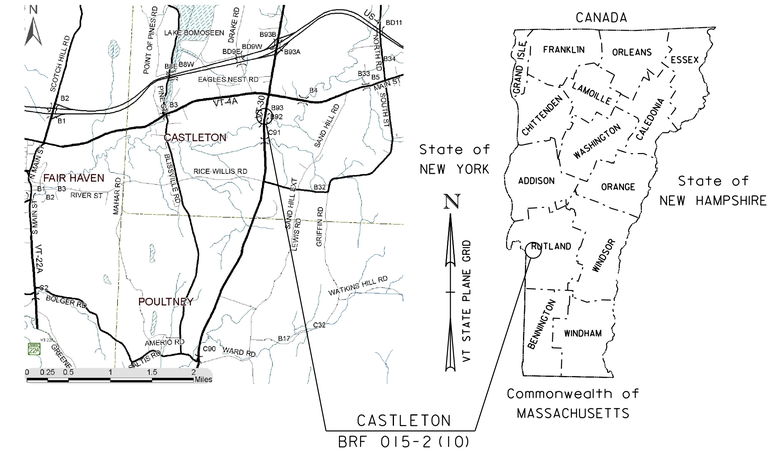
REVIEWER NOTES

1. THERE WILL BE A 4 WEEK CLOSURE PERIOD, WITH OFFSITE DETOUR.
2. CONSIDER REQUESTING ADDITIONAL DATA FROM TRAFFIC RESEARCH TO DETERMINE EXISTING LEVEL OF SERVICE AND HOW IT MAY BE AFFECTED BY THE DETOURED TRAFFIC

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF CASTLETON
COUNTY OF RUTLAND

ROUTE NO : VT RTE 30, RURAL MINOR ARTERIAL BRIDGE NO : 93

PROJECT LOCATION: 0.3 MILES SOUTH OF JUNCTION WITH VT ROUTE 4A

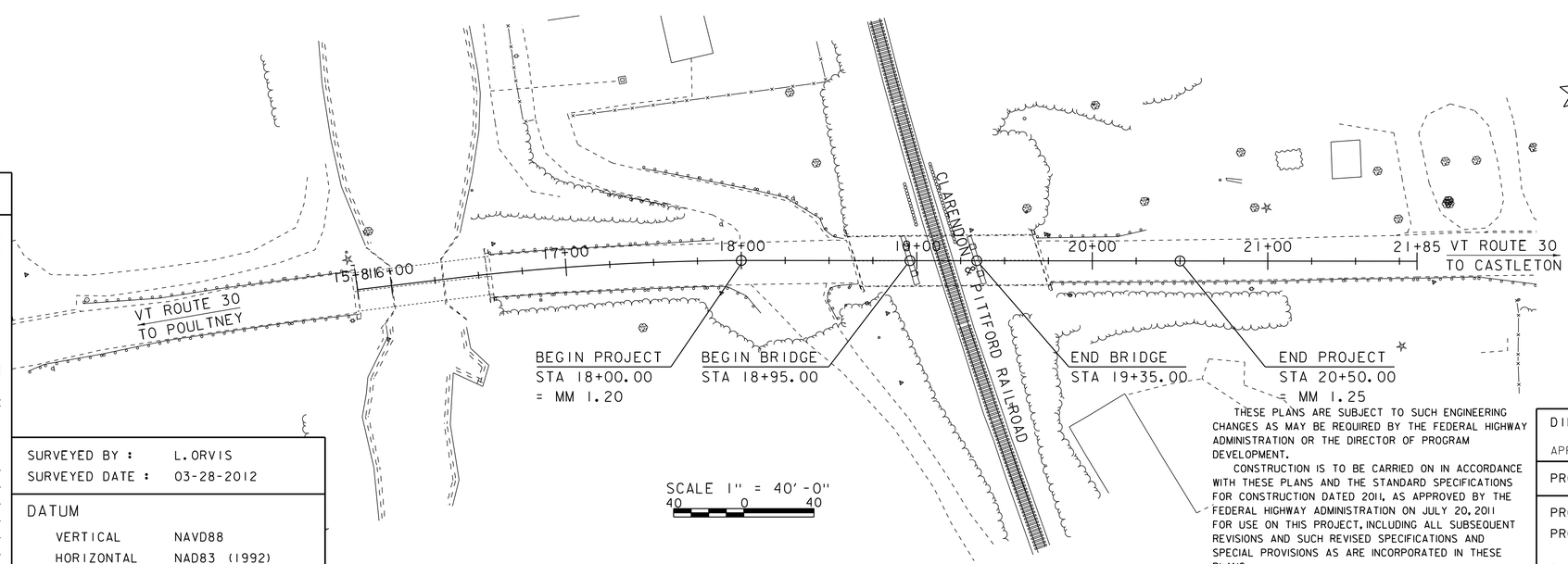
PROJECT DESCRIPTION: DEMOLITION OF EXISTING THREE SPAN BRIDGE, AND REPLACEMENT WITH A NEW SINGLE SPAN BRIDGE OVER EXISTING RAILROAD.

LENGTH OF STRUCTURE: 40.00 FEET
LENGTH OF ROADWAY: 210.00 FEET
LENGTH OF PROJECT: 250.00 FEET

QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

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



SURVEYED BY : L.ORVIS
SURVEYED DATE : 03-28-2012

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83 (1992)

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.

CONCEPTUAL PLANS
21-FEB-2013

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE _____

PROJECT MANAGER : C.P.WILLIAMS

PROJECT NAME : CASTLETON
PROJECT NUMBER : BRF 015-2(10)

SHEET 1 OF 12 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

1	TITLE SHEET
2	PRELIMINARY INFORMATION SHEET
3	DETOUR SHEET
4	TYPICAL SECTIONS
5	LEGEND SHEET
6	LAYOUT SHEET
7	PROFILE SHEET
8	EXISTING CONDITIONS SHEET
9 - 12	ROADWAY CROSS SECTIONS

STANDARDS LIST

FINAL HYDRAULIC REPORT

DRY CROSSING, NO HYDRAULICS REQUIRED.

TRAFFIC MAINTENANCE NOTES

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

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	40.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	5.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	- - -
20. PILE YIELD STRENGTH ASTM A572	f_y:	- - -
21. PILE SIZE		- - -
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	- - -
24. LATERAL PILE DEFLECTION	Δ:	- - -
25. BASIC WIND SPEED	V_{3s}:	- - -
26. MINIMUM GROUND SNOW LOAD	p_g:	- - -
27. SEISMIC DATA — PGA: - - -	S_s:	- - -
	S_1:	- - -

LRFR LOAD RATING FACTORS

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

AS BUILT "REBAR" DETAIL

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	4000	450	52	5.8	250
2035	4200	470	52	8.9	410

20 year ESAL for flexible pavement from 2015 to 2035 : 2064000

40 year ESAL for flexible pavement from 2015 to 2055 : 4920000

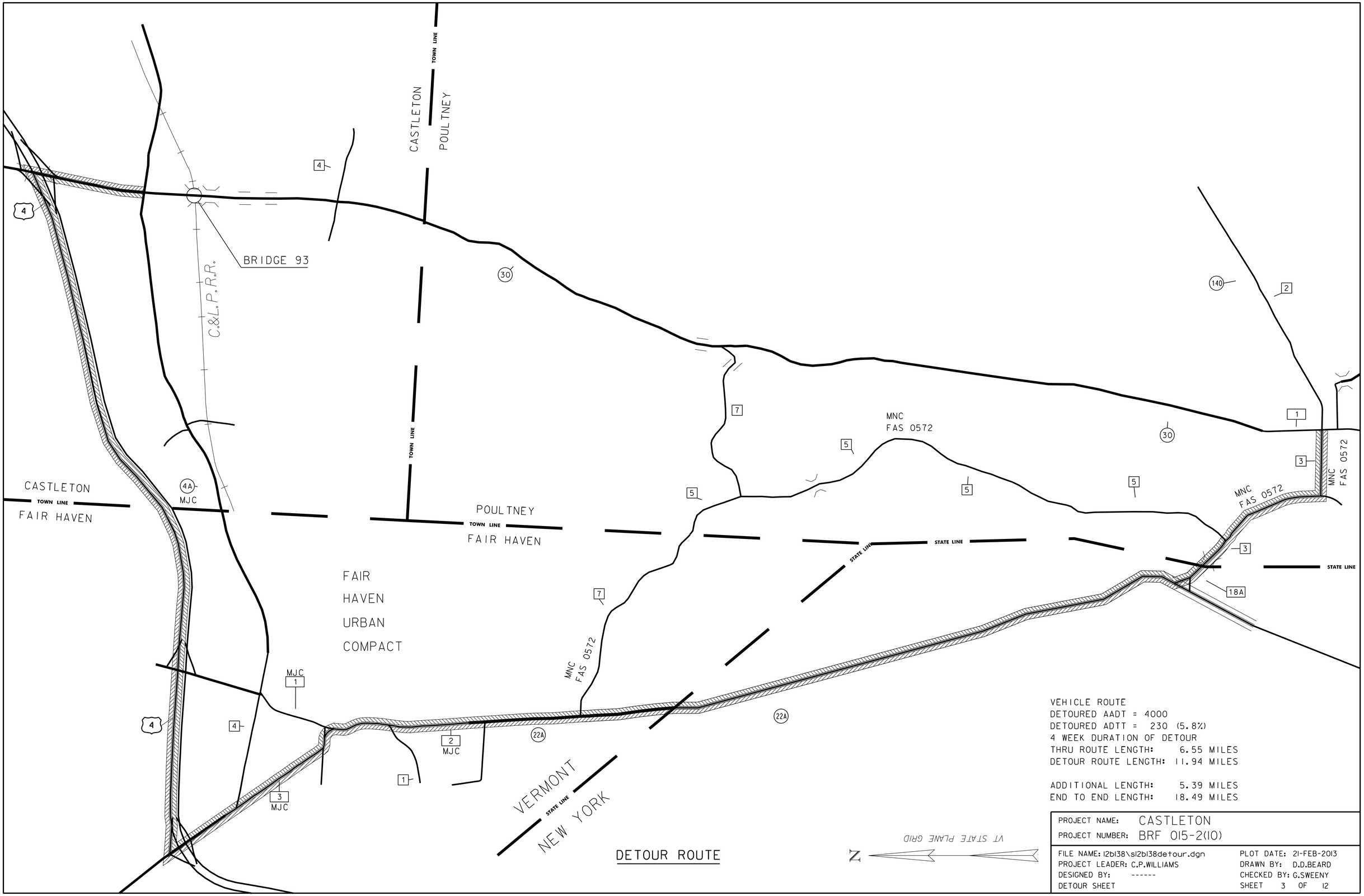
Design Speed : 40 mph

PROJECT NAME: **CASTLETON**

PROJECT NUMBER: **BRF 015-2(10)**

FILE NAME: **12b138\s12b138excel.dgn**
PROJECT LEADER: **C.P.WILLIAMS**
DESIGNED BY: **G.SWEENY**
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 2/21/2013
DRAWN BY: **D.D.BEARD**
CHECKED BY: **T.FILLBACH**
SHEET 2 OF 12



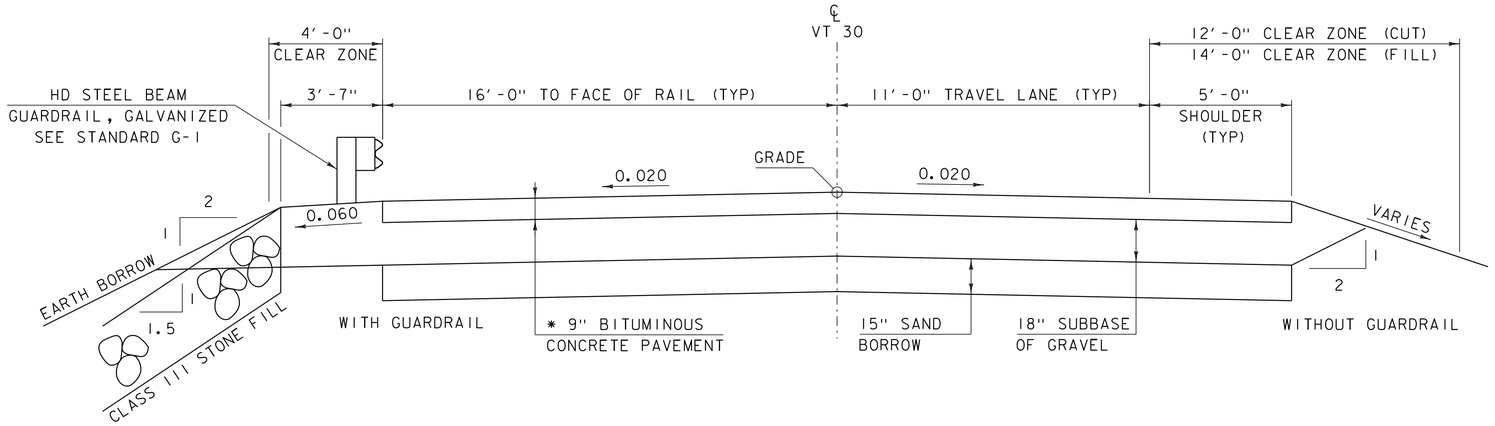
VEHICLE ROUTE
DETOURED AADT = 4000
DETOURED ADTT = 230 (5.8%)
4 WEEK DURATION OF DETOUR
THRU ROUTE LENGTH: 6.55 MILES
DETOUR ROUTE LENGTH: 11.94 MILES

ADDITIONAL LENGTH: 5.39 MILES
END TO END LENGTH: 18.49 MILES

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: 12b138\s12b138detour.dgn
PROJECT LEADER: C.P.WILLIAMS
DESIGNED BY: ------
DETOUR SHEET

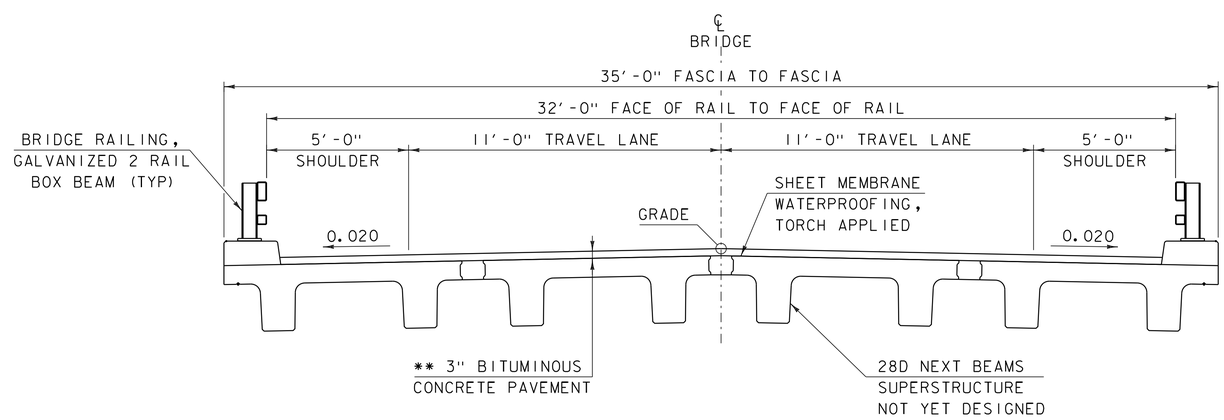
PLOT DATE: 21-FEB-2013
DRAWN BY: D.D.BEARD
CHECKED BY: G.SWEENY
SHEET 3 OF 12



* 1½" TYPE III OR IV OVER
1½" TYPE III OR IV OVER
3" TYPE I OR II OVER
3" TYPE I OR II

PROPOSED VT 30 TYPICAL SECTION

SCALE ⅜" = 1'-0"



PROPOSED BRIDGE TYPICAL SECTION

SCALE ⅜" = 1'-0"

** 1½" TYPE III OR IV OVER
1½" TYPE III OR IV OVER

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: 12b138\s12b138typical.dgn
PROJECT LEADER: C.P.WILLIAMS
DESIGNED BY: G.SWEENY
TYPICAL SECTIONS

PLOT DATE: 21-FEB-2013
DRAWN BY: D.D.BEARD
CHECKED BY: G.SWEENY
SHEET 4 OF 12

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
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	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	CALCULATED ROW POINT
[DISTANCE]		DISTANCE CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

	CLEAR ZONE
	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

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

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

	ARCHEOLOGICAL BOUNDARY
	HISTORIC DISTRICT BOUNDARY
	HISTORIC AREA
H	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

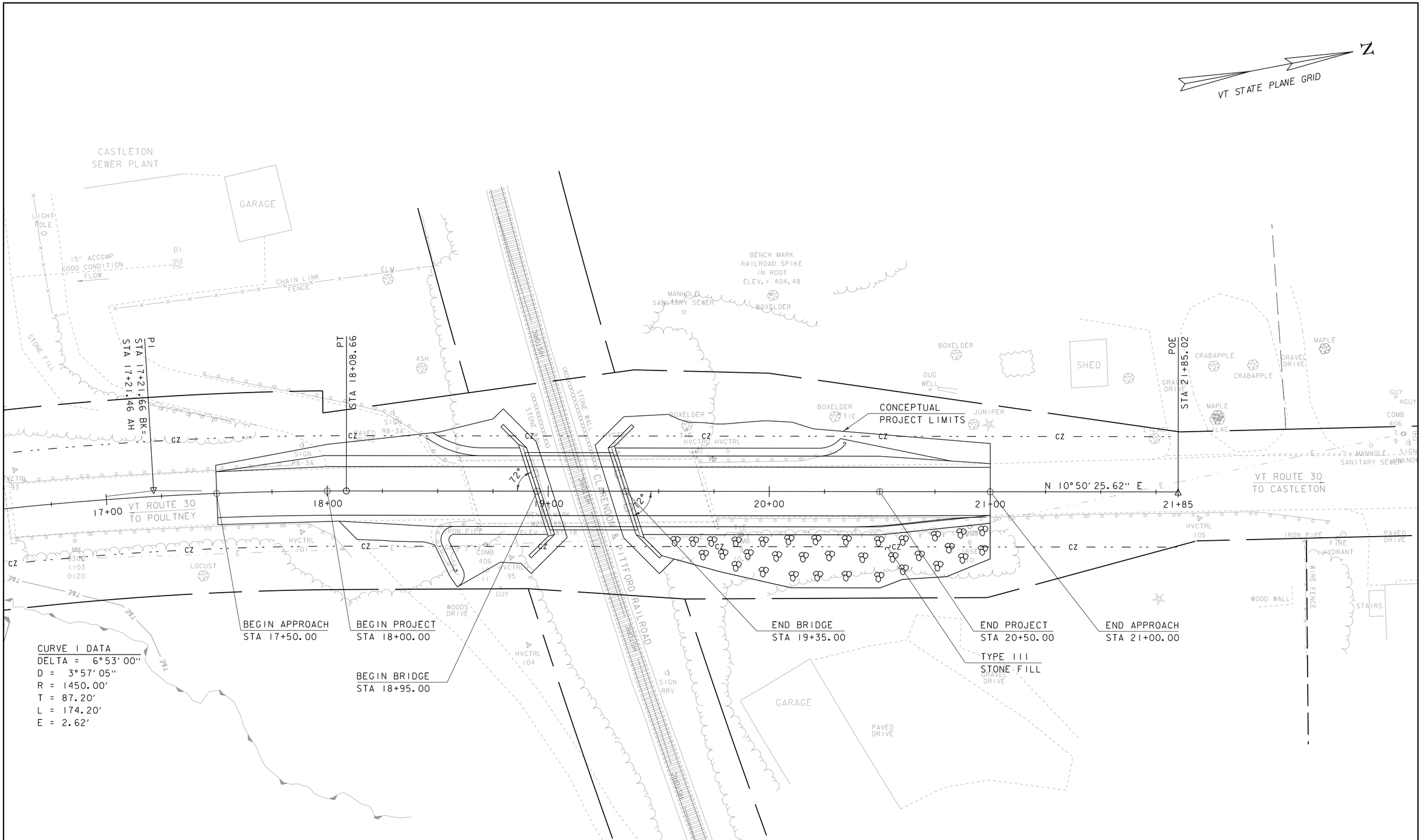
EXISTING FEATURES

	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

PROJECT NAME: CASTLETON
PROJECT NUMBER: BRF 015-2(10)

FILE NAME: 12b138\s12b138excel.dgn
PROJECT LEADER: C.P.WILLIAMS
DESIGNED BY: ------
LEGEND SHEET

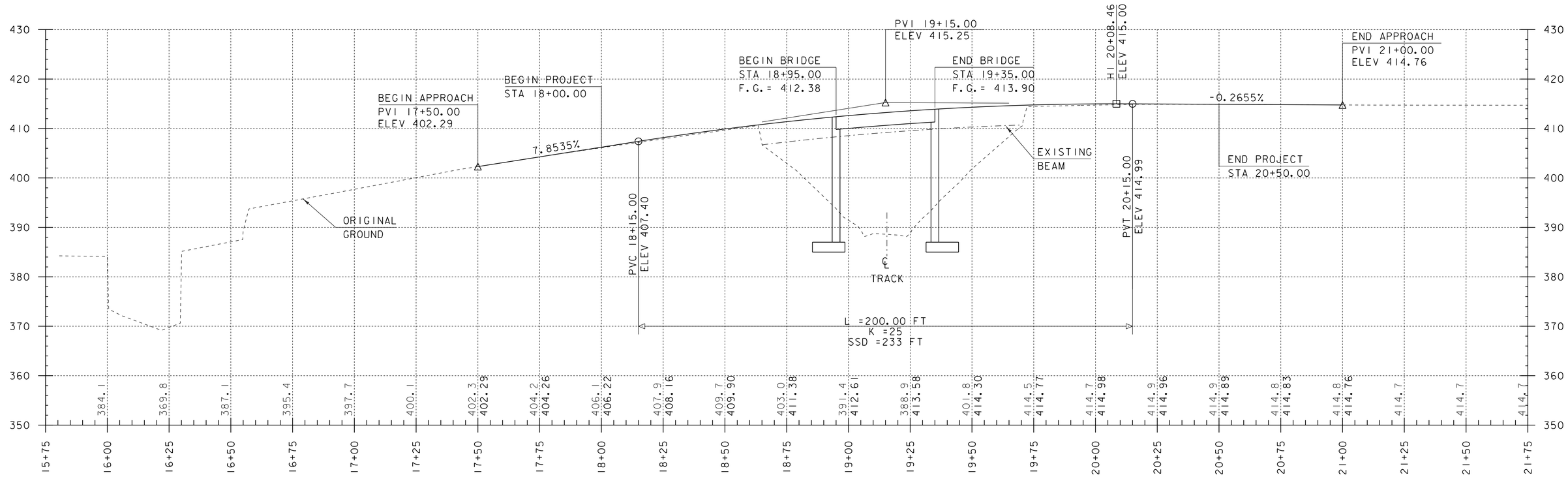
PLOT DATE: 21-FEB-2013
DRAWN BY: M.LONGSTREET
CHECKED BY: ------
SHEET 5 OF 12



LAYOUT

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

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138bdr.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: G.SWEENY	CHECKED BY: ------
LAYOUT SHEET	SHEET 6 OF 12



VT RT 30 PROFILE

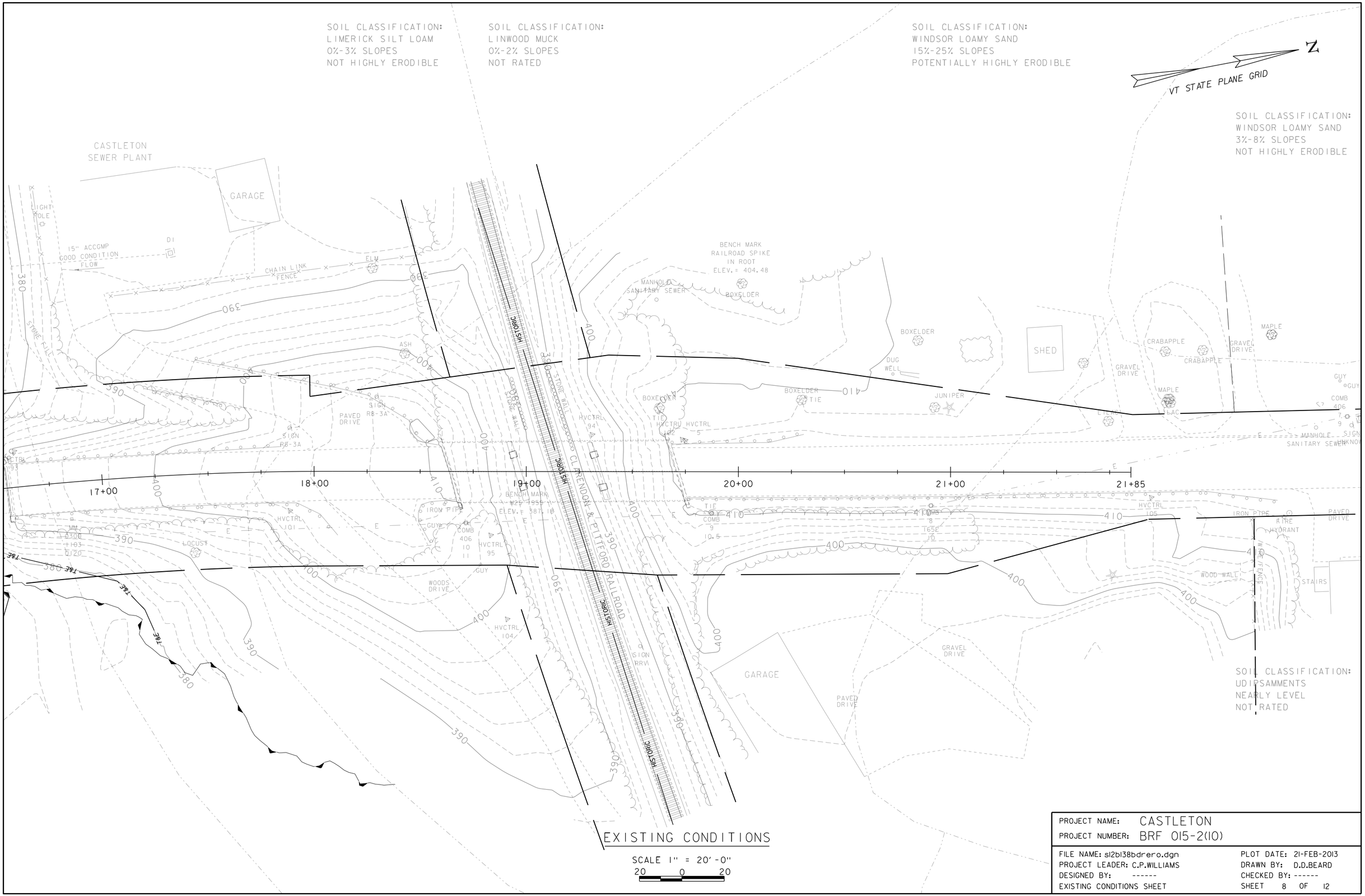
SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=10'

NOTE:

GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138profile.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: G.SWEENY	CHECKED BY: G.SWEENY
PROFILE SHEET	SHEET 7 OF 12

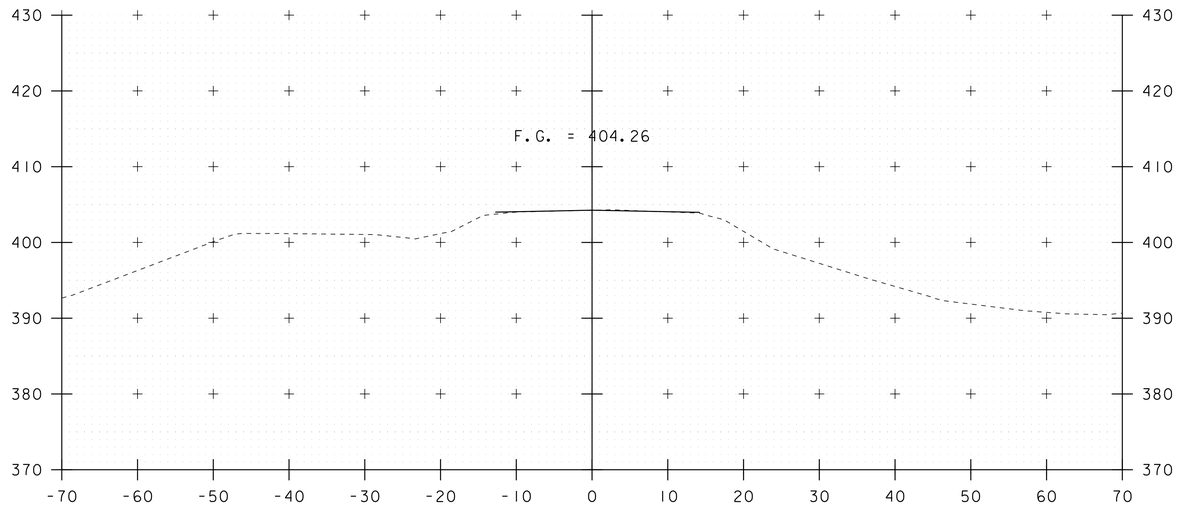


EXISTING CONDITIONS

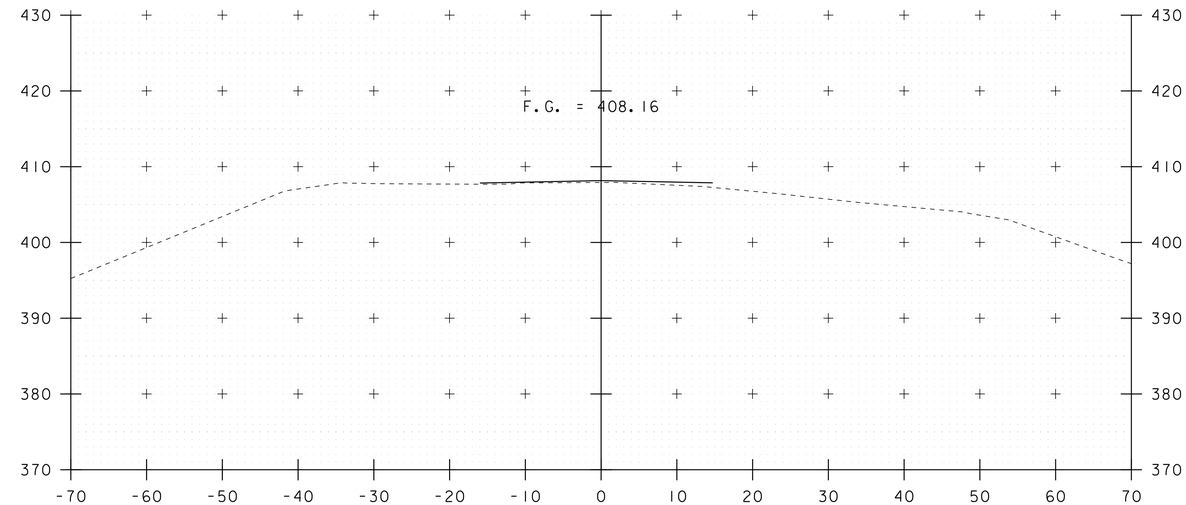
SCALE 1" = 20'-0"

20 0 20

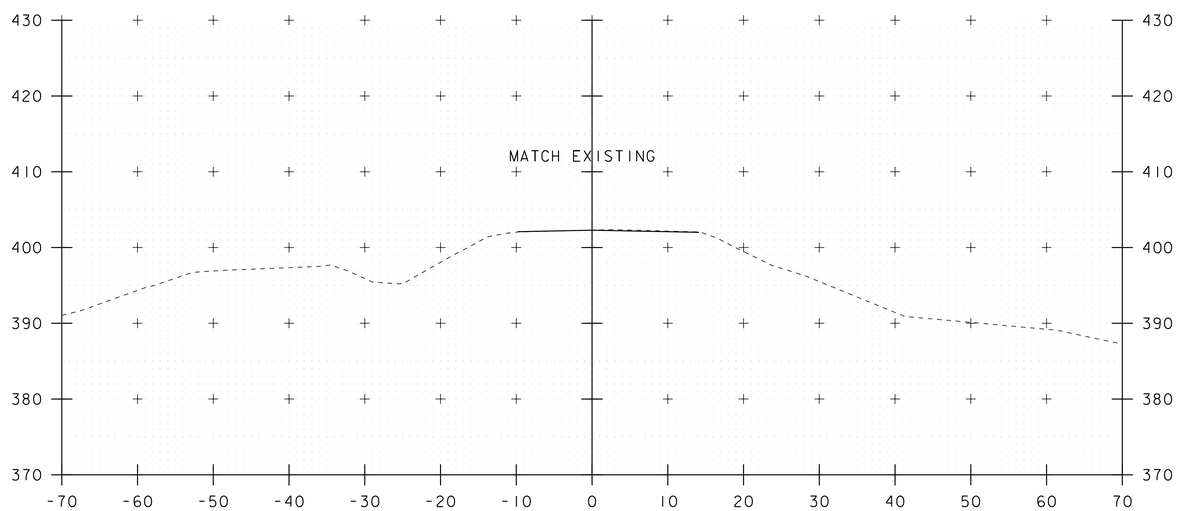
PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138bdrero.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
EXISTING CONDITIONS SHEET	SHEET 8 OF 12



17+75

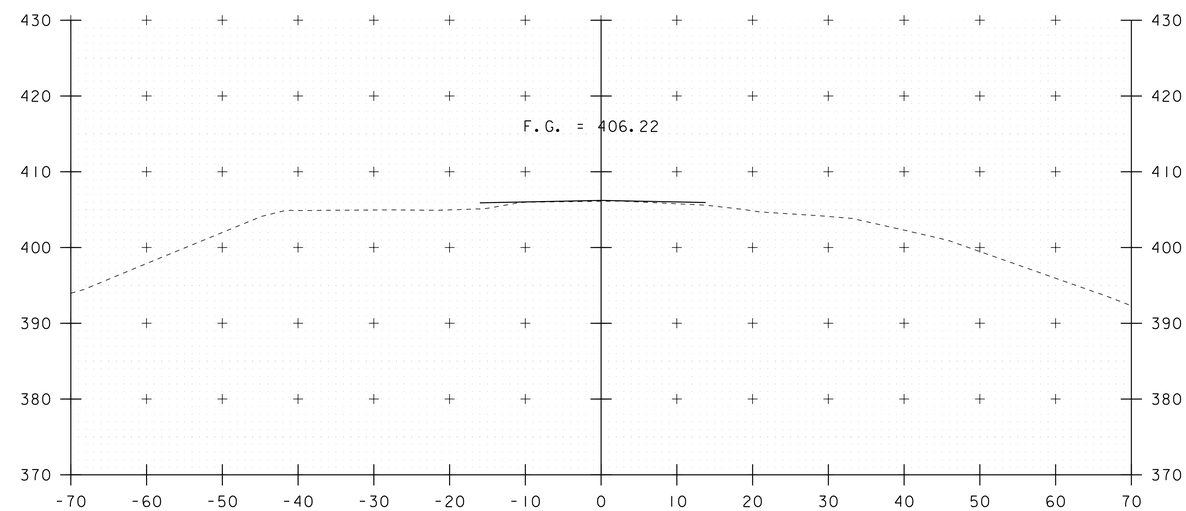


18+25



STA 17+50.00
BEGIN APPROACH

17+50

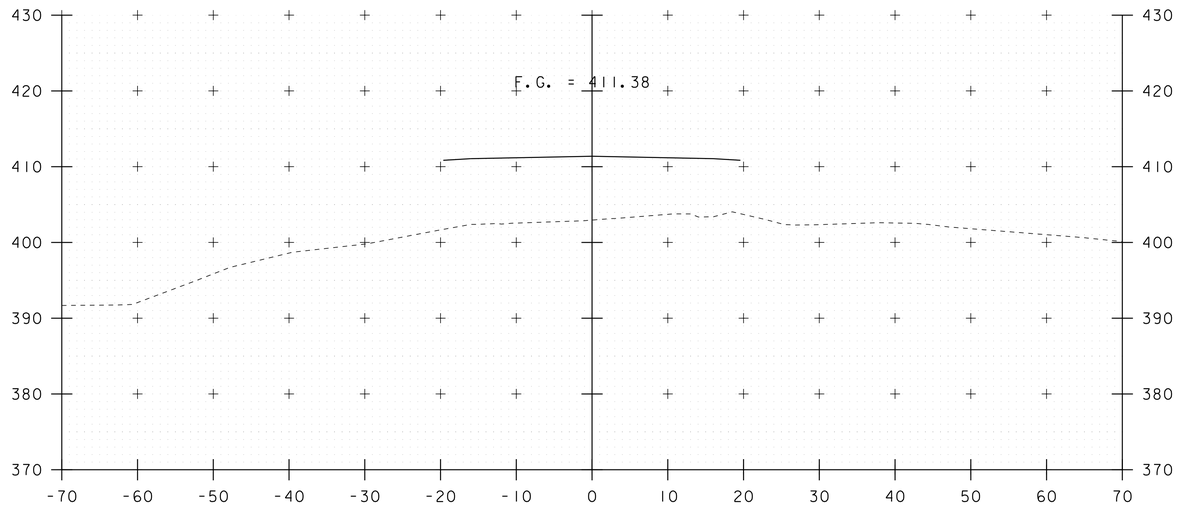


STA 18+00.00
BEGIN PROJECT

18+00

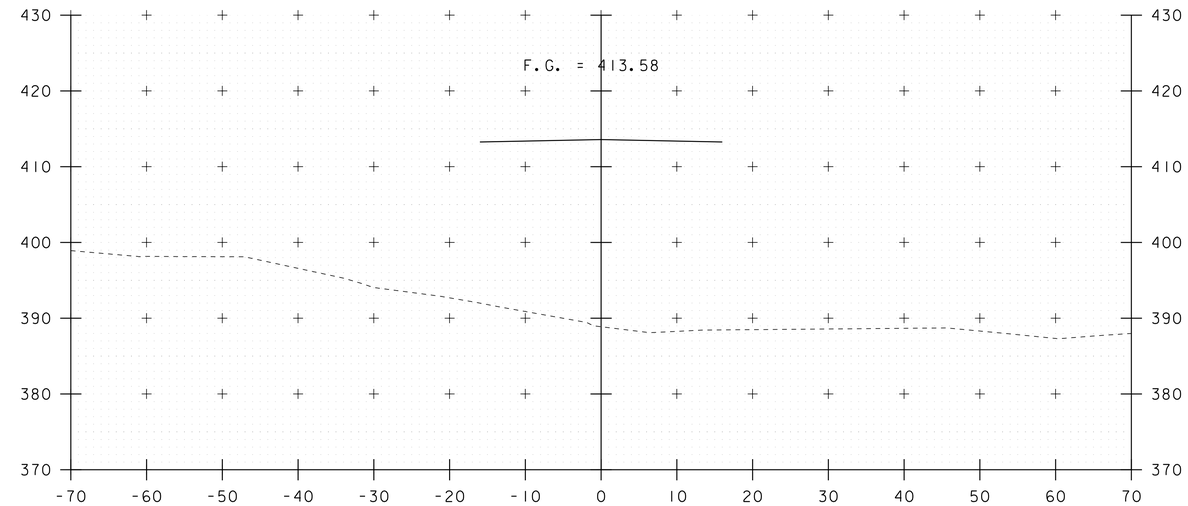
STA. 17+50 TO STA. 18+25

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138xs.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
ROADWAY CROSS SECTION 1	SHEET 9 OF 12



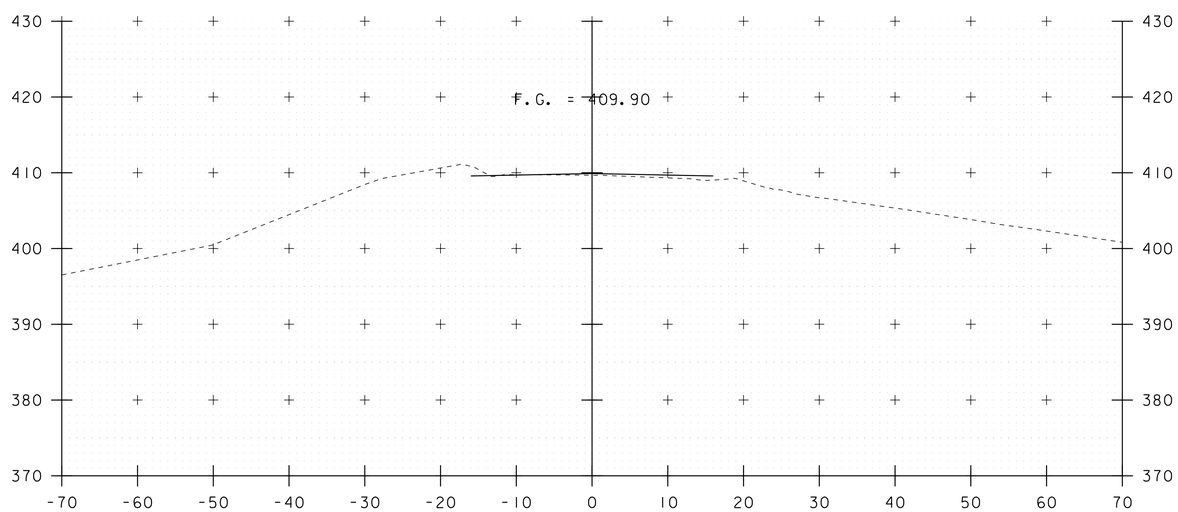
STA 18+95.00
BEGIN BRIDGE

18+75

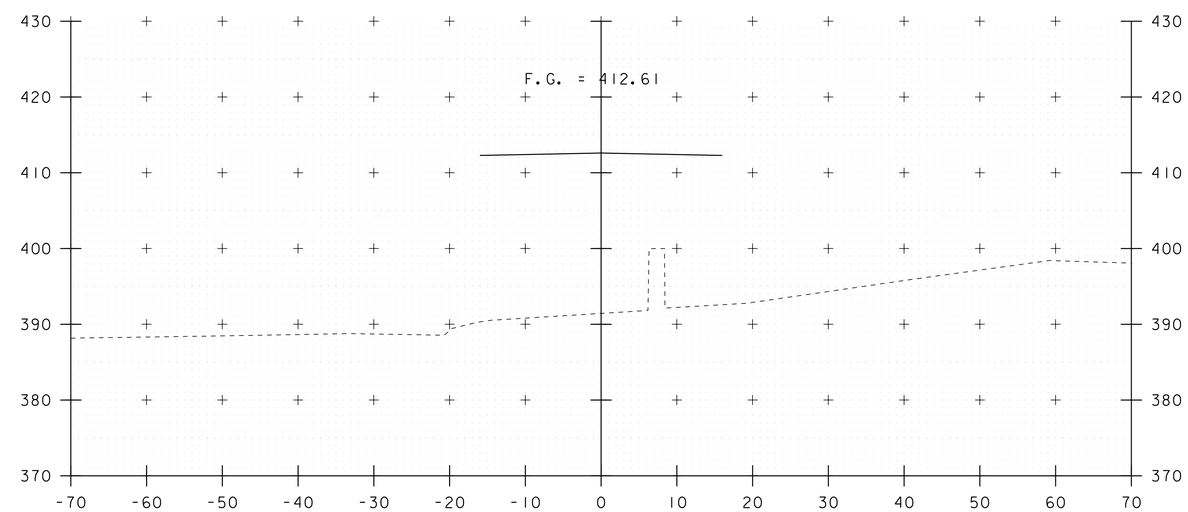


STA 19+35.00
END BRIDGE

19+25



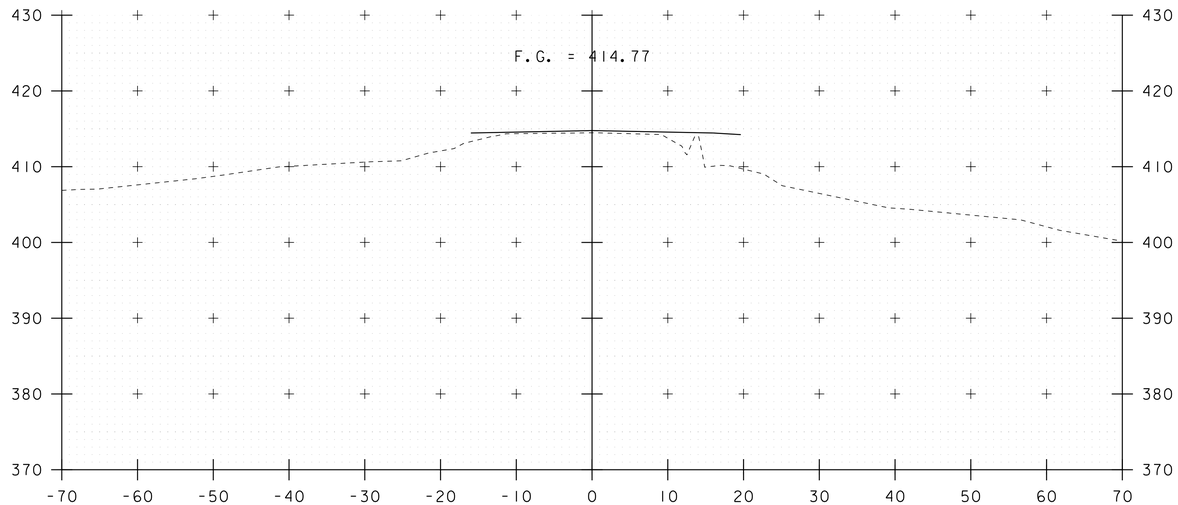
18+50



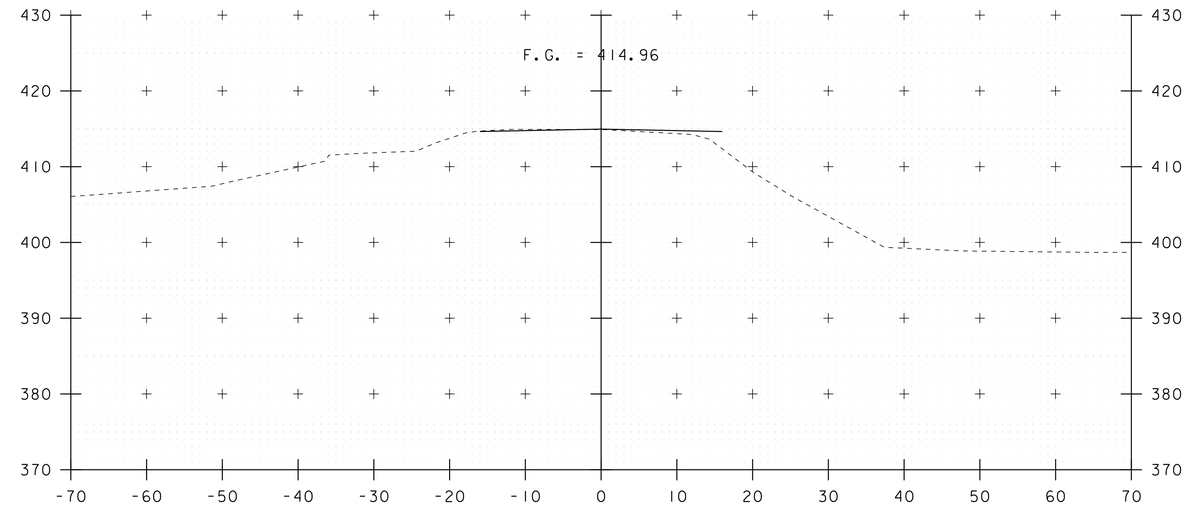
19+00

STA. 18+50 TO STA. 19+25

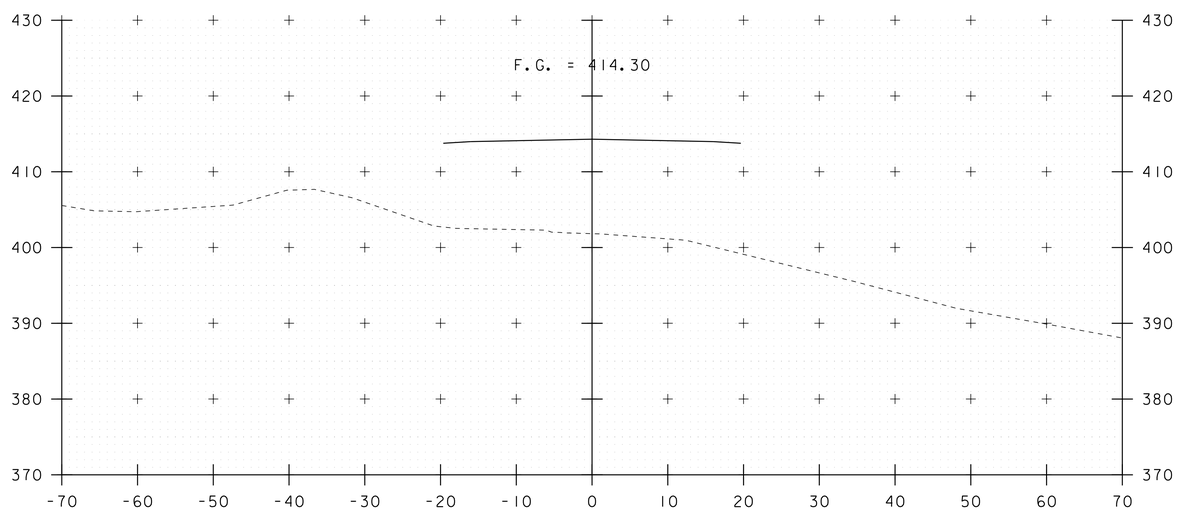
PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138xs.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
ROADWAY CROSS SECTION 2	SHEET 10 OF 12



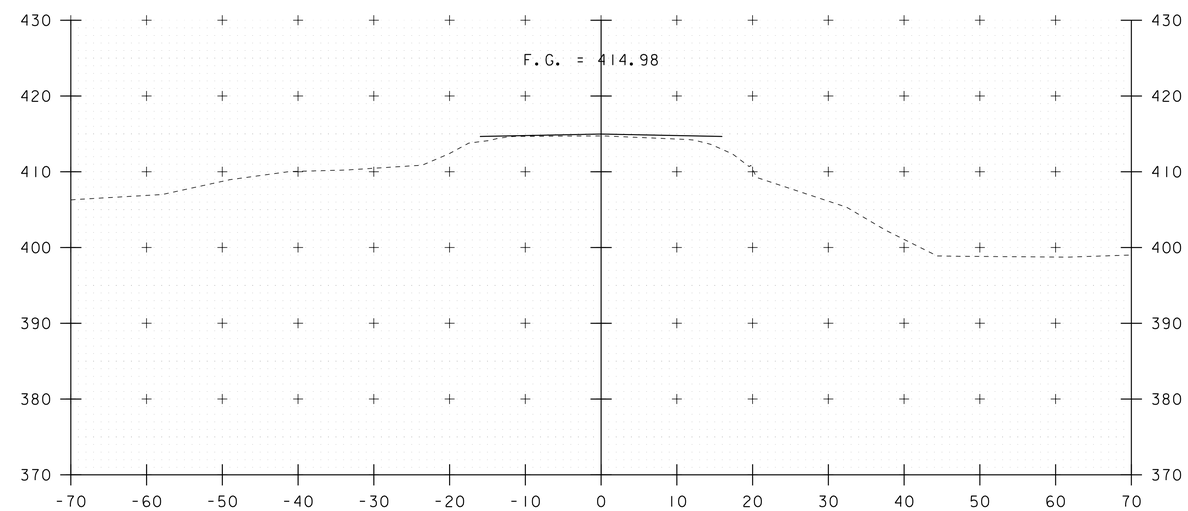
19+75



20+25



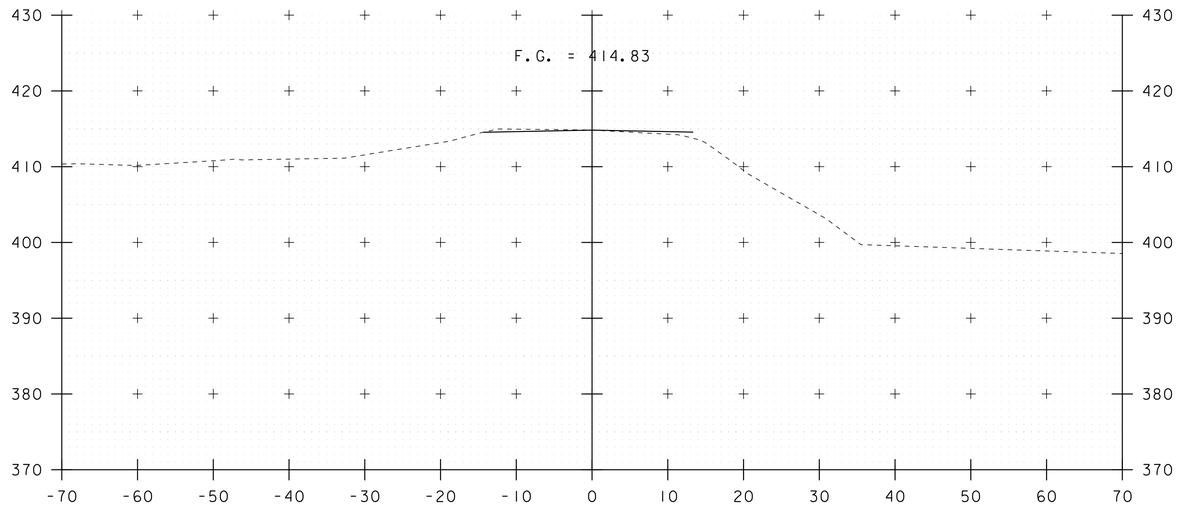
19+50



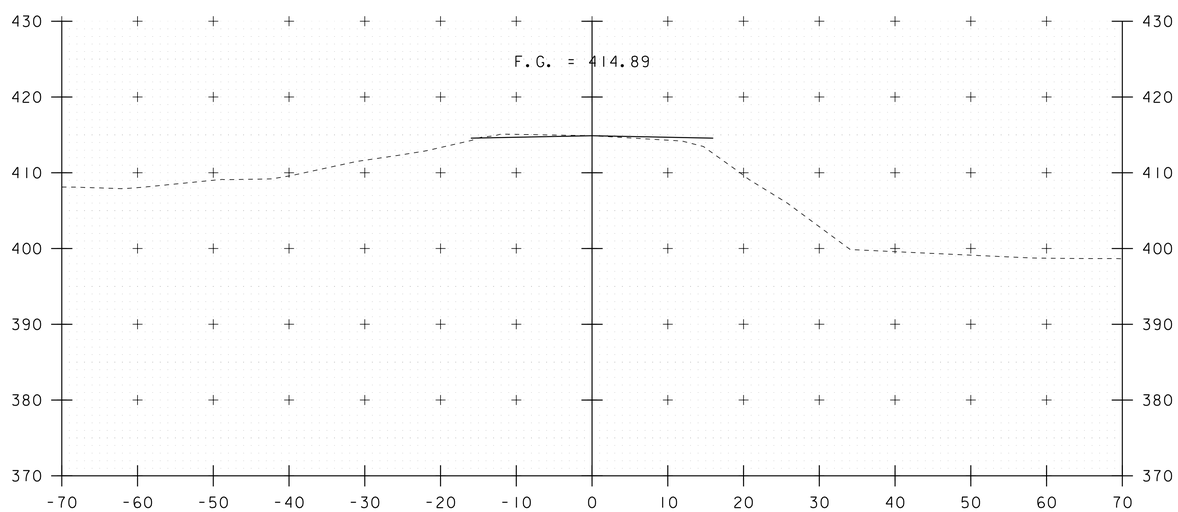
20+00

STA. 19+50 TO STA. 20+25

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138xs.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
ROADWAY CROSS SECTION 3	SHEET 11 OF 12

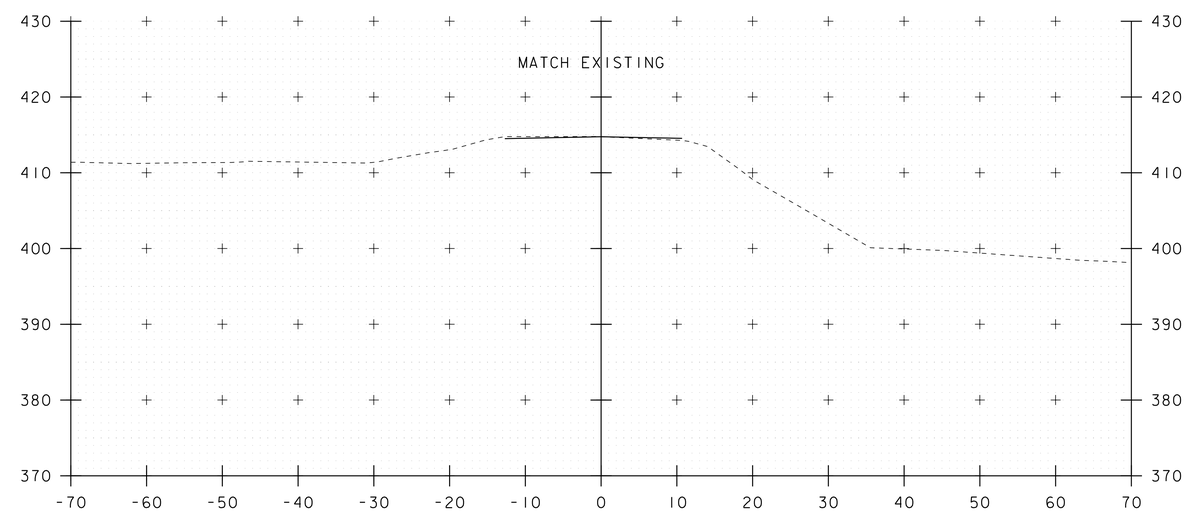


20+75



STA 20+50.00
END PROJECT

20+50



STA 21+00.00
END APPROACH

21+00

STA. 20+50 TO STA. 21+00

PROJECT NAME: CASTLETON	
PROJECT NUMBER: BRF 015-2(10)	
FILE NAME: s12b138xs.dgn	PLOT DATE: 21-FEB-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
ROADWAY CROSS SECTION 4	SHEET 12 OF 12