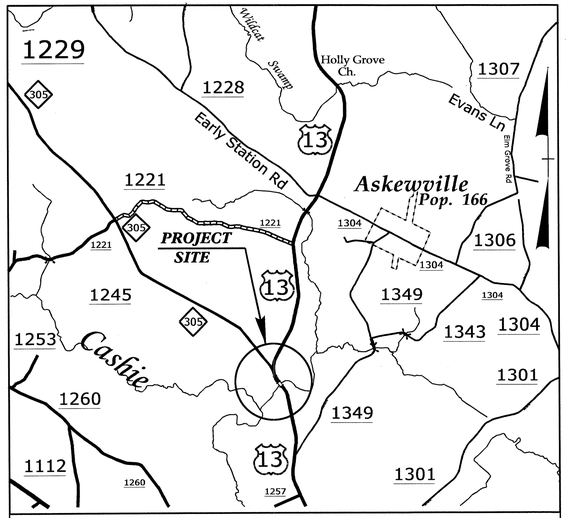
09/08/99

TIP PROJECT: B-5141

CONTRACT: C203396

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

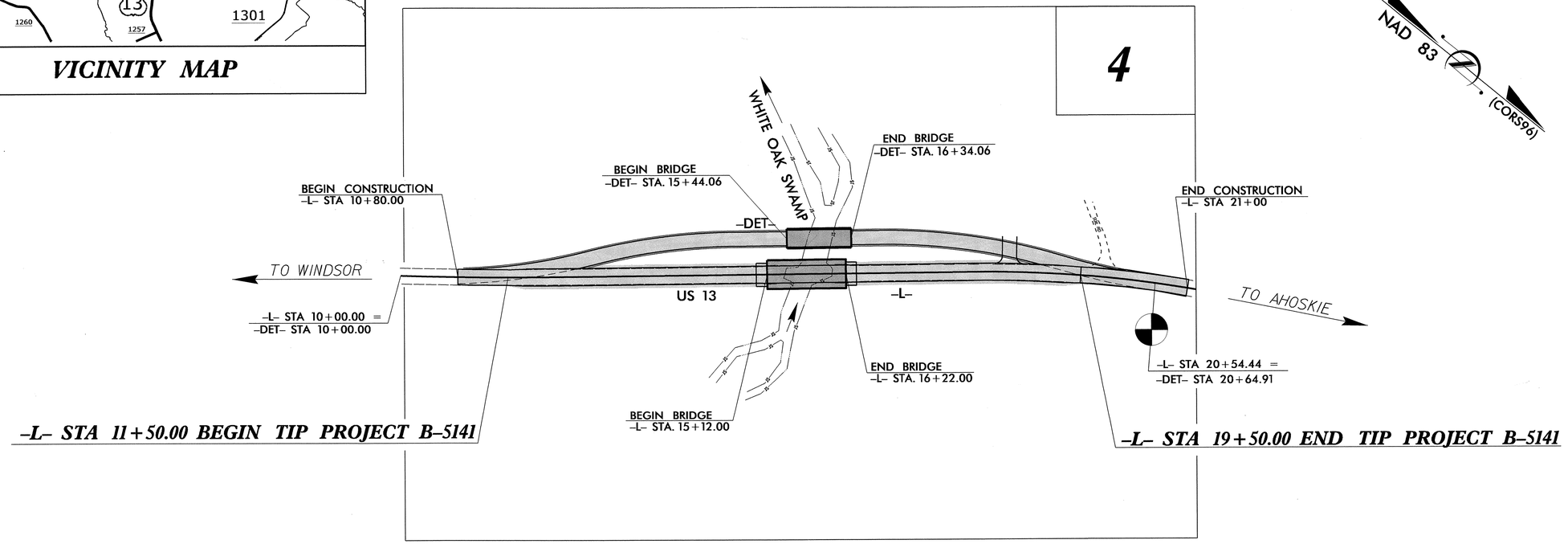
BERTIE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5141	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42302.1.1	BRNHS-0013(25)	PE
42302.2.1	BRNHS-0013(25)	R/W & UTIL
42302.3.FS1	BRNHS-0013(25)	CONST.

LOCATION: BRIDGE 53 ON US 13 OVER WHITE OAK SWAMP

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE



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 2014 = 5,870
ADT 2035 = 9,500
K = 9 %
D = 55 %
T = 12 % *
V = 60 MPH
* TTST =5% DUAL 7%

FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5141 = 0.131 MILES

LENGTH OF STRUCTURE TIP PROJECT B-5141 = 0.021 MILES

TOTAL LENGTH OF TIP PROJECT B-5141 = 0.152 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 8, 2013

LETTING DATE:
MAY 20, 2014

G. E. BREW, PE
PROJECT ENGINEER

I. T. YOUNIS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
SIGNATURE: 2/17/14

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW
2-19-14
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE OF NORTH CAROLINA

03-FEB-2014 11:31
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PROJECT REFERENCE NO.	SHEET NO.
B-5141	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW

3-17-14

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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 DETAIL
2-B	DETAIL OF GEOTEXTILE FOR EMBANKMENT STABILIZATION
2-C	DETAIL OF STANDARD TEMPORARY SHORING
2-D	DETAIL OF STRUCTURE ANCHOR UNITS
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF EARTHWORK, SUMMARY OF REMOVAL OF EXISTING PAVEMENT AND GUARDRAIL SUMMARY
3-C	SUMMARY OF SUBSURFACE DRAINAGE, SUMMARY OF AGGREGATE SUBGRADE / STABILIZATION AND SUMMARY OF ROCK PLATING
4 THRU 5	PLAN SHEETS
6	PROFILE SHEET
TMP-1 THRU TMP-6	TRANSPORTATON MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-6	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-7	CROSS-SECTIONS
S-1 THRU S-29	STRUCTURE PLANS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS

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.

SUBSURFACE DRAINS:
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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:
BERTIE COUNTY PUBLIC WORKS
CENTURY LINK
PIEDMONT NATURAL GAS
ROANOKE EMC

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON PLANS.

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

LIST OF STANDARD DRAWINGS

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
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
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
422.10	Reinforced Bridge Approach Fills
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
815.02	Subsurace Drain
840.00	Concrete Base Pad For Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames And Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.04	Anchoring End Guardrail - B-77 And B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-5141	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
- 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:

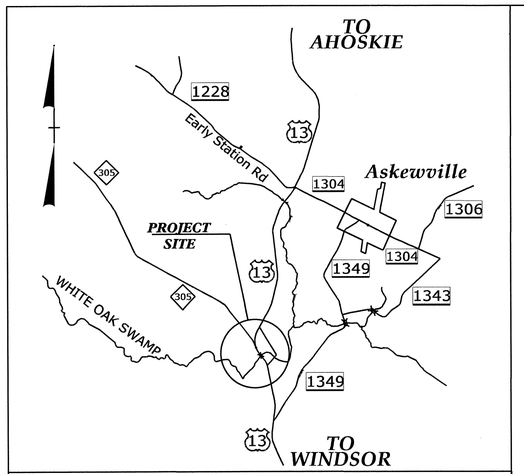
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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-5141	1-C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET B-5141



VICINITY MAP

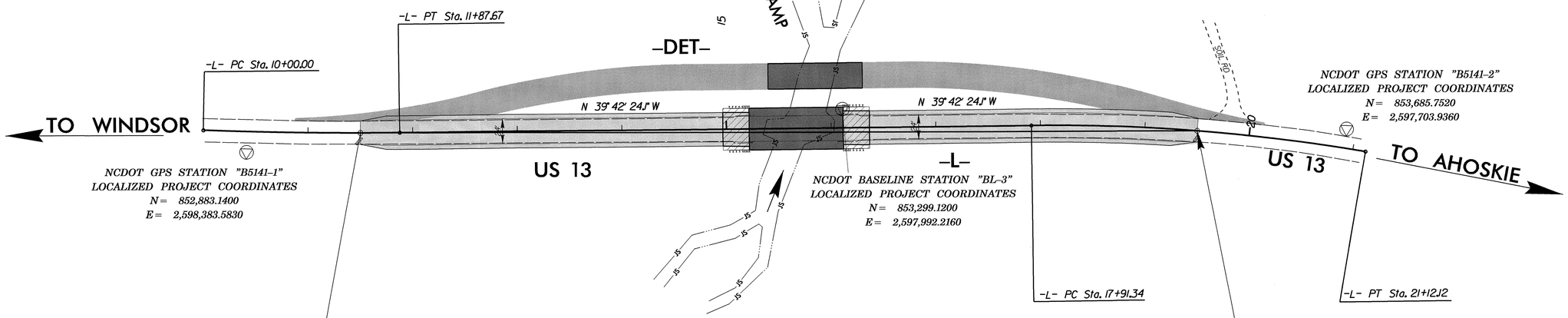
CONTROL DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
B51411	GPS MON B5141-1	852883.1400	2598383.5830	26.10	10+41.62	19.92 RT
BL3	BL-3	853299.1200	2597992.2160	27.09	16+11.00	17.99 LT
B51412	GPS MON B5141-2	853685.7520	2597703.9360	30.66	20+90.94	18.43 LT

BENCHMARK DATA

BM5 ELEVATION = 16.67
N 853226 E 2597997
L STATION 15+51.00 61 LEFT
R/R SPIKE IN BASE OF 8" MAPLE



BEGIN TIP PROJECT B-5141
-L- POC STA. 11+50.00

LOCALIZED PROJECT COORDINATES
N= 852,955.8428
E= 2,598,300.4405

END TIP PROJECT B-5141
-L- POC STA. 19+50.00

LOCALIZED PROJECT COORDINATES
N= 853,575.8041
E= 2,597,795.1109

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR STATION "P4"
WITH NAD83 (CORS96) STATE PLANE GRID COORDINATES OF NORTHING: 853,078.110 (US FT) EASTING: 2,598,466.083 (US FT)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999806715.
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "P4" TO -L- STATION 11+50.00 IS
S 53°34'03.02" W 205.88 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.NCDOT.GOV/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
TIP B5141_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.

PROJECT REFERENCE NO.	SHEET NO.
B-5141	1D
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET B-5141

-L- DESIGN ALIGNMENT

TYPE	STATION	NORTH	EAST
PC	10+00.00	852837.9044	2598393.1126
PT	11+87.67	852984.9294	2598276.5076
PC	17+91.34	853449.3528	2597890.8442
PT	21+12.12	853713.3680	2597709.4319

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+50.00	-50.00	852924.2485	2598261.6874
L	11+50.00	50.00	852987.4370	2598339.1936
L	11+87.67	-50.00	852952.9866	2598238.0414
L	11+87.67	50.00	853016.8723	2598314.9739
L	17+91.34	50.00	853481.2957	2597929.3105
L	17+91.34	-50.00	853417.4099	2597852.3780
L	19+50.00	50.00	853604.1606	2597836.2923
L	19+50.00	-50.00	853547.4475	2597753.9295

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+73.00	50.00	853236.3859	2598132.6869
L	14+73.00	78.00	853254.2739	2598154.2280
L	14+88.00	78.00	853265.8137	2598144.6451
L	14+88.00	50.00	853247.9257	2598123.1040
L	15+95.00	50.00	853330.2435	2598054.7462
L	15+95.00	78.00	853348.1315	2598076.2873
L	17+00.00	78.00	853428.9106	2598009.2073
L	18+00.00	-65.00	853414.7461	2597835.1211
L	19+00.00	-68.00	853494.8927	2597769.1570
L	19+50.00	-58.00	853542.9105	2597747.3405

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR STATION "P4"
WITH NAD83 (CORS96) STATE PLANE GRID COORDINATES OF NORTHING: 853,078.110 (US FT) EASTING: 2,598,466.083 (US FT)
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S 53°34'03.02" W 205.88 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/PAGES/DEFAULT.ASPX

THE FILES TO BE FOUND ARE AS FOLLOWS:
TIP B5141_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.

PROJECT REFERENCE NO.	SHEET NO.
B-5141	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW
2-19-14

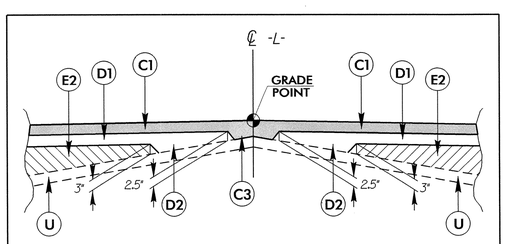
NORTH CAROLINA PROFESSIONAL SEAL 22888 ENGINEER CLARK S. MORRISON
2/19/14

PAVEMENT SCHEDULE

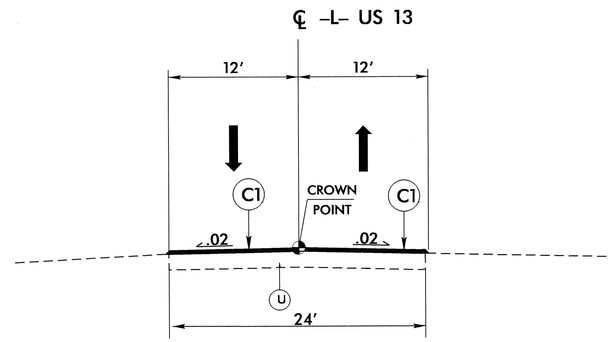
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
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.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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.
J1	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASHALT PAVEMENT.

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

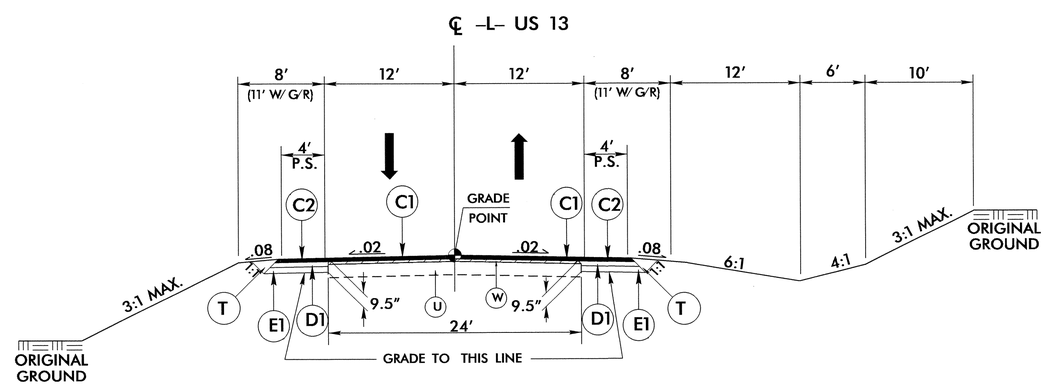


DETAIL SHOWING METHOD OF WEDGING



TYPICAL SECTION NO. 1

-L- STA 10+80.00 TO 11+50.00
-L- STA 19+50.00 TO 21+00.00



TYPICAL SECTION NO. 2

-L- STA 11+50.00 TO 11+75.00, TRANSITION FROM T.S. 1 TO T.S. 2
-L- STA 11+75.00 TO 14+50.00
-L- STA 16+75.00 TO 19+25.00
-L- STA 19+25.00 TO 19+50.00, TRANSITION FROM T.S. 2 TO T.S. 1

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PROJECT REFERENCE NO.	SHEET NO.
B-5141	2-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BRIEW

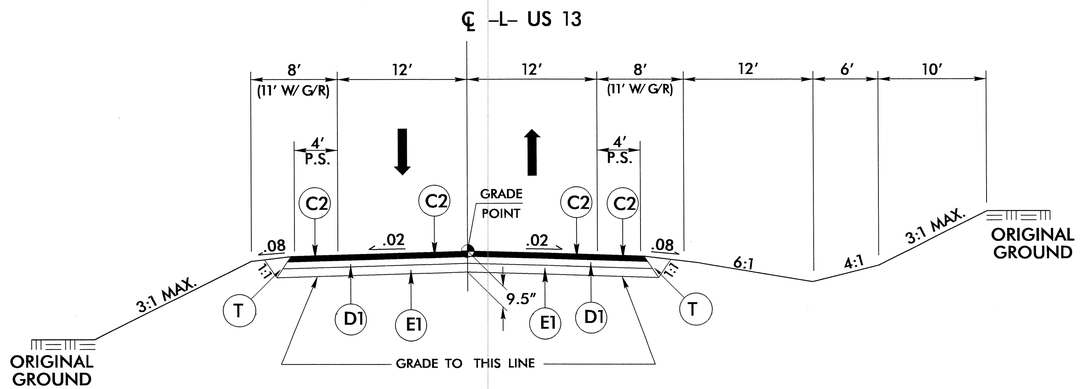
2-19-14

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22898 ENGINEER CLARK S. MORRISON

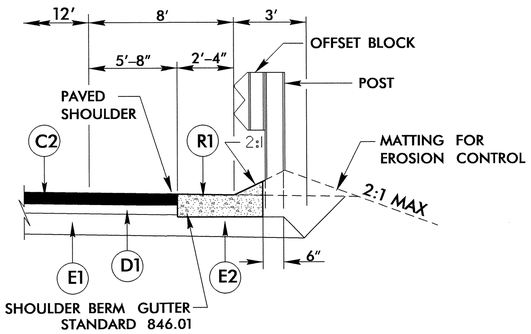
2/19/14

PAVEMENT SCHEDULE	
C2	3" S9.5B
D1	2.5" I19.0B
E1	4" B25.0B
E2	VAR B25.0B
J1	8" ABC
P	PRIME COAT
R1	SHLD BERM GUTTER
T	EARTH MATERIAL
U	EXIST. PAVEMENT



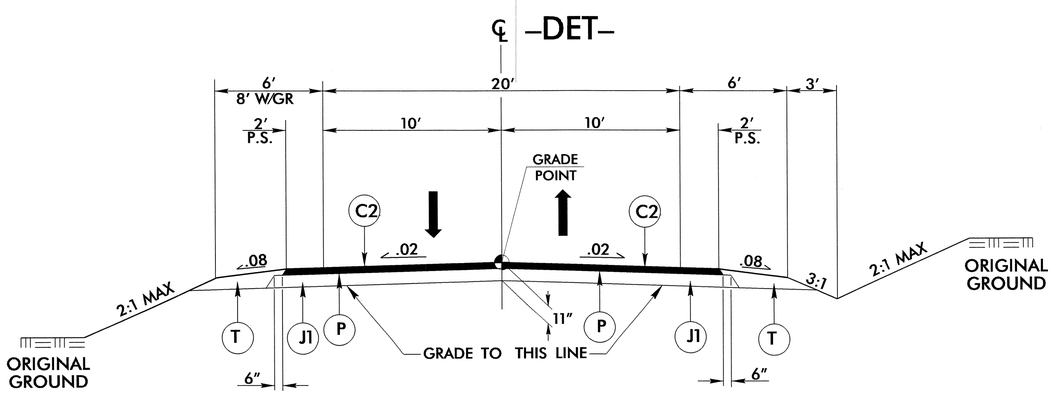
TYPICAL SECTION NO. 3

-L- STA 14+50.00 TO 15+12.00 (BEGIN BRIDGE)
-L- STA 16+22.00 (END BRIDGE) TO 16+75.00



DETAIL OF GUARDRAIL WITH SHLD. BERM GUTTER

USE WITH TYPICAL SECTION 3
SEE PLANS FOR LOCATIONS



TYPICAL SECTION NO. 4

-DET- STA 10+88.15 TO 11+91.11, TRANSITION FROM EXSITING TO T.S. 4

-DET- STA 11+91.11 TO 15+44.06 (BEGIN BRIDGE)
-DET- STA 16+34.06 (END BRIDGE) TO 19+50.01

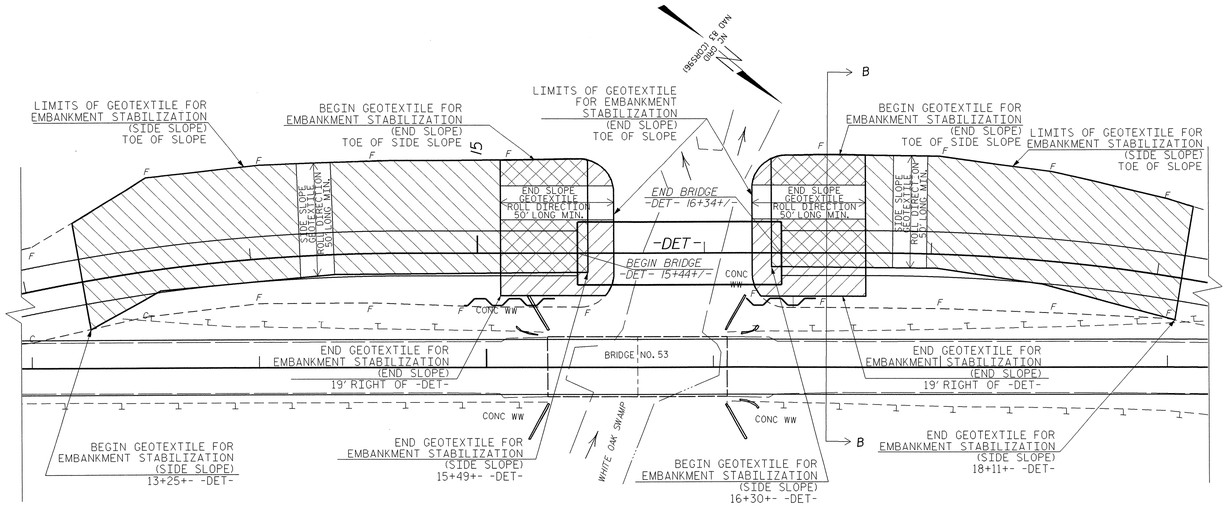
-DET- STA 19+50.01 TO 20+22.40, TRANSITION FROM TO T.S. 4 TO EXISTING

6/2/99
17-FEB-2014 08:35
R:\Roadway\Proj\B5141_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET
B-5141	2-B

GEOTECHNICAL ENGINEER — SIGNATURE — DATE 1-16-2014

ENGINEER — SIGNATURE — DATE

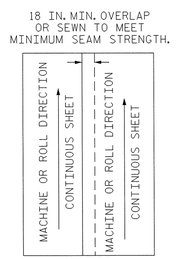


AREA OF GEOTEXTILE FOR EMBANKMENT STABILIZATION (END SLOPE) WITH ROLL DIRECTION PARALLEL TO -DET-

AREA OF GEOTEXTILE FOR EMBANKMENT STABILIZATION (SIDE SLOPE) WITH ROLL DIRECTION PERPENDICULAR TO -DET-

PLAN VIEW FOR LIMITS OF GEOTEXTILE

N.T.S.

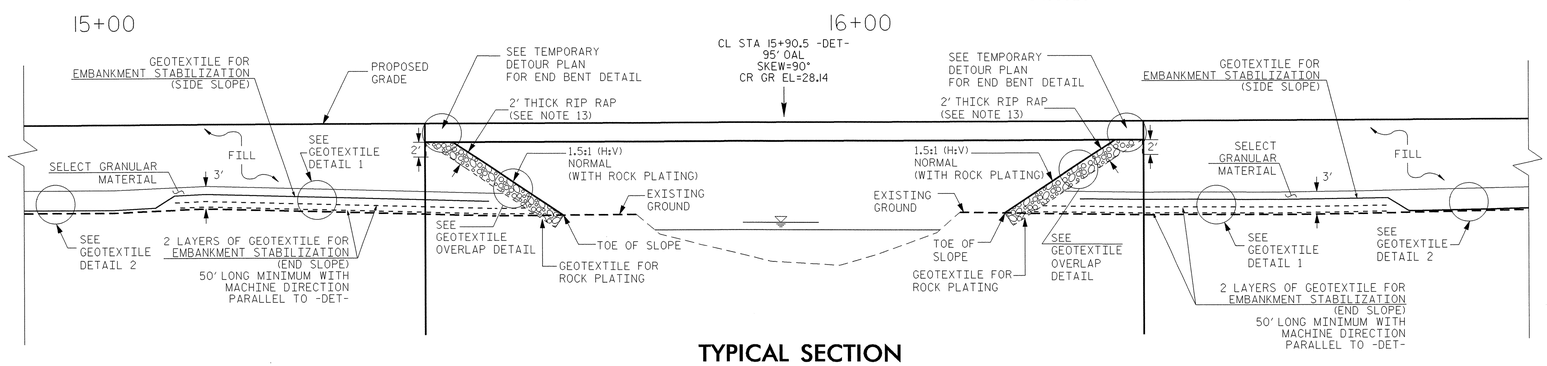


GEOTEXTILE OVERLAP DETAIL

N.T.S.

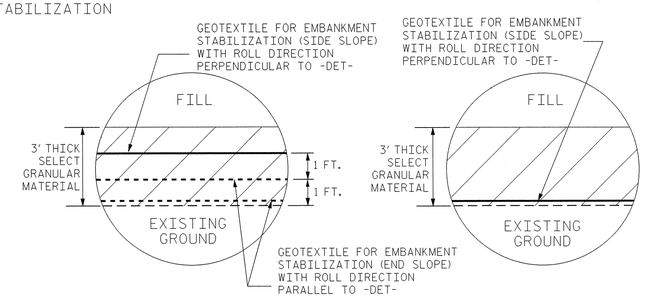
NOTES

1. DO NOT GRUB, ONLY CLEAR THE AREA WITHIN THE LIMITS OF THE GEOTEXTILE FOR EMBANKMENT STABILIZATION.
2. INSTALL GEOTEXTILE FOR EMBANKMENT STABILIZATION ON THE EXISTING GROUND PRIOR TO SELECT MATERIAL PLACEMENT AND MAINTAIN 12 INCHES OF SELECT MATERIAL BETWEEN GEOTEXTILE LAYERS. INSTALL END SLOPE GEOTEXTILE PRIOR TO SIDE SLOPE GEOTEXTILE WITHIN THE AREAS SHOWN IN THE PLAN.
3. INSTALL END SLOPE GEOTEXTILE FOR EMBANKMENT STABILIZATION WITH MACHINE DIRECTION PARALLEL TO -DET- WITH A MINIMUM CONTINUOUS LENGTH OF 50 FEET.
4. INSTALL SIDE SLOPE GEOTEXTILE FOR EMBANKMENT STABILIZATION WITH MACHINE DIRECTION PERPENDICULAR TO -DET- WITH A MINIMUM CONTINUOUS LENGTH OF 50 FEET.
5. PLACE THE GEOTEXTILE WITHOUT ANY WRINKLES OR CREASES.
6. NO SEAMS OR JOINTS ARE ALLOWED IN THE MACHINE DIRECTION OF GEOTEXTILE.
7. THE TERMS ROLL AND MACHINE DIRECTION ARE USED INTERCHANGEABLY.
8. OVERLAP ADJACENT GEOTEXILE PANELS OF THE SAME ROLL DIRECTION 18 IN. MINIMUM OR SEW BY AN APPROVED METHOD TO DEVELOP THE REQUIRED SEAM STRENGTH.
9. STOP GEOTEXTILE FOR EMBANKMENT STABILIZATION (SIDE SLOPE) BEFORE THE PROPOSED TEMPORARY SHORING LINES SHOWN ON TRAFFIC CONTROL PLAN. REMOVE GEOTEXTILE FOR EMBANKMENT STABILIZATION OUTSIDE THE FOOTPRINT OF THE FINAL EMBANKMENT AT THE END OF CONSTRUCTION.
10. FOR GEOTEXTILE FOR EMBANKMENT STABILIZATION, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.
11. USE PERMANENT SOIL REINFORCEMENT MAT (PSRM) ON 2:1 (H:V) SIDE SLOPES AND WRAP AROUND TO 1.75:1 (H:V) SLOPES NEAR BRIDGE 1.5:1 (H:V) END SLOPES FROM STA. 13+25+- -DET- TO 18+11+- -DET-.
12. FOR PERMANENT SOIL REINFORCEMENT MAT, SEE PERMANENT SOIL REINFORCEMENT MAT SPECIAL PROVISION.
13. ROCK PLATE 1.5:1 (H:V) END SLOPE FACES OF THE DETOUR BRIDGE AND EXTEND TO 1.75:1 (H:V) SLOPES. USE CLASS 1, 2, OR B RIP RAP.
14. FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.



TYPICAL SECTION

THROUGH CL OF -DET-, N.T.S.



GEOTEXTILE DETAIL 1

N.T.S.

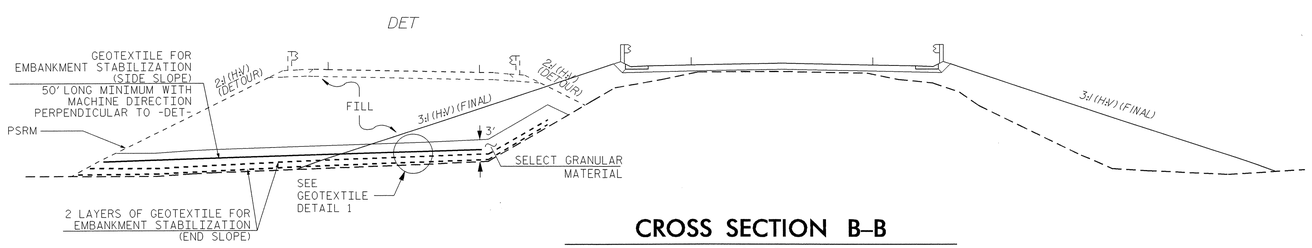
GEOTEXTILE DETAIL 2

N.T.S.

QUANTITIES

GEOTEXTILE FOR EMBANKMENT STABILIZATION	3,650 SY#
SELECT GRANULAR MATERIAL	2,550 CY
PERMANENT SOIL REINFORCEMENT MAT	1,400 SY
ROCK PLATING	140 SY

THE ESTIMATED QUANTITY DOES NOT INCLUDE WASTE OR OVERLAPS OF PANELS IN THE SAME ROLL DIRECTION.



CROSS SECTION B–B

N.T.S.

PREPARED BY: S. ZHANG	DATE: 09 / 2013
REVIEWED BY: J. BATTS	DATE: 09 / 2013

GEOTECHNICAL ENGINEERING UNIT

- [X] EASTERN REGIONAL OFFICE
- [ ] WESTERN REGIONAL OFFICE
- [ ] CONTRACT OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GEOTEXTILE FOR EMBANKMENT STABILIZATION (-DET-)

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PROJECT REFERENCE NO.	SHEET
B-5141	2-C

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN Scott A. Hidden 5/22/13 SIGNATURE DATE	SIGNATURE DATE

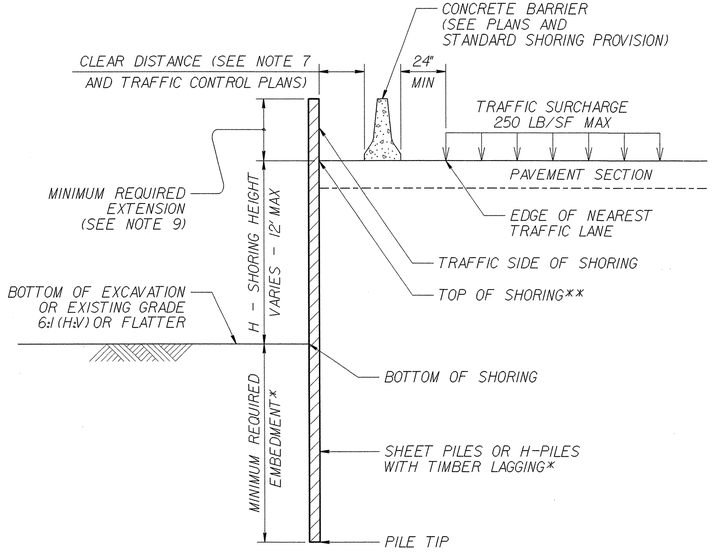
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

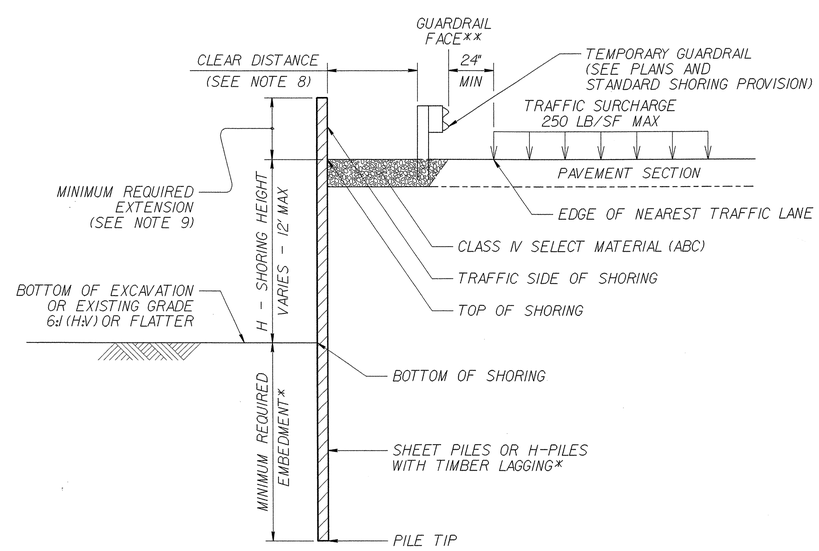
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech Forms Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



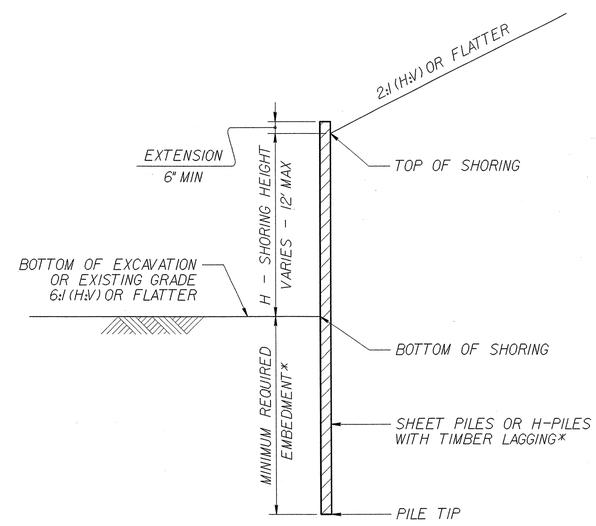
CONCRETE BARRIER

****TOP OF SHORING = EDGE OF PAVEMENT**



TEMPORARY GUARDRAIL

****GUARDRAIL FACE = EDGE OF PAVEMENT**



STANDARD TEMPORARY SHORING

(SLOPE CASE)

***SEE TABLE ABOVE.**

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

***SEE TABLE ABOVE.**

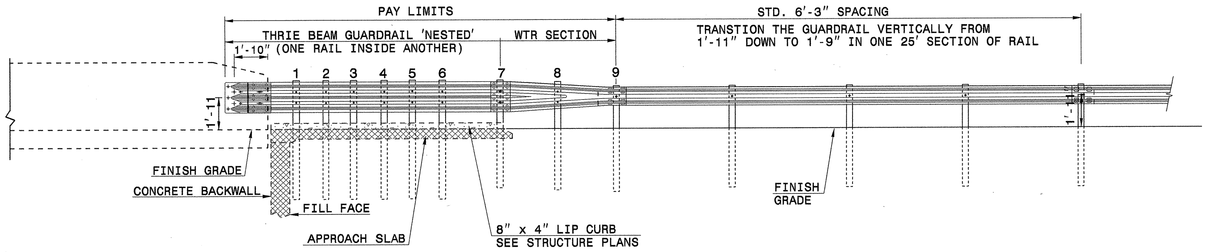
GEOTECHNICAL ENGINEERING UNIT STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	STANDARD DRAWING NO. 1801.01 STANDARD TEMPORARY SHORING DATE: 11-19-13

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

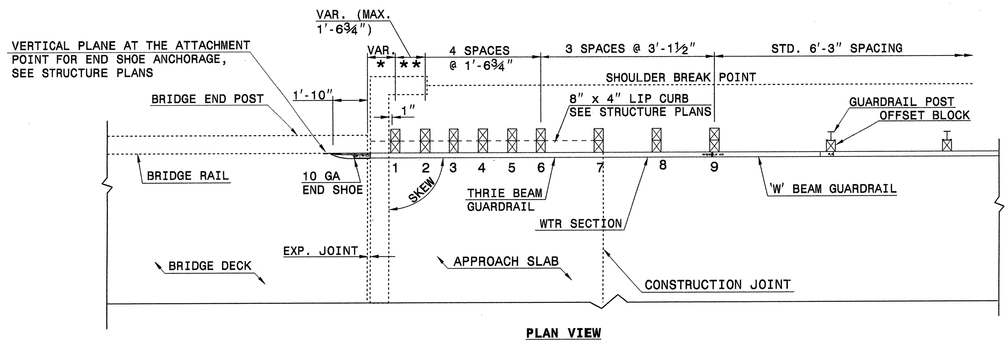
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

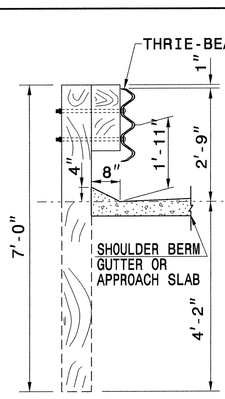
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

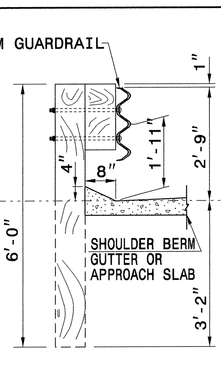
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

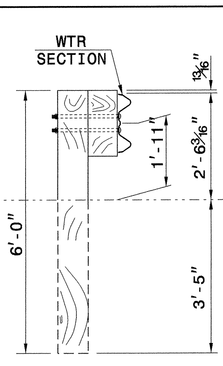
SHEET 3 OF 7
862d03



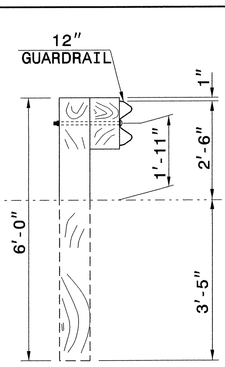
SECTION OF THRIE BEAM POSTS 1 THRU 6



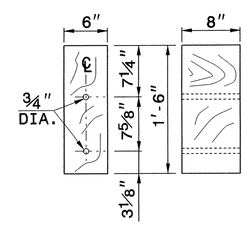
SECTION OF THRIE BEAM POST 7



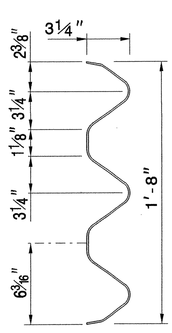
SECTION OF WTR BEAM POST 8



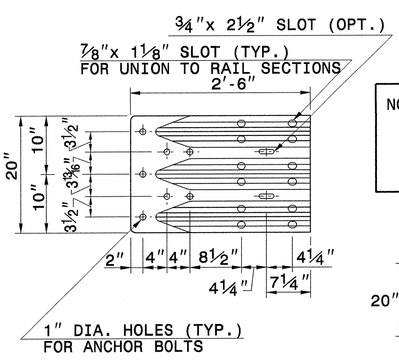
SECTION OF 'W' BEAM POST 9



THRIE BEAM OFFSET BLOCK

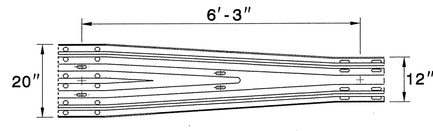


THRIE-BEAM SECTION

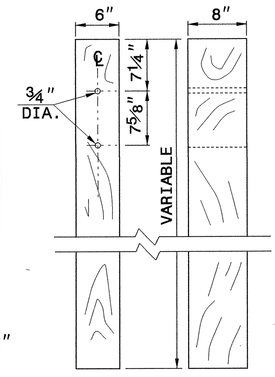


END SHOE

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
862d03

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

NORTH CAROLINA PROFESSIONAL SEAL 029266 ENGINEER
2/9/14

PROJECT REFERENCE NO. B-5141
SHEET NO. 2-D

COMPUTED BY:	I. T. YOUNIS	DATE:	1/15/2014
CHECKED BY:	K. D. ALDRIDGE	DATE:	1/21/2014

PROJECT NO.	SHEET NO.
B-5141	3-A

RD244542

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE or PVC) 15"	DO NOT USE RCP	R.C. PIPE CLASS IV 15"	15" SIDE DRAIN PIPE	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	2GI STD. 840.18 OR 840.27	2 G.D.I. (N.S.) FRAME AND FLAT GRATES STD. 840.29	DRAINAGE PIPE ELBOWS NO. & SIZE	PIPE REMOVAL LIN. FT.	REMARKS
-L- 14+80	LT	401		28.95							1	1	1			
-L- 14+80	RT	402		28.95							1	1	1			
		401	402		26.2	26.09			36'							
		402	403		26.09	15.69	44'	X						2 @ 15"		
-L- 16+54	LT	404		28.83							1	1	1			
-L- 17+60	RT	405		28.33							1	1	1			
-L- 16+54	RT	406		28.83							1	1	1			
		404	406		26.08	25.26			36'							
		405	406		25.58	25.26				108'						
		406	407		25.26	14.99	44'	X						2 @ 15"		
-L- 18+56	LT	408								40'						
PROJECT SUB TOTAL							88'		72'	148'	5	5	5	4 @ 15"		PROJECT SUB TOTAL
TEMPORARY DRAINAGE																
-DET- 15+00	CL	501					64'								64'	TEMPORARY PIPE
-DET- 16+50	CL	502					64'								64'	TEMPORARY PIPE
PROJECT SUB TOTAL							128'									PROJECT SUB TOTAL
GRAND TOTAL							216'		72'	148'	5	5	5	4' @ 15"	128'	**GRAND TOTAL**

Other column headings (no entries): SIZE; THICKNESS OR GAUGE; SLOPE CRITICAL; DRAINAGE PIPE 18", 24", 30", 36", 42", 48"; DO NOT USE CSP; DO NOT USE CAAP; DO NOT USE HDPE; C.S. PIPE 12", 15", 18", 24", 30", 36", 42", 48" (.064, .064, .064, .064, .079, .079, .109, .109); R.C. PIPE CLASS III 12", 15", 18", 24", 30", 36", 42", 48"; R.C. PIPE CLASS IV 12", 18", 24", 30", 36", 42", 48"; ** " R.C. PIPE (CLASS V); ***" RC PIPE CULVERTS, CONTRACTOR DESIGN; ***" RC PIPE CULVERTS, CONTRACTOR DESIGN; 18" SIDE DRAIN PIPE; ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P., C.S.P.; *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0', 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; CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71; CONC. COLLARS CL. "B" C.Y. STD. 840.72.

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

COMPUTED BY: KDA DATE: 1/13/14
CHECKED BY: IY DATE: 1/14/2014

PROJECT NO.	SHEET NO.
B-5141	3-B

RD2:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

CUBIC YARDS

Station to Station	Uncl. Exc. C.Y.	UNDER-CUT	Embank. +%	Borrow	Waste
SUMMARY NO. 1					
-DET- 11+50.16 TO 15+44.06	17	241	4,811	4,794	241
-DET- 16+34.06 TO 20+10.36	17	77	4,470	4,453	77
SUMMARY NO. 1 TOTALS	34	318	9,281	9,247	318
SUMMARY NO. 2					
-L- 11+50.00 TO 15+12.00	22		1,290	1,268	
-L- 16+22.00 TO 19+50.00	14		1,245	1,231	
SUMMARY NO. 2 TOTALS	36		2,535	2,499	
SUMMARY NO. 3					
DETOUR REMOVAL					
-L- 11+50.00 TO 15+40.25	3,156				3,156
-L- 16+30.25 TO 19+50.00	3,074				3,074
SUMMARY NO. 3 TOTALS	6,230				6,230
PROJECT SUB TOTAL	6,300	318	11,816	11,746	6,548
Material For Shoulder Construction				205	
ADDITIONAL UNDERCUT		350			
Est 5% To Replace Topsoil at Borrow Pit				598	
GRAND TOTALS	6,300	668		12,549	6,548
SAY	6,500	700		13,000	

ESTIMATED SHALLOW UNDERCUT = 100 CY
ESTIMATED SELECT GRANULAR MATERIAL = 3,150 CY
ESTIMATED DRAINAGE DITCH EXCAVATION = 161 CY
EST. CLASS IV SUBGRADE STABILIZATION = 200 TONS

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.

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

SUMMARY OF ASPHALT PAVEMENT REMOVAL

Station to Station	LOC LT/RT/CL	Ashalt Removal SQ. YDS.
-L- 14+50.00 TO 15+26.00	CL	200.26
-L- 16+05.97 TO 16+75.00	CL	181.28
-DET- 10+88.15 TO 15+44.06	CL	962.98
-DET- 16+34.06 TO 20+22.40	CL	861.06
PROJECT TOTAL		2,205.58
	SAY	2,210

GUARDRAIL SUMMARY

"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

LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.) STRAIGHT	LENGTH (FT.) SHOP CURVED	LENGTH (FT.) DOUBLE FACED	WARRANT POINT APPR. END	WARRANT POINT TRAIL. END	"N" DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH APPR. END	FLARE LENGTH TRAIL. END	W APPR. END	W TRAIL. END	ANCHORS (EACH) GRAU 350	ANCHORS (EACH) TYPE B-77		ANCHORS (EACH) TEMP GRAU 350	ANCHORS (EACH) TEMP TYPE III		IMP. ATTEN. TYPE 350 EA	IMP. ATTEN. TYPE 350 G	IMP. ATTEN. TYPE 350 NG	REMOVE EXISTING GUARDRAIL(FT)	REMARKS
-L-	13+74.50	15+12.00	LT	137.50				15+12.00	8'	11'		50'		1'	1	1									
-L-	12+12.00	15+12.00	RT	300.00			12+13.48		8'	11'	50'		1'		1	1									
-L-	16+22.00	18+09.50	RT	187.50				16+85	8'	11'		50'		1'	1	1									
-L-	16+22.00	18+22.02	LT	200.00			16+22.00		8'	11'	50'		1'		1	1									SHORTENED DUE TO DRIVE
-L-	13+39.85	15+27.07	LT																					187	
-L-	12+37.91	15+26.76	RT																					289	
-L-	16+06.09	18+31.59	LT																					226	
-L-	16+05.80	18+32.45	RT																					227	
		SUB-TOTALS		825.00											4	4								929	SUB-TOTAL
DEDUCTION FOR ANCHOR UNITS		(4 GRAU@50')		-200																					
		(4 TYPE B-77 @18.75')		-75																					
		PROJECT TOTAL		550											4	4								929	PROJECT TOTAL
																								930	SAY
ADDITIONAL GUARDRAIL POSTS = 10 EA																									

TEMPORARY GUARDRAIL SUMMARY

-DET-	13+31.56	15+44.06	RT	212.50			15+44.06		4'	6'	50'		1'					1	1						TEMPORARY GUARDRAIL
-DET-	13+19.06	15+44.06	LT	225.00				14+00.00	4'	6'		50'		1'				1	1						TEMPORARY GUARDRAIL
-DET-	16+34.06	17+77.56	RT	137.50				16+75.00	4'	6'		50'		1'				1	1						TEMPORARY GUARDRAIL
-DET-	16+34.06	18+46.56	LT	212.50			16+34.06		4'	6'	50'		1'					1	1						TEMPORARY GUARDRAIL
-L-	13+70	14+20	LT															1							SEE TMP PLANS FOR LOCATION OF TEMP GRAU 350
-L-	17+15	17+65	LT															1							SEE TMP PLANS FOR LOCATION OF TEMP GRAU 350
		SUB-TOTALS		787.50														6	4						
DEDUCTION FOR ANCHOR UNITS		(4 GRAU@50')		-200																					
		(4 TYPE III @18.75')		-75																					
		TOTALS		512.50																					

COMPUTED BY: KDA	DATE: 1/8/2014
CHECKED BY: IY	DATE: 1/14/2014

PROJECT NO.	SHEET NO.
B-5141	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	100
				TOTAL LF:	100

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		100	200	900		
			TOTAL CY/TONS/SY:		100	200	900		

*ASU = Aggregate Subgrade

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
-DET-	1.5:1	15+60	1.75:1	15+60	LT/RT	N/A**		70
-DET	1.5:1	16+21	1.75:1	16+21	LT/RT	N/A**		70
							TOTAL SY:	140

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.
**SeeSheet 2-B "Geotextile for Embankment Stabilization (-DET-)".

8/17/99

REVISIONS

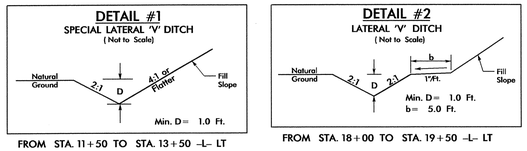
TEMPORARY SHORING (SEE TMP PLANS)

SEE SHEETS S-1 THRU S-29 FOR STRUCTURE PLANS

SEE SHEET 5 FOR TEMPORARY ON-SITE DETOUR

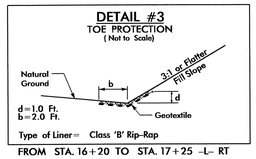
PROJECT REFERENCE NO.	SHEET NO.
B-5141	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW 2-19-14	NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. 2/17/14

SEE SHEET 6 FOR PROFILE OF -L-

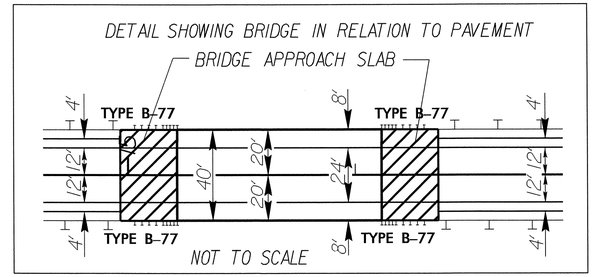


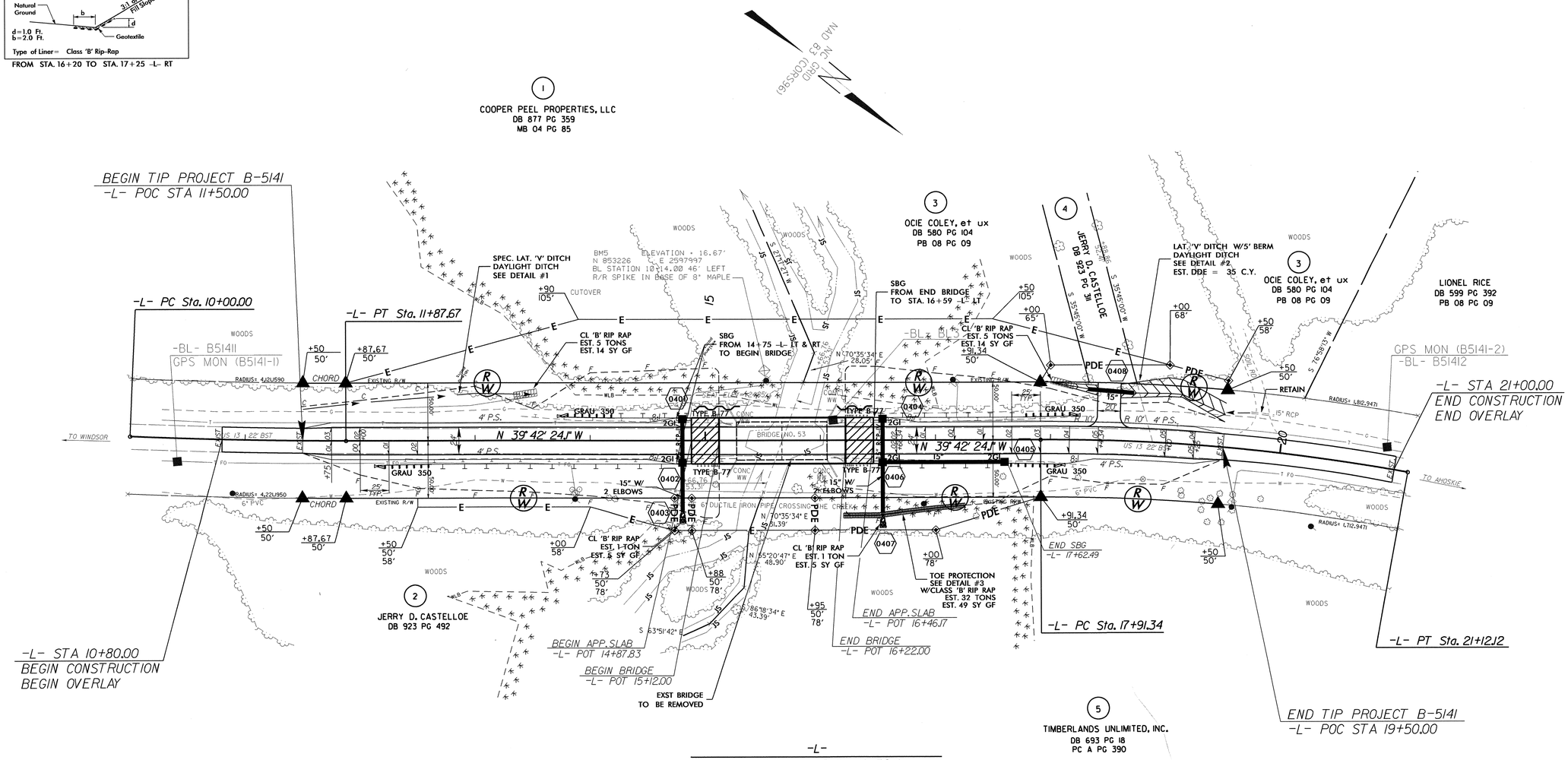
FROM STA. 11+50 TO STA. 13+50 -L- LT

FROM STA. 18+00 TO STA. 19+50 -L- LT



FROM STA. 16+20 TO STA. 17+25 -L- RT





-L-

PI Sta 10+93.85	PI Sta 19+52.18
Δ = 2° 34' 40.2" (LT)	Δ = 10° 25' 30.9" (RT)
D = 1° 22' 25.0"	D = 3° 15' 00.0"
L = 187.67'	L = 320.78'
T = 93.85'	T = 160.83'
R = 4,171.16'	R = 1,762.95'
e = SEE PLAN	e = SEE PLAN

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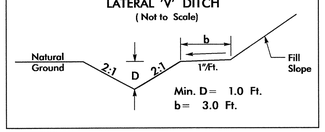
PROJECT REFERENCE NO.	SHEET NO.
B-5141	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
2-19-14	2/17/14

FOR TEMPORARY SHORING & TEMPORARY GUARDRAIL LOCATIONS SEE TMP PLANS

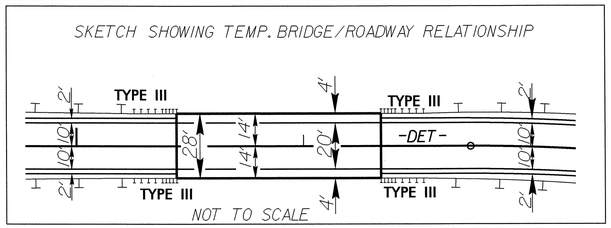
SEE SHEET 6 FOR PROFILE OF -DET-

DETAIL #4
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 12+00.54 TO STA. 13+35 -DET- LT
FROM STA. 18+55.30 TO STA. 19+59.68 -DET- LT

SKETCH SHOWING TEMP. BRIDGE/ROADWAY RELATIONSHIP



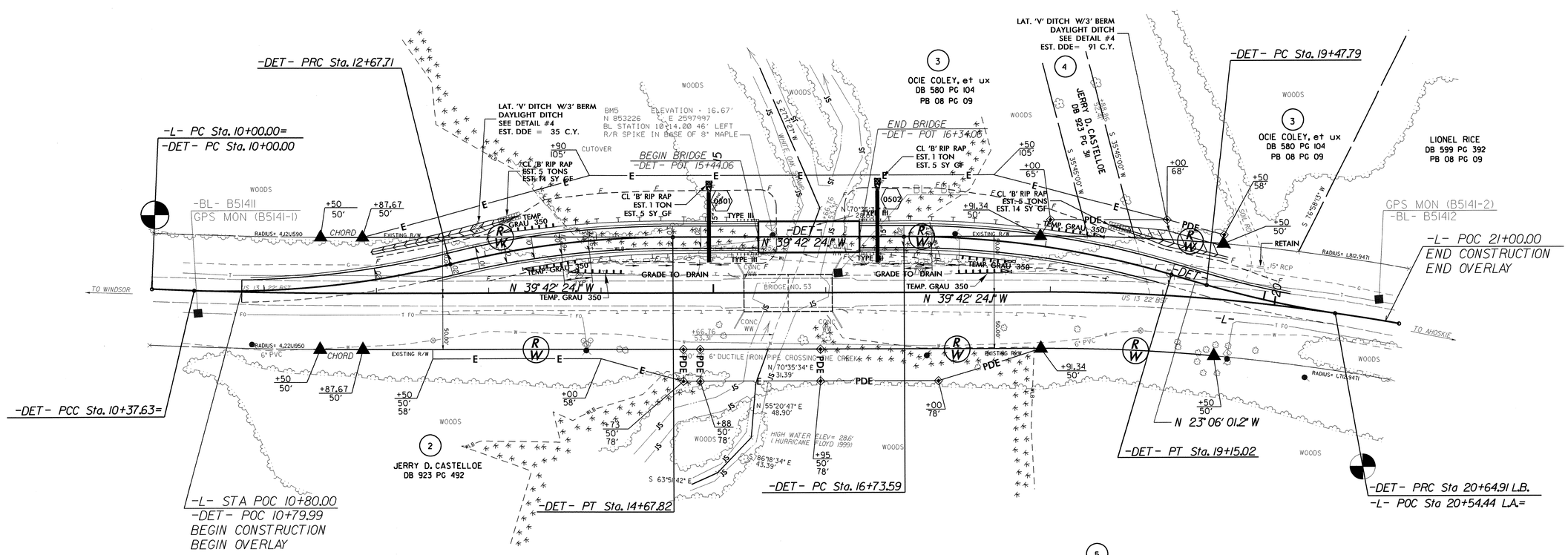
NOT TO SCALE

-DET-

PI Sta 10+18.82	PI Sta 11+53.41	PI Sta 13+68.24
Δ = 0° 31' 01.1" (LT)	Δ = 15° 49' 29.5" (LT)	Δ = 13° 45' 50.4" (RT)
D = 1° 22' 25.0"	D = 6° 52' 41.7"	D = 6° 52' 41.7"
L = 37.63'	L = 230.07'	L = 200.11'
T = 18.82'	T = 115.77'	T = 100.54'
R = 4,171.16'	R = 833.00'	R = 833.00'

-DET-

PI Sta 17+95.16	PI Sta 20+06.45	PI Sta 20+93.76
Δ = 16° 36' 22.9" (RT)	Δ = 8° 03' 20.8" (LT)	Δ = 1° 52' 28.8" (RT)
D = 6° 52' 41.7"	D = 6° 52' 41.7"	D = 3° 15' 00.0"
L = 241.43'	L = 117.12'	L = 57.68'
T = 121.57'	T = 58.66'	T = 28.84'
R = 833.00'	R = 833.00'	R = 1,762.95'



-L-

PI Sta 10+93.85	PI Sta 19+52.18
Δ = 2° 34' 40.2" (LT)	Δ = 10° 25' 30.9" (RT)
D = 1° 22' 25.0"	D = 3° 15' 00.0"
L = 187.67'	L = 320.78'
T = 93.85'	T = 160.83'
R = 4,171.16'	R = 1,762.95'
e = SEE PLAN	e = SEE PLAN

DETOUR DESIGN SPEED= 45 MPH

NOTE: USE THIS SHEET FOR TEMPORARY TRAFFIC MAINTENANCE DURING CONSTRUCTION.

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-5141	6

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. DREW — 2-19-14

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. — 2/17/14

FOR PLAN OF -L- SEE SHEET 4

DITCH LEGEND

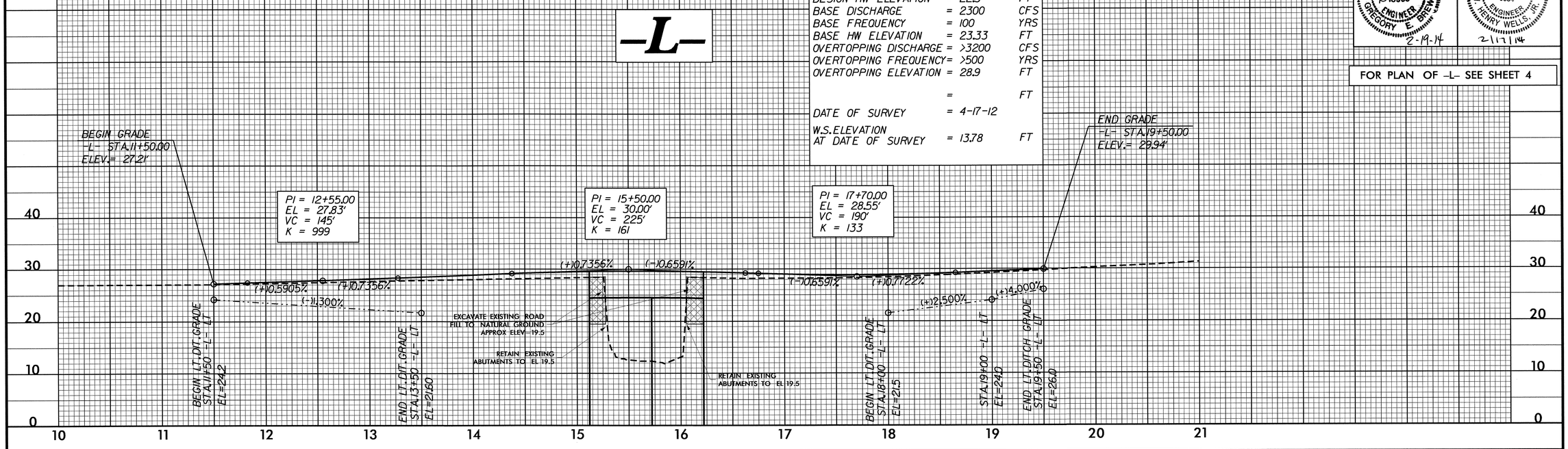
LEFT DITCH

BM-5 R/R SPIKE IN BASE OF 8" MAPLE
-L- STA. 15+51.47 ELEV. 16.67' LEFT
N 853226 E 2597997

-L-

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1900	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 22.3	FT
BASE DISCHARGE	= 2300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 23.33	FT
OVERTOPPING DISCHARGE	= >3200	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 28.9	FT
	=	FT
DATE OF SURVEY	= 4-17-12	
W.S. ELEVATION AT DATE OF SURVEY	= 13.78	FT



DITCH LEGEND

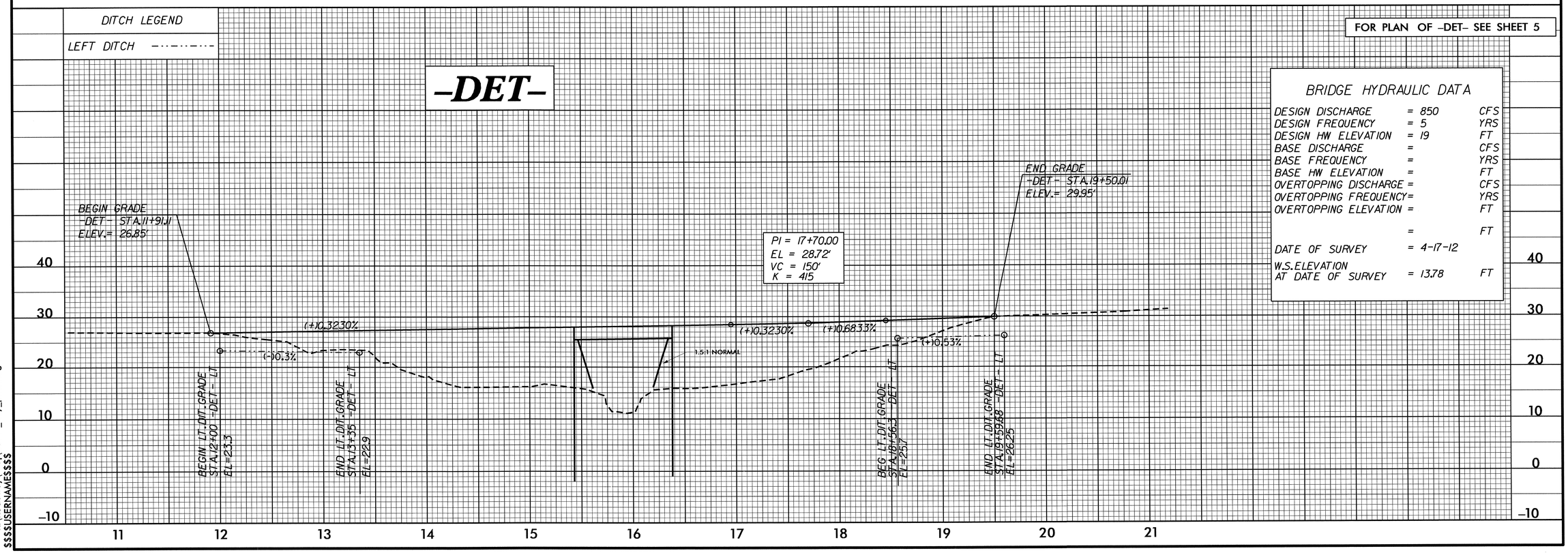
LEFT DITCH

FOR PLAN OF -DET- SEE SHEET 5

-DET-

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 850	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 19	FT
BASE DISCHARGE	=	CFS
BASE FREQUENCY	=	YRS
BASE HW ELEVATION	=	FT
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING ELEVATION	=	FT
	=	FT
DATE OF SURVEY	= 4-17-12	
W.S. ELEVATION AT DATE OF SURVEY	= 13.78	FT



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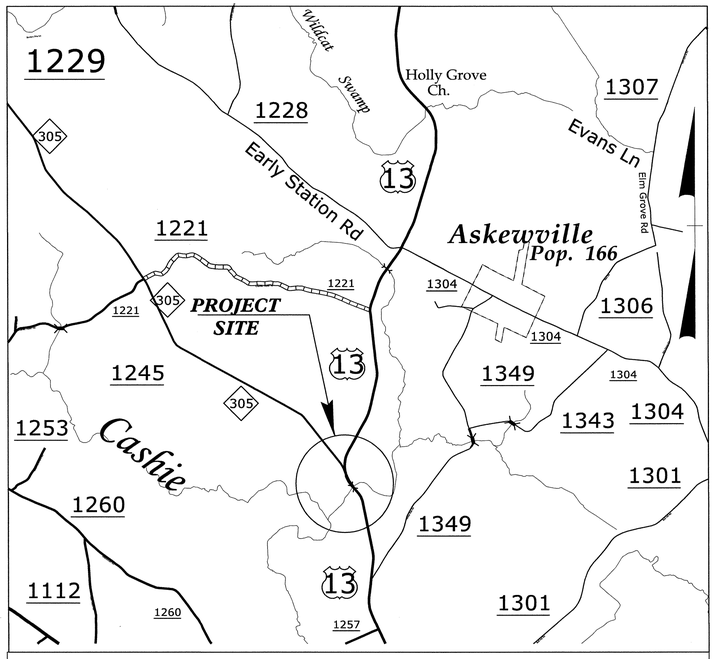
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BERTIE COUNTY



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND TEMPORARY PAVEMENT MARKING
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-2	TEMPORARY SHORING NOTES
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-6	TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

SHEET NO.
TMP-1

B-5141

TIP PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
J. S. KITE, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
D. A. PARKER — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. B. JENNINGS — TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

APPROVED: John S. Kite
DATE: January 31, 2014

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S. KITE, III

1/28/2014
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PROJ. REFERENCE NO.	SHEET NO.
B-5141	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURE
1101.03	TEMPORARY ROAD CLOSURE
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

4" PAINT

PA	WHITE EDGELINE
PI	DOUBLE YELLOW CENTERLINE

4" COLD APPLIED - TYPE IV

CA	WHITE EDGELINE
CI	DOUBLE YELLOW CENTERLINE

TEMPORARY PAVEMENT MARKERS

MH	YELLOW & YELLOW

APPROVED: DATE: 1/31/14

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S. KITE, JR.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

1/28/2014
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PROJ. REFERENCE NO.	SHEET NO.
B-5141	TMP-1B

MANAGEMENT STRATEGIES

TRAFFIC ON US 13 WILL BE MAINTAINED ON A TEMPORARY ON-SITE DETOUR WHILE THE PROPOSED ROADWAY AND STRUCTURE IS CONSTRUCTED. WHILE MOST CONSTRUCTION ACTIVITY WILL TAKE PLACE AWAY FROM TRAFFIC, FLAGGERS WILL BE UTILIZED AS NECESSARY FOR UNDERCUT EXCAVATION, TIE-INS, ETC.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NAROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	
US-13	MON - FRI	7:00 AM - 9:00 AM

B) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

H) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

I) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

J) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

K) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

L) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

N) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 13	PAINT	TEMPORARY RAISED
BRIDGE	COLD APPLIED PLASTIC - TYPE IV	

S) PLACE TWO APPLICATIONS OF PAINT ON -DET- FOR THE PHASE II TRAFFIC PATTERN. PLACE A THIRD APPLICATION (6) MONTHS AFTER THE INITIAL APPLICATION UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

PLACE TWO APPLICATIONS OF PAINT ON THE NEXT TO THE FINAL LAYER OF SURFACE COURSE ON -L- FOR THE PHASE III TRAFFIC PATTERN.

T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

APPROVED: DATE: 1/31/14

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S. KITE JR.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

1/28/2014
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PROJ. REFERENCE NO.	SHEET NO.
B-5141	TMP-2

TEMPORARY SHORING NOTES

SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -L- 14+90±, 28′FT LEFT, TO STATION -L- 15+30±, 28′FT LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 16 FT

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 14+90±, 28′FT LEFT, TO STATION -L- 15+30±, 28′FT LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 14+90±, 28′FT LEFT, TO STATION -L- 15+30±, 28′FT LEFT.

SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -L- 16+15±, 28′FT LEFT, TO STATION -L- 16+45±, 28′FT LEFT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 16 FT

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 16+15±, 28′FT LEFT, TO STATION -L- 16+45±, 28′FT LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 16+15±, 28′FT LEFT, TO STATION -L- 16+45±, 28′FT LEFT.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON AUGUST 12, 2013, AND SEALED BY A PROFESSIONAL ENGINEER, SHIHAI ZHANG, P.E., LICENSE # 038176.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY SHORING NOTES

1/28/2014
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User:sbjennings

PHASING

NOTES: - IN THE PHASING SHOWN BELOW "FLAGGER" IS DEFINED AS RSD 1101.02, SHEET 1 OF 15.

- MAINTAIN VEHICULAR ACCESS TO DRIVEWAYS AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PHASE I

STEP 1

- INSTALL ADVANCED WORK ZONE WARNING SIGNS ON EXISTING US 13 AS REQUIRED IN GENERAL NOTES. (SEE SHEET TMP-1B AND RSD 1101.01)

STEP 2

- AWAY FROM TRAFFIC AND USING FLAGGERS, AS NECESSARY, PERFORM THE FOLLOWING: (SEE SHEET TMP-4)

  A) CONSTRUCT TEMPORARY BRIDGE AND CONSTRUCT -DET- TO THE EDGE AND ELEVATION OF EXISTING US 13.

  B) INSTALL TEMPORARY GUARDRAIL EXCEPT ON SOUTHEAST SIDE FROM (-DET- STA. 13+30+/- RT TO STA. 14+00+/- RT)

  C) INSTALL AND COVER TRAFFIC CONTROL DEVICES REQUIRED FOR PHASE II TRAFFIC PATTERN. (SEE SHEET TMP-5 AND RSD 1101.03, SHEET 3 OF 9)

NOTE: TO CONSTRUCT -DET-, A PORTION OF EXISTING GUARDRAIL ON SOUTH SIDE MAY BE REMOVED AFTER FIELD CONDITIONS NO LONGER NECESSITATE THE NEED FOR FULL LENGTH OF GUARDRAIL, AS DIRECTED BY THE ENGINEER. INSTALL TEMPORARY GUARDRAIL ANCHOR UNITS TO EXISTING GUARDRAIL TO PROTECT EXISTING GUARDRAIL ENDS AS DIRECTED BY THE ENGINEER. (SEE SHEET TMP-4)

NOTE: WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK OF PHASE I, STEP 3 AND STEP 4 IN A SINGLE WORK PERIOD.

STEP 3

- USING FLAGGERS, REMOVE ANY EXISTING CONFLICTING PAVEMENT MARKINGS, UNCOVER TRAFFIC CONTROL DEVICES, PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS FOR PHASE II TRAFFIC PATTERN, AND SHIFT US 13 TRAFFIC ONTO -DET-. (SEE RSD 1101.03, SHEET 3 OF 9 AND SHEET TMP-5)

STEP 4 - USING FLAGGERS, COMPLETE TEMPORARY GUARDRAIL ON SOUTHEAST SIDE. (-DET- STA. 13+30+/- RT TO STA. 14+00+/- RT)

PHASE II

STEP 1

- USING FLAGGERS AS NECESSARY, PERFORM THE FOLLOWING: (SEE SHEET TMP-5 AND ROADWAY PLANS)
  - CONSTRUCT -L- (EXCLUDING TIE-INS), UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE.
  - INSTALL PROPOSED GUARDRAIL ANCHOR UNIT IN TEMPORARY LOCATION AS SHOWN ON SHEET TMP-5.

NOTE: WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK OF PHASE II, STEP 2 IN A SINGLE WORK PERIOD.

STEP 2

- USING FLAGGERS, PERFORM THE FOLLOWING: (SEE SHEETS TMP-5 AND TMP-6)

  A) CONSTRUCT TIE-INS ON -L- FROM STA. 10+80+/- TO STA. 11+50+/- AND STA. 18+65+/- TO STA. 21+10 +/-.

  B) INSTALL TEMPORARY PAVEMENT MARKING AND MARKERS IN THE FINAL PATTERN. (SEE FINAL PAVEMENT MARKING PLAN)

  C) SHIFT TRAFFIC TO -L- IN TWO LANE, TWO WAY PATTERN AND CLOSE -DET- TO TRAFFIC.

  D) COVER OR REMOVE -DET- SIGNING PLACED IN PHASE I, STEP 2.

PHASE III

STEP 1 - AWAY FROM TRAFFIC AND USING FLAGGERS AND SHOULDER CLOSURES, AS NECESSARY, PERFORM THE FOLLOWING: (SEE SHEET TMP-6)

  A) REMOVE -DET- AND TEMPORARY BRIDGE.

  B) CONSTRUCT REMAINING SHOULDER ON -L- SB.

  C) COMPLETE INSTALLATION OF PROPOSED GUARDRAIL ON SOUTHWEST SIDE.

STEP 2

- USING FLAGGERS, PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND MARKERS IN FINAL PATTERN. (SEE FINAL PAVEMENT MARKING PLANS)

STEP 3

- REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

APPROVED: DATE: 1/31/14

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S. KITE JR.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASING

1/28/2014
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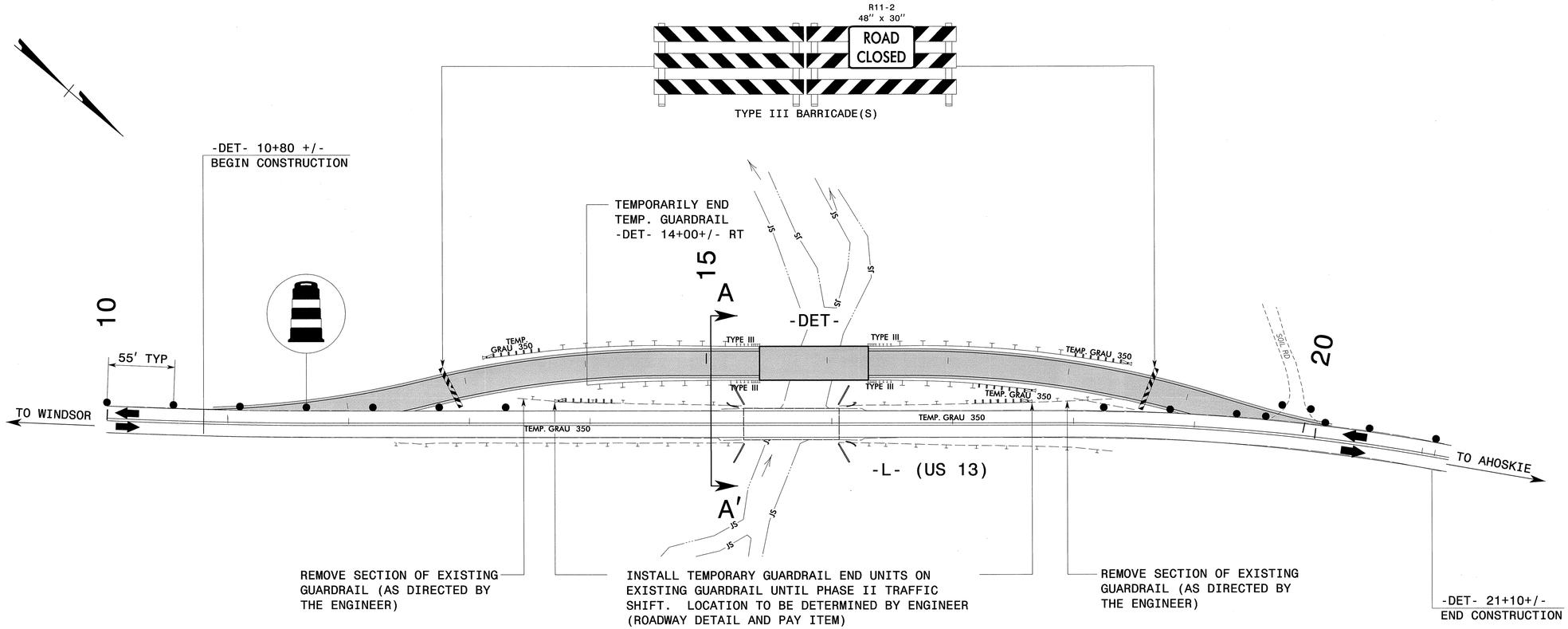
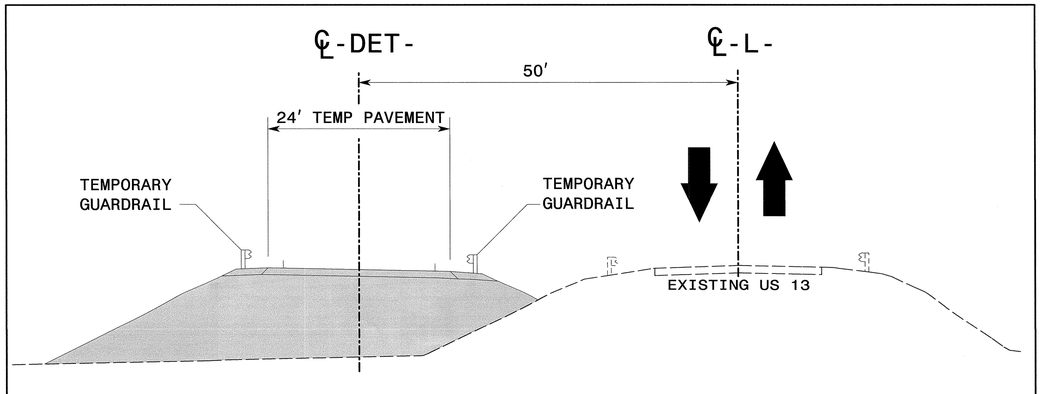
User:sbjennings

PROJ. REFERENCE NO.	SHEET NO.
B-5141	TMP-4





-L- STA. 15+00

SECTION A - A'

APPROVED: John S. Kitte Jr. DATE: 1/21/14

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S. KITTE JR.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASE I DETAIL

1/28/2014
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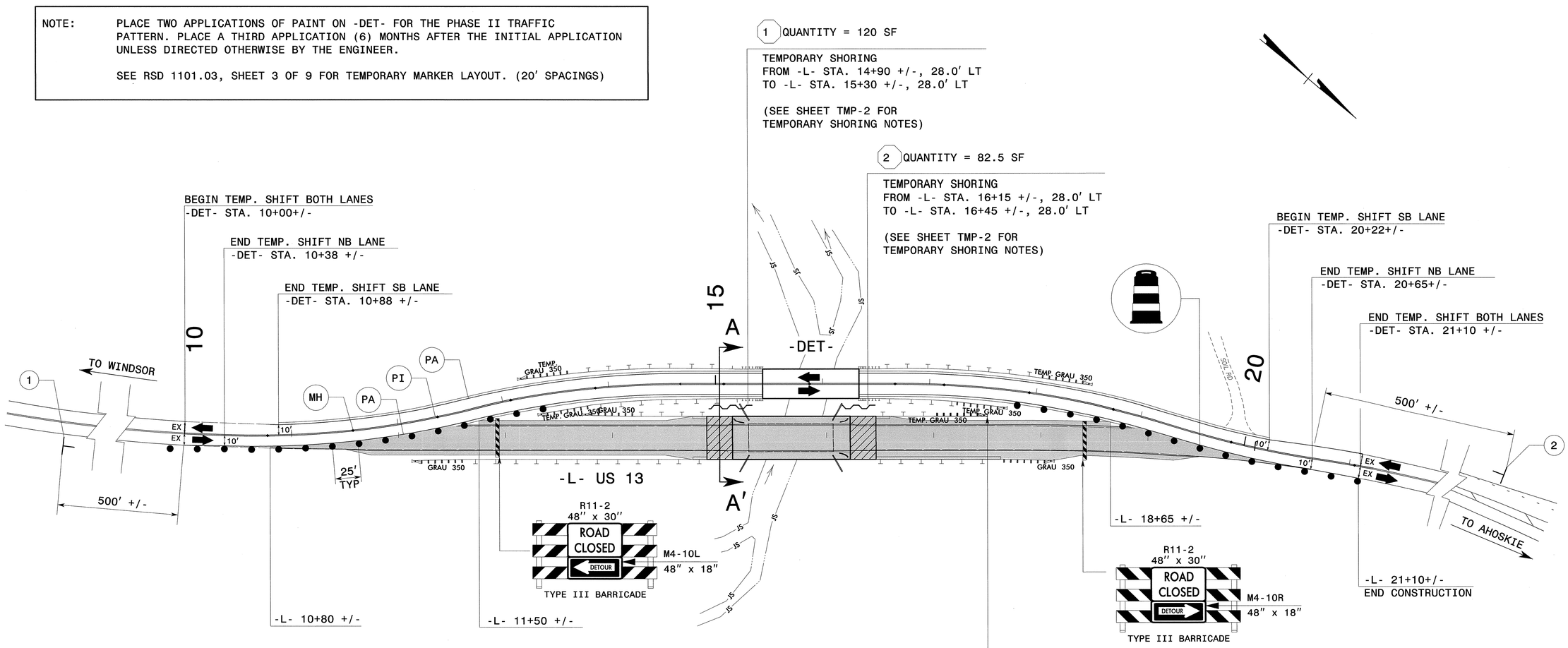
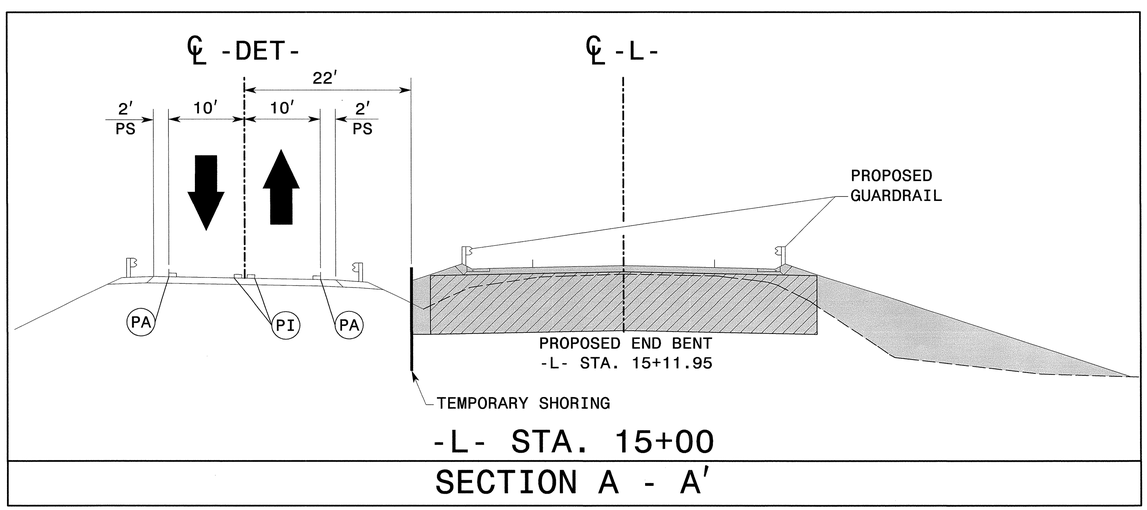
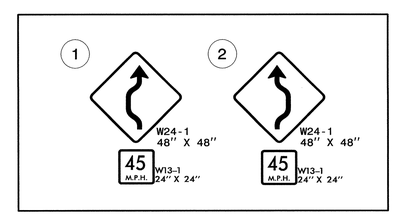
PROJ. REFERENCE NO.	SHEET NO.
B-5141	TMP-5

NOTE: PLACE TWO APPLICATIONS OF PAINT ON -DET- FOR THE PHASE II TRAFFIC PATTERN. PLACE A THIRD APPLICATION (6) MONTHS AFTER THE INITIAL APPLICATION UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

SEE RSD 1101.03, SHEET 3 OF 9 FOR TEMPORARY MARKER LAYOUT. (20′ SPACINGS)







APPROVED: DATE: 1/31/14

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S KITE JR

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

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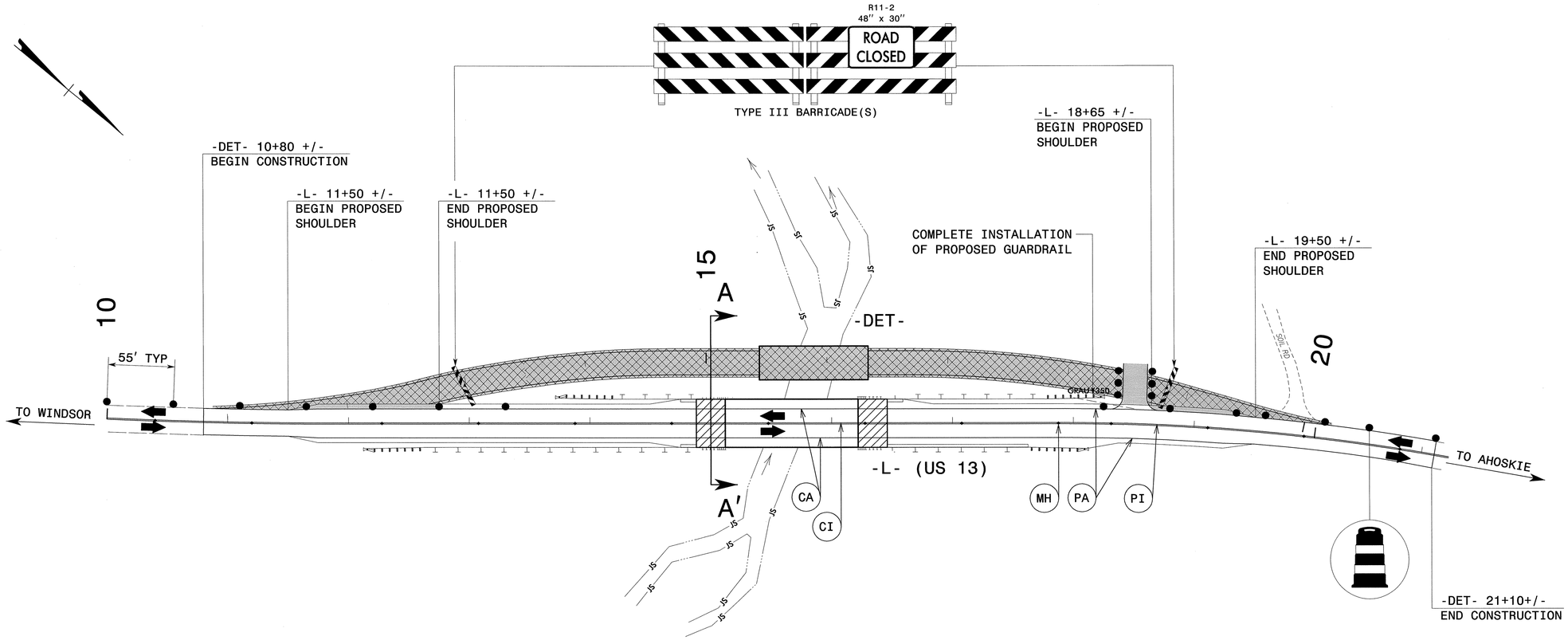
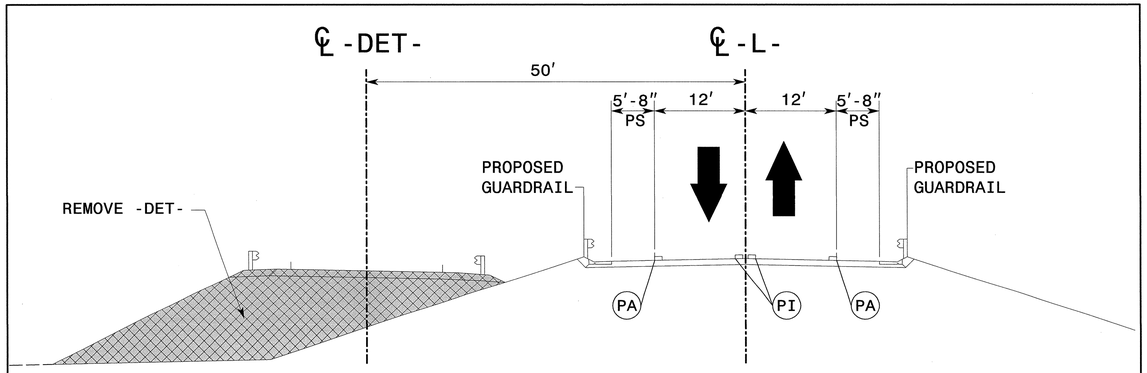
PROJ. REFERENCE NO.	SHEET NO.
B-5141	TMP-6





-L- STA. 15+00

SECTION A - A'

NOTE: PLACE TWO APPLICATIONS OF PAINT ON THE NEXT TO FINAL SURFACE COURSE ON THE -L- FOR THE PHASE III TRAFFIC PATTERN.

SEE RSD 1101.03, SHEET 3 OF 9 FOR TEMPORARY MARKER LAYOUT.

APPROVED: DATE: 1/31/14

NORTH CAROLINA PROFESSIONAL SEAL 022104 ENGINEER JOHN S. KITE JR.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

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CONTRACT: C203396

TIP NO.	SHEET NO.
B-5141	PMP-1

APPROVED: Ayman Alqudwah

DATE: 2-3-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDWAH

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
BERTIE COUNTY

LOCATION: BRIDGE NO. 53 ON US 13 OVER WHITE OAK SWAMP

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

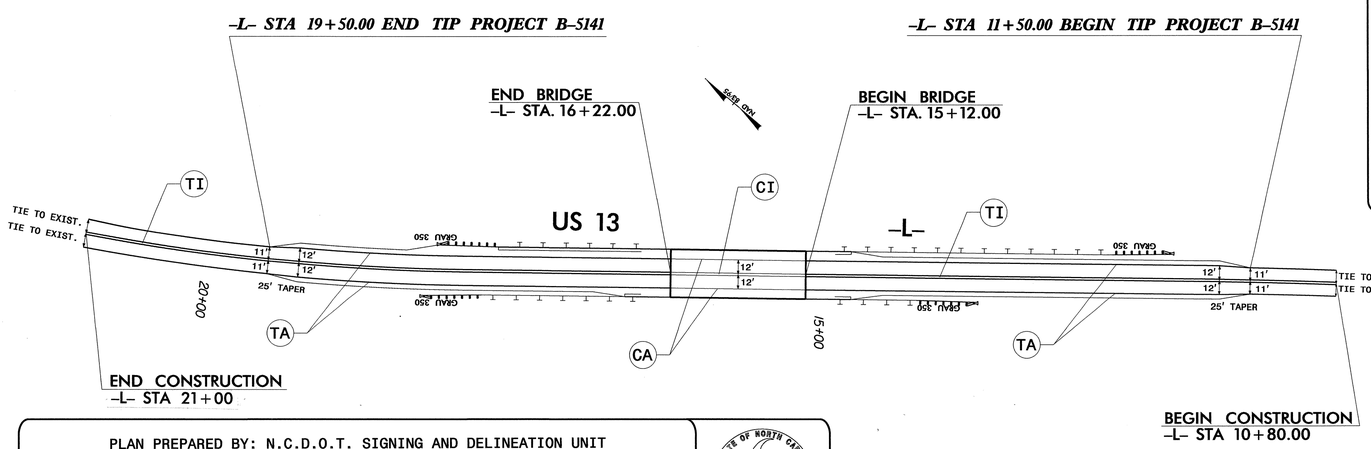
ROAD NAME	MARKING	MARKER
-L- LINE	THERMOPLASTIC	SNOWPLWABLE
BRIDGE DECK	COLD APPLIED PLASTIC	PERMANENT RAISED

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PAVEMENT MARKING DETAIL



PAVEMENT MARKING SCHEDULE

THERMOPLASTIC(4", 90 MILS)	
TA	WHITE EDGELINE
THERMOPLASTIC(4", 120 MILS)	
TI	YELLOW DOUBLE CENTER
COLD APPLIED PLASTIC (4") TYPE 2 - PERMANENT HIGH PERFORMANCE	
CA	WHITE EDGELINE
CI	YELLOW DOUBLE CENTER

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

A. I. ALQUDWAH, P.E. SIGNING & DELINEATION REGIONAL ENGINEER

D. M. EATON SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE, NOTES, DETAIL, AND SCHEDULE SHEET

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TIP PROJECT: B-5141

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5141	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

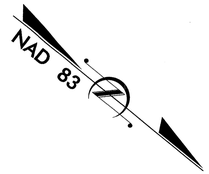
PLAN FOR PROPOSED

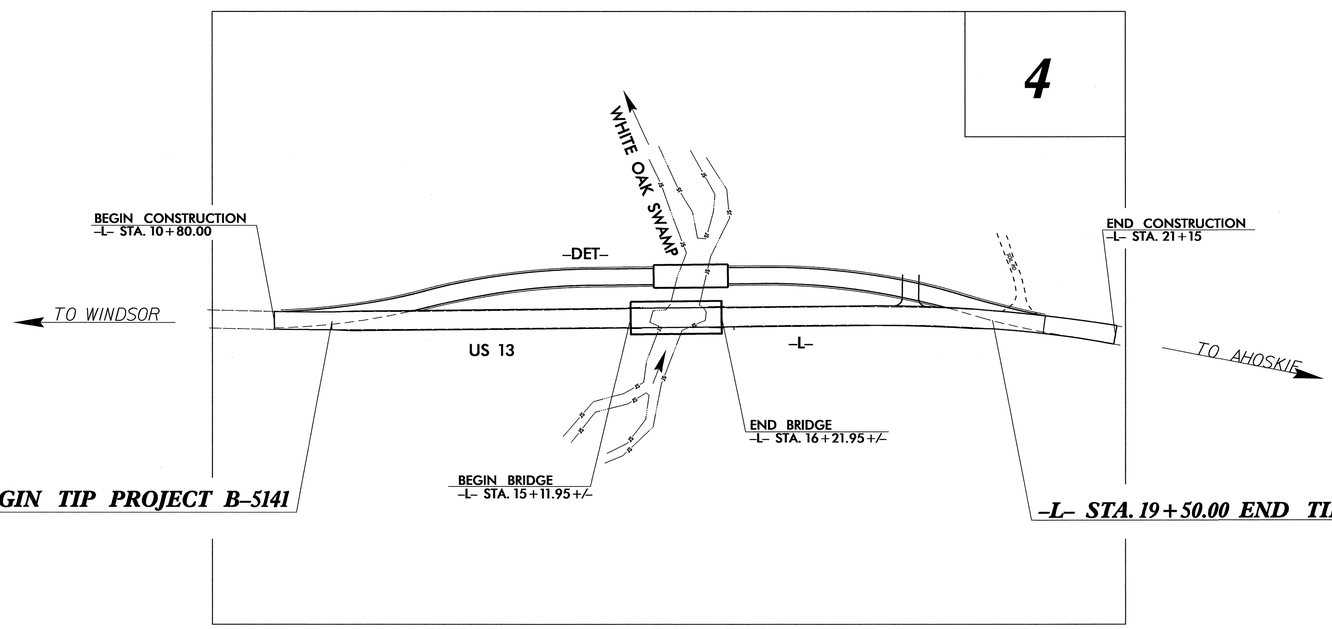
HIGHWAY EROSION CONTROL

BERTIE COUNTY

LOCATION: BRIDGE 53 ON US 13 OVER WHITE OAK SWAMP

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND 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	EW 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

0

PLANS

0

PROFILE (HORIZONTAL)

0

PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

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

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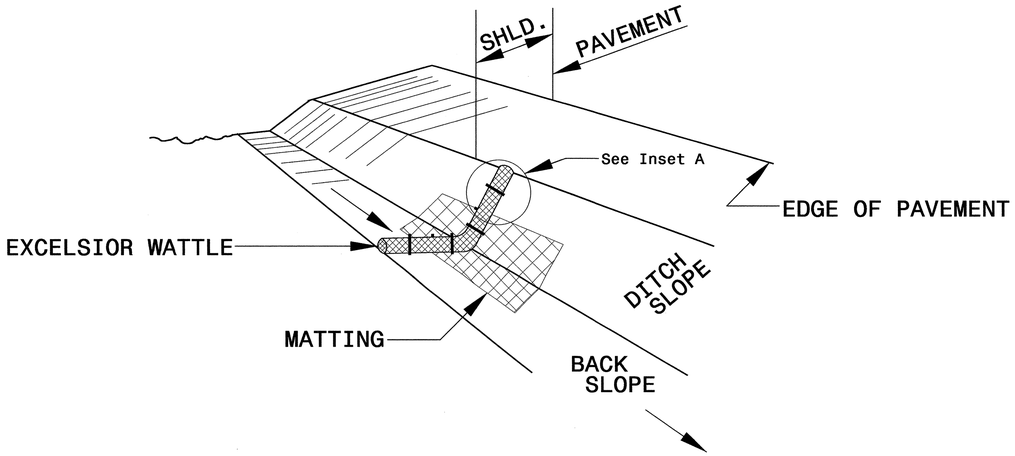
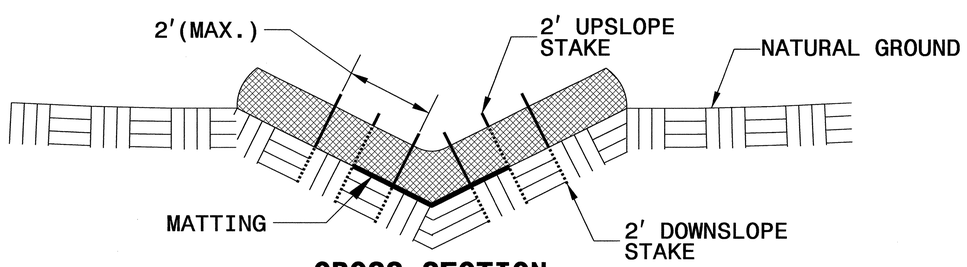
PROJECT REFERENCE NO.	SHEET NO.
B-5141	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

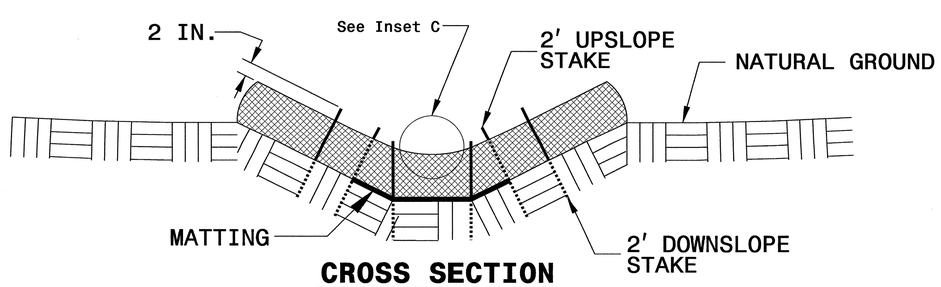
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR 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.

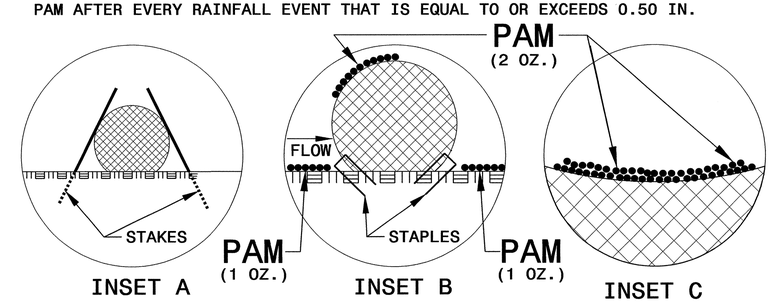
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

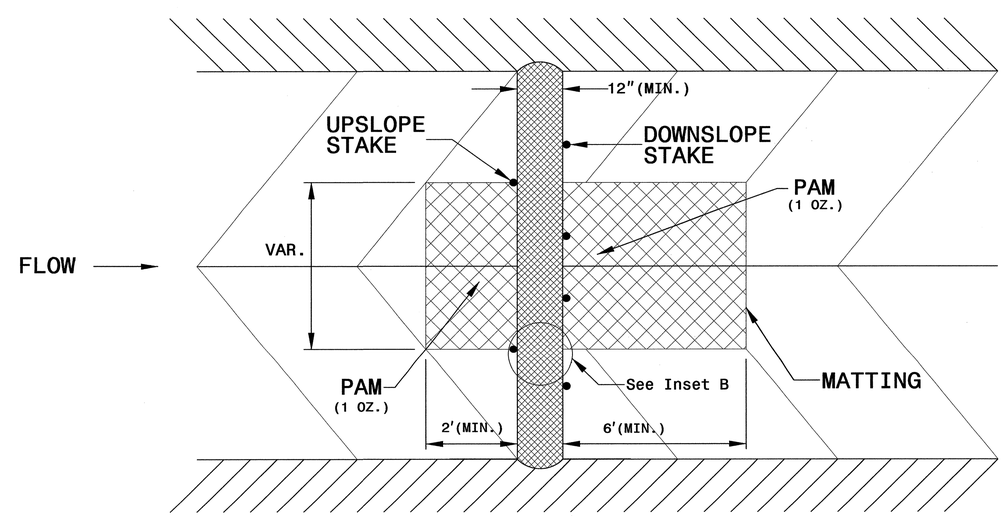
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

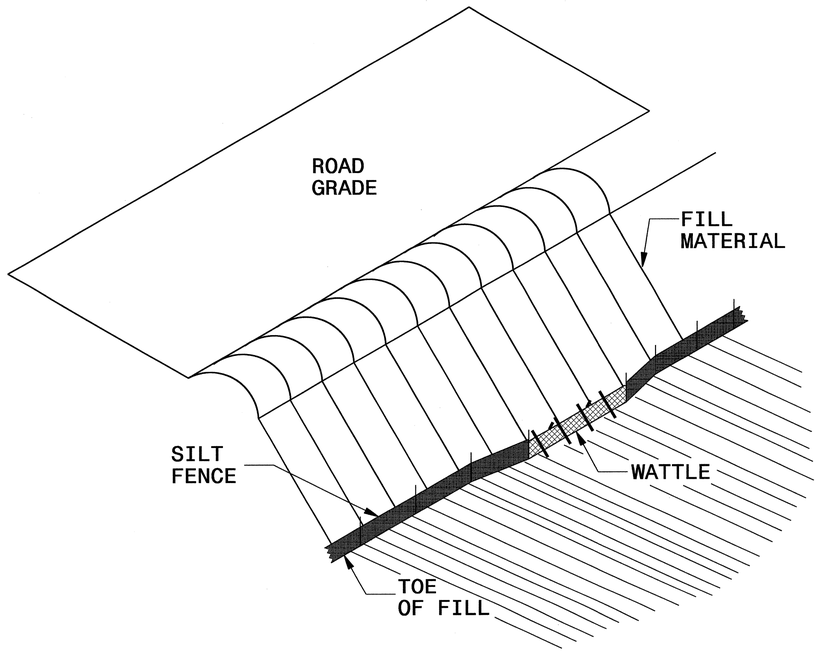




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5141	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE WATTLE BREAK DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

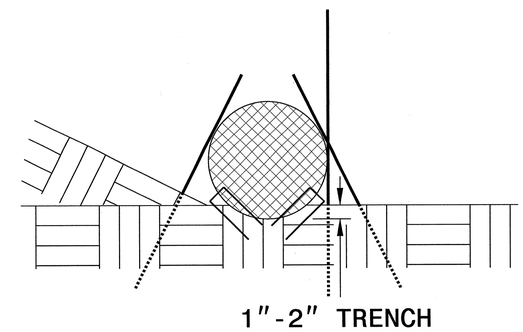
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

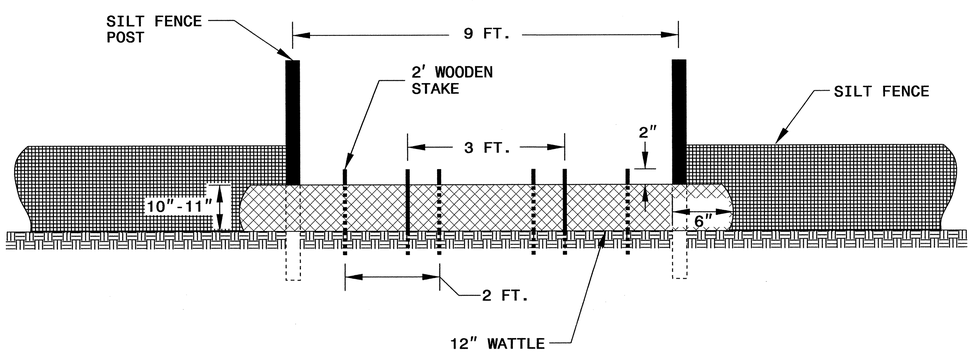
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

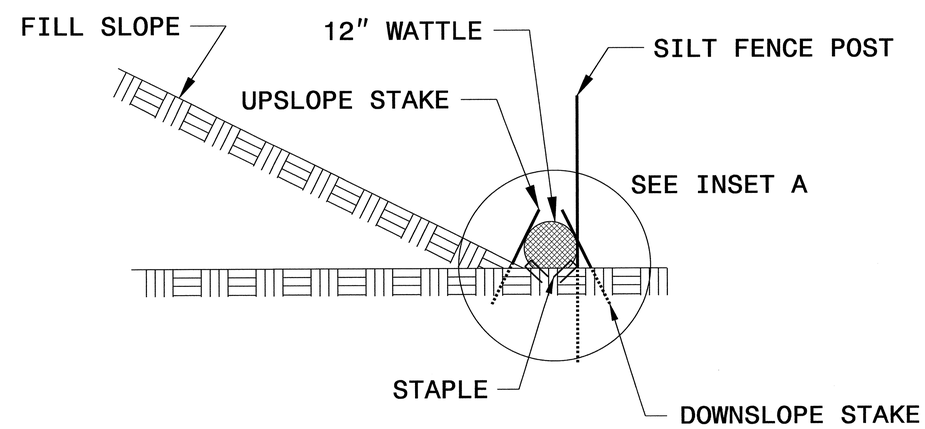
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





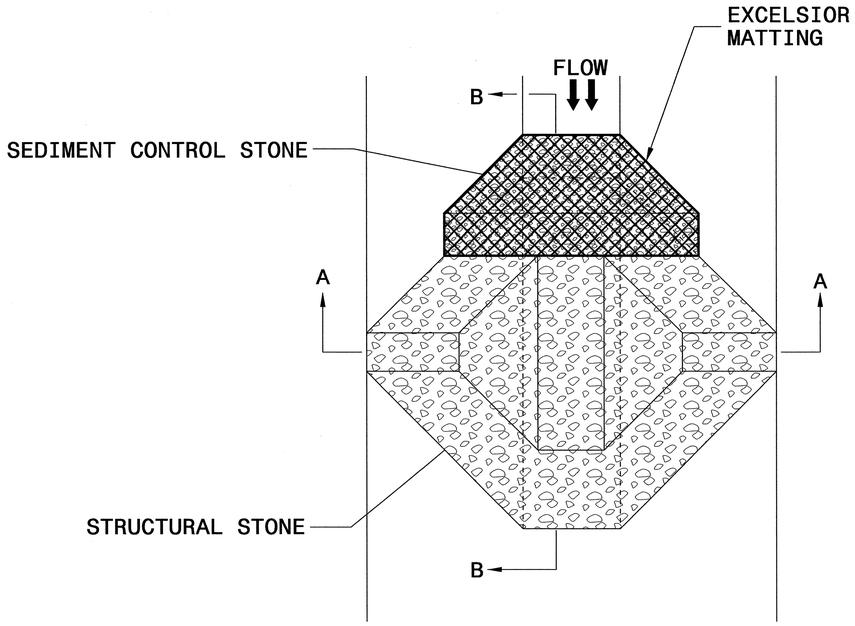
VIEW FROM SLOPE



SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5141	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



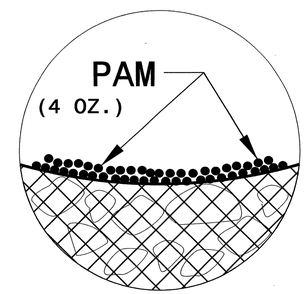
PLAN

NOTES

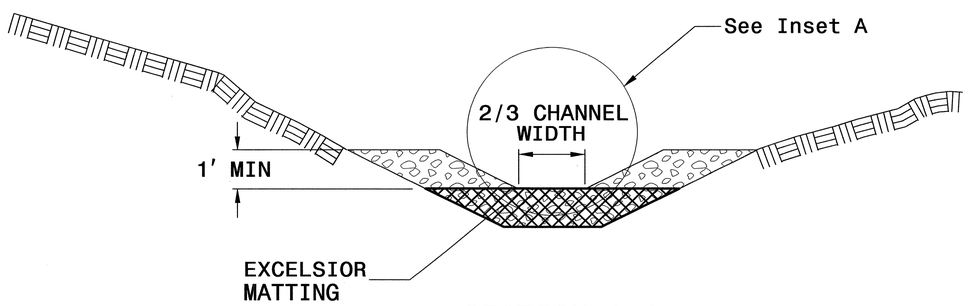
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 ROCK SILT CHECK.

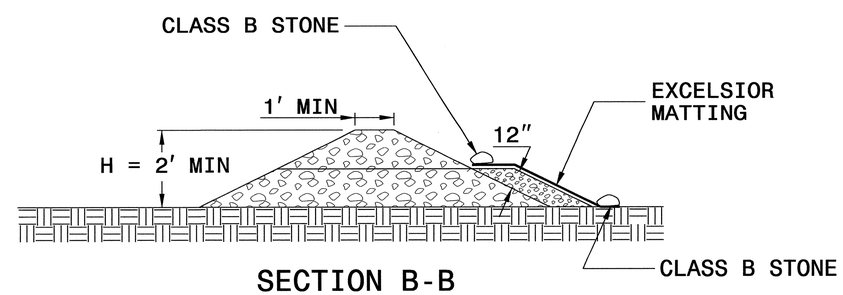
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5141	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.
B-5141	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+00	13+00	LT	140
4	-L-	18+50	19+00	LT	60
			SUBTOTAL		200
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					3550
			TOTAL		3750
			SAY		4000

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

8/17/99

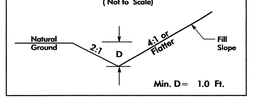
PROJECT REFERENCE NO.	SHEET NO.
B-5141	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

NOTE:
UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.

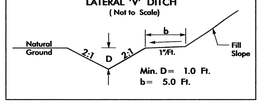
CLEARING AND GRUBBING
EROSION CONTROL FOR CONSTRUCTION SHEET 4

DETAIL #1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



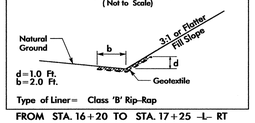
FROM STA. 11+50 TO STA. 13+50 –L– LT

DETAIL #2
LATERAL 'V' DITCH
(Not to Scale)

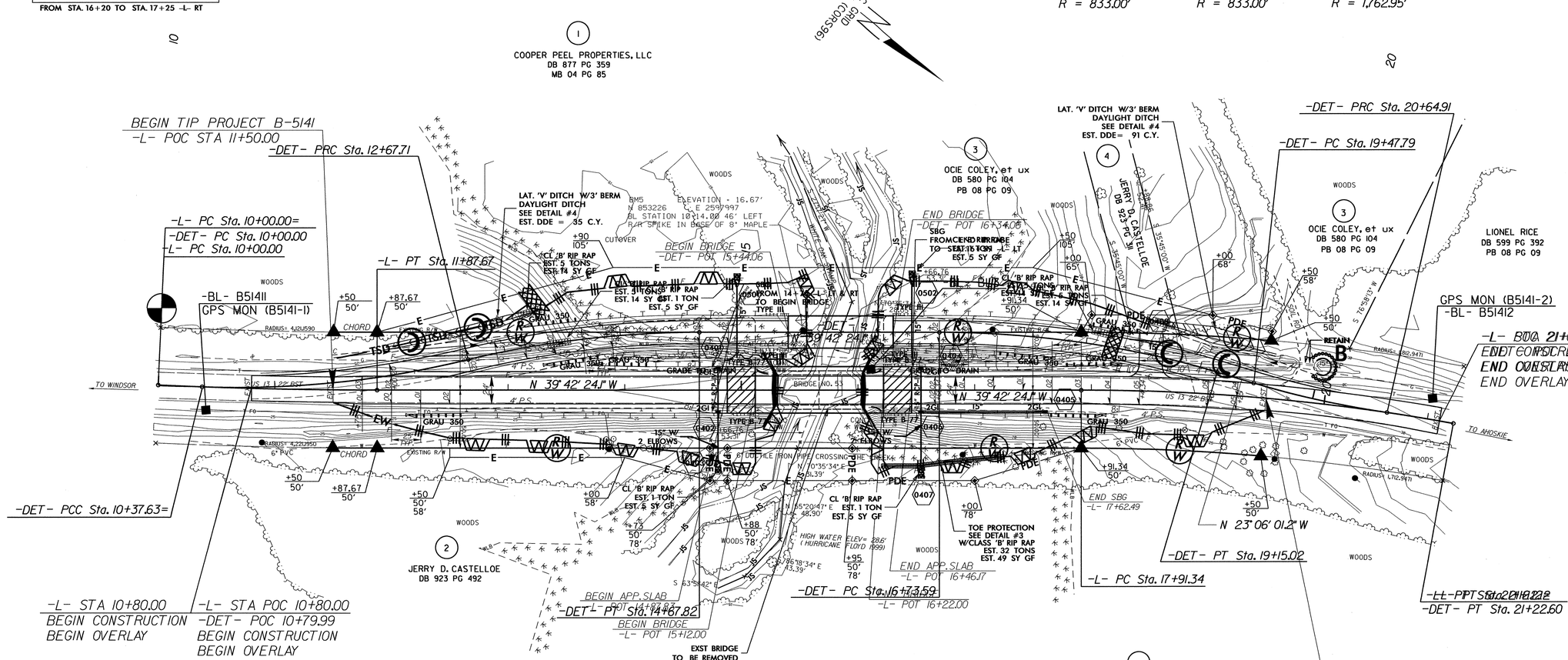


FROM STA. 18+00 TO STA. 19+50 –L– LT

DETAIL #3
TOE PROTECTION
(Not to Scale)



FROM STA. 16+20 TO STA. 17+25 –L– RT



-DET-

PI Sta 17+95.16	PI Sta 20+06.45	PI Sta 20+93.76
Δ = 16° 36' 22.9" (RT)	Δ = 8° 03' 20.8" (LT)	Δ = 1° 52' 28.8" (RT)
D = 6° 52' 41.7"	D = 6° 52' 41.7"	D = 3° 15' 00.0"
L = 241.43'	L = 117.12'	L = 57.68'
T = 121.57'	T = 58.66'	T = 28.84'
R = 833.00'	R = 833.00'	R = 1,762.95'

-L-

PI Sta 10+93.85	PI Sta 19+52.18
Δ = 2° 34' 40.2" (LT)	Δ = 10° 25' 30.9" (RT)
D = 1° 22' 25.0"	D = 3° 15' 00.0"
L = 187.67'	L = 320.78'
T = 93.85'	T = 160.83'
R = 4,171.16'	R = 1,762.95'
e = SEE PLAN	e = SEE PLAN

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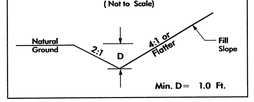
pmcg AT 1541/26.5%

PROJECT REFERENCE NO.	SHEET NO.
B-5141	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

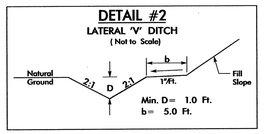
NOTE: UTILIZE SPECIAL STILLING BASIN WHERE APPLICABLE.

DETAIL #1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



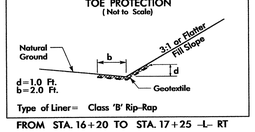
FROM STA. 11+50 TO STA. 13+50 -L- LT

DETAIL #2
LATERAL 'V' DITCH
(Not to Scale)

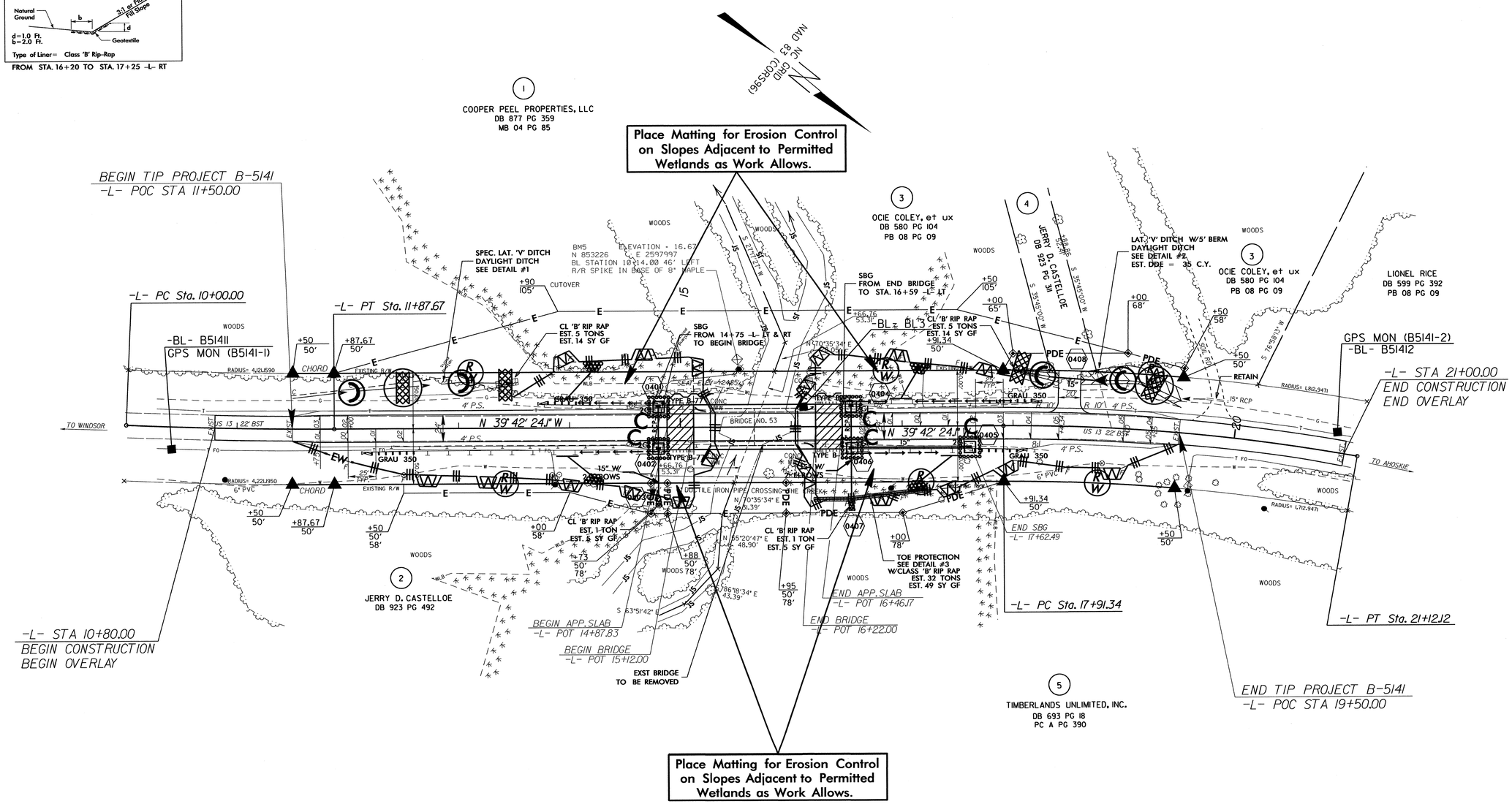


FROM STA. 18+00 TO STA. 19+50 -L- LT

DETAIL #3
TOE PROTECTION
(Not to Scale)



FROM STA. 16+20 TO STA. 17+25 -L- RT



8/17/99

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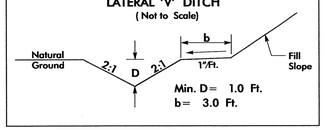
mjong

PROJECT REFERENCE NO.	SHEET NO.
B-5141	EC-6/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL #4
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 12+00.54 TO STA. 13+35 -DET- LT
FROM STA. 18+55.30 TO STA. 19+59.68 -DET- LT

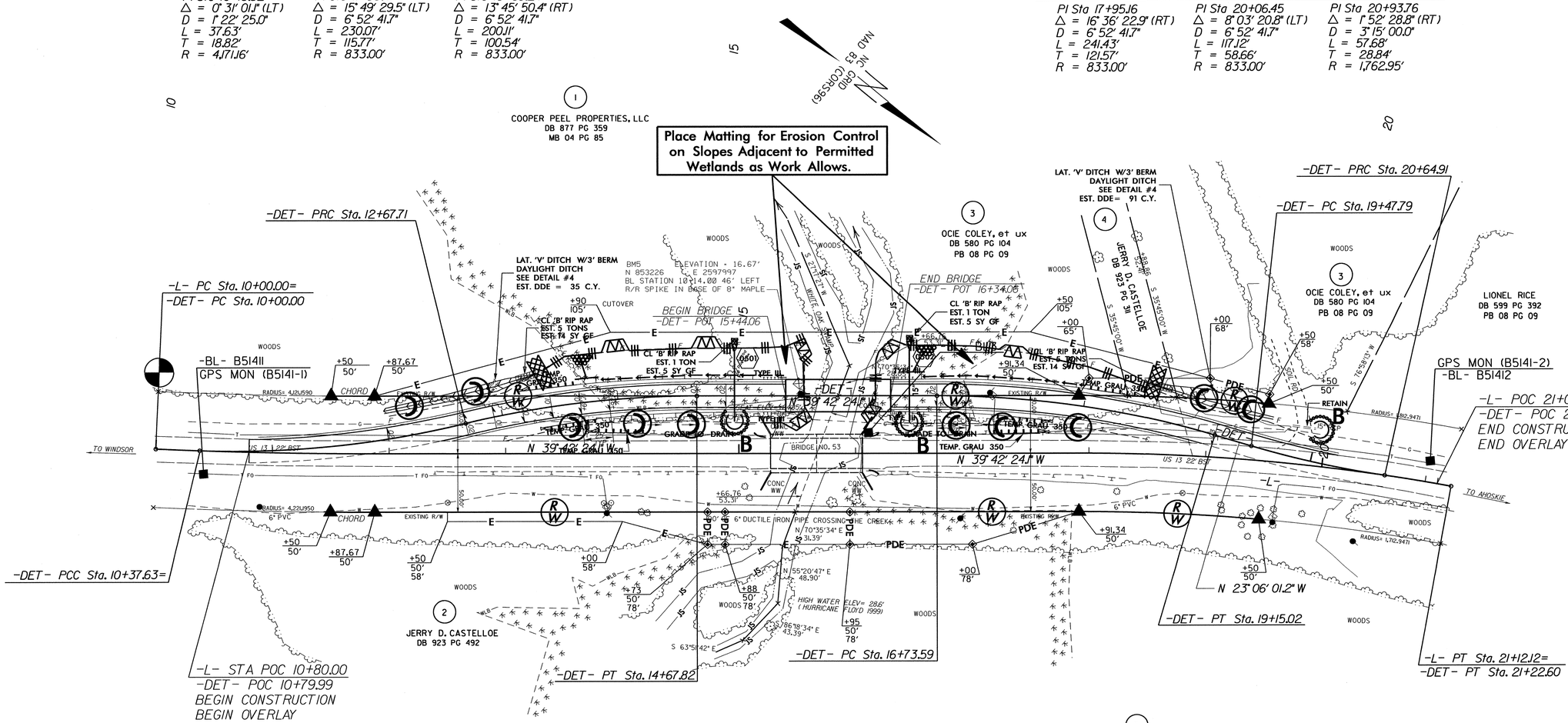
DETOUR

-DET-

PI Sta 10+18.82	PI Sta 11+53.41	PI Sta 13+68.24
Δ = 0° 31' 01.1" (LT)	Δ = 15° 49' 29.5" (LT)	Δ = 13° 45' 50.4" (RT)
D = 1° 22' 25.0"	D = 6° 52' 41.7"	D = 6° 52' 41.7"
L = 37.63'	L = 230.07'	L = 200.11'
T = 18.82'	T = 115.77'	T = 100.54'
R = 4,171.16'	R = 833.00'	R = 833.00'

-DET-

PI Sta 17+95.16	PI Sta 20+06.45	PI Sta 20+93.76
Δ = 16° 36' 22.9" (RT)	Δ = 8° 03' 20.8" (LT)	Δ = 1° 52' 28.8" (RT)
D = 6° 52' 41.7"	D = 6° 52' 41.7"	D = 3° 15' 00.0"
L = 241.43'	L = 117.12'	L = 57.68'
T = 121.57'	T = 58.66'	T = 28.84'
R = 833.00'	R = 833.00'	R = 1,762.95'



-L-

PI Sta 10+93.85	PI Sta 19+52.18
Δ = 2° 34' 40.2" (LT)	Δ = 10° 25' 30.9" (RT)
D = 1° 22' 25.0"	D = 3° 15' 00.0"
L = 187.67'	L = 320.78'
T = 93.85'	T = 160.83'
R = 4,171.16'	R = 1,762.95'
e = SEE PLAN	e = SEE PLAN

NOTE:
UTILIZE SPECIAL STILLING WHERE APPLICABLE.

22-JAN-2014 11:01
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mrmp ST REV 9.19.13

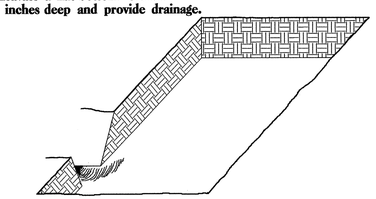
PROJECT REFERENCE NO.	SHEET NO.
B-5141	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

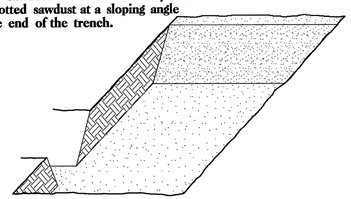
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

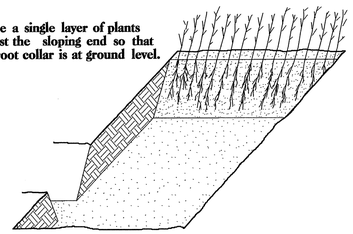
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



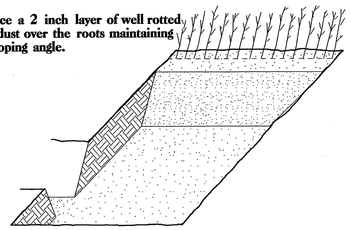
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

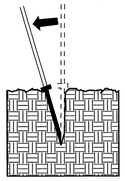


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

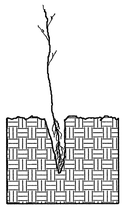


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

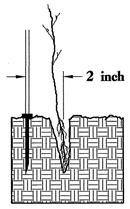
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



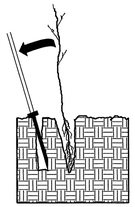
1. Insert planting bar as shown and pull handle toward planter.



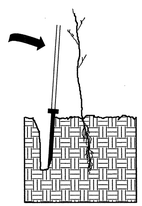
2. Remove planting bar and place seedling at correct depth.



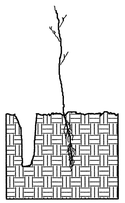
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% NYSSA AQUATICA	WATER TUPELO	12 in - 18 in BR
25% TAXODIUM DISTICHUM	BALD CYPRESS	12 in - 18 in BR
25% QUERCUS PHELLOS	WILLOW OAK	12 in - 18 in BR
25% QUERCUS ALBA	WHITE OAK	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

TIP NO.	SHEET NO.
B-5141	SIGN-1

APPROVED: Ayman I. Alqudwah

DATE: 2-4-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDWAH

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
BERTIE COUNTY

LOCATION: BRIDGE NO. 53 ON US 13 OVER WHITE OAK SWAMP

T.I.P.: B-5141

CONTRACT: C203396

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
903.20	WOOD SIGN SUPPORTS
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO WOOD POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL (CROSS-BRACE)	30	L.F.
4082000000	903	SUPPORTS, WOOD	84	L.F.
4096000000	904	SIGN ERECTION, TYPE D	1	EA.
4102000000	904	SIGN ERECTION, TYPE E	2	EA.
4108000000	904	SIGN ERECTION, TYPE F	1	EA.
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE D	1	EA.
4141000000	907	DISPOSAL OF SUPPORT, WOOD	2	EA.
4158000000	907	DISPOSAL OF SIGN SYSTEM, WOOD	3	EA.

PROJECT NOTES

1. DISPOSAL OF SIGN SYSTEM, WOOD
2. DISPOSAL OF SUPPORT, WOOD
3. SIGN ERECTION, RELOCATE SIGN TYPE D

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET, QUANTITES, AND NOTES
SIGN-2	TYPE D, E, AND F SIGNS
SIGN-3	EXISTING AND PROPOSED SIGNS DETAIL SHEET

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

A. I. ALQUDWAH, P.E. SIGNING & DELINEATION REGIONAL ENGINEER

D. M. EATON SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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meaton AI TE2/74122

TIP NO.	SHEET NO.
B-5141	SIGN-2

APPROVED: Ayman Alquduwah

DATE: 2-4-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDUWAH

TYPE E SIGNS

(401) QUANTITY REQ'D 1

36" X 36"
W1-10

MOUNT ON ONE WOOD POST

(402) QUANTITY REQ'D 1

24" X 24"
W13-1P

MOUNT BELOW SIGN NO. 401
IN 1 INSTALLATION

TYPE F SIGNS

(501)

21" X 15"

24" X 24"

MOUNT ON ONE WOOD POST

TYPE D SIGN

SIGN NUMR: 301
TYPE: D Ground
QUANTITY: 1

SIGN WIDTH: 7'-0"
HEIGHT: 2'-6"
TOTAL AREA: 17.5 Sq.Ft.

MAT'L: 0.125" ALUMINUM

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 0.75"
RADII: 3"

NO. Z BARS:
LENGTH:

BACKG. COLOR: Brown
COPY COLOR: White

DESIGN BY: DME
PROJECT ID: B-5141

CHK BY: AIA
DIV: 1

STD #: $STN
DATE: Jan 28, 2014

N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY
SIGNING AND DELINEATION

SYMBOL	X	Y	WID	HT
HIST. ALBEMARLE TOUR LOGO	5.7	7.5	12	15

USE NOTES: 2,5

1. Legend and border shall be direct applied Grade A reflective sheeting.
2. Legend and border shall be direct applied Grade C reflective sheeting.
3. Shields shall be Grade A reflective sheeting on 0.032" aluminum and demountable.
4. Background shall be Grade B reflective sheeting.
5. Background shall be Grade C reflective sheeting.
6. Center arrow(s) vertically on sign.

MOUNT ON TWO WOOD POSTS

Letter spacings are to start of next letter

																											Series/Size Text Length
	W	i	n	d	s	o	r		6																		D 2000
22.7	6.3	2.5	4.7	4.7	3.5	4.9	2.3	22.9	4.1	5.7																	55.7
	W	i	l	l	i	a	m	s	t	o	n		1	9													D 2000
22.7	6.3	2.5	2.5	2.5	2.1	4.8	6.9	3.5	2.9	4.9	3.5	6.0	3.2	4.1	5.7												55.7

Spacing Factor is 1 unless specified otherwise

FILENAME: GSENG

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meston AI TE2:74922

TYPE D, E, AND F SIGNS

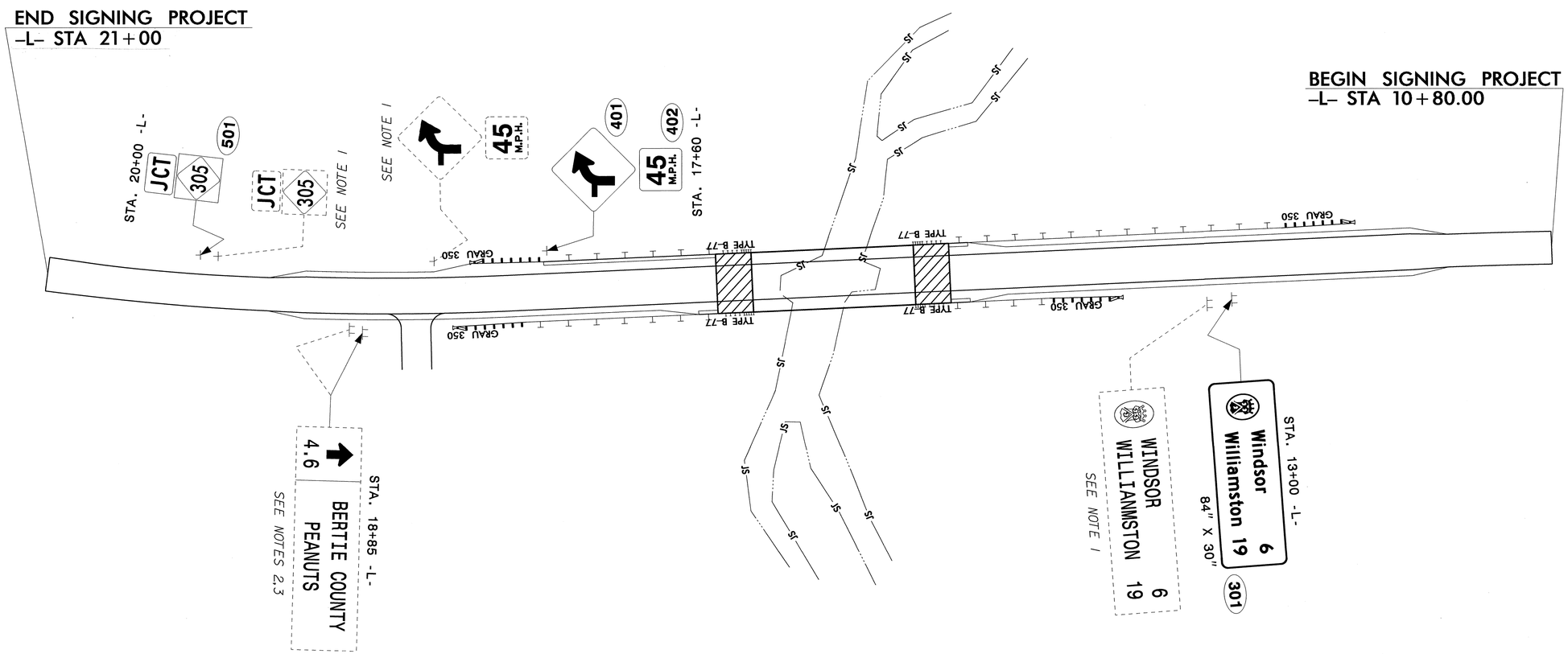
TIP NO.	SHEET NO.
B-5141	SIGN-3

APPROVED: Ayman Alquduwah

DATE: 2-4-14

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028387 ENGINEER AYMAN I. ALQUDWAH



NOTES

1. DISPOSAL OF SIGN SYSTEM, WOOD
2. DISPOSAL OF SUPPORT, WOOD
3. SIGN ERECTION, RELOCATE SIGN TYPE D

EXISTING AND PROPOSED SIGNS

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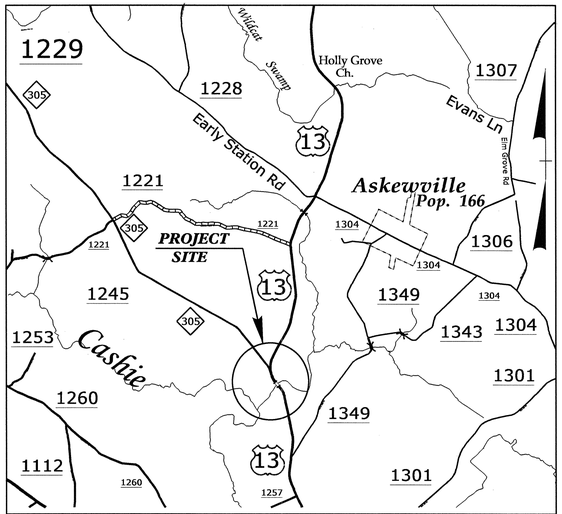
T.I.P. NO.	SHEET NO.
B-5141	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

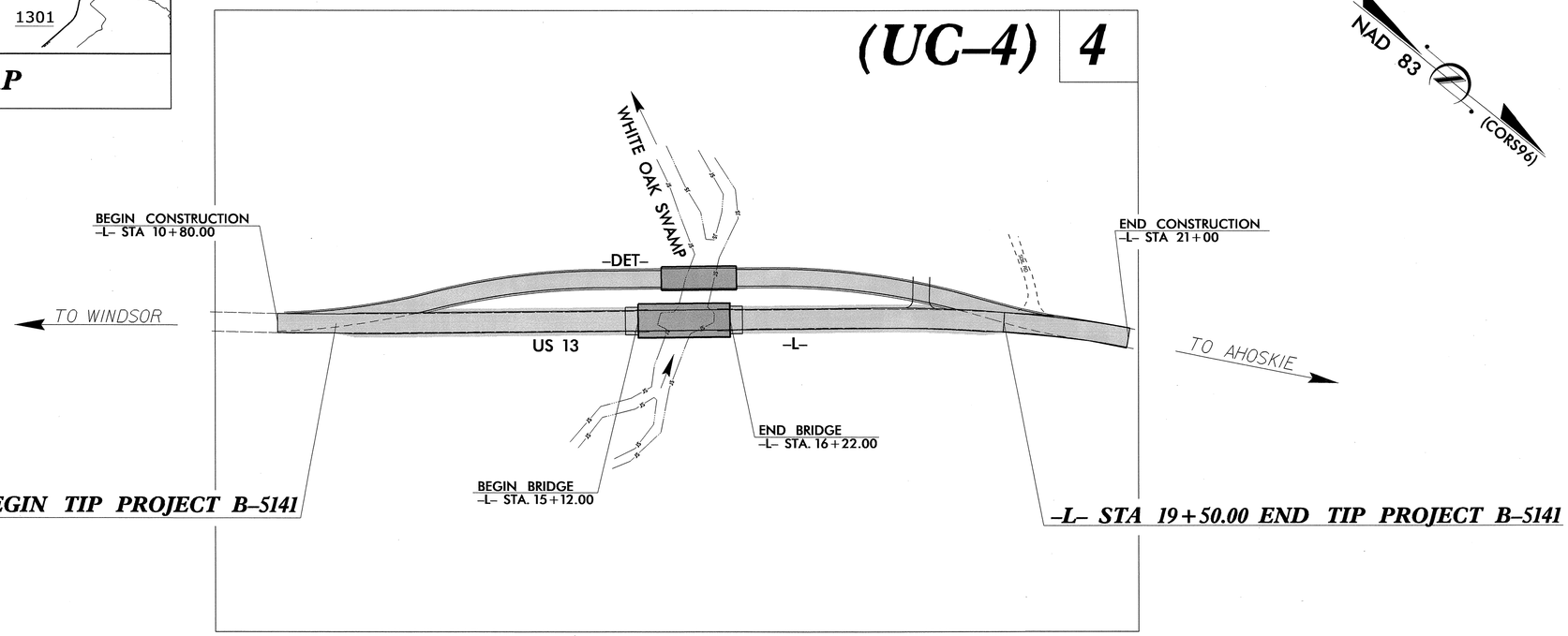
UTILITY CONSTRUCTION PLANS
BERTIE COUNTY

LOCATION: BRIDGE 53 ON US 13 OVER WHITE OAK SWAMP

TYPE OF WORK: RELOCATE WATER LINE



VICINITY MAP



2012 STANDARD SPECIFICATIONS

TIP PROJECT: B-5141

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UTILITY CONSTRUCTION SHEET
UC-5	PROFILE SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) **Bertie County Public Works** (Water)
contact: Ricky Spivey
(252) 724-1691

SEAL

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E.	UTILITIES SECTION ENGINEER
Corey Bousquet, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Nabil Hamdan	UTILITIES PROJECT DESIGNER

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PROJECT REFERENCE NO.	SHEET NO.
B-5141	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

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utilities\Proposed\Sheets\

PROJECT REFERENCE NO.	SHEET NO.
B-5141	UC-3
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 23011 2/4/14 ENGINEER CARCY D. BOUSQUET

UTILITY CONSTRUCTION

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. THE EXISTING UTILITIES BELONG TO BERTIE COUNTY PUBLIC WORKS.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

2. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

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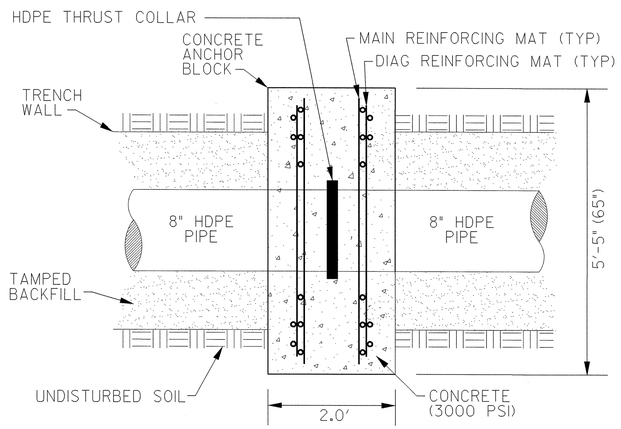
PROJECT REFERENCE NO.	SHEET NO.
B-5141	UC-3A
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CAREY D. BOUSQUET 2/4/14

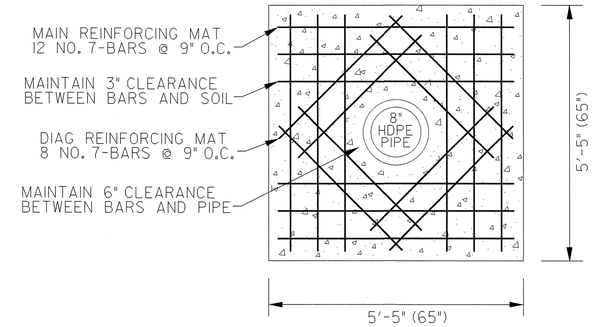
UTILITY CONSTRUCTION

CONCRETE ANCHOR BLOCK - PLAN VIEW FOR HDPE PIPE



NOTE: BOTTOM OF TRENCH NEEDS TO BE STABILIZED TO SUPPORT THE WIEIGHT OF THE THRUST COLLAR

CONCRETE ANCHOR BLOCK - SECTION VIEW FOR HDPE PIPE

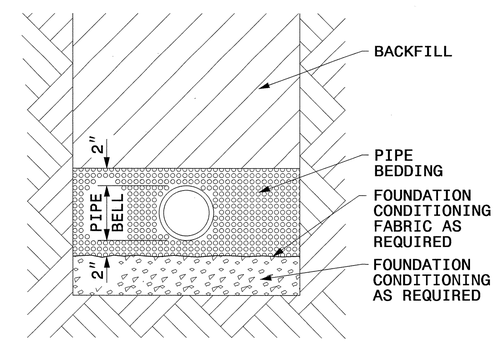


REINFORCING BARS (PER ANCHOR BLOCK):
MAIN MATS = 24 (#7 BARS) @ 59" LONG
DIAG MATS = 16 (#7 BARS) @ 41" LONG

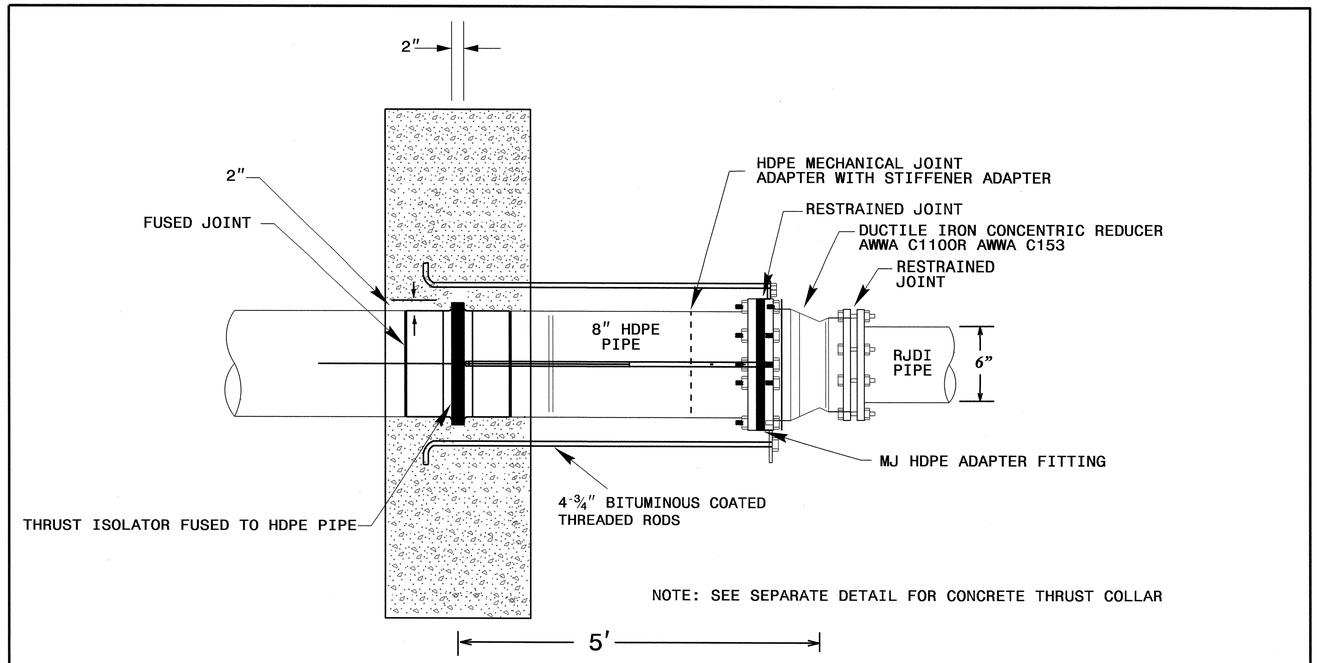
FORCE MAIN AND WATER MAIN PROFILE NOTES:

(1) ELEVATIONS OF EXISTING UTILITIES SHOWN ON PROFILE NEED TO BE VERIFIED IN THE FIELD.
(2) CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE PATH DESIGNED AND SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER OR BUFFER ZONES.
(3) CONTRACTOR'S ENGINEER SHALL PROVIDE ON-SITE OVERSIGHT FOR HDD OPERATION.

TRENCH DETAIL



PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.



NOTE: SEE SEPARATE DETAIL FOR CONCRETE THRUST COLLAR

TRANSITION DETAIL FROM HDPE TO DI WATER PIPE

MAXIMUM TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

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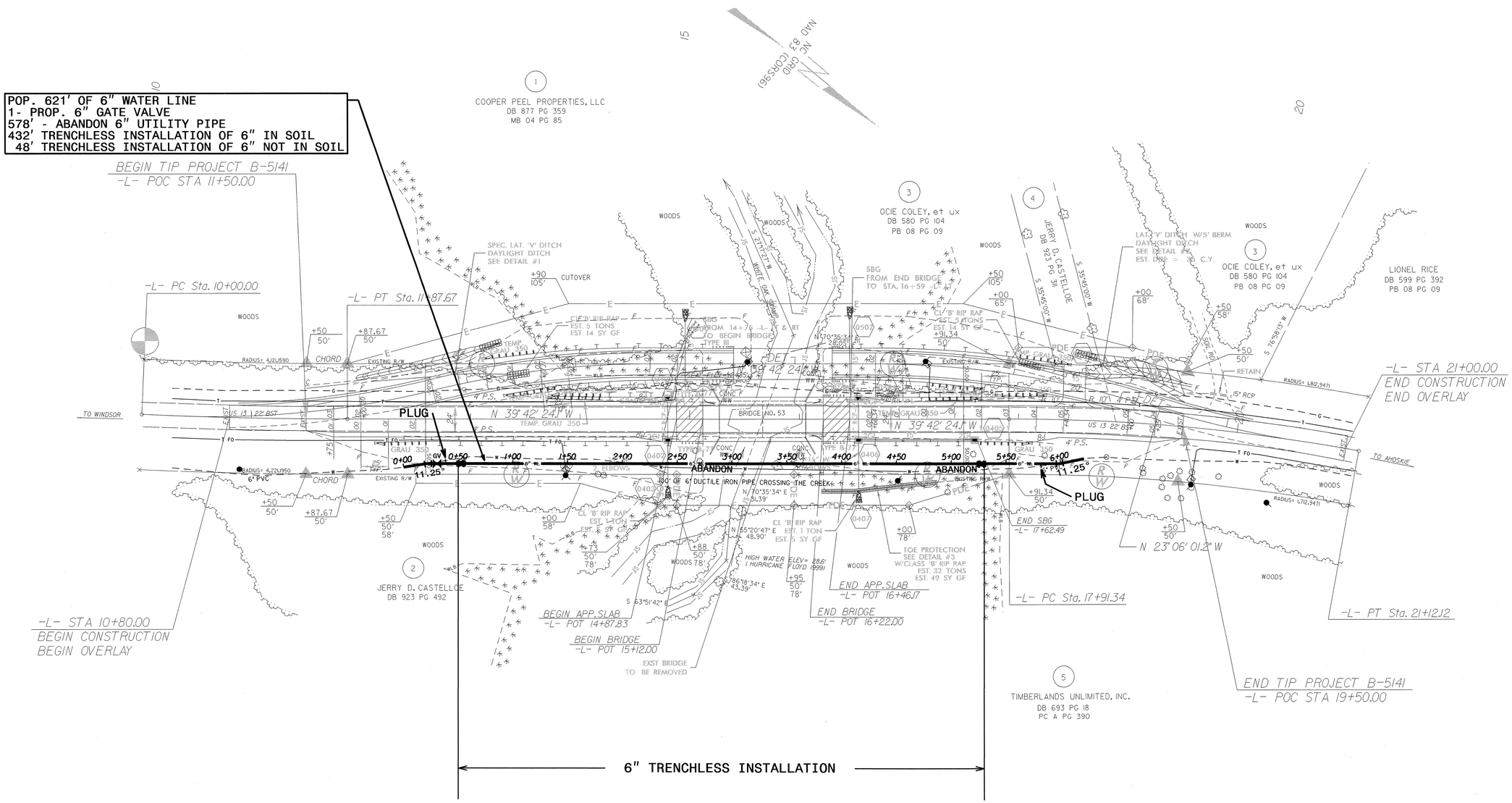
PROJECT REFERENCE NO.	SHEET NO.
B-5141	UC-4
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CORNEY D. BOUSQUET 2/4/14

UTILITY CONSTRUCTION

POP. 621' OF 6" WATER LINE
1- PROP. 6" GATE VALVE
578' - ABANDON 6" UTILITY PIPE
432' TRENCHLESS INSTALLATION OF 6" IN SOIL
48' TRENCHLESS INSTALLATION OF 6" NOT IN SOIL



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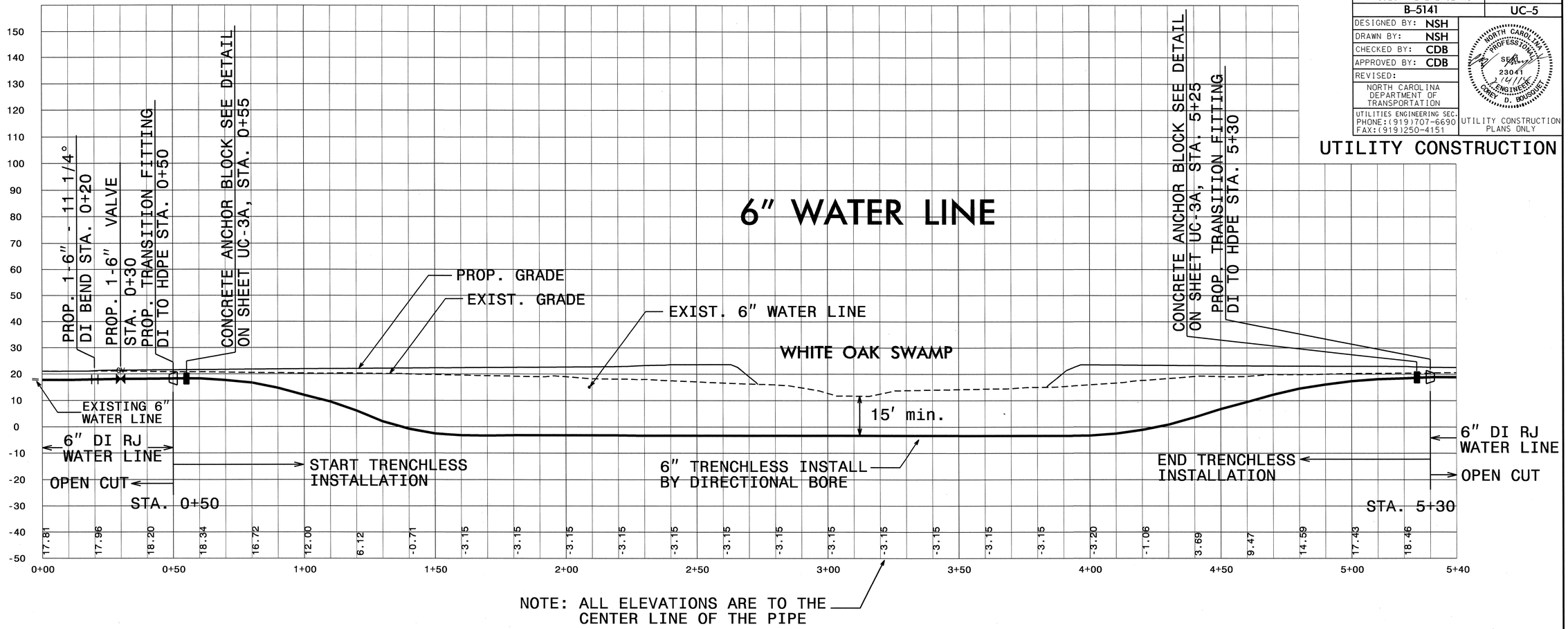
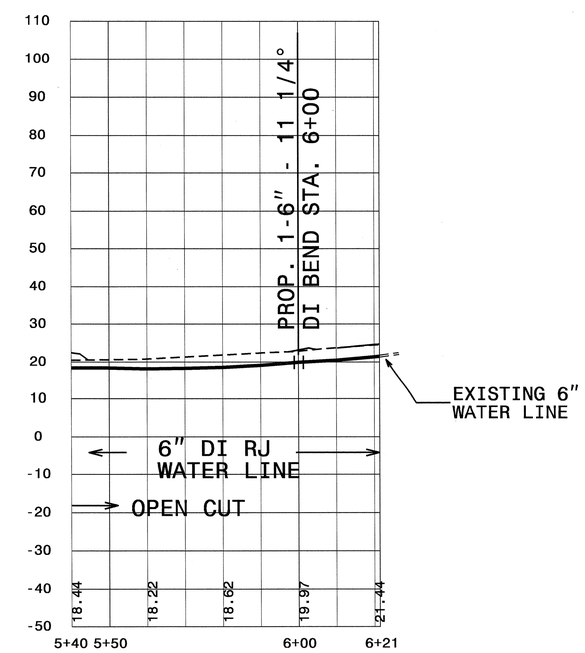
PROJECT REFERENCE NO.	SHEET NO.
B-5141	UC-5
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CORNEY D. BOUGUELET

UTILITY CONSTRUCTION



Note: WATER LINE SHALL MAINTAIN A 3' MINIMUM COVER.



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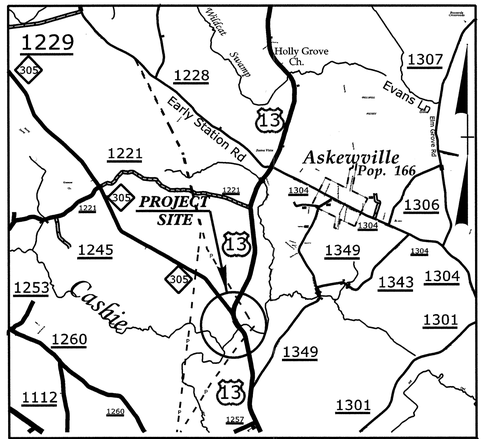
TIP PROJECT: B-5141

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-5141	UO-1



VICINITY MAP

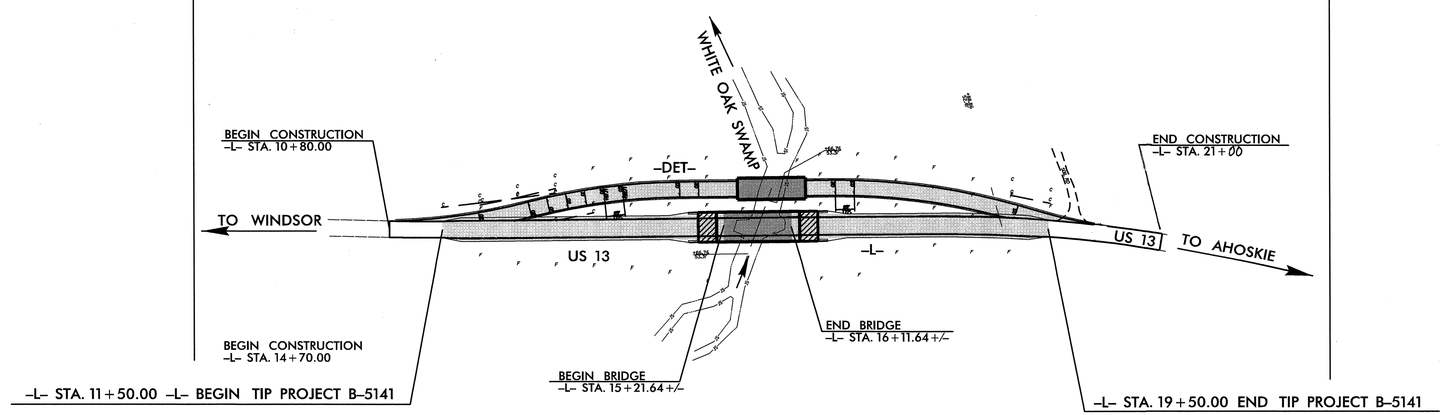
UTILITIES BY OTHERS PLANS
BERTIE COUNTY

LOCATION: BRIDGE NO. 53 OVER WHITE OAK SWAMP ON US 13

TYPE OF WORK: AERIAL POWER, UNDERGROUND FIBER OPTIC, & TELEPHONE, AND GAS

UO-2 | 4

NAD 83



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

(1) CENTURYLINK - TELEPHONE AND FIBER OPTIC

2) PEIDMONT NATURAL GAS - NATURAL GAS

3) ROANOKE EMC - POWER

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

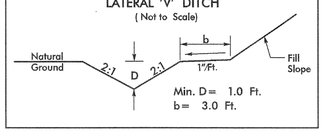
Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Nabil Hamdan — UTILITIES PROJECT DESIGNER

PROJECT REFERENCE NO.	SHEET NO.
B-5141	UO-2

UTILITIES BY OTHERS

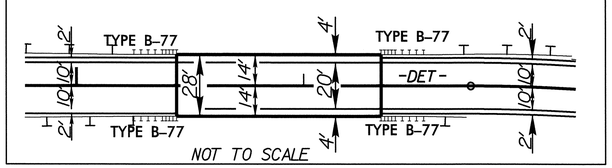
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

DETAIL #4
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 12+00 TO STA. 13+35 –DET– LT
FROM STA. 18+50 TO STA. 19+50 –DET– LT

SKETCH SHOWING TEMP. BRIDGE/ROADWAY RELATIONSHIP

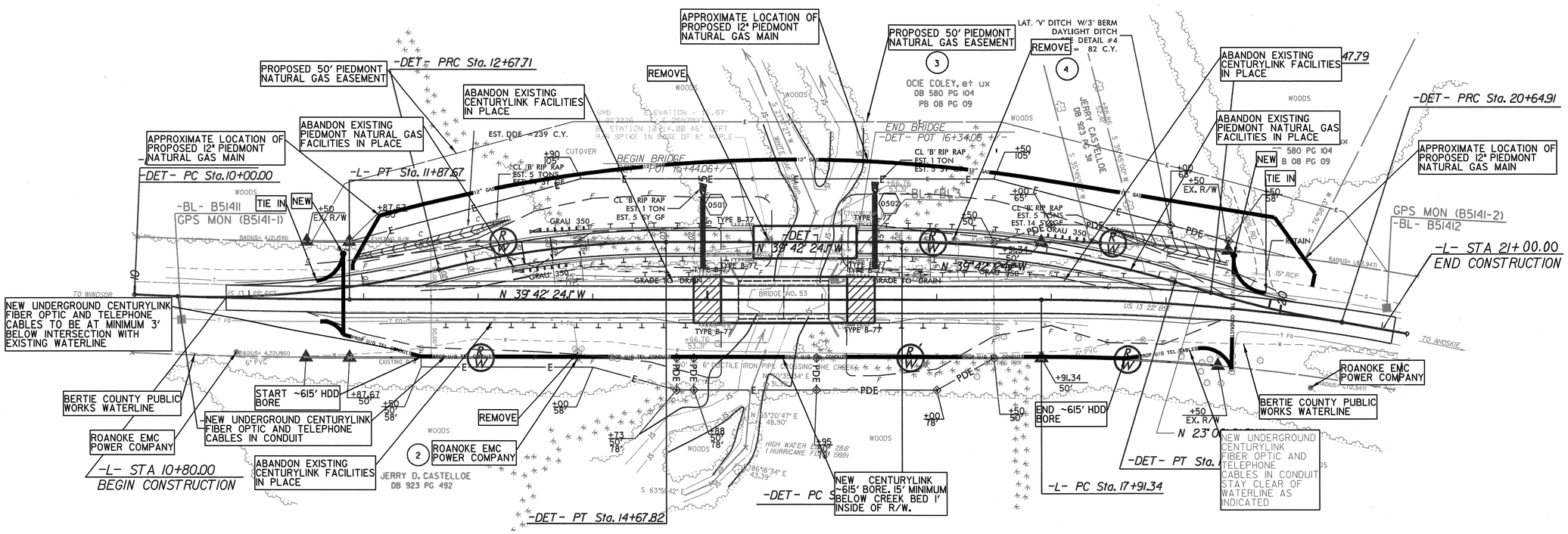


-DET-

PI Sta 10+18.82	PI Sta 11+53.41	PI Sta 13+68.24
Δ = 0° 31' 01.1" (LT)	Δ = 15° 49' 29.5" (LT)	Δ = 13° 45' 50.4" (RT)
D = 1° 22' 25.0"	D = 6° 52' 41.7"	D = 6° 52' 41.7"
L = 37.63'	L = 230.07'	L = 200.11'
T = 18.82'	T = 115.77'	T = 100.54'
R = 4,171.16'	R = 833.00'	R = 833.00'

-DET-

PI Sta 17+95.16	PI Sta 20+06.45	PI Sta 20+93.76
Δ = 16° 36' 22.9" (RT)	Δ = 8° 03' 20.8" (LT)	Δ = 1° 52' 28.8" (RT)
D = 6° 52' 41.7"	D = 6° 52' 41.7"	D = 3° 15' 00.0"
L = 241.43'	L = 117.12'	L = 57.68'
T = 121.57'	T = 58.66'	T = 28.84'
R = 833.00'	R = 833.00'	R = 1,762.95'



-L-

PI Sta 19+52.18
Δ = 10° 25' 30.9" (RT)
D = 3° 15' 00.0"
L = 320.78'
T = 160.83'
R = 1,762.95'
e = SEE PLAN

5
TIMBERLANDS UNLIMITED
DB 693 PG 18
PC A PG 390

DETOUR DESIGN SPEED= 45 MPH

NOTE: USE THIS SHEET FOR TEMPORARY TRAFFIC MAINTENANCE DURING CONSTRUCTION.

NOTES:

1. CENTURYLINK UNDERGROUND TELEPHONE AND FIBER OPTIC WILL BE ABANDONED IN PLACE AS NOTED.
2. PEIDMONT NATURAL GAS WILL ABANDON IN PLACE NATURAL GAS LINE AS NOTED
3. BERTIE COUNTY PUBLIC WORKS WATERLINE TO BE RELOCATED BY BORING THE CREEK. SEE UTILITY CONSTRUCTION PLANS
4. ROANOKE EMC IS ON PROJECT BUT, IS NOT IN CONFLICT

UTILITY OWNERS ON PROJECT

ROANOKE EMC – POWER
CENTURYLINK – TELEPHONE
PIEDMONT NATURAL GAS – NATURAL GAS
BERTIE COUNTY PUBLIC WORKS – WATER

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

PROJ. REFERENCE NO.	SHEET NO.
B-5141	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station -DET-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
11+50.16	0	0	0
12+00.00	0	50	46
12+50.00	3	106	74
13+00.00	6	144	75
13+50.00	6	322	46
14+00.00	2	628	0
14+50.00	0	843	0
15+00.00	0	922	0
15+44.06	0	834	0

Station -L- DET REMOVAL	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
12+50.00	50	0	0
13+00.00	106	0	0
13+50.00	282	0	0
14+00.00	583	0	0
14+50.00	761	0	0
15+00.00	764	0	0
15+40.25	598	0	0

Station -DET-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
16+34.06	0	0	0
16+50.00	0	346	0
17+00.00	0	1044	0
17+50.00	0	909	0
18+00.00	0	638	0
18+50.00	4	317	2
19+00.00	6	141	2
19+50.00	3	112	33
20+10.36	4	69	40

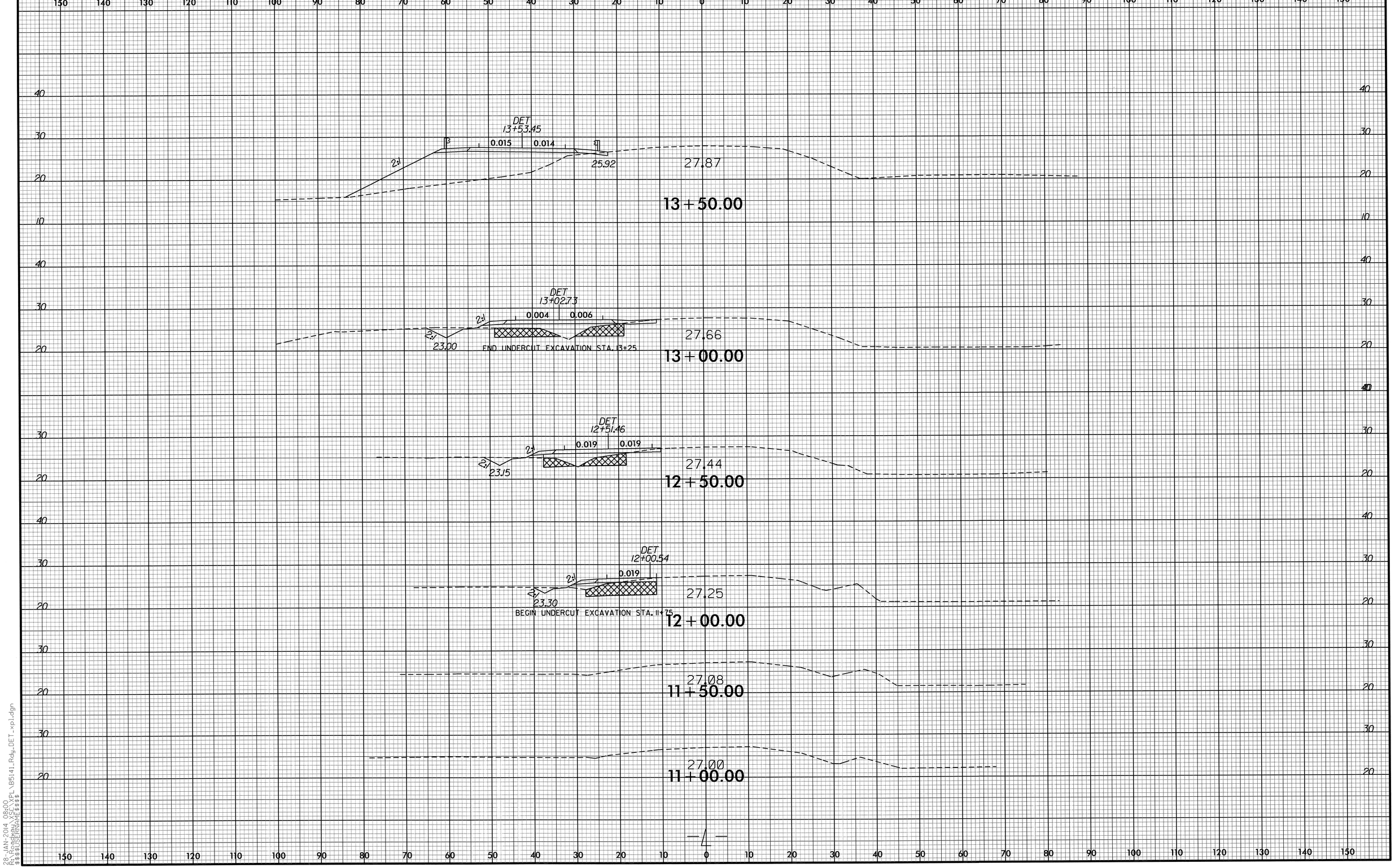
Station -L- DET REMOVAL	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
16+30.25	0	0	0
16+50.00	331	0	0
17+00.00	850	0	0
17+50.00	787	0	0
18+00.00	586	0	0
18+50.00	318	0	0
19+00.00	145	0	0
19+50.00	57	0	0

Station -L-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
11+50.00	0	0	0
12+00.00	5	6	0
12+50.00	9	28	0
13+00.00	6	54	0
13+50.00	2	89	0
14+00.00	0	145	0
14+50.00	0	215	0
15+00.00	0	375	0
15+12.00	0	120	0

Station -L-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
16+22.00	0	0	0
16+50.00	0	257	0
17+00.00	0	357	0
17+50.00	0	204	0
18+00.00	1	92	0
18+50.00	4	34	0
19+00.00	6	35	0
19+50.00	3	17	0

Station -L- DET REMOVAL	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)	UnderCut (cu. yd.)
11+50.00	0	0	0
12+00.00	12	0	0

PROJ. REFERENCE NO.	SHEET NO.
B-5141	X-1



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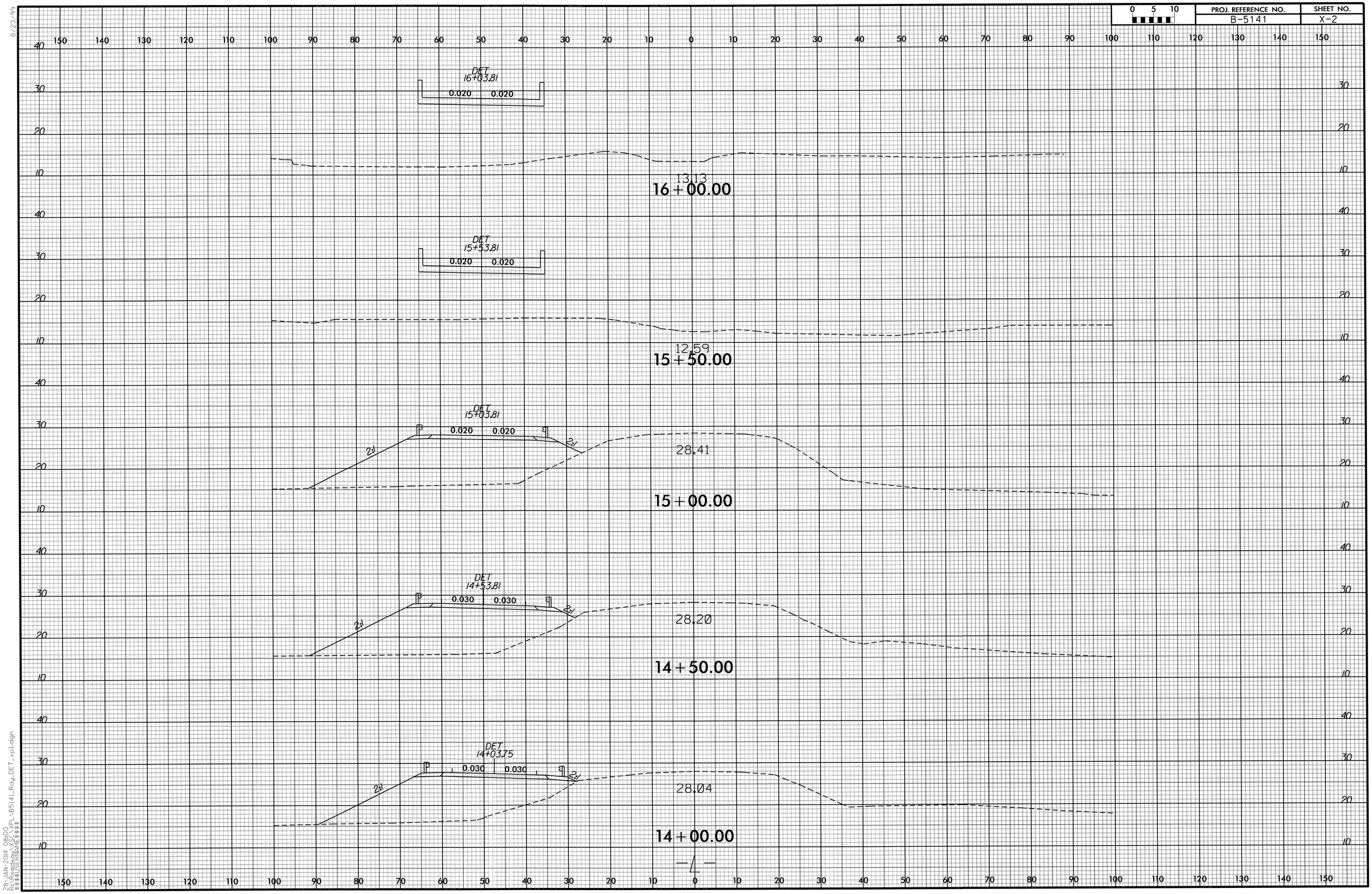

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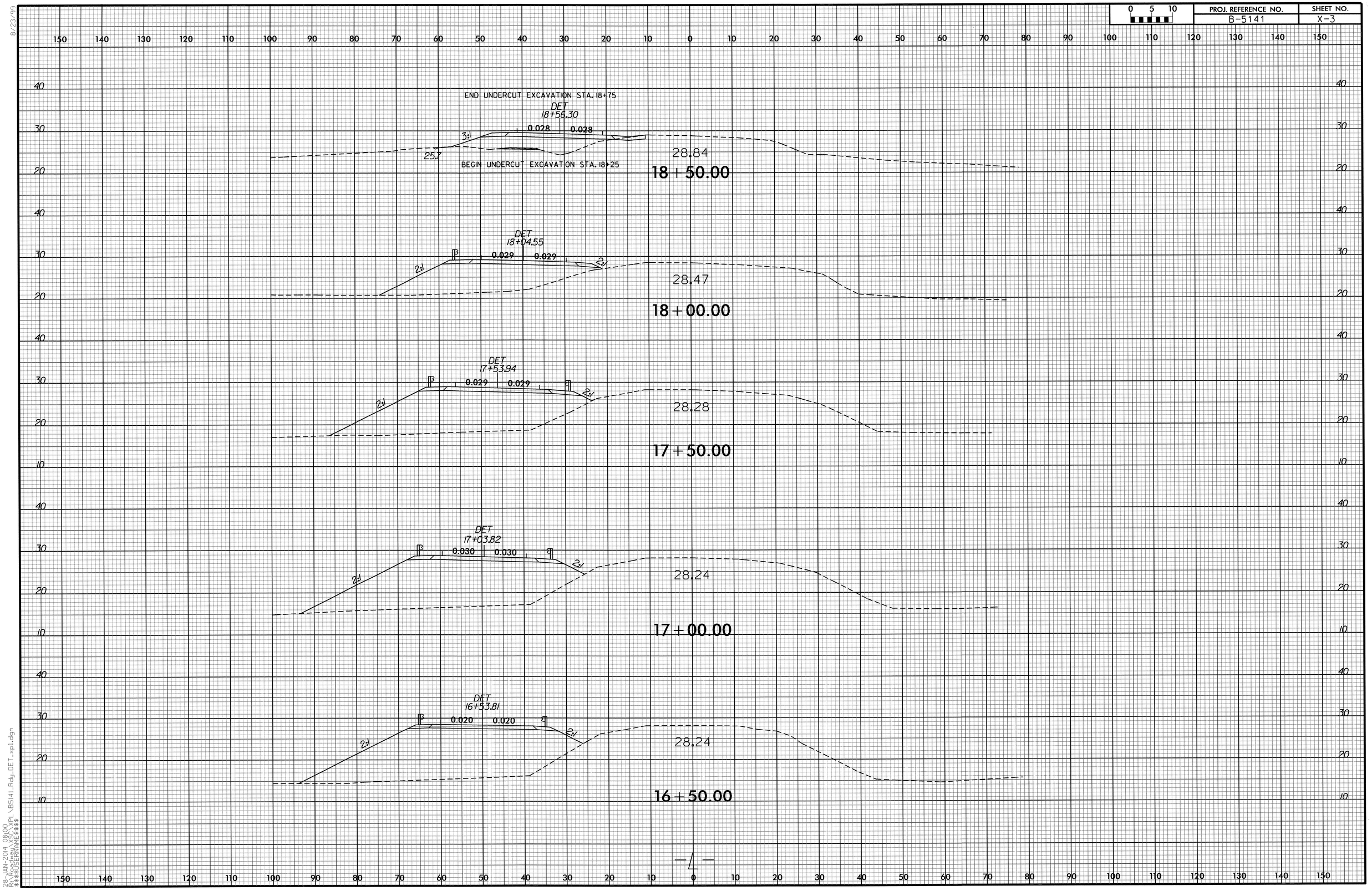
B-5141	X-3



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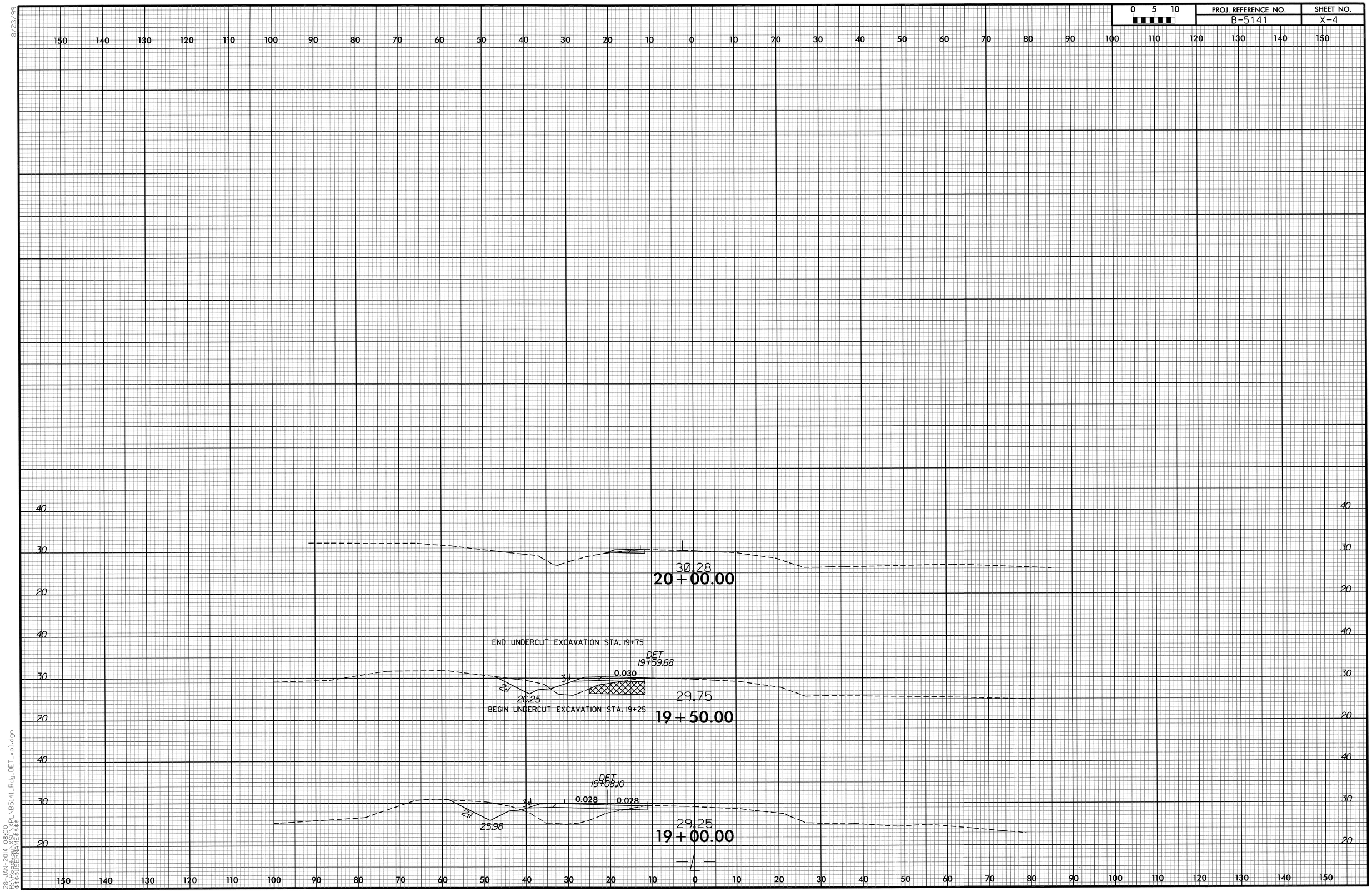
	B-5141	X-4



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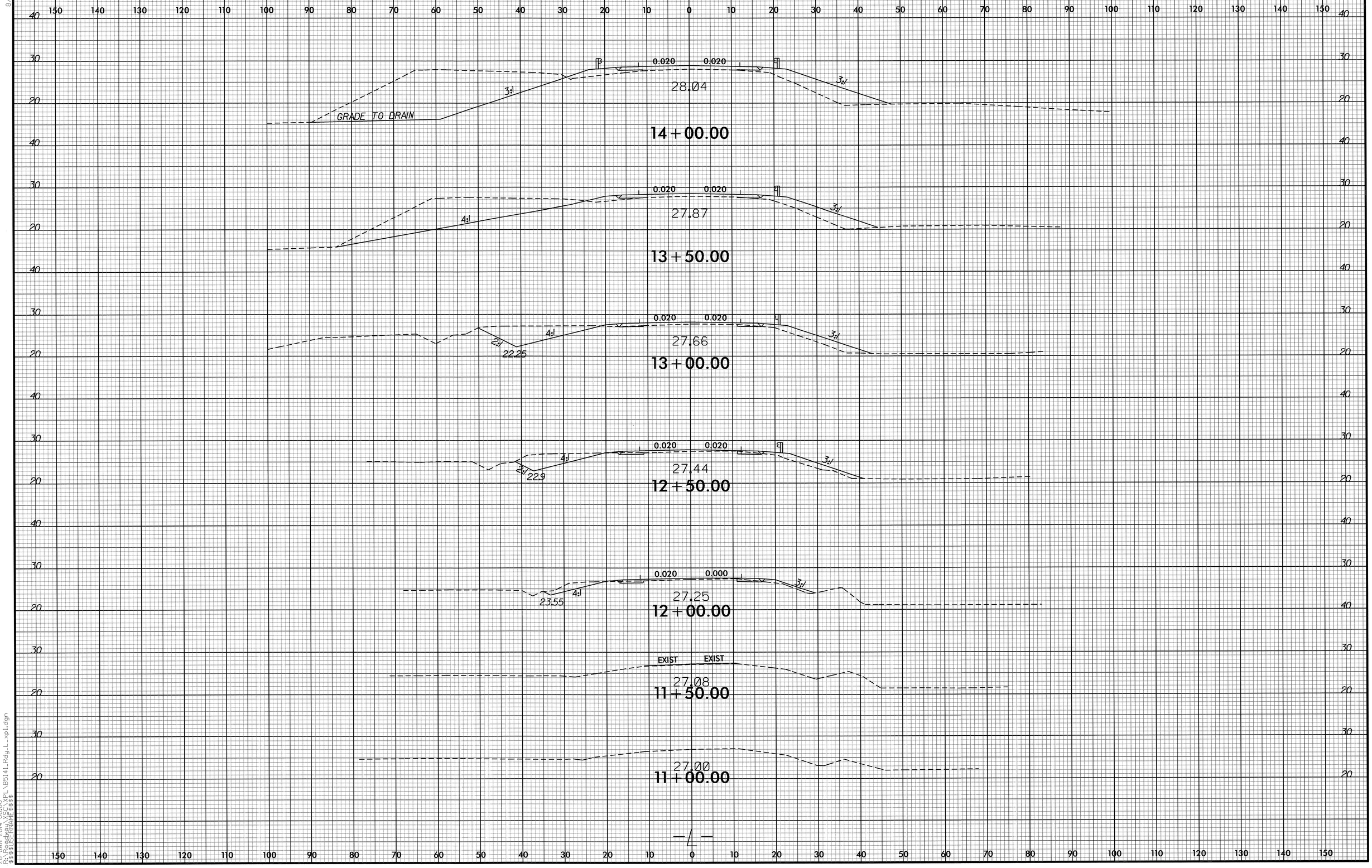

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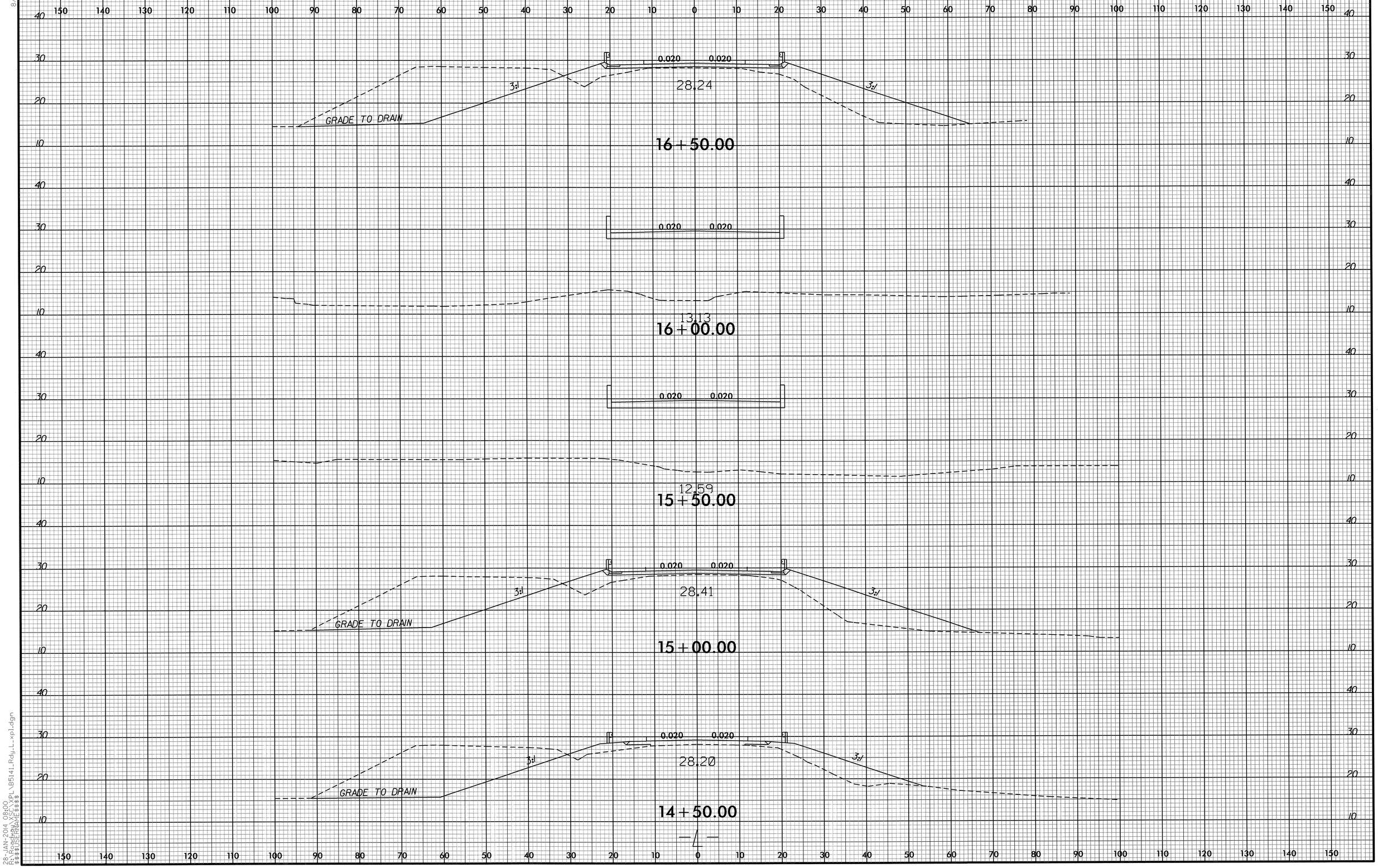

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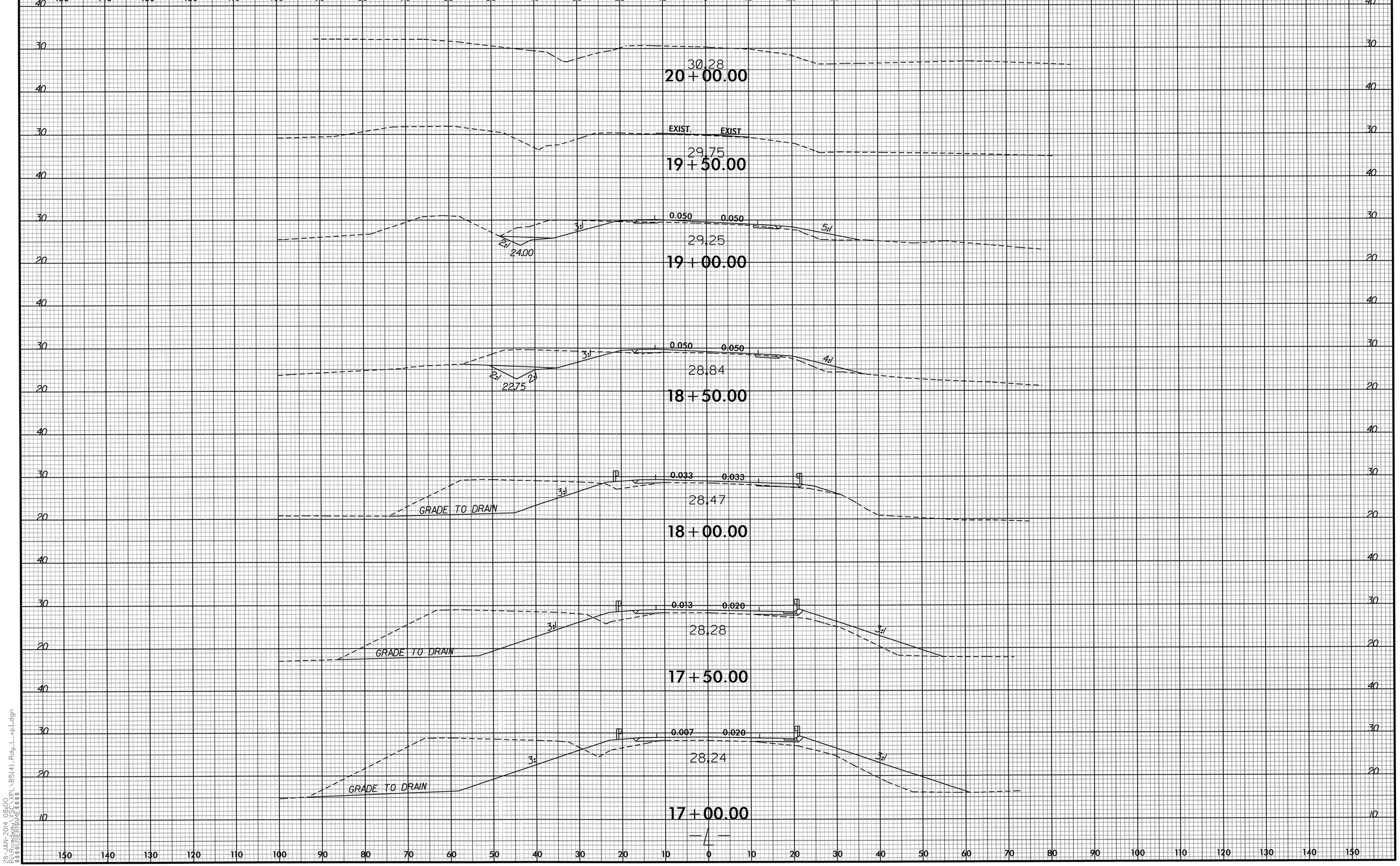

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