

INDEX OF SHEETS

PLAN SHEETS

1	TITLE SHEET
2	PRELIMINARY INFORMATION SHEET
3	GENERAL NOTES
4 - 5	QUANTITY SHEETS 1-2
6	LEGEND SHEET
7	TYPICAL SECTIONS
8	TIE SHEET
9	EXISTING CONDITIONS
10	LAYOUT SHEET
11	MAINLINE PROFILE
12	BOX CULVERT PROFILE
13	PROPOSED UTILITIES
14	RAIL LAYOUT SHEET
15	BORING LAYOUT SHEET
16	BORING LOGS
17 - 18	DETOUR PLAN SHEETS 1-2
19	BOX LAYOUT
20	EPSC NARRATIVE
21	EPSC PLAN
22	EPSC DETAILS
23 - 26	MAINLINE SECTIONS 1-4
27 - 29	CHANNEL SECTIONS 1-3
30	ROW DETAIL SHEET
31	ROW LAYOUT SHEET

STANDARDS LIST

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

STRUCTURES DETAILS

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

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: April 2013

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

PEAK FLOW DATA

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

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

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

EXISTING STRUCTURE INFORMATION

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

WATER SURFACE ELEVATIONS AT:

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

LONG TERM STREAMBED CHANGES: None noted

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

UPSTREAM STRUCTURE

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

DOWNSTREAM STRUCTURE

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

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR	4A STR	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:	TABLE TO BE COMPLETED BY CONTRACTOR'S DESIGNER						

AS BUILT "REBAR" DETAIL

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

CULVERT DESIGN CRITERIA

1. PROPOSED CULVERT IS A PRECAST CONCRETE STRUCTURE (18'-0" x 8'-0" x 60'-0" BOX)
2. CULVERT ENDS ARE NOT SKEWED.
3. CULVERT WILL BE SET AT A SLOPE OF 21.60 IN. ON 60 FT.
4. CULVERT WILL REQUIRE FISH PASSAGE ACCOMODATIONS
5. CULVERT CONSTRUCTION WILL NOT REQUIRE A TEMPORARY PIPE

PROPOSED STRUCTURE

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

WATER SURFACE ELEVATIONS AT:

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

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

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

SCOUR: Not calculated for a box

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

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

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

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

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _p : 3.0 INCH
3. CULVERT OPENING	D: 96.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f _y : ---
6. PRESTRESSED CONCRETE STRENGTH	f' _c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _c : ---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _c : ---
11. CONCRETE, CLASS C	f' _c : ---
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : ---
14. SOIL UNIT WEIGHT	γ: 0.135 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : 4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : 70.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q _p : ---
20. PILE YIELD STRENGTH ASTM A572	f _y : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L _p : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V _{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	PGA: --- S _s : --- S ₁ : ---

PROJECT NAME:
 PROJECT NUMBER: **STP 013-1(14)**
 FILE NAME: 00b252s00b252excel.dgn PLOT DATE: 1/2/2014
 PROJECT LEADER: K. HIGGINS DRAWN BY: J. SALVATORI
 DESIGNED BY: J. SALVATORI CHECKED BY: G. LAROCHE
PRELIMINARY INFORMATION SHEET 1 SHEET 2 OF 31

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2015 to 2035 : 809000
2015	2600	290	60	8.3	210	40 year ESAL for flexible pavement from 2015 to 2055 : 1930000
2035	2800	320	60	13.9	230	Design Speed : 50 mph