.8	20	7
30		A-4, SaSi, gry, MTW, Rec. = 1.4 ft	6-5-7-11 (12)	14.1	2.4	41.1	56.5		
		Visual Description:, GrSaSi, gry, MTW, Rec. = 1.0 ft	8-7-7-10 (14)						
		Visual Description:, SiSa, gry, Wet, Rec. = 1.3 ft	2-3-5-7 (8)						
35		A-4, SiSa, gry, Moist, Rec. = 1.4 ft	17-26-26-30 (52)	13.0		59.2	40.8		
		Visual Description:, SiSa, gry, Moist, Rec. = 1.5 ft	18-30-39-R (69)						
40		A-4, SiSa, gry, Moist, Rec. = 0.9 ft	32-R (R)	13.3		55.0	45.0		
		A-4, SiSa, gry, Moist, Rec. = 1.7 ft	13-32-37-R (69)			50.1	39.9		
45		Visual Description:, SiSa, gry, Moist, Rec. = 1.3 ft	31-36-R (R)						
		Hole stopped @ 44.4 ft							

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

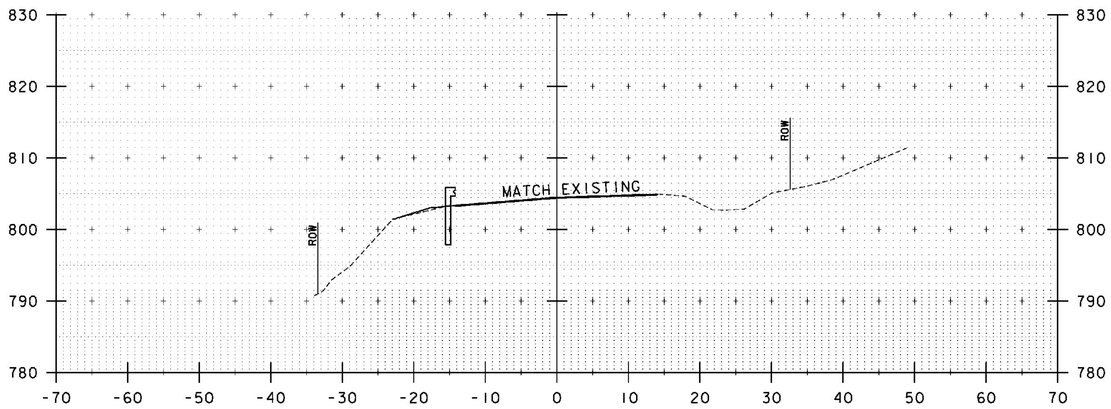
BORING LOG 2 IRASBURG STP CULV(30).GPJ VERMONT AOT.GDT 1/28/13

Stantec

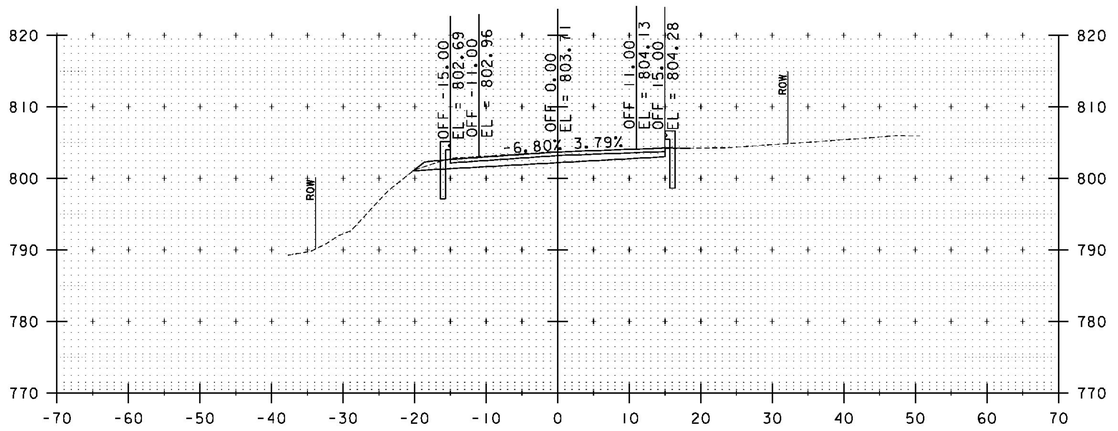
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bor_log_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: VTRANS
BORING LOG - BR7

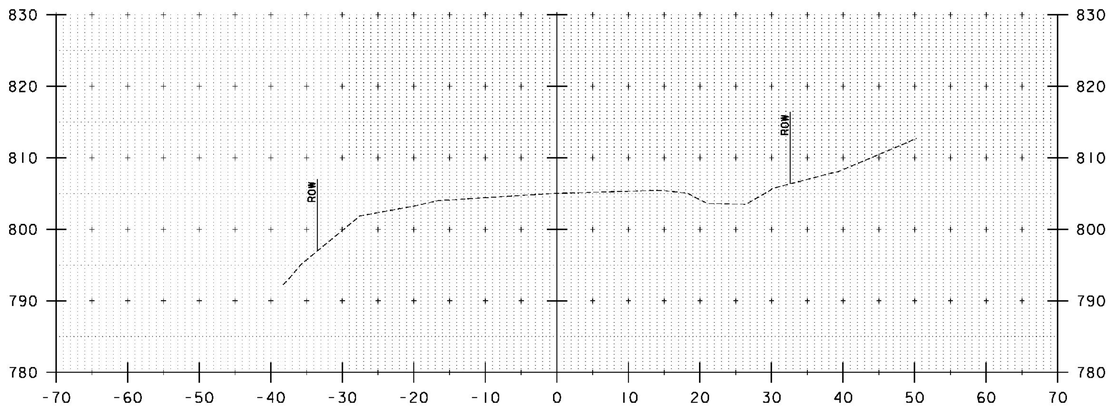
PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: VTRANS
SHEET 41 OF 55



33+55
BEGIN APPROACH

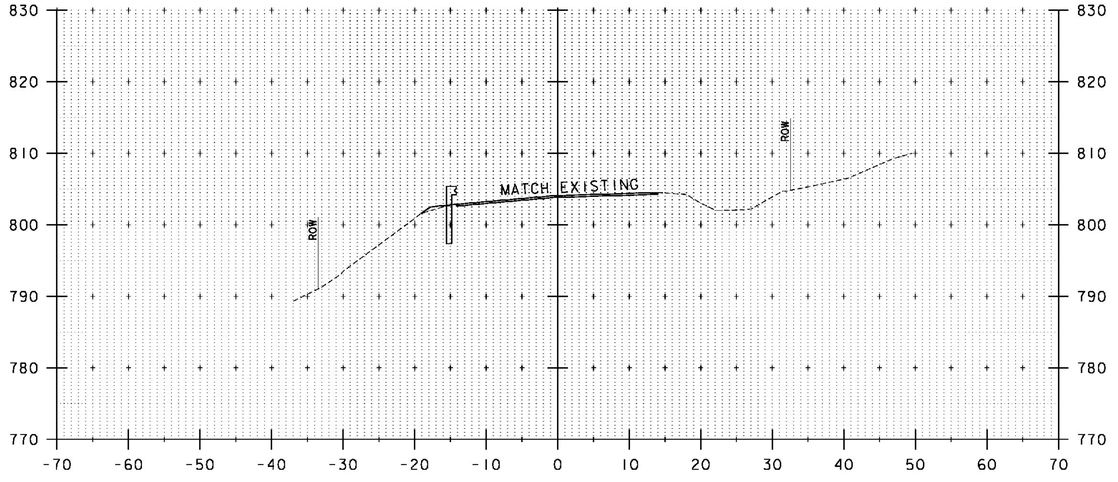


34+25



33+50

33+75



34+00

STA. 33+50 TO STA. 34+25

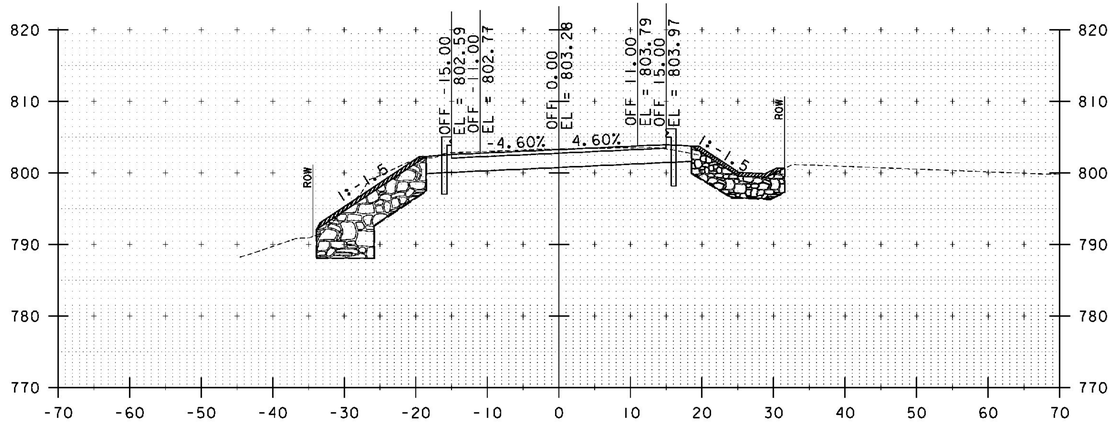
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXSI - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 42 OF 55

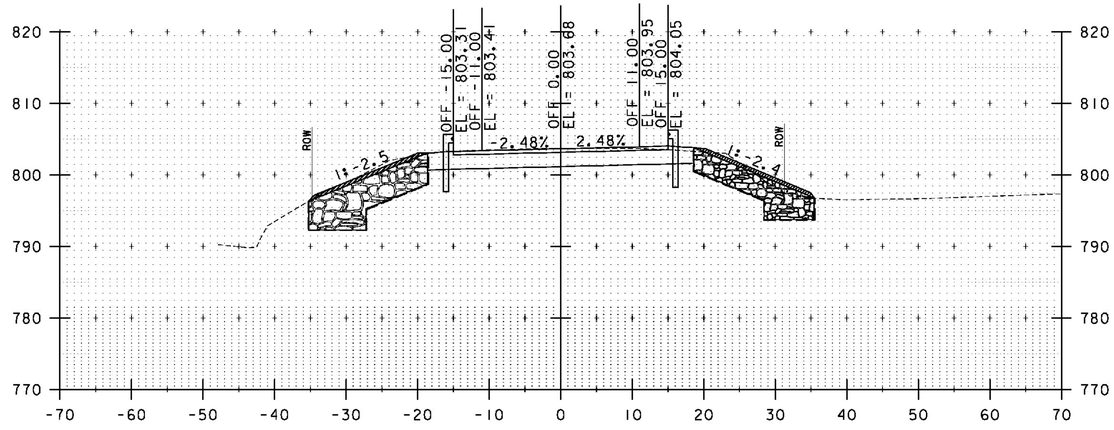
Stantec

34+89.07
BEGIN BRIDGE



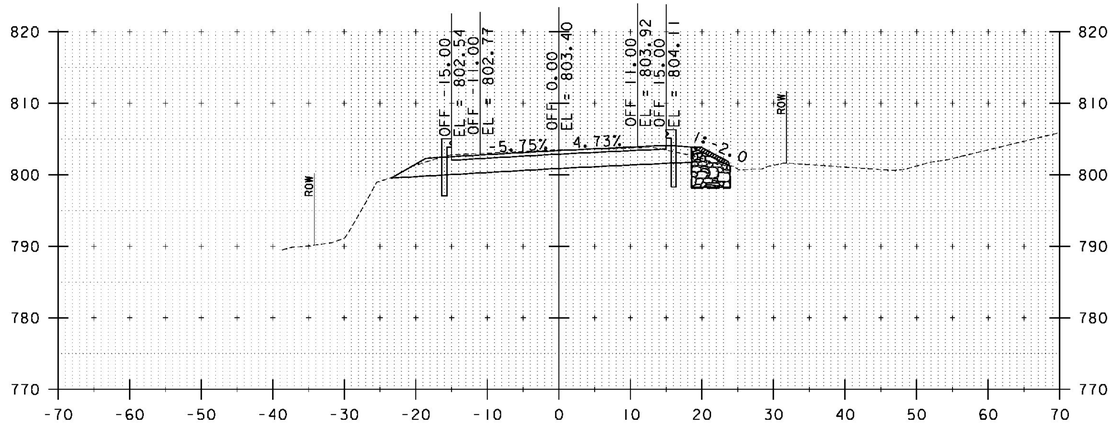
34+75

35+47
END PROJECT



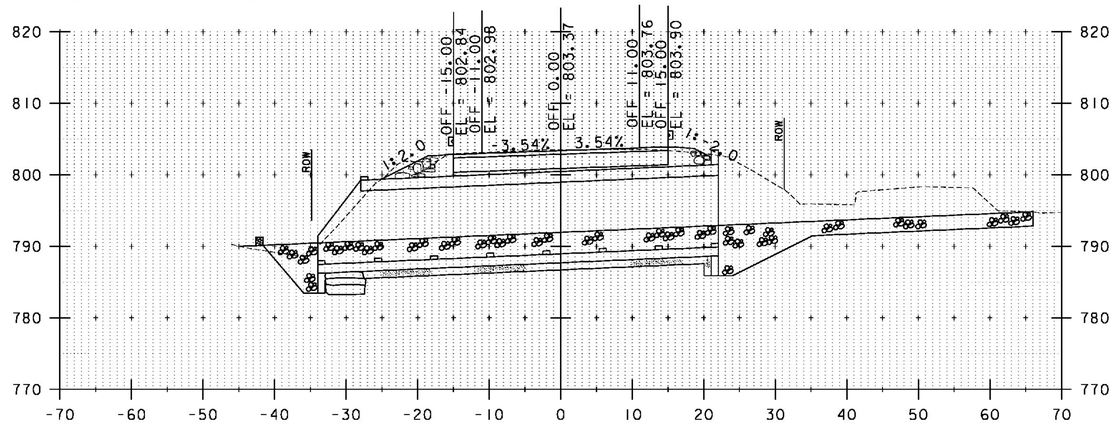
35+25

34+55
RESUME PROJECT



34+50

35+11.07
END BRIDGE



35+00

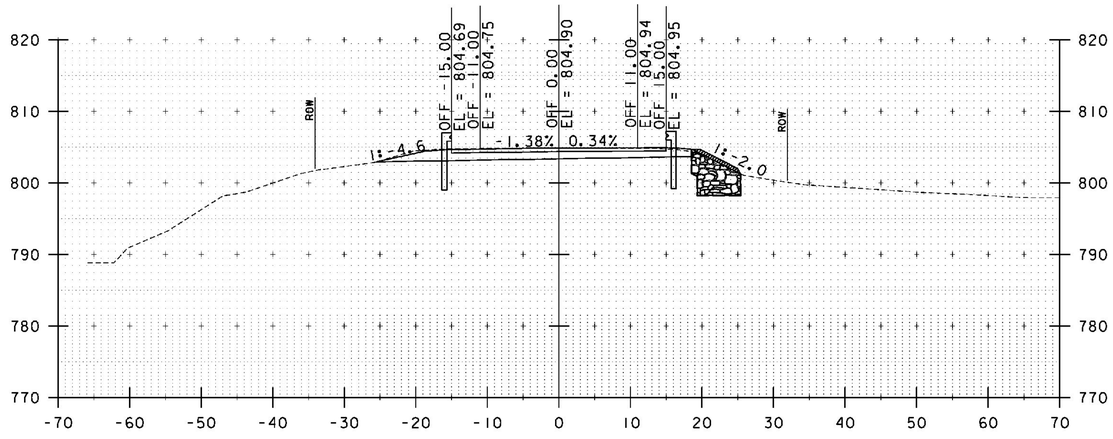
STA. 34+50 TO STA. 35+47

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

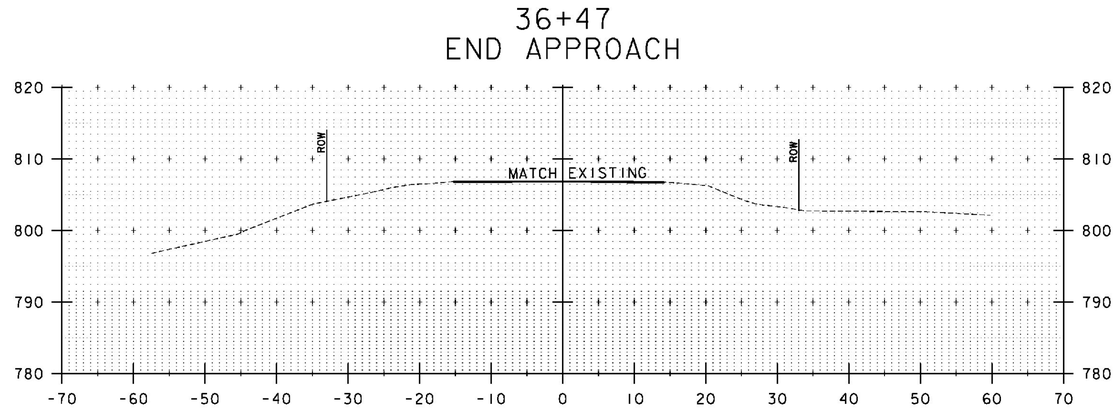
FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXS2 - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 43 OF 55

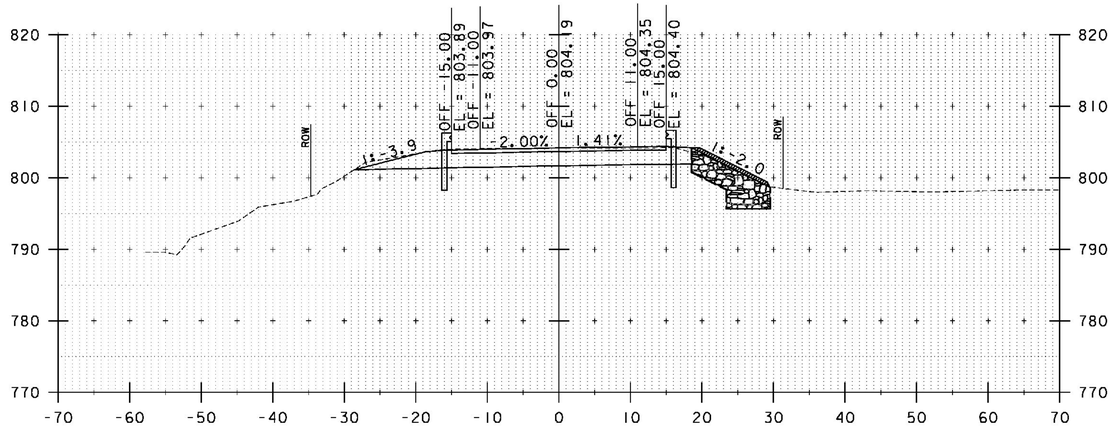
Stantec



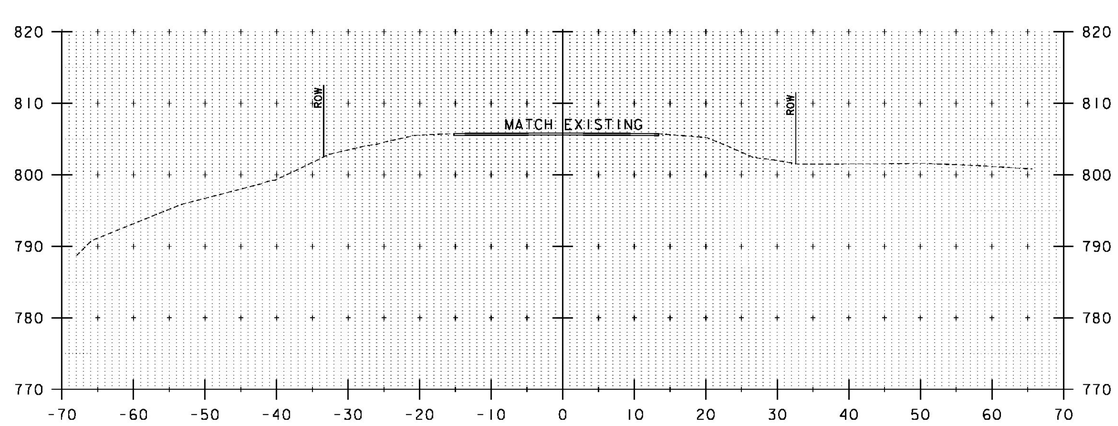
35+50



36+47
END APPROACH



35+75



36+25

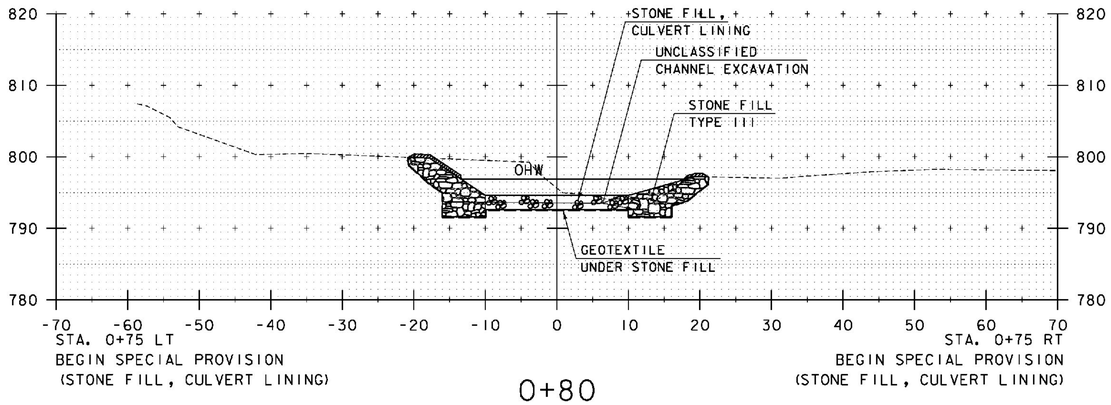
36+00

STA. 35+50 TO STA. 36+47

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)

FILE NAME: z11c266xs.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
ROADWAY CROSS SECTIONS - RXS3 - BR7	SHEET 44 OF 55

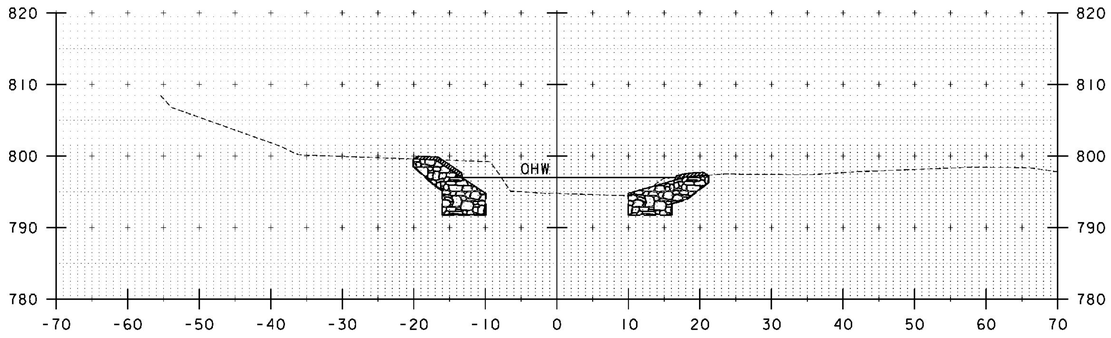
Stantec



STA. 0+75 LT
BEGIN SPECIAL PROVISION
(STONE FILL, CULVERT LINING)

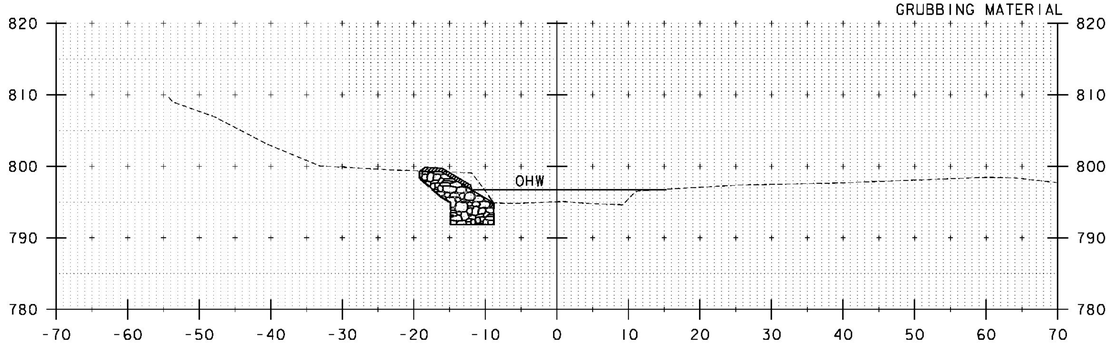
STA. 0+75 RT
BEGIN SPECIAL PROVISION
(STONE FILL, CULVERT LINING)

0+80



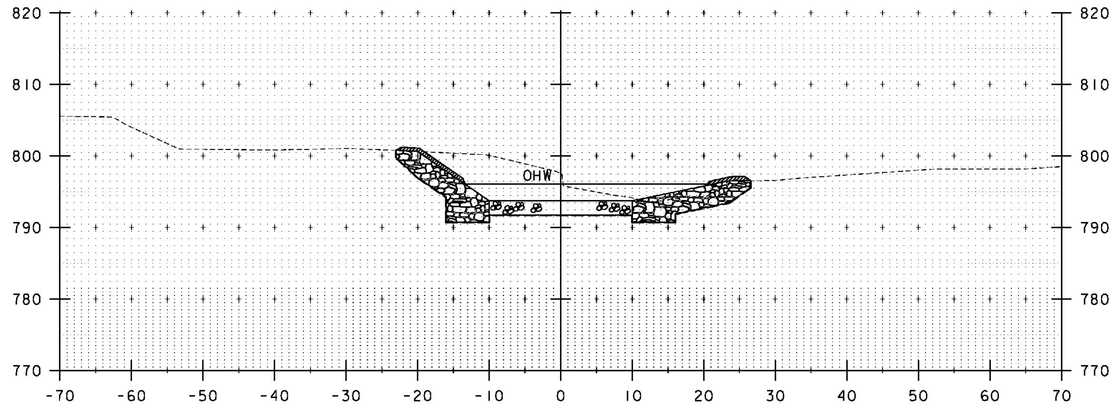
STA. 0+62 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

0+70

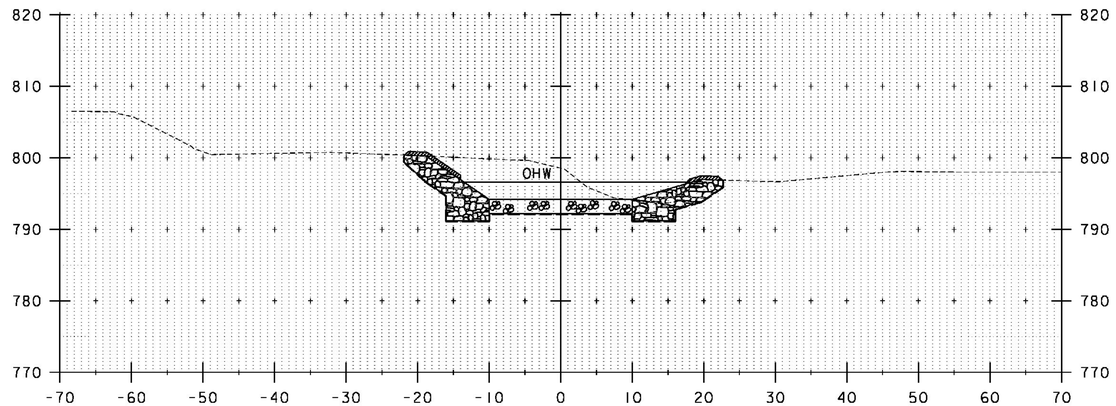


STA. 0+55 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTIVE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

0+60



1+00



0+90

STA. 0+60 TO STA. 1+00

Stantec

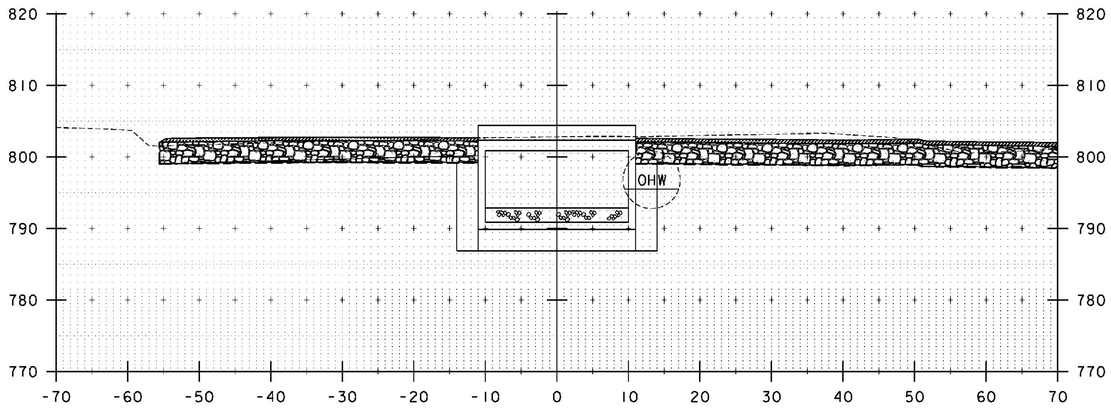
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXSI - BR7

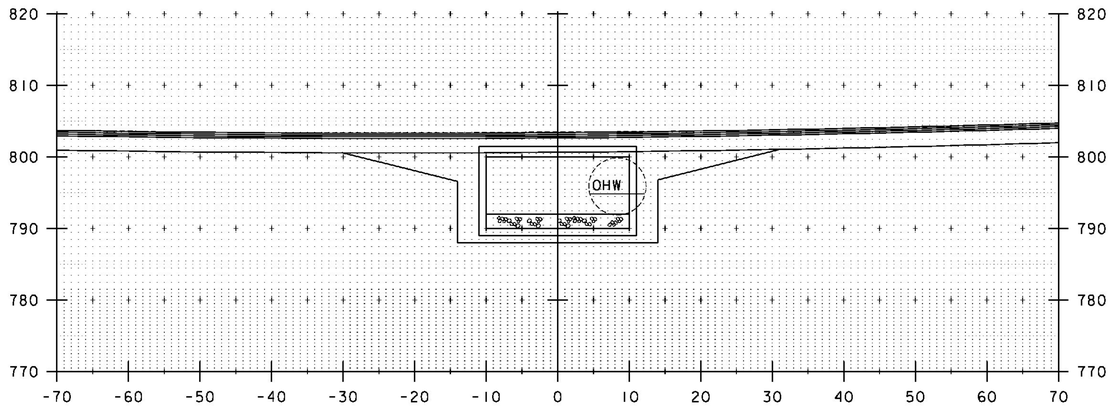
PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 45 OF 55

STA. 1+23.44 LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

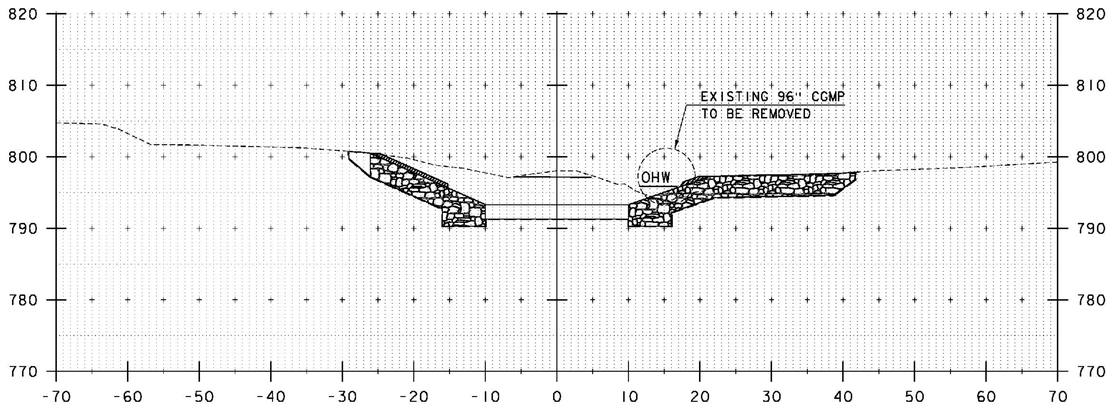
STA. 1+23.44 RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL



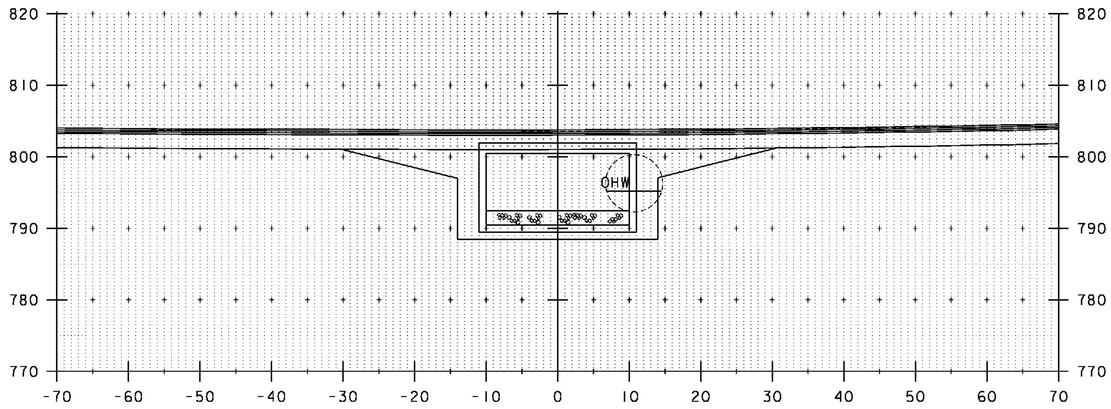
1+20



1+40



1+10



1+30

STA. 1+10 TO STA. 1+40

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

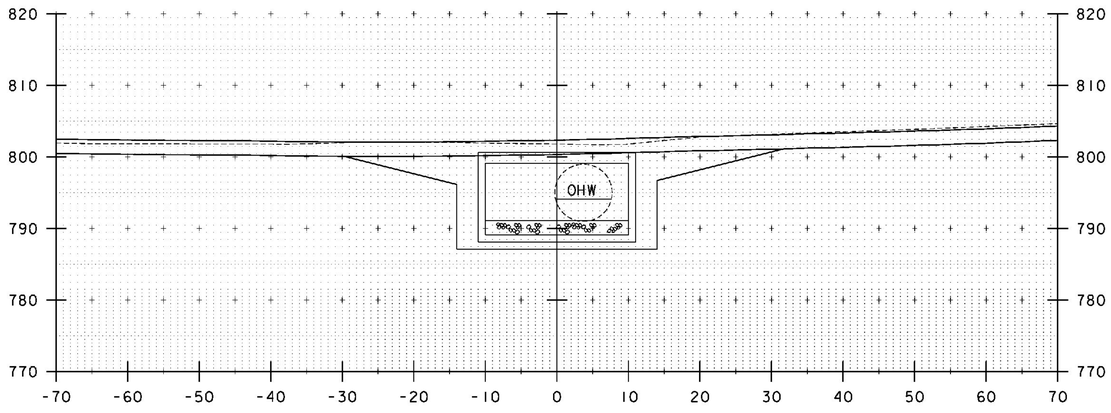
FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS2 - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 46 OF 55

Stantec

STA. 1+60.65 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
RIP RAP, HEAVY TYPE

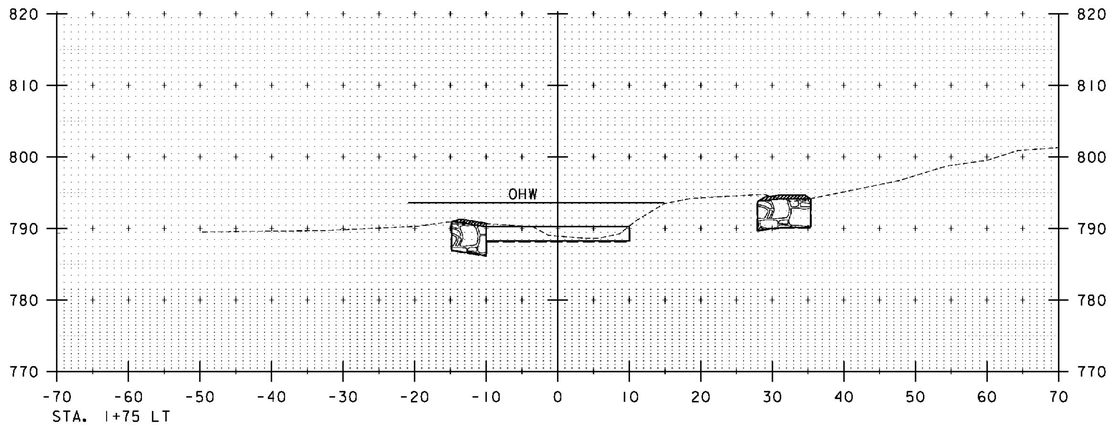
STA. 1+60.65 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
RIP RAP, HEAVY TYPE



1+60

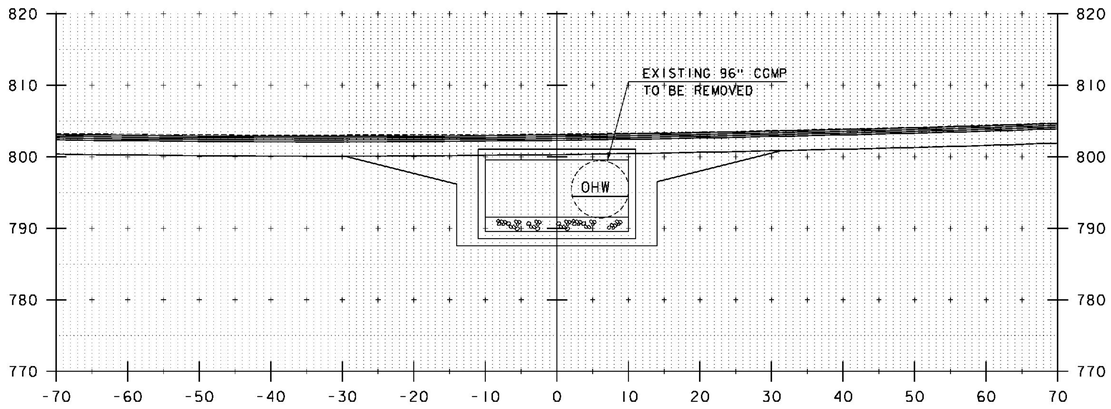
STA. 1+86 LT
END UNCLASSIFIED CHANNEL EXCAVATION
SPECIAL PROVISION (STONE FILL, CULVERT LINING)

STA. 1+86 RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
RIP RAP, HEAVY TYPE
SPECIAL PROVISION (STONE FILL, CULVERT LINING)

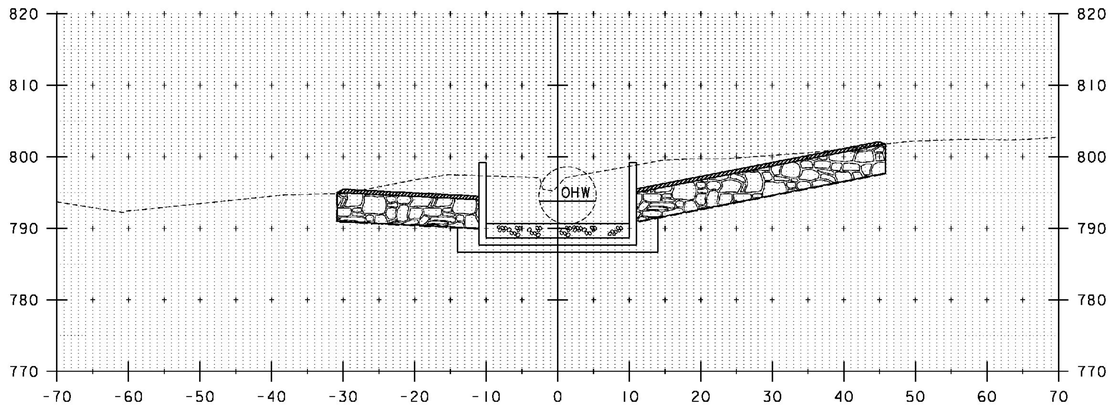


STA. 1+75 LT
END GEOTEXTILE UNDER STONE FILL
RIP RAP, HEAVY TYPE

1+80



1+50



1+70

STA. 1+50 TO STA. 1+80

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS3 - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 47 OF 55

Stantec

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #7, RELATED CHANNEL WORK AND INCIDENTALS. BRIDGE #7 IS AN EXISTING 96" CORRUGATED STEEL CULVERT, WHICH WILL BE REPLACED WITH A 20' SPAN PRECAST CONCRETE BOX CULVERT TO CONVEY AN UNNAMED TRIBUTARY BENEATH VT ROUTE 58 TO THE BLACK RIVER. BRIDGE #7 IS LOCATED IN THE TOWN OF IRASBURG ON VT ROUTE 58, 0.5 MILES EAST OF THE JUNCTION WITH VERMONT ROUTE 14.

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 0.55 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 WELL ESTABLISHED FOREST WITH MODERATE SLOPES AT THE INLET AND THE BLACK RIVER DIRECTLY AT THE OUTLET. THERE ARE TREES ON THE BANKS OF THE STREAM. VT ROUTE 58 IS WITHIN THE PROJECT SITE. THERE ARE OVERHEAD UTILITIES THAT HAVE BEEN RELOCATED TO NOT IMPACT THE PROJECT.

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

THE WATER SOURCE ON THE PROJECT IS AN UNNAMED TRIBUTARY TO THE BLACK RIVER. THE PROJECT IS IN THE LAKE MEMPHREMAGOG DRAINAGE BASIN. THE TOTAL CONTRIBUTING DRAINAGE AREA IS 2.03 SQ. MI. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF FROM THE SURROUNDING SLOPES, ROADWAY DITCHES, AND THE ROADWAY OVER TOP OF CULVERT.THERE ARE CLASS II WETLANDS ON THE SOUTH SIDE OF THE PROJECT AT THE INLET. SEE THE PROJECT IMPACTS PLANS.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF FOREST LAND WITH SMALL TREES AND BRUSH ON THE BANKS OF THE STREAM. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS RELATED TO THE EXCAVATION REQUIRED FOR THE INSTALLATION OF THE CULVERT, HEADWALLS, WINGWALLS, STONE FILL, AND TEMPORARY ACCESS. UPON PROJECT COMPLETION, THE CHANNEL AND DISTURBED AREAS WITH SLOPES GREATER THAN 2:1 WILL BE ARMORED WITH STONE FILL TYPE II AT THE INLET AND HEAVY RIP RAP AT THE OUTLET 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 ORLEANS, VERMONT. SOILS ON THE PROJECT SITE ARE MOOSILAUKE VERY FINE SANDY LOAM, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED MODERATELY ERODIBLE DUE TO K-VALUE.

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 TRIBUTARY TO THE BLACK RIVER
WETLANDS: THERE ARE WETLANDS AT THE INLET OF THE STRUCTURE. SEE THE PROJECT IMPACTS PLANS.

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. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING AN EPSC PLAN IN ACCORDANCE WITH SECTION 652 OF THE SPECIAL PROVISIONS.

IN ADDITON, THE CONTRACTOR SHALL DESIGN AND IMPLEMENT A TEMPORARY STREAM DIVERSION, INCLUDING EPSC MEASURES IN ACCORDANCE WITH ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).

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 CONTRACTOR'S 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.

1.4.5 DIVERT UPLAND RUNOFF

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

THE PROJECT AREA IS RELATIVELY FLAT WITH MINIMAL OFF-SITE RUNOFF FLOWING THROUGH THE SITE. THERFORE DIVERSION MEASURES WILL NOT BE NECESSARY.

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.

STONE CHECK DAMS WILL BE INSTALLED AS NEEDED AND AS DIRECTED BY THE ENGINEER.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE ARE NO PERMANENT STORMWATER TREATMENT DEVICES TO BE INSTALLED WITH 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.

SEDIMENT CONTAINMENT BAGS (FILTER BAGS) FOR HEADWALL WORK SHALL BE USED AS NECESSARY AND AS DIRECTED BY THE ENGINEER. SEE SHEET 51 FOR DETAIL.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

1.5 SEQUENCE AND STAGING

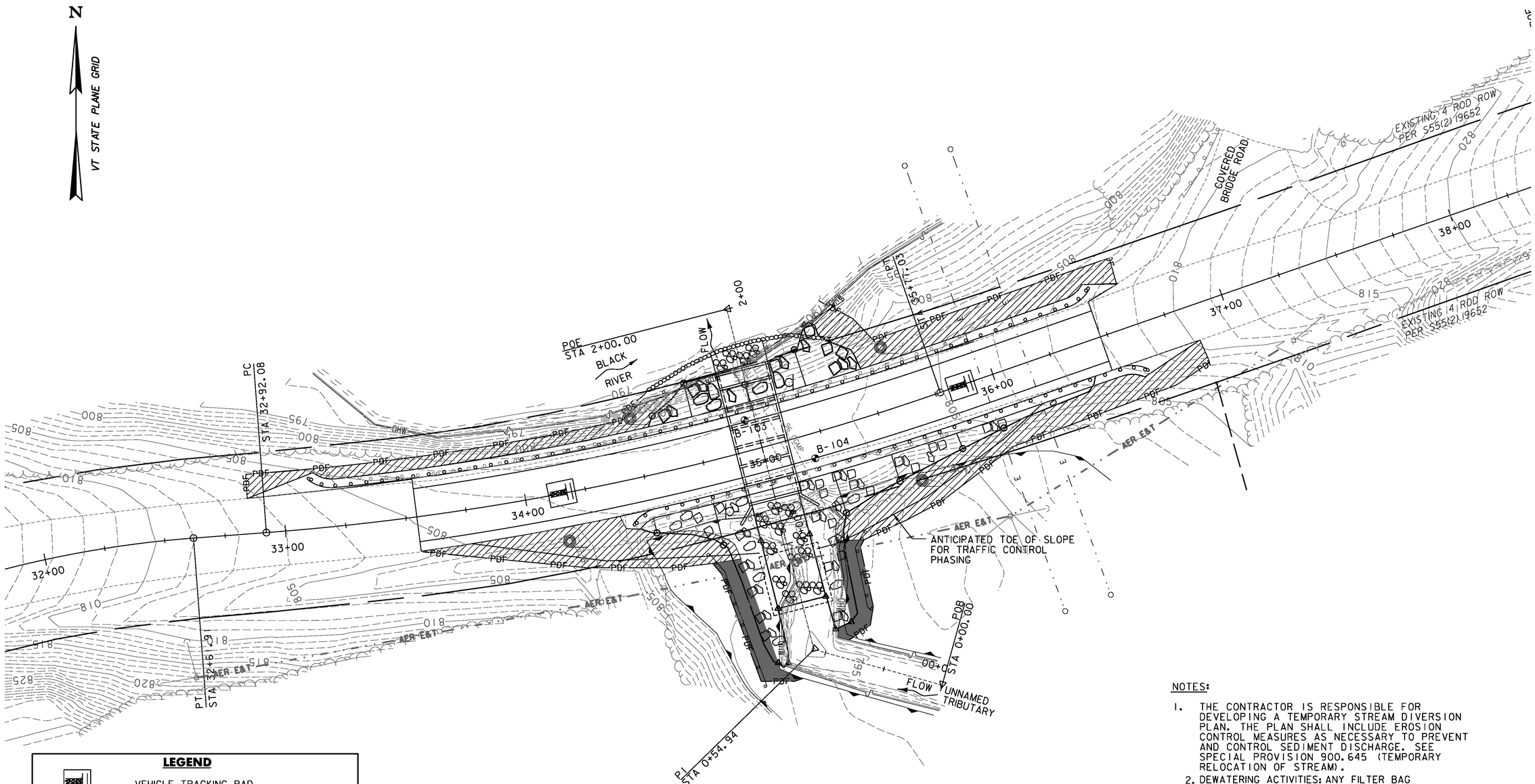
THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 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.

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: zllc266ero_narr_BR7.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
EPSC NARRATIVE - ECN 1 - BR7	SHEET 48 OF 55



LEGEND

- VEHICLE TRACKING PAD
- DISTURBED AREAS REQUIRING VEGETATION

ITEM 653.55 PROJECT DEMARCATION FENCE

STA. 33+55.17 - 36+85.43, RT.
STA. 32+85.26 - 36+60.49, LT.

ITEM 649.51 GEOTEXTILE FOR SILT FENCE

SEE LOCATIONS, THIS SHEET.

PLAN

SCALE: 1" = 20'-0"

0 20 40

NOTES:

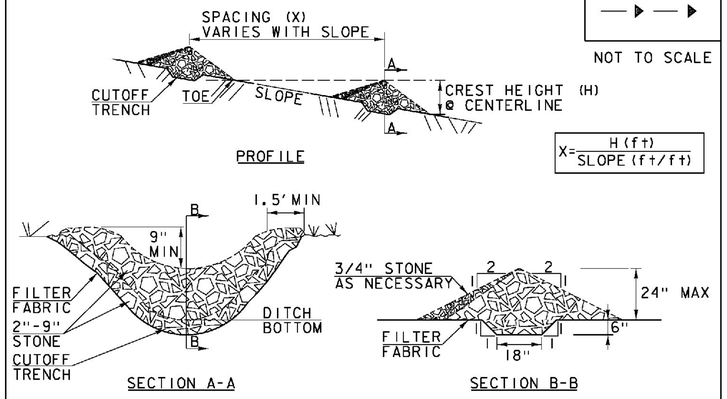
1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A TEMPORARY STREAM DIVERSION PLAN. THE PLAN SHALL INCLUDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT AND CONTROL SEDIMENT DISCHARGE. SEE SPECIAL PROVISION 900.645 (TEMPORARY RELOCATION OF STREAM).
2. DEWATERING ACTIVITIES: ANY FILTER BAG OR DEWATERING ENCLOSURE FOR DISCHARGE OF DEWATERING ACTIVITIES SHALL BE LOCATED A MINIMUM OF 50 FEET FROM THE STREAM UNLESS APPROVED BY THE ENGINEER. THE FILTERING AREA SHALL BE LOCATED WITHIN THE EXISTING RIGHT-OF-WAY AND IF NECESSARY MAY BE LOCATED WITHIN A CLOSED PORTION OF THE EXISTING ROADWAY AND/OR SHOULDER.

Stantec

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: z11c266bdr_EPSC_br7.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
EPSC CONST. SITE PLAN - ECPI - BR7	SHEET 49 OF 55

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 OFTHE 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.

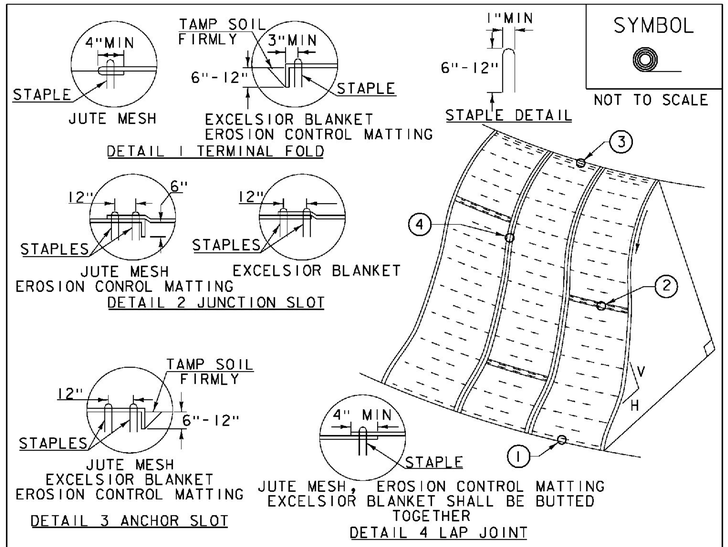
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

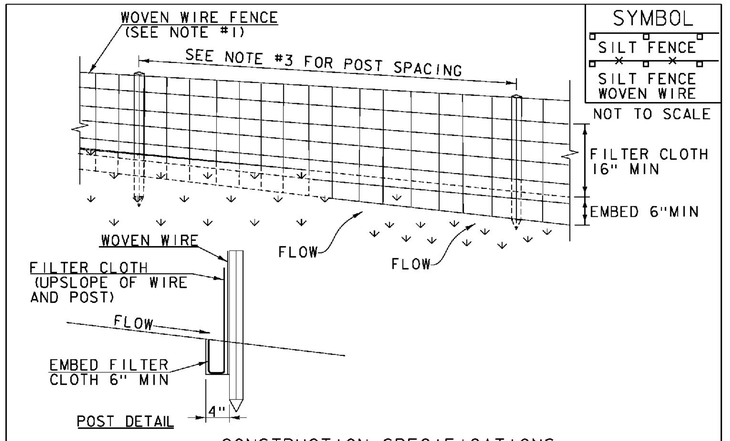
1. APPLY TO SLOPES GREATER THAN 3H: 1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

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

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

SILT FENCE

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

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

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

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266epsc det_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
EROSION CONTROL DETAILS - ECD 1- BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 50 OF 55

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*

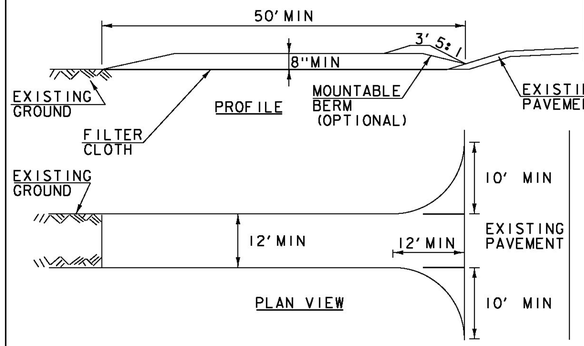
CONSTRUCTION GUIDANCE

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

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.

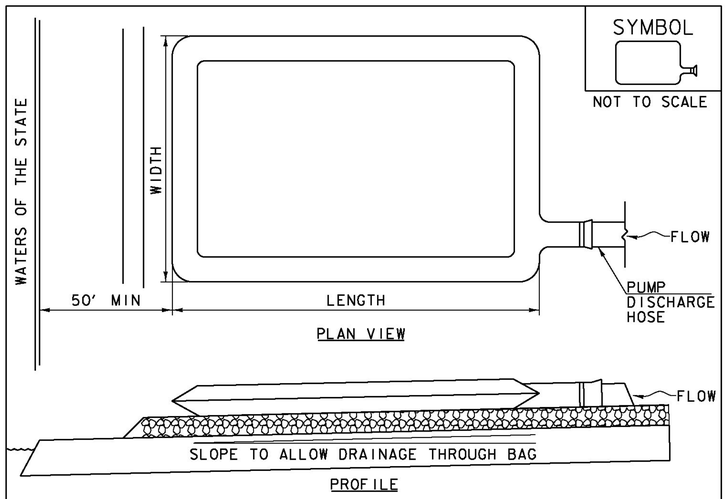
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

FILTER BAG

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 FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266epsc det_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
EROSION CONTROL DETAILS - ECD 2 - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 51 OF 55

N

VT STATE PLANE GRID

HIGH VOLTAGE POWER LINES
LOCATION NOT SHOWN ON
SURVEY (APPROXIMATE LOCATION)

EXISTING 4 ROD ROW
PER S55(2) 1965

COVERED
BRIDGE ROAD

TO ORLEANS

EXIST. 96" CGMP
TO BE REMOVED

POF
STA 2+00.00

BLACK
RIVER

FLOW

PC
STA 32+92.08

EXIST. ROW OHW

VT 58

TO IRASBURG

EXIST. ROW

PT
STA 32+61.

AER E&T

PDF

PDI

B-104

B-105

ANTICIPATED TOE OF SLOPE
FOR TRAFFIC CONTROL
PHASING

POB
STA 0+00.00

FLOW UNNAMED
TRIBUTARY

PI
STA 0+54.94

ASSUMED 25' x 25' TEMPORARY
WORK AREA FOR IMPOUNDMENT
AND/OR STREAM DIVERSION.

LEGEND

- RIPRAP, HEAVY TYPE
- STONE FILL, TYPE III
- SPECIAL PROVISION (STONE FILL, CULVERT LINING)

IMPACTS BELOW ORDINARY HIGH WATER

TEMPORARY IMPACTS BELOW OHW:	224 SF
PERMANENT IMPACTS BELOW OHW:	1778 SF
TOTAL IMPACTS:	2002 SF

WETLANDS IMPACT

WETLANDS SECONDARY IMPACTS:	2096 SF
WETLANDS PERMANENT IMPACTS:	1087 SF
TOTAL IMPACTS:	3183 SF

PLAN
SCALE: 1" = 20'-0"
0 20 40

Stantec

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: z11c266bdr_impacts_br7_1.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
PROJECT IMPACTS PLAN 1- BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 52 OF 55

N

VT STATE PLANE GRID

HIGH VOLTAGE POWER LINES
LOCATION NOT SHOWN ON
SURVEY (APPROXIMATE LOCATION)

EXISTING 4 ROD ROW
PER S55(2) 19652

COVERED
BRIDGE ROAD

TO ORLEANS

EXIST. 96" CGMP
TO BE REMOVED

POF
STA 2+00.00

BLACK
RIVER

FLOW

PC
STA 32+92.08

EXIST. ROW

TO IRASBURG

VT ROUTE 58

B-103

B-104

96" CGMP

EXIST. ROW

PT
STA 32+61.13

WOODEN

50'-0"
WETLAND BUFFER

AER E&T

ANTICIPATED TOE OF SLOPE
FOR TRAFFIC CONTROL
PHASING

POB
STA 0+00.00

FLOW UNNAMED
TRIBUTARY

PI
STA 0+54.94

ASSUMED 25' x 25' TEMPORARY
WORK AREA FOR IMPOUNDMENT
AND/OR STREAM DIVERSION.

LEGEND

- RIPRAP, HEAVY TYPE
- STONE FILL, TYPE III
- SPECIAL PROVISION (STONE FILL, CULVERT LINING)

WETLANDS BUFFER IMPACTS

WETLANDS BUFFER SECONDARY IMPACTS:	1853 SF
WETLANDS BUFFER PERMANENT IMPACTS:	2336 SF
TOTAL IMPACTS:	4189 SF

PLAN

SCALE: 1" = 20'-0"

0 20 40

Stantec

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME: z11c266bdr_impacts_br7.2.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
PROJECT IMPACTS PLAN 2 - BR7	SHEET 53 OF 55

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	NELSON FARMS, INC.	1	34+57.98 LT	35+42.23 LT			HIGHWAY	P	290 SF						
			35+36 LT	35+55 LT			CONSTRUCTION	T	155 SF						INCL. PDF & EC
2	MAGOON, ALAN & BOBBI JO	1	34+43 RT	35+96 RT			CONSTRUCTION	T	1,186 SF						INCL. PDF & EC
			34+59 RT	34+80 RT			DETOUR	T	33 SF						
			34+79 RT	35+37 RT			CHANNEL	P	2,308 SF						INCL. STONE FILL
			35+18 RT	35+80 RT			DETOUR	T	418 SF						
3	TELEPHONE OPERATING COMPANY OF VERMONT LLC		34+43	35+96											UTILITY
4	VERMONT ELECTRIC POWER COMPANY, INC.		34+43	35+96											UTILITY
5	VERMONT ELECTRIC COOPERATIVE, INC.		34+43	35+96											UTILITY
6	COMCAST OF CONNECTICUT/GEORGIA/ MASSACHUSETTS/NEW HAMPSHIRE/ NEW YORK/NORTH CAROLINA/ VERMONT, LLC		34+43	35+96											UTILITY

TABLE OF REVISIONS

REVISION NO.	ROW SET SHEET #	DESCRIPTION	DATE
1	3	NAME CORRECTED TO TELEPHONE OPERATING COMPANY OF VERMONT LLC AND ADD PARCEL NUMBERS FOR UTILITIES. MADE BY: MT C.O. 9899 APPR: RC	06/12/14
2	3, 4	PARCEL 1, NELSON FARMS - ADD PROPERTY LINE & INDICATE AREA OWNED BY STATE OF VERMONT; REVISE TAKE LINE TO AGREE WITH PROPERTY LINE. MADE BY: MT C.O. 9900 APPR: RC	06/17/14
3	3, 4	PARCEL 2, MAGOON - CHANGE SR(T) TO DETOUR (T); REVISE CH(P) TO FOLLOW PROPOSED STONE FILL. MADE BY: MT C.O. 9901 APPR: RC	06/17/14
4	3	PARCEL 1, NELSON FARMS - CHANGE FEE TAKING TO EASEMENT PER PROPERTY OWNER REQUEST. MADE BY: MT C.O. 9921 APPR: RC	07/30/14
5	4	PARCEL 1, NELSON FARMS - ADD HWY (P) TO PLANS. MADE BY: MT C.O. 9924 APPR: RC	08/04/14

APPROVED: RYAN CLOUTIER DATE: 05-09-14
CHIEF, PLANS & TITLES

PROJECT NAME: **IRASBURG**
PROJECT NUMBER: **STP CULV(30)**

FILE NAME: **r11c266detail.xls**
PROJECT LEADER: **M. SARGENT**
DESIGNED BY: **A. EGIZI**
ROW DETAIL SHEET #1

PLOT DATE: 04-AUG-2014
DRAWN BY: **M. TROTTIER**
CHECKED BY: **R. CLOUTIER**
SHEET 54 OF 55

621.20 - STEEL BEAM GUARDRAIL, GALVANIZED
STA. 33+11.03, LT. TO STA. 34+50.00, LT.
STA. 34+41.44, RT. TO STA. 34+50.00, RT.
STA. 35+50.00, LT. TO STA. 36+49.20, LT.
STA. 35+50.00, RT. TO STA. 36+61.45, RT.

621.21 - HD STEEL BEAM GUARDRAIL, GALVANIZED
STA. 34+50.0, LT. TO STA. 34+87.5, LT.
STA. 34+50.0, RT. TO STA. 34+87.5, RT.
STA. 35+12.5, LT. TO STA. 35+50.0, LT.
STA. 35+12.5, RT. TO STA. 35+50.0, RT.

621.216 - HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
STA. 34+87.5, LT. TO STA. 35+12.5, LT.
STA. 34+87.5, RT. TO STA. 35+12.5, RT.

621.60 - ANCHOR FOR STEEL BEAM GUADRAIL
STA. 33+11.03, LT.
STA. 34+41.44, RT.
STA. 36+49.20, LT.
STA. 36+61.45, RT.

621.80 - REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 33+12.71, LT. TO STA. 36+05.57, LT.
STA. 34+48.75, RT. TO STA. 35+86.30, RT.

646.400- DURABLE 4 INCH WHITE LINE
STA. 33+55.00, RT. TO STA. 36+47.00, RT.
STA. 33+55.00, LT. TO STA. 36+47.00, LT.

646.410- DURABLE 4 INCH YELLOW LINE
STA. 33+55.00, CL. TO STA. 36+47.00, CL. (DYEL)

N
VT STATE PLANE GRID

CURVE DATA
DELTA = 14°50'31.6"
D = 5°12'31.4"
R = 1100.00'
T = 143.28'
L = 284.95'
E = 9.29'

1
NELSON FARMS, INC.

STATE OF VERMONT

N 840372.57
E 1699893.41
34+85.99, 31.01' LT

N 840334.22
E 1699611.32
32+00.00, 35.19' LT

N 840340.29
E 1699678.08
32+62.39, 31.62' LT

N 840269.67
E 1699625.29
32+00.00, 30.86' RT

N 840274.29
E 1699677.34
32+56.26, 34.10' RT

N 840310.01
E 1699914.44
34+90.62, 34.82' RT

N 840379.06'
E 1699906.53'
WPI

N 840324.75'
E 1699920.22'
WP2

N 840473.30
E 1700188.02
38+00.00, 33.09' LT

N 840410.96
E 1700209.68
38+00.00, 32.91' RT

STATE OF VERMONT APROX. R.O.W. PROJECT S 55(2), 1949

END R.O.W. PROJECT
STP CULV (30)
STA. 35+96, 31.87' RT

BEGIN R.O.W. PROJECT
STP CULV (30)
STA. 34+43, 36.95' RT

2
MAGOON, ALAN & BOBBI JO

PLAN
SCALE: 1" = 20'-0"
0 20 40

NOTES:
1. GRADE IN ACCORDANCE WITH TYPICAL ROADWAY SECTION AND ROADWAY CROSS SECTIONS UNLESS NOTED OTHERWISE.

LEGEND
- RIPRAP, HEAVY TYPE
- STONE FILL, TYPE III
- STONE FILL, CULVERT LINING

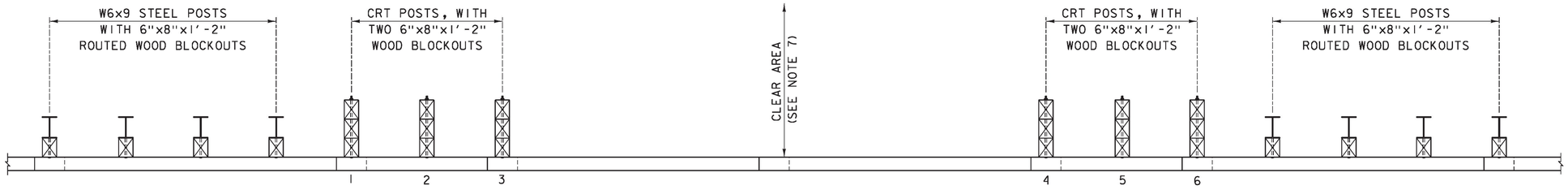
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

FOR R.O.W. USE ONLY

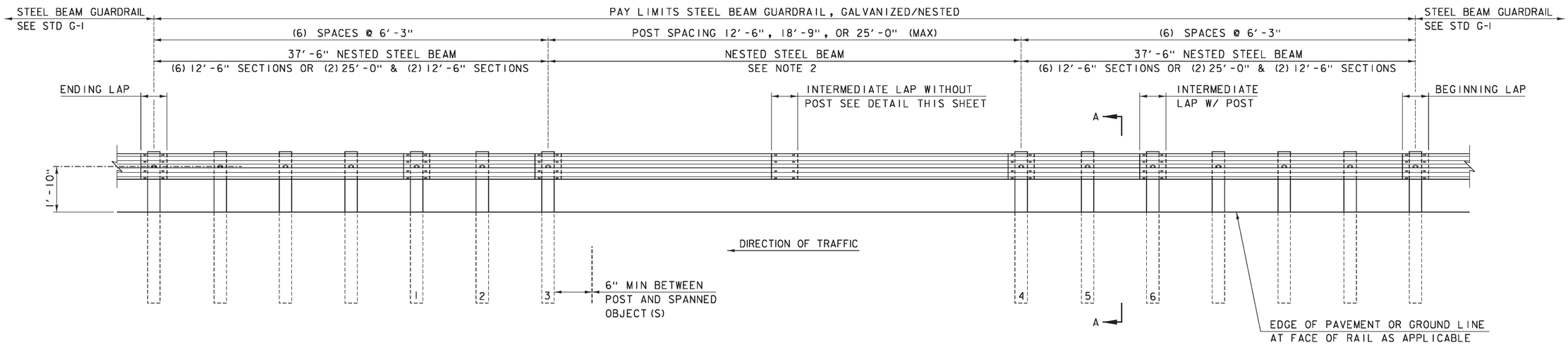
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: r11c266lay_br7.dgn
PROJECT LEADER: M. SARGENT
DESIGNED BY: STANTEC
R.O.W. LAYOUT - BR7

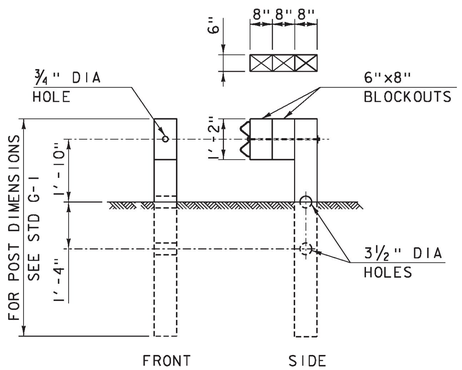
PLOT DATE: 04-AUG-2014
DRAWN BY: E. PIERCE
CHECKED BY: R. CLOUTIER
SHEET 55 OF 55



LONGSPAN STEEL BEAM GUARDRAIL PLAN

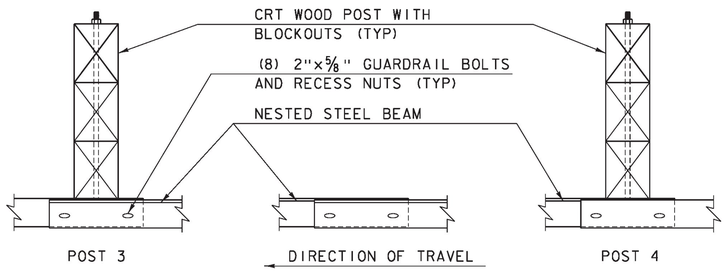


LONGSPAN STEEL BEAM GUARDRAIL ELEVATION



SECTION A-A

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



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.
4. POSTS 1THRU 6 HAVE TWO 6"x8" BLOCKOUTS.
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 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.
9. ALL MATERIALS NECCISSARY FOR THE ASSEMBLY OF THE RAIL MUST MEET THE REQUIREMENTS OF STD G-1 UNLESS OTHERWISE NOTED.
10. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.

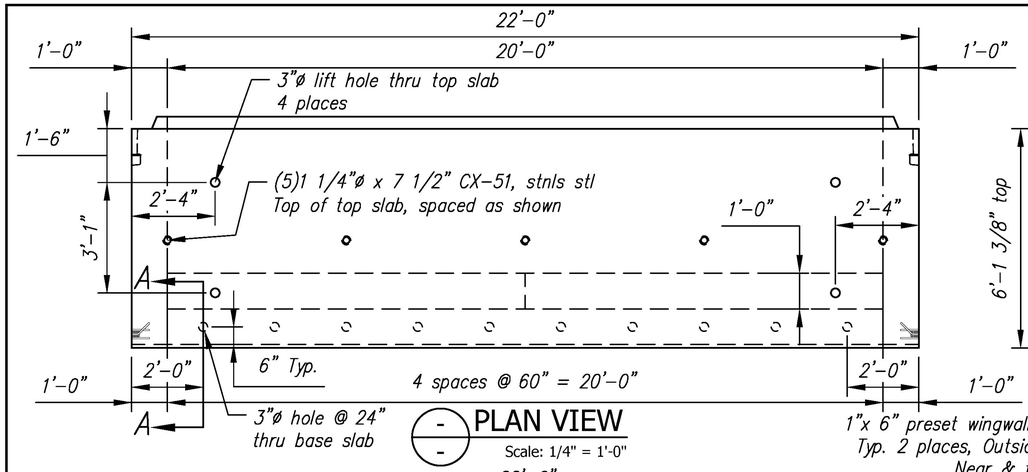
REVISIONS	
NOVEMBER 25, 2013	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JANUARY 3, 2014	APPROVED FOR USE BY VAOT STRUCTURES SECTION

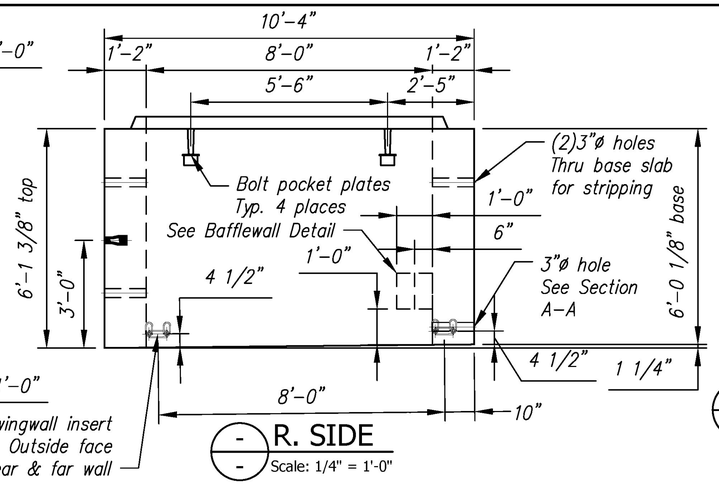
LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED

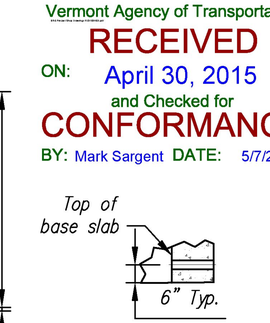
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL

SD-366.00







Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

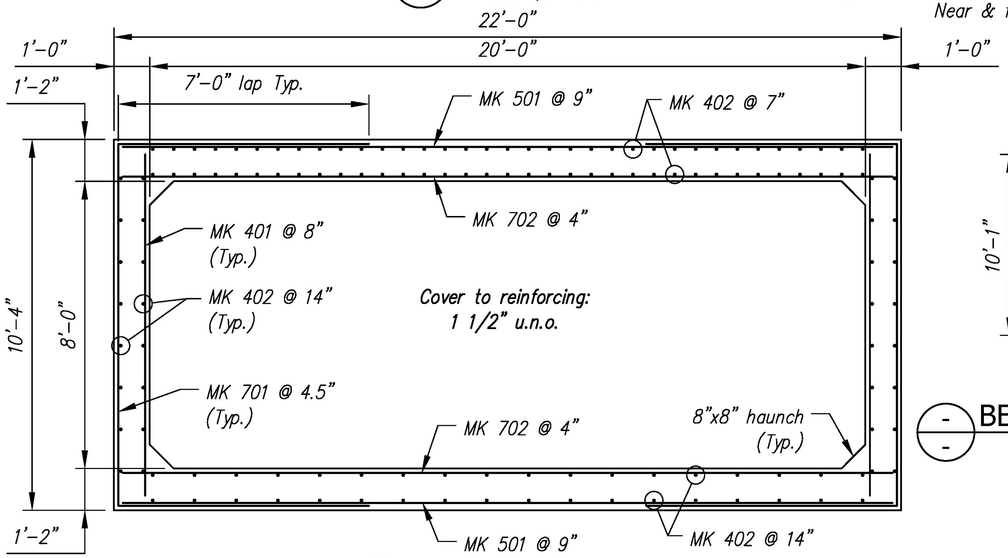
and Checked for

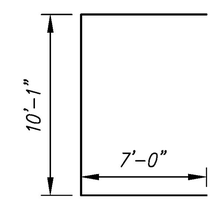
CONFORMANCE

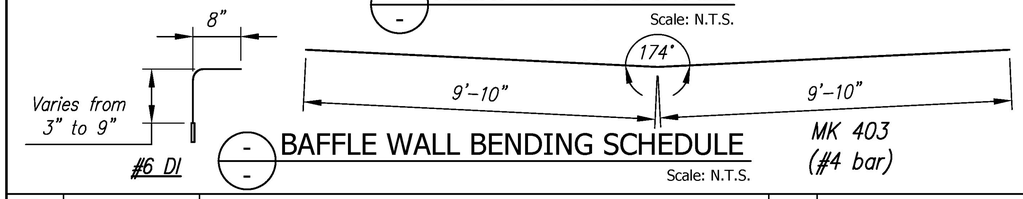
BY: Mark Sargent DATE: 5/7/2015

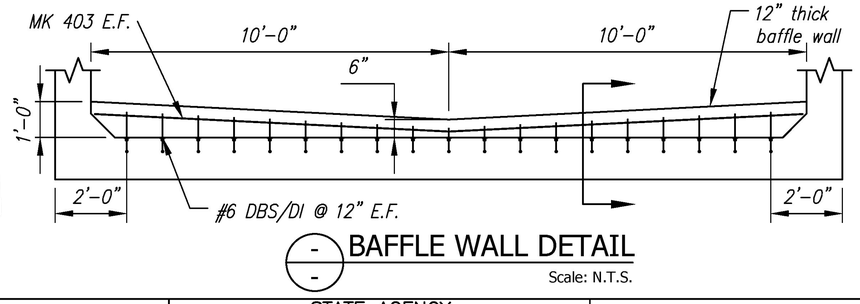
A1 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	9 '- 6 "
402	#4	138	5 '- 9 "
501	#5	16	21 '- 6 "
701	#7	34	24 '- 1 "
702	#7	36	21 '- 6 "

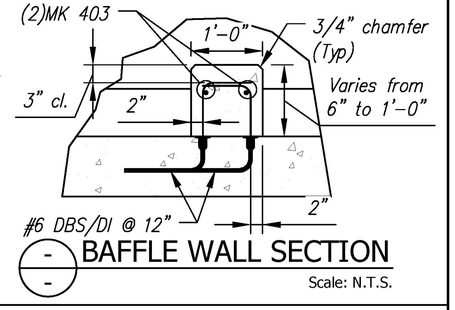
A1 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "











A1 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005		0.34	GA	
EM-0005A		4	EA	
EM-00014		38	EA	DOWEL BAR SPLICER
EM-00026		5	EA	
EM-00033		18.67	FT	
EM-00125		4	EA	
RM-00013		644	LB	
RM-00015		359	LB	
RM-00009		3256	LB	
MX-FA5000SC.		15.37	CY	
		/ EMBEDS		
EM-00022		38	EA	DOWEL IN
RM-00013		26	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	0.51	CY	

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By	Date
R. YEAGER	12MAR2015
Concrete Cu. Yd.	Weight in Tons
16.08	32.56
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #6, VT ROUTE 58, IRASBURG, VT

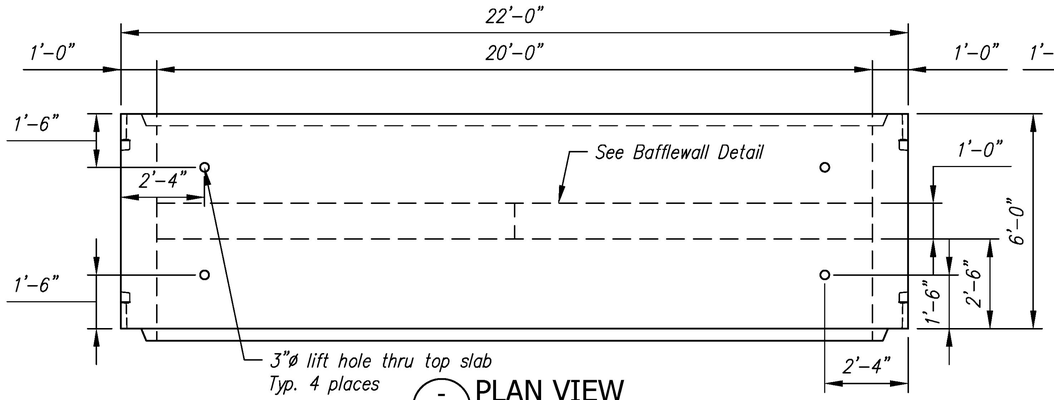
B

SHOP DRAWING – A1

Drawing No. C22283-L01-A1

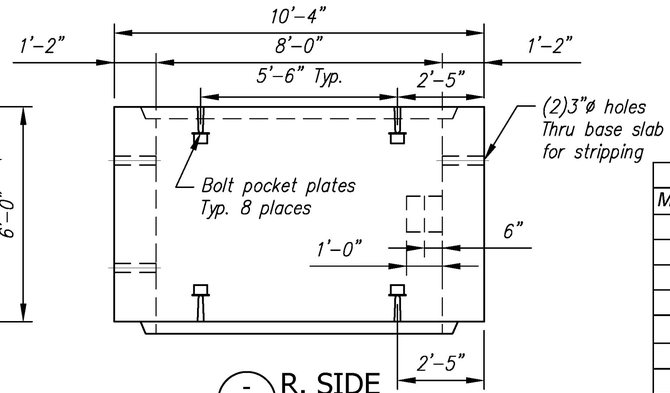
REV 0

Quantity: 1 | Project No: STPCULV30 | SHEET 1 OF 13



PLAN VIEW

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



R. SIDE

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

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

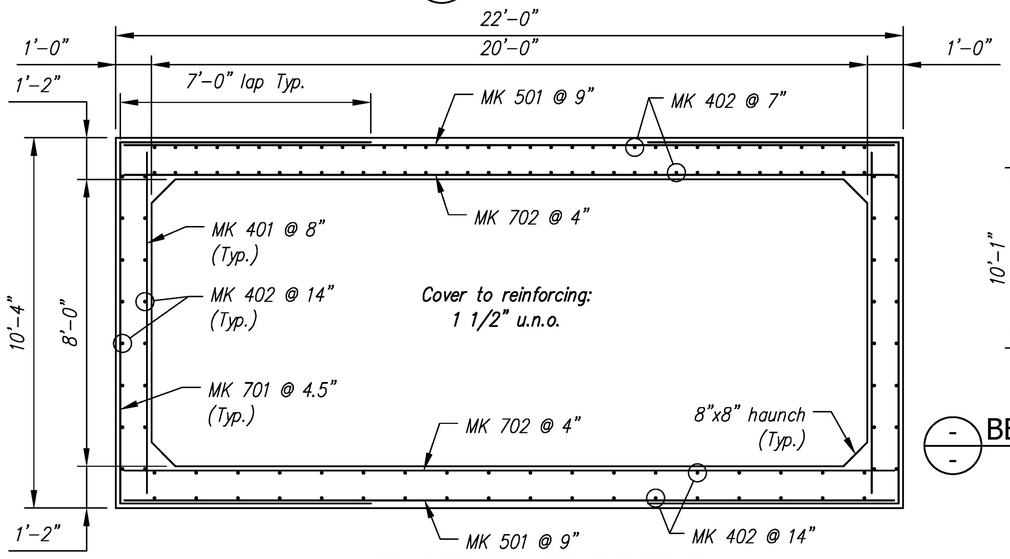
and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

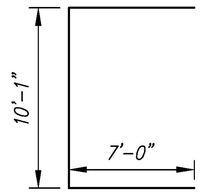
A2 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	9 '- 6 "
402	#4	138	5 '- 9 "
501	#5	16	21 '- 6 "
701	#7	34	24 '- 1 "
702	#7	36	21 '- 6 "

A2 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "



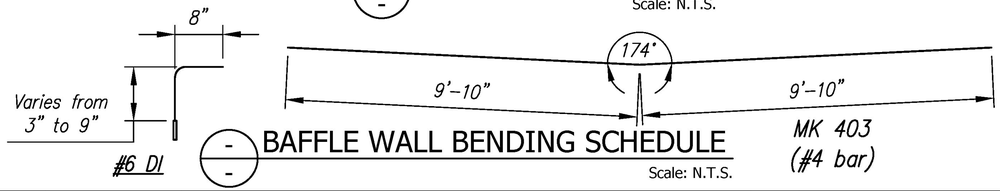
REINFORCING DETAIL

Scale: N.T.S.



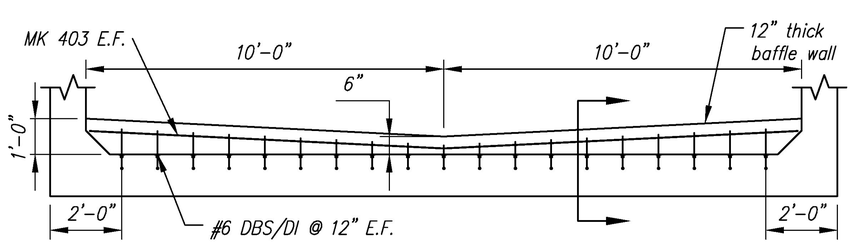
BENDING SCHEDULE

Scale: N.T.S.



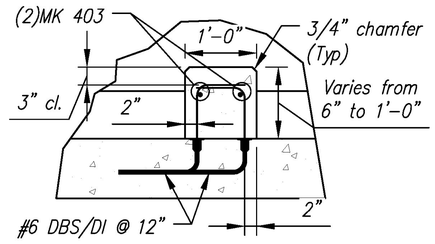
BAFFLE WALL BENDING SCHEDULE

Scale: N.T.S.



BAFFLE WALL DETAIL

Scale: N.T.S.



BAFFLE WALL SECTION

Scale: N.T.S.

CSI ID#
EM-00014
EM-00033
EM-00125
JS-00002
RM-00013
RM-00015
RM-00009
MX-FA5000SC
EM-00022
RM-00013
MX-FA5000SC

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

A2 - BILL OF MATERIALS / EMBEDS

QTY	UM	COMMENTS
38	EA	DOWEL BAR SPLICER
7	FT	
8	EA	
62	FT	AROUND BELL
644	LB	
359	LB	
3256	LB	
15.19	CY	
/ EMBEDS		
38	EA	DOWEL IN
26	LB	
0.51	CY	

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

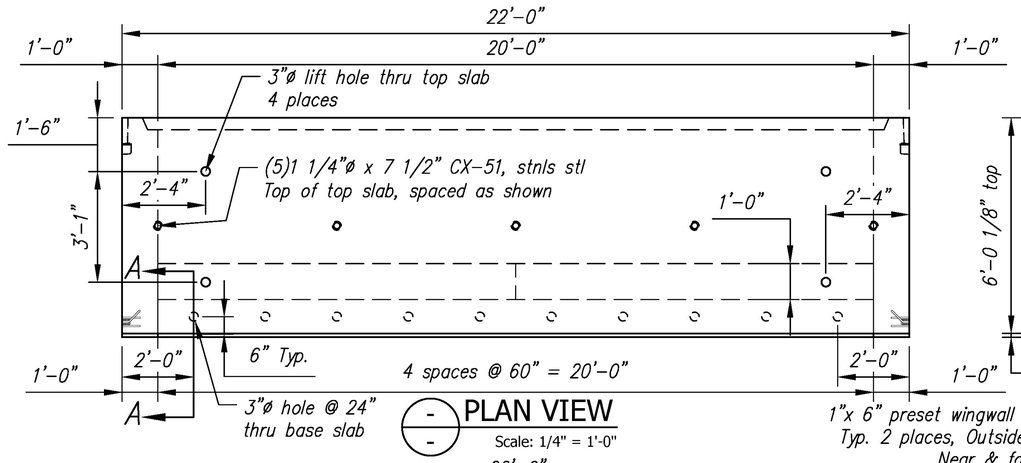
Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 15.70	Weight in Tons 31.79
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – A2 | REV 0

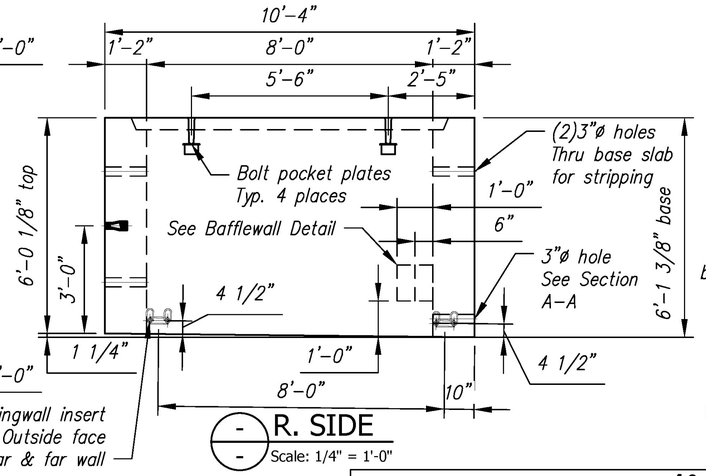
Drawing No. C22283-L01-A2

Quantity: 9 | Project No: STPCULV30 | SHEET 2 OF 13



PLAN VIEW

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



R. SIDE

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

Vermont Agency of Transportation

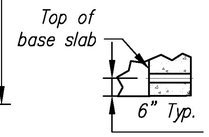
RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

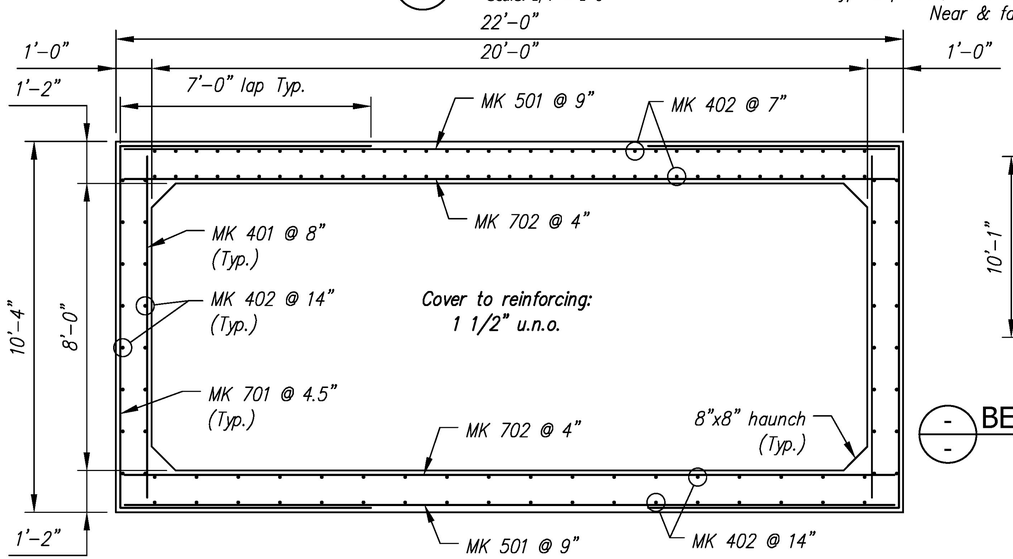


SECTION A-A

Scale: N.T.S.

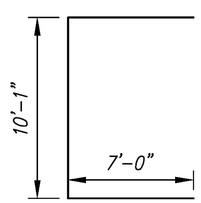
A3 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	9 '- 6 "
402	#4	138	5 '- 9 "
501	#5	16	21 '- 6 "
701	#7	34	24 '- 1 "
702	#7	36	21 '- 6 "

A3 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "



REINFORCING DETAIL

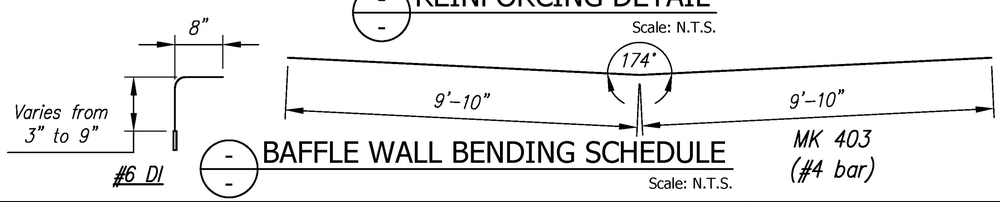
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MK 701
(#7 bar)

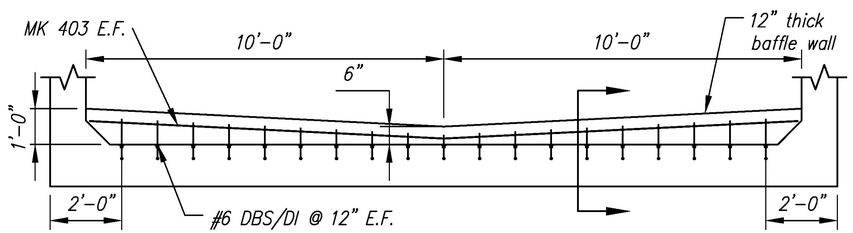
BENDING SCHEDULE

Scale: N.T.S.



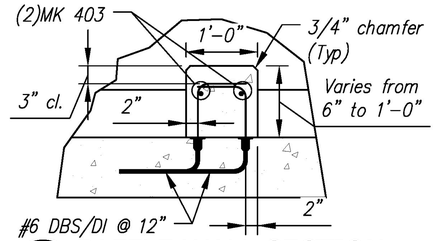
BAFFLE WALL BENDING SCHEDULE

Scale: N.T.S.



BAFFLE WALL DETAIL

Scale: N.T.S.



BAFFLE WALL SECTION

Scale: N.T.S.

A3 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005		0.34	GA	
EM-0005A		4	EA	
EM-00014		38	EA	DOWEL BAR SPLICER
EM-00026		5	EA	
EM-00033		18.67	FT	
EM-00125		4	EA	
JS-00002		62	FT	AROUND BELL
RM-00013		644	LB	
RM-00015		359	LB	
RM-00009		3256	LB	
MX-FA5000S		15.11	CY	
EM-00022		38	EA	DOWEL IN
RM-00013	REBAR #4 BLACK- GR 60	26	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	0.51	CY	

REVIEWED — X
REVIEWED AS MODIFIED
REVISE AND RESUBMIT
NOT REVIEWED

Stantec

Date: 4/24/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There

Drawn By	Date
R. YEAGER	12MAR2015
Concrete Cu. Yd.	Weight in Tons
15.62	31.63
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #6, VT ROUTE 58, IRASBURG, VT

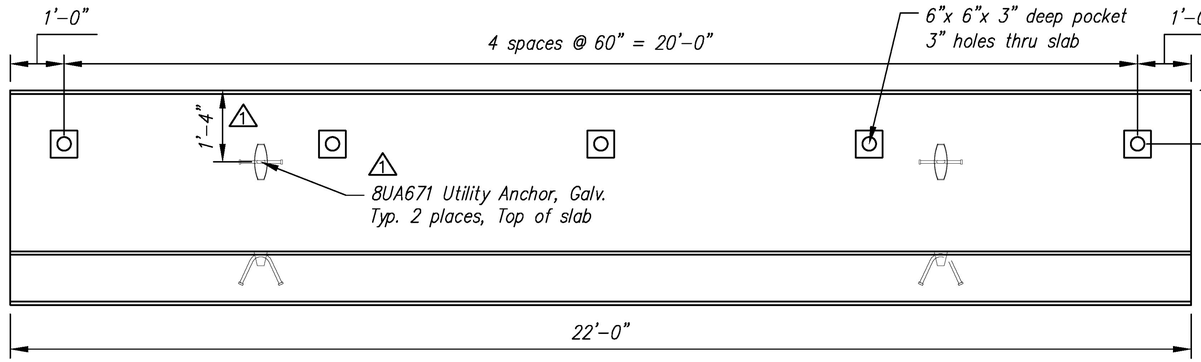
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SHOP DRAWING – A3

Drawing No. C22283-L01-A3

REV 0

Quantity: 1 | Project No: STPCULV30 | SHEET 3 OF 13

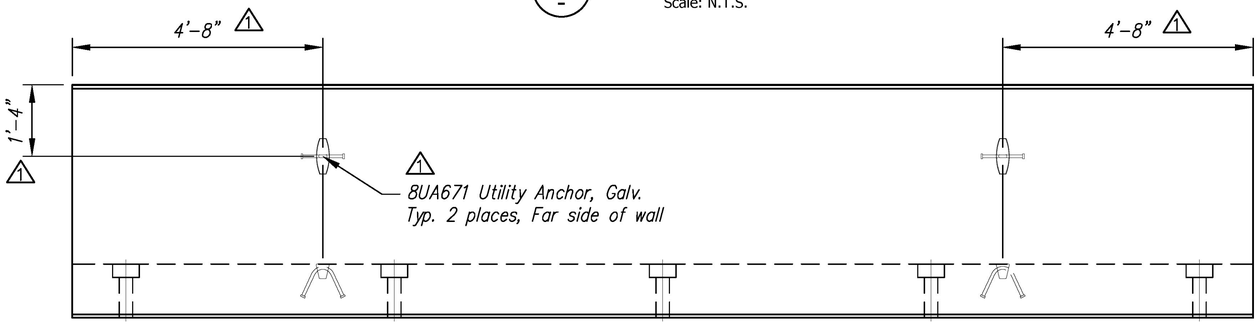


PLAN VIEW
Scale: N.T.S.

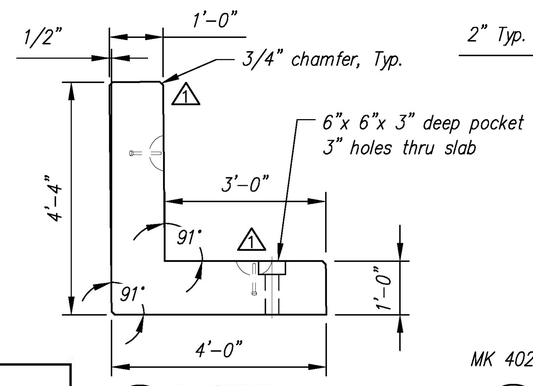
HW1A Rebar Schedule			
MK		QTY	LENGTH
401	#4	33	10 '- 8 "
402	#4	33	9 '- 8 "
403	#4	15	21 '- 9 "

HW1A HEADWALL - BILL OF MATERIALS / EMBEDS

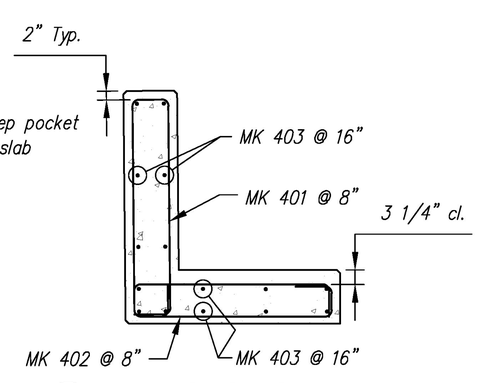
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.70	GA	
EM-00033	3" FOAM CORE PVC	3.75	FT	
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
RM-00013	REBAR #4 BLACK- GR 60	666	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	5.98	CY	



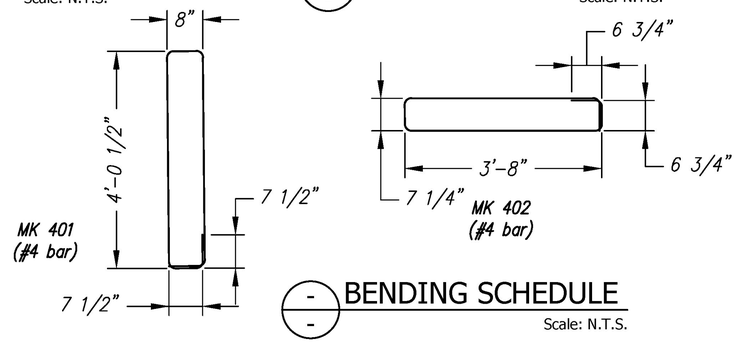
ELEVATION
Scale: N.T.S.



R. SIDE
Scale: N.T.S.



REINFORCING DETAIL
Scale: N.T.S.



BENDING SCHEDULE
Scale: N.T.S.

Vermont Agency of Transportation
BRI Precast Shop Drawings REVIEWED.pdf

RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	28APR2015	REVISED LOCATION OF UTILITY ANCHORS, QTY WAS 6	RY

REVISIONS

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

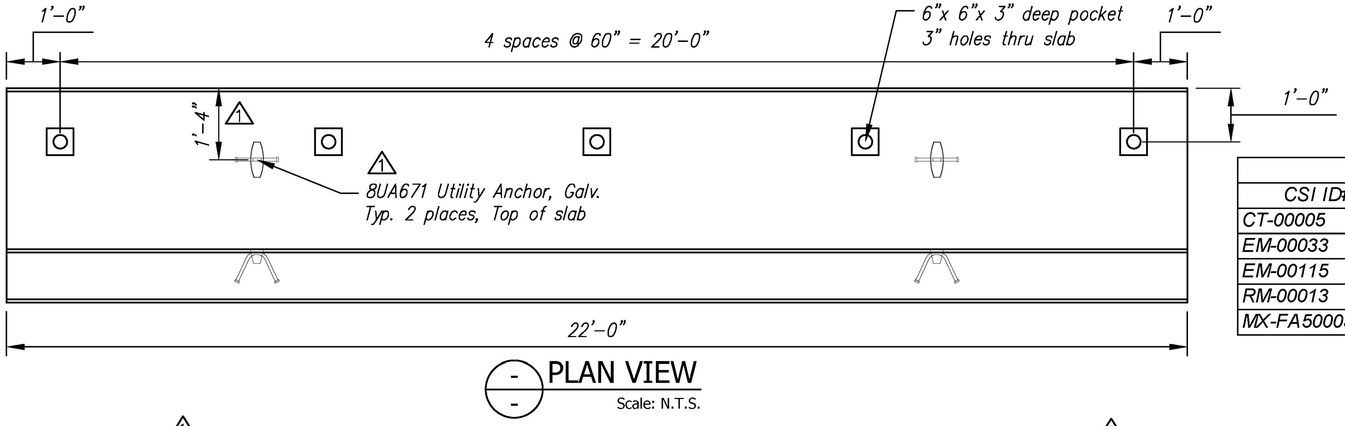
STATE AGENCY
VTrans Working to Get You There

Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 5.98	Weight in Tons 12.11
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – HW1A | Drawing No. C22283–LO1–HW1A | REV 1

Quantity: 1 | Project No: STPCULV30 | SHEET 4 OF 13

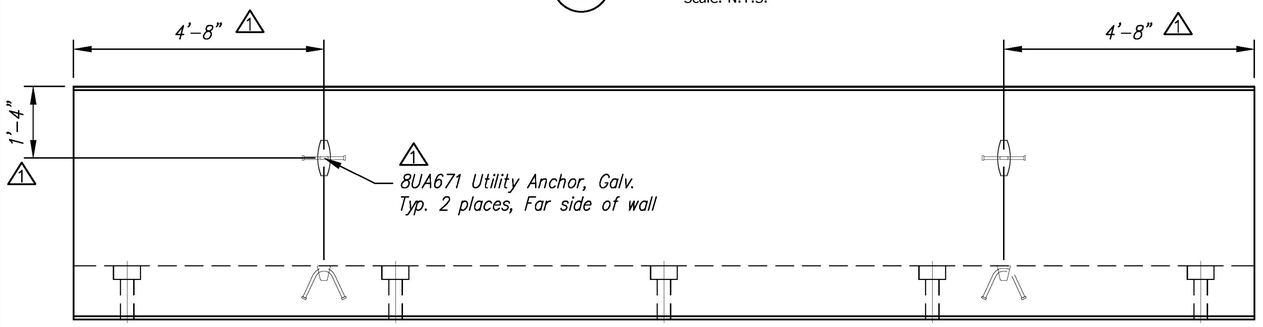


PLAN VIEW
Scale: N.T.S.

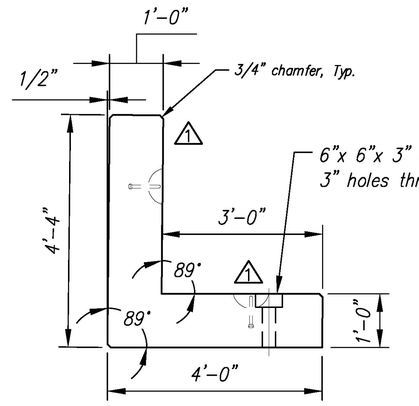
HW2A Rebar Schedule			
MK		QTY	LENGTH
401	#4	33	10 '- 8 "
402	#4	33	9 '- 8 "
403	#4	15	21 '- 9 "

HW2A HEADWALL - BILL OF MATERIALS / EMBEDS

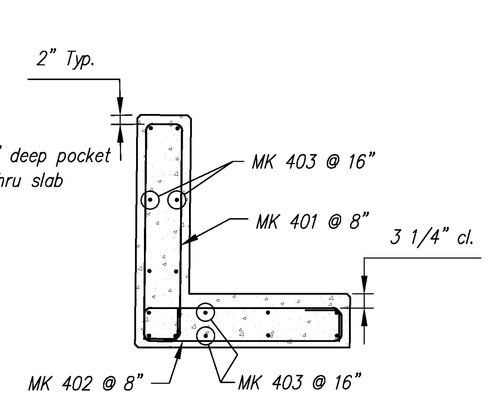
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.70	GA	
EM-00033	3" FOAM CORE PVC	3.75	FT	
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
RM-00013	REBAR #4 BLACK- GR 60	666	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	5.98	CY	



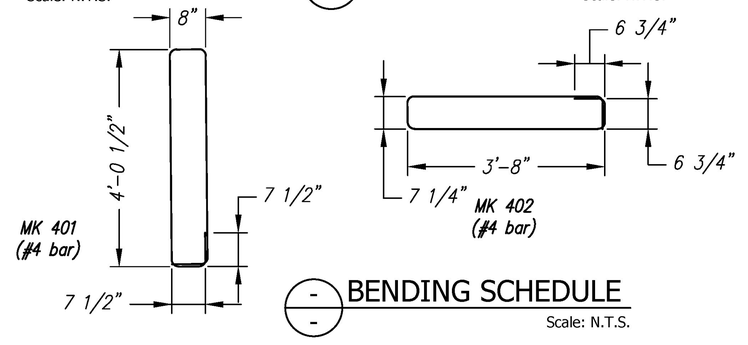
ELEVATION
Scale: N.T.S.



R. SIDE
Scale: N.T.S.



REINFORCING DETAIL
Scale: N.T.S.



BENDING SCHEDULE
Scale: N.T.S.

Vermont Agency of Transportation
BRI Precast Shop Drawings REVIEWED.pdf
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	28APR2015	REVISED LOCATIONS OF UTILITY ANCHORS, QTY WAS 6	RY

REVISIONS

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

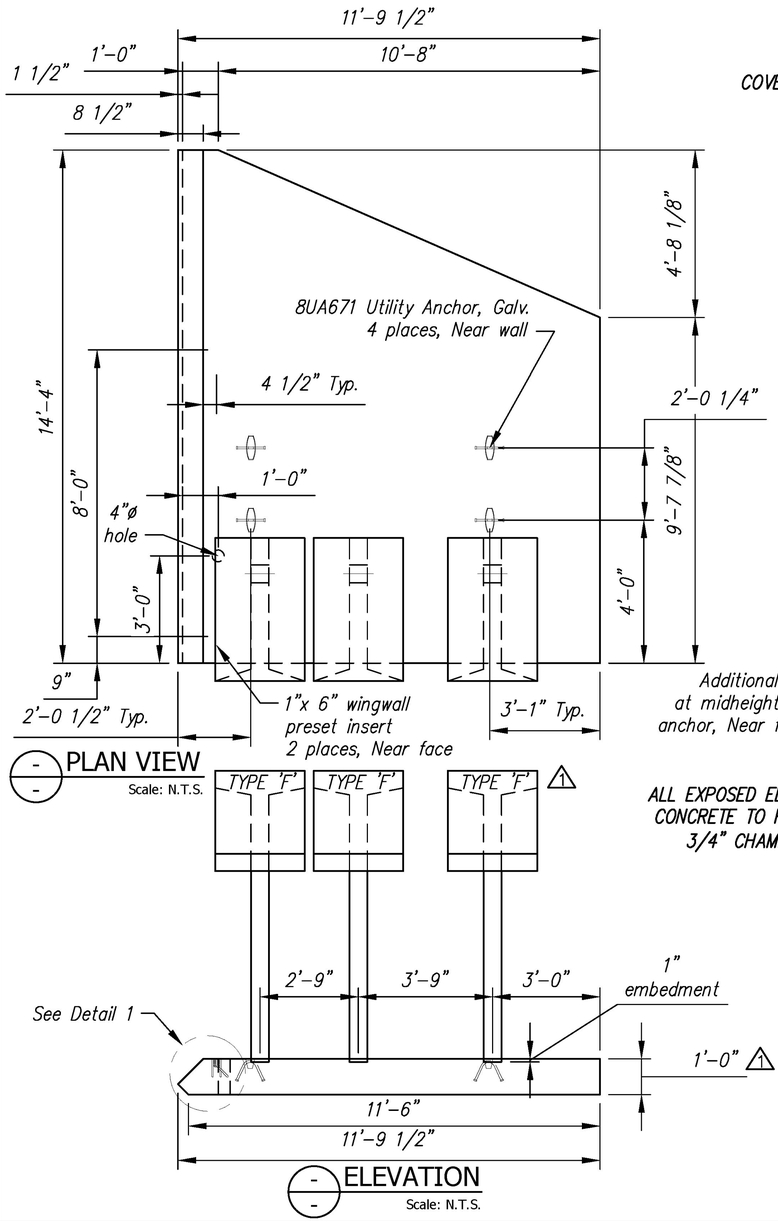
STATE AGENCY
VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 5.98	Weight in Tons 12.11
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – HW2A | REV 1
Drawing No. C22283–L01–HW2A

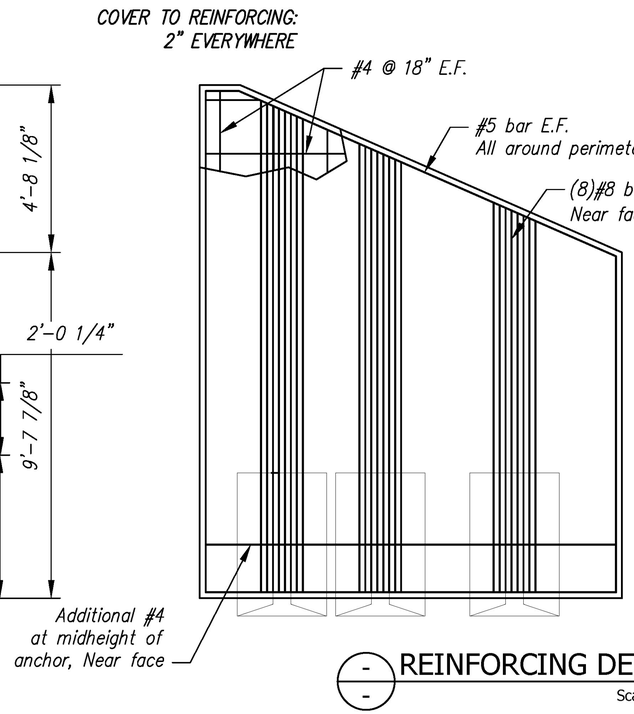
Quantity: 1 | Project No: STPCULV30 | SHEET 5 OF 13



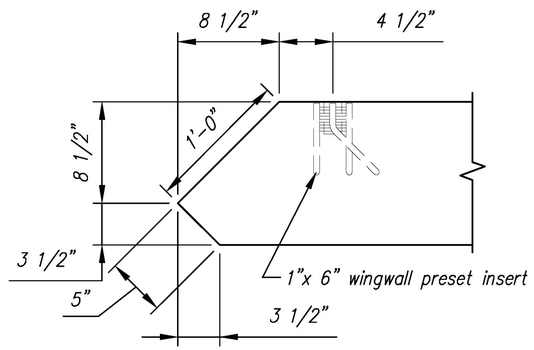
- PLAN VIEW
Scale: N.T.S.

- ELEVATION
Scale: N.T.S.

ALL EXPOSED EDGES OF CONCRETE TO RECEIVE 3/4" CHAMFER



- REINFORCING DETAIL
Scale: N.T.S.



- DETAIL 1
Scale: N.T.S.

Need to specify a spacing or total width for the additional #8 bars

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

WW1A WINGWALL - BILL OF MATERIALS / EMBEDS

	CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
1	CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	3	EA	
	CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.82	GA	
	EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
	EM-00034	4" FOAM CORE PVC	1	FT	
	EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
	RM-00013	REBAR #4 BLACK- GR 60	295	LB	
	RM-00015	REBAR #5 BLACK-GR 60 40'	99	LB	
	RM-00104	REBAR #8 BLACK-GR 60	897	LB	
	MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	5.02	CY	

REVIEWED	
REVIEWED AS MODIFIED	X
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 5/1/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	WW ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 7.09	Weight in Tons 14.36
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #6, VT ROUTE 58, IRASBURG, VT

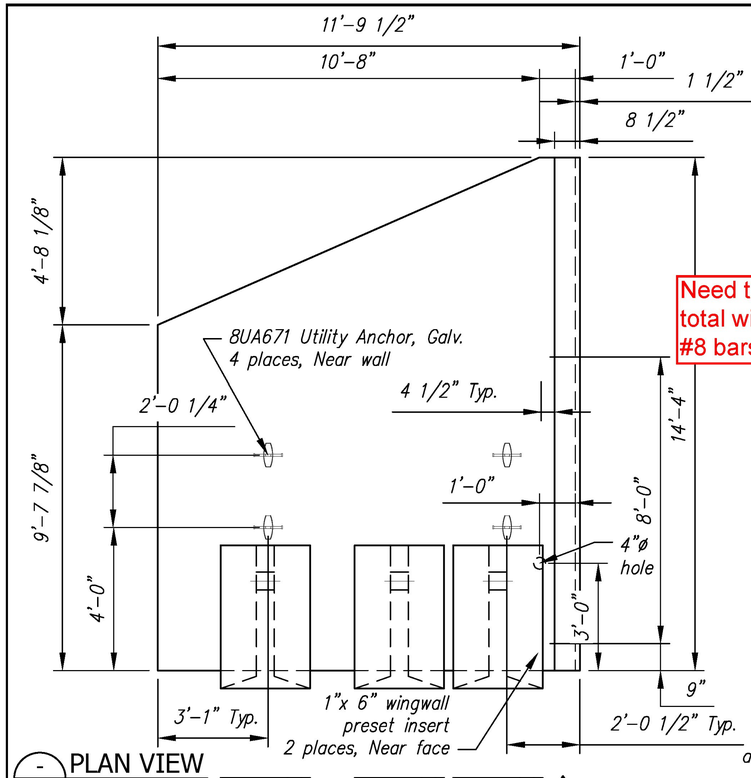
B

SHOP DRAWING – WW1A

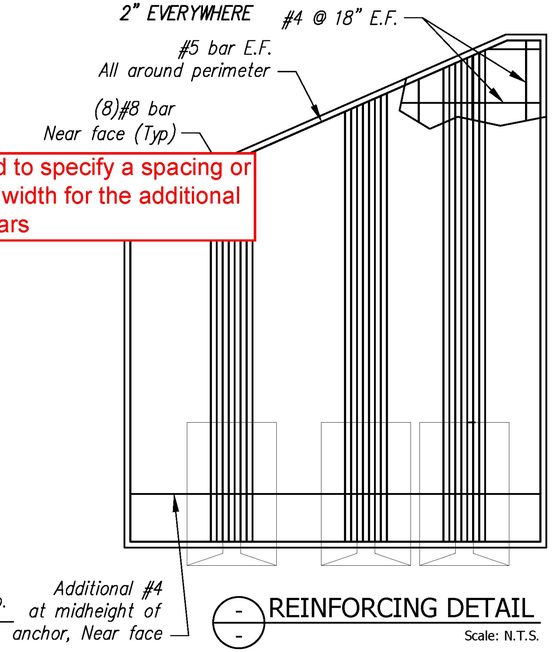
Drawing No. C22283–LO1–WW1A

REV 1

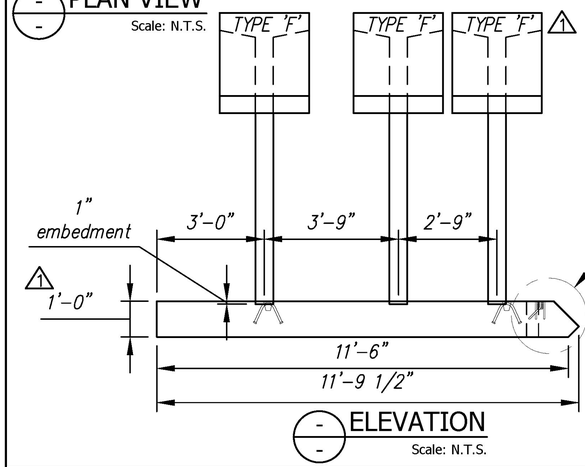
Quantity: 1 | Project No: STPCULV30 | SHEET 6 OF 13



PLAN VIEW
Scale: N.T.S.

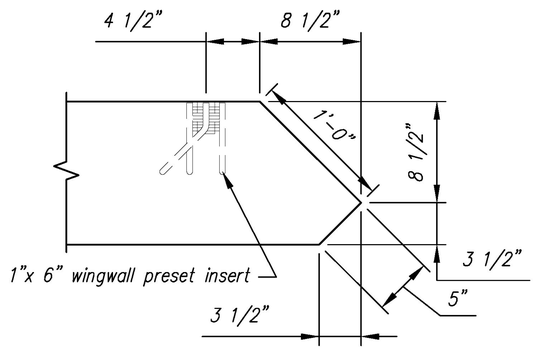


REINFORCING DETAIL
Scale: N.T.S.



ELEVATION
Scale: N.T.S.

ALL EXPOSED EDGES OF CONCRETE TO RECEIVE 3/4" CHAMFER



DETAIL 1
Scale: N.T.S.

WW2A WINGWALL - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
1 CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	3	EA	
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.82	GA	
EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
EM-00034	4" FOAM CORE PVC	1	FT	
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
RM-00013	REBAR #4 BLACK- GR 60	295	LB	
RM-00015	REBAR #5 BLACK-GR 60 40'	99	LB	
RM-00104	REBAR #8 BLACK-GR 60	897	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	5.02	CY	

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

REVIEWED	
REVIEWED AS MODIFIED	X
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 5/1/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	WW ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There

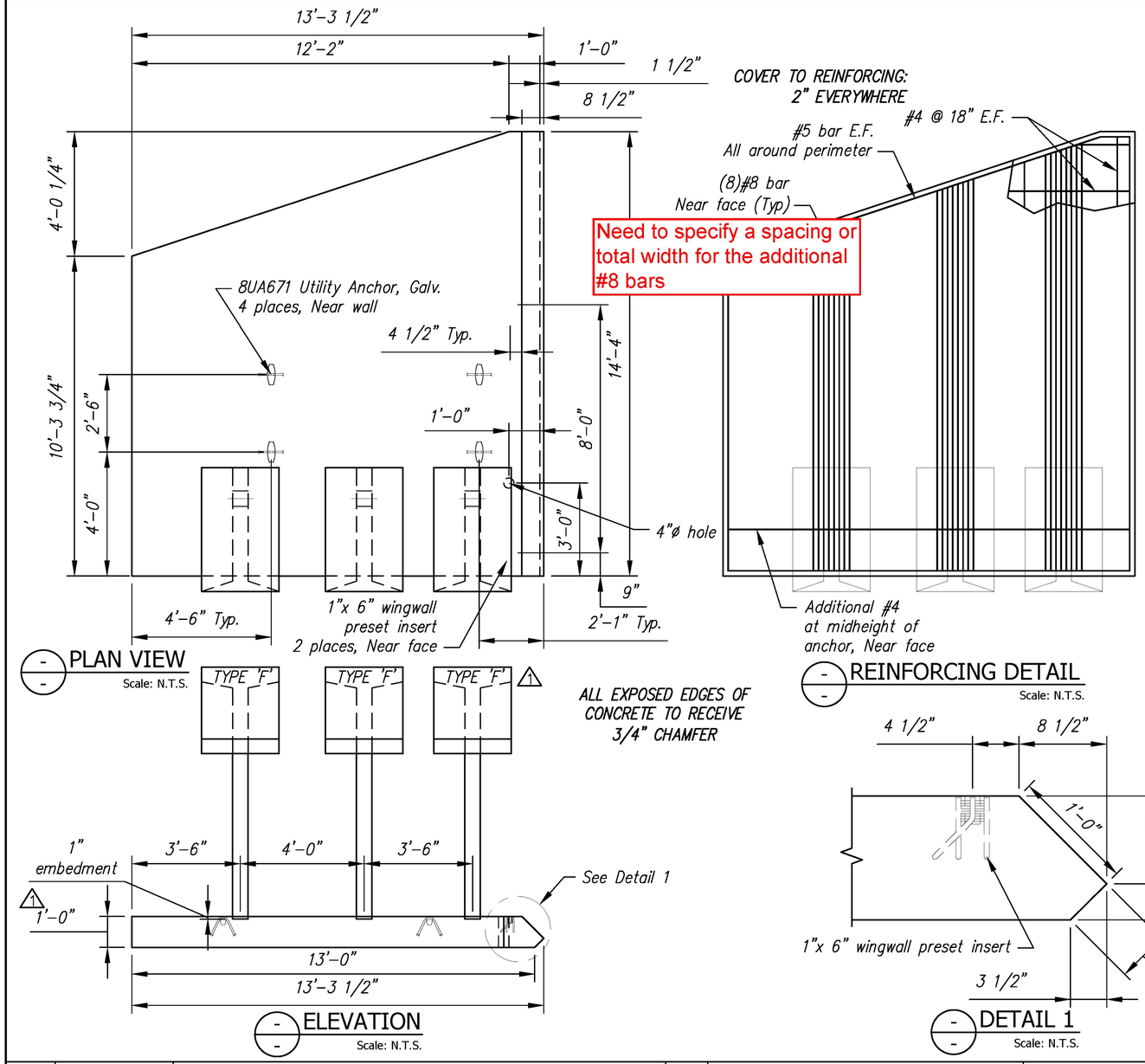
Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 7.09	Weight in Tons 14.36
Approved By	Date

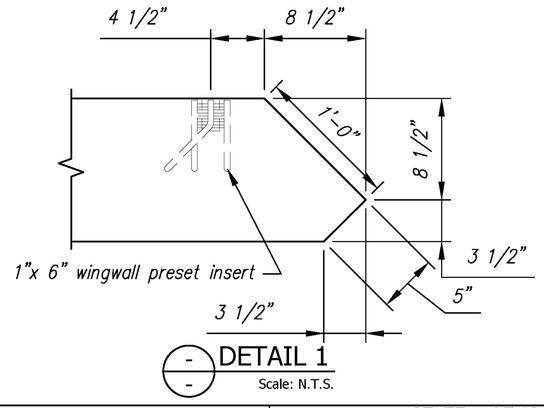
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – WW2A | REV 1

Drawing No. C22283–L01–WW2A

Quantity: 1 | Project No: STPCULV30 | SHEET 7 OF 13





WW3A WINGWALL - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	3	EA	
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.98	GA	
EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
EM-00034	4" FOAM CORE PVC	1	FT	
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
RM-00013	REBAR #4 BLACK- GR 60	281	LB	
RM-00015	REBAR #5 BLACK-GR 60 40'	106	LB	
RM-00104	REBAR #8 BLACK-GR 60	897	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	5.83	CY	

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

REVIEWED		Stantec
REVIEWED AS MODIFIED	X	
REVISE AND RESUBMIT		
NOT REVIEWED		

Date: 5/1/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	WW ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There

Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 7.90	Weight in Tons 16.00
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #6, VT ROUTE 58, IRASBURG, VT

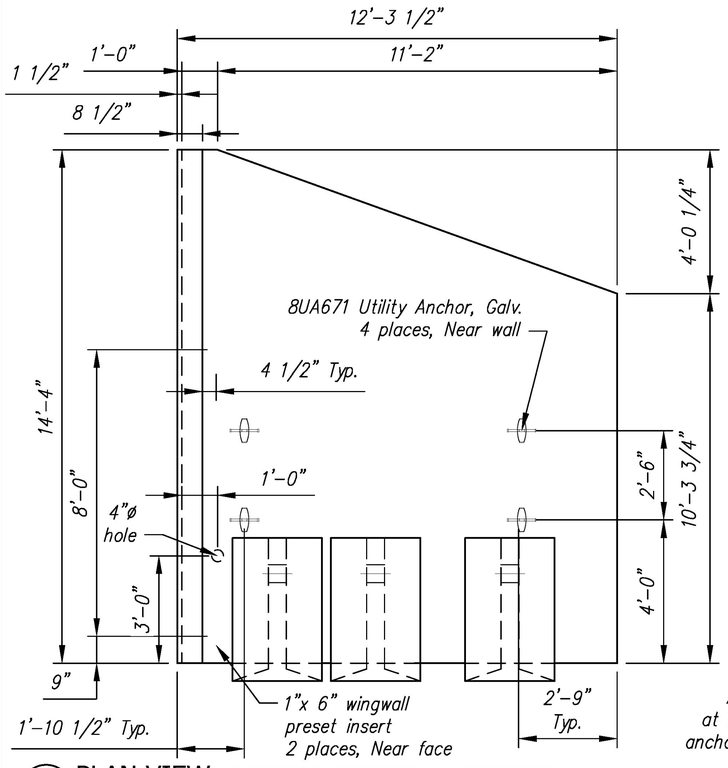
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SHOP DRAWING – WW3A

Drawing No. C22283-L01-WW3A

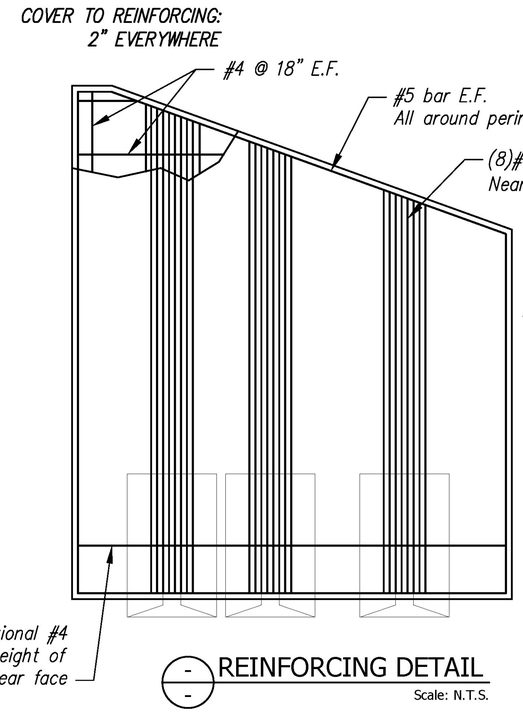
REV 1

Quantity: 1 | Project No: STPCULV30 | SHEET 8 OF 13



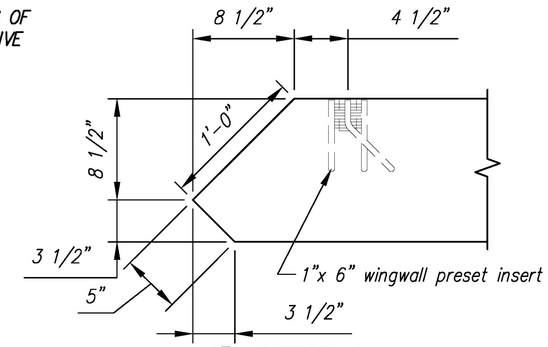
PLAN VIEW
Scale: N.T.S.

ELEVATION
Scale: N.T.S.



REINFORCING DETAIL
Scale: N.T.S.

ALL EXPOSED EDGES OF CONCRETE TO RECEIVE 3/4" CHAMFER



DETAIL 1
Scale: N.T.S.

Need to specify a spacing or total width for the additional #8 bars

Vermont Agency of Transportation

RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

WW4A WINGWALL - BILL OF MATERIALS / EMBEDS

	CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
1	CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	3	EA	
	CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.95	GA	
	EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
	EM-00034	4" FOAM CORE PVC	1	FT	
	EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
	RM-00013	REBAR #4 BLACK- GR 60	302	LB	
	RM-00015	REBAR #5 BLACK-GR 60 40'	102	LB	
	RM-00104	REBAR #8 BLACK-GR 60	897	LB	
	MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	5.37	CY	

REVIEWED	
REVIEWED AS MODIFIED	X
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 5/1/2015

By: Nathan Tirk

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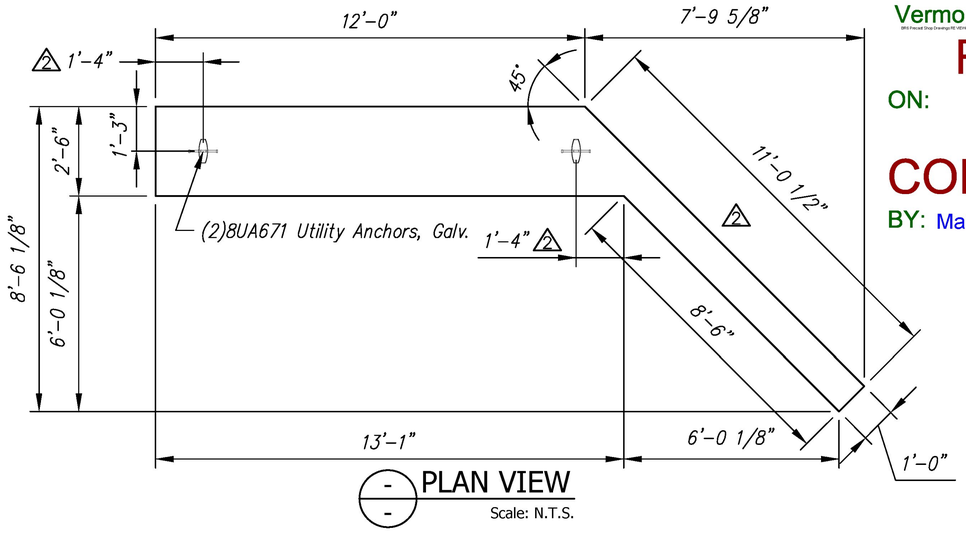
STATE AGENCY
VTrans Working to Get You There

Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 7.44	Weight in Tons 15.07
Approved By	Date

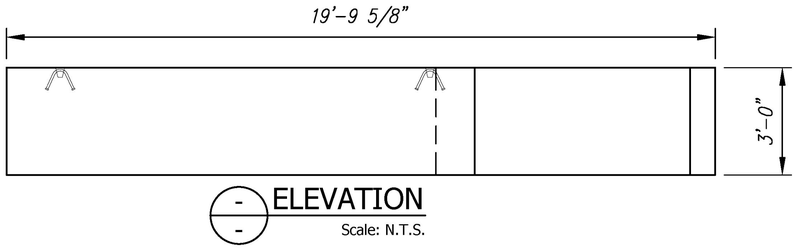
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – WW4A | REV 1
Drawing No. C22283–L01–WW4A

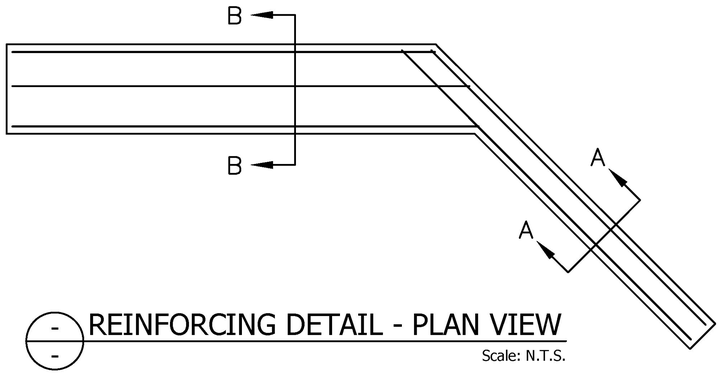
Quantity: 1 | Project No: STPCULV30 | SHEET 9 OF 13



PLAN VIEW
Scale: N.T.S.



ELEVATION
Scale: N.T.S.



REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

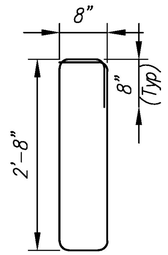
and Checked for

CONFORMANCE

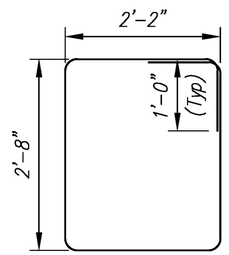
BY: Mark Sargent DATE: 5/7/2015

F1A FOOTING - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	63	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	186	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	4.57	CY	

F1A Rebar Schedule				
MK		QTY	LENGTH	
401	#4	6	8 '- 0 "	
402	#4	4	11 '- 8 "	
601	#6	4	11 '- 6 "	
602	#6	6	13 '- 0 "	MAX



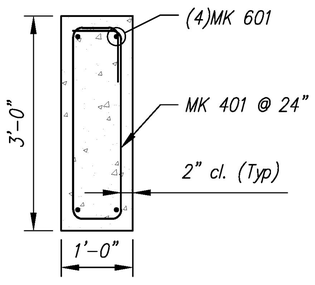
MK 401
#4 bar



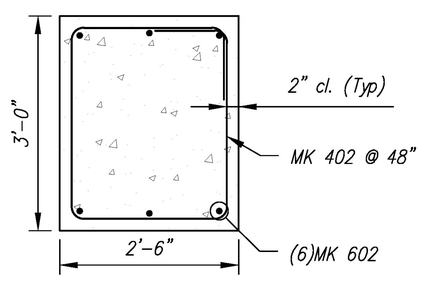
MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.



SECTION A–A



SECTION B–B

REINFORCING DETAIL
Scale: N.T.S.

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

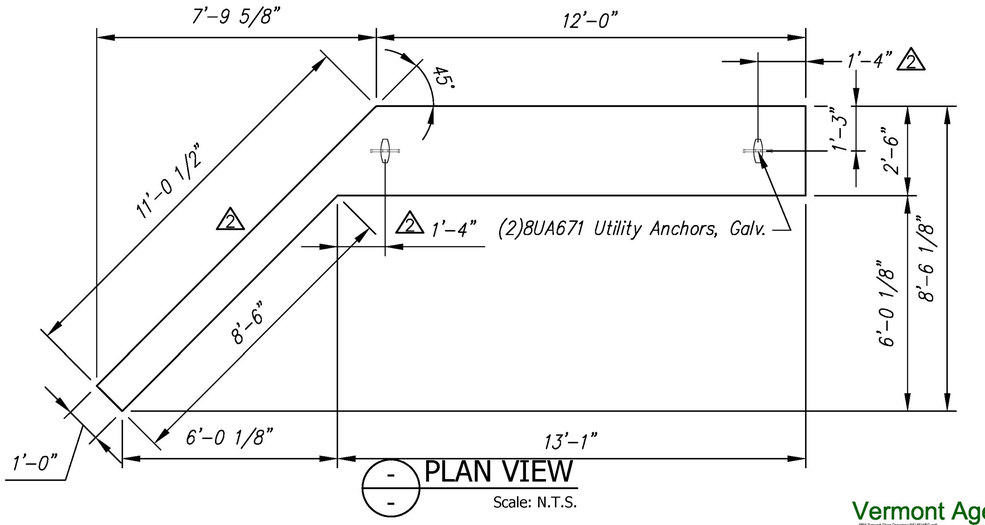
Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 4.57	Weight in Tons 9.25
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

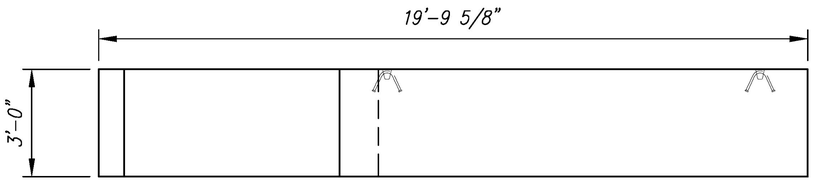
B | SHOP DRAWING – F1A | REV 2

Drawing No. C22283–L01–F1A

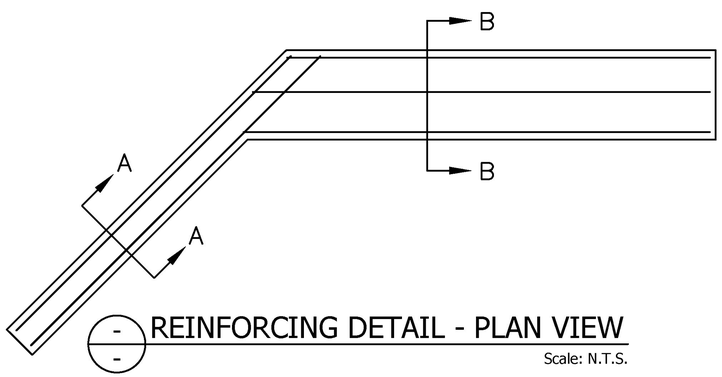
Quantity: 1 | Project No: STPCULV30 | SHEET 10 OF 13



PLAN VIEW
Scale: N.T.S.



ELEVATION
Scale: N.T.S.



REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

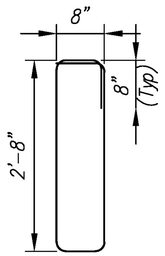
and Checked for

CONFORMANCE

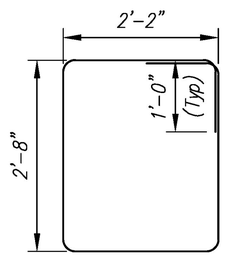
BY: Mark Sargent DATE: 5/7/2015

F2A FOOTING - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	63	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	186	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	4.57	CY	

F2A Rebar Schedule			
MK	QTY	LENGTH	
401 #4	6	8 ' - 0 "	
402 #4	4	11 ' - 8 "	
601 #6	4	11 ' - 6 "	
602 #6	6	13 ' - 0 "	MAX



MK 401
#4 bar



MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.

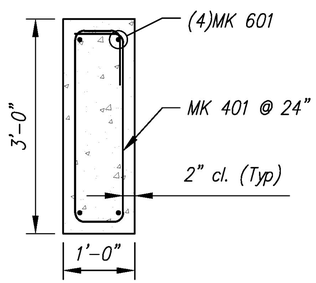
REVIEWED	x
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

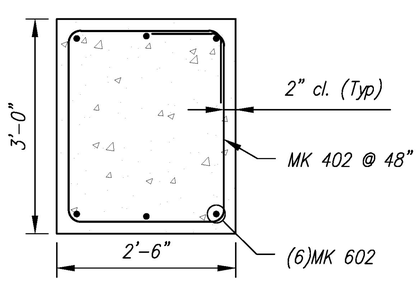
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SECTION A–A



SECTION B–B

REINFORCING DETAIL
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

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

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

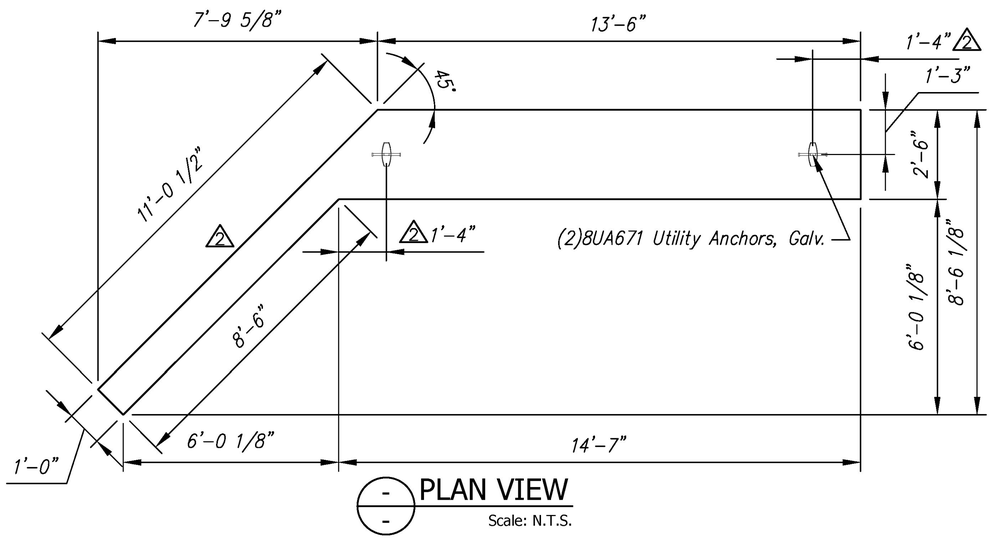
Drawn By	Date
R. YEAGER	12MAR2015
Concrete Cu. Yd.	Weight in Tons
4.57	9.25
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

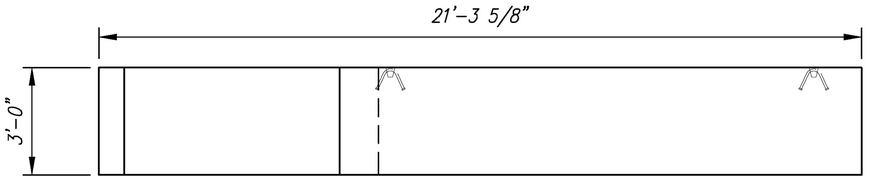
B | SHOP DRAWING – F2A | REV 2

Drawing No. C22283–L01–F2A

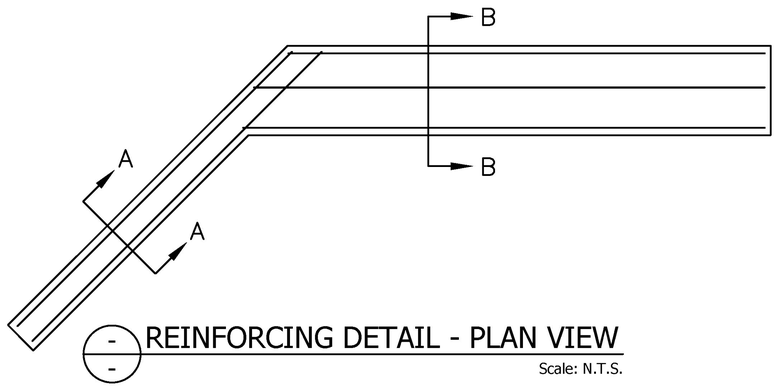
Quantity: 1 | Project No: STPCULV30 | SHEET 11 OF 13



PLAN VIEW
Scale: N.T.S.



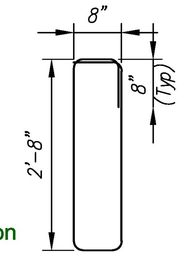
ELEVATION
Scale: N.T.S.



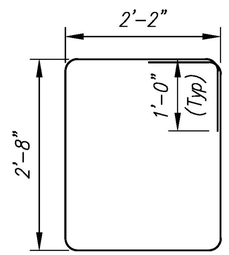
REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

F3A FOOTING - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	63	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	201	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	4.99	CY	

F3A Rebar Schedule			
MK	QTY	LENGTH	
401 #4	6	8 '- 0 "	
402 #4	4	11 '- 7 "	
601 #6	4	11 '- 6 "	
602 #6	6	14 '- 7 "	MAX



MK 401
#4 bar



MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

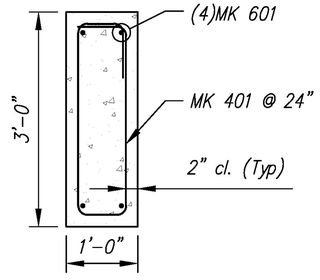
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

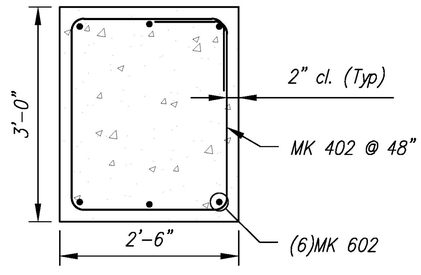
Date: 4/24/2015

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SECTION A–A



SECTION B–B

REINFORCING DETAIL
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

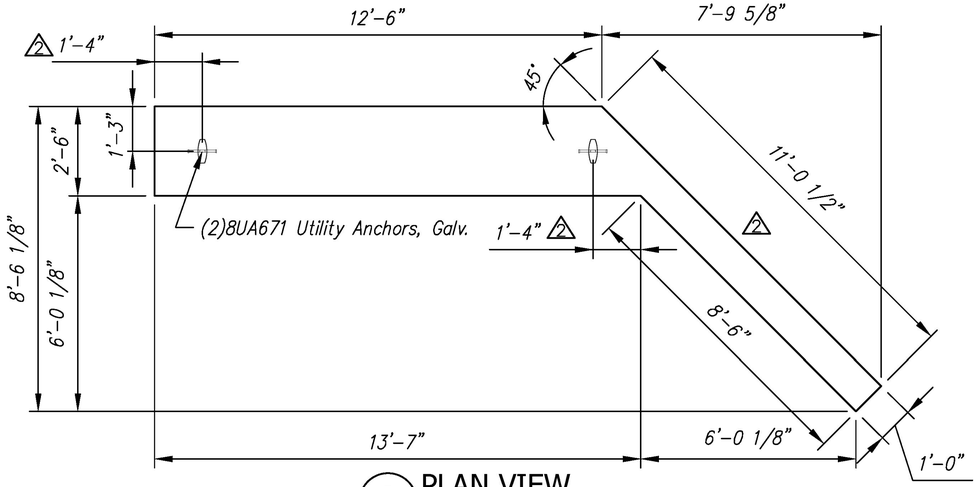
CSI
Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY
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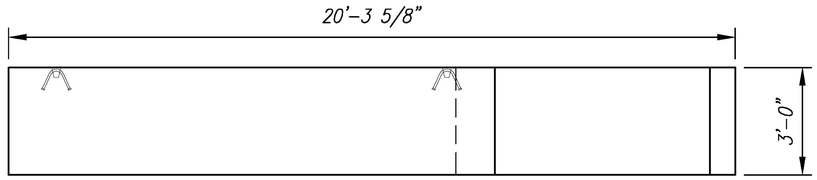
Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 4.99	Weight in Tons 10.10
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

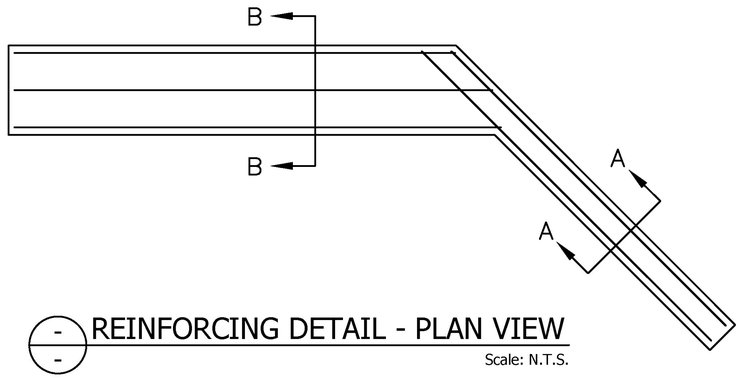
B | SHOP DRAWING – F3A | REV 2
Drawing No. C22283–L01–F3A
Quantity: 1 | Project No: STPCULV30 | SHEET 12 OF 13



PLAN VIEW
Scale: N.T.S.



ELEVATION
Scale: N.T.S.

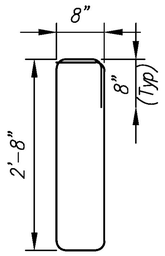


REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

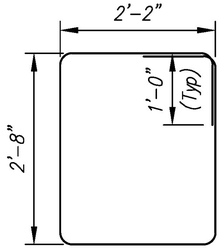
Vermont Agency of Transportation
RECEIVED
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BY: Mark Sargent DATE: 5/7/2015

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RM-00017	REBAR #6 BLACK-GR 60 40'	192	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	4.71	CY	

F4A Rebar Schedule			
MK		QTY	LENGTH
401	#4	6	8 '- 0 "
402	#4	4	11 '- 7 "
601	#6	4	11 '- 6 "
602	#6	6	13 '- 7 " MAX



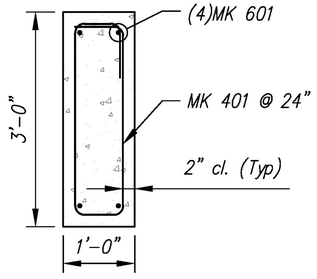
MK 401
#4 bar



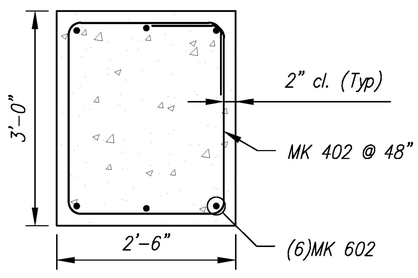
MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.



SECTION A-A



SECTION B-B

REINFORCING DETAIL
Scale: N.T.S.

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

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

STATE AGENCY
VTrans Working to Get You There

Drawn By R. YEAGER	Date 12MAR2015
Concrete Cu. Yd. 4.71	Weight in Tons 9.54
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE - STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING - F4A | REV 2
Drawing No. C22283-L01-F4A
Quantity: 1 | Project No: STPCULV30 | SHEET 13 OF 13

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

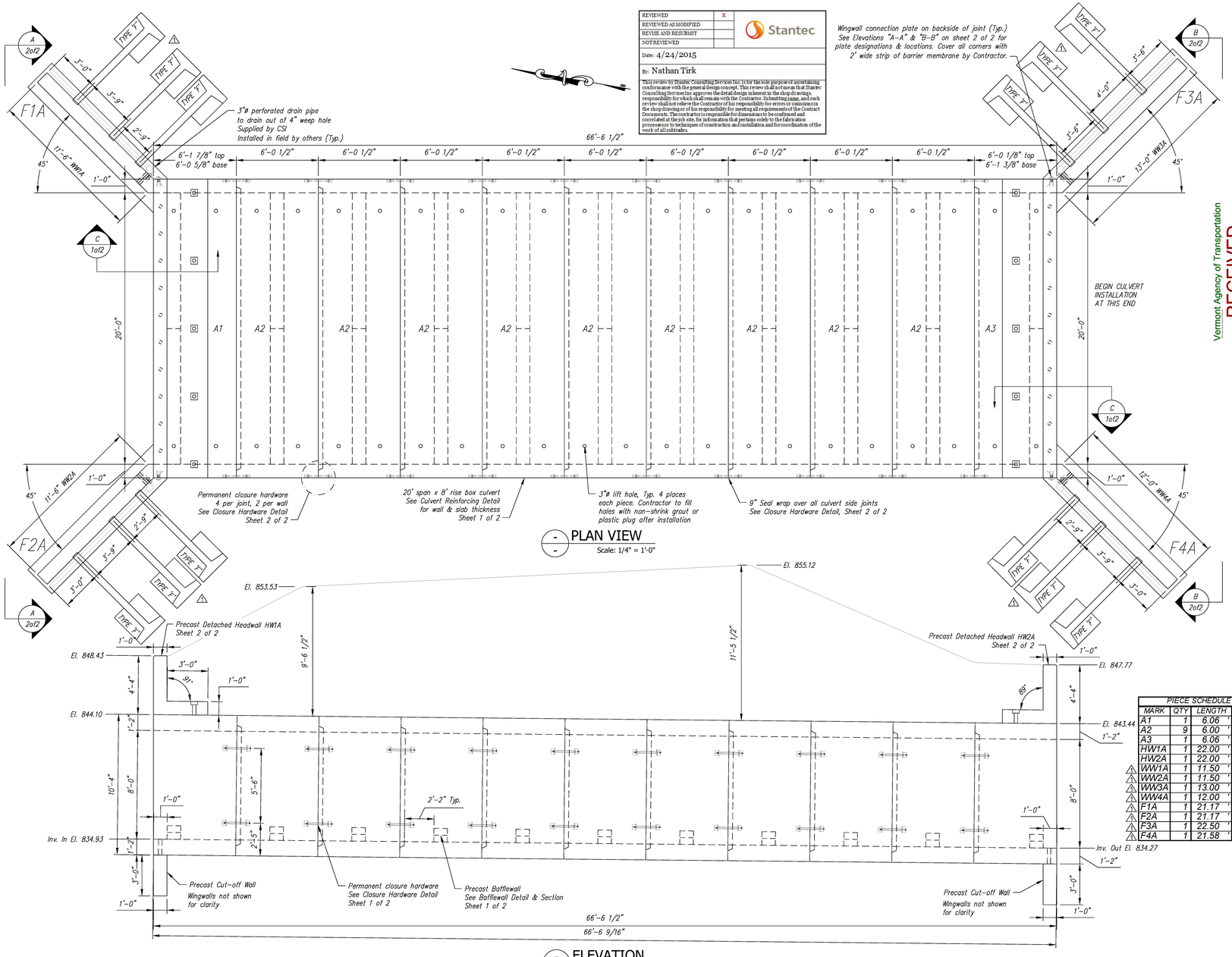
Stantec

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Wingwall connection plate on backside of joint (Typ.) See Elevations "A-A" & "B-B" on sheet 2 of 2 for plate designations & locations. Cover all corners with 2" wide strip of barrier membrane by Contractor.



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

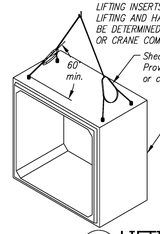
- ELEVATION
Scale: 1/4" = 1'-0"

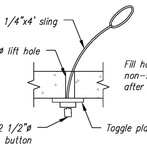
PIECE SCHEDULE (MX-FA5000SC30)					
MARK	QTY	LENGTH	YDS	WEIGHT	
A1	1	6.06 '	16.08	32.56	TONS
A2	9	6.00 '	15.70	31.79	TONS
A3	1	6.06 '	15.62	31.63	TONS
HW1A	1	22.00 '	5.98	12.11	TONS
HW2A	1	22.00 '	5.98	12.11	TONS
⚠ WW1A	1	11.50 '	7.09	14.36	TONS
⚠ WW2A	1	11.50 '	7.09	14.36	TONS
⚠ WW3A	1	13.00 '	7.90	16.00	TONS
⚠ WW4A	1	12.00 '	7.44	15.07	TONS
⚠ F1A	1	21.17 '	4.57	9.25	TONS
⚠ F2A	1	21.17 '	4.57	9.25	TONS
⚠ F3A	1	22.50 '	4.99	10.10	TONS
⚠ F4A	1	21.58 '	4.71	9.54	TONS

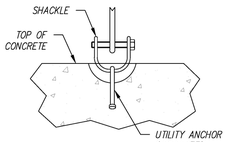
WINGWALL GENERAL NOTES:
1. Reference standard:
   AASHTO LRFD Specifications
2. Design Parameters:
   Soil Bearing: 4300 psf
   Earth Cover: 5' to 7.5'
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar), grade 60, Black
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" u.n.o.
3. The wingwalls have been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation, including scour and confirmation of soil conditions.
4. Prior to construction, contractor must verify all elevations shown through the engineer.

GENERAL NOTES:
1. Reference Standards:
   AASHTO "LRFD Bridge Design Specifications"
   ASTM C1577
2. Design Parameters:
   Live load: HL-93
   Earth Cover: 9' to 12'
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar) GR 60, Black
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" headwalls
   1 1/2" elsewhere u.n.o.
3. Dimensions include a joint gap. Actual culvert piece length is ½" shorter (i.e. A2 = 6'-0").
4. No dampproofing or waterproofing supplied by CSI.
5. DBS are Dowel Bar Splicers and DI are Dowel Ins. Both are supplied by CSI. DI's are to be installed and cut/bent in the field by others as required.
6. Headwalls are not designed for impact load.
7. Water repellant (Silxane Siloxane) by CSI on all exposed faces of culvert, headwalls, and wingwalls to 1' inside culvert ends.
8. Baffle wall details taken from Sheet 12 of 55 of the contract drawings.

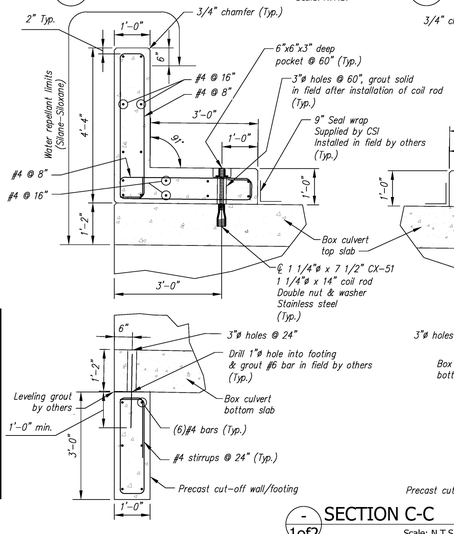
Vermont Agency of Transportation
RECEIVED
April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015



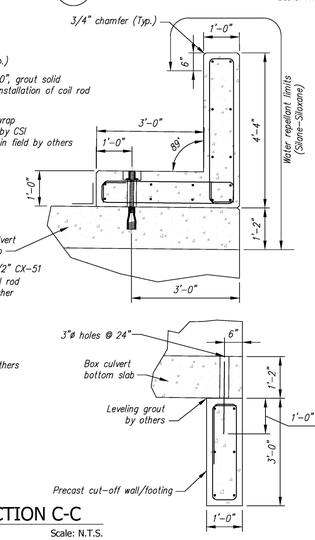




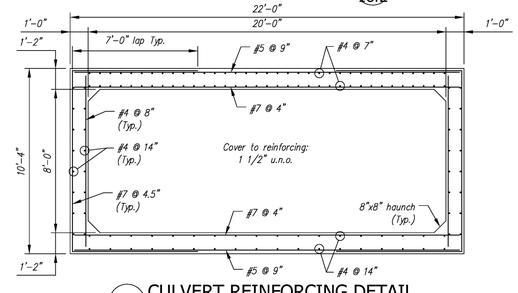
- LIFTING HARDWARE DETAIL
Scale: N.T.S.



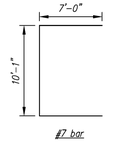
- FOOTING LIFTING DETAIL
Scale: N.T.S.



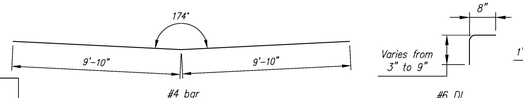
- SECTION C-C
1of2
Scale: N.T.S.



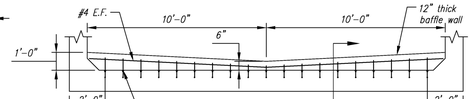
- CULVERT REINFORCING DETAIL
Scale: 3/8" = 1'-0"



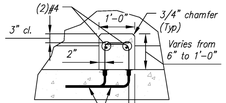
- BENDING SCHEDULE
Scale: N.T.S.



- BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



- BAFFLE WALL DETAIL
Scale: N.T.S.



- BAFFLE WALL SECTION
Scale: N.T.S.

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Stamp for structural design only

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	CONSPAN WW ANCHORS WERE TYPE 'D', WWs WERE 10" THK, WW & FTG WEIGHTS UPDATED	RY

REVISIONS

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

Engineer: STATE OF VT AOT PROGRAM DEVELOPMENT
Project No: STPCULV30
Drawings: VT/AOT PROPOSED INPROVEMENT BRIDGE PROJECT SHEETS 1 THRU 24 & 32 OF 55
Specifications: ----

Other Sources: ----

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

STATE AGENCY
VTrans Working to Get You There

Drawn By	Date
R. YEAGER	09MAR2015
Reviewed By	Date
B. KOLAWOLE	02APR2015
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

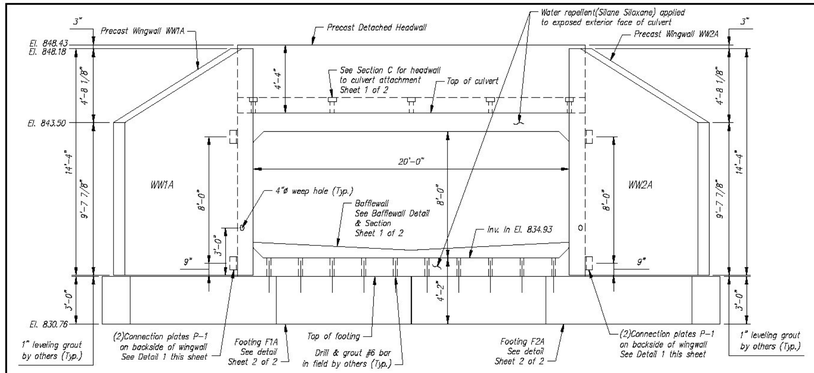
D

20' SPAN x 8' RISE BOX CULVERT LAYOUT

Drawing No. C22283-L01A

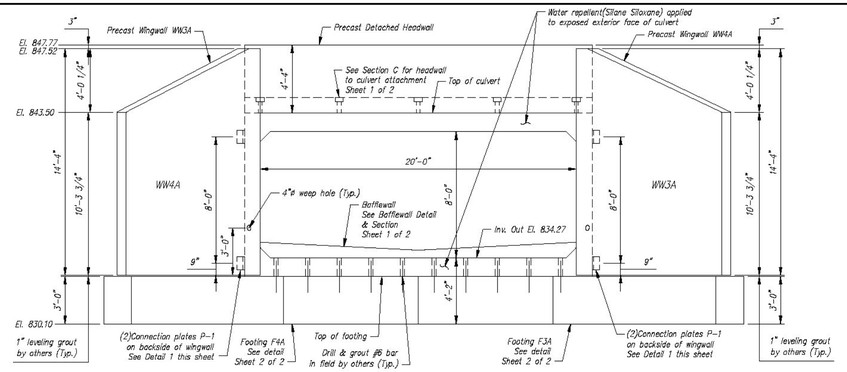
REV 1

Quantity: 1 | Project No: STPCULV30 | SHEET 1A OF 2A



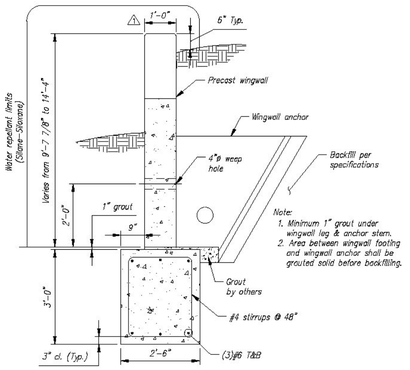
- ELEVATION A-A

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



- ELEVATION B-B

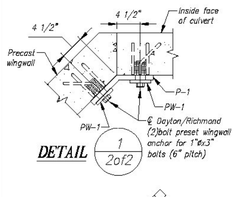
Scale: 1/4" = 1'-0"



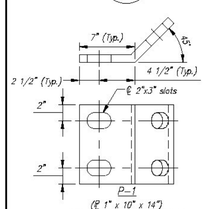
Note:
1. Minimum 1" grout under wingwall leg & anchor stem.
2. Area between wingwall footing and wingwall anchor shall be grouted solid before backfilling.

- TYPICAL WINGWALL SECTION

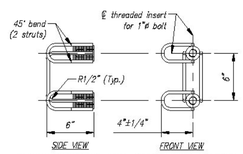
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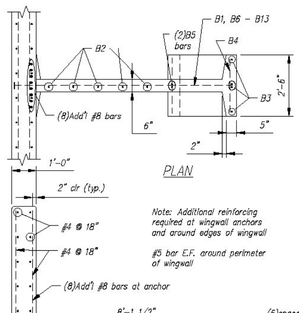
DETAIL 1 2of2



P-1
(℄ 1" x 10" x 14")
(Galvanized as per ASTM A153)
(Total required = 8)



DAYTON/RICHMOND TWO BOLT PRESET ANCHOR



PLAN

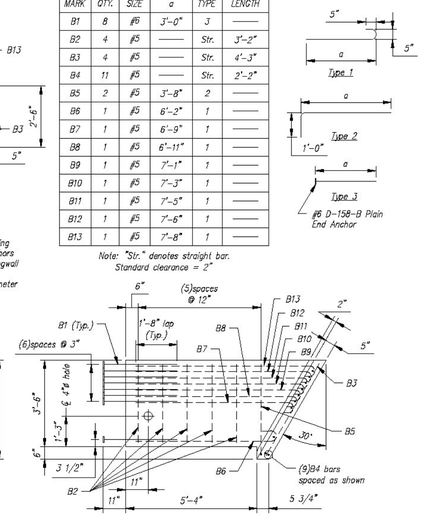
Note: Additional reinforcing required at wingwall anchors and ground edges of wingwall

#5 bar E.F. around perimeter of wingwall

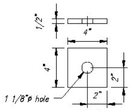
SECTION

BAR LIST					
MARK	QTY.	SIZE	a	TYPE	LENGTH
B1	8	#8	3'-0"	3	———
B2	4	#5	———	Str.	3'-2"
B3	4	#5	———	Str.	4'-3"
B4	11	#5	———	Str.	2'-2"
B5	2	#5	3'-8"	2	———
B6	1	#5	6'-2"	1	———
B7	1	#5	6'-9"	1	———
B8	1	#5	6'-11"	1	———
B9	1	#5	7'-1"	1	———
B10	1	#5	7'-3"	1	———
B11	1	#5	7'-5"	1	———
B12	1	#5	7'-6"	1	———
B13	1	#5	7'-8"	1	———

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



PRECAST ANCHOR TYPE F ⚠

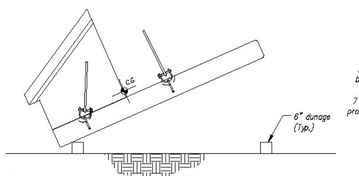


PW-1
(℄ washer, 1/2" x 4" x 4")
(Galvanized as per ASTM A153)
(Total required = 36)



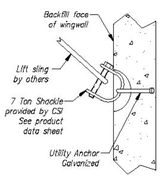
- WINGWALL OFFLOADING & TRIPPING DETAIL

Scale: N.T.S.



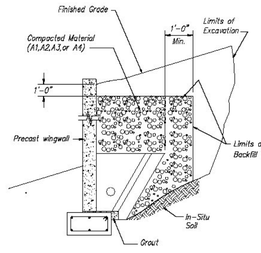
- WINGWALL LIFTING DETAIL

Scale: N.T.S.

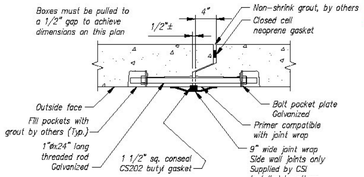


BACKFILL DESCRIPTION							
Group Classification	A-1		A-3	A-2			
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7
Sieve Analysis, Percent Passing							
No. 10	50 max.						
No. 40	30 max.	50 max.	51 min.				
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.
Characteristics of Fraction Passing No.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

NOTES
1. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
2. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
3. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

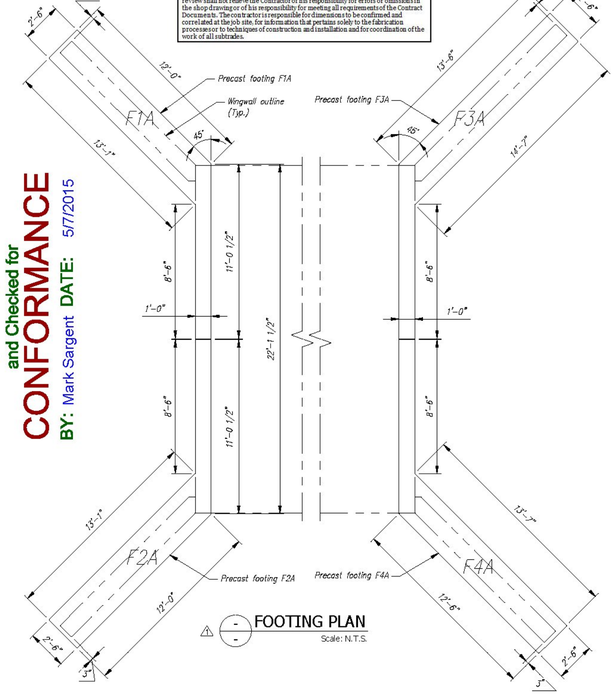


WINGWALL BACKFILL REQUIREMENTS



- CLOSURE HARDWARE DETAIL

Scale: N.T.S.



- FOOTING PLAN

Scale: N.T.S.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

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3			
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1	01APR2015	CONSPAN WW ANCHORS WERE TYPE 'D', WWs WERE 10" THK, WW & FTG WEIGHTS UPDATED	RY

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Other Sources: ----

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

STATE AGENCY
VTrans

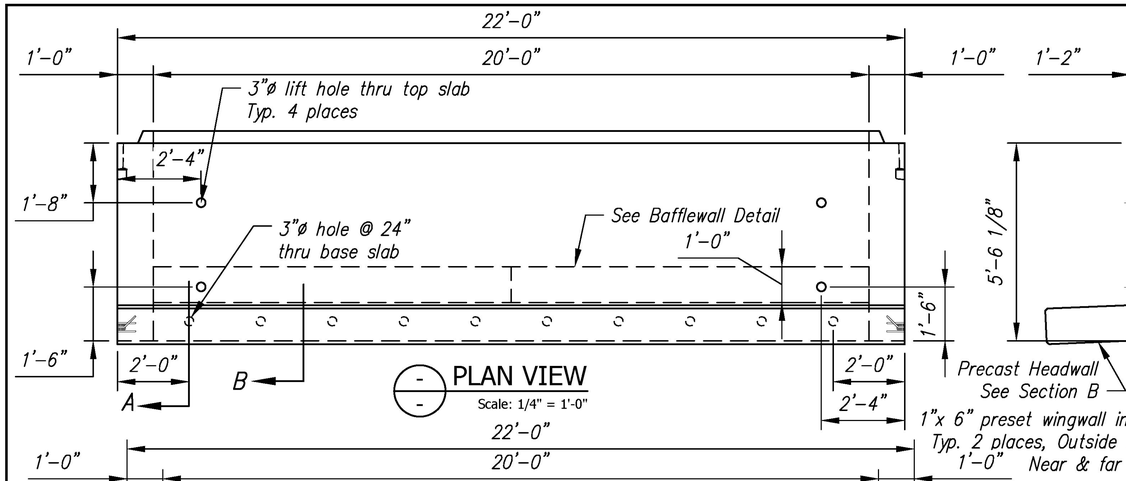
Drawn By	R. YEAGER	Date 08MAR2015
Reviewed By	B. KOLAWOLE	Date 02APR2015
Approved By		Date

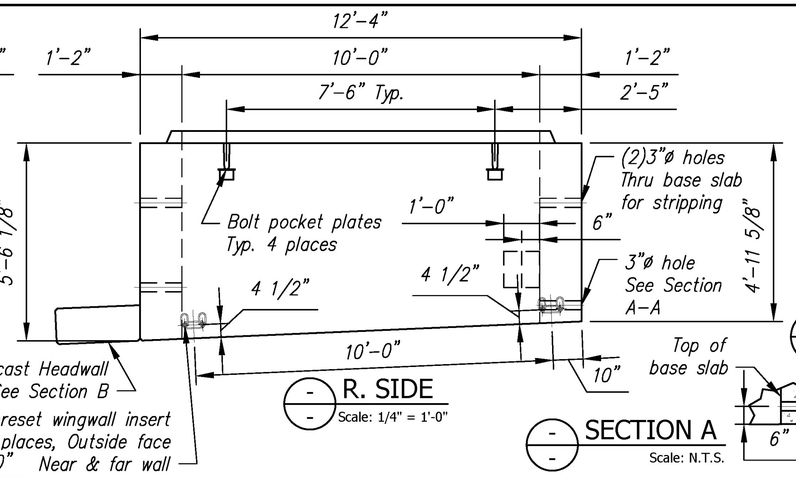
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #6, VT ROUTE 58, IRASBURG, VT

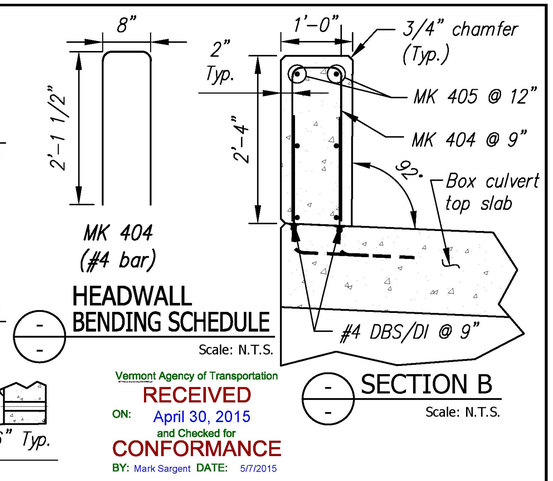
D — 20' SPAN X 8' RISE BOX CULVERT LAYOUT — REV 1

Drawing No. C22283-L01B

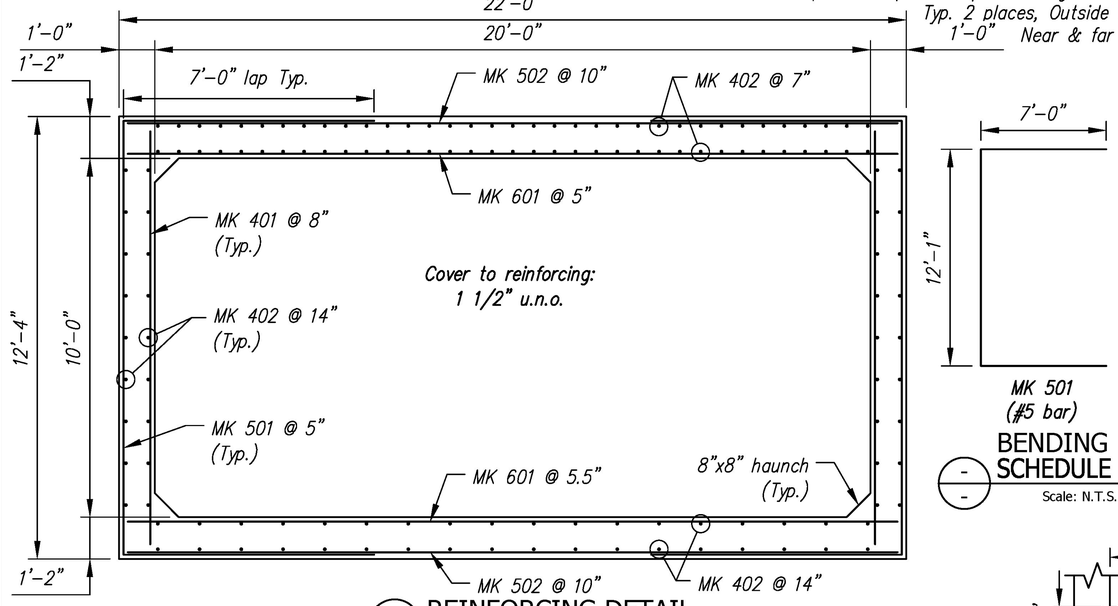
Quantity: 1 | Project No: STPCULV30 | SHEET 2A OF 2A







Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015



B1 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	C			
EM-0005A	1'			
EM-00010	D			WEL BAR SPLICER
EM-00014	D			WEL BAR SPLICER
EM-00033	3'			
EM-00125	B			
RM-00013	R			
RM-00015	R			
RM-00017	R			
MX-FA5000SC30	M			
EM-00022	D			WEL IN
RM-00013	R			
MX-FA5000SC30	M			
CT-00005	C			
EM-00018	D			WEL IN
RM-00013	REBAR #4 BLACK- GR 60	186	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	1.9	CY	

REVIEWED [X]
REVIEWED AS MODIFIED
REVISE AND RESUBMIT
NOT REVIEWED

Stantec

Date: 4/24/2015

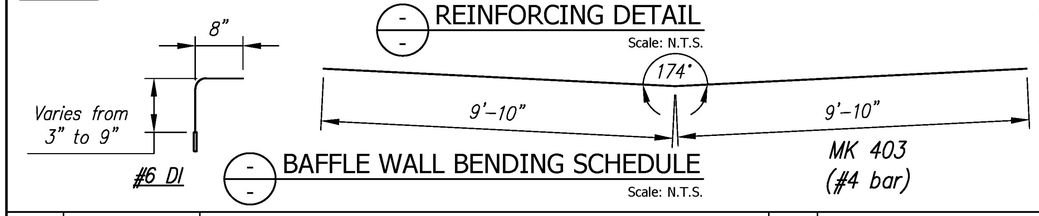
By: Nathan Tirk

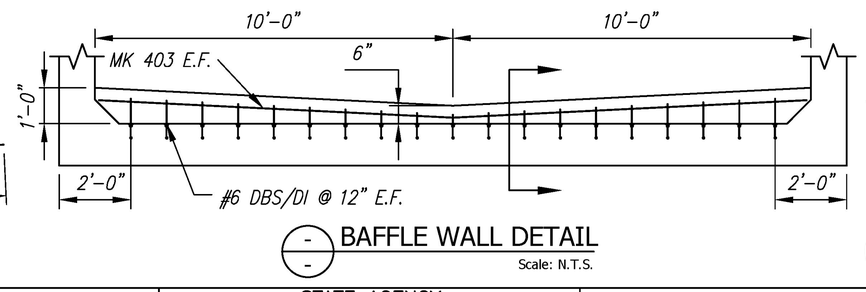
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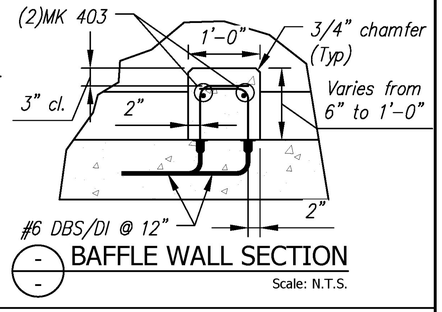
B1 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	11 '- 6 "
402	#4	142	5 '- 3 "
501	#5	27	26 '- 1 "
502	#5	14	21 '- 6 "
601	#6	27	21 '- 6 "

B1 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "

B1 HW Rebar Schedule			
MK		QTY	LENGTH
404	#4	30	4 '- 11 "
405	#4	6	21 '- 10 "







Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

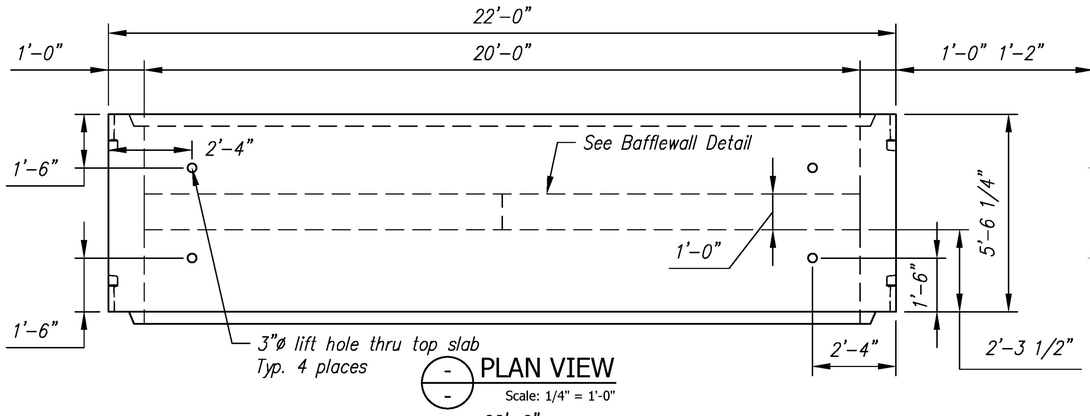
Drawn By	Date
R. YEAGER	16MAR2015
Concrete Cu. Yd.	Weight in Tons
16.78	33.99
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

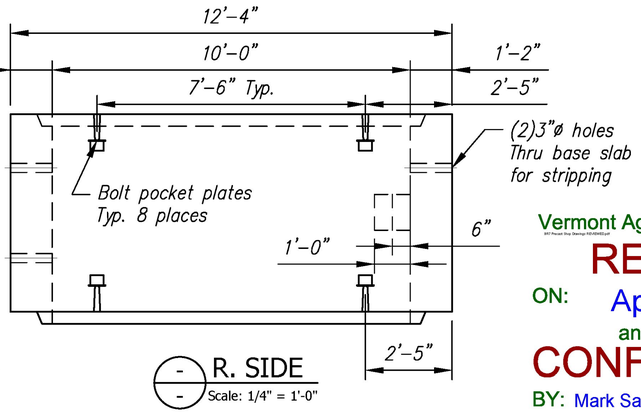
B | SHOP DRAWING – B1 | REV 0

Drawing No. C22283-L02-B1

Quantity: 1 | Project No: STPCULV30 | SHEET 1 OF 9



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



R. SIDE
Scale: 1/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

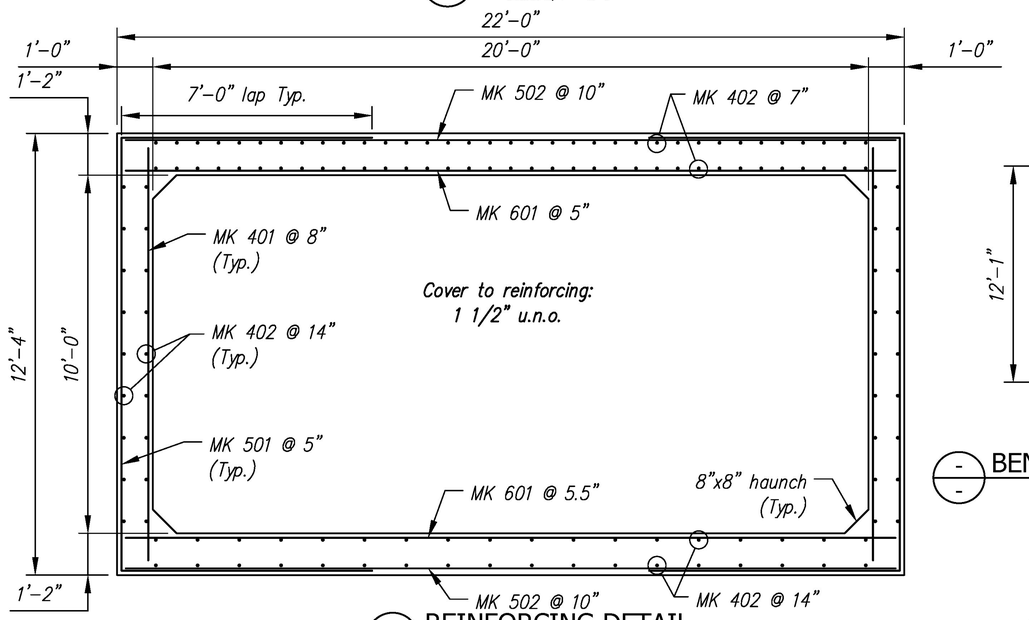
and Checked for

CONFORMANCE

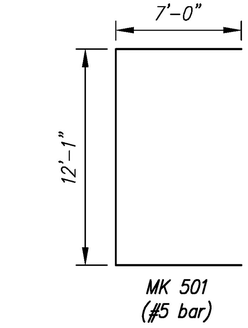
BY: Mark Sargent DATE: 5/7/2015

B2 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	11 '- 6 "
402	#4	142	5 '- 3 "
501	#5	27	26 '- 1 "
502	#5	14	21 '- 6 "
601	#6	27	21 '- 6 "

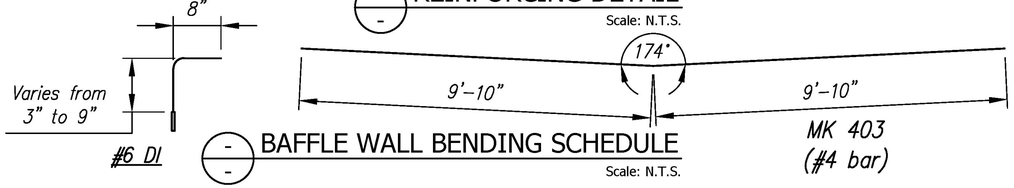
B2 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "



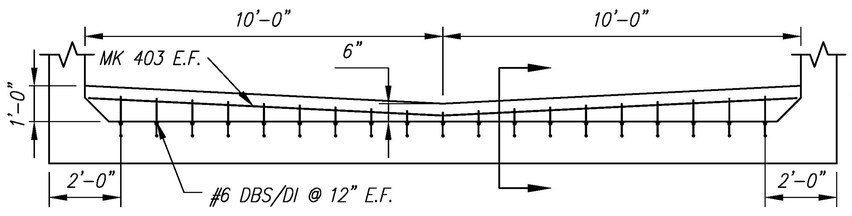
REINFORCING DETAIL
Scale: N.T.S.



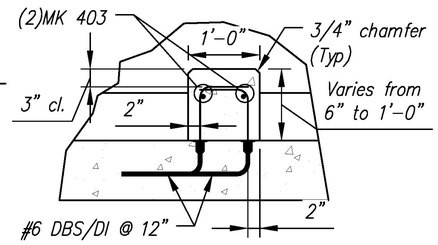
BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL SECTION
Scale: N.T.S.

B2 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00014		38	EA	DOWEL BAR SPLICER
EM-00033		7	FT	
EM-00125		8	EA	
JS-00002		65	FT	AROUND BELL
RM-00013		636	LB	
RM-00015		1048	LB	
RM-00017		872	LB	
MX-FA50(		14.87	CY	
	ALS / EMBEDS			
EM-00022		38	EA	DOWEL IN
RM-00013		26	LB	
MX-FA50(		0.51	CY	

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By: R. YEAGER	Date: 16MAR2015
Concrete Cu. Yd.: 15.39	Weight in Tons: 31.16
Approved By:	Date:

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #7, VT ROUTE 58, IRASBURG, VT

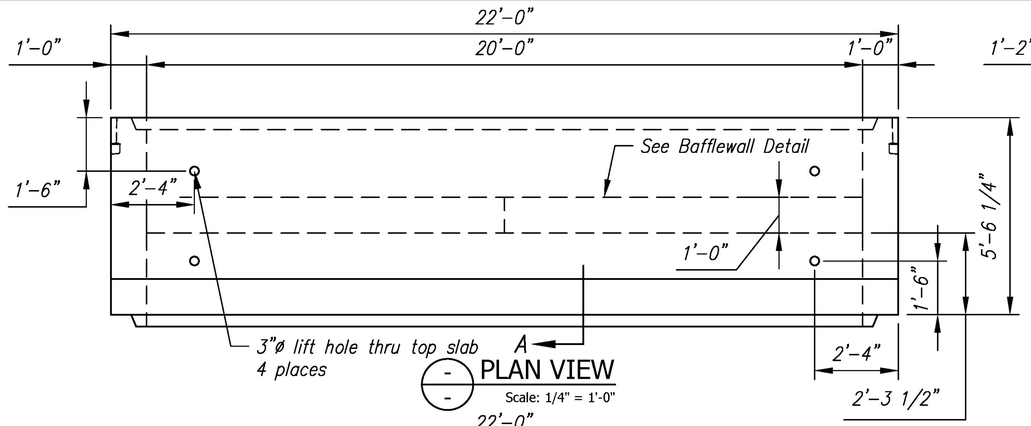
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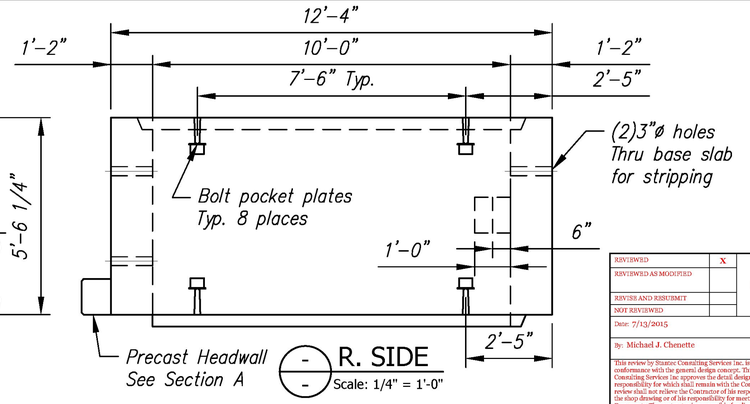
SHOP DRAWING – B2

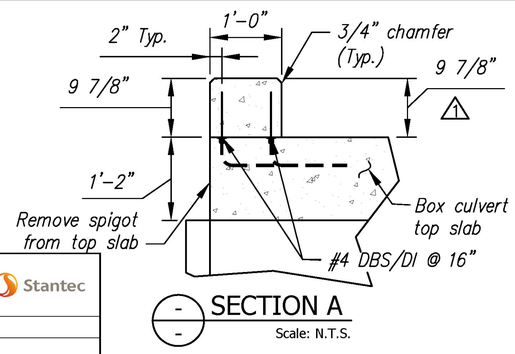
Drawing No. C22283-L02-B2

REV 0

Quantity: 7 | Project No: STPCULV30 | SHEET 2 OF 9







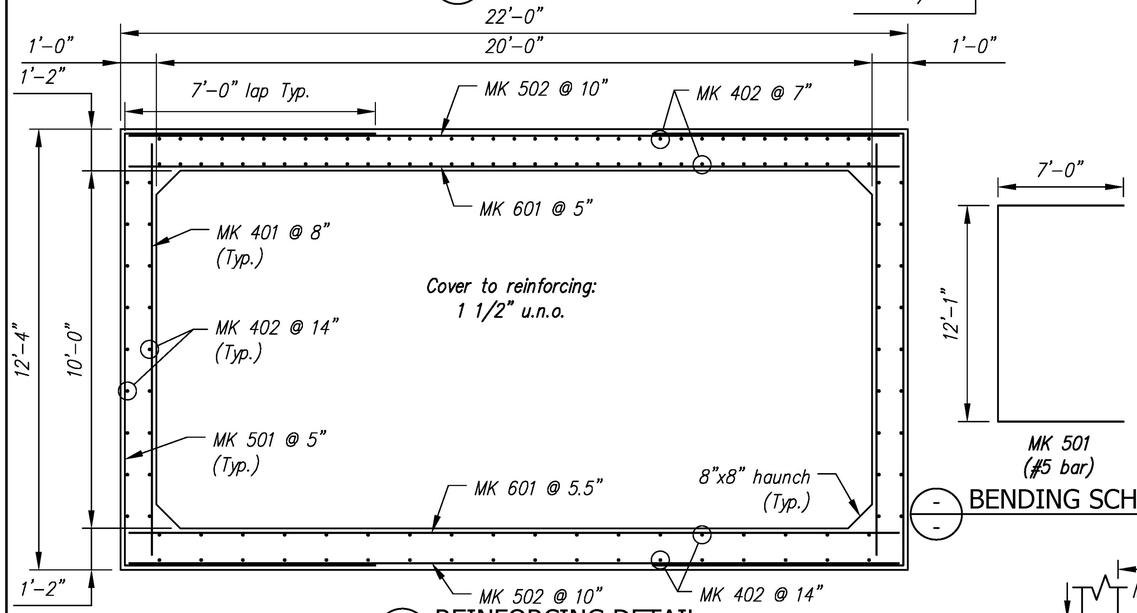
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

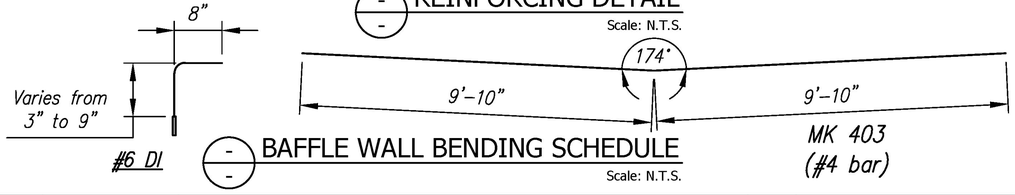
Stantec

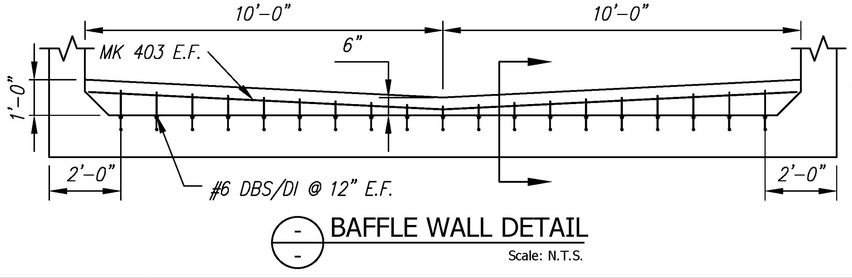
Date: 7/13/2015

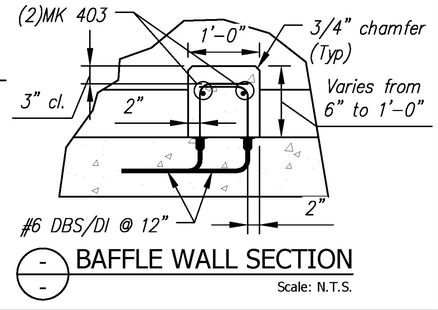
By: Michael J. Chenette

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B3 - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.36	GA	
EM-0005A	1" X 6 " PRESET WING INSERTS	4.00	EA	
EM-00010	DBSAE #4 X 18" BLACK	34	EA	DOWEL BAR SPLICER
EM-00014	DBSAE #6 X 18" PLAIN	38	EA	DOWEL BAR SPLICER
EM-00033	3" FOAM CORE PVC	7	FT	
EM-00125	BOLT POCKET PLATES (GALVANIZED)	4	EA	
JS-00002	1"X1"CLOSED NEOP GASKET	65	FT	AROUND BELL
RM-00013	REBAR #4 BLACK- GR 60	636	LB	
RM-00015	REBAR #5 BLACK-GR 60 40'	1017	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	807	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	14.87	CY	
B3 BAFFLE WALL - BILL OF MATERIALS / EMBEDS				
EM-00022	DI #6 X 18" BLACK	38	EA	DOWEL IN
RM-00013	REBAR #4 BLACK- GR 60	26	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	0.51	CY	
B3 HEADWALL - BILL OF MATERIALS / EMBEDS				
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.28	GA	
EM-00018	DI #4 X 18" PLAIN	34	EA	DOWEL IN
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	0.67	CY	

B3 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	11 '- 6 "
402	#4	142	5 '- 3 "
501	#5	27	26 '- 1 "
502	#5	14	21 '- 6 "
601	#6	27	21 '- 6 "

B3 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "

Vermont Agency of Transportation

RECEIVED

ON: July 13, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 7/13/2015

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	30JUN2015	SECTION A: 9 7/8" DIM WAS 9 3/8", REMOVED HW SKEW	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By	Date
R. YEAGER	16MAR2015
Concrete Cu. Yd.	Weight in Tons
16.06	32.52
Approved By	Date
M SCOTT	7/1/15

J A MCDONALD, INC.

VT/AOT BRIDGE - STEEL CULVERT REPLACEMENT

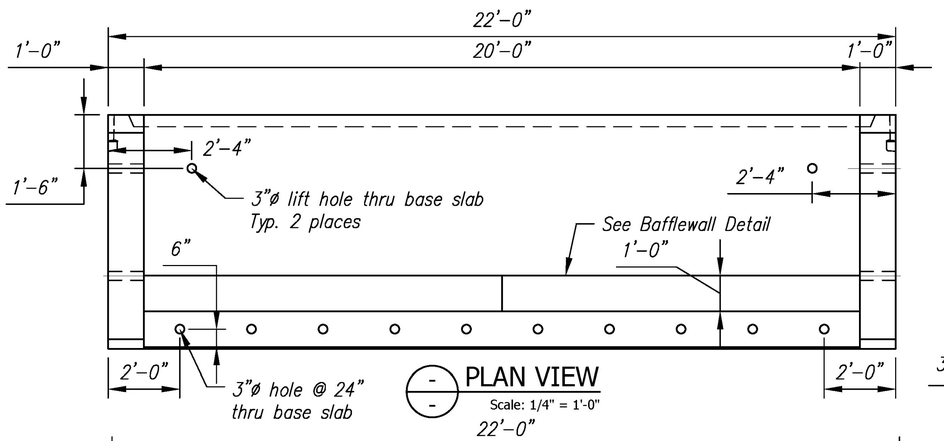
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B — SHOP DRAWING - B3 — REV 1

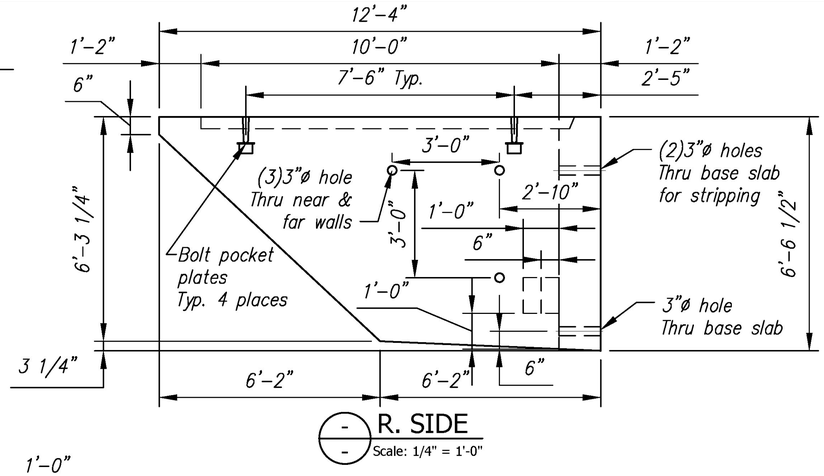
Drawing No. C22283-L02-B3

Quantity: 1 | Project No: STPCULV30 | SHEET 3 OF 9

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015



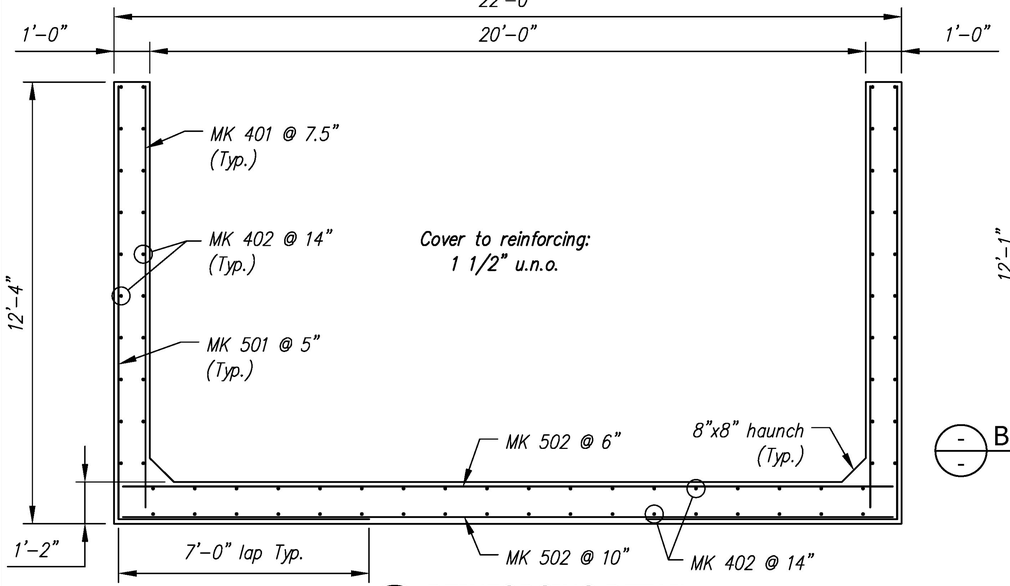
PLAN VIEW
Scale: 1/4" = 1'-0"



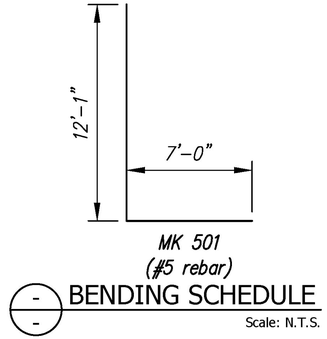
R. SIDE
Scale: 1/4" = 1'-0"

B4 Rebar Schedule			
MK		QTY	LENGTH
401	#4	20	11 '- 7 "
402	#4	76	6 '- 3 "
501	#5	30	19 '- 1 "
502	#5	21	21 '- 6 "

B4 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "



REINFORCING DETAIL
Scale: N.T.S.



BENDING SCHEDULE
Scale: N.T.S.

B4 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	1.53	GA	
EM-00014	DBSAE #6 X 18" PLAIN	38	EA	DOWEL BAR SPLICER
EM-0		20	FT	
EM-0		4	EA	
JS-0		44	FT	AROUND BELL
RM-0		472	LB	
RM-0		1068	LB	
MX-F		OLIDATING 14.87	CY	
		TERIALS / EMBEDS		
CT-0		OXANE) 0.20	GA	
EM-0		38	EA	DOWEL IN
RM-0		26	LB	
MX-F		OLIDATING 0.51	CY	

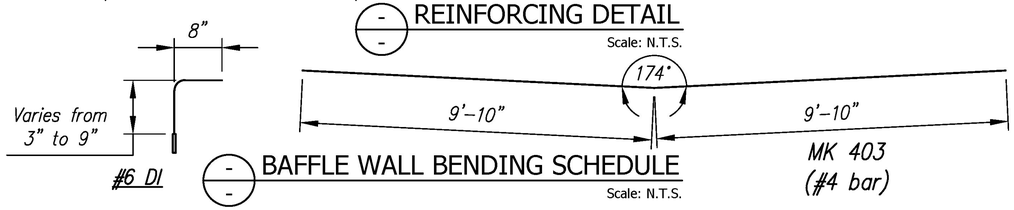
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

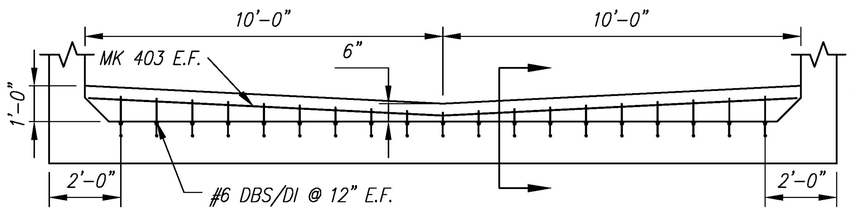
Date: 4/24/2015

By: Nathan Tirk

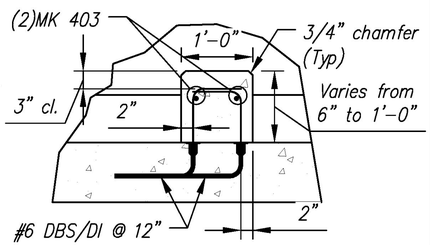
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BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL SECTION
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

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

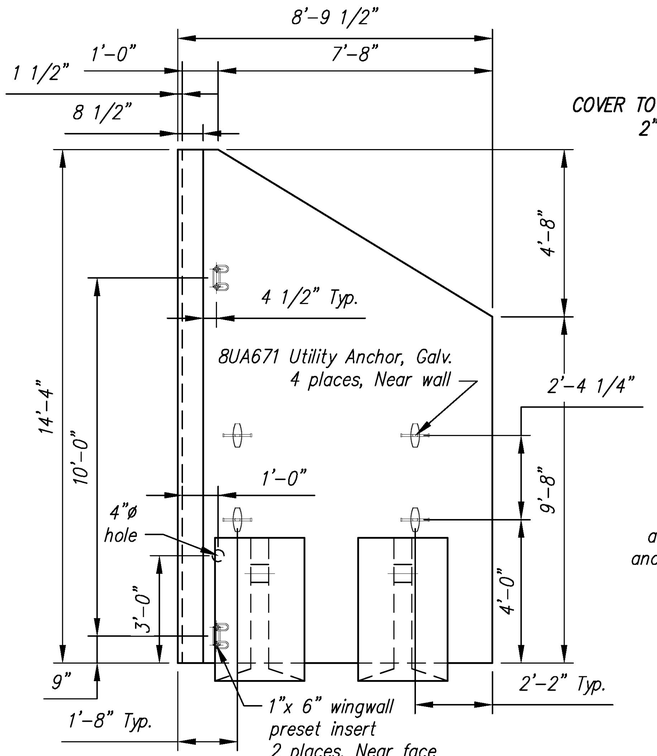
STATE AGENCY
VTrans Working to Get You There

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 11.91	Weight in Tons 24.12
Approved By	Date

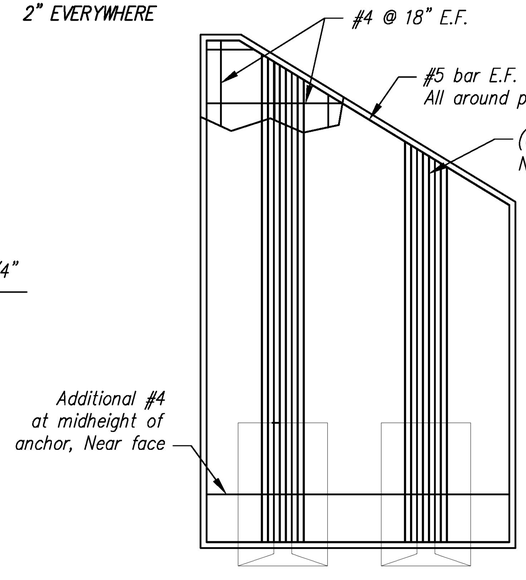
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – B4 | Drawing No. C22283-L02-B4 | REV 0

Quantity: 1 | Project No: STPCULV30 | SHEET 4 OF 9



PLAN VIEW
Scale: N.T.S.



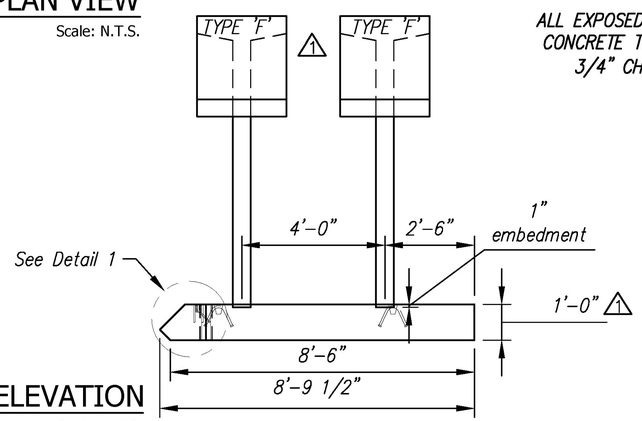
REINFORCING DETAIL
Scale: N.T.S.

Need to specify a spacing or total width for the additional #8 bars

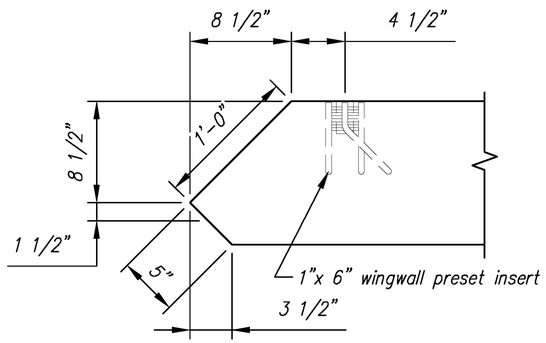
Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

WW1B - BILL OF MATERIALS / EMBEDS

	CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
1	CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	2	EA	
	CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.64	GA	
	EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
	EM-00034	4" FOAM CORE PVC	1	FT	
	EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
	RM-00013	REBAR #4 BLACK- GR 60	219	LB	
	RM-00015	REBAR #5 BLACK-GR 60 40'	87	LB	
	RM-00104	REBAR #8 BLACK-GR 60	598	LB	
	MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	3.86	CY	



ELEVATION
Scale: N.T.S.



DETAIL 1
Scale: N.T.S.

REVIEWED	
REVIEWED AS MODIFIED	X
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 5/1/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

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

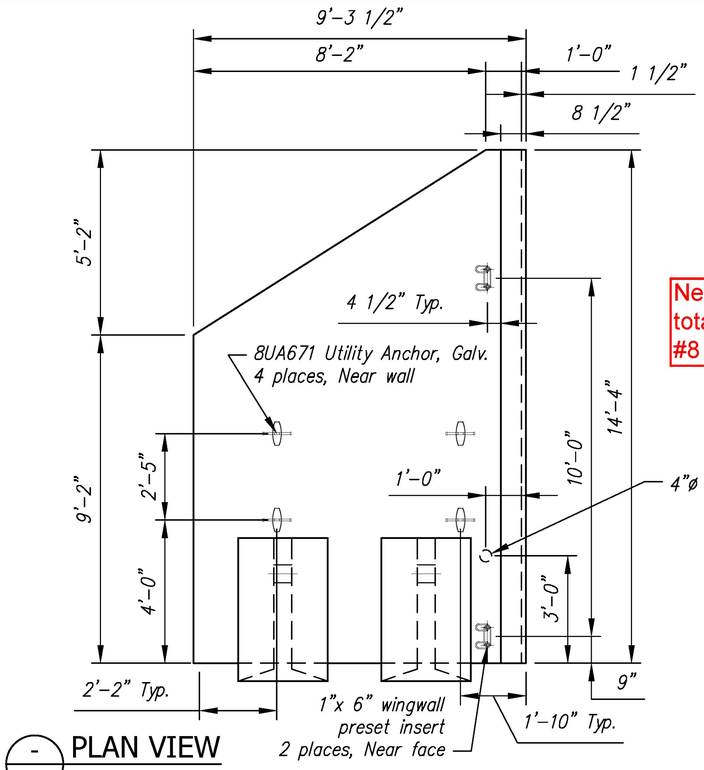
STATE AGENCY
VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 5.24	Weight in Tons 10.61
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

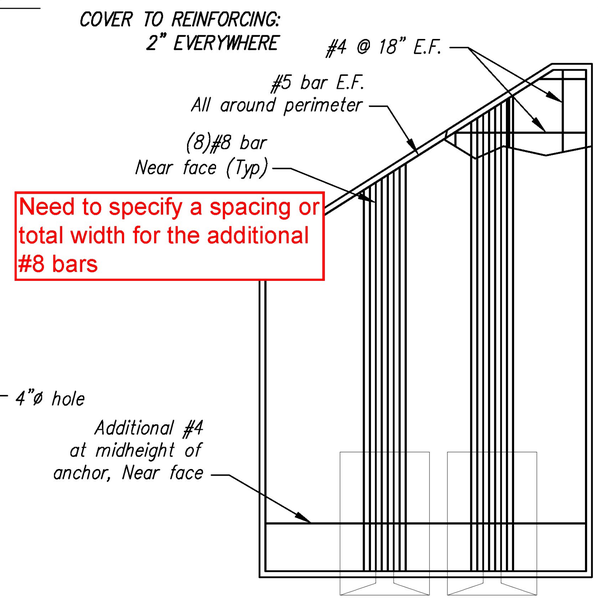
B — SHOP DRAWING – WW1B — REV 1
Drawing No. C22283–LO2–WW1B

Quantity: 1 | Project No: STPCULV30 | SHEET 5 OF 9



PLAN VIEW

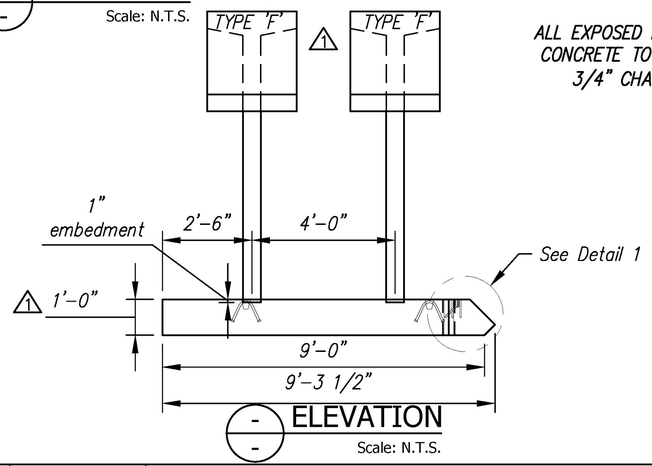
Scale: N.T.S.



REINFORCING DETAIL

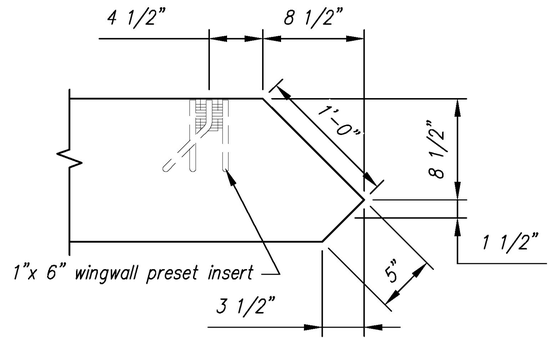
Scale: N.T.S.

ALL EXPOSED EDGES OF CONCRETE TO RECEIVE 3/4" CHAMFER



ELEVATION

Scale: N.T.S.



DETAIL 1

Scale: N.T.S.

WW2B - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
1 CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	2	EA	
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.64	GA	
EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
EM-00034	4" FOAM CORE PVC	1	FT	
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
RM-00013	REBAR #4 BLACK- GR 60	226	LB	
RM-00015	REBAR #5 BLACK-GR 60 40'	88	LB	
RM-00104	REBAR #8 BLACK-GR 60	598	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	4.01	CY	

REVIEWED		Stantec
REVIEWED AS MODIFIED	X	
REVISE AND RESUBMIT		
NOT REVIEWED		

Date: 5/1/2015

By: Nathan Tirk

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Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 5.39	Weight in Tons 10.91
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #7, VT ROUTE 58, IRASBURG, VT

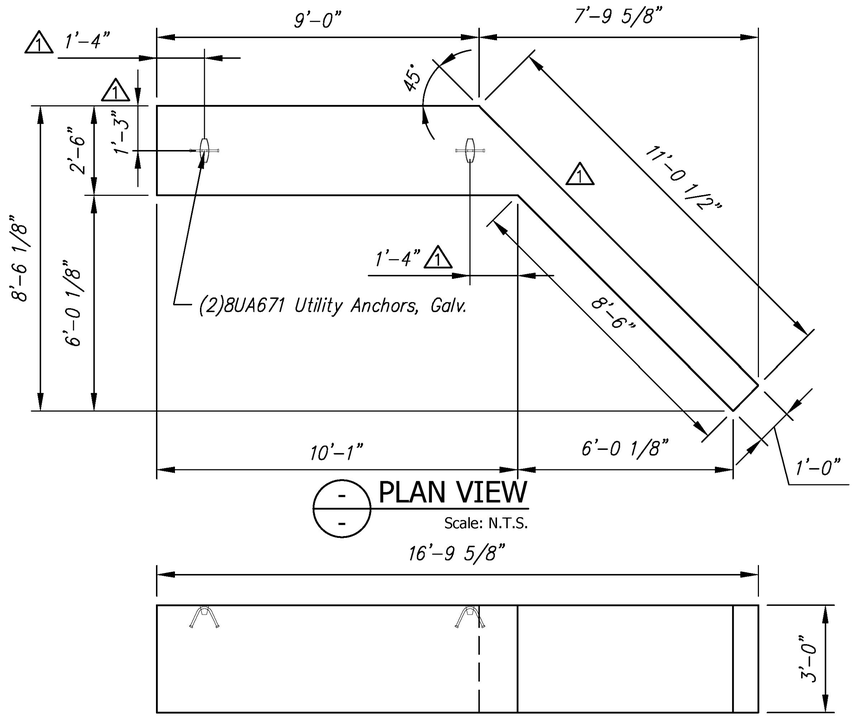
B

SHOP DRAWING – WW2B

Drawing No. C22283-L02-WW2B

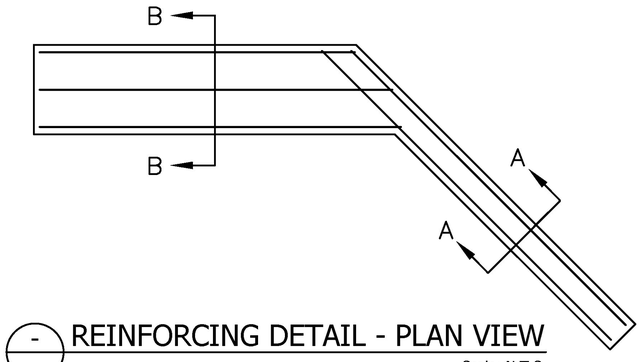
REV 1

Quantity: 1 | Project No: STPCULV30 | SHEET 6 OF 9



PLAN VIEW
Scale: N.T.S.

ELEVATION
Scale: N.T.S.



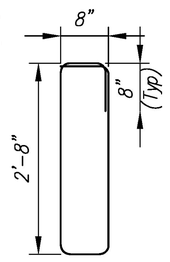
REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

Vermont Agency of Transportation

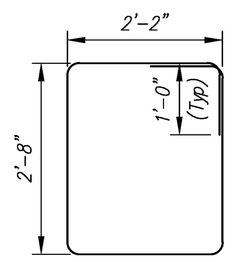
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

F1B - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	50	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	160	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	3.74	CY	

F1B Rebar Schedule			
MK	QTY	LENGTH	
401 #4	5	8 '- 0 "	
402 #4	3	11 '- 8 "	
601 #6	4	11 '- 6 "	
602 #6	6	10 '- 1 "	MAX



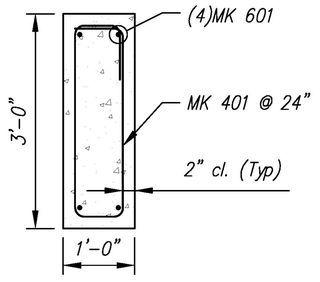
MK 401
#4 bar



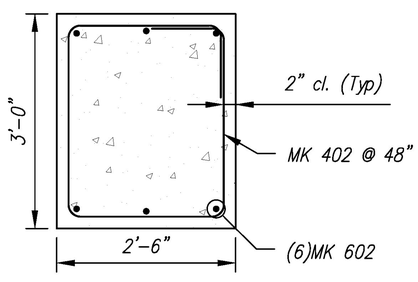
MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.



SECTION A-A



SECTION B-B

REINFORCING DETAIL
Scale: N.T.S.

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

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

STATE AGENCY

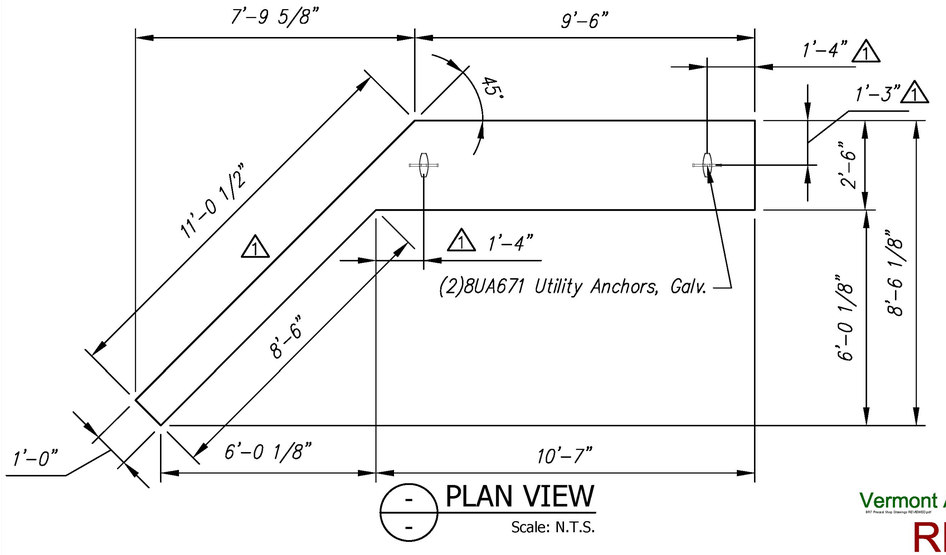
VTrans Working to Get You There

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 3.74	Weight in Tons 7.57
Approved By	Date

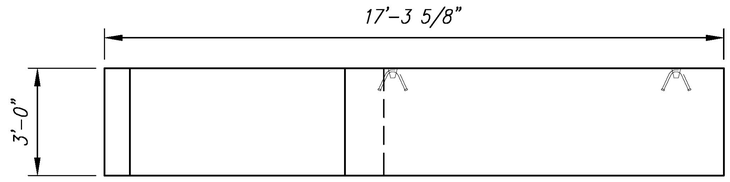
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – F1B | REV 2
Drawing No. C22283-L02-F1B

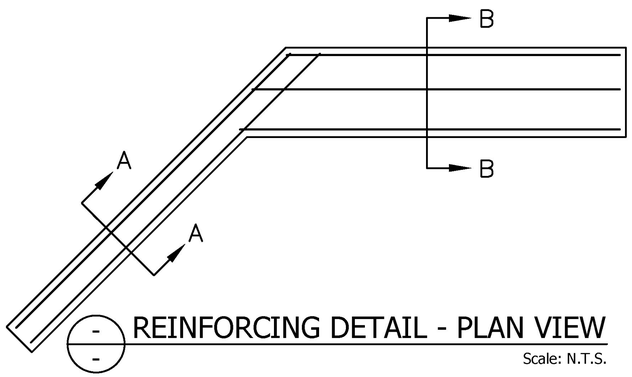
Quantity: 1 | Project No: STPCULV30 | SHEET 7 OF 9



PLAN VIEW
Scale: N.T.S.



ELEVATION
Scale: N.T.S.



REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

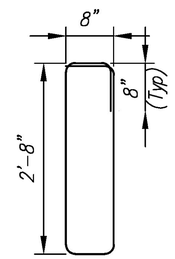
BY: Mark Sargent DATE: 5/7/2015

F2B - BILL OF MATERIALS / EMBEDS

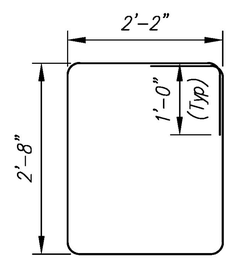
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	50	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	164	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	3.88	CY	

F2B Rebar Schedule

MK		QTY	LENGTH	
401	#4	5	8 '- 0 "	
402	#4	3	11 '- 8 "	
601	#6	4	11 '- 6 "	
602	#6	6	10 '- 7 "	MAX



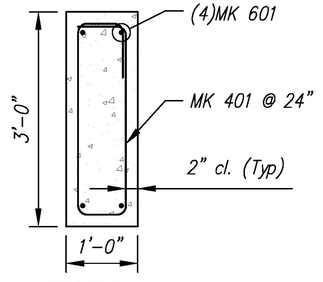
MK 401
#4 bar



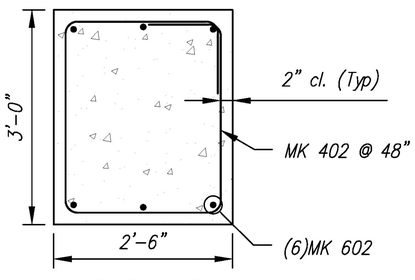
MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.



SECTION A–A



SECTION B–B

REINFORCING DETAIL
Scale: N.T.S.

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

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Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

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

STATE AGENCY

VTrans Working to Get You There

Drawn By: R. YEAGER	Date: 16MAR2015
Concrete Cu. Yd.: 3.88	Weight in Tons: 7.86
Approved By:	Date:

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

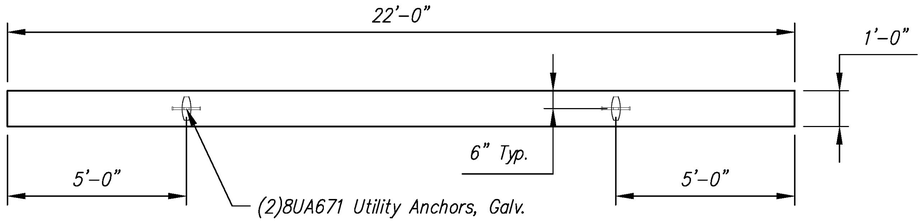
B | SHOP DRAWING – F2B | REV 2

Drawing No. C22283–L02–F2B

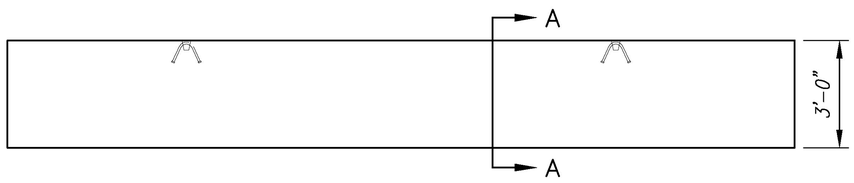
Quantity: 1 | Project No: STPCULV30 | SHEET 8 OF 9

F3B - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	64	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	130	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	2.44	CY	

F3B Rebar Schedule			
MK		QTY	LENGTH
401	#4	12	8 '- 0 "
601	#6	4	21 '- 8 "



PLAN VIEW
Scale: N.T.S.



ELEVATION
Scale: N.T.S.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

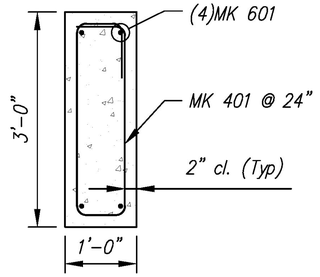
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

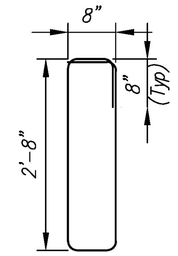
By: Nathan Tirk

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SECTION A–A

REINFORCING DETAIL
Scale: N.T.S.



MK 401
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

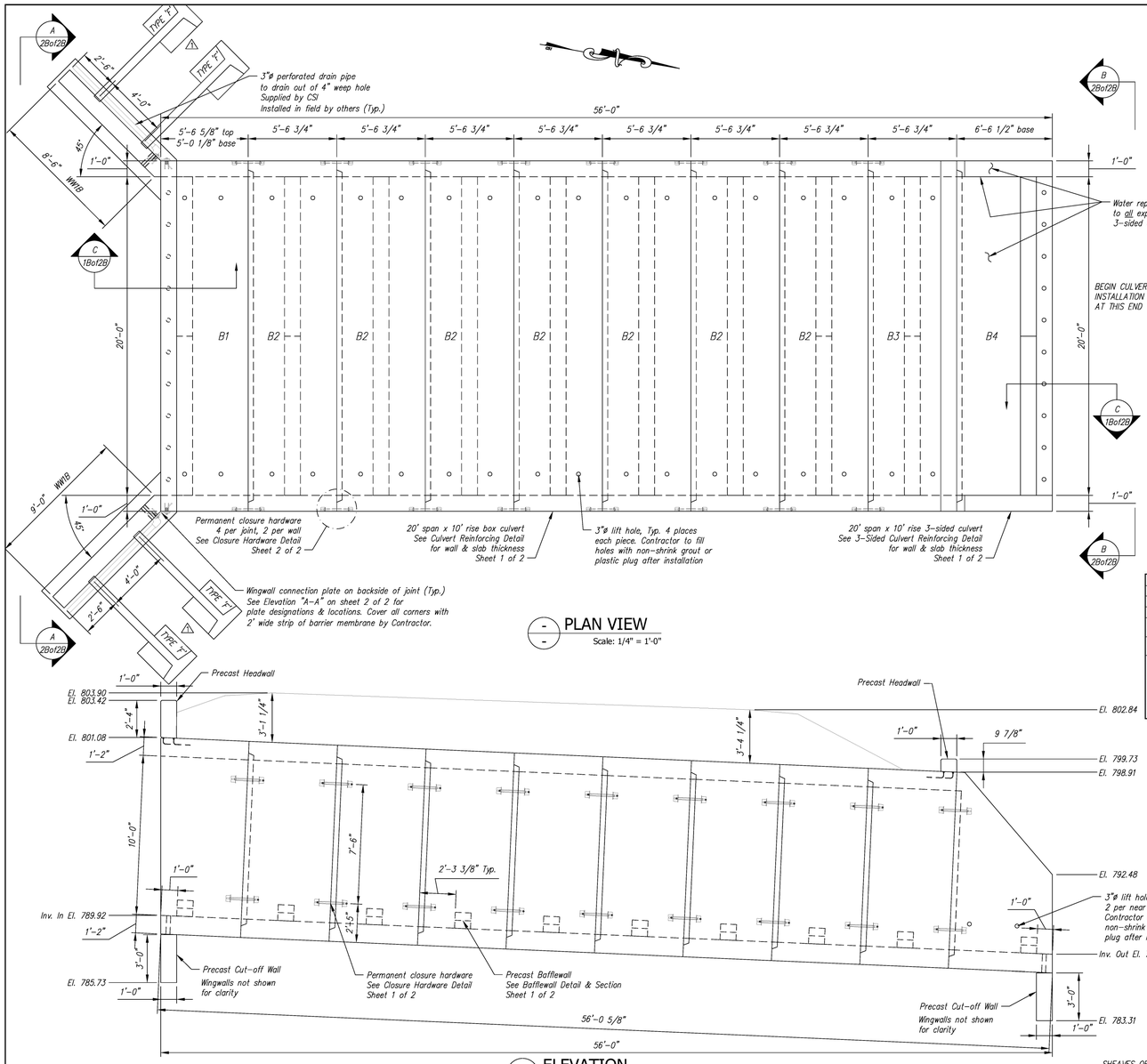
Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY
VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 2.44	Weight in Tons 4.94
Approved By	Date

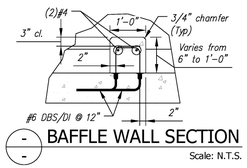
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – F3B | REV 0
Drawing No. C22283–L02–F3B
Quantity: 1 | Project No: STPCULV30 | SHEET 9 OF 9

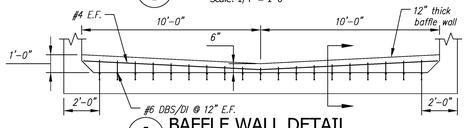


PLAN VIEW
Scale: 1/4" = 1'-0"

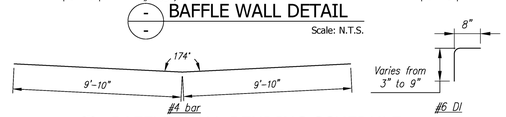
ELEVATION
Scale: 1/4" = 1'-0"



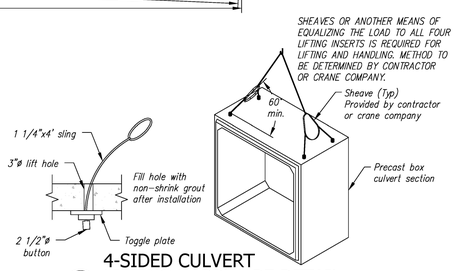
BAFFLE WALL SECTION
Scale: N.T.S.



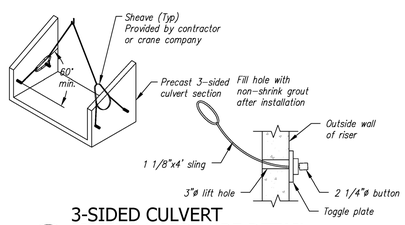
BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



4-SIDED CULVERT LIFTING HARDWARE DETAIL
Scale: N.T.S.

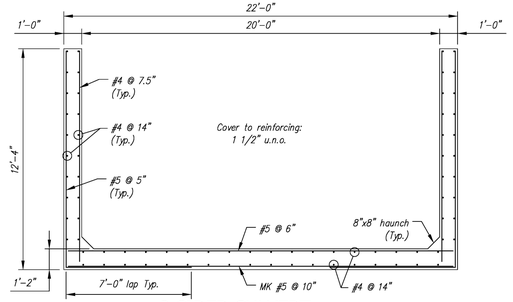


3-SIDED CULVERT LIFTING HARDWARE DETAIL
Scale: N.T.S.

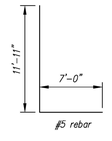
PIECE SCHEDULE (MX-FA5000SC30)					
MARK	QTY	LENGTH	YDS	WEIGHT	
B1	1	5.28 '	16.78	33.99	TONS
B2	7	5.56 '	15.39	31.16	TONS
B3	1	5.56 '	16.06	32.52	TONS
B4	1	6.27 '	11.91	24.12	TONS
⚠ WW1B	1	8.50 '	5.24	10.61	TONS
⚠ WW2B	1	9.00 '	5.39	10.91	TONS
⚠ F1B	1	19.18 '	3.74	7.57	TONS
⚠ F2B	1	19.86 '	3.88	7.86	TONS
⚠ F3B	1	22.00 '	2.44	4.94	TONS

WINGWALL GENERAL NOTES:
1. Reference standard:
   AASHTO "LRFD Bridge Design Specifications"
   ASTM C1577
2. Design Parameters:
   Soil Bearing: 3300 psf
   Earth Cover: 1.00 ft max.
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar), grade 60, Black
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" u.n.o.
3. The wingwalls have been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation, including scour and confirmation of soil conditions.
4. Prior to construction, contractor must verify all elevations shown through the engineer.

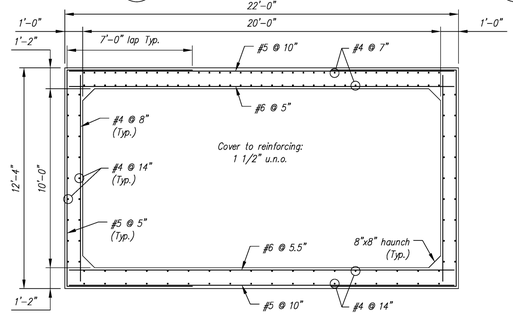
GENERAL NOTES:
1. Reference Standards:
   AASHTO "LRFD Bridge Design Specifications"
   ASTM C1577
2. Design Parameters:
   Live load: HL-93
   Earth Cover: 3' to 4'
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar) GR 60, Black
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" headwalls
   1 1/2" culvert walls
   1 1/2" elsewhere u.n.o.
3. Dimensions include a joint gap. Actual culvert piece length is ½" shorter (i.e. B2 = 5'-6 1/4").
4. No dampproofing or waterproofing supplied by CSI.
5. DBS are Dowel Bar Splicers and DI are Dowel Ins. Both are supplied by CSI. DI's are to be installed and cut/bent in the field by others as required.
6. Headwalls are not designed for impact load.
7. Water repellant(Silane Siloxane) by CSI on all exposed faces of culvert, headwalls, and wingwalls.
8. Provide engineer a minimum fourteen (14) days notice prior to the start of fabrication and a detailed casting schedule.



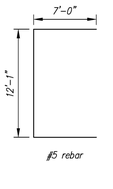
3-SIDED CULVERT REINFORCING DETAIL
Scale: 3/8" = 1'-0"



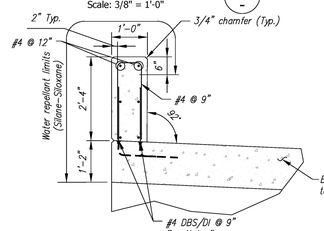
3-SIDED CULVERT BENDING SCHEDULE
Scale: N.T.S.

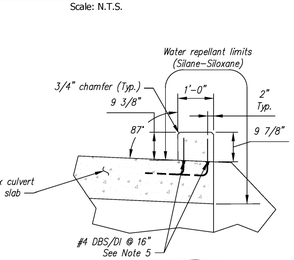


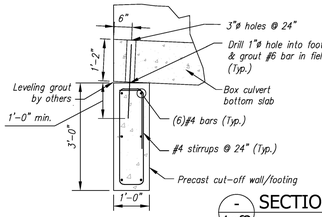
CULVERT REINFORCING DETAIL
Scale: 3/8" = 1'-0"

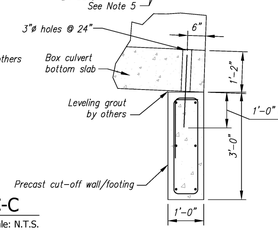


BENDING SCHEDULE
Scale: N.T.S.









SECTION C-C
Scale: N.T.S.

1of2

RECEIVED
Vermont Agency of Transportation
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

REVIEWED	X	Stantec
REVIEWED AS MODIFIED		
REVISE AND RESUBMIT		
NOT REVIEWED		

Date: 4/24/2015

By: Nathan Tirk

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Stamp for structural design only

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01apr2015	WINGWALL ANCHORS WERE TYPE 'D', WINGWALLS WERE 10" THK	RY

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:
Engineer: STATE OF VT AOT PROGRAM DEVELOPMENT
Project No: STPCULV30
Drawings: VT/AOT PROPOSED INPROVEMENT BRIDGE PROJECT SHEETS 1 THRU 24 & 32 OF 55
Specifications: -----

Other Sources: -----

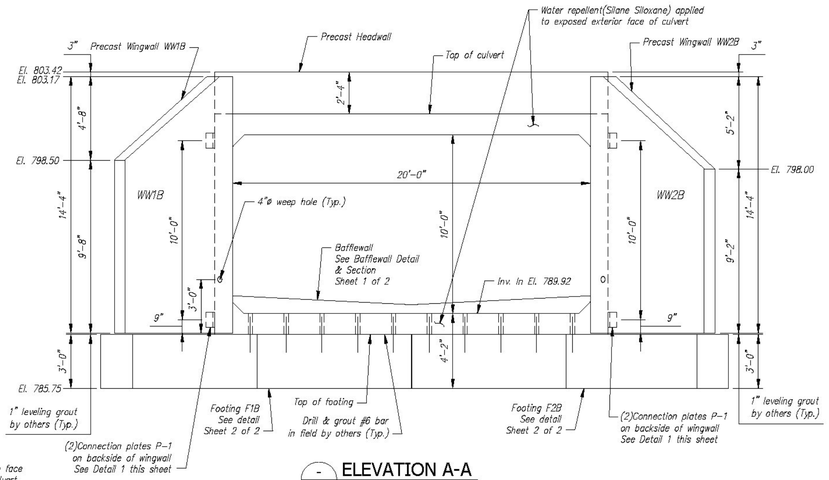
Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY
VTrans Working to Get You There

Drawn By	R. YEAGER
Date	09MAR2015
Reviewed By	
Date	
Approved By	
Date	

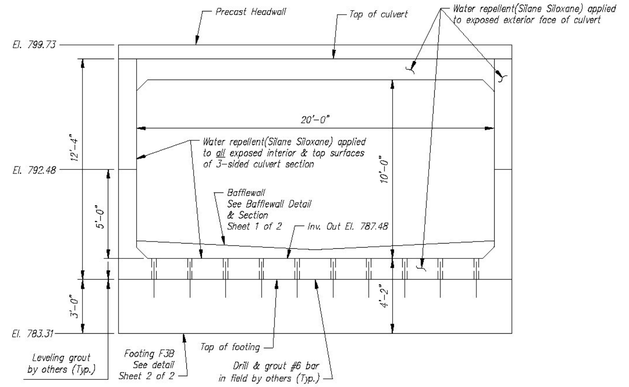
J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

D — 20' SPAN x 10' RISE BOX CULVERT LAYOUT — REV 1
Drawing No. C22283-LO2A
Quantity: 1 | Project No: STPCULV30 | SHEET 1B OF 2B



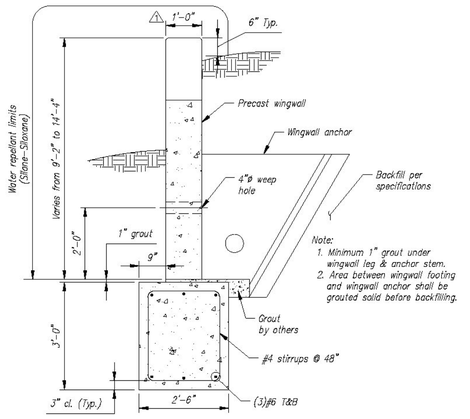
ELEVATION A-A

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



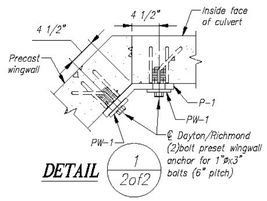
ELEVATION B-B

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

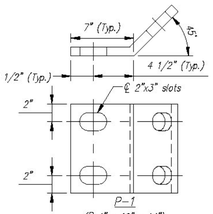


TYPICAL WINGWALL SECTION

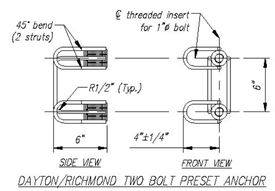
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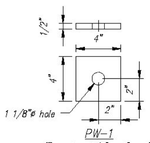
DETAIL 1 2of2



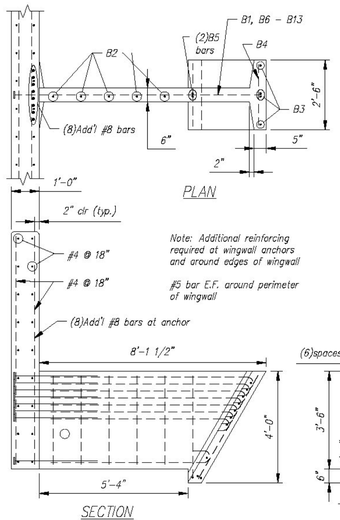
P-1
(℄ 1" x 10" x 14")
(Galvanized as per ASTM A153)
(Total required = 4)



DAYTON/RICHMOND TWO BOLT PRESET ANCHOR



PW-1
(℄ washer, 1/2" x 4" x 4")
(Galvanized as per ASTM A153)
(Total required = 16)



PLAN

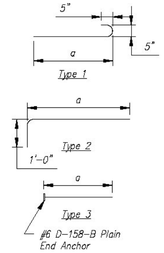
Note: Additional reinforcing required at wingwall anchors and around edges of wingwall

#5 bar E.F. around perimeter of wingwall

SECTION

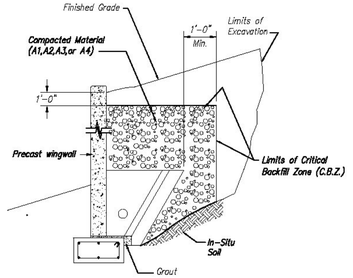
Note: "Str." denotes straight bar. Standard clearance = 2"

BAR LIST					
MARK	QTY.	SIZE	a	TYPE	LENGTH
B1	8	#6	3'-0"	3	——
B2	4	#5	——	Str.	3'-2"
B3	4	#5	——	Str.	4'-3"
B4	11	#5	——	Str.	2'-2"
B5	2	#5	3'-8"	2	——
B6	1	#5	6'-2"	1	——
B7	1	#5	6'-9"	1	——
B8	1	#5	6'-11"	1	——
B9	1	#5	7'-1"	1	——
B10	1	#5	7'-3"	1	——
B11	1	#5	7'-5"	1	——
B12	1	#5	7'-6"	1	——
B13	1	#5	7'-8"	1	——

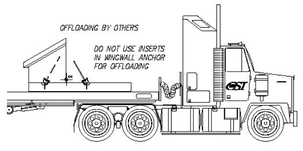


BACKFILL DESCRIPTION							
Group Classification	A-1		A-3	A-2			
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7
Sieve Analysis, Percent Passing							
No. 10	50 max.						
No. 40	30 max.	50 max.	51 min.				
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.
Characteristics of Fraction Passing No.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

NOTES
1. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
2. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
3. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

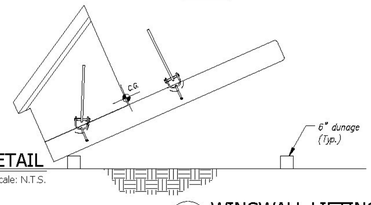


WINGWALL BACKFILL REQUIREMENTS



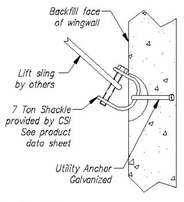
WINGWALL OFFLOADING & TRIPPING DETAIL

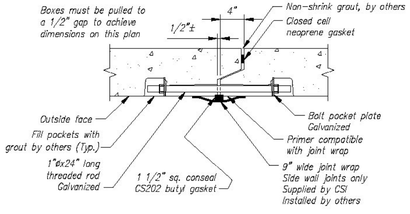
Scale: N.T.S.



WINGWALL LIFTING DETAIL

Scale: N.T.S.

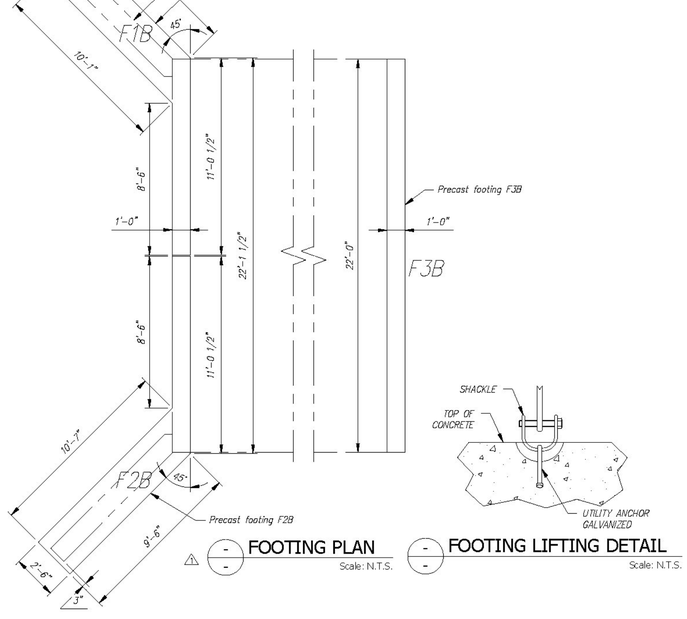




Permanent Closure Hardware (Galvanized)

CLOSURE HARDWARE DETAIL

Scale: N.T.S.



FOOTING PLAN

Scale: N.T.S.

FOOTING LIFTING DETAIL

Scale: N.T.S.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

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Stamp for structural design only

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	WINGWALL ANCHORS WERE TYPE 'D', WINGWALLS WERE 10" THK	RY

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:
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Project No: STPCULV30
Drawings: VT/AOT PROPOSED INPROVEMENT BRIDGE PROJECT SHEETS 1 THRU 24 & 32 OF 55
Specifications: -----

Other Sources: -----

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4169
Fax 603-889-2417

STATE AGENCY
VTrans Working to Get You There Where Here Is Worthwhile

Drawn By R. YEAGER | Date 09MAR2015
Reviewed By | Date
Approved By | Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

D | Drawing No. C22283-L02B | 20' SPAN x 10' RISE BOX CULVERT LAYOUT | REV 1

Quantity: 1 | Project No: STPCULV30 | SHEET 2B OF 2B