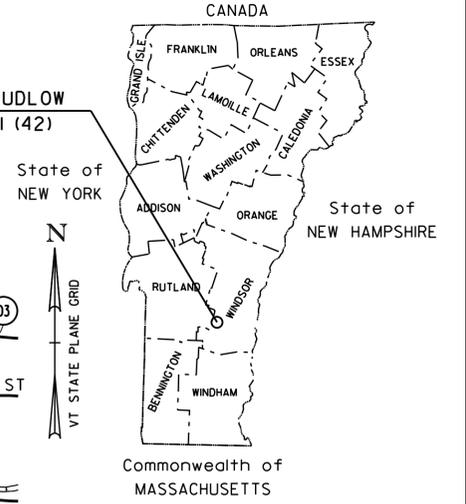
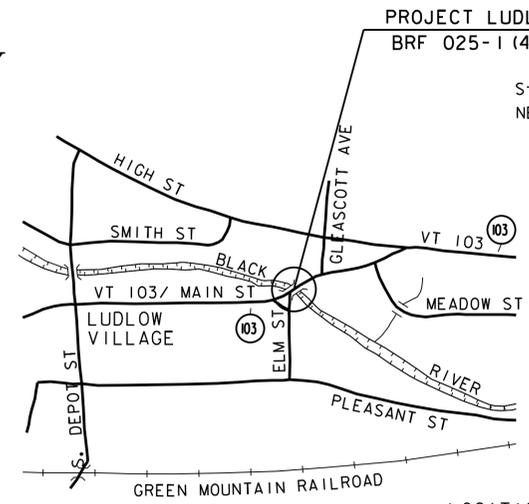


STATE OF VERMONT
 AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
 BRIDGE PROJECT
 TOWN OF LUDLOW
 COUNTY OF WINDSOR
 ROUTE: T.H. 1 (VT 103) CLASS I (PRINCIPAL ARTERIAL) F.A.S. 025-1
 BRIDGE NO. 25

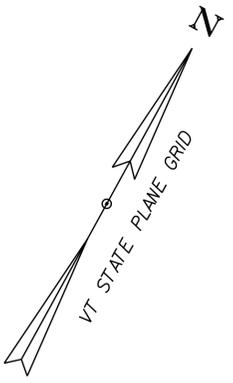
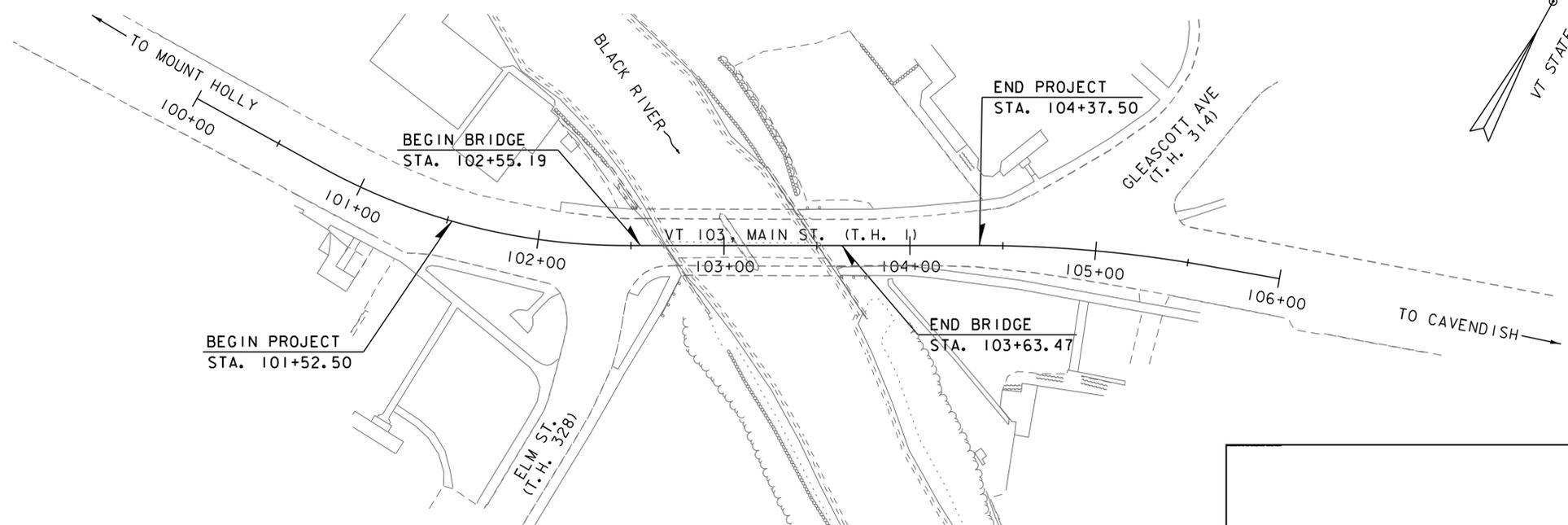


LOCATION MAP
 NOT TO SCALE

PROJECT LOCATION: LOCATED IN THE COUNTY OF WINDSOR, TOWN OF LUDLOW, ON VT ROUTE 103 (MAIN ST); BRIDGE NO. 25 EXTENDS OVER THE BLACK RIVER, APPROXIMATELY 0.23 MILES EASTERLY OF THE INTERSECTION OF T.H. 330 (SOUTH DEPOT ST) AND VT ROUTE 103 (MAIN ST).

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE REMOVAL AND REPLACEMENT OF BRIDGE NO. 25 ON THE EXISTING ALIGNMENT, WITH ASSOCIATED ROADWAY AND CHANNEL WORK.

LENGTH OF ROADWAY: 166.72 FEET
LENGTH OF BRIDGE: 108.28 FEET
LENGTH OF PROJECT: 275.00 FEET



**PRELIMINARY
 PLANS
 FEBRUARY 2015**

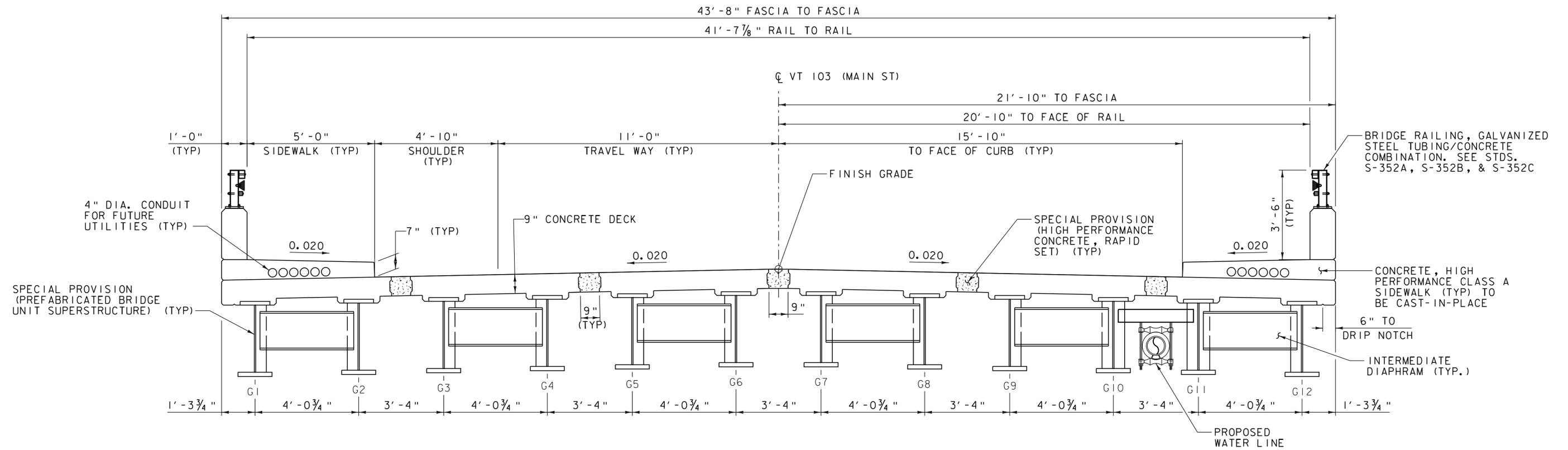
THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.
 CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL I
SURVEYED BY : VHB
SURVEYED DATE : NOV 2010
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)



DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATOR	APPROVED _____ DATE _____
DIRECTOR OF PROGRAM DEVELOPMENT	APPROVED _____ DATE _____
PROJECT MANAGER : TODD A. SUMNER	
PROJECT NAME : LUDLOW	
PROJECT NUMBER : BRF 025-1 (42)	
SHEET 1 OF 39 SHEETS	





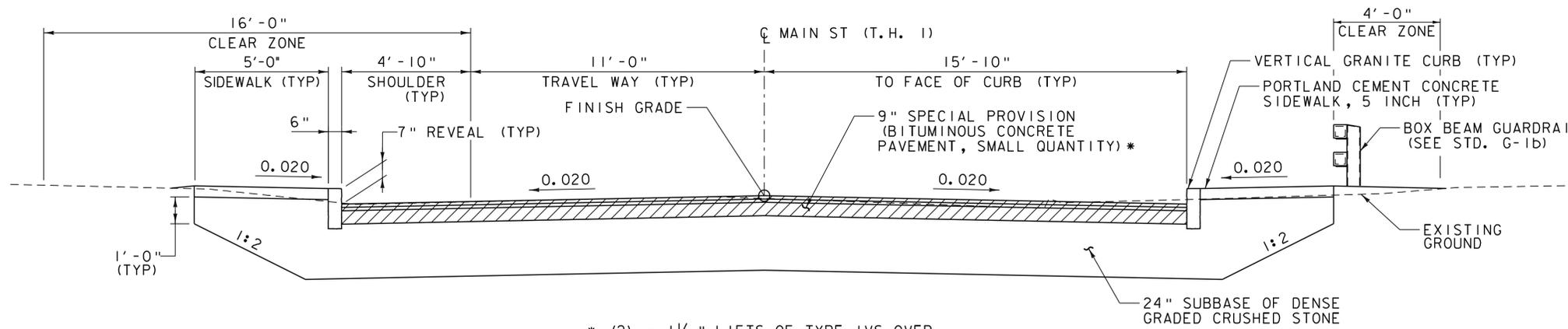
TYPICAL PREFABRICATED BRIDGE UNIT SECTION
SCALE 1/2" = 1'-0"

UTILITY LOCATION HAS NOT BEEN FINALIZED.

DRAFT

PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.F. LAWES
FILE NAME: z10j068typ.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	SHEET 3 OF 39
DESIGNED BY: E.F. LAWES	
TYPICAL BRIDGE SECTION	



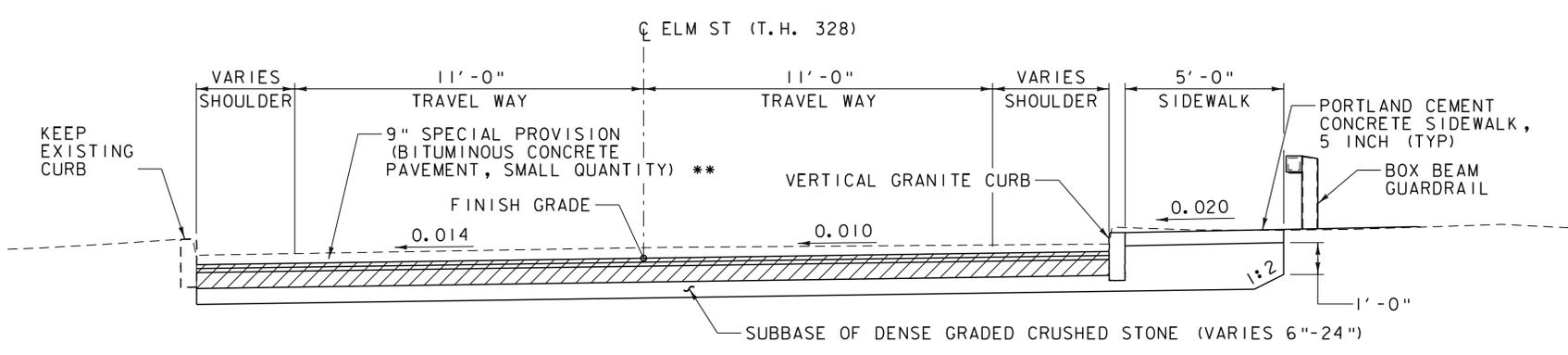


* (2) - 1 1/2" LIFTS OF TYPE IVS OVER
 (2) - 3" LIFTS OF TYPE IIS

TYPICAL VT 103 ROADWAY SECTION
 SCALE 3/8" = 1'-0"

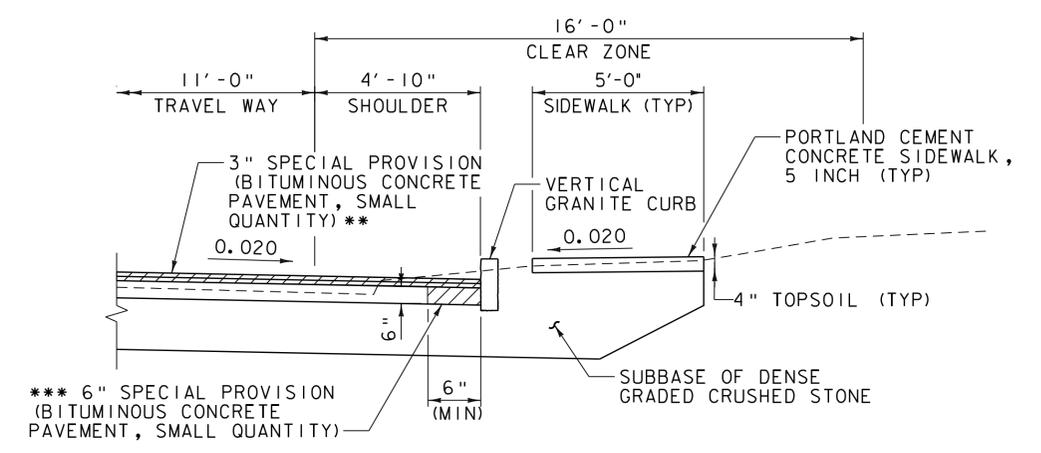
MATERIAL TOLERANCES
 (IF USED ON PROJECT)

SURFACE	
PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



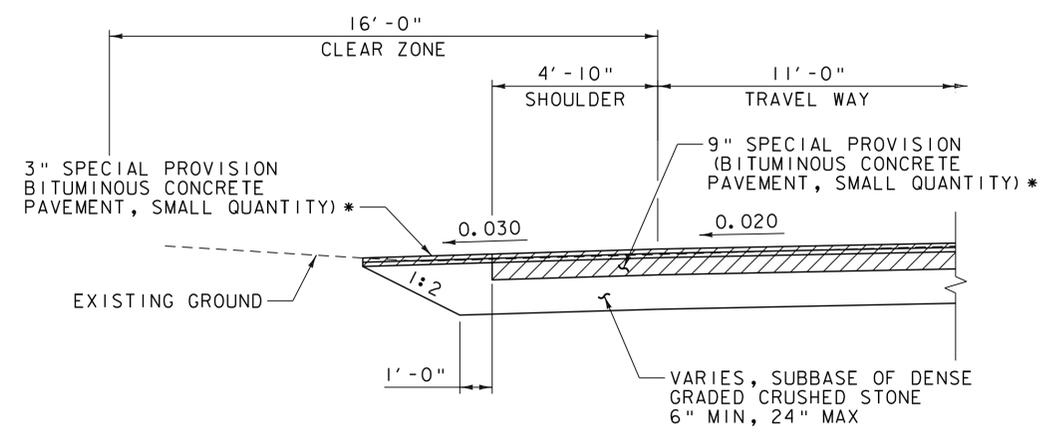
* (2) - 1 1/2" LIFTS OF TYPE IVS OVER
 (2) - 3" LIFTS OF TYPE IIS

TYPICAL ELM ST ROADWAY SECTION
 SCALE 3/8" = 1'-0"



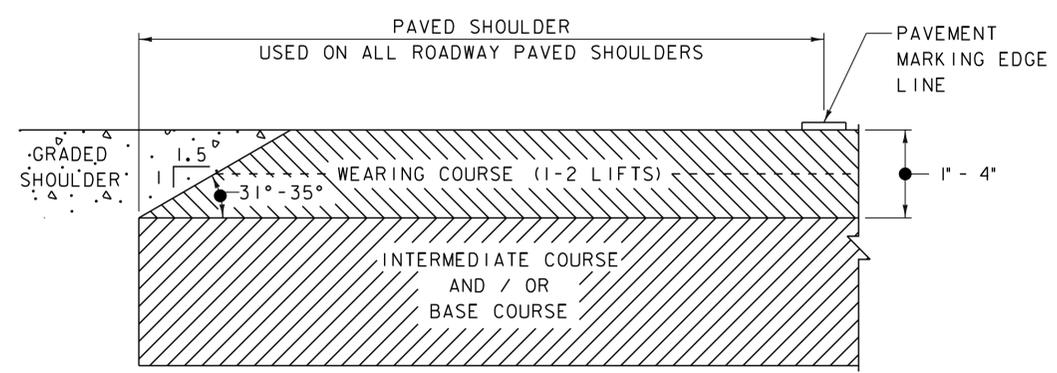
** (2) - 1 1/2" LIFTS OF TYPE IVS
 *** (2) - 3" LIFTS OF TYPE IIS

TYPICAL ROADWAY SECTION
 WITH GRASS STRIP BETWEEN ROAD AND SIDEWALK
 SCALE 3/8" = 1'-0"



* (2) - 1 1/2" LIFTS OF TYPE IVS OVER
 (2) - 3" LIFTS OF TYPE IIS

TYPICAL ROADWAY SECTION AT PAVED DRIVE
 NO CURB OR SIDEWALK
 SCALE 3/8" = 1'-0"

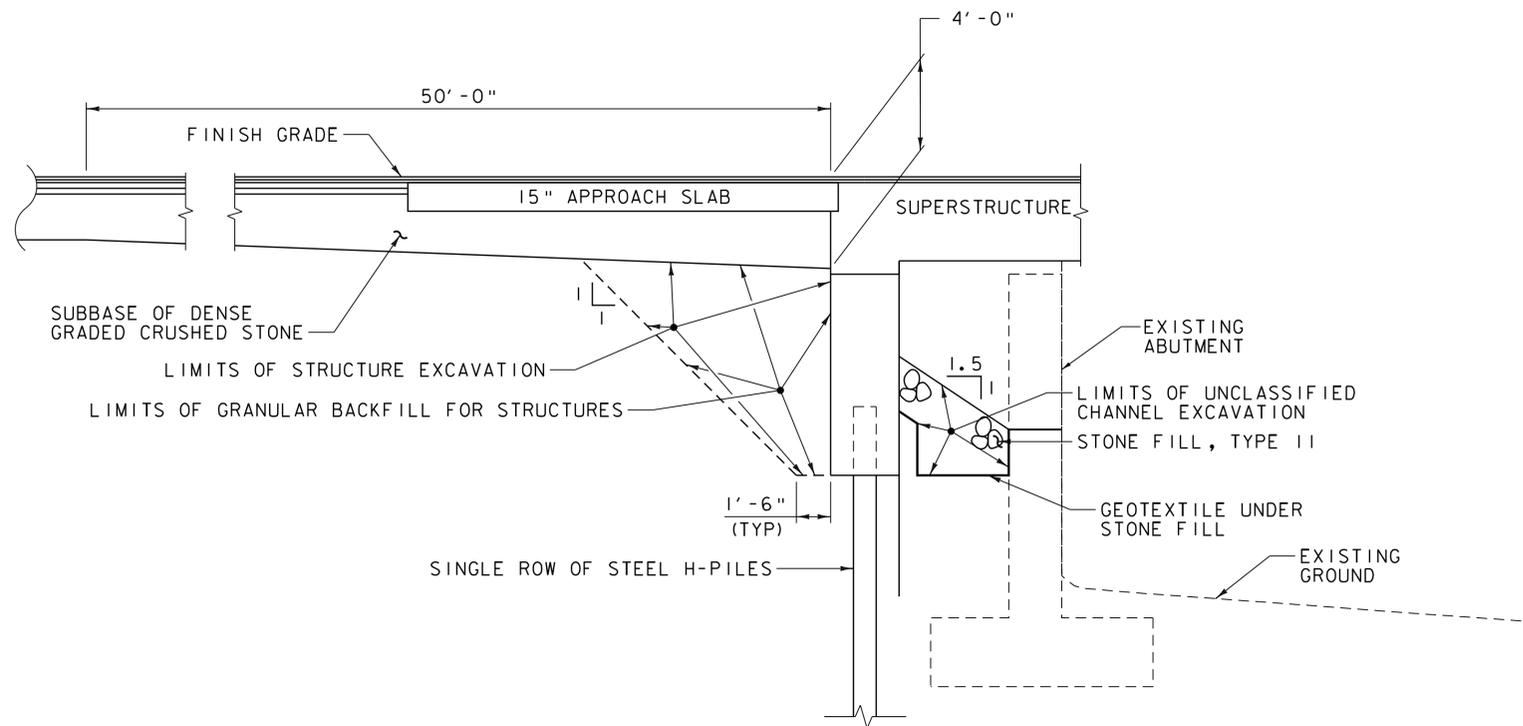


NOTE: COST FOR FORMING AND COMPACTING SAFETY EDGE SHALL BE INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

SAFETY EDGE DETAIL
 NOT TO SCALE

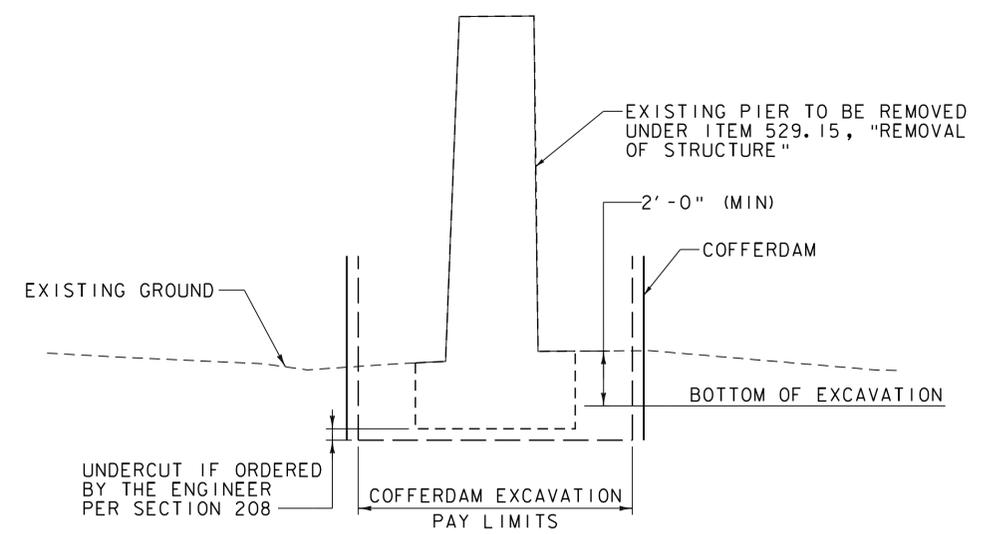
PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10j068typ.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	SHEET 4 OF 39
DESIGNED BY: A.P. GUYETTE	
TYPICAL ROADWAY SECTIONS	





NOTE: ACTUAL EXCAVATION LIMITS SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". EXCAVATION OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.

ABUTMENT EARTHWORK SECTION
NOT TO SCALE

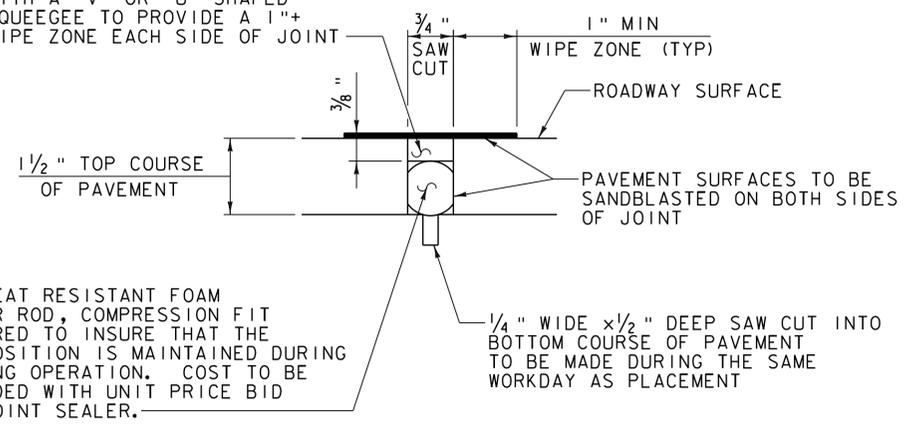


PIER COFFERDAM SECTION
NOT TO SCALE

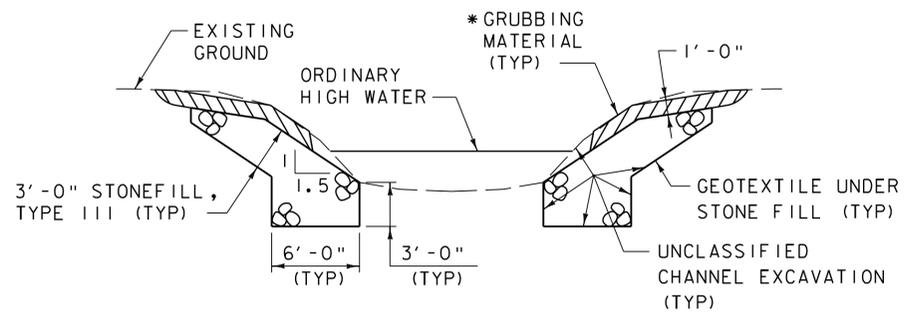
COFFERDAM NOTES

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF EITHER "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.

JOINT SEALER, HOT POURED SHALL BE SLIGHTLY OVER FILLED THEN WIPED FLUSH WITH A "V" OR "U" SHAPED SQUEEGEE TO PROVIDE A 1"± WIPE ZONE EACH SIDE OF JOINT



SAW CUT JOINT DETAIL
NOT TO SCALE



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10j068typ.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	SHEET 5 OF 39
DESIGNED BY: A.P. GUYETTE	TYPICAL EARTHWORK SECTIONS

GPS CONTROL POINTS

VCTRL #100

U 61 1980
 NORTH = 324010.8480
 EAST = 1597887.2000
 ELEV. = 960.5460

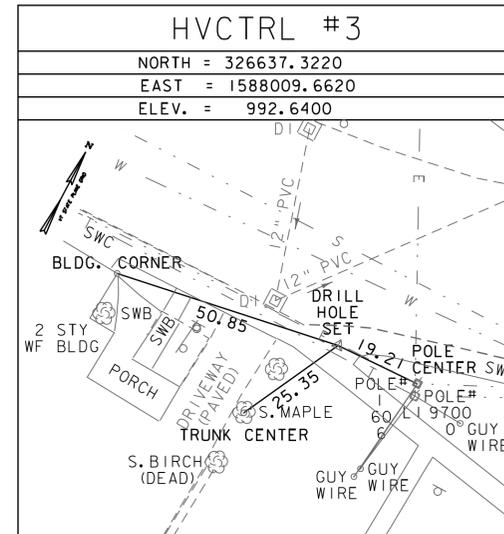
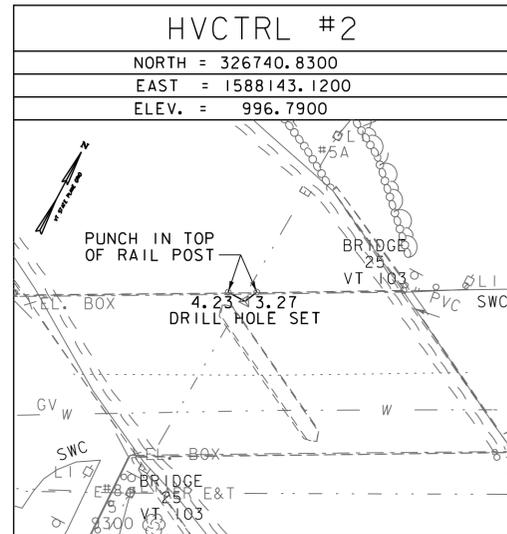
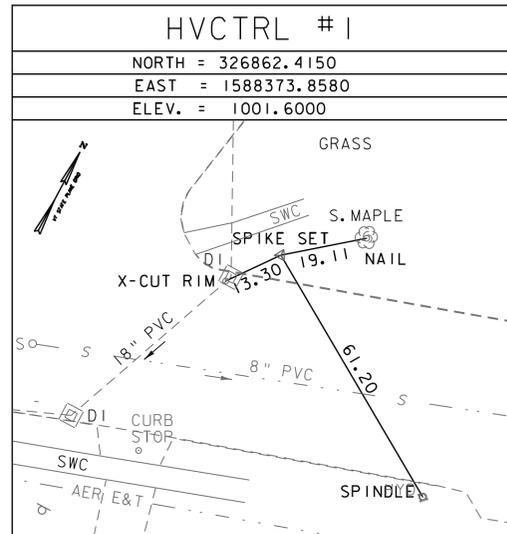
GENERAL LOCATION LUDLOW, VT. MARK IS LOCATED 2.4 MI (3.9 KM) EAST ALONG VT ROUTE 103 FROM THE POST OFFICE IN LUDLOW, SET NORTH OF THE HIGHWAY ON THE SOUTH SIDE OF AN OUTCROP OF BEDROCK IN A FIELD JUST WEST OF A WHITE WOOD FRAMED HOUSE, 161 FT (49 M) WEST OF THE NORTHWEST CORNER OF THE HOUSE, 141 FT (43 M) NORTH OF THE CENTER LINE OF THE HIGHWAY, 21 FT (6.4 M) EAST OF THE WEST END OF THE ROCK OUTCROP. THE MARK IS 5.91 FT (1.80 M) NORTHWEST FROM A WITNESS POST. THE MARK IS 2.56 FT (0.78 M) ABOVE GROUND.

HVCTRL #101

BRIGADE AZ MK 2006
 NORTH = 326083.6150
 EAST = 1591965.7870
 ELEV. = 971.7550

GENERAL LOCATION LUDLOW, VT. THE MARK IS LOCATED 1 MILE EAST OF VT ROUTE 100 (ANDOVER ST). IT IS SET 0.10 FT (3 CM) BELOW GROUND SURFACE IN THE TOP OF A 1.0 FT (30 CM) DIAMETER CONCRETE MONUMENT, JUST EAST OF BROOKHAVEN RESORT. IT IS 23.3 FT (7.1 M) SOUTHWEST OF AND ABOUT 1.0 FT (0.3 M) LOWER THAN THE CENTERLINE OF VT ROUTE 103 (MAIN ST), 70.5 FT (21.5 M) SE OF POLE NO 7/24, 48.9 FT (14.9 M) NW OF POLE NO 7/25, 46.3 FT (14.1 M) EAST OF A 1.5 INCH DIAMETER IRON PIPE WHICH PROJECTS 1.6 FT (0.5 M) ABOVE GROUND SURFACE, AND 86.0 FT (26.2 M) ENE OF THE NE CORNER OF A WOODEN FENCE ENCLOSURE FOR A TENNIS COURT.

TRAVERSE TIES

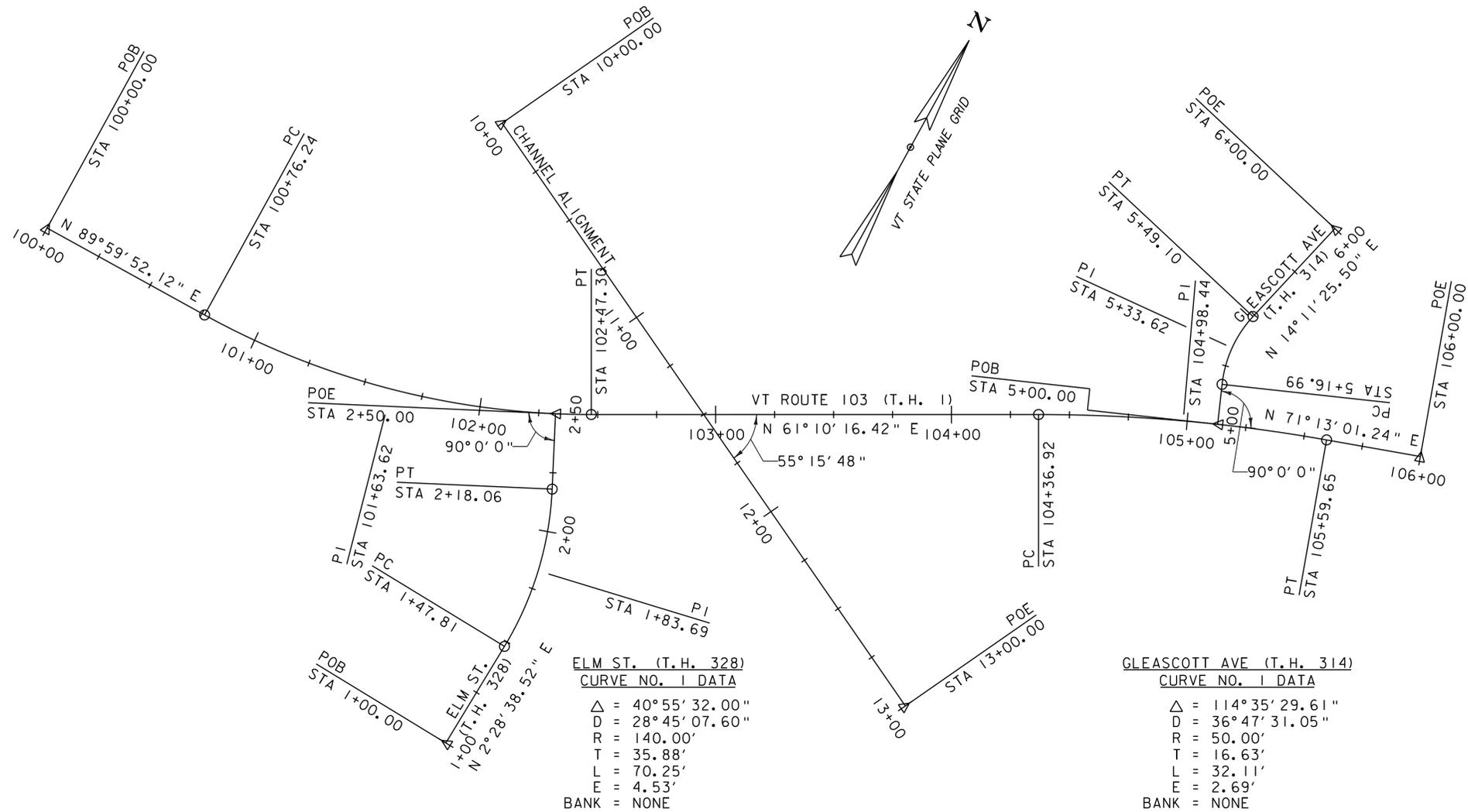


* Main Traverse Completed 11/29/10 by T.J.Gaudet and B.M.Klinefelter

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (07)

PROJECT NAME: LUDLOW	
PROJECT NUMBER: BRF 025-1(42)	
FILE NAME: z10j068t1.dgn	PLOT DATE: 2/19/2015
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: B.M. KLINEFELTER
DESIGNED BY: B.M. KLINEFELTER	CHECKED BY: A.P. GUYETTE
TIE SHEET	SHEET 7 OF 39





VT ROUTE 103 (T.H. 1) CURVE NO. 1 DATA		VT ROUTE 103 (T.H. 1) CURVE NO. 2 DATA	
Δ	= 16°51'06.12"	Δ	= 8°11'06.40"
D	= 28°49'35.70"	D	= -10°02'44.82"
R	= 340.00'	R	= 700.00'
T	= 87.38'	T	= 61.52'
L	= 171.06'	L	= 122.73'
E	= 11.05'	E	= 2.70'
BANK	= NONE	BANK	= NONE

VT ROUTE 103 (T.H. 1) ALIGNMENT

HORIZONTAL ALIGNMENT NAME: VT103proposed			
STATION	NORTHING	EASTING	
ELEMENT: LINEAR			
POB	100+00.00	326656.3297	1587862.5569
PC	100+76.24	326656.3326	1587938.7921
TANGENT DIRECTION: N 89°59'52.12" E			
TANGENT LENGTH: 76.24			
ELEMENT: CIRCULAR			
PC	100+76.24	326656.3326	1587938.7921
PI	101+63.62	326656.3359	1588026.1733
CC		326996.3326	1587938.7791
PT	102+47.30	326870.0635	1588328.5140
RADIUS: 340.00			
DELTA: 28°49'35.70" LEFT			
DEGREE OF CURVATURE (ARC): 16°51'06.12"			
LENGTH: 171.06			
TANGENT: 87.38			
CHORD: 169.26			
MIDDLE ORDINATE: 10.70			
EXTERNAL: 11.05			
ELEMENT: LINEAR			
PT	102+47.30	326698.4706	1588102.7249
POE	104+36.92	326789.9063	1588268.8482
TANGENT DIRECTION: N 61°10'16.42" E			
TANGENT LENGTH: 189.62			
ELEMENT: CIRCULAR			
PC	104+36.92	326789.9063	1588268.8482
PI	104+98.44	326819.5727	1588322.7471
CC		326176.6610	1588606.3837
PT	105+59.65	326839.3824	1588380.9945
RADIUS: 700.00			
DELTA: 10°02'44.82" RIGHT			
DEGREE OF CURVATURE (ARC): 08°11'06.40"			
LENGTH: 122.73			
TANGENT: 61.52			
CHORD: 122.58			
MIDDLE ORDINATE: 2.69			
EXTERNAL: 2.70			
ELEMENT: LINEAR			
PT	105+59.65	326839.3824	1588380.9945
POE	106+00.00	326852.3738	1588419.1934
TANGENT DIRECTION: N 71°13'01.24" E			
TANGENT LENGTH: 40.35			

ELM ST. (T.H. 328) ALIGNMENT

HORIZONTAL ALIGNMENT NAME: TH328prop			
STATION	NORTHING	EASTING	
ELEMENT: LINEAR			
POB	1+00.00	326547.0366	1588115.6916
PC	1+47.81	326594.8020	1588117.7581
TANGENT DIRECTION: N 2°28'38.52" E			
TANGENT LENGTH: 47.81			
ELEMENT: CIRCULAR			
PC	1+47.81	326594.8020	1588117.7581
PI	1+83.69	326630.6520	1588119.3092
CC		326600.8535	1587977.8890
PT	2+18.06	326662.8281	1588103.4244
RADIUS: 140.00			
DELTA: 28°45'07.60" LEFT			
DEGREE OF CURVATURE (ARC): 40°55'32.00"			
LENGTH: 70.25			
TANGENT: 35.88			
CHORD: 69.52			
MIDDLE ORDINATE: 4.38			
EXTERNAL: 4.53			
ELEMENT: LINEAR			
PT	2+18.06	326662.8281	1588103.4244
POE	2+50.00	326691.4608	1588089.2889
TANGENT DIRECTION: N 26°16'29.08" W			
TANGENT LENGTH: 31.93			

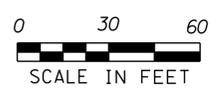
GLEASCOTT AVE (T.H. 314) ALIGNMENT

HORIZONTAL ALIGNMENT NAME: TH314prop			
STATION	NORTHING	EASTING	
ELEMENT: LINEAR			
POB	5+00.00	326822.9009	1588337.3596
PC	5+16.99	326838.5903	1588330.8283
TANGENT DIRECTION: N 22°36'05.55" W			
TANGENT LENGTH: 16.99			
ELEMENT: CIRCULAR			
PC	5+16.99	326838.5903	1588330.8283
PI	5+33.62	326853.9421	1588324.4375
CC		326857.8063	1588376.9883
PT	5+49.10	326870.0635	1588328.5140
RADIUS: 50.00			
DELTA: 36°47'31.05" RIGHT			
DEGREE OF CURVATURE (ARC): 114°35'29.61"			
LENGTH: 32.11			
TANGENT: 16.63			
CHORD: 31.56			
MIDDLE ORDINATE: 2.56			
EXTERNAL: 2.69			
ELEMENT: LINEAR			
PT	5+49.10	326870.0635	1588328.5140
POE	6+00.00	326919.4089	1588340.9915
TANGENT DIRECTION: N 14°11'25.50" E			
TANGENT LENGTH: 50.90			

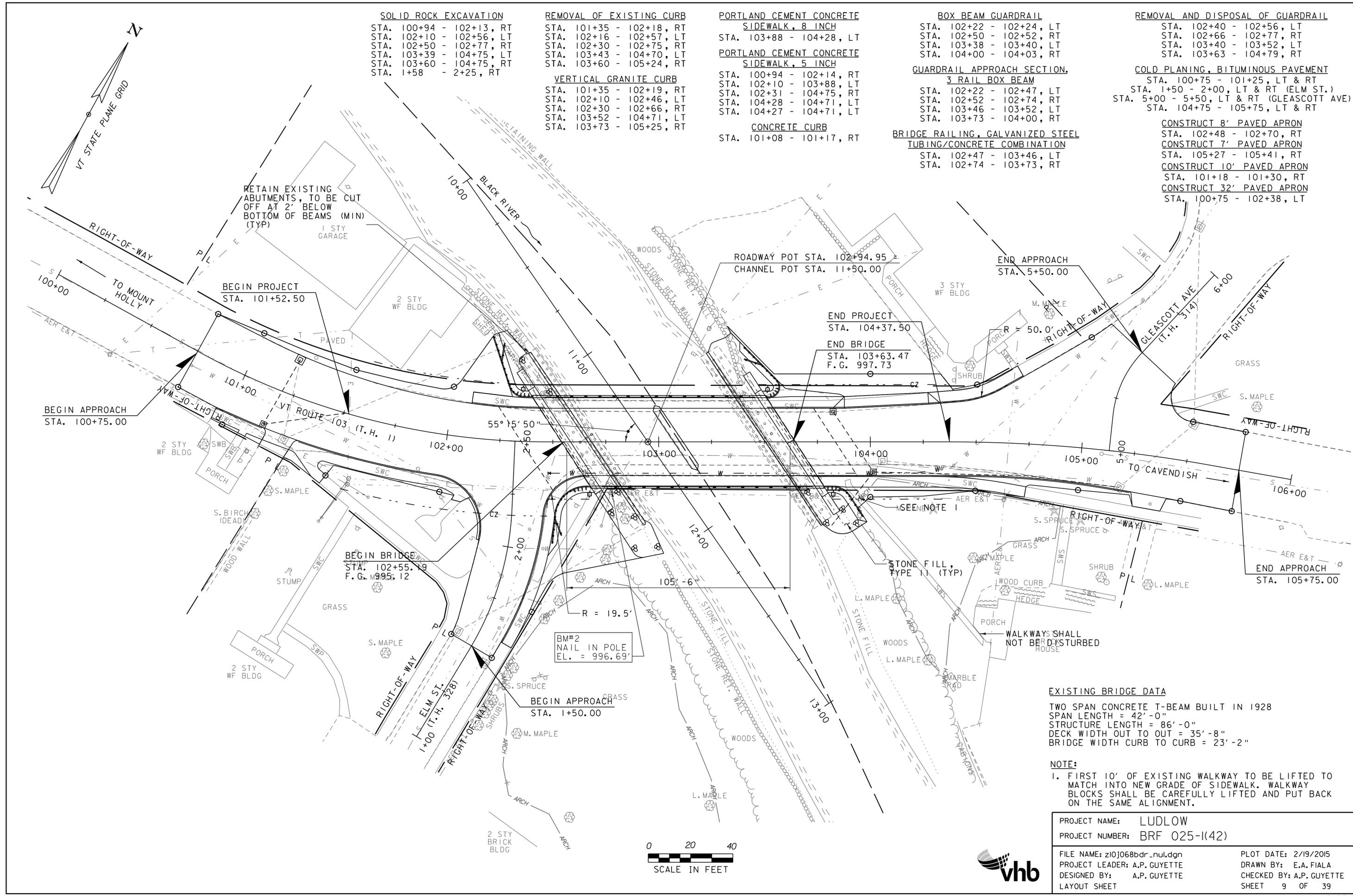
CHANNEL ALIGNMENT

HORIZONTAL ALIGNMENT NAME: BR25channel			
STATION	NORTHING	EASTING	
ELEMENT: LINEAR			
POB	10+00.00	326788.2249	1588010.1548
POE	13+00.00	326654.6712	1588278.7873
TANGENT DIRECTION: S 63°33'54.71" E			
TANGENT LENGTH: 300.00			

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (07)



PROJECT NAME:	LUDLOW	FILE NAME:	z10j068align.dgn	PLOT DATE:	2/19/2015
PROJECT NUMBER:	BRF 025-1(42)	PROJECT LEADER:	A.P. GUYETTE	DRAWN BY:	E.A. FIALA
		DESIGNED BY:	A.P. GUYETTE	CHECKED BY:	A.P. GUYETTE
		ALIGNMENT LAYOUT SHEET		SHEET	8 OF 39



SOLID ROCK EXCAVATION
 STA. 100+94 - 102+13, RT
 STA. 102+10 - 102+56, LT
 STA. 102+50 - 102+77, RT
 STA. 103+39 - 104+75, LT
 STA. 103+60 - 104+75, RT
 STA. 1+58 - 2+25, RT

REMOVAL OF EXISTING CURB
 STA. 101+35 - 102+18, RT
 STA. 102+16 - 102+57, LT
 STA. 102+30 - 102+75, RT
 STA. 103+43 - 104+70, LT
 STA. 103+60 - 105+24, RT

VERTICAL GRANITE CURB
 STA. 101+35 - 102+19, RT
 STA. 102+10 - 102+46, LT
 STA. 102+30 - 102+66, RT
 STA. 103+52 - 104+71, LT
 STA. 103+73 - 105+25, RT

PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH
 STA. 103+88 - 104+28, LT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
 STA. 100+94 - 102+14, RT
 STA. 102+10 - 103+88, LT
 STA. 102+31 - 104+75, RT
 STA. 104+28 - 104+71, LT
 STA. 104+27 - 104+71, LT

CONCRETE CURB
 STA. 101+08 - 101+17, RT

BOX BEAM GUARDRAIL
 STA. 102+22 - 102+24, LT
 STA. 102+50 - 102+52, RT
 STA. 103+38 - 103+40, LT
 STA. 104+00 - 104+03, RT

GUARDRAIL APPROACH SECTION, 3 RAIL BOX BEAM
 STA. 102+22 - 102+47, LT
 STA. 102+52 - 102+74, RT
 STA. 103+46 - 103+52, LT
 STA. 103+73 - 104+00, RT

BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION
 STA. 102+47 - 103+46, LT
 STA. 102+74 - 103+73, RT

REMOVAL AND DISPOSAL OF GUARDRAIL
 STA. 102+40 - 102+56, LT
 STA. 102+66 - 102+77, RT
 STA. 103+40 - 103+52, LT
 STA. 103+63 - 104+79, RT

COLD PLANING, BITUMINOUS PAVEMENT
 STA. 100+75 - 101+25, LT & RT
 STA. 1+50 - 2+00, LT & RT (ELM ST.)
 STA. 5+00 - 5+50, LT & RT (GLEASCOTT AVE)
 STA. 104+75 - 105+75, LT & RT

CONSTRUCT 8' PAVED APRON
 STA. 102+48 - 102+70, RT

CONSTRUCT 7' PAVED APRON
 STA. 105+27 - 105+41, RT

CONSTRUCT 10' PAVED APRON
 STA. 101+18 - 101+30, RT

CONSTRUCT 32' PAVED APRON
 STA. 100+75 - 102+38, LT

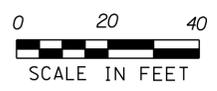
EXISTING BRIDGE DATA
 TWO SPAN CONCRETE T-BEAM BUILT IN 1928
 SPAN LENGTH = 42'-0"
 STRUCTURE LENGTH = 86'-0"
 DECK WIDTH OUT TO OUT = 35'-8"
 BRIDGE WIDTH CURB TO CURB = 23'-2"

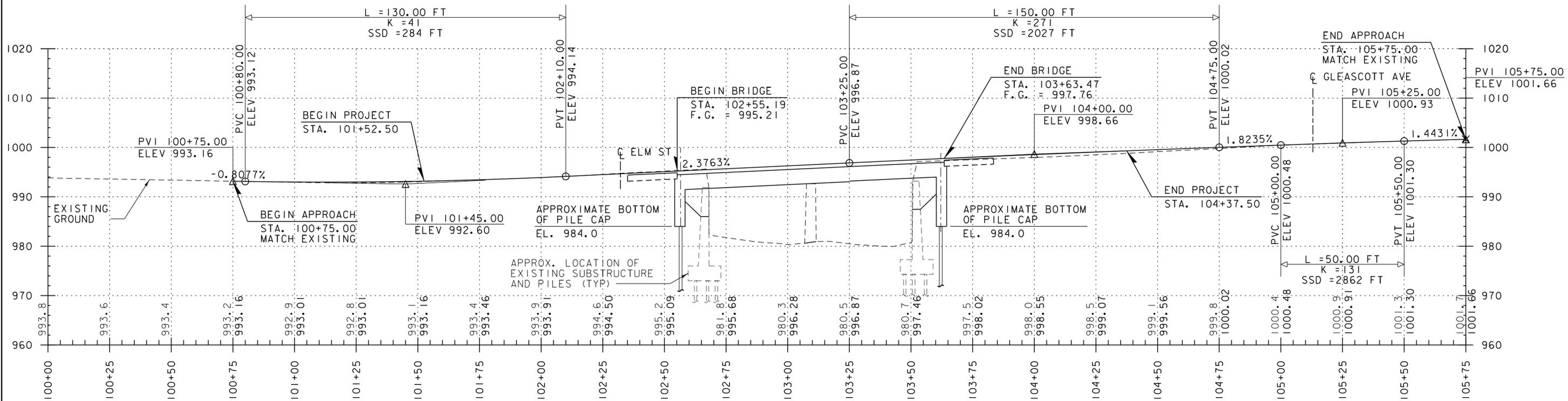
NOTE:
 1. FIRST 10' OF EXISTING WALKWAY TO BE LIFTED TO MATCH INTO NEW GRADE OF SIDEWALK. WALKWAY BLOCKS SHALL BE CAREFULLY LIFTED AND PUT BACK ON THE SAME ALIGNMENT.

PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)

FILE NAME: z10j068bdr_nul.dgn
 PROJECT LEADER: A.P. GUYETTE
 DESIGNED BY: A.P. GUYETTE
 LAYOUT SHEET

PLOT DATE: 2/19/2015
 DRAWN BY: E.A. FIALA
 CHECKED BY: A.P. GUYETTE
 SHEET 9 OF 39

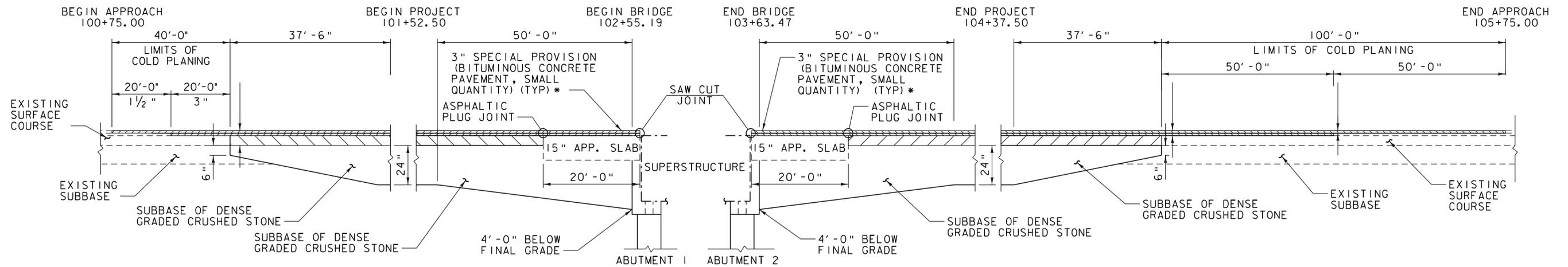




VERMONT ROUTE 103 (T.H. 1) PROFILE

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

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



* WHERE COLD PLANE 1 1/2": (1) - 1 1/2" LIFT OF TYPE IV
WHERE COLD PLANE 3": (2) - 1 1/2" LIFTS OF TYPE IVS
AT 9" PAVEMENT: (2) - 1 1/2" LIFTS OF TYPE IVS OVER
(2) - 3" LIFTS OF TYPE IIS

BEGIN PROJECT MATERIAL TRANSITION

NOT TO SCALE

END PROJECT MATERIAL TRANSITION

NOT TO SCALE

NOTES:

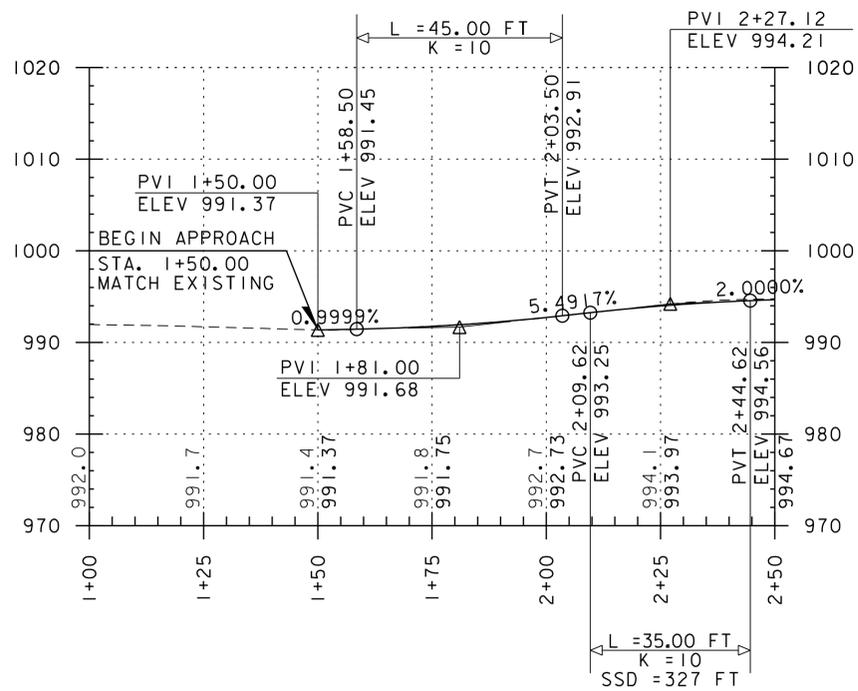
- SEE TYPICAL ROADWAY SECTIONS FOR INFORMATION NOT SHOWN.
- EMULSIFIED ASPHALT IS TO BE APPLIED AT A RATE OF 0.040 GAL/SY BETWEEN ALL LIFTS OF BITUMINOUS CONCRETE PAVEMENT AND ON THE EXISTING PAVEMENT AND THE APPROACH SLAB PRIOR TO PLACING THE FIRST LIFT, AS DIRECTED BY THE ENGINEER.



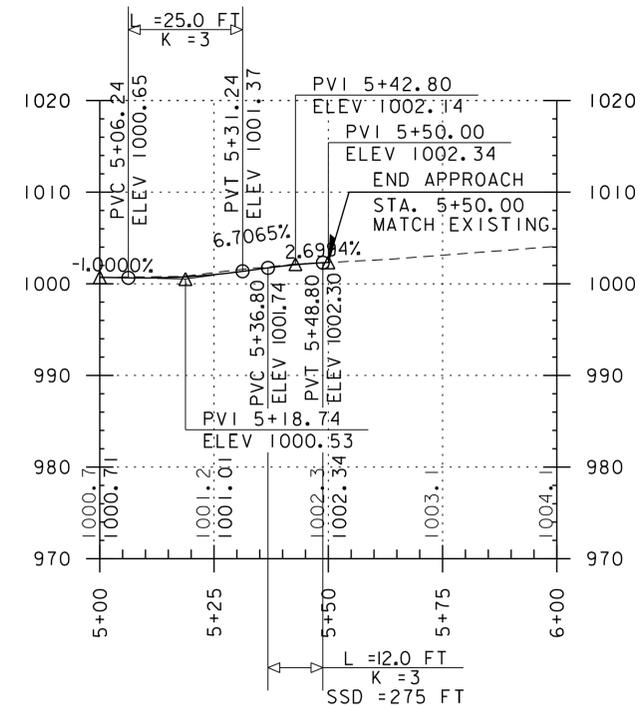
PROJECT NAME: LUDLOW
PROJECT NUMBER: BR 025-1(42)

FILE NAME: z10j068pro.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: E.A. FIALA
PROFILE SHEET

PLOT DATE: 2/19/2015
DRAWN BY: E.A. FIALA
CHECKED BY: A.P. GUYETTE
SHEET 10 OF 39



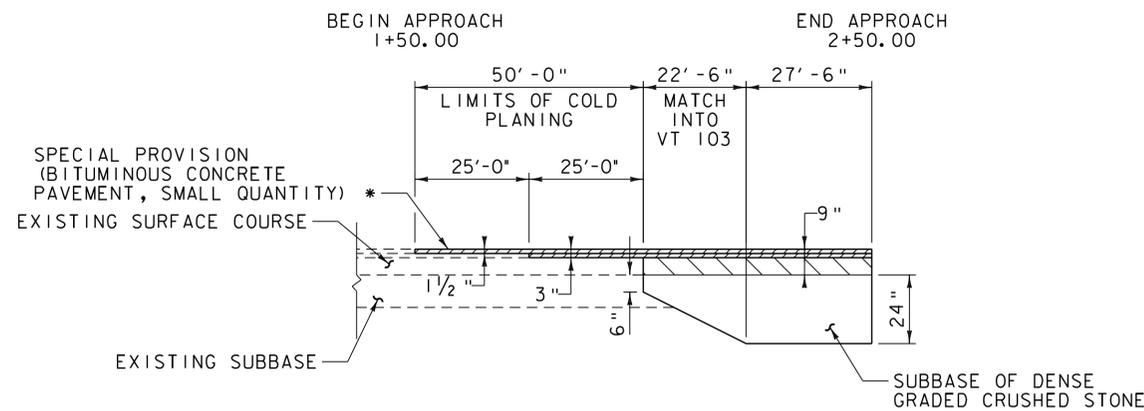
ELM ST. (T.H. 328) PROFILE
 SCALE 1" = 20' HORIZONTAL
 1" = 10' VERTICAL



GLEASCOTT AVE (T.H. 314) PROFILE
 SCALE 1" = 20' HORIZONTAL
 1" = 10' VERTICAL

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

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

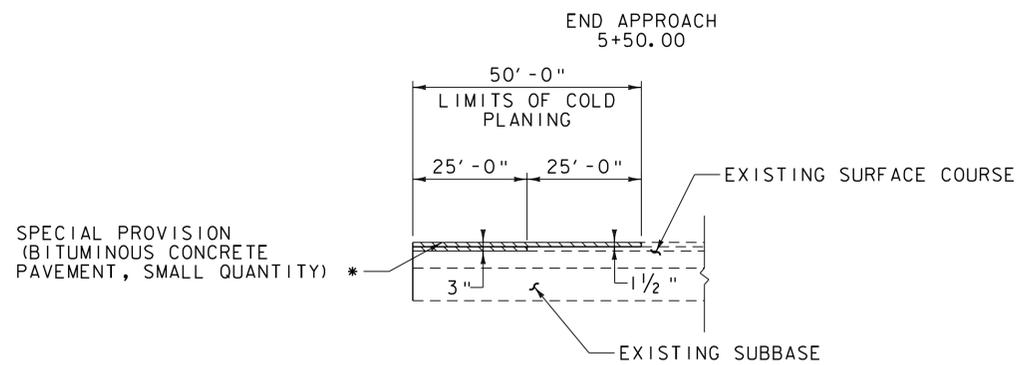


* WHERE COLD PLANE 1 1/2": (1) - 1 1/2" LIFT OF TYPE IV
 WHERE COLD PLANE 3": (2) - 1 1/2" LIFTS OF TYPE IVS

AT 9" PAVEMENT:
 (2) - 1 1/2" LIFTS OF TYPE IVS OVER
 (2) - 3" LIFTS OF TYPE IIS

BEGIN PROJECT MATERIAL TRANSITION (ELM ST.)
 NOT TO SCALE

NOTE:
 1. SEE TYPICAL ROADWAY SECTIONS FOR INFORMATION NOT SHOWN.



* WHERE COLD PLANE 1 1/2": (1) - 1 1/2" LIFT OF TYPE IV
 WHERE COLD PLANE 3": (2) - 1 1/2" LIFTS OF TYPE IVS

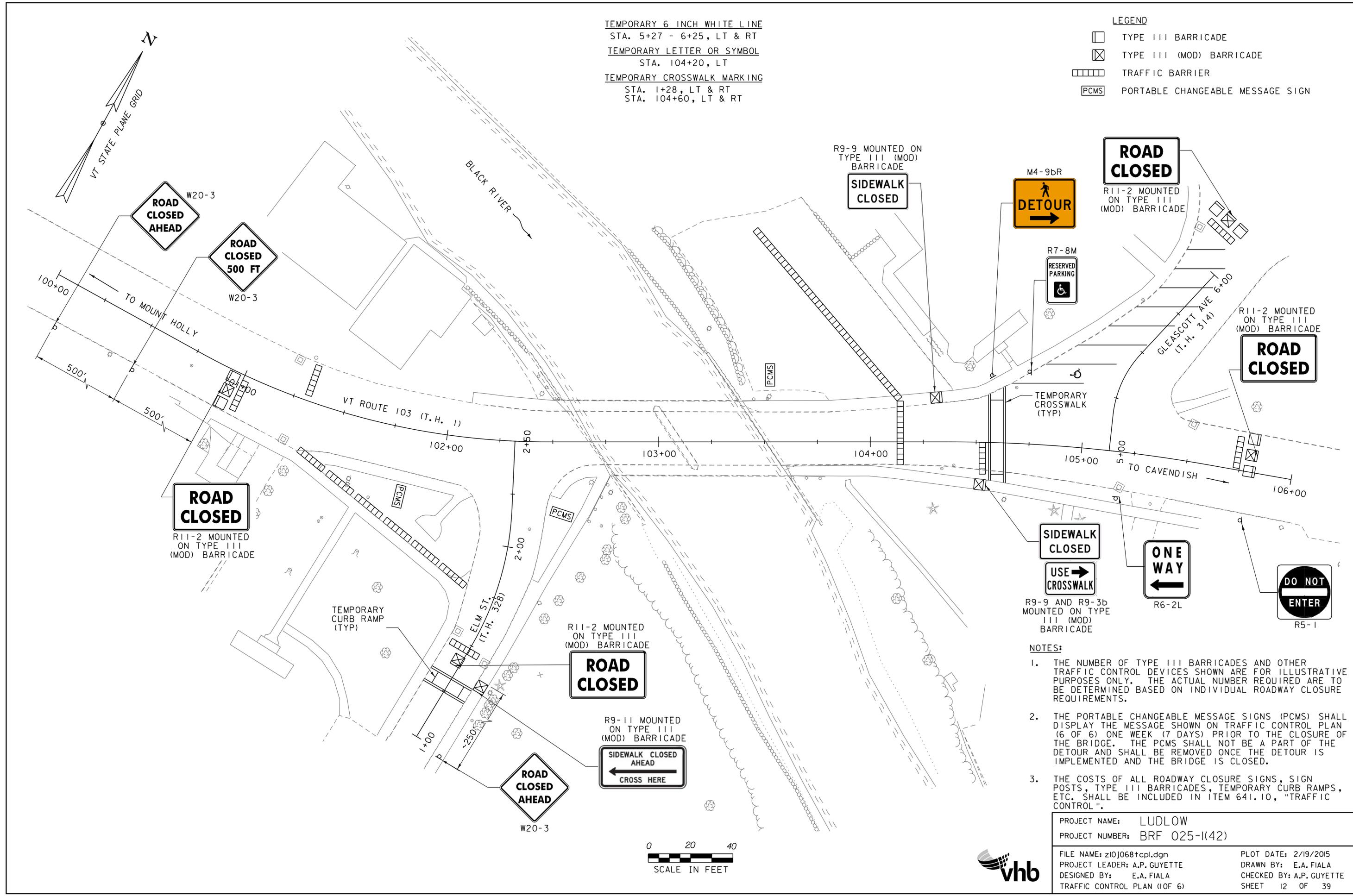
END PROJECT MATERIAL TRANSITION (GLEASCOTT AVE)
 NOT TO SCALE



PROJECT NAME:	LUDLOW
PROJECT NUMBER:	BRF 025-1(42)
FILE NAME:	z10j068pro.dgn
PROJECT LEADER:	A.P. GUYETTE
DESIGNED BY:	E.A. FIALA
SIDE ROAD PROFILE SHEET	
PLOT DATE:	2/19/2015
DRAWN BY:	E.A. FIALA
CHECKED BY:	A.P. GUYETTE
SHEET	II OF 39

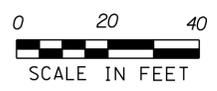
TEMPORARY 6 INCH WHITE LINE
 STA. 5+27 - 6+25, LT & RT
 TEMPORARY LETTER OR SYMBOL
 STA. 104+20, LT
 TEMPORARY CROSSWALK MARKING
 STA. 1+28, LT & RT
 STA. 104+60, LT & RT

LEGEND
 □ TYPE III BARRICADE
 ⊠ TYPE III (MOD) BARRICADE
 ▬ TRAFFIC BARRIER
 [PCMS] PORTABLE CHANGEABLE MESSAGE SIGN



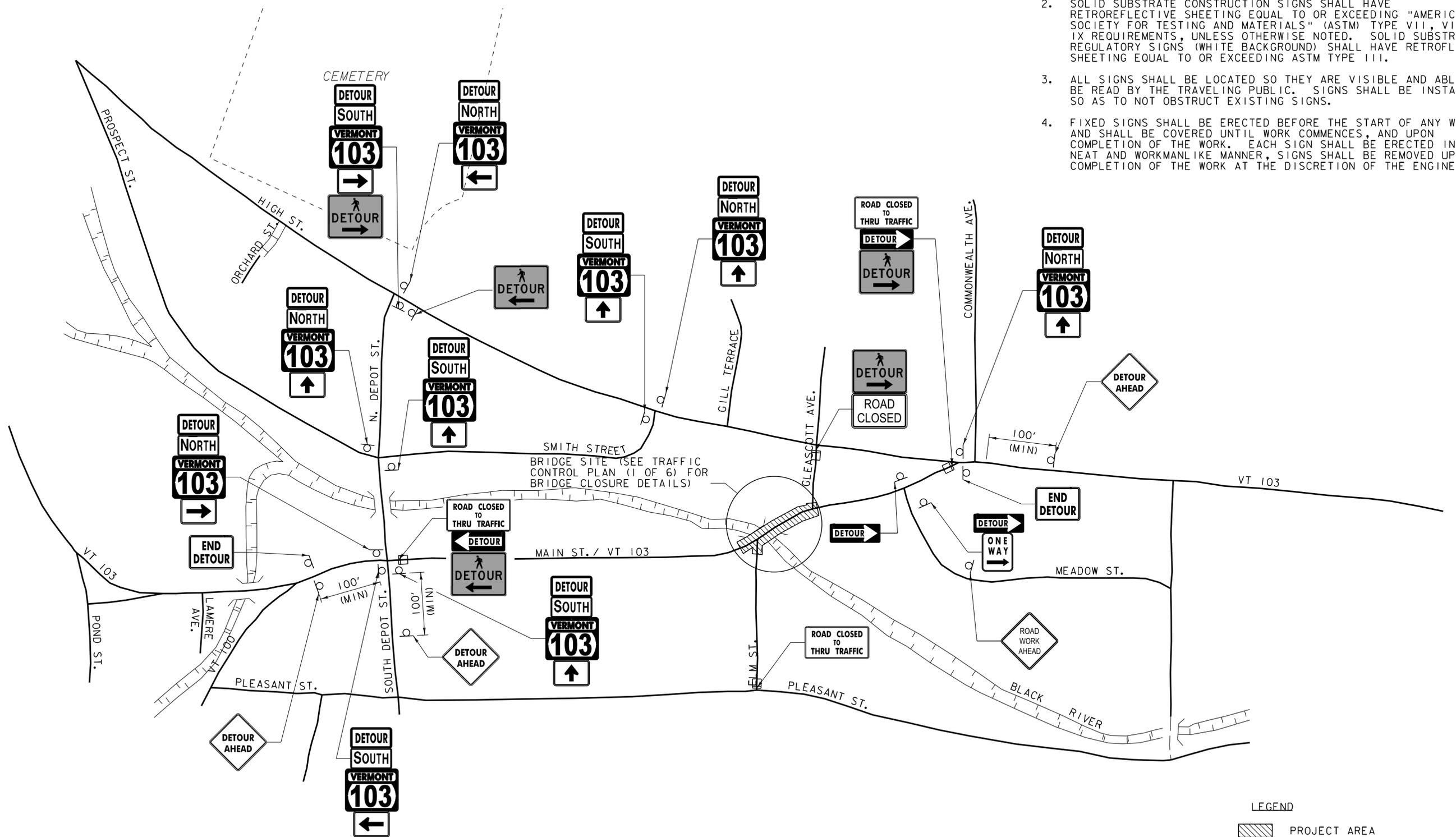
- NOTES:**
1. THE NUMBER OF TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL ROADWAY CLOSURE REQUIREMENTS.
 2. THE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL DISPLAY THE MESSAGE SHOWN ON TRAFFIC CONTROL PLAN (6 OF 6) ONE WEEK (7 DAYS) PRIOR TO THE CLOSURE OF THE BRIDGE. THE PCMS SHALL NOT BE A PART OF THE DETOUR AND SHALL BE REMOVED ONCE THE DETOUR IS IMPLEMENTED AND THE BRIDGE IS CLOSED.
 3. THE COSTS OF ALL ROADWAY CLOSURE SIGNS, SIGN POSTS, TYPE III BARRICADES, TEMPORARY CURB RAMPS, ETC. SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL".

PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)
 FILE NAME: z10j068tcpl.dgn
 PROJECT LEADER: A.P. GUYETTE
 DESIGNED BY: E.A. FIALA
 TRAFFIC CONTROL PLAN (1 OF 6)
 PLOT DATE: 2/19/2015
 DRAWN BY: E.A. FIALA
 CHECKED BY: A.P. GUYETTE
 SHEET 12 OF 39



NOTES:

1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
2. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII, OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED. SOLID SUBSTRATE REGULATORY SIGNS (WHITE BACKGROUND) SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE III.
3. ALL SIGNS SHALL BE LOCATED SO THEY ARE VISIBLE AND ABLE TO BE READ BY THE TRAVELING PUBLIC. SIGNS SHALL BE INSTALLED SO AS TO NOT OBSTRUCT EXISTING SIGNS.
4. FIXED SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, AND 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.



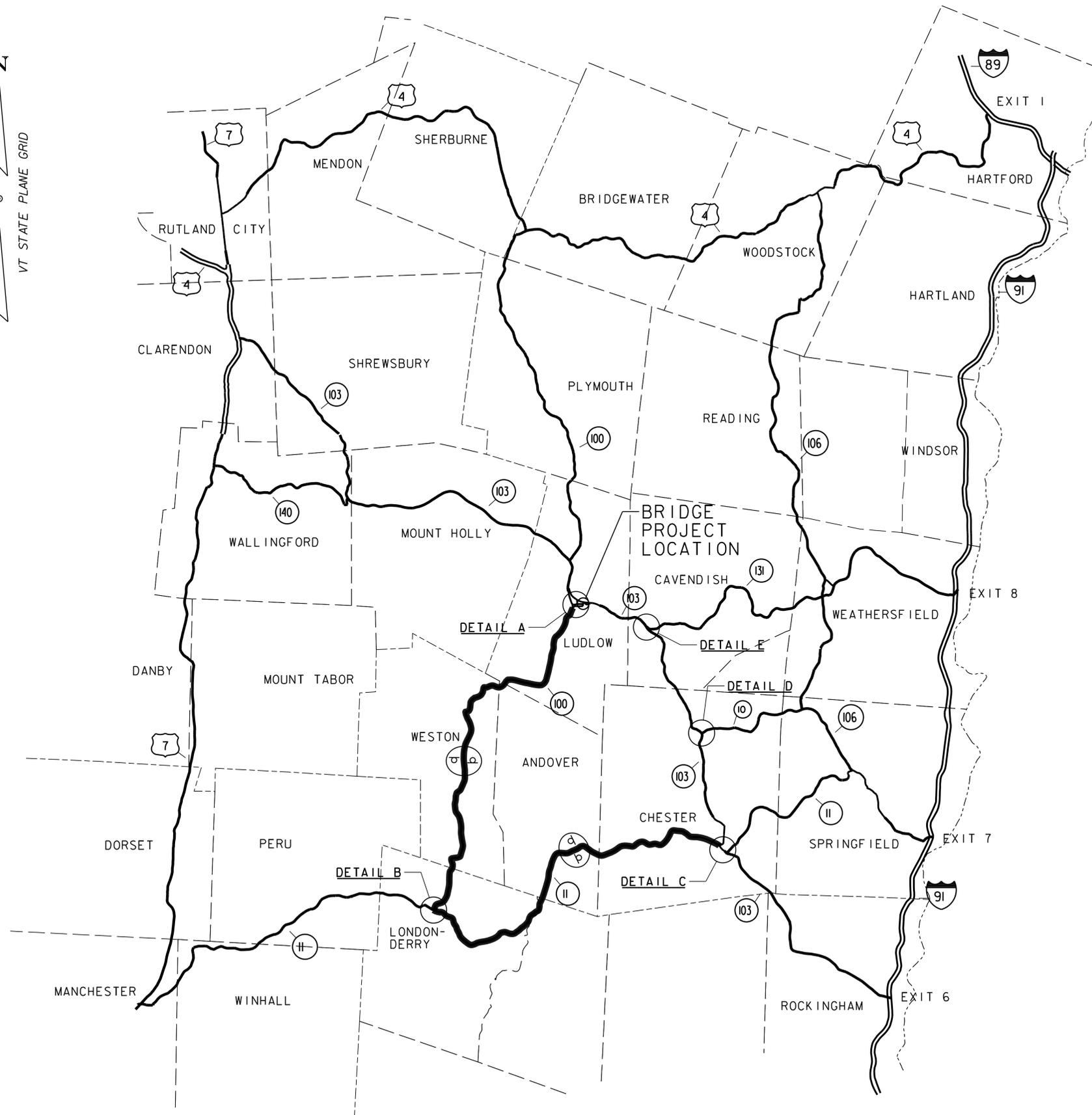
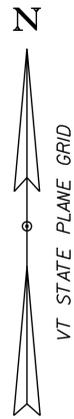
LOCAL DETOUR
NOT TO SCALE

LEGEND

-  PROJECT AREA
-  TYPE III BARRICADE

PROJECT NAME: LUDLOW	
PROJECT NUMBER: BR 025-1(42)	
FILE NAME: z10j068tcp2.dgn	PLOT DATE: 2/19/2015
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: A.P. GUYETTE
TRAFFIC CONTROL PLAN (2 OF 6)	SHEET 13 OF 39





REGIONAL TRAFFIC DETOUR

TRAFFIC CONTROL NOTES:

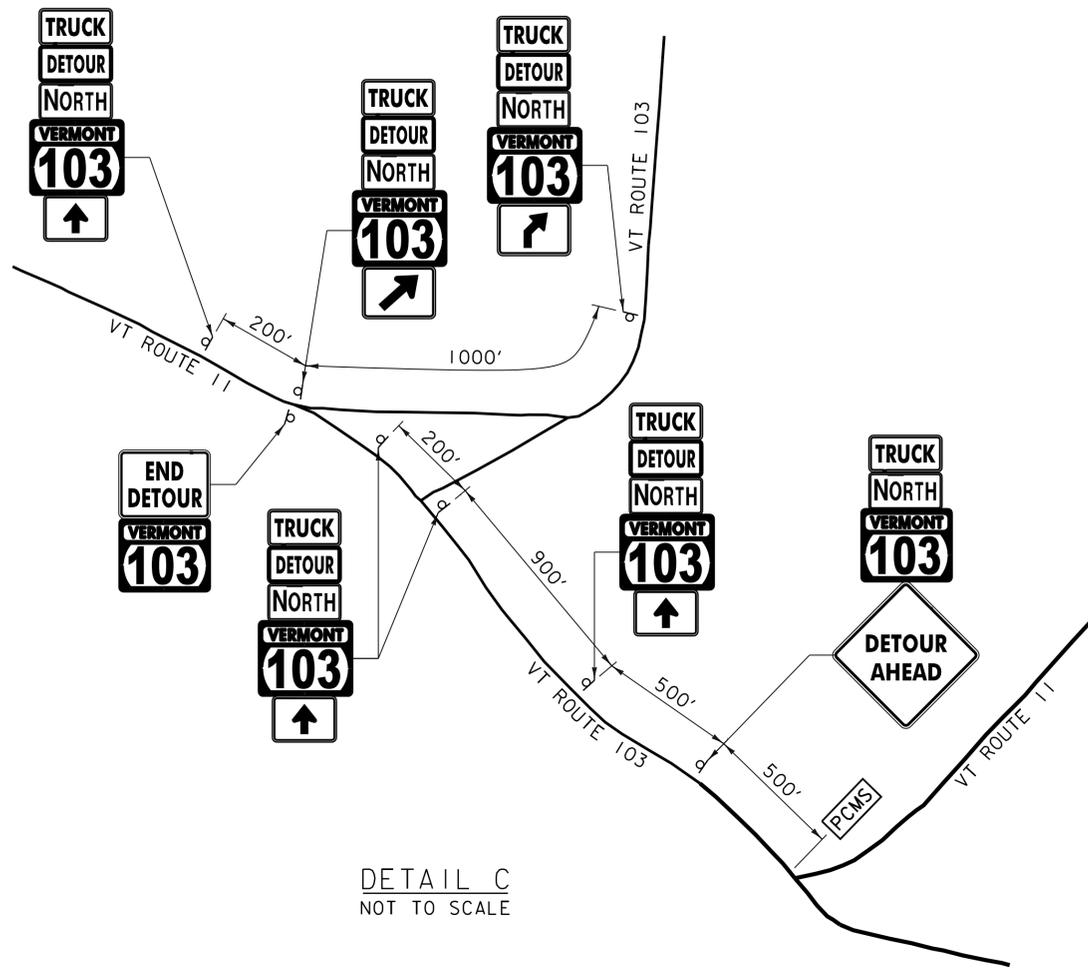
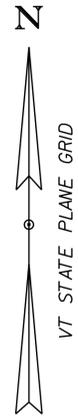
1. SEE TRAFFIC CONTROL PLAN 1, 2 AND 6 FOR ADDITIONAL NOTES.
2. INSTALL CONFIRMATORY ROUTE MARKERS ALONG THE DETOUR ROUTE AT LOCATIONS AS INDICATED ON THIS PLAN.
3. WHEN EXISTING ROUTE MARKER ASSEMBLIES ARE LOCATED AT THE INTERSECTIONS OR ALONG THE DETOUR ROUTE, THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES.
4. 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.
5. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED OFF THE EDGE OF THE ROADWAY, OUTSIDE THE CLEAR ZONE, BUT SHALL BE VISIBLE FROM THE ROADWAY. ANY VEGETATION THAT INTERFERES WITH VISIBILITY OF THE PCMS SHALL BE REMOVED. REMOVAL OF THE VEGETATION SHALL BE INCIDENTAL TO ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN". WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
6. THE PCMS SHALL BE USED IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD.
7. SEE TRAFFIC CONTROL PLANS 4-5 FOR DETAILS A-E.

LEGEND

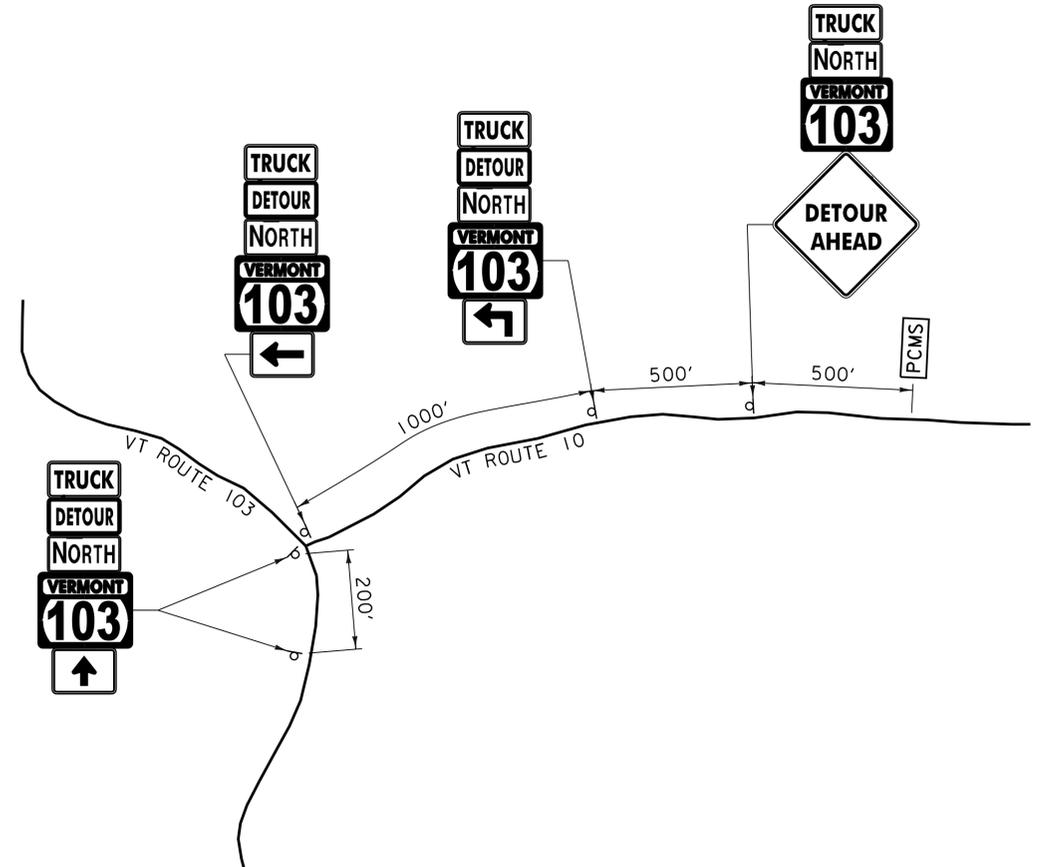
 CONFIRMATORY ROUTE MARKER ASSEMBLY (SEE NOTE 2 AND 3 ABOVE)

PROJECT NAME: LUDLOW	
PROJECT NUMBER: BRF 025-1(42)	
FILE NAME: z10j068detour.dgn	PLOT DATE: 2/19/2015
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: E.A. FIALA
DESIGNED BY: A. GUYETTE	CHECKED BY: A.P. GUYETTE
TRAFFIC CONTROL PLAN (3 OF 6)	SHEET 14 OF 39

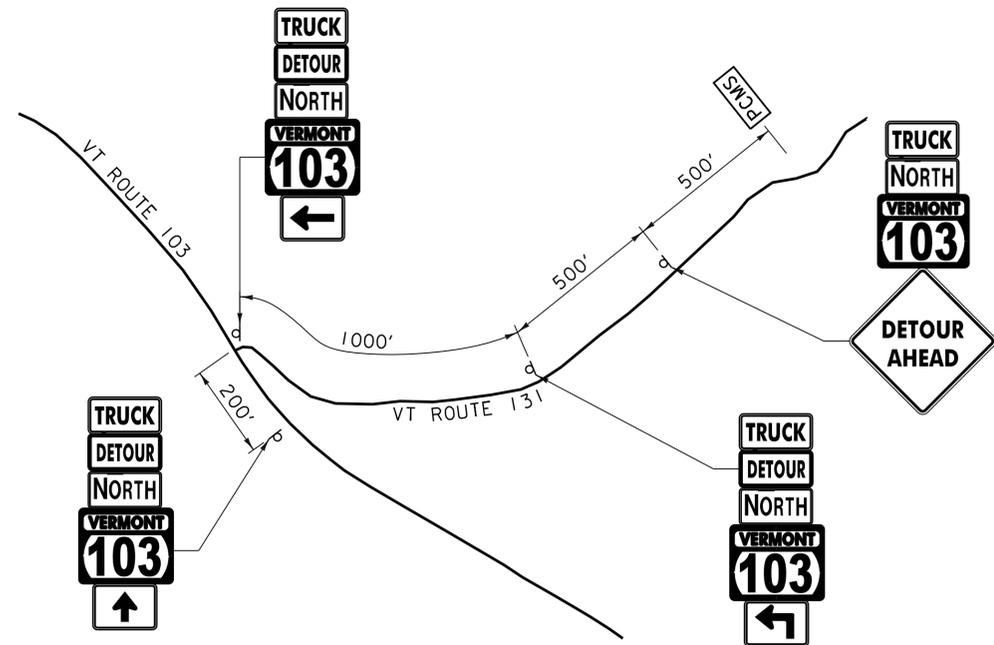




DETAIL C
NOT TO SCALE



DETAIL D
NOT TO SCALE



DETAIL E
NOT TO SCALE

LEGEND

 PORTABLE CHANGEABLE MESSAGE SIGN

NOTE:

1. SEE TRAFFIC CONTROL PLAN (6 OF 6) FOR PCMS MESSAGES.
2. WHEN EXISTING ROUTE MARKER ASSEMBLIES ARE LOCATED AT THE INTERSECTIONS OR ALONG THE DETOUR ROUTE, THE DETOUR ROUTE MARKER ASSEMBLIES SHALL BE INSTALLED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES.
3. ALL DISTANCES ARE APPROXIMATE AND MAY VARY IN THE FIELD.

PROJECT NAME:	LUDLOW	PLOT DATE:	2/19/2015
PROJECT NUMBER:	BRF 025-1(42)	DRAWN BY:	E.A. FIALA
FILE NAME:	z10j068detour_dts.dgn	DESIGNED BY:	E.A. FIALA
PROJECT LEADER:	A.P. GUYETTE	TRAFFIC CONTROL PLAN (5 OF 6)	CHECKED BY: A.P. GUYETTE
			SHEET 16 OF 39



IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	NUMBER OF SIGNS REQ'D	REMARKS
	WIDTH (IN)	HEIGHT (IN)			
M1-5	24	24		45*	SEE NOTE 6
M3-1	24	12		26*	SEE NOTE 6
M3-3	24	12		17*	SEE NOTE 6
M4-4	24	12		33*	MOUNT ABOVE THE M3-1 OR M3-3
M4-8	24	12		38*	MOUNT ABOVE THE M3-1 OR M3-3
M4-8A	24	18		4	MOUNT ON ONE POST
M4-9bL	30	24		2	MOUNT BELOW THE R11-4
M4-9bR	30	24		3	MOUNT BELOW THE R11-4
M4-10L	48	18		1	MOUNT BELOW THE R11-4
M4-10R	48	18		3	MOUNT BELOW THE R11-4
M5-1L	21	15		3	MOUNT BELOW THE M1-5
M5-1R	21	15		2	MOUNT BELOW THE M1-5
M5-2R	21	15		1	MOUNT BELOW THE M1-5
M6-1L	21	15		5	MOUNT BELOW THE M1-5
M6-1R	21	15		4	MOUNT BELOW THE M1-5
M6-2R	21	15		1	MOUNT BELOW THE M1-5
M6-3	21	15		22*	MOUNT BELOW THE M1-5

* = NUMBER OF SIGNS REQ'D ASSUMING APPROXIMATELY 2 LOCATIONS OF CONFIRMATORY ROUTE MARKER ASSEMBLY DETAIL

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	NUMBER OF SIGNS REQ'D	REMARKS
	WIDTH (IN)	HEIGHT (IN)			
R5-1	30	30		1	MOUNT ON ONE POST
R6-2L	24	30		1	MOUNT ON ONE POST
R6-2R	24	30		1	MOUNT ON ONE POST
R7-8M	12	18		1	MOUNT ON ONE POST
R9-3b	18	12		1	MOUNT BELOW THE R9-9
R9-9	24	12		2	MOUNT ON TYPE III (MOD) BARRICADE
R9-11	24	12		1	MOUNT ON TYPE III (MOD) BARRICADE
R11-2	48	30		5	MOUNT ON TYPE III BARRICADE (MOD.)
R11-4	60	30		3	MOUNT ON TYPE III BARRICADE (MOD.)
W20-1	48	48		1	MOUNT ON TWO POSTS
W20-2	48	48		8	MOUNT ON TWO POSTS
W20-3	48	48		2	MOUNT ON TWO POSTS
W20-3	48	48		1	MOUNT ON TWO POSTS

NOTES:

- THE COSTS OF ALL DETOUR SIGNS AND REQUIRED SIGN POSTS SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL".
- COLORS FOR THE M1-5, M3-1, AND M3-3 SIGNS SHALL MATCH THE COLORS SHOWN ON VTRANS STD. E-136B.
- COLORS FOR THE M5-1L, M5-1R, M5-2R, M6-1L, M6-1R, M6-2R AND THE M6-3 SIGNS SHALL BE A BLACK ARROW AND BORDER ON RETROREFLECTIVE ORANGE BACKGROUND.
- COLORS FOR THE W20-2, M4-4 AND M4-8 SIGN SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE FLUORESCENT ORANGE BACKGROUND.
- COLORS FOR THE R9-3b, R9-9, AND R9-11 SIGNS SHALL BE BLACK TEXT AND BORDER ON RETROREFLECTIVE WHITE BACKGROUND.
- THE M1-5, M3-1, AND THE M3-3 SIGNS SHALL BECOME PROPERTY OF THE STATE AFTER THEY ARE REMOVED FROM THE DETOUR. THE CONTRACTOR SHALL DELIVER THE SIGNS TO THE STATE GARAGE IN THE TOWN OF LUDLOW. ALL COSTS ASSOCIATED WITH PROVIDING SIGNS TO THE STATE SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL".
- ONE WEEK PRIOR (7 DAYS) TO CONSTRUCTION ON THE BRIDGE, PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) MESSAGES 1 AND 2 WILL BE DISPLAYED AT THE BRIDGE AND PCMS MESSAGES 3, 4, AND 5 WILL BE DISPLAYED REGIONALLY.
- DURING THE BRIDGE CLOSURE, PCMS SHALL READ MESSAGES 6 AND 7 REGIONALLY.

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) - AT BRIDGE

ONE WEEK PRIOR			
MESSAGE 1	MESSAGE 2		
(ROUTE) ***	VT 103	MMMM DD	(DATE) **
	BRIDGE	TO	
	CLOSED	MMMM DD	(DATE) **

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) - REGIONAL DETOUR

ONE WEEK PRIOR				
MESSAGE 3	MESSAGE 4	MESSAGE 5		
(ROUTE) ***	VT 103	EAST OF	MMMM DD	(DATE) **
	BRIDGE	VT 100	TO	
	CLOSED	SOUTH	MMMM DD	(DATE) **

DURING BRIDGE CLOSURE

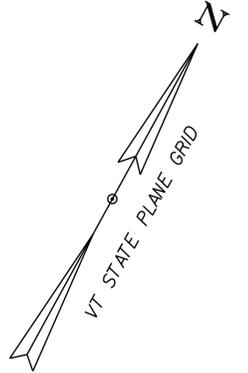
MESSAGE 6	MESSAGE 7
(ROUTE) ***	VT 103
	EAST OF
	BRIDGE
	VT 100
	CLOSED
	SOUTH

- ** - MONTH SHALL BE SPELLED OUT - JUNE 10 NOT 06/10
 *** - ROUTE VT 103 SHALL SPECIFY W (WEST) OR E (EAST) AS APPROPRIATE FOR THE DETOUR.

PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)

FILE NAME: z:\068detour_dts.dgn PLOT DATE: 2/19/2015
 PROJECT LEADER: A.P. GUYETTE DRAWN BY: E.A. FIALA
 DESIGNED BY: E.A. FIALA CHECKED BY: A.P. GUYETTE
 TRAFFIC CONTROL PLAN (6 OF 6) SHEET 17 OF 39





**REMOVING AND RESETTING
LIGHT POLE**

STA. 102+35, LT
 STA. 102+67, RT
 STA. 103+51, LT
 STA. 103+82, RT

**DUCTILE IRON PIPE,
CEMENT LINED**

STA. 102+47 - 104+34, RT
 PIPE INSULATION
 STA. 102+48 - 104+34, RT

**PRECAST REINFORCED
CONCRETE DROP INLET
WITH CAST IRON GRATE**

STA. 101+17, RT
 STA. 103+82, LT
 STA. 104+01, RT

**CHANGING ELEVATION OF DROP
INLETS, CATCH BASIN, OR MANHOLES**

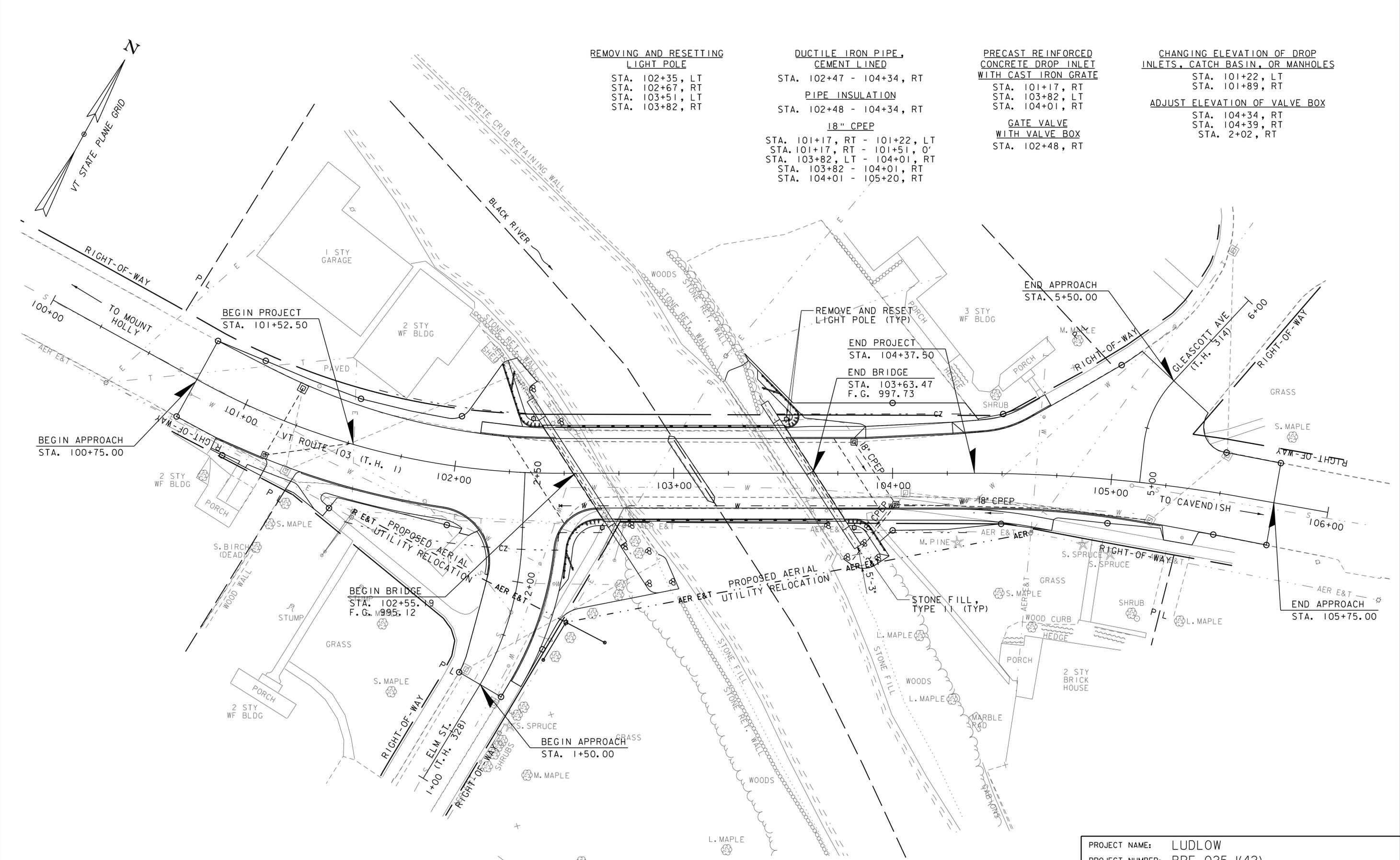
STA. 101+22, LT
 STA. 101+89, RT

ADJUST ELEVATION OF VALVE BOX

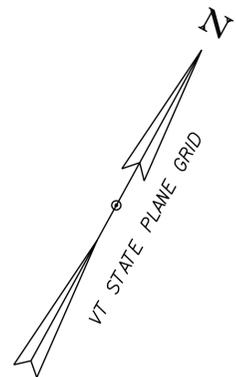
STA. 104+34, RT
 STA. 104+39, RT
 STA. 2+02, RT

18" CPEP
 STA. 101+17, RT - 101+22, LT
 STA. 101+17, RT - 101+51, 0'
 STA. 103+82, LT - 104+01, RT
 STA. 103+82 - 104+01, RT
 STA. 104+01 - 105+20, RT

**GATE VALVE
WITH VALVE BOX**
 STA. 102+48, RT



PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10j068bdr_utility_reloc.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	UTILITY LAYOUT SHEET
DESIGNED BY: A.P. GUYETTE	SHEET 18 OF 39



SPECIAL PROVISION (DURABLE CROSSWALK MARKING, IMPRINTED/COLORIZED)

STA. 102+09 - 102+15, LT & RT
 STA. 2+24 - 2+29, LT & RT
 STA. 5+22 - 5+28, LT & RT

DETECTABLE WARNING SURFACE

STA. 102+12, LT & RT
 STA. 102+52, RT
 STA. 104+67, LT

ERECTING SALVAGED SIGNS

STA. 102+56, RT

REMOVING SIGNS

STA. 102+01, RT (2)
 STA. 102+47, LT (2)
 STA. 102+61, RT (3)
 STA. 102+78, RT
 STA. 103+40, LT

TRAFFIC SIGN, TYPE A

STA. 102+00, RT (2)
 STA. 102+39, LT (2)
 STA. 102+56, RT (2)
 STA. 102+69, RT
 STA. 103+50, LT
 STA. 104+91, LT

LETTER OR SYMBOL

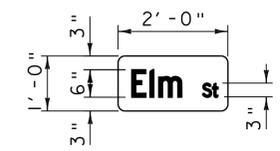
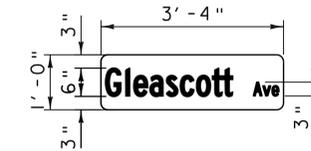
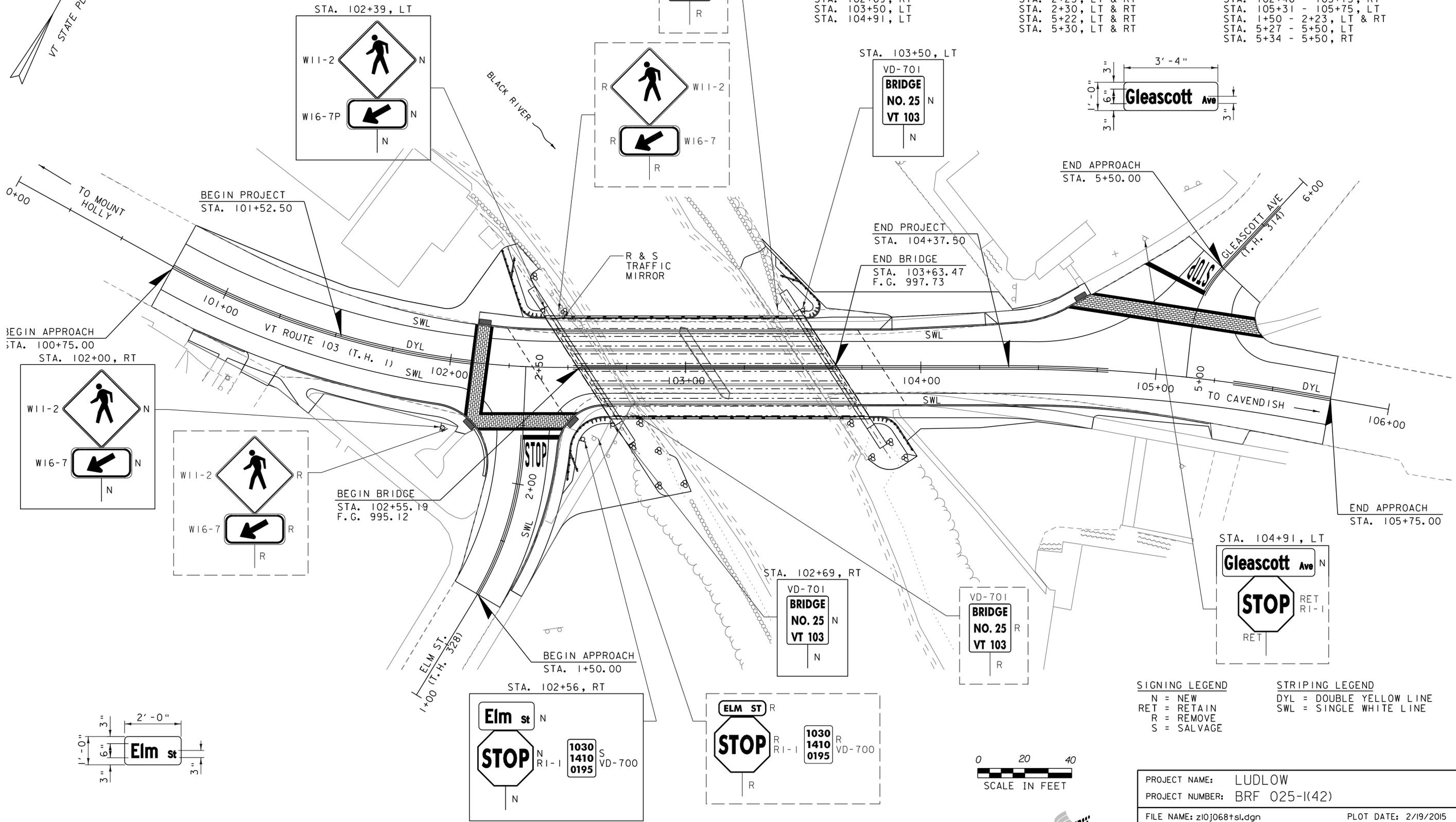
STA. 102+37, RT
 STA. 105+12, LT
24 INCH STOP BAR
 STA. 102+32 - 102+47, RT
 STA. 104+92 - 105+17, LT

4 INCH YELLOW LINE

STA. 100+75 - 102+08, LT & RT
 STA. 102+52 - 104+80, LT & RT
 STA. 105+33 - 105+75, LT & RT
 STA. 1+50 - 2+21, LT & RT
 STA. 5+36 - 5+86, LT & RT

4 INCH WHITE LINE

STA. 100+75 - 104+87, LT
 STA. 100+75 - 102+08, RT
 STA. 102+16 - 12+19, RT
 STA. 102+46 - 105+75, RT
 STA. 105+31 - 105+75, LT
 STA. 1+50 - 2+23, LT & RT
 STA. 5+27 - 5+50, LT
 STA. 5+34 - 5+50, RT



SIGNING LEGEND
 N = NEW
 RET = RETAIN
 R = REMOVE
 S = SALVAGE

STRIPING LEGEND
 DYL = DOUBLE YELLOW LINE
 SWL = SINGLE WHITE LINE



PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)

FILE NAME: z10j068+sl.dgn
 PROJECT LEADER: A.P. GUYETTE
 DESIGNED BY: E.A. FIALA
 TRAFFIC SIGNS AND LINE STRIPING

PLOT DATE: 2/19/2015
 DRAWN BY: E.A. FIALA
 CHECKED BY: A.P. GUYETTE
 SHEET 19 OF 39



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

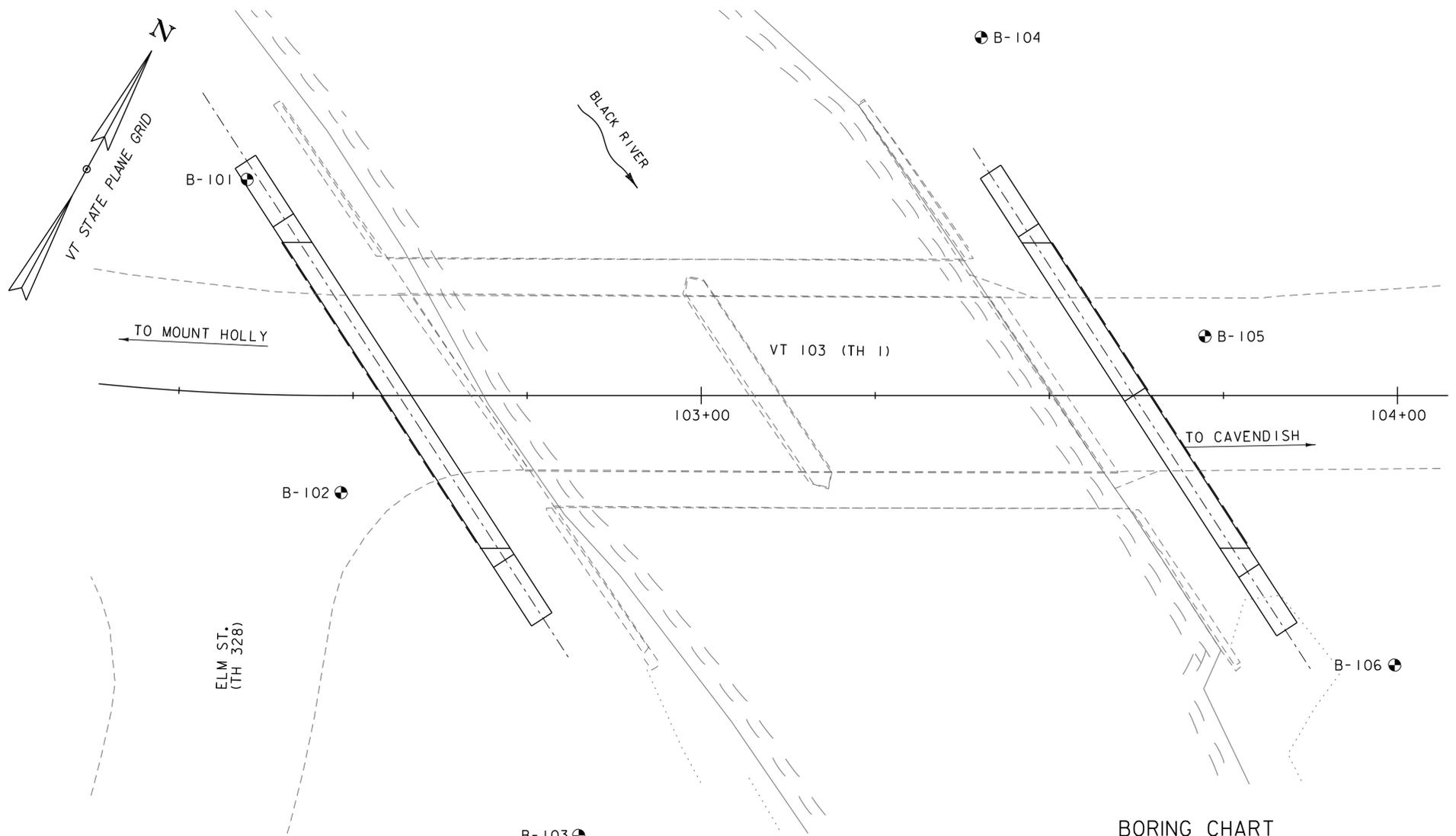
▼	Water Elevation
⊕	Standard Penetration Boring
⊗	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger Core Size 1 1/8" Core Size 1 3/8" Core Size 2 1/8"
AX	
BX	
NX	
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
1/2 Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR

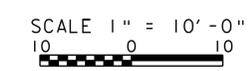
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gr'y	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.	VARVED - Alternate layers of silt and clay.
BOULDER - A rock fragment with an average dimension > 12 inches.	HARDPAN - Extremely dense soil, cemented layer, not softened when wet.
COBBLE - Rock fragments with an average dimension between 3 and 12 inches.	MUCK - Soft organic soil (containing > 10% organic material).
GRAVEL - Rounded particles of rock < 3" and > 0.075" (#10 sieve).	MOISTURE CONTENT - Weight of water divided by dry weight of soil.
SAND - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).	FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
SILT - Soil < 0.0025" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.	STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.
CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.	DIP - Inclination of bed with a horizontal plane.



BORING LAYOUT



BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	VT 103 (TH 1) 102+33.54	30.7 LT	994.0	----
B-102	VT 103 (TH 1) 102+48.28	13.9 RT	994.0	930.0
B-103	VT 1033(TH1) 102+82.42	63.0 RT	992.0	----
B-104	VT 103 (TH1) 103+40.22	51.3 LT	998.0	----
B-105	VT 103 (TH1) 103+72.35	8.5 LT	997.0	942.0
B-106	VT 103 (TH1) 103+99.60	38.6 RT	998.0	----

GENERAL NOTES

- The subsurface explorations shown herein were made between in February, 2004 by Mikes Boring and Coring and November, 2011 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by Mikes Coring and Boring and the Agency, and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
- 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.
- 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.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in survey feet.

PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10j068bor.dgn	DESIGNED BY: B.M. KLINEFELTER
PROJECT LEADER: A.P. GUYETTE	CHECKED BY: A.P. GUYETTE
BORING INFORMATION SHEET	SHEET 21 OF 39



VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-101			
		LUDLOW BRF 025-1 (42)		Page No.: 1 of 1		Pin No.: 10J068			
		Checked By: SMC							
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: Casing	Sampler	Groundwater Observations					
Date Started: 1/26/12 Date Finished: 1/27/12		HW	SS	Date	Depth (ft)	Notes			
VTSPG NAD83: N 326718.81 ft E 1588076.53 ft		I.D.: 4 in	1.38 in	01/26/12	7.0				
Station: 102+33.54 Offset: 30.7 LT		Hammer Wt: 300	140 lb.						
Ground Elevation: 994.0 ft		Hammer Fall: 24	30 in.						
		Hammer/Rod Type: Auto/N							
		Rig: CME 75	C _e = 1.3						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0	XXXX	Asphalt, 0.0 ft - 0.3 ft			50-14	14.9	26.6	49.7	23.7
	XXXX	A-2-4, SiGrSa, gry, Moist, Rec. = 1.5 ft			7-5	5.3	0.9	87.7	11.4
	XXXX	A-2-4, Sa, brn, Moist, Rec. = 1.3 ft			4-2-2				
		A-1-b, SaGr, brn, Moist, Rec. = 0.7 ft			8-5-4	12.6	53.8	35.7	10.5
		A-1-a, SaGr, brn, Wet, Rec. = 0.3 ft			7-4-5	10.2	64.1	30.1	5.8
10		A-2-4, GrSa, brn, Wet, Rec. = 0.5 ft			11-5-4	24.1	27.7	54.4	17.9
		A-1-a, Gr, brn, Wet, Rec. = 0.5 ft			15-16	14.7	73.5	17.1	9.4
		A-1-a, Gr, brn, Wet, Rec. = 0.8 ft			15-16	11.7	75.5	16.0	8.5
		A-3, GrSa, brn, Wet, Rec. = 1.5 ft			40-13	19.3	25.2	64.7	10.1
20		A-1-b, SaGr, tan, Wet, Rec. = 0.8 ft			24-33	11.9	55.8	28.1	16.1
		A-1-b, SaGr, tan, Wet, Rec. = 1.1 ft			8-29	11.5	49.2	36.1	14.7
30		A-2-4, SiSa, brn, Wet, Rec. = 1.2 ft			10-15	23.8		68.8	31.2
		Cobbles, 33.0 ft - 35.0 ft							
		Cobbles, 36.0 ft - 37.0 ft							
40		A-4, SaSi, gry, Wet, Rec. = 0.7 ft			75-50/2	9.8	19.7	33.1	47.2
		Cobbles, 41.0 ft - 42.0 ft			(100+)				
		A-2-4, SaGrSi, gry, Wet, Rec. = 0.4 ft			100/5	8.4	33.4	32.8	33.8
		Cobbles, 45.0 ft - 47.0 ft			(100+)				
50		A-4, GrSaSi, gry, Wet, Rec. = 0.4 ft			100/5	9.1	25.7	36.6	37.7
		Hole stopped @ 49.5 ft			(100+)				

APPROX. ABUT. NO. BOTTOM OF PILE CAP EL. 982.0

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-102					
		LUDLOW BRF 025-1 (42)		Page No.: 1 of 2		Pin No.: 10J068					
		Checked By: SMC									
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: Casing	Sampler	Groundwater Observations							
Date Started: 1/17/12 Date Finished: 1/19/12		HW	SS	Date	Depth (ft)	Notes					
VTSPG NAD83: N 326686.47 ft E 1588110.59 ft		I.D.: 4 in	1.38 in	01/18/12	7.5						
Station: 102+48.28 Offset: 13.9 RT		Hammer Wt: 300	140 lb.								
Ground Elevation: 994.0 ft		Hammer Fall: 24	30 in.								
		Hammer/Rod Type: Auto/N									
		Rig: CME 75	C _e = 1.3								
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Run (Dip deg.)	Cone Rec. % (ROD %)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		Asphalt, 0.0 ft - 0.5 ft					25/4	5.2	39.0	44.5	16.5
		A-1-b, GrSa, gry, Moist, Rec. = 0.3 ft					5-12	4.6	45.2	40.8	14.0
	XXXX	A-1-b, SaGr, tan, Moist, Rec. = 0.9 ft					9-6-3	3.4	41.9	45.3	12.8
	XXXX	A-1-b, GrSa trace asphalt at 6 ft, gry, Rec. = 0.8 ft					9-6-3	3.4	41.9	45.3	12.8
	XXXX	A-1-b, GrSa, tan, Moist					5-7	5.3	53.1	37.5	9.4
		A-1-a, SaGr, brn, Moist, Rec. = 0.4 ft					2-3-4	10.8	6.9	79.2	13.9
10		A-2-4, Sa, tan, Moist, Rec. = 1.1 ft					6-9	4.2	50.5	40.4	9.1
		A-1-a, SaGr, brn, Moist, Rec. = 0.8 ft					19-25/1				
		Cobbles and boulders, 14.0 ft - 18.0 ft									
20		A-4, SiSa, brn, MTW, Rec. = 1.5 ft					14-17	28.8		62.1	37.9
		A-2-4, SiSa, brn, MTW					16-17	25.6		73.2	26.8
		A-2-4, SiSa, brn, Moist					14-18	25.4		75.2	24.8
		A-2-4, Sa, tan, Wet, Rec. = 1.4 ft					8-17	24.3	1.8	83.8	14.4
		Cobbles, 27.5 ft - 28.5 ft									
30		A-1-b, SiSaGr, gry, Wet, Rec. = 1.1 ft					35-38	12.8	39.3	38.1	22.6
		Cobbles, 32.0 ft - 34.0 ft									
		A-1-b, SaGr, brn, Wet, Rec. = 0.9 ft					21-19	10.9	53.8	33.1	13.1
		Cobble, 36.0 ft - 36.5 ft									
40		A-4, SaSi, brn, Wet, Rec. = 1.2 ft					19-25	24.1	13.7	34.1	52.2
		42.0 ft - 52.0 ft, NXDC. Cored glacial till from 42 to 52 feet. Visual classification: Silty sand with gravel.									

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VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-102					
		LUDLOW BRF 025-1 (42)		Page No.: 2 of 2		Pin No.: 10J068					
		Checked By: SMC									
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: Casing	Sampler	Groundwater Observations							
Date Started: 1/17/12 Date Finished: 1/19/12		HW	SS	Date	Depth (ft)	Notes					
VTSPG NAD83: N 326686.47 ft E 1588110.59 ft		I.D.: 4 in	1.38 in	01/18/12	7.5						
Station: 102+48.28 Offset: 13.9 RT		Hammer Wt: 300	140 lb.								
Ground Elevation: 994.0 ft		Hammer Fall: 24	30 in.								
		Hammer/Rod Type: Auto/N									
		Rig: CME 75	C _e = 1.3								
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Run (Dip deg.)	Cone Rec. % (ROD %)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
60		A-4, SaGrSi, gry, Wet, Rec. = 1.2 ft					26-51	9.3	32.5	29.9	37.6
		Visual Class., broken rock with silt and sand, gry, Wet, Rec. = 0.3 ft					50/3	26.3			
		Possible cobbles, 61.0 ft - 64.0 ft									
		64.0 ft - 74.0 ft, Gry, Micaceous Schist, Hard to very hard, Fresh, Fair rock, NXDC, Joints close to moderately close spacing									
		Hole stopped @ 74.0 ft									
70											
80											
90											
100											

EST. PILE PENETRATION

PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)
 FILE NAME: z10J068borlogs.dgn
 PROJECT LEADER: A.P. GUYETTE
 DESIGNED BY: VTRANS
 BORING LOGS (1 OF 3)
 PLOT DATE: 2/19/2015
 DRAWN BY: E.A. FIALA
 CHECKED BY: A. GUYETTE
 SHEET 22 OF 39



VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-103			
		LUDLOW BRF 025-1 (42)		Page No.: 1 of 1		Pin No.: 10J068			
		Checked By: SMC							
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: Casing	Sampler	Groundwater Observations					
Date Started: 1/26/12 Date Finished: 1/26/12		HW	SS	Date	Depth (ft)	Notes			
VTSPG NAD83: N 326659.70 ft E 1588164.46 ft		I.D.: 4 in	1.38 in	01/26/12	10.0				
Station: 102+82.42 Offset: 63.0 RT		Hammer Wt: 300	140 lb.						
Ground Elevation: 992.0 ft		Hammer Fall: 24	30 in.						
		Hammer/Rod Type: Auto/N							
		Rig: CME 75	C _E = 1.3						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		Visual Class., Sandy Gravel, brn, Moist, Rec. = 0.3 ft			21-5-5-5 (10)	13.8			
0		A-1-a, SaGr, gry, Moist, Rec. = 0.5 ft			20-10-15-8 (25)	7.7	51.7	37.0	11.3
0		A-1-b, GrSa, brn, Moist, Rec. = 0.7 ft			16-10-8-9 (16)	16.5	35.6	48.9	15.5
0		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft			3-7-6-10 (13)	12.3	38.1	48.0	13.9
10		A-1-a, SaGr, brn, Wet, Rec. = 0.8 ft			40-67-24-38 (91)	8.7	68.0	23.0	9.0
10		A-1-a, SaGr, brn, Wet, Rec. = 1.0 ft			49-50-87-50 (117)	9.3	57.5	29.1	13.4
10		Cobble, 14.0 ft - 14.5 ft			16-15-9-13 (24)	17.9	25.1	44.2	30.7
10		A-2-4, GrSiSa, brn, Wet, Rec. = 0.9 ft			21-14-20-19 (34)	23.5	7.1	76.6	16.3
10		A-2-4, Sa, brn, Wet, Rec. = 1.7 ft			15-18-21-17 (39)	20.3	15.3	68.1	16.6
20		A-2-4, SiSa, brn, Wet, Rec. = 1.8 ft			16-19-22-16 (41)	27.7		78.5	21.5
30		A-2-4, Sa, brn, Wet, Rec. = 1.6 ft			13-20-25-13 (45)	25.2		82.7	17.3
30		A-2-4, SiSa, brn, Wet, Rec. = 1.4 ft			19-21-24-27 (45)	21.9	9.3	66.4	24.3
30		Cobble, 37.0 ft - 38.0 ft			29-25-29-26 (54)	12.4	47.7	37.0	15.3
40		A-1-b, SaGr, brn, Wet, Rec. = 1.4 ft			25-33-29-31 (62)	12.8	23.3	40.4	36.3
40		A-4, GrSiSa, gry, Wet, Rec. = 1.7 ft			27-73-50-2 (100+)	11.2	23.1	36.6	40.3
50		A-4, GrSaSi, gry, Wet, Rec. = 0.9 ft							
		Hole stopped @ 50.2 ft							

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-104			
		LUDLOW BRF 025-1 (42)		Page No.: 1 of 1		Pin No.: 10J068			
		Checked By: SMC							
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: Casing	Sampler	Groundwater Observations					
Date Started: 1/30/12 Date Finished: 1/30/12		HW	SS	Date	Depth (ft)	Notes			
VTSPG NAD83: N 326788.52 ft E 1588166.51 ft		I.D.: 4 in	1.38 in	01/30/12	7.0				
Station: 103+40.22 Offset: 51.3 LT		Hammer Wt: 300	140 lb.						
Ground Elevation: 998.0 ft		Hammer Fall: 24	30 in.						
		Hammer/Rod Type: Auto/N							
		Rig: CME 75	C _E = 1.3						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		Asphalt, 0.0 ft - 0.7 ft			9.4	48.9	35.2	15.9	
0		A-1-b, SaGr, brn, Moist, Rec. = 1.8 ft			39-58-39-23 (97)	7.4	38.8	45.1	16.1
0		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft			12-10-4-7 (14)				
0		Visual Class., sandy gravel, red-brn, Moist, Rec. = 0.3 ft			20-50-0 (50+)	21.1	31.7	47.2	21.1
0		Cobble, 6.0 ft - 7.0 ft			8-10-7-8 (17)				
0		A-2-4, SiGrSa, brn, Wet, Rec. = 0.9 ft			10-6-10-6-10-6 (16)	14.7			
10		Visual Class., stone with silty sand, brn, Wet, Rec. = 0.4 ft			6-7-5-4 (12)				
10		Gravel lodged in tip of sampler, Rec. = 0.1 ft, 12.0 ft - 14.0 ft			10-6-7-18 (13)				
10		Visual Class., silty sandy gravel, yel-brn, Wet, Rec. = 0.3 ft			15-15-10-13 (25)	19.7	42.6	22.7	34.7
10		A-2-4, SaSiGr, gry-brn, Wet, Rec. = 1.0 ft			19-15-18-18 (33)	24.2	6.0	48.2	45.8
20		A-4, SiSa, brn, Wet, Rec. = 1.7 ft			15-17-20-15 (37)	25.7	6.8	62.6	30.6
20		A-4, SiSa, brn, Wet, Rec. = 1.9 ft			18-19-20-22 (39)	21.4	7.1	66.5	26.4
20		A-2-4, SiSa, brn, Wet, Rec. = 1.5 ft			21-18-23-20 (41)	24.5	4.9	70.5	24.6
30		A-2-4, SiSa, brn-gry, Wet, Rec. = 1.4 ft			36-36-40-36 (76)	15.8	15.1	37.9	47.0
30		A-2-4, SiSa, red-brn, Wet, Rec. = 1.3 ft			49-38-42-61 (80)	12.8	26.0	45.4	28.6
40		A-4, SaSi, gry, Wet, Rec. = 1.8 ft							
40		Cobble, 42.0 ft - 43.0 ft							
40		A-2-4, GrSiSa, gry, Wet, Rec. = 1.3 ft							
50		Rec. = 0.0 ft, 49.0 ft - 49.0 ft			50/0 (50+)				
		Hole stopped @ 49.0 ft							

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-105				
		LUDLOW BRF 025-1 (42)		Page No.: 1 of 2		Pin No.: 10J068				
		Checked By: SMC								
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: Casing	Sampler	Groundwater Observations						
Date Started: 1/20/12 Date Finished: 1/24/12		HW	SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 326766.01 ft E 1588208.60 ft		I.D.: 4 in	1.38 in	01/23/12	10.0					
Station: 103+72.35 Offset: 8.5 LT		Hammer Wt: 300	140 lb.							
Ground Elevation: 997.0 ft		Hammer Fall: 24	30 in.							
		Hammer/Rod Type: Auto/N								
		Rig: CME 75	C _E = 1.3							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)			Run (Dip deg.)	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		Asphalt, 0.0 ft - 0.7 ft				25/2				
0		Visual Class., Gravel with asphalt, gry, Moist, Rec. = 0.2 ft								
0		A-1-b, GrSa with asphalt, brn, Moist, Rec. = 1.1 ft				4-4-6-4 (10)	5.0	41.5	46.4	12.1
0		A-3, Sa, brn, Moist, Rec. = 1.3 ft				4-4-5-4 (9)	2.7	0.6	91.5	7.9
0		A-3, Sa, brn, Moist, Rec. = 1.5 ft				9-5-4-4 (9)	3.1	2.7	88.8	8.5
10		A-2-4, Sa, brn, MTW, Rec. = 0.8 ft				24-70/5 (70+)	14.6	6.9	75.3	17.8
10		Cobbles, 11.0 ft - 13.5 ft								
20		A-2-4, Sa, brn, Wet, Rec. = 1.2 ft				7-8-8-7 (16)	22.6	0.1	88.0	11.9
20		A-2-4, Sa, brn, Wet, Rec. = 1.3 ft				4-8-11-11 (20)	23.2	0.1	86.4	13.5
20		A-4, Si, brn, Wet, Rec. = 1.3 ft				10-9-10-10 (19)	31.7		14.5	85.5
20		A-4, Si, brn, Wet, Rec. = 1.5 ft				15-15-15-16 (30)	28.3	3.4	11.9	84.7
20		A-2-4, Sa, brn, Moist, Rec. = 1.6 ft				15-19-19-16 (38)	22.6		86.2	13.8
30		Cobbles and boulders, 28.0 ft - 33.0 ft								
30		A-4, SiSa, brn, Wet, Rec. = 1.5 ft				16-18-19-22 (37)	28.6		60.8	39.2
40		A-2-4, GrSiSa, gry-brn, Wet, Rec. = 1.4 ft				40-23-20-27 (43)	14.0	24.8	47.8	27.4
40		A-2-4, GrSiSa, gry, Wet, Rec. = 1.7 ft				21-36-36-39 (72)	13.0	28.4	38.6	33.0
40		Cobbles, 47.0 ft - 49.0 ft								
50		Rec. = 0.0 ft, 49.0 ft - 49.0 ft				50/0 (50+)				
		Cobbles, 49.1 ft - 52.0 ft								

APPROX. ABUT. NO. BOTTOM OF PILE CAP EL. 982.0

EST. PILE PENETRATION

PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)
 FILE NAME: z10J068borlogs.dgn
 PROJECT LEADER: A.P. GUYETTE
 DESIGNED BY: VTRANS
 BORING LOGS (2 OF 3)
 PLOT DATE: 2/19/2015
 DRAWN BY: E.A. FIALA
 CHECKED BY: A.P. GUYETTE
 SHEET 23 OF 39



VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-105			
		LUDLOW BRF 025-1 (42)		Page No.: 2 of 2		Pin No.: 10J068			
		Checked By: SMC		Groundwater Observations					
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: HW	SS	Date	Depth (ft)	Notes			
Date Started: 1/20/12 Date Finished: 1/24/12		I.D.: 4 in	1.38 in	01/23/12	10.0				
VTSPG NAD83: N 326766.01 ft E 1588208.60 ft		Hammer Wt: 300	140 lb.						
Station: 103+72.35 Offset: 8.5 LT		Hammer Fall: 24	30 in.						
Ground Elevation: 997.0 ft		Hammer/Rod Type: Auto/N							
		Rig: CME 75	C _E = 1.3						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (ft) (p-p)	Cone Rec. % (ROD %)	Blow/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Probable weathered rock, 52.0 ft - 53.5 ft							
		53.5 ft - 55.0 ft							
		55.0 ft - 59.0 ft, Gry, Phyllitic Schist, Hard, Slightly weathered, Poor rock, NXDC	1 (?)	58 (15)					
		59.0 ft - 64.0 ft, Gry, Phyllitic Schist, Very hard, Fresh, Very good rock, NXDC	2 (60)	100 (80)					
		64.0 ft - 69.0 ft, Gry, Phyllitic Schist, Very hard, Fresh, Very good rock, NXDC	3 (65)	100 (92)					
		Hole stopped @ 69.0 ft							

942

2010 COPY: J:\125101.GPJ VERMONT AOT.GDT 8/8/12

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

VT Trans		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-106			
		LUDLOW BRF 025-1 (42)		Page No.: 1 of 1		Pin No.: 10J068			
		Checked By: SMC		Groundwater Observations					
Boring Crew: Geosearch, Inc. Fitchburg, MA, MJC		Type: HW	SS	Date	Depth (ft)	Notes			
Date Started: 1/25/12 Date Finished: 1/25/12		I.D.: 4 in	1.38 in	01/25/12	15.0				
VTSPG NAD83: N 326737.73 ft E 1588255.17 ft		Hammer Wt: 300	140 lb.						
Station: 102+99.60 Offset: 38.6 RT		Hammer Fall: 24	30 in.						
Ground Elevation: 998.0 ft		Hammer/Rod Type: Auto/N							
		Rig: CME 75	C _E = 1.3						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (ft) (p-p)	Cone Rec. % (ROD %)	Blow/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, GrSiSa topsoil, bm, Moist, Rec. = 1.2 ft			3-2-3-4 (5)	43.7	21.2	45.3	33.5
		A-1-a, SaGr, bm, Moist, Rec. = 0.8 ft			8-8-5-4 (13)	5.3	51.7	37.7	10.6
		A-1-a, SaGr broken rock within sample; thin layer buried topsoil within sample, bm, Moist, Rec. = 0.4 ft			6-10-8-4 (16)	11.0	55.6	30.3	14.1
		A-1-b, SiGrSa, bm, Moist, Rec. = 0.6 ft			4-5-5-8 (10)	11.4			
		Gravel lodged in tip of sampler, gry, Moist, Rec. = 0.1 ft, 10.0 ft - 10.1 ft			50/1 (50+)				
		Cobbles and boulders, 10.5 ft - 13.0 ft							
		Cobbles, 14.0 ft - 15.0 ft							
		A-1-a, SaGr, bm, Wet, Rec. = 1.1 ft			87-28-20-50/3 (48)	10.4	63.5	23.8	12.7
		A-1-a, Gr sample mostly broken rock, gry, Wet, Rec. = 0.7 ft			70-21-21-25 (42)	11.0	69.3	19.5	11.2
		A-2-4, Sa, bm, Wet, Rec. = 1.2 ft			14-9-13-12 (21)	21.6	5.5	77.1	17.4
		A-2-4, Sa, bm, Wet, Rec. = 1.4 ft			12-9-9-6 (18)	19.2	2.7	85.0	12.3
		A-4, Si, bm, Wet, Rec. = 1.2 ft			6-5-4-5 (9)	27.8	0.4	14.3	85.3
		A-2-4, Sa, bm, Wet, Rec. = 1.8 ft			17-17-18-22 (35)	20.2	0.8	82.2	17.0
		A-2-4, SiSa, bm, Wet, Rec. = 1.3 ft			13-11-14-12 (25)	23.5	8.0	60.1	31.9
		Cobbles, 43.0 ft - 44.0 ft							
		A-2-4, SiSa, gry, Wet, Rec. = 1.2 ft			22-22-20-18 (42)	13.2	18.5	49.2	32.3
		Cobbles, 47.0 ft - 49.0 ft							
		A-2-4, GrSiSa broken rock within sample, gry, Wet, Rec. = 0.7 ft			29-26-25-26 (51)	11.6	26.4	41.0	32.6
		Hole stopped @ 51.0 ft							

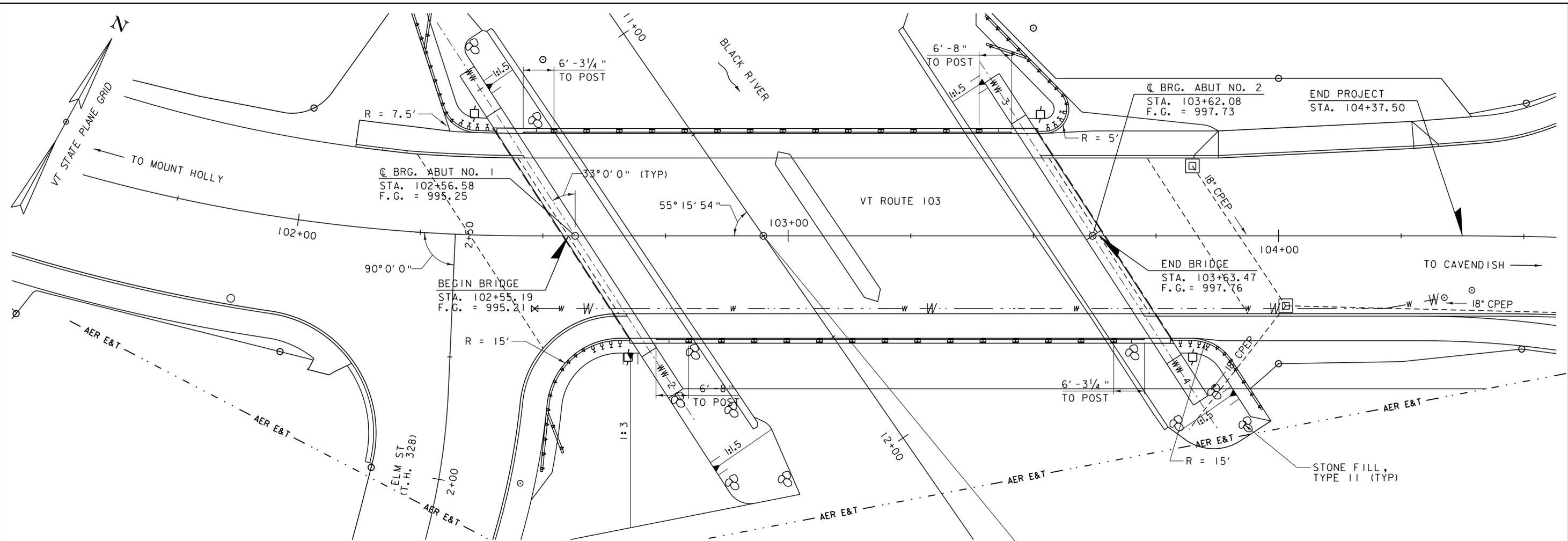
2010 COPY: J:\125101.GPJ VERMONT AOT.GDT 8/8/12

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

EST. PILE PENETRATION



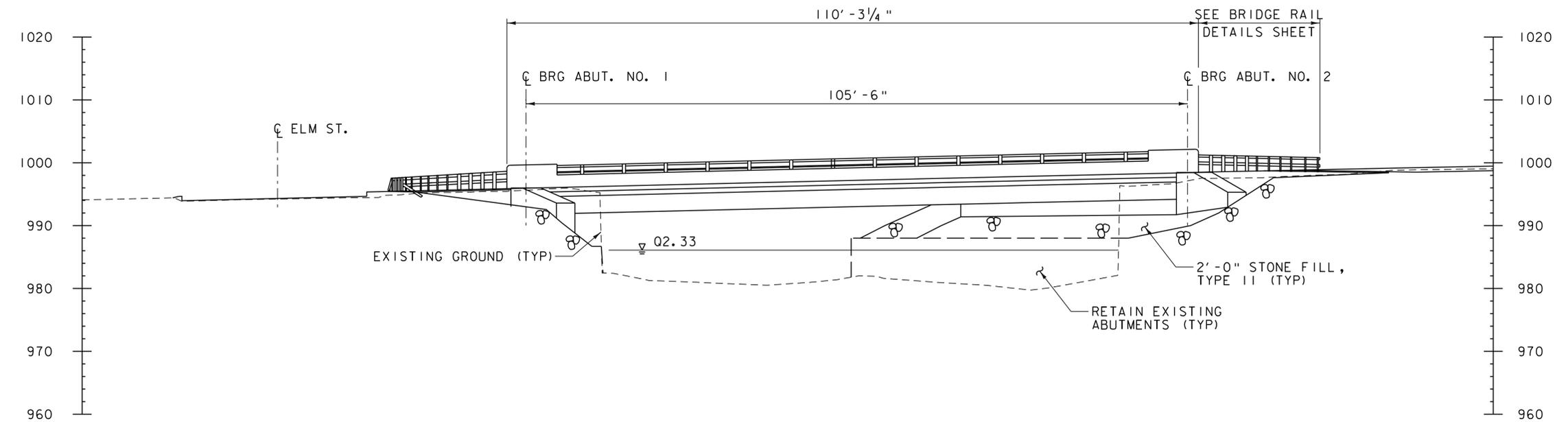
PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10J068borlogs.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	SHEET 24 OF 39
DESIGNED BY: VTRANS	
BORING LOGS (3 OF 3)	



PLAN

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

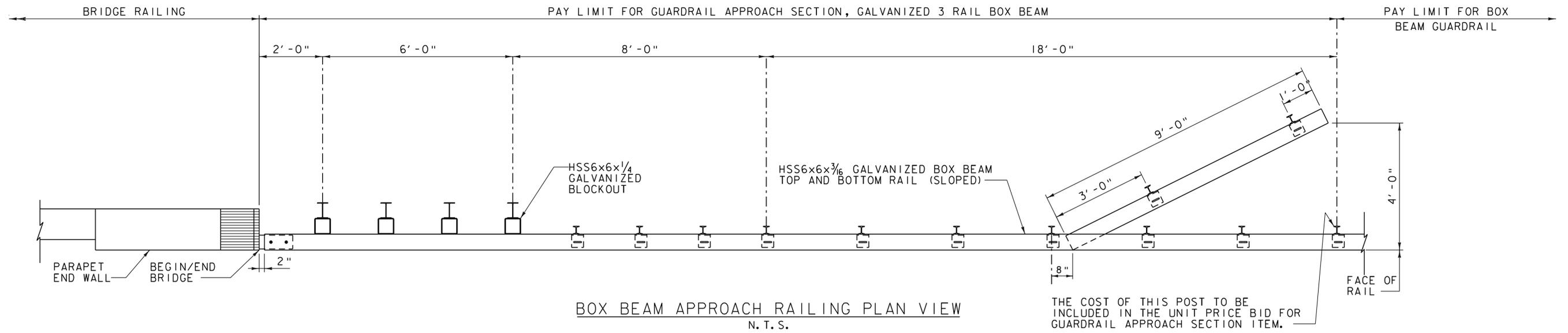
ROADWAY POT STA. 102+94.95 =
 CHANNEL POT STA. 11+50.00



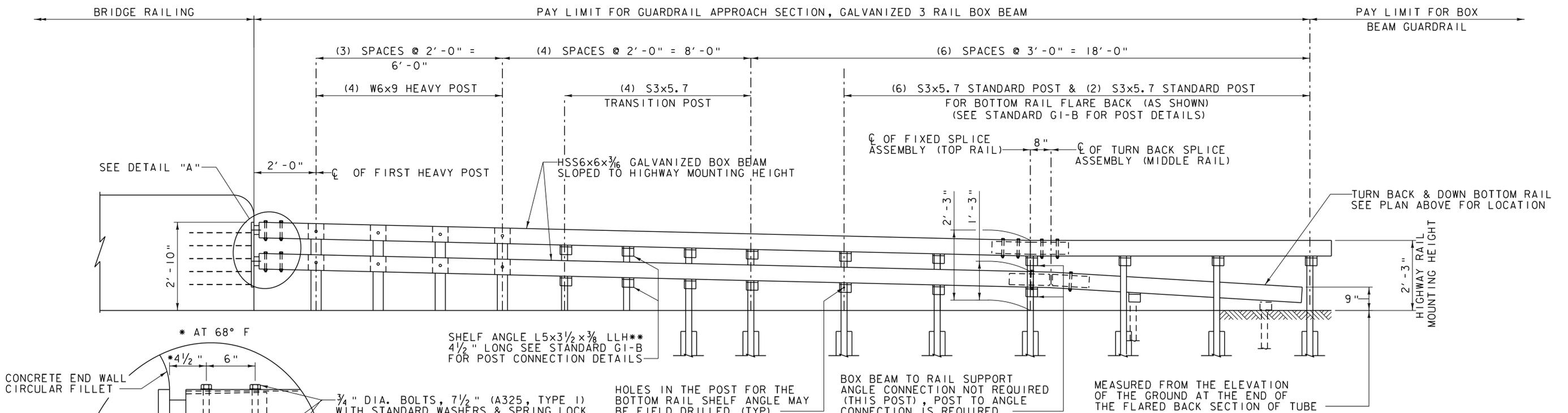
ELEVATION
 SCALE 1" = 10'-0"
 10 0 10

PROJECT NAME: LUDLOW	
PROJECT NUMBER: BHF 025-1(42)	
FILE NAME: z10j068pe.dgn	PLOT DATE: 2/19/2015
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: E.F. LAWES
DESIGNED BY: E.F. LAWES	CHECKED BY: A.P. GUYETTE
PLAN AND ELEVATION	SHEET 25 OF 39

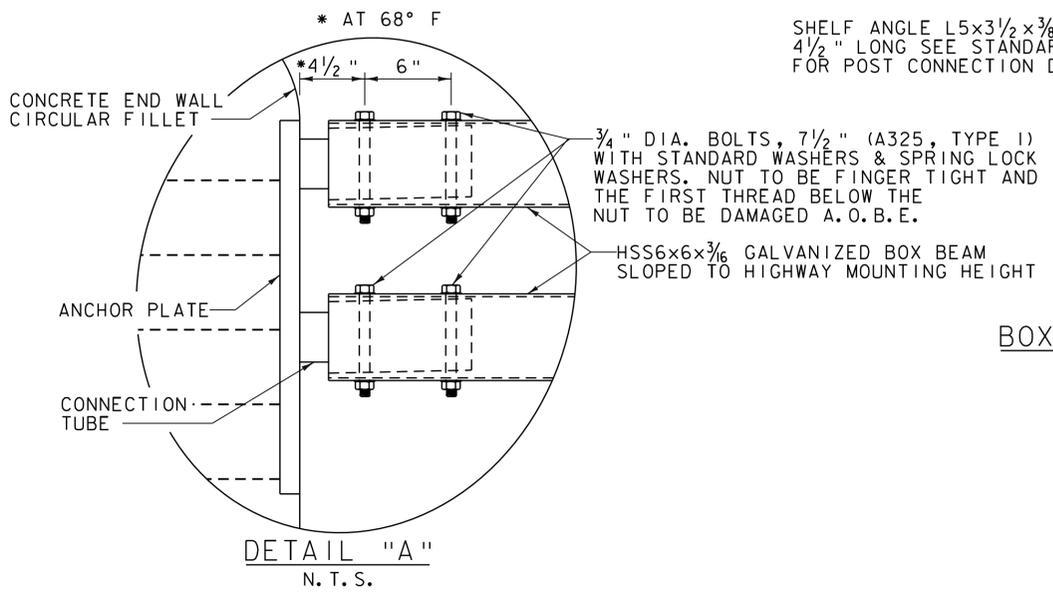




BOX BEAM APPROACH RAILING PLAN VIEW
N. T. S.



BOX BEAM APPROACH RAILING ELEVATION
N. T. S.



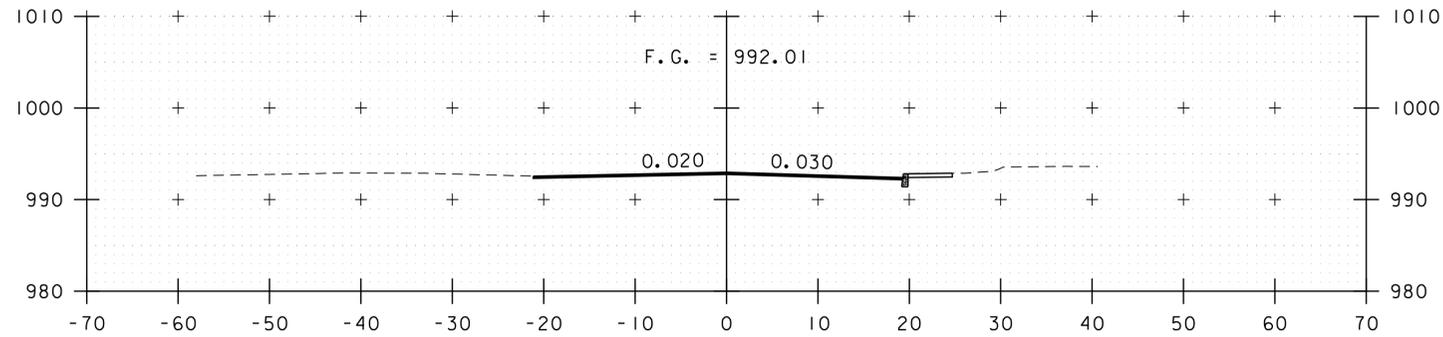
NOTE:
SEE SHEET XX FOR ANCHOR PLATE AND CONNECTION TUBE DETAILS

**LONG LEG HORIZONTAL

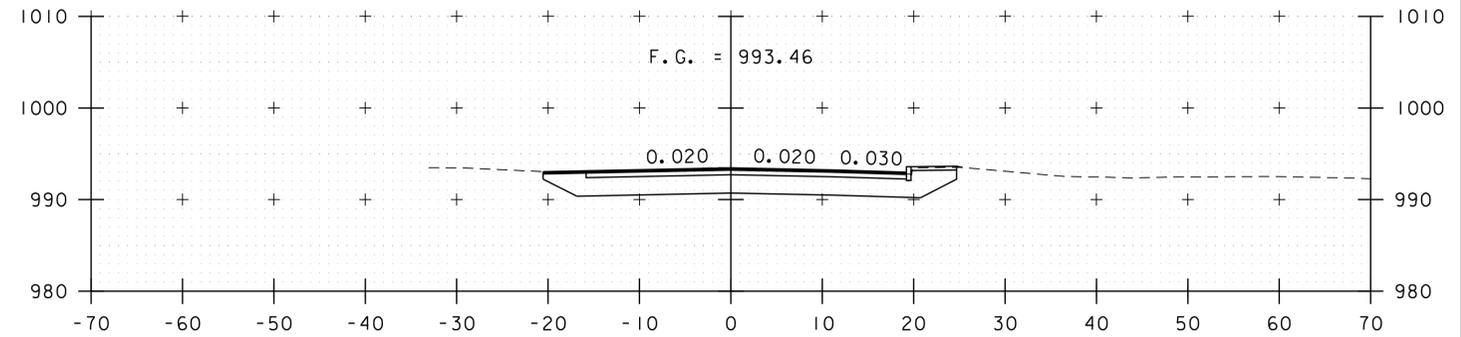
NOTE:
ALL STEEL COMPONENTS TO BE PAINTED BLACK

OTHER STDS.
REQUIRED: G1-B, S-364A

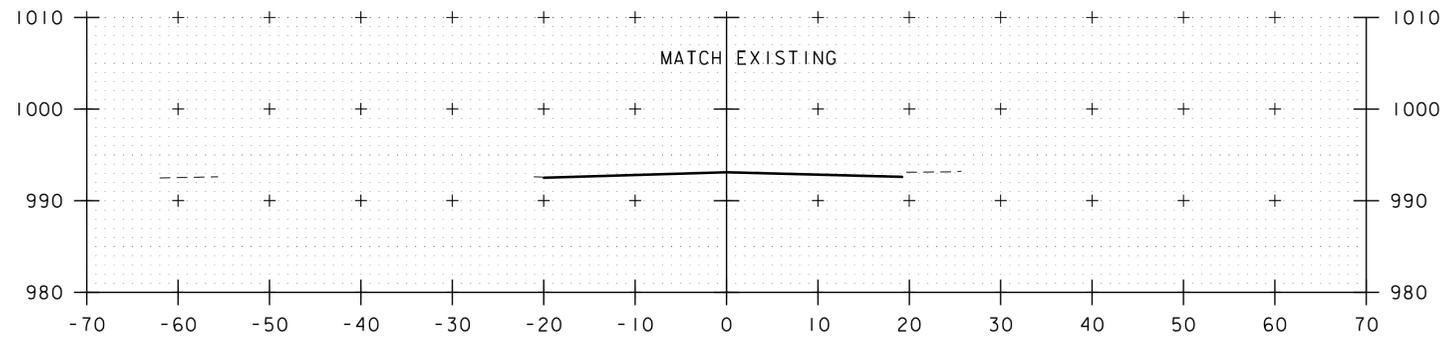
PROJECT NAME:	LUDLOW	PLOT DATE:	2/19/2015
PROJECT NUMBER:	BRF 025-1(42)	DRAWN BY:	J.L. LEMIEUX
FILE NAME:	z10j068brail.dt.dgn	CHECKED BY:	A.P. GUYETTE
PROJECT LEADER:	A.P. GUYETTE	BRIDGE RAIL DETAILS:	SHEET 26 OF 39
DESIGNED BY:	S.E. BURBANK		



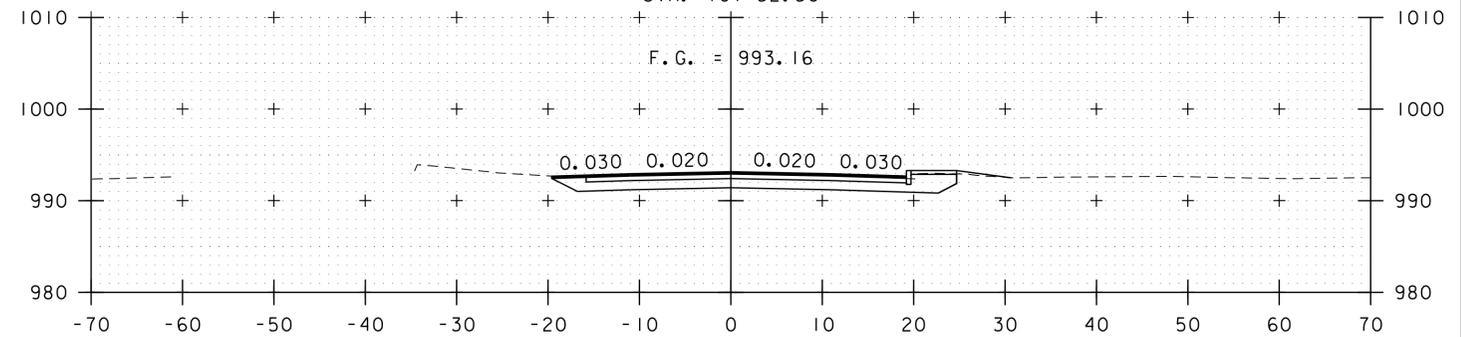
101+00



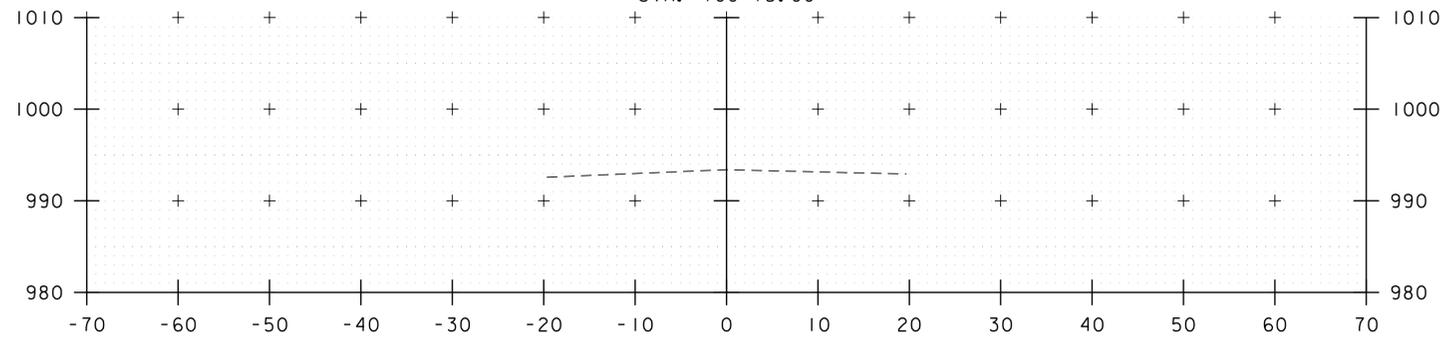
101+75
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STA. 101+52.50



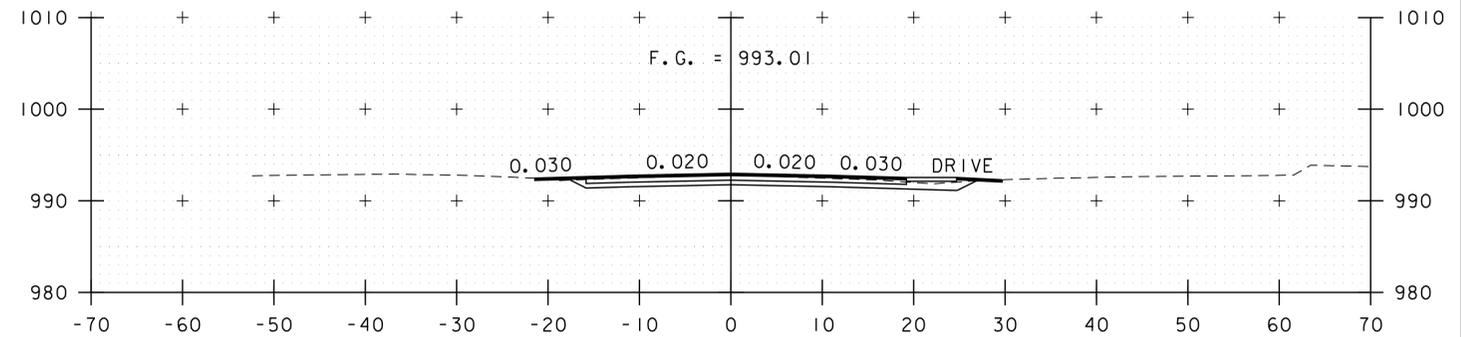
100+75
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STA. 100+75.00



101+50



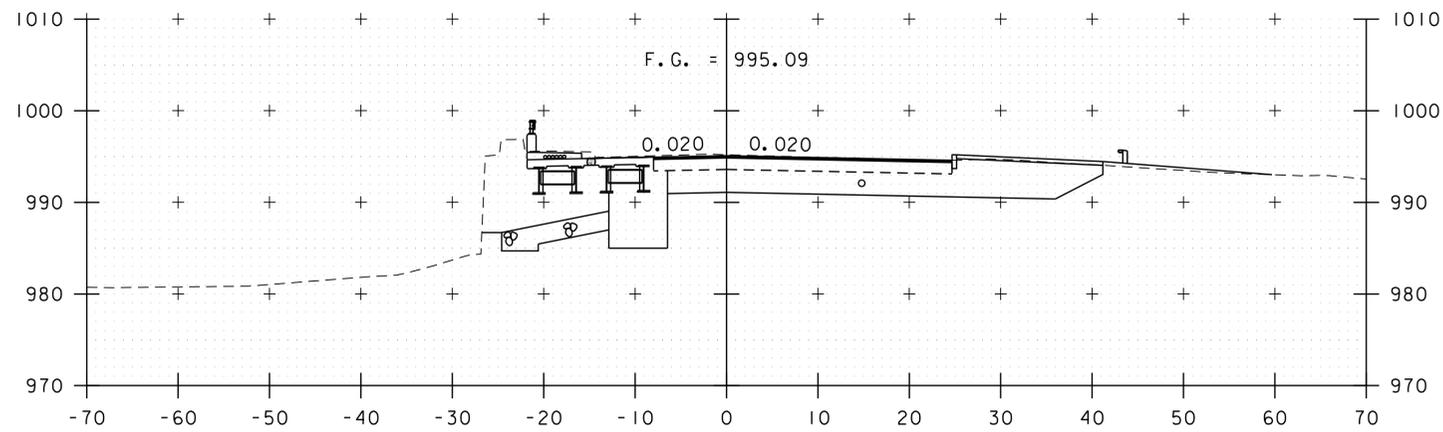
100+50



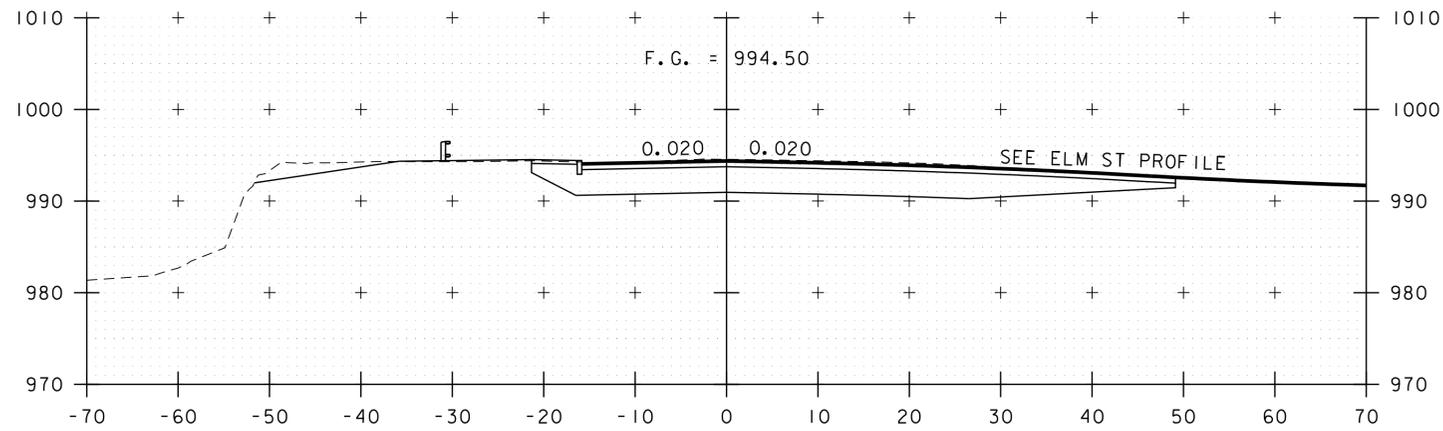
101+25

PROJECT NAME: LUDLOW	
PROJECT NUMBER: BRF 025-1(42)	
FILE NAME: z10j068xsl.dgn	PLOT DATE: 2/19/2015
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: E.F. LAWES
DESIGNED BY: E.F. LAWES	CHECKED BY: A.P. GUYETTE
ROADWAY CROSS SECTIONS (1 OF 4)	SHEET 27 OF 39

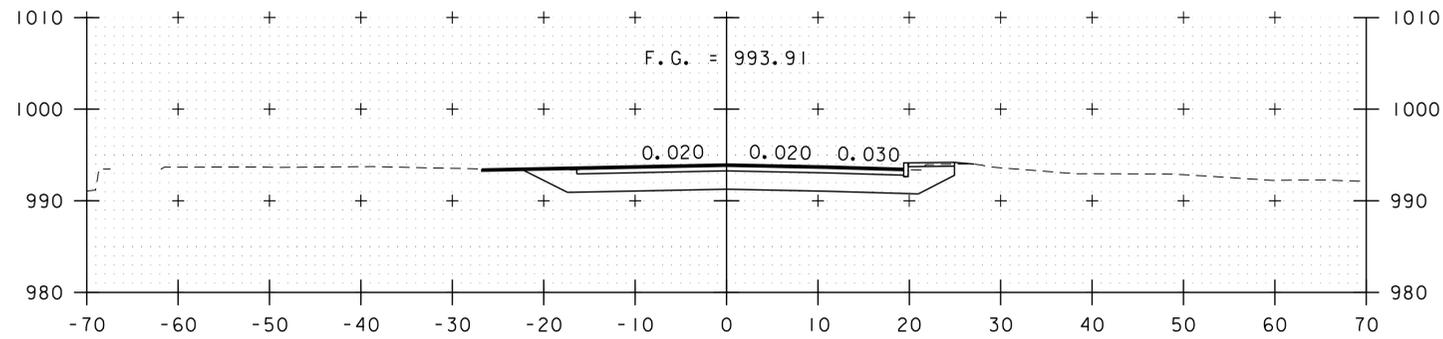




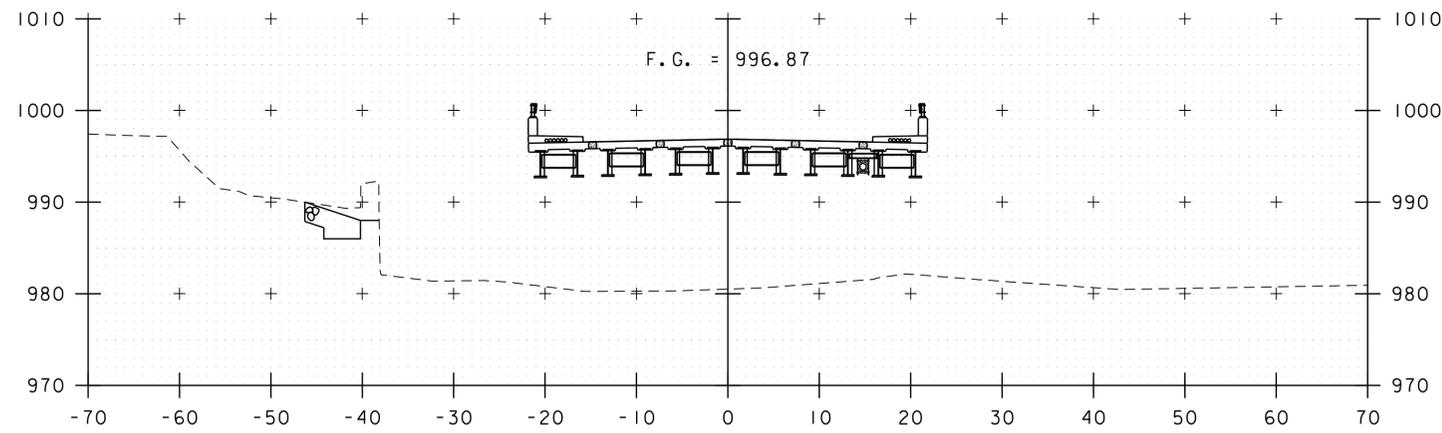
102+50



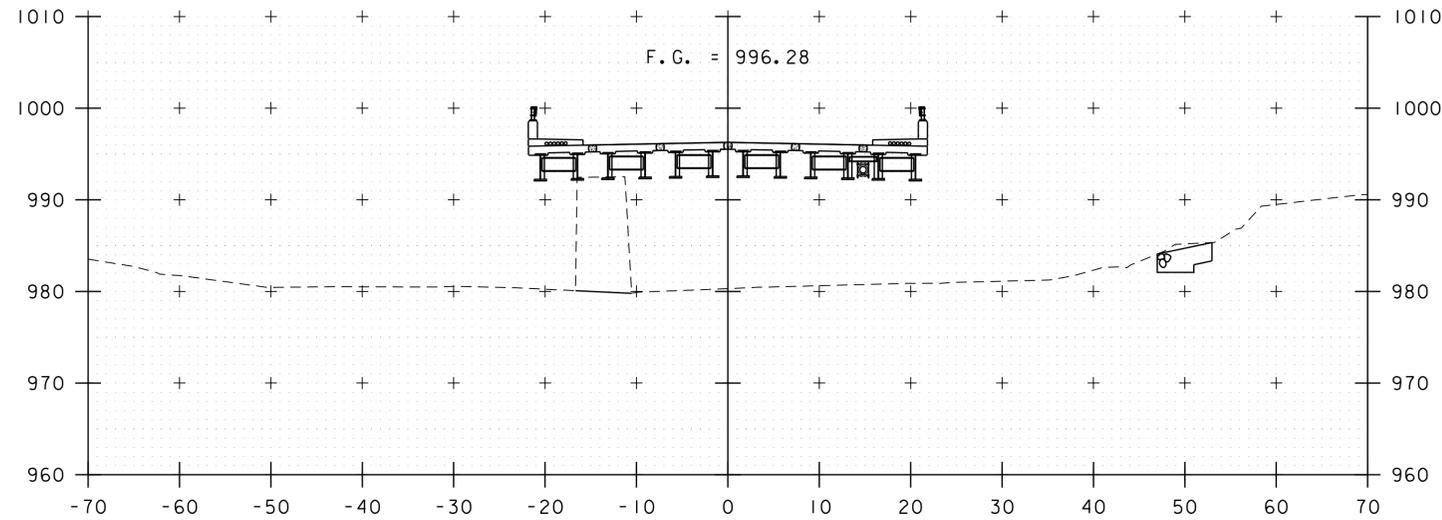
102+25



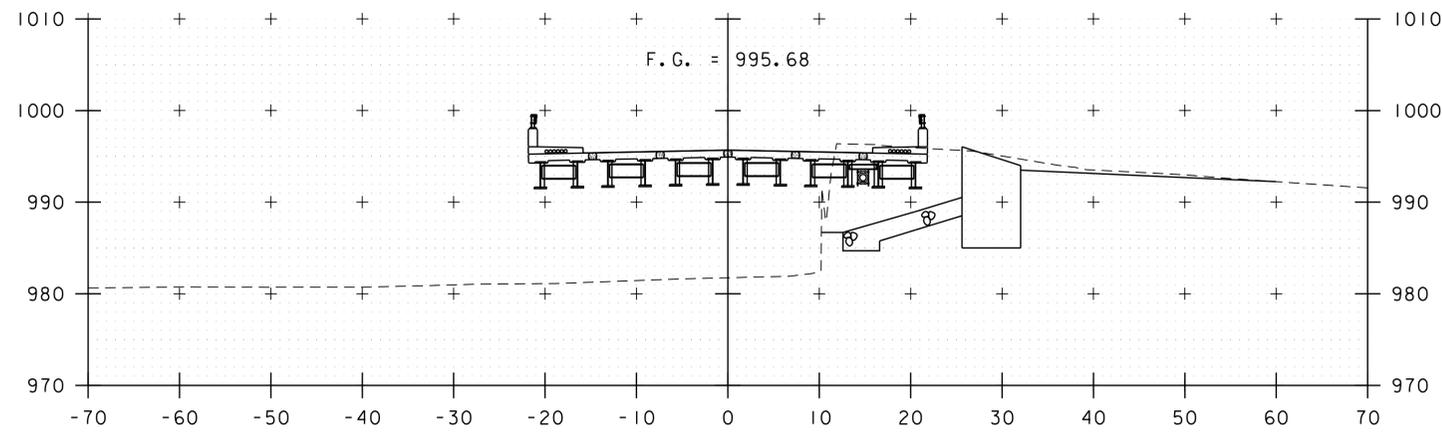
102+00



103+25



103+00



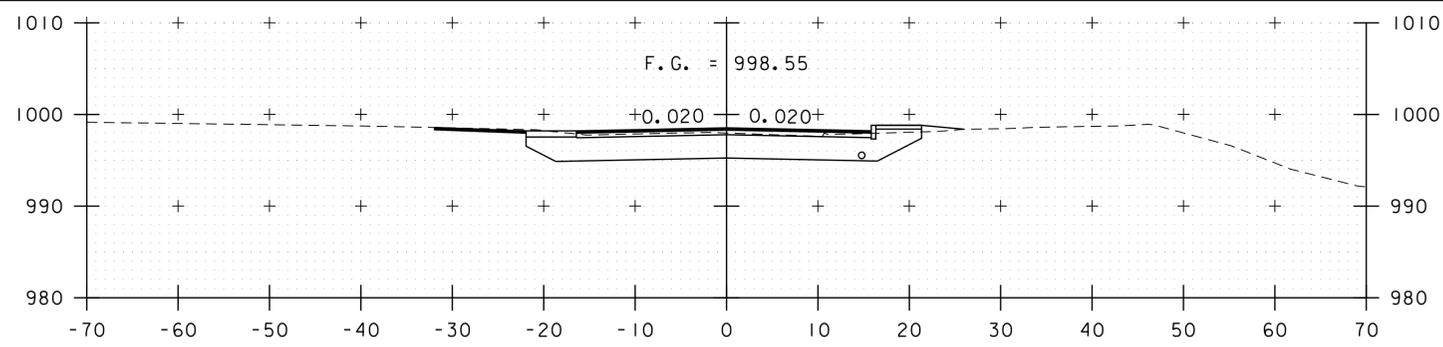
102+75
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STA. 102+55.19

PROJECT NAME: LUDLOW
PROJECT NUMBER: BRF 025-1(42)

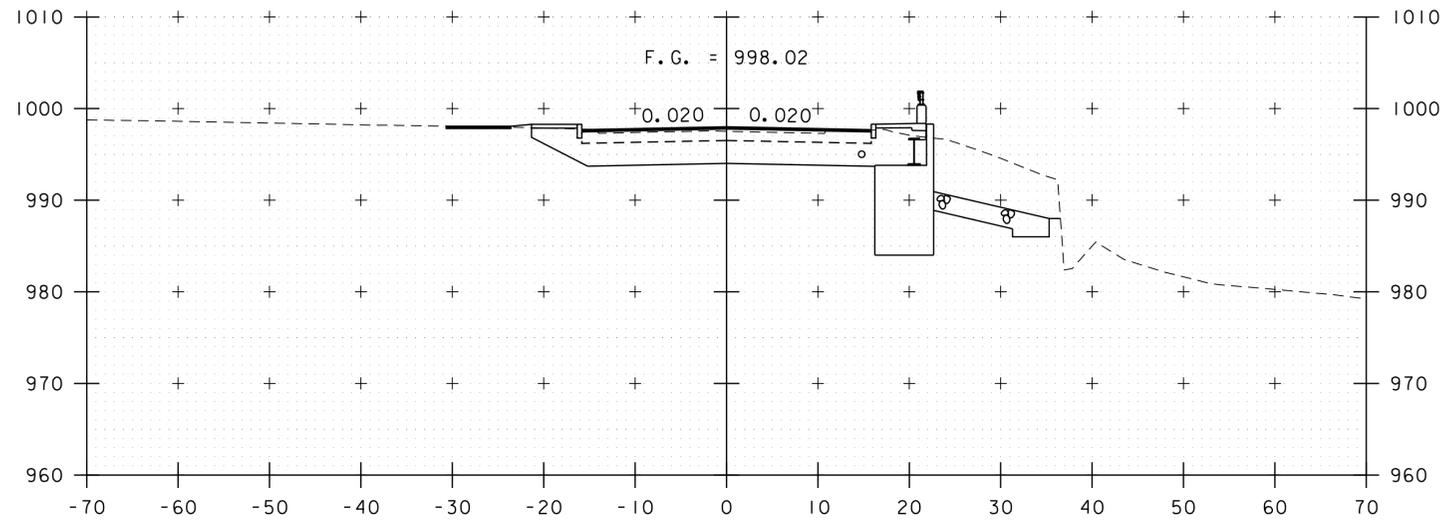
FILE NAME: z10j068xsl.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: E.F. LAWES
ROADWAY CROSS SECTIONS (2 OF 4)

PLOT DATE: 2/19/2015
DRAWN BY: E.F. LAWES
CHECKED BY: A.P. GUYETTE
SHEET 28 OF 39



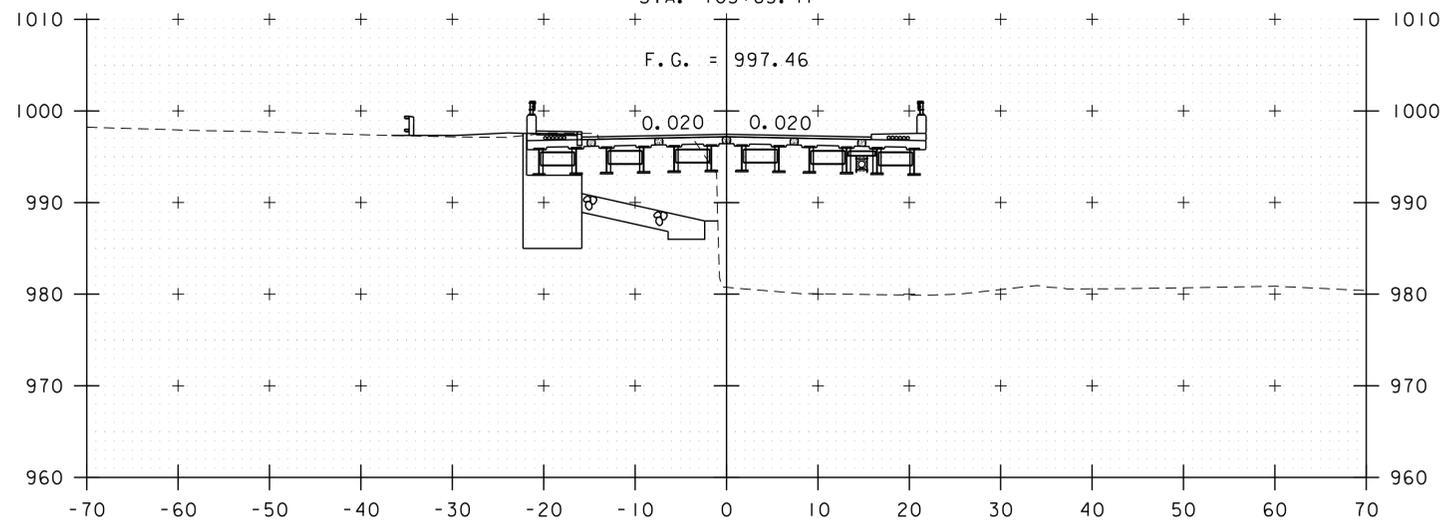


104+00

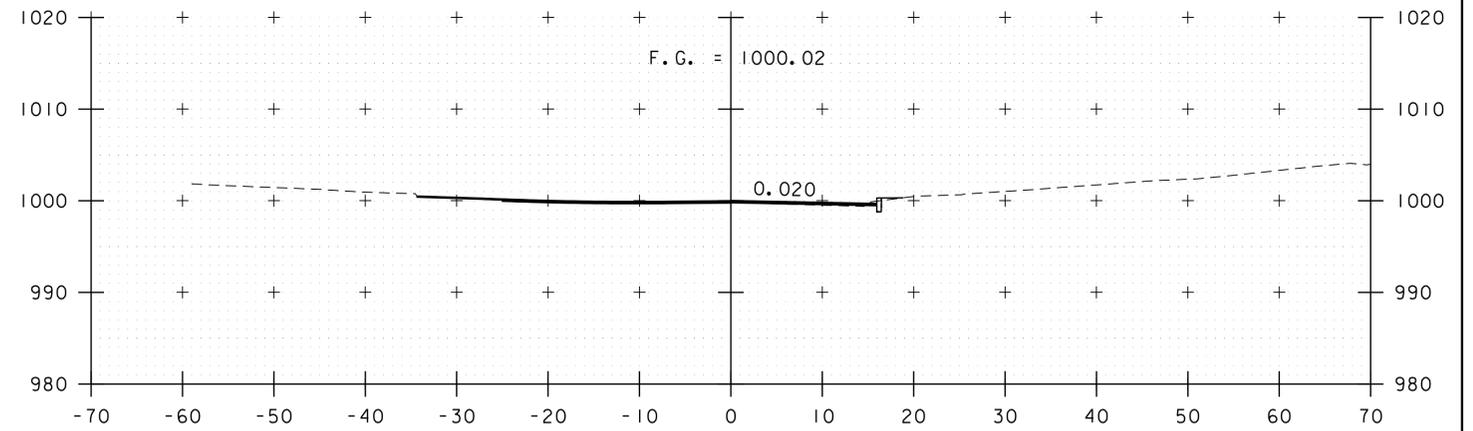


103+75

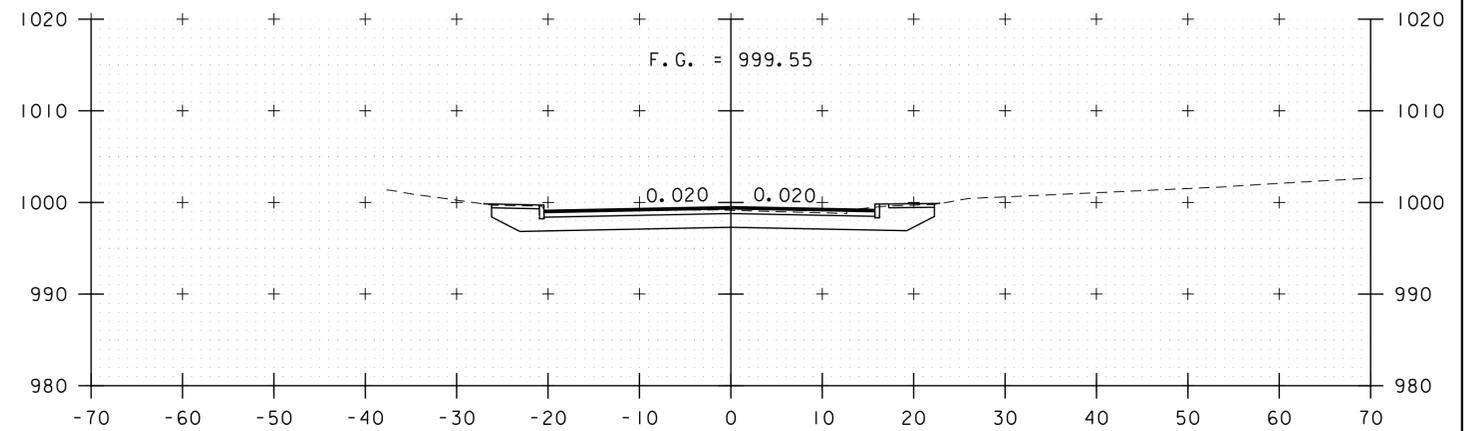
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STA. 103+63.47



103+50

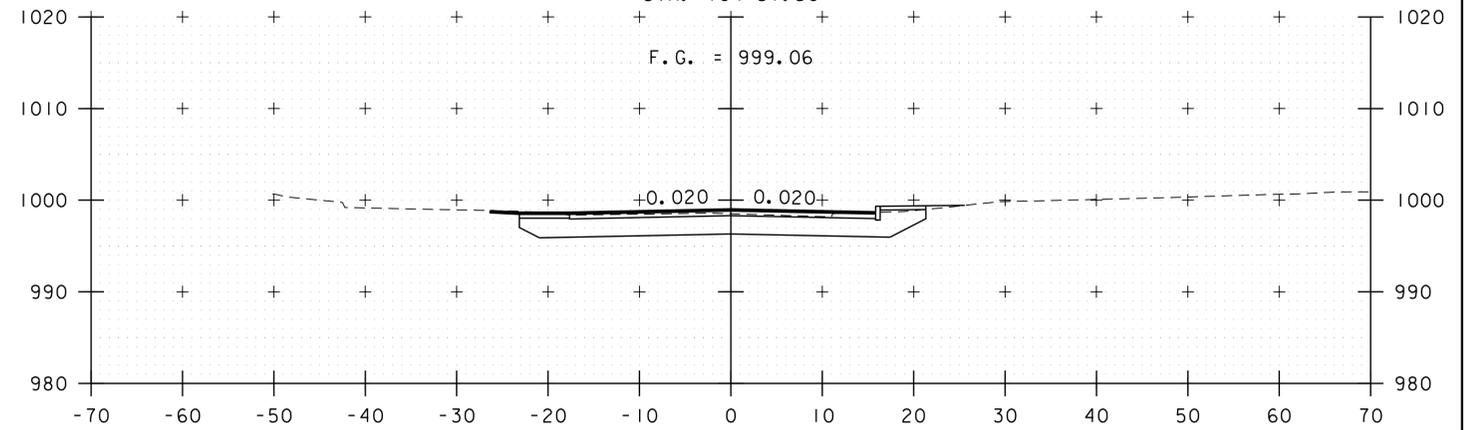


104+75



104+50

END PROJECT
STA. 104+37.50



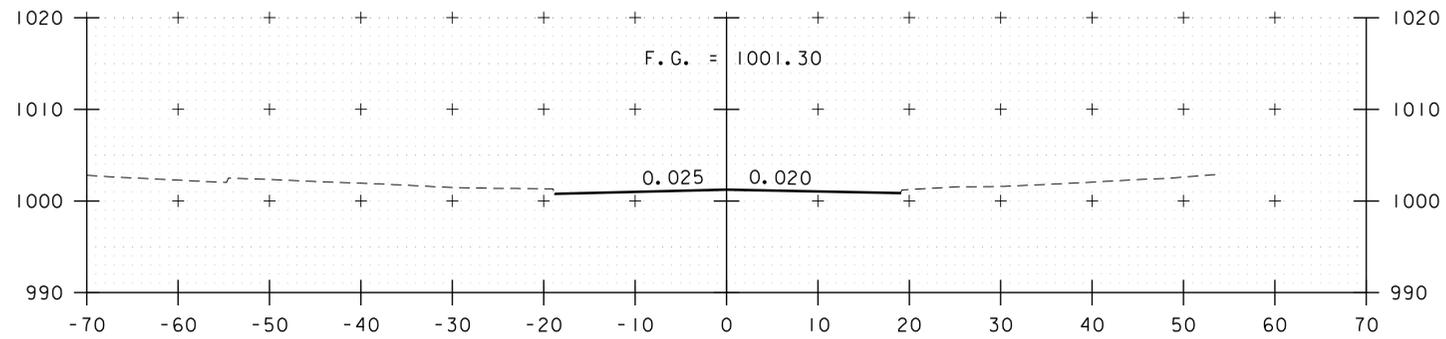
104+25

PROJECT NAME: LUDLOW
PROJECT NUMBER: BRF 025-1(42)

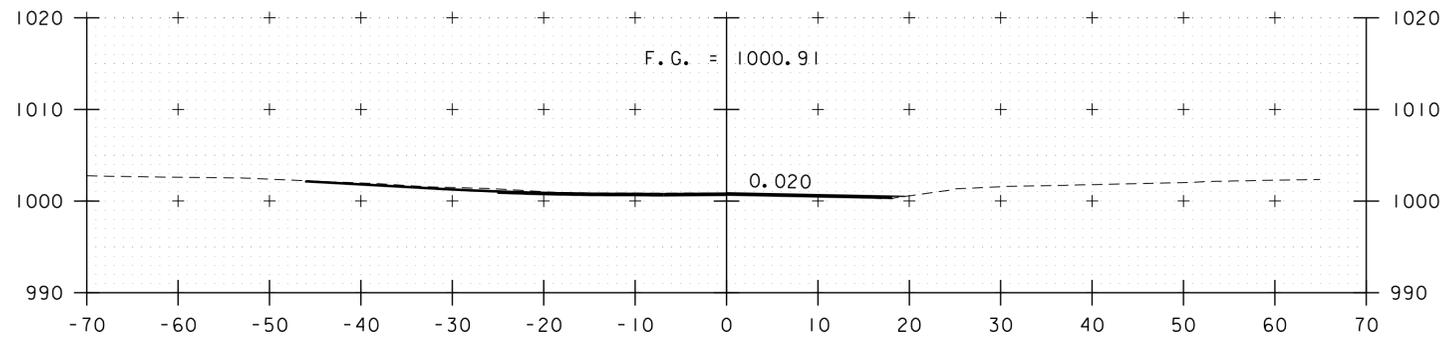
FILE NAME: z10j068xsl.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: E.F. LAWES
ROADWAY CROSS SECTIONS (3 OF 4)

PLOT DATE: 2/19/2015
DRAWN BY: E.F. LAWES
CHECKED BY: A.P. GUYETTE
SHEET 29 OF 39

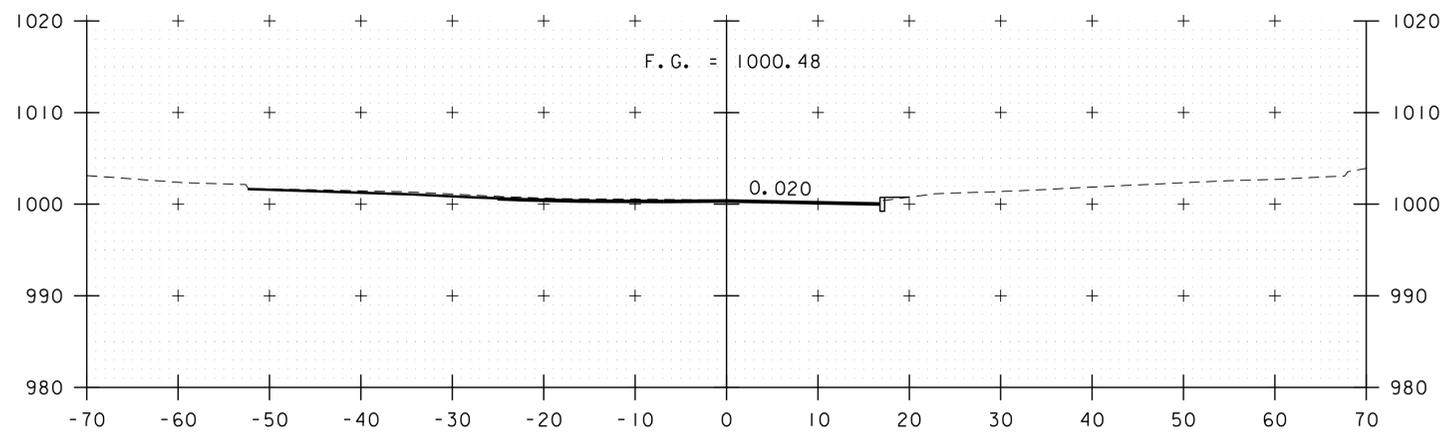




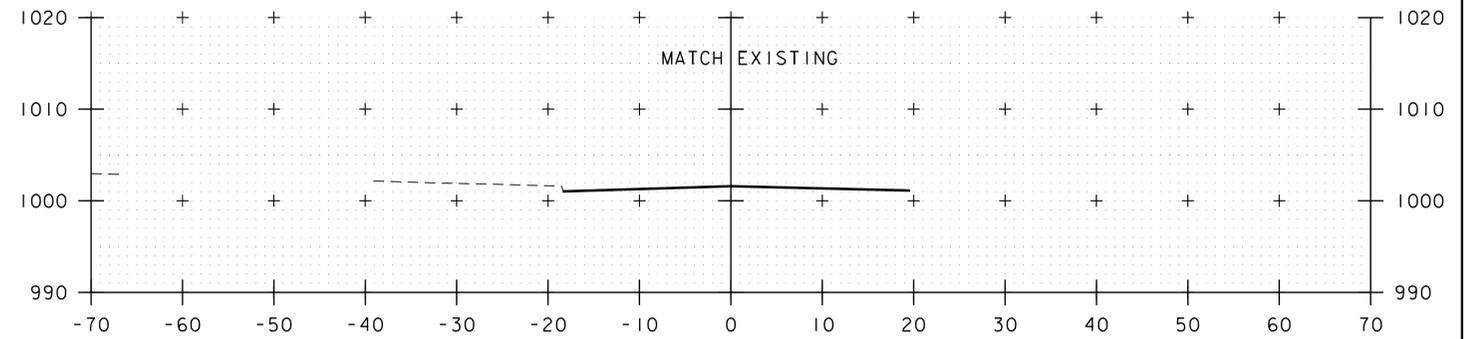
105+50



105+25



105+00



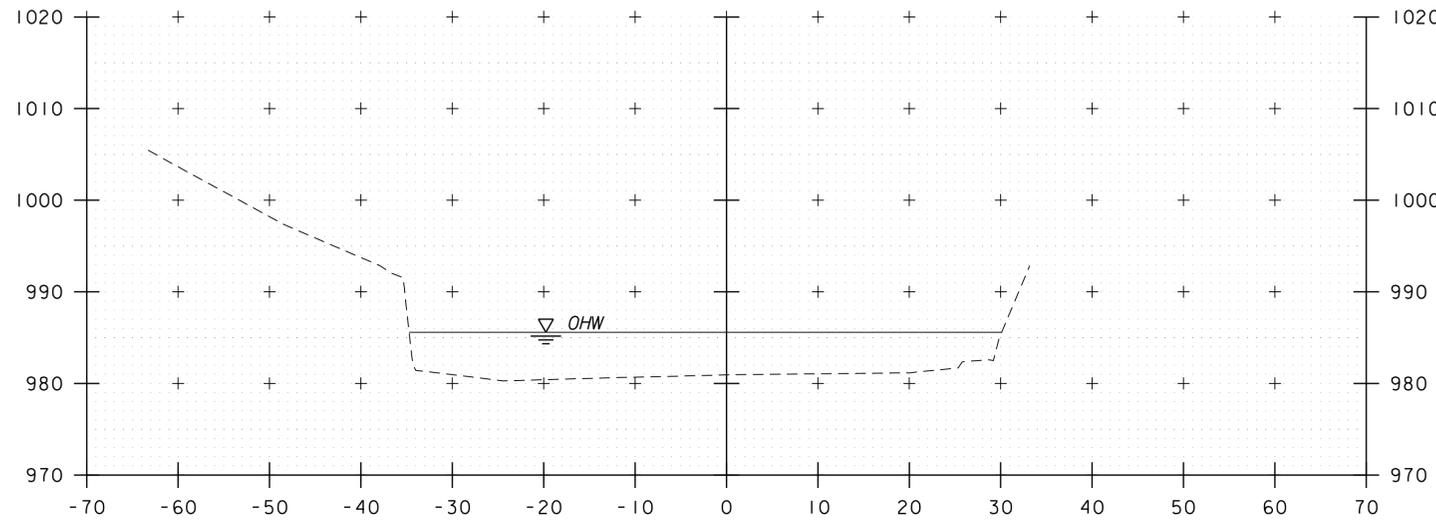
105+75
END APPROACH
STA. 105+75.00

PROJECT NAME: LUDLOW
PROJECT NUMBER: BRF 025-1(42)

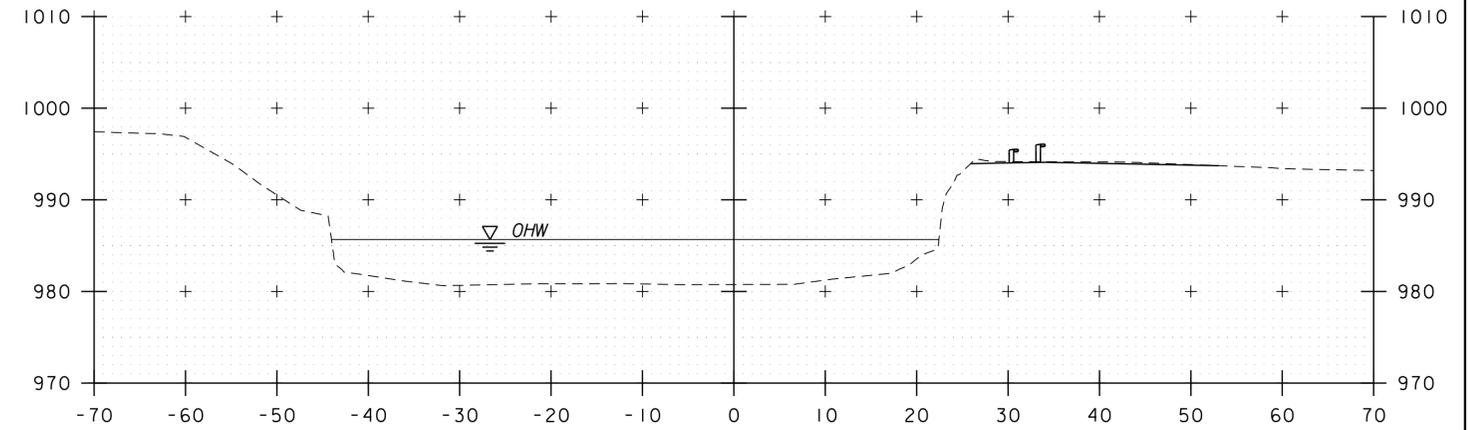
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PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: E.F. LAWES
ROADWAY CROSS SECTIONS (4 OF 4)

PLOT DATE: 2/19/2015
DRAWN BY: E.F. LAWES
CHECKED BY: A.P. GUYETTE
SHEET 30 OF 39

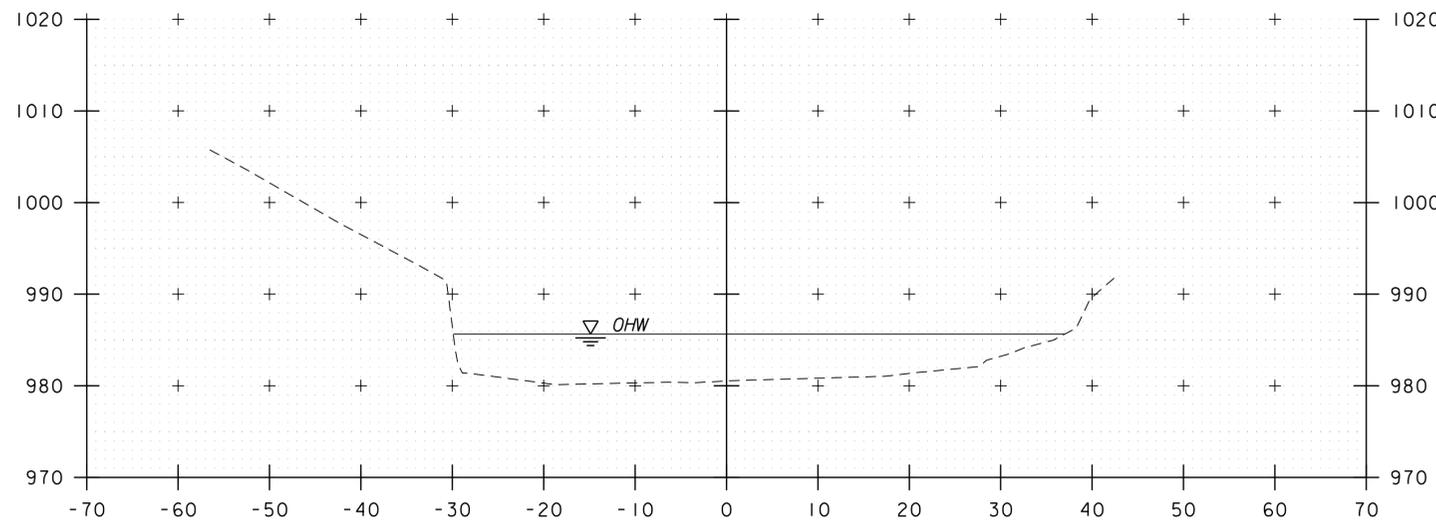




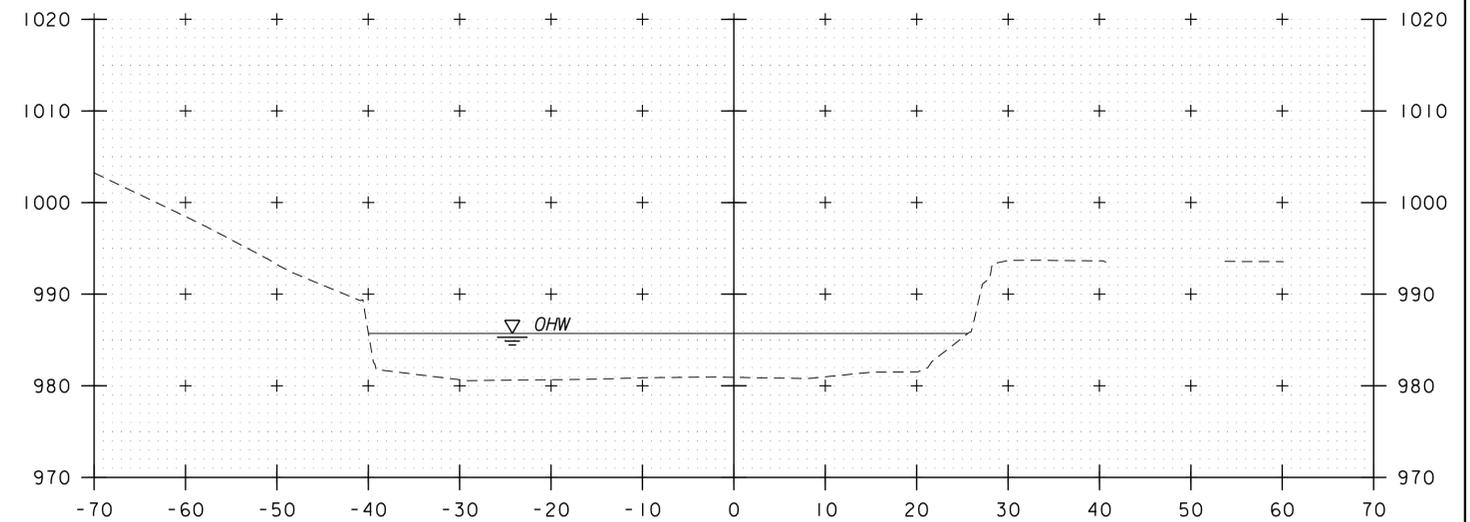
10+25



10+75



10+00

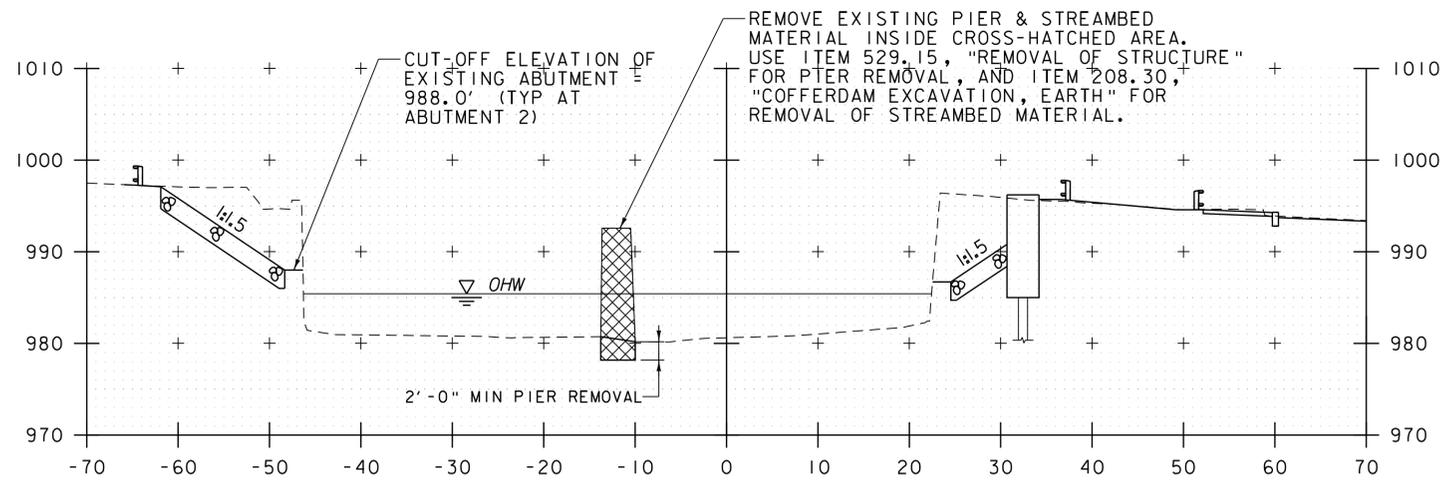


10+50

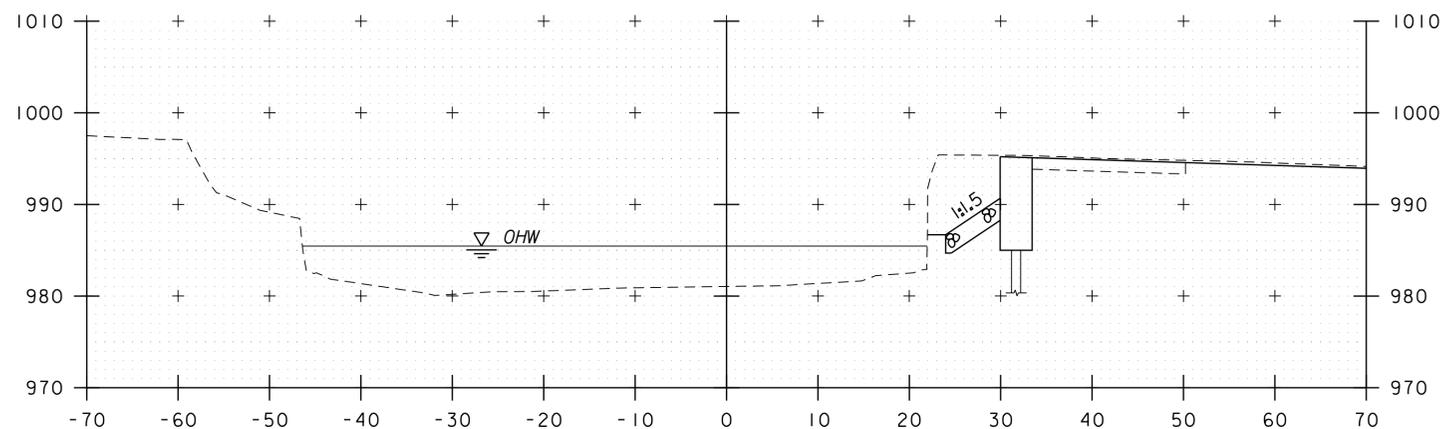
CHANNEL CROSS SECTIONS
STA. 10+00 TO 10+75

PROJECT NAME:	LUDLOW	PLOT DATE:	2/19/2015
PROJECT NUMBER:	BRF 025-1(42)	DRAWN BY:	E.A. FIALA
FILE NAME:	z10j068xsl.dgn	DESIGNED BY:	E.A. FIALA
PROJECT LEADER:	A.P. GUYETTE	CHECKED BY:	A.P. GUYETTE
CHANNEL CROSS SECTIONS (1 OF 3)		SHEET	31 OF 39





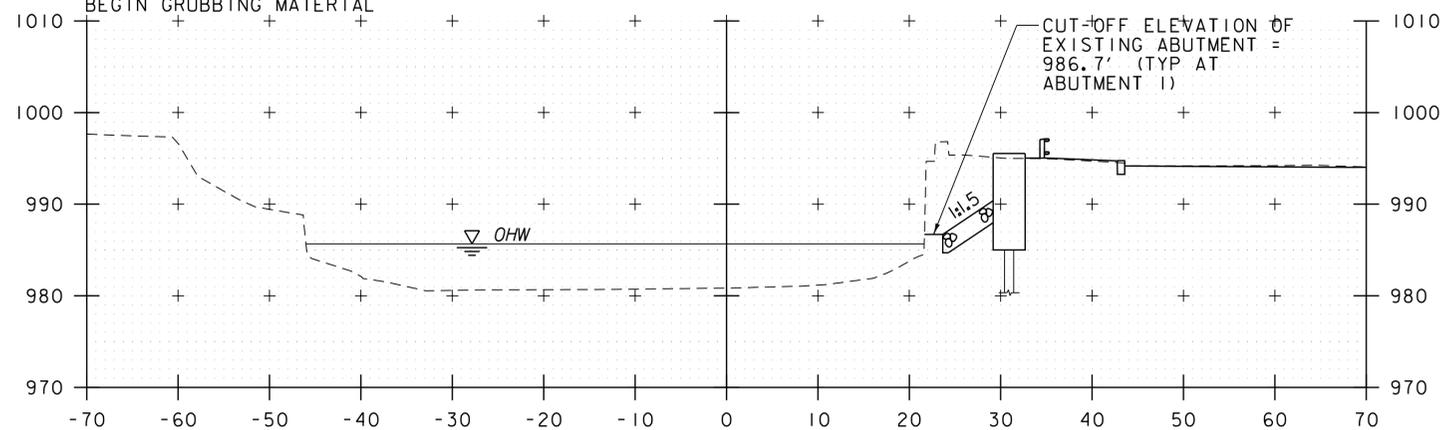
11+50



11+25

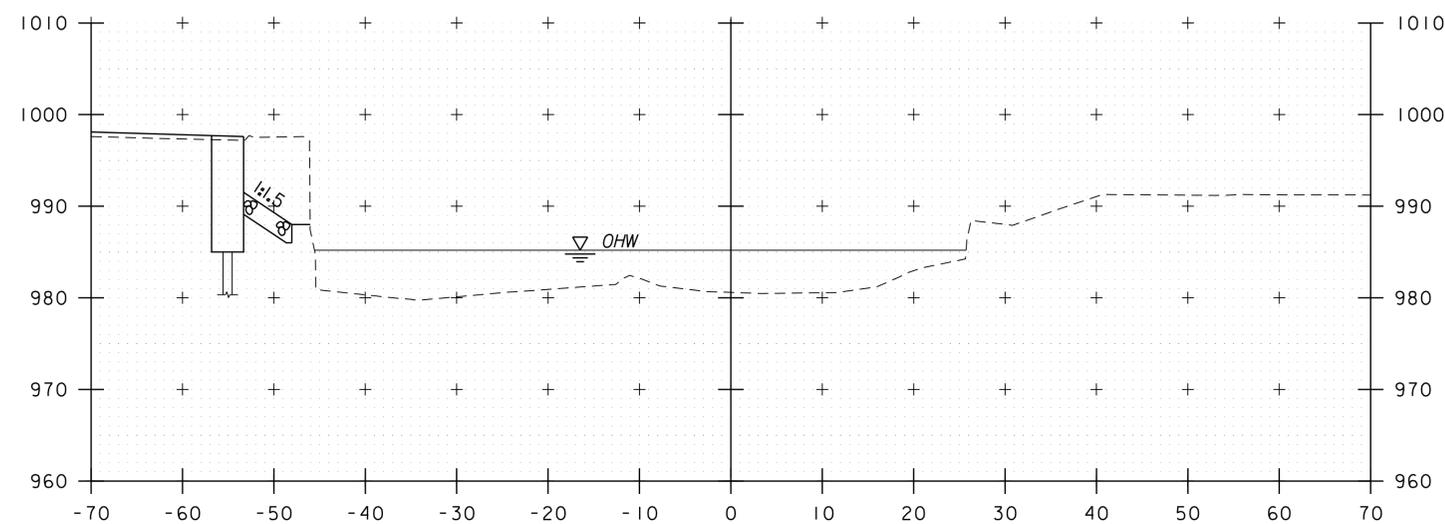
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 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE IV

STA. 11+07, RT
 END GRUBBING MATERIAL

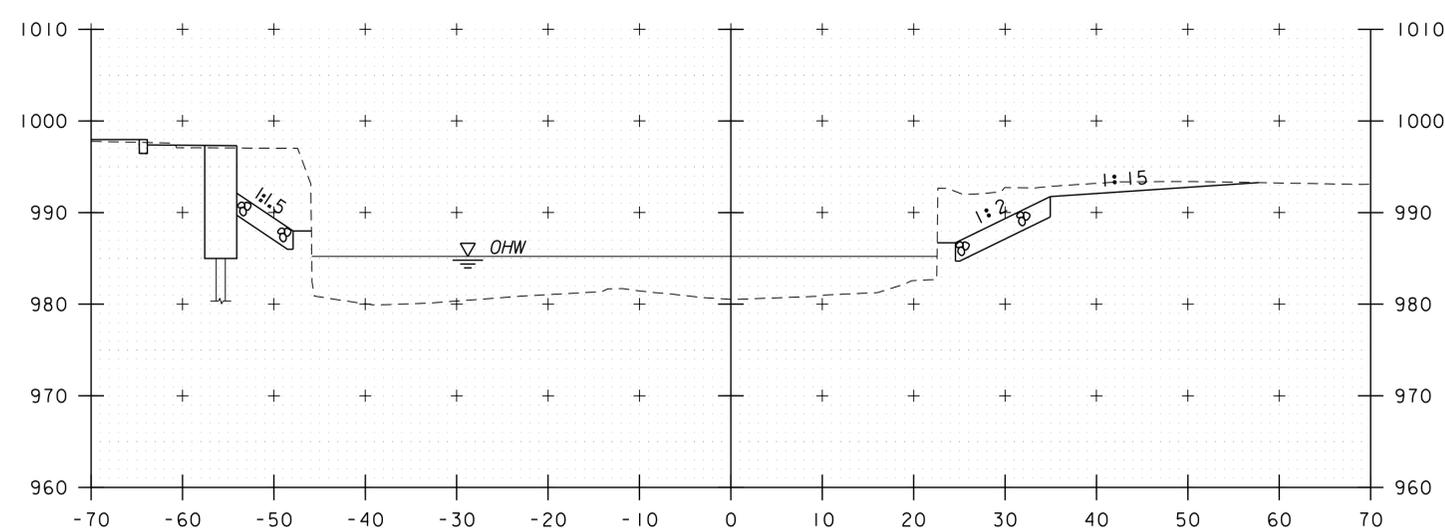


11+00

STA. 10+82, RT
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 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE IV
 GRUBBING MATERIAL



12+00



11+75

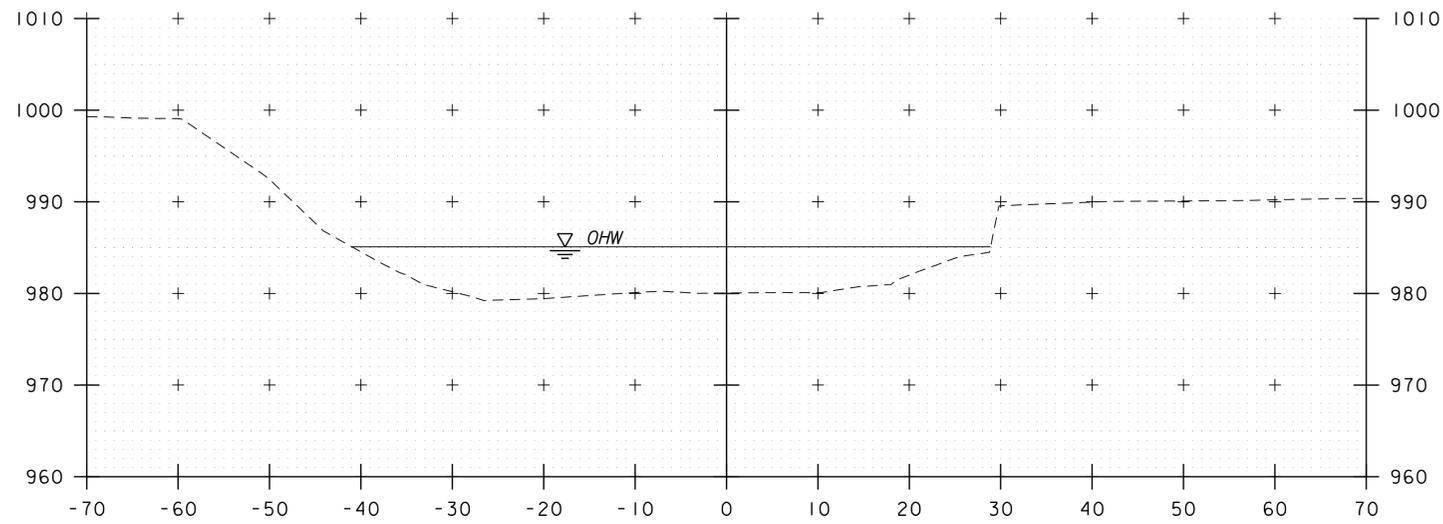
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STA. 11+58, RT
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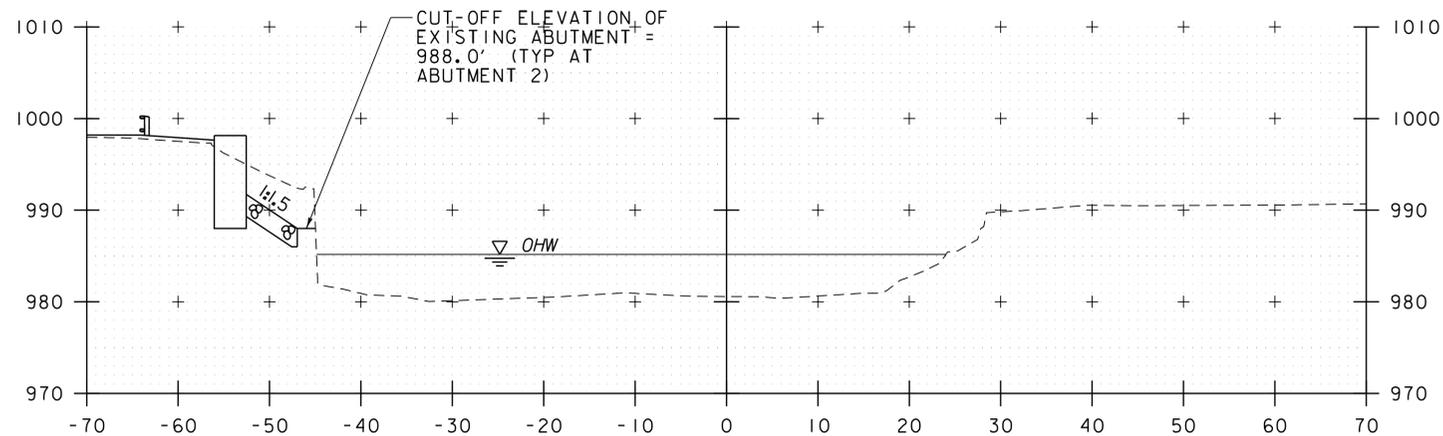
CHANNEL CROSS SECTIONS
 STA. 11+00 TO 12+00



PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10j068xsl.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	SHEET 32 OF 39
DESIGNED BY: E.A. FIALA	
CHANNEL CROSS SECTIONS (2 OF 3)	



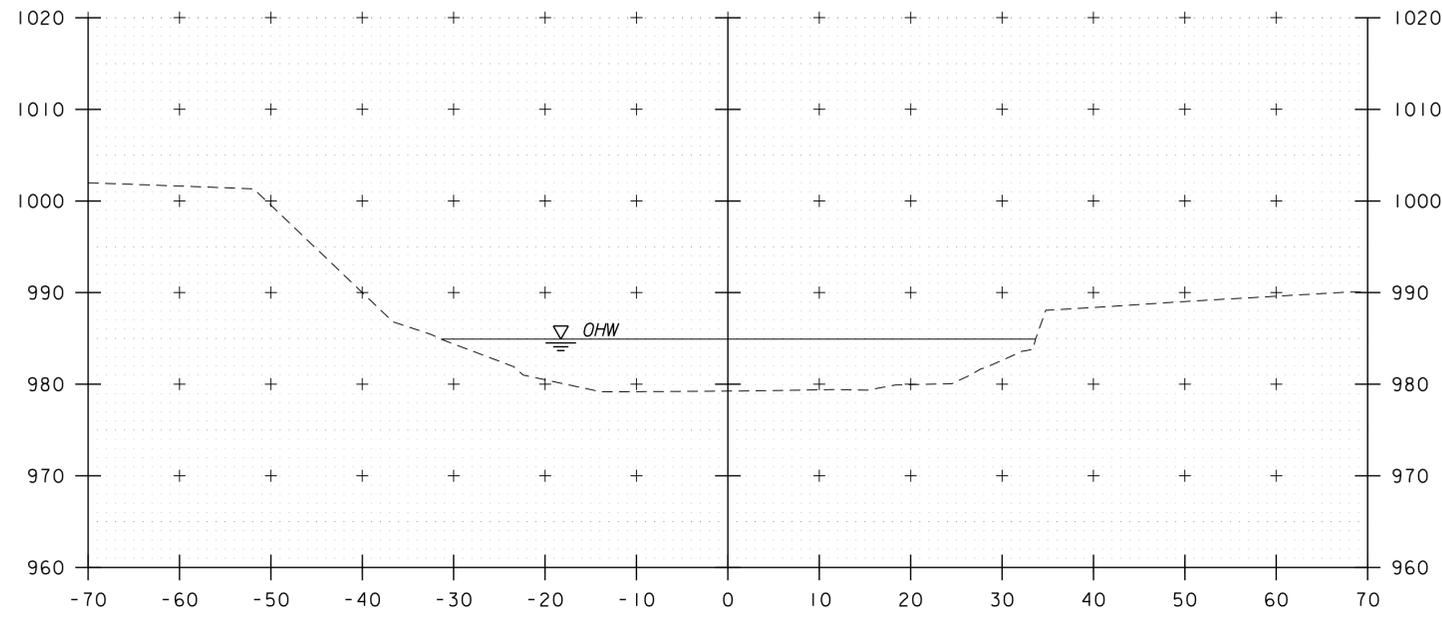
12+50



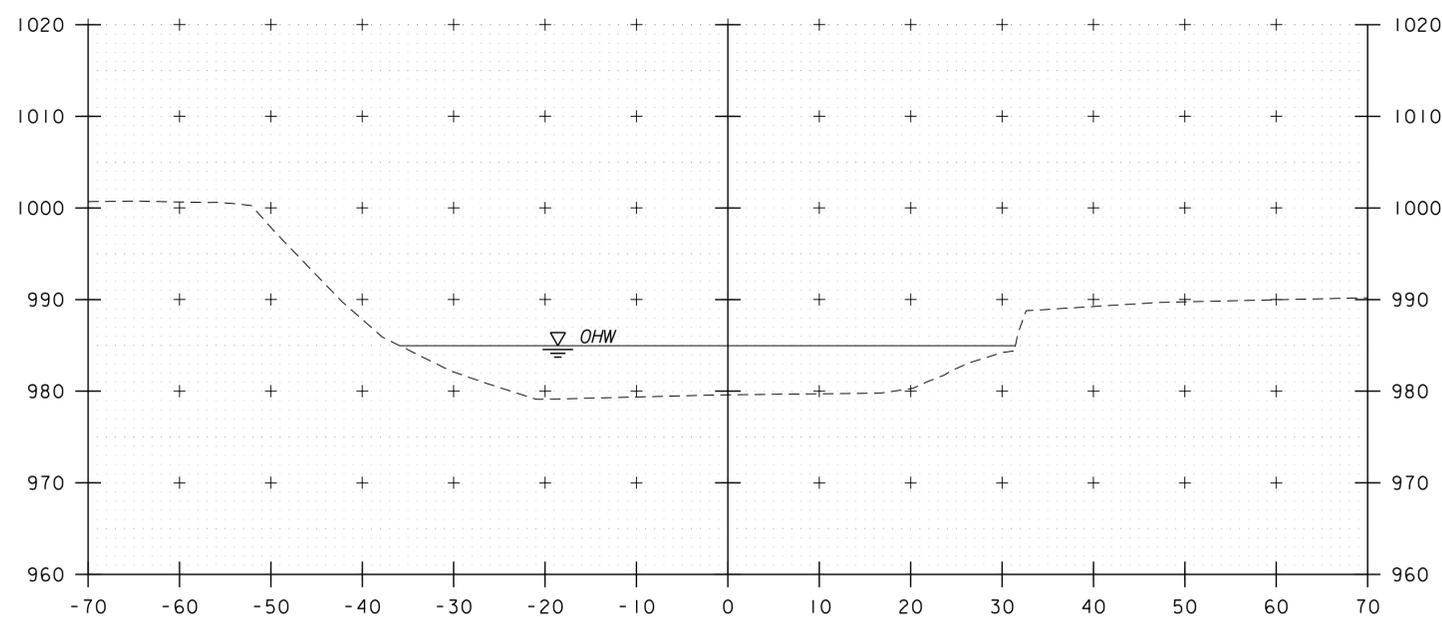
STA. 12+10, LT
BEGIN GRUBBING MATERIAL

12+25

STA. 12+01, RT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL



13+00



STA. 12+74, LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE IV
GRUBBING MATERIAL

12+75

CHANNEL CROSS SECTIONS
STA. 12+25 TO 13+00



PROJECT NAME: LUDLOW	PLOT DATE: 2/19/2015
PROJECT NUMBER: BRF 025-1(42)	DRAWN BY: E.A. FIALA
FILE NAME: z10j068xsl.dgn	CHECKED BY: A.P. GUYETTE
PROJECT LEADER: A.P. GUYETTE	SHEET 33 OF 39
DESIGNED BY: E.A. FIALA	
CHANNEL CROSS SECTIONS (3 OF 3)	

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL AND REPLACEMENT OF THE EXISTING TWO-SPAN CONCRETE T-BEAM SUPERSTRUCTURE AND SUBSTRUCTURE OF BRIDGE NO. 25 WITH RELATED APPROACH AND CHANNEL WORK. DURING CONSTRUCTION, TRAFFIC WILL BE DETOURED AROUND A LOCAL OR REGIONAL DETOUR. THIS PROJECT IS LOCATED ON VT 103, A HEAVILY TRAVELED ROAD, LOCATED WHERE MAIN STREET CROSSES THE BLACK RIVER, IN THE TOWN OF LUDLOW, VERMONT. THE EXISTING BRIDGE IS APPROXIMATELY 86 FEET LONG AND HAS A 35'-8" WIDE CONCRETE DECK. THE EXISTING SUBSTRUCTURE CONSISTS OF CONCRETE ABUTMENTS ON TIMBER PILES, WINGWALLS, AND A CONCRETE PIER.

THE BRIDGE REPLACEMENT INCLUDES THE REMOVAL OF THE EXISTING STRUCTURE IN ITS ENTIRETY AND THE CONSTRUCTION OF A NEW 105'-6" SINGLE SPAN BRIDGE WITH PRECAST BRIDGE UNITS CONSISTING OF STEEL GIRDERS WITH PRECAST DECK TO CREATE A NEW BRIDGE WIDTH OF 43'-8". NEW INTEGRAL CONCRETE ABUTMENTS AND WINGWALLS WILL BE PRECAST AND SET IN PLACE ON PILES AND ASSOCIATED APPROACH WORK INCLUDES BRIDGE APPROACH SLABS, NEW GUARDRAIL, CURBS, AND SIDEWALKS. ONCE THE BRIDGE IS COMPLETED, THE DETOUR SIGNS WILL BE REMOVED AND RESTORED TO THE PREVIOUS CONDITIONS.

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 0.65 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 RELATIVELY FLAT, WITH A STEEP SLOPE DOWN TO THE BLACK RIVER. VT ROUTE 103, ELM STREET (T.H. 328), AND GLEASCOTT (T.H. 314) ARE WITHIN THE PROJECT SITE. THE BRIDGE IS LOCATED IN A HISTORIC DISTRICT WITH HISTORIC BUILDINGS AND A PARKING LOT ADJACENT TO THE SITE.

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

THE BLACK RIVER IS THE ONLY STREAM FEATURE ON THE PROJECT SITE. THE RIVER RUNS WEST TO EAST BENEATH MAIN STREET IN LUDLOW, VERMONT. THE OHW LEVEL IS APPROXIMATELY 50-FEET WIDE WITH AN AVERAGE DEPTH OF TWO FEET. THE AREAS ON EITHER SIDE OF THE RIVER ARE DEVELOPED AND PORTIONS OF THE RIVER BANKS CONSIST OF CONCRETE RETAINING WALLS. THE STREAM SUBSTRATE GENERALLY CONSISTS OF BOULDERS AND COBBLES. THE BLACK RIVER WILL REQUIRE COVERAGE AS A CATEGORY 2 ACTIVITY UNDER THE DEPARTMENT OF THE ARMY VERMONT GENERAL PERMIT.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF TRIMMED GRASS AND A FEW TREES. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE URBAN LAND-COLTON-CROGHAN COMPLEX, 0% TO 8% SLOPES, "K FACTOR" = 0.43. THE SOIL IS CONSIDERED HIGHLY ERODIBLE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES, STRUCTURES ADJACENT TO THE MAIN STREET BRIDGE ARE IDENTIFIED WITHIN THE LUDLOW VILLAGE HISTORIC DISTRICT
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: BLACK RIVER
WETLANDS: NO

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

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

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

BARRIER FENCE (BF) SHALL BE USED TO PHYSICALLY MARK ARCHAEOLOGICAL AREAS.

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

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

1.4.4 INSTALL SEDIMENT BARRIERS

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

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

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. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES ARE NOT ANTICIPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT EROSION CONTROL STRUCTURES ARE NOT ANTICIPATED FOR 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.

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

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

1.4.9 WINTER STABILIZATION

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

1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR THE TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER, THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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

1.5.3 UPDATES

PROJECT NAME: LUDLOW
PROJECT NUMBER: BRF 025-1(42)

FILE NAME: z10j068ero.Narrative.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: E.A. FIALA
EPSC NARRATIVE

PLOT DATE: 2/19/2015
DRAWN BY: E.A. FIALA
CHECKED BY: A.P. GUYETTE
SHEET 34 OF 39



SOIL CLASSIFICATION
 URBAN LAND-COLTON-CROGHAN COMPLEX (75B)
 0% TO 8% SLOPES
 K FACTOR = 0.48
 CLASSIFIED HIGH EROSION POTENTIAL

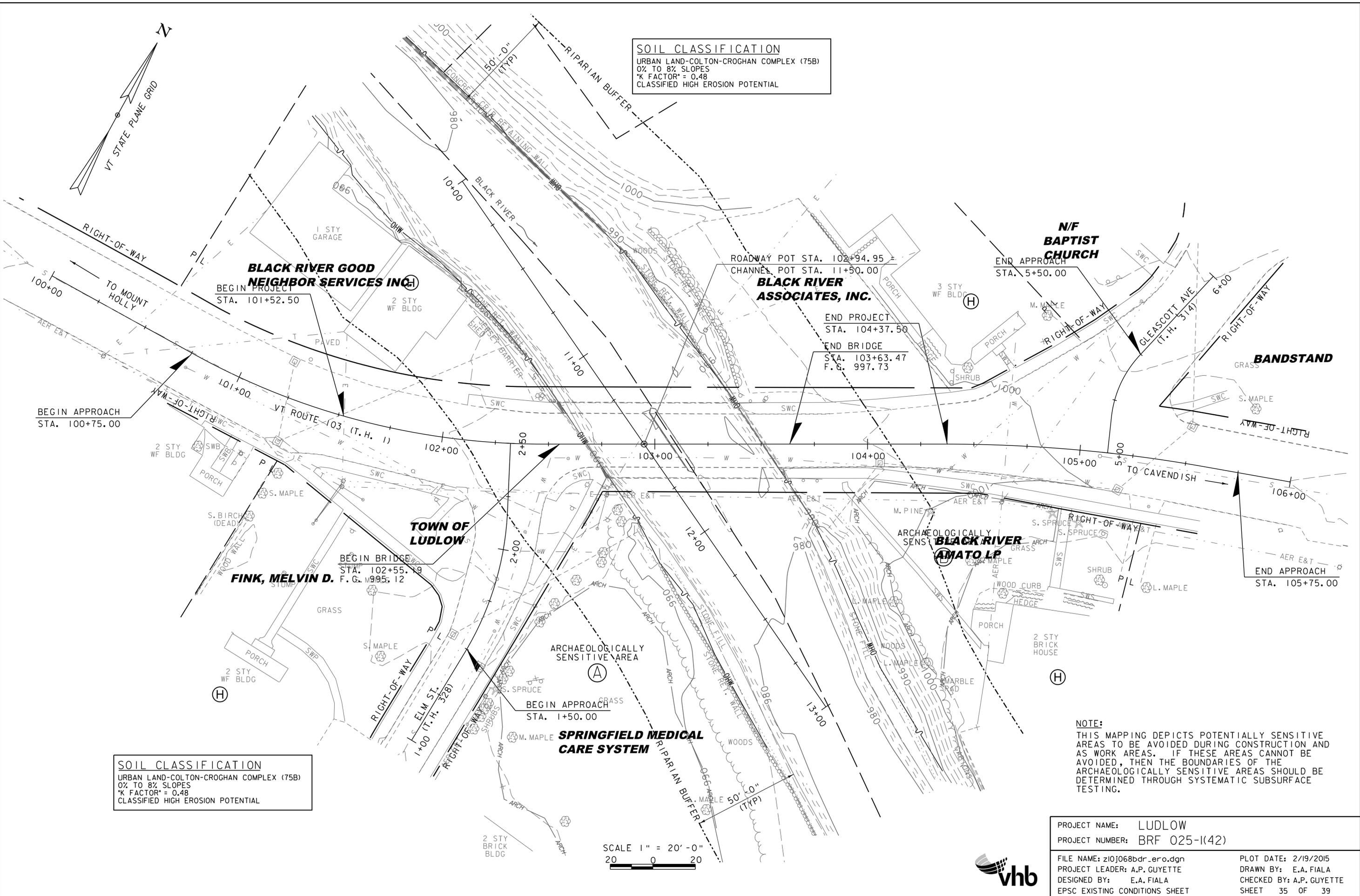
SOIL CLASSIFICATION
 URBAN LAND-COLTON-CROGHAN COMPLEX (75B)
 0% TO 8% SLOPES
 K FACTOR = 0.48
 CLASSIFIED HIGH EROSION POTENTIAL

NOTE:
 THIS MAPPING DEPICTS POTENTIALLY SENSITIVE AREAS TO BE AVOIDED DURING CONSTRUCTION AND AS WORK AREAS. IF THESE AREAS CANNOT BE AVOIDED, THEN THE BOUNDARIES OF THE ARCHAEOLOGICALLY SENSITIVE AREAS SHOULD BE DETERMINED THROUGH SYSTEMATIC SUBSURFACE TESTING.

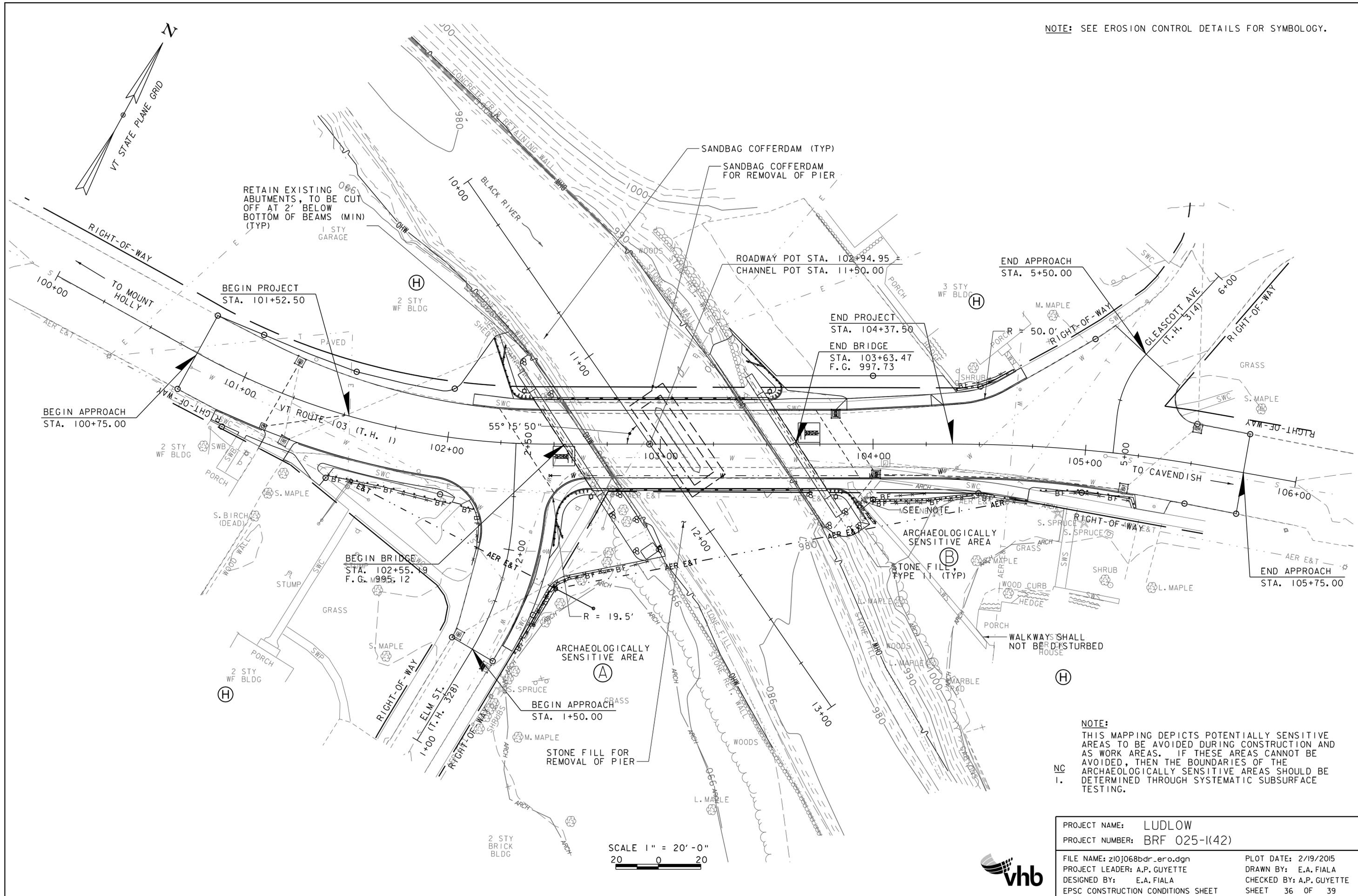
PROJECT NAME: LUDLOW
 PROJECT NUMBER: BRF 025-1(42)

FILE NAME: z10j068bdr_ero.dgn
 PROJECT LEADER: A.P. GUYETTE
 DESIGNED BY: E.A. FIALA
 EPSC EXISTING CONDITIONS SHEET

PLOT DATE: 2/19/2015
 DRAWN BY: E.A. FIALA
 CHECKED BY: A.P. GUYETTE
 SHEET 35 OF 39



NOTE: SEE EROSION CONTROL DETAILS FOR SYMBOLOLOGY.

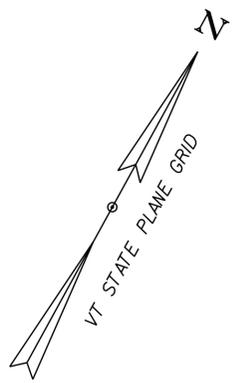
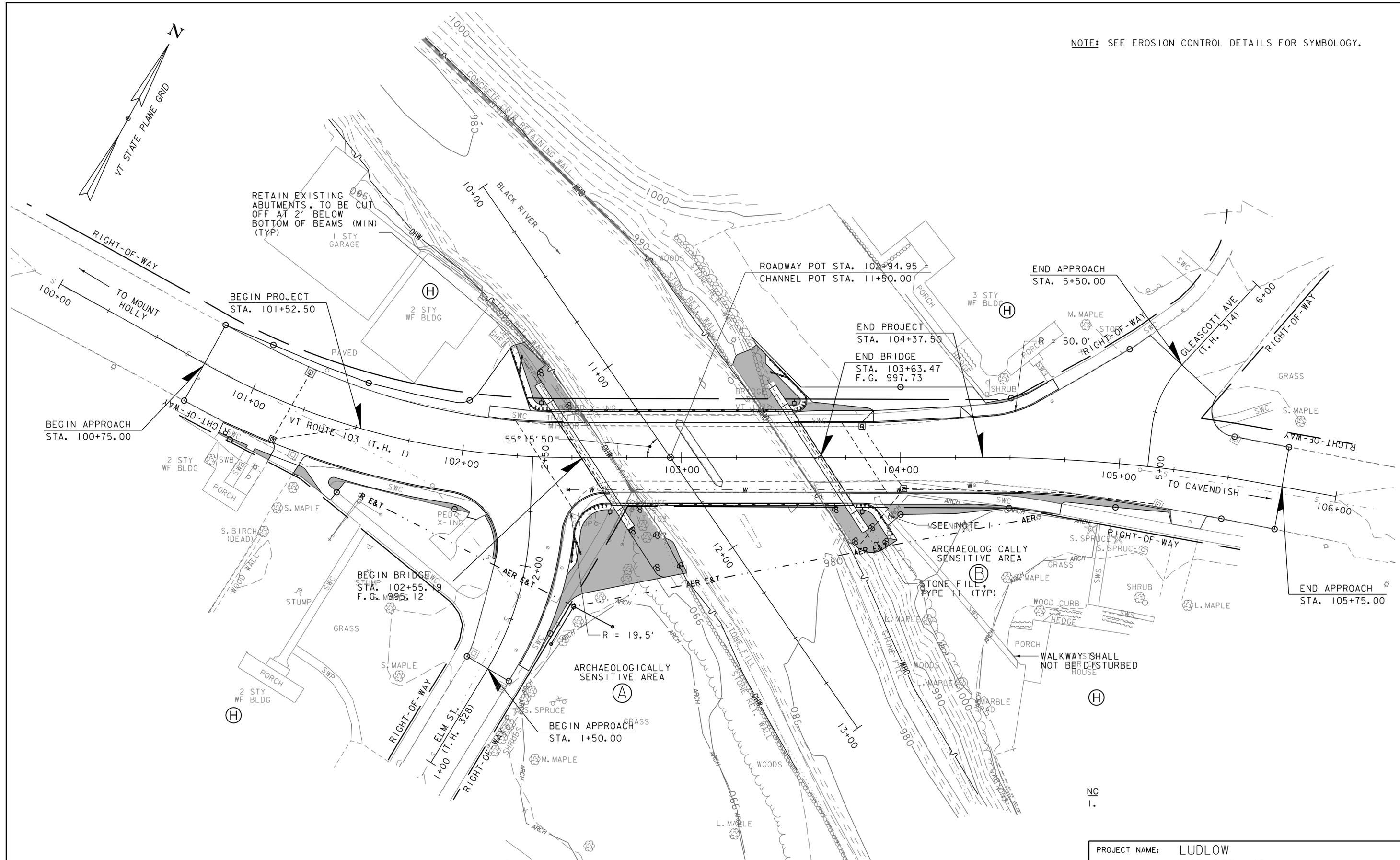


NOTE:
 THIS MAPPING DEPICTS POTENTIALLY SENSITIVE AREAS TO BE AVOIDED DURING CONSTRUCTION AND AS WORK AREAS. IF THESE AREAS CANNOT BE AVOIDED, THEN THE BOUNDARIES OF THE ARCHAEOLOGICALLY SENSITIVE AREAS SHOULD BE DETERMINED THROUGH SYSTEMATIC SUBSURFACE TESTING.

PROJECT NAME: LUDLOW	
PROJECT NUMBER: BRF 025-1(42)	
FILE NAME: z10j068bdr_ero.dgn	PLOT DATE: 2/19/2015
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: E.A. FIALA
DESIGNED BY: E.A. FIALA	CHECKED BY: A.P. GUYETTE
EPSC CONSTRUCTION CONDITIONS SHEET	SHEET 36 OF 39



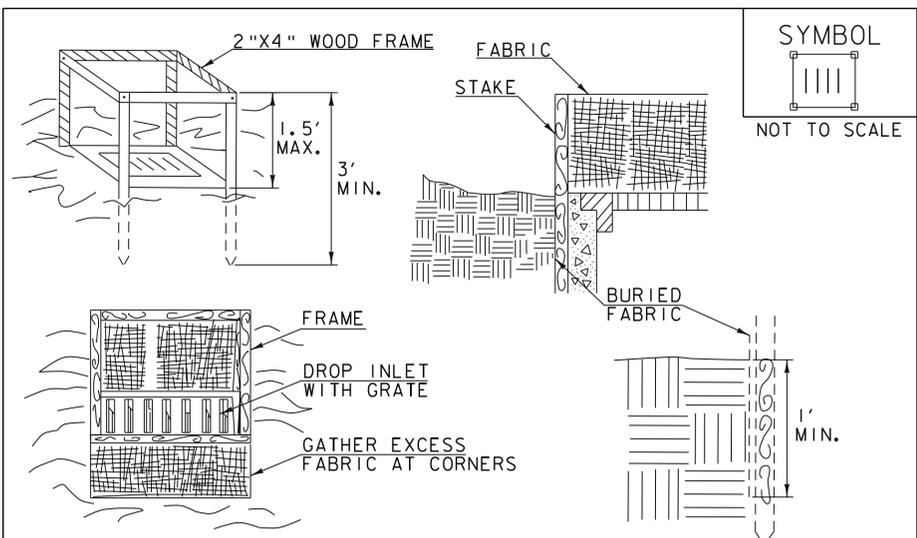
NOTE: SEE EROSION CONTROL DETAILS FOR SYMBOLOLOGY.



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

PROJECT NAME:	LUDLOW	FILE NAME:	z10j068bdr_ero.dgn	PLOT DATE:	2/19/2015
PROJECT NUMBER:	BRF 025-1(42)	PROJECT LEADER:	A.P. GUYETTE	DRAWN BY:	E.A. FIALA
		DESIGNED BY:	E.A. FIALA	CHECKED BY:	A.P. GUYETTE
		EPSC FINAL CONDITIONS SHEET		SHEET	37 OF 39





CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN APPARENT OPENING SIZE OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2"x 4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3'.
4. SPACE STAKES EVENLY AROUND INLET 3' APART AND DRIVE A MINIMUM 18" DEEP. SPANS GREATER THAN 3' MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1' MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE

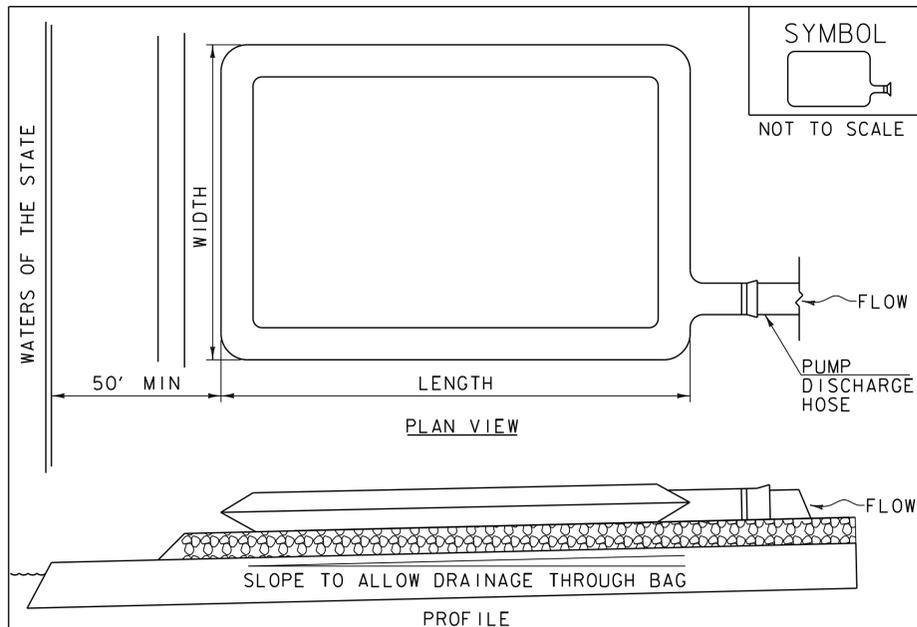
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**FILTER FABRIC
DROP INLET
PROTECTION**

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 INLET PROTECTION DEVICE, TYPE 1(PAY
ITEM 653.40).

REVISIONS	
MARCH 7, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

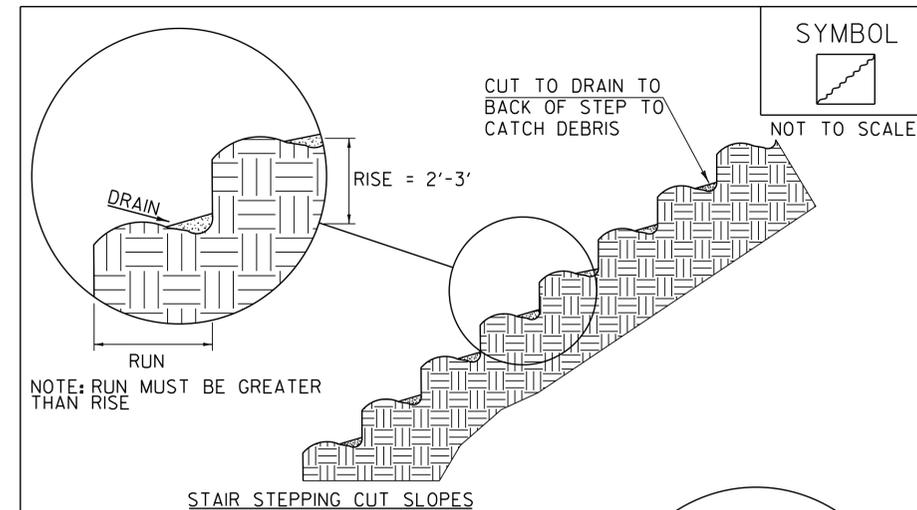
1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION 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

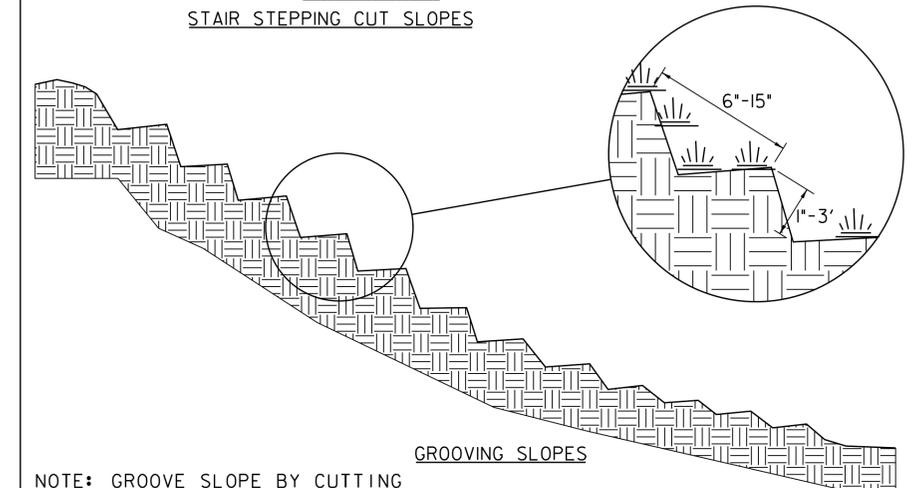
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR
EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL
GUIDANCE.

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



STAIR STEPPING CUT SLOPES



GROOVING SLOPES

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

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

SURFACE ROUGHENING

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

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE
CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF



PROJECT NAME: LUDLOW
PROJECT NUMBER: BRF 025-1(42)

FILE NAME: z10j068details_ero.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: VTRANS
EROSION CONTROL DETAILS (2 OF 3)

PLOT DATE: 2/19/2015
DRAWN BY: E.A. FIALA
CHECKED BY: A.P. GUYETTE
SHEET 39 OF 39