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This file or an individual page shall not be considered a certified document.

09/08/99

PROJECT: 17BP.9.C.9

CONTRACT: DI00177

See Sheet 1-A For Index of Sheets
See Sheet 1-B For For Conventional Plan Sheet Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

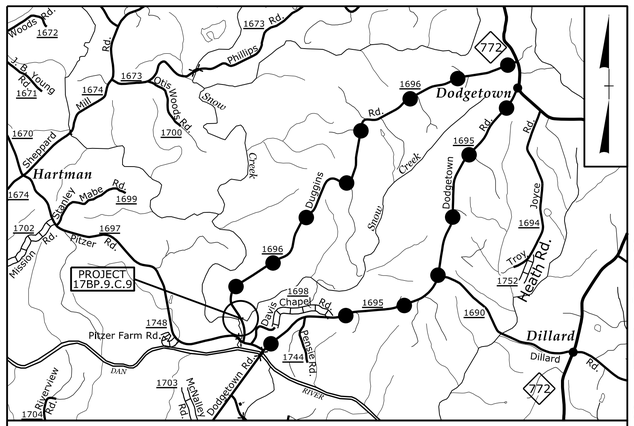
STOKES COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.C.9	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.9.C.9	N/A	PE
17BP.9.C.9	N/A	R/W & UTIL
17BP.9.C.9	N/A	CONSTR.

LOCATION: CULVERT NO. 107 ON SR 1696 (DUGGINS ROAD) OVER LYNN BRANCH

TYPE OF WORK: GRADING, PAVING, DRAINAGE & CULVERT

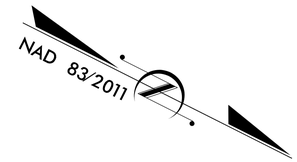


VICINITY MAP

DETOUR

NOT TO SCALE

RFC PLANS



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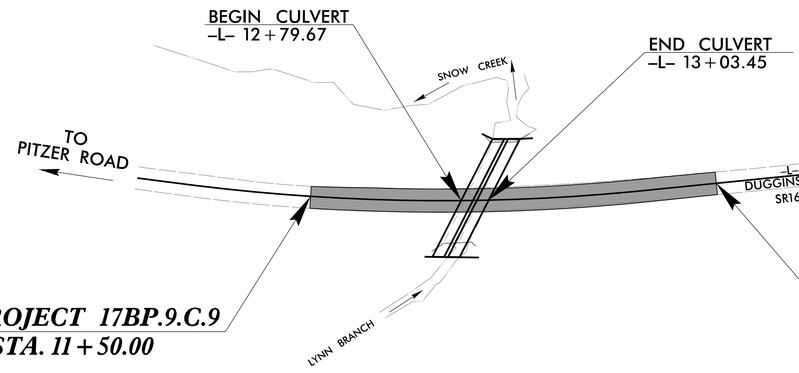

BEGIN PROJECT 17BP.9.C.9
-L- POC STA. 11+50.00

END PROJECT 17BP.9.C.9
-L- POC STA. 15+00.00

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2017 = 210
V = 55 MPH

FUNC CLASS =
RURAL LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.9.C.9 = 0.061 MILES
LENGTH STRUCTURE PROJECT 17BP.9.C.9 = 0.005 MILES
TOTAL LENGTH PROJECT 17BP.9.C.9 = 0.066 MILES

NCDOT CONTACT: MATTHEW JONES, PE
NCDOT DIVISION 9 BRIDGE MANAGER

Stantec
PREPARED IN THE OFFICE OF:
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License No. F-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 15, 2017

LETTING DATE:
DECEMBER 13, 2017

MIKE LINDGREN, PE
PROJECT ENGINEER

MIKE LITTLEFIELD, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 41420 ENGINEER CHRISTOPHER R. LEWIS

DocuSigned by: Christopher R. Lewis
SIGNATURE: 11/13/2017 *P.E.*

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035663 ENGINEER MICHAEL B. LITTLEFIELD

DocuSigned by: Michael B. Littlefield
SIGNATURE: 11/13/2017 *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I7BP.9.C.9	1-A

ROADWAY DESIGN ENGINEER

11/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels

10/25/2017
U:\Roadway\Proj\17BP9C9_rdy_tsh.dgn
mpferguson

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

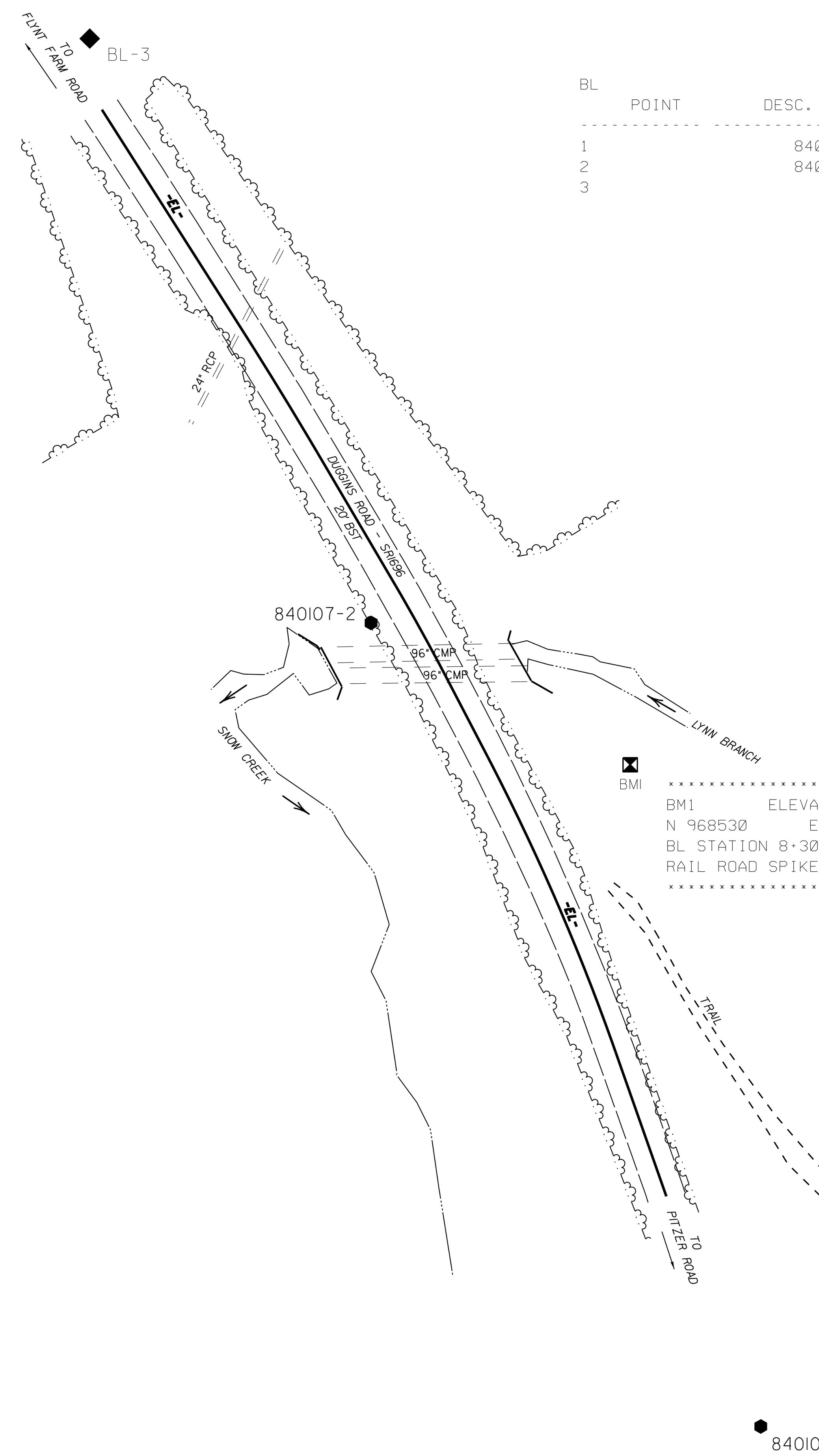
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	1C-1

Location and Surveys

SURVEY CONTROL SHEET 84–0107



BL

POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	840107-1	968194.8650	1664398.5610	677.66	OUTSIDE PROJECT LIMITS	
2	840107-2	968601.6470	1664201.3790	676.76	13+28.67	20.17 LT
3	BL-3	968897.4545	1664058.9446	689.70	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 675.67
N 968530 E 1664332
BL STATION 8+30.00 87 RIGHT
RAIL ROAD SPIKE IN 18" OAK

NC GRID
NAD 83 NA 2011

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "840107-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 968601.647(ft) EASTING: 1664201.379(ft)
ELEVATION: 676.756(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000048395
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "840107-2" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

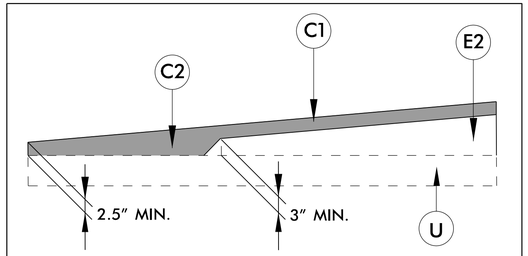
5/14/99
10/25/2017
U:\Roadway\Proj\84-0107_ls_lc_171017.dgn
mafarquhar

6/2/99

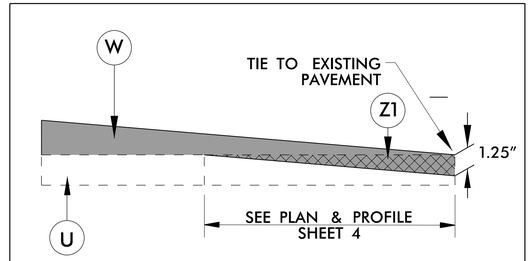
PAVEMENT SCHEDULE

C1	PROP. APPROX. 2.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1″ OR GREATER THAN 1.5″.
E1	PROP. APPROX. 4.5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ OR GREATER THAN 5.5″.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING. SEE DETAIL THIS SHEET
Z1	MILLING 0″ TO 1.25″

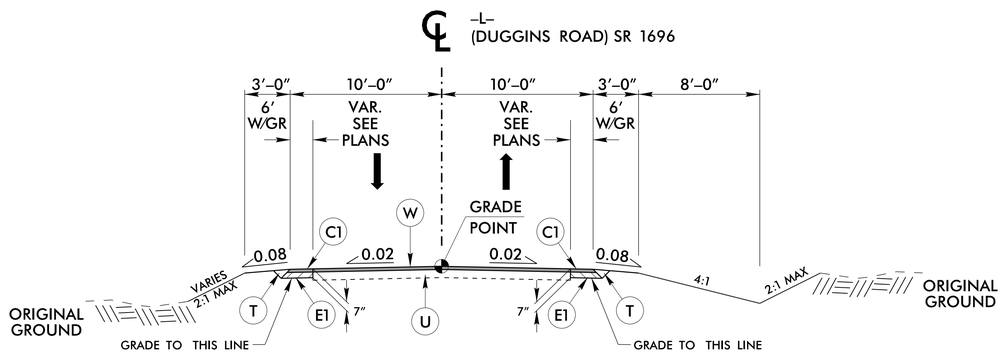
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. SEE PLANS FOR VARIABLE PAVED SHOULDER WIDTHS.



W: WEDGING DETAIL

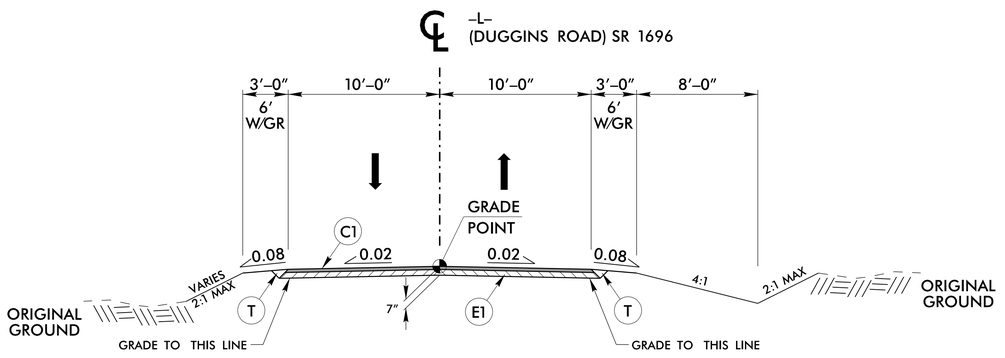


TIE–IN MILLING DETAIL



TYPICAL SECTION NO. 1

–L– STA 11+50.00 TO –L– STA 12+00.00
–L– STA 13+65.00 TO –L– STA 15+00.00



TYPICAL SECTION NO. 2

–L– STA 12+00.00 TO –L– STA 13+65.00

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035663 ENGINEER MICHAEL B. LITTLEFIELD

11/13/2017

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035654 ENGINEER MATTHEW W. JONES

11/13/2017

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www.stantec.com
License No. F-0672

COMPUTED BY: CSM DATE: 4/21/2017
CHECKED BY: MBF DATE: 10/17/2017

PROJECT NO.	SHEET NO.
17BP.9.C.9	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

(IN CUBIC YARDS)

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
11+50.00	15+00.00	13	240	227	
SUBTOTALS:		13	240	227	
TOTALS:		13	240	227	
PROJECT TOTALS:		13	240	227	
5% to REPLACE TOPSOIL				11	
GRAND TOTALS:		13	240	238	
SAY:		20		240	

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING & GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350					REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3								G	NG				
-L-	12+26	14+17	LEFT	189.6			13+42	13+01	3'	6'	50'	50'	1'	1'	2													
-L-	11+79	13+67	RIGHT	189.4			12+54	12+92	3'	6'	50'	50'	1'	1'	2													
			SUBTOTAL	379											4													
			LESS DEDUCTIONS FOR ANCHORS																									
			GREU TL-3, 4 @ 50' =	200																								
			PROJECT TOTALS:	179																								
			SAY:	187.5																								
			ADDITIONAL GUARDRAIL POSTS =	5																								

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	4

RW SHEET NO.

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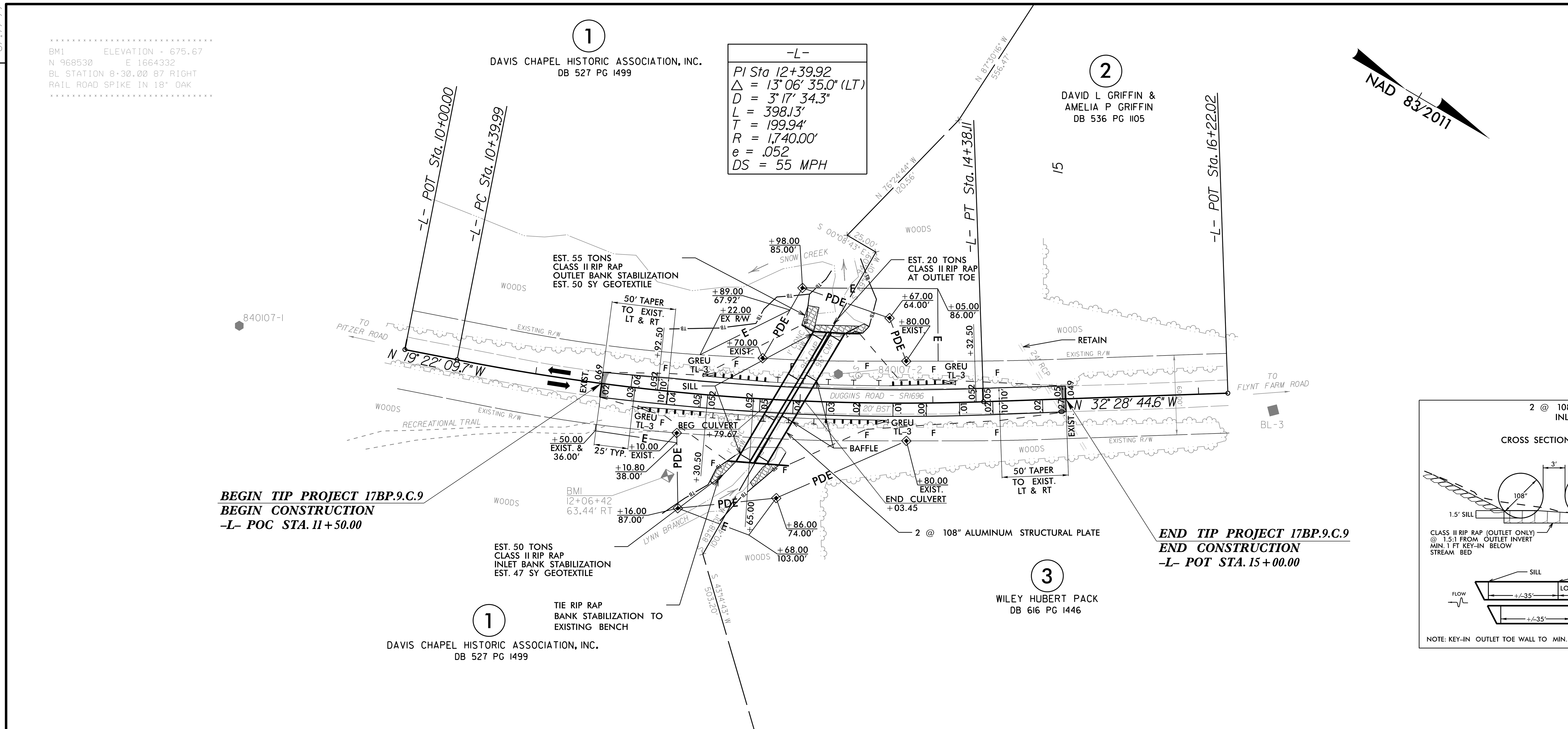
License No. F-0672

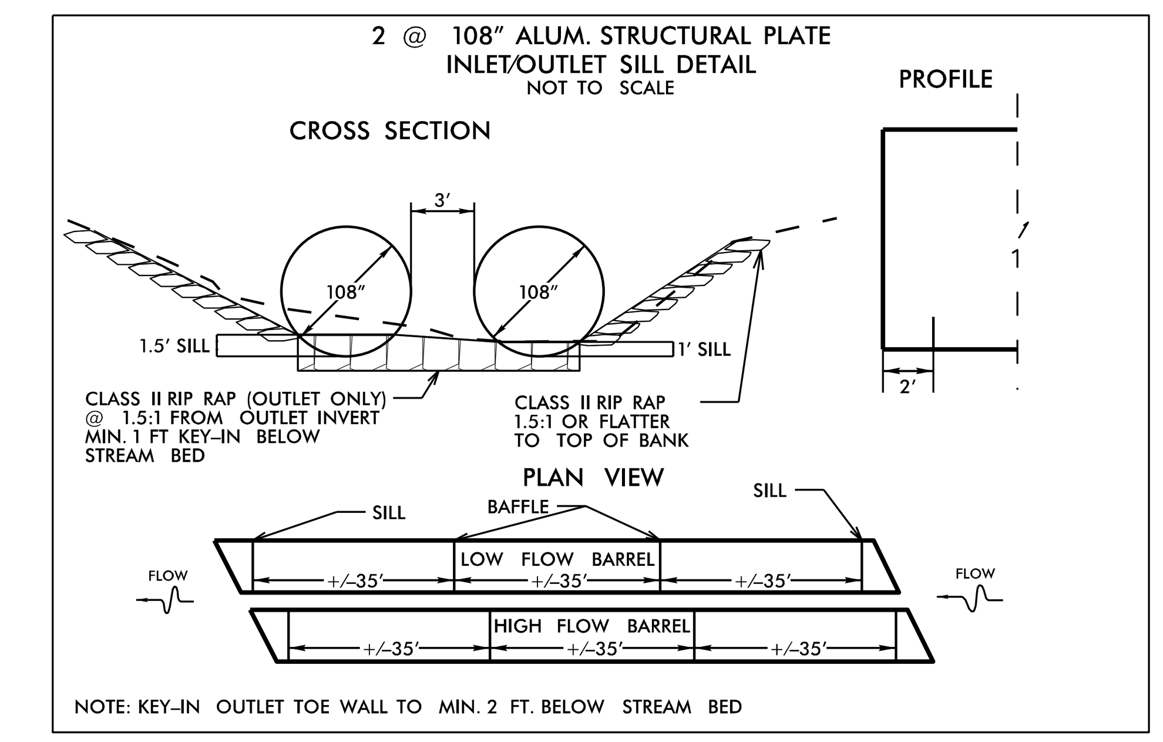
ROADWAY DESIGN ENGINEER — SEAL 035663 — MICHAEL B. LITTLEFIELD — 11/13/2017

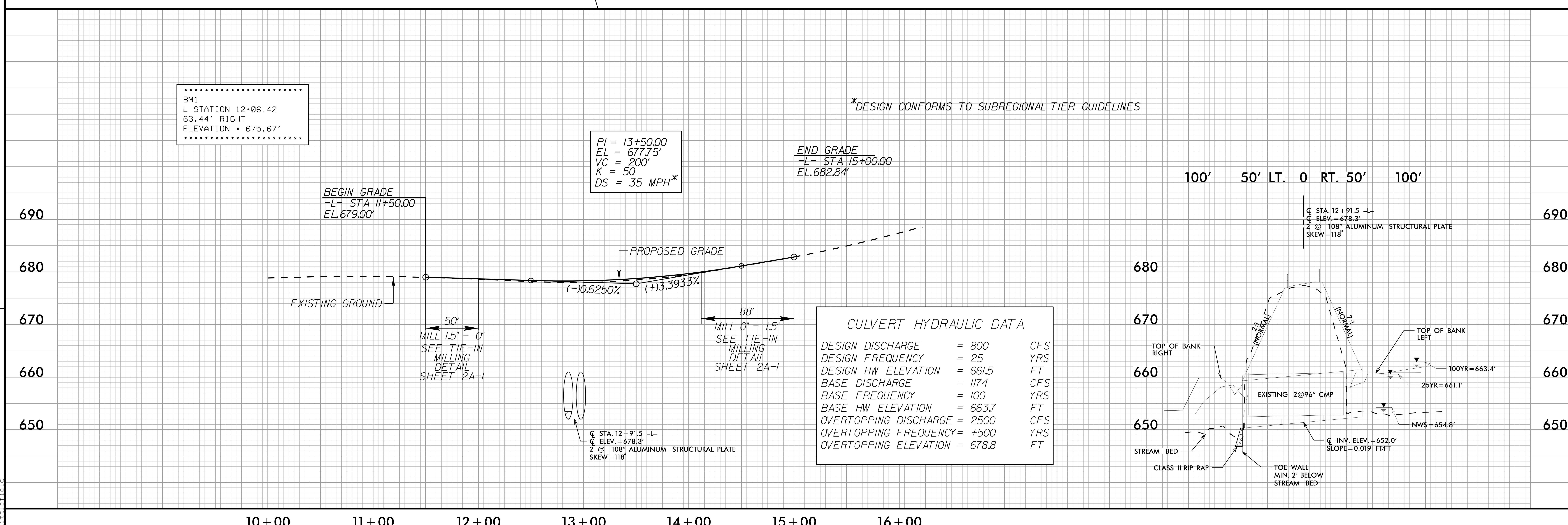
HYDRAULICS ENGINEER — SEAL 41420 — CHRISTOPHER R. LEWIS — 11/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS


BM1 ELEVATION = 675.67'
N 968530 E 1664332
BL STATION 8+30.00 87 RIGHT
RAIL ROAD SPIKE IN 18" OAK
DAVIS CHAPEL HISTORIC ASSOCIATION, INC.
DB 527 PG 1499
-L-
PI Sta 12+39.92
Δ = 13°06' 35.0" (LT)
D = 3°17' 34.3"
L = 398.13'
T = 199.94'
R = 1,740.00'
e = .052
DS = 55 MPH
DAVID L GRIFFIN &
AMELIA P GRIFFIN
DB 536 PG 1105
NAD 83/2011
-L- POT Sta. 10+00.00
-L- PC Sta. 10+39.99
-L- PT Sta. 14+38.11
-L- POT Sta. 16+22.02
EST. 55 TONS CLASS II RIP RAP OUTLET BANK STABILIZATION EST. 50 SY GEOTEXTILE
EST. 20 TONS CLASS II RIP RAP AT OUTLET TOE
N 19°22' 09.7" W
N 32°28' 44.6" W
BEGIN TIP PROJECT 17BP.9.C.9
BEGIN CONSTRUCTION
-L- POC STA. 11+50.00
END TIP PROJECT 17BP.9.C.9
END CONSTRUCTION
-L- POT STA. 15+00.00
2 @ 108" ALUMINUM STRUCTURAL PLATE
EST. 50 TONS CLASS II RIP RAP INLET BANK STABILIZATION EST. 47 SY GEOTEXTILE
TIE RIP RAP BANK STABILIZATION TO EXISTING BENCH
WILEY HUBERT PACK
DB 616 PG 1446
DAVIS CHAPEL HISTORIC ASSOCIATION, INC.
DB 527 PG 1499
TO PITZER ROAD
TO FLYNT FARM ROAD
DUGGINS ROAD - SR1696
SNOW CREEK
LYNN BRANCH
RETAIN
BEG CULVERT
END CULVERT
BAFFLE
WOODS


2 @ 108" ALUM. STRUCTURAL PLATE
INLET/OUTLET SILL DETAIL
NOT TO SCALE
CROSS SECTION
PROFILE
1.5' SILL
1' SILL
CLASS II RIP RAP (OUTLET ONLY) @ 1.5:1 FROM OUTLET INVERT MIN. 1 FT KEY-IN BELOW STREAM BED
CLASS II RIP RAP 1.5:1 OR FLATTER TO TOP OF BANK
PLAN VIEW
LOW FLOW BARREL
HIGH FLOW BARREL
NOTE: KEY-IN OUTLET TOE WALL TO MIN. 2 FT. BELOW STREAM BED


BM1
L STATION 12+06.42
63.44' RIGHT
ELEVATION = 675.67'
*DESIGN CONFORMS TO SUBREGIONAL TIER GUIDELINES
PI = 13+50.00
EL = 677.75'
VC = 200'
K = 50
DS = 35 MPH*
BEGIN GRADE
-L- STA 11+50.00
EL.679.00'
END GRADE
-L- STA 15+00.00
EL.682.84'
PROPOSED GRADE
EXISTING GROUND
(-)0.6250%
(+)3.3933%
50'
MILL 1.5" - 0"
SEE TIE-IN MILLING DETAIL SHEET 2A-1
88'
MILL 0" - 1.5"
SEE TIE-IN MILLING DETAIL SHEET 2A-1
℄ STA. 12+91.5 -L-
℄ ELEV. = 678.3'
2 @ 108" ALUMINUM STRUCTURAL PLATE
SKEW = 118°
100' 50' LT. 0 RT. 50' 100'
TOP OF BANK RIGHT
TOP OF BANK LEFT
EXISTING 2@96" CMP
100YR = 663.4'
25YR = 661.1'
NWS = 654.8'
℄ INV. ELEV. = 652.0'
SLOPE = 0.019 FT/FT
STREAM BED
CLASS II RIP RAP
TOE WALL MIN. 2' BELOW STREAM BED
690
680
670
660
650
10+00
11+00
12+00
13+00
14+00
15+00
16+00

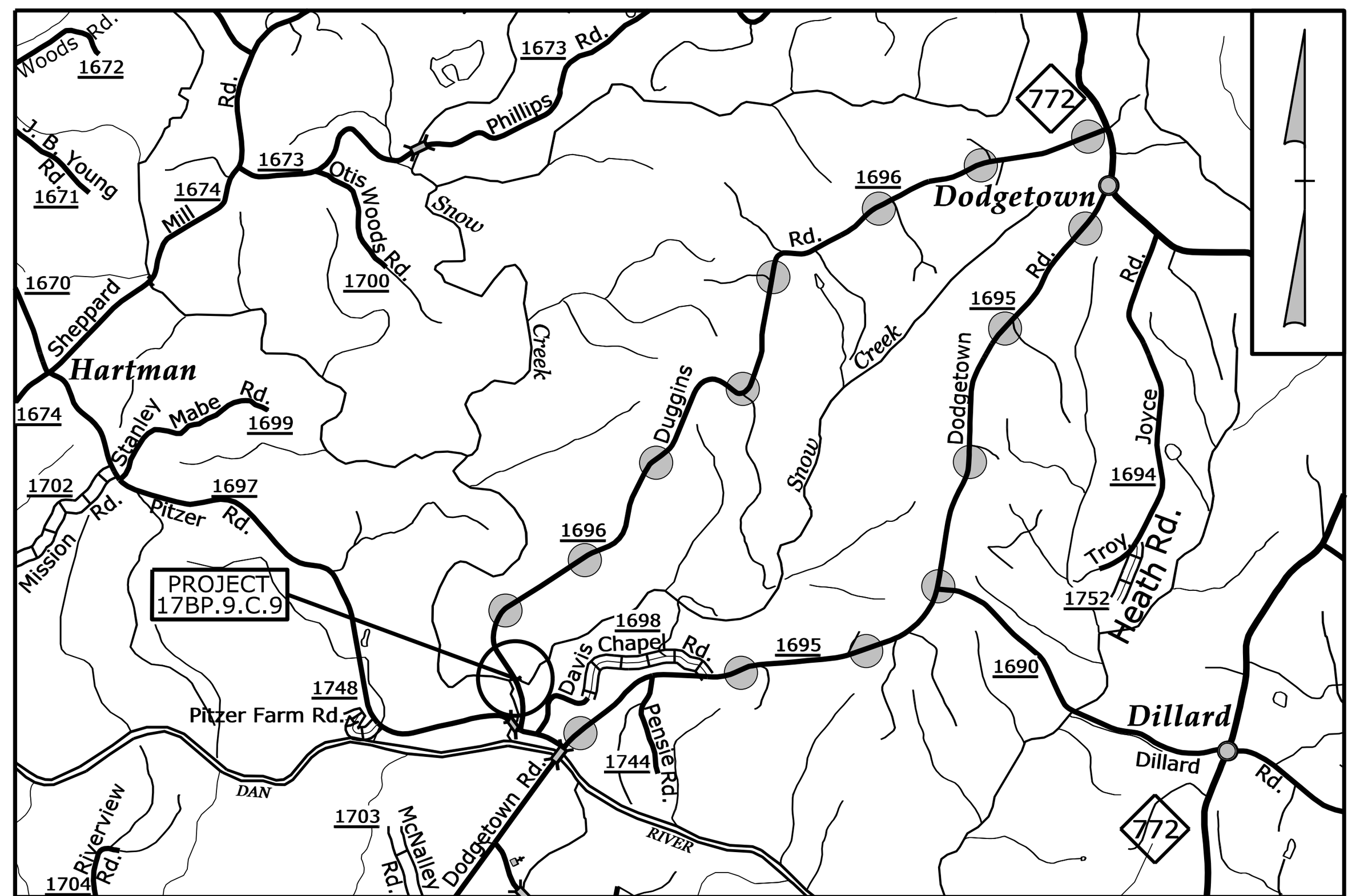
CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	800	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	661.5	FT
BASE DISCHARGE	=	1174	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	663.7	FT
OVERTOPPING DISCHARGE	=	2500	CFS
OVERTOPPING FREQUENCY	=	+500	YRS
OVERTOPPING ELEVATION	=	678.8	FT

TIP PROJECT: 17BP.9.C.9

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.C.9	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.9.C.9	N/A	PE
17BP.9.C.9	N/A	R/W & UTIL
17BP.9.C.9	N/A	CONSTR.



VICINITY MAP

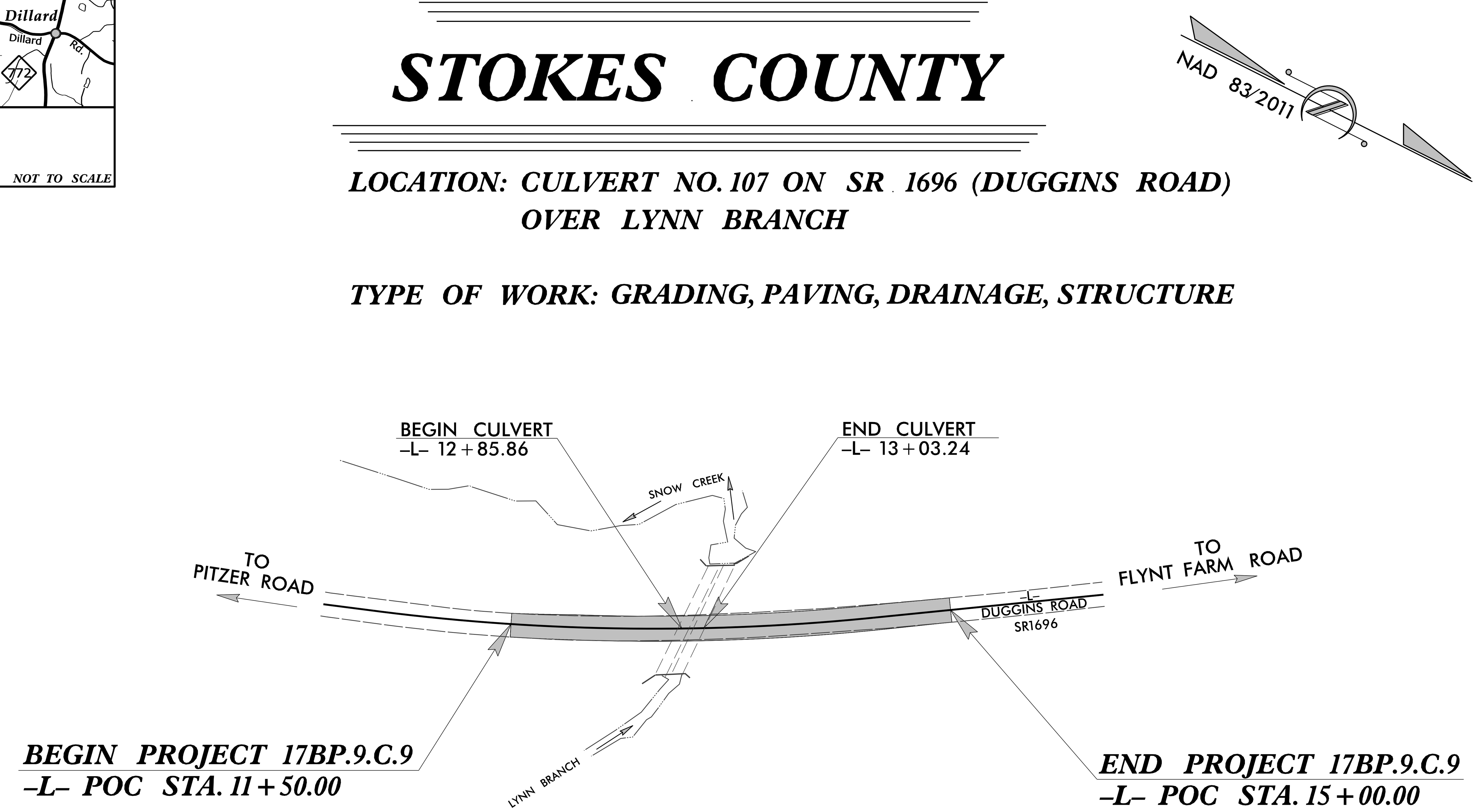
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

STOKES COUNTY

LOCATION: CULVERT NO. 107 ON SR 1696 (DUGGINS ROAD) OVER LYNN BRANCH

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle/ Coir Fiber Wattle	FW / CFW
	Wattle/ Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

30 15 0 30 60
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

Designed by:

WILLIAM T. PERRY, EI — *#3899*
NAME — LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

NOELLE RING, CPESC

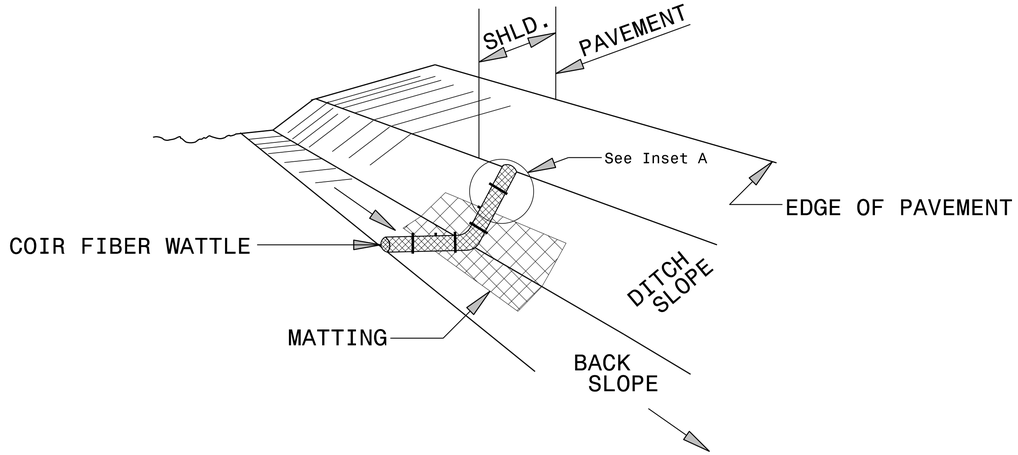
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

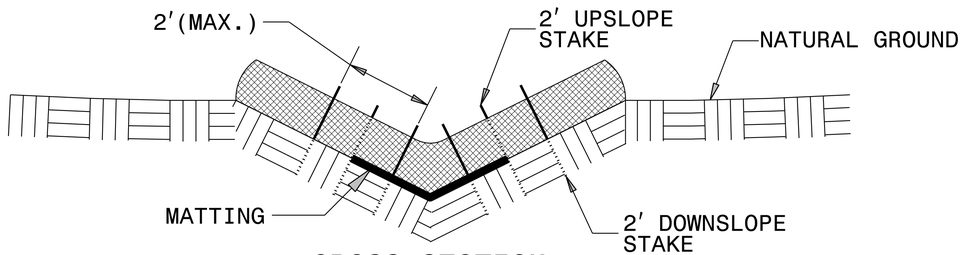
1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary Diversion
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.01	Rock Inlet Sediment Trap Type A
1632.02	Rock Inlet Sediment Trap Type B
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A
1633.02	Temporary Rock Silt Check Type B
1634.01	Temporary Rock Sediment Dam Type A
1634.02	Temporary Rock Sediment Dam Type B
1635.01	Rock Pipe Inlet Sediment Trap Type A
1635.02	Rock Pipe Inlet Sediment Trap Type B
1640.01	Coir Fiber Baffle
1645.01	Temporary Stream Crossing

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

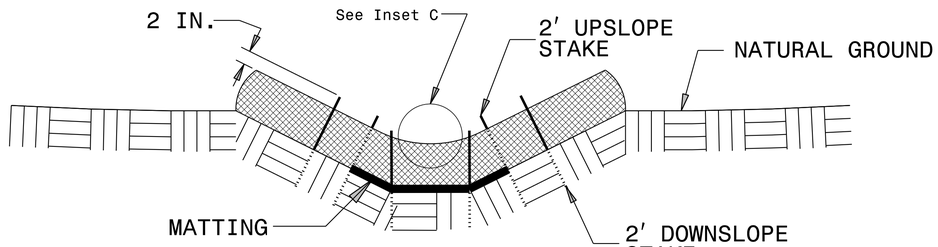
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

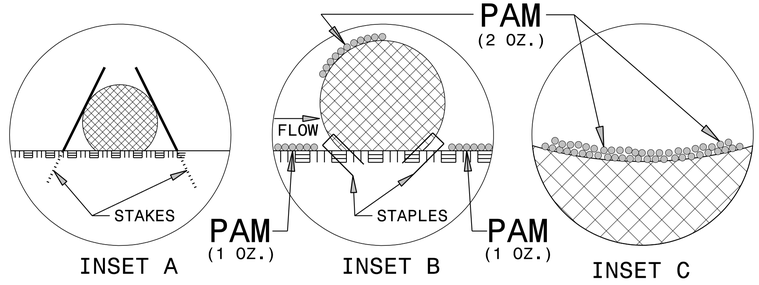
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

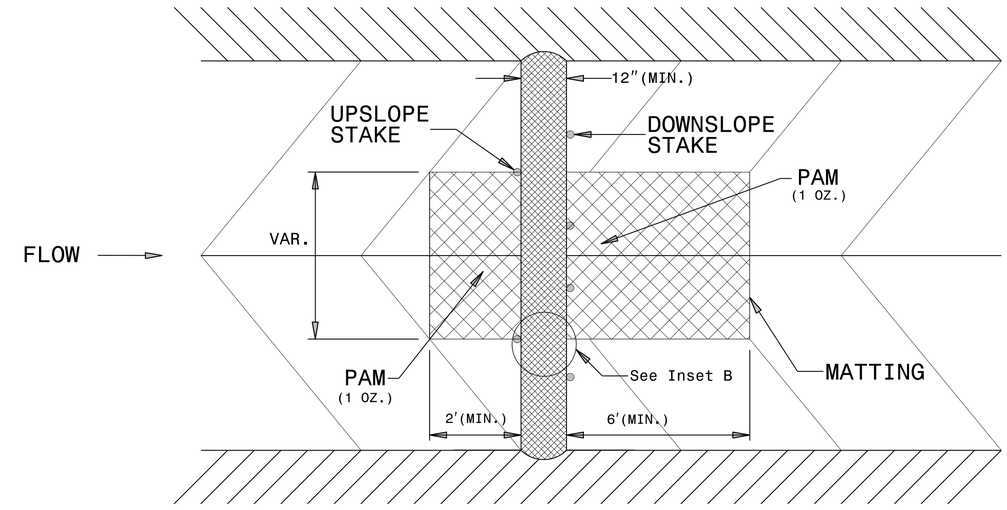
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



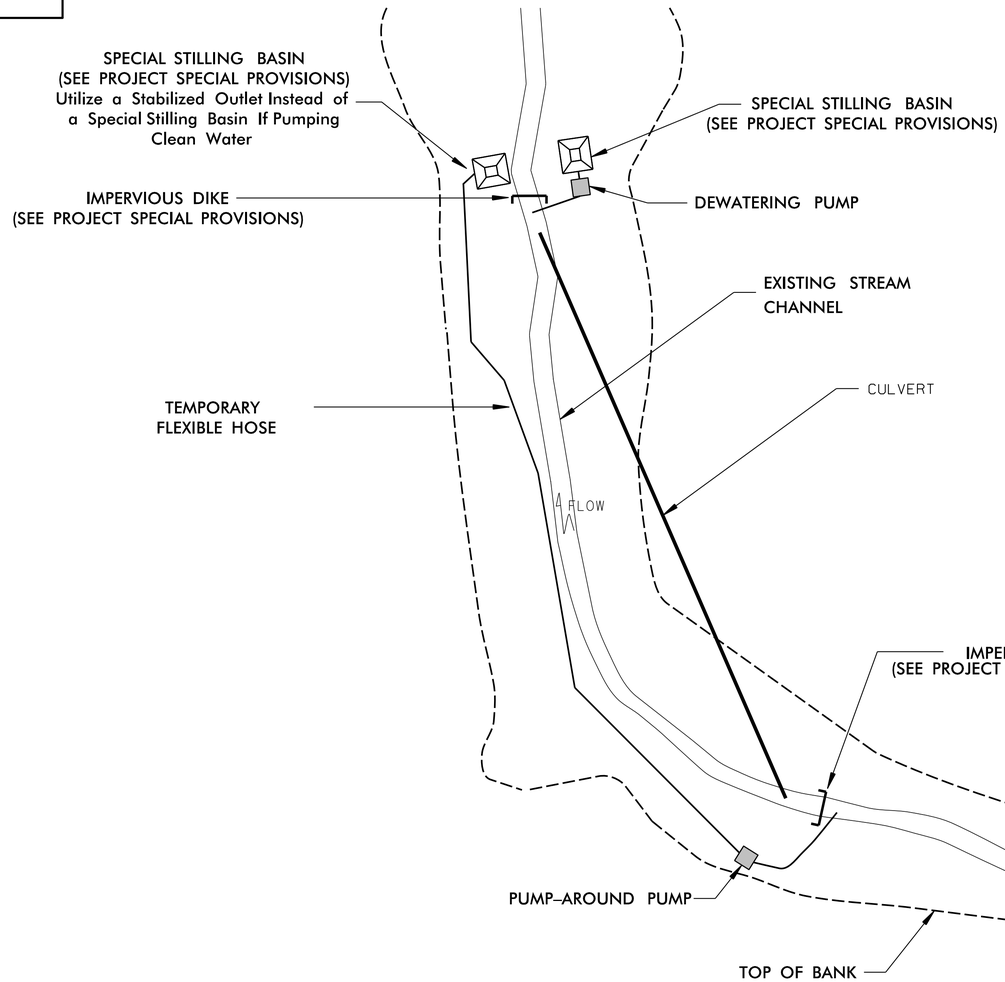


TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXAMPLE OF PUMP–AROUND OPERATION

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	EC-04/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

1

DAVIS CHAPEL HISTORIC ASSOCIATION, INC.
DB 527 PG 1499

2

DAVID L GRIFFIN &
AMELIA P GRIFFIN
DB 536 PG 1105

15

-L- POT Sta. 10+00.00

-L- PC Sta. 10+39.99

-L- PT Sta. 14+38.11

-L- POT Sta. 16+22.02

N 87°30'16" W
556.47'

N 76°24'44" W
120.56'

S 00°08'43" E
25.00'

840107-1

TO PITZER ROAD

N 19° 22' 09.7" W

TO FLYNT FARM ROAD

BL-3

N 32° 28' 44.6" W

DUGGINS ROAD - SR1696

EXISTING R/W

RECREATIONAL TRAIL

WOODS

SNOW CREEK

LYNN BRANCH

EST. 55 TONS
CLASS II RIP RAP
OUTLET BANK STABILIZATION
EST. 50 SY GEOTEXTILE

EST. 20 TONS
CLASS II RIP RAP
AT OUTLET TOE

50' TAPER
TO EXIST.
LT & RT

+98.00
85.00' RT

+67.00
64.00'

+80.00
EXIST.

+70.00
EXIST.

+92.50

+32.50

+30.50

+10.00
25' TYP. EXIST.

BEG CULVERT
+79.67

+80.00
EXIST.
END CULVERT
+03.48

+16.00
87.00'

+86.00
74.00'

+65.00

BM
12+06+42
63.44' RT

PDE

GREU
TL-3

20' BST

EXIST.

2 @ 108" ALUMINUM STRUCTURAL PLATE

BEGIN TIP PROJECT 17BP.9.C.9
BEGIN CONSTRUCTION
-L- POC STA. 11+50.00

END TIP PROJECT 17BP.9.C.9
END CONSTRUCTION
-L- POT STA. 15+00.00

EST. 50 TONS
CLASS II RIP RAP
INLET BANK STABILIZATION
EST. 47 SY GEOTEXTILE

TIE RIP RAP
BANK STABILIZATION TO
EXISTING BENCH

DAVIS CHAPEL HISTORIC ASSOCIATION, INC.
DB 527 PG 1499

1

S 43°44'43" W
503.20'

WILEY HILBERT PACK
DB 616 PG 1446

3

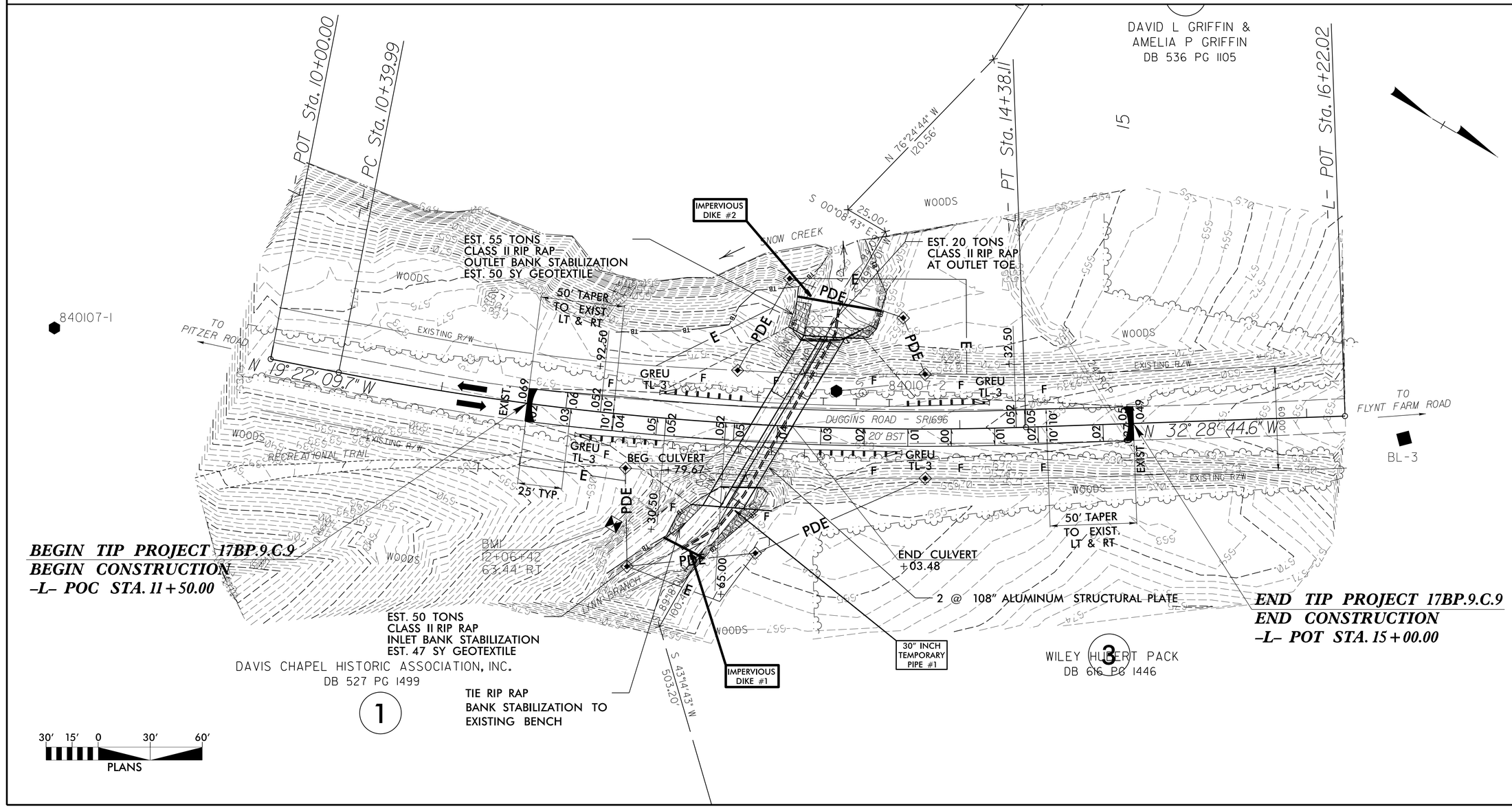
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

LYNN BRANCH TO SNOW CREEK
2@108" ALUMINIUM STRUCTURAL PLATE PIPE
CONSTRUCTION SEQUENCE STA. 12+91.5 –L–

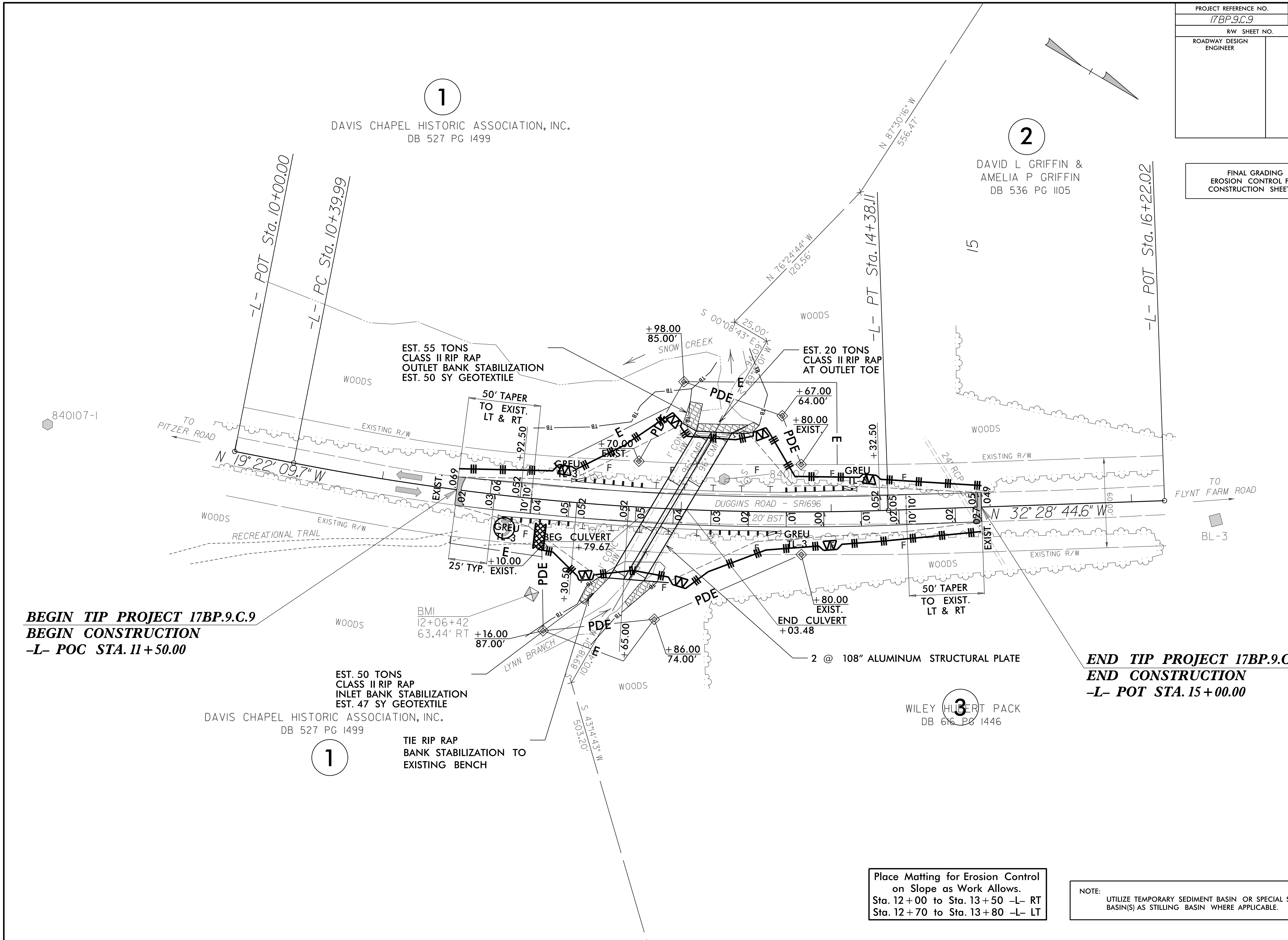
PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	EC-04A/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

1.) INSTALL IMPERVIOUS DIKES #1 AND #2 AND INSTALL PUMP–AROUND, IN ACCORDANCE WITH PUMP–AROUND OPERATION (DETAIL EC–2A).
2.) DEWATER CONSTRUCTION AREA, UTILIZING SPECIAL STILLING BASIN(S) FOR PUMPED EFFLUENT.
3.) REMOVE EXISTING DUAL 96" CMPs.
4.) INSTALL 30" TEMPORARY PIPE #1 AND DIRECT FLOW THROUGH 30" TEMPORARY PIPE #1 DURING SITE PREPARATION FOR CONSTRUCTING PROPOSED 2@108" ALUMINIUM STRUCTURAL PLATE PIPES.
5.) UTILIZING PUMP–AROUND OPERATION, REMOVE 30" TEMPORARY PIPE #1 AND CONSTRUCT PROPOSED 2@108" ALUMINIUM STRUCTURAL PLATE PIPES, AND INLET AND OUTLET BANK STABILIZATION, IN ACCORDANCE WITH THE PLANS.
6.) REMOVE IMPERVIOUS DIKES #1 AND #2 AND DIRECT FLOW THROUGH 2@108" ALUMINIUM STRUCTURAL PLATE PIPES.
7.) COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	EC-05/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

FINAL GRADING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04



1
DAVIS CHAPEL HISTORIC ASSOCIATION, INC.
DB 527 PG 1499
2
DAVID L GRIFFIN &
AMELIA P GRIFFIN
DB 536 PG 1105
3
WILEY HUBERT PACK
DB 616 PG 1446
-L- POT Sta. 10+00.00
-L- PC Sta. 10+39.99
-L- PT Sta. 14+38.11
-L- POT Sta. 16+22.02
N 87°30'16" W 556.47'
N 76°24'44" W 120.56'
S 00°08'43" E 25.00'
N 19° 22' 09.7" W
N 32° 28' 44.6" W
S 89°18'01" W 100.4'
S 43°14'43" W 503.20'
840107-1
TO PITZER ROAD
TO FLYNT FARM ROAD
BL-3
WOODS
EXISTING R/W
RECREATIONAL TRAIL
SNOW CREEK
LYNN BRANCH
DUGGINS ROAD - SR1696
20' BST
EST. 55 TONS
CLASS II RIP RAP
OUTLET BANK STABILIZATION
EST. 50 SY GEOTEXTILE
EST. 20 TONS
CLASS II RIP RAP
AT OUTLET TOE
50' TAPER
TO EXIST.
LT & RT
25' TYP.
BEG CULVERT +79.67
END CULVERT +03.48
2 @ 108" ALUMINUM STRUCTURAL PLATE
BMI
12+06+42
63.44' RT
EST. 50 TONS
CLASS II RIP RAP
INLET BANK STABILIZATION
EST. 47 SY GEOTEXTILE
TIE RIP RAP
BANK STABILIZATION TO
EXISTING BENCH
BEGIN TIP PROJECT 17BP.9.C.9
BEGIN CONSTRUCTION
-L- POC STA. 11+50.00
END TIP PROJECT 17BP.9.C.9
END CONSTRUCTION
-L- POT STA. 15+00.00
+98.00 85.00'
+67.00 64.00'
+80.00 EXIST.
+70.00 EXIST.
+92.50
+32.50
+10.00 EXIST.
+16.00 87.00'
+30.50
+65.00
+86.00 74.00'
+80.00 EXIST.
GREU TL-3
PDE

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 12+00 to Sta. 13+50 -L- RT
Sta. 12+70 to Sta. 13+80 -L- LT

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.C.9	X–A

CROSS SECTION INDEX

ROADWAY	STATION	TO	STATION	SHEET NO.
CROSS SECTION INDEX				X–A
CROSS SECTION SUMMARY				X–1A
–L– DUGGINS ROAD	11+00.00		15+00.00	X–1 – X–5

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, removal of existing pavement will be paid for at the lump sum price for "Grading".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

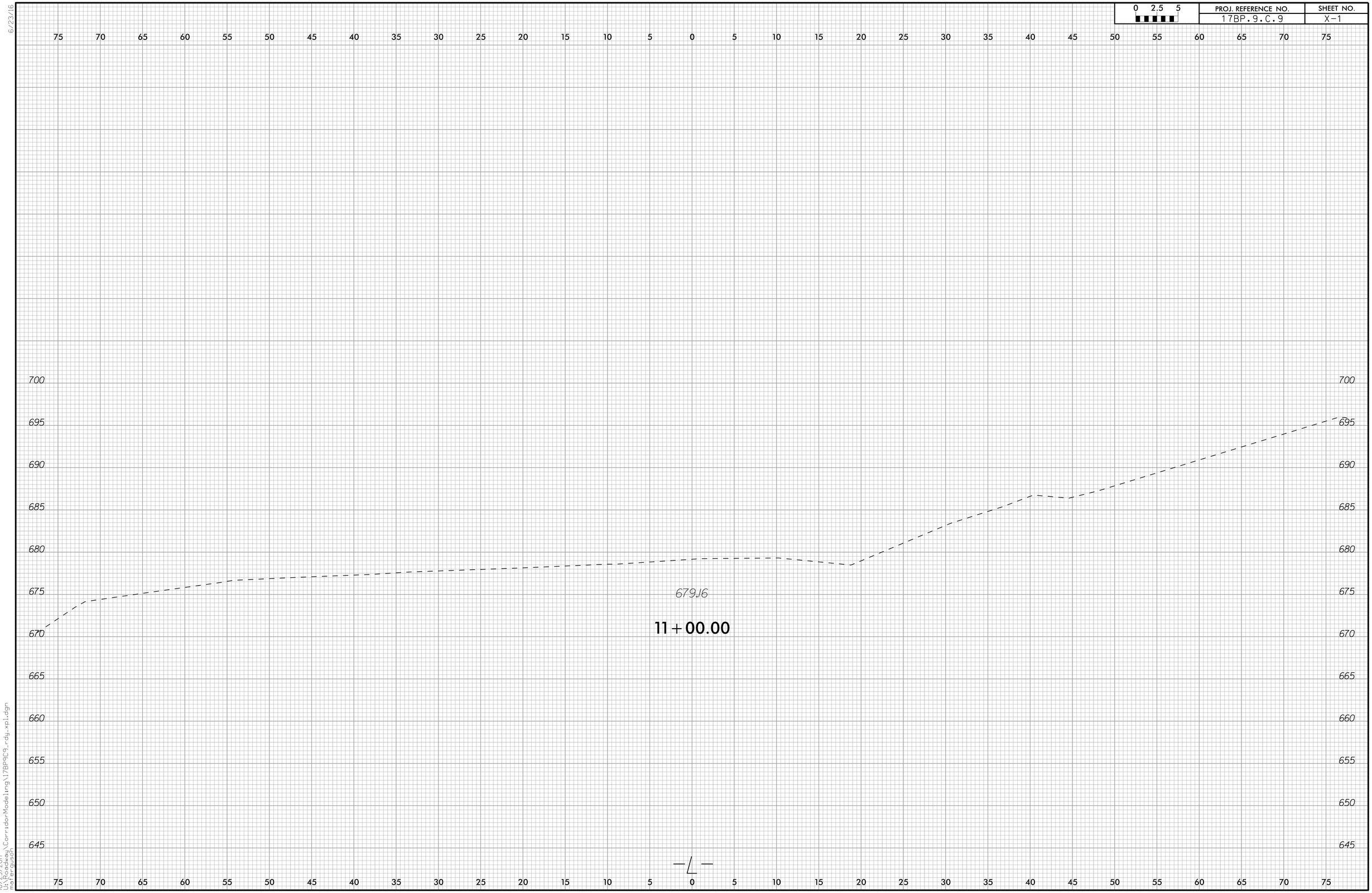
PROJ. REFERENCE NO.	SHEET NO.
17BP.9.C.9	X-1A

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+50.00	0	0
12+00.00	1	5
12+50.00	1	16
13+00.00	4	83
13+50.00	4	82
14+00.00	1	15
14+50.00	2	6
15+00.00	1	1

6/23/16

0 2.5 5

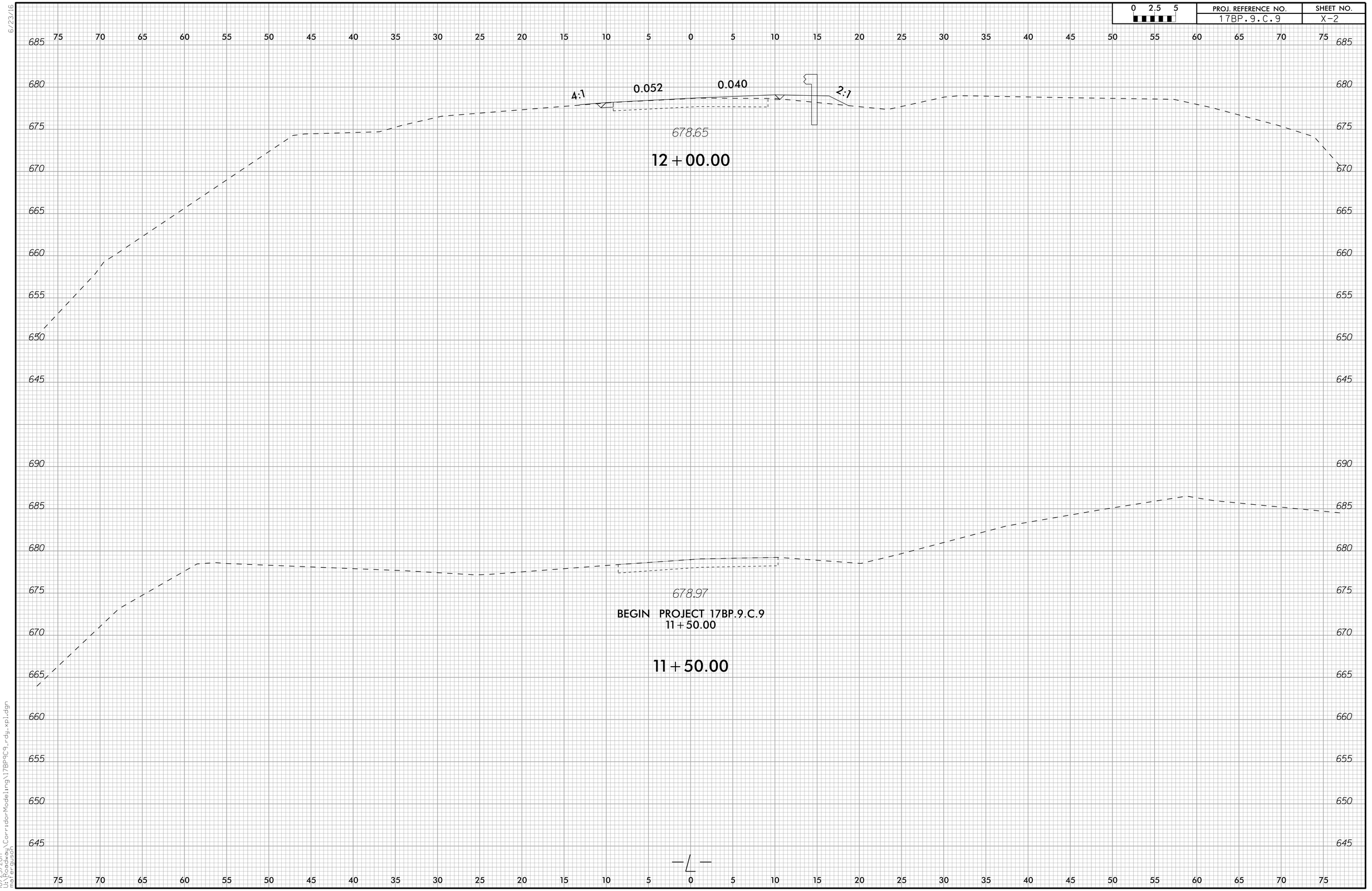
PROJ. REFERENCE NO.	SHEET NO.
17BP.9.C.9	X-1



10/25/2017
U:\Roadway\CorridorModeling\17BP9C9_rdy_xpl.dgn
mferguson

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.9.C.9	X-2



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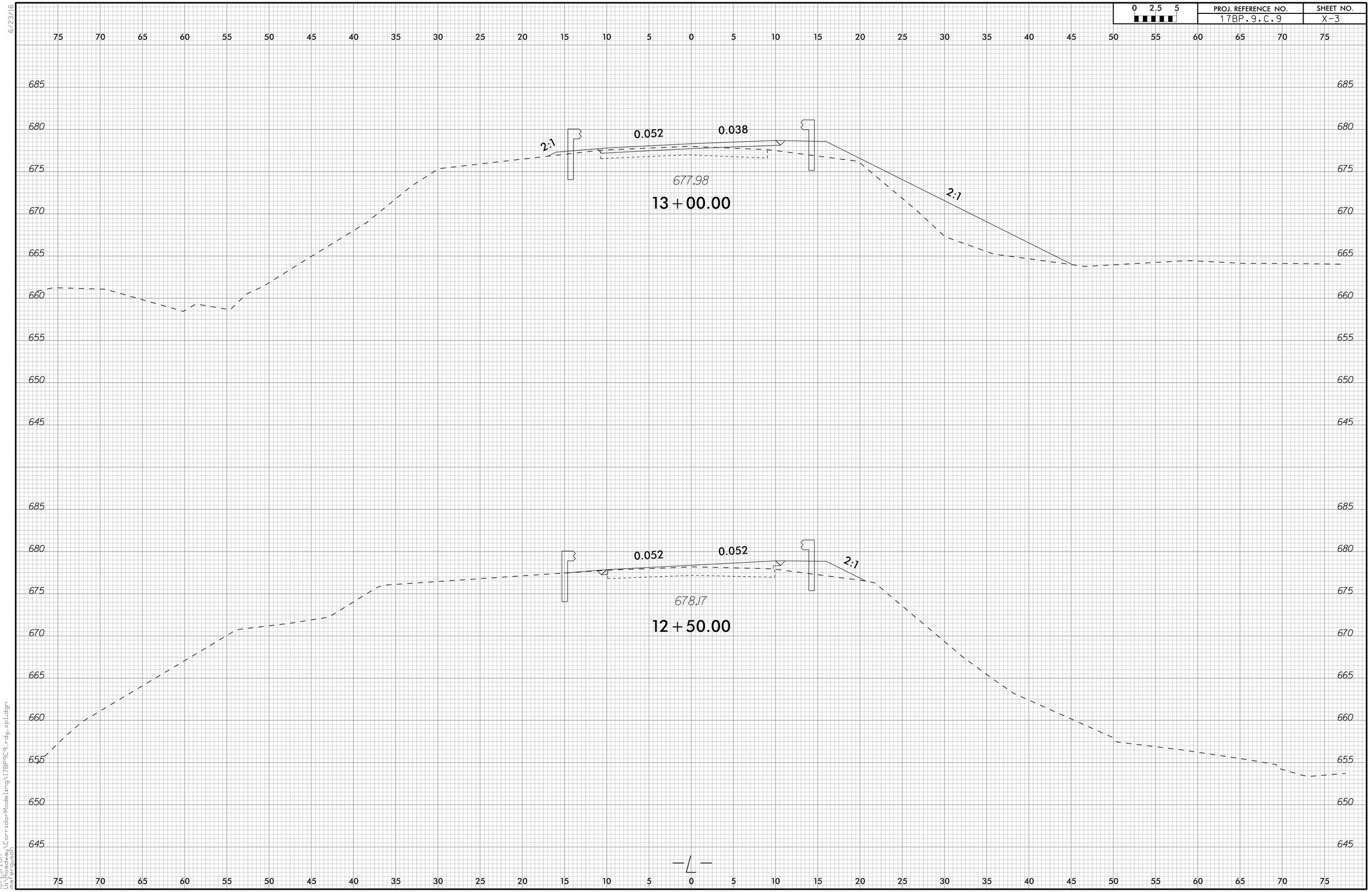
mafergusn

6/23/16

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.C.9	X-3



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mafergyson

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.9.C.9	X-4

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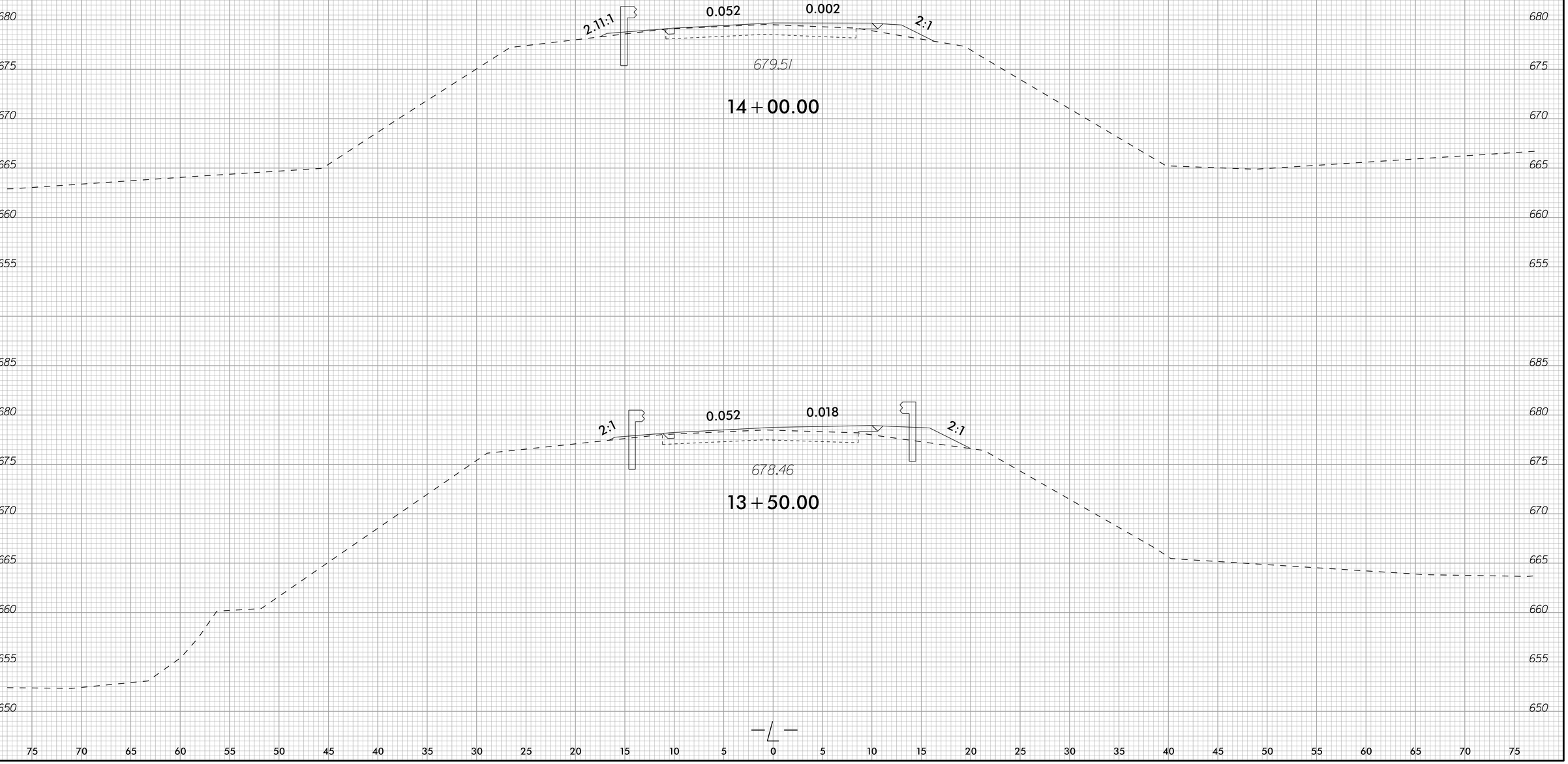
685 680 675 670 665 660 655 650



10/25/2017
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mafergyson

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.9.C.9	X-5

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

690 685 680 675 670 665 660

END PROJECT 17BP.9.C.9
15+00.00

682.83

15+00.00

3:1 0.050 0.020 2:1

681.11

14+50.00

—℄—

690 685 680 675 670 665 660

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

10/25/2017
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mferguson