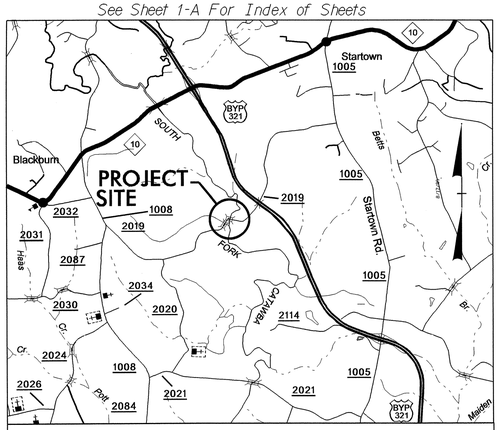
09/08/99

TIP PROJECT: B-4458

CONTRACT: C202950

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CATAWBA COUNTY

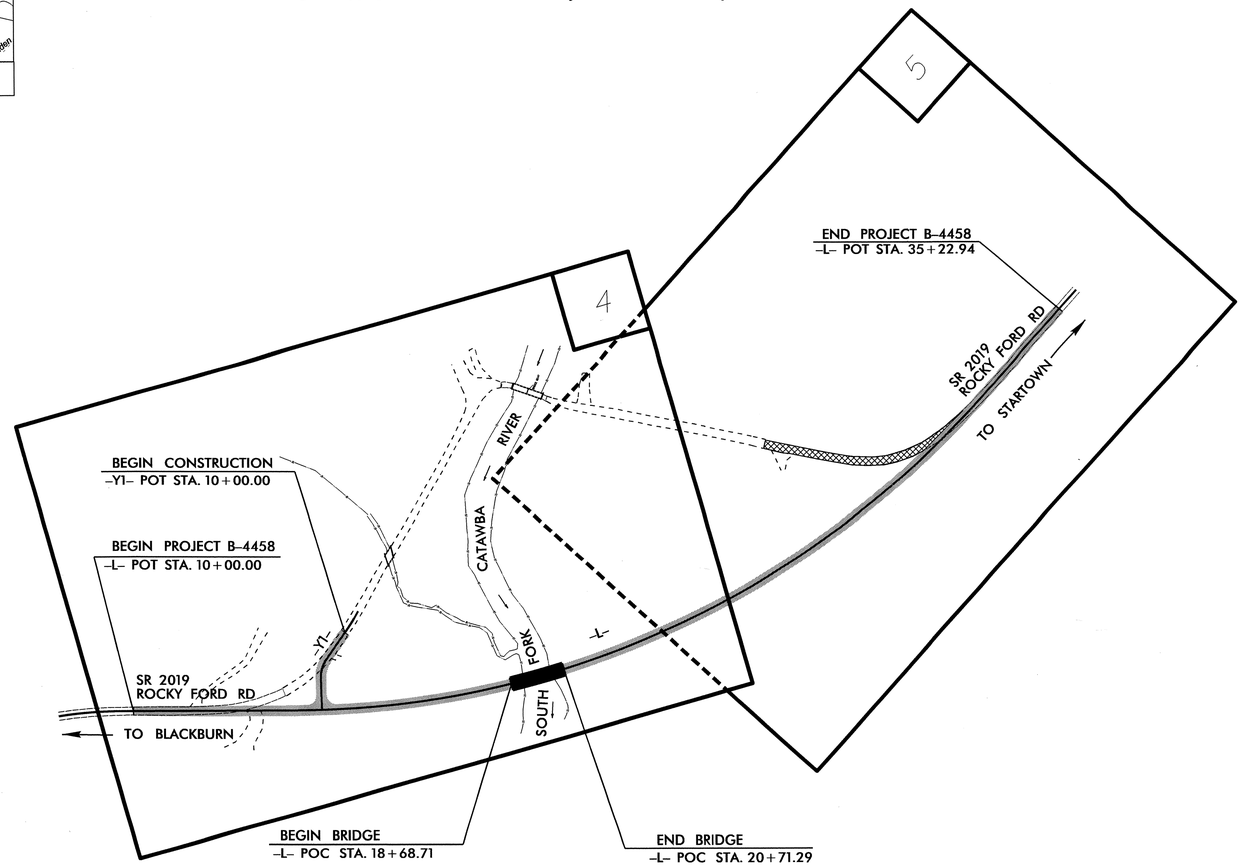
LOCATION: BRIDGE NO 95 ON ROCKY FORD RD (SR 2019) OVER THE SOUTH FORK CATAWBA RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4458	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38375.1.1	BRZ-2019 (2)	PE
38375.2.1	BRZ-2019 (2)	RW, UTIL
38375.3.1	BRZ-2019 (2)	CONST.

NC GRID
NAD 83



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 1008
ADT 2030 = 2700
DHV = 14 %
D = 55 %
T = 3 % *
V = 50 MPH
FUNC. CLASS = LOCAL
* TTST 1% DUAL 2%
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4458 = 0.440 MI

LENGTH STRUCTURE TIP PROJECT B-4458 = 0.038 MI

TOTAL LENGTH TIP PROJECT B-4458 = 0.478 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 18, 2011

LETTING DATE:
MARCH 19, 2013

JASON MOORE, PE
PROJECT ENGINEER

BRYAN KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19660 ENGINEER PAUL A. TAYLOR

8/28/12

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26964 ENGINEER BRYAN C. KEY

8-28-12

SIGNATURE:

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

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RD248661 8/28/2012 b4458_tsh_full reodell RD-Oce860-34

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4458	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26364 ENGINEER BRYAN C. KEY

9-4-12

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-D	SURVEY CONTROL SHEETS
2 THRU 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-B THRU 2-C	DRAINAGE DITCH DETAILS
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, DITCH DRAINAGE EXCAVATION, & ASPHALT PAVEMENT REMOVAL SUMMARY
3-B	SUMMARY OF DRAINAGE QUANTITIES
3-C	PARCEL INDEX SHEET
4 THRU 5	PLAN SHEETS
6 THRU 7	PROFILE SHEETS
TMP-1 THRU TMP-6A	TRANSPORTATION MANAGEMENT PLAN
SD-1	SIGN DESIGN
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
RF-1	REFORESTATION PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS
X-0 THRU X-10	CROSS-SECTIONS
S-1 THRU S-25	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

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.

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

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.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE Duke Energy
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

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 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
866.02	Woven Wire Fence
876.02	Guide for Rip Rap at Pipe Outlets

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4458	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

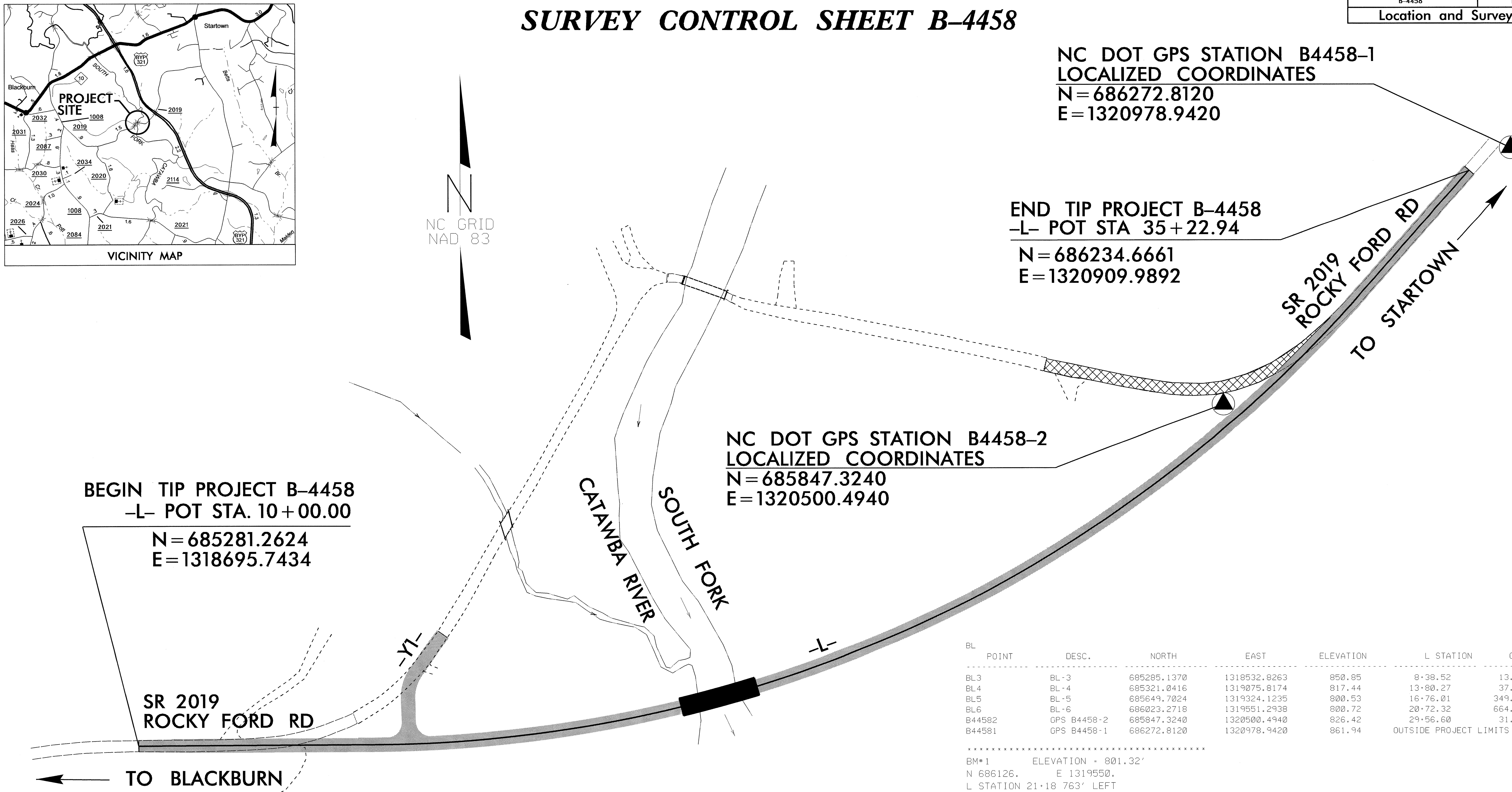
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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 (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-4458	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-4458



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	BL-3	685285.1370	1318532.8263	850.85	8+38.52	13.46 LT
BL4	BL-4	685321.0416	1319075.8174	817.44	13+80.27	37.82 LT
BL5	BL-5	685649.7024	1319324.1235	800.53	16+76.01	349.86 LT
BL6	BL-6	686023.2718	1319551.2938	800.72	20+72.32	664.88 LT
B44582	GPS B4458-2	685847.3240	1320500.4940	826.42	29+56.60	31.40 LT
B44581	GPS B4458-1	686272.8120	1320978.9420	861.94	OUTSIDE PROJECT LIMITS	

BM#1 ELEVATION = 801.32'
N 686126. E 1319550.
L STATION 21+18 763' LEFT
8" SPIKE IN THE ROOT OF A TREE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4458-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 685847.3240(ft) EASTING: 1320500.4940(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0001428500
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4458-2" TO -L- STATION 10+00.00 IS
S 72°35'09" W 1891.44'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4458_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◬ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4458	1-D
Location and Surveys	

SURVEY CONTROL SHEET B-4458

DESIGN ALIGNMENTS

L

TYPE	STATION	NORTH	EAST
POT	8+21.42	685269.3908	1318517.7684
PC	8+36.42	685271.5113	1318532.6151
PT	9+66.96	685281.0919	1318662.7041
PC	13+92.55	685283.2887	1319088.2888
PT	32+41.79	686024.2418	1320723.5259
POT	35+84.28	686280.5720	1320950.6678

Y1

TYPE	STATION	NORTH	EAST
POT	9+39.48	685518.3864	1319233.0314
PC	9+60.05	685500.4942	1319222.8727
PT	09+99.90	685466.9382	1319201.4206
PC	10+75.60	685405.3770	1319157.3561
PT	11+24.54	685359.3788	1319143.3795
POT	11+99.62	685284.3352	1319145.7270

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4458_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

   PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
   NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
   SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+00.00	-15.00	685296.2616	1318695.6656
L	10+00.00	-30.00	685311.2620	1318695.5885
L	12+80.18	-30.00	685312.7065	1318975.7667
L	13+92.55	30.00	685253.2869	1319088.4437
L	10+00.00	30.00	685251.2622	1318695.8978
L	10+00.00	15.00	685266.2620	1318695.8204
L	15+35.00	-30.00	685318.5575	1319228.5171
L	29+55.65	-30.00	685845.6458	1320500.7034
L	32+41.78	30.00	686004.3461	1320745.9795
L	32+41.78	-30.00	686044.1375	1320701.0724

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	10+00.00	15.00	685475.5844	1319189.1627
Y1	10+00.00	30.00	685484.3151	1319176.9653
Y1	10+75.60	30.00	685422.8378	1319132.9609
Y1	11+03.46	30.00	685387.6831	1319116.6022
Y1	10+75.60	-30.00	685387.9151	1319181.7504
Y1	10+00.00	-30.00	685449.3924	1319225.7548
Y1	10+00.00	-15.00	685458.1231	1319213.5574

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4458-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 685847.3240(ft) EASTING: 1320500.4940(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0001428500
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4458-2" TO -L- STATION 10+00.00 IS
S 72°35'09" W 1891.44'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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6/2/99

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

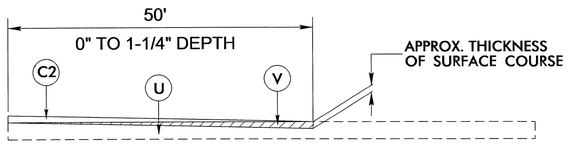
PROJECT REFERENCE NO.	SHEET NO.
B-4458	2

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 26994 ENGINEER BRYAN C. KEY — 8-28-12

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON — 9/29/12

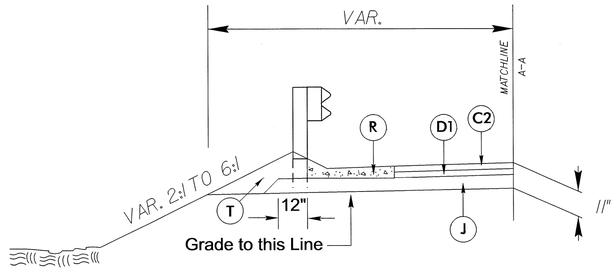
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	J	PROP. 6" AGGREGATE BASE COURSE.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	P	PRIME COAT (AT THE APPLICATION RATE OF 0.35 GAL. PER S.Y.)
C3	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" IN DEPTH OR GREATER THAN 1½" IN DEPTH.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	V	VARIABLE DEPTH INCIDENTAL MILLING (SEE MILLING DETAIL BELOW)
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL BELOW)
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE 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" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	R	SHOULDER BERM GUTTER

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



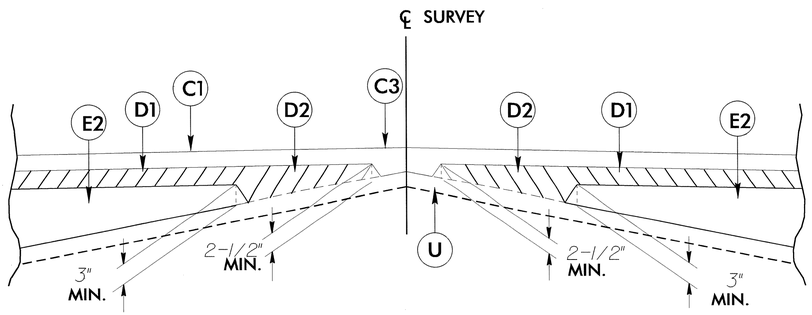
MILLING DETAIL

–L– STA 10+00 TO 10+50
–L– STA 34+72.94 TO 35+22.94

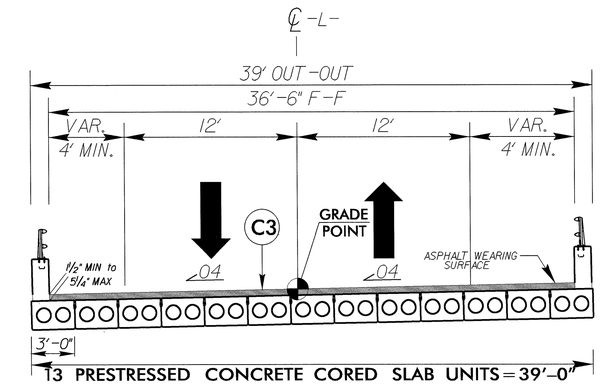


SHOULDER BERM GUTTER DETAIL

USE IN CONJUNCTION W/TYPICAL NO. 2 (SHEET 2–A)



Detail Showing Method of Wedging



13 PRESTRESSED CONCRETE CORED SLAB UNITS = 39'-0"

BRIDGE TYPICAL

–L– STA. 18+68.71 (BEGIN BRIDGE) TO 20+71.29 (END BRIDGE)

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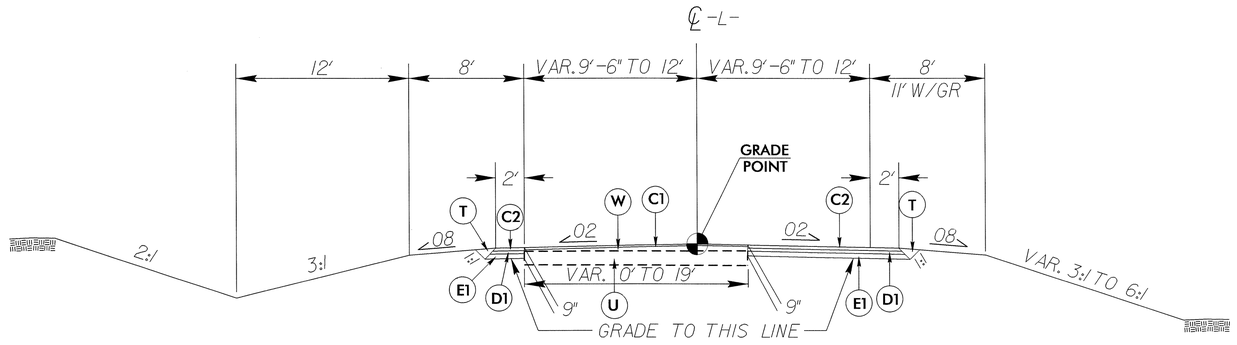
RD248661 8/28/2012 b4458_s02_full reodell RD-Oce860-34

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4458	2-A

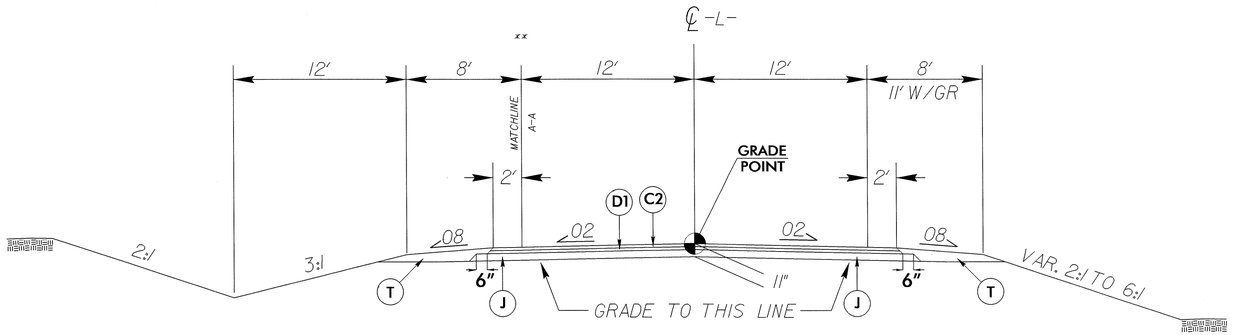
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 29964 ENGINEER BRYAN C. KEY
8-28-12

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
8/29/12



TYPICAL SECTION NO. 1

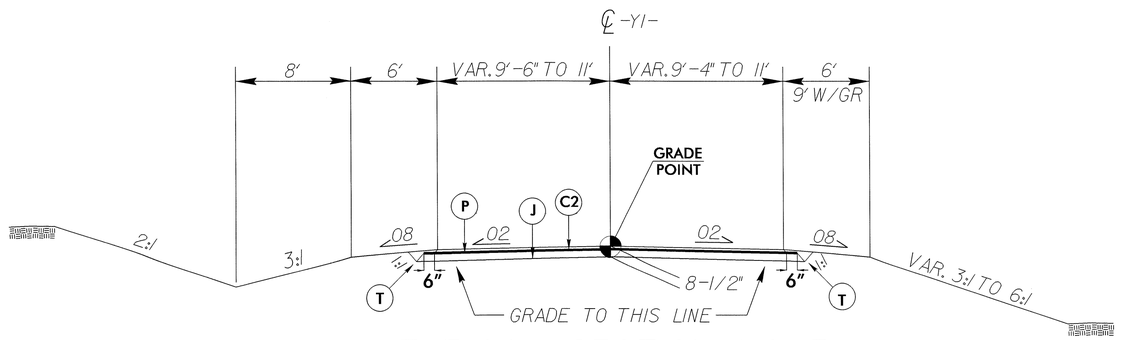
USE TYPICAL SECTION NO. 1
-L- STA. 10+00.00 TO -L- STA. 13+05.00
-L- STA. 31+00.00 TO -L- STA. 35+22.94



TYPICAL SECTION NO. 2

SEE SHOULDER BERM GUTTER DETAIL (SHEET 2)

USE TYPICAL SECTION NO. 2
-L- STA. 13+05.00 TO -L- STA. 18+68.71 (BEGIN BRIDGE)
-L- STA. 20+71.29 (END BRIDGE) TO -L- STA. 31+00.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-Y1- STA. 10+00.00 TO -Y1- STA. 11+87.62

C1	1¼" SF9.5A
C2	2½" SF9.5A
C3	VAR. SF9.5A
D1	2 1/2" I19.5B
D2	VAR. I19.0B
E1	4" B25.0B
E2	VAR. B25.0B
J	6" ABC
P	PRIME COAT
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

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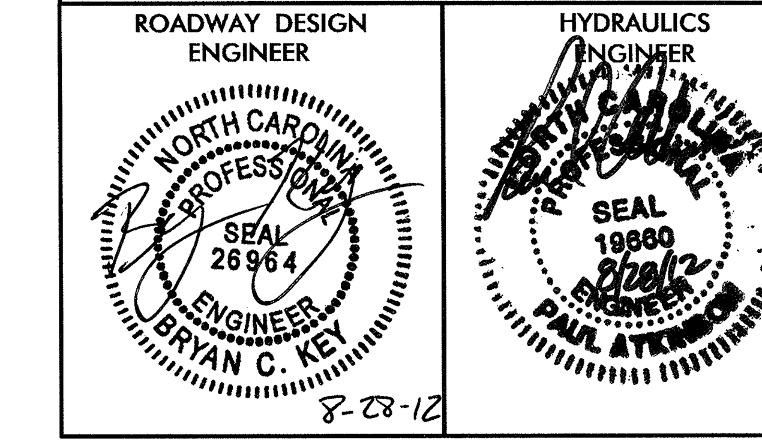
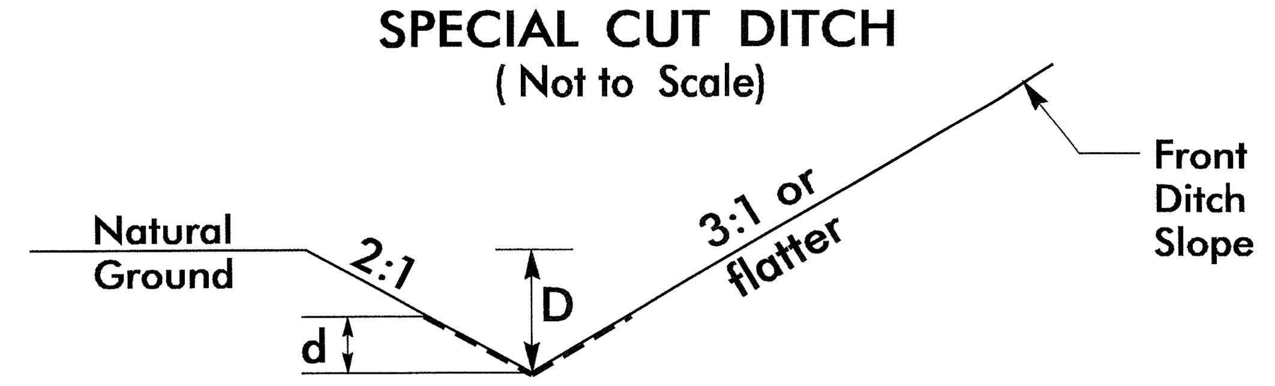
PROJECT REFERENCE NO.	SHEET NO.
B-4458	2-B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



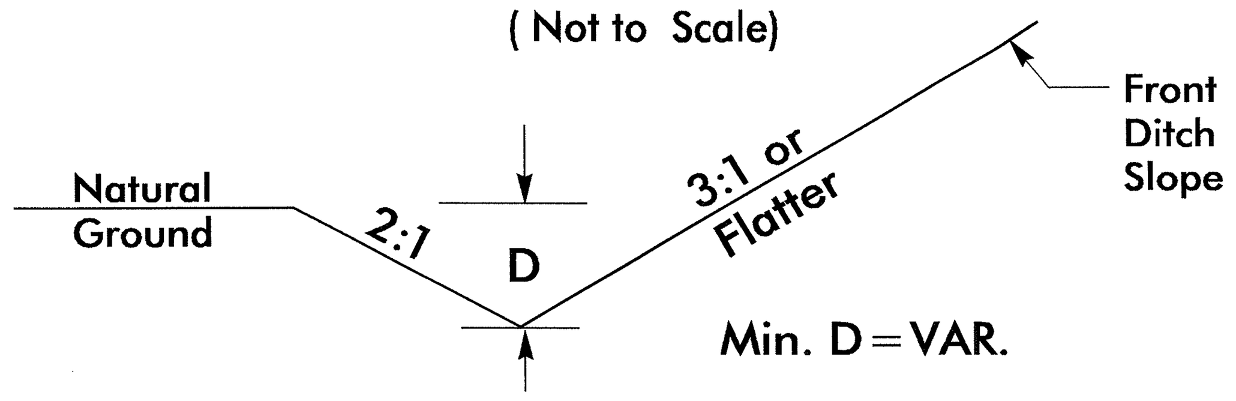
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max d=1.5 Ft.
Type of Liner = PSRM

–L– STA. 9+58 TO STA. 11+50(LT)
–L– STA. 12+50 TO STA. 14+12(LT)
–L– STA. 28+00 TO STA. 29+00(RT)

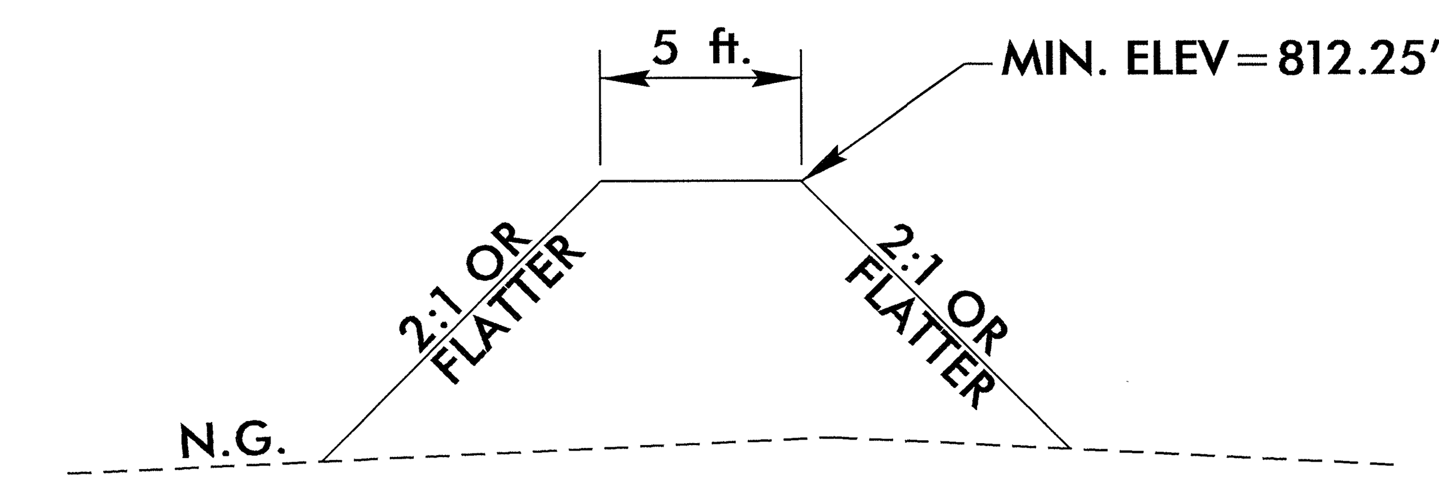
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Min. D=VAR.

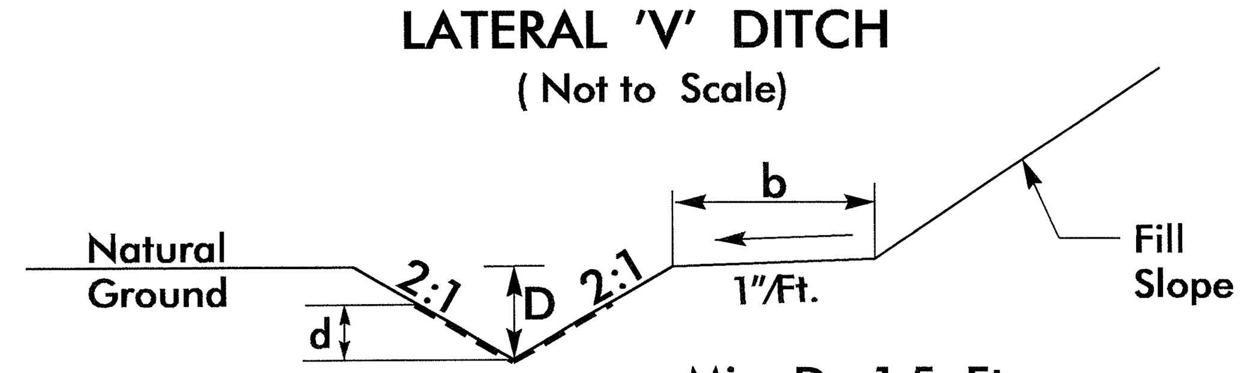
–L– STA. 34+00 TO STA. 35+84(LT)
–L– STA. 34+00 TO STA. 35+84(RT)
–Y1– STA. 9+45 TO STA. 10+50(RT)
–Y1– STA. 9+50 TO STA. 10+50(LT)

DETAIL C
SPECIAL BERM
(Not to Scale)



–Y1– STA. 11+37.5(RT)

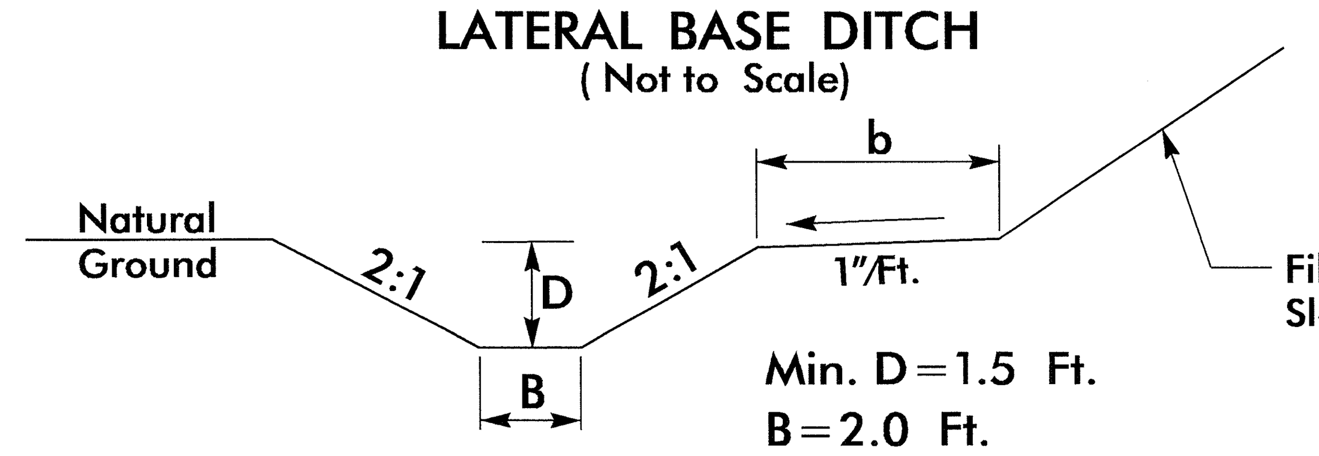
DETAIL D
LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
b=5.0 Ft.
Type of Liner = PSRM

–L– STA. 15+06 TO STA. 17+00(LT)

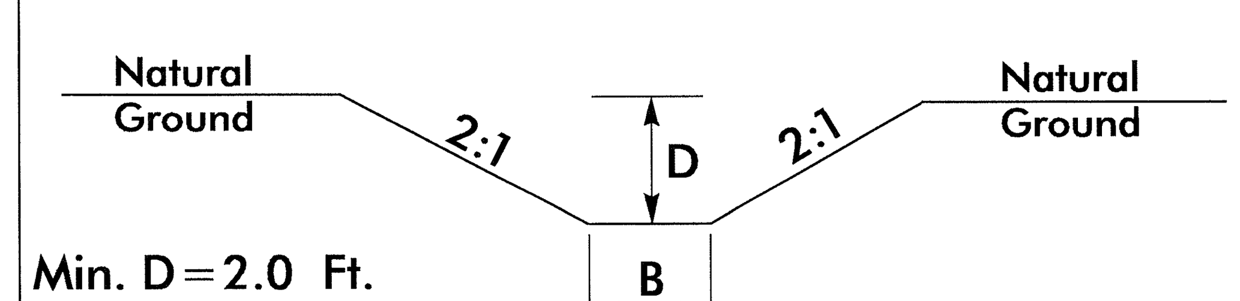
DETAIL E
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.

–L– STA. 17+00 TO STA. 18+64(LT)
–L– STA. 20+70 TO STA. 21+50(RT)
–L– STA. 20+77 TO STA. 21+50(LT)

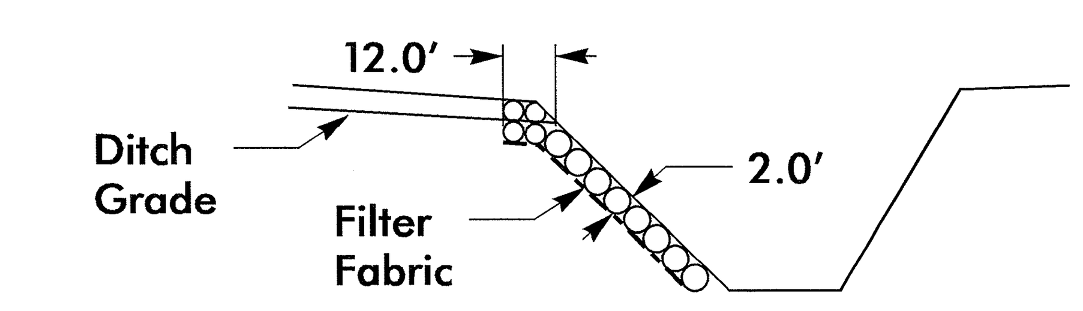
DETAIL F
STANDARD BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
B=2.0 Ft.
DDE=238 CU. YDS.

–L– STA. 18+64 TO STA. 18+93.5(LT)
–L– STA. 20+13.50 TO STA. 20+77(LT)
–L– STA. 20+24.50 TO STA. 20+70(RT)

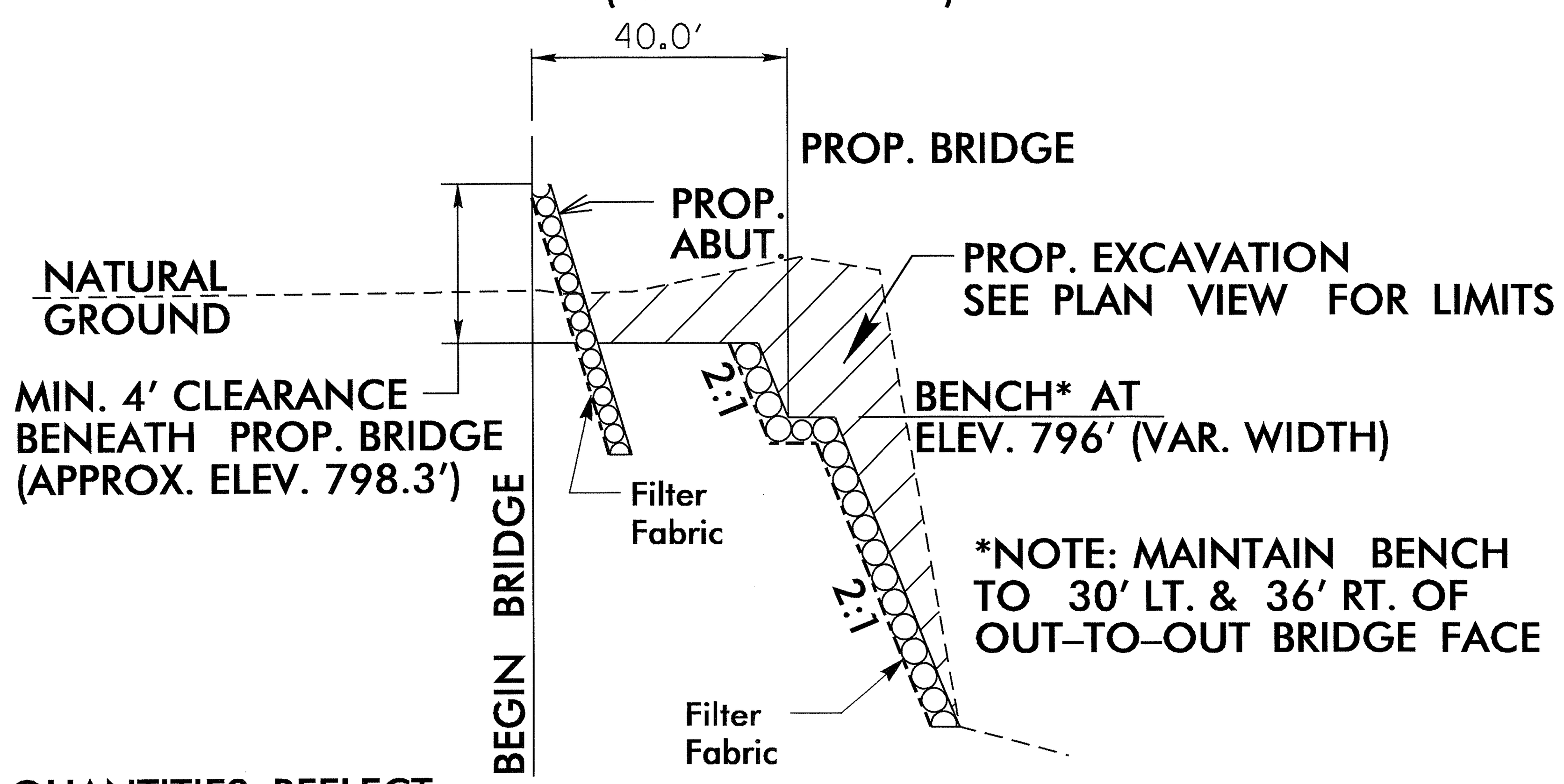
DETAIL G
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=52 TONS,CL. II Rip-Rap*
Filter Fabric=58 SQ. YDS.* DDE=37 CU. YDS.

–L– STA. 18+82(LT) TO STA. 18+98(LT)
*STRUCTURE'S PAY ITEM

DETAIL H
ABUTMENT EXCAVATION & BANK STABILIZATION
(NOT TO SCALE)

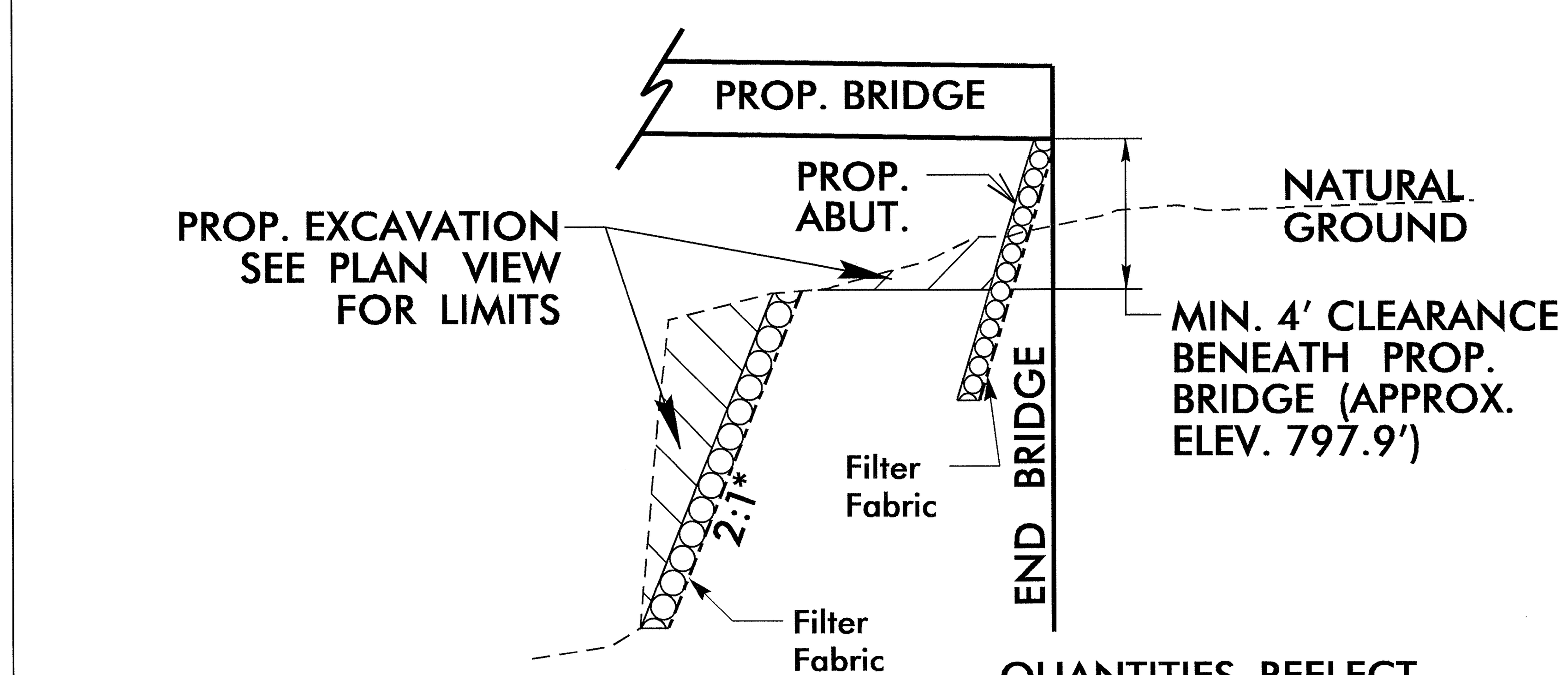


*NOTE: MAINTAIN BENCH TO 30' LT. & 36' RT. OF OUT–TO–OUT BRIDGE FACE

QUANTITIES REFLECT
BANK STABILIZATION ONLY
Type of Liner=357 TONS, CL. II Rip–Rap*
DDE=513 CU. YDS. Filter Fabric=471 SQ. YDS.*

–L– STA. 18+70
*STRUCTURE'S PAY ITEM

DETAIL I
ABUTMENT EXCAVATION & BANK STABILIZATION
(NOT TO SCALE)



*NOTE: MAINTAIN 2:1 LAID BACK BANKS FROM OUT–TO–OUT BRIDGE FACE. BEYOND PROP. BRIDGE, TRANSITION TO EXISTING CHANNEL BANKS AT EXTENTS DEPICTED IN PLAN VIEW.

QUANTITIES REFLECT
BANK STABILIZATION ONLY
DDE=439 CU. YDS.
Type of Liner=280 TONS, CL. II Rip–Rap*
Filter Fabric=255 SQ. YDS.*

–L– STA. 20+70
*STRUCTURE'S PAY ITEM

SEE SHEETS 4 & 5 FOR PLANS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4458	2-C
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26984 ENGINEER BRYAN C. KEY

8-28-12

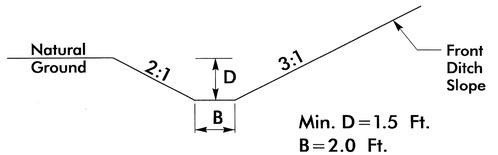
HYDRAULICS ENGINEER

SEAL 19650 8/28/12 ENGINEER PAUL ATHEY

DETAIL J

SPECIAL CUT BASE DITCH

(Not to Scale)

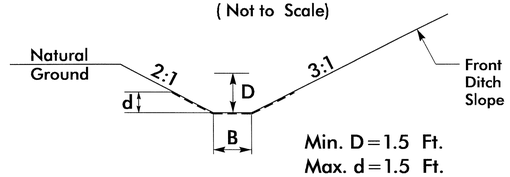


–L– STA. 21+50 TO STA. 24+50(LT)
–L– STA. 21+50 TO STA. 24+50(RT)

DETAIL K

SPECIAL CUT BASE DITCH

(Not to Scale)



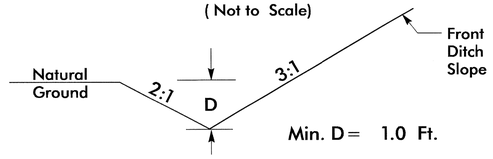
Type of Liner= PSRM

–L– STA. 24+50 TO STA. 26+50(RT)

DETAIL L

SPECIAL CUT DITCH

(Not to Scale)

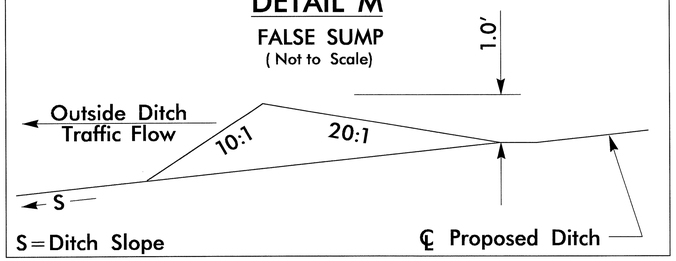


–L– STA. 24+50 TO STA. 26+50(LT)

DETAIL M

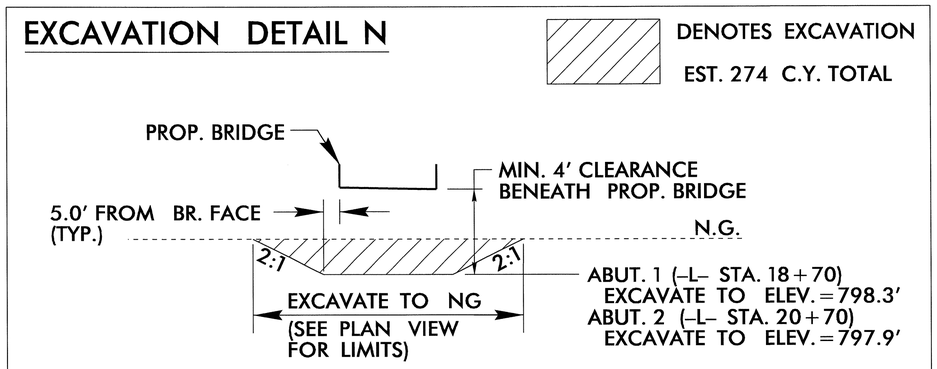
FALSE SUMP

(Not to Scale)



–L– STA. 30+40(LT)

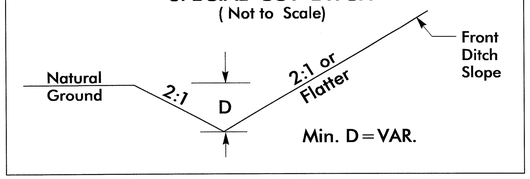
EXCAVATION DETAIL N



DETAIL O

SPECIAL CUT DITCH

(Not to Scale)

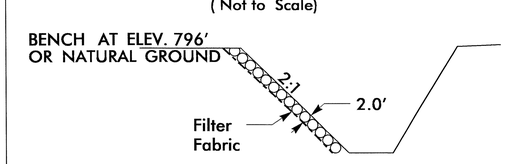


–L– STA. 9+42 TO STA. 11+50(RT)

DETAIL P

BANK STABILIZATION

(Not to Scale)



Type of Liner=35.1 TONS,CL. II Rip-Rap*
Filter Fabric=66 SQ. YDS.* DDE=62 CU. YDS.

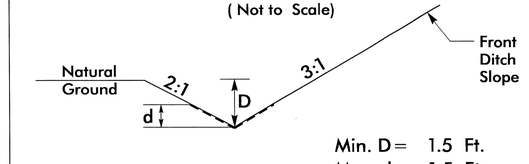
–L– STA. 19+09(LT) TO STA. 19+42(LT)

*STRUCTURE'S PAY ITEM

DETAIL Q

CUT DITCH

(Not to Scale)



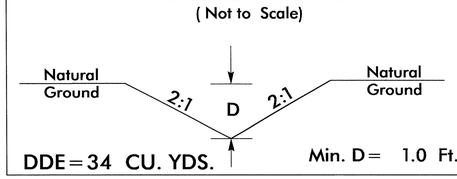
Type of Liner= PSRM

–L– STA. 11+50 TO STA. 12+50(LT)
–L– STA. 26+50 TO STA. 28+00(RT)
–L– STA. 29+00 TO STA. 33+00(RT)
–L– STA. 31+00 TO STA. 34+00(LT)

DETAIL R

STANDARD 'V' DITCH

(Not to Scale)



–L– STA. 27+90 (LT)

SEE SHEETS 4 & 5 FOR PLANS

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4458	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202950

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (19+70.00-L-)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	1,000	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	15,000	CY	BORROW EXCAVATION
0134000000-E	240	2,050	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	1,000	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	2,600	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	100	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	120	LF	15" DRAINAGE PIPE
0335850000-E	305	4	EA	** DRAINAGE PIPE ELBOWS (15")
0448300000-E	310	68	LF	18" RC PIPE CULVERTS, CLASS IV
0594000000-E	310	92	LF	24" CS PIPE CULVERTS, 0.064" THICK
0995000000-E	340	206	LF	PIPE REMOVAL
1099500000-E	505	500	CY	SHALLOW UNDERCUT
1099700000-E	505	1,000	TON	CLASS IV SUBGRADE STABILIZATION
1121000000-E	520	2,260	TON	AGGREGATE BASE COURSE
1220000000-E	545	200	TON	INCIDENTAL STONE BASE
1275000000-E	600	85	GAL	PRIME COAT
1330000000-E	607	225	SY	INCIDENTAL MILLING
1489000000-E	610	325	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	1,060	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1525000000-E	610	1,465	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	165	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	10	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	112	CY	SUBDRAIN EXCAVATION
2033000000-E	815	84	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	360	LF	SHOULDER BERM GUTTER
3030000000-E	862	825	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3503000000-E	866	3,610	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	225	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	70	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3557000000-E	866	100	LF	ADDITIONAL BARBED WIRE
3628000000-E	876	7	TON	RIP RAP, CLASS I
3649000000-E	876	4	TON	RIP RAP, CLASS B
3656000000-E	876	2,085	SY	GEOTEXTILE FOR DRAINAGE
4072000000-E	903	14	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	1	EA	SIGN ERECTION, TYPE E
4192000000-N	907	16	EA	DISPOSAL OF SUPPORT, U-CHANNEL
4400000000-E	1110	527	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	90	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	20	EA	DRUMS
4435000000-N	1135	20	EA	CONES
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4455000000-N	1150	20	DAY	FLAGGER
4810000000-E	1205	25,338	LF	PAINT PAVEMENT MARKING LINES (4")
4915000000-E	1264	3	EA	7' U-CHANNEL POSTS
4955000000-N	1264	3	EA	OBJECT MARKERS (END OF ROAD)
6000000000-E	1605	3,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	285	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	1,640	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	665	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	6.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	250	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	2	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	600	LF	SAFETY FENCE
6030000000-E	1630	1,250	CY	SILT EXCAVATION
6036000000-E	1631	11,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	40	SY	COIR FIBER MAT
6038000000-E	SP	3,900	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	60	LF	1/4" HARDWARE CLOTH
6048000000-E	SP	120	SY	FLOATING TURBIDITY CURTAIN
6070000000-N	1639	12	EA	SPECIAL STILLING BASINS
6071010000-E	SP	210	LF	WATTLE
6071020000-E	SP	400	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	310	LF	COIR FIBER BAFFLE
6071050000-E	SP	4	EA	** SKIMMER (1-1/2")
6084000000-E	1660	4.5	ACR	SEEDING & MULCHING
6087000000-E	1660	3.5	ACR	MOWING
6090000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	175	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	4.75	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION

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12/06/07

COMPUTED BY: JRH	DATE: 8-15-12
CHECKED BY: BCK	DATE: 8-15-12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4458	3-A

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE I					
-L- 13+16 CL	-L- 18+68.71 BR	135	10537	10402	
-Y1- 9+47.50 LT	-Y1- 11+87.62 LT	71	667	596	
-L- 20+71.29 BR LT	-L- 30+20 CL	1680	4157	2477	
PHASE I	SUBTOTAL	1886	15362	13475	
PHASE II					
-L- 9+49.77 LT	-L- 13+16 LT	495	60		435
-L- 9+49.77 RT	-L- 13+16 RT	184	107		77
-Y1- 9+47.50 RT	-Y1- 11+87.62 RT	333	283		50
-L- 30+20 LT	-L- 35+22.94 LT	616	143		473
-L- 30+20 RT	-L- 35+22.94 RT	804	176		628
PHASE II	SUBTOTAL	2432	768		1663
SUMMARY SUBTOTALS:		4318	16130	13475	1663
LOSS DUE TO CLR & GRUB		-500		500	
SPECIAL EXCAVATION (SEE DET. N, SHT 2-C)		274			274
WASTE IN LIEU OF BORROW				-274	-274
PROJECT TOTALS:		4092	16130	13701	1663
EST. 5% TO REPL TOPSOIL ON BORR PIT				685	
GRAND TOTALS:		4092	16130	14386	1663
SAY:		4300		15000	

UNDERCUT=1000 CY
SHALLOW UNDERCUT=500 CY

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.

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L-	12+42	13+63	LT	170.20
-L-	27+42	31+33	LT	902.51
			TOTAL:	1072.71
			SAY:	1200.00

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

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	15+55.45	18+57.71	302.26
-L-	20+82.29	20+97.05	14.76
-L-	18+58.92	18+69.59	10.70
-L-	20+70.41	20+81.07	10.70
		TOTAL:	358.75
		SAY:	360.00

DDE SUMMARY

DETAIL	SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	VOL (CY)
D	-L-	15+06	17+00	LT	70.88
E	-L-	17+00	18+64	LT	251.95
E	-L-	20+70	21+50	RT	89.83
E	-L-	20+77	21+50	LT	131.78
F	-L-	18+64	18+93.5	LT	50.69
F	-L-	20+13.5	20+77	LT	109.12
F	-L-	20+24.5	20+70	RT	78.19
G	-L-	18+82	18+98	LT	37
H	-L-	18+70	18+70	CL	513
I	-L-	20+70	20+70	CL	439
P	-L-	19+09	19+42	LT	62
R	-L-	27+90	27+93	LT	34
				TOTAL:	1867.44
				SAY:	2050

SEE SHEETS 2-B & 2-C FOR DRAINAGE DETAILS

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350 TL-3	M-350	III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	13+16.33	18+69.59	RT	556.25			14+16.33	18+69.59	8	11	50.00		1.0				1		1											
-L-	15+00.00	18+67.91	LT	368.75			18+67.91	16+00.00	8	11	185.00		3.70				1		1											
-L-	20+70.41	21+45.41	RT	75.00				20+70.37	VAR. 7.2 /8.2	11		56.25		1.125			1		1											
-L-	20+72.09	21+47.09	LT	75.00			20+72.05		VAR. 5.2 /4.2	11	56.25		1.125				1		1											
-BL-	19+23.40	19+23.84	LT	25.00																			2							BARRICADE @ OLD BRIDGE LOCATION
			SUBTOTAL	1100.00							ANCHOR DEDUCTIONS:						4		4				2							
											4 GRAU-350 TL-3 @ 50' = 200'																			
			LESS ANCHOR DEDUCTIONS	287.50							4 TYPE III @ 18.75' = 75'																			
			TOTAL	812.50							2 AT-1 @ 6.25' = 12.50'																			
			SAY	825.00							TOTAL = 287.50'						4		4				2							

ADDITIONAL GUARDRAIL POSTS = 5 EACH

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$$$$USERNAME$$$$

COMPUTED BY: JRH DATE: 8-15-12

CHECKED BY: BCK DATE: 8-15-12

PROJECT NO.	SHEET NO.
B-4458	3-B

R0244217

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE											
-L- STA 11+67	LT		401						52										
-L- STA 12+70.22	CL		402		821.55	819.99													
-Y1- STA 11+49.42	CL		403		809.74	800.00													
-L- STA 18+47	LT		404	804.99	802.24														
-L- STA 18+47	LT	404	405		802.24	795.17			36							X			
-L- STA 20+92	LT		406	804.26	801.51														
-L- STA 20+92	LT	406	407		801.51	795.38			32							X			
-L- STA 27+90	LT																		
SHEET TOTALS									120										

C.S. PIPE								R.C. PIPE CLASS III								R.C. PIPE CLASS IV							
12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"
.064	.064	.064	.064	.079	.079	.109	.109																
			92															68					

*** R.C. PIPE (CLASS V)	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	***** RC PIPE CULVERTS, CONTRACTOR DESIGN	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. FT. A 5.0' THRU 10.0'	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
					1														
					1														
					1														
					2														

D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	15" PIPE ELBOWS	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
															28	
															36	
															71	
									1	1						
												2				
									1	1						
												2				
															71	
									2	2	4				206	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

PROJ. REFERENCE NO.	SHEET NO.
B-4458	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

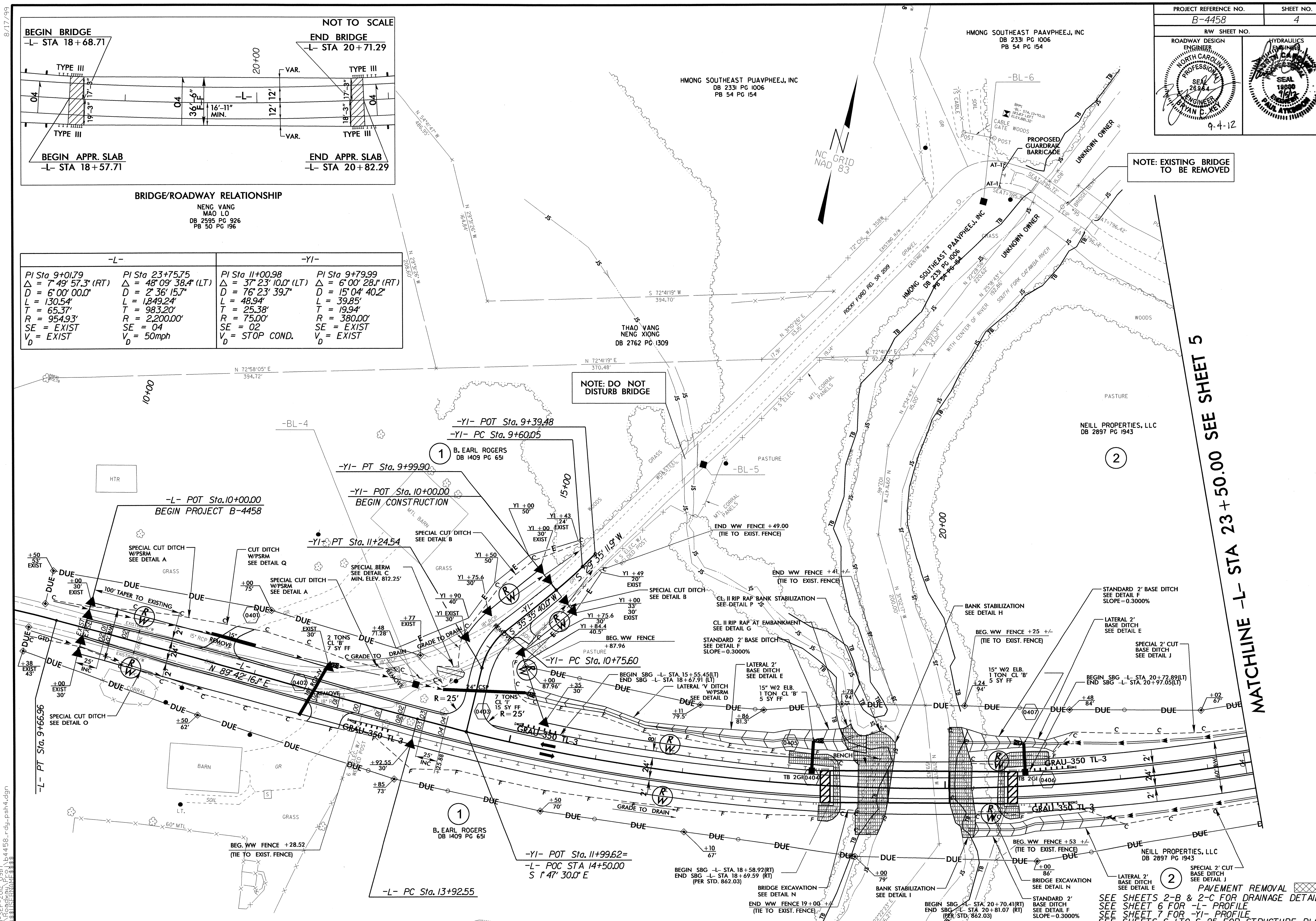
PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	B. EARL ROGERS
2	4 & 5	NEILL PROPERTIES, LLC

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
B-4458	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

9-4-12



-L-		-YI-	
PI Sta 9+01.79	PI Sta 23+75.75	PI Sta 11+00.98	PI Sta 9+79.99
Δ = 7° 49' 57.3" (RT)	Δ = 48° 09' 38.4" (LT)	Δ = 37° 23' 10.0" (LT)	Δ = 6° 00' 28.1" (RT)
D = 6° 00' 00.0"	D = 2° 36' 15.7"	D = 76° 23' 39.7"	D = 15° 04' 40.2"
L = 130.54'	L = 1,849.24'	L = 48.94'	L = 39.85'
T = 65.37'	T = 983.20'	T = 25.38'	T = 19.94'
R = 954.93'	R = 2,200.00'	R = 75.00'	R = 380.00'
SE = EXIST	SE = 04	SE = 02	SE = EXIST
V_D = EXIST	V_D = 50mph	V_D = STOP COND.	V_D = EXIST

8/17/99

04-SEP-2012 09:17

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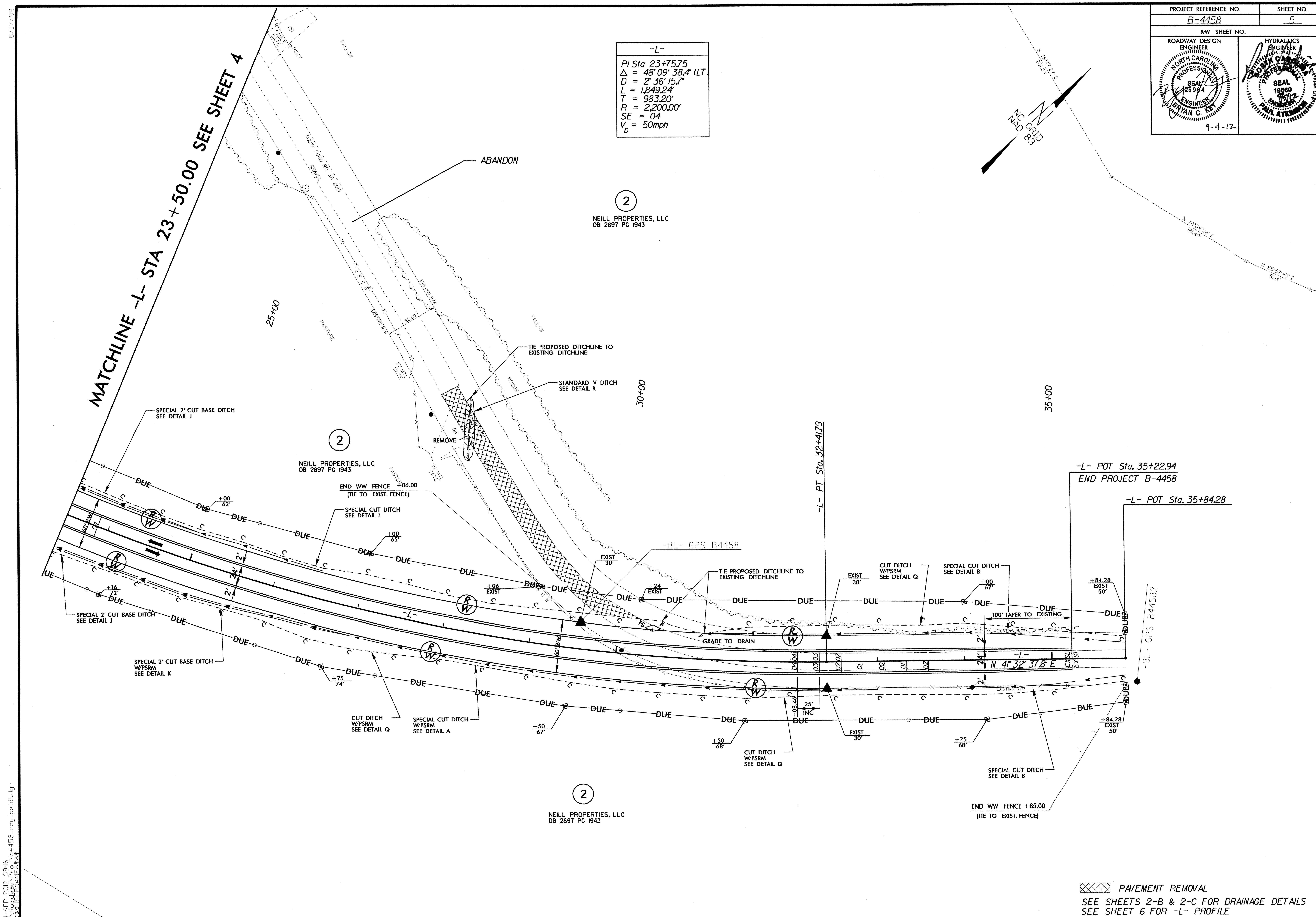
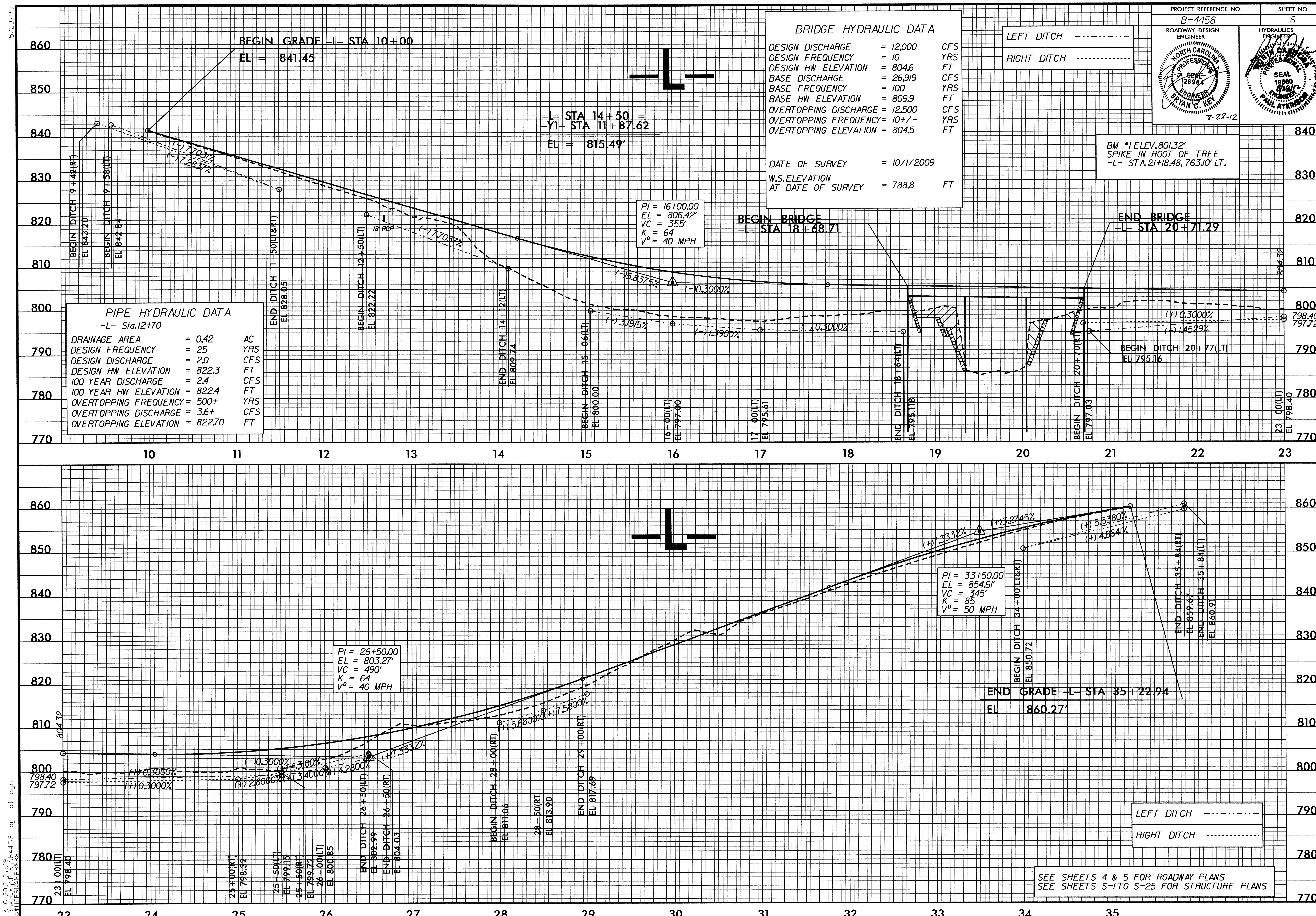


PROJECT REFERENCE NO.
B-4458
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26964 ENGINEER BRYAN C. KEY
9-4-12
NORTH CAROLINA PROFESSIONAL SEAL 19880 ENGINEER PAUL ATKINSON
-L-
PI Sta 23+75.75
Δ = 48° 09' 38.4" (LT)
D = 2° 36' 15.7"
L = 1,849.24'
T = 983.20'
R = 2,200.00'
SE = .04
V_D = 50mph
NC GRID NAD 83
MATCHLINE -L- STA 23+50.00 SEE SHEET 4
ABANDON
2
NEILL PROPERTIES, LLC
DB 2897 PG 1943
25+00
30+00
35+00
FALLOW
PASTURE
WOODS
ROCKY FORD RD. SR 2059
GRAVEL
EXISTING R/W
66.00'
TIE PROPOSED DITCHLINE TO EXISTING DITCHLINE
STANDARD V DITCH SEE DETAIL R
REMOVE
SPECIAL 2' CUT BASE DITCH SEE DETAIL J
END WW FENCE +06.00 (TIE TO EXIST. FENCE)
SPECIAL CUT DITCH SEE DETAIL L
-BL- GPS B4458
EXIST 30'
-L- PT Sta. 32+41.79
-L- POT Sta. 35+22.94
END PROJECT B-4458
-L- POT Sta. 35+84.28
CUT DITCH W/PSRM SEE DETAIL Q
SPECIAL CUT DITCH SEE DETAIL B
100' TAPER TO EXISTING
GRADE TO DRAIN
N 41° 32' 37.8" E
-BL- GPS B44582
SPECIAL 2' CUT BASE DITCH W/PSRM SEE DETAIL K
SPECIAL CUT DITCH W/PSRM SEE DETAIL A
END WW FENCE +85.00 (TIE TO EXIST. FENCE)
PAVEMENT REMOVAL
SEE SHEETS 2-B & 2-C FOR DRAINAGE DETAILS
SEE SHEET 6 FOR -L- PROFILE


PROJECT REFERENCE NO. B-4458
SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26964 ENGINEER BRYAN C. KEY
8-28-12
NORTH CAROLINA PROFESSIONAL SEAL 19860 ENGINEER PAUL ATKINSON
-L-
LEFT DITCH
RIGHT DITCH
BEGIN GRADE -L- STA 10+00
EL = 841.45
-L- STA 14+50 = -Y1- STA 11+87.62
EL = 815.49'
BM #1 ELEV. 801.32' SPIKE IN ROOT OF TREE -L- STA. 21+18.48, 76.3/10' LT.
PI = 16+00.00
EL = 806.42'
VC = 355'
K = 64
V° = 40 MPH
BEGIN BRIDGE -L- STA 18+68.71
END BRIDGE -L- STA 20+71.29
(-)7.7031%
(-)7.2837%
(-)7.7037%
18" RCP
(-)5.8375%
(-)0.3000%
(-)3.1915%
(-)1.3900%
(-)0.3000%
(+)0.3000%
(+)1.4529%
BEGIN DITCH 9+42(RT) EL 843.20
BEGIN DITCH 9+58(LT) EL 842.84
END DITCH 11+50(LT&RT) EL 828.05
BEGIN DITCH 12+50(LT) EL 822.22
END DITCH 14+12(LT) EL 809.74
BEGIN DITCH 15+06(LT) EL 800.00
16+00(LT) EL 797.00
17+00(LT) EL 795.61
END DITCH 18+64(LT) EL 795.118
BEGIN DITCH 20+70(RT) EL 797.03
BEGIN DITCH 20+77(LT) EL 795.16
23+00(LT) EL 798.40
804.32
798.40
797.72
PI = 26+50.00
EL = 803.27'
VC = 490'
K = 64
V° = 40 MPH
PI = 33+50.00
EL = 854.61'
VC = 345'
K = 85
V° = 50 MPH
(+)0.3000%
(+)0.3000%
(-)0.3000%
(+)2.8000%
(+)4.3180%
(+)3.4000%
(+)4.2800%
(+)7.3332%
(+)5.6800%
(+)7.5800%
(+)7.3332%
(+)3.2745%
(+)5.5380%
(+)4.8641%
23+00(LT) EL 798.40
25+00(RT) EL 798.32
25+50(LT) EL 799.15
25+50(RT) EL 799.72
26+00(LT) EL 800.85
END DITCH 26+50(LT) EL 802.99
END DITCH 26+50(RT) EL 804.03
BEGIN DITCH 28+00(RT) EL 811.06
28+50(RT) EL 813.90
END DITCH 29+00(RT) EL 817.69
BEGIN DITCH 34+00(LT&RT) EL 850.72
END DITCH 35+84(RT) EL 859.67
END DITCH 35+84(LT) EL 860.91
END GRADE -L- STA 35+22.94
EL = 860.27'
SEE SHEETS 4 & 5 FOR ROADWAY PLANS
SEE SHEETS S-1 TO S-25 FOR STRUCTURE PLANS
860 850 840 830 820 810 800 790 780 770
10 11 12 13 14 15 16 17 18 19 20 21 22 23
23 24 25 26 27 28 29 30 31 32 33 34 35
5/28/99
28-AUG-2012 07:29 R:\Roadway\Proj\b4458_rdy_L_pfl.dgn

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 12,000	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 804.6	FT
BASE DISCHARGE	= 26,919	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 809.9	FT
OVERTOPPING DISCHARGE	= 12,500	CFS
OVERTOPPING FREQUENCY	= 10+/-	YRS
OVERTOPPING ELEVATION	= 804.5	FT
DATE OF SURVEY	= 10/1/2009	
W.S. ELEVATION AT DATE OF SURVEY	= 788.8	FT

PIPE HYDRAULIC DATA

-L- Sta.12+70

DRAINAGE AREA	= 0.42	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 2.0	CFS
DESIGN HW ELEVATION	= 822.3	FT
100 YEAR DISCHARGE	= 2.4	CFS
100 YEAR HW ELEVATION	= 822.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 3.6+	CFS
OVERTOPPING ELEVATION	= 822.70	FT

PROJECT REFERENCE NO.	SHEET NO.
B-4458	7

ROADWAY DESIGN ENGINEER — Seal: North Carolina Professional Engineer, Bryan C. Key, Seal 24964, 8-28-12

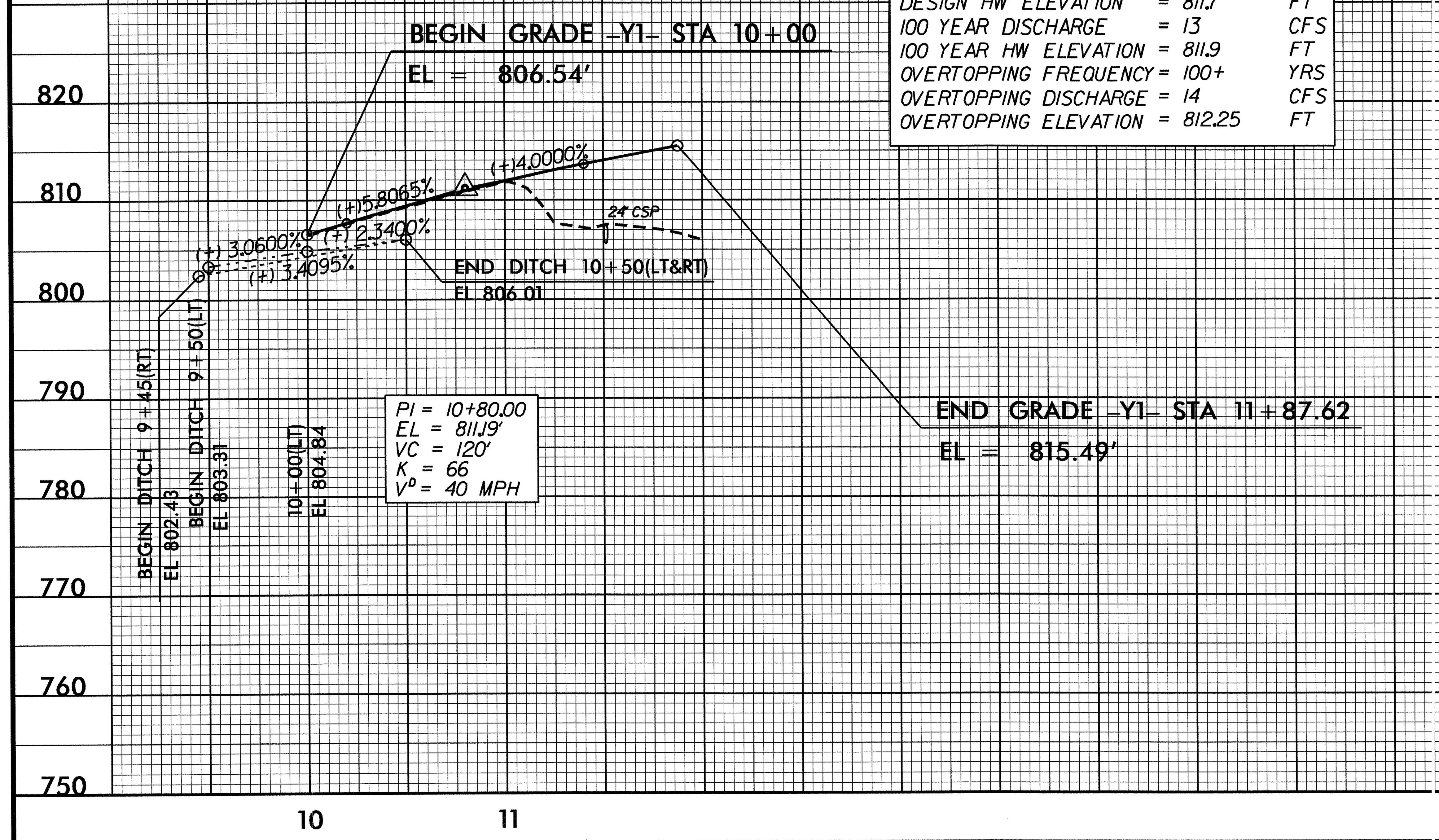
HYDRAULICS ENGINEER — Seal: North Carolina Professional Engineer, Paul Atkinson, Seal 18660, 8/28/12

-Y1-

PIPE HYDRAULIC DATA

-Y1- Sta. 11+51

DRAINAGE AREA	=	4.66	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	11	CFS
DESIGN HW ELEVATION	=	811.7	FT
100 YEAR DISCHARGE	=	13	CFS
100 YEAR HW ELEVATION	=	811.9	FT
OVERTOPPING FREQUENCY	=	100+	YRS
OVERTOPPING DISCHARGE	=	14	CFS
OVERTOPPING ELEVATION	=	812.25	FT



LEFT DITCH	-··-··-··-
RIGHT DITCH	------------

SEE SHEET 4 FOR PLANS

5/28/99

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RD248661 8/28/2012 b4458_s07_full reodell RD-Oce860-34